UNITED STATES OF AMERICA

DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE

Agenda Item 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:

MOD USA/10/1

RESOLUTION 808 (Rev. WRC-15)

Agenda for the 2021 World Radiocommunication Conference

The World Radiocommunication Conference (Geneva, 2015),

Reasons: This modification adds a new item to the agenda for WRC-21.

ADD USA/10/2

2.XX 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)**.

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/10/3

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-21;

resolves to invite WRC-21

1 To conduct and complete in time for WRC-21, 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-21 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-2021 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

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