

## RECOMMENDATION ITU-R SF.615-1\*

**MAXIMUM ALLOWABLE VALUES OF INTERFERENCE FROM THE  
FIXED-SATELLITE SERVICE INTO TERRESTRIAL RADIO-RELAY SYSTEMS  
WHICH MAY FORM PART OF AN ISDN AND SHARE THE SAME  
FREQUENCY BAND BELOW 15 GHz**

(1986-1997)

The ITU Radiocommunication Assembly,

*considering*

- a) that systems in the fixed-satellite service (FSS) and the fixed service share many frequency bands below 15 GHz;
- b) that many radio-relay systems employing digital modulation for telephony are operational or are planned for operation in these shared bands;
- c) that it is necessary to specify the maximum allowable interference into the terrestrial service to determine whether specific locations for satellite earth stations and terrestrial radio-relay stations would be satisfactory;
- d) that the maximum allowable values of power flux-density at the surface of the Earth produced by space stations in the FSS using the same bands above 1 GHz as the terrestrial service, are in accordance with Recommendation ITU-R SF.358;
- e) that availability objectives are given in Recommendation ITU-R F.557 for digital radio-relay systems (DRRSs);
- f) that error performance objectives are given in Recommendation ITU-R F.594 for DRRSs at a bit rate below the primary rate which may form part or all of high grade portion of an ISDN;
- g) that the Recommendations ITU-R F.1092 and ITU-R F.1189 based on ITU-T Recommendation G.826 give error performance objectives for constant bit rate digital paths at a bit rate at and above the primary rate carried by DRRSs which may form part of the international and national portions respectively of a 27 500 km hypothetical reference path;
- h) that the allowable degradations in performance and availability of a terrestrial DRRS due to interference from satellite systems of the FSS should be expressed as a permissible fraction of the total allowable degradation in performance and availability,

*recommends*

**1** that systems in the FSS and terrestrial DRRSs should be designed in such a manner that, in the 2 500 km HRDP defined in Recommendation ITU-R F.556, the permissible degradation in performance and availability resulting from the aggregate of the emissions of earth stations and space stations of the FSS, including associated telemetering, telecommand and tracking transmitters operating in accordance with Recommendation ITU-R SF.358 should not exceed the following provisional limits (see Notes 1, 2 and 3):

**1.1** the interfering emissions should not degrade the performance by causing an increase of more than 0.0054% of the period of time in any month during which the bit error ratio exceeds  $1 \times 10^{-3}$  (integration time 1 s);

**1.2** the interference emissions should not degrade the availability by causing an increase in the period of unavailability, as defined in Recommendation ITU-R F.557, of more than 0.03% of any year;

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\* Radiocommunication Study Groups 4 and 9 made editorial amendments to this Recommendation in 2000 in accordance with Resolution ITU-R 44.

**1.3** the interference emissions should not degrade the performance by causing an increase in the number of errored seconds measured at the 64 kbit/s interface by more than 0.032% in any month.

NOTE 1 – The limits on permissible interference apply to the cumulative sum of the effects of emissions from space stations, direct long-term emissions from earth stations and interference due to the anomalous propagation of emissions from earth stations.

NOTE 2 – Some administrations may use more stringent performance objectives for domestic coordination purposes than the following values. For international coordination purposes the values given above should be utilized.

NOTE 3 – The new DRRSs sharing the same frequency bands on a primary basis with systems of other services should be designed in such a manner that, in each direction of a radio-relay path in the international portion of a constant bit-rate path at or above the primary rate, the allowable degradation in performance resulting from the aggregate of the emissions from systems of other services should not exceed the provisional limits given in Recommendation ITU-R F.1241.

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