# UNITED STATES OF AMERICA

# DRAFT PRELIMINARY VIEWS FOR WRC-19

**AGENDA ITEM 1.3**: *to consider possible upgrading of the secondary allocation to the meteorological-satellite service (space-to-Earth) to primary status and a possible primary allocation to the Earth exploration-satellite service (space-to-Earth) in the frequency band 460-470 MHz, in accordance with Resolution****766 (WRC-15)***.

**ISSUE**: This agenda item relates to consideration of possible upgrade of the secondary allocation to the meteorological-satellite service (space-to-Earth) to primary status and a possible primary allocation to the Earth exploration-satellite service (space-to-Earth) in the frequency band 460-470 MHz, in accordance with Resolution **766** **(WRC-15)**.

The ITU-R is invited to study:

* Sharing and compatibility studies of such an upgrade while protecting existing primary fixed and mobile services.
* Determine the appropriate pfd limits to place on MetSat (space-to-Earth), and EESS (space-to-Earth) systems to protect existing primary services.

**BACKGROUND**: The 460-470 MHz band is allocated on a primary basis to the fixed and mobile services. Under the co-primary allocation to the mobile Service**,** “the frequency band 450-470 MHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT)” in all 3 Regions pursuant to **No 5.286AA.**

The meteorological-satellite service currently has a secondary allocation in this band. Under **No. 5.289**, “*Earth exploration-satellite service applications, other than the meteorological-satellite service, may also be used in the bands 460-470 MHz for space-to-Earth transmissions subject to not causing harmful interference to stations operating in accordance with the Table*”.

Within this band, the Argos Data Collection System (ADCS) monitors more than 21,000 active Argos platforms collecting data for over 2,000 distinct projects in 100+ countries.

The administration of the Argos program is under a joint agreement between the National Oceanic and Atmospheric Administration (NOAA) and the French Space Agency, Centre National d’Etudes Spatiales (CNES). Additional partners include the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT), and the Indian Space Research Organization (ISRO).

The meteorological-satellite (space-to-Earth) service operates on a secondary basis to the fixed and mobile services and thus it must not interfere with these services. The Resolution 766 proposal has the potential to adversely impact approximately 127,000 licensed PLMR operations if not implemented in a way that ensures protection of terrestrial operations from harmful interference. Critical applications of licensees using this spectrum include Public Safety dispatch of first responders; correctional institution communications; state and local government operation and homeland security response; critical infrastructure communications (water, sewer, power and fuel pipeline control); and hospital operations. In addition, the 460-470 MHz band is used by alarm service providers to monitor at least 400,000 homes, businesses and government facilities in the United States to detect fires, medical emergencies, home invasions and other urgent circumstances, and alert first responders. At least 200,000 alarm radios in this band are used in countries outside of the United States. [[1]](#footnote-1) To protect the fixed and land mobile services within the United States, a power flux density (pfd) limit of -152 dBW/m2/4kHz has been imposed on the meteorological-satellite (space-to-Earth) service.

Preliminary testing by the relevant United States government agencies has shown that, at satellite angles of arrival below 25 degrees, the -152 dBW/m2/4kHz limit is not adequate to protect terrestrial operations. To provide the necessary protection to existing services in the band, globally, the next generation of ADCS transmitters must implement direct sequence spread spectrum or equivalent technology in the satellite downlink to reduce the pfd in the 460-470 MHz band to less than -152 dBW/m2/4kHz, or such other levels determined necessary to protect terrestrial operations, depending on the angle of arrival.

Potential upgrade of EESS allocation to primary will bring confidence to the space agencies involved in Satellite Data Collection Programs and will ease coordination with Administrations. These space programs do represent a long-term effort and require decades of investment between the time the program is officially approved and the time the various satellites are in operation, keeping in mind that usually many satellites are deployed in order to provide a continuous service. For the specific case of this band, the number of satellites expected to be in operation is limited for cost reasons, and it is unlikely that two satellites will transmit at the same time over the same geographical area.

**U.S. VIEW**: The United States supports conducting and completing sharing and compatibility studies with the co-primary Fixed and Mobile services including IMT. These studies would determine the feasibility of potentially upgrading the MetSat (space-to-Earth) allocation to primary status, and the potential addition of a primary EESS (space-to-Earth) allocation in the frequency band 460-470 MHz, while protecting the current primary allocations for fixed and land mobile services including IMT systems and maintaining the conditions contained in No. **5.289**.

Should studies support the upgrade of the MetSat service and/or addition of a primary allocation to the EESS, the appropriate pfd limit should be determined for MetSat (space-to-Earth) and EESS (space-to-Earth) systems to protect the existing and planned deployments of primary services in the frequency band 460-470 MHz. Should studies conclude that a less restrictive pfd limit than that contained in Resolution **766** (WRC-15) *considering further* a) can protect incumbent services, then the pfd limit (−152 dBW/m2 /4 kHz) shall apply. To the extent that sharing and compatibility studies, field tests and other relevant input indicate that a more restrictive pfd limit is necessary to protect terrestrial operations, such more restrictive limit must be adopted if any upgrade to the existing MetSat secondary allocation or new allocation to EESS is proposed.

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1. Alarm radio systems operate in the 460-470 MHz band in more than 50 nations outside of the United States, including countries such as Canada, Greece, Ireland, Russia, Spain, United Kingdom, Netherlands, Columbia, France, Belgium, Bolivia, Saudi Arabia, Mexico, Ethiopia, Argentina, Brazil and Cambodia. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. [↑](#footnote-ref-1)