



Permissive Change Class2 (FCC ID AB6BTS18INDHP)

NG2 GSM 18000 Indoor BTS introduction & RICAM 0D2 / ABM2 introduction

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PUBLICATION HISTORY

This document is modified for every change in the regulatory documentation for FCC certification.

Main TCF Version	Date	Content of evolution	Comments	Author
01.01/EN	24/09/2008	Creation	NG2 GSM 18000 Indoor BTS for US market	A. CAILLE 

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1. INTRODUCTION

1.1. OBJECT

This document concerns the NG2 GSM 18000 Indoor BTS FCC certification as Permissive change Class2 of File FCC ID AB6BTS18INDHP

2. RELATED DOCUMENTS

2.1. REFERENCE DOCUMENTS

[R1]	PE/BTS/DJD/023751	GSM BTS RADIO QUALIFICATION (FCC) TEST REPORT FOR RM2 1900 INTRODUCTION
[R2]	PE/BTS/DJD/023752	GSM 18000 Indoor BTS (FCC extreme condition) Radio Test Report for RM2 1900 introduction

2.2. APPLICABLE DOCUMENTS

[A1]	47 CFR Part 1	PRACTICE AND PROCEDURE
[A2]	47 CFR Part 2	FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS
[A3]	47 CFR Part 24	PERSONAL COMMUNICATIONS SERVICES
[A4]	47 CFR Part 22	PUBLIC MOBILE SERVICES
[A5]	RSS 133	Personal Communication Services in the 2GHz band

3. EQUIPMENT DESCRIPTION

3.1. EQUIPMENT DEFINITION AND USE

The NG2 GSM 18000 Indoor BTS is a Base Station used in the GSM/GPRS and EGPRS cellular phones technology. It is commonly named **Base Transceiver Station (BTS)**

The BTS is a part of a large system. The base station produces external interface to be back-haul connected to network equipment (BSC i.e. Base Station Controller) and it also produces external radio interface according to the GSM/GPRS standards, as shown in Figure 1.

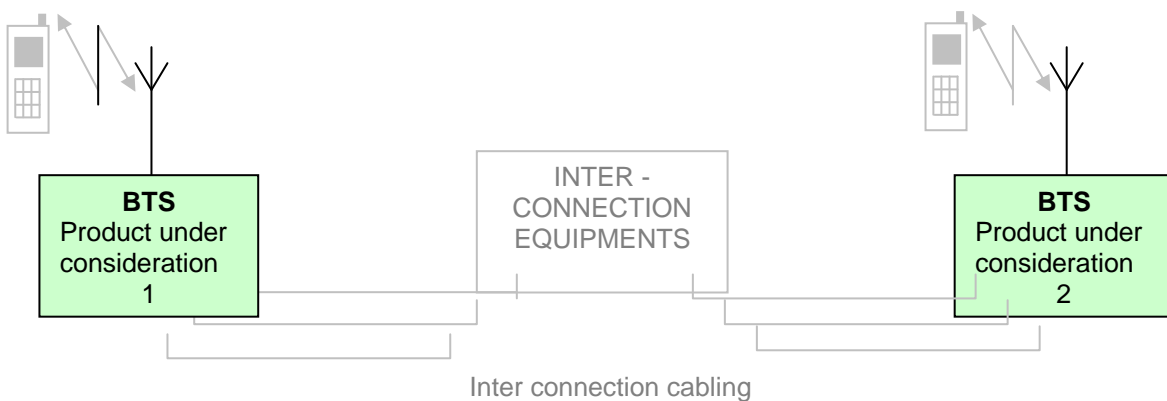


Figure 1: Schematic of the system installation

IMPORTANT: This file and other attached files are only related to the BTS (full color in Figure 1). All other equipments (grey in the schematic) are not considered in this documentation.

The BTS is part of the BSS. The overall network GSM architecture is described in document [R1].

The BTS equipment is classed **RADIO EQUIPMENT**.

The product in reference is included in a system of wireless cellular telephone telecommunications, with several possibilities as GSM, GPRS and EGPRS communications mode.

The NG2 GSM 18000 Indoor BTS consists of a cabinet populated with a variable number of modules depending on the number of radio channels to be implemented. The NG2 GSM 18000 Indoor BTS, with up to 54 GSM/EGPRS carriers radio capacity in three cabinets is a high capacity and a high density platform for GSM networks. Maximum configuration is reached with one main cabinet and two extensions cabinet.

3.2. BTS EQUIPMENT SYSTEM

The NG2 GSM 18000 Indoor BTS, like each BTS, is built around several blocks:

- **The digital shelf.** Its main functions are:
 - Network interface
 - Call processing
 - Frequency up/down conversion

- **The RF block** which contains the front-end RF modules. Its main functions are:
 - Reception
 - Frequency up/down conversion
 - Power amplification
 - Antenna coupling
 - Signal processing

- **The cooling system unit.** Its main functions are:
 - Ingress prevention
 - Module cooling

NG2 GSM 18000 Indoor BTS has E1 or T1 PCM network interface.

The permissive Change Class2 deals with the following introductions:

- **NG2 GSM 18000 Indoor BTS is a direct evolution of GSM18000 Indoor BTS.**

PRECABLED INDOOR 48V DIRECT JUMPER RoHS VERSION (NTN016AS)

- New dust filter
- New EMI DC filter
- Bare cabinet mechanical changes :
 - New top cabinet (Direct Jumper at DDM output)
 - Door Changes to accommodate the new dust filter

Photographs of the equipment are presented here after:



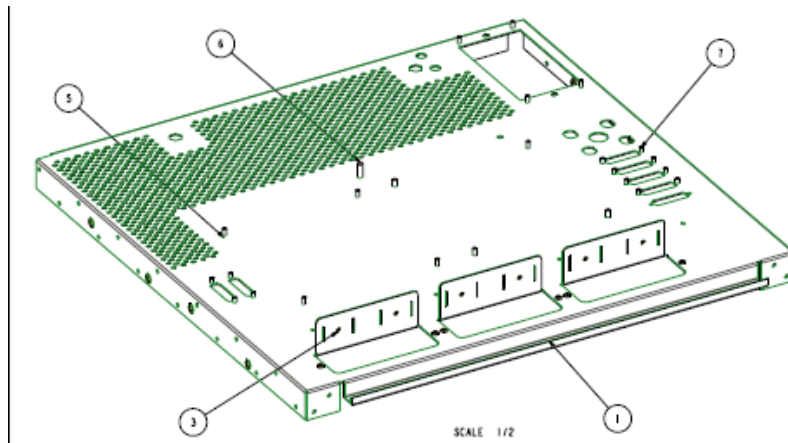
Figure 2: GSM 18000 Indoor NG2 BTS Front side.



Figure 3 NG2 GSM 18000 Indoor BTS front view (door open)

➤ **Bare cabinet mechanical changes (New mechanical assembly)**

- New top cabinet to accommodate direct jumpers



➤ **RICAM 0D2 & ABM2 module :**

The RICAM 0D2 and ABM2 are direct evolutions from RICAM and ABM board.

- RICAM 0D2 introduces new power supply components, obsolete components replacements, new internal link without PCB layer evolution.
- ABM2 introduces new components to prevent components obsolescence, new internal link without PCB layer evolution.

The RICAM 0D2 & ABM2 keep respectively the same codification number as RICAM and ABM.

3.3. PRODUCT BASIC CHARACTERISTICS

In this paragraph, the NG2 GSM 18000 Indoor BTS basic characteristics are described.

3.3.1 POWER SUPPLY CHARACTERISTICS

The NG2 GSM 18000 Indoor BTS is supplied with -48 V DC power supply. It shall operate at full performances across the nominal voltage range [-40.5 V; +57 V].

3.3.2 RADIO CHARACTERISTICS

The NG2 GSM 18000 Indoor BTS provides high density platform with a main cabinet and up to 2 extension cabinets. The NG2 GSM 18000 Indoor BTS is also proposed with various type of TX coupling. So, maximum transmit power level will vary depending on TX coupling and modulation. The NG2 GSM 18000 Indoor BTS basic radio parameters are described in the table below:

Parameter designation	NG2 GSM 18000 Indoor BTS value	
Frequency range	GSM850 & PCS1900	
Max. no. of antenna ports	16 per cabinet	
Max. no. of carriers per port	2	
Max. no. of physical channels per carrier	8 Time-slots	
Maximal nominal output power at PA output (RM2 1900) Maximal nominal output power at the BTS antenna connector (RM2 1800)	GMSK Modulation	8PSK Modulation
	50 Watt	30 Watt
Maximal nominal output power at PA output (RM GSM850)	60 Watt	45Watt
Power control	2 dB steps, dynamic range: 12 dB (Static)+30 dB (dynamic)	
Modulation	GMSK and 8PSK	
Operation mode	duplex, wide band duplex filter, integral (single antenna socket)	
Channel raster / separation	200 kHz	

4. PERMISSIVE CHANGE PERMISSIVE CHANGE CLASS2 FCC TEST

4.1. BTS CONFIGURATION UNDER TESTS

DDM-0 850			DDM-1 850			DDM-2 850	
DDM-3 1900			DDM-4 1900			DDM-5 1900	
			RM-0 850 60/45W	RM-1 850 60/45W	RM-2 850 60/45W	RICAM 2	
			RM2-3 1900 50/30W	RM2-4 1900 50/30W	RM2-5 1900 50/30W	ABM 2	

4.2. FCC RADIO TESTS

None of the modifications are related to the RF circuitry and therefore it is not expected to have any impact on the results reported in the original filing for radio characteristics.

Regulatory: Standard CFR47 part 1, 2, part 22 (RSS132), part 24 (RSS133) Summary of Test/Analysis Performed			
To be tested	Test/Construction Requirements	Standard Clause	Comments
Yes/No			
Yes	Power and antenna height limits	2.1046(a), 2.1033(c) (RSS133(6.2)) 24.232 (a) (c)	Note 1,2
Yes	Occupied bandwidth	2.1049 (-)	Note3
No	Spurious emissions at antenna terminals	2.1051, 2.1057 (RSS133(6.3)) 24.238 (RSS133(6.4))	Note3
No	Band edge spurious	- (-)	Note3
Yes	Frequency stability	2.1055 (RSS133(7.0))24.235	Note 1,2
<p>Note 1: Tested on NG2 BTS 18000 Indoor (full temperature range, steps 10°C Vmin & Vmax)</p> <p>Note 2: Test for RM2 PCS1900 (50W) & RM1 GSM850 (60W)</p> <p>Note3: The evolutions don't concern the radio modules so these tests are not impacted.</p>			

4.3. EMC TESTS

Standard: FCC part 15, FCC part 24, ICES 003 and RSS 133 section 6.4- Summary of tests performed			
To be tested	Test/Construction Requirements	Standard Clause	Comments
Yes/No			
Yes	Conducted limits FCC Part 15 Class B	15.107(a) (5.3)	
Yes	Radiated emission limits FCC Part 15 Class B - up to 20 GHz	15.109(a) (5.5)	
Yes	Radiated emissions FCC Part 22	22.917	
Yes	Radiated emissions FCC Part 24	24.238	
BTS 18000 INDOOR NG2 Dual band RM2 PCS1900 (50W) / GSM850 (60W)			

5. CONCLUSION

The submission will concern the FCC certification and IC certification.

The following radio tests report will be delivered for the Permissive change Class2 files for NG2 GSM 18000 Indoor BTS (FCC ID AB6BTS18INDHP):

- Radio tests report
- EMC tests report

⌘ END OF DOCUMENT ⌘