

Tests of Position Data Default Values after 5 hours without navigation data input to the beacon (A.3.8.1)

Date : 12-juil-06

Always default value after 30 min. : Correct Tir 00:30:04

Time	Latitude	Longitude	Def.	Delta	BCH1 Encod./calcul.	BCH2 Encod./calcul.
14:48:34	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
14:49:22	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
14:50:13	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
14:51:01	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
14:51:51	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
14:52:41	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
14:53:31	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
14:54:23	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
14:55:15	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
14:56:07	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
14:56:55	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
14:57:43	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
14:58:33	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
14:59:22	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
15:00:11	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
15:01:03	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
15:01:52	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
15:02:44	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
15:03:36	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
15:04:24	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
15:05:15	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
15:06:03	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
15:06:53	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
15:07:43	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
15:08:33	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
15:09:25	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
15:10:17	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
15:11:09	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
15:11:57	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
15:12:45	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
15:13:35	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
15:14:24	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
15:15:13	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
15:16:05	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
15:16:54	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
15:17:46	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8
15:18:38	127,75° 0' 60" N	255,75° 0' 60" E	*		1F48C2/1F48C2	AA8/AA8

Navigation input after 30 min beacon without navigation system

Date : 12-juil-06

Updating message after 30 min. : 00:02:27 (= time to re-connect operational GPS device)

Time	Latitude	Longitude	Def.	Delta	BCH1 Encod./calcul.	BCH2 Encod./calcul.
15:21:05	43,5° 3' 32" N	1° 28' 44" E		0,08 km	122C61/122C61	01E/01E

Test of Position Acquisition Time and Position Accuracy (A.3.8.2 / F-C.5 table) with BUT2

But ID :

193D5E1E1EFFBFF

Reference position used for :

Date : 13 july 2006

1) C/S T.007 Section A3.8.2.1 : "ITS Parking"

43° 33' 35,9" N

01° 28' 39" E

Beacon message: FFFE2F8C9EAF0F0F2B80348B18758E41580D

2) C/S T.007 Section A3.8.2.2 : "ODARS"

43° 32' 02" N

01° 35' 35,3" E

Beacon message: FFFE2F8C9EAF0F0F2B80348B187588259E3D

C/S T.007 Section A3.8.2.1		C/S T.007 Section A3.8.2.2	
Time to Acquire Position (sec)	Location Error in metres	Time to Acquire Position (sec)	Location Error in metres
50	22	51	66

Encoded Position Data Update Interval (A.3.8.3)

Date : 13 july 2006

Reference position :

N° 1	Odars	43° 32' 02" N 01° 35' 35,3" E
N° 2	Intespace parking	43° 33' 35,9" N 01° 28' 39" E

Results :

No updating message before 20 min. : Correct
Time of first update GPS location : 00:20:51

Ref. Pos	Time	Latitude	Longitude	Def.	Delta	BCH1 Encod./calcul.	BCH2 Encod./calcul.
N° 1	17:25:58	43°32'00" N	1°35'36" E		0,07 km	122C61/122C61	E3D/E3D
N° 2	17:46:49	43°33'36" N	1°28'40" E		0,02 km	122C61/122C61	80D/80D

Position Clearance after Deactivation (A.3.8.4)

Beacon message after deactivate and reactivate the beacon with no navigation data input:

FFFE2F8C9EAF0F07FDFFFD230B583E0FAA8

ITEM	BITS	VALUE
Message format: long format	25	1
Protocol: Location Protocol	26	0
Country code: 201	27-36	0011001001
Type of location protocol: Standard Location - Test	37-40	1110
Test Protocol: Test Protocol (No Decode information in bits 41 to 64)	41-64	101011110000111100001111
Latitude Sign: default	65	0
Latitude Degrees: default	66-72	1111111
Latitude Minutes: default	73-74	11
Longitude Sign: default	75	0
Longitude Degrees: default	76-83	11111111
Longitude Minutes: default	84-85	11
BCH 1 Encoded:	86-106	111110100100011000010
BCH 1 Calculated:	N/A	111110100100011000010
Fixed bits (1101): Pass	107-110	1101
Position Data: Encoded Position Data Source From External Navigation Device	111	0
Aux Device: 121.5 MHz homer	112	1
Latitude Offset Sign: default	113	1
Latitude Offset Minutes: default	114-118	00000
Latitude Offset Seconds: default	119-122	1111
Longitude Offset Sign: default	123	1
Longitude Offset Minutes: default	124-128	00000
Longitude Offset Seconds: default	129-132	1111
BCH 2 Encoded:	133-144	101010101000
BCH 2 Calculated:	N/A	101010101000
Composite Latitude: default	N/A	Composite Longitude: default
15 Hex ID:	N/A	193D5E1E1EFFBFF

Procédure GPS

Contrôle du maintien de la position GPS sans antenne (>=4 heures).

11 Jul 2006 11:38:41

Constructeur : Ameri-King
 Modèle : AK-451 ()Series (AF)(AP)(S)(PL
 Numéro : C/S 07 (But n°2)
 Reference INTESPACE : E6557-2.
 Type : SARSAT

Temps	Latitude	Longitude	DP	Delta	BCH1(L/C)	BHC2(L/C)
11:36:57	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:37:48	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:38:37	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:39:26	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:40:17	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:41:05	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:41:55	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:42:44	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:43:34	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:44:25	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:45:13	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:46:03	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:46:52	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:47:44	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:48:34	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:49:26	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:50:18	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:51:09	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:52:01	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:52:52	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:53:41	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:54:30	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:55:21	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:56:09	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:56:59	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:57:48	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:58:38	43.553'36''N	5558'44''E	.076		122061/122061	034/034
11:59:29	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:00:17	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:01:07	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:01:56	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:02:48	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:03:38	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:04:30	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:05:22	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:06:13	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:07:05	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:07:56	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:08:45	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:09:34	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:10:25	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:11:13	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:12:03	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:12:52	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:13:42	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:14:33	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:15:21	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:16:11	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:17:00	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:17:52	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:18:42	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:19:34	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:20:26	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:21:16	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:22:09	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:23:00	43.553'36''N	5558'44''E	.076		122061/122061	034/034
12:23:49	43.553'36''N	5558'44''E	.076		122061/122061	034/034

Temps	Latitude	Longitude	DP	Delta	BCH1(L/C)	BHC2(L/C)
15:16:59	43.513'36''N	51.58'44''E	.076		122C61/122C61	034/034
15:17:48	43.513'36''N	51.58'44''E	.076		122C61/122C61	034/034
15:18:40	43.513'36''N	51.58'44''E	.076		122C61/122C61	034/034
15:19:30	43.513'36''N	51.58'44''E	.076		122C61/122C61	034/034
15:20:22	43.513'36''N	51.58'44''E	.076		122C61/122C61	034/034
15:21:14	43.513'36''N	51.58'44''E	.076		122C61/122C61	034/034
15:22:05	43.513'36''N	51.58'44''E	.076		122C61/122C61	034/034
15:22:57	43.513'36''N	51.58'44''E	.076		122C61/122C61	034/034
15:23:48	43.513'36''N	51.58'44''E	.076		122C61/122C61	034/034
15:24:37	43.513'36''N	51.58'44''E	.076		122C61/122C61	034/034
15:25:26	43.513'36''N	51.58'44''E	.076		122C61/122C61	034/034
15:26:17	43.513'36''N	51.58'44''E	.076		122C61/122C61	034/034
15:27:05	43.513'36''N	51.58'44''E	.076		122C61/122C61	034/034
15:27:55	43.513'36''N	51.58'44''E	.076		122C61/122C61	034/034
15:28:44	43.513'36''N	51.58'44''E	.076		122C61/122C61	034/034
15:29:34	43.513'36''N	51.58'44''E	.076		122C61/122C61	034/034
15:30:25	43.513'36''N	51.58'44''E	.076		122C61/122C61	034/034
15:31:13	43.513'36''N	51.58'44''E	.076		122C61/122C61	034/034
15:32:03	43.513'36''N	51.58'44''E	.076		122C61/122C61	034/034
15:32:52	43.513'36''N	51.58'44''E	.076		122C61/122C61	034/034
15:33:44	43.513'36''N	51.58'44''E	.076		122C61/122C61	034/034
15:34:34	43.513'36''N	51.58'44''E	.076		122C61/122C61	034/034
15:35:26	43.513'36''N	51.58'44''E	.076		122C61/122C61	034/034
15:36:18	43.513'36''N	51.58'44''E	.076		122C61/122C61	034/034
15:37:09	127.7510'60''N	255.7510'60''E*	0		1F48C2/1F48C2	AA8/AA8
15:38:01	127.7510'60''N	255.7510'60''E*	0		1F48C2/1F48C2	AA8/AA8
15:38:52	127.7510'60''N	255.7510'60''E*	0		1F48C2/1F48C2	AA8/AA8
15:39:41	127.7510'60''N	255.7510'60''E*	0		1F48C2/1F48C2	AA8/AA8
15:40:30	127.7510'60''N	255.7510'60''E*	0		1F48C2/1F48C2	AA8/AA8
15:41:21	127.7510'60''N	255.7510'60''E*	0		1F48C2/1F48C2	AA8/AA8
15:42:09	127.7510'60''N	255.7510'60''E*	0		1F48C2/1F48C2	AA8/AA8
15:42:59	127.7510'60''N	255.7510'60''E*	0		1F48C2/1F48C2	AA8/AA8
15:43:48	127.7510'60''N	255.7510'60''E*	0		1F48C2/1F48C2	AA8/AA8
15:44:38	127.7510'60''N	255.7510'60''E*	0		1F48C2/1F48C2	AA8/AA8

ANNEX A**ANTENNA TEST REPORT OF AMERI-KING****AK-451() Series ELT & PLB****SN : CS-08**

ANTENNAS : - AK 451.017-1A (Whip)
- AK 451.017-2A (Rod)
- AK 451.017-3A (Blade)
- AK 451.017-4(S) (Portable Whip)

1 - ADMINISTRATION

1. WORK ORDER : Reference ITS : E6557-CS Annex-A (Ant)
1. TEST TEAM : Benoit HERBERT
1. SCHEDULE : 22 to 27 june 2006

2 - PURPOSE

The radiation tests of the dedicated radio beacon are performed in INTESPACE EMC Laboratory in compliance with the test methods described in the COSPAS-SARSAT 406 MHz distress beacon type approval standard : C/S T 007- Issue 4 November 2005.

Three antennas are checked in "Fixed ELT" Test Configuration and one in "Portable ELT" and "PLB" Configuration

3 - ANTENNAS AND RADIO BEACON IDENTIFICATIONS

- Beacon :** **BUT 3**
- Manufacturer : Ameri-King Corp.
 - Type : ELT(AF)(AP)(S) and PLB
 - PN / SN : AK-451() Series / CS-08

Antennas :

Manufacturer	AUT Type
Ameri-King Corp.	AK 451.017-1B (Whip)
"	AK 451.017-2A (Rod)
"	AK 451.017-3A (Blade)
"	AK 451.017-4(S) (Portable Whip)

Coax cable : 6 feet

Battery manufacturer / type : ULTRALIFE - P/N U 10014

4 - TEST SITE DESCRIPTION

Tests are performed in an anechoic chamber (size 16 m x 10 m x 11 m)

Walls, ceiling and doors are lined with EMERSON CUMING foams VHP 36 and VHP 26 type.

The Beacon and Antennas are placed as shown on figures N° 1, B2, B3, B5 and N° 3.

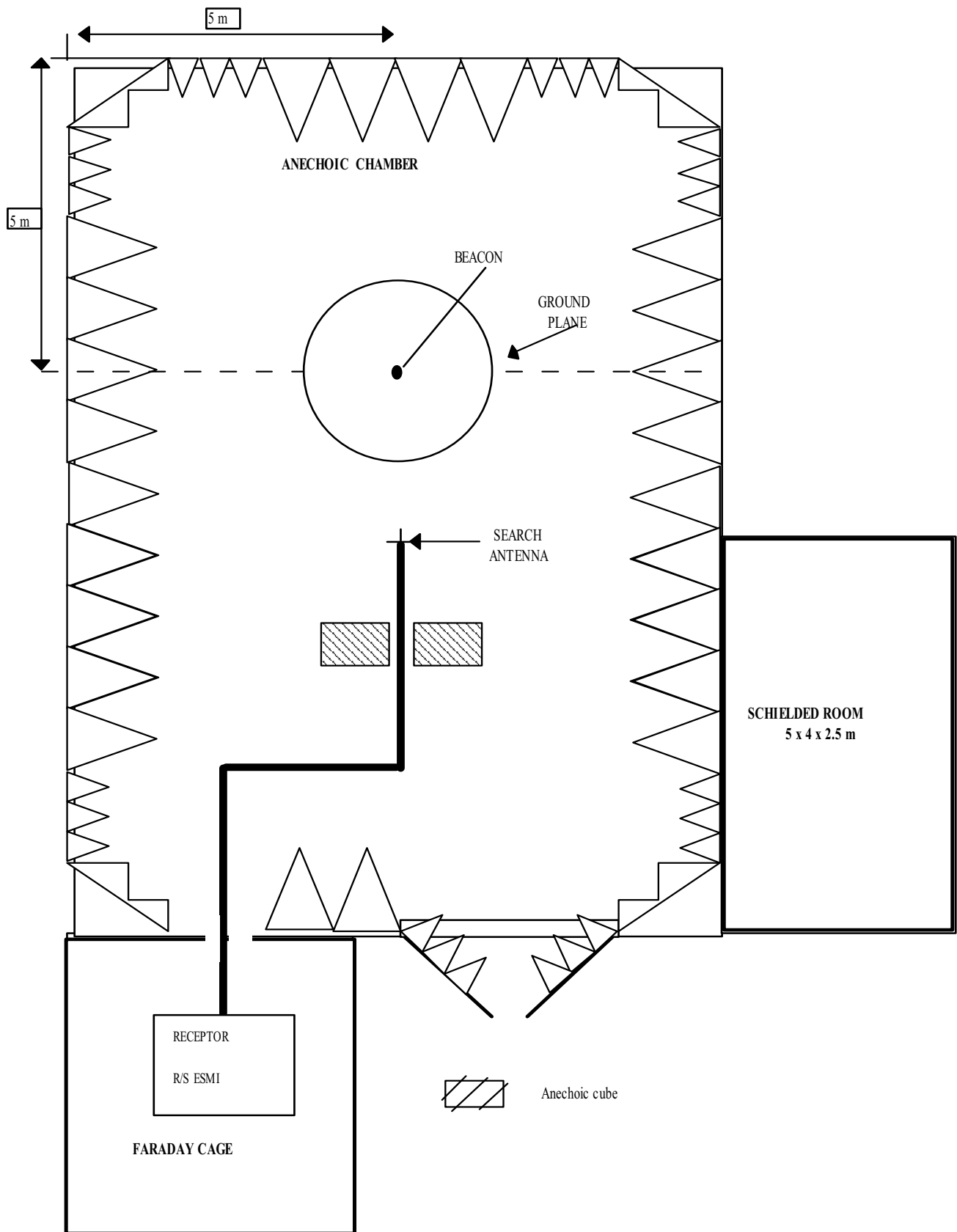


FIGURE 1

Figure B.2: Test Configuration for “PLB-like” Devices
(e.g. PLB, survival ELT, automatic portable ELT)

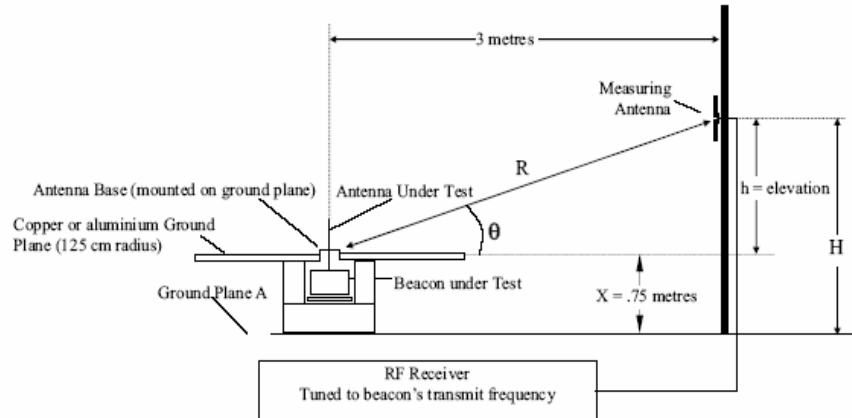
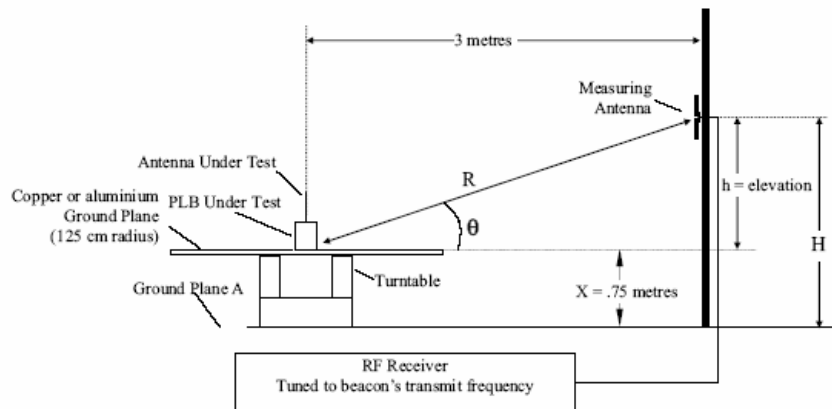


Figure B.3: Test Configuration for “Fixed ELT-like” Devices
(i.e. beacon with an antenna designed to be mounted on a metal surface)

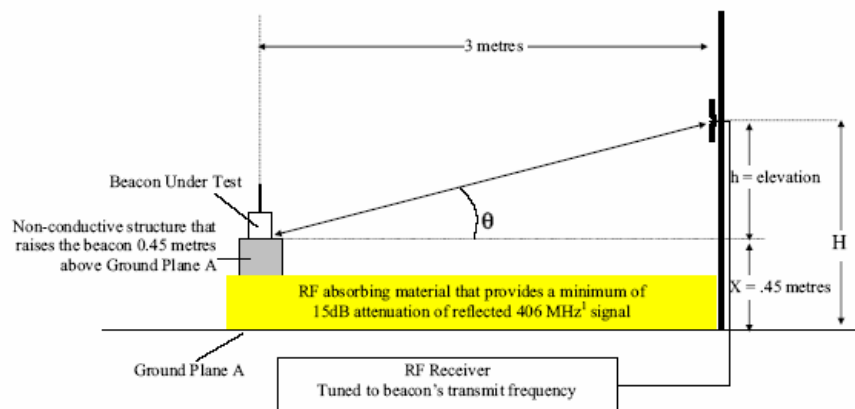


Figure B.5: Additional Test Configuration for all Devices that Might be Required to Operate Without a Ground Plane

5 - TEST METHOD

The test method describes here after, according to "C/S T 007 - Issue 4 November 2005"

test sequences is executed for 406 MHz frequency .

The Beacon or the Beacon Antenna placed on center of the electrical ground plane (as show Fig B & Fig 3) the following measurements are performed :

- 1/ Determination of E field strength in term of $\text{dB}\mu\text{V/m}$ at 3 m far from the Beacon Antenna for all direction (0° to 360° by step of 30°) and for all search antenna elevation (10° to 50° by step of 10°).
Lenght of search antenna is adjusted to proper $l/2\lambda$ conditions .
For alls positions the induced voltage is measured with search antenna in vertical and horizontal direction .
- 2/ Beacon antenna polarization is determined .
- 3/ An EIRP (Equivalent Isotropically Radiated Power) from the Beacon Antenna is calculated
- 4/ EIRP is corrected with EOL (end of life factor)
- 5/ Actual EIRP are compared to specified EIRP to be in the range + 32 dBm to + 43 dBm
for Figures B.2, B.3, and B.4 Test Configuration and + 30 dBm to + 43 dBm for Figure B5 Test Configuration.

6 - TESTS EQUIPMENTS

6.1. SEARCH ANTENNA

	Linear antenna (dipole)	RHCP Antenna (Spiral Cone)
Manufacturer :	EMCO Ref 3121 C- DB4	Stoddart Electro Systems
P/N / S/N :	9904 /1436	934490-1 / 105
Antenna Factor :	20,9 dB	22 dB
Calibration validity :	dec 2005	may 2006

6.2. SPECTRUM ANALYSER

	Antenna measurements	VSWR measurements
Manufacturer	HP 8566	HP 8751A
Reference :	RF : 85660B FI : 85662A	8751A
Serial number :	2449A01077 2403A08359	3026500208
Calibration validity :	oct-06	oct-06

6.3. CABLES

Cable type	2x10 m cable RG 214 type N
Cable loss at 406 MHz	3,5 dB

7 - TESTS OPERATIONS

7.1. EMISSION FIELD STRENGTH FROM BEACON

Beacon electric field strength is obtained from measurement of the output voltage (dB μ V RMS) at antenna port (typicals set up are shown figure N° 3 for 406 MHz) and computed with following parameters :

- Antenna factor of dipole search antenna AF = 20,9 at 406 MHz
Antenna factor of spiral cone search antenna AF = 22 dB at 406 MHz
- Directivity factor of the vertical search antenna Dm in dB (N/A for Log Spiral Cone Antenna)
(Theoretical directivity shown paragraph B-5-4 of C/S T007) as :

$$Dm = 20 \log [\cos (90 \times \sin q) / \cos q]$$

- Cable loss used with dipole search antenna : L = 3,5 dB at 406 MHz
Cable loss used with spiral cone search antenna : L = 3,5 dB at 406 MHz
- DF : distance factor in dB - To calculate field at a constant distance (3 m) from Beacon due to the elevation of the search antenna.
- Power correction factor : end of life correction factor EOL is calculated from the difference between RF power measured during test and end of life power after 24/48 hours operation. This factor is applied to correct EIRP as shown on final test result table
- The measurements are performed on the carrier signal, just before to apply the modulation.
- The effective field strength at 3 m from Beacon is computed from :

Linear Antenna (Dipole) : $EdB\mu V/m = UdB\mu V + AF - Dm + L + DF$

RHCP Antenna (Spiral Cone) : $EdB\mu V/m = UdB\mu V + AF + L + DF$ (the search antenna point to the BUT antenna)

7.2. POWER CORRECTION FACTORS

For alls Linear Antenna Tests it has been used a same battery pack and a new one for alls RHCP Antenna Test
In booth case the beacon output power variation between the beginning and the end of the tests at 22 °C wasn't significative (≤ -0.05 dB)

EOL factor

TEST FREQUENCY	RF Power measured at Ambient Temp. Test	RF Power measured at the end of Operating Lifetime Test	Loss Factor EIRPLOSS
406 MHz BEACON	36,1 dBm	36,3 dBm	-0,2 dB

8 - RADIATED POWER CALCULATIONS

8.1. EFFECTIVE ISOTROPICALLY RADIATED POWER OF BEACON

EIRP of Beacon is directly calculated from equation :

$$\text{EIRP} = E^2 \times D^2 / 30$$

$$\text{EIRP} = W$$

$$E = V/m$$

$$D = m$$

Results shown in table N° C1 are given in dBm where :

$$\text{EIRP dBm} = 10 \log (\text{EIRP W}) + 30$$

and apparent antenna gain :

$$\text{GidB} = \text{EIRPdBm} - \text{RF PowerdBm}$$

9 - SUCCESS CRITERIA

Test Configurations	EIRP Required
Figures B.2, B.3, and B.4	32 dBm to 43 dBm for at least 90% of the measurement points
Figure B.5	30 dBm to 43 dBm for at least 80% of the measurement points

10 - POLARIZATION AND VSWR OF BEACON ANTENNA

10.1 Beacon Antenna Polarization

Beacon antenna polarization is checked according to C/S T007 procedure paragraph B9 . The Beacon antenna polarization is declared linear when 80 % of induced voltage measurement V_v and V_h differ by at least 10 dB. If 20 % of the induced voltage measurement (V_v , V_h) are within 10 dB of each other the Antenna Polarization is considered like Circular.

Antenna model	C/S T.007 Test Conf.	Min difference ($V_v - V_h$) (See F-B-2 Tables)		Antenna Polarization
		Min	% < 10dB	
AK 451.017-1A (Whip)	B3	-2,0 dB	48%	Like Circular
AK 451.017-2A (Rod)	B3			Like Circular
AK 451.017-3A (Blade)	B3			Like Circular
AK 451.017-4 (S)(Portable Whip)	B2 & B5	6,8 dB	5%	Linear Vertical

Note : The AK 451 017 -2A (Rod) and AK 451 017 -3A (Blade) are inclined antennas. Following § B.9.4 of C/S T.007 the EIRP measurements have been performed directly using a RHCP measuring antenna with known antenna factor at 406 MHz. And in this case, as the results are in accordance with C/S T.007 requirements, the antenna should be accepted regardless of any circularly polarized component of the signal.

10.2 Beacon Antenna VSWR

10.2.1 Test method

The VSWR tests are performed in an anechoic chamber . The Beacon Antenna is placed on the center of the electrical ground plane as show Fig B & Fig 3.

The Reflection Factor " τ " is directly measured with the network analyser connected to the antenna and placed under the Ground Plane.

The 406 MHz VSWR is computed :

$$VSWR = \frac{1 + \tau}{1 - \tau}$$

10.2.2 VSWR test results

Antenna model	C/S T.007 Test Conf.	VSWR RESULTS
AK 451.017-1B (Whip)	B3	1,33 (-0,04 / +0,05)
AK 451.017-2A (Rod)	B3	1,15 (-0,017 / +0,02)
AK 451.017-3A (Blade)	B3	1,4 (-0,05 / +0,06)
AK 451.017-4 (S)(Portable Whip)	B2 & B5	1,29 (-0,035 / +0,04)

11 - BEACON MECHANICAL SET UP

Beacon 0°axis is identified with 0° azimuth direction of turn table

Antenna is the center of rotation of azimuth angle

Fig 3-1 : BEACON POSITION (B.3 Conf.)

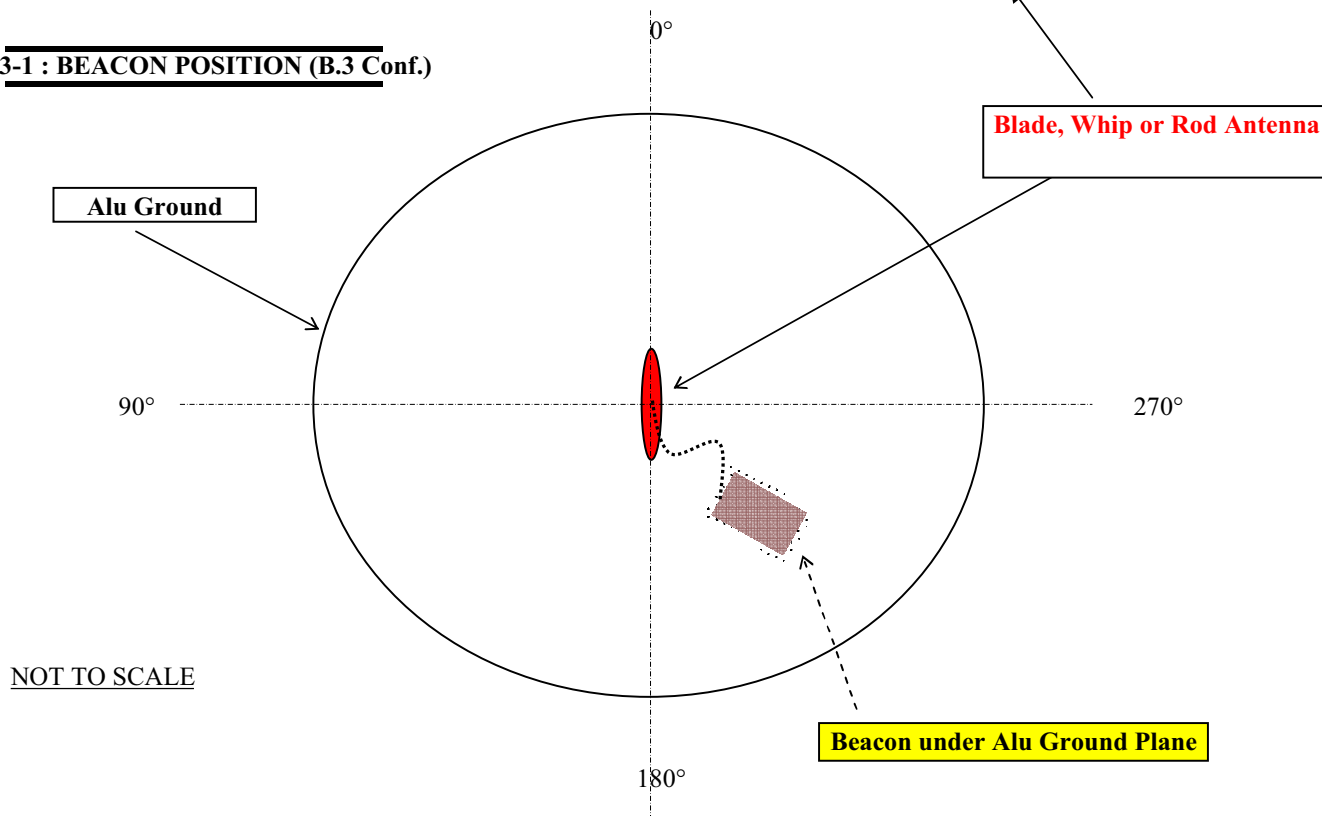
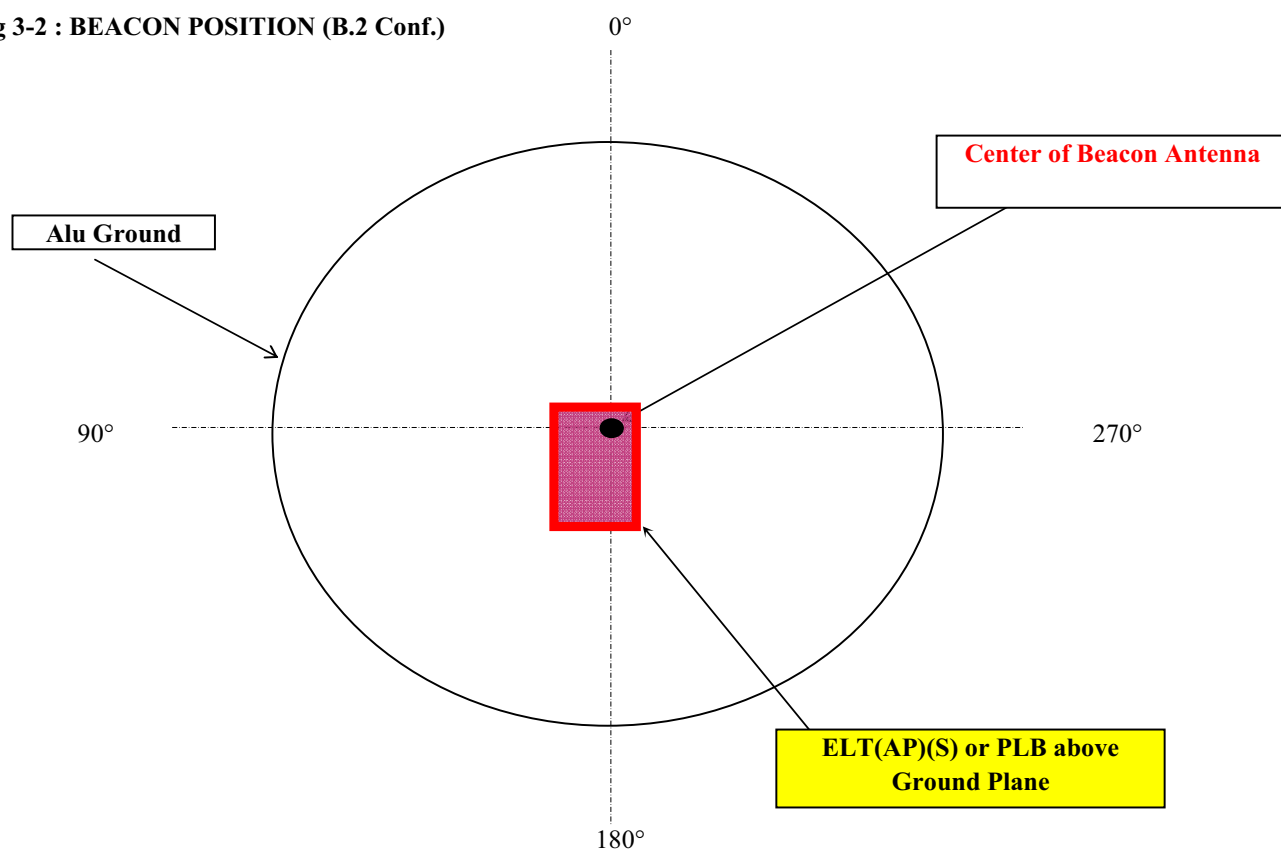


Fig 3-2 : BEACON POSITION (B.2 Conf.)



12 - RESULTS

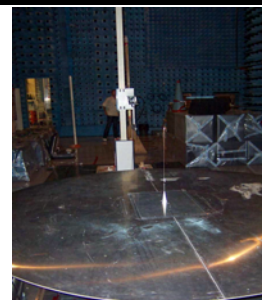
Antenna model / Test Configuration	Polarization	Reference EIRP (dBm)	EIRP checked with Linear Antenna	EIRP checked with Circular Antenna
AK 451.017-1B (Whip) / B3	Like Circular	32 < EIRP Ref < 43	table F-B.1/1	
AK 451.017-2A (Rod) / B3	Inclined Antenna			table F-B.1/2
AK 451.017-3A (Blade) / B3	Inclined Antenna			table F-B.1/3
AK 451.017-4 (S)(Portable Whip) / B2	Linear Vertical	30 < EIRP Ref < 43	table F-B.1/4	
AK 451.017-4 (S)(Portable Whip) / B5	Linear Vertical		table F-B.3	

CONCLUSIONS

According to the C/S T.007 measurement tolerance and measurement uncertainties (+/- 3 db)
the 4 Beacon Antennas are declared in EIRP Reference tolerance

406 MHz BEACON ANTENNA TEST RESULTS - B3 Test Configuration

Beacon Manufacturer Ameri-King
Beacon Model : ELT AK-451() Series (AF) (AP) (S)
Antenna Model : AK 451.017-1B (Whip)
Test Configuration : For "Fixed ELT-like" Devices (Figure B3)
Search Antenna : Dipole (Linear)


Table F-B.1/1 : Equivalent Isotropically Radiated Power (dBm) / Antenna Gain (dBi)

Azimuth Angle (degrees)	Elevation Angle(degrees)									
	10		20		30		40		50	
	dBm	dBi	dBm	dBi	dBm	dBi	dBm	dBi	dBm	dBi
0	34,70	-1,40	38,94	2,84	40,48	4,38	41,46	5,36	40,37	4,27
30	34,32	-1,78	38,71	2,61	40,82	4,72	41,63	5,53	40,43	4,33
60	34,44	-1,66	39,53	3,43	41,17	5,07	41,61	5,51	40,12	4,02
90	35,14	-0,96	39,93	3,83	41,45	5,35	41,47	5,37	39,15	3,05
120	34,99	-1,11	40,20	4,10	41,56	5,46	40,98	4,88	37,62	1,52
150	35,92	-0,18	40,35	4,25	41,52	5,42	40,82	4,72	36,01	-0,09
180	36,82	0,72	40,21	4,11	41,38	5,28	40,85	4,75	35,67	-0,43
210	36,30	0,20	40,39	4,29	41,49	5,39	40,82	4,72	36,48	0,38
240	35,98	-0,12	40,72	4,62	41,42	5,32	41,04	4,94	38,56	2,46
270	35,80	-0,30	40,09	3,99	41,35	5,25	41,36	5,26	39,04	2,94
300	34,77	-1,33	39,45	3,35	40,95	4,85	41,50	5,40	39,98	3,88
330	34,37	-1,73	38,78	2,68	40,74	4,64	41,61	5,51	40,22	4,12
Overall Gain Variation (dB)	2,49		2,02		1,08		0,81		4,75	

$$EIRP_{LOSS} = P_{t_{AMB}} - P_{t_{EOL}} = -0,2 \text{ dB}$$

$$EIRP_{max \text{ EOL}} = \text{MAX} [EIRP_{max}, (EIRP_{max} - EIRP_{LOSS})] = \text{MAX} (\underline{41,63} \quad \underline{41,83}) = \underline{41,83 \text{ dBm}}$$

$$EIRP_{min \text{ EOL}} = \text{MIN} [EIRP_{min}, (EIRP_{min} - EIRP_{LOSS})] = \text{MIN} (\underline{34,32} \quad \underline{34,52}) = \underline{34,32 \text{ dBm}}$$

Table F-B.2/1 : INDUCED Voltage Measurements Vv / Vh (dB μV)

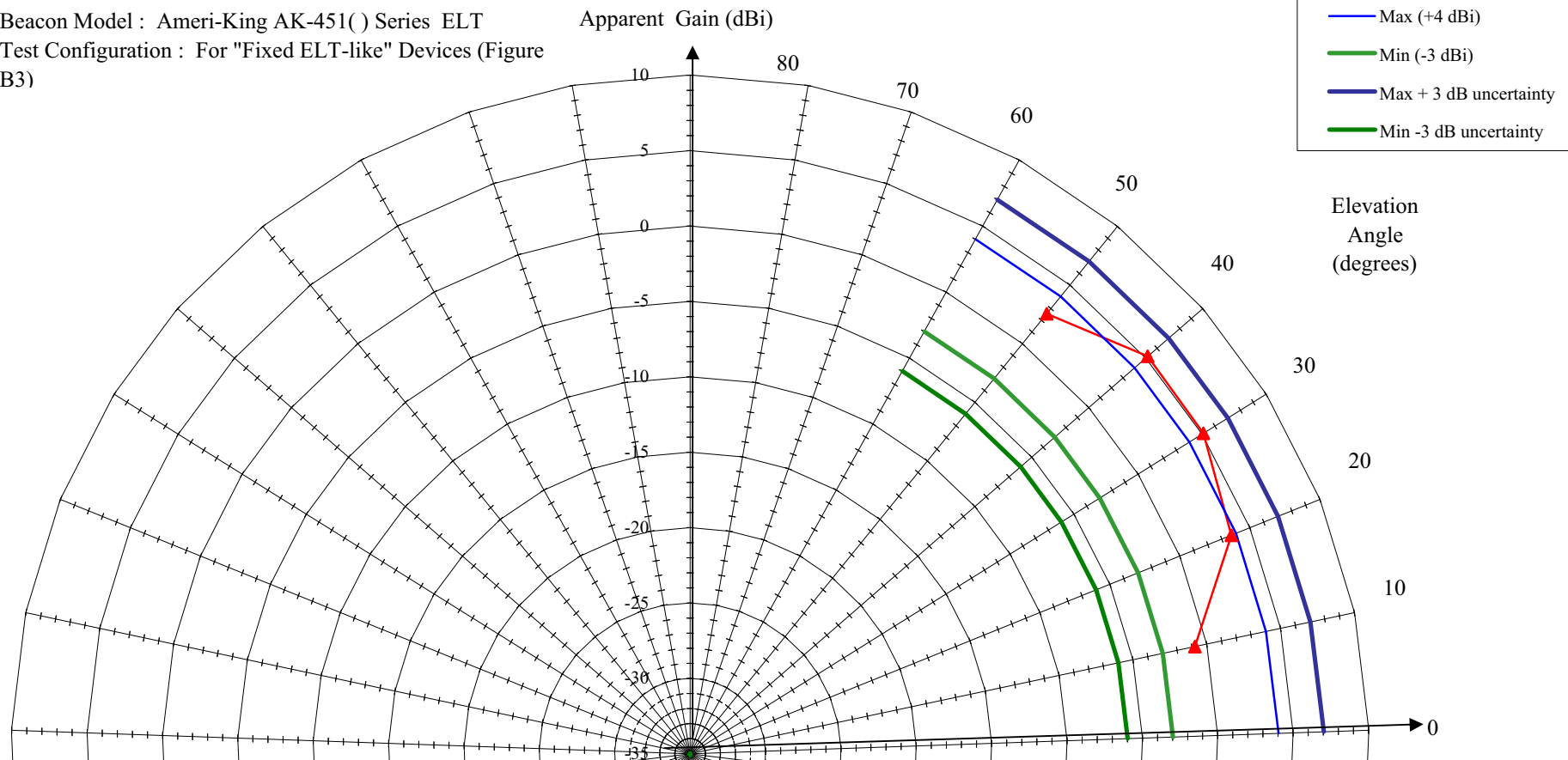
Azimuth Angle (Degrees)	Elevation Angle (Degrees)									
	10		20		30		40		50	
	Vv	Vh	Vv	Vh	Vv	Vh	Vv	Vh	Vv	Vh
0	105,29	88,90	109,18	89,70	110,06	76,70	109,96	80,10	107,35	81,90
30	104,59	94,70	108,98	85,20	110,26	95,50	109,86	98,10	107,15	95,10
60	104,49	96,50	109,68	94,90	110,36	100,10	109,16	103,10	105,75	101,40
90	105,19	97,20	109,88	99,00	110,36	102,60	108,36	104,90	102,95	103,30
120	105,29	95,00	110,18	98,80	110,56	102,10	108,16	103,70	100,45	102,50
150	106,49	90,90	110,48	96,20	110,96	96,10	108,96	98,50	101,25	98,20
180	107,49	83,70	110,48	85,90	110,96	77,10	109,36	73,80	102,65	76,40
210	106,79	93,60	110,48	97,30	110,96	94,90	108,96	98,50	102,05	97,90
240	106,19	96,90	110,58	100,80	110,46	101,70	108,46	103,00	102,25	102,80
270	105,89	97,60	109,78	101,50	110,06	103,50	108,46	104,30	102,35	103,60
300	104,99	95,60	109,28	99,80	109,96	101,40	109,16	102,50	105,15	102,30
330	104,89	91,00	108,88	95,40	110,16	95,80	109,86	97,80	106,75	97,20
Min (Vv-Vh)	8,0		8,3		6,6		3,5		-2,0	

Antenna Polarization : Like Circular

Antenna diagram versus elevation angle comparison with theoretical limits

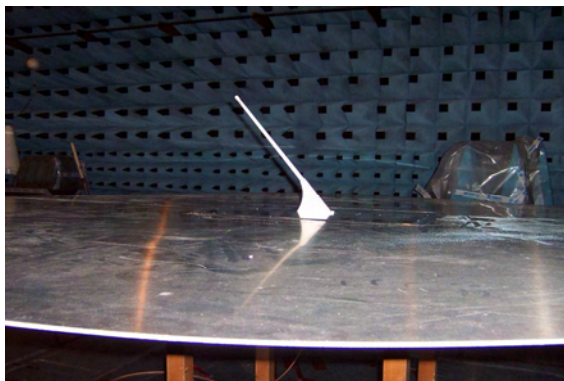
Ameri-King : AK 451.017-1B (Whip)

Beacon Model : Ameri-King AK-451() Series ELT
Test Configuration : For "Fixed ELT-like" Devices (Figure B3)



406 MHz BEACON ANTENNA TEST RESULTS - B3 Test Configuration

Beacon Manufacturer : Ameri-King
Beacon Model : AK-451() Series
Antenna Model : AK 451.017-2A (Rod)
Test Configuration : For "Fixed ELT-like" Devices (Figure B3)
Search Antenna : Spiral Cone (RHCP)


Table F-B.1/2 : Equivalent Isotropically Radiated Power (dBm) / Antenna Gain (dBi)

Azimuth Angle (degrees)	Elevation Angle(degrees)									
	10		20		30		40		50	
	dBm	dBi	dBm	dBi	dBm	dBi	dBm	dBi	dBm	dBi
0	39,90	3,80	42,71	6,61	44,62	8,52	41,49	5,39	37,31	1,21
30	39,90	3,80	42,31	6,21	44,32	8,22	40,79	4,69	35,31	-0,79
60	39,10	3,00	41,81	5,71	43,82	7,72	40,19	4,09	33,81	-2,29
90	39,40	3,30	42,11	6,01	43,82	7,72	39,79	3,69	32,01	-4,09
120	39,80	3,70	41,61	5,51	43,82	7,72	40,29	4,19	32,31	-3,79
150	39,50	3,40	41,81	5,71	44,12	8,02	41,09	4,99	34,51	-1,59
180	40,20	4,10	42,01	5,91	44,52	8,42	42,09	5,99	36,51	0,41
210	40,70	4,60	42,71	6,61	44,92	8,82	42,79	6,69	37,91	1,81
240	40,50	4,40	42,91	6,81	45,12	9,02	43,09	6,99	38,71	2,61
270	40,20	4,10	43,01	6,91	45,42	9,32	43,31	7,21	39,41	3,31
300	40,90	4,80	43,31	7,21	45,42	9,32	42,99	6,89	38,81	2,71
330	40,40	4,30	43,01	6,91	45,12	9,02	42,49	6,39	38,61	2,51
Overall Gain Variation (dB)	1,80		1,70		1,60		3,52		7,40	

$$EIRP_{LOSS} = Pt_{AMB} - Pt_{EOL} = -0,2 \text{ dB}$$

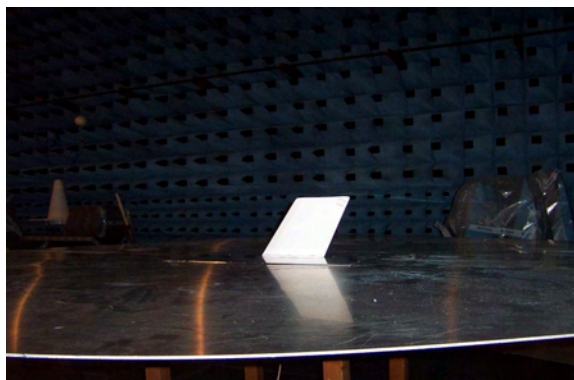
$$EIRP_{max} \text{ EOL} = \text{MAX} [EIRP_{max}, (EIRP_{max} - EIRP_{LOSS})] = \text{MAX} (\underline{44,52} \quad \underline{44,72}) = \underline{44,72 \text{ dBm}}$$

$$EIRP_{min} \text{ EOL} = \text{MIN} [EIRP_{min}, (EIRP_{min} - EIRP_{LOSS})] = \text{MIN} (\underline{32,01} \quad \underline{32,21}) = \underline{32,01 \text{ dBm}}$$

Note : Highlighted text indicate all the EIRP values that are not within the C/S range and stricken-out text indicate any EIRP levels that were removed from consideration for calculating the EIRP maximum and minimum values at the end of life.

406 MHz BEACON ANTENNA TEST RESULTS - B3 Test Configuration

Beacon Manufacturer Ameri-King
Beacon Model : AK-451() Series
Antenna Model : AK 451.017-3A (Blade)
Test Configuration : For "Fixed ELT-like" Devices (Figure B3)
Search Antenna : Spiral Cone (RHCP)


Table F-B.1/3 : Equivalent Isotropically Radiated Power (dBm) / Antenna Gain (dBi)

Azimuth Angle (degrees)	Elevation Angle(degrees)									
	10		20		30		40		50	
	dBm	dBi	dBm	dBi	dBm	dBi	dBm	dBi	dBm	dBi
0	39,00	2,90	43,51	7,41	44,52	8,42	42,19	6,09	38,61	2,51
30	36,804	0,704	44,01	7,91	43,82	7,72	41,29	5,19	37,31	1,21
60	38,80	2,70	43,51	7,41	43,02	6,92	39,54	3,44	35,31	-0,79
90	38,60	2,50	42,31	6,21	42,52	6,42	38,79	2,69	32,71	-3,39
120	39,80	3,70	41,11	5,01	42,29	6,19	38,99	2,89	31,31	-4,79
150	40,20	4,10	40,41	4,31	42,62	6,52	40,19	4,09	32,71	-3,39
180	40,10	4,00	42,21	6,11	43,62	7,52	41,79	5,69	36,71	0,61
210	38,20	2,10	42,91	6,81	44,64	8,54	43,59	7,49	39,21	3,11
240	40,30	4,20	43,21	7,11	45,22	9,12	44,43	8,33	40,91	4,81
270	41,50	5,40	43,51	7,41	45,42	9,32	44,50	8,40	40,91	4,81
300	42,60	6,50	43,81	7,71	45,39	9,29	44,19	8,09	40,61	4,51
330	41,80	5,70	44,31	8,21	45,12	9,02	43,29	7,19	39,51	3,41
Overall Gain Variation (dB)	5,80		3,90		3,13		5,71		9,60	

$$EIRP_{LOSS} = P_{tAMB} - P_{tEOL} = -0,2 \text{ dB}$$

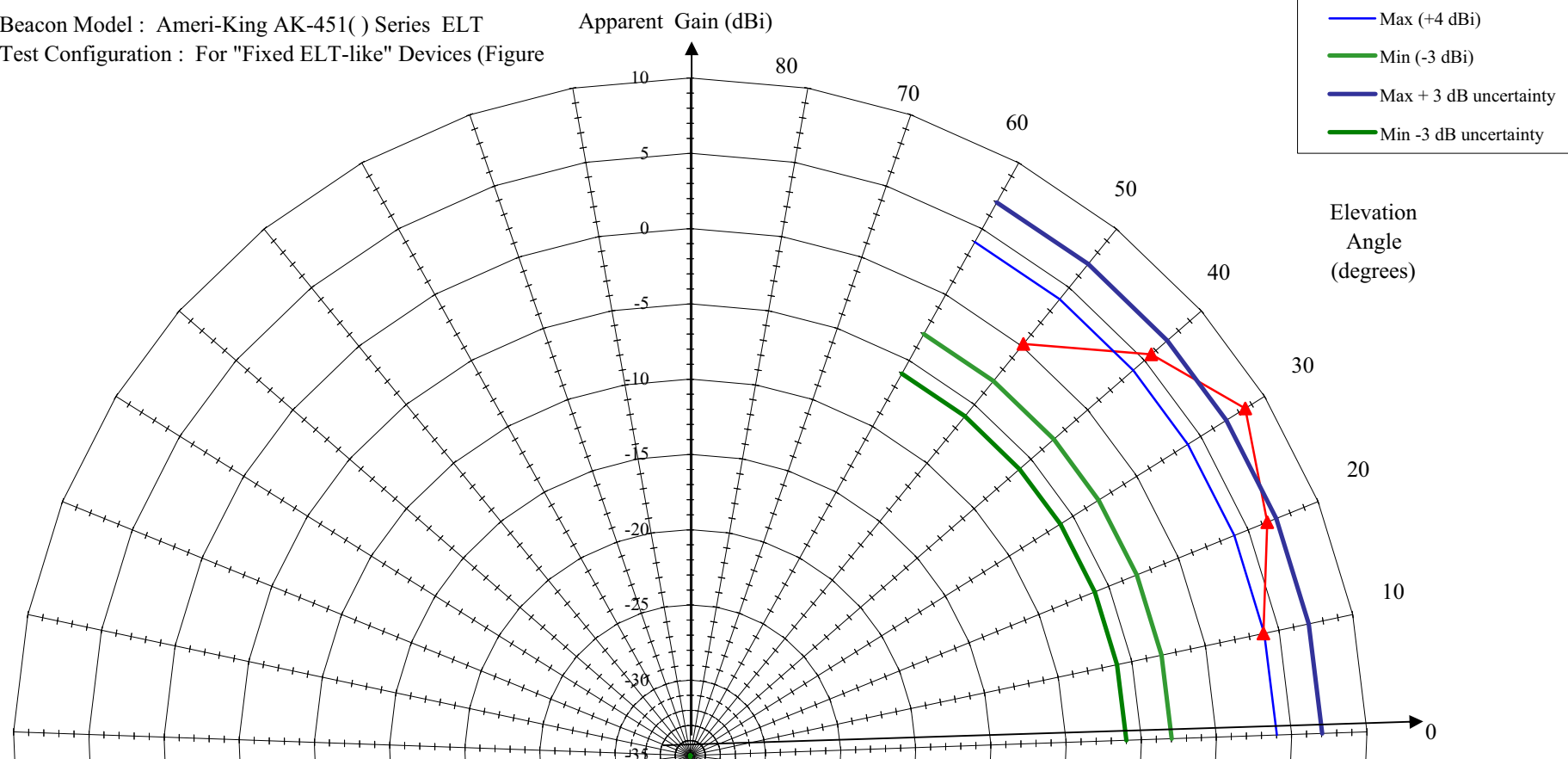
$$EIRP_{max} \text{ EOL} = \text{MAX} [EIRP_{max}, (EIRP_{max} - EIRP_{LOSS})] = \text{MAX} (\underline{44,50} \quad \underline{44,70}) = \underline{44,70 \text{ dBm}}$$

$$EIRP_{min} \text{ EOL} = \text{MIN} [EIRP_{min}, (EIRP_{min} - EIRP_{LOSS})] = \text{MIN} (\underline{31,31} \quad \underline{31,51}) = \underline{31,31 \text{ dBm}}$$

Note : Highlighted text indicate all the EIRP values that are not within the C/S range and stricken-out text indicate any EIRP levels that were removed from consideration for calculating the EIRP maximum and minimum values at the end of life.

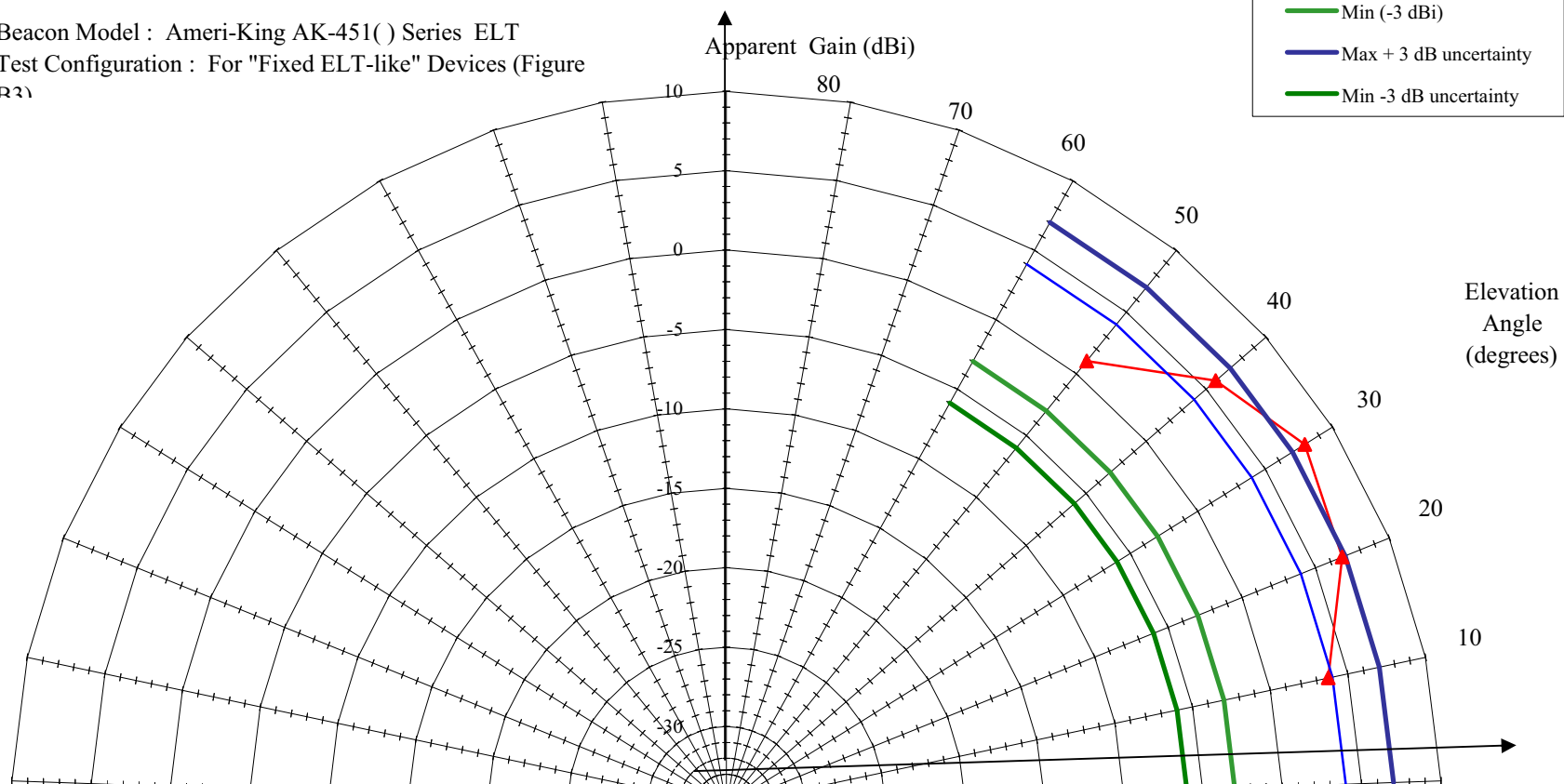
Antenna diagram versus elevation angle comparison with theoretical limits
Ameri-King : AK 451.017-2A (Rod)

Beacon Model : Ameri-King AK-451() Series ELT
Test Configuration : For "Fixed ELT-like" Devices (Figure



Antenna diagram versus elevation angle comparison with theoretical limits
Ameri-King : AK 451.017-3A (Blade)

Beacon Model : Ameri-King AK-451() Series ELT
Test Configuration : For "Fixed ELT-like" Devices (Figure
R3)



406 MHz BEACON ANTENNA TEST RESULTS - B2 Test Configuration

Beacon Model : Ameri-King AK-451() Series n° CS-08
Antenna Model : P/N AK 451.017-4
Test Configuration : For "PLB-like" Devices (e.g. PLB, survival ELT, automatic portable ELT)
Search Antenna : Dipole (Linear)


Table F-B.1/4 : Equivalent Isotropically Radiated Power (dBm) / Antenna Gain (dBi)

Azimuth Angle (degrees)	Elevation Angle(degrees)									
	10		20		30		40		50	
	dBm	dBi	dBm	dBi	dBm	dBi	dBm	dBi	dBm	dBi
0	35,59	-0,51	37,33	1,23	32,20	-3,90	37,52	1,42	39,81	3,71
30	35,93	-0,17	37,47	1,37	32,16	-3,94	37,63	1,53	39,84	3,74
60	36,06	-0,04	37,58	1,48	32,44	-3,66	37,83	1,73	39,98	3,88
90	36,24	0,14	37,78	1,68	32,15	-3,95	37,77	1,67	39,97	3,87
120	36,27	0,17	37,83	1,73	31,62	-4,48	37,78	1,68	40,05	3,95
150	36,24	0,14	37,72	1,62	31,46	-4,64	37,63	1,53	40,11	4,01
180	36,12	0,02	37,63	1,53	31,30	-4,80	37,61	1,51	40,13	4,03
210	35,92	-0,18	37,55	1,45	31,85	-4,25	37,67	1,57	40,26	4,16
240	35,83	-0,27	37,48	1,38	32,01	-4,09	37,72	1,62	40,28	4,18
270	35,53	-0,57	37,37	1,27	32,18	-3,92	37,69	1,59	40,18	4,08
300	35,22	-0,88	37,23	1,13	32,19	-3,91	37,56	1,46	40,05	3,95
330	35,43	-0,67	37,22	1,12	31,95	-4,15	37,55	1,45	39,91	3,81
Overall Gain Variation (dB)	1,05		0,61		1,15		0,31		0,47	

$$EIRP_{LOSS} = P_{t_{AMB}} - P_{t_{EOL}} = -0,2 \text{ dB}$$

$$EIRP_{max} \text{ EOL} = \text{MAX} [EIRP_{max}, (EIRP_{max} - EIRP_{LOSS})] = \text{MAX} (\underline{40,28} \quad \underline{40,48}) = \underline{40,48 \text{ dBm}}$$

$$EIRP_{min} \text{ EOL} = \text{MIN} [EIRP_{min}, (EIRP_{min} - EIRP_{LOSS})] = \text{MIN} (\underline{32,15} \quad \underline{32,35}) = \underline{32,15 \text{ dBm}}$$

Note : Highlighted text indicate all the EIRP values that are not within the C/S range and stricken-out text indicate any EIRP levels that were removed from consideration for calculating the EIRP maximum and minimum values at the end of life.

Table F-B.2/4 : INDUCED Voltage Measurements Vv / Vh (dBμV)

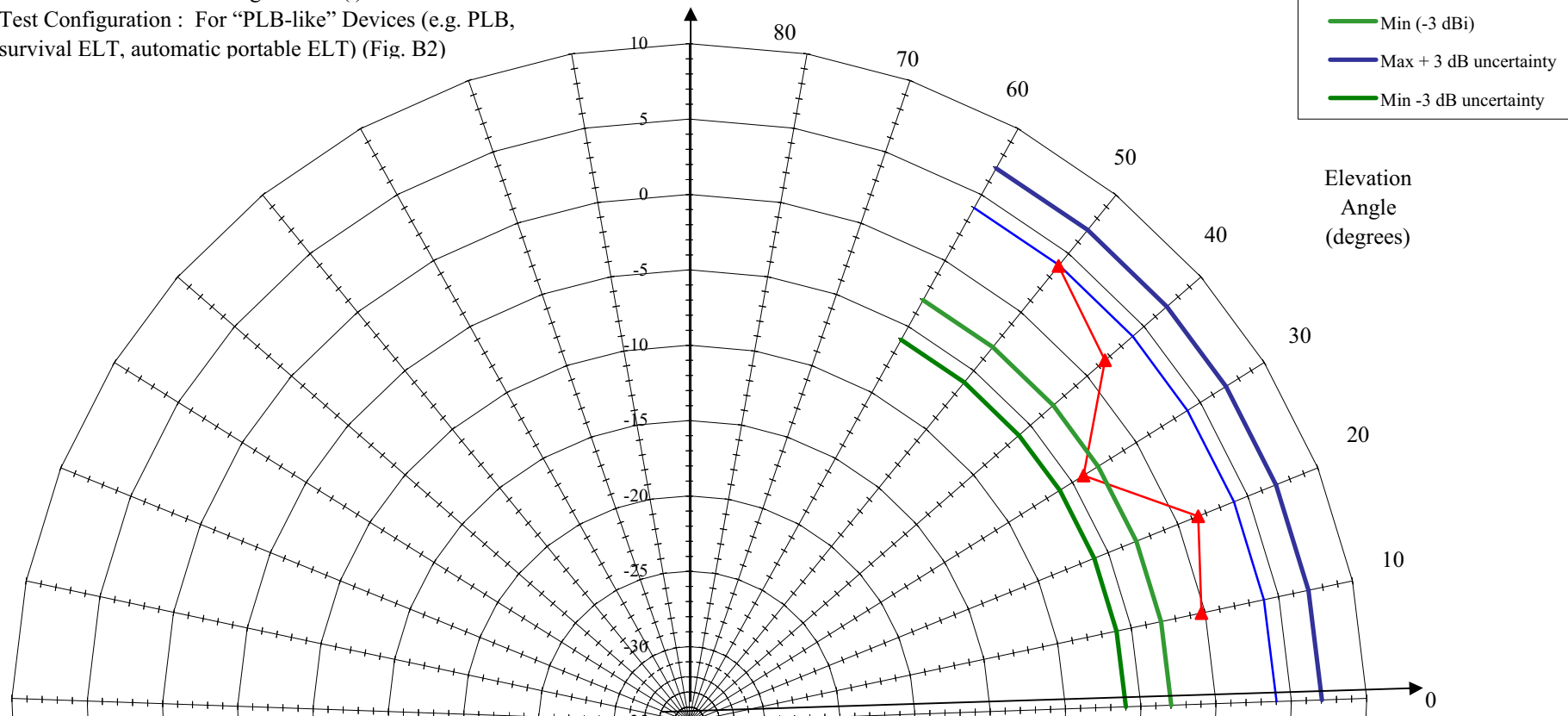
Azimuth Angle (Degrees)	Elevation Angle (Degrees)									
	10		20		30		40		50	
	Vv	Vh	Vv	Vh	Vv	Vh	Vv	Vh	Vv	Vh
0	106,20	89,20	107,60	83,00	101,50	89,80	105,90	91,00	106,80	77,30
30	106,50	91,10	107,70	89,20	101,10	93,10	105,90	93,60	106,80	85,80
60	106,60	92,10	107,80	89,70	101,20	94,40	106,00	95,20	106,90	88,90
90	106,80	91,90	108,00	90,00	101,00	93,60	106,00	94,30	106,90	88,50
120	106,90	88,70	108,10	85,40	100,80	90,60	106,10	92,60	107,00	86,30
150	106,90	85,90	108,00	80,00	101,00	80,40	106,10	86,00	107,10	74,10
180	106,80	82,10	107,90	83,60	100,80	83,30	106,10	84,30	107,10	84,60
210	106,60	82,80	107,80	87,10	101,20	88,50	106,10	88,90	107,20	87,70
240	106,50	84,40	107,70	89,70	101,20	90,90	106,10	91,10	107,20	89,40
270	106,20	83,80	107,60	88,70	101,40	90,80	106,10	90,10	107,10	88,90
300	105,90	80,00	107,50	83,60	101,50	89,60	106,00	88,20	107,00	86,50
330	106,10	83,90	107,50	81,50	101,40	86,10	106,00	87,70	106,90	77,20
Min (Vv-Vh)	14,5		18,0		6,8		10,8		17,8	

Antenna Polarization : Linear Vertical

Antenna diagram versus elevation angle comparison with theoretical limits
Ameri-King : AK 451.017-4(S) (Whip) (Conf. B2)

Beacon Model : Ameri-King AK-451() Series ELT & PLB Apparent Gain (dBi)

Test Configuration : For “PLB-like” Devices (e.g. PLB, survival ELT, automatic portable ELT) (Fig. B2)



406 MHz BEACON ANTENNA TEST RESULTS - B5 Test Configuration

Beacon Model : Ameri-King AK-451() Series n° CS-08 ELT & PLB
Antenna Model : P/N AK 451.017-4
Test Configuration : For all Devices that Might be Required to Operate Without a Ground Plane
Search Antenna : Dipole (Linear)



Table F-B.3 : Equivalent Isotropically Radiated Power (dBm) / Antenna Gain (dBi)

Azimuth Angle (degrees)	Elevation Angle(degrees)									
	10		20		30		40		50	
	dBm	dBi	dBm	dBi	dBm	dBi	dBm	dBi	dBm	dBi
0	37,31	1,21	37,60	1,50	36,99	0,89	38,25	2,15	36,57	0,47
90	38,18	2,08	37,77	1,67	37,81	1,71	38,27	2,17	37,12	1,02
180	38,16	2,06	37,85	1,75	37,54	1,44	39,17	3,07	37,68	1,58
270	37,90	1,80	37,69	1,59	37,65	1,55	38,39	2,29	37,00	0,90
Overall Gain Variation (dB)	0,87		0,25		0,82		0,12		1,11	

$$ERP_{LOSS} = Pt_{AMB} - Pt_{EOL} = -0,2 \text{ dB}$$

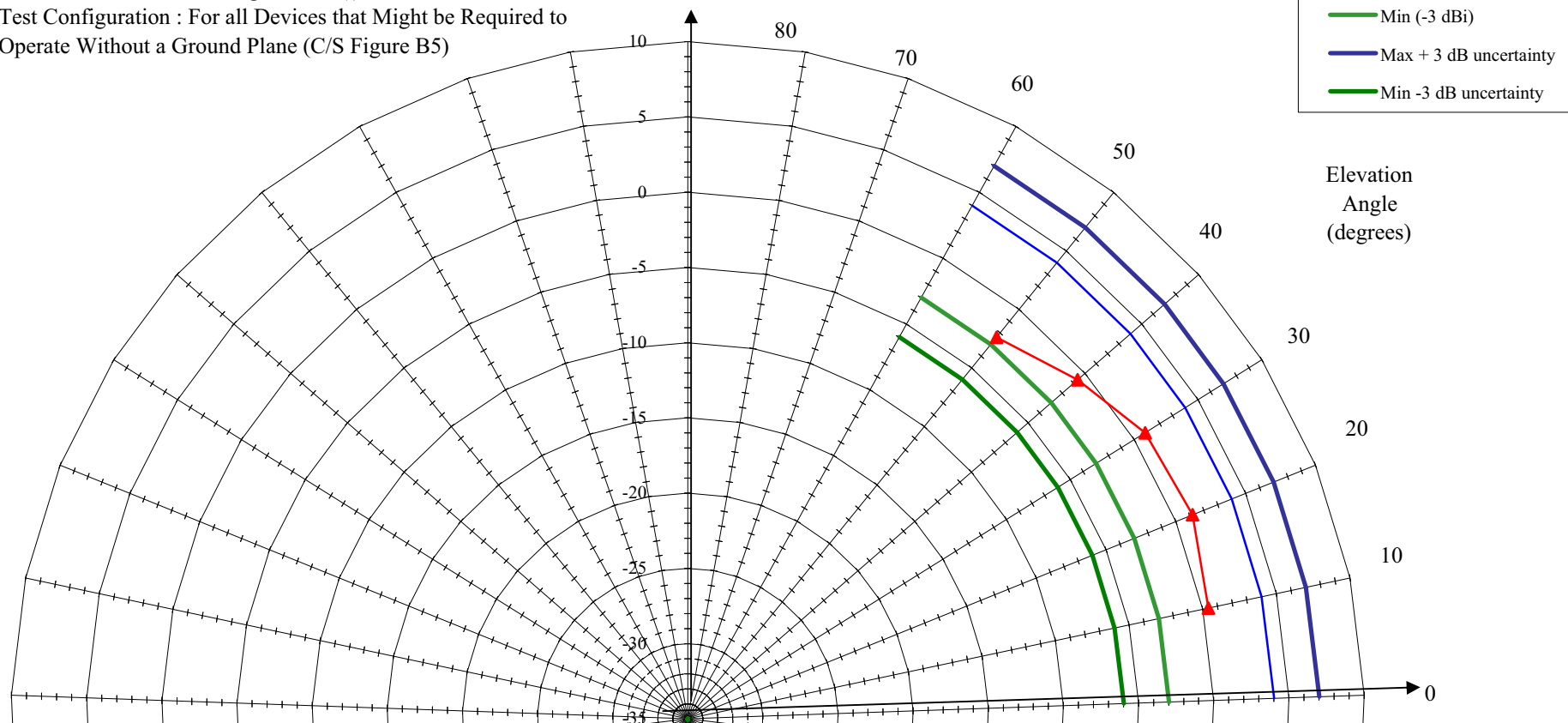
$$ERP_{max \text{ EOL}} = \text{MAX} [ERP_{max}, (ERP_{max} - ERP_{LOSS})] = \text{MAX} (\underline{39,17} \quad \underline{39,37}) = \underline{39,37 \text{ dBm}}$$

$$ERP_{min \text{ EOL}} = \text{MIN} [ERP_{min}, (ERP_{min} - ERP_{LOSS})] = \text{MIN} (\underline{36,57} \quad \underline{36,77}) = \underline{36,57 \text{ dBm}}$$

Antenna diagram versus elevation angle comparison with theoretical limits
Ameri-King : AK 451.017-4(S) (Whip) (Conf. B5)

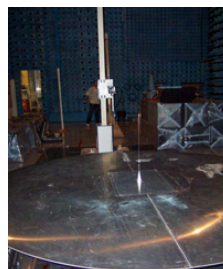
Beacon Model : Ameri-King AK-451() Series ELT & PLB Apparent Gain (dBi)

Test Configuration : For all Devices that Might be Required to
Operate Without a Ground Plane (C/S Figure B5)



406 MHz BEACON ANTENNA TEST RESULTS - B3 Test Configuration

Beacon Manufacturer : Ameri-King
Beacon Model : ELT AK-451() Series (AF) (AP) (S)
Antenna Model : AK 451.017-1B (Whip)
Test Configuration : For "Fixed ELT-like" Devices (Figure B3)


Table F-B.1/1 : Equivalent Isotropically Radiated Power (dBm) / Antenna Gain (dBi)

Azimuth Angle (degrees)	Elevation Angle(degrees)									
	10		20		30		40		50	
	dBm	dBi	dBm	dBi	dBm	dBi	dBm	dBi	dBm	dBi
0	26,07	-10,03	33,65	-2,45	41,29	5,19	42,95	6,85	40,96	4,86
30	26,40	-9,70	33,14	-2,96	41,11	5,01	42,95	6,85	41,07	4,97
60	27,82	-8,28	34,11	-1,99	40,88	4,78	42,85	6,75	41,06	4,96
90	31,47	-4,63	34,80	-1,30	40,69	4,59	42,85	6,75	41,07	4,97
120	31,42	-4,68	33,11	-2,99	40,59	4,49	42,75	6,65	40,97	4,87
150	29,67	-6,43	34,01	-2,09	40,69	4,59	42,65	6,55	40,87	4,77
180	32,34	-3,76	35,30	-0,80	40,49	4,39	42,55	6,45	40,96	4,86
210	32,80	-3,30	36,00	-0,10	40,89	4,79	42,65	6,55	40,96	4,86
240	30,67	-5,43	35,80	-0,30	41,09	4,99	42,65	6,55	40,76	4,66
270	25,94	-10,19	33,79	-2,31	41,39	5,29	42,96	6,86	40,87	4,77
300	30,33	-5,77	32,84	-3,26	40,90	4,80	42,86	6,76	40,87	4,77
330	29,49	-6,61	34,71	-1,39	40,99	4,89	42,75	6,65	40,76	4,66
Overall Gain Variation (dB)	6,89		3,16		0,89		0,40		0,30	

Note : Values crossed aren't took account for EIRP and Gain verification following Section B10.2 of C/S T.007

$$\text{EIRP}_{\text{LOSS}} = \text{Pt}_{\text{AMB}} - \text{Pt}_{\text{EOL}} = -0,2 \text{ dB}$$

$$\text{EIRPmax EOL} = \text{MAX} [\text{EIRPmax}, (\text{EIRPmax} - \text{EIRPLOSS})] = \text{MAX} (\begin{matrix} 42,96 \\ 30,33 \end{matrix} \begin{matrix} 43,16 \\ 30,53 \end{matrix}) = \begin{matrix} 43,16 \text{ dBm} \\ 30,33 \text{ dBm} \end{matrix}$$

$$\text{EIRPmin EOL} = \text{MIN} [\text{EIRPmin}, (\text{EIRPmin} - \text{EIRPLOSS})] = \text{MIN} (\begin{matrix} 42,96 \\ 30,33 \end{matrix} \begin{matrix} 43,16 \\ 30,53 \end{matrix}) = \begin{matrix} 43,16 \text{ dBm} \\ 30,33 \text{ dBm} \end{matrix}$$

Table F-B.2/1 : INDUCED Voltage Measurements Vv / Vh (dBμV)

Azimuth Angle (Degrees)	Elevation Angle (Degrees)									
	10		20		30		40		50	
	Vv	Vh	Vv	Vh	Vv	Vh	Vv	Vh	Vv	Vh
0	96,29	86,90	103,88	85,30	110,86	84,10	111,46	78,10	107,95	69,40
30	96,69	86,60	103,38	84,20	110,66	89,30	111,46	79,50	108,05	77,10
60	98,19	87,10	104,38	80,60	110,46	78,30	111,36	79,30	108,05	73,90
90	102,09	84,30	105,08	76,60	110,26	81,60	111,36	69,10	108,05	76,00
120	102,09	78,70	103,38	79,70	110,16	83,10	111,26	79,90	107,95	81,00
150	100,29	82,60	104,28	80,50	110,26	83,40	111,16	67,70	107,85	81,00
180	102,99	82,50	105,58	80,20	110,06	84,50	111,06	79,20	107,95	71,60
210	103,39	87,00	106,28	80,00	110,46	80,30	111,16	76,80	107,95	74,00
240	101,29	83,60	106,08	77,10	110,66	79,80	111,16	79,40	107,75	71,60
270	96,59	70,90	104,08	71,00	110,96	82,70	111,46	82,70	107,85	81,00
300	100,99	80,20	103,08	84,10	110,46	86,50	111,36	85,00	107,85	80,50
330	100,09	83,40	104,98	82,00	110,56	83,60	111,26	77,50	107,75	63,40
Min (Vv-Vh)	9,4		18,6		21,4		26,4		26,9	

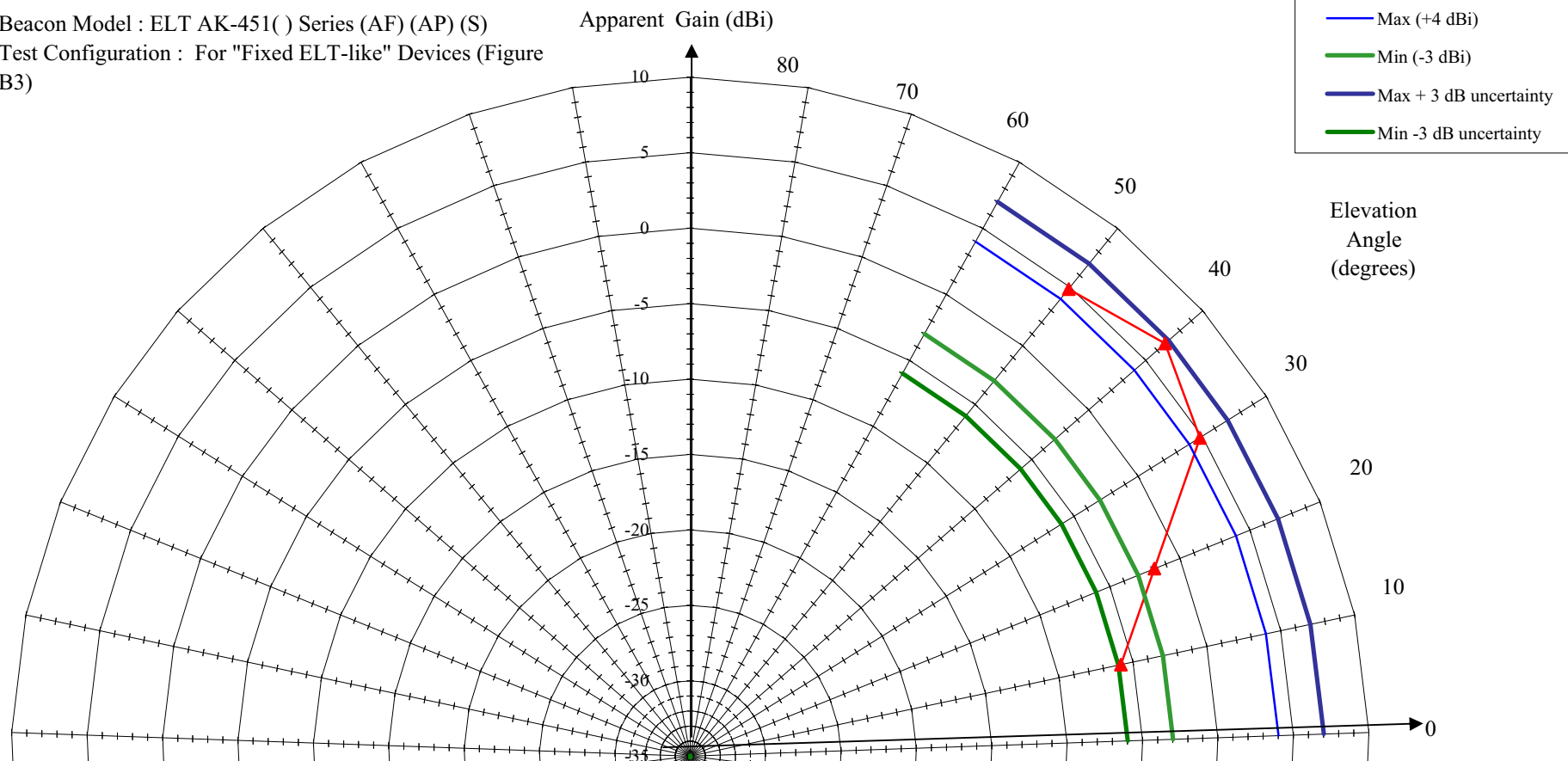
Antenna Polarization : Linear Vertical

Antenna diagram versus elevation angle comparison with theoretical limits

Ameri-King : AK 451.017-1B (Whip)

Beacon Model : ELT AK-451() Series (AF) (AP) (S)

Test Configuration : For "Fixed ELT-like" Devices (Figure B3)



ANNEX B

SATELLITE QUALITATIVE TEST REPORT OF AMERI-KING

AK-451() Series ELT & PLB

SN : CS-07

ANTENNAS : - AK 451.017-1B (Whip)
- AK 451.017-2A (Rod)
- AK 451.017-3A (Blade)
- AK 451.017-4(S) (Portable Whip)

1 - ADMINISTRATION

1. WORK ORDER : Reference ITS : E6557-CS Annex-B (Sat)
1. TEST TEAM : B. HERBERT - G. PEYROU
1. SCHEDULE : 03 to 07 july 2006

2 - PURPOSE

The Satellite Qualitative Tests of the dedicated radio beacon are performed on the INTESPACE Roof Building in compliance with the test methods described in the COSPAS-SARSAT 406 MHz distress beacon type approval standard : C/S T 007- Issue 4 November 2005.

Three antennas are checked in "Fixed ELT" Test Configuration (B3) and one in "Portable ELT" / "PLB" Configuration (B2 & B5) with Ultralife U10014 LiMnO₂ battery pack.

The antenna and beacon in "Portable ELT" / "PLB" Configuration (B2) is also checked to time more with Saft LO263XC (LiSO₂) and Saft LM33600 (LiMnO₂) battery packs

3 - ANTENNAS AND RADIO BEACON IDENTIFICATIONS

- Beacon :** **BUT 2**
- Manufacturer : Ameri-King Corp.
 - Type : ELT(AF)(AP)(S) and PLB
 - PN / SN : AK-451() Series / CS-07

Antennas :

Manufacturer	AUT Type
Ameri-King Corp.	AK 451.017-1B (Whip)
"	AK 451.017-2A (Rod)
"	AK 451.017-3A (Blade)
"	AK 451.017-4(S) (Portable Whip)

Coax cable : 6 feet

Battery used	Manufacturer / Type
For main C/S SatelliteTest	ULTRALIFE / U 10014 (LiMnO ₂)
For additional C/S Satellite Test	SAFT / L0263XC (LiSO ₂)
	SAFT / LM33600 (LiMnO ₂)

4 - TEST SITE DESCRIPTION

Tests are performed outside on the top of Intespace Pacal C building

The Beacon and Antennas are placed as B2, B3 and B5 C/S T.007 Test Configuration

Note : For B.5 configuration the Ground Plane is lined with EMERSON CUMING foams VHP 26 type.

Figure B.2: Test Configuration for “PLB-like” Devices
(e.g. PLB, survival ELT, automatic portable ELT)

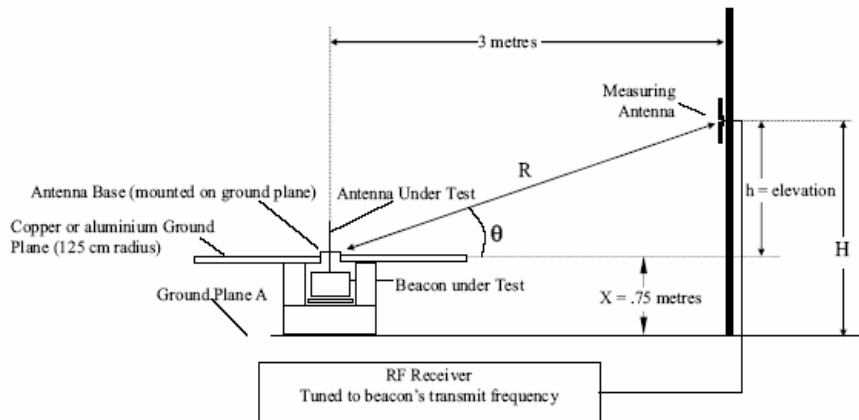
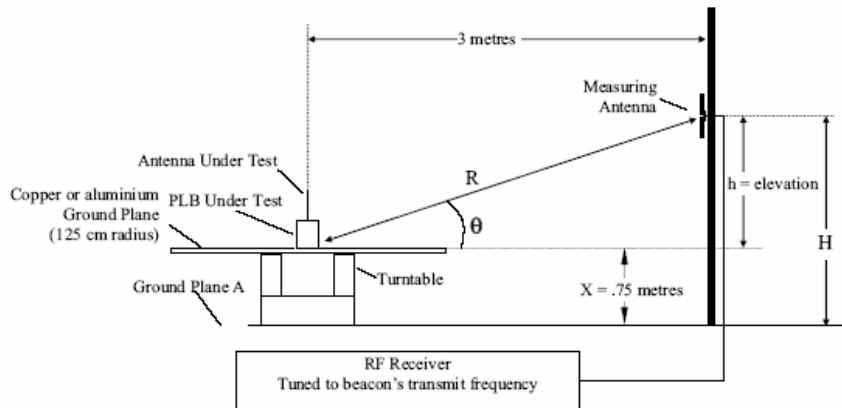


Figure B.3: Test Configuration for “Fixed ELT-like” Devices
(i.e. beacon with an antenna designed to be mounted on a metal surface)

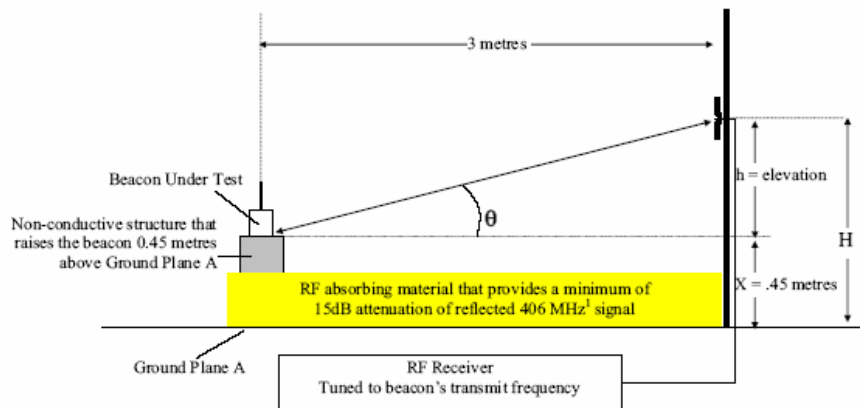


Figure B.5: Additional Test Configuration for all Devices that Might be Required to Operate Without a Ground Plane

5 - TEST METHOD

This test is to be performed following C/S T.007 ANNEX A § A.2.5 Satellite Qualitative Test (test no. 14 in Table F.1) in coordination with the Cospas-Sarsat Mission Control Centre (MCC) of CNES Toulouse.

6 - TEST CRITERIA

The pass/fail criteria are as follows:

- a. LEOLUT solutions producing the correct beacon 15 hexadecimal identification must be provided for all satellite passes with cross track angles between 1 and 21 degrees; and
- b. at least 80% of the LEOLUT Doppler locations, associated with satellite passes with cross track angles between 1 and 21 degrees and with bursts that bracket TCA, must be accurate to within 5 km.

7 - RESULTS

Antenna model	Beacon Type	Antenna Conf.	Sat Test pass/fail criteria	Appendix A to Annex F tables	Battery pack
AK 451.017-1B (Whip)	ELT (AF)	B.3	80 % of Doppler Locations within 5 km ($1^{\circ} < \text{CTA} < 21^{\circ}$)	Table F-A. 1	ULTRALIFE U 10014 (LiMnO ₂)
AK 451.017-2A (Rod)	ELT (AF)	B.3		Table F-A. 2	
AK 451.017-3A (Blade)	ELT (AF)	B.3		Table F-A. 3	
AK 451.017-4 (S)(Portable Whip)	ELT(S)(AP)	B.2		Table F-A. 4	
AK 451.017-4 (S)(Portable Whip)	&PLB	B.5		Table F-A. 5	
AK 451.017-4 (S)(Portable Whip)	ELT&PLB	B.2		Table F-A. 6	SAFT L0263XC (LiSO ₂)
AK 451.017-4 (S)(Portable Whip)	ELT&PLB	B.2		Table F-A. 7	SAFT LM33600 (LiMnO ₂)

CONCLUSIONS

According to the C/S T.007 Satellite Qualitative Test Criteria the 4 Beacon Antennas are declared in the tolerance

APPENDIX A TO ANNEX F

SATELLITE QUALITATIVE TEST SUMMARY REPORT

Table F-A.4 : BUT on Ground Plane Conf B2

Date of the Test : 03/07/06 to 07/07/06
 Time of the Test : 03/07/06 08:00 to 03/07/2006 14:18 = 6,3 hours
 Beacon Model : AK-451- () Series ELT &PLB BUT 2 (S/N 007)
 Antenna Manufacturer & Model : Ameri-King Portable Antenna AK 451017-4 S (Whip)
 Beacon 15 Hex ID : 193D5 E1E1E FFBFF
 Actual location of the test beacon : Latitude : 43,559 North Longitude : 1,479 East
 Beacon or Antenna test configuration (e.g. on dry ground, floating in water, etc) : on ground plane conf. B.2
 Battery Type : ULTRALIFE / U 10014 (LiMnO2)
 LUT ID : 2271



Satellite ID	Satellite Pass Number	TIME OF Closest Approach (TCA)	Cross Track Angle	15 Hex ID Provided by LUT	Doppler Location		Location Error (km)
					Lat	Long	
6	59336	03/07/06 09:25	5,3	193D5 E1E1E FFBFF	43,575 N	1,502 E	2,57
9	20909	03/07/06 10:21	4,6	193D5 E1E1E FFBFF	43,560 N	1,480 E	0,14
10	5767	03/07/06 10:58	20,9	193D5 E1E1E FFBFF	43,565 N	1,483 E	0,74
6	59337	03/07/06 11:05	12,1	193D5 E1E1E FFBFF	43,582 N	1,476 E	2,57
9	20910	03/07/06 12:00	12,7	193D5 E1E1E FFBFF	43,560 N	1,488 E	0,73
10	5768	03/07/06 12:37	4,8	193D5 E1E1E FFBFF	43,566 N	1,480 E	0,78
8	29789	03/07/06 14:09	5,2	193D5 E1E1E FFBFF	43,566 N	1,474 E	0,88
10	5769	03/07/06 14:18	13,4	193D5 E1E1E FFBFF	43,564 N	1,487 E	0,85

$$\text{Ratio of successful solutions} = \frac{\text{number of Doppler solutions within 5 Km with } 1^\circ < \text{CTA} < 21^\circ}{\text{number of satellites passes over test duration with } 1^\circ < \text{CTA} < 21^\circ} \times 100 = \underline{\underline{100\%}}$$

APPENDIX A TO ANNEX F

SATELLITE QUALITATIVE TEST SUMMARY REPORT

Table F-A.5 : BUT like on Dry Ground Conf B.5

Date of the Test : 03/07/06 to 07/07/06
 Time of the Test : 06/07/06 13:00 to 06/07/2006 20:34 = 7,6 hours
 Beacon Model : AK-451- () Series ELT &PLB BUT 2 (S/N 007)
 Antenna Manufacturer & Model : Ameri-King Portable Antenna AK 451017-4 S (Whip)
 Beacon 15 Hex ID : 193D5 E1E1E FFBFF
 Actual location of the test beacon : Latitude : 43,559 North Longitude : 1,479 East
 Beacon or Antenna test configuration (e.g. on dry ground, floating in water, etc) : like on dry ground conf. B.5
 Battery Type : ULTRALIFE / U 10014 (LiMnO2)
 LUT ID : 2271



Satellite ID	Satellite Pass Number	TIME OF Closest Approach (TCA)	Cross Track Angle	15 Hex ID Provided by LUT	Doppler Location		Location Error (km)
					Lat	Long	
8	29831	06/07/06 13:35	11,1	193D5 E1E1E FFBFF	43,562 N	1,477 E	0,37
10	5811	06/07/06 13:47	7,7	193D5 E1E1E FFBFF	43,566 N	1,480 E	0,78
7	42348	06/07/06 15:06	19,1	193D5 E1E1E FFBFF	43,566 N	1,482 E	0,82
8	29832	06/07/06 15:15	6,5	193D5 E1E1E FFBFF	43,569 N	1,482 E	1,14
7	42349	06/07/06 16:45	2,7	193D5 E1E1E FFBFF	43,575 N	1,468 E	1,99
7	42350	06/07/06 18:26	15,4	193D5 E1E1E FFBFF	43,568 N	1,486 E	1,15
6	59385	06/07/06 20:13	5,7	193D5 E1E1E FFBFF	43,572 N	1,474 E	1,50
9	20958	06/07/06 20:34	11,4	193D5 E1E1E FFBFF	43,570 N	1,476 E	1,25

$$\text{Ratio of successful solutions} = \frac{\text{number of Doppler solutions within 5 Km with } 1^\circ < \text{CTA} < 21^\circ}{\text{number of satellites passes over test duration with } 1^\circ < \text{CTA} < 21^\circ} \times 100 = \underline{\underline{100\%}}$$

APPENDIX A TO ANNEX F

SATELLITE QUALITATIVE TEST SUMMARY REPORT

Table F-A.2 : AUT fixed on Ground Plane Conf B3

Date of the Test : 03/07/06 to 07/07/06
 Time of the Test : 03/07/06 19:00 to 04/07/2006 02:39 = 7,7 hours
 Beacon Model : AK-451- () Series ELT &PLB BUT 2 (S/N 007)
 Antenna Manufacturer & Model : Ameri-King Fixed Antenna AK 451017-2A (Rod)
 Beacon 15 Hex ID : 193D5 E1E1E FFBFF
 Actual location of the test beacon : Latitude : 43,559 North Longitude : 1,479 East
 Beacon or Antenna test configuration (e.g. on dry ground, floating in water, etc) : fixed on ground plane conf. B.3
 Battery Type : ULTRALIFE / U 10014 (LiMnO2)
 LUT ID : 2271



Satellite ID	Satellite Pass Number	TIME OF Closest Approach (TCA)	Cross Track Angle	15 Hex ID Provided by LUT	Doppler Location		Location Error (km)
					Lat	Long	
6	59342	03/07/06 19:12	15,8	193D5 E1E1E FFBFF	43,584 N	1,478 E	2,78
9	20915	03/07/06 20:04	16,4	193D5 E1E1E FFBFF	43,567 N	1,475 E	0,95
6	59343	03/07/06 20:52	1,1	193D5 E1E1E FFBFF	43,560 N	1,387 E	7,42
6	59344	03/07/06 22:33	19,5	193D5 E1E1E FFBFF	43,591 N	1,469 E	3,65
9	20917	03/07/06 23:24	18,6	193D5 E1E1E FFBFF	43,569 N	1,486 E	1,25
10	5775	04/07/06 00:58	13,2	193D5 E1E1E FFBFF	43,559 N	1,485 E	0,48
8	29796	04/07/06 02:29	14,2	193D5 E1E1E FFBFF	43,557 N	1,482 E	0,33
10	5776	04/07/06 02:39	4,9	193D5 E1E1E FFBFF	43,542 N	1,513 E	3,33

Note : Highlighted text indicate all the Location Error values that are not within the C/S range

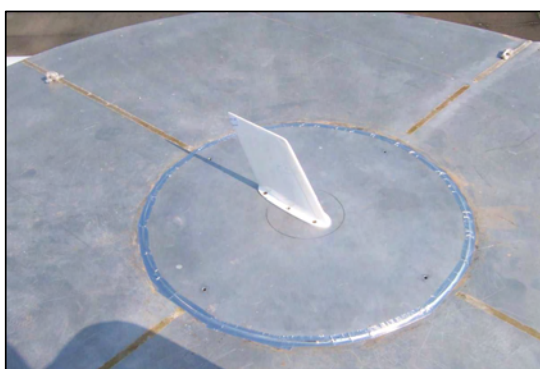
$$\text{Ratio of successful solutions} = \frac{\text{number of Doppler solutions within 5 Km with } 1^\circ < \text{CTA} < 21^\circ}{\text{number of satellites passes over test duration with } 1^\circ < \text{CTA} < 21^\circ} \times 100 = \mathbf{88\%}$$

APPENDIX A TO ANNEX F

SATELLITE QUALITATIVE TEST SUMMARY REPORT

Table F-A.3 : AUT fixed on Ground Plane Conf B3

Date of the Test : 03/07/06 to 07/07/06
 Time of the Test : 04/07/06 09:00 to 04/07/2006 15:38 = 6,6 hours
 Beacon Model : AK-451- () Series ELT &PLB BUT 2 (S/N 007)
 Antenna Manufacturer & Model : Ameri-King Fixed Antenna AK 451017-3A (Blade)
 Beacon 15 Hex ID : 193D5 E1E1E FFBFF
 Actual location of the test beacon : Latitude : 43,559 North Longitude : 1,479 East
 Beacon or Antenna test configuration (e.g. on dry ground, floating in water, etc) : fixed on ground plane conf. B.3
 Battery Type : ULTRALIFE / U 10014 (LiMnO2)
 LUT ID : 2271



Satellite ID	Satellite Pass Number	TIME OF Closest Approach (TCA)	Cross Track Angle	15 Hex ID Provided by LUT	Doppler Location		Location Error (km)
					Lat	Long	
6	59350	04/07/06 09:12	7,6	193D5 E1E1E FFBFF	43,567 N	1,500 E	1,91
9	20923	04/07/06 09:58	8,8	193D5 E1E1E FFBFF	43,559 N	1,480 E	0,08
6	59351	04/07/06 10:52	10,0	193D5 E1E1E FFBFF	43,576 N	1,476 E	1,91
9	20924	04/07/06 11:38	8,9	193D5 E1E1E FFBFF	43,560 N	1,486 E	0,58
10	5782	04/07/06 12:27	6,5	193D5 E1E1E FFBFF	43,565 N	1,480 E	0,67
8	29803	04/07/06 13:58	7,2	193D5 E1E1E FFBFF	43,563 N	1,475 E	0,55
10	5783	04/07/06 14:08	11,5	193D5 E1E1E FFBFF	43,562 N	1,486 E	0,66
8	29804	04/07/06 15:38	10,7	193D5 E1E1E FFBFF	43,566 N	1,485 E	0,92

$$\text{Ratio of successful solutions} = \frac{\text{number of Doppler solutions within 5 Km with } 1^\circ < \text{CTA} < 21^\circ}{\text{number of satellites passes over test duration with } 1^\circ < \text{CTA} < 21^\circ} \times 100 = \underline{\underline{100\%}}$$

APPENDIX A TO ANNEX F

SATELLITE QUALITATIVE TEST SUMMARY REPORT

Table F-A.1 : AUT fixed on Ground Plane Conf B3

Date of the Test : 03/07/06 to 07/07/06
 Time of the Test : 04/07/06 17:00 to 05/07/2006 02:18 = 9,3 hours
 Beacon Model : AK-451- () Series ELT &PLB BUT 2 (S/N 007)
 Antenna Manufacturer & Model : Ameri-King Portable Antenna AK 451017-1B (Whip)
 Beacon 15 Hex ID : 193D5 E1E1E FFBFF
 Actual location of the test beacon : Latitude : 43,559 North Longitude : 1,479 East
 Beacon or Antenna test configuration (e.g. on dry ground, floating in water, etc) : AUT fixed on Ground Plane Conf B3
 Battery Type : ULTRALIFE / U 10014 (LiMnO2)
 LUT ID : 2271



Satellite ID	Satellite Pass Number	TIME OF Closest Approach (TCA)	Cross Track Angle	15 Hex ID Provided by LUT	Doppler Location		Location Error (km)
					Lat	Long	
7	42321	04/07/06 17:33	5,8	193D5 E1E1E FFBFF	43,565 N	1,479 E	0,67
6	59356	04/07/06 18:59	17,8	193D5 E1E1E FFBFF	43,583 N	1,464 E	2,93
9	20929	04/07/06 19:41	19,9	193D5 E1E1E FFBFF	43,576 N	1,433 E	4,16
9	20930	04/07/06 21:20	3,6	193D5 E1E1E FFBFF	43,566 N	1,479 E	0,78
6	59358	04/07/06 22:20	17,1	193D5 E1E1E FFBFF	43,594 N	1,465 E	4,06
9	20931	04/07/06 23:00	14,4	193D5 E1E1E FFBFF	43,568 N	1,485 E	1,11
10	5789	05/07/06 00:48	15,1	193D5 E1E1E FFBFF	43,558 N	1,479 E	0,11
8	29810	05/07/06 02:18	16,3	193D5 E1E1E FFBFF	43,557 N	1,480 E	0,24

$$\text{Ratio of successful solutions} = \frac{\text{number of Doppler solutions within 5 Km with } 1^\circ < \text{CTA} < 21^\circ}{\text{number of satellites passes over test duration with } 1^\circ < \text{CTA} < 21^\circ} \times 100 = \underline{\underline{100\%}}$$

APPENDIX A TO ANNEX F

SATELLITE QUALITATIVE TEST SUMMARY REPORT

Table F-A.6 : BUT on Ground Plane Conf B2

Date of the Test : 03/07/06 to 07/07/06
 Time of the Test : 05/07/06 09:30 to 05/07/2006 15:27 = 6,0 hours
 Beacon Model : AK-451- () Series ELT &PLB BUT 2 (S/N 007)
 Antenna Manufacturer & Model : Ameri-King Portable Antenna AK 451017-4S (Portable)
 Beacon 15 Hex ID : 193D5 E1E1E FFBFF
 Actual location of the test beacon : Latitude : 43,559 North Longitude : 1,479 East
 Beacon or Antenna test configuration (e.g. on dry ground, floating in water, etc) : on ground plane conf. B.2
 Battery Type : SAFT LO263XC / (LiSO2)
 LUT ID : 2271



Satellite ID	Satellite Pass Number	TIME OF Closest Approach (TCA)	Cross Track Angle	15 Hex ID Provided by LUT	Doppler Location		Location Error (km)
					Lat	Long	
9	20937	05/07/06 09:34	13,0	193D5 E1E1E FFBFF	43,555 N	1,486 E	0,72
6	59365	05/07/06 10:39	7,8	193D5 E1E1E FFBFF	43,576 N	1,480 E	1,89
9	20938	05/07/06 11:15	4,9	193D5 E1E1E FFBFF	43,559 N	1,485 E	0,48
10	5796	05/07/06 12:17	8,3	193D5 E1E1E FFBFF	43,565 N	1,478 E	0,67
9	20939	05/07/06 12:53	21,0	193D5 E1E1E FFBFF	43,559 N	1,475 E	0,32
8	29817	05/07/06 13:46	9,2	193D5 E1E1E FFBFF	43,563 N	1,476 E	0,51
10	5797	05/07/06 13:58	9,6	193D5 E1E1E FFBFF	43,562 N	1,480 E	0,34
8	29818	05/07/06 15:27	8,6	193D5 E1E1E FFBFF	43,569 N	1,488 E	1,33

$$\text{Ratio of successful solutions} = \frac{\text{number of Doppler solutions within 5 Km with } 1^\circ < \text{CTA} < 21^\circ}{\text{number of satellites passes over test duration with } 1^\circ < \text{CTA} < 21^\circ} \times 100 = \underline{\underline{100\%}}$$

APPENDIX A TO ANNEX F

SATELLITE QUALITATIVE TEST SUMMARY REPORT

Table F-A.7 : BUT on Ground Plane Conf B2

Date of the Test : 03/07/06 to 07/07/06
 Time of the Test : 05/07/06 17:30 to 06/07/2006 02:06 = 8,6 hours
 Beacon Model : AK-451- () Series ELT &PLB BUT 2 (S/N 007)
 Antenna Manufacturer & Model : Ameri-King Portable Antenna AK 451017-4 S (Portable)
 Beacon 15 Hex ID : 193D5 E1E1E FFBFF
 Actual location of the test beacon : Latitude : 43,559 North Longitude : 1,479 East
 Beacon or Antenna test configuration (e.g. on dry ground, floating in water, etc) : on ground plane conf. B.2
 Battery Type : SAFT / LM33600 (LiMnO₂)
 LUT ID : 2271



Satellite ID	Satellite Pass Number	TIME OF Closest Approach (TCA)	Cross Track Angle	15 Hex ID Provided by LUT	Doppler Location		Location Error (km)
					Lat	Long	
6	59370	05/07/06 18:47	19,7	193D5 E1E1E FFBFF	43,582 N	1,475 E	2,58
7	42336	05/07/06 18:50	19,7	193D5 E1E1E FFBFF	43,563 N	1,486 E	0,72
6	59371	05/07/06 20:26	3,4	193D5 E1E1E FFBFF	43,575 N	1,495 E	2,20
9	20944	05/07/06 20:57	7,6	193D5 E1E1E FFBFF	43,566 N	1,478 E	0,78
6	59372	05/07/06 22:07	14,7	193D5 E1E1E FFBFF	43,581 N	1,467 E	2,63
9	20945	05/07/06 22:37	10,2	193D5 E1E1E FFBFF	43,562 N	1,483 E	0,46
10	5803	06/07/06 00:37	17,0	193D5 E1E1E FFBFF	43,551 N	1,483 E	0,95
8	29824	06/07/06 02:06	18,5	193D5 E1E1E FFBFF	43,559 N	1,484 E	0,40

$$\text{Ratio of successful solutions} = \frac{\text{number of Doppler solutions within 5 Km with } 1^\circ < \text{CTA} < 21^\circ}{\text{number of satellites passes over test duration with } 1^\circ < \text{CTA} < 21^\circ} \times 100 = \underline{\underline{100\%}}$$



INTESPACE reference :
E6557-CS Annex C (Bat Saft LiSO2)

ANNEX C

C/S Alternative Batteries Test Report

BEACON :

Manufacturer	:	Ameri-King Corp.
Type	:	ELT & PLB
Model	:	AK-451 ()Series (AF)(AP)(S)(PLB)

BATTERY:

Chemistry	:	Li-SO2
Manufacturer & model n°	:	SAFT L0263XC
Size & number of cells	:	D / 4

1 - ADMINISTRATION

1.1. WORK ORDER

Manufacturer : Ameri-King Corp.
Address : 17881 Sampson Ln. Huntington Beach,
CA 92647, USA

Represented by : Mr Keith VAN

1.2. INTESPACE TEST CENTER

The test operations have been conducted by : Gerard PEYROU

1.3. SCHEDULE

Start of test: 26 june 2006
End of test : 11 July 2006

1.4. WORK REFERENCE : E6557-CS Annex C (Bat Saft LiSO₂)

1.5. EQUIPMENT UNDER TEST

The results from this test report concern only the equipment here after referenced :

- Commercial designation :
- Model : AK-451 ()Series (AF)(AP)(S)(PLB)
- S  rial number: C/S 09 (But n  1) (Saft L0263XC) only for Operating Lifetime Test
C/S 07 (But n  2) (Saft L0263XC) for other C/S Alternative Batteries Tests

Note : BUT n   1, 2 and 3 are strictly sames beacons

2 - TEST FACILITIES

- ARGOS - COSPAS/SARSAT Certification Test Bench.
- Toulouse CNES MCC .

3 - STANDARDS AND TEST PROCEDURES APPLICABLE

COSPAS-SARSAT standards :

- "C/S T. 001- Issue 4 - Revision 7 - November 2005 "
- "C/S T. 007- Issue 4 - November 2005" § 6.3.1

INTESPACE Radio Beacon Test Procédures :

- | | |
|--------------------------------------|------------------------|
| - " COSPAS-SARSAT Certification I | Réf. ITS : 572 AP/QA |
| - " 406 MHz Characteristic Antenna T | Réf. ITS : 566 AP/QA |
| - " Radio Beacon Test Report " | Réf. ITS : 579 AP/QA-f |

Note : Before the Operating Lifetime at the Minimum Temperature Test the battery pack have not been submitted to the capacity reduction.
The Operating Lifetime at the Minimum Temperature has been determined by reducing the manufacturer calculation of battery discharge during 5 years beacon stowage to the total of the operating lifetime at minimum temperature test result.

4 - RESULTS

See the following pages :

- Summary of C/S Alternative Batteries test results
- C/S Appendix A Annex F : Summary of Satellite Qualitative Test Results with Saft LO263XC Battery pack
- Test results : data and graphs

PARAMÈTRES TO BE MEASURED DURING TESTS	RANGE OF SPECIFICATION	UNITS	TEST RESULTS			COMMENTS
			T _{min.} -20°C (±3)	T _{amb.} 22°C (±3)	T _{max.} 55°C (±3)	
1 - POWER OUTPUT						
o transmitter power output	35 - 39	dBm	36,1	35,7	35,3	
o Power output rise time	< 5	ms	0,06	0,05	0,05	Graphs p, 17, 20 and 23
o power output 1 ms before burst	< -10 dBm	√ *	√	√	√	Graphs pages 11 to 13 of E6567-CS Annex C
2 - DIGITAL MESSAGE						
	Bits number					
o bit sync	1-15	15 bits "1"	√	√	√	Data and graphs pages 14 to 23 of E6567-CS Annex C
o frame sync	16-24	9 bits (000101111)	√	√	√	
o format flag	25	1 bit	√	1	1	
o protocol flag	26	1 bit	√	0	0	
o identification/position code	27-85	59 bits	√	√	√	
o BCH code	86-106	21 bits	√	√	√	
o emerg. code/nat. use/supplem. data	107-112	6 bits	data bits	110101	110101	
o additional data/BCH (if applicable)	113-144	32 bits	√	√	√	
o position error (if applicable)	< 5	km	0,076 km	0,000 km	0,076 km	

PARAMÈTRES TO BE MEASURED DURING TESTS	RANGE OF SPECIFICATION	UNITS	TEST RESULTS			COMMENTS
			T _{min.} -20°C (±3)	T _{amb.} 22°C (±3)	T _{max.} 55°C (±3)	
3 - DIGITAL MESSAGE GENERATOR						Data and graphs pages 14 to 23 of E6567-CS Annex C
o repetition rate T _R :						
average T _R =	48,5 - 51,5	seconds	50,11	50,11	50,11	
minimum T _R =	47,5≤T _R ≤48,0	seconds	48,00	47,99	48,00	
maximum T _R =	52,0≤T _R ≤52,5	seconds	52,01	52,01	52,01	
standard deviation =	0,5 - 2,0		1,56	1,56	1,56	
o bit rate						
minimum f _b =	396	bits/sec.	399,71	399,76	399,73	
maximum f _b =	404	bits/sec.	399,80	399,80	399,81	
o total transmission time :						
short message =	435.6 - 444.4	ms				
long message =	514.8 - 525.2	ms	520,39	520,33	520,32	
o unmodulated carrier						
minimum T ₁ =	158,4	ms	159,84	159,80	159,77	
maximum T ₁ =	161,6	ms	159,86	159,82	159,78	
o first burst delay	> 47,5	seconds	52,00	52,0	52,00	

PARAMÈTRES TO BE MEASURED DURING TESTS	RANGE OF SPECIFICATION	UNITS	TEST RESULTS			COMMENTS
			T _{min.} -20°C (±3)	T _{amb.} 22°C (±3)	T _{max.} 55°C (±3)	
4 - MODULATION						Data and graphs pages 14 to 23 of E6567-CS Annex C
o biphas-L		√	√	√	√	
o rise time	50 - 250	microsec.	80	70	80	
o fall time	50 - 250	microsec.	100	110	80	
o phase deviation : positive	+ (1.0 to 1.2)	radians	+ 1,13	+ 1,19	+ 1,20	
o phase deviation : negative	- (1.0 to 1.2)	radians	- 1,22	- 1,19	- 1,17	
o symmetry measurement	≤ 0.05		+ 0,012	+ 0,016	+ 0,008	
5 - 406 MHz TRANSMITTED FREQUENCY						Data pages 15, 18 and 21 of E6567-CS Annex C
o nominal value	as specified in C/S T.001 and C/S T.012	MHz	406,0278061	406,0277579	406,0277203	
o short term stability	≤ 2 x 10 ⁻⁹	/100 ms	3,66E-10	1,94E-10	2,75E-10	
o medium term stability . slope	(-1 to +1) x 10 ⁻⁹	/minute	2,20E-11	7,55E-11	-1,20E-10	
. residual frequency variation	≤ 3 x 10 ⁻⁹		5,70E-10	7,27E-10	4,26E-10	

PARAMÈTRES TO BE MEASURED DURING TESTS	RANGE OF SPECIFICATION	UNITS	TEST RESULTS	COMMENTS
9 - THERMAL SHOCK¹ (30° C change) o Soak temperature : o Measurement temperature : the following parameters are to be met within 15 minutes of beacon and maintained for 2 hours o Transmitted frequency : - nominal value - short term stability - medium term stability : . slope . residual frequency variation o Transmitted power output o Digital message	 as specified in C/S T.001 and C/S T.012 $\leq 2 \times 10^{-9}$ $(-2 \text{ to } +2) \times 10^{-9}$ $\leq 3 \times 10^{-9}$ 35 - 39 must be corect	 °C °C MHz /100 ms /minute dBm √	 Tsoak = 23 TMeas = -10 406,027749 / 406,027779 < 3,1E-10 -1,5E-09 / -2E-12 < 1,1E-9 35,5 / 35,8 √	Data and graphs pages 24 to 31 of E6567-CS Annex C

1 Attach graphs depicting test results.

PARAMÈTRES TO BE MEASURED DURING TESTS	RANGE OF SPECIFICATION	UNITS	TEST RESULTS	COMMENTS
10 - OPERATING LIFETIME AT MINIMUM TEMPERATURE¹ o Duration o Transmitted frequency : - nominal value - short term stability - medium term stability . slope . residual frequency variation o Transmitted power output o Digital message	 > 24 as specified in C/S T.001 and C/S T.012 $\leq 2 \times 10^{-9}$ $(-1 \text{ to } +1) \times 10^{-9}$ $\leq 3 \times 10^{-9}$ 35 - 39 must be correct	 hours MHz /100 ms /minute dBm √	 24 hours for 406 MHz and around 66 hours (85,5 hr - 19,48 hr) for 121,5/243 MHz 406,027776 / 406,027805 < 5.0E-10 -6E-10 / 1E-10 < 1E-09 35,8 / 36,6 √	Data and graphs pages 32 to 45 of E6567-CS Annex C
14 - SATELLITE QUALITATIVE TESTS² (results provided)	15 Hex ID provided by LUT and position within 5 km 80% of time	√	√	Table F-A6 page 11 of E6567-CS Annex C

1 Attach graphs depicting test results.

2 Attach a satellite qualitative test summary report (Appendix A to Annex F) for each test configuration.

APPENDIX A TO ANNEX F

SATELLITE QUALITATIVE TEST SUMMARY REPORT

Table F-A.6 : BUT on Ground Plane Conf B2

Date of the Test : 03/07/06 to 07/07/06
 Time of the Test : 05/07/06 09:30 to 05/07/2006 15:27 = 6,0 hours
 Beacon Model : AK-451- () Series ELT &PLB BUT 2 (S/N 007)
 Antenna Manufacturer & Model : Ameri-King Portable Antenna AK 451017-4S (Portable)
 Beacon 15 Hex ID : 193D5 E1E1E FFBFF
 Actual location of the test beacon : Latitude : 43,559 North Longitude : 1,479 East
 Beacon or Antenna test configuration (e.g. on dry ground, floating in water, etc) : on ground plane conf. B.2
 Battery Type : SAFT LO263XC / (LiSO2)
 LUT ID : 2271



Satellite ID	Satellite Pass Number	TIME OF Closest Approach (TCA)	Cross Track Angle	15 Hex ID Provided by LUT	Doppler Location		Location Error (km)
					Lat	Long	
9	20937	05/07/06 09:34	13,0	193D5 E1E1E FFBFF	43,555 N	1,486 E	0,72
6	59365	05/07/06 10:39	7,8	193D5 E1E1E FFBFF	43,576 N	1,480 E	1,89
9	20938	05/07/06 11:15	4,9	193D5 E1E1E FFBFF	43,559 N	1,485 E	0,48
10	5796	05/07/06 12:17	8,3	193D5 E1E1E FFBFF	43,565 N	1,478 E	0,67
9	20939	05/07/06 12:53	21,0	193D5 E1E1E FFBFF	43,559 N	1,475 E	0,32
8	29817	05/07/06 13:46	9,2	193D5 E1E1E FFBFF	43,563 N	1,476 E	0,51
10	5797	05/07/06 13:58	9,6	193D5 E1E1E FFBFF	43,562 N	1,480 E	0,34
8	29818	05/07/06 15:27	8,6	193D5 E1E1E FFBFF	43,569 N	1,488 E	1,33

$$\text{Ratio of successful solutions} = \frac{\text{number of Doppler solutions within 5 Km with } 1^{\circ} < \text{CTA} < 21^{\circ}}{\text{number of satellites passes over test duration with } 1^{\circ} < \text{CTA} < 21^{\circ}} \times 100 = \underline{\underline{100\%}}$$

TRANSMITTER OUTPUT POWER RISE TIME TEST RESULT ON
Ameri-King Corp. ELT & PLB
AK-451 ()Series (AF)(AP)(S)(PLB)
N° C/S 07 (But n°2) (Saft L0263XC)
(1 ms before 10 % of the burst)
at -20° C, 22° C and 55° C

Output Power Risetime at -20°C

CF : 406,028 MHz

Output Power Risetime (1 ms before the burst) : 34,94 dBm

SP : 0 KHz



Rb : 1 KHz

10 dB/div.

St : 0,05 S

Output Power Risettime at 22°C

CF : 406,028 MHz

Output Power Risettime (1 ms before the burst) : 35,17 dBm

SP : 0 KHz



Rb : 1 KHz

10 dB/div.

St : 0,05 S

Output Power Risettime at 55°C

CF : 406,028 MHz

Output Power Risettime (1 ms before the burst) : 34,57 dBm

SP : 0 KHz



Rb : 1 KHz

10 dB/div.

St : 0,05 S

CERTIFICATION TEST RESULTS ON
Ameri-King Corp. ELT & PLB
AK-451 ()Series (AF)(AP)(S)(PLB)
N° C/S 07 (But n°2) (Saft L0263XC)
at -20° C, 22° C and 55° C

Certification Test at -20°C

Date of test : 26-juin-06

Manufacturer : Ameri-King

Beacon Type : AK-451 ()Series (AF)(AP)(S)(PLB)

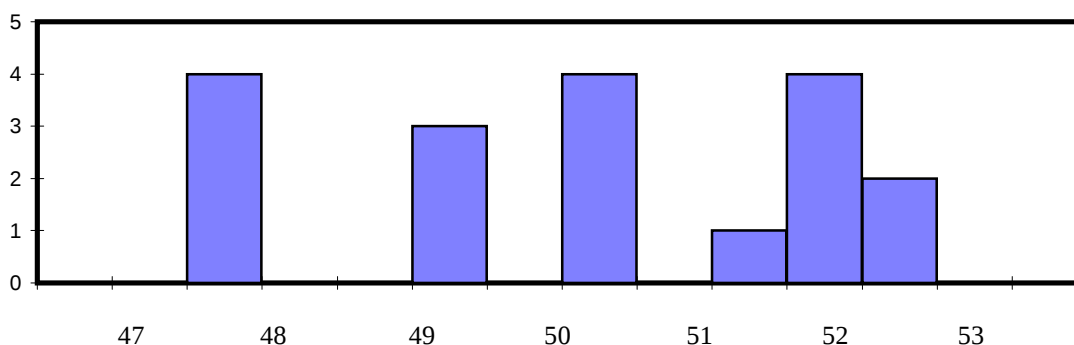
Number : C/S 07 (But n°2)

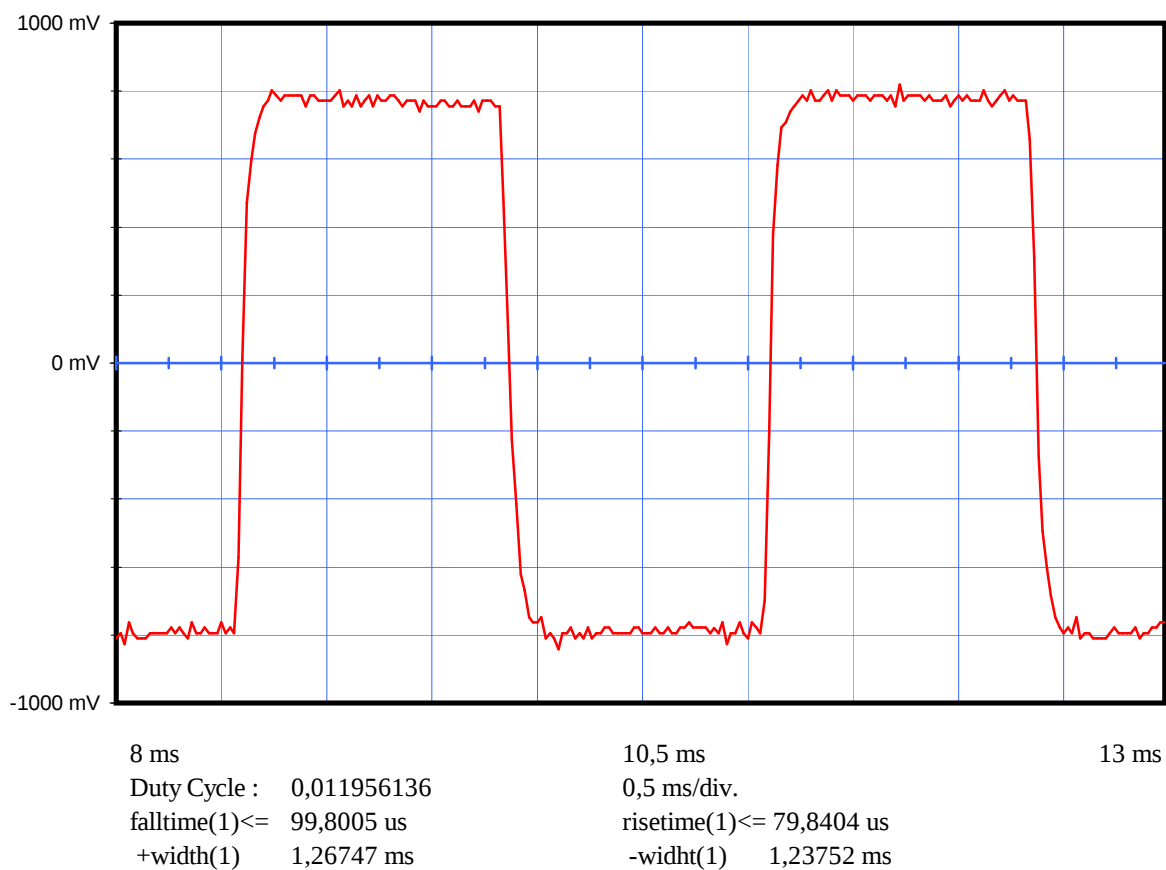
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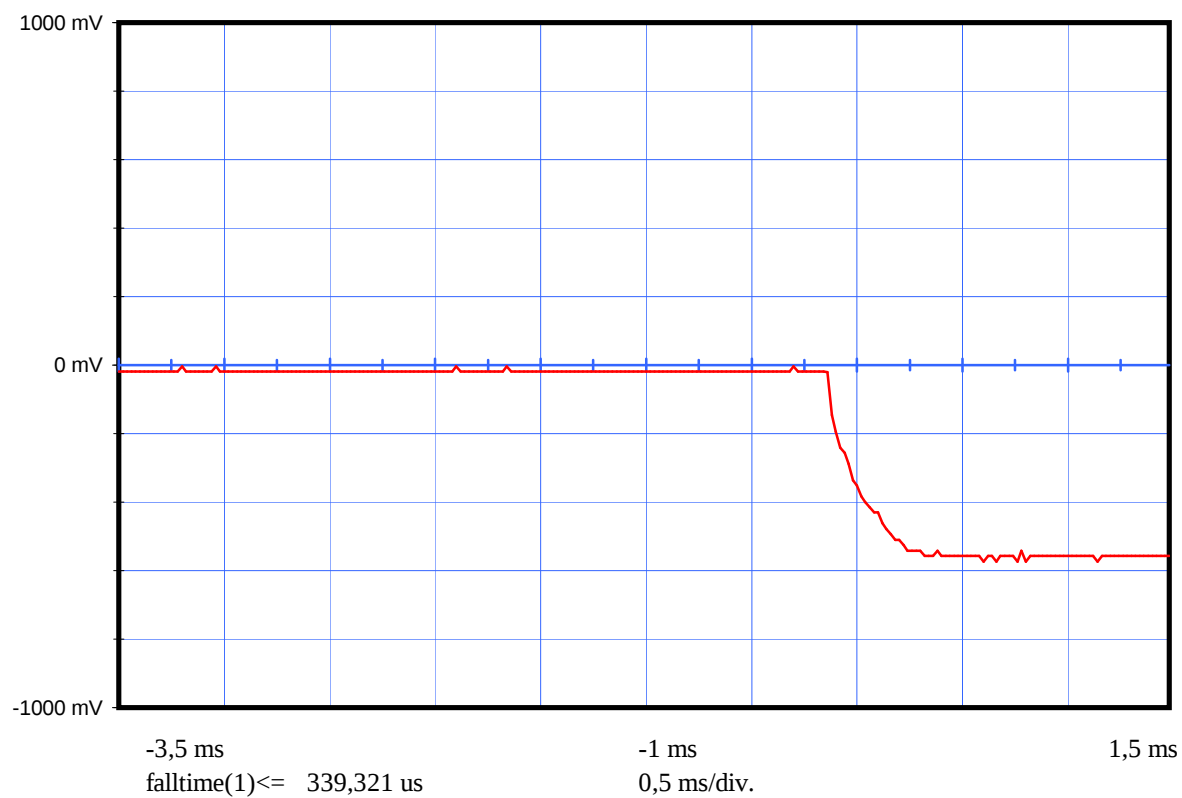
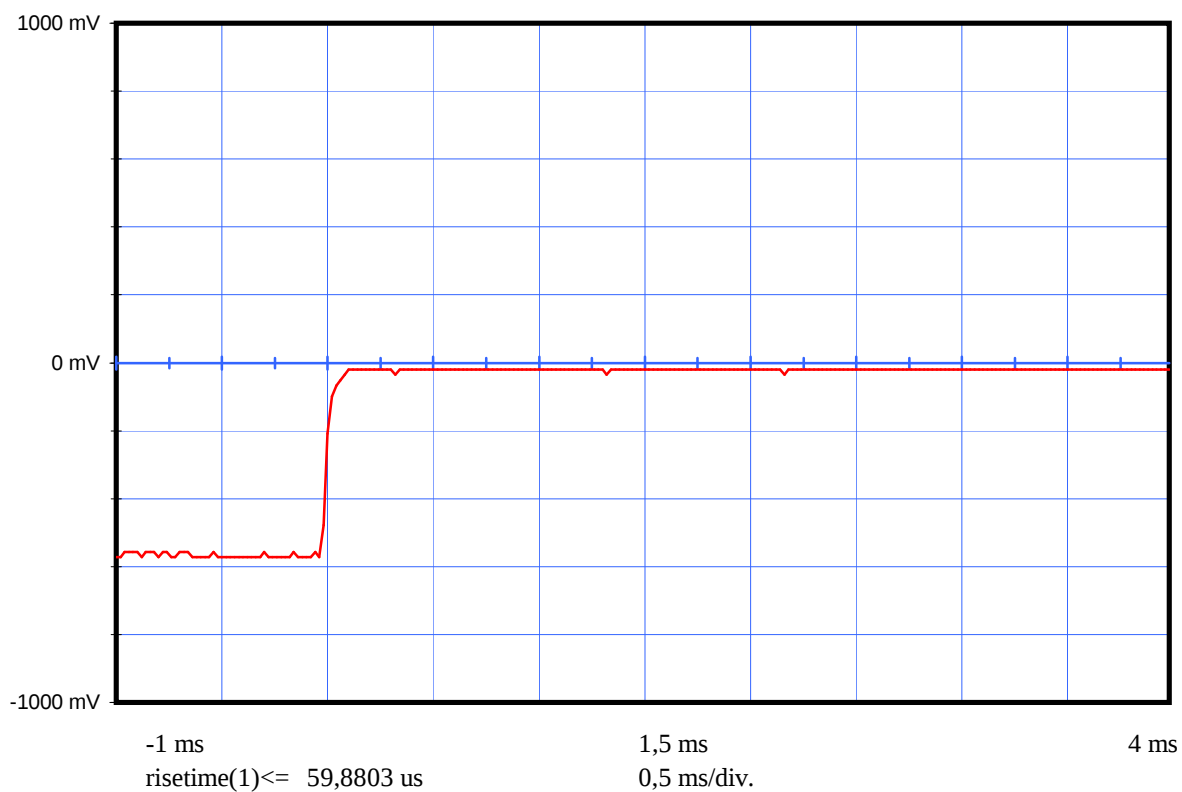
Message received		FFFE2F8C93AF0F0F2B80337042B58E414D34
Format Flag	25	1
Protocol flag	26	0
Ident./Position code	27-85	0
Country Code/Country	27-36	201 / ALBANIA
Protocol Code : U/Std-Nat	37-39/37-40	0011
Protocol Code Used	37-39/37-40	Standard Location - ELT (24 bits Address)
Identification Data	40-85/41-64/41-58	101011110000111100001111
Identification Used		
Calculated BCH1	25-85	0DC10A
Encoded BCH1	86-106	0DC10A
Homing	112	1
Em.cod/nat.use/supp.data	107-112	110101
Encod pos data	111	0 External
Fixed Data "1"	108	1 OK
Calculated BCH2	107-132	D34
Encoded BCH2	133-144	D34
Latitude position		North 43° 33' 36"
Longitude position		East 1° 28' 44"
Delta position		0,076 km

Electrical and other parameters

CW preamble	ms	158,4 <	< 161,6	159,86
Total transmission time	ms	514,8 <	<525,2	520,39
Modulation frequency	Hz	396<	< 404	399,77
Phase deviation : total	rd		<=2,40	2,35
Phase deviation : positive	rd	1,00 <	< 1,20	1,13
Phase deviation : negative	rd	-1,20 <	< -1,00	-1,22
Symmetry measurement	%		<=5 %	1,20
Nominal frequency : F2	Hz			406027806,06
Short term2				2,99E-10
Short term3				3,66E-10
Slope				2,20E-11
Residual				5,70E-10
406 MHz power output	dBm			36,1
Homing frequency	MHz			121,50
121,5 MHz power output	dBm			22,2
Soak temperature	°C			-20,2
Extra feature				G-Switch







Certification Test at 22°C

Date of test : 26-juin-2006

Manufacturer : Ameri-King

Beacon Type : AK-451 (J)Series (AF)(AP)(S)(PLB)

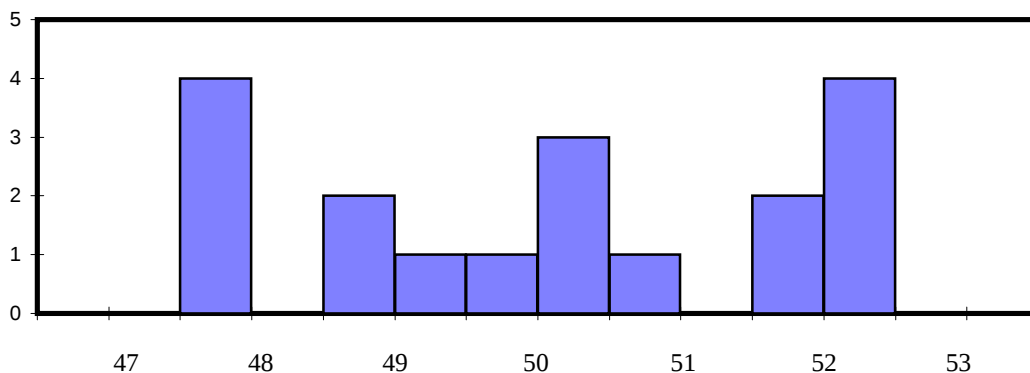
Number : C/S 07 (But n°2)

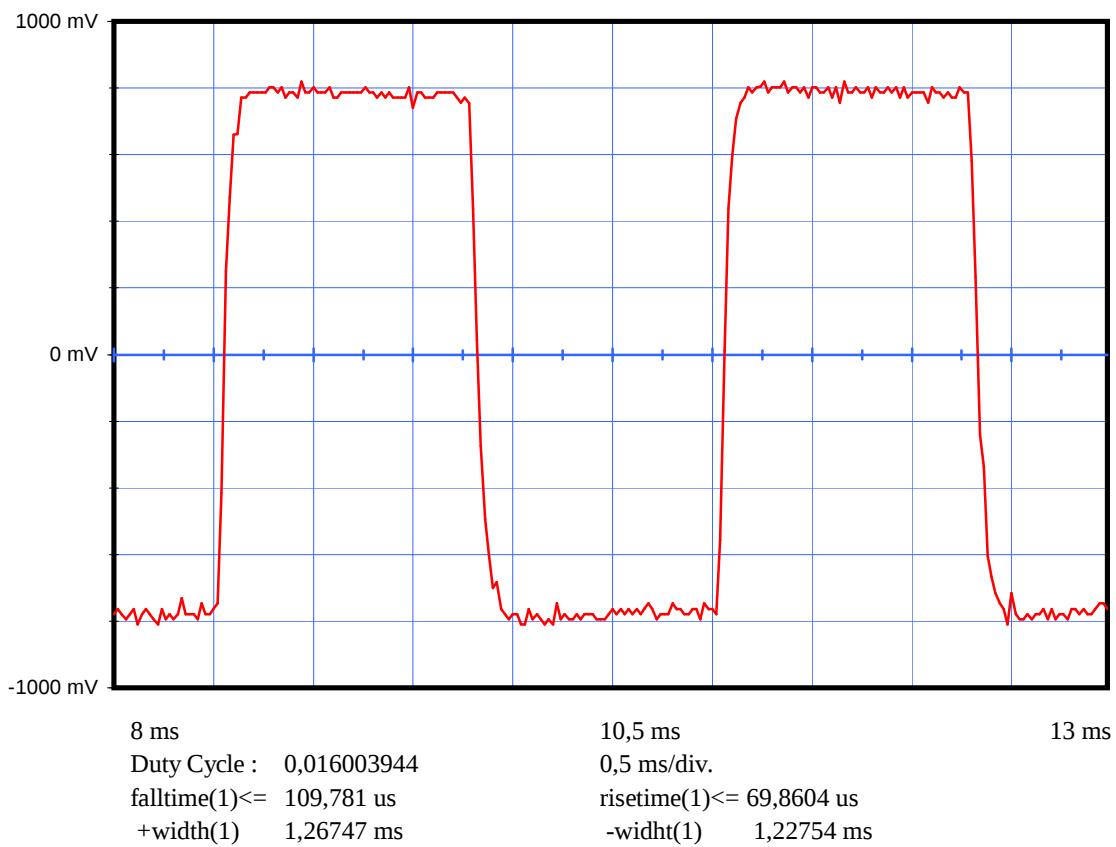
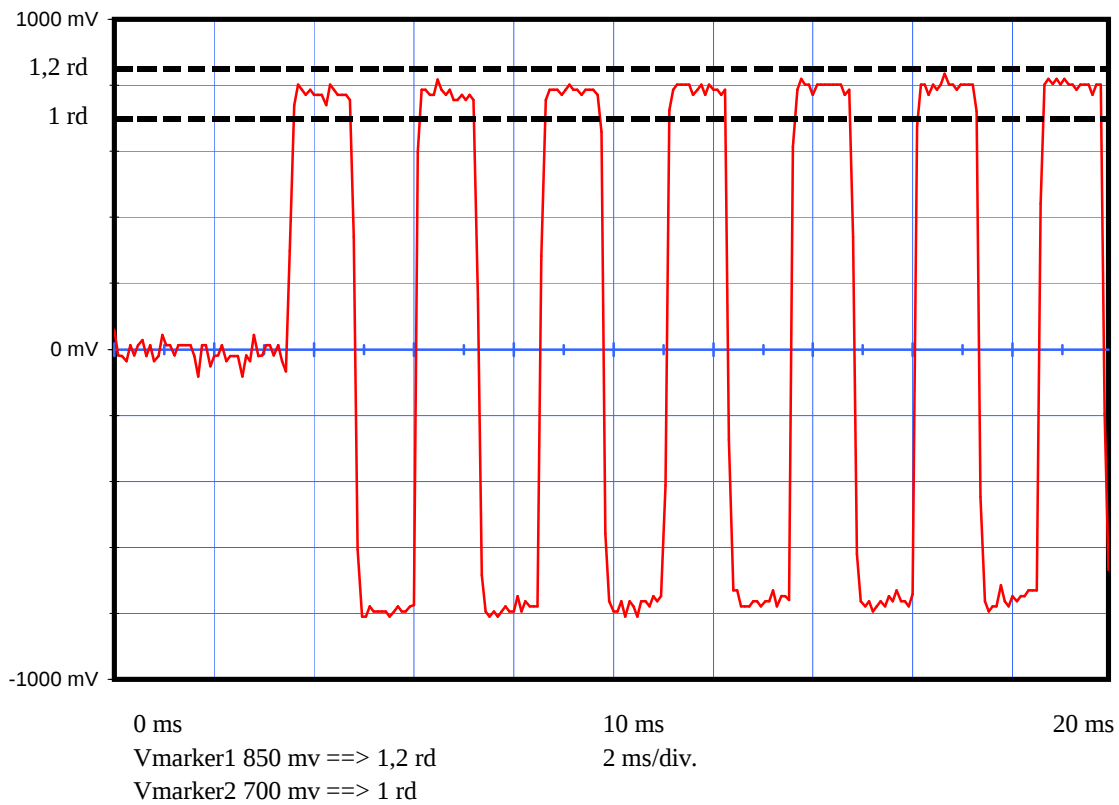
Message

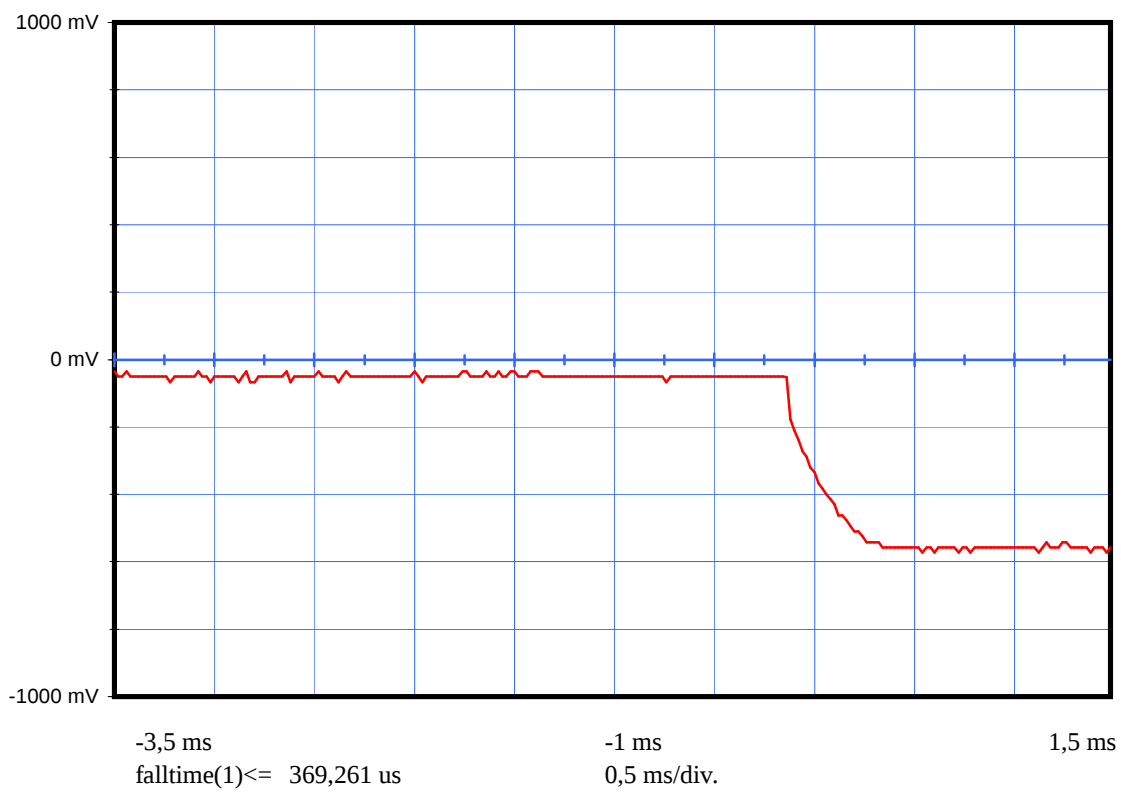
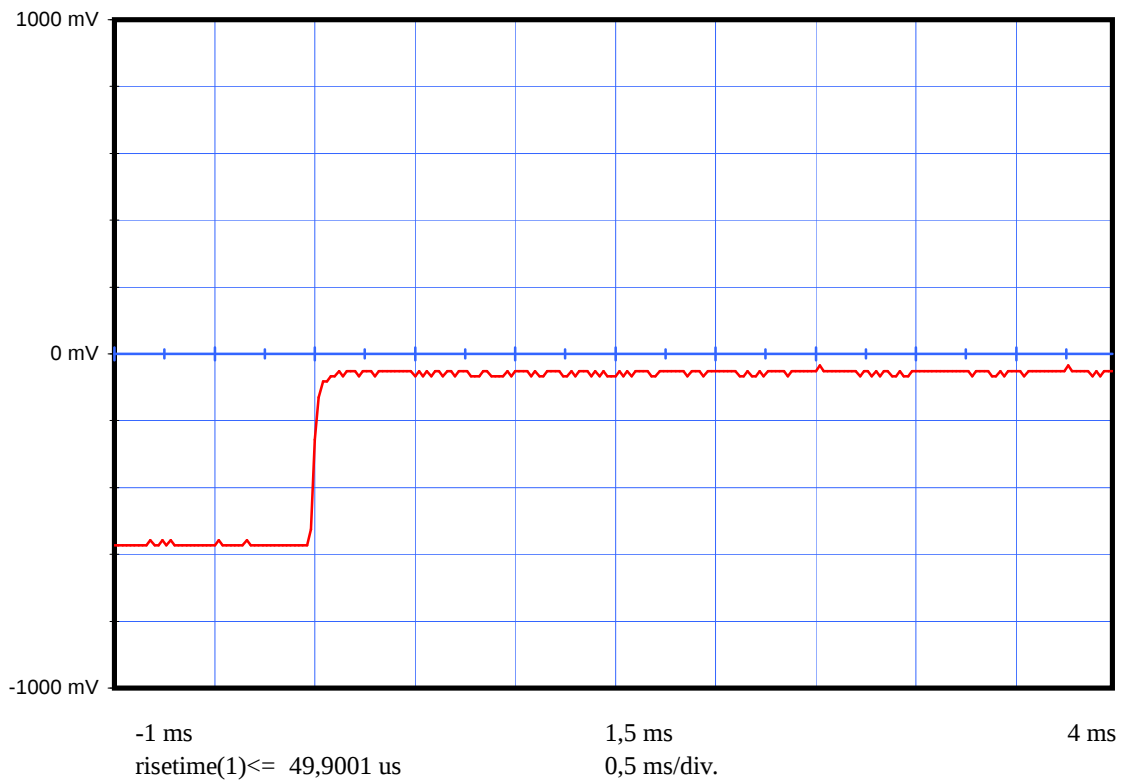
Message received		FFFE2F8C93AF0F0F7FDFF8296A7583E0FAA8
Format Flag	25	1
Protocol flag	26	0
Ident./Position code	27-85	0
Country Code/Country	27-36	201 / ALBANIA
Protocol Code : U/Std-Nat	37-39/37-40	0011
Protocol Code Used	37-39/37-40	Standard Location - ELT (24 bits Address)
Identification Data	40-85/41-64/41-58	
Identification Used		1,01011E+23
Calculated BCH1	25-85	00A5A9
Encoded BCH1	86-106	00A5A9
Homing	112	1
Em.cod/nat.use/supp.data	107-112	110101
Encod pos data	111	0 External
Fixed Data "1"	108	1 OK
Calculated BCH2	107-132	AA8
Encoded BCH2	133-144	AA8
Latitude position		North 127,75° 0' 60"
Longitude position		East 255,75° 0' 60"
Delta position		Default position

Electrical and other parameters

CW preamble	ms	158,4 <	< 161,6	159,81
Total transmission time	ms	514,8 <	<525,2	520,33
Modulation frequency	Hz	396<	< 404	399,78
Phase deviation : total	rd		<=2,40	2,38
Phase deviation : positive	rd	1,00 <	< 1,20	1,19
Phase deviation : negative	rd	-1,20 <	< -1,00	-1,19
Symmetry measurement	%		<=5 %	1,60
Nominal frequency : F2	Hz			406027757,92
Short term2				2,53E-10
Short term3				1,94E-10
Slope				7,55E-11
Residual				7,27E-10
406 MHz power output	dBm			35,7
Homing frequency	MHz			121,50
121,5 MHz power output	dBm			23,0
Soak temperature	°C			21,0
Extra feature				G-Switch







Certification Test at 55°C

Date of test : 27-juin-2006

Manufacturer : Ameri-King

Beacon Type : AK-451 (J)Series (AF)(AP)(S)(PLB)

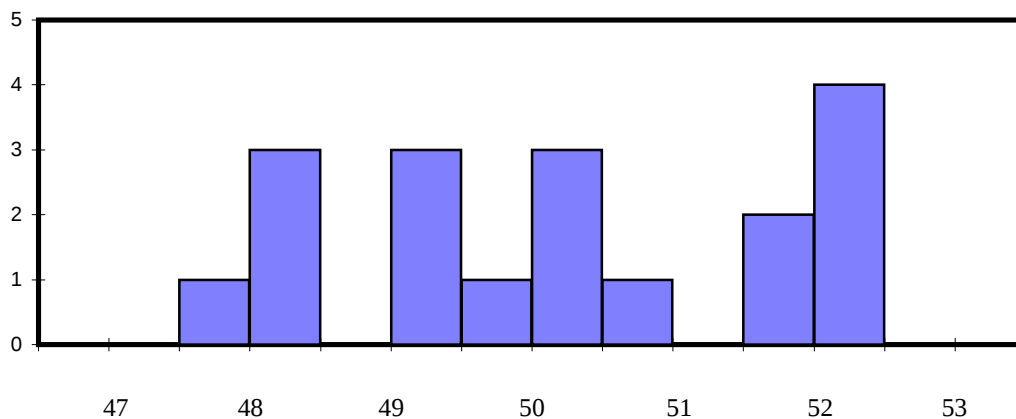
Number : C/S 07 (But n°2)

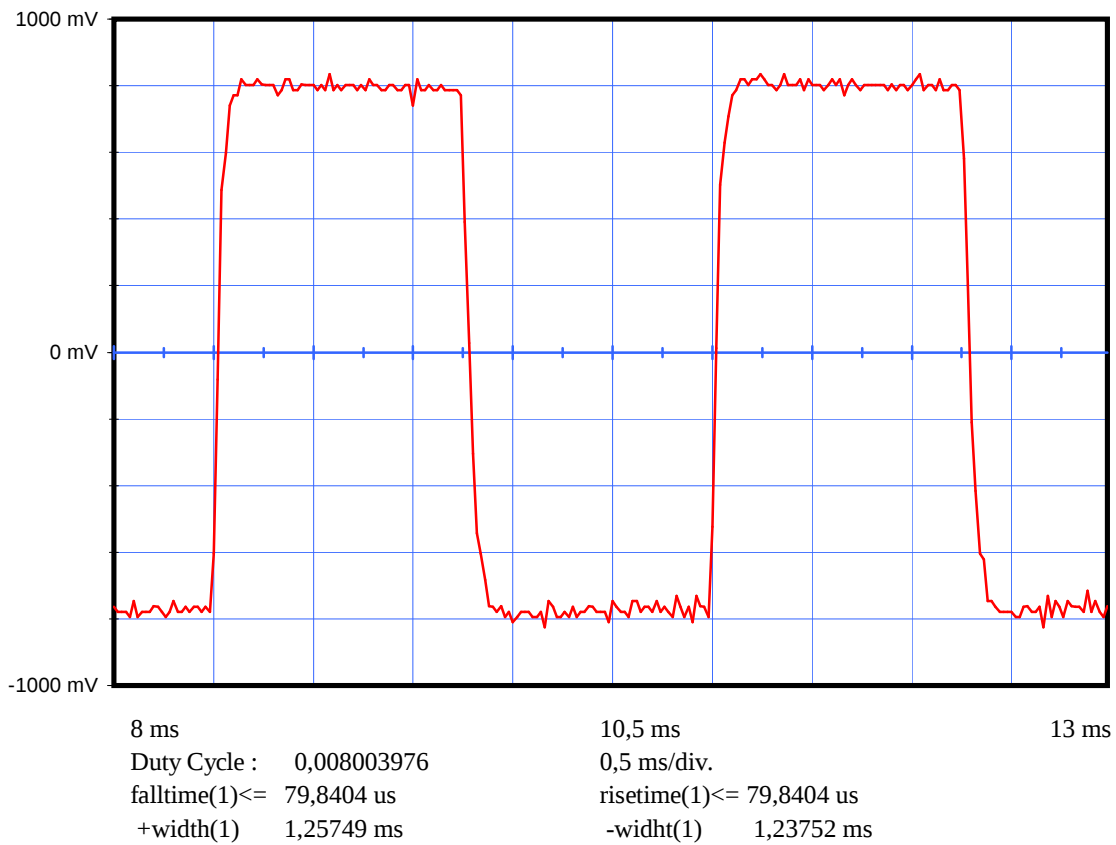
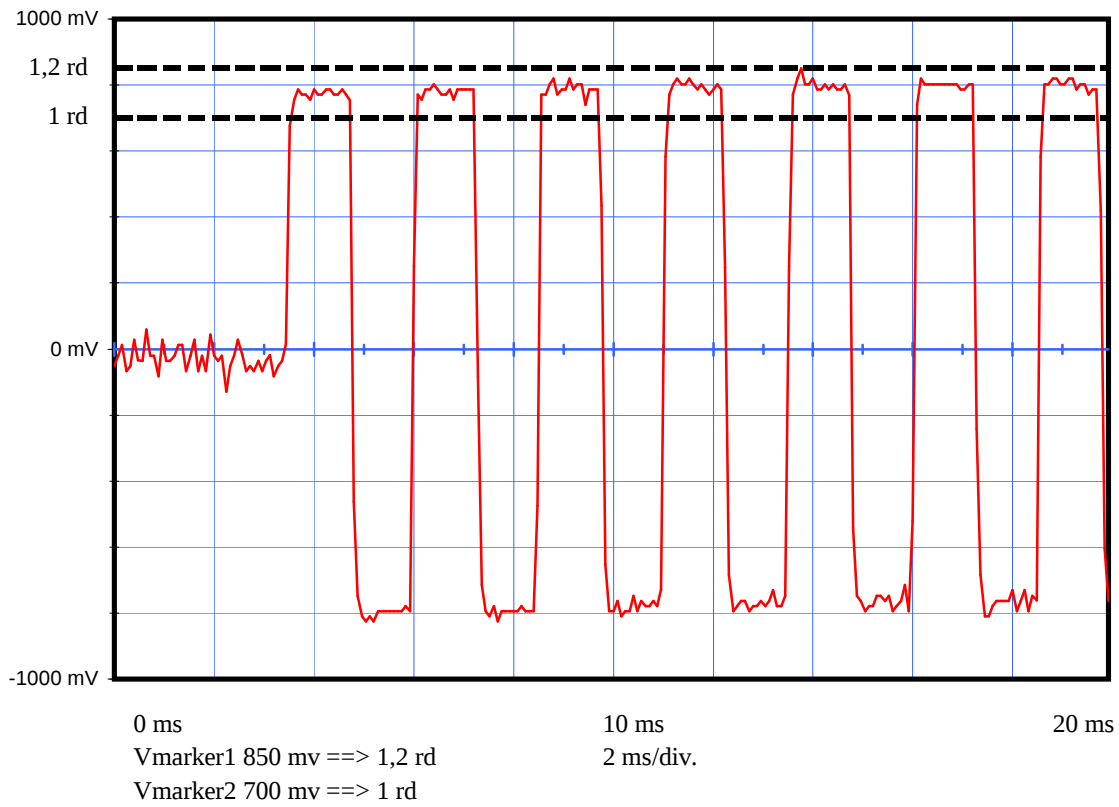
Message

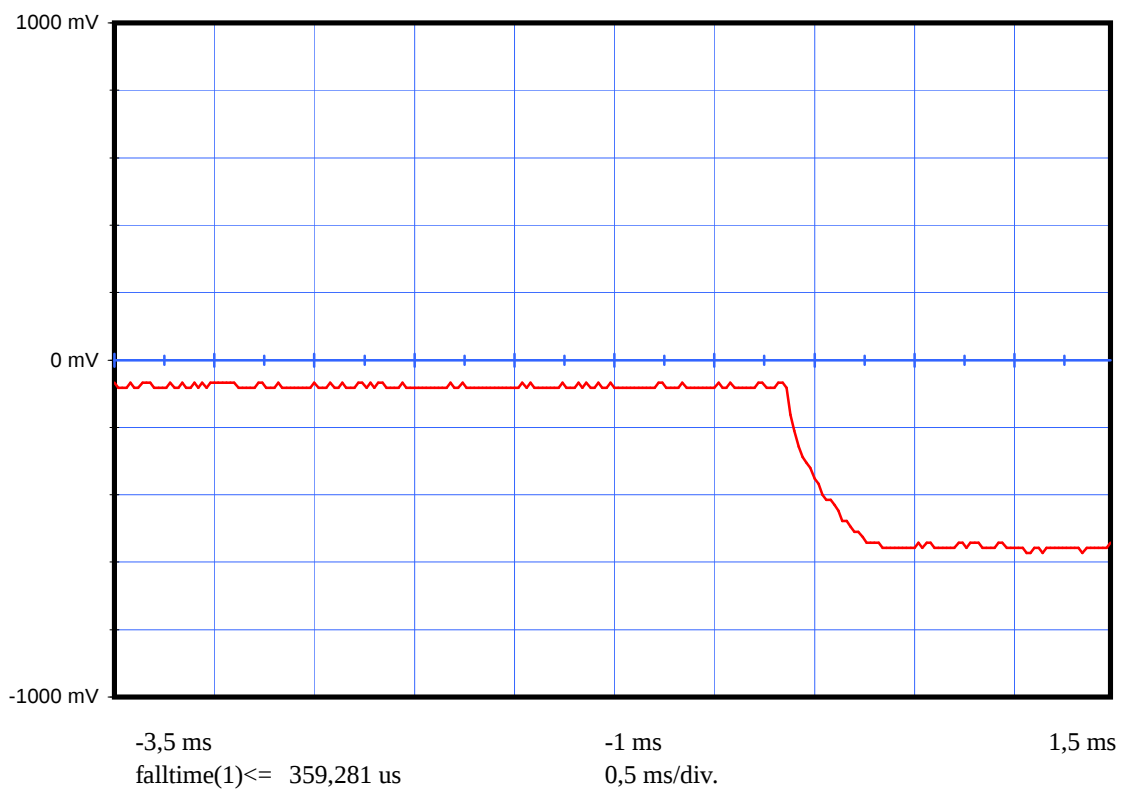
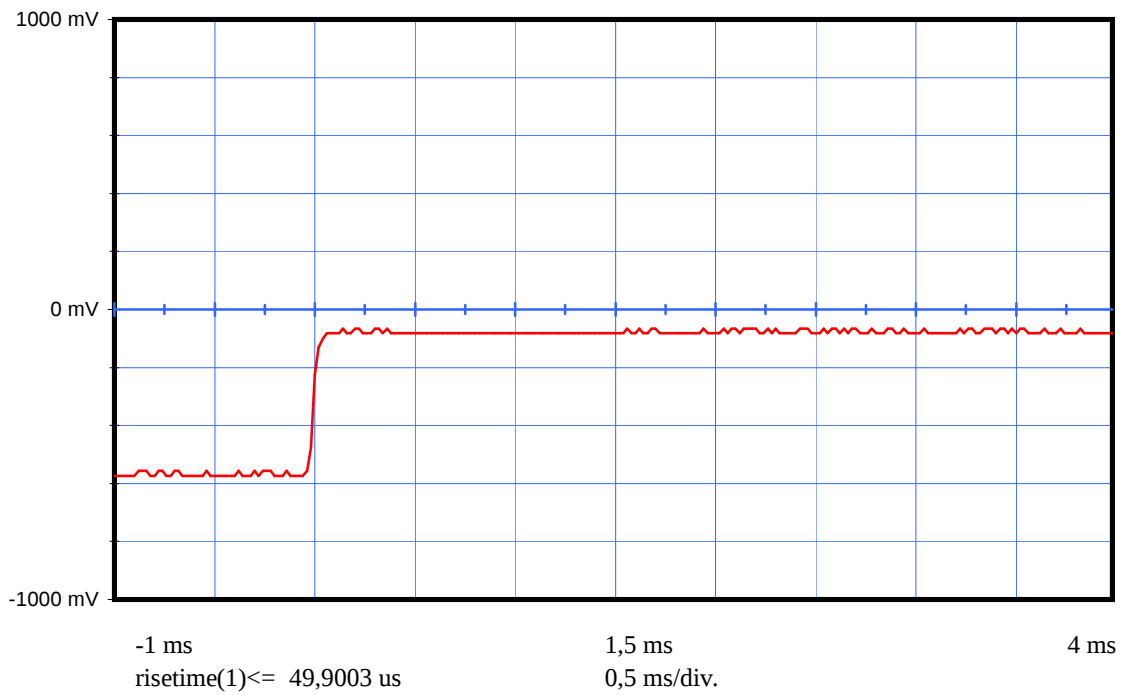
Message received		FFFE2F8C93AF0F0F2B80337042B58E015527
Format Flag	25	1
Protocol flag	26	0
Ident./Position code	27-85	0
Country Code/Country	27-36	201 / ALBANIA
Protocol Code : U/Std-Nat	37-39/37-40	0011
Protocol Code Used	37-39/37-40	Standard Location - ELT (24 bits Address)
Identification Data	40-85/41-64/41-58	
Identification Used		1,01011E+23
Calculated BCH1	25-85	0DC10A
Encoded BCH1	86-106	0DC10A
Homing	112	1
Em.cod/nat.use/supp.data	107-112	110101
Encod pos data	111	0 External
Fixed Data "1"	108	1 OK
Calculated BCH2	107-132	527
Encoded BCH2	133-144	527
Latitude position		North 43° 33' 32"
Longitude position		East 1° 28' 40"
Delta position		0,076 km

Electrical and other parameters

CW preamble	ms	158,4 <	< 161,6	159,77
Total transmission time	ms	514,8 <	<525,2	520,32
Modulation frequency	Hz	396<	< 404	399,77
Phase deviation : total	rd		<=2,40	2,37
Phase deviation : positive	rd	1,00 <	< 1,20	1,20
Phase deviation : negative	rd	-1,20 <	< -1,00	-1,17
Symmetry measurement	%		<=5 %	0,80
Nominal frequency : F2	Hz			406027720,27
Short term2				2,33E-10
Short term3				2,75E-10
Slope				-1,20E-10
Residual				4,26E-10
406 MHz power output	dBm			35,3
Homing frequency	MHz			121,50
121,5 MHz power output	dBm			23,2
Soak temperature	°C			55,4
Extra feature				G-Switch







THERMAL SHOCK TEST RESULT ON
Ameri-King Corp. ELT & PLB
AK-451 ()Series (AF)(AP)(S)(PLB)
N° C/S 07 (But n°2) (Saft L0263XC)
23°C to -10°C

Temperature Soak : 23°C
Temperature Measure : -10°C

Warm Up	Δ Frequency (Hz)	Temp. (°C)	P406 (dBm)	P121.5 (dBm)
1	49792,92	23,5	35,9	22,5
2	49791,65	-9,5	35,9	22,5
3	49791,59	-10,0	35,9	22,5
4	49789,61	-10,0	35,9	22,5
5	49787,79	-9,5	35,9	22,5
6	49786,55	-9,3	35,9	22,5
7	49784,85	-9,4	35,8	22,5
8	49783,87	-9,4	35,8	22,6
9	49782,13	-9,3	35,8	22,6
10	49780,81	-9,3	35,8	22,6
11	49780,27	-9,2	35,8	22,6
12	49779,01	-9,3	35,8	22,6
13	49778,03	-9,5	35,8	22,6
14	49777,29	-9,3	35,8	22,7
15	49776,56	-9,3	35,8	22,7
16	49775,33	-9,3	35,8	22,7
17	49774,87	-9,3	35,7	22,7
18	49774,55	-9,4	35,7	22,7

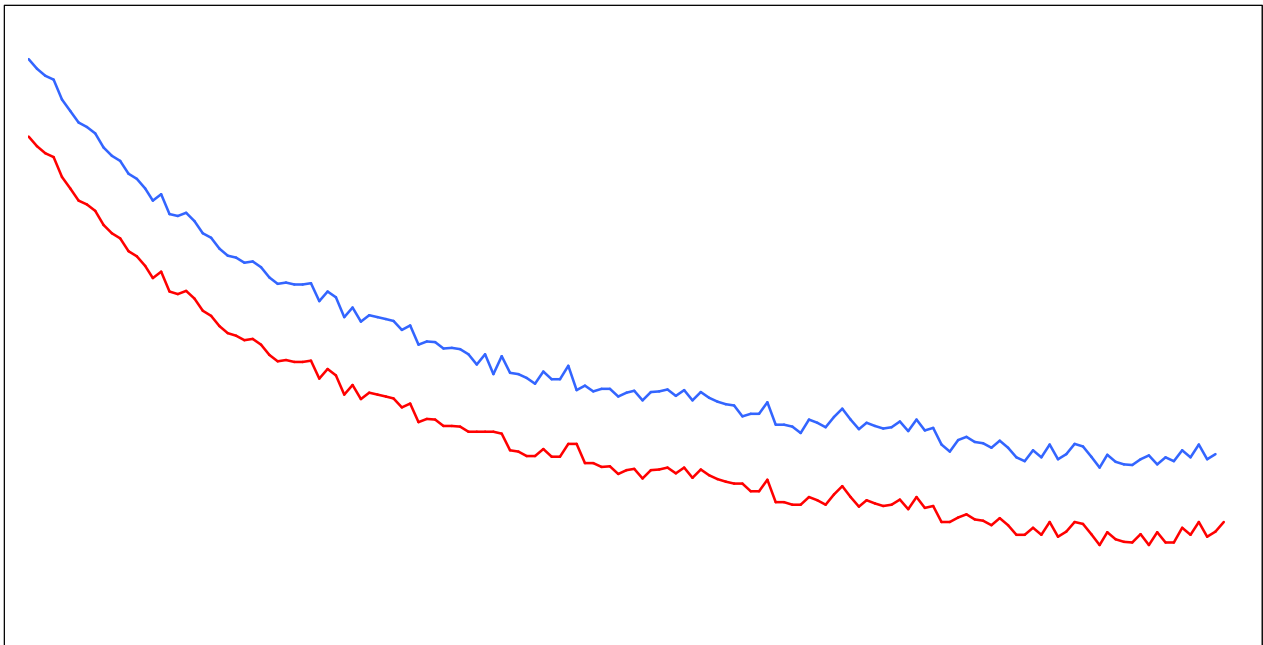
No	Temp.	Slope	Sigma	P406	Short term	P121.5
1	-9,4	-3,7E-9	3,0E-9	35,8	2,0E-10	22,8
18	-9,5	-1,5E-9	9,3E-10	35,7	2,1E-10	22,9
31	-9,1	-9,2E-10	5,9E-10	35,6	2,0E-10	22,9
61	-9,3	-5,0E-10	6,7E-10	35,6	3,0E-10	22,9
91	-9,1	-1,9E-10	6,6E-10	35,5	2,2E-10	23,0
121	-9,3	-2,6E-10	7,4E-10	35,5	2,6E-10	23,0

Beacon message during and at the end of Thermal Shock Test :

FFFE2F8C93AF0F0F2B80337042B58E414D34

Frequency variation

406027779



406027749

— Initial tracing — Smoothed tracing

**THERMAL SHOCK TEST / 30 °C change (23 °C to -10 ° C)**

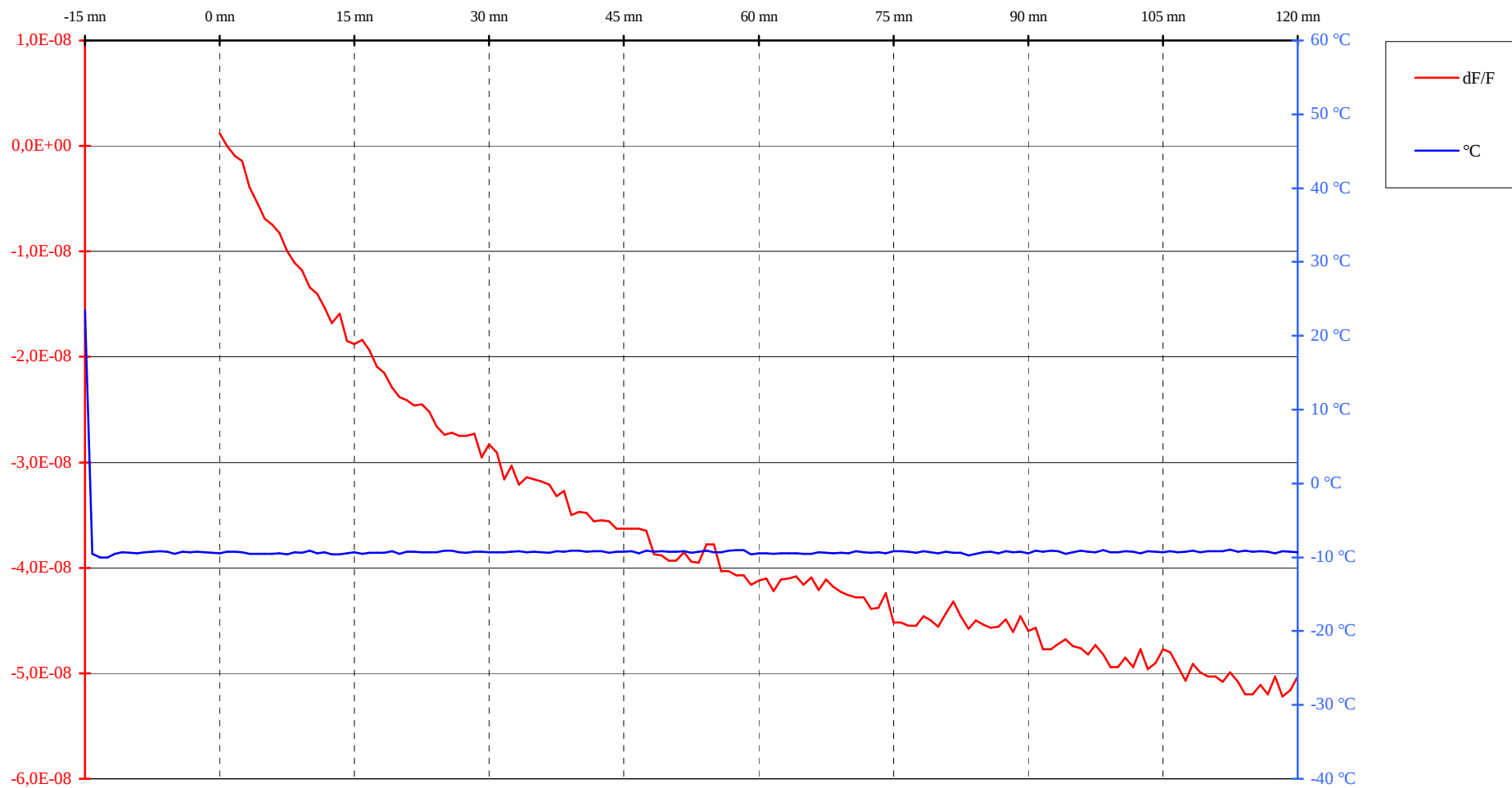
Manufacturer : Ameri-King Corp.

Model : AK-451 ()Series (AF)(AP)(S)(PLB)

Number : C/S 07 (But n°2) (Saft L0263XC)

Date : 26 june 2006

Time : 16:48:39

FREQUENCY VARIATION



THERMAL SHOCK TEST / 30 °C change (23 °C to -10 ° C)

Manufacturer : Ameri-King Corp.

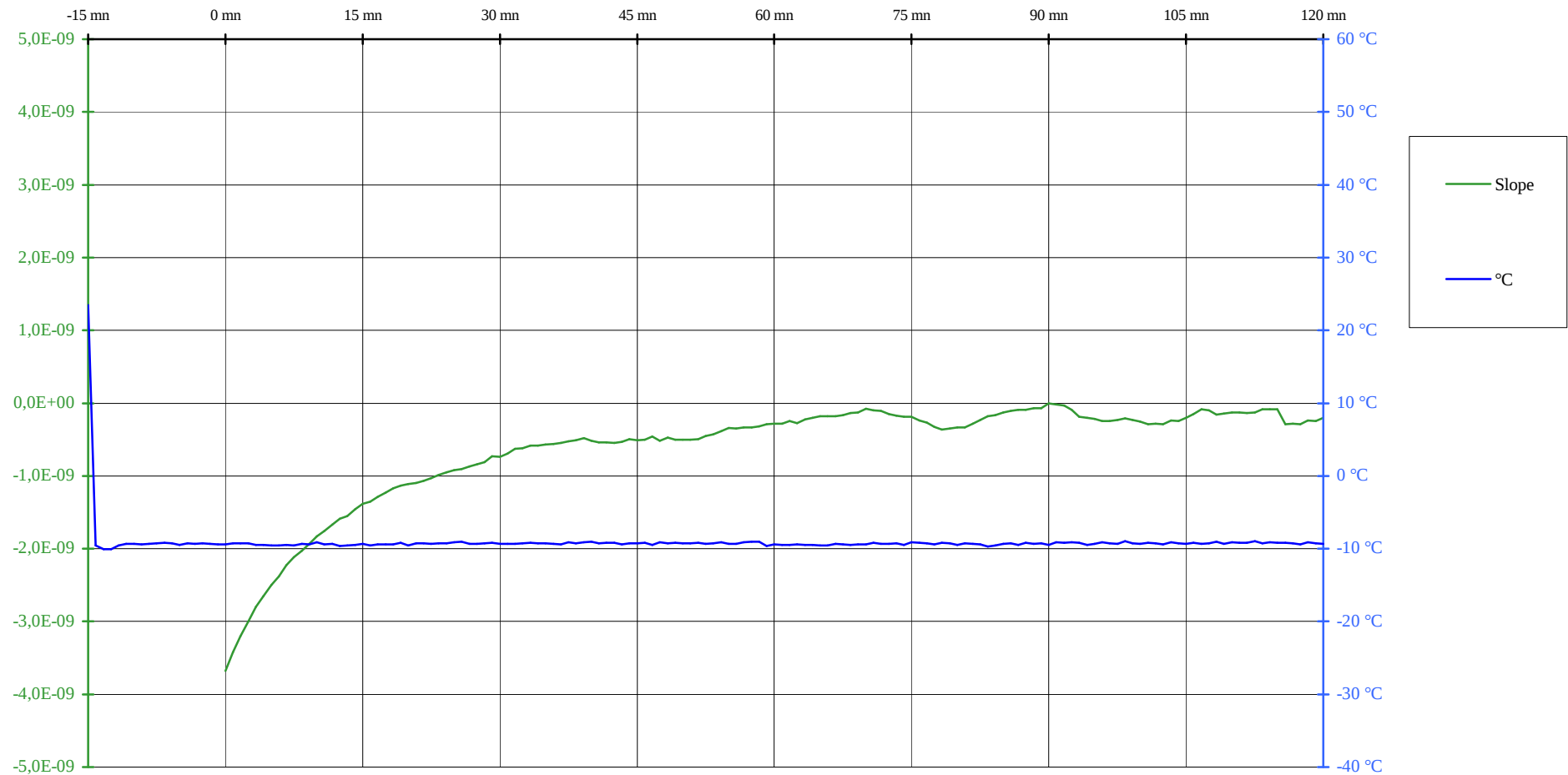
Model : AK-451 ()Series (AF)(AP)(S)(PLB)

Number : C/S 07 (But n°2) (Saft L0263XC)

Date : 26 june 2006

Time : 16:48:39

MEDIUM TERM STABILITY : MEAN SLOPE /mn (-1,0E-9 to 1,0E-9)





THERMAL SHOCK TEST / 30 °C change (23 °C to -10 ° C)

Manufacturer : Ameri-King Corp.

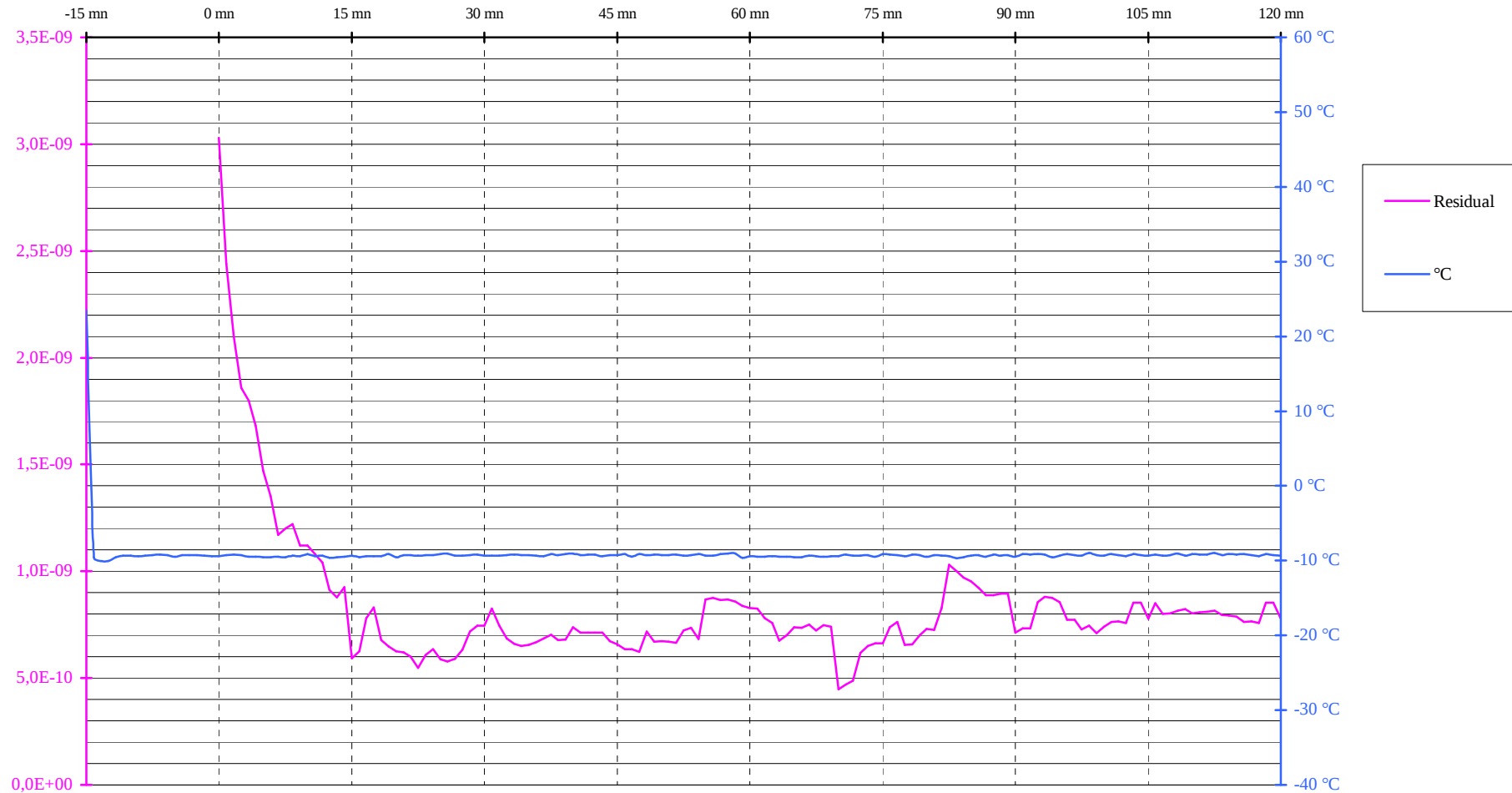
Model : AK-451 ()Series (AF)(AP)(S)(PLB)

Number : C/S 07 (But n°2) (Saft L0263XC)

Date : 26 june 2006

Time : 16:48:39

MEDIUM TERM STABILITY : RESIDUAL ($\leq 3,0E-9$)





THERMAL SHOCK TEST / 30 °C change (23 °C to -10 ° C)

Manufacturer : Ameri-King Corp.

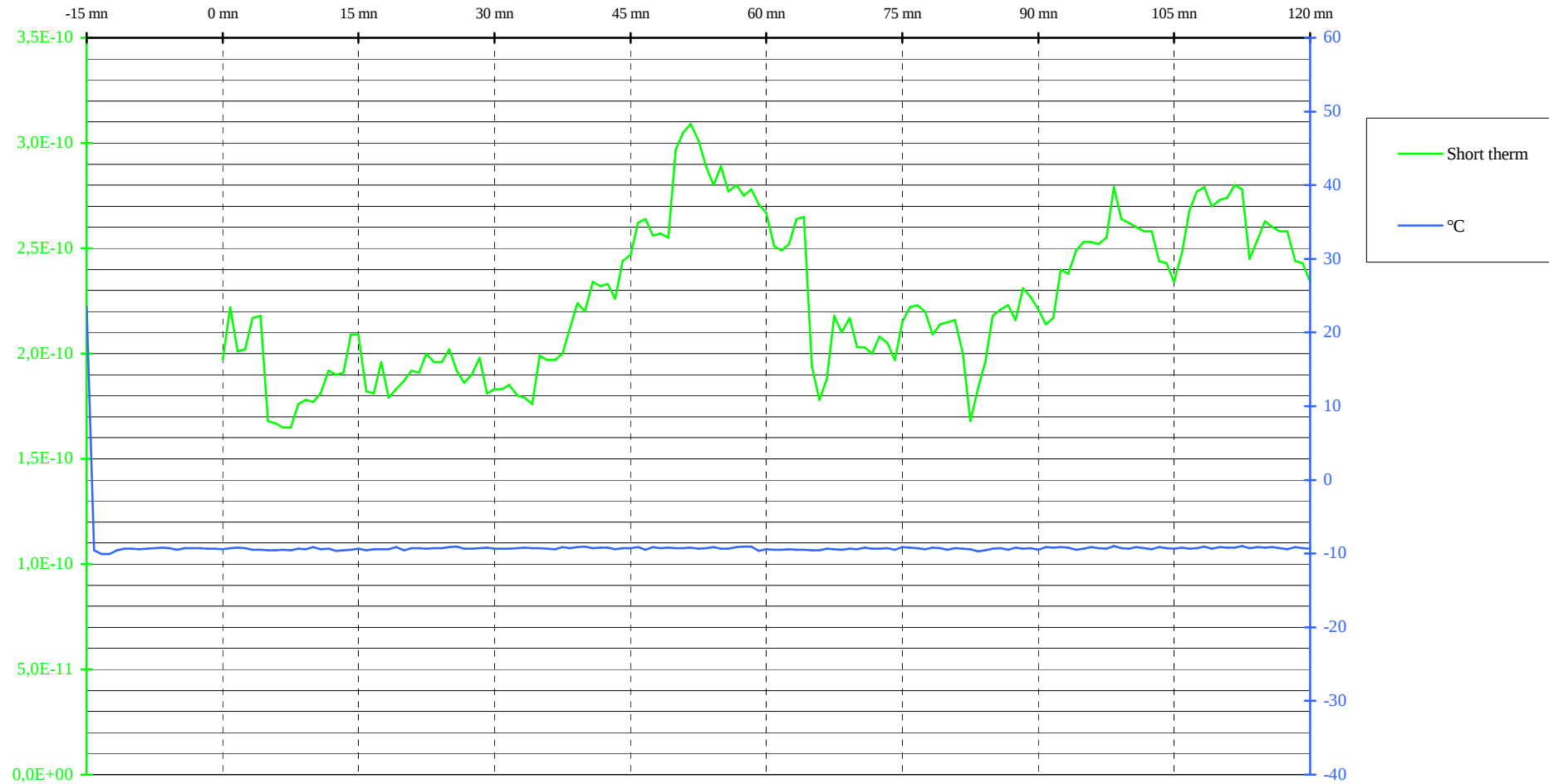
Model : AK-451 ()Series (AF)(AP)(S)(PLB)

Number : C/S 07 (But n°2) (Saft L0263XC)

Date : 26 june 2006

Time : 16:48:39

SHORT TERM STABILITY /100 mS ($\leq 2,0E-9$)





THERMAL SHOCK TEST / 30 °C change (23 °C to -10 ° C)

Manufacturer : Ameri-King Corp.

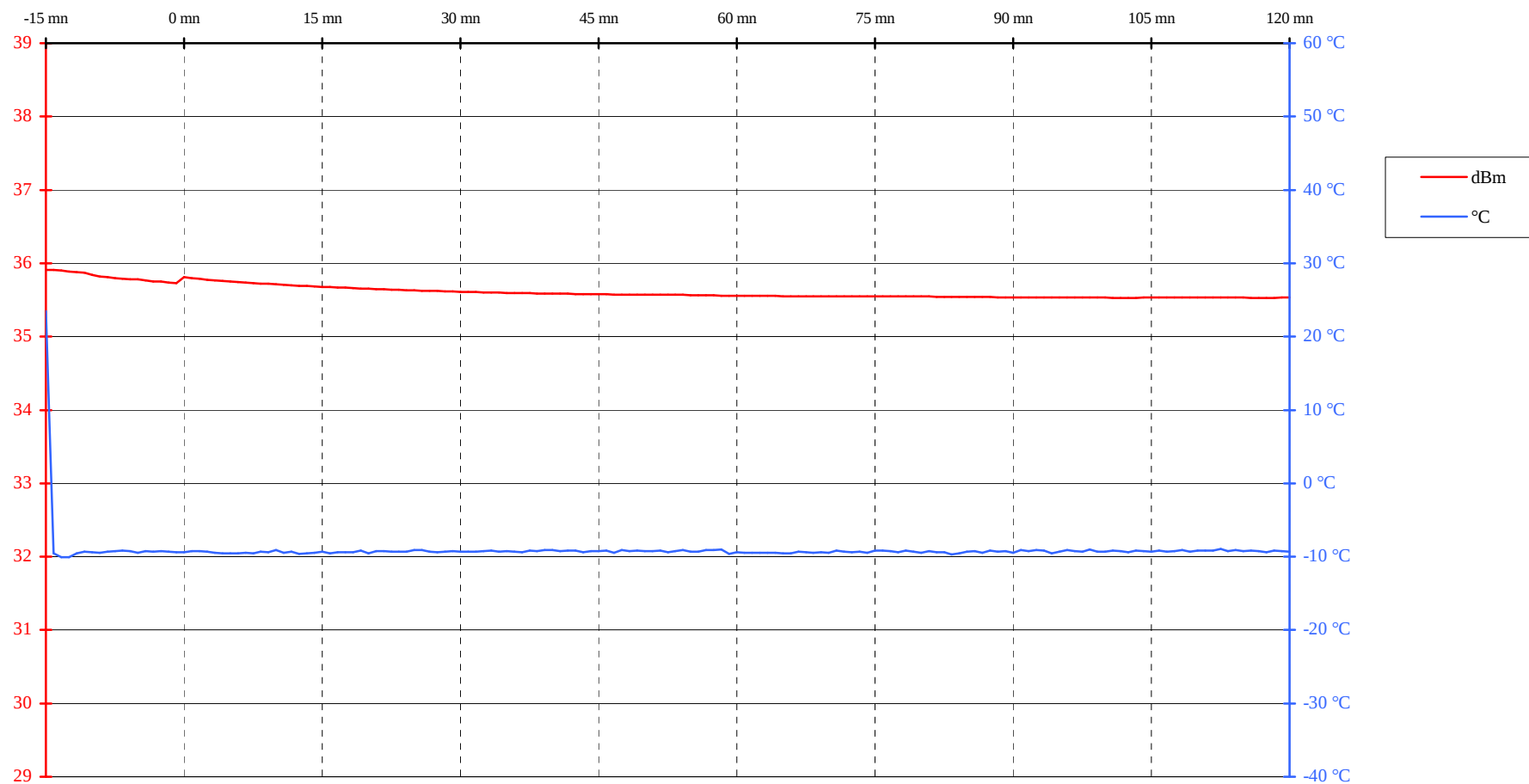
Model : AK-451 ()Series (AF)(AP)(S)(PLB)

Number : C/S 07 (But n°2) (Saft L0263XC)

Date : 26 june 2006

Time : 16:48:39

OUTPUT POWER (35 to 39 dBm)



OPERATING LIFE TEST RESULTS ON
Ameri-King Corp. ELT & PLB
AK-451 (Series (AF)(AP)(S)(PLB)
N° C/S 09 (But n°1) (Saft L0263XC)
-20 °C

Note: Following the table below, manufacturer calculation of battery discharge during 5 years beacon stowage, the operating lifetime at minimum temperature with the Saft L0263XC (Li-SO₂) battery pack is :

- 24 hours for 406 MHz and
- around 62,5 hours (85,5 hr - 22,93 hr) for 121,5/243 MHz

4 D CELL CONFIGURATION	
VHF(121.5/243.0)	: 0.100 Amp
UHF 406	: 1.700 Amp $\frac{0.520 \text{ sec}}{50 \text{ sec}} = 0.01768 \text{ Amp}$
Total	: $I_{ave} = 0.11768 \text{ Amp}$
Self Test: 5sec / month for 5 YRS = 300sec	
Self Test Discharge : $0.11768 \frac{300 \text{ sec}}{3600 \text{ sec / HR}} = 0.0098066 \text{ AH}$	
Self Test Discharge /w 1.65 COEFF: = 0.01618 AH with 1.65 Coeff	
450-0010-2 Saft LiSO2	Bat self discharge: $3\%(9.2\text{AH})(5\text{yrs})(1.65)=2.277\text{AH}$ Total bat must be discharged: $0.01618+2.277=2.293\text{AH}$ $\frac{2.293 \text{ AH}}{0.11768 \text{ A}} = 19.48 \text{ Hrs with UHF(406) \& VHF(121.5/243.0) Loads}$ $\frac{2.293 \text{ AH}}{0.100 \text{ A}} = 22.93 \text{ Hrs with VHF(121.5/243.0) Loads only}$

Warm Up	Δ Frequency (Hz)	Temp. (°C)	P406 (dBm)	P121.5 (dBm)
1	49799,32	-21,5	35,8	22,0
2	49795,20	-21,4	35,9	22,1
3	49792,79	-21,3	36,1	22,1
4	49791,45	-21,2	36,2	22,1
5	49790,61	-21,2	36,3	22,1
6	49789,74	-21,2	36,4	22,2
7	49789,12	-21,2	36,4	22,1
8	49788,24	-21,2	36,5	22,2
9	49788,28	-21,3	36,5	22,2
10	49787,30	-21,3	36,5	22,2
11	49787,27	-21,2	36,5	22,2
12	49786,85	-21,3	36,5	22,2
13	49786,94	-21,3	36,5	22,2
14	49786,34	-21,2	36,5	22,2
15	49786,12	-21,2	36,5	22,2
16	49786,10	-21,2	36,6	22,2
17	49785,92	-21,2	36,6	22,2
18	49785,47	-21,2	36,6	22,2

No	Temp.	Slope	Sigma	P406	Short term	P121.5
1	-21,3	-1,4E-9	2,5E-09	36,4	2,1E-10	22,2
18	-21,3	-3,4E-10	5,9E-10	36,6	3,2E-10	22,3
31	-21,3	-1,4E-10	6,0E-10	36,6	1,7E-10	22,3
61	-21,2	-3,1E-11	4,6E-10	36,6	1,5E-10	22,3
91	-21,3	2,3E-11	3,4E-10	36,6	2,8E-10	22,3
121	-21,2	-2,6E-11	4,3E-10	36,6	3,0E-10	22,3
151	-21,3	-5,7E-11	5,0E-10	36,6	2,4E-10	22,3
181	-21,3	1,9E-11	4,4E-10	36,5	2,5E-10	22,3
211	-21,3	-1,7E-11	4,2E-10	36,5	2,9E-10	22,3
241	-21,3	-2,2E-12	5,5E-10	36,6	3,4E-10	22,3
271	-21,3	1,4E-11	8,0E-10	36,6	3,9E-10	22,3
301	-21,3	-9,3E-13	4,6E-10	36,6	2,9E-10	22,4
331	-21,3	-3,0E-11	5,9E-10	36,6	2,9E-10	22,4
361	-21,3	-6,9E-12	5,9E-10	36,6	1,6E-10	22,4
391	-21,3	3,8E-11	5,1E-10	36,6	2,6E-10	22,4
421	-21,3	1,1E-11	4,5E-10	36,6	2,8E-10	22,4
451	-21,3	-3,9E-11	4,7E-10	36,6	2,8E-10	22,4
481	-21,3	-9,4E-12	5,1E-10	36,6	1,8E-10	22,4
511	-21,3	1,4E-11	4,8E-10	36,6	1,4E-10	22,4
541	-21,3	2,6E-11	4,6E-10	36,6	2,3E-10	22,4
571	-21,3	1,5E-12	5,8E-10	36,6	1,9E-10	22,4
601	-21,3	-2,3E-11	5,4E-10	36,6	3,1E-10	22,4
631	-21,4	-3,6E-11	4,2E-10	36,6	3,0E-10	22,4
661	-21,4	-4,4E-11	4,7E-10	36,6	3,2E-10	22,4
691	-21,3	-2,1E-11	4,8E-10	36,6	1,9E-10	22,4
721	-21,3	2,7E-11	4,7E-10	36,6	2,1E-10	22,4
751	-21,3	1,2E-11	4,7E-10	36,6	1,3E-10	22,4
781	-21,3	-5,0E-11	6,5E-10	36,6	3,7E-10	22,4
811	-21,3	-4,6E-11	6,8E-10	36,6	2,2E-10	22,4
841	-21,4	4,2E-11	5,1E-10	36,6	3,1E-10	22,4

No	Temp.	Slope	Sigma	P406	Short term	P121.5
871	-21,4	-3,3E-11	4,7E-10	36,6	2,0E-10	22,4
901	-21,3	-2,0E-11	4,7E-10	36,6	2,3E-10	22,4
931	-21,3	-1,5E-11	5,0E-10	36,6	3,1E-10	22,4
961	-21,3	1,5E-11	5,3E-10	36,6	3,4E-10	22,4
991	-21,3	2,5E-11	4,3E-10	36,6	3,3E-10	22,4
1021	-21,3	1,7E-11	5,2E-10	36,6	2,6E-10	22,4
1051	-21,3	1,2E-11	5,7E-10	36,6	2,1E-10	22,4
1081	-21,3	1,9E-11	4,3E-10	36,6	2,1E-10	22,4
1111	-21,3	5,3E-11	5,8E-10	36,6	2,6E-10	22,4
1141	-21,3	2,0E-11	6,0E-10	36,6	2,2E-10	22,4
1171	-21,4	7,8E-12	5,9E-10	36,6	3,3E-10	22,4
1201	-21,3	-3,6E-11	4,2E-10	36,6	2,3E-10	22,4
1231	-21,3	2,0E-11	3,6E-10	36,6	2,0E-10	22,4
1261	-21,3	4,1E-11	4,5E-10	36,6	2,8E-10	22,4
1291	-21,3	2,6E-12	5,4E-10	36,6	1,6E-10	22,4
1321	-21,3	-2,4E-11	5,0E-10	36,6	2,5E-10	22,4
1351	-21,4	2,4E-11	4,3E-10	36,6	1,7E-10	22,4
1381	-21,3	-5,5E-11	4,5E-10	36,6	3,1E-10	22,4
1411	-21,4	-8,4E-12	5,7E-10	36,6	2,2E-10	22,4
1441	-21,3	-3,3E-12	5,1E-10	36,6	2,1E-10	22,4
1471	-21,3	1,0E-11	5,7E-10	36,6	2,5E-10	22,4
1501	-21,4	-1,0E-11	5,8E-10	36,6	3,1E-10	22,4
1531	-21,3	-6,3E-12	5,4E-10	36,6	2,0E-10	22,4
1561	-21,3	-9,3E-12	4,1E-10	36,6	2,6E-10	22,4
1591	-21,3	2,4E-11	5,0E-10	36,6	3,4E-10	22,4
1621	-21,3	8,7E-12	4,4E-10	36,6	2,7E-10	22,4
1651	-21,4	3,0E-11	5,7E-10	36,6	2,5E-10	22,4
1681	-21,3	2,3E-11	5,0E-10	36,6	1,9E-10	22,4
1711	-21,4	-1,3E-11	3,3E-10	36,6	2,5E-10	22,4
1741	-21,3	1,1E-11	4,9E-10	36,6	1,7E-10	22,4
1771	-21,4					22,4
1801	-21,4					22,3
1831	-21,4					22,4
1861	-21,4					22,3
1891	-21,4					22,4
1921	-21,4					22,4
1951	-21,4					22,3
1981	-21,4					22,3
2011	-21,4					22,3
2041	-21,4					22,3
2071	-21,4					22,3
2101	-21,3					22,3
2131	-21,3					22,3
2161	-21,4					22,4
2191	-21,4					22,3
2221	-21,4					22,4
2251	-21,3					22,3
2281	-21,4					22,4
2311	-21,3					22,3
2341	-21,4					22,4
2371	-21,4					22,4

24h