



Responses to Public Consultation

TRA Regulations – Services Ancillary to Broadcast Production, Program Making & Special Events (PMSE)

Commencement Date: 10 July 2016

Response Date: 17 July 2016

Telecommunications Regulatory Authority (TRA)
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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 provide TRA comments on the responses received from stakeholders on the public consultation.

Stakeholders who wish to respond to this document 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, 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

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.

Consultation Schedule

| Milestone | Due Date | Notes |
|---|--------------|--|
| Closing Date for Initial Responses | 3 July 2016 | 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. | 19 June 2016 | <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 | 10 July 2016 | 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 | 17 July 2016 | 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 At the outset it should be noted that the TRA intend to issue its Regulations on Services Ancillary to Broadcast Production, Program Making & Special Events (PMSE). As such, all readers are informed that this document outlines the draft version of 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 TRA notes that in recent years Services Ancillary to Broadcast Production, Program Making & Special Events (PMSE) has seen a steady growth. There is a need to publish regulations for Services Ancillary to Broadcast Production, Program Making & Special Events (PMSE).
- 1.3 As such, the TRA acknowledges that the total number of stakeholders in the telecommunications sector is increasing and that their relative interests may also be growing or changing. Accordingly, the TRA considers that the inputs of all industry stakeholders 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.

2 Matter 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 These regulations comprises technical conditions for use of wireless equipment for the purposes of Programme Making, Special Events and Services Ancillary to Broadcasting and Production. These regulations shall be read in conjunction with the following regulatory instruments issued by the TRA and available from the TRA website at www.tra.gov.ae:
 - 1.2.1 Spectrum Allocation and Assignment Regulations
 - 1.2.2 Spectrum Fees Regulation
 - 1.2.3 Interference Management Regulations
 - 1.2.4 National Frequency Plan and National Table of Frequency Allocation

Question 1: Do you have any proposed modifications/additions/suppressions to Scope of Regulations Document.

Comments Received:

Delta Sound: No change.

Our Media Production: No change.

Yahsat: No Change

APWPT: We suggest to open some license-exempt tuning ranges for PMSE to support flexibility in daily event and content production. For example: Europe has harmonized the 800 and 1800 MHz duplex gaps and most European countries have implemented license-exempt audio PMSE operation in these bands.

TRA Comments to Consultation Responses:

As per the Telecom Law of the UAE, there is no license exempt use of wireless equipment. The TRA has Class Authorization category for low power wireless equipment. The frequency ranges in 800 and 1800 MHz bands that are suitable for PMSE are already included in the relevant PMSE categories as in the following Articles.

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 “**Applicant**” means any Person who has applied for an Authorization in accordance with the Telecom Law or other Regulatory Instruments issued by the Authority.
- 2.1.2 “**Application**” means the request for issuance of an Authorization, received at the Authority on prescribed forms as per the procedure in vogue.
- 2.1.3 “**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.
- 2.1.4 “**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.
- 2.1.5 “**Authorized User**” means a Person that has been granted an Authorization by the TRA.
- 2.1.6 “**ITU**” means the International Telecommunication Union, a leading United Nations agency for information and communication technologies.
- 2.1.7 “**PMSE**” means the Services Ancillary to Broadcast Production, Program Making & Special Events i.e. use of radio spectrum to support broadcasting and production of content, news gathering, concerts, theatrical productions, stage performances, educational institutes, exhibitions, conferences and special events such as culture events, concerts, sport events, conferences and trade fairs etc.

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- 2.1.8 **“Radio Regulations (RR)”** means a publication issued by the ITU, adopted by the World Radiocommunication Conference and ratified by the UAE.
- 2.1.9 **“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.
- 2.1.10 **“UAE”** means the United Arab Emirates including its territorial waters and the airspace above.

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

Comments Received:

Delta Sound: No change.

Our Media Production: No change.

Yahsat: The definition of PMSE is not one of a service that is identified in Article 1 of the Radio Regulations. In order to provide clarity to readers as to the nature of PMSE, the definition should be amended to specifically enumerate the radio services which it encompasses.

TRA Comments to Consultation Responses:

The PMSE is not a Radiocommunication service defined in the ITU RR but a specific use of wireless equipment i.e. for Services Ancillary to Broadcast Production, Program Making & Special Events i.e. use of radio spectrum to support broadcasting and production of content, news gathering, concerts, theatrical productions, stage performances, educational institutes, exhibitions, conferences and special events such as culture events, concerts, sport events, conferences and trade fairs etc. The use of such wireless equipment is facilitated under Mobile and Fixed Service categories mainly for low power equipment. These Regulations are intended to guide the users of PMSE equipment in the UAE similar to other Regulations like Earth Stations, UWB & SRD, etc.

APWPT: With regards to the definition “Authorized User” we would like to note that in a license-exempt tuning range the authorisation might refer to a group of self-co-ordinating users, e.g. “Professional Content and Event Production”.

TRA Comments to Consultation Responses:

As per the Telecom Law of the UAE, there is no license exempt use of wireless equipment. The TRA issues Class Authorization. The self coordination by Authorized users is also governed by the TRA as detailed in these Regulations.

Article (3)

Types of Wireless Equipment used for PMSE

- 3.1 The wireless equipment used for PMSE is divided into following three types:
- 3.1.1 **Wireless Audio Equipment**
 - 3.1.2 **Wireless Video Equipment**
 - 3.1.3 **Wireless Data Equipment**
 - 3.1.4 **Digital Satellite News Gathering (DSNG)**
- 3.2 The Applicant shall submit Application for each type separately for the designated frequency bands as mentioned in these Regulations.
- 3.3 The Applications for temporary events may be submitted together having all the above-mentioned types in one application as per the procedure and format defined by the TRA.
- 3.4 For major events, the TRA will require applicants to submit applications at least 4 weeks in advance of the event commencing.
- 3.5 Some PMSE equipment requirements may be covered under Class Authorization for UWB and Short Range Devices. Therefore, the TRA Regulations for UWB and Short Range Devices may be referred. Some PMSE equipment requirements may be covered by the other Regulations.
- 3.6 The Authorizations for PMSE may fall into one of the following categories:
- 3.6.1 **Temporary Use Location Specific:** Temporary use at a single, fixed location. In this category, the TRA will coordinate the use of assigned frequencies with other PMSE users.
 - 3.6.2 **Temporary Use Non-Location Specific:** Temporary use at several locations or over a pre-defined area. In this category, the Authorized User will share the assigned frequencies with other PMSE users on non-interference and no protection basis.
 - 3.6.3 **Annual Use Location Specific:** Annual use at a single, fixed location. In this category, the TRA will coordinate the use of assigned frequencies with other PMSE users.
 - 3.6.4 **Annual Use Non-Location Specific:** Annual use with no specific location. In this category, the Authorized User will share the assigned frequencies with other PMSE users on non-interference and no protection basis.
- 3.7 The frequency bands to accommodate the use of PMSE has been listed in the following Articles. However, the availability of exact frequencies may vary for each category above and the updated information will be available at TRA and also online www.tra.gov.ae

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- 3.8 The TRA may also issue authorizations for the use of frequencies identified as Short Range Device at higher power levels than those specified in the UWB and Short Range Device Regulations for location specific PMSE usage only in cases where the TRA establishes that no harmful interference will occur to other Authorized Users.

Question 3: Do you agree that the TRA has clearly stated all the possible type of PMSE usage and possible types of Authorizations an applicant may require?

Comments Received:

Delta Sound: 3.4 Delta Sound are of the opinion that it may not be possible to collate all the information required to submit an application at least 4 weeks prior to the event. The lead times and confirmations for large scale events is generally very late in comparison to other regions. Many of the large scale events are procured by government entities.

TRA Comments to Consultation Responses:

This requirement is for major events hosted in the UAE e.g. F-1, World Cup etc where very large amount of wireless equipment is used and immense coordination is required. For other medium to small events this requirement is not applicable.

Our Media Production: Programme making and special events (PMSE) equipment covers a wide variety of video and sound transmission applications which are increasingly important for the development of the media and entertainment industry in the Country. They include broadcasting, cultural, musical and theatrical performances, and social and sporting events. PMSE equipment is used for professional and non-professional purposes, for nation-wide events. Wireless microphones are the most common and widespread type of wireless audio PMSE equipment; associated systems include portable in-ear monitor and talkback systems and audio links.

The authority shall recognize cultural and creative industries as one of UAE's most dynamic sectors and an essential driver of cultural diversity. We further stress the importance of PMSE to seek to ensure the necessary frequency bands for such equipment, in accordance with the Authority's objectives to improve the integration of the internal market and access to culture. With regard to spectrum used by PMSE equipment due to historical discrepancies in national frequency plans in some regions globally and in the management of varying national demands and local needs. Although the provide guidance on the frequency bands and technical parameters for

PMSE equipment, these recommendations do not legally guarantee the harmonization of spectrum used by PMSE equipment across the Globe. Harmonizing the spectrum used by PMSE equipment should contribute to the internal market objectives by improving the quality and efficiency of spectrum use; providing long-term visibility and legal certainty for access to relevant spectrum bands throughout the Union; stimulating research

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and development, e.g. the digitalization of PMSE equipment and other aspects of efficiently using spectrum; encouraging investment by manufacturers in PMSE technology; lowering prices; allowing economies of scale; fostering cross-border portability of equipment and interoperability; and avoiding the sterilization of unused spectrum

PMSE equipment, in particular when used indoors, may be subject to harmful interference from mobile cellular networks and user equipment, such as smart phones, using adjacent frequency bands close to spectrum used by wireless audio PMSE equipment in the 800 MHz and 1 800 MHz duplex gaps. In line with the objectives and principles of the radio spectrum policy programme to find ways to avoid harmful interference and increase the efficient use of spectrum, such harmful interference could be avoided through certain interference mitigation solutions such as the specific procedure for interference-free operation of wireless microphone and in-ear monitor links or by applying other mitigation solutions. Authority should, where appropriate, encourage the application of such interference mitigation solutions and agreements, including by providing assistance or guidance to the parties involved

The requirements for social and cultural events will often exceed the amount of 29 MHz available in the duplex gaps of the 800 MHz and 1 800 MHz bands. Since the spectrum requirements for wireless audio PMSE use vary significantly, there is a need to ensure at Union level the availability of a baseline of about 60 MHz of sustainable spectrum to meet recurring ordinary needs for wireless audio PMSE equipment users, even if this would not cover all possible requirements which may occur.

Authority should therefore provide up to an additional amount of 30 MHz to meet possible demand for wireless audio PMSE applications at social and cultural events. Such spectrum should be selected from tuning ranges to be decided by Authority, preferably in the 470-790 MHz spectrum range, by using white spaces. The exact amount of spectrum to be either assigned or authorized should depend on the specific demands expressed and may not always require all 30 MHz. Member States should also decide at national level which authorization type and request procedures they should apply for such additional spectrum.

Moreover, spectrum requirements beyond 59 MHz which may appear in specific geographical areas, such as content production areas or theatre districts, or for large and exceptional events, are best addressed on a case-by-case basis at national level taking into account specific geographical and time constraints. Therefore, Member States should remain free to allow the use of more than the 59 MHz baseline.

Using different blocks of spectrum for different analogue wireless audio PMSE applications such as wireless microphones, in-ear monitors and talkback systems increases the possibilities to use spectrum by avoiding interference caused by intermodulation.

There is a need for a regular review of this Decision to cover new developments in particular to assess wireless audio PMSE spectrum requirements and the actual use of the harmonized bands.

The measures included in this Decision are in accordance with the opinion of the Radio Spectrum Committee,

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The above is written with aim to harmonies the technical conditions for the availability and efficient use of radio spectrum for wireless audio equipment used for programme making and special events ('PMSE').

Wireless audio PMSE equipment' means radio equipment used for transmission of analogue or digital audio signals between a limited number of transmitters and receivers, such as radio microphones, in-ear monitor systems or audio links, video link, used mainly for the production of broadcast programmes or private or public social or cultural events

'Non-interference and non-protection basis' means that no harmful interference may be caused to any radio communication service and that no claim may be made for the protection against harmful interference originating from radio communication services.

TRA Comments to Consultation Responses:

Certain frequency ranges in 800 and 1800 MHz bands as mentioned in the table has been identified for PMSE use based on the international studies and recommendations. So there will be no interference if the wireless equipment operated as per the technical conditions stipulated in these Regulations.

The whole band 470-694 MHz has been identified for PMSE use. However, this is based on tuning range and exact available channels for each location within the UAE will be made available and updated on the TRA Website time to time.

Yahsat: In its notice, the TRA proposes four types of equipment which may be used for PMSE. As mentioned in Yahsat's response for Q2 above, it is proposed that the radiocommunication service under which each type of equipment will be licensed should be clearly stated.

TRA Comments to Consultation Responses:

The PMSE is not a Radiocommunication service as defined in the ITU RR but a specific use of wireless equipment i.e. for Services Ancillary to Broadcast Production, Program Making & Special Events i.e. use of radio spectrum to support broadcasting and production of content, news gathering, concerts, theatrical productions, stage performances, educational institutes, exhibitions, conferences and special events such as culture events, concerts, sport events, conferences and trade fairs etc. The use of such wireless equipment is facilitated under Mobile and Fixed Service categories mainly for low power equipment. These Regulations are prepared to help and guide the users of PMSE equipment in the UAE similar to other Regulations like SRD & UWB etc

APWPT: In this section we have two suggestions; In general, we support a more detailed description of the different types of PMSE applications. In addition, we would like to note that the category „Wireless Data Equipment“ might not be detailed enough. We would kindly refer the TRA to existing International definitions, e.g. as listed in ERC Report 25-10 as published in 2013, please refer <http://www.ecodocdb.dk/doks/doccategoryECC.aspx?doccatid=2&alldata=1#1622>);

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| | |
|--------------------------------------|--|
| Radiomicrophone | Handheld or body worn microphone with integrated or body worn transmitter. |
| In-ear monitor | Body-worn miniature receiver with earpieces for personal monitoring of single or dual channel sound track. |
| Portable audio link | Body worn transmitter used with one or more microphones, with a longer operating range capabilities than that of radiomicrophones. |
| Mobile audio link | Audio transmission system employing radio transmitter mounted in/on motorcycles, pedal cycles, cars, racing cars, boats, etc. One or both link terminals may be used while moving. |
| Temporary point-to-point audio link | Temporary link between two points (e.g. part of a link between an OB site and a studio), used for carrying broadcast quality audio or for carrying service (voice) signals. Link terminals are mounted on tripods, temporary platforms, purpose built vehicles or hydraulic hoists. Two-way links are often required. |
| Cordless camera | Handheld or otherwise mounted camera with integrated transmitter, power pack and antenna for carrying broadcast-quality video together with sound signals over short-ranges. |
| Portable video link | Handheld camera with separate body-worn transmitter, power pack and antenna. |
| Mobile airborne video link | Video transmission system employing radio transmitter mounted on helicopters, airships or other aircraft. |
| Mobile vehicular video link | Video transmission system employing radio transmitter mounted in/on motorcycles, pedal cycles, cars, racing cars or boats. One or both link terminals may be used while moving. |
| Temporary point-to-point video links | Temporary link between two points (e.g. part of a link between an OB site and a studio), used for carrying broadcast quality video/audio signals. Link terminals are mounted on tripods, temporary platforms, purpose built vehicles or hydraulic hoists. Two-way links are often required. |
| Talk-back | For communicating the instructions of the director instantly to all those concerned in making the programme; these include presenters, interviewers, cameramen, sound operators, lighting operators and engineers. A number of talk-back channels may be in simultaneous use to cover those different activities. Talk-back usually employs constant transmission. |
| Telecommand/remote control | Radio links for the remote control of cameras and other programme making equipment and for signalling. |

TRA Comments to Consultation Responses:

The PMSE Data Applications covers the wireless equipment used in PMSE for data purposes e.g. Radio links for the remote control of cameras, Telemetry, and tele-

command and other program making equipment for signalling etc. Wireless Data Equipment is a very broad term but for the purpose of these Regulations it should be highly restricted to PMSE.

The wireless equipment for PMSE is categorised into Audio, Video and Data based in the usage. Further equipment categories are not defined i.e. PMSE Audio applications includes Radio Mic, IEM, Talkback etc to give flexibility to the users and to accommodate wireless equipment from other regions including Region-1 & 3.

- 2) With regards to section 3.6 and the suggested addition of some licence-exempt tuning ranges, we kindly like to suggest the addition of a “Long-term spectrum user”, for example Schools, Universities and fixed based production facilities (e.g. Theatres, Television Production Studios). However, these users could also be licenced, dependent on the tuning ranges of their chosen equipment.

TRA Comments to Consultation Responses:

There is no restriction on long term use of PMSE equipment by any user and Article 3.6 covers all such possible scenarios.

Article (4)

Wireless Audio Equipment

- 4.1 The Audio Applications covers the wireless equipment used in PMSE for audio / sound purposes e.g. Wireless / Radio Mic, In Ear Monitors, portable audio links, Talkback system etc.
- 4.2 The following table gives guidance on frequency ranges for PMSE Audio Applications, their use and applicable usage conditions. The wireless equipment which conforms to Short Range Devices (Refer to the TRA UWB and Short Range Device Regulations) will require Class Authorization. All other wireless equipment as per the following table will require an individual Authorization from the TRA. The Spectrum Fee of Low Power Devices shall be applicable as per Spectrum Fee Regulations.

| Frequency Range | Intended Use | Usage conditions | Authorization method | Notes |
|-----------------|--------------------|-----------------------|----------------------|---|
| 66.0 – 74.8 MHz | Radio micro-phones | Maximum 10 mW e.r.p. | Authorization | Above 73 MHz indoor only |
| 138 – 156 MHz | Talkback, | Maximum 1 W e.r.p. | Authorization | Based on sharing with PMR |
| 174 – 230 MHz | Radio micro-phones | Maximum 100 mW e.r.p. | Authorization | Based on tuning range. Exact available channels for each location will be updated on the TRA Web. |
| 406.1 – 450 MHz | Talkback, | Maximum 1 W e.r.p. | Authorization | Based on sharing with PMR |

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| | | | | |
|---------------------|-------------------------------------|--|--|---|
| 470 – 694 MHz | Radio micro-phones and IEM | Maximum 100 mW e.r.p. | Authorization | Based on tuning range. Exact available channels for each location will be updated on the TRA Web. |
| 823 – 826 MHz | Radio micro-phones and IEM | Maximum 20 mW e.i.r.p. | Short Range Device (Class Authorization) | |
| 826 – 832 MHz | Radio micro-phones and IEM | Maximum 100 mW e.i.r.p. | Short Range Device (Class Authorization) | |
| 863 – 870 MHz | Radio micro-phones and IEM | Maximum 50 mW e.i.r.p. | Short Range Device (Class Authorization) | |
| 960 – 1164 MHz | Radio micro-phones and IEM | As authorized | Authorization | For temporary use at large events only. Excludes DME/SSR frequencies. |
| 1660.5 – 1710 MHz | Audio and data links only | As authorized | Authorization | |
| 1785 – 1804.8 MHz | Radio micro-phones and IEM | Maximum 20 mW e.i.r.p. (handheld) and 50 mW e.i.r.p. (body worn) | Short Range Device (Class Authorization) | |
| 1880 – 1900 MHz | Radio micro-phones | Maximum 250 mW e.i.r.p. | Short Range Device (Class Authorization) | Using DECT technology only |
| 2400 – 2483.5 MHz | Radio micro-phones / Wireless video | Maximum 10 mW e.i.r.p. | Short Range Device (Class Authorization) | Shared with SRD including wireless video |
| 5150 MHz - 5875 MHz | Indoor conference systems | 160 mW | Short Range Device (Class Authorization) | Shared with SRD |

Question 4: Do you agree with the above mentioned bands for the PMSE Wireless Audio Equipment? Is the Authorization procedure is clear?

Comments Received:

Delta Sound:

Delta Sound would suggest extending the talkback Frequency Range to 470MHz.

TRA Comments to Consultation Responses:

The comments noted.

Our Media Production: Programme making and special events (PMSE) equipment covers a wide variety of video and sound transmission applications which are increasingly important for the development of the media and entertainment industry in the Country. They include broadcasting, cultural, musical and

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theatrical performances, and social and sporting events. PMSE equipment is used for professional and non-professional purposes, for nation-wide events. Wireless microphones are the most common and widespread type of wireless audio PMSE equipment; associated systems include portable in-ear monitor and talkback systems and audio links.

The authority shall recognize cultural and creative industries as one of UAE's most dynamic sectors and an essential driver of cultural diversity. We further stress the importance of PMSE to seek to ensure the necessary frequency bands for such equipment, in accordance with the Authority's objectives to improve the integration of the internal market and access to culture. With regard to spectrum used by PMSE equipment due to historical discrepancies in national frequency plans in some regions globally and in the management of varying national demands and local needs. Although the provide guidance on the frequency bands and technical parameters for

PMSE equipment, these recommendations do not legally guarantee the harmonization of spectrum used by PMSE equipment across the Globe. Harmonizing the spectrum used by PMSE equipment should contribute to the internal market objectives by improving the quality and efficiency of spectrum use; providing long-term visibility and legal certainty for access to relevant spectrum bands throughout the Union; stimulating research and development, e.g. the digitalization of PMSE equipment and other aspects of efficiently using spectrum; encouraging investment by manufacturers in PMSE technology; lowering prices; allowing economies of scale; fostering cross-border portability of equipment and interoperability; and avoiding the sterilization of unused spectrum

PMSE equipment, in particular when used indoors, may be subject to harmful interference from mobile cellular networks and user equipment, such as smart phones, using adjacent frequency bands close to spectrum used by wireless audio PMSE equipment in the 800 MHz and 1 800 MHz duplex gaps. In line with the objectives and principles of the radio spectrum policy programme to find ways to avoid harmful interference and increase the efficient use of spectrum, such harmful interference could be avoided through certain interference mitigation solutions such as the specific procedure for interference-free operation of wireless microphone and in-ear monitor links or by applying other mitigation solutions. Authority should, where appropriate, encourage the application of such interference mitigation solutions and agreements, including by providing assistance or guidance to the parties involved

The requirements for social and cultural events will often exceed the amount of 29 MHz available in the duplex gaps of the 800 MHz and 1 800 MHz bands. Since the spectrum requirements for wireless audio PMSE use vary significantly, there is a need to ensure at Union level the availability of a baseline of about 60 MHz of sustainable spectrum to meet recurring ordinary needs for wireless audio PMSE equipment users, even if this would not cover all possible requirements which may occur.

Authority should therefore provide up to an additional amount of 30 MHz to meet possible demand for wireless audio PMSE applications at social and cultural events. Such spectrum should be selected from tuning ranges

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to be decided by Authority, preferably in the 470-790 MHz spectrum range, by using white spaces. The exact amount of spectrum to be either assigned or authorized should depend on the specific demands expressed and may not always require all 30 MHz. Member States should also decide at national level which authorization type and request procedures they should apply for such additional spectrum.

Moreover, spectrum requirements beyond 59 MHz which may appear in specific geographical areas, such as content production areas or theatre districts, or for large and exceptional events, are best addressed on a case-by-case basis at national level taking into account specific geographical and time constraints. Therefore, Member States should remain free to allow the use of more than the 59 MHz baseline.

Using different blocks of spectrum for different analogue wireless audio PMSE applications such as wireless microphones, in-ear monitors and talkback systems increases the possibilities to use spectrum by avoiding interference caused by intermodulation.

There is a need for a regular review of this Decision to cover new developments in particular to assess wireless audio PMSE spectrum requirements and the actual use of the harmonized bands.

The measures included in this Decision are in accordance with the opinion of the Radio Spectrum Committee,

The above is written with aim to harmonies the technical conditions for the availability and efficient use of radio spectrum for wireless audio equipment used for programme making and special events ('PMSE').

Wireless audio PMSE equipment' means radio equipment used for transmission of analogue or digital audio signals between a limited number of transmitters and receivers, such as radio microphones, in-ear monitor systems or audio links, video link, used mainly for the production of broadcast programmes or private or public social or cultural events

'Non-interference and non-protection basis' means that no harmful interference may be caused to any radio communication service and that no claim may be made for the protection against harmful interference originating from radio communication services.

TRA Comments to Consultation Responses:

Certain frequency ranges in 800 and 1800 MHz bands as mentioned in the table has been identified for PMSE use based on the international studies and recommendations. So there will be no interference if the wireless equipment operated as per the technical conditions stipulated in these Regulations.

The whole band 470-694 MHz has been identified for PMSE use. However, this is based on tuning range and exact available channels for each location within the UAE will be made available and updated on the TRA Website time to time.

Yahsat: Yahsat would begin by pointing out that the public notice put forth by TRA does not indicate whether PMSE Audio Equipment will operate on a primary or sec-

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ondary basis in regards to the other users. As the band 5850-5925 MHz is allocated to the FSS in the Earth-to-space direction, would prefer that the operation of the PMSE Wireless Audio equipment in the band 5150-5875 MHz be limited to a secondary basis.

Yahsat is concerned that the deployment of PMSE in this band on a primary basis could pose restrictions to its deployment of earth stations in this band in order to protect the PMSE from interference. Furthermore, Yahsat is not aware of studies assessing the impact of this type of deployment on earth stations in close proximity (which could pick up signal at RF frequencies and rebroadcast). Yahsat is also concerned about the aggregation of interference of such systems as received at the geostationary arc.

In that context, Yahsat would prefer that the band 5925-5950 MHz not be identified for use by PMSE systems. In the alternative, such services could be operated, but on a secondary basis so as to ensure that it does not impose undue constraints on the FSS service in this band.

TRA Comments to Consultation Responses:

5150-5875 MHz will be authorized under Class Authorization which is by definition is a secondary use. 5925-5950 MHz is not listed in the Table.

APWPT: for this section we do have a number of suggestions:

1) Band 960 to 1164 MHz – Audio PMSE

Here we have a very interesting initiative from OFCOM UK that is now being discussed in a number of countries.

However, the suggested PMSE sharing scenario, in a band that is allocated for safe distance and location measurements on board aircraft, will require intensive and extensive research before any official national allocation should be considered and approved. It should be noted that CEPT will discuss from October a possible study mandate in relation to this frequency band. This might eventually result in consideration of this band within ITU-R. APWPT suggests a national allocation for UAE only if the studies confirm safe compatibility and non-interference between aircraft systems and audio PMSE systems, for both sets of users. A possible solution for this band, for the time being, in the table contained in the TRA regulations would be square brackets [] around the band until studies into its suitability for both parties have been successfully concluded.

2) Band 1350 to 1400 MHz – Audio PMSE

This tuning range is not listed in the current TRA table. The APWPT kindly suggests the adoption of this band into TRAs allocation table.

Background information: CEPT has finalized the compatibility studies. The EU top-level group ECC has suggested this band for a national allocation in European countries. This band has already been added to ERC REC 25-10 and ERC REC 70-03 and will be allocated in Europe from now. ERC REC 25-10 is suggested as an input to ITU-R WP5C that is studying world-wide PMSE spectrum under the mandate of RES 59-1 (RA-15 decision that was confirmed by WRC-15). Consequently, we expect this band to be a candidate for a possible world-wide harmonised tuning range for audio PMSE.

3) 1492 to 1518 MHz – Audio PMSE

This tuning range is not listed in the current TRA table. The APWPT kindly suggests the adoption of this band into TRAs allocation table.

Background information: Several European countries have already implemented 1492 to 1518 MHz for audio PMSE. However, we are aware that the WRC 2015 identified this range for IMT, but currently in a large number of countries there are no plans to deploy IMT services in this band. Allocating this range for PMSE until 2030 will allow some PMSE operations to be transferred from the UHF-TV band into this range, especially during large events.

We kindly ask TRA for advice if this band could be added to TRAs allocation table, e.g. for next 15 years.

4) Band 2400 to 2483.5 MHz – Audio PMSE

Currently audio PMSE equipment output power is limited to 10 mW. The APWPT kindly asks the TRA for a technical discussion that might lead to the deployment of higher output powers that would support PMSE equipment that is already on the market, e.g. 100 mW e.i.r.p. Additionally, it should be noted that in Europe wireless conference systems have been on the market for many years that operate in this tuning range

TRA Comments to Consultation Responses:

- 1) 960 – 1164 MHz: Noted
- 2) 1350 to 1400 MHz: Noted for future update
- 3) 1492 to 1518 MHz: IMT Band
- 4) 2400 to 2483.5 MHz: SRD allowed only up to 10mWatt

Article (5)

Wireless Video Equipment

- 5.1 The Video Applications covers the wireless equipment used in PMSE for video purposes e.g. Wireless Camera, Mobile airborne video link, Mobile vehicular video link, Portable video links etc.
- 5.2 The following table gives guidance on frequency ranges for PMSE Video Applications, their use and applicable usage conditions. The wireless equipment which conforms to Short Range Devices (Refer to the TRA UWB and Short Range Device Regulations) will require Class Authorization. All other wireless equipment as per the following table will require an individual Authorization from the TRA. The Spectrum Fee of Wireless Camera Links shall be applicable as per Spectrum Fee Regulations.

| Frequency Range | Intended Use | Usage conditions | Authorization method | Notes |
|-----------------|----------------|------------------|----------------------|--------------------|
| 1980 – 2010 MHz | Wireless video | As authorized | Authorization | Temporary use only |

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| Frequency Range | Intended Use | Usage conditions | Authorization method | Notes |
|-------------------|-------------------------------------|------------------------|--|---------------------------------------|
| 2010 – 2110 MHz | Wireless video | As authorized | Authorization | |
| 2170 – 2300 MHz | Wireless video | As authorized | Authorization | |
| 2300 – 2400 MHz | Wireless video | As authorized | Authorization | Temporary use for major events only. |
| 2400 – 2483.5 MHz | Radio micro-phones / Wireless video | Maximum 10 mW e.i.r.p. | Short range device (Class Authorization) | Shared with SRD and radio microphones |
| 2483.5 – 2500 MHz | Wireless video | As authorised | Authorisation | |
| 3100 – 3400 MHz | Wireless video | As authorized | Authorization | |
| 3600 – 4200 MHz | Wireless video | As authorized | Authorization | |
| 4400 – 4900 MHz | Wireless video | As authorized | Authorization | |
| 5150 – 5725 MHz | Wireless video | As authorized | Authorization | Shared with SRD |
| 5725 – 5875 MHz | Wireless video | Maximum 50 mW e.i.r.p. | Short range device (Class Authorization) | Shared with SRD |
| 5875 – 5925 MHz | Wireless video | As authorized | Authorization | Shared with SRD |
| 6700 – 8500 MHz | Wireless video | As authorized | Authorization | |
| 8600 – 9200 MHz | Wireless video | As authorized | Authorization | |
| 9800 – 10680 MHz | Wireless video | As authorized | Authorization | |
| 11700 – 12500 MHz | Wireless video | As authorized | Authorization | |
| 13400 – 14000 MHz | Wireless video | 25 mW e.i.r.p. | Short Range Device (Class Authorization) | Shared with SRD |
| 17100 – 17300 MHz | Wireless video | 100 mW e.i.r.p. | Short Range Device (Class Authorization) | Shared with SRD |
| 21200 – 23600 MHz | Wireless video | As authorized | Authorization | |
| 24000 – 24250 MHz | Wireless video | 100 mW e.i.r.p. | Short Range Device (Class Authorization) | Shared with SRD |
| 24250 – 24500 MHz | Wireless video | As authorised | Authorization | |
| 47200 – 50200 MHz | Wireless video | As authorized | Authorization | |
| 57000 – 64000 MHz | Wireless video | 100 mW e.i.r.p. | Short Range Device (Class Authorization) | Shared with SRD |

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Question 5: Do you agree with the above mentioned bands for the PMSE Wireless Video Equipment? Is the Authorization procedure is clear?

Comments Received:

Delta Sound: No change.

Our Media Production: I think the process should be briefed more as some video equipment is not included, working at a frequency range starting from 300 MHz to 8 GHz. These mostly use RF Transmission or micro-wave and the modulation used is mostly COFDM.

TRA Comments to Consultation Responses:

The procedure to obtain a frequency spectrum authorization for all service is standardized including PMSE and available at the TRA web www.tra.gov.ae

Yahsat: Yahsat is concerned about numerous bands which are proposed for the licensing of PMSE wireless service. These consist of the following bands:

- a. 3600-4200 MHz
- b. 5725-5925 MHz
- c. 6700-8500 MHz
- d. 11700-12500 MHz
- e. 13400-14000 MHz
- f. 21200-23600 MHz
- g. 47200-50200 MHz

For (a), (c), and (d), FSS/BSS allocations in these bands are in the space-to-Earth direction. As such, earth stations located in the UAE which make use of either C or Ku band stand to suffer harmful interference from PMSE operations in these bands. Also, should the UAE military elect to use X band for communication by satellite, or to host foreign military forces which use X band terminals, such operations could be disrupted by PMSE applications.

The large distances between earth stations and the GSO satellites from which they receive signals require that satellite earth stations be extremely sensitive to in band signals. Interference from PMSE stand to be exceeding disruptive to satellite earth station receivers over large distances.

In the case of (f) above, Yahsat is concerned that the interference from PMSE systems operating in the band 21200-23600 MHz could cause interference to critical military systems operating in the adjacent band of 20200-21200 MHz. As this is also a satellite downlink band, satellite earth station receivers could be disrupted by adjacent band PMSE systems. Yahsat would at a minimum require that additional technical studies be done for the protection satellite earth station receivers in C, X, Ku and Ka band. Each of these bands carries key services which should not be disrupted by the licensing of PMSE video systems. In regards to the FSS/BSS uplink allocations in the bands listed in (b), (c), (e) and (g) above,

Yahsat would reiterate its comments from the previous question. Studies need to be done to clearly show that the aggregation of such deployments do not pose a risk of interference

at the GSO arc. As well, the deployment of the FSS in these bands should not be limited by the licensing of PMSE systems. In particular concern to Yahsat is the band 47.2 to 50.2 GHz, which stands to be a key frequency band on its next satellite.

In summary, Yahsat would propose that the identification of the bands listed in (a) to (g) above for the licensing of PMSE be deferred until such time as the protection of the FSS and BSS is ensured.

TRA Comments to Consultation Responses:

Noted. PMSE is allowed on secondary and non-interference basis.

APWPT: No Change

Article (6)

Wireless Data Equipment

- 6.1 The Data Applications covers the wireless equipment used in PMSE for data purposes e.g. Radio links for the remote control of cameras, Telemetry, and telecommand and other program making equipment for signaling etc.
- 6.2 The following table gives guidance on frequency ranges for PMSE Data Applications, their use and applicable usage conditions. The wireless equipment which conforms to Short Range Devices (Refer to the TRA UWB and Short Range Device Regulations) will require Class Authorization. All other wireless equipment as per the following table will require an individual Authorization from the TRA. The Spectrum Fee of Private Mobile Radio (PMR) shall be applicable as per Spectrum Fee Regulations.

| Frequency Range | Intended Use | Usage conditions | Authorization method | Notes |
|-------------------|----------------------------------|--------------------|----------------------|---------------------------|
| 138 – 156 MHz | Talkback, telemetry, telecommand | Maximum 1 W e.r.p. | Authorization | Based on sharing with PMR |
| 406.1 – 450 MHz | Talkback, telemetry, telecommand | Maximum 1 W e.r.p. | Authorization | Based on sharing with PMR |
| 1660.5 – 1710 MHz | Audio and data links only | As authorized | Authorization | |

Question 6: Do you agree with the above mentioned bands for the PMSE Wireless Video Equipment? Is the Authorization procedure is clear?

Comments Received:

Delta Sound: Can this cover wireless audio as well as data.

TRA Comments to Consultation Responses:

Frequency ranges for Audio application already mentioned in above Article. Here it is for Data purposes only.

Our Media Production: No change.

Yahsat: No Change

APWPT: No Change

Article (7)

Digital Satellite News Gathering (DSNG)

7.1 Please refer to the TRA Earth Station Regulations.

Question 7: Do you have any proposed modifications/additions/suppressions to the Article 7.

Comments Received:

Delta Sound: No change.

Our Media Production:

For DSNG services following additions can be helpful especially for news gathering.

- Vehicle mount DSNG (Authorization to fix the antenna on the roof, it makes the operation smooth for the uplink company and for the concern management rather than using flyaway.
- Annual permission for News, event and Sports permission for DSNG/Flyaway.

DSNG service are mainly required for following purpose

- CATEGORY A

News Up Link for foreign and local news agencies, Without Advertisement

- CATEGORY B

Sport Production for Sports channel by agency or by the Sports channel having the event rights. Carrying advertisement

- CATEGORY C

Shows/events/ Award ceremony's etc carrying advertisement.

TRA Comments to Consultation Responses:

Comment may be submitted once the TRA Earth Station Regulations will be under review.

Yahsat: No Change

APWPT: No Change

Article (8)

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 shall support the coordination procedures.

Question 8: Do you have any proposed modifications/additions/suppressions to Article 8.

Comments Received:

Delta Sound: No change.

Our Media Production: No change.

Yahsat: No Change

APWPT: No Change

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 view-points as well as recommendations regarding how such issues might be resolved.