



Provisional Recommendation SFCG 43-1

**PROTECTION OF IN-SITU LUNAR REGION POSITIONING,
NAVIGATION, AND TIMING (PNT) SERVICES IN THE 2 483.5 – 2 500
MHZ FREQUENCY BAND FROM UNWANTED EMISSIONS FROM
LUNAR SURFACE COMMUNICATIONS SYSTEMS**

The SFCG,

CONSIDERING

- a) that accurate position, navigation, and timing is important to the success of missions operating on the lunar surface;
- b) that the use of the 2 483.5 – 2 500 MHz frequency band is recommended in SFCG REC 32-2R5 for in-situ lunar-based Positioning, Navigation, and Timing (PNT) signals from lunar orbiting platforms to other lunar orbiting and lunar surface platforms;
- c) that lunar surface and lunar orbit user platforms may use a variety of PNT receiver types, including high-precision and general-purpose devices for astronauts and unmanned platforms;
- d) that lunar surface wireless systems, corresponding to a group of wireless interoperable communication devices, are envisioned above and below the PNT frequency band, as identified in SFCG REC 32-2R5;
- e) that the PNT band is subject to interference due to unwanted emissions from lunar surface wireless transmitters, identified in *considering* d);
- f) that lunar surface communications system deployments may require additional RF filtering to reduce the unwanted emission levels in the 2 483.5 – 2 500 MHz band,

RECOMMENDS

- 1. that the maximum aggregate unwanted emissions into the frequency range 2483.5 – 2500 MHz from each lunar surface wireless system is limited to -121 dB(W/m²/MHz) at the input of the PNT receive antenna;
- 2. that lunar surface PNT receiver RF front end operating in the 2 483.5 – 2 500 MHz band have sufficient filtering of signals in the adjacent bands to avoid saturation.