
PLENARY MEETING

**Addendum 5 to
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Member States of the Inter-American Telecommunication Commission (CITEL)
PROPOSALS FOR THE WORK OF THE CONFERENCE

Agenda item 10

{Temporary information note to be deleted before the submission via CPI of this document to the WRC-19 Secretariat: In accordance with Resolution 804 (Rev. WRC-12), Administrations are invited to use the template provided in Annex 2 to that Resolution (TIES-protected) when proposing agenda items for WRCs. This template may be filled out for each of the proposed WRC agenda item and annexed to this document.}

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:

At WRC-15 CITEL put forward Inter-American Proposals for an item to be placed on the draft agenda of WRC-23 and a Resolution calling for supporting studies. These proposals supported considering an allocation to the Earth exploration-satellite (active) service in the frequency range 40-50 MHz. These proposals were agreed at WRC-15. The draft agenda item is number 2.2 contained in Resolution **810 (WRC-15)**, and the supporting studies are called for in Resolution **656 (WRC-15)**. CITEL continues to support the retention of this item on the agenda of WRC-23.

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. Report ITU-R RS.2455 provides preliminary results of sharing studies between a 45 MHz radar sounder and incumbent fixed, mobile, broadcasting and space research services operating in the 40-50 MHz frequency range.

Proposals :

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) on a secondary basis. This allocation would allow for the operation of spaceborne radar sounder systems in the 40-50 MHz frequency range.

ADD IAP/6407A24A5/1

DRAFT NEW RESOLUTION [IAP/10(E)-2023]

Agenda for the 2023 World Radiocommunication Conference

The World Radiocommunication Conference (Sharm el-Sheikh, 2019),

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X.X1 to conduct, and complete in time for WRC-23, studies for a possible new secondary allocation to the Earth exploration-satellite (active) service for spaceborne radar sounders within the range of frequencies around 45 MHz, taking into account the protection of incumbent services, including in adjacent bands, in accordance with Resolution **656 (WRC-19)**;

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 a secondary allocation to the Earth exploration-satellite service (active) allowing for the operation of spaceborne radar sounder systems in the 40-50 MHz frequency range.

MOD IAP/6407A24A5/2

RESOLUTION 656 (WRC-15)

Possible secondary allocation to the Earth exploration-satellite service (active) for spaceborne radar sounders in the range of frequencies around 45 MHz

The World Radiocommunication Conference (Sharm el-Sheikh, 2019~~Geneva, 2015~~),

considering

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 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;

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;

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 the space research service are on a secondary basis;

~~e) that country footnotes in the Table of Frequency Allocations for the 40-50 MHz frequency range provide primary allocations for the aeronautical radionavigation and radiolocation services in certain parts of the world;~~

~~d) that spaceborne radars are intended to be operated only in either uninhabited or sparsely populated areas of the globe, with particular focus on deserts and polar ice fields, and only at night-time from 3 a.m. to 6 a.m. locally~~

e) that spaceborne radars are intended to be operated only in either uninhabited or sparsely populated areas of the globe, with particular focus on deserts and polar ice fields, and only at night-time 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 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 the space research service are on a secondary basis;

c) that country footnotes in the Table of Frequency Allocations for the 40-50 MHz frequency range provide primary allocations for the aeronautical radionavigation and radiolocation services in certain parts of the world;

d) 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;

e) that Report ITU-R RS.[VHF SOUNDER] provides preliminary results of sharing studies between a 45 MHz radar sounder and incumbent fixed, mobile, broadcasting and space research services operating in the 40-50 MHz frequency range,

f) that the uses of the 50-54 MHz range is allocated to Amateur service in Regions 2 and 3 on primary basis, and N. 5.196 of the Radio Regulations provides for an alternative allocation to the Amateur service on primary basis in a number of countries in Region 1;

~~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;~~

~~e) that there is an interest in using active spaceborne sensors in the vicinity of 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;~~

~~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 the 2023 World Radiocommunication Conference

to consider the results of studies on spectrum needs for a possible new secondary allocation to the Earth exploration-satellite (active) service for spaceborne radar sounders within the range of frequencies around 45 MHz, taking into account the protection of incumbent services, and take appropriate action,

invites ITU-R

1 to conduct studies on spectrum needs and sharing studies between the Earth exploration-satellite (active) service and the radiolocation, fixed, mobile, broadcasting, amateur and space research services in the 40-50 MHz frequency range and adjacent bands;

~~2 to complete the studies, taking into account the present use of the allocated band, with a view to presenting, at the appropriate time, the technical basis for the work of WRC-23,~~

invites administrations

to participate actively in the studies by submitting contributions to the ITU Radiocommunication Sector,

instructs the Secretary-General

to bring this Resolution to the attention of international and regional organizations concerned.

Reasons:

SUP IAP/6407A24A5/3

RESOLUTION 810 (WRC-15)

Preliminary agenda for the 2023 World Radiocommunication Conference

The World Radiocommunication Conference (Geneva, 2015),

Reasons: This Resolution must be suppressed, as WRC-19 will create a new Resolution that will include the agenda for WRC-23.

ATTACHMENT

Subject: Consideration of a new secondary allocation to the Earth exploration-satellite service (active) in the frequency range 40-50 MHz.

Origin: the CITEL Member States

Proposal: To place on the agenda for WRC-23 an agenda item to conduct, and complete in time for WRC-23, studies for a possible new secondary allocation to the Earth exploration-satellite (active) service for spaceborne radar sounders within the range of frequencies around 45 MHz, taking into account the protection of incumbent services, and take appropriate action.

Background/reason: To allow space-based missions to operate which will: 1) understand the global thickness, inner structure, and the thermal stability of the Earth's ice sheets such as in Greenland and Antarctica as an observable parameter of earth climate evolution, and 2) understand the occurrence, distribution and dynamics of the earth fossil aquifers in desertic environments such as northern Africa and the Arabian peninsula as key elements in understanding recent paleoclimatic changes;

Radiocommunication services concerned: Broadcasting service, Earth exploration-satellite service, Amateur service, fixed service, and mobile service

Indication of possible difficulties: None envisioned.

Previous/ongoing studies on the issue: Studies already conducted in Working Party 7C have resulted in Recommendation ITU-R RS.2042 (Typical technical and operating characteristics for spaceborne radar sounder systems using the 40-50 MHz band) and Report ITU-R RS.2455 (Preliminary results of sharing studies between a 45 MHz radar sounder and incumbent fixed, mobile, broadcasting and space research services operating in the 40-50 MHz frequency range)

Studies to be carried out by: Working Party 7C

with the participation of: Working Parties 5A, 5C, and 6A

ITU-R Study Groups concerned: Study Group 7

ITU resource implications, including financial implications (refer to CV126): Minimal. Studies of technical and operational characteristics have been completed and preliminary sharing studies have resulted in one Report. Completion of final sharing/compatibility studies may be conducted within the normal work of the Working Parties, including for services in adjacent bands.

Common regional proposal: Yes/No

Multicountry proposal: Yes/No

Number of countries:

Remarks