

**SKMM WTS GSM-MT
Rev. 1.01:2007**

**TECHNICAL SPECIFICATION
FOR
GSM MOBILE TERMINALS**



Suruhanjaya Komunikasi dan Multimedia Malaysia
Off Pesiaran Multimedia, 63000 Cyberjaya, Selangor Darul Ehsan, Malaysia

© Copyright of SKMM, 2007

FOREWORD

This Technical Specification was developed under the authority of the Malaysian Communications and Multimedia Commission (SKMM) under the Communications and Multimedia Act 1998 (CMA 98) and the relevant provisions on technical regulation of Part VII of the CMA 98. It is based on recognised International Standards documents.

This Technical Specification specifies the specification to conform for approval of telecommunications devices.

NOTICE

This Specification is subject to review and revision

CONTENTS

	Page
Foreword.....	i
1 Scope.....	1
2 Normative references	1
3 Requirements	1
3.1 General requirements	1
3.2 Technical requirements	3
Table 1 Operating frequencies band.....	3
Annex A Normative references.....	5

TECHNICAL SPECIFICATION FOR GSM MOBILE TERMINALS

1. Scope

This Technical Specification defines the minimum technical requirements for Mobile Terminals to be used in the Public Mobile Radio Communication System and services, which employ the Global System for Mobile Communications (GSM) technology. Mobile Terminals may include handheld, portable and vehicle-mounted equipment, and RF interface cards and modems.

2. Normative references

The following normative references are indispensable for the application of this Technical Specification. For dated references, only the edition cited applies. For undated references, the latest edition of the normative references (including any amendments) applies.

See Annex A.

3. Requirements

3.1 General requirements

3.1.1 Power supply requirements

AC adaptor for GSM Mobile Terminal shall not affect the capability of the equipment to meet this specification. The operating voltage shall be 240 V +5 %, -10 % and frequency 50 Hz \pm 1 % as according to MS 406 or 230 V \pm 10 % and frequency 50 Hz \pm 1 % as according to MS IEC 60038 whichever is current.

Adaptor must be pre-approved by the relevant regulatory body before it can be used with the equipment.

3.1.2 Power supply cord and mains plug requirements

The equipment shall be fitted with a suitable and appropriate approved power supply cord and mains plug. Both are regulated products and must be pre-approved by the relevant regulatory body before it can be used with the equipment.

The power supply cord shall be certified according to:

- MS 140; or
- BS 6500; or
- IEC 60227-5; or
- IEC 60245-4.

SKMM WTS GSM-MT
Rev. 1.01:2007

The main plug shall be certified according to:

- 13 A fused plugs: MS 589: Part 1 or BS 1363: Part 1; or
- 2.5 A, 250 V, flat non-rewirable two-pole plugs: MS 1578 or BS EN 50075.

3.1.3 Keypad requirements

Any keypad used in the Mobile Terminal shall be alphanumeric and the relationship between the letters and digits shall comply with the ITU-T Recommendation E.161 (02/2001), section 2.2, 3.1.1 and 3.6.

3.1.4 Interoperability and connectivity requirements

The GSM Mobile terminal shall comply with the minimum requirement that is specified by the regulatory body.

3.1.4.1 Interoperability

The GSM Mobile terminals shall have the ability to exchange information and to use the information that has been exchanged between two or more systems or components.

3.1.4.2 Connectivity

The GSM Mobile terminals shall have the ability to link with other programs and devices to allow interoperability.

3.1.5 Marking requirements

The equipment shall be marked with the following information:

- a) supplier/manufacturer's name or identification mark;
- b) supplier/manufacturer's model or type reference; and
- c) other markings as required by the relevant standards.

The markings shall be legible, indelible and readily visible.

3.1.6 Language

All markings and related documents shall be in Bahasa Melayu or English language.

3.2 Technical requirements

The equipment shall comply with the following requirements:

- a) Radio Frequency (RF).
- b) Electromagnetic Compatibility (EMC).
- c) Electrical safety and health.

3.2.1 Radio Frequency requirements

3.2.1.1 GSM Mobile Terminal shall operate within the following frequency bands and channel spacing as defined in Table 1.

Table 1. Operating frequencies band

Type	Transmitter (MHz)	Receiver (MHz)	Channel spacing (kHz)
E-GSM 900	880 – 915	925 – 960	200
GSM 1800	1 710 – 1 785	1 805 – 1 880	200

3.2.1.2 Conformity requirements

- a) GSM Mobile Terminals shall comply with one of the following standards.
 - i) ETSI ETS 300 607-1
 - ii) ETSI TS 100 607-1
 - iii) ETSI EN 300 607-1
 - iv) ETSI TS 151 010-1

Conformity requirements for supplementary services established in 3.2.1.2 a) i) – iv) are applicable only when the equipment supports the relevant supplementary services.

- b) Suppliers shall demonstrate that the GSM Mobile Terminals have been tested and certified for operating in the frequency bands stated in 3.2.1.1 and conforms to ETSI TS 301 511.
- c) If the GSM Mobile Terminal also supports wireless local area network (WLAN) operation, suppliers shall demonstrate that the Mobile Terminal has been tested and certified for conformance to ETSI EN 300 328-02.

SKMM WTS GSM-MT
Rev. 1.01:2007

3.2.2 Electromagnetic Compatibility (EMC) requirements

Supplier shall demonstrate that the GSM Mobile Terminals have been tested and certified according to EMC requirements to ensure an adequate level of compatibility for GSM Mobile Terminals intended to be used Malaysia.

The equipment shall comply with the EMC emissions requirements as defined in the ETSI EN 301 489-1 and ETSI EN 301 489-7. The requirements shall cover radiated and conducted emission.

3.2.3 Safety and health requirements

3.2.3.1 Electrical safety and health

The equipment shall comply with the safety requirements defined in MS IEC 60950-1. The supplier shall submit full type test report to MS IEC 60950-1 or equivalent standards.

3.2.3.2 Specific Absorption Rate (SAR)

Suppliers shall demonstrate that the GSM Mobile Terminal has been tested and certified for conformance to the following International Commission on Non-Ionizing Radiation Protection (ICNIRP) recommendations.

- a) EN 50360:2001
- b) EN 62209-1:2006

**Annex A
(normative)**

Normative references

BS 1363: Part 1	13 A plugs, socket-outlets, adaptors and connection units - Part 1: Specification for rewirable and non-rewirable 13 A fused plugs
BS 6500	Electric cables Flexible cords rated up to 300/500 V, for use with appliances and equipment intended for domestic, office and similar environments
BS EN 50075	Specification for flat non-wirable two-pole plugs 2.5 A 250 V, with cord, for the connection of class II-equipment for household and similar purposes
EN 50360:2001	Product standard to demonstrate the compliance of mobile phones with the basic restrictions related to human exposure to electromagnetic fields (300 MHz - 3 GHz)
EN 62209-1:2006	Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures – Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)
ETSI EN 300 328-02	Electromagnetic compatibility and Radio Spectrum Matters (ERM); Wideband Transmission systems; Data transmission equipment operating in the 2.4 GHz ISM band and using spread spectrum modulation techniques; Part 2: Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive
ETSI EN 300 607-1	Digital Cellular Telecommunications System (Phase 2+) (GSM); Mobile Station (MS) Conformance Specification; Part 1: Conformance Specification (GSM 11.10-1)
ETSI EN 301 489-1	Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements

**SKMM WTS GSM-MT
Rev. 1.01:2007**

ETSI EN 301 489-7	Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 7: Specific conditions for mobile and portable radio and ancillary equipment of digital cellular radio telecommunications systems (GSM and DCS)
ETSI ETS 300 607-1	European Digital Cellular Telecommunications System (Phase 2) (GSM); Mobile Station (MS) Conformance Specification; Part 1: Conformance Specification (GSM 11.10-1)
ETSI TS 301 511	Global System for Mobile Communications (GSM); Harmonised Standard for Mobile Stations in the GSM900 and DCS1800 Bands covering Essential Requirements under Article 3.2 of the R&TTE Directive (1999/5/EC) (GSM 13.11)
ETSI TS 100 607-1	European Digital Cellular Telecommunications System (Phase 2+) (GSM); Mobile Station Conformance Specification; Part 1: Conformance Specification (GSM 11.10-1/3GPP TS 11.10-1)
ETSI TS 151 010-1	European Digital Cellular Telecommunications System (Phase 2+); Mobile Station (MS) Conformance Specification; Part 1: Conformance Specification (3GPP TS 51.010-1)
ETSI TS 301 511	Global System for Mobile Communications (GSM); Harmonised Standard for Mobile Stations in the GSM900 and DCS1800 Bands covering Essential Requirements under Article 3.2 of the R&TTE Directive (1999/5/EC) (GSM 13.11)
IEC 60227-5	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 5: Flexible cables (cords)
IEC 60245-4	Rubber insulated cables - Rated voltages up to and including 450/750 V - Part 4: Cords and flexible cables
ITU-T Recommendation E.161	Arrangement of digits, letters and symbols on telephones and other devices that can be used for gaining access to a telephone network
MS 140	Specification for insulated flexible cords and cables
MS 406	Specification for voltages and frequency for alternating current transmission and distribution systems

SKMM WTS GSM-MT
Rev. 1.01:2007

MS 589: Part 1	Specification for 13 A plugs, socket outlets, adaptors and connection units part 1: Specification for rewirable and non-rewirable 13 A fused plugs
MS 1578	Specification for flat non-rewirable two-pole plugs, 2.5 A, 250 V, with cord, for the connection of class II-Equipment for household and similar purposes
MS IEC 60038	IEC standard voltages
MS IEC 60950-1	Information technology equipment - Safety - Part 1: General requirements