

RECOMMENDATION ITU-R SNG.1007-1*

UNIFORM TECHNICAL STANDARDS (DIGITAL)
FOR SATELLITE NEWS GATHERING (SNG)

(Question ITU-R 228/4)

(1993-1995)

The ITU Radiocommunication Assembly,

considering

- a) that Satellite News Gathering (SNG) using portable transmitting earth stations is essential for broadcast operations and provides a valuable method of transmission for the rapid acquisition and broadcasting of news events;
- b) that to facilitate the international coverage of news and to optimize the design of equipment, it would be desirable to adopt uniform technical standards for digital SNG, taking into account the possibility for interference to other satellites and systems and the need to be interoperable;
- c) that digital SNG requirements include various communication and transmission support systems and that it is necessary to provide, preferably on the same satellite transponder, auxiliary signals for the operation of digital SNG earth stations;
- d) that digital SNG earth stations operate mainly in the fixed-satellite service, and should comply with the relevant provisions of the Radio Regulations, and any relevant domestic regulations requirements;
- e) that digital SNG transmissions should conform to certain technical criteria with regard to off-axis e.i.r.p. and other antenna characteristics;
- f) that the technical characteristics of an appropriate identification signal should be specified;
- g) that digital SNG video terminals could require less transmission power and can use smaller antennas and lighter equipment than analogue SNG video terminals;
- h) that digital SNG video terminals could utilize less power and bandwidth from the satellite;
- j) that digital SNG transmissions have lower interference potential than analogue transmissions,

recommends

- 1 that digital SNG earth-station transmissions should comply with the uniform technical standards as described in Annex 1;
- 2 that digital SNG earth stations equipped to provide two-way satellite communications circuits should comply with Recommendation ITU-R SNG.771.

* This Recommendation should be brought to the attention of Radiocommunication Study Groups 10 and 11.

ANNEX 1

Technical parameters applicable to digital SNG terminals**1 General performance**

A digital SNG terminal must be able to be rapidly deployed, to transmit (with a minimum of impairments) vision and associated sound or sound programme signals, to provide limited receiving capability to assist in the pointing of the antenna and to monitor (where possible) the transmitted signals, and to provide two-way communications for operation and supervision.

Digital SNG terminals using a flat (usually phased array antenna) or parabolic antenna consist of the following main units:

- antenna and feed system with polarization adjustment,
- antenna mount with azimuth/elevation adjustment,
- optional antenna tracking system. (In the case of a flat antenna automatic tracking may be achieved by use of a beacon signal. The satellite uplink and downlink contours must overlap. In the case of a loss of the beacon signal, specific procedures should be initiated in order to avoid interference to other systems),
- high power amplifier/solid state power amplifier (HPA/SSPA) for multiplexed vision/sound/data channels,
- receiver unit in order to assist antenna pointing,
- baseband/coding and modulation equipment and IF to RF upconverter,
- two-way communication equipment for voice/data,
- system local/remote control panel,
- optional power generator.

2 Transmission performance requirements

The baseband digital signal shall be transmitted with a minimum of impairment by adhering to the performance requirements as described in § 3.

3 RF performance requirements**3.1 Off-axis e.i.r.p. density**

Shall comply with Recommendation ITU-R S.524 or the satellite operator's requirements, whichever is more stringent.

3.2 Polarization discrimination

Some satellites use overlapping channels with orthogonal polarization discrimination. The cross-polarization design for linearly polarized antennas should be better than 30 dB within the –1 dB points of the main axis of the beam and 25 dB elsewhere.

3.3 E.i.r.p.

The necessary e.i.r.p. of the digital SNG terminal depends on the required uplink carrier-to-noise ratio C/N and satellite G/T . However, e.i.r.p. is often limited by the off-axis e.i.r.p. density limits as indicated in § 3.1.

3.4 Necessary RF bandwidth

The necessary RF bandwidth for digital SNG can be determined by taking into account the RF spectrum of the digital signal and the number of associated carriers for auxiliary circuits.