CHAPTER 12

COSPAS - SARSAT
TYPE APPROVAL TESTS REPORT

Intespace

Toulouse, 18 April 2006

INTESPACE reference : E6668-CS

C/S T.A. TEST REPORT OF 406 MHz DISTRESS BEACON

MANUFACTURER :	MARTEC
BEACON MODEL :	KANNAD AUTO/AUTO GPS/MANUAL/ MANUAL GPS/MANUAL+ /MANUAL+ GPS

Written : 18 April 2006
By : G. PEYROU
Visa :

Approved : 24/04/06
By : Philippe COSIO
Visa :

Quality Control : 24/04/2006
By : André LOUIT
Visa :

Distribution :

- Mr	S. JINCHELEAU	MARTEC	(1 copy)
- Mr	Dany St PIERRE	COSPAS/SARSAT Sec	(1 copy)
- INTESPACE		ITS/EQ (RLS)	(1 copy)

1 - ADMINISTRATION

1.1. WORK ORDER

Manufacturer : MARTEC
Address : ZI des Cinq Chemins
56520 GUIDEL FRANCE

Represented by : Mr S. JINCHELEAU

1.2. INTESPACE TEST CENTER

The test operations have been conducted by : G. PEYROU

1.3. SCHEDULE

Start of test: 12 Dec 2005
End of test : 12 Apr 2006

1.4. WORK REFERENCE : **E6668-CS**

1.5. EQUIPMENT UNDER TEST

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

- Commercial designation : KANNAD AUTO/AUTO GPS/MANUAL/MANUAL GPS/MANUAL+/MANUAL+ GPS

- Model : KANNAD MANUAL+ GPS
- Sérial number: 54143 (UUT3) (50 Ω fitted for C/S electrical tests)
59374 (UUT4) (normal EPIRB for C/S Satellite and Antenna Tests)
57990 (UUT5) (normal EPIRB for C/S Satellite and Antenna Tests)

Note : The KANNAD MANUAL+ GPS s the most complete of beacon model

2 - TEST FACILITIES

- ARGOS - COSPAS/SARSAT Certification Test Bench.
- Anechoic chamber for antenna test .
- Toulouse CNES MCC .

3 - STANDARDS AND TEST PROCEDURES APPLICABLE

COSPAS-SARSAT standards :

- "C/S T. 001- Issue 3 - Revision 7 - November 2005 "
- "C/S T. 007- Issue 4 - November 2005"

INTESPACE Radio Beacon Test Procédures :

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

4 - RESULTS

See following pages :

- Application form for a COSPAS-SARSAT 406 MHz beacon Type Approval Certificate:
  - * G.1 Information provided by the beacon manufacturer
  - * G.2 Information provided by the Cospas-Sarsat acepted Test Facility
- Summary of 406 MHz beacon test results
- Test results : data and graphs
- Annex A : Manufacturer technical data
- Annex B : Antenna Test Report
- Annex C : PLB Satellite InterimTest Report

ANNEX G

APPLICATION FOR A COSPAS - SARSAT 406 MHz BEACON TYPE APPROVAL CERTIFICATE

G.1 INFORMATION PROVIDED BY THE BEACON MANUFACTUREUR

Beacon Manufacturer and Beacon Model

Beacon manufacturer	MARTEC Serpe-Iesm
Beacon model	KANNAD AUTO / AUTO GPS / MANUAL / MANUAL GPS / MANUAL + / MANUAL + GPS

Beacon type and operational configurations

Beacon type	Beacon used while	Tick where appropriate
EPIRB	Floating in water or on deck or in a safety raft	X
PLB	On ground and above ground	
	On ground and above ground and floating in water	
ELT survival	On ground and above ground	
	On ground and above ground and floating in water	
ELT auto fixed	Fixed ELT with aircraft external antenna	
ELT auto portable	In aircraft with an external antenna	
	On ground, above ground, or in a safety raft with an integrated antenna	
ELT auto deployable	Deployable ELT with attached antenna	
Other (specify)		

Beacon characteristics

Characteristic	Specification
Operating temperature range	-20 °C / +55°C
Operating lifetime	48 hours
Battery chemistry	Lithium
Battery cell size and number of cells	DL123 / 16
Battery manufacturer	DURACELL
Battery pack manufacturer and part number	Williamson , WILPA1388 (see § 8.3)
Oscillator type (e.g. OCXO, MCXO, TCXO)	TCXO (see § 10)
Oscillator manufacturer	C-MAC (see § 10)
Oscillator part name and number	E3279 / PN = 0134421
Oscillator satisfies long-term frequency stability requirements (Yes or No)	YES (see § 10)
Antenna type (Integrated or External)	Integrated
Antenna manufacturer	MARTEC
Antenna part name and number	K1801113
Navigation device type (Internal, external or none)	Internal (for all GPS versions)
Features in beacon that prevent degradation to 406 MHz signal or beacon lifetime resulting from a failure of navigation device or failure to acquire position data (Yes, No, or N/A)	YES (see § 2.4.2)
Features in beacon that ensures erroneous position data is not encoded into the beacon message (Yes, No or N/A)	NO
Navigation device capable of supporting global coverage (Yes, No or N/A)	YES
For internal navigation devices - geodetic reference system (WGS84 or GTRF) - GNSS receiver cold start forced at every beacon activation (Yes or No) - Navigation device manufacturer - Navigation device model name and part number - GNSS system supported (e.g. GPS, GLONASS, Galileo)	See § 2.4 WGS84 YES FASTRAX uPatch100 GPS

Characteristic	Specification
For external navigation devices - Data protocol for GNSS receiver to beacon interface - Physical interface for beacon to navigation device - Electrical interface for beacon to navigation device - Navigation device model and manufacturer (if beacon designed to use specific devices)	NOT APPLICABLE
Self-test mode characteristics - self-test has separate switch position (Yes or No) - Self-test switch automatically returns to normal position when released (Yes or No) - Self-test activation can cause an operational mode transmission (Yes or No) - Self-test causes a single beacon self-test message burst only regardless of how long the self-test activation mechanism applied (Yes or No) - Results of self-test indicated by (e g Pass / Fail indicator Light, Strobe light, etc) - Self-test can be activated from beacon remote activation points (Yes or No) - Self-test performs an internal check and indicates that RF power emitted at 406 MHz and 121.5 MHz if beacon includes a 121 5 MHz homer (Yes or No) - Self-test transmits a signal(s) other than at 406 MHz (Yes & details or No) - Self-test can be activated directly at beacon (Yes or No) - List of items checked by self-test - Self-test transmission burst duration (440 or 520 ms) - Self-test format bit ("0" or "1")	YES YES NO YES Pass / fail indicator light NO YES NO YES Battery voltage RF power at 406 MHz Phase locked loop 440ms for version without GPS 520ms for versions with GPS 0 for versions without GPS 1 for versions with GPS
Beacon includes a homer transmitter (if yes identify frequency of transmission) - Homer transmit power - Homer duty cycle - Duty cycle of homer swept tone	121 5 MHz ±3kHz 50mW ± 3dB PERP 100 % 50 %
Beacon includes a strobe light (Yes or No) - Strobe light intensity - Strobe light flash rate	YES 0.75 Candela min 20 flashes per minute
Beacon transmission repetition period satisfies C/S T 001 requirement that two beacon's repetition periods are not synchronised closer than a few seconds over 5 minute period, and the time intervals between transmissions are randomly distributer on the interval 47.5 to 52.5 seconds (Yes or No)	YES (see § 11.5)
Other ancillary devices (e.g. voice transceiver) List details on a separate sheet if insufficient space to describe	NO
Beacon includes automatic activation mechanism (Yes or No)	YES for AUTO and MANUAL+ versions

G.2 INFORMATION PROVIDED BY THE COSPAS-SARSAT ACEPTED TEST FACILITY

Name and Location of Beacon Test Facility: INTESPACE

Date of submission for Testing: 12 December 2005

Applicable C/S Standards:

Document	Issue	Revision
C/S T.001	3	7
C/S T.007	4	

I hereby confirm that the 406 MHz beacon described above has been successfully tested in accordance with the COSPAS-SARSAT 406 MHz Beacon Type Approval Standard (C/S T.007) and complies with the Specification for Cospas-Sarsat 406 MHz Distress Beacons (C/S T.001) as demonstrated in the attached report.

Dated : 18 April 2006 Signed :

Gérard PEYROU
Intespace Distress Beacon Test Responsible

TableC2 : SUMMARY OF 406 MHz BEACON TEST RESULTS

PARAMÉTRES 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	37,6	37,4	37,1	
o Power output rise time		< 5	ms	0,53	0,48	0,55	Graphs p, 22, 25 and 28
o power output 1 ms before burst		must be < -10 dBm	√ *	√	√	√	Graphs pages 15 to 18
2 - DIGITAL MESSAGE							Data and graphs pages 19 to 28
	Bits number						
o bit sync	1-15	15 bits "1"	√	√	√	√	
o frame sync	16-24	9 bits (000101111)	√	√	√	√	
o format flag	25	1 bit	√	1	1	1	
o protocol flag	26	1 bit	√	0	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	110111	110111	110111	
o additional data/BCH (if applicable)	113-144	32 bits	√	√	√	√	
o position error (if applicable)		< 5,25 (User Loc) < 0,5 (Std & Nat Loc)	km	0,076 km	0,076 km	0,148 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 19 to 28
o repetition rate T_R :						
average T_R =	48,5 - 51,5	seconds	50,21	49,88	49,7	
minimum T_R =	47,5	seconds	47,7	47,5	47,5	
maximum T_R =	52,5	seconds	52,0	53,0	52,0	
standard deviation =	0,5 - 2,0		1,23	1,5	1,46	
o bit rate						
minimum f_b =	396	bits/sec.	400,94	401,04	401,12	
maximum f_b =	404	bits/sec.	400,99	401,08	401,18	
o total transmission time :						
short message =	435.6 - 444.4	ms				
long message =	514.8 - 525.2	ms	519,80	519,83	519,75	
o CW preamble						
minimum T_1 =	158,4	ms	160,27	160,35	160,38	
maximum T_1 =	161,6	ms	160,28	160,36	160,39	Self test burst at 11 sec
o first burst delay	> 47,5	seconds		> 68,5		+ 47,5 sec min for first normal burst

TableC2 : SUMMARY OF 406 MHz BEACON TEST RESULTS

PARAMETRES 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
o biphase-L		√	√	√	√	pages 19 to 28
o rise time	50 - 250	µsec.	170	170	160	
o fall time	50 - 250	µsec.	160	170	170	
o phase deviation : positive	+ (1.0 to 1.2)	radians	+ 1,12	+ 1,12	+ 1,12	
o phase deviation : negative	- (1.0 to 1.2)	radians	- 1,09	- 1,11	- 1,10	
o symmetry measurement	≤ 0.05	√	√	√	√	
5 - 406 MHz TRANSMITTED FREQUENCY						Data pages 20, 23 and 25
o nominal value	as specified in C/S T.001 and C/S T.012	MHz	406,0280676	406,0280401	406,0280390	
o short term stability	≤ 2×10^{-9}	/100 ms	1,03E-10	8,32E-11	8,65E-11	
o medium term stability . slope	(-1 to +1) x 10^{-9}	/minute	5,42E-11	2,85E-11	6,00E-11	
. residual frequency variation	≤ 3×10^{-9}		1,64E-10	1,23E-10	3,47E-10	
6 - SPURIOUS EMISSION ** (into 50 ohms)						See graphs pages 29 to 32
o in-band (406.0 - 406.1 MHz)	C/S T.001 mask	√	√	√	√	

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)	
7 - 406 MHz VSWR CHECK after open circuit, short cicuit, then while VSWR is 3:1, measure :						See data and graphs pages 33 to 39
o nominal transmitted frequency	C/S T.001	MHz	406,0280562	406,0280379	406,0280595	
Modulation :						
o rise time	50 - 250	microsec.	179,6	169,7	169,7	
o fall time	50 - 250	microsec.	169,7	149,7	179,6	
o phase deviation : positive	+ (1.0 to 1.2)	radians	1,13	1,12	1,11	
o phase deviation : negative	- (1.0 to 1.2)	radians	-1,09	-1,11	-1,11	
o symmetry measurement	≤ 0.05	√	√	√	√	
o digital message	must be correct	√	√	√	√	
8 - SELF-TEST MODE (if applicable)						Data page 40
o frame sync	9 bits (011010000)	√		√		
o format flag	1/0	bit		1		
o single radiated burst	≤ 440 /520 (+1%)	ms		519,19		
o default position data (if applicable)	must be correct	√		√		
o description provided		√		√		
o design data provided on protection against repetitive self-test mode transmissions	protection provided	√		√		Manufacturer doc. Annex A
o single burst verification	one burst	√		√		
o provides for beacon 15 Hex ID	must be correct	√		√		1C7E69BFBF81FE0
o 121,5 MHz RF power (if applicable)	self-test checks that RF power emitted			√		
o 406 MHz RF power	self-test checks that RF power emitted			√		

PARAMÈTRES TO BE MEASURED DURING TESTS	RANGE OF SPECIFICATION	UNITS	TEST RESULTS	COMMENTS
9 - THERMAL SHOCK[1] (30° C change)				Data and graphs pages 41 to 47
o Soak temperature :		°C	Tsoak = 22	
o Measurement temperature :		°C	TMeas = -10	
the following parameters are to be met within 15 minutes of beacon turn on and maintained for 2 hours				
o Transmitted frequency :				
- nominal value	as specified in C/S T.001 and C/S T.012	MHz	406,028053 / 406,028056	
- short term stability	$\leq 2 \times 10^{-9}$	/100 ms	< 2E-10	
- medium term stability :				
. slope	$(-2 \text{ to } +2) \times 10^{-9}$	/minute	-2E-10 / 8E-11	
. residual frequency variation	$\leq 3 \times 10^{-9}$		< 7E-10	
o Transmitted power output	35 - 39	dBm	37,4 / 37,7	
o Digital message	must be corect	√	√	

1 Attach graphs depicting test results.

PARAMÈTRES TO BE MEASURED DURING TESTS	RANGE OF SPECIFICATION	UNITS	TEST RESULTS	COMMENTS
10 - OPERATING LIFETIME AT MINIMUM TEMPERATURE[1]				Data and graphs pages 48 to 59
o Duration	> 24	hours	76 hours at Tmin = -20 °C	
o Transmitted frequency :				
- nominal value	as specified in C/S T.001 and C/S T.012	MHz	406,0277971 / 406,027808	
- short term stability	≤ 2 x 10^{-9}	/100 ms	< 8E-10	
- medium term stability				
. slope	(-1 to +1) x 10^{-9}	/minute	-3E-10 / 3E-10	
. residual frequency variation	≤ 3 x 10^{-9}		< 1,1E-9	
o Transmitted power output	35 - 39	dBm	35 / 36,9	
o Digital message	must be corect	√	√	
11 - TEMPERATURE GRADIENT (5° C/hr)[1] (5° C/hr)				Data and graphs pages 60 to 68
o Transmitted frequency :				
- nominal value	as specified in C/S T.001 and C/S T.012	MHz	406,0277382 / 406,027824	
- short term stability	≤ 2 x 10^{-9}	/100 ms	< 7E-10	
- medium term stability				
. Slope (A to B, C+15 to D, and E+15 to F)	(-1 to +1) x 10^{-9}	/minute	-8,5E-10 / 8E-10	
. Slope (B to C+15, and D to E+15)	(-2 to +2) x 10^{-9}	/minute		
. residual frequency variation	≤ 3 x 10^{-9}		< 2,7E-9	
o Transmitted power output	35 - 39	dBm	36,5 / 37,6	
o Digital message	must be corect	√	√	
12 - OSCILLATOR AGING (data provided)	C/S T.001	MHz	± 4,06028E-4	Manufacturer explanations in Annex A

1 Attach graphs depicting test results.

PARAMÈTRES TO BE MEASURED DURING TESTS	RANGE OF SPECIFICATION	UNITS	TEST RESULTS		COMMENTS
13 - PROTECTION AGAINST CONTINUOUS TRANSMISSION o Description provided	≤ 45	seconds	10 to 17		Manufacturer explanations in Annex A
14 - SATELLITE QUALITATIVE TESTS[2] (results provided)	15 Hex ID provided by LUT and position within 5 km 80% of time	√	√		Data and graphs pages to Annex C : Satellite PLB Interim Test Report
15 - ANTENNA CHARACTERISTICS			Test configuration		Annex B : Antenna test report
			For "EPIRB-like" Devices (Figure B.4)	For all Devices that Might be required to Operate Without a Ground Plane	
o Polarization	linear or RHCP			√	
o VSWR	≤ 1.5			NA	
o $EIRP_{LOSS}$		dB		0.7	
o $EIRP_{max\ EOL}$	≤ 43	dBm	42.3	36,8	
o $EIRP_{min\ EOL}$	≥ 32 or 30	dBm	33.2	29.3	just OK : 80 % of measurements are in the
o azimuth gain variation at 40° elevation angle	≤ 3	dB	0.4	0.7	C/S T.007 specification
16 - BEACON CODING SOFTWARE[3]					
o sample message provided for each coding option of the applicable coding types	correct	√	√		See examples of each requested coding option on Manufacturer Technical Data Annex A
o sample self-test message provided for each coding option of the applicable coding types	correct	√	√		

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

3 Attach examples of each requested coding option as per Appendix D to Annex F.

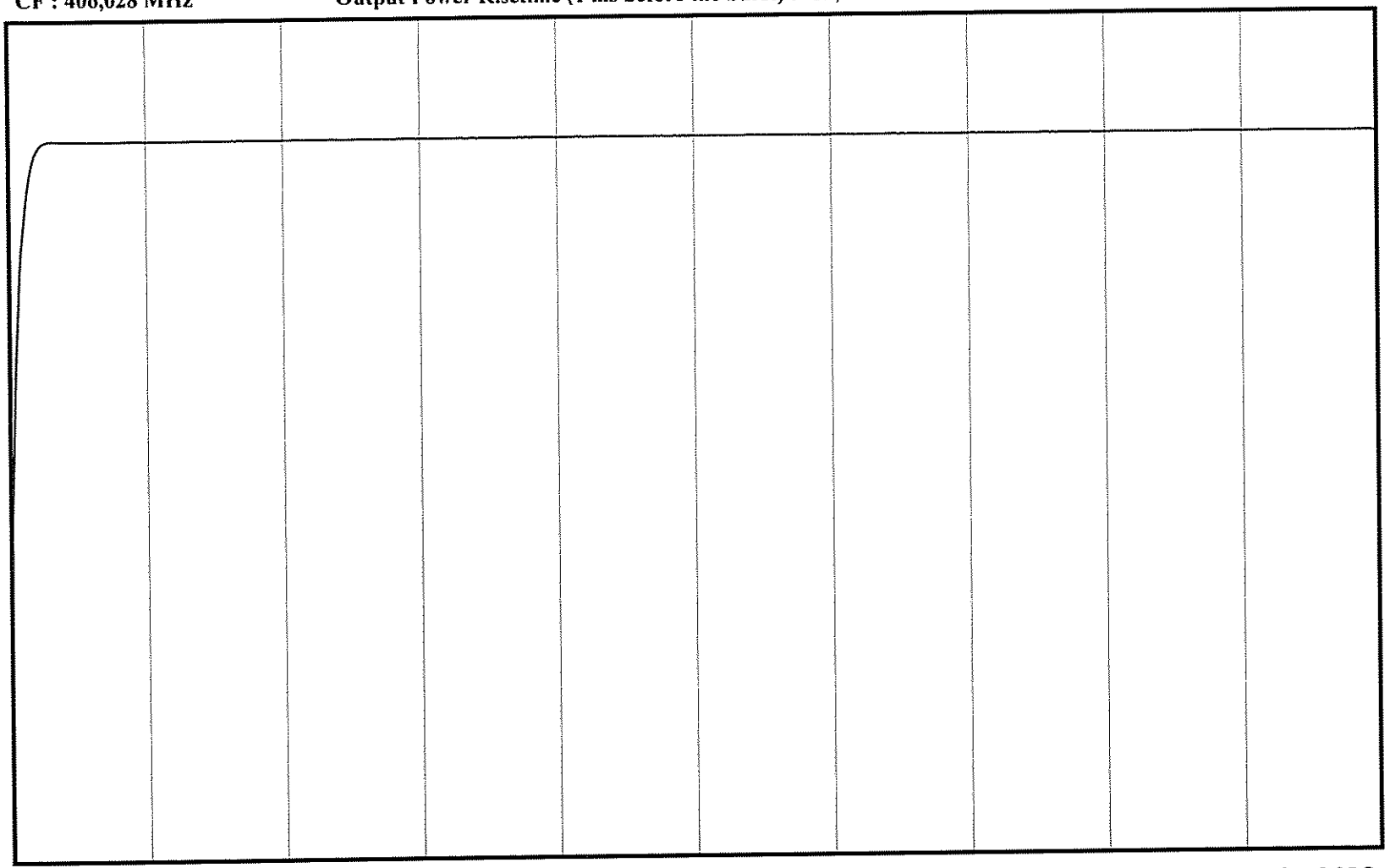
PARAMÈTRES TO BE MEASURED DURING TESTS	RANGE OF SPECIFICATION	UNITS	TEST RESULTS	COMMENTS
17 - NAVIGATION SYSTEM[4]				See data page 73
o position data default values	correct	√	√	
o position acquisition time	< 10 / 1	minutes	1,88	F-C.4 Table page 74
o position accuracy	C/S T.001		√	
o encoded positon data update interval	> 20	minutes	> 20 min	Test results page : 74
o positon clearance after deactivation	cleared	√	√	
o positon data input update interval (as applicable)	20 / i	minutes	N/A	
o positon data encoding	correct	√	√	See results on Annex A . Manufacturer Technical Data page 12 (F-C.1, F-C.2 and F-C.3 Tables)
o retained last valid position after navigation input lost	240 (± 5)	min	239	
o default position data transmitted after 240(± 5) minutes without valid position data	cleared	√	√	Test results page : 77 to 81
o information provided on protection against beacon degradation due to navigation device, interface or signal failure or malfunction		√	√	

4 Attach navigation system test results as per Appendix C to Annex F

TRANSMITTER OUTPUT POWER RISE TIME TEST RESULT ON
MARTEC
KANNAD MANUAL+ GPS
N° 54143 (UUT3)
(1 ms before 10 % of the burst)
at -20° C, 22° C and 55° C

Output Power Risetime at -20°C

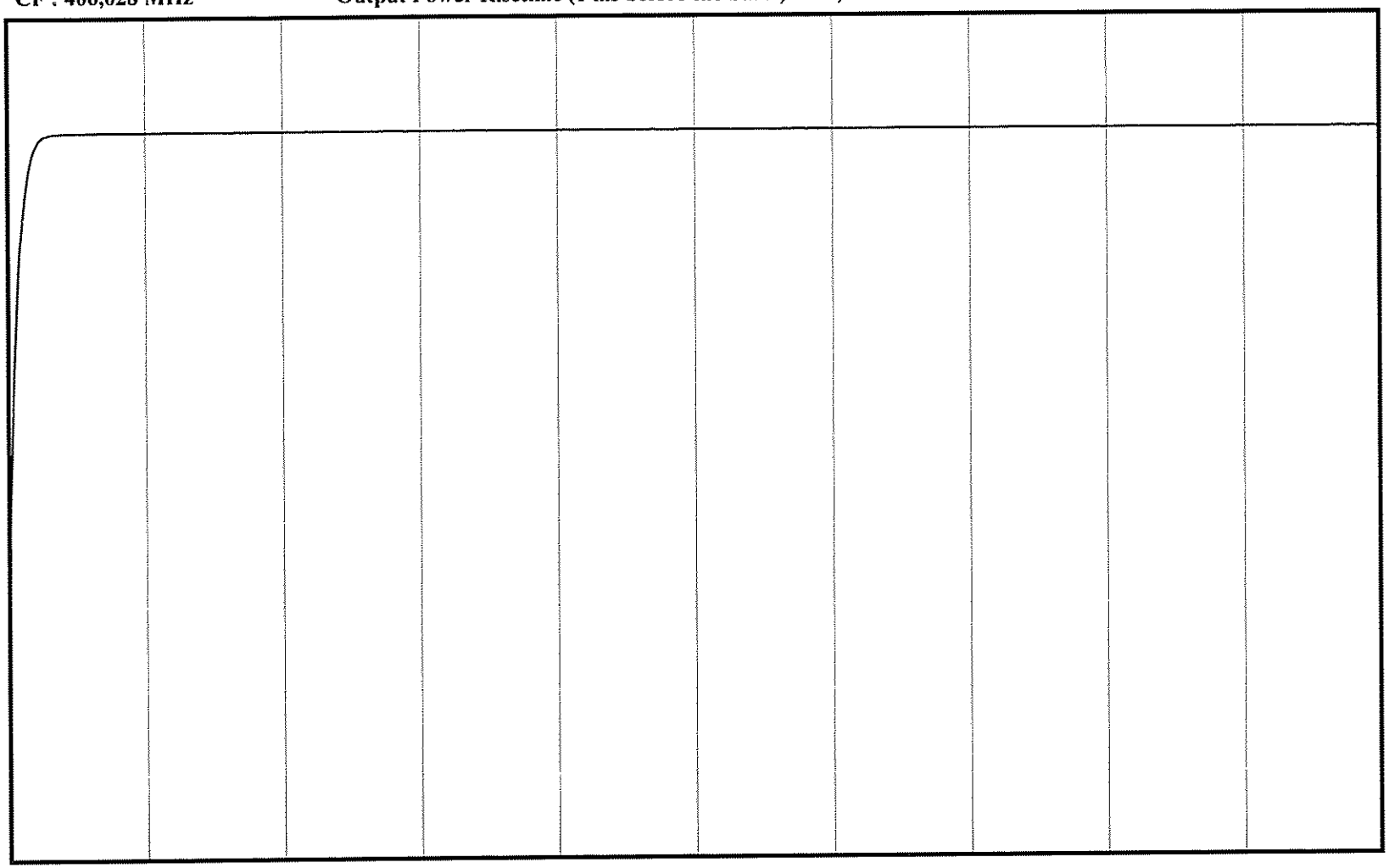
CF : 406,028 MHz **Output Power Risetime (1 ms before the burst) : -19,51 dBm** **SP : 0 KHz**



Rb : 1 KHz **10 dB/div.** **St : 0,05 S**

Output Power Risetime at 22°C

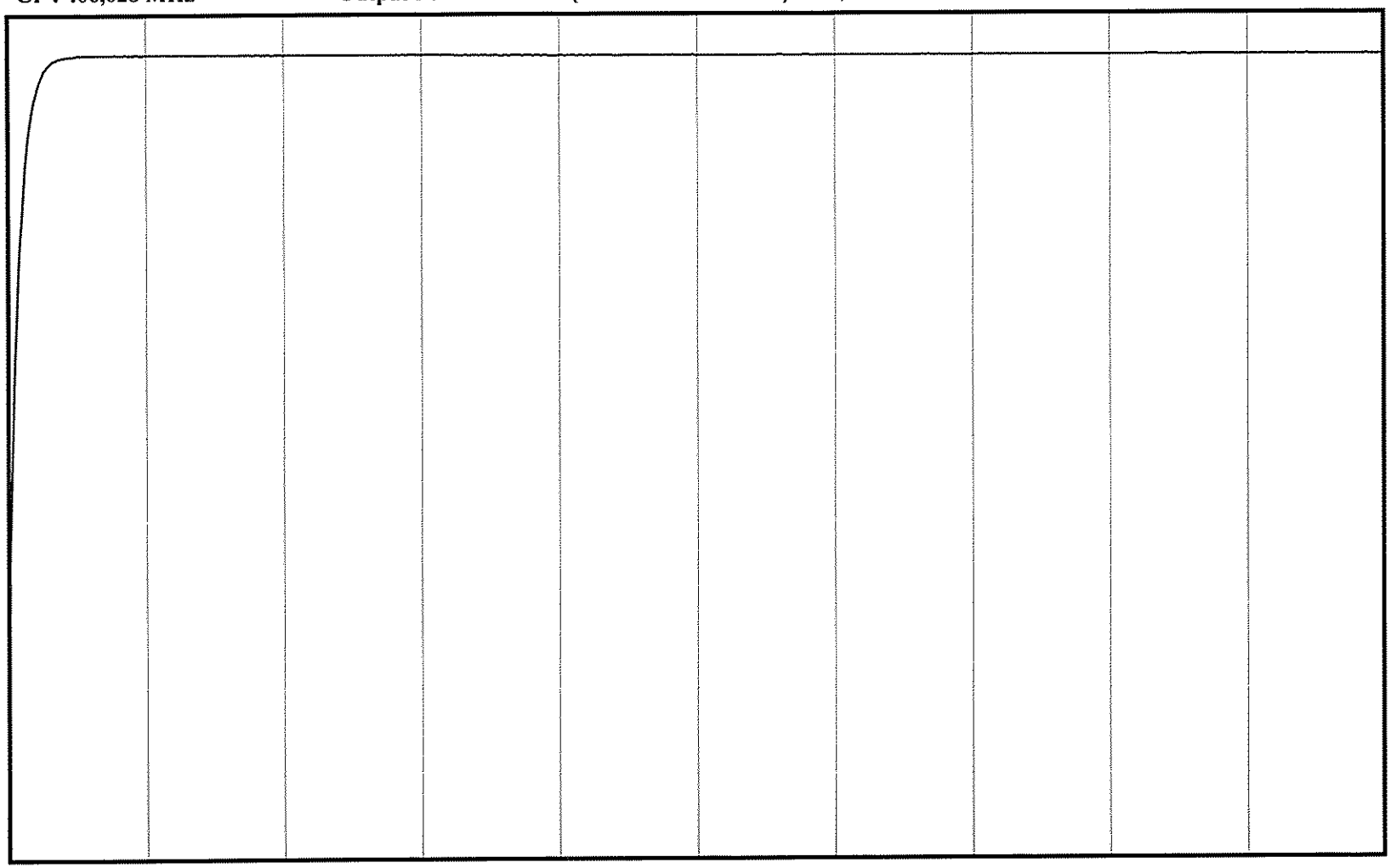
CF : 406,028 MHz **Output Power Risetime (1 ms before the burst) : -19,41 dBm** **SP : 0 KHz**



Rb : 1 KHz **10 dB/div.** **St : 0,05 S**

Output Power Risetime at 55°C

CF : 406,028 MHz **Output Power Risetime (1 ms before the burst) : -22,84 dBm** **SP : 0 KHz**



Rb : 1 KHz **10 dB/div.** **St : 0,05 S**

CERTIFICATION TEST RESULTS ON
MARTEC
KANNAD MANUAL+ GPS
N° 54143 (UUT3)
at -20° C, 22° C and 55° C

Certification Test at -20°C Date of test : 15 Dec 2005

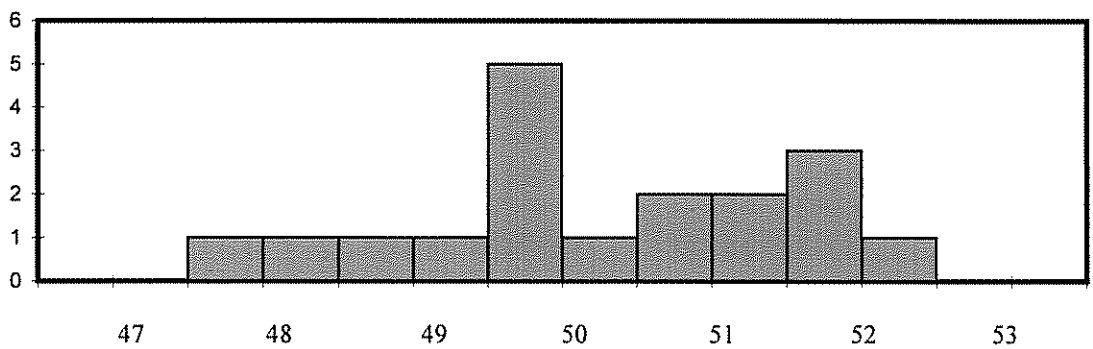
Manufacturer : MARTEC
Beacon Type : KANNAD MANUAL+ GPS
Number : 54143 UUT3

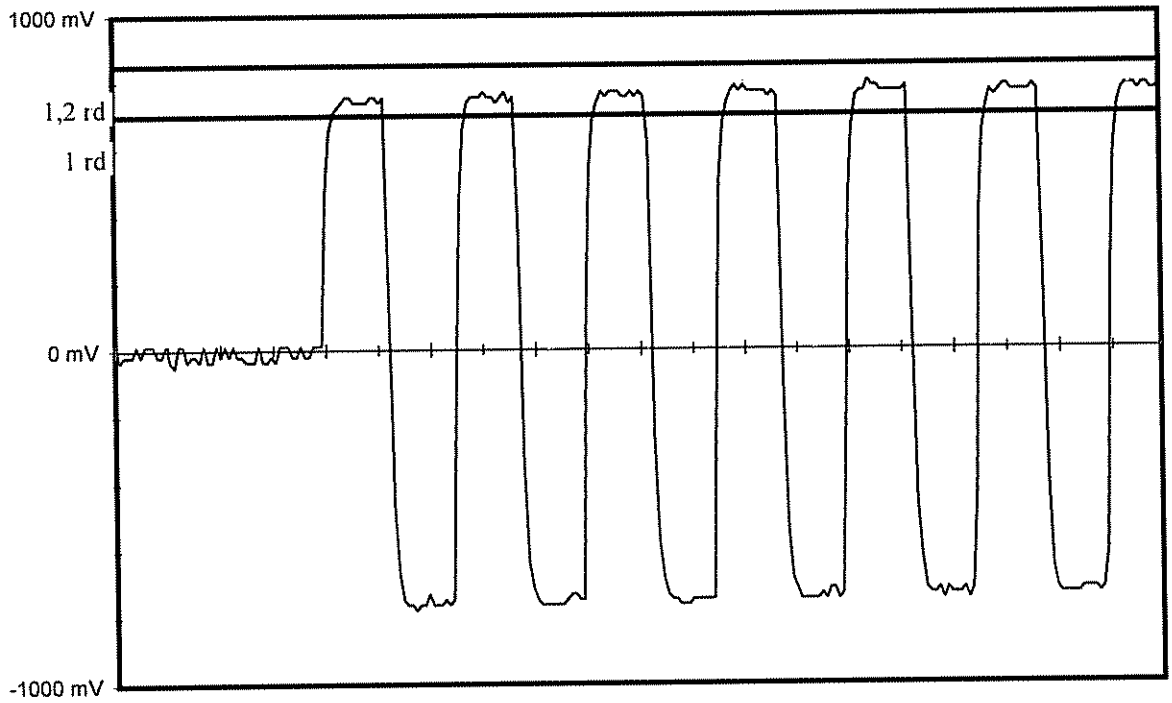
Message

Message received		FFFE2F8E3F34DFCAE20171F6D1B70F2800DF	
Format Flag	25	1	
Protocol flag	26	0	
Ident./Position code	27-85	0	
Country Code/Country	27-36	227 / FRANCE	
Protocol Code : U/Std-Nat	37-39/37-40	1111	
Protocol Code Used	37-39/37-40	Test-National Location	
Identification Data	40-85/41-64/41-[illegible]		
Identification Used		54143	
Calculated BCH1	25-85	07DB46	
Encoded BCH1	86-106	07DB46	
Homing	112	1	
Em.cod/nat.use/supp.data	107-112	110111	
Encod pos data	111	1	Internal
Fixed Data "110"	107-109	110	OK
Calculated BCH2	107-132	0DF	
Encoded BCH2	133-144	0DF	
Latitude position		Nord 43° 33' 32"	
Longitude position		Est 1° 28' 40"	
Delta position		0,076 km	

Electrical and other parameters

CW preamble	ms 158,4 <	< 161,6	160,28
Total transmission time	ms 514,8 <	<525,2	519,80
Modulation frequency	Hz 396<	< 404	400,97
Phase deviation : total	rd	<=2,40	2,21
Phase deviation : positive	rd 1,00 <	< 1,20	1,12
Phase deviation : negative	rd -1,20 <	< -1,00	-1,09
Symmetry measurement	%	<=5 %	4,04E-04
Nominal frequency : F2	Hz		406028067,57
Short term2			1,13E-10
Short term3			1,03E-10
Slope			5,42E-11
Residual			1,64E-10
406 MHz power output	dBm		37,6
Homing frequency	MHz		121,50
121,5 MHz power output	dBm		19,5
Soak temperature	°C		-19,6
Extra feature			No

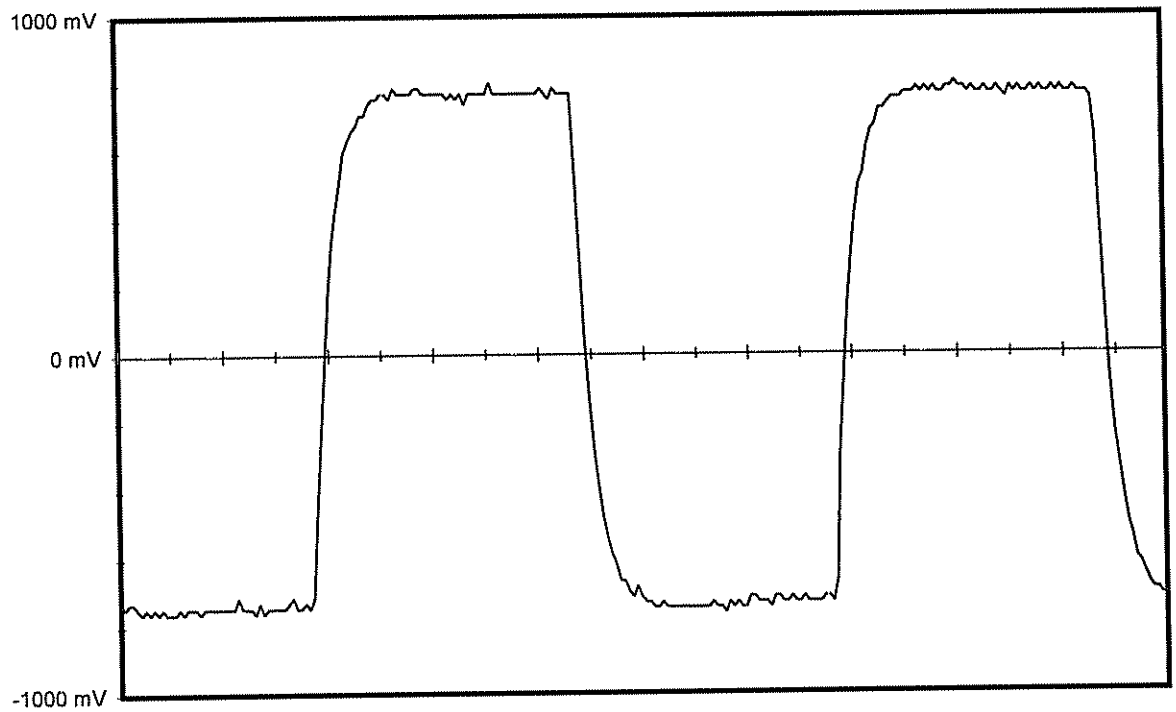




0 ms
Vmarker1 850 mv ==> 1,2 rd
Vmarker2 700 mv ==> 1 rd

10 ms
2 ms/div

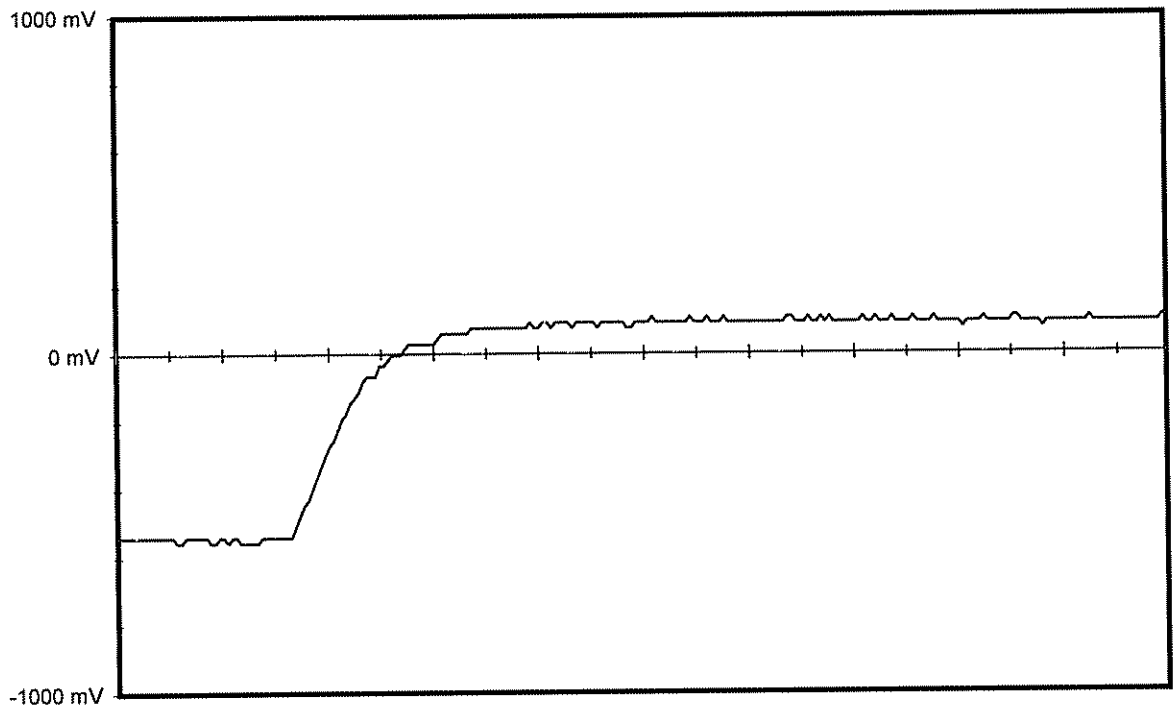
20 ms



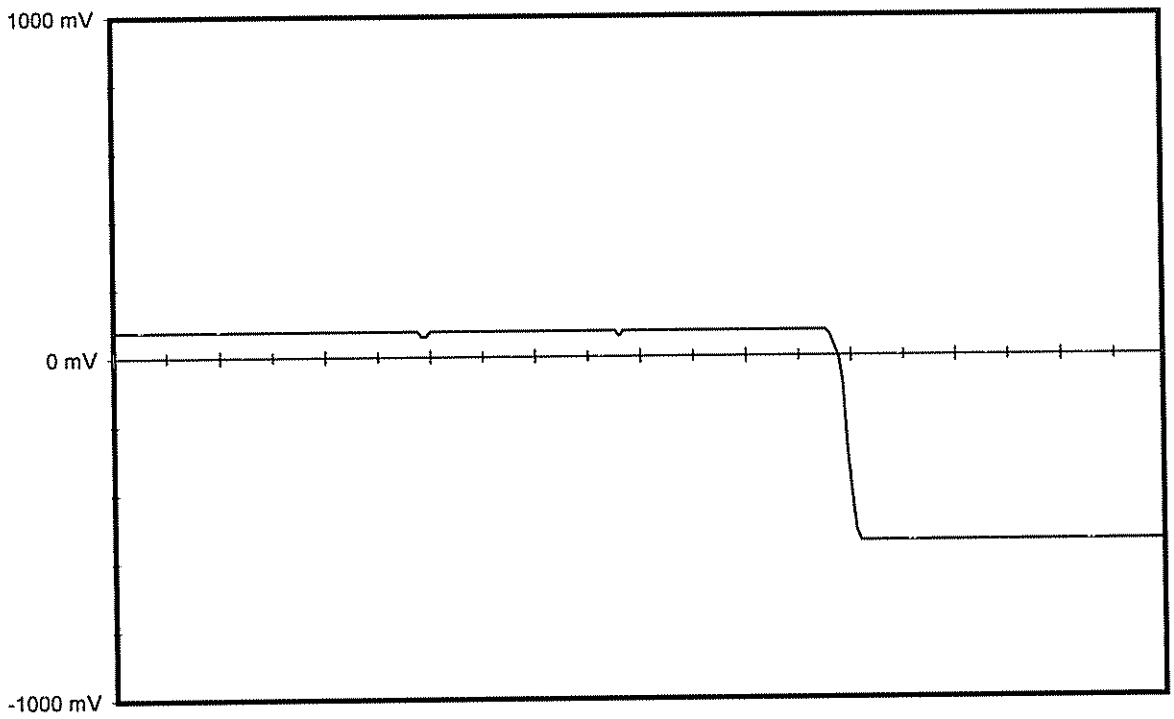
8 ms
Duty Cycle : 4,04032E-06
falltime(1)<= 159,681 us
+width(1) 1,23752 ms

10,5 ms
0,5 ms/div.
risetime(1)<= 169,661 us
-widht(1) 1,23753 ms

13 ms



-1 ms 1,5 ms 4 ms
risetime(1)<= 528,942 us 0,5 ms/div



-3,5 ms -1 ms 1,5 ms
falltime(1)<= 89,82 us 0,5 ms/div

Certification Test at 22°C Date of test : 04-janv-2006

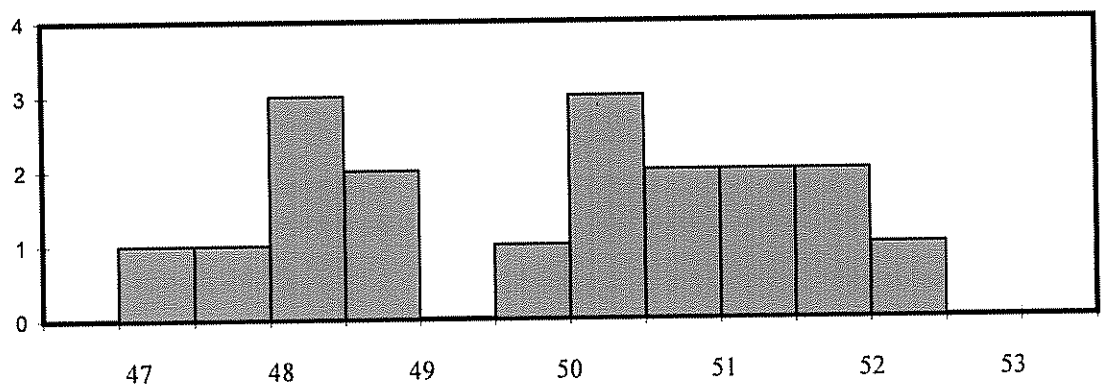
Manufacturer : MARTEC
Beacon Type : KANNAD MANUAL+ GPS
Number : 54143 UUT3

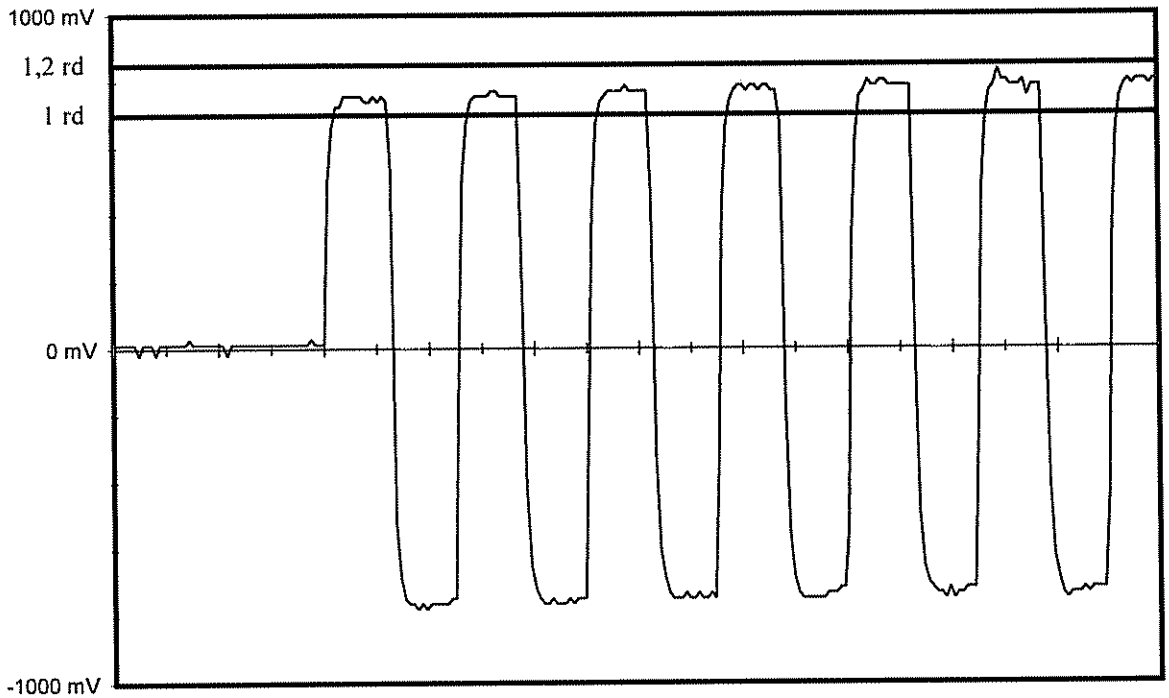
Message

Message received		FFFE2F8E3F34DFCAE20171F6D1B70F2800DF	
Format Flag	25	1	
Protocol flag	26	0	
Ident./Position code	27-85	0	
Country Code/Country	27-36	227 / FRANCE	
Protocol Code : U/Std-Nat	37-39/37-40	1111	
Protocol Code Used	37-39/37-40	Test-National Location	
Identification Data	40-85/41-64/41-58		
Identification Used		54143	
Calculated BCH1	25-85	07DB46	
Encoded BCH1	86-106	07DB46	
Homing	112	1	
Em.cod/nat.use/supp.data	107-112	110111	
Encod pos data	111	1	Internal
Fixed Data "110"	107-109	110	OK
Calculated BCH2	107-132	0DF	
Encoded BCH2	133-144	0DF	
Latitude position		Nord 43° 33' 32"	
Longitude position		Est 1° 28' 40"	
Delta position		0,076 km	

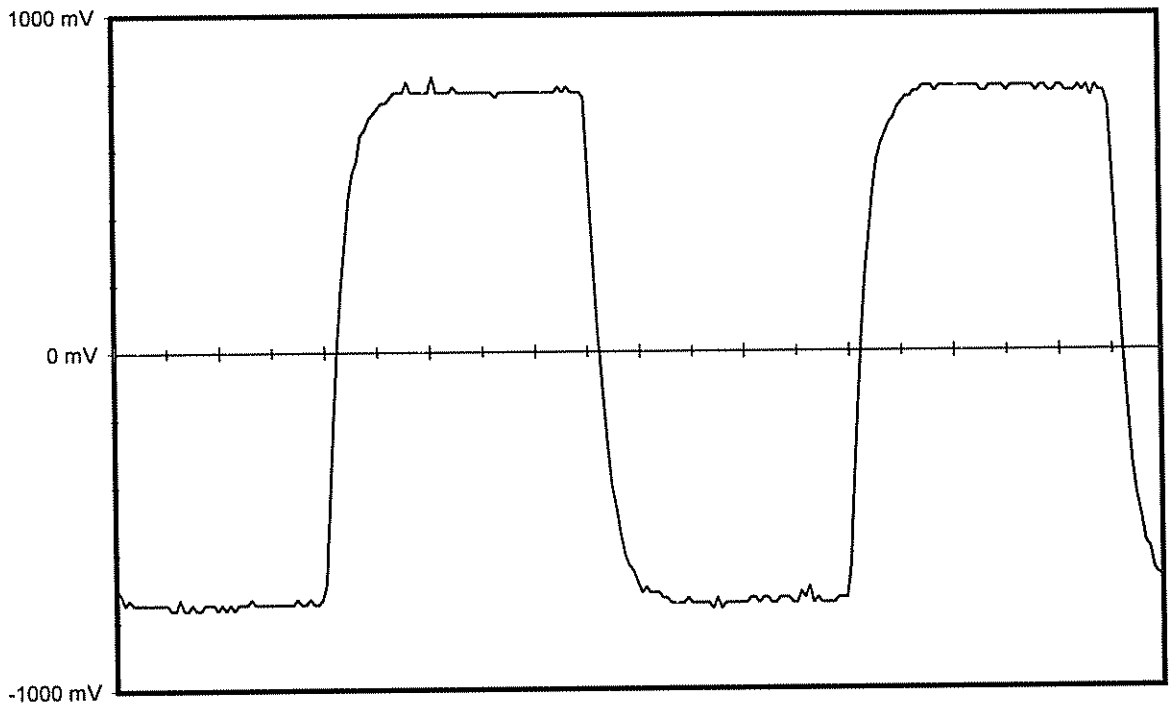
Electrical and other parameters

CW preamble	ms 158,4 <	< 161,6	160,36
Total transmission time	ms 514,8 <	<525,2	519,83
Modulation frequency	Hz 396<	< 404	401,06
Phase deviation : total	rd	<=2,40	2,23
Phase deviation : positive	rd 1,00 <	< 1,20	1,12
Phase deviation : negative	rd -1,20 <	< -1,00	-1,11
Symmetry measurement	%	<=5 %	4,01E-04
Nominal frequency : F2	Hz		406028040,10
Short term2			9,23E-11
Short term3			8,32E-11
Slope			2,85E-11
Residual			1,23E-10
406 MHz power output	dBm		37,4
Homing frequency	MHz		121,50
121,5 MHz power output	dBm		19,3
Soak temperature	°C		19,0
Extra feature			No

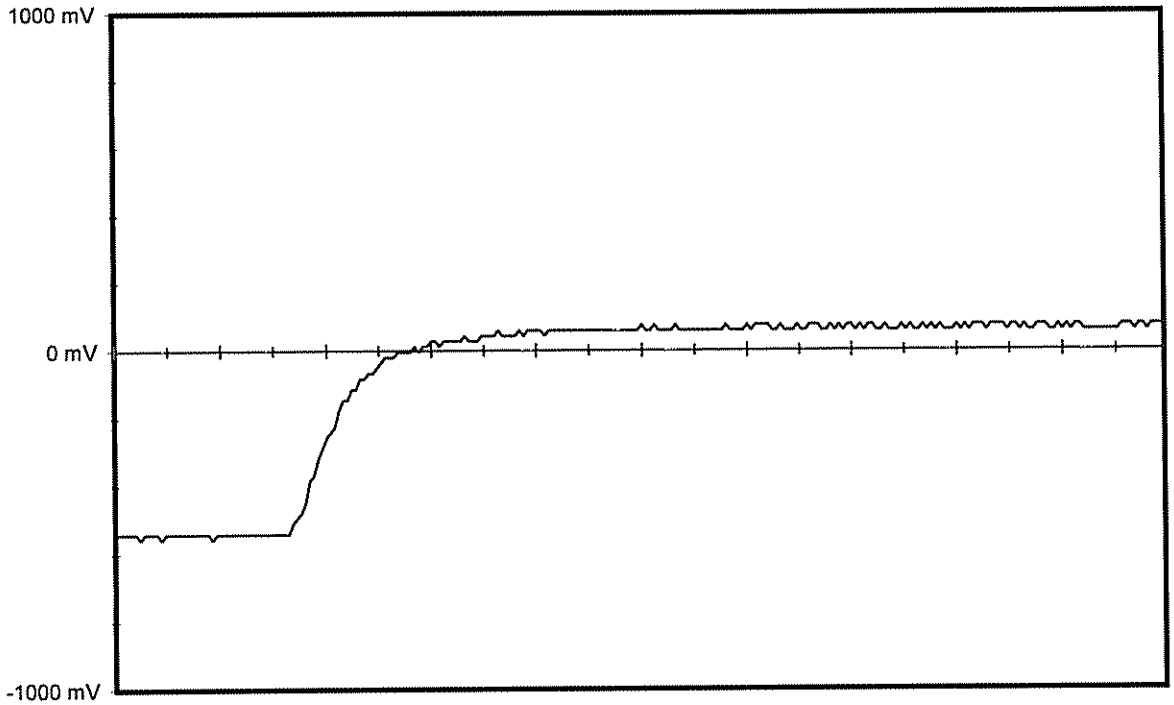




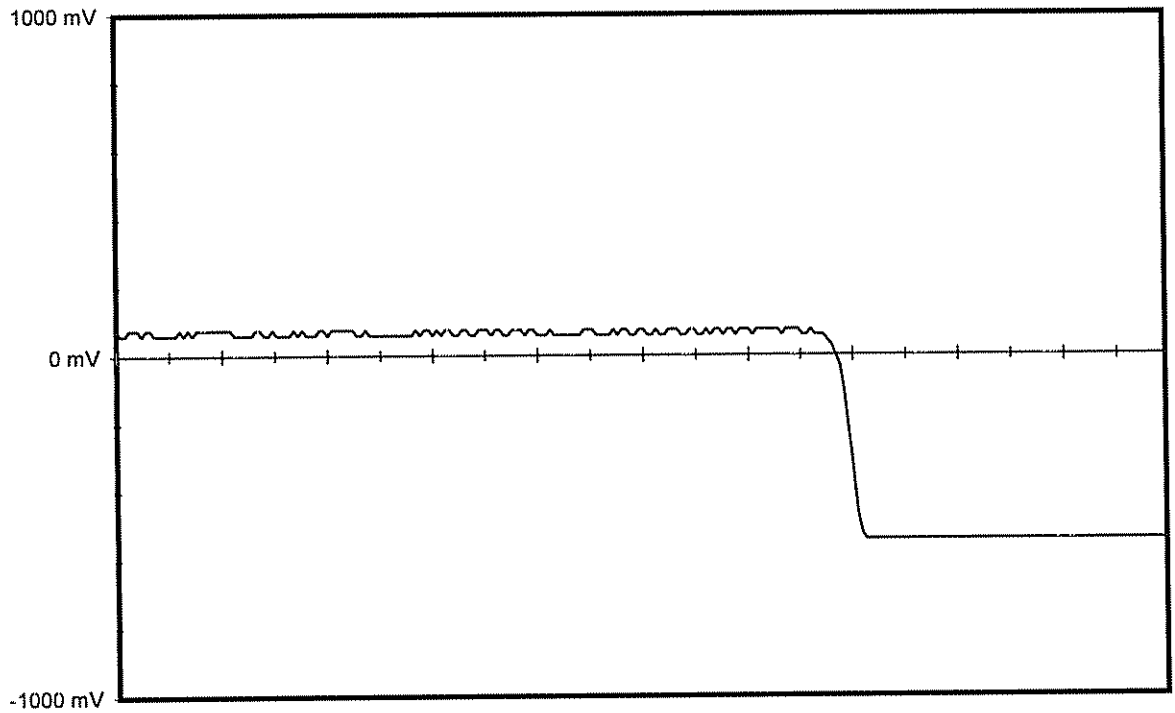
0 ms 10 ms 20 ms
Vmarker1 850 mv ==> 1,2 rd
Vmarker2 700 mv ==> 1 rd
2 ms/div.



8 ms 10,5 ms 13 ms
Duty Cycle : 4,008E-06
falltime(1)<= 169,661 us
+width(1) 1,2475 ms
0,5 ms/div.
risetime(1)<= 169,66 us
-widht(1) 1,24751 ms



-1 ms 1,5 ms 4 ms
risetime(1)<= 479,042 us 0,5 ms/div.



-3,5 ms -1 ms 1,5 ms
falltime(1)<= 109,78 us 0,5 ms/div.

Certification Test at 55°C Date of test : 14 Dec 2005

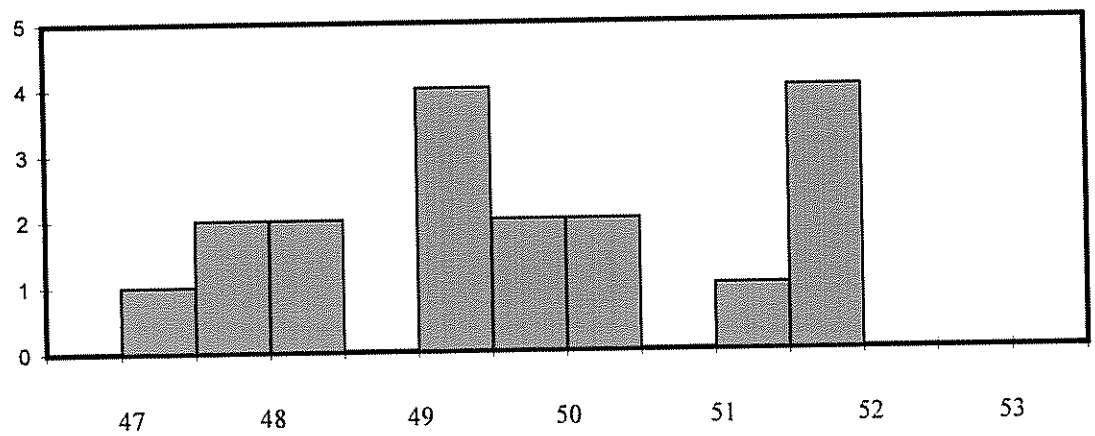
Manufacturer : MARTEC
Beacon Type : KANNAD MANUAL+ GPS
Number : 54143 UUT3

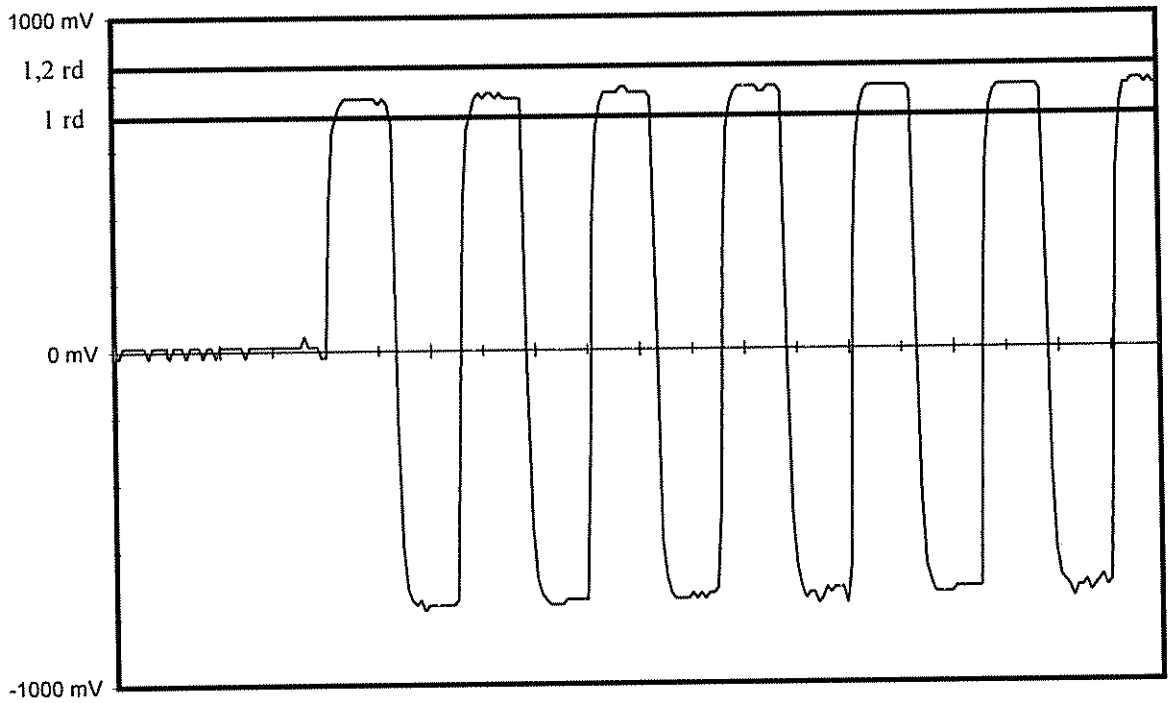
Message

Message received		FFFE2F8E3F34DFCAE20171F6D1B70F300DE2	
Format Flag	25	1	
Protocol flag	26	0	
Ident./Position code	27-85	0	
Country Code/Country	27-36	227 / FRANCE	
Protocol Code : U/Std-Nat	37-39/37-40	1111	
Protocol Code Used	37-39/37-40	Test-National Location	
Identification Data	40-85/41-64/41-58		
Identification Used		54143	
Calculated BCH1	25-85	07DB46	
Encoded BCH1	86-106	07DB46	
Homing	112	1	
Em.cod/nat.use/supp.data	107-112	110111	
Encod pos data	111	1	Internal
Fixed Data "110"	107-109	110	OK
Calculated BCH2	107-132	DE2	
Encoded BCH2	133-144	DE2	
Latitude position		Nord 43° 33' 32"	
Longitude position		Est 1° 28' 48"	
Delta position		0,148 km	

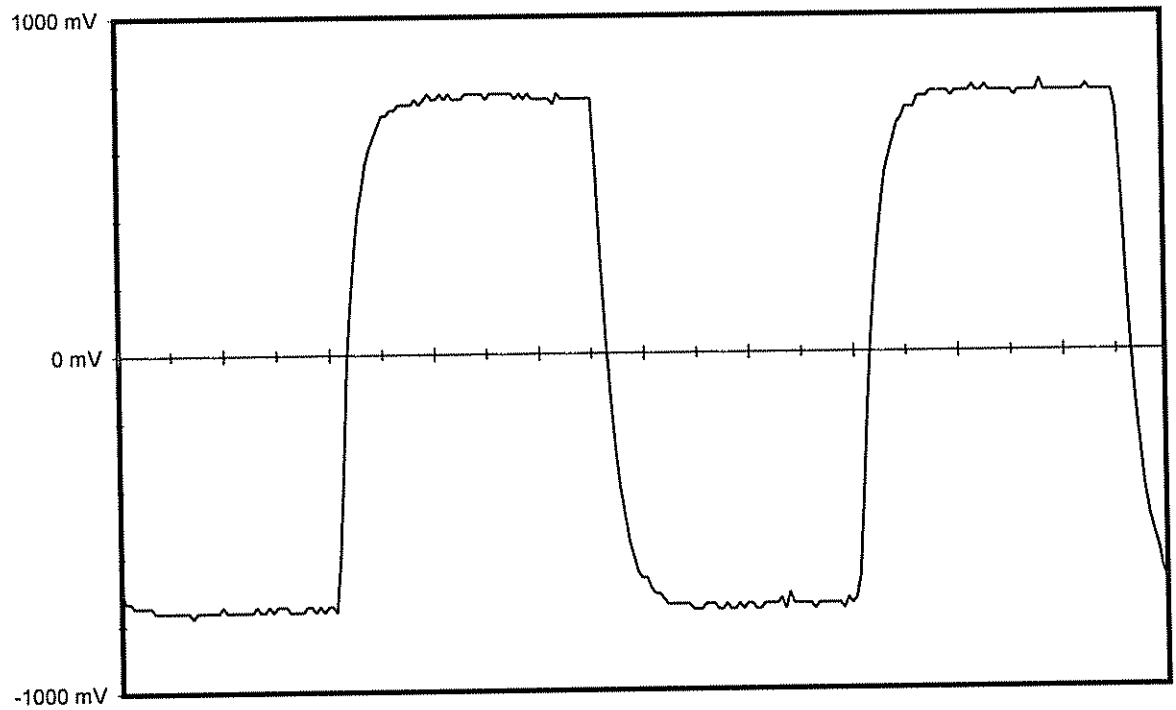
Electrical and other parameters

CW preamble	ms 158,4 <	< 161,6	160,39
Total transmission time	ms 514,8 <	<525,2	519,75
Modulation frequency	Hz 396<	< 404	401,15
Phase deviation : total	rd	<=2,40	2,22
Phase deviation : positive	rd 1,00 <	< 1,20	1,12
Phase deviation : negative	rd -1,20 <	< -1,00	-1,10
Symmetry measurement	%	<=5 %	0,40
Nominal frequency : F2	Hz		406028038,97
Short term2			7,52E-11
Short term3			8,65E-11
Slope			6,00E-11
Residual			3,47E-10
406 MHz power output	dBm		37,1
Homing frequency	MHz		121,50
121,5 MHz power output	dBm		18,9
Soak temperature	°C		40,3
Extra feature			No

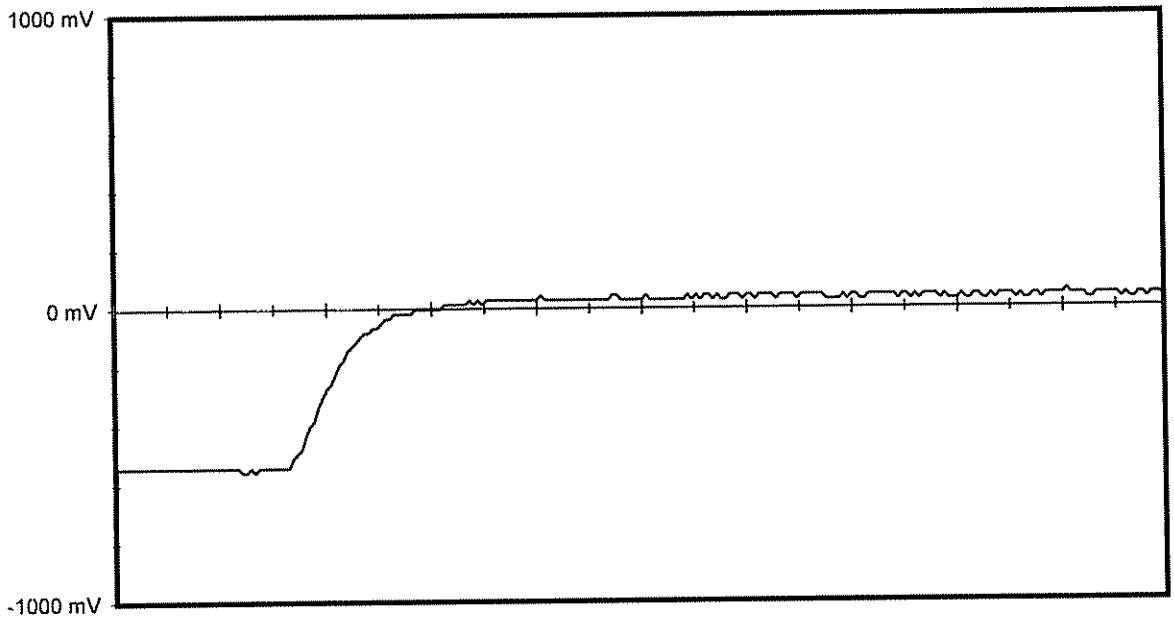




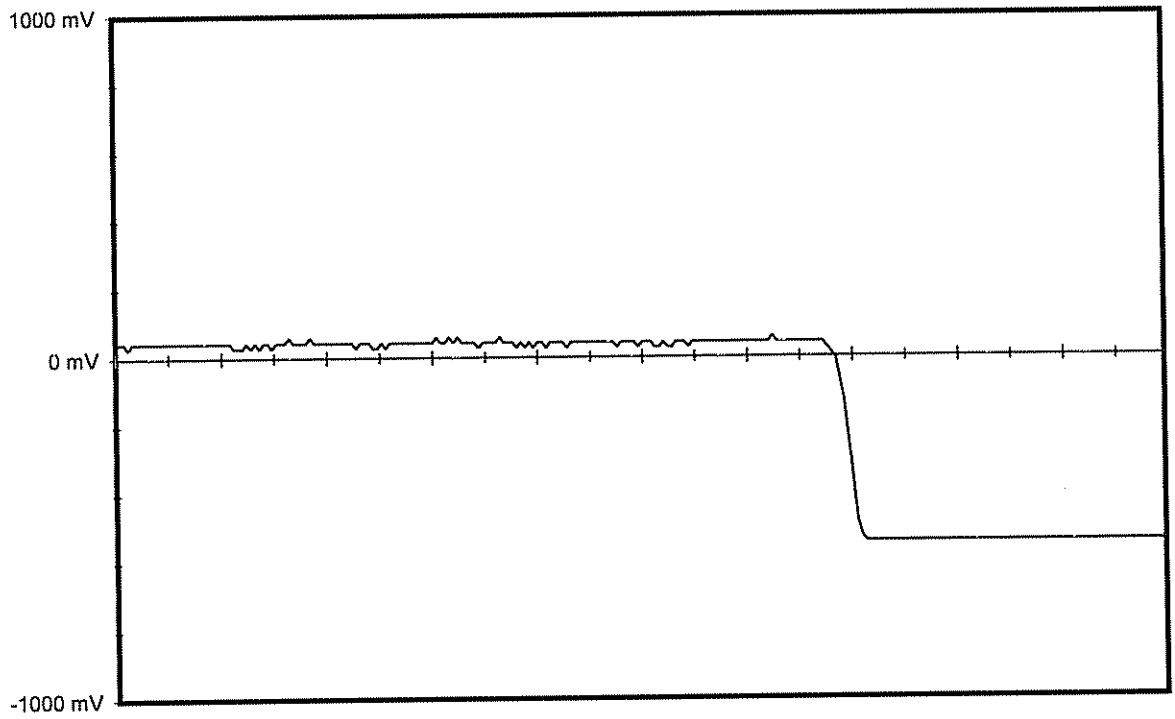
0 ms 10 ms 20 ms
Vmarker1 850 mv ==> 1,2 rd
Vmarker2 700 mv ==> 1 rd
2 ms/div.



8 ms 10,5 ms 13 ms
Duty Cycle : 0,004020072
falltime(1)<= 169,661 us
+width(1) 1,23752 ms
0,5 ms/div.
risetime(1)<= 159,68 us
-widht(1) 1,24751 ms



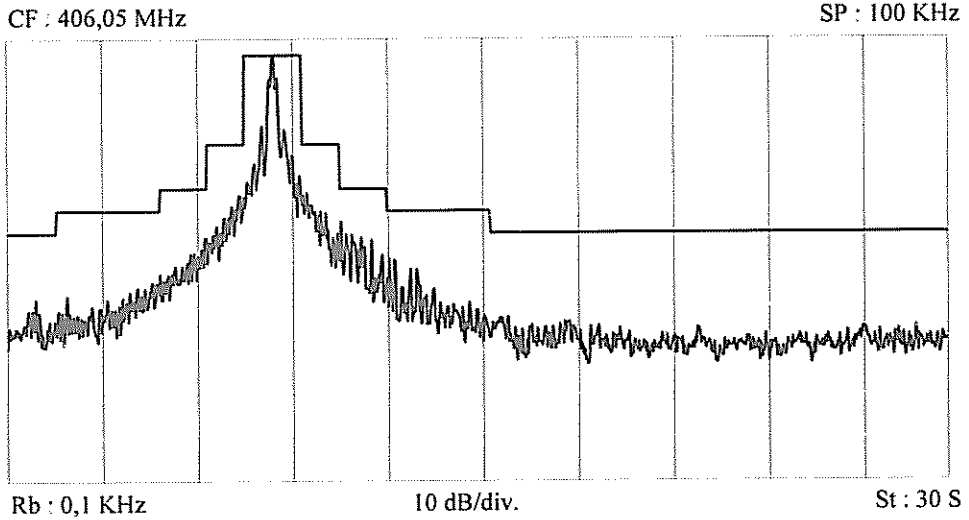
-1 ms 1,5 ms 4 ms
risetime(1)<= 548,902 us 0,5 ms/div.

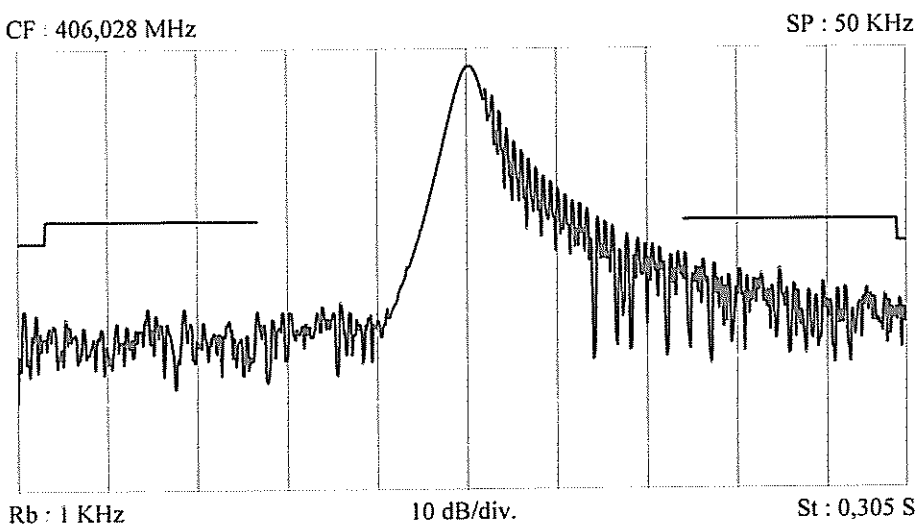


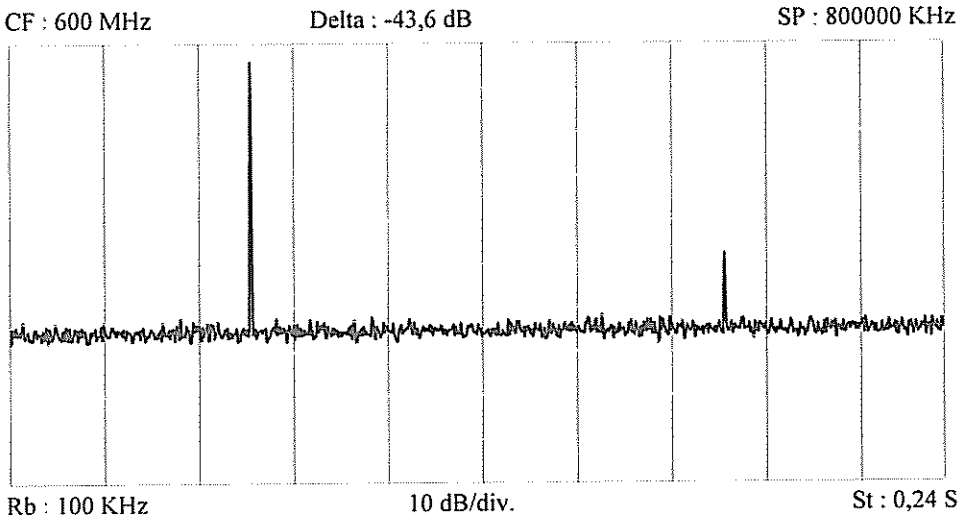
-3,5 ms -1 ms 1,5 ms
falltime(1)<= 109,78 us 0,5 ms/div.

SPURIOUS EMISSIONS RESULTS
MARTEC
KANNAD MANUAL+ GPS
N° 54143 (UUT3)
at -20° C, 22° C and 55° C

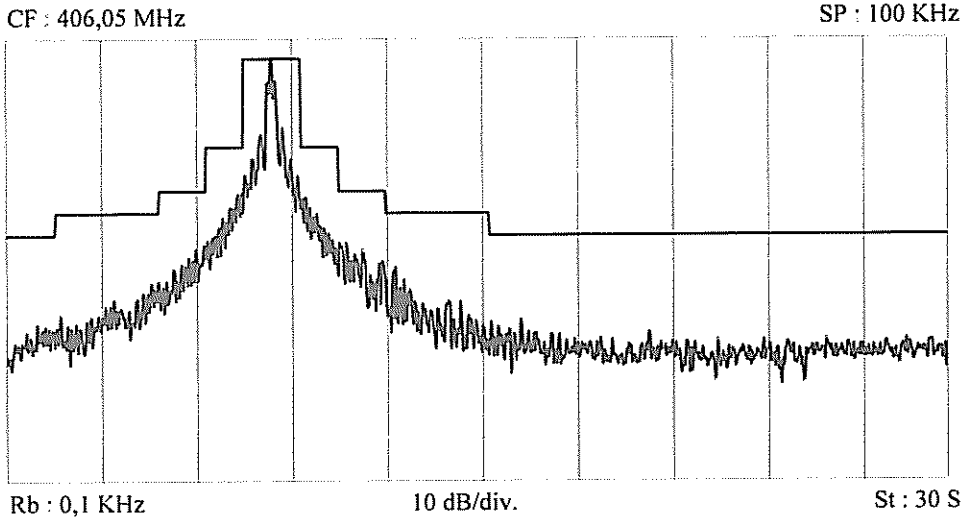
MARTEC
KANNAD MANUAL+ GPS
54143 (UUT3)
Certification nominale
406 MHz
-20 °C

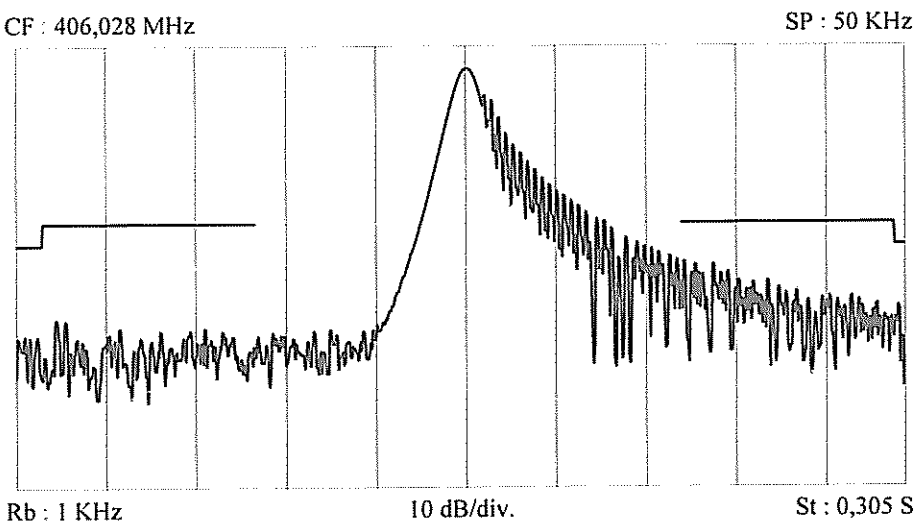


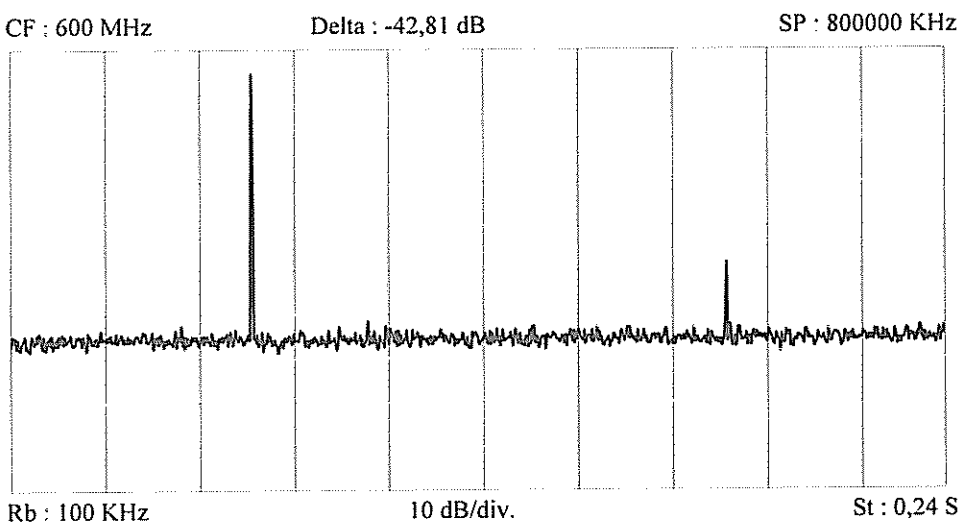




MARTEC
KANNAD MANUAL+ GPS
54143 (UUT3)
Certification nominale
406 MHz
22 °C

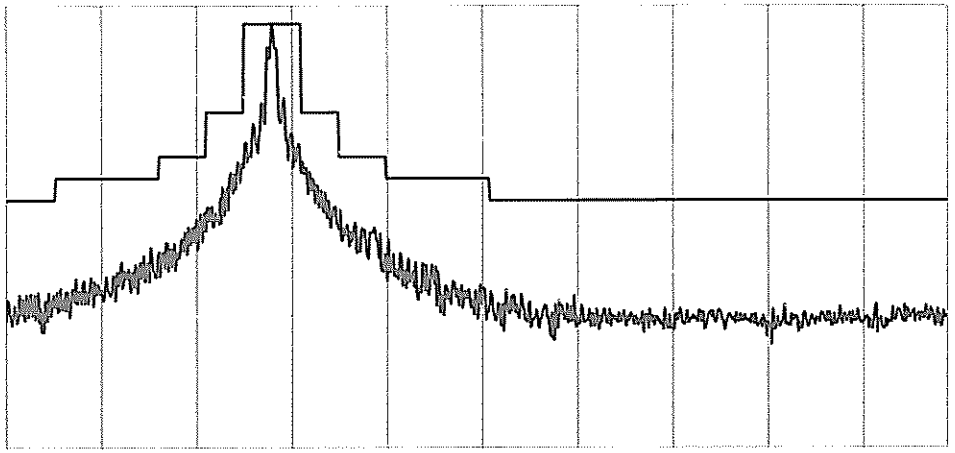






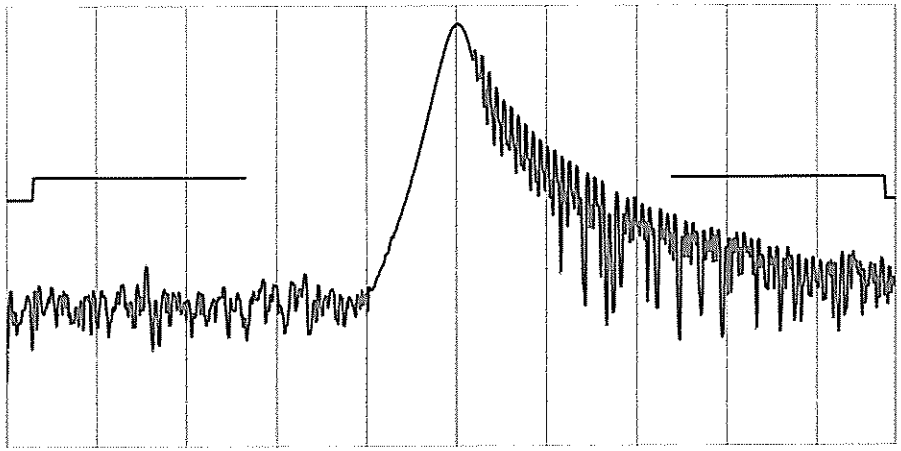
MARTEC
KANNAD MANUAL+ GPS
54143 (UUT3)
Certification nominale
406 MHz
55 °C

CF : 406,05 MHz SP : 100 KHz



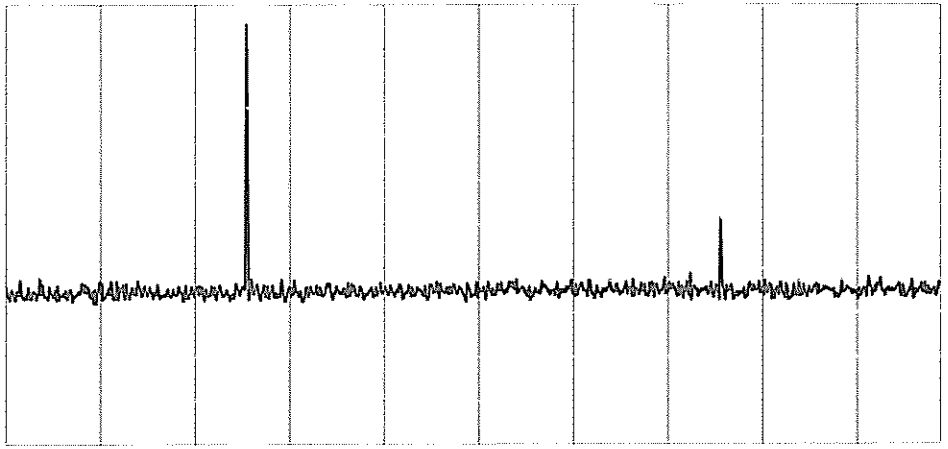
Rb : 0,1 KHz 10 dB/div. St : 30 S

CF : 406,028 MHz SP : 50 KHz



Rb : 1 KHz 10 dB/div. St : 0,305 S

CF : 600 MHz Delta : -44,14 dB SP : 800000 KHz



Rb : 100 KHz 10 dB/div. St : 0,24 S

406 MHz VSWR 3:1 TEST RESULTS ON
MARTEC
KANNAD MANUAL+ GPS
N° 54143 (UUT3)
at -20° C, 22° C and 55° C

Certification Test VSWR at -20°C Date of test : 04-janv-06

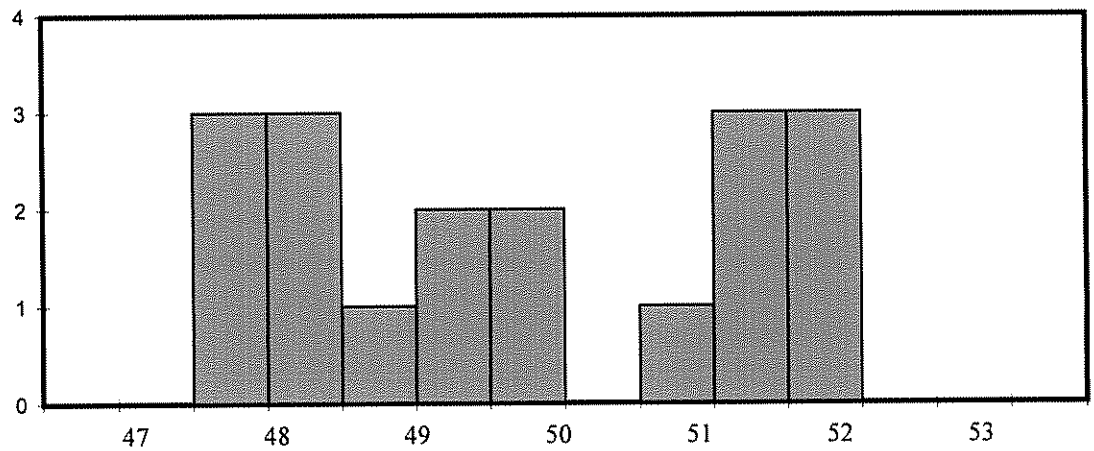
Manufacturer : MARTEC
Beacon Type : KANNAD MANUAL+ GPS
Number : 54143 UUT3

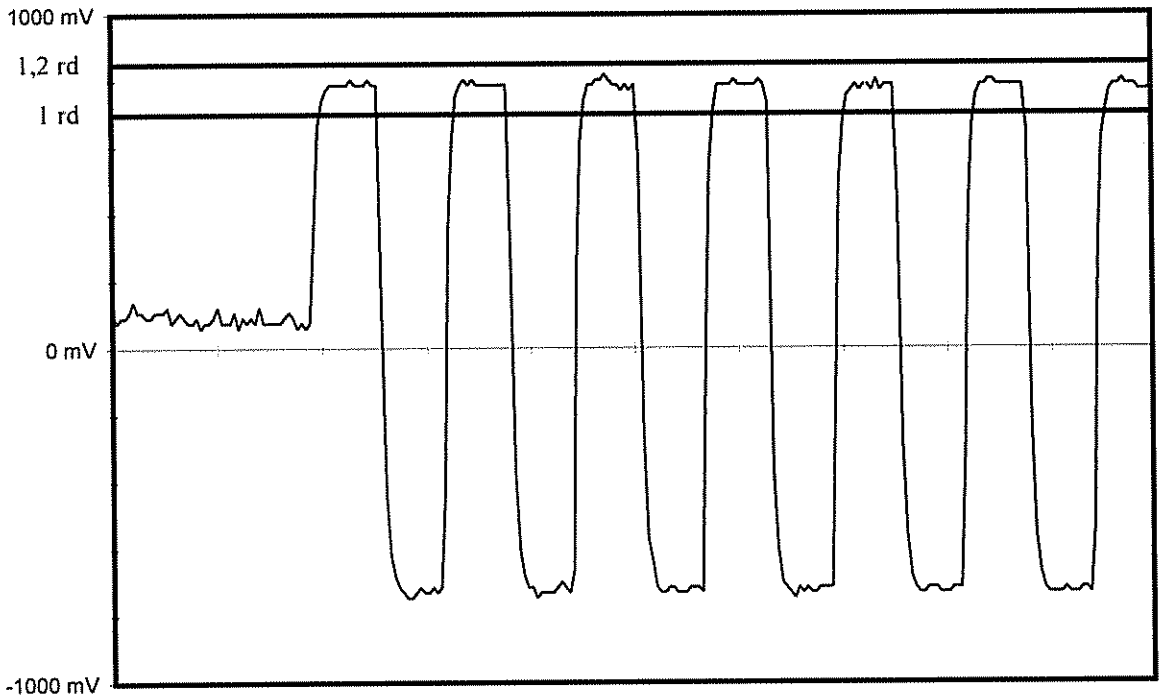
Message

Message received		FFFE2F8E3F34DFCAE20171F6D1B70F2800DF	
Format Flag	25	1	
Protocol flag	26	0	
Ident./Position code	27-85	0	
Country Code/Country	27-36	227 / FRANCE	
Protocol Code : U/Std-Nat	37-39/37-40	1111	
Protocol Code Used	37-39/37-40	Test-National Location	
Identification Data	40-85/41-64/41-58		
Identification Used		54143	
Calculated BCH1	25-85	07DB46	
Encoded BCH1	86-106	07DB46	
Homing	112	1	
Em.cod/nat.use/supp.data	107-112	110111	
Encod pos data	111	1	Internal
Fixed Data "110"	107-109	110	OK
Calculated BCH2	107-132	0DF	
Encoded BCH2	147-144	0DF	
Latitude position		Nord 43° 33' 32"	
Longitude position		Est 1° 28' 40"	
Delta position		0,076 km	

Electrical and other parameters

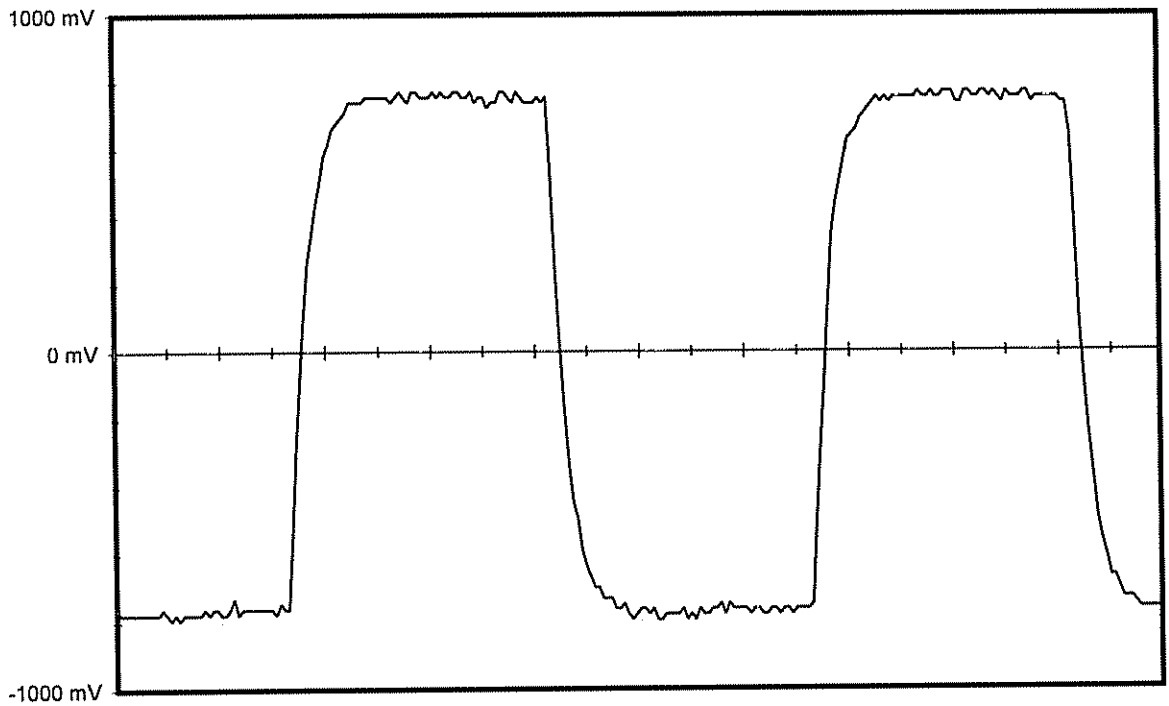
Rise time Modulation	ms			0,1796
Fall time Modulation	ms			0,1697
Phase deviation :positive	rd	1,00 <	< 1,20	1,13
Phase deviation : negative	rd	-1,20 <	< -1,00	-1,09
Symmetry measurement	%		<=5 %	0,80
Nominal frequency : F2	Hz			406028056,23





Vmarker1 850 mv ==> 1,2 rd
Vmarker2 700 mv ==> 1 rd

2 ms/div.



Duty Cycle : 0,008003976
falltime(1)<= 169,661 us
+width(1) 1,23752 ms

0,5 ms/div.
risetime(1)<= 179,641 us
-widht(1) 1,25749 ms

Certification Test VSWR at 22°C Date of test : 05 janv 2006

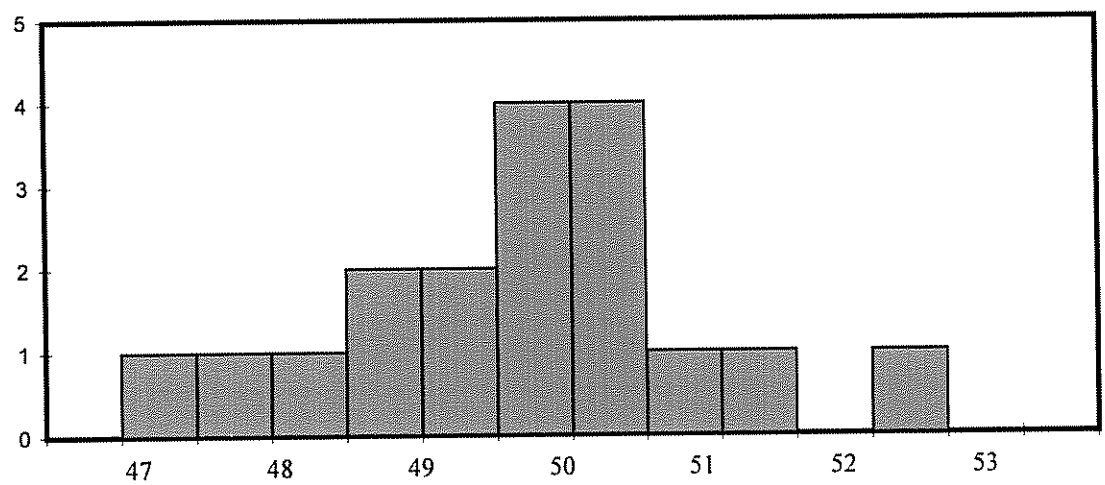
Manufacturer : MARTEC
Beacon Type : KANNAD MANUAL+ GPS
Number : 54143 UUT3

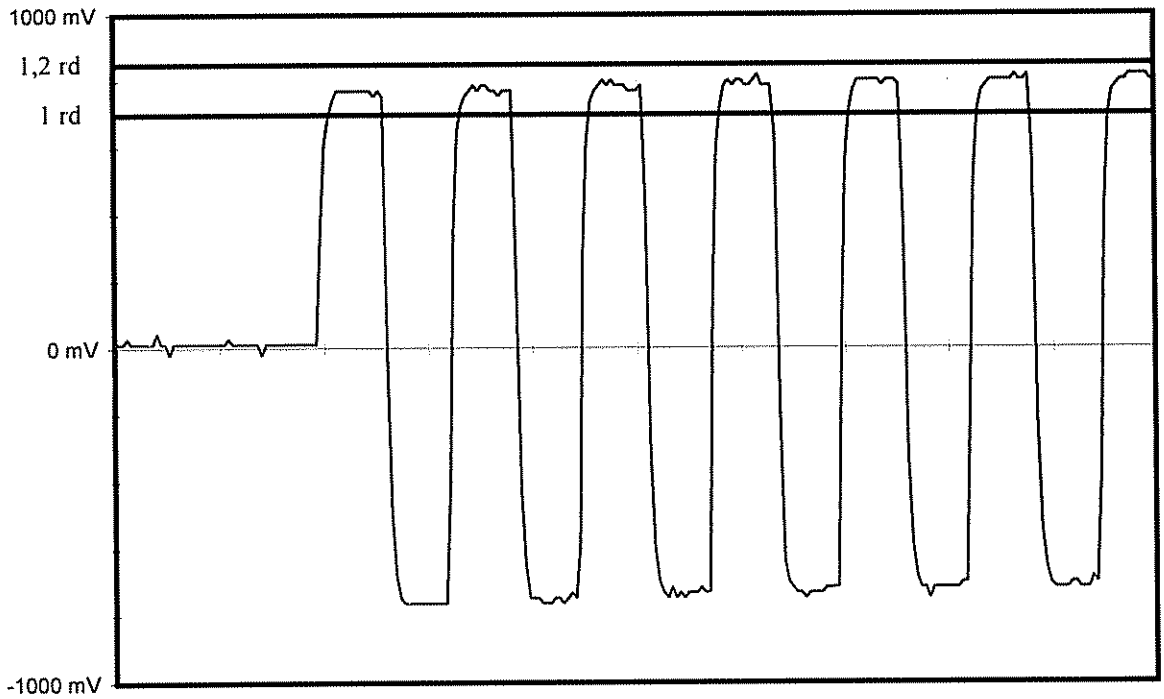
Message

Message received		FFFE2F8E3F34DFDFC0FF06BBCBB79F3C0010	
Format Flag	25	1	
Protocol flag	26	0	
Ident./Position code	27-85	0	
Country Code/Country	27-36	227 / FRANCE	
Protocol Code : U/Std-Nat	37-39/37-40	1111	
Protocol Code Used	37-39/37-40	Test-National Location	
Identification Data	40-85/41-64/41-5	54143	
Identification Used			
Calculated BCH1	25-85	1AEF2E	
Encoded BCH1	86-106	1AEF2E	
Homing	112	1	
Em.cod/nat.use/supp.data	107-112	110111	
Encod pos data	111	1	Internal
Fixed Data "110"	107-109	110	OK
Calculated BCH2	107-132	010	
Encoded BCH2	147-144	010	
Latitude position		Nord 127° 0' 60"	
Longitude position		Est 255° 0' 60"	
Delta position		Default Pos	

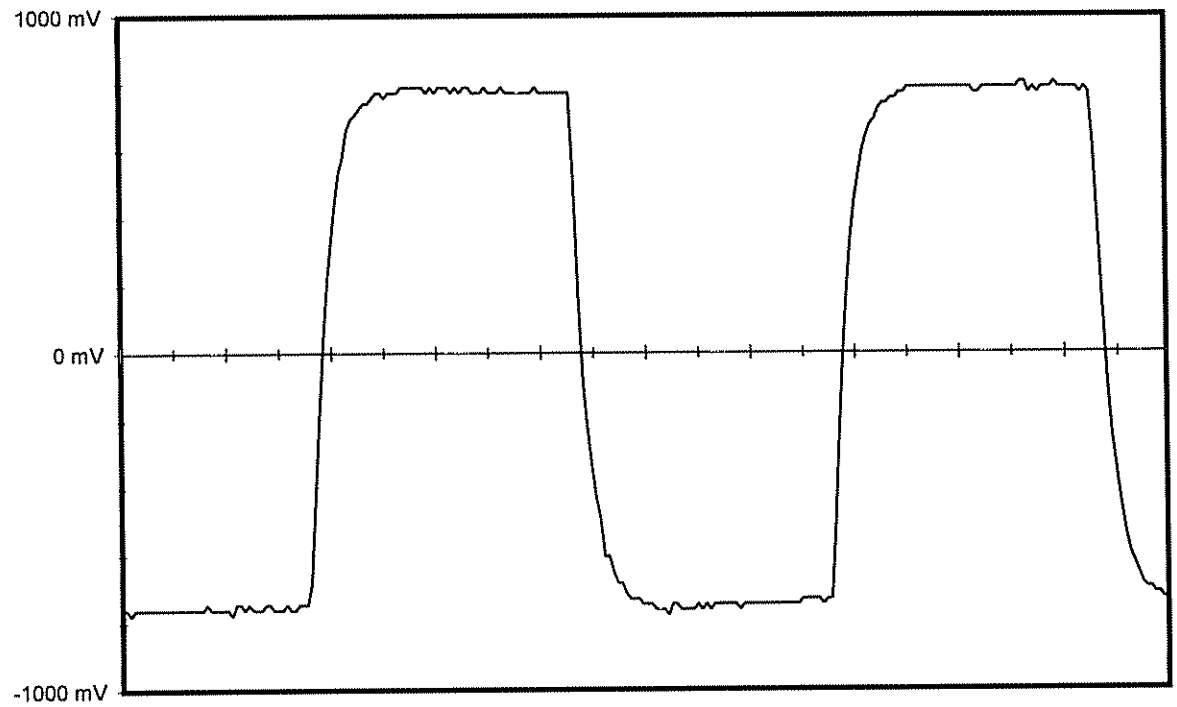
Electrical and other parameters

Rise time Modulation	ms			0,1697
Fall time Modulation	ms			0,1497
Phase deviation :positive	rd	1,00 <	< 1,20	1,12
Phase deviation : negative	rd	-1,20 <	< -1,00	-1,11
Symmetry measurement	%		<=5 %	0,40
Nominal frequency : F2	Hz			406028037,86





Vmarker1 850 mv ==> 1,2 rd 2 ms/div.
Vmarker2 700 mv ==> 1 rd



Duty Cycle : 0,004020072 0,5 ms/div.
falltime(1)<= 149,701 us risetime(1)<= 169,661 us
+width(1) 1,23752 ms -widht(1) 1,24751 ms

Certification Test VSWR at 55°C Date of test : 05 janv 2006

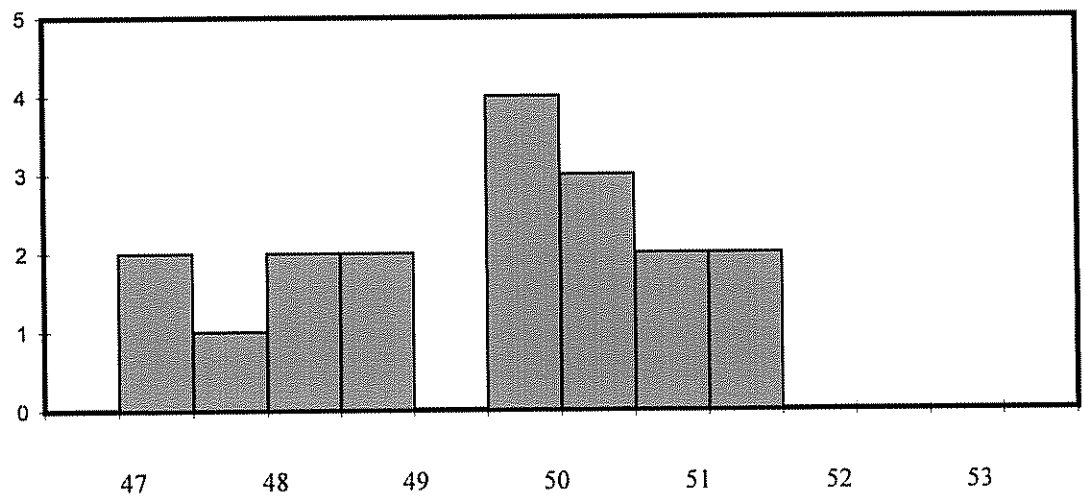
Manufacturer : MARTEC
Beacon Type : KANNAD MANUAL+ GPS
Number : 54143 UUT3

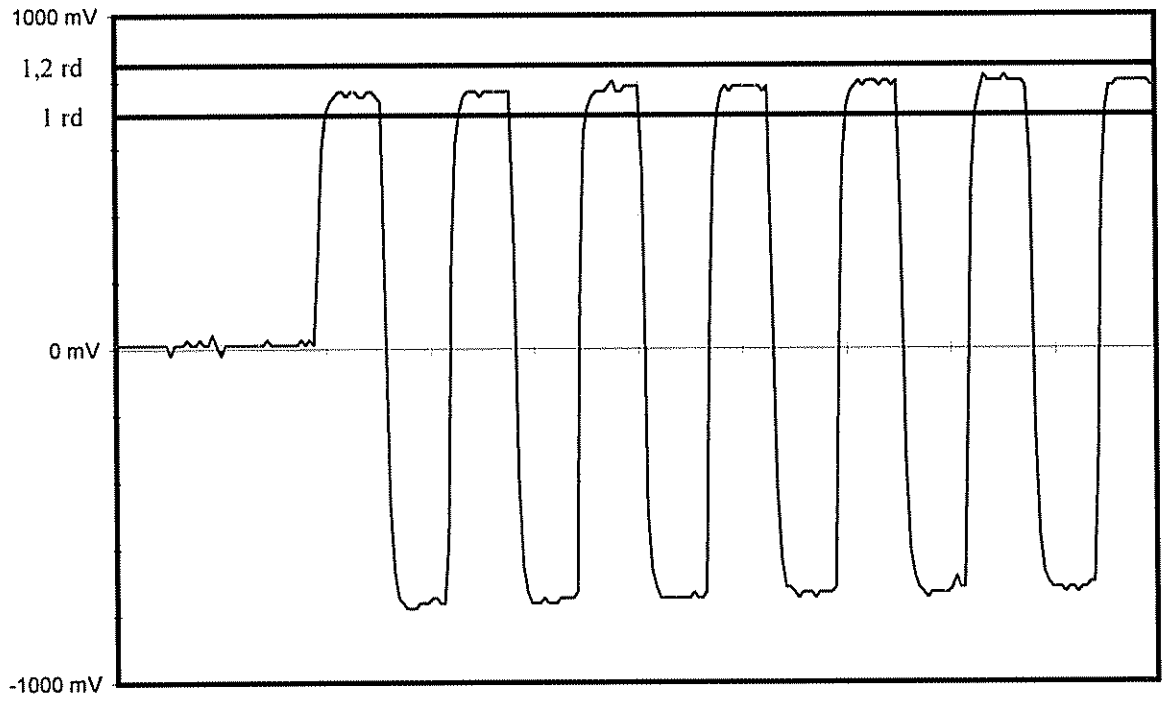
Message

Message received		FFFE2F8E3F34DFCAE20171F6D1B70F2800DF	
Format Flag	25	1	
Protocol flag	26	0	
Ident./Position code	27-85	0	
Country Code/Country	27-36	227 / FRANCE	
Protocol Code : U/Std-Nat	37-39/37-40	1111	
Protocol Code Used	37-39/37-40	Test-National Location	
Identification Data	40-85/41-64/41-58		
Identification Used		54143	
Calculated BCH1	25-85	07DB46	
Encoded BCH1	86-106	07DB46	
Homing	112	1	
Em.cod/nat.use/supp.data	107-112	110111	
Encod pos data	111	1	Internal
Fixed Data "110"	107-109	110	OK
Calculated BCH2	107-132	0DF	
Encoded BCH2	147-144	0DF	
Latitude position		Nord 43° 33' 32"	
Longitude position		Est 1° 28' 40"	
Delta position		0,076 km	

Electrical and other parameters

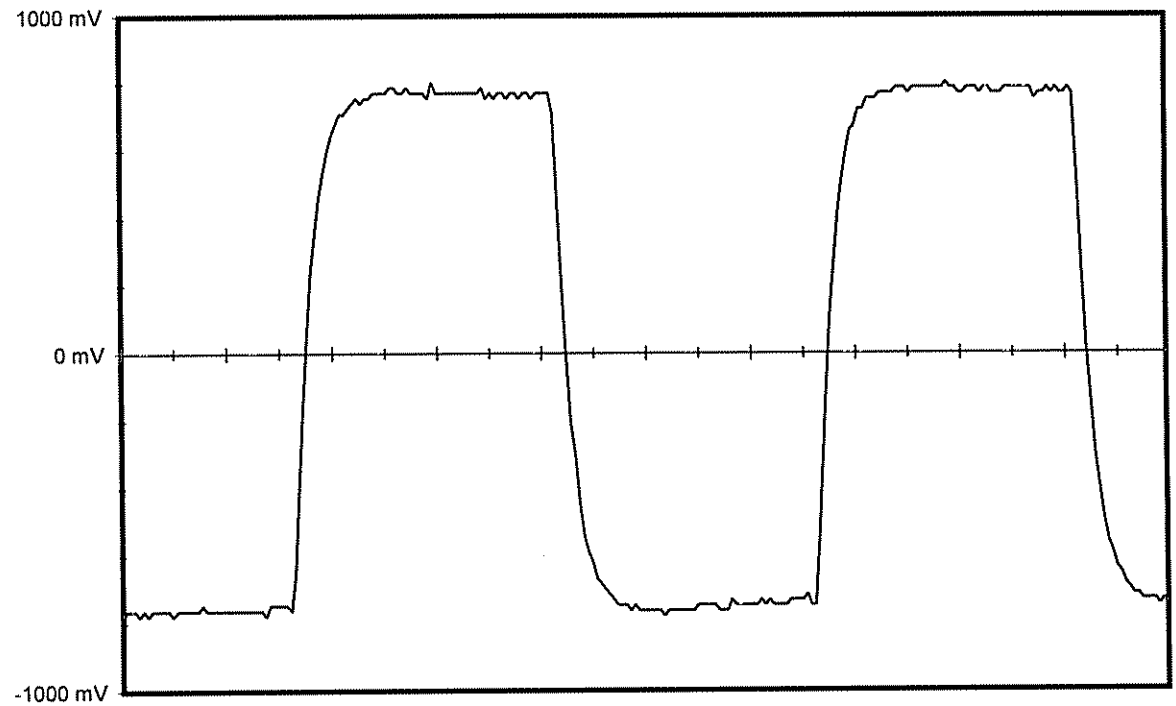
Rise time Modulation	ms			0,1697
Fall time Modulation	ms			0,1796
Phase deviation :positive	rd	1,00 <	< 1,20	1,11
Phase deviation : negative	rd	-1,20 <	< -1,00	-1,11
Symmetry measurement	%		<=5 %	0,40
Nominal frequency : F2	Hz			406028059,51





Vmarker1 850 mv ==> 1,2 rd
Vmarker2 700 mv ==> 1 rd

2 ms/div.



Duty Cycle : 0,004020072
falltime(1)<= 179,641 us
+width(1) 1,23752 ms

0,5 ms/div.
risetime(1)<= 169,661 us
-widht(1) 1,24751 ms

SELF-TEST MODE CONTROL ON
MARTEC
KANNAD MANUAL+ GPS
N° 54143 (UUT3)
at 22° C

Message at 22°C

Manufacturer	MARTEC
Beacon model	KANNAD MANUAL+ GPS
Serial number	54143 UUT3
Date of test	05-janv-06
Temperature	20,5
Message received	FFFED08E3F34DFDFC0FF06BBCBB79F3C0010
15 Hex ID	1C7E69BFBF81FE0
Frame synchro. pattern	011010000

Total transmission time	ms	514.8<	<525.2	519,19

One Self-Test burst at 11 seconds

THERMAL SHOCK TEST RESULT ON
MARTEC
KANNAD MANUAL+ GPS
N° 54143 (UUT3)
22°C to -10°C

Temperature Soak : 22°C
Temperature Measure : -10°C

Warm Up burst	Δ Frequency (Hz)	Temp. (°C)	P406 (dBm)	P121.5 (dBm)
1	50039,76	25,2	37,4	19,1
2	50041,18	-8,1	37,4	19,2
3	50042,82	-10,3	37,4	19,3
4	50044,62	-10,2	37,4	19,3
5	50046,45	-10,1	37,5	19,3
6	50048,33	-10,1	37,5	19,3
7	50049,86	-10,2	37,5	19,3
8	50051,28	-10,1	37,5	19,3
9	50052,38	-10,1	37,5	19,3
10	50053,08	-10,2	37,5	19,3
11	50054,03	-10,2	37,5	19,3
12	50054,62	-10,2	37,6	19,3
13	50055,08	-10,2	37,6	19,3
14	50055,46	-10,2	37,6	19,3
15	50055,49	-10,2	37,6	19,3
16	50055,63	-10,2	37,6	19,3
17	50055,85	-10,2	37,6	19,2
18	50055,85	-10,3	37,6	19,3

Time (min)	Temp.	Slope	Sigma	P406	Short term	P121.5
0	-10,2	2,5E-9	4,3E-9	37,5	9,8E-11	19,4
15	-10,3	-4,2E-11	5,0E-10	37,6	1,2E-10	19,4
30	-10,3	-7,4E-11	1,3E-10	37,6	9,6E-11	19,3
60	-10,4	1,0E-11	6,2E-10	37,6	1,0E-10	19,3
90	-10,4	6,7E-11	6,6E-10	37,5	5,8E-11	19,2
120	-10,4	-2,0E-11	1,1E-10	37,4	7,7E-11	19,2

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

FFFE2F8E3F34DFCAE20171F6D1B70F2800DF

FFFE2F8E3F34DFCAE20171F6D1B70D280220

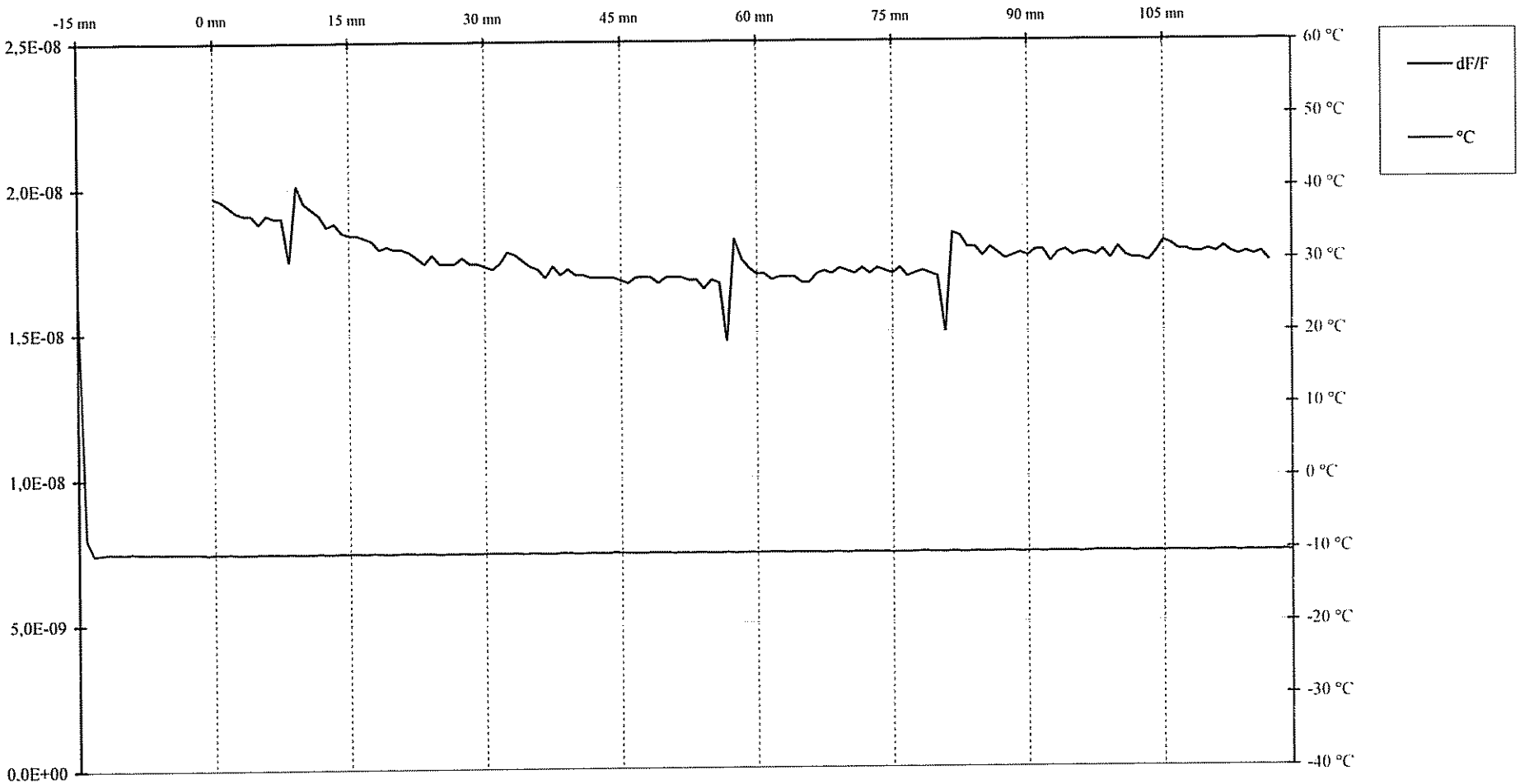
FFFE2F8E3F34DFCAE20171F6D1B70F2C0836

THERMAL SHOCK TEST / 30 °C change (22 °C to -10 ° C)

Manufacturer : MARTEC
Model : KANNAD MANUAL+ GPS
Number : 54143 (UUT3)

Date : 4 Jan 2006
Time : 15:30:19

FREQUENCY VARIATION

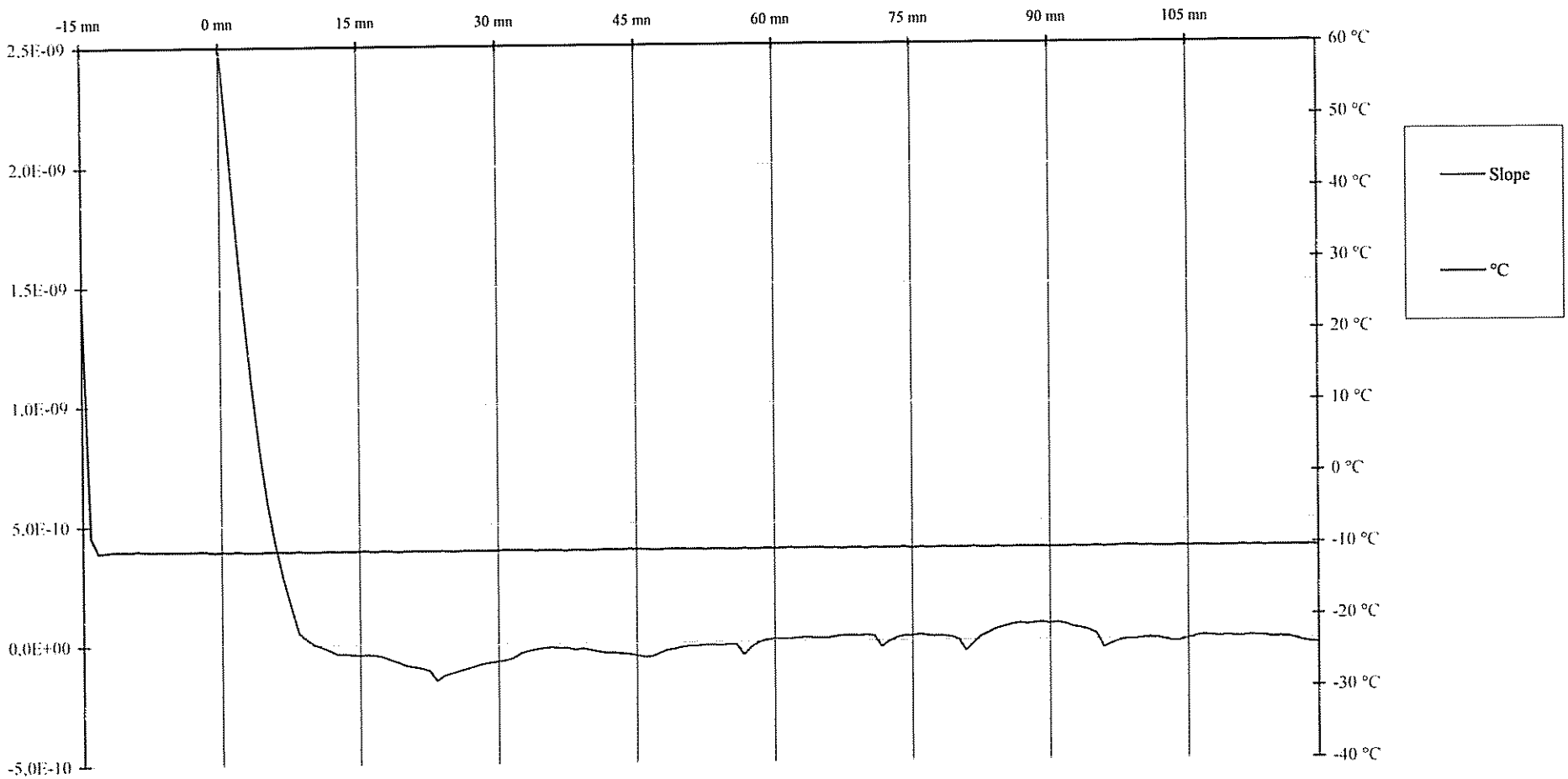


THERMAL SHOCK TEST / 30 °C change (22 °C to -10 ° C)

Manufacturer : MARTEC
Model : KANNAD MANUAL+ GPS
Number : 54143 (UUT3)

Date : 4 Jan 2006
Time : 15:30:19

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

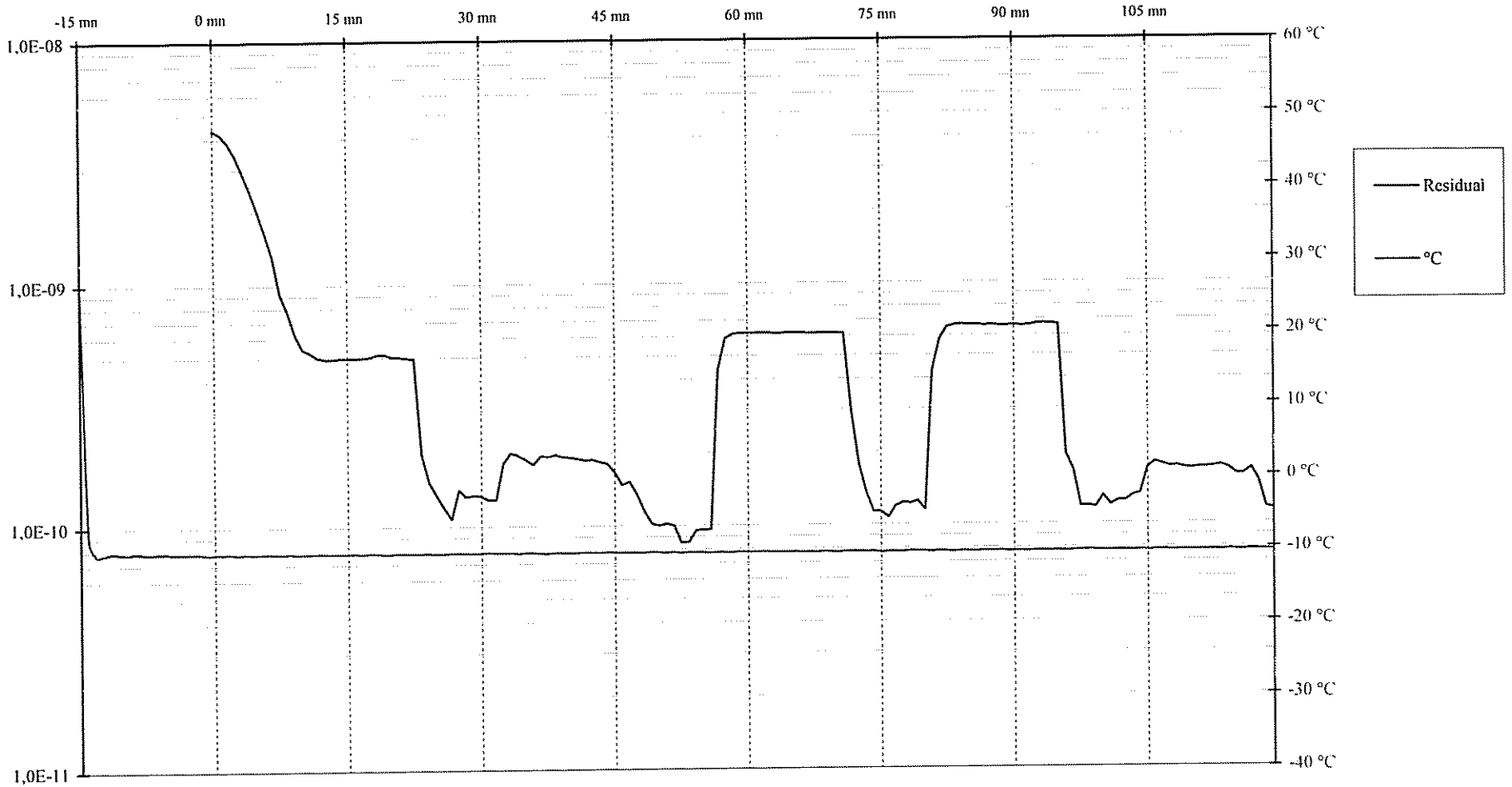


THERMAL SHOCK TEST / 30 °C change (22 °C to -10 ° C)

Manufacturer : MARTEC
Model : KANNAD MANUAL+ GPS
Number : 54143 (UUT3)

Date : 4 Jan 2006
Time : 15:30:19

MEDIUM TERM STABILITY : RESIDUAL (≤ 3,0E-9)

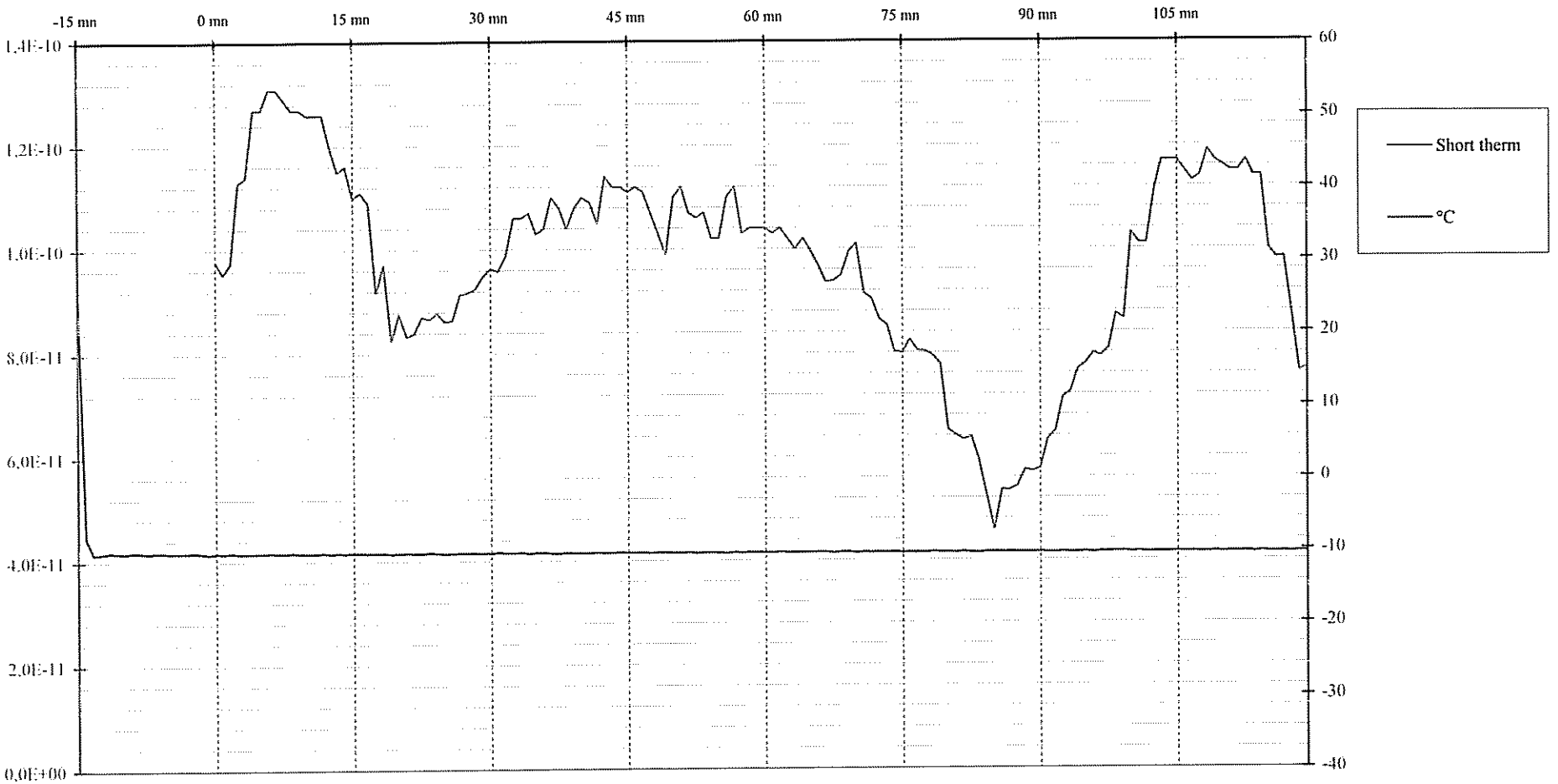


THERMAL SHOCK TEST / 30 °C change (22 °C to -10 ° C)

Manufacturer : MARTEC
Model : KANNAD MANUAL+ GPS
Number : 54143 (UUT3)

Date : 4 Jan 2006
Time : 15:30:19

SHORT TERM STABILITY /100 mS (≤ 2,0E-9)

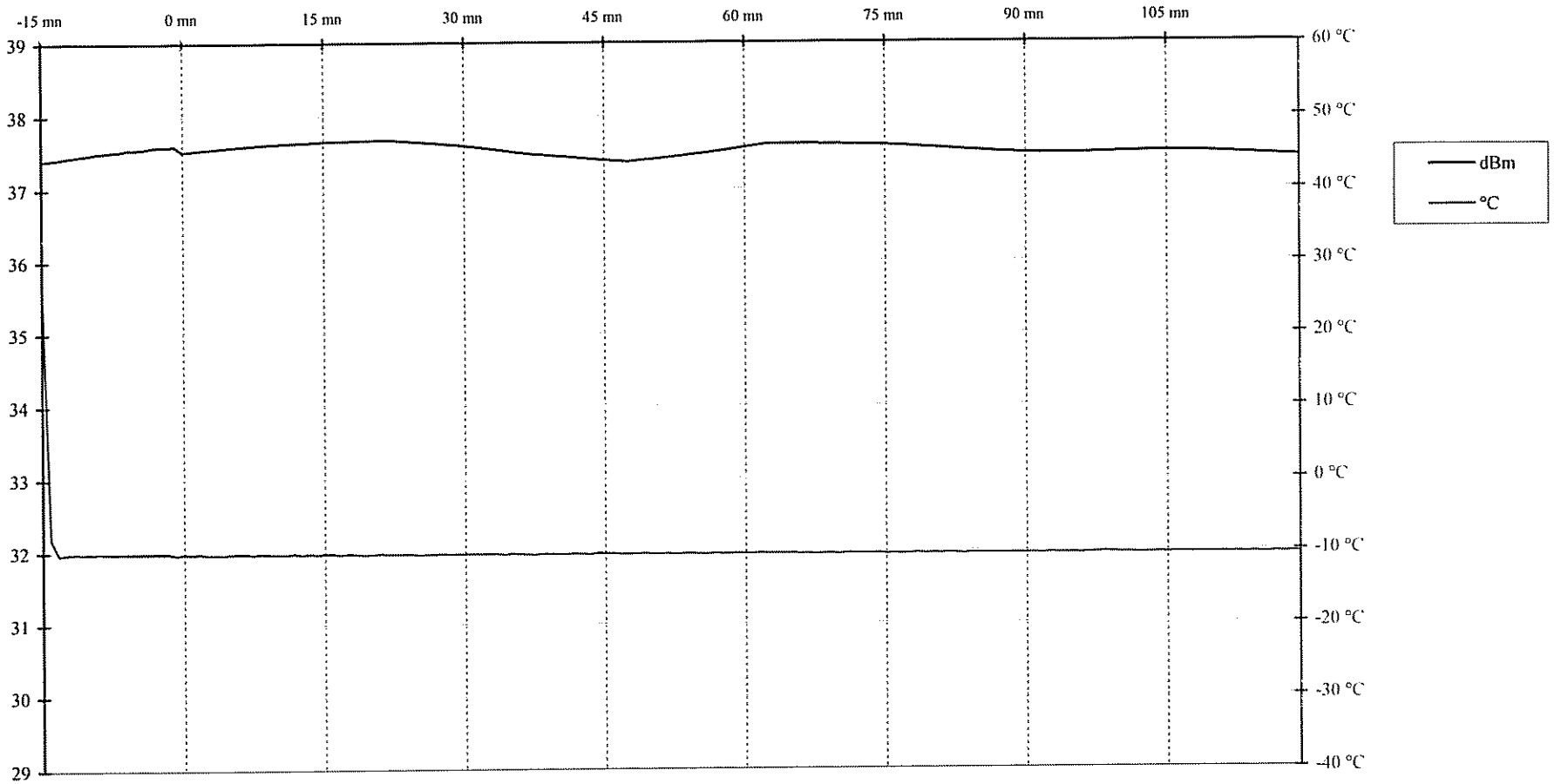


THERMAL SHOCK TEST / 30 °C change (22 °C to -10 ° C)

Manufacturer : MARTEC
Model : KANNAD MANUAL+ GPS
Number : 54143 (UUT3)

Date : 4 Jan 2006
Time : 15:30:19

OUTPUT POWER (35 to 39 dBm)



OPERATING LIFE TEST RESULTS ON
MARTEC
KANNAD MANUAL+ GPS
N° 54143 (UUT3)
-20 °C

Note : Prior to the Operating Life Test and following manufacturer "Batteries Discharge Calculation " (Annex A) the battery pack capacity has been reduced by test laboratory during **22,42 hours**

The operating lifetime obtained is 76 hours

Warm Up	Δ Frequency (Hz)	Temp. (°C)	P406 (dBm)	P121.5 (dBm)
1	49819,59	-20,5	36,9	0,0
2	49817,99	-20,5	36,9	0,0
3	49815,92	-20,5	36,9	18,6
4	49813,99	-20,5	36,9	18,7
5	49811,44	-20,6	36,9	18,7
6	49808,36	-20,5	36,9	18,7
7	49805,21	-20,6	36,9	18,7
8	49802,09	-20,5	36,9	18,7
9	49800,00	-20,6	36,9	18,7
10	49799,01	-20,6	36,9	18,7
11	49798,29	-20,5	36,9	18,7
12	49797,68	-20,5	36,9	18,7
13	49797,34	-20,6	36,9	18,7
14	49796,93	-20,6	36,8	18,7
15	49796,77	-20,6	36,9	18,7
16	49796,82	-20,5	36,8	18,7
17	49796,88	-20,6	36,8	18,6
18	49796,90	-20,6	36,8	18,6

No	Temp.	Slope	Sigma	P406	Short term	P121.5
1	-20,6	-3,7E-9	7,8E-09	36,9	1,1E-10	17,9
18	-20,5	1,7E-10	2,1E-10	36,8	1,5E-10	17,9
31	-20,6	1,2E-10	1,2E-10	36,8	1,5E-10	18,1
61	-20,6	5,4E-11	1,4E-10	36,7	1,3E-10	17,8
91	-20,6	4,3E-11	2,0E-10	36,8	1,2E-10	18,0
121	-20,6	1,4E-11	2,0E-10	36,8	1,8E-10	18,0
151	-20,6	3,8E-11	1,2E-10	36,8	1,2E-10	17,8
181	-20,6	1,7E-11	1,7E-10	36,8	1,2E-10	17,7
211	-20,6	5,6E-12	1,6E-10	36,8	1,4E-10	17,7
241	-20,6	1,7E-11	1,6E-10	36,8	1,9E-10	17,8
271	-20,7	4,3E-12	3,1E-10	36,8	1,5E-10	17,7
301	-20,7	2,1E-12	3,5E-10	36,8	1,7E-10	17,9
331	-20,6	-5,7E-12	1,5E-10	36,8	8,9E-11	17,6
361	-20,7	6,4E-11	4,5E-10	36,8	1,1E-10	17,8
391	-20,7	7,5E-13	1,6E-10	36,8	8,8E-11	17,8
421	-20,7	1,2E-11	1,9E-10	36,8	1,2E-10	17,8
451	-20,7	3,7E-11	3,5E-10	36,8	1,1E-10	17,8
481	-20,7	2,2E-11	2,9E-10	36,8	1,3E-10	17,8
511	-20,7	-2,5E-11	1,0E-10	36,6	1,5E-10	17,8
541	-20,7	4,8E-12	2,1E-10	36,6	1,7E-10	17,8
571	-20,7	1,2E-11	1,8E-10	36,6	1,1E-10	17,9
601	-20,7	4,9E-12	1,7E-10	36,6	1,2E-10	17,9
631	-20,7	1,7E-11	1,7E-10	36,6	1,3E-10	17,9
661	-20,8	-5,8E-12	1,7E-10	36,6	1,1E-10	17,8
691	-20,7	1,5E-11	1,2E-10	36,6	7,8E-11	17,8
721	-20,7	2,4E-11	1,5E-10	36,6	1,3E-10	17,8
751	-20,7	2,0E-11	1,9E-10	36,6	1,8E-10	17,7
781	-20,7	2,4E-11	2,0E-10	36,7	1,6E-10	17,8
811	-20,7	5,1E-11	4,6E-10	36,6	1,3E-10	18,1
841	-20,7	5,3E-11	2,2E-10	36,7	1,3E-10	18,1

No	Temp.	Slope	Sigma	P406	Short term	P121.5	
871	-20,7	3,1E-11	2,8E-10	36,7	1,5E-10	17,8	
901	-20,7	4,0E-11	3,5E-10	36,7	1,8E-10	17,8	
931	-20,7	2,7E-11	1,2E-10	36,7	1,3E-10	17,8	
961	-20,7	1,3E-11	1,7E-10	36,7	1,3E-10	17,6	
991	-20,7	2,6E-11	2,7E-10	36,7	1,1E-10	17,8	
1021	-20,7	-1,4E-11	1,5E-10	36,7	1,4E-10	17,9	
1051	-20,7	1,1E-11	1,2E-10	36,7	1,0E-10	17,7	
1081	-20,8	4,8E-11	9,8E-11	36,7	1,4E-10	17,8	
1111	-20,8	-1,3E-11	1,5E-10	36,7	1,3E-10	17,9	
1141	-20,7	1,5E-11	1,4E-10	36,7	1,2E-10	17,9	
1171	-20,8	-3,1E-14	1,6E-10	36,7	1,0E-10	17,9	
1201	-20,8	-6,3E-13	1,4E-10	36,7	1,1E-10	17,8	
1231	-20,7	-2,2E-11	2,0E-10	36,7	1,6E-10	17,8	
1261	-20,7	1,6E-11	2,9E-10	36,7	1,1E-10	17,9	
1291	-20,7	4,7E-12	1,4E-10	36,7	1,2E-10	17,7	
1321	-20,7	3,4E-11	3,0E-10	36,7	1,4E-10	17,8	
1351	-20,7	-3,8E-12	1,8E-10	36,7	1,2E-10	17,9	
1381	-20,7	4,3E-12	1,1E-10	36,7	1,3E-10	17,9	
1411	-20,8	1,2E-11	2,2E-10	36,7	1,2E-10	17,7	
1441	-20,8	2,5E-11	2,9E-10	36,7	1,2E-10	17,8	
1471	-20,7	8,5E-12	1,8E-10	36,7	1,2E-10	17,9	
1501	-20,7	1,7E-11	1,7E-10	36,7	1,2E-10	17,8	
1531	-20,7	3,4E-12	1,9E-10	36,7	9,1E-11	17,8	
1561	-20,7	1,2E-12	1,7E-10	36,7	1,5E-10	18,0	
1591	-20,7	4,6E-11	1,4E-10	36,7	1,0E-10	17,9	
1621	-20,7	-1,8E-11	1,4E-10	36,7	1,1E-10	18,4	
1651	-20,7	-6,7E-12	1,3E-10	36,7	1,3E-10	18,2	
1681	-20,7	1,7E-11	1,8E-10	36,7	1,3E-10	17,8	
1711	-20,7	4,6E-12	1,6E-10	36,7	1,1E-10	17,8	
1741	-20,8	6,5E-12	1,9E-10	36,7	1,4E-10	18,0	24h
1771	-20,7	6,9E-12	1,4E-10	36,7	1,3E-10	17,9	
1801	-20,8	-2,7E-12	1,8E-10	34,8	1,3E-10	17,9	
1831	-20,7	1,2E-11	1,7E-10	36,7	1,6E-10	17,9	
1861	-20,7	-1,3E-11	2,9E-10	36,7	1,3E-10	18,2	
1891	-20,7	2,3E-11	1,8E-10	36,7	9,9E-11	17,9	
1921	-20,7	1,0E-11	1,5E-10	36,7	1,2E-10	17,8	
1951	-20,7	7,4E-12	1,3E-10	36,7	1,4E-10	18,3	
1981	-20,8	3,9E-12	1,4E-10	36,7	1,3E-10	18,2	
2011	-20,7	1,5E-11	2,7E-10	36,7	1,5E-10	17,9	
2041	-20,7	-8,6E-12	1,7E-10	36,7	9,1E-11	17,9	
2071	-20,7	1,1E-11	1,9E-10	36,7	1,5E-10	18,0	
2101	-20,7	-5,8E-11	1,9E-10	36,7	1,5E-10	17,7	
2131	-20,7	-7,5E-12	1,8E-10	36,7	1,1E-10	17,9	
2161	-20,8	-1,7E-11	2,1E-10	36,7	1,3E-10	17,9	
2191	-20,7	-1,6E-11	1,5E-10	36,7	1,5E-10	17,9	
2221	-20,7	-3,2E-11	1,7E-10	36,7	1,2E-10	18,3	
2251	-20,7	7,9E-13	1,4E-10	36,7	1,7E-10	18,3	
2281	-20,7	-1,1E-11	1,9E-10	36,7	1,6E-10	18,4	
2311	-20,8	3,3E-11	3,1E-10	36,7	1,2E-10	18,1	
2341	-20,7	2,4E-12	2,5E-10	36,7	1,6E-10	17,9	
2371	-20,7	2,5E-11	3,3E-10	36,6	1,5E-10	18,3	

No	Temp.	Slope	Sigma	P406	Short term	P121.5	
2401	-20,7	7,1E-12	2,5E-10	36,6	1,5E-10	17,8	
2431	-20,8	6,4E-11	1,5E-10	36,6	1,2E-10	17,8	
2461	-20,7	1,0E-11	1,6E-10	36,6	1,4E-10	17,8	
2491	-20,8	4,1E-11	3,6E-10	36,6	1,3E-10	18,1	
2521	-20,8	8,2E-12	1,9E-10	36,6	1,6E-10	17,6	
2551	-20,8	5,1E-12	1,7E-10	36,6	1,2E-10	17,8	
2581	-20,7	-1,3E-11	2,1E-10	36,6	1,2E-10	17,6	
2611	-20,7	-3,8E-11	1,9E-10	36,6	1,5E-10	17,7	
2641	-20,7	-2,2E-11	1,5E-10	36,6	1,4E-10	17,7	
2671	-20,8	-3,1E-11	1,5E-10	36,6	1,4E-10	17,7	
2701	-20,8	-1,4E-11	1,9E-10	36,6	1,2E-10	17,7	
2731	-20,8	-1,8E-11	1,4E-10	36,6	1,4E-10	17,7	
2761	-20,8	1,2E-11	1,6E-10	36,6	1,1E-10	17,8	
2791	-20,8	2,0E-11	2,9E-10	36,6	1,6E-10	17,6	
2821	-20,8	1,8E-11	2,8E-10	36,6	7,3E-11	17,6	
2851	-20,7	5,7E-12	1,7E-10	36,7	1,2E-10	17,6	
2881	-20,7	1,3E-11	1,5E-10	36,8	1,4E-10	17,5	
2911	-20,7	1,9E-11	1,9E-10	36,7	1,5E-10	17,8	
2941	-20,8	6,0E-11	2,1E-10	36,8	1,3E-10	18,4	
2971	-20,8	-1,2E-13	2,6E-10	36,8	9,5E-11	18,4	
3001	-20,8	6,2E-12	1,8E-10	36,7	1,4E-10	17,7	
3031	-20,8	7,4E-12	2,1E-10	36,7	1,4E-10	17,7	
3061	-20,7	-1,0E-11	1,2E-10	36,6	1,2E-10	17,9	
3091	-20,8	-7,0E-12	1,5E-10	36,6	1,3E-10	17,9	
3121	-20,8	-5,8E-12	1,6E-10	36,7	1,6E-10	17,9	
3151	-20,8	1,5E-11	9,7E-11	36,7	1,1E-10	17,9	
3181	-20,8	9,9E-12	1,6E-10	36,7	1,4E-10	17,9	
3211	-20,8	-2,0E-12	1,4E-10	36,7	1,3E-10	17,8	
3241	-20,7	-6,3E-12	1,6E-10	36,7	1,1E-10	17,8	
3271	-20,8	1,1E-11	1,5E-10	36,7	1,2E-10	17,9	
3301	-20,7	2,3E-11	3,5E-10	36,7	1,5E-10	17,8	
3331	-20,7	-7,8E-12	2,1E-10	36,6	1,9E-10	17,8	
3361	-20,8	-2,4E-11	1,3E-10	36,6	9,7E-11	17,8	
3391	-20,7	4,4E-11	4,7E-10	36,6	1,4E-10	17,8	
3421	-20,7	-1,3E-11	2,2E-10	36,6	1,2E-10	17,8	
3451	-20,8	9,1E-12	1,5E-10	36,6	1,1E-10	17,7	48h
3481	-20,8	2,8E-11	3,7E-10	36,5	1,8E-10	17,7	
3511	-20,7	-1,6E-11	1,5E-10	36,5	1,5E-10	17,7	
3541	-20,8	1,8E-11	1,2E-10	36,5	1,3E-10	17,7	
3571	-20,7	-1,8E-11	1,3E-10	36,5	1,1E-10	17,6	
3601	-20,8	1,4E-11	9,5E-11	36,5	1,1E-10	17,7	
3631	-20,8	1,1E-11	1,5E-10	36,5	8,3E-11	17,7	
3661	-20,7	-9,3E-12	1,7E-10	36,5	1,1E-10	17,7	
3691	-20,7	-2,9E-11	1,4E-10	36,5	1,1E-10	17,6	
3721	-20,7	1,8E-11	1,7E-10	36,5	1,0E-10	17,6	
3751	-20,8	-2,4E-11	1,5E-10	36,5	1,3E-10	17,5	
3781	-20,8	-8,0E-13	1,4E-10	36,4	1,2E-10	17,5	
3811	-20,8	-1,0E-10	2,8E-10	36,4	1,2E-10	17,4	
3841	-20,8	-3,6E-11	2,3E-10	36,4	1,5E-10	17,4	
3871	-20,8	3,6E-12	2,8E-10	36,4	1,2E-10	17,3	
3901	-20,8	1,8E-11	2,0E-10	36,4	1,7E-10	18,1	

No	Temp.	Slope	Sigma	P406	Short term	P121.5
3931	-20,7	-9,1E-12	3,0E-10	36,3	1,5E-10	18,1
3961	-20,8	6,4E-12	1,4E-10	36,4	1,3E-10	17,3
3991	-20,8	2,7E-12	2,0E-10	36,4	1,3E-10	17,4
4021	-20,8	-3,8E-13	2,1E-10	36,4	1,2E-10	17,4
4051	-20,8	3,8E-12	2,8E-10	36,4	9,7E-11	17,4
4081	-20,7	-1,7E-11	1,5E-10	36,3	1,4E-10	17,4
4111	-20,8	-2,6E-11	1,7E-10	36,3	1,3E-10	17,4
4141	-20,8	-2,1E-11	2,0E-10	36,3	1,3E-10	16,9
4171	-20,8	4,6E-12	1,3E-10	36,3	1,2E-10	16,8
4201	-20,7	-1,3E-11	1,4E-10	36,3	1,1E-10	17,4
4231	-20,8	-5,4E-12	1,4E-10	36,3	1,2E-10	16,8
4261	-20,7	1,8E-11	1,5E-10	36,2	1,6E-10	16,9
4291	-20,8	-4,3E-11	2,1E-10	36,2	1,3E-10	16,8
4321	-20,8	-4,1E-11	3,2E-10	36,2	1,5E-10	16,8
4351	-20,8	-1,3E-11	3,8E-10	36,2	1,5E-10	16,5
4381	-20,8	-8,6E-12	1,7E-10	36,2	1,3E-10	16,5
4411	-20,8	-2,7E-11	1,9E-10	36,2	1,4E-10	16,7
4441	-20,7	1,5E-11	2,7E-10	36,1	1,3E-10	16,5
4471	-20,7	-1,8E-12	2,4E-10	36,1	1,6E-10	16,6
4501	-20,8	1,0E-11	2,5E-10	36,1	1,7E-10	16,5
4531	-20,7	-1,1E-12	2,5E-10	36,1	1,5E-10	16,5
4561	-20,8	1,0E-10	4,1E-10	36,0	1,5E-10	16,5
4591	-20,7	-3,3E-11	1,9E-10	36,0	8,5E-11	17,8
4621	-20,7	-3,7E-11	2,2E-10	36,0	1,4E-10	17,6
4651	-20,7	-1,6E-11	1,4E-10	36,0	1,2E-10	16,8
4681	-20,8	-4,7E-11	1,5E-10	36,0	1,5E-10	17,0
4711	-20,8	1,0E-11	1,8E-10	35,9	1,2E-10	17,7
4741	-20,7	-6,9E-12	1,6E-10	35,9	8,7E-11	16,5
4771	-20,7	-8,7E-12	1,7E-10	35,9	1,3E-10	16,5
4801	-20,7	1,0E-11	1,4E-10	35,9	1,4E-10	17,6
4831	-20,8	1,4E-11	2,0E-10	35,8	1,1E-10	16,6
4861	-20,7	4,5E-11	4,6E-10	35,8	1,1E-10	16,7
4891	-20,7	-1,9E-11	1,7E-10	35,8	1,2E-10	16,5
4921	-20,7	5,7E-11	5,3E-10	35,7	1,1E-10	16,5
4951	-20,8	-6,1E-13	1,1E-10	35,7	1,4E-10	16,5
4981	-20,7	2,8E-11	2,2E-10	35,6	1,6E-10	16,5
5011	-20,7	1,2E-10	4,5E-10	35,6	1,2E-10	16,4
5041	-20,7	1,2E-10	4,7E-10	35,6	1,4E-10	16,6
5071	-20,7	9,4E-11	4,5E-10	35,6	1,1E-10	16,3
5101	-20,7	3,9E-11	4,0E-10	35,6	1,6E-10	17,3
5131	-20,7	-1,7E-11	3,8E-10	35,5	1,2E-10	16,9
5161	-20,8	-3,7E-11	3,0E-10	35,5	1,5E-10	16,2
5191	-20,8	-9,0E-11	1,4E-10	35,4	1,5E-10	16,0
5221	-20,7	-4,1E-11	2,0E-10	35,4	1,6E-10	15,9
5251	-20,7	-6,2E-11	2,3E-10	35,5	1,4E-10	15,9
5281	-20,8	-6,8E-11	1,8E-10	35,5	1,5E-10	17,2
5311	-20,7	-4,3E-11	1,7E-10	35,4	1,7E-10	15,9
5341	-20,7	-6,4E-11	2,0E-10	35,3	1,4E-10	16,9
5371	-20,8	-2,1E-10	5,8E-10	35,2	1,8E-10	16,6
5401	-20,8	1,1E-10	5,0E-10	35,1	1,7E-10	15,8
5431	-20,7	1,3E-10	7,3E-10	35,0	1,1E-10	16,4

No	Temp.	Slope	Sigma	P406	Short term	P121.5	
5461	-20,8	8,2E-11	4,9E-10	35,0	1,6E-10	16,4	
5491	-20,7	7,3E-11	5,2E-10	34,9	1,5E-10	16,2	76 h
5521	-20,7	1,0E-10	5,4E-10	34,8	1,4E-10	15,3	
5551	-20,7	1,2E-10	4,4E-10	34,7	1,2E-10	15,2	
5581	-20,8	1,3E-10	4,7E-10	34,6	1,4E-10	16,1	
5611	-20,8	1,2E-11	3,9E-10	34,6	1,5E-10	16,0	
5641	-20,7	-3,2E-11	3,7E-10	34,4	1,4E-10	15,0	
5671	-20,8	-7,4E-11	3,8E-10	34,4	1,8E-10	14,9	
5701	-20,8	-8,7E-11	1,8E-10	34,2	1,6E-10	14,7	
5731	-20,7	-9,5E-11	2,1E-10	34,2	1,7E-10	15,0	
5761	-20,8	-5,8E-11	1,6E-10	34,1	1,2E-10	14,4	
5791	-20,8	-6,7E-11	1,8E-10	33,9	1,8E-10	14,2	
5821	-20,8	-8,6E-11	2,7E-10	33,7	2,1E-10	14,0	
5851	-20,8	3,3E-11	5,4E-10	33,4	9,7E-11	13,3	
5881	-20,8	6,9E-11	5,5E-10	33,2	8,7E-11	13,1	
5911	-20,8	3,5E-11	4,6E-10	33,2	1,3E-10	12,9	
5941	-20,8	1,1E-10	4,4E-10	33,0	1,3E-10	12,8	
5971	-20,7	9,0E-11	4,8E-10	32,7	1,6E-10	12,3	
6001	-20,8	1,1E-10	3,7E-10	32,6	1,0E-10	11,8	
6031	-20,8	9,3E-11	3,8E-10	32,2	9,6E-11	11,3	
6061	-20,7	1,1E-10	4,8E-10	32,0	1,7E-10	11,0	
6091	-20,8	3,8E-11	4,2E-10	31,5	1,5E-10	9,8	
6121	-20,8	-7,5E-11	2,8E-10	31,4	1,6E-10	9,0	
6151	-20,8	-5,6E-11	2,8E-10	31,1	2,2E-10	8,2	
6181	-20,8	-5,2E-11	2,6E-10	31,0	1,1E-10	7,3	
6211	-20,8	-6,9E-11	1,6E-10	31,0	1,0E-10	6,2	
6241	-20,8	-6,7E-11	1,7E-10	30,9	2,4E-10	5,1	
6271							
6301							
6331							
6361							
6391							
6421							
6451							
6481							
6511							
6541							
6571							
6601							

Samples of beacon message transmitted during Operating Lifetime Test :

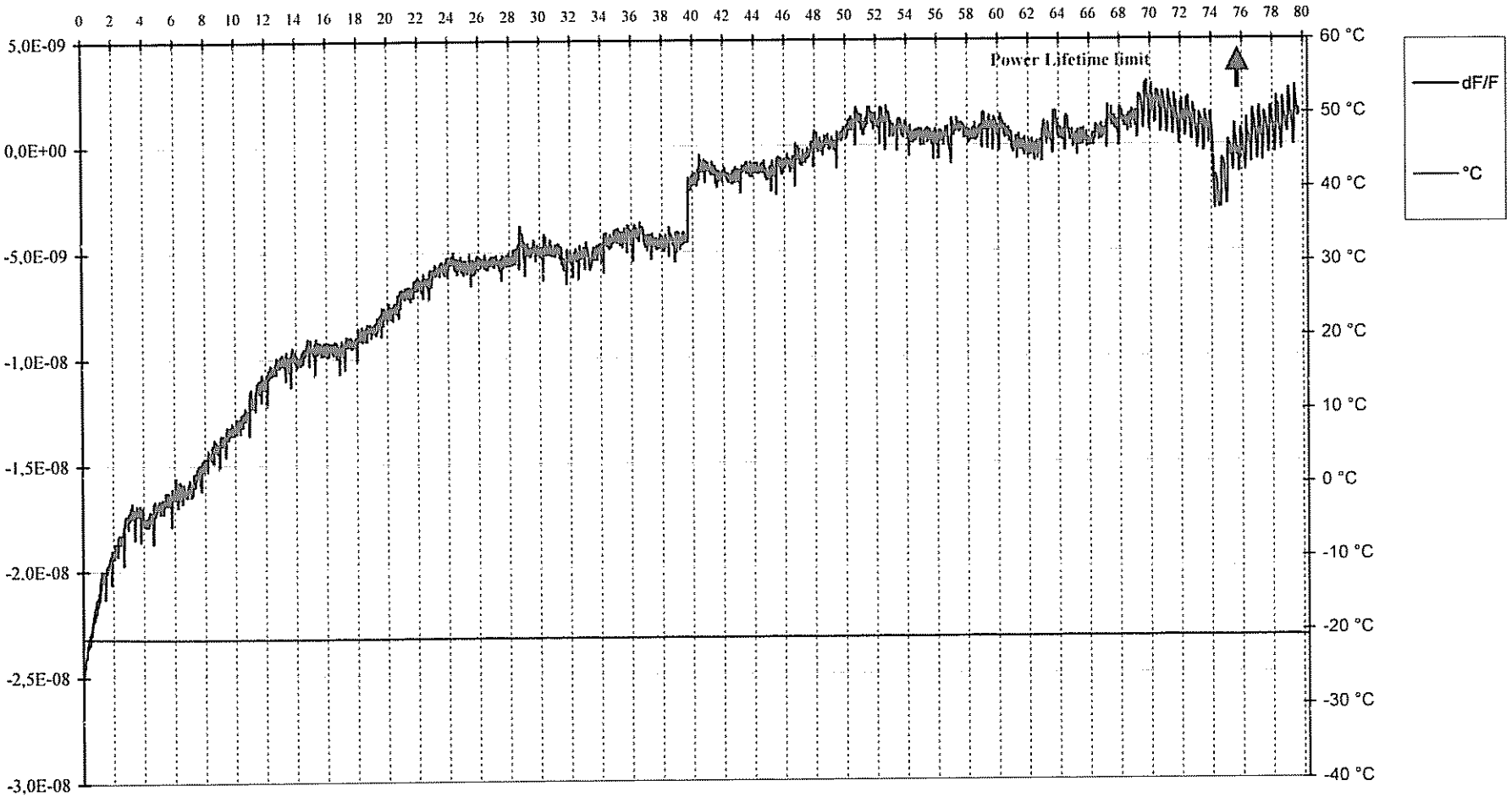
FFFE2F8E3F34DFCAE20171F6D1B70F2800DF
FFFE2F8E3F34DFCAE20171F6D1B70D240E22
FFFE2F8E3F34DFCAE20171F6D1B70D280220
FFFE2F8E3F34DFCAE20171F6D1B70D2C0AC9
FFFE2F8E3F34DFCAE20171F6D1B70D300F1D
FFFE2F8E3F34DFCAE20171F6D1B70F240CDD
FFFE2F8E3F34DFCAE20171F6D1B70F2C0836
FFFE2F8E3F34DFCAE20171F6D1B70F300DE2
FFFE2F8E3F34DFCAE20171F6D1B711280EE3
FFFE2F8E3F34DFCAE20171F6D1B7112C060A
FFFE2F8E3F34DFCAE20171F6D1B713400348

LIFE TEST AT -20 °C

Manufacturer : MARTEC
Model : KANNAD MANUAL+ GPS
Number : 54143 (UUT3)

Date : 10 Feb 2006
Time : 17:00:51

FREQUENCY VARIATION

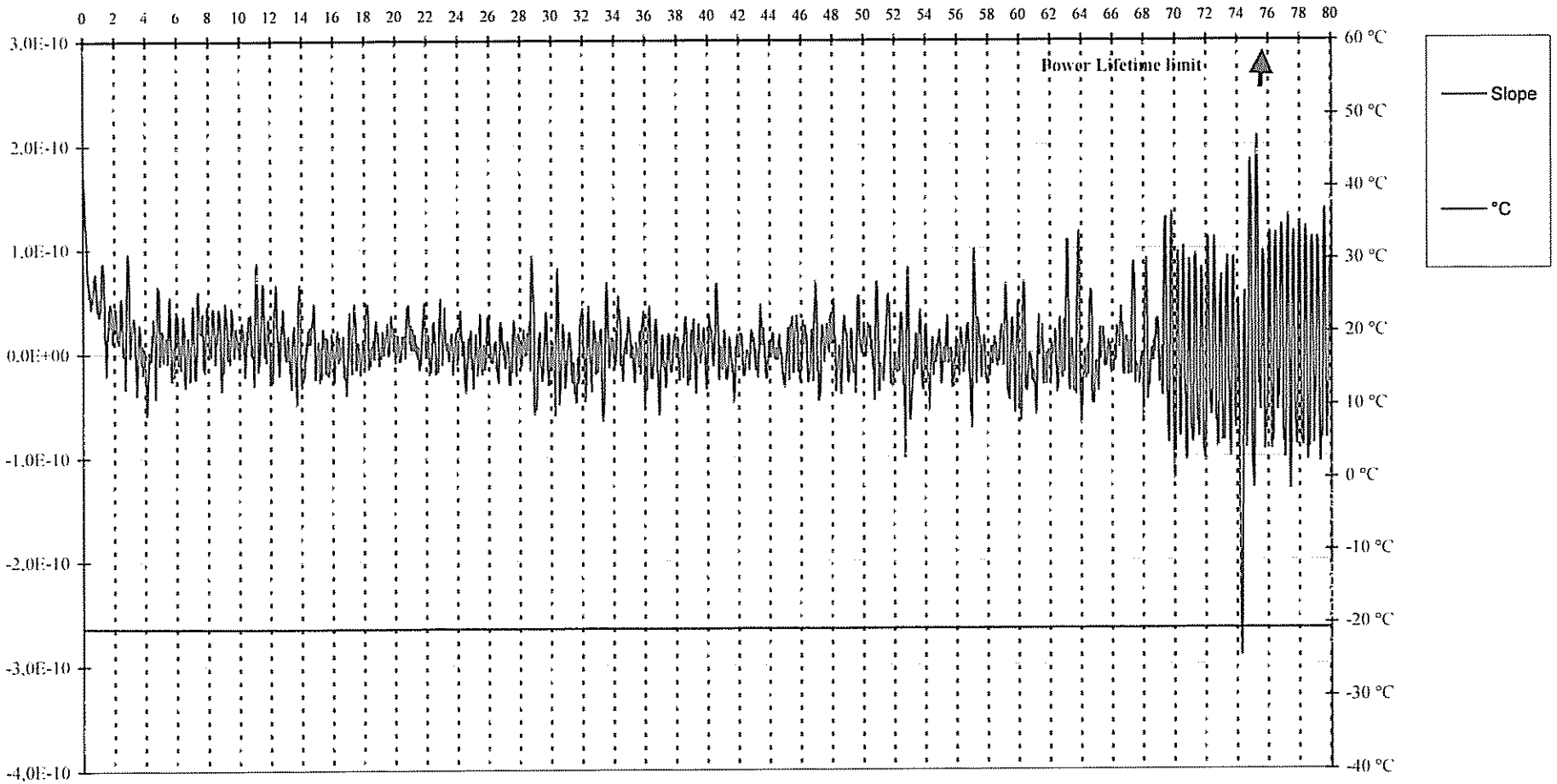


LIFE TEST AT -20 °C

Manufacturer : MARTEC
Model : KANNAD MANUAL+ GPS
Number : 54143 (UUT3)

Date : 10 Feb 2006
Time : 17:00:51

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

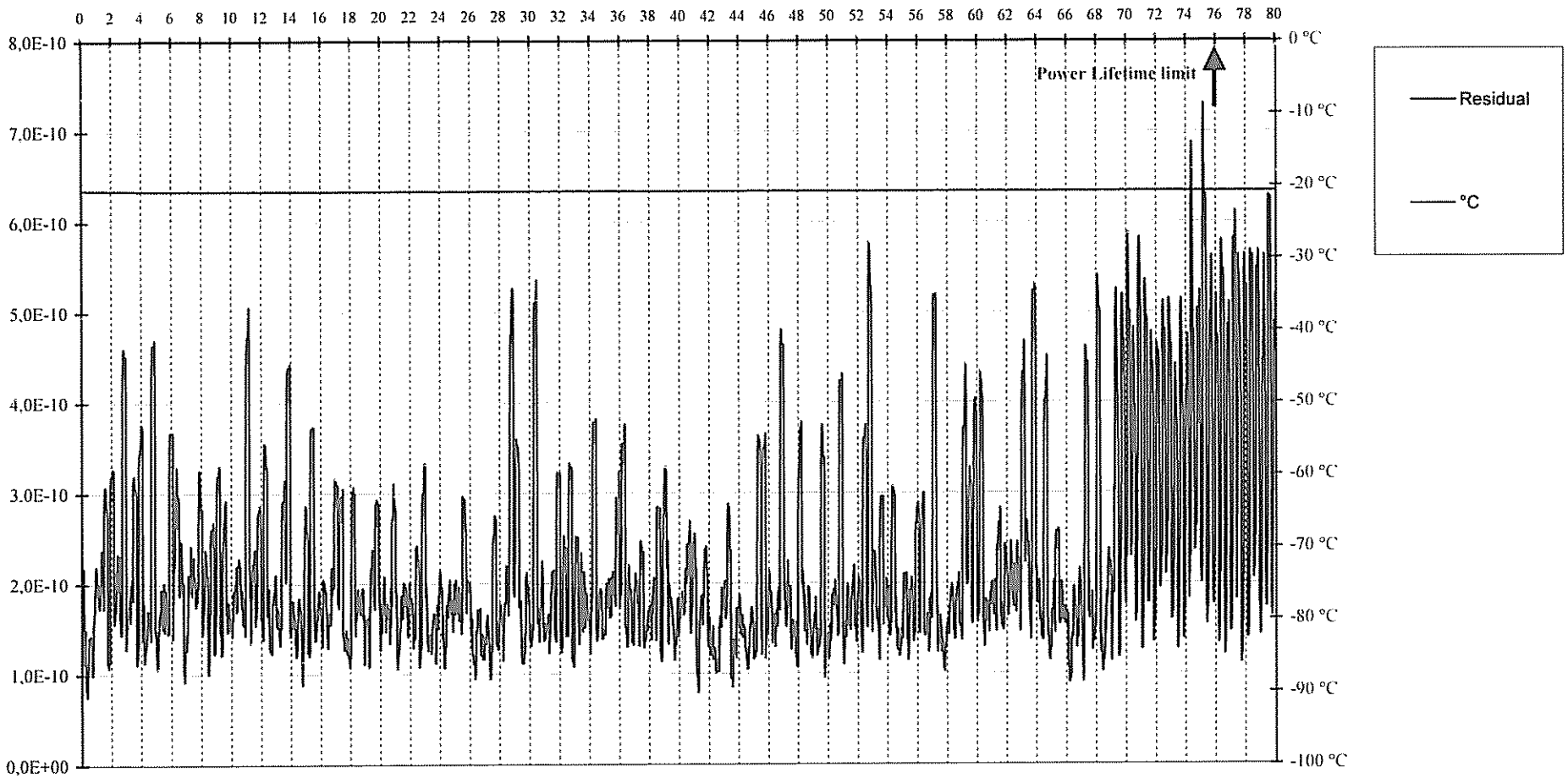


LIFE TEST AT -20 °C

Manufacturer : MARTEC
Model : KANNAD MANUAL+ GPS
Number : 54143 (UUT3)

Date : 10 Feb 2006
Time : 17:00:51

MEDIUM TERM STABILITY : RESIDUAL (≤ 3,0E-9)

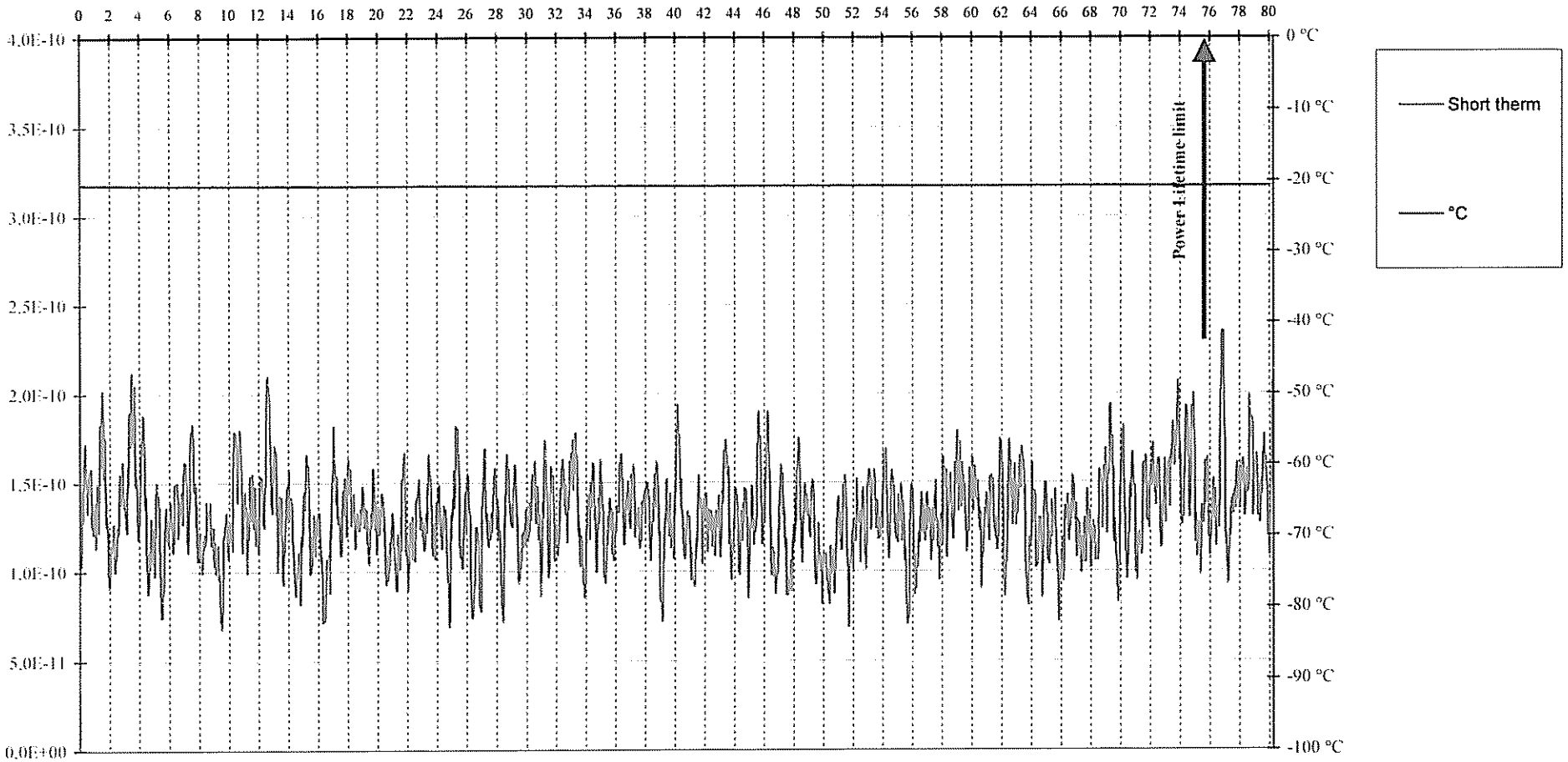


LIFE TEST AT -20 °C

Manufacturer : MARTEC
Model : KANNAD MANUAL+ GPS
Number : 54143 (UUT3)

Date : 10 Feb 2006
Time : 17:00:51

SHORT TERM STABILITY /100 mS (≤ 2,0E-9)



LIFE TEST AT -20 °C

Manufacturer : MARTEC
Model : KANNAD MANUAL+ GPS
Numero : 54143 (UUT3)

Date : 10 Feb 2006
Time : 17:00:51

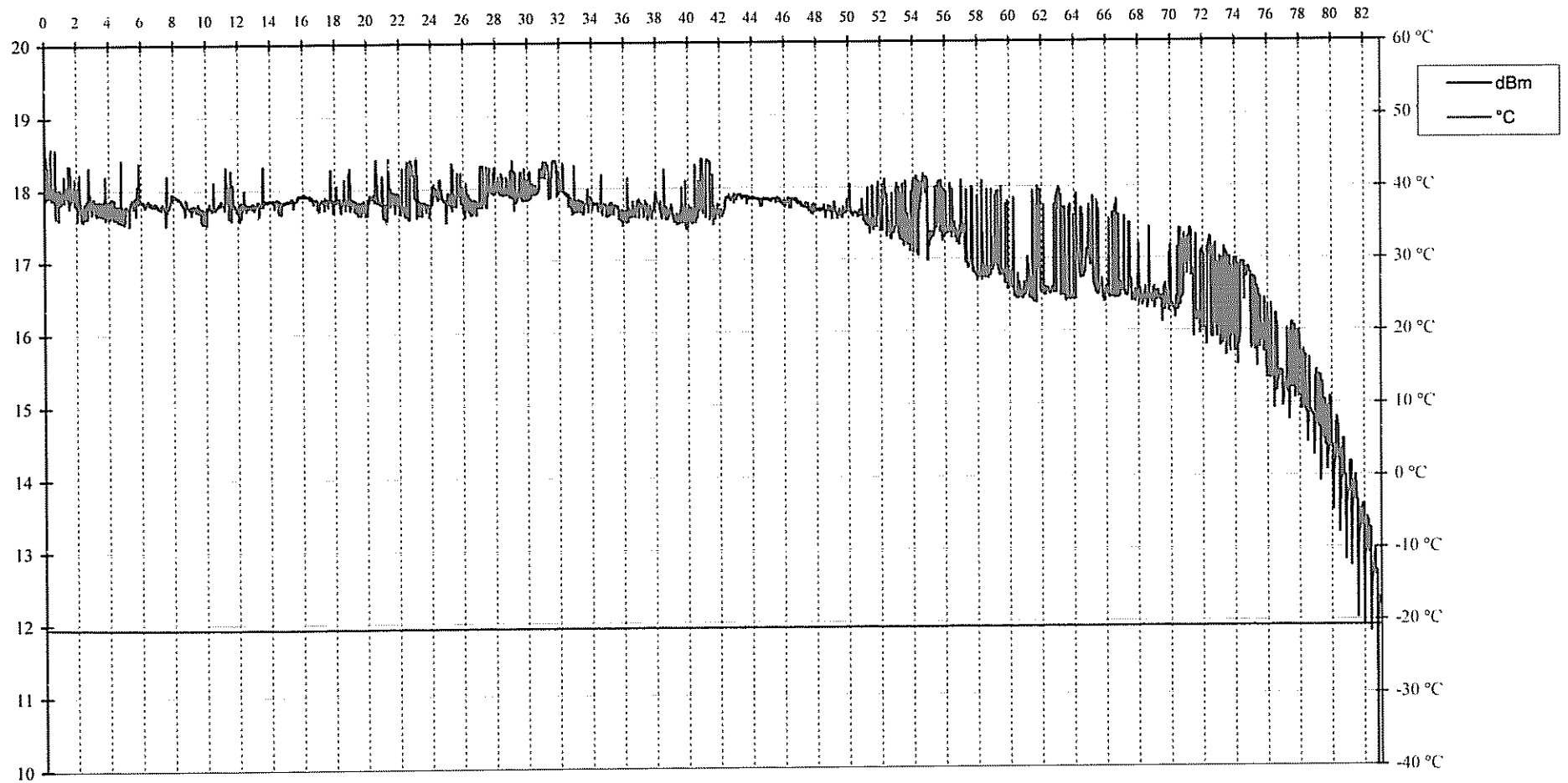
OUTPUT POWER (35 to 39 dBm)

LIFE TEST AT -20 °C

Manufacturer : MARTEC
Model : KANNAD MANUAL+ GPS
Numero : 54143 (UUT3)

Date : 10 Feb 2006
Time : 17:00:51

121,5 MHz OUTPUT POWER (14 to 20 dBm)



TEMPERATURE GRADIENT TEST RESULT ON
MARTEC
KANNAD MANUAL+ GPS
N° 54143 (UUT3)
at -20° C, 22° C and 55° C

Warm Up	Δ Frequency (Hz)	Temp. (°C)	P406 (dBm)	P121.5 (dBm)
1	49815,00	-20,6	36,8	0,0
2	49816,19	-20,5	37,0	0,0
3	49815,61	-20,4	37,0	18,7
4	49813,88	-20,4	37,0	18,8
5	49812,03	-20,4	37,1	18,8
6	49809,43	-20,4	37,1	18,9
7	49806,10	-20,4	37,1	18,9
8	49802,81	-20,4	37,1	18,9
9	49798,95	-20,4	37,1	18,9
10	49794,98	-20,5	37,2	18,9
11	49792,43	-20,4	37,2	18,9
12	49791,45	-20,5	37,2	18,9
13	49790,94	-20,4	37,2	18,9
14	49790,69	-20,4	37,2	19,0
15	49790,62	-20,4	37,2	19,0
16	49790,63	-20,5	37,2	19,0
17	49790,81	-20,4	37,2	19,0
18	49790,67	-20,4	37,2	19,0

No	Temp.	Slope	Sigma	P406	Short term	P121.5
1	-20,5	-5,2E-9	8,9E-9	37,1	1,4E-10	19,0
18	-20,5	1,9E-10	2,3E-10	37,3	1,4E-10	19,0
31	-20,5	7,6E-11	2,1E-10	37,4	1,1E-10	19,0
61	-20,5	7,3E-11	2,4E-10	37,4	1,0E-10	19,0
91	-19,4	6,7E-11	2,0E-10	37,4	1,2E-10	19,1
121	-17,4	6,2E-11	1,8E-10	37,3	1,3E-10	19,1
151	-15,2	1,0E-10	1,8E-10	35,6	1,2E-10	19,1
181	-13,2	7,5E-11	1,7E-10	37,4	1,3E-10	19,2
211	-11,1	6,4E-11	1,4E-10	37,4	1,6E-10	19,3
241	-9,0	9,2E-11	1,2E-10	37,4	1,1E-10	19,3
271	-6,9	1,1E-10	1,8E-10	35,7	1,0E-10	19,3
301	-4,8	1,2E-10	1,8E-10	37,4	1,4E-10	19,4
331	-2,7	1,7E-10	1,7E-10	37,3	9,5E-11	19,4
361	-0,6	1,6E-10	1,4E-10	37,3	1,4E-10	19,3
391	1,4	1,6E-10	1,4E-10	37,3	1,2E-10	19,4
421	3,6	1,5E-10	1,5E-10	37,3	1,4E-10	19,3
451	5,7	1,2E-10	2,2E-10	37,2	1,5E-10	19,3
481	7,9	1,1E-10	1,2E-10	37,2	1,0E-10	19,3
511	9,8	1,2E-10	1,2E-10	37,2	1,1E-10	19,3
541	12,0	4,2E-11	1,8E-10	35,4	1,6E-10	19,3
571	14,0	-1,3E-11	1,8E-10	37,1	1,0E-10	19,2
601	16,3	-4,8E-11	1,4E-10	37,1	9,4E-11	19,2
631	18,3	-2,9E-11	1,4E-10	37,1	1,0E-10	0,0
661	20,4	-4,2E-11	1,8E-10	37,1	1,0E-10	19,2
691	22,6	-1,4E-10	6,1E-10	33,8	3,8E-10	10,4
721	24,7	-1,1E-10	1,8E-10	37,0	1,0E-10	10,3
751	26,8	-1,5E-10	2,0E-10	36,9	7,7E-11	10,4
781	28,9	-1,7E-10	1,7E-10	36,9	1,6E-10	19,1
811	31,1	-2,4E-10	1,1E-10	36,9	1,1E-10	19,1
841	33,2	-2,6E-10	1,4E-10	36,8	1,3E-10	19,0

No	Temp.	Slope	Sigma	P406	Short term	P121.5
871	35,2	-3,3E-10	1,7E-10	36,8	9,0E-11	19,0
901	37,3	-3,4E-10	1,6E-10	36,8	1,3E-10	19,0
931	39,3	-3,8E-10	1,7E-10	36,8	1,5E-10	19,0
961	41,5	-4,3E-10	1,6E-10	36,8	9,7E-11	18,9
991	43,6	-4,8E-10	1,4E-10	36,7	1,2E-10	18,9
1021	45,7	-5,5E-10	9,5E-11	36,7	8,4E-11	18,9
1051	47,8	-6,0E-10	1,6E-10	36,6	1,0E-10	18,8
1081	49,7	-6,7E-10	1,5E-10	36,6	8,8E-11	18,6
1111	51,8	-6,4E-10	1,5E-10	36,6	1,3E-10	18,8
1141	53,9	-7,1E-10	1,2E-10	36,6	1,3E-10	18,7
1171	55,1	-6,6E-10	1,9E-10	36,6	8,5E-11	18,7
1201	55,1	-1,6E-10	1,5E-10	36,6	9,6E-11	18,7
1231	55,1	-6,3E-11	1,6E-10	36,6	1,1E-10	18,7
1261	55,1	-2,4E-11	1,7E-10	36,5	1,2E-10	18,7
1291	55,1	1,3E-11	1,4E-10	36,5	9,5E-11	18,7
1321	53,7	2,0E-10	2,1E-10	36,5	7,9E-11	18,6
1351	51,6	5,0E-10	1,6E-10	36,5	7,3E-11	18,7
1381	49,6	6,0E-10	2,8E-10	36,6	1,2E-10	18,7
1411	47,5	6,6E-10	4,2E-10	36,4	2,3E-10	18,8
1441	45,5	6,8E-10	1,5E-10	36,6	1,2E-10	18,8
1471	43,4	6,1E-10	1,4E-10	36,7	7,4E-11	18,8
1501	41,3	5,5E-10	1,1E-10	36,5	9,5E-11	18,8
1531	39,2	5,9E-10	1,4E-10	36,7	1,1E-10	18,7
1561	37,1	4,9E-10	1,6E-10	36,8	1,3E-10	18,9
1591	35,0	4,6E-10	1,8E-10	36,8	1,3E-10	0,0
1621	33,0	4,0E-10	1,1E-10	36,9	1,4E-10	19,0
1651	30,9	3,7E-10	1,3E-10	36,9	1,2E-10	19,0
1681	28,7	3,1E-10	8,6E-11	36,9	1,2E-10	19,0
1711	26,8	2,8E-10	1,6E-10	36,9	1,4E-10	19,0
1741	24,7	2,4E-10	1,6E-10	37,0	1,1E-10	19,1
1771	22,5	2,5E-10	2,4E-10	37,0	1,4E-10	19,1
1801	20,5	1,9E-10	1,1E-10	37,0	1,1E-10	19,1
1831	18,4	1,2E-10	1,5E-10	37,1	1,4E-10	19,1
1861	16,5	1,0E-10	1,5E-10	37,1	1,1E-10	19,2
1891	14,3	1,4E-10	3,1E-10	37,1	1,5E-10	19,2
1921	12,1	2,3E-11	1,8E-10	37,1	1,3E-10	19,2
1951	10,1	3,1E-11	2,1E-10	37,2	1,5E-10	19,2
1981	8,1	-1,8E-12	1,3E-10	37,2	1,1E-10	19,2
2011	6,0	3,0E-11	1,6E-10	37,2	1,2E-10	19,3
2041	3,7	-3,7E-11	1,3E-10	37,2	1,2E-10	19,3
2071	1,8	4,1E-11	1,7E-10	37,3	1,2E-10	19,3
2101	-0,4	1,3E-10	1,7E-10	35,2	1,2E-10	0,0
2131	-2,6	-6,1E-10	1,6E-9	36,9	1,0E-10	19,4
2161	-4,6	1,3E-10	1,4E-10	37,3	1,2E-10	19,4
2191	-6,7	1,5E-10	2,0E-10	37,4	1,4E-10	19,4
2221	-8,7	2,7E-10	1,5E-10	37,4	1,1E-10	19,4
2251	-10,8	-1,7E-10	2,5E-9	37,4	1,0E-10	19,4
2281	-13,0	1,0E-10	3,5E-10	37,4	1,2E-10	19,3
2311	-15,1	6,5E-11	1,4E-10	37,5	1,4E-10	19,3
2341	-17,2	-2,2E-11	1,8E-10	37,5	1,3E-10	19,2
2371	-19,3	-1,1E-10	4,3E-10	37,5	1,5E-10	19,2

No	Temp.	Slope	Sigma	P406	Short term	P121.5
2401	-20,4	-1,9E-10	2,6E-10	37,5	1,2E-10	19,1
2431	-20,5	-1,9E-11	3,1E-10	37,6	1,1E-10	19,1
2461	-20,5	-5,4E-11	2,2E-10	37,6	1,3E-10	19,1
2491	-20,5	1,4E-11	1,7E-10	37,6	1,1E-10	19,1
2521	-20,5	4,1E-12	1,7E-10	37,6	1,5E-10	19,1
2551						
2581						
2611						
2641						
2671						
2701						
2731						
2761						
2791						
2821						
2851						
2881						
2911						
2941						
2971						
3001						
3031						
3061						
3091						
3121						
3151						
3181						
3211						
3241						
3271						
3301						
3331						
3361						
3391						
3421						
3451						
3481						
3511						
3541						
3571						

Samples of beacon message transmitted during Frequency Stability Test with Temperature Gradient :

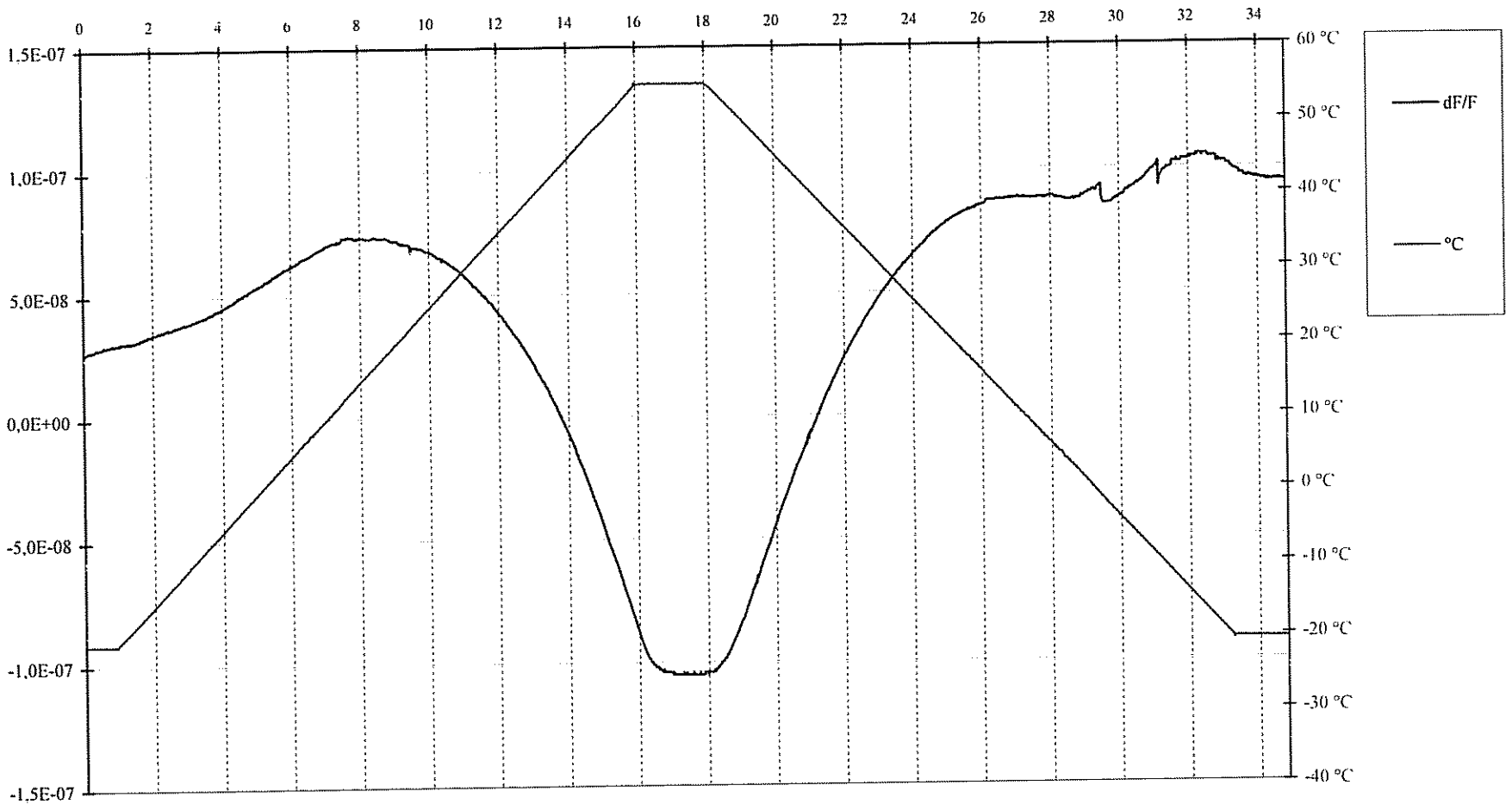
FFFE2F8E3F34DFCAE20171F6D1B70F2800DF
FFFE2F8E3F34DFCAE20171F6D1B70D240E22
FFFE2F8E3F34DFCAE20171F6D1B70D280220
FFFE2F8E3F34DFCAE20171F6D1B70D2C0AC9
FFFE2F8E3F34DFCAE20171F6D1B70D300F1D
FFFE2F8E3F34DFCAE20171F6D1B70F240CDD
FFFE2F8E3F34DFCAE20171F6D1B70F2C0836
FFFE2F8E3F34DFCAE20171F6D1B70F300DE2
FFFE2F8E3F34DFCAE20171F6D1B711280EE3
FFFE2F8E3F34DFCAE20171F6D1B70F34050B
FFFE2F8E3F34DFCAE20171F6D1B7113003DE

TEMPERATURE GRADIENT TEST RESULTS (5 °C / hour)

Manufacturer : MARTEC
Model : KANNAD MANUAL+ GPS
Number : 54143 (UUT3)

Date : 3 Apr 2006
Time : 12:31:34

FREQUENCY VARIATION

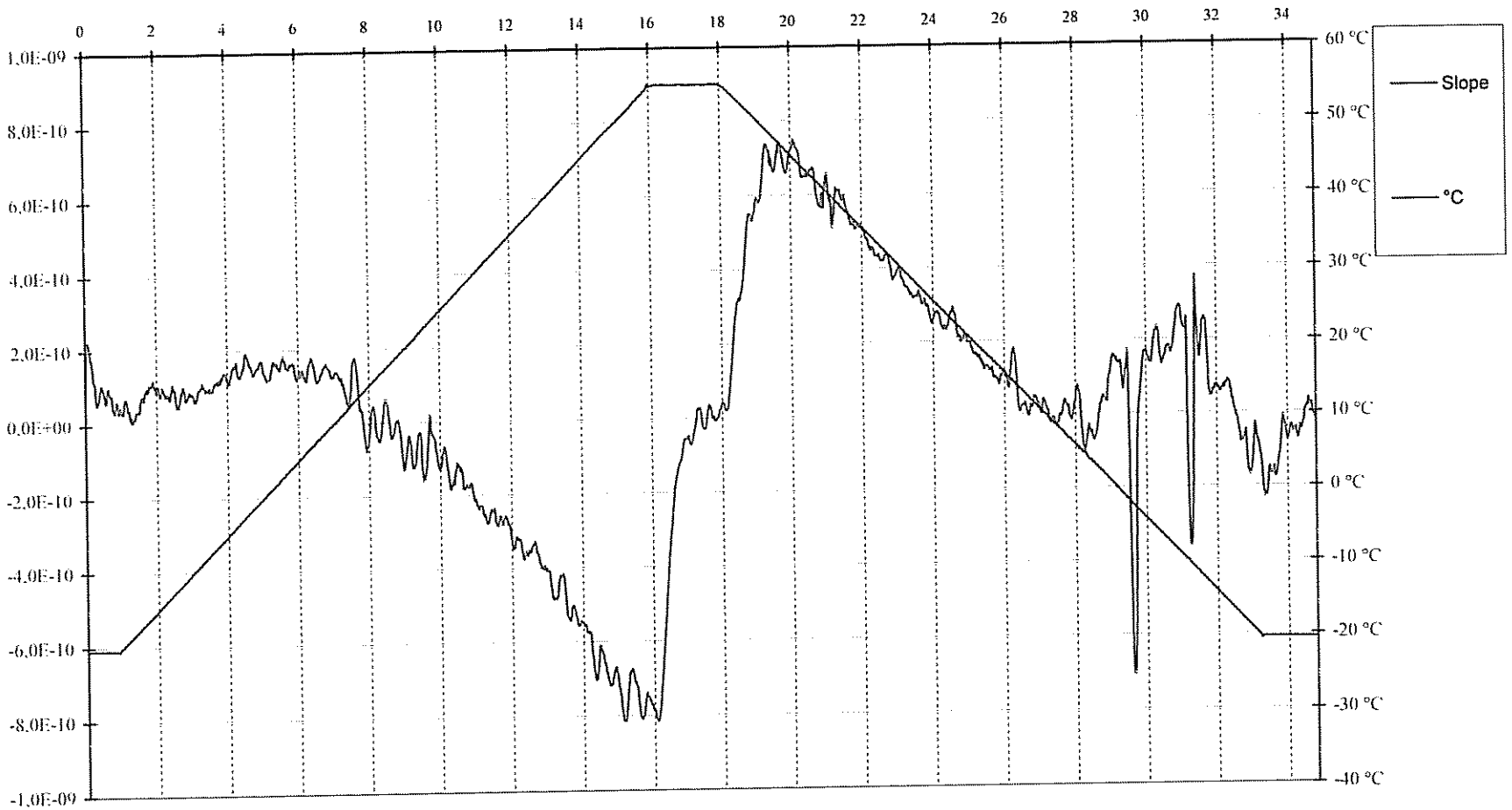


TEMPERATURE GRADIENT TEST RESULTS (5 °C / hour)

Manufacturer : MARTEC
Model : KANNAD MANUAL+ GPS
Number :

Date : 3 Apr 2006
Time : 12:31:34

MEDIUM TERM STABILITY : MEAN SLOPE /mn A to B, C+15 to D, and E+15 to F (-1,0E-9 to 1,0E-9)
MEAN SLOPE /mn B to C+15, and D to E+15 (-2,0E-9 to 2,0E-9)

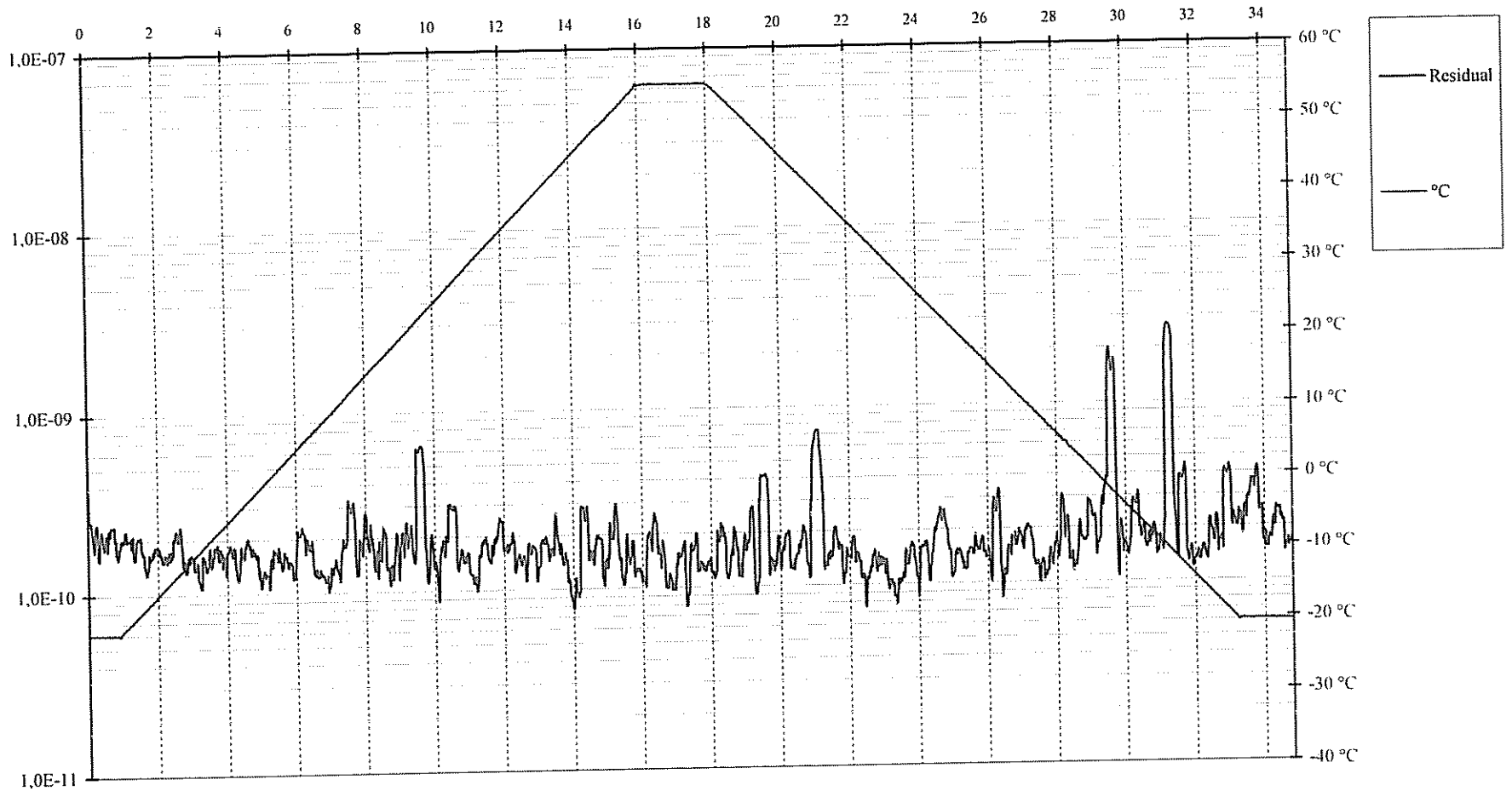


TEMPERATURE GRADIENT TEST RESULTS (5 °C / hour)

Manufacturer : MARTEC
Model : KANNAD MANUAL+ GPS
Number : 54143 (UUT3)

Date : 3 Apr 2006
Time : 12:31:34

MEDIUM TERM STABILITY : RESIDUAL (≤ 3,0E-9)

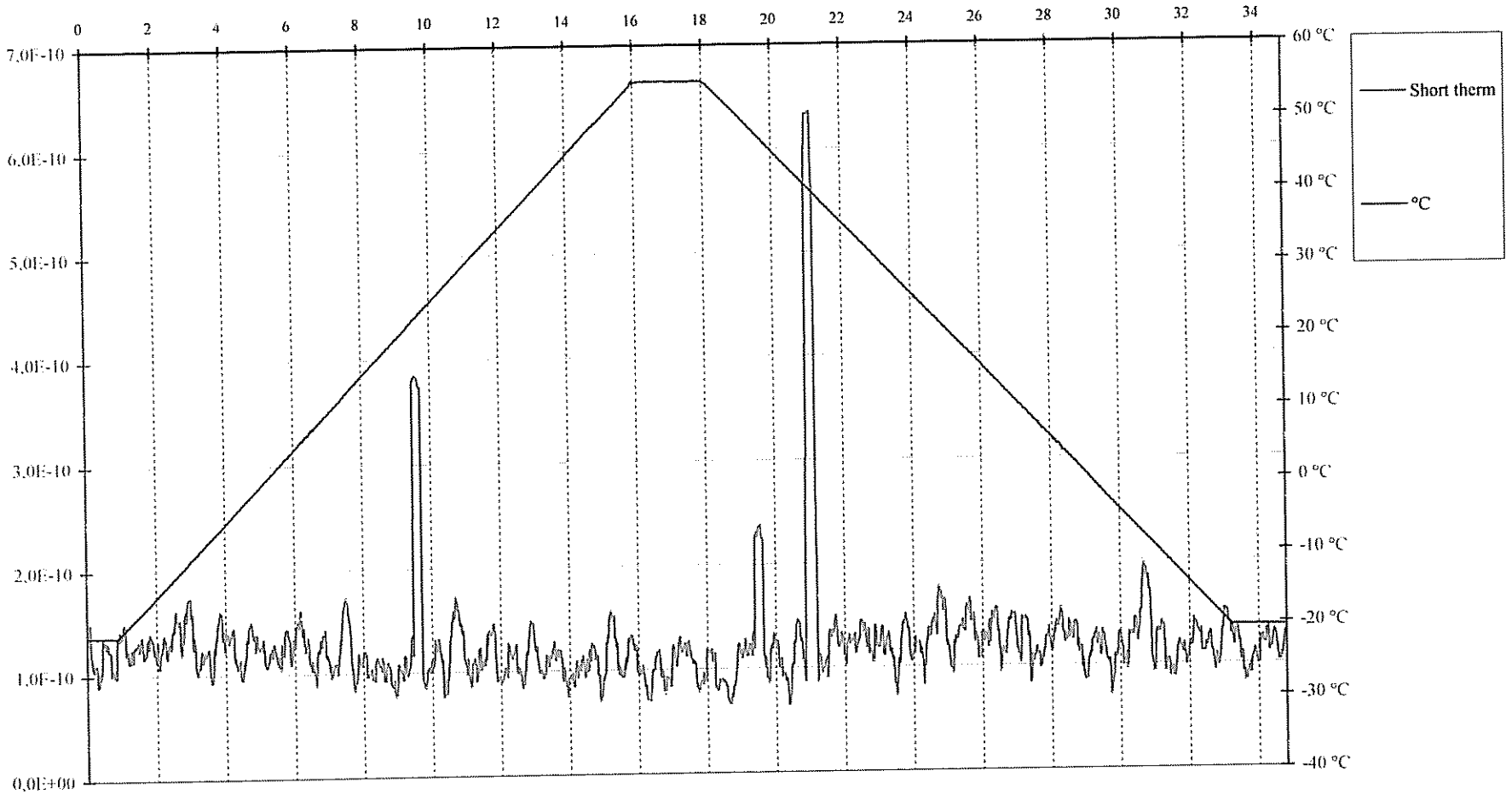


TEMPERATURE GRADIENT TEST RESULTS (5 °C / hour)

Manufacturer : MARTEC
Model : KANNAD MANUAL+ GPS
Number : 54143 (UUT3)

Date : 3 Apr 2006
Time : 12:31:34

SHORT TERM STABILITY /100 mS (≤ 2,0E-9)

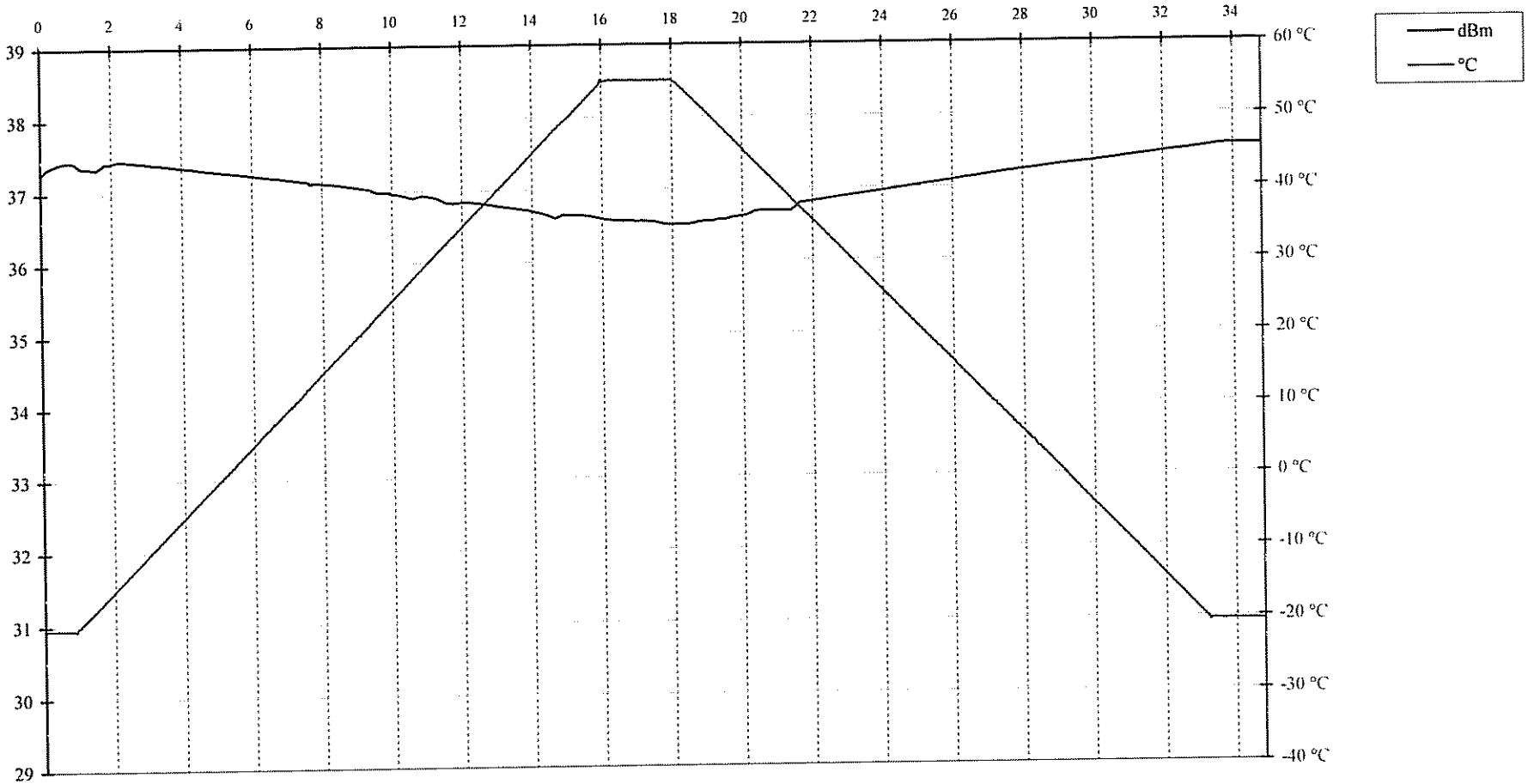


TEMPERATURE GRADIENT TEST RESULTS (5 °C / hour)

Manufacturer : MARTEC
Model : KANNAD MANUAL+ GPS
Number : 54143 (UUT3)

Date : 3 Apr 2006
Time : 12:31:34

OUTPUT POWER (35 to 39 dBm)



SATELLITE QUALITATIVE TEST RESULTS ON
MARTEC KANNAD MANUAL+ GPS EPIRB
N° 59374 (UUT4)
N° 57990 (UUT5)

Tables of Satellite Qualitative Test Summary Reports :

..ole 1 : uut5 floating in water

APPENDIX A TO ANNEX F

SATELLITE QUALITATIVE TEST SUMMARY REPORT

Date of the Test : 19/01/06 to 20/01/06

Time of the Test : 19/01/06 16:00 to 20/01/2006 05:30 = 13:30

Beacon Model : KANNAD MANUAL+ GPS 57990 UUT5

Beacon 15 Hex ID : 1C7E7 1433F 81FE0

Actual location of the test beacon : Latitude : 43,561 Longitude : 1,486

Beacon test configuration (e.g. on dry ground, floating in water, etc) : Floating in water

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	
S7	No provided	19/01/06 18:18	12,0	1C7E7 1433F 81FE0	43,569	1,488	0,91
S6	""	19/01/06 19:34	9,3	1C7E7 1433F 81FE0	43,577	1,485	1,85
S9	""	19/01/06 19:52	18,6	1C7E7 1433F 81FE0	43,569	1,483	0,97
S6	""	19/01/06 21:15	8,4	1C7E7 1433F 81FE0	43,572	1,497	1,52
S9	""	19/01/06 21:31	2,1	1C7E7 1433F 81FE0	43,565	1,487	0,52
S9	""	19/01/06 23:12	16,0	1C7E7 1433F 81FE0	43,591	1,483	3,34
S10	""	20/01/06 00:34	18,5	1C7E7 1433F 81FE0	43,458	1,488	1,45
S8	""	20/01/06 02:35	10,1	1C7E7 1433F 81FE0	43,558	1,486	0,32
S10	""	20/01/06 03:56	16,8	1C7E7 1433F 81FE0	43,559	1,467	1,55
S8	""	20/01/06 04:16	7,7	1C7E7 1433F 81FE0	43,453	1,48	1,97
S7	""	20/01/06 04:51	15,3	1C7E7 1433F 81FE0	43,555	1,471	1,94

Ratio of successful solutions $= \dfrac{\text{number of Doppler solutions within 5 Km with } 1°<CTA<21°}{\text{number of satellites passes over test duration with } 1°<CTA<21°} = \dfrac{11}{11} \times 100 = \underline{\mathbf{100\%}}$

able 2 : uut4 on dry ground

APPENDIX A TO ANNEX F

SATELLITE QUALITATIVE TEST SUMMARY REPORT

Date of the Test : 19/01/06 to 20/01/06

Time of the Test : 19/01/06 16:00 to 20/01/2006 05:30 = 13:30

Beacon Model : KANNAD MANUAL+ GPS 59374 UUT4

Beacon 15 Hex ID : 1C7E7 3F73F 81FE0

Actual location of the test beacon : Latitude : 43,561 Longitude : 1,486

Beacon test configuration (e g. on dry ground, floating in water, etc) : on dry ground

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	
S7	No provided	19/01/06 18:18	12,0	1C7E7 3F73F 81FE0	43,562	1,5	1,04
S6	""	19/01/06 19:34	9,3	1C7E7 3F73F 81FE0	43,571	1,458	2,57
S9	""	19/01/06 19:52	18,7	1C7E7 3F73F 81FE0	43,473	1,467	9,86
S6	""	19/01/06 21:15	8,4	1C7E7 3F73F 81FE0	43,573	1,492	1,4
S9	""	19/01/06 21:31	2,2	1C7E7 3F73F 81FE0	43,565	1,44	3,53
S9	""	19/01/06 23:12	16,0	1C7E7 3F73F 81FE0	43,560	1,487	0,9
S10	""	20/01/06 00:34	18,5	1C7E7 3F73F 81FE0	43,538	1,487	2,49
S8	""	20/01/06 02:35	10,1	1C7E7 3F73F 81FE0	43,556	1,479	0,85
S10	""	20/01/06 03:56	16,8	1C7E7 3F73F 81FE0	43,549	1,477	1,54
S8	""	20/01/06 04:16	7,7	1C7E7 3F73F 81FE0	43,561	1,82	0,42
S7	""	20/01/06 04:51	15,3	1C7E7 3F73F 81FE0	43,556	1,492	0,65

$$\textbf{Ratio of successful solutions} = \frac{\text{number of Doppler solutions within 5 Km with } 1°<CTA<21°}{\text{number of satellites passes over test duration with } 1°<CTA<21°} = \frac{10}{11} \times 100 = \underline{\mathbf{91\%}}$$

able 3 : uut4 floating in water

APPENDIX A TO ANNEX F

SATELLITE QUALITATIVE TEST SUMMARY REPORT

Date of the Test : 11/04/06 to 12/04/06

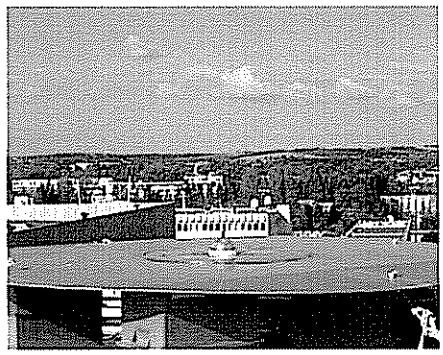
Time of the Test : 11/04/06 15:00 to 12/04/2006 04:00 = 13:00

Beacon Model : KANNAD MANUAL+ GPS 59374 UUT4

Beacon 15 Hex ID : 1C7E7 3F73F 81FE0

Actual location of the test beacon : Latitude : 43,561 Longitude : 1,486

Beacon test configuration (e.g on dry ground, floating in water, etc) : Floating in water



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	
S7	No provided	11/04/06 17:30	4,2	1C7E7 3F73F 81FE0	43,561	1,478	0,5
S6	""	11/04/06 18:41	19,3	1C7E7 3F73F 81FE0	43,565	1,501	1,54
S9	""	11/04/06 20:10	15,6	1C7E7 3F73F 81FE0	43,566	1,472	1,23
S6	""	11/04/06 20:20	2,9	1C7E7 3F73F 81FE0	43,571	1,503	2,1
S9	""	11/04/06 21:50	1,3	1C7E7 3F73F 81FE0	43,563	1,487	0,54
S6	""	11/04/06 22:01	15,2	1C7E7 3F73F 81FE0	43,604	1,483	4,97
S9	""	11/04/06 23:30	19,5	1C7E7 3F73F 81FE0	43,566	1,488	0,82
S10	""	12/04/06 01:43	5,5	1C7E7 3F73F 81FE0	43,559	1,481	0,2
S8	""	12/04/06 01:48	20,1	1C7E7 3F73F 81FE0	43,551	1,484	0,9
S10	""	12/04/06 03:24	12,0	1C7E7 3F73F 81FE0	43,556	1,477	0,65
S8	""	12/04/06 03:30	1,7	1C7E7 3F73F 81FE0	43,558	1,49	0,49

$$\textbf{Ratio of successful solutions} = \frac{\text{number of Doppler solutions within 5 Km with } 1°<CTA<21°}{\text{number of satellites passes over test duration with } 1°<CTA<21°} = \frac{11}{11} \times 100 = \underline{\textbf{100\%}}$$

NAVIGATION SYSTEM TEST ON
MARTEC
KANNAD MANUAL+ GPS
N° 54143 (UUT3)
N° 59374 (UUT4)

Test of Position Acquisition Time and Position Accuracy (C/S F-C.4 table) with UUT4 (SN 59374)

Reference position used for : Date : 11 April 2006

1) C/S T.007 Section A3.8.2.1 : "PASCAL A"
43° 33' 33,6" N
01° 28' 41,8" E

2) C/S T.007 Section A3.8.2.2 : "LANTA"
43° 33' 33" N
01° 39' 42,2" E

Operational Configuration	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
Floating in Water	113	60	114	50
Resting on Dry Ground	113	60	113	50
Other (specify)	/	/	/	/

Encoded Position Data Update Interval with UUT4 (SN 593 Date : 12 April 2006

Reference position :

N° 1	Lanta:	43° 33' 33" N 01° 39' 42,2" E
N° 2	Odars :	43° 32' 02" N 01° 35' 35,4" E
N°3	ITS Park	43° 33' 36" N 01° 28' 39" E

Results :

No updating message before 20 min. : Correct
Time of first update GPS location : 00:22:26
Time of second update GPS location : 00:23:29

Ref. Pos	Time	Latitude	Longitude	Def.	Delta	BCH1 Encod./calcul.	BCH2 Encod./calcul.
N° 1	08:02:45	43° 33' 32" N	1° 39' 44" E		50 m	OK	OK
N° 2	08:25:11	43° 32' 00" N	1° 35' 36" E		60 m	OK	OK
N° 3	08:48:40	43° 33' 36" N	1° 28' 36" E		60 m	OK	OK

After "Update Interval" Test sequence the beacon has been deactivated and reactivated and we have noted that the previous position data has been cleared and that the correct default values was encoded in the message

Tests of Position Data Default Values with UUT3 beacon (SN 54143)
Beacon without navigation input (> 4 hours and 5 minutes).

Date : 6 Apr 2006

Always default value after 30 min. : Correct 00:30:05

Time	Latitude	Longitude	Def.	Delta	BCH1 Encod./calcul.	BCH2 Encod./calcul.
08:03:38	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:04:28	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:05:17	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:06:10	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:07:01	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:07:50	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:08:41	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:09:35	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:10:22	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:11:14	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:12:01	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:12:53	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:13:44	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:14:34	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:15:22	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:16:11	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:17:00	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:17:49	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:18:40	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:19:32	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:20:22	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:21:11	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:22:02	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:22:54	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:23:45	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:24:34	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:25:25	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:26:03	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:26:52	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:27:43	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:28:35	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:29:28	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:30:19	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:31:10	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:32:03	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:32:52	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
08:33:43	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010

Last Valid Position with beacon (SN 54143) Date : 6 Apr 2006

Reference position : ITS Lab 43° 33' 34" N
01° 28' 42" E

First burst with Navigation Location encoded in th 19:57:18
FFFE2F8E3F34DFCAE20171F6D1B70F2C0836
National Location Protocol
FR TEST 54143 Homing Internal GPS
pst: N 43d34m delta:-0m28s E 001d28m delta:+0m44s

Last burst with encoded Navigation Location in th 23:56:15

Valid position retained during : 03:58:57 Correct 238,95

Default message after 4 hours with Valid Position Navigation re 23:57:06
FFFE2F8E3F34DFDFC0FF06BBCBB79F3C0010 **Correct**
National Location Protocol
FR TEST 54143 Homing Internal GPS
pst: default value

Time	Latitude	Longitude	Def.	Delta	BCH1 read./calcul.	BCH2 read./calcul.
19:55:38	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
19:56:27	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010
19:57:18	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
19:57:30	Navigation signal removed					
19:58:08	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
19:58:56	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
19:59:47	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:00:39	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:01:27	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:02:19	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:03:07	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:03:58	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:04:50	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:05:39	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:06:27	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:07:16	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:08:05	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:08:55	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:09:45	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:10:37	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:11:28	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:12:16	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:13:08	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:13:59	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:14:52	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:15:40	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:16:31	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:17:20	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:18:08	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:19:00	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:19:52	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:20:45	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:21:36	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:22:27	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:23:20	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:24:09	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:25:00	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:25:48	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:26:37	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:27:27	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:28:18	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:29:08	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836

Time	Latitude	Longitude	Def.	Delta	BCH1 read./calcul.	BCH2 read./calcul.
20:29:56	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:30:45	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:31:36	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:32:27	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:33:18	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:34:06	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:34:54	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:35:44	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:36:32	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:37:21	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:38:10	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:39:00	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:39:49	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:40:38	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:41:28	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:42:16	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:43:07	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:43:58	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:44:49	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:45:38	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:46:27	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:47:18	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:48:09	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:49:00	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:49:49	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:50:38	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:51:30	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:52:21	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:53:13	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:54:03	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:54:50	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:55:39	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:56:27	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:57:16	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:58:06	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:58:55	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
20:59:44	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:00:34	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:01:24	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:02:12	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:03:01	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:03:50	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:04:41	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:05:30	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:06:21	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:07:12	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:08:03	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:08:54	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:09:45	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:10:34	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:11:27	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:12:19	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:13:10	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:14:00	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:14:49	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:15:39	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:16:29	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:17:17	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:18:08	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:18:58	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:19:47	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:20:38	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:21:27	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:22:18	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:23:10	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836

Time	Latitude	Longitude	Def.	Delta	BCH1 read./calcul.	BCH2 read./calcul.
21:24:00	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:24:49	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:25:37	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:26:16	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:27:04	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:27:52	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:28:43	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:29:34	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:30:23	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:31:11	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:32:02	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:32:51	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:33:42	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:34:31	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:35:24	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:36:13	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:37:02	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:37:54	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:38:41	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:39:29	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:40:20	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:41:10	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:41:59	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:42:50	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:43:42	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:44:33	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:45:24	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:46:14	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:47:04	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:47:54	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:48:42	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:49:32	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:50:21	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:51:13	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:52:02	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:52:50	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:53:38	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:54:27	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:55:16	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:56:08	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:57:01	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:57:52	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:58:45	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
21:59:36	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:00:23	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:01:13	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:02:04	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:02:55	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:03:47	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:04:34	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:05:24	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:06:14	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:07:03	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:07:51	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:08:43	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:09:34	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:10:22	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:11:13	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:12:02	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:12:54	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:13:43	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:14:32	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:15:21	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:16:08	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:16:47	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836

Time	Latitude	Longitude	Def.	Delta	BCH1 read./calcul.	BCH2 read./calcul.
22:17:35	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:18:11	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:18:59	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:19:50	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:20:41	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:21:32	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:22:25	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:23:18	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:24:08	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:24:58	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:25:49	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:26:40	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:27:32	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:28:24	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:29:13	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:30:03	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:30:55	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:31:45	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:32:35	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:33:24	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:34:15	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:35:06	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:35:58	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:36:48	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:37:36	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:38:25	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:39:17	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:40:08	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:40:56	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:41:47	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:42:37	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:43:29	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:44:21	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:45:10	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:45:59	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:46:48	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:47:39	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:48:32	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:49:23	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:50:10	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:51:01	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:51:52	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:52:42	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:53:34	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:54:22	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:55:11	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:56:02	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:56:52	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:57:42	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:58:33	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:59:23	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:00:15	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:01:03	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:01:54	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:02:44	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:03:35	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:04:25	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:05:16	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:06:07	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:06:58	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:07:50	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:08:40	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836

Time	Latitude	Longitude	Def.	Delta	BCH1 read./calcul.	BCH2 read./calcul.
23:09:33	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:10:24	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:11:17	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:12:10	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:12:58	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:13:47	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:14:37	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:15:25	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:16:15	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:17:06	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:17:56	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:18:45	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:19:34	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:20:23	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:21:12	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:22:01	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:22:49	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:23:36	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:24:25	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:25:14	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:26:03	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:26:53	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:27:43	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:28:34	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:29:25	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:30:14	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:31:07	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:31:58	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:32:49	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:33:40	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:34:30	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:35:20	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:36:07	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:36:59	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:37:50	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:38:41	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:39:32	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:40:24	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:41:13	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:42:04	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:42:52	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:43:43	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:44:33	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:45:21	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:46:09	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:46:57	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:47:47	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:48:38	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:49:25	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:50:13	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:51:04	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:51:54	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:52:47	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:53:40	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:54:33	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:55:22	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:56:15	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:57:06	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010

Time	Latitude	Longitude	Def.	Delta	BCH1 read./calcul.	BCH2 read./calcul.
22:17:35	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:18:11	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:18:59	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:19:50	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:20:41	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:21:32	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:22:25	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:23:18	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:24:08	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:24:58	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:25:49	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:26:40	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:27:32	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:28:24	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:29:13	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:30:03	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:30:55	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:31:45	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:32:35	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:33:24	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:34:15	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:35:06	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:35:58	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:36:48	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:37:36	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:38:25	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:39:17	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:40:08	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:40:56	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:41:47	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:42:37	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:43:29	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:44:21	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:45:10	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:45:59	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:46:48	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:47:39	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:48:32	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:49:23	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:50:10	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:51:01	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:51:52	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:52:42	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:53:34	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:54:22	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:55:11	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:56:02	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:56:52	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:57:42	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:58:33	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
22:59:23	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:00:15	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:01:03	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:01:54	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:02:44	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:03:35	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:04:25	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:05:16	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:06:07	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:06:58	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:07:50	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:08:40	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836

Time	Latitude	Longitude	Def.	Delta	BCH1 read./calcul.	BCH2 read./calcul.
23:09:33	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:10:24	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:11:17	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:12:10	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:12:58	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:13:47	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:14:37	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:15:25	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:16:15	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:17:06	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:17:56	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:18:45	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:19:34	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:20:23	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:21:12	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:22:01	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:22:49	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:23:36	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:24:25	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:25:14	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:26:03	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:26:53	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:27:43	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:28:34	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:29:25	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:30:14	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:31:07	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:31:58	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:32:49	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:33:40	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:34:30	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:35:20	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:36:07	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:36:59	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:37:50	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:38:41	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:39:32	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:40:24	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:41:13	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:42:04	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:42:52	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:43:43	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:44:33	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:45:21	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:46:09	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:46:57	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:47:47	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:48:38	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:49:25	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:50:13	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:51:04	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:51:54	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:52:47	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:53:40	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:54:33	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:55:22	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:56:15	43°33'32" N	1°28'44" E		0,07 km	07DB46 / 07DB46	836 / 836
23:57:06	127° 0' 60" N	255° 0' 60" E	*		1AEF2E/1AEF2E	010 / 010

ANNEX A

MANUFACTURER TECHNICAL DATA ON
MARTEC EPIRB
KANNAD AUTO/AUTO GPS/MANUAL/
MANUAL GPS/MANUAL+ / MANUAL+ GPS

ANNEX B

ANTENNA TEST RESULTS ON
MARTEC EPIRB
KANNAD AUTO/MANUAL/MANUAL+

1 - ADMINISTRATION

1. WORK ORDER :	Reference ITS : E6668
1. TEST TEAM :	Maël FERRET - Yahia AZZAOUI
1. SCHEDULE :	12 December 2005

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 .
Two antenna test configurations are checked :
1) C/S T.007 configuration 1 - Fig B.4 : Beacon in "Water" Ground Plane
2) C/S T.007 configuration 4 - Fig B.5 : Beacon above Ground Plane

3 - RADIO BEACON IDENTIFICATIONS

Manufacturer :	MARTEC
Model N° :	KANNAD AUTO/MANUAL/MANUAL+
PN / SN :	BUT 4 / 59374
Antenna :	MARTEC Integrated Whip Antenna

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 is placed as shown on figure N° 1, B2, B5, B6 and N° 3.

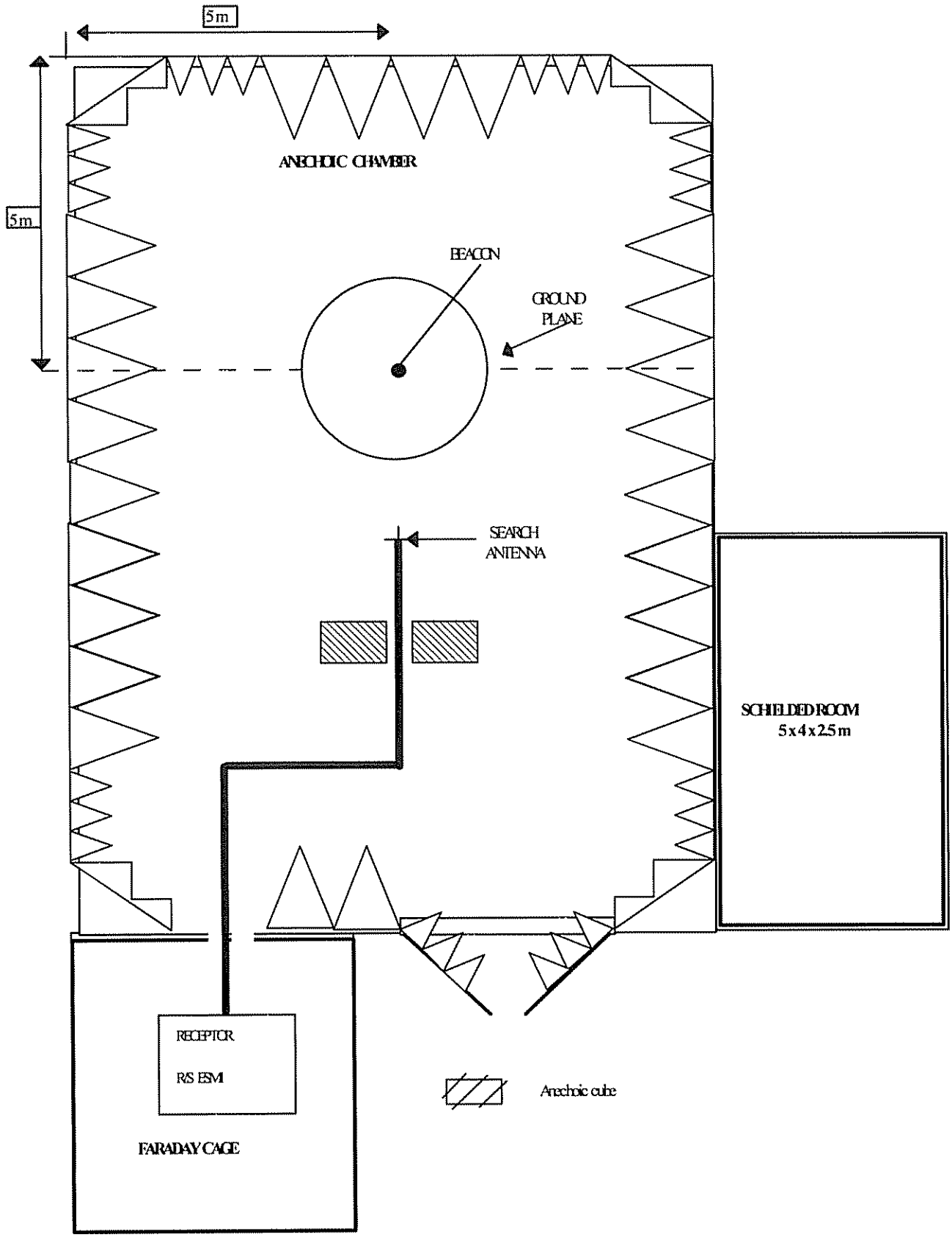
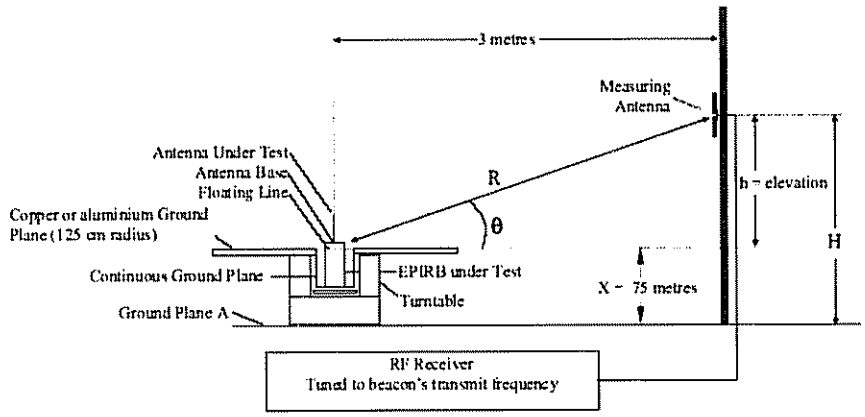

5m
5m
ANECHOIC CHAMBER
BEACON
GROUND PLANE
SEARCH ANTENNA
SCHIELDED ROOM
5x4x2.5m
RECEPTOR
RS ESM
FARADAY CAGE
Arechoic cube

FIGURE 1

Figure B.4: Test Configuration for "EPIRB-like" Devices (i.e. beacons designed to operate while floating in water)



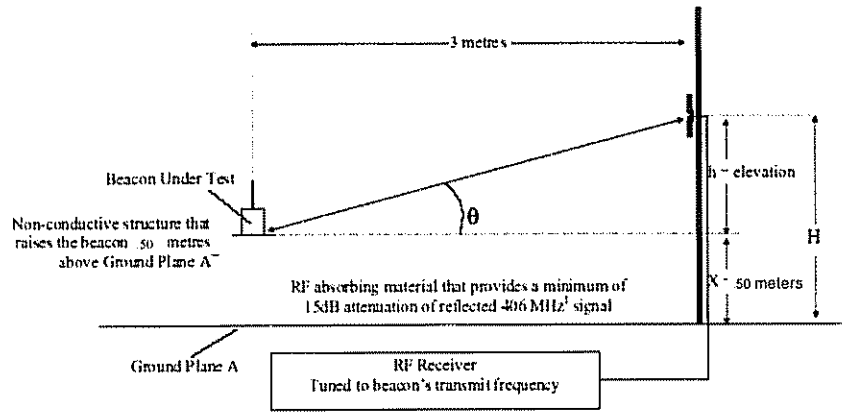
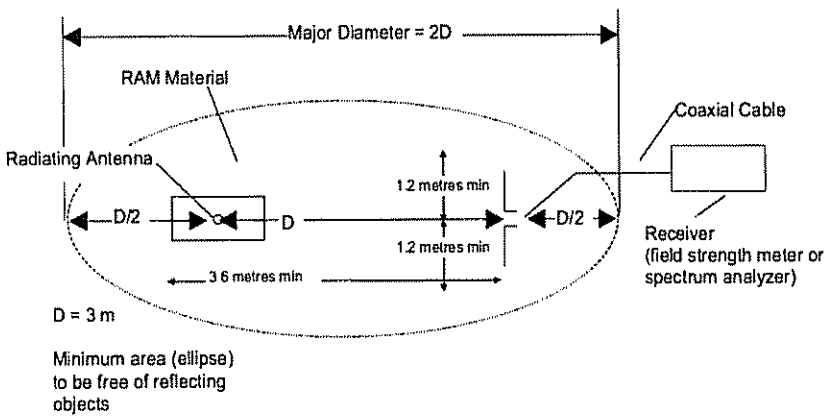


Figure B 5 adapted in November 2005 : **Additional Test Configuration for all Devices that Might be Required to Operate Without a Ground Plane**

Figure B 5 adapted in November 2005 : **Test Site Plan View with RAM Material**



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 centre 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 dBµV/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°).
Length of search antenna is adjusted to proper l/2 λ 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 :

Test Configurations	EIRP Required
Figures B.2, B.3, and B.	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

6 - TESTS EQUIPMENTS

6.1. SEARCH ANTENNA

- 406 MHz test : EMCO Ref 3121 C- DB4 Dipole antenna
  Serial number : S/N 1436
  Calibration validity : dec 2005

6.2. SPECTRUM ANALYSER

- Manufacturer HP 8566
  Reference : RF : 85660B F1 : 85662A
  Serial number : 2449A01077 2403A08359
  Calibration validity : oct-06

6.3. CABLES

- 2x10 m cable SUCOFLEX type N
  Cable loss at 406 MHz is : 4,1 dB

7 - TESTS OPERATIONS

7.1. EMISSION FIELD STRENGTH FROM BEACON

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

- Antenna factor of search antenna AF in dB
- Directivity factor of the vertical search antenna Dm in dB (Theoretical directivity shown paragraph B-5-4 of C/S T007) as :

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

- Cable loss L = 4,1 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 :

$$EdB\mu V/m = UdB\mu V + AF - Dm + L + DF$$

7.2. POWER CORRECTION FACTORS

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	37,4 dBm	36,7 dBm	0,7 dB

8 - RADIATED POWER CALCULATIONS

8.1. EFFECTIVE ISOTROPICALLY RADIATED POWER OF BEACON

EIRP of Beacon is directly calculated from equation :

$$EIRP = E^2 \times D^2 / 30$$

EIRP = W
E = V/m
D = m

Results shown in table F.B. are given in dBm where :

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

and apparent antenna gain :

$$GidB = EIRP_{dBm} - RF\ Power_{dBm}$$

9 - SUCCESS CRITERIA

Test Configurations	EIRP Required
Figures B.2, B.3, and B.	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 - BEACON ANTENNA POLARIZATION

Beacon antenna polarization is checked according to C/S T007 procedure paragraph B9. Beacon antenna polarization is declared linear when induced voltage measurements Vv and Vh for at least 80% of all angular coordinates differ by at least 10 dB.

Antenna model	**C/S T.007 Test Conf.**	**Min difference (Vv - Vh)** (See F.B Tables)	**Antenna Polarization**
Integrated Whip Antenna	B2	17,2 dB	Linear Vertical

11 - BEACON MECHANICAL SET UP

Beacon 0°axis is identified with 0° azimuth direction of turn table .
Antenna is the centre of rotation of azimuth angle.

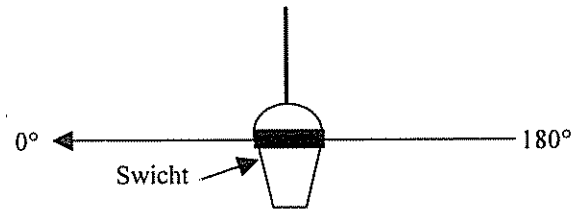
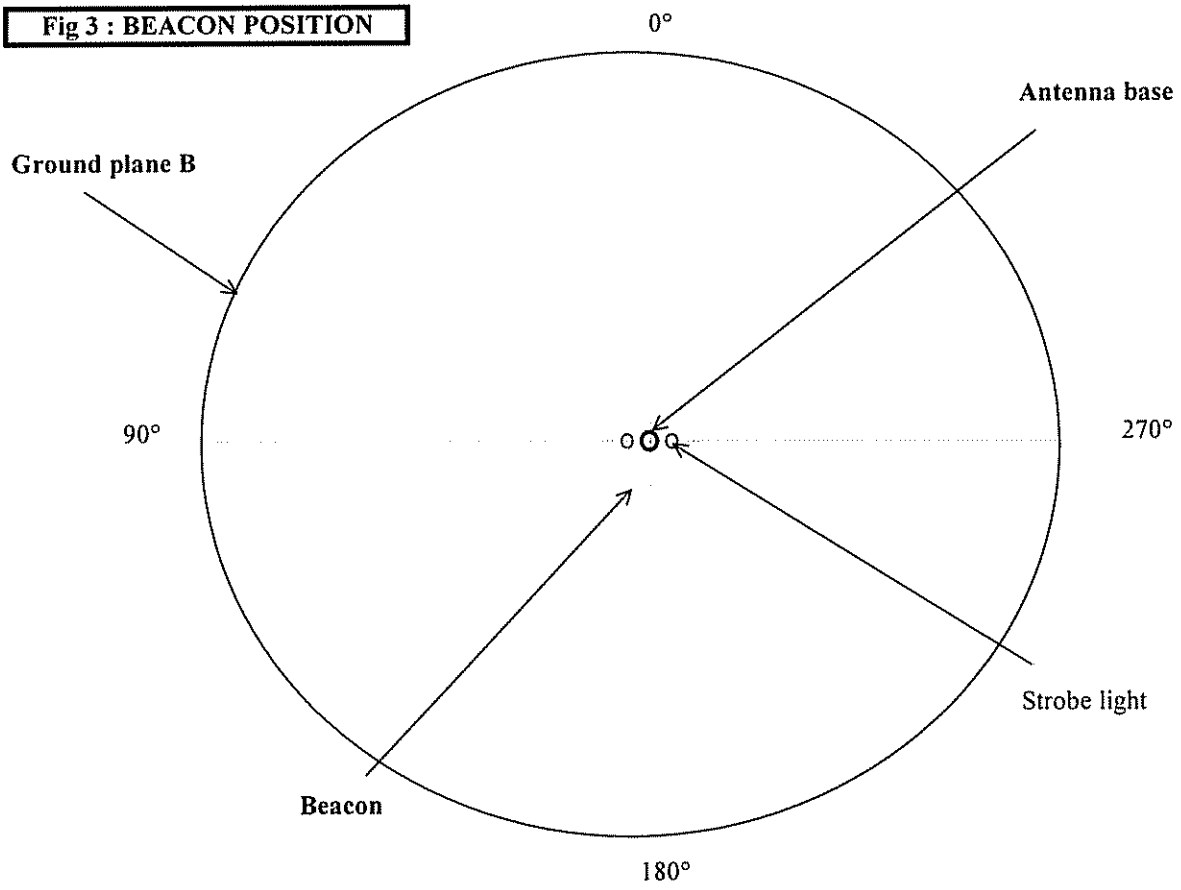


Fig 3 : BEACON POSITION



NOT TO SCALE

12 - RESULTS

Test Configurations	Polarization	Reference EIRP (dBm)	Measurement EIRP	Results
Figures B.2, B.3, and B.	Vertical	32 < EIRP Ref< 43 (90%)	According tables F-B.1&2	100%
Figure B.5	Vertical	30 < EIRP Ref< 43 (80%)	According tables F-B.3	80%

CONCLUSIONS

The Beacon Antenna is declared in EIRP Ref tolerance

406 MHz BEACON ANTENNA TEST RESULTS - B.4 Test Configuration

Beacon Model : MARTEC KANNAD AUTO/MANUAL/MANUAL+ EPIRB
Antenna Model : Integrated Whip Antenna
Test Configuration : For "EPIRB-like" Devices (Figure B.4)

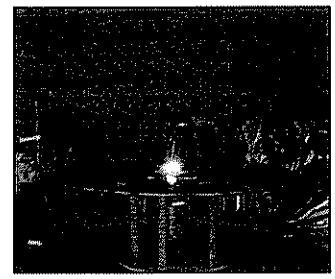


Table F-B.1 : Equivalent Isotropically Radiated Power (dBm) / Antenna Gain (dBi)

Azimuth Angle (degrees)	Elevation Angle(degrees)									
	10		20		30		40		50	
	dBm	dBi	dBm	dBi	dBm	dBi	dBm	dBi	dBm	dBi
0	39,90	2,50	42,30	4,90	40,89	3,49	37,36	-0,04	34,68	-2,72
30	39,81	2,41	42,30	4,90	40,78	3,38	37,46	0,06	34,18	-3,22
60	39,91	2,51	42,30	4,90	40,78	3,38	37,57	0,17	34,72	-2,68
90	39,61	2,21	42,29	4,89	40,78	3,38	37,57	0,17	34,42	-2,98
120	39,61	2,21	42,30	4,90	40,88	3,48	37,68	0,28	34,15	-3,25
150	39,50	2,10	42,20	4,80	40,78	3,38	37,56	0,16	34,13	-3,27
180	39,60	2,20	42,10	4,70	40,78	3,38	37,66	0,26	33,99	-3,41
210	39,41	2,01	41,91	4,51	40,88	3,48	37,56	0,16	33,87	-3,53
240	39,31	1,91	41,80	4,40	40,78	3,38	37,76	0,36	34,38	-3,02
270	39,21	1,81	41,90	4,50	40,79	3,39	37,57	0,17	34,29	-3,11
300	39,41	2,01	42,00	4,60	40,89	3,49	37,58	0,18	34,20	-3,20
330	39,51	2,11	42,10	4,70	40,79	3,39	37,47	0,07	34,68	-2,72
Overall Gain Variation (dB)	0,70		0,50		0,11		0,40		0,84	

$ERP_{max\ EOL}$ = **MAX** [ERP_{max}, (ERP_{max} - ERP_{LOSS}] = **MAX (** 42,30 41,60 **)** = 42,30 dBm

$ERP_{min\ EOL}$ = **MIN** [ERP_{min}, (ERP_{min} - ERP_{LOSS}] = **MIN (** 33,87 33,17 **)** = 33,17 dBm

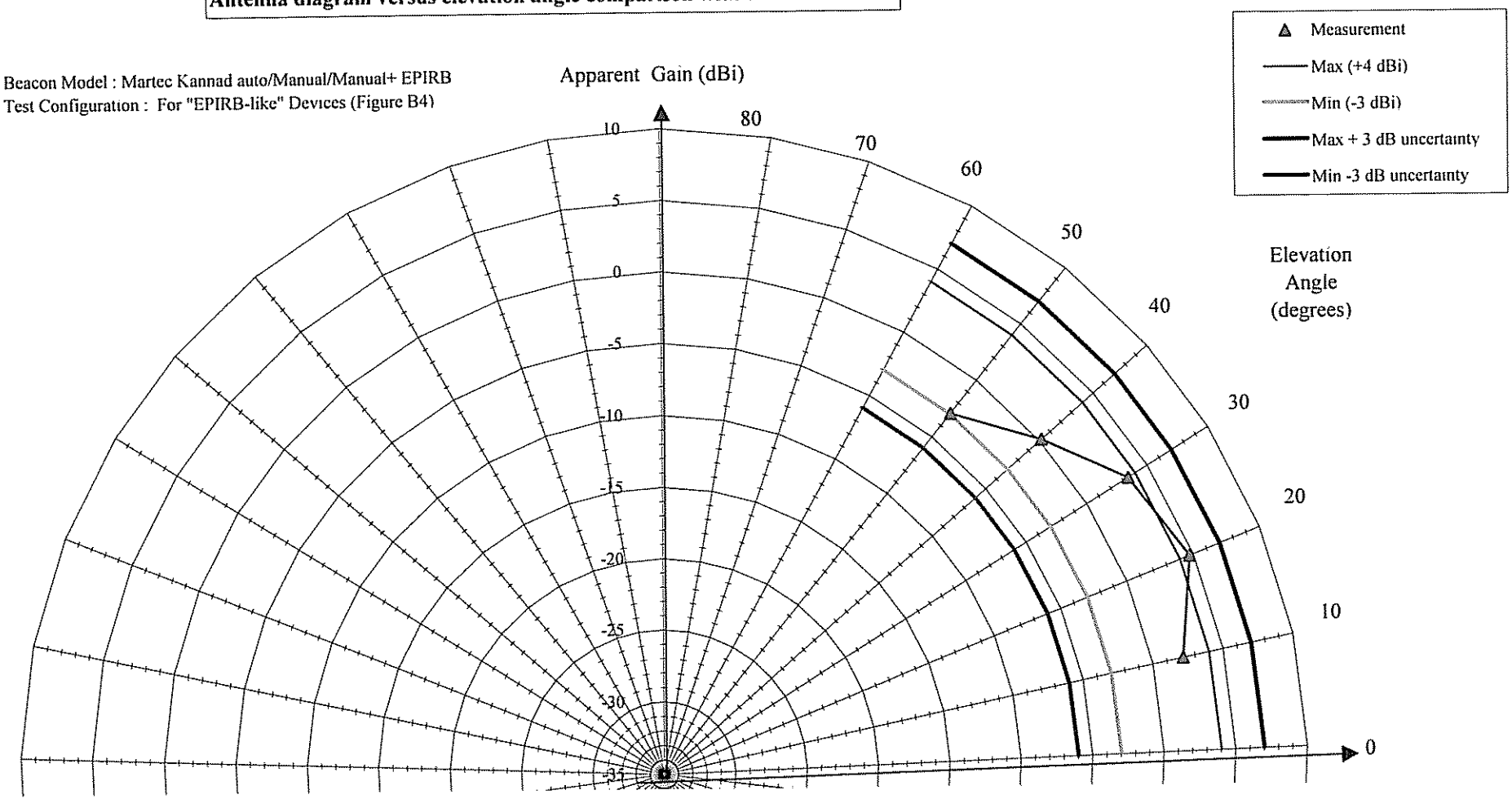
Table F-B.2 : INDUCED Voltage Measurements Vv / Vh (dBµV)

Azimuth Angle (Degrees)	**Elevation Angle (Degrees)**									
	10		**20**		**30**		**40**		**50**	
	Vv	Vh	Vv	Vh	Vv	Vh	Vv	Vh	Vv	Vh
0	109,99	81,00	111,98	85,70	109,86	83,00	105,26	75,40	101,05	75,90
30	109,89	85,00	111,98	84,00	109,76	71,40	105,36	75,90	100,55	75,40
60	109,99	82,50	111,98	86,20	109,76	72,90	105,46	81,50	101,05	82,10
90	109,69	81,90	111,98	78,50	109,76	71,10	105,46	80,90	100,75	81,80
120	109,69	81,80	111,98	83,40	109,86	78,30	105,56	83,30	100,45	83,30
150	109,59	77,10	111,88	82,80	109,76	72,30	105,46	80,20	100,45	82,40
180	109,69	80,90	111,78	83,40	109,76	72,60	105,56	75,50	100,35	78,50
210	109,49	82,60	111,58	87,40	109,86	71,60	105,46	75,80	100,25	74,00
240	109,39	82,10	111,48	85,10	109,76	78,10	105,66	78,50	100,75	76,00
270	109,29	83,90	111,58	84,70	109,76	81,90	105,46	80,80	100,65	79,00
300	109,49	84,10	111,68	84,00	109,86	83,70	105,46	83,80	100,55	80,40
330	109,59	83,90	111,78	84,30	109,76	83,00	105,36	80,60	101,05	76,40
Min (Vv-Vh)	24,9		24,2		26,2		21,7		17,2	

Antenna Polarization : Linear Vertical

Antenna diagram versus elevation angle comparison with theoritical limits

Beacon Model : Martec Kannad auto/Manual/Manual+ EPIRB
Test Configuration : For "EPIRB-like" Devices (Figure B4)



406 MHz BEACON ANTENNA TEST RESULTS - B.5 Test Configuration

Beacon Model : MARTEC KANNAD AUTO/MANUAL/MANUAL+ EPIRB
Antenna Model : Integrated Whip Antenna
Test Configuration : For all Devices that Might be Required to Operate Without a Ground Plane

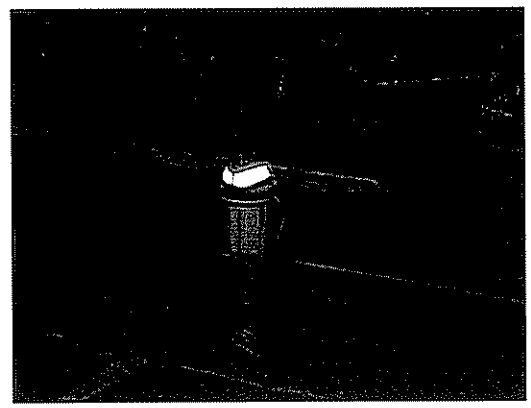


Table F-B.3 : Equivalent Isotropically Radiated Power (dBm) / Antenna Gain (dBi)

Azimuth Angle (degrees)	Elevation Angle(degrees)									
	10		20		30		40		50	
	dBm	dBi	dBm	dBi	dBm	dBi	dBm	dBi	dBm	dBi
0	36,65	-0,75	36,54	-0,86	33,35	-4,05	30,02	-7,38	33,69	-3,71
90	36,70	-0,70	36,79	-0,61	33,84	-3,56	31,00	-6,40	34,69	-2,71
180	36,31	-1,09	36,43	-0,97	33,35	-4,05	30,63	-6,77	34,27	-3,13
270	36,43	-0,97	36,17	-1,23	33,02	-4,38	30,28	-7,12	33,71	-3,69
Overall Gain Variation (dB)	0,40		0,62		0,83		0,72		1,00	

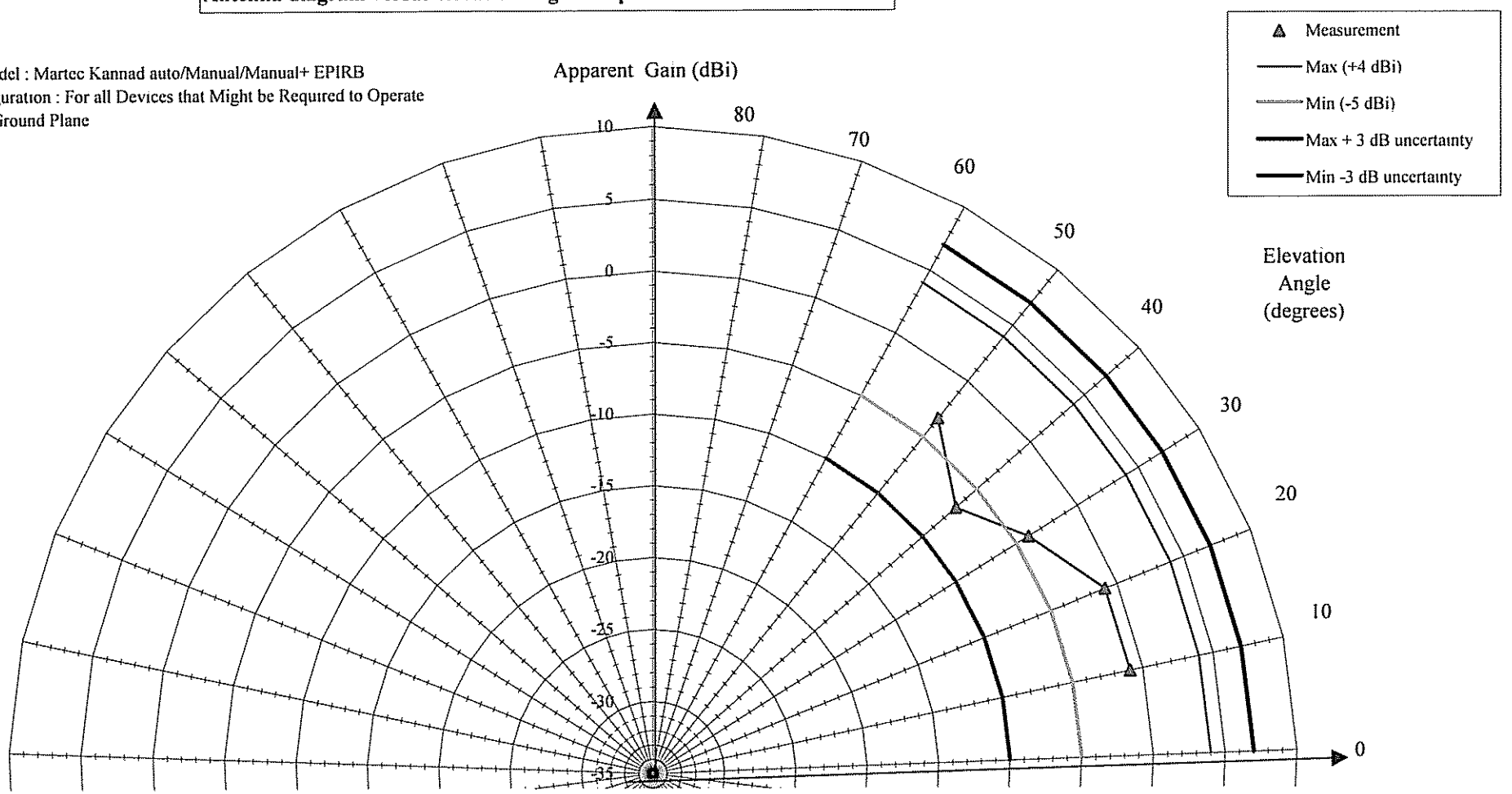
$ERP_{LOSS} = Pt_{AMB} - Pt_{EOL} =$ 0,7 dB

$ERP_{max\ EOL} = \mathbf{MAX}\ [ERP_{max}, (ERP_{max} - ERP_{LOSS}]$ **MAX (** 36,79 36,09) = 36,79 dBm

$ERP_{min\ EOL} = \mathbf{MIN}\ [ERP_{min}, (ERP_{min} - ERP_{LOSS}] =$ **MIN (** 30,02 29,32) = 29,32 dBm

Antenna diagram versus elevation angle comparison with theoritical limits

on Model : Martec Kannad auto/Manual/Manual+ EPIRB
Configuration : For all Devices that Might be Required to Operate out a Ground Plane




Intespace

ANNEX C
SATELLITE INTERIM PLB TEST RESULTS ON
MARTEC TOPAZE EPIRB
N° 59374 and 57990

1 - ADMINISTRATION

1.1 WORK ORDER :	Reference ITS :	E6668-SatPLBInt
	Manufacturer :	MARTEC
	Adress : ZI DES Cinq Chemins - 56520 GUIDEL France	
	Represented by :	
1.2 TEST TEAM :	Gérard PEYROU	
1.3 SCHEDULE :	Start of test :19 JANUARY 2006	
	End of test : 23 JANUARY 2006	

2 - PURPOSE

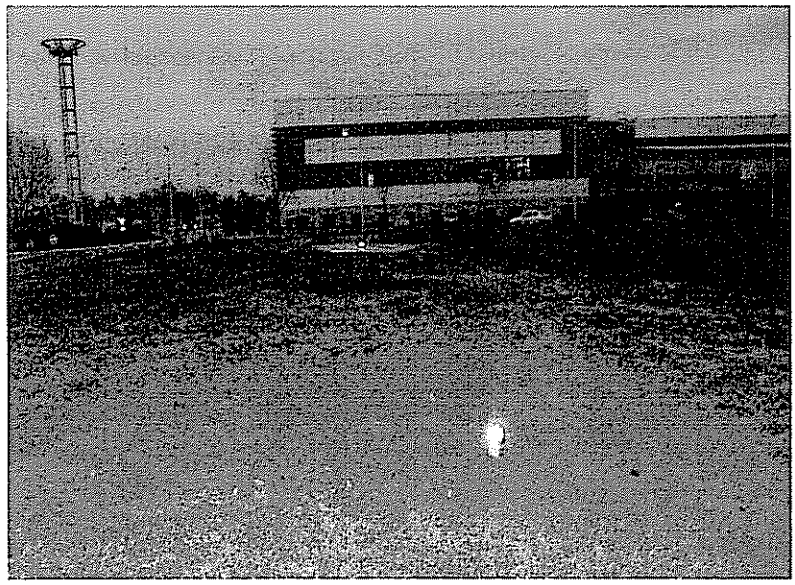
The Interim PLB tests of the dedicated radio beacon are performed in INTESPACE Laboratory in compliance with the test methods described in the C/S File :
" Interim Type Approval Requirements for 406 MHz PLB Testing"

3 - RADIO BEACON IDENTIFICATIONS

Manufacturer :	MARTEC
Model N° :	TOPAZE
Serial N° :	59374 (UUT4) and 57990 (UUT5)
Antenna model N°	Topaze integrated antennas

4 - TEST SITE DESCRIPTION

Tests are performed outside of the INTESPACE laboratory in CNES area .
One beacon UUT 5 S/N 57990 1 is placed on C/S T.007ground plane as fig B4.
The other beacon UUT 4 S/N 59374 is installed on dry ground, in a free area.



5 - TEST METHOD

The test method describe here after, according to C/S File : "Interim and Alternative Interim Type Approval Requirementsfor 406 MHz PLB Antenna Testing", is executed following "Alternative InterimType Approval Requirementsfor 406 MHz PLB Testing"
One Beacon is placed on center of the electrical ground plane,
the second directly on dry ground.
The two beacons transmit test messages during 30 hours.

After the test, data of each beacons are recovered from Toulouse MCC.

1/ The number of burst received by the beacon placed on dry ground must be at least 80% of the number received by the beacon placed on the center of the ground plane.

2/ The average signal level between the two configuartions should not be differ than 6dB with an uncertainty of 3dB as extra margin.

6 - TESTS EQUIPMENTS

1/ Dry ground in open space.

2/ External circular ground plane.

7 - TESTS OPERATIONS and RESULTS

7.1. Data Reduction :

See next pages the data reduction of 406ANT1(P03-1)
and 406ANT2(P03-2) beacons recovered from 2271 MCC LUT

7.2. Average Received Beacon Burst Power

Avg Linear Power for T.007 Configuration (B2a : ANT1)	Avg Linear Power for Beacon on ground (ANT2)	Relative Avg Power
-122,5 dBm	-128,7 dBm	7,0 dB

7.3. Throughtput

Number of Bursts Received T.007 Configuration	Number of Bursts Received Beacon on Ground	Relative Troughput
330	416	79%

8 - CONCLUSION

Tacking account of uncertainties of measurements the Beacon above described pass the C/S PLB Interim Test

MCC Data Reduction of MARTEC TOPAZE EPIRB
on C/S T.007 Ground Plane
Beacon : 57990 (UUT5)
Antenna : Martec Integrated antenna
Beacon ID : 1C7E7 1433F 81FE0
LUT ID : 2272

Total Burst	416	Avg Lin Power	-122.5 dBm

Satellite ID	Rx Time	Rx Power (dBm)	Rx Power (mW)
6	19/01/06 19:29:52	-138 2	1.5E-14
6	19/01/06 19:30:40	-135.46	2 8E-14
6	19/01/06 19:31:28	-131.81	6.6E-14
6	19/01/06 19:32:16	-128.88	1.3E-13
6	19/01/06 19:33:03	-126.89	2.0E-13
6	19/01/06 19:33:52	-121 88	6.5E-13
6	19/01/06 19:34:41	-127.28	1 9E-13
6	19/01/06 19:35:32	-124,38	3.6E-13
6	19/01/06 19:36:23	-124.85	3.3E-13
6	19/01/06 19:37:13	-126,06	2.5E-13
6	19/01/06 19:38:03	-128.81	1 3E-13
6	19/01/06 19:38:55	-128,46	1.4E-13
6	19/01/06 19:39:45	-132,8	5.2E-14
6	19/01/06 19:40:33	-136.53	2 2E-14
6	19/01/06 19:41:21	-139.07	1.2E-14
6	19/01/06 21:09:06	-132.91	5.1E-14
6	19/01/06 21:09:56	-127.95	1,6E-13
6	19/01/06 21:10:46	-133.29	4.7E-14
6	19/01/06 21:11:33	-125.11	3.1E-13
6	19/01/06 21:12:23	-124,45	3.6E-13
6	19/01/06 21:13:11	-122,4	5.8E-13
6	19/01/06 21:14:02	-119.8	1.0E-12
6	19/01/06 21:14:52	-122,5	5.6E-13
6	19/01/06 21:15:41	-120 26	9.4E-13
6	19/01/06 21:16:33	-139.71	1.1E-14
6	19/01/06 21:17.23	-141.67	6.8E-15
6	19/01/06 21:18:15	-122 55	5,6E-13
6	19/01/06 21:19:02	-123.89	4 1E-13
6	19/01/06 21:19.52	-129 81	1.0E-13
6	19/01/06 21:20:40	-135 88	2.6E-14
6	19/01/06 21:21:32	-136.14	2.4E-14
6	19/01/06 21:22:21	-138,98	1.3E-14
6	20/01/06 07:51:16	-138,2	1.5E-14
6	20/01/06 07:52:04	-130,65	8.6E-14
6	20/01/06 07:52:51	-129 32	1.2E-13
6	20/01/06 07:53:41	-129.61	1 1E-13
6	20/01/06 07:54:31	-136,44	2.3E-14
6	20/01/06 07:55:20	-130.73	8.5E-14
6	20/01/06 07:56:08	-132 55	5.6E-14
6	20/01/06 07:56:59	-132.16	6 1E-14
6	20/01/06 07:57:49	-140,05	9.9E-15
6	20/01/06 07:58:39	-138.53	1.4E-14
6	20/01/06 11:10:41	-132,44	5.7E-14
6	20/01/06 11:11:29	-128,68	1.4E-13
6	20/01/06 11:12:21	-125.92	2,6E-13
6	20/01/06 11:13:11	-125.93	2,6E-13
6	20/01/06 11:13:59	-126,6	2.2E-13
6	20/01/06 11:15:38	-124,76	3.3E-13
6	20/01/06 11:16:26	-143.01	5.0E-15
6	20/01/06 11:17:15	-128,76	1 3E-13
6	20/01/06 11:18:56	-131.72	6.7E-14
6	20/01/06 22:42:47	-136,39	2.3E-14
6	20/01/06 22:44:25	-135,87	2.6E-14
6	20/01/06 22:45:17	-140,63	8.6E-15
6	20/01/06 22:46:05	-143,5	4.5E-15
6	20/01/06 22:46:55	-136.58	2 2E-14
7	19/01/06 18:12:01	-135,49	2.8E-14
7	19/01/06 18:12:52	-128.88	1.3E-13
7	19/01/06 18:13:44	-138.28	1.5E-14
7	19/01/06 18:14:32	-124,48	3,6E-13
7	19/01/06 18:15:20	-123,86	4.1E-13
7	19/01/06 18:16:12	-124,39	3.6E-13
7	19/01/06 18:17:03	-121.18	7.6E-13
7	19/01/06 18:17:51	-114,62	3.5E-12
7	19/01/06 18:18:39	-121,18	7.6E-13
7	19/01/06 18:19:30	-142,9	5 1E-15
7	19/01/06 18:20:18	-123.73	4,2E-13
7	19/01/06 18:21:09	-119.13	1.2E-12
7	19/01/06 18:21:57	-125,28	3.0E-13
7	19/01/06 18:22:45	-129,2	1.2E-13
7	19/01/06 18:23:35	-129.27	1.2E-13
7	19/01/06 18:24:26	-140.83	8.3E-15
7	20/01/06 04:47:27	-124.21	3.8E-13
7	20/01/06 04:48:16	-135.54	2.8E-14
7	20/01/06 04:49:04	-132.05	6.2E-14
7	20/01/06 04:49:52	-130,43	9.1E-14
7	20/01/06 04:50:43	-129.98	1 0E-13
7	20/01/06 04:51:34	-147 12	1.9E-15
7	20/01/06 04:52:24	-131.02	7.9E-14

Satellite ID	Rx Time	Rx Power (dBm)	Rx Power (mW)
7	20/01/06 04:53:15	-127 38	1.8E-13
7	20/01/06 04:54:06	-136,62	2.2E-14
7	20/01/06 04:54:53	-135.72	2.7E-14
7	20/01/06 04:55:44	-143 36	4.6E-15
7	20/01/06 04:56:36	-135.66	2.7E-14
7	20/01/06 06:25:11	-135.49	2 8E-14
7	20/01/06 06:26:03	-140.39	9.1E-15
7	20/01/06 06:26:52	-129.85	1.0E-13
7	20/01/06 06:27:44	-126.82	2 1E-13
7	20/01/06 06:28:32	-127.02	2.0E-13
7	20/01/06 06:29:24	-123,42	4.5E-13
7	20/01/06 06:30:15	-139.07	1.2E-14
7	20/01/06 06:31:04	-126,84	2 1E-13
7	20/01/06 06:32:43	-134.52	3.5E-14
7	20/01/06 06:33:31	-123.08	4,9E-13
7	20/01/06 06:34:18	-120,92	8.1E-13
7	20/01/06 06:35:08	-123,1	4,9E-13
7	20/01/06 06:35:59	-122,07	6,2E-13
7	20/01/06 06:36:49	-120,5	8 9E-13
7	20/01/06 06:37:41	-128,34	1.5E-13
7	20/01/06 06:38:31	-136.12	2.4E-14
7	20/01/06 08:06:39	-131.54	7.0E-14
7	20/01/06 08:07:28	-130,13	9.7E-14
7	20/01/06 08:08:18	-126.9	2.0E-13
7	20/01/06 08:09:09	-130,3	9.3E-14
7	20/01/06 08:09:58	-128.07	1.6E-13
7	20/01/06 08:10:47	-127 28	1 9E-13
7	20/01/06 08:11:37	-126,27	2,4E-13
7	20/01/06 08:12:25	-125.99	2.5E-13
7	20/01/06 08:13:17	-125 53	2 8E-13
7	20/01/06 08:14:05	-128,16	1.5E-13
7	20/01/06 08:14:55	-136.2	2.4E-14
7	20/01/06 08:15:44	-132,1	6.2E-14
7	20/01/06 16:08:15	-125.34	2 9E-13
7	20/01/06 16:09:04	-118	1.6E-12
7	20/01/06 16:09:55	-137.18	1.9E-14
7	20/01/06 16:10:43	-136.81	2.1E-14
7	20/01/06 16:11:31	-130,39	9.1E-14
7	20/01/06 16:12:23	-127 86	1.6E-13
7	20/01/06 16:13:14	-127.91	1.6E-13
7	20/01/06 16:14:05	-142.47	5.7E-15
7	20/01/06 16:14:54	-127.29	1 9E-13
7	20/01/06 16:15:45	-125.14	3.1E-13
7	20/01/06 16:16:36	-126.82	2.1E-13
7	20/01/06 16:17:26	-142.51	5.6E-15
7	20/01/06 16:18:17	-129.56	1.1E-13
7	20/01/06 16:19:05	-137,51	1,8E-14
7	20/01/06 16:19:56	-134.5	3.5E-14
7	20/01/06 17:48:05	-125 9	2,6E-13
7	20/01/06 17:48:53	-119,7	1.1E-12
7	20/01/06 17:49:44	-120.82	8.3E-13
7	20/01/06 17:50:32	-117.44	1.8E-12
7	20/01/06 17:51:22	-114.06	3 9E-12
7	20/01/06 17:52:13	-114,62	3.5E-12
7	20/01/06 17:53:01	-112 36	5.8E-12
7	20/01/06 17:53.51	-112 93	5.1E-12
7	20/01/06 17:54:40	-114,62	3.5E-12
7	20/01/06 17:55:31	-115,18	3.0E-12
7	20/01/06 17:56:23	-118	1.6E-12
7	20/01/06 17:57:13	-115,18	3,0E-12
7	20/01/06 17:58:02	-118	1.6E-12
7	20/01/06 17:58:50	-120 26	9.4E-13
7	20/01/06 17:59:38	-123.64	4.3E-13
7	20/01/06 18:00:29	-124,77	3.3E-13
8	20/01/06 02:29:55	-143,5	4.5E-15
8	20/01/06 02:30:45	-140,88	8 2E-15
8	20/01/06 02:32:08	-128,1	1.5E-13
8	20/01/06 02:33:00	-126,18	2,4E-13
8	20/01/06 02:33:48	-123,69	4.3E-13
8	20/01/06 02:35:13	-122,63	5.5E-13
8	20/01/06 02:36:04	-127.16	1.9E-13
8	20/01/06 02:36:55	-130.13	9.7E-14
8	20/01/06 02:37:47	-132.87	5.2E-14
8	20/01/06 02:38:36	-134.88	3.3E-14
8	20/01/06 02:39.24	-115.75	2 7E-12
8	20/01/06 02:40:16	-136.88	2.1E-14
8	20/01/06 02:41:08	-137 71	1 7E-14

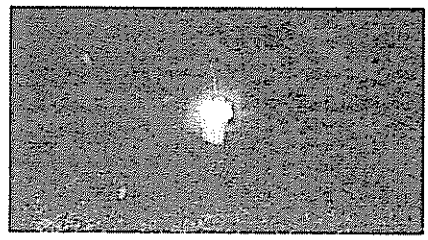
Satellite ID	Rx Time	Rx Power (dBm)	Rx Power (mW)
8	20/01/06 04:10:13	-137.84	1.6E-14
8	20/01/06 04:11:03	-130.98	8.0E-14
8	20/01/06 04:11:53	-124.86	3.3E-13
8	20/01/06 04:12:40	-140.93	8.1E-15
8	20/01/06 04:13:32	-137,55	1.8E-14
8	20/01/06 04:14:23	-128.1	1.5E-13
8	20/01/06 04:15:11	-125.15	3.1E-13
8	20/01/06 04:16:00	-125,97	2.5E-13
8	20/01/06 04:16:50	-125,2	3.0E-13
8	20/01/06 04:17:38	-124,59	3.5E-13
8	20/01/06 04:18:26	-123,69	4.3E-13
8	20/01/06 04:19:17	-124,9	3.2E-13
8	20/01/06 04:20:05	-125,36	2.9E-13
8	20/01/06 04:20:56	-129.9	1.0E-13
8	20/01/06 04:21:47	-131,9	6.5E-14
8	20/01/06 04:22:38	-139.28	1.2E-14
8	20/01/06 05:52:04	-137.72	1.7E-14
8	20/01/06 05:52:54	-135.92	2.6E-14
8	20/01/06 05:53:43	-128.85	1.3E-13
8	20/01/06 05:54:32	-125.78	2.6E-13
8	20/01/06 05:55:20	-132,56	5.5E-14
8	20/01/06 05:56:09	-128,4	1.4E-13
8	20/01/06 05:56:58	-128,7	1.3E-13
8	20/01/06 05:57:47	-131.94	6.4E-14
8	20/01/06 05:58:36	-137,18	1.9E-14
8	20/01/06 12:19:26	-125.9	2.6E-13
8	20/01/06 12:20:17	-141.15	7.7E-15
8	20/01/06 12:21:05	-137.34	1.8E-14
8	20/01/06 12:21:56	-131.96	6.4E-14
8	20/01/06 12:22:47	-131.53	7.0E-14
8	20/01/06 12:23:36	-142.02	6.3E-15
8	20/01/06 12:24:26	-141.05	7.9E-15
8	20/01/06 12:25:17	-120.26	9.4E-13
8	20/01/06 12:26:54	-124.77	3.3E-13
8	20/01/06 13:56:35	-127.59	1.7E-13
8	20/01/06 13:57:26	-126,46	2.3E-13
8	20/01/06 13:58:15	-120.26	9.4E-13
8	20/01/06 13:59:04	-115.18	3.0E-12
8	20/01/06 13:59:55	-116,88	2.1E-12
8	20/01/06 14:00:45	-114,06	3.9E-12
8	20/01/06 14:01:34	-112.36	5.8E-12
8	20/01/06 14:02:26	-118	1.6E-12
8	20/01/06 14:03:14	-127.03	2.0E-13
8	20/01/06 14:04:05	-127.59	1.7E-13
8	20/01/06 14:04:54	-113,49	4.5E-12
8	20/01/06 14:05:43	-115.18	3.0E-12
8	20/01/06 14:06:34	-115.18	3.0E-12
8	20/01/06 14:07:25	-113,49	4.5E-12
8	20/01/06 14:08:15	-118	1.6E-12
8	20/01/06 14:09:48	-125,9	2.6E-13
8	20/01/06 15:39:18	-123.08	4.9E-13
8	20/01/06 15:40:09	-125.34	2.9E-13
8	20/01/06 15:40:57	-121.95	6.4E-13
8	20/01/06 15:41:46	-116.88	2.1E-12
8	20/01/06 15:42:36	-118	1.6E-12
8	20/01/06 15:43:25	-115.18	3.0E-12
8	20/01/06 15:44:14	-118	1.6E-12
8	20/01/06 15:45:02	-118	1.6E-12
8	20/01/06 15:45:52	-119,7	1.1E-12
8	20/01/06 15:46:41	-119.13	1.2E-12
8	20/01/06 15:47:29	-119,13	1.2E-12
8	20/01/06 15:48:20	-119,7	1.1E-12
8	20/01/06 15:49:09	-124.21	3.8E-13
8	20/01/06 15:50:00	-130.98	8.0E-14
8	20/01/06 15:50:48	-125.34	2.9E-13
9	19/01/06 19:48:45	-141.24	7.5E-15
9	19/01/06 19:49:35	-136,39	2.3E-14
9	19/01/06 19:50:23	-134,48	3.6E-14
9	19/01/06 19:51:12	-132,56	5.5E-14
9	19/01/06 19:52:02	-129,7	1.1E-13
9	19/01/06 19:52:54	-131.54	7.0E-14
9	19/01/06 19:53:44	-142.28	5.9E-15
9	19/01/06 19:54:32	-132.39	5.8E-14
9	19/01/06 19:55:20	-136.11	2.4E-14
9	19/01/06 19:56:11	-138.94	1.3E-14
9	19/01/06 19:57:02	-126.46	2.3E-13
9	19/01/06 21:26:31	-120.26	9.4E-13
9	19/01/06 21:27:22	-118	1.6E-12
9	19/01/06 21:28:12	-115.75	2.7E-12
9	19/01/06 21:29:04	-115.18	3.0E-12
9	19/01/06 21:29:53	-113,49	4.5E-12
9	19/01/06 21:30:42	-115.75	2.7E-12
9	19/01/06 21:31:30	-129.28	1.2E-13
9	19/01/06 21:32:21	-122.52	5.6E-13
9	19/01/06 21:33:13	-117.44	1.8E-12
9	19/01/06 21:34:01	-112.93	5.1E-12
9	19/01/06 21:34:49	-114.06	3.9E-12
9	19/01/06 21:35:37	-114.62	3.5E-12
9	19/01/06 21:36:29	-118	1.6E-12
9	19/01/06 21:37:18	-119.13	1.2E-12
9	19/01/06 21:38:09	-127.03	2.0E-13
9	19/01/06 21:38:58	-131.54	7.0E-14

Satellite ID	Rx Time	Rx Power (dBm)	Rx Power (mW)
9	19/01/06 23:07:04	-140	1.0E-14
9	19/01/06 23:07:52	-139.23	1.2E-14
9	19/01/06 23:08:40	-133.92	4.1E-14
9	19/01/06 23:09:31	-125.71	2.7E-13
9	19/01/06 23:10:22	-125.94	2.5E-13
9	19/01/06 23:11:12	-125.26	3.0E-13
9	19/01/06 23:12:00	-125.72	2.7E-13
9	19/01/06 23:12:50	-124,25	3.8E-13
9	19/01/06 23:13:40	-127.22	1.9E-13
9	19/01/06 23:14:28	-124.52	3.5E-13
9	19/01/06 23:15:18	-128.25	1.5E-13
9	19/01/06 23:16:10	-125.22	3.0E-13
9	19/01/06 23:16:59	-135.72	2.7E-14
9	19/01/06 23:17:50	-128.09	1.6E-13
9	19/01/06 23:18:39	-135.49	2.8E-14
9	20/01/06 09:41:36	-147.46	1.8E-15
9	20/01/06 09:42:25	-136.71	2.1E-14
9	20/01/06 09:43:16	-132.22	6.0E-14
9	20/01/06 09:44:05	-129.49	1.1E-13
9	20/01/06 09:44:54	-126.17	2.4E-13
9	20/01/06 09:45:44	-126.99	2.0E-13
9	20/01/06 09:46:34	-126.78	2.1E-13
9	20/01/06 09:47:24	-130.85	8.2E-14
9	20/01/06 09:48:14	-129.48	1.1E-13
9	20/01/06 09:48:59	-132.46	5.7E-14
9	20/01/06 09:49:48	-133.98	4.0E-14
9	20/01/06 09:50:39	-129.92	1.0E-13
9	20/01/06 09:51:30	-133.16	4.8E-14
9	20/01/06 11:20:36	-128.16	1.5E-13
9	20/01/06 11:21:27	-120.82	8.3E-13
9	20/01/06 11:22:17	-120,82	8.3E-13
9	20/01/06 11:23:05	-117,44	1.8E-12
9	20/01/06 11:23:55	-117.44	1.8E-12
9	20/01/06 11:24:47	-115.18	3.0E-12
9	20/01/06 11:25:37	-115.18	3.0E-12
9	20/01/06 11:26:25	-119.13	1.2E-12
9	20/01/06 11:27:17	-118.57	1.4E-12
9	20/01/06 11:28:04	-115.75	2.7E-12
9	20/01/06 11:28:56	-115.75	2.7E-12
9	20/01/06 11:29:44	-113,49	4.5E-12
9	20/01/06 11:30:34	-118.57	1.4E-12
9	20/01/06 11:31:25	-120.26	9.4E-13
9	20/01/06 11:32:16	-122,52	5.6E-13
9	20/01/06 13:01:24	-137,9	1.6E-14
9	20/01/06 13:02:13	-136.94	2.0E-14
9	20/01/06 13:03:03	-132.32	5.9E-14
9	20/01/06 13:03:52	-125,87	2.6E-13
9	20/01/06 13:04:40	-140,4	9.1E-15
9	20/01/06 13:05:30	-124.95	3.2E-13
9	20/01/06 13:06:19	-128.96	1.3E-13
9	20/01/06 13:07:09	-135,18	3.0E-14
9	20/01/06 13:07:58	-132.1	6.2E-14
9	20/01/06 19:27:20	-125.9	2.6E-13
9	20/01/06 19:28:12	-142,5	5.6E-15
9	20/01/06 19:30:39	-133.63	4.3E-14
9	20/01/06 21:03:02	-130.41	9.1E-14
9	20/01/06 21:03:52	-135.43	2.9E-14
9	20/01/06 21:04:40	-137.18	1.9E-14
9	20/01/06 21:05:31	-131.78	6.6E-14
9	20/01/06 21:06:21	-131,48	7.1E-14
9	20/01/06 21:07:10	-134,3	3.7E-14
9	20/01/06 21:08:02	-122.34	5.8E-13
9	20/01/06 21:08:54	-140.88	8.2E-15
9	20/01/06 21:09:45	-125,57	2.8E-13
9	20/01/06 21:10:34	-125,1	3.1E-13
9	20/01/06 21:11:26	-133.82	4.1E-14
9	20/01/06 21:12:18	-126.37	2.3E-13
9	20/01/06 21:13:08	-130.72	8.5E-14
9	20/01/06 21:13:56	-129,44	1.1E-13
9	20/01/06 21:14:49	-129.28	1.2E-13
9	20/01/06 21:15:37	-135,05	3.1E-14
9	20/01/06 22:42:47	-135,49	2.8E-14
9	20/01/06 22:43:36	-127.03	2.0E-13
9	20/01/06 22:44:25	-172.52	5.6E-13
9	20/01/06 22:45:17	-119.13	1.2E-12
9	20/01/06 22:46:05	-118.57	1.4E-12
9	20/01/06 22:46:55	-116,88	2.1E-12
9	20/01/06 22:47:45	-115.75	2.7E-12
9	20/01/06 22:48:35	-115.75	2.7E-12
9	20/01/06 22:49:22	-114,62	3.5E-12
9	20/01/06 22:50:11	-116,88	2.1E-12
9	20/01/06 22:50:59	-115.75	2.7E-12
9	20/01/06 22:51:49	-118.57	1.4E-12
9	20/01/06 22:52:39	-119.13	1.2E-12
9	20/01/06 22:53:28	-119,13	1.2E-12
9	20/01/06 22:54:19	-125.9	2.6E-13
9	20/01/06 22:55:08	-126,46	2.3E-13

Satellite ID	Rx Time	Rx Power (dBm)	Rx Power (mW)
10	20/01/06 00:30:57	-137.72	1.7E-14
10	20/01/06 00:31:46	-141.54	7.0E-15
10	20/01/06 00:32:36	-132.27	5.9E-14
10	20/01/06 00:33:25	-128.77	1.3E-13
10	20/01/06 00:34:14	-127.29	1.9E-13
10	20/01/06 00:35:02	-141.35	7.3E-15
10	20/01/06 00:35:51	-127.64	1.7E-13
10	20/01/06 00:36:43	-133.29	4.7E-14
10	20/01/06 00:37:33	-133.69	4.3E-14
10	20/01/06 00:38:25	-139.56	1.1E-14
10	20/01/06 00:39:13	-136.99	2.0E-14
10	20/01/06 00:40:03	-133.23	4.8E-14
10	20/01/06 02:09:52	-133.49	4.5E-14
10	20/01/06 02:10:42	-131.49	7.1E-14
10	20/01/06 02:11:31	-128.98	1.3E-13
10	20/01/06 02:12:18	-126.03	2.5E-13
10	20/01/06 02:13:10	-125.69	2.7E-13
10	20/01/06 02:13:59	-143.11	4.9E-15
10	20/01/06 02:14:48	-129.12	1.2E-13
10	20/01/06 02:15:36	-118	1.6E-12
10	20/01/06 02:16:27	-140	1.0E-14
10	20/01/06 02:18:10	-124,3	3.7E-13
10	20/01/06 02:19:00	-120,83	8.3E-13
10	20/01/06 02:19:49	-124,4	3.6E-13
10	20/01/06 02:20:38	-123.53	4.4E-13
10	20/01/06 02:21:27	-126.87	2.1E-13
10	20/01/06 02:22:16	-143.63	4.3E-15
10	20/01/06 02:23:08	-134.14	3.9E-14
10	20/01/06 03:50:27	-135.49	2.8E-14
10	20/01/06 03:51:16	-138,88	1.3E-14
10	20/01/06 03:52:06	-129,6	1.1E-13
10	20/01/06 03:52:53	-132.35	5.8E-14
10	20/01/06 03:53:43	-127.37	1.8E-13
10	20/01/06 03:54:31	-124.76	3.3E-13
10	20/01/06 03:55:19	-138.27	1.5E-14
10	20/01/06 03:56:09	-119.13	1.2E-12
10	20/01/06 03:57:01	-127.73	1.7E-13
10	20/01/06 03:57:50	-125.58	2.8E-13
10	20/01/06 03:58:39	-134,88	3.3E-14
10	20/01/06 03:59:29	-126,55	2.2E-13
10	20/01/06 04:00:20	-128,18	1.5E-13
10	20/01/06 04:01:11	-135,67	2.7E-14

Satellite ID	Rx Time	Rx Power (dBm)	Rx Power (mW)
10	20/01/06 11:57:56	-136,17	2.4E-14
10	20/01/06 11:58:43	-133.92	4.1E-14
10	20/01/06 11:59:35	-131.04	7.9E-14
10	20/01/06 12:00:25	-132.04	6.3E-14
10	20/01/06 12:01:13	-129.94	1.0E-13
10	20/01/06 12:02:02	-131.27	7.5E-14
10	20/01/06 12:02:53	-125.34	2.9E-13
10	20/01/06 12:03.42	-135.63	2.7E-14
10	20/01/06 12:04:30	-129.75	1.1E-13
10	20/01/06 12:05:21	-124.26	3.7E-13
10	20/01/06 12:06:13	-125.45	2.9E-13
10	20/01/06 12:07:04	-124.88	3.3E-13
10	20/01/06 12:07:54	-130.15	9.7E-14
10	20/01/06 12:08:46	-131.94	6.4E-14
10	20/01/06 12:09:39	-136.05	2.5E-14
10	20/01/06 13:37:33	-138.09	1.6E-14
10	20/01/06 13:38:22	-131.37	7.3E-14
10	20/01/06 13:39:10	-128.5	1.4E-13
10	20/01/06 13:40:01	-127.15	1.9E-13
10	20/01/06 13:40:52	-122.82	5.2E-13
10	20/01/06 13:41:41	-124.85	3.3E-13
10	20/01/06 13:42:32	-124.03	4.0E-13
10	20/01/06 13:43:22	-124,61	3.5E-13
10	20/01/06 13:44:13	-122.47	5.7E-13
10	20/01/06 13:45:01	-128.18	1.5E-13
10	20/01/06 13:45:52	-123.38	4.6E-13
10	20/01/06 13:46:42	-123.66	4.3E-13
10	20/01/06 13:47:30	-138.31	1.5E-14
10	20/01/06 13:48:22	-142.38	5.8E-15
10	20/01/06 13:49:11	-126.89	2.0E-13
10	20/01/06 13:50:02	-126,18	2.4E-13
10	20/01/06 13:50:54	-129,95	1.0E-13
10	20/01/06 13:51:42	-137,5	1.8E-14
10	20/01/06 15:24:40	-129.28	1.2E-13
10	20/01/06 15:26:15	-130.98	8.0E-14
10	20/01/06 15:27:05	-129.28	1.2E-13
10	20/01/06 15:27:55	-129.85	1.0E-13
10	20/01/06 15:28:45	-133,23	4.8E-14
10	20/01/06 15:29:31	-133 8	4.2E-14

MCC Data Reduction of MARTEC TOPAZE EPIRB
on Dry Ground :
Beacon : 59374 (UUT4)
Antenna : Martec Integrated antenna
Beacon ID : 1C7E7 3F73F 81FE0
LUT ID : 2272



Total Burst	330	Avg Lin Power	-128.7 dBm

Satellite ID	Rx Time	Rx Power (dBm)	Rx Power (mW)
6	19/01/06 19:31:05	-139.32	1.1695E-14
6	19/01/06 19:31:54	-132.25	6.0E-14
6	19/01/06 19:32:45	-132.85	5.2E-14
6	19/01/06 19:33:32	-128.71	1,3E-13
6	19/01/06 19:35:11	-131.43	7.2E-14
6	19/01/06 19:36:00	-130.19	9.6E-14
6	19/01/06 19:36:50	-133,35	4.6E-14
6	19/01/06 19:37:40	-135.1	3.1E-14
6	19/01/06 19:38:29	-131.04	7.9E-14
6	19/01/06 19:39:17	-133.64	4.3E-14
6	19/01/06 19:40:08	-134.68	3,4E-14
6	19/01/06 21:09:22	-137.94	1.6E-14
6	19/01/06 21:10:11	-131.83	6.6E-14
6	19/01/06 21:10:59	-131.72	6.7E-14
6	19/01/06 21:11:47	-137.65	1.7E-14
6	19/01/06 21:12:36	-137.25	1.9E-14
6	19/01/06 21:13:23	-128.33	1.5E-13
6	19/01/06 21:14:12	-131.87	6.5E-14
6	19/01/06 21:16:38	-128.32	1.5E-13
6	19/01/06 21:17:28	-131.31	7,4E-14
6	19/01/06 21:18:18	-131.52	7.0E-14
6	19/01/06 21:19:10	-141.76	6.7E-15
6	19/01/06 21:19:59	-133.93	4.0E-14
6	19/01/06 21:21:38	-144.05	3.9E-15
6	20/01/06 07:52:20	-137,76	1.7E-14
6	20/01/06 07:53:09	-144.8	3.3E-15
6	20/01/06 07:54:01	-141.02	7.9E-15
6	20/01/06 07:54:53	-136.14	2.4E-14
6	20/01/06 07:55:43	-141.64	6,9E-15
6	20/01/06 11:10:49	-133.38	4,6E-14
6	20/01/06 11:11:37	-135.36	2.9E-14
6	20/01/06 11:12:25	-133.47	4.5E-14
6	20/01/06 11:13:17	-131,44	7.2E-14
6	20/01/06 11:14:06	-140	1.0E-14
6	20/01/06 11:14:57	-131.16	7.7E-14
6	20/01/06 11:15:46	-143.36	4.6E-15
6	20/01/06 11:16:35	-134,5	3,5E-14
6	20/01/06 11:17:25	-134.52	3.5E-14
7	19/01/06 18:12:29	-131,54	7.0E-14
7	19/01/06 18:13:20	-132,1	6.2E-14
7	19/01/06 18:14:09	-134.44	3.6E-14
7	19/01/06 18:14:59	-138,13	1.5E-14
7	19/01/06 18:15:48	-129.8	1.0E-13
7	19/01/06 18:16:39	-128,29	1.5E-13
7	19/01/06 18:17:28	-129.38	1.2E-13
7	19/01/06 18:18:19	-126.48	2,2E-13
7	19/01/06 18:19:09	-137.88	1,6E-14
7	19/01/06 18:20:00	-126.53	2.2E-13
7	19/01/06 18:20:50	-129.56	1.1E-13
7	19/01/06 18:21:40	-129.23	1.2E-13
7	19/01/06 18:22:29	-133.86	4.1E-14
7	19/01/06 18:23:20	-132.98	5.0E-14
7	19/01/06 18:24:08	-140,69	8.5E-15
7	20/01/06 04:49:17	-123,64	4.3E-13
7	20/01/06 04:50:08	-142,5	5,6E-15
7	20/01/06 04:50:57	-137.17	1.9E-14
7	20/01/06 04:51:48	-139.04	1.2E-14
7	20/01/06 04:52:39	-131.51	7.1E-14
7	20/01/06 04:53:30	-127.03	2.0E-13
7	20/01/06 04:54:20	-140.37	9.2E-15

Satellite ID	Rx Time	Rx Power (dBm)	Rx Power (mW)
7	20/01/06 06:26:29	-134.42	3,6E-14
7	20/01/06 06:27:17	-138.82	1,3E-14
7	20/01/06 06:28:05	-134,42	3.6E-14
7	20/01/06 06:28:55	-137,67	1.7E-14
7	20/01/06 06:29:44	-131.1	7.8E-14
7	20/01/06 06:30:34	-139.34	1.2E-14
7	20/01/06 06:31:23	-130.87	8.2E-14
7	20/01/06 06:32:13	-126.16	2,4E-13
7	20/01/06 06:33:01	-136,71	2,1E-14
7	20/01/06 06:34:40	-133,4	4.6E-14
7	20/01/06 06:35:31	-126.84	2.1E-13
7	20/01/06 06:36:22	-137.53	1.8E-14
7	20/01/06 06:37:13	-139,29	1.2E-14
7	20/01/06 06:38:05	-140,9	8.1E-15
7	20/01/06 06:38:56	-139,74	1.1E-14
7	20/01/06 08:07:47	-132.1	6,2E-14
7	20/01/06 08:08:38	-136,2	2,4E-14
7	20/01/06 08:09:30	-135.07	3.1E-14
7	20/01/06 08:10:17	-137.64	1.7E-14
7	20/01/06 08:11:08	-133.31	4.7E-14
7	20/01/06 08:12:00	-134,68	3.4E-14
7	20/01/06 08:12:52	-133.7	4.3E-14
7	20/01/06 08:13:40	-135.4	2.9E-14
7	20/01/06 08:14:30	-139,6	1,1E-14
7	20/01/06 16:10:53	-122.52	5,6E-13
7	20/01/06 16:11:46	-137,47	1.8E-14
7	20/01/06 16:12:36	-134,46	3.6E-14
7	20/01/06 16:13:25	-129.33	1.2E-13
7	20/01/06 16:14:14	-136.18	2.4E-14
7	20/01/06 16:15:05	-132.89	5.1E-14
7	20/01/06 16:15:56	-131.26	7.5E-14
7	20/01/06 16:16:45	-133,42	4,5E-14
7	20/01/06 16:17:37	-135.76	2,7E-14
7	20/01/06 16:18:26	-136.1	2,5E-14
7	20/01/06 16:19:14	-130,98	8.0E-14
7	20/01/06 16:20:06	-134,2	3.8E-14
7	20/01/06 17:48:46	-127.03	2.0E-13
7	20/01/06 17:50:12	-122,52	5.6E-13
7	20/01/06 17:51:04	-121.39	7.3E-13
7	20/01/06 17:51:52	-120.82	8,3E-13
7	20/01/06 17:52:43	-123,08	4.9E-13
7	20/01/06 17:53:32	-128,72	1.3E-13
7	20/01/06 17:54:19	-128.16	1.5E-13
7	20/01/06 17:55:11	-125.9	2.6E-13
7	20/01/06 17:56:00	-127.03	2.0E-13
7	20/01/06 17:56:51	-124.21	3.8E-13
7	20/01/06 17:57:39	-123.08	4.9E-13
7	20/01/06 17:58:30	-123.64	4,3E-13
7	20/01/06 17:59:21	-125,9	2,6E-13
7	20/01/06 18:00:09	-129,85	1,0E-13
7	20/01/06 18:01:01	-135,49	2.8E-14

Satellite ID	Rx Time	Rx Power (dBm)	Rx Power (mW)
8	20/01/06 02:31:08	-139.62	1.1E-14
8	20/01/06 02:31:58	-135.98	2.5E-14
8	20/01/06 02:32:46	-133.37	4.6E-14
8	20/01/06 02:33:37	-123.08	4,9E-13
8	20/01/06 02:34:28	-131,4	7,2E-14
8	20/01/06 02:35:16	-126,72	2.1E-13
8	20/01/06 02:36:05	-143.77	4,2E-15
8	20/01/06 02:36:55	-137.73	1.7E-14
8	20/01/06 02:37:44	-138.51	1,4E-14
8	20/01/06 02:38:34	-141,39	7.3E-15
8	20/01/06 04:10:17	-133.8	4.2E-14
8	20/01/06 04:11:06	-138.5	1.4E-14
8	20/01/06 04:11:57	-133.26	4.7E-14
8	20/01/06 04:12:49	-141.07	7.8E-15
8	20/01/06 04:13:40	-131.42	7,2E-14
8	20/01/06 04:14:29	-135.8	2.6E-14
8	20/01/06 04:15:19	-131,9	6.5E-14
8	20/01/06 04:16:10	-131.53	7.0E-14
8	20/01/06 04:17:02	-129,42	1.1E-13
8	20/01/06 04:17:51	-130,5	8,9E-14
8	20/01/06 04:18:40	-130,44	9.0E-14
8	20/01/06 04:19:28	-128,62	1.4E-13
8	20/01/06 04:20:18	-134,9	3.2E-14
8	20/01/06 04:21:08	-128,79	1.3E-13
8	20/01/06 04:21:56	-132.87	5.2E-14
8	20/01/06 04:22:44	-136.69	2,1E-14
8	20/01/06 05:52:26	-135.49	2,8E-14
8	20/01/06 05:54:05	-133,52	4.4E-14
8	20/01/06 05:54:54	-133.23	4.8E-14
8	20/01/06 05:55:43	-136.24	2.4E-14
8	20/01/06 05:56:31	-129.85	1.0E-13
8	20/01/06 05:57:21	-134,06	3.9E-14
8	20/01/06 12:21:22	-128,72	1.3E-13
8	20/01/06 12:23:51	-139,5	1.1E-14
8	20/01/06 13:58:01	-124.21	3.8E-13
8	20/01/06 13:58:53	-123.64	4.3E-13
8	20/01/06 13:59:44	-121.95	6,4E-13
8	20/01/06 14:00:32	-123.64	4,3E-13
8	20/01/06 14:01:22	-124,77	3.3E-13
8	20/01/06 14:02:11	-125,9	2.6E-13
8	20/01/06 14:04:36	-125,9	2.6E-13
8	20/01/06 14:05:24	-122.52	5.6E-13
8	20/01/06 14:06:12	-124.21	3,8E-13
8	20/01/06 14:07:00	-122,52	5.6E-13
8	20/01/06 14:07:49	-121.95	6.4E-13
8	20/01/06 14:08:37	-124.21	3.8E-13
8	20/01/06 14:09:29	-125,9	2.6E-13
8	20/01/06 14:10:18	-135,49	2,8E-14
8	20/01/06 15:38:41	-132,1	6.2E-14
8	20/01/06 15:39:28	-131,54	7.0E-14
8	20/01/06 15:40:18	-126,46	2.3E-13
8	20/01/06 15:41:10	-124.77	3.3E-13
8	20/01/06 15:42:00	-124.21	3.8E-13
8	20/01/06 15:42:47	-123.64	4.3E-13
8	20/01/06 15:43:39	-122.52	5.6E-13
8	20/01/06 15:44:32	-124.77	3.3E-13
8	20/01/06 15:45:19	-123,64	4.3E-13
8	20/01/06 15:46:09	-125,34	2.9E-13
8	20/01/06 15:46:58	-124.21	3.8E-13
8	20/01/06 15:47:47	-126.46	2.3E-13
8	20/01/06 15:48:35	-128.72	1,3E-13
8	20/01/06 15:50:10	-133.23	4.8E-14
9	19/01/06 19:50:05	-125.34	2.9E-13
9	19/01/06 19:50:56	-138,44	1.4E-14
9	19/01/06 19:52:35	-127.59	1.7E-13
9	19/01/06 19:53:24	-137,13	1.9E-14
9	19/01/06 19:56:34	-141,7	6,8E-15
9	19/01/06 21:26:37	-124.21	3.8E-13
9	19/01/06 21:27:28	-122.52	5.6E-13
9	19/01/06 21:28:19	-121,39	7.3E-13

Satellite ID	Rx Time	Rx Power (dBm)	Rx Power (mW)
9	19/01/06 21:29:11	-120.82	8.3E-13
9	19/01/06 21:30:03	-124.77	3.3E-13
9	19/01/06 21:30:52	-129,28	1.2E-13
9	19/01/06 21:32:36	-126,46	2.3E-13
9	19/01/06 21:33:28	-124.77	3.3E-13
9	19/01/06 21:34:20	-120.26	9,4E-13
9	19/01/06 21:35:10	-120.26	9.4E-13
9	19/01/06 21:35:59	-121.95	6.4E-13
9	19/01/06 21:36:47	-124,77	3.3E-13
9	19/01/06 21:37:39	-126.46	2.3E-13
9	19/01/06 21:38:27	-131,54	7,0E-14
9	19/01/06 23:07:59	-137.96	1,6E-14
9	19/01/06 23:08:48	-133.25	4.7E-14
9	19/01/06 23:09:39	-141.53	7.0E-15
9	19/01/06 23:10:30	-131.79	6.6E-14
9	19/01/06 23:11:21	-140.49	8.9E-15
9	19/01/06 23:12:10	-129.05	1,2E-13
9	19/01/06 23:13:02	-123.64	4.3E-13
9	19/01/06 23:13:50	-138,58	1.4E-14
9	19/01/06 23:14:38	-131,62	6,9E-14
9	19/01/06 23:15:29	-132.15	6,1E-14
9	19/01/06 23:16:19	-132,27	5.9E-14
9	19/01/06 23:17:09	-145,78	2.6E-15
9	19/01/06 23:17:59	-143,81	4.2E-15
9	20/01/06 09:42:50	-137,06	2.0E-14
9	20/01/06 09:43:39	-137.4	1.8E-14
9	20/01/06 09:44:27	-121.39	7.3E-13
9	20/01/06 09:45:18	-141.31	7,4E-15
9	20/01/06 09:46:06	-143,98	4.0E-15
9	20/01/06 09:46:55	-131.4	7.2E-14
9	20/01/06 09:47:44	-139.05	1.2E-14
9	20/01/06 09:48:36	-138.28	1.5E-14
9	20/01/06 09:49:27	-138.78	1.3E-14
9	20/01/06 09:50:18	-138.55	1.4E-14
9	20/01/06 09:51:09	-141,78	6.6E-15
9	20/01/06 11:20:46	-130,98	8.0E-14
9	20/01/06 11:21:37	-129.28	1.2E-13
9	20/01/06 11:22:28	-126.46	2,3E-13
9	20/01/06 11:23:18	-124.21	3.8E-13
9	20/01/06 11:24:07	-124.77	3.3E-13
9	20/01/06 11:24:54	-124.21	3.8E-13
9	20/01/06 11:25:44	-125.34	2.9E-13
9	20/01/06 11:26:36	-127.03	2,0E-13
9	20/01/06 11:27:27	-128.72	1.3E-13
9	20/01/06 11:28:19	-128.16	1.5E-13
9	20/01/06 11:29:07	-124.21	3.8E-13
9	20/01/06 11:29:55	-122.52	5.6E-13
9	20/01/06 11:30:45	-124.77	3.3E-13
9	20/01/06 11:31:36	-123,64	4,3E-13
9	20/01/06 11:32:25	-132,1	6.2E-14
9	20/01/06 13:02:27	-135,49	2.8E-14
9	20/01/06 13:03:15	-133.23	4.8E-14
9	20/01/06 13:04:06	-129.85	1.0E-13
9	20/01/06 13:04:54	-135.63	2,7E-14
9	20/01/06 13:05:41	-140.97	8.0E-15
9	20/01/06 13:06:30	-136,6	2.2E-14
9	20/01/06 13:07:18	-133,23	4.8E-14
9	20/01/06 21:06:14	-126.46	2.3E-13
9	20/01/06 21:07:03	-123,08	4,9E-13
9	20/01/06 21:07:52	-125,9	2.6E-13
9	20/01/06 21:08:42	-128.72	1.3E-13
9	20/01/06 21:10:21	-127.59	1.7E-13
9	20/01/06 21:11:09	-128.72	1.3E-13
9	20/01/06 21:11:58	-130.16	9.6E-14
9	20/01/06 21:12:46	-132,89	5.1E-14
9	20/01/06 21:13:37	-133.57	4.4E-14
9	20/01/06 21:14:28	-133.23	4.8E-14
9	20/01/06 22:44:44	-129.85	1.0E-13
9	20/01/06 22:45:32	-128,72	1.3E-13
9	20/01/06 22:46:22	-125.9	2.6E-13

Satellite ID	Rx Time	Rx Power (dBm)	Rx Power (mW)
9	20/01/06 22:47:10	-126.46	2.3E-13
9	20/01/06 22:48:01	-125.9	2,6E-13
9	20/01/06 22:48:51	-125.34	2,9E-13
9	20/01/06 22:49:40	-129.85	1.0E-13
9	20/01/06 22:50:30	-126,46	2.3E-13
9	20/01/06 22:51:18	-128,72	1.3E-13
9	20/01/06 22:52:07	-128.16	1.5E-13
9	20/01/06 22:52:56	-130.41	9.1E-14
9	20/01/06 22:53:45	-131.54	7,0E-14
9	20/01/06 22:54:34	-135.49	2,8E-14
10	20/01/06 00:32:23	-141	7.9E-15
10	20/01/06 00:33:11	-139,94	1.0E-14
10	20/01/06 00:34:01	-142.64	5.4E-15
10	20/01/06 00:34:48	-135.59	2.8E-14
10	20/01/06 00:35:41	-134.64	3.4E-14
10	20/01/06 00:36:31	-142.34	5.8E-15
10	20/01/06 00:37:21	-138,59	1.4E-14
10	20/01/06 00:38:09	-138,26	1.5E-14
10	20/01/06 02:10:15	-137,78	1.7E-14
10	20/01/06 02:11:04	-136.74	2.1E-14
10	20/01/06 02:11:56	-135.95	2.5E-14
10	20/01/06 02:12:46	-132,52	5.6E-14
10	20/01/06 02:13:34	-133.4	4,6E-14
10	20/01/06 02:14:26	-137,11	1.9E-14
10	20/01/06 02:15:17	-137.02	2.0E-14
10	20/01/06 02:16:08	-139.85	1.0E-14
10	20/01/06 02:17:00	-133.62	4.3E-14
10	20/01/06 02:17:50	-131.54	7.0E-14
10	20/01/06 02:18:38	-132.22	6.0E-14
10	20/01/06 02:19:28	-133.09	4,9E-14
10	20/01/06 02:20:19	-127.48	1,8E-13
10	20/01/06 02:21:11	-128.89	1,3E-13
10	20/01/06 02:22:03	-133,72	4.2E-14
10	20/01/06 02:22:52	-137,26	1.9E-14
10	20/01/06 03:51:57	-131.54	7.0E-14
10	20/01/06 03:52:49	-141,97	6.4E-15
10	20/01/06 03:53:38	-131,5	7.1E-14
10	20/01/06 03:54:27	-129.28	1,2E-13
10	20/01/06 03:55:18	-145.69	2.7E-15
10	20/01/06 03:57:00	-131.71	6.7E-14
10	20/01/06 03:57:51	-130,86	8.2E-14
10	20/01/06 03:58:39	-127,59	1.7E-13
10	20/01/06 03:59:29	-127.59	1.7E-13
10	20/01/06 04:00:18	-138.67	1.4E-14
10	20/01/06 04:01:07	-138.93	1.3E-14
10	20/01/06 11:58:58	-139.19	1.2E-14
10	20/01/06 11:59:48	-141.18	7,6E-15
10	20/01/06 12:00:39	-127,03	2.0E-13
10	20/01/06 12:01:28	-136.32	2.3E-14
10	20/01/06 12:02:20	-131.75	6.7E-14
10	20/01/06 12:03:09	-133.82	4.1E-14
10	20/01/06 12:03:58	-133.75	4.2E-14
10	20/01/06 12:04:48	-123,64	4,3E-13
10	20/01/06 12:05:39	-133.7	4,3E-14
10	20/01/06 12:06:28	-138.39	1.4E-14
10	20/01/06 12:07:18	-133,11	4.9E-14
10	20/01/06 12:08:10	-131,05	7.9E-14
10	20/01/06 12:09:03	-135.35	2.9E-14
10	20/01/06 12:09:54	-141.75	6.7E-15

Satellite ID	Rx Time	Rx Power (dBm)	Rx Power (mW)
10	20/01/06 13:38:46	-140.19	9,6E-15
10	20/01/06 13:39:38	-131.82	6,6E-14
10	20/01/06 13:40:29	-130.36	9,2E-14
10	20/01/06 13:41:19	-129.24	1.2E-13
10	20/01/06 13:42:09	-133.91	4.1E-14
10	20/01/06 13:42:58	-136,34	2.3E-14
10	20/01/06 13:43:50	-133,4	4.6E-14
10	20/01/06 13:44:41	-130.45	9.0E-14
10	20/01/06 13:45:32	-129,08	1,2E-13
10	20/01/06 13:46:20	-125.34	2,9E-13
10	20/01/06 13:47:08	-130.88	8.2E-14
10	20/01/06 13:47:59	-130.28	9.4E-14
10	20/01/06 13:48:49	-130.84	8.2E-14
10	20/01/06 13:49:40	-133.48	4.5E-14
10	20/01/06 13:50:30	-133.75	4,2E-14
10	20/01/06 13:51:22	-137,16	1,9E-14
10	20/01/06 15:24:47	-137.18	1.9E-14
10	20/01/06 15:26:24	-137,18	1.9E-14
10	20/01/06 15:27:12	-133,8	4.2E-14
10	20/01/06 15:27:59	-135.49	2.8E-14