

RECOMMENDATION ITU-R SNG.1561

Digital transmission of high-definition television for satellite news gathering and outside broadcasting

(Question ITU-R 226/4)

(2002)

The ITU Radiocommunication Assembly,

considering

- a) that in point-to-point video transmission via satellite, quality of service objectives are fixed on the basis of large sized transmitting and receiving station antennas;
- b) that the introduction of highly portable transmitting stations is essential particularly for news gathering operations and can provide a satisfactory technical solution;
- c) that the special characteristics needed for portable and transportable stations and the reduced link availability characteristics of highly portable stations may necessitate acceptance of reduced transmission performance objectives;
- d) that it may be necessary to provide, on the same satellite bearer, the auxiliary signals required for the operation of portable and transportable transmitting stations but that these auxiliary signals should not have a perceptible effect on the transmission quality of the television signals;
- e) that throughout the world, where news events take place, standardized and uniform technical and operating procedures should be established to ensure prompt activation of satellite news gathering (SNG) and outside broadcasting services;
- f) that to facilitate the international coverage of news, it is necessary to adopt uniform operating parameters for high-definition television (HDTV) digital SNG, to ensure interoperability between equipment from different manufactures,

noting

- a) that Recommendation ITU-R SNG.1007 provides uniform technical standards for SNG;
- b) that Recommendation ITU-R SNG.1421 gives common operating parameters to ensure interoperability for transmission of digital conventional television SNG,

recommends

- 1 that when requiring international interoperability, the HDTV digital SNG equipment should comply with the uniform operating parameters described in Annex 1.

ANNEX 1

1 Scope

The system is based on the following technical requirements:

- The system should be applicable to all possible satellite transponders, including future planned ones.
- The source coding system should conform to the MPEG-2 systems¹.
- The channel coding system should be as flexible as possible, with the highest possible efficiency for the intended application. It should be selectable by the user according to the characteristics of the transmission channel.
- The user bit rate should meet the picture quality requirements which may be requested from other relevant ITU Study Groups.
- The information bit rate with outer coding should be defined, taking account of connectivity with existing international digital hierarchies as well as coding performance.
- The SNG system may include the auxiliary channels, such as communication channels.

2 Source encoding, service information and multiplexing

2.1 Video encoding

Video encoding in accordance with MPEG-2 4:2:2P@HL is recommended. The use of MPEG-2 MP@HL may also be considered.

Video source and bit rate (horizontal and vertical resolution) do not affect interoperability. These parameters are not specified in this Recommendation as integrated receiver decoders (IRD) should handle these automatically.

2.2 Audio encoding

Audio encoding to MPEG-1 Layers I and II, MPEG-2 Layers I and II, MPEG-2 AAC, or AC-3 should be used.

Audio channel configuration, source and bit rate do not affect interoperability. These parameters are not specified in this Recommendation as IRD should handle these automatically.

2.3 Data encoding

Subject for further study.

¹ MPEG-2 refers to ITU-T Recommendations H.222 and H.262, or ISO/IEC 13818.

2.4 Program Specific Information (PSI) and Service Information (SI)

2.4.1 General

PSI and SI should conform to all relevant requirements in accordance with applicable standards and guidelines.

The following tables are mandatory for MPEG-2 digital video broadcasting using satellite (DVB-S) compliance:

PAT: Program Association Table

PMT: Program Map Table

CAT: Conditional Access Table

NIT: Network Information Table, actual delivery system

SDT: Service Description Table, (actual transport stream)

TDT: Time and Date Table

EIT: Event Information Table, present/following actual transport stream.

Some of these service information tables or their contents may not be relevant to digital SNG service, but they are still required.

This Recommendation does not specify values or syntax of the service information tables but recommends that wherever possible default values should be used by the equipment to facilitate simple and rapid deployment of digital SNG.

In digital SNG transmissions, editing of the SI tables in the field may be impossible due to operational problems. Therefore, only the following MPEG-2 defined SI tables PAT, PMT and SDT transport stream Service Description Table are mandatory.

2.4.2 First SDT descriptor

See Recommendation ITU-R SNG.1421.

2.4.3 Second SDT descriptor

See Recommendation ITU-R SNG.1421.

2.4.4 Guidelines

2.4.4.1 Guidelines for the usage of the SDT (transport stream Service Description Table) within digital SNG streams

SDTs are repeated at least every 10 s.

The `station_identification_char` field contains the following items, comma-separated and in the following order:

- usual station code;
- SNG headquarter;
- SNG provider.

The usual station code is the code assigned to the station by the satellite operator with which the station is most frequently used.