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RESOLUTION 682 (WRC-23)

Consideration of regulatory provisions and potential primary allocations to the meteorological aids service (space weather) to accommodate receive-only space weather sensor applications in the Radio Regulations

The World Radiocommunication Conference (Dubai, 2023),

considering

- a)* that space weather data is important to understanding the physical process of providing prediction models for space weather events and their impacts on services critical to the economy, safety and security of administrations and the population of their countries as:
- space weather observations are important for detecting natural phenomena, mainly originating from solar activity and occurring beyond the major portion of the Earth's atmosphere;
 - the collection and exchange of space weather data are important to understanding the origin of these phenomena and the physical processes;
- b)* that the importance of space weather radiocommunication applications has been stressed by a number of international bodies, such as the World Meteorological Organization, the Intergovernmental Panel on Climate Change, the United Nations Office for Disaster Risk Reduction, the International Civil Aviation Organization, the United Nations Office for Outer Space Affairs and the United Nations Committee on the Peaceful Uses of Outer Space, and that ITU Radiocommunication Sector (ITU-R) collaboration with these bodies is essential;
- c)* that these observations could be made from space- and ground-based systems, and guidance in the design of those systems is necessary;
- d)* that the observational frequencies used by these space weather sensors have been chosen based on the physical properties of the observed phenomena;
- e)* that some receive-only sensors operate by receiving low-level emissions, including, but not limited to, emissions from the Sun, the Earth's atmosphere and other celestial bodies, and may therefore suffer harmful interference in the future;
- f)* that radio regulatory protection is needed for space weather observation systems that are used operationally in the production of forecasts and warnings of space weather events that can cause harm to important sectors of national economies and security, as well as human welfare;
- g)* that the bandwidth requirement for observations by receive-only space weather sensors may typically encompass a minimum continuous bandwidth,

noting

- a) that Resolution **675 (WRC-23)**:
 - defines space weather;
 - designates space weather sensors to the meteorological aids service (MetAids) in the subset MetAids (space weather);
- b) that Report ITU-R RS.2456, on space weather sensor systems using radio-frequency spectrum, contains:
 - a summary of spectrum-reliant space weather sensors; and
 - a description of the systems for operational space weather monitoring, prediction and warnings deployed globally;
- c) that, within ITU-R, work is ongoing to determine the spectrum requirements of receive-only space weather sensors and their protection criteria in response to Question ITU-R 256/7;
- d) that Resolution 136 (Rev. Bucharest, 2022) of the Plenipotentiary Conference highlights the use of telecommunications/information and communication technologies for monitoring and management in emergency and disaster situations for early warning, prevention, mitigation and relief,

recognizing

- a) that no frequency bands have been documented in any manner in the Radio Regulations for space weather sensor applications;
- b) that, while data products are used for forecasts and warnings related to public safety, among other purposes, the provisions of Nos. **1.59** and **4.10** do not apply to spectrum-reliant space weather sensors;
- c) that some receive-only space weather sensors in operation utilize bands not currently allocated to the MetAids service, and some of them need to continue their current operation;
- d) that the current provisions of Article **11** do not allow an administration to notify a frequency assignment to a receive-only terrestrial radio station, except for certain types of station (see Nos. **11.2**, **11.9** and **11.12**), and that therefore no procedure for notifying receive-only MetAids (space weather) stations is provided;
- e) that receive-only space weather sensors are considered in the studies under this Resolution on the understanding that these sensors will be deployed only at a limited number of specific locations and not in a ubiquitous manner,

resolves to invite the ITU Radiocommunication Sector to complete in time for the 2027 world radiocommunication conference

- 1 studies on spectrum needs and appropriate protection criteria for receive-only space weather sensors, as well as system characteristics, as appropriate, taking into account *noting a)*;

2 sharing and compatibility studies pertaining to potential new primary allocations to MetAids (space weather) in the following frequency bands for receive-only sensors, taking into account *further resolves* 2:

- 27.5-28.0 MHz;
- 29.7-30.2 MHz;
- 32.2-32.6 MHz;
- 37.5-38.325 MHz;
- 73.0-74.6 MHz;
- 608-614 MHz;

3 studies on possible regulatory provisions of the Radio Regulations to accommodate the possibility for an administration that desires to notify a receive-only space weather sensor station to be included in the Master International Frequency Register,

further resolves

1 that no notification of frequency assignments to a station used for space weather observation be made by administrations under MetAids (space weather) until WRC-27 introduces the corresponding allocations in Article 5;

2 that any possible new primary MetAids (space weather) allocations to be made under *resolves to invite the ITU Radiocommunication Sector to complete in time for the 2027 world radiocommunication conference* 2 shall not claim protection from, or constrain the future development of, incumbent services in these frequency bands or in adjacent bands,

invites administrations

to participate actively in the studies and provide the information required for the studies listed under *resolves to invite the ITU Radiocommunication Sector to complete in time for the 2027 world radiocommunication conference* by submitting contributions to ITU-R,

invites the 2027 world radiocommunication conference

to take appropriate actions, including potential new primary receive-only MetAids (space weather) allocations, based on the results of the studies under *resolves to invite the ITU Radiocommunication Sector to complete in time for the 2027 world radiocommunication conference*, taking into account *further resolves* 2,

invites relevant international organizations

to participate actively in the relevant ITU-R studies by providing information that should be taken into account in ITU-R studies,

instructs the Secretary-General

to bring this Resolution to the attention of the relevant international organizations.