



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

G.735

**GENERAL ASPECTS OF DIGITAL TRANSMISSION
SYSTEMS**

TERMINAL EQUIPMENTS

**CHARACTERISTICS OF PRIMARY PCM
MULTIPLEX EQUIPMENT OPERATING
AT 2048 kbit/s AND OFFERING
SYNCHRONOUS DIGITAL ACCESS
AT 384 kbit/s AND/OR 64 kbit/s**

ITU-T Recommendation G.735

(Extract from the *Blue Book*)

NOTES

- 1 ITU-T Recommendation G.735 was published in Fascicle III.4 of the *Blue Book*. This file is an extract from the *Blue Book*. While the presentation and layout of the text might be slightly different from the *Blue Book* version, the contents of the file are identical to the *Blue Book* version and copyright conditions remain unchanged (see below).
- 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 G.735

CHARACTERISTICS OF PRIMARY PCM MULTIPLEX EQUIPMENT OPERATING AT 2048 kbit/s AND OFFERING SYNCHRONOUS DIGITAL ACCESS AT 384 kbit/s AND/OR 64 kbit/s

(former Recommendation G.737 of Volume III of the Yellow Book)

This Recommendation gives the characteristics of a PCM multiplex equipment operating at 2048 kbit/s and providing one or several of the following internal digital access options:

- bidirectional synchronous 64 kbit/s channels (see Figure 1 a/G.735);
- unidirectional synchronous 384 kbit/s channels (see Figure 1b/G.735).

The 384 kbit/s channel is based on the allocation of 6 x 64 kbit/s time slots, e.g. for setting up sound-programme circuits according to Recommendations J.41 and J.42.

Because these circuits are specified as unidirectional, the equipment for insertion/extraction has to be separated as shown in Figure 1b/G.735.

1 General characteristics

1.1 Fundamental characteristics for voice channel encoding

The encoding law used is the A-law as specified in Recommendation G.711. The sampling rate, load capacity and the code are also specified in that Recommendation.

The number of quantized values is 256.

Note - The inversion of bits 2, 4, 6 and 8 is covered by the encoding law and is applicable only to voice channel time slots.

1.2 Bit rate

The nominal bit rate is 2048 kbit/s. The tolerance on this rate is ± 50 parts per million (ppm).

1.3 Timing signal

It should be possible to derive the transmit timing signal from any of the following:

- a) from the received 2048 kbit/s signal,
- b) from an external source at 2048 kHz (see § 5),
- c) from an internal oscillator.

Note - The provision of a timing signal output, available for the purpose of synchronizing other equipments, is an option that might be required depending upon national synchronization arrangements.

1.4 Types of access:

- a) access for bidirectional synchronous 64 kbit/s channels (see Figure 1 a/G.735);
- b) access for unidirectional synchronous 384 kbit/s channels (see Figure 1b/G.735).

Note - The synchronous insertion of a digital sound programme signal into a 384 kbit/s channel requires the internal regeneration of a timing signal T synchronized by the 2048 kbit/s signal I_1 . The timing signal is used for

synchronizing the sampling frequency of the analogue/digital converters producing the digital sound programme signal.

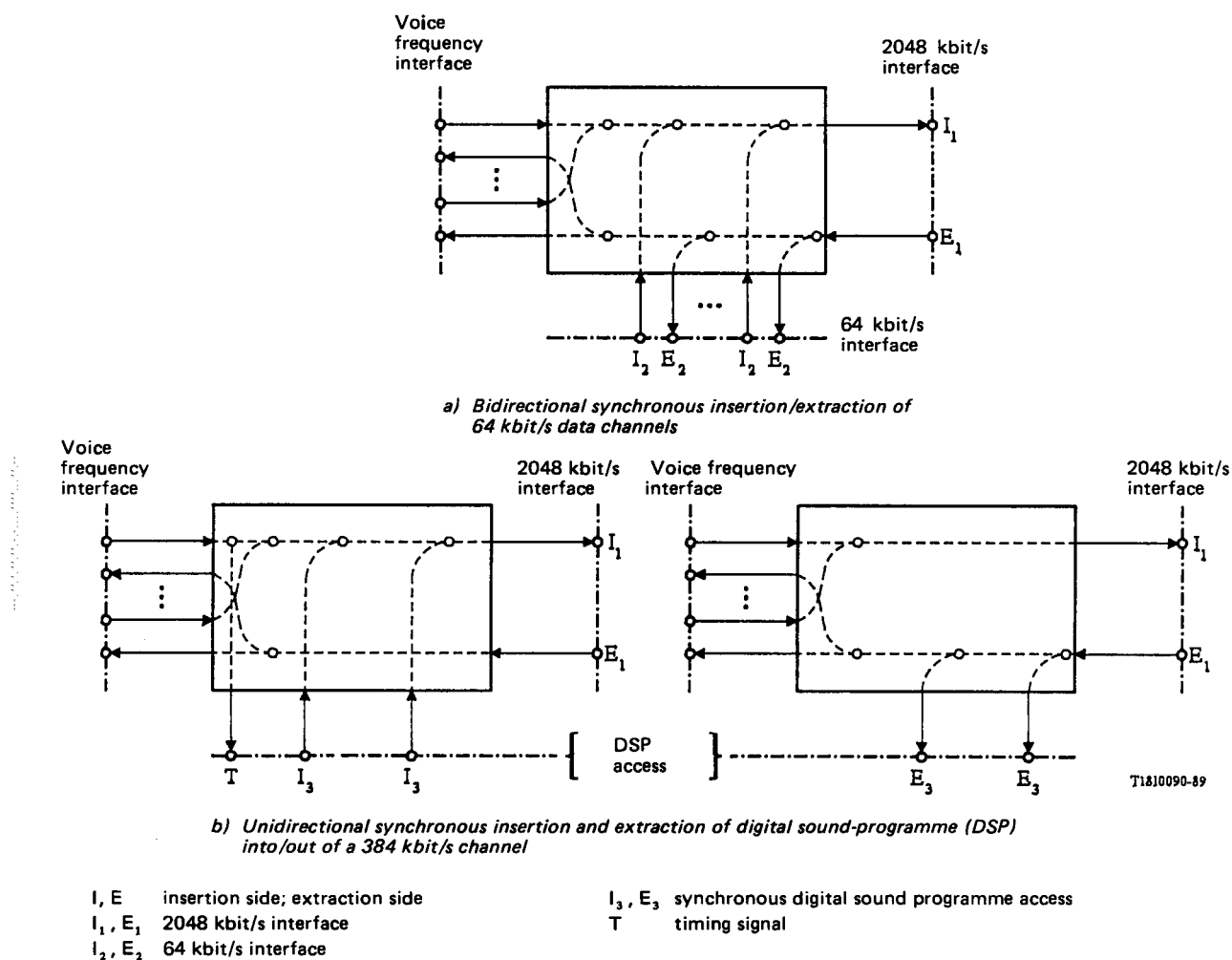


FIGURE 1/G.735

**PCM multiplex equipment operating at 2048 kbit/s
and offering access to digital sound-programme signals
and/or to synchronous 64 kbit/s data channels**

2 Frame structure and use of derived channel time slots

2.1 Frame structure of 2048 kbit/s signal

Refer to § 2.3 of Recommendation G.704. Bit 1 of the frame should be used in accordance with § 2.3.3 of Recommendation G.704, i.e. for a CRC check bit procedure.

2.2 Use of derived channel time slots

2.2.1 Telephone channels

It should be possible to assign channel time slots 1 to 15 and 17 to 31 to thirty telephone channels numbered from 1 to 30.

2.2.2 64 kbit/s access

The number of accessible channel time slots should be at least four and the equipment shall allow access to any