Report 11302
28 October 1998

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

Engineering Test Report

METSAT A1 Signal Processor (P/N: 1331670-2, S/N: F03)

Contract No. NAS 5-32314
CDRL 207

Submitted to:

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

Submitted by:

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1100 West Hollyvale Street
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1.0 Introduction

This report presents a description of the tests performed, and the test data, for the A1 METSAT Signal Processor Assembly PN: 1331679-2, S/N F03. The assembly was tested in accordance with AE-26754, "METSAT Signal Processor Scan Drive Test and Integration Procedure".

The tests were conducted at room temperature in the AMSU-A test area of building 57. The tests fall into six categories: 1) Continuity, 2) Power Distribution, 3) Digital Processor, 4) Analog Processor, 5) Scan Drive, and 6) Supply Current.

2.0 Objective

The objective is to demonstrate functionality of the signal processor prior to instrument integration.

3.0 Test Data

All test data is presented on the enclosed copies of the test data sheets (TDSs) numbered TDS 1 through TDS 10 (Pages A-2 through A-14). Redlines to the data sheets were necessary and were accomplished in accordance with program directive No. 91. Each change was approved by Quality and the test engineer. Changes were made for the following reasons: 1) Test parameter limits were changed due to design changes in the instrument circuitry, 2) Addition of CCA serial number recording locations, and 3) Correction of a typing error. Also included with the test data sheets is the Manufacturing Assembly Instructions list of the CCA card cage slot assignment record listing each CCA part number and serial number.

4.0 TESTS

4.1 Continuity

A complete continuity test of the backplane wiring is performed at the facility where the wirewrapping of the backplane is done. The continuity tests performed here involve 1) the I/O interface card slots, J301 and J326, 2) the Aerojet added Pre-amp/detector signal cable and connector, 3) the Aerojet added Pre-amp/detector power cable and connector, and 4) chassis return connections. The tests are manual resistance measurements tests. Test data is presented on TDS 1.

4.2 Power Distribution

In these tests supply voltages are input to the signal processor from the Test Relay Unit (TRU) as in normal testing. No CCAs are installed in the signal processor for the tests. The test verifies that the four supply voltages are present on the proper pins of all backplane connectors. The test setup block diagram is shown in Figure 1, and test data is presented on TDS 2.

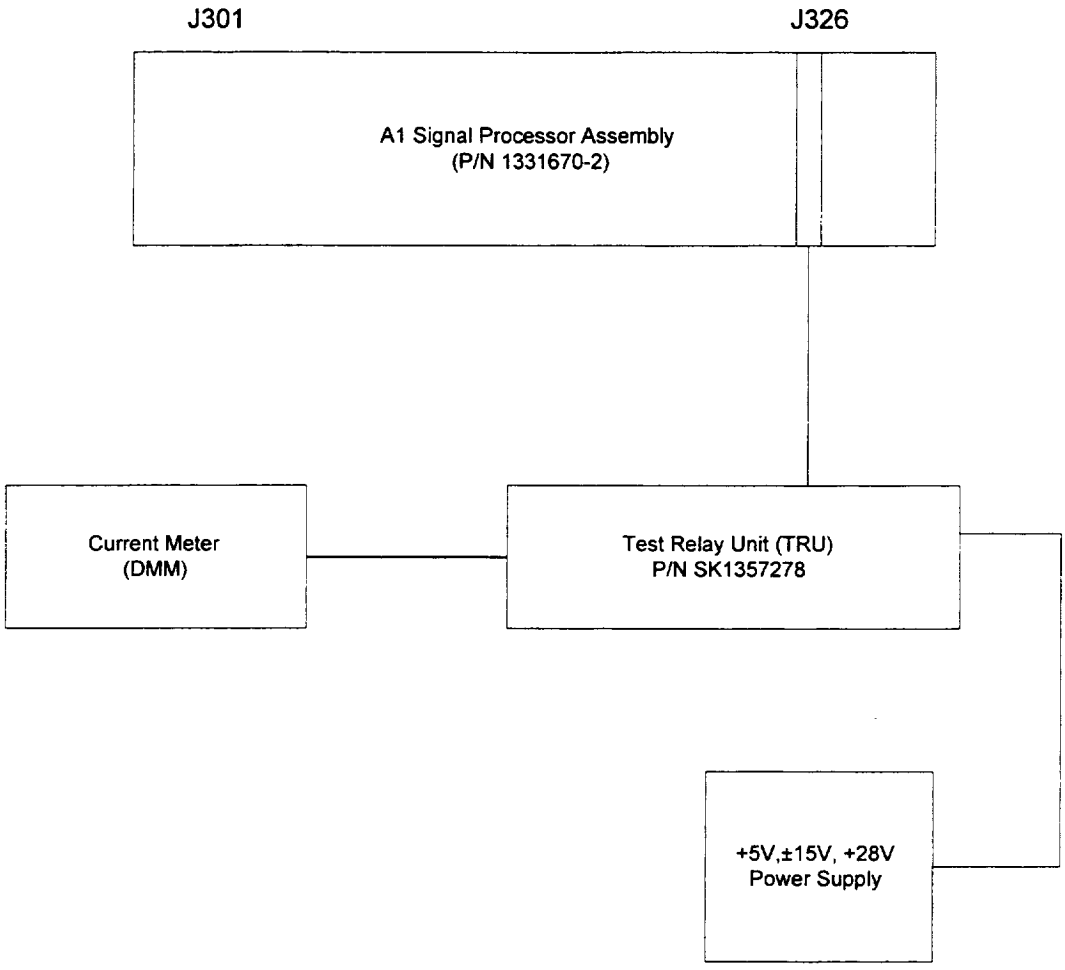


Figure 1. A1 Signal Processor Test Setup

4.3 Digital Processor

Beginning with this test, CCAs are installed into the card cage as required to perform the test, and then remain installed. At the conclusion of all tests, a complete set of CCAs has been installed. The complete test setup block diagram which is required for performing any of the tests is shown in Figure 2.

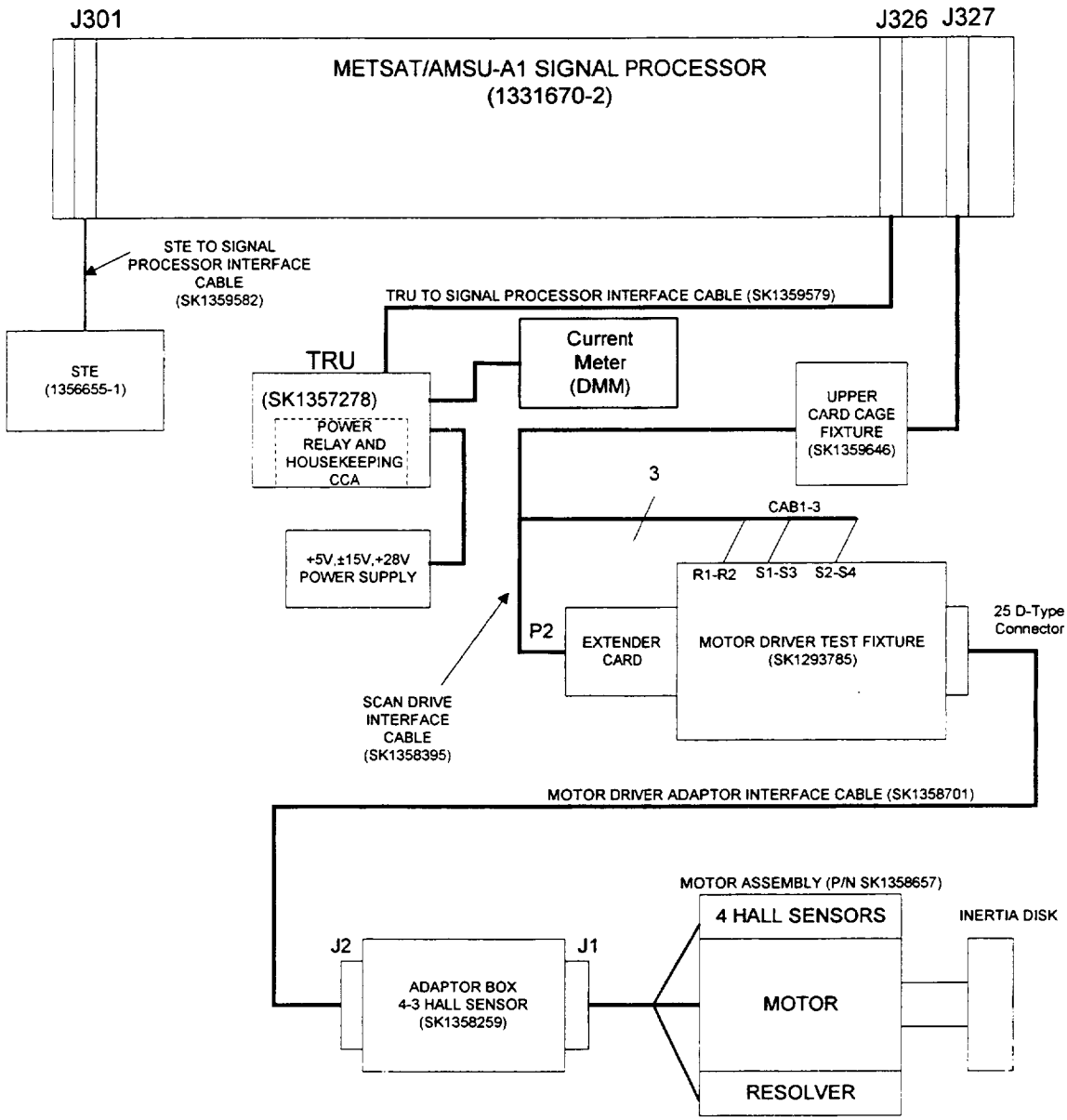


Figure 2 Scan Drive Test Set-Up

4.3.1 Memory

In this test, the digital test set is used in place of the CPU CCA to read and verify data of the test PROMs on the "GOLD" Memory CCA. Test data is presented on TDS 3.

4.3.2 CPU

The CPU test requires that the CPU Auxiliary test CCA be installed in place of the Memory CCA. In this test, the RAM and various instructions performed by the CPU are tested. In addition, the waveform of the clock signal to the DC-DC converter is measured at the CLOCK jack on the TRU. Test data is presented on TDS 3.

4.3.3 Scan Control Interface

In this test, input and output ports 0 through 3 are tested. In addition, the disable feature of the input ports is checked out. Test data is presented on TDS 3.

4.3.4 Timing and Control

In this test, the proper time intervals of I/H, DUMP, INTCMPL,TSCMPL, STOP, and ANTENNA STROBE are verified. In addition to the above tests, the test set also checks the input ports 16 and 17, output port #13 (4 MSBs), output port 14, input port #15 (DAC BSY signal), and output port #13 (4 LSBs). Test data is presented on TDS 3.

4.3.5 Spacecraft Interface

In this test, the STE is turned on and initialized. The STE is tested with a series of self-tests to verify the readiness of the STE to test flight hardware. After successfully passing the self-tests, the STE is used to simulate the spacecraft command signals and retrieve limited test data for the remaining signal processor tests. STE test data is presented on TDS 4.

4.3.6 Relay Control

This test verifies the operation of the module power command and the survival heater command. The presence of the +10 volt Interface power is verified. The PLO lock alarm signals, Scan 1 and 2 relay drive and position indicators, and PLO relay drive and relay position indicators are also verified. Test data is presented on TDS 4.

4.4 Analog Processor

4.4.1 Independence of Measurements

This test is performed using the Analog CCA Test Fixture, the Integrate and Dump Filter and the Analog Mux and A/D Converter CCAs. The test gives a measurement of the sample-to-sample crosstalk within a channel, which is dependent on the completeness of the dump of the integration capacitor. Test data is presented on TDS 5.

4.4.2 Integrate/dump filter, radiometric data multiplexing, and digitization tests

In this test, a 2 volt dc signal is input to each integrate and dump filter, and the channel output code from the A/D converter is measured. The integrator output waveform is also displayed on an oscilloscope for verification of timing. Test data is presented on TDS 6.

4.4.3 Temperature monitoring circuits

In this test a resistor of value approximating the room temperature resistance of the PRTs is connected at the input of each PRT readout circuit, and the output code from the A/D converter is measured. The reference voltage used in the PRT readout circuits is also measured. Test data is presented on TDS 7.

4.4.4 Analog telemetry

In this test each of the analog telemetry signals is measured at the ANALOG HSKP jack on the TRU. Test data is presented on TDS 8.

4.5 Scan Drive

This test includes all CCAs involved in the scan drive function. The circuitry is programmed to provide one complete revolution of the drive motor as it steps through each of the thirty scene positions and the two calibration positions. The circuitry is programmed to park at the Warm Cal, Cold Cal, and the Nadir positions during the test sequence. The GSE test modes are also verified. To verify proper performance, the inertia disk on the motor shaft is visually observed through the one revolution and the various calibration positions. Test data is presented on TDS 9.

4.6 Supply Current

In this test, the total current drawn by the signal processor from each of the four supply voltages is measured with the signal processor fully populated with CCA's. Test data is presented on TDS 10.

5.0 TEST ANOMALIES

No test anomalies occurred during the Signal Processor engineering tests.

6.0 TEST RESULTS

The METSAT/AMSU A1 SIGNAL PROCESSOR TEST was successfully completed and all test data is within specified limits.

F03

GENCORP AEROJET	MANUFACTURING ASSEMBLY INSTRUCTIONS (M.A.I.)		PAGE	OF
	PART DESCRIPTION: SIGNAL PROCESSING ASSY.	PART NUMBER: 1331670-2	6	7
PLANNED BY: J. DIPASQUALE	DATE: 5/08/97	REVISION: 01	NEXT ASSEMBLY: 1331720-2	OPER: 0090

10/17/97

5. Record Serial Numbers of each CCA below.

d) Record S/N of each CCA in the area noted below, also record S/N on the Data Sheet.
Note: CCA'S will be installed at Operation 0120 per AE-26002/3 Test Procedure.

e) Record Part No. and S/N of CCA required, for location J317 Connector.

LOCATION	ITEM #	CCA PART NO.	SERIAL NO.	DESCRIPTION	COMMENTS
J301					
J302					
J303	2	1338421-1	F19	TEMP. SENSOR A	
J304	3	1331682-1	F289	TEMP. SENSOR BD. "B"	
J305	3	1331682-1	F32	TEMP. SENSOR BD. "B"	
J306	4	1331688-1	F16	Temp.Sensor,ANLG MUX	
J307	5	1356418-1	F04	MUX AND ANLG/DGTL	
J308	6	1338424-1	F16	INTEG. & DUMP FILTER	
J309	6	1338424-1	F19	INTEG. & DUMP FILTER	
J310	6	1338424-1	F27	INTEG. & DUMP FILTER	
J311	6	1338424-1	F37	INTEG. & DUMP FILTER	
J312	7	1331147-1	F19	SPACECRAFT I/F NO.2	
J313	8	1331144-1	F19	SPACECRAFT I/F NO.1	
J314	9	1351150-1	F22	PARALLEL TO SER CNVTR	
J315	10	1331135-1	F11	TIMING AN CONTROL	
J316	11	1356413-2	F02	CPU	
J317	12	*1331126-11	F01	MEMORY ASSY.	**
J318	13	1331129-1	F16	SCAN CONTROL INTFC	
J319	40	1356911-1	F01	RELAY DRVR & CUR MON	
J320	14	1331697-1	F27	Interface/Converter	***
J321	15	1334972-1	F21	RSLVR DATA ISOL	
J322	16	1337739-1	F22	R-D CONVERTER/OSC	***
J323	14	1331697-1	F34	Interface/Converter	***
J324	15	1334972-1	F31	RSLVR DATA ISOL	
J325	16	1337739-1	F25	R-D CONVERTER/OSC	***
J326					
J327					

*** = See table #1 for selection of CCA required at this location.**

**** = Memory CCA installed at next assembly.**

670dasht1

***** = Test and select resistors added at system level test.**
Not Conformal Coated when installed at next assembly.

Figure #4

TEST DATA SHEET 1
A1 Continuity Tests (4.2.1)

From	To	Signal Name	Pass/Fail
J301-1	P511-3	CH 3 - IN	P
J301-10	P511-13	CH 8 - IN	P
J301-13	P511-15	CH 9 - IN	P
J301-15	P511-17	CH 10 - IN	P
J301-16	P511-19	CH 11 - IN	P
J301-19	P511-21	CH 12 - IN	P
J301-21	P511-23	CH 13 - IN	P
J301-22	P511-25	CH 14 - IN	P
J301-25	P511-1	CH 15 - IN	P
J301-3	P511-5	CH 4 - IN	P
J301-4	P511-7	CH 5 - IN	P
J301-60	E1	CHASSIS GND	P
J301-7	P511-9	CH 6 - IN	P
J301-9	P511-11	CH 7 - IN	P
J301-90	E2	CHASSIS GND	P
J304-43	P512-5	+15V(2)	P
J304-45	P512-24	+15V(2)	P
J304-46	P512-9	15VRTN(2/3)	P
J304-48	P512-29	15VRTN(2/3)	P
J304-49	P512-14	-15V(3)	P
J304-51	P512-15	-15V(3)	P
J305-68	P512-12	PRT35_HI (PRE AMP)	P
J305-72	P512-11	PRT35_LO (PRE AMP)	P
J326-76	E3	CHASSIS GND	P

Assembly No. 1331670-2 Shop Order No. 543651

Serial No. F03 Pass ✓ Fail ____

Test Engineer D Lund 10/20/98 Quality Control _____ OCT 21 '98
(Signature) (Date) (Signature) (Date)

Customer Representative (Flight hardware only) _____ 10-21-98
(Signature) (Date)

TEST DATA SHEET 2

A1 Power Distribution (Paragraphs 4.2.2 & 4.2.3)

Power Supply Voltages:

+5.7 ± 0.1V: 5.672V

-15.7 ± 0.1V: -15.694V

+15.7 ± 0.1V: 15.683V

+28.7 ± 0.1V: 28.75V

Test Set-up Verified: YES ✓ NO ____

Para. 4.2.3 Step No.	Connector No.	+5 ±0.5 V	P/F	+15 ±0.3V	P/F	-15 ±0.3V	P/F	+28 ±0.56V	P/F	+9 ±1V*	P/F
7*	J301									9.4	P
1	J303			14.98	P	-15.01	P				
2	J304			14.98	P	-15.00	P				
3	J305			14.98	P	-15.00	P				
4	J306			14.98	P	-15.00	P				
5	J307	4.95	P	14.98	P	-15.00	P				
5	J308			14.98	P	-15.00	P				
5	J309			14.98	P	-15.00	P				
5	J310			14.98	P	-15.00	P				
5	J311			14.98	P	-15.00	P				
5	J312	4.95	P							9.4	P
5	J313	4.95	P							9.4	P
5	J314	4.95	P								
5	J315	4.95	P								
5	J316	4.95	P								
5	J317	4.95	P								
5	J318	4.95	P								
5	J319	4.95	P	14.98	P	-15.01	P	28.05	P		
5	J320	4.96	P	14.98	P	-15.01	P				
5	J321	4.96	P								
5	J322	4.96	P	14.98	P	-15.00	P				
5	J323	4.96	P	14.98	P	-15.01	P				
5	J324	4.96	P								
5	J325	4.96	P	14.98	P	-15.01	P				
6	J327	4.96	P	14.98	P	-15.01	P	28.09	P		

*measured at paragraph 4.2.5.2. test

Assembly No. 133170-2

Shop Order No. 54365-1

Serial No. F03

Pass ✓ Fail ____

Test Engineer [signature] 10/20/98 (Signature) (Date)

Quality Control [signature] OCT 21 '98 (Signature) (Date)

Customer Representative (Flight hardware only) [signature] 10-21-98 (Signature) (Date)

TEST DATA SHEET 3 (Sheet 1 of 2)
A1 Digital Processor (Paragraph 4.2.4)

CPU CCA Serial No. (J316) F02
Scan Control Interface CCA Serial No. (J318) F16
Timing and Control CCA Serial No. (J315) F11

4.2.4.1 Memory tests:

4.2.4.1/10 Circle Pass or Fail to indicate the result of the tests : (Pass) Fail

If "Fail", record the error code and error description.

Error Code: N/A

Error Description: N/A

4.2.4.2 CPU tests:

4.2.4.2/10		Measurements	Limits	Pass/Fail
	Vp-p	3.80 V_{pp}	3.30 - 4.94 V	P
	T	801.5	761 - 841 ns	P

4.2.4.2/19 Circle Pass or Fail to indicate the result of the CPU tests P Pass ___ Fail

4.2.4.3 Scan Control Interface Tests:

4.2.4.3/16 The input ports 0 and 1 tests (Pass) Fail

4.2.4.3/23 Inhibit input port 0 and 1 tests (Pass) Fail

4.2.4.3/35 The input ports 2 and 3 tests (Pass) Fail

4.2.4.3/~~43~~ 42 Inhibit input port 2 and 3 tests (Pass) Fail

4.2.4.3/55 The output ports 0 and 1 tests (Pass) Fail

TEST DATA SHEET 3 (Sheet 2 of 2)
A1 Digital Processor (Paragraph 4.2.4)

4.2.4.3 Scan Control Interface Tests (Cont):

4.2.4.3/63 The output ports 2 and 3 tests (Pass) Fail

If "Fail", record the error code and error description.

Error Code: N/A

Error Description: N/A

4.2.4.4 Timing and Control Tests:

4.2.4.4/13	The Integrate and Hold pulse and the Dump pulse at the card rack slot J308.	(Pass)	Fail
4.2.4.4/23	The Integrate and Hold pulse and the Dump pulse at the card rack slot J309.	(Pass)	Fail
4.2.4.4/33	The Integrate and Hold pulse and the Dump pulse at the card rack slot J310.	(Pass)	Fail
4.2.4.4/43	The Integrate and Hold pulse and the Dump pulse at the card rack slot J311.	(Pass)	Fail
4.2.4.4/54	The Integrate and Hold pulse and the Dump pulse at the card rack slot J301.	(Pass)	Fail
4.2.4.4/64	The Antenna Strobe pulse test at J320.	(Pass)	Fail
4.2.4.4/68	The Antenna Strobe pulse test at J323.	(Pass)	Fail
4.2.4.4/78	The test of the interface to the Temp. Sensor Analog Mux card rack slot J306.	(Pass)	Fail
4.2.4.4/89	The test of the interface to the Analog Mux and Converter card rack slot J307.	(Pass)	Fail

If "Fail", record error code and error description:

Error Code: N/A

Error Description: N/A

Assembly No. 133170-2 Shop Order No. 543651

Serial No. F03 Pass ✓ Fail ____

Test Engineer [signature] 10/20/98 (Signature) (Date)

Quality Control [signature] OCT 21 '98 (Signature) (Date)

Customer Representative (Flight hardware only) [signature] 10-21-98 (Signature) (Date)

TEST DATA SHEET 4

A1 Relay Driver Tests (Paragraph 4.2.5.2)

Spacecraft Interface #2 CCA (J312) Ser. No. F19
Spacecraft Interface #1 CCA (J313) Ser. No. F19
Parallel to Serial Converter CCA (J314) Ser. No. F22
Relay Driver And Current Monitor CCA (J319) Ser. No. F01

Test Set-up Verified: Yes ✓ No ____ STE Self Test: Pass ✓ Fail ____

Step No.	Test Description	Pass/Fail
23	Module power connects	P
26	Survival heater power turns on	P
27	Survival heater power turns off	P
28	Module power disconnects	P
30	Scanner 1 power turns on	P
31	Scanner 2 power turns on	P
32	Scanner 1 power turns off	P
32	Scanner 2 power turns off	P
34	PLLO toggle	P
35	Module power disconnect	P

Assembly No. 1331670-2 Shop Order No. S-43651

Serial No. F03 Pass ✓ Fail ____

Test Engineer D Lund 10/20/98 Quality Control _____ OCT 21 '98
(Signature) (Date) (Signature) (Date)

Customer Representative (Flight hardware only) J Lund 10-21-98
(Signature) (Date)

TEST DATA SHEET 5

A1 Independence Of Measurements (Paragraph 4.2.6.1)

Analog Mux and A/D Converter CCA Serial. No. F04

Test Set-up verified: YES ✓ NO _____

Supply	Measured Value (V)	Limits (V)
+5	4.806V	+5 ± 0.25
+15	15.89V	+15 ± 1.0
-15	-15.42V	-15 ± 1.0

Integrate and Dump/Filter CCA Serial No.	Channel No.	Average for SIGNAL switch in HI position	Average for SIGNAL switch in LO position	Measurement Dependence ≤0.01%	Pass/ Fail
F16	0	14171.3	14169.6	0.00259	P
	1	14168.9	14165.9	0.00458	P
	2	14176.6	14174.8	0.00275	P
	3	14174	14171.9	0.0032	P
F19	0	14155.9	14154.8	0.00168	P
	1	14143	14141.8	0.00183	P
	2	14154.9	14152.9	0.00305	P
	3	14162.7	14160.7	0.00305	P
F27	0	14105.6	14103.7	0.0029	P
	1	14106.9	14105	0.0029	P
	2	14095.9	14092.8	0.00473	P
	3	14120.9	14119	0.0029	P
F37	0	14181.7	14179	0.00412	P
	1	14175.7	14173.7	0.00305	P
	2	14170	14167.6	0.00366	P
	3	14178.8	14176.8	0.00305	P

Assembly No. 1331670-2 Shop Order No. 543651

Serial No. F03 Pass ✓ Fail ____

Test Engineer [signature] 10/20/98 Quality Control [signature] OCT 21 '98

(Signature) (Date) (Signature) (Date)

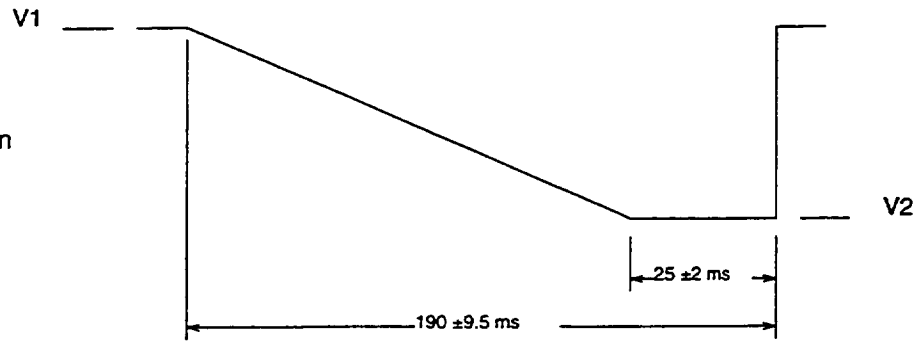
Customer Representative (Flight hardware only) [signature] 10-21-98

(Signature) (Date)

TEST DATA SHEET 6 (Sheet 1 Of 2)
A1 Integrator Signal Multiplexing, And Digitization (Paragraph 4.2.6.2)

Analog Mux and A/D Converter CCA: Ser. No. F04
Integrate and Dump/Filter CCA:
Rack Slot J308: Ser. No. F16
Rack Slot J309: Ser. No. F19
Rack Slot J310: Ser. No. F27
Rack Slot J311: Ser. No. F37

Output Waveform



Channel	Data	Data Limits	Data Pass/Fail	Integrator Waveform Pass/Fail
3	29265	27282 to 31076	P	P
4	29241	27282 to 31076	P	P
5	29114	27282 to 31076	P	P
6	29213	27282 to 31076	P	P
7	29218	27282 to 31076	P	P
8	29184	27282 to 31076	P	P
9	29007	27282 to 31076	P	P
10	29267	27282 to 31076	P	P
11	29233	27282 to 31076	P	P
12	29240	27282 to 31076	P	P
13	29109	27282 to 31076	P	P
14	29280	27282 to 31076	P	P
15	29256	27282 to 31076	P	P

TEST DATA SHEET 6 (Sheet 2 Of 2)
A1 Integrator Signal Multiplexing, And Digitization (Paragraph 4.2.6.2)

Signal Name	Output	Output Return	Signal Levels	Pass/Fail
I/H	J301-42	J301-41	Pulses (TTL)	P
Dump	J301-45	J301-41	Pulses (TTL)	P
+5 Vdc GSE Interlock A	J301-61	J301-70	+5 V	P
+5 Vdc GSE Interlock B	J301-62	J301-70	+5 V	P

Assembly No. 133170-2 Shop Order No. S-43651

Serial No. F03 Pass ✓ Fail ____

Test Engineer [signature] 10/20/98 (Signature) (Date)

Quality Control [signature] OCT 21 '98 (Signature) (Date)

Customer Representative (Flight hardware only) [signature] 10-21-98 (Signature) (Date)

TEST DATA SHEET 7 (Sheet 1 of 2)
A1 Temperature Monitoring Circuits (Paragraph 4.2.6.3)

Temperature Sensor A CCA(J303) Serial No. F19
Temperature Sensor B CCA (J304) Serial No. F27
Temperature Sensor B CCA (J305) Serial No. F32
Temperature Sensor Analog Mux CCA (J306) Serial No. F16

Dig. A Temp No.	Description	Data	Data Limits	Pass/Fail
1	Scan Motor A1-1	31310	28259 to 32513	P
2	Scan Motor A1-2	31415	28259 to 32513	P
3	Feedhorn A1-1	30499	28259 to 32513	P
4	Feedhorn A1-2	31296	28259 to 32513	P
5	RF MUX A1-1	31275	28259 to 32513	P
6	RF MUX A1-2	31375	28259 to 32513	P
7	LO CH 3	31520	28259 to 32513	P
8	LO CH 4	31367	28259 to 32513	P
9	LO CH 5	31615	28259 to 32513	P
10	LO CH 6	31345	28259 to 32513	P
11	LO CH 7	31398	28259 to 32513	P
12	LO CH 8	31158	28259 to 32513	P
13	LO CH 15	31375	28259 to 32513	P
14	PLO #2	31344	28259 to 32513	P
15	PLO #1	31416	28259 to 32513	P
16	N/A	N/A	N/A	N/A
17	Mixer IF CH 3	31446	28259 to 32513	P
18	Mixer IF CH 4	31082	28259 to 32513	P
19	Mixer IF CH 5	31317	28259 to 32513	P
20	Mixer IF CH 6	31208	28259 to 32513	P
21	Mixer IF CH 7	31359	28259 to 32513	P
22	Mixer IF CH 8	31282	28259 to 32513	P
23	Mixer IF CH 9/14	31650	28259 to 32513	P
24	Mixer IF CH 15	31241	28259 to 32513	P
25	IF Amp CH 11/14	31311	28259 to 32513	P
26	IF Amp CH 9	31398	28259 to 32513	P
27	IF Amp CH 10	31435	28259 to 32513	P
28	IF Amp CH 11	31551	28259 to 32513	P
29	DC/DC Conv	31185	28259 to 32513	P
30	IF Amp CH 13	31386	28259 to 32513	P
31	IF Amp CH 14	31383	28259 to 32513	P
32	IF Amp CH 12	31583	28259 to 32513	P
33	RF Shelf A1-1	31190	28259 to 32513	P
34	RF Shelf A1-2	28387	28259 to 32513	P
35	Detector/Preamp	31295	28259 to 32513	P

TEST DATA SHEET 7 (Sheet 2 of 2)
A1 Temperature Monitoring Circuits (Paragraph 4.2.6.3)

Dig. A Temp No.	Description	Data	Data Limits	Pass/Fail
36	A1-1 Warm Load 1	22552	20339 to 23401	P
37	A1-1 Warm Load 2	22719	20339 to 23401	P
38	A1-1 Warm Load 3	22751	20339 to 23401	P
39	A1-1 Warm Load 4	22831	20339 to 23401	P
40	A1-1 Warm Load C	22711	20339 to 23401	P
41	A1-2 Warm Load 1	22587	20339 to 23401	P
42	A1-2 Warm Load 2	22687	20339 to 23401	P
43	A1-2 Warm Load 3	22886	20339 to 23401	P
44	A1-2 Warm Load 4	22440	20339 to 23401	P
45	A1-2 Warm Load C	22739	20339 to 23401	P
46	Thermal Reference	25402	23340 to 26320	P

Assembly No. 1331670-2 Shop Order No. 543651

Serial No. F03 Pass ✓ Fail ____

Test Engineer D Lund 10/20/98 Quality Control _____ OCT 21 '98
(Signature) (Date) (Signature) (Date)

Customer Representative (Flight hardware only) _____ 10-21-98
(Signature) (Date)

TEST DATA SHEET 8

A1 Analog Telemetry (Paragraph 4.2.6.4)

ANALOG HSKP Switch Position	DVM Reading (V)	Limits (V)	Pass/Fail
1	2.98	2.85 to 3.15	P
2	3.453	3.30 to 3.66	P
3	2.968	2.87 to 3.17	P
4	3.001	2.85 to 3.15	P
5	3.452	3.30 to 3.66	P
6	2.982	2.87 to 3.17	P
7	3.449	3.30 to 3.66	P
8	2.976	2.87 to 3.17	P
9	2.979	2.85 to 3.15	P
10	3.569	3.42 to 3.78	P
11	3.263	3.13 to 3.45	P
12	2.963	2.84 to 3.14	P
13	2.953	2.84 to 3.14	P
14	2.961	2.84 to 3.14	P
15	2.967	2.84 to 3.14	P
16	2.970	2.84 to 3.14	P
17	2.966	2.84 to 3.14	P
18	3.447	3.30 to 3.66	P
19	0.05	~~4.30 to 4.66~~ -0.1 to 0.1	P
19	-4.035	~~0.4 to 0.48~~ -3.7 to -4.3	P
20	0.059	~~4.30 to 4.66~~ -0.1 to 0.1	P
20	-4.025	~~0.4 to 0.48~~ -3.7 to -4.3	P
21	0.006	-0.05 to 0.05	P
21	2.963	2.8 to 3.4	P
22	0.017	-0.05 to 0.05	P
22	2.970	2.8 to 3.4	P

D Lund 9/28/98 QC 229

Assembly No. 1331670-2 Shop Order No. 543651

Serial No. F03 Pass ✓ Fail ____

Test Engineer D Lund 10/20/98 (Signature) (Date) Quality Control (Signature) OCT 21 '98 (Date)

Customer Representative (Flight hardware only) (Signature) 10-21-98 (Date)

TEST DATA SHEET 9

A1 Scan Drive/ Signal Processor Tests (Paragraph 4.3.1 And 4.3.2)

A1-1 Drive Subsystem CCAs:

Interface Converter CCA (J320) Ser. No. F27
Resolver Data Isolator CCA (J321) Ser. No. F21
R/D Converter/Oscillator CCA (J322) Ser. No. F22
Motor Drive 3-Hall Sensor CCA (J431) Ser. No. F04
Test Set-up Verified: Yes ✓ No ____

D Lund 9/28/98 QC 229

Para/Step No.	Mode	Pass/Fail
4.3.1.2.1/11	Motor in warm cal position	P
4.3.1.2.2/3	Motor in nadir position	P
4.3.1.2.3/2	Motor in cold cal position 1	P
4.3.1.2.3/3	Motor in cold cal position 2	P
4.3.1.2.3/4	Motor in cold cal position 3	P
4.3.1.2.3/5	Motor in cold cal position 4	P
4.3.1.2.4/5	Motor in full scan mode	P
4.3.1.2.5/9	GSE mode 2	P
4.3.1.2.6/4	GSE mode 4	P
4.3.1.2.7/4	GSE mode 5	P
4.3.1.2.8/4	GSE mode 1	P
4.3.1.2.9/4	GSE mode 3	P
4.3.1.2.9/7	GSE mode 7	P
4.3.1.2.10/2	Scan power off	P

A1-2 Drive Subsystem CCAs:

Interface Converter CCA (J323) Ser. No. F34
Resolver Data Isolator CCA (J324) Ser. No. F31
R/D Converter/Oscillator CCA (J325) Ser. No. F25
Motor Drive 3-Hall Sensor CCA (J404) Ser. No. F11
Test Set-up Verified: Yes ✓ No ____

D Lund 9/28/98 QC 229

Para. No./Step No.			
4.3.2.2	A1-2 scan drive operates in full scan mode.	Pass ✓	Fail ____

Assembly No. 133170-2 Shop Order No. S4365-1

Serial No. 103 Pass ✓ Fail ____

Test Engineer D Lund 10/21/98 (Signature) (Date) Quality Control ____ (Signature) (Date) OCT 21 '98

Customer Representative (Flight hardware only) ____ (Signature) 10-21-98 (Date)

TEST DATA SHEET 10
A1 Supply Currents (Paragraph 4.4)

Voltages	Measured Current	Limits (in mA)	Pass/Fail
+28.7V	7.55	6 to 12	P
+5.7V	660	~~700 to 1642~~ 550 to 900	P
+15.7V	197	152 to 364	P
-15.7V	192	162 to 381	P

D Lud 9/28/98

Assembly No. 133170-2 Shop Order No. 54365-1

Serial No. F03 Pass ✓ Fail ____

Test Engineer D Lud 10/20/98 (Signature) (Date) Quality Control ____ (Signature) OCT 21 '98 (Date)

Customer Representative (Flight hardware only) J. Sanford 10-21-98 (Signature) (Date)

NASA
National Aeronautics and Space Administration

Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
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4. Title and Subtitle	5. Report Date
Integrated Advanced Microwave Sounding Unit-A (AMSU-A), Engineering Test Report	28 October 1998
	6. Performing Organization Code: ---
7. Author(s): D. Lund	8. Performing Organization Report No.: 11302
	10. Work Unit No.: ---
9. Performing Organization Name and Address: Aerojet, 1100 W. Hollyvale, Azusa, CA 91702	11. Contract or Grant No.: NAS 5-32314
	13. Type of Report and Period Covered: Final
12. Sponsoring Agency Name and Address: NASA, Goddard Space Flight Center, Greenbelt, Maryland 20771	14. Sponsoring Agency Code: ---

15. Supplementary Notes: ---

16. ABSTRACT (*Maximum 200 words*)

This is the Engineering Test Report, METSAT A1 Signal Processor (P/N 1331670-2, S/N F03), for the Integrated Advanced Microwave Sounding Unit-A (AMSU-A).

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

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

NASA FORM 1626 OCT 86

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4. TITLE AND SUBTITLE
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5. FUNDING NUMBERS
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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, METSAT A2 Signal Processor (P/N 1331670-2, S/N F03), 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
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D. Lund	207	N/A

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Systems Engineer (R. Platt)	8311	11/2/98
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Quality Assurance (R. Taylor)	7831	11-2-98
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