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

Digital transmission systems – Digital sections and digital line system – Access networks

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High bit rate Digital Subscriber Line (HDSL) transceivers

ITU-T Recommendation G.991.1

(Previously CCITT Recommendation)

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ITU-T G-SERIES RECOMMENDATIONS

TRANSMISSION SYSTEMS AND MEDIA, DIGITAL SYSTEMS AND NETWORKS

INTERNATIONAL TELEPHONE CONNECTIONS AND CIRCUITS	G.100–G.199
INTERNATIONAL ANALOGUE CARRIER SYSTEM	
GENERAL CHARACTERISTICS COMMON TO ALL ANALOGUE CARRIER-TRANSMISSION SYSTEMS	G.200–G.299
INDIVIDUAL CHARACTERISTICS OF INTERNATIONAL CARRIER TELEPHONE SYSTEMS ON METALLIC LINES	G.300–G.399
GENERAL CHARACTERISTICS OF INTERNATIONAL CARRIER TELEPHONE SYSTEMS ON RADIO-RELAY OR SATELLITE LINKS AND INTERCONNECTION WITH METALLIC LINES	G.400–G.449
COORDINATION OF RADIOTELEPHONY AND LINE TELEPHONY	G.450–G.499
Radiotelephone circuits	G.450–G.469
Links with mobile stations	G.470–G.499
TESTING EQUIPMENTS	
TRANSMISSION MEDIA CHARACTERISTICS	G.600–G.699
DIGITAL TRANSMISSION SYSTEMS	
TERMINAL EQUIPMENTS	G.700–G.799
DIGITAL NETWORKS	G.800–G.899
DIGITAL SECTIONS AND DIGITAL LINE SYSTEM	G.900–G.999
General	G.900–G.909
Parameters for optical fibre cable systems	G.910–G.919
Digital sections at hierarchical bit rates based on a bit rate of 2048 kbit/s	G.920–G.929
Digital line transmission systems on cable at non-hierarchical bit rates	G.930–G.939
Digital line systems provided by FDM transmission bearers	G.940–G.949
Digital line systems	G.950–G.959
Digital section and digital transmission systems for customer access to ISDN	G.960–G.969
Optical fibre submarine cable systems	G.970–G.979
Optical line systems for local and access networks	G.980–G.989
Access networks	**G.990–G.999**

For further details, please refer to ITU-T List of Recommendations.

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ITU-T RECOMMENDATION G.991.1

HIGH BIT RATE DIGITAL SUBSCRIBER LINE (HDSL) TRANSCEIVERS

Summary

This Recommendation specifies a High bit rate Digital Subscriber Line (HDSL) which is a bidirectional and symmetrical transmission system that allows the transport of signals with a bit rate of 1544 kbit/s or 2048 kbit/s on the copper twisted pairs of an access network. The basic work has been carried out in the ANSI T1 committee for 1544 kbit/s signals. The results of this work were taken by TM6 of ETSI and adopted for 2048 kbit/s signals in a technical specification, which built the basis for this Recommendation.

The HDSL system uses echo cancellation technique for the separation of the directions of transmission, so that one twisted pair can carry both directions. Two different options for the line code are recommended, the Pulse Amplitude Modulation 2B1Q and the Carrierless Amplitude/Phase Modulation CAP. CAP is applicable for 2048 kbit/s only, while for 2B1Q two different frames for 1544 kbit/s and 2048 kbit/s are defined.

The 2B1Q for 2048 kbit/s caters for both duplex transmission on a single pair and parallel transmission on two or three-pairs. This allows for the distribution of the signal to several pairs and for reduction of the symbol rate and an increase of the line length. CAP is defined for one- or two-pairs only and the 1544 kbit/s 2B1Q for two-pairs only.

Source

ITU-T Recommendation G.991.1 was prepared by ITU-T Study Group 15 (1997-2000) and was approved under the WTSC Resolution No. 1 procedure on the 13th of October 1998.

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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.

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As of the date of approval of this Recommendation, the ITU had 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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CONTENTS

		Page
1	Scope	1
2	References	1
3	Abbreviations	2
4	Reference configuration and functional description	3
5	HDSL core specification	6
5.1	Functions	6
5.1.1	Transparent transport of core frames	7
5.1.2	Stuffing and destuffing	7
5.1.3	CRC-6 procedures and transmission error detection	7
5.1.4	Error reporting	7
5.1.5	Failure detection	7
5.1.6	Failure reporting	7
5.1.7	Bit timing	7
5.1.8	Frame alignment	7
5.1.9	HDSL transceiver autonomous start-up control	7
5.1.10	Loopback control and coordination	8
5.1.11	Mapping between core frames and HDSL frames	8
5.1.12	Control of the maintenance channel	8
5.1.13	Synchronization and coordination of HDSL transceivers	8
5.1.14	Identification of pairs	8
5.1.15	Correction of pair identification	8
5.1.16	Remote power feeding	8
5.1.17	Wetting current	8
5.2	Transmission medium	8
5.2.1	Description	8
5.2.2	Minimum Digital Local Line (DLL) requirements for HDSL applications	9
5.2.3	DLL physical characteristics	9
5.2.4	DLL electrical characteristics	10
5.3	Transmission method	11
5.3.1	General	11
5.3.2	Transmission on three-pairs	12
5.3.3	Transmission on two-pairs	12
5.3.4	Transmission on one-pair	12
5.3.5	Transmission on four-pairs	12
5.3.6	Line code	12
5.3.7	Line symbol rate	13

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