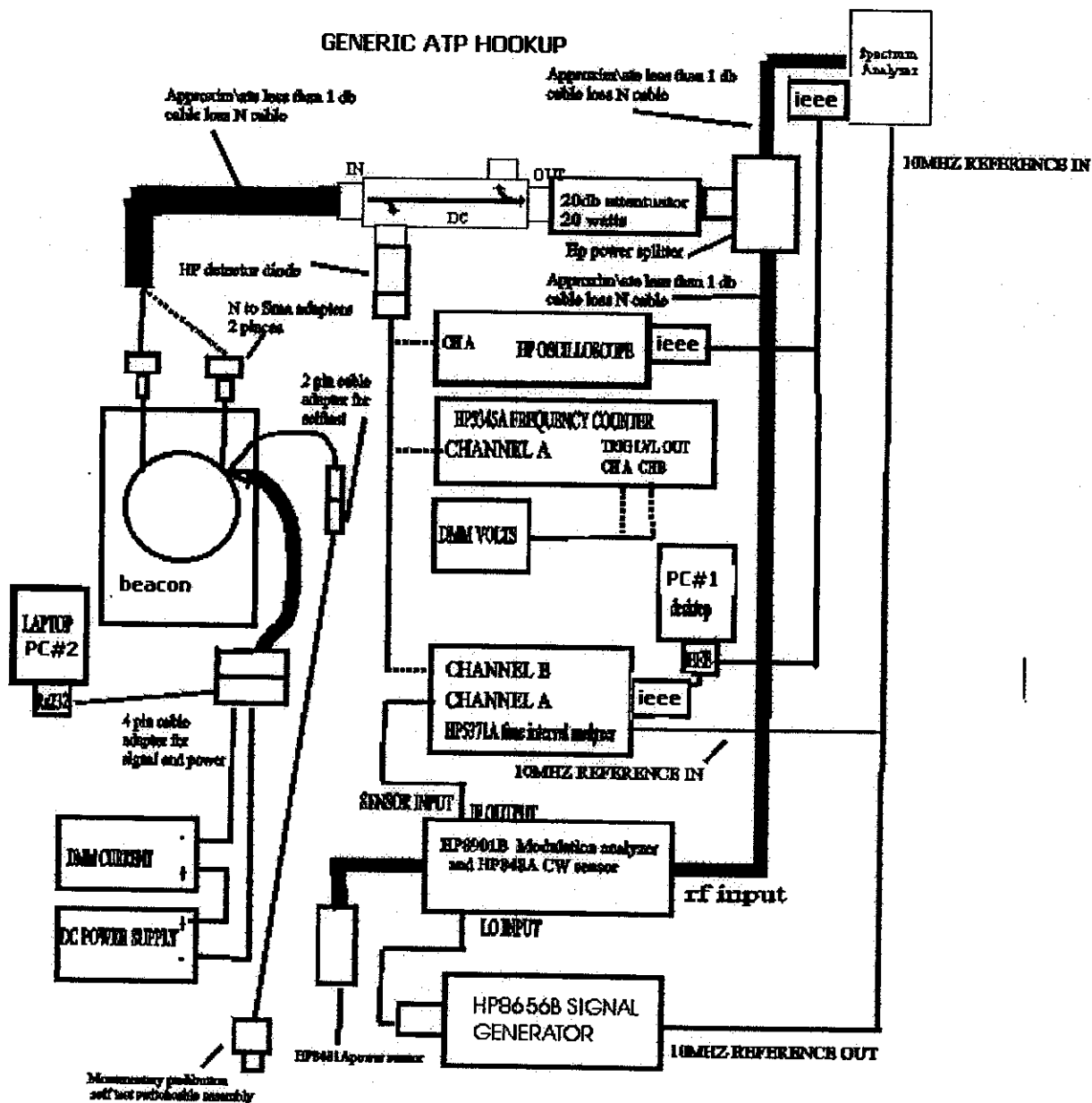


Attachment AM
Post Environmental ATP, with Self-Test Test Results

DO204/183 final ATP test

- 1) OBTAIN dme DOC Y1-02-1053, Y1-02-1054 and DO-204,183 documents FOR REFERENCE AND SET UP.
- 2) Perform the Y1-02-1054 test procedure.
- 3) Perform para. 3.1 through 3.10 of Y1-02-1053
- 4) Instead of connecting equipment as shown in figure 1A of Y1-02-1053, set up as shown here in this attachment called GENERIC ATP HOOKUP.
- 5) Activate the "burn_in_test_select2.vi" software on PC#1 with all of the test annunciation points turned on with a 59 minute interval and a final atp file name for the beacon in question. Do not start the acquire process yet.
- 6) Activate the "beaconminiexec.exe" software and highlight all the test annunciation points to gather all the 406 modulation data. Do not start the acquire process yet.
- 7) Connect the beacon antenna A port to the test equipment and activate the beacon by removing the magnet.
- 8) Perform Y1-02-1053 tests after 15 minutes of warm up utilizing "burn_in_test_select2.vi" on the PC#1 to collect most of the data needed by the Y1-02-1053 data sheet. Run the "beaconminiexec.exe" software after to collect the 406 modulation information for the data sheet.
- 9) Perform paragraphs 4.1.8, and 4.2.3, through 4.2.7 to finish up the data sheet.
- 10) Print all the "burn_in_test_select2.VI" data collected and the beaconminiexec.exe data collected.

GENERIC ATP HOOKUP



Qualification Data Sheet

Date: 2/20/03	Test: FINAL ATP
Test Unit Description	SRB-406 ELT, PN P3-03-0041-001, revision 05, Serial # 2007
Test Unit Configuration	Antenna "A" PN A3-06-2053-001 rev 02 SN 0116 Antenna "B" PN A3-06-2053-001 rev 02 SN 0106 Digital CCA PN A3-07-0038-800 rev 07 SN 0016 RF CCA PN A3-07-0039-800 rev 07 SN 0002 Battery pack A3-03-1006-001 rev 04 SN 0201310 Lanyard PN A3-05-0099-001 rev 03.
Description of Test Method (ex: Eurocae ED-62, para x.x)	Y1-02-1053,1054 ATP/AL/USAF
Pass/Fail Criteria	PASS Y1-02-1053,1054
Authorized Deviations	N/A
Test Location	DME ORC
Purchase Order #	N/A
Test Equipment Arrangement (if necessary)	SEE DATA SHEETS AND PROCEDURES
List of Calibrated Equipment	ATP, SUPPLIED
DME Test Engineer	A. KOTYK
DME QA Representative	NONE
Lab Test Engineer/Technician	NONE
Other Witness	NONE
Test Unit Authorized Deviations	NONE
Test Data	SEE ATTACHED DATA SHEETS FOR Y1-02-1053,1054 ALL PASS NH.
Data Reduction/Calculations	SEE DATA SHEETS
Test Deviations	NONE
Test Performed Prior to this Test	COLD LIFE
Next Test to be Performed	NONE
Test Engineer Signature	Ken Heston
QA Signature	K. Kotyk
Other Witness Signature	N/A
NMR #	N/A
Notes	ANT EIRP DATA TBD NH NONE.

TEST DATA SHEETS
RF BEACON ASSEMBLY
P3-03-0041-001

Tested By: M. H. H. H.

DATE: 2/20/03

Beacon P3-03-0041-001

Serial Number: 2007

AAT A = 9N 0016

AAT B = 9N 0106

BAT = 9IN 0201310

RF = 9N 0002

UG = 9IN 0016

Test Equipment	Model	Serial No. or Control No.	Cal. Due
SPECAW	HP 8568B	OR 3063	9/18/03
GENERATOR	HP 8656B	OR 1091	5/18/03
MODAWA #1	HP 8901B	OR 1093	7/28/03 2/28/03 N/A
SLOPE	HP 84510B	OR 0627	8/29/03
MODAWA #2 (PERSONAL)	HP 8901B	9IN 3704A05771	12/11/03
POWER SENSOR	HP 8481A	OR 092	2/28/03 N/A



TEST DATA SHEETS
RF BEACON ASSEMBLY
P3-03-0041-001

SPECTRUM ANALYZER OFFSET DETERMINATION AND PRETEST					
Para.	Description	Min.	Results	Max.	Pass / Fail (circle one)
3.3	HP8656 setting for 121.5MHZ	-0.5	<u>0.3</u> dBm	+0.5	P F
3.4	HP8656 setting for 243 MHZ	-0.5	<u>0.3</u> dBm	+0.5	P F
3.5	HP8656 setting for 406.028 MHZ	-0.5	<u>0.3</u> dBm	+0.5	P F

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BIST and turn on tests					
Para.	Description	Min.	Results	Max.	Pass / Fail (circle one)
4.1.1	Beacon passes self test and goes off	N/A	<u>✓</u> chk	N/A	P F
4.1.2	Beacon stays off	N/A	<u>✓</u> chk	N/A	P F
4.1.3	Beacon transmits when B antenna is touched.	N/A	<u>✓</u> chk	N/A	P F
4.1.4	Beacon goes off when magnet is installed.	N/A	<u>✓</u> chk	N/A	P F
4.1.5	Beacon transmits when A antenna is touched.	N/A	<u>✓</u> chk	N/A	P F
4.1.6	Beacon goes off when magnet is installed.	N/A	<u>✓</u> chk	N/A	P F

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TEST DATA SHEETS
RF BEACON ASSEMBLY
P3-03-0041-001

RF beacon 121.5/243 Mhz Tests

Para.	Description	Min.	Results	Max.	Pass / Fail (circle one)
4.2.1	Peak Power at 121.5 MHZ	17.0dBm	<u>18.6</u> dBm	N/A	(P) F
	Antenna gain including feeder and mismatch losses for 121.5 Mhz obtained from antenna field tests.	N/A	<u>-1.0</u> dB	N/A	N/A
	Peak power + antenna gain= EIRP	<u>17.6</u> dBm EIRP	<u>17.6</u> dBm	N/A	(P) F
4.2.2	Frequency 121.5 MHz $\pm$ 6 kHz	121.494	<u>121.5018</u> MHz	121.506	(P) F
4.2.3	Peak Power at 243 MHZ	17.0dBm	<u>19.9</u> dBm	N/A	(P) F
	Antenna gain including feeder and mismatch losses for 243 Mhz obtained from antenna field tests.	N/A	<u>3.7</u> dB	N/A	N/A
	Peak power + antenna gain= EIRP	<u>17.6</u> dBm EIRP	<u>23.6</u> dBm	N/A	(P) F
4.2.4	Frequency 243 MHz $\pm$ 12 kHz	242.988	<u>243.0030</u> MHz	243.012	(P) F
4.2.5	121.5 Mhz Modulation depth	N/A	<u>-61</u> dBc	-22dBc	P F
4.2.6	121.5 /243 Mhz Duty cycle	45%	<u>61.3</u> %	67%	P F
4.2.7	Max audio frequency	N/A	<u>1514</u> Hz	1600	P F
	Min audio frequency	300	<u>352</u> Hz	N/A	F F
	Max - Min	N/A	<u>1162</u> Hz	700	F F
4.2.8	Sweeps in 10 seconds	20	<u>30</u> count	40	F F

TEST DATA SHEETS
RF BEACON ASSEMBLY
P3-03-0041-001

RF beacon 406.028 Mhz Tests					
Para.	Description	Min.	Results	Max.	Pass / Fail (circle one)
4.3.1	Peak Power at 406.028 MHZ	35.0dBm	<u>36.3</u> dBm	N/A	(P) F
	Antenna gain including feeder and mismatch losses for 406.028 Mhz obtained from antenna field tests.	N/A	<u>0.15</u> dB <i>THO</i>	N/A	N/A
	Peak power + antenna gain= EIRP	32.0dbm EIRP	<u>36.45</u> dBm <i>THO</i>	N/A	(P) F
4.3.2	Frequency Accuracy 406.028 MHz $\pm$ 1 kHz	406.0270	<u>406.02810</u> MHz	406.0290	(P) F



TEST DATA SHEETS
RF BEACON ASSEMBLY
A3-07-1032

DATA = 0116
BZ 0106
BART = 020130

Tested By: *R. Kent*

DATE: 2/24/03

9/11/2007

RF PCB (A3-07-0039) Serial Number: 0002

DIGITAL PCB (A3-07-0038) Serial Number: 0016

Test Equipment	Model	Serial No. or Control No.	Cal. Due
SPECAN	HP 568B	0R3063	9/18/03
GENERATOR	HP 8656B	0R1091	5/18/03
MODANA #1	HP 8901B	0R1093	2/30/03
SLOPE	HP 5450B	0R0627	8/29/03
TIME+FREQ ANA	HP 5371A	2842A0060	6/11/03
MODANA #2 (FOR SLOPE)	HP 8901B	91N304A0571	12/11/03
POWER SENSOR	HP 8481A	0R1092	2/24/03
FLUKE DMM	8050A	0R1090	6/14/03
FREQ COUNTER	HP 5345A	0R2008	9/10/03
FLUKE DMM	8840A	0R1046	11/18/03

PERFORMING

6/14/02
9/10/02
11/18/02

ORL
SQ01
DME

RE

TEST DATA SHEETS
RF BEACON ASSEMBLY
A3-07-1032

SPECTRUM ANALYZER OFFSET DETERMINATION AND PRETEST					
Para.	Description	Min.	Results	Max.	Pass / Fail (circle one)
3.3	HP8656 setting for 121.5MHZ	-0.5	<u>0.3</u> dBm	+0.5	P F
3.4	HP8656 setting for 243 MHZ	-0.5	<u>0.3</u> dBm	+0.5	P F
3.5	HP8656 setting for 406.028 MHZ	-0.5	<u>0.3</u> dBm	+0.5	P F

RF beacon 121.5/243 Mhz Tests					
Para.	Description	Min.	Results	Max.	Pass / Fail (circle one)
4.1.1	Peak Power at 121.5 MHZ	17.0dBm	<u>17.6</u> dBm	N/A	P F
	UUT current during 121.5/243 Mhz broadcast	N/A	<u>85</u> mA	100mA	P F
4.1.2	Frequency 121.5 MHz $\pm$ 6 kHz	121.494	<u>121.505</u> MHz	121.506	P F
4.1.3	121.5 MHz Bandwidth $\geq$ +12.5 kHz	N/A	<u>-29.4</u> dBc	-25dBc	P F
	121.5 MHz Bandwidth $\leq$ -12.5 kHz	N/A	<u>-29.3</u> dBc	-25dBc	P F
	121.5 MHz Bandwidth $\geq$ +25 kHz	N/A	<u>-34.3</u> dBc	-30dBc	P F
	121.5 MHz Bandwidth $\leq$ -25 kHz	N/A	<u>-34.4</u> dBc	-30dBc	P F
4.1.4	Peak Power at 243 MHZ	17.0dBm	<u>18.9</u> dBm	N/A	P F
4.1.5	Frequency 243 MHz $\pm$ 12 kHz	242.988	<u>243.0028</u> MHz	243.012	P F
4.1.6	243 MHz Bandwidth $\geq$ +12.5 kHz	N/A	<u>-28.9</u> dBc	-25dBc	P F
	243 MHz Bandwidth $\leq$ -12.5 kHz	N/A	<u>-28.3</u> dBc	-25dBc	P F
	243 MHz Bandwidth $\geq$ +25 kHz	N/A	<u>-33.2</u> dBc	-30dBc	P F
	243 MHz Bandwidth $\leq$ -25 kHz	N/A	<u>-34.0</u> dBc	-30dBc	P F
4.1.7	121.5 Mhz Modulation depth	N/A	<u>-59.5</u> dBc	-22dBc	P F
4.1.8	364.5 MHz harmonic	N/A	<u>-47.4</u> dBc	-30dBc	P F
	486 MHz harmonic	N/A	<u>-50.7</u> dBc	-30dBc	P F
4.1.9	121.5 /243 Mhz Duty cycle	45%	<u>59.8</u> %	67%	P F

ORL
SQ01
DME

140

TEST DATA SHEETS
RF BEACON ASSEMBLY
A3-07-1032

RF beacon 406.028 Mhz Tests					
Para.	Description	Min.	Results	Max.	Pass / Fail (circle one)
4.2.1	Peak Power at 406.028 MHZ	35.0dBm	<u>36.0</u> dBm	39.0dbm	P F
	UUT peak current during 406 Mhz broadcast	N/A	<u>1.36</u> A	1.7A	P F
4.2.2	406.028 MHz Bandwidth $\geq +12.0$ kHz	N/A	<u>-41.6</u> dBc	-30dBc	P F
	406.028 MHz Bandwidth ≤ -12.0 kHz	N/A	<u>-41.6</u> dBc	-30dBc	P F
	406.028 MHz Bandwidth $\geq +24$ kHz	N/A	<u>-53.0</u> dBc	-40dBc	P F
	406.028 MHz Bandwidth ≤ -24 kHz	N/A	<u>-52.3</u> dBc	-40dBc	P F
4.2.3	812 MHz harmonic	N/A	<u>-46.4</u> dBc	-30dBc	P F
4.2.4	406 pulse falling (starting edge) time	0.3	<u>0.943</u> msec	5.0	P F
4.2.5	406 pulse rising (stopping edge) time	0.3	<u>0.990</u> msec	5.0	P F
4.2.6	Total transmission pulse time measured with diode detector.	435.6	<u>441.933</u> msec	444.4	P F
4.2.7	Total transmission time burst spacing measured with diode detector.	47.5	<u>49.79</u> sec	52.5	P F
4.2.9	Phase modulation +1.10 radian peak	1.00	<u>1.065</u> Rad	1.20	P F
4.2.10	Phase modulation -1.10 radian peak	-1.20	<u>-1.149</u> Rad	-1.00	P F
4.2.11	Phase modulation rise time	50usec	<u>162.2</u> usec	250 usec	P F
4.2.12	Phase modulation fall time	50usec	<u>158.8</u> usec	250 usec	P F
4.2.13	Phase modulation rise/fall symmetry	N/A	<u>0.98</u> ratio	0.05	P F
4.2.14	Modulation Bit rate 400 bits/sec	396.0	<u>402.188</u> Hz	404.0	P F
4.2.15	CW preamble time	158.4	<u>160.873</u> msec	161.6	P F
4.2.16	NOAA HEX ID ID/SN matches programmed in	N/A	<u>A00C07C9490401</u>	N/A	P F
4.2.17	Frequency Accuracy 406.028 MHz ± 1 kHz	406.0270	<u>406.0279319</u> MHz	406.0290	P F
4.2.18	Short term stability	-2e-9	<u>291.44x10⁻⁷</u> Hz	2e-9	P F
4.2.19	medium term residual variation	-3e-9	<u>416.9x10⁻⁷</u> Hz	3e-9	P F
4.2.20	medium term slope	-1e-9	<u>832x10⁻¹²</u> Hz	1e-9	P F

TEST DATA SHEETS
RF BEACON ASSEMBLY
A3-07-1032

BIST ,activation and B antenna output power tests					
Para.	Description	Min.	Results	Max.	Pass / Fail (circle one)
4.3.2	Beacon stays off	N/A	<u>✓</u> chk	N/A	P F
4.3.3	Beacon passes self test and goes off	N/A	<u>✓</u> chk	N/A	P F
4.3.4	Beacon transmits when load is connected to B antenna	N/A	<u>✓</u> chk	N/A	P F
4.3.6 (-002 version only)	Peak Power at 121.5 MHZ	17.0dBm	<u>*N/A</u> dBm	N/A	P F
4.3.7 (-002 version only)	Peak Power at 243 MHZ	17.0dBm	<u>*N/A</u> dBm	N/A	P F
4.3.8 (-002 version only)	Peak Power at 406.028 MHZ	35.0dBm	<u>*N/A</u> dBm	39.0dBm	P F

ORL
5001
DME

KP

TEST DATA SHEETS
RF BEACON ASSEMBLY
A3-07-1032

Beacon Calibration factor recording				
Para.	Description	Under 0 deg c	0 to 35 deg c	Over 35 deg c
4.4.4	12 volt gain settings for 121/243 power (Q1 location)	3500	3300	3100
4.4.5	12 volt gain settings for 406 power (Q3 location)	0	0	0
4.4.6	406 phase modulation +1.1 radian (Q5 location)	1522	1522	1522
	406 phase modulation 0.0 radian (Q5 location)	998	998	998
	406 phase modulation -1.1 radian (Q5 location)	421	421	474
4.4.7	406 gain A (Q7 location)	2400	2500	2600
4.4.8	406 gain B (Q9 location)	2400	2500	2600
Para.	Description	N/A	Time in msec	N/A
4.4.9	Preamble time. (Q11 location)	N/A	155.8	N/A
Para.	Description	Over voltage mode	Nominal voltage	Undervoltage mode
4.4.10	406 gain B offset (Q13 location)	0	0	0
Para.	Description	Over voltage mode	N/A	Undervoltage mode
4.4.11	Battery threshold (Q15 location)	11002	N/A	9001

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BEACON SN 2007finalatp
 TIME START 12:36:56 PM
 DATE START 2/20/03

BEACON 121 OUTPUT POWER PASS
 121 POWER PASS AT 17.60

BEACON 243 OUTPUT POWER PASS
 243 POWER PASS AT 18.90

BEACON 406 OUTPUT POWER PASS
 406 POWER PASS AT 36.00

BEACON 121 85% MINIMUM MODULATION DEPTH PASS
 -22DB MODULATION DEPTH LIMIT -59.50

BEACON 243 85% MINIMUM MODULATION DEPTH PASS
 -22DB MODULATION DEPTH LIMIT -52.20

BEACON DUTY CYCLE A PASS
 DUTY CYCLE A PASS AT +5.98954E-01

AUDIO FREQ PASS
 AUDIO FREQ LOW PASS AT +3.35648E+02
 AUDIO FREQ HIGH PASS AT +1.50708E+03

BEACON 121 SIDEBAND PASS
 CENTER FREQ PASS AT 121.5015E6

-25DB MAX VALUE FOR 12.5K TO 24.99K	12900	-29.40
-30DB MAX VALUE FOR 25.0K TO 44.00K	25000	-34.30
-25DB MAX VALUE FOR -12.5K TO -24.99K	-13100	-29.30
-30DB MAX VALUE FOR -25.0K TO -44.00K	-25800	-34.40

BEACON 243 SIDEBAND PASS
 CENTER FREQ PASS AT 243.0028E6

-25DB MAX VALUE FOR 12.5K TO 24.99K	16500	-28.90
-30DB MAX VALUE FOR 25.0K TO 44.00K	25900	-33.20
-25DB MAX VALUE FOR -12.5K TO -24.99K	-13000	-28.50
-30DB MAX VALUE FOR -25.0K TO -44.00K	-27700	-34.00

BEACON 406 SIDEBAND PASS
 CENTER FREQ PASS AT 406.02810E6

-20DB MAX VALUE FOR 3K TO 6.99K	3010	-25.10
-30DB MAX VALUE FOR 7K TO 11.99K	7340	-35.40
-35DB MAX VALUE FOR 12K TO 23.99K	12650	-41.60

DATA
 TRANS CR1250

TO
 11-02-1053

ALH

ALH

ORL
 S001
 DME

-40DB MAX VALUE FOR 24K TO 25K	24580	-53.00
-20DB MAX VALUE FOR -3K TO -6.99K	-3010	-24.60
-30DB MAX VALUE FOR -7K TO -11.99K	-7040	-33.90
-35DB MAX VALUE FOR -12K TO -23.99K	-12750	-41.60
-40DB MAX VALUE FOR -24K TO -25K	-24630	-52.30

□□Test Start 2/20/03, 11:30 AM

---MODULATION TEST---

PosPhase

UL = 1.2000000

LL = 1.0000000

Results = 1.0651400

NegPhase

UL = -1.0000000

LL = -1.2000000

Results = -1.1490404

Test Status: PASSED

---MOD_SYM TEST---

ModRise

UL = 0.0002500

LL = 0.0000500

Results = 0.0001622

ModFall

UL = 0.0002500

LL = 0.0000500

Results = 0.0001558

ModSym

UL = 0.0500000

LL = N/A

Results = 0.0185833

Test Status: PASSED

---DECODER TEST---

Baud

UL = 404.0000000

LL = 396.0000000

Results = 402.1880575

Preamble

UL = 0.161600

LL = 0.158400

Results = 0.160873

ID/SN: ADDC07C01440401

Test Status: PASSED

---FREQUENCY TEST---

DATA
TRANSCRIBED
TO
Y1-02-1053
K/H
A/H

ORL
SQ01
DME

K/H

MeanFreq

UL = 406.0290000E+6

LL = 406.0270000E+6

Results = 406.0279319E+6

ShortTerm

UL = 2.0000000E-9

LL = -2.0000000E-9

Results = 291.4491151E-12

MediumTerm

UL = 3.0000000E-9

LL = -3.0000000E-9

Results = 416.9840872E-12

MeanSlope

UL = 1.0000000E-9

LL = -1.0000000E-9

Results = 832.0166903E-12

Test Status: PASSED

Test Finished 2/20/03, 11:47 AM