



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

J.54

(ex CMTT.660)

(05/86)

TELEVISION AND SOUND TRANSMISSION

**TRANSMISSION OF ANALOGUE
HIGH-QUALITY SOUND-PROGRAMME
SIGNALS ON MIXED ANALOGUE-AND-
DIGITAL CIRCUITS USING 384 kbit/s
CHANNELS**

ITU-T Recommendation J.54

(Formerly Recommendation ITU-R CMTT.660)

FOREWORD

The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the International Telecommunication Union. 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, established the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

ITU-T Recommendation J.54 (formerly Recommendation ITU-R CMTT.660) was elaborated by the former ITU-R Study Group CMTT. See Note 1 below.

NOTES

1 As a consequence of a reform process within the International Telecommunication Union (ITU), the CCITT ceased to exist as of 28 February 1993. In its place, the ITU Telecommunication Standardization Sector (ITU-T) was created as of 1 March 1993. Similarly, in this reform process, the CCIR and the IFRB have been replaced by the Radiocommunication Sector (ITU-R).

Conforming to a joint decision by the World Telecommunication Standardization Conference (Helsinki, March 1993) and the Radiocommunication Assembly (Geneva, November 1993), the ITU-R Study Group CMTT was transferred to ITU-T as Study Group 9, except for the satellite news gathering (SNG) study area which was transferred to ITU-R Study Group 4.

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

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Recommendation J.54¹⁾

TRANSMISSION OF ANALOGUE HIGH-QUALITY SOUND-PROGRAMME SIGNALS ON MIXED ANALOGUE-AND-DIGITAL CIRCUITS USING 384 kbit/s CHANNELS

(1986)

The CCIR,

CONSIDERING

- (a) that high-quality sound-programme signals on mixed analogue-and-digital circuits must satisfy the performance requirements of Recommendation 505;
- (b) that the number of analogue-to-digital and digital-to-analogue conversions as well as the number of digital coding techniques should be kept to a minimum, in order for the international sound programme connection to provide the same or higher degree of performance than possible with a homogeneous analogue connection;
- (c) that the CCITT has recommended a 384 kbit/s H0 bearer channel in Recommendation I.412 which has the capacity to transport sound-programme signals on an integrated services digital network (ISDN);
- (d) that digital-to-digital conversions using the same encoding law on tandem sound-programme circuits with different primary rates should not introduce any signal degradation,

UNANIMOUSLY RECOMMENDS

that the transmission of sound-programme signals on 384 kbit/s channels, with an analogue interface at the input and output of the international connection, should satisfy the analogue-and-digital requirements defined in § 1 and 2 respectively of this Recommendation.

Note 1 – Equipment characteristics for the coding of analogue high-quality sound-programme signals using 384 kbit/s channels have been defined in CCITT Recommendation J.41. Characteristics for equipment offering digital access at 384 kbit/s into 2048 kbit/s are given in CCITT Recommendations G.735 and G.737.

Note 2 – Other coding techniques are proposed and are the subject of Question 18/CMTT, for example, coding of analogue sound-programme signals at 316 kbit/s, insertion into a 320 kbit/s channel and multiplexing of six high-quality sound-programme channels within 2048 kbit/s. Techniques which may be used by bilateral agreement of the administrations concerned are listed in Table I of Report 647.

1. Analogue requirements

Transmission of high-quality sound-programme signals on mixed analogue-and-digital circuits shall satisfy the performance requirements of Recommendation 505.

1.1 *Single codec performance*

The analogue-to-analogue transmission performance of a single codec shall be equivalent to one-third the performance characteristics of the hypothetical reference circuit (see Recommendation 505). Where applicable, the laws of addition given in Recommendation 605 can be used to calculate the single codec performance with $n = 3$ analogue-to-analogue sections.

¹⁾ Formerly Recommendation ITU-R CMTT.660.