



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

G.739

**GENERAL ASPECTS OF DIGITAL
TRANSMISSION SYSTEMS**

TERMINAL EQUIPMENTS

**CHARACTERISTICS OF AN EXTERNAL
ACCESS EQUIPMENT OPERATING
AT 2048 kbit/s OFFERING SYNCHRONOUS
DIGITAL ACCESS AT 320 kbit/s
AND/OR 64 kbit/s**

ITU-T Recommendation G.739

(Extract from the *Blue Book*)

NOTES

1 ITU-T Recommendation G.739 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.739

CHARACTERISTICS OF AN EXTERNAL ACCESS EQUIPMENT OPERATING AT 2048 kbit/s OFFERING SYNCHRONOUS DIGITAL ACCESS AT 320 kbit/s AND/OR 64 kbit/s

(Melbourne, 1988)

This Recommendation gives the characteristics of equipment (external to PCM muldexes) operating at 2048 kbit/s and providing one or several of the following tributaries into/from channel time slots of a 2048 kbit/s composite signal:

- bidirectional synchronous 64 kbit/s access (Figure 1 a/G.739);
- unidirectional synchronous 320 kbit/s access (Figure 1b/G.739).

The 320 kbit/s channel is based on the allocation of 5 x 64 kbit/s time slots, e.g. for setting up sound-programme circuits according to Recommendations J.43 and J.44. Because these circuits are specified as unidirectional, the equipment for insertion/extraction has to be separated as shown in Figure 1b/G.739.

1 General characteristics

1.1 Bit rate

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

1.2 Types of external access

- a) Bidirectional synchronous insertion/extraction of 64 kbit/s data channels (see Figure 1 a/G.739).

Note 1 - The timing signal for the insertion side should be derived from the 2048 kbit/s incoming signal at the insertion side (I_0); the timing signal for the extraction side should be derived from the 2048 kbit/s incoming signal at the extraction side (E_1).

Note 2 - 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.

Note 3 - Further study is required on the possible need for an internal clock.

- b) Unidirectional synchronous insertion and extraction of a digital sound-programme signal into/out of a 320 kbit/s channel (see Figure 1 b/G.739).

Note - The synchronous insertion equipment for 320 kbit/s signals requires the internal regeneration of a timing signal synchronized by the 2048 kbit/s input signal I_0 . This timing signal output of the synchronous insertion equipment is used for synchronizing the sampling frequency of the analogue/digital converter.

2 Frame structure and use of derived channel time slots

2.1 Frame structure of the 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

Time slots not accessed flow transparently through the equipment.

Note - Further study is required as to whether the binary content of time slots used at the access points should be replaced, after extraction from the composite signal, by the AIS.

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