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| **Radiocommunication Study Groups** |  |
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| preliminary draft CPM text for wrc-19 agenda item 1.1 | |
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CHAPTER 5

Maritime, aeronautical and amateur services

(Agenda items 1.1, 1.8, 1.9 (1.9.1, 1.9.2), 1.10, 9.1 (issue 9.1.4))

Agenda item 1.1

(**WP 5A** / **WP 5B**, **WP 5C**, **WP 6A**, (WP 3K), (WP 3M))

*1.1 to consider an allocation of the frequency band 50-54 MHz to the amateur service in Region 1, in accordance with Resolution* ***658 (WRC-15)****;*

Resolution **658 (WRC‑15)** – *Allocation of the frequency band 50-54 MHz to the amateur service in Region 1*

# 5/1.1/1 Executive summary

This agenda item is for a new Region 1 allocation to the amateur service in the frequency band 50‑54 MHz. If granted, a new allocation to the amateur service would result in a harmonized, or partially harmonized, global frequency allocation.

The spectrum needs of the amateur service have been quantified using an applications based approach and this indicates that [??] MHz of spectrum is required.

Studies have been undertaken to assess the possibility of sharing with the incumbent broadcasting, land mobile and radiolocation services. The studies have demonstrated that sharing is possible if appropriate protection distances and regulatory provisions are implemented. Depending upon the incumbent service to be protected the different protection distances and measures can be found in Report ITU-R X.[xxxxx].

Three variations of affirmative methods are provided to satisfy the agenda item along with the No Change method. Regulatory text is also provided for implementation of the proposed methods.

# 5/1.1/2 Background

In ITU Region 1 the frequency band 50‑54 MHz is allocated to the broadcasting service on a primary basis , with additional or alternative allocations to the amateur, fixed, mobile, and/or radiolocation (limited to wind profiler radars) services in some countries.

Noting that the frequency band 50-54 MHz is allocated to the amateur service on a primary basis in ITU Regions 2 and 3, full or partial worldwide harmonization of the allocation to the amateur service in the frequency band 50-54 MHz would promote global efficiency and economies of scale in radio amateurs’ efforts to fulfil the purposes of the amateur service, which include self-training, technical investigations, and intercommunication for a variety of purposes, including communication needs in support of disaster relief.

# 5/1.1/3 Summary and analysis of the results of ITU-R Studies

Sharing with the Broadcasting Service in Region 1

The transition to digital television broadcasting has significantly reduced the occupancy of the 50-54 MHz frequency band by the broadcasting service in ITU Region 1. However, the regional plans ST61 and GE89 still contain many frequency assignments in the frequency band 50-54 MHz and the MIFR contains hundreds of records for broadcast service transmitters in ITU Region 1.

Studies have shown that for protection of the broadcasting service [from harmful interference] a field strength from an amateur station at the edge of the broadcasting transmitter service area shall not be exceed 6 dB μV/m for 10% of the time.

Sharing between the Amateur Service and the Land Mobile Service in Region 1

Studies have shown that for protection of the Land Mobile Service [from harmful interference], a separation distance of [??] km in average terrain is needed, and in mountainous regions the distance shall not be less than [??] km.

Studies also show that if no mitigation techniques are implemented there is, on average, a [?]% probability of harmful interference.

[The following mitigation factors may need to be considered in those countries which may use the band 50-54 MHz for the land mobile service:

– Coordination between adjacent countries …

– Amateur licensees within the same jurisdiction can be subjected to operational requirements designed to limit the likelihood of harmful interference be caused to the land mobile service.

– Spread spectrum techniques may be used avoid radio frequencies which appear to be a source of interference.]

Sharing between the Amateur Service and the Radiolocation Service (Wind Profiler Radars)

Number **5.162A** of the Radio Regulations provides for an additional allocation to the radiolocation service on a secondary basis in a number of countries, limited to the operation of wind profiler radars.

Studies show that typical separation distance between Amateur service systems and Wind profiler would range from 29 to distances above 300 km, confirming the need for specific protection measures.

Taking into account the limited numbers of systems in or immediately adjacent to the frequency band 50-54 MHz range (and probably the expected low number of amateur systems in the vicinity of WPR installations), sharing could probably be considered on a case-by-case basis e.g. coordination zones established in affected geographical areas.

It has to be noted that this approach, currently, could only be possible and efficient if amateur and radiolocation services are of equal status within the 50-54 MHz band.

*Editor's note: A reference to the need to propose a WRC Resolution in the regulatory section.*

*Editor's note: What about fixed service?*

Relevant interregional sharing issues in border areas

[To be determined]

Relevant ITU-R Recommendations

Recommendation ITU-R M.[1732-2](http://www.itu.int/rec/R-REC-M.1732/en) – *Characteristics of systems operating in the amateur and amateur-satellite services for use in sharing studies*

Recommendation ITU-R [P.1546](http://www.itu.int/rec/R-REC-P.1546/en) – *Method for point-to-area predictions for terrestrial services in the frequency range 30 MHz to 3 000 MHz*

Recommendation ITU-R [BT.1368](http://www.itu.int/rec/R-REC-BT.1368/en) – *Planning criteria, including protection ratios, for digital terrestrial television services in the VHF/UHF bands*

Recommendation ITU-R [BT.2033](http://www.itu.int/rec/R-REC-BT.2033/en) – *Planning criteria, including protection ratios, for second generation of digital terrestrial television broadcasting systems in the VHF/UHF bands*

Recommendation ITU-R [SM.851](http://www.itu.int/rec/R-REC-SM.851/en) – *Sharing between the broadcasting service and the fixed and/or mobile services in the VHF and UHF bands*

Recommendation ITU-R [P.526-13](http://www.itu.int/rec/R-REC-P.526/en) – *Propagation by diffraction*

Recommendation ITU-R [M.1651](http://www.itu.int/rec/R-REC-M.1651/en) – *A method for assessing the required spectrum for broadband nomadic wireless access systems including radio local area networks using the 5 GHz band*

Recommendation ITU-R [P.2001-2](http://www.itu.int/rec/R-REC-P.2001/en) – *A general purpose wide-range terrestrial propagation model in the frequency range 30 MHz to 50 GHz*

Relevant ITU-R Reports

Working document to the preliminary draft of the new Report ITU-R M.[AMATEUR\_50\_MHz] – *Spectrum needs for the amateur service in the frequency band 50-54 MHz in Region 1 and sharing with mobile, fixed, radiolocation, and broadcasting services* (Annex 14 to the Chairman's Report (Doc. [5А/469](https://www.itu.int/md/R15-WP5A-C-0469/en)))

# 5/1.1/4 Methods to satisfy the agenda item

Method A

An allocation to the amateur service on a Primary basis in [all or part of the] band 50-54 MHz, with appropriate footnotes to provide protection to services which already have an allocation in the band.

Advantages

– The requirement of the Amateur service to have an allocation in the frequency band 50‑54 MHz in Region 1 would be [partly] satisfied.

– [Partial] Harmonization of spectrum throughout the three ITU regions would be achieved.

– [The use of Article **4.4** of the Radio Regulations for implementing spectrum allocations on a national or multi-national basis would be avoided.]

Disadvantages

– Administrations may have to adopt specific measures to ensure harmful interference is not caused to stations of incumbent services operated within their territory or in neighbouring territories.

– May affect future usage of the band

Method B

An allocation to the amateur service on a Secondary basis in [all or part of the] band 50-54 MHz, with appropriate footnotes to provide protection to services which already have an allocation in the band.

Advantages

– The requirement of the Amateur service to have an allocation in the frequency band 50‑54 MHz in Region 1 would be [partly] satisfied.

– [Partial] harmonization of spectrum throughout the three ITU regions would be achieved.

– The principles outlined in Recommendation **34** of the Radio Regulations would be respected.

– [The use of Article **4.4** of the Radio Regulations for implementing spectrum allocations on a national or multi-national basis would be avoided.]

Method C

An allocation to the amateur service on a partly Primary and partly Secondary basis in band 50‑54 MHz, with appropriate footnotes to provide protection to services which already have an allocation in the band.

Advantages

– The requirement of the Amateur service to have an allocation in the frequency band 50‑54 MHz in Region 1 would be partly satisfied.

– [Partial] Harmonization of spectrum throughout the three ITU regions would be achieved.

– The principles outlined in Recommendation **34** of the Radio Regulations would be respected.

– [The use of Article **4.4** of the Radio Regulations for implementing spectrum allocations on a national or multi-national basis would be avoided.]

**Method D** is to not make any changes (No Change) in the frequency band 50-54 MHz.

Advantages

– Avoid additional restrictions on the operations of broadcasting, radiolocation, land mobile and fixed services stations and avoid possible interference from the amateur service.

Disadvantage

– Does not satisfy the agenda item.

# 5/1.1/5 Regulatory and procedural considerations

*Editor's note: For Methods A, B and C the consideration of* ***5.169*** *and the elaboration of WRC Resolution are needed.*

## 5/1.1/5.1 All methods suggesting removal of the Resolution 658 (WRC-19)

### 5/1.1/5.1.1 Regulatory and Procedural considerations for Method A

MOD

50-54 MHz

|  |  |  |
| --- | --- | --- |
| **Allocation to services** | | |
| **Region 1** | **Region 2** | **Region 3** |
| **50-54**  BROADCASTING  **50-[54]** | **50-54** | |
| AMATEUR | AMATEUR | |
|  |  | |
|  |  | |
| 5.162A 5.163 5.164 5.165  5.ABC 5.DEF | 5.162A 5.167 5.167A 5.168 5.170 | |

SUP

*Editor's note: Only suppress 5.169 if all 50-54 MHz allocated to amateur service.*

5.169

**Reasons:** African countries in Region 1 would be included in the table allocation to the Amateur Service.

ADD

5.ABC In Region 1 in the frequency band 50-[54] MHz, with the exception of Botswana, Lesotho, Malawi, Namibia, the Democratic Republic of Congo, Rwanda, South Africa, Swaziland, Zambia and Zimbabwe and Senegal for the frequency band 50-51 MHz, stations of the amateur service shall not cause harmful interference to, or claim protection from stations of the broadcasting service. The administrations of neighbouring countries in Region 1 shall ensure that the field strength emitted by an amateur station does not exceed a calculated value of +6 dBμV/m at the service area boundary of operational broadcasting stations for more than 10% of time, unless otherwise agreed between affected administrations.    (WRC-19)

ADD

5.DEFIn Region 1 in the frequency band 50-54 MHz, with the exception of Botswana, Lesotho, Malawi, Namibia, the Democratic Republic of Congo, Rwanda, South Africa, Swaziland, Zambia and Zimbabwe and Senegal for the frequency band 50-51 MHz, stations of the amateur service shall not cause harmful interference to, or claim protection from stations of the mobile service and wind‑profiler radars operating in the radiolocation service, regardless of the category of service and allocation to the radiolocation service.     (WRC-19)

### 5/1.1/5.1.2 Regulatory and procedural matters considerations for the Method B

ARTICLE 5

Frequency Allocation

Section IV - Frequency allocation table  
(see item 2.1)

MOD

|  |  |  |
| --- | --- | --- |
| Allocation by services | | |
| Region 1 | Region 2 | Region 3 |
| 47-50  BROADCASTING  5.162А 5.163 5.164 5.165 | 47-50  FIXED  MOBILE | 47-50  FIXED  MOBILE  BROADCASTING  5.162А |
| 50-54  BROADCASTING  5.162А 5.164 5.165  5.169 5.171 ADD 5.XYZ | 50-54  AMATEUR  5.162А 5.167 5.167A 5.168 5.170 | |
| 54-68  BROADCASTING  5.162А 5.163 5.164 5.165  5.171 | 54-68  BROADCASTING  Fixed  Mobile  5.172 | 54-68  FIXED  MOBILE  BROADCASTING  5.162А |

ADD

5.XYZ*Additional allocations***:** frequencies in the frequency band [xx-yy] MHz may be used by amateur service stations as a secondary allocation. The use of frequencies by amateur stations is subject to getting prior special permission from the appropriate authority, together with the agreement of other administrations, whose radio service may be affected. To identify potentially affected administrations in the Region 1 the field strength value must be set to 6 dB(μV/m) for 10% of the time at the border of the territory of any other administration.     (WRC-19)

*Editor's note: Footnotes needed for protection of radiolocation, fixed and mobile services.*

## 5/1.1/5.2 Regulatory and Procedural considerations for Method C

*Editor's note: This method was developed by WG 5A-1 during the meeting and requires further consideration and input.*

MOD

50-54 MHz

|  |  |  |
| --- | --- | --- |
| **Allocation to services** | | |
| **Region 1** | **Region 2** | **Region 3** |
| **50-54**  BROADCASTING  **50-[<xx]** | **50-54** | |
| AMATEUR | AMATEUR | |
| **[xx]-[<54]**  Amateur |  | |
|  |  | |
| 5.162A 5.164 5.165 5.169  5.ABC 5.DEF 5.XYZ | 5.162A 5.1675 5.167A 5.168 5.170 | |

ADD

[5.ABC In Region 1 in the frequency band 50-[<54] MHz, stations of the amateur service shall not cause harmful interference to, or claim protection from stations of the broadcasting service. The administrations of neighbouring countries in Region 1 shall ensure that the field strength emitted by an amateur station does not exceed a calculated value of +6 dBμV/m at the service area boundary of operational broadcasting stations for more than 10% of time, unless otherwise agreed between affected administrations.     (WRC-19)]

ADD

[5.DEFIn Region 1 in the frequency band 50-[<54] MHz, stations of the amateur service shall not cause harmful interference to, or claim protection from stations of the mobile service and wind‑profiler radars operating in the radiolocation service, regardless of the category of service and allocation to the radiolocation service.     (WRC-19)]

5.XYZ*Additional allocations***:** frequencies in the frequency band [xx-yy] MHz may be used by amateur service stations as a secondary allocation. The use of frequencies by amateur stations is subject to getting prior special permission from the appropriate authority, together with the agreement of other administrations, whose radio service may be affected. To identify potentially affected administrations in the Region 1 the field strength value must be set to 6 dB(μV/m) for 10% of the time at the border of the territory of any other administration.     (WRC-19)

*Editors note: Need footnotes for primary and secondary parts*