2mif

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Technical Memorandum 33-426

Volume XII

Tracking and Data System Support for the Pioneer Project

Pioneers 6-9. Extended Missions: July 1, 1972-July 1, 1973

R. B. Miller

NASA-CR-137982) TRACKING AND DATA SYSTEM SUPPORT FOR THE PIONEER PROJECT. PIONEERS 6-9, EXTENDED MISSIONS: 1 JULY 1972 - 1 JULY 1973, (Jet Propulsion Lab.) 187 p HC $12.50 CSCL 22D

N74-20538

G3/31 Unclas 33476

APR 1974
RECEIVED
NASA STI FACILITY
INPUT BRANCH

JET PROPULSION LABORATORY
CALIFORNIA INSTITUTE OF TECHNOLOGY
PASADENA, CALIFORNIA

March 1, 1974

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 33-426 Volume XII	2. Government Accession No.	3. Recipient's Catalog No.
4. Title and Subtitle Tracking and Data System Support for the Pioneer Project Pioneers 6-9 Extended Missions: 1 July 1972 to 1 July 1973		5. Report Date March 1, 1974 6. Performing Organization Code
7. Author(s) R. B. Miller		8. Performing Organization Report No.
9. Performing Organization Name and Address JET PROPULSION LABORATORY California Institute of Technology 4800 Oak Grove Drive Pasadena, California 91103		10. Work Unit No. 11. Contract or Grant No. NAS 7-100 13. Type of Report and Period Covered
12. Sponsoring Agency Name and Address NATIONAL AERONAUTICS AND SPACE ADMINISTRATION Washington, D.C. 20546		14. Sponsoring Agency Code

15. Supplementary Notes

16. Abstract

The Tracking and Data System supported the deep space phases of the Pioneer 6, 7, 8, and 9 missions, with two spacecraft in an inward trajectory and two spacecraft in an outward trajectory from the earth in heliocentric orbits. During the period of this report, scientific instruments aboard each of the spacecraft continued to register information relative to interplanetary particles and fields, and radio metric data generated by the network continued to contribute to knowledge of the celestial mechanics of the solar system. In addition to network support activity detail, network performance and special support activities are covered.

17. Key Words (Selected by Author(s))	18. Distribution Statement
Pioneer Project Tracking and Data Acquisition	Unclassified - Unlimited

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified	187	

HOW TO FILL OUT THE TECHNICAL REPORT STANDARD TITLE PAGE

Make items 1, 4, 5, 9, 12, and 13 agree with the corresponding information on the report cover. Use all capital letters for title (item 4). Leave items 2, 6, and 14 blank. Complete the remaining items as follows:

3. Recipient's Catalog No. Reserved for use by report recipients.

7. Author(s). Include corresponding information from the report cover. In addition, list the affiliation of an author if it differs from that of the performing organization.

8. Performing Organization Report No. Insert if performing organization wishes to assign this number.

10. Work Unit No. Use the agency-wide code (for example, 923-50-10-06-72), which uniquely identifies the work unit under which the work was authorized. Non-NASA performing organizations will leave this blank.

11. Insert the number of the contract or grant under which the report was prepared.

15. Supplementary Notes. Enter information not included elsewhere but useful, such as: Prepared in cooperation with... Translation of (or by)... Presented at conference of... To be published in...

16. Abstract. Include a brief (not to exceed 200 words) factual summary of the most significant information contained in the report. If possible, the abstract of a classified report should be unclassified. If the report contains a significant bibliography or literature survey, mention it here.

17. Key Words. Insert terms or short phrases selected by the author that identify the principal subjects covered in the report, and that are sufficiently specific and precise to be used for cataloging.

18. Distribution Statement. Enter one of the authorized statements used to denote releasability to the public or a limitation on dissemination for reasons other than security of defense information. Authorized statements are "Unclassified–Unlimited," "U. S. Government and Contractors only," "U. S. Government Agencies only," and "NASA and NASA Contractors only."

19. Security Classification (of report). NOTE: Reports carrying a security classification will require additional markings giving security and downgrading information as specified by the Security Requirements Checklist and the DoD Industrial Security Manual (DoD 5220.22-M).

20. Security Classification (of this page). NOTE: Because this page may be used in preparing announcements, bibliographies, and data banks, it should be unclassified if possible. If a classification is required, indicate separately the classification of the title and the abstract by following these items with either "(U)" for unclassified, or "(C)" or "(S)" as applicable for classified items.

21. No. of Pages. Insert the number of pages.

22. Price. Insert the price set by the Clearinghouse for Federal Scientific and Technical Information or the Government Printing Office, if known.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Technical Memorandum 33-426

Volume XII

Tracking and Data System Support for the Pioneer Project

Pioneers 6-9. Extended Missions: July 1, 1972-July 1, 1973

R. B. Miller

JET PROPULSION LABORATORY
CALIFORNIA INSTITUTE OF TECHNOLOGY
PASADENA, CALIFORNIA

March 1, 1974

Prepared Under Contract No. NAS 7-100
National Aeronautics and Space Administration

PREFACE

This report describes support of the Pioneer missions completed under the direction of the Tracking and Data System Office at the Jet Propulsion Laboratory, with N. A. Renzetti as Tracking and Data System Manager for the Pioneer Project. Pioneer Project management, spacecraft systems development, and mission analysis and operations management are located at the Ames Research Center. This report documents a year of extended mission support of Pioneers 6, 7, 8, and 9. Previous volumes of this series covered earlier phases of the missions. Succeeding annual reports will cover the missions until there is no further return of meaningful engineering and scientific data.

PRECEDING PAGE BLANK NOT FILMED

ACKNOWLEDGMENT

This report was compiled by W. R. Barton with the assistance of R. Ryan. Tabular data was extracted from internal monthly reports published by the network operations organization under D. L. Gordon. The author acknowledges the support of the operations staff of the Jet Propulsion Laboratory's Deep Space Network. In addition, material was abstracted from Ames Research Center reports.

CONTENTS

PRECEDING PAGE BLANK NOT FILMED

CONTENTS (contd)

TABLES

TABLES

FIGURES

FIGURES

FIGURES

ABSTRACT

The Tracking and Data System supported the deep space phases of the Pioneer 6, 7, 8, and 9 missions, with two spacecraft in an inward trajectory and two spacecraft in an outward trajectory from the earth in heliocentric orbits. During the period of this report, scientific instruments aboard each of the spacecraft continued to register information relative to interplanetary particles and fields, and radio metric data generated by the network continued to contribute to knowledge of the celestial mechanics of the solar system. In addition to network support activity detail, network performance and special support activities are covered.

I. PIONEER PROJECT HISTORY AND OBJECTIVES

A. First-Generation Missions

The Pioneer Project was initiated in 1958 as part of the U. S. participation in the International Geophysical Year. Approval was received on March 27, 1958, and Spacecraft 1, 2, and 3 of the first Pioneer series organization were launched that year under direction of the U. S. Air Force. Spacecraft 4 and 5 were launched the next year under direction of the U.S. Army.

The Pioneer 1 spacecraft determined the extent of the Earth's radiation bands. The Pioneer 2 mission improved data on flux and energy levels of particles. The second radiation belt near Earth was discovered by the Pioneer 3 spacecraft.

During 1959, the Pioneer 4 spacecraft extended measurements to within 60,000 km of the Moon. The Pioneer 5 spacecraft obtained solar flare and wind data. In closing out the first generation of Pioneer spacecraft, Pioneer 5 remained active in space more than 3 months and was not lost to Earth contact until it was 27.5 million km from Earth: a new record.

B. Second-Generation Missions

Pioneer spacecraft 6 through 9 and E, approved November 9, 1962, were launched during the period 1965 through 1969. They were managed by Ames Research Center (ARC) for NASA and were supported by the Deep Space Network (DSN). All the spacecraft except E were operable and being supported at the close of the reporting period of this document (June 30, 1973). The launch vehicle failed to put the E spacecraft into planetary orbit (August 27, 1969).

The primary objective of the Pioneer 6 through 9 and E missions was to accumulate scientific data from deep space. These missions were designed to provide means to study the magnetic field, spatial plasma, cosmic rays, high-energy particles, electron density, electric fields, and cosmic dust within a region of 0.75 to 1.20 AU from the Sun.

After the primary objective of the mission was accomplished, the continued satisfactory operation of the spacecraft and instruments provided an opportunity for enhancement of scientific data already obtained, investigation of new regions, and performance of synoptic studies. Thus, the new primary objective became that of conducting synoptic studies of interplanetary phenomena and study of these phenomena during special events.

Spacecraft	Launch date	Liftoff, GMT	Heliocentric orbit
6	12/16/65	0731:20	Inward
7	8/17/66	1520:17	Outward
8	12/13/67	1408:00	Outward
9	11/8/68	0956:29	Inward

All four spacecraft were launched by thrust-augmented Delta (DSV-3E) rockets. The Pioneer 8 and 9 launch vehicles carried "piggyback" a Manned Space Flight Network (MFSN) test and training satellite, which was separated in Earth orbit and used in command simulation for Apollo station training. Pioneers 6 and 7 carried six scientific instruments each. Pioneers 8 and 9 carried seven instruments each.

1. Status of missions. At the end of the reporting period of this document, the second-generation Pioneer spacecraft were actively orbiting the Sun and continuing to return data on

fields and particles of the solar wind and plasma particles originating from the Sun and the galaxy. In addition, they mapped the magnetic field of outer space.

2. Performance summary. Accomplishments of the longest-lived operational interplanetary spacecraft, Pioneer 6 through 9, were summarized at the close of this reporting period as follows:

(1) Precise determination of the characteristics of the solar atmosphere (heliosphere) was achieved.

(2) Solar cosmic ray and solar wind flow patterns and the magnetic and electric field mechanisms of the heliosphere were determined.

(3) During spacecraft solar orbits, the DSN collected billions of bits of scientific and engineering data, which were processed by ARC and analyzed and reported to the scientific community by the principal scientific investigators. Many thousand commands were transmitted to the spacecraft.

(4) The missions used for the first time the signatures of the telecommunications link for the determination of spacecraft spin axis orientation.

(5) Pioneer spacecraft were first in gathering space weather data for operational use.

(6) Pioneer 9 was the first spacecraft to use convolutional coding in the telecommunications subsystem with a sequential decoding computer at the Deep Space Stations. This resulted in a telemetry signal-to-noise improvement of almost 4 dB.

(7) Pioneer 6 and 9 signals had occultations by the solar corona and disk, making possible the measurement of the Faraday rotation as the spacecraft signal traversed the solar corona. In addition, the spectrum-widening effects of the S-band coherent signal were established.

(8) Pioneer 7 was the first interplanetary spacecraft to have a lunar occultation.

(9) The Pioneer 6 and 7 signals were received by the Goldstone DSCC 64-meter-diameter antenna simultaneously as the two spacecraft were flying within the beam of the single ground antenna.

(10) The Pioneer 6 and 7 missions were the first to establish the radial and spiral characteristics of the solar wind and solar cosmic rays.

(11) Pioneers 6 and 7 were the first interplanetary spacecraft to define the characteristics of the Earth's magnetic tail.

(12) Pioneers 6 and 9 were the first spacecraft to have the capability of a telecommunications range adaptive telemetry system.

Figure 1 is a brief schedule of mission events and the DSN coverage capability.

3. Advancement of space science. The assigned mission objectives and design lifetime goals were exceeded by the Pioneer 6 through 9 spacecraft as a result of judicious redundancy in the design of the spacecraft and close monitoring of the spacecraft performance by mission control. This longevity of the Pioneer 6, 7, 8, and 9 spacecraft extended the state-of-the-art for deep space mission planning, design, and operations and enabled mission planners to realistically consider such missions as Pioneer Jupiter probes, Viking orbiter/lander, Venus/Mercury probe, grand tour probes, galactic probes, and comet encounter probes. The Pioneer 6 through 9 signals were used to accomplish various specific engineering mission objectives. The effect of charged particles on the accuracy of the tracking doppler data was investigated. Tracking of Pioneer contributed to increasing the accuracy of doppler orbit determination data. Very accurate station location information was obtained not only for the DSN and MSFN but also for large antennas owned by other governments. These results were valuable in support of the Apollo trajectory effort.

C. Third-Generation Missions

Pioneers 10 (F) and 11 (G), approved February 8, 1969, and scheduled for launch in 1972 and 1973, were managed for NASA by ARC and supported by the DSN. These were Jupiter flyby missions, with Pioneer 10 successfully launched March 3, 1972 (GMT) and Pioneer 11 successfully launched April 6, 1973 (GMT). Pioneers 10 and 11 are covered by separate volumes of the Tracking and Data System Support reports.

II. TRACKING AND DATA SYSTEM

A. TDS Organization

The Tracking and Data System (TDS) provided support to the Pioneer 6 through 9 spacecraft for all Tracking and Data Acquisition (TDA) activities required to meet mission objectives. The TDA function is defined as Earth-acquisition and transmission of spacecraft telemetry and information that enable the determination of space vehicle position, velocity, and direction and ground system and subsystem performance – all with respect to a common time base. Figure 2 is a forecast of TDA support for planetary and interplanetary missions.

The TDS actually was an operationally unified collection of TDA resources. These required resources were provided for NASA by organizations under the Department of Defense (DOD), Goddard Space Flight Center (GSFC), and the Jet Propulsion Laboratory (JPL), referred to collectively as the TDA Support Agencies.

Major organizations that provided facilities and support for the TDS were the Deep Space Network (DSN), the Air Force Eastern Test Range (AFETR), the NASA Communications Network (NASCOM), and the Spaceflight Tracking and Data Network (STDN), which was formed from the Manned Space Flight Network (MSFN) and the Space Tracking and Data Acquisition Network (STADAN).

This report for the period of July 1, 1972, to July 1, 1973, documents TDS activities that were carried out by the DSN and NASCOM for Pioneer missions 6 through 9. The other facilities, designed mainly as prelaunch, launch, and near-Earth facilities, were not actively involved in Pioneer 6 through 9 spacecraft during this report period.

B. DSN Facilities

The DSN was operated by the Jet Propulsion Laboratory, a facility managed for NASA by the California Institute of Technology, Pasadena, California. The network capability of two-way communication with spacecraft began at 16,900 km from Earth and extended throughout the solar system. Facilities that made up the network were the Deep Space Stations (DSS) for data acquisition and transmission and the Ground Communications Facility (GCF) for data transfer. Radio metric data interfaces with the DSN were a joint DSN, Mission Control and Computing Center, and flight project responsibility. Telemetry and command interfaces for Pioneers 6 through 9 were directly between the DSN and the Pioneer project. Mission control for Pioneer 6 through 9 resides at Ames Research Center.

The DSN function in supporting a flight project by tracking the spacecraft is characterized by five network systems:

(1) DSN Tracking System: Generates radio metric data, i.e., angles, one- and two-way doppler and range, and transmits these data to network and mission control centers.

(2) DSN Telemetry System: Receives, decodes, records, and retransmits engineering and scientific data generated in the spacecraft to network and mission control centers.

(3) DSN Command System: Accepts coded signals from mission control via the GCF and transmits them to the spacecraft in order to initiate spacecraft functions in flight.

(4) DSN Monitor and Control System (previously two separate systems, Monitor and Operations Control): Instruments, transmits, records, and displays those parameters of the DSN necessary to verify configuration and validate the network. Provides operational direction and configuration control of the network and the primary people interface with flight project mission control personnel.

(5) DSN Test and Training System (previously Simulation System): Generates and controls simulated data to support development, test, training and fault isolation within the DSN. Participates in mission simulation with flight projects.

Table 1 and Fig. 3 provide information on the DSN's TDA stations.

C. Station Implementation

During the report period of this document, there were changes in the lineup of DSN stations in Australia: a 64-meter-diameter antenna station, DSS 43, was added, and the 26-m antenna station DSS 41 was replaced by the 26-m station DSS 44 (Honeysuckle Creek). (A third 64-m station, DSS 63, Spain, was scheduled to be operational in September 1973. A fourth such station was also being planned at Goldstone, California, near the site of DSS 14, the first 64-m antenna station.)

The DSS 43 (Ballima) antenna was completed in July 1972 at Tidbinbilla, and became operational April 1, 1973, just prior to the Pioneer 11 launch. Subsystem testing proceeded as the equipment was installed, and system testing occurred in March and April 1973 to complete the multimission implementation.

The third 64-m-diameter antenna station (DSS 63) of a 64-m subnet was to be activated in September 1973. The antenna was accepted in January 1973; system testing was to be completed by the end of August 1973. Figure 4 presents station modifications as schedules at the beginning and end of the report period.

1. Tidbinbilla Deep Space Communications Complex. The Tidbinbilla DSCC consisted of separate 26-m (Weemala station) and 64-m (Ballima station) antennas (Fig. 5) and associated servo systems. The 64-m-diameter antenna was controlled by an antenna pointing subsystem; the 26-m antenna was controlled by a combination of an STDN antenna position programmer and the

simulation conversion assembly, which provided simulation for both the 26- and the 64-m stations. A tracking data handling subsystem processed radio metric data for the 64-m antenna; an STDN tracking data processor handled the 26-m radio metric data. Each station had separate antenna microwave, receiver/exciter, ranging and monitor subsystems. Each station had one telemetry and command functional system and shared a second system by means of a switching network. Additional shared electronic equipment consisted of frequency and timing, communications (tactical intercom, teletype, high-speed data, and voice), system control, and monitor and simulation. Shared facilities equipment consisted of power generation and distribution, heating, ventilation, and air conditioning.

With this configuration, the stations could track a spacecraft simultaneously, and at the completion of the implementation both stations were capable of supporting the Pioneer Project. Additional equipment and testing were required to support Mariner and Viking. (The configuration of DSS 61/63 was to be identical to DSS 42/43 when operational.)

2. Implementation activities. As the 64-m-diameter antennas were being built, the 26-m stations were being prepared for the new configuration via a two-step process. In the first step, network equipment was removed from the station control room and sufficient equipment was installed in the STDN control room to allow the 26-m stations to continue to support the Apollo, Pioneer, and Mariner Projects while the 64-m stations were being built. This integration program also provided some equipment and facilities which were needed for the 64-m stations. When the 26-m stations resumed tracking, the empty control rooms at DSS 42 and DSS 61 were upgraded and expanded to provide for the equipment needed to support projects through 1975. At the same time, the power generation and distribution, heating, ventilation, and air conditioning modifications were made for simultaneous two-station support.

After the facility modifications were completed, step two of the implementation activities was initiated. The 26-m stations were shut down and DSN equipment was removed from the 26-m control room and reinstalled in the 64-m control room. This move was conducted in a manner which allowed the 26-m stations to return to an operational status, for Apollo support only, when required by STDN. The modifications to existing equipment and installation of new equipment needed to allow the 26-m station to return to a DSN as well as STDN operational condition were then implemented. In November 1972, DSS 42 became a fully operational station. In addition, the implementation of DSS 43 had progressed to the point where the 64-m station successfully supported Apollo 17 on a best effort basis. DSS 61 became operational for Apollo support in November 1972 and DSN support in January 1973.

With both 26-m stations operational, the implementation of the 64-m stations continued on a noninterference basis with the 26-meter stations in accordance with the schedule.

3. DSS 44 (Honeysuckle Creek). Deactivation of DSS 41 (Woomera) was completed by January 1, 1973, and the STDN station at Honeysuckle Creek had been modified to Pioneer support capability by April 1, 1973. Implementation was after Apollo 17 and before Pioneer G (11) launch. The station, designated as DSS 44, supported Pioneer 10/11 and Apollo Skylab on a time-shared basis, first demonstrating the capability on June 19, 1973. The DSN was scheduled to operate DSS 44 after completion of the Skylab project, and was to maintain STDN cross-support capability.

4. Station support of Pioneer Project. The support objectives of the network for the Pioneer 6 through 9 missions were:

(1) Acquire spacecraft engineering and science data via telemetry.

(2) Provide for positive control of the spacecraft.

(3) Provide for accurate spacecraft navigation by generating radio metric data.

(4) Provide support for a number of complex missions concurrently.

(5) Provide analog recordings directly to ARC as the data record interface.

Station locations were approximately 120 deg apart in longitude and within a band of 35 deg latitude on each side of the equator. This location setup provided continuous coverage capability of spacecraft in the ecliptic plane in most cases.

a. Antenna system facilities. With the addition of 64-m-diameter advanced antenna systems (AAS), the radio communication range was increased two and a half times for the spacecraft radiated power. With appropriate spacecraft communications conditions, this system could reach to the edge of the solar system. The improved capability provided six and a half times more transmitting power and receiving sensitivity for the network than was available with 26-m stations. The 64-m antenna originally had a gain of approximately 60 dB in transmitting and 62 dB in receiving. The 26-m antennas had a gain of 51 dB transmitting and 53 dB receiving. The beamwidth was 0.14 deg for 64-m antennas and 0.35 deg for 26-m antennas.

The added capability permitted either extension of communication distances in space or acquisition of more data from spacecraft at shorter ranges. Because these stations located more of the complex equipment on the ground, less complex and more reliable communication equipment could be carried by spacecraft. The 64-m-diameter antenna, a parabolic reflector with an azimuth-elevation mount, had a specified lifetime of 10 years and an expected lifetime of 20 to 50 years.

The operating and signal-processing techniques used for the 64-m antenna were basically the same as those used for the 26-m antennas. The huge reflector was tuned to collect spacecraft signals coming from such distances that their energy was measured in billionths of a billionth of a watt. These signals were amplified and fed into receivers and the data forwarded to the control center in Pasadena.

Like network 26-m antennas operated at frequencies of 2100 mHz transmitting and 2300 mHz receiving, the first 64-m antenna (DSS 14) incorporated a Cassegrain cone feed mounted at the center of the reflector. The Cassegrain design was similar to that of an optical telescope. Signals reflected from the main dish hit a subreflector mounted on a truss-type support extending outward from the center of the dish. The subreflector focused the signal into the feed horn in the Cassegrain cone, where it was amplified by a maser.

The maser was capable of accomplishing maximum amplification of the signal while, at the same time, generating a minimum of background noise. Because heat was a major source of noise, the maser was immersed in liquid helium to maintain its temperature at 4.2 K. The spacecraft signal was usually maser-amplified on the order of 40,000 times before it was fed into the receiver, where it was further amplified.

The receiver used four separate channels: two reference (or sum) channels for doppler information, spacecraft telemetry, and TV signals, and two channels carrying angle-tracking data for automatic antenna pointing. The data from all four channels, depending on the information they conveyed, was transmitted to the control center.

Dimensions and weights of the 64-m antenna are given in Table 2.

b. Antenna improvements. Two important antenna modifications were made at the Goldstone deep space complex during 1970. A multiple feed cone structure (Cassegrain system) was installed on the 64-m-diameter antenna, and an R&D S-band polarized ultracone (SPU) was installed on the 26-m antenna at DSS 12. The DSS 12 installation was necessary to continue support of the distant Pioneer 6, 7, and 9 spacecraft during the five weeks required to make the tricone installation at DSS 14. The DSS 12 modification proved so successful in extending the 26-m antenna capabilities that it was continued in service.

Another innovation that improved support resulted from a convolutional coding and sequential decoding (CCSD) experiment. This also extended the capabilities of the 26-m antennas.

c. Data processing. The amount of data processing or data compression activity at tracking stations depended greatly on the bandwidth, signal-to-noise quality, and reliability of the ground interstation communications network. The characteristics of ground communications facilities dictated that data processing and compression be available at tracking stations. Ideally, to simplify the deep space station design and reduce station costs, it was desirable to transmit the baseband data directly from the receiver to a central facility where the data would be detected and/or formatted for local use. This required a reliable, continuously available, wideband (<2 mHz) duplex channel between the control center and each station. The situation required that a certain amount of data processing and compression for tracking data formatting, telemetry bit and word detection, and command formatting be used at the stations. The ground communication system could make use of a common carrier to convey this material to the stations, but it was more economical, when standard communication circuits were required for several networks, to have a centralized agency; NASCOM provided this service.

d. Support flexibility. Since the DSN was called on to support other missions as well as their tests, flexibility was a necessity in support of the Pioneer Project. Thus, at times, Pioneer missions received DSN coverage when schedule restrictions made support seemingly impossible. Gross support was obtained from the STDN (originally MSFN) by providing crystals and microwave circuits to the 26-m-diameter STDN. The microwave circuits connected to the STDN station with a nearby DSN station where mission-dependent equipment could be used to transmit the Pioneer data back to mission control while the DSN was tracking another mission. Pretracking and posttracking mission station calibrations were reduced, eliminated, or shared with other projects to reduce the turnaround from one project tracking mission to another. This was done without degrading the spacecraft data.

5. Pioneer design concepts. The Pioneer data system was developed to provide (1) a highly efficient telemetry channel compatible with the DSN, (2) a capability for the DSN to generate two-way coherent doppler measurements while the spacecraft was tracked, and (3) an Earth-to-spacecraft command capability to control the spacecraft subsystems and science payload.

a. Spacecraft radio frequency subsystem. The radio frequency subsystem included three antennas (one high-gain and two omnidirectional), a transmitter driver, two redundant traveling-wave-tube (TWT) power amplifiers, two redundant receivers, coaxial switches, filters, and diplexers. Switch position was controlled by ground command. The beam of each of the antennas was axially asymmetrical with the spacecraft spin axis, which was perpendicular to the ecliptic plane. The beamwidth of the omnidirectional, or low-gain, antenna was 110 deg; the beamwidth of the high-gain antenna was 5 deg.

The power output of the spacecraft transmitter exciter was 44 W and could be switched by ground command to the low-gain antenna or used as a driver for the two TWT power amplifiers. Each amplifier had a power output of approximately 7.7 W and could be turned on or off or switched to either the low- or the high-gain antenna by ground command. The auxiliary oscillator was modulated by a 2048-Hz squarewave subcarrier as part of a PCM/PSK/PM telemetry system.

The spacecraft had two partially redundant (redundancy limited by the antenna configurations) phase-lock receivers. Each operated on a different frequency and was powered at all times; the desired receiver was thus selected by the frequency of the ground transmitter.

b. Spacecraft command subsystem. The command subsystem consisted of two redundant decoders and a command distribution unit (CDU). The input signal to both decoders was the demodulated signal from either of the spacecraft receivers. The desired decoder was selected by command address. The command message was a 23-bit word arranged in the following order:

5 bits, preamble
3 bits, decoder address
7 bits, command complement
7 bits, command
1 bit, post-squelch

The command and command complement were compared within the decoder on a bit-by-bit basis, and the command-execute signal from the decoder was inhibited when errors occurred. The ones and zeros within the message were represented by two audio tones. The command carrier was phase-modulated by these tones at the rate of 1 bit/s.

c. Spacecraft telemetry subsystem. The generation of timing and status signals, analog-to-digital conversion, data retrieval and processing for telemetry, and data storage on the spacecraft was accomplished by the digital telemetry unit (DTU), the signal conditioner, and the data storage unit (DSU).

The output of the DTU was a 2048-Hz squarewave which was biphase-modulated with the time-multiplexed PCM bit train using a nonreturn-to-zero-mark format. This squarewave phase-modulated the transmitted carrier in all modes of operation.

The DSU had a capacity of 15,232 bits. Readout from the memory unit was destructive and, once initiated, could not be temporarily interrupted by ground command without destroying the remaining data in the unit. Furthermore, the unit had to be cleared of any data stored there, either by ground command or by readout of stored data, before a new storage cycle was begun.

By ground command, one of four operating modes and one of five bit rates could be selected for operation of the DTU. The operating modes were (1) real-time, (2) telemetry store, (3) duty cycle store, and (4) memory readout. The bit rates were 512, 256, 64, 16, and 8 bits/s.

Data quality for Pioneer spacecraft was determined by the error-rate printout on the engineering data. In addition, Ames Research Center kept plots of error-rate printout values. An error-rate printout of 0.116 corresponded to one error in 1000 bits of information and was used as a criterion for good data. (If the parity error rate was not less than this value, the bit rate was dropped to the next lower value.) Primary interest was in data for the time interval beginning 3 hours prior to the time of maximum spacecraft elevation and extending until 3 hours after. Some passes terminated more than 3 hours before the spacecraft reached maximum elevation, and parity error rates were calculated from such data as were available.

Varying amounts of data were lost or degraded in locking the receiver in a two-way mode on each pass; the amount varied because of the round-trip light time (RTLT), which increased as the spacecraft's distance from Earth increased. Spacecraft acquisition time also contributed a small portion of lost or bad (degraded) metric data. Receiver-lock was essential for good data recovery.

In the real-time mode, the information was transmitted directly in the format and bit rate selected. In the telemetry-store mode, data were stored and transmitted simultaneously in the selected format and bit rate. In the duty-cycle-store mode, data were stored intermittently in groups of 224 bits each at a rate of 512 bits/s. The period between groups stored could be selected by ground command to provide partial data coverage for periods up to 19 hours. The memory-readout mode provided the capability for retrieving the data stored. When readout was complete, the DTU reverted automatically to the real-time mode in the format and at the bit rate in use prior to the readout.

The spacecraft data word was composed of 7 bits. The first 6 bits transmitted were generally information and the seventh indicated parity. Odd parity was employed by sampling the first, third, and fifth bits.

d. Mission-dependent ground equipment. This equipment consisted of a demodulator/synchronizer, a command encoder, and a computer buffer. A DSN computer was used at the station to:

(1) Provide selected telemetry data for teletype transmission to the control center.

(2) Monitor the engineering data for out-of-limit occurrences.

(3) Provide computer typewriter printout of selected data.

(4) Display selected spacecraft parameters as required.

(5) Transmit command messages on instructions from the control center.

(6) Check command messages for validity before transmission.

(7) Verify that commands were being transmitted correctly.

(8) Maintain a command accountability list.

The complete data stream was recorded on magnetic tape for subsequent data processing and analysis. Significant changes were made in the ground configuration and are described in Section IV.

A. Special Coverage

Special coverage was given Pioneer 6 through 9 spacecraft during occultations and syzygys, and there were analyses of solar events. During a solar event of high scientific value, continuous tracking coverage for 30 to 50 h following the event was required for Pioneer spacecraft. Depending upon the location and characteristics of a specific event, coverage was shared by the Pioneers as determined by the Pioneer Project at the time of the event.

Simultaneous tracking of two Pioneer spacecraft during periods of radial and spiral alignment was required to investigate the radial and spiral characteristics of cosmic rays, plasma, and fields as they moved outward in interplanetary space. During the report period, radial alignment of Pioneers 9 and 10 occurred August 6, 1972, and Pioneers 9 and 11 radial alignment occurred May 3, 1973; spiral alignment of Pioneers 8 and 10 occurred May 9, 1973.

The seven scientific instruments that make up the scientific payload for Pioneer spacecraft are as follows: two cosmic ray detectors, two plasma detectors, one magnetometer, and one radio propagation instrument; one additional experiment (celestial mechanics) requires no special instruments aboard the spacecraft. The payload accounts for approximately 25% of the total Pioneer spacecraft weight. The power consumption for the instruments (with one plasma detector operating in its low-power mode) is 9 W. This level doubles when the plasma detector operates in the high-power mode, bringing the overall power consumption of the instruments to 35% of the total spacecraft requirement.

The instruments covered approximately 0.18 m^2 of the spacecraft platform. Approximately 72% of the telemetry data was allocated directly to the scientific instruments when telemetering in the scientific data mode. This mode was used throughout the missions except for rare occasions. Approximately 33% of the command capability was allocated directly to the scientific instruments for controlling the operating conditions.

Power to the scientific instruments was supplied directly from the spacecraft primary bus. Each instrument, therefore, had its own converter. Power to all instruments was turned off by a single ground command. Each instrument could be turned on individually by ground command.

B. Experiments

The experiments, managers, and principal investigators are listed in Table 3.

1. Celestial mechanics investigation (JPL). The three primary objectives of the Pioneer celestial mechanics experiment (PCME) were:

(1) Obtain primary determinations of the masses of the Earth and Moon and the astronomical unit.

(2) Use the tracking data from the whole series of Pioneer probes in a program designed to improve the ephemeris of the Earth.

(3) Investigate the possibility of a test of general relativistic mechanics with the Pioneer orbits.

The experiment made use of the on-board receiver and transmitter equipment in conjunction with DSS equipment to obtain two-way doppler measurements. Pioneer data were appropriate for this experiment because of the absence of midcourse orbit corrections and near-planetary encounters. In addition, solar-radiation pressure effects were slight for the Pioneer configuration.

2. Cosmic ray telescope (University of Chicago). This instrument measured the intensity and energy spectra of protons and alpha particles, electron energy over a limited range, and particle anisotropy. It had three solid-state lithium-drift detectors, a plastic scintillator cylinder designed to exclude particles not confined to the telescope angle of 60 deg, a photomultiplier tube, and associated electronics. Proton and alpha particle energy spectra measurement was divided into these four energy windows: (1) 0.6-13 MeV per nucleon; (2) 13-70 MeV per nucleon; (3) 70-190 MeV per nucleon; and (4) greater than 190 MeV per nucleon. Detection of electron energy spectra was limited to the energy windows of 0.16-1 and 1-20 MeV per nucleon.

3. Cosmic ray anisotropy detector (Southwest Center for Advanced Studies). The anisotropy of low-energy primary and solar cosmic radiation and its variation with energy, time, and nuclear species were measured. The instrument comprised a scintillator crystal, an anticoincidence scintillator, two photomultiplier tubes, and associated electronics. The acceptance cone for the detector was 107 deg. Energy window discrimination was achieved by means of a four-channel, on-board, pulse-height analyzer.

4. Plasma cup detector (Massachusetts Institute of Technology). A detector that used a Faraday cup with an energy-determining grid, a split collector, and associated electronics made up this instrument. The viewing angle was ±20 deg in the plane perpendicular to the spacecraft spin axis and ±60 deg in the plane parallel to the spin axis. Measured were the energy spectrum, flux, and angular distribution of both positive ions and electrons of the interplanetary plasma.

The energy per unit charge of the positive ions was determined in 14 intervals extending from 0.1 to 9.5 kV; the energy of the electrons in four energy bands extending from 0.1 to 1.6 keV, and the flux sensitivity range from 2×10^5 to 2×10^9 particles per cm^2/s.

5. Quadrispherical plasma analyses (Ames Research Center). This instrument, like the plasma cup detector, measured the energy spectrum, flux, and angular distribution of both

positive ions and electrons of the interplanetary plasma. The instantaneous viewing angle was approximately 15 deg in the plane perpendicular to the spacecraft spin axis or equatorial plane and ±80 deg in the plane parallel to the spin axis. The latter was divided into eight channels symmetrical about the equatorial plane and with widths, starting at the equatorial plane, of 15, 15, 20, and 30 deg.

The energy per unit charge of the positive ions was determined in 16 logarithmically spaced bands extending from 0.2 to 10 kV; the energy of the electrons in 8 logarithmically spaced bands extending from 0.002 to 0.5 kV; and the flux sensitivity from 10^5 to 10^9 particles per cm^2/s.

Besides a quadrispherical electrostatic analyzer, 8 separate and contiguous current collectors provided 8 sectors and associated electronics. The current or flux measurement was expressed as a 7-bit word and, together with other information identifying energy levels, positive or negative particles, collector, and equatorial interval, was stored in a core memory. The instrument recorded data concurrently with telemetering data.

6. Magnetometer (Goddard Space Flight Center). The magnetometer, with a range of ±64γ, sequentially measured the magnitude of the three orthogonal components of the interplanetary magnetic field. Capable of four different data recording sequences, the instrument had a single flux gate sensor and associated electronics. A mechanical flip mechanism, which rotated the sensor through 180 deg, permitted detection and elimination of permanent magnetization of the core. The flip mechanism contained 22 small squibs grouped in pairs for redundancy. Each pair of squibs was activated by ground command. (For this experiment, Pioneer 9 used a triaxial fluxgate magnetometer.)

7. Radio propagation (Stanford University). This experiment involved the transmission of two modulated coherent carriers of approximately 49.8 and 423.3 MHz from the ground and the reception of these signals by receivers aboard the spacecraft. The receivers were designed to measure the relative phase of the modulation envelopes of the two carrier frequencies which, since the higher frequency was relatively unaffected by the presence of ionization, provided a value for the integrated electron density. In addition, the rate of change of phase of one carrier with respect to the other was measured, thus accurately determining the time variation of the integrated electron density. Signal strength was also measured.

Instrumentation comprised two ground-based transmitters operating into a 45.72-m (150-ft) parabolic antenna located on the Stanford University campus, a dual-channel, phase-locked-loop receiver aboard the spacecraft, the spacecraft telemetry, and the DSN. All elements of the system operated simultaneously to provide closed loop operation.

8. Specific objectives. Pioneer spacecraft also had as specific objectives:

(1) Magnetosheath and bow shock definition. To perform this investigation, the Pioneer spacecraft plasma and magnetometer on-board instruments had to be operating and the resultant scientific data received by launch plus 3 to 3.5 h (or 8 to 10 Earth radii altitude). Pioneer spacecraft performed analysis of the magnetosheath of the Earth through December 15, 1967.

(2) Geomagnetospheric tail analysis. To perform this investigation, the Pioneer flight missions required 24-h continuous tracking coverage from syzygy -5 days to syzygy +15 days. Pioneer spacecraft successfully completed this investigation on February 2, 1968.

(3) Solar event analysis. During a solar event of high scientific value (i.e., solar flare, Class III or above), continuous tracking coverage for 30 to 50 h following the event was required for Pioneer spacecraft. Dependent upon the location and characteristics of a specific event, coverage was shared by the Pioneers as determined by the Pioneer Project at the time of the event.

IV. PIONEER 6-9 SUPPORT ACTIVITY: JULY 1, 1972 – JULY 1, 1973

A. General

1. Support particulars. Tracking and data acquisition support of Pioneer 6-9 missions by the network during the period July 1, 1972 - July 1, 1973 was on a time-available basis. This restriction was necessitated by heavy demands on the network by Pioneer 10 and 11 Jupiter flights and support of Apollo 17. As a result, only Pioneer 9 received support each month of the annual report period. Figure 6 shows mission support plans presented at the beginning and end of the report period.

With spacecraft locations varying constantly within a 0.7- to 1.2-AU circular band of the ecliptic plane, the network continued to collect billions of telemetry data bits containing information of fields and particles through the spacecraft instruments. This information further defined the solar environment. Engineering measurements also were made on board the spacecraft. These telemetry data were used to assure that spacecraft equipment operated in compliance with specifications. Commands transmitted by the flight operations team controlled the four spacecraft in near-optimum configuration.

2. Tracking activity and telecommunications. Daily tracking activities kept network personnel at an efficient level. Trends toward equipment malfunction were noted and analyzed as required by personnel. Operational plans for correction were developed and executed in a timely manner.

Total tracking time for 274 tracks of Pioneer 6-9 spacecraft was 2000 h. Some 2207 station hours and 20,000 manhours were expended in support activities. Table 4 presents a breakdown of the DSN support by mission. The systematic tracking made possible in-depth evaluation of the spacecraft-DSN telecommunications link. With the spacecraft operating on telemetry bit rates between 8 and 512 bits/s, most of the data received were nearly error-free as the data streams exhibited a bit error rate of no more than 1 error in 1000 bits. Range of the telecommunication links varied between 0.1 and 1.8 AU. A calendar of passes is presented in Appendix A.

3. Tracking priorities. Because full tracking coverage requirements could not be fulfilled for the time allocated Pioneer 6-9, the Project Office in July 1971 established priorities for the time available. Emphasis was requested on daily and short coverage as compared to long and periodic coverage. Daily coverage of at least three hours in length was desired to permit adequate analysis of the solar environment's synoptic (weather-related) characteristics. Priorities set by Project were graded in order as follows:

(a) Pioneer 6 synoptic data.

(b) Pioneer 9 synoptic data.

(c) Pioneer 6/8/9 data in support of Pioneer 10 and 11.

(d) Pioneer 7 solar occultation data.

(e) Pioneer 6/9 radial/spiral data.

(f) Pioneer 8 synoptic data.

(g) Pioneer 8/9 radial/spiral data.

(h) Pioneer 7 synoptic data.

4. Engineering tracks. Engineering tracks were initiated for use during inadequate allocation of tracking time. These tracks, which were approximately 30 minutes in length, assessed the spacecraft health from the engineering data. The tracks were for the purpose of receiving spacecraft telemetry data. The network did not simultaneously generate radio metric data. Along with a posttrack report no-data package, only the real-time data were required.

5. Non-GOE program. Progress was made by the DSN toward deactivating the ground operations equipment (GOE) system, which had been in service since Pioneer 6 launch (December 1965). A standard multimission-type configuration was the goal.

As the report period began, the DSN was still using Pioneer GOE to demodulate telemetry and generate commands at DSS 12 and 14, Goldstone, and DSS 51, Johannesburg. By the end of the report period, the GOE had been deactivated at DSS 51 and newly developed software was in use. Implementation of multimission-type support capability also had begun at the other two GOE stations.

First, the engineers of DSS 62, Madrid, developed a successful new station software that made possible the support of Pioneers 6-9 in the same multimission configuration (Mark III) designed for Pioneers 10 and 11. This software had a capability to use the standard subcarrier demodulators, symbol synchronizers, and sequential decoders for the demodulation of Pioneer signals. The on-site telemetry and command processor generated high-speed data blocks similar to those used by Pioneers 10 and 11, recorded a digital magnetic tape called the Original Data Record, and also generated a teletype output which could transmit Pioneers 6-9 telemetry frames and a short status monitoring frame.

Since Ames Research Center did not currently have resources to implement the multimission interface for Pioneers 6 through 9, the DSN implemented a modification to the multimission capability to maintain compatibility with the existing Project interface at ARC. The non-GOE DSS Pioneers 6 through 9 support configuration is pictured in Fig. 7.

The modified DSN multimission system produced an Analog Original Data Record (AODR) and had TTY output capability. The AODR was shipped to ARC and constituted the data record interface. The TTY data transmission was only for real-time operations and did not serve as part of the data record.

The command interface was via voice to the DSS, where station operations entered the requested command using the I/O typewriter of the telemetry and command processor (TCP).

Teletype was removed from the DSN as a real-time data transmission media. The Pioneer 6 through 9 support was a temporarily allowed exception.

One of the benefits of the new software was improvement of telemetry threshold support capability by 1 dB.

B. Special Event Support

During this reporting period, the network supported a radial experiment of Pioneers 9 and 10. On August 6, 1972, the distance between the Sun and Pioneer 9 was approximately 120 million km, and Pioneer 10 was already speeding away from the Sun, having a 240-million-km Sun range. The DSN started to furnish Pioneer 9 support in mid-July 1972, and an average of seven tracking passes was provided weekly. During the same time, Pioneer 10 support was continuous. The Pioneer 9 spacecraft was tracked most of the time by DSS 11 at Goldstone and DSS 51 in South Africa. Some tracking passes were provided by DSS 41 in Woomera, Australia.

The support of the Pioneer 9 and 10 radial experiment was a continuation of the effort to make possible simultaneous observations by two spacecraft separated by a large heliocentric radial distance. The Pioneer principal investigators were determining the parameters of the solar wind and magnetic field in situations where the two spacecraft under surveillance were aligned on the same solar radial. Significance of this experiment was magnified by the fact that the Sun was most active during the radial configuration; therefore the interplanetary medium was more complex.

C. Pioneer 6 Support

1. Spacecraft position. The Pioneer 6 spacecraft was more than 136 million km from the Earth and 129 million km from the Sun when the report period began July 1, 1972. At the close of the report period, June 30, 1973, the spacecraft was more than 253 million km from the Earth and more than 143 million km from the Sun. The spacecraft velocity was nearly 24 km/s in relation to Earth orbit at the beginning of the period. At the close of the period, the spacecraft velocity in relation to Earth orbit was more than 49 km/s.

2. Spacecraft status. Status of the Pioneer 6 spacecraft was summed up as follows:

a. Communications. A Receiver 2 (Channel 7) malfunction prevented nominal use of Channel 7 uplink or two-way link. The high-gain antenna/Receiver 2 characteristics had degraded to a level below the low-gain antenna/Receiver 1 performance.

b. Power. The solar array had degraded because of solar particle damage. This was not considered a problem because of orbital characteristics. The battery had been turned off as planned.

c. Orientation. The Type I (A and C) and Type II (B and D) sensors had undergone ultraviolet degradation to the point that they were considered unusable. A gas leak following launch had completely exhausted the gas supply.

3. DSN support and performance. Totals of 298 station hours and 2523 manhours were expended in support of the Pioneer 6 spacecraft during the report period (Pass 2390 through Pass 2754). This was a drop of support time from the previous report period, when nearly 3000 station hours and nearly 9500 manhours were expended. Pioneer 6 spacecraft was not supported at all during the months of September and December 1972 and February, March, and April 1973. Appendix A presents a calendar of Pioneer passes and Appendix B gives a chronological list of passes. Station and manhours expended by each station in support of Pioneer 6 from July 1, 1972 to July 1, 1973 were:

DSS	Total passes supported	Station hours	Man-hours
14	14	58.5	764.5
41	5	48	336
43	9	41	361
51	1	1	10
61	3	24	168
62	15	126	884
Totals	47	298.5	2523.5

4. Engineering operations

a. Tracking. The Pioneer 6 spacecraft was tracked for a total of 237 hours and 56 minutes during the report year. The previous year the spacecraft had been tracked a total of 1794 hours and 21 minutes. Tracking information, along with some telemetry and command information, is summarized by month in Table 5.

Figures 8 through 11 present Pioneer 6 spacecraft frequency predictions (auxiliary oscillator frequency and best lock frequency), which are a major responsibility of the NAT track analyst. On each plot the solid line indicates the predicted frequency value based on past frequency measurements and the spacecraft's distance from the Sun; the dots indicate actual measured values. Based on measurements taken in 1972, 1973 curves have been biased as shown in Table 6.

b. Telemetry. Residual data plots of signal-to-noise ratios (SNR) and downlink (DL) signal levels for the Pioneer 6 spacecraft for the report period are shown in Figs. 12 through 16. Telemetry data also are reported in Table 5.

D. Pioneer 7 Support

1. Spacecraft position. The Pioneer 7 spacecraft was more than 314 million km from Earth and more than 166 million km from the Sun when the report period began, July 1, 1972. At the close of the report period, June 30, 1973, the spacecraft was nearly 284 million km from Earth

and more than 163 million km from the Sun. The spacecraft velocity in relation to Earth orbit was 51.5 km/s at the close of the period as compared to more than 56 km/s as the period began.

2. Spacecraft status. The status of the Pioneer 7 spacecraft near the close of the reporting period was summed up as follows:

a. Communications. Traveling wave tube (TWT) 1 had developed anomalous characteristics shortly after launch, and TWT 2 had been selected for normal operation. Coherent operation at 16 bits/s was considered standard on the 64-m-diameter antenna station (DSS 14) as the spacecraft was beyond the capability of the 26-m-diameter antenna stations. (The spacecraft was supported for the first time in May 1973 by the new 64-m station DSS 43 at Canberra. For the one pass, the bit rate was 8 and 16 bits/s. Three commands were transmitted.) Decoder SN 004 address 4 having indicated anomalous characteristics early in flight, address 3 was used for commanding Pioneer 7 spacecraft. Periodic checkout of the failed decoder address continued.

b. Power. The solar array had degraded because of solar particle damage. The MIT plasma instrument power levels had been restricted throughout aphelion passage to reduce demand on the power subsystems. The return to MIT high-power mode on May 7, 1969, after exit of the aphelion period gave indications that the solar array would no longer support this high-power mode at any time. The battery had been turned off as planned.

c. Orientation. Type I (A and C) and Type II (B and D) sensors had undergone ultraviolet degradation to the point that they were considered nonusable. The ultraviolet degradation had also raised the illumination triggering threshold of the Sun pulse reference sensor E. No Sun pulse had appeared since it ceased to operate early in 1969.

3. DSN support and performance. Because of the heavy demands on the time of the 64-m antenna station and the spacecraft's low priority, Pioneer 7 again received small support during the report period. Overall tracking time was 43 hours and 19 minutes.

DSS 14 supported 12 passes, with half of these occurring in November 1972. The station expended 660 manhours and 63.5 station hours in support. DSS 43, Canberra, which became operative in April 1973, supported one Pioneer 7 pass in May. The time expended was 24.5 manhours and 2.5 station hours. Table 7 gives the Pioneer 7 flight support summary.

It was noted that initial acquisitions in November by DSS 14, following several months of inactivity, indicated that the spacecraft temperature was below the expected level and that power had automatically switched off. However, following normalization of levels and a TWT switch, measured values of auxiliary oscillator and best lock frequencies returned to near predicted values. Figures 17 through 20 present available Pioneer 7 spacecraft frequency predictions. On each plot the solid line indicates the predicted frequency value based in part on frequency measurements and the spacecraft's distance from the Sun; the dots indicate actual measured values. See Table 6 for the frequency curve bias for 1973 for Pioneer 7.

During August, DSS 14 acquisition of the spacecraft was not acquired on the first of two passes. On the second, however, after a futile search for downlink, a series of blind commands turned the transmitter on and downlink was acquired. Investigation determined that the undervoltage protection had turned the spacecraft power off.

Residual data plots of SNR and DL signal levels for Pioneer 7 are shown in Figs. 21 through 24. Additional support information is contained in the Pioneer 7 chronology in Appendix B.

E. Pioneer 8 Support

1. Spacecraft position. The Pioneer 8 spacecraft was more than 221 million km from Earth and more than 158 million km from the Sun when the period began, July 1, 1972. At the close of the report period, June 30, 1973, the spacecraft was nearly 255 million km from the Earth and nearly 157 million km from the Sun. At the close of the period, the spacecraft velocity in relation to the Earth's orbit was nearly 49 km/s as compared to the 42 km/s when the period began.

2. Spacecraft status. The status of the Pioneer 8 spacecraft was summed up as follows:

a. Communications. Operation was satisfactory at 16 bits/s on the 64-m-diameter antennas.

b. Power. The battery had been turned off as planned.

c. Orientation. The Type I (A and C) and Type II (B and D) sensors had undergone ultraviolet degradation to the point that they were considered unusable.

3. DSN support and performance. Because the Pioneer 8 spacecraft could be supported only by the 64-m-diameter antenna stations and there were missions with higher priorities, Pioneer 8 received support only six of the months during the report period. Nineteen of the total 34 tracks were supplied in May and June, 1973, by the new 64-m station (DSS 43) at Canberra. In supporting the 19 passes, DSS 43 expended 814 manhours and 89 station hours. For 15 passes, DSS 14 expended 1112 manhours and 88 station hours. Overall tracking time for Pioneer 8 was 138 hours and 30 minutes compared with 155 hours and 32 minutes for the 34 tracks of the previous report period. During that period, 180.5 station hours and 2137.5 manhours were expended as compared to the 1926 manhours and 177.5 station hours for this report period.

Tracking, telemetry and command information is presented in Table 8. Figures 25 through 30 present available Pioneer 8 frequency predictions. On each plot the solid line indicates the predicted frequency value based in part on frequency measurements and the spacecraft's

distance from the Sun; the dots indicate actual measured values. See Table 6 for the frequency curve bias for 1973 for Pioneer 8. Residual data plots of SNR and DL signal levels for Pioneer 8 are shown in Figs. 31 through 36. Additional support information is contained in the Pioneer 8 pass chronology in Appendix B.

F. Pioneer 9 Support

1. Spacecraft position. The Pioneer 9 spacecraft was more than 153 million km from the Earth and more than 113 million km from the Sun when the report period began, July 1, 1972. At the close of the report period, June 30, 1973, the spacecraft was more than 86 million km from the Earth and more than 128 million km from the Sun. The spacecraft velocity in relation to the Earth was near 15 km/s at the beginning of the period as compared with the more than 36 km/s when the period began.

2. DSN support and performance. A total of 182 tracks was supported by the DSN for the Pioneer 9 spacecraft as against 54 for the previous report period. Only 4 tracks were supported by the 64-m antenna station, DSS 14. That station expended 371 manhours and 38 station hours in support. Overall, 15,314 manhours and 1758 station hours were expended by the supporting stations. The previous report period total manhours was 3715 and total station hours was 315. Total tracking time this report period was 1575 hours and 2 minutes as against 300 hours the previous report period. Station and manhours expended by each station in support of the Pioneer 9 spacecraft from July 1, 1972 to July 1, 1973 were:

DSS	Total passes supported	Station hours	Manhours
11	14	37.5	180
12	32	313.5	1953
14	4	38	371
41	26	178	1254
51	87	860	9467
61	8	148	591.5
62	21	183	1497.5
Total	182	1758	15,314

3. Engineering operations. Tracking, telemetry, and command information is summarized in Table 9. Figures 37 through 42 present Pioneer 9 spacecraft frequency predictions. On each plot the solid line indicates the predicted frequency value based on past frequency measurements and the spacecraft's distance from the Sun; the dots indicate actual measured values. Based on measurements taken in 1972, 1973 curves have been biased as shown in Table 6. Residual data plots of SNR and DL signal levels for the Pioneer 9 spacecraft for the report period are shown in Figures 43 through 74.

Appendix A presents a calendar of Pioneer passes and Appendix B gives a chronological list of passes.

Table 1. TDA stations of DSN during report period

Complex	DSS	Antenna		Year of Initial Operation
		Diameter, Meters	Type of Mounting	
Goldstone (California)	Pioneer (11)	26	Polar	1958
	Echo (12)	26	Polar	1962
	Venus (13)[1]	26	Az-El	1962
	Mars (14)	64	Az-El	1966
— (Australia)	Woomera (41)[2]	26	Polar	1960
Tidbinbilla (Australia)	Weemala (42) (formerly Tidbinbilla)	26	Polar	1965
	Ballima (43) (formerly Booroomba)	64	Az-El	1973
— (Australia)	Honeysuckle Creek (44)[3]	26	X-Y	1973
— (South Africa)	Hartebeesthoek (51)	26	Polar	1961
Madrid (Spain)	Robledo (61)	26	Polar	1965
	Cebreros (62)	26	Polar	1967
	Robledo (63)	64	Az-El	Under construction

1. A maintenance facility. Besides the 26-m-diameter Az-El mounted antenna, DSS 13 has a 9-m-diameter Az-El mounted antenna that is used for interstation time correlation using lunar reflection techniques, for testing the design of new equipment, and for support of earth-based radio science.
2. Deactivated as of January 1, 1973.
3. To be shared with STDN until January 1974; thereafter configured and operated for the DSN.

Table 2. Goldstone 64-m-diameter antenna dimensions and weights

Antenna dimensions	
Diameter, m	64
Focal length, m	27.109
Focal length/diameter ratio	0.4235
Surface area, m^2	3483
Depth of paraboloid, m	9.45
Pedestal wall thickness, m	1.1
Outside diameter of pedestal, m	25.3
Overall height of instrument tower,[a] m	42.4
Total concrete, m^3	1912
[a]Height of concrete section, 20.8m, including 10.1m below grade.	
Antenna weights, kg	
Overall	7.26×10^6
On elevation bearings	1.14×10^4
On azimuth bearings (including bearings)	2.27×10^6
On soil	7.26×10^6
Total rotating	2.27×10^5
Total tipping	1.135×10^6
Component	
Hyperboloid	1.9×10^3
Feed cone and equipment	28.1×10^3
Quadripod	17.7×10^3
Primary reflector surface	26.3×10^3
Reflector assembly (including reflector, wheels, and elevation counterweight)	1.1×10^6
Alidade and buildings	0.99×10^6
Azimuth bearings	1.8×10^5
Pedestal and foundation	4.54×10^6
Instrument tower (including wind shield)	
Steel	43.6×10^3
Concrete	0.52×10^6

Table 3. Pioneer scientific experiments

	Experiments	Principal Investigator	Pioneer 6	7	8	9
1.	Magnetometer, triaxial	Dr. C. P. Sonett, ARC				X
2.	Magnetometer, single axis	Dr. N. F. Ness, GSFC	X	X	X	
3.	Solar Plasma Detector	Dr. J. H. Wolfe, ARC	X	X	X	X
4.	Solar Plasma Detector	Dr. H. S. Bridge, MIT Dr. A. J. Lazarus, MIT	X	X		
5.	Cosmic Ray Anisotropy Detector	Dr. K. G. McCracken, SCAS	X	X	X	X
6.	Cosmic Ray Gradient Detector	Dr. W. R. Webber, U. of Minn.			X	X
7.	Cosmic Ray Detector	Dr. J. A. Simpson, U. of Chicago	X	X		
8.	Radio Propagation	Dr. V. R. Eshleman, Stanford U.	X	X	X	X
9.	Cosmic Dust Detector	O. Berg, GSFC			X	X
10.	Electric Field Detector	Dr. F. L. Scarf, TRW			X	X
11.	Celestial Mechanics Investigation	Dr. J. D. Anderson, JPL	X	X	X	X

Table 4. DSN support of Pioneer missions, July 1, 1972 - July 1, 1973

Spacecraft	Number of Tracks	Tracking Time (Hrs:mins)	Station Hours	Manhours	Number of Commands
6	45	237:56	298	2,523	61
7	13	43:19	66	684.5	88
8	34	138:30	177	1,856	177
9	182	1,575:02	1,766	15,364	905
Totals	274	1,994:47	2,207	20,420.5	1,231

Table 5. Pioneer 6 flight support summary (Passes 2390-2754)

Month	Supporting Stations	No. of Tracks	Tracking Time (hr:min)	Telemetry Bit Rate (bps)	Average Downlink (dbm)	Commands Transmitted
July	41, 51, 62	24	164:09	8	-158.1	0
August	14	1	5:02	64	-158.1	9
September	0	0	0	N/A	N/A	0
October	14	1	3:19	64	-158.2	2
November	14	8	32:43	16, 64	-157.4	20
December	0	0	0	N/A	N/A	0
January	14	1	2:50	64	-156.5	2
February	0	0	0	N/A	N/A	0
March	0	0	0	N/A	N/A	0
April	0	0	0	N/A	N/A	0
May	43	1	2:05	16	-166.2	1
June	43	9	27:48	16	-165.8	27
	Totals	45	237:56			61*

*8,149 commands since launch 16 December 1965

Table 6. Frequency curve bias for 1973, Pioneer 6-9

S/C	TFREQ		Best Lock	
	Upper Limit	Lower Limit	Upper Limit	Lower Limit
Pioneer 6	0	0	0	0
Pioneer 7	+250 Hz	0	+3 Hz	0
Pioneer 8	0	0	-20 Hz	-20 Hz
Pioneer 9	-225 Hz	0	-5 Hz	0

Table 7. Pioneer 7 flight support summary (Passes 2146-2510)

Month	Supporting Stations	No. of Tracks	Tracking Time (hr:min)	Telemetry Bit Rate (bps)	Average Downlink (dbm)	Commands Transmitted
July	14	1	2:11	8	-164.1	0
August	14	2	5:45	8	-165.6	16
September	0	0	0	N/A	N/A	0
October	14	2	10:02	8	-163.8	29
November	14	6	20:18	8, 16	-163.1	34
December	0	0	0	N/A	N/A	0
January	14	1	2:50	64	-161.5	6
February	0	0	0	N/A	N/A	0
March	0	0	0	N/A	N/A	0
April	0	0	0	N/A	N/A	0
May	43	1	2:13	8, 16	-168.2	3
June	0	0	0	N/A	N/A	0
	Totals	13	43:19			88*

*10,407 commands since launch 17 August 1966

Table 8. Pioneer 8 flight support summary (Passes 1663-2027)

Month	Supporting Stations	No. of Tracks	Tracking Time (hr:min)	Telemetry Bit Rate (bps)	Average Downlink (dbm)	Commands Transmitted
July	14	1	1:26	8	-160.7	0
August	0	0	0	N/A	N/A	0
September	0	0	0	N/A	N/A	0
October	14	5	40:30	16	-161.6	73
November	14	7	30:11	16	-161.3	44
December	0	0	0	N/A	N/A	0
January	14	1	2:20	64	-161.8	0
February	0	0	0	N/A	N/A	-
March	0	0	0	N/A	N/A	-
April	0	0	0	N/A	N/A	-
May	14, 43	9	32:08	16	-160.4	30
June	43	11	31:55	16	-164.9	30
	Totals	34	138:30			177*

*9,183 commands since launch 13 December 1967

Table 9. Pioneer 9 flight support summary (Passes 1332-1696)

Month	Supporting Stations	No. of Tracks	Tracking Time (hr:min)	Telemetry Bit Rate (bps)	Average Downlink (dbm)	Commands Transmitted
July	12, 41, 51	22	186:24	8	-166.2	112
August	12, 14, 41, 51, 62	56	429:07	8, 16, 64	-163.1	268
September	11, 12, 51	9	95:58	16, 64	-161.5	52
October	11, 12, 51	6	54:16	16, 64	-159.7	37
November	12, 41, 51, 62	12	131:01	16, 64	-159.9	123
December	12, 51, 62	16	136:06	16, 64	-160.5	51
January	12, 51, 61, 62	20	175:27	16, 64	-161.3	73
February	12, 51	11	159:34	16, 64	-160.8	40
March	12, 51, 62	13	125:01	16, 64	-159.3	62
April	12	1	4:46	64	-155.6	4
May	14, 51, 61, 62	10	47:37	16, 64, 256, 512	-156.7	58
June	51, 61	6	29:45	16	-161.3	25
	Totals	182	1575:02			905*

*9,787 commands since launch 8 November 1968

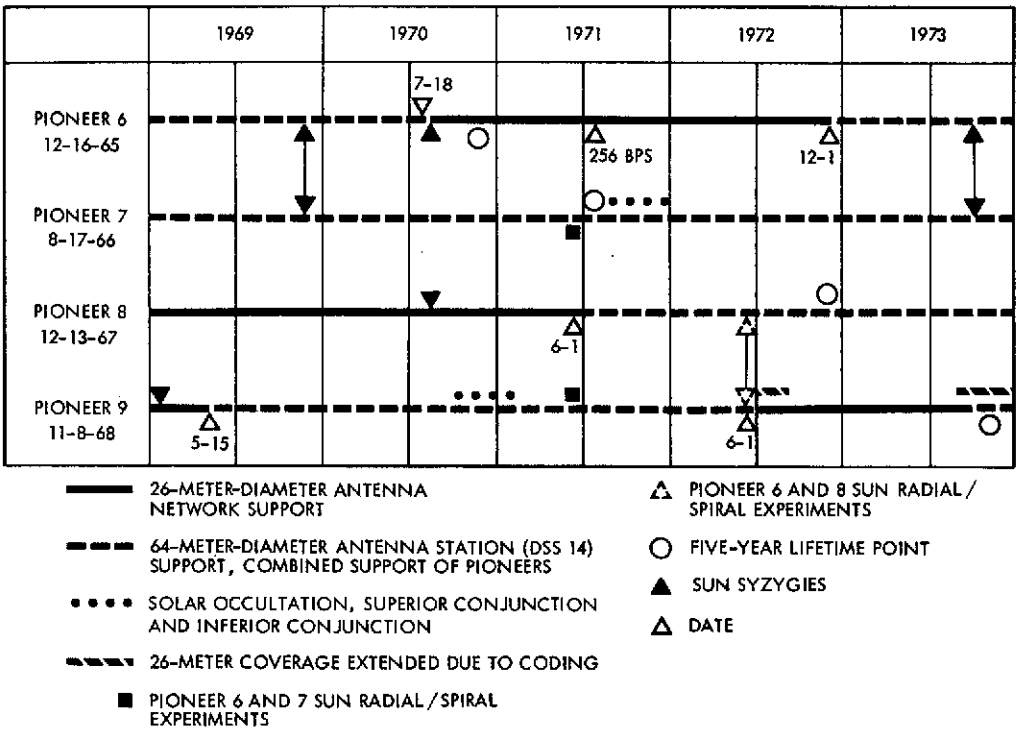


Fig. 1. Support capability for Pioneer 6, 7, 8, and 9 missions

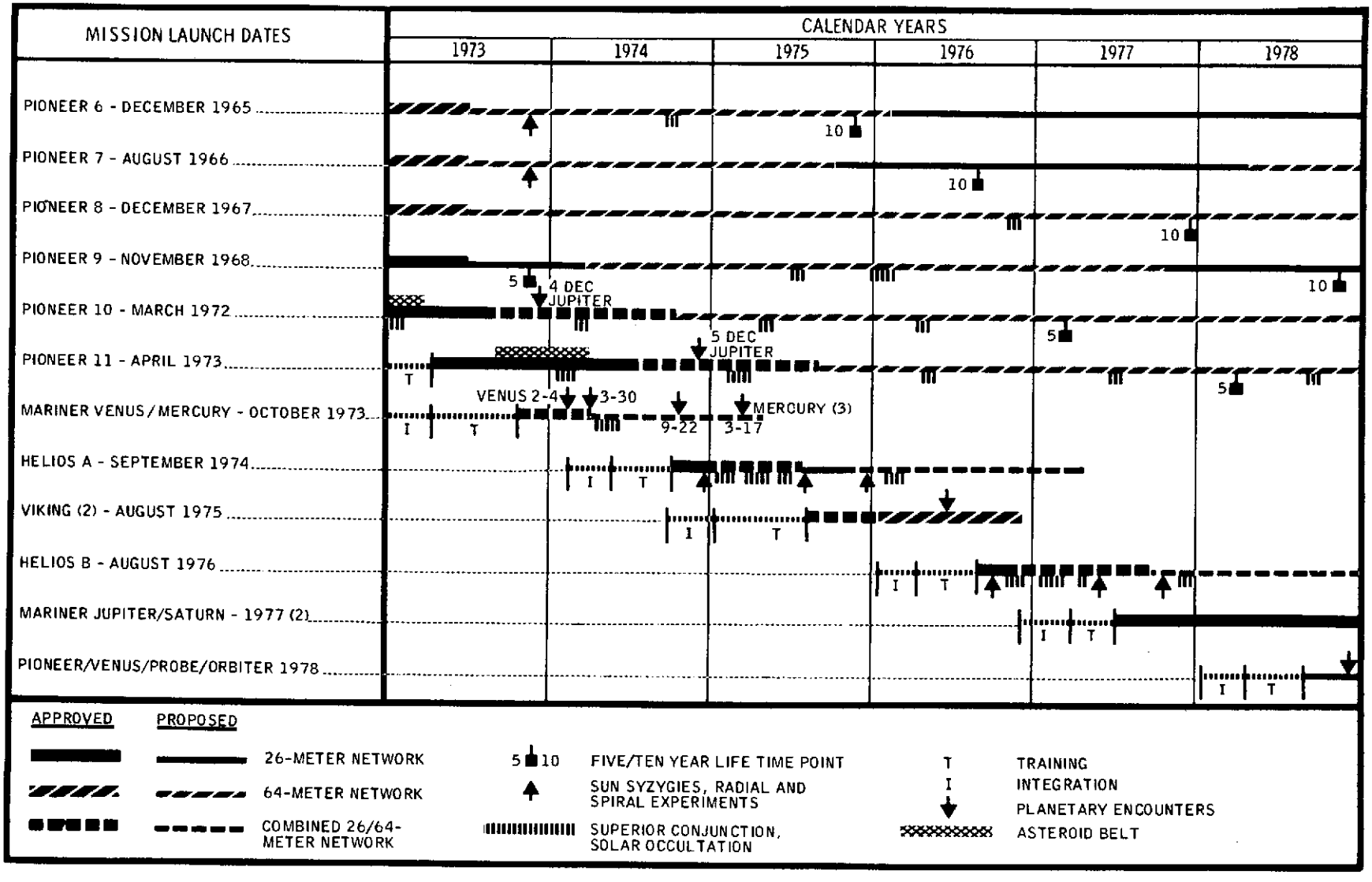


Fig. 2. TDA support forecast of planetary and interplanetary missions

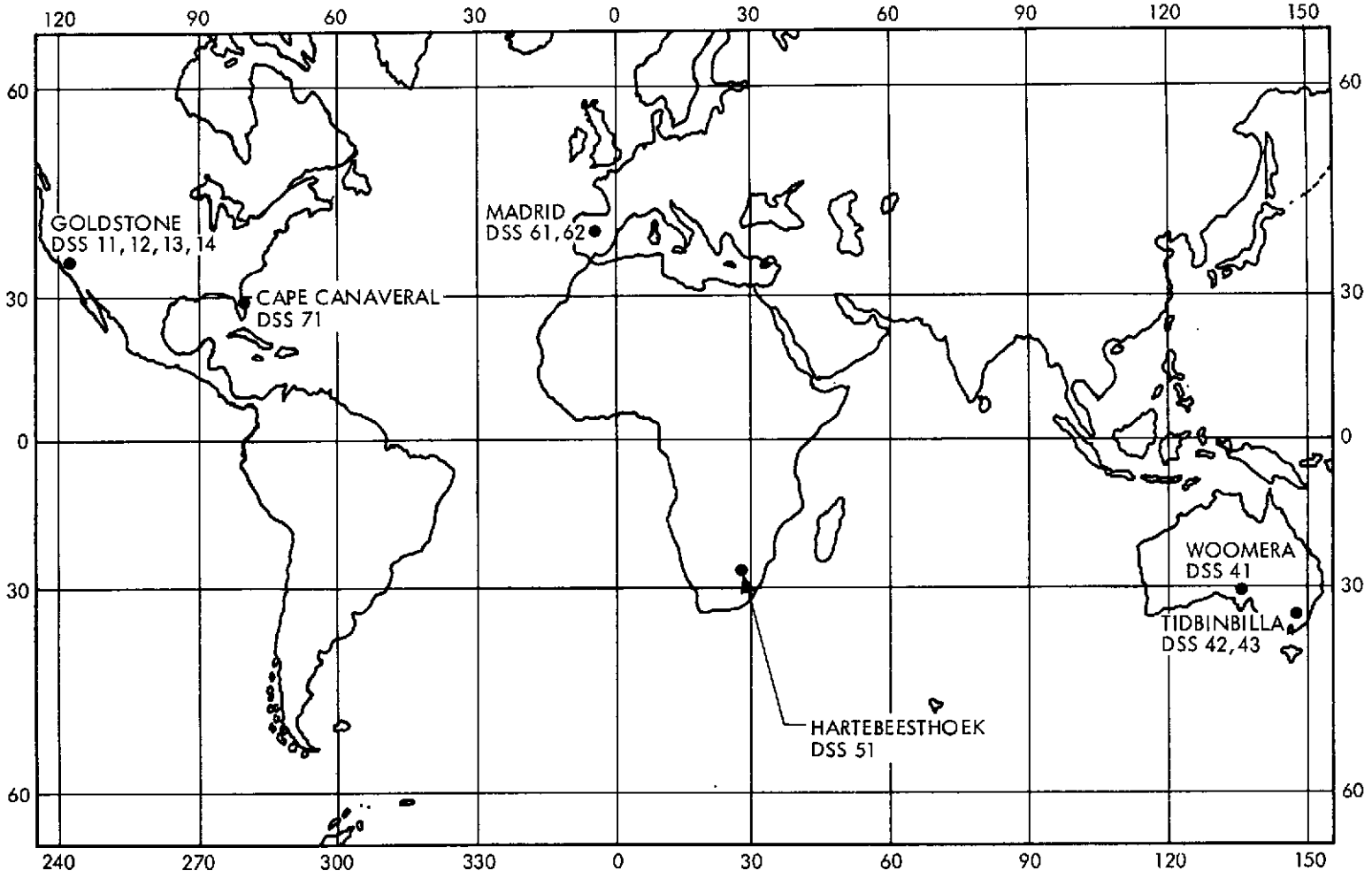
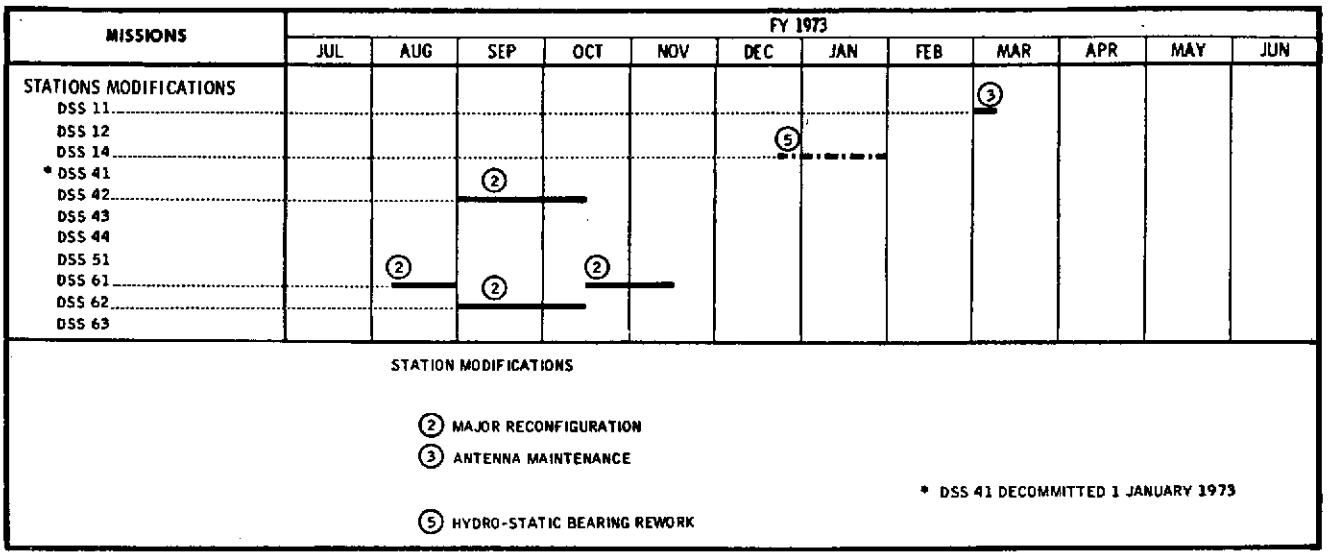


Fig. 3. Location of DSN stations supporting Pioneer 6-9 spacecraft during report period



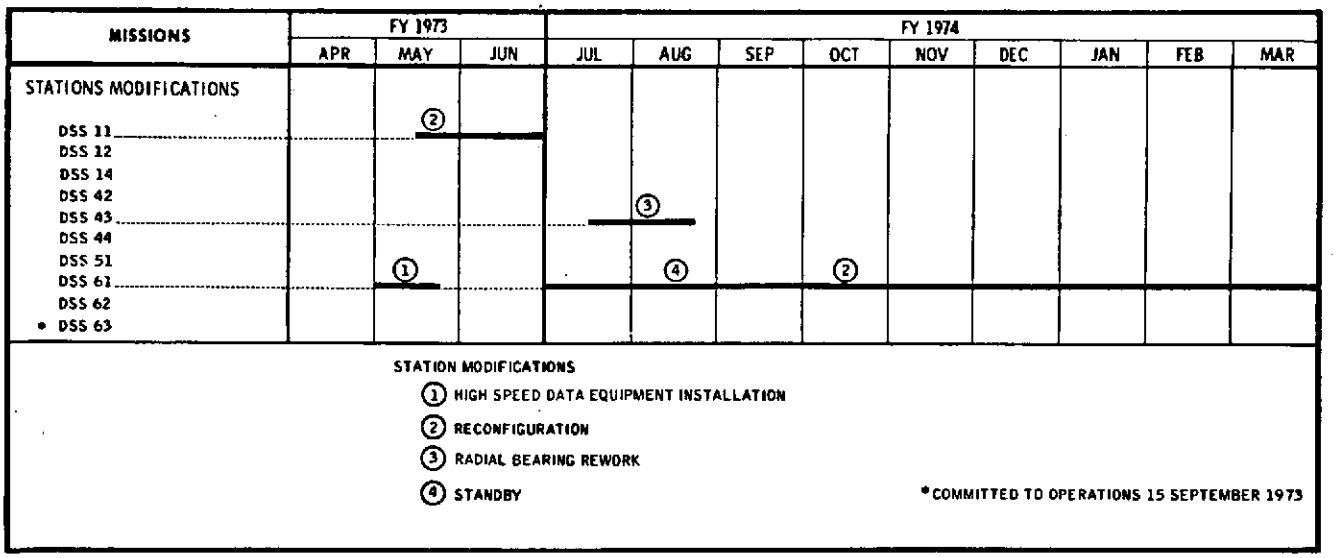


Fig. 4. Station modifications as scheduled at beginning and end of report period

Fig. 5. The 64- and 26-m-diameter antennas at Tidbinbilla, Australia

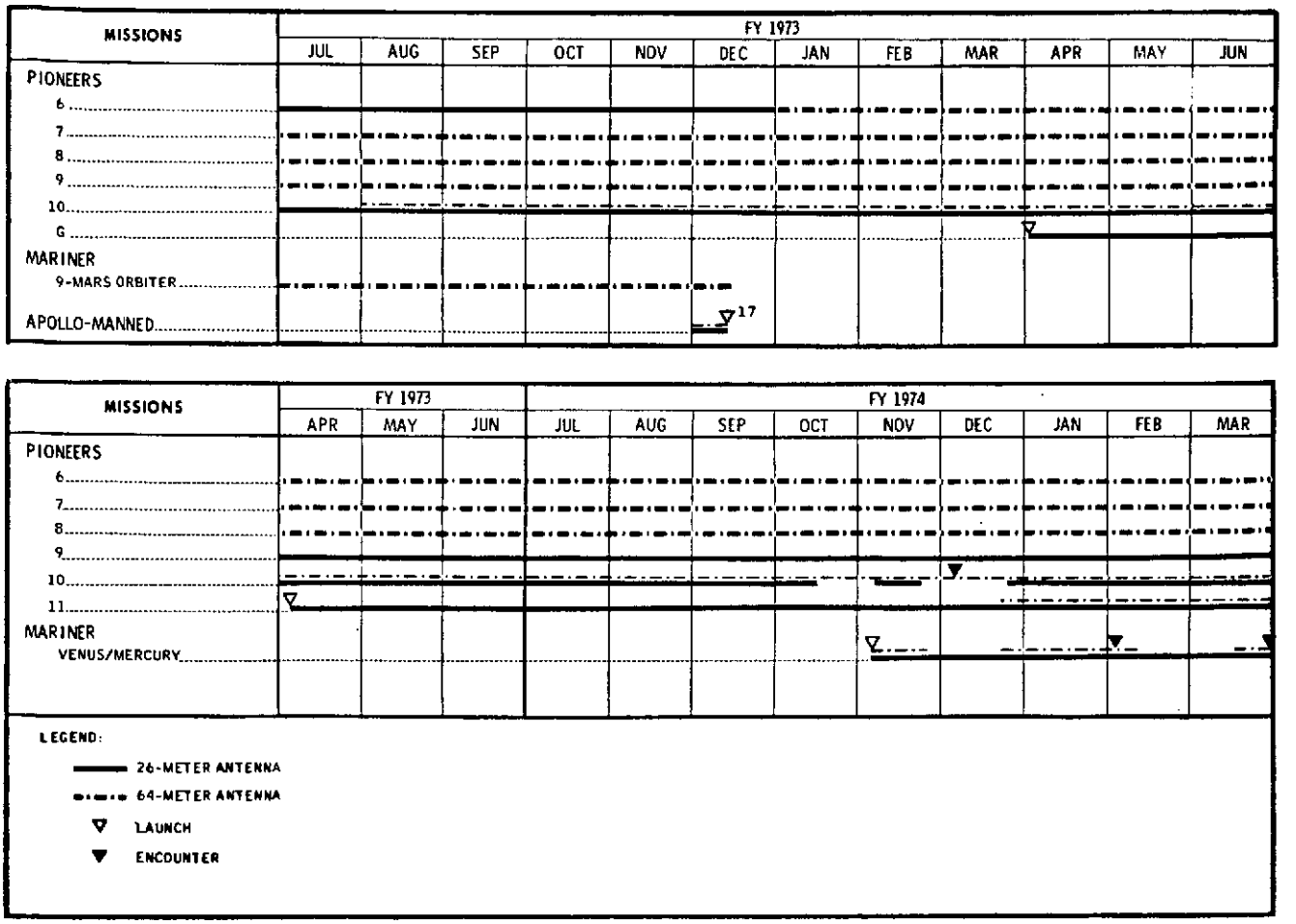


Fig. 6. DSN mission support plans at beginning and end of report period

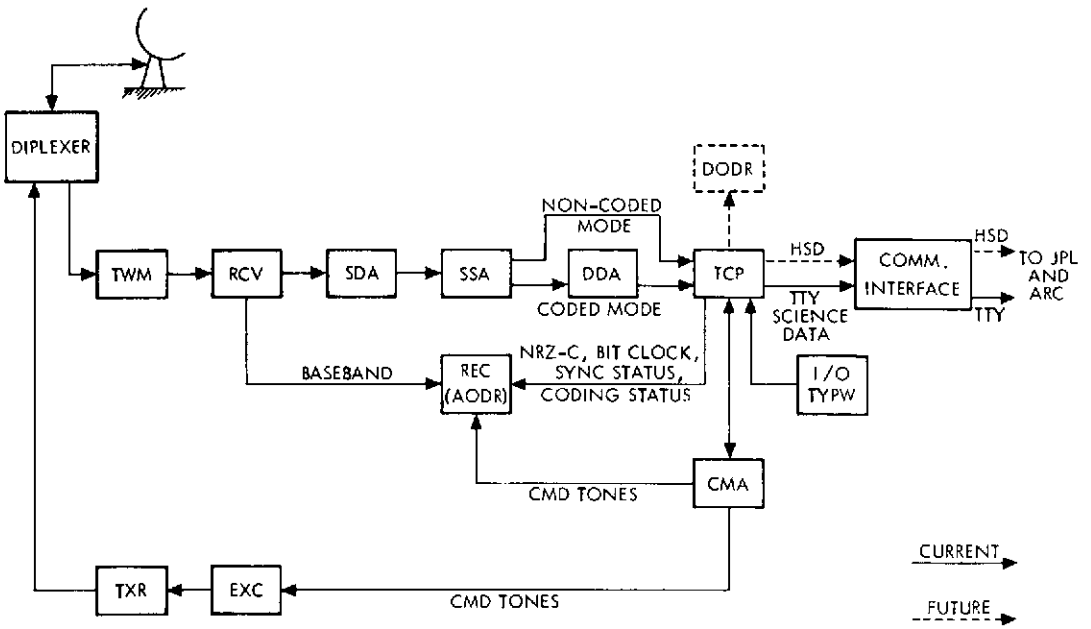


Fig. 7. On-site telemetry and command configuration

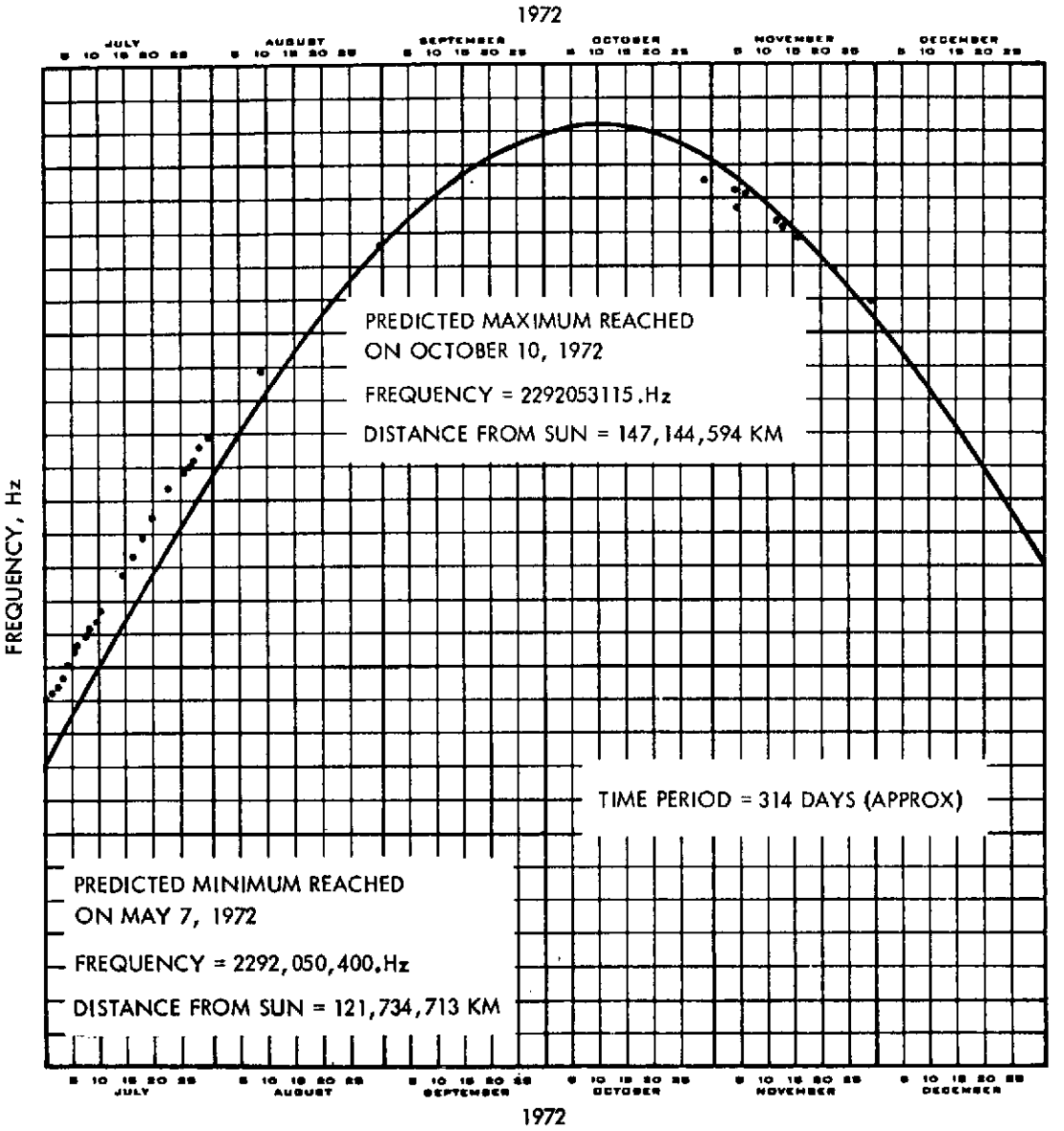


Fig. 8. Pioneer 6 auxiliary oscillator frequency, July through December 1972

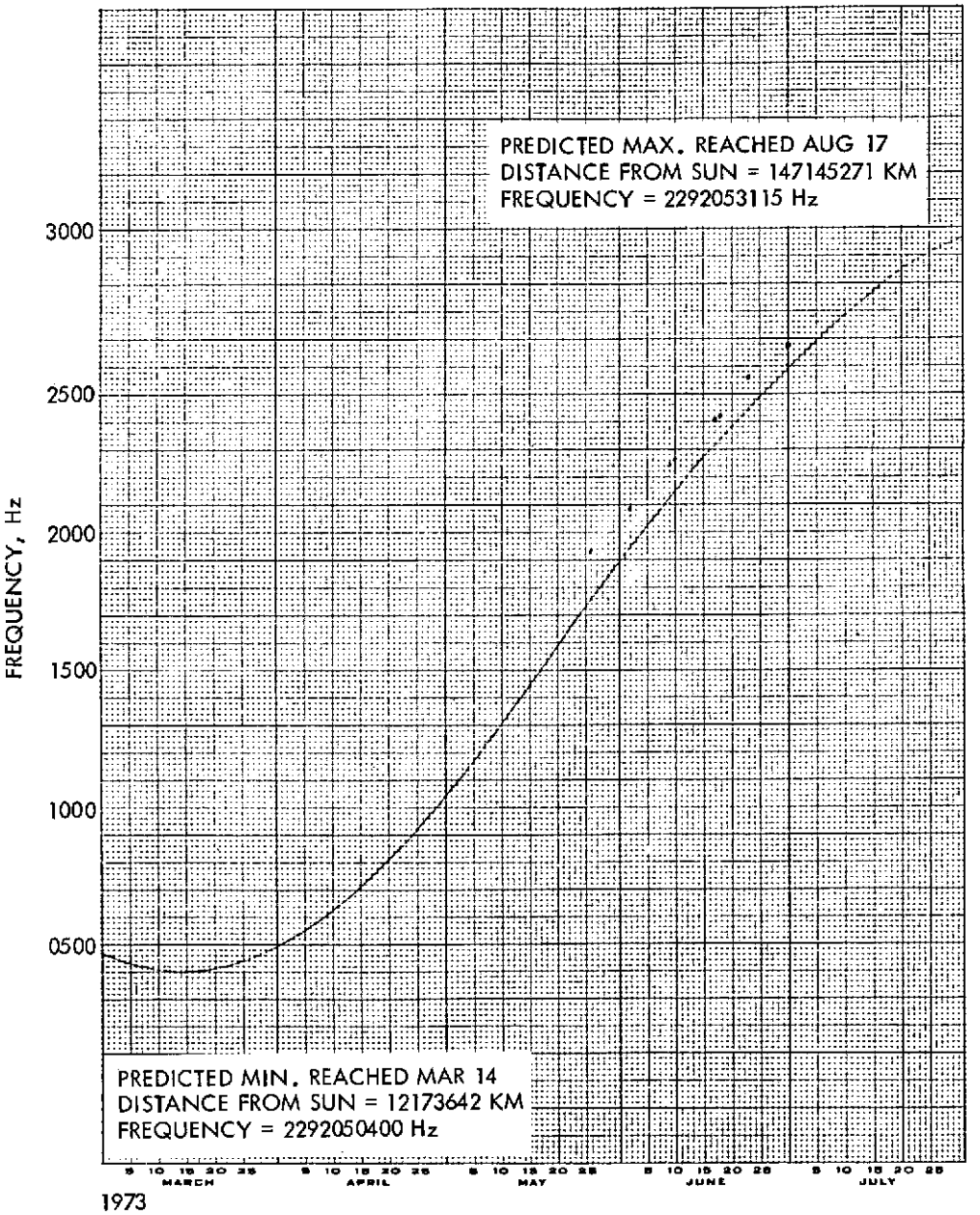


Fig. 9. Pioneer 6 auxiliary oscillator frequency, March through June 1973

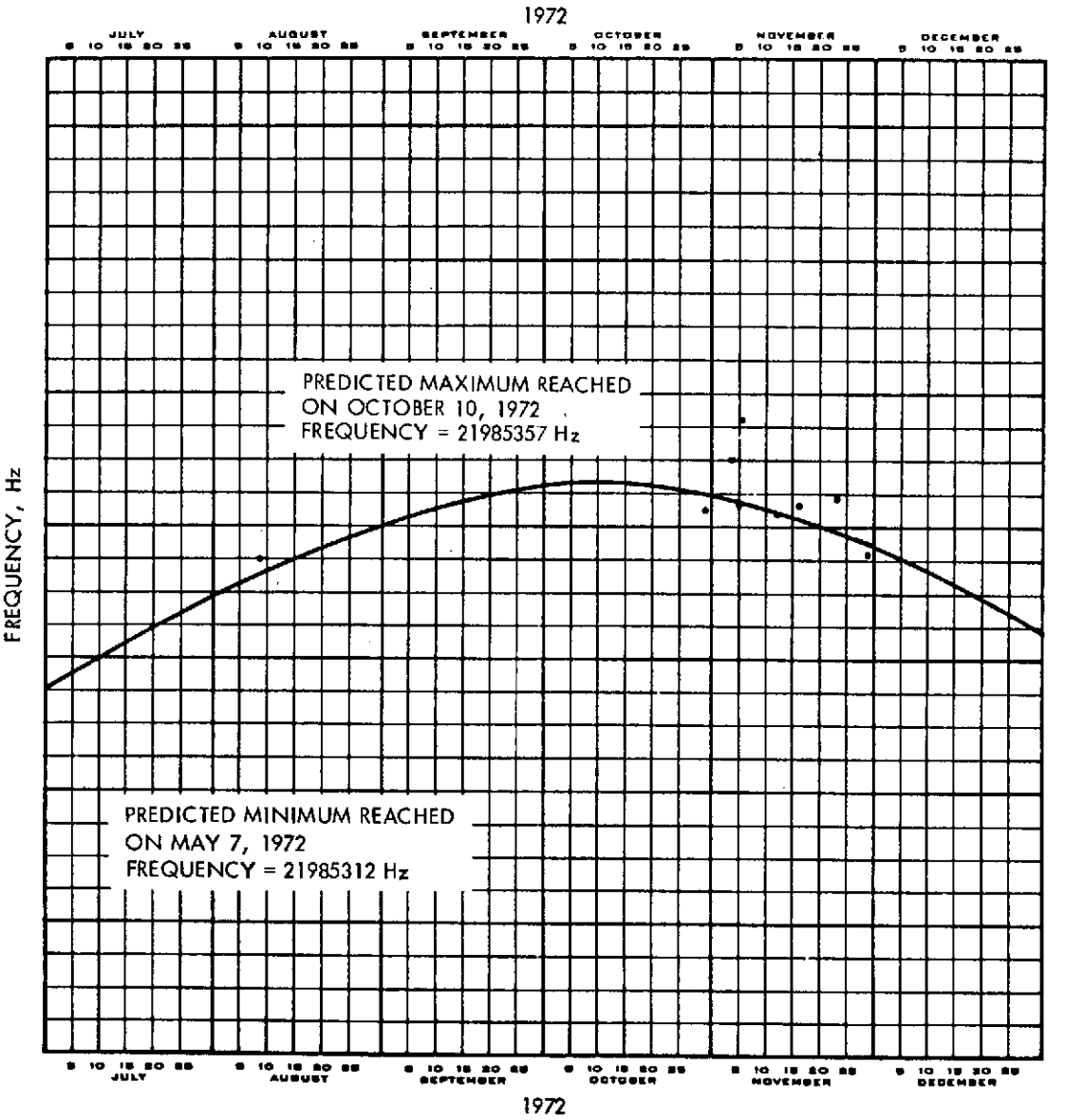


Fig. 10. Pioneer 6 best lock frequency, July through December 1972

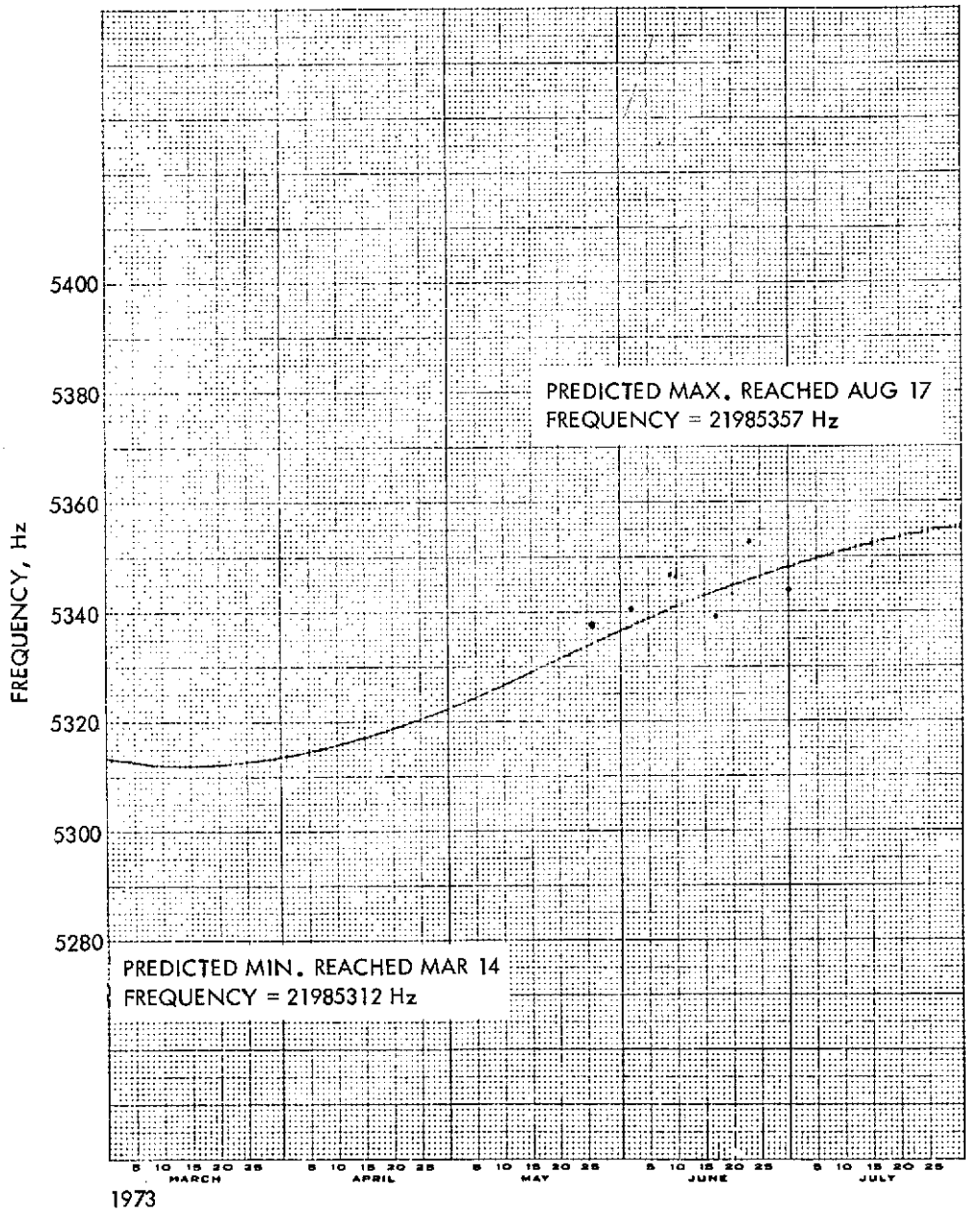


Fig. 11. Pioneer 6 best lock frequency, March through June 1973

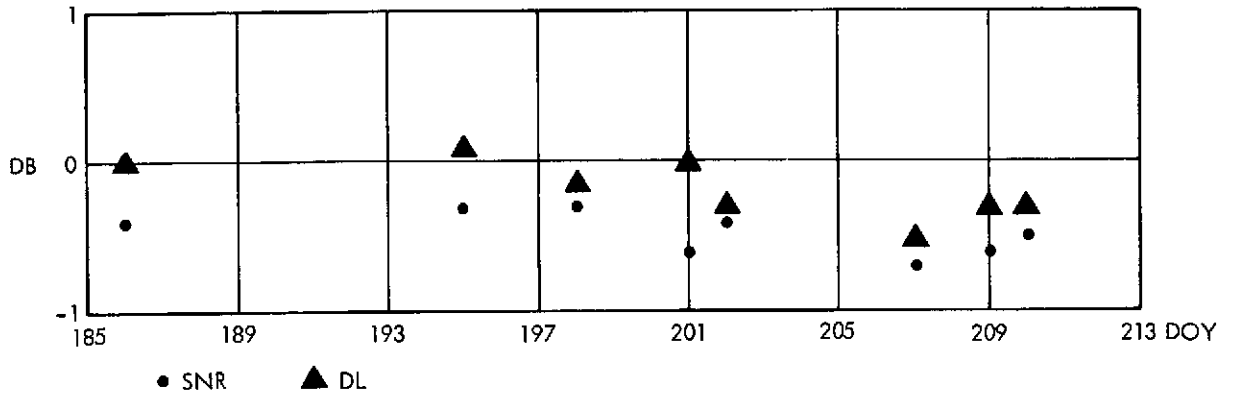


Fig. 12. DSS 41 residual data plots for Pioneer 6, July 1972

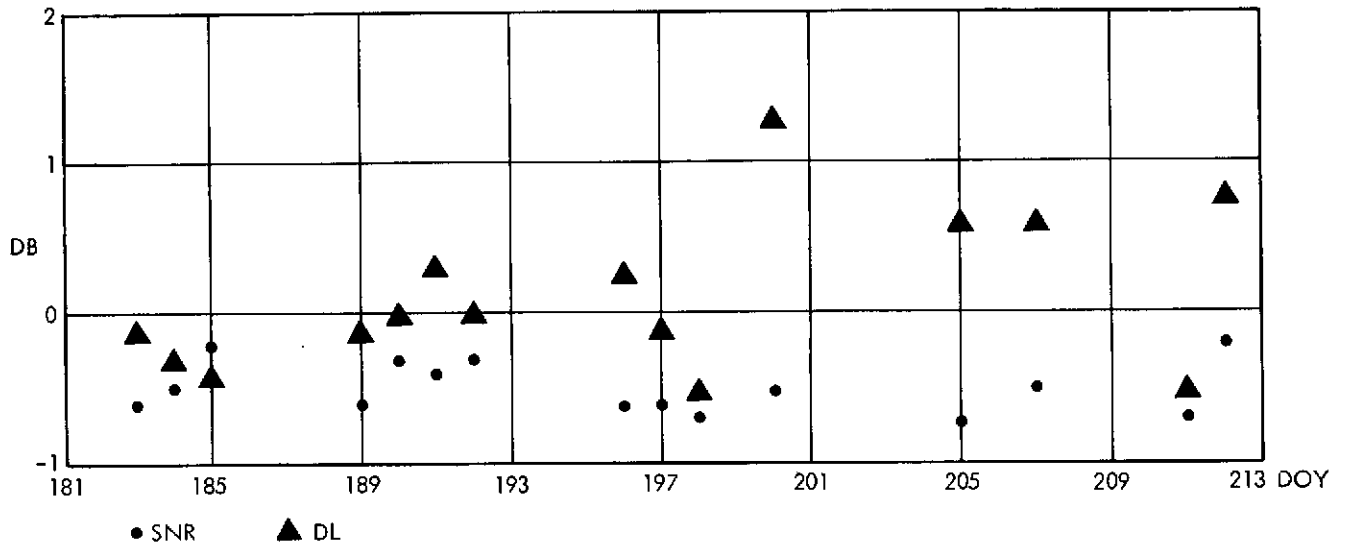


Fig. 13. DSS 62 residual data plots for Pioneer 6, July 1972

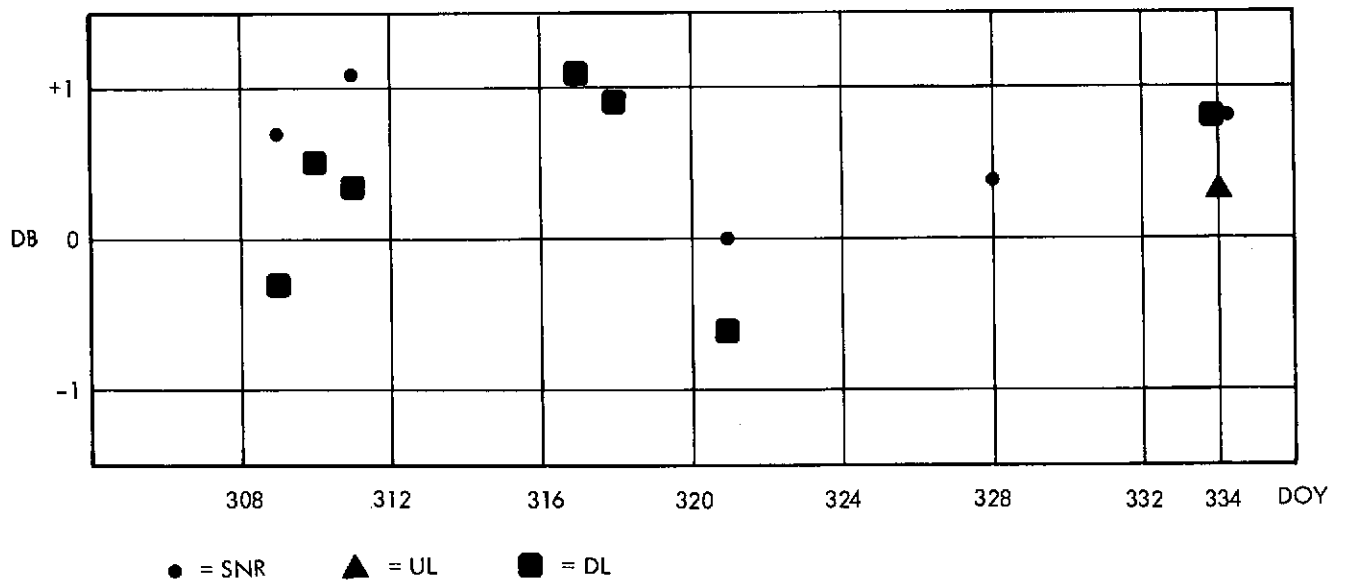


Fig. 14. DSS 14 residual data plots for Pioneer 6, November 1972

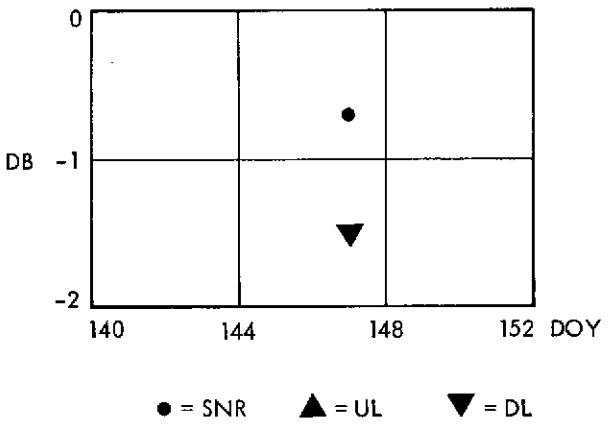


Fig. 15. DSS 43 residual data plots for Pioneer 6, May 1973

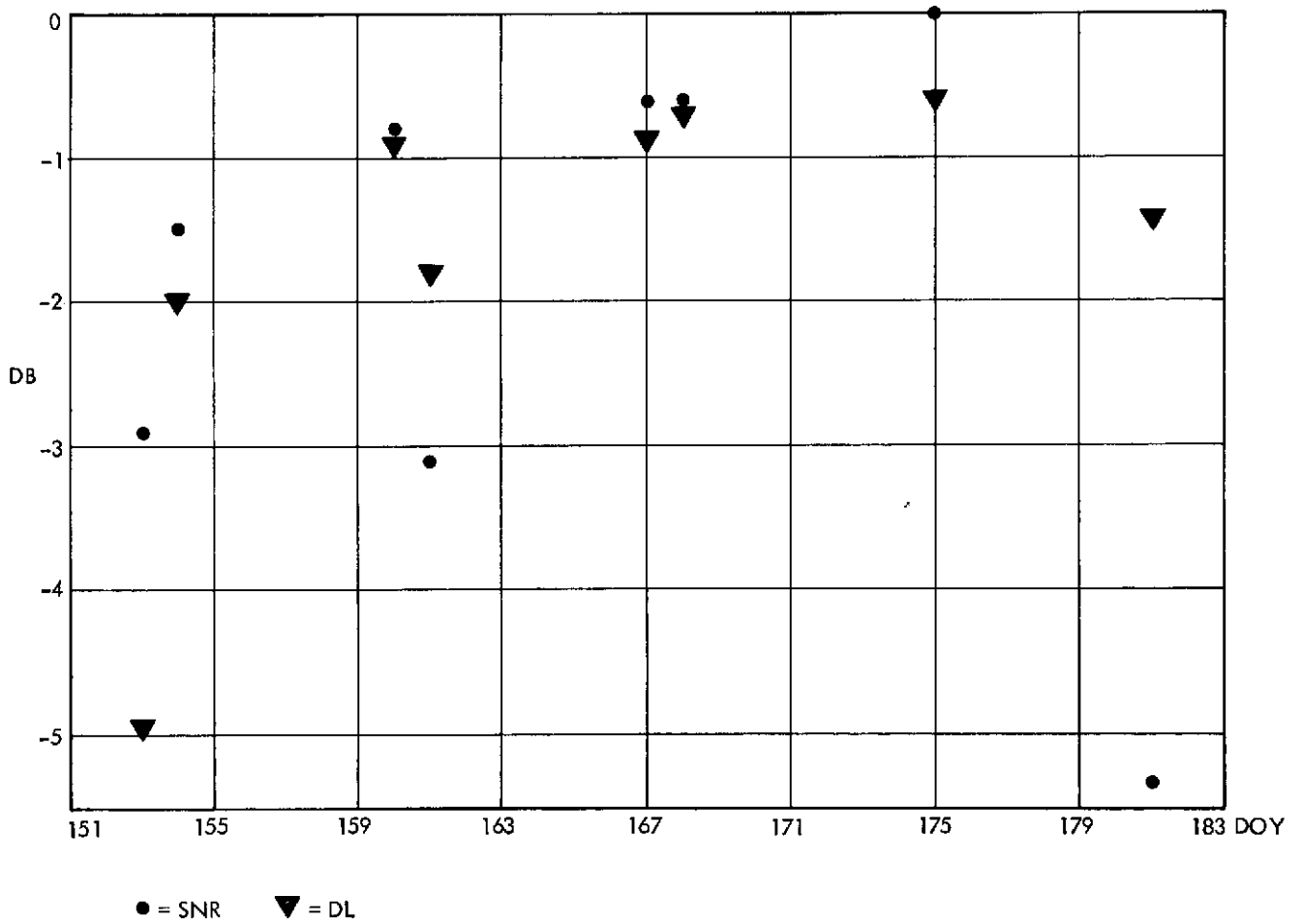


Fig. 16. DSS 43 residual data plots for Pioneer 6, June 1973

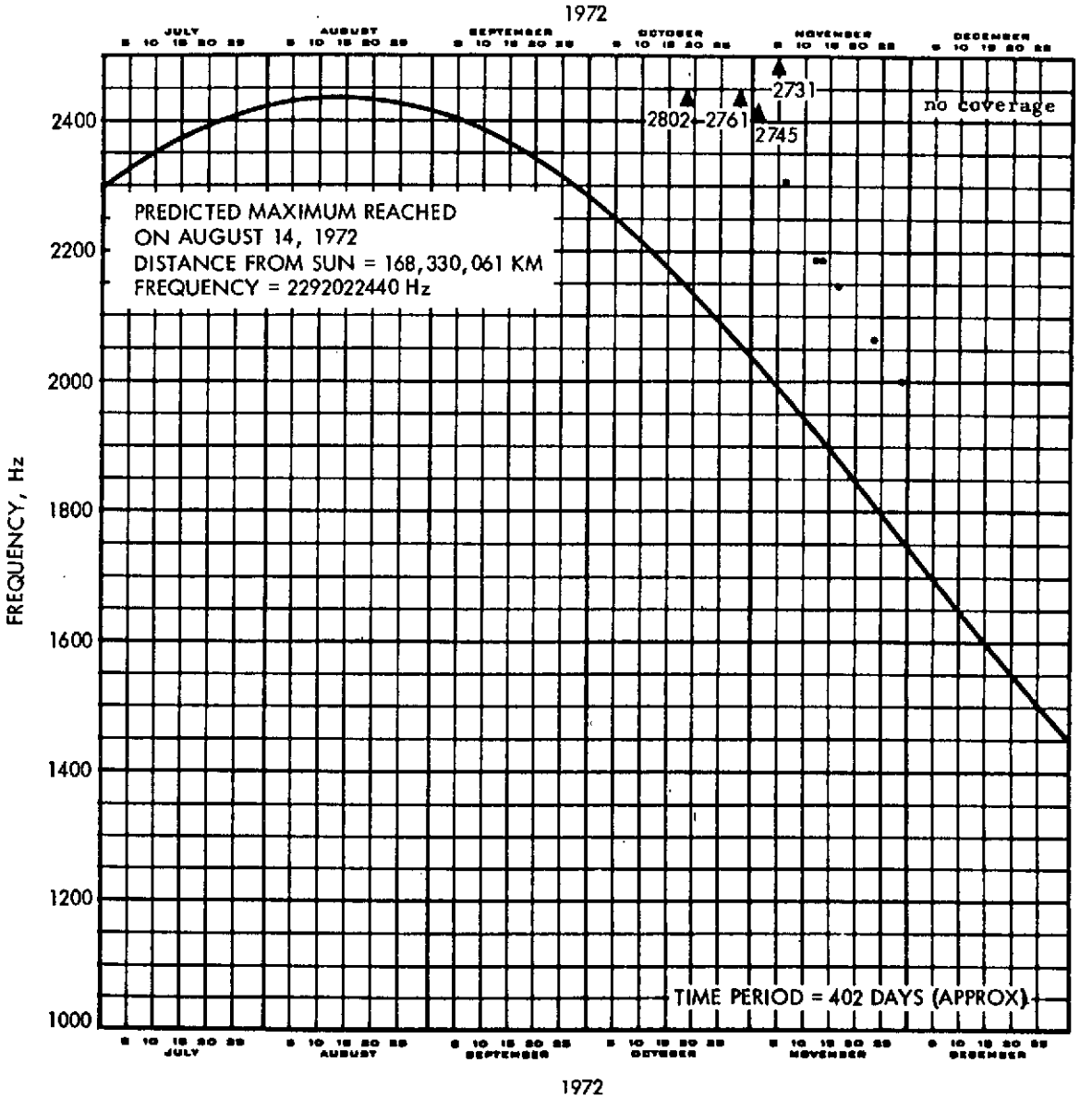


Fig. 17. Pioneer 7 auxiliary oscillator frequency, July through December 1972

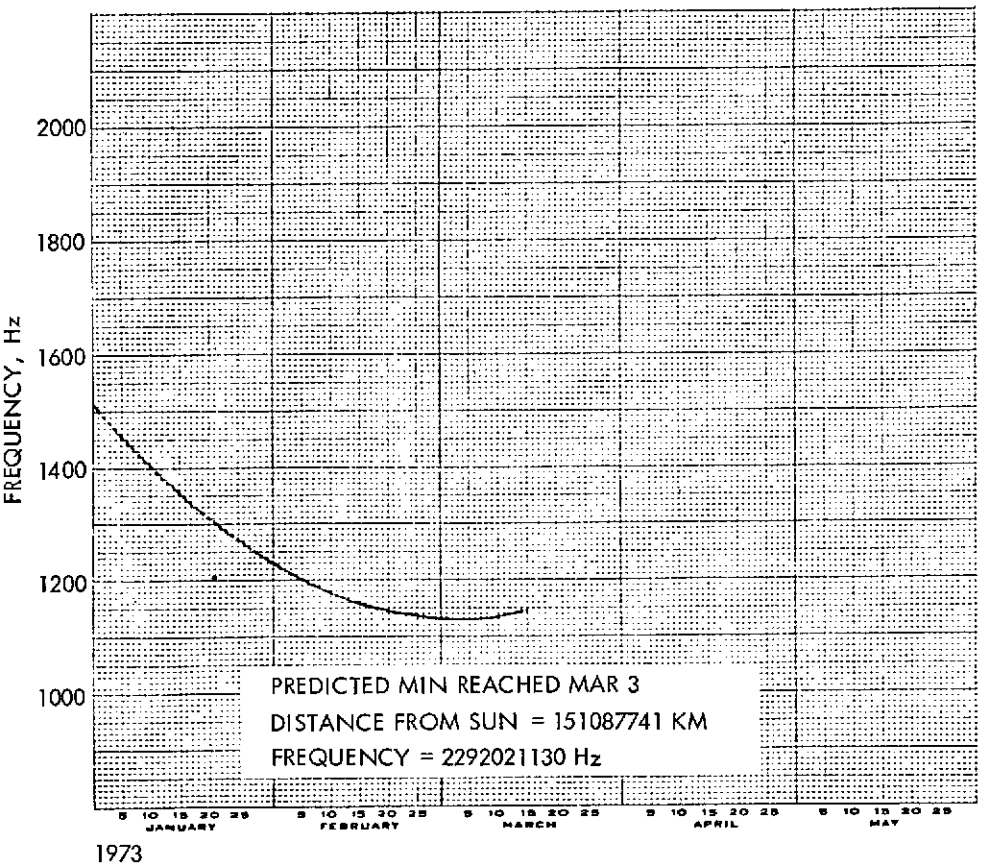


Fig. 18. Pioneer 7 auxiliary oscillator frequency, January through March 1973

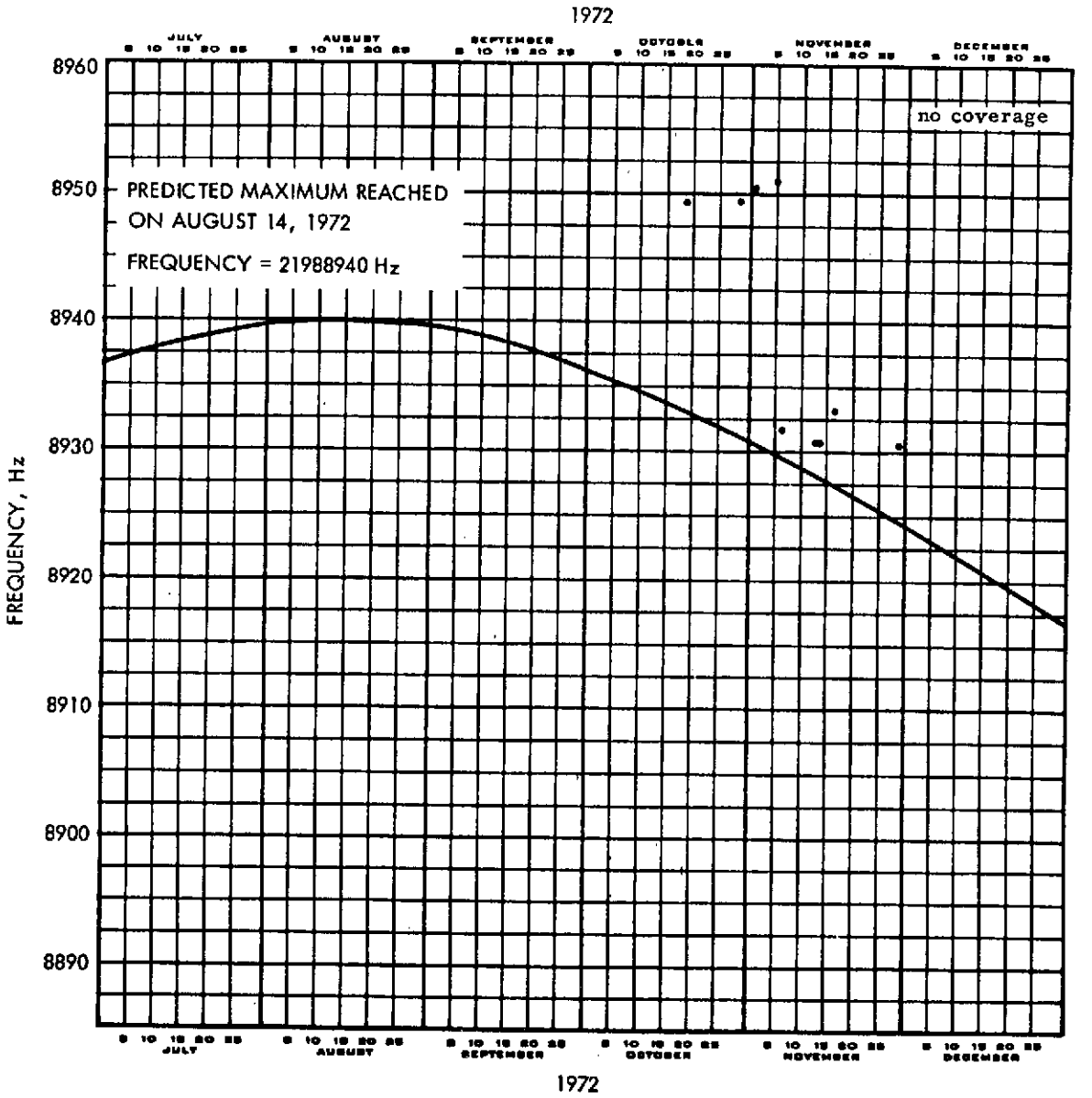


Fig. 19. Pioneer 7 best lock frequency, July through December 1972

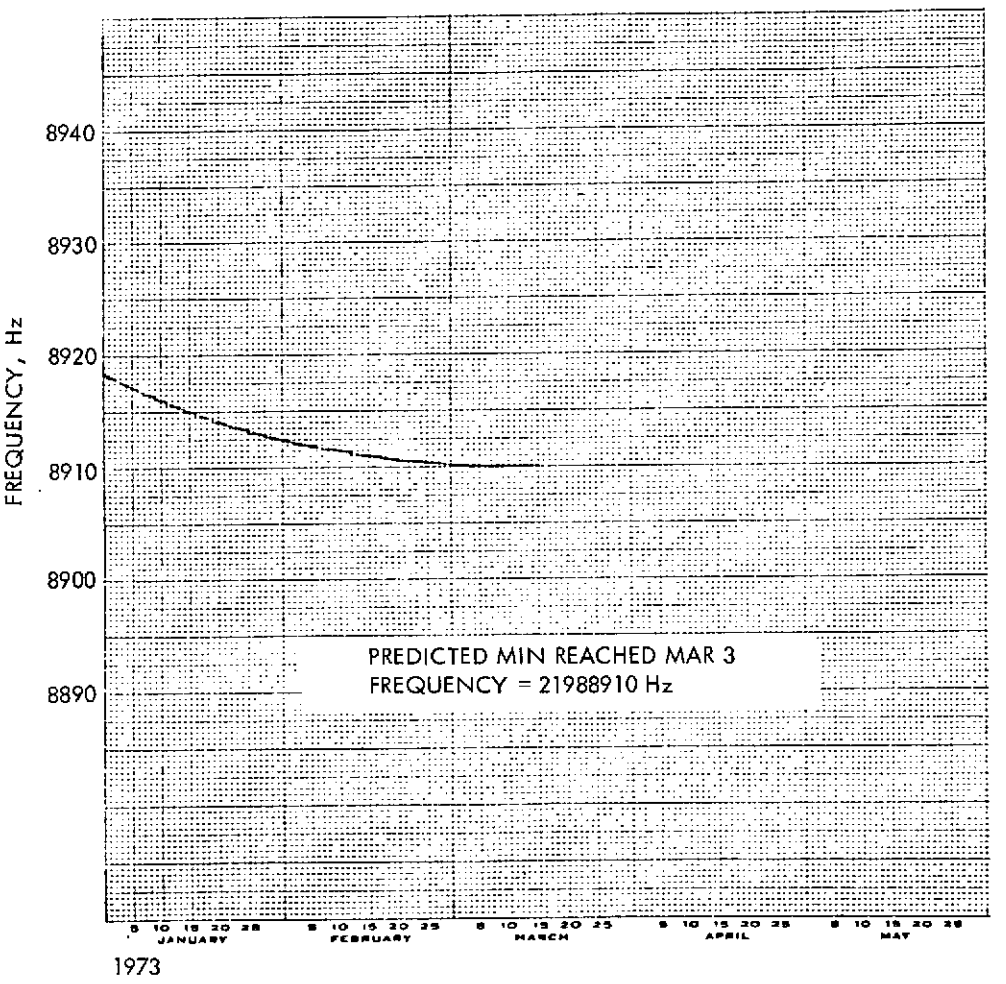


Fig. 20. Pioneer 7 best lock frequency, January through March 1973

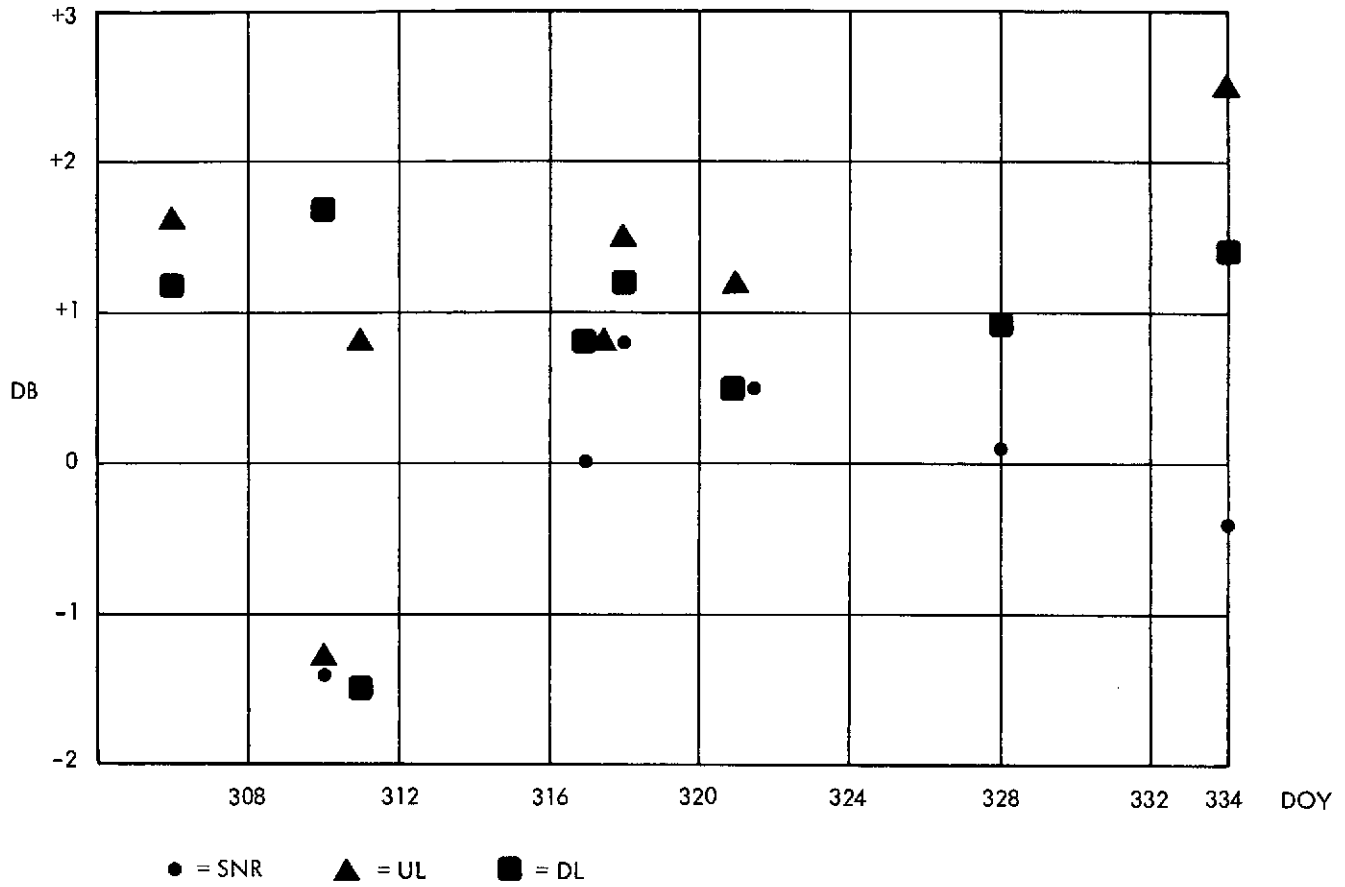


Fig. 21. DSS 14 residual data plots for Pioneer 7, November 1972

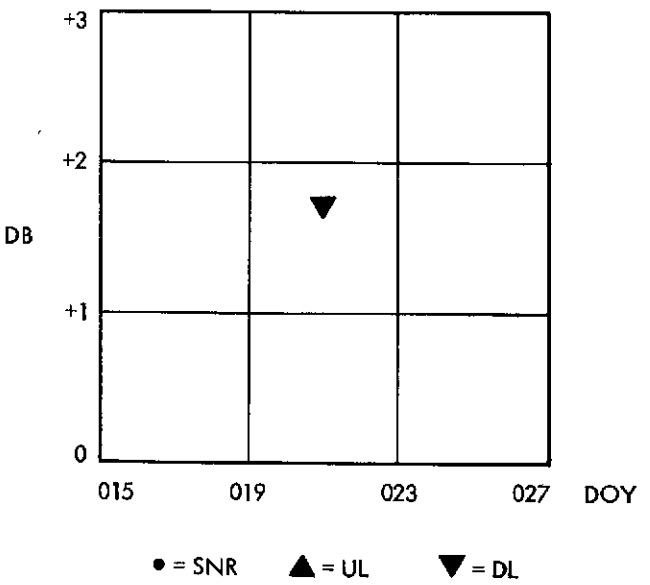


Fig. 22. DSS 14 residual data plots for Pioneer 7, January 1973

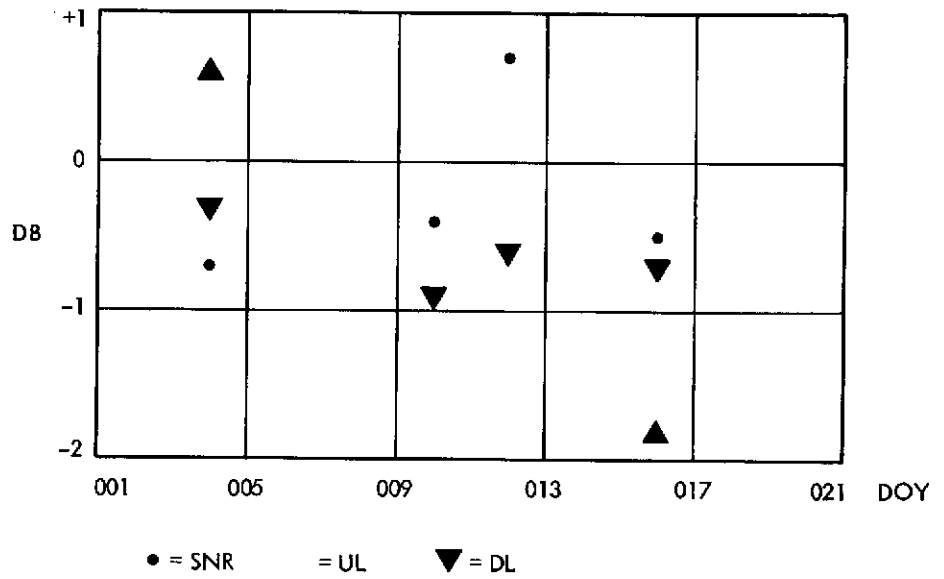


Fig. 23. DSS 61 residual plots for Pioneer 7, January 1973

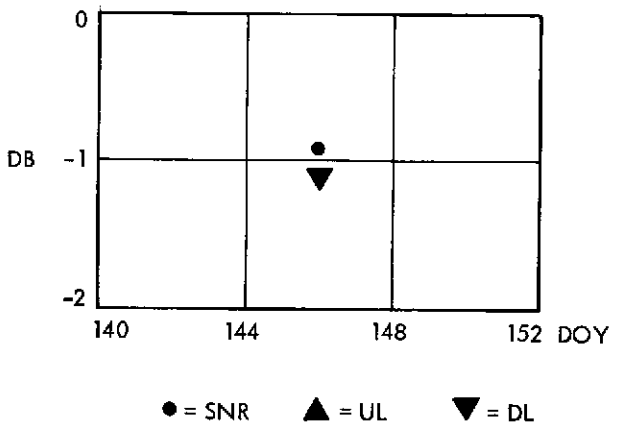


Fig. 24. DSS 43 residual data plots for Pioneer 7, May 1973

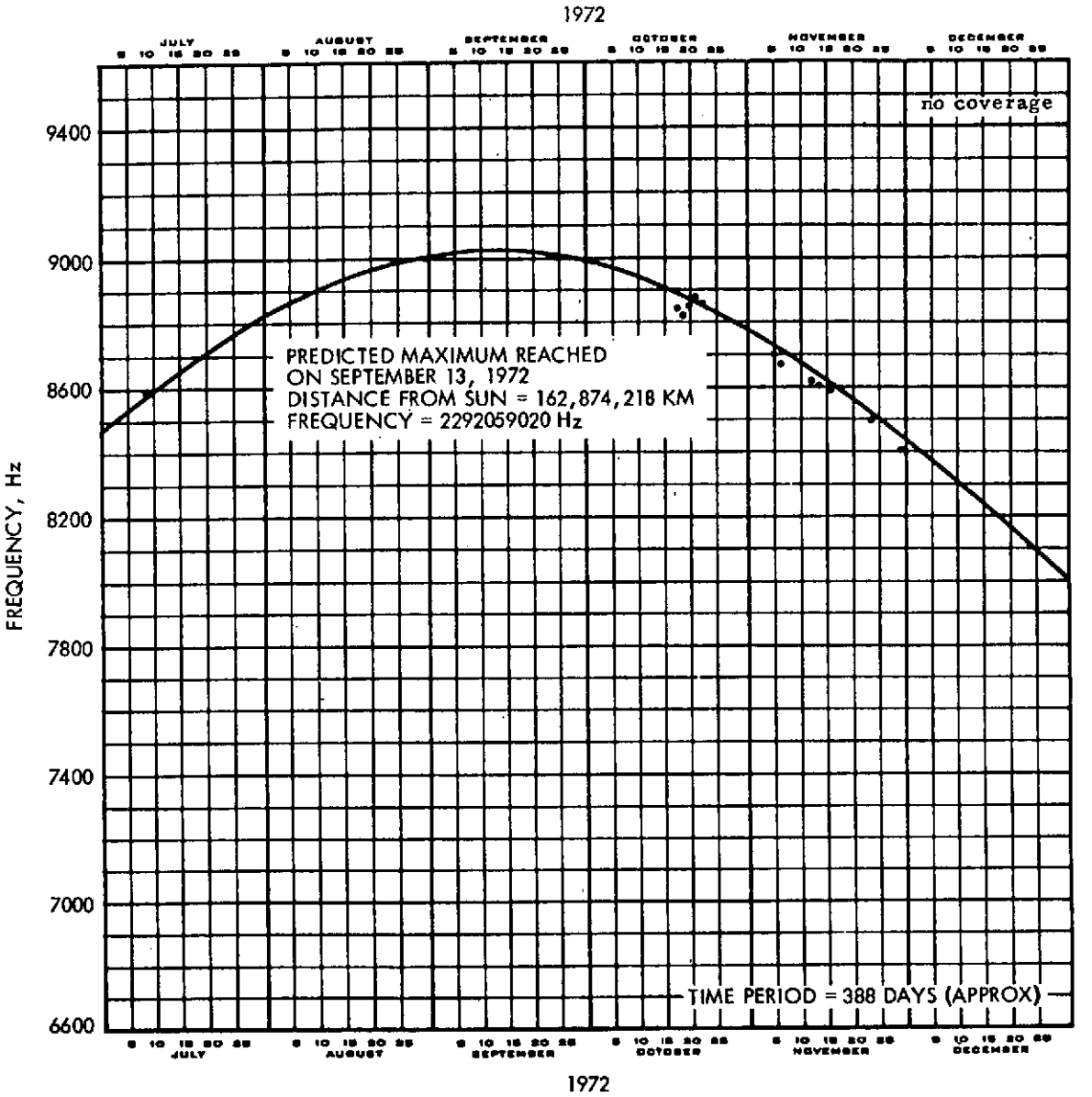


Fig. 25. Pioneer 8 auxiliary oscillator frequency, July through December 1972

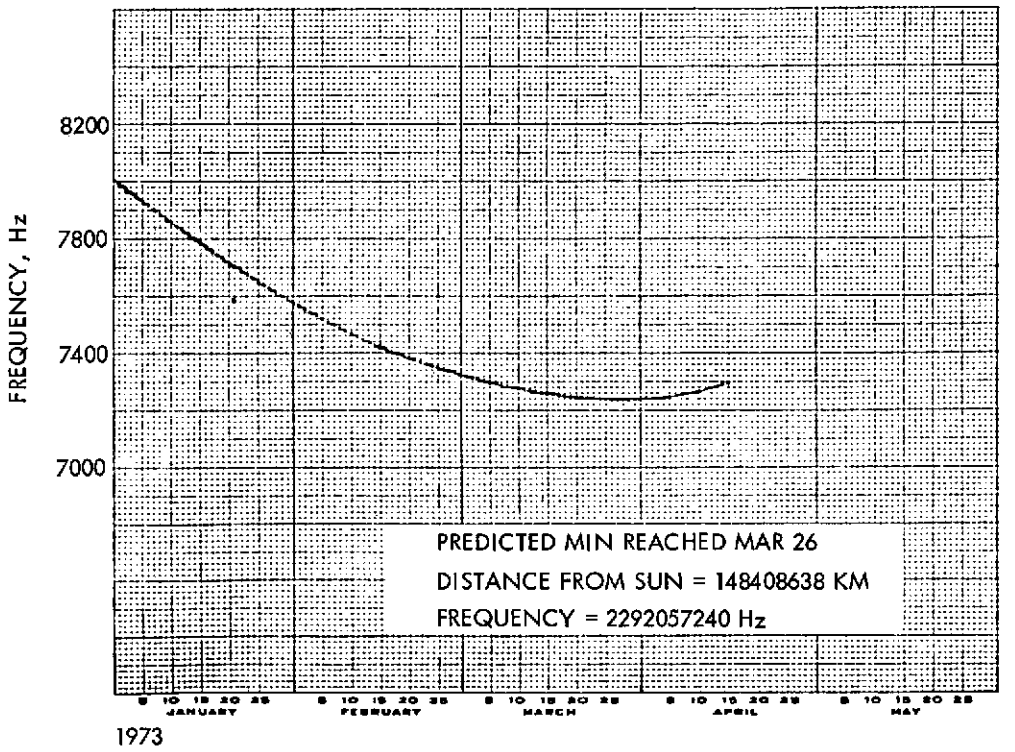


Fig. 26. Pioneer 8 auxiliary oscillator frequency, January through March 1973

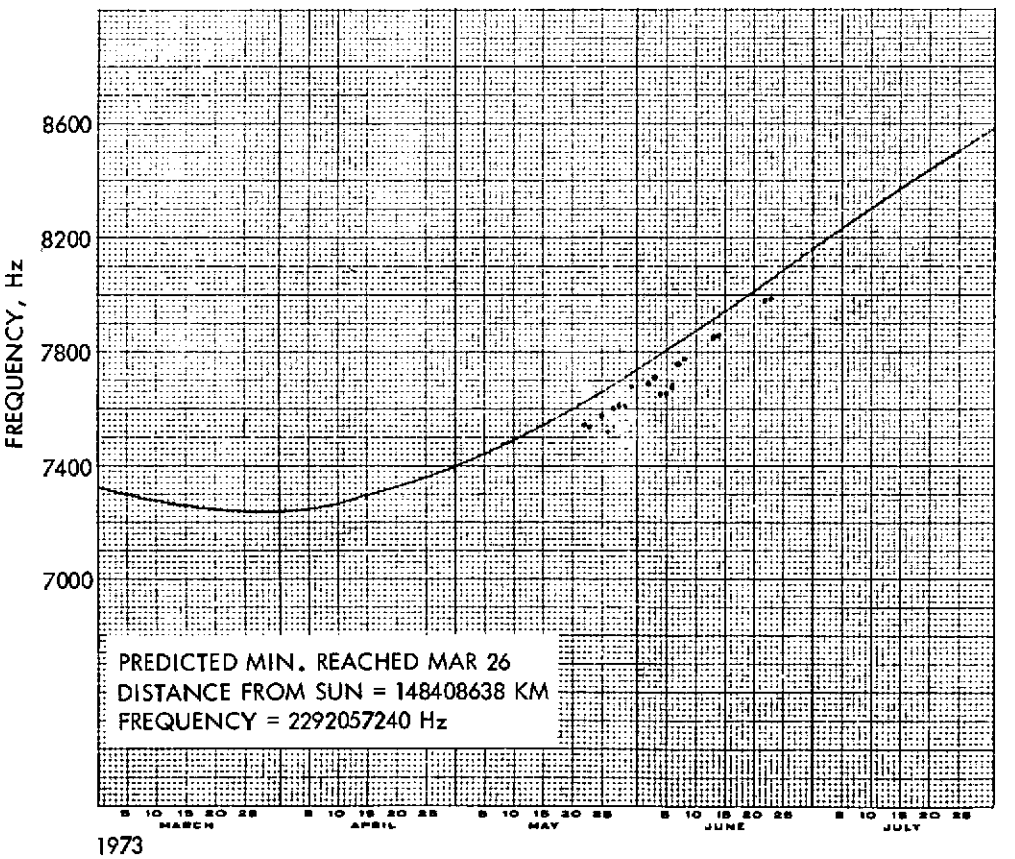


Fig. 27. Pioneer 8 auxiliary oscillator frequency, April through June 1973

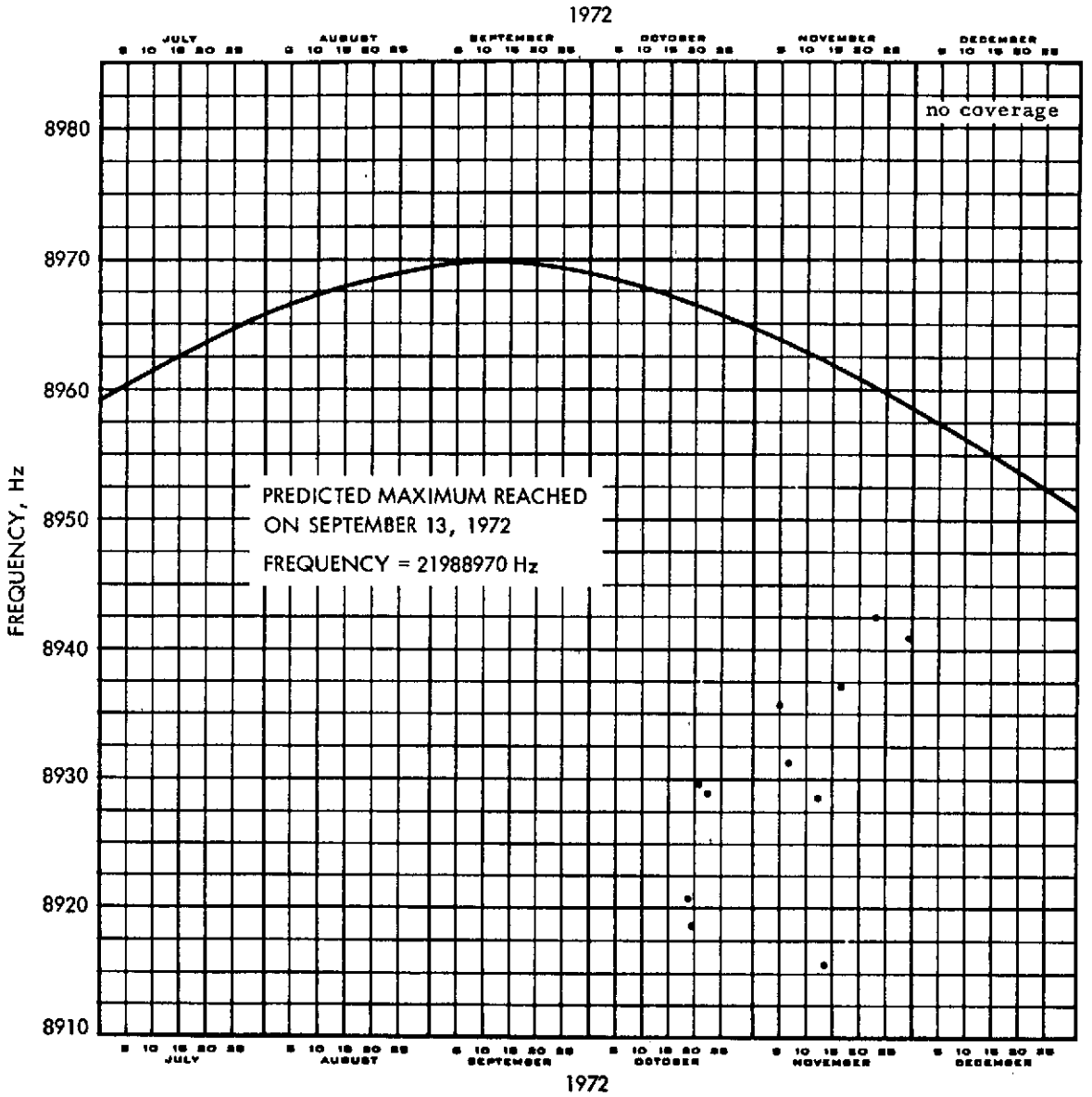


Fig. 28. Pioneer 8 best lock frequency, July through December 1972

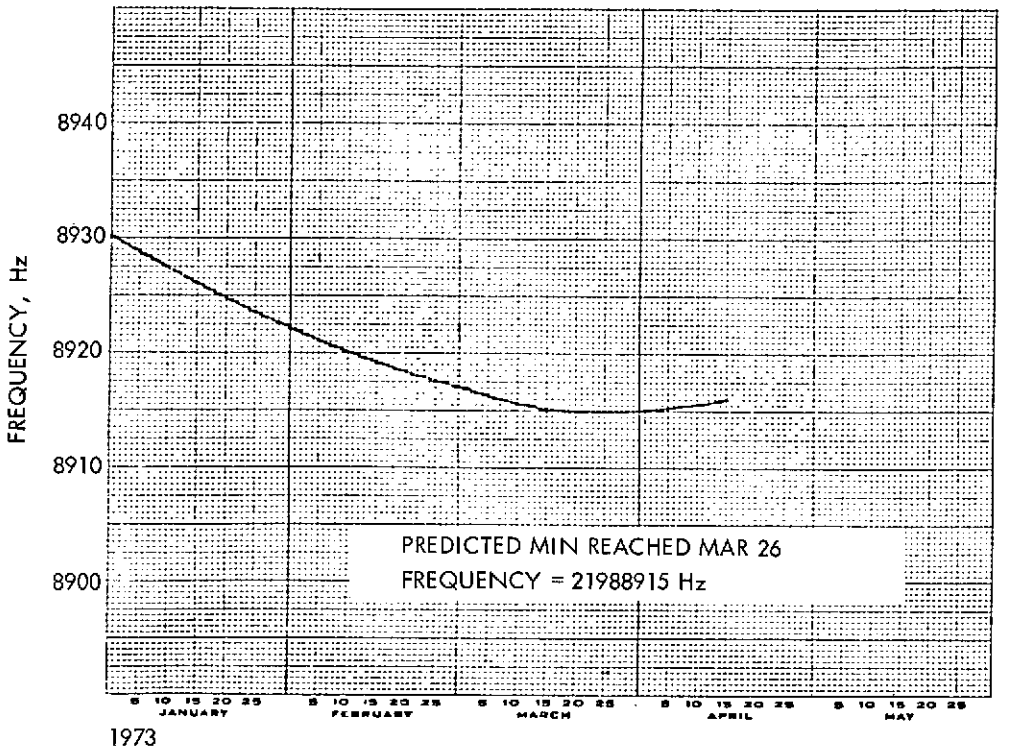


Fig. 29. Pioneer 8 best lock frequency, January through March 1973

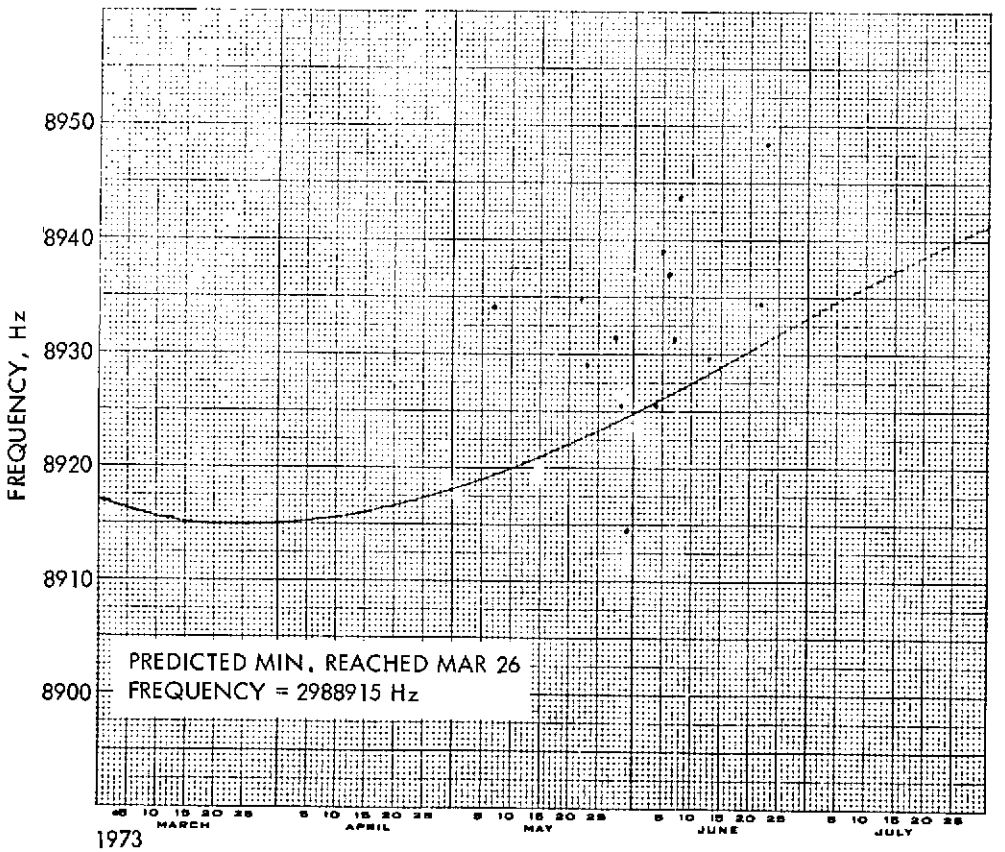


Fig. 30. Pioneer 8 best lock frequency, April through June 1973

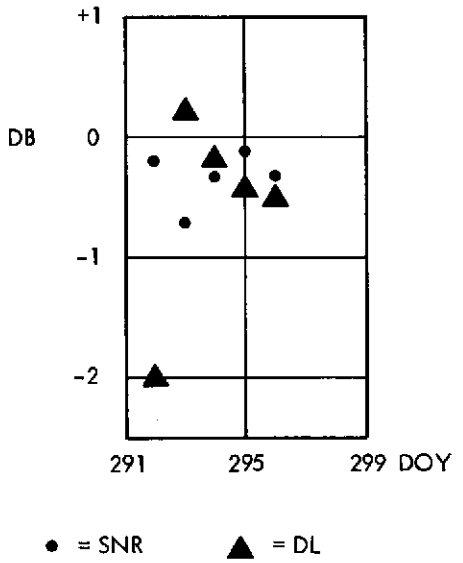


Fig. 31. DSS 14 residual data plots for Pioneer 8, October 1972

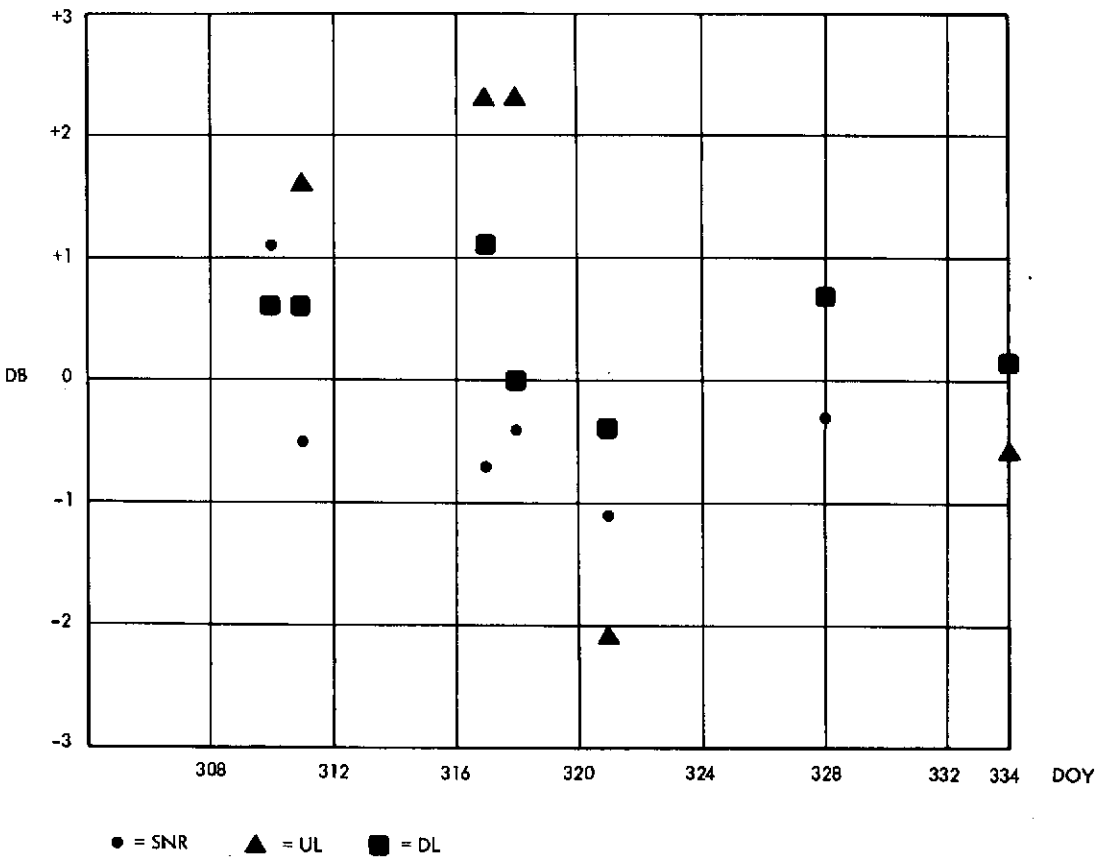


Fig. 32. DSS 14 residual data plots for Pioneer 8, November 1972

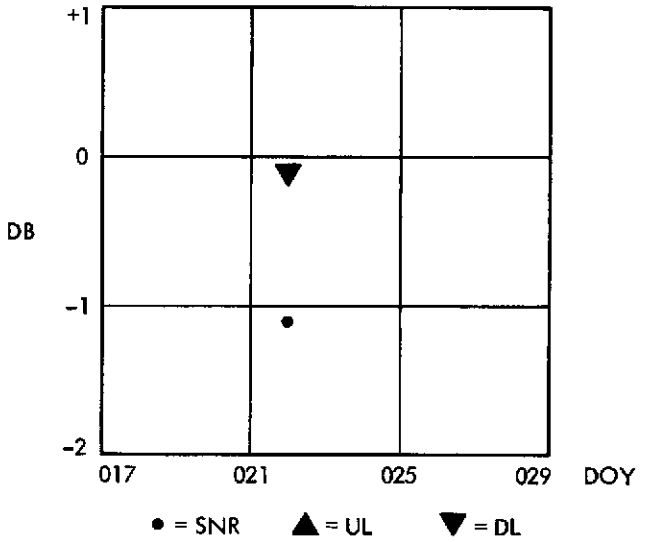


Fig. 33. DSS 14 residual data plots for Pioneer 8, January 1973

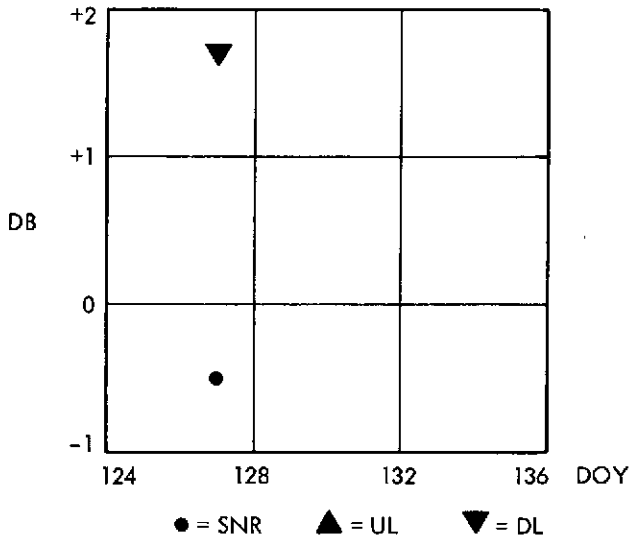


Fig. 34. DSS 14 residual data plots for Pioneer 8, May 1973

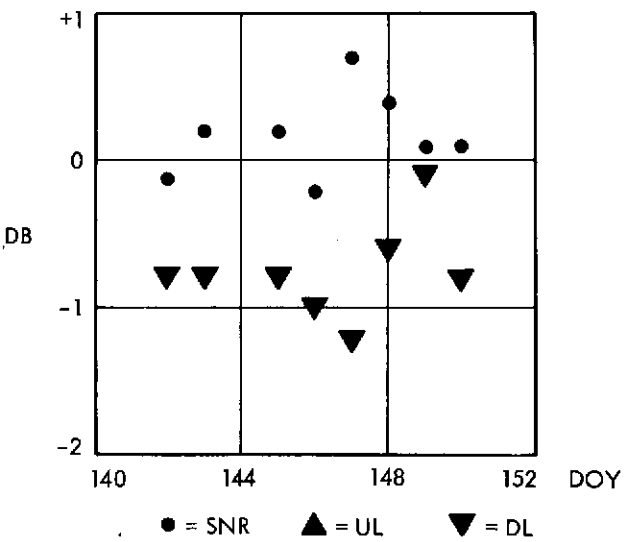


Fig. 35. DSS 43 residual data plots for Pioneer 8, May 1973

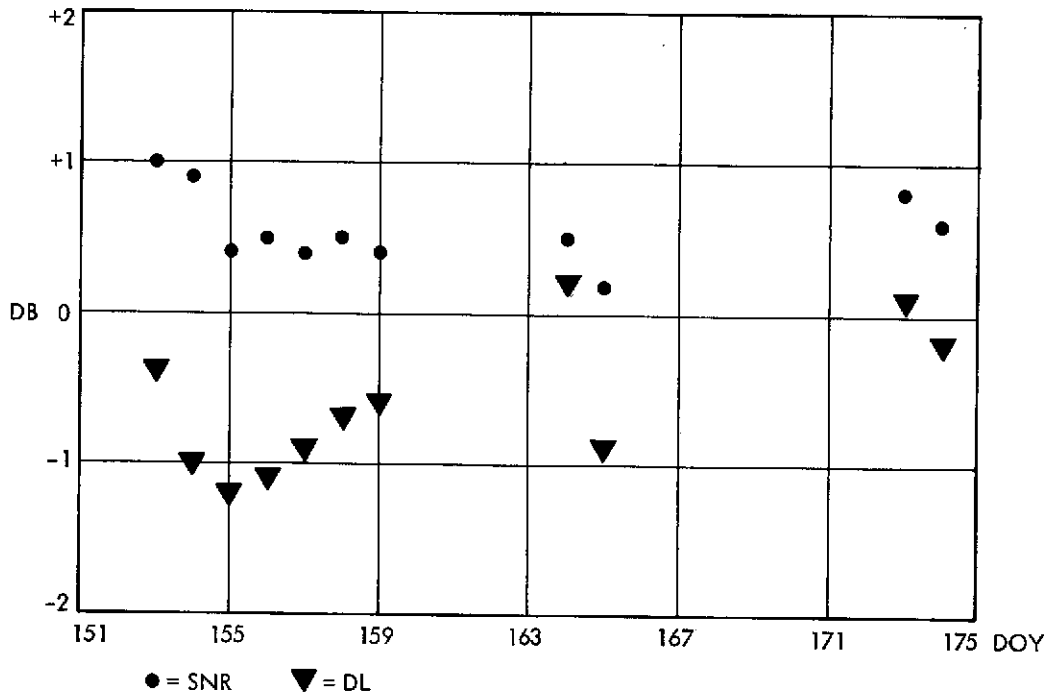


Fig. 36. DSS 43 residual data plots for Pioneer 8, June 1973

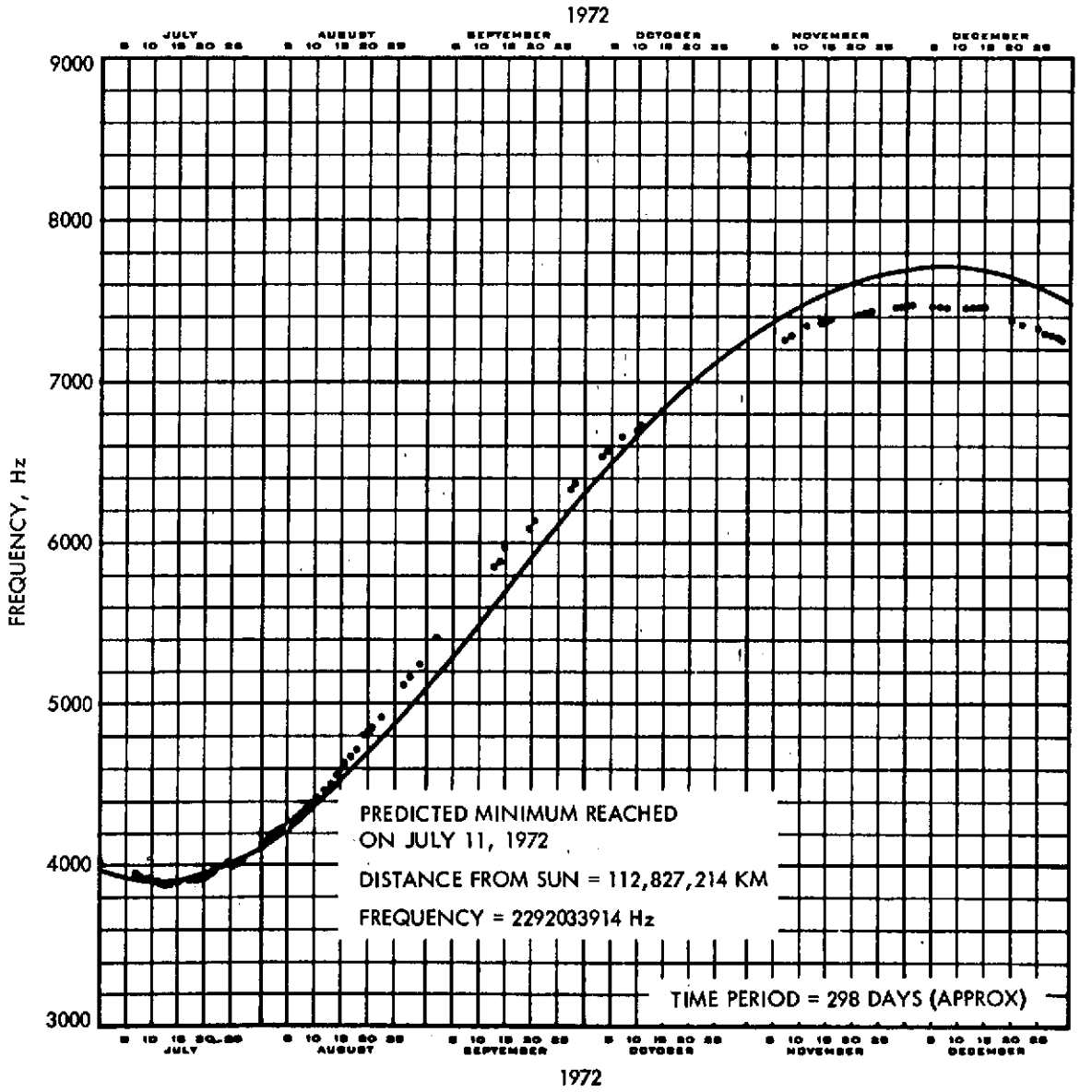


Fig. 37. Pioneer 9 auxiliary oscillator frequency, July through December 1972

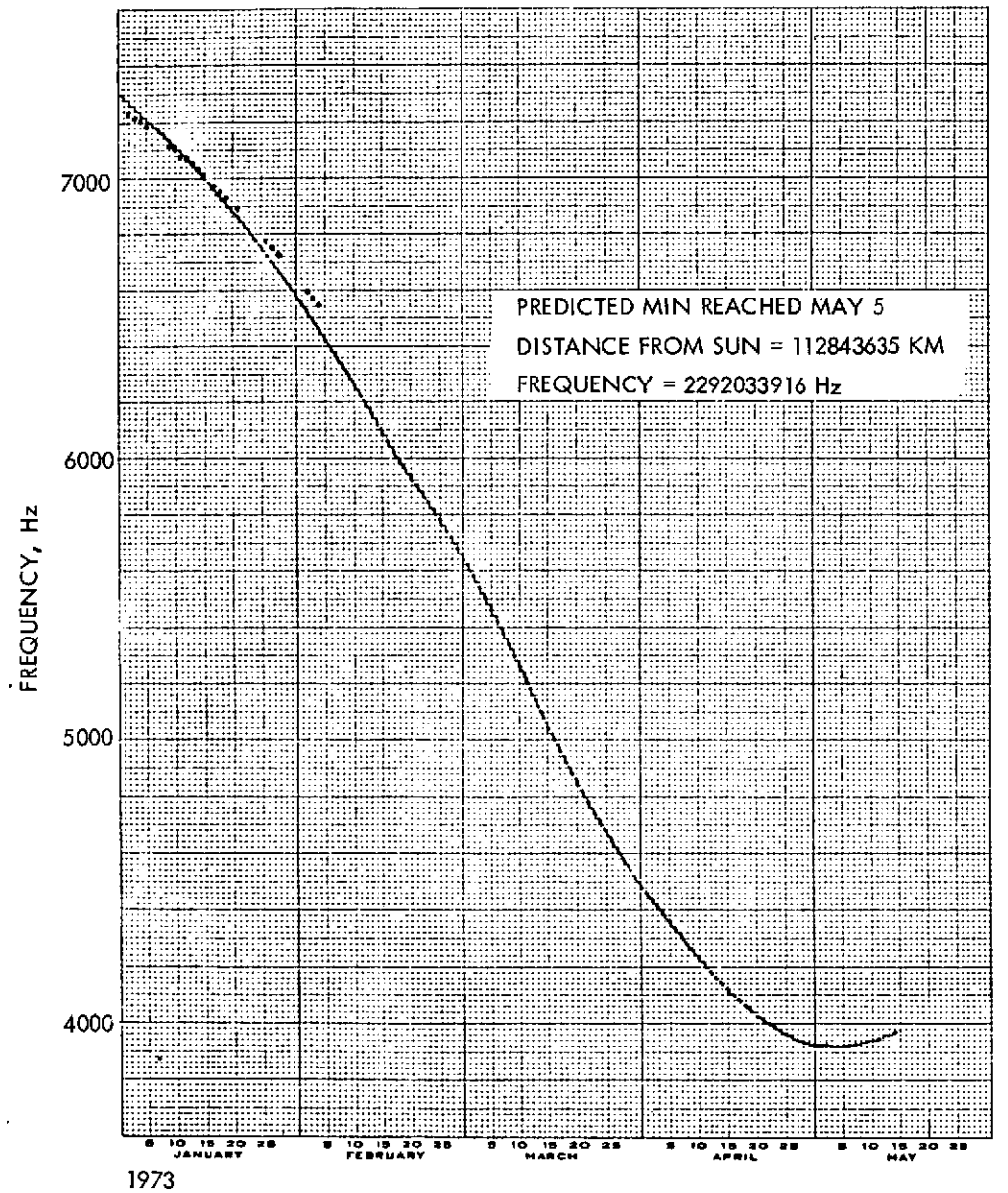


Fig. 38. Pioneer 9 auxiliary oscillator frequency, January and February 1973

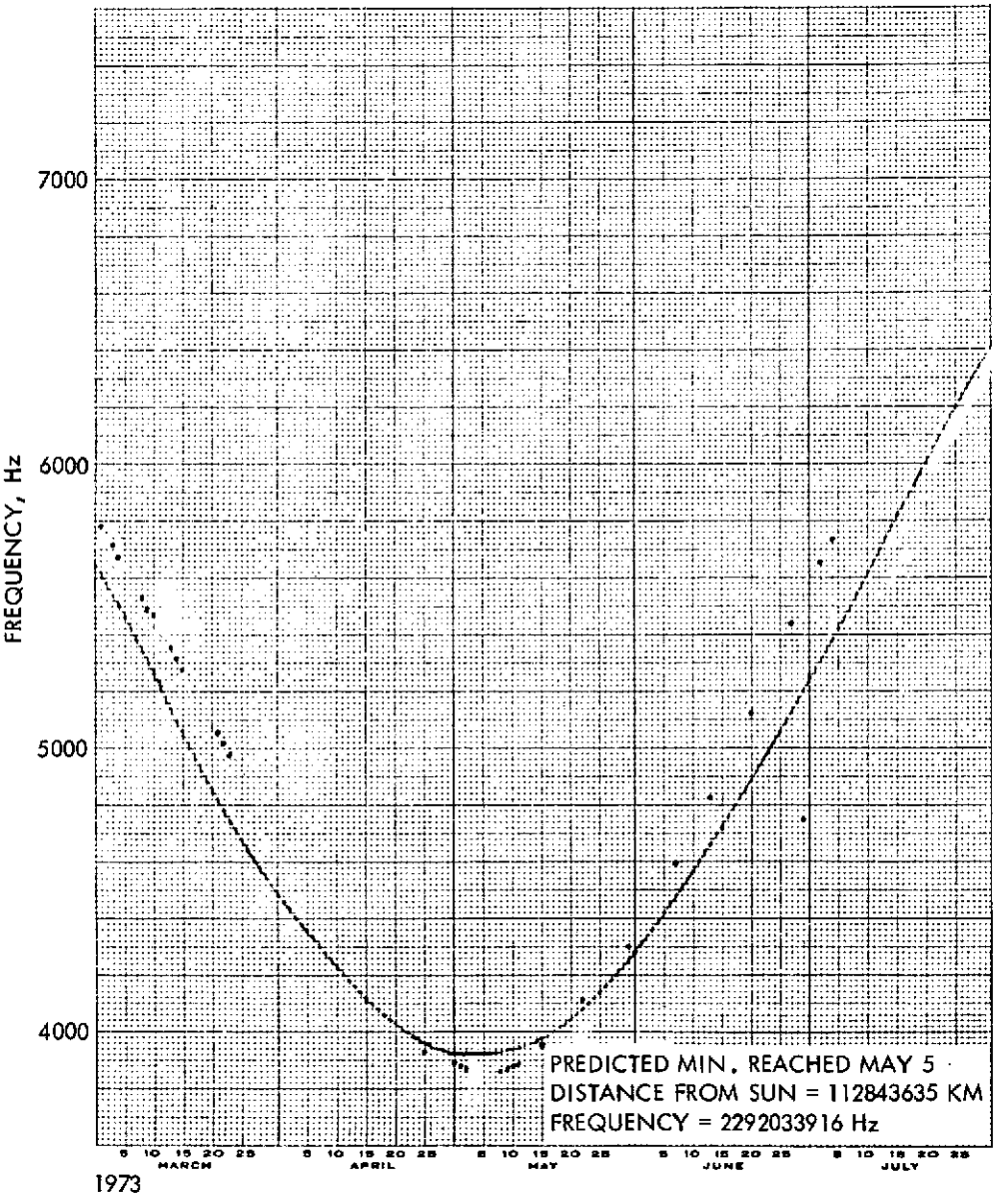


Fig. 39. Pioneer 9 auxiliary oscillator frequency, March through June 1973

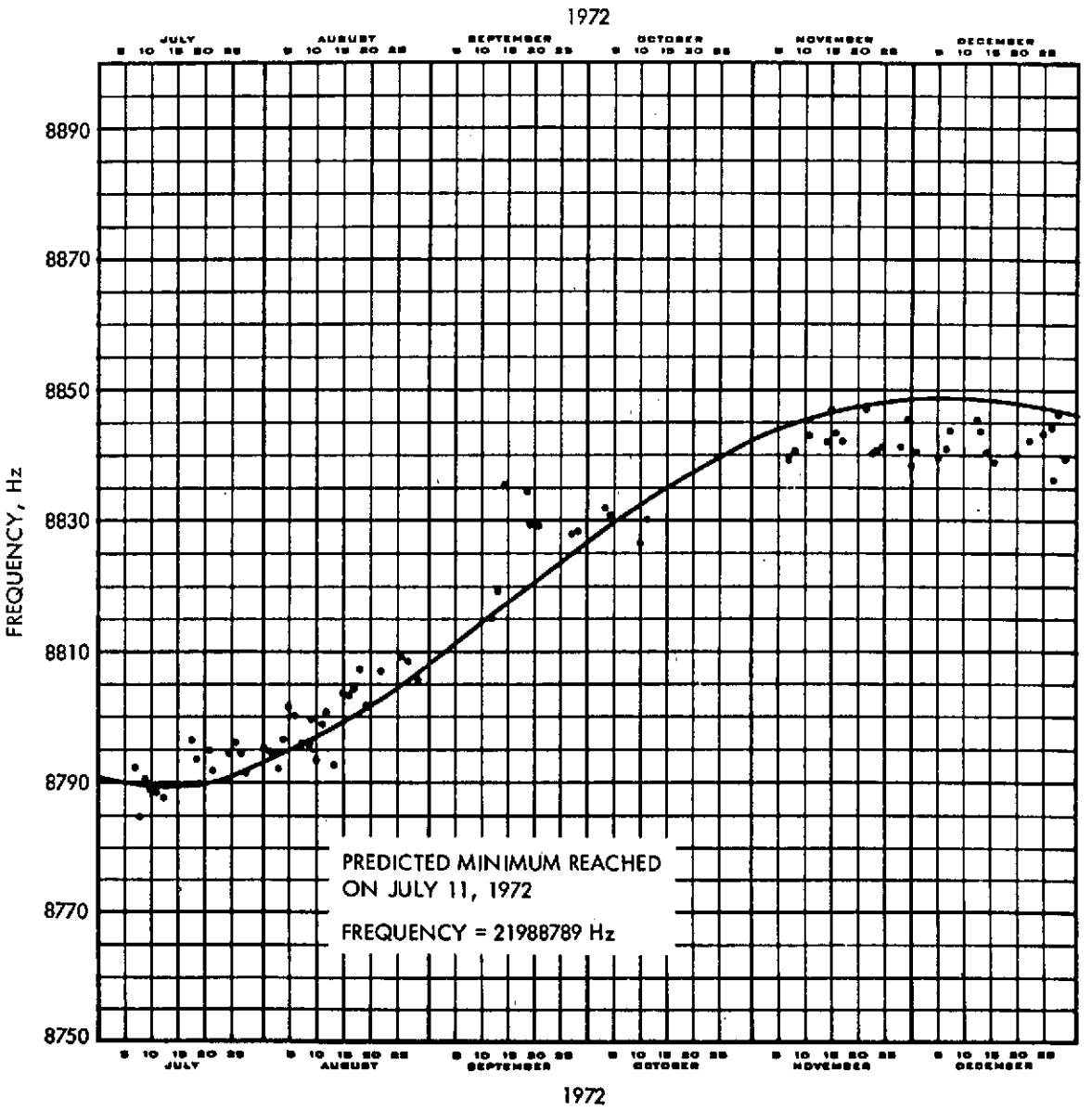


Fig. 40. Pioneer 9 best lock frequency, July Through December 1972

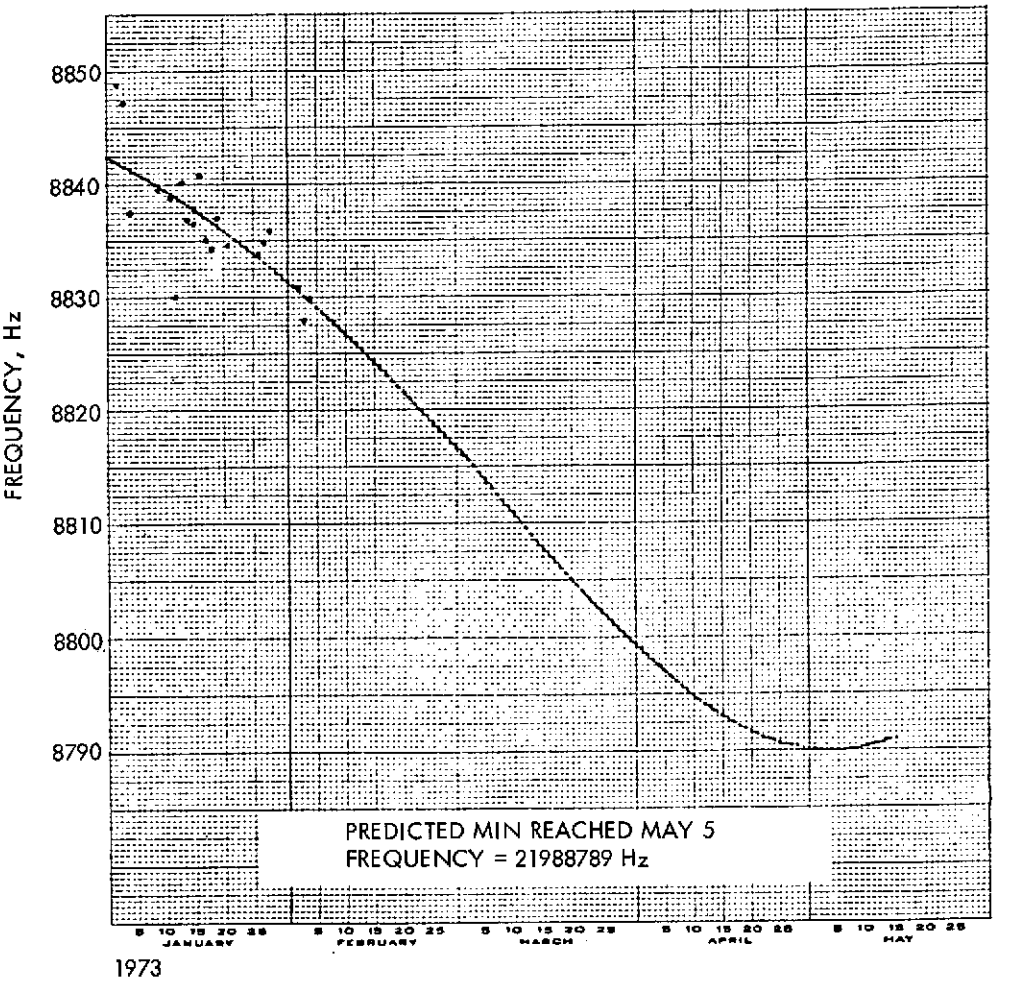


Fig. 41. Pioneer 9 best lock frequency, January and February 1973

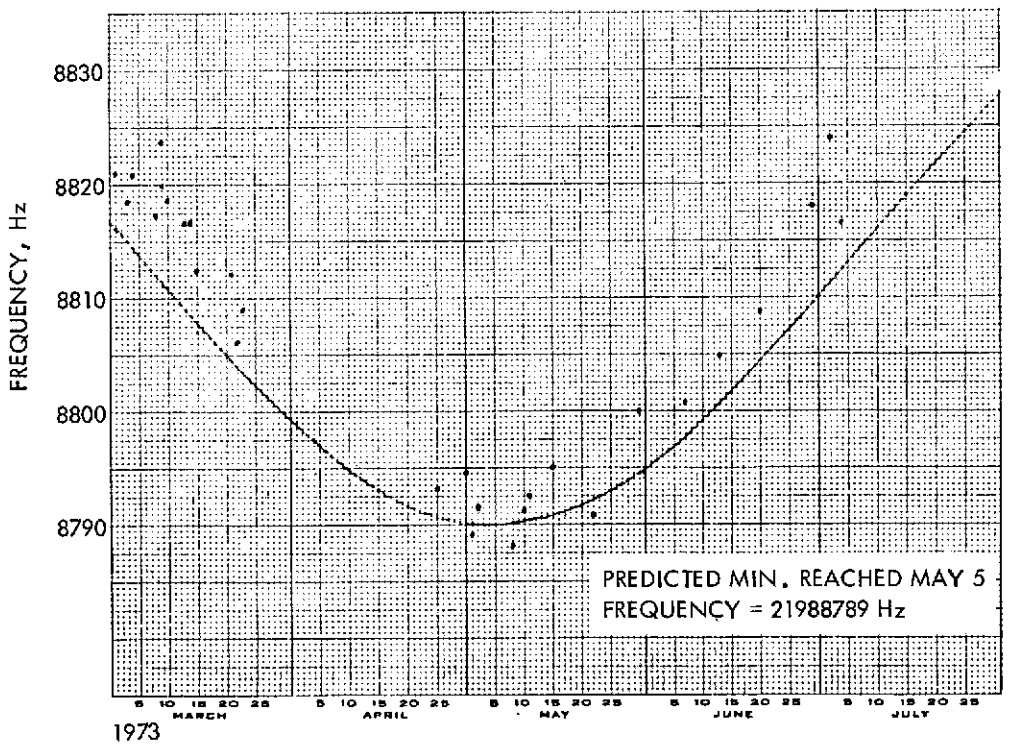


Fig. 42. Pioneer 9 best lock frequency, March through June 1973

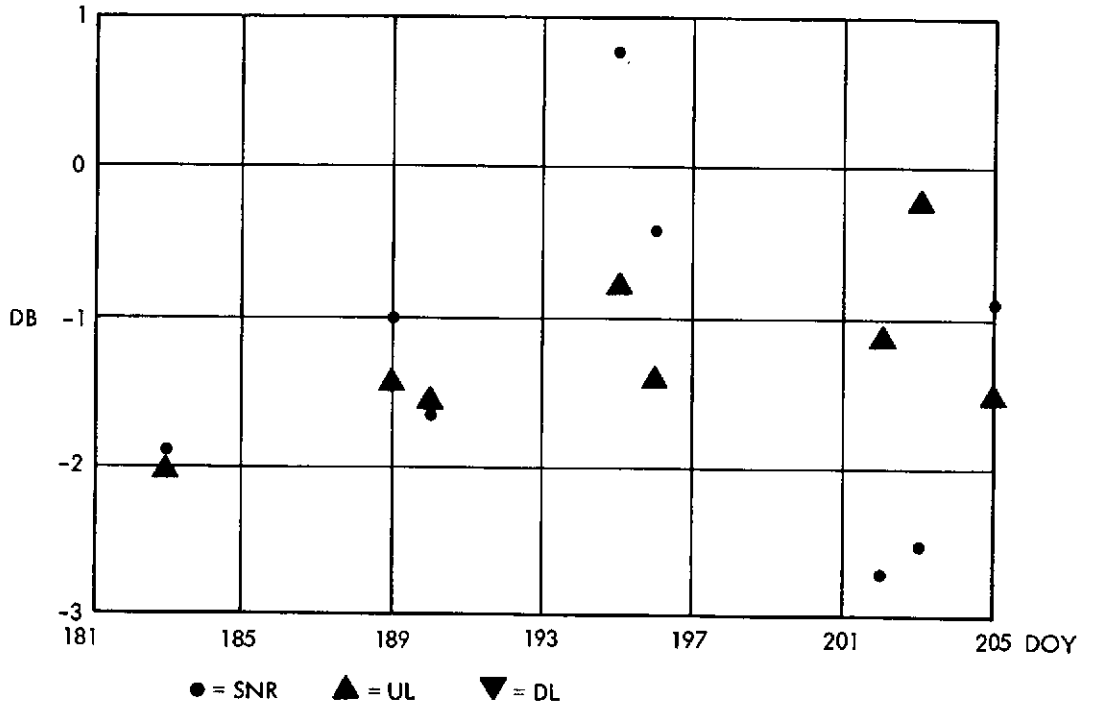


Fig. 43. DSS 12 residual data plots for Pioneer 9, July 1972

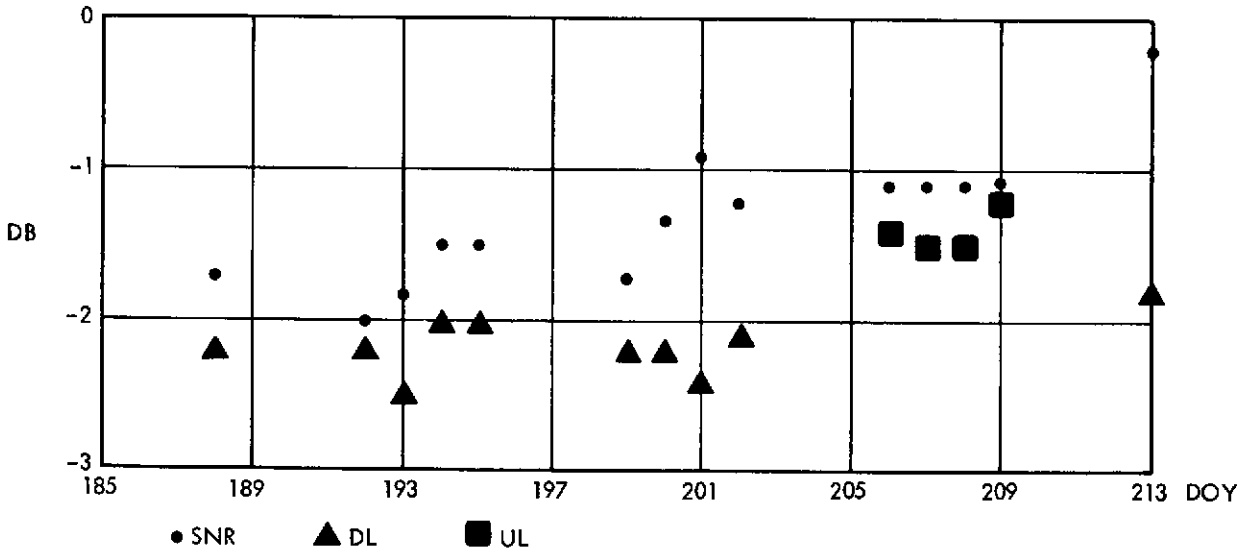


Fig. 44. DSS 51 residual data plots for Pioneer 9, July 1972

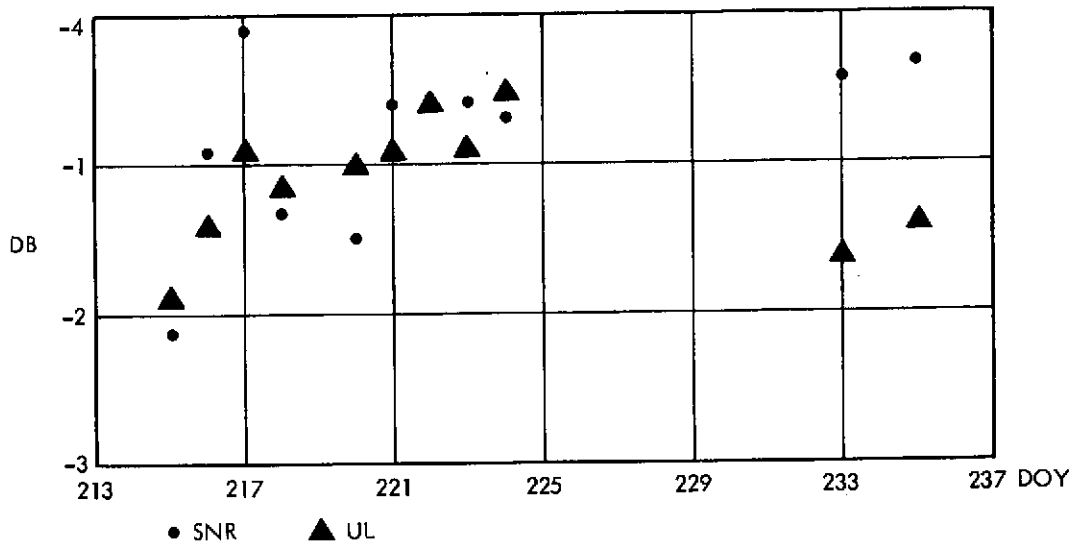


Fig. 45. DSS 12 residual data plots for Pioneer 9, August 1972

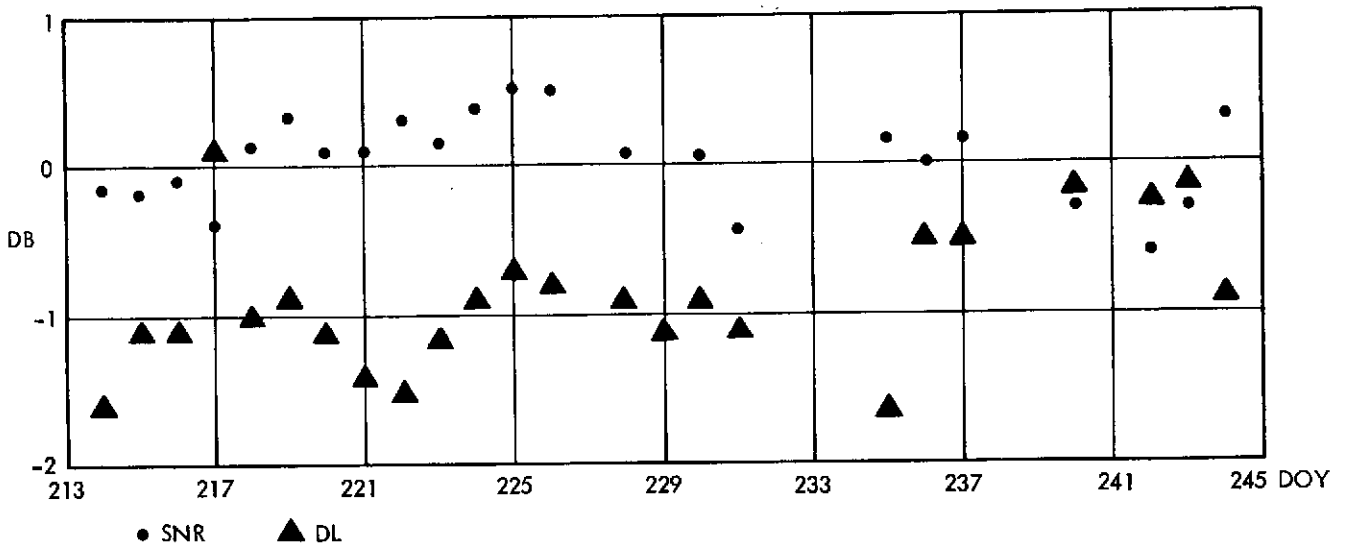


Fig. 46. DSS 41 residual data plots for Pioneer 9, August 1972

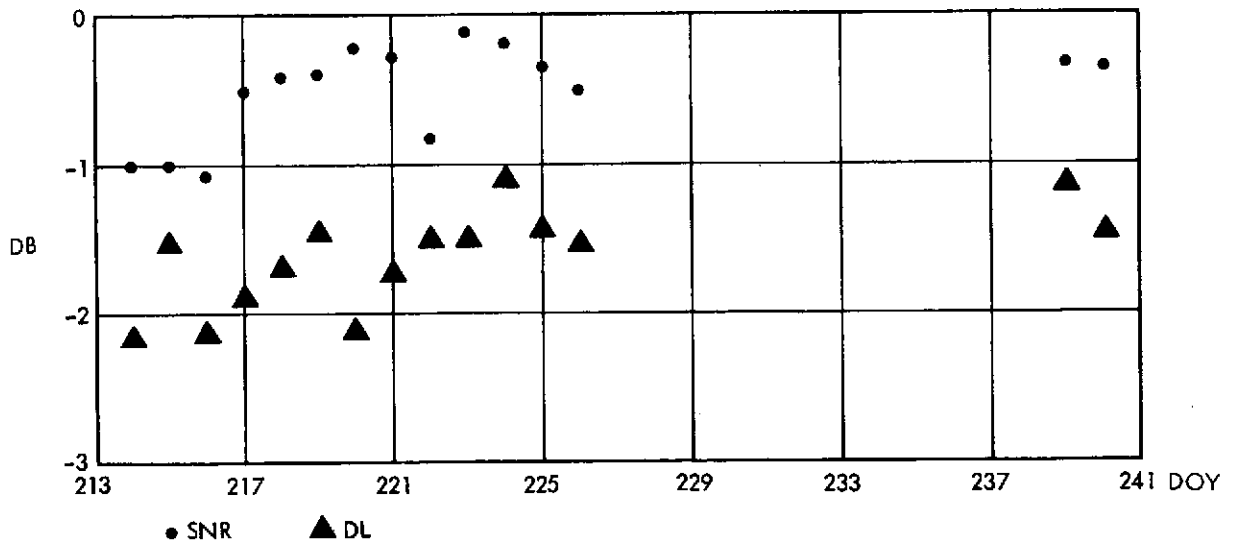


Fig. 47. DSS 51 residual data plots for Pioneer 9, August 1972

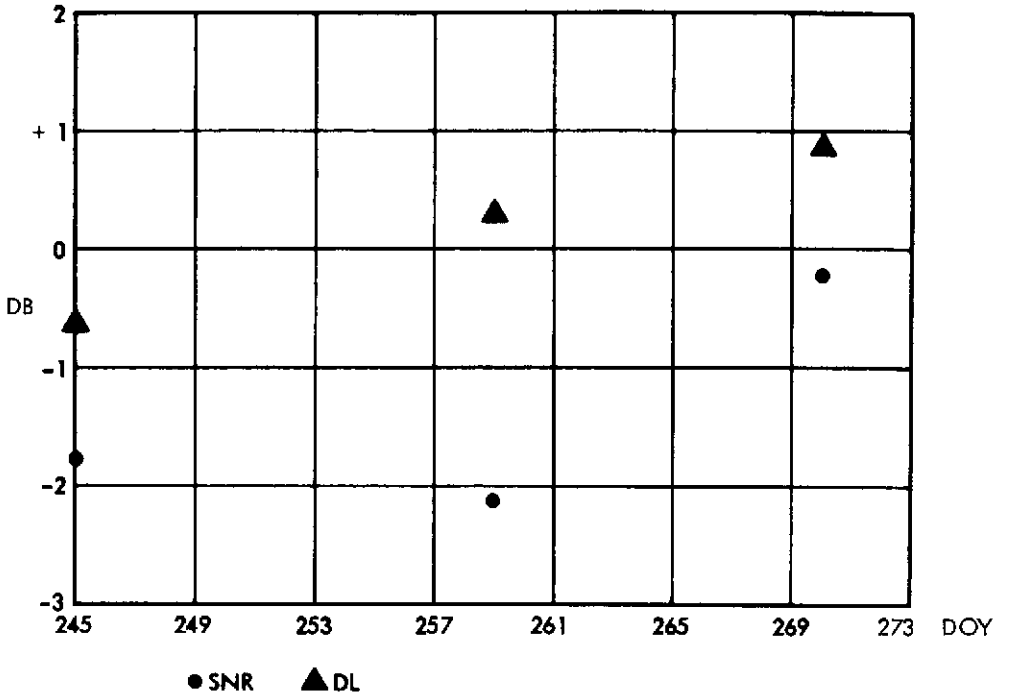


Fig. 48. DSS 12 residual data plots for Pioneer 9, September 1972

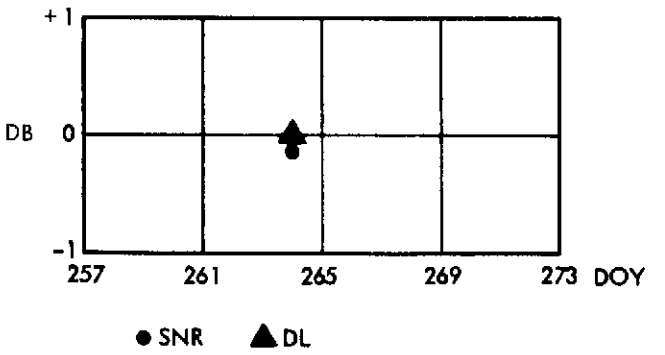


Fig. 49. DSS 41 residual data plots for Pioneer 9, September 1972

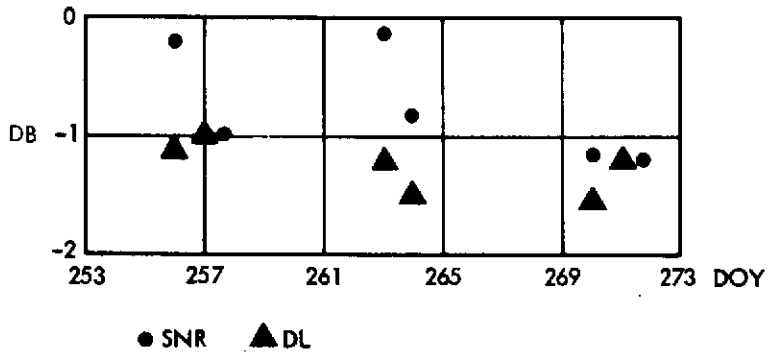


Fig. 50. DSS 51 residual data plots for Pioneer 9, September 1972

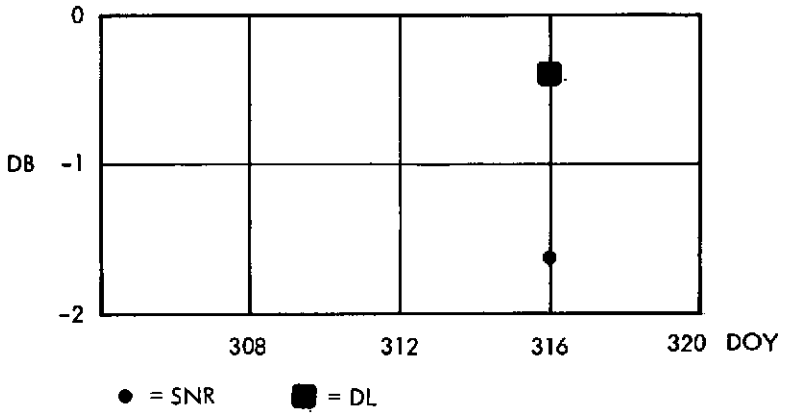


Fig. 51. DSS 12 residual data plots for Pioneer 9, November 1972

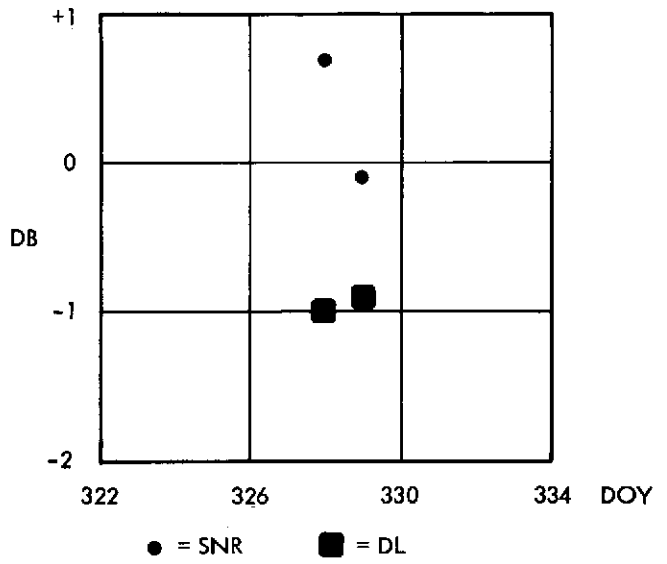


Fig. 52. DSS 41 residual data plots for Pioneer 9, November 1972

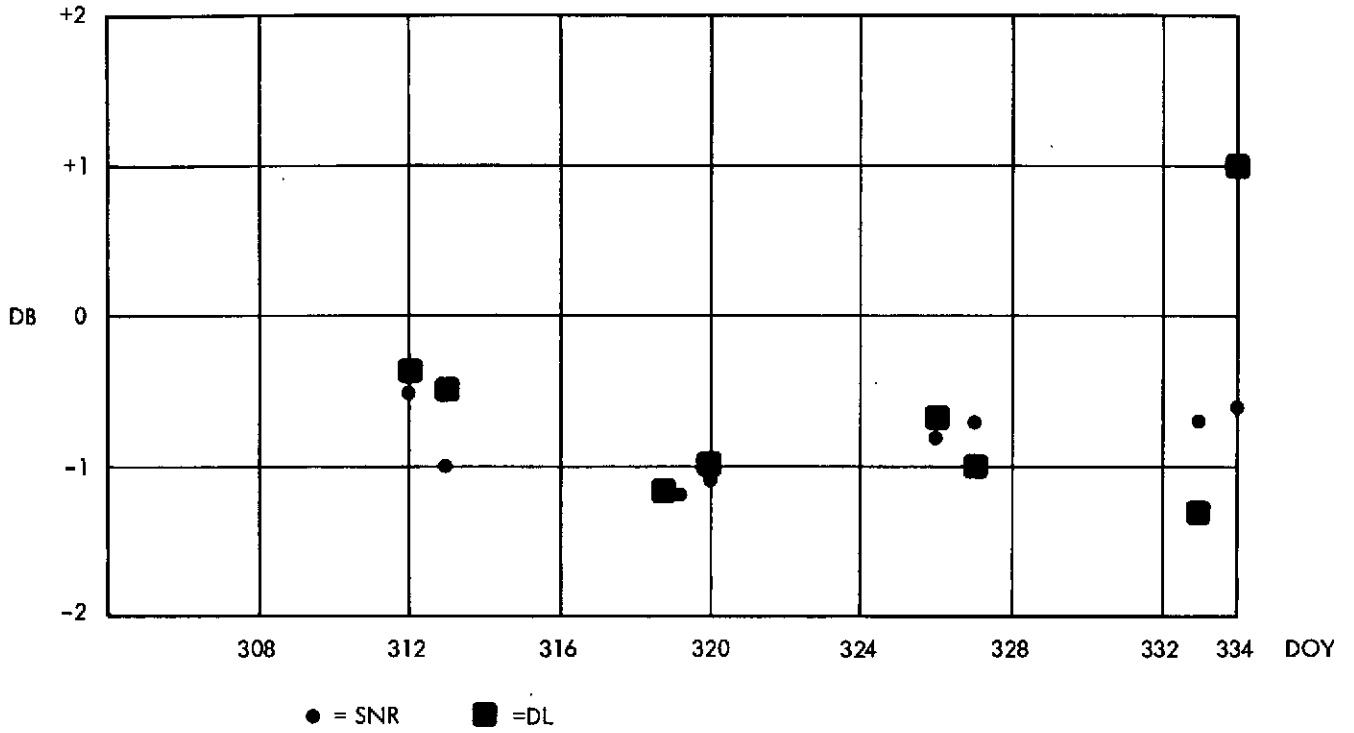


Fig. 53. DSS 51 residual data plots for Pioneer 9, November 1972

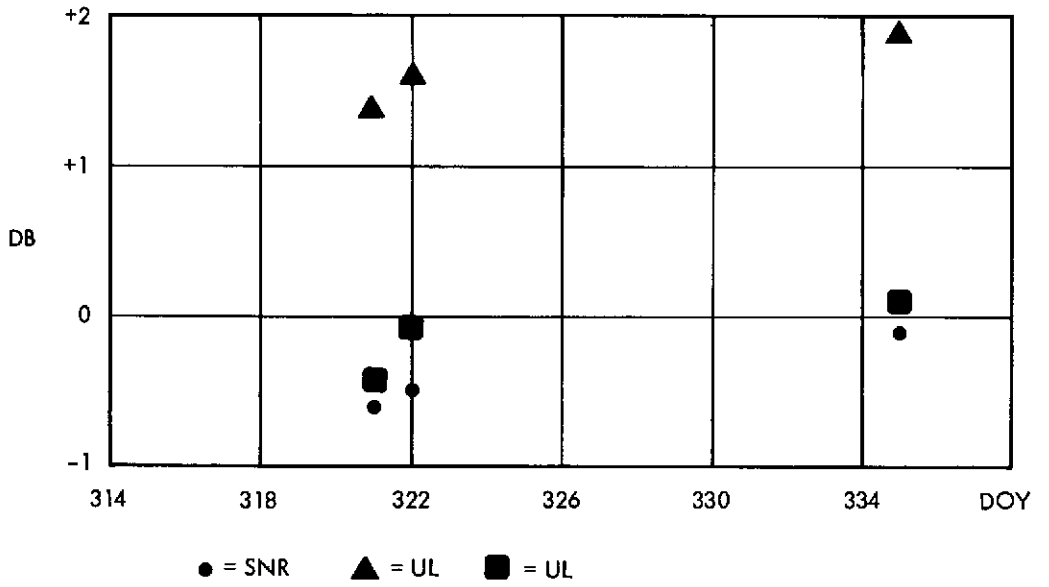


Fig. 54. DSS 62 residual data plots for Pioneer 9, November 1972

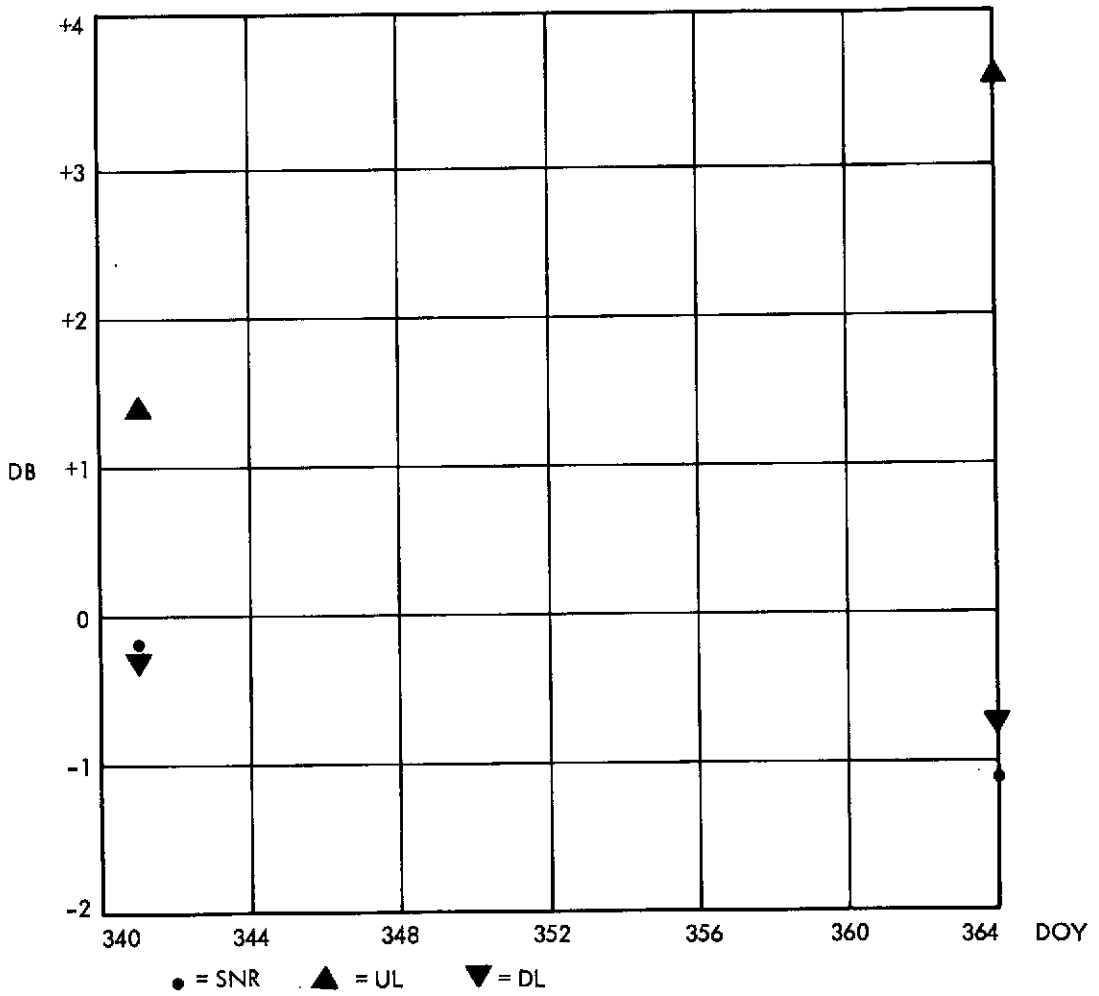


Fig. 55. DSS 12 residual data plots for Pioneer 9, December 1972

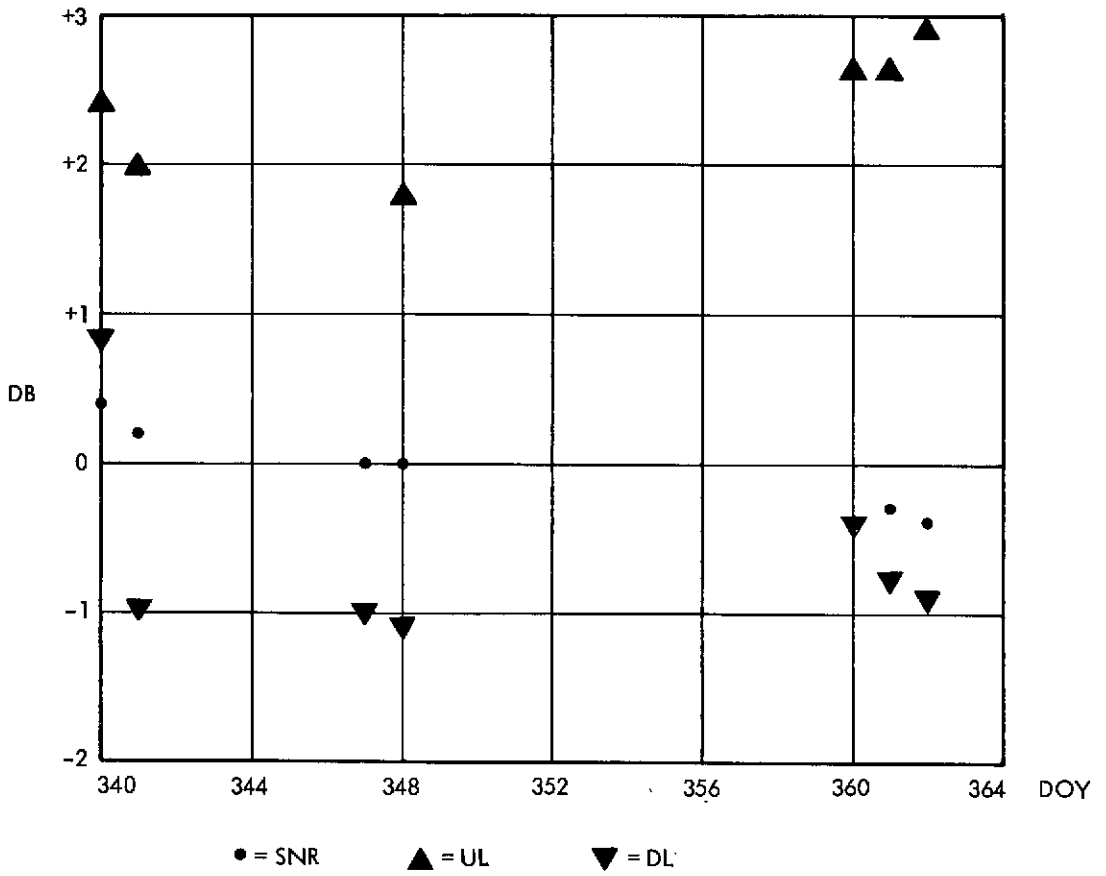


Fig. 56. DSS 51 residual data plots for Pioneer 9, December 1972

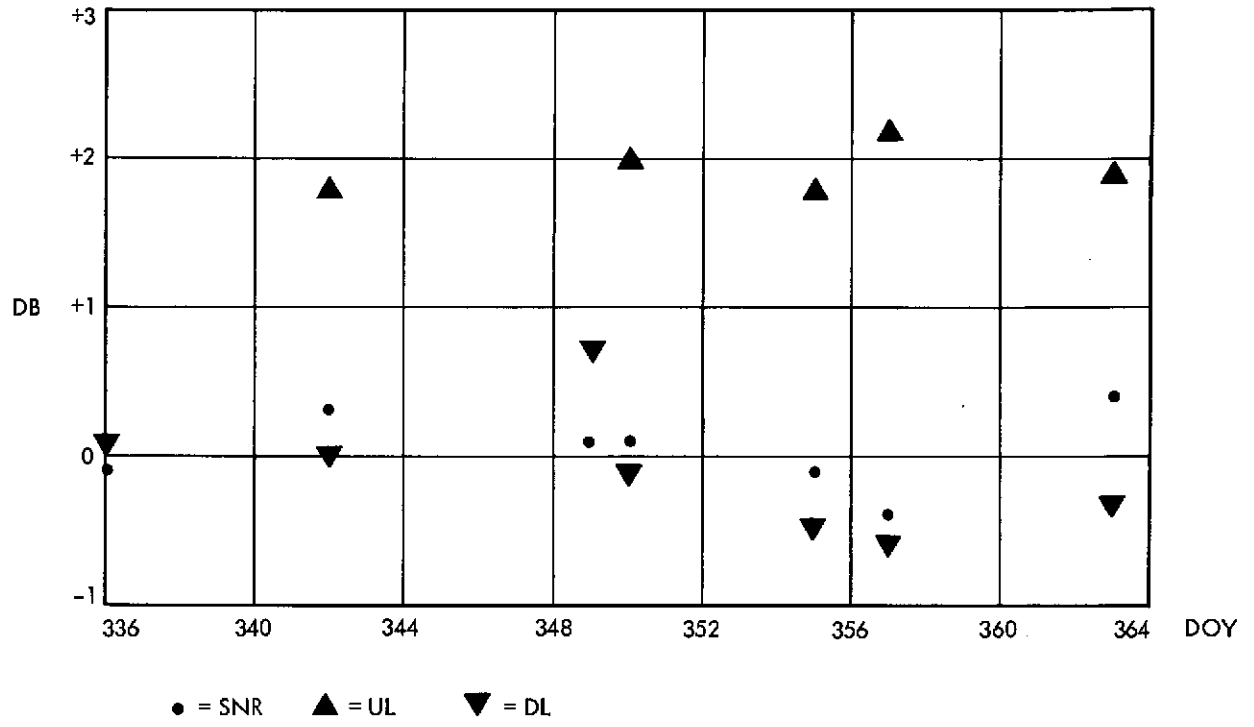


Fig. 57. DSS 62 residual data plots for Pioneer 9, December 1972

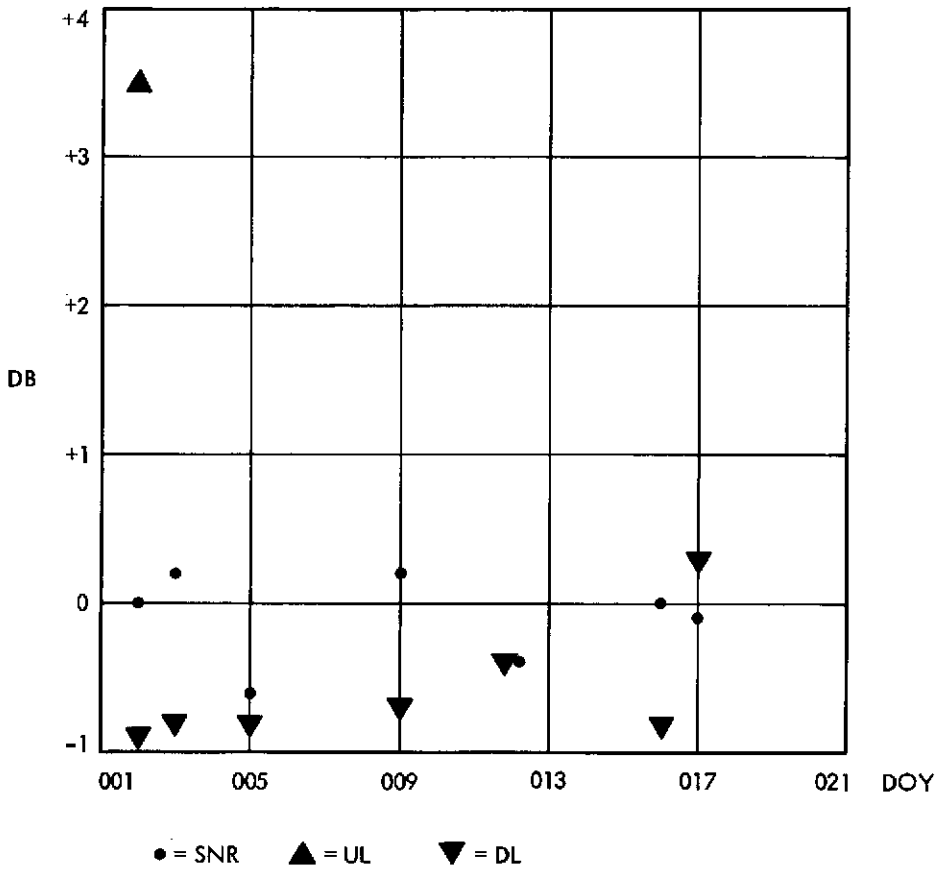


Fig. 58. DSS 12 residual data plots for Pioneer 9, January 1973

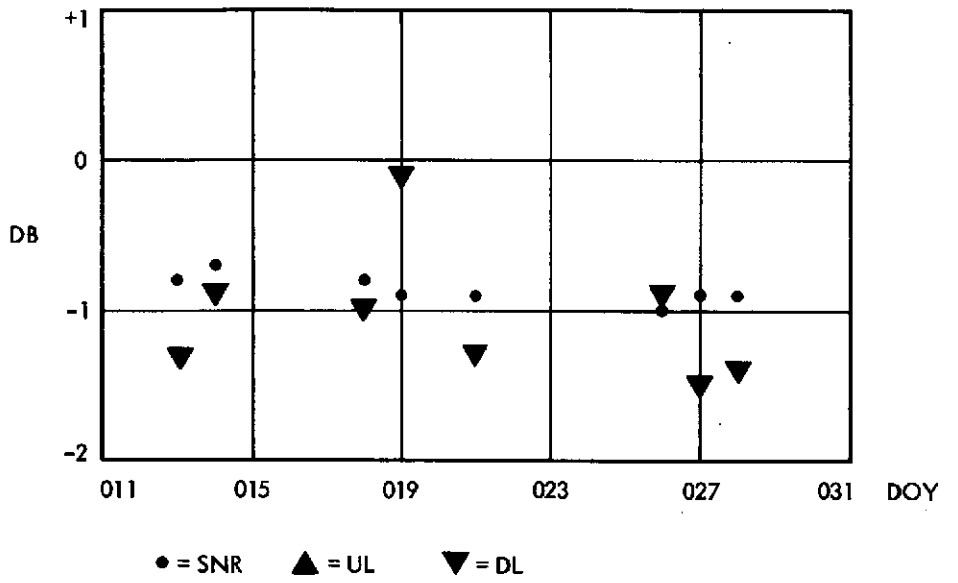


Fig. 59. DSS 51 residual data plots for Pioneer 9, January 1973

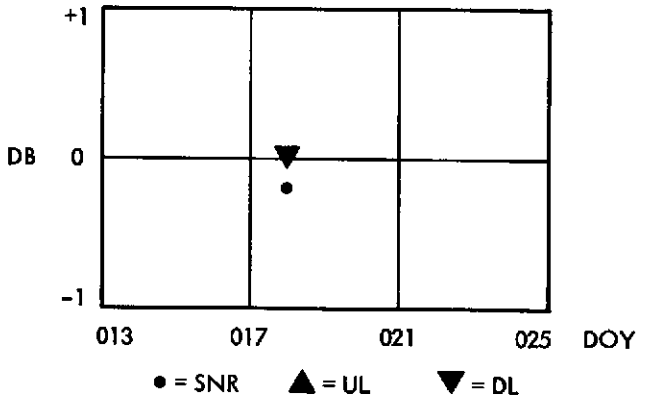


Fig. 60. DSS 62 residual data plots for Pioneer 9, January 1973

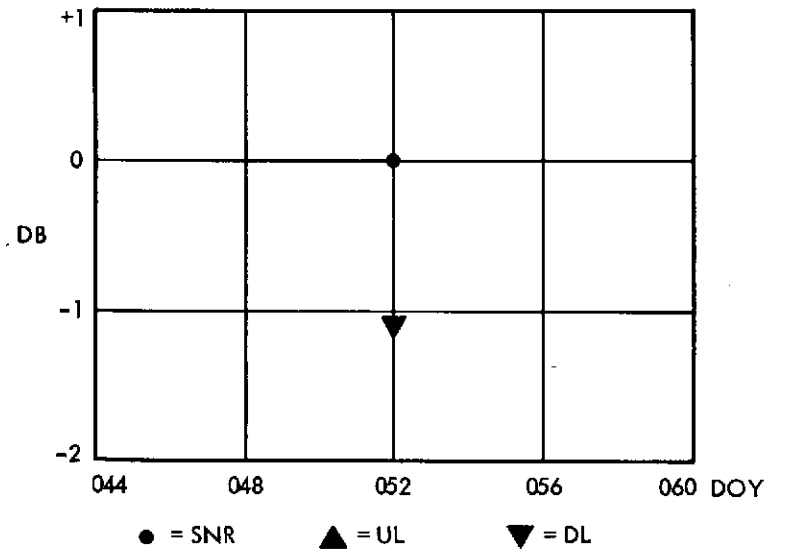


Fig. 61. DSS 12 residual data plots for Pioneer 9, February 1973

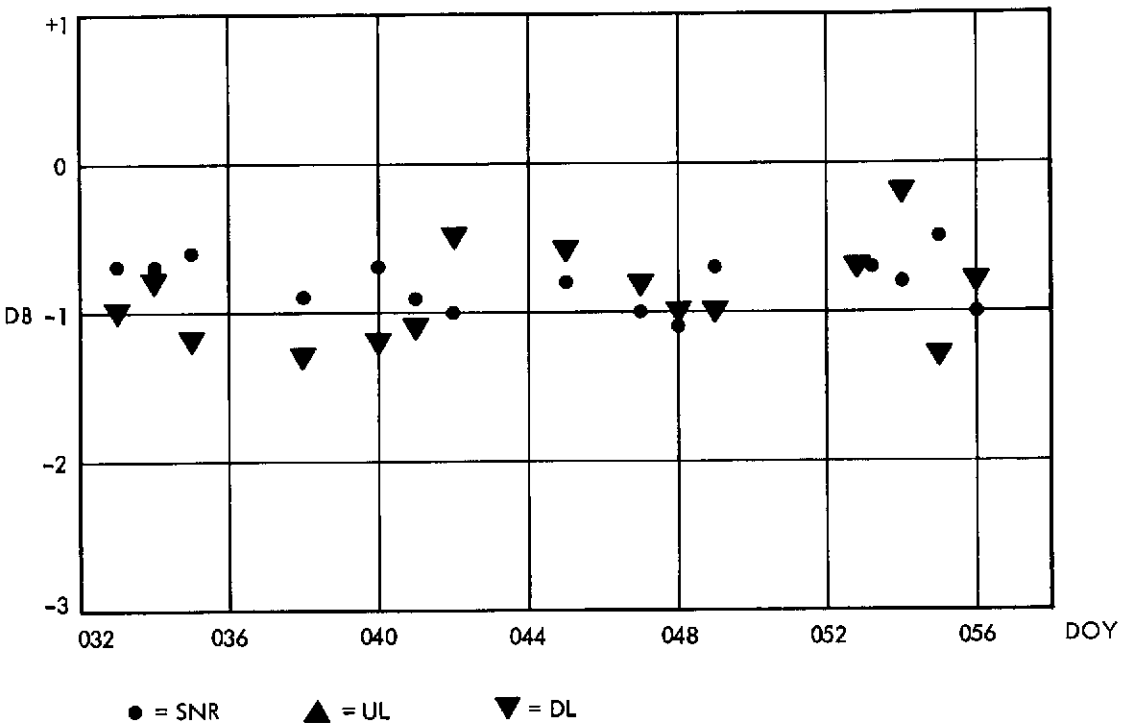


Fig. 62. DSS 51 residual data plots for Pioneer 9, February 1973

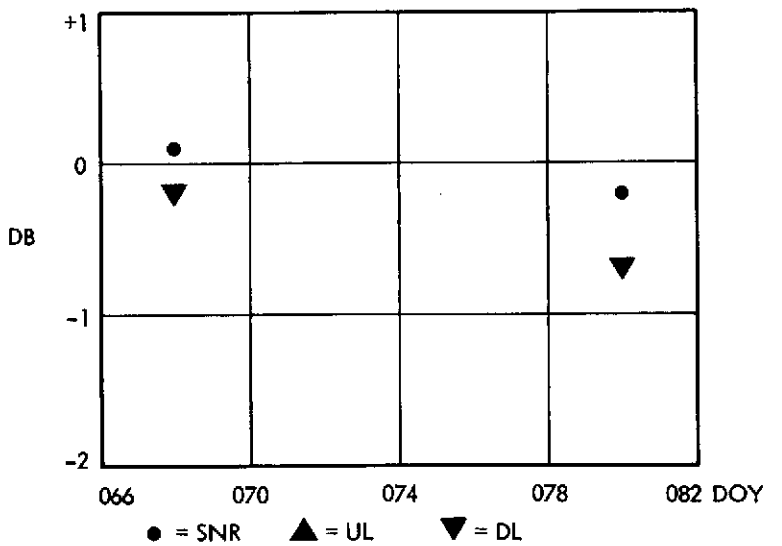


Fig. 63. DSS 12 residual data plots for Pioneer 9, February 1973

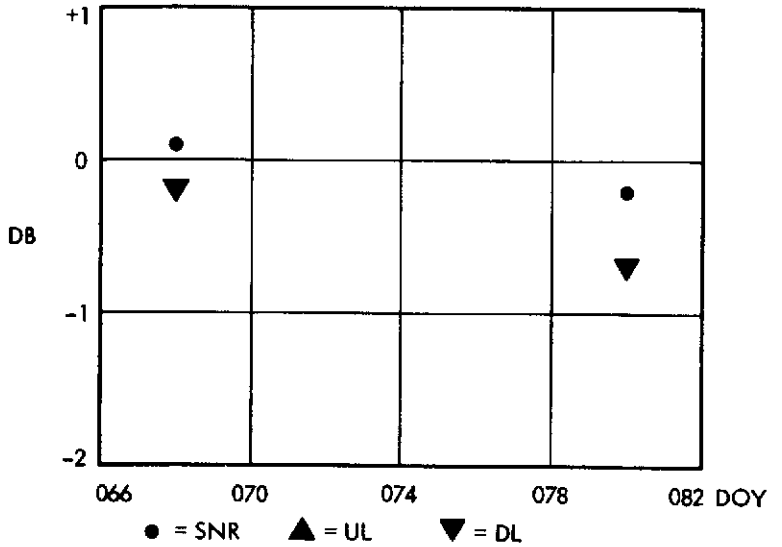


Fig. 64. DSS 12 residual data plots for Pioneer 9, March 1973

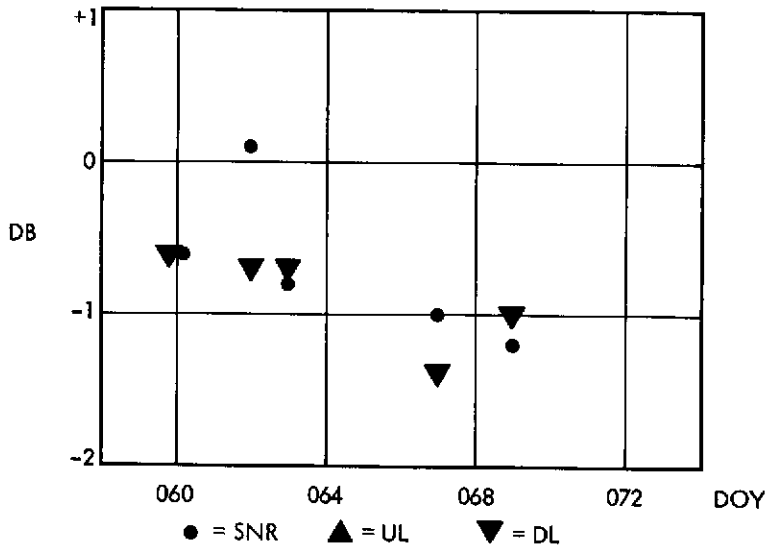


Fig. 65. DSS 51 residual data plots for Pioneer 9, March 1973

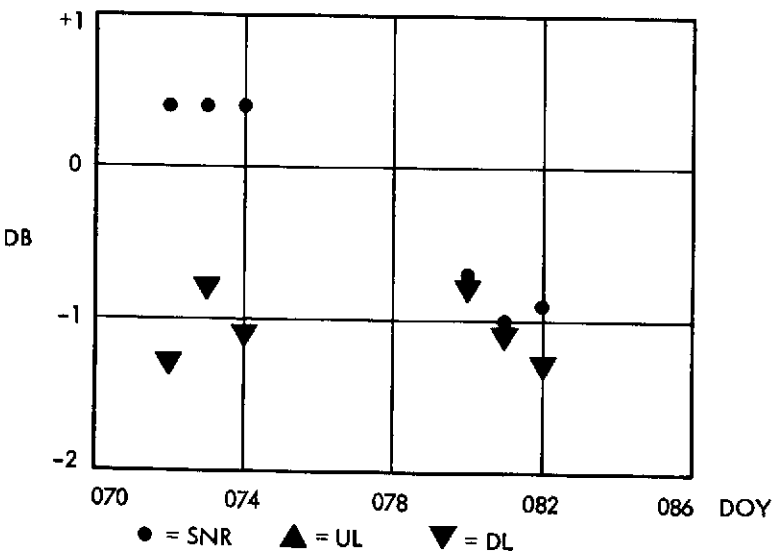


Fig. 66. DSS 62 residual data plots for Pioneer 9, March 1973

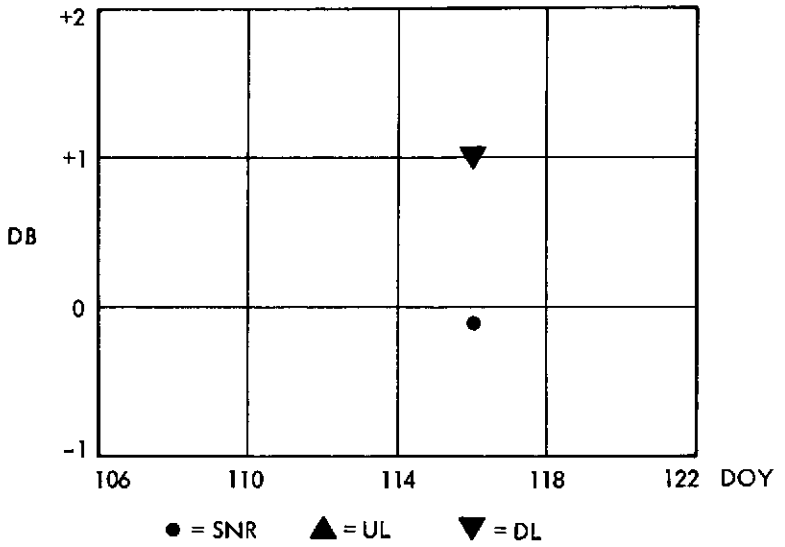


Fig. 67. DSS 12 residual data plots for Pioneer 9, April 1973

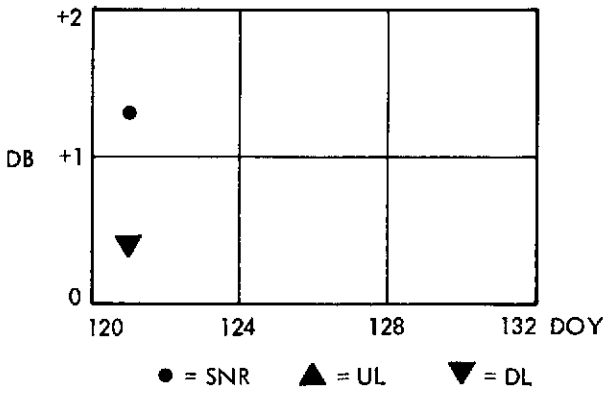


Fig. 68. DSS 14 residual data plots for Pioneer 9, May 1973

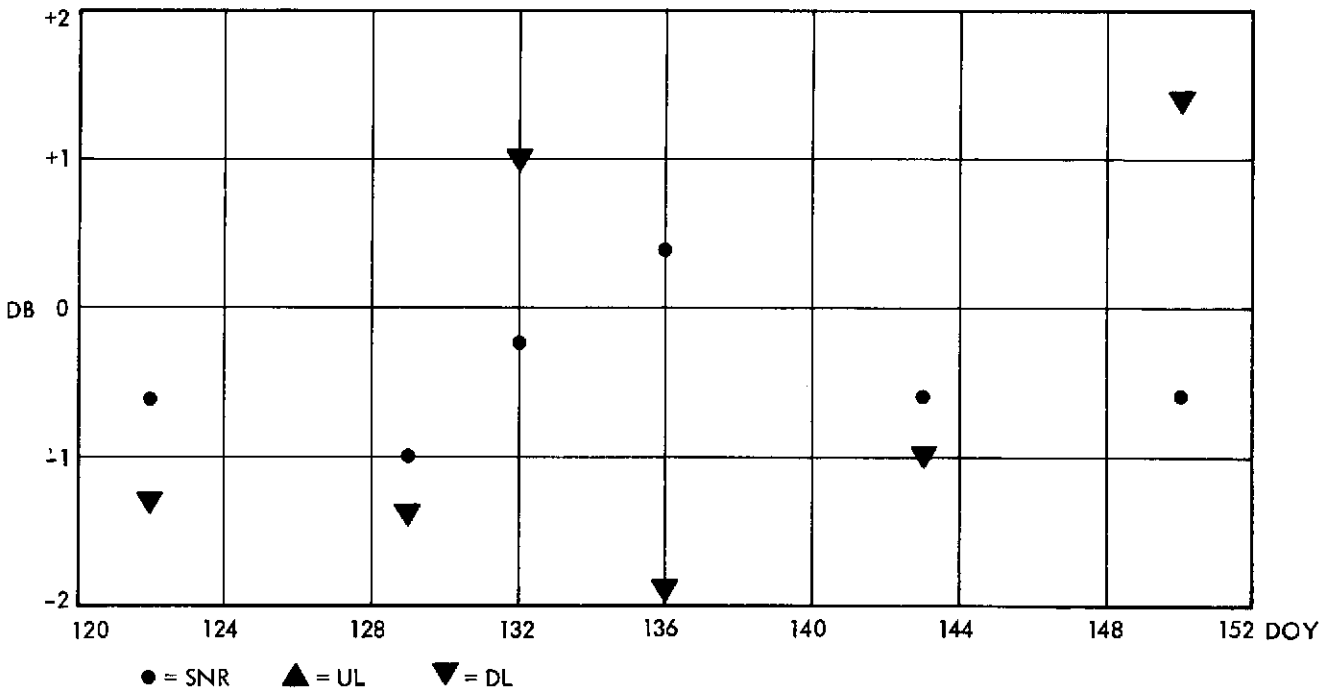


Fig. 69. DSS 51 residual data plots for Pioneer 9, May 1973

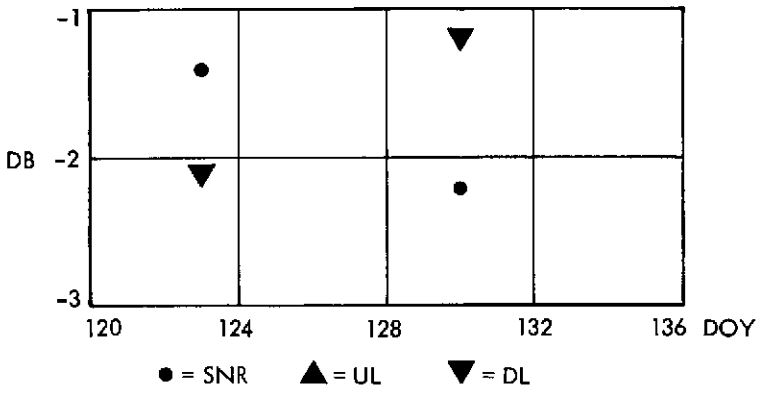


Fig. 70. DSS 61 residual data plots for Pioneer 9, May 1973

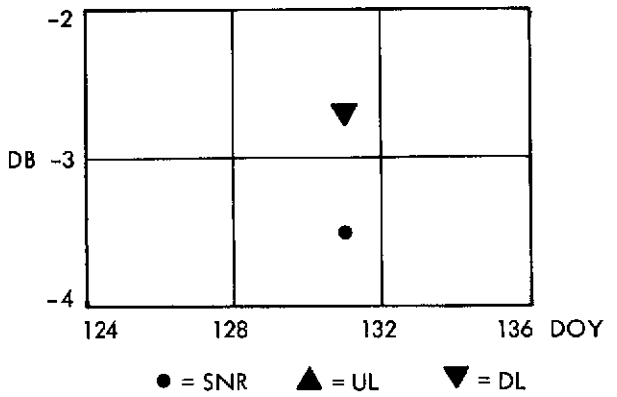


Fig. 71. DSS 62 residual data plots for Pioneer 9, May 1973

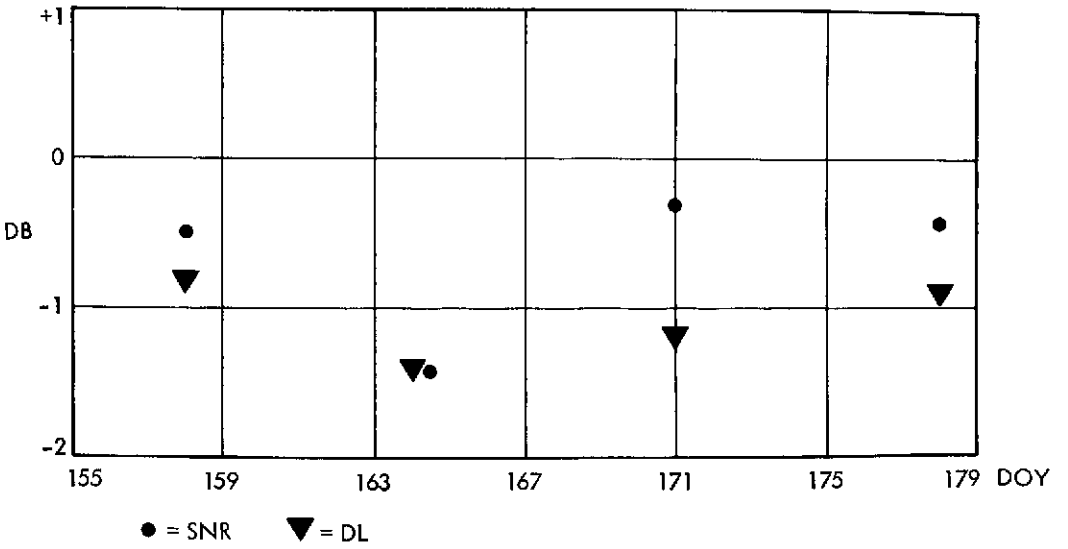


Fig. 72. DSS 51 residual data plots for Pioneer 9, June 1973

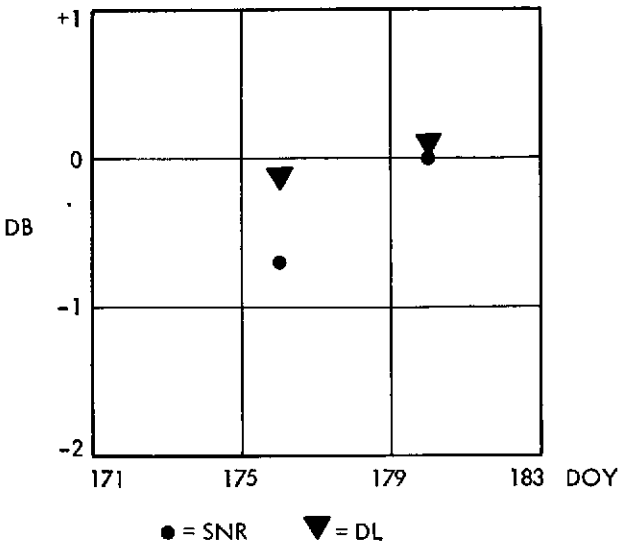


Fig. 73. DSS 61 residual data plots for Pioneer 9, June 1973

APPENDIX A

PIONEER PASS CALENDAR
JULY 1, 1972 TO JULY 1, 1973

PIONEER CALENDAR

July 1972			27						28							29							30							31
Calendar Date	S/1	Su/2	M/3	T/4	W/5	Th/6	F/7	S/8	Su/9	M/10	T/11	W/12	Th/13	F/14	S/15	Su/16	M/17	T/18	W/19	Th/20	F/21	S/22	Su/23	M/24	T/25	W/26	Th/27	F/28	S/29	Su/30	M/31
Day of Year	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213
Pioneer 6 Pass	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420
Pn 6 DSS 41,42	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421
Pioneer 7 Pass	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176
Pioneer 8 Pass	1663	1664	1665	1666	1667	1668	1669	1670	1671	1672	1673	1674	1675	1676	1677	1678	1679	1680	1681	1682	1683	1684	1685	1686	1687	1688	1689	1690	1691	1692	1693
Pioneer 9 Pass	1332	1333	1334	1335	1336	1337	1338	1339	1340	1341	1342	1343	1344	1345	1346	1347	1348	1349	1350	1351	1352	1353	1354	1355	1356	1357	1358	1359	1360	1361	1362
Pioneer 10 Pass	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151
Pn 10 DSS 51	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152

August 1972							32							33							34							35			
Calendar Date	T/1	W/2	Th/3	F/4	S/5	S/6	M/7	T/8	W/9	Th/10	F/11	S/12	Su/13	M/14	T/15	W/16	Th/17	F/18	S/19	Su/20	M/21	T/22	W/23	Th/24	F/25	S/26	Su/27	M/28	T/29	W/30	Th/31
Day of Year	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244
Pioneer 6 Pass	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451
Pn 6 DSS 41,42	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452
Pioneer 7 Pass	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207
Pioneer 8 Pass	1694	1695	1696	1697	1698	1699	1700	1701	1702	1703	1704	1705	1706	1707	1708	1709	1710	1711	1712	1713	1714	1715	1716	1717	1718	1719	1720	1721	1722	1723	1724
Pioneer 9 Pass	1363	1364	1365	1366	1367	1368	1369	1370	1371	1372	1373	1374	1375	1376	1377	1378	1379	1380	1381	1382	1383	1384	1385	1386	1387	1388	1389	1390	1391	1392	1393
Pioneer 10 Pass	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182
Pn 10 DSS 51	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183

September 1972	35 (week no.)			36							37							38							39						
Calendar Date	F/1	S/2	Su/3	M/4	T/5	W/6	Th/7	F/8	S/9	Su/10	M/11	T/12	W/13	Th/14	F/15	S/16	Su/17	M/18	T/19	W/20	Th/21	F/22	S/23	Su/24	M/25	T/26	W/27	Th/28	F/29	S/30	
Day of Year	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	
Pioneer 6 Pass	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	
Pn 6 DSS 41,42	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482	
Pioneer 7 Pass	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	
Pioneer 8 Pass	1725	1726	1727	1728	1729	1730	1731	1732	1733	1734	1735	1736	1737	1738	1739	1740	1741	1742	1743	1744	1745	1746	1747	1748	1749	1750	1751	1752	1753	1754	
Pioneer 9 Pass	1394	1395	1396	1397	1398	1399	1400	1401	1402	1403	1404	1405	1406	1407	1408	1409	1410	1411	1412	1413	1414	1415	1416	1417	1418	1419	1420	1421	1422	1423	
Pn 10 DSS 41,42	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	
Pioneer 10 Pass	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	

October 1972		40								41								42							43						44
Calendar Date	Su/1	M/2	T/3	W/4	Th/5	F/6	S/7	Su/8	M/9	T/10	W/11	Th/12	F/13	S/14	Su/15	M/16	T/17	W/18	Th/19	F/20	S/21	Su/22	M/23	T/24	W/25	Th/26	F/27	S/28	Su/29	M/30	T/31
Day of Year	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305
Pioneer 6 Pass	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500	2501	2502	2503	2504	2505	2506	2507	2508	2509	2510	2511	2512
Pn 6 DSS 41,42	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500	2501	2502	2503	2504	2505	2506	2507	2508	2509	2510	2511	2512	2513
Pioneer 7 Pass	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268
Pioneer 8 Pass	1755	1756	1757	1758	1759	1760	1761	1762	1763	1764	1765	1766	1767	1768	1769	1770	1771	1772	1773	1774	1775	1776	1777	1778	1779	1780	1781	1782	1783	1784	1785
Pioneer 9 Pass	1424	1425	1426	1427	1428	1429	1430	1431	1432	1433	1434	1435	1436	1437	1438	1439	1440	1441	1442	1443	1444	1445	1446	1447	1448	1449	1450	1451	1452	1453	1454
Pn 10 DSS 41,42	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243
Pioneer 10 Pass	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244

PIONEER CALENDAR (Cont'd)

November 1972						45							46							47							48			
Calendar Date	W 1	Th 2	F 3	S 4	Su 5	M 6	T 7	W 8	Th 9	F 10	S 11	Su 12	M 13	T 14	W 15	Th 16	F 17	S 18	Su 19	M 20	T 21	W 22	Th 23	F 24	S 25	Su 26	M 27	T 28	W 29	Th 30
Day of Year	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335
Pioneer 6 Pass	2513	2514	2515	2516	2517	2518	2519	2520	2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533	2534	2535	2536	2537	2538	2539	2540	2541	2542
Pn 6 DSS 41, 42	2514	2515	2516	2517	2518	2519	2520	2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533	2534	2535	2536	2537	2538	2539	2540	2541	2542	2543
Pioneer 7 Pass	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298
Pioneer 8 Pass	1786	1787	1788	1789	1790	1791	1792	1793	1794	1795	1796	1797	1798	1799	1800	1801	1802	1803	1804	1805	1806	1807	1808	1809	1810	1811	1812	1813	1814	1815
Pioneer 9 Pass	1455	1456	1457	1458	1459	1460	1461	1462	1463	1464	1465	1466	1467	1468	1469	1470	1471	1472	1473	1474	1475	1476	1477	1478	1479	1480	1481	1482	1483	1484
Pn 10 DSS 41, 42	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273
Pioneer 10 Pass	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274

December 1972				49							50							51							52					
Calendar Date	F 1	S 2	Su 3	M 4	T 5	W 6	Th 7	F 8	S 9	Su 10	M 11	T 12	W 13	Th 14	F 15	S 16	Su 17	M 18	T 19	W 20	Th 21	F 22	S 23	Su 24	M 25	T 26	W 27	Th 28	F 29	S 30	Su 31
Day of Year	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366
Pioneer 6 Pass	2543	2544	2545	2546	2547	2548	2549	2550	2551	2552	2553	2554	2555	2556	2557	2558	2559	2560	2561	2562	2563	2564	2565	2566	2567	2568	2569	2570	2571	2572	2573
Pn 6 DSS 41, 42	2544	2545	2546	2547	2548	2549	2550	2551	2552	2553	2554	2555	2556	2557	2558	2559	2560	2561	2562	2563	2564	2565	2566	2567	2568	2569	2570	2571	2572	2573	2574
Pioneer 7 Pass	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329
Pioneer 8 Pass	1816	1817	1818	1819	1820	1821	1822	1823	1824	1825	1826	1827	1828	1829	1830	1831	1832	1833	1834	1835	1836	1837	1838	1839	1840	1841	1842	1843	1844	1845	1846
Pioneer 9 Pass	1485	1486	1487	1488	1489	1490	1491	1492	1493	1494	1495	1496	1497	1498	1499	1500	1501	1502	1503	1504	1505	1506	1507	1508	1509	1510	1511	1512	1513	1514	1515
Pn 10 DSS 41, 42	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304
Pioneer 10 Pass	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305

January 1973	1 (week no.)							2							3							4							5		
Calendar Date	M 1	T 2	W 3	Th 4	F 5	S 6	Su 7	M 8	T 9	W 10	Th 11	F 12	S 13	Su 14	M 15	T 16	W 17	Th 18	F 19	S 20	Su 21	M 22	T 23	W 24	Th 25	F 26	S 27	Su 28	M 29	T 30	W 31
Day of Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Pioneer 6 Pass	2574	2575	2576	2577	2578	2579	2580	2581	2582	2583	2584	2585	2586	2587	2588	2589	2590	2591	2592	2593	2594	2595	2596	2597	2598	2599	2600	2601	2602	2603	2604
Pioneer 7 Pass	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360
Pioneer 8 Pass	1847	1848	1849	1850	1851	1852	1853	1854	1855	1856	1857	1858	1859	1860	1861	1862	1863	1864	1865	1866	1867	1868	1869	1870	1871	1872	1873	1874	1875	1876	1877
Pioneer 9 Pass	1516	1517	1518	1519	1520	1521	1522	1523	1524	1525	1526	1527	1528	1529	1530	1531	1532	1533	1534	1535	1536	1537	1538	1539	1540	1541	1542	1543	1544	1545	1546
Pioneer 10 Pass	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336

February 1973					6							7								8							9				
Calendar Date	Th 1	F 2	S 3	Su 4	M 5	T 6	W 7	Th 8	F 9	S 10	Su 11	M 12	T 13	W 14	Th 15	F 16	S 17	Su 18	M 19	T 20	W 21	Th 22	F 23	S 24	Su 25	M 26	T 27	W 28			
Day of Year	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59			
Pioneer 6 Pass	2605	2606	2607	2608	2609	2610	2611	2612	2613	2614	2615	2616	2617	2618	2619	2620	2621	2622	2623	2624	2625	2626	2627	2628	2629	2630	2631	2632			
Pioneer 7 Pass	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388			
Pioneer 8 Pass	1878	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897	1898	1899	1900	1901	1902	1903	1904	1905			
Pioneer 9 Pass	1547	1548	1549	1550	1551	1552	1553	1554	1555	1556	1557	1558	1559	1560	1561	1562	1563	1564	1565	1566	1567	1568	1569	1570	1571	1572	1573	1574			
Pioneer 10 Pass	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364			

PIONEER CALENDAR (Cont'd)

March 1973					10							11							12							13					
Calendar Date	Th 1	F 2	S 3	Su 4	M 5	T 6	W 7	Th 8	F 9	S 10	Su 11	M 12	T 13	W 14	Th 15	F 16	S 17	Su 18	M 19	T 20	W 21	Th 22	F 23	S 24	Su 25	M 26	T 27	W 28	T 29	F 30	S 31
Day of Year	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
Pioneer 6 Pass	2633	2634	2635	2636	2637	2638	2639	2640	2641	2642	2643	2644	2645	2646	2647	2648	2649	2650	2651	2652	2653	2654	2655	2656	2657	2658	2659	2660	2661	2662	2663
Pioneer 7 Pass	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419
Pioneer 8 Pass	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936
Pioneer 9 Pass	1575	1576	1577	1578	1579	1580	1581	1582	1583	1584	1585	1586	1587	1588	1589	1590	1591	1592	1593	1594	1595	1596	1597	1598	1599	1600	1601	1602	1603	1604	1605
Pioneer 10 Pass	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395

April 1973		14							15									16							17						18
Calendar Date	Su 1	M 2	T 3	W 4	Th 5	F 6	S 7	Su 8	M 9	T 10	W 11	Th 12	F 13	S 14	Su 15	M 16	T 17	W 18	Th 19	F 20	S 21	Su 22	M 23	T 24	W 25	Th 26	F 27	S 28	Su 29	M 30	
Day of Year	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	
Pioneer 6 Pass	2664	2665	2666	2667	2668	2669	2670	2671	2672	2673	2674	2675	2676	2677	2678	2679	2680	2681	2682	2683	2684	2685	2686	2687	2688	2689	2690	2691	2692	2693	
Pioneer 7 Pass	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	
Pioneer 8 Pass	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	
Pioneer 9 Pass	1606	1607	1608	1609	1610	1611	1612	1613	1614	1615	1616	1617	1618	1619	1620	1621	1622	1623	1624	1625	1626	1627	1628	1629	1630	1631	1632	1633	1634	1635	
Pioneer 10 Pass	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	
Pioneer 10 DSS 51															411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	
Pioneer G					L	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	

May 1973								19 (week no.)							20							21							22			
Calendar Date	T 1	W 2	Th 3	F 4	S 5	Su 6	M 7	T 8	W 9	Th 10	F 11	S 12	Su 13	M 14	T 15	W 16	Th 17	F 18	S 19	Su 20	M 21	T 22	W 23	Th 24	F 25	S 26	Su 27	M 28	T 29	W 30	Th 31
Day of Year	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151
Pioneer 6 Pass	2694	2695	2696	2697	2698	2699	2700	2701	2702	2703	2704	2705	2706	2707	2708	2709	2710	2711	2712	2713	2714	2715	2716	2717	2718	2719	2720	2721	2722	2723	2724
Pioneer 7 Pass	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480
Pioneer 8 Pass	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Pioneer 9 Pass	1636	1637	1638	1639	1640	1641	1642	1643	1644	1645	1646	1647	1648	1649	1650	1651	1652	1653	1654	1655	1656	1657	1658	1659	1660	1661	1662	1663	1664	1665	1666
Pioneer 10 Pass	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456
Pioneer 10 DSS 51	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457
Pioneer 11 Pass	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56

June 1973				23							24							25							26					
Calendar Date	F 1	S 2	Su 3	M 4	T 5	W 6	Th 7	F 8	S 9	Su 10	M 11	T 12	W 13	Th 14	F 15	S 16	Su 17	M 18	T 19	W 20	Th 21	F 22	S 23	Su 24	M 25	T 26	W 27	Th 28	F 29	S 30	
Day of Year	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	
Pioneer 6 Pass	2725	2726	2727	2728	2729	2730	2731	2732	2733	2734	2735	2736	2737	2738	2739	2740	2741	2742	2743	2744	2745	2746	2747	2748	2749	2750	2751	2752	2753	2754	
Pioneer 7 Pass	2481	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500	2501	2502	2503	2504	2505	2506	2507	2508	2509	2510	
Pioneer 8 Pass	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	
Pioneer 9 Pass	1667	1668	1669	1670	1671	1672	1673	1674	1675	1676	1677	1678	1679	1680	1681	1682	1683	1684	1685	1686	1687	1688	1689	1690	1691	1692	1693	1694	1695	1696	
Pioneer 10 Pass	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	
Pn 10 DSS 51, 61, 62	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	
Pioneer 11 Pass	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	

Note: The increment of spacecraft passes begins with the initial acquisition station. The pass number changes each time that station, or another station with the same general view period, again acquires the spacecraft. For Pioneers 6 through 9, the pass number changes each time the spacecraft comes over Australia's horizon. For Pioneers 10 and 11, the pass number changes each time the zero (0) longitude stations (51, 61, 62, or 63) rise.

APPENDIX B

PASS CHRONOLOGIES FOR THE PERIOD JULY 1, 1972 TO JULY 1, 1973

A. INTRODUCTION.

Two different formats were used for the chronologies of supported passes during the report period of this document. The format used as the period began was replaced by a more concise format in April 1973.

The information used in the chronologies (Tables B-1 through B-4) was extracted from DSN NAT Summary reports. Abbreviations follow as closely as possible the approved standards set forth in Document 810-3, Rev. A, Glossary of Deep Space Network Abbreviations and Designators.

The formats are explained in B1 and B2 which immediately follow.

B. CHRONOLOGY FORMATS.

1. First Format.

This longer form ends with pass 2594 for Pioneer 6, pass 2350 for Pioneer 7, pass 1867 for Pioneer 8, and pass 1597 for Pioneer 9. The headers provide information as per the following example.

(a) Pass Num(ber). Self-explanatory. In conjunction with the pass number and preceding it is a mission sequence number composed of alpha/numeric characters, i.e., PN6CAZ64794. This mission sequence number reads:

(1) PN6 - Spacecraft
(2) C - Calendar year 1972 (which changed to D for 1973)
(3) A - Month identifier for January. Letters A through M (I was omitted) were used to represent January through December.
(4) Z - Internal DSN report generation identifier

(5) 64794 - Mission ODC sequence number. This number was assigned to the spacecraft, source, and GMT combination. Since this combination was fixed, the traceability and Reporting Program could list all information relative to that specific combination.

(b) GMT-Start. Indicated the year, day, hour, and minute of station AOS

(c) GMT-End. Indicated the year, day, hour, and minute of station LOS

(d) Data Day. Indicated the time period commencing with Australia rise time and ending with Goldstone set time

(e) Comments. Provided data on station configuration, subsystem operation, anomalies, and DRs

Configuration codes used are defined in the DSN Equipment Configuration Dictionary prepared and distributed by the DSN Scheduling Office. Using the codes J000, S40J, and T012 as an example, J indicated DSS 51 support, and 000 was defined as standard DSN Multiple-Mission Telemetry (MMT) tracking configuration described in Volume VI of the DSN operations plan for the project specified in title. The letter S represented the DSN/GCF, 40 indicated the standard DSN communication support configuration of four TTY circuits, one 4800 bps high-speed data (HSD) circuit, and one voice circuit, configured per JPL Document 610-80, DSN Operations Plan for MM'71, Volume IV, GCF Operating Procedures and Communication Configurations, Figure 2A-6. J again related communications circuits to DSS 51. The letter T represented the DSN/SFOF, and 012 indicated DSN flight operations support including one 360/75 computer system configured for tracking, telemetry, and command support and DSS and GCF interface.

2. Second Format.

The format and abbreviations used for supported passes during April, May, and June 1973 follow:

MONTHLY REPORT FOR (month, year)

PIONEER (spacecraft number)

GENERAL

DSS = Station no.
PASS = Pass no.
DOY = Day of year
AOS = Acquisition of signal
LOS = Loss of signal
TOT = Total time of track
DSS T = Station time

COMMAND

TOT = Command total

TELEMETRY

DL = Downlink signal level
RES = Residual from predicted
BR = Bit error rate
SNR = Signal-to-noise ratio
RES = Residual from predicted SNR

TRACKING

MODE = One-way, two-way, three-way
T PWR = Transmitter power
D RES = Doppler residual
D NOS = Doppler noise
E NOS = Expected noise

COMMENTS = Data on operations, anomalies, etc.

Table B-1. Pioneer 6 Pass Chronology

```
PASS  GMT-START     GMT-END        DATA
NO.                                DAY
-------------------------------------------------------------------------

 PN6CGZ65863

2390  721830800     721831430      2390
          DSS 62 PASS 2390 CL B-A CTDN 303344 GCF S21L CPS  N/A DSS L000
          CONFIG   ---------------------------------------------------
                   AOS DOY 183  LOS DOY 183          TOTAL
                   SCHEDULED 0800Z SCHEDULED 1430Z SCHEDULED  6H 30M
                   ACTUAL    0800Z ACTUAL    1430Z ACTUAL     6H 30M
                   ST XFR    N/R Z RELEASE   1435Z DSS TIME   6H 35M
          COMMAND  ---------------------------------------------------
                   TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
          TELEMETRY --------------------------------------------------
                   POWER N/RKW  BIT RATES              8      MMT
                          RX 1   RX 2  TCP A      TCP B
                   ACTUAL   N/A  164.9   N/A        8.1
                   PREDIC   N/A  164.8   N/A        8.6
                   RESID    N/A   -0.1   N/A       -0.5
          TRACKING ---------------------------------------------------
                   TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                   DOP BIAS    N/A HZ C NOS  N/A HZ EXP  N/A HZ
          MONITOR  ---------------------------------------------------
                        LGWR  LGER  BLRC  BLER
                   DIS   N/R   N/R   N/R   N/R
                   TCP   N/R   N/R   N/R   N/R

          COMMENTS ---------------------------------------------------

 PN6CGZ65867

2391  721840800     721841430      2391
          DSS 62 PASS 2391 CL B-A CTDN 303344 GCF S21L CPS  N/A DSS L000
          CONFIG   ---------------------------------------------------
                   AOS DOY 184  LOS DOY 184          TOTAL
                   SCHEDULED 0800Z SCHEDULED 1430Z SCHEDULED  6H 30M
                   ACTUAL    0800Z ACTUAL    1430Z ACTUAL     6H 30M
                   ST XFR    N/R Z RELEASE   1434Z DSS TIME   6H 34M
          COMMAND  ---------------------------------------------------
                   TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
          TELEMETRY --------------------------------------------------
                   POWER N/RKW  BIT RATES              8      MMT
                          RX 1   RX 2  TCP A      TCP B
                   ACTUAL   N/A  165.5   N/A        8.1
                   PREDIC   N/A  164.8   N/A        8.6
                   RESID    N/A   -0.7   N/A       -0.5
          TRACKING ---------------------------------------------------
                   TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                   DOP BIAS    N/A HZ C NOS  N/A HZ EXP  N/A HZ
          MONITOR  ---------------------------------------------------
                        LGWR  LGER  BLRC  BLER
                   DIS   N/A   N/A   N/A   N/A
                   TCP   N/A   N/A   N/A   N/A

          COMMENTS ---------------------------------------------------

 PN6CGZ65872

2392  721850800     721851430      2392
          DSS 62 PASS 2392 CL B-A CTDN 303344 GCF S21L CPS  N/A DSS L000
          CONFIG   ---------------------------------------------------
                   AOS DOY 185  LOS DOY 185          TOTAL
                   SCHEDULED 0800Z SCHEDULED 1430Z SCHEDULED  6H 30M
                   ACTUAL    0800Z ACTUAL    1430Z ACTUAL     6H 30M
                   ST XFR    N/R Z RELEASE   1435Z DSS TIME   6H 35M
          COMMAND  ---------------------------------------------------
                   TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
```

```
TELEMETRY ----------------------------------------------------
          POWER N/AKW  BIT RATES              8    MMT
                RX 1    RX 2   TCP A      TCP B
          ACTUAL   N/A   165.6    N/A        7.9
          PREDIC   N/A   164.9    N/A        8.5
          RESID    N/A    -0.7    N/A       -0.6
TRACKING  ----------------------------------------------------
          TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
          DOP BIAS     -220HZ C NOS  N/A HZ EXP  N/A HZ
MONITOR   ----------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/R   N/R   N/R   N/R
          TCP   N/R   N/R   N/R   N/R

COMMENTS  ----------------------------------------------------
```

PN6CGZ65878

```
2394  721861851    721870300    2394
      DSS 41 PASS 2394 CL F-B CTDN 202244 GCF S21F CPS  N/A DSS F000
      CONFIG ------------------------------------------------------
             AOS DOY 186  LOS DOY 187          TOTAL
             SCHEDULED 1900Z SCHEDULED 0300Z SCHEDULED 08H 00M
             ACTUAL     1851Z ACTUAL     0300Z ACTUAL     08H 09M
             ST XFR     N/R Z RELEASE    0304Z DSS TIME   08H 13M
      COMMAND -----------------------------------------------------
             TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
      TELEMETRY ---------------------------------------------------
             POWER N/RKW  BIT RATES  8      MMT
                   RX 1    RX 2  TCP A      TCP B
             ACTUAL 164.9    N/A    7.7       N/A
             PREDIC 164.9    N/A    8.1       N/A
             RESID    0.0    N/A   -0.4       N/A
      TRACKING ----------------------------------------------------
             TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
             DOP BIAS -23.918HZ C NOS 0.080HZ EXP  N/A HZ
      MONITOR -----------------------------------------------------
                  LGWR  LGER  BLRC  BLER
             DIS   N/A   N/A   N/A   N/A
             TCP   N/A   N/A   N/A   N/A

      COMMENTS ----------------------------------------------------
      ONE WAY                  NO COMMANDS.
```

PN6CGZ65883

```
2395  721871849    721880300    2395
      DSS 41 PASS 2395 CL B-B CTDN 303344 GCF S21F CPS N/A  DSS F000
      CONFIG ------------------------------------------------------
             AOS DOY 187  LOS DOY 188          TOTAL
             SCHEDULED 1900Z SCHEDULED 0300Z SCHEDULED  8H 00M
             ACTUAL     1849Z ACTUAL     0300Z ACTUAL     8H 11M
             ST XFR     N/R Z RELEASE    0300Z DSS TIME   8H 11M
      COMMAND -----------------------------------------------------
             TOTAL N/A  AUTO N/A  MANUAL N/A  ABORT N/A
      TELEMETRY ---------------------------------------------------
             POWER N/AKW  BIT RATES   8    MMT
                   RX 1    RX 2  TCP A      TCP B
             ACTUAL 164.9   N/A      7.8       N/A
             PREDIC 165.0   N/A      8.1       N/A
             RESID   +0.1   N/A     -0.3       N/A
      TRACKING ----------------------------------------------------
             TRACK MD  1 WAY RANGING NONEBIAS N/A RU NOISE N/A RU
             DOP BIAS  -54    HZ C NOS  .080HZ EXP  .010HZ
      MONITOR -----------------------------------------------------
                  LGWR  LGER  BLRC  BLER
             DIS  N/A   N/A   N/A   N/A
             TCP  N/A   N/A   N/A   N/A

      COMMENTS ----------------------------------------------------
      MONITOR DATA NOT AVAILABLE
```

PN6CGZ65889

```
2396  721881851    721890300    2396
        DSS 41 PASS 2396 CL B-B CTDN 303344 GCF S21F CPS N/A  DSS F000
        CONFIG   ------------------------------------------------------
                 AOS DOY 188  LOS DOY 189         TOTAL
                 SCHEDULED 1900Z SCHEDULED 0300Z SCHEDULED  8H 00M
                 ACTUAL     1851Z ACTUAL    0300Z ACTUAL    8H 09M
                 ST XFR     N/R Z RELEASE   0300Z DSS TIME  8H 09M
        COMMAND  ------------------------------------------------------
                 TOTAL N/A  AUTO N/A  MANUAL N/A  ABORT N/A
        TELEMETRY ----------------------------------------------------
                 POWER N/AKW  BIT RATES  8 MMT
                        RX 1   RX 2  TCP A     TCP B
                 ACTUAL 165.1  N/A     8.0       N/A
                 PREDIC 165.0  N/A     8.3       N/A
                 RESID   -0.1  N/A    -0.3       N/A
        TRACKING ----------------------------------------------------
                 TRACK MD  1 WAY RANGING NONEBIAS N/A RU NOISE N/A RU
                 DOP BIAS  -34   HZ C NOS  .080HZ EXP N/A  HZ
        MONITOR  ----------------------------------------------------
                      LGWR  LGER  BLRC  BLER
                 DIS  N/A   N/A   N/A   N/A
                 TCP  N/A   N/A   N/A   N/A

        COMMENTS ----------------------------------------------------
        NO MONITOR DATA
```

PN6CGZ65892

```
2396  721890801    721891430    2396
        DSS 62 PASS 2396 CL B-A CTDN 303344 GCF S21L CPS N/A  DSS L000
        CONFIG   ------------------------------------------------------
                 AOS DOY 189  LOS DOY 189         TOTAL
                 SCHEDULED 0800Z SCHEDULED 1430Z SCHEDULED  6H 30M
                 ACTUAL     0801Z ACTUAL    1430Z ACTUAL    6H 29M
                 ST XFR     N/R Z RELEASE   1430Z DSS TIME  6H 29M
        COMMAND  ------------------------------------------------------
                 TOTAL N/A  AUTO N/A  MANUAL N/A  ABORT N/A
        TELEMETRY ----------------------------------------------------
                 POWER N/AKW  BIT RATES  8  MMT
                        RX 2   RX 1  TCP A     TCP B
                 ACTUAL 165.4  N/A     N/A       7.6
                 PREDIC 165.0  N/A     N/A       8.3
                 RESID   -0.4  N/A     N/A      -0.7
        TRACKING ----------------------------------------------------
                 TRACK MD  1 WAY RANGING NONEBIAS N/A RU NOISE N/A RU
                 DOP BIAS  -340  HZ C NOS N/A  HZ EXP N/A  HZ
        MONITOR  ----------------------------------------------------
                      LGWR  LGER  BLRC  BLER
                 DIS  N/R   N/R   N/R   N/R
                 TCP  N/R   N/R   N/R   N/R

        COMMENTS ----------------------------------------------------
        NO MONITOR DATA
```

PN6CGZ65897

```
2397  721900800    721901430    2397
        DSS 62 PASS 2397 CL B-A CTDN 303324 GCF S21L CPS  N/A DSS L000
        CONFIG   ------------------------------------------------------
                 AOS DOY 190  LOS DOY 190         TOTAL
                 SCHEDULED 0800Z SCHEDULED 1430Z SCHEDULED 06H 30M
                 ACTUAL     0800Z ACTUAL    1430Z ACTUAL    06H 30M
                 ST XFR     N/R Z RELEASE   1433Z DSS TIME  06H 33M
        COMMAND  ------------------------------------------------------
                 TOTAL   0  AUTO   0. MANUAL   0  ABORT   0
```

```
TELEMETRY ----------------------------------------------------
          POWER N/AKW  BIT RATES              8  MMT
                RX 1    RX 2  TCP A      TCP B
          ACTUAL   N/A  165.1   N/A        8.0
          PREDIC   N/A  165.1   N/A        8.3
          RESID    N/A    0.0   N/A       -0.3
TRACKING  ----------------------------------------------------
          TRACK MD  1 WAY RANGING NIL BIAS N/R RU NOISE N/R RU
          DOP BIAS    N/R HZ C NOS  N/R HZ EXP  N/R HZ
MONITOR   ----------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/R
          TCP

COMMENTS  ----------------------------------------------------
```

PN6CGZ65904

```
2398  721910800    721911430    2398
      DSS 62 PASS 2398 CL B-A CTDN 303324 GCF S21L CPS  N/A DSS L000
      CONFIG ------------------------------------------------------
             AOS DOY 191  LOS DOY 191          TOTAL
             SCHEDULED 0800Z SCHEDULED 1430Z SCHEDULED 06H 30M
             ACTUAL    0800Z ACTUAL    1430Z ACTUAL    06H 30M
             ST XFR    N/R Z RELEASE   1432Z DSS TIME  06H 32M
      COMMAND -----------------------------------------------------
             TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
      TELEMETRY ---------------------------------------------------
             POWER N/AKW  BIT RATES              8  MMT
                   RX 1    RX 2  TCP A      TCP B
             ACTUAL   N/A  165.0   N/A        7.9
             PREDIC   N/A  165.1   N/A        8.3
             RESID    N/A   +0.1   N/A       -0.4
      TRACKING ----------------------------------------------------
             TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
             DOP BIAS  -385.0HZ C NOS  N/A HZ EXP  N/A HZ
      MONITOR -----------------------------------------------------
                  LGWR  LGER  BLRC  BLER
             DIS   N/R   N/R   N/R   N/R
             TCP   N/R   N/R   N/R   N/R

      COMMENTS ----------                 ------------------------
```

PN6CGZ65910

```
2399  721920800    721921430    2399
      DSS 62 PASS 2399 CL B-A CTDN 303344 GCF S20L CPS  N/A DSS L000
      CONFIG ------------------------------------------------------
             AOS DOY 192  LOS DOY 192          TOTAL
             SCHEDULED 0800Z SCHEDULED 1430Z SCHEDULED 06H 30M
             ACTUAL    0800Z ACTUAL    1430Z ACTUAL    06H 30M
             ST XFR    N/R Z RELEASE   1430Z DSS TIME  06H 30M
      COMMAND -----------------------------------------------------
             TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
      TELEMETRY ---------------------------------------------------
             POWER N/AKW  BIT RATES              8  MMT
                   RX 1    RX 2  TCP A      TCP B
             ACTUAL   N/A  165.2   N/A        7.9
             PREDIC   N/A  165.2   N/A        8.2
             RESID    N/A    0.0   N/A       -0.3
      TRACKING ----------------------------------------------------
             TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
             DOP BIAS   -416.HZ C NOS N/A  HZ EXP N/A  HZ
      MONITOR -----------------------------------------------------
                  LGWR  LGER  BLRC  BLER
             DIS   N/A   N/A   N/A   N/A
             TCP   N/A   N/A   N/A   N/A

      COMMENTS ----------------------------------------------------
      ONE WAY ONLY   NO CMDING.
```

PN6CGZ65931

```
2403  721960800    721961430    2403
      DSS 62 PASS 2403 CL B-A CTDN 303344 GCF S21L CPS  N/A DSS L000
      CONFIG   ------------------------------------------------------
               AOS DOY 196  LOS DOY 196         TOTAL
               SCHEDULED 0800Z SCHEDULED 1430Z SCHEDULED 06H 30M
               ACTUAL    0800Z ACTUAL    1430Z ACTUAL    06H 30M
               ST XFR    N/R Z RELEASE   1430Z DSS TIME  06H 30M
      COMMAND  ------------------------------------------------------
               TOTAL N/A  AUTO N/A  MANUAL N/A  ABORT N/A
      TELEMETRY ----------------------------------------------------
               POWER N/AKW  BIT RATES  8     MMT
                      RX 1   RX 2  TCP A    TCP B
               ACTUAL   N/A  165.0   7.5      N/A
               PREDIC   N/A  165.3   8.1      N/A
               RESID    N/A   +0.3  -0.6      N/A
      TRACKING ---------------------------------------------------
               TRACK MD N/AWAY RANGING N/A BIAS N/A RU NOISE N/A RU
               DOP BIAS    N/A HZ C NOS  N/A HZ EXP  N/A HZ
      MONITOR  ---------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS   N/A   N/A   N/A   N/A
               TCP   N/A   N/A   N/A   N/A

      COMMENTS ---------------------------------------------------
```

PN6CGZ65938

```
2404  721970800    721971430    2404
      DSS 62 PASS 2404 CL B-A CTDN 303344 GCF S21L CPS  N/A DSS L000
      CONFIG   ------------------------------------------------------
               AOS DOY 197  LOS DOY 197         TOTAL
               SCHEDULED 0800Z SCHEDULED 1430Z SCHEDULED 06H 30M
               ACTUAL    0800Z ACTUAL    1430Z ACTUAL    06H 30M
               ST XFR    N/R Z RELEASE   1430Z DSS TIME  06H 30M
      COMMAND  ------------------------------------------------------
               TOTAL N/A  AUTO N/A  MANUAL N/A  ABORT N/A
      TELEMETRY ----------------------------------------------------
               POWER N/AKW  BIT RATES          8   MMT
                      RX 1   RX 2  TCP A    TCP B
               ACTUAL   N/A  165.4   N/A      7.5
               PREDIC   N/A  165.3   N/A      8.1
               RESID    N/A   -0.1   N/A     -0.6
      TRACKING ---------------------------------------------------
               TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
               DOP BIAS   -155.HZ C NOS  N/A HZ EXP  N/A HZ
      MONITOR  ---------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS   N/R   N/R   N/R   N/R
               TCP   N/R   N/R   N/R   N/R

      COMMENTS ---------------------------------------------------
```

PN6CGZ65944

```
2405  721980800    721981430    2405
      DSS 62 PASS 2405 CL B-A CTDN 303344 GCF S21L CPS N/A  DSS L000
      CONFIG   ------------------------------------------------------
               AOS DOY 198  LOS DOY 198         TOTAL
               SCHEDULED 0800Z SCHEDULED 1430Z SCHEDULED 06H 30M
               ACTUAL    0800Z ACTUAL    1430Z ACTUAL    06H 30M
               ST XFR    N/R Z RELEASE   1430Z DSS TIME  06H 30M
      COMMAND  ------------------------------------------------------
               TOTAL N/A  AUTO N/A  MANUAL N/A  ABORT N/A
      TELEMETRY ----------------------------------------------------
               POWER N/AKW  BIT RATES  8   MMT
                      RX 1   RX 2  TCP A    TCP B
               ACTUAL   N/A  165.9   5.7      N/A
               PREDIC   N/A  165.4   4.9      N/A
               RESID    N/A   -0.5  +0.8      N/A
```

```
          TRACKING  ------------------------------------------------------
                    TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS   -180.HZ C NOS  N/A HZ EXP  N/A HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
          0815Z-0820Z 360/75B DOWN FOR SCHEDULED STRING SWAP.
          1145Z-1151Z 360/75A DOWN - WARM RESTART.
          1154Z-1159Z 360/75A DOWN. DR 3785 REFERS.

 PN6CGZ65953

2407  722000800    722001430    2407
          DSS 62 PASS 2407 CL B-A CTDN 303344 GCF S21L CPS  N/A DSS L000
          CONFIG    ------------------------------------------------------
                    AOS DOY 200  LOS DOY 200         TOTAL
                    SCHEDULED 0800Z SCHEDULED 1430Z SCHEDULED 06H 30M
                    ACTUAL    0800Z ACTUAL    1430Z ACTUAL    06H 30M
                    ST XFR    N/R Z RELEASE   1432Z DSS TIME  06H 32M
          COMMAND   ------------------------------------------------------
                    TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
          TELEMETRY ------------------------------------------------------
                    POWER N/AKW  BIT RATES  8  MMT
                          RX 1    RX 2  TCP A     TCP B
                    ACTUAL   N/A  164.1   7.4       N/A
                    PREDIC   N/A  165.4   8.0       N/A
                    RESID    N/A   +1.3  -0.6       N/A
          TRACKING  ------------------------------------------------------
                    TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS    -34.HZ C NOS  N/A HZ EXP  N/A HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/R   N/R   N/R   N/R
                    TCP   N/R   N/R   N/R   N/R

          COMMENTS  ------------------------------------------------------
          1-WAY

 PN6CGZ65955

2408  722001842    722010300    2408
          DSS 41 PASS 2408 CL F-B CTDN 202244 GCF S21F CPS  N/A DSS F000
          CONFIG    ------------------------------------------------------
                    AOS DOY 200  LOS DOY 201         TOTAL
                    SCHEDULED 1900Z SCHEDULED 0300Z SCHEDULED 08H 00M
                    ACTUAL    1842Z ACTUAL    0300Z ACTUAL    08H 18M
                    ST XFR    N/R Z RELEASE   0305Z DSS TIME  08H 23M
          COMMAND   ------------------------------------------------------
                    TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
          TELEMETRY ------------------------------------------------------
                    POWER N/AKW  BIT RATES  8  MMT
                          RX 1    RX 2  TCP A     TCP B
                    ACTUAL 165.4    N/A   7.1       N/A
                    PREDIC 165.4    N/A   7.7       N/A
                    RESID    0.0    N/A  -0.6       N/A
          TRACKING  ------------------------------------------------------
                    TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS    -44.HZ C NOS 0.080HZ EXP 0.100HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
```

PN6CGZ65963

2408 722010755 722010905 2408
DSS 51 PASS 2408 CL B- CTDN 303314 GCF S20J CPS N/A DSS J200

CONFIG

AOS DOY 201	LOS DOY 201	TOTAL
SCHEDULED 0800Z	SCHEDULED 0900Z	SCHEDULED 01H 00M
ACTUAL 0755Z	ACTUAL 0905Z	ACTUAL 01H 10M
ST XFR N/R Z	RELEASE 0905Z	DSS TIME 01H 10M

COMMAND

TOTAL 0 AUTO 0 MANUAL 0 ABORT 0

TELEMETRY

POWER 0 KW BIT RATES 8 MMT

	RX 1	RX 2	TCP A	TCP B
ACTUAL	166.5	N/A	N/A	7.0
PREDIC	165.5	N/A	N/A	7.8
RESID	-1.0	N/A	N/A	-0.8

TRACKING

TRACK MD 1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
DOP BIAS -46.0HZ C NOS N/A HZ EXP N/A HZ

MONITOR

	LGWR	LGER	BLRC	BLER
DIS	N/R	N/R	N/R	N/R
TCP	N/R	N/R	N/R	N/R

COMMENTS

(TEST) NON-DATA TRACK, SPECIAL ACTIVITY TO RECORD SIGNAL LEVEL (AGC) AND SNR.

PN6CGZ65969

2410 722021852 722030300 2410
DSS 41 PASS 2410 CL B-B CTDN 303344 GCF S21F CPS N/A DSS F000

CONFIG

AOS DOY 202	LOS DOY 203	TOTAL
SCHEDULED 1900Z	SCHEDULED 0300Z	SCHEDULED 08H 00M
ACTUAL 1852Z	ACTUAL 0300Z	ACTUAL 08H 08M
ST XFR N/R Z	RELEASE 0305Z	DSS TIME 08H 13M

COMMAND

TOTAL 0 AUTO 0 MANUAL 0 ABORT 0

TELEMETRY

POWER N/AKW BIT RATES 8 MMT

	RX 1	RX 2	TCP A	TCP B
ACTUAL	165.9	N/A	5.7	N/A
PREDIC	165.5	N/A	6.1	N/A
RESID	-0.4	N/A	-0.4	N/A

TRACKING

TRACK MD 1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
DOP BIAS -96.7HZ C NOS N/A HZ EXP N/A HZ

MONITOR

	LGWR	LGER	BLRC	BLER
DIS	N/R	N/R	N/R	N/R
TCP	N/R	N/R	N/R	N/R

COMMENTS

PN6CGZ65982

2412 722050800 722051430 2412
DSS 62 PASS 2412 CL B-A CTDN 303344 GCF S21L CPS N/A DSS L000

CONFIG

AOS DOY 205	LOS DOY 205	TOTAL
SCHEDULED 0800Z	SCHEDULED 1430Z	SCHEDULED 06H 30M
ACTUAL 0800Z	ACTUAL 1430Z	ACTUAL 06H 30M
ST XFR N/R Z	RELEASE 1430Z	DSS TIME 06H 30M

COMMAND

TOTAL N/A AUTO N/A MANUAL N/A ABORT N/A

TELEMETRY

POWER N/AKW BIT RATES 8 CODED

	RX 1	RX 2	TCP A	TCP B
ACTUAL	N/A	165.0	N/A	7.3
PREDIC	N/A	165.6	N/A	8.0
RESID	N/A	+0.6	N/A	-0.7

```
          TRACKING  ------------------------------------------------------
                    TRACK MD N/AWAY RANGING N/A BIAS N/A RU NOISE N/A RU
                    DOP BIAS    N/A HZ C NOS  N/A HZ EXP  N/A HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------

 PN6CGZ65991

2414  722070800    722071430    2414
          DSS 62 PASS 2414 CL B-A CTDN 303324 GCF S21L CPS  N/A DSS L000
          CONFIG    ------------------------------------------------------
                    AOS DOY 207  LOS DOY 207         TOTAL
                    SCHEDULED 0800Z SCHEDULED 1430Z SCHEDULED 06H 30M
                    ACTUAL    0800Z ACTUAL    1430Z ACTUAL    06H 30M
                    ST XFR    N/R Z RELEASE   1431Z DSS TIME  06H 31M
          COMMAND   ------------------------------------------------------
                    TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
          TELEMETRY ------------------------------------------------------
                    POWER N/AKW  BIT RATES  8  MMT
                          RX 1   RX 2  TCP A     TCP B
                    ACTUAL   N/A  165.0   7.5      N/A
                    PREDIC   N/A  165.6   8.0      N/A
                    RESID    N/A   +0.6  -0.5      N/A
          TRACKING  ------------------------------------------------------
                    TRACK MD N/RWAY RANGING N/R BIAS N/R RU NOISE N/R RU
                    DOP BIAS    N/R HZ C NOS  N/R HZ EXP N/R  HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/R   N/R   N/R   N/R
                    TCP   N/R   N/R   N/R   N/R

          COMMENTS  ------------------------------------------------------

 PN6CGZ65994

2415  722071850    722080300    2415
          DSS 41 PASS 2415 CL F-A CTDN 202224 GCF S21F CPS  N/A DSS F000
          CONFIG    ------------------------------------------------------
                    AOS DOY 207  LOS DOY 208         TOTAL
                    SCHEDULED 1900Z SCHEDULED 0300Z SCHEDULED 08H 00M
                    ACTUAL    1850Z ACTUAL    0300Z ACTUAL    08H 10M
                    ST XFR    N/R Z RELEASE   0305Z DSS TIME  08H 15M
          COMMAND   ------------------------------------------------------
                    TOTAL N/R  AUTO N/R  MANUAL N/R  ABORT N/R
          TELEMETRY ------------------------------------------------------
                    POWER N/RKW  BIT RATES  8
                          RX 1   RX 2  TCP A     TCP B
                    ACTUAL 166.2    N/A   6.7      N/A
                    PREDIC 165.7    N/A   7.4      N/A
                    RESID   -0.5    N/A  -0.7      N/A
          TRACKING  ------------------------------------------------------
                    TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS    N/A HZ C NOS  N/A HZ EXP  N/A HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------

 PN6CGZ65998

2416  722081849    722090300    2416
          DSS 41 PASS 2416 CL B-A CTDN 303324 GCF S21F CPS  N/A DSS F000
          CONFIG    ------------------------------------------------------
                    AOS DOY 208  LOS DOY 209         TOTAL
                    SCHEDULED 1900Z SCHEDULED 0300Z SCHEDULED 08H 00M
                    ACTUAL    1849Z ACTUAL    0300Z ACTUAL    08H 11M
                    ST XFR    N/R Z RELEASE   0304Z DSS TIME  08H 15M
```

```
            COMMAND   ---------------------------------------------------------
                      TOTAL    0  AUTO    0  MANUAL    0  ABORT    0
            TELEMETRY ---------------------------------------------------------
                      POWER N/AKW  BIT RATES  8  MMT
                             RX 1    RX 2  TCP A      TCP B
                      ACTUAL 165.8    N/A   7.0        N/A
                      PREDIC 165.7    N/A   7.4        N/A
                      RESID   -0.1    N/A  -0.4        N/A
            TRACKING  ---------------------------------------------------------
                      TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                      DOP BIAS-105.713HZ C NOS 0.070HZ EXP  N/A HZ
            MONITOR   ---------------------------------------------------------
                           LGWR  LGER  BLRC  BLER
                      DIS   N/A   N/A   N/A   N/A
                      TCP   N/A   N/A   N/A   N/A

            COMMENTS  ---------------------------------------------------------

   PN6CGZ66003

2417  722091850    722100301    2417
            DSS 41 PASS 2417 CL B-A CTDN 303324 GCF S21F CPS  N/A DSS F000
            CONFIG    ---------------------------------------------------------
                      AOS DOY 209  LOS DOY 210          TOTAL
                      SCHEDULED 1900Z SCHEDULED 0300Z SCHEDULED 08H 00M
                      ACTUAL    1850Z ACTUAL    0301Z ACTUAL    08H 11M
                      ST XFR    N/R Z RELEASE   0310Z DSS TIME  08H 20M
            COMMAND   ---------------------------------------------------------
                      TOTAL    0  AUTO    0  MANUAL    0  ABORT    0
            TELEMETRY ---------------------------------------------------------
                      POWER   0KW  BIT RATES  8  MMT
                             RX 1    RX 2  TCP A      TCP B
                      ACTUAL 166.0    N/A   6.8        N/A
                      PREDIC 165.7    N/A   7.3        N/A
                      RESID   -0.3    N/A  -0.5        N/A
            TRACKING  ---------------------------------------------------------
                      TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                      DOP BIAS-131.898HZ C NOS 0.080HZ EXP  N/A HZ
            MONITOR   ---------------------------------------------------------
                           LGWR  LGER  BLRC  BLER
                      DIS   N/R   N/R   N/R   N/R
                      TCP   N/R   N/R   N/R   N/R

            COMMENTS  ---------------------------------------------------------
            2313Z-2329Z  360/75A DOWN.  DR 3827.

   PN6CGZ66012

2418  722110801    722111430    2418
            DSS 62 PASS 2418 CL B-A CTDN 303324 GCF S21L CPS  N/A DSS L000
            CONFIG    ---------------------------------------------------------
                      AOS DOY 211  LOS DOY 211          TOTAL
                      SCHEDULED 0800Z SCHEDULED 1430Z SCHEDULED 06H 30M
                      ACTUAL    0801Z ACTUAL    1430Z ACTUAL    06H 29M
                      ST XFR    N/R Z RELEASE   1433Z DSS TIME  06H 32M
            COMMAND   ---------------------------------------------------------
                      TOTAL    0  AUTO    0  MANUAL    0  ABORT    0
            TELEMETRY ---------------------------------------------------------
                      POWER N/AKW  BIT RATES             8  MMT
                             RX 1    RX 2  TCP A      TCP B
                      ACTUAL 166.5    N/A   N/A        5.6
                      PREDIC 165.7    N/A   N/A        6.4
                      RESID   -0.8    N/A   N/A       -0.8
            TRACKING  ---------------------------------------------------------
                      TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                      DOP BIAS    -18.0HZ C NOS  N/A HZ EXP  N/A HZ
            MONITOR   ---------------------------------------------------------
                           LGWR  LGER  BLRC  BLER
                      DIS   N/R   N/R   N/R   N/R
                      TCP   N/R   N/R   N/R   N/R

            COMMENTS  ---------------------------------------------------------
            DR T-2181 - BAD DATA - STA REPHASE BOTH RCVRS.
```

PN6CGZ66016

```
2419  722120800    722121430    2419
        DSS 62 PASS 2419 CL B-A CTDN 303324 GCF S2IL CPS  N/A DSS L000
        CONFIG   ------------------------------------------------------
                 AOS DOY 212  LOS DOY 212          TOTAL
                 SCHEDULED 0800Z SCHEDULED 1430Z SCHEDULED 06H 30M
                 ACTUAL    0800Z ACTUAL    1430Z ACTUAL    06H 30M
                 ST XFR    N/R Z RELEASE   1436Z DSS TIME  06H 36M
        COMMAND  ------------------------------------------------------
                 TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
        TELEMETRY ----------------------------------------------------
                 POWER N/AKW  BIT RATES            8
                       RX 1   RX 2  TCP A      TCP B
                 ACTUAL   N/A  165.5   N/A       6.1
                 PREDIC   N/A  165.8   N/A       6.3
                 RESID    N/A   + .3   N/A      -0.2
        TRACKING ----------------------------------------------------
                 TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                 OOP BIAS   -43.0HZ C NOS  N/A HZ EXP  N/A HZ
        MONITOR  ----------------------------------------------------
                      LGWR  LGER  BLRC  BLER
                 DIS   N/R   N/R   N/R   N/R
                 TCP   N/R   N/R   N/R   N/R

        COMMENTS ----------------------------------------------------
        0834Z-0839Z  360 DOWN.  SCHEDULED STRING SWAP.
        360/75B DOWN  360/75A UP
```

PN6CHZ66088

```
2429  722221358    722221900    2429
        DSS 14 PASS 2429 CL A-  CTDN 403414 GCF S20D CPS  N/A DSS D200
        CONFIG   ------------------------------------------------------
                 AOS DOY 222  LOS DOY 222          TOTAL
                 SCHEDULED 1400Z SCHEDULED 1900Z SCHEDULED 05H 00M
                 ACTUAL    1359Z ACTUAL    1900Z ACTUAL    05H 02M
                 ST XFR    N/R Z RELEASE   1900Z DSS TIME  05H 02M
        COMMAND  ------------------------------------------------------
                 TOTAL   9  AUTO   0  MANUAL   9  ABORT   0
        TELEMETRY ----------------------------------------------------
                 POWER  20KW  BIT RATES 64  CDE
                       RX 1   RX 2  TCP A      TCP B
                 ACTUAL 158.1    N/A   6.9       N/A
                 PREDIC 157.9    N/A   8.5       N/A
                 RESID   -0.2    N/A  -1.6       N/A
        TRACKING ----------------------------------------------------
                 TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                 OOP BIAS  +0.605HZ C NOS 0.006HZ EXP 0.005HZ
        MONITOR  ----------------------------------------------------
                      LGWR  LGER  BLRC  BLER
                 DIS   N/R   N/R   N/R   N/R
                 TCP   N/R   N/R   N/R   N/R

        COMMENTS ----------------------------------------------------
        HIGH DOPPLER NOISE 1512Z-1602Z AND 1752Z-1813Z DR N-0429.
```

PN6CKZ66482

```
2511  723041441    723041800    2511
        DSS 14 PASS 2511 CL F-  CTDN 202314 GCF 5000 CPS  N/A DSS D200
        CONFIG   ------------------------------------------------------
                 AOS DOY 304  LOS DOY 304          TOTAL
                 SCHEDULED 1445Z SCHEDULED 1800Z SCHEDULED 03H 15M
                 ACTUAL    1441Z ACTUAL    1800Z ACTUAL    03H 19M
                 ST XFR          Z RELEASE   1803Z DSS TIME  03H 22M
        COMMAND  ------------------------------------------------------
                 TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
        TELEMETRY ----------------------------------------------------
                 POWER  20Kw  BIT RATES 64 CODED      N/A
                       RX 1   RX 2  TCP A      TCP    N/A
                 ACTUAL 158.2    N/A   8.5       N/A
                 PREDIC 158.1    N/A   8.3       N/A
                 RESID    -.1    N/A   +.2       N/A
```

```
TRACKING  ------------------------------------------------------
          TRACK MD  2-WAY RANGING NIL BIAS  NILRU NOISE  N/ARU
          DOP BIAS  -0.014HZ C NOS  .003HZ EXP  .005HZ
MONITOR   ------------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/A   N/A   N/A   N/A
          TCP   N/A   N/A   N/A   N/A

COMMENTS  ------------------------------------------------------
CMD TIME-1552Z-1800Z
```

PN6CLZ66501

```
2516  723091239    723091751    2516
      DSS 14 PASS 2516 CL F-  CTDN 23214  GCF S20D CPS  N/A DSS D20C
      CONFIG  --------------------------------------------------
              AOS DOY 309  LOS DOY 309          TOTAL
              SCHEDULED 1245Z SCHEDULED 1751Z SCHEDULED 05H 06M
              ACTUAL    1238Z ACTUAL    1751Z ACTUAL    05H 13M
              ST XFR        Z RELEASE   1752Z DSS TIME  05H 14M
      COMMAND ---------------------------------------------------
              TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
      TELEMETRY -------------------------------------------------
              POWER  20KW  BIT RATES 64 CODED    N/A
                     RX 1   RX 2  TCP   N/A TCP   N/A
              ACTUAL 159.4    N/A   8.9       N/A
              PREDIC 158.1    N/A   8.7       N/A
              RESID    -.3    N/A   +.7       N/A
      TRACKING --------------------------------------------------
              TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE N/A RU
              DOP BIAS   N/A  HZ C NOS  .004HZ EXP  .005HZ
      MONITOR ---------------------------------------------------
                   LGWR  LGER  BLRC  BLER
              DIS  N/A   N/A   N/A    N/A
              TCP  N/A   N/A   N/A    N/A

      COMMENTS --------------------------------------------------
      1557Z-1614Z 360/75 DWN-LOCKED OUT DR-N-4250
      2-W-TRK PERIOD: 132059Z-1752Z.
      CMD TIMES: 1328Z-1752Z.
```

PN6CLZ66505

```
2517  723101250    7231C17CC    2517
      DSS 14 PASS 2517 CL C-A CTDN I-A    GCF S20D CPS  N/A DSS D20C
      CONFIG  --------------------------------------------------
              AOS DOY 310  LOS DOY 310          TOTAL
              SCHEDULED 1300Z SCHEDULED 17C0Z SCHEDULED C4H CCM
              ACTUAL    1250Z ACTUAL    17C0Z ACTUAL    C4H 10M
              ST XFR        Z RELEASE   17CCZ DSS TIME  C4H 10M
      COMMAND ---------------------------------------------------
              TOTAL   2  AUTO   0  MANUAL   2  ABORT   C
      TELEMETRY -------------------------------------------------
              POWER  10KW  BIT RATES 64  CODED   N/A
                     RX 1   RX 2  TCP       TCP   N/A
              ACTUAL 157.6    N/A   5.6       N/A
              PREDIC 158.1    N/A   13.3      N/A
              RESID   +C.5    N/A   3.7       N/A
      TRACKING --------------------------------------------------
              TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NCISE N/A RU
              DOP BIAS   -.149HZ C NCS  .CC3HZ EXP  .CC5HZ
      MONITOR ---------------------------------------------------
                   LGWR  LGER  BLRC  BLER
              DIS   N/A   N/A   N/A   N/A
              TCP   N/A   N/A   N/A   N/A

      COMMENTS --------------------------------------------------
      #66505
      PN-6 CMD TIMES:1342Z-17CCZ
```

PN6CLZ66509

```
2518  723111143    723111530    2518
      DSS 14 PASS 2518 CL B-  CTDN 303314 GCF S20D CPS  N/A DSS D20C
      CONFIG   ------------------------------------------------------
               AOS DOY 311  LOS DOY 311          TOTAL
               SCHEDULED 1200Z SCHEDULED 1530Z SCHEDULED 03H 30M
               ACTUAL    1143Z ACTUAL    1530Z ACTUAL    03H 47M
               ST XFR       Z RELEASE    1530Z DSS TIME  03H 47M
      COMMAND  ------------------------------------------------------
               TOTAL   3  AUTO   0  MANUAL   3  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  10KW  BIT RATES 64 CODED    N/A
                      RX 1   RX 2  TCP        TCP   N/A
               ACTUAL 157.7    N/A   9.2       N/A
               PREDIC 158.0    N/A   8.1       N/A
               RESID   +0.3    N/A  +1.1       N/A
      TRACKING ------------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE  N/ARU
               DOP BIAS   N/A  HZ C NCS  .003HZ EXP  .005HZ
      MONITOR  ------------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS   N/A   N/A   N/A   N/A
               TCP   N/A   N/A   N/A   N/A

      COMMENTS ------------------------------------------------------
```

PN6CLZ66535

```
2524  723171259    723171530    2524
      DSS 14 PASS 2524 CL B-  CTDN 303314 GCF S20D CPS TC11 DSS D20C
      CONFIG   ------------------------------------------------------
               AOS DOY 317  LOS DOY 317          TOTAL
               SCHEDULED 1230Z SCHEDULED 1530Z SCHEDULED 03H 00M
               ACTUAL    1259Z ACTUAL    1530Z ACTUAL    02H 31M
               ST XFR    N/R Z RELEASE   1530Z DSS TIME  02H 31M
      COMMAND  ------------------------------------------------------
               TOTAL   1  AUTO   0  MANUAL   1  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  20KW  BIT RATES 16  GCE
                      RX 1   RX 2  TCP A      TCP B
               ACTUAL 156.9    N/A   10>       N/A
               PREDIC 158.0    N/A   13.2      N/A
               RESID   +1.1    N/A   N/A       N/A
      TRACKING ------------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
               DOP BIAS    N/A HZ C NCS 0.005HZ EXP 0.005HZ
      MONITOR  ------------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS   N/A   N/A   N/A   N/A
               TCP   N/A   N/A   N/A   N/A

      COMMENTS ------------------------------------------------------
      ACS 1259Z-SCHED 1230Z,LOST ALL DATA DUE TO LATE ACS. DR-C953
      1322Z-TCP-B ENG.DATA BAD, RESTART REQ.TCP-B,DR-T-2350
```

PN6CLZ66541

```
2525  723181029    723181430    2525
      DSS 14 PASS 2525 CL B-  CTDN 303314 GCF S20D CPS TC11 DSS D20C
      CONFIG   ------------------------------------------------------
               AOS DOY 318  LOS DOY 318          TOTAL
               SCHEDULED 1030Z SCHEDULED 1430Z SCHEDULED 04H 00M
               ACTUAL    1029Z ACTUAL    1430Z ACTUAL    04H 01M
               ST XFR       Z RELEASE    1430Z DSS TIME  04H 01M
      COMMAND  ------------------------------------------------------
               TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  20KW  BIT RATES 64 CODED     N/A
                      RX 1   RX 2  TCP A 64  TCP   N/A
               ACTUAL 157.1    N/A   8.8       N/A
               PREDIC 158.0    N/A   7.8       N/A
               RESID   +.9     N/A  +1.0       N/A
```

```
TRACKING  ------------------------------------------------
          TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
          DOP BIAS   N/A  HZ C NCS  .004HZ EXP  .005HZ
MONITOR   ------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/A   N/A   N/A   N/A
          TCP   N/A   N/A   N/A   N/A

COMMENTS  ------------------------------------------------
CMD TIMES-1119Z-1430Z
```

PN6CLZ66555

```
2528  723211026    723211430    2528
      DSS 14 PASS 2528 CL B-  CTDN 303314 GCF S200 CPS TCLL DSS D20C
      CONFIG    ------------------------------------------------
                AOS DOY 321  LOS DOY 321         TOTAL
                SCHEDULED 1025Z SCHEDULED 1430Z SCHEDULED 04H 05M
                ACTUAL    1029Z ACTUAL    1430Z ACTUAL    04H 01M
                ST XFR          7 RELEASE   1430Z DSS TIME  04H 01M
      COMMAND   ------------------------------------------------
                TOTAL   3  AUTO   0  MANUAL   3  ABORT   0
      TELEMETRY ------------------------------------------------
                POWER  20KW  BIT RATES 64  CODED     N/A
                       RX 1    RX 2  TCP   64  TCP    N/A
                ACTUAL 158.4    N/A   7.9       N/A
                PREDIC 158.0    N/A   7.9       N/A
                RESID    0.4    N/A     0       N/A
      TRACKING  ------------------------------------------------
                TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
                DOP BIAS    N/A HZ C NCS  .003HZ EXP   005HZ
      MONITOR   ------------------------------------------------
                     LGWR  LGER  BLRC  BLER
                DIS   N/A   N/A   N/A   N/A
                TCP   N/A   N/A   N/A   N/A

      COMMENTS  ------------------------------------------------
      NONE
      CMD TIMES:1108Z-1430Z
```

PN6CLZ66584

```
2535  723281657    723281930    2535
      DSS 14 PASS 2535 CL B-  CTDN 303314 GCF S200 CPS TCLL DSS D20C
      CONFIG    ------------------------------------------------
                AOS DOY 328  LOS DOY 328         TOTAL
                SCHEDULED 1700Z SCHEDULED 1930Z SCHEDULED 02H 30M
                ACTUAL    1700Z ACTUAL    1930Z ACTUAL    02H 30M
                ST XFR          Z RELEASE   1930Z DSS TIME  02H 30M
      COMMAND   ------------------------------------------------
                TOTAL   3  AUTO   0  MANUAL   3  ABORT   0
      TELEMETRY ------------------------------------------------
                POWER  20KW  BIT RATES 16/64      16/64
                       RX 1    RX 2  TCP A 16  TCP A 64
                ACTUAL 157.4    N/A   710       7.9
                PREDIC 157.9    N/A   133       8.3
                RESID   +0.5    N/A             +0.4
      TRACKING  ------------------------------------------------
                TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
                DOP BIAS   -0.63HZ C NCS 0.004HZ EXP 0.005HZ
      MONITOR   ------------------------------------------------
                     LGWR  LGER  BLRC  BLER
                DIS   N/A   N/A   N/A   N/A
                TCP   N/A   N/A   N/A   N/A

      COMMENTS  ------------------------------------------------
      NONE
```

PN6CLZ66608

```
2541  723341200    72334153C    2541
      DSS 14 PASS 2541 CL 8-  CTDN 303314 GCF S200 CPS  N/A DSS D200
      CONFIG   ------------------------------------------------------
               AOS DOY 334  LOS DOY 334          TOTAL
               SCHEDULED 1200Z SCHEDULED 1530Z SCHEDULED 03H 30M
               ACTUAL    1200Z ACTUAL    1530Z ACTUAL    03H 30M
               ST XFR    N/A Z RELEASE   N/A Z DSS TIME N/AHN/AM
      COMMAND  ------------------------------------------------------
               TOTAL   3  AUTO   0  MANUAL   3  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  10KW  BIT RATES 16            N/A
                      RX 1   RX 2  TCP B 16  TCP    N/A
               ACTUAL 157.1    N/A   8.9       N/A
               PREDIC 157.9    N/A   8.1       N/A
               RESID   +C.8    N/A  +C.8       N/A
      TRACKING ---------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
               DOP BIAS   N/A  HZ C NOS  .003HZ EXP 0.005HZ
      MONITOR  ---------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS   N/A   N/A   N/A   N/A
               TCP   N/A   N/A   N/A   N/A

      COMMENTS ---------------------------------------------------
      NONE
```

PN6DAZ66797

```
2594  730211210    730211500    2594
      DSS 14 PASS 2594 CL  -  CTDN N/A    GCF S200 CPS T011 DSS D200
      CONFIG   ------------------------------------------------------
               AOS DOY 021  LOS DOY 021          TOTAL
               SCHEDULED 1230Z SCHEDULED 1500Z SCHEDULED 02H 30M
               ACTUAL    1210Z ACTUAL    1500Z ACTUAL    02H 50M
               ST XFR    N/A Z RELEASE   1505Z DSS TIME  02H 55M
      COMMAND  ------------------------------------------------------
               TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  20KW  BIT RATES N/A CODED N/A    GOE
                      RX 1   RX 2  TCP        TCP
               ACTUAL 156.5  N/A     N/A       N/A
               PREDIC 158.2  N/A     N/A       N/A
               RESID   -1.7  N/A     N/A       N/A
      TRACKING ---------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
               DOP BIAS N/A    HZ C NOS  .003HZ EXP  .005HZ
      MONITOR  ---------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS  N/A   N/A   N/A   N/A
               TCP  N/A   N/A   N/A   N/A

      COMMENTS ---------------------------------------------------
      BAD TLM FOR MOST OF PASS AS STATION HAD SIMULATED DAN TO LINES
      DR-T2421 CMD TIMES01310Z-1500Z
```

```
-------------------------------------------------------------------
GENERAL
   DSS        14      43
   PASS     27CC    272C
   DOY        127     147
   AOS      173C    C241
   LOS      20CC    C446
   TOT      02:30   C2:05
   DSS T            C2:05
-------------------------------------------------------------------
COMMAND
   TOT        N/A       1
```

TELEMETRY		
DL	N/A	166.2
RES	N/A	-1.6
BR	N/A	16
SNR	N/A	4.9
RES	N/A	1.3
TRACKING		
MODE	NIL	2
T PWR	N/A	20
D RES	N/A	N/A
D NCS	N/A	.010
E NCS	N/A	.005
COMMENTS		

GENERAL								
DSS	43	43	43	43	43	43	43	43
PASS	2726	2727	2733	2734	2740	2741	2747	2753
DOY	153	154	160	161	166	168	174	181
AOS	0215	0313	0049	0040	0022	0016	2357	0012
LOS	0430	0434	0430	0430	0427	0425	0420	0304
TOT	02:11	01:21	03:30	03:50	04:05	04:09	04:23	02:52
DSS T			03:36				04:23	03:43
COMMAND								
TOT	1	1	2	4	3	4	4	4
TELEMETRY								
DL	163.9	166.7	166.2	166.2	166.1	166.0	166.0	164.2
RES	-1.8	-2.0	-1.4	-1.4	-1.2	-1.1	-1.0	-2.2
BR	16	16	16	16	16	16	8 16	
SNR	8.5	4.7	5.4	5.2	5.6	6.1	6.8	5.0
RES	.1	1.5	1.5	-1.6	.9	.8	.2	4.7
TRACKING								
MODE	2	2	2	2	2	2	2	2
T PWR	20	20	10		20	20	20	20
D RES	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D NCS	N/A	N/A	.009	.008	.010	.015	.010	N/A
E NCS	N/A	.005	.005	.005	.005	.005	.005	.005

COMMENTS

DSS 43/P2727 NO TDF UNTIL 0407 ER-T2631
DSS 43/P2753 HIGH TS DUE TO LOCAL RAIN STORM

Table B-2. Pioneer 7 Pass Chronology

```
PASS  GMT-START     GMT-END         DATA
NO.                                 DAY
-------------------------------------------------------------------------------

 PN7CGZ65942

2160  721972329     721981400      2160
          DSS 14 PASS 2160 CL F-B CTDN 202244 GCF S00D CPS  N/A DSS D000
          CONFIG   ---------------------------------------------------------
                   AOS DOY 197  LOS DOY 198          TOTAL
                   SCHEDULED 2331Z SCHEDULED 0140Z SCHEDULED 02H 09M
                   ACTUAL    2329Z ACTUAL    0140Z ACTUAL    02H 11M
                   ST XFR    N/R Z RELEASE   0140Z DSS TIME  02H 11M
          COMMAND  ---------------------------------------------------------
                   TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
          TELEMETRY ---------------------------------------------------------
                   POWER N/AKW  BIT RATES  8 GOE
                          RX 1   RX 2  TCP A     TCP B
                   ACTUAL 164.1    N/A   5.6       N/A
                   PREDIC 164.6    N/A   8.2       N/A
                   RESID   +0.5    N/A  -2.6       N/A
          TRACKING ---------------------------------------------------------
                   TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                   DOP BIAS    -0.7HZ C NOS  0.15HZ EXP   0.2HZ
          MONITOR  ---------------------------------------------------------
                        LGWR  LGER  BLRC  BLER
                   DIS   N/A   N/A   N/A   N/A
                   TCP   N/A   N/A   N/A   N/A

          COMMENTS ---------------------------------------------------------

 PN7CHZ66065

2182  72219         722191717     2182
          DSS 14 PASS 2182 CL F-  CTDN 304314 GCF S20D CPS  N/A DSS D200
          CONFIG   ---------------------------------------------------------
                   AOS DOY 219  LOS DOY 219          TOTAL
                   SCHEDULED 1500Z SCHEDULED 1717Z SCHEDULED 02H 17M
                   ACTUAL    N/R Z ACTUAL    1717Z ACTUAL    02H 17M
                   ST XFR    N/R Z RELEASE   1717Z DSS TIME  02H 17M
          COMMAND  ---------------------------------------------------------
                   TOTAL N/A  AUTO N/A  MANUAL N/A  ABORT N/A
          TELEMETRY ---------------------------------------------------------
                   POWER N/AKW  BIT RATES N/A        N/A
                          RX 1   RX 2  TCP A     TCP B
                   ACTUAL   N/A   N/A   N/A   N/A
                   PREDIC   N/A   N/A   N/A   N/A
                   RESID    N/A   N/A   N/A   N/A
          TRACKING ---------------------------------------------------------
                   TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                   DOP BIAS    N/A HZ C NOS  N/A HZ EXP  N/A HZ
          MONITOR  ---------------------------------------------------------
                        LGWR  LGER  BLRC  BLER
                   DIS   N/A   N/A   N/A   N/A
                   TCP   N/A   N/A   N/A   N/A

          COMMENTS ---------------------------------------------------------

 PN7CHZ66143

2195  722321930     722330115     2195
          DSS 14 PASS 2195 CL A-  CTDN 000314 GCF S20D CPS  N/A DSS D200
          CONFIG   ---------------------------------------------------------
                   AOS DOY 232  LOS DOY 233          TOTAL
                   SCHEDULED 1928Z SCHEDULED 0115Z SCHEDULED 05H 47M
                   ACTUAL    1930Z ACTUAL    0115Z ACTUAL    05H 45M
                   ST XFR    N/R Z RELEASE   0120Z DSS TIME  05H 50M
          COMMAND  ---------------------------------------------------------
                   TOTAL  16  AUTO   0  MANUAL  16  ABORT   0    /
```

```
TELEMETRY ----------------------------------------------------
          POWER  20KW  BIT RATES  8  GDE
                 RX 1    RX 2  TCP A      TCP B
          ACTUAL 165.6     N/A    8.5        N/A
          PREDIC 164.6     N/A    7.5        N/A
          RESID   -1.0     N/A   +1.0        N/A
TRACKING  ----------------------------------------------------
          TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
          DOP BIAS   N/A  HZ C NOS  N/A HZ EXP  N/A HZ
MONITOR   ----------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/R   N/R   N/R   N/R
          TCP   N/R   N/R   N/R   N/R

COMMENTS  ----------------------------------------------------
```

PN7CKZ66418

```
2256  722931300    722931828    2256
      DSS 14 PASS 2256 CL N-A CTDN 202214 GCF S20D CPS TOLL DSS D200
      CONFIG  ------------------------------------------------
              ACS DOY 293  LOS DOY 293          TOTAL
              SCHEDULED 1300Z SCHEDULED 1800Z SCHEDULED 05H 00M
              ACTUAL    1300Z ACTUAL    1828Z ACTUAL    05H 28M
              ST XFR       0Z RELEASE    N/RZ DSS TIME    H   M
      COMMAND ------------------------------------------------
              TOTAL  26  AUTO   0  MANUAL  26  ABORT   0
      TELEMETRY ----------------------------------------------
              POWER 10CKW  BIT RATES      8
                    RX 1   RX 2  TCP B     TCP
              ACTUAL 163.3           10
              PREDIC 164.2          9.6
              RESID    +.9          +.6
      TRACKING -----------------------------------------------
              TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
              DOP BIAS  -0.764HZ C NOS 0.005HZ EXP 0.005HZ
      MONITOR ------------------------------------------------
                   LGWR  LGER  BLRC  BLER
              DIS   N/A   N/A   N/A   N/A
              TCP   N/A   N/A   N/A   N/A
      COMMENTS -----------------------------------------------
      DR-T-2300 ACS DELAYED DUE TO ERROR IN PREDICTS.
      NC MONITOR
      LATE LCS AS PER INSTRUCTIONS FROM ARC-7
      NO DSS RELEASE DUE TO START FROM MM9 OCCULTATION SUPPORT
```

PN7CKZ66477

```
2266  723031308    723031810    2266
      DSS 14 PASS 2266 CL  -F CTDN 202344 GCF S200 CPS  N/A DSS D200
      CONFIG  ------------------------------------------------
              ACS DOY 303  LOS DOY 303          TOTAL
              SCHEDULED     Z SCHEDULED     Z SCHEDULED   H   M
              ACTUAL    1308Z ACTUAL    1810Z ACTUAL    05H 02M
              ST XFR       Z RELEASE    1820Z DSS TIME  05H 12M
      COMMAND ------------------------------------------------
              TOTAL   3  AUTO   0  MANUAL   3  ABORT   0
      TELEMETRY ----------------------------------------------
              POWER  20KW  BIT RATES 8 CODED     N/A
                     RX 1   RX 2  TCP A     TCP   N/A
              ACTUAL 164.4    N/A   N/A       N/A
              PREDIC 164.1    N/A   N/A       N/A
              RESID    -.3    N/A   N/A       N/A
      TRACKING -----------------------------------------------
              TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
              DOP BIAS   N/A HZ C NOS  .003HZ EXP  .003HZ
      MONITOR ------------------------------------------------
                   LGWR  LGER  BLRC  BLER
              DIS   N/A   N/A   N/A   N/A
              TCP   N/A   N/A   N/A   N/A
      COMMENTS -----------------------------------------------
      NC READING FOR SNR ON TTY DATA, READING WERE 000X, DUE TO
      SIGNAL STRENGTH AT THRESHOLD.
      CMC TIME 1418Z-1507Z
```

PN7CLZ66485

```
2269  723061630    723062325    2269
      DSS 14 PASS 2269 CL B-A CTDN 303314 GCF S000 CPS  N/A DSS C200
      CONFIG   ------------------------------------------------------
               AOS DOY 306  LOS DOY 306          TOTAL
               SCHEDULED 1630Z SCHEDULED 2330Z SCHEDULED 07H 00M
               ACTUAL    1639Z ACTUAL    2325Z ACTUAL    06H 46M
               ST XFR     N/AZ RELEASE   2325Z DSS TIME  06H 46M
      COMMAND  ------------------------------------------------------
               TOTAL   19  AUTO   0  MANUAL  19  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  10KW  BIT RATES 8  CODED     N/A
                      RX 1   RX 2  TCP A 8   TCP   N/A
               ACTUAL 162.9    N/A   8.8       N/A
               PREDIC 164.1    N/A   8.8       N/A
               RESID   +1.2    N/A     0       N/A
      TRACKING ------------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
               DOP BIAS   -0.90HZ C NOS  .025HZ EXP  .005HZ
      MONITOR  ------------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS   N/A   N/A   N/A   N/A
               TCP   N/A   N/A   N/A   N/A

      COMMENTS ------------------------------------------------------
      2121Z-2126Z ANTENNA TO BREAK ON POINT AT 2126Z DR-T-2335.
      2110Z-XMTR FAILURE 400 HZ M.G SET FAILED REF DR-T-2329
      CMD XMTD 1755Z-2209Z
```

PN7CLZ66513

```
2273  723101720    723102100    2273
      DSS 14 PASS 2273 CL  -  CTDN 1-A    GCF S200 CPS  N/A DSS C200
      CONFIG   ------------------------------------------------------
               AOS DOY 310  LOS DOY 310          TOTAL
               SCHEDULED 1730Z SCHEDULED 2100Z SCHEDULED 03H 30M
               ACTUAL    1720Z ACTUAL    2100Z ACTUAL    03H 40M
               ST XFR         Z RELEASE   2100Z DSS TIME  03H 40M
      COMMAND  ------------------------------------------------------
               TOTAL   4  AUTO   0  MANUAL   4  ABORT   1
      TELEMETRY ----------------------------------------------------
               POWER  20KW  BIT RATES 8 1/6     8
                      RX 1   RX 2  TCP A      TCP A
               ACTUAL 162.4    N/A   7.0       8.0
               PREDIC 164.1    N/A   9.3       7.0
               RESID   +1.7   N/A              +1.0
      TRACKING ------------------------------------------------------
               TRACK MD N/AWAY RANGING NIL BIAS N/A RU NOISE N/A RU
               DOP BIAS  N/A   HZ C NOS  .005HZ EXP  .005HZ
      MONITOR  ------------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS   N/A  N/A   N/A   N/A
               TCP   N/A  N/A   N/A   N/A

      COMMENTS ------------------------------------------------------
      1731Z-TCP IN LOCK 8BPS. DELAYS DUE TO PROJ VC INPUT OF 16. DR-T
      2338
      1823Z-TCP DWN FOR RESTART TO ALLOW CHGE OF PERMISSIVE CMD TAPE
      BY PROJ REQUEST.UP 1826Z DR-T-2338 REFERS.
      1832Z-1835Z TCP RELOAD DUE TO ENG CLASS 1 P/C BAD NC DR.
      1900Z-CMD MSG 3/016 ABORTED RFD UNKNOWN DR-T-2339 REFERS
      CMD TIMES:1815Z-2000Z
```

PN7CLZ66510

```
2274  723111544    723111930    2274
      DSS 14 PASS 2274 CL A-  CTDN 403414 GCF S200 CPS  N/A DSS C200
      CONFIG   ------------------------------------------------------
               AOS DOY 311  LOS DOY 311          TOTAL
               SCHEDULED 1600Z SCHEDULED 1930Z SCHEDULED 03H 30M
               ACTUAL    1544Z ACTUAL    1930Z ACTUAL    03H 46M
               ST XFR         Z RELEASE   1930Z DSS TIME  03H 46M
```

```
          COMMAND  ------------------------------------------------------
                   TOTAL    6  AUTO    0  MANUAL    6  ABORT    0
          TELEMETRY ----------------------------------------------------
                   POWER  10KW  BIT RATES 16 CODED     N/A
                          RX 1    RX 2  TCP          TCP    N/A
                   ACTUAL 162.6     N/A    7.0         N/A
                   PREDIC 164.1     N/A    7.8         N/A
                   RESID   -1.5     N/A      0         N/A
          TRACKING  ----------------------------------------------------
                   TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                   DOP BIAS   -.984HZ C NCS  .007HZ EXP  .005HZ
          MONITOR  ----------------------------------------------------
                        LGWR  LGER  BLRC  BLER
                   DIS  N/A   N/A   N/A    N/A
                   TCP  N/A   N/A   N/A    N/A

          COMMENTS ----------------------------------------------------
          CMD TIMES 1643Z-1930Z

 PN7CLZ66536

2280  723171550    723171900    2280
          DSS 14 PASS 2280 CL A-  CTDN 403414 GCF S20D CPS T011 DSS D20D
          CONFIG   ----------------------------------------------------
                   AOS DOY 317  LOS DOY 317          TOTAL
                   SCHEDULED 1600Z SCHEDULED 1900Z SCHEDULED 03H 00M
                   ACTUAL    1550Z ACTUAL    1900Z ACTUAL    03H 10M
                   ST XFR    N/R Z RELEASE   1900Z DSS TIME  03H 10M
          COMMAND  ----------------------------------------------------
                   TOTAL    4  AUTO    0  MANUAL    4  ABORT    0
          TELEMETRY ----------------------------------------------------
                   POWER  20KW  BIT RATES            16  GOF
                          RX 1    RX 2  TCP A       TCP B
                   ACTUAL 163.2     N/A    N/A         >10
                   PREDIC 164.0     N/A    N/A          7.1
                   RESID   +0.8     N/A    N/A          0.0
          TRACKING  ----------------------------------------------------
                   TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                   DOP BIAS  -1.011HZ C NCS  N/A HZ EXP  N/A HZ
          MONITOR  ----------------------------------------------------
                        LGWR  LGER  BLRC  BLER
                   DIS   N/A   N/A   N/A   N/A
                   TCP   N/A   N/A   N/A   N/A

          COMMENTS ----------------------------------------------------
          NONE

 PN7CLZ66543

2281  723181459    723181900    2281
          DSS 14 PASS 2281 CL N+A CTDN-403414 GCF S20D CPS T011 DSS D20C
          CONFIG   ----------------------------------------------------
                   AOS DOY 318  LOS DOY 318          TOTAL
                   SCHEDULED 1500Z SCHEDULED 1900Z SCHEDULED 04H 00M
                   ACTUAL    1459Z ACTUAL    1900Z ACTUAL    04H 01M
                   ST XFR     N/AZ RELEASE   1900Z DSS TIME  04H 01M
          COMMAND  ----------------------------------------------------
                   TOTAL    4  AUTO    0  MANUAL    4  ABORT    0
          TELEMETRY ----------------------------------------------------
                   POWER  20KW  BIT RATES 16 GOF
                          RX 1    RX 2  TCP A       TCP
                   ACTUAL 162.8     N/A    7.8         N/A
                   PREDIC 164.0     N/A    7.0         N/A
                   RESID   +1.2     N/A   +0.8         N/A
          TRACKING  ----------------------------------------------------
                   TRACK MD   2WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                   DOP BIAS   -1.05HZ C NCS 0.011HZ EXP 0.005HZ
          MONITOR  ----------------------------------------------------
                        LGWR  LGER  BLRC  BLER
                   DIS   N/A   N/A   N/A   N/A
                   TCP   N/A   N/A   N/A   N/A

          COMMENTS ----------------------------------------------------
          CMD TIMES-1612Z-1741Z
```

PN7CLZ66557

```
2284  723211459    723211900    2284
      DSS 14 PASS 2284 CL A-  CTDN 403414 GCF S20D CPS TO11 DSS D20C
      CONFIG   ------------------------------------------------------
               AOS DOY 321  LOS DOY 321          TOTAL
               SCHEDULED 1500Z SCHEDULED 1900Z SCHEDULED  4H 00M
               ACTUAL    1459Z ACTUAL    1900Z ACTUAL     4H 01M
               ST XFR    N/A Z RELEASE   1900Z DSS TIME   4H 01M
      COMMAND  ------------------------------------------------------
               TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  20KW  BIT RATES  17
                      RX 1   RX 2  TCP A      TCP   N/A
               ACTUAL 163.4   N/A    7.5       N/A
               PREDIC 163.9   N/A    7.0       N/A
               RESID   +0.5   N/A   +0.5       N/A
      TRACKING ------------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
               DOP BIAS  -1.098HZ C NCS  .007HZ EXP  .005HZ
      MONITOR  ------------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS   N/A   N/A   N/A   N/A
               TCP   N/A   N/A   N/A   N/A

      COMMENTS ------------------------------------------------------
```

PN7CLZ66586

```
2291  723281940    723282200    2291
      DSS 14 PASS 2291 CL A-  CTDN 403414 GCF S20D CPS TOLL DSS D20C
      CONFIG   ------------------------------------------------------
               AOS DOY 328  LOS DOY 328          TOTAL
               SCHEDULED 2000Z SCHEDULED 2200Z SCHEDULED 02H 00M
               ACTUAL    1940Z ACTUAL    2200Z ACTUAL    02H 20M
               ST XFR        Z RELEASE   2200Z DSS TIME  02H 20M
      COMMAND  ------------------------------------------------------
               TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER N/AKW  BIT RATES 16  CODED   N/A
                      RX 1   RX 2  TCP A 16  TCP   N/A
               ACTUAL 162.3    N/A    8.3       N/A
               PREDIC 163.2    N/A    8.2       N/A
               RESID   +0.9    N/A   +0.1       N/A
      TRACKING ------------------------------------------------------
               TRACK MD 1  WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
               DOP BIAS   +36.5HZ C NCS  N/A HZ EXP  N/A HZ
      MONITOR  ------------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS   N/A   N/A   N/A   N/A
               TCP   N/A   N/A   N/A   N/A

      COMMENTS ------------------------------------------------------
      QUICK TURN AROUND FROM PN-6 TO PN-7
```

PN7CLZ66609

```
2297  723341540    723341900    2297
      DSS 14 PASS 2297 CL A-  CTDN 403414 GCF S20D CPS      DSS D20C
      CONFIG   ------------------------------------------------------
               AOS DOY 334  LOS DOY 334          TOTAL
               SCHEDULED 1600Z SCHEDULED 1900Z SCHEDULED 03H 00M
               ACTUAL    1540Z ACTUAL    1900Z ACTUAL    03H 20M
               ST XFR    1540Z RELEASE   1900Z DSS TIME  03H 20M
      COMMAND  ------------------------------------------------------
               TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  20KW  BIT RATES 16           N/A
                      RX 1   RX 2  TCP B 16  TCP   N/A
               ACTUAL 164.9    N/A    5.7       N/A
               PREDIC 163.5    N/A    6.1       N/A
               RESID   +1.4    N/A   -0.4       N/A
```

```
          TRACKING  ------------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
                    DOP BIAS  -1.228HZ C NOS  .005HZ EXP  .005HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
          CMD TIMES:1618Z-1900Z

 PN7DAZ66798

2350  730211504     73021180C     2350
          DSS 14 PASS 2350 CL  -  CTDN N/A     GCF S20D CPS T011 DSS D200
          CONFIG    ------------------------------------------------------
                    AOS DOY 021  LOS DOY 021          TOTAL
                    SCHEDULED 1530Z SCHEDULED 1800Z SCHEDULED 02H 30?
                    ACTUAL    1530Z ACTUAL    1800Z ACTUAL    02H 30M
                    ST XFR    N/A Z RELEASE   1805Z DSS TIME  02H 35M
          COMMAND   ------------------------------------------------------
                    TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
          TELEMETRY ------------------------------------------------------
                    POWER  10KW  BIT RATES 64 CODED  N/A    GOE
                           RX 1   RX 2  TCP A      TCP
                    ACTUAL 161.5  N/A     8.0       N/A
                    PREDIC 163.5  N/A     7.2       N/A
                    RESID    2.0  N/A     0.8       N/A
          TRACKING  ------------------------------------------------------
                    TRACK MD 1  WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS     -97HZ C NOS  .300HZ EXP N/A  HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS  N/A   N/A   N/A   N/A
                    TCP  N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
          CMD TIMES01504Z-1800Z

    ------------------------------------------------------------------
    GENERAL
       DSS      43
       PASS     2475
       DOY      146
       AOS      0247
       LOS      0500
       TOT      2:13
       DSS T    02:14
    ------------------------------------------------------------------
    COMMAND
       TOT      3
    ------------------------------------------------------------------
    TELEMETRY
       DL       168.2
       RES      -1.5
       BR       16 COD
       SNR      3.7
       RES      0.9
    ------------------------------------------------------------------
    TRACKING
       MODE     2
       T Pwr    20
       D RES    N/A
       D NOS    .015
       E NOS    0.005
    ------------------------------------------------------------------
    COMMENTS
```

Table B-3. Pioneer 8 Pass Chronology

PASS NO.	GMT-START	GMT-END	DATA DAY

PN8CGZ65919

1670 721910333 721910459 1670

DSS 14 PASS 1670 CL N/A CTDN N/A GCF S00D CPS N/A DSS D000

CONFIG

AOS DOY 191	LOS DOY 191	TOTAL
SCHEDULED 0333Z	SCHEDULED 0500Z	SCHEDULED 01H 27M
ACTUAL 0333Z	ACTUAL 0459Z	ACTUAL 01H 26M
ST XFR N/R Z	RELEASE N/R Z	DSS TIME N/AH M

COMMAND

TOTAL N/A AUTO N/A MANUAL N/A ABORT N/A

TELEMETRY

POWER 10KW	BIT RATES RX 1	RX 2	TCP A	TCP B
ACTUAL	N/A	N/A	N/A	N/A
PREDIC	N/A	N/A	N/A	N/A
RESID	N/A	N/A	N/A	N/A

TRACKING

TRACK MD N/AWAY RANGING N/A BIAS N/A RU NOISE N/A RU
DOP BIAS N/A HZ C NOS N/A HZ EXP N/A HZ

MONITOR

	LGWR	LGER	BLRC	BLER
DIS	N/A	N/A	N/A	N/A
TCP	N/A	N/A	N/A	N/A

COMMENTS

NAT AREA DATA NOT REQUIRED. SCHEDULED IN REAL TIME.

PN8CKZ66413

1772 722921752 722921848 1772

DSS 14 PASS 1772 CL N/A CTDN 303214 GCF S20D CPS T011 DSS D200

CONFIG

ACS DOY 192	LOS DOY 193	TOTAL
SCHEDULED 1925Z	SCHEDULED 0237Z	SCHEDULED 07H 12M
ACTUAL 1913Z	ACTUAL 0237Z	ACTUAL 07H 24M
ST XFR N/AZ	RELEASE 0241Z	DSS TIME 07H 28M

COMMAND

TOTAL 7 AUTO 0 MANUAL 7 ABORT 0

TELEMETRY

POWER 10KW	BIT RATES 16 CODED MMT RX 1	RX 2	TCP A	TCP
ACTUAL	163.5	N/A	8.6	N/A
PREDIC	161.5	N/A	8.8	N/A
RESID	-2.0	N/A	-.2	N/A

TRACKING

TRACK MD 2WAY RANGING NIL BIAS N/A RU NOISE N/A RU
DOP BIAS -0.014HZ C NOS .005HZ EXP .005HZ

MONITOR

	LGWR	LGER	BLRC	BLER
DIS	N/A	N/A	N/A	N/A
TCP	N/A	N/A	N/A	N/A

COMMENTS

CMD TIME-0252-0211 NOTE:SPLIT PASS SEQ.NO.72292.

PN8CKZ66421

1773 722931906 722940237 1773

DSS 14 PASS 1773 CL N-A CTDN 000414 GCF S20D CPS T0LL DSS D200

CONFIG

ACS DOY 293	LOS DOY 294	TOTAL
SCHEDULED 1917Z	SCHEDULED 0237Z	SCHEDULED 07H 20M
ACTUAL 1906Z	ACTUAL 0237Z	ACTUAL 07H 31M
ST XFR N/AZ	RELEASE 0237Z	DSS TIME 07H 31M

COMMAND

TOTAL 16 AUTO 0 MANUAL 16 ABORT 0

```
          TELEMETRY ----------------------------------------------------
                    POWER  10KW  BIT RATES 16 CODED
                           RX 1    RX 2  TCP A      TCP
                    ACTUAL 161.3     N/A   8.7
                    PREDIC 161.5     N/A   9.4
                    RESID    +.2     N/A   -.7
          TRACKING  ----------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
                    DOP BIAS  -0.010HZ C NOS  .005HZ EXP  .005HZ
          MONITOR   ----------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A
          COMMENTS  ----------------------------------------------------
          2330 TCP HALTED RESTARTED-RESTART FAILED-RESTARTED @ 2014Z CR-T

 PNBCKZ66431

1774  722941753    722950230    1774
          DSS 14 PASS 1774 CL N-A CTDN 303214 GCF S20D CPS TCLL DSS D200
          CONFIG    ----------------------------------------------------
                    ACS DOY 294  LOS DOY 295         TOTAL
                    SCHEDULED 1750Z SCHEDULED 0236Z SCHEDULED 08H 46M
                    ACTUAL    1753Z ACTUAL    0230Z ACTUAL    08H 37M
                    ST XFR     N/AZ RELEASE   0243Z DSS TIME  08H 50M
          COMMAND   ----------------------------------------------------
                    TOTAL  12  AUTO   0  MANUAL  12  ABORT   0
          TELEMETRY ----------------------------------------------------
                    POWER  20KW  BIT RATES     16        N/A
                           RX 1    RX 2  TCP A  16 TCP    N/A
                    ACTUAL 161.5     N/A   8.8       N/A
                    PREDIC 161.7     N/A   9.1       N/A
                    RESID    -.2     N/A   -.3       N/A
          TRACKING  ----------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
                    DOP BIAS  -0.012HZ C NOS  .005HZ EXP  .005HZ
          MONITOR   ----------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A
          COMMENTS  ----------------------------------------------------
          CMC TIME 1843Z-0230Z

 PNBCKZ66439

1775  722951753    722960235    1775
          DSS 14 PASS 1775 CL N-A CTDN 303214 GCF S200 CPS TCLL DSS D200
          CONFIG    ----------------------------------------------------
                    ACS DOY 295  LOS DOY 296         TOTAL
                    SCHEDULED 1751Z SCHEDULED 0235Z SCHEDULED 08H 44M
                    ACTUAL    1753Z ACTUAL    0235Z ACTUAL    08H 42M
                    ST XFR     N/AZ RELEASE   0250Z DSS TIME  08H 57M
          COMMAND   ----------------------------------------------------
                    TOTAL  20  AUTO   0  MANUAL  20  ABORT   0
          TELEMETRY ----------------------------------------------------
                    POWER  10KW  BIT RATES 16 CODED
                           RX 1    RX 2  TCP A  16 TCP B
                    ACTUAL 161.9     N/A   9.0       N/A
                    PREDIC 161.5     N/A   9.1       N/A
                    RESID    -.4     N/A   -.1       N/A
          TRACKING  ----------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
                    DOP BIAS  -0.003HZ C NOS  .004HZ EXP   005HZ
          MONITOR   ----------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS  ----------------------------------------------------
          2222Z-2245Z, PROGRAM HALT,RELOAD;(2230) CMD ERROR,RESTART; CMDS
          1/004,-1/050,AND 1/052 (CRUZ 4) DIC NOT XMIT DUE TO RELOAD OR T
          2327 (2326 WAS VOIDED)
          CMC TIME 1823Z-0235Z.
```

```
FN8CKZ66444

1776  722961754    722961840    1776
        DSS 14 PASS 1776 CL D-A CTDN 303214 GCF S20C CPS TCLL DSS D200
        CONFIG   ------------------------------------------------------
                 ACS DOY 296  LOS DOY 296          TOTAL
                 SCHEDULED 1751Z SCHEDULED 1910Z SCHEDULED 01H 19M
                 ACTUAL    1754Z ACTUAL    1840Z ACTUAL    00H 46M
                 ST XFR       Z RELEASE       Z DSS TIME    H   M
        COMMAND  ------------------------------------------------------
                 TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
        TELEMETRY ----------------------------------------------------
                 POWER  10KW  BIT RATES 16 CODED
                        RX 1   RX 2  TCP A  16 TCP
                 ACTUAL 162.0    N/A
                 PREDIC 161.5    N/A
                 RESID   -1.5    N/A
        TRACKING ------------------------------------------------------
                 TRACK MD   1WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
                 DOP BIAS     N/AHZ C NOS   N/AHZ EXP   N/AHZ
        MONITOR  ------------------------------------------------------
                      LGWR  LGER  BLRC  BLER
                 DIS   N/A   N/A   N/A   N/A
                 TCP   N/A   N/A   N/A   N/A

        COMMENTS ------------------------------------------------------
        SWITCHED TO MM-9 S/C. SPLIT-PASS CMD TIME 1930Z-0235Z

FN8CKZ72292

1772  722921752    722921848    1772
        DSS 14 PASS 1772 CL N-A CTDN 303214 GCF S20D CPS TCLL DSS D200
        CONFIG   ------------------------------------------------------
                 ACS DOY 292  LOS DOY 292          TOTAL
                 SCHEDULED 1749Z SCHEDULED 1818Z SCHEDULED  0H 29M
                 ACTUAL    1752Z ACTUAL    1848Z ACTUAL     0H 56M
                 ST XFR      N/AZ RELEASE  1848Z DSS TIME   0H 56M
        COMMAND  ------------------------------------------------------
                 TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
        TELEMETRY ----------------------------------------------------
                 POWER N/AKW  BIT RATES    N/A       N/A
                        RX 1   RX 2  TCP   N/A TCP   N/A
                 ACTUAL   N/A    N/A   N/A       N/A
                 PREDIC   N/A    N/A   N/A       N/A
                 RESID    N/A    N/A   N/A       N/A
        TRACKING ------------------------------------------------------
                 TRACK MD  1 WAY RANGING N/A BIAS N/A RU NOISE  N/ARU
                 DOP BIAS    N/A HZ C NOS   N/AHZ EXP   N/AHZ
        MONITOR  ------------------------------------------------------
                      LGWR  LGER  BLRC  BLER
                 DIS   N/A   N/A   N/A   N/A
                 TCP   N/A   N/A   N/A   N/A

        COMMENTS ------------------------------------------------------

FN8CKZ72296

1776  722961754    722970235    1776
        DSS 14 PASS 1776 CL N-A CTDN    N/A GCF S20C CPS TCLL DSS D200
        CONFIG   ------------------------------------------------------
                 ACS DOY 296  LOS DOY 297          TOTAL
                 SCHEDULED 1912Z SCHEDULED 0305Z SCHEDULED 07H 53M
                 ACTUAL    1902Z ACTUAL    0235Z ACTUAL    07H 33M
                 ST XFR      N/RZ RELEASE  0235Z DSS TIME  07H 33M
        COMMAND  ------------------------------------------------------
                 TOTAL  18  AUTO   0  MANUAL  18  ABORT   0
        TELEMETRY ----------------------------------------------------
                 POWER  10KW  BIT RATES 16 CODED
                        RX 1   RX 2  TCP A     TCP
                 ACTUAL 162.0    N/A   8.8       N/A
                 PREDIC 161.5    N/A   9.1       N/A
                 RESID   -.5     N/A   -.3       N/A
```

```
          TRACKING  ------------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
                    DOP BIAS  -0.004HZ C NOS .0035HZ EXP  .004HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
```

PN8CLZ66514

```
1790  723102110    72311023C    1790 1
          DSS 14 PASS 1790 CL  -  CTDN 1-A    GCF S20D CPS N/A  DSS D20C
          CONFIG    ------------------------------------------------------
                    AOS DOY 310  LOS DOY 311         TOTAL
                    SCHEDULED 2130Z SCHEDULED 0230Z SCHEDULED 05H 00M
                    ACTUAL    2110Z ACTUAL    0230Z ACTUAL    05H 20M
                    ST XFR          Z RELEASE   0230Z DSS TIME  05H 20M
          COMMAND   ------------------------------------------------------
                    TOTAL   6  AUTO   0  MANUAL   6  ABORT   0
          TELEMETRY ------------------------------------------------------
                    POWER  20KW  BIT RATES 16  CODED    N/A
                           RX 1    RX 2  TCP A 16  TCP    N/A
                    ACTUAL 161.0    N/A   9.8       N/A
                    PREDIC 161.6    N/A  10.9       N/A
                    RESID   +0.6    N/A  +1.1       N/A
          TRACKING  ------------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS   N/A  HZ C NOS 0.005HZ EXP 0.003HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS  N/A   N/A   N/A   N/A
                    TCP  N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
          2140Z-UNABLE TO OBTAIN TCP-A LOCK-SWITCHED TO TCP-B,NO GOOD.
          LOADED MMT PROG DCI-5033-CP DRT-2340
          0018Z-3 CMDS 6/061,6/101 AND 6/112 NOT SENT STA FAILED TO CHANG
          PATCHBOARD FROM GOE TO MMT DR-T-2341
          CAME UP ON S/C 20 MINS EARLY AFTER RECONF FROM PN-7
```

PN8CLZ66513

```
1791  723111947    723112330    1791
          DSS 14 PASS 1791 CL A-A CTDN 403414 GCF S70D CPS  N/A DSS D200
          CONFIG    ------------------------------------------------------
                    AOS DOY 311  LOS DOY 311         TOTAL
                    SCHEDULED 2000Z SCHEDULED 2330Z SCHEDULED 03H 30M
                    ACTUAL    1947Z ACTUAL    2330Z ACTUAL    03H 33M
                    ST XFR          Z RELEASE   2330Z DSS TIME  03H 33M
          COMMAND   ------------------------------------------------------
                    TOTAL   5  AUTO   0  MANUAL   5  ABORT   0
          TELEMETRY ------------------------------------------------------
                    POWER  20KW  BIT RATES 16  CODED    N/A
                           RX 1    RX 2  TCP A     TCP    N/A
                    ACTUAL 161.0    N/A   8.8       N/A
                    PREDIC 161.6    N/A   9.3       N/A
                    RESID   +0.6    N/A  -0.5       N/A
          TRACKING  ------------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
                    DOP BIAS   +.038HZ C NOS  .004HZ EXP  .005HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
```

PN8CLZ66538

```
1797  723171907    723172330    1797
      DSS 14 PASS 1797 CL A-A CTDN 403414 GCF S20D CPS TC11 DSS D20C
      CONFIG   ------------------------------------------------------
               AOS DOY 317  LOS DOY 317          TOTAL
               SCHEDULED 1930Z SCHEDULED 2330Z SCHEDULED 04H 00M
               ACTUAL    1909Z ACTUAL    2330Z ACTUAL    04H 21M
               ST XFR    N/R Z RELEASE   2335Z DSS TIME  04H 26M
      COMMAND  ------------------------------------------------------
               TOTAL   3  AUTO   0  MANUAL   3  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  20KW  BIT RATES 16  CODE
                      RX 1   RX 2  TCP B     TCP A
               ACTUAL 160.5    N/A   8.6       N/A
               PREDIC 161.6    N/A   9.3       N/A
               RESID   +1.1    N/A  -0.7       N/A
      TRACKING ---------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
               DOP BIAS  +0.077HZ C NCS 0.004HZ EXP 0.003HZ
      MONITOR  ---------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS   N/A   N/A   N/A   N/A
               TCP   N/A   N/A   N/A   N/A

      COMMENTS ---------------------------------------------------
      NONE
```

PN8CLZ66549

```
1798  723181905    723190030    1798
      DSS 14 PASS 1798 CL A-A CTDN 403414 GCF S20D CPS TC11 DSS D20C
      CONFIG   ------------------------------------------------------
               AOS DOY 318  LOS DOY 319          TOTAL
               SCHEDULED 1930Z SCHEDULED 0030Z SCHEDULED 05H 00M
               ACTUAL    1905Z ACTUAL    0030Z ACTUAL    05H 25M
               ST XFR          Z RELEASE   0040Z DSS TIME  05H 35M
      COMMAND  ------------------------------------------------------
               TOTAL  16  AUTO   0  MANUAL  16  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  20KW  BIT RATES 16  CODED    N/A
                      RX 1   RX 2  TCP A 16  TCP   N/A
               ACTUAL 161.6    N/A   8.8       N/A
               PREDIC 161.6    N/A   9.2       N/A
               RESID     0     N/A  -.04       N/A
      TRACKING ---------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
               DOP BIAS  +0.076HZ C NCS 0.003HZ EXP 0.005HZ
      MONITOR  ---------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS   N/A   N/A   N/A   N/A
               TCP   N/A   N/A   N/A   N/A

      COMMENTS ---------------------------------------------------
      2229Z-FMTA MEMORY READOUT PROB. RELOAD TCP REQ. DR-T-2353
      2345Z-FMTA MEMORY READOUT PROB. RELOAD TCP REQ. REF:DR-T-2353
```

PN8CLZ66559

```
1801  723221906    723222330    1801
      DSS 14 PASS 1801 CL A-A CTDN 403414 GCF S20D CPS TC11 DSS D20C
      CONFIG   ------------------------------------------------------
               AOS DOY 321  LOS DOY 321          TOTAL
               SCHEDULED 1930Z SCHEDULED 2330Z SCHEDULED 04H 00M
               ACTUAL    1906Z ACTUAL    2330Z ACTUAL    04H 24M
               ST XFR          Z RELEASE   0241Z DSS TIME  04H 35M
      COMMAND  ------------------------------------------------------
               TOTAL   8  AUTO   0  MANUAL   8  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  10KW  BIT RATES 16  CODED    N/A
                      RX 1   RX 2  TCP A 16  TCP   N/A
               ACTUAL 162.0    N/A   8.2       N/A
               PREDIC 161.6    N/A   9.3       N/A
               RESID   -0.4    N/A   1.1       N/A
```

```
TRACKING  ----------------------------------------------------
          TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
          DOP BIAS  +0.091HZ C NCS  .004HZ EXP  .005HZ
MONITOR   ----------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/A   N/A   N/A   N/A
          TCP   N/A   N/A   N/A   N/A

COMMENTS  ----------------------------------------------------
1906Z EARLY AOS DUE TO EARLY COMPLETION OF PN-7 TRK.
CMD TIME 20077-23302
```

PN8CLZ66587

```
1808  723282213    72325C200    1808
      DSS 14 PASS 1808 CL A-A CTON 403414 GCF S20C CPS TCLL DSS C20C
      CONFIG  ------------------------------------------------
              AOS DOY 328  LOS DOY 329          TOTAL
              SCHEDULED 2233Z SCHEDULED 0200Z SCHEDULED 03H 30M
              ACTUAL    2210Z ACTUAL    0200Z ACTUAL    03H 50M
              ST XFR          Z RELEASE   0200Z DSS TIME  03H 50M
      COMMAND ------------------------------------------------
              TOTAL   3  AUTO   0  MANUAL   3  ABORT   C
      TELEMETRY ----------------------------------------------
              POWER  20KW  BIT RATES 16  CODED   N/A
                     RX 1   RX 2  TCP   16  TCP   N/A
              ACTUAL 160.9    N/A   8.4       N/A
              PREDIC 161.6    N/A   8.7       N/A
              RESID   +0.7    N/A  -0.3       N/A
      TRACKING  ----------------------------------------------
              TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
              DOP BIAS   N/A HZ C NCS 0.004HZ EXP C.005HZ
      MONITOR ------------------------------------------------
              LGWR  LGER  BLRC  BLER
          DIS  N/A   N/A   N/A   N/A
          TCP  N/A   N/A   N/A   N/A

      COMMENTS  ----------------------------------------------
      CMD TIMES:23052-02002
```

PN8CLZ66611

```
1814  723341912    72334223C    1814
      DSS 14 PASS 1814 CL A-A CTON 403414 GCF S20C CPS  N/A DSS C20C
      CONFIG  ------------------------------------------------
              AOS DOY 334  LOS DOY 334          TOTAL
              SCHEDULED 1930Z SCHEDULED 2230Z SCHEDULED 03H 00M
              ACTUAL    1912Z ACTUAL    2230Z ACTUAL    03H 18M
              ST XFR    N/A Z RELEASE   2232Z DSS TIME  03H 20M
      COMMAND ------------------------------------------------
              TOTAL   3  AUTO   0  MANUAL   3  ABORT   C
      TELEMETRY ----------------------------------------------
              POWER  20KW  BIT RATES   N/A         N/A
                     RX 1   RX 2  TCP B N/A TCP   N/A
              ACTUAL 161.6    N/A   5.2       N/A
              PREDIC 161.7    N/A   5.2       N/A
              RESID   +0.1    N/A     0       N/A
      TRACKING  ----------------------------------------------
              TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
              DOP BIAS  +0.162HZ C NCS  .005HZ EXP  .005HZ
      MONITOR ------------------------------------------------
              LGWR  LGER  BLRC  BLER
          DIS  N/A   N/A   N/A   N/A
          TCP  N/A   N/A   N/A   N/A

      COMMENTS  ----------------------------------------------
      CMD TIMES:19392-22302
```

PN8DAZ66800

1867 730220055 730220315 1867

DSS 14 PASS 1868 CL - CTDN 403314 GCF S20D CPS T011 DSS D200

CONFIG

AOS DOY 022	LOS DOY 022	TOTAL
SCHEDULED 0100Z	SCHEDULED 0315Z	SCHEDULED 02H 15M
ACTUAL 0050Z	ACTUAL 0315Z	ACTUAL 02H 25M
ST XFR N/A Z	RELEASE 0315Z	DSS TIME 02H 25M

COMMAND

TOTAL 0 AUTO 0 MANUAL 0 ABORT 0

TELEMETRY

POWER N/AKW BIT RATES 16 N/A GOE

	RX 1	RX 2	TCP A	TCP B
ACTUAL	161.8	N/A	8.1	N/A
PREDIC	161.7	N/A	9.3	N/A
RESID	-0.1	N/A	-1.2	N/A

TRACKING

TRACK MD 1 WAY RANGING N/A BIAS N/A RU NOISE N/A RU

DOP BIAS 115HZ C NOS .176HZ EXP .005HZ

MONITOR

	LGWR	LGER	BLRC	BLER
DIS	N/A	N/A	N/A	N/A
TCP	N/A	N/A	N/A	N/A

COMMENTS

CMD TIMESONONE

GENERAL									
DSS	14	43	43	43	43	43	43	43	43
PASS	1973	1988	1989	1991	1992	1993	1994	1995	1996
DOY	127	142	143	145	146	147	148	149	150
AOS	2005	0300	0247	0325	0522	0509	0227	0229	0230
LOS	0003	0702	0700	0700	0700	0700	0642	0630	0634
TOT	03:58	04:02	04:17	04:00	01:38	01:51	04:15	04:01	04:04
DSS T	04:01	04:14	04:32	04:11	01:38	01:51	04:17	04:08	04:08
COMMAND									
TOT	12	3	0	3	0	0	3	3	3
TELEMETRY									
DL	160.3	165.3	165.6	165.5	165.7	165.9	N/A	N/A	165.0
RES	1.4	-0.6	-0.9	-0.8	-1.0	-1.2	N/A	N/A	-0.3
BR	16	16	16	16	16	16	N/A	16	16
SNR	9.5	7.1	7.5	7.4	7.8	7.6	N/A	7.4	7.4
RES	.5	.0	.3	.2	.1	.6	N/A	.2	.2
TRACKING									
MODE	2	2	2	2	1	1	2	2	2
T PWR	10	20	20	20	20	N/A	20	20	20
D RES	.529	.542	.536	N/A	N/A	116	.512	.515	.512
D NOS	.004	.004	.004	N/A	N/A	N/A	.004	.003	.003
E NOS	.005	.005	N/A	.005	.005	N/A	.005	.005	.005

COMMENTS

DSS 43/P1991 145/0422Z-0436Z
STUCK DIGIT IN TIME FIELD (10'S OF MINUTES) LATE AOS
DR-T2612
DATA REJECTED FROM 360
DR-N0646
RT ANALYST SHOULD HAVE CAUGHT PROBLEM

DSS 43/P1992 S/C WAS NOT ACQ 2-WAY NO COMMANDING

DSS 43/P1993 ONE-WAY PASS

GENERAL	
DSS	43
PASS	1997
DOY	151
AOS	0225
LOS	0630
TOT	
DSS T	
COMMAND	
TOT	N/A

TELEMETRY	
DL	N/A
RES	N/A
BR	N/A
SNR	N/A
RES	N/A
TRACKING	
MODE	N/A
T PWR	N/A
D RES	N/A
D NOS	N/A
E NOS	N/A
COMMENTS	

GENERAL									
DSS	43	43	43	43	43	43	43	43	43
PASS	1998	1999	2000	2001	2002	2003	2004	2005	2010
DOY	152	153	154	155	156	157	158	159	164
AOS	0220	0452	0455	0214	0232	0148	0201	0201	0057
LOS	0130	0630	0630	0630	0634	0630	0630	0630	0610
TOT		01:38	01:35	04:16	04:02	04:42	04:29	04:29	05:13
DSS T		01:46	01:35	04:16	04:05	04:43	04:34	04:48	05:13
COMMAND									
TOT	N/A	0	0	3	3	3	3	3	3
TELEMETRY									
DL	N/A	165.2	165.9	166.0	166.0	165.4	165.7	165.3	164.6
RES	N/A	-0.4	-1.1	-1.2	-1.2	-0.6	-0.7	-0.5	.2
BR	N/A	16	16	16	16	16	16	16	16
SNR	N/A	8.0	7.8	7.4	7.5	7.4	7.5	7.3	7.2
RES	N/A	1.2	.9	.3	.4	.3	.5	.2	.2
TRACKING									
MODE	N/A	1	1	2	2	2	2	2	2
T PWR	N/A	0	0	20	20	20	20	20	20
D RES	N/A	N/A	N/A	.494	.493	.489	.486	.490	.468
D NOS	N/A	.200	.200	.004	.003	.004	.005	.004	.003
E NOS	N/A	.005	.005	.005	.005	.005	.005	.005	.005
COMMENTS									

GENERAL			
DSS	43	43	43
PASS	2011	2019	2020
DOY	165	173	174
AOS	0143	0056	0046
LOS	0630	0600	1600
TOT	04:47	04:16	05:14
DSS T	04:47		05:14
COMMAND			
TOT	3	3	3
TELEMETRY			
DL	165.3	164.7	165.1
RES	1.5	-0.1	-0.3
BR	16	16	16
SNR	7.1	7.6	7.1
RES	.2	.9	.3
TRACKING			
MODE	2	2	2
T PWR	20	10	20
D RES	.458	.408	.459
D NOS	.458	.009	.018
E NOS	.003	.005	.005
COMMENTS			

DSS 43/P2020 DR T-2669 TDM INCORRECT & SAMPLES MISSING

Table B-4. Pioneer 9 Pass Chronology

```
PASS  GMT-START    GMT-END       DATA
NO.                              DAY
-------------------------------------------------------------------------

 PN9CGZ65886

1337  721880930    721881836     1337
        DSS 51 PASS 1337 CL F-B CTDN 202214 GCF S20J CPS N/A  DSS J200
        CONFIG   ---------------------------------------------------------
                 AOS DOY 188  LOS DOY 188          TOTAL
                 SCHEDULED 0930Z SCHEDULED 1845Z SCHEDULED  9H 15M
                 ACTUAL    0930Z ACTUAL    1836Z ACTUAL     9H 06M
                 ST XFR    N/A Z RELEASE   1836Z DSS TIME   9H 06M
        COMMAND  ---------------------------------------------------------
                 TOTAL  2   AUTO  0   MANUAL  2   ABORT  0
        TELEMETRY ---------------------------------------------------------
                 POWER  10KW  BIT RATES   8  GOE
                       RX 1   RX 2  TCP A     TCP B
                 ACTUAL 168.4 N/A      0.9      N/A
                 PREDIC 166.2 N/A      2.6      N/A
                 RESID   -2.2  N/A    -1.7     N/A
        TRACKING ---------------------------------------------------------
                 TRACK MD  2 WAY RANGING NONEBIAS N/A RU NOISE N/A RU
                 DOP BIAS  +1.7  HZ C NOS N/A  HZ EXP  .005HZ
        MONITOR  ---------------------------------------------------------
                      LGWR  LGER  BLRC  BLER
                 DIS  N/A   N/A   N/A   N/A
                 TCP  N/A   N/A   N/A   N/A
        COMMENTS ---------------------------------------------------------
        SNR AVERAGE -1.7DB AND 2.2DB BELOW PREDICTED DR N-0284
        NO DOPPLER NOISE AVAILABLE DUE TO NUMEROUS OUT OF LOCKS
        2 WAY 1017Z-1353Z   CMDS XMITTED 1140Z-1150Z

 PN9CGZ65901

1338  721891951    721900430     1338
        DSS 12 PASS 1338 CL B-B CTDN 303314 GCF S20B CPS  N/A DSS B200
        CONFIG   ---------------------------------------------------------
                 AOS DOY 189  LOS DOY 190          TOTAL
                 SCHEDULED 2000Z SCHEDULED 0430Z SCHEDULED 08H 30M
                 ACTUAL    1951Z ACTUAL    0430Z ACTUAL    08H 39M
                 ST XFR    N/R Z RELEASE   0430Z DSS TIME  08H 39M
        COMMAND  ---------------------------------------------------------
                 TOTAL  11  AUTO   0  MANUAL  11  ABORT   0
        TELEMETRY ---------------------------------------------------------
                 POWER  10KW  BIT RATES  8     GOE
                       RX 1   RX 2  TCP A     TCP B
                 ACTUAL   N/A  167.5   3.4      N/A
                 PREDIC   N/A  166.1   4.4      N/A
                 RESID    N/A   -1.4  -1.0      N/A
        TRACKING ---------------------------------------------------------
                 TRACK MD  2 WAY RANGING N/A BIAS N/A RU NOISE N/A RU
                 DOP BIAS   1.655HZ C NOS 0.004HZ EXP 0.004HZ
        MONITOR  ---------------------------------------------------------
                      LGWR  LGER  BLRC  BLER
                 DIS   N/A   N/A   N/A   N/A
                 TCP   N/A   N/A   N/A   N/A

        COMMENTS ---------------------------------------------------------

 PN9CGZ65902

1339  721901752    721902101     1339
        DSS 12 PASS 1339 CL B-A CTDN 303314 GCF S20B CPS  N/A DSS B200
        CONFIG   ---------------------------------------------------------
                 AOS DOY 190  LOS DOY 190          TOTAL
                 SCHEDULED 1800Z SCHEDULED 2030Z SCHEDULED 02H 30M
                 ACTUAL    1800Z ACTUAL    2101Z ACTUAL    03H 01M
                 ST XFR    1800Z RELEASE   2104Z DSS TIME  03H 04M
        COMMAND  ---------------------------------------------------------
                 TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
```

```
          TELEMETRY ----------------------------------------------------
                    POWER  10KW  BIT RATES  8 GOE
                           RX 1    RX 2  TCP A      TCP B
                    ACTUAL 167.5     N/A    2.8        N/A
                    PREDIC 166.0     N/A    4.4        N/A
                    RESID   -1.5     N/A   -1.6        N/A
          TRACKING  ----------------------------------------------------
                    TRACK MD  2 WAY RANGING N L BIAS N/A RU NOISE N/A RU
                    DOP BIAS   N/A  HZ C NOS 0.005HZ EXP 0.005HZ
          MONITOR   ----------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/R   N/R   N/R   N/R
                    TCP   N/R   N/R   N/R   N/R

          COMMENTS  ----------------------------------------------------

 PN9CGZ65909

1341  721920927    721921830    1341
          DSS 51 PASS 1341 CL F-A CTDN 202214 GCF S20J CPS  N/A DSS J200
          CONFIG    ----------------------------------------------------
                    AOS DOY 192  LOS DOY 192         TOTAL
                    SCHEDULED 0930Z SCHEDULED 1826Z SCHEDULED 08H 56M
                    ACTUAL    0927Z ACTUAL    1830Z ACTUAL    09H 03M
                    ST XFR    N/R Z RELEASE   1830Z DSS TIME  09H 03M
          COMMAND   ----------------------------------------------------
                    TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
          TELEMETRY ----------------------------------------------------
                    POWER  10KW  BIT RATES            8  CODED  GOE
                           RX 1    RX 2  TCP A      TCP B
                    ACTUAL 168.1     N/A    N/A        0.9
                    PREDIC 165.9     N/A    N/A        2.9
                    RESID   -2.2     N/A    N/A       -2.0
          TRACKING  ----------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS  +1.463HZ C NOS 0.008HZ EXP 0.010HZ
          MONITOR   ----------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/R   N/R   N/R   N/R
                    TCP   N/R   N/R   N/R   N/R

          COMMENTS  ----------------------------------------------------
          DR N-0288 ON INCORRECT TELEMETRY B/W, 20KC VICE CORRECT OF
          4.5KC
          DR N-0281 HIGH DOPPLER NOISE, VOIDED

 PN9CGZ65916

1342  721930835    721931830    1342
          DSS 51 PASS 1342 CL B-A CTDN 303314 GCF S20J CPS N/A  DSS J200
          CONFIG    ----------------------------------------------------
                    AOS DOY 193  LOS DOY 193         TOTAL
                    SCHEDULED 0930Z SCHEDULED 1827Z SCHEDULED 08H 57M
                    ACTUAL    0935Z ACTUAL    1830Z ACTUAL    08H 55M
                    ST XFR    N/R Z RELEASE   1830Z DSS TIME  08H 55M
          COMMAND   ----------------------------------------------------
                    TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
          TELEMETRY ----------------------------------------------------
                    POWER  10KW  BIT RATES            8  CODED GOE
                           RX 1    RX 2  TCP A      TCP B
                    ACTUAL 168.3     N/A    N/A        1.2
                    PREDIC 165.8     N/A    N/A        3.0
                    RESID   -2.5     N/A    N/A       -1.8
          TRACKING  ----------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS  +1.423HZ C NOS 0.008HZ EXP 0.005HZ
          MONITOR   ----------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A
```

```
          COMMENTS  ------------------------------------------------------
          2 WAY 1034Z-1830Z          COMMANDS 1145Z-1155Z
          1413Z-1418Z GODDARD CP DOWN, REF DR C-5846.
          1606Z-1613Z 360 DOWN, CANCEL R/T JOB STEP, HUNG DUE TO
          INABILITY TO ASSIGN OUTGOING HSD LINES.
          1618Z-1644Z 360 DOWN, REF. DR 3769.
```

PN9CGZ65921

```
1343  721940930    721941830    1343
          DSS 51 PASS 1343 CL B-A CTDN 303314 GCF S20J CPS  N/A DSS J200
          CONFIG  ------------------------------------------------------
                  AOS DOY 194  LOS DOY 194          TOTAL
                  SCHEDULED 0930Z SCHEDULED 1828Z SCHEDULED 08H 58M
                  ACTUAL    0930Z ACTUAL    1830Z ACTUAL    09H 00M
                  ST XFR    N/R Z RELEASE   1830Z DSS TIME  09H 00M
          COMMAND ------------------------------------------------------
                  TOTAL   3  AUTO   0  MANUAL   3  ABORT   0
          TELEMETRY ----------------------------------------------------
                  POWER  10KW  BIT RATES  8     CODED  GOE
                        RX 1   RX 2  TCP A     TCP B
                  ACTUAL 167.7    N/A   1.7       N/A
                  PREDIC 165.7    N/A   3.2       N/A
                  RESID   -2.0    N/A  -1.5       N/A
          TRACKING  ----------------------------------------------------
                  TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                  DOP BIAS  +1.352HZ C NOS 0.008HZ EXP 0.005HZ
          MONITOR ------------------------------------------------------
                       LGWR  LGER  BLRC  BLER
                  DIS   N/R   N/R   N/R   N/R
                  TCP   N/R   N/R   N/R   N/R

          COMMENTS  ----------------------------------------------------
          2-WAY 1024Z-1352Z          COMMANDS 1100Z-1215Z
```

PN9CGZ65926

```
1344  721950927    721951805    1344
          DSS 51 PASS 1344 CL B-A CTDN 303314 GCF S20J CPS  N/A DSS J200
          CONFIG  ------------------------------------------------------
                  AOS DOY 195  LOS DOY 195          TOTAL
                  SCHEDULED 0930Z SCHEDULED 1829Z SCHEDULED 08H 59M
                  ACTUAL    0927Z ACTUAL    1805Z ACTUAL    08H 38M
                  ST XFR    N/R Z RELEASE   1810Z DSS TIME  08H 43M
          COMMAND ------------------------------------------------------
                  TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
          TELEMETRY ----------------------------------------------------
                  POWER  10KW  BIT RATES  8     CODED  GOE
                        RX 1   RX 2  TCP A     TCP B
                  ACTUAL 167.6    N/A   N/R       1.7
                  PREDIC 165.6    N/A   N/R       3.2
                  RESID   -2.0    N/A   N/R      -1.5
          TRACKING  ----------------------------------------------------
                  TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                  DOP BIAS  +1.279HZ C NOS 0.007HZ EXP 0.005HZ
          MONITOR ------------------------------------------------------
                       LGWR  LGER  BLRC  BLER
                  DIS   N/R   N/R   N/R   N/R
                  TCP   N/R   N/R   N/R   N/R

          COMMENTS  ----------------------------------------------------
          DR N-0284, REMAINS OPEN FOR LOW D/L AND SNR.
          2-WAY TRACK 0950Z-1805Z       COMMANDS TRANSMITTED 1115Z-1125Z
```

PN9CGZ65935

```
1344  721951802    721952200    1344
          DSS 12 PASS 1344 CL B-A CTDN 303314 GCF S20B CPS  N/A DSS B200
          CONFIG  ------------------------------------------------------
                  AOS DOY 195  LOS DOY 195          TOTAL
                  SCHEDULED 1800Z SCHEDULED 2200Z SCHEDULED 04H 00M
                  ACTUAL    1802Z ACTUAL    2200Z ACTUAL    03H 58M
                  ST XFR    N/R Z RELEASE   2210Z DSS TIME  04H 08M
```

```
          COMMAND  ----------------------------------------------------
                   TOTAL  0  AUTO   0  MANUAL   0  ABORT   0
          TELEMETRY ---------------------------------------------------
                   POWER N/AKW  BIT RATES  8      CODED  GOE
                         RX 1    RX 2  TCP A      TCP B
                   ACTUAL   N/A  166.4   6.6        N/A
                   PREDIC   N/A  165.6   5.8        N/A
                   RESID    N/A   -0.8  +0.8        N/A
          TRACKING ----------------------------------------------------
                   TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                   DOP BIAS      +28HZ C NOS  N/A HZ EXP  N/A HZ
          MONITOR  ----------------------------------------------------
                        LGWR  LGER  BLRC  BLER
                   DIS   N/R   N/R   N/R   N/R
                   TCP   N/R   N/R   N/R   N/R

          COMMENTS ----------------------------------------------------

 PN9CGZ65936

1345  721961800    721962200    1345
          DSS 12 PASS 1345 CL B-A CTDN 303314 GCF S20B CPS  N/A DSS B200
          CONFIG   ----------------------------------------------------
                   AOS DOY 196  LOS DOY 196         TOTAL
                   SCHEDULED 1800Z SCHEDULED 2200Z SCHEDULED 04H 00M
                   ACTUAL    1800Z ACTUAL    2200Z ACTUAL    04H 00M
                   ST XFR    N/R Z RELEASE   2200Z DSS TIME  04H 00M
          COMMAND  ----------------------------------------------------
                   TOTAL N/A  AUTO N/A  MANUAL N/A  ABORT N/A
          TELEMETRY ---------------------------------------------------
                   POWER  10KW  BIT RATES  8      CODED  GOE
                          RX 1   RX 2  TCP A      TCP B
                   ACTUAL   N/A  167.0   4.4        N/A
                   PREDIC   N/A  165.6   4.8        N/A
                   RESID    N/A   -1.4  -0.4        N/A
          TRACKING ----------------------------------------------------
                   TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                   DOP BIAS   +1.20HZ C NOS 0.008HZ EXP 0.010HZ
          MONITOR  ----------------------------------------------------
                        LGWR  LGER  BLRC  BLER
                   DIS   N/A   N/A   N/A   N/A
                   TCP   N/A   N/A   N/A   N/A

          COMMENTS ----------------------------------------------------
          MONITOR DATA NOT AVAILABLE.
          1945Z PN21 SUFFERED A STUCK DOP RESOLVER.
          DR N-0294 REFERS.

 PN9CGZ65949

1348  721990802    721991830    1348
          DSS 51 PASS 1348 CL F-B CTDN 202214 GCF S20J CPS  N/A DSS J200
          CONFIG   ----------------------------------------------------
                   AOS DOY 199  LOS DOY 199         TOTAL
                   SCHEDULED 0800Z SCHEDULED 1830Z SCHEDULED 10H 30M
                   ACTUAL    0802Z ACTUAL    1830Z ACTUAL    10H 28M
                   ST XFR    N/R Z RELEASE   1830Z DSS TIME  10H 28M
          COMMAND  ----------------------------------------------------
                   TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
          TELEMETRY ---------------------------------------------------
                   POWER  10KW  BIT RATES            8   GOE
                          RX 1   RX 2  TCP A      TCP B
                   ACTUAL 167.5    N/A   N/A        2.0
                   PREDIC 165.3    N/A   N/A        5.1
                   RESID   -2.2    N/A   N/A       -3.1
          TRACKING ----------------------------------------------------
                   TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                   DOP BIAS  +1.016HZ C NOS 0.004HZ EXP 0.008HZ
          MONITOR  ----------------------------------------------------
                        LGWR  LGER  BLRC  BLER
                   DIS   N/A   N/A   N/A   N/A
                   TCP   N/A   N/A   N/A   N/A
```

```
          COMMENTS  ------------------------------------------------------
          0831Z-0838Z 360/75A DOWN IPL RESTART DR 3786
```

PN9CGZ65958

```
1350  722010933    722011830    1350
          DSS 51 PASS 1350 CL A-B CTDN 000014 GCF S20J CPS  N/A DSS J200
          CONFIG    ------------------------------------------------------
                    AOS DOY 201  LOS DOY 201         TOTAL
                    SCHEDULED 0900Z SCHEDULED 1930Z SCHEDULED 10H 30M
                    ACTUAL    0933Z ACTUAL    1830Z ACTUAL    08H 57M
                    ST XFR    N/R Z RELEASE   1830Z DSS TIME  08H 57M
          COMMAND   ------------------------------------------------------
                    TOTAL   7  AUTO   0  MANUAL   7  ABORT   0
          TELEMETRY ------------------------------------------------------
                    POWER  10KW  BIT RATES            8  GOE
                           RX 1   RX 2  TCP A     TCP B
                    ACTUAL 167.6    N/A   N/A       2.9
                    PREDIC 165.2    N/A   N/A       3.8
                    RESID   -2.4    N/A   N/A      -0.9
          TRACKING  ------------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS  +0.920HZ C NOS 0.006HZ EXP 0.008HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/R   N/R   N/R   N/R
                    TCP   N/R   N/R   N/R   N/R

          COMMENTS  ------------------------------------------------------
          PRIOR PN-6 PASS (TEST)
```

PN9CGZ65962

```
1349  722000805    722001830    1349
          DSS 51 PASS 1349 CL B-B CTDN 303314 GCF S20J CPS  N/A DSS J200
          CONFIG    ------------------------------------------------------
                    AOS DOY 200  LOS DOY 200         TOTAL
                    SCHEDULED 0800Z SCHEDULED 1830Z SCHEDULED 10H 30M
                    ACTUAL    0805Z ACTUAL    1830Z ACTUAL    10H 25M
                    ST XFR    N/R Z RELEASE   1830Z DSS TIME  10H 25M
          COMMAND   ------------------------------------------------------
                    TOTAL   7  AUTO   0  MANUAL   7  ABORT   0
          TELEMETRY ------------------------------------------------------
                    POWER  10KW  BIT RATES            8 GOE
                           RX 1   RX 2  TCP A     TCP B
                    ACTUAL 167.4    N/A   N/A       2.4
                    PREDIC 165.2    N/A   N/A       3.7
                    RESID   -2.2    N/A   N/A      -1.3
          TRACKING  ------------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS  +0.925HZ C NOS 0.005HZ EXP 0.008HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
          2-WAY 0811Z-1828Z        COMMANDS 0900Z-0910Z
```

PN9CGZ65965

```
1351  722020806    722021830    1351
          DSS 51 PASS 1351 CL B-B CTDN 303314 GCF S20J CPS N/A  DSS J200
          CONFIG    ------------------------------------------------------
                    AOS DOY 202  LOS DOY 202         TOTAL
                    SCHEDULED 0800Z SCHEDULED 1830Z SCHEDULED 10H 30M
                    ACTUAL    0806Z ACTUAL    1820Z ACTUAL    10H 14M
                    ST XFR    N/R Z RELEASE   1830Z DSS TIME  10H 24M
          COMMAND   ------------------------------------------------------
                    TOTAL   4  AUTO N/A  MANUAL   4  ABORT N/A
```

```
TELEMETRY ----------------------------------------------------
          POWER  10KW  BIT RATES  8          8 CODED NC GOE MMT
                 RX 1    RX 2  TCP A COD TCP B N/COD
          ACTUAL 167.2     N/A    2.1        7.6
          PREDIC 165.1     N/A    3.3        7.8
          RESID   -2.1     N/A   -1.2       -0.2
TRACKING  ----------------------------------------------------
          TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
          DOP BIAS   + .78HZ C NOS 0.004HZ EXP 0.008HZ
MONITOR   ----------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/R   N/R   N/R   N/R
          TCP   N/R   N/R   N/R   N/R

COMMENTS  ----------------------------------------------------
NONE CODED MODE AT 1130Z. BACK TO CODED MODE AT 1701Z
```

PN9CGZ65968

```
1351  722021800    722030430    1351
      DSS 12 PASS 1351 CL B-B CTDN 303314 GCF S20B CPS  N/A DSS B200
CONFIG    ----------------------------------------------------
          AOS DOY 202  LOS DOY 203         TOTAL
          SCHEDULED 1800Z SCHEDULED 0430Z SCHEDULED 10H 30M
          ACTUAL    1800Z ACTUAL    0430Z ACTUAL    10H 30M
          ST XFR    N/R Z RELEASE   0435Z DSS TIME  10H 35M
COMMAND   ----------------------------------------------------
          TOTAL   7  AUTO   0  MANUAL   7  ABORT   0
TELEMETRY ----------------------------------------------------
          POWER N/AKW  BIT RATES            8    CODED
                RX 1   RX 2  TCP A     TCP B
          ACTUAL  N/A  166.2   N/A       2.4
          PREDIC  N/A  165.1   N/A       5.1
          RESID   N/A   -1.1   N/A      -2.7
TRACKING  ----------------------------------------------------
          TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
          DOP BIAS  0.772 HZ C NOS 0.004HZ EXP 0.005HZ
MONITOR   ----------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/R   N/R   N/R   N/R
          TCP   N/R   N/R   N/R   N/R

COMMENTS  ----------------------------------------------------
0040Z-0059Z TCP PROG. STOPPED, NO DATA OUTPUT. RELOAD AT 0055Z.
DR T-2174.
SNR AVERAGED -2.70DB BELOW PREDICTS, REF. DR N-0300.
```

PN9CGZ65975

```
1352  722031800    722040430    1352
      DSS 12 PASS 1352 CL B-B CTDN 303314 GCF S20B CPS  N/A DSS B200
CONFIG    ----------------------------------------------------
          AOS DOY 203  LOS DOY 204         TOTAL
          SCHEDULED 1800Z SCHEDULED 0430Z SCHEDULED 10H 30M
          ACTUAL    1800Z ACTUAL    0430Z ACTUAL    10H 30M
          ST XFR    N/R Z RELEASE   0435Z DSS TIME  10H 35M
COMMAND   ----------------------------------------------------
          TOTAL  10  AUTO   0  MANUAL  10  ABORT   0
TELEMETRY ----------------------------------------------------
          POWER  10KW  BIT RATES            8  GOE
                 RX 1   RX 2  TCP A     TCP B
          ACTUAL 165.2    N/A   N/A       3.0
          PREDIC 165.0    N/A   N/A       5.5
          RESID   -0.2    N/A   N/A      -2.5
TRACKING  ----------------------------------------------------
          TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
          DOP BIAS   0.704HZ C NOS 0.005HZ EXP 0.005HZ
MONITOR   ----------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/A   N/A   N/A   N/A
          TCP   N/A   N/A   N/A   N/A
```

```
COMMENTS  ---------------------------------------------------
NO MONITOR DATA.
SNR BELOW PREDICTS -2.5DB.  REF. DR N-0300.  DTD 7/20/72
```

PN9CGZ65985

```
1353  722050055    722050430    1353
      DSS 12 PASS 1353 CL F-B CTDN 202244 GCF S00B CPS  N/A DSS B000
      CONFIG    ---------------------------------------------------
                AOS DOY 205  LOS DOY 205          TOTAL
                SCHEDULED 0055Z SCHEDULED 0430Z SCHEDULED 03H 35M
                ACTUAL    0055Z ACTUAL    0430Z ACTUAL    03H 35M
                ST XFR    N/R Z RELEASE   0435Z DSS TIME  03H 40M
      COMMAND   ---------------------------------------------------
                TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
      TELEMETRY ---------------------------------------------------
                POWER N/AKW  BIT RATES  8  GOE
                      RX 1   RX 2  TCP A     TCP B
                ACTUAL 166.3    N/A   4.7       N/A
                PREDIC 164.8    N/A   5.6       N/A
                RESID   -1.5    N/A  -0.9       N/A
      TRACKING  ---------------------------------------------------
                TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                DOP BIAS    N/A HZ C NOS  N/A HZ EXP  N/A HZ
      MONITOR   ---------------------------------------------------
                     LGWR  LGER  BLRC  BLER
                DIS   N/R   N/R   N/R   N/R
                TCP   N/R   N/R   N/R   N/R

      COMMENTS  ---------------------------------------------------
```

PN9CGZ65987

```
1355  722060759    722061830    1355
      DSS 51 PASS 1355 CL F-B CTDN 202214 GCF S20J CPS  N/A DSS J200
      CONFIG    ---------------------------------------------------
                AOS DOY 206  LOS DOY 206          TOTAL
                SCHEDULED 0800Z SCHEDULED 1830Z SCHEDULED 10H 30M
                ACTUAL    0759Z ACTUAL    1830Z ACTUAL    10H 31M
                ST XFR    N/R Z RELEASE   N/R Z DSS TIME  10H 31M
      COMMAND   ---------------------------------------------------
                TOTAL  16  AUTO   0  MANUAL  16  ABORT   0
      TELEMETRY ---------------------------------------------------
                POWER  10KW  BIT RATES            8   CODED GOE
                      RX 1   RX 2  TCP A     TCP B
                ACTUAL 166.1    N/A   N/A       3.0
                PREDIC 164.7    N/A   N/A       4.1
                RESID   -1.4    N/A   N/A      -1.1
      TRACKING  ---------------------------------------------------
                TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                DOP BIAS   0.539HZ C NOS 0.004HZ EXP 0.005HZ
      MONITOR   ---------------------------------------------------
                     LGWR  LGER  BLRC  BLER
                DIS   N/A   N/A   N/A   N/A
                TCP   N/A   N/A   N/A   N/A

      COMMENTS  ---------------------------------------------------
      1117Z-1135Z  360 'A' DOWN.  DR 3814
```

PN9CGZ65992

```
1356  722070758    722071830    1356
      DSS 51 PASS 1356 CL B-B CTDN 303314 GCF S20J CPS  N/A DSS J200
      CONFIG    ---------------------------------------------------
                AOS DOY 207  LOS DOY 207          TOTAL
                SCHEDULED 0800Z SCHEDULED 1830Z SCHEDULED 10H 30M
                ACTUAL    0758Z ACTUAL    1830Z ACTUAL    10H 32M
                ST XFR    N/R Z RELEASE   1835Z DSS TIME  10H 37M
      COMMAND   ---------------------------------------------------
                TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
```

```
          TELEMETRY ----------------------------------------------------
                    POWER  10KW  BIT RATES  8   CODED  GOE
                           RX 1   RX 2  TCP A     TCP B
                    ACTUAL 166.2    N/A   3.1       N/A
                    PREDIC 164.7    N/A   4.2       N/A
                    RESID   -1.5    N/A  -1.1       N/A
          TRACKING   ---------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS  0.467 HZ C NOS 0.005HZ EXP 0.005HZ
          MONITOR    ---------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/R   N/R   N/R   N/R
                    TCP   N/R   N/R   N/R   N/R

          COMMENTS   ---------------------------------------------------
          2-WAY TRACK  0810Z-1830Z      COMMANDS TRANSMITTED AT 0837Z-
          0932Z

 PN9CGZ66005

1358  722090809    722091835    1358
          DSS 51 PASS 1358 CL B-B CTDN 303314 GCF S20J CPS  N/A DSS J200
          CONFIG     ---------------------------------------------------
                    AOS DOY 209  LOS DOY 209         TOTAL
                    SCHEDULED 0800Z SCHEDULED 1830Z SCHEDULED 10H 30M
                    ACTUAL    0809Z ACTUAL    1835Z ACTUAL    10H 26M
                    ST XFR    N/R Z RELEASE   1840Z DSS TIME  10H 31M
          COMMAND    ---------------------------------------------------
                    TOTAL  20  AUTO   0  MANUAL  20  ABORT   0
          TELEMETRY ----------------------------------------------------
                    POWER  10KW  BIT RATES  8   CODED   GOE
                           RX 1   RX 2  TCP A     TCP B
                    ACTUAL 165.7    N/A   3.3       N/A
                    PREDIC 164.5    N/A   4.3       N/A
                    RESID   -1.2    N/A  -1.0       N/A
          TRACKING   ---------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS  +0.350HZ C NOS 0.008HZ EXP 0.008HZ
          MONITOR    ---------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/R   N/R   N/R   N/R
                    TCP   N/R   N/R   N/R   N/R

          COMMENTS   ---------------------------------------------------
          1630Z-1646Z  TRANSMITTER TRIPPED OFF, AT 1638Z COMMAND
          MOD/XMTR DRIVE OFF, HEAT EXCHANGE PROBLEM, OR T-2180.
          2 WAY TRACK  0840Z-1835Z      COMMANDS TRANSMITTED AT
          0831Z-1810Z.

 PN9CGZ66006

1357  722080758    722081830    1357
          DSS 51 PASS 1357 CL B-B CTDN 303314 GCF S20J CPS  N/A DSS J200
          CONFIG     ---------------------------------------------------
                    AOS DOY 208  LOS DOY 208         TOTAL
                    SCHEDULED 0800Z SCHEDULED 1830Z SCHEDULED 10H 30M
                    ACTUAL    0758Z ACTUAL    1830Z ACTUAL    10H 32M
                    ST XFR    N/R Z RELEASE   1833Z DSS TIME  10H 35M
          COMMAND    ---------------------------------------------------
                    TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
          TELEMETRY ----------------------------------------------------
                    POWER  10KW  BIT RATES  8   CODED  GOE
                           RX 1   RX 2  TCP A     TCP B
                    ACTUAL 166.1    N/A   3.2       N/A
                    PREDIC 164.6    N/A   4.1       N/A
                    RESID   -1.5    N/A  -1.1       N/A
          TRACKING   ---------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS   0.418HZ C NOS 0.005HZ EXP 0.005HZ
          MONITOR    ---------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS   ---------------------------------------------------
```

PN9CGZ66020

```
1362  722130318    722130830    1362
      DSS 41 PASS 1362 CL F-A CTDN 202224 GCF S00F CPS  N/A DSS F000
      CONFIG   ------------------------------------------------------
               AOS DOY 213  LOS DOY 213          TOTAL
               SCHEDULED 0330Z SCHEDULED 0830Z SCHEDULED 05H 00M
               ACTUAL    0318Z ACTUAL    0830Z ACTUAL    05H 12M
               ST XFR    N/A Z RELEASE   0840Z DSS TIME  05H 22M
      COMMAND  ------------------------------------------------------
               TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER N/AKW  BIT RATES  8   MMT
                     RX 1   RX 2  TCP A     TCP B
               ACTUAL 165.5    N/A   9.3       N/A
               PREDIC 164.1    N/A   9.5       N/A
               RESID   -1.4    N/A  -0.2       N/A
      TRACKING ----------------------------------------------------
               TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
               DOP BIAS    -0.3HZ C NOS 0.200HZ EXP 0.200HZ
      MONITOR  ----------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS     0     0     0     0
               TCP     0     0     0     0

      COMMENTS ----------------------------------------------------
```

PN9CGZ66022

```
1362  722130756    722131830    1362
      DSS 51 PASS 1362 CL F-A CTDN 202214 GCF S20J CPS  N/A DSS J200
      CONFIG   ------------------------------------------------------
               AOS DOY 213  LOS DOY 213          TOTAL
               SCHEDULED 0800Z SCHEDULED 1830Z SCHEDULED 10H 30M
               ACTUAL    0750Z ACTUAL    1830Z ACTUAL    10H 40M
               ST XFR    N/R Z RELEASE   1830Z DSS TIME  10H 40M
      COMMAND  ------------------------------------------------------
               TOTAL  11  AUTO   0  MANUAL  11  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  10KW  BIT RATES  8   CODED   GOE
                     RX 1   RX 2  TCP       TCP 1
               ACTUAL 165.9    N/A   4.8       N/A
               PREDIC 164.1    N/A   5.3       N/A
               RESID   -1.8    N/A  -0.5       N/A
      TRACKING ----------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
               DOP BIAS  +0.095HZ C NOS 0.004HZ EXP 0.005HZ
      MONITOR  ----------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS   N/R   N/R   N/R   N/R
               TCP   N/R   N/R   N/R   N/R

      COMMENTS ----------------------------------------------------
```

PN9CHZ66026

```
1363  722140150    722140805    1363
      DSS 41 PASS 1363 CL B-A CTDN 303324 GCF S00F CPS  N/A DSSSF000
      CONFIG   ------------------------------------------------------
               AOS DOY 214  LOS DOY 214          TOTAL
               SCHEDULED 0200Z SCHEDULED 0830Z SCHEDULED 06H 30M
               ACTUAL    0150Z ACTUAL    0805Z ACTUAL    06H 15M
               ST XFR    N/R Z RELEASE   0805Z DSS TIME  06H 15M
      COMMAND  ------------------------------------------------------
               TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER N/AKW  BIT RATES  8  MMT
                     RX 1   RX 2  TCP A     TCP B
               ACTUAL 165.2    N/A   9.2       N/A
               PREDIC 164.0    N/A   9.4       N/A
               RESID   -1.2    N/A  -0.2       N/A
      TRACKING ----------------------------------------------------
               TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
               DOP BIAS  3.204 HZ C NOS  0.18HZ EXP   0.2HZ
```

```
          MONITOR  ------------------------------------------------------
                        LGWR  LGER  BLRC  BLER
                   DIS   N/R   N/R   N/R   N/R
                   TCP   N/R   N/R   N/R   N/R

          COMMENTS ------------------------------------------------------

 PN9CHZ66028

1363  722140756    722141830    1363
          DSS 51 PASS 1363 CL B-A CTDN 303314 GCF S20J CPS  N/A DSS J200
          CONFIG   ------------------------------------------------------
                   AOS DOY 214  LOS DOY 214          TOTAL
                   SCHEDULED 0800Z SCHEDULED 1830Z SCHEDULED 10H 30M
                   ACTUAL    0756Z ACTUAL    1830Z ACTUAL    10H 34M
                   ST XFR    N/R Z RELEASE   1837Z DSS TIME  10H 41M
          COMMAND  ------------------------------------------------------
                   TOTAL   8  AUTO   0  MANUAL   8  ABORT   0
          TELEMETRY ----------------------------------------------------
                   POWER  10KW  BIT RATES  8  CODED GOE
                         RX 1    RX 2  TCP A     TCP B
                   ACTUAL 166.2    N/A   2.9       N/A
                   PREDIC 164.0    N/A   3.9       N/A
                   RESID   -2.2    N/A  -1.0       N/A
          TRACKING ------------------------------------------------------
                   TRACK MD  2 WAY RANGING N/A BIAS N/A RU NOISE N/A RU
                   DOP BIAS  +0.040HZ C NOS 0.005HZ EXP 0.005HZ
          MONITOR  ------------------------------------------------------
                        LGWR  LGER  BLRC  BLER
                   DIS   N/A   N/A   N/A   N/A
                   TCP   N/A   N/A   N/A   N/A

          COMMENTS ------------------------------------------------------
          BOL 0835, TWO-WAY ATTEMPT. UNABLE TO RE-ACQUIRE ON MASER 1.
          SWITCHED TO MASER 2.
          RIL 0854. DR T-2191 ON MASER 1, HELIUM UNDERFLOW.

 PN9CHZ66032

1364  722150316    722150830    1364
          DSS 41 PASS 1364 CL B-A CTDN 303324 GCF S00F CPS  N/A DSS F000
          CONFIG   ------------------------------------------------------
                   AOS DOY 215  LOS DOY 215          TOTAL
                   SCHEDULED 0330Z SCHEDULED 0830Z SCHEDULED 05H 00M
                   ACTUAL    0316Z ACTUAL    0830Z ACTUAL    05H 14M
                   ST XFR    N/R Z RELEASE   0830Z DSS TIME  05H 14M
          COMMAND  ------------------------------------------------------
                   TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
          TELEMETRY ----------------------------------------------------
                   POWER N/AKW  BIT RATES  8   MMT
                         RX 1    RX 2  TCP A     TCP B
                   ACTUAL 165.5    N/A   9.3       N/A
                   PREDIC 164.0    N/A   9.6       N/A
                   RESID   -1.5    N/A  -0.3       N/A
          TRACKING ------------------------------------------------------
                   TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                   DOP BIAS  -25.0HZ C NOS  0.14HZ EXP  0.15HZ
          MONITOR  ------------------------------------------------------
                        LGWR  LGER  BLRC  BLER
                   DIS   N/A   N/A   N/A   N/A
                   TCP   N/A   N/A   N/A   N/A

          COMMENTS ------------------------------------------------------

 PN9CHZ66034

1364  722150715    722151820    1364
          DSS 51 PASS 1364 CL B-A CTDN 303314 GCF S20J CPS  N/A DSS J200
          CONFIG   ------------------------------------------------------
                   AOS DOY 215  LOS DOY 215          TOTAL
                   SCHEDULED 0800Z SCHEDULED 1830Z SCHEDULED 10H 30M
                   ACTUAL    0715Z ACTUAL    1820Z ACTUAL    11H 05M
                   ST XFR    N/R Z RELEASE   1820Z DSS TIME  11H 05M
```

```
COMMAND   ------------------------------------------------------
          TOTAL  17  AUTO   0  MANUAL  17  ABORT   0
TELEMETRY ------------------------------------------------------
          POWER  10KW  BIT RATES  8  CODED  GDE
                 RX 1    RX 2  TCP A      TCP
          ACTUAL 165.5    N/A    3.1        N/A
          PREDIC 164.0    N/A    4.1        N/A
          RESID   -1.5    N/A   -1.0        N/A
TRACKING  ------------------------------------------------------
          TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
          DOP BIAS  -0.013HZ C NOS 0.005HZ EXP 0.005HZ
MONITOR   ------------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/A   N/A   N/A   N/A
          TCP   N/A   N/A   N/A   N/A

COMMENTS  ------------------------------------------------------
STATION ON MASER 2.  REF OPEN DR T-2191.
```

PN9CHZ66038

```
1364  722151735    722160405    1364
      DSS 12 PASS 1364 CL B-A CTDN 303314 GCF S20B CPS  N/A DSS B200
CONFIG    ------------------------------------------------------
          AOS DOY 215  LOS DOY 216          TOTAL
          SCHEDULED 1730Z SCHEDULED 0400Z SCHEDULED 10H 30M
          ACTUAL    1735Z ACTUAL    0405Z ACTUAL    10H 30M
          ST XFR    N/R Z RELEASE   N/R Z DSS TIME  10H 30M
COMMAND   ------------------------------------------------------
          TOTAL  10  AUTO   0  MANUAL  10  ABORT   0
TELEMETRY ------------------------------------------------------
          POWER  10KW  BIT RATES            8   CODED
                 RX 1    RX 2  TCP A     TCP B
          ACTUAL 165.8    N/A   N/A       4.2
          PREDIC 164.0    N/A   N/A       6.4
          RESID   -1.8    N/A   N/A      -2.2
TRACKING  ------------------------------------------------------
          TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
          DOP BIAS  -0.044HZ C NOS 0.004HZ EXP 0.004HZ
MONITOR   ------------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/R   N/R   N/R   N/R
          TCP   N/R   N/R   N/R   N/R

COMMENTS  ------------------------------------------------------
```

PN9CHZ66041

```
1365  722160354    722160830    1365
      DSS 41 PASS 1365 CL B-A CTDN 303324 GCF S00F CPS  N/A DSS F000
CONFIG    ------------------------------------------------------
          AOS DOY 216  LOS DOY 216          TOTAL
          SCHEDULED 0330Z SCHEDULED 0830Z SCHEDULED 05H 00M
          ACTUAL    0353Z ACTUAL    0830Z ACTUAL    04H 37M
          ST XFR    N/A Z RELEASE   0830Z DSS TIME  04H 37M
COMMAND   ------------------------------------------------------
          TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
TELEMETRY ------------------------------------------------------
          POWR N/AKW  BIT RATES  8   MMT
                 RX 1    RX 2  TCP A     TCP B
          ACTUAL 165.1    N/A   9.6       N/A
          PREDIC 163.9    N/A   9.7       N/A
          RESID   -1.2    N/A  -0.1       N/A
TRACKING  ------------------------------------------------------
          TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
          DOP BIAS   -57.0HZ C NOS  0.25HZ EXP  0.20HZ
MONITOR   ------------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/A   N/A   N/A   N/A
          TCP   N/A   N/A   N/A   N/A

COMMENTS  ------------------------------------------------------
0330Z-0353Z NO AOS, STATION USING WRONG PREDICTS.  DR T-2196.
```

PN9CHZ66043

```
1365  722160759     722161900     1365
      DSS 51 PASS 1365 CL  -  CTDN     N/A GCF S20J CPS  N/A DSS J200
      CONFIG    ------------------------------------------------------
                AOS DOY 216  LOS DOY 216          TOTAL
                SCHEDULED 0800Z SCHEDULED 1830Z SCHEDULED 10H 30M
                ACTUAL    0759Z ACTUAL    1900Z ACTUAL    11H 01M
                ST XFR    N/R Z RELEASE   1920Z DSS TIME  11H 21M
      COMMAND   ------------------------------------------------------
                TOTAL  10  AUTO   0  MANUAL  10  ABORT   0
      TELEMETRY ------------------------------------------------------
                POWER  10KW  BIT RATES  8  CODED  GCF
                       RX 1    RX 2  TCP A     TCP B
                ACTUAL 166.0    N/A   3.0       N/A
                PREDIC 163.9    N/A   4.1       N/A
                RESID   -2.1    N/A  -1.1       N/A
      TRACKING  ------------------------------------------------------
                TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                DOP BIAS  -0.185HZ C NOS 0.095HZ EXP 0.004HZ
      MONITOR   ------------------------------------------------------
                     LGWR  LGER  BLRC  BLER
                DIS   N/A   N/A   N/A   N/A
                TCP   N/A   N/A   N/A   N/A

      COMMENTS  ------------------------------------------------------
      1210Z-1216Z COMMAND III COULDN'T BE ENABLED DUE TO TCP
      HANGUP.  RELOAD OF TCP REQUIRED.  DR T-2197
      1000Z - EOT DSS-51 NOISE (2 WAY) RUNNING HIGH. DR N-0321
```

PN9CHZ66046

```
1365  722161726     722170330     1365
      DSS 12 PASS 1365 CL B-A CTDN 303314 GCF S20B CPS  N/A DSS B200
      CONFIG    ------------------------------------------------------
                AOS DOY 216  LOS DOY 217          TOTAL
                SCHEDULED 1730Z SCHEDULED 0400Z SCHEDULED 10H 30M
                ACTUAL    1726Z ACTUAL    0330Z ACTUAL    10H 04M
                ST XFR    1740Z RELEASE   0330Z DSS TIME  10H 04M
      COMMAND   ------------------------------------------------------
                TOTAL   6  AUTO   0  MANUAL   6  ABORT   0
      TELEMETRY ------------------------------------------------------
                POWER  10KW  BIT RATES             8   CODED
                       RX 1    RX 2  TCP A     TCP B
                ACTUAL  N/A   165.3   N/A       5.5
                PREDIC  N/A   163.9   N/A       6.4
                RESID   N/A    -1.4   N/A      -0.9
      TRACKING  ------------------------------------------------------
                TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                DOP BIAS  -0.110HZ C NOS 0.011HZ EXP 0.005HZ
      MONITOR   ------------------------------------------------------
                     LGWR  LGER  BLRC  BLER
                DIS   N/R   N/R   N/R   N/R
                TCP   N/R   N/R   N/R   N/R

      COMMENTS  ------------------------------------------------------
      217/0400Z HIGH DOPPLER NOISE.  DR N-0322 REFERS.
```

PN9CHZ66048

```
1366  722170326     722170930     1366
      DSS 41 PASS 1366 CL B-A CTDN 303324 GCF S00F CPS  N/A DSS F000
      CONFIG    ------------------------------------------------------
                AOS DOY 217  LOS DOY 217          TOTAL
                SCHEDULED 0330Z SCHEDULED 0830Z SCHEDULED 05H 00M
                ACTUAL    0326Z ACTUAL    0830Z ACTUAL    05H 04M
                ST XFR    N/R Z RELEASE   0830Z DSS TIME  05H 04M
      COMMAND   ------------------------------------------------------
                TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
      TELEMETRY ------------------------------------------------------
                POWER N/AKW  BIT RATES  8  MMT
                       RX 1    RX 2  TCP A     TCP B
                ACTUAL 163.6    N/A   9.4       N/A
                PREDIC 163.8    N/A   9.8       N/A
                RESID   +0.2    N/A  -0.4       N/A
```

```
          TRACKING  ------------------------------------------------------
                    TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS   -86.0HZ C NOS   0.2HZ EXP   0.2HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
          0409Z TCP-A HUNG UP.  DR T-2203.

 PN9CHZ66050

1366  722170756    722171822    1366
          DSS 51 PASS 1366 CL B-A CTDN 303314 GCF S20J CPS  N/A DSS J200
          CONFIG    ------------------------------------------------------
                    AOS DOY 217  LOS DOY 217          TOTAL
                    SCHEDULED 0800Z SCHEDULED 1840Z SCHEDULED 10H 40M
                    ACTUAL    0756Z ACTUAL    1822Z ACTUAL    10H 26M
                    ST XFR    N/R Z RELEASE   1840Z DSS TIME  10H 44M
          COMMAND   ------------------------------------------------------
                    TOTAL  11  AUTO   0  MANUAL  11  ABORT   0
          TELEMETRY ------------------------------------------------------
                    POWER  10KW  BIT RATES            8   CODED  GDF
                           RX 1   RX 2  TCP A      TCP B
                    ACTUAL 165.6    N/A   N/A       4.8
                    PREDIC 163.8    N/A   N/A       5.3
                    RESID   -1.8    N/A   N/A      -0.5
          TRACKING  ------------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS  -0.135HZ C NOS 0.005HZ EXP 0.005HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
          NO DIS.
          0832Z-1749Z - COMMAND TIME.
          0750Z-1800Z - 2W.
          1-WAY 0758Z-0812Z.
          2-WAY 0812Z-1800Z.
          3-WAY 1800Z-1822Z.

 PN9CHZ66053

1366  722171715    722180330    1366
          DSS 12 PASS 1366 CL B-A CTDN 303314 GCF S20B CPS  N/A DSS B200
          CONFIG    ------------------------------------------------------
                    AOS DOY 217  LOS DOY 218          TOTAL
                    SCHEDULED 1740Z SCHEDULED 0400Z SCHEDULED 10H 40M
                    ACTUAL    1715Z ACTUAL    0330Z ACTUAL    10H 15M
                    ST XFR    N/R Z RELEASE   0345Z DSS TIME  10H 30M
          COMMAND   ------------------------------------------------------
                    TOTAL  13  AUTO   0  MANUAL  13  ABORT   0
          TELEMETRY ------------------------------------------------------
                    POWER  10KW  BIT RATES            8  CODED
                           RX 1   RX 2  TCP A      TCP B
                    ACTUAL   N/A  164.7   N/A       6.4
                    PREDIC   N/A  163.8   N/A       6.6
                    RESID    N/A   -0.9   N/A      -0.2
          TRACKING  ------------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS  -0.147HZ C NOS 0.015HZ EXP 0.005HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/R   N/R   N/R   N/R
                    TCP   N/R   N/R   N/R   N/R

          COMMENTS  ------------------------------------------------------
          COMMAND TIME - 1812Z-0310Z.
          TRACK TIME - 2W. 1812Z-0310Z.
```

PN9CHZ66055

```
1367  722180324    722180815    1367
        DSS 41 PASS 1367 CL B-A CTDN 303324 GCF S00F CPS  N/A DSS F000
        CONFIG   ------------------------------------------------------
                 AOS DOY 218  LOS DOY 218         TOTAL
                 SCHEDULED 0330Z SCHEDULED 0830Z SCHEDULED 05H 00M
                 ACTUAL    0323Z ACTUAL    0815Z ACTUAL    04H 52M
                 ST XFR    N/R Z RELEASE   0820Z DSS TIME  04H 57M
        COMMAND  ------------------------------------------------------
                 TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
        TELEMETRY ----------------------------------------------------
                 POWER N/AKW  BIT RATES  8   MMT
                        RX 1   RX 2  TCP A     TCP B
                 ACTUAL 164.7    N/A   10.1      N/A
                 PREDIC 163.7    N/A    9.9      N/A
                 RESID   -1.0    N/A   +0.2      N/A
        TRACKING ------------------------------------------------------
                 TRACK MD N/RWAY RANGING N/R BIAS N/R RU NOISE N/R RU
                 DOP BIAS    N/R HZ C NOS  N/R HZ EXP  N/R HZ
        MONITOR  ------------------------------------------------------
                      LGWR  LGER  BLRC  BLER
                 DIS   N/R   N/R   N/R   N/R
                 TCP   N/R   N/R   N/R   N/R

        COMMENTS ------------------------------------------------------
         NO MONITOR.
```

PN9CHZ66057

```
1367  722180800    722181816    1367
        DSS 51 PASS 1367 CL B-A CTDN 303314 GCF S20J CPS  N/A DSS J200
        CONFIG   ------------------------------------------------------
                 AOS DOY 218  LOS DOY 218         TOTAL
                 SCHEDULED 0800Z SCHEDULED 1830Z SCHEDULED 10H 30M
                 ACTUAL    0755Z ACTUAL    1816Z ACTUAL    10H 21M
                 ST XFR    N/R Z RELEASE   1825Z DSS TIME  10H 30M
        COMMAND  ------------------------------------------------------
                 TOTAL  12  AUTO   0  MANUAL  12  ABORT   0
        TELEMETRY ----------------------------------------------------
                 POWER  10KW  BIT RATES            8  CODED  GDE
                        RX 1   RX 2  TCP A     TCP B
                 ACTUAL 165.4    N/A   N/A       4.9
                 PREDIC 164.7    N/A   N/A       5.3
                 RESID   -1.7    N/A   N/A      -0.4
        TRACKING ------------------------------------------------------
                 TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                 DOP BIAS  -0.181HZ C NOS 0.005HZ EXP 0.005HZ
        MONITOR  ------------------------------------------------------
                      LGWR  LGER  BLRC  BLER
                 DIS   N/R   N/R   N/R   N/R
                 TCP   N/R   N/R   N/R   N/R

        COMMENTS ------------------------------------------------------
        0929Z-0934Z, 360/75A DOWN FOR SCHEDULED STRING SWAP.
        1100Z-1106Z, 360/75B DOWN, REF DR 3854.
        1535Z-1550Z, 360/75B DOWN, 2260'S LOCKED OUT, REF DR 3855.
        COMMANDS TRANSMITTED AT 0902Z-1708Z.
```

PN9CHZ66059

```
1367  722181726    722190330    1367
        DSS 12 PASS 1367 CL B-A CTDN 303314 GCF S20B CPS  N/A DSS B000
        CONFIG   ------------------------------------------------------
                 AOS DOY 218  LOS DOY 219         TOTAL
                 SCHEDULED 1730Z SCHEDULED 0330Z SCHEDULED 10H 00M
                 ACTUAL    1726Z ACTUAL    0330Z ACTUAL    10H 04M
                 ST XFR    N/R Z RELEASE   0341Z DSS TIME  10H 15M
        COMMAND  ------------------------------------------------------
                 TOTAL   9  AUTO   0  MANUAL   9  ABORT   0
```

```
TELEMETRY ----------------------------------------------------
          POWER  10KW  BIT RATES  8   CODED
                RX 1   RX 2  TCP A     TCP B
          ACTUAL  N/A  164.9   5.3       N/A
          PREDIC  N/A  163.7   6.6       N/A
          RESID   N/A   -1.2  -1.3       N/A
TRACKING   ---------------------------------------------------
          TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
          DOP BIAS  -0.206HZ C NOS 0.013HZ EXP 0.005HZ
MONITOR    ---------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/R   N/R   N/R   N/R
          TCP   N/R   N/R   N/R   N/R

COMMENTS   ---------------------------------------------------
COMMAND TIME - 1827Z-0310Z.
TRACK TIME - 1827Z-0314Z.
```

PN9CHZ66062

```
1368  722190322    722190840    1368
      DSS 41 PASS 1368 CL B-A CTDN 303324 GCF S00F CPS  N/A DSS F000
      CONFIG  ------------------------------------------------
              AOS DOY 219  LOS DOY 219          TOTAL
              SCHEDULED 0330Z SCHEDULED 0830Z SCHEDULED 05H 00M
              ACTUAL    0322Z ACTUAL    0830Z ACTUAL    05H 08M
              ST XFR    N/R Z RELEASE   0835Z DSS TIME  05H 13M
      COMMAND ------------------------------------------------
              TOTAL N/R  AUTO N/R  MANUAL N/R  ABORT N/R
      TELEMETRY ----------------------------------------------
              POWER  1 KW  BIT RATES  8   MMT
                    RX 1   RX 2  TCP A     TCP B
              ACTUAL 164.5    N/A   10.3      N/A
              PREDIC 163.6    N/A   10.0      N/A
              RESID   -0.9    N/A   +0.3      N/A
      TRACKING ---------------------------------------------
              TRACK MD N/AWAY RANGING N/A BIAS N/A RU NOISE N/A RU
              DOP BIAS    N/A HZ C NOS  N/A HZ EXP  N/A HZ
      MONITOR ---------------------------------------------
                   LGWR  LGER  BLRC  BLER
              DIS   N/R   N/R   N/R   N/R
              TCP   N/R   N/R   N/R   N/R

      COMMENTS ---------------------------------------------
```

PN9CHZ66064

```
1368  722190758    722191900    1368
      DSS 51 PASS 1368 CL B-A CTDN 303314 GCF S20J CPS  N/A DSS J200
      CONFIG  ------------------------------------------------
              AOS DOY 219  LOS DOY 219          TOTAL
              SCHEDULED 0800Z SCHEDULED 1830Z SCHEDULED 10H 30M
              ACTUAL    0758Z ACTUAL    1828Z ACTUAL    10H 30M
              ST XFR    N/R Z RELEASE   1910Z DSS TIME  11H 12M
      COMMAND ------------------------------------------------
              TOTAL   8  AUTO   0  MANUAL   8  ABORT   0
      TELEMETRY ----------------------------------------------
              POWER  10KW  BIT RATES  8  CODED  GOE
                    RX 1   RX 2  TCP A     TCP B
              ACTUAL 163.6    N/A   5.4       N/A
              PREDIC 165.5    N/A   5.0       N/A
              RESID   -1.4    N/A  +0.4       N/A
      TRACKING ---------------------------------------------
              TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
              DOP BIAS  -0.233HZ C NOS 0.004HZ EXP 0.005HZ
      MONITOR ---------------------------------------------
                   LGWR  LGER  BLRC  BLER
              DIS   N/R   N/R   N/R   N/R
              TCP   N/R   N/R   N/R   N/R

      COMMENTS ---------------------------------------------
```

PN9CHZ66067

```
1368  722201739    722210428    1368
      DSS 14 PASS 1368 CL A-A CTDN 000314 GCF S20D CPS  N/A DSS D200
      CONFIG   ------------------------------------------------------
               AOS DOY 219  LOS DOY 220          TOTAL
               SCHEDULED 1747Z SCHEDULED 0449Z SCHEDULED 11H 02M
               ACTUAL    1739Z ACTUAL    0428Z ACTUAL    10H 49M
               ST XFR    N/R Z RELEASE   0433Z DSS TIME  10H 54M
      COMMAND  ------------------------------------------------------
               TOTAL   7  AUTO   0  MANUAL   7  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  5 KW  BIT RATES 64     GOE
                     RX 1   RX 2  TCP A     TCP B
               ACTUAL 155.1    N/A   8.5       N/A
               PREDIC 154.5    N/A   7.3       N/A
               RESID   -0.6    N/A  +1.2       N/A
      TRACKING ------------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
               DOP BIAS  -0.255HZ C NOS 0.003HZ EXP 0.005HZ
      MONITOR  ------------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS   N/A   N/A   N/A   N/A
               TCP   N/A   N/A   N/A   N/A

      COMMENTS ------------------------------------------------------
      UNABLE TO LOCK TCP IN CODED MODE S/C COMMANDED TO UNCODED MODE.
      TCP LOCK 1939  DR T-2210.
```

PN9CHZ66069

```
1369  722200324    722200830    1369
      DSS 41 PASS 1369 CL F-A CTDN 202224 GCF S21F CPS T011 DSS F000
      CONFIG   ------------------------------------------------------
               AOS DOY 220  LOS DOY 220          TOTAL
               SCHEDULED 0330Z SCHEDULED 0830Z SCHEDULED 05H 00M
               ACTUAL    0324Z ACTUAL    0830Z ACTUAL    05H 06M
               ST XFR    N/R Z RELEASE   0835Z DSS TIME  05H 11M
      COMMAND  ------------------------------------------------------
               TOTAL N/R  AUTO N/R  MANUAL N/R  ABORT N/R
      TELEMETRY ----------------------------------------------------
               POWER N/AKW  BIT RATES  8   CODED  MMT
                     RX 1   RX 2  TCP A     TCP B
               ACTUAL 164.7    N/A   10.4      N/A
               PREDIC 163.5    N/A   10.2      N/A
               RESID   -1.2    N/A   +0.2      N/A
      TRACKING ------------------------------------------------------
               TRACK MD N/AWAY RANGING N/A BIAS N/A RU NOISE N/A RU
               DOP BIAS    N/A HZ C NOS  N/A HZ EXP  N/A HZ
      MONITOR  ------------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS   N/R   N/R   N/R   N/R
               TCP   N/R   N/R   N/R   N/R

      COMMENTS ------------------------------------------------------
```

PN9CHZ66071

```
1369  722200754    722201815    1369
      DSS 51 PASS 1369 CL F-A CTDN 202214 GCF S20J CPS T011 DSS J200
      CONFIG   ------------------------------------------------------
               AOS DOY 220  LOS DOY 220          TOTAL
               SCHEDULED 0800Z SCHEDULED 1815Z SCHEDULED 10H 15M
               ACTUAL    0754Z ACTUAL    1815Z ACTUAL    10H 21M
               ST XFR    N/R Z RELEASE   1849Z DSS TIME  10H 55M
      COMMAND  ------------------------------------------------------
               TOTAL  8   AUTO  0   MANUAL  8   ABORT  0
      TELEMETRY ----------------------------------------------------
               POWER  10KW  BIT RATES  8  CODED  GOE
                     RX 1   RX 2  TCP A     TCP B
               ACTUAL 163.5    N/A   5.0       N/A
               PREDIC 165.8    N/A   5.3       N/A
               RESID   -2.1    N/A  -0.3       N/A
```

```
          TRACKING  ------------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS  -0.291HZ C NOS 0.004HZ EXP 0.005HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/R   N/R   N/R   N/R
                    TCP   N/R   N/R   N/R   N/R

          COMMENTS  ------------------------------------------------------
          1410Z-1416Z, 360/75A DOWN.
          COMMANDS TRANSMITTED AT 0910Z-1802Z.
          2-WAY TRACK - 0840Z-1815Z.

 PN9CHZ66074

1369  722201721    722210350    1369
          DSS 12 PASS 1369 CL B-A CTDN 303314 GCF S20B CPS TOLL DSS 8200
          CONFIG    ------------------------------------------------------
                    AOS DOY 220  LOS DOY 221          TOTAL
                    SCHEDULED 1745Z SCHEDULED 0400Z SCHEDULED 10H 15M
                    ACTUAL    1721Z ACTUAL    0350Z ACTUAL    10H 29M
                    ST XFR    N/R Z RELEASE   0425Z DSS TIME  11H 04M
          COMMAND   ------------------------------------------------------
                    TOTAL  13  AUTO   0  MANUAL  13  ABORT   0
          TELEMETRY ------------------------------------------------------
                    POWER  10KW  BIT RATES  8   CODED
                           RX 1   RX 2  TCP A     TCP B
                    ACTUAL   N/A  164.5   5.3       N/A
                    PREDIC   N/A  163.5   6.8       N/A
                    RESID    N/A   +1.0  -1.5       N/A
          TRACKING  ------------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS  -0.414HZ C NOS 0.004HZ EXP 0.005HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/R   N/R   N/R   N/R
                    TCP   N/R   N/R   N/R   N/R

          COMMENTS  ------------------------------------------------------
          COMMAND 1825Z-0328Z.
          TRACK TIME - 1827Z-0340Z.

 PN9CHZ66076

1370  722210322    722210830    1370
          DSS 41 PASS 1370 CL B-A CTDN 303324 GCF S21F CPS TOLL DSS F000
          CONFIG    ------------------------------------------------------
                    AOS DOY 221  LOS DOY 221          TOTAL
                    SCHEDULED 0330Z SCHEDULED 0830Z SCHEDULED 05H 00M
                    ACTUAL    0322Z ACTUAL    0830Z ACTUAL    05H 08M
                    ST XFR    N/R Z RELEASE   0835Z DSS TIME  05H 13M
          COMMAND   ------------------------------------------------------
                    TOTAL N/R  AUTO N/R  MANUAL N/R  ABORT N/R
          TELEMETRY ------------------------------------------------------
                    POWER N/AKW  BIT RATES  8   MMT
                           RX 1   RX 2  TCP A     TCP B
                    ACTUAL 164.3    N/A   10.5       N/A
                    PREDIC 163.4    N/A   10.3       N/A
                    RESID   -0.9    N/A   +0.2       N/A
          TRACKING  ------------------------------------------------------
                    TRACK MD N/AWAY RANGING N/A BIAS N/A RU NOISE N/A RU
                    DOP BIAS    N/A HZ C NOS  N/A HZ EXP  N/A HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
```

PN9CHZ66077

```
1370  722210803    722211802    1370
        DSS 51 PASS 1370 CL B-A CTDN 303314 GCF S20J CPS TO11 DSS J200
        CONFIG   ------------------------------------------------------
                 AOS DOY 221  LOS DOY 221          TOTAL
                 SCHEDULED 0800Z SCHEDULED 1815Z SCHEDULED 10H 15M
                 ACTUAL    0803Z ACTUAL    1802Z ACTUAL    09H 59M
                 ST XFR    N/P Z RELEASE   1819Z DSS TIME  10H 16M
        COMMAND  ------------------------------------------------------
                 TOTAL   9  AUTO   0  MANUAL   9  ABORT   0
        TELEMETRY ----------------------------------------------------
                 POWER  10KW  BIT RATES  8     CODED
                        RX 1   RX 2  TCP A     TCP B
                 ACTUAL 165.1    N/A   5.3       N/A
                 PREDIC 163.4    N/A   5.6       N/A
                 RESID   -1.7    N/A  -0.3       N/A
        TRACKING ------------------------------------------------------
                 TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                 DOP BIAS  -0.342HZ C NOS 0.004HZ EXP 0.005HZ
        MONITOR  ------------------------------------------------------
                      LGWR  LGER  BLRC  BLER
                 DIS   N/A   N/A   N/A   N/A
                 TCP   N/A   N/A   N/A   N/A

        COMMENTS ------------------------------------------------------
```

PN9CHZ66079

```
1370  722211712    722220346    1370
        DSS 12 PASS 1370 CL B-A CTDN 303314 GCF S20B CPS TO11 DSS B200
        CONFIG   ------------------------------------------------------
                 AOS DOY 221  LOS DOY 222          TOTAL
                 SCHEDULED 1745Z SCHEDULED 0400Z SCHEDULED 10H 15M
                 ACTUAL    1712Z ACTUAL    0346Z ACTUAL    10H 34M
                 ST XFR    N/R Z RELEASE   0346Z DSS TIME  10H 34M
        COMMAND  ------------------------------------------------------
                 TOTAL  13  AUTO   0  MANUAL  13  ABORT   0
        TELEMETRY ----------------------------------------------------
                 POWER  10KW  BIT RATES  8    CODED
                        RX 1   RX 2  TCP A     TCP B
                 ACTUAL   N/A  164.3   6.3       N/A
                 PREDIC   N/A  163.4   6.9       N/A
                 RESID    N/A   -0.9  -0.6       N/A
        TRACKING ------------------------------------------------------
                 TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                 DOP BIAS  -0.365HZ C NOS 0.007HZ EXP 0.005HZ
        MONITOR  ------------------------------------------------------
                      LGWR  LGER  BLRC  BLER
                 DIS   N/R   N/R   N/R   N/R
                 TCP   N/R   N/R   N/R   N/R

        COMMENTS ------------------------------------------------------
        TRACK TIMES - 1812Z-0346Z.
        COMMAND - 1811Z-0341Z.
        HIGH DOPPLER NOISE DURING PASS. DR N-334 REFERS.
```

PN9CHZ66081

```
1371  722220322    722220830    1371
        DSS 41 PASS 1371 CL B-A CTDN 303324 GCF S21F CPS TO11 DSS F000
        CONFIG   ------------------------------------------------------
                 AOS DOY 222  LOS DOY 222          TOTAL
                 SCHEDULED 0330Z SCHEDULED 0830Z SCHEDULED 05H 00M
                 ACTUAL    0322Z ACTUAL    0830Z ACTUAL    05H 08M
                 ST XFR    N/R Z RELEASE   0845Z DSS TIME  05H 13M
        COMMAND  ------------------------------------------------------
                 TOTAL N/R  AUTO N/R  MANUAL N/R  ABORT N/R
        TELEMETRY ----------------------------------------------------
                 POWER N/RKW  BIT RATES  8    MMT
                        RX 1   RX 2  TCP A     TCP B
                 ACTUAL 164.8    N/A   10.7      N/A
                 PREDIC 163.3    N/A   10.4      N/A
                 RESID   -1.5    N/A   +0.3      N/A
```

```
TRACKING  ------------------------------------------------
          TRACK MD N/RWAY RANGING N/R BIAS N/R RU NOISE N/R RU
          DOP BIAS    N/R HZ C NOS  N/R HZ EXP  N/R HZ
MONITOR   ------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/A   N/A   N/A   N/A
          TCP   N/A   N/A   N/A   N/A

COMMENTS  ------------------------------------------------
NO MONITOR.
```

PN9CHZ66082

```
1371  722220757    722221815    1371
      DSS 51 PASS 1371 CL B-A CTDN 303314 GCF S20J CPS T011 DSS J200
      CONFIG  ------------------------------------------------
              AOS DOY 222  LOS DOY ???          TOTAL
              SCHEDULED 0800Z SCHEDULED 1815Z SCHEDULED 10H 15M
              ACTUAL    0757Z ACTUAL    1815Z ACTUAL    10H 18M
              ST XFR    N/R Z RELEASE   1815Z DSS TIME  10H 18M
      COMMAND ------------------------------------------------
              TOTAL   8  AUTO   0  MANUAL   8  ABORT   0
      TELEMETRY ----------------------------------------------
              POWER  10KW  BIT RATES  8   CODED  GDE
                     RX 1   RX 2  TCP A     TCP B
              ACTUAL 164.8    N/A   5.2       N/A
              PREDIC 163.3    N/A   5.7       N/A
              RESID   -1.5    N/A  -0.5       N/A
      TRACKING  ----------------------------------------------
              TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
              DOP BIAS  -0.405HZ C NOS 0.008HZ EXP 0.005HZ
      MONITOR ------------------------------------------------
                   LGWR  LGER  BLRC  BLER
              DIS   N/R   N/R   N/R   N/R
              TCP   N/R   N/R   N/R   N/R

      COMMENTS  ----------------------------------------------
      DR N-0338 HIGH DOPPLER NOISE.
      COMMANDS TRANSMITTED AT 0900Z-1645Z.
```

PN9CHZ66084

```
1371  722221720    722230330    1371
      DSS 12 PASS 1371 CL B-A CTDN 303314 GCF S20B CPS T011 DSS B200
      CONFIG  ------------------------------------------------
              AOS DOY 222  LOS DOY 223          TOTAL
              SCHEDULED 1745Z SCHEDULED 0400Z SCHEDULED 10H 15M
              ACTUAL    1720Z ACTUAL    0322Z ACTUAL    10H 02M
              ST XFR    N/R Z RELEASE   0322Z DSS TIME  10H 02M
      COMMAND ------------------------------------------------
              TOTAL   9  AUTO   0  MANUAL   9  ABORT   0
      TELEMETRY ----------------------------------------------
              POWER  10KW  BIT RATES  8   CODED  GDE
                     RX 1   RX 2  TCP A     TCP B
              ACTUAL 163.9    N/A   6.1       N/A
              PREDIC 163.3    N/A   6.7       N/A
              RESID   -0.6    N/A  -0.6       N/A
      TRACKING  ----------------------------------------------
              TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
              DOP BIAS  -0.409HZ C NOS 0.005HZ EXP 0.005HZ
      MONITOR ------------------------------------------------
                   LGWR  LGER  BLRC  BLER
              DIS   N/A   N/A   N/A   N/A
              TCP   N/A   N/A   N/A   N/A

      COMMENTS  ----------------------------------------------
```

PN9CHZ66090

```
1372  722230323    722230830    1372
      DSS 41 PASS 1372 CL B-A CTDN 303324 GCF S21F CPS T011 DSS F000
      CONFIG   ------------------------------------------------------
               AOS DOY 223  LOS DOY 224          TOTAL
               SCHEDULED 0330Z SCHEDULED 0830Z SCHEDULED 05H 00M
               ACTUAL    0323Z ACTUAL    0830Z ACTUAL    05H 07M
               ST XFR    N/R Z RELEASE   0835Z DSS TIME  05H 12M
      COMMAND  ------------------------------------------------------
               TOTAL N/R  AUTO N/R  MANUAL N/R  ABORT N/R
      TELEMETRY ----------------------------------------------------
               POWER N/RKW  BIT RATES  8   MMT
                      RX 1   RX 2  TCP A     TCP B
               ACTUAL 164.4    N/A   10.6      N/A
               PREDIC 163.2    N/A   10.4      N/A
               RESID   -1.2    N/A   +0.2      N/A
      TRACKING ---------------------------------------------------
               TRACK MD N/RWAY RANGING N/R BIAS N/R RU NOISE N/R RU
               DOP BIAS    N/R HZ C NOS  N/R HZ EXP  N/R HZ
      MONITOR  ---------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS   N/R   N/R   N/R   N/R
               TCP   N/R   N/R   N/R   N/R

      COMMENTS ---------------------------------------------------
      TCP-A HUNG UP WITH DEVIATIONS FROM STANDARD CONFIG.
      REFER DR T-2203 DATED 4 AUGUST.
```

PN9CHZ66092

```
1372  722230754    722231815    1372
      DSS 51 PASS 1372 CL B-A CTDN 303314 GCF S20J CPS T011 DSS J200
      CONFIG   ------------------------------------------------------
               AOS DOY 223  LOS DOY 223          TOTAL
               SCHEDULED 0800Z SCHEDULED 1815Z SCHEDULED 10H 15M
               ACTUAL    0754Z ACTUAL    1815Z ACTUAL    10H 21M
               ST XFR    N/R Z RELEASE   1815Z DSS TIME  10H 21M
      COMMAND  ------------------------------------------------------
               TOTAL  11  AUTO   0  MANUAL  11  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  10KW  BIT RATES  8  CODED
                      RX 1   RX 2  TCP B     TCP A
               ACTUAL 164.7    N/A   5.7       N/A
               PREDIC 163.2    N/A   5.6       N/A
               RESID   -1.5    N/A  +0.1       N/A
      TRACKING ---------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
               DOP BIAS  -0.429HZ C NOS 0.003HZ EXP 0.005HZ
      MONITOR  ---------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS   N/R   N/R   N/R   N/R
               TCP   N/R   N/R   N/R   N/R

      COMMENTS ---------------------------------- ---------------
```

PN9CHZ66095

```
1372  722231725    722240335    1372
      DSS 12 PASS 1372 CL B-A CTDN 303314 GCF S208 CPS T011 DSS B200
      CONFIG   ------------------------------------------------------
               AOS DOY 223  LOS DOY 224          TOTAL
               SCHEDULED 1745Z SCHEDULED 0400Z SCHEDULED 10H 15M
               ACTUAL    1725Z ACTUAL    0335Z ACTUAL    10H 10M
               ST XFR    N/R Z RELEASE   0335Z DSS TIME  10H 10M
      COMMAND  ------------------------------------------------------
               TOTAL   9  AUTO   0  MANUAL   9  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  10KW  BIT RATES              8  CODED  GOE
                      RX 1   RX 2  TCP A      TCP B
               ACTUAL  N/A  164.0   N/A        6.1
               PREDIC  N/A  163.2   N/A        6.7
               RESID   N/A   -0.8   N/A       -0.6
```

```
          TRACKING  ------------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS  -0.459HZ C NOS 0.005HZ EXP 0.005HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
```

PN9CHZ66097

```
1373  722240327    722240330    1373
          DSS 41 PASS 1373 CL B-A CTDN 303324 GCF S21F CPS T011 DSS F000
          CONFIG    ------------------------------------------------------
                    AOS DOY 224  LOS DOY 224          TOTAL
                    SCHEDULED 0330Z SCHEDULED 0830Z SCHEDULED 05H 00M
                    ACTUAL    0327Z ACTUAL    0830Z ACTUAL    05H 03M
                    ST XFR    N/R Z RELEASE   0835Z DSS TIME  05H 08M
          COMMAND   ------------------------------------------------------
                    TOTAL N/R  AUTO N/R  MANUAL N/R  ABORT N/R
          TELEMETRY ------------------------------------------------------
                    POWER N/AKW  BIT RATES 84  MMT
                          RX 1   RX 2  TCP A     TCP B
                    ACTUAL 164.1    N/A   10.9      N/A
                    PREDIC 163.2    N/A   10.5      N/A
                    RESID   -0.9    N/A   +0.4      N/A
          TRACKING  ------------------------------------------------------
                    TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS    N/A HZ C NOS  N/A HZ EXP  N/A HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
          NO MONITOR.
```

PN9CHZ66099

```
1373  722240800    722241810    1373
          DSS 51 PASS 1373 CL B-A CTDN 303314 GCF S20J CPS T011 DSS J200
          CONFIG    ------------------------------------------------------
                    AOS DOY 224  LOS DOY 224          TOTAL
                    SCHEDULED 0800Z SCHEDULED 1815Z SCHEDULED 10H 15M
                    ACTUAL    0756Z ACTUAL    1810Z ACTUAL    10H 14M
                    ST XFR    N/R Z RELEASE   1810Z DSS TIME  10H 14M
          COMMAND   ------------------------------------------------------
                    TOTAL   3  AUTO   0  MANUAL   3  ABORT   0
          TELEMETRY ------------------------------------------------------
                    POWER  10KW  BIT RATES  8  CODED
                          RX 1   RX 2  TCP A     TCP B
                    ACTUAL 164.3    N/A   5.7       N/A
                    PREDIC 163.2    N/A   5.9       N/A
                    RESID   -1.1    N/A  -0.2       N/A
          TRACKING  ------------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS  -0.471HZ C NOS 0.004HZ EXP 0.005HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
          2-WAY TRACK - 0850Z-1810Z.
          COMMAND TIMES - 0848Z-1744Z.
          COMMAND ERROR LIGHT - CCMD 5/064 DR T-2218 REFERS.
```

PN9CHZ66102

```
1373  722241919    722250332    1373
        DSS 12 PASS 1373 CL B-A CTDN 303314 GCF S20B CPS T011 DSS B200
        CONFIG    ------------------------------------------------------
                  AOS DOY 224  LOS DOY 225          TOTAL
                  SCHEDULED 1745Z SCHEDULED 0400Z SCHEDULED 10H 15M
                  ACTUAL    1719Z ACTUAL    0332Z ACTUAL    10H 13M
                  ST XFR    N/R Z RELEASE   0332Z DSS TIME  10H 13M
        COMMAND   ------------------------------------------------------
                  TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
        TELEMETRY ------------------------------------------------------
                  POWER  10KW  BIT RATES  8  CODED  GOE
                         RX 1   RX 2  TCP A     TCP B
                  ACTUAL 163.7    N/A   6.1       N/A
                  PREDIC 163.2    N/A   6.8       N/A
                  RESID   -0.5    N/A  -0.7       N/A
        TRACKING  ------------------------------------------------------
                  TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                  DOP BIAS  -0.497HZ C NOS 0.005HZ EXP 0.005HZ
        MONITOR   ------------------------------------------------------
                       LGWR  LGER  BLRC  BLER
                  DIS   N/A   N/A   N/A   N/A
                  TCP   N/A   N/A   N/A   N/A

        COMMENTS  ------------------------------------------------------
```

PN9CHZ66104

```
1374  722250322    722250805    1374
        DSS 41 PASS 1374 CL B-A CTDN 303324 GCF S21F CPS T011 DSS F000
        CONFIG    ------------------------------------------------------
                  AOS DOY 225  LOS DOY 225          TOTAL
                  SCHEDULED 0330Z SCHEDULED 0830Z SCHEDULED 05H 00M
                  ACTUAL    0332Z ACTUAL    0805Z ACTUAL    04H 33M
                  ST XFR    N/R Z RELEASE   0809Z DSS TIME  04H 37M
        COMMAND   ------------------------------------------------------
                  TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
        TELEMETRY ------------------------------------------------------
                  POWER N/AKW  BIT RATES  8   MMT
                         RX 1   RX 2  TCP A     TCP B
                  ACTUAL 163.8    N/A   11.1      N/A
                  PREDIC 163.1    N/A   10.6      N/A
                  RESID   -0.7    N/A   +0.5      N/A
        TRACKING  ------------------------------------------------------
                  TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                  DOP BIAS +64.677HZ C NOS 0.190HZ EXP 0.200HZ
        MONITOR   ------------------------------------------------------
                       LGWR  LGER  BLRC  BLER
                  DIS   N/A   N/A   N/A   N/A
                  TCP   N/A   N/A   N/A   N/A

        COMMENTS  ------------------------------------------------------
```

PN9CHZ66106

```
1374  722250749    722251815    1374
        DSS 51 PASS 1374 CL B-A CTDN 303314 GCF S20J CPS T011 DSS J200
        CONFIG    ------------------------------------------------------
                  AOS DOY 225  LOS DOY 225          TOTAL
                  SCHEDULED 0800Z SCHEDULED 1815Z SCHEDULED 10H 15M
                  ACTUAL    0749Z ACTUAL    1815Z ACTUAL    10H 26M
                  ST XFR    N/R Z RELEASE   1815Z DSS TIME  10H 26M
        COMMAND   ------------------------------------------------------
                  TOTAL   3  AUTO   0  MANUAL   3  ABORT   0
        TELEMETRY ------------------------------------------------------
                  POWER  10KW  BIT RATES  8  GOE
                         RX 1   RX 2  TCP A     TCP B
                  ACTUAL 164.5    N/A   5.8       N/A
                  PREDIC 163.1    N/A   6.1       N/A
                  RESID   -1.4    N/A  -0.3       N/A
```

```
          TRACKING  ------------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS  -0.519HZ C NOS 0.003HZ EXP 0.005HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
          2-WAY TRACK TIME: 0834Z-1814Z.
          COMMAND TIME: 0824Z-1814Z.

 PN9CHZ66110

1375  722260325    722260815    1375
          DSS 41 PASS 1375 CL B-A CTDN 303324 GCF S21F CPS T011 DSS F000
          CONFIG    ------------------------------------------------------
                    AOS DOY 226  LOS DOY 226          TOTAL
                    SCHEDULED 0330Z SCHEDULED 0830Z SCHEDULED 05H 00M
                    ACTUAL    0325Z ACTUAL    0815Z ACTUAL    04H 50M
                    ST XFR    N/R Z RELEASE   0816Z DSS TIME  04H 51M
          COMMAND   ------------------------------------------------------
                    TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
          TELEMETRY ------------------------------------------------------
                    POWER N/AKW  BIT RATES  8  MMT
                          RX 1   RX 2  TCP A     TCP B
                    ACTUAL 163.8   N/R   11.2     N/A
                    PREDIC 163.0   N/R   10.7     N/A
                    RESID   -0.8   N/R   +0.5     N/A
          TRACKING  ------------------------------------------------------
                    TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS +24.394HZ C NOS 0.300HZ EXP 0.200HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------

 PN9CHZ66108

1374  722252210    722260412    1374
          DSS 14 PASS 1374 CL C-A CTDN    N/A GCF S200 CPS T011 DSS D200
          CONFIG    ------------------------------------------------------
                    AOS DOY 225  LOS DOY 226          TOTAL
                    SCHEDULED 2210Z SCHEDULED 0422Z SCHEDULED 06H 12M
                    ACTUAL    2210Z ACTUAL    0412Z ACTUAL    06H 02M
                    ST XFR    N/R Z RELEASE   0416Z DSS TIME  06H 06M
          COMMAND   ------------------------------------------------------
                    TOTAL   8  AUTO   0  MANUAL   8  ABORT   0
          TELEMETRY ------------------------------------------------------
                    POWER  20KW  BIT RATES 16          64 CODED GOE
                          RX 1   RX 2  TCP A     TCP A
                    ACTUAL 154.6   N/A   7.4      7.4
                    PREDIC 154.9   N/A   7.1      7.1
                    RESID   +0.3   N/A  +0.3     +0.3
          TRACKING  ------------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS  -0.529HZ C NOS 0.004HZ EXP 0.005HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/R   N/R   N/R   N/R
                    TCP   N/R   N/R   N/R   N/R

          COMMENTS  ------------------------------------------------------
          2210Z-0023Z DSS-14 WAS LOCKED ON SIDE BAND ON PN-9. OR T-2221.
          SNR DEGRADED AT 16 BPS. NO AVERAGES MADE.
```

PN9CHZ66112

```
1375  722260755    722261815    1375
          DSS 51 PASS 1375 CL B-A CTDN 303314 GCF S20J CPS T011 DSS J200
          CONFIG   ------------------------------------------------------
                   AOS DOY 226  LOS DOY 226          TOTAL
                   SCHEDULED 0800Z SCHEDULED 1815Z SCHEDULED 10H 15M
                   ACTUAL    0755Z ACTUAL    1815Z ACTUAL    10H 20M
                   ST XFR    N/R Z RELEASE   1815Z DSS TIME  10H 20M
          COMMAND  ------------------------------------------------------
                   TOTAL   3  AUTO   0  MANUAL   3  ABORT   0
          TELEMETRY ----------------------------------------------------
                   POWER  10KW  BIT RATES  8  CODED
                          RX 1   RX 2  TCP A     TCP B
                   ACTUAL 164.5    N/A   5.6       N/A
                   PREDIC 163.0    N/A   6.1       N/A
                   RESID   -1.5    N/A  -0.5       N/A
          TRACKING ------------------------------------------------------
                   TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                   DOP BIAS  -0.559HZ C NOS 0.004HZ EXP 0.005HZ
          MONITOR  ------------------------------------------------------
                        LGWR  LGER  BLRC  BLER
                   DIS   N/R   N/R   N/R   N/R
                   TCP   N/R   N/R   N/R   N/R

          COMMENTS ------------------------------------------------------
          2-WAY TRACK TIME: 0846Z-1811Z.
          COMMAND TIME: 0850Z-1744Z.
```

PN9CHZ66114

```
1375  722261747    722270415    1375
          DSS 14 PASS 1375 CL B-A CTDN 303314 GCF S200 CPS T011 DSS D200
          CONFIG   ------------------------------------------------------
                   AOS DOY 226  LOS DOY 227          TOTAL
                   SCHEDULED 1747Z SCHEDULED 0419Z SCHEDULED 10H 32M
                   ACTUAL    1747Z ACTUAL    0415Z ACTUAL    10H 28M
                   ST XFR    N/R Z RELEASE   0415Z DSS TIME  10H 28M
          COMMAND  ------------------------------------------------------
                   TOTAL   7  AUTO   0  MANUAL   7  ABORT   0
          TELEMETRY ----------------------------------------------------
                   POWER  20KW  BIT RATES 64        256  CODED  GOE
                          RX 1   RX 2  TCP A     TCP A
                   ACTUAL 155.1    N/A   6.7       1.3
                   PREDIC 154.9    N/A   8.3       2.0
                   RESID   -0.2    N/A  -1.6      -0.7
          TRACKING ------------------------------------------------------
                   TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                   DOP BIAS  -0.571HZ C NOS 0.004HZ EXP 0.005HZ
          MONITOR  ------------------------------------------------------
                        LGWR  LGER  BLRC  BLER
                   DIS   N/A   N/A   N/A   N/A
                   TCP   N/A   N/A   N/A   N/A

          COMMENTS ------------------------------------------------------
          1748Z-2330Z DSS-14 SNR 2DB LOWER THAN PREDICTED. DR N-0343.
          2321Z-  DSS-14 ROL DUE TO POLARIZER RUNAWAY. NO DR WRITTEN
          SINCE R AND D SYSTEM.
          0308Z-0415Z  DSS-14 UNABLE TO LOCK TCP AFTER BIT RATE CHANGE
          TO 64 BPS. DR T-2223.
```

PN9CHZ66120

```
1377  722280322    722280830    1377
          DSS 41 PASS 1377 CL B-A CTDN 303324 GCF S21F CPS  N/A DSS F000
          CONFIG   ------------------------------------------------------
                   AOS DOY 228  LOS DOY 228          TOTAL
                   SCHEDULED 0330Z SCHEDULED 0830Z SCHEDULED 05H 00M
                   ACTUAL    0322Z ACTUAL    0830Z ACTUAL    05H 08M
                   ST XFR    N/A Z RELEASE   0839Z DSS TIME  05H 17M
          COMMAND  ------------------------------------------------------
                   TOTAL   3  AUTO   0  MANUAL   3  ABORT   0
```

TELEMETRY ----------

	POWER	10KW	BIT RATES	8	16	MMT
		RX 1	RX 1	TCP A	TCP A	
ACTUAL	163.6		163.7	10.9	8.2	
PREDIC	162.8		162.8	10.9	8.1	
RESID	-0.8		-0.9	0.0	+0.1	

TRACKING ----------

TRACK MD 2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
DOP BIAS -0.616HZ C NOS 0.004HZ EXP 0.005HZ

MONITOR ----------

	LOWR	LOER	BLRC	BLER
DIS	N/A	N/A	N/A	N/A
TCP	N/A	N/A	N/A	N/A

COMMENTS ----------

PN9CHZ66124

1378 722990319 722990830 1378
DSS 41 PASS 1378 CL B-A CTDN 303324 GCF S21F CPS N/A DSS F000

CONFIG ----------

AOS DOY 229	LOS DOY 229	TOTAL
SCHEDULED 0330Z	SCHEDULED 0830Z	SCHEDULED 05H 00M
ACTUAL 0319Z	ACTUAL 0830Z	ACTUAL 05H 11M
ST XER N/R Z	RELEASE 0839Z	DSS TIME 05H 20M

COMMAND ----------

TOTAL 2 AUTO 0 MANUAL 2 ABORT 0

TELEMETRY ----------

	POWER	10KW	BIT RATES	16	MMT
		RX 1	RX 2	TCP A	TCP B
ACTUAL	163.8		N/A	7.8	N/A
PREDIC	162.7		N/A	8.2	N/A
RESID	-1.1		N/A	-0.4	N/A

TRACKING ----------

TRACK MD 2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
DOP BIAS -0.650HZ C NOS 0.004HZ EXP 0.005HZ

MONITOR ----------

	LOWR	LOER	BLRC	BLER
DIS	N/A	N/A	N/A	N/A
TCP	N/A	N/A	N/A	N/A

COMMENTS ----------

OR T-2226. INTERMITTANT TRANSMITTER NOISE SPIKES INCREASING SNT AND LOWERING SNR.

PN9CHZ66129

1379 722300320 722300830 1379
DSS 41 PASS 1379 CL B-A CTDN 303324 GCF S21F CPS N/A DSS F000

CONFIG ----------

AOS DOY 230	LOS DOY 230	TOTAL
SCHEDULED 0330Z	SCHEDULED 0830Z	SCHEDULED 05H 00M
ACTUAL 0320Z	ACTUAL 0830Z	ACTUAL 05H 10M
ST XER 0320Z	RELEASE 0838Z	DSS TIME 05H 18M

COMMAND ----------

TOTAL 2 AUTO 0 MANUAL 2 ABORT 0

TELEMETRY ----------

	POWER	10KW	BIT RATES	16	MMT
		RX 1	RX 2	TCP A	TCP B
ACTUAL	163.4		N/A	8.4	N/A
PREDIC	162.6		N/A	8.3	N/A
RESID	-0.8		N/A	+0.1	N/A

TRACKING ----------

TRACK MD 2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
DOP BIAS -0.686HZ C NOS 0.003HZ EXP 0.005HZ

MONITOR ----------

	LOWR	LOER	BLRC	BLER
DIS	N/A	N/A	N/A	N/A
TCP	N/A	N/A	N/A	N/A

COMMENTS ----------

PN9CHZ66135

```
1380  722311412    722311758    1380
        DSS 62 PASS 1380 CL G-  CTDN 202242 GCF SXXL CPS  N/A DSS L000
        CONFIG   ---------------------------------------------------
                 AOS DOY 231  LOS DOY 231          TOTAL
                 SCHEDULED 1400Z SCHEDULED 1700Z SCHEDULED 03H 00M
                 ACTUAL    1412Z ACTUAL    1758Z ACTUAL    03H 46M
                 ST XFR    N/R Z RELEASE   1758Z DSS TIME  03H 46M
        COMMAND  ---------------------------------------------------
                 TOTAL  10  AUTO   0  MANUAL  10  ABORT   0
        TELEMETRY --------------------------------------------------
                 POWER N/AKW  BIT RATES    N/A
                        RX 1   RX 2  TCP A     TCP B
                 ACTUAL   N/A    N/A   N/A       N/A
                 PREDIC   N/A    N/A   N/A       N/A
                 RESID    N/A    N/A   N/A       N/A
        TRACKING ---------------------------------------------------
                 TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                 DOP BIAS  -0.712HZ C NOS 0.003HZ EXP 0.005HZ
        MONITOR  ---------------------------------------------------
                      LGWR  LGER  BLRC  BLER
                 DIS   686     4     0     0
                 TCPA  220     0     0     0

        COMMENTS ---------------------------------------------------
        1535Z-1541Z  360/75B DOWN  DR 3922.
        1555Z-1606Z  360/75B DOWN  REF DR 3922.
        PN-9 MMT CODED MODE DEMO PASS.
```

PN9CHZ66140

```
1381  722321030    722321700    1381
        DSS 62 PASS 1381 CL B-A CTDN 303324 GCF S2IL CPS  N/A DSS L000
        CONFIG   ---------------------------------------------------
                 AOS DOY 232  LOS DOY 232          TOTAL
                 SCHEDULED 1030Z SCHEDULED 1700Z SCHEDULED 06H 30M
                 ACTUAL    1030Z ACTUAL    1700Z ACTUAL    06H 40M
                 ST XFR    N/R Z RELEASE   1708Z DSS TIME  06H 38M
        COMMAND  ---------------------------------------------------
                 TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
        TELEMETRY --------------------------------------------------
                 POWER  10KW  BIT RATES 16  MMT
                        RX 1   RX 2  TCP A     TCP B
                 ACTUAL 164.4    N/A   7.9       N/A
                 PREDIC 164.4    N/A   8.0       N/A
                 RESID    0.0    N/A  -0.1       N/A
        TRACKING ---------------------------------------------------
                 TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                 DOP BIAS  -0.747HZ C NOS 0.004HZ EXP 0.005HZ
        MONITOR  ---------------------------------------------------
                      LGWR  LGER  BLRC  BLER
                 DIS   N/A   N/A   N/A   N/A
                 TCP   N/A   N/A   N/A   N/A

        COMMENTS ---------------------------------------------------
        1103Z-1700Z  2 WAY TRACK.
        1104Z-1649Z  COMMAND TIME.
```

PN9CHZ66142

```
1381  722321800    722322130    1381
        DSS 12 PASS 1381 CL B-A CTDN 303314 GCF S20B CPS  N/A DSS B200
        CONFIG   ---------------------------------------------------
                 AOS DOY 232  LOS DOY 232          TOTAL
                 SCHEDULED 1800Z SCHEDULED 2130Z SCHEDULED 03H 30M
                 ACTUAL    1800Z ACTUAL    2130Z ACTUAL    03H 30M
                 ST XFR    N/R Z RELEASE   2130Z DSS TIME  03H 30M
        COMMAND  ---------------------------------------------------
                 TOTAL   1  AUTO   0  MANUAL   1  ABORT   0
```

```
TELEMETRY ------------------------------------------------
          POWER  10KW  BIT RATES 16  CODED  GOE
                 RX 1   RX 2  TCP A     TCP B
          ACTUAL 162.6    N/A   5.2       N/A
          PREDIC 162.4    N/A   5.6       N/A
          RESID   -0.2    N/A  -0.4       N/A
TRACKING ------------------------------------------------
          TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
          DOP BIAS  -0.784HZ C NOS 0.005HZ EXP 0.005HZ
MONITOR ------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/A   N/A   N/A   N/A
          TCP   N/A   N/A   N/A   N/A

COMMENTS ------------------------------------------------
1919Z.  PRIMARY RECEIVER 2/3HZ BW GLITCHES; BAD DOPPLER,
UNABLE TO MAINTAIN TCP LOCK.
SWITCHED TLM AND DOPPLER TO RECEIVER 1  DR T-2228.
```

PN9CHZ66146

```
1381  722330226    722333400    1381
      DSS 12 PASS 1381 CL A-A CTDN    N/A GCF S20B CPS T011 DSS B200
      CONFIG ------------------------------------------------
             AOS DOY 233  LOS DOY 233          TOTAL
             SCHEDULED 0245Z SCHEDULED 0400Z SCHEDULED 01H 15M
             ACTUAL    0226Z ACTUAL    0400Z ACTUAL    01H 34M
             ST XFR    N/R Z RELEASE   0405Z DSS TIME  01H 39M
      COMMAND ------------------------------------------------
             TOTAL   0  AUTO   0  MANUAL   0  ABORT   0
      TELEMETRY ----------------------------------------------
             POWER  10KW  BIT RATES 16  GOE
                    RX 1   RX 2  TCP A     TCP B
             ACTUAL 164.0    N/A   3.6       N/A
             PREDIC 162.4    N/A   4.0       N/A
             RESID   -1.6    N/A  -0.4       N/A
      TRACKING ------------------------------------------------
             TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
             DOP BIAS    N/A HZ C NOS 0.010HZ EXP 0.010HZ
      MONITOR ------------------------------------------------
                  LGWR  LGER  BLRC  BLER
             DIS   N/R   N/R   N/R   N/R
             TCP   N/R   N/R   N/R   N/R

      COMMENTS ----------                ------------------------
```

PN9CHZ66148

```
1382  722331030    722331700    1382
      DSS 62 PASS 1382 CL B-A CTDN 303324 GCF S21L CPS T011 DSS L000
      CONFIG ------------------------------------------------
             AOS DOY 233  LOS DOY 234          TOTAL
             SCHEDULED 1030Z SCHEDULED 1700Z SCHEDULED 06H 30M
             ACTUAL    1030Z ACTUAL    1700Z ACTUAL    06H 30M
             ST XFR    N/R Z RELEASE   1700Z DSS TIME  06H 30M
      COMMAND ------------------------------------------------
             TOTAL   3  AUTO   0  MANUAL   3  ABORT   0
      TELEMETRY ----------------------------------------------
             POWER  10KW  BIT RATES 16  MMT
                    RX 1   RX 2  TCP A     TCP B
             ACTUAL 162.0    N/A   8.0       N/A
             PREDIC 162.4    N/A   8.0       N/A
             RESID   +0.4    N/A   0.0       N/A
      TRACKING ------------------------------------------------
             TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
             DOP BIAS  -0.772HZ C NOS 0.004HZ EXP 0.005HZ
      MONITOR ------------------------------------------------
                  LGWR  LGER  BLRC  BLER
             DIS   N/R   N/R   N/R   N/R
             TCP   N/R   N/R   N/R   N/R

      COMMENTS ------------------------------------------------
      UNCODED AT 1125Z.
```

PN9CHZ66156

```
1384  722350326    722450830    1384
        DSS 41 PASS 1384 CL B-A CTDN 303324 GCF S21F CPS T011 DSS F000
        CONFIG   ------------------------------------------------------
                 AOS DOY 235  LOS DOY 235          TOTAL
                 SCHEDULED 0330Z SCHEDULED 0830Z SCHEDULED 05H 00M
                 ACTUAL    0326Z ACTUAL    0830Z ACTUAL    05H 04M
                 ST XFR    N/R Z RELEASE   0830Z DSS TIME  05H 04M
        COMMAND  ------------------------------------------------------
                 TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
        TELEMETRY ----------------------------------------------------
                 POWER  10KW  BIT RATES 16   MMT
                        RX 1   RX 2  TCP A     TCP B
                 ACTUAL 163.8    N/A   8.9       N/A
                 PREDIC 162.2    N/A   8.7       N/A
                 RESID   -1.6    N/A  +0.2       N/A
        TRACKING ------------------------------------------------------
                 TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                 DOP BIAS  -0.826HZ C NOS 0.004HZ EXP 0.004HZ
        MONITOR  ------------------------------------------------------
                      LGWR  LGER  BLRC  BLER
                 DIS   N/R   N/R   N/R   N/R
                 TCP   N/R   N/R   N/R   N/R

        COMMENTS ------------------------------------------------------
        2 WAY TRACK 0414Z-0830Z.
        COMMAND TIME 0430Z-0830Z.
        0448Z TCP RELOAD DUE TO CMA AUTO TO CAL MODES. DR T-2235 REFERS
```

PN9CHZ66159

```
1384  722351805    722360400    1384
        DSS 12 PASS 1384 CL B-A CTDN 303314 GCF S20B CPS T011 DSS B200
        CONFIG   ------------------------------------------------------
                 AOS DOY 235  LOS DOY 236          TOTAL
                 SCHEDULED 1800Z SCHEDULED 0400Z SCHEDULED 10H 00M
                 ACTUAL    1805Z ACTUAL    0400Z ACTUAL    09H 55M
                 ST XFR    N/R Z RELEASE   0405Z DSS TIME  10H 00M
        COMMAND  ------------------------------------------------------
                 TOTAL   1  AUTO   0  MANUAL   1  ABORT   0
        TELEMETRY ----------------------------------------------------
                 POWER  10KW  BIT RATES 16 MMT    16 GOE MMT
                        RX 2   RX 2  TCP A     TCP A
                 ACTUAL 162.5  163.6   8.8       7.8
                 PREDIC 162.2  162.2   9.1       8.1
                 RESID   -0.3   -1.4  -0.3      -0.3
        TRACKING ------------------------------------------------------
                 TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                 DOP BIAS  -0.849HZ C NOS 0.004HZ EXP 0.005HZ
        MONITOR  ------------------------------------------------------
                      LGWR  LGER  BLRC  BLER
                 DIS   N/R   N/R   N/R   N/R
                 TCP   N/R   N/R   N/R   N/R

        COMMENTS ------------------------------------------------------
        TCP WOULD NOT LOCK UP IN GOE MODE AT AOS - MMT MODE TO 2205Z
        DR 2236.
```

PN9CHZ66161

```
1385  722360323    722360830    1385
        DSS 41 PASS 1385 CL B-A CTDN 303324 GCF S21F CPS T011 DSS F000
        CONFIG   ------------------------------------------------------
                 AOS DOY 236  LOS DOY 236          TOTAL
                 SCHEDULED 0330Z SCHEDULED 0830Z SCHEDULED 05H 00M
                 ACTUAL    0329Z ACTUAL    0830Z ACTUAL    05H 07M
                 ST XFR    N/R Z RELEASE   0830Z DSS TIME  05H 07M
        COMMAND  ------------------------------------------------------
                 TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
```

```
TELEMETRY ----------------------------------------------------
          POWER N/AKW  BIT RATES 16  MMT
                RX 1    RX 2  TCP A     TCP B
          ACTUAL 162.6    N/A    8.9       N/A
          PREDIC 162.1    N/A    8.9       N/A
          RESID   -0.5    N/A    0.0       N/A
TRACKING  ----------------------------------------------------
          TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
          DOP BIAS  -0.847HZ C NOS 0.004HZ EXP 0.005HZ
MONITOR   ----------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/R   N/R   N/R   N/R
          TCP   N/R   N/R   N/R   N/R

COMMENTS  ----------------------------------------------------
COMMAND TIMES  0400Z-0830Z.
TRACK TIMES  0401Z-0830Z.
```

PN9CHZ66166

```
1386  722370318    722370830    1386
      DSS 41 PASS 1386 CL B-A CTDN 303324 GCF S21F CPS T011 DSS F000
      CONFIG    ----------------------------------------------
                AOS DOY 237  LOS DOY 237          TOTAL
                SCHEDULED 0330Z SCHEDULED 0830Z SCHEDULED 05H 00M
                ACTUAL    0318Z ACTUAL    0830Z ACTUAL    05H 12M
                ST XFR    0318Z RELEASE   0830Z DSS TIME  05H 12M
      COMMAND   ----------------------------------------------
                TOTAL   6  AUTO   0  MANUAL   6  ABORT   0
      TELEMETRY ----------------------------------------------
                POWER  10KW  BIT RATES 16
                       RX 1   RX 2  TCP A     TCP B
                ACTUAL 162.5    N/A    9.1       N/A
                PREDIC 162.0    N/A    8.9       N/A
                RESID   -0.5    N/A   +0.2       N/A
      TRACKING  ----------------------------------------------
                TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                DOP BIAS  -0.876HZ C NOS 0.005HZ EXP 0.005HZ
      MONITOR   ----------------------------------------------
                     LGWR  LGER  BLRC  BLER
                DIS   N/R   N/R   N/R   N/R
                TCP   N/R   N/R   N/R   N/R

      COMMENTS  ----------------------------------------------
      0318Z-0409Z  1-WAY
      0409Z-0830Z  2-WAY
      0417Z-0830Z  COMMAND TIME.
```

PN9CHZ66178

```
1388  722391030    722391700    1388
      DSS 51 PASS 1388 CL F-A CTDN 202214 GCF S20J CPS T011 DSS J200
      CONFIG    ----------------------------------------------
                AOS DOY 239  LOS DOY 239          TOTAL
                SCHEDULED 1030Z SCHEDULED 1700Z SCHEDULED 06H 30M
                ACTUAL    1026Z ACTUAL    1700Z ACTUAL    06H 34M
                ST XFR    1026Z RELEASE   1705Z DSS TIME  06H 39M
      COMMAND   ----------------------------------------------
                TOTAL   6  AUTO   0  MANUAL   6  ABORT   0
      TELEMETRY ----------------------------------------------
                POWER  10KW  BIT RATES 16   CODED  GOE
                       RX 1   RX 2  TCP A     TCP B
                ACTUAL 163.0    N/A    4.9       N/A
                PREDIC 161.8    N/A    5.2       N/A
                RESID   -1.2    N/A   -0.3       N/A
      TRACKING  ----------------------------------------------
                TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                DOP BIAS  -0.938HZ C NOS 0.004HZ EXP 0.005HZ
      MONITOR   ----------------------------------------------
                     LGWR  LGER  BLRC  BLER
                DIS   N/R   N/R   N/R   N/R
                TCP   N/R   N/R   N/R   N/R

      COMMENTS  ----------------------------------------------
```

PN9CHZ66183

```
1389  722401025    722401700    1389
        DSS 51 PASS 1389 CL B-A CTDN 303314 GCF S20J CPS  N/A DSS J200
        CONFIG   ------------------------------------------------------
                 AOS DOY 240  LOS DOY 240          TOTAL
                 SCHEDULED 1030Z SCHEDULED 1700Z SCHEDULED 06H 30M
                 ACTUAL    1025Z ACTUAL    1700Z ACTUAL    06H 35M
                 ST XFR    1025Z RELEASE   1705Z DSS TIME  06H 40M
        COMMAND  ------------------------------------------------------
                 TOTAL   3  AUTO   0  MANUAL   3  ABORT   0
        TELEMETRY ----------------------------------------------------
                 POWER  10KW  BIT RATES 16  CODED   GOE
                        RX 1   RX 2  TCP A     TCP B
                 ACTUAL 163.2    N/A   4.9       N/A
                 PREDIC 161.8    N/A   5.2       N/A
                 RESID   -1.4    N/A  -0.3       N/A
        TRACKING ------------------------------------------------------
                 TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                 DOP BIAS  -0.947HZ C NOS 0.004HZ EXP 0.005HZ
        MONITOR  ------------------------------------------------------
                      LGWR  LGER  BLRC  BLER
                 DIS   N/R   N/R   N/R   N/R
                 TCP   N/R   N/R   N/R   N/R

        COMMENTS ------------------------------------------------------
        LOW DOWN LINK S/S. REFER DR N-0327.
```

PN9CHZ66190

```
1391  722420313    722420830    1391
        DSS 41 PASS 1391 CL B-A CTDN 303324 GCF S21F CPS  N/A DSS F000
        CONFIG   ------------------------------------------------------
                 AOS DOY 242  LOS DOY 242          TOTAL
                 SCHEDULED 0330Z SCHEDULED 0830Z SCHEDULED 05H 00M
                 ACTUAL    0313Z ACTUAL    0830Z ACTUAL    05H 17M
                 ST XFR    0313Z RELEASE   0830Z DSS TIME  05H 17M
        COMMAND  ------------------------------------------------------
                 TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
        TELEMETRY ----------------------------------------------------
                 POWER  10KW  BIT RATES 16  MMT
                        RX 1   RX 2  TCP A     TCP B
                 ACTUAL 161.8    N/A   8.9       N/A
                 PREDIC 161.6    N/A   9.3       N/A
                 RESID   -0.2    N/A  -0.4       N/A
        TRACKING ------------------------------------------------------
                 TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                 DOP BIAS  -0.961HZ C NOS 0.004HZ EXP 0.005HZ
        MONITOR  ------------------------------------------------------
                      LGWR  LGER  BLRC  BLER
                 DIS   N/R   N/R   N/R   N/R
                 TCP   N/R   N/R   N/R   N/R

        COMMENTS ------------------------------------------------------
```

PN9CHZ66193

```
1392  722430319    722430830    1392
        DSS 41 PASS 1392 CL B-A CTDN 303324 GCF S21F CPS  N/A DSS F000
        CONFIG   ------------------------------------------------------
                 AOS DOY 243  LOS DOY 243          TOTAL
                 SCHEDULED 0330Z SCHEDULED 0830Z SCHEDULED 05H 00M
                 ACTUAL    0319Z ACTUAL    0830Z ACTUAL    05H 11M
                 ST XFR    0319Z RELEASE   0830Z DSS TIME  05H 11M
        COMMAND  ------------------------------------------------------
                 TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
        TELEMETRY ----------------------------------------------------
                 POWER  10KW  BIT RATES 16  GOE
                        RX 1   RX 2  TCP A     TCP B
                 ACTUAL 161.7    N/A   9.1       N/A
                 PREDIC 161.5    N/A   9.4       N/A
                 RESID   -0.2    N/A  -0.3       N/A
```

```
TRACKING  ------------------------------------------------------
          TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
          DOP BIAS  -0.970HZ C NOS 0.004HZ EXP 0.005HZ
MONITOR   ------------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/R   N/R   N/R   N/R
          TCP   N/R   N/R   N/R   N/R

COMMENTS  ------------------------------------------------------
```

PN9CHZ66199

```
1393  722440318    722440830    1393
      DSS 41 PASS 1393 CL B-A CTDN 303324 GCF S21F CPS  N/A DSS F000
CONFIG    ------------------------------------------------------
          AOS DOY 244  LOS DOY 244          TOTAL
          SCHEDULED 0330Z SCHEDULED 0830Z SCHEDULED 05H 00M
          ACTUAL    0318Z ACTUAL    0830Z ACTUAL    05H 12M
          ST XFR     N/RZ RELEASE   0830Z DSS TIME  05H 12M
COMMAND   ------------------------------------------------------
          TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
TELEMETRY ------------------------------------------------------
          POWER  10KW  BIT RATES 16  MMT
                 RX 1    RX 2  TCP A     TCP B
          ACTUAL 162.2    N/A   9.9       N/A
          PREDIC 161.4    N/A   9.5       N/A
          RESID   -0.8    N/A  +0.4       N/A
TRACKING  ------------------------------------------------------
          TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
          DOP BIAS  -0.984HZ C NOS 0.003HZ EXP 0.005HZ
MONITOR   ------------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/R   N/R   N/R   N/R
          TCP   N/R   N/R   N/R   N/R

COMMENTS  ------------------------------------------------------
```

PN9CJZ66212

```
1394  722452315    722460424    1394
      DSS 11 PASS 1394 CL B-A CTDN 303324 GCF S21A CPS T011 DSS A000
CONFIG    ------------------------------------------------------
          AOS DOY 245  LOS DOY 246          TOTAL
          SCHEDULED 1820Z SCHEDULED 0424Z SCHEDULED 10H 04M
          ACTUAL    2015Z ACTUAL    0424Z ACTUAL    08H 09M
          ST XFR     N/R Z RELEASE  0454Z DSS TIME  08H 39M
COMMAND   ------------------------------------------------------
          TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
TELEMETRY ------------------------------------------------------
          POWER  10KW  BIT RATES 16
                 RX 1    RX 2  TCP A     TCP B
          ACTUAL 161.9    N/A   6.0       N/A
          PREDIC 161.3    N/A   7.8       N/A
          RESID   -0.6    N/A  -1.8       N/A
TRACKING  ------------------------------------------------------
          TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
          DOP BIAS  -1.007HZ C NOS 0.004HZ EXP 0.005HZ
MONITOR   ------------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/A   N/R   N/R   N/R
          TCP   N/A   N/R   N/R   N/R

COMMENTS  ------------------------------------------------------
          DR N-0356  SNR OUT OF TOLERANCE, -1.8DB.
          2329Z-  TCP-B PROGRAM HALTED. DR T-2253. REFERS ALL.
          0032Z-  TCP-B PROGRAM HALTED.
          0108Z-  TCP-B PROGRAM HALTED.
          0200Z-  TCP-B PROGRAM HALTED AND SWAPPED TO TCP-A.
          AOS DELAYED TO INSTALL POLARIZER AND SHORT CREW.
```

PN9CJZ66250

```
1405  722560751    722561830    1405
      DSS 51 PASS 1405 CL B-A CTDN 303314 GCF S20J CPS  N/A DSS J200
      CONFIG   ------------------------------------------------------
               AOS DOY 256  LOS DOY 256          TOTAL
               SCHEDULED 0800Z SCHEDULED 1830Z SCHEDULED 10H 30M
               ACTUAL    0751Z ACTUAL    1830Z ACTUAL    10H 39M
               ST XFR    N/R Z RELEASE   1830Z DSS TIME  10H 39M
      COMMAND  ------------------------------------------------------
               TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  10KW  BIT RATES 16 CODED GOE
                      RX 1   RX 2  TCP A     TCP B
               ACTUAL 161.6    N/A   6.2       N/A
               PREDIC 160.5    N/A   6.4       N/A
               RESID   -1.1    N/A  -0.2       N/A
      TRACKING ---------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
               DOP BIAS  -0.996HZ C NOS 0.005HZ EXP 0.005HZ
      MONITOR  ---------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS   N/A   N/A   N/A   N/A
               TCP   N/A   N/A   N/A   N/A

      COMMENTS ---------------------------------------------------
      1550Z-1702Z  360/75 DOWN.
      0830Z-1830Z  COMMAND TIMES.
      0834Z-1830Z  TRACK TIMES.
```

PN9CJZ66255

```
1406  722570756    722571830    1406
      DSS 51 PASS 1406 CL B-A CTDN 303314 GCF S20J CPS  N/A DSS J200
      CONFIG   ------------------------------------------------------
               AOS DOY 257  LOS DOY 257          TOTAL
               SCHEDULED 0800Z SCHEDULED 1830Z SCHEDULED 10H 30M
               ACTUAL    0756Z ACTUAL    1830Z ACTUAL    10H 34M
               ST XFR    N/R Z RELEASE   1830Z DSS TIME  10H 34M
      COMMAND  ------------------------------------------------------
               TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  10KW  BIT RATES          16  GOE
                      RX 1   RX 2  TCP A     TCP B
               ACTUAL 161.4    N/A   N/A       5.5
               PREDIC 160.4    N/A   N/A       6.5
               RESID   -1.0    N/A   N/A      -1.0
      TRACKING ---------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
               DOP BIAS  -0.988HZ C NOS 0.006HZ EXP 0.005HZ
      MONITOR  ---------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS   N/A   N/A   N/A   N/A
               TCP   N/A   N/A   N/A   N/A

      COMMENTS ---------------------------------------------------
      NAT TRK WROTE DR N-0369 - HIGH DOPPLER NOISE.
      0833Z-1830Z  COMMAND TIMES.
      0838Z-1830Z  2-WAY TRACK TIMES.
```

PN9CJZ66265

```
1408  722591857    722600400    1408
      DSS 11 PASS 1408 CL C-A CTDN 303224 GCF S21A CPS  N/A DSS A300
      CONFIG   ------------------------------------------------------
               AOS DOY 259  LOS DOY 260          TOTAL
               SCHEDULED 1900Z SCHEDULED 0400Z SCHEDULED 09H 00M
               ACTUAL    1857Z ACTUAL    0400Z ACTUAL    09H 03M
               ST XFR    N/A Z RELEASE   0419Z DSS TIME  09H 21M
      COMMAND  ------------------------------------------------------
               TOTAL  7   AUTO  0   MANUAL  7   ABORT  0
```

```
TELEMETRY ----------------------------------------------------
          POWER N/AKW  BIT RATES            16  MMT
                RX 1   RX 2  TCP A     TCP B
          ACTUAL  N/A   160.0   N/A      6.8
          PREDIC  N/A   160.3   N/A      8.8
          RESID   N/A    +0.3   N/A     -2.1
TRACKING ----------------------------------------------------
          TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE N/A RU
          DOP BIAS -0.955 HZ C NOS 0.004HZ EXP 0.005HZ
MONITOR  ----------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/A   N/A   N/A   N/A
          TCP   N/A   N/A   N/A   N/A

COMMENTS ----------------------------------------------------
LOW  SNR, REF OPEN OR N-0356.
OR T-2271; LOSS OF TLM DATA AT 0156Z-0224Z DUE TO MEMORY
READOUT- TCP DID NOT HOOK UP TO 16 BPS MEMORY READOUT-
TCP RE-INITIATED AT 0224Z.
```

PN9CJ766287

```
1413  722640800    722641830    1413
      DSS 51 PASS 1413 CL B-A CTDN 303314 GCF S20J CPS T011 DSS J200
      CONFIG ------------------------------------------------
             AOS DOY 264  LOS DOY 264          TOTAL
             SCHEDULED 0800Z SCHEDULED 1830Z SCHEDULED 10H 30M
             ACTUAL    0800Z ACTUAL    1830Z ACTUAL    10H 30M
             ST XFR    N/A Z RELEASE   1830Z DSS TIME  10H 30M
      COMMAND ------------------------------------------------
             TOTAL   6  AUTO   0  MANUAL   6  ABORT   0
      TELEMETRY ----------------------------------------------
             POWER  10KW  BIT RATES            64  CODED
                   RX 1   RX 2  TCP A     TCP B
             ACTUAL 161.5    N/A   N/A      0.7
             PREDIC 160.0    N/A   N/A      1.9
             RESID   -1.5    N/A   N/A     -1.2
      TRACKING ----------------------------------------------
             TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
             DOP BIAS  -0.887HZ C NOS 0.004HZ EXP 0.005HZ
      MONITOR ----------------------------------------------
                  LGWR  LGER  BLRC  BLER
             DIS   N/A   N/A   N/A   N/A
             TCP   N/A   N/A   N/A   N/A

      COMMENTS ----------------------------------------------
```

PN9CJ766288

```
1412  722630804    722631830    1412
      DSS 51 PASS 1412 CL F-A CTDN 202314 GCF S20J CPS T011 DSS J200
      CONFIG ------------------------------------------------
             AOS DOY 263  LOS DOY 263          TOTAL
             SCHEDULED 0800Z SCHEDULED 1830Z SCHEDULED 10H 30M
             ACTUAL    0804Z ACTUAL    1830Z ACTUAL    10H 26M
             ST XFR    N/A Z RELEASE   1830Z DSS TIME  10H 26M
      COMMAND ------------------------------------------------
             TOTAL   3  AUTO   0  MANUAL   3  ABORT   0
      TELEMETRY ----------------------------------------------
             POWER  10KW  BIT RATES 16  CODED  GDE
                   RX 1   RX 2  TCP A     TCP B
             ACTUAL 161.2    N/A   6.7      N/A
             PREDIC 160.0    N/A   6.8      N/A
             RESID   -1.2    N/A  -0.1      N/A
      TRACKING ----------------------------------------------
             TRACK MD  2 WAY RANGING NIL BIAS N/R RU NOISE N/R RU
             DOP BIAS  -0.902HZ C NOS 0.003HZ EXP 0.005HZ
      MONITOR ----------------------------------------------
                  LGWR  LGER  BLRC  BLER
             DIS   N/R   N/R   N/R   N/R
             TCP   N/R   N/R   N/R   N/R
```

```
          COMMENTS  ------------------------------------------------
          1207Z-1235Z  LOST COMM LINES BETWEEN PRET. AND JOBURG. DR C-6180
          1305Z-1328Z  LOST COMM LINES BETWEEN JOBURG/ACCESION. DR C-6187


 PN9CJZ66289

1412  722631934    722640350    1412
          DSS 12 PASS 1412 CL B-A CTDN 303314 GCF S20B CPS  N/A DSS B200
          CONFIG    ------------------------------------------------
                    AOS DOY 263  LOS DOY 264         TOTAL
                    SCHEDULED 1930Z SCHEDULED 0350Z SCHEDULED 08H 20M
                    ACTUAL    1934Z ACTUAL    0350Z ACTUAL    08H 16M
                    ST XFR    N/A Z RELEASE   0353Z DSS TIME  08H 19M
          COMMAND   ------------------------------------------------
                    TOTAL   8  AUTO   0  MANUAL   8  ABORT   0
          TELEMETRY ------------------------------------------------
                    POWER  10KW  BIT RATES 16  CODED  GOE
                           RX 1   RX 2  TCP A     TCP B
                    ACTUAL   N/A  160.0   7.6       N/A
                    PREDIC   N/A  160.0   7.7       N/A
                    RESID    N/A    0.0  -0.1       N/A
          TRACKING  ------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS  -0.809HZ C NOS 0.004HZ EXP 0.005HZ
          MONITOR   ------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------


 PN9CJZ66311

1419  722700809    722701831    1419
          DSS 51 PASS 1414 CL F-A CTDN 202314 GCF S20J CPS  N/A DSS J200
          CONFIG    ------------------------------------------------
                    AOS DOY 270  LOS DOY 270         TOTAL
                    SCHEDULED 0800Z SCHEDULED 1830Z SCHEDULED 10H 30M
                    ACTUAL    0809Z ACTUAL    1831Z ACTUAL    10H 22M
                    ST XFR    N/A Z RELEASE   1836Z DSS TIME  10H 27M
          COMMAND   ------------------------------------------------
                    TOTAL   6  AUTO   0  MANUAL   6  ABORT   0
          TELEMETRY ------------------------------------------------
                    POWER  10KW  BIT RATES 64  CODED  GOE
                           RX 1   RX 2  TCP A     TCP B
                    ACTUAL 159.7    N/A   1.0       N/A
                    PREDIC 161.2    N/A   2.1       N/A
                    RESID   -1.5    N/A  -1.1       N/A
          TRACKING  ------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS  -0.750HZ C NOS 0.002HZ EXP 0.003HZ
          MONITOR   ------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------
          CP. DOWN FOR POWER/DOWN AT 1500Z-1713Z AND 1808Z-1825Z.


 PN9CJZ66314

1419  722702008    722710340    1419
          DSS 11 PASS 1419 CL C-A CTDN 303224 GCF S00A CPS  N/A DSS A000
          CONFIG    ------------------------------------------------
                    AOS DOY 270  LOS DOY 271         TOTAL
                    SCHEDULED 2000Z SCHEDULED 0340Z SCHEDULED 07H 40M
                    ACTUAL    2008Z ACTUAL    0340Z ACTUAL    07H 32M
                    ST XFR    N/A Z RELEASE   0347Z DSS TIME  07H 39M
          COMMAND   ------------------------------------------------
                    TOTAL   6  AUTO   0  MANUAL   6  ABORT   0
```

```
TELEMETRY ----------------------------------------------------
          POWER  10KW  BIT RATES 64  CODED  MMT
                 RX 1   RX 2  TCP A     TCP B
          ACTUAL 158.6    N/A   10.2      N/A
          PREDIC 159.7    N/A   10.4      N/A
          RESID   +1.1    N/A   -0.2      N/A
TRACKING  ----------------------------------------------------
          TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
          DOP BIAS  -0.756HZ C NOS  N/A HZ EXP  N/A HZ
MONITOR   ----------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/A   N/A   N/A   N/A
          TCP   N/A   N/A   N/A   N/A

COMMENTS  ----------------------------------------------------
2010Z-2043Z  DOPPLER COUNTER INCREMENTING INCORRECTLY. DR N-038
2010Z-0340Z  DOPPLER RESOLVER NOT INCREMENTING. DR N-0382.
2010Z-2048Z  INCORRECT S/C ID IN TDP. DR N-0382.
DR T-2290. STATION AT WRONG TRACK SYN FREQ. USING WRONG
PREDICTS.  NO MONITOR
```

PN9CJZ66316

```
1420  722713809    722711832    1420
      DSS 51 PASS 1420 CL B-A CTDN 303314 GCF S20J CPS T011 DSS J200
      CONFIG  ------------------------------------------------
              AOS DOY 271  LOS DOY 271          TOTAL
              SCHEDULED 0800Z SCHEDULED 1830Z SCHEDULED 10H 30M
              ACTUAL    0809Z ACTUAL    1832Z ACTUAL    10H 23M
              ST XFR    N/A Z RELEASE   1835Z DSS TIME  10H 26M
      COMMAND ------------------------------------------------
              TOTAL   6  AUTO   0  MANUAL   6  ABORT   0
      TELEMETRY ----------------------------------------------
              POWER  10KW  BIT RATES          64  CODED  GDE
                     RX 1   RX 2  TCP A     TCP B
              ACTUAL 160.8    N/A   N/A       1.1
              PREDIC 159.6    N/A   N/A       2.3
              RESID   -1.2    N/A   N/A      -1.2
      TRACKING  ----------------------------------------------
              TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
              DOP BIAS  -0.745HZ C NOS 0.003HZ EXP 0.005HZ
      MONITOR ------------------------------------------------
                   LGWR  LGER  BLRC  BLER
              DIS   N/A   N/A   N/A   N/A
              TCP   N/A   N/A   N/A   N/A
      COMMENTS -----------------------------------------------
```

PN9CKZ66342

```
1426  722770852    722771930    1426
      DSS 51 PASS 1426 CL F-A CTDN 202314 GCF S20J CPS T011 DSS J200
      CONFIG  ------------------------------------------------
              AOS DOY 277  LOS DOY 277          TOTAL
              SCHEDULED 0900Z SCHEDULED 1930Z SCHEDULED 10H 30M
              ACTUAL    0852Z ACTUAL    1930Z ACTUAL    10H 38M
              ST XFR    N/A Z RELEASE   1935Z DSS TIME  10H 43M
      COMMAND ------------------------------------------------
              TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
      TELEMETRY ----------------------------------------------
              POWER  10KW  BIT RATES 64  CODED  GDE
                     RX 1   RX 2  TCP A     TCP B
              ACTUAL 160.3    N/A   2.1       N/A
              PREDIC 159.4    N/A   2.9       N/A
              RESID   -0.9    N/A  -0.8       N/A
      TRACKING  ----------------------------------------------
              TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
              DOP BIAS  -0.592HZ C NOS 0.003HZ EXP 0.004HZ
      MONITOR ------------------------------------------------
                   LGWR  LGER  BLRC  BLER
              DIS   N/A   N/A   N/A   N/A
              TCP   N/A   N/A   N/A   N/A

      COMMENTS -----------------------------------------------
      NONE
```

PN9CKZ66346

1427 722780850 722781930 1427
DSS 51 PASS 1427 CL E-A CTDN 303314 GCF S20J CPS T011 DSS J200

CONFIG
ACS DOY 278 LOS DOY 278 TOTAL
SCHEDULED 0900Z SCHEDULED 1930Z SCHEDULED 10H 30M
ACTUAL 0850Z ACTUAL 1930Z ACTUAL 10H 40M
ST XFR N/R Z RELEASE 1933Z DSS TIME 10H 43M

COMMAND
TOTAL 8 AUTO 0 MANUAL 8 ABORT 0

TELEMETRY
POWER 10KW BIT RATES 64 CODED GCE

	RX 1	RX 2	TCP A	TCP B
ACTUAL	160.1	N/A	1.5	N/A
PREDIC	159.3	N/A	2.6	N/A
RESID	-0.8	N/A	-0.9	N/A

TRACKING
TRACK MD 2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
DOP BIAS -0.570HZ C NOS .0035HZ EXP 0.004HZ

MONITOR

	LGWR	LGER	BLRC	BLER
CIS	N/A	N/A	N/A	N/A
TCP	N/A	N/A	N/A	N/A

COMMENTS
NONE

PN9CKZ66361

1430 722812039 722820330 1430
DSS 11 PASS 1430 CL C-A CTDN 303224 GCF S20A CPS T011 DSS A000

CONFIG
ACS DOY 281 LOS DOY 282 TOTAL
SCHEDULED 2030Z SCHEDULED 0330Z SCHEDULED 07H 00M
ACTUAL 2039Z ACTUAL 0330Z ACTUAL 06H 51M
ST XFR N/R Z RELEASE 0330Z DSS TIME 06H 51M

COMMAND
TOTAL 2 AUTO 0 MANUAL 2 ABORT 0

TELEMETRY
POWER 10KW BIT RATES 16 CODED MMT

	RX 1	RX 2	TCP A	TCP B
ACTUAL	N/A	159.1	9.6	N/A
PREDIC	N/A	159.2	10.9	N/A
RESID	N/A	+0.1	-1.3	N/A

TRACKING
TRACK MD 2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
DOP BIAS -0.480HZ C NOS 0.004HZ EXP 0.003HZ

MONITOR

	LGWR	LGER	BLRC	BLER
CIS	N/A	N/A	N/A	N/A
TCP	N/A	N/A	N/A	N/A

COMMENTS
2058Z- STA MISSED 2-WAY ACQUISITION, TUNED INCORRECTLY.
DR T-2303.

PN9CKZ66372

1433 722840850 722841930 1433
DSS 51 PASS 1433 CL F-A CTDN 202314 GCF S20J CPS N/A DSS J200

CONFIG
ACS DOY 284 LOS DOY 284 TOTAL
SCHEDULED 0900Z SCHEDULED 1930Z SCHEDULED 10H 30M
ACTUAL 0850Z ACTUAL 1930Z ACTUAL 10H 40M
ST XFR N/R Z RELEASE 1933Z DSS TIME 10H 43M

COMMAND
TOTAL 5 AUTO 0 MANUAL 5 ABORT 0

TELEMETRY
POWER 10KW BIT RATES 64 CODED

	RX 1	RX 2	TCP A	TCP B
ACTUAL	159.7	N/A	N/A	1.7
PREDIC	159.1	N/A	N/A	2.6
RESID	-0.6	N/A	N/A	-0.9

```
          TRACKING  ------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS  -0.385HZ C NOS 0.004HZ EXP 0.004HZ
          MONITOR   ------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A
          COMMENTS  ------------------------------------------------
```

PN9CK266377

```
1434  722650654    722651930    1434
          DSS 51 PASS 1434 CL B-A CTDN 303314 GCF S20J CPS  N/A DSS J200
          CONFIG    ------------------------------------------------
                    AOS DOY 265  LOS DOY 265         TOTAL
                    SCHEDULED 0900Z SCHEDULED 1930Z SCHEDULED 10H 30M
                    ACTUAL    0854Z ACTUAL    1930Z ACTUAL    10H 36M
                    ST XFR    N/A Z RELEASE   1944Z DSS TIME  10H 50M
          COMMAND   ------------------------------------------------
                    TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
          TELEMETRY ------------------------------------------------
                    POWER  10KW  BIT RATES          64  CODED
                           RX 1   RX 2  TCP A     TCP B
                    ACTUAL 159.8    N/A   N/A      1.8
                    PREDIC 159.1    N/A   N/A      2.6
                    RESID   -0.7    N/A   N/A     -0.8
          TRACKING  ------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS  -0.354HZ C NOS 0.004HZ EXP 0.004HZ
          MONITOR   ------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A
          COMMENTS  ------------------------------------------------
          NONE
```

PN9CK266396

```
1437  722692339    722900430    1437
          DSS 12 PASS 1437 CL A-A CTDN 000314 GCF S20B CPS N/A  DSS B000
          CONFIG    ------------------------------------------------
                    AOS DOY 289  LOS DOY 290         TOTAL
                    SCHEDULED 0100Z SCHEDULED 0430Z SCHEDULED  3H 30M
                    ACTUAL    0039Z ACTUAL    0330Z ACTUAL    03H 51M
                    ST XFR    N/R Z RELEASE   0435Z DSS TIME   4H 56M
          COMMAND   ------------------------------------------------
                    TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
          TELEMETRY ------------------------------------------------
                    POWER  10KW  BIT RATES   64  CODED GOE
                           RX 1   RX 2  TCP A     TCP B
                    ACTUAL 159.6  N/A     3.1      N/A
                    PREDIC 159.0  N/A     3.1      N/A
                    RESID   -0.6  N/A     0.0      N/A
          TRACKING  ------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS N/A    HZ C NOS  .004HZ EXP  .005HZ
          MONITOR   ------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS  N/A   N/A   N/A   N/A
                    TCP  N/A   N/A   N/A   N/A
          COMMENTS  ------------------------------------------------
          TURNED AROUND FROM PA-10 AOS EARLY
```

PN9CL266515

```
1461  723120920    723122100    1461
          DSS 51 PASS 1461 CL F-A CTDN 202314 GCF S20J CPS  N/A DSS J200
          CONFIG    ------------------------------------------------
                    AOS DOY 312  LOS DOY 312         TOTAL
                    SCHEDULED 0930Z SCHEDULED 2100Z SCHEDULED 10H 30M
                    ACTUAL    0920Z ACTUAL    2100Z ACTUAL    10H 40M
                    ST XFR        Z RELEASE   2100Z DSS TIME  10H 40M
```

```
          COMMAND  ------------------------------------------------------
                   TOTAL  22  AUTO   0  MANUAL  22  ABORT   0
          TELEMETRY ----------------------------------------------------
                   POWER  10KW  BIT RATES 16  CODED   N/A
                          RX 1   RX 2  TCP A 16  TCP   N/A
                   ACTUAL 159.5    N/A   78.5       N/A
                   PREDIC 159.1    N/A   79.0       N/A
                   RESID   -0.4    N/A      0       N/A
          TRACKING ----------------------------------------------------
                   TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
                   DOP BIAS   +.617HZ C NCS  .004HZ EXP  .005HZ
          MONITOR  ----------------------------------------------------
                        LGWR  LGER  BLRC  BLER
                   DIS   N/A   N/A   N/A   N/A
                   TCP   N/A   N/A   N/A   N/A

          COMMENTS ----------------------------------------------------
          DR-T-2343 TCP PROGRAM HAD TO BE RESTARTED TIME

 PN9CLZ66520

1462  723130925    723132100    1462
          DSS 51 PASS 1462 CL B-A CTDN 303314 GCF S20J CPS TC11 DSS J200
          CONFIG   ----------------------------------------------------
                   AOS DOY 313  LOS DOY 313         TOTAL
                   SCHEDULED 0930Z SCHEDULED 2100Z SCHEDULED 11H 30M
                   ACTUAL    0924Z ACTUAL    2100Z ACTUAL    11H 36M
                   ST XFR     N/AZ RELEASE   2109Z DSS TIME  11H 45M
          COMMAND  ----------------------------------------------------
                   TOTAL  23  AUTO   0  MANUAL  23  ABORT   0
          TELEMETRY ----------------------------------------------------
                   POWER  10KW  BIT RATES 64  CODED    N/A
                          RX 1   RX 2  TCP   64  TCP    N/A
                   ACTUAL 159.6    N/A   1.5       N/A
                   PREDIC 159.1    N/A   2.5       N/A
                   RESID   -0.5    N/A  -1.0       N/A
          TRACKING ----------------------------------------------------
                   TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
                   DOP BIAS   +.647HZ C NCS  .004HZ EXP  .005HZ
          MONITOR  ----------------------------------------------------
                        LGWR  LGER  BLRC  BLER
                   DIS   N/A   N/A   N/A   N/A
                   TCP   N/A   N/A   N/A   N/A

          COMMENTS ----------------------------------------------------

 PN9CLZ66532

1465  723161954    723170400    1465
          DSS 12 PASS 1465 CL B-A CTDN 303314 GCF S20B CPS TC11 DSS B200
          CONFIG   ----------------------------------------------------
                   AOS DOY 316  LOS DOY 317         TOTAL
                   SCHEDULED 1949Z SCHEDULED 0400Z SCHEDULED 08H 11M
                   ACTUAL    1954Z ACTUAL    0400Z ACTUAL    08H 06M
                   ST XFR     N/A Z RELEASE  0400Z DSS TIME  08H 06M
          COMMAND  ----------------------------------------------------
                   TOTAL  31  AUTO   0  MANUAL  31  ABORT   0
          TELEMETRY ----------------------------------------------------
                   POWER  10KW  BIT RATES 64  CODED  GDE
                          RX 1   RX 2  TCP A     TCP B
                   ACTUAL 159.6    N/A   2.0       N/A
                   PREDIC 159.2    N/A   3.6       N/A
                   RESID   -0.4    N/A  -1.6       N/A
          TRACKING ----------------------------------------------------
                   TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                   DOP BIAS  +0.789HZ C NCS 0.004HZ EXP 0.005HZ
          MONITOR  ----------------------------------------------------
                        LGWR  LGER  BLRC  BLER
                   DIS   N/A   N/A   N/A   N/A
                   TCP   N/A   N/A   N/A   N/A

          COMMENTS ----------------------------------------------------
          NONE
```

PN9CLZ66545

```
1468  723190925    723192100    1468
      DSS 51 PASS 1468 CL F-A CTDN 202314 GCF S20J CPS TC11 DSS J20C
      CONFIG   ------------------------------------------------------
               AOS DOY 319  LOS DOY 319          TOTAL
               SCHEDULED 0930Z SCHEDULED 2100Z SCHEDULED 11H 30M
               ACTUAL    0925Z ACTUAL    2100Z ACTUAL    11H 35M
               ST XFR        Z RELEASE   2100Z DSS TIME  11H 35M
      COMMAND  ------------------------------------------------------
               TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  10KW  BIT RATES 64 CODED    N/A
                      RX 1   RX 2  TCP A 64  TCP   N/A
               ACTUAL 160.4    N/A   1.3       N/A
               PREDIC 159.2    N/A   2.5       N/A
               RESID   -1.2    N/A  -1.2       N/A
      TRACKING ---------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
               DOP BIAS  +0.881HZ C NCS 0.004HZ EXP 0.004HZ
      MONITOR  ---------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS   N/A   N/A   N/A   N/A
               TCP   N/A   N/A   N/A   N/A

      COMMENTS ---------------------------------------------------
      NONE
```

PN9CLZ66550

```
1469  723200930    723202100    1469
      DSS 51 PASS 1469 CL B-A CTDN 303314 GCF S20J CPS TC11 DSS J20C
      CONFIG   ------------------------------------------------------
               AOS DOY 320  LOS DOY 320          TOTAL
               SCHEDULED 0930Z SCHEDULED 2100Z SCHEDULED 11H 30M
               ACTUAL    0920Z ACTUAL    2100Z ACTUAL    11H 40M
               ST XFR        Z RELEASE   2100Z DSS TIME  11H 40M
      COMMAND  ------------------------------------------------------
               TOTAL   5  AUTO   0  MANUAL   5  ABORT   1
      TELEMETRY ----------------------------------------------------
               POWER  10KW  BIT RATES 64  CODED   N/A
                      RX 1   RX 2  TCP A 64  TCP   N/A
               ACTUAL 160.2    N/A   1.4       N/A
               PREDIC 159.2    N/A   2.5       N/A
               RESID   -1.0    N/A  -1.1       N/A
      TRACKING ---------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
               DOP BIAS   0.919HZ C NCS  .004HZ EXP  .005HZ
      MONITOR  ---------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS   N/A   N/A   N/A   N/A
               TCP   N/A   N/A   N/A   N/A
      COMMENTS ---------------------------------------------------
      2030Z,CMD 016 ABORTED DUE TO BIT VERIFY FAILURE,RESENT AT 2031Z
      DR-T-2357
```

PN9CLZ66556

```
1470  723211402    723212030    1470
      DSS 62 PASS 1470 CL B-A CTDN 303324 GCF S21L CPS TC11 DSS L20C
      CONFIG   ------------------------------------------------------
               AOS DOY 321  LOS DOY 321          TOTAL
               SCHEDULED 1400Z SCHEDULED 2030Z SCHEDULED 05H 30M
               ACTUAL    1402Z ACTUAL    2030Z ACTUAL    05H 28M
               ST XFR        Z RELEASE   2030Z DSS TIME  05H 28M
      COMMAND  ------------------------------------------------------
               TOTAL   9  AUTO   0  MANUAL   9  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  10KW  BIT RATES 16  CODED    N/A
                      RX 1   RX 2  TCP A 16  TCP   N/A
               ACTUAL 159.6    N/A  10.2       N/A
               PREDIC 159.2    N/A  10.8       N/A
               RESID   -0.4    N/A  -0.6       N/A
```

```
          TRACKING  ------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
                    DOP BIAS   0.986HZ C NCS  .CC4HZ EXP  .CC5HZ
          MONITOR   ------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------
          NONE

 PN9CLZ66562

1471  723221400    723222030    1471
          DSS 62 PASS 1472 CL B-A CTON 303324 GCF S21L CPS T011 DSS L000
          CONFIG    ------------------------------------------------
                    AOS DOY 322  LOS DOY 322         TOTAL
                    SCHEDULED 1400Z SCHEDULED 2030Z SCHEDULED 06H 30M
                    ACTUAL    1400Z ACTUAL    2030Z ACTUAL    06H 30M
                    ST XFR        Z RELEASE   2030Z DSS TIME  06H 30M
          COMMAND   ------------------------------------------------
                    TOTAL   7  AUTO   0  MANUAL   7  ABORT   0
          TELEMETRY ------------------------------------------------
                    POWER  10KW  BIT RATES 16 CODED    CODED
                           RX 1   RX 2  TCP A 16  TCP A
                    ACTUAL 159.4    N/A  10.4       7.4
                    PREDIC 159.3    N/A  10.9       7.7
                    RESID   -0.1    N/A  -0.5      -0.3
          TRACKING  ------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
                    DOP BIAS  +1.028HZ C NCS  .004HZ EXP  .CC5HZ
          MONITOR   ------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------
          NONE

 PN9CLZ66574

1475  723260925    723262100    1475
          DSS 51 PASS 1475 CL F-A CTON 202314 GCF S20J CPS T011 DSS J200
          CONFIG    ------------------------------------------------
                    AOS DOY 326  LOS DOY 326         TOTAL
                    SCHEDULED 0930Z SCHEDULED 2100Z SCHEDULED 11H 30M
                    ACTUAL    0925Z ACTUAL    2100Z ACTUAL    11H 35M
                    ST XFR    N/A Z RELEASE   2106Z DSS TIME  11H 31M
          COMMAND   ------------------------------------------------
                    TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
          TELEMETRY ------------------------------------------------
                    POWER  10KW  BIT RATES  N/A      64
                           RX 1   RX 2  TCP   N/A TCP B 64
                    ACTUAL 160.6   N/A    N/A       0.9
                    PREDIC 159.4   N/A   N/A        1.7
                    RESID   -0.7   N/A    N/A      -0.8
          TRACKING  ------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS   1.141HZ C NCS 0.004HZ EXP 0.005HZ
          MONITOR   ------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCPB  N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------

 PN9CLZ66578

1476  723270924    723272102    1476
          DSS 51 PASS 1476 CL B-A CTON 303314 GCF S20J CPS TCLL DSS J200
          CONFIG    ------------------------------------------------
                    AOS DOY 327  LOS DOY 327         TOTAL
                    SCHEDULED 0930Z SCHEDULED 2100Z SCHEDULED 11H 30M
                    ACTUAL    0924Z ACTUAL    2102Z ACTUAL    11H 38M
                    ST XFR        Z RELEASE   2113Z DSS TIME  11H 49M
```

```
          COMMAND   ------------------------------------------------
                    TOTAL    5  AUTO    0  MANUAL    5  ABORT    0
          TELEMETRY ------------------------------------------------
                    POWER  10KW  BIT RATES 64 CODED      N/A
                           RX 1    RX 2  TCP B 64  TCP    N/A
                    ACTUAL 160.4     N/A    1.0        N/A
                    PREDIC 159.4     N/A    1.7        N/A
                    RESID   -1.0     N/A   -0.7        N/A
          TRACKING  ------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
                    DOP BIAS  +1.177HZ C NCS 0.004HZ EXP 0.004HZ
          MONITOR   ------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A  N/A    N/A
                    TCP   N/A   N/A  N/A    N/A

          COMMENTS  ------------------------------------------------
          1952Z TXR FAILED DUE TO A POWER GLITCH, TXR ON @ 2039Z- DR-T-
          2365.


 PN9CLZ66582

1477  723280253    723281000    1477
          DSS 41 PASS 1477 CL 8-A CTDN 303324 GCF S20F CPS TOLL DSS F000
          CONFIG    ------------------------------------------------
                    AOS DOY 328  LOS DOY 328          TOTAL
                    SCHEDULED 0230Z SCHEDULED 1000Z SCHEDULED 07H 30M
                    ACTUAL    0254Z ACTUAL    1000Z ACTUAL    07H 06M
                    ST XFR         Z RELEASE  1000Z DSS TIME  07H 06M
          COMMAND   ------------------------------------------------
                    TOTAL    2  AUTO    0  MANUAL    2  ABORT    0
          TELEMETRY ------------------------------------------------
                    POWER  10KW  BIT RATES 64  CODED     N/A
                           RX 1    RX 2  TCP A 64  TCP    N/A
                    ACTUAL 160.4     N/A   11.4        N/A
                    PREDIC 159.4     N/A   10.7        N/A
                    RESID   -1.0     N/A   +0.7        N/A
          TRACKING  ------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
                    DOP BIAS   1.209HZ C NCS  .004HZ EXP  .005HZ
          MONITOR   ------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------
          0230Z-AOS DELAYED DUE TO A SOFTWARE PROB.IN DCI 5033 WHERE CMA
          WILL NOT GO ACTIVE.DR-T-2366. ACTUAL AOS-0253Z.


 PN9CLZ66589

1478  723290231    723291000    1478
          DSS 41 PASS 1478 CL 8-A CTDN 303324 GCF S20F CPS TOLL DSS F000
          CONFIG    ------------------------------------------------
                    AOS DOY 329  LOS DOY 329          TOTAL
                    SCHEDULED 0230Z SCHEDULED 1000Z SCHEDULED 07H 30M
                    ACTUAL    0231Z ACTUAL    1000Z ACTUAL    07H 29M
                    ST XFR         Z RELEASE  1000Z DSS TIME  07H 29M
          COMMAND   ------------------------------------------------
                    TOTAL    3  AUTO    0  MANUAL    3  ABORT    0
          TELEMETRY ------------------------------------------------
                    POWER  10KW  BIT RATES 16 CODED      N/A
                           RX 1    RX 2  TCP   16  TCP    N/A
                    ACTUAL 160.4     N/A   11.3        N/A
                    PREDIC 159.5     N/A   11.4        N/A
                    RESID   -0.9     N/A   -0.1        N/A
          TRACKING  ------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
                    DOP BIAS   1.245HZ C NCS 0.005HZ EXP 0.005HZ
          MONITOR   ------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A
```

```
          COMMENTS  ------------------------------------------------
          CMD TIMES:0259Z-0951Z

 PN9CLZ66602

1482  723330925    723332100    1482
          DSS 51 PASS 1482 CL F-A CTDN 202314 GCF S20J CPS  N/A DSS J200
          CONFIG    ------------------------------------------------
                    AOS DOY 333  LOS DOY 333         TOTAL
                    SCHEDULED 0930Z SCHEDULED 2100Z SCHEDULED 11H 30M
                    ACTUAL    0925Z ACTUAL    2100Z ACTUAL    11H 35M
                    ST XFR       Z RELEASE    2122Z DSS TIME  11H 57M
          COMMAND   ------------------------------------------------
                    TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
          TELEMETRY ------------------------------------------------
                    POWER  10KW  BIT RATES 64  CODED    N/A
                           RX 1    RX 2  TCP A 64  TCP    N/A
                    ACTUAL 160.9    N/A    .7       N/A
                    PREDIC 159.6    N/A   1.4       N/A
                    RESID   -1.3    N/A   -.7       N/A
          TRACKING  ------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
                    DOP BIAS  +1.399HZ C NCS  .004HZ EXP  .005HZ
          MONITOR   ------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------
          CMD TIMES:1001Z-2100Z

 PN9CLZ66606

1483  723340927    723342100    1483
          DSS 51 PASS 1483 CL B-A CTDN 303314 GCF S20J CPS  N/A DSS J2000
          CONFIG    ------------------------------------------------
                    AOS DOY 334  LOS DOY 334         TOTAL
                    SCHEDULED 0930Z SCHEDULED 2100Z SCHEDULED 11H 30M
                    ACTUAL    0927Z ACTUAL    2100Z ACTUAL    11H 33M
                    ST XFR      N/AZ RELEASE   2118Z DSS TIME  11H 51M
          COMMAND   ------------------------------------------------
                    TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
          TELEMETRY ------------------------------------------------
                    POWER  10KW  BIT RATES 10           N/A
                           RX 1    RX 2  TCP A N/A TCP  N/A
                    ACTUAL 160.6    N/A   0.8       N/A
                    PREDIC 159.6    N/A   1.4       N/A
                    RESID   +1.0    N/A  -0.6       N/A
          TRACKING  ------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
                    DOP BIAS  +1.436HZ C NCS  .004HZ EXP  .005HZ
          MONITOR   ------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS   N/A   N/A   N/A   N/A
                    TCP   N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------
          CMD TIMES:1003Z-2100Z

 PN9CLZ66614

1484  72335140C    72335203C    1484
          DSS 62 PASS 1484 CL B-A CTDN 303324 GCF S21L CPS  N/A DSS L00C
          CONFIG    ------------------------------------------------
                    AOS DOY 335  LOS DOY 335         TOTAL
                    SCHEDULED 1400Z SCHEDULED 2030Z SCHEDULED 06H 30M
                    ACTUAL    1400Z ACTUAL    2030Z ACTUAL    06H 30M
                    ST XFR      N/AZ RELEASE   2030Z DSS TIME  06H 30M
          COMMAND   ------------------------------------------------
                    TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
```

```
TELEMETRY ------------------------------------------------
          POWER  10KW  BIT RATES 16          N/A
                 RX 1   RX 2  TCP A  16 TCP   N/A
          ACTUAL 159.5    N/A  10.6       N/A
          PREDIC 159.6    N/A  10.7       N/A
          RESID   +0.1    N/A  -0.1       N/A
TRACKING  ------------------------------------------------
          TRACK MD  2 WAY RANGING NIL BIAS  N/ARU NOISE  N/ARU
          DOP BIAS   1.507HZ C NOS 0.004HZ EXP 0.005HZ
MONITOR   ------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/A   N/A   N/A   N/A
          TCP   N/A   N/A   N/A   N/A

COMMENTS  ------------------------------------------------
1400Z-1630Z-TROMPETER MISPATCH CAUSED NO FR-1400 RECORDING OF
SCA OUTPUT FROM AOS UNTIL 1630Z COOR CK -CR T2376.
CMD TIMES:14372-2030Z
```

PN9CMZ66618

```
1485  723361400    723362030    1485
      DSS 62 PASS 1485 CL B-A CTDN 303324 GCF S21L CPS  N/A DSS L000
CONFIG    ------------------------------------------------
          AOS DOY 336  LOS DOY 336         TOTAL
          SCHEDULED 1400Z SCHEDULED 2030Z SCHEDULED 06H 30M
          ACTUAL    1400Z ACTUAL    2030Z ACTUAL    06H 30M
          ST XFR     N/AZ RELEASE   2032Z DSS TIME  06H 32M
COMMAND   ------------------------------------------------
          TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
TELEMETRY ------------------------------------------------
          POWER  10KW  BIT RATES 16          N/A
                 RX 1   RX 2  TCP A 16  TCP   N/A
          ACTUAL 159.6    N/A  10.5       N/A
          PREDIC 159.0    N/A  10.6       N/A
          RESID     0     N/A  -0.1       N/A
TRACKING  ------------------------------------------------
          TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE  N/ARU
          DOP BIAS  +1.548HZ C NOS  .004HZ EXP  .005HZ
MONITOR   ------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/A   N/A   N/A   N/A
          TCP   N/A   N/A   N/A   N/A

COMMENTS  ------------------------------------------------
CMD TIMES:1430Z-2030Z
```

PN9CMZ66631

```
1489  723400929    723402100    1489
      DSS 51 PASS 1489 CL F-A CTDN 202314 GCF S20J CPS  N/A DSS J200
CONFIG    ------------------------------------------------
          AOS DOY 340  LOS DOY 340         TOTAL
          SCHEDULED 0930Z SCHEDULED 2100Z SCHEDULED 11H 30M
          ACTUAL    0929Z ACTUAL    2105Z ACTUAL    11H 31M
          ST XFR     N/AZ RELEASE   2105Z DSS TIME  11H 36M
COMMAND   ------------------------------------------------
          TOTAL   5  AUTO   0  MANUAL   5  ABORT   0
TELEMETRY ------------------------------------------------
          POWER  10KW  BIT RATES 64          16
                 RX 1   RX 2  TCP A      TCP B
          ACTUAL 160.6    N/A   2.0        7.3
          PREDIC 159.8    N/A   2.2        6.7
          RESID   +0.8    N/A  -0.2        0.6
TRACKING  ------------------------------------------------
          TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
          DOP BIAS  +1.629HZ C NOS  .004HZ EXP  .005HZ
MONITOR   ------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/A   N/A   N/A   N/A
          TCP   N/A   N/A   N/A   N/A

COMMENTS  ------------------------------------------------
CMD PERIOD:0952Z-2100Z
```

PN9CMZ66635

```
1490  723410934    723412100    1490
        DSS 51 PASS 1490 CL D-A CTDN 303214 GCF S205 CPS  N/A DSS J200
        CONFIG   ------------------------------------------------------
                 AOS DOY 341  LOS DOY 341         TOTAL
                 SCHEDULED 0930Z SCHEDULED 2100Z SCHEDULED 11H 30M
                 ACTUAL    0934Z ACTUAL    2100Z ACTUAL    11H 26M
                 ST XFR     N/AZ RELEASE   2101Z DSS TIME  11H 27M
        COMMAND  ------------------------------------------------------
                 TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
        TELEMETRY ----------------------------------------------------
                 POWER  10KW  BIT RATES 16  CODED 64  MMT
                        RX 1   RX 2  TCP A     TCP A
                 ACTUAL 160.8    N/A   7.0       2.1
                 PREDIC 159.8    N/A   6.6       2.1
                 RESID  -1.0     N/A  +0.4         0
        TRACKING ------------------------------------------------------
                 TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                 DOP BIAS   1.663HZ C NOS  .004HZ EXP . 005HZ
        MONITOR  ------------------------------------------------------
                      LGWR  LGER  BLRC  BLER
                 DIS   N/A   N/A   N/A   N/A
                 TCP   N/A   N/A   N/A   N/A

        COMMENTS ------------------------------------------------------
        NONE
```

PN9CMZ66638

```
1490  723412019    723420400    1490
        DSS 12 PASS 1490 CL B-A CTDN 303314 GCF S208 CPS  N/A DSS B200
        CONFIG   ------------------------------------------------------
                 AOS DOY 341  LOS DOY 342         TOTAL
                 SCHEDULED 2030Z SCHEDULED 0400Z SCHEDULED 07H 30M
                 ACTUAL    2019Z ACTUAL    0400Z ACTUAL    07H 41M
                 ST XFR     N/AZ RELEASE   0406Z DSS TIME  07H 47M
        COMMAND  ------------------------------------------------------
                 TOTAL   1  AUTO   0  MANUAL   1  ABORT   0
        TELEMETRY ----------------------------------------------------
                 POWER  10KW  BIT RATES 16  CODED     GOE
                        RX 1   RX 2  TCP A N/A TCP    N/A
                 ACTUAL 160.1    N/A   8.0        N/A
                 PREDIC 159.8    N/A   8.2        N/A
                 RESID   -0.3    N/A  -0.2        N/A
        TRACKING ------------------------------------------------------
                 TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE  N/ARU
                 DOP BIAS   1.701HZ C NOS 0.004HZ EXP 0.005HZ
        MONITOR  ------------------------------------------------------
                      LGWR  LGER  BLRC  BLER
                 DIS   N/A   N/A   N/A   N/A
                 TCP   N/A   N/A   N/A   N/A

        COMMENTS ------------------------------------------------------
        2133Z ACQ ON SIDEBAND 0054Z-0101Z TCP-A RE-LOAD DUE TO CMD EN-
        CODER ERROR LIGHT SHOWS ON  REF. DR-T2384. RELOAD DID NOT CURE
        PROBLEM, SWITCHED TO TCP-B
```

PN9CMZ66641

```
1491  723421400    723422030    1491
        DSS 62 PASS 1491 CL B-A CTDN 303314 GCF S20L CPS  N/A DSS L000
        CONFIG   ------------------------------------------------------
                 AOS DOY 342  LOS DOY 342         TOTAL
                 SCHEDULED 1400Z SCHEDULED 2030Z SCHEDULED 06H 30M
                 ACTUAL    1400Z ACTUAL    2030Z ACTUAL    06H 30M
                 ST XFR     N/AZ RELEASE   2031Z DSS TIME  06H 31M
        COMMAND  ------------------------------------------------------
                 TOTAL   5  AUTO   0  MANUAL   5  ABORT   0
```

```
TELEMETRY ----------------------------------------------------
          POWER  10KW  BIT RATES 64  CODED     MMT
                 RX 1   RX 2  TCP A      TCP
          ACTUAL 159.8    N/A   5.0        N/A
          PREDIC 159.8    N/A   4.7        N/A
          RESID    0      N/A   0.3        N/A
TRACKING   ---------------------------------------------------
          TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
          DOP BIAS   1.750HZ C NOS 0.004HZ EXP 0.005HZ
MONITOR    ---------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS   N/A   N/A   N/A   N/A
          TCP   N/A   N/A   N/A   N/A

COMMENTS   ---------------------------------------------------
NONE
```

PN9CMZ66657

```
1496  723470933    723472100    1496
      DSS 51 PASS 1496 CL F-A CTDN 202314 GCF S20J CPS T011 DSS J200
      CONFIG   -----------------------------------------------
               AOS DOY 347  LOS DOY 347         TOTAL
               SCHEDULED 0930Z SCHEDULED 2100Z SCHEDULED 11H 30M
               ACTUAL    0933Z ACTUAL    2100Z ACTUAL    11H 27M
               ST XFR     N/AZ RELEASE   2100Z DSS TIME  11H 27M
      COMMAND  -----------------------------------------------
               TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
      TELEMETRY ----------------------------------------------
               POWER  10KW  BIT RATES 16 CODED  64      MMT
                      RX 1   RX 2  TCP A      TCP A
               ACTUAL 160.9  N/A     7.0       2.2
               PREDIC 159.9  N/A     7.2       2.0
               RESID   -1.0  N/A    -0.2       0.2
      TRACKING ---------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
               DOP BIAS   1.868HZ C NOS 0.004HZ EXP 0.005HZ
      MONITOR  ---------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS  N/A   N/A   N/A   N/A
               TCP  N/A   N/A   N/A   N/A

      COMMENTS ---------------------------------------------
      CMD TIMES:-1002Z-2100Z
```

PN9CMZ66662

```
1497  723480933    723482100    1497
      DSS 51 PASS 1497 CL B-A CTDN 303314 GCF S20J CPS T011 DSS J200
      CONFIG   -----------------------------------------------
               AOS DOY 348  LOS DOY 348         TOTAL
               SCHEDULED 0930Z SCHEDULED 2100Z SCHEDULED 11H 30M
               ACTUAL    0933Z ACTUAL    2100Z ACTUAL    11H 27M
               ST XFR    0933Z RELEASE   2100Z DSS TIME  11H 27M
      COMMAND  -----------------------------------------------
               TOTAL   5  AUTO   0  MANUAL   5  ABORT   0
      TELEMETRY ----------------------------------------------
               POWER  10KW  BIT RATES 64 CODED  N/A     MMT
                      RX 1   RX 2  TCP A      TCP
               ACTUAL 161.1  N/A     1.8       N/A
               PREDIC 160.0  N/A     1.8       N/A
               RESID    1.1  N/A       0       N/A
      TRACKING ---------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
               DOP BIAS   1.898HZ C NOS 0.004HZ EXP 0.005HZ
      MONITOR  ---------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS  N/A   N/A   N/A   N/A
               TCP  N/A   N/A   N/A   N/A
```

```
          COMMENTS  ------------------------------------------------------
          1133Z-1149Z,FOL UNABLE TO LOCK BACK UP,RESTART PROGRAM,NO GOOD,
          RELOAD REQ, DR-T2388.
          1333Z-1400Z,TXR TRIPPED OFF-COLLECTOR FLOW,DR-T2389.
          CMD TIMES-1010Z-2100Z.


 PN9CMZ66666

1498  723491400    723492030    1498
          DSS 62 PASS 1498 CL B-A CTDN 303314 GCF S00L CPS T011 DSS L000
          CONFIG    ------------------------------------------------------
                    AOS DOY 349  LOS DOY 349         TOTAL
                    SCHEDULED 1400Z SCHEDULED 2030Z SCHEDULED 06H 30M
                    ACTUAL    1400Z ACTUAL    2030Z ACTUAL    06H 30M
                    ST XFR     N/A Z RELEASE  2037Z DSS TIME  06H 37M
          COMMAND   ------------------------------------------------------
                    TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
          TELEMETRY ------------------------------------------------------
                    POWER  10KW  BIT RATES 64 CODED  N/A     MMT
                           RX 1   RX 2  TCP A      TCP
                    ACTUAL 159.3  N/A     10.5       N/A
                    PREDIC 160.0  N/A     10.4       N/A
                    RESID    0.7  N/A      0.1       N/A
          TRACKING  ------------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS   2.008HZ C NOS 0.004HZ EXP 0.005HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS  N/A   N/A   N/A   N/A
                    TCP  N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
          NONE


 PN9CMZ66670

1499  723501400    723502030    1499
          DSS 62 PASS 1499 CL B-A CTDN 303314 GCF S20L CPS T011 DSS L000
          CONFIG    ------------------------------------------------------
                    AOS DOY 350  LOS DOY 350         TOTAL
                    SCHEDULED 1400Z SCHEDULED 2030Z SCHEDULED 06H 30M
                    ACTUAL    1400Z ACTUAL    2030Z ACTUAL    06H 30M
                    ST XFR     N/A Z RELEASE  2045Z DSS TIME  06H 45M
          COMMAND   ------------------------------------------------------
                    TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
          TELEMETRY ------------------------------------------------------
                    POWER  10KW  BIT RATES 16 CODED  N/A     MMT
                           RX 1   RX 2  TCP A      TCP
                    ACTUAL 160.1  N/A     10.5       N/A
                    PREDIC 160.0  N/A     10.4       N/A
                    RESID   -0.1  N/A      0.1       N/A
          TRACKING  ------------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS   2.012HZ C NOS 0.004HZ EXP 0.005HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS  N/A   N/A   N/A   N/A
                    TCP  N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
          NONE  CMD TIMES: 5HRS  45MIN.


 PN9CMZ66692

1504  723551400    723552030    1504
          DSS 62 PASS 1504 CL  -  CTDN N/A    GCF S20L CPS T011 DSS L000
          CONFIG    ------------------------------------------------------
                    AOS DOY 355  LOS DOY 355         TOTAL
                    SCHEDULED 1400Z SCHEDULED 2030Z SCHEDULED 06H 30M
                    ACTUAL    1400Z ACTUAL    2030Z ACTUAL    06H 30M
                    ST XFR     N/A Z RELEASE  2037Z DSS TIME  06H 37M
```

```
COMMAND    ------------------------------------------------
           TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
TELEMETRY  ------------------------------------------------
           POWER  10KW  BIT RATES 16          N/A     MMT
                 RX 1    RX 2  TCP A      TCP
           ACTUAL 160.6  N/A     10.3       N/A
           PREDIC 160.1  N/A     10.4       N/A
           RESID   -0.5  N/A     -0.1       N/A
TRACKING   ------------------------------------------------
           TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
           DOP BIAS     .530HZ C NOS  .004HZ EXP  .005HZ
MONITOR    ------------------------------------------------
                LGWR  LGER  BLRC  BLER
           DIS  N/A   N/A   N/A   N/A
           TCP  N/A   N/A   N/A   N/A

COMMENTS   ------------------------------------------------
NONE
```

PN9CMZ66696

```
1506  723571350    723572030    1506
      DSS 62 PASS 1506 CL B-A CTDN 303314 GCF S20L CPS T011 DSS L000
CONFIG     ------------------------------------------------
           AOS DOY 357  LOS DOY 357          TOTAL
           SCHEDULED 1400Z SCHEDULED 2030Z SCHEDULED 06H 50M
           ACTUAL    1350Z ACTUAL    2030Z ACTUAL    06H 40M
           ST XFR    N/A Z RELEASE   2034Z DSS TIME  06H 44M
COMMAND    ------------------------------------------------
           TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
TELEMETRY  ------------------------------------------------
           POWER  10KW  BIT RATES 16          N/A     MMT
                 RX 1    RX 2  TCP A      TCP
           ACTUAL 160.8  N/A     9.9        N/A
           PREDIC 160.2  N/A    10.3        N/A
           RESID    -.6  N/A     -.4        N/A
TRACKING   ------------------------------------------------
           TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
           DOP BIAS     .557HZ C NOS  .005HZ EXP  .005HZ
MONITOR    ------------------------------------------------
                LGWR  LGER  BLRC  BLER
           DIS  N/A   N/A   N/A   N/A
           TCP  N/A   N/A   N/A   N/A

COMMENTS   ------------------------------------------------
CMD TIME 1432Z-2030Z  5HRS 58MIN.
```

PN9CMZ66705

```
1509  723600955    723601930    1509
      DSS 51 PASS 1509 CL F-A CTDN 302212 GCF S20J CPS T011 DSS J200
CONFIG     ------------------------------------------------
           AOS DOY 360  LOS DOY 360          TOTAL
           SCHEDULED 1000Z SCHEDULED 1930Z SCHEDULED 09H 30M
           ACTUAL    0955Z ACTUAL    1930Z ACTUAL    09H 35M
           ST XFR    N/A Z RELEASE   1932Z DSS TIME  09H 37M
COMMAND    ------------------------------------------------
           TOTAL   3  AUTO   0  MANUAL   3  ABORT   0
TELEMETRY  ------------------------------------------------
           POWER  10KW  BIT RATES 16 CODED  N/A     MMT
                 RX 1    RX 2  TCP A      TCP
           ACTUAL 160.6  N/A     9.6        N/A
           PREDIC 160.2  N/A     9.6        N/A
           RESID    -.4  N/A     0.0        N/A
TRACKING   ------------------------------------------------
           TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
           DOP BIAS   0.539HZ C NOS 0035 HZ EXP  .005HZ
MONITOR    ------------------------------------------------
                LGWR  LGER  BLRC  BLER
           DIS  N/A   N/A   N/A   N/A
           TCP  N/A   N/A   N/A   N/A

COMMENTS   ------------------------------------------------
CMD TIME: 1027Z-1930Z
```

PN9CMZ66710

```
1510  723611510    723611930    1510
          DSS 51 PASS 1510 CL 8-A CTDN 303314 GCF S20J CPS T011 DSS J200
          CONFIG    ------------------------------------------------------
                    AOS DOY 361  LOS DOY 361         TOTAL
                    SCHEDULED 1000Z SCHEDULED 1930Z SCHEDULED 09H 30M
                    ACTUAL    0955Z ACTUAL    1930Z ACTUAL    09H 35M
                    ST XFR    N/A Z RELEASE   1933Z DSS TIME  09H 38M
          COMMAND   ------------------------------------------------------
                    TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
          TELEMETRY ------------------------------------------------------
                    POWER  10KW  BIT RATES 16 CODED  N/A    MMT
                           RX 1   RX 2  TCP A     TCP
                    ACTUAL 161.1  N/A     6.0      N/A
                    PREDIC 160.2  N/A     6.4      N/A
                    RESID    0.9  N/A    -0.4      N/A
          TRACKING  ------------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS   0.533HZ C NOS  .004HZ EXP   005HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS  N/A   N/A   N/A   N/A
                    TCPA N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
          CMD TIMES:1026Z-1930Z
```

PN9CMZ66715

```
1511  723620950    723621930    1511
          DSS 51 PASS 1511 CL 8-A CTDN 303314 GCF S20J CPS T011 DSS J200
          CONFIG    ------------------------------------------------------
                    AOS DOY 362  LOS DOY 362         TOTAL
                    SCHEDULED 1000Z SCHEDULED 1930Z SCHEDULED 09H 30M
                    ACTUAL    0950Z ACTUAL    1930Z ACTUAL    09H 40M
                    ST XFR    N/A Z RELEASE   1930Z DSS TIME  09H 40M
          COMMAND   ------------------------------------------------------
                    TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
          TELEMETRY ------------------------------------------------------
                    POWER  10KW  BIT RATES 16 CODED  N/A    MMT
                           RX 1   RX 2  TCP A     TCP
                    ACTUAL 161.2  N/A     6.1      N/A
                    PREDIC 160.3  N/A     6.5      N/A
                    RESID   -0.9  N/A    -0.4      N/A
          TRACKING  ------------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS   0.533HZ C NOS .0035HZ EXP  .005HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS  N/A   N/A   N/A   N/A
                    TCP  N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
          CMD TIMES:1032Z-1930Z
```

PN9CMZ66718

```
1512  723631401    723632030    1512
          DSS 62 PASS 1512 CL 8-A CTDN 303314 GCF S20L CPS T011 DSS L000
          CONFIG    ------------------------------------------------------
                    AOS DOY 363  LOS DOY 363         TOTAL
                    SCHEDULED 1400Z SCHEDULED 2030Z SCHEDULED 06H 30M
                    ACTUAL    1401Z ACTUAL    2030Z ACTUAL    06H 29M
                    ST XFR    N/A Z RELEASE   2030Z DSS TIME  06H 29M
          COMMAND   ------------------------------------------------------
                    TOTAL   6  AUTO   0  MANUAL   6  ABORT   0
          TELEMETRY ------------------------------------------------------
                    POWER  10KW  BIT RATES 64 CODED  N/A    MMT
                           RX 1   RX 2  TCP A     TCP
                    ACTUAL 160.6  N/A     4.8      N/A
                    PREDIC 160.3  N/A     4.4      N/A
                    RESID   -0.3  N/A     0.4      N/A
```

```
          TRACKING  ------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS  0.565 HZ C NOS 0.004HZ EXP 0.005HZ
          MONITOR   ------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS  N/A   N/A   N/A   N/A
                    TCP  N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------
          NONE


 PN9CMZ66723

1513  723631900    723640400    1513
          DSS 12 PASS 1513 CL B-A CTDN 303314 GCF S20B CPS T011 DSS B200
          CONFIG    ------------------------------------------------
                    AOS DOY 364  LOS DOY 365         TOTAL
                    SCHEDULED 1900Z SCHEDULED 0400Z SCHEDULED 08H 00M
                    ACTUAL    1900Z ACTUAL    0400Z ACTUAL    08H 00M
                    ST XFR    1900Z RELEASE   0400Z DSS TIME  08H 00M
          COMMAND   ------------------------------------------------
                    TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
          TELEMETRY ------------------------------------------------
                    POWER  10KW  BIT RATES 64 CODED  N/A    GOE
                           RX 1   RX 2  TCP A     TCP
                    ACTUAL 161.0  N/A     1.7      N/A
                    PREDIC 160.3  N/A     2.8      N/A
                    RESID   -0.7  N/A    -1.1      N/A
          TRACKING  ------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS   0.565HZ C NOS 0.004HZ EXP 0.005HZ
          MONITOR   ------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS  N/A   N/A   N/A   N/A
                    TCP  N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------
          CMD TIMES 1940Z-0400Z


 PN9CMZ66725

1513  723641800    723642110    1513


 PN9CMZ66726

1513  723641800    723642110    1513
          DSS 62 PASS 1513 CL B-A CTDN 303324 GCF S20L CPS T011 DSS L000
          CONFIG    ------------------------------------------------
                    AOS DOY 364  LOS DOY 364         TOTAL
                    SCHEDULED 1800Z SCHEDULED 2110Z SCHEDULED 03H 10M
                    ACTUAL    N/A Z ACTUAL    N/A Z ACTUAL      H   M
                    ST XFR    N/A Z RELEASE   N/A Z DSS TIME    H   M
          COMMENTS  ------------------------------------------------
          TRACK CANCELLED


 PN9CMZ66725

          DSS 51 PASS 1513 CL B-A CTDN 303314 GCF S20J CPS T011 DSS 3200
          CONFIG    ------------------------------------------------
                    AOS DOY 364  LOS DOY 364         TOTAL
                    SCHEDULED 1800Z SCHEDULED 2110Z SCHEDULED 03H 10M
                    ACTUAL    N/A Z ACTUAL    N/A Z ACTUAL      H   M
                    ST XFR    N/A Z RELEASE   N/A Z DSS TIME    H   M
          COMMENTS  ------------------------------------------------
          TRACK CANCELLED
```

PN9DAZ66738

```
1517  730021905    730030400    1517
      DSS 12 PASS 1517 CL B-A CTDN 303314 GCF S20B CPS T011 DSS B200
      CONFIG   ------------------------------------------------------
               AOS DOY 002  LOS DOY 003          TOTAL
               SCHEDULED 1900Z SCHEDULED 0400Z SCHEDULED 09H 00M
               ACTUAL    1945Z ACTUAL    0400Z ACTUAL    08H 15M
               ST XFR    1945Z RELEASE   0400Z DSS TIME  08H 15M
      COMMAND  ------------------------------------------------------
               TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  10KW  BIT RATES 64 CODED  N/A    GOE
                     RX 1   RX 2  TCP        TCP B
               ACTUAL 161.2  N/A     1.8       N/A
               PREDIC 160.3  N/A     1.8       N/A
               RESID   -0.9  N/A       0       N/A
      TRACKING ------------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
               DOP BIAS   0.972HZ C NOS 0.003HZ EXP 0.005HZ
      MONITOR  ------------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS  N/A   N/A   N/A   N/A
               TCP  N/A   N/A   N/A   N/A

      COMMENTS ------------------------------------------------------
      DSS-12 PN-9  P-1517 ACQUISITION DELAYED DUE TO INCORRECT ACQ
      PROCUDURES. DR-T2405 REFERS.
      CMD TIME-1954Z-0400Z
```

PN9DAZ66742

```
1518  730031900    730040400    1518
      DSS 12 PASS 1518 CL B-A CTDN 303314 GCF S20B CPS T011 DSS B200
      CONFIG   ------------------------------------------------------
               AOS DOY 003  LOS DOY 004          TOTAL
               SCHEDULED 1900Z SCHEDULED 0400Z SCHEDULED 09H 00M
               ACTUAL    1900Z ACTUAL    0400Z ACTUAL    09H 00M
               ST XFR    N/A Z RELEASE   0408Z DSS TIME  09H 08M
      COMMAND  ------------------------------------------------------
               TOTAL   5  AUTO   0  MANUAL   5  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  10KW  BIT RATES 64 CODED  N/A    GOE
                     RX 1   RX 2  TCP B     TCP
               ACTUAL 161.1  N/A     1.8       N/A
               PREDIC 160.4  N/A     1.8       N/A
               RESID   -0.7  N/A       0       N/A
      TRACKING ------------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
               DOP BIAS   1.004HZ C NOS 0.004HZ EXP 0.005HZ
      MONITOR  ------------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS  N/A   N/A   N/A   N/A
               TCP  N/A   N/A   N/A   N/A

      COMMENTS ------------------------------------------------------
      DR-N0515 DOPPLER COUNTER PROBLEM.
```

PN9DAZ66745

```
1519  730041204    730041830    1519
      DSS 61 PASS 1519 CL F-A CTDN 202314 GCF S20K CPS N/A  DSS K000
      CONFIG   ------------------------------------------------------
               AOS DOY 004  LOS DOY 004          TOTAL
               SCHEDULED 1200Z SCHEDULED 2230Z SCHEDULED 10H 30M
               ACTUAL    N/A Z ACTUAL    N/A Z ACTUAL      H   M
               ST XFR    N/A Z RELEASE   N/A Z DSS TIME     H   M
      COMMAND  ------------------------------------------------------
               TOTAL   3  AUTO   0  MANUAL   3  ABORT   0
```

```
TELEMETRY ----------------------------------------------------
          POWER N/AKW  BIT RATES N/A        N/A
                RX 1   RX 2  TCP        TCP
          ACTUAL N/A    N/A     N/A       N/A
          PREDIC N/A    N/A     N/A       N/A
          RESID  N/A    N/A     N/A       N/A
TRACKING  ----------------------------------------------------
          TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
          DOP BIAS   .963 HZ C NOS  .004HZ EXP  .005HZ
MONITOR   ----------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS  N/A   N/A   N/A   N/A
          TCP  N/A   N/A   N/A   N/A

COMMENTS  ----------------------------------------------------
DR-N0517 AOS DRIVE APOLIO CLOCK FAILURE.
```

PN9DAZ66751

```
1520  730051900    730060500    1520
      DSS 12 PASS 1520 CL B-A CTDN 303314 GCF S20B CPS T011 DSS B200
      CONFIG  ------------------------------------------------
              AOS DOY 005  LOS DOY 006         TOTAL
              SCHEDULED 2200Z SCHEDULED 0500Z SCHEDULED 07H 00M
              ACTUAL    1900Z ACTUAL    0500Z ACTUAL    10H 00M
              ST XFR    N/A Z RELEASE   0515Z DSS TIME  10H 15M
      COMMAND ------------------------------------------------
              TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
      TELEMETRY ----------------------------------------------
              POWER  10KW  BIT RATES 64 CODED  N/A
                     RX 1   RX 2  TCP B     TCP
              ACTUAL 161.2  N/A     2.0      N/A
              PREDIC 160.4  N/A     1.9      N/A
              RESID   -0.8  N/A    +0.1      N/A
      TRACKING  ----------------------------------------------
              TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
              DOP BIAS   0.995HZ C NOS 0.006HZ EXP 0.005HZ
      MONITOR ----------------------------------------------
                   LGWR  LGER  BLRC  BLER
              DIS  N/A   N/A   N/A   N/A
              TCP  N/A   N/A   N/A   N/A

      COMMENTS  ----------------------------------------------
      ENDED TRACK AT 1942Z, TURN AROUND TO PN-10 RE-ACQ AT 2300Z
      REF DR-N0520 MISSING TDH FROM 2210Z-0005Z.
```

PN9DAZ66765

```
1524  730092219    730100630    1524
      DSS 12 PASS 1524 CL B-A CTDN 303314 GCF S20B CPS T011 DSS B200
      CONFIG  ------------------------------------------------
              AOS DOY 009  LOS DOY 010         TOTAL
              SCHEDULED 2230Z SCHEDULED 0630Z SCHEDULED 08H 00M
              ACTUAL    2219Z ACTUAL    0630Z ACTUAL    08H 11M
              ST XFR    N/A Z RELEASE   0630Z DSS TIME  08H 11M
      COMMAND ------------------------------------------------
              TOTAL   5  AUTO   0  MANUAL   5  ABORT   0
      TELEMETRY ----------------------------------------------
              POWER  10KW  BIT RATES 64 CODED  N/A    MMT
                     RX 1   RX 2  TCP A     TCP
              ACTUAL 161.6  N/A     1.9      N/A
              PREDIC 160.4  N/A     1.7      N/A
              RESID   -1.2  N/A     0.2      N/A
      TRACKING  ----------------------------------------------
              TRACK MD  2 WAY RANGING N/A BIAS N/A RU NOISE N/A RU
              DOP BIAS   0.998HZ C NOS 0.004HZ EXP 0.005HZ
      MONITOR ----------------------------------------------
                   LGWR  LGER  BLRC  BLER
              DIS  N/A   N/A   N/A   N/A
              TCP  N/A   N/A   N/A   N/A

      COMMENTS  ----------------------------------------------
      CMD TIMES02303Z-0630Z
```

PN9DAZ66768

```
1525  730101200    730102230    1525
        DSS 61 PASS 1525 CL B-A CTDN 303314 GCF S00K CPS T011 DSS K000
        CONFIG    ------------------------------------------------------
                  AOS DOY 010  LOS DOY 010         TOTAL
                  SCHEDULED 1200Z SCHEDULED 2230Z SCHEDULED 10H 30M
                  ACTUAL    1200Z ACTUAL    2230Z ACTUAL    10H 30M
                  ST XFR    N/A Z RELEASE   2300Z DSS TIME  11H 00M
        COMMAND   ------------------------------------------------------
                  TOTAL   3  AUTO   0  MANUAL   3  ABORT   0
        TELEMETRY ------------------------------------------------------
                  POWER  10KW  BIT RATES 16 CODED  N/A     MMT
                         RX 1   RX 2  TCP A     TCP
                  ACTUAL 161.4  N/A     9.3       N/A
                  PREDIC 160.4  N/A     9.9       N/A
                  RESID   -1.0  N/A    -0.6       N/A
        TRACKING  ------------------------------------------------------
                  TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                  DOP BIAS    .983HZ C NOS  .003HZ EXP  .005HZ
        MONITOR   ------------------------------------------------------
                       LGWR  LGER  BLRC  BLER
                  DIS  N/A   N/A   N/A   N/A
                  TCP  N/A   N/A   N/A   N/A

        COMMENTS  ------------------------------------------------------
        CMD TIMES-1248Z-2230Z
```

PN9DAZ66773

```
1526  730120050    730120400    1526
        DSS 12 PASS 1526 CL B-A CTDN 303314 GCF S200 CPS T011 DSS B200
        CONFIG    ------------------------------------------------------
                  AOS DOY 011  LOS DOY 012         TOTAL
                  SCHEDULED 1900Z SCHEDULED 0400Z SCHEDULED  9H 00M
                  ACTUAL    0050Z ACTUAL    0400Z ACTUAL     3H 10M
                  ST XFR        Z RELEASE       Z DSS TIME     H   M
        COMMAND   ------------------------------------------------------
                  TOTAL  8   AUTO  0   MANUAL  8   ABORT  0
        TELEMETRY ------------------------------------------------------
                  POWER 10 KW  BIT RATES 16        CODED  GOE
                         RX 1   RX 2  TCP A     TCP
                  ACTUAL 160.9   N/A     7.3       N/A
                  PREDIC 160.4   N/A     7.6       N/A
                  RESID   -0.5   N/A    -0.3       N/A
        TRACKING  ------------------------------------------------------
                  TRACK MD  2 WAY RANGING NONEBIAS  N/ARU NOISE N/A RU
                  DOP BIAS  N/A   HZ C NOS .005 HZ EXP .005 HZ
        MONITOR   ------------------------------------------------------
                       LGWR  LGER  BLRC  BLER
                  DIS  N/A   N/A   N/A   N/A
                  TCP  N/A   N/A   N/A   N/A

        COMMENTS  ------------------------------------------------------
        NONE
```

PN9DAZ66775

```
1527  730121157    730122230    1527
        DSS 61 PASS 1527 CL B-A CTDN 303314 GCF S20K CPS T011 DSS K000
        CONFIG    ------------------------------------------------------
                  AOS DOY 012  LOS DOY 012         TOTAL
                  SCHEDULED 1200Z SCHEDULED 2230Z SCHEDULED 10H 30M
                  ACTUAL    1157Z ACTUAL    2230Z ACTUAL    10H 33M
                  ST XFR    N/A Z RELEASE   2235Z DSS TIME  10H 38M
        COMMAND   ------------------------------------------------------
                  TOTAL   3  AUTO   0  MANUAL   3  ABORT   0
        TELEMETRY ------------------------------------------------------
                  POWER    KW  BIT RATES 16        N/A     MMT
                         RX 1   RX 2  TCP A     TCP
                  ACTUAL 161.4  N/A     9.4       N/A
                  PREDIC 160.4  N/A     9.8       N/A
                  RESID   -1.0  N/A    -0.4       N/A
```

```
TRACKING  ------------------------------------------------------
          TRACK MD  2 WAY RANGING N/A BIAS N/A RU NOISE N/A RU
          DOP BIAS   0.992HZ C NOS 0.004HZ EXP 0.005HZ
MONITOR   ------------------------------------------------------
               LGWR  LGER  BLRC  BLER
          OIS  N/A   N/A   N/A   N/A
          TCP  N/A   N/A   N/A   N/A

COMMENTS  ------------------------------------------------------
CMD TIMES-1235Z-2230Z
```

PN9DAZ66778

```
1528  730130950    730131930    1528
      DSS 51 PASS 1528 CL F-A CTDN 202314 GCF S20J CPS T011 DSS J200
      CONFIG  --------------------------------------------------
              AOS DOY 013  LOS DOY 013          TOTAL
              SCHEDULED 1000Z SCHEDULED 1930Z SCHEDULED 09H 30M
              ACTUAL    0950Z ACTUAL    1930Z ACTUAL    09H 40M
              ST XFR    N/A Z RELEASE   1946Z DSS TIME  09H 56M
      COMMAND --------------------------------------------------
              TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
      TELEMETRY ------------------------------------------------
              POWER  10KW  BIT RATES 16 CODED  N/A    GOE
                     RX 1   RX 2  TCP A      TCP
              ACTUAL 161.7  N/A     5.7       N/A
              PREDIC 160.5  N/A     6.3       N/A
              RESID   -1.2  N/A    -0.6       N/A
      TRACKING --------------------------------------------------
              TRACK MD  2 WAY RANGING N/A BIAS N/A RU NOISE N/A RU
              DOP BIAS   1.037HZ C NOS 0.004HZ EXP 0.005HZ
      MONITOR ---------------------------------------------------
                   LGWR  LGER  BLRC  BLER
              OIS  N/A   N/A   N/A   N/A
              TCP  N/A   N/A   N/A   N/A

      COMMENTS --------------------------------------------------
      DR-T2414 TCP-A FAILED AT 1834Z,TCP-B ONLINE AT 1856Z.
```

PN9DAZ66780

```
1529  730140951    730141930    1529
      DSS 51 PASS 1529 CL B-A CTDN 303314 GCF S20J CPS T011 DSS J200
      CONFIG  --------------------------------------------------
              AOS DOY 014  LOS DOY 014          TOTAL
              SCHEDULED 1000Z SCHEDULED 1930Z SCHEDULED 09H 30M
              ACTUAL    0951Z ACTUAL    1930Z ACTUAL    09H 39M
              ST XFR    N/A Z RELEASE   1931Z DSS TIME  09H 40M
      COMMAND --------------------------------------------------
              TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
      TELEMETRY ------------------------------------------------
              POWER  10KW  BIT RATES 16 CODED  N/A    GOE
                     RX 1   RX 2  TCP B      TCP
              ACTUAL 161.4  N/A     5.6       N/A
              PREDIC 160.5  N/A     6.3       N/A
              RESID   -0.9  N/A    -0.7       N/A
      TRACKING --------------------------------------------------
              TRACK MD  2 WAY RANGING N/A BIAS N/A RU NOISE N/A RU
              DOP BIAS   1.038HZ C NOS 0.003HZ EXP 0.005HZ
      MONITOR ---------------------------------------------------
                   LGWR  LGER  BLRC  BLER
              OIS  N/A   N/A   N/A   N/A
              TCP  N/A   N/A   N/A   N/A

      COMMENTS --------------------------------------------------
      NONE
```

PN9DAZ66783

```
1530  730160142    730160550    1530
      DSS 12 PASS 1530 CL B-A CTDN 303314 GCF S20B CPS T011 DSS B200
      CONFIG   ------------------------------------------------
               AOS DOY 016  LOS DOY 016         TOTAL
               SCHEDULED 0230Z SCHEDULED 0600Z SCHEDULED 03H 30M
               ACTUAL    0142Z ACTUAL    0550Z ACTUAL    04H 08M
               ST XFR    0142Z RELEASE   0557Z DSS TIME  04H 15M
      COMMAND  ------------------------------------------------
               TOTAL   5  AUTO   0  MANUAL   5  ABORT   0
      TELEMETRY ----------------------------------------------
               POWER  10KW  BIT RATES 64 CODED  N/A    MMT
                      RX 1   RX 2  TCP B     TCP
               ACTUAL 161.4  N/A     1.2       N/A
               PREDIC 160.5  N/A     1.5       N/A
               RESID   -0.9  N/A    -0.3       N/A
      TRACKING ------------------------------------------------
               TRACK MD  2 WAY RANGING N/A BIAS N/A RU NOISE N/A RU
               DOP BIAS N/A    HZ C NOS 0.010HZ EXP 0.005HZ
      MONITOR  ------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS  N/A   N/A   N/A   N/A
               TCP  N/A   N/A   N/A   N/A

      COMMENTS ------------------------------------------------
      DR-T2416,TCP-B WOULDNOT OUT-PUT MORE THAN ONE  N  FRAME WHEN
      BP3 RESET AND F-120 OR F-96 REQUESTED.
```

PN9DAZ66784

```
1531  730161206    730162230    1531
      DSS 61 PASS 1531 CL B-A CTDN 303314 GCF S20K CPS T011 DSS K000
      CONFIG   ------------------------------------------------
               AOS DOY 016  LOS DOY 016         TOTAL
               SCHEDULED 1200Z SCHEDULED 2230Z SCHEDULED 10H 30M
               ACTUAL    1206Z ACTUAL    2230Z ACTUAL    10H 24M
               ST XFR       Z RELEASE       Z DSS TIME    H   M
      COMMAND  ------------------------------------------------
               TOTAL   3  AUTO   0  MANUAL   3  ABORT   0
      TELEMETRY ----------------------------------------------
               POWER  10KW  BIT RATES 16 CODED  N/A    MMT
                      RX 1   RX 2  TCP A     TCP
               ACTUAL 161.3  N/A     9.3       N/A
               PREDIC 160.5  N/A    10.0       N/A
               RESID   -0.8  N/A    -0.7       N/A
      TRACKING ------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
               DOP BIAS    .991HZ C NOS  .035HZ EXP  .004HZ
      MONITOR  ------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS  N/A   N/A   N/A   N/A
               TCP  N/A   N/A   N/A   N/A

      COMMENTS ------------------------------------------------
      CMD TIMES01230Z-2230Z
```

PN9DAZ66787

```
1532  730171900    730180230    1532
      DSS 12 PASS 1532 CL B-A CTDN 303314 GCF S20B CPS T011 DSS B200
      CONFIG   ------------------------------------------------
               AOS DOY 017  LOS DOY 018         TOTAL
               SCHEDULED 1900Z SCHEDULED 0230Z SCHEDULED 07H 30M
               ACTUAL    1900Z ACTUAL    0230Z ACTUAL    07H 30M
               ST XFR    1900Z RELEASE   0241Z DSS TIME  07H 41M
      COMMAND  ------------------------------------------------
               TOTAL  10  AUTO   0  MANUAL  10  ABORT   0
      TELEMETRY ----------------------------------------------
               POWER  10KW  BIT RATES 16 CODED  64     GOE
                      RX 1   RX 2  TCP A     TCP A
               ACTUAL 160.9  N/A     6.6       1.6
               PREDIC 160.5  N/A     6.9       1.8
               RESID   -0.4  N/A    -0.3      -0.2
```

```
          TRACKING  ------------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS   1.003HZ C NOS 0.005HZ EXP 0.005HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS  N/A   N/A   N/A   N/A
                    TCP  N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
          2316Z-0230Z THE UNITS OF MINUTES INDICATION WAS A 7 WHEN IT
          SHOULD HAVE BEEN A 6 DR-N0537. CMD TIMES02007Z-0230Z.


 PN9DAZ66788

1533  730180950    730181930    1533
          DSS 51 PASS 1533 CL F-A CTDN 302212 GCF S20J CPS T011 DSS J200
          CONFIG    ------------------------------------------------------
                    AOS DOY 018  LOS DOY 018          TOTAL
                    SCHEDULED 1000Z SCHEDULED 1930Z SCHEDULED 09H 30M
                    ACTUAL     0950Z ACTUAL    1930Z ACTUAL    09H 40M
                    ST XFR     0950Z RELEASE   1930Z DSS TIME  09H 40M
          COMMAND   ------------------------------------------------------
                    TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
          TELEMETRY ------------------------------------------------------
                    POWER  10KW  BIT RATES 16 CODED  N/A     GOE
                           RX 1   RX 2  TCP B      TCP
                    ACTUAL 161.5  N/A     5.7       N/A
                    PREDIC 160.5  N/A     6.2       N/A
                    RESID   -1.0  N/A    -0.5       N/A
          TRACKING  ------------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS   1.055HZ C NOS .0035HZ EXP N/A  HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS  N/A   N/A   N/A   N/A
                    TCP  N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
          NONE


 PN9DAZ66792

1533  730181543    730181800    1533
          DSS 62 PASS 1533 CL  -  CTDN N/A    GCF N/A  CPS N/A  DSS D200
          CONFIG    ------------------------------------------------------
                    AOS DOY 018  LOS DOY 018          TOTAL
                    SCHEDULED 1500Z SCHEDULED 1830Z SCHEDULED 03H 30M
                    ACTUAL     1543Z ACTUAL    1800Z ACTUAL    02H 17M
                    ST XFR     N/A Z RELEASE   1803Z DSS TIME  03H 03M
          COMMAND   ------------------------------------------------------
                    TOTAL N/A  AUTO N/A  MANUAL N/A  ABORT N/A
          TELEMETRY ------------------------------------------------------
                    POWER N/AKW  BIT RATES 16 CODED  N/A     MMT
                           RX 1   RX 2  TCP A      TCP
                    ACTUAL 160.5  N/A     7.0       N/A
                    PREDIC 160.5  N/A     7.4       N/A
                    RESID         N/A    -0.4       N/A
          TRACKING  ------------------------------------------------------
                    TRACK MD N/AWAY RANGING N/A BIAS N/A RU NOISE N/A RU
                    DOP BIAS N/A    HZ C NOS N/A  HZ EXP N/A  HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS  N/A   N/A   N/A   N/A
                    TCP  N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
          NONE
```

PN9DAZ66790

```
1534  730190950    730191930    1534
          DSS 51 PASS 1534 CL  -  CTDN N/A    GCF S20J CPS T011 DSS J200
          CONFIG   ----------------------------------------------------
                   AOS DOY 019  LOS DOY 019         TOTAL
                   SCHEDULED 1000Z SCHEDULED 1930Z SCHEDULED 09H 30M
                   ACTUAL    0950Z ACTUAL    1930Z ACTUAL    09H 40M
                   ST XFR    0950Z RELEASE   1943Z DSS TIME  09H 53M
          COMMAND  ----------------------------------------------------
                   TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
          TELEMETRY ---------------------------------------------------
                   POWER  10KW  BIT RATES 16 CODED  N/A    GOE
                          RX 1   RX 2  TCP B     TCP
                   ACTUAL 160.5  N/A     5.4       N/A
                   PREDIC 160.5  N/A     6.0       N/A
                   RESID    0  N/A    -0.6       N/A
          TRACKING ----------------------------------------------------
                   TRACK MD  2 WAY RANGING N/A BIAS N/A RU NOISE N/A RU
                   DOP BIAS   1.056HZ C NOS  .004HZ EXP  .005HZ
          MONITOR  ----------------------------------------------------
                        LGWR  LGER  BLRC  BLER
                   DIS  N/A   N/A   N/A   N/A
                   TCP  N/A   N/A   N/A   N/A

          COMMENTS ----------------------------------------------------
          CMD TIMES01025Z-1930Z
```

PN9DAZ66796

```
1536  730210945    730211930    1536
          DSS 51 PASS 1536 CL 1-A CTDN 302213 GCF S20J CPS T011 DSS J200
          CONFIG   ----------------------------------------------------
                   AOS DOY 021  LOS DOY 021         TOTAL
                   SCHEDULED 1000Z SCHEDULED 1930Z SCHEDULED 09H 30M
                   ACTUAL    0945Z ACTUAL    1930Z ACTUAL    09H 45M
                   ST XFR    N/A Z RELEASE   1935Z DSS TIME  09H 50M
          COMMAND  ----------------------------------------------------
                   TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
          TELEMETRY ---------------------------------------------------
                   POWER  10KW  BIT RATES 16 CODED  N/A    GOE
                          RX 1   RX 2  TCP A     TCP
                   ACTUAL 161.2  N/A     5.4       N/A
                   PREDIC 160.5  N/A     6.0       N/A
                   RESID   -0.7  N/A    -0.6       N/A
          TRACKING ----------------------------------------------------
                   TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                   DOP BIAS   1.051HZ C NOS  .005HZ EXP  .005HZ
          MONITOR  ----------------------------------------------------
                        LGWR  LGER  BLRC  BLER
                   DIS  N/A   N/A   N/A   N/A
                   TCP  N/A   N/A   N/A   N/A

          COMMENTS ----------------------------------------------------
          COUNT DOWN COMPLETED EARLY.
          CMD TIMES01032Z-1930Z
```

PN9DAZ66815

```
1541  730260950    730261930    1541
          DSS 51 PASS  331 CL 1-A CTDN 303314 GCF S20J CPS T011 DSS J200
          CONFIG   ----------------------------------------------------
                   AOS DOY 026  LOS DOY 026         TOTAL
                   SCHEDULED 1000Z SCHEDULED 1930Z SCHEDULED 09H 30M
                   ACTUAL    0950Z ACTUAL    1930Z ACTUAL    09H 30M
                   ST XFR    N/A Z RELEASE   1933Z DSS TIME  09H 33M
          COMMAND  ----------------------------------------------------
                   TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
          TELEMETRY ---------------------------------------------------
                   POWER  10KW  BIT RATES 16 CODED  N/A    MMT
                          RX 1   RX 2  TCP A     TCP
                   ACTUAL 161.3  N/A     5.7       N/A
                   PREDIC 160.4  N/A     6.3       N/A
                   RESID   -0.9  N/A    -0.6       N/A
```

```
          TRACKING  ------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS   1.058HZ C NOS  .004HZ EXP +.005HZ
          MONITOR   ------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS  N/A   N/A   N/A   N/A
                    TCP  N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------
          CMD TIMES01030Z-1930Z
```

PN9DAZ66820

```
1542  730270950    730271930    1542
          DSS 51 PASS 1542 CL 1-A CTDN 303314 GCF S20J CPS T011 DSS J200
          CONFIG    ------------------------------------------------
                    AOS DOY 027  LOS DOY 027         TOTAL
                    SCHEDULED 1000Z SCHEDULED 1930Z SCHEDULED 09H 30M
                    ACTUAL    0950Z ACTUAL    1920Z ACTUAL    09H 30M
                    ST XFR    N/A Z RELEASE   1920Z DSS TIME    H   M
          COMMAND   ------------------------------------------------
                    TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
          TELEMETRY ------------------------------------------------
                    POWER  10KW  BIT RATES 16 CODED  64      MMT
                           RX 1   RX 2  TCP B      TCP B
                    ACTUAL 161.0  N/A     2.4       5.3
                    PREDIC 160.4  N/A     0.1       6.0
                    RESID    0.6  N/A     2.3      -0.7
          TRACKING  ------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS   1.053HZ C NOS  .004HZ EXP  .005HZ
          MONITOR   ------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS  N/A   N/A   N/A   N/A
                    TCP  N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------
          TCP RESTART DUE TO NO SCIENCE AT 64 BPS CHANGE.
          CMD TIMES01015Z-1930Z
```

PN9DAZ66823

```
1543  730280954    730281930    1543
          DSS 51 PASS 1543 CL B-A CTDN 303314 GCF S20J CPS N/A  DSS J200
          CONFIG    ------------------------------------------------
                    AOS DOY 028  LOS DOY 028         TOTAL
                    SCHEDULED 1000Z SCHEDULED 1930Z SCHEDULED 09H 30M
                    ACTUAL    0954Z ACTUAL    1930Z ACTUAL    09H 36M
                    ST XFR    1016Z RELEASE   1930Z DSS TIME  09H 16M
          COMMAND   ------------------------------------------------
                    TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
          TELEMETRY ------------------------------------------------
                    POWER  10KW  BIT RATES 16 CODED  N/A     MMT
                           RX 1   RX 2  TCP A      TCP B
                    ACTUAL 161.8  N/A     N/A       5.7
                    PREDIC 160.4  N/A     N/A       6.3
                    RESID   -1.4  N/A     N/A      -0.6
          TRACKING  ------------------------------------------------
                    TRACK MD  2 WAY RANGING N/A BIAS N/A RU NOISE N/A RU
                    DOP BIAS   1.050HZ C NOS  .004HZ EXP  .005HZ
          MONITOR   ------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS  N/A   N/A   N/A   N/A
                    TCP  N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------
          CMD TIMES01016Z-1530Z
```

PN9DBZ66839

```
1548  730330926    730332000    1548
        DSS 51 PASS 1548 CL F-A CTDN 302212 GCF S20J CPS N/A  DSS J000
        CONFIG   ------------------------------------------------------
                 AOS DOY 033  LOS DOY 033          TOTAL
                 SCHEDULED 0930Z SCHEDULED 2000Z SCHEDULED 10H 30M
                 ACTUAL    0926Z ACTUAL    2000Z ACTUAL    10H 34M
                 ST XFR    N/A Z RELEASE   2011Z DSS TIME  10H 45M
        COMMAND  ------------------------------------------------------
                 TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
        TELEMETRY ----------------------------------------------------
                 POWER  10KW  BIT RATES 16 CODED  N/A    MMT
                        RX 1   RX 2  TCP B     TCP
                 ACTUAL 161.1  N/A     5.6       N/A
                 PREDIC 160.3  N/A     6.0       N/A
                 RESID   -0.8  N/A    -0.4       N/A
        TRACKING ------------------------------------------------------
                 TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                 DOP BIAS   1.045HZ C NOS  .004HZ EXP  .005HZ
        MONITOR  ------------------------------------------------------
                      LGWR  LGER  BLRC  BLER
                 DIS  N/A   N/A   N/A   N/A
                 TCP  N/A   N/A   N/A   N/A

        COMMENTS ------------------------------------------------------
        1758Z-1851Z 360/75 DOWN DR-4717 REFERS.
```

PN9DBZ66843

```
1549  730340926    730342000    1549
        DSS 51 PASS 1549 CL F-A CTDN 302212 GCF S20J CPS N/A  DSS J000
        CONFIG   ------------------------------------------------------
                 AOS DOY 034  LOS DOY 034          TOTAL
                 SCHEDULED 0930Z SCHEDULED 2000Z SCHEDULED 10H 30M
                 ACTUAL    0926Z ACTUAL    2000Z ACTUAL    10H 34M
                 ST XFR    N/A Z RELEASE   2003Z DSS TIME  10H 37M
        COMMAND  ------------------------------------------------------
                 TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
        TELEMETRY ----------------------------------------------------
                 POWER  0 KW  BIT RATES 16 CODED  N/A    GOE
                        RX 1   RX 2  TCP B     TCP
                 ACTUAL 161.6  N/A     5.8       N/A
                 PREDIC 160.3  N/A     6.1       N/A
                 RESID    1.3  N/A    -0.3       N/A
        TRACKING ------------------------------------------------------
                 TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                 DOP BIAS N/A    HZ C NOS N/A  HZ EXP  .005HZ
        MONITOR  ------------------------------------------------------
                      LGWR  LGER  BLRC  BLER
                 DIS  N/A   N/A   N/A   N/A
                 TCP  N/A   N/A   N/A   N/A

        COMMENTS ------------------------------------------------------
        1223Z  TRANSMITTER TRIPPED OFF. DR-T2437 REFERS.
```

PN9DBZ66847

```
1550  730350926    730352000    1550
        DSS 51 PASS 1550 CL D-A CTDN 303214 GCF S20J CPS TC11 DSS J000
        CONFIG   ------------------------------------------------------
                 AOS DOY 035  LOS DOY 035          TOTAL
                 SCHEDULED 0930Z SCHEDULED 2000Z SCHEDULED 10H 30M
                 ACTUAL    0926Z ACTUAL    2000Z ACTUAL    10H 34M
                 ST XFR    N/A Z RELEASE   2010Z DSS TIME  10H 44M
        COMMAND  ------------------------------------------------------
                 TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
        TELEMETRY ----------------------------------------------------
                 POWER  10KW  BIT RATES 16 CODED  N/A    GOE
                        RX 1   RX 2  TCP A     TCP
                 ACTUAL 161.6  N/A     5.7       N/A
                 PREDIC 160.3  N/A     6.1       N/A
                 RESID   -1.3  N/A    -0.4       N/A
```

```
TRACKING  ------------------------------------------------------
          TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
          DOP BIAS   1.033HZ C NOS  .004HZ EXP  .005HZ
MONITOR   ------------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS  N/A   N/A   N/A   N/A
          TCP  N/A   N/A   N/A   N/A

COMMENTS  ------------------------------------------------------
1107Z-1123Z PROBLEM WITH MADRID WIDE BAND. DR-6874 REFERS.
CMD TIMES00955Z-2000Z
```

PN9DBZ66867

```
1555  730400921    730402000    1555
      DSS 51 PASS 1555 CL D-A CTDN 303214 GCF S20J CPS N/A  DSS J000
      CONFIG    ------------------------------------------------
                AOS DOY 040  LOS DOY 040         TOTAL
                SCHEDULED 0930Z SCHEDULED 2000Z SCHEDULED 09H 30M
                ACTUAL    0921Z ACTUAL    2000Z ACTUAL    09H 39M
                ST XFR    N/A Z RELEASE   2015Z DSS TIME    H   M
      COMMAND   ------------------------------------------------
                TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
      TELEMETRY ------------------------------------------------
                POWER  10KW  BIT RATES 16 CODED  N/A    GOE
                       RX 1   RX 2  TCP A     TCP
                ACTUAL 161.4  N/A     5.5      N/A
                PREDIC 160.2  N/A     6.0      N/A
                RESID   -1.2  N/A     -.5      N/A
      TRACKING  ------------------------------------------------
                TRACK MD  1 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                DOP BIAS   1.014HZ C NOS  .003HZ EXP  .005HZ
      MONITOR   ------------------------------------------------
                     LGWR  LGER  BLRC  BLER
                DIS  N/A   N/A   N/A   N/A
                TCP  N/A   N/A   N/A   N/A

      COMMENTS  ------------------------------------------------
      DR-T2439 LOST DATA DUE TO TAPE RUNAWAY FROM 0947Z-1000Z ANT.
      WENT TO BRAKE DUE TO A POINTING PROBLEM.
```

PN9DBZ66870

```
1556  730410923    730412000    1556
      DSS 51 PASS 1556 CL D-A CTDN 303214 GCF S30J CPS N/A  DSS J000
      CONFIG    ------------------------------------------------
                AOS DOY 041  LOS DOY 041         TOTAL
                SCHEDULED 0930Z SCHEDULED 2000Z SCHEDULED 10H 30M
                ACTUAL    0923Z ACTUAL    1958Z ACTUAL    10H 35M
                ST XFR    N/A Z RELEASE   N/A Z DSS TIME    H   M
      COMMAND   ------------------------------------------------
                TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
      TELEMETRY ------------------------------------------------
                POWER  10KW  BIT RATES 16 CODED  N/A    GOE
                       RX 1   RX 2  TCP       TCP
                ACTUAL 161.2  N/A     5.6      N/A
                PREDIC 160.2  N/A     6.3      N/A
                RESID   -1.0  N/A     -.7      N/A
      TRACKING  ------------------------------------------------
                TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                DOP BIAS   1.013HZ C NOS 0.005HZ EXP 0.005HZ
      MONITOR   ------------------------------------------------
                     LGWR  LGER  BLRC  BLER
                DIS  N/A   N/A   N/A   N/A
                TCP  N/A   N/A   N/A   N/A

      COMMENTS  ------------------------------------------------
      NONE
```

PN9DBZ66874

```
1557  730420925    730421957    1557
      DSS 51 PASS 1557 CL D-A CTDN 303214 GCF S20J CPS N/A  DSS J000
      CONFIG   ------------------------------------------------------
               AOS DOY 042  LOS DOY 042          TOTAL
               SCHEDULED 0930Z SCHEDULED 2000Z SCHEDULED 10H 30M
               ACTUAL    0923Z ACTUAL    1957Z ACTUAL    10H 26M
               ST XFR    0923Z RELEASE   2002Z DSS TIME  10H 39M
      COMMAND  ------------------------------------------------------
               TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  10KW  BIT RATES 16 CODED  N/A    GOE
                      RX 1   RX 2  TCP A     TCP
               ACTUAL 160.7  N/A     5.5      N/A
               PREDIC 160.1  N/A     6.4      N/A
               RESID   -066  N/A    -0.9      N/A
      TRACKING ---------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
               DOP BIAS   1.005HZ C NOS 0.004HZ EXP 0.004HZ
      MONITOR  ---------------------------------------------------
                    LGWR  LGEP  BLRC  BLER
               DIS  N/A   N/A   N/A   N/A
               TCP  N/A   N/A   N/A   N/A

      COMMENTS ---------------------------------------------------
      NONE
```

PN9DBZ66884

```
1560  730450921    730451950    1560
      DSS 51 PASS 1560 CL F-A CTDN 302212 GCF S20J CPS N/A  DSS J000
      CONFIG   ------------------------------------------------------
               AOS DOY 045  LOS DOY 045          TOTAL
               SCHEDULED 0930Z SCHEDULED 2000Z SCHEDULED 10H 30M
               ACTUAL    0921Z ACTUAL    1950Z ACTUAL    10H 29M
               ST XFR    0921Z RELEASE   2008Z DSS TIME  10H 47M
      COMMAND  ------------------------------------------------------
               TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  10KW  BIT RATES 16 CODES  GOE
                      RX 1   RX 2  TCP B     TCP
               ACTUAL 160.9  N/A     5.7      N/A
               PREDIC 160.0  N/A     6.4      N/A
               RESID   -0.9  N/A    -0.7      N/A
      TRACKING ---------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
               DOP BIAS   0.989HZ C NOS  .004HZ EXP  .005HZ
      MONITOR  ---------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS  N/A   N/A   N/A   N/A
               TCP  N/A   N/A   N/A   N/A

      COMMENTS ---------------------------------------------------
```

PN9DBZ66893

```
1562  730470922    730471930    1562
      DSS 51 PASS 1562 CL D-A CTDN 303214 GCF S20J CPS N/A  DSS J200
      CONFIG   ------------------------------------------------------
               AOS DOY 047  LOS DOY 047          TOTAL
               SCHEDULED 0930Z SCHEDULED 1930Z SCHEDULED 10H 00M
               ACTUAL    0922Z ACTUAL    1950Z ACTUAL    10H 28M
               ST XFR    N/R Z RELEASE   1955Z DSS TIME  10H 33M
      COMMAND  ------------------------------------------------------
               TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  10KW  BIT RATES 16 CODED  N/A    GOE
                      RX 1   RX 2  TCP B     TCP
               ACTUAL 160.7  N/A     5.7      N/A
               PREDIC 160.0  N/A     6.4      N/A
               RESID   -0.7  N/A    -0.7      N/A
```

```
          TRACKING  ------------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS     .967HZ C NOS  .004HZ EXP  .005HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS  N/A   N/A   N/A   N/A
                    TCP  N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
          SOE NOT CORRECT  CMD TIMES0C955Z-1950Z


 PN9DBZ66896

1563  730480920    730481930    1563
          DSS 51 PASS 1563 CL F-A CTDN 302212 GCF S20J CPS N/A  DSS J200
          CONFIG    ------------------------------------------------------
                    AOS DOY 048  LOS DOY 048         TOTAL
                    SCHEDULED 0930Z SCHEDULED 1930Z SCHEDULED 10H 00M
                    ACTUAL    0920Z ACTUAL    1930Z ACTUAL    10H 10M
                    ST XFR    N/A Z RELEASE   1935Z DSS TIME  10H 15M
          COMMAND   ------------------------------------------------------
                    TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
          TELEMETRY ------------------------------------------------------
                    POWER  10KW  BIT RATES 16 CODED  N/A    GOE
                           RX 1   RX 2  TCP A     TCP
                    ACTUAL 160.7  N/A     6.6       N/A
                    PREDIC 159.9  N/A     5.6       N/A
                    RESID    0.8  N/A    -1.0       N/A
          TRACKING  ------------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS     .057HZ C NOS  .004HZ EXP  .005HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS  N/A   N/A   N/A   N/A
                    TCP  N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
          CMD TIMES00958Z-1930Z.


 PN9DBZ66901

1564  730490924    730491930    1564
          DSS 51 PASS 1564 CL  -  CTDN 303343 GCF S20J CPS N/A  DSS J000
          CONFIG    ------------------------------------------------------
                    AOS DOY 049  LOS DOY 049         TOTAL
                    SCHEDULED 0930Z SCHEDULED 1930Z SCHEDULED 10H 00M
                    ACTUAL    0924Z ACTUAL    1930Z ACTUAL    10H 06M
                    ST XFR    N/A Z RELEASE   1935Z DSS TIME  10H 11M
          COMMAND   ------------------------------------------------------
                    TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
          TELEMETRY ------------------------------------------------------
                    POWER  10KW  BIT RATES 16 CODED  N/A    GOE
                           RX 1   RX 2  TCP B     TCP
                    ACTUAL 160.9  N/A     5.8       N/A
                    PREDIC 159.9  N/A     6.6       N/A
                    RESID    1.0  N/A    -0.8       N/A
          TRACKING  ------------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS     .944HZ C NOS  .004HZ EXP  .005HZ
          MONITOR   ------------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS  N/A   N/A   N/A   N/A
                    TCP  N/A   N/A   N/A   N/A

          COMMENTS  ------------------------------------------------------
          CMD TIMES00958Z-1930Z
```

PN9DBZ66917

```
1567  730521815    730522330    1567
      DSS 12 PASS 1567 CL B-A CTDN 303314 GCF S20B CPS N/A  DSS 8000
      CONFIG   ------------------------------------------------------
               AOS DOY 052  LOS DOY 052          TOTAL
               SCHEDULED 1800Z SCHEDULED 2330Z SCHEDULED 05H 30M
               ACTUAL    1815Z ACTUAL    2330Z ACTUAL    05H 15M
               ST XFR    N/A Z RELEASE   2339Z DSS TIME  05H 39M
      COMMAND  ------------------------------------------------------
               TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  10KW  BIT RATES 16 CODED  64      GOE
                     RX 1   RX 2  TCP A     TCP
               ACTUAL 160.7  N/A     2.6       N/A
               PREDIC 159.8  N/A     2.8       N/A
               RESID   -0.9  N/A    -0.2       N/A
      TRACKING ---------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
               DOP BIAS     N/AHZ C NOS  .004HZ EXP  .005HZ
      MONITOR  ---------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS  N/A   N/A   N/A   N/A
               TCP  N/A   N/A   N/A   N/A

      COMMENTS ---------------------------------------------------
      MAJOR DURATION OF PASS WAS AT 64 B/R CODE. SNR RECORDED FOR 64
      B/R  1924Z TCP PROGRAM HALTED. DR-N0579 REFERS.
      DR-T2452 HOUR ANGLE ERROR OF .755 -ERROR IN PLANETARY PREDICTS
      CMD TIMES01826Z-2330Z
```

PN9DBZ66913

```
1568  730530920    730531930    1568
      DSS 51 PASS 1568 CL F-A CTDN 303343 GCF S00J CPS N/A  DSS J000
      CONFIG   ------------------------------------------------------
               AOS DOY 053  LOS DOY 053          TOTAL
               SCHEDULED 0930Z SCHEDULED 1930Z SCHEDULED 10H 00M
               ACTUAL    0920Z ACTUAL    1930Z ACTUAL    10H 10M
               ST XFR    N/A Z RELEASE   1930Z DSS TIME  10H 10M
      COMMAND  ------------------------------------------------------
               TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  10KW  BIT RATES 16 CODED  16      GOE
                     RX 1   RX 2  TCP B     TCP B
               ACTUAL 160.4  N/A     5.1       5.3
               PREDIC 159.7  N/A     6.6       5.9
               RESID   -0.7  N/A    -1.5      -0.6
      TRACKING ---------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
               DOP BIAS     .900HZ C NOS .0035HZ EXP  .005HZ
      MONITOR  ---------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS  N/A   N/A   N/A   N/A
               TCP  N/A   N/A   N/A   N/A

      COMMENTS ---------------------------------------------------
      1224Z MASER-1 NOISY SWITCHED TO MASER-2
      DR-T2439 ANTENNA POINTING ERROR CAUSING RECEIVER OUT OF LOCK.
      CMD TIMES00957Z-1930Z
```

PN9DBZ66919

```
1569  730540920    730541930    1569
      DSS 51 PASS 1569 CL D-A CTDN 303214 GCF S20J CPS N/A  DSS J000
      CONFIG   ------------------------------------------------------
               AOS DOY 054  LOS DOY 054          TOTAL
               SCHEDULED 0930Z SCHEDULED 1930Z SCHEDULED 10H 00M
               ACTUAL    0920Z ACTUAL    1930Z ACTUAL    10H 10M
               ST XFR        Z RELEASE   1955Z DSS TIME  10H 35M
      COMMAND  ------------------------------------------------------
               TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
```

```
          TELEMETRY ----------------------------------------------------
                    POWER  10KW  BIT RATES 16 CODED  N/A    GOE
                           RX 1   RX 2  TCP B     TCP
                    ACTUAL 160.0  N/A     5.0       N/A
                    PREDIC 159.7  N/A     5.8       N/A
                    RESID    0.3  N/A    -0.8       N/A
          TRACKING  ----------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS    .881HZ C NOS  .004HZ EXP  .005HZ
          MONITOR   ----------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS  N/A   N/A   N/A   N/A
                    TCP  N/A   N/A   N/A   N/A

          COMMENTS  ----------------------------------------------------
          DEMOD SWAPPED ANT. UNABLE TO LOCK UP. TFR B- 29816 DR-2455
          CMD TIMES00958Z-1930Z.

 PN9DBZ66923

1570  730550925    730551928    1570
          DSS 51 PASS 1570 CL D-A CTDN 303214 GCF S20J CPS TOLL DSS J000
          CONFIG    ----------------------------------------------------
                    AOS DOY 055  LOS DOY 055         TOTAL
                    SCHEDULED 0930Z SCHEDULED 1930Z SCHEDULED 10H 00M
                    ACTUAL    0925Z ACTUAL    1928Z ACTUAL    10H 03M
                    ST XFR    0923Z RELEASE   1931Z DSS TIME  09H 58M
          COMMAND   ----------------------------------------------------
                    TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
          TELEMETRY ----------------------------------------------------
                    POWER  10KW  BIT RATES 64 CODED  N/A    GOE
                           RX 1   RX 2  TCP A     TCP
                    ACTUAL 160.7  N/A     5.3       N/A
                    PREDIC 159.6  N/A     5.9       N/A
                    RESID   -0.9  N/A    -0.6       N/A
          TRACKING  ----------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS    .863HZ C NOS  .004HZ EXP  .005HZ
          MONITOR   ----------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS  N/A   N/A   N/A   N/A
                    TCP  N/A   N/A   N/A   N/A

          COMMENTS  ----------------------------------------------------
          CMD TIMES00944Z-1928Z.

 PN9DBZ66927

1571  730560920    730561925    1571
          DSS 51 PASS 1571 CL D-A CTDN 303214 GCF S20J CPS N/A  DSS J000
          CONFIG    ----------------------------------------------------
                    AOS DOY 056  LOS DOY 056         TOTAL
                    SCHEDULED 0930Z SCHEDULED 1930Z SCHEDULED 10H 00M
                    ACTUAL    1920Z ACTUAL    1925Z ACTUAL    09H 45M
                    ST XFR    1930Z RELEASE   1930Z DSS TIME  10H 00M
          COMMAND   ----------------------------------------------------
                    TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
          TELEMETRY ----------------------------------------------------
                    POWER  10KW  BIT RATES 16 GOE    N/A
                           RX 1   RX 2  TCP B     TCP B
                    ACTUAL 160.2  N/A     5.4       N/A
                    PREDIC 159.6  N/A     5.9       N/A
                    RESID   -0.6  N/A    -0.5       N/A
          TRACKING  ----------------------------------------------------
                    TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                    DOP BIAS   0.846HZ C NOS 0.004HZ EXP 0.005HZ
          MONITOR   ----------------------------------------------------
                         LGWR  LGER  BLRC  BLER
                    DIS  N/A   N/A   N/A   N/A
                    TCP  N/A   N/A   N/A   N/A

          COMMENTS  ----------------------------------------------------
          DR-C6983 TTY LINES DOWN 1352Z-1437Z.
          CMD TIMES00945Z-1925Z
```

PN9DCZ66940

```
1575  730600904    730601900    1575
      DSS 51 PASS 1575 CL F-A CTDN 302212 GCF S20J CPS N/A  DSS J200
      CONFIG   ------------------------------------------------------
               AOS DOY 060  LOS DOY 060          TOTAL
               SCHEDULED 0900Z SCHEDULED 1900Z SCHEDULED 10H 00M
               ACTUAL    0904Z ACTUAL    1900Z ACTUAL    09H 56M
               ST XFR    0904Z RELEASE   1923Z DSS TIME  10H 19M
      COMMAND  ------------------------------------------------------
               TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  10KW  BIT RATES 16 CODED  N/A     MMT
                      RX 1   RX 2  TCP A      TCP
               ACTUAL 159.8  N/A     6.3       N/A
               PREDIC 159.3  N/A     6.9       N/A
               RESID    0.5  N/A    -0.6       N/A
      TRACKING ---------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
               DOP BIAS   0.773HZ C NOS  .003HZ EXP  .005HZ
      MONITOR  ---------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS  N/A   N/A   N/A   N/A
               TCPA N/A   N/A   N/A   N/A

      COMMENTS ---------------------------------------------------
```

PN9DCZ66947

```
1577  730620903    730621900    1577
      DSS 51 PASS 1577 CL D-A CTDN 303214 GCF S20J CPS N/A  DSS J200
      CONFIG   ------------------------------------------------------
               AOS DOY 062  LOS DOY 062          TOTAL
               SCHEDULED 0900Z SCHEDULED 1900Z SCHEDULED 10H 00M
               ACTUAL    0904Z ACTUAL    1900Z ACTUAL    09H 56M
               ST XFR    N/A Z RELEASE   1921Z DSS TIME  10H 17M
      COMMAND  ------------------------------------------------------
               TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  10KW  BIT RATES 64 CODED  16      GDE
                      RX 1   RX 2  TCP B      TCP B
               ACTUAL 160.0  N/A     1.2       6.2
               PREDIC 159.3  N/A     1.5       6.5
               RESID   -0.7  N/A    -0.3       0.3
      TRACKING ---------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
               DOP BIAS    .728HZ C NOS  .003HZ EXP  .005HZ
      MONITOR  ---------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS  N/A   N/A   N/A   N/A
               TCP  N/A   N/A   N/A   N/A

      COMMENTS ---------------------------------------------------
      CMD TIMES:0928Z-1900Z
```

PN9DCZ66951

```
1578  730630900    730631900    1578
      DSS 51 PASS 1578 CL D-A CTDN 303214 GCF S20J CPS N/A  DSS J200
      CONFIG   ------------------------------------------------------
               AOS DOY 063  LOS DOY 063          TOTAL
               SCHEDULED 0900Z SCHEDULED 1900Z SCHEDULED 10H 00M
               ACTUAL    0900Z ACTUAL    1900Z ACTUAL    10H 00M
               ST XFR    N/A Z RELEASE   1903Z DSS TIME  10H 03M
      COMMAND  ------------------------------------------------------
               TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  10KW  BIT RATES 16 CODED  64      GDE
                      RX 1   RX 2  TCP B      TCP B
               ACTUAL 159.9  N/A     6.3       0.9
               PREDIC 159.2  N/A     6.4       1.6
               RESID   -0.7  N/A    -0.1      -0.7
```

```
TRACKING  ------------------------------------------------------
          TRACK MD  2 WAY RANGING NIL  BIAS N/A RU NOISE N/A RU
          DOP BIAS    .701HZ C NOS   004HZ EXP  .005HZ
MONITOR   ------------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS  N/A   N/A   N/A   N/A
          TCP  N/A   N/A   N/A   N/A

COMMENTS  ------------------------------------------------------
CMD TIMES:0922Z-1900Z
```

PN9DCZ66964

```
1582  730670854    730671845    1582
      DSS 51 PASS 1582 CL F-A CTDN 302212 GCF S20J CPS N/A  DSS J200
      CONFIG    ------------------------------------------------
                AOS DOY 067  LOS DOY 067         TOTAL
                SCHEDULED 0900Z SCHEDULED 1845Z SCHEDULED 09H 45M
                ACTUAL    0855Z ACTUAL    1845Z ACTUAL    09H 50M
                ST XFR    0855Z RELEASE   1857Z DSS TIME  10H 02M
      COMMAND   ------------------------------------------------
                TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
      TELEMETRY ------------------------------------------------
                POWER  10KW  BIT RATES 64 CODED  16      GDE
                       RX 1   RX 2  TCP B      TCP B
                ACTUAL 160.2  N/A     1.1        6.3
                PREDIC 158.9  N/A     1.8        6.5
                RESID         N/A
      TRACKING  ------------------------------------------------
                TRACK MD  2 WAY RANGING NIL  BIAS N/A RU NOISE N/A RU
                DOP BIAS    .581HZ C NOS  .003HZ EXP  .005HZ
      MONITOR   ------------------------------------------------
                     LGWR  LGER  BLRC  BLER
                DIS  N/A   N/A   N/A   N/A
                TCP  N/A   N/A   N/A   N/A

      COMMENTS  ------------------------------------------------
      0927Z-0931Z TCP-B HUNG-UP LOSS OF TELEMETRY DATA RELOADED
      PROGRAM, DR-N0588 ASSUMED TO BE SOFTWARE PROBLEM WITH DOI-5021
      OPC  CMD TIME:0923Z-1845Z
```

PN9DCZ66969

```
1583  730681733    730682330    1583
      DSS 12 PASS 1583 CL B-A CTDN 303343 GCF S20B CPS N/A  DSS B200
      CONFIG    ------------------------------------------------
                AOS DOY 068  LOS DOY 068         TOTAL
                SCHEDULED 1730Z SCHEDULED 2330Z SCHEDULED 06H 00M
                ACTUAL    1733Z ACTUAL    2330Z ACTUAL    06H 03M
                ST XFR    N/A Z RELEASE   2335Z DSS TIME  06H 08M
      COMMAND   ------------------------------------------------
                TOTAL  16  AUTO   0  MANUAL  16  ABORT   0
      TELEMETRY ------------------------------------------------
                POWER  10KW  BIT RATES 64 CODED  N/A     GDE
                       RX 1   RX 2  TCP B      TCP
                ACTUAL 159.2  N/A     1.9        N/A
                PREDIC 159.5  N/A     1.5        N/A
                RESID    .3   N/A     0.4        N/A
      TRACKING  ------------------------------------------------
                TRACK MD  2 WAY RANGING NIL  BIAS N/A RU NOISE N/A RU
                DOP BIAS   .505 HZ C NOS  .004HZ EXP  .005HZ
      MONITOR   ------------------------------------------------
                     LGWR  LGER  BLRC  BLER
                DIS  N/A   N/A   N/A   N/A
                TCP  N/A   N/A   N/A   N/A

      COMMENTS  ------------------------------------------------
      DR-T2462 POLARZER OFF 56   CMD TIMES: 1850Z-2330Z
```

PN9DCZ66972

```
1584  730690855    730691845    1584
      DSS 51 PASS 1584 CL D-A CTDN 303214 GCF S20J CPS N/A  DSS J20U
      CONFIG   ------------------------------------------------------
               AOS DOY 069  LOS DOY 069          TOTAL
               SCHEDULED 0900Z SCHEDULED 1845Z SCHEDULED 09H 45M
               ACTUAL    0855Z ACTUAL    1845Z ACTUAL    09H 50M
               ST XFR    0855Z RELEASE   1845Z DSS TIME  09H 50M
      COMMAND  ------------------------------------------------------
               TOTAL   5  AUTO   0  MANUAL   5  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  10KW  BIT RATES 64 CODED  N/A     GOE
                     RX 1   RX 2  TCP A      TCP
               ACTUAL 159.4  N/A     0.9       N/A
               PREDIC 168.7  N/A     1.7       N/A
               RESID   -0.7  N/A    -0.8       N/A
      TRACKING ----------------------------------------------------
               TRACK MD  2 WAY RANGING N/A BIAS N/A RU NOISE N/A RU
               DOP BIAS   0.512HZ C NOS 0.003HZ EXP 0.005HZ
      MONITOR  ----------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS  N/A   N/A   N/A   N/A
               TCP  N/A   N/A   N/A   N/A

      COMMENTS ----------------------------------------------------
      NONE
```

PN9DCZ66982

```
1587  730721000    730722030    1587
      DSS 62 PASS 1587 CL B-A CTDN 303324 GCF S21L CPS N/A  DSS L00U
      CONFIG   ------------------------------------------------------
               AOS DOY 072  LOS DOY 072          TOTAL
               SCHEDULED 1000Z SCHEDULED 2030Z SCHEDULED 10H 30M
               ACTUAL    1000Z ACTUAL    2030Z ACTUAL    10H 30M
               ST XFR    1000Z RELEASE   2109Z DSS TIME  11H 09M
      COMMAND  ------------------------------------------------------
               TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
      TELEMETRY ----------------------------------------------------
               POWER  20KW  BIT RATES 64 CODED  N/A     MMT
                     RX 1   RX 2  TCP A      TCP
               ACTUAL 159.7  N/A     3.7       N/A
               PREDIC 158.7  N/A     2.5       N/A
               RESID    1.2  N/A     1.2       N/A
      TRACKING ----------------------------------------------------
               TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
               DOP BIAS    .354HZ C NOS  .004HZ EXP  .005HZ
      MONITOR  ----------------------------------------------------
                    LGWR  LGER  BLRC  BLER
               DIS  N/A   N/A   N/A   N/A
               TCP  N/A   N/A   N/A   N/A

      COMMENTS ----------------------------------------------------
      72/1037Z-1306Z
      VCO FIELD 1-A ERROR
      CAUSED EDITING
      EDITED
      NO592
      NO DATA LOST
```

PN9DCZ66986

```
1588  730731000    730732036    1588
      DSS 62 PASS 1589 CL B-A CTDN 303324 GCF S00L CPS N/A  DSS L00D
      CONFIG   ------------------------------------------------------
               AOS DOY 073  LOS DOY 073          TOTAL
               SCHEDULED 1000Z SCHEDULED 2030Z SCHEDULED 10H 30M
               ACTUAL    1000Z ACTUAL    2036Z ACTUAL    10H 36M
               ST XFR    1000Z RELEASE   2040Z DSS TIME  10H 40M
      COMMAND  ------------------------------------------------------
               TOTAL   7  AUTO   0  MANUAL   7  ABORT   0
```

```
TELEMETRY ----------------------------------------------------
          POWER  10KW  BIT RATES 64 CODED  N/A
                 RX 1   RX 2  TCP A     TCP
          ACTUAL 159.5  N/A     3.9       N/A
          PREDIC 158.4  N/A     3.4       N/A
          RESID   -0.9  N/A     0.4       N/A
TRACKING  ----------------------------------------------------
          TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
          DOP BIAS   0.311HZ C HZ EXP 0.004HZ
MONITOR   ----------------------------------------------------
               LGWR  LGER  BLRC  BLER
          DIS  N/A   N/A   N/A   N/A
          TCP  N/A   N/A   N/A   N/A

COMMENTS  ----------------------------------------------------
NONE
```

PN9DCZ66990

```
1589  730741000    730742030    1589
      DSS 62 PASS 1589 CL B-A CTDN 303324 GCF S00L CPS N/A  DSS L000
      CONFIG  ------------------------------------------------
              AOS DOY 074  LOS DOY 074         TOTAL
              SCHEDULED 1000Z SCHEDULED 2030Z SCHEDULED 10H 30M
              ACTUAL    1000Z ACTUAL    2030Z ACTUAL    10H 30M
              ST XFR    1000Z RELEASE   2032Z DSS TIME  10H 32M
      COMMAND ------------------------------------------------
              TOTAL   4  AUTO   0  MANUAL   4  ABORT   0
      TELEMETRY ----------------------------------------------
              POWER  10KW  BIT RATES 16 CODED  N/A     MMT
                     RX 1   RX 2  TCP A     TCP
              ACTUAL 159.3  N/A     3.8       N/A
              PREDIC 158.3  N/A     3.3       N/A
              RESID   -1.0  N/A     0.5       N/A
      TRACKING ----------------------------------------------
              TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
              DOP BIAS   0.263HZ C NOS  .004HZ EXP  .005HZ
      MONITOR ----------------------------------------------
                   LGWR  LGER  BLRC  BLER
              DIS  N/A   N/A   N/A   N/A
              TCP  N/A   N/A   N/A   N/A

      COMMENTS ----------------------------------------------
      CMD TIMES:10 HRS. 7MIN.
```

PN9DCZ67009

```
1595  730801009    730802030    1595
      DSS 62 PASS 1595 CL  -  CTDN 303324 GCF S00L CPS T011 DSS L000
      CONFIG  ------------------------------------------------
              AOS DOY 080  LOS DOY 080         TOTAL
              SCHEDULED 1000Z SCHEDULED 2030Z SCHEDULED 10H 30M
              ACTUAL    1009Z ACTUAL    2030Z ACTUAL    10H 21M
              ST XFR    1009Z RELEASE   2030Z DSS TIME  10H 21M
      COMMAND ------------------------------------------------
              TOTAL   3  AUTO   0  MANUAL   3  ABORT   0
      TELEMETRY ----------------------------------------------
              POWER  10KW  BIT RATES 64 CODED  N/A
                     RX 1   RX 2  TCP A     TCP
              ACTUAL 158.8  N/A     3.3       N/A
              PREDIC 157.8  N/A     4.1       N/A
              RESID   -1.0  N/A    -0.8       N/A
      TRACKING ----------------------------------------------
              TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
              DOP BIAS  -0.115HZ C NOS  .003HZ EXP  .005HZ
      MONITOR ----------------------------------------------
                   LGWR  LGER  BLRC  BLER
              DIS  N/A   N/A   N/A   N/A
              TCP  N/A   N/A   N/A   N/A

      COMMENTS ----------------------------------------------
```

PN9DCZ67016

```
1595  730801701    730802330    1595
        DSS 12 PASS 1595 CL  -  CTDN 303314 GCF S208 CPS T011 DSS 8000
        CONFIG   ---------------------------------------------------
                 AOS DOY 080  LOS DOY 080          TOTAL
                 SCHEDULED 1700Z SCHEDULED 2330Z SCHEDULED 06H 30M
                 ACTUAL    1701Z ACTUAL    2330Z ACTUAL    06H 29M
                 ST XFR    N/A Z RELEASE   2335Z DSS TIME  06H 34M
        COMMAND  ---------------------------------------------------
                 TOTAL   2  AUTO   0  MANUAL   2  ABORT   0
        TELEMETRY --------------------------------------------------
                 POWER  10KW  BIT RATES 64 CODED  N/A     GOE
                       RX 1   RX 2  TCP A      TCP
                 ACTUAL 158.4  N/A     2.4       N/A
                 PREDIC 157.8  N/A     2.7       N/A
                 RESID   -0.6  N/A    -0.3       N/A
        TRACKING ---------------------------------------------------
                 TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                 DOP BIAS   -.125HZ C NOS  .005HZ EXP  .005HZ
        MONITOR  ---------------------------------------------------
                      LGWR  LGER  BLRC  BLER
                 DIS  N/A   N/A   N/A   N/A
                 TCP  N/A   N/A   N/A   N/A

        COMMENTS ---------------------------------------------------
```

PN9DCZ67013

```
1596  730811000    730812030    1596
        DSS 62 PASS 1595 CL  -  CTDN 303324 GCF S00L CPS T011 DSS L000
        CONFIG   ---------------------------------------------------
                 AOS DOY 080  LOS DOY 080          TOTAL
                 SCHEDULED 1000Z SCHEDULED 2030Z SCHEDULED 10H 30M
                 ACTUAL    1000Z ACTUAL    2030Z ACTUAL    10H 30M
                 ST XFR    1000Z RELEASE   2030Z DSS TIME  10H 30M
        COMMAND  ---------------------------------------------------
                 TOTAL   3  AUTO   0  MANUAL   3  ABORT   0
        TELEMETRY --------------------------------------------------
                 POWER  10KW  BIT RATES 64 CODED  N/A
                       RX 1   RX 2  TCP A      TCP
                 ACTUAL N/A    158.9   3.3       N/A
                 PREDIC N/A    157.7   4.1       N/A
                 RESID  N/A     -1.2  -0.8       N/A
        TRACKING ---------------------------------------------------
                 TRACK MD  2 WAY RANGING NIL BIAS N/A RU NOISE N/A RU
                 DOP BIAS  -0.182HZ C NOS .0025HZ EXP  .005HZ
        MONITOR  ---------------------------------------------------
                      LGWR  LGER  BLRC  BLER
                 DIS  N/A   N/A   N/A   N/A
                 TCP  N/A   N/A   N/A   N/A

        COMMENTS ---------------------------------------------------
```

PN9DCZ67019

```
1597  730821000    730822130    1597
        DSS 62 PASS 1597 CL  -  CTDN 303324 GCF S21L CPS T011 DSS L000
        CONFIG   ---------------------------------------------------
                 AOS DOY  82  LOS DOY  82          TOTAL
                 SCHEDULED 1000Z SCHEDULED 2030Z SCHEDULED 10H 30M
                 ACTUAL    1000Z ACTUAL    2030Z ACTUAL    10H 30M
                 ST XFR    N/A Z RELEASE   2035Z DSS TIME  10H 35M
        COMMAND  ---------------------------------------------------
                 TOTAL   3  AUTO   0  MANUAL   3  ABORT   0
        TELEMETRY --------------------------------------------------
                 POWER 10 KW  BIT RATES 64          CODED  GOE
                       RX 1   RX 2  TCP A      TCP
                 ACTUAL 158.9   N/A    3.5       N/A
                 PREDIC 157.6   N/A    4.2       N/A
                 RESID  - 1.3   N/A   -0.7       N/A
```

TRACKING
TRACK MD 2 WAY RANGING N/A BIAS N/A RU NOISE N/A RU
DOP BIAS .267 HZ C NOS .004 HZ EXP .005 HZ

MONITOR

	LGWR	LGER	BLRC	BLER
DIS	N/R	N/R	N/R	N/R
TCP	N/R	N/R	N/R	N/R

COMMENTS
CMD-TIME 1033-2030Z 9 HRS 57 MIN

GENERAL

DSS	12
PASS	1631
DOY	116
AOS	1807
LOS	2253
TOT	04:46
DSS T	04:46

COMMAND

TOT	4

TELEMETRY

DL	155.6
RES	-1.7
BR	64
SNR	6.5
RES	.7

TRACKING

MODE	2
T PWR	10
D RES	1.384
D NOS	.003
E NOS	.005

COMMENTS
DSS 12/P1631 NO TLM 1815Z-1914Z BAN PDR SUPPLY TCD RACK 1034 AND OPERATOR ERRORS DR-T2545

GENERAL

DSS	14	51	61	51	61	62	51	51	51
PASS	1636	1637	1638	1644	1645	1646	1647	1651	1658
DOY	121	122	123	129	130	131	132	136	143
AOS	1533	1024	1300	1010	0925	0900	0955	0915	0855
LOS	2005	1450	1753	1420	1525	1530	1400	1343	1312
TOT	04:32	04:26	04:53	04:10	06:00	06:30	03:55	04:28	04:17
DSS T	04:36	04:26	04:58	04:40	06:00	06:51	04:00	04:28	04:28

COMMAND

TOT	16	11	6	6	3	4	2	4	4

TELEMETRY

DL	146.5	156.3	157.1	156.8	156.9	158.6	156.1	158.1	158.3
RES	.4	-1.3	-2.0	-1.3	-1.2	-2.8	.2	-1.7	-1.0
BR	512	64	16	64	16	64	16	16	64
SNR	6.3	4.8	12.	3.8	5.0	3.8	8.5	9.8	2.2
RES	1.0	.5	-1.	1.0	2.2	3.6	.1	.2	1.4

TRACKING

MODE	2	2	1	2	2	2	2	2	2
T PWR	10	10	10	10	20	10	N/A	N/A	10
D RES	-1.570	N/A	N/A	N/A	-1.677	-1.688	N/A	N/A	N/A
D NOS	.003	N/A	.003	.003	.004	.004	N/A	0004	N/A
E NOS	.004	.004	.005	.005	.005	.005	.005	.005	.005

COMMENTS
DSS 61/P1645 DR-T2587 BAD PREDICTS CAUSED LATE ACQUISITION
DSS 51/P1651 DR-T2597 D/L S/L OUT OF SPEC

GENERAL	
DSS	51
PASS	1665
DOY	150
AOS	0820
LOS	1246
TOT	4H:6M
DSS T	04:30
COMMAND	
TOT	2
TELEMETRY	
DL	157.4
RES	1.0
BR	16
SNR	7.7
RES	.5
TRACKING	
MODE	2
T PWR	10
D RES	N/A
D NOS	.0035
E NOS	.005
COMMENTS	

GENERAL						
DSS	51	51	51	61	51	61
PASS	1673	1679	1686	1691	1693	1695
DOY	158	164	171	176	178	180
AOS	0730	0655	0550	1041	0530	1030
LOS	1220	1200	1202	1425	1124	1430
TOT	04:50		06:12	03:44	05:54	04:00
DSS T	04:55		06:12		05:54	04:00
COMMAND						
TOT	2	2	2	3	3	13
TELEMETRY						
DL	160.0	161.3	161.9	161.4	162.1	161.6
RES	-0.6	1.3	-1.1	-0.1	-0.7	.0
BR	16	16	16	16	16	16
SNR	6.7	6.0	5.4	N/A	4.7	7.6
RES	.2	1.0	.5	1.1	-.1	-1.1
TRACKING						
MODE	2	2	2	2	2	2
T PWR	10	10	10	20	10	10
D RES	N/A	N/A	-1.500	N/A	N/A	N/A
D NOS	.004	.003	.002	.004	.003	.005
E NOS	.005	.005		.005	.004	.004
COMMENTS						

GLOSSARY

ADSS	Automatic Data Switching System
AGC	automatic gain control
AOS	acquisition of signal
APS	Antenna Pointing Subsystem
ARC	Ames Research Center
BER	bit error rate
CLT	communications line terminal
CP	Communications Processor
CPS	Central Processing System
DIS	Digital Instrumentation Subsystem
DOY	day of year
DPTRAJ	Double Precision Trajectory Program
DSN	Deep Space Network
DSS	Deep Space Station
EDR	Experiment Data Record
EOT	end of track
ETR	Eastern Test Range
FTS	Frequency and Timing Subsystem
GCF	Ground Communications Facility
GMT	Greenwich Mean Time
GOE	ground operations equipment
HSD	high-speed data
HSDL	high-speed data line
IRS	Information Retrieval System
LOS	loss of signal
MCCC	Mission Control and Computing Center
MCD	monitor criteria data
MDE	mission-dependent equipment
MDF	Master Data File
MDR	Master Data Record
MMC	Multiple Mission Command
MMT	Multiple-Mixxion Telemetry
MSA	Mission Support Area
MUX line	multiplexed communication line
NASCOM	NASA Communications Network
NAA	Network Analysis Area
NAT	Network Analysis Team
NSP	NASA Support Plan
OC	Operations Chief
OCT	Operations Control Team
ODC	Operational Data Control
ODR	Original Data Record
PDS	polarimeter diplexed S-band
PE	Project Engineer
PER	parity error rate
RTLT	round-trip light time
S/C	spacecraft
SCU	S-band Cassegrain ultracone
SDA	Subcarrier Demodulator Assembly
SDR	System Data Record
SEP	Sun-Earth probe
SFOF	Space Flight Operations Facility
SMT	S-band megawatt transmit
SNR	signal-to-noise ratio
SNT	system noise temperature
SPU	S-band polarized ultracone
STDN	Spacecraft Tracking and Data Network
TCD	Telemetry and Command Data Handling Subsystem
TCP	Telemetry and Command Processor
TDA	Tracking and Data Acquisition
TDH	Tracking Data Handling Subsystem
TDS	Tracking and Data System
T_s	system temperature
TTY	teletype
TWT	traveling wave tube
UPS	uninterruptible power system
VCO	voltage-controlled oscillator
VOCA	voice operational communications assembly

Renzetti, N. A., Tracking and Data System Support for the Pioneer Project, Pioneer VI, Prelaunch to End of Nominal Mission, Technical Memorandum 33-426, Vol. I, Jet Propulsion Laboratory, Pasadena, Calif. Feb. 1, 1970.

Renzetti, N. A., Tracking and Data System Support for the Pioneer Project, Pioneer VII, Prelaunch to End of Nominal Mission, Technical Memorandum 33-426, Vol. II, Jet Propulsion Laboratory, Pasadena, Calif., Apr. 15, 1970.

Renzetti, N. A., Tracking and Data System Support for the Pioneer Project, Pioneer VIII, Prelaunch through May 1968, Technical Memorandum 33-426, Vol. III, Jet Propulsion Laboratory, Pasadena, Calif., July 15, 1970.

Renzetti, N. A., Tracking and Data System Support for the Pioneer Project, Pioneer IX, Prelaunch through June 1969, Technical Memorandum 33-426, Vol. IV, Jet Propulsion Laboratory, Pasadena, Calif., Nov. 15, 1970.

Renzetti, N. A., Tracking and Data System Report for the Pioneer Project, Pioneer VI, Extended Mission: July 1, 1966-July 1, 1969, Technical Memorandum 33-426, Vol. V, Jet Propulsion Laboratory, Pasadena, Calif., Feb. 1, 1971.

Renzetti, N. A., Tracking and Data System Support for the Pioneer Project, Pioneer VII, Extended Mission: February 24, 1967-July 1, 1968, Technical Memorandum 33-426, Vol. VI, Jet Propulsion Laboratory, Pasadena, Calif., Apr. 15, 1971.

Renzetti, N. A., Tracking and Data System Support for the Pioneer Project, Pioneer VII, Extended Mission: February 24, 1967-July 1, 1968, Technical Memorandum 33-426, Vol. VII, Jet Propulsion Laboratory, Pasadena, Calif., Apr. 15, 1971.

Renzetti, N. A., Tracking and Data System Support for the Pioneer Project, Pioneer VIII, Extended Mission: June 1, 1968-July 1, 1969, Technical Memorandum 33-426, Vol. VIII, Jet Propulsion Laboratory, Pasadena, Calif., May 1, 1971.

Renzetti, N. A., Tracking and Data System Report for the Pioneer Project, Pioneers VI-IX, Extended Missions: July 1, 1969-July 1, 1970, Technical Memorandum 33-426, Vol. IX, Jet Propulsion Laboratory, Pasadena, Calif., Aug. 15, 1971.

Renzetti, N. A., Siegmeth, A. J., Tracking and Data System Support for the Pioneer Project, Pioneers 6-9, Extended Missions: July 1, 1971-July 1, 1972. Technical Memorandum 33-426, Volume XI, Jet Propulsion Laboratory, Pasadena, Calif., May 1, 1973.

Siegmeth, A. J., Purdue, R. E., and Ryan, R.E., Tracking and Data System Support for the Pioneer Project, Pioneers 6-9, Extended Missions: July 1, 1970-July 1, 1971, Technical Memorandum 33-426, Vol. X, Jet Propulsion Laboratory, Pasadena, Calif., Aug. 15, 1972.

NASA — JPL — Coml., L.A., Calif.