

INTERNATIONAL TELECOMMUNICATION UNION

PLENARY MEETING

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Member States of the Inter-American Telecommunication Commission (CITEL)

PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 10

10 to recommend to the Council items for inclusion in the agenda for the next WRC, and to give its views on the preliminary agenda for the subsequent conference and on possible agenda items for future conferences, in accordance with Article 7 of the Convention,

Background Information: There is an interest among space agencies in using active spaceborne sensors in the 40-50 MHz frequency range for measurements of the Earth's subsurface to provide radar maps of subsurface scattering layers with the intent to locate water/ice/deposits. Measurements at the 40-50 MHz frequency range allow the discernment of details at more than 30 meters below the surface of the Earth for favorable ground conditions. Use of frequencies below 40-50 MHz would require larger antenna, which would present difficulties to spaceborne missions implementing this application. Use of frequencies above 40-50 MHz would reduce the depth at which the spaceborne radar sounder could provide measurements. Use of a frequency range other than 40-50 MHz would require new aeronautical campaigns at the different frequency in order to assess and calibrate the measurements at that frequency for use in a spaceborne radar sounder mission.

The information obtained from a spaceborne radar sounder operating in the 40-50 MHz frequency range would be of great value to ongoing global climate change studies and administrations in their assessment of below surface water resources within their territories. Repetitive measurements of worldwide subsurface water deposits can only be practically implemented using spaceborne active sensors.

The 40-50 MHz frequency range is allocated to the fixed, mobile and broadcasting services on a primary basis. The uses of the 40.98 to 41.015 MHz frequency range by space research services are on secondary basis. Country footnotes in the Table of Frequency Allocations for the 40-50 MHz frequency range provide primary allocations for aeronautical navigation and radiolocation services in certain parts of the world. Recommendation ITU-R RS.2042-0 provides typical technical and operating characteristics for spaceborne radar sounder systems using the 40-50 MHz for use in interference and compatibility studies.

This future conference agenda item proposes to study the compatibility of spaceborne radar sounder operations in the 40-50 MHz frequency range with the existing allocated services. In addition, it would investigate a potential modification to the Table of Frequency Allocations to reflect an allocation to the Earth exploration-satellite service (active). This allocation would allow for the operation of spaceborne radar sounder systems in the 40-50 MHz frequency range.

Proposals:

ADD USA/10(40-50)/1

DRAFT NEW RESOLUTION [USA-2023]

Preliminary agenda for the 2023 World Radiocommunication Conference

The World Radiocommunication Conference (Geneva, 2015),

considering

a) that, in accordance with No. 118 of the ITU Convention, the general scope of the agenda for WRC-18 should be established four to six years in advance;

- b) Article 13 of the ITU Constitution relating to the competence and scheduling of world radiocommunication conferences and Article 7 of the Convention relating to their agendas;
- c) the relevant resolutions and recommendations of previous world administrative radio conferences (WARCs) and world radiocommunication conferences (WRCs),

resolves to give the view

that the following items should be included in the preliminary agenda for WRC-23:

- 1 to take appropriate action in respect of those urgent issues that were specifically requested by WRC-19;
- 2 on the basis of proposals from administrations and the Report of the Conference Preparatory Meeting, and taking account of the results of WRC-19, to consider and take appropriate action in respect of the following items:
 - 2.[40-50] to review the Table of Frequency Allocations with a view towards modifications to support the allocation of Earth exploration-satellite (active) service in the 40-50 MHz frequency range, in accordance with **Resolution [USA-YYY] (WRC-15)**;
 - 3 to examine the revised ITU-R Recommendations incorporated by reference in the Radio Regulations communicated by the Radiocommunication Assembly, in accordance with Resolution **28 (Rev.WRC-03)**, and to decide whether or not to update the corresponding references in the Radio Regulations, in accordance with the principles contained in Annex 1 to Resolution **27 (Rev.WRC-12)**;
 - 4 to consider such consequential changes and amendments to the Radio Regulations as may be necessitated by the decisions of the Conference;
 - 5 in accordance with Resolution **95 (Rev.WRC-07)**, to review the resolutions and recommendations of previous conferences with a view to their possible revision, replacement or abrogation;
 - 6 to review, and take appropriate action on, the Report from the Radiocommunication Assembly submitted in accordance with Nos. 135 and 136 of the Convention;
 - 7 to identify those items requiring urgent action by the Radiocommunication Study Groups;
 - 8 to consider possible changes, and other options, in response to Resolution 86 (Rev. Marrakesh, 2002) of the Plenipotentiary Conference, an advance publication, coordination, notification and recording procedures for frequency assignments pertaining to satellite networks, in accordance with Resolution **86 (Rev.WRC-07)** to facilitate the rational, efficient, and economical use of radio frequencies and any associated orbits, including the geostationary-satellite orbit;
 - 9 to consider and take appropriate action on requests from administrations to delete their country footnotes or to have their country name deleted from footnotes, if no longer required, taking into account Resolution **26 (Rev.WRC-07)**;
 - 10 to consider and approve the Report of the Director of the Radiocommunication Bureau, in accordance with Article 7 of the Convention:
 - 10.1 on the activities of the Radiocommunication Sector since WRC-19;
 - 10.2 on any difficulties or inconsistencies encountered in the application of the Radio Regulations; and
 - 10.3 on action in response to Resolution **80 (Rev.WRC-07)**;

11 to recommend to the Council items for inclusion in the agenda for the following WRC, in accordance with Article 7 of the Convention,

invites the Council

to consider the views given in this Resolution,

instructs the Director of the Radiocommunication Bureau

to make the necessary arrangements to convene meetings of the Conference Preparatory Meeting and to prepare a report to WRC-23,

instructs the Secretary-General

to communicate this Resolution to international and regional organizations concerned.

Reasons: To conduct studies to examine the compatibility of spaceborne radar sounder operations in the 40-50 MHz frequency range with existing allocated services and to potentially modify the Table of Frequency Allocations to reflect an allocation to the Earth exploration-satellite service (active) allowing for the operation of spaceborne radar sounder systems in the 40-50 MHz frequency range.

ADD USA/10(40-50)/2

DRAFT NEW RESOLUTION [USA-YYY] (WRC-15)

Possible allocation to the EESS (active) for spaceborne radar sounders in the 40-50 MHz frequency range

The World Radiocommunication Conference (Geneva, 2015),

considering

- a) that the 40-50 MHz range is allocated to the fixed, mobile and broadcasting services on a primary basis;
- b) that the uses of the 40.98 to 41.015 MHz frequency range by space research service are on secondary basis;
- c) that country footnotes in the Table of Frequency Allocations for the 40-50 MHz frequency range provide primary allocations for aeronautical radionavigation and radiolocation services in certain parts of the world;
- d) that the spaceborne radar is intended to be only in either uninhabited or sparsely populated areas of the globe with particular focus on deserts and polar ice fields and at night-time only from 3 a.m. to 6 a.m. locally;
- e) that Recommendation ITU-R RS.2042-0 provides typical technical and operating characteristics for spaceborne radar sounder systems using the 40-50 MHz frequency range that should be used for interference and compatibility studies,

recognizing

- a) that spaceborne active radio frequency sensors can provide unique information on physical properties of the Earth and other planets;
- b) that spaceborne active remote sensing requires specific frequency ranges depending on the physical phenomena to be observed;

- c) that there is an interest in using active spaceborne sensors in the vicinity of 40-50 MHz frequency range for measurements of the Earth's subsurface to provide radar maps of subsurface scattering layers with the intent to locate water/ice/deposits;
- d) that worldwide, periodic measurements of subsurface water deposits require the use of spaceborne active sensors;
- e) that the 40-50 MHz frequency range is preferable to satisfy all requirements for spaceborne radar sounders,

resolves to invite ITU-R

- 1 to conduct sharing studies between Earth exploration-satellite (active) service and the radiolocation, fixed, mobile, broadcasting, and space research services in the 40-50 MHz frequency range;
- 2 to complete the studies, taking into account the present use of the allocated band, with a view of presenting, at the appropriate time, the technical basis for the work of WRC-23,

resolves to invite WRC-23

- 1 To conduct and complete in time for WRC-23, studies for a possible new allocation to the Earth exploration satellite (active) service for radar sounders in the 40-50 MHz frequency range, taking into account the protection of incumbent services;
- 2 To consider the results of the above studies and take appropriate action,

invites administrations

to participate actively in the studies by submitting contributions to ITU-R,

instructs the Secretary-General

to bring this resolution to the attention of the Space Frequency Coordination Group (SFCG) and other international and regional organizations concerned.

Reasons: A resolution will support the ITU-R studies needed under the relevant WRC-23 agenda item.

ATTACHMENT

PROPOSAL FOR AGENDA ITEM STUDYING
POSSIBLE ALLOCATION TO EESS (ACTIVE) FOR SPACEBORNE RADAR SOUNDERS IN
THE 40-50 MHZ FREQUENCY RANGE

Subject: Proposed future WRC agenda item for WRC-2023 studying the possible allocation for spaceborne radar sounders in the 40-50 MHz frequency range.

Origin: United States of America

Proposal: to review the Table of Frequency Allocations with a view towards modifications to support the allocation of Earth exploration-satellite (active) service in the 40-50 MHz frequency range, in accordance with **Resolution [USA-YYY] (WRC-15)**.

Background/reason:

There is an interest among space agencies in using active spaceborne sensors in the 40-50 MHz frequency range for measurements of the Earth's subsurface to provide radar maps of subsurface scattering layers with the intent to locate water/ice/deposits. This information would be of great value to ongoing global climate change studies and administrations in their assessment of below surface water resources within their territories. Repetitive measurements of worldwide subsurface water deposits can only be practically implemented using spaceborne active sensors.

The 40-50 MHz frequency range is allocated to the fixed, mobile and broadcasting services on a primary basis. The uses of the 40.98 to 41.015 MHz frequency range by space research service are on secondary basis. Recommendation ITU-R RS.2042-0 provides typical technical and operating characteristics for spaceborne radar sounder systems using the 40-50 MHz frequency range for use in compatibility studies.

This future conference agenda item proposes to study the compatibility of spaceborne radar sounder operations in the 40-50 MHz frequency range with the existing allocated services and potentially modify the Table of Frequency Allocations to reflect an allocation to the Earth exploration-satellite service (active) allowing for the operation of spaceborne radar sounder systems in that frequency range.

Radiocommunication services concerned: fixed, mobile, broadcasting, radiolocation, aeronautical navigation and space research services.

Indication of possible difficulties: none foreseen

Previous/ongoing studies on the issue: TBD

Studies to be carried out by: WP 7C	with the participation of: WPs 5A, 5B, 5C, 6B, 7B
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ITU-R Study Groups concerned: SG 5, 6, 7

ITU resource implications, including financial implications (refer to CV126): minimal

Common regional proposal: TBD **Multi-country proposal:** No

Number of countries:

Remarks
