

## UNITED STATES OF AMERICA

### DRAFT PROPOSALS 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, taking into account Resolution 806 (WRC-07)*

**Background Information:** Prediction and detection of disruptive geomagnetic storms and other space perturbations (hereinafter “space weather”) are critical to many economic and infrastructure areas, globally. Some of the larger vulnerable economic areas are satellite operations, air transport and electric power distribution. Failure to detect and predict disruptive conditions could result in loss of life and property as well severe impact to the economy. This is not intended to imply in any way that these operations are part of a safety service; rather that these space weather observations are critical to many aspects of national economies and the world population.

The motivating factor behind this proposal is the concern that space weather sensor technology has been developed and operational systems have been deployed without much regard for domestic or international spectrum regulations, or for the potential need for protection from interference. Systems of importance to national economies and the safety of the world population should have some level of recognition and protection in the international Radio Regulations.

It was recognized that obtaining protection from harmful interference to these systems after the fact may be challenging, at best. Given their importance, exploring the options for protection without placing additional restrictions on incumbent services has merit. Study Group 7 has agreed to a Question at its October 2014 meeting to study the technical and operational characteristics and spectrum requirements of space weather detection systems. The Question also calls for the study to determine the most appropriate service or designation for space weather sensors.

#### **Proposal:**

**MOD** USA/10/1

#### **RESOLUTION [PRELIM WRC-21 AGENDA]**

#### **Agenda for the ~~2018~~ 2021 World Radiocommunication Conference**

The World Radiocommunication Conference (Geneva, 2015),

**ADD** USA/10/2

**X.X** in accordance with Resolution AAA, to review the results of studies relating to the technical and operational characteristics, spectrum requirements and appropriate radio service designations for space weather sensors with a view to providing appropriate recognition and protection in the Radio Regulations without placing additional constraints on incumbent services.

**Reasons:** To provide recognition and protection of space weather sensors in the Radio Regulations.

## RESOLUTION AAA (WRC-15)

**Spectrum Requirements and Protection of Space Weather Sensors**

The World Radiocommunication Conference (Geneva, 2015),

*considering*

- a) that space weather observations are becoming increasingly important in detecting solar activity events that could impact services critical to the economy, safety and security of administrations;
- b) that these observations are made from platforms that may be ground based, airborne, or space-based;
- c) that some of the sensors operate by receiving low level natural emissions of the Sun or the Earth's atmosphere, and therefore may suffer harmful interference at levels which could be tolerated by other radio systems,

*recognizing*

- a) that no frequency bands have been allocated or documented in any manner in the Radio Regulations for space weather sensor applications;
- b) that the ITU-R has a Study Question in force (7/102) to study the technical and operational characteristics, frequency requirements, and appropriate radio service designation for space weather sensors;
- c) that any regulatory action should take into account incumbent services that are already operating in the frequency bands of interest,

*resolves*

that, taking into account the results of ITU-R studies and without placing additional constraints on incumbent services, WRC-21 consider regulatory provisions necessary to provide protection to space weather sensors operating in the appropriately designated radio service that is to be determined during ITU-R studies,

*invites the ITU-R*

- 1 to document the technical and operational characteristics of space weather sensors;
- 2 to determine the appropriate radio service designations for space weather sensors;
- 3 to conduct any necessary sharing studies for incumbent systems operating in frequency bands used by space weather sensors, with the objective of determining regulatory protection that can be provided while not placing additional constraints on incumbents services,

*invites administrations*

to participate actively in the studies and provide the technical and operational characteristics of the systems involved by submitting contributions to the ITU-R,

*instructs the Secretary General*

to bring this resolution to the attention of the World Meteorological Organization (WMO), 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 ADDITIONAL PRELIMINARY AGENDA ITEM STUDYING TECHNICAL AND OPERATIONAL CHARACTERISTICS, SPECTRUM REQUIREMENTS AND PROTECTION OF SPACE WEATHER SENSORS

**Subject:** Proposed Future WRC Agenda Item for WRC-2021 studying appropriate service designations and protection requirements for space weather measurements

**Origin:** United States of America

---

*Proposal: in accordance with Resolution AAA, to review the results of studies relating to the technical and operational characteristics, spectrum requirements and appropriate radio service designations for space weather sensors with a view to providing appropriate recognition and protection in the Radio Regulations without placing additional constraints on incumbent services.*

---

**Background/reason:** Prediction and detection of disruptive geomagnetic storms and other space perturbations (hereinafter “space weather”) are critical to many economic and infrastructure areas, globally. Some of the larger vulnerable economic areas are satellite operations, air transport and electric power distribution. Failure to detect and predict disruptive conditions could result in loss of life and property as well as severe impact to the economy. This is not intended to imply in any way that these operations are part of a safety service; rather that these space weather observations are critical to many aspects of national economies and the world population. Space weather sensor technology has been developed and operational systems have been deployed without much regard for domestic or international spectrum regulations, or for the potential need for protection from interference. Systems of importance to national economies and the safety of the world population should have some level of recognition and protection in the International Radio Regulations.

---

**Radiocommunication services concerned:** To be determined

---

**Indication of possible difficulties:** None foreseen

---

**Previous/ongoing studies on the issue:** ITU-R Study Question 7/102 in force with studies underway to document technical and operational characteristics and spectrum requirements.

---

<b>Studies to be carried out by:</b> SG7	<b>with the participation of:</b>
--	-----------------------------------

---

**ITU-R Study Groups concerned:** SG4, SG 5, SG 6

---

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

---

**Common regional proposal:** Yes/No  
Number of countries:

---

**Multicountry proposal:** Yes/No

---

**Remarks**