MALTA COMMUNICATIONS AUTHORITY

Proposed changes to the spectrum allocations and licensing regime for radio microphones due to the introduction of wireless broadband services in the 800 MHz band

Consultation on Proposed Decision

Consultation Document

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1. INTRODUCTION

Radio microphones fulfil an important role supporting social, cultural, educational and entertainment activities. Radio microphones are also used by a vast and diverse range of users in both indoor and outdoor environments and the provision of adequate spectrum is essential to their operation.

Over the years the European Conference of Postal and Telecommunications Administrations (CEPT) has harmonised a number of frequency tuning ranges for use by radio microphones. While the frequency management situation across Europe varies considerably between countries, all have made some spectrum in the UHF band available for radio microphones where these are allowed to operate in the interleaved spectrum between television broadcasting transmissions, primarily within the 470 MHz - 862 MHz range.

In Malta, the National Frequency Plan identifies for use by radio microphones a total of 38.98 MHz of spectrum in the range between 29.7 MHz to 1800 MHz. Additional spectrum within the 470 - 782 MHz band can also be used for radio microphones but on a temporary basis.

At an international level the sub-band 790 - 862 MHz (800 MHz band) has been earmarked for wireless broadband services. Subsequently the Radio Spectrum Policy Programme (RSPP)[1] mandated European Member States to make this band available for wireless broadband applications by the 1st January 2013[2]. Earlier this year the MCA issued a public consultation (MCA/C/14-1839[3]) outlining its proposals in this respect.

Technical studies undertaken by CEPT[4] have concluded that radio microphones cannot operate on channels being used for wireless broadband as this could create interference. There is therefore an inherent necessity to move radio microphone users outside that spectrum being allocated to wireless broadband services and to allocate alternative spectrum as necessary.

This document puts forward for consultation the process the MCA intends to adopt to migrate radio microphones from the 854-862 MHz band.

[1] Decision No. 243/2012/EU of the European Parliament and of the Council of 14 March 2012 establishing a multiannual radio spectrum policy programme.

[2] Through Commission Decision No. C(2013) 4590 Malta was granted a derogation to make the 800 MHz band available for electronic communications services other than broadcasting by 31 December 2014.

[3] Consultation document MCA/C/14-1839 dated 20 March 2014 on the assignment process for additional spectrum for wireless broadband, http://www.mca.org.mt/consultations/mca-consultation-assignment-process-additional-spectrum-wireless-broadband.

[4] CEPT Report 032 - Report from CEPT to the European Commission in response to the Mandate on "Technical considerations regarding harmonisation options for the digital dividend in the European Union" - Recommendation on the best approach to ensure the continuation of existing Program Making and Special Events (PMSE) services operating in the UHF (470-862 MHz), including the assessment of the advantage of an EU-level approach

2. REGULATORY SITUATION FOR RADIO MICROPHONES IN MALTA

In Malta, the National Frequency Plan[5] makes available a number of frequency ranges which can be used for radio microphones. The use of these frequency ranges by radio microphones is considered as secondary whereby radio microphones are allowed to operate on a non-interference and non-protection basis[6].

Depending on the operating frequency of the equipment, radio microphones are either licensed through a general authorisation or an individual licence. In the case of individual licences these are currently only issued for a temporary duration.

Table 1 below lists the operating frequency ranges which are currently permitted for radio microphones in Malta. Radio microphones which are regulated by the general authorisation regime have to meet the technical and other operating parameters defined in the General Authorisation (Radiocommunications Apparatus) Regulations[7]. The main technical parameters establish restrictions on the allowed channel spacing and transmit power limit.

Radio microphones which are regulated by an individual licence are required to operate on sub-frequency bands determined by the Authority to ensure that this equipment does not operate on frequency channels assigned for terrestrial television broadcasting services. A licence fee is also levied for the grant of these licences. It should be noted that in accordance with the National Frequency Plan the operation of radio microphones in the 470 - 790 MHz band is temporary.

Operating Frequency Ranges (MHz)	Applicable Licensing Regime
29.7 – 34.9 37.5 – 40.98 173.7 – 181	General Authorisation
470 – 790*	Individual License
854 – 862 863 – 865 1785 – 1795 1795 – 1800	General Authorisation

* the transmit frequency is defined by the Authority in the licence.

TABLE 1: OPERATING FREQUENCY RANGES FOR RADIO MICROPHONES

[5] http://www.mca.org.mt/national-frequency-plan.

[6] On a non-interference and non-protection basis means that no harmful interference may be caused to other users of the band and that no claim may be made for protection from harmful interference received from other systems or services operating in that band.

[7] S.L. 399.40, http://www.justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=11475&l=1.

3. DRIVERS AFFECTING SPECTRUM ALLOCATED TO RADIO MICROPHONES

Traditionally, the 470 - 862 MHz band enjoyed an exclusive primary allocation for the provision of terrestrial television broadcasting services. Today, terrestrial television broadcasting is subject to the Geneva 2006 Agreement of the International Telecommunication Union (ITU), and this provides the possibility to use spectrum within this band in a flexible manner, i.e. for services other than broadcasting.

The migration of terrestrial television transmissions from analogue to digital resulted in increased spectrum efficiency. During the 2007 World Radiocommunication Conference of the ITU the 800 MHz band was allocated to mobile services, thereby allowing the deployment of IMT[8] applications in the said band.

In this regard it should be noted that the 2012 World Radiocommunication Conference has also allocated on a primary basis the sub-band 694-790 MHz (700 MHz band) to the mobile service, however, this allocation will become effective in 2015[9].

At present spectrum use by wireless microphones[10] in Europe is guided by a number of CEPT[11] deliverables. Of particular relevance is Annex 10 of Recommendation 70-03 that deals specifically with radio microphones[12] and that is revised periodically to reflect the rapid developments taking place in the technical and regulatory environments. In 2009 CEPT adopted ECC Decision (09)03[13] wherein Annex 3 has established the technical parameters applicable to microphones within the frequency ranges 786-789 MHz and 823-832 MHz.

Specifically for the European Union, the RSPP requires EU Member States to allow the use of the 800 MHz band for electronic communications services. To this end, the MCA, in line with the requirements of this Decision is now planning to make this band available for wireless broadband applications, such as long term evolution (LTE). More information relating to this process is published in document MCA/C/14-1839.

[8] International Mobile Telecommunications (IMT) systems are mobile systems that provide access to a wide range of telecommunication services including advanced mobile services, supported by mobile and fixed networks, which are increasingly packet-based.

[9] Certain technical and other regulatory parameters relating to the use of the 700 MHz band are still to be determined by the 2015 World Radiocommunication Conference (WRC-15).

[10] Within Europe, radio microphones are also referred to as wireless audio PMSE (programme making and special events).

[11] CEPT is one of the leading European organisations dealing with radiocommunications and that has as a primary objective the harmonisation and the efficient use of the radio spectrum.

[12] ERC Recommendation 70-03 relating to the use of short range devices (SRD), http://www.erodocdb.dk/doks/filedownload.aspx?fileid=1694&fileurl=http://www.erodocdb.dk/Docs/doc98/official/pdf/REC7003e.pdf.

[13] ECC Decision of 30 October 2009 on harmonised conditions for mobile/fixed communications networks (MFCN) operating in the band 790-862 MHz, http://www.erodocdb.dk/Docs/doc98/official/pdf/ECCDEC0903.PDF.

The imminent use of the 800 MHz band, as well as the future use of the 700 MHz band for wireless broadband applications is expected to impact the current spectrum management environment of radio microphones in the UHF band. As stated earlier in the document, the operation of radio microphones in the 800 MHz band will be affected by the deployment of wireless broadband networks. The only solution is to migrate radio microphones to other frequency bands.

In this regard reference should be made to the studies carried out at a European level to identify spectrum that could be harmonised for wireless audio PMSE applications, in particular to CEPT Report 50[14] and its addendum[15]. This Report concluded that the 800 MHz and 1800 MHz gap bands (821-832 MHz and 1785-1805 MHz respectively) could be used for wireless audio PMSE applications. This Report includes the relevant technical conditions which facilitate the use of PMSE equipment for EU-wide operations. These conditions were derived from studies carried out by CEPT on the potential interference from PMSE equipment into wireless broadband networks operating in the adjacent bands.

The outcome of this Report is currently being considered by the relevant EU institutions and it is expected that an EU-wide harmonisation measure will be adopted later on this year.

[14] Report A from CEPT to the European Commission in response to the Mandate "On technical conditions regarding spectrum harmonisation options for wireless radio microphones and cordless video-cameras (PMSE equipment)", http://www.erodocdb.dk/Docs/doc98/official/pdf/CEPTREP050.PDF.

[15] http://www.erodocdb.dk/doks/filedownload.aspx?fileid=4032&fileurl=http://www.erodocdb.dk/Docs/doc98/official/zip/CEPTRep50_Addendum.zip.

4. PROPOSED MODIFICATIONS TO THE CURRENT FRAMEWORK FOR RADIO MICROPHONES

The MCA recognises the importance that radio microphones have in our society. In this regard, in this section, it will be proposing a number of actions that are necessary to ensure that radio microphones currently operating in the 854 - 862 MHz band have alternative and adequate spectrum available.

4.1 FUTURE OF THE 854-862 MHz BAND

As stated earlier in this document, radio microphones can no longer use the 854-862 MHz frequency range due to coexistence issues with wireless broadband networks such as LTE. The deployment of the said wireless broadband networks is expected to take place in early 2015[16].

In this regard the MCA proposes that radio microphones cease to use the full 854-862 MHz band by 31 December 2014. Following this date radio microphones will no longer be allowed to operate in all this band but operation will be limited to a small amount of spectrum.

4.2 NEW SPECTRUM BANDS FOR RADIO MICROPHONES

In line with the recommendations contained in CEPT Report 50 as well as with the direction being taken at an EU level, the MCA intends to recommend to Government to make spectrum within the duplex gaps in the 800 MHz and 1800 MHz bands namely (821-832 MHz[17] and 1785-1805 MHz respectively) available for radio microphones.

It should be noted that in Malta the band 830-838 MHz (television channel 66) is currently in use for digital terrestrial television transmissions. Cross-border coordination procedures are currently underway to migrate these transmissions to another channel. Consequently, the 800 MHz gap can only be made available for radio microphones when these procedures are successfully completed and channel 66 migrated. In this regard the MCA is proposing to publish a notice in its corporate website announcing the date when this band can be used by radio microphones.

With regard to the 1800 MHz band, it should be noted that as stated earlier in this document in accordance with the National Frequency Plan the sub-band 1795-1800 MHz is already available for radio microphones. Therefore, in line with the aforesaid EU direction the MCA will be recommending to extend the spectrum availability within this band for radio microphones following revisions of national regulations.

[16] This date is dependent on cross-border coordination activities which are currently being undertaken by the MCA.

[17] The CEPT recommendation is to retain the 821 - 823 MHz as a guard band.

Regarding the use of spectrum within the 470-782 MHz band the MCA considers that those frequency bands which are currently not earmarked for terrestrial television transmissions can continue to be used for radio microphones. However, it should be stressed that in the event of a change in the spectrum management environment[18] which could be relevant to this frequency range, the MCA will following a notice published in its corporate website restrict the use of certain sub-bands with this frequency range by radio microphones. The MCA will publish this notice at least 60 days prior such a restriction will come into effect.

It should also be stressed that in line with proposed EU legislation at least 30 MHz of spectrum will be retained for use by radio microphones within the 470-782 MHz band.

4.3 LICENSING REGIME FOR RADIO MICROPHONES

As stated in section 2.1 of this consultation document, radio microphones are either regulated under a general authorisation regime or else by an individual licence.

The general authorisation regime was introduced in 2011 and so far it was not necessary to take any action to enforce the conditions therein.

In this regard the MCA proposes that radio microphones operating within the 470-782 MHz frequency range are also governed by a General Authorisation. This will be subject to compliance with certain technical and other regulatory parameters, such as those indicated in tables 2, 3, 4a and 4b below.

Frequency Band	Transmit power limit	Additional parameters
29.7-34.9 MHz	30 mW e.r.p.	Channel spacing (maximum): 50 kHz
37.5-40.98 MHz	30 mW e.r.p.	Channel spacing (maximum): 50 kHz
470-782 MHz excluding the sub-bands: • 526-534 MHz • 550-558 MHz • 582-590 MHz • 606-614 MHz • 646-654 MHz • 662-670 MHz • 750-758 MHz • 766-774 MHz	50 mW e.r.p.	
823-832 MHz	Refer to Table 3.	
854-862 MHz	50 mW e.r.p.	
863-865 MHz	10 mW e.r.p.	
1785-1805 MHz	Refer to Tables 4a and 4b.	

TABLE 2 : PROPOSED TECHNICAL PARAMETERS FOR RADIO MICROPHONES

[18] Events which could change the spectrum management environment are new frequencies which could be made available to Malta for terrestrial television services, international harmonisation measures including the availability of the 700 MHz for wireless broadband services.

Frequencies below 821 MHz	821-823 MHz	823-826 MHz	826-832 MHz	Frequencies above 832 MHz
Out-of-block baseline limits	Guard band (for protection against interference from radio microphones into the downlink of mobile fixed communications networks)	In-block limits		Out-of-block baseline limits
Out-of-block e.i.r.p. is -43 dBm/(5 MHz)		➢ in-block e.i.r.p. of 13 dBm for hand-held radio microphones. ➢ in-block e.i.r.p. of 20 dBm for body-worn radio microphones	in-block e.i.r.p. of 20 dBm	Out-of-block e.i.r.p. is -25 dBm/(5 MHz).

TABLE 3 : PROPOSED BLOCK EDGE MASK CONDITIONS APPLICABLE TO THE 800 MHZ GAP BAND

Parameter	Frequency Range	Handheld e.i.r.p.
Out-of-block	< 1785 MHz	-17 dBm/200kHz
Restricted frequency range	1785-1785.2 MHz	4 dBm/200kHz
	1785.2-1803.6 MHz	13 dBm/channel
	1803.6-1804.8 MHz	10 dBm/200kHz, with a limit of 13 dBm/channel.
	1804.8-1805 MHz	-14 dBm/200kHz
Out-of-block	> 1805 MHz	-37 dBm/200kHz

TABLE 4A : PROPOSED BLOCK EDGE MASK CONDITIONS APPLICABLE TO HANDHELD RADIO MICROPHONES IN THE 1800 MHZ GAP BAND

Parameter	Frequency Range	Body worn e.i.r.p.
Out-of-block	< 1785 MHz	-17 dBm/200kHz
	1785-1804.8 MHz	17 dBm/channel
Restricted frequency range	1804.8-1805 MHz	0 dBm/200kHz
Out-of-block	> 1805 MHz	-23 dBm/200kHz

TABLE 4B : PROPOSED BLOCK EDGE MASK CONDITIONS APPLICABLE TO BODY WORN RADIO MICROPHONES IN THE 1800 MHZ GAP BAND

5. CONSULTATION QUESTIONS

a. Do you support the proposal to make available the additional spectrum bands indicated under section 4.2, namely 823-832 MHz and 1785-1805 MHz? Justify in case of a negative position.

c. Do you agree with the procedure proposed in section 4.2 relating to the introduction of specific limitations on the use of certain sub-bands within the 470-782 MHz band and to the 60-day notice period by when any restrictions would apply? Justify in case of a negative position.

d. Do you agree that wireless microphones are covered by a general authorisation instead of an individual licence as described under section 4.3? If not, please justify.

e. Do you have any comments relating to the technical parameters contained in tables 2, 3, 4a and 4b under section 4.3?

The MCA would be pleased to receive comments and proposals on any other aspects that may be deemed relevant for the purposes of this consultation.

6. SUBMISSION OF RESPONSES

In accordance with its obligations under Article 4A of the Malta Communications Authority Act [Cap. 418 of the Laws of Malta], the Authority welcomes written comments and representations from interested parties and stakeholders during the national consultation period which shall run from the 11th June 2014 to the 2nd July 2014.

The Authority appreciates that respondents may provide confidential information in their feedback to this consultation document. This information is to be included in a separate annex and should be clearly marked as confidential. Respondents are also requested to state the reasons why the information should be treated as confidential.

For the sake of openness and transparency, the MCA will publish a list of all respondents to this consultation on its website, up to three days following the deadline for responses. The Authority will take the necessary steps to protect the confidentiality of all such material as soon as it is received at the MCA offices in accordance with the MCA's confidentiality guidelines and procedures[19]. Respondents are however encouraged to avoid confidential markings wherever possible.

All responses should be submitted to the Authority, in writing by no later than 12:00 hrs. on 2 July 2014 and addressed to:

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Extensions to the consultation deadline will only be permitted in exceptional circumstances and where the Authority deems fit. The MCA reserves the right to grant or refuse any such request at its discretion. Requests for extensions are to be made in writing within the first ten (10) working days of the consultation period.

[19] http://www.mca.org.mt/sites/default/files/articles/confidentialityguidelinesFINAL_0.pdf