



LCIE

GSM 18000 Outdoor BTS (FCC extreme condition) Radio Test Report for RM2 1900 introduction

Reference: 81818-571637-R-TR-18k-FCC

Version: A

Status: Approved

Date: 02/Jul/2008

Customer: NORTEL NETWORKS
Parc d'Activités de Magny-Châteaufort
78928 Yvelines Cedex 09

Product: NG 18000 Outdoor BTS

Author: Julien PALARD



Technical Manager: Didier PRADON

09/07/2008 

This document shall not be reproduced, except in full, without the written approval of the LCIE.

This document contains results related only to the items tested. It does not imply the conformity of the whole production to the items tested.

LCIE	33, av du Général Leclerc	Tél : +33 1 40 95 60 60	Société Anonyme
Laboratoire Central	BP 8	Fax : +33 1 40 95 86 56	au capital de 15 745 984 €
des Industries Electriques	92266 Fontenay-aux-Roses cedex	contact@lcie.fr	RCS Nanterre B 408 363 174
Une société de Bureau Veritas	France	www.lcie.fr	



PUBLICATION HISTORY

VERSION	DATE	AUTHOR	MODIFICATION
A	02/Jul/2008	J. PALARD	Creation of document



CONTENTS

CONTENTS	3
1. INTRODUCTION	6
2. RELATED DOCUMENTS	6
3. RELATED DOCUMENTS	6
3.1. APPLICABLE STANDARDS	6
3.2. REFERENCE DOCUMENTS	6
4. IDENTIFICATION OF EQUIPMENT UNDER TEST	7
5. TESTS PRESENTATION	10
5.1. TEST PROCEDURE	10
5.2. SOFTWARE CONFIGURATION	11
5.3. SPECIFICATION RELATED FOR TX TESTS	12
5.3.1 Mean RF output power	12
5.3.2 Phase and mean frequency error	12
5.4. BTS CONFIGURATION FOR TESTS	13
5.5. MOLDULE USED DURING RF TESTS	13
6. RF TEST RESULTS	14
6.1. TESTS AT -40°C	14
6.1.1 TX TESTS ON RM2 SLOT 0 (PCS 1900MHz) IN GMSK MODULATION	14
6.1.1.1 Mean RF power.....	14
6.1.1.2 Phase and mean frequency error.....	14
6.1.2 TX TESTS ON HPRM SLOT 3 (GSM 850MHz) IN GMSK MODULATION	15
6.1.2.1 Mean RF power.....	15
6.1.2.2 Phase and mean frequency error.....	15
6.2. TESTS AT -30°C	16
6.2.1 TX TESTS ON RM2 SLOT 0 (PCS 1900MHz) IN GMSK MODULATION	16
6.2.1.1 Mean RF power.....	16
6.2.1.2 Phase and mean frequency error.....	16
6.2.2 TX TESTS ON HPRM SLOT 3 (GSM 850MHz) IN GMSK MODULATION	17
6.2.2.1 Mean RF power.....	17
6.2.2.2 Phase and mean frequency error.....	17
6.3. TESTS AT -20°C	18
6.3.1 TX TESTS ON RM2 SLOT 0 (PCS 1900MHz) IN GMSK MODULATION	18
6.3.1.1 Mean RF power.....	18
6.3.1.2 Phase and mean frequency error.....	18
6.3.2 TX TESTS ON HPRM SLOT 3 (GSM 850MHz) IN GMSK MODULATION	19
6.3.2.1 Mean RF power.....	19
6.3.2.2 Phase and mean frequency error.....	19
6.4. TESTS AT -10°C	20
6.4.1 TX TESTS ON RM2 SLOT 0 (PCS 1900MHz) IN GMSK MODULATION	20



L C I E

6.4.1.1	Mean RF power	20
6.4.1.2	Phase and mean frequency error	20
6.4.2	TX TESTS ON HPRM SLOT 3 (GSM 850MHz) IN GMSK MODULATION	21
6.4.2.1	Mean RF power	21
6.4.2.2	Phase and mean frequency error	21
6.5.	TESTS AT 00°C	22
6.5.1	TX TESTS ON RM2 SLOT 0 (PCS 1900MHz) IN GMSK MODULATION	22
6.5.1.1	Mean RF power	22
6.5.1.2	Phase and mean frequency error	22
6.5.2	TX TESTS ON HPRM SLOT 3 (GSM 850MHz) IN GMSK MODULATION	23
6.5.2.1	Mean RF power	23
6.5.2.2	Phase and mean frequency error	23
6.6.	TESTS AT +10°C	24
6.6.1	TX TESTS ON RM2 SLOT 0 (PCS 1900MHz) IN GMSK MODULATION	24
6.6.1.1	Mean RF power	24
6.6.1.2	Phase and mean frequency error	24
6.6.2	TX TESTS ON HPRM SLOT 3 (GSM 850MHz) IN GMSK MODULATION	25
6.6.2.1	Mean RF power	25
6.6.2.2	Phase and mean frequency error	25
6.7.	TESTS AT +20°C	26
6.7.1	TX TESTS ON RM2 SLOT 0 (PCS 1900MHz) IN GMSK MODULATION	26
6.7.1.1	Mean RF power	26
6.7.1.2	Phase and mean frequency error	26
6.7.2	TX TESTS ON HPRM SLOT 3 (GSM 850MHz) IN GMSK MODULATION	27
6.7.2.1	Mean RF power	27
6.7.2.2	Phase and mean frequency error	27
6.8.	TESTS AT +30°C	28
6.8.1	TX TESTS ON RM2 SLOT 0 (PCS 1900MHz) IN GMSK MODULATION	28
6.8.1.1	Mean RF power	28
6.8.1.2	Phase and mean frequency error	28
6.8.2	TX TESTS ON HPRM SLOT 3 (GSM 850MHz) IN GMSK MODULATION	29
6.8.2.1	Mean RF power	29
6.8.2.2	Phase and mean frequency error	29
6.9.	TESTS AT +40°C	30
6.9.1	TX TESTS ON RM2 SLOT 0 (PCS 1900MHz) IN GMSK MODULATION	30
6.9.1.1	Mean RF power	30
6.9.1.2	Phase and mean frequency error	30
6.9.2	TX TESTS ON HPRM SLOT 3 (GSM 850MHz) IN GMSK MODULATION	31
6.9.2.1	Mean RF power	31
6.9.2.2	Phase and mean frequency error	31
6.10.	TESTS AT +50°C	32
6.10.1	TX TESTS ON RM2 SLOT 0 (PCS 1900MHz) IN GMSK MODULATION	32
6.10.1.1	Mean RF power	32
6.10.1.2	Phase and mean frequency error	32
6.10.2	TX TESTS ON HPRM SLOT 3 (GSM 850MHz) IN GMSK MODULATION	33
6.10.2.1	Mean RF power	33
6.10.2.2	Phase and mean frequency error	33
6.11.	EXAMPLE OF PHASE / FREQUENCY ERROR CURVE	34
6.11.1	TESTS AT -40°C	34
6.11.2	TESTS AT -30°C	34
6.11.3	TESTS AT -20°C	35
6.11.4	TESTS AT -10°C	35
6.11.5	TESTS AT 00°C	36
6.11.6	TESTS AT +10°C	36
6.11.7	TESTS AT +20°C	37
6.11.8	TESTS AT +30°C	37



6.11.9	TESTS AT +40°C	38
6.11.10	TESTS AT +50°C	38
7.	CONCLUSION	39
8.	MEASUREMENT EQUIPMENT LIST	39
9.	ABBREVIATIONS AND DEFINITIONS	40
9.1.	GENERAL ABBREVIATIONS	40
9.2.	GSM ABBREVIATIONS.....	41
9.3.	DEFINITIONS.....	42



1. INTRODUCTION

The objective of this document is to present the Radio tests which have been performed in extreme temperature for the introduction of RM2 PCS1900 on the NG 18000 Outdoor BTS for FCC Mark.

For North America, applicable standard for Radio of GSM 850 MHz Base stations are the FCC Part 22 / RS132 & standard for Radio of PCS 1900 MHz Base stations are the FCC Part 24 / RS133 .

This document is addressed to Nortel Product Integrity team.

2. RELATED DOCUMENTS

3. RELATED DOCUMENTS

3.1. APPLICABLE STANDARDS

[A1]	CFR 47 Part 2	Code of Federal Regulations - Part 2 - Frequency Allocations and Radio Treaty Matters. General Rules and Regulations. Date : June 1996.
[A2]	CFR 47 Part 22	Code of Federal Regulations - Part 22 - Public Mobiles Services.
[A3]	RSS 132	Industry Canada - 800 MHz Cellular Telephones Employing New Technologies.
[A4]	CFR 47 Part 24	Code of Federal Regulations - Part 24 - Personal Communications Services.
[A5]	RSS 133	Industry Canada – 2 GHz Personal Communications Services.

3.2. REFERENCE DOCUMENTS

[R1]	PE/BTS/DPL/023431	GSM 18000 & 9000 & 6000 BTS Project Qualification Plan for the RM2 GSM 1900MHz introduction (Ver 01.03/EN)
[R2]	PCS/BTS/DPL/023530	Radio Test Plan for the introduction of RM2 1900MHz (FCC & 3GPP)
[R3]	PE/BTS/DJD/023739	Outdoor NG BTS18000 RM2 1900MHz hardware delivery notice (Ver 01.01/EN)



4. IDENTIFICATION OF EQUIPMENT UNDER TEST

Product: NG 18000 Outdoor BTS
Manufacturer: NORTEL
Frequencies: GSM 850 MHz & PCS 1900 MHz

AVLM Recipient: LCIE	Date of delivery: 13/JUN/2008
Product: GSM NG BTS 18000 Outdoor	
Article delivered: GSM NG BTS 18000 Outdoor	Article code: NTT915BS P1
Section transmitting: 8Z60	Designer name: S.CHENET
Cabinet Serial Number: Serial Number : N°5	
Documents related to the Hardware Design Specifications	
Documents dealing with specifications:	
<ul style="list-style-type: none"> - PE/BTS/DD/ 5282 V04.01/EN BTS 18000 system design specification 	
Issues fixed on the cabinet:	
<ul style="list-style-type: none"> - New ETR board added / new Transfo, new PCB for safety requirement - New EMI gasket.(LAIRD) - Firmware uploaded in version 1.15 	
Missing Equipment:	
<ul style="list-style-type: none"> - None 	
Software compatibility:	
Modules software version :	
<ul style="list-style-type: none"> - ICM/ABM : CDI120795 - RM : CDI121233 	
PI software tools :	
<ul style="list-style-type: none"> - WINTMI: v03d306 - TIL COAM: V16a402 - TIL Alarm: V16a401 - WINTOOL: V05a2e19 	



L C I E

The delivery includes :

ARTICLE	PEC code	Release	Serial number	Comment
BARE CABINET S333 & ECS/ETR	NTT915BS	P1	5	
S666 EXPANSION KIT ETR	NTT998ED	P1	5	
ECS MAIN Rohs VERSION	NTT965AA	01	NNTMJR000LCT	FW 01.15
ETR board Rohs version	NTT965AM	03	NNTMJR0038L4	
KIT BATTERY NARADA	NTT988AA	P1	N/A	
RICAM	NTN024AA	D2	ERRATIX	ICM 0: 47.164.182.175 ICM 1: 47.164.182.176 ABM : 47.164.182.177
ABM	NTN029AF	D1	NNTMGR00MCFV	47.164.182.189
CIBP	NTN027AM	01	NNTMDV03EP8L	
CIBP	NTN027AM	01	NNTMDV03EP8V	
DBP2	NTN020EF	01	NNTMJR000023	
DBP2	NTN020EF	01	NNTMJR000026	
ADU	NTT966CA	P1	ATSNZH230293	
RICO	NTN020CF	01	NNTMJR000022	No label on the front
DDM 850 W/VSWR W/HYBRIDS	NTN063HA	D2	FICT03002119	
DDM 850 W/VSWR W/HYBRIDS	NTN063HA	D2	FICT0300213H	
DDM 850 W/VSWR W/HYBRIDS	NTN063HA	D2	FICT0300204F	
DDM 1900 W/VSWR W/HYBRIDS	NTN063AA	04	FICT03000MPC	
DDM 1900 W/VSWR W/HYBRIDS	NTN063AA	03	FICT03000N7C	
DDM 1900 W/VSWR W/HYBRIDS	NTN063AA	04	FICT030016F3	
HPRM 850 60/45	NTN050JA	D1	CDN200651003	47.164.182.178
HPRM 850 60/45	NTN050JA	D1	CDN200651004	47.164.182.184
HPRM 850 60/45	NTN050JA	D1	CDN200651008	47.164.182.185
RM2 1900 50/30	NTN050PP	D1	NNTM7880Y9R1	47.164.182.240 For radio test
RM2 1900 50/30	NTN050PP	D1	NNTM7880Y9QZ	47.164.182.241
RM2 1900 50/30	NTN050PP	D1	NNTM7880Y9R0	47.164.182.242
ngUCPS 1600W RECTIFIER	NTT966EA	P1	ATSNZH224293	
ngUCPS 1600W RECTIFIER	NTT966EA	P1	ATSNZH224291	
ngUCPS 1600W RECTIFIER	NTT966EA	P1	ATSNZH224294	
ngUCPS 1600W RECTIFIER	NTT966EA	P1	ATSNZH224286	
ngUCPS GSM CCU	NTT966DA	P1	ATSNZH229049	
ngUCPS BTS18K SHELF&DDU	NTT966AA	P1	ATSNZH236039	
ngUSER-ICO	NTT988DA	P1	N°2	
ALPRO 2	NTT971AF	D1	NNTMGT003U5C	
ALPRO 2	NTT971AF	D1	NNTMGT003U5A	
UCPS Rectifier Plastic Filler	NTQ66651	D1		



L C I E

Additional delivery:

ARTICLE	PEC code	Release	Serial number	Comment
PRIPRO2	NTT993QF	02	NNTMGT004V97	
1 Abis external cable				
1 Diplexer 1900Mhz				For RX Base/Base loopback mesurement

Tests performed:

The following features have been tested:

- MIC BER in T1
- Inventory test.
- DDM Alarms & Inventory interface.
- Dale & Dali.
- TX sequence with factory test bench on each RM2 1900 MHz
- RX sequence with factory test bench on each RM2 1900 MHz

Functional limits :

- Hardware Limitations :
-
- Software Limitations :
-

Documents related to the Hardware Test Specifications

Reference of the test specifications documents:

- PE/BTS/DJD/010557 V01/EN Hardware integration test specification for BTS 18000 Outdoor

Documents related to the Hardware Test Report

Reference of the test reports documents:

- PE/BTS/DJD/023736 V01.01/EN Hardware integration tests report for GSM1900 RM2 introduction

Remark: The exact configuration used during tests is described in § 5.5

5. TESTS PRESENTATION

5.1. TEST PROCEDURE

BTS are able to operate under the following external extreme temperatures and voltages:

- NG 18000 Outdoor BTS : -40°C until + 50 °C by steps of 10°C; 187 Vac and 264 Vac for each temperature steps

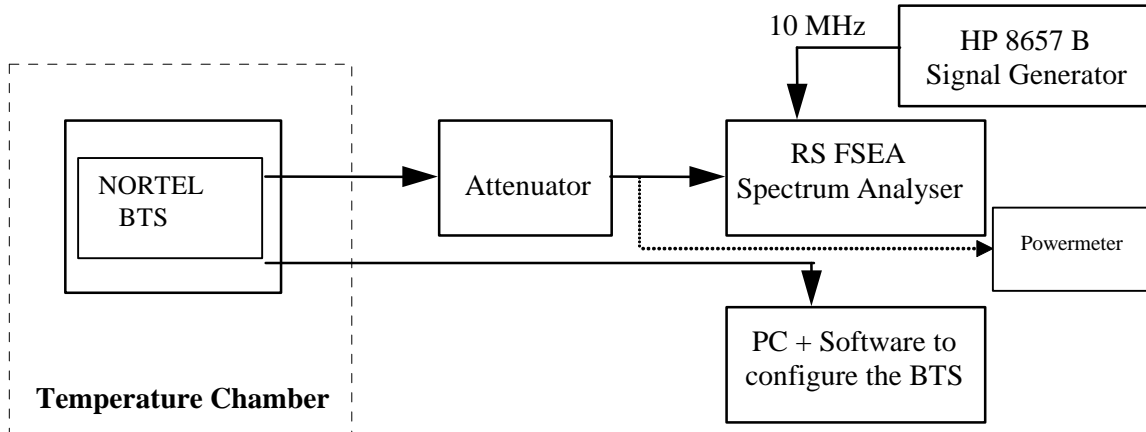
Modules RM GSM 850MHz are configured with nominal power regulation at maximum power (60W) 47,8dBm in GMSK modulation and at maximum power (45W) 46,5dBm in 8PSK modulation.

Modules RM PCS 1900MHz are configured with nominal power regulation at maximum power (50W) 47dBm in GMSK modulation and at maximum power (30W) 44,7dBm in 8PSK modulation.

All RM were configured to transmit at maximum power (Static level 0).

A period of at least two hour was performed prior to start radio measurement to ensure that all the components of the oscillator circuit was stabilized for each steps of temperature.

The equipment was configured as shown in Schematic below.





5.2. SOFTWARE CONFIGURATION

Software compatibility:	
Modules software version :	
- ICM/ABM :	CDI120795
- RM :	CDI121233
PI software tools :	
- WINTMI:	v03d306
- TIL COAM:	V16a402
- TIL Alarm:	V16a401
- WINTOOL:	V05a2e19



5.3. SPECIFICATION RELATED FOR TX TESTS

5.3.1 MEAN RF OUTPUT POWER

RM 60W/45W GSM850

RM Radio module output:

RM2 Output (GMSK 60W)	47,8 dBm ± 0.5 dB
RM2 Output (8PSK 45W)	46,5 dBm ± 0.5 dB

RF Power at antenna connector - DDM H2 configuration:

GMSK	41,9 dBm ≤ RF power ≤ 45,7 dBm
8PSK	40,6 dBm ≤ RF power ≤ 43,8 dBm

RM2 50W/30W PCS1900

RM Radio module output:

RM2 Output (GMSK 50W)	47 dBm ± 0.5 dB
RM2 Output (8PSK 30W)	44,8 dBm ± 0.5 dB

RF Power at antenna connector - DDM H2 configuration:

GMSK	40,6 dBm ≤ RF power ≤ 43,7 dBm
8PSK	38,5 dBm ≤ RF power ≤ 42,4 dBm

RM2 30W/30W PCS1900

RM Radio module output:

RM2 Output (GMSK 30W)	44,8 dBm ± 0.5 dB
RM2 Output (8PSK 30W)	44,8 dBm ± 0.5 dB

RF Power at antenna connector - DDM H2 configuration:

GMSK	38 dBm ≤ RF power ≤ 42 dBm
8PSK	38 dBm ≤ RF power ≤ 42 dBm

5.3.2 PHASE AND MEAN FREQUENCY ERROR

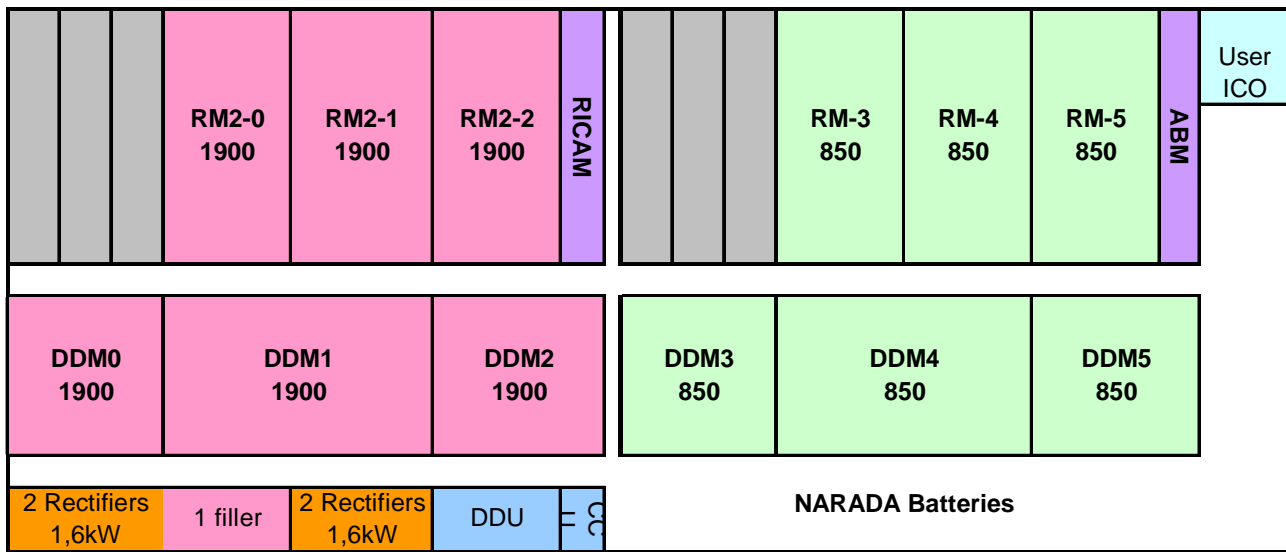
The phase error shall not exceed: 5 degrees rms
20 degrees peak

The mean frequency error across the burst shall not exceed 0.05 ppm. (about +/- 45 Hz for GSM 850MHz frequency band and about +/- 90 Hz for PCS 1900MHz frequency band).



L C I E

5.4. BTS CONFIGURATION FOR TESTS



Maximum radio configuration:
 3 x 60W on each HPRM GSM850 module
 3 x 50W on each RM2 GSM1900 module

5.5. MOLDULE USED DURING RF TESTS

Tested modules

Location	Article	PEC code	Release	Serial number
RM2 in slot 0	RM2 PCS1900 50/30	NTN050PP	D1	NNTM7880Y9R1
DDM in slot 0	DDM 1900 W/VSWR W/HYBRIDS	NTN063AA	04	FICT03000MPC
DDM in slot 1	DDM 1900 W/VSWR W/HYBRIDS	NTN063AA	03	FICT03000N7C
RM in slot 3	HPRM GSM850 60/45	NTN050JA	D1	CDN200651008
DDM in slot 3	DDM 850 W/VSWR W/HYBRIDS	NTN063HA	D2	FICT03002119
DDM in slot 4	DDM 850 W/VSWR W/HYBRIDS	NTN063HA	D2	FICT0300213H

Note:

- For RM2 PCS1900 50/30
 TDMA 0 connected on DDM slot 0 (Main channel)
 TDMA 1 connected on DDM slot 0 (Diversity channel)
 TDMA 2 connected on DDM slot 1 (Main channel)
- For HPRM GSM850 60/45
 TDMA 0 connected on DDM slot 3 (Main channel)
 TDMA 1 connected on DDM slot 3 (Diversity channel)
 TDMA 2 connected on DDM slot 4 (Main channel)

6. RF TEST RESULTS

6.1. TESTS AT -40°C

6.1.1 TX TESTS ON RM2 SLOT 0 (PCS 1900MHZ) IN GMSK MODULATION

Measurements are realized at antenna output with DDM H2 configuration.

6.1.1.1 MEAN RF POWER

Specification for DDM H2 configuration in GMSK :
 $40,6 \text{ dBm} \leq \text{RF power} \leq 43,7 \text{ dBm}$

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	42,21	PASS
TDMA 1	661	GMSK	42,06	PASS
TDMA 2	810	GMSK	42,68	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	42,19	PASS
TDMA 1	661	GMSK	42,04	PASS
TDMA 2	810	GMSK	42,71	PASS

6.1.1.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	4,66 °	3,73 °	PASS
		Phase RMS	1,32 °	1,22 °	PASS
		Freq	-8,65 Hz	-2,35 Hz	PASS
TDMA 1	661	Phase Pk	5,13 °	3,82 °	PASS
		Phase RMS	1,22 °	1,15 °	PASS
		Freq	6,72 Hz	-0,05 Hz	PASS
TDMA 2	810	Phase Pk	7,08 °	5,24 °	PASS
		Phase RMS	1,99 °	1,63 °	PASS
		Freq	-8,72 Hz	-2,66 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	4,82 °	3,74 °	PASS
		Phase RMS	1,31 °	1,22 °	PASS
		Freq	-11,62 Hz	-3,11 Hz	PASS
TDMA 1	661	Phase Pk	5,19 °	3,72 °	PASS
		Phase RMS	1,25 °	1,15 °	PASS
		Freq	-7,04 Hz	0,32 Hz	PASS
TDMA 2	810	Phase Pk	5,93 °	4,76 °	PASS
		Phase RMS	1,58 °	1,49 °	PASS
		Freq	-12,59 Hz	-1,69 Hz	PASS

For an input voltage of 264VAC

Conclusion: Test PASS, maximum error frequency measured = -12.59Hz



6.1.2 TX TESTS ON HPRM SLOT 3 (GSM 850MHZ) IN GMSK MODULATION

Measurements are realized at antenna output with DDM H2 configuration.

6.1.2.1 MEAN RF POWER

Specification for DDM H2 configuration in GMSK :
 $41,9 \text{ dBm} \leq \text{RF power} \leq 45,7 \text{ dBm}$

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,06	PASS
TDMA 1	190	GMSK	44,00	PASS
TDMA 2	251	GMSK	44,84	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,07	PASS
TDMA 1	190	GMSK	43,97	PASS
TDMA 2	251	GMSK	44,78	PASS

6.1.2.2 PHASE AND MEAN FREQUENCY ERROR

For an input voltage of 187VAC:					For an input voltage of 264VAC						
	Canal	Mesure	Max hold	Average	Sanction		Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	4,26 °	2,99 °	PASS	TDMA 0	128	Phase Pk	4,16 °	2,98 °	PASS
		Phase RMS	1,40 °	1,07 °	PASS			Phase RMS	1,45 °	1,06 °	PASS
		Freq	14,53 Hz	2,46 Hz	PASS			Freq	11,95 Hz	1,93 Hz	PASS
TDMA 1	190	Phase Pk	5,00 °	3,31 °	PASS	TDMA 1	190	Phase Pk	4,44 °	2,93 °	PASS
		Phase RMS	1,56 °	1,15 °	PASS			Phase RMS	1,36 °	1,01 °	PASS
		Freq	-10,07 Hz	-2,01 Hz	PASS			Freq	-11,17 Hz	-1,59 Hz	PASS
TDMA 2	251	Phase Pk	3,91 °	2,66 °	PASS	TDMA 2	251	Phase Pk	4,40 °	3,15 °	PASS
		Phase RMS	1,19 °	0,91 °	PASS			Phase RMS	1,57 °	1,12 °	PASS
		Freq	-8,98 Hz	-0,64 Hz	PASS			Freq	-9,04 Hz	-0,48 Hz	PASS

Conclusion: Test PASS, maximum error frequency measured = -14.53Hz



6.2. TESTS AT -30°C

6.2.1 TX TESTS ON RM2 SLOT 0 (PCS 1900MHZ) IN GMSK MODULATION

Measurements are realized at antenna output with DDM H2 configuration.

6.2.1.1 MEAN RF POWER

Specification for DDM H2 configuration in GMSK :
 $40,6 \text{ dBm} \leq \text{RF power} \leq 43,7 \text{ dBm}$

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	42,18	PASS
TDMA 1	661	GMSK	42,06	PASS
TDMA 2	810	GMSK	42,71	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	42,19	PASS
TDMA 1	661	GMSK	42,04	PASS
TDMA 2	810	GMSK	42,70	PASS

6.2.1.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	5,35 °	4,20 °	PASS
		Phase RMS	1,75 °	1,41 °	PASS
		Freq	-6,65 Hz	0,30 Hz	PASS
TDMA 1	661	Phase Pk	5,79 °	4,17 °	PASS
		Phase RMS	1,61 °	1,35 °	PASS
		Freq	9,75 Hz	3,86 Hz	PASS
TDMA 2	810	Phase Pk	6,43 °	5,13 °	PASS
		Phase RMS	1,83 °	1,59 °	PASS
		Freq	-9,62 Hz	-2,77 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	5,55 °	4,09 °	PASS
		Phase RMS	1,55 °	1,35 °	PASS
		Freq	-9,17 Hz	-2,18 Hz	PASS
TDMA 1	661	Phase Pk	5,76 °	4,08 °	PASS
		Phase RMS	1,66 °	1,30 °	PASS
		Freq	9,56 Hz	2,06 Hz	PASS
TDMA 2	810	Phase Pk	7,55 °	5,19 °	PASS
		Phase RMS	1,95 °	1,63 °	PASS
		Freq	8,72 Hz	1,46 Hz	PASS

For an input voltage of 264VAC

Conclusion: Test PASS, maximum error frequency measured = 9.75Hz



6.2.2 TX TESTS ON HPRM SLOT 3 (GSM 850MHZ) IN GMSK MODULATION

Measurements are realized at antenna output with DDM H2 configuration.

6.2.2.1 MEAN RF POWER

Specification for DDM H2 configuration in GMSK :
 $41,9 \text{ dBm} \leq \text{RF power} \leq 45,7 \text{ dBm}$

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,56	PASS
TDMA 1	190	GMSK	44,18	PASS
TDMA 2	251	GMSK	44,66	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,21	PASS
TDMA 1	190	GMSK	44,09	PASS
TDMA 2	251	GMSK	44,87	PASS

6.2.2.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	3,92 °	2,70 °	PASS
		Phase RMS	1,30 °	0,93 °	PASS
		Freq	9,49 Hz	0,68 Hz	PASS
TDMA 1	190	Phase Pk	5,48 °	2,91 °	PASS
		Phase RMS	1,36 °	1,00 °	PASS
		Freq	10,27 Hz	0,41 Hz	PASS
TDMA 2	251	Phase Pk	4,15 °	2,57 °	PASS
		Phase RMS	1,26 °	0,89 °	PASS
		Freq	10,33 Hz	1,92 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	4,10 °	2,63 °	PASS
		Phase RMS	1,22 °	0,90 °	PASS
		Freq	-10,78 Hz	0,42 Hz	PASS
TDMA 1	190	Phase Pk	4,22 °	2,88 °	PASS
		Phase RMS	1,30 °	0,99 °	PASS
		Freq	10,85 Hz	0,51 Hz	PASS
TDMA 2	251	Phase Pk	4,53 °	3,03 °	PASS
		Phase RMS	1,44 °	1,07 °	PASS
		Freq	8,39 Hz	-0,80 Hz	PASS

For an input voltage of 264VAC

Conclusion: Test PASS, maximum error frequency measured = 10.85Hz



6.3. TESTS AT -20°C

6.3.1 TX TESTS ON RM2 SLOT 0 (PCS 1900MHZ) IN GMSK MODULATION

Measurements are realized at antenna output with DDM H2 configuration.

6.3.1.1 MEAN RF POWER

Specification for DDM H2 configuration in GMSK :
 $40,6 \text{ dBm} \leq \text{RF power} \leq 43,7 \text{ dBm}$

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	42,08	PASS
TDMA 1	661	GMSK	42,02	PASS
TDMA 2	810	GMSK	42,64	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	42,08	PASS
TDMA 1	661	GMSK	42,04	PASS
TDMA 2	810	GMSK	42,65	PASS

6.3.1.2 PHASE AND MEAN FREQUENCY ERROR

For an input voltage of 187VAC:						For an input voltage of 264VAC					
	Canal	Mesure	Max hold	Average	Sanction		Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	4,80 °	3,73 °	PASS	TDMA 0	512	Phase Pk	4,99 °	3,73 °	PASS
		Phase RMS	1,60 °	1,22 °	PASS			Phase RMS	1,35 °	1,22 °	PASS
		Freq	6,97 Hz	-0,81 Hz	PASS			Freq	-10,14 Hz	-2,51 Hz	PASS
TDMA 1	661	Phase Pk	5,93 °	4,07 °	PASS	TDMA 1	661	Phase Pk	4,91 °	3,71 °	PASS
		Phase RMS	1,57 °	1,29 °	PASS			Phase RMS	1,48 °	1,15 °	PASS
		Freq	6,46 Hz	1,08 Hz	PASS			Freq	-10,98 Hz	-0,83 Hz	PASS
TDMA 2	810	Phase Pk	6,46 °	5,11 °	PASS	TDMA 2	810	Phase Pk	6,52 °	5,12 °	PASS
		Phase RMS	1,96 °	1,61 °	PASS			Phase RMS	1,89 °	1,60 °	PASS
		Freq	-8,01 Hz	-0,41 Hz	PASS			Freq	-8,46 Hz	-3,38 Hz	PASS

Conclusion: Test PASS, maximum error frequency measured = -10.98Hz



6.3.2 TX TESTS ON HPRM SLOT 3 (GSM 850MHZ) IN GMSK MODULATION

Measurements are realized at antenna output with DDM H2 configuration.

6.3.2.1 MEAN RF POWER

Specification for DDM H2 configuration in GMSK :
 $41,9 \text{ dBm} \leq \text{RF power} \leq 45,7 \text{ dBm}$

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	44,02	PASS
TDMA 1	190	GMSK	43,71	PASS
TDMA 2	251	GMSK	43,70	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	44,08	PASS
TDMA 1	190	GMSK	43,66	PASS
TDMA 2	251	GMSK	43,63	PASS

6.3.2.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	4,54 °	2,76 °	PASS
		Phase RMS	1,34 °	0,94 °	PASS
		Freq	12,07 Hz	1,74 Hz	PASS
TDMA 1	190	Phase Pk	4,61 °	2,98 °	PASS
		Phase RMS	1,34 °	1,00 °	PASS
		Freq	-13,43 Hz	-1,01 Hz	PASS
TDMA 2	251	Phase Pk	4,19 °	2,68 °	PASS
		Phase RMS	1,38 °	0,91 °	PASS
		Freq	12,33 Hz	1,34 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	4,51 °	2,77 °	PASS
		Phase RMS	1,34 °	0,95 °	PASS
		Freq	11,95 Hz	2,20 Hz	PASS
TDMA 1	190	Phase Pk	5,29 °	3,30 °	PASS
		Phase RMS	1,49 °	1,17 °	PASS
		Freq	-10,46 Hz	-0,72 Hz	PASS
TDMA 2	251	Phase Pk	5,45 °	3,04 °	PASS
		Phase RMS	1,60 °	1,06 °	PASS
		Freq	10,20 Hz	1,69 Hz	PASS

For an input voltage of 264VAC

Conclusion: Test PASS, maximum error frequency measured = -13.43Hz



6.4. TESTS AT -10°C

6.4.1 TX TESTS ON RM2 SLOT 0 (PCS 1900MHZ) IN GMSK MODULATION

Measurements are realized at antenna output with DDM H2 configuration.

6.4.1.1 MEAN RF POWER

Specification for DDM H2 configuration in GMSK :
 $40,6 \text{ dBm} \leq \text{RF power} \leq 43,7 \text{ dBm}$

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	42,06	PASS
TDMA 1	661	GMSK	42,01	PASS
TDMA 2	810	GMSK	42,63	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	42,01	PASS
TDMA 1	661	GMSK	41,94	PASS
TDMA 2	810	GMSK	42,56	PASS

6.4.1.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	4,57 °	3,74 °	PASS
		Phase RMS	1,33 °	1,22 °	PASS
		Freq	-11,30 Hz	-5,25 Hz	PASS
TDMA 1	661	Phase Pk	6,08 °	4,25 °	PASS
		Phase RMS	1,63 °	1,35 °	PASS
		Freq	-8,46 Hz	-1,97 Hz	PASS
TDMA 2	810	Phase Pk	5,79 °	4,77 °	PASS
		Phase RMS	1,61 °	1,49 °	PASS
		Freq	-6,84 Hz	-0,14 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	4,51 °	3,72 °	PASS
		Phase RMS	1,31 °	1,22 °	PASS
		Freq	-7,88 Hz	-1,75 Hz	PASS
TDMA 1	661	Phase Pk	5,08 °	3,74 °	PASS
		Phase RMS	1,27 °	1,15 °	PASS
		Freq	7,55 Hz	0,63 Hz	PASS
TDMA 2	810	Phase Pk	6,74 °	5,17 °	PASS
		Phase RMS	1,97 °	1,60 °	PASS
		Freq	-5,75 Hz	-1,10 Hz	PASS

For an input voltage of 264VAC

Conclusion: Test PASS, maximum error frequency measured = -11.30Hz

6.4.2 TX TESTS ON HPRM SLOT 3 (GSM 850MHZ) IN GMSK MODULATION

Measurements are realized at antenna output with DDM H2 configuration.

6.4.2.1 MEAN RF POWER

Specification for DDM H2 configuration in GMSK :
 $41,9 \text{ dBm} \leq \text{RF power} \leq 45,7 \text{ dBm}$

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	44,13	PASS
TDMA 1	190	GMSK	43,67	PASS
TDMA 2	251	GMSK	43,62	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	44,11	PASS
TDMA 1	190	GMSK	43,73	PASS
TDMA 2	251	GMSK	43,56	PASS

6.4.2.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	4,01 °	2,92 °	PASS
		Phase RMS	1,38 °	1,02 °	PASS
		Freq	10,91 Hz	2,82 Hz	PASS
TDMA 1	190	Phase Pk	4,63 °	3,19 °	PASS
		Phase RMS	1,49 °	1,14 °	PASS
		Freq	-11,11 Hz	-1,19 Hz	PASS
TDMA 2	251	Phase Pk	4,26 °	2,75 °	PASS
		Phase RMS	1,45 °	0,97 °	PASS
		Freq	10,07 Hz	1,65 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	3,74 °	2,66 °	PASS
		Phase RMS	1,33 °	0,91 °	PASS
		Freq	9,75 Hz	1,01 Hz	PASS
TDMA 1	190	Phase Pk	4,12 °	2,89 °	PASS
		Phase RMS	1,43 °	0,99 °	PASS
		Freq	-9,56 Hz	-0,47 Hz	PASS
TDMA 2	251	Phase Pk	4,26 °	2,65 °	PASS
		Phase RMS	1,27 °	0,92 °	PASS
		Freq	11,62 Hz	0,67 Hz	PASS

For an input voltage of 264VAC

Conclusion: Test PASS, maximum error frequency measured = 11.62Hz



6.5. TESTS AT 00°C

6.5.1 TX TESTS ON RM2 SLOT 0 (PCS 1900MHZ) IN GMSK MODULATION

Measurements are realized at antenna output with DDM H2 configuration.

6.5.1.1 MEAN RF POWER

Specification for DDM H2 configuration in GMSK :
 $40,6 \text{ dBm} \leq \text{RF power} \leq 43,7 \text{ dBm}$

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	41,98	PASS
TDMA 1	661	GMSK	42,02	PASS
TDMA 2	810	GMSK	42,56	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	41,99	PASS
TDMA 1	661	GMSK	42,01	PASS
TDMA 2	810	GMSK	42,59	PASS

6.5.1.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	4,97 °	3,74 °	PASS
		Phase RMS	1,32 °	1,22 °	PASS
		Freq	-9,23 Hz	-2,13 Hz	PASS
TDMA 1	661	Phase Pk	6,32 °	4,17 °	PASS
		Phase RMS	1,61 °	1,32 °	PASS
		Freq	-7,10 Hz	-0,69 Hz	PASS
TDMA 2	810	Phase Pk	6,38 °	5,21 °	PASS
		Phase RMS	1,82 °	1,61 °	PASS
		Freq	6,33 Hz	0,36 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	5,50 °	4,10 °	PASS
		Phase RMS	1,59 °	1,35 °	PASS
		Freq	-8,78 Hz	-0,80 Hz	PASS
TDMA 1	661	Phase Pk	4,79 °	3,78 °	PASS
		Phase RMS	1,24 °	1,16 °	PASS
		Freq	-9,10 Hz	-2,92 Hz	PASS
TDMA 2	810	Phase Pk	6,72 °	5,14 °	PASS
		Phase RMS	1,97 °	1,61 °	PASS
		Freq	-12,66 Hz	-4,83 Hz	PASS

For an input voltage of 264VAC

Conclusion: Test PASS, maximum error frequency measured = -12.66Hz



6.5.2 TX TESTS ON HPRM SLOT 3 (GSM 850MHZ) IN GMSK MODULATION

Measurements are realized at antenna output with DDM H2 configuration.

6.5.2.1 MEAN RF POWER

Specification for DDM H2 configuration in GMSK :
 $41,9 \text{ dBm} \leq \text{RF power} \leq 45,7 \text{ dBm}$

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	44,22	PASS
TDMA 1	190	GMSK	43,78	PASS
TDMA 2	251	GMSK	43,58	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	44,18	PASS
TDMA 1	190	GMSK	43,72	PASS
TDMA 2	251	GMSK	43,57	PASS

6.5.2.2 PHASE AND MEAN FREQUENCY ERROR

For an input voltage of 187VAC:					For an input voltage of 264VAC						
	Canal	Mesure	Max hold	Average	Sanction		Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	5,93 °	3,02 °	PASS	TDMA 0	128	Phase Pk	5,78 °	3,08 °	PASS
		Phase RMS	1,60 °	1,03 °	PASS			Phase RMS	1,44 °	1,05 °	PASS
		Freq	-9,88 Hz	0,89 Hz	PASS			Freq	11,11 Hz	1,76 Hz	PASS
TDMA 1	190	Phase Pk	5,75 °	3,04 °	PASS	TDMA 1	190	Phase Pk	5,77 °	3,21 °	PASS
		Phase RMS	1,57 °	1,07 °	PASS			Phase RMS	1,51 °	1,05 °	PASS
		Freq	-10,65 Hz	-0,96 Hz	PASS			Freq	9,10 Hz	0,55 Hz	PASS
TDMA 2	251	Phase Pk	4,55 °	2,99 °	PASS	TDMA 2	251	Phase Pk	4,61 °	2,96 °	PASS
		Phase RMS	1,40 °	1,05 °	PASS			Phase RMS	1,51 °	1,03 °	PASS
		Freq	11,88 Hz	1,08 Hz	PASS			Freq	8,20 Hz	0,48 Hz	PASS

Conclusion: Test PASS, maximum error frequency measured = 11.88Hz



6.6. TESTS AT +10°C

6.6.1 TX TESTS ON RM2 SLOT 0 (PCS 1900MHZ) IN GMSK MODULATION

Measurements are realized at antenna output with DDM H2 configuration.

6.6.1.1 MEAN RF POWER

Specification for DDM H2 configuration in GMSK :
 $40,6 \text{ dBm} \leq \text{RF power} \leq 43,7 \text{ dBm}$

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	41,92	PASS
TDMA 1	661	GMSK	42,01	PASS
TDMA 2	810	GMSK	42,54	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	41,92	PASS
TDMA 1	661	GMSK	41,96	PASS
TDMA 2	810	GMSK	42,55	PASS

6.6.1.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	5,58 °	4,18 °	PASS
		Phase RMS	1,68 °	1,39 °	PASS
		Freq	16,72 Hz	5,53 Hz	PASS
TDMA 1	661	Phase Pk	5,94 °	4,14 °	PASS
		Phase RMS	1,52 °	1,30 °	PASS
		Freq	15,82 Hz	5,00 Hz	PASS
TDMA 2	810	Phase Pk	6,87 °	5,29 °	PASS
		Phase RMS	1,94 °	1,64 °	PASS
		Freq	-8,01 Hz	-0,50 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	5,38 °	4,34 °	PASS
		Phase RMS	1,74 °	1,47 °	PASS
		Freq	-11,36 Hz	-2,59 Hz	PASS
TDMA 1	661	Phase Pk	5,55 °	4,15 °	PASS
		Phase RMS	1,53 °	1,31 °	PASS
		Freq	-6,07 Hz	-0,59 Hz	PASS
TDMA 2	810	Phase Pk	6,39 °	5,26 °	PASS
		Phase RMS	1,95 °	1,63 °	PASS
		Freq	-9,56 Hz	-3,16 Hz	PASS

For an input voltage of 264VAC

Conclusion: Test PASS, maximum error frequency measured = 16.72Hz



6.6.2 TX TESTS ON HPRM SLOT 3 (GSM 850MHZ) IN GMSK MODULATION

Measurements are realized at antenna output with DDM H2 configuration.

6.6.2.1 MEAN RF POWER

Specification for DDM H2 configuration in GMSK :
 $41,9 \text{ dBm} \leq \text{RF power} \leq 45,7 \text{ dBm}$

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	44,19	PASS
TDMA 1	190	GMSK	43,74	PASS
TDMA 2	251	GMSK	43,61	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	44,20	PASS
TDMA 1	190	GMSK	43,75	PASS
TDMA 2	251	GMSK	43,65	PASS

6.6.2.2 PHASE AND MEAN FREQUENCY ERROR

For an input voltage of 187VAC:					For an input voltage of 264VAC						
	Canal	Mesure	Max hold	Average	Sanction		Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	6,64 °	3,04 °	PASS	TDMA 0	128	Phase Pk	4,32 °	3,01 °	PASS
		Phase RMS	1,58 °	1,05 °	PASS			Phase RMS	1,42 °	1,06 °	PASS
		Freq	13,82 Hz	2,77 Hz	PASS			Freq	14,46 Hz	2,72 Hz	PASS
TDMA 1	190	Phase Pk	5,32 °	3,25 °	PASS	TDMA 1	190	Phase Pk	5,38 °	3,10 °	PASS
		Phase RMS	1,57 °	1,11 °	PASS			Phase RMS	1,49 °	1,01 °	PASS
		Freq	10,98 Hz	-1,00 Hz	PASS			Freq	8,33 Hz	-0,14 Hz	PASS
TDMA 2	251	Phase Pk	4,83 °	2,62 °	PASS	TDMA 2	251	Phase Pk	3,99 °	2,56 °	PASS
		Phase RMS	1,29 °	0,90 °	PASS			Phase RMS	1,26 °	0,89 °	PASS
		Freq	10,27 Hz	1,67 Hz	PASS			Freq	9,30 Hz	1,47 Hz	PASS

Conclusion: Test PASS, maximum error frequency measured = 14.46Hz



6.7. TESTS AT +20°C

6.7.1 TX TESTS ON RM2 SLOT 0 (PCS 1900MHZ) IN GMSK MODULATION

Measurements are realized at antenna output with DDM H2 configuration.

6.7.1.1 MEAN RF POWER

Specification for DDM H2 configuration in GMSK :
 $40,6 \text{ dBm} \leq \text{RF power} \leq 43,7 \text{ dBm}$

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	41,82	PASS
TDMA 1	661	GMSK	41,95	PASS
TDMA 2	810	GMSK	42,54	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	41,85	PASS
TDMA 1	661	GMSK	41,95	PASS
TDMA 2	810	GMSK	42,51	PASS

6.7.1.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	5,18 °	3,92 °	PASS
		Phase RMS	1,58 °	1,32 °	PASS
		Freq	20,60 Hz	12,73 Hz	PASS
TDMA 1	661	Phase Pk	6,12 °	3,90 °	PASS
		Phase RMS	1,57 °	1,22 °	PASS
		Freq	19,50 Hz	11,71 Hz	PASS
TDMA 2	810	Phase Pk	6,89 °	5,19 °	PASS
		Phase RMS	1,89 °	1,61 °	PASS
		Freq	13,11 Hz	7,04 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	6,00 °	4,33 °	PASS
		Phase RMS	1,72 °	1,44 °	PASS
		Freq	-12,20 Hz	-4,07 Hz	PASS
TDMA 1	661	Phase Pk	6,33 °	4,31 °	PASS
		Phase RMS	1,74 °	1,37 °	PASS
		Freq	-9,23 Hz	-2,47 Hz	PASS
TDMA 2	810	Phase Pk	6,76 °	5,27 °	PASS
		Phase RMS	2,03 °	1,65 °	PASS
		Freq	-10,85 Hz	-4,23 Hz	PASS

For an input voltage of 264VAC

Conclusion: Test PASS, maximum error frequency measured = 20.60Hz



6.7.2 TX TESTS ON HPRM SLOT 3 (GSM 850MHZ) IN GMSK MODULATION

Measurements are realized at antenna output with DDM H2 configuration.

6.7.2.1 MEAN RF POWER

Specification for DDM H2 configuration in GMSK :
 $41,9 \text{ dBm} \leq \text{RF power} \leq 45,7 \text{ dBm}$

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	44,05	PASS
TDMA 1	190	GMSK	43,64	PASS
TDMA 2	251	GMSK	43,57	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,99	PASS
TDMA 1	190	GMSK	43,57	PASS
TDMA 2	251	GMSK	43,57	PASS

6.7.2.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	4,14 °	2,71 °	PASS
		Phase RMS	1,40 °	0,92 °	PASS
		Freq	-13,56 Hz	1,88 Hz	PASS
TDMA 1	190	Phase Pk	4,22 °	2,84 °	PASS
		Phase RMS	1,45 °	0,99 °	PASS
		Freq	12,46 Hz	2,72 Hz	PASS
TDMA 2	251	Phase Pk	4,25 °	2,95 °	PASS
		Phase RMS	1,37 °	1,04 °	PASS
		Freq	12,46 Hz	2,57 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	3,64 °	2,62 °	PASS
		Phase RMS	1,13 °	0,89 °	PASS
		Freq	8,46 Hz	1,00 Hz	PASS
TDMA 1	190	Phase Pk	4,72 °	3,06 °	PASS
		Phase RMS	1,45 °	1,10 °	PASS
		Freq	10,46 Hz	1,44 Hz	PASS
TDMA 2	251	Phase Pk	3,88 °	2,59 °	PASS
		Phase RMS	1,23 °	0,89 °	PASS
		Freq	-10,53 Hz	-0,46 Hz	PASS

For an input voltage of 264VAC

Conclusion: Test PASS, maximum error frequency measured = -13.56Hz



6.8. TESTS AT +30°C

6.8.1 TX TESTS ON RM2 SLOT 0 (PCS 1900MHZ) IN GMSK MODULATION

Measurements are realized at antenna output with DDM H2 configuration.

6.8.1.1 MEAN RF POWER

Specification for DDM H2 configuration in GMSK :
 $40,6 \text{ dBm} \leq \text{RF power} \leq 43,7 \text{ dBm}$

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	41,83	PASS
TDMA 1	661	GMSK	41,97	PASS
TDMA 2	810	GMSK	42,50	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	41,82	PASS
TDMA 1	661	GMSK	41,97	PASS
TDMA 2	810	GMSK	42,49	PASS

6.8.1.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	For an input voltage of 187VAC:		Sanction
			Max hold	Average	
TDMA 0	512	Phase Pk	4,46 °	3,66 °	PASS
		Phase RMS	1,31 °	1,22 °	PASS
		Freq	-12,27 Hz	-5,55 Hz	PASS
TDMA 1	661	Phase Pk	5,88 °	4,22 °	PASS
		Phase RMS	1,70 °	1,35 °	PASS
		Freq	-7,81 Hz	-2,89 Hz	PASS
TDMA 2	810	Phase Pk	5,68 °	4,74 °	PASS
		Phase RMS	1,59 °	1,49 °	PASS
		Freq	-10,40 Hz	-1,83 Hz	PASS

	Canal	Mesure	For an input voltage of 264VAC		Sanction
			Max hold	Average	
TDMA 0	512	Phase Pk	5,28 °	4,12 °	PASS
		Phase RMS	1,67 °	1,38 °	PASS
		Freq	-6,59 Hz	0,05 Hz	PASS
TDMA 1	661	Phase Pk	6,05 °	4,01 °	PASS
		Phase RMS	1,51 °	1,27 °	PASS
		Freq	-5,68 Hz	0,73 Hz	PASS
TDMA 2	810	Phase Pk	6,83 °	5,14 °	PASS
		Phase RMS	1,90 °	1,59 °	PASS
		Freq	-8,27 Hz	-2,03 Hz	PASS

Conclusion: Test PASS, maximum error frequency measured = -12.27Hz



6.8.2 TX TESTS ON HPRM SLOT 3 (GSM 850MHZ) IN GMSK MODULATION

Measurements are realized at antenna output with DDM H2 configuration.

6.8.2.1 MEAN RF POWER

Specification for DDM H2 configuration in GMSK :
 $41,9 \text{ dBm} \leq \text{RF power} \leq 45,7 \text{ dBm}$

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,93	PASS
TDMA 1	190	GMSK	43,59	PASS
TDMA 2	251	GMSK	43,52	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,93	PASS
TDMA 1	190	GMSK	43,59	PASS
TDMA 2	251	GMSK	43,54	PASS

6.8.2.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	4,25 °	2,74 °	PASS
		Phase RMS	1,35 °	0,94 °	PASS
		Freq	9,56 Hz	2,33 Hz	PASS
TDMA 1	190	Phase Pk	4,31 °	2,95 °	PASS
		Phase RMS	1,33 °	1,00 °	PASS
		Freq	9,10 Hz	-0,55 Hz	PASS
TDMA 2	251	Phase Pk	4,35 °	2,69 °	PASS
		Phase RMS	1,33 °	0,92 °	PASS
		Freq	-9,49 Hz	1,27 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	4,03 °	2,68 °	PASS
		Phase RMS	1,24 °	0,91 °	PASS
		Freq	-11,75 Hz	0,23 Hz	PASS
TDMA 1	190	Phase Pk	4,45 °	3,13 °	PASS
		Phase RMS	1,49 °	1,09 °	PASS
		Freq	-10,27 Hz	-1,19 Hz	PASS
TDMA 2	251	Phase Pk	3,65 °	2,56 °	PASS
		Phase RMS	1,36 °	0,89 °	PASS
		Freq	-15,76 Hz	-0,93 Hz	PASS

For an input voltage of 264VAC

Conclusion: Test PASS, maximum error frequency measured = -15.76Hz



6.9. TESTS AT +40°C

6.9.1 TX TESTS ON RM2 SLOT 0 (PCS 1900MHZ) IN GMSK MODULATION

Measurements are realized at antenna output with DDM H2 configuration.

6.9.1.1 MEAN RF POWER

Specification for DDM H2 configuration in GMSK :
 $40,6 \text{ dBm} \leq \text{RF power} \leq 43,7 \text{ dBm}$

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	41,77	PASS
TDMA 1	661	GMSK	42,00	PASS
TDMA 2	810	GMSK	42,46	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	41,76	PASS
TDMA 1	661	GMSK	41,98	PASS
TDMA 2	810	GMSK	42,44	PASS

6.9.1.2 PHASE AND MEAN FREQUENCY ERROR

For an input voltage of 187VAC:						For an input voltage of 264VAC					
	Canal	Mesure	Max hold	Average	Sanction		Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	5,31 °	4,01 °	PASS	TDMA 0	512	Phase Pk	4,64 °	3,70 °	PASS
		Phase RMS	1,55 °	1,33 °	PASS			Phase RMS	1,30 °	1,21 °	PASS
		Freq	-8,07 Hz	-2,89 Hz	PASS			Freq	-10,59 Hz	-2,74 Hz	PASS
TDMA 1	661	Phase Pk	6,39 °	4,10 °	PASS	TDMA 1	661	Phase Pk	5,93 °	4,16 °	PASS
		Phase RMS	1,57 °	1,30 °	PASS			Phase RMS	1,65 °	1,35 °	PASS
		Freq	7,49 Hz	-0,81 Hz	PASS			Freq	-8,85 Hz	-0,99 Hz	PASS
TDMA 2	810	Phase Pk	5,72 °	4,74 °	PASS	TDMA 2	810	Phase Pk	6,31 °	4,74 °	PASS
		Phase RMS	1,57 °	1,48 °	PASS			Phase RMS	1,60 °	1,48 °	PASS
		Freq	-9,10 Hz	-1,75 Hz	PASS			Freq	-10,59 Hz	-3,14 Hz	PASS

Conclusion: Test PASS, maximum error frequency measured = -10.59Hz

6.9.2 TX TESTS ON HPRM SLOT 3 (GSM 850MHZ) IN GMSK MODULATION

Measurements are realized at antenna output with DDM H2 configuration.

6.9.2.1 MEAN RF POWER

Specification for DDM H2 configuration in GMSK :
 $41,9 \text{ dBm} \leq \text{RF power} \leq 45,7 \text{ dBm}$

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,84	PASS
TDMA 1	190	GMSK	43,55	PASS
TDMA 2	251	GMSK	43,47	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,81	PASS
TDMA 1	190	GMSK	43,49	PASS
TDMA 2	251	GMSK	43,46	PASS

6.9.2.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	4,06 °	2,66 °	PASS
		Phase RMS	1,23 °	0,92 °	PASS
		Freq	9,56 Hz	1,98 Hz	PASS
TDMA 1	190	Phase Pk	4,24 °	2,84 °	PASS
		Phase RMS	1,35 °	0,99 °	PASS
		Freq	9,56 Hz	0,51 Hz	PASS
TDMA 2	251	Phase Pk	4,37 °	2,65 °	PASS
		Phase RMS	1,24 °	0,90 °	PASS
		Freq	-11,17 Hz	-1,63 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	3,97 °	2,66 °	PASS
		Phase RMS	1,23 °	0,92 °	PASS
		Freq	10,46 Hz	-0,86 Hz	PASS
TDMA 1	190	Phase Pk	4,22 °	2,91 °	PASS
		Phase RMS	1,33 °	0,99 °	PASS
		Freq	11,82 Hz	0,19 Hz	PASS
TDMA 2	251	Phase Pk	4,09 °	2,74 °	PASS
		Phase RMS	1,26 °	0,93 °	PASS
		Freq	-11,62 Hz	-0,23 Hz	PASS

For an input voltage of 264VAC

Conclusion: Test PASS, maximum error frequency measured = 11.82Hz



6.10. TESTS AT +50°C

6.10.1 TX TESTS ON RM2 SLOT 0 (PCS 1900MHZ) IN GMSK MODULATION

Measurements are realized at antenna output with DDM H2 configuration.

6.10.1.1 MEAN RF POWER

Specification for DDM H2 configuration in GMSK :
 $40,6 \text{ dBm} \leq \text{RF power} \leq 43,7 \text{ dBm}$

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	41,75	PASS
TDMA 1	661	GMSK	42,01	PASS
TDMA 2	810	GMSK	42,38	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	41,76	PASS
TDMA 1	661	GMSK	42,04	PASS
TDMA 2	810	GMSK	42,40	PASS

6.10.1.2 PHASE AND MEAN FREQUENCY ERROR

For an input voltage of 187VAC:						For an input voltage of 264VAC					
	Canal	Mesure	Max hold	Average	Sanction		Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	5,43 °	4,05 °	PASS	TDMA 0	512	Phase Pk	4,47 °	3,65 °	PASS
		Phase RMS	1,59 °	1,33 °	PASS			Phase RMS	1,33 °	1,20 °	PASS
		Freq	-7,75 Hz	-1,34 Hz	PASS			Freq	-10,40 Hz	-2,72 Hz	PASS
TDMA 1	661	Phase Pk	4,86 °	3,61 °	PASS	TDMA 1	661	Phase Pk	4,63 °	3,64 °	PASS
		Phase RMS	1,24 °	1,13 °	PASS			Phase RMS	1,23 °	1,13 °	PASS
		Freq	7,94 Hz	1,52 Hz	PASS			Freq	-7,36 Hz	-1,21 Hz	PASS
TDMA 2	810	Phase Pk	6,39 °	4,81 °	PASS	TDMA 2	810	Phase Pk	5,77 °	4,71 °	PASS
		Phase RMS	1,84 °	1,51 °	PASS			Phase RMS	1,54 °	1,47 °	PASS
		Freq	-6,91 Hz	-0,12 Hz	PASS			Freq	-9,69 Hz	-1,68 Hz	PASS

Conclusion: Test PASS, maximum error frequency measured = -10.40Hz

6.10.2 TX TESTS ON HPRM SLOT 3 (GSM 850MHZ) IN GMSK MODULATION

Measurements are realized at antenna output with DDM H2 configuration.

6.10.2.1 MEAN RF POWER

Specification for DDM H2 configuration in GMSK :
 $41,9 \text{ dBm} \leq \text{RF power} \leq 45,7 \text{ dBm}$

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,70	PASS
TDMA 1	190	GMSK	43,39	PASS
TDMA 2	251	GMSK	43,37	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,69	PASS
TDMA 1	190	GMSK	43,42	PASS
TDMA 2	251	GMSK	43,37	PASS

6.10.2.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	4,36 °	2,95 °	PASS
		Phase RMS	1,34 °	1,04 °	PASS
		Freq	-8,33 Hz	-1,10 Hz	PASS
TDMA 1	190	Phase Pk	4,50 °	3,09 °	PASS
		Phase RMS	1,41 °	1,08 °	PASS
		Freq	-12,91 Hz	-3,09 Hz	PASS
TDMA 2	251	Phase Pk	4,44 °	2,65 °	PASS
		Phase RMS	1,33 °	0,92 °	PASS
		Freq	-11,88 Hz	-0,96 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	4,21 °	2,72 °	PASS
		Phase RMS	1,26 °	0,94 °	PASS
		Freq	14,98 Hz	2,45 Hz	PASS
TDMA 1	190	Phase Pk	4,61 °	3,01 °	PASS
		Phase RMS	1,45 °	1,05 °	PASS
		Freq	-8,98 Hz	-0,35 Hz	PASS
TDMA 2	251	Phase Pk	3,60 °	2,68 °	PASS
		Phase RMS	1,28 °	0,92 °	PASS
		Freq	9,43 Hz	-0,63 Hz	PASS

For an input voltage of 264VAC

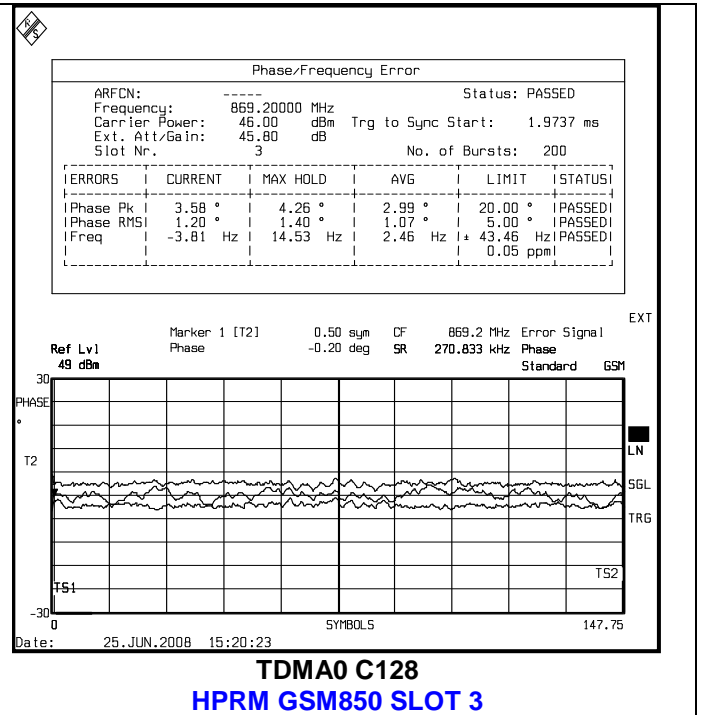
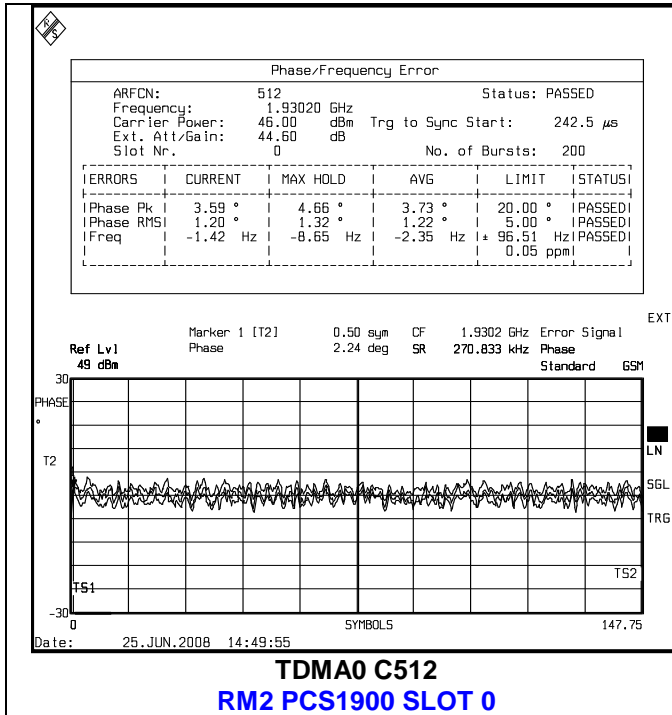
Conclusion: Test PASS, maximum error frequency measured = 14.98Hz



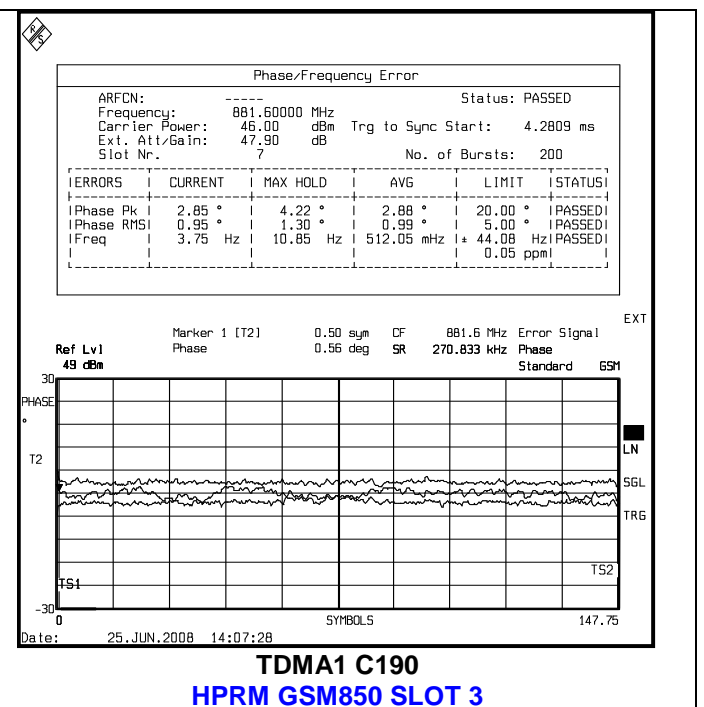
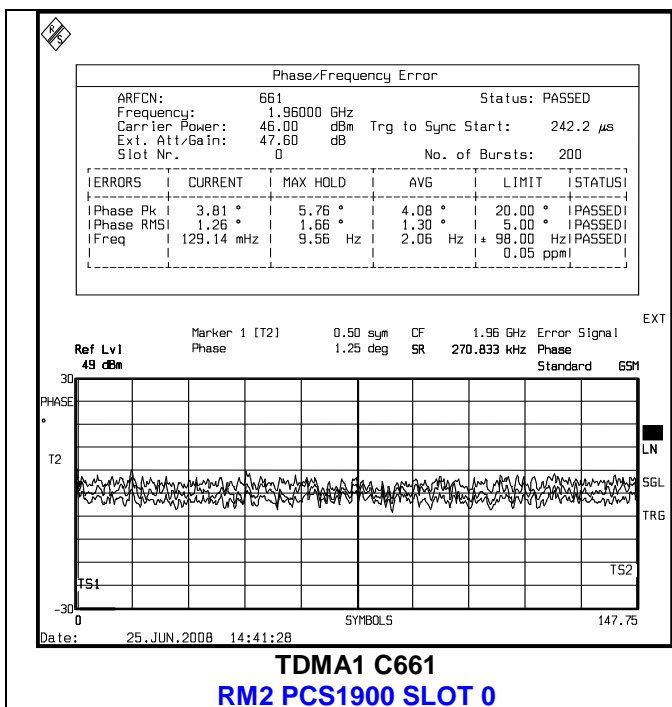
L C I E

6.11. EXAMPLE OF PHASE / FREQUENCY ERROR CURVE

6.11.1 TESTS AT -40°C



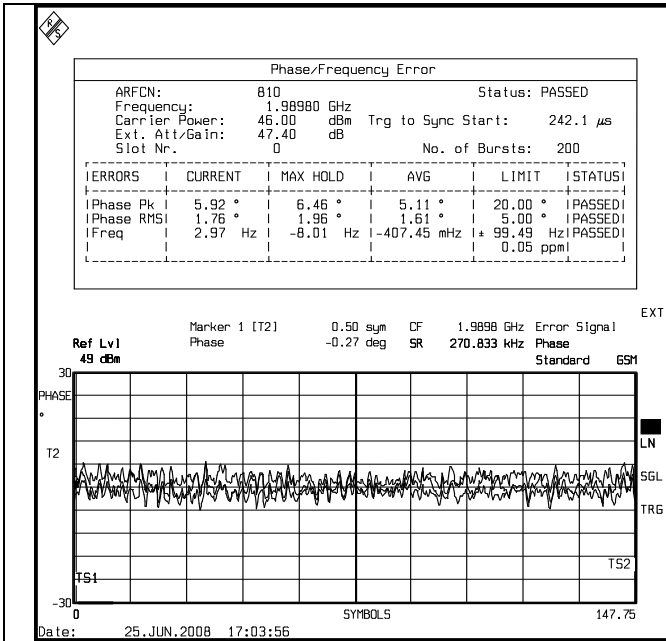
6.11.2 TESTS AT -30°C



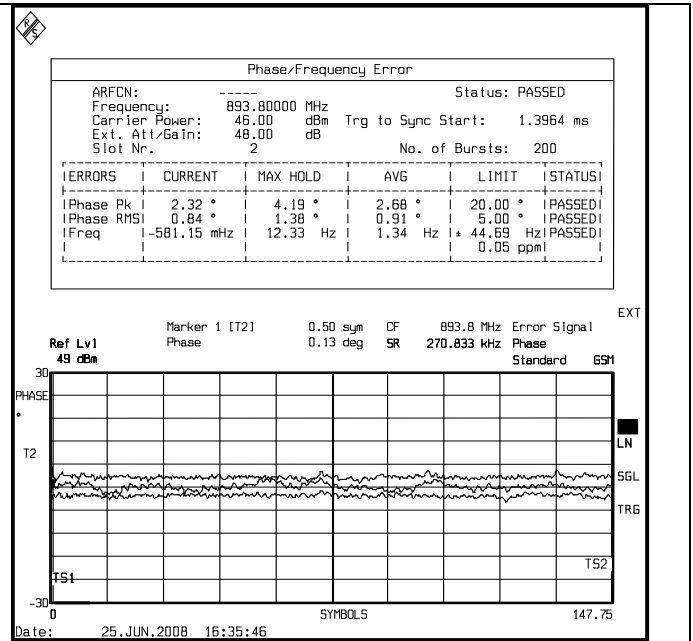


L C I E

6.11.3 TESTS AT -20°C

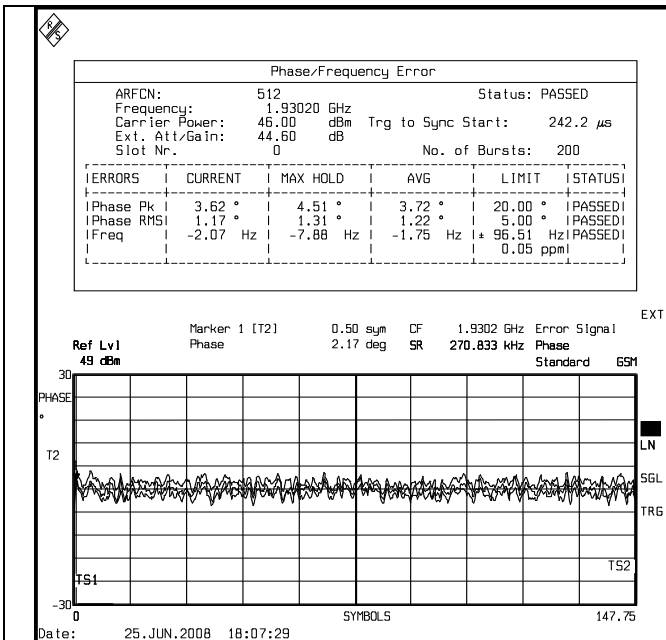


TDMA2 C810
RM2 PCS1900 SLOT 0

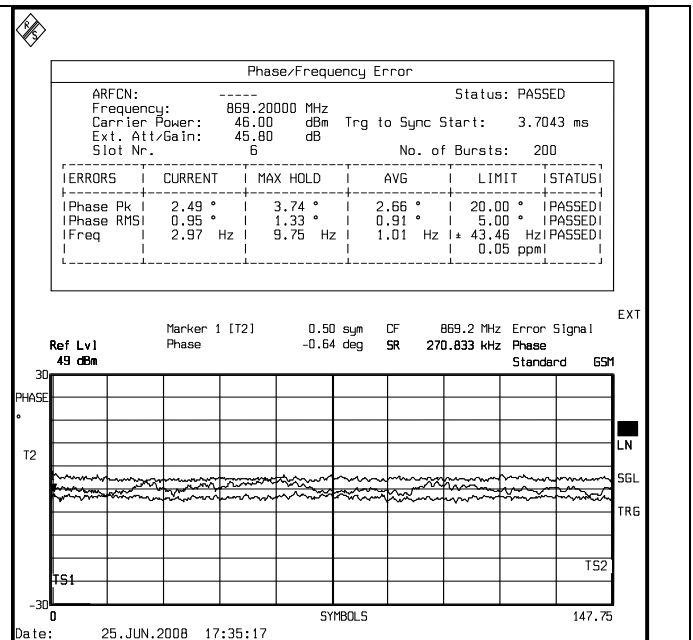


TDMA2 C251
HPRM GSM850 SLOT 3

6.11.4 TESTS AT -10°C



TDMA0 C512
RM2 PCS1900 SLOT 0

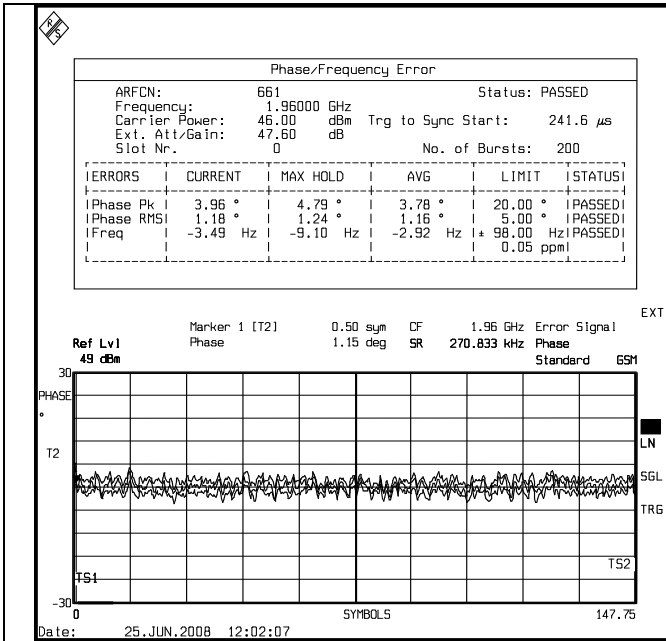


TDMA0 C128
HPRM GSM850 SLOT 3

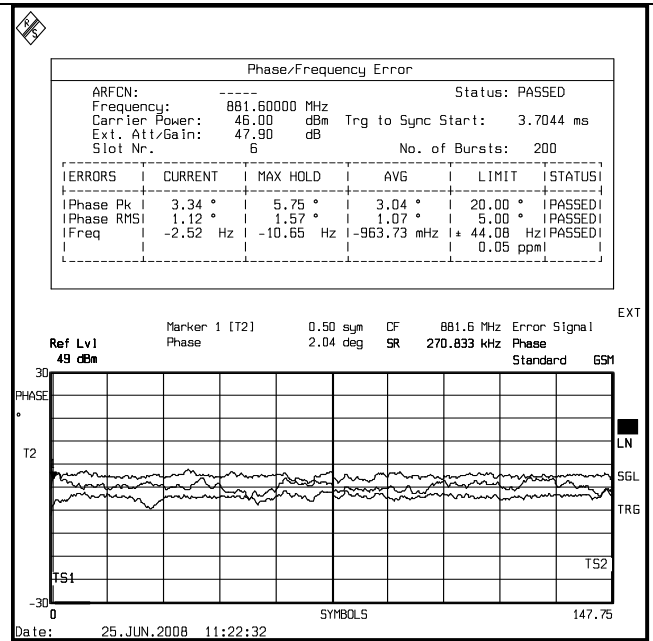


L C I E

6.11.5 TESTS AT 00°C

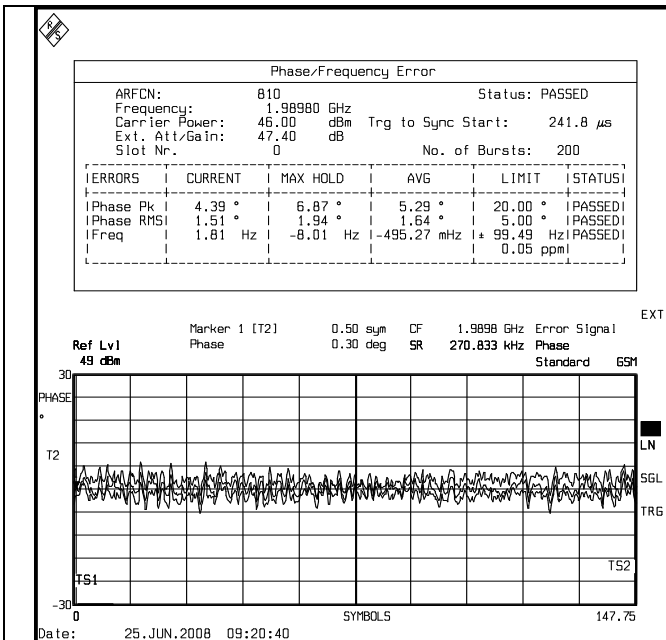


**TDMA1 C661
RM2 PCS1900 SLOT 0**

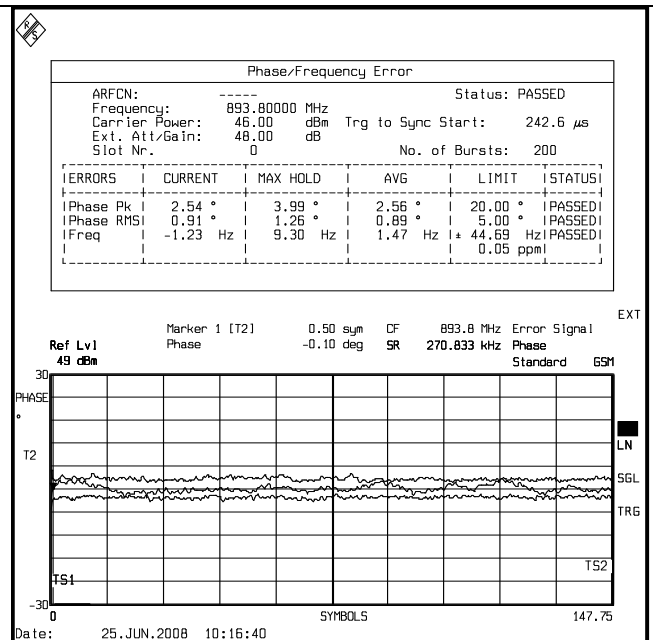


**TDMA1 C190
HPRM GSM850 SLOT 3**

6.11.6 TESTS AT +10°C



**TDMA2 C810
RM2 PCS1900 SLOT 0**

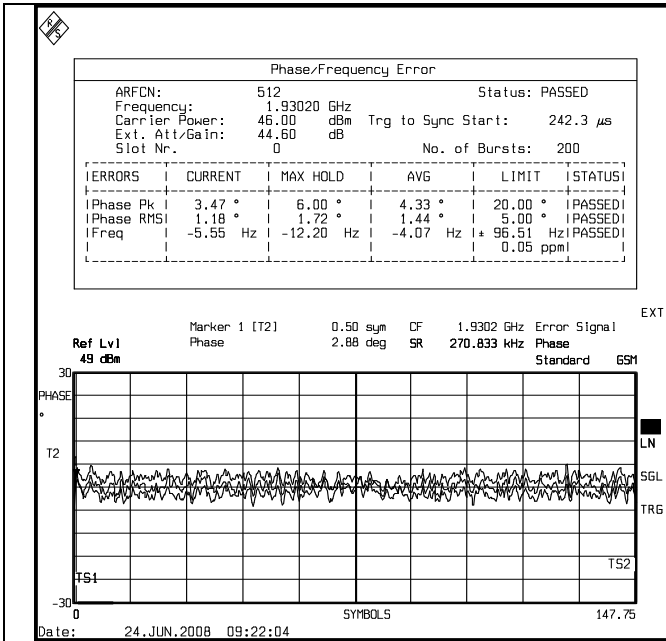


**TDMA2 C251
HPRM GSM850 SLOT 3**

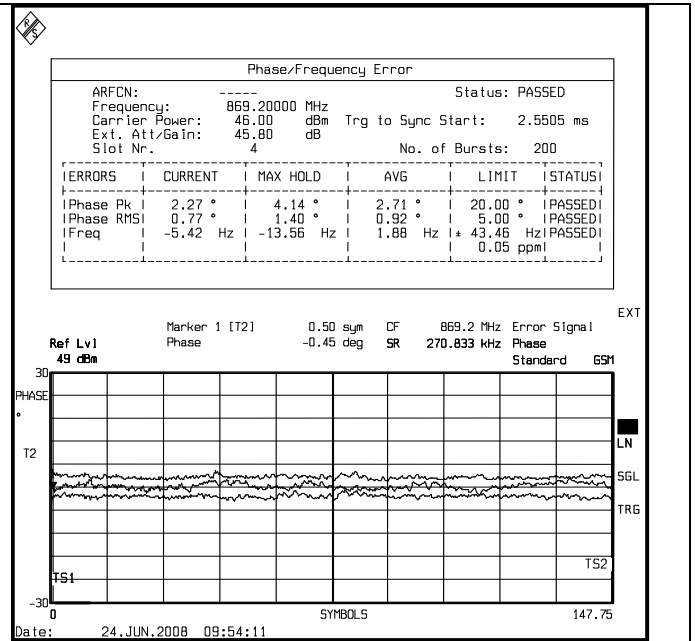


L C I E

6.11.7 TESTS AT +20°C

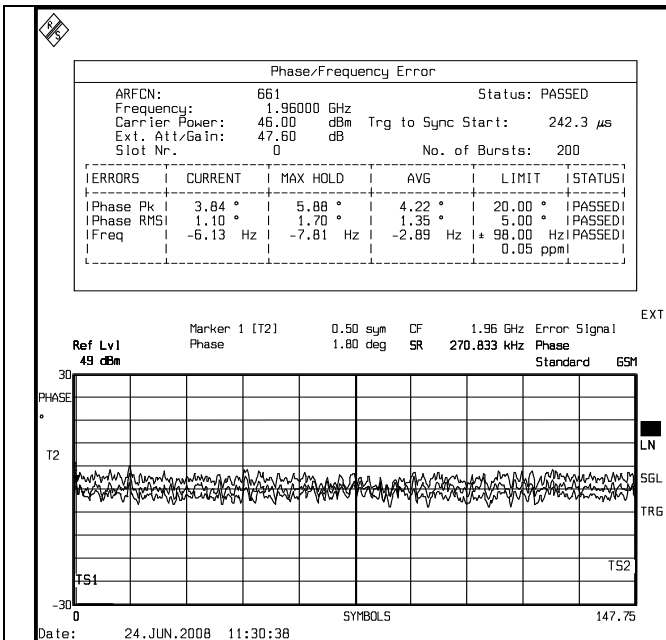


TDMA0 C512
RM2 PCS1900 SLOT 0

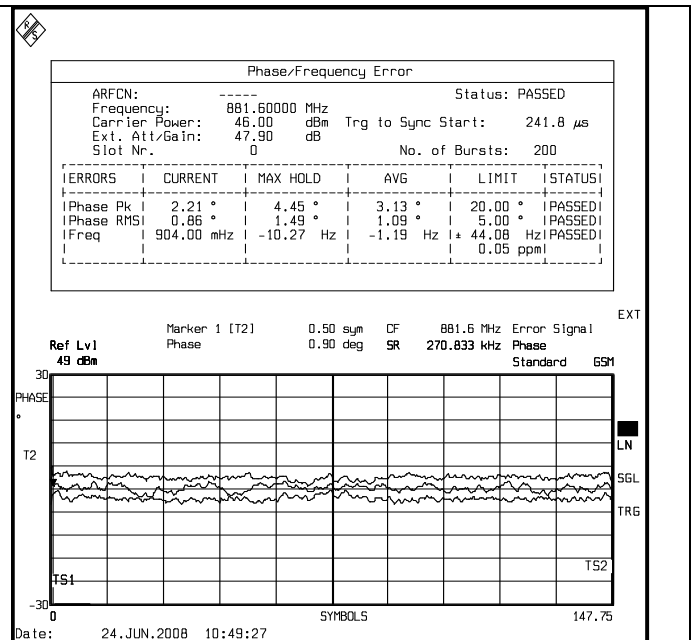


TDMA0 C128
HPRM GSM850 SLOT 3

6.11.8 TESTS AT +30°C



TDMA1 C661
RM2 PCS1900 SLOT 0

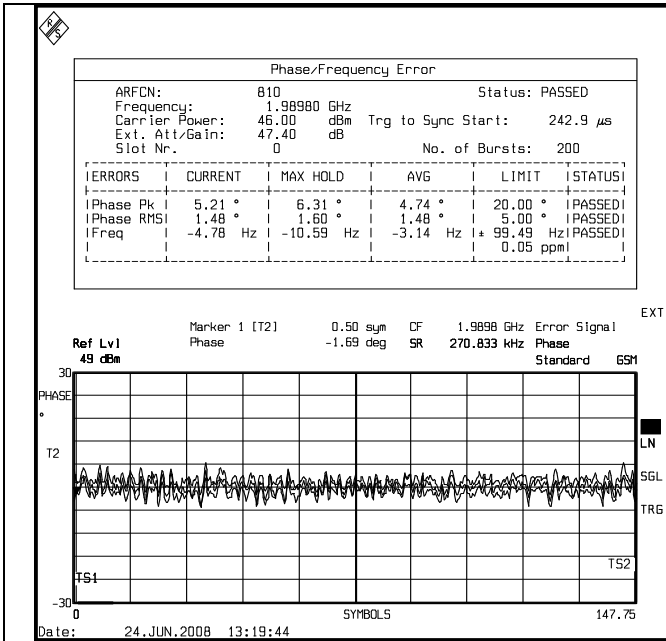


TDMA1 C190
HPRM GSM850 SLOT 3

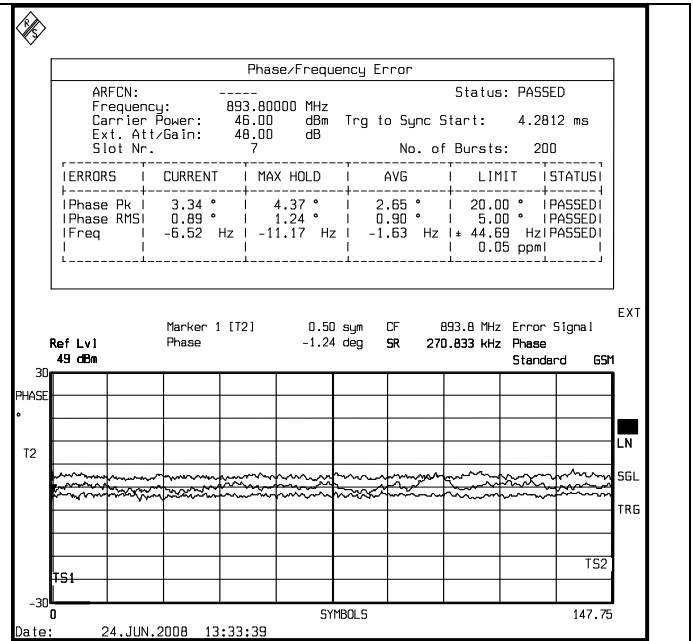


L C I E

6.11.9 TESTS AT +40°C

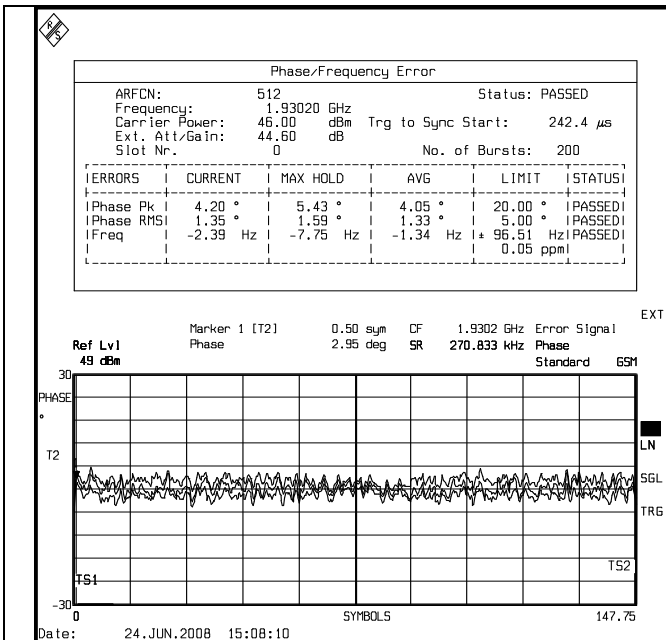


TDMA2 C810
RM2 PCS1900 SLOT 0

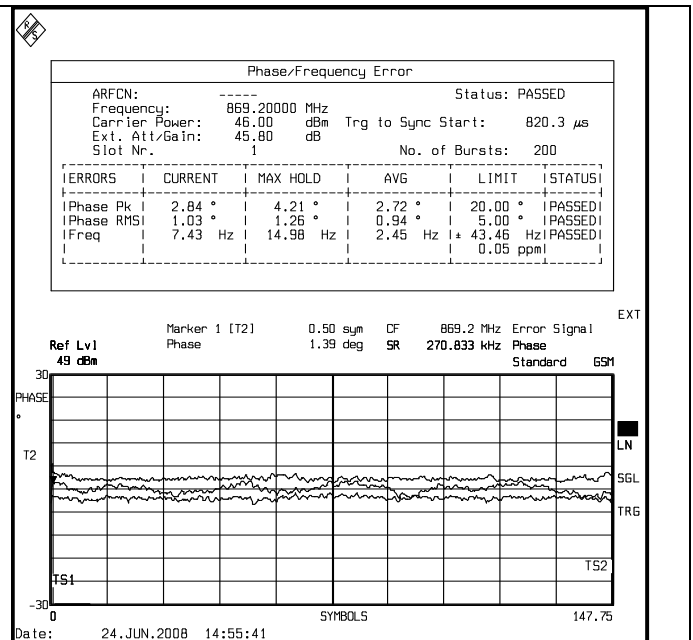


TDMA2 C251
HPRM GSM850 SLOT 3

6.11.10 TESTS AT +50°C



TDMA0 C512
RM2 PCS1900 SLOT 0



TDMA0 C128
HPRM GSM850 SLOT 3



7. CONCLUSION

The NG 18000 Outdoor BTS in Dual Band as equipped with modules RM2 PCS 1900MHz and HPRM GSM 850MHZ and as described in this document complies with the FCC & IC radio requirements in extreme temperature.

8. MEASUREMENT EQUIPMENT LIST

Equipment description	Manufacturer	Model	Nortel No.	LCIE No.
Spectrum analyser	R&S	FSEA	-	A4060024
Spectrum analyser	Agilent	VSA	524526	-
MIC analyseur	W&G	PA20	-	A4040011
Signal generator	HP	8657B	-	A5442023
Signal generator	HP	8648A	-	A5442029
Power Meter	Giga-tronics	8542C	-	A1503009
RF Probe	Giga-tronics	80401A	-	A1509027
Temperature chambre	CLIMAT SAPRATIN	Climats 30M3	-	D1025026



9. ABBREVIATIONS AND DEFINITIONS

9.1. GENERAL ABBREVIATIONS

°C	Degree Centigrade
3GPP	3 rd Generation Partnership Project
A	Ampere
AC	Alternative Current (Power Source)
ADU	AC Distribution Unit
ALPRO	Alarm Protection
ANSI	American National Standards Institute
BTS	Base Station Transceiver Subsystem or Base Transceiver Station
CFR	Code of Federal Regulations
CSA	Canadian Standards Association
dB	Decibel
dB(A)	Decibel Audio
DC	Direct Current (Power Source)
E1	European Standard For PCM Link Interface (2.048mbit/S)
ECU	Environmental Control Unit
EDGE	Enhanced Data rates for GSM Evolution
EGPRS	Enhanced General Packet Radio Service (cf. EDGE)
EMC	Electro-Magnetic Compatibility
ETS	European Telecommunication Standard
ETSI	European Telecommunication Standard Institute
EVM	Error Vector Magnitude
FCC	Federal Communications Commission
GHZ	Giga Hertz
GND	This Ground Represents Earth-Grounding Connection From Equipment
HW	Hardware
Hz	Hertz
IEC	International Electro-Technical Commission
ISO	International Standards Organization
IUT	International Telecommunication Union
kbits/s	Kilo Bits Per Second
LVD	Low Voltage Directive
MCPA	Multi-Carrier Power Amplifier
MHz	Mega-Hertz
N.A.	Not Applicable
NEMA	National Electrical Manufacturers Association (USA)
PA	Power Amplifier
PCM	Pulse Code Modulation
PCS	Personal Communication Service
PI	Product Integrity
R&D	Research and Development
RF	Radio Frequency
RSS	Radio Standard Specification
RTTE	Radio And Telecommunication Terminal Equipment



RX	Receiver
SELV	Safety Extra Low Voltage
T°	Temperature
T1	US Standard For PCM Interface (1.544mbps)
T1 PCM	Pulse Code Modulation at 1.544 MHz
TBC	To Be Confirmed
TBD	To Be Defined
TIA/EIA/IS	Telecommunication Industry Association / Electronic Industries Alliance /
TNV	Telecommunication Network Voltage Circuit
TX	Transmitter
UL	Underwriters Laboratories Inc.
V	Volt (Vdc with DC) or (Vac with AC)
VSWR	Voltage Standing Wave Ratio
W	Watt

9.2. GSM ABBREVIATIONS

ABM	Alarm And Bridge Module
AC	Alternative Current (Power Source)
ADU	AC Distribution Unit
ALPRO	Alarm Protection
CSU	Channel Service Unit
DBP	Digital Back Panel
DCS	Digital Cellular System
DDM	Dual Duplexer Module
ECU	Environmental Control Unit
EDGE	Enhanced Data rates for GSM Evolution
GSM	Global System For Mobile Communication
H2D	Hybrid Duplexer Two Paths
H3	Coupling Module Handling Up To 3 TX TDMA
H3D	Hybrid Duplexer Three Paths
H4M	PCM Clock At 4.096 MHz
IBP	Interface Back Panel
ICM	Interface Control Module
IFM	Interface Module Dedicated To PCM Link within a BTS 18000
LAPD	Link Access Protocol On The D Channel
PCS	Personal Communication Service
PRIPRO	Primary Protection
RICO	Radio Inter-Connection For Cabinet And Coupling Modules
RM	Radio Module
RMPSU	Radio Module Power Supply Unit
RXLEV	Reception Level
RXQUAL	Reception quality
S8000/S12000	This Represents The Previous GSM BTS Family (S8000 And S12000)
SICS	Snew Integrated Cooling System
SPM	Spare Module
SPU	Signal Processing Unit



TXF	Transmitter filter
UCPS	Univity Compact Power System
User ICO	User Interconnection

9.3. DEFINITIONS

Interconnect

Discipline which ensures telecom interface

Interface T1 PCM

Pulse Code Modulation interface at 1.544 MHz

Interface E1 PCM

European Standard for Pulse Code Modulation interface at 2.048Mbit/s

PCM Interface:

PCM port at the bulkhead of the BTS

Sxxx:

BTS radio configuration where "S" means sectorized cell and each "x" represents the number of TDMA per sector.

Ox

BTS radio configuration where "O" means Omni directional cell and the "x" represents the number of TDMA.

END OF DOCUMENT