



United Arab Emirates



Public Consultation

Revision/ Update to Aeronautical Radio Systems Regulations V2.0

Commencement Date: 08 October 2017

Response Date: 02 November 2017

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



Preface and Notes to Potential Respondents

In keeping with its values of transparency and sector engagement, the TRA wishes to review and study the impact of regulatory instruments issued by it to keep abreast of developments to better involve all stakeholders. The TRA strives to meet the needs of the sector and seeks the views and feedback from the sector for the revision of the regulations. The purpose of this document is to invite comments from stakeholders regarding the TRA's intention to revise and update TRA Regulations on Aeronautical Radio Systems V 2.0 (Issued on 17th March 2016) in accordance with the Telecom Law.

Stakeholders who wish to respond to this consultation should do so in writing to the TRA on or before the response date stated on the front cover of this document.

The comments which are contained in any response to this consultation should be clearly identified with respect to the specific question in this consultation to which such comments refer. Any comments which are of a general nature and not in response to a particular question should be clearly identified as such.

Responses to this consultation should be made in writing and provided electronically in MS Word format and Adobe PDF format, on or before the response date stated on the front cover of this document. Responses must be accompanied by the full contacts details (contact name, e-mail address and phone and fax numbers) of the respondent to:

spectrumconsultation@tra.gov.ae;

Executive Director Spectrum Affairs
Telecommunications Regulatory Authority
P.O. Box 26662
Abu Dhabi, UAE

Respondents are advised that it will be the general intention of the TRA to publish in full the responses received to this consultation. Additionally, the TRA may, at its discretion generate and publish a "Summary of Responses" document at the conclusion of this consultation. Accordingly, the Summary of Responses may include references to and citations (in whole or in part) of comments which have been received. The TRA recognises that certain responses may include commercially sensitive and confidential information which the respondent may not wish to be published. In the event that a response contains confidential information, it shall be the responsibility of the respondent to clearly mark any information which is considered to be of a confidential nature.



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In any event the respondent shall be required to submit two versions of its response to the TRA as follows:

- A full copy of its response in MS Word format with any confidential information clearly marked. The TRA will not publish the Word document and will only use it for internal purposes.
- A publishable copy of its response in Adobe PDF format. The TRA will publish the PDF version in its entirety. Thus, the respondent should take care to redact any commercially sensitive and confidential information in the PDF version of its response.

By participating in this consultation and by providing a PDF version of its response the respondent expressly authorizes the TRA to publish the submitted PDF version of its response in full.

It should be noted that none of the ideas expressed or comments made in this consultation document will necessarily result in formal decisions by the TRA and nothing contained herein shall limit or otherwise restrict the TRA' s powers to regulate the telecommunications sector at any time.

If any Person or entity seeks to clarify or discuss any part of these Regulations can request for a meeting in writing again to the above E-mail and then TRA will set the meetings in the period from **22 to 24 October 2017** so that formal comments can still be received by **3.00pm on 02 November 2017**.



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Consultation Schedule

Milestone	Due Date	Notes
Closing Date for Initial Responses	02 November 2017	All responses to this consultation should be properly received by no later than <u>15.00 noon</u> on the closing date. Responses are to be submitted in electronic format as set out in this consultation document.
Latest date for requests for extension to the due date for Initial Responses.	26 October 2017	<p>Stakeholders wishing to secure an extension to the Closing Date for Initial Responses may apply in writing to the TRA for such an extension. The request should set out the rationale for the request.</p> <p>Requests for extension should be submitted by e-mail to the e-mail address shown above.</p> <p>The TRA will not consider any requests for extension which the TRA receives after <u>15.00 noon</u> on the date stated here.</p> <p>The TRA will consider requests to extend the Closing Date for Initial Responses and will take into account such factors as: the number of such requests received; the rationale for such requests; and the effect on the overall time-scale of the particular project in question. In the event that the TRA extends the Closing Date for Initial Responses, the TRA will publish the revised closing date on its website.</p>
Publication of Initial Responses	08 November 2017	The TRA will publish non-confidential responses (PDF documents) on its website on this date and will invite comments on those responses.
Closing Date for Comments on Responses	15 November 2017	The TRA will not consider Comments on Responses which the TRA receives after <u>15:00 noon</u> on the date stated here.



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1 Introduction

- 1.1 The TRA intend to update its Aeronautical Radio Systems Regulations Version 2.0. As such, all readers are informed that this document describes the changes to these regulations in order to give this document context and to enable the TRA to ask pertinent questions. All text in this consultation document should be read and interpreted as text and not as recording decisions of the TRA.
- 1.2 The need to update the Aeronautical Regulations has arisen due to two specific changes:
- The TRA intends to publish separate regulations to cover Unmanned Aeronautical Radio Systems and as such, radio frequencies associated with these systems no longer need to be included in the Aeronautical Regulations
 - There have been a number of recent developments, in particular with regards to Aeronautical Mobile Satellite systems (Earth Station in Motion) which the TRA would like to incorporate into the Aeronautical Radio System regulations.
- 1.3 As such, the TRA seeks to consider inputs of all industry stakeholders regarding these changes, which are increasingly relevant and valuable in the TRA's exercise of its duties and legal mandates.
- 1.4 Additionally, the TRA strives to follow the principles of transparency, fairness and openness in dealings with customers, partners and other stakeholders and, therefore considers that it is important to take into account the views of those who have a legitimate interest in the outcomes of the TRA's regulation.
- 1.5 In the ensuing text, significant changes are marked as follows:
- Additions are **highlighted in yellow**
 - Deletions are ~~struck through and highlighted in grey~~



2 Matters for Discussion and Consultation

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 This document comprises technical regulations for the authorization and operation of Aeronautical Radio Systems. It shall be read in conjunction with the following documents available from the TRA 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 and National Table of Frequency Allocation

Question 1: Do you have any proposed modifications/additions/suppressions to Scope of 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 Telecom Law and its Executive Order as amended (Federal Law by Decree No. 3 of 2003 as amended 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 have the meanings ascribed to them below:
 - 2.1.1 **“Aeronautical Mobile Service”** A mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate: emergency, position-indicating radio



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beacon stations may also participate in this service on designated distress and emergency frequencies.

- 2.1.2 “**Aeronautical Mobile Satellite Service**” means a mobile-satellite service in which mobile earth stations are located on board aircraft.
- 2.1.3 “**Mobile-satellite service**” means a radiocommunication service between mobile earth stations and one or more space stations, or between space stations used by this service; or– between mobile earth stations by means of one or more space stations.
- 2.1.4 “**Aeronautical Mobile (R) Service**” An aeronautical mobile service reserved for communications relating to safety and regularity of flight primarily along national or international civil air routes.
- 2.1.5 “**Aeronautical Mobile (OR) Service**” An aeronautical mobile service intended for communications including those relating to flight coordination, primarily outside national or international civil air routes.
- 2.1.6 “**Aeronautical Radionavigation Service**” A radio navigation service intended for the benefit and for the safe operation of aircraft.
- 2.1.7 “**Aeronautical Radionavigation Satellite Service**” means a radio navigation service intended for the benefit and for the safe operation of aircraft using satellites
- 2.1.8 “**Airborne Collision Avoidance System (ACAS)**” means Airborne Collision Avoidance System as specified in Vol 5, ICAO Annex 10.
- 2.1.9 “**Airport Surface Detection Equipment (ASDE)**” is used to detect aircraft and vehicles on the surface of an airport. It is used by air traffic controllers to supplement visual observations.
- 2.1.10 “**Annex 10 to the Convention on International Civil Aviation**” means the ICAO publication consisting of five volumes containing the Standards and Recommended Practices (SARPs), Procedures for Air Navigation Services (PANS) and guidance material on aeronautical communication, navigation and surveillance systems.
- 2.1.11 “**Applicant**” means any Person who has applied for a License or an Authorization in accordance with the Telecom Law or other Regulatory Instruments issued by the Authority.
- 2.1.12 “**Application**” means the request for issuance of a License or an Authorization, received at the Authority on prescribed forms as per the procedure in vogue.
- 2.1.13 “**ATC**” means Air Traffic Control.



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- 2.1.14 **“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.
- 2.1.15 **“Authority (TRA)”** means the General Authority for Regulating the Telecommunication Sector known as Telecommunications Regulatory Authority (TRA) established pursuant to the provisions of Article 6 of Federal Law by Decree No. 3 of 2003.
- 2.1.16 **“Authorized User”** means a Person that has been granted an Authorization by the TRA.
- 2.1.17 **“Automatic Dependent Surveillance – Broadcast (ADS-B)”** means a surveillance technology in which an aircraft determines its position via satellite navigation and periodically broadcasts it, enabling it to be tracked.
- 2.1.18 **“CAR”** Civil Aviation Regulations issued by the General Civil Aviation Authority in the UAE.
- 2.1.19 **“CNS”** means Communication, Navigation and Surveillance.
- 2.1.20 **“Aeronautical Mobile Airport Communication System (AMACS)”** means a mobile radio technology used for communication with aircraft whilst at an airport and as defined in Chapter 7, Volume 3 of ICAO Annex 10.
- 2.1.21 **“Designated Operational Coverage (DOC)”** defines the volume of airspace (designated operational range and the designated operational height) where service by a ground based transmitter is intended.
- 2.1.22 **“Distance Measuring Equipment (DME)”** is a transponder-based radio navigation technology that measures slant range distance by timing the propagation delay of VHF or UHF radio signals, as specified in Vol 1 ICAO Annex 10.
- 2.1.23 **“Earth Station”** means a station located either on the Earth's surface or within the major portion of the Earth's atmosphere and is intended for communication with one or more space stations, or with one or more stations of the same kind by means of one or more reflecting satellites or other objects in space.
- 2.1.24 **“Emergency Locator Transmitter (ELT)”** means a radio device fitted on aircraft to send alert signal to search and rescue centres via satellite.



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- 2.1.25 “**Emergency Position- Indicating Radio Beacon (EPIRB)**” means the Station in the maritime mobile service, the emission of which is intended to facilitate search and rescue operations.
- 2.1.26 “**General Civil Aviation Authority (GCAA)**” means the Civil Aviation Authority of the UAE.
- 2.1.27 “**Global Navigation Satellite System (GNSS)**” describes a satellite navigation system that provides autonomous geo-spatial positioning with global coverage (i.e. Global Positioning System (GPS)).
- 2.1.28 “**Ground Based Argumentation System (GBAS)**” is an all-weather aircraft landing system based on real-time differential correction of the GPS signal, as specified in Vol 1, ICAO Annex 10.
- 2.1.29 “**High Frequency Data Link (HF DL)**” means a communication system in HF band used to exchange data such as Aeronautical Operational Control (AOC) messages, Controller Pilot Data Link Communications (CPDLC) messages and Automatic Dependent Surveillance (ADS) messages between aircraft end-systems and corresponding ground-based HF DL ground stations.
- 2.1.30 “**Instrument Landing System (ILS)**” A radio navigation system which provides aircraft with horizontal and vertical guidance just before and during landing and, at certain fixed points indicates the distance to the reference point of landing.
- 2.1.31 “**ILS-Glide Path**” A system for vertical guidance embodied in the instrument landing system which indicates the vertical deviation of the aircraft from its optimum path of descent.
- 2.1.32 “**ILS-Localizer**” A system for horizontal guidance embodied in the instrument landing system which indicates the horizontal deviation of the aircraft from its optimum path of descent along the axis of the runway.
- 2.1.33 “**International Civil Aviation Organization (ICAO)**” means the United Nations specialized agency for civil aviation.
- 2.1.34 “**ITU**” means the International Telecommunication Union, a leading United Nations agency for information and communication technologies.
- 2.1.35 “**Marker Beacon**” A transmitter in the aeronautical radio navigation service which radiate vertically a distinctive pattern for providing position information to aircraft.
- 2.1.36 “**Meteorological Aids Service**” means a radiocommunication service used for meteorological, including hydrological, observations and exploration



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- 2.1.37 **“Microwave Landing System (MLS)”** means an all-weather precision landing system originally intended to replace or supplement instrument landing systems (ILS), as specified in Vol 1, ICAO Annex 10.
- 2.1.38 **“MID FASID”** means the ICAO Middle East office (MID) Facilities And Services Implementation Document (FASID).
- 2.1.39 **“Non Directional Beacon (NDB)”** A transmitter in the aeronautical radio navigation service which radiates a distinctive pattern for providing position information to aircraft.
- 2.1.40 **“Primary Radar”** A radio determination system based on the comparison of reference signal with radio signal reflected the position to be detected.
- 2.1.41 **“Radar”** means Radio Detection and Ranging.
- 2.1.42 **“Radio Regulations (RR)”** means a publication issued by the ITU, adopted by the World Radiocommunication Conference and ratified by the UAE.
- 2.1.43 **“Radiolocation Service”** means a service (like Radar) that uses radio signals to detect and locate distant objects like aircraft.
- 2.1.44 **“Search and Rescue (SAR)”** means the activities of the search for and provision of aid to people who are in distress or imminent danger.
- 2.1.45 **“Secondary Radar”** A radio determination system based on the comparison of reference signal with radio signal retransmitted from the position to be detected.
- 2.1.46 **“Secondary Surveillance Radar (SSR)”** is a radar system used in air traffic control (ATC), that not only detects and measures the position of aircraft i.e. range and bearing, but also requests additional information from the aircraft itself such as its identity and altitude. This is specified in Vol 4, ICAO Annex 10.
- 2.1.47 **“Selective Calling (SELCAL)”** is a signalling method which can alert an individual aircraft that a ground station wishes to communicate with it, specified in Vol 3 Part 2, ICAO Annex 10.
- 2.1.48 **“Single Side Band (SSB)”** means amplitude modulation where one side band of the modulated signal is suppressed to use bandwidth more efficiently.
- 2.1.49 **“Station”** means one or more transmitters or receivers or a combination of transmitters and receivers, including the accessory equipment, necessary at one location for carrying on a radiocommunication service.



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- 2.1.50 **“Trunking systems”** means land mobile radio systems with one or more radio base station(s)/cells where each cell offers one or several transmission channels which will be dynamically assigned to users as soon as a connection is required.
- 2.1.51 **“UAE”** means the United Arab Emirates including its territorial waters and the airspace above.
- 2.1.52 **“Universal Access Transceiver (UAT)”** broadcasts positioning and performance data from an aircraft while receiving air traffic, weather, and other critical information from ground stations. Specified in Vol 3 Part 1, ICAO Annex 10.
- 2.1.53 **“Unmanned Aircraft Systems (UAS)”** means aircraft systems like Drones or Remotely Piloted Aircraft Systems (RPAS) that are capable of operating without an internal pilot and are tethered by a radio control link.
- 2.1.54 **“VHF Data Link (VDL)”** is a communication system in VHF band for transmitting information between aircraft and ground stations or other aircraft, as specified Vol 3 ,ICAO Annex 10.
- 2.1.55 **“VHF Omni directional Ranging (VOR)”** means a short-range radio navigation system for aircraft, enabling aircraft with a receiving unit to determine their position and stay on course by receiving radio signals transmitted by a network of fixed ground radio beacons as specified in Vol 1 ICAO Annex 10.
- 2.1.56 **“Wireless Avionics Intra-Communications (WAIC)”** means Radio-communication between integrated wireless components of the aircraft as part of a closed exclusive network required for operation of the aircraft and used only for safety-related applications.
- 2.1.57 **“WRC”** means World Radiocommunication Conference of the ITU.
- 2.1.58 **“International Mobile Telecommunication (IMT)”** means Public Land Mobile (Cellular) system.

Question 2: Do you have any proposed modifications/additions/suppressions to Definitions.



Article (3)

Uses related to Aeronautical Radio Systems

- 3.1 Usage of Aeronautical Radio Systems is allowed but not limited to the following:
 - 3.1.1 Aeronautical Mobile Service (Ground-to-Air / Air-to-Ground)
 - 3.1.2 Aeronautical Mobile Service (Air-to-Air)
 - 3.1.3 Aeronautical Radionavigation Service (Navigational Aids)
 - 3.1.4 Aeronautical Mobile Satellite Service (e.g. Aircraft Earth Station)
 - 3.1.5 Aeronautical Radionavigation Satellite Service
 - 3.1.6 Radiolocation Service (e.g. Primary Radar, Secondary Radar, Surface Movement Radar)
 - 3.1.7 Radionavigation Service (e.g. Radio Altimeter)
 - 3.1.8 Meteorological Aids Service (e.g. Wind Profiler Radar).
 - 3.1.9 Mobile Communication on Board Aircraft (e.g. GSM, UMTS, LTE, WiFi)
 - 3.1.10 Wireless Avionics Intra-Communications (WAIC)
- 3.2 All Authorized users shall comply with the CAR issued by the GCAA.
- 3.3 All UAE registered aircraft shall carry the valid TRA Authorization (License).
- 3.4 All aircraft shall carry the log and published documents (printed or electronic format) containing official information relating to stations which the aircraft may use for its operation.
- 3.5 For Land Mobile (Ground-to-Ground) Applications on the airport or airfield the TRA regulations for Private Mobile Radio shall apply. Digital Trunking systems shall be preferred for airport use.
- 3.5 For Aeronautical Mobile (Ground-to-Air) ground stations, the TRA application for Private Mobile Radio shall apply.

Question 3: Do you have any comments on the uses indicated above?

Article (4) Technical Conditions

4.1 The following table gives guidance on frequency ranges for aeronautical radio systems, their use and applicable usage conditions:

Frequency Range	Use	Usage conditions
255 – 526.5 kHz	Non Directional Beacons NDB	Chapter 3.4, Vol 1, ICAO Annex 10
3023 kHz	Search and Rescue (SAR)	Chapter 2.2 Vol 5, ICAO Annex 10,
5680 kHz	Search and Rescue (SAR)	Chapter 2.2 Vol 5, ICAO Annex 10
2.850 – 3.000 MHz 3.000 – 3.025 MHz 3.400 – 3.500 MHz 4.650 – 4.700 MHz 5.480 – 5.680 MHz 6.525 – 6.685 MHz 8.815 – 8.965MHz 10.005 – 10.100 MHz 11.275 – 11.400 MHz 13.260 – 13.360 MHz 17.900 – 17.970 MHz 21.924 – 22.000 MHz	Aeronautical Mobile (R) Voice and Data	3 kHz spacing SSB RR Appendix 27 Voice: Chapter 2.4, Vol 3 Part 2, ICAO Annex 10 HFDL: Chapter 3, Vol 3 Part 1, ICAO Annex 10 SELCAL: Chapter 3, Vol 3 Part 2, ICAO Annex 10
3.025 – 3.155 MHz 3.800 – 3.950 MHz 4.700 – 4.850 MHz 5.450 – 5.480 MHz 5.680 – 5.730 MHz 6.685 – 6.765 MHz 8.965 – 9.040 MHz 11.175 – 11.275 MHz 13.200 – 13.260 MHz 15.010 – 15.100 MHz 17.970 – 18.030 MHz 23.200 – 23.350 MHz	Aeronautical Mobile (OR) Voice and Data	3 kHz spacing SSB RR Appendix 26
74.8 – 75.2 MHz	Ground based Marker Beacon	75 MHz centre frequency Chapter 3.1.7 and 3.6, Vol 1, ICAO Annex 10
108 - 117.975 MHz	VOR GBAS ILS localizer VDL	VOR: 50 kHz/ 100 kHz spacing Chapter 3.3, Vol 1, ICAO Annex 10 GBAS: 25 kHz spacing Chapter 3.7, Vol 1, ICAO Annex 10 ILS localizer: 50 kHz/ 100 kHz spacing Chapter 3.3, Vol 1, ICAO Annex 10 VDL: Chapter 6, Vol 3, ICAO Annex 10



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Frequency Range	Use	Usage conditions
117.975 – 137 MHz	Aeronautical mobile (R)	Table 2, MID FASID App B (CNS) Chapter 4, Vol 5, ICAO Annex 10 Voice: 8.33 kHz channelling only Chapter 2.1–2.3 Vol 3, Part 2, ICAO Annex 10 VDL: Chapter 6, Vol 3 Part 1, ICAO Annex 10 SELCAL: Chapter 3, Vol 3 Part 2, ICAO Annex 10
121.5 MHz	Emergency use	Chapter 5, Vol 3 Part 2, ICAO Annex 10
121.6 MHz	Communication between pilot and crash tender for fire control	
122.275 MHz	Off-route Air-to-Air communications between small aircraft	
123.1 MHz	Coordination of SAR activities	Chapter 5, Vol 3 Part 2, ICAO Annex 10
123.350 MHz	Off-route Air-to-Air communications between small aircraft (standby)	
230 - 328.6 MHz	Aeronautical Mobile (OR) (Ground to Air and Air to Air Voice and data) Aeronautical Mobile Spot frequencies for ATC Ground to Air Voice	
243 MHz	Emergency use	Chapter 5, Vol 3 Part 2, ICAO Annex 10
328.6 - 335.4 MHz	ILS Glide Path	150 kHz or 300 kHz spacing Chapter 3.1, Vol 1 ICAO Annex 10
406 – 406.1 MHz	ELT (Search and Rescue)	Chapter 5, and Appendix 1 to Chapter 5, Vol 3 Part 2 ICAO Annex 10
960 – 1215 MHz	DME UAT SSR ACAS GNSS ADS-B	DME: Chapter 3.5 Vol 1 ICAO Annex 10 UAT: Chapter 12, Vol 3 Part 1, ICAO Annex 10 SSR: Chapter 3 and 4, Vol 4, ICAO Annex 10 ACAS: Chapter 4 Vol 5, ICAO Annex 10 GNSS: Chapter 4.2 Vol 1, ICAO Annex 10 ADS-B: Chapter 5 Vol 4 ICAO Annex 10



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Frequency Range	Use	Usage conditions
978 MHz 1087.7 - 1092.3 MHz 1030 MHz 1090 MHz	UAT ADS-B SSR ground to air interrogation SSR air to ground reply	
1215 – 1400 MHz	Primary Radar Wind Profiler Radar GNSS	Radars ITU-R SM.329 ITU-R SM.1541 GNSS: Chapter 4.2 Vol 1, ICAO Annex 10
1518 – 1559 MHz 1610 – 1660.5 MHz 1668 – 1675 MHz	Aeronautical Mobile Satellite	Chapter 4 Vol 3 Part 1, ICAO Annex 10 ITU-R RR Footnote 5.367
1544 – 1545 MHz 1645.5 – 1646.5 MHz	Distress and Safety Satellite EPIRB	
1525 – 1559 MHz 1626.5 – 1660.5 MHz	Aeronautical Mobile Satellite	
1559 - 1626.5 MHz	GNSS	Chapter 2 & 3, Vol 1, ICAO Annex 10
1626.5 – 1660.5 MHz 1668 – 1675 MHz	Aeronautical Mobile Satellite	
1710 – 1785 / 1805 – 1880 MHz and 1920 – 1980 MHz / 2110 – 2170 MHz	Mobile Communication (IMT) on Board Aircraft	ECC/DEC/(06)07 Authorized for use only above 10,000 feet with Network Control Unit (NCU)
1980 – 2010 MHz 2170 – 2200 MHz	Aeronautical Mobile Satellite	
2400 – 2483.5 MHz	WiFi on Board Aircraft	EN 300 328 (100 mW e.i.r.p.) Authorized for use only above 10,000 feet
2700 – 3300 MHz	Primary Surveillance Radar	Chapter 3.2.4 Vol1, ICAO Annex 10 ITU-R SM.329 ITU-R SM.1541
4200 – 4400 MHz	Airborne Radar Altimeter WAIC	Airborne Radar Altimeter: ITU-R SM.329 ITU-R SM.1541 WAIC: ITU-R M.2283 ITU-R M.2067
5030 – 5150 MHz	Microwave Landing System (MLS)	Chapter 3.11, Vol1 , ICAO Annex 10
5030 – 5091 MHz	Aeronautical Mobile Airport Communication System (AMACS)	Chapter 7, Vol3 Part 1, ICAO Annex 10
5350 – 5470 MHz	Airborne Weather Radar	ITU-R SM.329 ITU-R SM.1541
5725 – 5875 MHz	WiFi on Board Aircraft	EN 301 893 (50 mW e.i.r.p.) Authorized for use only above 10,000 feet
8750 - 8850 MHz	Airborne Doppler Radar	ITU-R SM.329 ITU-R SM.1541
9000 – 9500 MHz	Precision Approach Radar (ASDE) Surface Movement Radar Airborne Weather Radar	ITU-R SM.329 ITU-R SM.1541



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Frequency Range	Use	Usage conditions
11.7 – 12.5 GHz	Earth Stations installed on Aircraft (space-to-Earth)	
13.25 – 13.4 GHz	Airborne Doppler Radar	ITU-R SM.329 ITU-R SM.1541
14.0 -14.5 GHz	Earth Stations installed on Aircraft (Earth-to-space)	ITU-R Resolution 902 (WRC-03)
15.4 – 15.7 GHz	Precision Approach Radar (ASDE)	ITU-R SM.329 ITU-R SM.1541
19.7 - 20.2 GHz	Earth Stations installed on Aircraft (space-to-Earth)	ITU-R Resolution 156 (WRC-15)
24.25 – 24.65 GHz	Precision Approach Radar (ASDE)	ITU-R SM.329 ITU-R SM.1541
29.5 - 30.0 GHz	Earth Stations installed on Aircraft (Earth-to-space)	ITU-R Resolution 156 (WRC-15)
31.8 – 33.4 GHz	Precision Approach Radar (ASDE)	ITU-R SM.329 ITU-R SM.1541
77 GHz	Surface Movement Radar	ITU-R SM.329 ITU-R SM.1541
94 GHz	Surface Movement Radar	ITU-R SM.329 ITU-R SM.1541

Question 4: Do you agree with the above frequency bands and usage restrictions? Do you have any proposed modifications/additions/suppressions to these frequency bands or usage restrictions?

- 4.2 The inclusion of specific frequencies for Earth Stations installed on Aircraft, and Aeronautical Mobile Satellite Services (including any associated complementary ground component) in the above table does not authorize operators to provide those services, it merely permits the use of such equipment on-board a UAE registered aircraft. Separate authorizations shall be obtained from the TRA for any such services that wish to operate in the UAE.
- 4.3 For ground based assignments either the maximum transmit power (e.r.p) or the maximum and minimum field strength at the limit of the Designated Operational Coverage (DOC) will be determined during the authorization process and stated in the authorization.
- 4.4 Mobile communication (IMT) on board aircraft is authorized as part of UAE registered aircraft Radio License. Such systems shall only be allowed for operation only above 10,000 feet in the UAE airspace. The TRA may require electromagnetic compatibility test reports to its satisfaction that such systems shall not cause harmful interference to other radio systems on board aircraft. Foreign registered aircraft having authorization for use of similar system from the country of their registration can also use the same only above 10,000 feet in the UAE airspace. The ECC Decision ECC/DEC/(06)07 updated on 30th June 2017 on the harmonised use of airborne pico-cell based IMT systems refers. The use of such systems is on secondary basis to the terrestrial networks.
- 4.5 For spectrum available for Unmanned Aircraft Systems (UAS), please refer to the Unmanned Aircraft Systems regulation.



Question 5: Do you have any further comments concerning the proposed authorization approach?

Article (5)
Spectrum Coordination and Notification
Call Sign

- 5.1 The Call Sign for all UAE registered aircraft shall be A6XXX where X shall represent an alphabet.
- 5.2 The Call Sign for all UAE registered aircraft shall be issued by the GCAA

Question 6: Do you have any comments relating to Article 5?

Article (6)
Priority of Communications

- 6.1 The highest priority of communications (RR Article 44) shall be for
 - 6.1.1 Distress calls, distress messages and distress traffic
 - 6.1.2 Communications preceded by the urgency signal
- 6.2 The next priority of communications shall be in the following order:
 - 6.2.1 Communications relating to radio direction finding
 - 6.2.2 Flight safety messages
 - 6.2.3 Meteorological messages
 - 6.2.4 Flight regularity messages
 - 6.2.5 Messages relating to the application of the United Nations Charter
 - 6.2.6 Government messages for which priority has been requested
 - 6.2.7 Service communications
 - 6.2.8 Other aeronautical communications



Question 7: Do you have any comments relating to Article 6?

Article (7)

Spectrum Coordination and Notification

- 7.1 Coordination of Radio Frequencies for the radio stations at the national, regional and international levels shall be made through the Authority, as it is the sole body responsible for Radio Frequency coordination.
- 7.2 Notifying and Registering of Radio Frequencies of these Stations in the ITU shall be made through the Authority according to the procedures outlined in the Radio Regulations.
- 7.3 The applicant shall support the coordination procedures.

Question 8: Do you have any comments relating to Article 7?

3. General comments

- 3.1 Further to the specific matters discussed, and questions asked above, please identify any additional issues which you feel are relevant for consideration in this consultation. Please provide specific support and/or explanation of your viewpoints as well as recommendations regarding how such issues might be resolved.