Report 11214
22 September 1998

Integrated Advanced Microwave Sounding Unit-A (AMSU-A)

Test Report, Electromagnetic Interference (EMI)/ Electromagnetic Radiation (EMR) and Electromagnetic Capability (EMC) For the EOS/AMSU-A1

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SECTION 1

SUMMARY

1. INTRODUCTION

This document contains the procedure and the test results of the Advanced Microwave Sounding Unit - A (AMSU-A) Earth Observing System (EOS) Project, assembly part number 1356008-1, serial number 202, Electromagnetic Interference (EMI) and Electromagnetic Susceptibility (EMC) qualification test. The test was conducted in accordance with the approved EMI/EMC Test Plan/Procedure, Specification number AE-26151/8B, dated 10 September 1998.

Aerojet intends that the presentation and submittal of this document, prepared in accordance with the objectives established by the aforementioned Test Plan/Procedure, document number AE-26151/8B, will satisfy the data requirement with respect to the AMSU-A/EOS instrument operational compliance of the EMI/EMC test requirement.

Test for the AMSU-A/EOS instrument have been completed and all the requirements per General Interface Requirement Document (GIRD), GSFC 422-11-12-01, for EOS Common Spacecraft/Instruments, paragraph 10.11, were met with the exceptions of the test methods CE03, RE01, and RE02, as described in this document.

1.1 Purpose

The purpose of this test report is to described each of the tests performed and to present the backup data collected to verify that the design objectives and specified requirements were evaluated and achieved.

1.2 Scope

This document describes the EMI/EMC test performed by Aerojet and it is presented in the following manner: Section 1 contains introductory material and a brief summary of the test results. Section 2 contains more detailed descriptions of the test plan, test procedure, and test results for each type of EMI/EMC test conducted. Section 3 contains supplementary information that includes test data sheets, plots, and calculations collected during the qualification testing.

1.3 Summary of test results

1.3.1 Conducted emissions, per test method CE01, 30 Hz to 20 kHz

The AMSU-A1/EOS instrument meets the requirements of CE01. The measured emission were below the specification limit by more than 20 dB.

1.3.2 Conducted emissions, per test method CE03, 20 kHz to 50 MHz

The AMSU-A1/EOS instrument does not meet the conducted emission requirements of the broadband and narrowband limits. In the narrowband emission test, the noisy bus is exceeded by an average of 25 dB above the limit, throughout the frequency range 49 kHz to 1.8 MHz. The power supply harmonics are most prominent in the frequencies above 200 kHz. The broadband emission exceed the limit by more than 20 dB. They are the same narrowband frequencies in a broadband plot. The broadband envelop is only a few dB above the limit at very few frequency ranges throughout the measured power lines.

1.3.3 Radiated emissions, per test method RE02, 14 kHz to 18 GHz

The AMSU-A1/EOS instrument does not meet the radiated emission requirements of the narrowband limits. The narrowband limits were exceeded at 6.2, 12, and 40 MHz. These emissions were directly attributed to the AMSU-A1 instrument. There were some emissions at the frequency range of 250 to 400 kHz that are produced by the STE cables coupling and an FM station frequency at 90.1 MHz. Efforts to eliminates these emissions were not successful. The broadband emission requirement at the 2.0 to 2.2 GHz frequency range could not be met because of the stringent limit difference between the broadband and narrowband limit.

1.3.4 Conducted susceptibility, per test method CS01, 30 Hz to 50 kHz

The AMSU-A1/EOS instrument meets the requirements of CS01.

1.3.5 Conducted susceptibility, per test method CS02, 50 kHz to 400 MHz

The AMSU-A1/EOS instrument meets the requirement of CS02.

1.3.6 Conducted susceptibility, per test method CS06, transient spike

The AMSU-A1/EOS instrument meets the requirement of CS06.

1.3.7 Radiated emissions, per test method RE01, magnetic field 30 Hz to 50 kHz

The AMSU-A1/EOS instrument does not meet the radiated emission requirements at the base of the motors. Each motor exhibits a magnetic field emission of 85 dBpT at 1.635 kHz. The stepping motor also produces a magnetic field throughout the frequency range of 30 Hz to 80 Hz. The maximum emission is 105 dBpT at 80 Hz.

1.3.8 Radiated emission, per test method RE04, magnetic static field, one meter from the wall of the instrument

The AMSU-A1/EOS instrument meets the radiated emissions requirements of RE04.

1.3.9 Radiated susceptibility, per test method RS01, magnetic field 30 Hz to 200 kHz and a 2 gauss magnetic field

The AMSU-A1/EOS instrument meets the requirements of RS01, with no exception.

1.3.10 Radiated susceptibility, per test method RS03, electric field 14 kHz to 18 GHz

The AMSU-A1/EOS instrument meets the electric field radiated susceptibility requirements of RS03, with no exception.

1.4 Tests performed

The AMSU-A1/EOS instrument was subjected to the EMI/EMC tests on the power lines, under the normal, high, and low voltage condition as indicated in Table I .

Table I EMI/EMC Test Performance Matrix

Instrument Input Terminal	CE01/ CE03	CS01/ CS02	CS06	RE01/ RE04	RE02	RS01	RS03
+29V Quiet Power Bus (A)	Yes	No	Yes	No	No	No	No
+29V Quiet Power Bus Return (A)	Yes	No	No	No	No	No	No
+29V Noisy Power Bus (A)	Yes	No	Yes	No	No	No	No
+29V Noisy Power Bus Return (A)	Yes	No	No	No	No	No	No
+29V Survival Heater Bus (A & B)	Yes	No	A Only	No	No	No	No
+29V Survival Heater Bus Return (A & B)	Yes	No	No	No	No	No	No
+27V Quiet Power Bus (A)	No	Yes	No	No	No	No	No
+27V Quiet Power Bus Return (A)	No	Yes	No	No	No	No	No
+27V Noisy Power Bus (A)	No	Yes	No	No	No	No	No
+27V Noisy Power Bus Return (A)	No	Yes	No	No	No	No	No
+27V Survival Heater Bus (A)	No	Yes	No	No	No	No	No
+27V Survival Heater Bus Return (A)	No	Yes	No	No	No	No	No
+31V Quiet Power Bus (A)	No	Yes	No	No	No	No	No
+31V Quiet Power Bus Return (A)	No	Yes	No	No	No	No	No
+31V Noisy Power Bus (A)	No	Yes	No	No	No	No	No
+31V Noisy Power Bus Return (A)	No	Yes	No	No	No	No	No
+31V Survival Heater Bus (A)	No	Yes	No	No	No	No	No
+31V Survival Heater Bus Return (A)	No	Yes	No	No	No	No	No
EOS/AMSU-A Instrument System							
EOS/AMSU-A Instrument @ 29V Nominal Voltage	No	No	No	Yes	Yes	Yes	Yes

1.5 Susceptibility monitors

The monitors shown in Table II will be observed and their output recorded during the performance of the susceptibility testing:

Table II Monitors for Susceptibility Test

Susceptibility	Line/Item	Monitor
Conducted CS01, CS02, and CS06	+29V main power, Quiet Bus*	Data output all channels
	+29V Noisy Power Bus*	Antenna Position
Radiated RS01 and RS03	AMSU-A enclosure	Data output all channels

* CS01 & CS02 are to be performed at +27.0V and +31.0V bus. CS06 is performed at +29.0V bus.

1.6 Pass/Fail criteria

The pass/fail criteria for the conducted and radiated emissions test was determined by inspection of the recorded emissions levels when compared to the specifications limits. All emissions shall be on or below the specification limits. When narrowband emissions exceed the broadband limits or transient spikes

exceed the narrowband or broadband limits, the specific emission shall be identified and exempted from these criteria.

An STE EMI data collection program has been developed and is included in the bonded test software of the STE. Operation of the system and the EMI data collection program will be coordinated with operation of the EMI susceptibility signal sweeps.

The EMI data collected will provide about a five scan period at the beginning and end of each data collection period, which will allow comparison of each channel's normal radiometric response with and without the interference present. The data will be presented in the form of noise distribution plots for each of the radiometric channels and as a summary report for all channels. These data shall be reviewed as follows:

a. Review the summary data and identify channels with alarm counts greater than ten or channels that have sigma values that are a factor of two greater than observed in baseline checks made periodically during the test.

b. Examine the noise distribution plots for channels identified in (a), and look for disruptions during the period when the EMI signal sweep was made. If an EMI disruption results in a peak-to-peak increase in channel noise that is less than twice the normal level, then it is acceptable (pass); if the disruption creates a level shift in the noise data that is equal to or less than the normal noise level, then it is acceptable (pass).

c. Examine all remaining plots for disruptions and identify and file the data.

d. If any channel fails, additional sweeps will be made over a reduced frequency range and at reduced amplitudes as necessary to determine the threshold of the susceptibility.

The test will continue to establish an overall assessment of the behavior. On the Test Data Sheets, the EQUIPMENT LIMIT (EL) column will be checked when the test equipment cannot deliver the required level. Since the test equipment meets the power requirements of MIL-STD-461 and the AMSU-A instrument is not susceptible to the output of the signal source, a check on this column indicates the unit passed the test requirement. A check in the SPECIFICATION LIMIT (SL) column indicates the AMSU-A instrument met the requirements.

SECTION 2

TEST CONDUCT/RESULTS

2. TEST CONDUCT/RESULTS

2.1 Conducted emissions (CE01) test

2.1.1 Purpose of test

This test was conducted to demonstrate that the electromagnetic interference currents in the power lines do not exceed the limits in Figure 1.

2.1.2 Date test started

The test began on 29 July 1998.

2.1.3 Date test completion

The test was completed on 29 July 1998.

2.1.4 Test procedure

The test procedure specified that the test be conducted as indicated in the following steps:

1. Connect the current probe to the Quiet Bus A power line listed in Table III (AE-26151/8B) and as depicted in Figure 4 (also AE-26151/8B), between the feedthrough capacitor and the EOS/AMSU-A.

2. Verify that the measuring equipment is programmed to measure between 20 Hz and 20 kHz. If necessary, program the signal analyzer for multi-scan and compare the measurement to the single scan. Capture the highest level possible in each range.

3. Turn ON the Main Power switch on the STE front power panel and turn ON the Q/Main, N/Pulse and S/Analog switches.

4. Adjust the Q and N/S power supplies voltage levels on the STE to +29.0 V.

5. Using STE commands "[9] SCANNER A1-1 POWER," and "[10] SCANNER A1-2 POWER," turn on the scanner power (the state of the command should change from OFF to ON).

6. Enter the STE command "[11] ANTENNA FULL SCAN MODE." Verify that the command was received by observing that the state of that command has changed from NO to YES, and the instrument is scanning in full scan mode.

7. Allow the instrument to scan for 30 minutes so that all the temperature and power parameters have stabilized (the instrument must remain in full scan mode during the Quiet Bus 'A' and Quiet Bus RTN 'A' test).

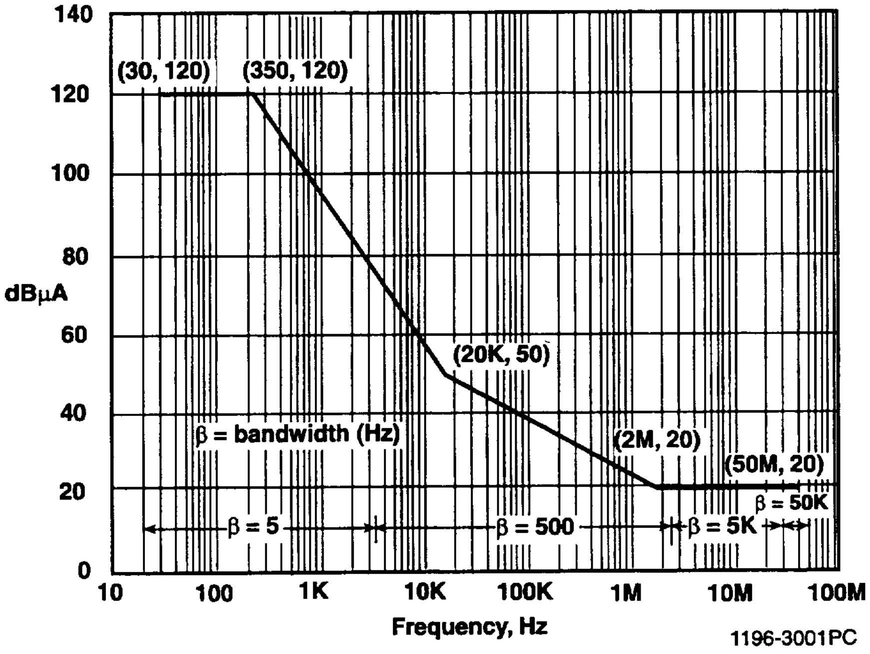


Figure 1 Narrowband Conducted Emissions on Power Leads

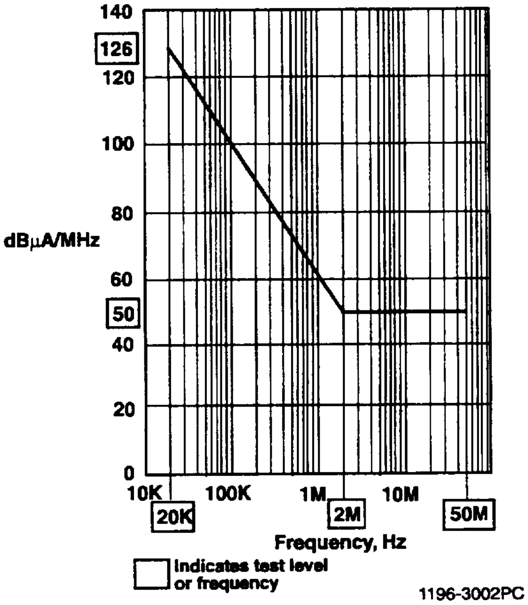


Figure 2 Broadband Conducted Emission Limits on Power Lines

8. Make an X-Y plot. All narrowband measured data should be below the limit shown in Figure 2 (AE-26151/8B). If any emissions exceed or near the limit, scan the frequency range that exhibits the over-the-limit levels, reduce the frequency span, reduce the measuring bandwidth to 5 or 500 Hz, and photograph the CRT presentation or make an X-Y plot.

9. Connect the current probe to the Quiet Bus RTN A line (terminal 3), indicated in Figure 4 (AE-26151/8B), between the feedthrough capacitor and the EOS/AMSU-A.

10. Repeat steps 2 and 8 for the Quiet Bus RTN A line. Record all conducted emissions generated by the EOS/AMSU-A.

11. Using the STE commands, place the Antenna in the Warm Cal position.

12. Connect the current probe to the Noisy Bus A power line (terminal 5) indicated in Figure 4 (AE-26151/8B), between the feedthrough capacitor and the EOS/AMSU-A.

13. Repeat steps 2 and 8 for the Noisy Bus A line. Record all conducted emissions generated by the EOS/AMSU-A.

14. Connect the current probe to the Noisy Bus RTN A power line (terminal 7), indicated in Figure 4 (AE-26151/8B), between the feedthrough capacitor and the EOS/AMSU-A.

15. Repeat steps 2 and 8 for the Noisy Bus RTN A line. Record all conducted emissions generated by the EOS/AMSU-A.

16. Connect the current probe to the Survival Bus A power line (terminal 9), indicated in Figure 4 (AE-26151/8B), between the feedthrough capacitor and the EOS/AMSU-A.

17. Repeat steps 2 and 8 for the Survival Bus A line. Record all conducted emissions generated by the EOS/AMSU-A.

18. Connect the current probe to the Survival Bus RTN A power line (terminal 10), indicated in Figure 4 (AE-26151/8B), between the feedthrough capacitor and the EOS/AMSU-A.

19. Repeat steps 2 and 8 for the Survival Bus RTN A line. Record all conducted emissions generated by the EOS/AMSU-A.

20. With the instrument powered OFF, move the test leads and jumpers from terminals 9 and 10 to terminals 22 and 23 on the Breakout Box, for the Survival Bus power redundancy, listed in Table III (AE-26151/8B). Place the “A/B” switch on the STE front panel to the “B” position.

21. Repeat steps 16 through 19 for the Survival Bus B redundancy of the instrument.

22. Command the instrument scanner OFF and turn off the Main Power switch on the STE, as described in paragraph 3.4.6.4.2, steps 1 and 2 (AE-26151/8B).

2.1.5 Test comment

This test was conducted in accordance with the above test plan, with no exceptions.

2.1.6 Test results

The emissions on the Quiet Bus are 23 dB below the limit. The Noisy Bus exhibit emissions 21 dB below the limit. The Survival Heaters were 23 dB below the limit. The AMSU-A1 meets the requirement without exception. See Test Data Sheet 1 and Plots 1 through 8.

2.2 Conducted emissions (CE03) test

2.2.1 Purpose of test

This test was conducted to demonstrate that the electromagnetic interference currents in the power lines do not exceed the limits in Figures 1 and 2.

2.2.2 Date test started

The test began on 30 July 1998.

2.2.3 Date test completion

The test was completed on 30 July 1998.

2.2.4 Test procedure

The test procedure specified that the test be conducted as indicated in the following steps:

1. Place the current probe (91550-1) on one of the power lines listed in Table III (AE-26151/8B).
2. Verify that the measuring equipment is programmed to measure between 20 kHz and 50 MHz.
3. Using the spectrum analyzer system (HP 8566B), automatically scan all narrowband data from 20 kHz to 50 MHz. Plot the CRT presentation.
4. All measured data should be below the limit shown in Figure 2 (AE-26151/8B). If any emissions are observed to exceed or near the limit line, reduce the measuring bandwidth to 500 Hz, 5 kHz, or 50 kHz, and command the computer to print the measured level of the signal.
5. Request the computer for all broadband data from 20 kHz to 50 MHz. Plot the CRT presentation.
6. All broadband measured data should be below the limit shown in Figure 3 (AE-26151/8B). If any emissions are observed to exceed the limit, determine if the signal is broadband, as indicated in MIL-STD-462.
7. If signals are broadband emissions, command the computer to print out the measured levels.
8. Repeat steps 1 through 7 for all the power lines listed in Table III (AE-26151/8B).
9. If any narrowband or broadband signals exceed the limits, perform an ambient test and determine the source of the emanation.
10. Affix all plots, photos, calculations, and related information to TDS 2.

2.2.5 Test results

The Quiet Bus exhibited emissions above the limit throughout the frequency range of 47 kHz to 835 kHz. The narrowband conducted emissions exceeded the limit by 17 dB. The broadband emissions are a

product of pulsed CW and have the same frequencies as seen on the NB plot. The Noisy Bus is the contributor of all the noise exhibited in all the power lines with exception of the power supply switching harmonics, i.e., 104 kHz. The emissions cover a frequency range from 20 kHz to 2.15 MHz. The narrowband measured level exceed the limit by a maximum of 24 dB. The Survival Heater Bus A and B were measured and there was little difference between them. The emissions exceed the limit by a maximum of 17 dB. The frequency spectrum covers the frequency range of 54 kHz to 835 kHz. See Test Data Sheet 2 plots 10 through 25. The Quiet Bus was measured with the motor in the Warm Calibration position. The only frequencies that are out of spec are the harmonics of the switching frequency. They are presented in plots 26 through 29.

2.3 Radiated emissions (RE01) test

2.3.1 Purpose of test

The test was conducted to demonstrate that the radiated magnetic fields from the test sample and associated cables do not exceed the limit in Figure 3.

2.3.2 Date test started

The test began on 28 July 1998.

2.3.3 Date test completion

The test was completed on 28 July 1998.

2.3.4 Test procedure

The test procedure specified that the test be conducted as indicated in the following steps:

1. Connect the Stoddart 902111-2 loop antenna to the input port of the HP 7080A spectrum analyzer or HP 3562 signal analyzer.
2. Adjust the spectrum analyzer sequentially to the frequency range and bandwidth specified below:

A.	30 Hz to 200 Hz	--	10 Hz Bandwidth
B.	200 Hz to 20 kHz	-	100 Hz Bandwidth
C.	20 kHz to 50 kHz	-	1 kHz Bandwidth

3. Locate the area of maximum interference and take data.
4. All measured data shall be below the limits shown in Figure 16 (AE-26151/8B).
5. Plot the CRT presentation, with limit.
6. Affix all plots, photos, calculations, and related information to TDS 8 (AE-26151/8B).

2.3.5 Test comment

This test was conducted in accordance to the above test plan, with no exceptions.

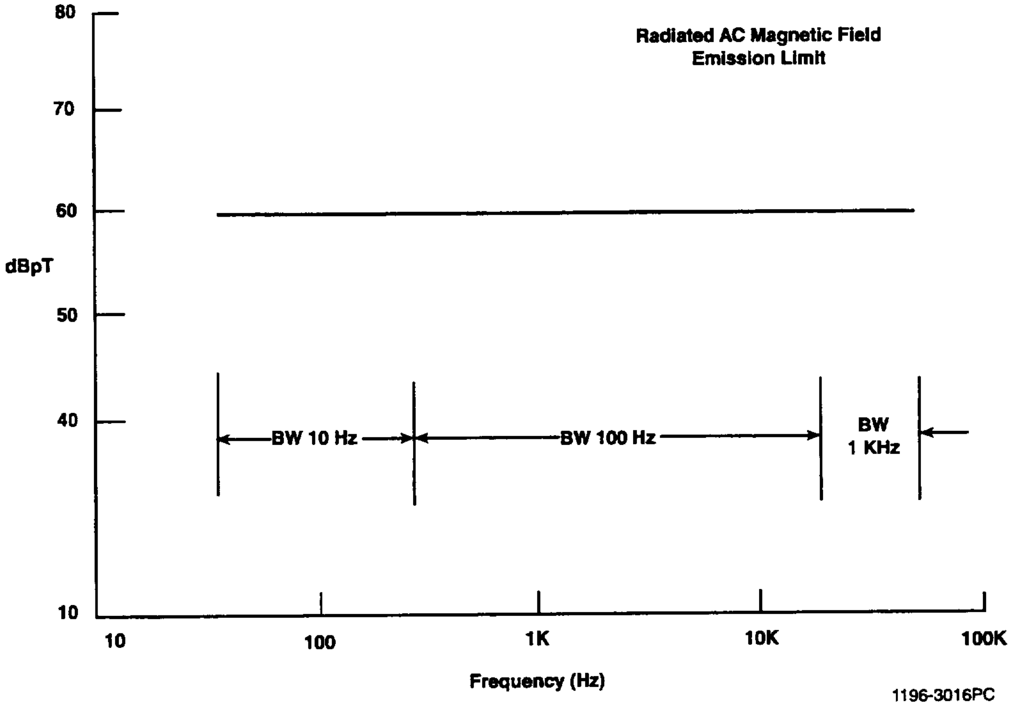


Figure 3 Limits RE01

2.3.6 Test results

The AMSU-A1/EOS instrument does not meet the requirements of the test method RE01. The narrowband emissions exceed limits throughout the frequency range of 30 Hz to 2.8 kHz. The center of each motor, 7 cm away, exhibit emissions that exceed the limit. The frequency range of 30 to 80 Hz are related to the motor steps. The emissions are 45 dB above the limit, i.e., 105 dBpT. The motor also exhibits a strong narrowband frequency at 1.635 kHz that exceeds the limit by 25 dB, i.e., 85 dBpT. No emissions were detected from 20 to 50 kHz. No emissions were detected in any other position of the probe throughout the instrument. See Test Data Sheet 8, Plots 150 and 152.

2.4 Radiated emissions (RE04) test

2.4.1 Purpose of test

This test was conducted to demonstrate that the radiated magnetic fields from the test sample and associated cables do not exceed the limit of one milligauss at a distance of our meter from the lateral wall of the instrument in all directions.

2.4.2 Date test started

The test began on 31 July 1998.

2.4.3 Date test completion

The test was completed on 31 July 1998.

2.4.4 Test procedure

The test procedure specified that the test be conducted in the following steps:

1. Move the EOS/AMSU-A instrument, on the plastic fixture, toward the probe to a distance of one meter from the wall of the instrument to the point of the probe.

2. Manually rotate the instrument.

3. With the unit deactivated, measure the magnetic field emissions of the EOS/AMSU-A instrument. Collect test data of the magnetic field intensity by rotating the equipment clockwise and taking measurements at intervals of not less than every 30 degrees. Record the results and note the level and location on TDS 9 (AE-26151/8B).

4. Perform paragraph 3.4.8.4 (AE-26151/8B) steps 2 to 5. Allow the instrument to scan for a 30 minute warm up.

5. At the point of maximum detection, repeat measurements with the instrument in the primary operating mode. Note difference in level. If levels exceed previous measurement levels, repeat step 2 with the unit activated.

6. Review recorded data. If measurement are below the 1 milligauss level at one meter from the instrument in all directions, the test is completed. If measurements exceed the limit, measure the ambient level and proceed to step 7 or step 8.

7. In the event that the ambient level does not meet the requirement and the ambient cannot be reduced further because of the facility or area limitations, a minimum of three correlatable measurements shall be made in the axis of maximum field intensity but at a shorter distance than one meter. The measured levels shall be able to provide an approximate field intensity. Ambient magnetic field shall be recorded and shall be part of the test data package.

8. In the event that the measured level exceeds the required level, the measurements shall be made to determine the location of the center of the magnetic dipole moment producing the out-of-limit condition. A minimum of three correlatable measurements along an axis are required to plot the magnetic field.

9. Record all measured data, indicating level and position of the probe. Note opposing magnetic dipole moments, shield leakage, and all other pertinent data.

10. Repeat measurement within ten inches above and below the mid-height probe placement of 3.4.11.3.1 (3) (of AE-26151/8B).

2.4.5 Test comment

This test was conducted in accordance to the above test plan, with no exceptions.

2.4.6 Test results

The AMSU-A1/EOS instrument meets the requirement without exception. The instrument was measured with the unit power "OFF" and in the "FULL SCAN" mode. Under both conditions, the instrument magnetic field level, at three heights, do not exhibit emissions above 0.61 milligauss one meter from the unit. See Test Data Sheet 9.

2.5 Radiated emissions (RE02) test

2.5.1 Purpose of test

This test was conducted to demonstrate that the radiated electric fields from the test sample and associated cables do not exceed the limits in Figures 4 and 5.

2.5.2 Date test started

The test began on 27 July 1998.

2.5.3 Date test completion

The test was completed on 28 July 1998.

2.5.4 Test procedure

The test procedure specified that the test be conducted as indicated in the following steps:

1. Connect the antenna to the proper receiver/amplifier port. Verify that the EOS/AMSU-A interface cables used for monitoring are shielded.
2. Allow the EMC test equipment to warm up for a minimum of 10 minutes.
3. Program the spectrum analyzer system (HP 8566B) to automatically scan and plot all narrowband data from 14 kHz to 1 GHz, switching the appropriate antenna/amplifier throughout the frequency range.

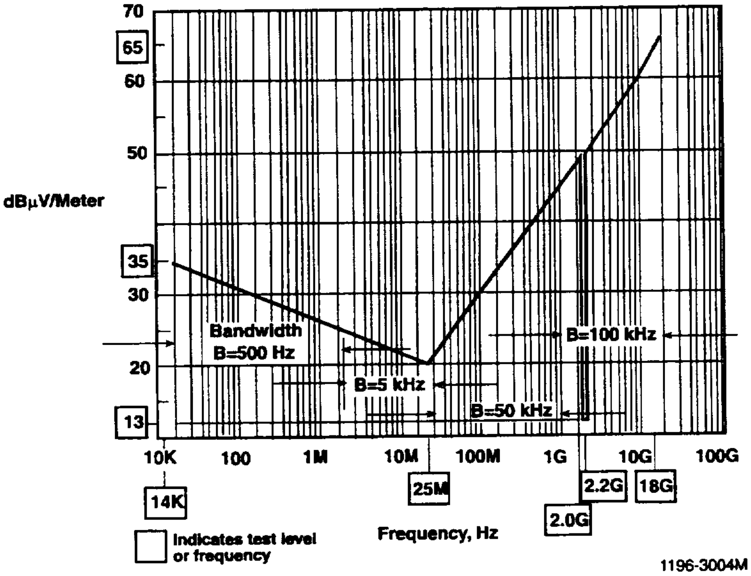


Figure 4 Radiated Narrowband Limits for Electric-Field Emission (Produced by Instrument)

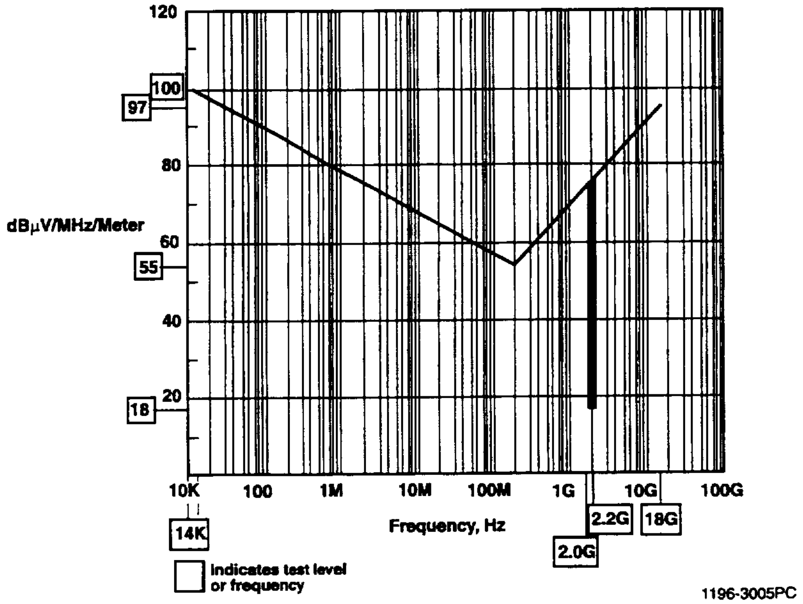


Figure 5 Radiated Broadband Limits for Electric-Field Emissions (Produced by Instrument)

4. All data shall be below the limits shown in Figure 5 (AE-26151/8B). If any emissions are observed to exceed the limit line, command the computer to print the measured levels.
5. Request of the computer all broadband data from 14 kHz to 1 GHz. Plot the CRT presentation with limits.
6. All data shall be below the limits shown on Figure 6 (AE-26151/8B). If any emissions are observed to exceed the limit line, command the computer to print the measured levels.
7. If any signals, narrowband or broadband, exceed the limits, perform an ambient test and determine the source of the emanations. Reduce or eliminate the source, if external to the EOS/AMSU-A instrument, and repeat the test.
8. Set up the horn antenna (RGA-180) one meter from the point of maximum radiation.
9. Self-calibrate the signal analyzer (HP 71210C).
10. Sweep throughout the frequency range of 1 to 18 GHz in a minimum of three ranges, recording the observed narrowband emission levels. Plot emissions detected throughout each frequency range.
11. All data shall be below the limits shown on Figure 5 (AE-26151/8B); if not, perform step 7.
12. Affix all plots, photos, calculations, and related information to TDS 3 (AE-26151/8B).
13. After disconnecting the horn antenna, set the signal analyzer (HP 71210C) to one of the four frequencies listed in 3.4.5 (AE-26151/8B) with the appropriate frequency span.

14. Activate the series preamplifier (HP 70620) and reduce the test equipment bandwidth to 10 kHz or less.

15. Program the signal analyzer (HP 71210C) for noise averaging to a minimum of eight times. Verify that the sensitivity noise level is below the required level.

16. Connect the antenna to the signal analyzer amplifier input.

17. The measurement should be within the ambient level, and no narrowband frequencies should be detected at the specified frequency above the sensitivity level specified in 3.4.5 (AE-26151/8B). Plot the screen presentation.

18. Repeat steps 13 through 17 while performing a measurement on the remaining frequencies.

19. Record the information regarding the test on TDS 3 (AE-26151/8B) and attach all plots, photos, calculations, and other related information.

2.5.5 Test comment

This test was conducted in accordance to the above test plan, with no exceptions.

2.5.6 Test results

The AMSU-A1/EOS instrument exceeds the limit at 1, 12, 17, and 40 MHz. These frequencies are related directly to the instrument. They exceed the limit by a maximum of 2 dB above the limit. There are several ambient emissions that were recorded and are attributed to the STE and an FM radio station. Efforts were made to reduce the ambient emissions but the physical location of the STE cables and the measuring cables were affected with the frequencies from 220 to 280 kHz. A special test was conducted with the motor in the "Warm Calibration" mode, i.e., not switching, and the emissions are not that different. Broadband emissions were below the limit except at 2 to 2.2 GHz. The electric field radiated emissions from 1 to 18 GHz exhibited no detectable emissions. The frequency band between 2.0 to 2.2 GHz, broadband limit is too stringent and could not be measured at 18 dBμV/m/MHz. This is an instrumentation problem that could not be resolved. All the special frequencies were within the specification sensitivity requirements. See Test Data Sheet 3, plots 100 through 143.

2.6 Conducted susceptibility (CS01) test

2.6.1 Purpose of test

This test was conducted to demonstrate that the test sample is not susceptible to the transformer-coupled audio frequency conducted interference levels on the input power leads, to the levels indicated in Figure 6.

2.6.2 Date test started

The test began on 17 July 1998. A partial re-test began on 31 July 1998.

2.6.3 Date test completion

The test was completed on 18 July 1998. The partial re-test was completed on 31 July 1998.

2.6.4 Test procedure

The test procedure specified that the test be conducted as indicated in the following steps:

1. Apply power to all the test equipment and set the power amplifier to ON, and the "Right/Mono Gain" knob to min. (counterclockwise).
2. Set the function generator to sweep from 30 Hz to 50 kHz using the following discrete frequency ranges with a sweep rate of 90 seconds per range:
    A. 30 Hz to 1500 Hz
    B. 1.5 kHz to 10 kHz
    C. 10 kHz to 50 kHz.
3. Set the SCAN mode to SINGLE SWEEP.

Quiet Bus 'A'/Bus RTN 'A' Test

1. Connect the transformer secondary winding to the Breakout Box terminals as indicated in Table V of Figure 9 (AE-26151/8B)
2. Set the function generator amplitude to 500 mV p-p. Adjust the amplifier's amplitude using the "Right/Mono Gain" knob to obtain 500 mV on the scope.
3. Disable the function generator by pressing the signal "Rear only" button.
4. Using STE commands "[9] SCANNER A1-1 POWER," and "[10] SCANNER A1-2 POWER," turn on the scanner power (the state of the command should change from OFF to ON).
5. Enter the STE command "[11] ANTENNA FULL SCAN MODE." Verify that the command was received by observing that the state of that command has changed from NO to YES, and the instrument is scanning in full scan mode.
6. Allow the instrument to scan for 30 minutes so that all the temperature and power parameters have stabilized (the instrument must remain in full scan mode during the Quiet Bus 'A' and Quiet Bus RTN 'A' test).
7. After the instrument has stabilized for 30 minutes, enable the function generator and perform the EMI test sequence by selecting command "[7] SPECIAL CYCLE CALIBRATION" from the STE main screen.
8. From the test initialization menu, select "[13] SCANS TO ACQUIRE." Enter the number of scans (24 for 90 sec. Sweep time).
9. Select "[16] START DATA ACQUISITION." Begin the test sweep (for the 30 Hz to 1500 Hz range) on the function generator. Manipulate the amplifier's amplitude to maintain the 500 mV p-p.
10. At the end of the sweep and 24 scans, the screen will change to the A1 DELTA T and CALIBRATION ACCURACY menu. From that screen, press "[1] RETURN." The display will prompt "Do you wish to save data on disk (Y/N)? Enter N for No.

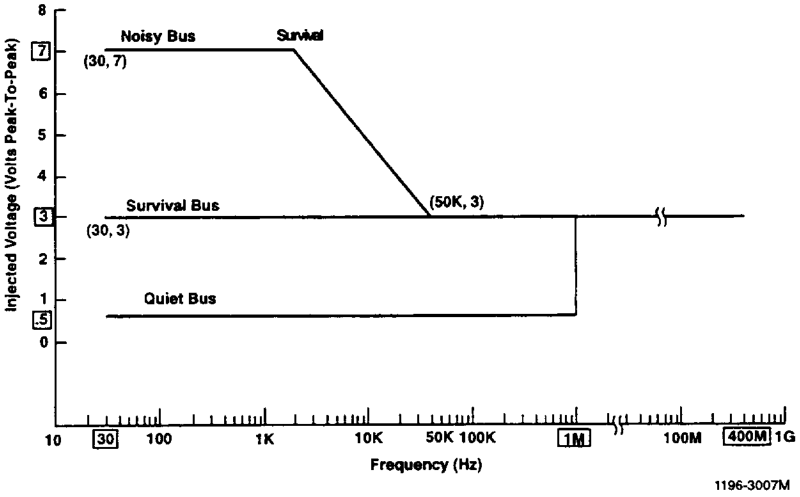


Figure 6 Ripple and Noise Susceptibility Limit

11. The STE will return to the AMSU-A1 TEST INITIALIZTION menu. Enter 15 and press the return key, two times. The STE will return to the AMSU-A1 CALIBRATION PROCESS SELECTION menu.
12. Select "[12] PRINT DISTRIBUTION" to obtain the data plot.
13. Select "[1] RETURN" to return to the AMSU-A1 TEST INITIALIZATION menu.
14. Repeat steps 8 to 13 for each frequency range and power levels specified in TDS 4 and Table III (AE-26151/8B).
15. Repeat steps 1 to 3 and step 14 for Quiet Bus RTN 'A'.
16. Record the completion of scanning of each function generator's frequency sweep range on TDS 4 (AE-26151/8B).
17. If any failure occurs, record each frequency at which a failure occurs, and annotate the level of the threshold for the failure.

Noisy Bus 'A'/Bus RTN 'A' Test

1. Turn off the scanner power by entering the STE commands "[9] SCANNER A1-1 POWER," and "[10] SCANNER A1-2 POWER." The state of the command should change from ON to OFF.
2. Turn OFF the Main Power switch on the STE front panel.
3. Configure the Breakout Box for the Noisy Bus 'A' test in accordance with Table V of Figure 9 (AE-26151/8B).
4. Turn the STE Main Switch to ON (Q/Main and N/Pulse and S/Analog switches must be turned ON). Set the N/S supply on the STE to +27.0 V and the Q supply on the STE to +29.0 V.

5. Turn on the scanner power and place the instrument in Warm Cal position by entering the STE command "[12] WARM CAL." Verify that the command was received by observing that the state of that command has changed from NO to YES.

6. Set the function generator amplitude to 800 mV p-p, and adjust the power amplifier gain level to obtain 7 V p-p on the scope. Place the METER RANGE knob on the amplifier to the "WATTS" position.

7. Begin the test sweep on the function generator for the frequency ranges specified in TDS 4 (AE-26151/8B).

8. Enter the STE command "[10] SCIENCE DATA," and enter the STE command "[13] REFLECTOR POSITIONS".

9. Monitor the reflector position data counts while sweeping through the frequency specified in TDS 4 (AE-26151/8B). Use STE commands "[21] UP" and "[22] DOWN" to manipulate through the reflector position numbers during the test sweep.

10. Obtain a printout using STE command "[2] SCREEN ONLY" for each channel radiometric data at the completion of the test sweep.

11. Repeat steps 7 through 10 for each frequency range specified in TDS 4 (AE-26151/8B).

12. Turn off the power amplifier by placing the SPEAKER knob in the OFF position. Disable the function generator.

13. Set the N/S supply on the STE to +31.0 V. Turn on the power amplifier by placing the SPEAKER knob to the ON position. Enable the function generator.

14. Perform steps 7 to 11.

15. Perform steps 1 and 2. Configure the Breakout Box for Noisy Bus RTN 'A' test, in accordance with Table V of Figure 9 (AE-26151/8B).

16. Perform steps 4 to 14.

17. Record the completion of scanning of each function generator's frequency sweep range on TDS 4 (AE-26151/8B).

18. If any failure occurs, record each frequency at which a failure occurs, and annotate the level of the threshold for the failure.

Survival Bus 'A'/Bus RTN 'A' Test

1. Turn off the scanner power by entering the STE commands "[9] SCANNER A1-1 POWER," and "[10] SCANNER A1-2 POWER." The state of the command should change from ON to OFF.

2. Turn OFF the Main Power switch on the STE front panel.

3. Configure the Breakout Box for the Survival Bus 'A' test in accordance with Table V of Figure 9 (AE-26151/8B).

4. Set the N/S supply on the STE to +27.0 V and the Q supply on the STE to +29.0 V.

5. Turn on the scanner power and place the instrument in Warm Cal position by entering the STE Command "[12] WARM CAL." Verify that the command was received by observing that the state of that command has changed from NO to YES.
6. Adjust the function generator amplitude and the amplifier gain level to obtain 3 V p-p on the scope.
7. Begin the test sweep on the function generator for the frequency ranges specified in TDS 4 (AE-26151/8B).
8. Monitor the N/S supply current on the STE. Verify that the current does not reach minimum of 0.5 ampere during the test sweep.
9. Manipulate the amplifier gain control to maintain the 3 V p-p on the scope.
10. Repeat steps 7 to 9 for each frequency range specified in TDS 4, and the Bus Voltage levels of Table III (AE-26151/8B).
11. Turn off the power amplifier by placing the SPEAKER knob in the OFF position. Disable the function generator.
12. Set the N/S supply on the STE to +31.0 V. Turn on the power amplifier by placing the SPEAKER knob to the ON position. Enable the function generator.
13. Perform steps 7 to 10.
14. Perform steps 1 and 2. Configure the Breakout Box for the Survival Bus RTN 'A' test, in accordance with Table V of Figure 9 (AE-26151/8B).
15. Perform steps 4 to 13.
16. Record the completion of each function generator's frequency sweep range on TDS 4 (AE-26151/8B).
17. If any failure occurs, record each frequency at which a failure occurs, and annotate the level of the threshold for the failure.

2.6.5 Test comment

This test was conducted in accordance to the above test plan, with no exceptions.

2.6.6 Test results

The instrument meets the requirements of this Test Method. The test was performed at the high and minimum input power levels without any indication of susceptibility. The Quiet Bus high side and return were additionally tested after the channel 15 failure indicated in the following paragraph. The AMSU-A1/EOS passed all the test. See Test Data Sheet.

2.7 Conducted Susceptibility (CS02) test

2.7.1 Purpose of test

The test was conducted to demonstrate that the test sample is not susceptible to the capacitor-injected radio frequency conducted interference levels on the input power leads, per Figure 6.

2.7.2 Date test started

The test began on 18 July 1998. A partial re-test began on 31 July 1998.

2.7.3 Date test completion

The test was completed on 20 July 1998. The partial re-test was completed on 31 July 1998.

2.7.4 Test procedure

The test procedure specified that the test be conducted as indicated in the following steps:

1. With the sensor in primary operating mode, apply power to all the test equipment except the power amplifier. Ensure that there is no connection between the Hi pass filter (HPF) and the Breakout Box.
2. Set the function generator to sweep from 50 kHz to 400 MHz, using the frequency ranges, the sweep time, and equipment changes as indicated in Table VI (AE-26151/8B).
3. Apply power to the power amplifier.

Quiet Bus ‘A’/Bus RTN ‘A’ Test.

1. Connect the HPF (line) to the scope channel 1. Adjust the amplitude level on the function generator being used in Table VI (AE-26151/8B) so that a 3.0 V p-p (for frequency range of 1 MHz - 400 MHz only) AC signal is measured.
2. Remove the test cable from the scope and HPF (line) and connect to the spectrum analyzer and HPF (det).
3. Turn on the Display Line (DL) and enable the marker mode on the spectrum analyzer. Adjust the DL to obtain a –21.0 dBm reference line. The measured signal (unloaded) on the spectrum analyzer should be above the DL with the attenuator set to 0 dB.
4. Disable the function generator by pressing the signal “Rear only” button (RF ON/OFF on 83630B). Connect a test lead from the HPF (line) to terminal 1 (Quiet Bus ‘A’) on the Breakout Box. Enable the function generator.
5. Set the attenuator to attain –15 dB gain and readjust the amplitude level on the function generator being used so that the signal level is maintained above the DL of the spectrum analyzer.
6. Manipulate the attenuator to maintain a signal level at or above the DL during the test sweep.

7. Using STE commands "[9] SCANNER A1-1 POWER," and "[10] SCANNER A1-2 POWER," turn on the scanner power (the state of the command should change from OFF to ON).

8. Enter the STE command "[11] ANTENNA FULL SCAN MODE." Verify that the command was received by observing that the state of the command has changed from NO to YES, and the instrument is scanning in full scan mode.

9. Allow the instrument to scan for 30 minutes so that all the temperature and power parameters have stabilized (the instrument must remain in full scan mode during the Quiet Bus 'A' and Quiet Bus RTN 'A' test).

10. After the instrument has stabilized for 30 minutes, perform the EMI test by selecting command "[7] SPECIAL CYCLE CALIBRATION" from the STE main screen.

11. From the TEST INITIALIZATION menu, select "[13] SCANS TO ACQUIRE." Enter the number of scans (24 for 90 sec. sweep time or 16 for 60 sec. sweep time).

12. Select "[16] START DATA ACQUISITION." At the end of the 24 (16) scans the screen will change to the A1 DELTA T and CALIBRATION ACCURACY menu. From that screen, press "[1] RETURN." The display will prompt "Do you wish to save data on disk (Y/N)?" Enter N for No.

13. The STE program will return to the AMSU-A1 TEST INITIALIZATION menu. Enter 15 and press the RETURN key, two times. The STE will return to the AMSU-A1 CALIBRATION PROCESS SELECTION menu.

14. Select "[12] PRINT DISTRIBUTION" to obtain the data plot.

15. Select "[1] RETURN" to return the AMSU-A1 TEST INITIALIZATION menu.

16. Repeat steps 12 to 15 for each frequency range specified in Table VI and Bus Voltage levels of Table III (AE-26151/8B). Obtain a printout of the monitored system output data.

17. Repeat steps 1 through 16 for the Quiet Bus RTN A using terminal 3 on the Breakout Box, and for the Bus Voltage levels indicated in Table III (AE-26151/8B).

18. Repeat steps 1 through 17 for the 50 kHz to 1 MHz frequency range at 0.5 V p-p amplitude level on the function generator.

19. If any failure occurs, record each frequency at which a failure occurs and annotate the threshold level of the failure.

20. Record the completion of scanning of each band on TDS 5 (AE-26151/8B).

Noisy Bus 'A'/Bus RTN 'A' Test (50 kHz - 400 MHz)

1. Connect the HPF (line) to the scope channel 1. Adjust the amplitude level on the function generator being used (see Table VI of AE-26151/8B) so that a 3.0 V p-p (unloaded) Ac signal is measured (700 mV p-p amplitude on function generator).

2. Remove the test load from the HPF (line) and connect it to the (DET) on the HPF.

3. Remove the test load from the scope and connect to the spectrum analyzer "RF Inputs." Turn on the Display Line (DL) and enable the marker mode on the spectrum analyzer. Verify that the peak signal is approximately –42.0 dBm. Adjust the DL to be at the peak signal.

4. Set the attenuator to 50 dB. The measured signal on the spectrum analyzer (unloaded) should be at or above the DL (–42.0 dBm).

5. Disable the function generator by pressing the signal "Rear only" button (RF ON/OFF on 83630B). Connect the test lead from the HPF (line) to terminal 5 (Noisy Bus 'A') on the Breakout Box. Enable the function generator.

6. Place the instrument in Warm Cal position by selecting STE command "[12] WARM CAL." Enter the STE command "[10] SCIENCE DATA," and enter the STE command "[10] CHANNEL NN-ALL BEAM POSITIONS."

7. Enter the first available channel number. Monitor the radiometric data for all channels while sweeping through the frequency specified in TDS 5 (AE-26151/8B). Use STE command "[21] UP" and "[22] DOWN" to monitor all channels during the test sweep.

8. Manipulate the attenuator to maintain a signal level at or above the DL during the test sweep.

9. Obtain a printout using STE command "[12] SCREEN ONLY" for each channel radiometric data at the completion of the test sweep.

10. Repeat steps 6 through 9 for each frequency range specified in Table VI (AE-26151/8B) and Bus Voltage levels of Table III.

11. Repeat steps 1 through 10 for the Noisy Bus RTN 'A' using terminal 7 on the Breakout Box, and for the Bus Voltage levels as indicated in Table III.

12. If any failure occurs, record each frequency at which a failure occurs and annotate the threshold level of the failure.

13. Record the completion of scanning of each band on TDS 5 (AE-26151/8B).

Survival Bus 'A'/Bus RTN 'A' Test (50 kHz - 400 MHz).

1. Connect the HPF (line) to the scope channel 1. Adjust the amplitude level on the function generator being used (see Table VI of AE-26151/8B) so that a 3.0 V p-p (unloaded) AC signal is measured (700 mV p-p amplitude on function generator).

2. Remove the test load from the HPF (line) and connect it to the (DET) on the HPF.

3. Remove the test load from the scope and connect to the spectrum analyzer "RF Input." Turn on the Display Line (DL) and enable the marker mode on the spectrum analyzer. Verify that the peak signal is approximately –42.0 dBm. Adjust the DL to be at the peak signal.

4. Set the attenuator to 50 dB. The measured signal on the spectrum analyzer (unloaded) should be at or above the DL (–42.0 dBm).

5. Place the instrument in Warm Cal position by entering the STE command "[12] WARM CAL." Verify that the command was received by observing that the state of the command has changed from NO to YES.

6. Disable the function generator by pressing the signal "Rear only" button (RF ON/OFF on 83630B). Connect the test leads from the HPF (line) to terminal 9 (Survival Bus 'A' on the Breakout Box). Enable the function generator.

7. Turn on the S/Analog switch on the STE front panel. Monitor the N/S supply current on the STE. Verify that the current does not reach a minimum of 0.5 Amp during the test sweep.

8. Manipulate the attenuator to maintain a signal level at or above the DL (–42.0 dBm) during the test sweep.

9. Repeat steps 7 and 8 for each frequency range specified in Table VI (AE-26151/8B) and Bus Voltage levels of Table III (AE-26151/8B).

10. Repeat steps 6 through 9 for the Survival Bus RTN 'A' using terminal 10 on the Breakout Box, and for the Bus Voltage levels indicated in Table III (AE-26151/8B).

11. If any failure occurs, record each frequency at which a failure occurs and annotate the threshold level of the failure.

12. Record the completion of scanning of each band on TDS 5 (AE-26151/8B).

2.7.5 Test comment

This test was conducted in accordance to the above test plan, with no exception.

2.7.6 Test results

The AMSU-A1/EOS instrument meets the requirements of Test Method CS02, as indicated in this report. During the performance of the CS02 on the Quiet Bus, channel 15 failed. The indication of the anomaly was loss of gain. The failure was attributed to a high transient spike. The source of the transient could not be ascertained. The proper conduct of the test method does not produce such transients. After the repairs of the instrument the test on the Quiet Bus was repeated from 30 Hz to 400 MHz (the CS01 test method was repeated to cover the entire frequency range) without any indication of susceptibility. See Test Data Sheet 5.

2.8 Conduct Susceptibility (CS06) test

2.8.1 Purpose of test

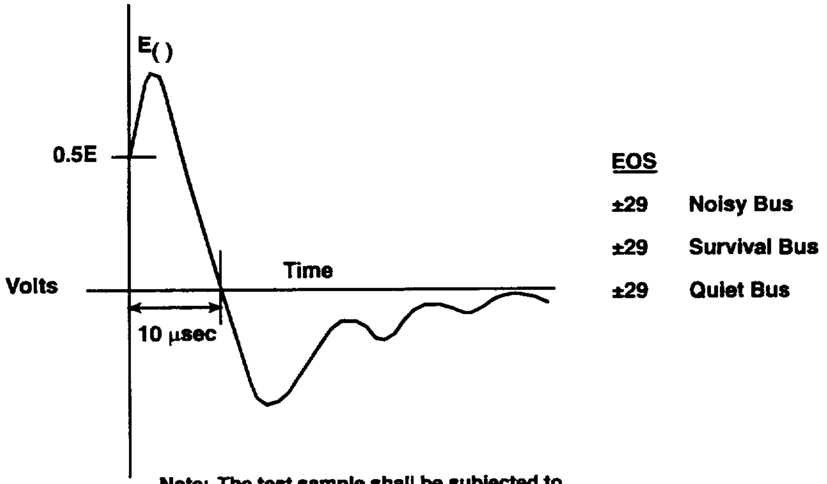
This test was conducted to demonstrate that the test sample is not susceptible to transient spike conducted interference on the input power leads, as shown in Figure 7.

2.8.2 Date test started

1 August 1998.

2.8.3 Date test completion

The test was completed on 1 August 1998.



Note: The test sample shall be subjected to the spike(s) with the waveform shown and with the specified voltage(s)

1196-3011PC

Figure 7 CS06 Transient Waveform

2.8.4 Test procedure

The test procedure specified that the test be conducted as indicated in the following steps:

1. Connect the test leads from the scope and the spike generator to the Quiet Bus terminals indicated in Figure 12 (AE-26151/8B).
2. Turn ON the Main Power switch on the STE front power panel and turn ON the Q/Main, N/Pulse and S/Analog switches.
3. Adjust the Q and N/S power supplies voltage levels on the STE to +29.0 V.
4. Using STE commands "[9] SCANNER A1-1 POWER," and "[10] SCANNER A1-2 POWER," turn on the scanner power (the state of the command should change from OFF to ON).
5. Enter the STE command "[11] ANTENNA FULL SCAN MODE." Verify that the command was received by observing that the state of that command has changed from NO to YES, and the instrument is scanning in full scan mode.
6. Allow the instrument to scan for 30 minutes so that all the temperature and power parameters have stabilized (the instrument must remain in full scan mode during the Quiet Bus 'A' and Quiet Bus RTN 'A' test).
7. After the instrument has stabilized for 30 minutes, perform the EMI test by selecting command "[7] SPECIAL CYCLE CALIBRATION" from the STE main screen.
8. From the TEST INITIALIZATION menu, select "[13] SCANS TO ACQUIRE." Enter the number of scans (58 for 5 sec/meter).
9. Select "[16] START DATA ACQUISITION." Apply the spike at a 10 peaks per second (pps) rate for 5 minutes to the power line under test.

10. At the end of the 58 scans the screen will change to the A1 DELTA T and CALIBRATION ACCURACY menu. From that screen, press "[1] RETURN." The display will prompt "Do you wish to save data on disk (Y/N)?" Enter N for No.

11. The STE program will return to the AMSU-A1 TEST INITIALIZATION menu. Enter "[15] SELECT CAL PROCESSING" and press the RETURN key. The STE will return to the AMSU-A1 CALIBRATION PROCESS SELECTION menu.

12. Select "[12] PRINT DISTRIBUTION" to obtain the data plot.

13. Select "[1] RETURN" to return the AMSU-A1 TEST INITIALIZATION menu.

14. If any failures are recorded, annotate the threshold level of the failure.

15. Reverse the spike polarity and repeat steps 9 to 14.

16. With the instrument powered OFF, remove the test leads from the Quiet Bus terminals and connect to the Noisy Bus terminals (5 and 7) as shown in Figure 12 (AE-26151/8B).

17. Turn ON the scanner power and place the antenna in Warm Cal position.

18. Enter the STE command "[10] SCIENCE DATA," and enter the STE command "[13] REFLECTOR POSITIONS."

19. Monitor the reflector position data counts while applying the voltage spike per step 9. Use STE command "[21] UP" and "[22] DOWN" to manipulate through the reflector positions during the voltage spike test.

20. Repeat step 9.

21. Obtain a printout using STE command "[12] SCREEN ONLY" for each channel radiometric data at the completion of the spike test.

22. Reverse the spike polarity and repeat steps 19 to 21.

23. If any failures are recorded, annotate the threshold level of the failure.

24. With the instrument powered off, remove the test leads from the Noisy Bus terminals and connect across the Survival Bus terminals (9 and 10).

25. Turn ON the scanner power and place the antenna in Warm Cal position.

26. Turn on the S/Analog switch on the STE front panel. Monitor the N/S supply current on the STE. Verify that the current does not reach a minimum of 0.5 Amp during the test sweep.

27. If any failures are recorded, annotate the threshold level of the failure.

28. Remove the spike polarity and repeat steps 26 and 27.

29. Record the completion of each test on TDS 6 (AE-26151/8B). If failures occur, record the pulse amplitude, pulse width, and polarity.

2.8.5 Test comment

This test was conducted in accordance to the above test plan, with no exceptions.

2.8.6 Test results

The AMSU-A1/EOS instrument meets the requirement of test method CS06 without any exception. No malfunction or reduction of performance was noted during the entire conduct of this test. See Test Data Sheet 6 (AE-26151/8B).

2.9 Radiated Susceptibility (RS01) test

2.9.1 Purpose of test

This test was performed to demonstrate that the test sample case and associated cables are not susceptible to the AC and DC magnetic fields shown in Figure 8 and Tables III and IV, respectively.

2.9.2 Date test started

The test began on 28 July 1988.

2.9.3 Date test completion

The test was completed on 30 July 1998.

2.9.4 Test procedure

The test procedure specified that the test be conducted as indicated in the following steps:

1. Power all the test equipment and set the power amplifier to standby.
2. Set the function generator to sweep from 30 Hz to 200 kHz using the frequency ranges below and a sweep rate of 90 seconds per range.
    a. 30 to 200 Hz
    b. 360 to 2000 Hz
    c. 2 to 20 kHz
    d. 20 to 200 kHz
3. Set the SCAN mode to SINGLE SWEEP and turn on the power amplifier.
4. Monitor the output signal with the digital voltmeter or the spectrum analyzer and adjust the output level to the required voltage equivalent to the limit shown in Figure 8.
5. Move the loop antenna along the wall of the instrument, cables, and connectors. Repeat the frequency range sweep, as required. Monitor the STE for indication of susceptibility.
6. Using the EMI test menu on the STE, monitor the test sample for errors as described in the ATP. At each frequency range, obtain a printout of the monitored system output data.

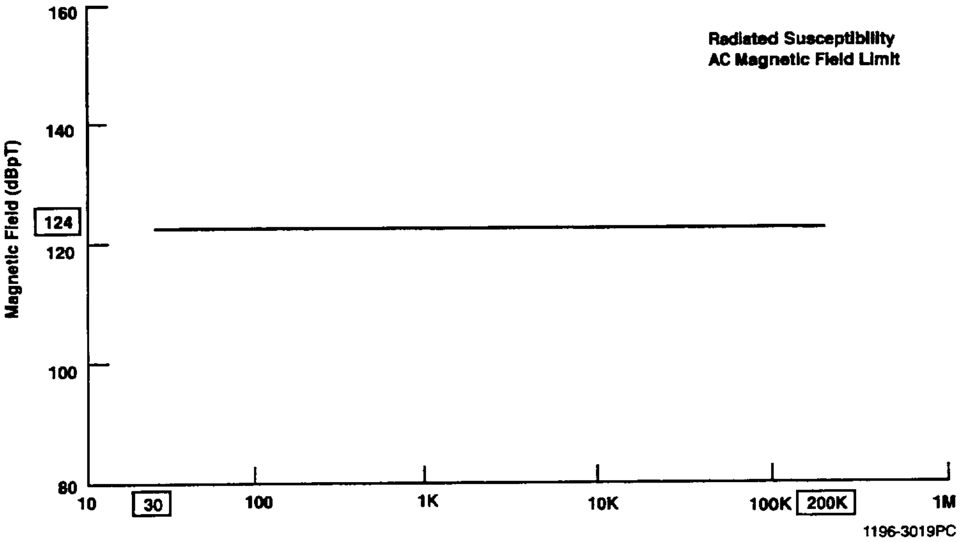


Figure 8 RS01 Magnetic Field Limit

Table III Magnetic Field Applied Distance

Unit	Distance (Inches)	Axis
AMSU-A1	32.6	–X

Table IV Static Magnetic Field Applied Distance

Unit	Maximum Distance (Inches)	Axis
AMSU-A1	92.56	–X

7. Record on TDS 10 (AE-26151/8B) the completion of scanning of each function generator's frequency sweep range.

8. If any failure occurs, record the frequency and area at which a failure occurred. Note the voltage level of the threshold for the failure.

9. Convert the voltage level to the appropriate magnetic field equivalent.

2.9.5 Radiated susceptibility, static magnetic field, test

1. Power on all the test equipment.

2. Set the power to the current level that generates a 10 gauss field.

3. Using the EMI test menu on the STE, monitor the test sample for errors as described in the ATP.

4. Move the loop antenna along the lateral walls of the instrument, connectors, and cables.

5. Get a printout of the monitored system as the field is applied on each wall, connector, area, and cables.

6. If any failure occurs, record the malfunction and area at which a failure occurred. Note the voltage level of the threshold for the failure. Move the radiating loop antenna back until normal operation returns. Record the new distance of the loop antenna.

7. Convert the voltage level to the appropriate magnetic field equivalent.

8. Record on TDS 11 (AE-26151/8B) the completion of each area probed; i.e., lateral walls, connectors, and cables, and the distance between the applied field and the items described.

2.9.6 Test comment

The test was conducted in accordance to the above test plan, with one exception. All the applied levels were at 5 cm from the wall of the instrument, connectors, and cables.

2.9.7 Test results

The AMSU-A1/EOS instrument meets the requirement of Test Method RS01, AC and DC magnetic fields. The unit did not exhibit any malfunctions or reduction of performance during the conduct of the test. See Test Data Sheets 10 and 11 (AE-26151/8B).

2.10 Radiated Susceptibility (RS03) test

2.10.1 Purpose of test

This test was performed to demonstrate that the test sample and associated cables are not susceptible to the radiated electric fields shown in Figure 9.

2.10.2 Date test started

The test began on 1 August 1998.

2.10.3 Date test completion

The test was completed on 3 August 1998.

2.10.4 Test procedure

The test procedure specified that the test be conducted as indicated in the following steps:

1. Power on all test equipment and allow a 15 minute warm-up time before continuing.

2. Perform paragraph 3.4.8.4 (AE-26151/8B) steps 2 to 5. Allow the instrument to scan for a 30 minute warm-up.

3. Perform steps 4 through 15 for each of the frequency sweep ranges presented in Table VII of AE-26151/8B.

4. Using the test equipment as indicated in Figure 15 of AE-26151/8B, perform a level-verification sweep to ensure the electric fields for each frequency band scan.

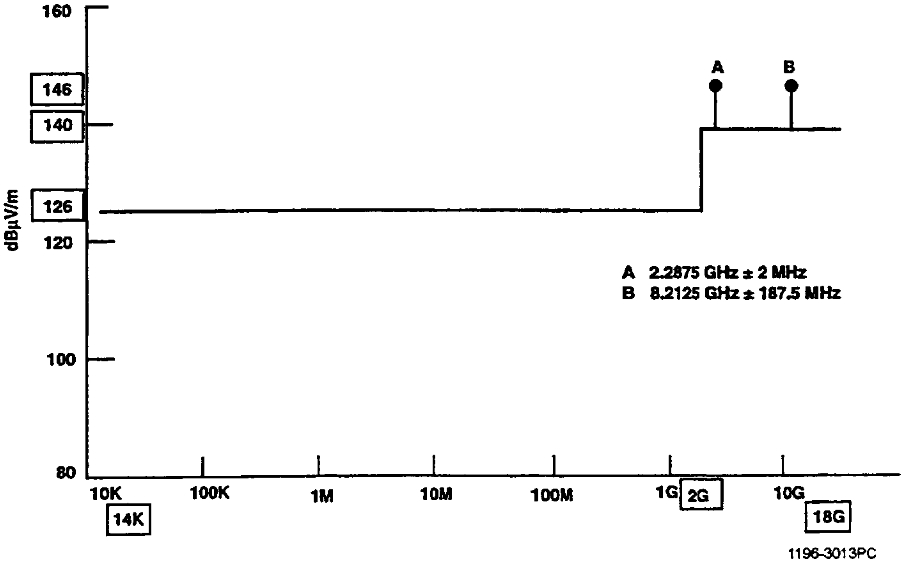


Figure 9 RS03 Limits

5. Once a level is established, ensure that the EOS/AMSU-A data baseline level is as low as possible.

6. From the TEST INITIALIZATION menu, select "[13] SCANS TO ACQUIRE." Enter the number of scans (24 for 90 sec. sweep time or 16 for 60 sec. sweep time).

7. Select "[16] START DATA ACQUISITION."

8. Begin frequency sweep for 14 kHz to 30 MHz. Monitor the generated electric field.

9. At the end of the 24 scans the screen will change to the A1 DELTA T and CALIBRATION ACCURACY menu. From the screen, press "[1] RETURN." The display will prompt "Do you wish to save data on disk (Y/N)?" Enter N for No.

10. The STE program will return to the AMSU-A1 TEST INITIALIZATION menu. Enter "[15] SELECT CAL PROCESSING" and press the RETURN KEY. The program will return to the AMSU-A1 CALIBRATION PROCESS SELECTION menu.

11. Select "[12] PRINT DISTRIBUTION" to obtain the data plot.

12. Select "[1] RETURN" to return to the AMSU-A1 TEST INITIALIZATION menu.

13. After the sweep, verify that the baseline level did not increase beyond the specified limits.

14. If the baseline level increased above the limit, repeat the sweep at a lower radiated level or at a reduced frequency range until the threshold level is determined.

15. Record the threshold level on TDS 7 (AE-26151/8B).

16. Replace the parallel element antenna with the biconical antenna.

17. With the frequency set at 30 MHz, connect the equipment as shown in Figure 16 (AE-26151/8B). Adjust the output of the power amplifier for 2 volts per meter by monitoring the electric field with another biconical antenna 1 meter from the transmitting antenna, or by monitoring the input power to the antenna.

18. Operate the variable attenuator to control the output voltage level.

19. Repeat steps 8 to 15 for the frequency range between 30 MHz and 200 MHz.

20. Replace the biconical antenna with the log-conical antenna. Adjust the attenuator to the amplifier for 2 volts per meter field strength at 200 MHz. Sweep the frequencies from 200 MHz to 1 GHz at this level. If susceptibility occurs, reduce the output power and determine the susceptibility threshold.

21. Record the results on TDS 7 (AE-26151/8B).

22. Replace the log-conical antenna with the horn antenna, connect the horn antenna to the appropriate traveling wave tube (TWT), and radiate the electric fields between 1 GHz and 18 GHz at a level of 10 volts per meter. If susceptibility occurs between 1 and 2 GHz, reduce the level to 2 volts per meter and sweep the frequency range again.

23. Adjust the attenuator to the amplifier. Sweep the frequencies from 1GHz to 18 GHz at this level. If susceptibility occurs, reduce the output power and determine the threshold level.

24. Record all pertinent information on TDS 7 (AE-26151/8B).

25. Perform radiated susceptibility test for both antenna polarities at the two frequencies A and B presented in Figure 14 (AE-26151/8B).

26. Set the signal generator at frequency A (AE-26151/8B, Figure 14).

27. Increase the signal level until the generated electric field is verified. Plot the spectrum generator presentation.

28. Sweep through the frequency in a 90-second interval.

29. Verify that the baseline level did not increase beyond the specified limits.

30. Record the test results on TDS 7 (AE-26151/8B).

31. Repeat steps 25 through 30 for the other discrete frequency.

2.10.5 Test comment

This test was conducted in accordance to the above test plan, with no exceptions.

2.10.6 Test results

The AMSU-A1/EOS instrument meets the electric field radiated susceptibility requirements of Test Method RS03, without exception. No malfunction and/or degradation of performance was noted during the performance of this test. See Test Data Sheet 7.

TEST DATA SHEET 1 (Sheet 1 of 2)
CE01 Test (Paragraph 3.4.4.4.1)

Test Setup Verified: R. Khouri 7/29/98
(Signature)

Test Equipment Log

Item	Manufacturer	Model/Part No.	Aerojet Inventory No.	Calibration Date	Calibration Due Date
25 Pin Breakout Box	Aerojet	1358704-1	743-5910	CNR	CNR
Current Probe	AIL TECH	91550-2B	L509571	4-23-97	10-23-99
Feedthrough Capacitors	SOLAR Elect.	6512-106R	L803641 to 4	10/17/91	CNR
Feedthrough Capacitors	SOLAR Elect.	6512-106R	L803650-1	10/17/91	CNR
PLOTTER	HP	7470A	57707	N/A	N/A
Control Systems Analyzer	HP	3563A	53898	5-12-97	4-12-99

Emission Measurements

Photo No.	Powerline Port-1	Band	Required	Emissions within limits?		Comments/ Observations
				Yes	No	
1	+ 29V Quiet Bus A	Narrow	Figure 2	✓		PLOT 1
2	+29V Quiet Bus Rtn A	Narrow	Figure 2	✓		PLOT 2
3	+29V Noisy Bus A	Narrow	Figure 2	✓		PLOT 3
4	+29V Noisy Bus Rtn A	Narrow	Figure 2	✓		PLOT 4
5	+29V Survival Bus A	Narrow	Figure 2	✓		PLOT 5
6	+29V Survival Bus Rtn A	Narrow	Figure 2	✓		PLOT 6

Note: Attach all backup data generated during the test (photos, printouts plots, test logs, additional comments or observations, etc.) to this data sheet.

Assembly Part No. AMSU-A1/EOS 1356008-1-EM1

Serial No. 202

Shop Order: 560869

Signature/Date

Engineer: 24 July 98

Quality Assurance: 7A 269

Operator: Roger N. Khouri

Customer Rep.: 7-30-98

TEST DATA SHEET 1 (Sheet 2 of 2)
CE01 Test (Paragraph 3.4.4.4.1)

Test Setup Verified: N/A AMSU 4 SET 29/7/98
(Signature)

Test Equipment Log

Item	Manufacturer	Model/Part No.	Aerojet Inventory No.	Calibration Date	Calibration Due Date

Emission Measurements

Photo No.	Powerline Port-1	Band	Required	Emissions within limits?		Comments/ Observations *
				Yes	No	
	+ 29V Quiet Bus B	Narrow	Figure 2			
	+29V Quiet Bus Rtn B	Narrow	Figure 2		NOT REQUIRED	
	+29V Noisy Bus B	Narrow	Figure 2			
	+29V Noisy Bus Rtn B	Narrow	Figure 2			
7	+29V Survival Bus B	Narrow	Figure 2	✓		PLOT 7
8	+29V Survival Bus Rtn B	Narrow	Figure 2	✓		PLOT 8

* SEE AE-26151/8 Table III.

Note: Attach all backup data generated during the test (photos, printouts plots, test logs, additional comments or observations, etc.) to this data sheet.

Assembly Part No. AMSU-A1/EOS 1356008-1-EM1

Serial No. 202

Shop Order: 560869

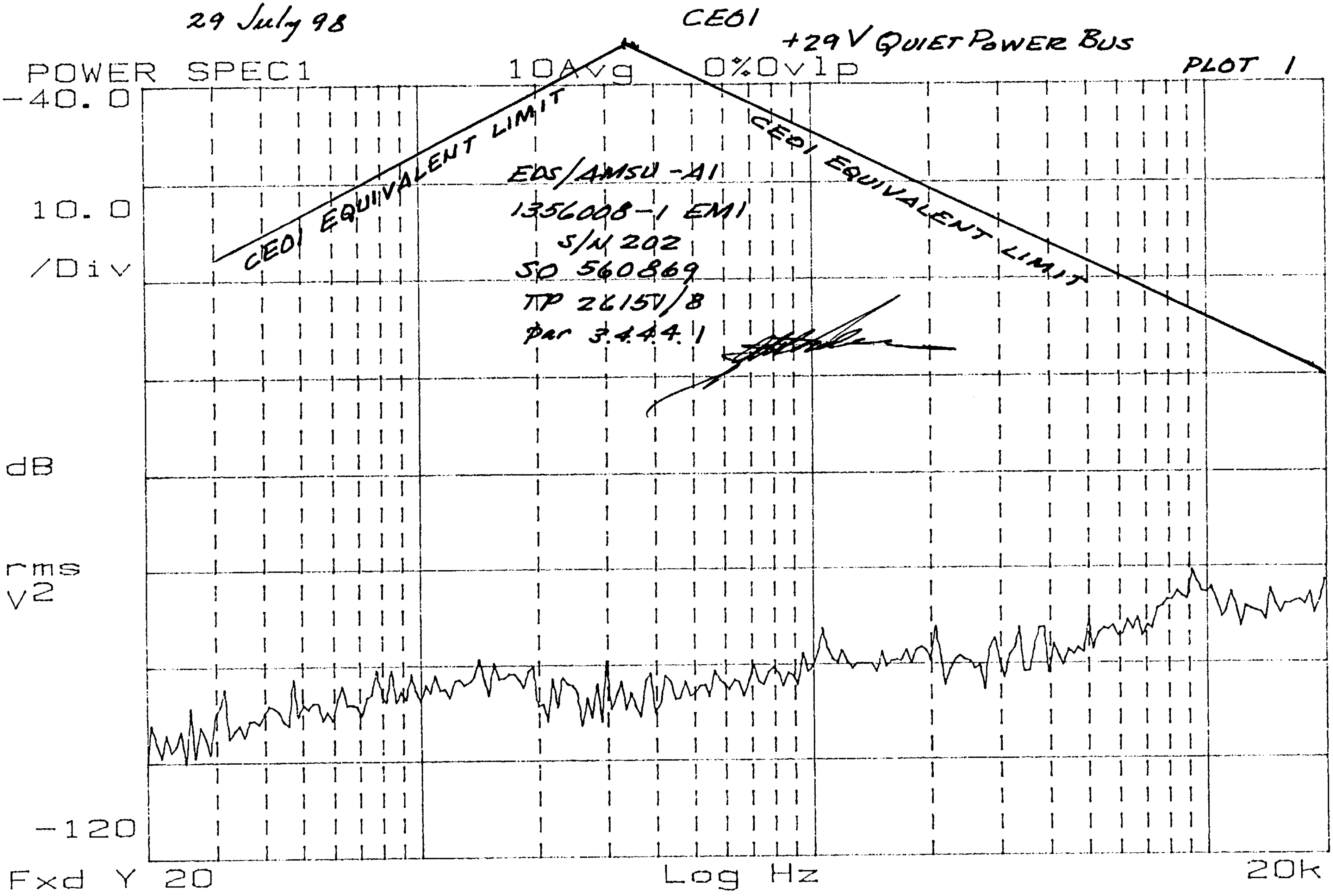
~~Signature~~/Date

Engineer: 29 Jul 98

Quality Assurance: Judie Hervey QA 269

Operator:

Customer Rep.: 7-30-98

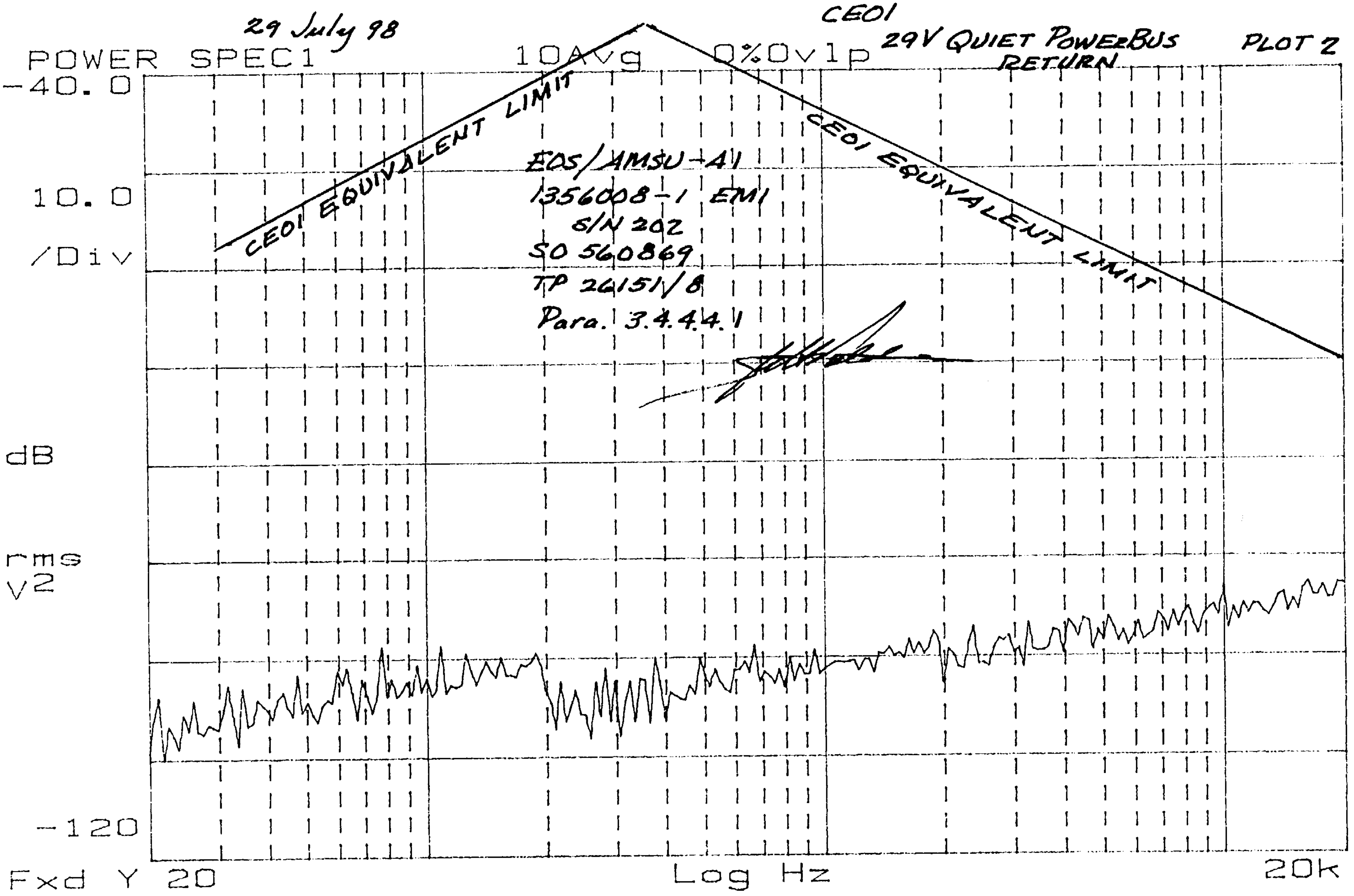


29 July 98

CE01 +29V QUIET POWER BUS

PLOT 1

EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 2615V/8
Par 3.4.4.1



29 July 98

CE01
29V QUIET POWERBUS
RETURN

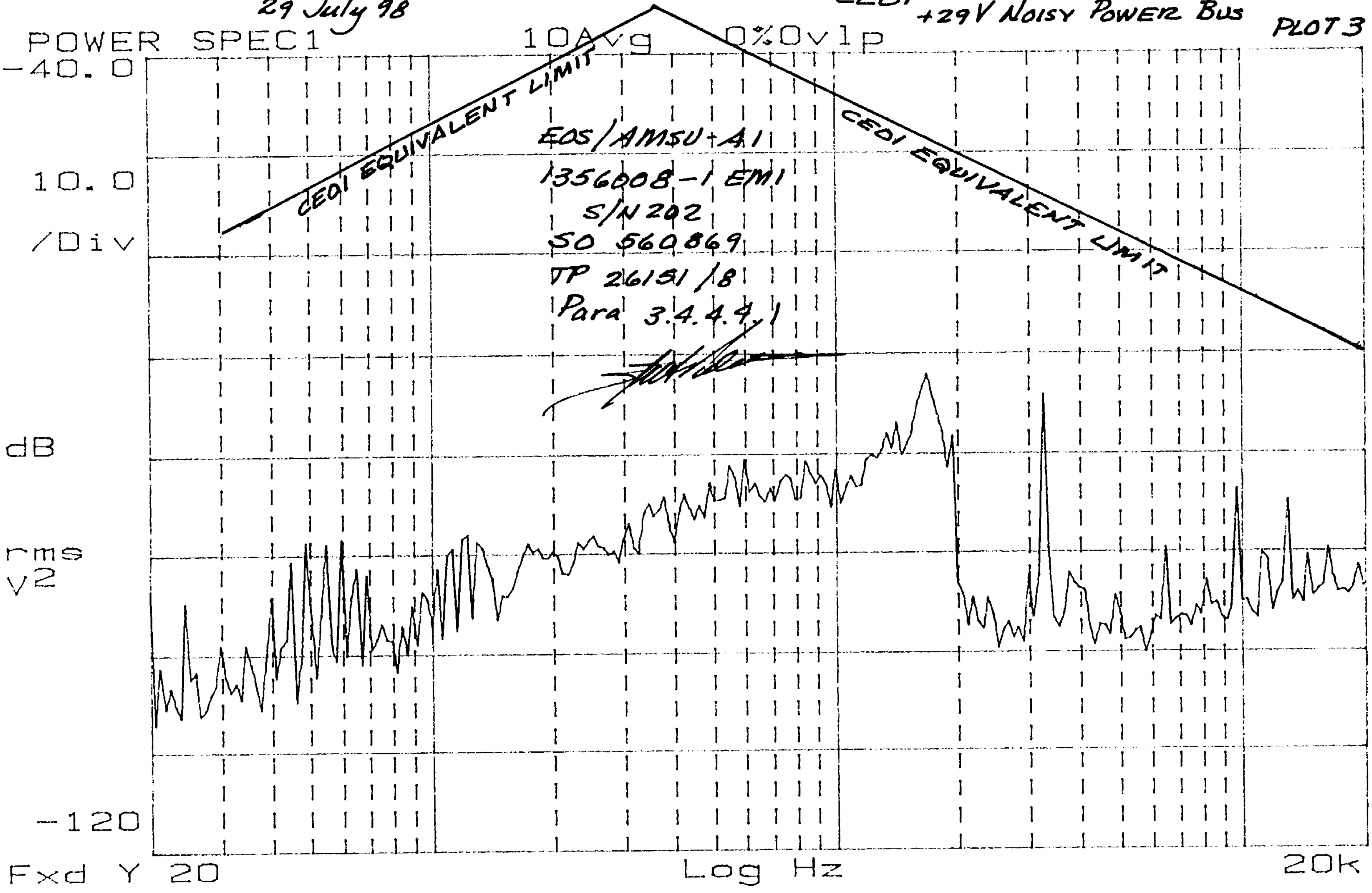
PLOT 2

EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para. 3.4.4.4.1

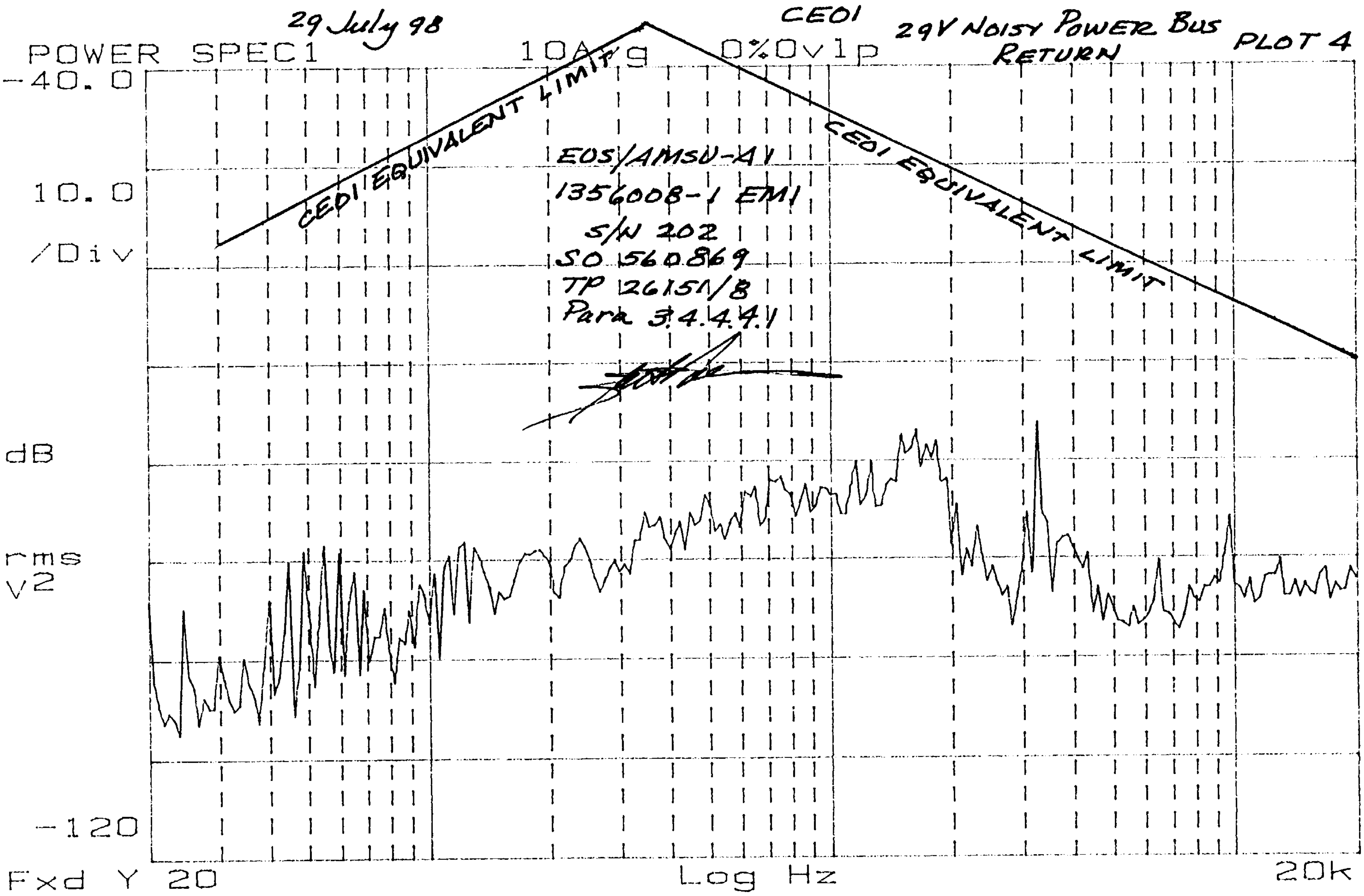
29 July 98

CE01 +29V Noisy Power Bus

PLOT 3



EOS/AMSU+A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.4.4.1



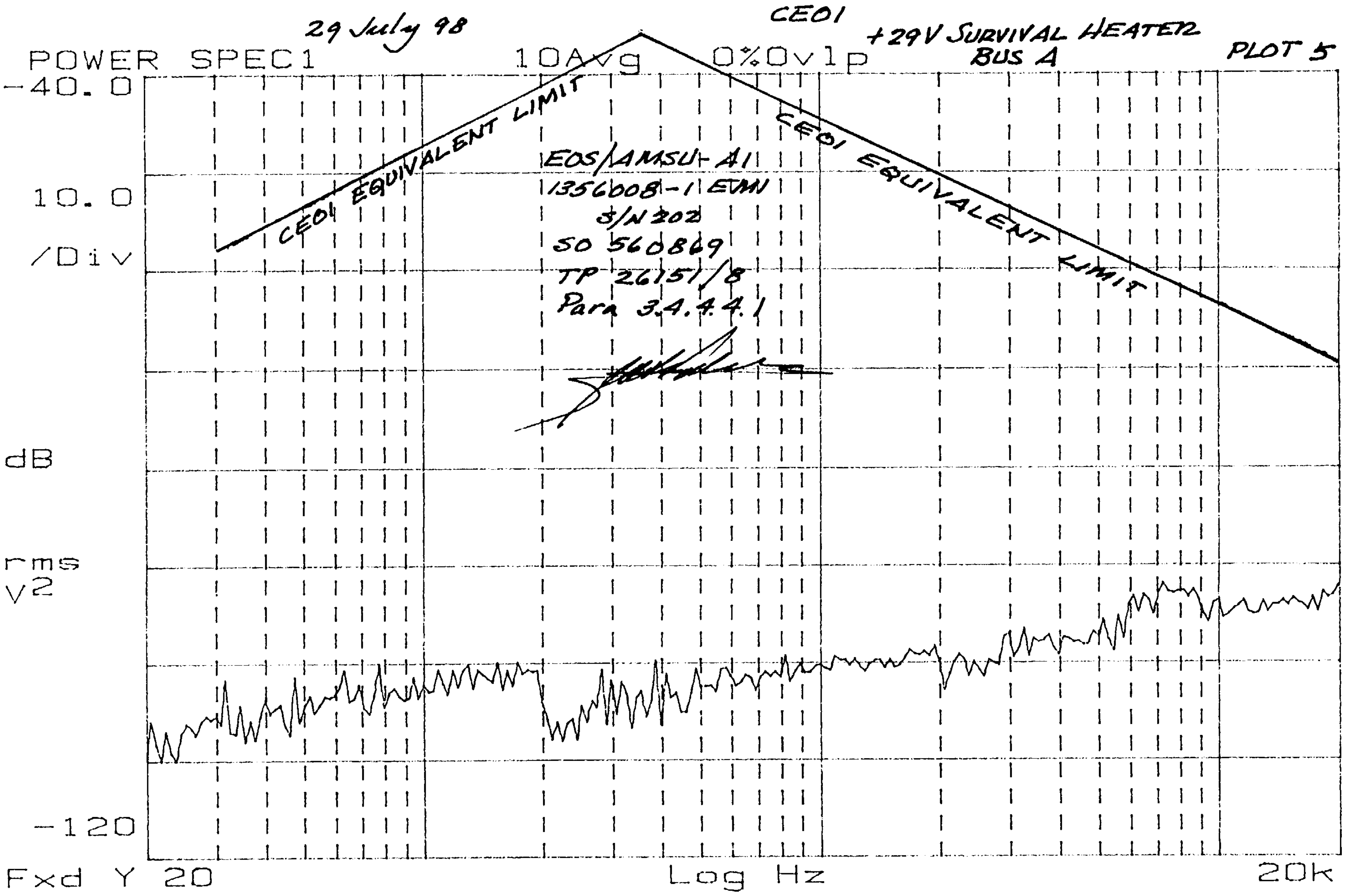
29 July 98

CE01

29V Noisy Power Bus
Return

PLOT 4

EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.4.4.1



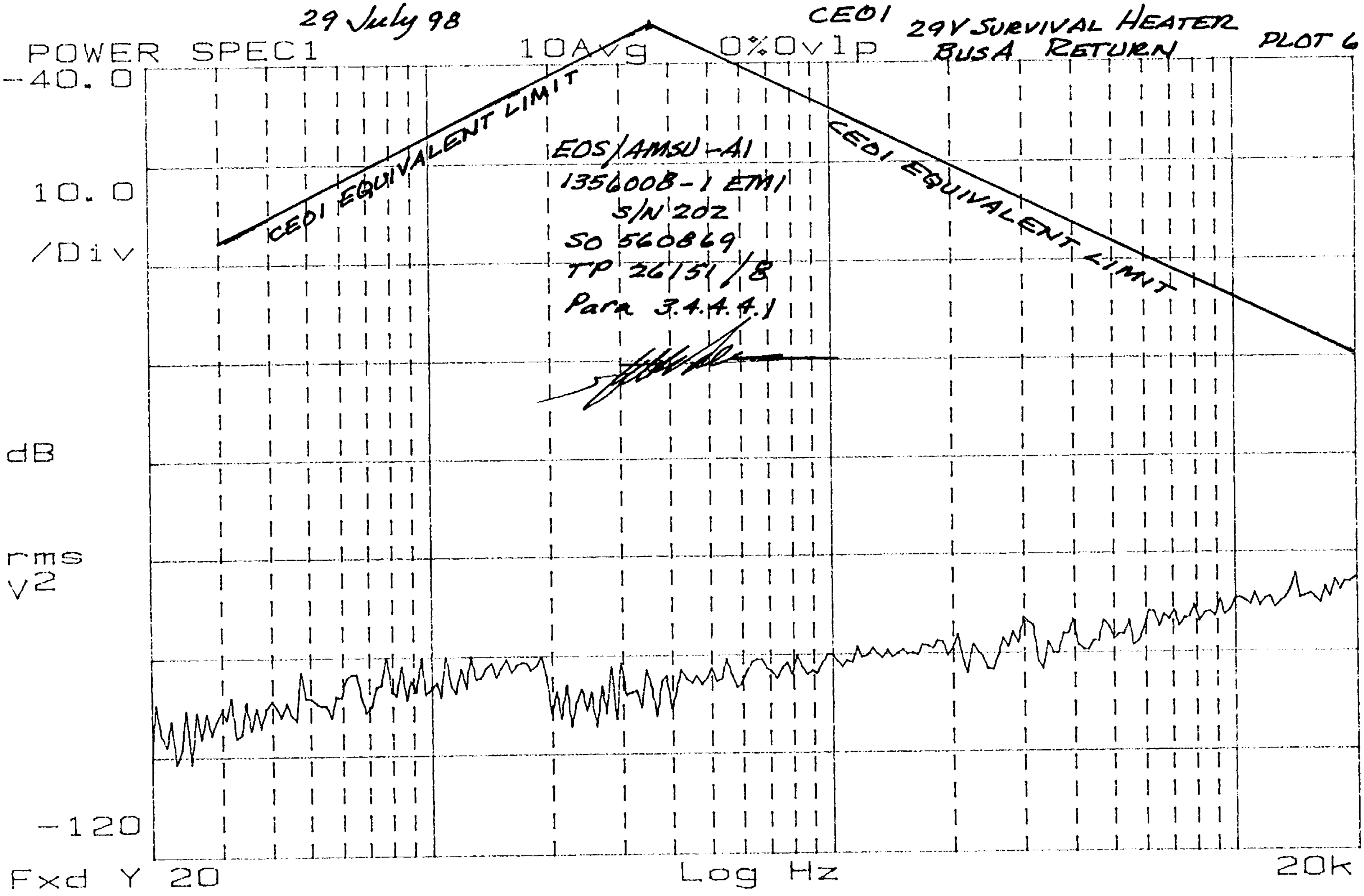
29 July 98

CE01

+29V SURVIVAL HEATER
BUS A

PLOT 5

EOS/AMSU-A1
1356008-1 EVM
S/N 202
SO 560869
TP 26151/8
Para 3.4.4.4.1

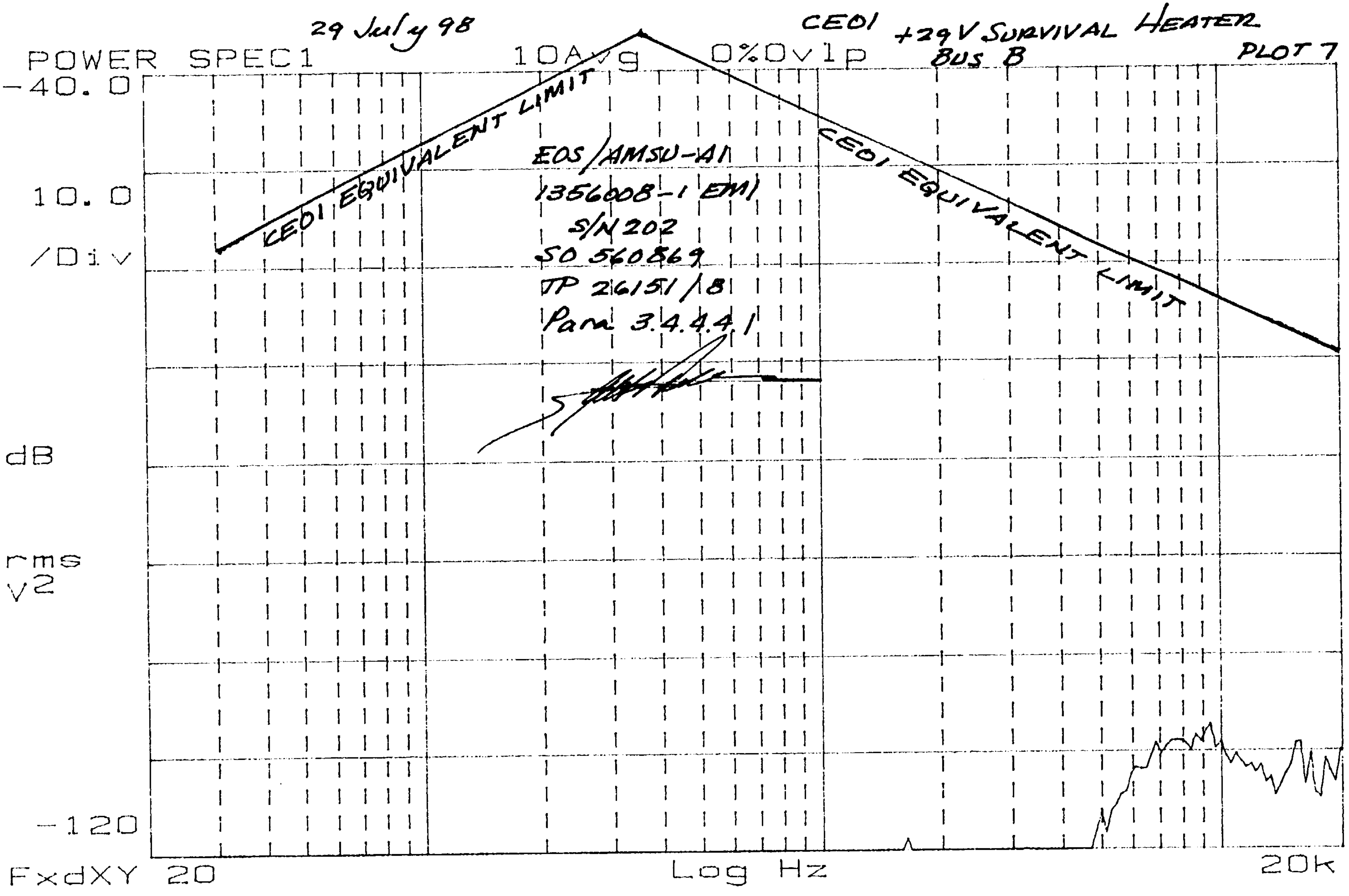


29 July 98

CE01 29V SURVIVAL HEATER
BusA RETURN

PLOT 6

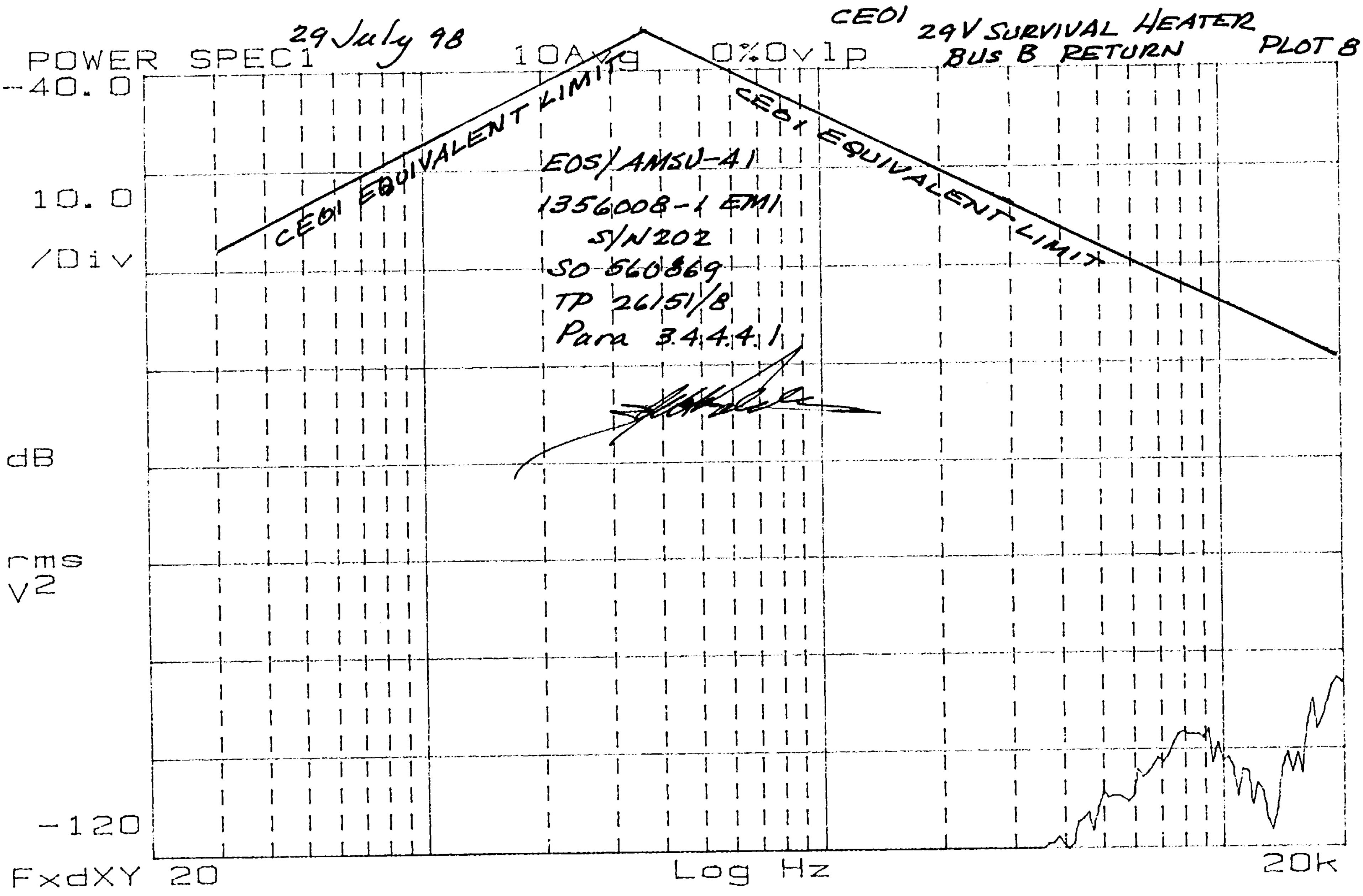
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.4.4.1


29 July 98

CE01 +29V SURVIVAL HEATER
BUS B

PLOT 7

EOS/AMSU-A1
1356008-1 EM)
S/N 202
SO 560869
TP 26151/8
Para 3.4.4.4.1



29 July 98

CE01 29V SURVIVAL HEATER
BUS B RETURN

PLOT 8

EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.4.4.1

EOS

CE01 EQUIVALENT LIMIT CALCULATION

Freq Hz	Limit dBµA	CP Factor dB	dBµV	µVolts	dBVrms	Equivalent Limit dBVpeak
30	120	-60.7	59.3	923	-60.7	-57.7
53	120	-54.6	65.4	1862	-54.6	-51.6
97	120	-47.5	72.5	4217	-47.5	-44.5
215	120	-42.3	77.7	7674	-42.3	-39.3
350	120	-38.3	81.7	12162	-38.3	-35.3
474	114.6	-35.6	79.0	8912	-41	-38.0
659	109	-32.9	76.1	6383	-43.9	-40.9
910	103.2	-30.1	73.1	4518	-46.9	-43.9
2k	89.6	-23.3	66.3	2065	-53.7	-50.7
5k	74.1	-15.3	58.8	820	-61.2	-58.2
10k	62	-9.96	52.0	398	-68.0	-65.0
20k	50	-4.10	45.9	197	-74.1	-71.1

TEST DATA SHEET 2 (Sheet 1 of 4)
CE03 Test (Paragraph 3.4.4.4.2)

Test Setup Verified: Roger D. Khoury 7/29/98
(Signature)

TAR # 004706 pg. 3

Test Equipment Log

Item	Manufacturer	Model/Part No.	Aerojet Inventory No.	Calibration Date	Calibration Due Date
Current Probe	AIL TECH	91550-2B	L509571	4-23-97	10-23-99
Feedthrough Capacitors	Solar Elect.	6512-106R	L803641 to 4	10/17/91	CNR
Feedthrough Capacitors	Solar Elect.	6512-106R	L803650 to 1	10/17/91	CNR
Computer	HP	9836	46134-15	N/A	N/A
Amplifier	HP	8447F	C200230	1/14/98	1/14/99
Spectrum Analyzer	HP	8566B	R300662	4/15/98	10/15/98

Emission Measurements

Plot No.	Powerline Port-1	Band	Required	Emissions within limits?		Comments/ Observations
				Yes	No	
10	+29V Quiet Bus A	Narrow	Figure 2		✓	
11	+29V Quiet Bus A	Broad	Figure 3	✓		Narrowband Signal ON BROADBAND PLOT
12	29V Quiet Bus Rtn A	Narrow	Figure 2		✓	
13	29V Quiet Bus Rtn A	Broad	Figure 3	✓		Narrowband Signal ON Broadband PLOT
14	+29V Noisy Bus A	Narrow	Figure 2		✓	
15	+29V Noisy Bus A	Broad	Figure 3		✓	
16	+29V Noisy Bus Rtn A	Narrow	Figure 2		✓	
17	+29V Noisy Bus Rtn A	Broad	Figure 3		✓	

Note: Attach all backup data generated during the test (photos, printouts plots, test logs, additional comments or observations, etc.) to this data sheet.

Assembly Part No. EOS/AMSU-A1 1356008-1-EM1
Serial No. 202
Shop Order: 560869

Signature/Date
Engineer: 30 July 98
Quality Assurance:
Operator: Roger D. Khoury 7-30-98
Customer Rep.:

TEST DATA SHEET 2 (Sheet 2 of 4)
CE03 Test (Paragraph 3.4.4.4.2)

Test Setup Verified: Roger N. Khoury 7/29/98
(Signature)

TAR # 004706 pg. 3

Test Equipment Log

Item	Manufacturer	Model/Part No.	Aerojet Inventory No.	Calibration Date	Calibration Due Date
Plotter	HP	7475A	47417	CNR	CNR

Emission Measurements

Plot No.	Powerline Port-1	Band	Required	Emissions within limits?		Comments/ Observations
				Yes	No	
18	+29V Survival Bus A	Narrow	Figure 2		✓	
19	+29V Survival Bus A	Broad	Figure 3		✓	
20	29V Survival Bus Rtn A	Narrow	Figure 2		✓	
21	29V Survival Bus Rtn A	Broad	Figure 3		✓	

Note: Attach all backup data generated during the test (photos, printouts plots, test logs, additional comments or observations, etc.) to this data sheet.

Assembly Part No. EOS/AMSU-A1 1356008-1 EMI

Serial No. 202

Shop Order: 560869

Signature/Date

Engineer: 7/30/98

Quality Assurance:

Operator: Roger N. Khoury 7-30-98

Customer Rep.:

TEST DATA SHEET 2 (Sheet 3 of 4)
CE03 Test (Paragraph 3.4.4.4.2)

Test Setup Verified: N/A
(Signature)

Test Equipment Log

Item	Manufacturer	Model/Part No.	Aerojet Inventory No.	Calibration Date	Calibration Due Date

Emission Measurements

Plot No.	Powerline Port-1	Band	Required	Emissions within limits?		Comments/ Observations
				Yes	No	
	+29V Quiet Bus B	Narrow	Figure 2			
	+29V Quiet Bus B	Broad	Figure 3			
	29V Quiet Bus Rtn B	Narrow	Figure 2			
	29V Quiet Bus Rtn B	Broad	Figure 3		N/A	
	+29V Noisy Bus B	Narrow	Figure 2			
	+29V Noisy Bus B	Broad	Figure 3			
	+29V Noisy Bus Rtn B	Narrow	Figure 2			
	+29V Noisy Bus Rtn B	Broad	Figure 3			

Note: Attach all backup data generated during the test (photos, printouts plots, test logs, additional comments or observations, etc.) to this data sheet.

Signature/Date

Assembly Part No. EOS/AMSU-A1 1356008-1-EMI
Engineer: 30 Jul 98

Serial No. 202
Quality Assurance:

Shop Order: 560869
Operator: Roger N. Khoury

Customer Rep.:

TEST DATA SHEET 2 (Sheet 4 of 4)
CE03 Test (Paragraph 3.4.4.4.2)

Test Setup Verified: N/A
(Signature)

Test Equipment Log

Item	Manufacturer	Model/Part No.	Aerojet Inventory No.	Calibration Date	Calibration Due Date

Emission Measurements

Plot No.	Powerline Port-1	Band	Required	Emissions within limits?		Comments/ Observations
				Yes	No	
22	+29V Survival Bus B	Narrow	Figure 2		✓	
23	+29V Survival Bus B	Broad	Figure 3	✓		Narrowband Signal on Broadband Plot
24	29V Survival Bus Rtn B	Narrow	Figure 2		✓	
25	29V Survival Bus Rtn B	Broad	Figure 3		✓	

Note: Attach all backup data generated during the test (photos, printouts plots, test logs, additional comments or observations, etc.) to this data sheet.

Signature/Date

Assembly Part No. ECS/AMSU-A1 1356008-1-EM1

Serial No. 202

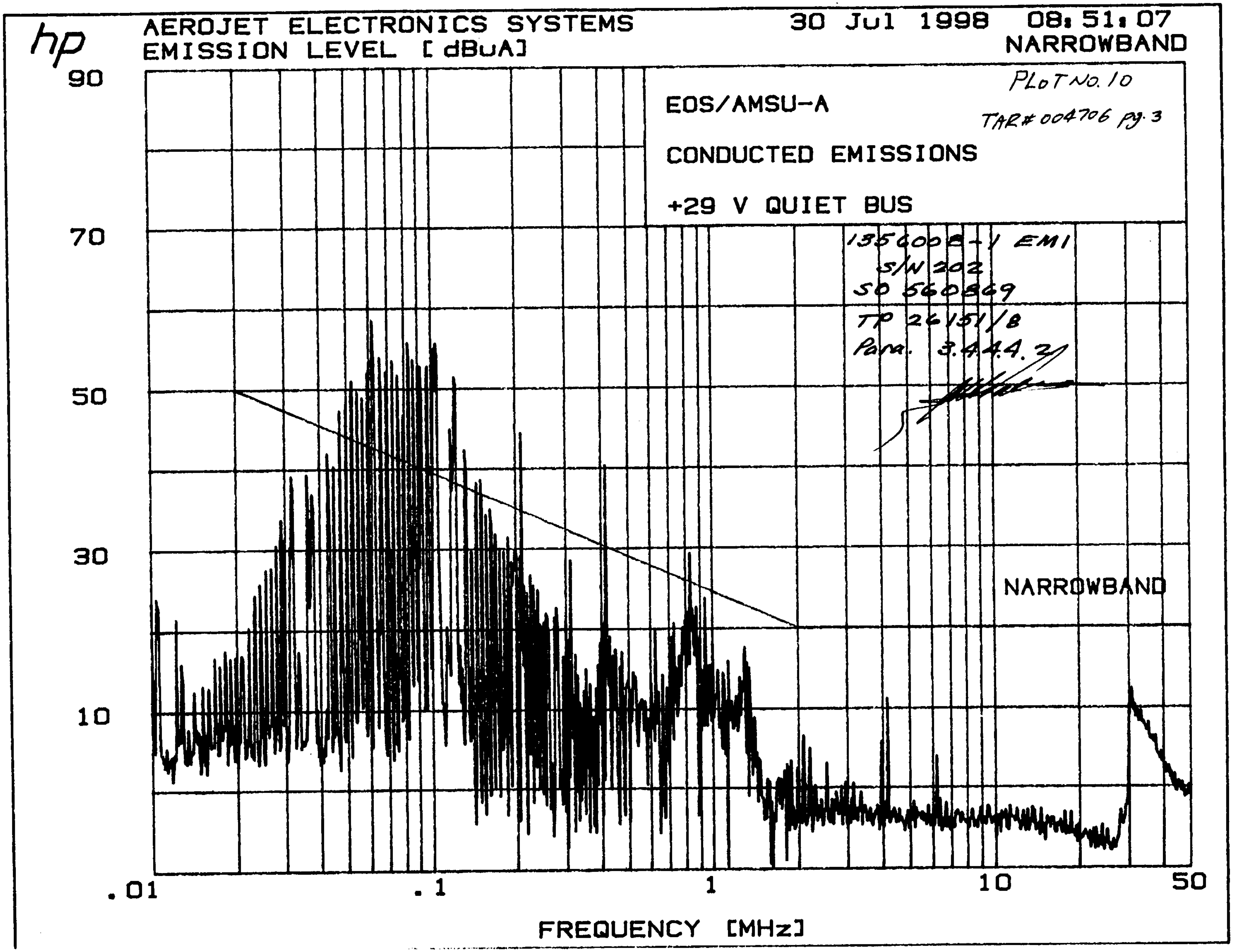
Shop Order: 560869

Engineer: 30 Jul 98

Quality Assurance:

Operator: Roger N. [illegible] 7-30-98

Customer Rep.:


hp
AEROJET ELECTRONICS SYSTEMS
EMISSION LEVEL [dBuA]
30 Jul 1998 08:51:07
NARROWBAND
PLoT No. 10
TAR# 004706 pg. 3
EOS/AMSU-A
CONDUCTED EMISSIONS
+29 V QUIET BUS
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para. 3.4.4.4.2
NARROWBAND
90
70
50
30
10
.01
.1
1
10
50
FREQUENCY [MHz]

```
=====================================================
ROJET ELECTRONICS SYSTEMS   30 Jul 1998  08:51:07
=====================================================
NDUCTED EMISSIONS
9 V QUIET BUS


AKS FOUND ABOVE  10dBuA

AK#   FREQ (Hz)   AMPL(dBuA)
1     10.4E+03     24
2     12.3E+03     21
3     12.8E+03     16
4     14.2E+03     12
5     15.2E+03     13
6     16.0E+03     13
7     16.8E+03     17
8     17.5E+03     16
9     18.3E+03     18
0     19.1E+03     17
1     19.9E+03     17
2     21.0E+03     17
3     22.3E+03     20
4     23.4E+03     24
5     24.4E+03     26
6     25.7E+03     28
7     26.8E+03     28
8     28.0E+03     30
9     29.2E+03     34
0     29.7E+03     31
1     31.8E+03     39
2     33.5E+03     17
3     36.1E+03     39
4     37.7E+03     37
5     39.0E+03     10
6     42.1E+03     10
7     42.8E+03     42
8     45.1E+03     40
9     47.4E+03     47
0     49.9E+03     48
1     52.6E+03     51
2     54.8E+03     50
3     57.2E+03     49
4     59.7E+03     52
5     62.3E+03     58
6     66.1E+03     54
7     69.6E+03     52
8     73.2E+03     54
9     76.4E+03     52
0     79.7E+03     47
1     83.2E+03     56
2     86.8E+03     54
3     90.6E+03     53
4     92.1E+03     53
5     95.3E+03     15
6     97.8E+03     53
7     10.3E+04     55
8     10.5E+04     56
9     11.3E+04     20
0     11.8E+04     45
1     12.2E+04     51
2     12.6E+04     18
```

Plot 10 page 1 of 3

EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.4.4.2

Plot 10 page 2 of 3

EOS/AMSU-A1

1356008-1 EMI

S/N 202

SO 560869

TP 26151/8

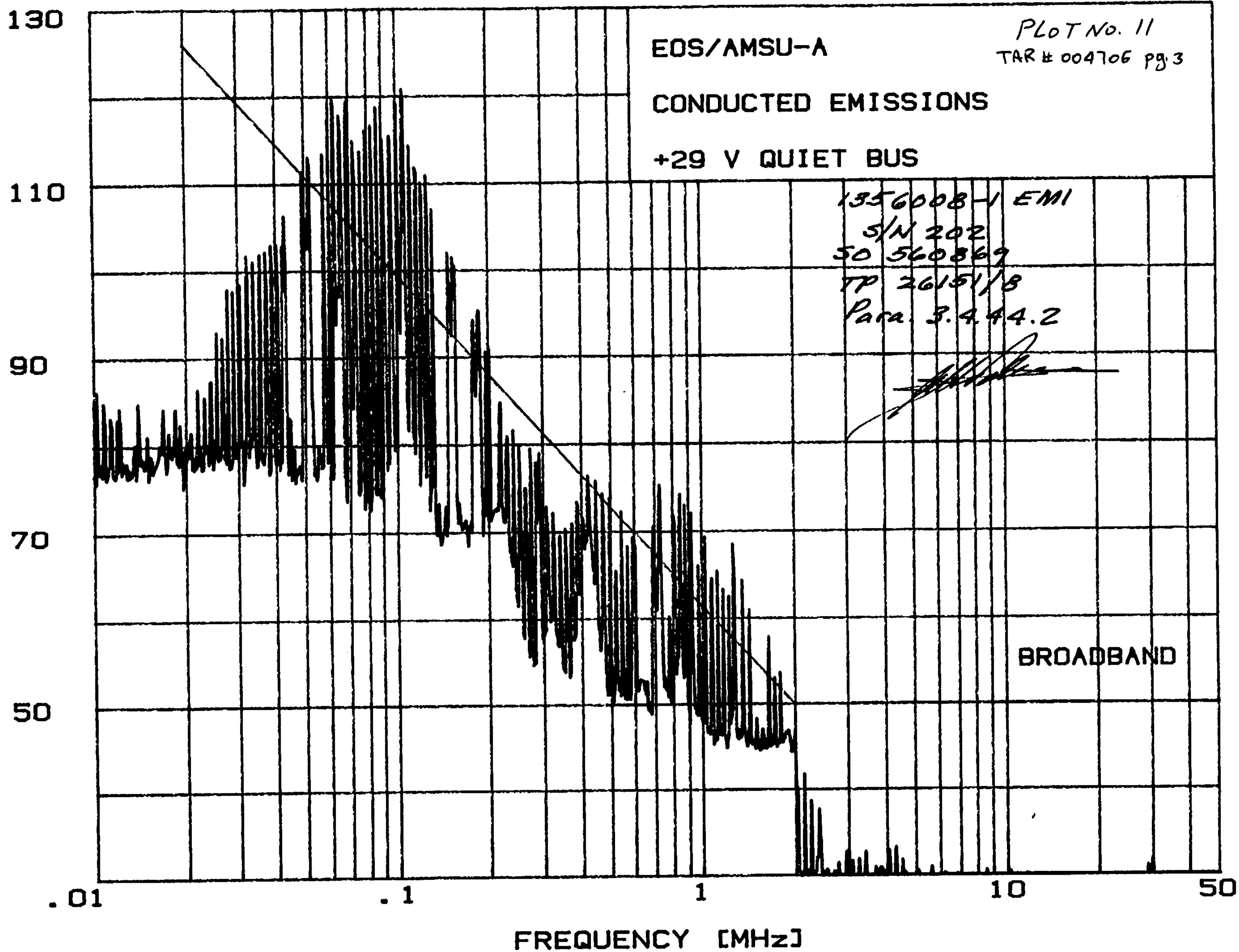
Para. 3.4.4.4.2

3	12.8E+04	15
4	13.3E+04	42
5	14.0E+04	30
6	14.6E+04	38
7	15.1E+04	39
8	15.7E+04	34
9	16.3E+04	35
0	17.0E+04	32
	17.6E+04	30
2	18.2E+04	30
3	18.8E+04	31
4	20.0E+04	30
5	20.7E+04	29
6	21.0E+04	44
7	21.4E+04	25
8	21.9E+04	24
9	22.5E+04	27
0	23.1E+04	25
1	23.9E+04	25
2	24.3E+04	21
3	25.1E+04	21
4	25.6E+04	22
5	27.4E+04	21
6	27.9E+04	23
7	29.3E+04	17
8	30.1E+04	22
9	30.6E+04	19
0	31.4E+04	29
1	31.9E+04	12
2	32.5E+04	17
3	33.0E+04	14
4	33.6E+04	11
5	34.2E+04	10
6	34.7E+04	12
7	35.3E+04	15
8	36.0E+04	11
9	36.6E+04	13
0	38.5E+04	13
1	39.1E+04	16
2	39.8E+04	18
3	40.8E+04	21
4	41.9E+04	40
5	43.0E+04	19
6	44.1E+04	17
7	45.2E+04	18
8	46.8E+04	15
9	47.6E+04	17
0	50.1E+04	14
1	51.0E+04	12
2	52.3E+04	15
3	56.0E+04	11
4	57.4E+04	11
5	60.4E+04	13
6	62.5E+04	20
7	64.1E+04	12
8	66.3E+04	14
9	68.6E+04	13
0	71.6E+04	19
1	72.8E+04	21
2	74.1E+04	15
3	76.0E+04	17
4	78.6E+04	20

5	80.0E+04	21
6	81.4E+04	22
7	83.5E+04	29
8	87.8E+04	23
9	90.1E+04	19
0	92.4E+04	15
1	94.0E+04	24
2	97.3E+04	15
3	99.8E+04	18
4	10.4E+05	15
5	10.9E+05	14
6	11.1E+05	11
7	11.3E+05	16
8	12.1E+05	11
9	12.5E+05	14
0	13.0E+05	18
1	13.2E+05	16
2	13.4E+05	15
3	41.7E+05	11
4	30.8E+06	12

Plot 10 page 3 of 3
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para. 3.4.4.4.2

AEROJET ELECTRONICS SYSTEMS 30 Jul 1998 08:51:07
EMISSION LEVEL [dBuA/MHz] BROADBAND



PLOT No. 11
TAR # 004706 pg. 3

1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para. 3.4.4.2

```
=====================================================
ROJET ELECTRONICS SYSTEMS   30 Jul 1998  08:51:07
=====================================================
NDUCTED EMISSIONS
9 V QUIET BUS


AKS FOUND ABOVE  50dBuA/MHz

AK#   FREQ (Hz)  AMPL(dBuA/MHz)
1     10.3E+03     86
2     10.8E+03     85
3     11.4E+03     83
4     12.0E+03     83
5     12.2E+03     84
6     13.7E+03     80
7     14.1E+03     85
8     15.0E+03     81
9     16.9E+03     84
0     18.6E+03     84
1     19.3E+03     82
2     21.0E+03     82
3     22.1E+03     86
4     23.2E+03     85
5     24.4E+03     87
6     25.5E+03     93
7     26.6E+03     92
8     27.8E+03     98
9     29.0E+03     98
0     30.5E+03     98
1     32.1E+03    102
2     33.8E+03    101
3     35.5E+03    102
4     37.1E+03    102
5     38.7E+03    103
6     40.4E+03    103
7     42.1E+03    103
8     42.8E+03    106
9     44.3E+03     83
0     45.9E+03     80
1     49.1E+03    111
2     50.8E+03    106
3     51.7E+03    113
4     57.7E+03    113
5     60.2E+03    118
6     62.3E+03    120
7     65.6E+03    118
8     69.6E+03    120
9     72.6E+03    115
0     76.4E+03    114
1     79.7E+03    116
2     83.2E+03    117
3     86.8E+03    119
4     90.6E+03    115
5     96.1E+03    115
6     99.5E+03     88
7     10.1E+04    119
8     10.6E+04    121
9     11.1E+04    114
0     11.6E+04    112
1     12.1E+04    110
```

Plot 11 Page 1 of 2

EOS/AMSU-A1

1356008-1 EMI

S/N 202

SO 560869

TP 26151/8

Para 3.4.4.4.2

```
2     12.6E+04     111
3     13.2E+04     107
4     13.7E+04      73
5     14.5E+04      73
6     14.8E+04     102
7     15.4E+04     102
8     17.9E+04      94
9     18.7E+04      95
0     19.6E+04      91
1     20.2E+04      91
2     21.9E+04      85
3     23.1E+04      81
4     24.1E+04      82
5     25.1E+04      80
6     26.5E+04      75
7     27.4E+04      80
8     28.6E+04      78
9     29.3E+04      79
0     30.8E+04      73
1     32.5E+04      72
2     34.2E+04      70
3     35.6E+04      70
4     37.5E+04      71
5     38.8E+04      73
6     40.5E+04      72
7     42.3E+04      76
8     44.9E+04      76
9     47.2E+04      74
0     49.7E+04      74
1     52.3E+04      65
2     54.5E+04      72
3     56.9E+04      68
4     59.4E+04      69
5     69.2E+04      71
6     72.8E+04      75
7     78.0E+04      60
8     80.7E+04      72
9     84.9E+04      74
0     87.8E+04      73
1     92.4E+04      72
2     97.3E+04      66
3     10.2E+05      69
4     10.8E+05      65
5     11.2E+05      65
6     11.7E+05      63
7     12.2E+05      63
8     12.7E+05      68
9     13.6E+05      64
0     14.3E+05      61
1     16.5E+05      58
2     17.2E+05      53
3     18.0E+05      54
```

Plot 11 Page 2 of 2

EOS/AMSU-A1

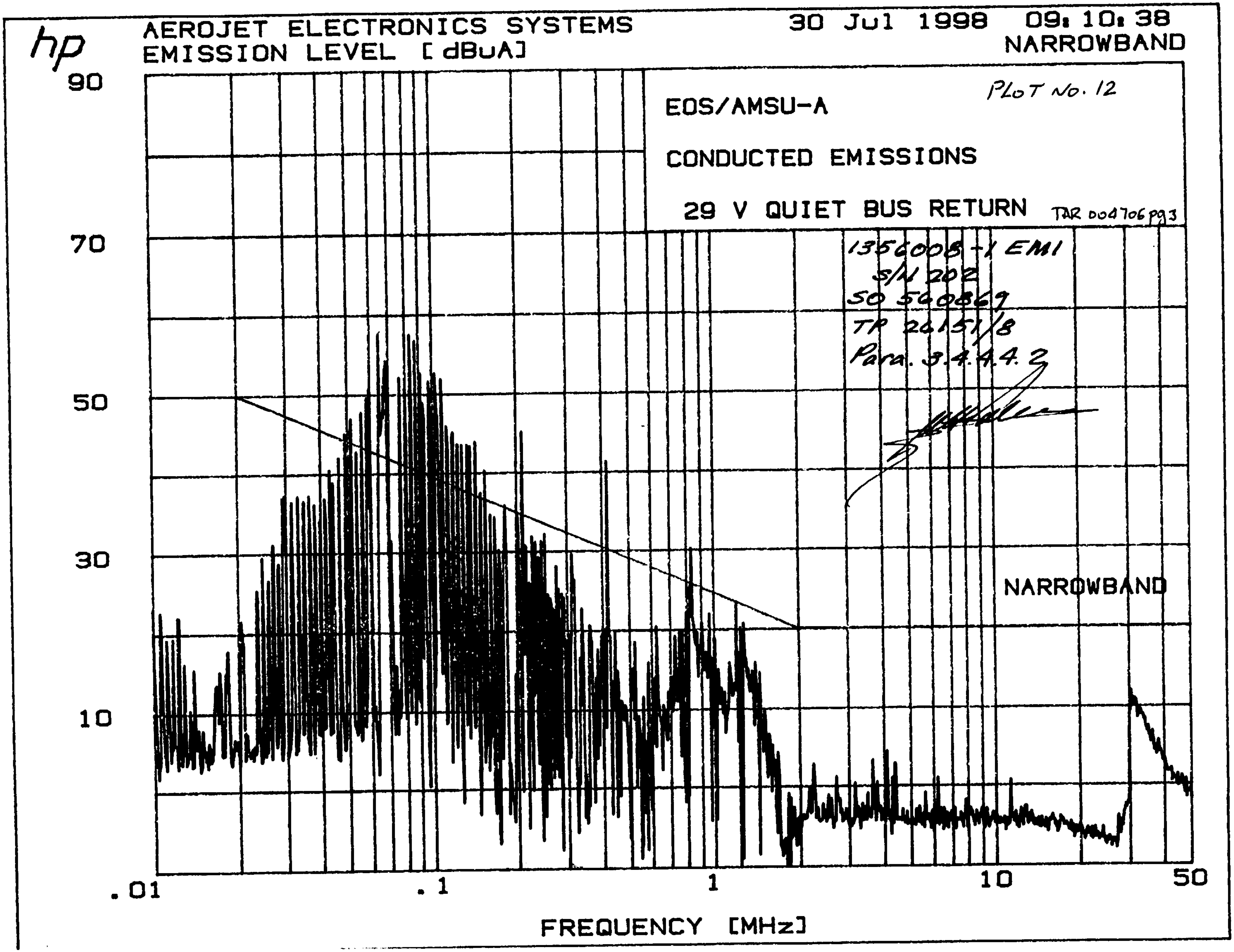
1356008-1 EM1

S/N 202

SO 560869

TP 26151/8

Para 3.4.4.4.2


hp
AEROJET ELECTRONICS SYSTEMS
EMISSION LEVEL [dBuA]
30 Jul 1998 09:10:38
NARROWBAND
PLOT No. 12
EOS/AMSU-A
CONDUCTED EMISSIONS
29 V QUIET BUS RETURN
TAR 004706 pg3
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para. 3.4.4.4.2
NARROWBAND
90
70
50
30
10
.01
.1
1
10
50
FREQUENCY [MHz]

```
=====================================================
ROJET ELECTRONICS SYSTEMS   30 Jul 1998  09:10:38
=====================================================
NDUCTED EMISSIONS
9 V QUIET BUS RETURN


AKS FOUND ABOVE  10dBuA

AK#   FREQ (Hz)   AMPL(dBuA)
1     10.6E+03     23
2     11.2E+03     19
3     11.8E+03     19
4     12.3E+03     22
5     12.9E+03     16
6     13.5E+03     10
7     13.9E+03     15
8     16.8E+03     14
9     17.2E+03     15
0     18.5E+03     18
1     20.6E+03     21
2     23.6E+03     25
3     24.6E+03     29
4     25.9E+03     27
5     27.1E+03     31
6     28.2E+03     29
7     29.2E+03     37
8     29.7E+03     37
9     31.5E+03     36
0     33.2E+03     37
1     34.9E+03     37
2     36.4E+03     37
3     38.0E+03     36
4     39.7E+03     34
5     41.4E+03     37
6     43.2E+03     41
7     44.3E+03     39
8     46.6E+03     42
9     49.1E+03     45
0     51.7E+03     47
1     53.9E+03     43
2     56.3E+03     48
3     58.7E+03     50
4     60.2E+03     51
5     65.0E+03     58
6     69.0E+03     54
7     71.4E+03     32
8     73.9E+03     16
9     75.1E+03     13
0     77.1E+03     52
1     80.4E+03     51
2     83.9E+03     58
3     87.6E+03     57
4     91.4E+03     53
5     92.9E+03     49
6     97.8E+03     52
7     10.3E+04     53
8     10.8E+04     52
9     11.3E+04     46
0     11.9E+04     45
1     12.4E+04     44
```

Plot 12 page 1 of 3

EOS/AMSU-A1

1356008-1 EMI

S/N 202

SO 560869

TP 26151/8

Para 3.4.4.4.2

2	12.8E+04	43
3	13.4E+04	43
4	13.7E+04	43
5	14.3E+04	44
6	15.0E+04	38
7	15.5E+04	40
8	16.2E+04	35
9	16.7E+04	34
0	17.3E+04	30
1	18.2E+04	36
2	19.6E+04	15
3	20.2E+04	35
4	21.0E+04	45
5	21.4E+04	31
6	22.1E+04	26
7	22.7E+04	32
8	23.3E+04	31
9	23.9E+04	29
0	24.5E+04	31
1	25.1E+04	32
2	25.8E+04	24
3	26.2E+04	24
4	26.9E+04	23
5	27.6E+04	28
6	28.1E+04	25
7	28.8E+04	25
8	29.3E+04	24
9	29.8E+04	19
0	30.3E+04	20
1	31.4E+04	30
2	33.3E+04	17
3	33.9E+04	23
4	36.3E+04	21
5	37.8E+04	14
6	38.5E+04	18
7	39.8E+04	19
8	40.8E+04	20
9	41.9E+04	41
0	43.4E+04	14
1	44.5E+04	20
2	45.2E+04	15
3	46.8E+04	11
4	51.4E+04	15
5	52.3E+04	18
6	56.0E+04	12
7	58.4E+04	16
8	61.4E+04	14
9	62.5E+04	20
0	65.8E+04	10
1	70.4E+04	14
2	72.8E+04	19
3	75.4E+04	20
4	77.3E+04	20
5	80.0E+04	22
6	82.1E+04	25
7	83.5E+04	30
8	90.9E+04	21
9	96.5E+04	22
0	98.1E+04	17
1	10.1E+05	19
2	10.3E+05	15
3	11.3E+05	16

Plot 12 page 2 of 3
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.4.4.2

4	12.0E+05	23
5	12.2E+05	17
6	12.5E+05	20
7	12.8E+05	21
8	14.0E+05	16
9	14.5E+05	14
0	15.0E+05	10
1	30.5E+06	12

Plot 12 Page 3 of 3

EOS/AMSU-A1

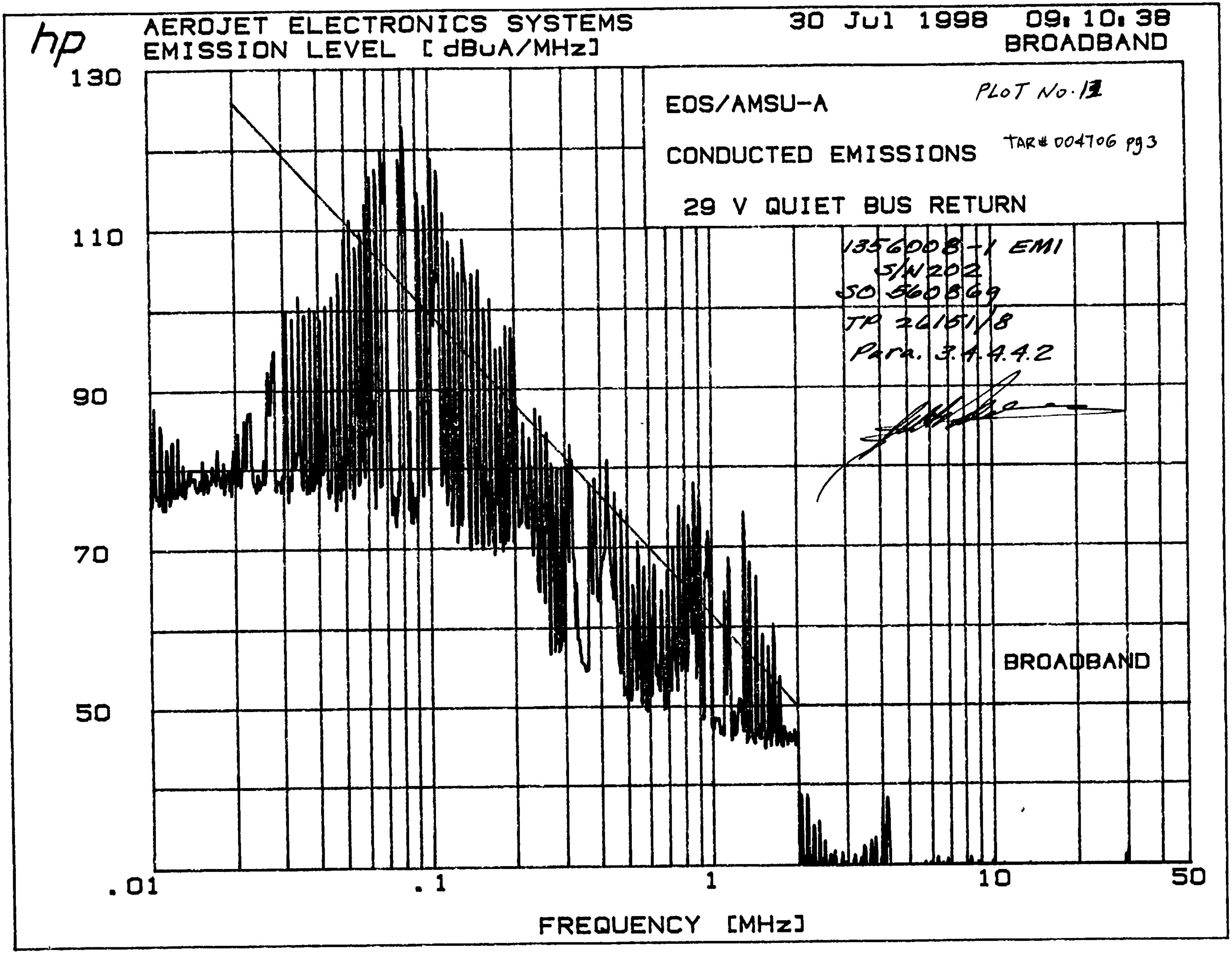
1356008-1 EMI

S/N 202

SO 560869

TP 26151/8

Para. 3.4.4.4.2

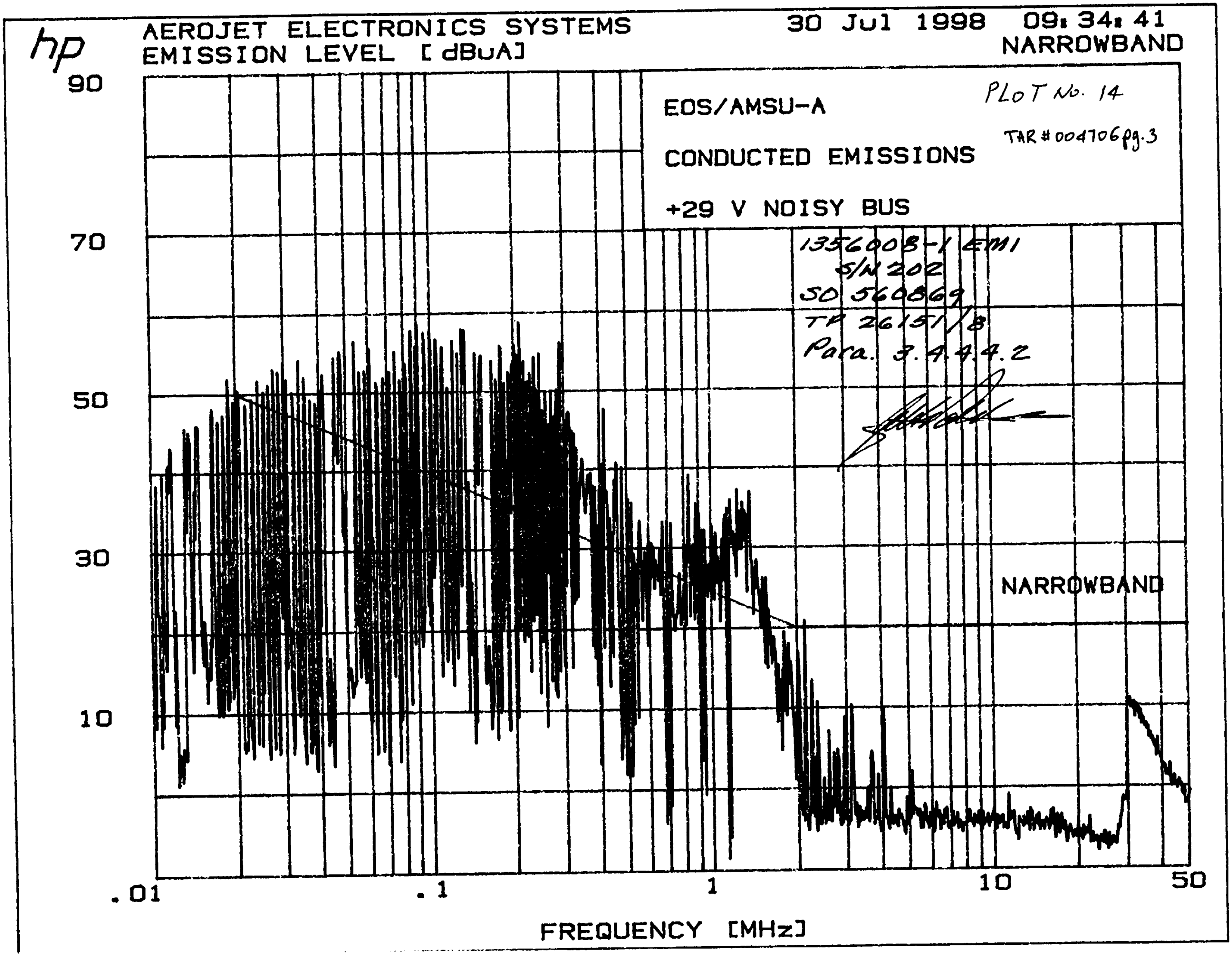

hp
AEROJET ELECTRONICS SYSTEMS
EMISSION LEVEL [dBuA/MHz]
30 Jul 1998 09:10:38
BROADBAND
EOS/AMSU-A
CONDUCTED EMISSIONS
29 V QUIET BUS RETURN
PLOT No. 12
TAR# 004706 pg 3
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para. 3.4.4.4.2
BROADBAND
130
110
90
70
50
.01
.1
1
10
50
FREQUENCY [MHz]

```
==================================================
EROJET ELECTRONICS SYSTEMS   30 Jul 1998  09:10:38
==================================================
ONDUCTED EMISSIONS
29 V QUIET BUS RETURN

EAKS FOUND ABOVE  50dBuA/MHz

EAK#   FREQ (Hz)   AMPL(dBuA/MHz)
 1     10.3E+03      88
 2     10.9E+03      86
 3     11.5E+03      83
 4     12.1E+03      83
 5     12.6E+03      84
 6     13.1E+03      81
 7     15.4E+03      81
 8     17.4E+03      83
 9     19.9E+03      82
10     20.6E+03      85
11     21.7E+03      86
12     22.8E+03      87
13     25.5E+03      81
14     26.4E+03      92
15     27.8E+03      95
16     30.7E+03     100
17     32.4E+03      99
18     34.1E+03     102
19     35.8E+03      99
20     37.4E+03     100
21     39.0E+03     100
22     40.7E+03      99
23     42.5E+03     101
24     44.7E+03     102
25     47.0E+03     105
26     48.3E+03      82
27     49.5E+03     109
28     52.1E+03     111
29     54.4E+03     108
30     56.7E+03     110
31     59.2E+03     113
32     61.8E+03     117
33     64.5E+03     118
34     67.8E+03     120
35     70.2E+03     118
36     78.4E+03     119
37     81.1E+03     123
38     84.6E+03      87
39     86.1E+03      78
40     91.4E+03     115
41     96.1E+03     113
42     10.2E+04     119
43     10.6E+04     117
44     11.2E+04     112
45     11.7E+04     108
46     12.2E+04     106
47     12.7E+04     105
48     13.2E+04     109
49     14.2E+04     104
50     15.0E+04     105
51     15.6E+04     100
```

Plot 13 Page 1 of 2
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.4.4.2

2	16.4E+04	101
3	17.1E+04	95
4	17.6E+04	80
5	17.9E+04	95
6	18.7E+04	98
7	19.5E+04	98
8	20.0E+04	96
9	21.4E+04	86
0	22.5E+04	84
1	23.7E+04	88
2	24.7E+04	86
3	26.0E+04	84
4	26.9E+04	81
5	28.3E+04	80
6	29.3E+04	80
7	30.6E+04	81
8	31.4E+04	83
9	31.9E+04	81
0	33.0E+04	66
1	36.9E+04	78
2	38.5E+04	79
3	42.6E+04	81
4	45.2E+04	77
5	47.6E+04	75
6	50.1E+04	74
7	52.3E+04	65
8	54.5E+04	71
9	57.4E+04	68
0	59.4E+04	65
1	62.5E+04	68
2	66.3E+04	65
3	69.2E+04	67
4	72.8E+04	70
5	76.7E+04	75
6	79.3E+04	74
7	82.8E+04	73
8	86.4E+04	78
9	90.1E+04	76
0	97.3E+04	72
1	11.1E+05	64
2	11.4E+05	69
3	12.5E+05	51
4	13.0E+05	74
5	13.7E+05	68
6	14.4E+05	66
7	15.1E+05	59
8	15.8E+05	58
9	16.5E+05	60
0	17.4E+05	54

Plot 13 Page 2 of 2
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para. 3.4.4.4.2



PLoT No. 14

TAR # 004706 pg. 3

1356008-1 EMI
S/N 202
SO 560869
TP 26151/B
Para. 3.4.4.4.2

```
=====================================================
ROJET ELECTRONICS SYSTEMS   30 Jul 1998  09:34:41
=====================================================
NDUCTED EMISSIONS
9 V NOISY BUS


AKS FOUND ABOVE  10dBuA

AK#   FREQ (Hz)   AMPL(dBuA)
1     10.4E+03      38
2     11.0E+03      40
3     11.6E+03      41
4     11.8E+03      43
5     12.2E+03      23
6     13.2E+03      46
7     13.7E+03      45
8     14.3E+03      38
9     14.7E+03      46
0     15.4E+03      21
1     16.7E+03      48
2     17.4E+03      46
3     18.1E+03      47
4     18.9E+03      52
5     19.8E+03      49
6     20.6E+03      50
7     21.9E+03      49
8     23.0E+03      49
9     24.2E+03      52
0     24.9E+03      17
1     25.5E+03      50
2     26.4E+03      51
3     27.5E+03      53
4     28.7E+03      53
5     30.0E+03      54
6     30.7E+03      52
7     32.4E+03      50
8     34.1E+03      54
9     35.5E+03      52
0     37.4E+03      49
1     39.0E+03      49
2     40.7E+03      50
3     41.4E+03      52
4     43.2E+03      17
5     45.5E+03      54
6     47.9E+03      55
7     49.1E+03      37
8     53.9E+03      56
9     56.3E+03      53
0     58.7E+03      53
1     61.2E+03      55
2     64.5E+03      51
3     68.4E+03      52
4     72.0E+03      53
5     75.1E+03      55
6     77.1E+03      16
7     78.4E+03      52
8     81.8E+03      54
9     86.1E+03      58
0     89.1E+03      56
1     90.6E+03      59
2     95.3E+03      58
```

Plot 14 Page 1 of 3
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para. 3.4.4.4.2

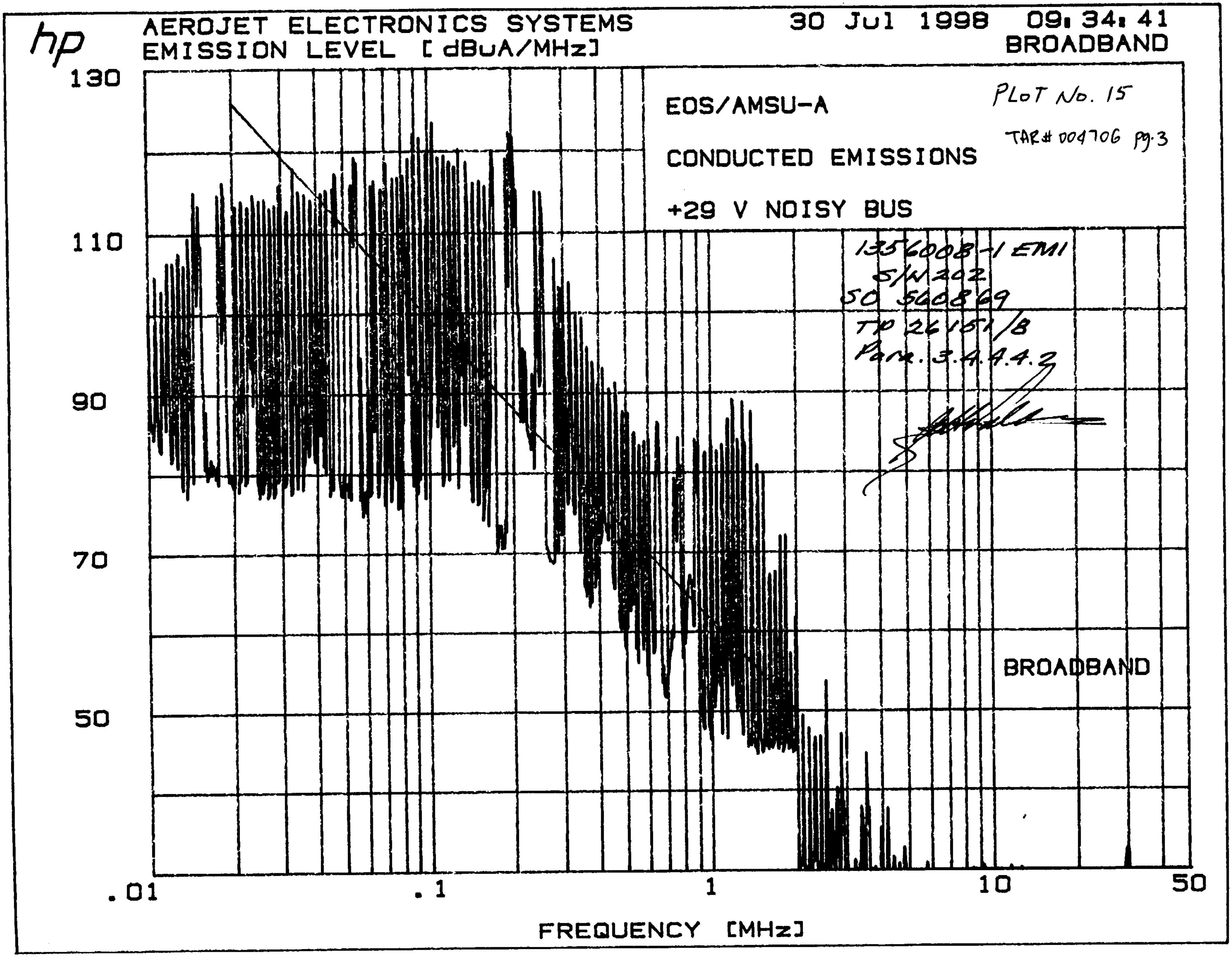
Plot 14 Page 2 of 3
EOS/AMSU-A1
1356008-1 EMI
S/N 202

SO 560869
TP 26151/8
Para 3.4.4.4.2

3	98.6E+03	27
4	10.0E+04	58
5	10.6E+04	57
6	11.1E+04	56
7	11.6E+04	51
8	12.1E+04	56
9	12.6E+04	55
0	13.1E+04	58
1	13.4E+04	58
2	13.7E+04	39
3	14.0E+04	26
4	14.3E+04	15
5	14.6E+04	55
6	15.4E+04	54
7	16.0E+04	18
8	16.7E+04	54
9	17.3E+04	51
0	17.9E+04	56
1	18.5E+04	51
2	19.2E+04	52
3	20.2E+04	56
4	20.5E+04	55
5	21.0E+04	59
6	21.8E+04	54
7	22.3E+04	51
8	22.9E+04	52
9	23.7E+04	54
0	24.1E+04	50
1	24.7E+04	55
2	25.4E+04	48
3	26.0E+04	50
4	26.7E+04	46
5	27.1E+04	50
6	27.9E+04	47
7	28.6E+04	50
8	29.3E+04	56
9	30.3E+04	46
0	31.4E+04	47
1	32.2E+04	45
2	32.7E+04	44
3	33.3E+04	43
4	35.0E+04	41
5	37.5E+04	40
6	38.2E+04	38
7	38.8E+04	38
8	39.5E+04	33
9	40.2E+04	37
0	41.2E+04	41
1	41.9E+04	48
2	43.7E+04	34
3	46.4E+04	41
4	48.4E+04	40
5	50.1E+04	29
6	51.0E+04	36
7	52.3E+04	36
8	53.2E+04	29
9	54.1E+04	28
0	56.0E+04	33
1	58.4E+04	29
2	59.9E+04	30
3	61.4E+04	31

Plot 14 Page 3 of 3
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.4.4.2

4	62.5E+04	30
5	65.8E+04	30
6	67.5E+04	33
7	69.8E+04	33
8	72.2E+04	33
9	77.3E+04	27
0	80.0E+04	25
1	83.5E+04	39
2	86.4E+04	30
3	88.6E+04	35
4	90.9E+04	34
5	93.2E+04	32
6	94.8E+04	32
7	10.1E+05	33
8	10.4E+05	32
9	10.6E+05	29
0	11.0E+05	31
1	11.2E+05	34
2	11.4E+05	35
3	11.7E+05	36
4	12.5E+05	37
5	12.8E+05	35
6	13.0E+05	36
7	13.2E+05	35
8	13.8E+05	37
9	14.5E+05	28
0	15.3E+05	26
1	15.7E+05	26
2	15.9E+05	22
3	16.6E+05	19
4	17.2E+05	15
5	17.8E+05	15
6	18.1E+05	20
7	18.7E+05	18
8	20.2E+05	17
9	21.5E+05	21
0	22.6E+05	14
1	23.6E+05	11
2	31.2E+05	10
3	30.8E+06	11

hp
AEROJET ELECTRONICS SYSTEMS
EMISSION LEVEL [dBuA/MHz]
30 Jul 1998 09: 34: 41
BROADBAND
EOS/AMSU-A
CONDUCTED EMISSIONS
+29 V NOISY BUS
PLoT No. 15
TAR# 004706 pg. 3
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para. 3.4.4.4.2
BROADBAND
130
110
90
70
50
.01
.1
1
10
50
FREQUENCY [MHz]

```
==========================================================
ROJET ELECTRONICS SYSTEMS   30 Jul 1998  09:34:41
==========================================================
NDUCTED EMISSIONS
3 V NOISY BUS


AKS FOUND ABOVE  50dBuA/MHz

AK#   FREQ (Hz)   AMPL(dBuA/MHz)
1     10.6E+03     105
2     11.2E+03     103
3     11.8E+03     106
4     12.3E+03     106
5     12.9E+03     108
6     13.5E+03     106
7     13.9E+03     110
8     14.7E+03     115
9     15.2E+03     113
0     16.0E+03      88
1     17.8E+03     115
2     18.6E+03     116
3     20.6E+03     113
4     21.7E+03     114
5     22.8E+03     113
6     23.4E+03      99
7     23.8E+03     115
8     25.1E+03     114
9     26.2E+03     114
0     27.3E+03     113
1     28.5E+03     113
2     29.7E+03     116
3     31.5E+03     113
4     33.2E+03     118
5     34.6E+03     115
6     36.4E+03     115
7     38.4E+03     114
8     40.0E+03     112
9     41.8E+03     115
0     42.5E+03      86
1     43.6E+03     115
2     45.9E+03     115
3     46.6E+03     117
4     53.5E+03     116
5     54.8E+03     119
6     57.2E+03      95
7     60.7E+03      91
8     62.8E+03     116
9     64.5E+03     116
0     68.4E+03     115
1     71.4E+03     119
2     75.1E+03     117
3     77.1E+03      85
4     78.4E+03     117
5     81.8E+03     117
6     85.4E+03     119
7     89.1E+03     122
8     92.1E+03      92
9     93.7E+03     122
0     99.5E+03     120
1     10.5E+04     123
```

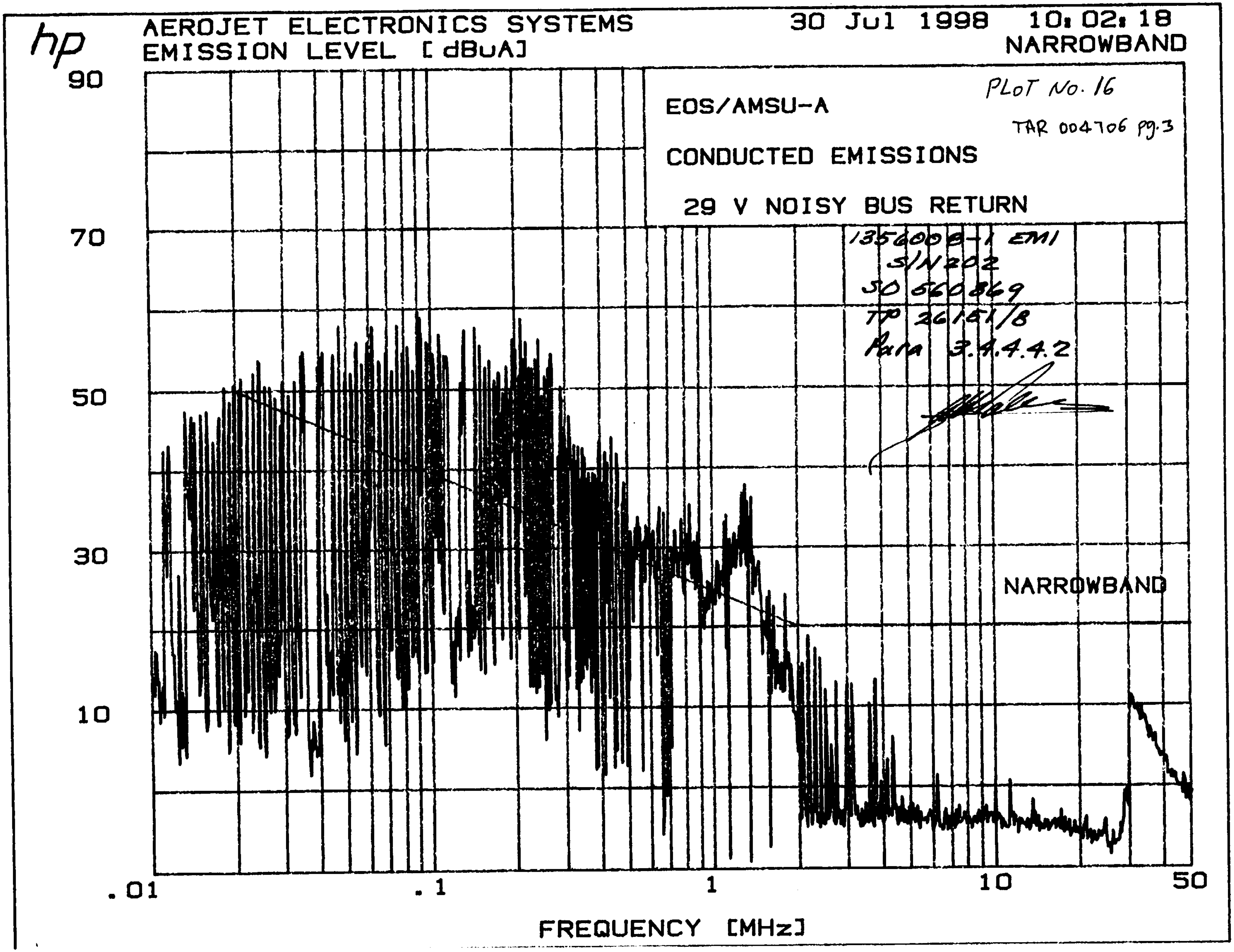
Plot 15 Page 1 of 3
EDS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/B
Para. 3.4.4.4.2

Plot 15 Page 2 of 3
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para. 3.4.4.4.2

2	10.9E+04	119
3	11.5E+04	119
4	12.0E+04	119
5	12.5E+04	118
6	13.0E+04	120
7	13.3E+04	100
8	13.7E+04	119
9	14.6E+04	116
0	15.4E+04	116
1	16.0E+04	116
2	17.0E+04	120
3	19.0E+04	119
4	19.5E+04	122
5	20.2E+04	122
6	20.7E+04	115
7	21.6E+04	96
8	21.9E+04	95
9	23.3E+04	92
0	24.1E+04	115
1	25.1E+04	115
2	28.1E+04	107
3	29.1E+04	103
4	30.1E+04	103
5	31.6E+04	104
6	33.3E+04	100
7	35.0E+04	99
8	36.6E+04	96
9	37.5E+04	69
0	38.2E+04	94
1	39.8E+04	91
2	41.5E+04	93
3	43.7E+04	91
4	46.0E+04	91
5	48.8E+04	88
6	51.0E+04	88
7	53.6E+04	85
8	54.5E+04	65
9	56.0E+04	83
0	58.4E+04	84
1	60.4E+04	84
2	64.7E+04	86
3	74.1E+04	79
4	76.7E+04	84
5	80.0E+04	63
6	84.2E+04	67
7	87.8E+04	84
8	90.1E+04	84
9	95.6E+04	83
0	99.8E+04	85
1	10.5E+05	83
2	11.0E+05	83
3	11.5E+05	87
4	11.9E+05	89
5	12.5E+05	84
6	13.0E+05	89
7	13.2E+05	84
8	13.9E+05	88
9	14.6E+05	81
0	15.4E+05	80
1	16.2E+05	67
2	16.9E+05	68
3	17.6E+05	72

18.4E+05	72
19.1E+05	57
19.9E+05	62
25.4E+05	54

Plot 15 3 of 3
EOS / AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/B
Para 3.4.4.4.2



PLOT No. 16

TAR 004706 pg.3

1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.4.4.2

```
===========================================================
ROJET ELECTRONICS SYSTEMS   30 Jul 1998  10:02:18
===========================================================
NDUCTED EMISSIONS
8 V NOISY BUS RETURN


AKS FOUND ABOVE  10dBuA

AK#  FREQ (Hz)  AMPL(dBuA)
1     10.3E+03     17
2     11.0E+03     13
3     11.2E+03     42
4     11.7E+03     43
5     12.6E+03     27
6     12.9E+03     12
7     13.4E+03     47
8     14.1E+03     47
9     14.4E+03     46
0     15.2E+03     47
1     16.0E+03     47
2     16.8E+03     44
3     17.7E+03     47
4     18.5E+03     50
5     19.3E+03     49
6     20.1E+03     51
7     20.8E+03     50
8     21.1E+03     52
9     21.9E+03     18
0     22.3E+03     50
1     23.4E+03     52
2     23.8E+03     27
3     24.4E+03     54
4     25.7E+03     51
5     26.8E+03     50
6     28.0E+03     49
7     29.2E+03     46
8     29.7E+03     51
9     31.3E+03     49
0     32.9E+03     51
1     34.6E+03     54
2     35.2E+03     55
3     39.7E+03     53
4     41.4E+03     55
5     42.5E+03     24
6     44.0E+03     17
7     45.1E+03     54
8     46.6E+03     15
9     47.4E+03     58
0     49.9E+03     52
1     52.1E+03     52
2     54.8E+03     56
3     57.2E+03     53
4     59.7E+03     56
5     62.3E+03     58
6     65.6E+03     54
7     69.6E+03     55
8     71.4E+03     21
9     73.2E+03     52
0     76.4E+03     58
1     79.7E+03     54
```

Plot 16 Page 1 of 3
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.4.4.2

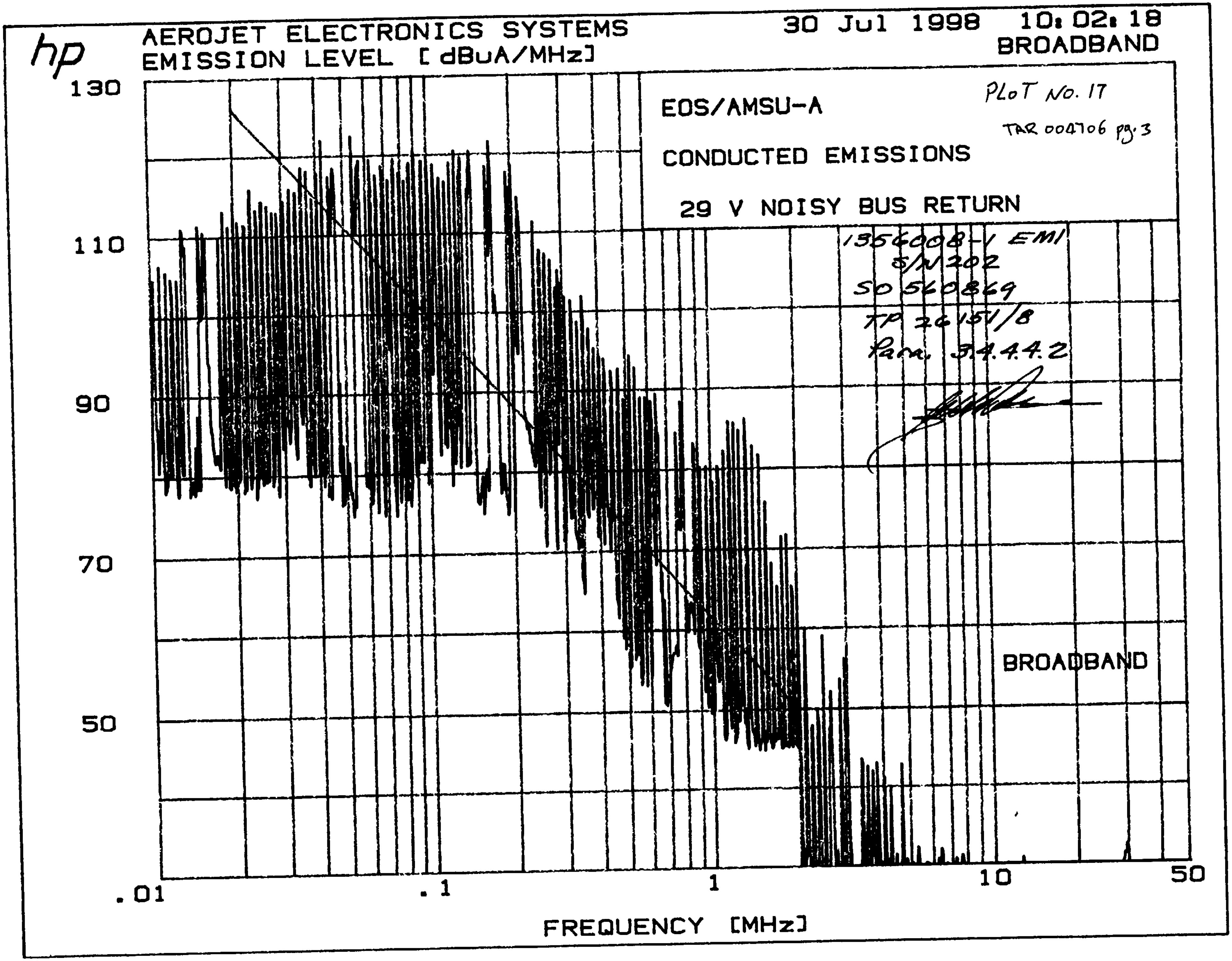
Plot 16 Page 2 of 3
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.4.4.2

2	83.2E+03	55
3	86.8E+03	52
4	90.6E+03	60
5	92.1E+03	59
6	95.3E+03	20
7	97.0E+03	56
8	10.2E+04	54
9	10.5E+04	49
0	10.7E+04	57
1	11.2E+04	54
2	12.0E+04	18
3	12.3E+04	21
4	12.5E+04	23
5	12.8E+04	51
6	13.3E+04	57
7	13.7E+04	27
8	14.0E+04	23
9	14.5E+04	58
0	15.1E+04	55
1	15.7E+04	53
2	16.3E+04	54
3	17.0E+04	51
4	17.6E+04	52
5	18.2E+04	49
6	18.7E+04	53
7	19.3E+04	50
8	19.6E+04	56
9	20.2E+04	55
0	20.7E+04	52
1	21.0E+04	59
2	21.4E+04	54
3	21.9E+04	56
4	22.5E+04	53
5	23.1E+04	53
6	23.7E+04	54
7	24.3E+04	56
8	24.9E+04	49
9	25.6E+04	52
0	26.2E+04	53
1	26.9E+04	54
2	28.6E+04	42
3	29.1E+04	50
4	30.1E+04	44
5	30.6E+04	42
6	31.1E+04	47
7	32.5E+04	43
8	33.0E+04	41
9	33.6E+04	43
0	34.2E+04	39
1	34.7E+04	42
2	35.3E+04	41
3	36.0E+04	39
4	36.6E+04	39
5	37.2E+04	38
6	37.8E+04	39
7	38.5E+04	39
8	39.1E+04	39
9	39.8E+04	43
0	40.8E+04	38
1	41.9E+04	42
2	42.6E+04	41
3	43.4E+04	35

4	44.1E+04	44
5	44.9E+04	21
6	46.0E+04	42
7	48.8E+04	38
8	50.1E+04	35
9	51.0E+04	32
10	53.6E+04	33
11	54.5E+04	34
12	57.4E+04	31
13	58.4E+04	33
14	62.0E+04	32
15	65.2E+04	35
16	67.5E+04	34
17	69.8E+04	33
18	71.6E+04	30
19	74.1E+04	32
30	78.0E+04	34
31	81.4E+04	32
32	83.5E+04	35
33	86.4E+04	31
34	89.4E+04	32
35	90.9E+04	29
36	96.5E+04	26
37	10.4E+05	28
38	11.1E+05	33
39	11.2E+05	34
40	11.5E+05	31
41	12.0E+05	32
42	12.6E+05	33
43	12.8E+05	37
44	13.1E+05	38
45	13.3E+05	36
46	13.6E+05	34
47	13.8E+05	36
48	14.0E+05	29
49	14.6E+05	28
50	15.7E+05	24
51	15.9E+05	24
52	16.5E+05	23
53	16.9E+05	17
54	17.5E+05	15
55	18.1E+05	24
56	18.9E+05	15
57	20.1E+05	14
58	20.7E+05	15
59	21.8E+05	19
60	23.0E+05	17
61	24.0E+05	16
62	25.0E+05	12
63	27.2E+05	13
64	29.9E+05	13
65	30.9E+05	13
66	35.8E+05	10
67	37.6E+05	13
68	30.8E+06	11

Plot 16 Page 3 of 3
EOS/AMSU-A1
1356008-1 EM1
S/N 202

SO 560869
TP 26151/8
Para. 3.4.4.4.2



AEROJET ELECTRONICS SYSTEMS

30 Jul 1998 10:02:18

BROADBAND

EOS/AMSU-A

CONDUCTED EMISSIONS

29 V NOISY BUS RETURN

PLoT No. 17

TAR 004706 pg. 3

1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para. 3.4.4.4.2

```
==================================================
ROJET ELECTRONICS SYSTEMS   30 Jul 1998  10:02:18
==================================================
NDUCTED EMISSIONS
9 V NOISY BUS RETURN


AKS FOUND ABOVE  50dBuA/MHz

AK#    FREQ (Hz)  AMPL(dBuA/MHz)
1      10.3E+03    105
2      10.8E+03    106
3      11.4E+03    106
4      11.9E+03    105
5      12.5E+03    105
6      13.0E+03    111
7      14.3E+03     84
8      14.5E+03     88
9      14.9E+03    111
0      15.6E+03    111
1      17.7E+03    110
2      18.0E+03     93
3      18.5E+03    113
4      19.3E+03    111
5      20.1E+03    114
6      20.8E+03    112
7      21.9E+03    111
8      23.2E+03    116
9      24.2E+03    113
0      25.3E+03    114
1      26.6E+03    114
2      27.8E+03    113
3      28.7E+03    113
4      30.5E+03    114
5      32.1E+03    116
6      33.8E+03    115
7      35.5E+03    119
8      37.1E+03    118
9      38.7E+03    115
0      39.3E+03     98
1      40.4E+03    118
2      42.1E+03    122
3      44.3E+03    117
4      46.3E+03    118
5      47.4E+03     91
6      48.3E+03     84
7      50.8E+03     82
8      53.9E+03    122
9      57.2E+03    119
0      60.2E+03     84
1      62.3E+03    119
2      65.6E+03    117
3      69.0E+03    119
4      71.4E+03    104
5      72.6E+03    117
6      76.4E+03    120
7      79.7E+03    118
8      83.2E+03    117
9      86.8E+03    119
0      89.8E+03    121
1      96.1E+03    119
```

Plot 17 Page 1 of 3

EOS/AMSU-A1

1356008-1 EMI

S/N 202

50560869

TP 26151/8

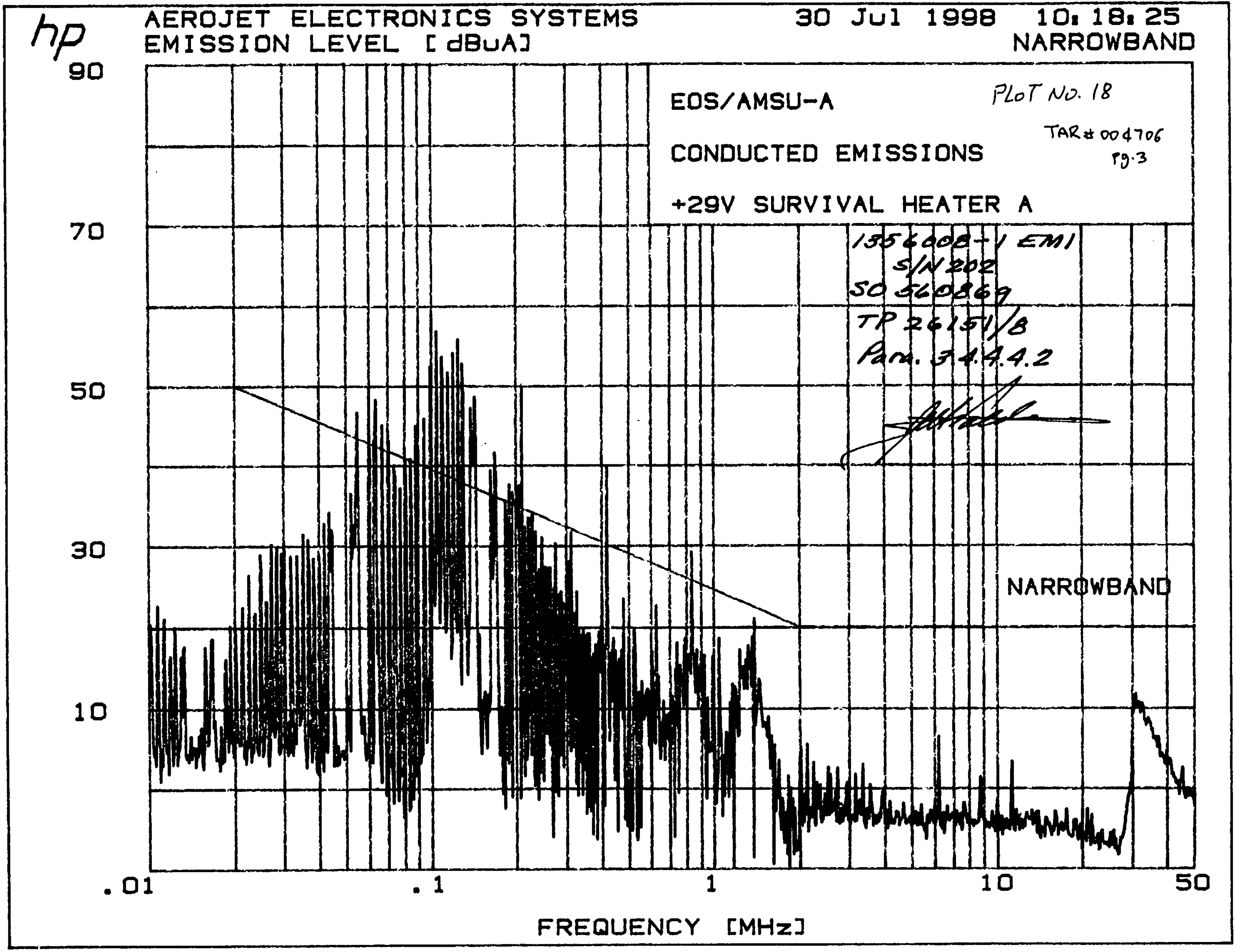
Para 3.4.4.4.2

```
2     10.0E+04     121
3     10.6E+04     119
4     11.1E+04     117
5     11.4E+04      90
6     11.6E+04     117
7     12.1E+04     119
8     12.6E+04     120
9     13.3E+04     120
0     14.3E+04     120
1     15.4E+04      80
2     16.3E+04     118
3     16.9E+04     122
4     18.0E+04      81
5     18.4E+04      81
6     19.3E+04     118
7     19.6E+04     116
8     20.2E+04     119
9     21.0E+04     114
0     23.9E+04     111
1     25.1E+04     108
2     26.2E+04     107
3     27.4E+04     106
4     28.6E+04     103
5     29.1E+04     105
6     29.6E+04     104
7     30.6E+04     102
8     32.2E+04     101
9     33.9E+04      99
0     35.3E+04     102
1     37.2E+04      98
2     38.8E+04      95
3     40.2E+04      94
4     41.9E+04      94
5     44.5E+04      92
6     47.2E+04      93
7     48.4E+04      69
8     49.3E+04      89
9     51.8E+04      94
0     54.1E+04      93
1     56.4E+04      89
2     58.9E+04      89
3     61.4E+04      89
4     64.1E+04      89
5     67.5E+04      64
6     75.4E+04      85
7     78.6E+04      88
8     84.2E+04      63
9     87.1E+04      83
0     91.7E+04      80
1     94.0E+04      58
2     96.5E+04      80
3     99.0E+04      53
4     10.2E+05      78
5     10.6E+05      80
6     11.1E+05      82
7     11.6E+05      86
8     12.1E+05      86
9     12.7E+05      85
0     13.3E+05      86
1     14.1E+05      83
2     14.9E+05      82
3     15.7E+05      76
```

Plot17 Page 2 of 2
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.4.4.2

4	16.3E+05	68
5	17.1E+05	65
6	17.8E+05	71
7	18.6E+05	72
8	19.2E+05	65
9	20.1E+05	67
0	21.3E+05	60
1	24.6E+05	59
2	26.1E+05	52
3	28.2E+05	54
4	29.4E+05	56

Plot 17 Page 3 of 3
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.4.4.2


hp
AEROJET ELECTRONICS SYSTEMS
EMISSION LEVEL [dBuA]
30 Jul 1998 10:18:25
NARROWBAND
EOS/AMSU-A
CONDUCTED EMISSIONS
+29V SURVIVAL HEATER A
PLoT No. 18
TAR# 004706
pg. 3
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para. 3.4.4.4.2
NARROWBAND
90
70
50
30
10
.01
.1
1
10
50
FREQUENCY [MHz]

TEST DATA SHEET 8 (Sheet 1 of 1)
RE01 Test (Paragraph 3.4.10.4)

Test Setup Verified: 7-28-98
(Signature)

TAR # 004706
pg. 2

Test Equipment Log

Item	Manufacturer	Model/Part No.	Aerojet Inventory No.	Calibration Date	Calibration Due Date
Loop ANTENNA	SOLAR Elect.	7334-1	L803461	5-12-98	5-12-99
Control Systems Analyzer	HP	3563A	53898	5-12-97	4-12-99
Plotter	HP	7470A	57707	N/A	N/A

197

Emission Measurements

Plot No.	Frequency Range	Requirement	Emissions within limits?		Comments/ Observations
			Yes	No	
150/152	30 to 200 Hz	Figure 16		✓	Plot 150 & 152
150/152	200 Hz to 20 kHz	Figure 16		✓	Plot 150 & 152
151/153	20 kHz to 50 kHz	Figure 16	✓		Plot 151 & 153

Note: Attach all backup data generated during the test (photos, printouts plots, test logs, additional comments or observations, etc.) to this data sheet.

Signature/Date

Assembly Part No. EOS/AMSU-A1 1356008-1-EMI

Engineer: 29 July 98

Serial No. 202

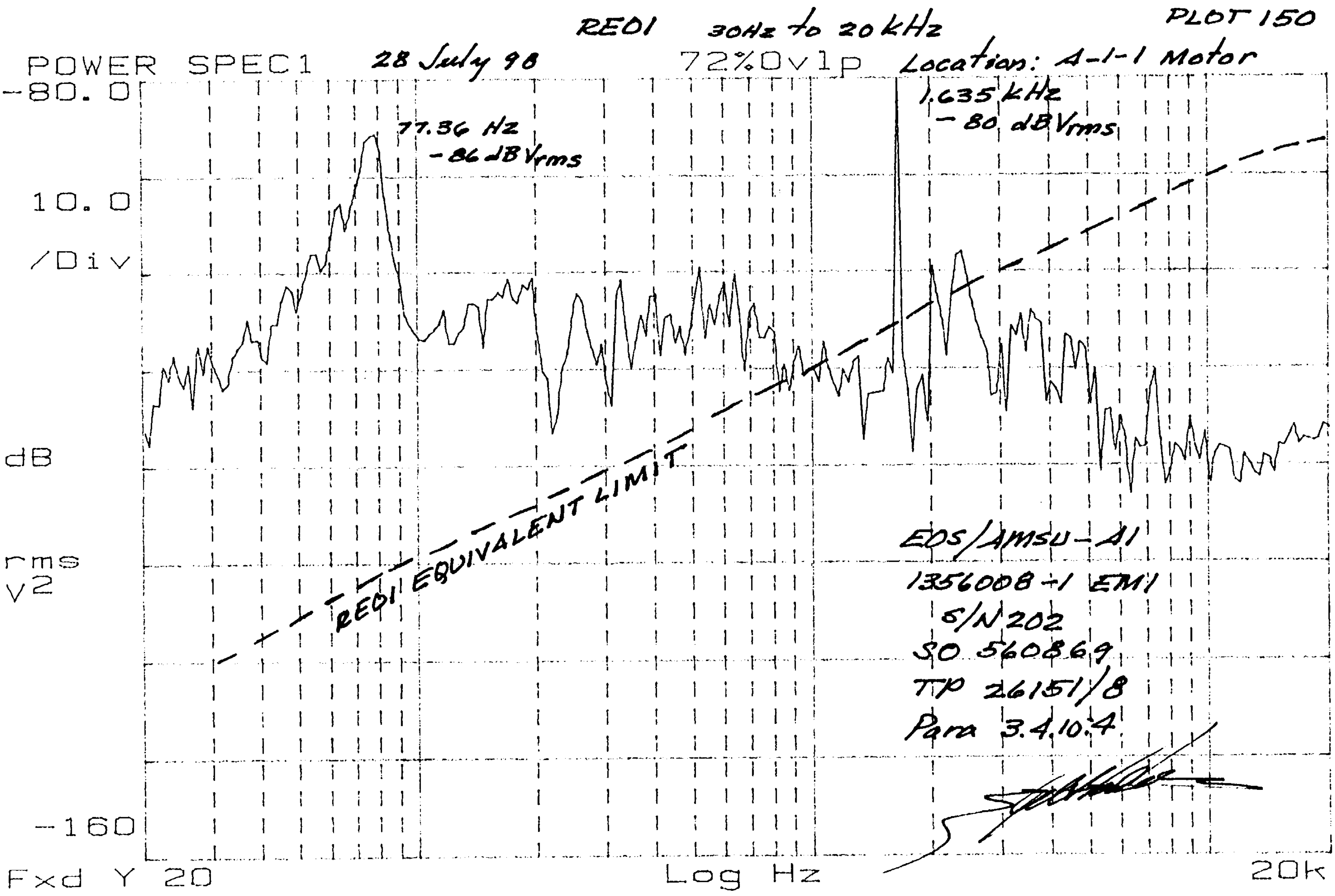
Quality Assurance: ______

Shop Order: 560869

Operator:

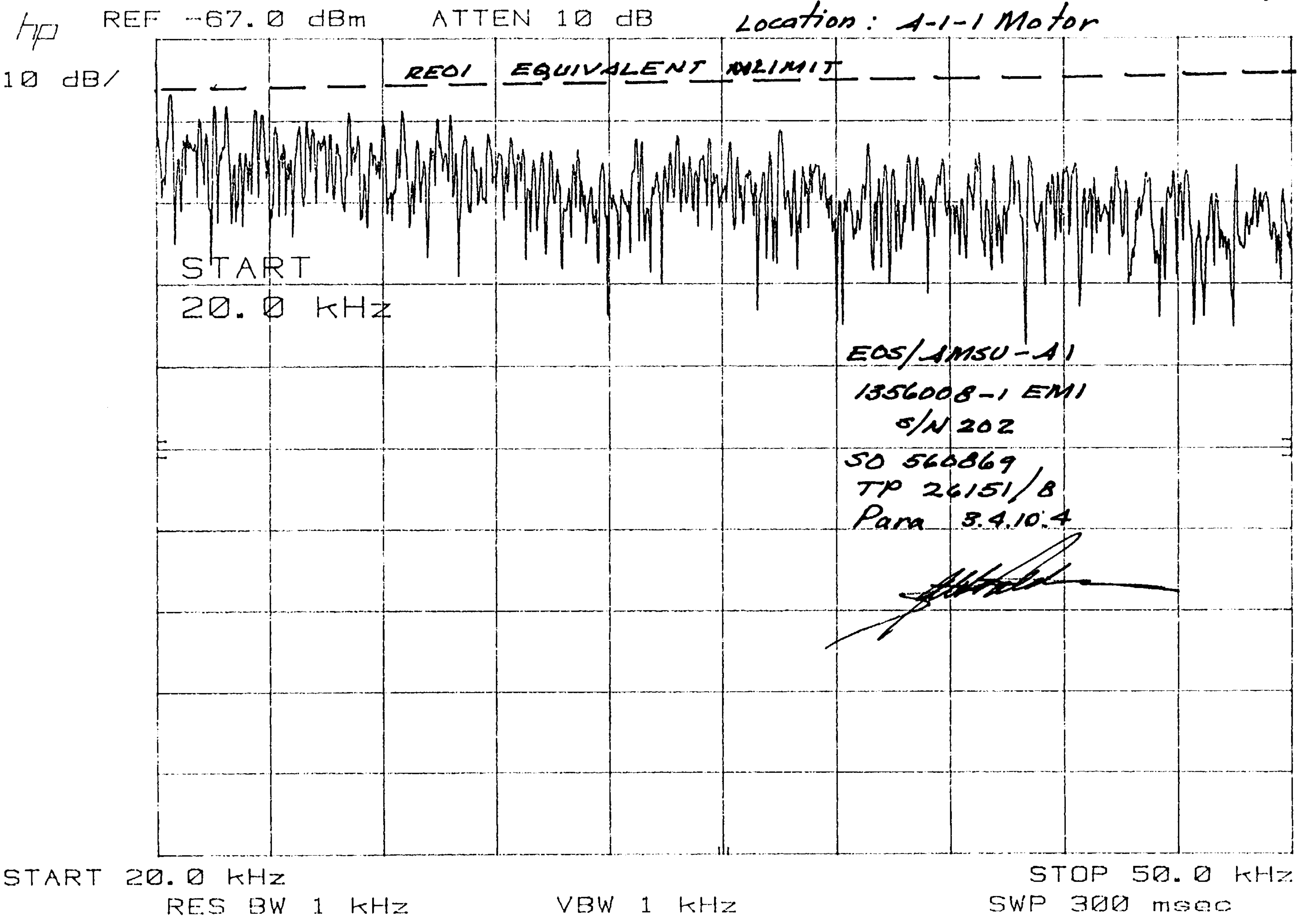
Customer Rep: ______

JAE # 4706 pg. 2


REDI
30Hz to 20kHz
PLOT 150
POWER SPEC1
28 July 98
72%Ovlp
Location: A-1-1 Motor
-80.0
10.0
/Div
dB
rms
V2
-160
Fxd Y 20
Log Hz
20k
77.36 Hz
-86 dBVrms
1.635 kHz
-80 dBVrms
REDI EQUIVALENT LIMIT
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.10.4

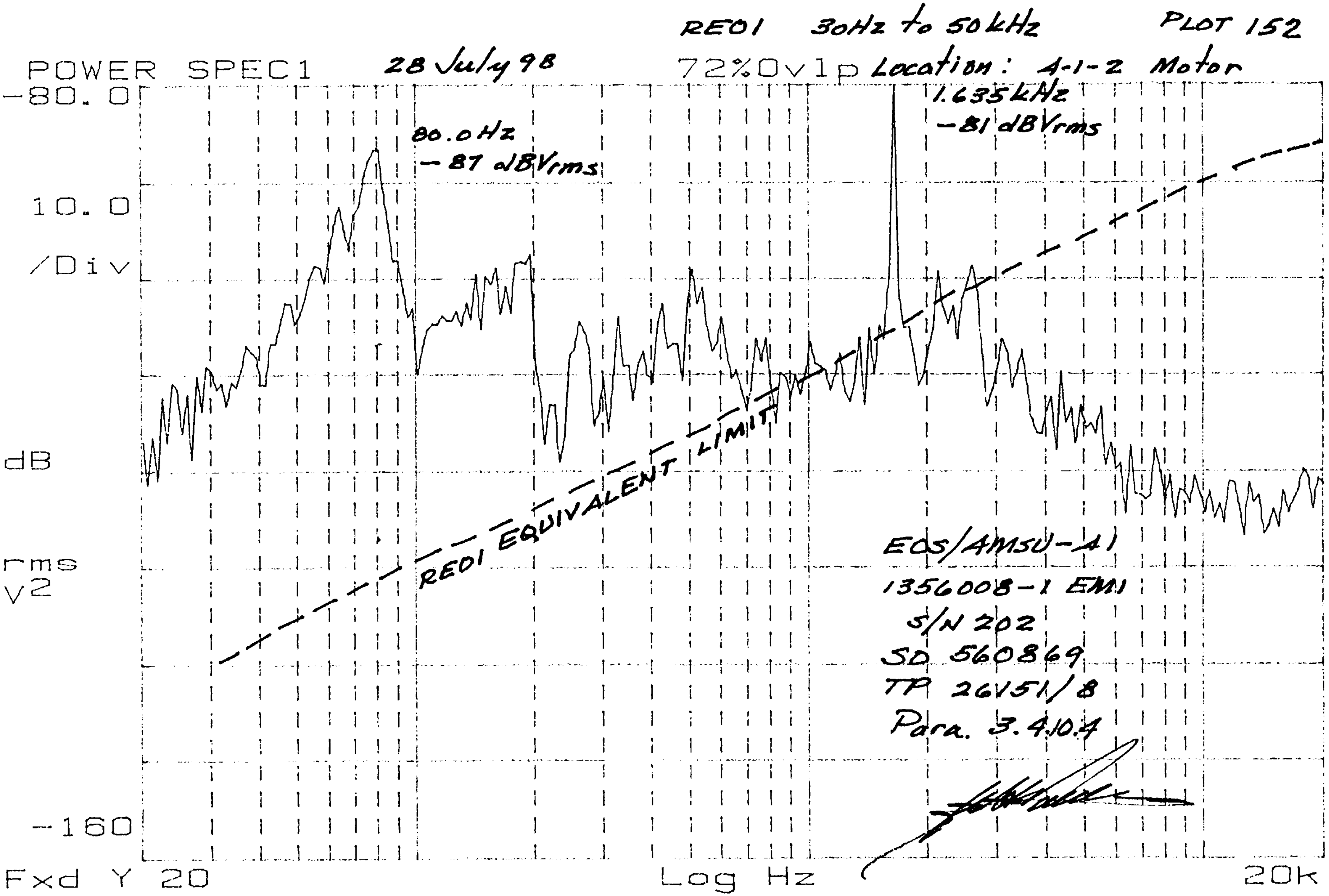
28 July 98 RE01 20 to 50 kHz PLOT 151

Location: A-1-1 Motor



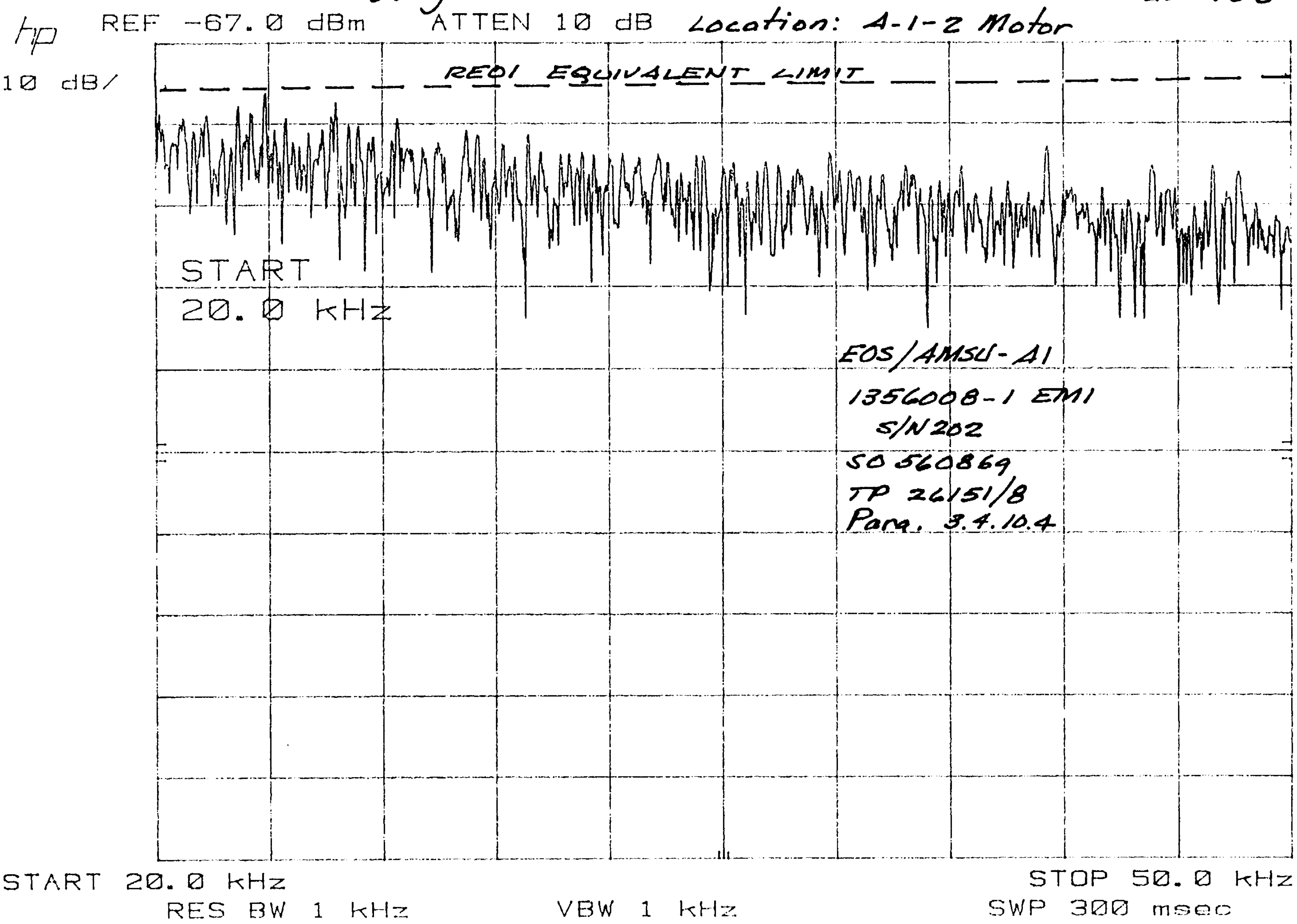
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.10.4

TAR # 4706 pg. 2


REO1 30Hz to 50kHz
PLOT 152
POWER SPEC1
28 July 98
72%Ov1p
Location: A-1-2 Motor
-80.0
10.0
/Div
dB
rms
V2
-160
Fxd Y 20
Log Hz
20k
80.0Hz
-87 dBVrms
1.635kHz
-81 dBVrms
REO1 EQUIVALENT LIMIT
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SD 560869
TP 26151/8
Para. 3.4.10.4

28 July 98 RE01 20 to 50kHz PLOT 153

Location: A-1-2 Motor



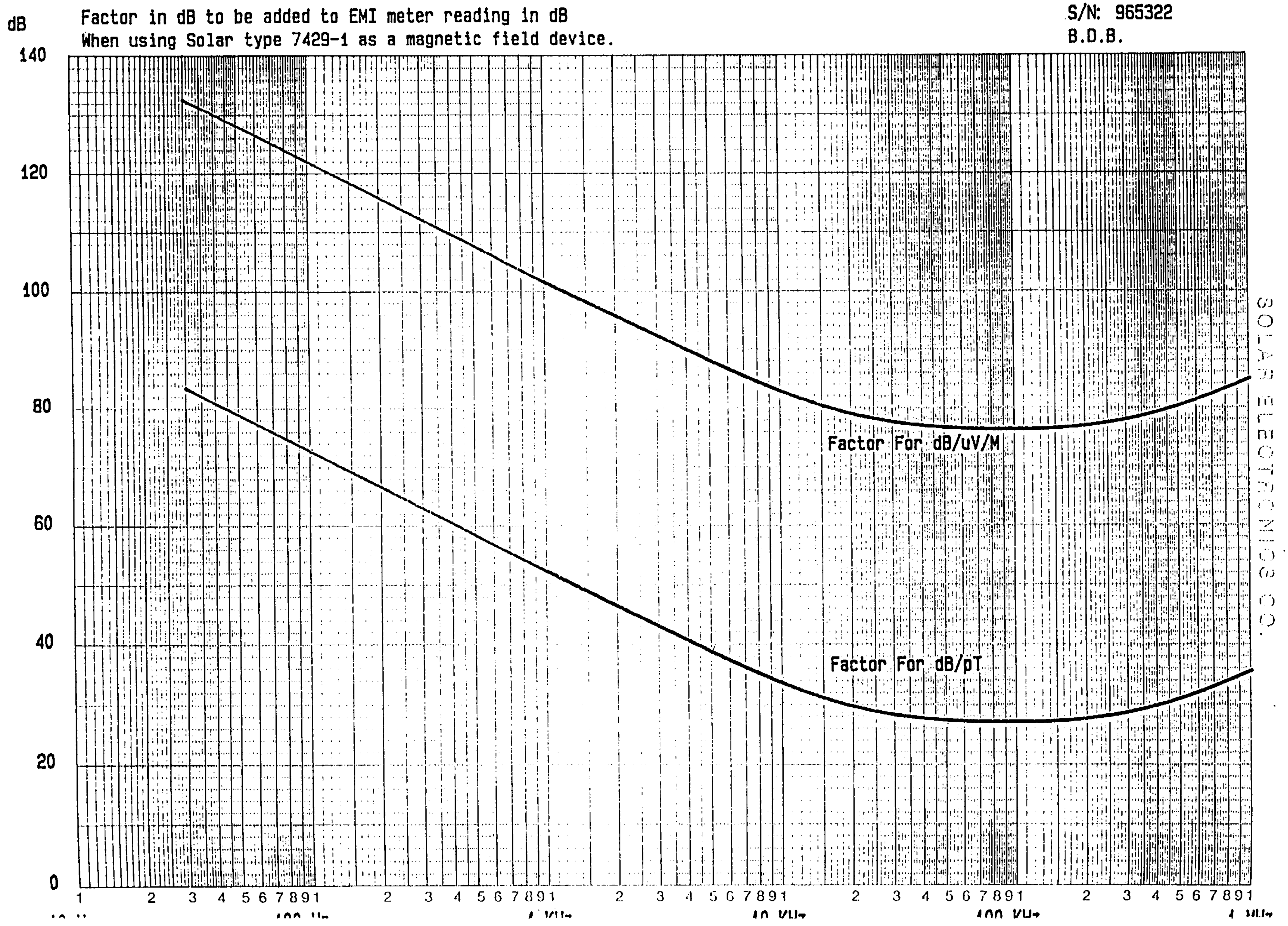
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para. 3.4.10.4

RE01 EQUIVALENT LIMIT CALCULATION

Freq Hz	Limit dBpT	Loop Factor dB	dBμV	μV	dBVrms	Equivalent Limit dBVpeak
30	60	83	-23.0	0.07	-143	-140
100	60	72	-12.0	0.25	-132	-129
300	60	63	-3.0	0.71	-133	-130
1000	60	52	8.0	2.5	-112	-109
5000	60	39	21.0	11.22	-99	-96
10000	60	33	27.0	22.38	-93	-90
20000	60	29	31.0	35.48	-89	-86
50000	60	27	33.0	44.67	-86	-83

SOLAR TYPE 7334-1 LOOP SENSOR.
Factor in dB to be added to EMI meter reading in dB
When using Solar type 7429-1 as a magnetic field device.

S/N: 965322
B.D.B.



TEST DATA SHEET 9 (Sheet 1 of 3)
RE04 Test (Paragraph 3.4.11.4)

Test Setup Verified: Ken Shane 7/31/98
(Signature)

Test Equipment Log

Item	Manufacturer	Model/Part No.	Aerojet Inventory No.	Calibration Date	Calibration Due Date
Gaussmeter	F.W.Bell	9500	R300625	12/3/96	12/3/98
Gaussmeter Probe	F.W. Bell	MOX99-2506	R300642	4/27/98	4/27/99 26 7/30/98

INSTRUMENT IN NO MODE, ALL POWER SUPPLIES OFF.

(Mid Height) Magnetic Field Emissions

Step	Direction*	Measured	Required	Mag field within limits?		Comments/ Observations
		mG		Yes	No	
7	0 degrees	0.56	See 3.4.11.2	✓		
8	30 degrees	0.43	See 3.4.11.2	✓		
9	60 degrees	0.54	See 3.4.11.2	✓		
10	90 degrees	0.54	See 3.4.11.2	✓		
11	120 degrees	0.51	See 3.4.11.2	✓		
12	150 degrees	0.45	See 3.4.11.2	✓		
1	180 degrees	0.47	See 3.4.11.2	✓		
2	210 degrees	0.71	See 3.4.11.2	✓		
3	240 degrees	0.54	See 3.4.11.2	✓		
4	270 degrees	0.44	See 3.4.11.2	✓		
5	300 degrees	0.56	See 3.4.11.2	✓		
6	330 degrees	0.61	See 3.4.11.2	✓		

Note: Attach all backup data generated during the test (photos, printouts plots, test logs, additional comments or observations, etc.) to this data sheet.

* Relative to instrument connector side.

Signature/Date

Assembly Part No. EOS/AMSU A-1 1356008-1-EM1

Engineer: William H. Parker / 7/31/98

Serial No. 202

Quality Assurance: TA 197 7-31-98 CC45HZ3

Shop Order: 560869

Operator: AMSU 5 SEIT

Customer Rep: 7-31-98

TEST DATA SHEET 9 (Sheet 2 of 3)
RE04 Test (Paragraph 3.4.11.4)

Test Setup Verified: ______________________
(Signature)

INSTRUMENT IN NO MODE, ALL POWER SUPPLIES OFF.

(10 inches above mid height) Magnetic Field Emissions

Step	Direction*	Measured	Required	Mag field within limits?		Comments/ Observations
		mG		Yes	No	
7	0 degrees	0.20	See 3.4.11.2	✓		
6	30 degrees	0.32	See 3.4.11.2	✓		
5	60 degrees	0.42	See 3.4.11.2	✓		
4	90 degrees	0.15	See 3.4.11.2	✓		
3	120 degrees	0.32	See 3.4.11.2	✓		
2	150 degrees	0.29	See 3.4.11.2	✓		
1	180 degrees	0.32	See 3.4.11.2	✓		
12	210 degrees	0.13	See 3.4.11.2	✓		
11	240 degrees	0.15	See 3.4.11.2	✓		
10	270 degrees	0.12	See 3.4.11.2	✓		
9	300 degrees	0.27	See 3.4.11.2	✓		
8	330 degrees	0.27	See 3.4.11.2	✓		

Note: Attach all backup data generated during the test (photos, printouts plots, test logs, additional comments or observations, etc.) to this data sheet.

*Relative to instrument connector side.

TEST DATA SHEET 9 (Sheet 3 of 3)
RE04 Test (Paragraph 3.4.11.4)

Test Setup Verified: ______________________
(Signature)

INSTRUMENT IN NO MODE, ALL POWER SUPPLIES OFF.

(10 inches below mid height) Magnetic Field Emissions

Step	Direction*	Measured mG	Required	Mag field within limits? Yes	Mag field within limits? No	Comments/ Observations
6	0 degrees	0.09	See 3.4.11.2	✓		
7	30 degrees	0.05	See 3.4.11.2	✓		
8	60 degrees	0.06	See 3.4.11.2	✓		
9	90 degrees	0.05	See 3.4.11.2	✓		
10	120 degrees	0.01	See 3.4.11.2	✓		
11	150 degrees	0.03	See 3.4.11.2	✓		
12	180 degrees	0.05	See 3.4.11.2	✓		
1	210 degrees	0.26	See 3.4.11.2	✓		
2	240 degrees	0.29	See 3.4.11.2	✓		
3	270 degrees	0.22	See 3.4.11.2	✓		
4	300 degrees	0.18	See 3.4.11.2	✓		
5	330 degrees	0.05	See 3.4.11.2	✓		

Note: Attach all backup data generated during the test (photos, printouts plots, test logs, additional comments or observations, etc.) to this data sheet.

* Relative to instrument connector side.

TEST DATA SHEET 9 (Sheet 1 of 3)
RE04 Test (Paragraph 3.4.11.4)

Test Setup Verified: 7/31/98
(Signature)

INSTRUMENT IN FULL SCAN MODE.

Test Equipment Log

Item	Manufacturer	Model/Part No.	Aerojet Inventory No.	Calibration Date	Calibration Due Date
Gaussmeter	F W Bell	9500	R300625	12/3/96	12/3/98
Gaussmeter Probe	F W Bell	MOX99-2506	R300642	4/27/98	4/27/99

(Mid Height) Magnetic Field Emissions

Step	Direction*	Measured	Required	Mag field within limits?		Comments/ Observations
		mG		Yes	No	
6	0 degrees	0.46	See 3.4.11.2	✓		
7	30 degrees	0.33	See 3.4.11.2	✓		
8	60 degrees	0.43	See 3.4.11.2	✓		
9	90 degrees	0.53	See 3.4.11.2	✓		
10	120 degrees	0.61	See 3.4.11.2	✓		
11	150 degrees	0.35	See 3.4.11.2	✓		
12	180 degrees	0.43	See 3.4.11.2	✓		
1	210 degrees	0.36	See 3.4.11.2	✓		
2	240 degrees	0.34	See 3.4.11.2	✓		
3	270 degrees	0.27	See 3.4.11.2	✓		
4	300 degrees	0.35	See 3.4.11.2	✓		
5	330 degrees	0.37	See 3.4.11.2	✓		

Note: Attach all backup data generated during the test (photos, printouts plots, test logs, additional comments or observations, etc.) to this data sheet.

* Relative to instrument connector side.

Signature/Date

Assembly Part No. EOS/AMSU A-1 1356008-1-EM1

Engineer: William H. Parker / 7/31/98

Serial No. 202

Quality Assurance: QA 197 7/31/98 OC 45HK

Shop Order: 560869

Operator: AMSU 6 SEIT

Customer Rep: 7-31-98

TEST DATA SHEET 9 (Sheet 2 of 3)
RE04 Test (Paragraph 3.4.11.4)

Test Setup Verified: 7/31/98
(Signature)

INSTRUMENT IN FULL SCAN MODE.

(10 inches above mid height) Magnetic Field Emissions

Step	Direction*	Measured	Required	Mag field within limits?		Comments/ Observations
		mG		Yes	No	
7	0 degrees	0.10	See 3.4.11.2	✓		
6	30 degrees	0.04	See 3.4.11.2	✓		
5	60 degrees	0.13	See 3.4.11.2	✓		
4	90 degrees	0.03	See 3.4.11.2	✓		
3	120 degrees	0.03	See 3.4.11.2	✓		
2	150 degrees	0.15	See 3.4.11.2	✓		
1	180 degrees	0.08	See 3.4.11.2	✓		
12	210 degrees	0.35	See 3.4.11.2	✓		
11	240 degrees	0.32	See 3.4.11.2	✓		
10	270 degrees	0.33	See 3.4.11.2	✓		
9	300 degrees	0.25	See 3.4.11.2	✓		
8	330 degrees	0.05	See 3.4.11.2	✓		

Note: Attach all backup data generated during the test (photos, printouts plots, test logs, additional comments or observations, etc.) to this data sheet.

*Relative to instrument connector side.

TEST DATA SHEET 9 (Sheet 3 of 3)
RE04 Test (Paragraph 3.4.11.4)

Test Setup Verified: Ken Swan 7/31/98
(Signature)

INSTRUMENT IN FULL SCAN MODE.

(10 inches below mid height) Magnetic Field Emissions

Step	Direction*	Measured	Required	Mag field within limits?		Comments/ Observations
		mG		Yes	No	
7	0 degrees	0.30	See 3.4.11.2	✓		
6	30 degrees	0.33	See 3.4.11.2	✓		
5	60 degrees	0.34	See 3.4.11.2	✓		
4	90 degrees	0.35	See 3.4.11.2	✓		
3	120 degrees	0.36	See 3.4.11.2	✓		
2	150 degrees	0.33	See 3.4.11.2	✓		
1	180 degrees	0.24	See 3.4.11.2	✓		
12	210 degrees	0.22	See 3.4.11.2	✓		
11	240 degrees	0.21	See 3.4.11.2	✓		
10	270 degrees	0.21	See 3.4.11.2	✓		
9	300 degrees	0.24	See 3.4.11.2	✓		
8	330 degrees	0.25	See 3.4.11.2	✓		

Note: Attach all backup data generated during the test (photos, printouts plots, test logs, additional comments or observations, etc.) to this data sheet.

* Relative to instrument connector side.

```
===========================================================
ROJET ELECTRONICS SYSTEMS   30 Jul 1998  10:18:25
===========================================================
NDUCTED EMISSIONS
9V SURVIVAL HEATER A


AKS FOUND ABOVE  10dBuA

AK#  FREQ (Hz)  AMPL(dBuA)
 1    10.2E+03    20
 2    10.8E+03    23
 3    11.4E+03    21
 4    12.0E+03    17
 5    12.4E+03    20
 6    13.0E+03    17
 7    13.4E+03    18
 8    15.8E+03    18
 9    16.8E+03    19
 0    18.8E+03    16
11    19.4E+03    20
 2    20.3E+03    20
13    21.5E+03    22
14    22.6E+03    26
15    23.8E+03    22
16    24.9E+03    29
17    25.9E+03    23
18    27.3E+03    30
19    28.5E+03    30
20    29.5E+03    29
21    30.2E+03    30
22    31.8E+03    29
23    33.5E+03    29
24    35.2E+03    32
25    36.8E+03    31
26    38.4E+03    29
27    40.0E+03    29
28    41.8E+03    33
29    43.6E+03    34
30    44.3E+03    32
31    50.4E+03    12
32    52.1E+03    36
33    54.8E+03    47
34    60.2E+03    46
35    63.9E+03    48
36    65.0E+03    23
37    67.3E+03    45
38    70.8E+03    43
39    73.9E+03    40
40    77.7E+03    37
41    81.1E+03    41
42    84.6E+03    41
43    88.3E+03    45
44    90.6E+03    18
45    94.5E+03    46
46    99.5E+03    53
47    10.5E+04    57
48    10.9E+04    54
49    11.5E+04    52
50    12.0E+04    54
51    12.5E+04    56
```

Plot 18 Page 1 of 3

EOS/AMSU-A1

1356008-1 EMI

S/N 202

SO 560869

TP 26151/8

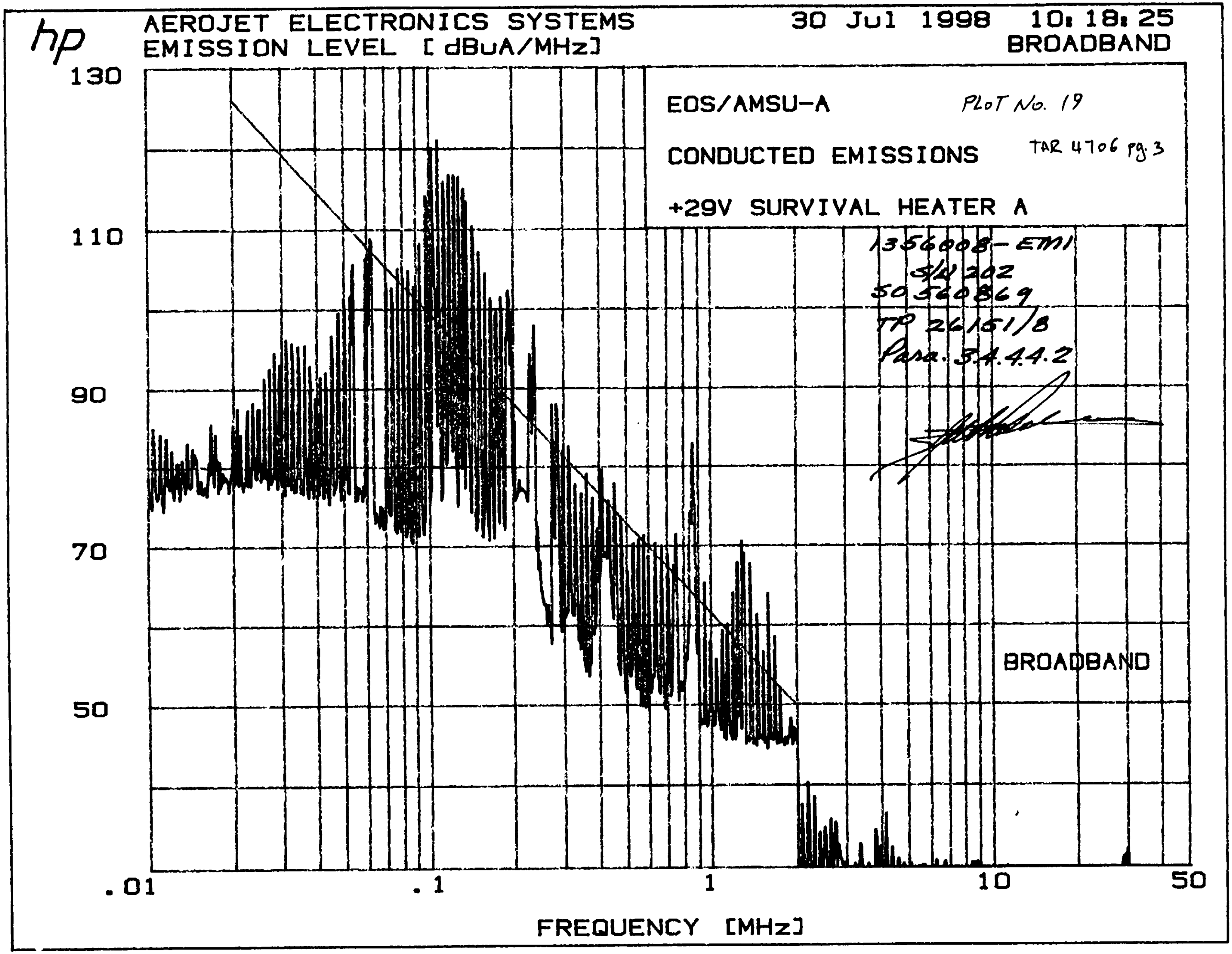
Para 3.4.4.4.2

```
2      13.0E+04      53
3      13.9E+04      47
4      14.3E+04      49
5      14.8E+04      19
6      15.5E+04      12
7      16.3E+04      39
8      16.9E+04      42
9      17.7E+04      10
0      18.4E+04      36
1      19.0E+04      38
2      19.5E+04      37
3      20.5E+04      38
4      21.0E+04      50
5      21.6E+04      32
6      22.1E+04      34
7      22.9E+04      34
8      23.5E+04      32
9      24.1E+04      27
0      24.7E+04      31
1      25.4E+04      27
2      25.8E+04      27
3      26.5E+04      27
4      27.1E+04      25
5      27.6E+04      30
6      28.3E+04      24
7      28.8E+04      24
8      29.6E+04      23
9      30.6E+04      28
0      31.4E+04      32
1      31.9E+04      22
2      32.7E+04      24
3      33.3E+04      20
4      33.9E+04      19
5      34.5E+04      20
6      35.0E+04      19
7      35.6E+04      19
8      36.3E+04      19
9      36.9E+04      16
0      37.5E+04      17
1      38.2E+04      18
2      39.1E+04      20
3      40.2E+04      24
4      41.9E+04      40
5      43.4E+04      17
6      44.1E+04      19
7      44.9E+04      17
8      46.4E+04      16
9      47.2E+04      17
0      48.0E+04      23
1      50.1E+04      19
2      52.3E+04      20
3      54.1E+04      12
4      55.5E+04      13
5      58.4E+04      12
6      59.4E+04      12
7      60.4E+04      17
8      62.5E+04      23
9      63.6E+04      14
0      66.3E+04      11
1      71.0E+04      12
2      74.1E+04      18
3      76.0E+04      15
```

Plot 18 Page 2 of 3
EOS/AMSU-A1
1356008-1 EM1
S/N 202
SO 560869
TP 26151/8
Para 3.4.4.4.2

4	79.3E+04	19
5	83.5E+04	29
6	87.1E+04	17
7	90.1E+04	17
8	92.4E+04	17
9	94.8E+04	11
0	99.0E+04	16
1	10.4E+05	19
2	11.4E+05	11
3	11.6E+05	13
4	11.8E+05	13
5	12.3E+05	17
6	13.0E+05	16
7	13.2E+05	18
8	13.7E+05	19
9	13.9E+05	21
0	14.4E+05	14
1	30.8E+06	12

Plot 18 Page 3 of 3
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para. 3.4.4.4.2



PLOT No. 19

TAR 4706 pg. 3

1356008-EMI
S/N 202
50 560869
TP 26151/8
Para. 3.4.4.4.2

```
==========================================================
ROJET ELECTRONICS SYSTEMS    30 Jul 1998  10:18:25
==========================================================
NDUCTED EMISSIONS
8V SURVIVAL HEATER A


AKS FOUND ABOVE  50dBuA/MHz

AK#   FREQ (Hz)   AMPL(dBuA/MHz)
1     10.4E+03     85
2     11.1E+03     84
3     11.7E+03     84
4     12.2E+03     82
5     12.7E+03     81
6     13.2E+03     81
7     13.8E+03     83
8     14.4E+03     83
9     16.8E+03     85
0     17.4E+03     84
1     18.0E+03     81
2     20.1E+03     85
3     20.4E+03     81
4     20.8E+03     88
5     21.3E+03     84
6     22.6E+03     87
7     23.6E+03     88
8     24.6E+03     87
9     25.9E+03     91
0     27.1E+03     93
1     28.2E+03     95
2     29.5E+03     93
3     31.0E+03     96
4     32.6E+03     96
5     34.3E+03     95
6     36.1E+03     96
7     37.7E+03     93
8     39.3E+03     89
9     41.1E+03     92
0     42.8E+03     92
1     45.1E+03     97
2     47.9E+03     99
3     49.9E+03    101
4     52.6E+03    102
5     53.9E+03    106
6     59.7E+03    106
7     62.3E+03    109
8     70.8E+03    103
9     73.9E+03    103
0     77.7E+03    105
1     81.1E+03    104
2     84.6E+03    105
3     88.3E+03    103
4     92.9E+03    108
5     97.8E+03    114
6     10.3E+04    120
7     10.8E+04    121
8     11.3E+04    116
9     11.9E+04    117
0     12.3E+04    117
1     12.8E+04    117
```

Plot 19 Page 1 of 2

EOS/AMSU-A1

1356008-1 EM1

S/N 202

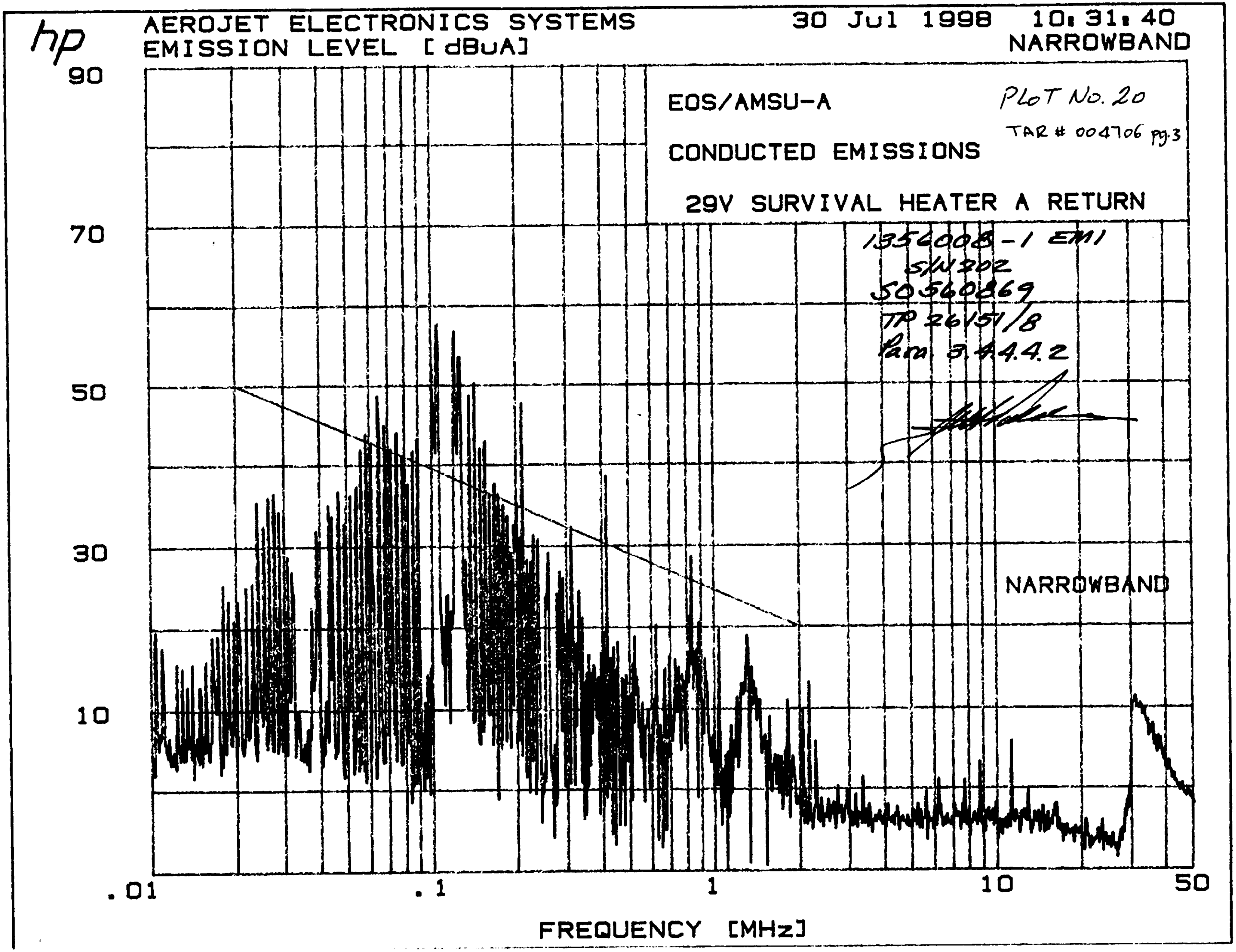
SO 560869

TP 26151/8

Para 3.4.4.4.2

Plot 19 Page 2 of 2
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para. 3.4.4.4.2

2	13.4E+04	115
3	13.6E+04	113
4	14.3E+04	110
5	15.1E+04	107
6	15.9E+04	104
7	16.6E+04	101
8	17.4E+04	100
9	18.0E+04	101
0	19.2E+04	102
1	19.6E+04	100
2	20.2E+04	86
3	22.9E+04	94
4	23.7E+04	98
5	24.3E+04	72
6	27.4E+04	88
7	28.3E+04	88
8	30.1E+04	82
9	31.4E+04	83
0	33.0E+04	78
1	34.7E+04	77
2	36.3E+04	79
3	38.2E+04	76
4	39.5E+04	72
5	41.2E+04	80
6	43.4E+04	76
7	45.6E+04	78
8	48.0E+04	73
9	50.5E+04	67
0	53.2E+04	70
1	55.5E+04	71
2	57.9E+04	71
3	59.9E+04	69
4	63.6E+04	70
5	66.9E+04	70
6	70.4E+04	69
7	75.4E+04	71
8	86.4E+04	83
9	90.1E+04	61
0	94.8E+04	65
1	99.0E+04	58
2	10.4E+05	56
3	11.0E+05	59
4	11.4E+05	60
5	11.9E+05	64
6	12.5E+05	68
7	12.9E+05	70
8	13.1E+05	69
9	13.8E+05	68
0	14.5E+05	61
1	15.3E+05	57
2	15.9E+05	64
3	16.8E+05	58
4	17.5E+05	52


hp
AEROJET ELECTRONICS SYSTEMS
EMISSION LEVEL [dBuA]
30 Jul 1998 10:31:40
NARROWBAND
EOS/AMSU-A
CONDUCTED EMISSIONS
29V SURVIVAL HEATER A RETURN
PLoT No. 20
TAR # 004706 pg.3
1356008-1 EMI
S/N 202
50560869
TP 26151/8
Para 3.4.4.2
NARROWBAND
90
70
50
30
10
.01
.1
1
10
50
FREQUENCY [MHz]

```
==========================================================
ROJET ELECTRONICS SYSTEMS   30 Jul 1998  10:31:40
==========================================================
INDUCTED EMISSIONS
9V SURVIVAL HEATER A RETURN


AKS FOUND ABOVE  10dBuA

AK#   FREQ (Hz)  AMPL(dBuA)
1     10.4E+03     20
2     11.0E+03     18
3     12.4E+03     16
4     12.9E+03     15
5     13.5E+03     13
6     14.1E+03     16
7     14.9E+03     13
8     15.7E+03     16
9     16.5E+03     19
0     17.2E+03     19
1     18.1E+03     25
2     18.9E+03     23
3     19.8E+03     21
4     20.4E+03     23
5     21.9E+03     25
6     23.0E+03     25
7     24.0E+03     35
8     25.3E+03     33
9     26.4E+03     36
20    27.5E+03     36
21    28.7E+03     34
22    30.0E+03     34
23    30.7E+03     29
24    31.8E+03     27
25    37.4E+03     22
26    39.0E+03     32
27    42.1E+03     11
28    43.2E+03     35
29    44.3E+03     34
30    46.6E+03     37
31    49.1E+03     33
32    51.7E+03     36
33    54.4E+03     37
34    56.3E+03     42
35    58.7E+03     44
36    61.2E+03     43
37    65.0E+03     49
38    68.4E+03     45
39    72.0E+03     42
40    73.9E+03     12
41    75.8E+03     44
42    79.1E+03     41
43    82.5E+03     38
44    86.1E+03     42
45    89.1E+03     43
46    93.7E+03     11
47    96.1E+03     14
48    98.6E+03     15
49    10.1E+04     53
0     10.3E+04     47
1     10.6E+04     58
```

Plot 20 Page 1 of 3

EOS/AMSU-A1

1356008-1 EMI

S/N 202

SO 560869

TP 26151/8

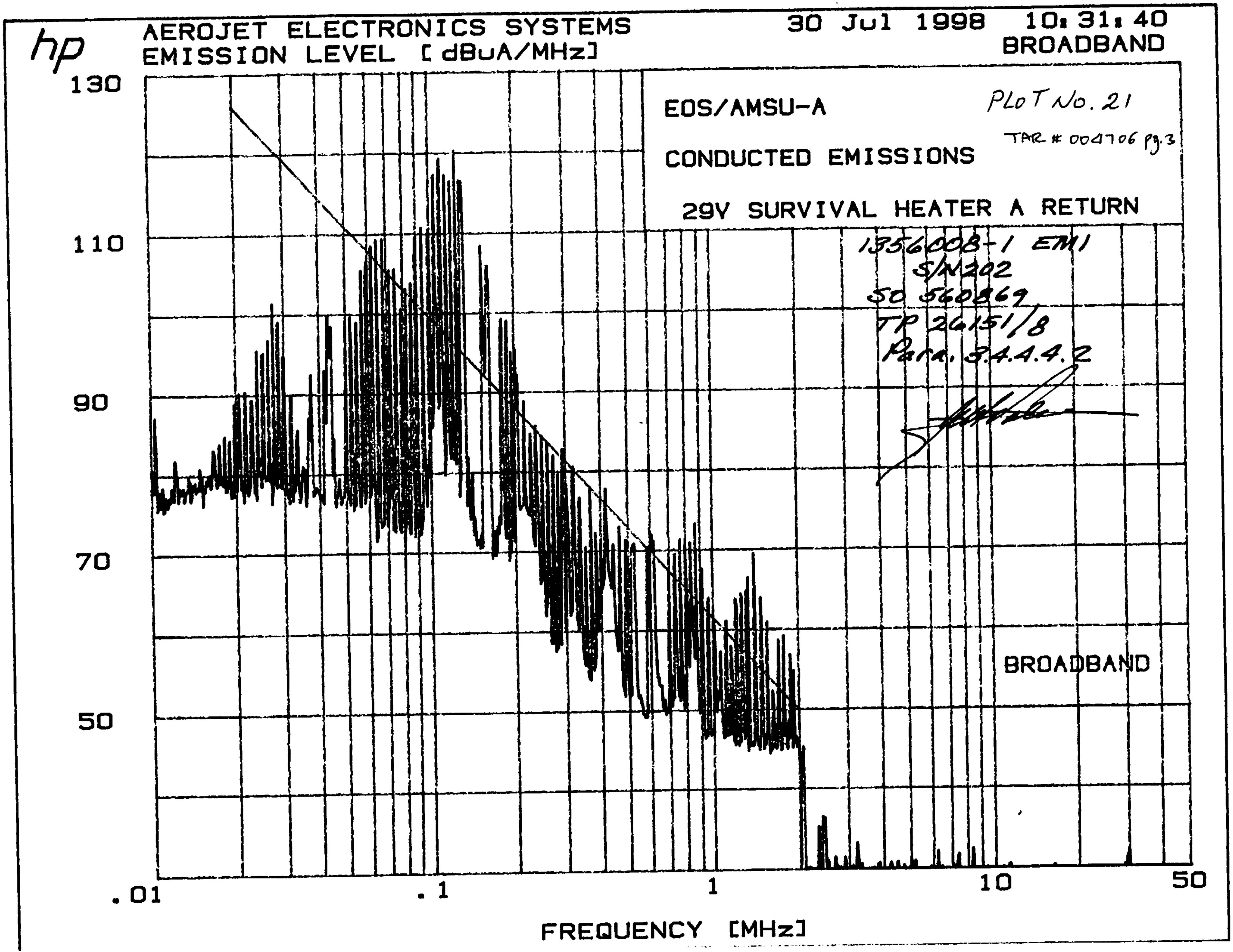
Para 3,4,4.4.2

2	11.0E+04	20
3	11.4E+04	24
4	12.2E+04	57
5	12.7E+04	54
6	13.3E+04	28
7	13.7E+04	49
8	14.3E+04	50
9	15.0E+04	42
0	15.6E+04	43
1	16.2E+04	36
2	16.9E+04	38
3	17.3E+04	36
4	18.0E+04	35
5	18.7E+04	34
6	19.2E+04	29
7	20.2E+04	35
8	20.7E+04	31
9	21.0E+04	48
0	21.8E+04	28
1	22.5E+04	28
2	23.1E+04	31
3	23.9E+04	31
4	26.0E+04	29
5	27.9E+04	24
6	28.6E+04	27
7	29.3E+04	26
8	29.8E+04	19
9	30.6E+04	21
0	31.4E+04	32
1	32.2E+04	18
2	32.7E+04	18
3	33.3E+04	24
4	34.2E+04	21
5	34.7E+04	13
6	35.3E+04	14
7	36.0E+04	17
8	36.6E+04	14
9	37.5E+04	15
0	38.8E+04	14
1	39.8E+04	17
2	40.8E+04	19
3	41.9E+04	39
4	43.0E+04	16
5	44.1E+04	18
6	44.9E+04	15
7	45.6E+04	18
8	47.2E+04	14
9	48.8E+04	14
0	50.5E+04	12
1	51.4E+04	15
2	52.3E+04	19
3	55.5E+04	11
4	62.5E+04	20
5	66.9E+04	15
6	69.2E+04	17
7	72.8E+04	16
8	74.7E+04	15
9	76.7E+04	14
0	82.1E+04	21
1	83.5E+04	29
2	86.4E+04	17
3	88.6E+04	21

Plot 20 Page 2 of 3
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para. 3.4.4.4.2

```
4     92.4E+04     16
5     10.4E+05     20
6     12.0E+05     11
7     13.1E+05     19
8     13.6E+05     15
9     18.1E+05     11
0     21.6E+05     13
1     31.0E+06     11
```

Plot 20 Page 3 of 3
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO560869
TP 26151/8
Para. 3.4.4.4.2



EOS/AMSU-A

CONDUCTED EMISSIONS

29V SURVIVAL HEATER A RETURN

PLOT No. 21

TAR # 004706 pg.3

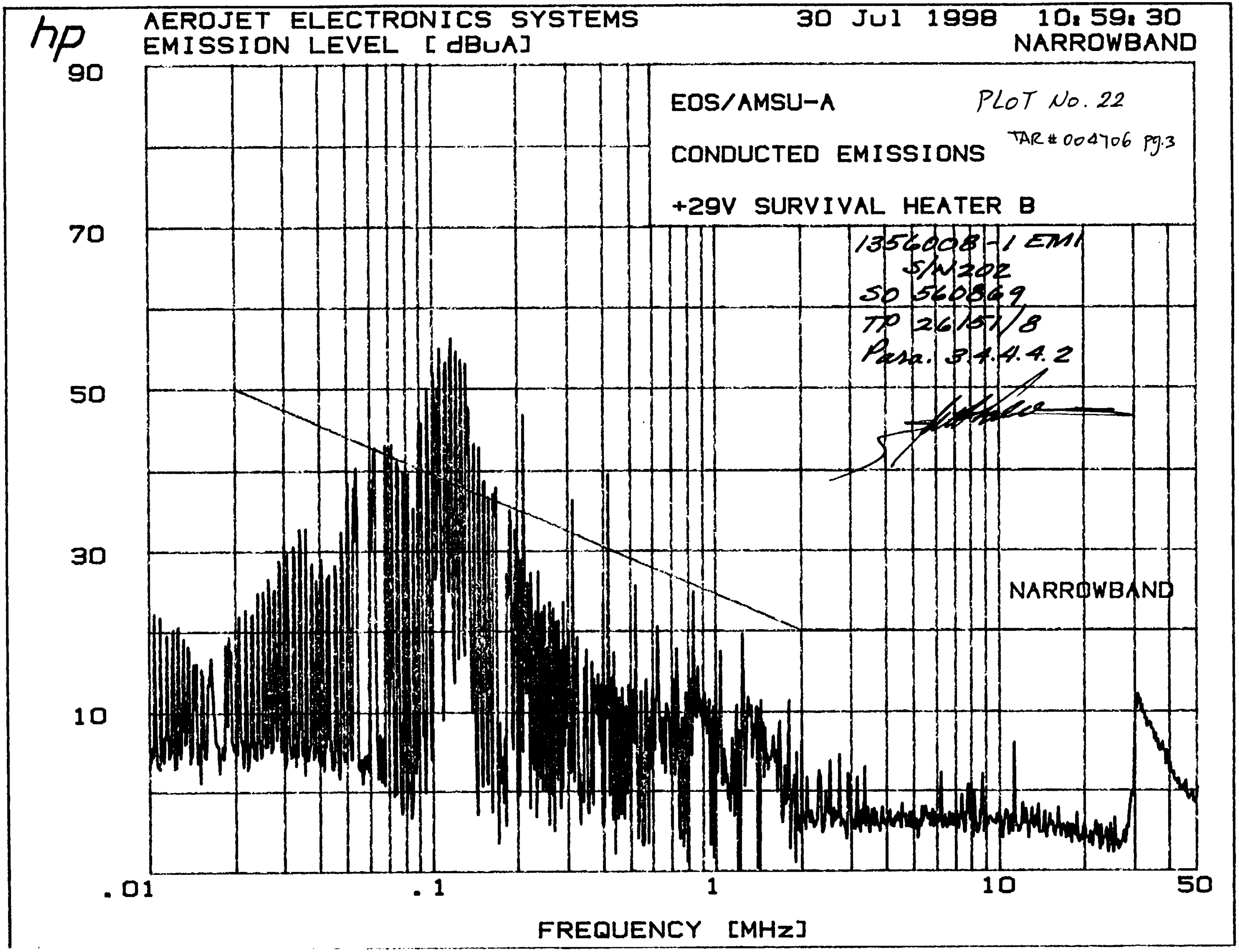
1356008-1 EMI
S/N202
SO 560869
TP 26151/8
Para. 3.4.4.4.2

```
=====================================================
ROJET ELECTRONICS SYSTEMS   30 Jul 1998  10:31:40
=====================================================
NDUCTED EMISSIONS
3V SURVIVAL HEATER A RETURN


AKS FOUND ABOVE  50dBuA/MHz

AK#  FREQ (Hz)  AMPL(dBuA/MHz)
1    10.3E+03    87
2    12.2E+03    82
3    14.9E+03    81
4    16.7E+03    83
5    17.5E+03    84
5    18.3E+03    85
7    19.1E+03    84
3    19.9E+03    89
3    20.6E+03    90
)    21.7E+03    90
1    23.0E+03    89
2    24.0E+03    96
3    25.3E+03    95
4    26.4E+03    97
5    27.5E+03   101
5    28.7E+03    99
7    30.0E+03    95
3    31.8E+03    90
3    33.5E+03    85
)    34.9E+03    81
1    37.4E+03    93
2    41.8E+03    93
3    43.2E+03   100
4    44.3E+03    98
5    45.1E+03    84
5    47.0E+03    79
7    49.9E+03    99
3    52.1E+03   100
3    54.8E+03    99
)    57.2E+03   105
1    59.7E+03   106
2    62.3E+03   108
3    65.0E+03   109
4    68.4E+03   109
5    72.0E+03   105
5    75.1E+03   106
7    79.1E+03   101
3    82.5E+03   103
3    86.1E+03   104
)    89.8E+03   110
1    94.5E+03   111
2    10.0E+04   111
3    10.5E+04   117
4    11.0E+04   119
5    11.5E+04   117
5    12.0E+04   117
7    12.5E+04   120
3    13.0E+04   117
3    13.2E+04   116
)    13.6E+04    82
1    14.1E+04    80
```

Plot 21 Page 1 of 2
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para. 3.4.4.4.2

2	15.4E+04	108
3	16.2E+04	106
4	16.9E+04	73
5	18.0E+04	99
6	18.8E+04	99
7	19.5E+04	95
8	20.2E+04	95
9	20.5E+04	92
0	21.6E+04	89
1	22.7E+04	85
2	23.7E+04	86
3	24.9E+04	84
4	26.0E+04	83
5	27.4E+04	82
6	28.3E+04	80
7	29.6E+04	83
8	30.3E+04	78
9	32.2E+04	81
0	33.9E+04	77
1	35.3E+04	70
2	36.9E+04	78
3	38.5E+04	72
4	40.2E+04	71
5	41.9E+04	78
6	44.5E+04	71
7	46.8E+04	73
8	49.3E+04	71
9	52.7E+04	71
0	58.9E+04	70
1	60.4E+04	72
2	69.8E+04	67
3	73.5E+04	70
4	76.7E+04	71
5	80.0E+04	71
6	83.5E+04	71
7	87.1E+04	73
8	91.7E+04	68
9	96.5E+04	64
0	10.1E+05	61
1	10.6E+05	57
2	11.1E+05	61
3	11.5E+05	58
4	12.0E+05	64
5	12.6E+05	64
6	13.1E+05	65
7	13.3E+05	66
8	14.0E+05	69
9	14.8E+05	64
0	15.5E+05	61
1	16.2E+05	52
2	17.1E+05	59
3	17.8E+05	59
4	18.7E+05	57
5	19.2E+05	55

Plot 21 Page 2 of 2
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/B
Para. 3.4.4.4.2



PLOT No. 22

TAR # 004706 pg.3

1356008-1 EMI
S/N202
SO 560869
TP 26151/8
Para. 3.4.4.4.2

```
=====================================================
ROJET ELECTRONICS SYSTEMS   30 Jul 1998  10:59:30
=====================================================
NDUCTED EMISSIONS
9V SURVIVAL HEATER B


AKS FOUND ABOVE  10dBuA

AK#  FREQ (Hz)  AMPL(dBuA)
1    10.4E+03     22
2    11.0E+03     22
3    11.6E+03     20
4    12.2E+03     20
5    12.7E+03     21
6    13.2E+03     19
7    13.7E+03     18
8    14.3E+03     16
9    14.7E+03     16
0    15.3E+03     15
1    16.5E+03     17
2    18.6E+03     18
3    19.1E+03     19
4    20.8E+03     22
5    21.9E+03     23
6    23.2E+03     22
7    24.2E+03     25
8    25.3E+03     25
9    26.4E+03     27
0    27.8E+03     25
1    28.7E+03     29
2    30.0E+03     31
3    30.7E+03     30
4    32.4E+03     30
5    34.1E+03     33
6    35.8E+03     33
7    37.7E+03     28
8    39.0E+03     26
9    40.7E+03     29
0    42.5E+03     27
1    43.2E+03     27
2    45.5E+03     28
3    47.9E+03     32
4    50.4E+03     39
5    53.0E+03     38
6    53.9E+03     40
7    60.2E+03     39
8    62.8E+03     43
9    68.4E+03     43
0    72.0E+03     43
1    75.1E+03     41
2    79.1E+03     40
3    82.5E+03     40
4    86.1E+03     35
5    91.4E+03     46
6    93.7E+03     10
7    96.1E+03     50
8    10.1E+04     52
9    10.5E+04     50
0    10.6E+04     55
1    11.2E+04     53
```

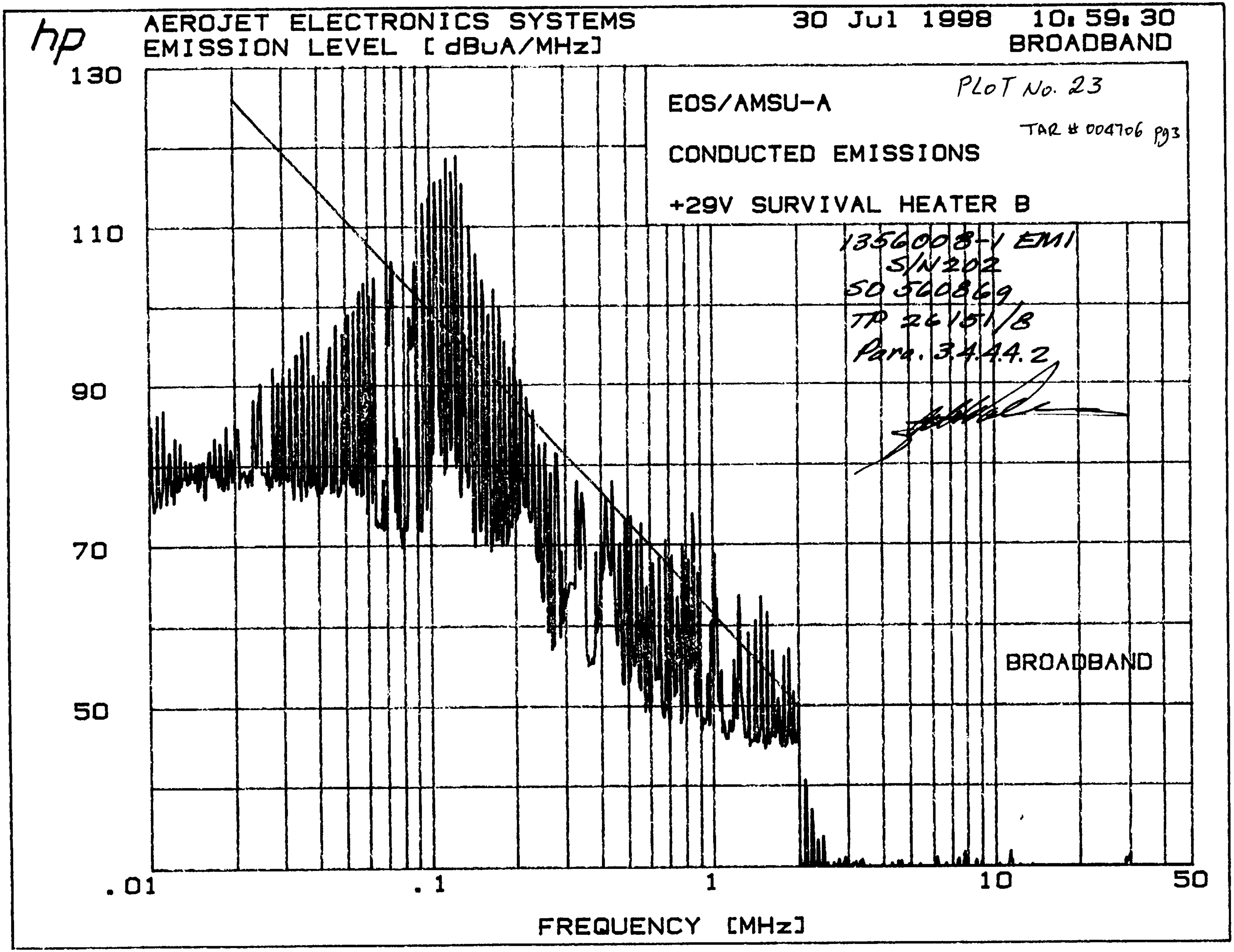
Plot 22 Page 1 of 3
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.4.4.2

2	11.7E+04	56
3	12.2E+04	55
4	12.6E+04	54
5	13.2E+04	53
6	13.4E+04	48
7	14.1E+04	43
8	14.7E+04	43
9	15.4E+04	39
0	15.9E+04	37
1	16.9E+04	38
2	18.4E+04	27
3	18.8E+04	35
4	19.6E+04	33
5	20.2E+04	30
6	20.5E+04	29
7	21.0E+04	47
8	21.8E+04	26
9	22.3E+04	27
0	23.1E+04	22
1	23.7E+04	27
2	24.3E+04	22
3	24.9E+04	23
4	25.4E+04	18
5	26.0E+04	24
6	26.7E+04	23
7	27.4E+04	21
8	27.9E+04	21
9	28.6E+04	18
0	29.1E+04	24
1	29.6E+04	18
2	30.3E+04	20
3	31.4E+04	36
4	32.5E+04	19
5	34.5E+04	15
6	35.0E+04	18
7	36.6E+04	16
8	37.2E+04	14
9	38.5E+04	15
0	39.5E+04	13
1	40.2E+04	23
2	40.8E+04	13
3	41.9E+04	40
4	43.0E+04	14
5	43.7E+04	17
6	44.5E+04	13
7	45.6E+04	12
8	46.8E+04	13
9	48.4E+04	11
0	49.3E+04	13
1	51.0E+04	13
2	52.3E+04	26
3	54.5E+04	13
4	56.9E+04	14
5	59.9E+04	13
6	62.5E+04	21
7	66.9E+04	11
8	71.0E+04	14
9	72.8E+04	18
0	78.6E+04	12
1	81.4E+04	14
2	83.5E+04	25
3	86.4E+04	15

Plot 22 Page 2 of 2
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.4.4.2

4	90.9E+04	12
5	94.8E+04	12
6	97.3E+04	11
7	99.8E+04	13
8	10.4E+05	17
9	11.8E+05	11
0	12.5E+05	20
1	13.0E+05	12
2	13.9E+05	11
3	14.1E+05	10
4	14.4E+05	11
5	18.1E+05	11
6	30.8E+06	12

Plot 22 Page 3 of 3
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/B
Para 3.4.4.4.2


hp
AEROJET ELECTRONICS SYSTEMS
EMISSION LEVEL [dBuA/MHz]
30 Jul 1998 10:59:30
BROADBAND
PLoT No. 23
EOS/AMSU-A
TAR # 004706 pg3
CONDUCTED EMISSIONS
+29V SURVIVAL HEATER B
1356008-1 EMI
S/N202
50 560869
TP 26151/8
Para. 3.4.4.4.2
BROADBAND
130
110
90
70
50
.01
.1
1
10
50
FREQUENCY [MHz]

```
=========================================================
ROJET ELECTRONICS SYSTEMS   30 Jul 1998  10:59:30
=========================================================
NDUCTED EMISSIONS
9V SURVIVAL HEATER B

AKS FOUND ABOVE  50dBuA/MHz

AK#   FREQ (Hz)   AMPL(dBuA/MHz)
1     10.7E+03      86
2     11.3E+03      87
3     11.9E+03      82
4     12.4E+03      83
5     12.9E+03      83
6     13.5E+03      81
7     15.0E+03      80
8     15.6E+03      81
9     16.4E+03      82
0     17.1E+03      83
1     17.8E+03      83
2     18.8E+03      85
3     19.4E+03      82
4     20.6E+03      85
5     23.4E+03      88
6     24.9E+03      90
7     26.4E+03      81
8     27.5E+03      92
9     28.7E+03      90
20    30.0E+03      91
21    31.5E+03      92
22    33.2E+03      94
23    34.9E+03      96
24    36.8E+03      97
25    38.4E+03      91
26    40.0E+03      90
27    41.8E+03      91
28    44.0E+03      95
29    46.3E+03      98
30    48.7E+03      96
31    51.2E+03      99
32    53.5E+03      99
33    56.3E+03     102
34    58.2E+03     103
35    60.7E+03     101
36    63.4E+03     104
37    67.8E+03      78
38    70.2E+03     106
39    73.2E+03     106
40    75.8E+03      83
41    77.7E+03      82
42    83.9E+03      98
43    88.3E+03     106
44    90.6E+03      88
45    94.5E+03     113
46    99.5E+03     114
47    10.5E+04     116
48    11.0E+04     116
49    11.5E+04     119
50    12.0E+04     117
51    12.5E+04     119
```

Plot 23 Page 1 of 2

EOS/AMSU-A1

1356008-1 EMI

SN 202

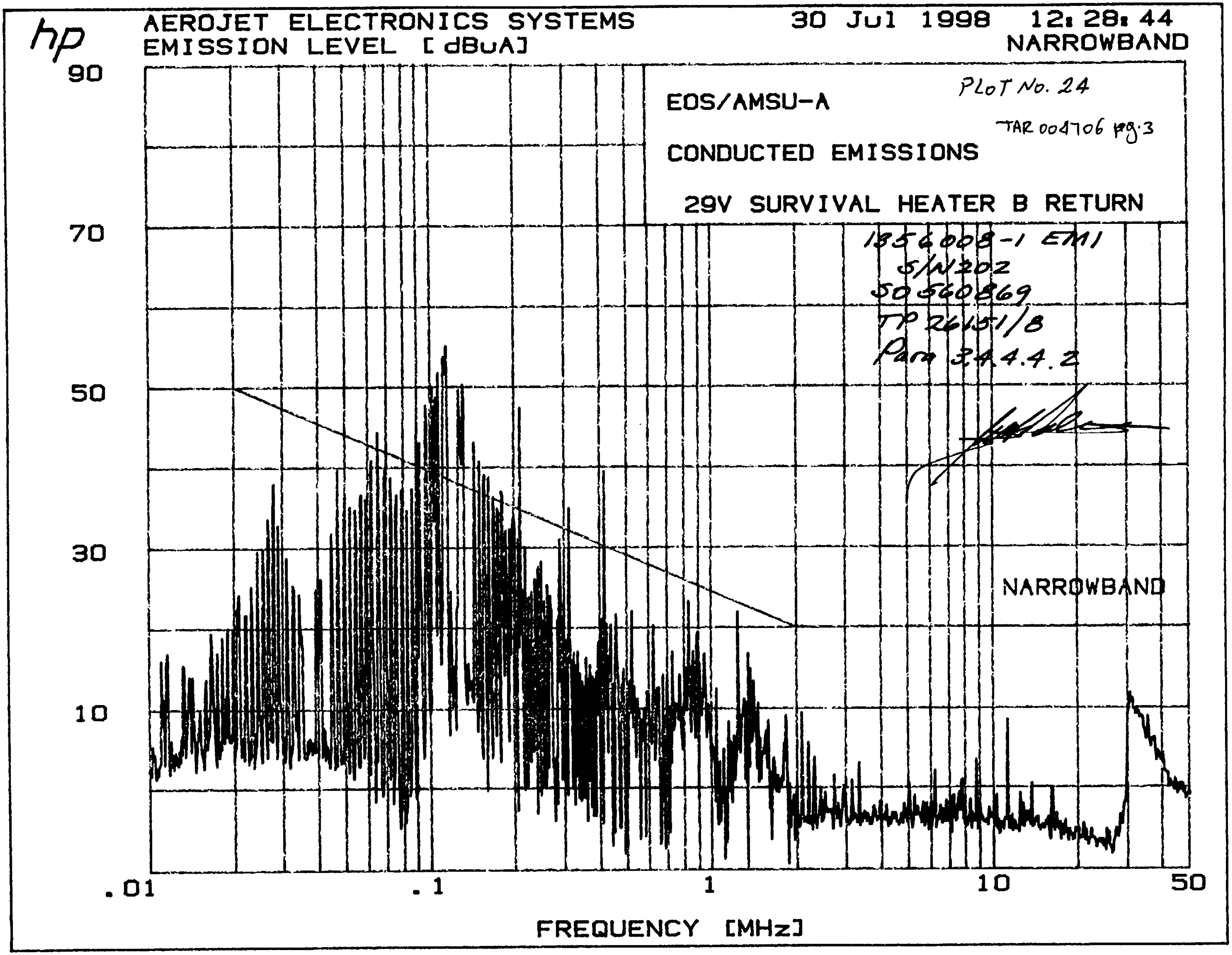
SO 560869

TP 26151/8

Para 3.4.4.4.2

52	13.1E+04	115
53	13.3E+04	96
54	13.9E+04	110
55	14.6E+04	107
56	15.4E+04	103
57	16.2E+04	99
58	16.9E+04	102
59	17.6E+04	100
60	18.4E+04	96
61	19.2E+04	92
62	19.8E+04	95
63	20.2E+04	90
64	20.9E+04	91
65	21.9E+04	88
66	23.1E+04	87
67	24.3E+04	83
68	25.6E+04	83
69	26.7E+04	79
70	27.9E+04	82
71	29.1E+04	69
72	33.0E+04	78
73	34.5E+04	76
74	38.5E+04	69
75	40.2E+04	71
76	41.9E+04	76
77	44.1E+04	78
78	46.8E+04	70
79	48.8E+04	73
80	51.4E+04	73
81	54.1E+04	70
82	56.0E+04	73
83	58.4E+04	65
84	61.4E+04	68
85	64.7E+04	68
86	68.1E+04	70
87	71.6E+04	69
88	74.7E+04	63
89	78.0E+04	70
90	82.1E+04	68
91	84.9E+04	74
92	88.6E+04	66
93	95.6E+04	54
94	99.0E+04	60
95	10.2E+05	69
96	10.3E+05	63
97	10.7E+05	54
98	11.8E+05	56
99	12.3E+05	64
00	13.3E+05	59
01	14.1E+05	60
02	14.8E+05	64
03	15.5E+05	61
04	16.2E+05	57
05	16.9E+05	51
06	17.8E+05	56
07	18.6E+05	57
08	19.2E+05	52
09	20.1E+05	50

Plot 23 Page 2 of 2
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4A.4.2


hp
AEROJET ELECTRONICS SYSTEMS
EMISSION LEVEL [dBuA]
30 Jul 1998 12:28:44
NARROWBAND
EOS/AMSU-A
CONDUCTED EMISSIONS
29V SURVIVAL HEATER B RETURN
PLOT No. 24
TAR 004706 pg.3
1356008-1 EMI
S/N 202
50560869
TP 26151/8
Para 3.4.4.4.2
NARROWBAND
90
70
50
30
10
.01
.1
1
10
50
FREQUENCY [MHz]

```
================================================================
ROJET ELECTRONICS SYSTEMS   30 Jul 1998  12:28:44
================================================================
NDUCTED EMISSIONS
9V SURVIVAL HEATER B RETURN


AKS FOUND ABOVE  10dBuA

AK#    FREQ (Hz)   AMPL(dBuA)
1      11.1E+03      16
2      11.3E+03      11
3      11.7E+03      17
4      13.2E+03      15
5      13.9E+03      14
6      14.3E+03      14
7      16.0E+03      14
8      16.7E+03      19
9      17.5E+03      17
0      18.3E+03      19
1      18.8E+03      12
2      19.1E+03      20
3      19.9E+03      20
4      21.0E+03      24
5      22.1E+03      22
6      23.2E+03      25
7      24.4E+03      29
8      25.5E+03      30
9      26.6E+03      34
0      28.0E+03      38
1      29.0E+03      33
2      31.0E+03      29
3      32.6E+03      25
4      34.3E+03      24
5      39.3E+03      25
6      40.7E+03      26
7      44.7E+03      32
8      47.0E+03      40
9      49.9E+03      36
0      52.1E+03      35
1      54.4E+03      35
2      57.2E+03      36
3      59.2E+03      36
4      62.3E+03      41
5      65.6E+03      44
6      69.6E+03      40
7      72.6E+03      39
8      76.4E+03      37
9      79.7E+03      37
0      83.2E+03      35
1      86.8E+03      37
2      89.8E+03      44
3      92.1E+03      43
4      97.0E+03      48
5      10.2E+04      50
6      10.5E+04      49
7      10.7E+04      52
8      11.5E+04      55
9      11.9E+04      24
0      12.3E+04      15
1      12.7E+04      50
```

Plot 24 Page 1 of 3

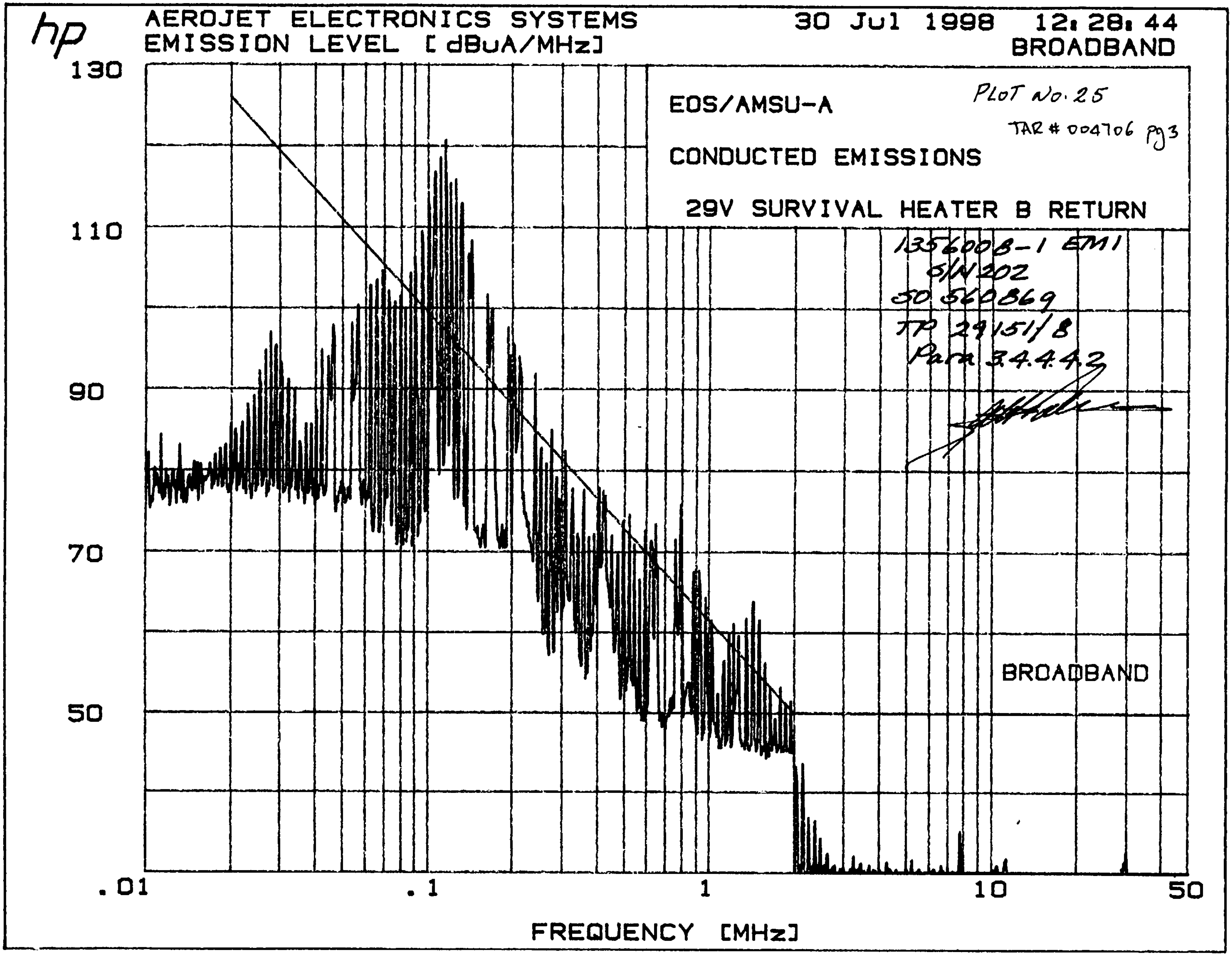
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para. 3.4.4.4.2

2	13.2E+04	50
3	13.7E+04	15
4	14.5E+04	43
5	15.1E+04	41
6	15.7E+04	39
7	16.3E+04	39
8	16.9E+04	36
9	17.4E+04	35
0	18.0E+04	37
1	18.7E+04	32
2	19.3E+04	32
3	20.0E+04	34
4	20.7E+04	31
5	21.0E+04	47
6	21.4E+04	25
7	21.9E+04	30
8	22.5E+04	24
9	23.1E+04	24
0	23.7E+04	26
1	24.3E+04	28
2	24.9E+04	28
3	25.6E+04	23
4	26.2E+04	25
5	26.9E+04	24
6	28.6E+04	21
7	29.1E+04	31
8	30.1E+04	23
9	30.6E+04	18
0	31.4E+04	35
1	32.5E+04	17
2	33.0E+04	15
3	33.6E+04	17
4	34.2E+04	14
5	34.7E+04	13
6	35.3E+04	13
7	36.0E+04	16
8	36.6E+04	14
9	37.2E+04	15
0	37.8E+04	14
1	38.5E+04	14
2	39.1E+04	14
3	39.8E+04	18
4	40.8E+04	21
5	41.9E+04	40
6	42.6E+04	21
7	44.1E+04	20
8	44.9E+04	13
9	46.0E+04	22
0	48.8E+04	15
1	50.1E+04	10
2	51.4E+04	13
3	52.3E+04	22
4	53.2E+04	13
5	54.5E+04	11
6	57.9E+04	10
7	58.9E+04	12
8	62.5E+04	20
9	64.1E+04	13
0	65.2E+04	13
1	67.5E+04	14
2	69.8E+04	13
3	71.6E+04	10

Plot 24 Page 2 of 3
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para, 3.4.4.4.2

4	72.8E+04	17
5	77.3E+04	14
6	81.4E+04	15
7	83.5E+04	23
8	86.4E+04	17
9	89.4E+04	19
20	90.9E+04	15
21	94.8E+04	17
22	97.3E+04	10
23	10.4E+05	12
24	12.5E+05	22
25	13.1E+05	11
26	13.3E+05	11
27	13.6E+05	17
28	13.8E+05	15
29	14.1E+05	13
30	14.6E+05	11
31	30.8E+06	12

Plot 24 Page 3 of 3
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/B
Para 3.4.4.4.2



PLOT No. 25

TAR # 004706 pg3

1356008-1 EMI
S/N 202
SO 560869
TP 29151/8
Para 3.4.4.4.2

```
=================================================
ROJET ELECTRONICS SYSTEMS   30 Jul 1998  12:28:44
=================================================
NDUCTED EMISSIONS
9V SURVIVAL HEATER B RETURN

AKS FOUND ABOVE  50dBuA/MHz

AK#   FREQ (Hz)  AMPL(dBuA/MHz)
1     10.3E+03     82
2     10.8E+03     80
3     11.4E+03     84
4     11.9E+03     80
5     12.6E+03     80
6     13.2E+03     83
7     13.6E+03     80
8     14.9E+03     81
9     15.3E+03     81
0     15.7E+03     81
1     16.9E+03     81
2     17.7E+03     82
3     18.5E+03     83
4     19.3E+03     83
5     20.1E+03     86
6     20.8E+03     85
7     22.1E+03     86
8     23.0E+03     88
9     24.2E+03     89
0     25.3E+03     92
1     26.6E+03     95
2     27.8E+03     97
3     29.0E+03     95
4     30.2E+03     93
5     32.1E+03     91
6     33.8E+03     90
7     35.2E+03     83
8     37.1E+03     86
9     38.7E+03     86
0     40.4E+03     87
1     42.1E+03     95
2     44.3E+03     94
3     46.3E+03     98
4     53.9E+03     98
5     56.7E+03    100
6     62.8E+03    103
7     66.1E+03    103
8     69.0E+03    105
9     72.6E+03    102
0     76.4E+03    101
1     79.7E+03    101
2     83.2E+03    100
3     86.8E+03    104
4     89.8E+03    106
5     95.3E+03    109
6     10.0E+04    113
7     10.6E+04    117
8     11.1E+04    119
9     11.6E+04    121
0     12.1E+04    115
1     12.6E+04    116
```

Plot 25 Page 1 of 2

EOS/AMSU-A1

1356008-1 EMI

S/N 202

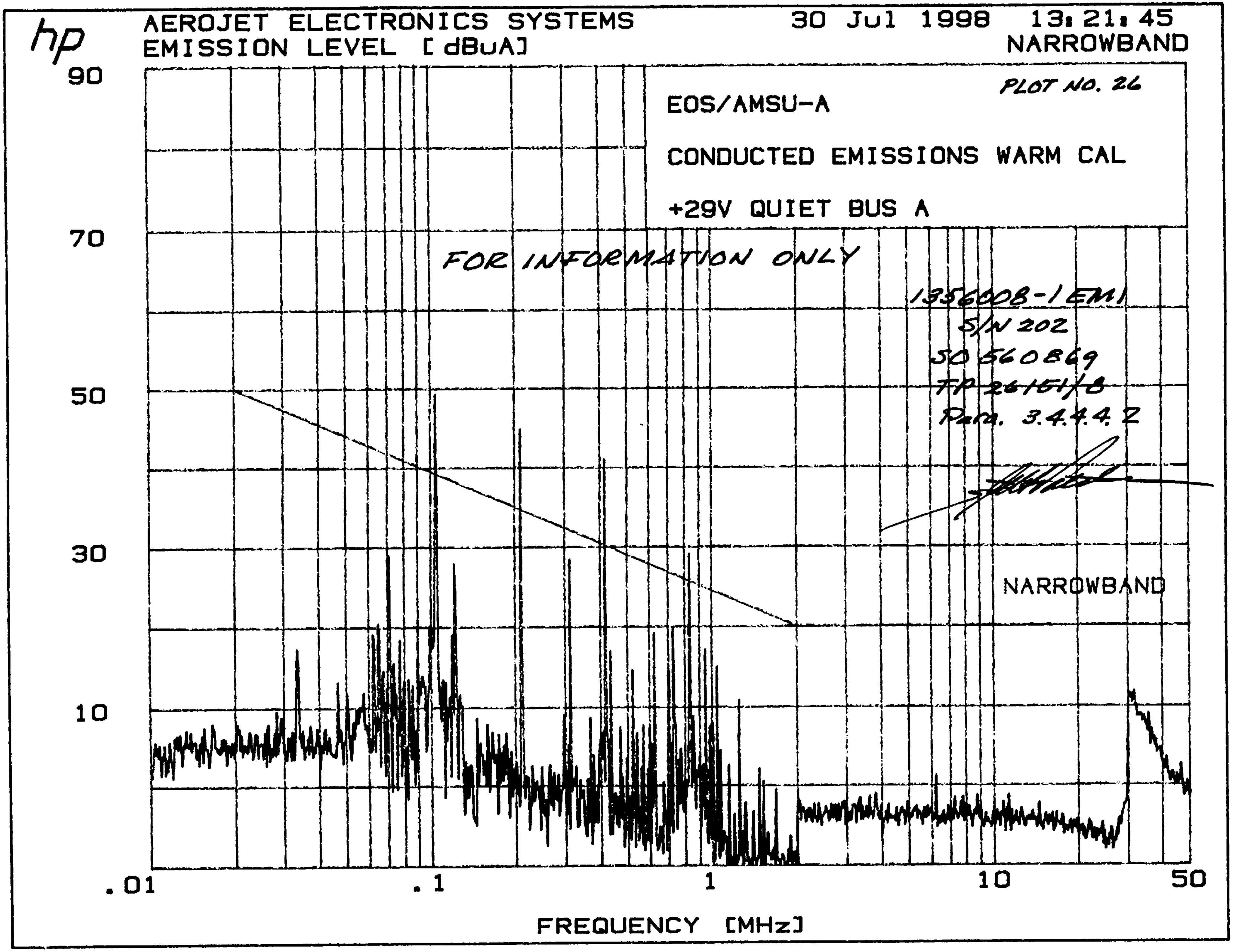
SD 560869

TP 29151/8

Para 3.4.4.4.2

2	13.3E+04	113
3	13.6E+04	84
4	14.0E+04	107
5	14.3E+04	108
6	16.3E+04	102
7	17.0E+04	100
8	19.3E+04	98
9	19.6E+04	94
0	20.2E+04	96
1	21.2E+04	94
2	24.1E+04	92
3	25.4E+04	83
4	26.5E+04	81
5	27.6E+04	85
6	28.8E+04	79
7	29.3E+04	77
8	30.8E+04	82
9	32.7E+04	78
0	34.2E+04	72
1	36.0E+04	78
2	37.5E+04	72
3	39.1E+04	72
4	40.8E+04	78
5	42.3E+04	78
6	45.2E+04	72
7	47.6E+04	70
8	49.7E+04	74
9	52.3E+04	74
0	54.5E+04	71
1	56.9E+04	67
2	59.4E+04	73
3	62.5E+04	71
4	64.7E+04	73
5	76.0E+04	71
6	79.3E+04	76
7	84.9E+04	54
8	88.6E+04	68
9	92.4E+04	68
0	97.3E+04	64
1	10.2E+05	61
2	10.8E+05	52
3	11.3E+05	57
4	11.8E+05	60
5	12.2E+05	61
6	12.8E+05	59
7	13.6E+05	62
8	14.4E+05	64
9	15.1E+05	61
0	15.8E+05	56
1	16.5E+05	53
2	18.0E+05	53
3	18.7E+05	51
4	19.5E+05	51

Plot 25 Page 2 of 2
EOS/AMSU-A1
1356008-1 EM1
S/N 202
SO 560869
TP 29151/8
Para 3.4.4.4.2



PLOT NO. 26

FOR INFORMATION ONLY

1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para. 3.4.4.4.2

```
===========================================================
ROJET ELECTRONICS SYSTEMS   30 Jul 1998  13:21:45
===========================================================
. MIL-STD 461B--PART 2 (AIRCRAFT)
  1.6  CE-03 -- 15kHz to 50 MHz (461C)
===========================================================
NDUCTED EMISSIONS WARM CAL
8V QUIET BUS A


AKS FOUND ABOVE  10dBuA

AK#   FREQ (Hz)   AMPL(dBuA)
1     33.5E+03      17
2     46.6E+03      13
3     50.4E+03      12
4     57.7E+03      12
5     62.3E+03      19
6     65.0E+03      20
7     67.8E+03      14
8     71.4E+03      29
9     73.9E+03      15
0     77.7E+03      18
1     80.4E+03      13
2     83.2E+03      14
3     86.1E+03      13
4     89.8E+03      18
5     93.7E+03      14
6     10.5E+04      49
7     11.1E+04      13
8     11.3E+04      13
9     11.7E+04      11
0     12.0E+04      19
1     12.2E+04      28
2     12.7E+04      12
3     21.0E+04      45
4     31.4E+04      28
5     41.9E+04      41
6     43.7E+04      17
7     52.3E+04      14
8     62.5E+04      19
9     70.4E+04      14
0     72.8E+04      20
1     83.5E+04      29
2     94.8E+04      17
3     10.4E+05      15
4     12.5E+05      11
5     31.6E+06      12
```

Plot 26 Page 1 of 1

EOS/AMSU-A1

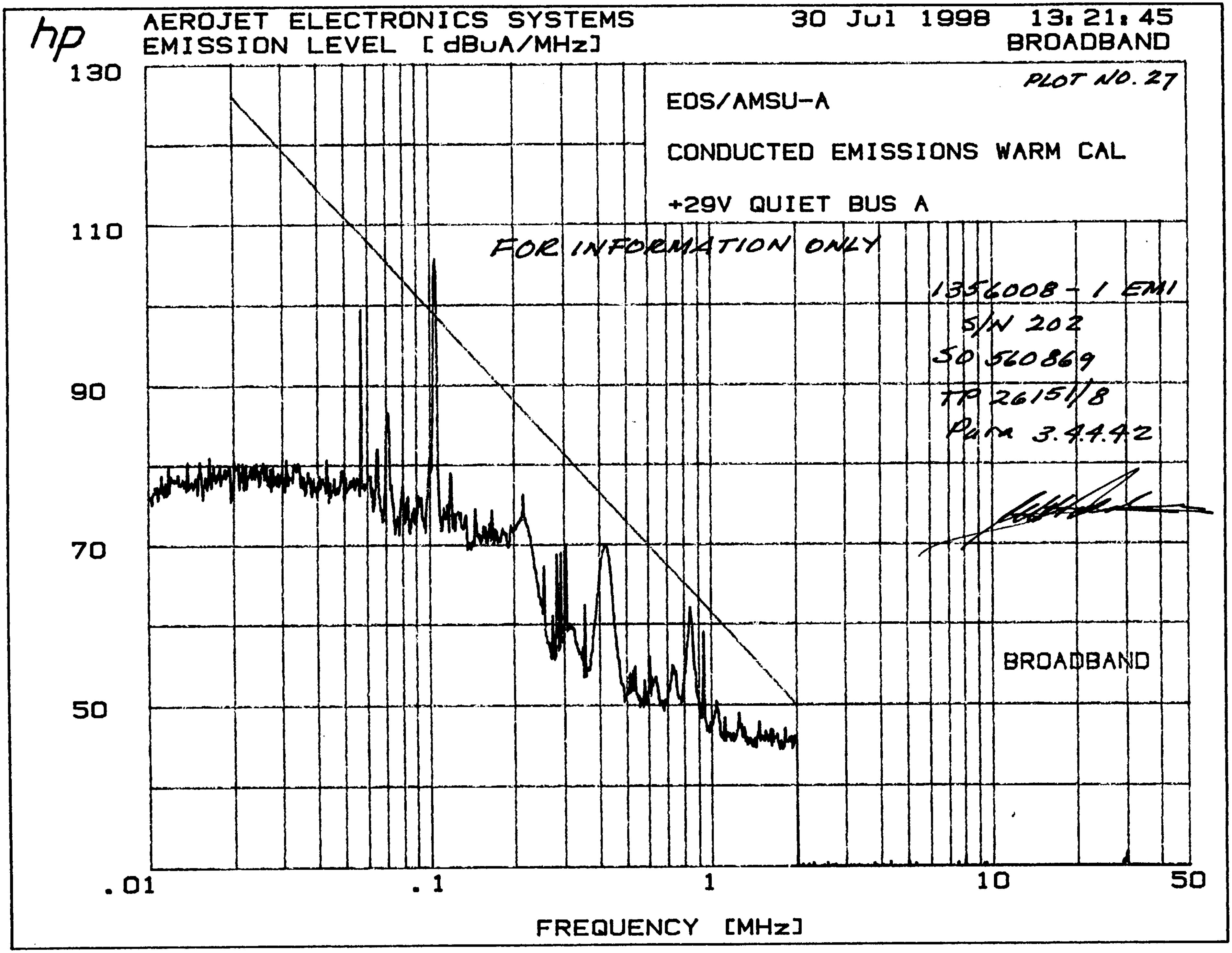
1356008-1 EMI

S/N 202

SO 560869

TP 26151/8

Para 3.4.4.4.2


hp
AEROJET ELECTRONICS SYSTEMS
EMISSION LEVEL [dBuA/MHz]
30 Jul 1998 13:21:45
BROADBAND
PLOT NO. 27
EOS/AMSU-A
CONDUCTED EMISSIONS WARM CAL
+29V QUIET BUS A
FOR INFORMATION ONLY
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.4.2
BROADBAND
130
110
90
70
50
.01
.1
1
10
50
FREQUENCY [MHz]

```
=====================================================
ROJET ELECTRONICS SYSTEMS   30 Jul 1998  13:21:45
=====================================================
. MIL-STD 461B--PART 2 (AIRCRAFT)
  1.6  CE-03 -- 15kHz to 50 MHz (461C)
=====================================================
NDUCTED EMISSIONS WARM CAL
9V QUIET BUS A


AKS FOUND ABOVE  50dBuA/MHz

AK#   FREQ (Hz)  AMPL(dBuA/MHz)
1     11.9E+03     80
2     13.8E+03     80
3     15.3E+03     80
4     16.5E+03     81
5     20.3E+03     80
6     21.7E+03     80
7     25.7E+03     80
8     31.0E+03     81
9     43.2E+03     81
0     48.7E+03     79
1     57.2E+03     99
2     65.6E+03     82
3     70.8E+03     86
4     80.4E+03     77
5     83.9E+03     76
6     91.4E+03     76
7     10.5E+04    106
8     11.7E+04     75
9     11.9E+04     79
0     14.6E+04     74
1     16.7E+04     74
2     21.6E+04     76
3     25.6E+04     67
4     27.4E+04     61
5     28.3E+04     69
6     29.3E+04     69
7     30.6E+04     70
8     35.6E+04     62
9     42.6E+04     70
0     53.6E+04     55
1     60.4E+04     56
2     72.8E+04     55
3     84.2E+04     62
4     94.0E+04     59
5     10.4E+05     50
```

Plot 27 Page 1 of 1

EOS/AMSU-A1

1356008-1 EMI

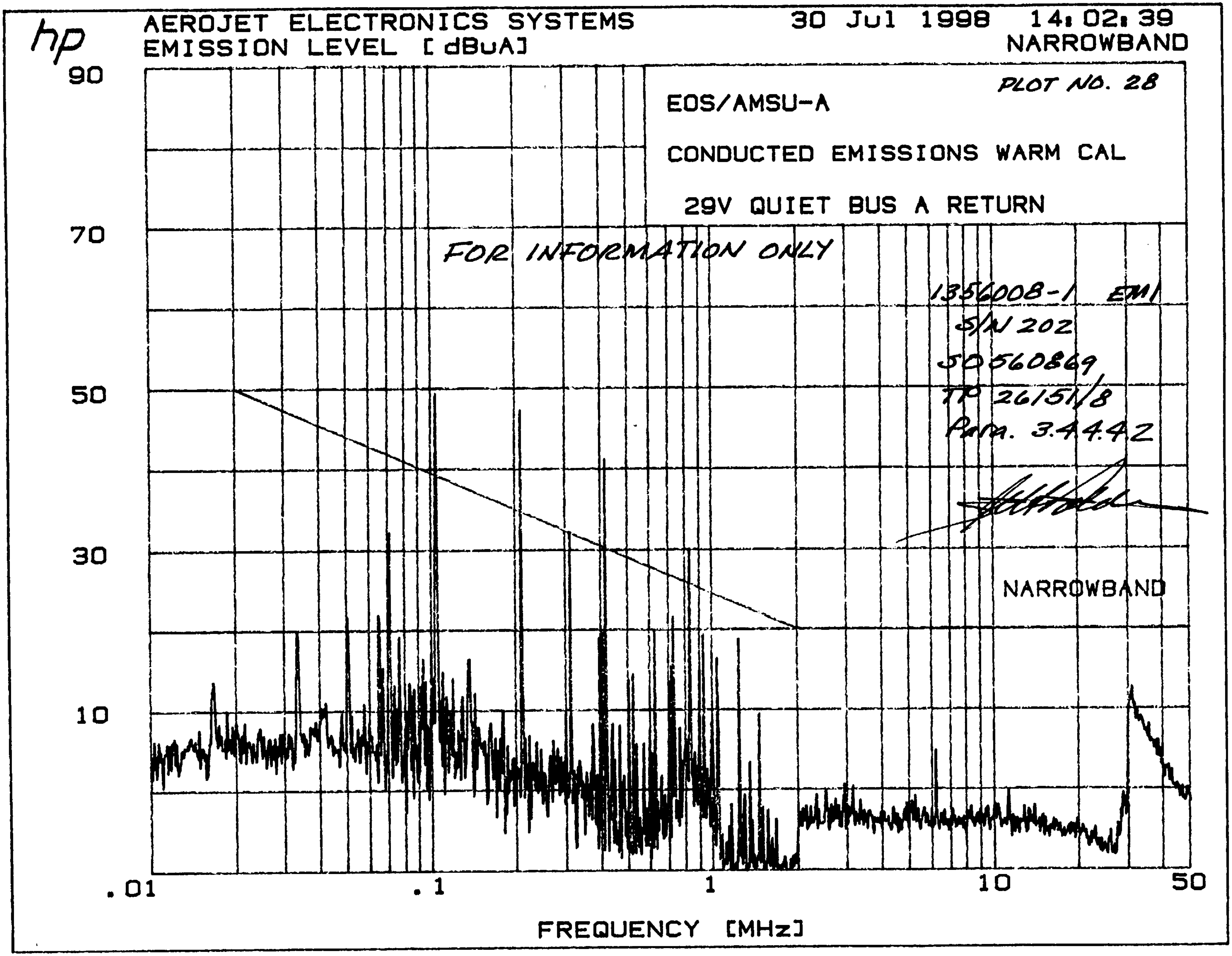
S/N 202

SO560869

TP 26151/8

Para 3.4.4.4.2

```
=====================================================
ROJET ELECTRONICS SYSTEMS   30 Jul 1998  14:02:39
=====================================================
. MIL-STD 461B--PART 2 (AIRCRAFT)
  1.6  CE-03 -- 15kHz to 50 MHz (461C)
=====================================================
NDUCTED EMISSIONS WARM CAL
9V QUIET BUS A RETURN


AKS FOUND ABOVE  10dBuA

AK#  FREQ (Hz)  AMPL(dBuA)
1    16.8E+03     14
```


AEROJET ELECTRONICS SYSTEMS
EMISSION LEVEL [dBuA]

30 Jul 1998 14:02:39
NARROWBAND

PLOT NO. 28

EOS/AMSU-A

CONDUCTED EMISSIONS WARM CAL

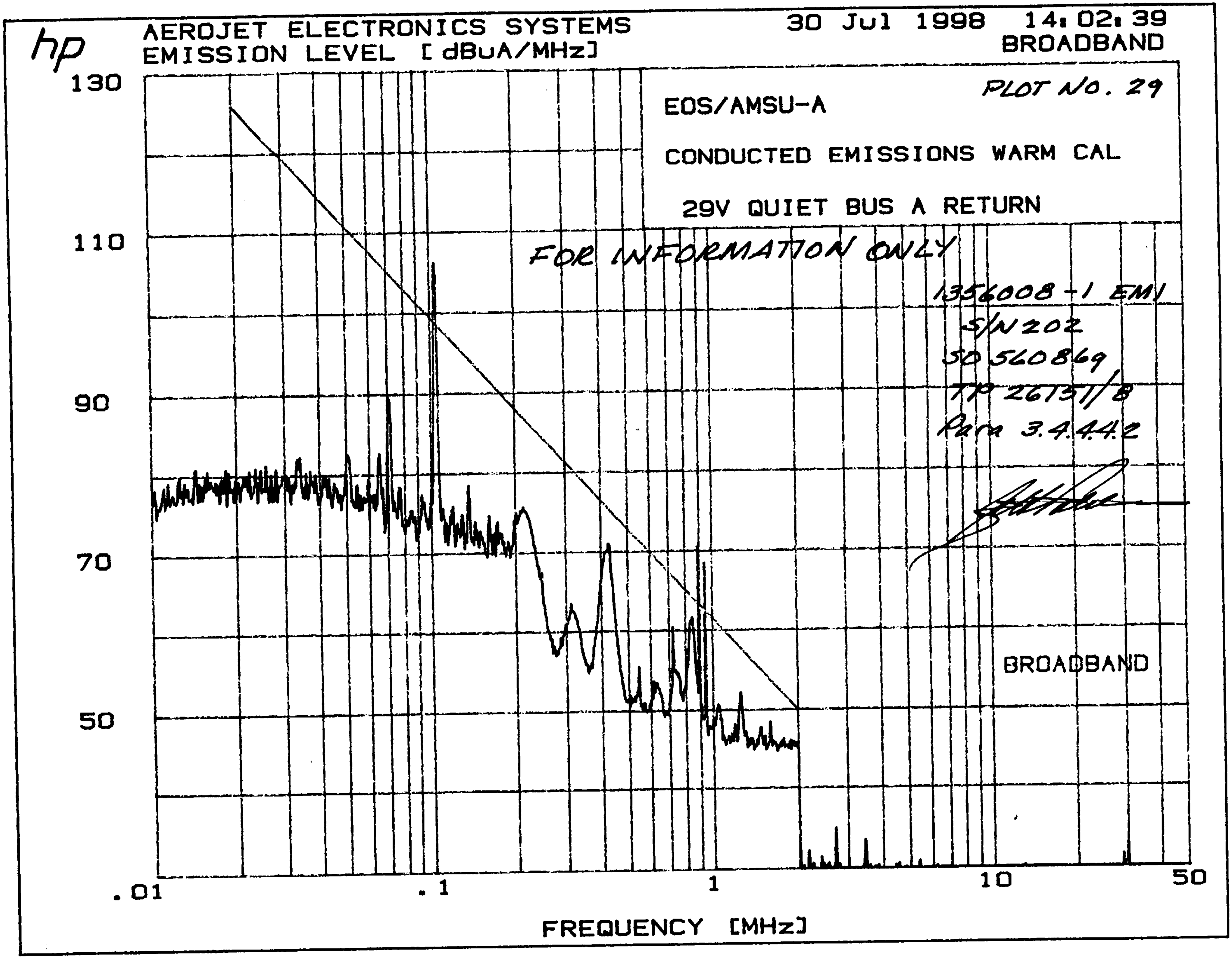
29V QUIET BUS A RETURN

FOR INFORMATION ONLY

1356008-1 EMI
S/N 202
50560869
TP 26151/8
Para. 3.4.4.2

```
==============================================================
ROJET ELECTRONICS SYSTEMS   30 Jul 1998  14:02:39
==============================================================
. MIL-STD 461B--PART 2 (AIRCRAFT)
  1.6  CE-03 -- 15kHz to 50 MHz (461C)
==============================================================
NDUCTED EMISSIONS WARM CAL
9V QUIET BUS A RETURN


AKS FOUND ABOVE  10dBuA

AK#  FREQ (Hz)  AMPL(dBuA)
1    16.8E+03     14
2    18.8E+03     10
3    33.5E+03     20
4    42.1E+03     11
5    50.4E+03     22
6    57.7E+03     11
7    65.0E+03     22
8    67.3E+03     15
9    71.4E+03     32
0    73.9E+03     13
1    75.1E+03     10
2    77.1E+03     19
3    83.9E+03     13
4    85.4E+03     12
5    86.8E+03     13
6    92.1E+03     13
7    93.7E+03     16
8    95.3E+03     14
9    10.0E+04     17
0    10.2E+04     14
1    10.5E+04     49
2    10.8E+04     11
3    11.0E+04     15
4    11.3E+04     12
5    12.0E+04     14
6    13.0E+04     12
7    13.6E+04     16
8    14.3E+04     12
9    21.0E+04     47
0    31.4E+04     32
1    39.8E+04     19
2    40.8E+04     20
3    41.9E+04     41
4    50.5E+04     14
5    52.3E+04     14
6    62.5E+04     20
7    70.4E+04     14
8    71.6E+04     15
9    72.8E+04     21
0    83.5E+04     30
1    90.1E+04     15
2    93.2E+04     19
3    10.4E+05     16
4    12.5E+05     19
5    31.0E+06     13
```

Plot 28 Page 1 of 1
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para. 3.4.4.4.2



AEROJET ELECTRONICS SYSTEMS
EMISSION LEVEL [dBuA/MHz]

30 Jul 1998 14:02:39
BROADBAND

PLOT NO. 29

EOS/AMSU-A

CONDUCTED EMISSIONS WARM CAL

29V QUIET BUS A RETURN

FOR INFORMATION ONLY

1356008-1 EMI
S/N 202
SO 560869
TP 26151/B
Para 3.4.4.4.2

```
==============================================================
EROJET ELECTRONICS SYSTEMS   30 Jul 1998  14:02:39
==============================================================
1. MIL-STD 461B--PART 2 (AIRCRAFT)
   1.6  CE-03 -- 15kHz to 50 MHz (461C)
==============================================================
ONDUCTED EMISSIONS WARM CAL
29V QUIET BUS A RETURN


EAKS FOUND ABOVE  50dBuA/MHz

EAK#   FREQ (Hz)  AMPL(dBuA/MHz)
 1     12.6E+03     80
 2     14.4E+03     81
 3     15.8E+03     81
 4     18.5E+03     81
 5     18.9E+03     80
 6     22.4E+03     81
 7     23.6E+03     81
 8     25.7E+03     81
 9     26.8E+03     80
10     28.0E+03     81
11     29.5E+03     80
12     34.1E+03     82
13     35.8E+03     80
14     37.1E+03     81
15     41.8E+03     80
16     50.4E+03     83
17     59.7E+03     79
18     65.6E+03     83
19     70.8E+03     90
20     77.1E+03     78
21     92.9E+03     77
22     10.5E+04    106
23     12.0E+04     76
24     13.0E+04     75
25     13.6E+04     79
26     16.2E+04     75
27     17.3E+04     74
28     21.4E+04     76
29     31.4E+04     63
30     43.0E+04     71
31     54.5E+04     56
32     61.4E+04     54
33     72.2E+04     60
34     84.9E+04     61
35     89.4E+04     70
36     94.0E+04     68
37     10.4E+05     51
38     12.6E+05     52
```

Plot 29 Page 1 of 1

EOS/AMSU-A1

1356008-1 EM1

S/N 202

SO 560869

TP 26151/8

Para 3.4.4.4.2

```
==================================================
TEST SETUP TABLE                         PG 1 OF 6
==================================================
LIBRARY FILE:   CE-03 -- 15kHz to 50 MHz (461C)

DISPLAY TITLE 1:                EOS/AMSU-A
CONTROL PARAMETERS
  Test Type                        NB/BB
  Freq Uncert (%)                    1
  Min Sweep Time/Oct (sec)           3
NUMBER PAGES NOTES                   0
NUMBER RANGES                        4
START FREQUENCY (MHz)              .010

RNG STOP FREQ(MHz)           TRANSDUCER
=== ============= ===============================
 1           .2   CURRENT PROBE 91550-2B S/N 774
 2          2.0   CURRENT PROBE 91550-2B S/N 774
 3         30.0   CURRENT PROBE 91550-2B S/N 774*
 4         50.0   CURRENT PROBE 91550-2B S/N 774*


==================================================
DISPLAY INFORMATION                      PG 2 OF 6
==================================================

                        NARROWBAND      BROADBAND
                        ==========      =========
AMPLITUDE INFO
  Units Label              dBuA          dBuA/MHz
  Disp Ref Level           90              130

TEST LIMITS
  Number Limits             1               1
  Limit 1               NARROWBAND      BROADBAND
```

EOS/AMSU-A1
1356008-1 EM1
S/N 202
SO 560869
TP 26151/8
Para 3.4.4.4.2

EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Par. 3.4.4.4.2

```
==================================================
RANGE 1: .010 TO .2 MHz                   PG 3 OF 6
==================================================
                     NARROWBAND       BROADBAND
AMPLIFIER
  Name             HP8447F OPT H64 HP8447F OPT H64
  Gain (dB)              28               28
INPUT PORT              RIGHT            RIGHT
MSMT STATES
  QP Bandwidth (Hz)     BYPASS           BYPASS
  SA Res Bandw (Hz)      300              1000
  Video Bandw. (Hz)     3000             10000
  Ref. Level (dBuV)      100               120
  Int. Atten. (dB)       20                30
  Ext. Atten. (dB)        0                 0
NO. OF SETUPS             1             same as NB
NO. SWEEPS/SETUP          1             same as NB
FIRST SETUP
  Msg,Sub,Continue    MESSAGE
  Msg:   CONNECT CURRENT PROBE TO 28 dB GAIN INPT
```

```
==================================================
RANGE 2: .2 TO 2.0 MHz                    PG 4 OF 6
==================================================
                     NARROWBAND       BROADBAND
AMPLIFIER
  Name             HP8447F OPT H64 HP8447F OPT H64
  Gain (dB)              28               28
INPUT PORT              RIGHT            RIGHT
MSMT STATES
  QP Bandwidth (Hz)     BYPASS           BYPASS
  SA Res Bandw (Hz)      300              30000
  Video Bandw. (Hz)     3000             300000
  Ref. Level (dBuV)      100               120
  Int. Atten. (dB)       20                30
  Ext. Atten. (dB)        0                 0
NO. OF SETUPS             1             same as NB
NO. SWEEPS/SETUP          1             same as NB
FIRST SETUP
  Msg,Sub,Continue    CONTINUE
```

```
==================================================
RANGE 3: 2.0 TO 30.0 MHz                PG 5 OF 6
==================================================
                     NARROWBAND       BROADBAND
AMPLIFIER
  Name             HP8447F OPT H64 HP8447F OPT H64
  Gain (dB)              28              28
INPUT PORT              RIGHT           RIGHT
MSMT STATES
  QP Bandwidth (Hz)     BYPASS          BYPASS
  SA Res Bandw (Hz)     3000            100000
  Video Bandw. (Hz)     30000            1.E+6
  Ref. Level (dBuV)      90              100
  Int. Atten. (dB)       20              20
  Ext. Atten. (dB)        0               0
NO. OF SETUPS             1          same as NB
NO. SWEEPS/SETUP          1          same as NB
FIRST SETUP
  Msg,Sub,Continue    CONTINUE
```

EOS/AMSU-A1
1356008-1 EMI
S/N 202
50-560869
TP 26151/8
Para 3.4.4.4.2

```
==================================================
RANGE 4: 30.0 TO 50.0 MHz               PG 6 OF 6
==================================================
                     NARROWBAND       BROADBAND
AMPLIFIER
  Name             HP8447F OPT H64 HP8447F OPT H64
  Gain (dB)              28              28
INPUT PORT              RIGHT           RIGHT
MSMT STATES
  QP Bandwidth (Hz)     BYPASS          BYPASS
  SA Res Bandw (Hz)     30000            1E+6
  Video Bandw. (Hz)     300000           3.E+6
  Ref. Level (dBuV)      90              90
  Int. Atten. (dB)       20              20
  Ext. Atten. (dB)        0               0
NO. OF SETUPS             1          same as NB
NO. SWEEPS/SETUP          1          same as NB
FIRST SETUP
  Msg,Sub,Continue    CONTINUE
```

TRANSDUCER TABLE

TRANSDUCER TITLE CURRENT PROBE 91550-2B S/N 774
SIGN OF TRANSDUCER PLUS
NUMBER OF POINTS 45

EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/B
Para 3.4.4.4.2

POINT	FREQUENCY(MHz)	TRANSDUCER FACTOR
1	0.010000	-9.96
2	0.011247	-8.79
3	0.015616	-6.32
4	0.021575	-4.10
5	0.029641	-2.26
6	0.034461	-1.50
7	0.047612	-0.23
8	0.065409	0.61
9	0.076046	0.90
10	0.089266	1.14
11	0.105067	1.33
12	0.144342	1.59
13	0.167815	1.67
14	0.196987	1.75
15	0.231857	1.81
16	0.266727	1.85
17	0.318527	1.89
18	0.434701	1.96
19	0.511650	1.98
20	0.588599	2.01
21	0.702909	2.03
22	0.817218	2.05
23	0.959276	2.07
24	1.129084	2.08
25	1.551143	2.10
26	1.803395	2.12
27	2.116882	2.12
28	2.491605	2.12
29	3.422984	2.11
30	3.979641	2.08
31	4.671429	2.06
32	5.498349	2.02
33	6.325269	1.98
34	7.553670	1.92
35	8.782071	1.83
36	10.308674	1.72
37	12.133479	1.55
38	13.958285	1.34
39	16.669058	0.97
40	22.748663	-0.55
41	26.775552	-1.92
42	30.802441	6.10
43	36.784438	0.53
44	42.766435	-4.37
45	50.200602	-6.47

SO#560869 Op. 280

TAR # 004706

TEST DATA SHEET 3 (Sheet 1 of 2)
RE02 Test (Paragraph 3.4.5.4)

Test Setup Verified: Ken Shean 7/27/98
(Signature)

Test Equipment Log

Item	Manufacturer	Model/Part No.	Aerojet Inventory No.	Calibration Date	Calibration Due Date
Spectrum Analyzer	HP	8566	R300662	4/15/98	10/15/98
Feed-Through Capacitors	Solar	6512-106R	L803641 to 4	CNR	CNR
Signal Analyzer	HP	71210-C	C200064	9/6/97	9/6/98
Series Preamp	HP	70620B	C200065	9/6/97	9/6/98
Computer	HP	9836	46134-15	N/A	N/A
Printer	HP	2671G	07202	N/A	N/A
Plotter	HP	7475A	47417	CNR	CNR
Amplifier	HP	465A	L-503166	6/19/98	12/20/98
Amplifier	HP	8447F	46134-1	5/21/97	9/21/98
Active Rod Antenna	EMCO	3301	55363	9/25/97	9/25/98
Biconical Antenna	Electro-Metrics	BIA-25	C200224	1/16/98	1/16/99
Log Spiral Antenna	Electro-Metrics	LCA-25	L508308	11/20/97	11/20/98
Horn Antenna	Electro-Metrics	RG-180	L508357	10/6/97	10/6/98

TEST DATA SHEET 3 (Sheet 2 of 2)
RE02 Test (Paragraph 3.4.5.4)

Test Setup Verified: R. Khoury 7/27/98
(Signature)

Emission Measurements

Plot No.	Antenna/Frequency	Band	Required	Emissions within limits?		Comments/ Observations
				Yes	No	
	Rod/Biconical/Log 14 kHz to 1 GHz	Narrow	Figure 5		✓	TAR#004706
	Rod/Biconical/Log 14 kHz to 1 GHz	Broad	Figure 6		✓	
	Biconical Antenna 30 MHz to 200 MHz Vert/Horz	Narrow	Figure 5		✓	
	Biconical Antenna 30 MHz to 200 MHz Vert/Horz	Broad	Figure 6		✓	
	Log Conical Antenna 200 MHz to 1 GHz	Narrow	Figure 5	✓		
	Log Conical Antenna 200 MHz to 1 GHz	Broad	Figure 6	✓		
	Horn: 1 GHz to 18 GHz	Narrow	Figure 5	✓		
	Horn: 1 GHz to 18 GHz	Broad	Figure 6		✓	TAR#004706
	Special Frequency Horn: 6.800 GHz ± 100 MHz	Narrow	–130 dBm	✓		
	Special Frequency Horn: 10.650 GHz ± 50 MHz	Narrow	–130 dBm	✓		
	Special Frequency Horn: 18,700 GHz ± 100 MHz	Narrow	–126 dBm	✓		
	Special Frequency Horn: 23,800 GHz ± 200 MHz	Narrow	–123 dBm	✓		

Note: Attach all backup data generated during the test (photos, printouts plots, test logs, additional comments or observations, etc.) to this data sheet.

ENG 252
7-28-98

Assembly Part No. EOS/AMSU-A1 1356008-1-EMI

Serial No. 202

Shop Order: 560869

Signature/Date

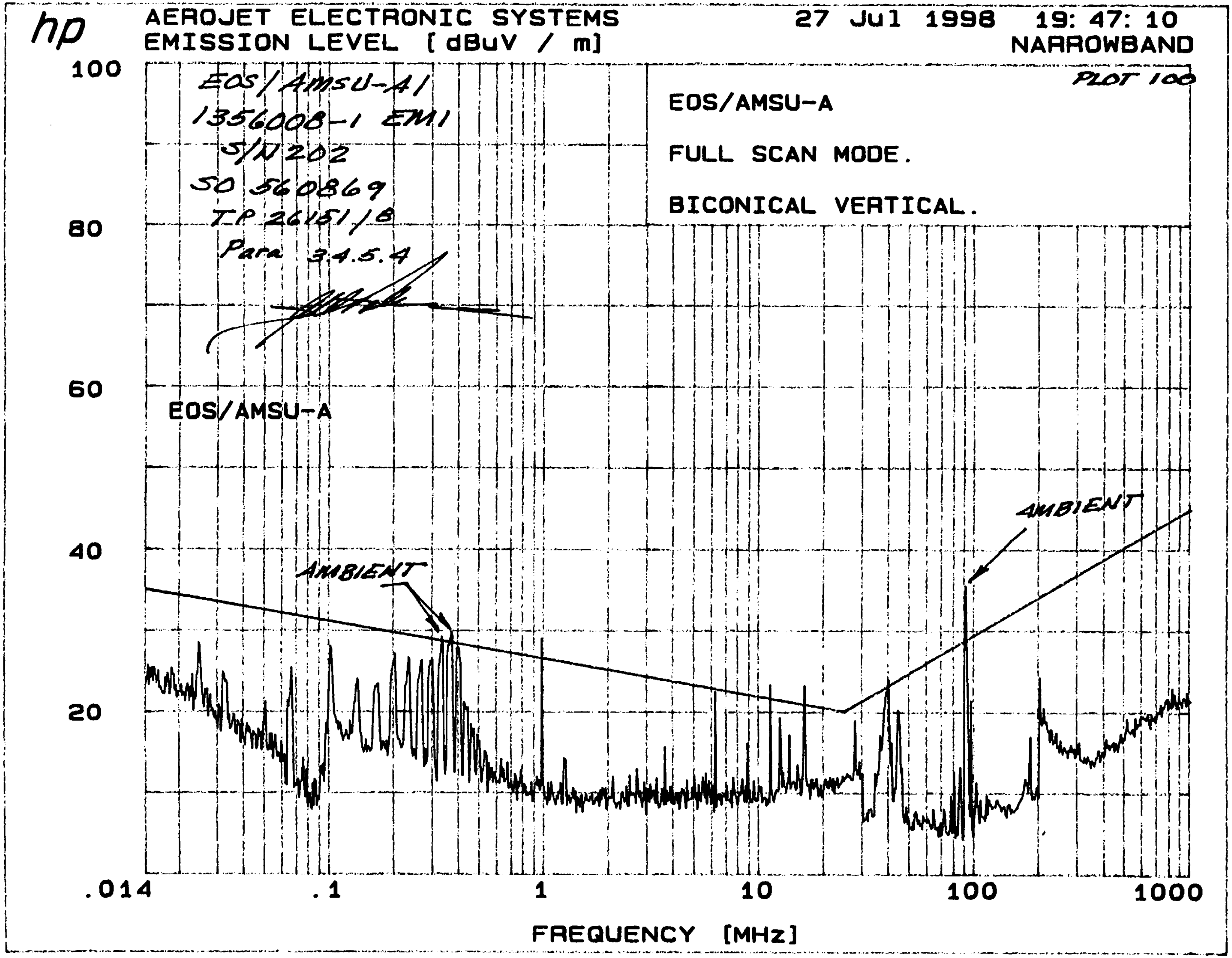
Engineer: 28 July 98

Quality Assurance:

Operator: Roger N. Khoury 7/28/98

Customer Rep.:

TAR NO. 004706



AEROJET ELECTRONIC SYSTEMS
EMISSION LEVEL [dBuV / m]

27 Jul 1998 19: 47: 10
NARROWBAND

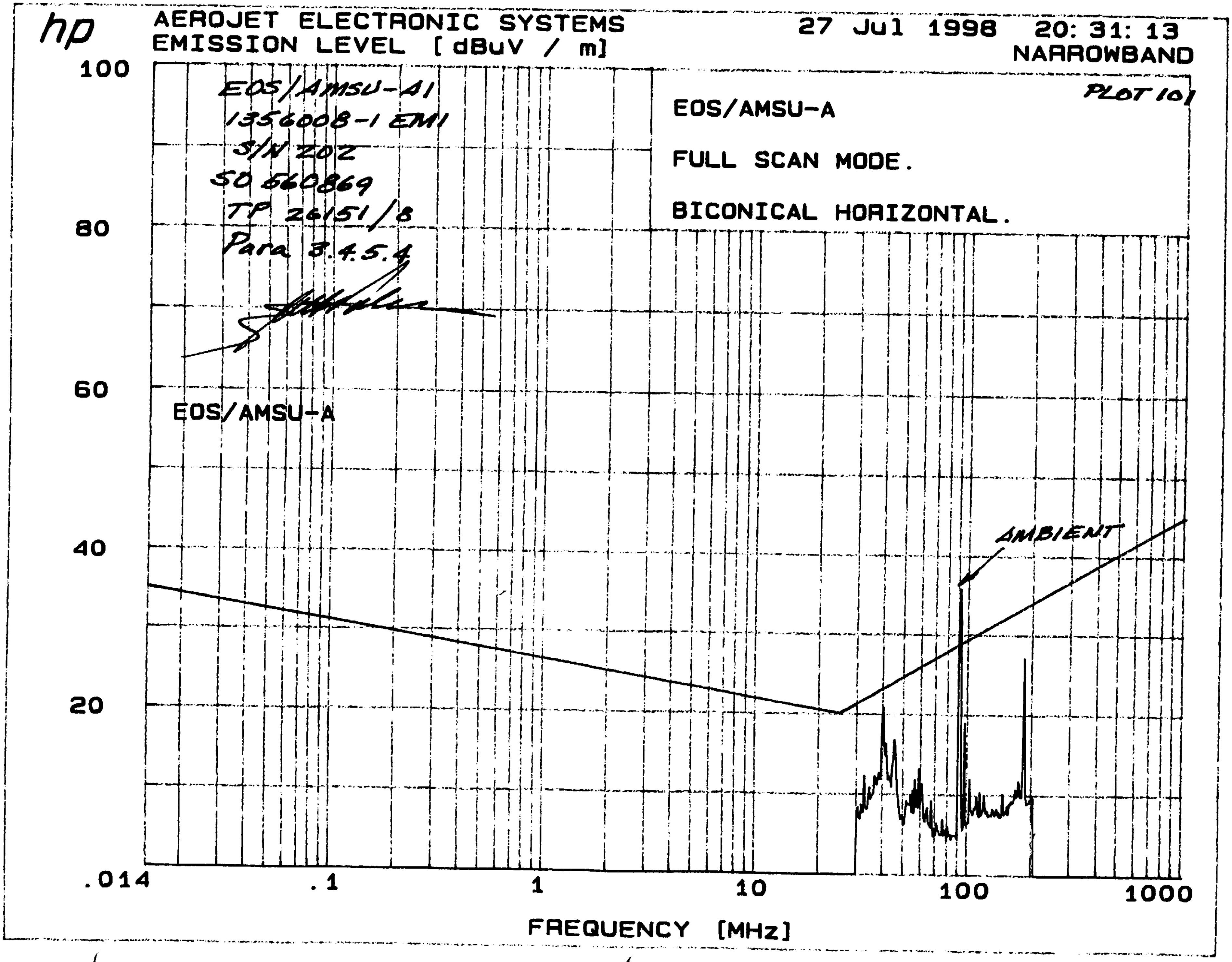
PLOT 100

EOS/AMSU-A

FULL SCAN MODE.

BICONICAL VERTICAL.

EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
T.P. 26151/8
Para 3.4.5.4



AEROJET ELECTRONIC SYSTEMS
EMISSION LEVEL [dBuV / m]

27 Jul 1998 20: 31: 13
NARROWBAND

PLOT 10

EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.5.4

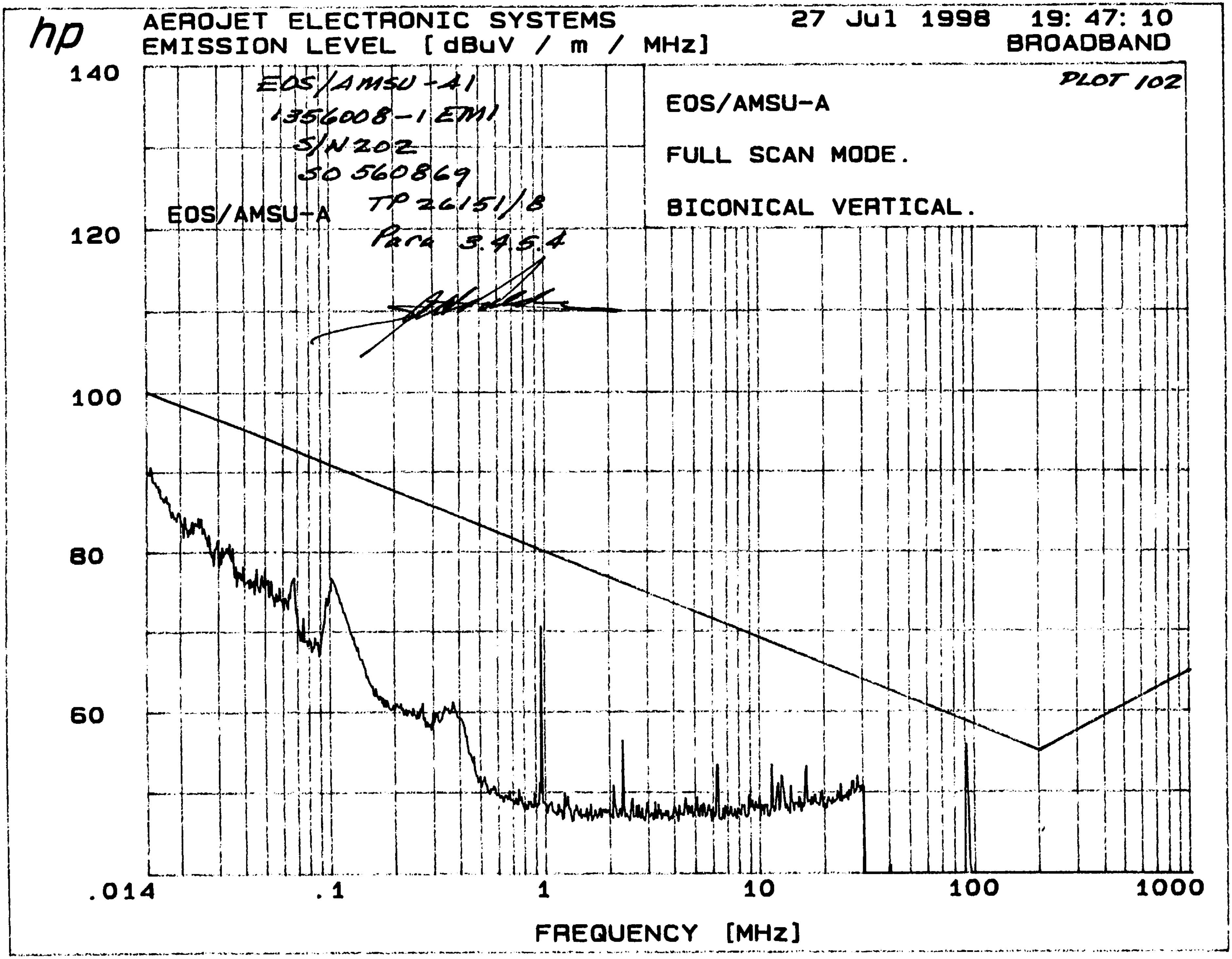
EOS/AMSU-A

FULL SCAN MODE.

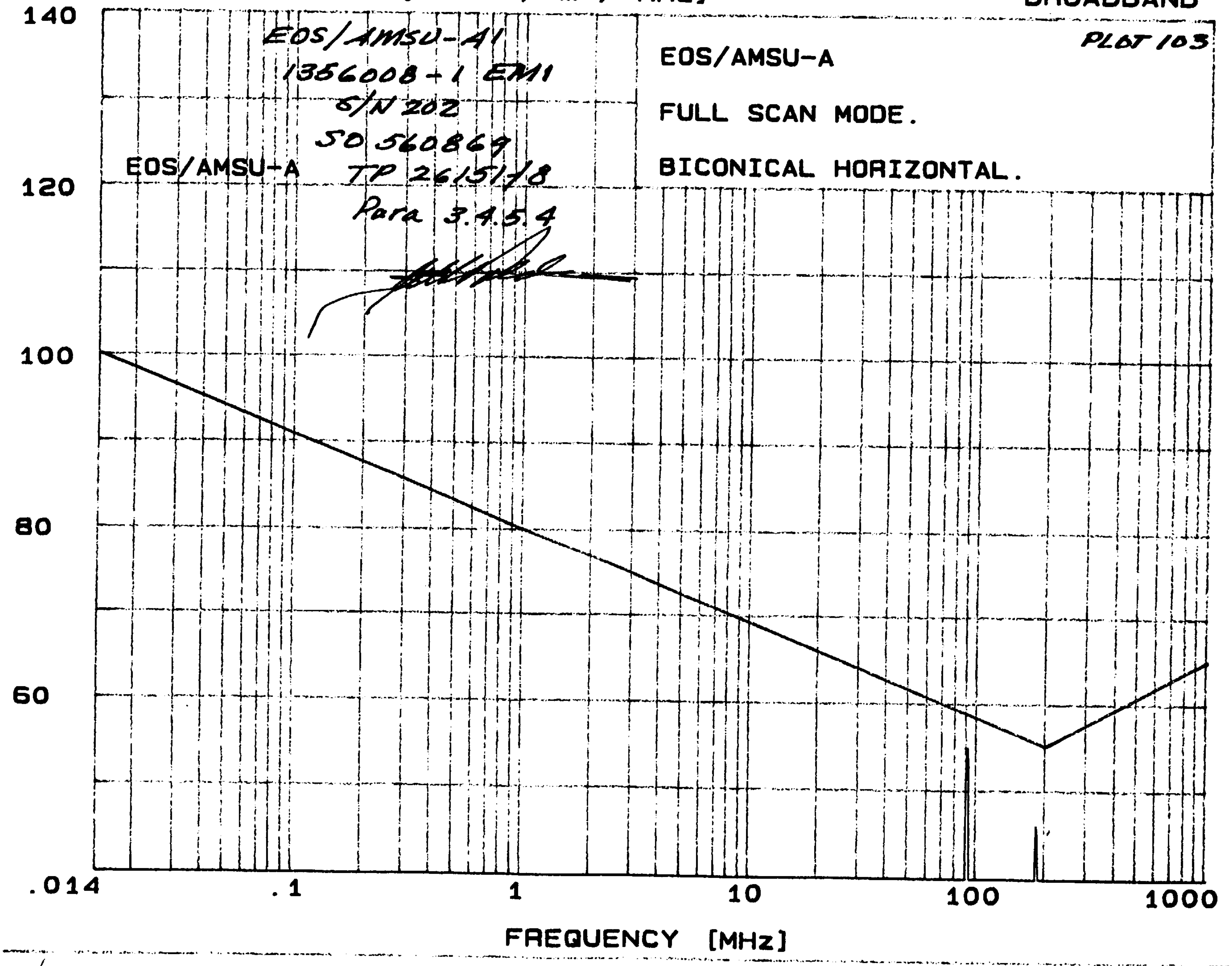
BICONICAL HORIZONTAL.

EOS/AMSU-A

AMBIENT


hp
AEROJET ELECTRONIC SYSTEMS
EMISSION LEVEL [dBuV / m / MHz]
27 Jul 1998 19: 47: 10
BROADBAND
PLOT 102
EOS/AMSU-A
FULL SCAN MODE.
BICONICAL VERTICAL.
EOS/AMSU-A1
1356008-1 EM
S/N 202
50 560869
TP 26151/8
Para 3.4.5.4
EOS/AMSU-A
140
120
100
80
60
.014
.1
1
10
100
1000
FREQUENCY [MHz]

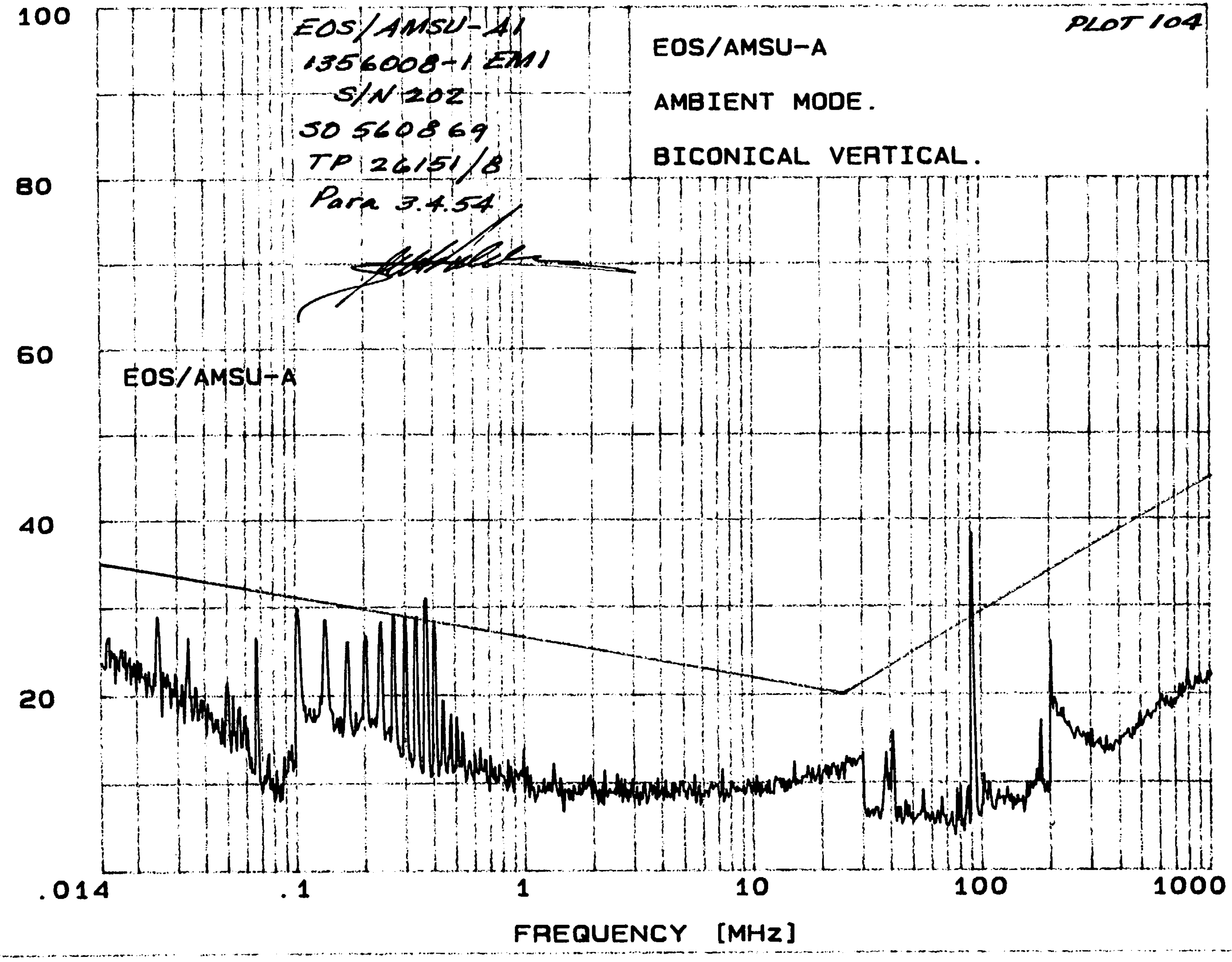
hp AEROJET ELECTRONIC SYSTEMS 27 Jul 1998 20:31:13
EMISSION LEVEL [dBuV / m / MHz] BROADBAND



PLOT 103

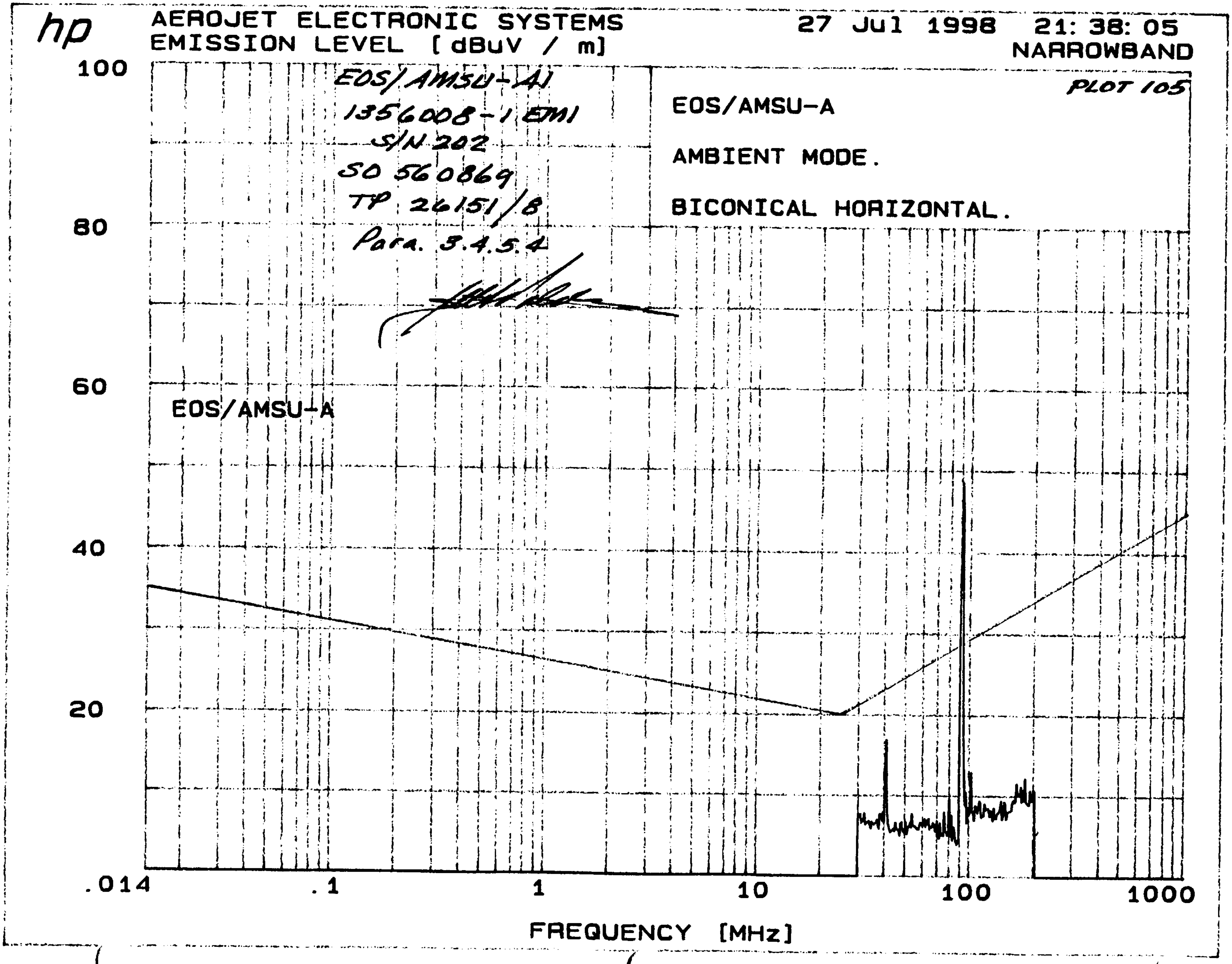
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 2615118
Para 3.4.5.4

hp AEROJET ELECTRONIC SYSTEMS 27 Jul 1998 21: 18: 40
EMISSION LEVEL [dBuV / m] NARROWBAND



PLOT 104

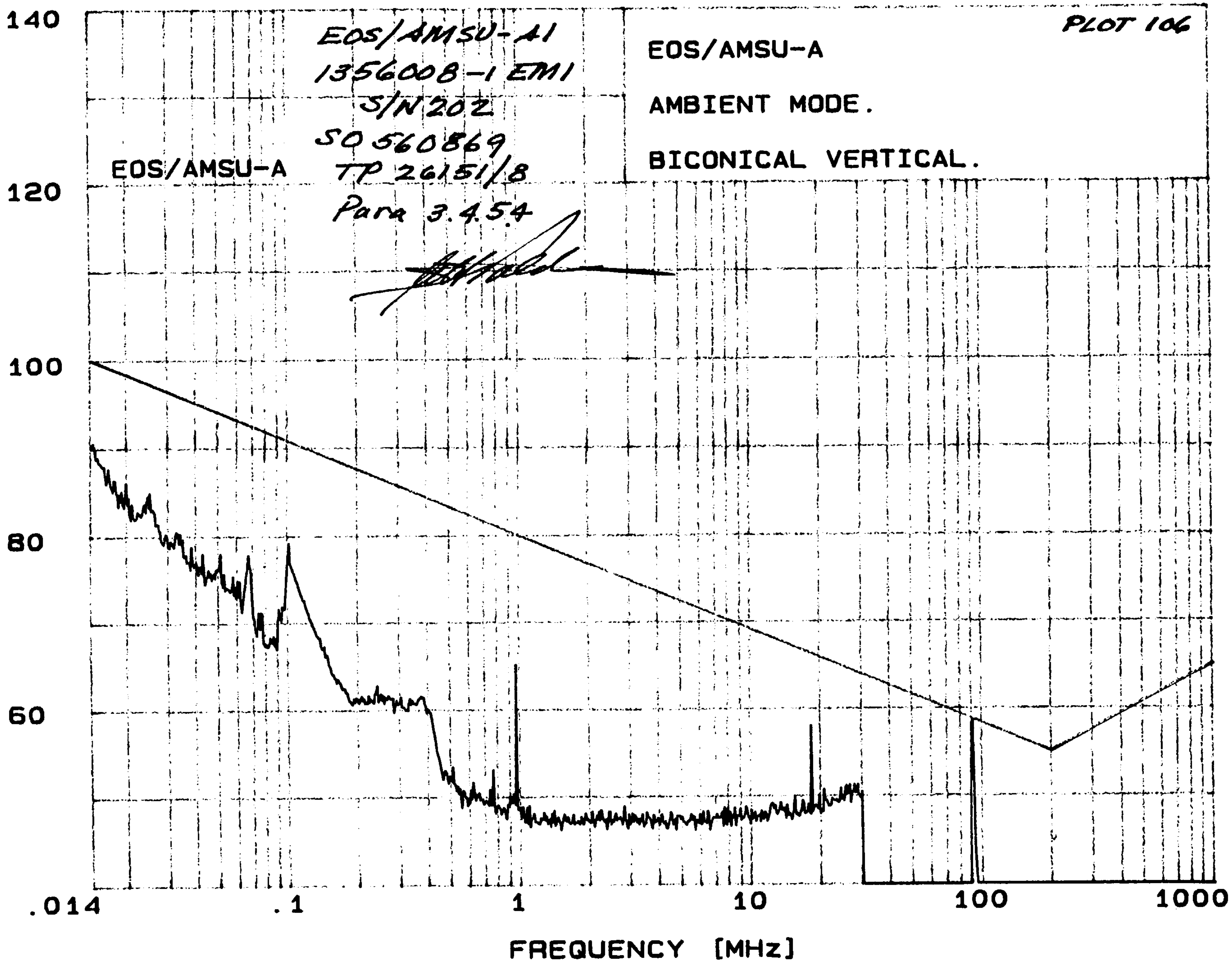
EOS/AMSU-A1
1356008-1 EMI
S/N 202
30 560869
TP 26151/8
Para 3.4.54



PLOT 105

EOS/AMSU-A)
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para. 3.4.5.4

hp AEROJET ELECTRONIC SYSTEMS 27 Jul 1998 21: 18: 40
EMISSION LEVEL [dBuV / m / MHz] BROADBAND



PLOT 106

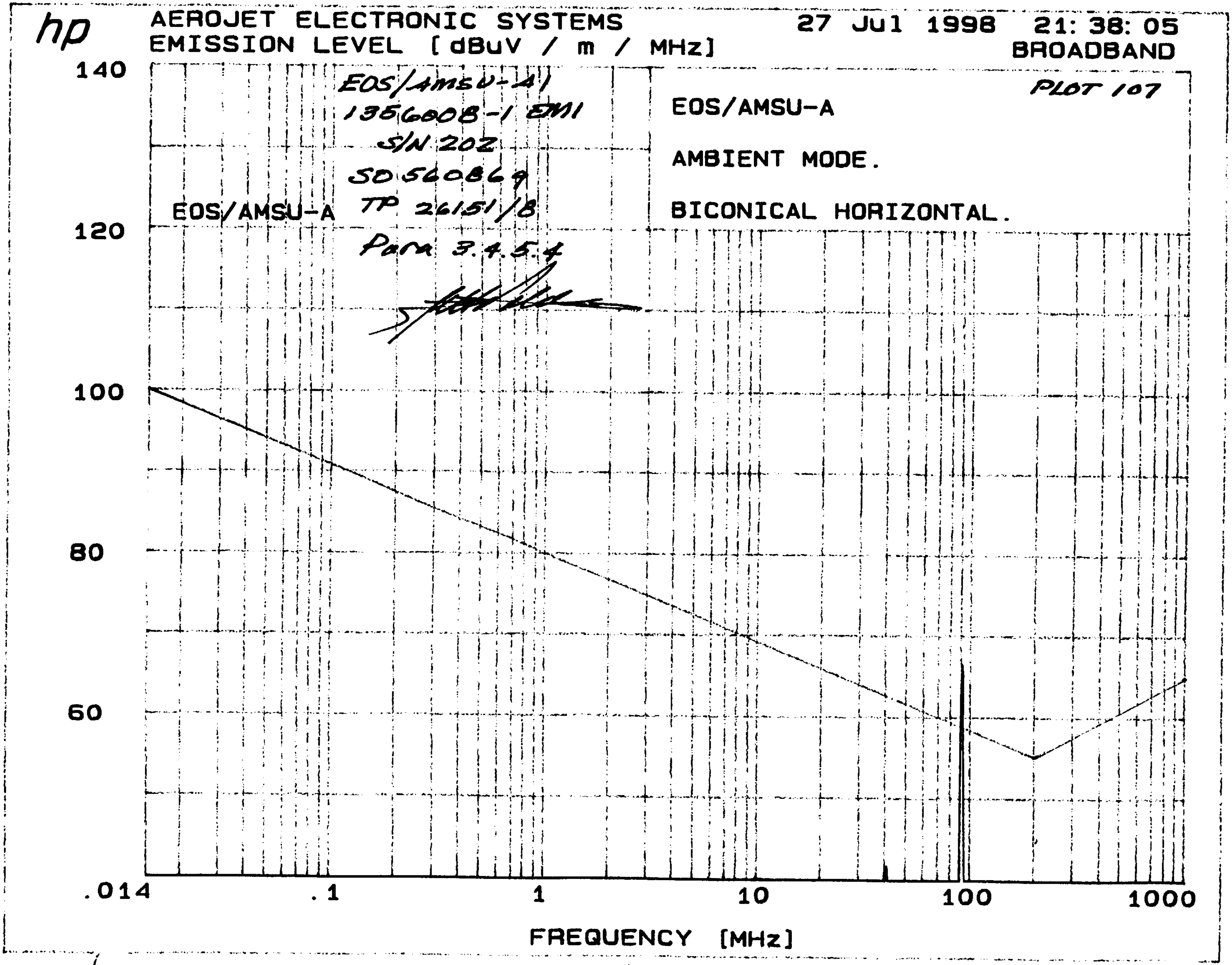
EOS/AMSU-A

AMBIENT MODE.

BICONICAL VERTICAL.

EOS/AMSU-A

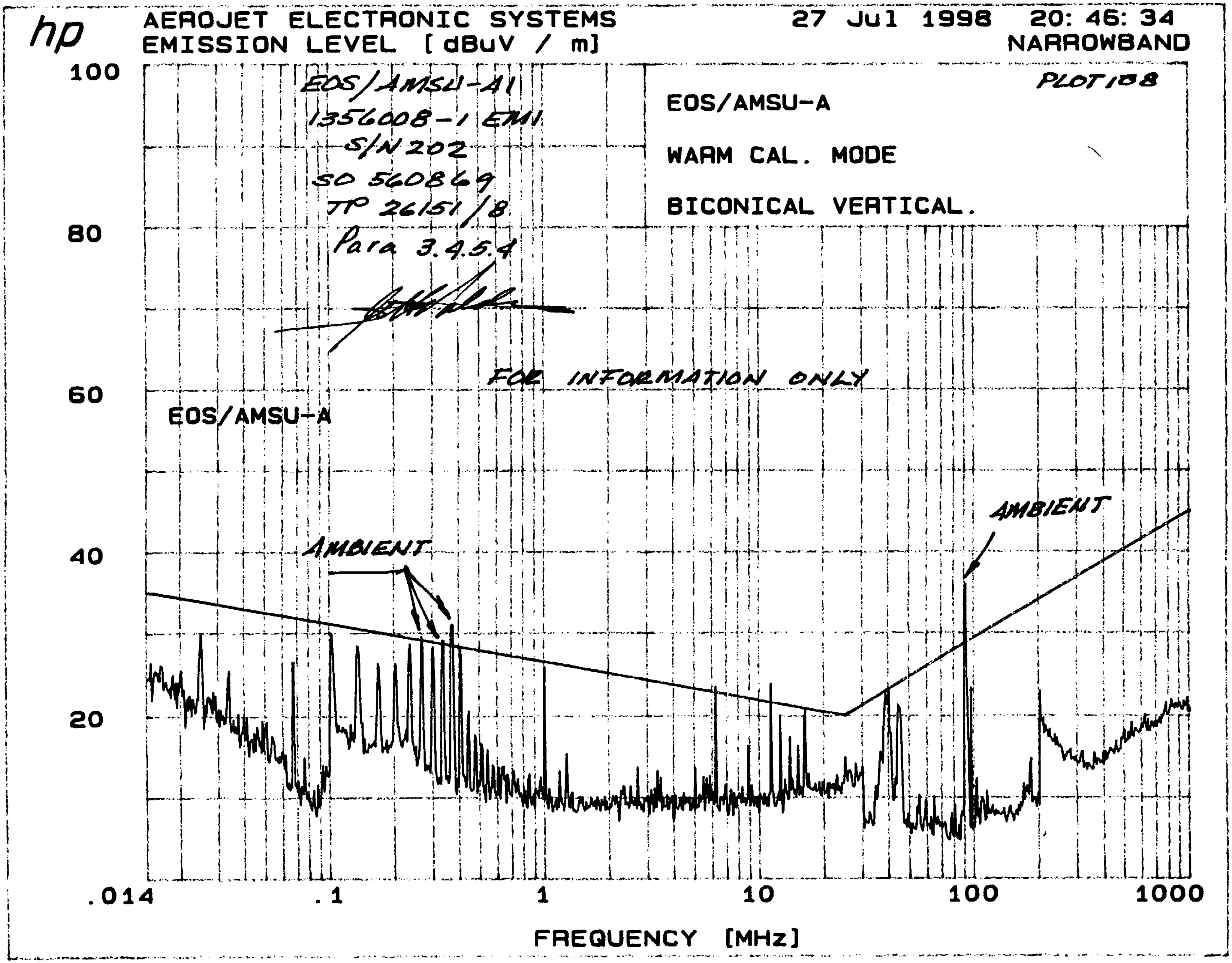
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.5.4

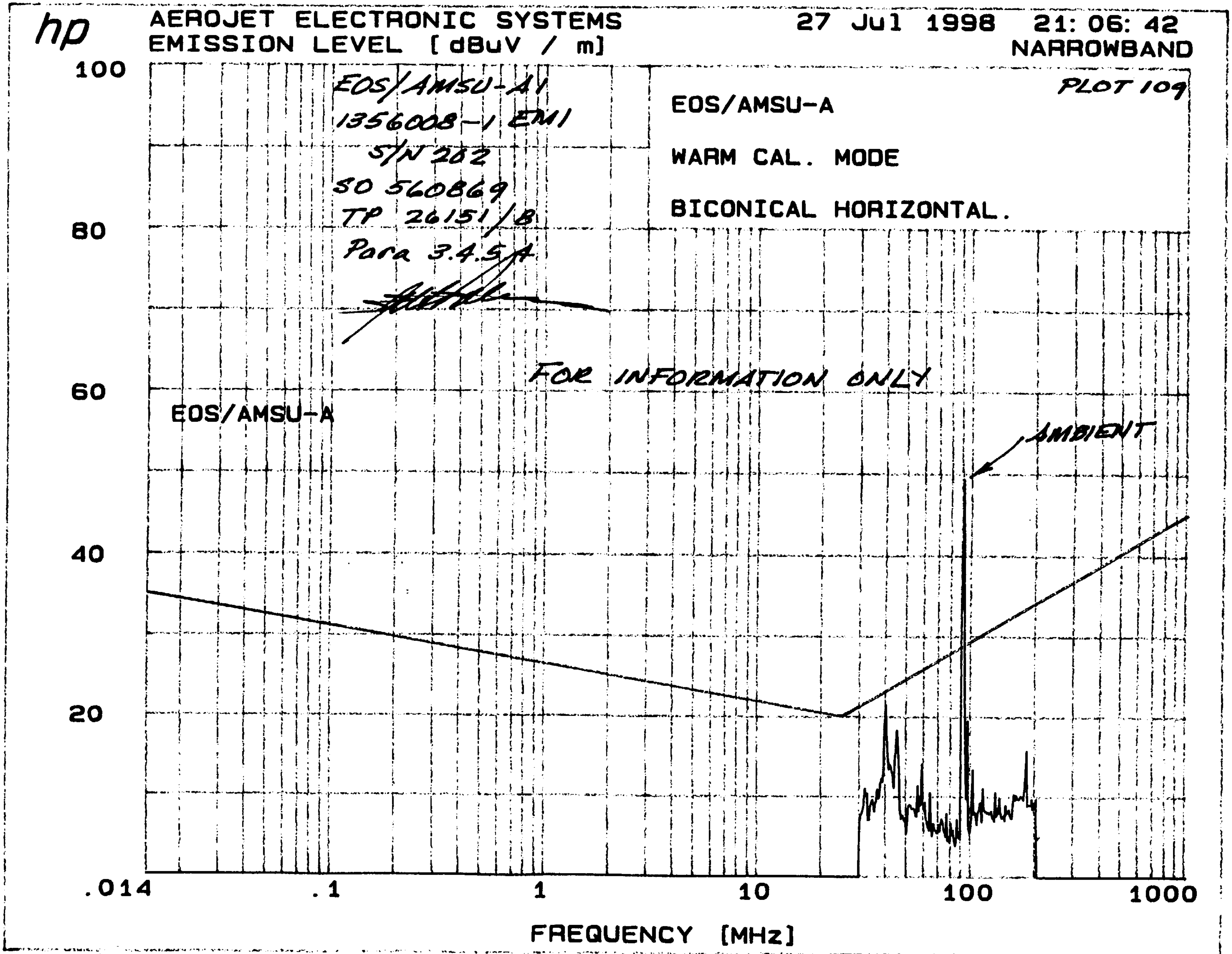


PLOT 107

EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.5.4

TAR NO. 004706





EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/B
Para 3.4.5A

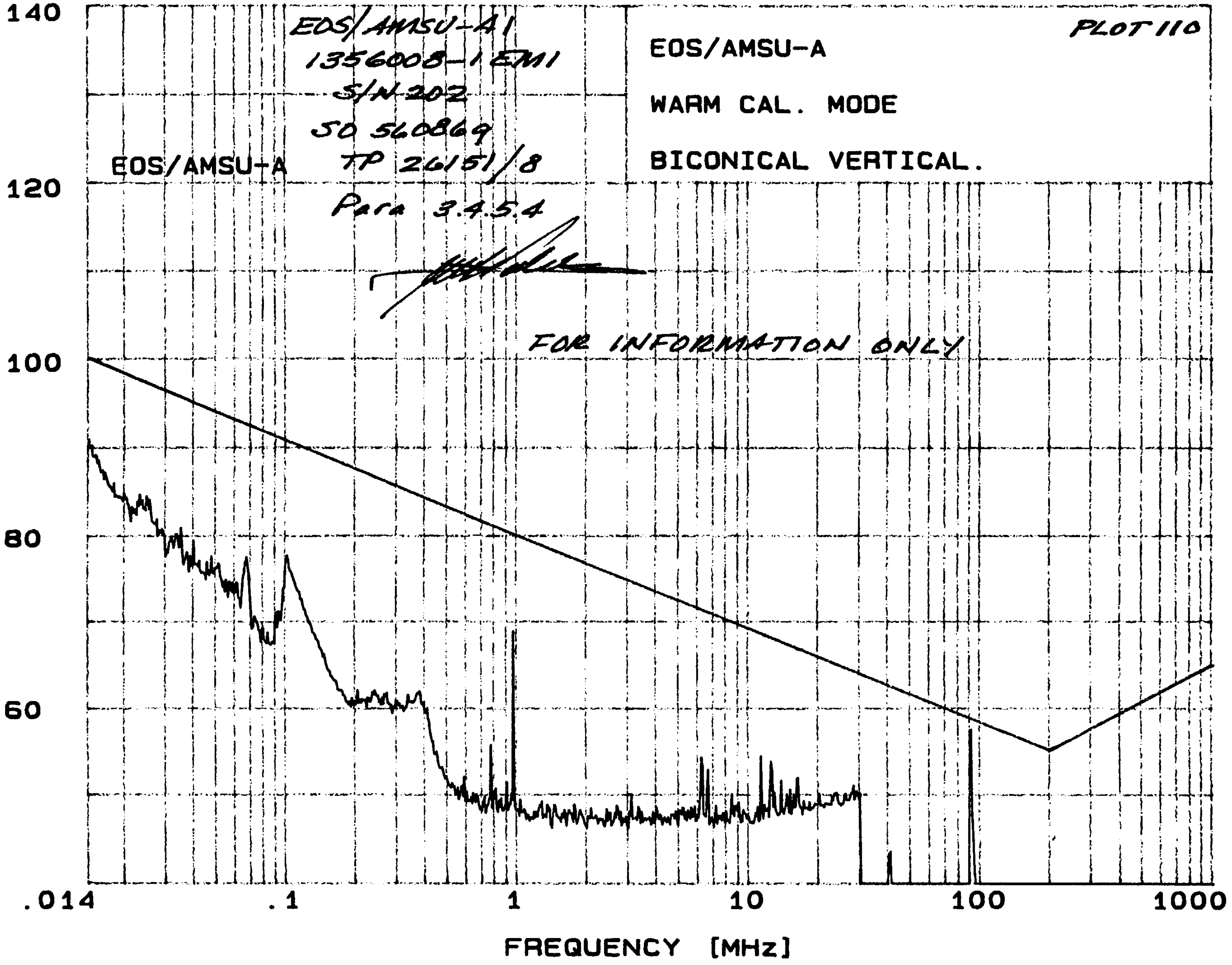
PLOT 109

FOR INFORMATION ONLY

AMBIENT

hp AEROJET ELECTRONIC SYSTEMS 27 Jul 1998 20: 46: 34

EMISSION LEVEL [dBuV / m / MHz] BROADBAND



EOS/AMSU-A

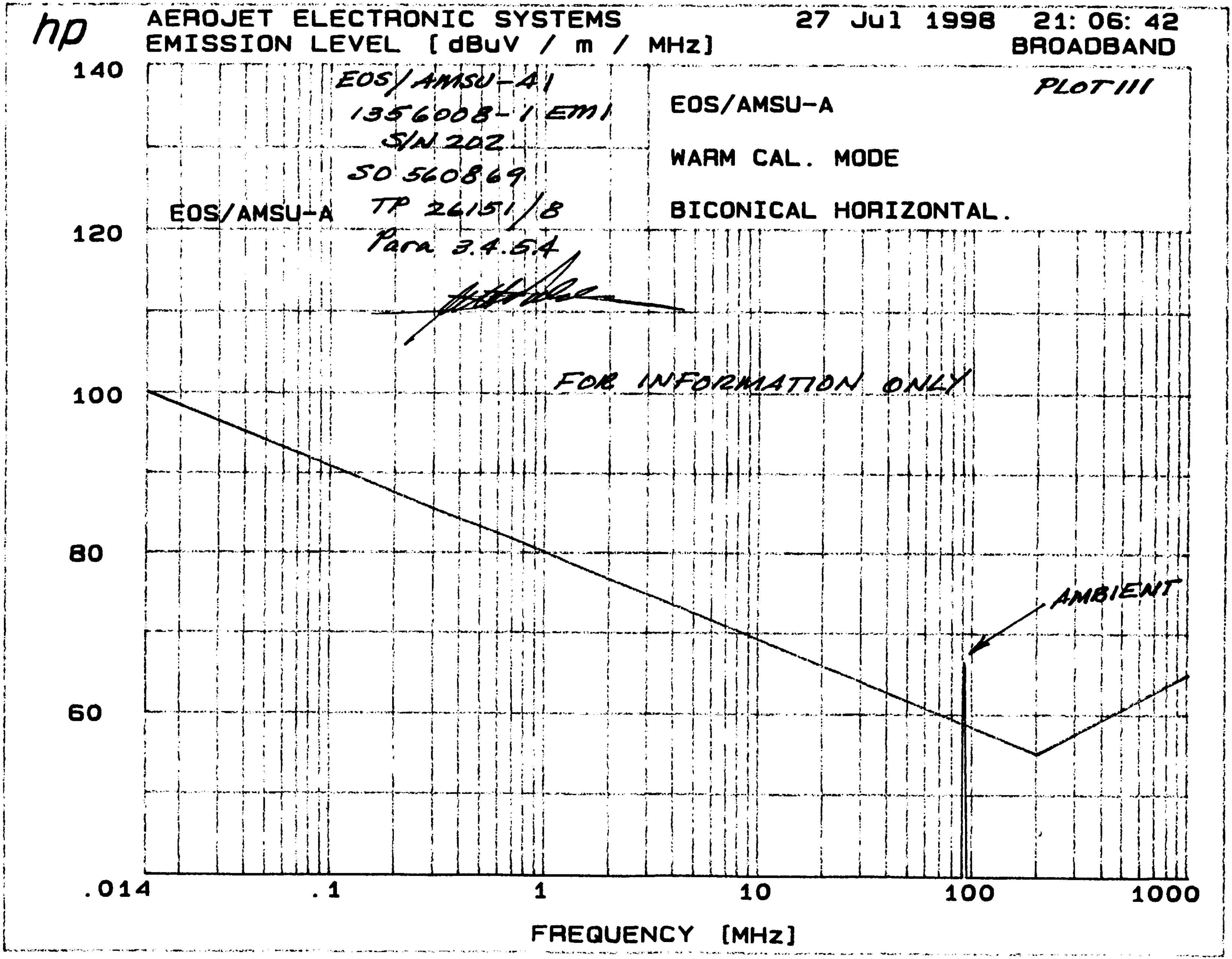
WARM CAL. MODE

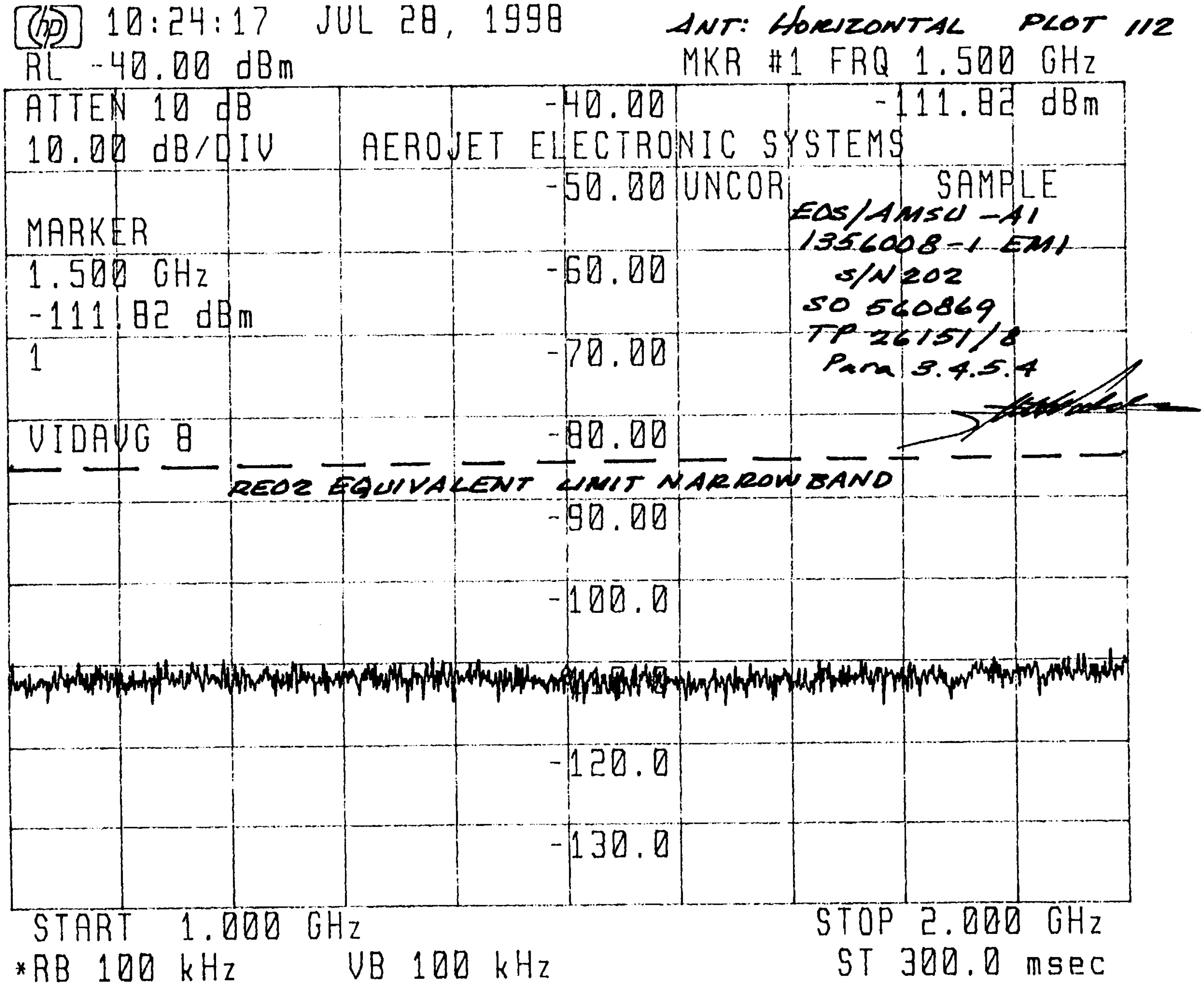
BICONICAL VERTICAL.

PLOT 110

EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.5.4

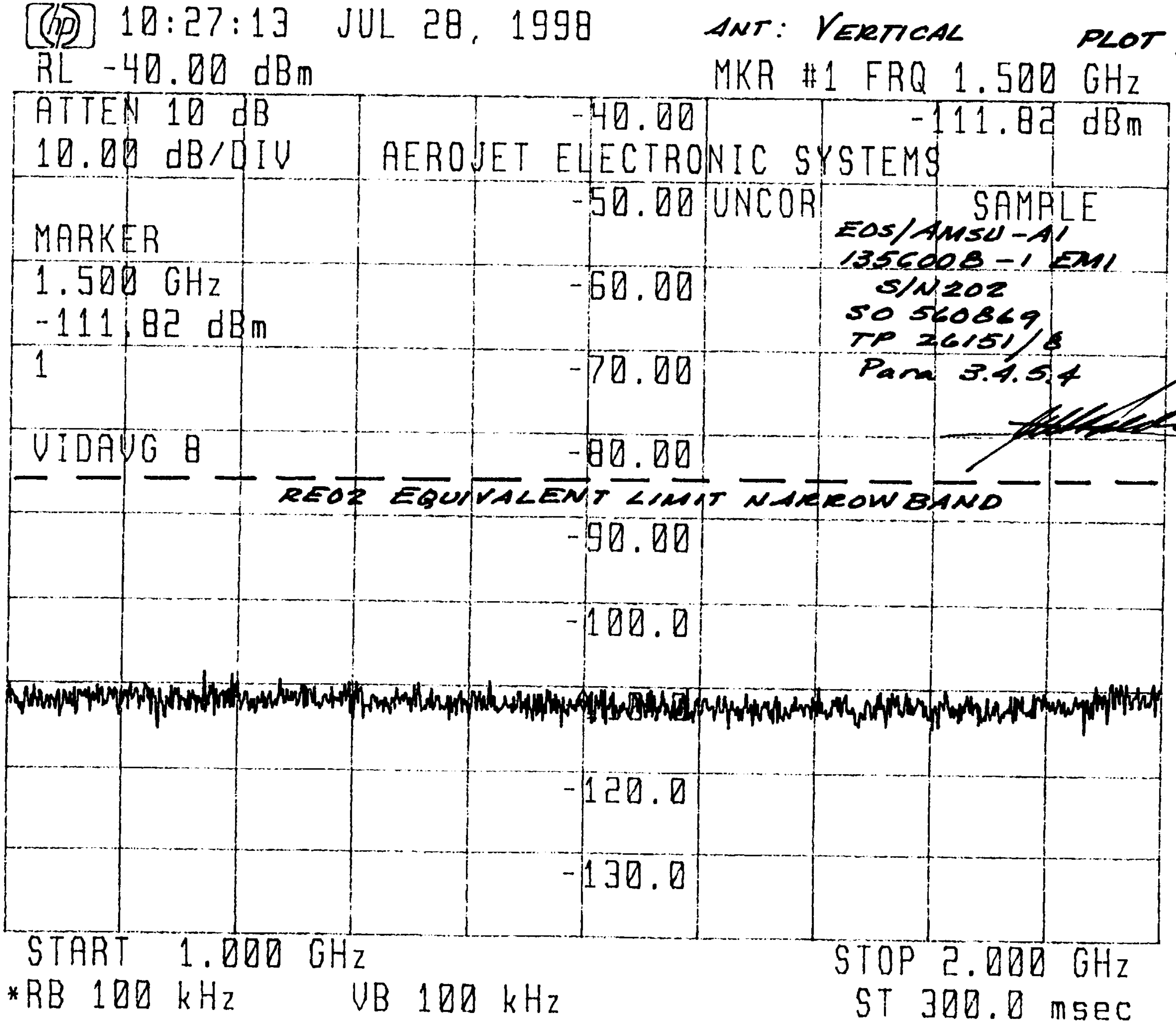
FOR INFORMATION ONLY


hp
AEROJET ELECTRONIC SYSTEMS
EMISSION LEVEL [dBuV / m / MHz]
27 Jul 1998 21: 06: 42
BROADBAND
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.5.4
PLOT 111
EOS/AMSU-A
EOS/AMSU-A
WARM CAL. MODE
BICONICAL HORIZONTAL.
FOR INFORMATION ONLY
AMBIENT
140
120
100
80
60
.014
.1
1
10
100
1000
FREQUENCY [MHz]


10:24:17 JUL 28, 1998
ANT: HORIZONTAL PLOT 112
RL -40.00 dBm
MKR #1 FRQ 1.500 GHz
-111.82 dBm
ATTEN 10 dB
10.00 dB/DIV
AERОJET ELECTRONIC SYSTEMS
UNCOR
SAMPLE
MARKER
1.500 GHz
-111.82 dBm
1
VIDAVG 8
EOS/AMSU -A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.5.4
REO2 EQUIVALENT LIMIT NARROWBAND
-40.00
-50.00
-60.00
-70.00
-80.00
-90.00
-100.0
-120.0
-130.0
START 1.000 GHz
STOP 2.000 GHz
*RB 100 kHz
VB 100 kHz
ST 300.0 msec

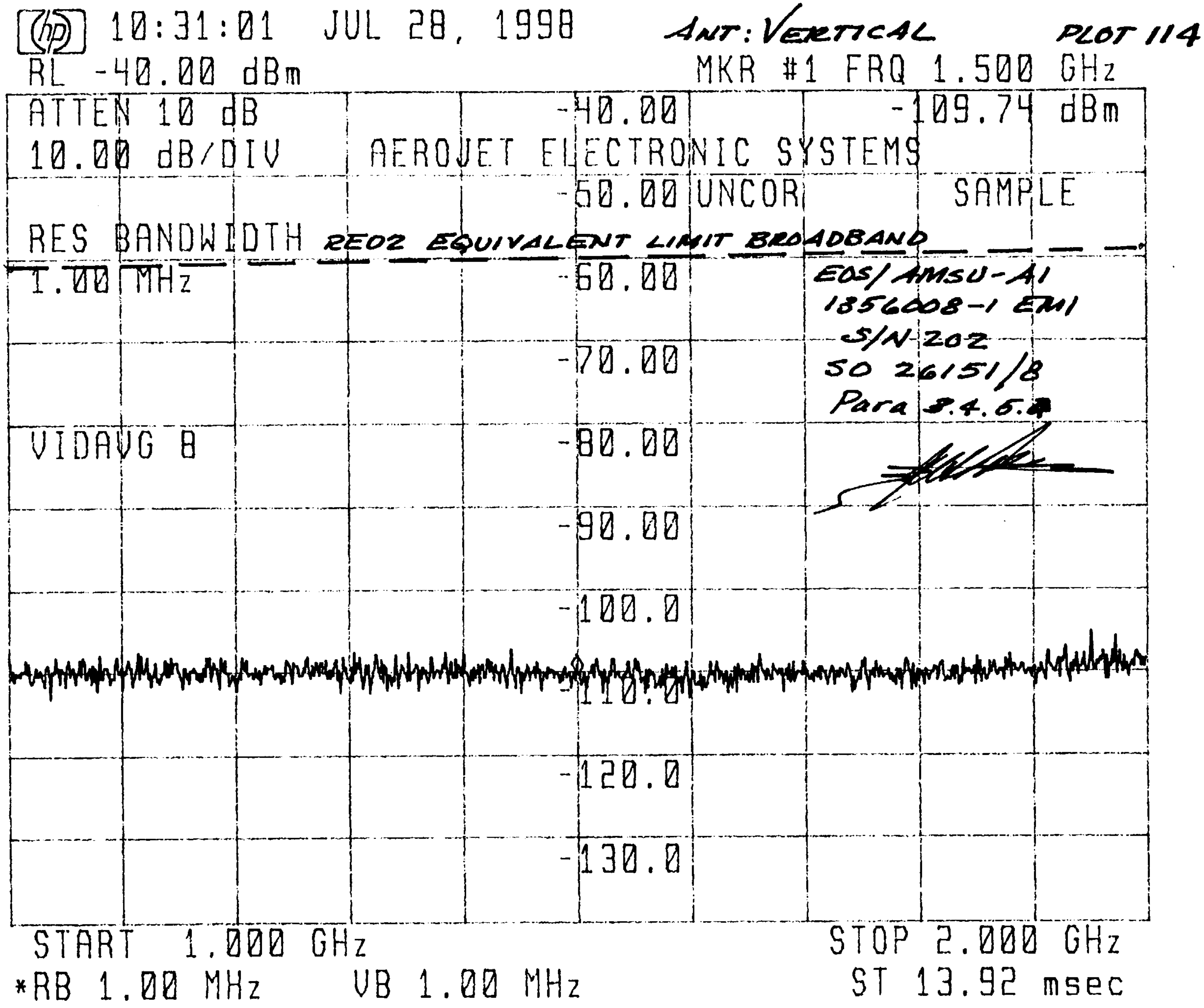
ANT: VERTICAL

PLOT 113



EOS/AMSU-A1
135600B-1 EMI
S/N 202
SO 560869
TP 26151/B
Para 3.4.5.4

RE02 EQUIVALENT LIMIT NARROWBAND



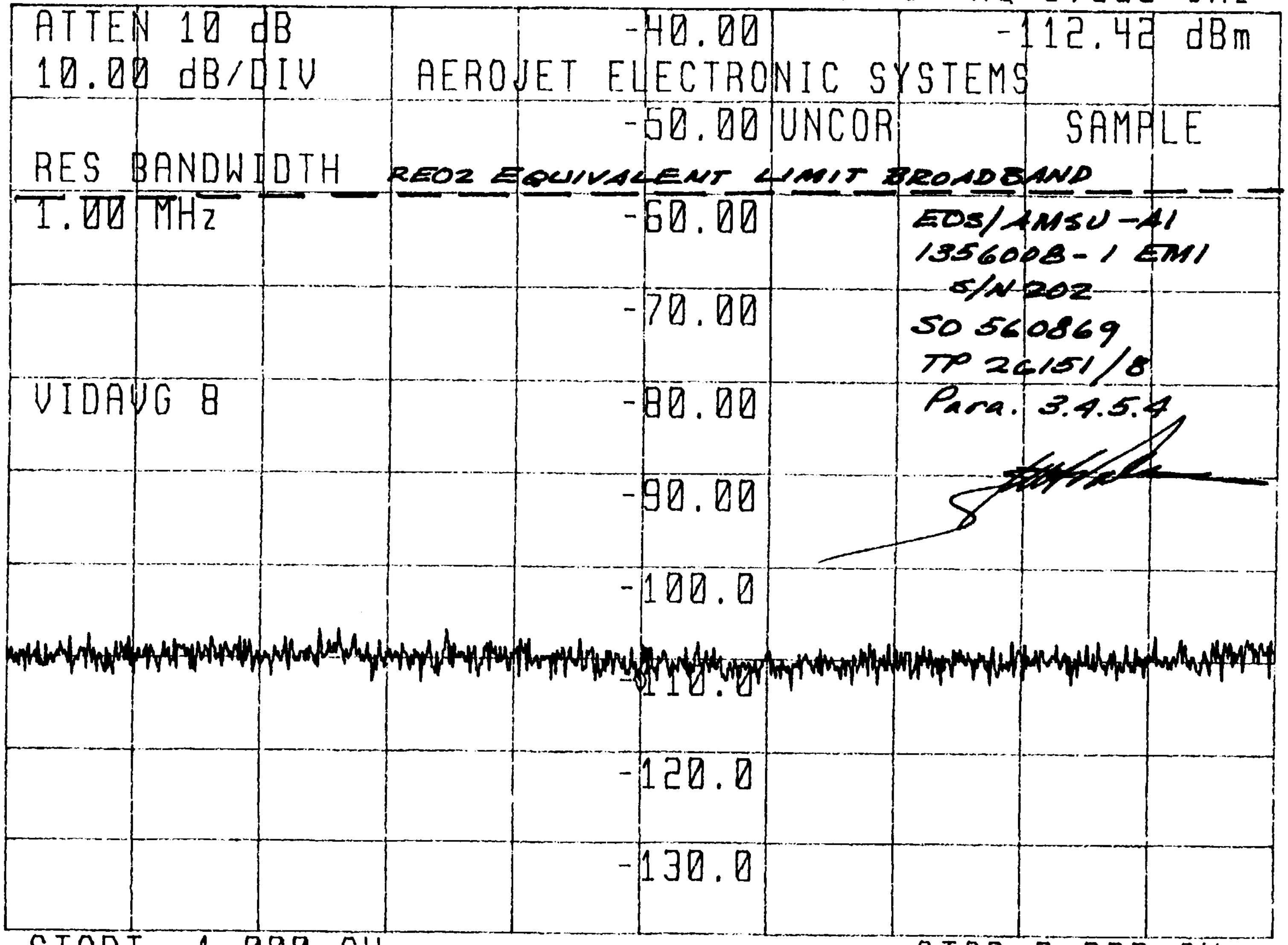
ANT: VERTICAL

PLOT 114

EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 26151/8
Para 3.4.6.[illegible]

10:34:56 JUL 28, 1998 *ANT: HORIZONTAL* *PLOT 115*

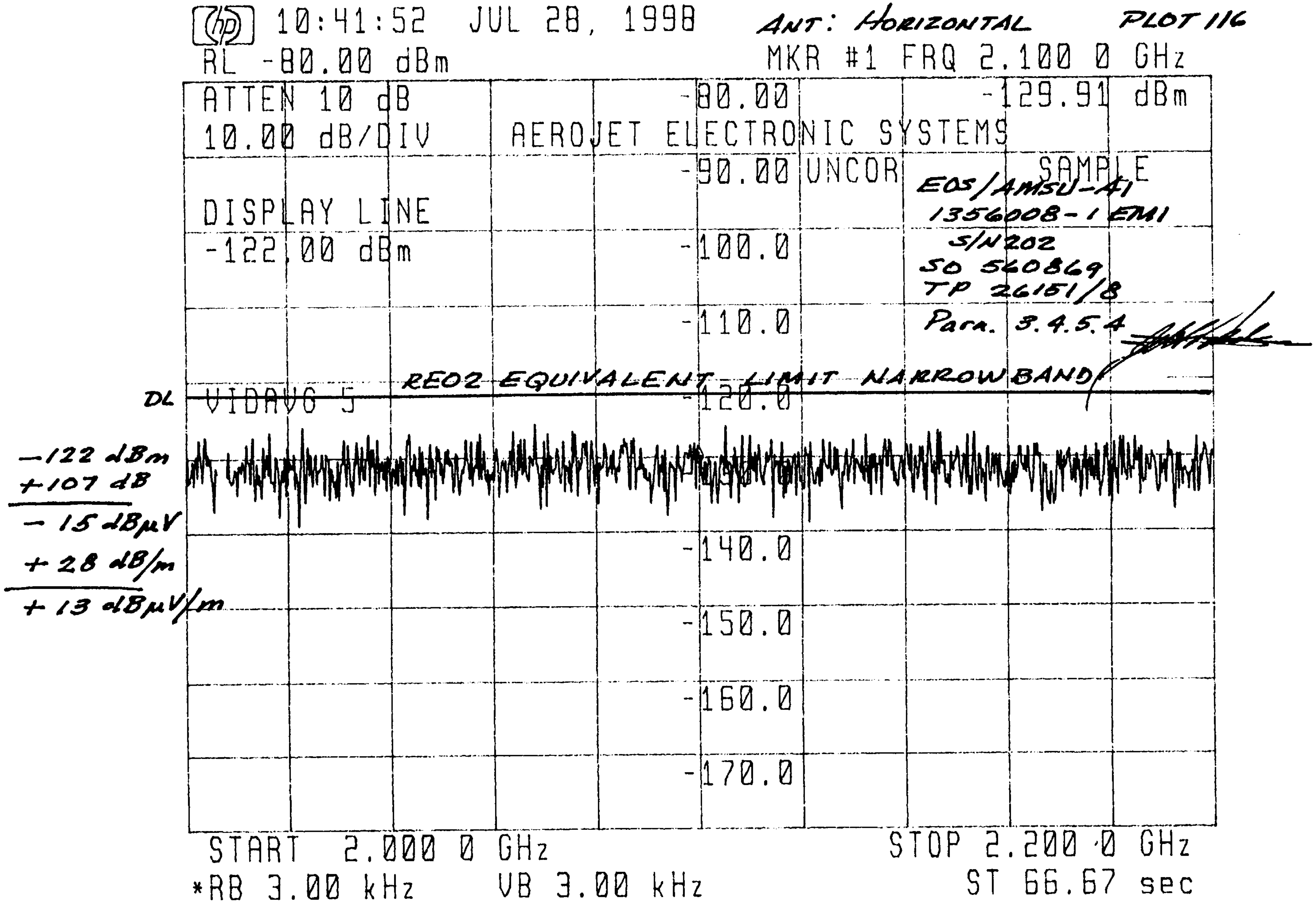
RL -40.00 dBm MKR #1 FRQ 1.500 GHz



START 1.000 GHz STOP 2.000 GHz

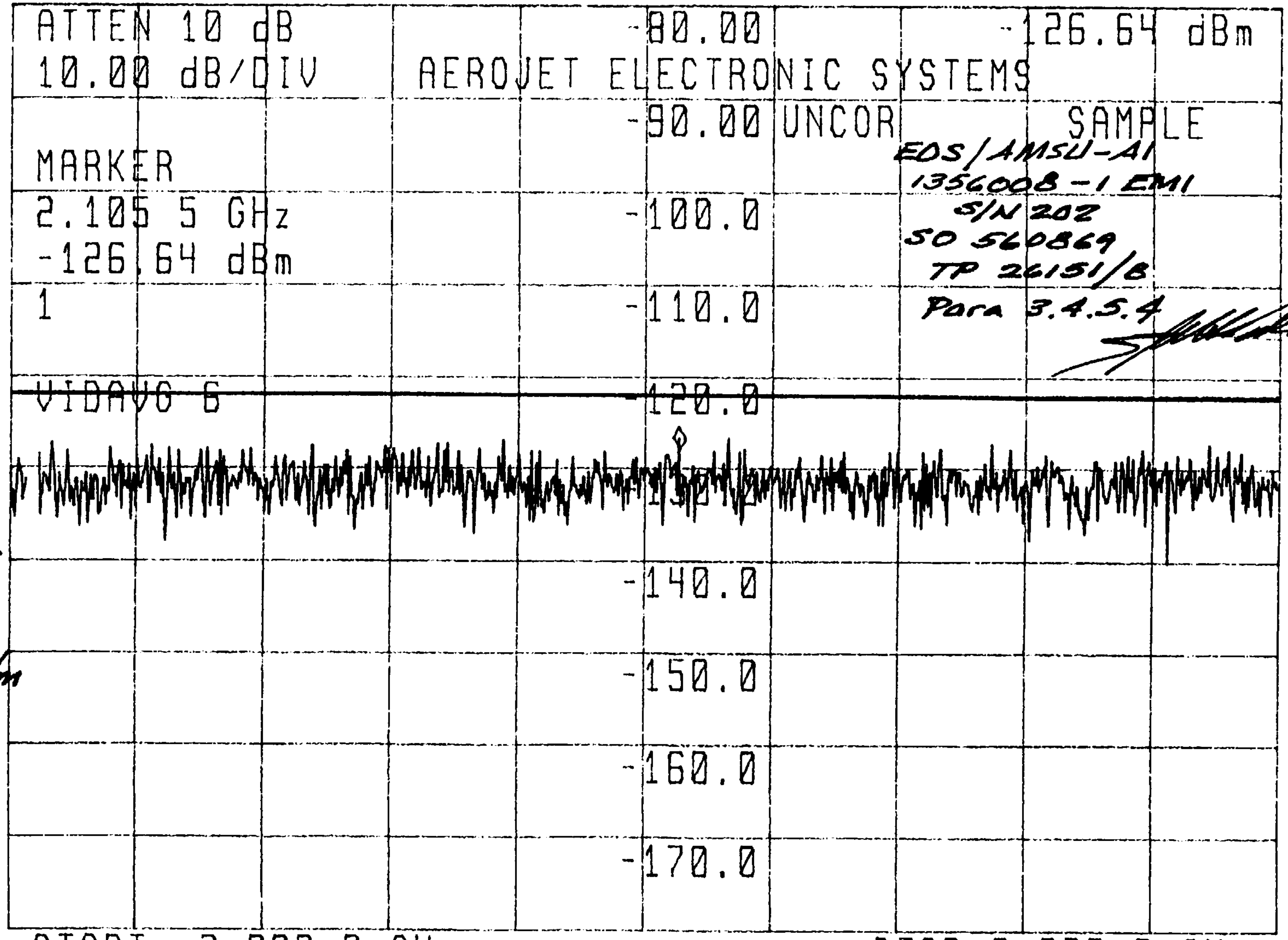
*RB 1.00 MHz VB 1.00 MHz ST 13.92 msec

ANT: HORIZONTAL PLOT 116



(hp) 10:48:28 JUL 28, 1998 ANT: VERTICAL PLOT 117

RL -80.00 dBm MKR #1 FRQ 2.105 5 GHz



EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/B
Para 3.4.5.4

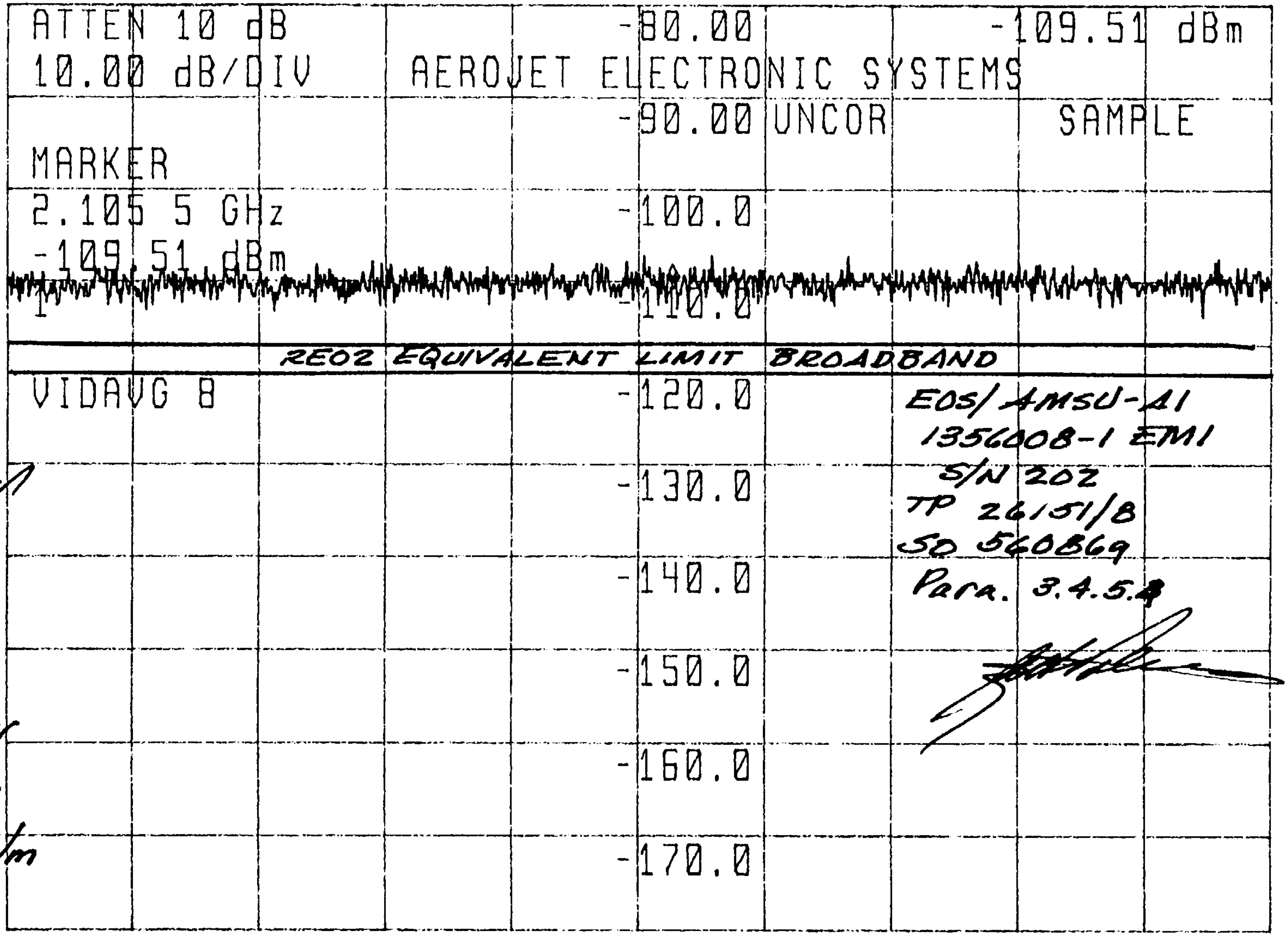
−122.0 dBm
+107.0 dB
− 15.0 dBμV
+ 28.0 dB/m
+ 13.0 dBμV/m

START 2.000 0 GHz STOP 2.200 0 GHz

*RB 3.00 kHz VB 3.00 kHz ST 66.67 sec

10:52:34 JUL 28, 1998 ANT: VERTICAL PLOT 118

RL -80.00 dBm MKR #1 FRQ 2.105 5 GHz



ATTEN 10 dB

10.00 dB/DIV

MARKER

2.105 5 GHz

-109.51 dBm

VIDAVG 8

-109.51 dBm

AEROJET ELECTRONIC SYSTEMS

UNCOR

SAMPLE

RE02 EQUIVALENT LIMIT BROADBAND

EOS/AMSU-A1
1356008-1 EMI
S/N 202
TP 26151/8
SO 560869
Para. 3.4.5.4

DL

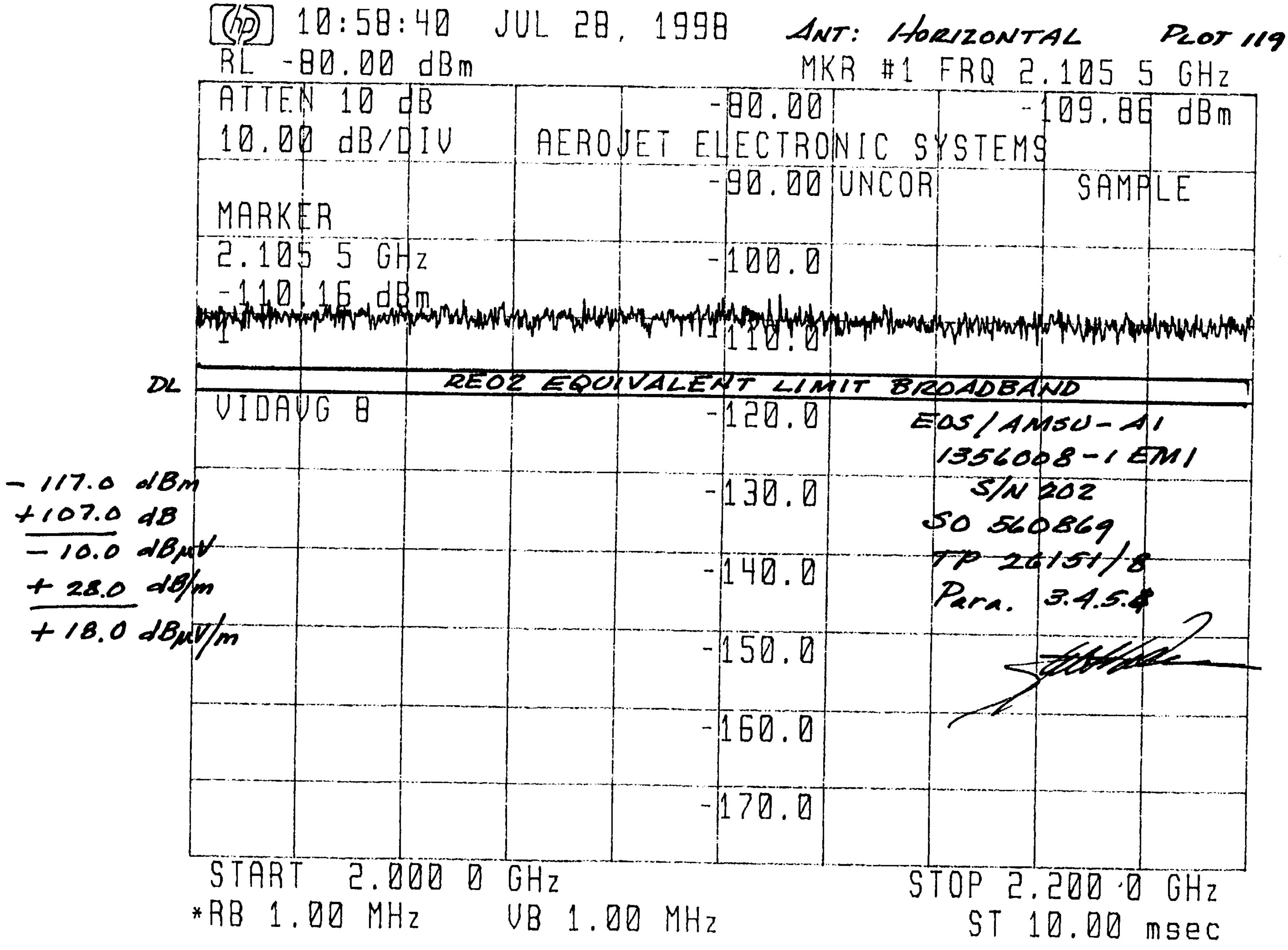
-117.0 dBm
+107.0 dB

- 10.0 dBμV
+ 28.0 dB/m

+ 18.0 dBμV/m

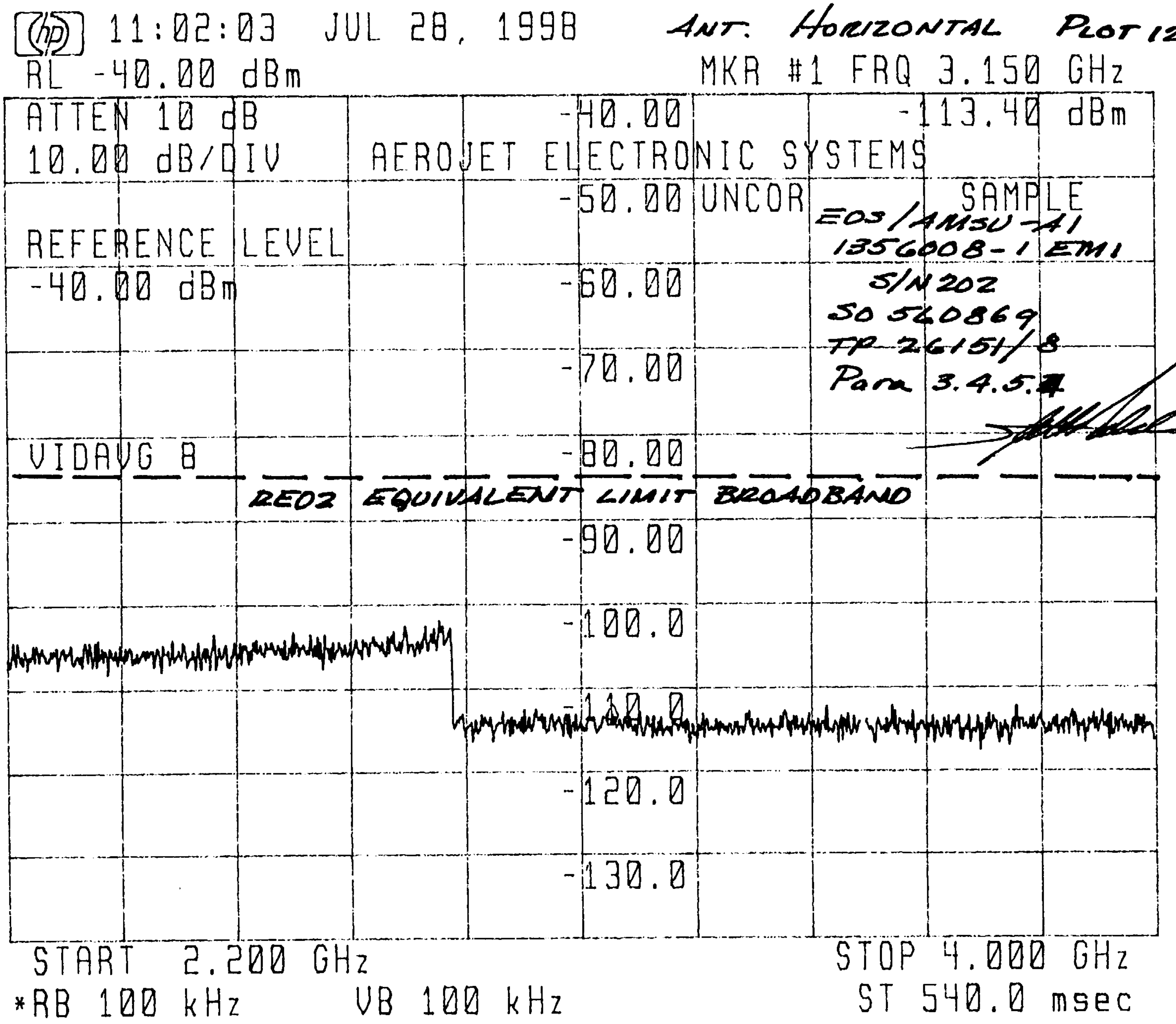
START 2.000 0 GHz STOP 2.200 0 GHz

*RB 1.00 MHz VB 1.00 MHz ST 10.00 msec

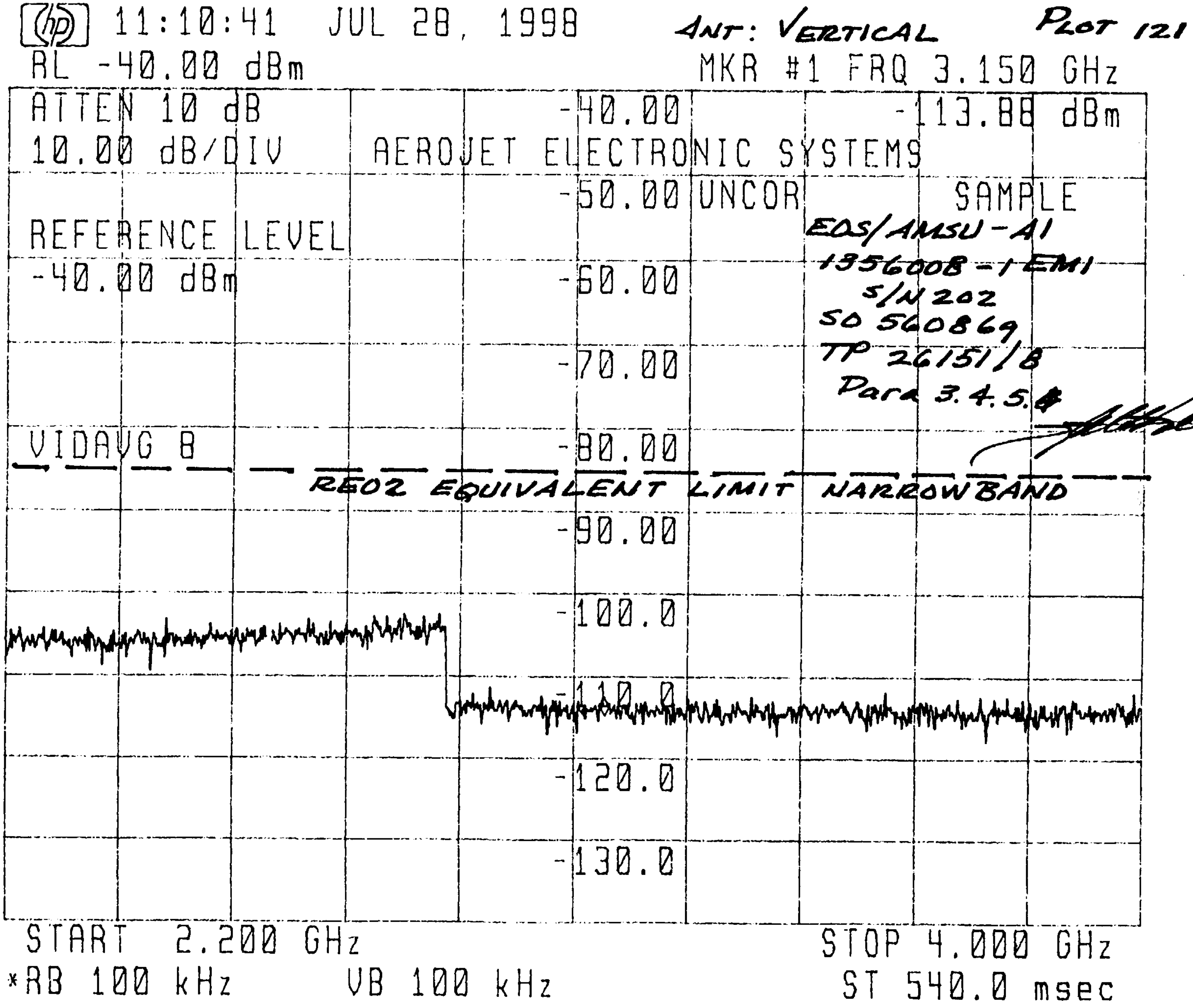


- 117.0 dBm
+107.0 dB
− 10.0 dBμV
+ 28.0 dB/m
+ 18.0 dBμV/m

Ant: Horizontal Plot 120



EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.5.1

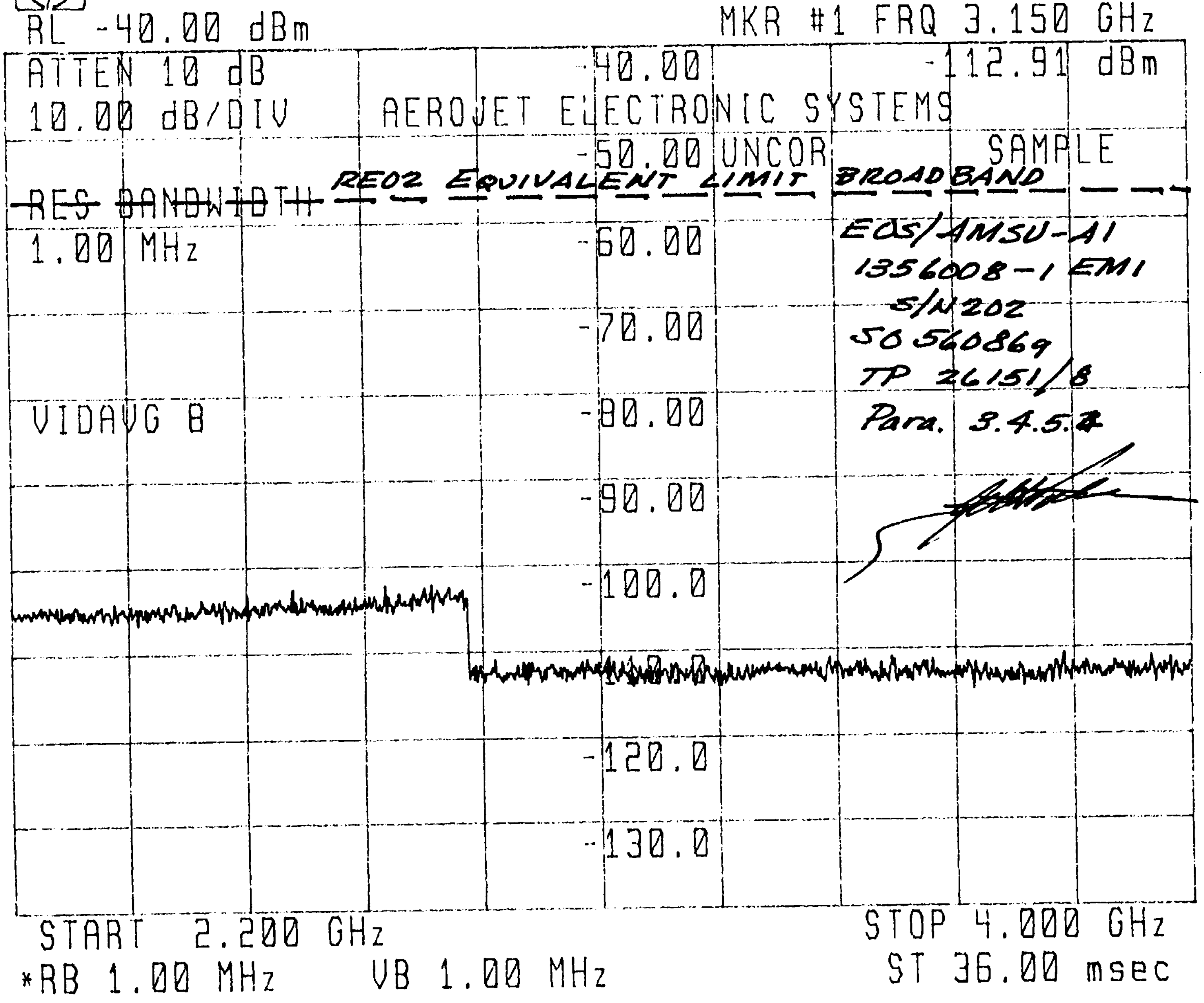


ANT: VERTICAL

PLOT 121

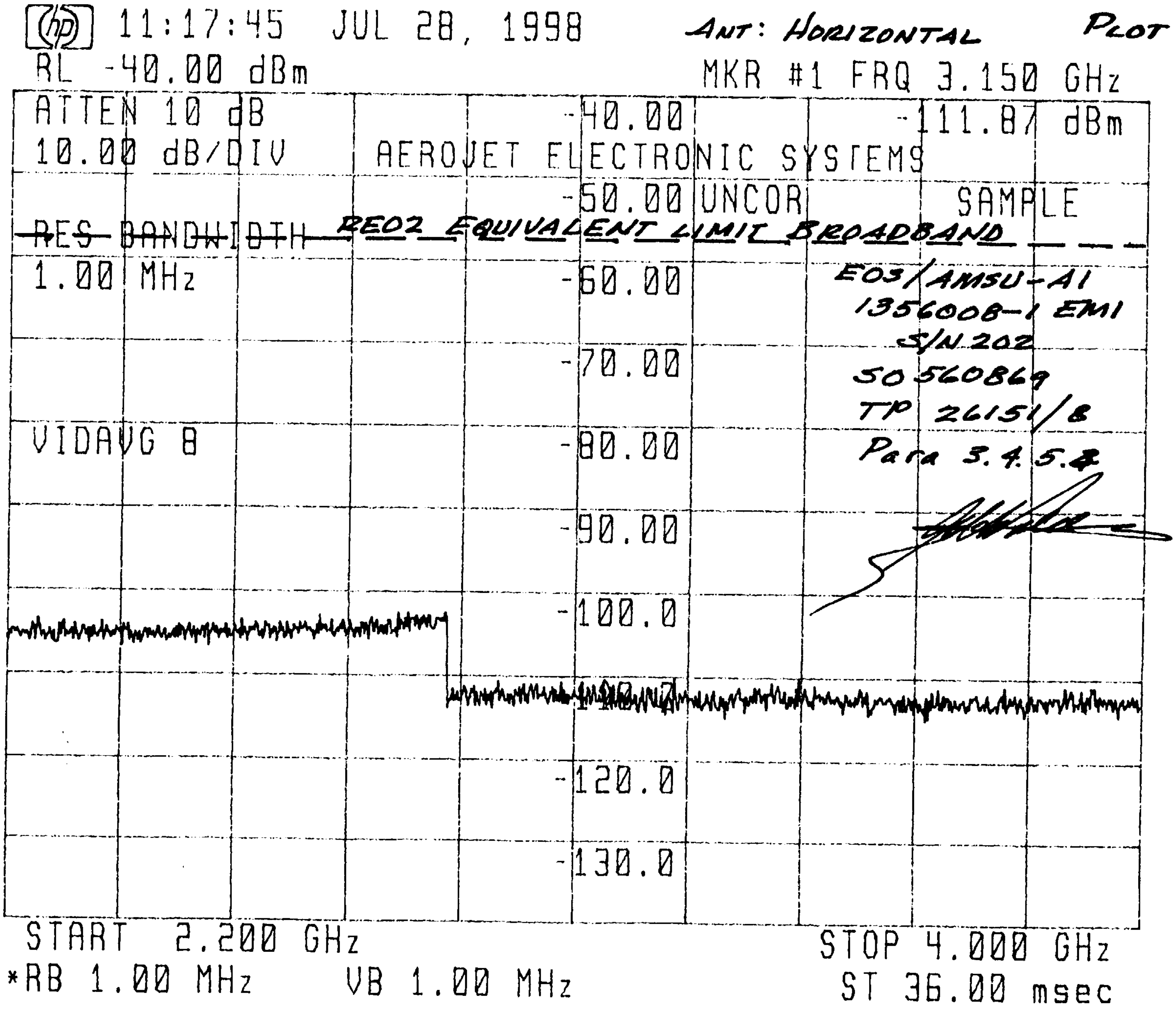
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/B
Para 3.4.5.4

11:13:49 JUL 28, 1998 *Ant: Vertical* *Plot 122*



Ant: Horizontal

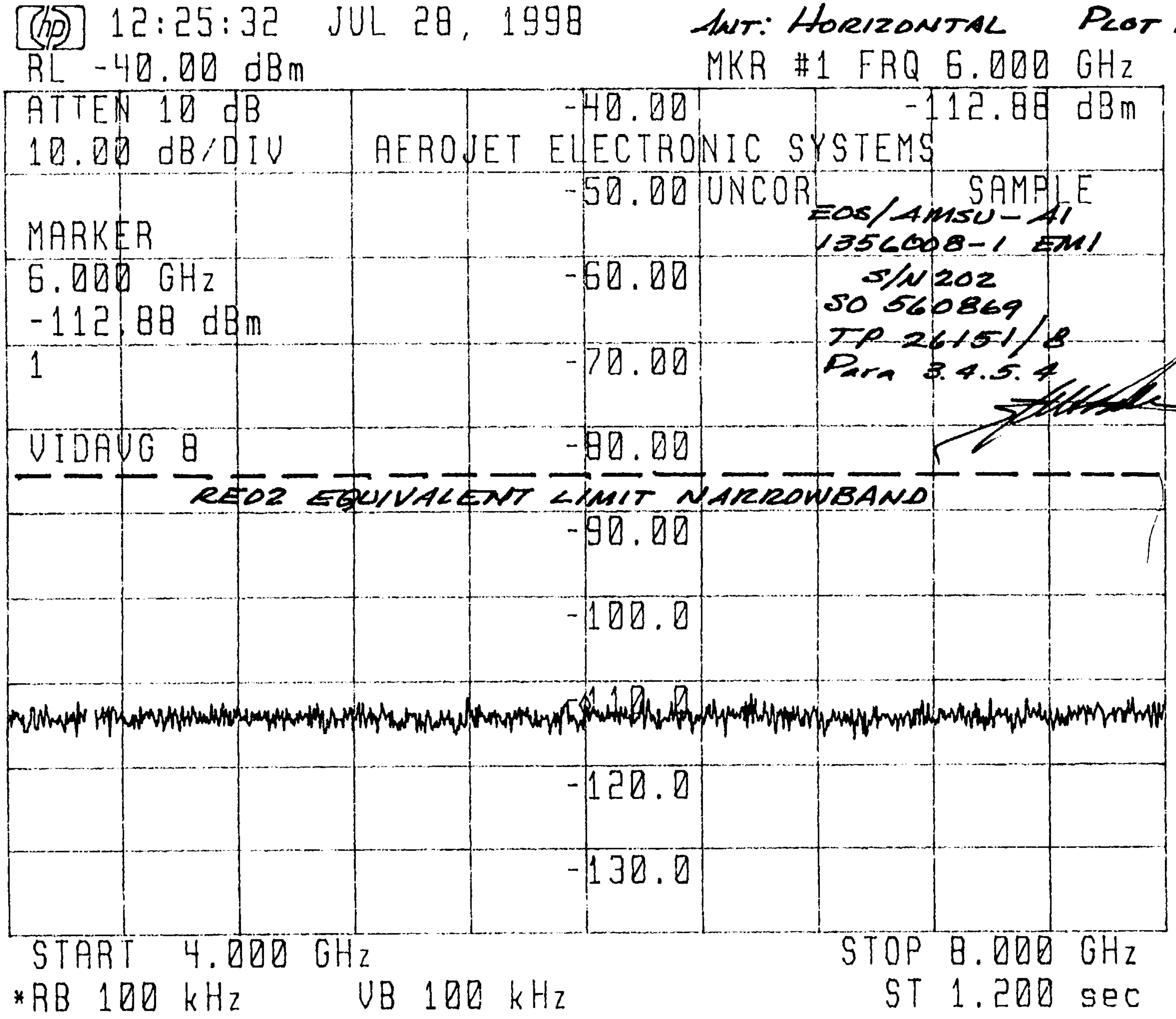
Plot 123



RE02 EQUIVALENT LIMIT BROADBAND

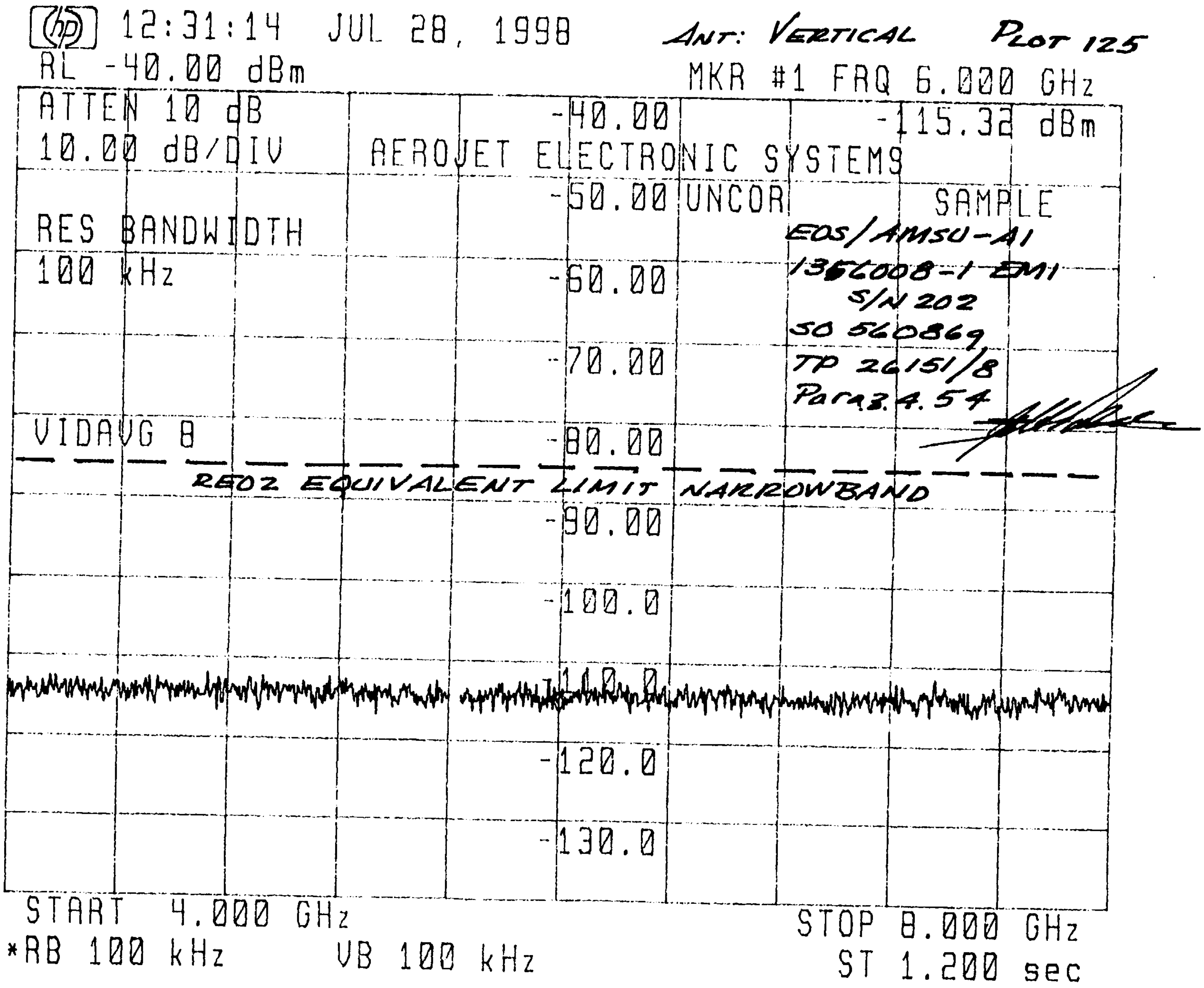
E03/AMSU-A1
1356008-1 EMI
S/N 202
50560869
TP 26151/8
Para 3.4.5.2

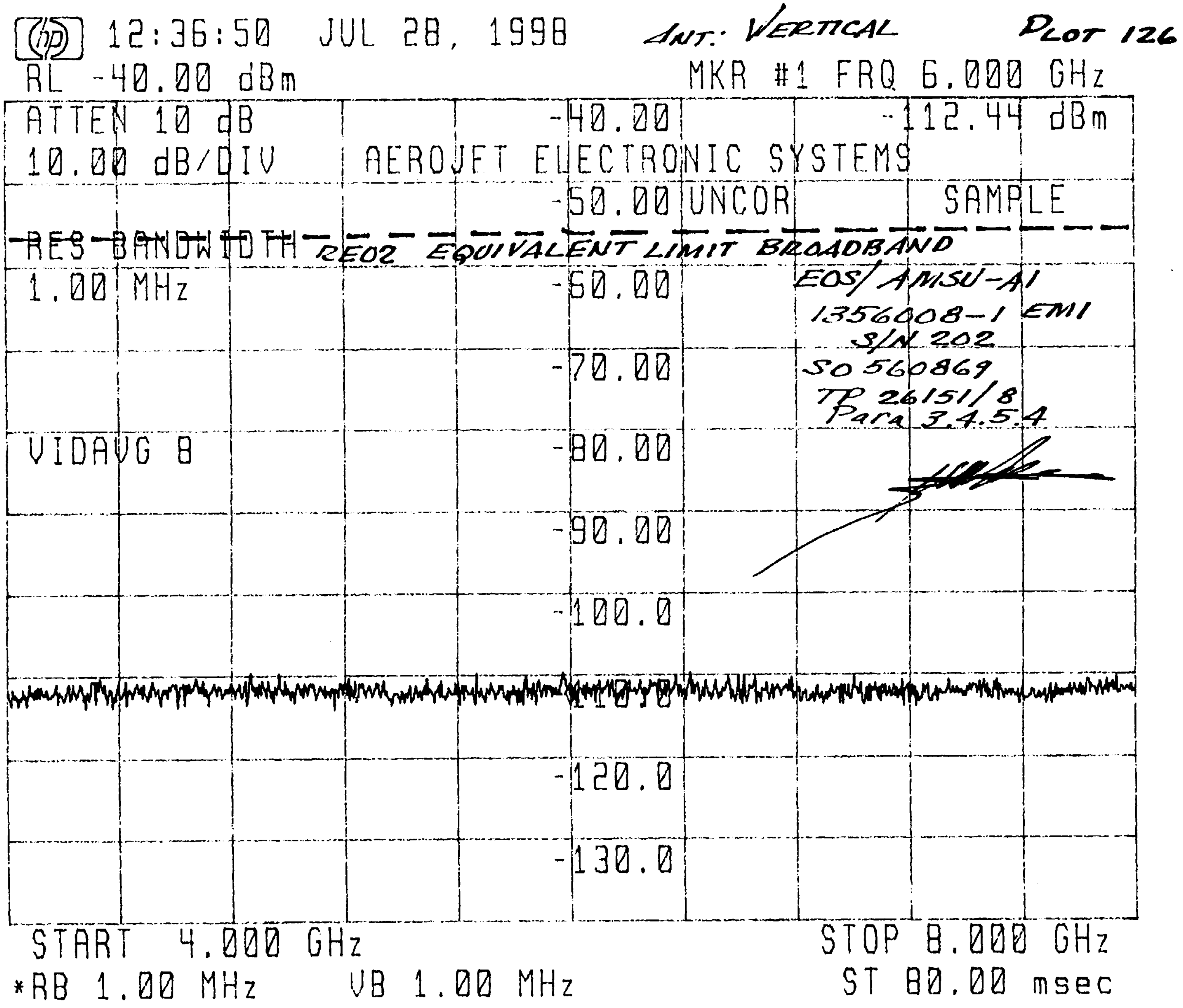
Ant: Horizontal Plot 124



EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.5.4

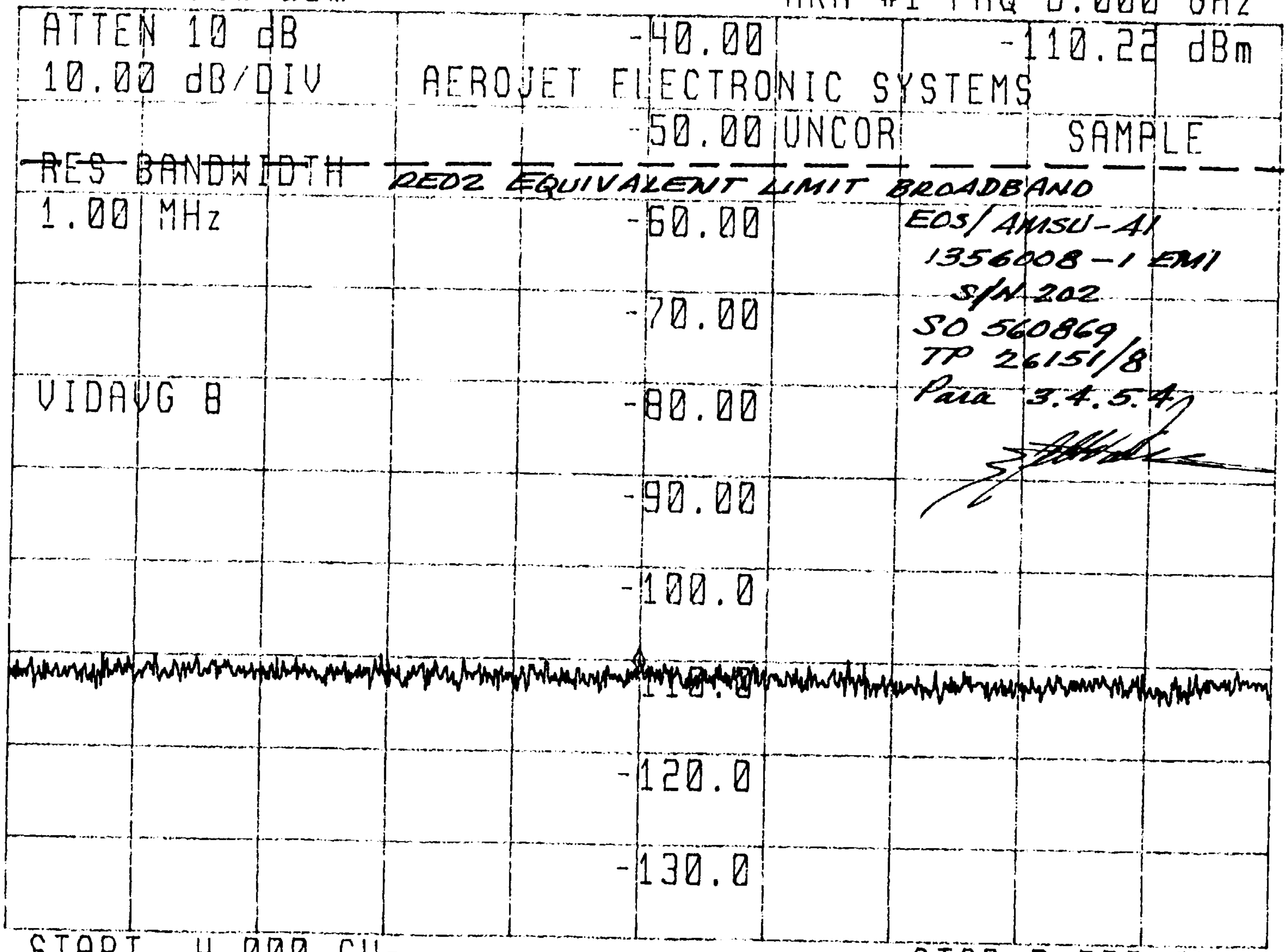
RE02 EQUIVALENT LIMIT NARROWBAND


12:31:14 JUL 28, 1998
Ant: Vertical
Plot 125
RL -40.00 dBm
MKR #1 FRQ 6.000 GHz
-115.32 dBm
ATTEN 10 dB
10.00 dB/DIV
AEROJET ELECTRONIC SYSTEMS
UNCOR
SAMPLE
RES BANDWIDTH
100 kHz
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para3.4.54
VIDAVG 8
RE02 EQUIVALENT LIMIT NARROWBAND
-40.00
-50.00
-60.00
-70.00
-80.00
-90.00
-100.0
-110.0
-120.0
-130.0
START 4.000 GHz
STOP 8.000 GHz
*RB 100 kHz
VB 100 kHz
ST 1.200 sec


12:36:50 JUL 28, 1998
ANT: VERTICAL
PLOT 126
RL -40.00 dBm
MKR #1 FRQ 6.000 GHz
-112.44 dBm
ATTEN 10 dB
10.00 dB/DIV
AEROJET ELECTRONIC SYSTEMS
-40.00
-50.00
UNCOR
SAMPLE
RES BANDWIDTH
1.00 MHz
RE02 EQUIVALENT LIMIT BROADBAND
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.5.4
-60.00
-70.00
VIDAVG 8
-80.00
-90.00
-100.0
-110.0
-120.0
-130.0
START 4.000 GHz
STOP 8.000 GHz
*RB 1.00 MHz
VB 1.00 MHz
ST 80.00 msec

12:40:48 JUL 28, 1998 ANT : HORIZONTAL PLOT 127

RL -40.00 dBm MKR #1 FRQ 6.000 GHz

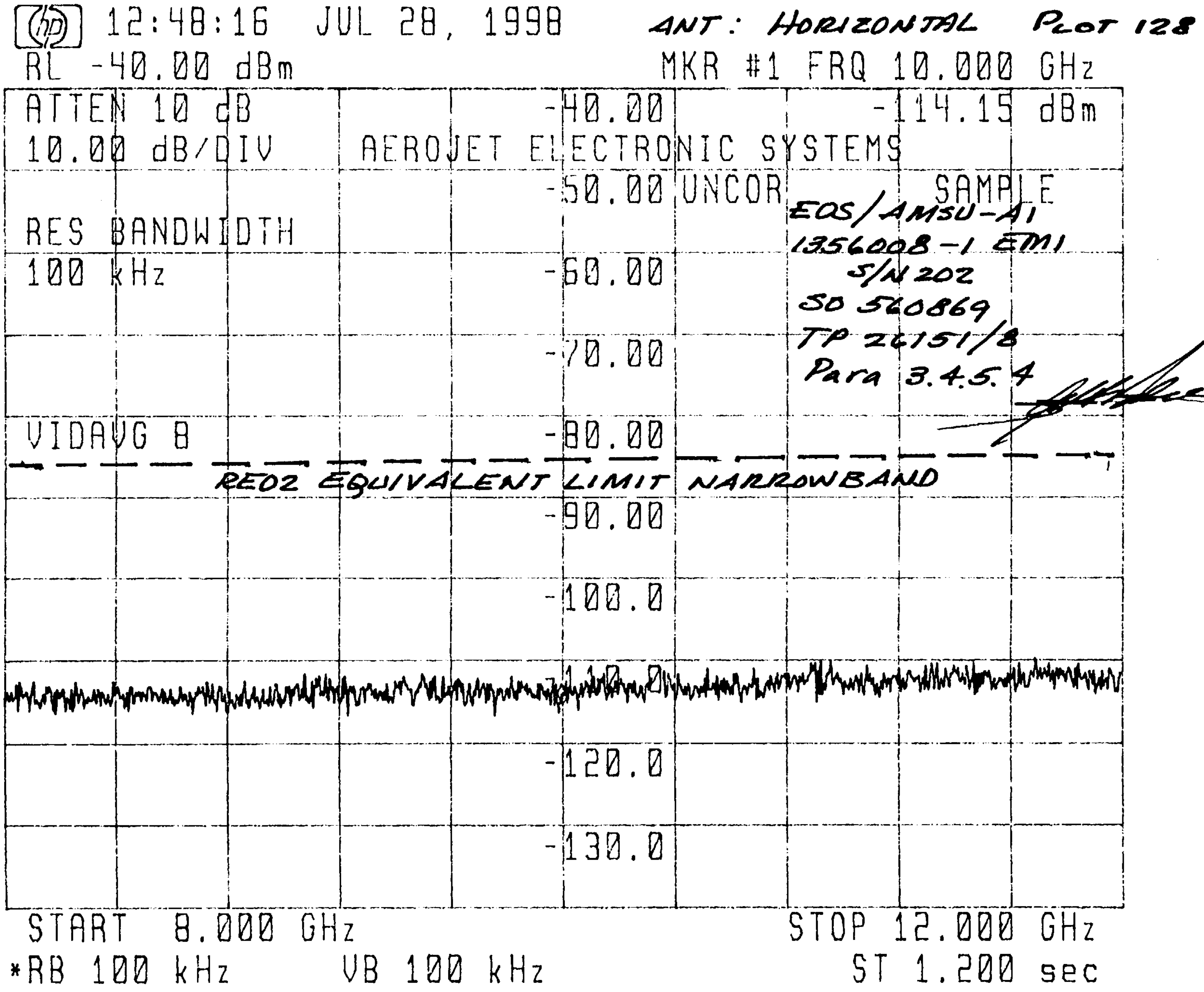


RE02 EQUIVALENT LIMIT BROADBAND

EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.5.4

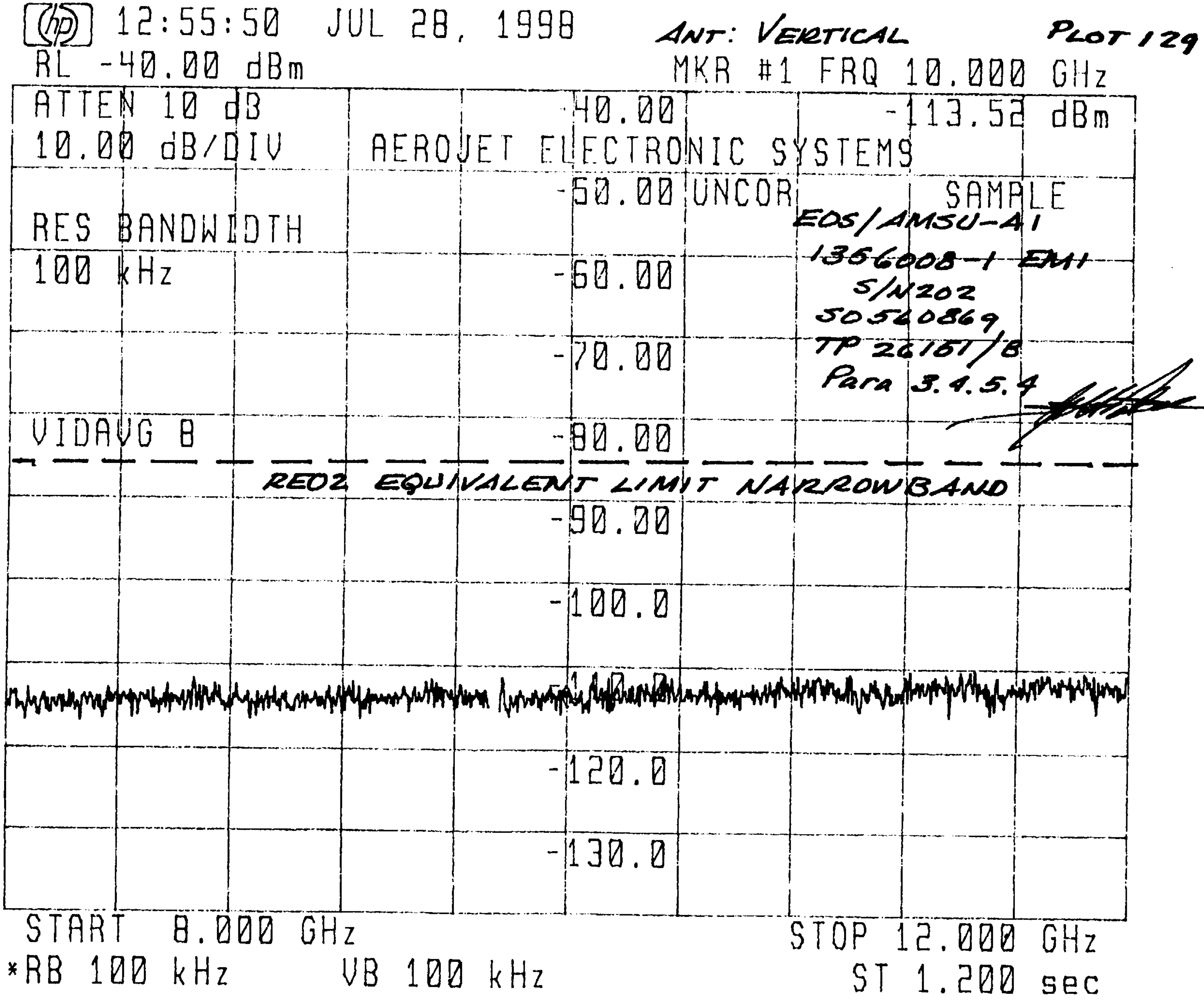
START 4.000 GHz STOP 8.000 GHz

*RB 1.00 MHz VB 1.00 MHz ST 80.00 msec

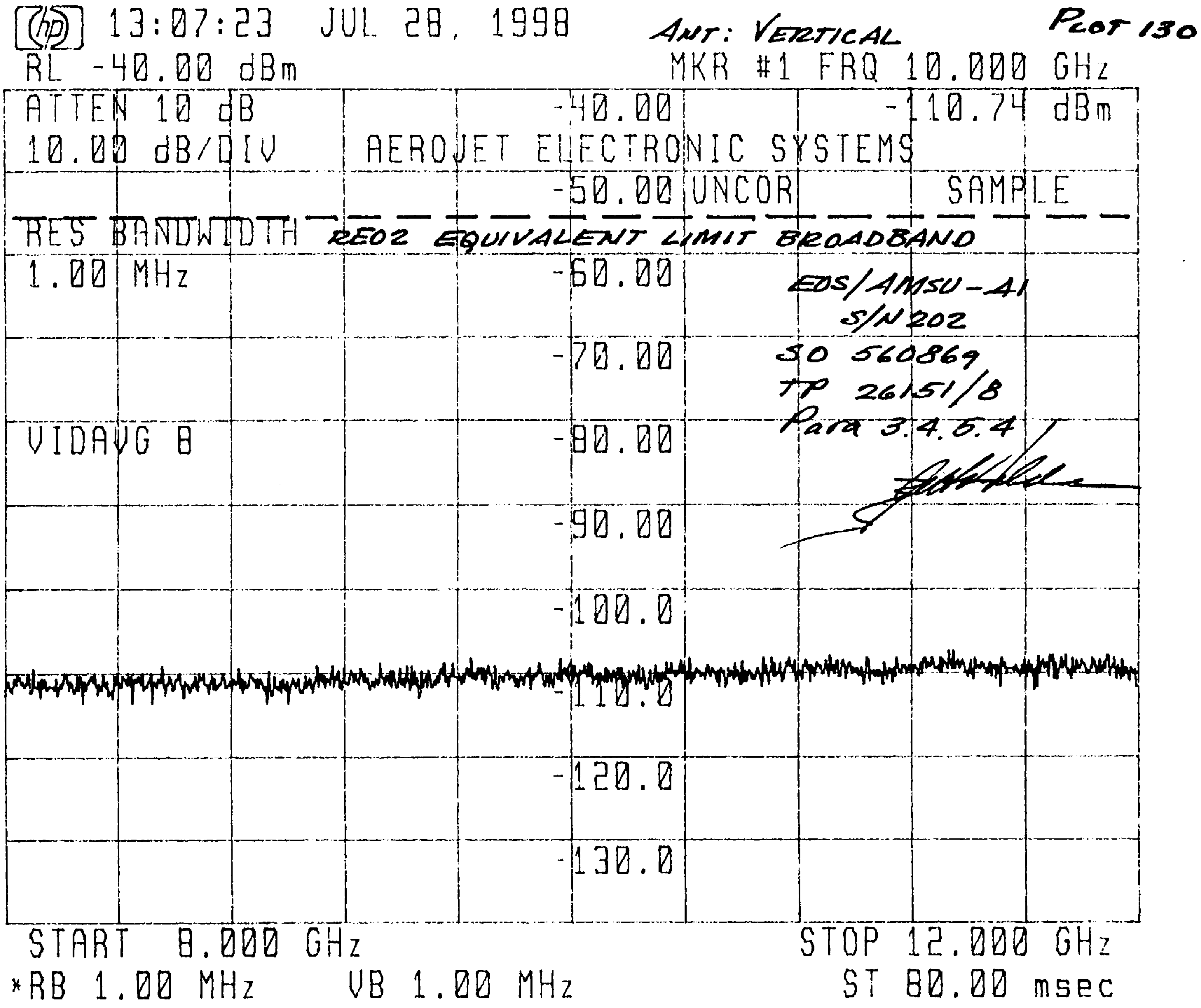

12:48:16 JUL 28, 1998
ANT: HORIZONTAL
PLOT 128
RL -40.00 dBm
MKR #1 FRQ 10.000 GHz
ATTEN 10 dB
-114.15 dBm
10.00 dB/DIV
AEROJET ELECTRONIC SYSTEMS
UNCOR
SAMPLE
RES BANDWIDTH
100 kHz
VIDAVG 8
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.5.4
RE02 EQUIVALENT LIMIT NARROWBAND
-40.00
-50.00
-60.00
-70.00
-80.00
-90.00
-100.0
-110.0
-120.0
-130.0
START 8.000 GHz
STOP 12.000 GHz
*RB 100 kHz
VB 100 kHz
ST 1.200 sec

Ant: Vertical

Plot 129



EOS/AMSU-A1
1356008-1 EM1
S/N202
50560869
TP 26161/8
Para 3.4.5.4



13:07:23 JUL 28, 1998

ANT: VERTICAL

PLOT 130

RL -40.00 dBm

MKR #1 FRQ 10.000 GHz

-110.74 dBm

ATTEN 10 dB

10.00 dB/DIV

AEROJET ELECTRONIC SYSTEMS

UNCOR

SAMPLE

RES BANDWIDTH

1.00 MHz

REO2 EQUIVALENT LIMIT BROADBAND

EOS/AMSU-A1
S/N 202
SO 560869
TP 26151/8
Para 3.4.6.4

VIDAVG 8

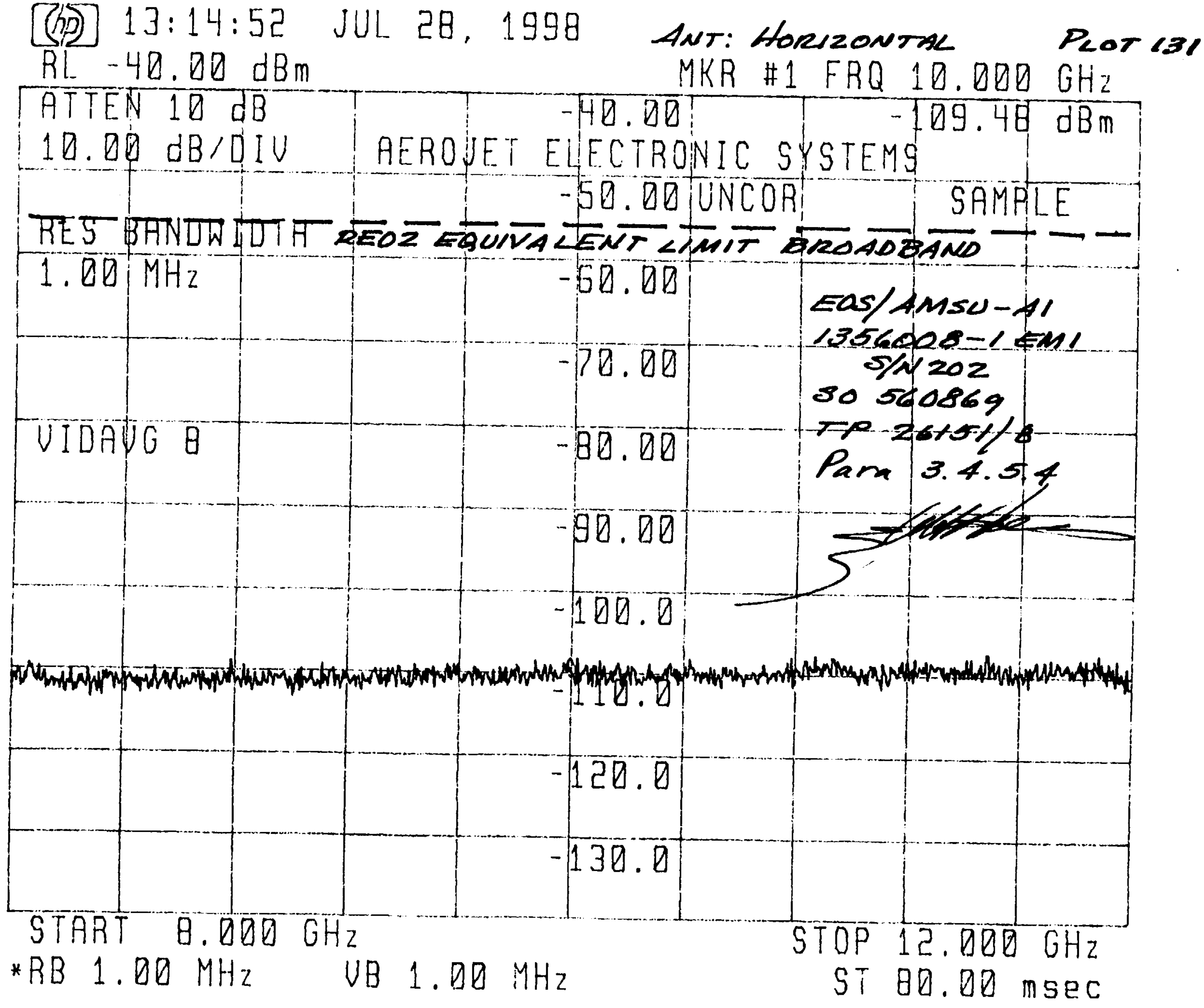
START 8.000 GHz

STOP 12.000 GHz

*RB 1.00 MHz

VB 1.00 MHz

ST 80.00 msec



ANT: HORIZONTAL

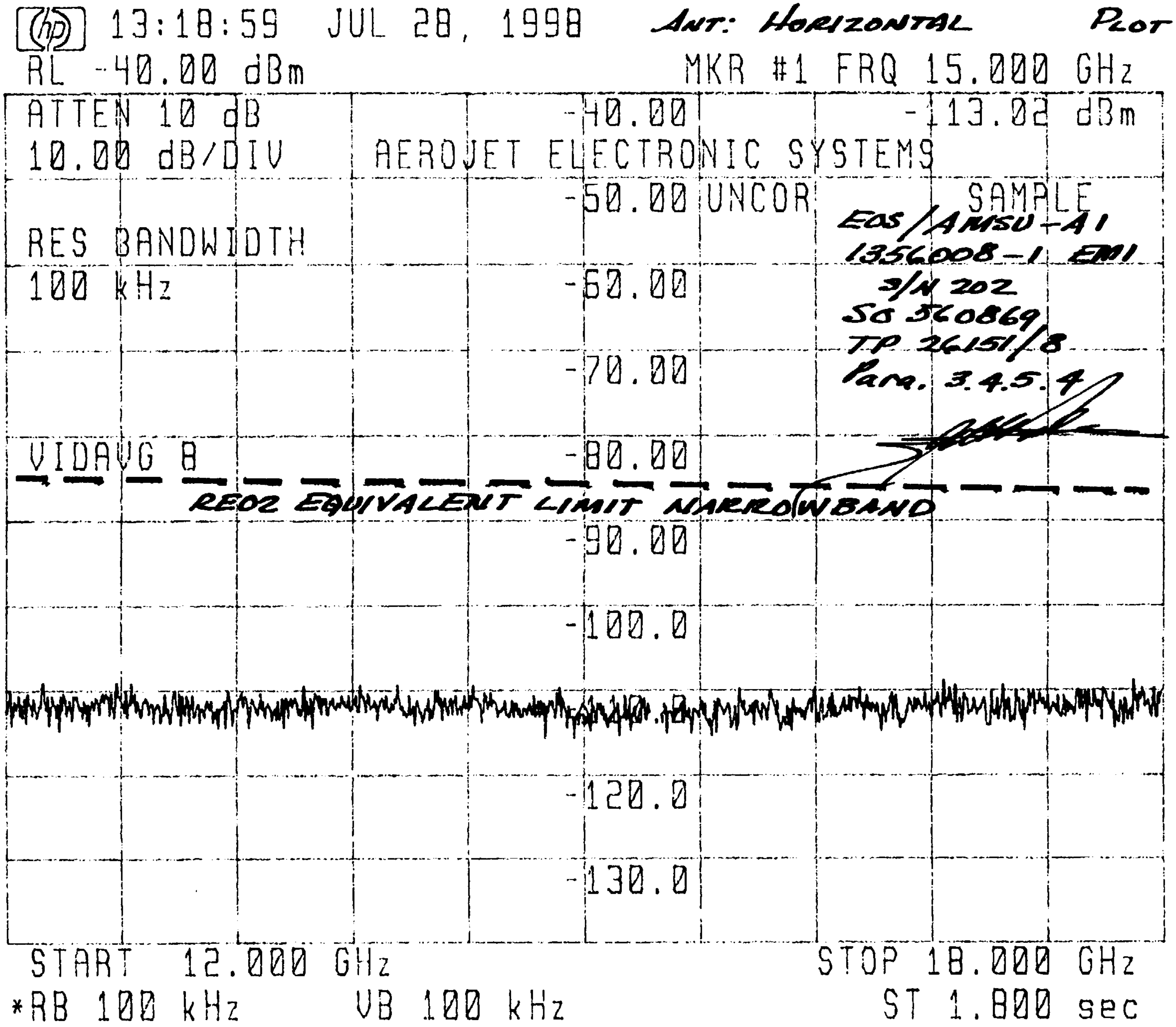
PLOT 131

RE02 EQUIVALENT LIMIT BROADBAND

EOS/AMSU-A1
1356008-1 EMI
S/N 202
30 560869
TP 26151/B
Para 3.4.5.4

Plot 132

Ant: Horizontal

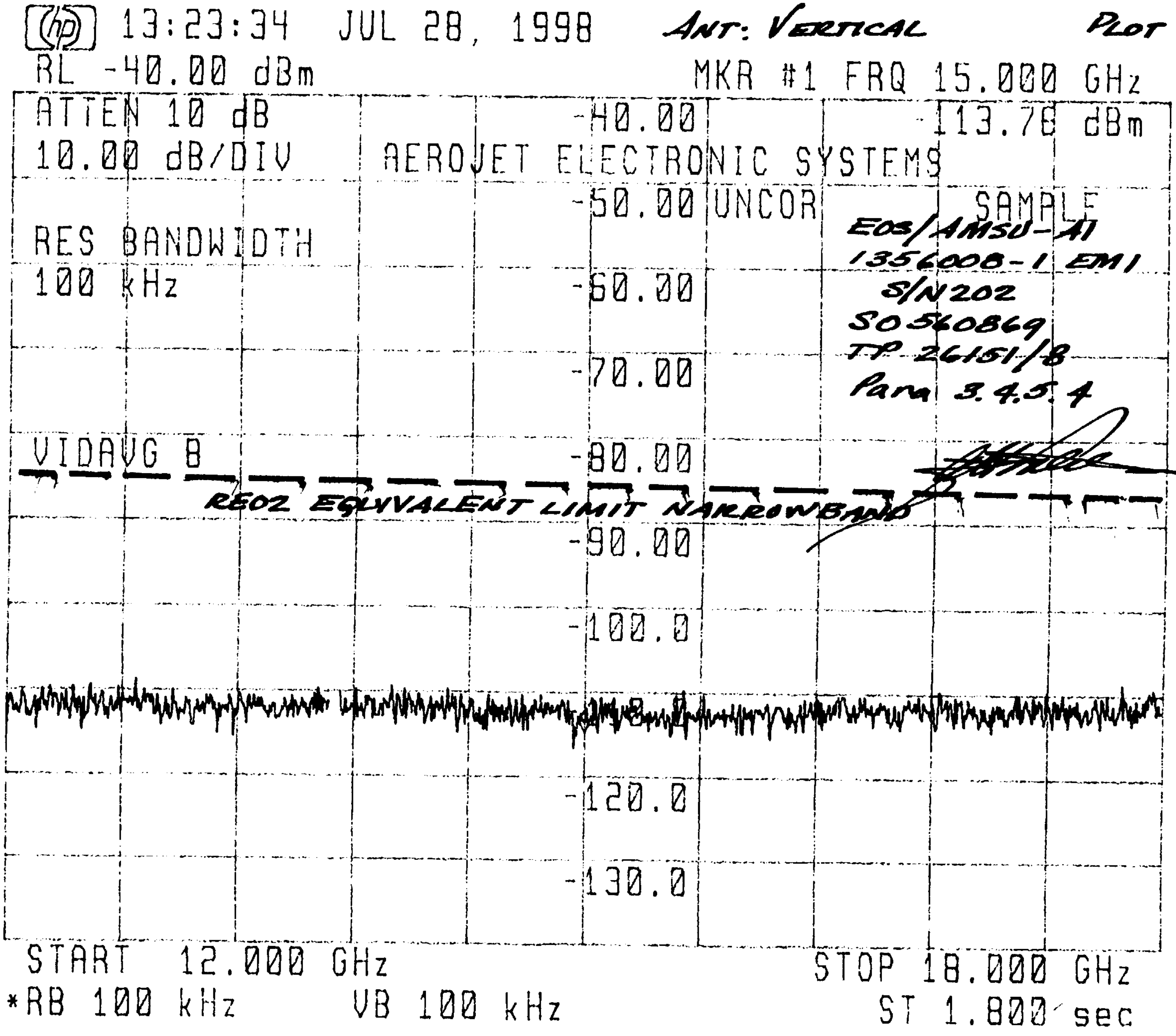


RE02 EQUIVALENT LIMIT NARROWBAND

EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para. 3.4.5.4

Ant: Vertical

Plot 133

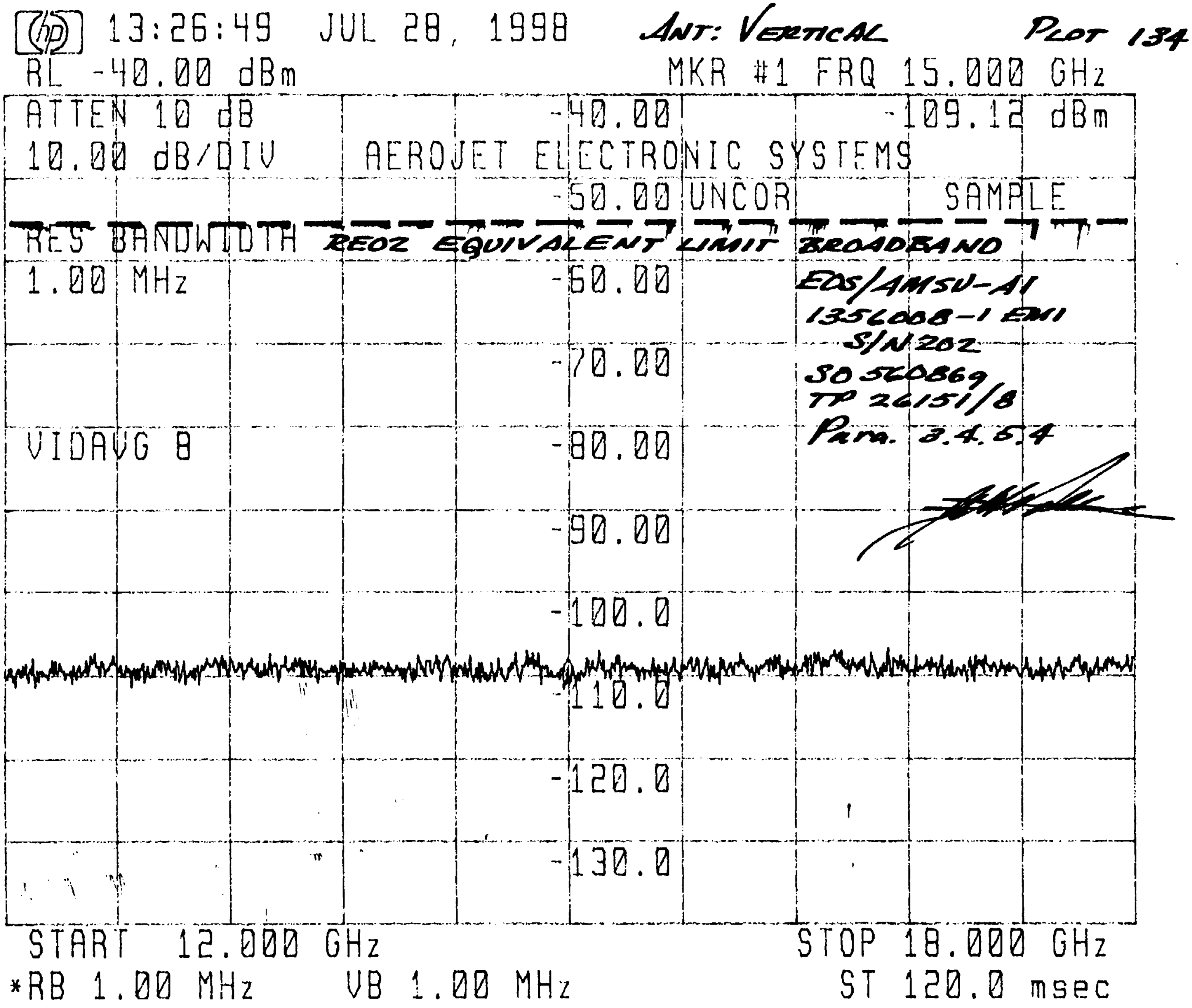


RE02 EQUIVALENT LIMIT NARROWBAND

EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO560869
TP 26151/8
Para 3.4.5.4

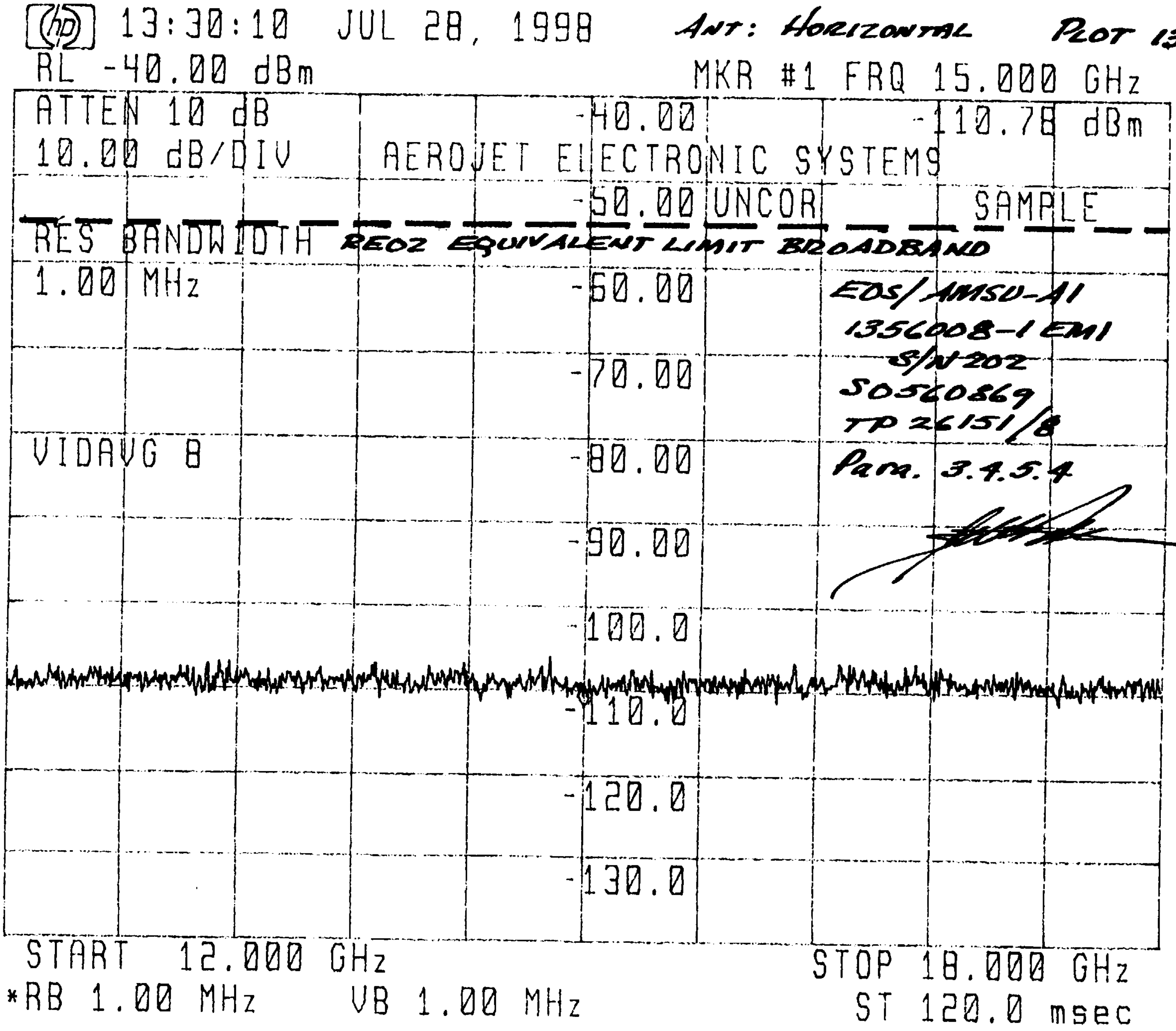
Ant: Vertical

Plot 134



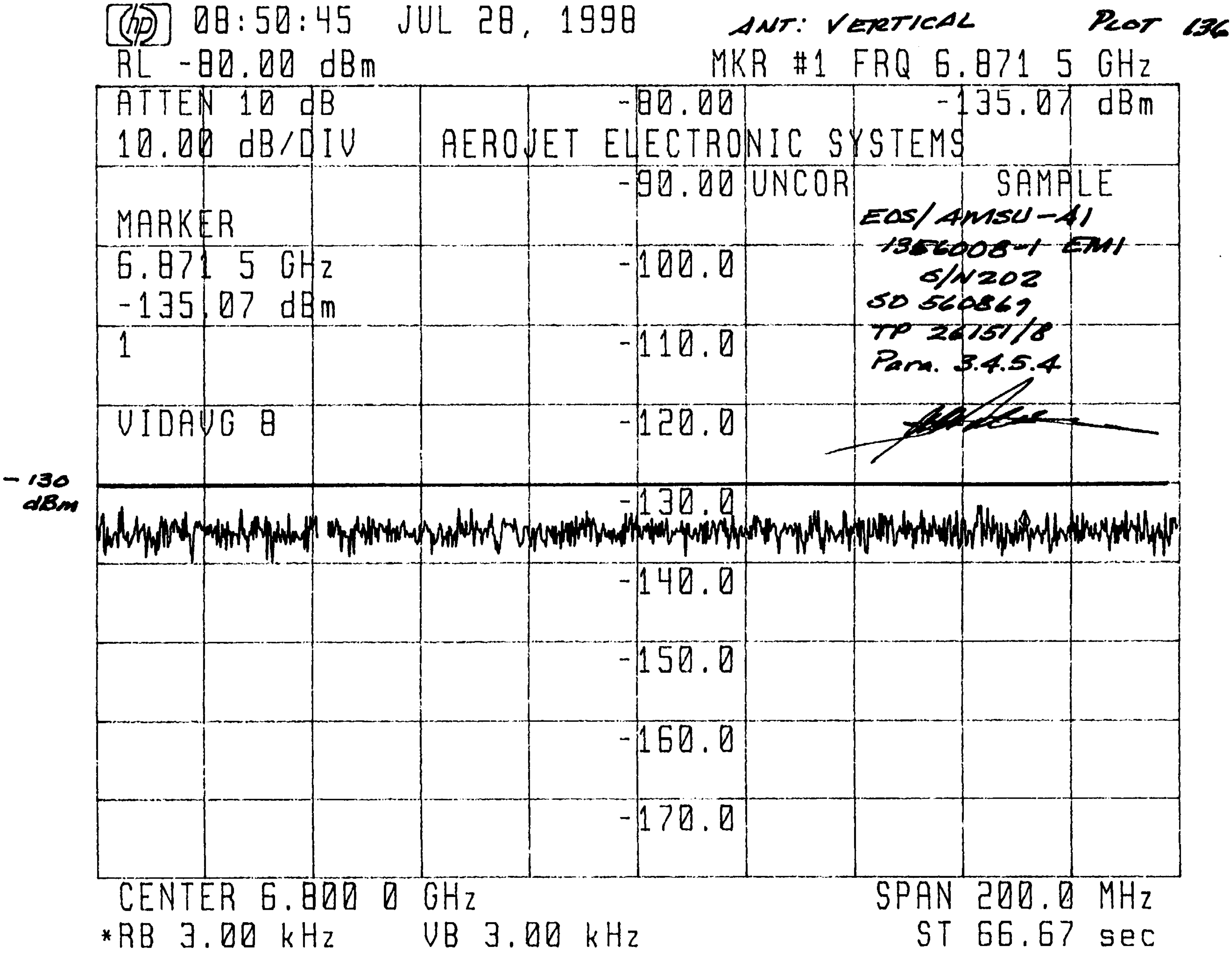
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para. 3.4.5.4

ANT: HORIZONTAL PLOT 135

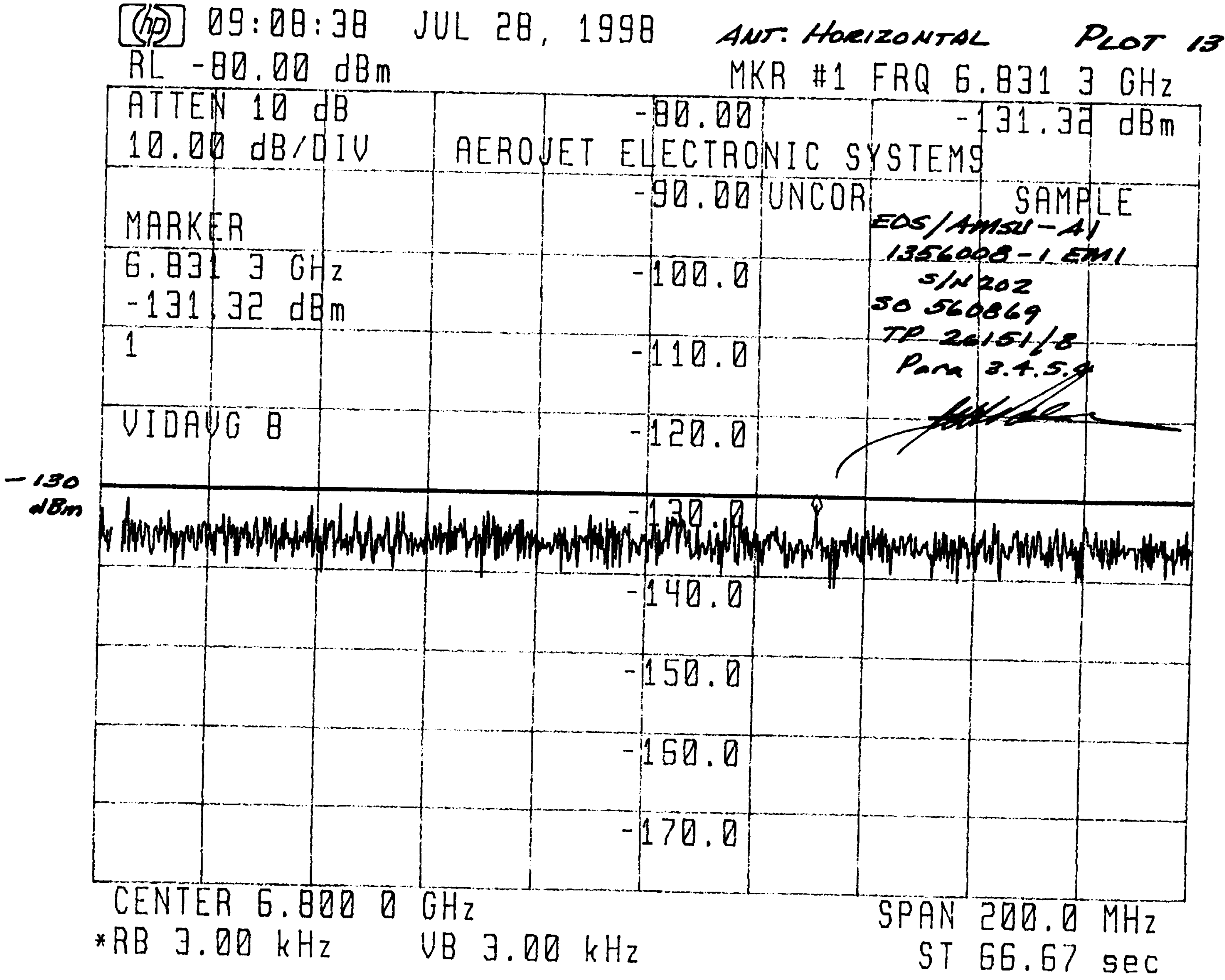


RE02 EQUIVALENT LIMIT BROADBAND

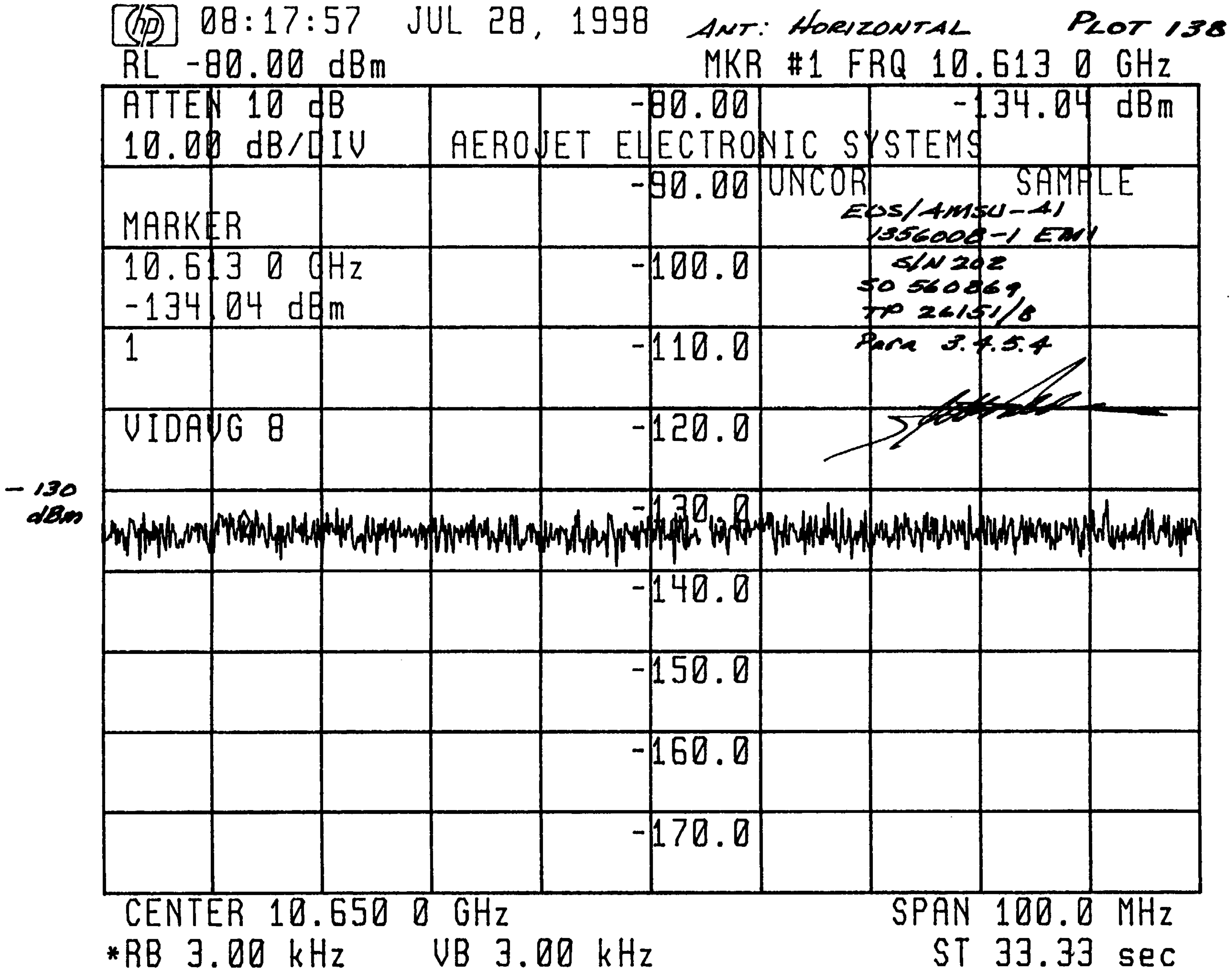
EOS/AMSU-A1
1356008-1 EMI
S/N 202
S0560869
TP 26151/8
Para. 3.4.5.4


08:50:45 JUL 28, 1998
ANT: VERTICAL
PLOT 136
RL -80.00 dBm
MKR #1 FRQ 6.871 5 GHz
-135.07 dBm
ATTEN 10 dB
10.00 dB/DIV
AEROJET ELECTRONIC SYSTEMS
-80.00
-90.00 UNCOR
SAMPLE
MARKER
6.871 5 GHz
-135.07 dBm
1
VIDAVG 8
-100.0
-110.0
-120.0
-130.0
-140.0
-150.0
-160.0
-170.0
-130 dBm
EOS/AMSU-A1
1356008-1 EMI
S/N 202
SD 560867
TP 26151/8
Para. 3.4.5.4
CENTER 6.800 0 GHz
SPAN 200.0 MHz
*RB 3.00 kHz
VB 3.00 kHz
ST 66.67 sec

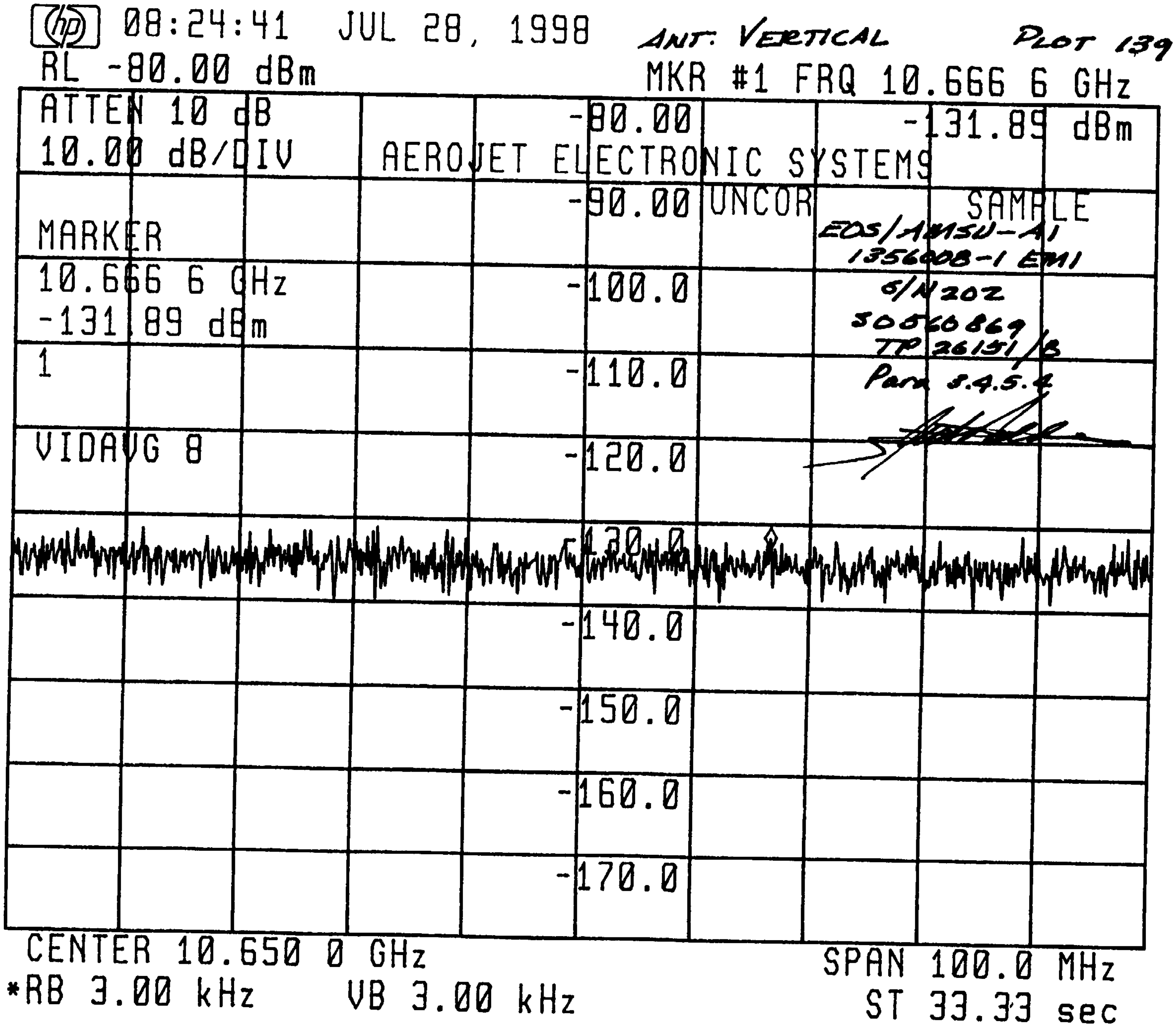
ANT: HORIZONTAL PLOT 137



EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.5.9


08:17:57 JUL 28, 1998
ANT: HORIZONTAL
PLOT 138
RL -80.00 dBm
MKR #1 FRQ 10.613 0 GHz
ATTEN 10 dB
-80.00
-134.04 dBm
10.00 dB/DIV
AEROJET ELECTRONIC SYSTEMS
-90.00
UNCOR
SAMPLE
EOS/AMSU-A1
1356008-1 EM1
MARKER
10.613 0 GHz
-134.04 dBm
-100.0
S/N 202
SO 560869
TP 26151/8
1
-110.0
Para 3.4.5.4
VIDAVG 8
-120.0
-130 dBm
-130.0
-140.0
-150.0
-160.0
-170.0
CENTER 10.650 0 GHz
SPAN 100.0 MHz
*RB 3.00 kHz
VB 3.00 kHz
ST 33.33 sec

-130
dBm



Ant: Vertical

Plot 139

EOS/AMSU-A1
1356008-1 EMI
S/N 202
30060869
TP 26151/B
Para 3.4.5.4

09:22:23 JUL 28, 1998 ANT: HORIZONTAL PLOT 140

RL -80.00 dBm

MKR #1 FRQ 18.631 0 GHz

-126.94 dBm

ATTEN 10 dB

10.00 dB/DIV

AEROJET ELECTRONIC SYSTEMS

UNCOR

SAMPLE

MARKER

18.631 0 GHz

-126.94 dBm

1

VIDAVG 8

EOS/AMSU-A1

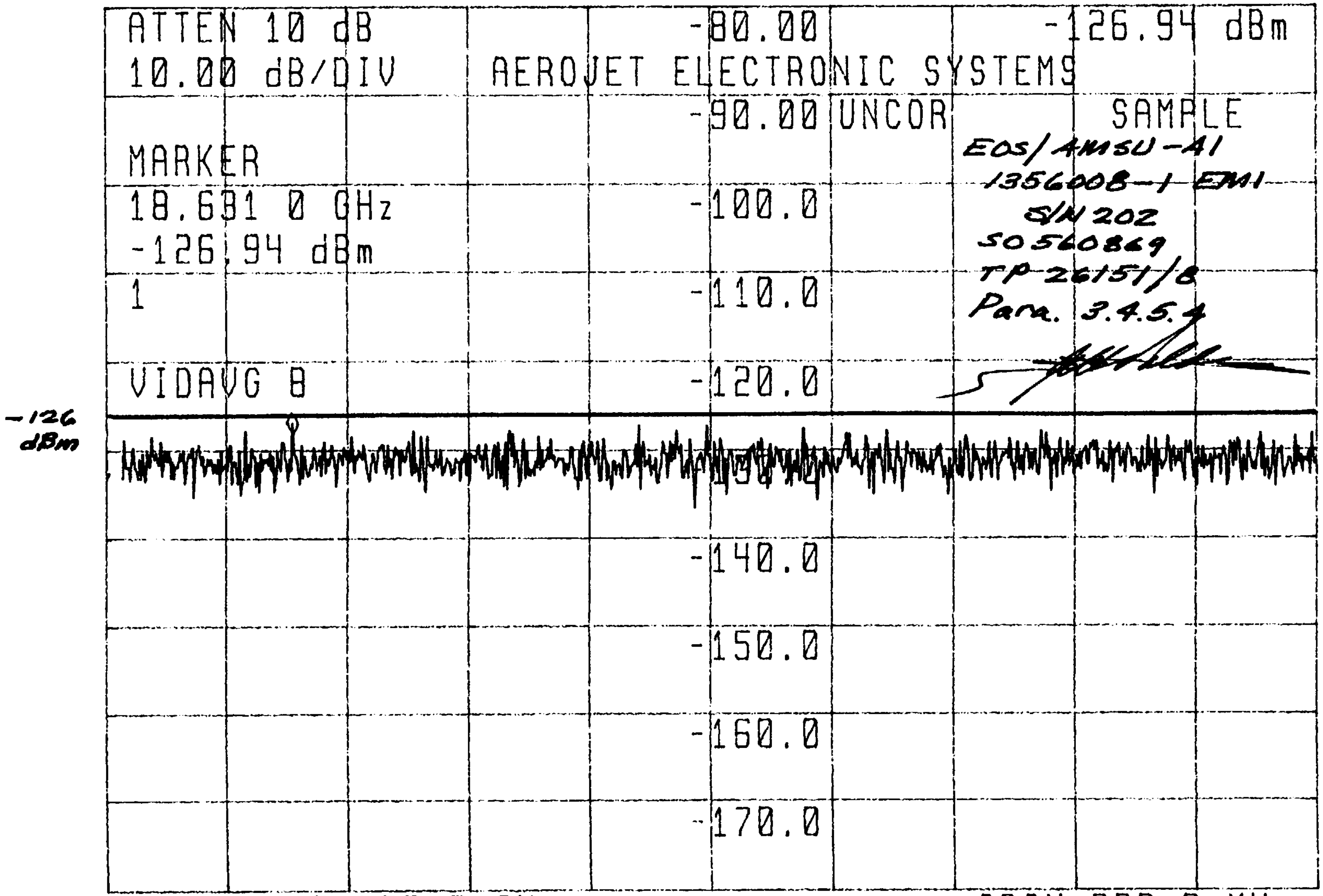
1356008-1 EMI

S/N 202

50560869

TP 26151/8

Para. 3.4.5.4

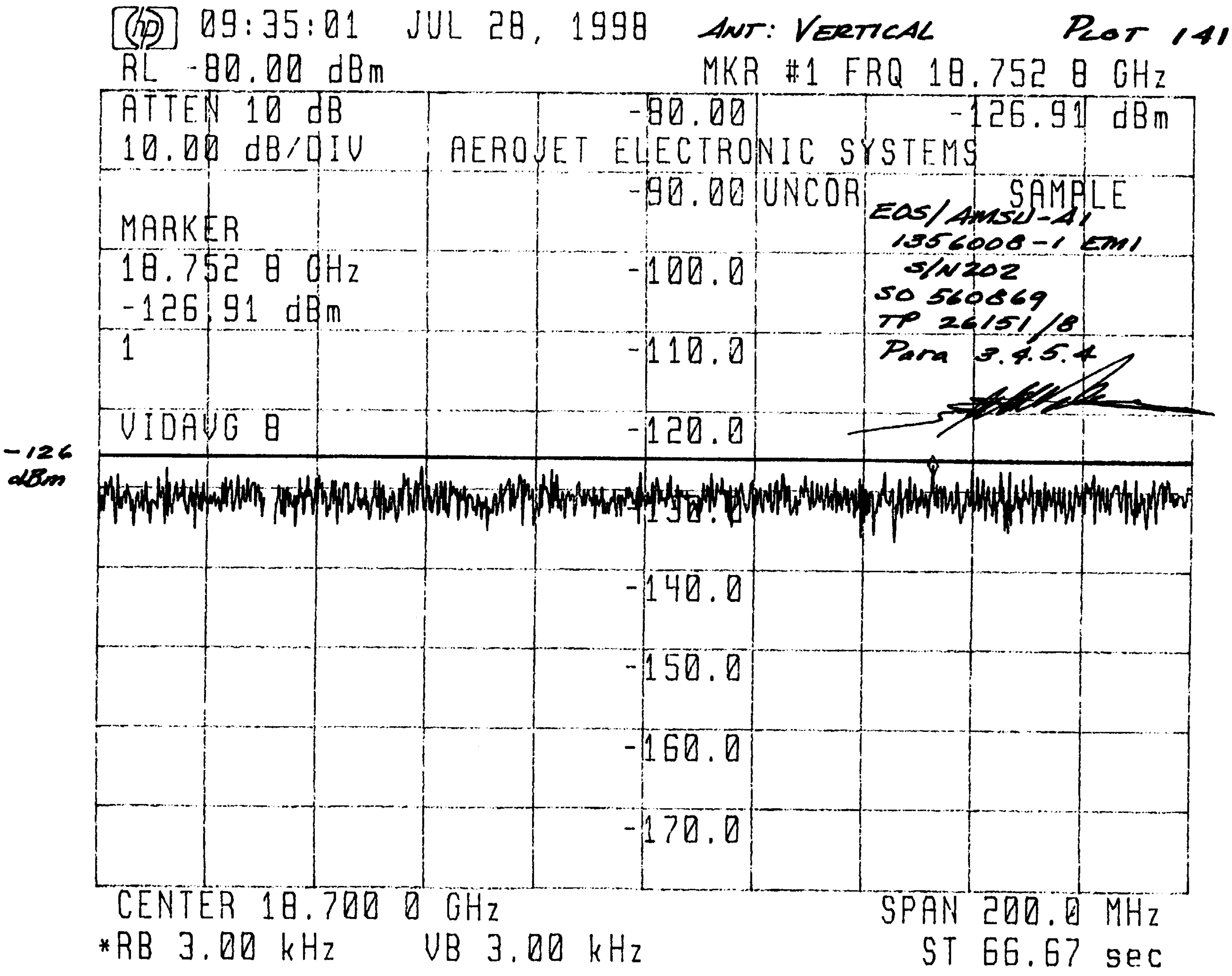


CENTER 18.700 0 GHz

SPAN 200.0 MHz

*RB 3.00 kHz VB 3.00 kHz

ST 66.67 sec



09:35:01 JUL 28, 1998 ANT: VERTICAL PLOT 141

RL -80.00 dBm MKR #1 FRQ 18.752 8 GHz

-126.91 dBm

ATTEN 10 dB

10.00 dB/DIV

AEROJET ELECTRONIC SYSTEMS

UNCOR

SAMPLE

MARKER

18.752 8 GHz

-126.91 dBm

1

VIDAVG 8

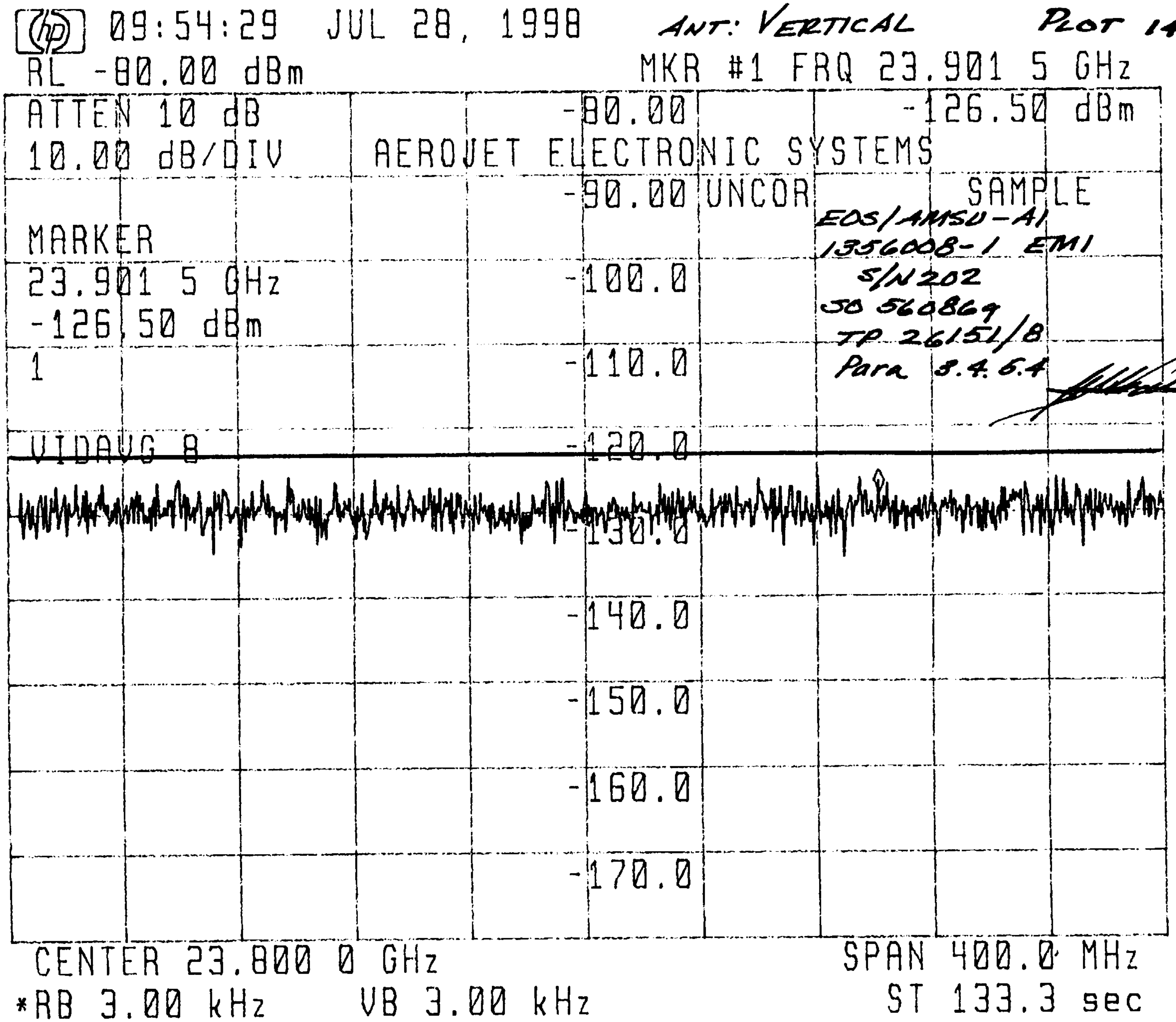
EOS/AMSU-A1
1356008-1 EMI
S/N202
SO 560869
TP 26151/8
Para 3.4.5.4

CENTER 18.700 0 GHz SPAN 200.0 MHz

*RB 3.00 kHz VB 3.00 kHz ST 66.67 sec

ANT: VERTICAL

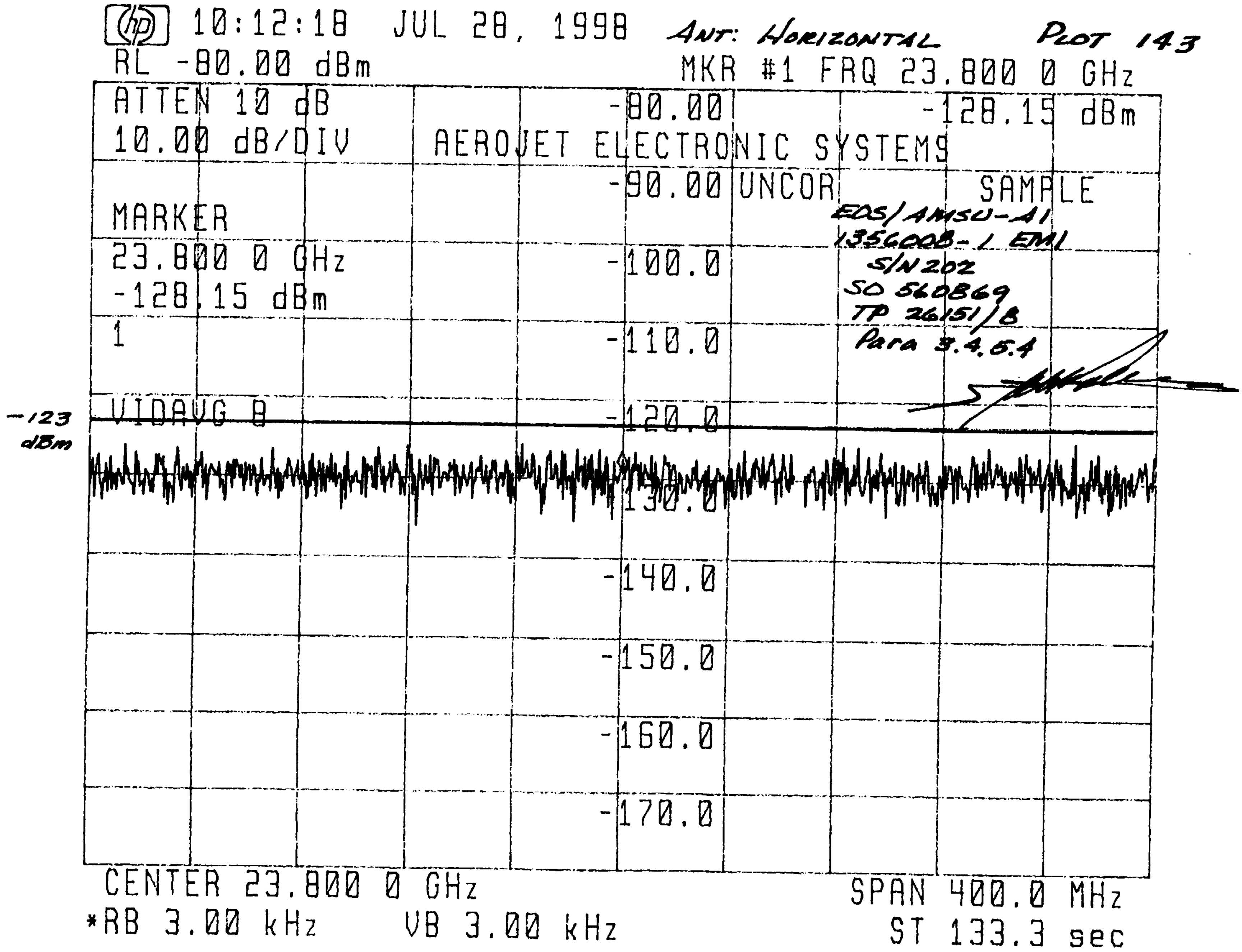
PLOT 142



EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.6.4

-123 dBm

Ant: Horizontal Plot 143



-123 dBm

EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.5.4

```
==================================================
TEST SETUP TABLE                        PG 1 OF 6
==================================================
LIBRARY FILE:   RE-02 -- 14kHz to 1000MHz (AF/N)

DISPLAY TITLE 1:                 EOS/AMSU-A
CONTROL PARAMETERS
  Test Type                         NB/BB
  Freq Uncert (%)                    1
  Min Sweep Time/Oct (sec)           3
NUMBER PAGES NOTES                   0
NUMBER RANGES                        4
START FREQUENCY (MHz)               .014

RNG STOP FREQ(MHz)              TRANSDUCER
=== ============= ================================
 1          2.0     EMCO 3301 - ACTIVE MONOPOLE
 2         30.0     EMCO 3301 - ACTIVE MONOPOLE
 3        200.0     E-M BIA-25 - BICONICAL @ 1m
 4       1000.0    E-M LCA-25 - LOG SPIRAL @ 1m


==================================================
DISPLAY INFORMATION                     PG 2 OF 6
==================================================

                        NARROWBAND      BROADBAND
                        ==========      =========
AMPLITUDE INFO
  Units Label           dBuV / m      dBuV / m / MHz
  Disp Ref Level          100              140

TEST LIMITS
  Number Limits            1                1
  Limit 1              EOS/AMSU-A       EOS/AMSU-A
```

```
=====================================================
RANGE 1: .014 TO 2.0 MHz                    PG 3 OF 6
=====================================================
                        NARROWBAND       BROADBAND
AMPLIFIER
  Name                 HP8447F OPT H64 HP8447F OPT H64
  Gain (dB)                28               28
INPUT PORT                RIGHT            RIGHT
MSMT STATES
  QP Bandwidth (Hz)       BYPASS           BYPASS
  SA Res Bandw (Hz)        300              3000
  Video Bandw. (Hz)        3000             30000
  Ref. Level (dBuV)        100              100
  Int. Atten. (dB)         20               20
  Ext. Atten. (dB)         0                0
NO. OF SETUPS              1               same as NB
NO. SWEEPS/SETUP           1               same as NB
FIRST SETUP
  Msg,Sub,Continue      MESSAGE
  Msg:   CONNECT EMCO 3301 HP8447F 28 dB INPUT


=====================================================
RANGE 2: 2.0 TO 30.0 MHz                    PG 4 OF 6
=====================================================
                        NARROWBAND       BROADBAND
AMPLIFIER
  Name                 HP8447F OPT H64 HP8447F OPT H64
  Gain (dB)                28               28
INPUT PORT                RIGHT            RIGHT
MSMT STATES
  QP Bandwidth (Hz)       BYPASS           BYPASS
  SA Res Bandw (Hz)        3E3              30E3
  Video Bandw. (Hz)        30000            300000
  Ref. Level (dBuV)        100              100
  Int. Atten. (dB)         20               20
  Ext. Atten. (dB)         0                0
NO. OF SETUPS              1               same as NB
NO. SWEEPS/SETUP           1               same as NB
FIRST SETUP
  Msg,Sub,Continue      CONTINUE
```

```
=====================================================
RANGE 3: 30.0 TO 200.0 MHz                PG 5 OF 6
=====================================================
                          NARROWBAND      BROADBAND
AMPLIFIER
  Name                     HP8447F         HP8447F
  Gain (dB)                  48              48
INPUT PORT                  RIGHT           RIGHT
MSMT STATES
  QP Bandwidth (Hz)        BYPASS          BYPASS
  SA Res Bandw (Hz)         30E3            300E3
  Video Bandw. (Hz)        300000           3.E+6
  Ref. Level (dBuV)         100              100
  Int. Atten. (dB)           20              20
  Ext. Atten. (dB)            0               0
NO. OF SETUPS                 1           same as NB
NO. SWEEPS/SETUP              1           same as NB
FIRST SETUP
  Msg,Sub,Continue       MESSAGE
  Msg:   CONNECT BICON ANT/8447F(FULL GAIN)


=====================================================
RANGE 4: 200.0 TO 1000.0 MHz              PG 6 OF 6
=====================================================
                          NARROWBAND      BROADBAND
AMPLIFIER
  Name                     HP8447F         HP8447F
  Gain (dB)                  46              46
INPUT PORT                  RIGHT           RIGHT
MSMT STATES
  QP Bandwidth (Hz)        BYPASS          BYPASS
  SA Res Bandw (Hz)         30E3            1E+6
  Video Bandw. (Hz)        300000           3.E+6
  Ref. Level (dBuV)          80              80
  Int. Atten. (dB)           10              10
  Ext. Atten. (dB)            0               0
NO. OF SETUPS                 1           same as NB
NO. SWEEPS/SETUP              1           same as NB
FIRST SETUP
  Msg,Sub,Continue       MESSAGE
  Msg:   CONNECT LOG SPIRAL & 8447F TO INPUT
```

```
==========================================================
TRANSDUCER TABLE
==========================================================

TRANSDUCER TITLE      EMCO 3301 - ACTIVE MONOPOLE
SIGN OF TRANSDUCER               PLUS
NUMBER OF POINTS                  21

    POINT   FREQUENCY(MHz)    TRANSDUCER FACTOR
    =====   ==============    =================
      1              .014             3.8
      2              .020             3.7
      3              .040             3.5
      4              .060             3.5
      5              .100             3.8
      6              .150             3.9
      7              .200             3.8
      8              .400             3.3
      9              .600             3.0
     10              .850             3.0
     11             1.000             3.2
     12             1.600             3.3
     13             2.000             3.3
     14             4.000             3.8
     15             6.000             4.0
     16             8.000             4.3
     17            10.000             4.3
     18            15.000             4.6
     19            20.000             5.1
     20            25.000             5.2
     21            30.000             5.3
```

AEROJET ELECTRONIC SYSTEMS

```
=========================================================
TRANSDUCER TABLE
=========================================================

TRANSDUCER TITLE       E-M BIA-25 - BICONICAL @ 1m
SIGN OF TRANSDUCER               PLUS
NUMBER OF POINTS                  37

   POINT    FREQUENCY(MHz)    TRANSDUCER FACTOR
   =====    ==============    =================
     1              20              15.28
     2              25              12.64
     3              30              12.17
     4              35              13.34
     5              40              13.42
     6              45              12.12
     7              50              12.02
     8              55              13.20
     9              60              10.29
    10              65               8.77
    11              70               7.18
    12              75               7.22
    13              80              10.00
    14              85              10.26
    15              90              10.63
    16              95              11.59
    17             100              12.19
    18             105              13.40
    19             110              13.51
    20             115              14.43
    21             120              13.49
    22             125              13.63
    23             130              13.59
    24             135              14.06
    25             140              14.94
    26             145              16.41
    27             150              17.49
    28             155              18.94
    29             160              18.74
    30             165              18.12
    31             170              18.63
    32             175              18.17
    33             180              18.03
    34             185              17.28
    35             190              17.00
    36             195              16.76
    37             200              16.18
```

AEROJET ELECTRONIC SYSTEMS

```
=====================================================
TRANSDUCER TABLE
=====================================================

TRANSDUCER TITLE     E-M LCA-25 - LOG SPIRAL @ 1m
SIGN OF TRANSDUCER              PLUS
NUMBER OF POINTS                 17

    POINT    FREQUENCY(MHz)    TRANSDUCER FACTOR
    =====    ==============    =================
      1                200           24.01
      2                250           19.28
      3                300           18.71
      4                350           17.24
      5                400           18.02
      6                450           18.33
      7                500           19.84
      8                550           20.46
      9                600           21.33
     10                650           21.63
     11                700           22.05
     12                750           23.15
     13                800           24.08
     14                850           24.35
     15                900           25.14
     16                950           25.88
     17               1000           25.75
```

```
=================================================
LIMIT TABLE
=================================================


LIMIT TITLE              EOS/AMSU-A
NUMBER OF POINTS              3

      POINT     FREQUENCY(MHz)     AMPLITUDE
      =====     ==============     =========
        1               .014           35
        2             25.000           20
        3           1000.000           45
```

```
=====================================================
LIMIT TABLE
=====================================================


LIMIT TITLE                EOS/AMSU-A
NUMBER OF POINTS               3

      POINT     FREQUENCY(MHz)      AMPLITUDE
      =====     ==============      =========
        1                .014          100
        2             200.000           55
        3            1000.000           65
```

TEST DATA SHEET 4 (Sheet 1 of 6)
CS01 Test (Paragraph 3.4.6.4)

Test Setup Verified: Roger Khoury
(Signature)

Test Equipment Log

Item	Manufacturer	Model/Part No.	Aerojet Inventory No.	Calibration Date	Calibration Due Date
Function Generator	HP	3325A	46279	3-19-98	9-13-98
Amplifier	Mc Intosh	MC2205	45071	NDG	NDG
Oscilloscope	Tek	TDS380	200079	4-7-98	4-1-99
Transformer	Solar	6220-1A	L502741	CNR	CNR

Susceptibility to Injected Electromagnetic Energy on Power Leads, 30 hz to 50 kHz

+27V Quiet Bus A (Terminal 1 on B/O Box)

Frequency Range	Test Level Volts	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
30 Hz	0.5	Sine			✓	Figure 8	Baseline; TO9
30 Hz to 1500 Hz	0.5	Sine			✓	Figure 8	TO 92
1500 Hz to 10 kHz	0.5	Sine			✓	Figure 8	TO 93
10 kHz to 50 kHz	0.5	Sine			✓	Figure 8	TO 94

*ST = Susceptibility Threshold, EL = Equipment Limit, SL = Specification Limit

Note: Attach all backup data generated during the test (photos, printouts plots, test logs, additional comments or observations, etc.) to this data sheet.

Assembly Part No. EOS/AMSU-A1 1356008-1 EM1

Serial No. 202

Shop Order: 560869

Signature/Date

Engineer: 17 July 98

Quality Assurance: Judie Harvey QA 269

Operator: Roger A. Khoury 17 July 98

Customer Rep.: R. Brown 7/18/98

TEST DATA SHEET 4 (Sheet 2 of 6)
CS01 Test (Paragraph 3.4.6.4)

+27V Quiet Bus Rtn A (Terminal 3 on B/O Box)

Frequency Range	Test Level VOLTS	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
30 Hz	0.5	Sine			✓	Figure 8	BASELINE: ~~18:44~~ TO 95
30 Hz to 1500 Hz	0.5	Sine			✓	Figure 8	TO 96
1500 Hz to 10 kHz	0.5	Sine			✓	Figure 8	TO 97
10 kHz to 50 kHz	0.5	Sine			✓	Figure 8	TO 98

+27V Noisy Bus A (Terminal 5 on B/O Box)

Frequency Range	Test Level VOLTS	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
30 Hz	7.0	Sine			✓	Figure 8	BASELINE: 18:44
30 Hz to 1500 Hz	7.3	Sine			✓	Figure 8	19:13
1500 Hz to 10 kHz	5.1	Sine			✓	Figure 8	19:23
10 kHz to 50 kHz	4.1	Sine			✓	Figure 8	19:30

+27V Noisy Bus Rtn A (Terminal 7 on B/O Box)

Frequency Range	Test Level VOLTS	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
30 Hz	7.0	Sine			✓	Figure 8	BASELINE: 19:53
30 Hz to 1500 Hz	7.1	Sine			✓	Figure 8	20:06
1500 Hz to 10 kHz	5.1	Sine			✓	Figure 8	20:14
10 kHz to 50 kHz	4.2	Sine			✓	Figure 8	20:22

TEST DATA SHEET 4 (Sheet 3 of 6)
CS01 Test (Paragraph 3.4.6.4)

+27V Survival Bus A (Terminal 9 on B/O Box)

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	VOLTS		ST	EL	SL		
30 Hz	3.0	Sine			✓	Figure 8	$I_{BASELINE}$=20mA
30 Hz to 1500 Hz	3.2	Sine			✓	Figure 8	No change.
1500 Hz to 10 kHz	3.2	Sine			✓	Figure 8	No change.
10 kHz to 50 kHz	3.2	Sine			✓	Figure 8	No change

+27V Survival Bus Rtn A (Terminal 10 on B/O Box)

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	VOLTS		ST	EL	SL		
30 Hz	3.0	Sine			✓	Figure 8	$I_{BASELINE}$=20mA
30 Hz to 1500 Hz	3.2	Sine			✓	Figure 8	No change.
1500 Hz to 10 kHz	3.2	Sine			✓	Figure 8	No change
10 kHz to 50 kHz	3.2	Sine			✓	Figure 8	No change.

TEST DATA SHEET 4 (Sheet 4 of 6)
CS01 Test (Paragraph 3.4.6.4)

+31V Quiet Bus A (Terminal 1 on B/O Box)

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	Volts		ST	EL	SL		
30 Hz	0.5	Sine			✓	Figure 8	Baseline T084
30 Hz to 1500 Hz	0.54	Sine			✓	Figure 8	T085
1500 Hz to 10 kHz	0.52	Sine			✓	Figure 8	T086
10 kHz to 50 kHz	0.55	Sine			✓	Figure 8	T087

*ST = Susceptibility Threshold, EL = Equipment Limit, SL = Specification Limit

Note: Attach all backup data generated during the test (photos, printouts plots, test logs, additional comments or observations, etc.) to this data sheet.

Assembly Part No. 1356008-1-EM1 EOS/AMSU-A1
Serial No. 202
Shop Order: 560869

Signature/Date
Engineer: 17 July 98
Quality Assurance: QA 269 JUL 18 '98
Operator: 17-July-98
Customer Rep.: 7/18/98

TEST DATA SHEET 4 (Sheet 5 of 6)
CS01 Test (Paragraph 3.4.6.4)

+31V Quiet Bus Rtn A (Terminal 3 on B/O Box)

Frequency Range	Test Level Volts	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
30 Hz	0.5	Sine			✓	Figure 8	Baseline TO 84
30 Hz to 1500 Hz	0.52	Sine			✓	Figure 8	TO 88
1500 Hz to 10 kHz	0.53	Sine			✓	Figure 8	TO 89
10 kHz to 50 kHz	0,52	Sine			✓	Figure 8	TO 90

+31V Noisy Bus A (Terminal 5 on B/O Box)

Frequency Range	Test Level Volts	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
30 Hz	7.0	Sine			✓	Figure 8	Baseline 14:27
30 Hz to 1500 Hz	7.2	Sine			✓	Figure 8	[illegible] 16:39
1500 Hz to 10 kHz	5.0	Sine			✓	Figure 8	[illegible] 16:45
10 kHz to 50 kHz	4.2	Sine			✓	Figure 8	[illegible] 16:50

+31V Noisy Bus Rtn A (Terminal 7 on B/O Box)

Frequency Range	Test Level Volts	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
30 Hz	7.0	Sine			✓	Figure 8	Baseline 14:27
30 Hz to 1500 Hz	7.2	Sine			✓	Figure 8	16:11
1500 Hz to 10 kHz	5.0	Sine			✓	Figure 8	16:19
10 kHz to 50 kHz	4.2	Sine			✓	Figure 8	16:28

TEST DATA SHEET 4 (Sheet 6 of 6)
CS01 Test (Paragraph 3.4.6.4)

+31V Survival Bus A (Terminal 9 on B/O Box)

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	VOLTS		ST	EL	SL		
30 Hz	3.0	Sine			✓	Figure 8	$I_{BASELINE}$ = 20mA
30 Hz to 1500 Hz	3.2	Sine			✓	Figure 8	No change.
1500 Hz to 10 kHz	3.2	Sine			✓	Figure 8	No change.
10 kHz to 50 kHz	3.2	Sine			✓	Figure 8	No change.

+31V Survival Bus Rtn A (Terminal 10 on B/O Box)

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	VOLTS		ST	EL	SL		
30 Hz	3.0	Sine			✓	Figure 8	$I_{BASELINE}$ = 20mA
30 Hz to 1500 Hz	3.2	Sine			✓	Figure 8	No change.
1500 Hz to 10 kHz	3.2	Sine			✓	Figure 8	No change.
10 kHz to 50 kHz	3.2	Sine			✓	Figure 8	No change.

REF TAR *004710 Op #8200 pg.10

TEST DATA SHEET 4 (Sheet 1 of 6)* See Sheet #4 for Data
CS01 Test (Paragraph 3.4.6.4)

Test Setup Verified: Ken Shane
Signature)

Test Equipment Log

Item	Manufacturer	Model/Part No.	Aerojet Inventory No.	Calibration Date	Calibration Due Date
Function Generator	HP	3325A	46279	3-13-98	4-13-98
Amplifier	McIntosh	MC2205	45071	NDG	NDG
Oscilloscope	Tek	TDS 380	200079	4-7-98	4-1-99
Transformer	Solar	6220-1A	L502741	CNR	CNR

QA 191 7-31-98 1800HP

Susceptibility to Injected Electromagnetic Energy on Power Leads, 30 hz to 50 kHz

+27V Quiet Bus A (Terminal 1 on B/O Box)

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
30 Hz		Sine				Figure 8	
30 Hz to 1500 Hz		Sine				Figure 8	
1500 Hz to 10 kHz		Sine				Figure 8	
10 kHz to 50 kHz		Sine				Figure 8	

N/A AMSU 5 SEIT 7-31-98

*ST = Susceptibility Threshold, EL = Equipment Limit, SL = Specification Limit

Note: Attach all backup data generated during the test (photos, printouts plots, test logs, additional comments or observations, etc.) to this data sheet.

EOS/AMSU A-1
Assembly Part No. 1356008-1-EMI
Serial No. 202
Shop Order: 560869

Signature/Date
Engineer: William H Parker 7/31/98
Quality Assurance: QA 191 7-31-98
Operator: AMSU 5 SEIT 7/31/98
Customer Rep.: 8/1/98

RER TAR *004710 Op. 8200
pg. 10

TEST DATA SHEET 4 (Sheet 4 of 6)
CS01 Test (Paragraph 3.4.6.4)

+31V Quiet Bus A (Terminal 1 on B/O Box)

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	Vp-p		ST	EL	SL		
30 Hz		Sine				Figure 8	Baseline: TO130
30 Hz to 1500 Hz	0.5V	Sine			✓	Figure 8	TO131
1500 Hz to 10 kHz	0.5V	Sine			✓	Figure 8	TO132
10 kHz to 50 kHz	0.5V	Sine			✓	Figure 8	TO133

*ST = Susceptibility Threshold, EL = Equipment Limit, SL = Specification Limit

Note: Attach all backup data generated during the test (photos, printouts plots, test logs, additional comments or observations, etc.) to this data sheet.

Signature/Date

Assembly Part No. EOS/AMSU A-1 1356008-1-EMI
Serial No. 202
Shop Order: 560869

Engineer: William H. Parker 7/31/98
Quality Assurance: 7-31-98
Operator: AMSU 5 SEIT 7/31/98
Customer Rep.: R Thomas 8/11/98

TEST DATA SHEET 5 (Sheet 1 of 14)
CS02 Test (Paragraph 3.4.7.4)

Test Setup Verified: Roger Khoury 7/18/98
(Signature)

Test Equipment Log

Item	Manufacturer	Model/Part No.	Aerojet Inventory No.	Calibration Date	Calibration Due Date
R.F. Coupler	Solar Elect.	7415-1	L 802242	CNR	CNR
oscilloscope	TEK	TDS 380	200079	4-1-98	4-1-99
EMC Analyzer	HP	8591EM	200229	1-16-98	1-16-99
Function Generator	HP	3325A	46279	3-13-98	9-13-98
Swept Signal Generator	HP	83630B	200202	1-15-98	1-15-99
Power Amplifier	Eaton	3552B	46127	NDG	NDG
Power Amplifier	Eaton	5020B	46126	NDG	NDG
Power Amplifier	Eaton	5001	R300637	4-13-98	4/13/99

Susceptibility to Injected Electromagnetic Energy on Power Leads. ~~30 hz to 50 kHz~~ 50KHz to 400MHz

+27V Quiet Bus A (Terminal 1 on B/O Box)

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	Volts		ST	EL	SL		
50 ~~Hz~~ KHz	0.5	Sine			✓	Figure 8	Baseline T099
50KHz to 100KHz	0.56	Sine			✓	Figure 8	T100
100KHz to 500 kHz	0.64	Sine			✓	Figure 8	T101
500 kHz to 1000 kHz	0.57	Sine			✓	Figure 8	T102

*ST = Susceptibility Threshold, EL = Equipment Limit, SL = Specification Limit

Note: Attach all backup data generated during the test (photos, printouts plots, test logs, additional comments or observations, etc.) to this data sheet.

Assembly Part No. 1356008-1 EM1 EOS/AMS-A1

Serial No. 202

Shop Order: 560869

Signature/Date

Engineer: 20 July 98

Quality Assurance: QA 269 JUL 21 '98

Operator: Roger D. Khoury 7-20-98

Customer Rep.: JUL 21 '98

ENG 252

TEST DATA SHEET 5 (Sheet 2 of 14)
CS02 Test (Paragraph 3.4.7.4)

+27V Quiet Bus A

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	Volts		ST	EL	SL		
1 MHz to 5 MHz	3.3	Sine			✓	Figure 8	T103
5 MHz to 10 MHz	3.4	Sine			✓	Figure 8	T104
10 MHz to 20 MHz	3.3	Sine			✓	Figure 8	T105
20 MHz to 50 MHz	3.4	Sine			✓	Figure 8	T106

+27V Quiet Bus A

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	Volts		ST	EL	SL		
50 MHz to 100 MHz	3.5	Sine			✓	Figure 8	T107
100 MHz to 200 MHz	3.6	Sine			✓	Figure 8	T108
200 MHz to 300 MHz	3.5	Sine			✓	Figure 8	T109
300 MHz to 400 MHz	3.3	Sine			✓	Figure 8	T110

+27V Noisy Bus Rtn A (Terminal 3 on B/O Box)

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	Volts		ST	EL	SL		
50 kHz	0.59	Sine			✓	Figure 8	Baseline T099
50 kHz to 100 kHz	0.59	Sine			✓	Figure 8	T111
100 kHz to 500 kHz	0.52	Sine			✓	Figure 8	T112
500 kHz to 1000 kHz	0.56	Sine			✓	Figure 8	T113

TEST DATA SHEET 5 (Sheet 3 of 14)
CS02 Test (Paragraph 3.4.7.4)

+27V Quiet Bus Rtn A

Frequency Range	Test Level VOLTS	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
1 MHz to 5 MHz	3.3	Sine			✓	Figure 8	T114
5 MHz to 10 MHz	3.4	Sine			✓	Figure 8	T115
10 MHz to 20 MHz	3.6	Sine			✓	Figure 8	T116
20 MHz to 50 MHz	3.5	Sine			✓	Figure 8	T117

+27V Quiet Bus Rtn A

Frequency Range	Test Level VOLTS	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
50 MHz to 100 MHz	3.6	Sine			✓	Figure 8	T118
100 MHz to 200 MHz	3.4	Sine			✓	Figure 8	T119
200 MHz to 300 MHz	3.5	Sine			✓	Figure 8	T120
300 MHz to 400 MHz	3.5	Sine			✓	Figure 8	T121

+27V Noisy Bus A (Terminal 5 on B/O Box)

Frequency Range	Test Level VOLTS	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
50 kHz	3.0	Sine			✓	Figure 8	Baseline 17:44
50 kHz to 100 kHz	3.2	Sine			✓	Figure 8	18:00
100 kHz to 500 kHz	3.3	Sine			✓	Figure 8	18:22
500 kHz to 1000 kHz	3.2	Sine			✓	Figure 8	18:29

TEST DATA SHEET 5 (Sheet 4 of 14)
CS02 Test (Paragraph 3.4.7.4)

+27V Noisy Bus A

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	VOLTS		ST	EL	SL		
1 MHz to 5 MHz	3.2	Sine			✓	Figure 8	18:36
5 MHz to 10 MHz	3.2	Sine			✓	Figure 8	18:44
10 MHz to 20 MHz	3.3	Sine			✓	Figure 8	18:51
20 MHz to 50 MHz	3.5	Sine			✓	Figure 8	18:55

+27V Noisy Bus A

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	VOLTS		ST	EL	SL		
50 MHz to 100 MHz	3.4	Sine			✓	Figure 8	19:07
100 MHz to 200 MHz	3.5	Sine			✓	Figure 8	19:15
200 MHz to 300 MHz	3.1	Sine			✓	Figure 8	19:22
300 MHz to 400 MHz	3.3	Sine			✓	Figure 8	19:31

+27V Noisy Bus Rtn A (Terminal 7 on B/O Box)

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	VOLTS		ST	EL	SL		
50 kHz	3.0	Sine			✓	Figure 8	BaseLine: 19:38
50 kHz to 100 kHz	3.3	Sine			✓	Figure 8	19:50
100 kHz to 500 kHz	3.2	Sine			✓	Figure 8	19:59
500 kHz to 1000 kHz	3.2	Sine			✓	Figure 8	20:20

TEST DATA SHEET 5 (Sheet 5 of 14)
CS02 Test (Paragraph 3.4.7.4)

+27V Noisy Bus Rtn A

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	VOLTS		ST	EL	SL		
1 MHz to 5 MHz	3.3	Sine			✓	Figure 8	20:30
5 MHz to 10 MHz	3.1	Sine			✓	Figure 8	20:37
10 MHz to 20 MHz	3.1	Sine			✓	Figure 8	20:43
20 MHz to 50 MHz	3.1	Sine			✓	Figure 8	20:50

+27V Noisy Bus Rtn A

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	VOLTS		ST	EL	SL		
50 MHz to 100 MHz	3.2	Sine			✓	Figure 8	20:56
100 MHz to 200 MHz	3.1	Sine			✓	Figure 8	21:01
200 MHz to 300 MHz	3.2	Sine			✓	Figure 8	21:10
300 MHz to 400 MHz	3.3	Sine			✓	Figure 8	21:15

+27V Survival Bus A (Terminal 9 on B/O Box)

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	VOLTS		ST	EL	SL		$I_{BASELINE}$ = 20mA
50 kHz	3.0	Sine			✓	Figure 8	PASS
50 kHz to 100 kHz	3.2	Sine			✓	Figure 8	PASS
100 kHz to 500 kHz	3.1	Sine			✓	Figure 8	PASS
500 kHz to 1000 kHz	3.2	Sine			✓	Figure 8	PASS

TEST DATA SHEET 5 (Sheet 6 of 14)
CS02 Test (Paragraph 3.4.7.4)

+27V Survival A

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	VOLTS		ST	EL	SL		
1 MHz to 5 MHz	3.2	Sine			✓	Figure 8	PASS
5 MHz to 10 MHz	3.1	Sine			✓	Figure 8	↓
10 MHz to 20 MHz	3.3	Sine			✓	Figure 8	↓
20 MHz to 50 MHz	3.3	Sine			✓	Figure 8	PASS

+27V Survival Bus A

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	VOLTS		ST	EL	SL		
50 MHz to 100 MHz	3.3	Sine			✓	Figure 8	PASS
100 MHz to 200 MHz	3.2	Sine			✓	Figure 8	↓
200 MHz to 300 MHz	3.0	Sine			✓	Figure 8	↓
300 MHz to 400 MHz	3.3	Sine			✓	Figure 8	PASS

+27V Survival Bus Rtn A (Terminal 10 on B/O Box)

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	VOLTS		ST	EL	SL		
50 kHz	3.0	Sine			✓	Figure 8	PASS
50 kHz to 100 kHz	3.1	Sine			✓	Figure 8	↓
100 kHz to 500 kHz	3.3	Sine			✓	Figure 8	↓
500 kHz to 1000 kHz	3.4	Sine			✓	Figure 8	PASS

TEST DATA SHEET 5 (Sheet 7 of 14)
CS02 Test (Paragraph 3.4.7.4)

+27V Survival Bus Rtn A

Frequency Range	Test Level VOLTS	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
1 MHz to 5 MHz	3.2	Sine			✓	Figure 8	PASS
5 MHz to 10 MHz	3.1	Sine			✓	Figure 8	↓
10 MHz to 20 MHz	3.1	Sine			✓	Figure 8	↓
20 MHz to 50 MHz	3.2	Sine			✓	Figure 8	PASS

+27V Survival Bus Rtn A

Frequency Range	Test Level VOLTS	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
50 MHz to 100 MHz	3.3	Sine			✓	Figure 8	PASS
100 MHz to 200 MHz	3.1	Sine			✓	Figure 8	↓
200 MHz to 300 MHz	3.0	Sine			✓	Figure 8	↓
300 MHz to 400 MHz	3.3	Sine			✓	Figure 8	PASS

TEST DATA SHEET 5 (Sheet 8 of 14)
CS02 Test (Paragraph 3.4.7.4)

+31V Quiet Bus A

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	VOLTS		ST	EL	SL		
50 kHz	1Vp-p	Sine			* ✓	Figure 8	T123 (pass)
50 kHz to 100 kHz	1Vp-p	Sine			* ✓	Figure 8	T123 (pass)
100 kHz to 500 kHz	1Vp-p	Sine			* ✓	Figure 8	T124 (pass)
500 kHz to 1000 kHz	0.5Vpp	Sine			* ✓	Figure 8	T125 pass

*ST = Susceptibility Threshold, EL = Equipment Limit, SL = Specification Limit

* SL=.5Vp-p
TEST LEVEL WAS 1Vpp
BW Brent Nelson
7/20/98
Ref. TAR# 004713

Note: Attach all backup data generated during the test (photos, printouts plots, test logs, additional comments or observations, etc.) to this data sheet.

Assembly Part No. EOS/AMSU A1 1356008-1 EM
Serial No. 202
Shop Order: 560867

Signature/Date
Engineer: 20 July
Quality Assurance: QA 289
Operator: 7-21-98
Customer Rep.:

TEST DATA SHEET 5 (Sheet 9 of 14)
CS02 Test (Paragraph 3.4.7.4)

+31V Quiet Bus A

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
1 MHz to 5 MHz	3Vp-p	Sine			✓	Figure 8	T126 (pass)
5 MHz to 10 MHz	3Vp-p	Sine			✓	Figure 8	T127 (pass
10 MHz to 20 MHz	3 Vp-p	Sine			✓	Figure 8	T128 (pass)
20 MHz to 50 MHz	3Vp-p	Sine			✓	Figure 8	T129 (pass)

+31V Quiet Bus A

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
50 MHz to 100 MHz	3Vp-p	Sine			✓	Figure 8	T130, T132, T133 (PASS)
100 MHz to 200 MHz	3Vp-p	Sine			✓	Figure 8	T131 (pass)
200 MHz to 300 MHz	3Vp-p	Sine			✓	Figure 8	T134 (pass)
300 MHz to 400 MHz	3Vp-p	Sine			✓	Figure 8	T135 (pass)

+31V Quiet Bus Rtn A

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	VOLTS		ST	EL	SL		BASELINE:
50 kHz	0.5	Sine			✓	Figure 8	T141
50 kHz to 100 kHz	0.56	Sine			✓	Figure 8	T142
100 kHz to 500 kHz	0.54	Sine			✓	Figure 8	T143
500 kHz to 1000 kHz	0.52	Sine			✓	Figure 8	T144

TEST DATA SHEET 5 (Sheet 10 of 14)
CS02 Test (Paragraph 3.4.7.4)

+31V Quiet Bus Rtn A

Frequency Range	Test Level VOLTS	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
1 MHz to 5 MHz	3.2	Sine			✓	Figure 8	T145
5 MHz to 10 MHz	3.1	Sine			✓	Figure 8	T146
10 MHz to 20 MHz	3.1	Sine			✓	Figure 8	T147
20 MHz to 50 MHz	3v p-p	Sine			✓	Figure 8	T140 (pass)

+31V Quiet Bus Rtn A

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
50 MHz to 100 MHz	3Vpp	Sine			✓	Figure 8	T139 (pass)
100 MHz to 200 MHz	3Vp-p	Sine			✓	Figure 8	T138 (pass)
200 MHz to 300 MHz	3Vp-p	Sine			✓	Figure 8	T137 (pass)
300 MHz to 400 MHz	3Vp-p	Sine			✓	Figure 8	T136 (pass)

+31V Noisy Bus A

Frequency Range	Test Level VOLTS	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
50 kHz	3.0	Sine			✓	Figure 8	
50 kHz to 100 kHz	3.1	Sine			✓	Figure 8	21:12
100 kHz to 500 kHz	3.2	Sine			✓	Figure 8	21:18
500 kHz to 1000 kHz	3.1	Sine			✓	Figure 8	21:22

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TEST DATA SHEET 5 (Sheet 11 of 14)
CS02 Test (Paragraph 3.4.7.4)

+~~2~~31V Noisy Bus A

Frequency Range	Test Level VOLTS	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
1 MHz to 5 MHz	3.1	Sine			✓	Figure 8	22:36
5 MHz to 10 MHz	3.1	Sine			✓	Figure 8	22:40
10 MHz to 20 MHz	3.2	Sine			✓	Figure 8	22:50
20 MHz to 50 MHz	3.1	Sine			✓	Figure 8	22:55

+31V Noisy Bus A

Frequency Range	Test Level VOLTS	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
50 MHz to 100 MHz	3.3	Sine			✓	Figure 8	22:59
100 MHz to 200 MHz	3.2	Sine			✓	Figure 8	23:04
200 MHz to 300 MHz	3.0	Sine			✓	Figure 8	23:08
300 MHz to 400 MHz	3.1	Sine			✓	Figure 8	23:12

+31V Noisy Bus Rtn A

Frequency Range	Test Level VOLTS	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
50 kHz	3.0	Sine			✓	Figure 8	
50 kHz to 100 kHz	3.1	Sine			✓	Figure 8	23:24
100 kHz to 500 kHz	3.3	Sine			✓	Figure 8	23:29
500 kHz to 1000 kHz	3.1	Sine			✓	Figure 8	23:33

TEST DATA SHEET 5 (Sheet 12 of 14)
CS02 Test (Paragraph 3.4.7.4)

+31V Noisy Bus Rtn A

Frequency Range	Test Level VOLTS	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
1 MHz to 5 MHz	3.3	Sine			✓	Figure 8	23:37
5 MHz to 10 MHz	3.1	Sine			✓	Figure 8	23:41
10 MHz to 20 MHz	3.3	Sine			✓	Figure 8	23:48
20 MHz to 50 MHz	3.0	Sine			✓	Figure 8	23:52

+31V Noisy Bus Rtn A

Frequency Range	Test Level VOLTS	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
50 MHz to 100 MHz	3.0	Sine			✓	Figure 8	00:02
100 MHz to 200 MHz	3.2	Sine			✓	Figure 8	00:06
200 MHz to 300 MHz	3.1	Sine			✓	Figure 8	00:10
300 MHz to 400 MHz	3.2	Sine			✓	Figure 8	00:14

+31V Survival Bus A

Frequency Range	Test Level VOLTS	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
50 kHz	3.0	Sine			✓	Figure 8	PASS
50 kHz to 100 kHz	3.2	Sine			✓	Figure 8	↓
100 kHz to 500 kHz	3.2	Sine			✓	Figure 8	↓
500 kHz to 1000 kHz	3.3	Sine			✓	Figure 8	PASS

ENG 252 7/20/98

TEST DATA SHEET 5 (Sheet 13 of 14)
CS02 Test (Paragraph 3.4.7.4)

+~~2~~31V Survival A

Frequency Range	Test Level VOLTS	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
1 MHz to 5 MHz	3.1	Sine			✓	Figure 8	PASS
5 MHz to 10 MHz	3.0	Sine			✓	Figure 8	↓
10 MHz to 20 MHz	3.1	Sine			✓	Figure 8	↓
20 MHz to 50 MHz	3.2	Sine			✓	Figure 8	PASS

+31V Survival Bus A

Frequency Range	Test Level VOLTS	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
50 MHz to 100 MHz	3.1	Sine			✓	Figure 8	PASS
100 MHz to 200 MHz	3.2	Sine			✓	Figure 8	↓
200 MHz to 300 MHz	3.3	Sine			✓	Figure 8	↓
300 MHz to 400 MHz	3.2	Sine			✓	Figure 8	PASS

+31V Survival Bus Rtn A

Frequency Range	Test Level VOLTS	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
50 kHz	3.0	Sine			✓	Figure 8	PASS
50 kHz to 100 kHz	3.1	Sine			✓	Figure 8	↓
100 kHz to 500 kHz	3.3	Sine			✓	Figure 8	↓
500 kHz to 1000 kHz	3.2	Sine			✓	Figure 8	PASS

TEST DATA SHEET 5 (Sheet 14 of 14)
CS02 Test (Paragraph 3.4.7.4)

+31V Survival Bus Rtn B

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	VOLTS		ST	EL	SL		
1 MHz to 5 MHz	3.0	Sine			✓	Figure 8	PASS
5 MHz to 10 MHz	3.1	Sine			✓	Figure 8	↓
10 MHz to 20 MHz	3.1	Sine			✓	Figure 8	↓
20 MHz to 50 MHz	3.0	Sine			✓	Figure 8	PASS

+31V Survival Bus Rtn B

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	VOLTS		ST	EL	SL		
50 MHz to 100 MHz	3.1	Sine			✓	Figure 8	PASS
100 MHz to 200 MHz	3.0	Sine			✓	Figure 8	↓
200 MHz to 300 MHz	3.4	Sine			✓	Figure 8	↓
300 MHz to 400 MHz	3.3	Sine			✓	Figure 8	PASS

Retest per
TAR # 004710 pg. 11

TEST DATA SHEET 5 (Sheet 1 of 14)
CS02 Test (Paragraph 3.4.7.4)

Test Setup Verified: AMSU 4 SEIT 7-31-98
(Signature)

Test Equipment Log*

Item	Manufacturer	Model/Part No.	Aerojet Inventory No.	Calibration Date	Calibration Due Date
R.F. Coupler	Solar Elect.	7415-1	L802242	CNR	CNR
Oscilloscope	TEKTRONIX	TDS 380	200079	4-1-98	4-1-99
Spectrum Analyzer	HP	8566 B	R300662	4-15-98	10-15-98
Function Generator	HP	3325A	46279	3-13-98	9-13-98
Swept Signal Generator	HP	83630B	200202	1-15-98	1-15-99
Power Amplifier	Eaton	3552B	46127	NDG	NDG
Power Amplifier	Eaton	5020B	46126	NDG	NDG
Power Amplifier	Eaton	5001	R300637	4-13-98	4-13-99

50 KHz to 400 KHz

Susceptibility to Injected Electromagnetic Energy on Power Leads, ~~30 hz to 50 kHz~~

+27V Quiet Bus A (Terminal 1 on B/O Box)

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
50 KHz		Sine				Figure 8	
50 KHz to 100 KHz		Sine				Figure 8	
100 KHz to 500 kHz		Sine				Figure 8	
500 kHz to 1000 kHz		Sine				Figure 8	

→ Not Required, Ref TAR 004710 pg 11

*ST = Susceptibility Threshold, EL = Equipment Limit, SL = Specification Limit

Note: Attach all backup data generated during the test (photos, printouts plots, test logs, additional comments or observations, etc.) to this data sheet.

Assembly Part No. EOS/AMSU-A1 1356008-1-EMI

Serial No. 202

Shop Order: 560869

Signature/Date

Engineer: 31 Jul 98

Quality Assurance:

Operator: AMSU 4 SEIT 7-31-98

Customer Rep.:

*ATTENUATOR	~~355C~~ HP	~~L503307~~ 355C	~~9-24-97~~ L503307	9-24-97	12-24-98
ATTENUATOR	HP	355D	L508667	11-25-97	11-25-98

AMSU 4 SEIT 7-31-98

7-31-98

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TEST DATA SHEET 5 (Sheet 8 of 14)
CS02 Test (Paragraph 3.4.7.4)

+31V Quiet Bus A

Frequency Range	Test Level Vp-p	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
50 kHz	0.50	Sine			✓	Figure 8	Baseline 84
50 kHz to 100 kHz	0.52	Sine			✓	Figure 8	100
100 kHz to 500 kHz	0.54	Sine			✓	Figure 8	101
500 kHz to 1000 kHz	0.51	Sine			✓	Figure 8	102

*ST = Susceptibility Threshold, EL = Equipment Limit, SL = Specification Limit

Note: Attach all backup data generated during the test (photos, printouts plots, test logs, additional comments or observations, etc.) to this data sheet.

Signature/Date

Assembly Part No. ECS/AMSU-A1 1356008-1-EM

Engineer: 31 Jul 98

Serial No. 202

Quality Assurance:

Shop Order: 560867

Operator: AMSU 4 SEIT 8-1-98

Customer Rep.:

TEST DATA SHEET 5 (Sheet 9 of 14)
CS02 Test (Paragraph 3.4.7.4)

+31V Quiet Bus A

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	V_{p-p}		ST	EL	SL		
1 MHz to 5 MHz	3.3	Sine			✓	Figure 8	103
5 MHz to 10 MHz	3.2	Sine			✓	Figure 8	105
10 MHz to 20 MHz	3.4	Sine			✓	Figure 8	106
20 MHz to 50 MHz	3.3	Sine			✓	Figure 8	107

+31V Quiet Bus A

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	V_{p-p}		ST	EL	SL		
50 MHz to 100 MHz	3.5	Sine			✓	Figure 8	108
100 MHz to 200 MHz	3.7	Sine			✓	Figure 8	109
200 MHz to 300 MHz	3.4	Sine			✓	Figure 8	110
300 MHz to 400 MHz	3.3	Sine			✓	Figure 8	111

+31V Quiet Bus Rtn A

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
	V_{p-p}		ST	EL	SL		
50 kHz	0.53	Sine			✓	Figure 8	Baseline 84
50 kHz to 100 kHz	0.53	Sine			✓	Figure 8	112
100 kHz to 500 kHz	0.54	Sine			✓	Figure 8	113
500 kHz to 1000 kHz	0.53	Sine			✓	Figure 8	114

TEST DATA SHEET 5 (Sheet 10 of 14)

CS02 Test (Paragraph 3.4.7.4)

+31V Quiet Bus Rtn A

Frequency Range	Test Level Vp-p	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
1 MHz to 5 MHz	3.2	Sine			✓	Figure 8	115
5 MHz to 10 MHz	3.1	Sine			✓	Figure 8	116
10 MHz to 20 MHz	3.5	Sine			✓	Figure 8	117
20 MHz to 50 MHz	3.7	Sine			✓	Figure 8	118

+31V Quiet Bus Rtn A

Frequency Range	Test Level Vp-p	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
50 MHz to 100 MHz	3.3	Sine			✓	Figure 8	119
100 MHz to 200 MHz	3.1	Sine			✓	Figure 8	120
200 MHz to 300 MHz	3.5	Sine			✓	Figure 8	121
300 MHz to 400 MHz	3.4	Sine			✓	Figure 8	122

+31V Noisy Bus A

Frequency Range	Test Level Vp-p	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
50 kHz	3.1	Sine			✓	Figure 8	Baseline 1451
50 kHz to 100 kHz	3.2	Sine			✓	Figure 8	1455
100 kHz to 500 kHz	3.3	Sine			✓	Figure 8	1458
500 kHz to 1000 kHz	3.4	Sine			✓	Figure 8	1501

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TEST DATA SHEET 5 (Sheet 11 of 14)
CS02 Test (Paragraph 3.4.7.4)

+~~231~~V Noisy Bus A

Frequency Range	Test Level Vp-p	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
1 MHz to 5 MHz	3.2	Sine			✓	Figure 8	1503
5 MHz to 10 MHz	3.3	Sine			✓	Figure 8	1505
10 MHz to 20 MHz	3.2	Sine			✓	Figure 8	1514
20 MHz to 50 MHz	3.4	Sine			✓	Figure 8	1517

+31V Noisy Bus A

Frequency Range	Test Level Vp-p	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
50 MHz to 100 MHz	3.2	Sine			✓	Figure 8	1520
100 MHz to 200 MHz	3.4	Sine			✓	Figure 8	1526
200 MHz to 300 MHz	3.3	Sine			✓	Figure 8	1528
300 MHz to 400 MHz	3.2	Sine			✓	Figure 8	1530

+31V Noisy Bus Rtn A

Frequency Range	Test Level Vp-p	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
50 kHz	3.0	Sine			✓	Figure 8	Baseline 1451
50 kHz to 100 kHz	3.1	Sine			✓	Figure 8	1557
100 kHz to 500 kHz	3.3	Sine			✓	Figure 8	1555
500 kHz to 1000 kHz	3.2	Sine			✓	Figure 8	1553

TEST DATA SHEET 5 (Sheet 12 of 14)
CS02 Test (Paragraph 3.4.7.4)

+31V Noisy Bus Rtn A

Frequency Range	Test Level Vp-p	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
1 MHz to 5 MHz	3.3	Sine			✓	Figure 8	1550
5 MHz to 10 MHz	3.4	Sine			✓	Figure 8	1548
10 MHz to 20 MHz	3.2	Sine			✓	Figure 8	1545
20 MHz to 50 MHz	3.5	Sine			✓	Figure 8	1543

+31V Noisy Bus Rtn A

Frequency Range	Test Level Vp-p	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
50 MHz to 100 MHz	3.6	Sine			✓	Figure 8	1541
100 MHz to 200 MHz	3.3	Sine			✓	Figure 8	1538
200 MHz to 300 MHz	3.4	Sine			✓	Figure 8	1536
300 MHz to 400 MHz	3.2	Sine			✓	Figure 8	1533

+31V Survival Bus A

Frequency Range	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
50 kHz		Sine				Figure 8	
50 kHz to 100 kHz		Sine				Figure 8	
100 kHz to 500 kHz		Sine				Figure 8	
500 kHz to 1000 kHz		Sine				Figure 8	

→ NOT Required. Sec. TAR
004710 pg. 11

TEST DATA SHEET 6 (Sheet 1 of 2)
CS06 Test (Paragraph 3.4.8.4)

Test Setup Verified: R. Hill
(Signature)

Test Equipment Log

Item	Manufacturer	Model/Part No.	Aerojet Inventory No.	Calibration Date	Calibration Due Date
SCOPE	TEKTRONIX	TDS 380	200079	4/1/98	4/1/99
SPIKE GENERATOR	SOLAR	7054-1	00765	N/A	N/A
CAPACITOR	SOLAR	6512-106R	L803653	CNR	CNR
"	"	" "	L803652	"	"
"	"	" "	L803651	"	"
"	"	" "	L803650	"	"
BREAKOUT BOX	AES	743-5910-10	L803644 27773	" "	" "

TA 197 7-31-98

+29V Quiet Bus A

Pulse Amplitude and Polarity	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		BASELINE: T140
POSITIVE	29V	SPIKE			✓	Figure 11	T 141
NEGATIVE	29V	SPIKE			✓	Figure 11	T 142

+29V ~~Quiet~~ NOISY Bus ~~B~~ A AMSU 5 7/31/98

Pulse Amplitude and Polarity	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
~~POSITIVE~~ WHP 7/31/98			ST	EL	SL		
POSITIVE	29V	SPIKE			✓	Figure 11	02:00
NEGATIVE	29V	SPIKE			✓	FIGURE 11	02:09

*ST = Susceptibility Threshold, EL = Equipment Limit, SL = Specification Limit

Assembly Part No. 1356008-1

Serial No. 202

Shop Order: 560869

Engineer: William H. Parker

Quality Assurance:

Operator: AMSU 5 SEIT 8-1-98

Customer Rep.:

TEST DATA SHEET 6 (Sheet 2 of 2)
CS06 Test (Paragraph 3.4.8.4)

+29V Survival Bus A

Pulse Amplitude and Polarity ~~POSITIVE~~	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
POSITIVE	29V	SPIKE			✓	Figure 11	
NEGATIVE	29V	SPIKE			✓	FIGURE 11	

TEST DATA SHEET 10 (Sheet 1 of 2)
RS01 Test (Paragraph 3.4.12.4)

Test Setup Verified: Ken Shaw 7/28/98
(Signature)

Test Equipment Log

Item	Manufacturer	Model/Part No.	Aerojet Inventory No.	Calibration Date	Calibration Due Date
Precision Resistor Assy	Solar	7144-1.0	L0502137	5-5-98	CNR
Power Amplifier	McIntosh	MC2205	45071	30Mar90	NDG
Magnetic Field Loop	Stoddard	95055-1	L502039	1/22/89	CNR
Systems Analyzer	HP	3563A	53898	5/12/97	4/12/99
Function Generator	HP	3325A	46279	3/13/98	9/13/98
Oscilloscope	TEK	TDS380	200079	4/7/98	4/1/99

7/28/98

Susceptibility Magnetic Fields

Instrument Lateral Walls

Plot No.	Frequency Range	Test Level	Equivalent Volt Level	Limit Factor*			Spec Limit Criteria	Comments/ Observations
		dbpt	Vpp	ST	EL	SL		Baseline: T084
	30 Hz to 360 Hz	124	5.4mV			✓	Figure 19	T085
	360 Hz to 2000 Hz	↓	28.6mV			✓	Figure 19	T086
	2 kHz to 4 kHz		58.4mV			✓	Figure 19	T087
	4 kHz to 8 kHz		117mV			✓	Figure 19	T088
	8 kHz to 10 kHz		134mV			✓		T089
	10 kHz to 50 kHz		0.67V			✓		T090
	50 kHz to 200 kHz	124	2.67V			✓		T091

* ST = Susceptibility Threshold, EL = Equipment Limit, SL = Specification Limit

Note: Attach all backup data generated during the test (photos, printouts plots, test logs, additional comments or observations, etc.) to this data sheet.

Assembly Part No. EOS/AMSU A-1 1356008-1-EM1

Serial No. 202

Shop Order: 560869

Signature/Date

Engineer: Ken Shaw / William H. Parker 7/29/98

Quality Assurance:

Operator: Ken Shaw / William H. Parker 7/29/98

Customer Rep.: 7-30-98

TEST DATA SHEET 11 (Sheet 1 of 2)

Static H Field (Paragraph 3.4.13.4)

AMSU 5 SEIT

Test Setup Verified: Ken Shaw 7/30/98
(Signature)

Test Equipment Log

Item	Manufacturer	Model/Part No.	Aerojet Inventory No.	Calibration Date	Calibration Due Date
DC Power Supply	Power Design	36505	39280	1/30/97	1/30/99
Gaussmeter	F. W. Bell	9500	R300625	12/3/96	12/3/98
Gaussmeter Probe	F. W. Bell	Mox99-2506	R300642	4/27/98	4/27/99
Magnetic Field Loop	Stoddard	95055-1	L502039	1/22/89	CNR
Precision Resistor Assy	Solar	7144-1.0	L502137	5/5/98	CNR
DMM	Tektronics	DMM-916	L607687	3/6/98	3/6/99

TA 197
7-30-98
0130HR

Susceptibility Magnetic Fields

Instrument Lateral Walls

Location	Test Level	Equivalent Volt Level	Limit Factor*			Spec Limit Criteria	Comments/ Observations Baseline: TO 107
			ST	EL	SL		
Lateral Walls	2.2g	+1.015VDC			✓	2 gauss	Test Time: 90sec.
							TO 108

* ST = Susceptibility Threshold, EL = Equipment Limit, SL = Specification Limit

Note: Attach all backup data generated during the test (photos, printouts plots, test logs, additional comments or observations, etc.) to this data sheet.

Signature/Date

EOS/AMSU A-1
Assembly Part No. 1356008-1-EMI

Serial No. 202

Shop Order: 560869

AMSU 5 SEIT

Engineer: Ken Shaw / William H. Parker
7-30-98 7-31-98

TA 269

Quality Assurance: Judie Harvey

AMSU 5 SEIT

Operator: Ken Shaw / William
7-30-98 7-30-98

Customer Rep.:
7-30-98

TEST DATA SHEET 11 (Sheet 2 of 2)
Static H Field (Paragraph 3.4.13.4)

AMSU 5 SEIT

Test Setup Verified: Ken Shaw 7/30/98
(Signature)

Instrument Connectors

Location	Test Level	Equivalent Volt Level	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
Connectors	2.2g	+1.015VDC			✓	2 gauss	TO 109
							Test Time: 90sec.

Instrument Cables

Location	Test Level	Equivalent Volt Level	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
Cables	2.2g	+1.015VDC			✓	2 gauss	TO 110
							Test Time: 90sec

TEST DATA SHEET 7 (Sheet 1 of 3)
RS03 Test (Paragraph 3.4.9.4)

Test Setup Verified: AMSU 4 SEIT 8-1-98
(Signature)

Test Equipment Log

Item	Manufacturer	Model/Part No.	Aerojet Inventory No.	Calibration Date	Calibration Due Date
VHF ATTENUATOR (120dB)	HP	355D	L508667	11-25-97	11-25-98
Swept Signal Generator	HP	83630B	C200202	1-15-98	1-15-99
Spectrum Analyzer	HP	~~R300662~~ 8566B AMSU 4 SEIT	R300662	4-15-98	10-15-98
Plotter	HP	7470A	57707	N/A	N/A
BroadBand Amplifier	Eaton	3552B	46127	4-7-92	NDG
BroadBand Amplifier	Eaton	5020B	46126	4-7-92	NDG
BroadBand Amplifier	Eaton	5001	R300637	4-13-98	4-13-99
RF Amplifier	Varian	VZM6991K 3CDF	46833	3-16-98	NDG
RF Amplifier	Varian	VZC6961K 2CDF	47517	4-7-92	NDG
RF Amplifier	Varian	VZS6951K 2CDF	46957	2-6-97	NDG
RF Amplifier	Varian	VZL6941K 1CDF	47556	4-7-92	NDG
HORN Antenna	Eaton	960001	46134-6	CNR	CNR

Note: Attach all backup data generated during the test (photos, printouts, plots, test logs, additional comments or observations, etc.) to this data sheet.

Assembly Part No. EOS/AMSU-A1 1356008-1-EMI

Serial No. 202

Shop Order: 566869

Signature/Date

Engineer: / 8-3-98

Quality Assurance: 14 269 AUG 4

Operator: AMSU 4 SEIT 8-1-98

Customer Rep.:

TEST DATA SHEET 7 (Sheet 1 of 3) [Continued]
RS03 Test (Paragraph 3.4.9.4)

Test Setup Verified: AMSU 4 SEIT 8-1-98
(Signature)

Test Equipment Log

Item	Manufacturer	Model/Part No.	Aerojet Inventory No.	Calibration Date	Calibration Due Date
Horn Antenna	Electro Metrics	RGA-18C	L508357	10-6-97	10-6-98
Biconical Antenna	AIL TECH	96002	46134-7	4-21-90	CNR
Cone Antenna	AIL TECH	93490-1	46129	10-21-91	CNR
Parallel Element Antenna	AIL TECH	96003	46134-8	4-21-90	CNR
Isotropic Field Monitor	Amplifier Research	~~R~~FM2000	R300641	4-22-98	4-22-99
Isotropic field Probe	Amplifier Research	PM2000	R300642	4-22-98	4-22-99
BroadBand Amplifier	Eaton	15100B	46128	4-7-92	NDG
Synthesizer/Generator	HP	3325A	46279	3-13-98	9-13-98
Display	HP	70004A	C200064	9-6-97	9-6-98
Frequency Spect. Analyzer	HP	70001A	C200066	9-6-97	9-6-98
—	—	—	—	—	—
—	—	—	—	—	—

Note: Attach all backup data generated during the test (photos, printouts, plots, test logs, additional comments or observations, etc.) to this data sheet.

Assembly Part No. EOS/AMSU-A1 1356008-1-EM1

Serial No. 202

Shop Order: 560869

Signature/Date

Engineer: /8-3-98

Quality Assurance 7A 269 Judie Herring AUG

Operator: AMSU 4 SEIT 8-1-98

Customer Rep.:

TEST DATA SHEET 7 (Sheet 2 of 3)
RS03 Test (Paragraph 3.4.9.4)

Susceptibility to Radiated Electric Fields

	Test Level V/m	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria V/m	Comments/ Observations
			ST	EL	SL		
Special Frequencies							Baseline 090
22875 GHz	20	Sine			✓	20	Vertical 95
2.2875 GHz	20	Sine			✓	20	Horizontal 96
8.2125 GHz	20	Sine			✓	20	Vertical 97
8.2125 GHz	20	Sine			✓	20	Horizontal 98
1-2 GHz	2	Sine			✓	2	Vertical 99
1-2 GHz	2	Sine			✓	2	Horizontal 100
Baseline	-	-			-	-	8/3/98 100
16 to 18 GHz	10	Sine			✓	10	Vertical 101
16 to 18 GHz	10	Sine			✓	10	Horizontal 102
14 to 16 GHz	10	Sine			✓	10	Vertical 103
14 to 16 GHz	10	Sine			✓	10	Horizontal 104
12 to 14 GHz	10	Sine			✓	10	Vertical 105
12 to 14 GHz	10	Sine			✓	10	Horizontal 106
10 to 12 GHz	10	Sine			✓	10	Vertical 107
10 to 12 GHz	10	Sine			✓	10	Horizontal 108
8 to 10 GHz	10	Sine			✓	10	Vertical 109
8 to 10 GHz	10	Sine			✓	10	Horizontal 110
6 to 8 GHz	10	Sine			✓	10	Vertical 111
6 to 8 GHz	10	Sine			✓	10	Horizontal 112
4 to 6 GHz	10	Sine			✓	10	Vertical 113
4 to 6 GHz	10	Sine			✓	10	Horizontal 114
2 to 4 GHz	10	Sine			✓	10	Vertical 115
2 to 4 GHz	10	Sine			✓	10	Horizontal 116

* ST = Susceptibility Threshold, EL = Equipment Limit, SL = Specification Limit

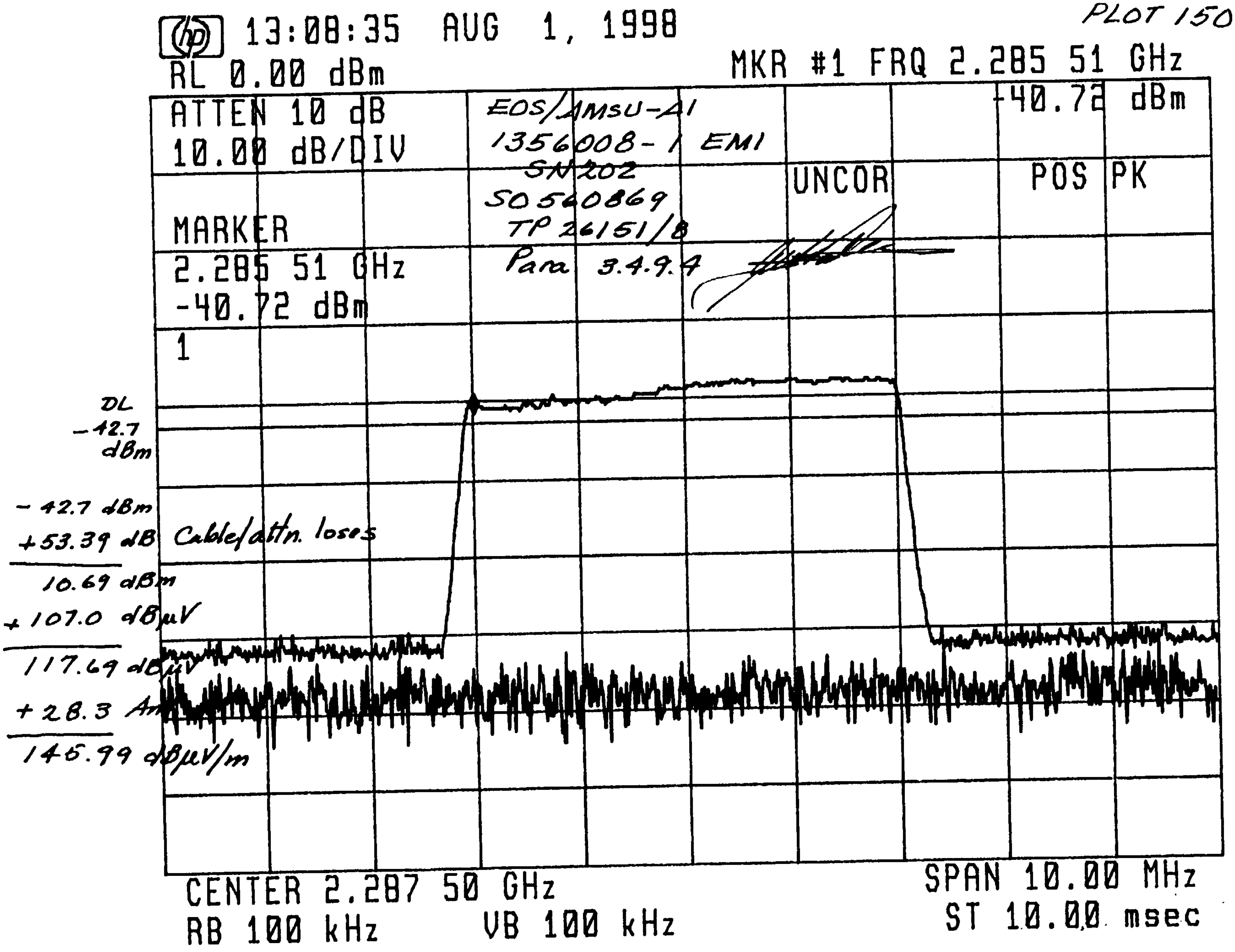
TEST DATA SHEET 7 (Sheet 3 of 3)
RS03 Test (Paragraph 3.4.9.4)

Susceptibility to Radiated Electric Fields

	Test Level	Signal Type or Waveform	Limit Factor*			Spec Limit Criteria	Comments/ Observations
			ST	EL	SL		
FREQUENCY RANGE	V/M					V/M	BASELINE: T200
14KHZ - 100KHZ	2.3	SINE			✓	2.0	T201
100KHZ - 500KHZ	2.2	SINE			✓	2.0	T202
500KHZ - 1MHZ	2.3	SINE			✓	2.0	T203
1MHZ - 5MHZ	2.4	SINE			✓	2.0	T204
5MHZ - 8MHZ	2.4	SINE			✓	2.0	T205
8MHZ - 12MHZ	2.2	SINE			✓	2.0	T206
12MHZ - 20MHZ	2.1	SINE			✓	2.0	T207
20 MHZ - 30MHZ	2.5	SINE			✓	2.0	T208
30MHZ-50MHZ VERTICAL POLARIZE.	2.7	SINE			✓	2.0	T209
50MHZ - 100MHZ VERTICAL POLARIZE	2.8	SINE			✓	2.0	T210
100MHZ - 200MHZ VERTICAL POLARIZE	2.7	SINE			✓	2.0	T211
30MHZ - 50MHZ HORIZONTAL POLARIZE	2.8	SINE			✓	2.0	T212
50MHZ - 100MHZ - HORIZONTAL	2.9	SINE			✓	2.0	T213
100MHZ - 200MHZ HORIZONTAL	2.7	SINE			✓	2.0	T214
200MHZ - 500MHZ	2.7	SINE			✓	2.0	T117
500MHZ - 700MHZ	2.4	SINE			✓	2.0	T118
700MHZ - 1GHZ	2.5	SINE			✓	2.0	T119

* ST = Susceptibility Threshold, EL = Equipment Limit, SL = Specification Limit

RS03
PLOT 150

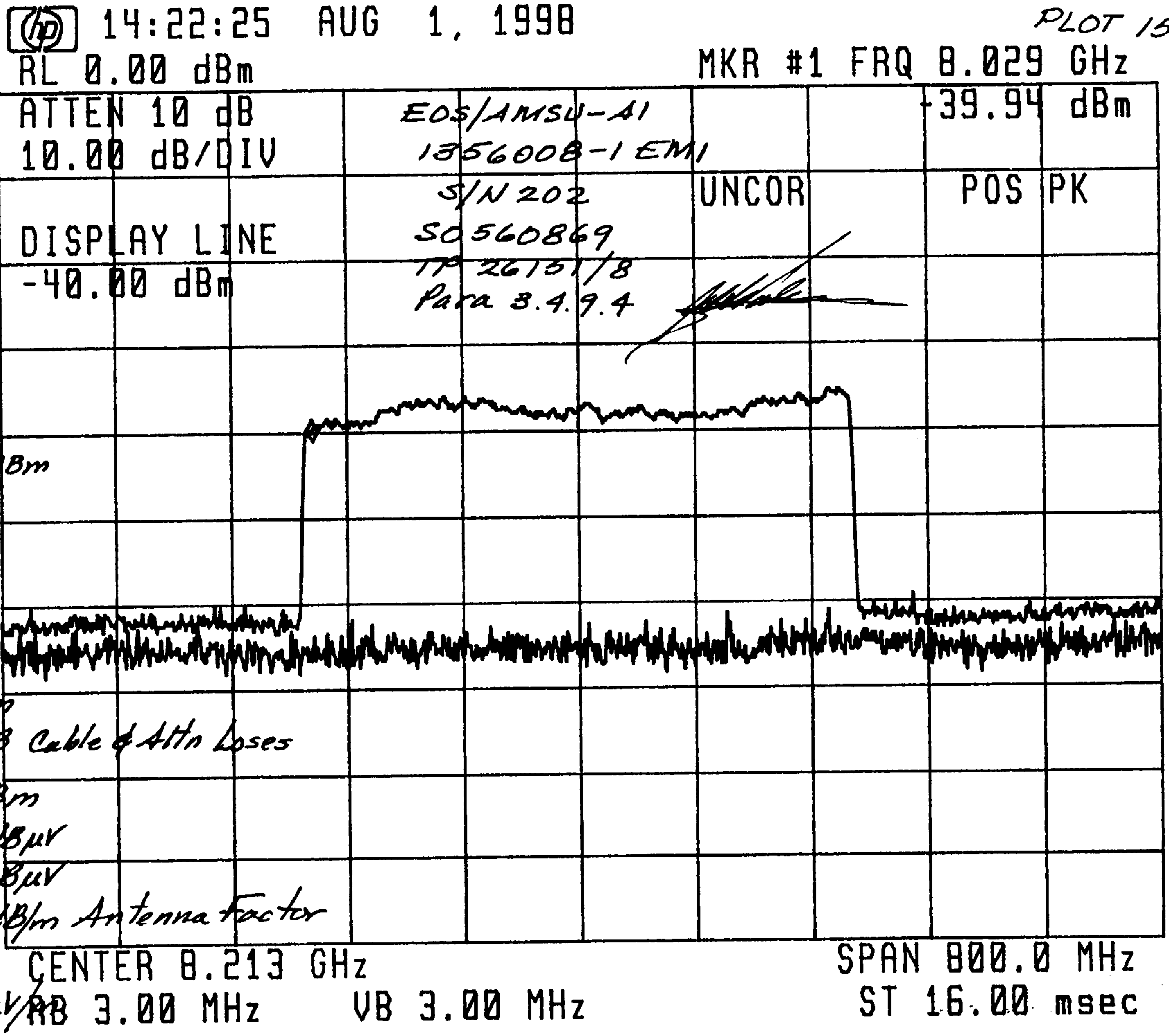


EOS/AMSU-A1
1356008-1 EMI
SN 202
S0560869
TP 26151/B
Para 3.4.9.4

DL
-42.7
dBm

-42.7 dBm
+53.39 dB Cable/attn. loses
10.69 dBm
+107.0 dBμV
117.69 dBμV
+28.3 Am
146.99 dBμV/m

RS03
PLOT 151



EOS/AMSU-A1
1356008-1 EMI
S/N 202
SO 560869
TP 26151/8
Para 3.4.9.4

DL
-40 dBm

-40 dBm
+41.5 dB Cable & Attn Loses

1.5 dBm
107.0 dBμV

108.5 dBμV
37.5 dB/m Antenna Factor

146.0 dBμV/m

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National Aeronautics and
Space Administration

Report Documentation Page

1. Report No. ---	2. Government Accession No. ---	3. Recipient's Catalog No. ---
4. Title and Subtitle Integrated Advanced Microwave Sounding Unit-A (AMSU-A), Engineering Test Report		5. Report Date 22 September 1998 6. Performing Organization Code ---
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15. Supplementary Notes

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16. ABSTRACT (*Maximum 200 words*)

This is the Engineering Test Report, Electromagnetic Interference (EMI)/Electromagnetic Radiation (EMR) and Electromagnetic Capability (EMC) For The EOS/AMSU-A1 for the Integrated Advanced Microwave Sounding Unit-A (AMSU-A).

17. Key Words (Suggested by Author(s)) EOS Microwave System	18. Distribution Statement Unclassified — Unlimited

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

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4. TITLE AND SUBTITLE
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5. FUNDING NUMBERS
NAS 5-32314

6. AUTHOR(S)
L. Paliwoda

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1100 W. Hollyvale
Azusa, CA 91702

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22 September 1998

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Goddard Space Flight Center
Greenbelt, Maryland 20771

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11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION/AVAILABILITY STATEMENT

12b. DISTRIBUTION CODE
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13. ABSTRACT (*Maximum 200 words*)

This is the Engineering Test Report, Electromagnetic Interference (EMI)/Electromagnetic Radiation (EMR) and Electromagnetic Capability (EMC) For The EOS/AMSU-A1 for the Integrated Advanced Microwave Sounding Unit-A (AMSU-A).

14. SUBJECT TERMS
EOS
Microwave System

15. NUMBER OF PAGES

16. PRICE CODE
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17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	SAR

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
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298-102

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