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| **Public Consultation** |
| **Earth Stations on board Vessels (ESV)** |
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| **Commencement Date: 18 October 2015****Response Date: 19 November 2015** |

**Preface and Notes to Potential Respondents**

TRA Regulations “Earth Stations on board Vessels (ESV)”, Version 1.0” dated 5 August 2009 sets the technical rules for authorization of ESV 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 Earth Stations on board Vessels as detailed in the Articles of Regulations “Earth Stations on board Vessels (ESV)”, Version 1.0” dated 5 August 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 “Earth Stations on board Vessels (ESV)” Version 1.0” dated 5 August 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

## 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

## **General Note**

### The use of ESV in frequency bands 5925 – 6425 MHz (C-Band) and 3700 – 4200 MHz (Ku-Band) is regulated under the provisions of ITU-R Resolution 902 (WRC 03). The related technical criteria are currently under review (ITU-R Resolution 909 (WRC-12)) and updates following WRC-15 are expected. However, this document still makes intentionally reference to Res. 902(WRC-03) as the new criteria are not publically available so far. Relevant changes to the ESV regulations will be made once the outcome of WRC-15 is available.

## **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 Earth Stations on board Vessels. 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? |

## **Modifications to Article 2**

### In order to improve readability of the regulation we propose to reword Article 2.1 as following:

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| *2.1 The use of ESV in the zone between Territorial Waters of the UAE and the Minimum Distances are authorized on Secondary Basis subject to the adherence to the conditions as set in these regulations.* |

### Article 2.1 does not specify if individual authorization is required or not. We believe that an individual license is necessary to comply with requirements of the radio regulations and therefore propose to add a new Article under Article 2 that specifies that individual authorization is required:

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| *2.a The use of ESV aboard UAE registered ships is subject to individual authorization. Applications can be made for any UAE registered ship.* |

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| Question 2: | Do Stakeholders have any views on the rewording of Article 2.1 and the proposed introduction of a new article requiring individual licensing for ESV? |

### Article 2.3 implicitly limits the use of ESV to frequency bands covered by ITU-R Resolution 902 (WRC 03) (C- and Ku-Band). In the following we propose to extend the scope of the regulation to frequencies in the Ka-Band. In consequence we propose to delete Article 2.3 and include relevant content to new Articles under Article 3 “Frequency Assignment for ESV / Technical conditions”. In addition to this we propose to delete Article 2.4.

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| Question 3: | Do Stakeholders agree to the deletion of Articles 2.3 and 2.4? |

## **Modifications to Article 3**

### We propose to collect and reword technical requirements currently covered by Article 3 and Article 4 under a new Article 3 “Frequency Assignment for ESV / Technical conditions”

### We further propose to reword Article 3.1 and modify the corresponding table with frequency bands. The modification includes the addition of Bands 29.5 – 30 GHz (earth to space) and 19.7 – 20.2 GHz (space-to-earth) in Ka-Band:

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| *3.1 The following table gives guidance on authorized frequency bands for Earth Stations aboard Vessels (ESV):*

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| **Frequency Band** | **Band Name** |
| **Earth to Space** | **Space to Earth** |
| 5925 – 6425 MHz | 3700 – 4200 MHz | C - Band |
| 14.0 – 14.50 GHz | 10.70 – 12.75 GHz | Ku - Band |
| 29.5 – 30 GHz | 19.7 – 20.2 GHz | Ka - Band |

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| Question 4: | Do Stakeholders have any views on the extension of authorized frequencies to 29.5 – 30 GHz (earth-to-space) and19.7 – 20.2 GHz (space-to-earth) in Ka-Band? |

### In addition to this we propose to merge Article 3.2 with Article 3.4 and move Article 4.1 under Article 3.4 to increase readability and logical flow of the document:

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| *3.4 The UAE has Fixed Services and operational and planned Satellite Earth stations in the bands authorized for ESV usage. These services shall have priority of protection from harmful interference from ESV. In case of any interference reported to UAE Fixed services or UAE Earth stations as a result of ESV operation whether close or outside the UAE territorial waters, the ESV will immediately cease it transmissions.**4.1 The coordination criteria as given in ITU-R Recommendation SF.1649 shall be used to evaluate if ESV can cause harmful interference to Fixed Services* |

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| Question 5: | Do Stakeholders have any comments on the proposed changes to Article 3.4 and 4.1? |

### Furthermore we propose to add a new article and table that summarizes technical criteria for ESV authorization:

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| *3.a The ESV usage within the minimum distances shall be in accordance with the technical conditions as stated in the table below:*

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| **Frequency Band** | **C - Band** | **Ku- Band** | **Ka – Band** |
| Minimum Distance | 300 km | 125 km | - |
| Minimum Antenna Diameter | 2.4 m | 1.2 m | - |
| Minimum Elevation Angle | 3° | 3° | 3° |
| Antenna Tracking Accuracy | +/- 0.2° (peak) | +/- 0.2° (peak) | +/- 0.2° (peak) |
| Max. e.i.r.p spectral density toward the horizon | 17 dB (W/MHz) | 12.5 dB(W/MHz) | EN 303 978Section 4.2.2.2.1 |
| Max. e.i.r.p toward the horizon | 20.8 dBW | 16.3 dBW | 55 dBW |
| Max. off-axis e.i.r.p density | Res. 902(WRC 03)Annex 2 | Res. 902(WRC 03)Annex 2 | EN 303 978Section 4.2.3 |
| Applicable Standard | ITU-R Res. 902 (WRC03) | ITU-R Res. 902 (WRC03) | ECC Dec. (13)01 App. 1EN 303 978 |

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| Question 6: | Do Stakeholders have any comments on the proposed technical conditions for ESV authorization? |

### As a consequence of summarizing technical criteria in a table we propose to delete the following articles:

* Article 4.2, 4.3, 4.4

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| Question 7: | Do Stakeholders have any comments on the deletion of Articles 4.2, 4.3 and 4.4? |

# 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 views on the rewording of Article 2.1 and the proposed introduction of a new article requiring individual licensing for ESV? |
| Question 3: | Do Stakeholders agree to the deletion of Articles 2.3 and 2.4? |
| Question 4: | Do Stakeholders have any views on the extension of authorized frequencies to 29.5 – 30 GHz (earth-to-space) and19.7 – 20.2 GHz (space-to-earth) in Ka-Band? |
| Question 5: | Do Stakeholders have any comments on the proposed changes to Article 3.4 and 4.1? |
| Question 6: | Do Stakeholders have any comments on the proposed technical conditions for ESV authorization? |
| Question 7: | Do Stakeholders have any comments on the deletion of Articles 4.2, 4.3 and 4.4? |