

RECOMMENDATION 578*

**PROTECTION CRITERIA AND SHARING CONSIDERATIONS
RELATING TO DEEP-SPACE RESEARCH****

(Question 1/2)

(1982)

The CCIR,

CONSIDERING

- (a) that manned deep-space research has unique requirements for extreme reliability of telecommunications so as to ensure safety of life;
- (b) that both manned and unmanned deep-space research have unique requirements for extreme reliability of telecommunications so as to ensure successful reception of valuable scientific data collected at particular critical times, and that repeat transmission of these data is often not possible;
- (c) that the extreme sensitivity of deep-space earth stations results in unusually low levels of permissible interference;
- (d) that some terrestrial and earth stations in other services have sufficient e.i.r.p. to cause interference to stations in deep space;
- (e) that sharing studies and protection criteria have been presented in Report 685 for deep-space research earth stations and for stations in deep space;
- (f) that protection criteria for relay stations in earth orbit, used for deep-space research, have not yet been determined and are not considered in Report 685,

UNANIMOUSLY RECOMMENDS

1. that protection criteria for deep-space research earth stations be established as follows: -222 dB(W/Hz) in the bands near 2 GHz, -220 dB(W/Hz) in the bands near 8 GHz, -220 dB(W/Hz) in the bands near 13 GHz and -216 dB(W/Hz) in the bands near 32 GHz;
2. that protection criteria for stations in deep space be established as follows: -191 dB(W/20 Hz) in the bands near 2 GHz, -189 dB(W/20 Hz) in the bands near 7 GHz, -186 dB(W/20 Hz) in the bands near 17 GHz and -184 dB(W/20 Hz) in the bands near 34 GHz;
3. that calculation of interference that may result from atmospheric and precipitation effects be based on weather statistics for 0.001% of the time;
4. that with coordination, deep-space research can share Earth-to-space bands with stations in other services except:
 - receiving aeronautical mobile stations, receiving satellite stations, and microwave sensor satellites, when any of these may come within line-of-sight;
 - receiving mobile stations that come within the separation distance required for interference protection;
 - transmitting terrestrial stations having an average e.i.r.p. exceeding 81 dBW in the bands near 2 GHz and 84 dBW in the bands near 7 GHz;
5. that with coordination, deep-space research can share space-to-Earth bands with stations in other services except:
 - the radioastronomy service;
 - transmitting aeronautical mobile stations, transmitting satellite stations, and active microwave sensor satellites, when any of these may come within line-of-sight;
 - transmitting mobile stations that come within the separation distance required for interference protection.

* This Recommendation is brought to the attention of Study Groups 4, 8, 9, 10 and 11.

** Protection criteria for near-Earth space research satellites can be found in Recommendation 609.