

Resolution 21-3R1

**PROTECTION OF EESS (PASSIVE) SENSORS FROM ULTRA WIDEBAND
DEVICE EMISSIONS**

The SFCG

CONSIDERING

- a) that passive microwave sensors on board spacecraft are an increasingly important tool for monitoring the Earth's environment;
- b) that certain frequency bands are restricted to use by the passive services only and RR 5.340 stipulates that all emissions are prohibited in these bands;
- c) that other frequency bands are allocated to the passive services and are shared with some active services;
- d) that the passive sensing instruments by their nature are very sensitive to any emissions within the sensor band and operate by integrating a very low signal over time across a relatively large bandwidth (tens to hundreds of MHz);
- e) that any emissions that raise the noise floor in bands allocated to Earth exploration-satellite (passive) service may constitute interference to the passive sensors using those bands;
- f) that Ultra Wideband (UWB) devices are based on emerging technologies using very narrow pulses that generates very wide bandwidth (greater than 25 % of the center frequency or greater than 1.5 GHz), but typically at low power levels;
- g) that studies have shown that the aggregate effect and the extreme wideband nature of such devices may cause interference in frequency bands allocated to passive remote sensing;
- h) that UWB technology enables a wide assortment of applications such as through-the-wall imaging, ground-penetrating radars, collision-avoidance radars as well as other communications and security applications;
- i) that some administrations are examining potential rules for the operation of UWB devices on a license-exempt basis;

RECOGNIZING

1. that the automotive industry has identified the band 22-29 GHz for implementation of UWB vehicular short-range radars;
2. that the band 23.6-24 GHz is part of a set of unique critical bands that are essential for numerical weather prediction and climate monitoring and is protected by RR 5.340;
3. that all studies have shown that UWB vehicular short-range radars and passive sensors operating in the 23.6-24 GHz band are incompatible, and all studies have resulted in negative margins in excess of 10 dB;
4. that the deployment of UWB devices may also impact other services in the EESS / Meteorological community, such as EESS (active), Search and Rescue, Metajds.

RESOLVES

1. that member agencies work within their administrations to ensure that UWB devices avoid emissions in bands exclusively allocated to passive services;
2. that member agencies work within their administrations to ensure that UWB devices avoid generating harmful emissions in the other bands allocated to passive sensors.
3. that member agencies continue to study the possible impact of the introduction of UWB devices into bands allocated to EESS (passive).