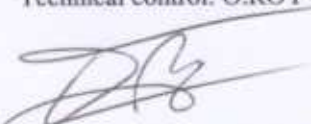




RADIO TEST REPORT
FOR
FCC REGULATORY IN EXTERME CONDITIONS OF
GSM 18000 OUTDOOR BTS

N°151013FB

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Written by : F.NOURRY

October 11, 2004

Identification : 151013FB

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1 INTRODUCTION

This objective of this document is to present the test report for Radio qualification in extreme conditions on the system GSM 18000 Outdoor BTS configured in 1900 MHz with the GSMK modulation.

The tests in extreme conditions have been realised in accordance with FCC Part 24.235 and Part 2.1055 of FCC Rules and Regulation.

2 APPLICABLES DOCUMENTS

[A1]	47CFR Part 2 10/01/03	FCC Rules for Radio Frequency Devices, Title 47 of the Code of Federal Regulations - Frequency allocations and radio treaty matters; general rules and regulations.
[A2]	47 CFR Part 24 10/01/03	FCC Rules for Radio Frequency Devices, Title 47 of the Code of Federal Regulations - Personal communications services.

3 REFERENCES DOCUMENTS

[R1]	PE/BTS/DPL/9848	GSM 1900 BTS 18000 Outdoor Project Qualification Plan
[R2]	PCS/BTS/DPL/011051	GSM 1900 BTS 18000 Outdoor & RM PCS 1900 RF Qualification Test Plan

4 Product description**GSM 18000 Outdoor BTS (Base & Extension cabinet)****Manufacturer :**

NORTEL NETWORKS
38, rue Paul Cézanne
78928 Guyancourt - Yvelines

Responsible of the equipment: Patrick GALOPIN**Product type:**

GSM 18000 Outdoor BTS in S666_666 configuration configured in 1900MHz

Reference.:

Item definition	Designation	Comments
Base :	NTT915AAP1	S/N: NNTMGT00124C
Extension :	NTT915AAP1	S/N: NNTMGT0012x0/303435
Manual:	none	
Power supply:	208V/60Hz,	tested at 208 V 60 Hz. biphas
FCC ID :	AB6BTS18000	
FCC Emission designator:	300KGXW	
Operating Frequency Range:	1930.2 to1989.8 MHz	



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5 HARDWARE AND SOFTWARE CONFIGURATION

See Nortel document abstract below and next pages

AVLM Recipient: FLEXTRONICS	Date of delivery: 07/SEP/2004
Product: GSM/UMTS BTS 18000 Outdoor	
Article delivered : GSM PCS BTS 18000 Outdoor	Article code: NTT915AA P1
Section transmitting: 8Z60	Designer name: S.CHENET
Cabinet Serial Number: Serial Number : NNTMGT00124D	
Documents related to the Hardware Design Specifications	
Documents dealing with specifications: PE/BTS/DD/5282 V04.01/ENBTS18000 System Design Specification	
Software compatibility: Modules software version : Load RM / V15a1e03 Load ICM / V15a125 (CDI103589) Load ABM / V15a125 (CDI103589) PI software tools: TIL COAM version: v03b108 WIN TMI version: v03d302 WINSPU version: v04b201	



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The delivery includes :

ARTICLE	PEC code	Release	Serial number	Comment
BARE CABINET & ECU	NTT91500	D1	NNTMGT001KIO	
IFM 0	NTN025AA	D1	NNTMGR009H76	
IFM 1	NTN025AA	D1	NNTMGR009H6V	
ICM 0	NTN023AA	D1	NNTMGR008WHE	MIR 03-1 IP: 136.147.44.108 MAC 00 60 38 B9 40 DE
ICM 1	NTN023AA	D1	NNTMGR008WH4	MIR 03-1 IP: 136.147.44.88 MAC 00 60 38 B9 40 E8
ABM 0	NTN029AA	D2	NNTMGR0090L6	MIR 4 IP: 136.147.44.89 MAC: 00 60 38 B9 40 C2
ABM 1	NTN029AA	D2	NNTMGR0090L2	MIR 4 IP: 136.147.44.107 MAC: 00 60 38 B9 40 C1
DDM	NTN063AA	01	FICT020000EZ	MIR 1 Warning: wrong release number instead of D1
DDM	NTN063AA	01	FICT020000EU	MIR 1 Warning: wrong release number instead of D1
DDM	NTN063AA	01	FICT020000EW	MIR 1 Warning: wrong release number instead of D1
TXF	NTN064AA		FICT020000GB	Warning: wrong release number instead of D1
TXF	NTN064AA		FICT020000G7	Warning: wrong release number instead of D1
TXF	NTN064AA		FICT020000GG	Warning: wrong release number instead of D1
RM 0	NTN050PM	D1 / PI*	CDN200428003	IP: 136.147.47.203 MAC: 00 60 38 14 2C 5E
RM 1	NTN050PM	D1 / PI*	CDN200428027	IP: 136.147.47.202 MAC: 00 60 38 14 30 32
RM 3	NTN050PM	D1 / PI*	CDN200428015	IP: 136.147.47.200 MAC: 00 60 38 14 31 64
RM 4	NTN050PM	D1 / PI*	CDN200428026	IP: 136.147.47.205 MAC: 00 60 38 14 30 34
RM 5	NTN050PM	D1 / PI*	CDN200428019	(INRUSH 306 A) IP: 136.147.47.204 MAC: 00 60 38 14 30 07
RM	NTN050PM	D1 / RF*	CDN200428035	

*PI :- LRM : D1 mir 02 + derog 04 03 046 + derog 04 03 015 + derog 04 03 003

- TX1900 : D1 + derog 04 04 029 + derog 04 04 008
- RX1900 : D2
- BPM1900 : D2 + derog 04 06 026
- RMPSU : P5 + derog 04 06 040

- RF : - PI + DER 04 06 043



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UCPS rack	NTW703AA	N2	ATSNZH000001	WARNING : Same serial for DDU, UCPS rack and CCU card
UCPS rack	NTW703AA	N2	ATSNZH000001	WARNING : Same serial for DDU, UCPS rack and CCU card
UCPS UMTS/GSM DDU	NTN070DA	P2	ATSNZH000001	WARNING : Same serial for DDU, UCPS rack and CCU card
UCPS CDMA/GSM CCU	NTW703CC	N3	ATSNZH000001	Firmware 2.06 WARNING : Same serial for DDU, UCPS rack and CCU card
UCPS Rectifier 1000w	NTW703BB	N4	ATSNZH000097	
UCPS Rectifier 1000w	NTW703BB	N3	ATSNZH000002	DER AC 04.06.44
UCPS Rectifier 1000w	NTW703BB	N3	ATSNZH000023	DER AC 04.06.44
UCPS Rectifier 1000w	NTW703BB	N3	ATSNZH000033	DER AC 04.06.44
UCPS Rectifier 1000w	NTW703BB	N3	ATSNZH000028	DER AC 04.06.44
IBP 0	NTN027AA	D1	NNTMGR00995Y	
IBP 1	NTN027AA	D1	NNTMGR009976	
DBP 0	NTN030AA	D1	NNTMGR008H6J	DER AC 04.03.045
DBP 1	NTN030AA	D1	NNTMGR008H6H	DER AC 04.03.045
ECU control board	NTT971CM	D2	NNTMGT001KJV	As a part of NTT91500
RICO	NTN031AA	D1	NNTMGT001GZW	

Additional delivery:

ARTICLE	PEC code	Release	Serial number	Comment
KIT Install	NTQA71GA		N/A	
FILLER RM			N/A	Qty : 1 (Plate for S333 config)
FILLER RM			N/A	Qty : 2
FILLER Rectifier	NTW70301	N1	N/A	Qty : 3

Documents related to the Hardware Test Specifications

Reference of the test specifications documents:

PE/BTS/DJD/010557 V01.01 /EN Hardware integration test specification for BTS 18000 Outdoor

Documents related to the Hardware Test Report

PE/BTS/DJD/011045 V05/FE Dossier des tests d'intégration de la BTS 18000 PCS1900 Outdoor

⌘ End of DOCUMENT ⌘



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6 TEST EQUIPMENT LIST

List of all of the measurement equipment used in this report.

Equipment description	Manufacturer	Model	Serial No.	V/A date
Spectrum Analyser	R&S	FSEA	842655/0027	23/04/2004
40 dB attenuator 100 W	Radiall	16-4278	04/026	
40 dB attenuator 100 W	Radiall	16-4278	04/026	
Advanced Networks System	W&G	ANT20	P41591	09/12/2003
HF Signal Generator	HP	8657B	X278975	28/07/2004
Auto-transformer	ADB	HRST	40/23	
Voltmètre	Agilent	34970A		
LNE Climatic room	Sapratin		1005720	24/04/2003

7 MEASUREMENT PRINCIPLE AND CONFIGURATION FOR FREQUENCY STABILITY TEST

Standard Coverage : FCC Part 2.1055, FCC Part 24.235

Objective: This measurement evaluates frequency and phases errors during the active part of the timeslot.

Intend:

- (a) The frequency stability shall be measured with variation of ambient temperature as follows:
 - (1) From -30 deg. to +50 deg. centigrade for all equipment except that specified in paragraphs (a) (2) and (3) of this section.
 - (2) From -20 deg. to +50 deg. centigrade for equipment to be licensed for use in the Maritime Services under part 80 of this chapter, except for Class A, B, and S Emergency Position Indicating Radiobeacons (EPIRBS), and equipment to be licensed for use above 952 MHz at operational fixed stations in all services, stations in the Local Television Transmission Service and Point-to-Point Microwave Radio Service under part 21 of this chapter, and equipment licensed for use aboard aircraft in the Aviation Services under part 87 of this chapter.
 - (3) From 0 deg. to +50 deg. centigrade for equipment to be licensed for use in the Radio Broadcast Services under part 73 of this chapter.
- (b) Frequency measurements shall be made at the extremes of the specified temperature range and at intervals of not more than 10 deg. centigrade through the range. A period of time sufficient to stabilise all of the components of the oscillator circuit at each temperature level shall be allowed prior to frequency measurement. The short term transient effects on the frequency of the transmitter due to keying (except for broadcast transmitters) and any heating element cycling normally occurring at each ambient temperature level also shall be shown. Only the portion or portions of the transmitter containing the frequency determining and stabilising circuitry need be subjected to the temperature variation test.
- (c) In addition to all other requirements of this section, the following information is required for equipment incorporating heater type crystal oscillators to be used in mobile stations, for which type



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acceptance is first requested after March 25, 1974, except for battery powered, hand carried, portable equipment having less than 3 watts mean output power.

(1) Measurement data showing variation in transmitter output frequency from a cold start and the elapsed time necessary for the frequency to stabilise within the applicable tolerance. Tests shall be made after temperature stabilisation at each of the ambient temperature levels; the lower temperature limit, 0 deg. centigrade and +30 deg. centigrade with no primary power applied.

(2) Beginning at each temperature level specified in paragraph (c)(1) of this section, the frequency shall be measured within one minute after application of primary power to the transmitter and at intervals of no more than one minute thereafter until ten minutes have elapsed or until sufficient measurements are obtained to indicate clearly that the frequency has stabilised within the applicable tolerance, whichever time period is greater. During each test, the ambient temperature shall not be allowed to rise more than 10 deg. centigrade above the respective beginning ambient temperature level.

(3) The elapsed time necessary for the frequency to stabilise within the applicable tolerance from each beginning ambient temperature level as determined from the tests specified in this paragraph shall be

specified in the instruction book for the transmitter furnished to the user.

(4) When it is impracticable to subject the complete transmitter to this test because of its physical dimensions or power rating, only its frequency determining and stabilising portions need be tested.

(d) The frequency stability shall be measured with variation of primary supply voltage as follows:

(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

(2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.

(3) The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided. Effects on frequency of transmitter keying (except for broadcast transmitters) and any heating element cycling at the nominal supply voltage and at each extreme also shall be shown.

(e) When deemed necessary, the Commission may require tests of frequency stability under conditions in addition to those specifically set out in paragraphs (a), (b), (c), and (d) of this section.

(For example measurements showing the effect of proximity to large metal objects, or of various types of antennas, may be required for portable equipment.)

Specification:

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 or 90 Hz.**

Number of bursts: 200

Measurement on slot 0



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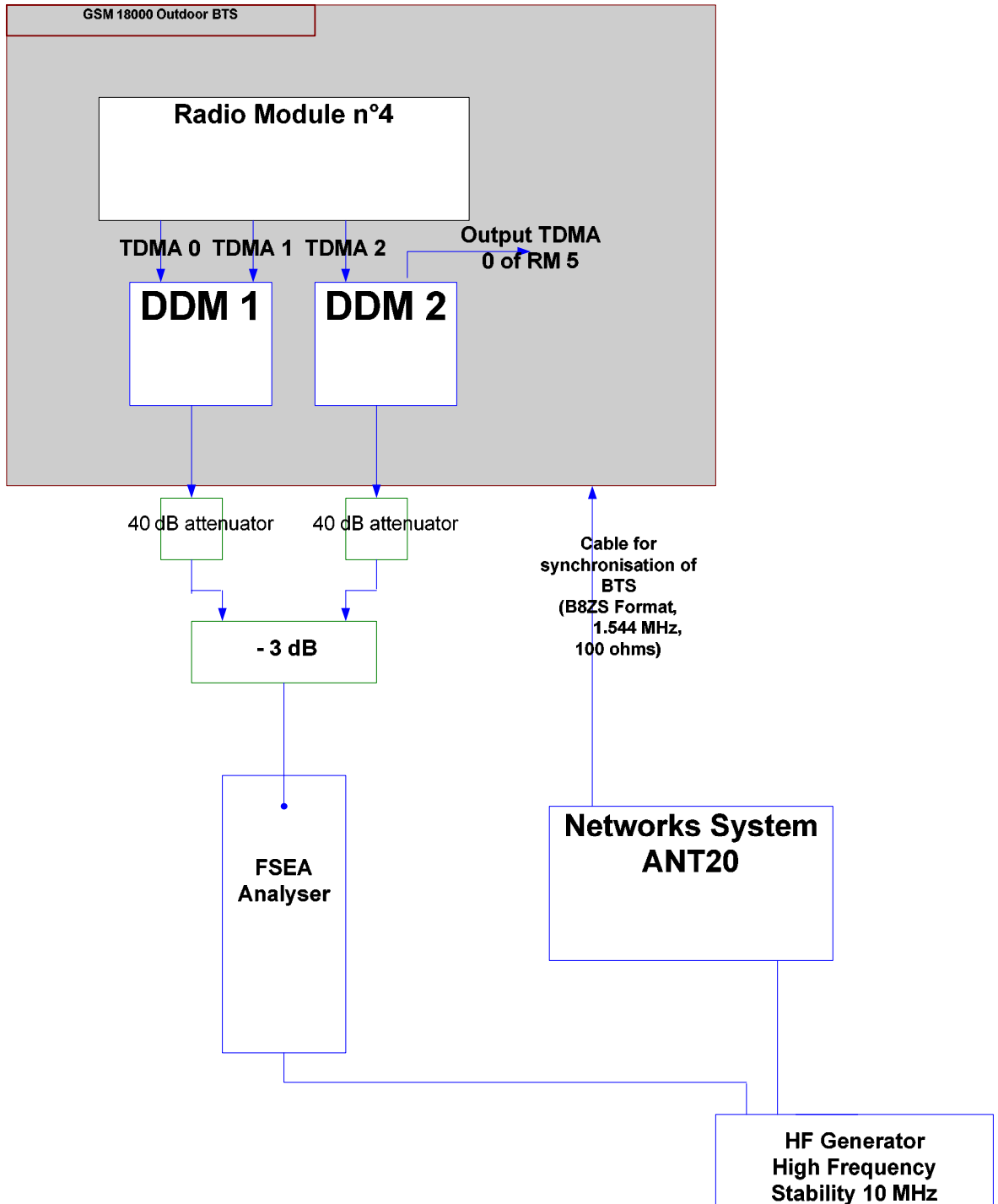
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Measurement principle:





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Test configuration:

Frequency stability test is performed under following extreme conditions:

- Temperature from -40°C to $+50^{\circ}\text{C}$ at intervals of 10 degrees.
- With AC power supply variations: 195 VAC, 230 VAC, 265 VAC.

All RM Modules run with nominal power regulation at maximum power (30W) in GMSK modulation. The RM were configured to transmit at maximum power (Static level 0).

GSM 18000 Outdoor BTS is equipped with RM in slots 0, 1, 2, 3, 4 and 5 with following emission configuration :

RM0	TDMA 0	BCCH	530 @ 1933.8 MHz
	TDMA 1	BCCH	540 @ 1935.8 MHz
	TDMA 2	BCCH	550 @ 1937.8 MHz
RM1	TDMA 0	BCCH	600 @ 1947.8 MHz
	TDMA 1	BCCH	610 @ 1949.8 MHz
	TDMA 2	BCCH	620 @ 1951.8 MHz
RM2	TDMA 0	BCCH	630 @ 1953.8 MHz
	TDMA 1	BCCH	640 @ 1955.8 MHz
	TDMA 2	BCCH	680 @ 1963.8 MHz
RM3	TDMA 0	BCCH	690 @ 1965.8 MHz
	TDMA 1	BCCH	700 @ 1967.8 MHz
	TDMA 2	BCCH	720 @ 1971.8 MHz
RM4 RF Module tested	TDMA 0	TCH	(B) <u>512 @ 1930.2MHz</u>
	TDMA 1	TCH	(M) 661 @ 1960.0 MHz
	TDMA 2	TCH	(T) 810 @ 1989.8 MHz
RM5	TDMA 0	BCCH	740 @ 1975.8 MHz
	TDMA 1	BCCH	760 @ 1979.8 MHz
	TDMA 2	BCCH	780 @ 1983.8 MHz

Frequency deviation is measured in RM4 on channel C512, C 661 and C 810.



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8 TESTS RESULTS

Tests are performed on 9, 10 and 13 September 2004 in LNE laboratory with O. ROY from Gyl technologies to control the test configuration, methods and metrologies data's.

Remark: All measurements have been realized without slow frequency hopping. Considering that the product is a fix station, all measurements have been realized after thermal stabilization.

@ - 40°C

RM tested	TX tested	Voltage	Channel	Max frequency error (Hz)	Max peak phase error (°)	Max rms phase error (°)	Result
RM4	TDMA0	195 V AC	512 (B)	23.76	8.28	2.78	PASS
	TDMA0	230 V AC	512 (B)	16.53	8.73	2.78	PASS
	TDMA0	265 V AC	512 (B)	22.21	8.44	2.51	PASS
	TDMA1	195 V AC	661 (M)	22.86	9.18	2.83	PASS
	TDMA1	230 V AC	661 (M)	-18.53	9.18	2.66	PASS
	TDMA1	265 V AC	661 (M)	17.43	9.74	2.59	PASS
	TDMA2	195 V AC	810 (T)	20.08	7.52	2.49	PASS
	TDMA2	230 V AC	810 (T)	-15.69	8.42	2.54	PASS
	TDMA2	265 V AC	810 (T)	16.21	8.83	2.58	PASS

@ - 30°C

RM tested	TX tested	Voltage	Channel	Max frequency error (Hz)	Max peak phase error (°)	Max rms phase error (°)	Result
RM4	TDMA0	195 V AC	512 (B)	15.24	7.82	2.70	PASS
	TDMA0	230 V AC	512 (B)	17.43	8.85	2.66	PASS
	TDMA0	265 V AC	512 (B)	13.37	8.32	2.68	PASS
	TDMA1	195 V AC	661 (M)	19.82	8.26	2.48	PASS
	TDMA1	230 V AC	661 (M)	20.60	8.12	2.66	PASS
	TDMA1	265 V AC	661 (M)	16.14	7.87	2.63	PASS
	TDMA2	195 V AC	810 (T)	-21.37	8.52	2.66	PASS
	TDMA2	230 V AC	810 (T)	17.24	7.93	2.51	PASS
		TDMA2	265 V AC	810 (T)	-20.73	7.45	2.75



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@ - 20°C

RM tested	TX tested	Voltage	Channel	Max frequency error (Hz)	Max peak phase error (°)	Max rms phase error (°)	Result
RM4	TDMA0	195 V AC	512 (B)	-16.59	8.67	2.62	PASS
	TDMA0	230 V AC	512 (B)	16.92	9.16	2.64	PASS
	TDMA0	265 V AC	512 (B)	17.05	8.88	2.74	PASS
	TDMA1	195 V AC	661 (M)	17.05	7.74	2.73	PASS
	TDMA1	230 V AC	661 (M)	24.34	8.32	2.64	PASS
	TDMA1	265 V AC	661 (M)	20.53	9.46	2.65	PASS
	TDMA2	195 V AC	810 (T)	22.79	7.83	2.68	PASS
	TDMA2	230 V AC	810 (T)	26.80	8.79	2.69	PASS
	TDMA2	265 V AC	810 (T)	23.37	7.30	2.60	PASS

@ - 10°C

RM tested	TX tested	Voltage	Channel	Max frequency error (Hz)	Max peak phase error (°)	Max rms phase error (°)	Result
RM4	TDMA0	195 V AC	512 (B)	-15.11	9.20	2.58	PASS
	TDMA0	230 V AC	512 (B)	22.02	9.24	2.66	PASS
	TDMA0	265 V AC	512 (B)	15.37	9.59	2.62	PASS
	TDMA1	195 V AC	661 (M)	-12.46	7.80	2.67	PASS
	TDMA1	230 V AC	661 (M)	-18.85	8.53	2.70	PASS
	TDMA1	265 V AC	661 (M)	23.44	8.10	2.73	PASS
	TDMA2	195 V AC	810 (T)	25.38	7.97	2.53	PASS
	TDMA2	230 V AC	810 (T)	18.40	8.77	2.72	PASS
	TDMA2	265 V AC	810 (T)	15.50	8.79	2.95	PASS



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@ 0°c

RM tested	TX tested	Voltage	Channel	Max frequency error (Hz)	Max peak phase error (°)	Max rms phase error (°)	Result
RM4	TDMA0	195 V AC	512 (B)	19.05	9.90	2.91	PASS
	TDMA0	230 V AC	512 (B)	25.18	8.85	2.72	PASS
	TDMA0	265 V AC	512 (B)	23.89	8.23	2.84	PASS
	TDMA1	195 V AC	661 (M)	-19.89	8.81	2.76	PASS
	TDMA1	230 V AC	661 (M)	-23.96	8.08	2.70	PASS
	TDMA1	265 V AC	661 (M)	-28.02	8.15	2.85	PASS
	TDMA2	195 V AC	810 (T)	26.99	8.53	2.80	PASS
	TDMA2	230 V AC	810 (T)	22.02	7.99	2.57	PASS
	TDMA2	265 V AC	810 (T)	-25.63	8.43	2.60	PASS

@ + 10°c

RM tested	TX tested	Voltage	Channel	Max frequency error (Hz)	Max peak phase error (°)	Max rms phase error (°)	Result
RM4	TDMA0	195 V AC	512 (B)	21.63	8.07	2.85	PASS
	TDMA0	230 V AC	512 (B)	20.79	9.96	2.62	PASS
	TDMA0	265 V AC	512 (B)	23.37	8.64	2.59	PASS
	TDMA1	195 V AC	661 (M)	21.89	8.25	2.65	PASS
	TDMA1	230 V AC	661 (M)	-22.54	8.46	2.69	PASS
	TDMA1	265 V AC	661 (M)	22.60	9.42	2.87	PASS
	TDMA2	195 V AC	810 (T)	-23.57	7.93	2.62	PASS
	TDMA2	230 V AC	810 (T)	-25.04	9.87	2.99	PASS
	TDMA2	265 V AC	810 (T)	-26.99	8.44	2.50	PASS



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@ + 20°c

RM tested	TX tested	Voltage	Channel	Max frequency error (Hz)	Max peak phase error (°)	Max rms phase error (°)	Result
RM4	TDMA0	195 V AC	512 (B)	20.99	10.24	3.11	PASS
	TDMA0	230 V AC	512 (B)	-16.79	10.48	2.89	PASS
	TDMA0	265 V AC	512 (B)	21.57	8.53	2.88	PASS
	TDMA1	195 V AC	661 (M)	-21.83	11.65	3.35	PASS
	TDMA1	230 V AC	661 (M)	-27.51	12.57	3.16	PASS
	TDMA1	265 V AC	661 (M)	-30.22	11.27	2.81	PASS
	TDMA2	195 V AC	810 (T)	-20.60	10.67	3.01	PASS
	TDMA2	230 V AC	810 (T)	-21.31	10.13	2.99	PASS
TDMA2	265 V AC	810 (T)	-22.60	11.11	3.06	PASS	

@ + 30°c

RM tested	TX tested	Voltage	Channel	Max frequency error (Hz)	Max peak phase error (°)	Max rms phase error (°)	Result
RM4	TDMA0	195 V AC	512 (B)	15.05	8.38	2.45	PASS
	TDMA0	230 V AC	512 (B)	18.60	8.94	2.75	PASS
	TDMA0	265 V AC	512 (B)	16.27	7.41	2.46	PASS
	TDMA1	195 V AC	661 (M)	19.05	7.01	2.33	PASS
	TDMA1	230 V AC	661 (M)	18.08	7.77	2.45	PASS
	TDMA1	265 V AC	661 (M)	19.18	7.30	2.61	PASS
	TDMA2	195 V AC	810 (T)	21.24	7.65	2.37	PASS
	TDMA2	230 V AC	810 (T)	14.40	8.35	2.45	PASS
TDMA2	265 V AC	810 (T)	17.31	8.70	2.69	PASS	



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@ + 40°c

RM tested	TX tested	Voltage	Channel	Max frequency error (Hz)	Max peak phase error (°)	Max rms phase error (°)	Result
RM4	TDMA0	195 V AC	512 (B)	-23.57	11.84	3.20	PASS
	TDMA0	230 V AC	512 (B)	-22.28	11.13	3.29	PASS
	TDMA0	265 V AC	512 (B)	-22.28	10.69	2.84	PASS
	TDMA1	195 V AC	661 (M)	-16.34	11.49	3.08	PASS
	TDMA1	230 V AC	661 (M)	-21.63	12.25	2.89	PASS
	TDMA1	265 V AC	661 (M)	-21.70	12.60	3.18	PASS
	TDMA2	195 V AC	810 (T)	-20.66	11.23	2.94	PASS
	TDMA2	230 V AC	810 (T)	-17.82	11.65	2.94	PASS
TDMA2	265 V AC	810 (T)	23.57	12.22	3.13	PASS	

@ + 50°c

RM tested	TX tested	Voltage	Channel	Max frequency error (Hz)	Max peak phase error (°)	Max rms phase error (°)	Result
RM4	TDMA0	195 V AC	512 (B)	-24.80	11.19	3.04	PASS
	TDMA0	230 V AC	512 (B)	20.79	12.37	3.08	PASS
	TDMA0	265 V AC	512 (B)	19.50	12.90	2.93	PASS
	TDMA1	195 V AC	661 (M)	-26.80	13.95	2.78	PASS
	TDMA1	230 V AC	661 (M)	24.06	11.73	2.92	PASS
	TDMA1	265 V AC	661 (M)	19.31	12.83	2.09	PASS
	TDMA2	195 V AC	810 (T)	-18.34	13.49	3.25	PASS
	TDMA2	230 V AC	810 (T)	18.27	13.43	2.16	PASS
	TDMA2	265 V AC	810 (T)	-20.79	13.07	2.09	PASS



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9 CONCLUSION

The phase error and mean frequency in extreme conditions is fully compliant with the specification of FCC requirements.

The maximum deviation measured **-30.22 Hz** is sufficient to ensure that the fundamental emission stays within the authorized frequency block.

The GSM 18000 Outdoor BTS configured in 1900 MHz complies with the requirements.



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10 ABBREVIATIONS & DEFINITIONS**10.1 ABBREVIATIONS**

ARFCN	Absolute Radio Frequency Channel Number
BCCH	Broadcast Control Channel
BER	Bit Error Rate
BIST	Built In Self Test
BTS	Base Transceiver System
C/I	Carrier to Interferer ratio
dBm	Ratio in decibel with respect to 1 milliwatt
dBc	Ratio in decibel with respect to the carrier level
FER	Frame Erasure Rate
FP	Frame Processor
FH bus	Transmission bus between FP and TX
IF	Intermediate Frequency
IP3	3rd order interception point
LNA	Low Noise Amplifier
NER	Nominal Error Rate
NFH	NO Frequency Hopping
OL	Local Oscillator
PA	TX Power Amplifier
PCM	Pulse Coded Modulation
RF	Radio Frequency Channel
RX	Receiver
SFH	Slow Frequency Hopping
TCH	Traffic Residual Bit Error Rate
TDMA	Time Division Multiple Access
TS	Time Slot
TX	Transmitter
TRX	Transmitter – Receiver



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10.2 DEFINITIONSPCS1900 Frequency Band and Channels

PCS 1900	C512	C661	C810
F Tx (MHz)	1930.2	1960	1989.8
F Rx (MHz)	1850.2	1880	1909.8

For $512 < n < 810$

$$F_{Rx}(n) = 1850.2 + 0.2*(n-512)$$

$$F_{Tx}(n) = F_{Rx}(n) + 80$$