



Provisional Recommendation SFCG 39-1

**INTERFERENCE MITIGATION TECHNIQUES FOR EESS SYSTEMS
PLANNING TO OPERATE IN THE 7190-7250 MHz BAND**

The SFCG

CONSIDERING

- a) that interference can occur to EESS satellites operating in the 7190-7250 MHz band from multiple earth station uplinks;
- b) that in addition the 7190-7235 MHz segment of the band is shared with SRS satellites and therefore coordination is necessary also with those satellites in order to avoid mutual interference;
- c) that the 7235-7250 MHz segment is not shared with systems of other satellite services;
- d) that future interference in the band can be reduced by ensuring that earth stations transmit only when in view of their associated space stations;
- e) that future congestion in the band can also be reduced by limiting the minimum bandwidth necessary to accomplish the intended mission;
- f) that use of large earth station antennas with low sidelobe levels reduces the impact of potential interference;
- g) that different interference mitigation techniques exist to facilitate coordination with other satellite systems;
- h) that CCSDS 401(2.2.8) B-2 specifies a maximum coded symbol rate for uplinks of 2.048 coded Msymbol/s using BPSK

RECOMMENDS

- 1. that EESS earth stations in the band 7190-7250 MHz shall not transmit when their associated space stations are beyond their view;

2. that EESS systems in the band 7190-7250 MHz be designed to minimize their necessary bandwidth within a maximum of 4 MHz per link, to reduce future congestion in the band¹;
3. that due consideration be given to interference mitigation techniques including use of suppressed carrier modulation schemes, earth station geographical diversity, increased earth station antenna gain, and reduced earth station antenna sidelobe levels;
4. that in case of critical coordination environment with SRS satellite systems and/or EESS satellite systems with very high reliability requirements or large data rates, the segment 7235-7250 MHz be used by new EESS satellite systems.

1 The bandwidth limitation applies to the modulation schemes considered for telecommand uplinks in CCSDS 401.0-B-29. Further work to address different modulation schemes, including spread-spectrum, needs to be included in a future revision of this Recommendation.