



**Integrated AMSU-A
Earth Observing System (EOS)
Advanced Microwave Sounding Unit-A (AMSU-A)
Trend Analysis**

**Contract No: NAS 5-32314
CDRL: 111**

Submitted to:

**National Aeronautics and Space Administration
Goddard Space Flight Center
Greenbelt, Maryland 20771**

Submitted by:

**Aerojet
1100 West Hollyvale Street
Azusa, California 91702**

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TREND ANALYSIS

The AMSU-A parameters listed below have been selected as the measurable parameters which relate to the performance stability of the instrument and its components. These parameters shall be monitored for trends starting at initiation of Acceptance Testing and shall continue during the system integration and test phases of the instrument. The parameters shall be monitored within the normal test framework (i.e., during functional tests, environmental tests, etc.).

1. Power Input
 - +28 Vdc Mainbus for METSAT, +28 Vdc Quiet Bus for EOS
 - +28 Vdc Pulse load bus for METSAT, +28 Vdc Noisy Bus for EOS
2. Antenna Position Data
 - All 30 positions plus Warmload and Cold Cal
3. Radiometric Output for In-flight mode
 - Warmload/Count vs Temperature
4. Frequency (DRO and PLO) vs Temperature
5. Calibration Data (this data will be recorded only once or twice as required within the normal framework of testing).
6. A1-1, A1-2, A2 Motor average and A2 Compensator (METSAT only)
 - Motor average current through analog telemetry, which is monitored by the STE (Special Test Equipment).

The sequence of testing is shown on the Manufacturing Fabrication and Assembly Flow Plan. Tables I and II summarize which parameters are to be monitored during testing of the A1 and A2 instruments, respectively. Data will be reviewed as it is taken to determine if it is within limits, considering the operating voltage and temperatures.

TABLE I

TREND ANALYSIS DATA COLLECTION
 FOR AMSU -A1

<u>Test Description</u>	<u>Specification</u>		<u>Parameters</u>
	METSAT	EOS	
Comprehensive Performance Test (CPT)	AE26156/3	AE26156/9	1,2,3,4,6
Limited Performance Test (LPT)	AE26156/3	AE26156/9	1,2,3,6
Thermal Cycling	AE26151/6	N/A	1,2,6
Thermal Vacuum Calibration and Cycle	AE26156/5	AE26156/11	1,2,5,6

TABLE II

TREND ANALYSIS DATA COLLECTION
 FOR AMSU -A2

<u>Test Description</u>	<u>Specification</u>		<u>Parameters</u>
	METSAT	EOS	
Comprehensive Performance Test (CPT)	AE26156/4	AE26156/10	1,2,3,4,6
Limited Performance Test (LPT)	AE26156/4	AE26156/10	1,2,3,6
Thermal Cycling	AE26151/6	N/A	1,2,6
Thermal Vacuum Calibration and Cycle	AE26156/6	AE26156/12	1,2,5,6

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