

MCMC MTSFB TC T021:2023

TECHNICAL CODE

MARITIME RADIOCOMMUNICATIONS EQUIPMENT - SPECIFICATIONS

Developed by



Registered by



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Development of technical codes

The Communications and Multimedia Act 1998 (Laws of Malaysia Act 588) ('the Act') provides for a Technical Standards Forum designated under section 184 of the Act or the Malaysian Communications and Multimedia Commission ('the Commission') to prepare a technical code. The technical code prepared pursuant to section 185 of the Act shall consist of, at least, the requirements for network interoperability and the promotion of safety of network facilities.

Section 96 of the Act also provides for the Commission to determine a technical code in accordance with section 55 of the Act if the technical code is not developed under an applicable provision of the Act and it is unlikely to be developed by the Technical Standards Forum within a reasonable time.

In exercise of the power conferred by section 184 of the Act, the Commission has designated the Malaysian Technical Standards Forum Bhd ('MTSFB') as a Technical Standards Forum which is obligated, among others, to prepare the technical code under section 185 of the Act.

A technical code prepared in accordance with section 185 shall not be effective until it is registered by the Commission pursuant to section 95 of the Act.

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Committee representation

This technical code was developed by Fixed and Wireless Terminal Working Group of the Malaysian Technical Standards Forum Bhd (MTSFB), which consists of representatives from the following organisations:

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Foreword

This technical code for the Maritime Radiocommunications Equipment - Specifications ('this Technical Code') was developed pursuant to Section 185 of the Communications and Multimedia Act 1998 (Laws of Malaysia Act 588) by the Fixed and Wireless Terminal Working Group of the Malaysian Technical Standards Forum Bhd (MTSFB).

This Technical Code was developed for the purpose of certifying communications equipment under the Communications and Multimedia (Technical Standards) Regulations 2000.

This Technical Code shall continue to be valid and effective from the date of its registration until it is replaced or revoked.

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MARITIME RADIOCOMMUNICATIONS EQUIPMENT - SPECIFICATIONS

1. Scope

This Technical Code specifies the minimum requirements for Maritime Radio Equipment ("the Equipment") designed for used in coastal stations and ship stations in Malaysia.

2. Normative references

The following normative references are indispensable for the application of this Technical Code. 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 purposes of this Technical Code, the following abbreviations apply.

AC	Alternating Current
DC	Direct Current
EMC	Electromagnetic Compatibility
EPIRB	Emergency Position Indicating Radio Beacon
GMDSS	Global Maritime Distress and Safety System
ICNIRP	International Commission on Non-Ionizing Radiation Protection
PLB	Personal Locator Beacon
PVC	Polyvinyl Chloride
RF	Radio Frequency
SAR	Specific Absorption Rate

4. Requirements

4.1 General requirements

The Equipment shall not cause interference with other authorised radiocommunications services and be able to tolerate any interference caused by other radiocommunications services, electrical or electronic equipment.

4.1.1 Power supply

The Equipment may be powered by Alternating Current (AC) or Direct Current (DC).

For AC powered equipment, the operating voltage shall be 240 V + 5 %, - 10 % and frequency 50 Hz ± 1 % in accordance with MS 406 or 230 V ± 10 % and frequency 50 Hz ± 1 % in accordance with MS IEC 60038, IEC 60945 whichever is current.

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Where external power supply is used, e.g. AC adaptor, it shall not affect the capability of the Equipment to meet this Technical Code. The adaptor shall be pre-approved by the relevant regulatory body before being used with the equipment.

4.1.2 Power supply cord and mains plug

The Equipment for coastal stations shall be fitted with a suitable and certified power supply cord and mains plug. The power supply cord and mains plug are regulated products and shall be pre-approved by the relevant regulatory body, with the following requirements, before they can be used with the Equipment.

- a) The power supply cord shall be certified according to:
 - i) MS 2112-5 or BS EN 50525-2-11 or IEC 60227-5 (for Polyvinyl Chloride (PVC) insulated - flexible cables or cords); or
 - ii) MS 2127-4 or IEC 60245-1 and IEC 60245-4 (for rubber insulated - flexible cables or cords).
- b) The mains plug shall be certified according to:
 - i) MS 589-1 or BS 1363 (for 13 A, fused plug);
 - ii) MS 1577 (for 15 A, fused plugs); or
 - iii) MS 1578 or BS EN 50075 (for 2.5 A, 250 V, flat non-rewireable two-pole plugs with cord for the connection of class II equipment).

4.1.3 Marking

The Equipment shall be marked with the following information:

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

The markings shall be legible, indelible and readily visible. All information on the marking shall be either in Bahasa Malaysia or English language.

4.2 Technical requirements

The Equipment shall comply with the following requirements:

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

4.2.1 Radio Frequency (RF)

The Equipment shall operate within the specified frequency bands and transmitter output power. It shall conform to the test references as specified in Table B.1 of Annex B and fulfil the relevant requirements of this Technical Code on all the permitted frequencies which it is intended to operate.

4.2.2 Electromagnetic Compatibility (EMC)

The Equipment shall comply with the conducted emission and radiated emission requirements as defined in the following standards:

- a) ETSI EN 301 843;
- b) IEC 60945; or
- c) any equivalent standards.

4.2.3 Safety and health

4.2.3.1 Electrical safety and health

The Equipment shall comply with the safety requirements defined in IEC 60945, or any equivalent standards.

4.2.3.2 Specific Absorption Rate (SAR)

The Equipment that is intended to be used at a position near the human body, in the manner described by the manufacturer, with the radiating part(s) of the device at distances up to and including 200 mm from a human body, e.g. body-mounted, body-supported, front-of-face, hand-held, limb-mounted, push-to-talk and clothing-integrated, shall comply with the International Commission on Non-Ionizing Radiation Protection (ICNIRP) and one or more of the following standards:

- a) BS EN 50360;
- b) IEC 62209-1; and/or
- c) IEC 62209-2.

Annex A
(normative)

Normative references

MS 406, *Specification for voltages and frequency for alternating current transmission and distribution systems*

MS 589-1, *13 A plugs, socket-outlets, adaptors and connection units - Part 1: Specification for rewirable and non-rewirable 13 A fused plugs*

MS 1577, *Specification for 15 A plugs and socket-outlets for domestic and similar purposes*

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 2112-5, *Electric cable and wire - Polyvinyl Chloride (PVC) insulated cables of rated voltages up to and including 450/750 V - Part 5: Flexible cables*

MS 2127-4, *Rubber insulated cables of rated voltages up to and including 450/750 V - Part 4: Cords and flexible cables*

MS IEC 60038, *IEC standard voltages*

IEC 60227-5, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 5: Flexible cables (cords)*

IEC 60245-1, *Rubber insulated cables - Rated voltages up to and including 450/750 V - Part 1: General requirements*

IEC 60245-4, *Rubber insulated cables - Rated voltages up to and including 450/750 V - Part 4: Cords and flexible cables*

IEC 60945, *Maritime navigation and radiocommunication equipment and systems - General requirements - Methods of testing and required test results*

IEC 62209-1, *Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Part 1: Devices used next to the ear (Frequency range of 300 MHz to 6 GHz)*

IEC 62209-2, *Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)*

ETSI EN 300 066, *Radio Equipment and Systems (RES); Float-free maritime satellite Emergency Position Indicating Radio Beacons (EPIRBs) operating on 406,025 MHz; Technical characteristics and methods of measurement*

ETSI EN 300 152-1, *ElectroMagnetic Compatibility and Radio Spectrum Matters (ERM); Maritime Emergency Position Indicating Radio Beacons (EPIRBs) intended for use on the frequency 121,5 MHz or the frequencies 121,5 MHz and 243 MHz for homing purposes only; Part 1: Technical characteristics and methods of measurement*

ETSI EN 300 338-1, *Technical characteristics and methods of measurement for equipment for generation, transmission and reception of Digital Selective Calling (DSC) in the maritime MF, MF/HF and/or VHF mobile service; Part 1: Common requirements*

ETSI EN 300 338-2, *Technical characteristics and methods of measurement for equipment for generation, transmission and reception of Digital Selective Calling (DSC) in the maritime MF, MF/HF and/or VHF mobile service; Part 2: Class A DSC*

ETSI EN 300 373-1, *Electromagnetic compatibility and Radio spectrum Matters (ERM); Maritime mobile transmitters and receivers for use in the MF and HF bands; Part 1: Technical characteristics and methods of measurement*

ETSI EN 300 698-1, *Electromagnetic compatibility and Radio spectrum Matters (ERM); Radio telephone transmitters and receivers for the maritime mobile service operating in the VHF bands used on inland waterways; Part 1: Technical characteristics and methods of measurement*

ETSI EN 301 033, *Electromagnetic compatibility and Radio spectrum Matters (ERM); Technical characteristics and methods of measurement for shipborne watchkeeping receivers for reception of Digital Selective Calling (DSC) in the maritime MF, MF/HF and VHF bands*

ETSI EN 301 843, *ElectroMagnetic Compatibility (EMC) standard for marine radio equipment and services; Harmonised Standard for electromagnetic compatibility*

ETSI EN 301 925, *Radiotelephone transmitters and receivers for the maritime mobile service operating in VHF bands; Technical characteristics and methods of measurement*

ETSI EN 302 248, *Navigation radar for use on non-SOLAS vessels; Harmonised Standard covering the essential requirements of article 3.2 of the Directive 2014/53/EU*

ETSI EN 303 135, *Coastal Surveillance, Vessel Traffic Services and Harbour Radars (CS/VTS/HR); Harmonised Standard for access to radio spectrum*

BS 1363-1, *13 A plugs, socket-outlets, adaptors and connection units. Specification for rewirable and non-rewirable 13 A fused plugs*

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*

BS EN 50360, *Product standard to demonstrate the compliance of mobile phones with the basic restrictions related to human exposure to electromagnetic fields (300 MHz - 3 GHz)*

BS EN 50525-2-11, *Electric cables. Low voltage energy cables of rated voltages up to and including 450/750V (U0/U) Cables for general applications. Flexible cables with thermoplastic PVC insulation*

Annex B
(normative)

Technical requirements

Table B.1. Technical requirements for radio equipment to be used in maritime radio services

No.	Operating frequency	Type of product	Output power (maximum)	Test reference
1.	0.490 MHz and 0.518 MHz	Global Maritime Distress and Safety System (GMDSS)	Manufacturer declaration	N/A
2.	1.605 MHz - 27.500 MHz	Maritime Mobile Service and GMDSS	Manufacturer declaration	ETSI EN 300 373-1 ETSI EN 300 338-1 ETSI EN 300 338-2 ETSI EN 301 033
3.	121.5 MHz	Personal Locator Beacon (PLB) and Emergency Position Indicating Radio Beacon (EPIRB)	25 mW - 100 mW	ETSI EN 300 152-1
4.	156.025 MHz - 162.025 MHz	Handheld or mobile base station and repeater for Maritime Mobile Service and GMDSS	Manufacturer declaration	ETSI EN 301 925 ETSI EN 300 698-1
5.	406.0 MHz – 406.1 MHz	PLB and EPIRB	5 W	ETSI EN 300 066
6.	1 530 MHz - 1 545 MHz	GMDSS	Manufacturer declaration	N/A
7.	1 621.35 MHz - 1 646.50 MHz			
8.	9 200 MHz - 9 500 MHz	Radar	Manufacturer declaration	ETSI EN 302 248 ETSI EN 303 135

Acknowledgements

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