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Amendment 1
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TELEVISION AND SOUND TRANSMISSION

TRANSMISSION OF COMPONENT-CODED DIGITAL TELEVISION SIGNALS FOR CONTRIBUTION-QUALITY APPLICATIONS AT THE THIRD HIERARCHICAL LEVEL OF ITU-T RECOMMENDATION G.702

APPENDIX II: GUIDELINES FOR IMPLEMENTATION OF A COMPLETE TELEVISION CODEC

Amendment 1 to

ITU-T Recommendation J.81

(Previously "CCITT Recommendation")

FOREWORD

The ITU-T (Telecommunication Standardization Sector) is a permanent organ of the International Telecommunication Union (ITU). The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Conference (WTSC), which meets every four years, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 1 (Helsinki, March 1-12, 1993).

Amendment 1 to ITU-T Recommendation J.81, was prepared by ITU-T Study Group 9 (1993-1996) and was approved under the WTSC Resolution No. 1 procedure on the 24th of October 1995.

NOTE

In this Amendment, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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Appendix II

(to Annex A to Recommendation J.81)

Guidelines for implementation of a complete television codec

(Geneva, 1995)

To add this Appendix II, renumber the present Appendix II to Annex A as Appendix III

Whilst Appendix I to Annex A to Recommendation J.81 provides guidelines for implementation of the video codec, a number of parameters are still left unspecified as regards a complete TV codec providing the complete set of services (i.e. video, sound, data and scrambling). Thus, for the purpose of international programme exchange, it is necessary to specify a few more parameters, some in order to meet basic interworking between codecs, others to achieve consistent networking operation. The following indicates the choices made by the EBU (European Broadcasting Union) for the implementation of its own network.

II.1 Interoperability

II.1.1 Sound

A stereo/2-channel audio codec should be used, according to Recommendation J.57 (formerly CMTT.724). The sampling frequency used for audio analogue to digital conversion at the encoder, if needed, should be locked to the video time-base and should neither be free-running nor locked directly to the transmission network clock.

II.1.2 Scrambling

Scrambling should be implemented but will be performed on all components together.

II.1.3 Ancillary channels

Channels for teletext (T,T') and time codes [LTC (Longitudinal Time Code) and VITC (Vertical Interval Time Code)] are not presently envisaged to be used.

II.1.4 Component decoding

It is expected that composite sources may feed destinations operating in component modes or in another composite format. Thus, complementary decoding as used for PAL to PAL applications is not suited, unless an adequate luminance/chrominance separation is provided, for example by means of comb-filters.

II.2 Networking requirements

II.2.1 Video inputs

Access to the video channel should be either via a digital interface at the ITU-R Recommendation 601 4:2:2 level or via one single composite analogue input.

When accessed through a digital interface, the codec should automatically support 625- and 525-line systems.

The single composite input should accept PAL and SECAM, and must recognize the input standard and automatically decode to 4:2:2 components. The video format should be signalled in the video multiplex.

II.2.2 Video outputs

Digital outputs should support both 625- and 525-line systems.

The analogue output should be able to deliver on a single connector either PAL or SECAM signals depending on the format of the original signal.

Composite coders in the 34-45 Mbit/s decoders must be protected against wide-bandwidth chrominance signals from component sources.

II.2.3 Insertion Data Signals

The Insertion Data Signals (IDS), which identifies the origin of the transmission, is described in EBU Document Tech 3217 (January 1986). In practice however, the information is limited to 8 ASCII characters. This information should not be transmitted over the teletext channel, but should be demodulated an inserted into the supervision channel, in the source identification field. If there is no IDS present in the input signal, then the encoder should transfer its own identification (coder identification field, up to 15 characters) into the source identification. The information recovered at the decoder side should be reinserted according to EBU Document Tech 3217.

II.2.4 Insertion Test Signals (ITS)

The ITS signals are defined in Recommendation J.63 (formerly CMTT 473-5). Their handling should be as described in the Recommendation with the following additions:

- When the encoder detects the absence of IDS in the incoming composite signal, or in the case of component signal, new ITS should be generated in the encoder and line 22 should be blanked.
- For 625-line systems, lines 17, 18, 330, 331 and 22 should be carried. The number of test-lines may be limited to 4, provided that the presence of a greater number of testlines in the input signal does not disrupt the coding of the desired four testlines. In this case, line 18 should be discarded and lines 17, 330, 331 and 22 preserved.

II.2.5 Decoder output under fault conditions

- In case of absence of video input to the encoder and/or in case of an encoder failure, the decoder should provide black level at its video output.
- In case of interruption of the transmission link, the decoder should initially provide a freeze of the last received video signal, changing to mid-grey or black level after about five seconds.
- If the fault condition affects the audio only, information should be provided at the monitoring outputs.