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| **Radiocommunication Study Groups** |  |
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| Annex 4 to Working Party 5A Chairman’s Report | |
| WORKING DOCUMENT TOWARD DRAFT CPM TEXT | |
| AGENDA ITEM 1.4 (WP 5A / WP 5B, WP 5C, (WP 3L)) | |

*1.4 to consider possible new allocation to the amateur service on a secondary basis within the band 5 250-5 450 kHz in accordance with Resolution* ***649 [COM6/12] (WRC‑12)****;*

Resolution **649 [COM6/12] (WRC‑12)**: *Possible allocation to the amateur service on a secondary basis at around 5 300 kHz*

# 1/1.4/1 Executive Summary

[Text of the executive summary, not more than half a page of text]

[TBD]

# 1/1.4/2 Background

[Editor’s Note: A half page of text is recommended by the chapter rapporteur as the ideal outcome.]

Based on the recommendation of the 1978 CCIR Special Preparatory Meeting, WARC-79 accepted the principle that, like other high-frequency radio services, the amateur service should have access to a family of frequency bands such that communications can be maintained as propagation conditions change.

The amateur radio service has access to allocations in the vicinity of 3 500 and 7 000 kHz.

[Short to medium range radio communication for distances beyond line of sight (BLOS) is via skywave propagation using high elevation angles approaching 90°. This mode of communication is often referred to as near-vertical-incidence-sky wave (NVIS). NVIS paths range from just beyond the BLOS to about 500 km and generally use frequencies below the critical frequency (the highest frequency which will be reflected vertically back to ground by the ionosphere depending on its prevailing condition). To avoid problems caused by short-term ionospheric variations, and to avoid the effects of absorption at frequencies close to the critical frequency, successful NVIS operation will require the use of frequencies up to about 80% of the critical frequency. However, lower frequencies can still be used, depending on the system link budget and, especially, on the high angle performance of the antennas in use. Therefore, particularly in the higher latitudes, there are many times when the Maximum Usable Frequency (MUF) is below 7 000 kHz but is too far above the next lowest amateur frequency band (3 500 kHz) for communication to be supported in that band using typical amateur antennas and power levels. Depending on the time of day, season and other propagation factors including the progress of the sunspot cycle, the MUF is often such that access to spectrum around 5 000 kHz is essential for amateur stations to carry out reliable emergency and disaster-relief communications. The allocations to all the services in the HF frequencies are interleaved in frequency to provide capability of communicating during different propagation conditions, and there is a big gap between the two amateur allocations 3 500 and 7 000 kHz. An allocation with this agenda item will provide improved capability for amateur communications within the HF band. Also, as amateur communication increasingly uses digital rather than analogue modes of emission, inter-symbol distortion caused by multipath propagation requires choice of an operating frequency as near as possible to the MUF.

The ITU [*Handbook on Emergency Telecommunications*](http://www.itu.int/ITU-D/emergencytelecoms/publications.html) notes …

“In the 5 MHz range, several national administrations have allocated fixed frequencies (channels) for amateur radio emergency traffic and related training. The 5 MHz range allows the most reliable links in the medium range during 24 hours per day and under most propagation conditions.”

Therefore, to be equipped to provide communications at any time, including in times of emergency and disaster-relief, radio amateurs require access to frequencies in the vicinity of 5 000 kHz.]

# 1/1.4/3 Summary of technical and operational studies, including a list of relevant ITU-R Recommendations and Reports

*[Editor’s Note: Studies undertaken in support of this Agenda Item should identify the nature of the radio transmissions amateurs would typically make should the requested allocation be realized. Other studies should demonstrate the ability of the Amateur Service to co-exist in the capacity of a secondary user with other services in the frequency range sought in the Agenda Item. In particular, these studies should include an analysis of the occupancy by existing users of individual channels and frequency segments in the spectrum range referenced in the Agenda Item as a function of location and time-of-day.]*

[Relevant ITU Recommendations would include …

– Recommendation [ITU-R F.240-7](http://www.itu.int/rec/R-REC-F.240-7-200602-I/en)

– Recommendation [ITU-R F.339-7](http://www.itu.int/rec/R-REC-F.339-7-200602-I/en)

– Recommendation [ITU-R M.1677-1](http://www.itu.int/rec/R-REC-M.1677/en)

– Recommendation [ITU-R M.1732-1](http://www.itu.int/rec/R-REC-M.1732/en)

– Recommendation [ITU-R F.1761](http://www.itu.int/rec/R-REC-F.1761-0-200602-I/en)

– Recommendation [ITU-R F.1762](http://www.itu.int/rec/R-REC-F.1762-0-200602-I/en)

– Recommendation [ITU-R F.1821](http://www.itu.int/rec/R-REC-F.1821-0-200709-I/en)

– [Recommendation ITU-R.SM.1541-4](http://www.itu.int/rec/R-REC-SM.1541/en)

– Report ITU-R M.[HF-SO]

– Report ITU-R М.[AMATEUR] ]

# 1/1.4/4 Analysis of the results of studies

[TBD]

# 1/1.4/5 Methods to satisfy the agenda item

[TBD]

*[Editor’s Note: Methods to satisfy the Agenda Item should be developed and refined pursuant to studies identifying the required protection criteria of the existing users vis-à-vis the proposed secondary allocation. These methods may include a single contiguous secondary allocation or a few smaller allocations within the frequency range of 5 250 to 5 450 kHz.]*

# 1/1.4/6 Regulatory and Procedural considerations

*[Editor’s Note: For reference, the 2012 provisional Table of Frequency Allocations –is provided. Regulatory issues are within the provenance of Working Party 5A.]*

|  |  |  |
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| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| . . . | | |
| 5 060-5 250 FIXED  Mobile except aeronautical mobile  5.133 | | |
| 5 250-5 275  FIXED  MOBILE except aeronautical mobile  Radiolocation ADD 5.A115  ADD 5.C115 | 5 250-5 275  FIXED  MOBILE except aeronautical mobile  RADIOLOCATION ADD 5.A115 | 5 250-5 275  FIXED  MOBILE except aeronautical mobile  Radiolocation ADD 5.A115 |
| 5 275-5 450 FIXED  MOBILE except aeronautical mobile | | |
| 5 450-5 480  FIXED  AERONAUTICAL MOBILE (OR)  LAND MOBILE | 5 450-5 480  AERONAUTICAL MOBILE (R) | 5 450-5 480  FIXED  AERONAUTICAL MOBILE (OR)  LAND MOBILE |
| 5 480-5 680 AERONAUTICAL MOBILE (R)  5.111 5.115 | | |
| . . . | | |

5.111 The carrier frequencies 2 182 kHz, 3 023 kHz, 5 680 kHz, 8 364 kHz and the frequencies 121.5 MHz, 156.525 MHz, 156.8 MHz and 243 MHz may also be used, in accordance with the procedures in force for terrestrial radiocommunication services, for search and rescue operations concerning manned space vehicles. The conditions for the use of the frequencies are prescribed in Article **31**.

The same applies to the frequencies 10 003 kHz, 14 993 kHz and 19 993 kHz, but in each of these cases emissions must be confined in a band of  3 kHz about the frequency.     (WRC‑07)

5.115 The carrier (reference) frequencies 3 023 kHz and 5 680 kHz may also be used, in accordance with Article **31**, by stations of the maritime mobile service engaged in coordinated search and rescue operations.  (WRC‑07)

**5.133** *Different category of service:*in Armenia, Azerbaijan, Belarus, the Russian Federation, Georgia, Kazakhstan, Latvia, Lithuania, Moldova, Uzbekistan, Kyrgyzstan, Tajikistan, Turkmenistan and Ukraine, the allocation of the band 5 130-5 250 kHz to the mobile, except aeronautical mobile, service is on a primary basis (see No. **5.33**).

**5.A115** Stations in the radiolocation service shall not cause harmful interference to, or claim protection from, stations operating in the fixed or mobile services. Applications of the radiolocation service are limited to oceanographic radars operating in accordance with Resolution **612 (Rev.WRC‑12)**.

**5.C115** Alternative allocation: in Armenia, Austria, Belarus, Moldova, Uzbekistan and Kyrgyzstan, the frequency bands 5 250-5 275 kHz and 26 200-26 350 kHz are allocated to the fixed and mobile, except aeronautical mobile, services on a primary basis.