

RECOMMENDATION ITU-R F.463-1*

**Limits for the residues of signals outside the baseband
of radio-relay systems for television**

(1970-1978)

The ITU Radiocommunication Assembly,

considering

- a) that the interconnection of radio-relay systems and line systems, as well as the direct through-connection of radio-relay systems, may be necessary when establishing international circuits;
- b) that a continuity pilot may be required to establish the continuity of the transmission path between the input and output terminals of a radio-relay system independently of the traffic (e.g. television plus sound programme channels);
- c) that it is essential to avoid undesirable effects, such as interference or cross-talk from the pilots, when systems are interconnected;
- d) that limits should be placed on the level of any signal transmitted on a system, even if it cannot cause interference to either the traffic or the pilots of a following system, to avoid overloading that system;
- e) that if such signals have to be eliminated by a filter incorporated in the output of the equipment, the attenuation and group delay variation caused by that filter should not cause the system performance to differ from that appropriate to the system,

recommends

1 that the point of interconnection between radio-relay systems or between radio-relay systems and line systems, forming part of an international connection, should be considered as a junction between line-regulating sections, except when the cable system constitutes a short extension of the radio system and is then a part of the same line-regulating section; if the radio-relay link constitutes a regulated line section, the station at one end of the link will be called “the radio-link control station” and the station at the other end of the link will be called “the radio-link sub-control station”. The duties of these stations are given in the maintenance instructions in ITU-T Recommendations, Series N, Vol. IV, Fascicle IV.3;

2 that the continuity pilot should be located outside the band of frequencies occupied by the television signal and any associated sound programme channels. The preferred frequencies and levels are shown in Recommendation ITU-R F.401;

3 that, in the absence of any special agreement between the administrations concerned, the level of any continuity pilot (Recommendation ITU-R F.401), sound programme sub-carrier, service channel, harmonic of the traffic or other unwanted signal, within prescribed limits above the

* Radiocommunication Study Group 9 made editorial amendments to this Recommendation in 2001 in accordance with Resolution ITU-R 44.

television frequency band should, within the equipment, be reduced to not more than -50 dB relative to 1 V peak-to-peak (about 1 mV r.m.s.) at a point in the system corresponding to point *T* (Recommendation ITU-R F.380, Fig. 1) for telephony. The limits of the baseband frequency range over which this should apply are as follows: for 525-line systems the limits are 1.25 to 2.5 times the nominal upper limit of the frequency band (Report ITU-R BT.470). For 625-line systems the limits are 1.2 times (Note 1) to twice the nominal upper limit of the frequency band (Report ITU-R BT.470). Alternatively, the aforementioned reduction of level may be restricted to the continuity pilot and the sound programme sub-carrier;

4 that, to avoid overloading and other deleterious interference effects on the following systems such as radio-relay systems, cable systems or other interconnected systems, the level of the residue signals above 1.2 times (Note 2) the nominal upper limit of the television frequency band should be at least 30 dB below that of the television signal measured as the ratio of the nominal peak-to-peak amplitude of picture luminance signal to the r.m.s. amplitude of the residue signals.

NOTE 1 – For television systems using an upper limit of the frequency band of 6 MHz and four sound programme sub-carriers, the limits are 1.13 times to twice the nominal upper limit of the frequency band.

NOTE 2 – For television systems using an upper limit of the frequency band of 6 MHz and four sound programme sub-carriers, the figure is 1.13 times the nominal upper limit of the television frequency band.
