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| A close up of a sign  Description automatically generated | **World Radiocommunication Conference (WRC-23) Dubai, 20 November - 15 December 2023** | |  |
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| PLENARY MEETING | | **Addendum 9 to Document 87(Add.22)-E** | |
|  | | **23 October 2023** | |
|  | | **Original: English** | |
|  | | | |
| African Common Proposals | | | |
| Proposals for the work of the conference | | | |
|  | | | |
| Agenda item 7(G) | | | |

7 to consider possible changes, in response to Resolution 86 (Rev. Marrakesh, 2002) of the Plenipotentiary Conference, on advance publication, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks, in accordance with Resolution **86** **(Rev.WRC‑07)**, in order to facilitate the rational, efficient and economical use of radio frequencies and any associated orbits, including the geostationary-satellite orbit;

7(G) Topic G - Revisions to Resolution **770 (WRC-19)** to allow its implementation

MOD AFCP/87A22A9/1#2072

RESOLUTION 770 (rev.WRC-23)

Application of Article 22 of the Radio Regulations to the protection of geostationary fixed-satellite service and broadcasting-satellite service networks from non-geostationary fixed-satellite service systems in the frequency bands 37.5-39.5 GHz, 39.5‑42.5 GHz, 47.2-50.2 GHz and 50.4-51.4 GHz

…

resolves

1 that during the examination under Nos. **9.35** and **11.31**, as applicable, of a non-GSO FSS satellite system with frequency assignments in the frequency bands 37.5-39.5 GHz (space-to-Earth), 39.5-42.5 GHz (space-to-Earth), 47.2-50.2 GHz (Earth-to-space) and 50.4-51.4 GHz (Earth-to-space), the compliance with No. **22.5L** shall be established using the technical characteristics of generic GSO reference links contained in Annex 1 to this Resolution and Recommendation ITU‑R S.[QV-METH-REF-LINKS];

…

6 that *resolves* 3, 4 and 5 shall no longer be applied after BR has communicated to all administrations via a circular letter that validation software is available and BR is able to verify compliance with the limits in No. **22.5L**;

7 that administrations responsible for those non-GSO systems having submitted coordination requests and/or notification information under the applicable provisions of Article **9** or Article **11** of the Radio Regulations, as appropriate, prior to 15 December 2023, shall be given the possibility to resubmit the information used to derive the probability density function of the epfd computed as per Recommendation ITU‑R S.[QV-METH-REF-LINKS],

…

instructs the Director of the Radiocommunication Bureau

1 to review, once the validation software as described in *resolves*3 is available, BR’s findings made in accordance with Nos. **9.35** and **11.31**;

2 to take all necessary measures to facilitate the implementation of this Resolution, in particular its *resolves* 7.

ANNEX 1 TO RESOLUTION 770 (rev.WRC-23)

Generic GSO reference links for evaluation of compliance with single-entry requirements for non-GSO systems

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Table 1

Parameters of generic GSO reference links to be used in examination of the downlink (space-to-Earth) impact  
from any one non-GSO system

| 1 | Generic GSO reference link parameters - service |  |  |  |  | Parameters |
| --- | --- | --- | --- | --- | --- | --- |
|  | Link type | User #1 | User #2 | User #3 | Gateway |  |
| 1.1 | E.i.r.p. density (dBW/MHz) | 44 | 44 | 40 | 36 | *eirp* |
| 1.2 | Equivalent antenna diameter (m) | 0.45 | 0.6 | 2 | 9 | *Dm* |
| 1.3 | Bandwidth (MHz) | 1 | 1 | 1 | 1 | *BMHz* |
| 1.4 | ES antenna gain pattern | S.1428 | S.1428 | S.1428 | S.1428 |  |
| 1.5 | Additional link losses (dB)  This field includes non-precipitation impairments | 3 | 3 | 3 | 3 | *Lo* |
| 1.6 | Additional noise contribution including margin for inter-system interference (dB) | 2 | 2 | 2 | 2 | *M*0*inter* |
| 1.7 | Additional noise contribution including margin for intra-system interference (dB) and non-time varying sources | 1 | 1 | 1 | 1 | *M*0*intra* |

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| 2 | Generic GSO reference link parameters - parametric analysis | Parametric cases for evaluation | | | | | |  |
| 2.1 | E.i.r.p. density variation | −3, 0, **+**3 dB from value in 1.1 | | | | | | Δ*eirp* |
| 2.2 | Elevation angle (deg) | 20 | | | 55 | | 90 | *ε* |
| 2.3 | Rain height (m) for specified latitude in item 2.4 | 5 000 | 3 950 | 1 650 | 5 000 | 3 950 | 5 000 | *hrain* |
| 2.4 | Latitude\* (deg. *N*) | 0 | ± 30 | ± 61.8 | 0 | ± 30 | 0 | Lat |
| 2.5 | ES noise temperature (K) | 340 | | | | | | *T* |
| 2.6 | 0.01% rain rate (mm/hr) | 10, 50, 100 | | | | | | *R*0.01 |
| 2.7 | Height of ES above mean sea level (m) | 0, 500, 1 000 | | | | | | *hES* |
| 2.8 | Threshold *C*/*N* (dB) | −2.5, 2.5, 5, 10 | | | | | |  |
| 2.9 | Probability of non-zero rain attenuation | 10 | | | | | | *pmax* (%) |
| NOTE – For items 2.2, 2.3 and 2.4, these three groups of data are be considered as unique sets of data to be used in the larger, overall set of total possible permutations. For example, 20 degrees of elevation angle will consider three different latitudes of 0, 30 and 61.8 degrees while 90 degrees of elevation will only consider a latitude of 0 degrees and one possible rain height 5 km. The above parameters are chosen as representative propagation parameters for purposes of calculations of precipitation fade statistics. These precipitation fades are representative of other geographic locations.  \* Latitude is evaluated as a single value representing the absolute value of the latitude | | | | | | | | |

Table 2

Parameters of generic GSO reference links to be used in examination of the uplink (Earth-to-space) impact  
from any one non-GSO system

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| --- | --- | --- | --- | --- | --- | --- |
| 1 | Generic GSO reference link parameters - service |  |  |  |  |  |
|  | Link type | Link #1 | Link #2 | Link #3 | Gateway |  |
| 1.1 | ES e.i.r.p. density (dBW/MHz) | 49 | 49 | 49 | 60 | *eirp* |
| 1.2 | Bandwidth (MHz) | 1 | 1 | 1 | 1 | *BMHz* |
| 1.3 | Half-power beamwidth (deg) | 0.2 | 0.3 | 1.5 | 0.3 |  |
| 1.4 | ITU‑R S.672 sidelobe level (dB) | −25 | −25 | −25 | −25 |  |
| 1.5 | Satellite antenna peak gain (dBi) | 58.5 | 54.9 | 38.5 | 54.9 | *Gmax* |
| 1.6 | Additional link losses (dB)  This field includes non-precipitation impairments | 4.5 | 4.5 | 4.5 | 4.5 | *Lo* |
| 1.7 | Additional noise contribution including margin for inter-system interference (dB) | 2 | 2 | 2 | 2 | *M*0*inter* |
| 1.8 | Additional noise contribution including margin for intra-system interference (dB) and non-time varying sources | 1 | 1 | 1 | 1 | *M*0*intra* |

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| 2 | Generic GSO reference link parameters - parametric analysis | Parametric cases for evaluation | | | | | |  |
| 2.1 | E.i.r.p. density variation | −6, 0, +6 dB from value in 1.1 | | | | | | Δ*eirp* |
| 2.2 | Elevation angle (deg) | 20 | | | 55 | | 90 | *ε* |
| 2.3 | Rain height (m) for specified latitude in item 2.4 | 5 000 | 3 950 | 1 650 | 5 000 | 3 950 | 5 000 | *hrain* |
| 2.4 | Latitude\* (deg. *N*) | 0 | ± 30 | ± 61.8 | 0 | ± 30 | 0 | Lat |
| 2.5 | 0.01% rain rate (mm/hr) | 10, 50, 100 | | | | | | R0.01 |
| 2.6 | Height of ES above mean sea level (m) | 0, 500, 1 000 | | | | | | *hES* |
| 2.7 | Satellite noise temperature (K) | 500, 1 600 | | | | | | *T* |
| 2.8 | Threshold *C*/*N* (dB) | −2.5, 2.5, 5, 10 | | | | | |  |
| 2.9 | Probability of non-zero rain attenuation | 10 | | | | | | *pmax* (%) |
| NOTE – For items 2.2, 2.3 and 2.4, these three groups of data are be considered as unique sets of data to be used in the larger, overall set of total possible permutations. For example, 20 degrees of elevation angle will consider three different latitudes of 0, 30 and 61.8 degrees while 90 degrees of elevation will only consider a latitude of 0 degrees and one possible rain height 5 km. The above parameters are chosen as representative propagation parameters for purposes of calculations of precipitation fade statistics. These precipitation fades are representative of other geographic locations.  \* Latitude is evaluated as a single value representing the absolute value of the latitude | | | | | | | | |

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