

United States of America

PROPOSAL FOR THE WORK OF THE CONFERENCE

Agenda Item 1.5: *To consider worldwide/regional harmonization of spectrum for electronic news gathering (ENG), taking into account the results of ITU-R studies in accordance with Resolution 954 (WRC-07);*

Background:

WRC-07 established Resolution 954 [COM6/5] (WRC-07), which ‘invites ITU-R to carry out studies of ENG regarding possible solutions for global/regional harmonization in frequency bands and tuning ranges, taking into account: available technologies to maximize efficient and flexible use of frequency; system characteristics and operational practices which facilitate the implementation of these solutions.’ CPM11-1 established a framework for the studies to be undertaken as outlined in Resolution 954 [COM6/5] (WRC-07) under WRC-11 Agenda Item 1.5.

Resolution 954 calls for studies to determine whether, and to what extent, harmonization of spectrum can be achieved.

Careful consideration needs to be given to the need for regulatory solutions for this agenda item. It is possible that rationalization (the use of available technology to maximize efficient and flexible use of frequency assets) would be more effective in utilizing existing spectrum allocations in the mobile and fixed service where ENG is employed. As can be seen below there is considerable spectrum already being used for mobile and fixed applications of ENG.

Recommendation ITU-R M.1824 shows that the following bands allocated to the Mobile Service on either a PRIMARY or SECONDARY basis¹ are used for ENG.

¹ Each table contains the letters “R1”, “R2” and “R3”, “r1”, “r2”, “r3”, and the reference to footnote 5.xxx. The letters “R1”, “R2” and “R3” stand for the ITU-R Region which has a primary mobile allocation to the specified frequency band, the letters “r1”, “r2” and “r3” stand for the ITU-R Region which has a secondary mobile allocation to the specified frequency band, and the reference to footnote 5.xxx refers to the country footnote in the table of frequency allocations.

Deleted: Noting¶
<#>that studies undertaken by ITU-R indicate that national spectrum management could benefit from globally harmonized band planning for ENG systems;¶
¶
Recognizing¶
d) . that access to a globally harmonized spectrum is highly desirable to facilitate the rapid and less restricted deployment and operation of ENG systems from one country to another,¶
¶
Resolves¶
1 . that, based on studies undertaken by ITU-R, WRC-11 should address the feasibility of achieving a satisfactory degree of worldwide/regional harmonization of spectrum for ENG use in terms of the frequency bands and tuning ranges;¶
2 . that methods should be identified for the possible harmonization of frequency bands and tuning ranges for ENG usage,¶
invites ITU-R¶
1 . to carry out studies of ENG regarding possible solutions for global/regional harmonization in frequency bands and tuning ranges, taking into account:¶
– available technologies to maximize efficient and flexible use of frequency;¶
– system characteristics and operational practices which facilitate the implementation of these solutions;¶
2 . to include in the studies referred to above sharing and compatibility issues with services already having allocations in frequency bands and tuning ranges which have potential for ENG use;¶
3 . to propose operational measures to facilitate operation of ENG equipment consistent with global circulation of radiocommunication equipment, taking into account Recommendation ITU-R M.1637;¶
4 . to report the results of those studies to the World Radiocommunication Conference 2011,¶

Mobile Spectrum Already Used for ENG

Deleted: Careful consideration needs to be given to the need for regulatory solutions for this agenda item. It is possible that rationalization (the use of available technology to maximize efficient and flexible use of frequency assets) would be more effective in utilizing existing spectrum allocations in the mobile and fixed service where ENG is employed. As can be seen below there is considerable spectrum designated for mobile and fixed applications of ENG.¶

TABLE 1

Frequency bands for BAS video link systems operated in the mobile service in Recommendation ITU-R M.1824

770-806 MHz (r2, R3, 5.293)	5 850-5 925 MHz (R1, R2, R3)	10.25-10.45 GHz (R1, R3, 5.480)	41.55-41.95 GHz (r1, r2, r3, 5.551F)
790-862 MHz (5.314, 5.316)	6 425-6 570 MHz (R1, R2, R3)	10.55-10.68 GHz (R1, R2, R3)	
	6 870-7 125 MHz (R1, R2, R3)	12.95-13.25 GHz (R1, R2, R3)	

Deleted: -----Page Break-----

TABLE 2

Frequency bands for BAS talkback/walkie-talkie systems operated in the mobile service in Recommendation ITU-R M.1824

26.574 MHz (R1, R2, R3)	143-144 MHz (5.211, 5.212, R2, R3)	166.5-166.9 MHz (R1, R2, R3)	459.5125-460 MHz (R1, R2, R3)
	146-148 MHz (R1, 5.217, R3)	168.5-168.9 MHz (R1, R2, R3)	469.5-470 MHz (R1, R2, R3)
	148-149.9 MHz (R1, R2, R3)		
	149.9-150.05 MHz (5.223)		
	150-156.7625 MHz (R1, R2, R3)		
	156.8375-174 MHz (R1, R2, R3)		

TABLE 3

Frequency bands for BAS audio link systems operated in the mobile service in Recommendation ITU-R M.1824

38.96 MHz (R1, R2, R3)	164-167 MHz (R1, R2, R3)	462-465 MHz (R1, R2, R3)	3 405-3 423 MHz (r1, r2, r3, 5.432)
----------------------------------	------------------------------------	------------------------------------	---

Recommendation ITU-R F.1777 shows the following bands allocated to the Fixed Service on either a PRIMARY or SECONDARY basis are used for BAS, including ENG.

Fixed Spectrum Already Used for ENG

TABLE 4

Frequency bands for Digital FS systems for BAS in Recommendation ITU-R F.1777

Frequency band (GHz)⁽¹⁾	0.770 < f < 0.806	2.025 ≤ f < 2.110 2.200 ≤ f < 2.290 2.500 ≤ f < 2.690 3.400 ≤ f < 3.600	5.850 < f < 8.500 10.250 < f < 13.250
---	--------------------------------	--	--

⁽¹⁾ Frequency band 10.0-10.45 GHz is only a fixed allocation in Region 1 and 3. Other frequency bands are allocated to a FS in all three Regions.

WP 6J (former WP 6P) developed Report ITU-R BT.2069, which documented that four distinct general applications are utilized in support of the broadcasting service². Those four applications are: Field use applications, Field transmission applications, Fleet transmission applications, and Mobile repeater applications. The harmonization and rationalization of spectrum for each of these applications should be considered separately, as their spectrum requirements are different and the potential for spectrum re-use is also unique.

Digitization will have minimal impact on the spectrum requirements for these applications. In fact, Report ITU-R BT.2069 indicates that if digitization is successful, overall more links will be required. This is partially based on the ability to use more wireless equipment (audio/video) on site at events.

Spectrum harmonization provides many benefits but may not be feasible given the disparate use of spectrum by the many countries involved and the differing broadcasting standards in use in the three ITU Regions. Instead a mechanism for spectrum rationalization may be more productive in allowing foreign broadcasters knowledge of, and access to, the needed spectrum in a given country/region to ensure that international news worthy events can be covered.

Proposals:

/USA/ /1.5/1

ADD

DRAFT RESOLUTION [USA-1.5/1] (WRC-11)

² The four categories of applications are a generalization of the specific applications found in Section 3.1 on page 5 of Report ITU-R BT.2069-1.

Deleted: Recommendation ITU-R F.1777 shows the following bands allocated to the Fixed Service on either a PRIMARY or SECONDARY basis are used for BAS, including ENG.¶

Deleted: was based on work by a Rapporteur with the mandate to study:¶
 – the technical, operational and frequency issues of ENG on a global basis;¶
 – whether digitization may provide an opportunity for more efficient spectrum usage for ENG that could assist with meeting a growing demand for spectrum by these systems;¶
 – provision of adequate and appropriate spectrum to meet the needs of broadcasters including the temporary needs of visiting broadcasters of other administrations.¶

¶ It is clear from the data gathered and by the contents of Report ITU-R BT.2069

Deleted: distinctly

Deleted: distinctly

Deleted: ¶
 <#>Field use applications¶
 <#>High Density / low spectrum bandwidth nomadic/mobile user applications involving audio wireless personal links.¶
 <#>On sight application¶
 <#>Radio microphone¶
 <#>In-ear monitor¶
 <#>Portable audio link¶
 <#>Talk back¶
 <#>Field transmission applications¶
 <#>High density / Medium spectrum bandwidth nomadic/mobile user applications involving audio/video wireless transmissions from an event location to the remote terminal (nomadic vehicle platform).¶
 <#>On sight application¶
 <#>Mobile audio link¶
 <#>Cordless camera¶
 <#>Portable video link¶
 <#>Mobile vehicular video link¶
 <#>Telecommand/remote control¶
 <#>Fleet transmission applications¶
 <#>Medium Density / High spectrum bandwidth point-to-point applications involving audio/video wireless transmissions from the remote terminal to the broadcasting station or repeater location.¶
 <#>On sight termination to/from airborne repeater, fixed repeater, or broadcast station.¶
 <#>Temporary point-to-point audio/video link¶
 <#>Mobile repeater applications¶
 <#>Low Density / High Spectrum bandwidth point-to-point repeater applications involving audio/video wireless transmissions from the remote terminal to the broadcasting station (... [1])

Spectrum Management Guidelines for Electronic News Gathering (ENG)³

The World Radiocommunication Conference (Geneva, 2011),

considering

- a) that some administrations may have different operational needs and spectrum requirements for electronic news gathering, depending on the circumstances;
- b) that the immediate availability of pre-designated frequencies, and/or spectrum flexible technologies to allow near-instantaneous decisions to make use of available spectrum, are important for informing the public of international news worthy events;

recognizing

- a) that broadcasting ancillary services can be utilized as part of an administration's telecommunications/information and communication technologies (ICTs) systems in service of management in emergency and disaster situations for early warning, prevention, mitigation, and relief;
- b) that the ITU-R has developed the following:
 - Recommendation ITU-R M.1824 "System characteristics of television outside broadcast, electronic news gathering and electronic field production in the mobile service for use in sharing studies";
 - Recommendation ITU-R F.1777 "System characteristics of television outside broadcast, electronic news gathering and electronic field production in the fixed service for use in sharing studies";
 - [Recommendation ITU-R BT.[ENGGUSER] - User requirements for electronic news gathering]
 - [Recommendation ITU-R BT.[ENGFREQ] - Use of harmonized frequencies for terrestrial electronic news gathering]
 - Report ITU-R BT.2069 "Spectrum usage and operational characteristics of terrestrial electronic news gathering (ENG), television outside broadcast (TVOB) and electronic field production (EFP) systems"
- c) That Recommendations ITU-R M.1824 and ITU-R F.1777 document that a large number of bands in Mobile and Fixed spectrum are already used for electronic news gathering, as detailed in Annex 1.

Formatted: Font: Times New Roman, 12 pt, Font color: Auto

Formatted: Bullets and Numbering

Formatted: Font:

Formatted: Font: Times New Roman, 12 pt, Font color: Auto

Formatted: Bullets and Numbering

noting

- a) that when an international news worthy event happens, broadcasters often have little to no lead time in which to prepare for deployment;
- b) that there is a critical requirement to perform immediate spectrum management actions, including frequency coordination, sharing and spectrum reuse, within an administration where an international news worthy event takes place;
- c) that the designation of frequencies available within individual administrations within which equipment could operate, or the use of spectrum-flexible equipment that allows for operation in various spectrum access scenarios, may ease the interoperability and/or

³ For the purpose of this Resolution, ENG represents all applications ancillary to broadcasting, such as terrestrial electronic news gathering, electronic field production, TV outside broadcasting, wireless radio microphones, and radio outside production and broadcast.

internetworking, with mutual cooperation and consultation, especially in international news worthy events that draw broadcasters regionally or globally;

noting further

- a) that it is in the interest of administrations and their broadcasters to have access to updated information on national spectrum planning for ENG use;

resolves

- 1 to encourage administrations to consider global and/or regional frequency bands/ranges for ENG when undertaking their national planning and to communicate this information to the broadcasting community;
- 2 to encourage the broadcasting community ~~to develop~~ a database of available frequencies, technical and operational requirements, and spectrum authorization points of contact as appropriate for global usage of ENG systems.

Deleted: and assist

Deleted: in developing

instructs the Director of the Radiocommunication Bureau

- 1) to assist the broadcasting community in coordinating their ENG usage for regional/global international news worthy events by maintaining a link on the ITU-R website to ~~the~~ broadcast community's database, referenced in resolves 2 above, of currently available frequencies, technical and operational requirements, and spectrum authorization points of contact as appropriate;
- 2) to report on the progress on this Resolution to subsequent World Radiocommunication Conferences

Formatted: Font: (Default) Times New Roman, 12 pt, Font color: Auto

Deleted: a community database

urges administrations

- 1) to provide the broadcasting community with the relevant information concerning their national ENG frequency allocations, ENG spectrum management practices, and appropriate governmental points-of-contact for ENG usage within their administration;
- 2) to assist the broadcasting community in keeping the database up to date on an ongoing basis by notifying the broadcasting community of any modifications to the information requested above.

Reason: It is important that information be provided and maintained on ENG usage around the world. Resolution USA-1.5/1 provides a mechanism to rationalize ENG spectrum usage by maintaining a data-base of country specific ENG bands with required technical and operational requirements for deployment. This will provide foreign newscasters with the needed information to ensure that they deploy with equipment that will operate within a given country and allow them to easily seek spectrum use approval. It will also provide manufacturers with a knowledge base of required spectrum parameters that will enable them to build common-use equipment that will leverage economies-of-scale for the worldwide ENG market.

Formatted: Centered

Annex 1

Formatted: Font: Bold

Formatted: Font: Bold

Recommendation ITU-R M.1824 shows that the following bands allocated to the Mobile Service on either a PRIMARY or SECONDARY basis⁴ are used for ENG.

Mobile Spectrum Already Used for ENG

TABLE 1

Frequency bands for BAS video link systems operated in the mobile service in Recommendation ITU-R M.1824

<u>770-806 MHz</u> <u>(r2, R3, 5.293)</u>	<u>5 850-5 925 MHz</u> <u>(R1, R2, R3)</u>	<u>10.25-10.45 GHz</u> <u>(R1, R3, 5.480)</u>	<u>41.55-41.95 GHz</u> <u>(r1, r2, r3, 5.551F)</u>
<u>790-862 MHz</u> <u>(5.314, 5.316)</u>	<u>6 425-6 570 MHz</u> <u>(R1, R2, R3)</u>	<u>10.55-10.68 GHz</u> <u>(R1, R2, R3)</u>	
	<u>6 870-7 125 MHz</u> <u>(R1, R2, R3)</u>	<u>12.95-13.25 GHz</u> <u>(R1, R2, R3)</u>	

TABLE 2

Frequency bands for BAS talkback/walkie-talkie systems operated in the mobile service in Recommendation ITU-R M.1824

<u>26.574 MHz</u> <u>(R1, R2, R3)</u>	<u>143-144 MHz</u> <u>(5.211, 5.212, R2, R3)</u>	<u>166.5-166.9 MHz</u> <u>(R1, R2, R3)</u>	<u>459.5125-460 MHz</u> <u>(R1, R2, R3)</u>
	<u>146-148 MHz</u> <u>(R1, 5.217, R3)</u>	<u>168.5-168.9 MHz</u> <u>(R1, R2, R3)</u>	<u>469.5-470 MHz</u> <u>(R1, R2, R3)</u>
	<u>148-149.9 MHz</u> <u>(R1, R2, R3)</u>		
	<u>149.9-150.05 MHz</u> <u>(5.223)</u>		
	<u>150-156.7625 MHz</u> <u>(R1, R2, R3)</u>		
	<u>156.8375-174 MHz</u> <u>(R1, R2, R3)</u>		

⁴ Each table contains the letters "R1", "R2" and "R3", "r1", "r2", "r3", and the reference to footnote 5.xxx. The letters "R1", "R2" and "R3" stand for the ITU-R Region which has a primary mobile allocation to the specified frequency band, the letters "r1", "r2" and "r3" stand for the ITU-R Region which has a secondary mobile allocation to the specified frequency band, and the reference to footnote 5.xxx refers to the country footnote in the table of frequency allocations.

TABLE 3

Frequency bands for BAS audio link systems operated in the mobile service in Recommendation ITU-R M.1824

<u>38.96 MHz</u> <u>(R1, R2, R3)</u>	<u>164-167 MHz</u> <u>(R1, R2, R3)</u>	<u>462-465 MHz</u> <u>(R1, R2, R3)</u>	<u>3 405-3 423 MHz</u> <u>(r1, r2, r3, 5.432)</u>
---	---	---	--

Fixed Spectrum Already Used for ENG

Recommendation ITU-R F.1777 shows the following bands allocated to the Fixed Service on either a PRIMARY or SECONDARY basis are used for BAS, including ENG.

TABLE 4

Frequency bands for Digital FS systems for BAS in Recommendation ITU-R F.1777

<u>Frequency band</u> <u>(GHz)⁽¹⁾</u>	<u>0.770 < f <</u> <u>0.806</u>	<u>2.025 ≤ f < 2.110</u> <u>2.200 ≤ f < 2.290</u> <u>2.500 ≤ f < 2.690</u> <u>3.400 ≤ f < 3.600</u>	<u>5.850 < f < 8.500</u> <u>10.250 < f < 13.250</u>
---	--	--	--

⁽¹⁾ Frequency band 10.0-10.45 GHz is only a fixed allocation in Region 1 and 3. Other frequency bands are allocated to a FS in all three Regions.

Field use applications

High Density / low spectrum bandwidth nomadic/mobile user applications involving audio wireless personal links.

On sight application

Radio microphone

In-ear monitor

Portable audio link

Talk back

Field transmission applications

High density / Medium spectrum bandwidth nomadic/mobile user applications involving audio/video wireless transmissions from an event location to the remote terminal (nomadic vehicle platform).

On sight application

Mobile audio link

Cordless camera

Portable video link

Mobile vehicular video link

Telecommand/remote control

Fleet transmission applications

Medium Density / High spectrum bandwidth point-to-point applications involving audio/video wireless transmissions from the remote terminal to the broadcasting station or repeater location.

On sight termination to/from airborne repeater, fixed repeater, or broadcast station.

Temporary point-to-point audio/video link

Mobile repeater applications

Low Density / High Spectrum bandwidth point-to-point repeater applications involving audio/video wireless transmissions from the remote terminal to the broadcasting station.

On sight repeater for on sight transmissions or for long-range transmissions to a fixed repeater or to the broadcast station.

Mobile airborne video link