

CHAPTER 13

A13.0 - OPERATIONAL LIFE, STROBE LIGHT, AND SELF TESTS

13.1 TEST SPECIFICATIONS AND PROGRAMME

Following Section A13.0 of RTCM Recommended Standards for 406 MHz Satellite EPIRBs (Version 2.0 Feb 5,1997) :

- Using a fresh battery pack, turn ON the EUT (at the ambient temperature) for a period of time equal to the extension interval given by the constructor .
- Place the EUT turned OFF inside chamber stabilized at - 20° C (class 2).
- After two hours switch it ON and continually monitor the following parameters until the end of the battery life :
 - Frequency (nominal carrier, short and medium term stability),
 - RF output power,
 - Homing transmitter peak envelope output power.
 - Strobe light flash rate every 12 hours.

13.2. EQUIPMENT UNDER TEST

Beacon

EPIRB Unit : 2/2
Name : JOTRON
Type : TRON 40GPS
Number : 7001
Class : 2

Beacon Battery Type

Chemistry : Li-SOCl₂
Manufacturer & model n° : SAFT LSH20
Size & number of cells : Dx4

13.3. TEST SITE

Toulouse Space Center (C.S.T./ ITS) - Beacon certification laboratory .

13.4. TEST EQUIPMENT

- Climatic chamber : CLIMATS F.C.H. – Type: Austral 137H60/1,5E - S/N: S4880.
- Argos - Cospas/Sarsat Test Bench

13.5. RESULTS

These tests have been performed during the COSPAS-SARSAT Type Approval tests (chapter 12)
 The strobe light test and the self test have been, also, performed with Cospas Sarsat Type Approval tests (chapter 12) at three temperature (-20° C, 22° C and 55° C)

Before these tests we have verified the manufacturer calculation of the loss in battery capacity due to self-testing as well as battery pack self-discharge during the useful lifetime of battery pack (see chapter 12 : C/S Type Approval Test Report § "OPERATING LIFE TEST RESULTS ON TRON 40GPS N° 7001 ")

The Minimum Operating Life Time was extended from 48 hours to 50 hours

The measurements were made over a period of more than 75 hours.

13.5.1 Test implementation

Date	Hour	Operations	Results
30 June 2000	14:00	The beacon, in the ready condition, is thermally soaked at - 20° C in the temperature-controlled oven .	
	17:25	The beacon in the oven at -20° C and connected into 50 Ohm load Argos Cospas Sarsat Test Bench is manually activated . Simultaneously an Automatic Operational Life Test begin	OK
3 July 2000	21 :30	End of Automatic Operational Life Test.	
4 July 2000	8 :30	Analysis of Operating Life Test Results :	Correct during ≈ 75 hours

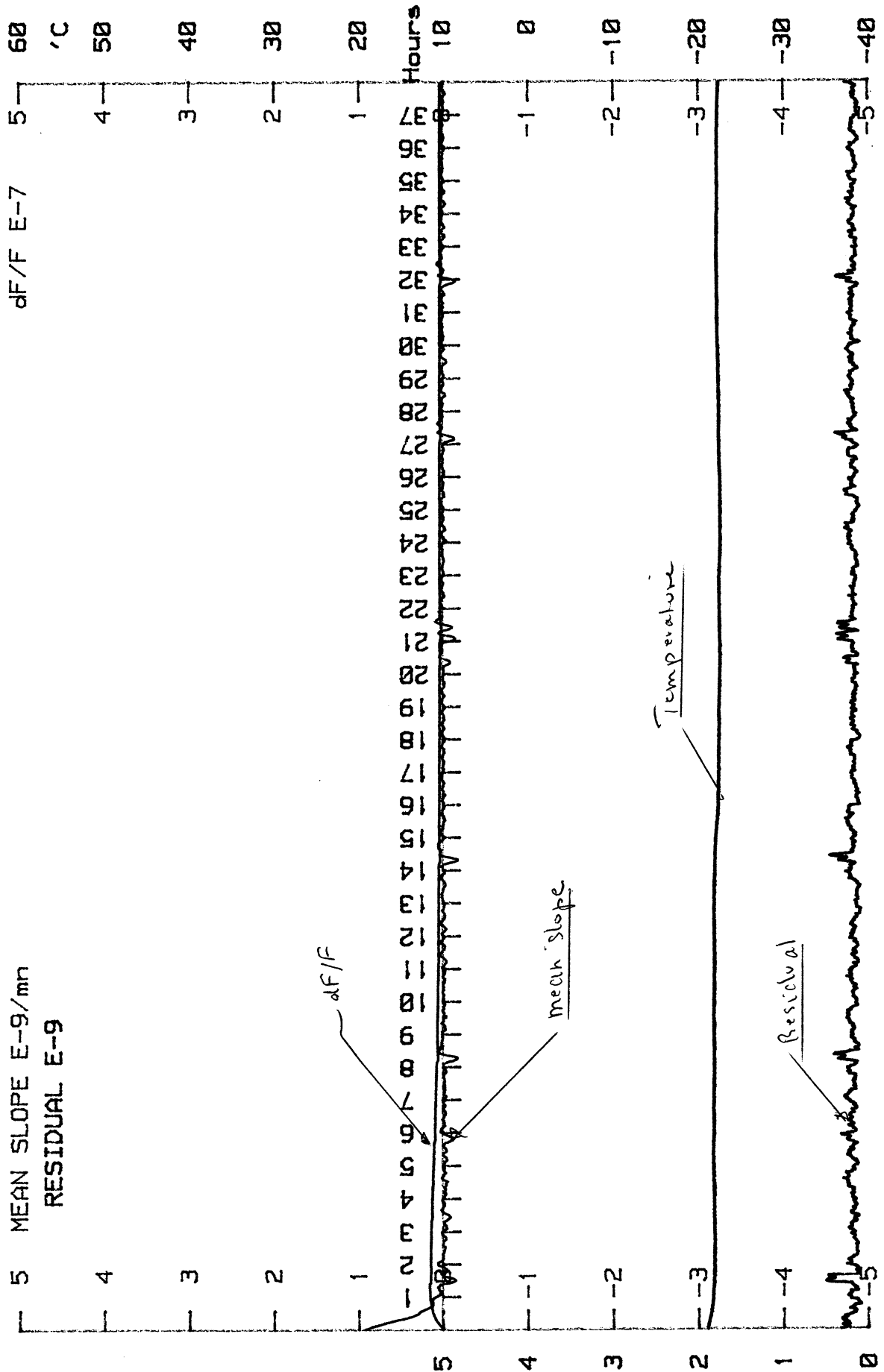
11.5.2 Electrical results of Operating Life, StrobeLight and Self Tests

SPECIFICATIONS	12 h	24 h	36 h	50 h	75 h
1 - FREQUENCY (MHz)					
Nominal Carrier 406.025 ± 0.002	406.025134	406.025133	406.025131	406.025129	406.025126
Short term stab. $< 2 \times 10^{-9}/100$ ms	$< 3 \times 10^{-10}$	$< 3 \times 10^{-10}$	$< 2 \times 10^{-10}$	$< 3 \times 10^{-10}$	$< 3 \times 10^{-10}$
Slope $< 1 \times 10^{-9}/\text{mn}$	$< 2 \times 10^{-11}$	$< 2 \times 10^{-11}$	$< 2 \times 10^{-11}$	$< 2 \times 10^{-11}$	$< 3 \times 10^{-11}$
Sigma $< 3 \times 10^{-9}$	$< 2 \times 10^{-10}$	$< 3 \times 10^{-10}$	$< 2 \times 10^{-10}$	$< 3 \times 10^{-10}$	$< 2 \times 10^{-10}$
2 - RF OUTPUT					
+ 2.9 5 W (37 dBm $\pm$ 2 dBm) - 1.8	37.6	37.5	37.4	36.9	35.3
3 - STROBE LIGHTS					
20 to 30 flashes/min	21	20	20	21	20
Intensity ≥ 0.75 cand.	-	0.90	-	0.85	-
4 - HOMING					
Transmitter :	25	25.1	24.9	24.8	23
- peak envelope output power (14 dBm + 6 dB - 0 dBm)					

See data and graphs of results on chapter 12 “Cospas-Sarsat Type Approval Tests Report” and graphs next pages.

OPERATING LIFE TEST ON JOTRON EPIRB
MEDIUM TERM STABILITY

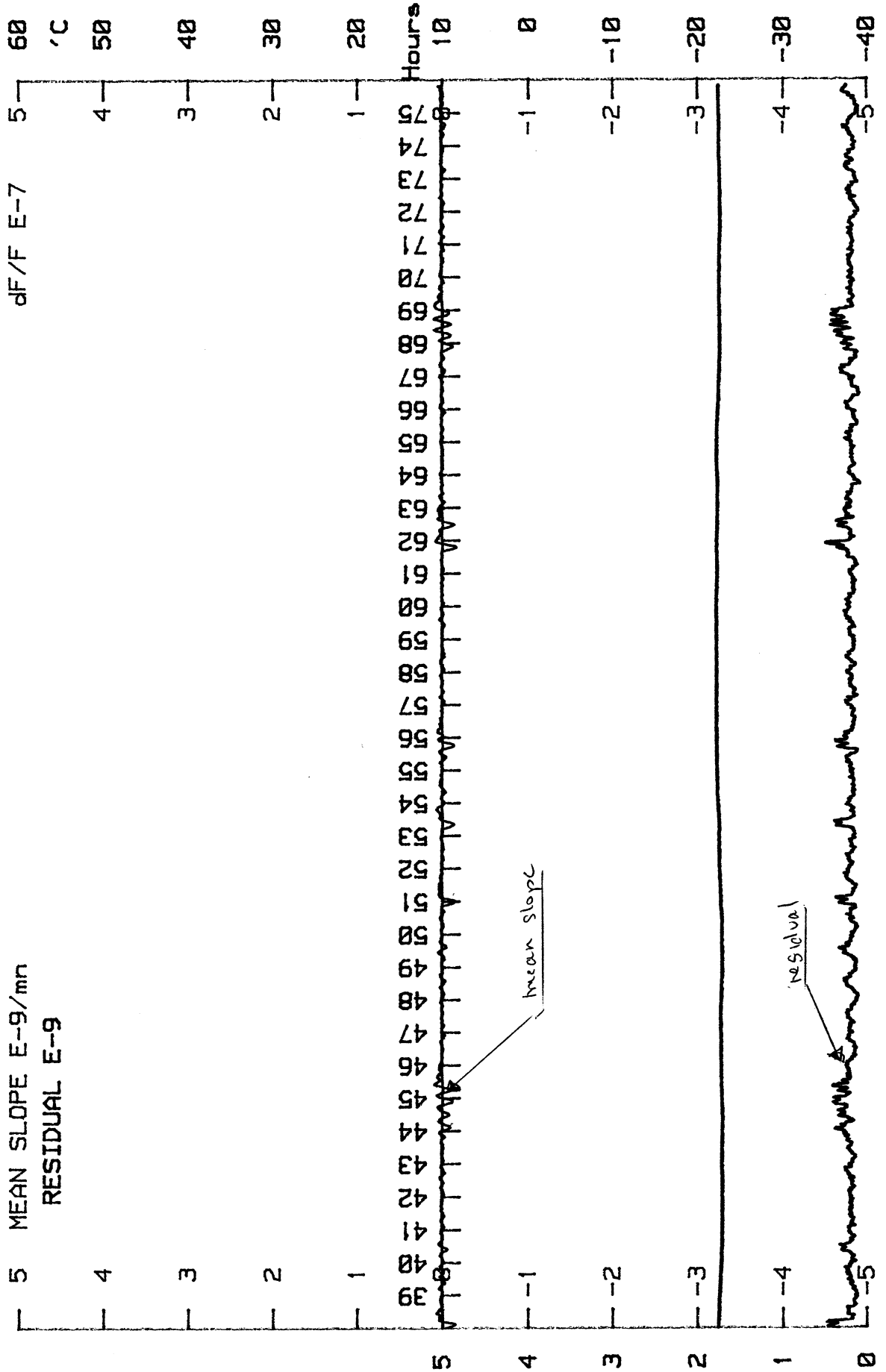
BEACON MANUFACTURER MODEL SERIAL Nr DATE TIME $\emptyset$
JOTRON TRON 40GPS 7001 30 Jun 2000 17:27:37
5 MEAN SLOPE E-9/mn
RESIDUAL E-9



OPERATING LIFE TEST ON JOTRON EPIRB

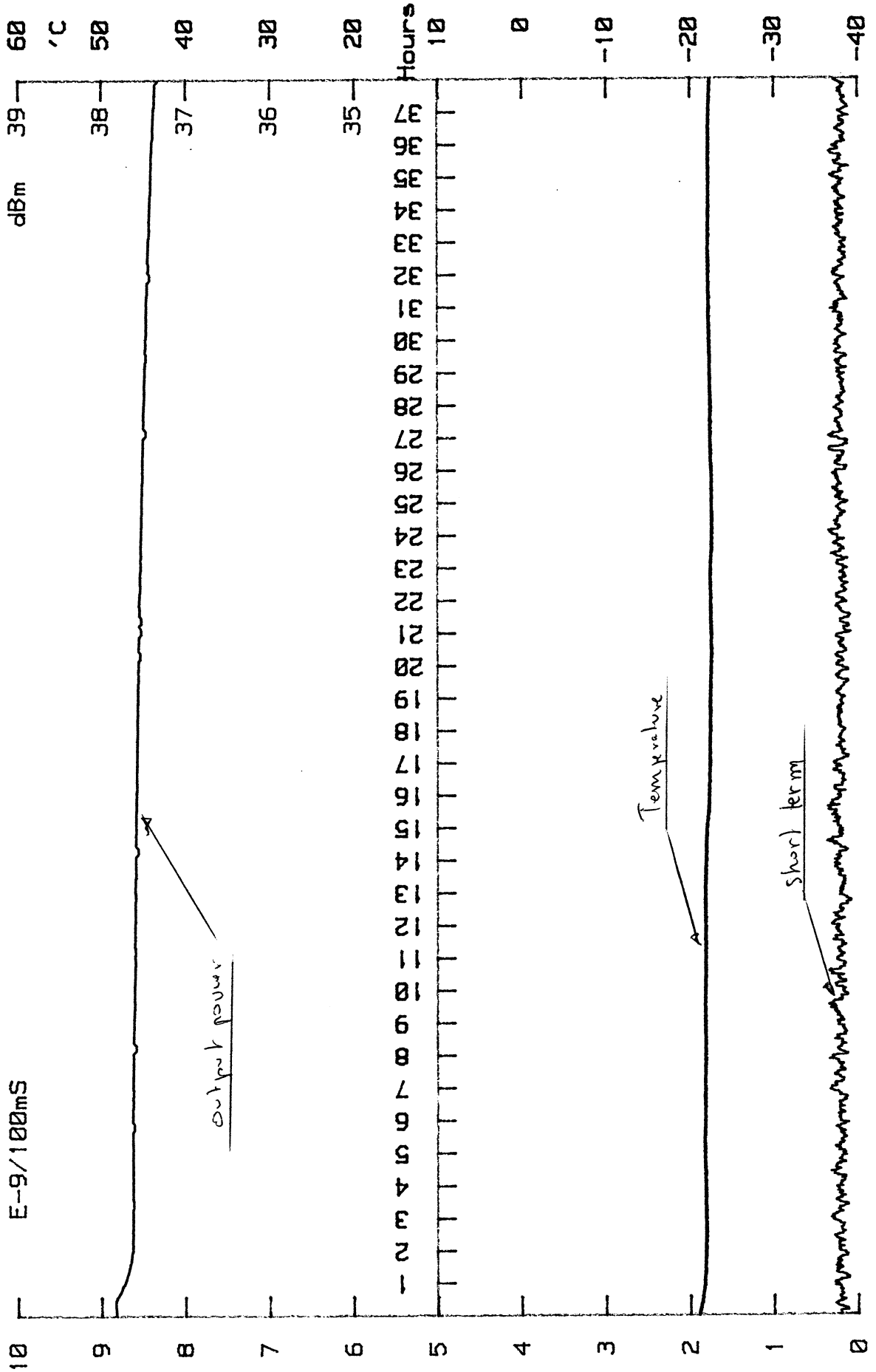
MEDIUM TERM STABILITY

BEACON MANUFACTURER MODEL SERIAL Nr DATE TIME 0
JOTRON TRON 40GPS 7001 30 Jun 2000 17:27:37
5 MEAN SLOPE E-9/mn
RESIDUAL E-9



OPERATING LIFE TEST ON JOTRON EPIRB
OUTPUT POWER and SHORT TERM STABILITY

BEACON MANUFACTURER JOTRON MODEL TRON 40GGS SERIAL N° 7001 DATE 30 Jun 2000 TIME 0 17:27:37



OPERATING LIFE TEST ON JOTRON EPIR
OUTPUT POWER and SHORT TERM STABILITY

BEACON MANUFACTURER JOTRON MODEL TRON 40GPS SERIAL Nr 7001 DATE 30 Jun 2000 TIME 0 17:27:37

