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| **World Radiocommunication Conference (WRC-15) Geneva, 2–27 November 2015** |  |
| **INTERNATIONAL TELECOMMUNICATION UNION** |  |
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| PLENARY MEETING | **Addendum 12 to Document 62-E** |
|  | **16 October 2015** |
|  | **Original: Chinese** |
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| China (People’s Republic of) | |
| Proposals for the work of the conference | |
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| Agenda item 1.12 | |

1.12to consider an extension of the current worldwide allocation to the Earth exploration-satellite (active) service in the frequency band 9 300-9 900 MHz by up to 600 MHz within the frequency bands 8 700-9 300 MHz and/or 9 900-10 500 MHz, in accordance with Resolution  **651 (WRC‑12)**;

Introduction

The growing demand for higher resolution pictures by means of synthetic aperture radars (SAR) in scientific and geological information applications raises the need to further increase the bandwidth used for linear FM chirp transmission of SAR operating in the Earth exploration-satellite service (EESS) (active).

ITU-R Working Party 7C has completed relevant studies on possible extension of the allocation to the EESS (active), including sharing and compatibility studies. Three new Recommendations and four new Reports concerning the relevant studies have been approved by ITU-R.

The results of the ITU-R studies have come to the following key conclusions:

– The additional spectrum requirement for EESS SAR in the frequency range around 9 GHz is 600 MHz for the higher ground resolution below 0.5 m.

– Sharing between EESS (active) and the incumbent services including the radiolocation, maritime radionavigation, fixed, mobile, amateur and amateur-satellite service is feasible or practical.

– Compatibility with regard to unwanted emissions of EESS (active) into the space research service (SRS) and radio astronomy service (RAS) can be ensured by corresponding mitigation techniques as described in new ITU-R Recommendations.

China supports an additional worldwide primary allocation of 600 MHz to EESS (active) in the frequency bands 9 200-9 300 MHz and 9 900-10 400 MHz, based on the results of studies conducted by ITU-R and the following reasons.

– An extended allocation of 600 MHz to EESS (active) can meet the frequency requirements of EESS (active) systems with ground resolution below 0.5 m and necessary bandwidth greater than the current allocation in the frequency band 9 300-9 900 MHz, compared to the situation with no change and an extended allocation less than 600 MHz.

– An allocation extension of 100 MHz below and 500 MHz above the current allocation in the frequency band 9 300-9 900 MHz does not significantly increase out-of-band emissions from EESS (active) into SRS in the frequency band 8 400-8 500 MHz, while providing better protection for RAS by greater frequency separation of RAS stations operating in the band 10.6-10.7 GHz from out-of-band emissions of EESS (active), compared to the situation with an extended allocation of 600 MHz above the current allocation in the frequency band 9 300-9 900 MHz.

– The ITU-R studies show that stations of the fixed service (FS) would be protected with large margins from 16 to 20 dB. Only when the FS station is pointing towards high elevation angles (higher than 30°) and the azimuth pointing angle is around 90° or 270° would the fractional degradation performance (FDP) criterion of 10% be exceeded, due to main-beam to main-beam coupling possibilities. However, statistics indicate that the elevation angle for the frequency ranges around 8 GHz and 10/11 GHz would not exceed 24°. Therefore, it is not necessary to introduce power flux-density (PFD) limits to EESS (active). If unnecessary or inappropriate PFD limits are introduced, it would result in excessive protection for FS.

The following proposals address suggestions for accomplishing the allocation extension of 600 MHz to EESS (active) in the frequency bands 9 200-9 300 MHz and 9 900-10 400 MHz with regard to modifications to and additions of articles or provisions of the Radio Regulations.

Proposals

ARTICLE 5

Frequency allocations

Section IV – Table of Frequency Allocations  
(See No. 2.1)

MOD CHN/62A12/1

8 500-10 000 MHz

|  |  |  |
| --- | --- | --- |
| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| 9 200-9 300 EARTH EXPLORATION-SATELLITE (active) ADD 5.A112  RADIOLOCATION  MARITIME RADIONAVIGATION 5.472  5.473 5.474 ADD 5.B112 ADD 5.C112 ADD 5.D112 | | |
| ... | | |
| 9 900-10 000 EARTH EXPLORATION-SATELLITE (active) ADD 5.A112  RADIOLOCATION  Fixed  5.477 5.478 5.479 ADD 5.C112 ADD 5.D112 ADD 5.E112 | | |

**Reasons:** Provides an additional 600 MHz allocation to theEESS (active) for high resolution SARs, as requested by Resolution 651 (WRC-12) and justified by Report ITU-R RS.2274.

MOD CHN/62A12/2

10-11.7 GHz

|  |  |  |
| --- | --- | --- |
| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| 10-10.4  EARTH EXPLORATION-SATELLITE (active) ADD 5.A112  FIXED  MOBILE  RADIOLOCATION  Amateur | 10-10.4  EARTH EXPLORATION-SATELLITE (active) ADD 5.A112  RADIOLOCATION  Amateur | 10-10.4  EARTH EXPLORATION-SATELLITE (active) ADD 5.A112  FIXED  MOBILE  RADIOLOCATION  Amateur |
| 5.479 ADD 5.C112 ADD 5.D112 ADD 5.E112 | 5.479 5.480 ADD 5.C112 ADD 5.D112 ADD 5.E112 | 5.479 ADD 5.C112 ADD 5.D112 ADD 5.E112 |
| 10.4-10.45  FIXED  MOBILE  RADIOLOCATION  Amateur | 10.4-10.45  RADIOLOCATION  Amateur | 10.4-10.45  FIXED  MOBILE  RADIOLOCATION  Amateur |
|  | 5.480 |  |

**Reasons:** Provides an additional 600 MHz allocation to the EESS (active) for high resolution SARs, as requested by Resolution 651 (WRC-12) and justified by Report ITU-R RS.2274.

ADD CHN/62A12/3

**5.A112** The use of the frequency bands 9 200-9 300 MHz and 9 900-10 400 MHz by the Earth exploration-satellite (active) service is limited to systems requiring a necessary bandwidth greater than 600 MHz that cannot be fully accommodated within the 9 300-9 900 MHz frequency band.     (WRC‑15)

**Reasons:** To limit the number of systems as well as the duration of transmission of SAR systems in the extended frequency band.

ADD CHN/62A12/4

**5.B112** In the frequency band 9 200-9 300 MHz, stations in the Earth exploration-satellite (active) service shall not cause harmful interference to, nor claim protection from, stations of theradionavigation and radiolocationservices.     (WRC‑15)

**Reasons:** The EESS (active) primary allocation is made secondary with regard to the radionavigation and radiolocation service allocations in these frequency bands, to ensure protection of stations of these services from harmful interference.

ADD CHN/62A12/5

**5.C112** Space stations operating in the Earth exploration-satellite (active) service shall comply with Recommendation ITU‑R RS.2066‑0.     (WRC‑15)

**Reasons:** Ensures protection of RAS stations in the frequency band 10.6-10.7 GHz.

ADD CHN/62A12/6

**5.D112** Space stations operating in the Earth exploration-satellite (active) service shall comply with Recommendation ITU‑R RS.2065‑0.     (WRC‑15)

**Reasons:** Ensures protection of SRS systems in the frequency band 8 400-8 500 MHz.

ADD CHN/62A12/7

**5.E112** In the frequency band 9 900-10 400 MHz, stations in the Earth exploration-satellite (active) service shall not cause harmful interference to, nor claim protection from, stations of the radiolocation service.     (WRC‑15)

**Reasons:** The EESS (active) primary allocation is made secondary with regard to the RLS allocations in these frequency bands, to ensure protection of stations of these services from harmful interference.

SUP CHN/62A12/8

RESOLUTION 651 (WRC‑12)

Possible extension of the current worldwide allocation to the Earth exploration-satellite (active) service in the frequency band 9 300-9 900 MHz by up to 600 MHz within the frequency bands 8 700-9 300 MHz   
and/or 9 900-10 500 MHz

**Reasons:** This Resolution will no longer be necessary if the extended allocation of 600 MHz to EESS (active) is approved by WRC-15.

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