Radio Test Report in extreme conditions for the qualification of NG 18000 Outdoor BTS (Standard version) - FCC Marking

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Customer:	**NORTEL NETWORKS** **Parc d'Activités de Magny-Châteaufort** **78928 Yvelines Cedex 09**
Product:	**NG 18000 Outdoor BTS**

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VERSION	DATE	AUTHOR	MODIFICATION
A	10/Apr/2008	J. PALARD	Creation of document

CONTENTS

1. INTRODUCTION

The objective of this document is to present the Radio tests which have been performed in extreme temperature on the NG 18000 Outdoor BTS (Standard version) 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/022692	GSM BTS 18000 Project Qualification Plan for Outdoor NG BTS introduction (Ver 01.07/EN)
[R2]	PE/BTS/DPL/023486	FCC Radio Test Plan for GSM850/PCS1900 NG Outdoor 18000 BTS (FCCID AB6BTS18OUT)
[R3]	PE/BTS/DJD/023017 06.01 / EN	Outdoor NG BTS18000 hardware delivery notice
[R4]	PE/BTS/DJD/023017 03.03 / EN	Outdoor NG BTS18000 hardware delivery notice

4. IDENTIFICATION OF EQUIPMENT UNDER TEST

This document applies to:

Product: NG 18000 Outdoor BTS

Manufacturer: NORTEL

Frequencies: GSM 850 MHz & GSM 1900 MHz

AVLM Recipient: LCIE	Date of delivery: 31/JAN/2008
Product: GSM NG BTS 18000 Outdoor	
Article delivered: GSM NG BTS 18000 Outdoor	Article code: NTT915BS P1
Section transmitting: 8Z60	Designer name: P.JEULAND
Cabinet Serial Number: Serial Number : N°5	
Documents related to the Hardware Design Specifications	
Documents dealing with specifications: – PE/BTS/DD/ 5282 V04.01/EN BTS 18000 system design specification	
Issues fixed on the cabinet: – None Label on the Cabinet, no pec code, no serial number – Acoustic Kit added : Foam + Deflector + New rear Solar shield – New ECS board with new firmware 1.07	
Missing Equipment: – Missing one heater, **Warning do not connect heater AC cable on ADU**	
Software compatibility: Modules software version : Load BTS S18000 v16b1e11 CDI121234 – ICM/ABM : CDI120795 – RM : CDI121233 PI software tools : – WINTMI: v03d306 – TIL COAM: V16a402 – TIL Alarm: V16a401 – WINTOOL: V05a2e19	

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	NNTMJR000LCK	With Firmware 1.07
ECS ETR RoHS VERSION	NTT965AM	P1	5	
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	NNTMGR00MCVF	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	D1	FICT0200204F	
DDM 1900 W/VSWR W/HYBRIDS	NTN063AA	04	FICT030016F3	
DDM 1900 W/VSWR W/HYBRIDS	NTN063AA	04	FICT03000MPC	
DDM 1900 W/VSWR W/HYBRIDS	NTN063AA	03	FICT03000N7C	
HPRM 3T 850	NTN050JA	D1	CDN200651008	47.164.182.185
HPRM 3T 850	NTN050JA	D1	CDN200651004	47.164.182.184
HPRM 3T 850	NTN050JA	D1	CDN200651003	47.164.182.178
RM 1900	NTN050PM	D5	CDN200640003	47.164.182.211
RM 1900	NTN050PM	D4	DN200640006	47.164.182.229
RM 1900	NTN050PM	D3	CDN200639007	47.164.182.230
ngUCPS 1600W RECTIFIER	NTT966EA	P1	ATSNZH224298	
ngUCPS 1600W RECTIFIER	NTT966EA	P1	ATSNZH224291	
ngUCPS 1600W RECTIFIER	NTT966EA	P1	ATSNZH224300	
ngUCPS 1600W RECTIFIER	NTT966EA	P1	ATSNZH224286	
ngUCPS GSM CCU	NTT966DA	P1	ATSNZH229048	
ngUCPS BTS18K SHELF&DDU	NTT966AA	P1	ATSNZH236039	
ngUSER-ICO	NTT988DA	P1	N°2	
ALPRO 2	NTT971AF	D1	NNTMGT003U5C	
ALPRO 2	NTT971AF	D1	NNTMGT003U5A	

Additional delivery:

ARTICLE	PEC code	Release	Serial number	Comment
Cable DDM/Bulkhead with Lighting Protection	NTT996ZH	N/A	N/A	*6 For DCS1800 test
Standard Fan tray	NTT967AA	P1	N/A	*2 With fan support modified
ETR Fan tray	NTT967AD	P1	N/A	*2
AC cable				Only for Acoustic test

Tests performed:

The following features have been tested:

- IFM/ ICM / ABM / RM Inventory test
- DDM Alarms & Inventory interface
- Dale & Dali

Functional limits :

- **Hardware Limitations :**
  - Missing one heater, **Warning do not connect heater AC cable on ADU**
- **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:

-

Remark: The exact configuration used during tests is described in § 5.4.2

5. TESTS PRESENTATION

5.1. TEST PROCEDURE

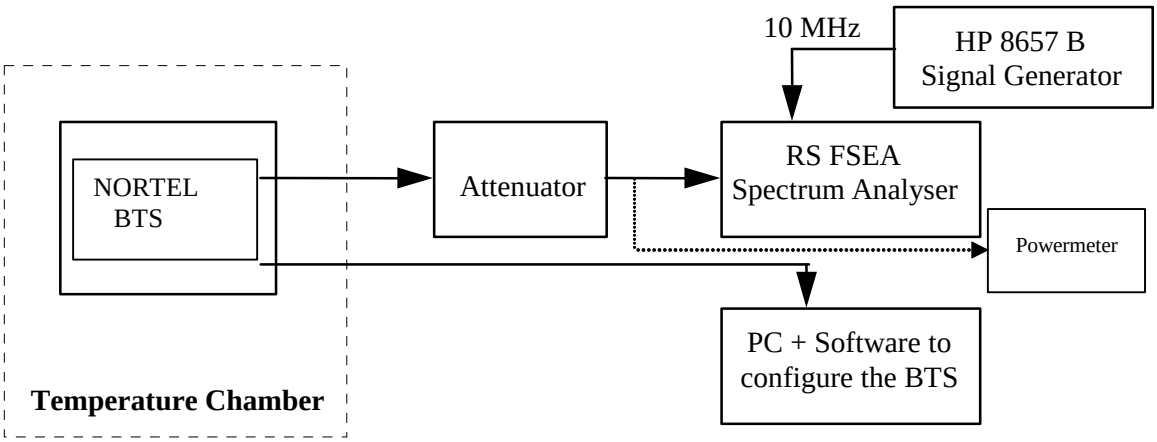
BTS are able to operate under the following external extreme temperatures and voltages:

- NG 18000 Outdoor BTS (Standard version) : -10℃ until + 50 ℃ by steps of 10℃; 187 Vac and 264 Vac for each temperature steps

Modules RM GSM 850MHz are configured with nominal power regulation at maximum power (60W) 47.8 dBm in GMSK modulation,
Modules RM GSM 1900MHz run with nominal power regulation at maximum power (30W) 44.8 dBm in GMSK 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 :
Load BTS S18000 v16b1e11 CDI121234

- 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 dBm ≤ RF power ≤ 45 dBm
8PSK	40 dBm ≤ RF power ≤ 44 dBm

RM 30W/30W GSM1900

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

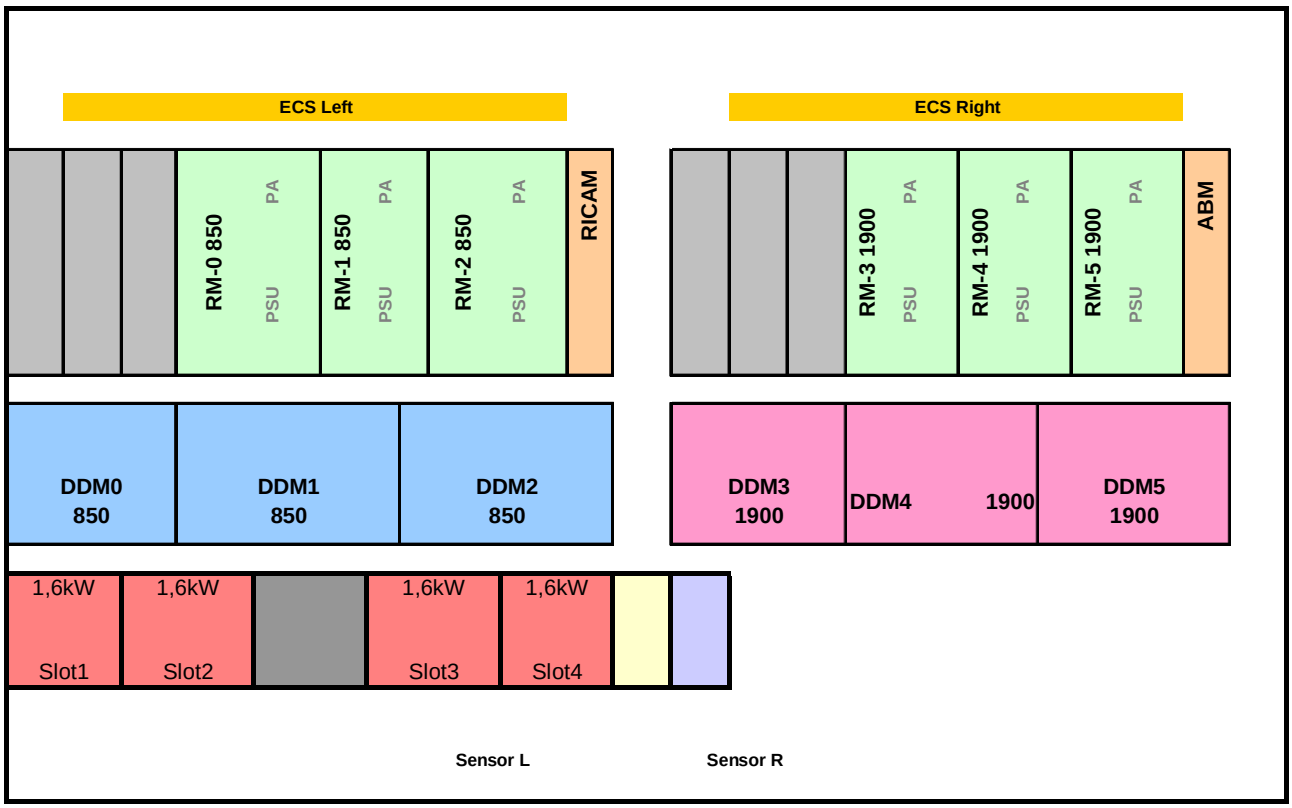
5.3.2 PHASE AND MEAN FREQUENCY ERROR

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 GSM 1900MHz frequency band and).

5.4. TEST RESULTS ON NG 18000 OUTDOOR BTS

5.4.1 BTS CONFIGURATION FOR TESTS



Maximum radio configuration:
3 x 60W on each RM GSM850 module
3 x 30W on each RM GSM1900 module

5.4.2 MOLDULE USED DURING RF TESTS

Note: the RM 850MHz used for RF tests was placed in slot 0 inside the BTS and RM 1900MHZ in slot 3.

Tested modules

Location	Article	PEC code	Release	Serial number
RM in slot 0	RM 850MHz 60/45W	NTN050JA	D1	CDN200651008
DDM in slot 0	DDM 850MHz	NTN063HA	D2	FICT03002119
RM in slot 3	RM 1900MHz 30/30W	NTN050PM	D5	CDN200640003
DDM in slot 3	DDM 1900MHz	NTN063AA	04	FICT030016F3

Note: For each RM
TDMA 0 connected on DDM slot 0 (Main channel)
TDMA 1 connected on DDM slot 0 (Main channel)
TDMA 2 connected on DDM slot 0 (Diversity channel)

6. RF TEST RESULTS

6.1. TESTS AT -10℃

6.1.1 TX TESTS ON RM SLOT 0 (GSM 850MHZ) 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 :
41 dBm ≤ RF power ≤ 45 dBm

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,96	PASS
TDMA 1	190	GMSK	44,80	PASS
TDMA 2	251	GMSK	44,59	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,94	PASS
TDMA 1	190	GMSK	44,79	PASS
TDMA 2	251	GMSK	44,54	PASS

6.1.1.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	6,11 °	2,87 °	PASS
		Phase RMS	1,39 °	0,96 °	PASS
		Freq	9,69 Hz	0,99 Hz	PASS
TDMA 1	190	Phase Pk	5,01 °	3,18 °	PASS
		Phase RMS	1,53 °	1,06 °	PASS
		Freq	10,65 Hz	-0,28 Hz	PASS
TDMA 2	251	Phase Pk	4,28 °	2,80 °	PASS
		Phase RMS	1,31 °	0,95 °	PASS
		Freq	12,14 Hz	1,84 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	5,70 °	2,89 °	PASS
		Phase RMS	1,25 °	0,95 °	PASS
		Freq	-9,62 Hz	-0,55 Hz	PASS
TDMA 1	190	Phase Pk	4,67 °	3,14 °	PASS
		Phase RMS	1,44 °	1,05 °	PASS
		Freq	10,20 Hz	-0,82 Hz	PASS
TDMA 2	251	Phase Pk	4,84 °	2,92 °	PASS
		Phase RMS	1,48 °	1,00 °	PASS
		Freq	11,11 Hz	2,77 Hz	PASS

For an input voltage of 264VAC

6.1.2 TX TESTS ON RM SLOT 3 (GSM 1900MHZ) 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 :
38 dBm ≤ RF power ≤ 42 dBm

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	40,66	PASS
TDMA 1	661	GMSK	41,15	PASS
TDMA 2	810	GMSK	41,14	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	40,65	PASS
TDMA 1	661	GMSK	41,14	PASS
TDMA 2	810	GMSK	41,14	PASS

6.1.2.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	6,88 °	4,52 °	PASS
		Phase RMS	2,35 °	1,60 °	PASS
		Freq	16,21 Hz	0,88 Hz	PASS
TDMA 1	661	Phase Pk	6,42 °	4,62 °	PASS
		Phase RMS	2,21 °	1,63 °	PASS
		Freq	23,76 Hz	2,60 Hz	PASS
TDMA 2	810	Phase Pk	6,79 °	4,42 °	PASS
		Phase RMS	2,24 °	1,63 °	PASS
		Freq	-20,40 Hz	1,15 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	6,48 °	4,51 °	PASS
		Phase RMS	2,34 °	1,57 °	PASS
		Freq	-17,56 Hz	2,34 Hz	PASS
TDMA 1	661	Phase Pk	7,08 °	4,72 °	PASS
		Phase RMS	2,22 °	1,67 °	PASS
		Freq	19,69 Hz	-1,84 Hz	PASS
TDMA 2	810	Phase Pk	6,93 °	4,40 °	PASS
		Phase RMS	2,36 °	1,61 °	PASS
		Freq	-20,73 Hz	-2,57 Hz	PASS

For an input voltage of 264VAC

6.2. TESTS AT 0°C

6.2.1 TX TESTS ON RM SLOT 0 (GSM 850MHZ) 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 :
41 dBm ≤ RF power ≤ 45 dBm

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,82	PASS
TDMA 1	190	GMSK	44,70	PASS
TDMA 2	251	GMSK	44,50	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,85	PASS
TDMA 1	190	GMSK	44,69	PASS
TDMA 2	251	GMSK	44,50	PASS

6.2.1.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	5,58 °	3,31 °	PASS
		Phase RMS	1,51 °	1,14 °	PASS
		Freq	-10,59 Hz	0,01 Hz	PASS
TDMA 1	190	Phase Pk	6,00 °	3,04 °	PASS
		Phase RMS	1,38 °	1,03 °	PASS
		Freq	-12,27 Hz	-2,65 Hz	PASS
TDMA 2	251	Phase Pk	4,43 °	2,89 °	PASS
		Phase RMS	1,39 °	1,01 °	PASS
		Freq	-9,88 Hz	0,56 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	4,16 °	2,75 °	PASS
		Phase RMS	1,30 °	0,94 °	PASS
		Freq	-9,81 Hz	-0,30 Hz	PASS
TDMA 1	190	Phase Pk	5,19 °	3,43 °	PASS
		Phase RMS	1,58 °	1,19 °	PASS
		Freq	-16,34 Hz	-2,82 Hz	PASS
TDMA 2	251	Phase Pk	4,32 °	3,07 °	PASS
		Phase RMS	1,41 °	1,09 °	PASS
		Freq	9,30 Hz	-0,44 Hz	PASS

For an input voltage of 264VAC

6.2.2 TX TESTS ON RM SLOT 3 (GSM 1900MHZ) 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 :
38 dBm ≤ RF power ≤ 42 dBm

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	40,58	PASS
TDMA 1	661	GMSK	41,05	PASS
TDMA 2	810	GMSK	41,12	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	40,56	PASS
TDMA 1	661	GMSK	41,05	PASS
TDMA 2	810	GMSK	41,10	PASS

6.2.2.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	7,79 °	4,60 °	PASS
		Phase RMS	2,18 °	1,61 °	PASS
		Freq	19,24 Hz	1,10 Hz	PASS
TDMA 1	661	Phase Pk	7,41 °	4,89 °	PASS
		Phase RMS	2,31 °	1,76 °	PASS
		Freq	26,41 Hz	0,32 Hz	PASS
TDMA 2	810	Phase Pk	7,62 °	4,71 °	PASS
		Phase RMS	2,65 °	1,72 °	PASS
		Freq	20,53 Hz	0,70 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	7,52 °	4,62 °	PASS
		Phase RMS	2,15 °	1,63 °	PASS
		Freq	18,98 Hz	1,21 Hz	PASS
TDMA 1	661	Phase Pk	7,20 °	4,78 °	PASS
		Phase RMS	2,40 °	1,70 °	PASS
		Freq	23,18 Hz	-0,01 Hz	PASS
TDMA 2	810	Phase Pk	6,92 °	4,66 °	PASS
		Phase RMS	2,35 °	1,70 °	PASS
		Freq	21,50 Hz	0,27 Hz	PASS

For an input voltage of 264VAC

6.3. TESTS AT +10°C

6.3.1 TX TESTS ON RM SLOT 0 (GSM 850MHZ) 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 :
41 dBm ≤ RF power ≤ 45 dBm

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,80	PASS
TDMA 1	190	GMSK	44,61	PASS
TDMA 2	251	GMSK	44,43	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,79	PASS
TDMA 1	190	GMSK	44,60	PASS
TDMA 2	251	GMSK	44,44	PASS

6.3.1.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	5,59 °	3,32 °	PASS
		Phase RMS	1,49 °	1,16 °	PASS
		Freq	10,14 Hz	1,04 Hz	PASS
TDMA 1	190	Phase Pk	4,76 °	3,43 °	PASS
		Phase RMS	1,52 °	1,18 °	PASS
		Freq	-9,69 Hz	-1,82 Hz	PASS
TDMA 2	251	Phase Pk	4,37 °	2,81 °	PASS
		Phase RMS	1,40 °	0,98 °	PASS
		Freq	-10,14 Hz	-0,50 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	5,30 °	3,22 °	PASS
		Phase RMS	1,56 °	1,11 °	PASS
		Freq	-10,07 Hz	-0,49 Hz	PASS
TDMA 1	190	Phase Pk	4,43 °	3,03 °	PASS
		Phase RMS	1,31 °	1,04 °	PASS
		Freq	-12,79 Hz	-1,85 Hz	PASS
TDMA 2	251	Phase Pk	3,88 °	2,68 °	PASS
		Phase RMS	1,29 °	0,94 °	PASS
		Freq	-9,56 Hz	-0,33 Hz	PASS

For an input voltage of 264VAC

6.3.2 TX TESTS ON RM SLOT 3 (GSM 1900MHZ) 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 :
38 dBm ≤ RF power ≤ 42 dBm

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	40,47	PASS
TDMA 1	661	GMSK	40,94	PASS
TDMA 2	810	GMSK	41,07	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	40,46	PASS
TDMA 1	661	GMSK	40,95	PASS
TDMA 2	810	GMSK	41,06	PASS

6.3.2.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	7,46 °	4,68 °	PASS
		Phase RMS	2,37 °	1,63 °	PASS
		Freq	17,56 Hz	1,60 Hz	PASS
TDMA 1	661	Phase Pk	7,54 °	4,88 °	PASS
		Phase RMS	2,54 °	1,72 °	PASS
		Freq	24,09 Hz	1,39 Hz	PASS
TDMA 2	810	Phase Pk	7,14 °	4,67 °	PASS
		Phase RMS	2,44 °	1,65 °	PASS
		Freq	-19,37 Hz	1,28 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	7,82 °	4,72 °	PASS
		Phase RMS	2,26 °	1,66 °	PASS
		Freq	18,92 Hz	2,29 Hz	PASS
TDMA 1	661	Phase Pk	7,23 °	4,85 °	PASS
		Phase RMS	2,26 °	1,69 °	PASS
		Freq	-19,18 Hz	2,07 Hz	PASS
TDMA 2	810	Phase Pk	7,29 °	4,75 °	PASS
		Phase RMS	2,37 °	1,72 °	PASS
		Freq	20,60 Hz	1,21 Hz	PASS

For an input voltage of 264VAC

6.4. TESTS AT +20°C

6.4.1 TX TESTS ON RM SLOT 0 (GSM 850MHZ) 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 :
41 dBm ≤ RF power ≤ 45 dBm

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,71	PASS
TDMA 1	190	GMSK	44,45	PASS
TDMA 2	251	GMSK	44,42	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,76	PASS
TDMA 1	190	GMSK	44,54	PASS
TDMA 2	251	GMSK	44,45	PASS

6.4.1.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	5,20 °	3,07 °	PASS
		Phase RMS	1,47 °	1,08 °	PASS
		Freq	11,11 Hz	2,34 Hz	PASS
TDMA 1	190	Phase Pk	4,64 °	3,05 °	PASS
		Phase RMS	1,48 °	1,03 °	PASS
		Freq	-9,62 Hz	-1,34 Hz	PASS
TDMA 2	251	Phase Pk	4,10 °	2,77 °	PASS
		Phase RMS	1,39 °	0,97 °	PASS
		Freq	9,30 Hz	-0,48 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	4,53 °	2,85 °	PASS
		Phase RMS	1,26 °	0,96 °	PASS
		Freq	-9,88 Hz	-0,35 Hz	PASS
TDMA 1	190	Phase Pk	5,17 °	2,98 °	PASS
		Phase RMS	1,38 °	1,01 °	PASS
		Freq	-12,85 Hz	-2,61 Hz	PASS
TDMA 2	251	Phase Pk	3,89 °	2,72 °	PASS
		Phase RMS	1,37 °	0,93 °	PASS
		Freq	-12,01 Hz	-0,76 Hz	PASS

For an input voltage of 264VAC

6.4.2 TX TESTS ON RM SLOT 3 (GSM 1900MHZ) 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 :
38 dBm ≤ RF power ≤ 42 dBm

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	40,38	PASS
TDMA 1	661	GMSK	40,84	PASS
TDMA 2	810	GMSK	41,06	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	40,42	PASS
TDMA 1	661	GMSK	40,89	PASS
TDMA 2	810	GMSK	41,08	PASS

6.4.2.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	6,87 °	4,57 °	PASS
		Phase RMS	2,28 °	1,63 °	PASS
		Freq	26,54 Hz	4,64 Hz	PASS
TDMA 1	661	Phase Pk	7,54 °	4,74 °	PASS
		Phase RMS	2,26 °	1,66 °	PASS
		Freq	21,11 Hz	4,28 Hz	PASS
TDMA 2	810	Phase Pk	6,92 °	4,68 °	PASS
		Phase RMS	2,41 °	1,73 °	PASS
		Freq	-19,63 Hz	-0,83 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	6,78 °	4,74 °	PASS
		Phase RMS	2,56 °	1,64 °	PASS
		Freq	23,37 Hz	2,14 Hz	PASS
TDMA 1	661	Phase Pk	6,96 °	4,82 °	PASS
		Phase RMS	2,39 °	1,70 °	PASS
		Freq	21,24 Hz	2,02 Hz	PASS
TDMA 2	810	Phase Pk	7,38 °	4,65 °	PASS
		Phase RMS	2,37 °	1,63 °	PASS
		Freq	18,08 Hz	1,04 Hz	PASS

For an input voltage of 264VAC

6.5. TESTS AT +30°C

6.5.1 TX TESTS ON RM SLOT 0 (GSM 850MHZ) 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 :
41 dBm ≤ RF power ≤ 45 dBm

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,61	PASS
TDMA 1	190	GMSK	44,42	PASS
TDMA 2	251	GMSK	44,32	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,57	PASS
TDMA 1	190	GMSK	44,36	PASS
TDMA 2	251	GMSK	44,29	PASS

6.5.1.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	4,89 °	3,36 °	PASS
		Phase RMS	1,54 °	1,18 °	PASS
		Freq	-13,43 Hz	-1,77 Hz	PASS
TDMA 1	190	Phase Pk	4,82 °	3,07 °	PASS
		Phase RMS	1,36 °	1,04 °	PASS
		Freq	-11,75 Hz	-2,24 Hz	PASS
TDMA 2	251	Phase Pk	4,46 °	3,03 °	PASS
		Phase RMS	1,43 °	1,07 °	PASS
		Freq	-10,07 Hz	0,26 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	4,62 °	2,91 °	PASS
		Phase RMS	1,52 °	0,99 °	PASS
		Freq	10,01 Hz	-0,87 Hz	PASS
TDMA 1	190	Phase Pk	4,91 °	3,08 °	PASS
		Phase RMS	1,39 °	1,04 °	PASS
		Freq	-10,72 Hz	-2,74 Hz	PASS
TDMA 2	251	Phase Pk	4,46 °	2,76 °	PASS
		Phase RMS	1,30 °	0,94 °	PASS
		Freq	-10,14 Hz	-0,88 Hz	PASS

For an input voltage of 264VAC

6.5.2 TX TESTS ON RM SLOT 3 (GSM 1900MHZ) 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 :
38 dBm ≤ RF power ≤ 42 dBm

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	40,37	PASS
TDMA 1	661	GMSK	40,80	PASS
TDMA 2	810	GMSK	41,05	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	40,38	PASS
TDMA 1	661	GMSK	40,83	PASS
TDMA 2	810	GMSK	41,10	PASS

6.5.2.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	7,45 °	4,69 °	PASS
		Phase RMS	2,32 °	1,67 °	PASS
		Freq	19,18 Hz	1,80 Hz	PASS
TDMA 1	661	Phase Pk	7,92 °	4,92 °	PASS
		Phase RMS	2,42 °	1,79 °	PASS
		Freq	17,24 Hz	0,92 Hz	PASS
TDMA 2	810	Phase Pk	7,58 °	4,71 °	PASS
		Phase RMS	2,68 °	1,74 °	PASS
		Freq	16,34 Hz	0,20 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	7,41 °	4,72 °	PASS
		Phase RMS	2,55 °	1,68 °	PASS
		Freq	-19,05 Hz	-0,78 Hz	PASS
TDMA 1	661	Phase Pk	7,72 °	4,87 °	PASS
		Phase RMS	2,56 °	1,70 °	PASS
		Freq	23,70 Hz	-0,90 Hz	PASS
TDMA 2	810	Phase Pk	6,52 °	4,67 °	PASS
		Phase RMS	2,47 °	1,66 °	PASS
		Freq	19,57 Hz	-0,73 Hz	PASS

For an input voltage of 264VAC

6.6. TESTS AT +40°C

6.6.1 TX TESTS ON RM SLOT 0 (GSM 850MHZ) 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 :
41 dBm ≤ RF power ≤ 45 dBm

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,52	PASS
TDMA 1	190	GMSK	44,30	PASS
TDMA 2	251	GMSK	44,24	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,54	PASS
TDMA 1	190	GMSK	44,30	PASS
TDMA 2	251	GMSK	44,24	PASS

6.6.1.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	4,57 °	3,46 °	PASS
		Phase RMS	1,57 °	1,21 °	PASS
		Freq	10,14 Hz	-0,54 Hz	PASS
TDMA 1	190	Phase Pk	5,30 °	3,09 °	PASS
		Phase RMS	1,44 °	1,05 °	PASS
		Freq	-11,11 Hz	-2,16 Hz	PASS
TDMA 2	251	Phase Pk	4,34 °	2,79 °	PASS
		Phase RMS	1,40 °	0,96 °	PASS
		Freq	-10,14 Hz	-0,05 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	4,41 °	2,98 °	PASS
		Phase RMS	1,30 °	1,00 °	PASS
		Freq	13,17 Hz	-0,25 Hz	PASS
TDMA 1	190	Phase Pk	4,61 °	3,12 °	PASS
		Phase RMS	1,44 °	1,05 °	PASS
		Freq	-10,33 Hz	-2,10 Hz	PASS
TDMA 2	251	Phase Pk	4,21 °	3,05 °	PASS
		Phase RMS	1,45 °	1,06 °	PASS
		Freq	-13,24 Hz	-1,14 Hz	PASS

For an input voltage of 264VAC

6.6.2 TX TESTS ON RM SLOT 3 (GSM 1900MHZ) 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 :
38 dBm ≤ RF power ≤ 42 dBm

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	40,35	PASS
TDMA 1	661	GMSK	40,78	PASS
TDMA 2	810	GMSK	41,10	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	40,33	PASS
TDMA 1	661	GMSK	40,76	PASS
TDMA 2	810	GMSK	41,07	PASS

6.6.2.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	6,96 °	4,67 °	PASS
		Phase RMS	2,24 °	1,65 °	PASS
		Freq	21,76 Hz	1,46 Hz	PASS
TDMA 1	661	Phase Pk	7,38 °	4,81 °	PASS
		Phase RMS	2,33 °	1,72 °	PASS
		Freq	22,08 Hz	2,97 Hz	PASS
TDMA 2	810	Phase Pk	7,35 °	4,72 °	PASS
		Phase RMS	2,50 °	1,73 °	PASS
		Freq	-17,50 Hz	0,33 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	7,27 °	4,80 °	PASS
		Phase RMS	2,42 °	1,69 °	PASS
		Freq	16,53 Hz	0,28 Hz	PASS
TDMA 1	661	Phase Pk	7,46 °	4,83 °	PASS
		Phase RMS	2,25 °	1,71 °	PASS
		Freq	24,34 Hz	3,64 Hz	PASS
TDMA 2	810	Phase Pk	7,24 °	4,77 °	PASS
		Phase RMS	2,25 °	1,74 °	PASS
		Freq	19,37 Hz	0,63 Hz	PASS

For an input voltage of 264VAC

6.7. TESTS AT +50°C

6.7.1 TX TESTS ON RM SLOT 0 (GSM 850MHZ) 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 :
41 dBm ≤ RF power ≤ 45 dBm

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,46	PASS
TDMA 1	190	GMSK	44,20	PASS
TDMA 2	251	GMSK	44,15	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	128	GMSK	43,48	PASS
TDMA 1	190	GMSK	44,22	PASS
TDMA 2	251	GMSK	44,16	PASS

6.7.1.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	4,46 °	2,99 °	PASS
		Phase RMS	1,42 °	1,02 °	PASS
		Freq	-13,37 Hz	-0,40 Hz	PASS
TDMA 1	190	Phase Pk	4,70 °	3,09 °	PASS
		Phase RMS	1,47 °	1,06 °	PASS
		Freq	-11,56 Hz	-1,71 Hz	PASS
TDMA 2	251	Phase Pk	4,03 °	2,71 °	PASS
		Phase RMS	1,40 °	0,94 °	PASS
		Freq	-10,14 Hz	-0,24 Hz	PASS

For an input voltage of 187VAC:

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	128	Phase Pk	4,25 °	3,01 °	PASS
		Phase RMS	1,39 °	1,02 °	PASS
		Freq	-10,53 Hz	-0,58 Hz	PASS
TDMA 1	190	Phase Pk	5,36 °	3,27 °	PASS
		Phase RMS	1,59 °	1,13 °	PASS
		Freq	10,33 Hz	-0,90 Hz	PASS
TDMA 2	251	Phase Pk	4,82 °	3,06 °	PASS
		Phase RMS	1,44 °	1,07 °	PASS
		Freq	10,07 Hz	0,25 Hz	PASS

For an input voltage of 264VAC

6.7.2 TX TESTS ON RM SLOT 3 (GSM 1900MHZ) 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 :
38 dBm ≤ RF power ≤ 42 dBm

For an input voltage of 187VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	40,30	PASS
TDMA 1	661	GMSK	40,73	PASS
TDMA 2	810	GMSK	41,13	PASS

For an input voltage of 264VAC:

	Canal	Modulation Type	Mean RF Power	Sanction
TDMA 0	512	GMSK	40,31	PASS
TDMA 1	661	GMSK	40,73	PASS
TDMA 2	810	GMSK	41,15	PASS

6.7.2.2 PHASE AND MEAN FREQUENCY ERROR

	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	8,27 °	5,01 °	PASS
		Phase RMS	2,34 °	1,77 °	PASS
		Freq	-17,18 Hz	0,65 Hz	PASS
TDMA 1	661	Phase Pk	8,88 °	5,11 °	PASS
		Phase RMS	2,57 °	1,80 °	PASS
		Freq	20,60 Hz	0,54 Hz	PASS
TDMA 2	810	Phase Pk	7,51 °	4,73 °	PASS
		Phase RMS	2,52 °	1,74 °	PASS
		Freq	-20,47 Hz	0,01 Hz	PASS

For an input voltage of 187VAC:

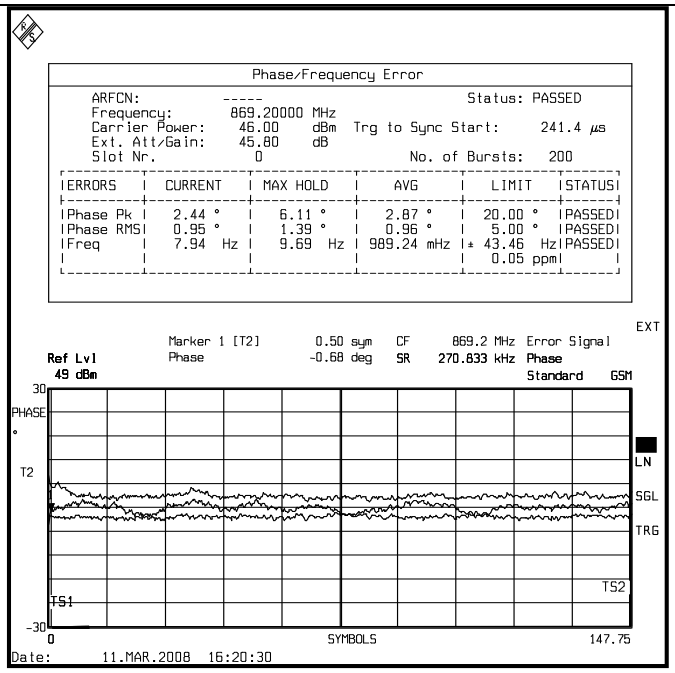
	Canal	Mesure	Max hold	Average	Sanction
TDMA 0	512	Phase Pk	8,09 °	4,80 °	PASS
		Phase RMS	2,42 °	1,70 °	PASS
		Freq	19,18 Hz	0,76 Hz	PASS
TDMA 1	661	Phase Pk	7,46 °	4,88 °	PASS
		Phase RMS	2,52 °	1,72 °	PASS
		Freq	20,40 Hz	0,86 Hz	PASS
TDMA 2	810	Phase Pk	7,34 °	4,66 °	PASS
		Phase RMS	2,32 °	1,72 °	PASS
		Freq	16,72 Hz	0,89 Hz	PASS

For an input voltage of 264VAC

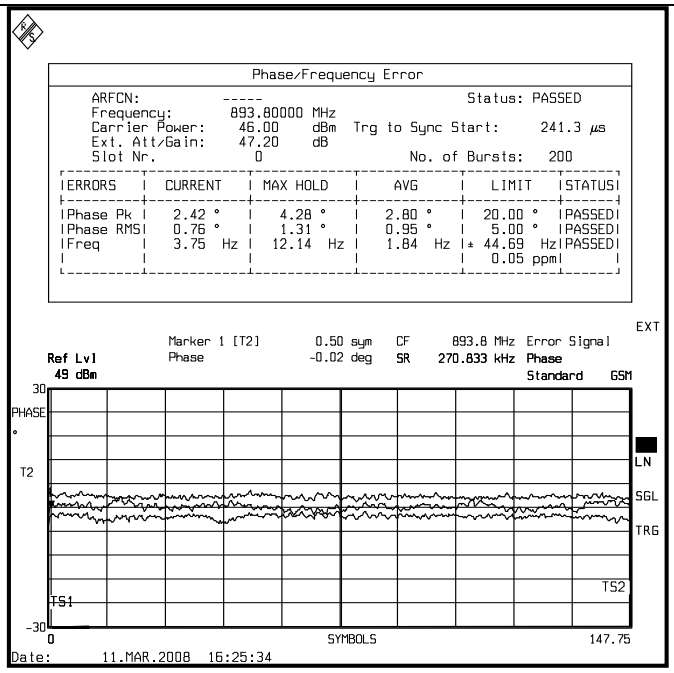
6.8. EXAMPLE OF PHASE / FREQUENCY ERROR CURVE

6.8.1 TESTS AT -10°C

RM GSM 850MHZ IN SLOT 0

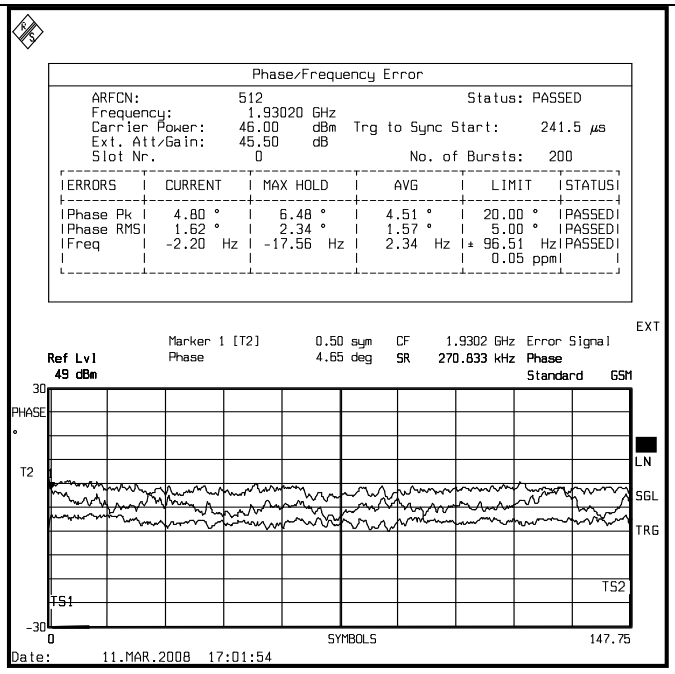


TDMA0 C128

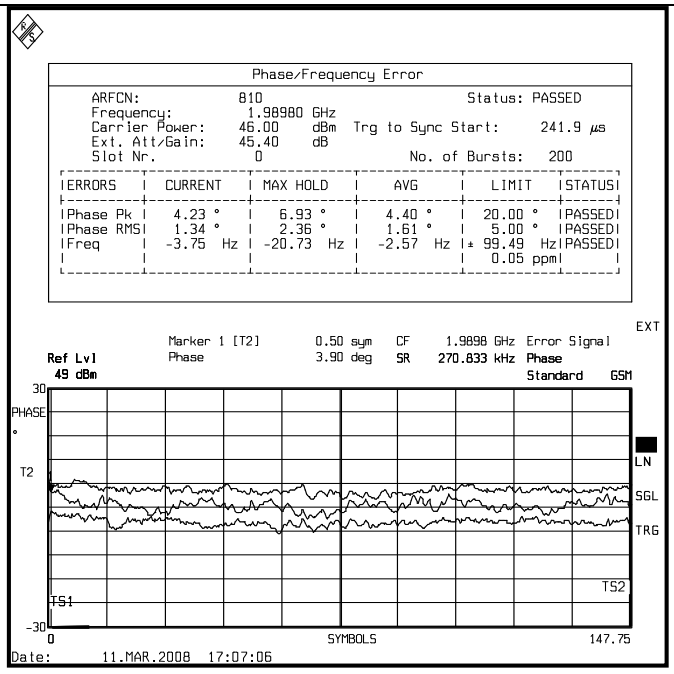


TDMA2 C251

RM GSM 1900MHZ IN SLOT 3



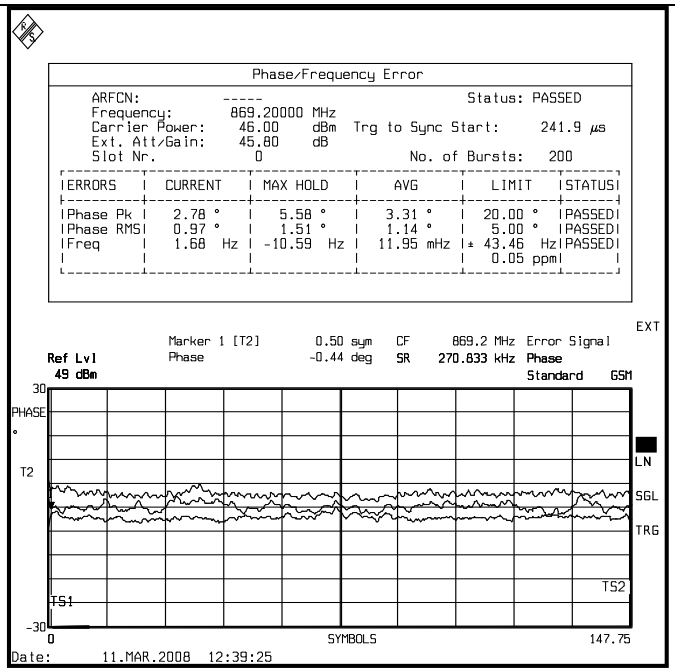
TDMA0 C512



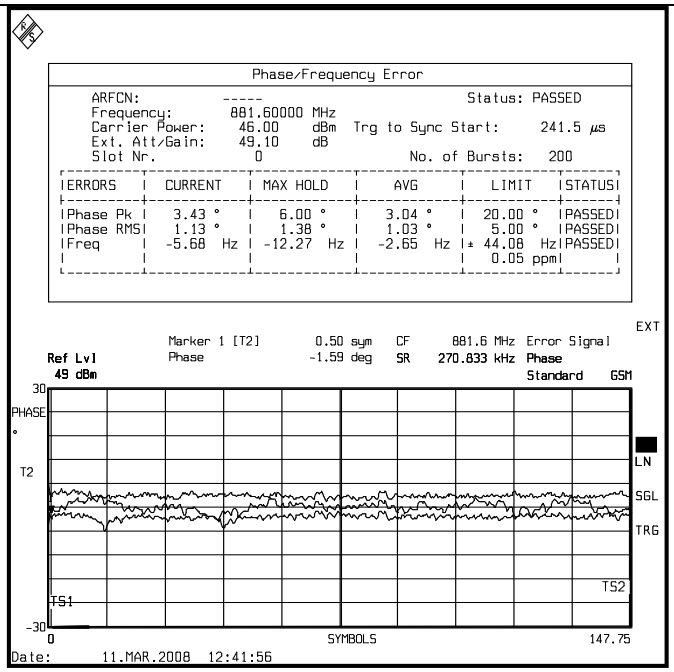
TDMA2 C810

6.8.2 TESTS AT 0℃

RM GSM 850MHZ IN SLOT 0

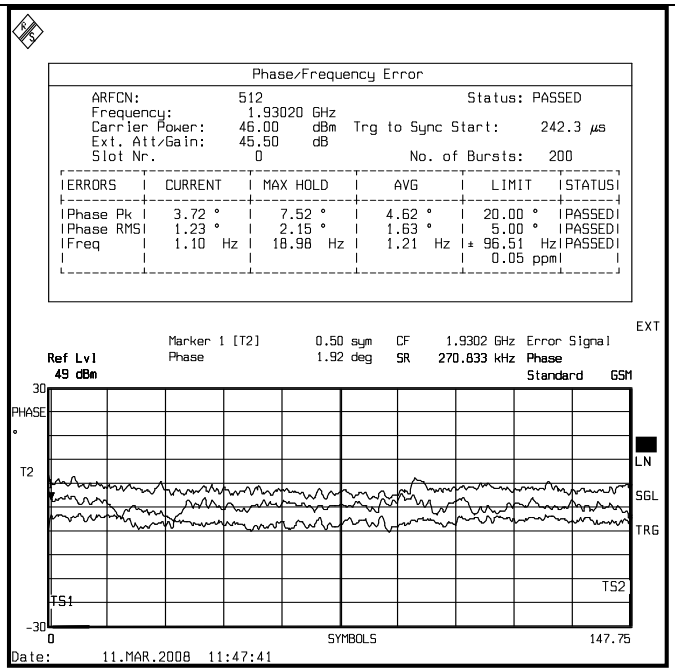


TDMA0 C128

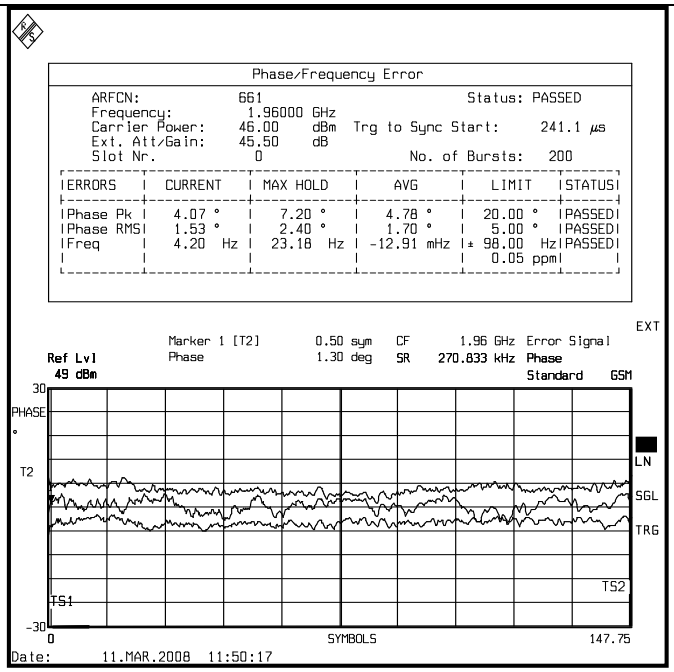


TDMA1 C190

RM GSM 1900MHZ IN SLOT 3



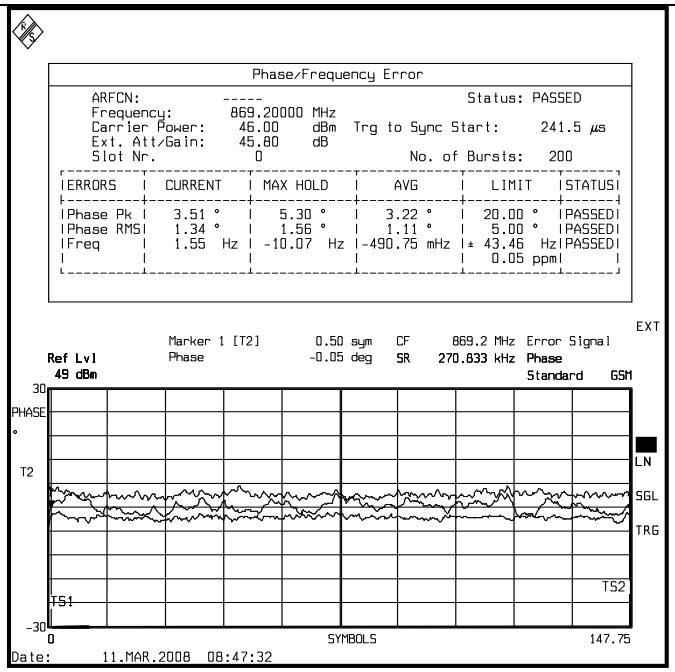
TDMA0 C512



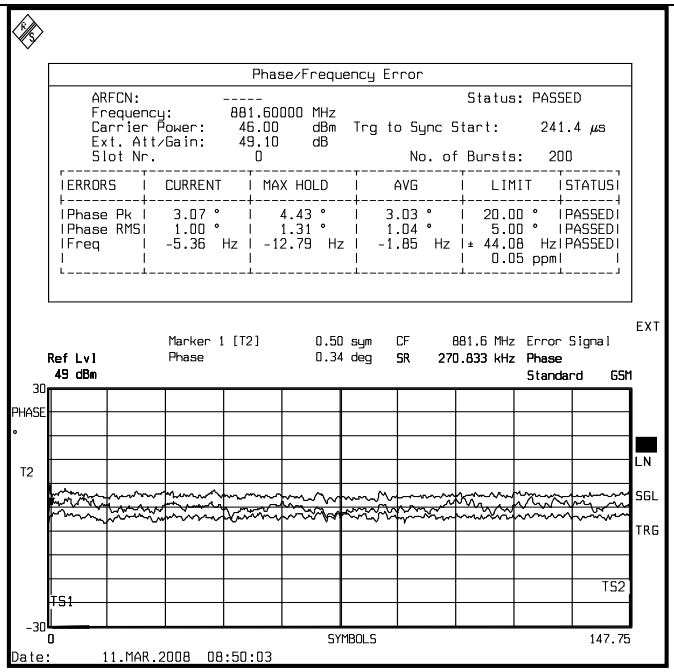
TDMA2 C661

6.8.3 TESTS AT +10°C

RM GSM 850MHZ IN SLOT 0

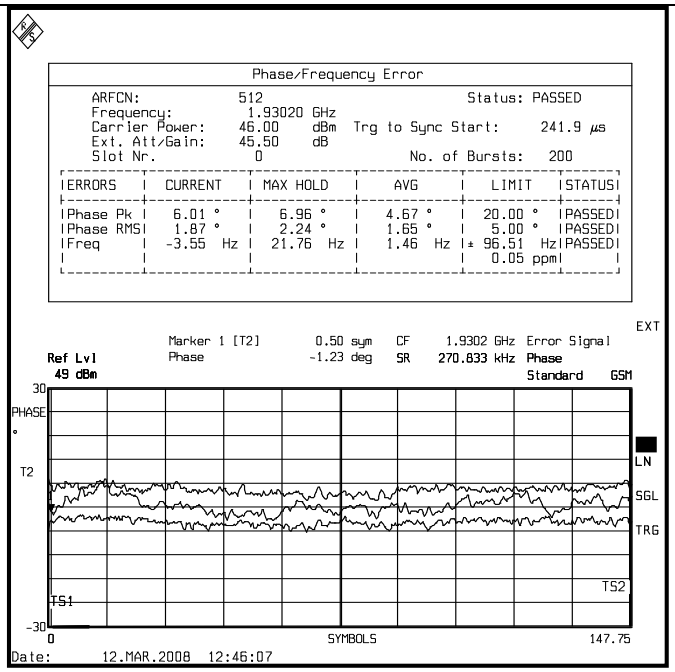


TDMA0 C128

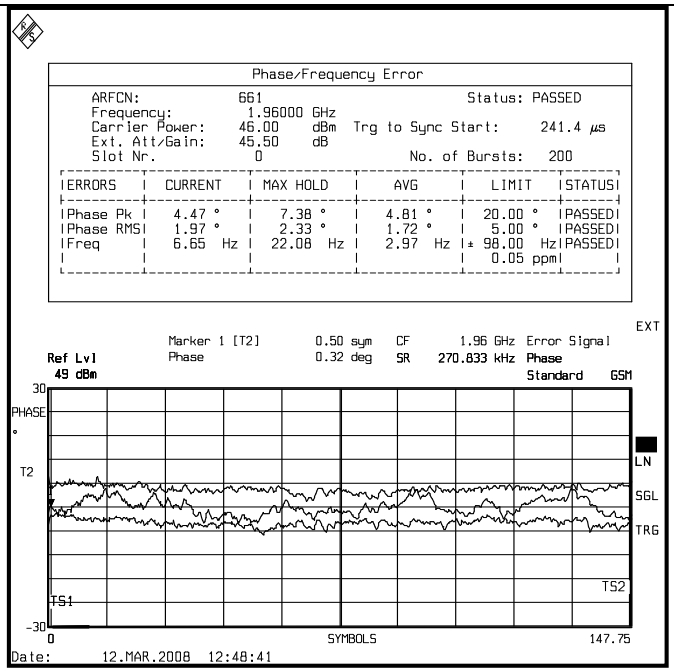


TDMA1 C190

RM GSM 1900MHZ IN SLOT 3



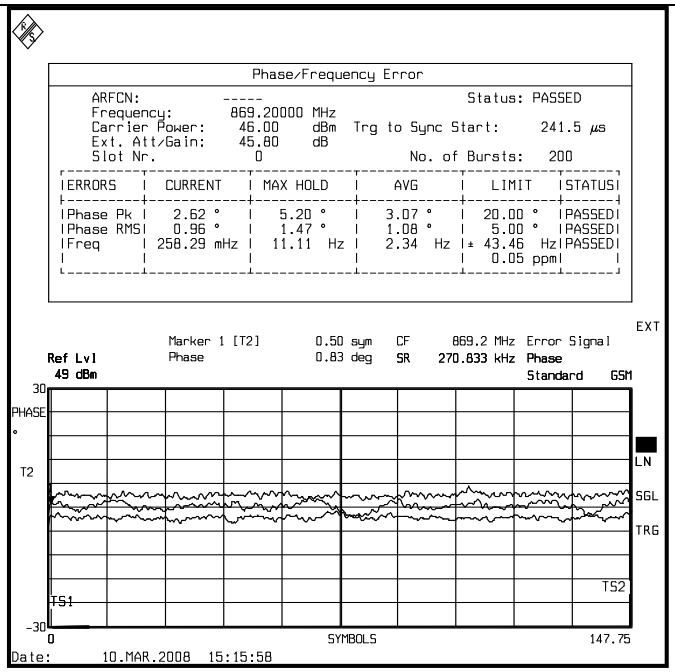
TDMA0 C512



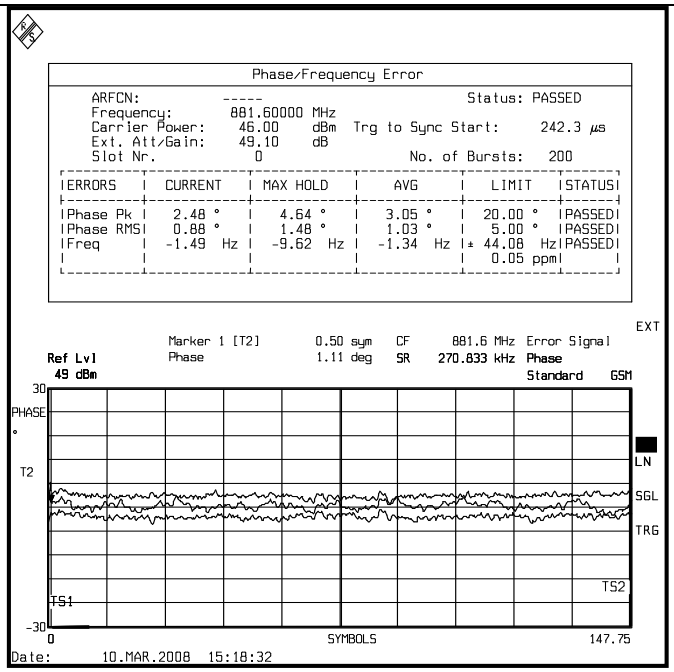
TDMA2 C661

6.8.4 TESTS AT +20°C

RM GSM 850MHZ IN SLOT 0

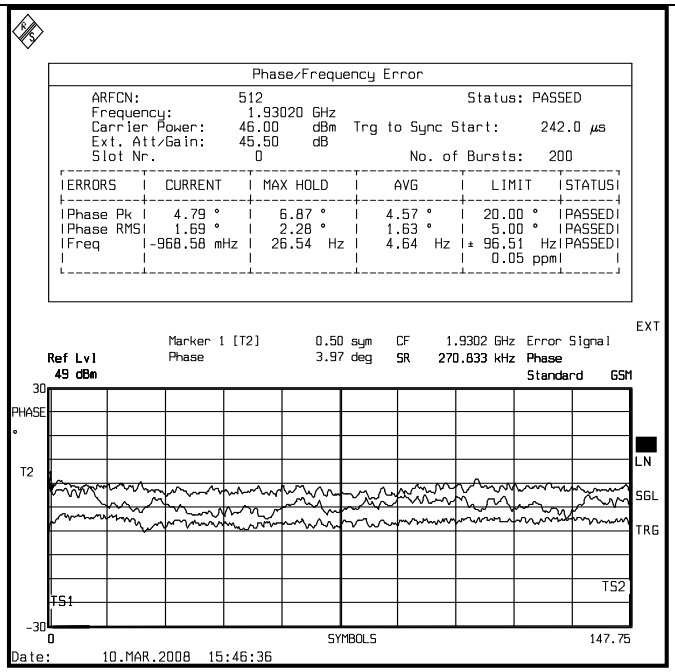


TDMA0 C128

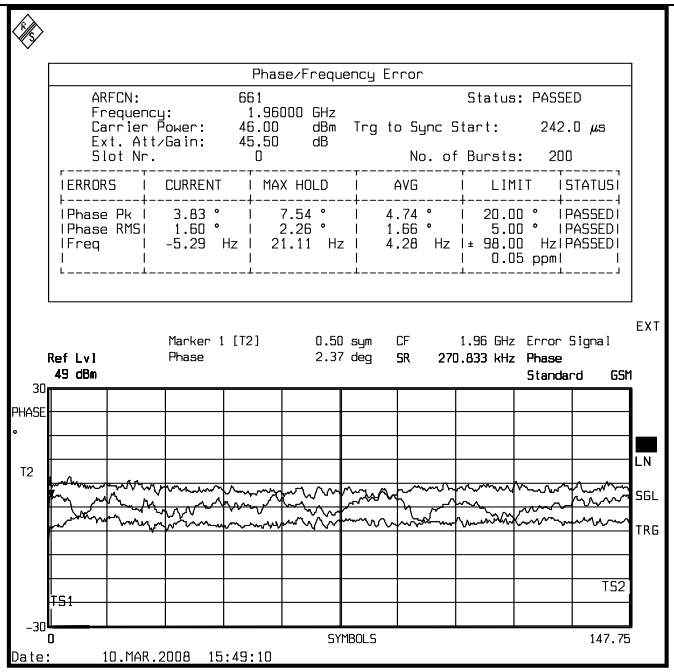


TDMA1 C190

RM GSM 1900MHZ IN SLOT 3



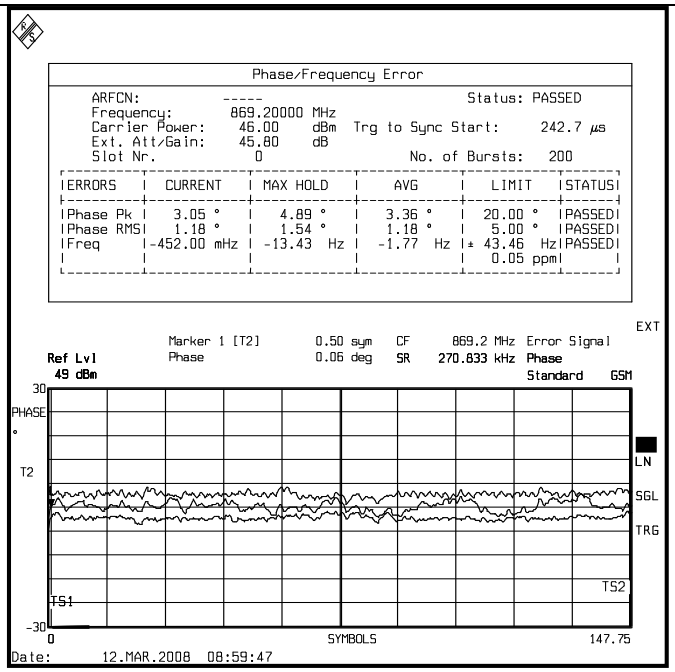
TDMA0 C512



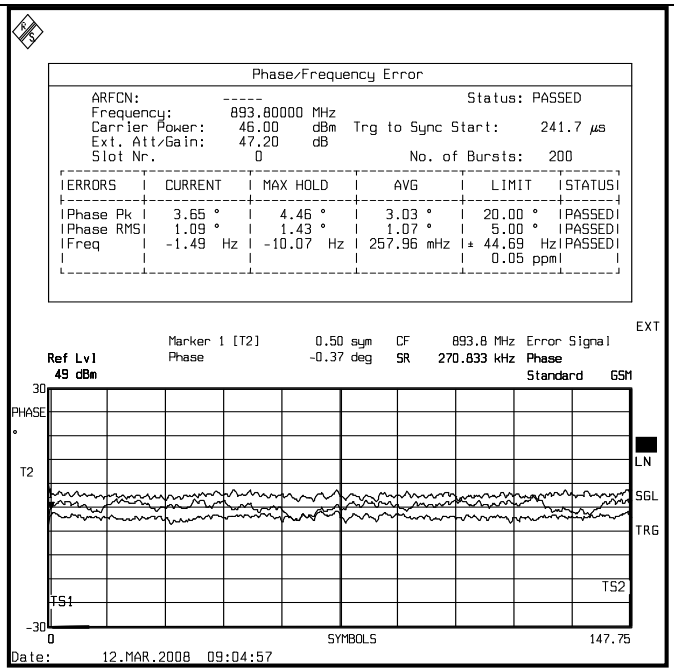
TDMA2 C661

6.8.5 TESTS AT +30ºC

RM GSM 850MHZ IN SLOT 0

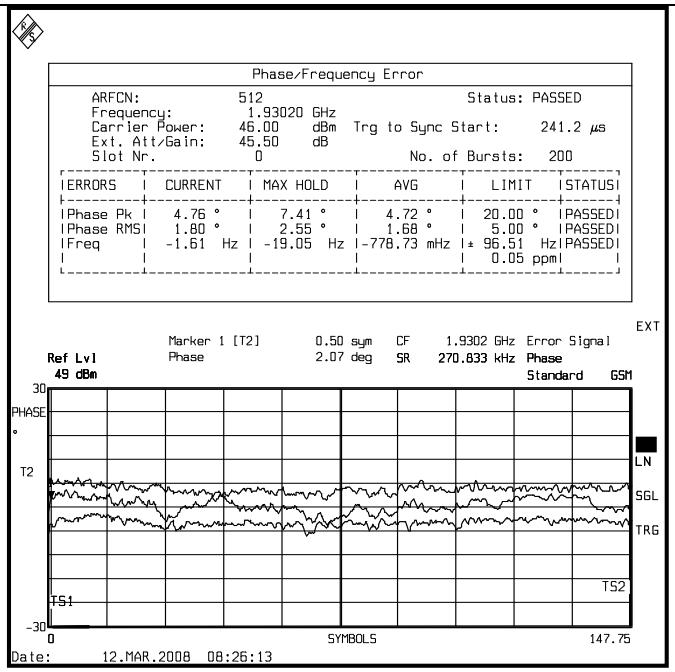


TDMA0 C128

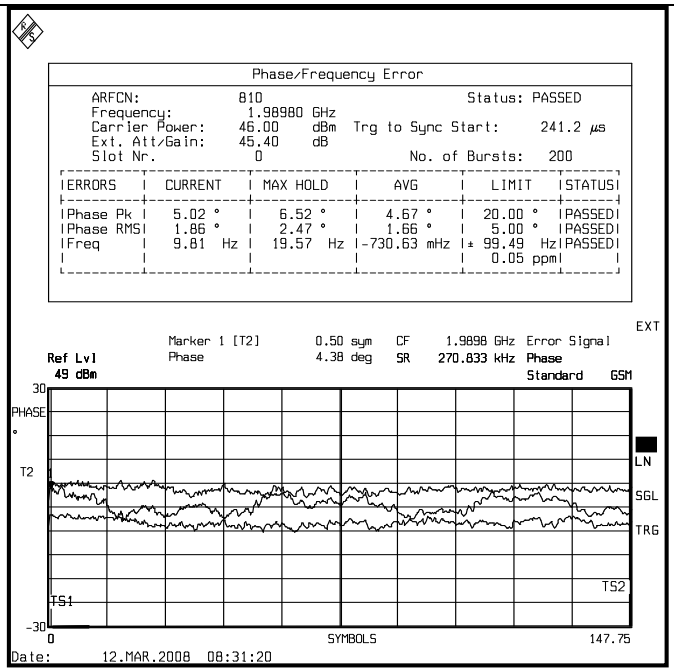


TDMA2 C251

RM GSM 1900MHZ IN SLOT 3



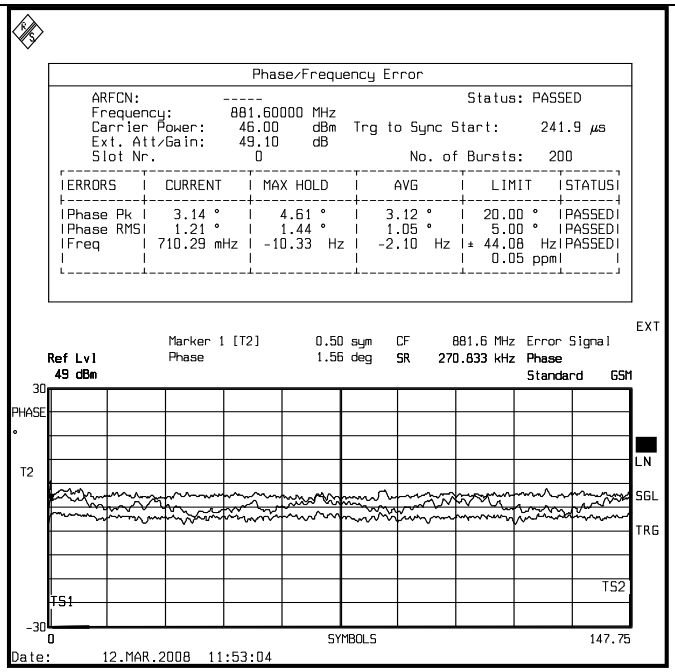
TDMA0 C512



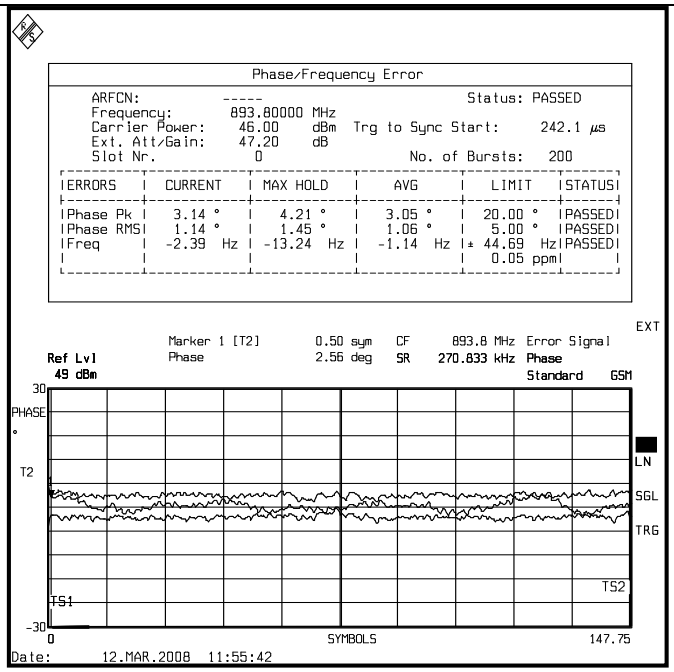
TDMA2 C810

6.8.6 TESTS AT +40°C

RM GSM 850MHZ IN SLOT 0

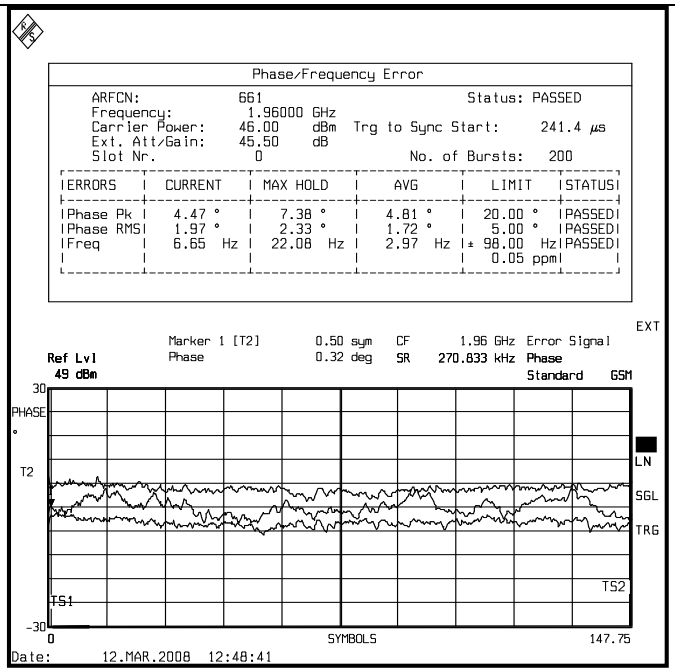


TDMA1 C190

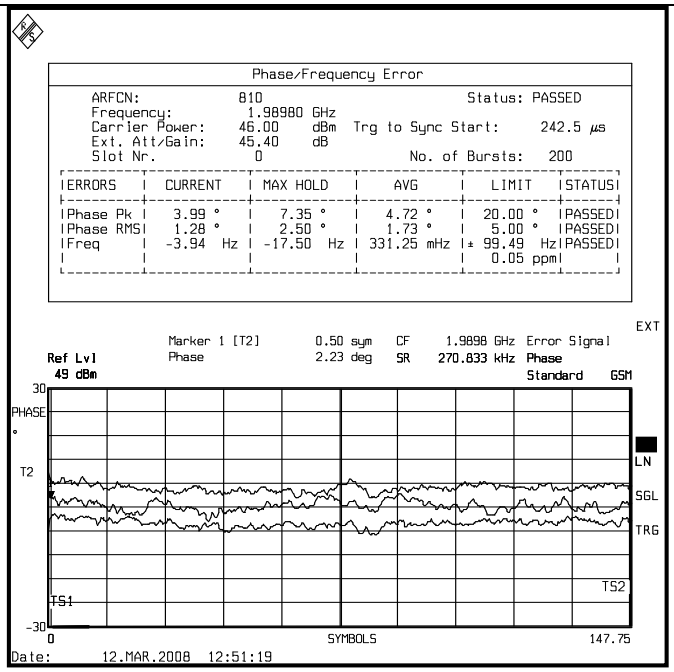


TDMA2 C251

RM GSM 1900MHZ IN SLOT 3



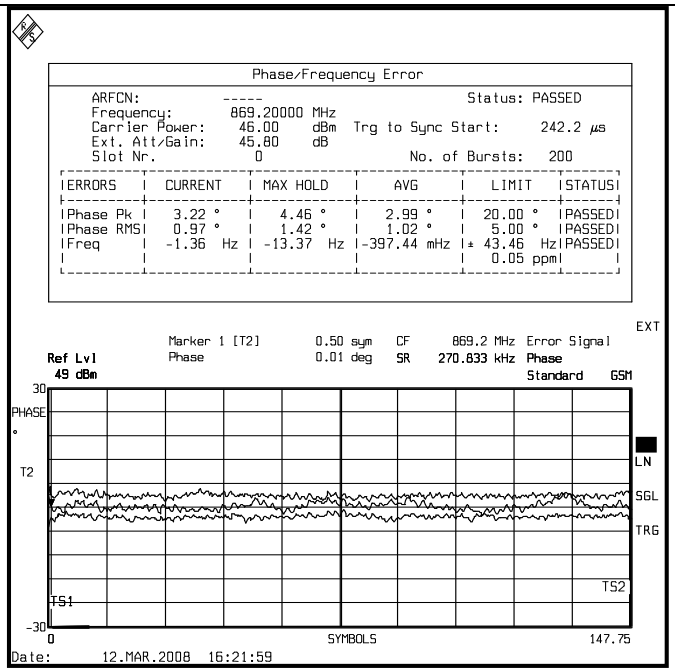
TDMA1 C661



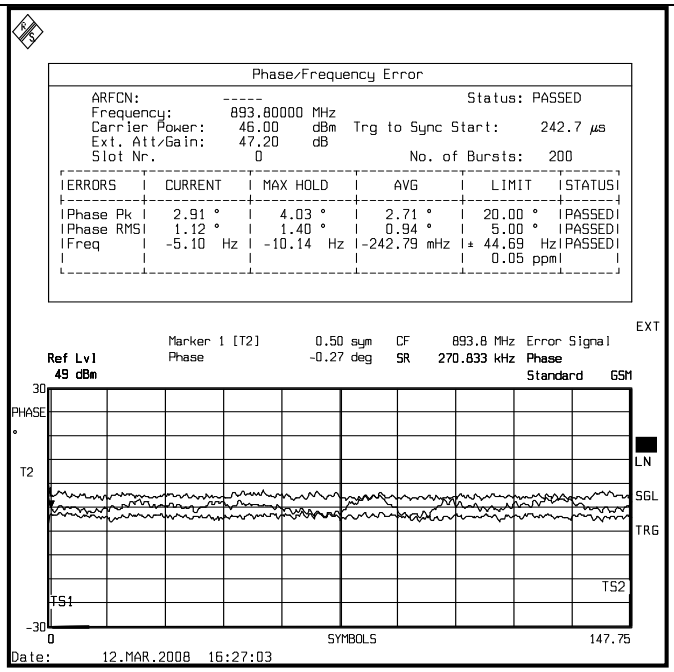
TDMA2 C810

6.8.7 TESTS AT +50°C

RM GSM 850MHZ IN SLOT 0

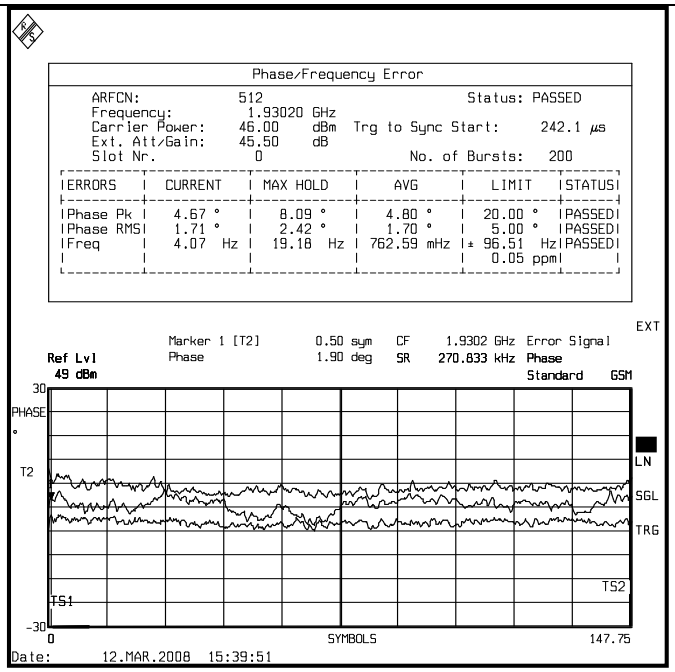


TDMA1 C190

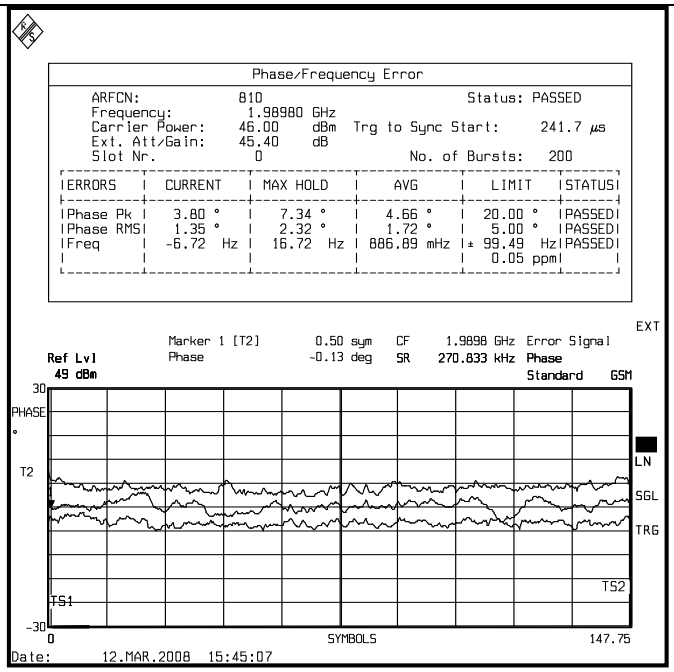


TDMA2 C251

RM GSM 1900MHZ IN SLOT 3



TDMA1 C661



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7. CONCLUSION

The NG 18000 Outdoor BTS (Standard Version) in Dual Band as equipped with modules RM GSM 850MHz and RM GSM 1900Mhz and as described in this document complies with the FCC & IC radio requirements in extreme temperature.

8. MEASUREMENT EQUIPMENT LIST

Equipment description	Manufacturer	Model	Serial No.	LCIE No.
Spectrum analyser	R&S	FSEA	842655/0027	A4060024
Spectrum analyser	Agilent	VSA	Nortel N° 571313	-
MIC analyseur	W&G	ANT20	AC-0084	A4040008
Signal generator	HP	8657B	3520U06264	A5442024
Signal generator	HP	8648A	3443U00421	A5442029
Power Meter	Giga-tronics	8542C	1832488	A1503009
RF Probe	Giga-tronics	80401A	18330224	A1509027
40 dB 60 W attenuator	Diconex	16-6568	04/006	-
Temperature chambre	CLIMAT SAPRATIN	PV140C80F60HR	SV025496S	D1025025

9. ABBREVIATIONS AND DEFINITIONS

9.1. GENERAL ABBREVIATIONS

℃	Degree Centigrade
3GPP	3rd 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.

FREQUENCY BAND

The frequency band of the BTS to be qualified is 1800 MHz with RX and TX band details in the table:

GSM 1800	Channel 512 **B**ottom	Channel 699 **M**iddle	Channel 885 **T**op
F TX (MHz)	1805,2	1842,6	1879,8
F Rx (MHz)	1710,2	1747,6	1784,8

END OF DOCUMENT