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| **World Radiocommunication Conference (WRC-15)Geneva, 2–27 November 2015** |  |
| **INTERNATIONAL TELECOMMUNICATION UNION** |  |
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| PLENARY MEETING | **Addendum 13 toDocument 130-E** |
|  | **16 October 2015** |
|  | **Original: English** |
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| Angola (Republic of)/Botswana (Republic of)/Lesotho (Kingdom of)/Madagascar (Republic of)/Malawi/Mauritius (Republic of)/Mozambique (Republic of)/Namibia (Republic of)/Democratic Republic of the Congo/Seychelles (Republic of)/South Africa (Republic of)/Swaziland (Kingdom of)/Tanzania (United Republic of)/Zambia (Republic of)/Zimbabwe (Republic of) |
| Proposals for the work of the conference |
|  |
| Agenda item 1.13 |

1.13 to review No. **5.268** with a view to examining the possibility for increasing the 5 km distance limitation and allowing space research service (space-to-space) use for proximity operations by space vehicles communicating with an orbiting manned space vehicle, in accordance with Resolution **652 (WRC‑12)**;

Introduction

WRC-15 agenda item 1.13 calls for a review to examining the possibility for increasing the 5 km distance limitation and allowing space research service (space-to-space) use for proximity operations by space vehicles communicating with an orbiting manned space vehicle, in accordance with Resolution 652 (WRC-12).

The band 410-420 MHz is used today for communications by astronauts conducting extra-vehicular activities (EVA) operations in the immediate vicinity of the International Space Station (ISS). Use of the band for proximity operations by vehicles approaching the ISS or other manned space vehicles would be advantageous as the propagation and physical properties of this frequency range enable favourable coverage performance in the highly multipath environment of the ISS. The 5 km limit was agreed during WARC-92 when the envisioned use of the band was limited to free floating astronauts working in the rear vicinity of a manned space vehicle.

The addition of power flux‑density (pfd) limits by WRC-97 provided primary allocation for SRS s-s uses as specified in RR No. 5.268 while ensuring the protection of systems operating in the fixed and mobile services. Vehicles approaching the ISS, whether manned or robotic, need to communicate over a longer distance to provide safe operations during docking manoeuvres. It is therefore necessary to modify RR No. 5.268 to remove the 5 km limitation and extra vehicular activity (EVA) use limitation while maintaining the current pfd limits.

Multi Country Proposals

The SADC Member States support the only method of the CPM Report, which proposes increasing the 5 km distance limitation and allowing space research service (space-to-space) use for proximity operations by space vehicles communicating with an orbiting manned space vehicle.

Reasons:

• This method would allow vehicles approaching the ISS, whether manned or robotic, to communicate over longer distances to ensure safe operations and docking manoeuvres.

• This method will allow for further development of space facilities to allow for increased support of many of the planned and envisioned space activities.

• This method will ensure protection for the fixed and mobile service.

ARTICLE 5

Frequency allocations

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

MOD AGL/BOT/LSO/MDG/MWI/MAU/MOZ/NMB/COD/SEY/AFS/SWZ/TZA/ZMB/
ZWE/130A13/1

410-460 MHz

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| Allocation to services |
| Region 1 | Region 2 | Region 3 |
| 410-420 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-space) MOD 5.268 |

MOD AGL/BOT/LSO/MDG/MWI/MAU/MOZ/NMB/COD/SEY/AFS/SWZ/TZA/ZMB/
ZWE/130A13/2

5.268 Use of the frequency band 410-420 MHz by the space research service is limited to space-to-space communications with an orbiting, manned space vehicle. The power flux-density at the surface of the Earth produced by emissions from transmitting stations of the space research service (space-to-space) in the frequency band 410-420 MHz shall not exceed –153 dB(W/m2) for 0 ≤ δ ≤ 5, ‑153  0.077 (δ – 5) dB(W/m2) for 5 ≤ δ ≤ 70 and –148 dB(W/m2) for 70 ≤ δ ≤ , where δ is the angle of arrival of the radio-frequency wave and the reference bandwidth is 4 kHz. In this frequency band stations the space research (space-to-space) service shall not claim protection from, nor constrain the use and development of, stations of the fixed and mobile services. No. **4.10** does not apply.     (WRC-15)

SUP AGL/BOT/LSO/MDG/MWI/MAU/MOZ/NMB/COD/SEY/AFS/SWZ/TZA/ZMB/
ZWE/130A13/3

RESOLUTION 652 (WRC‑12)

Use of the band 410-420 MHz by the space research service (space-to-space)

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