

**PERFORMANCE SPECIFICATION  
OF THE BASE STATION SYSTEM (BSS)  
AND REPEATER EQUIPMENT FOR USE IN THE  
PUBLIC MOBILE COMMUNICATIONS SERVICE  
EMPLOYING GLOBAL SYSTEM FOR MOBILE  
COMMUNICATIONS (GSM) OR IN THE  
PERSONAL COMMUNICATIONS SERVICE (PCS)**



**TELECOMMUNICATIONS AUTHORITY  
HONG KONG**

## **FOREWORD**

1. This specification is prescribed under section 32D of the Telecommunications Ordinance (Cap 106) (“the Ordinance”) to set out the minimum performance requirements for the Base Station System (BSS) and repeater equipment for use in the public mobile communications service employing Global System for Mobile communications (GSM) or for use in the Personal Communications Service (PCS). It is a condition of the licence for the GSM and PCS services that radio apparatus falling into the scope of this specification shall meet the stipulated requirements.
2. Under the Ordinance, the possession or use of any radiocommunications apparatus or any apparatus emitting radio frequency energy must be covered by an appropriate licence issued by the Telecommunications Authority (TA) with the exception of those specifically exempted from licensing under the Ordinance, such as those covered by the Telecommunications (Telecommunications Apparatus) (Exemption from Licensing) Order.
3. At present, the Office of the Telecommunications Authority (OFTA) operates a **Hong Kong Telecommunications Equipment Evaluation and Certification (HKTEC) Scheme**. Details of the HKTEC Scheme can be found in the information note OFTA I 421. Under the Scheme, suppliers or manufacturers of the radiocommunications apparatus shall apply for certification of their apparatus against this specification. The application procedures for certification of radiocommunications apparatus can be found in the information note OFTA I 401.
4. The TA may amend any part of this specification as and when he deems necessary.
5. In case of doubt about the interpretation of this specification, the methods of carrying out the test and the validity of statements made by the manufacturers of the equipment, the decision of the TA shall be final.
6. The HKTA specifications and information notes issued by the TA can be downloaded from OFTA’s website at <http://www.ofta.gov.hk>. Enquiries about this specification may be directed to -

Senior Telecommunications Engineer  
Standards Section  
Office of the Telecommunications Authority  
29/F Wu Chung House,  
213 Queen’s Road East,  
Wanchai,  
Hong Kong.

Fax : +852 2838 5004  
Email: standards@ofta.gov.hk

## AMENDMENT TABLE

Item	Issue No.	Paragraph	Descriptions
1.	Issue 03 July 1998	Whole document	<p>The scope of the specification is extended to cover the base station system equipment for use in the PCS.</p> <p>The specification is revised to set out the technical requirements for GSM Phase 1, Phase 2 and Phase 2+ equipment.</p>
2.	Issue 04 February 2003	Foreword	Editorial changes are incorporated to align with other HKTA specifications.
3.	Issue 05 January 2006	Paragraphs 3.1 and 3.2	The frequency range of base stations is expanded to the Extended GSM (EGSM) band.
4.	Issue 06 April 2007	Whole document	<p>The scope of the specification is extended to cover repeater equipment.</p> <p>The ETSI specifications under reference are updated.</p>
5.	Issue 07 November 2011	Foreword	Update information on certification and labelling as a result of the accreditation of Certification Bodies (CBs).
6.	Issue 07 November 2011	Paragraph 2	The original paragraph 2 on “Definition”, which defines the old GSM standards, is deleted.
7.	Issue 07 November 2011	Paragraph 3	The original paragraph 3 on “General”, which covers requirements on operating frequencies, channel numbering, frequency hopping and RF power control, is deleted. A new paragraph 2 specifying the operating frequencies as given in the original paragraph 3.1 is added.
8.	Issue 07 November 2011	Paragraph 4	The original paragraph 4 on “Test conditions” is deleted. The requirements are covered in the new paragraph 4 on “Evaluation Requirements” which refers to the relevant ETSI standards for the test conditions and test procedures.

Item	Issue No.	Paragraph	Descriptions
9.	Issue 07 November 2011	Paragraph 5	<p>The original paragraph 5 on “Technical Requirements” is re-numbered as the new paragraph 3. The list of ETSI standards under reference is updated with the outdated ones removed. The technical parameters to be measured remain unchanged.</p> <p>A new paragraph 5 listing out the standards under reference in this specification is added.</p>

## **CONTENT**

1. SCOPE OF SPECIFICATION
2. OPERATING FREQUENCIES
3. TECHNICAL REQUIREMENTS
4. EVALUATION REQUIREMENTS
5. REFERENCE

## 1. SCOPE OF SPECIFICATION

This specification covers the minimum performance requirements for the Base Station System (BSS) and repeater equipment (“the equipment”) for use in the public mobile communications service employing Global System for Mobile communications (GSM) operating in the 900 MHz band or in the Personal Communications Service (PCS) operating in the 1800 MHz band.

## 2. OPERATING FREQUENCIES

The frequency bands for the equipment are as follows -

	Downlink (Base Station Transmit)	Uplink (Base Station Receive)
GSM Band	935 - 960 MHz	890 - 915 MHz
EGSM <sup>1</sup> Band	925 - 960 MHz	880 - 915 MHz
PCS Band	1805 - 1880 MHz	1710 - 1785 MHz

## 3. TECHNICAL REQUIREMENTS

The equipment shall meet the technical requirements as specified in the applicable standards published by the European Telecommunications Standards Institute (ETSI) as specified in clause 3.1 in respect of the technical parameters as specified in clause 3.2.

### 3.1 STANDARDS PUBLISHED BY ETSI

For base station or repeater equipment

- (a) EN 301 502 V8.1.2 “Harmonized EN for Global System for Mobile communications (GSM); Base Station and Repeater equipment covering essential requirements under article 3.2 of the R&TTE directive”

OR

For base station equipment

- (b) EN 301 502 V9.2.1 “Global System for Mobile communications (GSM); Harmonized EN for Base Station Equipment covering the essential requirements of article 3.2 of the R&TTE Directive”, or later versions

---

<sup>1</sup> EGSM band stands for Extended GSM band, which includes standard GSM band plus downward extended spectrum of 880 – 890 MHz paired with 925 – 935 MHz.

#### For repeater equipment

- (c) EN 300 609-4 V9.2.1 “Global System for Mobile communications (GSM); Part 4: Harmonized EN for GSM Repeaters covering the essential requirements of article 3.2 of the R&TTE Directive”, or later versions

### 3.2 TECHNICAL PARAMETERS

#### Base station equipment

- (a) Modulation accuracy
- (b) Mean transmitted RF carrier power
- (c) Transmitted RF carrier power versus time
- (d) Adjacent channel power
- (e) Spurious emissions from the transmitter antenna connector
- (f) Intermodulation attenuation
- (g) Spurious emissions from the receiver antenna connector
- (h) Radiated spurious emissions

#### Repeater equipment

- (a) Spurious emissions (including conducted spurious emissions at the antenna ports and effective power of spurious emissions radiated by the cabinet and structure)
- (b) Intermodulation attenuation
- (c) Out of band gain

### 4. EVALUATION REQUIREMENTS

The equipment shall comply with the operating frequencies and technical requirements in clauses 2 and 3 respectively. Compliance of the equipment with the technical requirements shall be evaluated in accordance with the procedures specified in the respective standards published by ETSI as given in clause 3.1.

### 5. REFERENCE

- (a) EN 301 502 V8.1.2 “Harmonized EN for Global System for Mobile communications (GSM); Base Station and Repeater equipment covering essential requirements under article 3.2 of the R&TTE directive” published by ETSI
- (b) EN 301 502 V9.2.1 “Global System for Mobile communications (GSM); Harmonized EN for Base Station Equipment covering the essential requirements of article 3.2 of the R&TTE Directive”, or later versions, published by ETSI

- (c) EN 300 609-4 V9.2.1 “Global System for Mobile communications (GSM); Part 4: Harmonized EN for GSM Repeaters covering the essential requirements of article 3.2 of the R&TTE Directive”, or later versions, published by ETSI

**- END -**