

Attachment AN
Beacon Post-Programming Production ATP

TEST DATA SHEETS
RF BEACON ASSEMBLY
A3-07-1032

TESTING
AUT A-IN-002
CONFIGURATION

Tested By: K. A. Hunt

DATE: 3/7/03 91W 2007

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

DIGITAL PCB (A3-07-0038) Serial Number: 0010

AUT A = 0116
AUT B = 0106

Test Equipment	Model	Serial No. or Control No.	Cal. Due
SP82AN	HP 8268B	017063	9/18/03
GENERATOR	HP 8696B	011091	5/18/03
MODANA	HP 8901B	3704A05T11	12/11/03
POWER SENSOR	HP 8481	GFE 0111	2/28/04
CALIB	HP 54510B	ORD027	8/24/03
TIME-FREQ DATA	HP 5371A	2842A00760	6/11/03
POWER METER	Power 8500A	011090	6/14/03
FREQ COUNTER	HP 5345A	012008	9/10/03
POWER METER	Power 8540	011046	11/18/03

ORL
SC01
DME

RP

TEST DATA SHEETS
RF BEACON ASSEMBLY
A3-07-1032

AWT A

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

MACY

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>18.2</u> dBm	N/A	☒ P ☐ F
	UUT current during 121.5/243 Mhz broadcast	N/A	<u>81</u> mA	100mA	☒ P ☐ F
4.1.2	Frequency 121.5 MHZ $\pm$ 6 kHz	121.494	<u>121.5016</u> MHz	121.506	☒ P ☐ F
4.1.3	121.5 MHz Bandwidth $\geq$ +12.5 kHz	N/A	<u>-29.6</u> dBc	-25dBc	☒ P ☐ F
	121.5 MHz Bandwidth $\leq$ -12.5 kHz	N/A	<u>-29.7</u> dBc	-25dBc	☒ P ☐ F
	121.5 MHz Bandwidth $\geq$ +25 kHz	N/A	<u>-34.5</u> dBc	-30dBc	☒ P ☐ F
	121.5 MHz Bandwidth $\leq$ -25 kHz	N/A	<u>-34.5</u> dBc	-30dBc	☒ P ☐ F
4.1.4	Peak Power at 243 MHZ	17.0dBm	<u>19.2</u> dBm	N/A	☒ P ☐ F
4.1.5	Frequency 243 MHZ $\pm$ 12 kHz	242.988	<u>243.0026</u> MHz	243.012	☒ P ☐ F
4.1.6	243 MHz Bandwidth $\geq$ +12.5 kHz	N/A	<u>-27.5</u> dBc	-25dBc	☒ P ☐ F
	243 MHz Bandwidth $\leq$ -12.5 kHz	N/A	<u>-27.2</u> dBc	-25dBc	☒ P ☐ F
	243 MHz Bandwidth $\geq$ +25 kHz	N/A	<u>-32.4</u> dBc	-30dBc	☒ P ☐ F
	243 MHz Bandwidth $\leq$ -25 kHz	N/A	<u>-32.6</u> dBc	-30dBc	☒ P ☐ F
4.1.7	121.5 Mhz Modulation depth	N/A	<u>-52.3</u> dBc	-22dBc	☒ P ☐ F
4.1.8	364.5 MHz harmonic	N/A	<u>-49.4</u> dBc	-30dBc	☒ P ☐ F
	486 MHz harmonic	N/A	<u>-51.1</u> dBc	-30dBc	☒ P ☐ F
4.1.9	121.5 /243 Mhz Duty cycle	45%	<u>63.2</u> %	67%	☒ P ☐ F

MACY

TEST DATA SHEETS
RF BEACON ASSEMBLY
A3-07-1032

Part A

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>36.5</u> dBm	39.0dbm	☒ P ☐ F
	UUT peak current during 406 Mhz broadcast	N/A	<u>1.424</u> A	1.7A	☒ P ☐ F
4.2.2	406.028 MHz Bandwidth $\geq +12.0$ kHz	N/A	<u>-27.5 - 41.4</u> dBc	-30dBc	☒ P ☐ F
	406.028 MHz Bandwidth ≤ -12.0 kHz	N/A	<u>-27.7 - 40.0</u> dBc	-30dBc	☒ P ☐ F
	406.028 MHz Bandwidth $\geq +24$ kHz	N/A	<u>-27.4 - 53</u> dBc	-40dBc	☒ P ☐ F
	406.028 MHz Bandwidth ≤ -24 kHz	N/A	<u>-27.6 - 51.8</u> dBc	-40dBc	☒ P ☐ F
4.2.3	812 MHz harmonic	N/A	<u>-43.0</u> dBc	-30dBc	☒ P ☐ F
4.2.4	406 pulse falling (starting edge) time	0.3	<u>0.935</u> msec	5.0	☒ P ☐ F
4.2.5	406 pulse rising (stopping edge) time	0.3	<u>1.02</u> msec	5.0	☒ P ☐ F
4.2.6	Total transmission pulse time measured with diode detector.	435.6	<u>442.245</u> msec	444.4	☒ P ☐ F
4.2.7	Total transmission time burst spacing measured with diode detector.	47.5	<u>49.46</u> sec	52.5	☒ P ☐ F
4.2.9	Phase modulation +1.10 radian peak	1.00	<u>1.155</u> Rad	1.20	☒ P ☐ F
4.2.10	Phase modulation -1.10 radian peak	-1.20	<u>-1.117</u> Rad	-1.00	☒ P ☐ F
4.2.11	Phase modulation rise time	50usec	<u>164.2</u> usec	250 usec	☒ P ☐ F
4.2.12	Phase modulation fall time	50usec	<u>155.8</u> usec	250 usec	☒ P ☐ F
4.2.13	Phase modulation rise/fall symmetry	N/A	<u>0.0218</u> ratio	0.05	☒ P ☐ F
4.2.14	Modulation Bit rate 400 bits/sec	396.0	<u>401.07</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>A00C07C01480401</u>	N/A	☒ P ☐ F
4.2.17	Frequency Accuracy 406.028 MHz $\pm$ 1 kHz	406.0270	<u>406.0279277</u> MHz	406.0290	☒ P ☐ F
4.2.18	Short term stability	-2e-9	<u>2.97 x 10⁻¹²</u> Hz	2e-9	☒ P ☐ F
4.2.19	medium term residual variation	-3e-9	<u>121 x 10⁻¹²</u> n/a	3e-9	☒ P ☐ F
4.2.20	medium term slope	-1e-9	<u>95.2 x 10⁻¹²</u> n/a	1e-9	☒ P ☐ F



TEST DATA SHEETS
RF BEACON ASSEMBLY
A3-07-1032

Aut A

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	<u>P</u> F
4.3.3	Beacon passes self test and goes off	N/A	<u>✓</u> chk	N/A	<u>P</u> F
4.3.4	Beacon transmits when load is connected to B antenna	N/A	<u>✓</u> chk	N/A	<u>P</u> F
4.3.6 (-002 version only)	Peak Power at 121.5 MHZ	17.0dBm	<u>17.7</u> dBm	N/A	<u>P</u> F
4.3.7 (-002 version only)	Peak Power at 243 MHZ	17.0dBm	<u>18.9</u> dBm	N/A	<u>P</u> F
4.3.8 (-002 version only)	Peak Power at 406.028 MHZ	35.0dBm	<u>36.2</u> dBm	39.0dBm	<u>P</u> F



ANTA

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)	2400	2700	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)	1922	1922	1922
	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)	2500	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	159.8	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	2001

ANTA
KLH
ORL S001 DME

sn2007ant_A_output_3_07_03.txt

BEACON SN 2007ant_A_output_3_07_03
TIME START 8:24:13 AM
DATE START 3/7/03

BEACON 121 OUTPUT POWER PASS
121 POWER PASS AT 18.20

BEACON 243 OUTPUT POWER PASS
243 POWER PASS AT 19.20

BEACON 406 OUTPUT POWER PASS
406 POWER PASS AT 36.50

BEACON 121 85% MINIMUM MODULATION DEPTH PASS
-22DB MODULATION DEPTH LIMIT -60.10

BEACON 243 85% MINIMUM MODULATION DEPTH PASS
-22DB MODULATION DEPTH LIMIT -52.30

BEACON DUTY CYCLE A PASS
DUTY CYCLE A PASS AT +6.32530E-01

AUDIO FREQ PASS
AUDIO FREQ LOW PASS AT +3.35574E+02
AUDIO FREQ HIGH PASS AT +1.50948E+03

BEACON 121 SIDEBAND PASS
CENTER FREQ PASS AT 121.5016E6

-25DB MAX VALUE FOR 12.5K TO 24.99K	12600	-29.60
-30DB MAX VALUE FOR 25.0K TO 44.00K	26600	-34.50
-25DB MAX VALUE FOR -12.5K TO -24.99K	-14100	-29.70
-30DB MAX VALUE FOR -25.0K TO -44.00K	-26600	-34.50

BEACON 243 SIDEBAND PASS
CENTER FREQ PASS AT 243.0026E6

-25DB MAX VALUE FOR 12.5K TO 24.99K	12800	-27.50
-30DB MAX VALUE FOR 25.0K TO 44.00K	27300	-32.40
-25DB MAX VALUE FOR -12.5K TO -24.99K	-12600	-27.20
-30DB MAX VALUE FOR -25.0K TO -44.00K	-25300	-32.60

BEACON 406 SIDEBAND PASS
CENTER FREQ PASS AT 406.02805E6

PRAY
MUH
ORL
S001
DME
KP

sn2007ant_A_output _3_07_03.txt

-20DB MAX VALUE FOR 3K TO 6.99K	3010	-23.60
-30DB MAX VALUE FOR 7K TO 11.99K	7090	-35.20
-35DB MAX VALUE FOR 12K TO 23.99K	12700	-41.40
-40DB MAX VALUE FOR 24K TO 25K	24220	-53.00
-20DB MAX VALUE FOR -3K TO -6.99K	-3010	-25.30
-30DB MAX VALUE FOR -7K TO -11.99K	-7040	-34.00
-35DB MAX VALUE FOR -12K TO -23.99K	-12340	-40.00
-40DB MAX VALUE FOR -24K TO -25K	-24990	-51.60

PA 2/5
7/1/04
OPL
SCOT
DME
(RP)

sn2007_ant_a_test_03_07_03.txt

Test Start 3/7/03, 9:20 AM

---MODULATION TEST---

PosPhase

UL = 1.2000000

LL = 1.0000000

Results = 1.1554163

NegPhase

UL = -1.0000000

LL = -1.2000000

Results = -1.1174184

Test Status: PASSED

---MOD_SYM TEST---

ModRise

UL = 0.0002500

LL = 0.0000500

Results = 0.0001642

ModFall

UL = 0.0002500

LL = 0.0000500

Results = 0.0001558

ModSym

UL = 0.0500000

LL = N/A

Results = 0.0218224

Test Status: PASSED

---DECODER TEST---

Baud

UL = 404.0000000

LL = 396.0000000

Results = 401.0772722

Preamble

UL = 0.161600

LL = 0.158400

Results = 0.160873

ID/SN: ADDC07C01480401

Handwritten: PRG
Handwritten: [Signature]
Stamp: ORL 8001 DME
Handwritten: [Signature]

sn2007_ant_a_test_03_07_03.txt

Test Status: PASSED

---FREQUENCY TEST---

MeanFreq

UL = 406.0290000E+6

LL = 406.0270000E+6

Results = 406.0279277E+6

ShortTerm

UL = 2.0000000E-9

LL = -2.0000000E-9

Results = 297.7353192E-12

MediumTerm

UL = 3.0000000E-9

LL = -3.0000000E-9

Results = 121.0753188E-12

MeanSlope

UL = 1.0000000E-9

LL = -1.0000000E-9

Results = 95.2114178E-12

Test Status: PASSED

Test Finished 3/7/03, 9:37 AM

Handwritten signatures and initials


TEST DATA SHEETS
RF BEACON ASSEMBLY
A3-07-1032

TESTING
AUT B IN
-002 CONFIGURATION

Tested By:

[Signature]

AUT A = 0116
B = 0106

DATE:

3/7/03

RF PCB

(A3-07-0039) Serial Number:

0002

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

0010

Test Equipment	Model	Serial No. or Control No.	Cal. Due
1/600A	HP 8568B	OR3863	9/18/03
6000A	HP 8650B	OR1091	9/18/03
MOD 400A	HP 8901B	3704A0517	12/11/03
POWER METER	HP 8481	6F5 0A11	2/22/04
SCOPE	HP 54510B	OR0627	8/29/03
TIME & FREQ ANAL	HP 5371	2842A00760	6/11/03
FLUKE DMM	8050A	OR1090	6/14/03
FREQ COUNTER	HP 5345A	OR2008	9/10/03
FLUKE DMM	8840A	OR1096	11/18/03



TEST DATA SHEETS
RF BEACON ASSEMBLY
A3-07-1032

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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

NOTE: BEACON ORIGINATED FOR AWT B ^{PHASE} _{OUTPUT BELOW} ^{NA}

RF beacon 121.5/243 Mhz Tests

AWT B BOOTUP RESULTS

Para.	Description	Min.	Results	Max.	Pass / Fail (circle one)
4.1.1	Peak Power at 121.5 MHZ	17.0dBm	<u>17.7</u> dBm	N/A	(P) F
	UUT current during 121.5/243 Mhz broadcast	N/A	<u>80</u> mA	100mA	(P) F
4.1.2	Frequency 121.5 MHZ $\pm$ 6 kHz	121.494	<u>121.5013</u> MHz	121.506	(P) F
4.1.3	121.5 MHZ Bandwidth $\geq$ +12.5 kHz	N/A	<u>-27.0</u> dBc	-25dBc	(P) F
	121.5 MHZ Bandwidth $\leq$ -12.5 kHz	N/A	<u>-27.1</u> dBc	-25dBc	(P) F
	121.5 MHZ Bandwidth $\geq$ +25 kHz	N/A	<u>-32.7</u> dBc	-30dBc	(P) F
	121.5 MHZ Bandwidth $\leq$ -25 kHz	N/A	<u>-32.0</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>-29.3</u> dBc	-25dBc	(P) F
	243 MHZ Bandwidth $\leq$ -12.5 kHz	N/A	<u>-29.1</u> dBc	-25dBc	(P) F
	243 MHZ Bandwidth $\geq$ +25 kHz	N/A	<u>-33.3</u> dBc	-30dBc	(P) F
	243 MHZ Bandwidth $\leq$ -25 kHz	N/A	<u>-34.3</u> dBc	-30dBc	(P) F
4.1.7	121.5 Mhz Modulation depth	N/A	<u>-52.2</u> dBc	-22dBc	(P) F
4.1.8	364.5 MHz harmonic	N/A	<u>-49.1</u> dBc	-30dBc	(P) F
	486 MHz harmonic	N/A	<u>-50.9</u> dBc	-30dBc	(P) F
4.1.9	121.5 /243 Mhz Duty cycle	45%	<u>57.7</u> %	67%	(P) F



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TEST DATA SHEETS
RF BEACON ASSEMBLY
A3-07-1032

AUTD

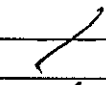
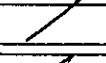
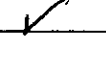
RF beacon 406.028 Mhz Tests					
Para.	Description	Min.	Results	Max.	Pass / Fail (circle one)
4.2.1	Peak Power at 406.028 MHZ	35.0dBm	<u>36.2</u> dBm	39.0dbm	(P) F
	UUT peak current during 406 Mhz broadcast	N/A	<u>1.42</u> A	1.7A	(P) F
4.2.2	406.028 MHz Bandwidth $\geq +12.0$ kHz	N/A	<u>-42.4</u> dBc	-30dBc	(P) F
	406.028 MHz Bandwidth ≤ -12.0 kHz	N/A	<u>-41.8</u> dBc	-30dBc	(P) F
	406.028 MHz Bandwidth $\geq +24$ kHz	N/A	<u>-52.3</u> dBc	-40dBc	(P) F
	406.028 MHz Bandwidth ≤ -24 kHz	N/A	<u>-52.0</u> dBc	-40dBc	(P) F
4.2.3	812 MHz harmonic	N/A	<u>-42.7</u> dBc	-30dBc	(P) F
4.2.4	406 pulse falling (starting edge) time	0.3	<u>0.925</u> msec	5.0	(P) F
4.2.5	406 pulse rising (stopping edge) time	0.3	<u>1.015</u> msec	5.0	(P) F
4.2.6	Total transmission pulse time measured with diode detector.	435.6	<u>442.3</u> msec	444.4	(P) F
4.2.7	Total transmission time burst spacing measured with diode detector.	47.5	<u>49.5</u> sec	52.5	(P) F
4.2.9	Phase modulation +1.10 radian peak	1.00	<u>1.105</u> Rad	1.20	(P) F
4.2.10	Phase modulation -1.10 radian peak	-1.20	<u>-1.089</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>151.8</u> usec	250 usec	(P) F
4.2.13	Phase modulation rise/fall symmetry	N/A	<u>0.0218</u> ratio	0.05	(P) F
4.2.14	Modulation Bit rate 400 bits/sec	396.0	<u>401.068</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>A00C07C0148040</u>	N/A	(P) F
4.2.17	Frequency Accuracy 406.028 MHz ± 1 kHz	406.0270	<u>406.02793</u> mHz	406.0290	(P) F
4.2.18	Short term stability	-2e-9	<u>236.31x10⁻¹²</u> n/a	2e-9	(P) F
4.2.19	medium term residual variation	-3e-9	<u>509x10⁻¹²</u> n/a	3e-9	(P) F
4.2.20	medium term slope	-1e-9	<u>-93x10⁻¹²</u> n/a	1e-9	(P) F

PAC-16
ALH



AUT B

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	 chk	N/A	(P) F
4.3.3	Beacon passes self test and goes off	N/A	 chk	N/A	(P) F
4.3.4	Beacon transmits when load is connected to B antenna	N/A	 chk	N/A	(P) F
4.3.6 (-002 version only)	Peak Power at 121.5 MHZ	17.0dBm	N/A dBm	N/A	P F
4.3.7 (-002 version only)	Peak Power at 243 MHZ	17.0dBm	N/A dBm	N/A	P F
4.3.8 (-002 version only)	Peak Power at 406.028 MHZ	35.0dBm	N/A dBm	39.0dBm	P F

* AUT B DATA TAKEN IN 4.1.1 TO 4.3.4
WITH BEACON ANTENNA B CONNECTED
TO TEST EQUIPMENT FROM START
KUH



TEST DATA SHEETS
RF BEACON ASSEMBLY
A3-07-1032

Aut 13

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)	2700	3200	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	15.8	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

DATA OK
MCH



sn2007ant_B_output_3_07_03.txt

BEACON SN 2007ant_B_output_3_07_03
TIME START 10:18:57 AM
DATE START 3/7/03

BEACON 121 OUTPUT POWER PASS
121 POWER PASS AT 17.70

BEACON 243 OUTPUT POWER PASS
243 POWER PASS AT 18.90

BEACON 406 OUTPUT POWER PASS
406 POWER PASS AT 36.20

BEACON 121 85% MINIMUM MODULATION DEPTH PASS
-22DB MODULATION DEPTH LIMIT -60.20

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

BEACON DUTY CYCLE A PASS
DUTY CYCLE A PASS AT +5.77368E-01

AUDIO FREQ PASS
AUDIO FREQ LOW PASS AT +3.80055E+02
AUDIO FREQ HIGH PASS AT +1.56318E+03

BEACON 121 SIDEBAND PASS
CENTER FREQ PASS AT 121.5013E6

-25DB MAX VALUE FOR 12.5K TO 24.99K	13800	-27.00
-30DB MAX VALUE FOR 25.0K TO 44.00K	25200	-32.70
-25DB MAX VALUE FOR -12.5K TO -24.99K	-13800	-27.10
-30DB MAX VALUE FOR -25.0K TO -44.00K	-25600	-32.00

BEACON 243 SIDEBAND PASS
CENTER FREQ PASS AT 243.0028E6

-25DB MAX VALUE FOR 12.5K TO 24.99K	15600	-29.30
-30DB MAX VALUE FOR 25.0K TO 44.00K	25500	-33.90
-25DB MAX VALUE FOR -12.5K TO -24.99K	-13100	-29.10
-30DB MAX VALUE FOR -25.0K TO -44.00K	-25400	-34.30

BEACON 406 SIDEBAND PASS
CENTER FREQ PASS AT 406.02810E6

sn2007ant_B_output _3_07_03.txt

-20DB MAX VALUE FOR 3K TO 6.99K	3010	-25.00
-30DB MAX VALUE FOR 7K TO 11.99K	7040	-34.60
-35DB MAX VALUE FOR 12K TO 23.99K	12440	-42.40
-40DB MAX VALUE FOR 24K TO 25K	24630	-52.30
-20DB MAX VALUE FOR -3K TO -6.99K	-3010	-24.50
-30DB MAX VALUE FOR -7K TO -11.99K	-7040	-34.00
-35DB MAX VALUE FOR -12K TO -23.99K	-12900	-41.80
-40DB MAX VALUE FOR -24K TO -25K	-24220	-52.00

Handwritten signature


Test Start 3/7/03, 10:58 AM

---MODULATION TEST---

PosPhase

UL = 1.2000000

LL = 1.0000000

Results = 1.1051516

NegPhase

UL = -1.0000000

LL = -1.2000000

Results = -1.0899200

Test Status: PASSED

---MOD_SYM TEST---

ModRise

UL = 0.0002500

LL = 0.0000500

Results = 0.0001622

ModFall

UL = 0.0002500

LL = 0.0000500

Results = 0.0001518

ModSym

UL = 0.0500000

LL = N/A

Results = 0.0218215

Test Status: PASSED

---DECODER TEST---

Baud

UL = 404.0000000

LL = 396.0000000

Results = 401.0689890

Preamble

UL = 0.161600

LL = 0.158400

Results = 0.160873

ID/SN: ADDC07C01480401

Handwritten signatures and a circular stamp.
The stamp contains the text: CRL, S001, DME.
There is a handwritten 'K' next to the stamp.

Test Status: PASSED

---FREQUENCY TEST---

MeanFreq

UL = 406.0290000E+6

LL = 406.0270000E+6

Results = 406.0279314E+6

ShortTerm

UL = 2.0000000E-9

LL = -2.0000000E-9

Results = 236.3173366E-12

MediumTerm

UL = 3.0000000E-9

LL = -3.0000000E-9

Results = 509.1718301E-12

MeanSlope

UL = 1.0000000E-9

LL = -1.0000000E-9

Results = -93.5357330E-12

Test Status: PASSED

Test Finished 3/7/03, 11:16 AM

HAZ
HAZ
ORL
SQ01
DME
KP

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

TESTING A ANT

-002 LOW POWER AD/AN
(DUAL ANTENNA)

RF-0002
DIG-0016
BATT=
AWTA=0116
AWTB=0126

Tested By: R. Went

DATE: 3/10/03

Beacon P3-03-0041-001₀₀₂ Serial Number: 2007

Test Equipment	Model	Serial No. or Control No.	Cal. Due
SPECAN	HP 8568B	OR3063	9/18/03
GENERATOR	HP 8656B	OR1091	5/18/03
MOD ANT	HP 8901B	3704A05771	12/11/03
POWER METER	HP 8481A	GFE 0111	2/28/04
SLOPE	HP 54510B	OR0627	8/29/03



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

A

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

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

PHS
PLV
DME
K

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

A

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>18.7</u> dBm	N/A	<u>(P)</u> 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>17.7</u> dBm EIRP	<u>17.7</u> dBm	N/A	<u>(P)</u> F
4.2.2	Frequency 121.5 MHz $\pm$ 6 kHz	121.494	<u>121.5017</u> MHz	121.506	<u>(P)</u> F
4.2.3	Peak Power at 243 MHZ	17.0dBm	<u>19.6</u> dBm	N/A	<u>(P)</u> 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>23.3</u> dBm EIRP	<u>23.3</u> dBm	N/A	<u>(P)</u> F
4.2.4	Frequency 243 MHz $\pm$ 12 kHz	242.988	<u>243.0025</u> MHz	243.012	<u>(P)</u> F
4.2.5	121.5 Mhz Modulation depth	N/A	<u>-52.6</u> dBc	-22dBc	<u>(P)</u> F
4.2.6	121. 5 /243 Mhz Duty cycle	45%	<u>59.5</u> %	67%	<u>(P)</u> F
4.2.7	Max audio frequency	N/A	<u>1515.2</u> Hz	1600	<u>(P)</u> F
	Min audio frequency	300	<u>354.4</u> Hz	N/A	<u>(P)</u> F
	Max - Min	<u>700</u> N/A	<u>1160.8</u> Hz	<u>700</u> N/A	<u>(P)</u> F
4.2.8	Sweeps in 10 seconds	20	<u>30</u> count	40	<u>(P)</u> F



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

A

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	<u>P</u> F
	Antenna gain including feeder and mismatch losses for 406.028 Mhz obtained from antenna field tests.	N/A	<u>0.15</u> dB	N/A	N/A
	Peak power + antenna gain= EIRP	32.0dbm EIRP	<u>36.45</u> dBm	N/A	<u>P</u> F
4.3.2	Frequency Accuracy 406.028 MHz $\pm$ 1 kHz	406.0270	<u>406.02805</u> MHz	406.0290	<u>P</u> F

Pass
MHT



BEACON SN 2007_ANT_A_ONBATT
TIME START 9:05:10 AM
DATE START 3/10/03

BEACON 121 OUTPUT POWER PASS
121 POWER PASS AT 18.70

BEACON 243 OUTPUT POWER PASS
243 POWER PASS AT 19.60

BEACON 406 OUTPUT POWER PASS
406 POWER PASS AT 36.30

BEACON 121 85% MINIMUM MODULATION DEPTH PASS
-22DB MODULATION DEPTH LIMIT -61.40

BEACON 243 85% MINIMUM MODULATION DEPTH PASS
-22DB MODULATION DEPTH LIMIT -52.60

BEACON DUTY CYCLE A PASS
DUTY CYCLE A PASS AT +5.95201E-01

AUDIO FREQ PASS
AUDIO FREQ LOW PASS AT +3.54433E+02
AUDIO FREQ HIGH PASS AT +1.51527E+03

BEACON 121 SIDEBAND PASS
CENTER FREQ PASS AT 121.5017E6

-25DB MAX VALUE FOR 12.5K TO 24.99K	12600	-27.90
-30DB MAX VALUE FOR 25.0K TO 44.00K	26000	-32.90
-25DB MAX VALUE FOR -12.5K TO -24.99K	-12500	-27.30
-30DB MAX VALUE FOR -25.0K TO -44.00K	-25300	-34.30

BEACON 243 SIDEBAND PASS
CENTER FREQ PASS AT 243.0025E6

-25DB MAX VALUE FOR 12.5K TO 24.99K	12500	-28.30
-30DB MAX VALUE FOR 25.0K TO 44.00K	27400	-32.90
-25DB MAX VALUE FOR -12.5K TO -24.99K	-13500	-28.20
-30DB MAX VALUE FOR -25.0K TO -44.00K	-26400	-32.90

BEACON 406 SIDEBAND PASS
CENTER FREQ PASS AT 406.02805E6

sn2007_ANT_A_ONBATT.txt

-20DB MAX VALUE FOR 3K TO 6.99K	3010	-23.70
-30DB MAX VALUE FOR 7K TO 11.99K	7040	-33.50
-35DB MAX VALUE FOR 12K TO 23.99K	12340	-41.00
-40DB MAX VALUE FOR 24K TO 25K	24370	-53.70
-20DB MAX VALUE FOR -3K TO -6.99K	-3010	-25.10
-30DB MAX VALUE FOR -7K TO -11.99K	-7040	-33.10
-35DB MAX VALUE FOR -12K TO -23.99K	-12240.	-39.00
-40DB MAX VALUE FOR -24K TO -25K	-24930	-51.50

MS
all



KE

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

-002 CONFIGURATION
(DUAL ANTENNA)

TESTING B ANT,

Tested By: [Signature]

DATE: 3/19/03

Beacon P3-03-0041-001₀₀₂ Serial Number: 2007

RF=0002
OLG=0016
BANT=
AUDA=0116
AUB=0106

Test Equipment	Model	Serial No. or Control No.	Cal. Due
SPECAN	HP8568B	OR3063	9/18/03
GENERATOR	HP8656B	OR1041	5/18/03
MOD ANT	HP8901B	3704A0571	12/11/03
POWER SUPPLY	HP8481A	GFE 0111	2/28/04
SCOPE	HP54510B	OR0627	8/24/03



KE

TEST DATA SHEETS
RF BEACON ASSEMBLY
P3-03-0041-001
002

B

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>0.7</u> dBm	+0.5	☒ P ☐ F
3.4	HP8656 setting for 243 MHZ	-0.5	<u>0.7</u> dBm	+0.5	☒ P ☐ F
3.5	HP8656 setting for 406.028 MHZ	-0.5	<u>0.7</u> dBm	+0.5	☒ P ☐ F

BEACON ALLOWED FOR ANT *NOT*

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

Pass
NOT

CP

TEST DATA SHEETS
RF BEACON ASSEMBLY
P3-03-0041-001
002

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	<u>P</u> 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>20dbm</u> EIRP	<u>17.6</u> dBm	N/A	<u>P</u> F
4.2.2	Frequency 121.5 MHz $\pm$ 6 kHz	121.494	<u>121.5015</u> MHz	121.506	<u>P</u> F
4.2.3	Peak Power at 243 MHZ	17.0dBm	<u>19.4</u> dBm	N/A	<u>P</u> 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>20dbm</u> EIRP	<u>23.1</u> dBm	N/A	<u>P</u> F
4.2.4	Frequency 243 MHz $\pm$ 12 kHz	242.988	<u>243.0024</u> MHz	243.012	<u>P</u> F
4.2.5	121.5 Mhz Modulation depth	N/A	<u>-52.7</u> dBc	-22dBc	<u>P</u> F
4.2.6	121.5 /243 Mhz Duty cycle	45%	<u>61.7</u> %	67%	<u>P</u> F
4.2.7	Max audio frequency	N/A	<u>1516.4</u> Hz	1600	<u>P</u> F
	Min audio frequency	300	<u>354.5</u> Hz	N/A	<u>P</u> F
	Max - Min	N/A	<u>1161.9</u> Hz	700	<u>P</u> F
4.2.8	Sweeps in 10 seconds	20	<u>30</u> count	40	<u>P</u> F



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

002

B

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	36.3 dBm	N/A	(P) F
	Antenna gain including feeder and mismatch losses for 406.028 Mhz obtained from antenna field tests.	N/A	0.15 dB	N/A	N/A
	Peak power + antenna gain= EIRP	32.0dbm EIRP	36.45 dBm	N/A	(P) F
4.3.2	Frequency Accuracy 406.028 MHz $\pm$ 1 kHz	406.0270	406.02805 MHz	406.0290	(P) F

PRH



BEACON SN 2007_ANT_B_ONBATT
TIME START 9:55:23 AM
DATE START 3/10/03

BEACON 121 OUTPUT POWER PASS
121 POWER PASS AT 18.60

BEACON 243 OUTPUT POWER PASS
243 POWER PASS AT 19.40

BEACON 406 OUTPUT POWER PASS
406 POWER PASS AT 36.30

BEACON 121 85% MINIMUM MODULATION DEPTH PASS
-22DB MODULATION DEPTH LIMIT -61.00

BEACON 243 85% MINIMUM MODULATION DEPTH PASS
-22DB MODULATION DEPTH LIMIT -52.70

BEACON DUTY CYCLE A PASS
DUTY CYCLE A PASS AT +6.17137E-01

AUDIO FREQ PASS
AUDIO FREQ LOW PASS AT +3.54540E+02
AUDIO FREQ HIGH PASS AT +1.51642E+03

BEACON 121 SIDEBAND PASS
CENTER FREQ PASS AT 121.5015E6

-25DB MAX VALUE FOR 12.5K TO 24.99K	12500	-29.80
-30DB MAX VALUE FOR 25.0K TO 44.00K	26400	-34.60
-25DB MAX VALUE FOR -12.5K TO -24.99K	-13500	-29.90
-30DB MAX VALUE FOR -25.0K TO -44.00K	-25000	-35.10

BEACON 243 SIDEBAND PASS
CENTER FREQ PASS AT 243.0024E6

-25DB MAX VALUE FOR 12.5K TO 24.99K	13800	-27.90
-30DB MAX VALUE FOR 25.0K TO 44.00K	25100	-34.20
-25DB MAX VALUE FOR -12.5K TO -24.99K	-13400	-27.90
-30DB MAX VALUE FOR -25.0K TO -44.00K	-28600	-33.80

BEACON 406 SIDEBAND PASS
CENTER FREQ PASS AT 406.02805E6

sn2007_ANT_B_ONBATT.txt

-20DB MAX VALUE FOR 3K TO 6.99K	3010	-24.50
-30DB MAX VALUE FOR 7K TO 11.99K	7090	-34.50
-35DB MAX VALUE FOR 12K TO 23.99K	12240	-40.80
-40DB MAX VALUE FOR 24K TO 25K	24270	-51.80
-20DB MAX VALUE FOR -3K TO -6.99K	-3010	-25.30
-30DB MAX VALUE FOR -7K TO -11.99K	-7040	-33.80
-35DB MAX VALUE FOR -12K TO -23.99K	-12600	-38.20
-40DB MAX VALUE FOR -24K TO -25K	-25040	-50.20

PA
MA
OPL
SCOT
ONE
(KK)