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ITU-T

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STANDARDIZATION SECTOR
OF ITU

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**SERIES G: TRANSMISSION SYSTEMS AND MEDIA,
DIGITAL SYSTEMS AND NETWORKS**

**Digital transmission systems – Digital networks – Network
capabilities and functions**

**Transport of SDH elements on PDH networks –
Frame and multiplexing structures**

ITU-T Recommendation G.832

(Previously CCITT Recommendations)

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ITU-T RECOMMENDATION G.832

TRANSPORT OF SDH ELEMENTS ON PDH NETWORKS – FRAME AND
MULTIPLEXING STRUCTURES

Summary

This Recommendation defines frame structures and multiplexing arrangements for the transport of SDH elements over existing PDH transport networks operating at G.702 hierarchical rates of 34 368 kbit/s, 44 736 kbit/s, 97 728 kbit/s and 139 264 kbit/s. It is envisaged that these frame structures could, unless otherwise indicated, be used for the transport of other signals (e.g. ATM cells).

History

Issue	Notes
02/98	Second revision: Modifications are made to subclauses 2.1.2, 2.4.2, 3.1.1 and 3.4.3 to support the Synchronization Status Message (SSM) instead of the timing marker in bit 8 of byte MA in the 34 368 and 139 264 kbit/s signals. The NR byte definition is modified and now aligned with the definition of byte N1 in Annex D/G.707.
11/95	First revision: Terms FERF and FEBE are replaced by RDI and REI. References to Recommendations G.708 and G.709 are replaced by references to Recommendation G.707. The trail trace identifier specification has been modified and refers to Recommendations G.707 and G.831.
11/93	Initial version

Source

ITU-T Recommendation G.832 was revised by ITU-T Study Group 15 (1997-2000) and was approved under the WTSC Resolution No. 1 procedure on the 13th of October 1998.

FOREWORD

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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.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

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As of the date of approval of this Recommendation, the ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

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Recommendation G.832**TRANSPORT OF SDH ELEMENTS ON PDH NETWORKS – FRAME AND MULTIPLEXING STRUCTURES***(revised in 1998)***1 Introduction****1.1 Scope**

The purpose of this Recommendation is to provide frame structures and multiplexing arrangements for the transport of SDH elements over existing PDH transport networks operating at various G.702 hierarchical rates. It is also envisaged that these frame structures could, unless otherwise indicated, be used for the transport of other signals (e.g. ATM cells).

1.2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; all users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published.

- ITU-T Recommendation G.707 (1996), *Network node interface for the Synchronous Digital Hierarchy (SDH)*.
- ITU-T Recommendation G.804 (1998), *ATM cell mapping into Plesiochronous Digital Hierarchy (PDH)*.
- CCITT Recommendation T.50 (1992), *International Reference Alphabet (IRA) (Formerly International Alphabet No. 5 or IA5) – Information technology – 7-bit coded character set for information interchange*.

1.3 Abbreviations

This Recommendation uses the following abbreviations:

BIP-8	Bit Interleaved Parity-8
C-n	Container of level n
IEC	Incoming Error Count
LSB	Least Significant Bit
MFI	MultiFrame Indicator
MSB	Most Significant Bit
PDH	Plesiochronous Digital Hierarchy
POH	Path Overhead
PTR	PoinTeR
RDI	Remote Defect Indication
REI	Remote Error Indication

SDH	Synchronous Digital Hierarchy
SOH	Section Overhead
TTI	Trail Trace Identifier
TU-n	Tributary Unit of level n
TUG-n	Tributary Unit Group of level n
VC-n	Virtual Container of level n

NOTE 1 – The order of transmission of information in all diagrams in this Recommendation is first from left to right and then top to bottom. Within each byte the most significant bit is transmitted first. The most significant bit (bit 1) is illustrated at the left of all diagrams.

NOTE 2 – In this Recommendation the term "SDH elements" indicates the various VCs with their associated pointers.

2 Frame structures

The frame structures defined in this Recommendation are intended to be used in a generic way. When implementing these frame structures, care should be taken to ensure that the performance of the frame alignment mechanism is not compromised by the payload content.

2.1 Frame structure at 34 368 kbit/s

2.1.1 General

The basic frame structure at 34 368 kbit/s comprises 7 octets of overhead and 530 octets of payload capacity per 125 μ s as shown in Figure 2-1.

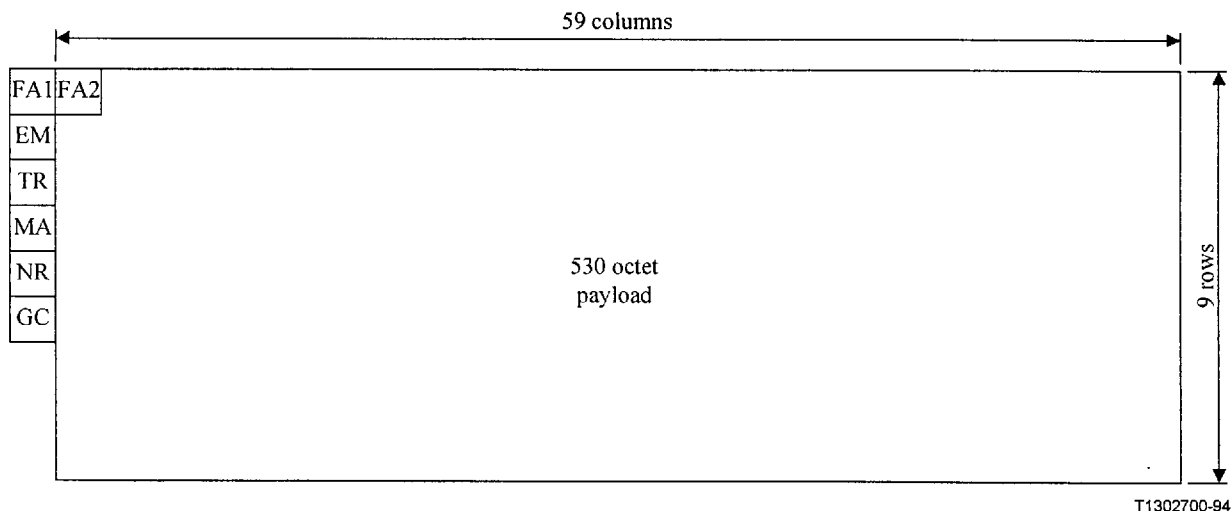


Figure 2-1/G.832 – Frame structure at 34 368 kbit/s