

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

**TECHNICAL SPECIFICATION
FOR
IMT-2000 THIRD-GENERATION (3G) CELLULAR MOBILE
TERMINALS**



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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 requirements to conform for approval of telecommunications devices.

NOTICE

This Specification is subject to review and revision

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TECHNICAL SPECIFICATION FOR IMT-2000 THIRD-GENERATION (3G) CELLULAR MOBILE TERMINALS

1. Scope

This Technical Specification defines the minimum technical requirements for Mobile Terminals to be used in the Third Generation (3G) Mobile Communication Systems and services, which employ the WCDMA FDD and WCDMA TDD technology. 3G Cellular Mobile Terminals may include handheld, portable and vehicle-mounted equipment, and RF interface cards and modems.

2. Normative reference

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. Abbreviations

For the purpose of this Technical Specification, the following abbreviation applies.

| | |
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| FDD | Frequency Division Duplex |
| TDA | Time Division Duplex |
| WCDMA | Wideband Code Division Multiple Access |

4. Requirements

4.1 General requirements

4.1.1 Power supply requirements

AC adaptor for 3G Cellular 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.

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4.1.2 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.

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.

4.1.3 Keypad requirements

Any keypad used in the 3G Cellular 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.

4.1.4 Interoperability and connectivity requirements

The 3G Cellular Mobile Terminal shall comply with the minimum requirement that is specified by the regulatory body.

4.1.4.1 Interoperability

The 3G Cellular Mobile terminal shall have the ability to exchange information and to use the information that has been exchanged between two or more systems or components.

4.1.4.2 Connectivity

The 3G Cellular Mobile terminal shall have the ability to link with other programs and devices to allow interoperability.

4.1.5 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.

4.1.6 Language

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

4.2 Technical requirements

The equipment shall comply with the following requirements:

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

4.2.1 Radio Frequency requirements

4.2.1.1 3G Cellular Mobile Terminal shall operate within the following frequency bands and channel spacing as defined in Table 1.

Table 1. Frequency bands plan

| Sub-band | Frequency range (MHz) | Application | Channel spacing (MHz) |
|-----------------|------------------------------|--|------------------------------|
| A | 1 885 – 1 920 | 1 885 MHz to 1 900 MHz – Reserved for private use. Currently used for Wireless PABX (DECT systems). 1 900 MHz to 1 920 MHz – Reserved for Fixed Wireless Access with limited mobility using TDD technology. | 5 |
| B | 1 920 – 1 980 | Reserved as FDD band for mobile application using IMT-2000 standard. | 5 |

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Table 1. Frequency bands plan (continued)

| Sub-band | Frequency range (MHz) | Application | Channel spacing (MHz) |
|-----------------|------------------------------|--|------------------------------|
| C | 1 980 – 2 010 | Reserved for IMT-2000 Mobile Satellite services. | 5 |
| D | 2 010 – 2 025 | Reserved as a TDD band for indoor application using IMT-2000 standard. | 5 |
| E | 2 110 – 2 170 | Reserved as a FDD band for mobile application using IMT-2000 standard. | 5 |
| F | 2 170 – 2 200 | Reserved for IMT-2000 Mobile Satellite Service. | 5 |

NOTE. Comprehensive information pertaining to frequency bands plan may be referred to MCMC SRSP-524M.

4.2.1.2 The precise operating frequency range of a 3G Cellular Mobile Terminal shall follow that of the Network Operator from whom the service is obtained.

4.2.1.3 Conformity requirements

- a) Supplier shall demonstrate that the 3G Cellular Mobile Terminals have been tested and certified for operating in the frequency bands stated in 3.2.1.1 and conforms to the following standards.
 - i) ETSI EN 301 908-01
 - ii) ETSI EN 301 908-02
 - iii) ETSI EN 301 908-6
 - iv) ETSI TS 134 121
 - v) ETSI TS 134 122
 - iv) MCMC SRSP-524M

- b) If the 3G Cellular Mobile Terminal also supports the Global System for Mobile Communications (GSM) and wireless local area network (WLAN) modes of operation, suppliers shall demonstrate that the 3G Cellular Mobile Terminal has been tested and certified for conformance to the following standards.
 - i) ETSI EN 301 511
 - ii) ETSI EN 301 419-2
 - iii) ETSI EN 300 328-02

4.2.2 Electromagnetic Compatibility (EMC) requirements

Supplier shall demonstrate that the 3G Cellular Mobile Terminal have been tested and certified according to EMC requirements to ensure an adequate level of compatibility for 3G Cellular Mobile Terminal intended to be used Malaysia.

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

4.2.3 Safety and health requirements

4.2.3.1 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.

4.2.3.2 Specific Absorption Rate (SAR)

Suppliers shall demonstrate that the 3G Cellular 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

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|--------------------|--|
| 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 301 419-2 | Digital cellular telecommunications system (phase 2+); Attachment requirements for Global System for Mobile Communications (GSM); High Speed Circuit Switched Data (HSCSD) Multislot Mobile Stations; Access (GSM 13.34) |
| 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 |

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| ETSI EN 301 511 | Global system for Mobile Communications (GSM); Harmonised Standard for Mobile Stations in the GSM 900 and DCS 1800 Bands covering Essential Requirements under article 3.2 of the R&TTE Directive (1999/5/EC) (GSM 13.11) |
| ETSI EN 301 908-01 | Electromagnetic compatibility and Radio spectrum Matter (ERM); Base Stations (BS) and User Equipment (UE) for IMT-2000 Third-Generation cellular networks; Part 1: Harmonized EN for IMT-2000 Introduction and common requirements, covering essential requirements of article 3.2 of the R&TTE Directive |
| ETSI EN 301 908-02 | Electromagnetic compatibility and Radio spectrum Matter (ERM); Base Stations (BS) and User Equipment (UE) for IMT-2000 Third-Generation cellular networks; Part 2: Harmonized EN for IMT-2000, CDMA Direct Spread (UTRA FDD) (UE) covering essential requirements of article 3.2 of the R&TTE Directive |
| ETSI EN 301 908-6 | Electromagnetic compatibility and Radio spectrum Matter (ERM); Base Stations (BS), Repeaters and User Equipment (UE) for IMT-2000 Third-Generation cellular networks; Part 6: Harmonized EN for IMT-2000 CDMA TDD (UTRA TDD) (UE), covering essential requirements of article 3.2 of the R&TTE Directive |
| ETSI TS 134 121 | Universal Mobile Telecommunications System (UMTS); User Equipment (UE) conformance specification; Radio transmission and reception (FDD) |
| ETSI TS 134 122 | Universal Mobile Telecommunications System (UMTS); Terminal conformance specification, Radio transmission and reception (TDD) |
| 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 |
| MCMC SRSP-524M | Requirements for International Mobile Telecommunications-2000 (IMT-2000) Services Operating in the Frequency Bands 1885 MHz to 2025 MHz and 2110 MHz to 2200 MHz |

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| MS 140 | Specification for insulated flexible cords and cables |
| MS 406 | Specification for voltages and frequency for alternating current transmission and distribution systems |
| 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 |