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| **Public Consultation** |
| **Aeronautical Systems** |
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| **Commencement Date: 18 October 2015****Response Date: 19 November 2015** |

Preface and Notes to Potential Respondents

TRA Regulations “Aeronautical Radio Service”, Version 1.0” dated 30 December 2009 sets the technical rules for authorization of Aeronautical Radio in the UAE. In keeping with its values of transparency and sector engagement, the TRA wishes to consult on these regulations and proposed changes.

The purpose of this document is to invite comments from any organizations that would be impacted by the proposed changes in this document, which the TRA will then consider prior to making a final decision.

All concerned should respond to this consultation 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, 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**

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 recognizes 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.

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 this outline can request for a meeting in writing again to the above E-mail before and then TRA will set the meetings in the period from 27-29 October 2015 so that formal comments can still be received by **1200 hours on 19 November 2015.**

Consultation Schedule

18 October 2015: Publishing of consultation document

27-29 October 2015: Meetings with stakeholders if requested by stakeholders

19 November 2015: Close of consultation

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# Introduction

## The TRA is in the process of reviewing the spectrum regulations related to the authorization of Aeronautical Radio as detailed in the Articles of “Regulations: Aeronautical Radio Service”, Version 1.0” dated 30 December 2009

## Following a competitive tender process, the TRA appointed specialist telecoms market consultants LS telcom (“the Consultants”) to undertake review of the existing regulations.

## The Consultant has examined the regulation “Aeronautical Radio Service”, Version 1.0” dated 30 December 2009 and compared these against those in a series of benchmark countries. The benchmark countries used consisted of a combination of countries where relevant spectrum regulations are publicly available and whose spectrum regimes are well developed. Focus has been set on countries from ITU-Region 1 and countries within the region. Benchmark countries comprise:

* Qatar
* United Kingdom
* Germany
* Ireland

## In examining the UAE spectrum regulations and comparing them to international benchmarks, a number of principles have been used in guiding the proposals:

* Changes in the way services are defined or implemented in the UAE should be incorporated
* Changes in relevant ITU-R publications and industry changes should be incorporated to reflect latest developments and changes in technology
* Wherever possible technical information and frequency tables should be presented in line with the text, references to annexes should be avoided
* Wherever possible references to ITU-R publications and industry standards should be used instead of repeating text from these documents
* Non-technical regulations should be reduced to the relevant service specific regulations to avoid unnecessary overlap with other more general TRA regulations
* The different technical regulations reviewed should be harmonized in terms of structure and wording

## The remainder of this document is structured as follows:

* Section 2 presents details the Consultants proposed changes to the regulatory instrument
* Section 3 presents a summary of the proposed changes.

## Note that only those articles for which changes are proposed are discussed.

# Proposed Changes

## **New Article: Scope of Document**

### In order to define the scope of the document and give guidance on other relevant TRA regulations we propose to include a new article at the beginning of the document stating:

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| *0.1 This document comprises regulations for the authorization and operation of Aeronautical Radio. It shall be read in conjunction with the following documents available from the TRA website at www.tra.gov.ae:* 0.1.1 *Spectrum Allocation and Assignment Regulations* *0.1.2 Spectrum Fees Regulations* *0.1.3 Interference Management Regulations* *0.1.4 National Spectrum Plan and National Table of Frequency Allocation* |

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| Question 1: | Do Stakeholders have any views on the proposed introduction of a new article defining the scope of document and relevant other regulations? |

## **Merging of general regulations under a new Article 2**

### We propose to merge general regulations from different Articles under a new Article 2.

### In addition to this we propose to reword article 2.1 to increase readability and to include “Air-to-Ground Aeronautical Mobile Radio” and “Mobile Communication Services on Board Aircraft” to the scope of the document:

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| *2.1 Usage of Aeronautical Radio is allowed for the following, subject to terms and conditions as given on the TRA Authorization and applicable Regulatory Instruments:**2.1.1 Aeronautical Mobile radio (Ground-to-Air / Air–to-Ground)**2.1.2 Aeronautical Mobile radio (Air –to –Air)**2.1.3 Aeronautical Radionavigation Service (Navigational Aids).**2.1.4 Aeronautical Mobile Satellite Service (e.g. Aircraft Earth Station).**2.1.5 Aeronautical Radionavigation Satellite Service.**2.1.6 Radiolocation Service (e.g. Primary Radar, Secondary Radar, Surface Movement Radar).**2.1.7 Radionavigation Service (e.g. Radio Altimeter).**2.1.8 Meteorological Aids Service (e.g. Wind Profiler Radar).**2.1.9 Mobile Communication Services on Board Aircraft (e.g. GSM, UMTS, LTE)* |

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| Question 2: | Do Stakeholders have any comments on the proposed rewording of Article 2.1 and the related extension of the scope of document? |

### In addition to this we propose to reword Article 2.2:

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| *2.2 For Land Mobile (Ground-to-Ground) Applications on the airport or airfield the TRA regulations for Public Mobile Radio shall apply. Digital Trunking systems shall be preferred for airport use.* |

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| Question 3: | Do Stakeholders have any views on regulating land mobile ground to ground applications on the airport or the airfield under the PMR regulations? |

### In order to include all general regulations on authorization to the new Article 2 we also propose to move articles 6.7, 8.2 and 8.3 under Article 2. We furthermore propose to change the wording “All authorized users” in Article 6.7 to “All authorized uses” and the wording “All aircraft” used in Article 8.2 to “All UAE registered aircraft”.

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| Question 4: | Do Stakeholders have any comments to the proposed changes and move of Articles 6.7, 8.2 and 8.3 under Article 2? |

## **New Article 3 “Frequency Assignment for Aeronautical Radio / Technical Conditions”**

### In order to increase the readability of the document we propose to add a new Article 3 “Frequency Assignment for Aeronautical Radio / Technical Conditions” that summarizes information of frequency bands and technical conditions from different articles. For this we propose to add a new article 3.1 and to extend the table with frequency bands as following:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| *3.1 The following table gives guidance on authorized frequency bands for aeronautical radio, their uses and applicable technical criteria.*

| Frequency Band | 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 |
| 2850 – 3000 KHz3 – 3.025 MHz3.400 – 3.500 MHz4.650 – 4.700 MHz5.480 – 5.680 MHz6.525 – 6.685 MHz8.815 – 8.965MHz10.005 – 10.100 MHz11.275 – 11.400 MHz13.260 – 13.360 MHz17.900 – 17.970 MHz21.924 – 22.000 MHz | Aeronautical Mobile (R)Voice and Data | 3 kHz spacing SSBRR 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 MHz3.800 – 3.950 MHz4.700 – 4.850 MHz5.450 – 5.480 MHz5.680 – 5.730 MHz6.685 – 6.765 MHz8.965 – 9.040 MHz11.175 – 11.275 MHz13.200 – 13.260 MHz15.010 – 15.100 MHz17.970 – 18.030 MHz23.200 – 23.350 MHz | Aeronautical Mobile (OR)Voice and Data | 3 kHz spacing SSBRR Appendix 26 |
| 74.8 – 75.2 MHz | Ground based Marker Beacon  | 75 MHz centre frequencyChapter 3.1.7 and 3.6, Vol 1 ICAO Annex 10 |
| 108 - 117.975 MHz | VORGBASILS localizerGBASVDL4 | **VOR:**50 kHz/ 100 kHz spacingChapter 3.3, Vol 1, ICAO Annex 10**GBAS:**25 kHz spacingChapter 3.7, Vol 1, ICAO Annex 10**ILS localizer:**50 kHz/ 100 kHz spacingChapter 3.3, Vol 1, ICAO Annex 10**VDL4:**Chapter 6, Vol 3, ICAO Annex 10 |
| 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 onlyChapter 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 MobileSpot 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 spacingChapter 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 | DMEUATSSRACASGNSS  | **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 |
| 978 MHz | UAT |  |
| 1030 MHz | SSR ground to air interrogation |  |
| 1090 MHz | SSR air to ground reply |  |
| 1215 – 1400 MHz | Primary RadarWind Profiler RadarGNSS | **Radars**ITU-R SM.329ITU-R SM.1541**GNSS:**Chapter 4.2 Vol 1, ICAO Annex 10 |
| 1544 - 1545 MHz1645.5 – 1646.5 MHz | Distress and SafetySatellite EPIRB |  |
| 1545 – 1555 MHz1646.5 – 1656.5 MHz | Aeronautical Mobile (R) Satellite | Chapter 4 Vol 3 Part 1, ICAO Annex 10 |
| 1559 - 1626.5 MHz | GNDSS | Chapter 2 and 3, Vol 1, ICAO Annex 10 |
| 1710 – 1785 MHz1805 - 1880 MHz | Airborne GSM and LTE systems | ECC/DEC/(06)07Limited to heights above 10,000 feet |
| 1920 - 1980 MHz2110 - 2170 MHz | Airborne UMTS systems | ECC/DEC/(06)07Limited to heights above 10,000 feet  |
| 2700 – 3300 MHz | Primary Radar | Chapter 3.2.4 Vol1, ICAO Annex 10ITU-R SM.329ITU-R SM.1541 |
| 4200 – 4400 MHz | Airborne Radar Altimeter | ITU-R SM.329ITU-R SM.1541 |
| 5030 – 5150 MHz | Microwave Landing System (MLS) | Chapter 3.11, Vol1 , ICAO Annex 10 |
| 5350 – 5470 MHz | Airborne Weather Radar | ITU-R SM.329ITU-R SM.1541 |
| 8750 - 8850 MHz | Airborne Doppler Radar | ITU-R SM.329ITU-R SM.1541 |
| 9000 – 9500 MHz | Precision Approach Radar (ASDE)Surface Movement RadarAirborne Weather Radar | ITU-R SM.329ITU-R SM.1541 |
| 13.25 – 13.4 GHZ | Airborne Doppler Radar | ITU-R SM.329ITU-R SM.1541 |
| 15.4 – 15.7 GHz | Precision Approach Radar (ASDE) | ITU-R SM.329ITU-R SM.1541 |
| 24.25 – 24.56 GHz | Precision Approach Radar (ASDE) | ITU-R SM.329ITU-R SM.1541 |
| 31.8 – 33.4 GHz | Precision Approach Radar (ASDE) | ITU-R SM.329ITU-R SM.1541 |
| 77 GHz  | Surface Movement Radar | ITU-R SM.329ITU-R SM.1541 |
| 94 GHz | Surface Movement Radar | ITU-R SM.329ITU-R SM.1541 |

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| Question 5: | Do Stakeholders have any views on the proposed table, included frequency bands, corresponding usage and references to technical parameter? |

### In addition to this we propose to move Articles 6.6 and 6.8 under Article 3 and reword it as following:

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| *6.6 Channelling arrangements shall be, where applicable, in accordance with ICAO Annex 10 and local channel plans as prepared by ICAO MID.**6.8 All aircraft shall carry VHF equipment compliant with 8.33 kHz channelling* |

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| Question 6: | Do Stakeholders have any comments on the proposed rewording of articles 6.6 and 6.8? |

### Furthermore we propose to add the following new Article to Article 3:

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| *3.a 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.* |

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| Question 7: | Do Stakeholders have any comments on the proposed new Article 3.a? |

## **Deletion of sections**

### As a consequence of the proposed inclusion of the modified table with frequency bands and technical criteria under a new Article 3 and in order to avoid overlap with other regulations we propose to delete the following Articles and Annexes:

* Article 4
* Articles 6.1 to 6.5 and Article 6.9 as information has been merged with the frequency table
* Article 8.1
* Article 10

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| Question 8: | Do Stakeholders agree to the deletions of the articles listed above? |

## **Rewording of text on “Spectrum coordination” to harmonise text over different regulations (Article 9)**

### Currently the Article “Spectrum Coordination” (Article 9) contains different texts in different spectrum regulations. We propose to use the following service independent text to harmonize the Article over all spectrum regulations:

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| ***Article (10) Spectrum Coordination and Notification****8.1 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.**8.2 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.**8.3 The applicant agrees to participate fully in any subsequent coordination procedures* |

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| Question 9: | Do Stakeholders have any views on the proposed use of a harmonized wording for the article on “Spectrum Coordination and Notification”? |

# Summary of consultation questions

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| Question 1: | Do Stakeholders have any views on the proposed introduction of a new article defining the scope of document and relevant other regulations? |
| Question 2 | Do Stakeholders have any comments on the proposed rewording of Article 2.1 and the related extension of the scope of document? |
| Question 3: | Do Stakeholders have any views on regulating land mobile ground to ground applications on the airport or the airfield under the PMR regulations? |
| Question 4: | Do Stakeholders have any comments to the proposed changes and move of Articles 6.7, 8.2 and 8.3 under Article 2? |
| Question 5: | Do Stakeholders have any views on the proposed table, included frequency bands, corresponding usage and references to technical parameter? |
| Question 6: | Do Stakeholders have any comments on the proposed rewording of articles 6.6 and 6.8? |
| Question 7: | Do Stakeholders have any comments on the proposed new Article 3.a? |
| Question 8: | Do Stakeholders agree to the deletions of the articles listed above? |
| Question 9: | Do Stakeholders have any views on the proposed use of a harmonized wording for the article on “Spectrum Coordination and Notification”? |