



Telecommunications
Standards Advisory
Committee (TSAC)

Technical Specification

Global Mobile Personal
Communication
Satellite (GMPCS)
Terminals

**IMDA TS GMPCS
Issue 1, 1 October 2016**

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1. Scope

- 1.1. This Specification defines the conformity assessment requirements for handheld or transportable Global Mobile Personal Communication Satellite (GMPCS) terminal equipment seeking equipment registration with IMDA for sale.
- 1.2. GMPCS terminal equipment is intended for operating in the 1 – 3 GHz band and with any satellite system (fixed or mobile, broadband or narrow band, global or regional, geostationary or non-geostationary) to provide telecommunication services directly to end users from a constellation of satellites.

2. References

For the technical requirements captured in this Specification, reference has been made to the following documents:

ITU-R M.1343-1	Essential technical requirements of mobile earth stations for global non-geostationary mobile-satellite service systems in the bands 1-3 GHz
IMDA TS CMT	Technical Specification for Cellular Mobile Terminal
ETSI EN 301 489-1	Electromagnetic Compatibility (EMC) standard for radio equipment and services; Harmonised Standard covering the essential requirements of article 3.1(b) of the Directive 2014/53/EU and the essential requirements of article 6 of the Directive 2014/30/EU; Part 1: Common technical requirements
IEC CISPR 32	Electromagnetic compatibility of multimedia equipment – Emission requirements Note: Validity of the IEC CISPR 22 (2008), EMC standard for information technology equipment, will lapse by 31 March 2017, in sync with IEC's timeline for withdrawing this CISPR standard and replacing it with the CISPR 32 standard
IEC CISPR 24	Information technology equipment – Immunity characteristics – Limits and methods of measurement
ITU-T K.116	EMC requirements and test methods for radio telecommunication terminal equipment

3. General Requirements

3.1. Only GMPCS terminal equipment bearing the GMPCS – MoU Mark will be accepted by IMDA for equipment registration. The applicant must ensure that:

- (a) The GMPCS System Operator has notified the ITU that it has authorised the GMPCS terminal equipment for connection to its GMPCS System;
- (b) The GMPCS terminal equipment manufacturer has been authorised by ITU to affix the GMPCS – MoU mark; and
- (c) At least one Administration or Competent Authority has type approved the GMPCS terminal equipment and has notified ITU.

3.2. The GMPCS terminal equipment shall be marked with the manufacturer's name or identification mark, manufacturer's model or type reference, country of manufacture, serial number and the GMPCS – MoU mark approved by ITU. The markings shall be legible, indelible and readily visible.

3.3. Safety and Health

3.3.1. Where appropriate, GMPCS terminal equipment shall comply with the International Commission on Non-Ionising Radiation Protection (ICNIRP) guidelines for limiting exposure to time-varying EMFs in the frequency range up to 300 GHz.

3.3.2. It should be noted that compliance with any radiation safety standard does not by itself confer immunity from legal obligations and requirements imposed by national health or safety authorities.

3.4. Electromagnetic Compatibility (EMC) Requirements

For EMC assessment, the GMPCS terminal and/or ancillary equipment shall be classified as equipment for fixed or portable/mobile use (i.e. powered by its integral battery). This equipment classification is used to determine the applicability of the EMC (emission and immunity) testing requirements based on §5.5 and §7 of ETSI EN 301 489-1; or §7.5 and §9 of ITU-T K.116.

3.4.1. EMI or emission measurements

- (a) Radiated emissions from associated ancillary equipment not incorporated in the GMPCS terminal equipment shall be measured to Class B requirements defined in §4 and Tables A.4 and A.5 of CISPR 32.
- (b) Conducted emission at the AC mains port shall be measured for GMPCS terminal equipment with dedicated charger or adapter to Class B requirements defined in §4 and Table A.10 of CISPR 32. Equipment with DC power port which is powered by a dedicated AC/DC power converter, adapter/charger is defined as AC mains powered equipment (§3.1.1 of CISPR 32).

3.4.2. EMS or immunity testing

The following immunity tests may be performed on the GMPCS terminal equipment to requirements defined in CISPR 24, §11 of ITU-T K.116 or §9 of EN 301 489-1, where applicable:

- (a) RF electromagnetic field (80 MHz to 1 GHz and 1.4 GHz to 6 GHz) at the enclosure of the equipment
- (b) Electrostatic discharge at the enclosure of the equipment

- (c) Fast transients (common mode) at DC power and AC main power ports that have cables longer than 3 m
- (d) RF common mode 0.15 MHz to 80 MHz at DC power and AC mains power ports that have cables longer than 3 m
- (e) Voltage dips and interruptions at AC mains power port of mobile or portable terminal with dedicated charger/power adapter
- (f) Surges, common and differential mode at AC mains power port of mobile or portable terminal with dedicated charger/power adapter

4. Technical Requirements

4.1. Operating Mode

The GMPCS terminal may be single-mode, dual or multi-mode. It shall comply with the requirements given in clause 4.1.1 or 4.1.2 where applicable.

4.1.1. Single-Mode GMPCS terminal equipment operating with Satellite

Applicants shall demonstrate that the GMPCS terminal equipment has been tested and certified to comply with international or national standards for GMPCS (e.g. ITU-R M.1343-1).

4.1.2. Dual or Multi-Mode GMPCS terminal equipment operating with Satellite and Terrestrial Cellular Radio Systems

In addition to the requirements in clause 4.1.1, applicants shall demonstrate that the GMPCS terminal equipment has been tested and certified to comply with the IMDA TS CMT.

Annex

Corrigendum / Addendum

Revised TS		Items Changed	Date of Issue
Page	Section		
Changes to IDA TS GMPCS Issue 1 Rev 4, Aug 2011			
3	§3.4	<p>The IMDA TS GMPCS Issue 1 (October 2016) has replaced the IDA TS GMPCS Issue 1 Rev 1 (August 2011).</p> <p>Changes are largely editorial to provide updates and clarity in the application of EMC requirements, in line with standards development that has taken place in the Standards Development Organisation concerned.</p>	1 Oct 16

Page	TS Ref.	Items Changed	Effective Date
Changes to IDA TS GMPCS Issue 1 Rev 3			
3,4	2.1.2, 3	Editorial changes – References to IDA TS GSM-MT and IDA TS 3G-MT were changed to IDA TS CMT	11 Aug 11
Changes to IDA TS GMPCS Issue 1 Rev 2			
		Change of IDA's address at cover page to Mapletree Business City.	1 May 11
Changes to IDA TS GMPCS Issue 1 Rev 1			
—	—	<p>Title of Specification has been renamed as "Technical Specification for Global Mobile Personal Communication Satellite (GMPCS) Terminals" [IDA TS GMPCS Issue 1 Rev 2].</p> <p>Changes are mainly editorial in nature. The essential technical requirements for conformity assessment remain unchanged.</p>	21 Jul 05