
Regulations

Mobile Communications On-Board Vessels

Version 2.0

Document Date: 12 December 2018

Telecommunications Regulatory Authority (TRA)
P O Box 26662, Abu Dhabi, United Arab Emirates (UAE)
www.tra.gov.ae

Article (1)

Scope of Document

- 1.1 These regulations are issued in accordance with the provisions of the UAE Federal Law by Decree No 3 of 2003 (Telecom Law) as amended and its Executive Order.
- 1.2 These regulations comprises technical conditions for the authorization and operation of Mobile Communications On-Board Vessels systems. These regulations shall be read in conjunction with the following regulatory instruments issued by the TRA and available on TRA's website at www.tra.gov.ae:
 - 1.2.1 Spectrum Allocation and Assignment Regulations
 - 1.2.2 Spectrum Fees Regulations
 - 1.2.3 Interference Management Regulations
 - 1.2.4 National Spectrum Plan including National Table of Frequency Allocation
 - 1.2.5 Maritime Radio Systems Regulations
 - 1.2.6 Earth Station Regulations

Article (2)

Definitions

- 2.1 The terms, words and phrases used in these Regulations shall have the same meaning as is ascribed to them in the UAE Federal Law by Decree No 3 of 2003 (Telecom Law) as amended and its Executive Order; unless these Regulations expressly provide otherwise for, or the context in which those terms, words and phrases are used in these Regulations indicates otherwise. The following terms and words shall be interpreted, as follows:
 - 2.1.1 **“Authorization” or “Frequency Spectrum Authorization”** means a valid frequency spectrum authorization issued by the TRA and permits the use of radio frequency subject to terms and conditions as stipulated by the TRA
 - 2.1.2 **“Baseline”** means “normal baseline”, as defined in the UN Convention on the Law of the Sea (UNCLOS, 1982), including fringe islands.
 - 2.1.3 **“Earth Station On-Board Vessels (ESV)”** means Earth Stations operated on-board ships in accordance with ITU-R Resolution 902.
 - 2.1.4 **“Earth Stations in Motion (ESIM)”** means Earth Stations that are operated in accordance with ITU-R Resolution 156 (WRC-15).
 - 2.1.5 **“Ship Radio License”** means Radio Frequency Authorization. The word ‘License’ when used for Ship Radio License means Radio Frequency Authorization.

TRA Regulations for Mobile Communications On-Board Vessels, Version 2.0

- 2.1.6 **“The System”** means the Mobile Communication On-Board Vessels (MCV) using the specific mobile technologies and frequencies specified in these regulations. The System does not include the backhaul connection.
- 2.1.7 **“Territorial Waters”** means “territorial sea”, as defined in the UN Convention on the Law of the Sea (UNCLOS, 1982), excluding internal waters, harbours, and ports.

Article (3)

Permitted Usage

- 3.1 Usage of Cellular Systems On Board is becoming popular whereby users can use cell phones just as they use on land. The following are the permitted usage conditions:
- 3.1.1 The System can be used within an on/off border starting the following distances from the Baseline up to the edges of the UAE Territorial Waters:
- For GSM and UMTS: 2NM
 - For LTE: 4 NM
- 3.1.2 The System shall be turned OFF when the ship enters the area within the above distances from the Baseline.
- 3.1.3 The System shall not cause harmful interference nor claim protection from the UAE land based cellular systems.
- 3.1.4 The UAE registered ships may be able to use the System in the UAE Territorial Waters and International waters if their Ship Radio License includes the System and adherence to the conditions as set in these regulations.
- 3.1.5 The UAE registered ships may be able to use the System in the Territorial Waters of other States if the National regulations of that State allow such use. The responsibility to adhere to the National regulations within the Territorial Waters of each State lies with the ship owner and or ship operator.
- 3.1.6 The foreign flag ships may be able to use the System in the UAE Territorial Waters if their Ship Radio License includes the System and adherence to the conditions as set in these regulations.
- 3.1.7 The System shall be turned OFF in the UAE Territorial Waters if the System does not meet the conditions as set in these Regulations.
- 3.1.8 The System shall be turned OFF in the Territorial Waters of other States if the System used by UAE Flag ships does not meet the conditions as set in the National Regulations of that State.

TRA Regulations for Mobile Communications On-Board Vessels, Version 2.0

3.1.9 The System is only allowed to use the following frequency bands and technologies.

Technology	Frequency Bands Permitted
GSM	880-915 / 925-960 MHz 1710-1785 / 1805-1880 MHz
UMTS	1920-1980 / 2110 – 2170 MHz
LTE	1710-1785 / 1805-1880 MHz 2500-2570 / 2620–2690 MHz

3.1.10 The Authority Regulation for Earth Stations shall be referred for the use of backhaul if through ESV or ESIM. In case Mobile Satellite Service (MSS) is used (e.g. Inmarsat terminal, Thuraya terminals, etc) for backhaul, then the MSS terminal should be part of Ship Radio License.

3.1.11 The use of the System is authorized on secondary, non-exclusive and sharing basis within the Ship Radio License.

3.1.12 In all conditions whatsoever, the System shall be switched OFF immediately if directed by the Authority.

Article (4)

Technical Conditions

4.1 The technical conditions as given in these regulations shall apply on the System.

4.2 Only indoor antenna(s) shall be used between the on/off border and 12 NM from the Baseline.

4.3 The System shall control all MS (Cell phones) to use 0 dBm.

4.4 For GSM systems, the following technical parameters shall apply:

4.4.1 The MS receiver sensitivity and the disconnection threshold (ACCMIN & min RXLEV level) shall be less than -75 dBm/200 kHz. ACCMIN (RX_LEV_ACCESS_MIN, as described in GSM standard 3GPP TS 144.018 and RXLEV (RXLEV-FULL-SERVING-CELL, as described in GSM standard 3GPP TS 148.008).

4.4.2 DTX (discontinuous transmission, as described in GSM standard 3GPP TS 148.008) shall be activated on the System uplink (MS to BS).

4.4.3 Timing advance (as described in GSM standard 3GPP TS 144.018) shall be set to minimum for the BTS.

4.4.4 The System emissions measured anywhere external to the vessel (i.e. at ship perimeter or on its open deck areas) shall not exceed -80 dBm/200 kHz (assuming a 0 dBi measurement antenna gain). This requires careful planning for the installation of the equipment and antenna systems.

4.4.5 Only pico or femto cell based BTS shall be used.

TRA Regulations for Mobile Communications On-Board Vessels, Version 2.0

4.4.6 The System may use Detect and Avoid mechanism. The scan rate should be in the order of 200 channels/second.

4.4.7 The System may have at least two transceivers (GSM radio channels) employed, one used for static BCCH channel and one for the synthesized FH operation carrying TCH channel used for traffic. The transmissions from MS would be allowed on static BCCH channel only to effectuate the random access procedure (i.e. requesting the call activation or responding to paging calls). Once the communications with BTS has been established, the MS call should be placed on the FH channel. In other words, the static channel carrying BCCH should be used only for that sole purpose and no traffic should be allowed within its remaining time slots. FH should be used in synthesized mode, i.e. one v-BS transmitter constantly changing its operating frequency; FH hopping rate should be 217 hops per second (i.e. frequency changed with every transmitted TDMA frame) and Change of operating frequencies (channels) should follow the pseudo-random pattern.

4.5 For UMTS and LTE systems, the following technical parameters shall apply:

Parameter	UMTS	LTE
Maximum bandwidth (per frequency band)	5 MHz	5 MHz
PLMN network selection timer when in national waters	10 minutes	10 minutes
Carrier centre frequencies	Not to be aligned with land network carriers	Not to be aligned with land network carriers
Quality criteria Qrxlevmin	≥ -87 dBm / 5 MHz between 2 and 12 NM	≥ -105 dBm / 15 kHz (≥ -83 dBm / 5 MHz) between 4 and 12 NM
Indoor MCV BS emission limit on deck	-102 dBm / 5 MHz (CPICH)	-120 dBm / 15 kHz (-98 dBm / 5 MHz)
RRC inactivity release timer	2 seconds	2 seconds
Cell range for the DAS	600 metres	400 metres

4.6 The System shall include a control mechanism based on GPS for sensing and controlling the On/Off, radiated power levels and external antenna disabling upon crossing the boundaries mentioned in this Regulation.

4.7 Further technical and operating information concerning the use of Mobile Communications On Board Vessels can be found in CEPT Report 28 and CEPT Report 62.