ITU-T The leader on DSL Recommendations

HDSL

G.991.1, High bit rate digital subscriber line transceivers Two-wire bidirectional transceiver: Three systems:

- 1. Two or three pairs, each 784 kbit/s
- 2. Two pairs, each 1168 kbit/s
- 3. One pair, 2320 kbit/s

Code: 2B1Q or CAP (Carrierless Amplitude and Phase modulation)

SHDSL

G.991.2, Single pair high-speed digital subscriber line transceivers

Duplex (bidirectional) operation on one copper pair: Payload 192 kbit/s up to 2.312 Mbit/s.

Optional 2 pairs: Payload 384 kbit/s up to 4.624 Mbit/s Code: TC-PAM (Trellis Coded Pulse Amplitude Modulation)

ADSL

G.992.1, Asymmetric digital subscriber line transceivers One twisted pair, payload downstream up to 6.144 Mbit/s, upstream up to 640 kbit/s.

Simultaneous Voiceband and N-ISDN possible.

Code: DMT (Discrete MultiTone)

ADSL lite

G.992.2, Splitterless asymmetric digital subscriber line transceivers

One twisted pair, payload downstream up to 1.536 Mbit/s, upstream up to 512 kbit/s.

Code: DMT (Discrete MultiTone)

VDSL

G.993.1, Very high bit rate digital subscriber line transceivers

One twisted pair, symmetrical operation 6 Mbit/s or 13 Mbit/s up and down, asymmetrical operation down 22 Mbit/s, up 3 Mbit/s.

Code: not vet decided

Related Recommendations

- G.994.1 Handshake procedures for DSL Recs.
- G.995.1 Overview of DSL Recs.
- G.996.1 Test procedures for DSL transceivers
- G.997.1 Physical layer management for DSL transceiv.

Support for wide range of services

- IP-based services
- · Audio/Video services
- · ATM services
- · Frame Relay services
- N-ISDN and B-ISDN
- · 64 kbit/s based voice and data services

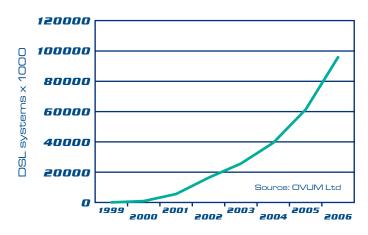
Exploiting existing infrastructure

Transport of high speed digital signals over existing copper wire infrastructure provides affordable high speed access

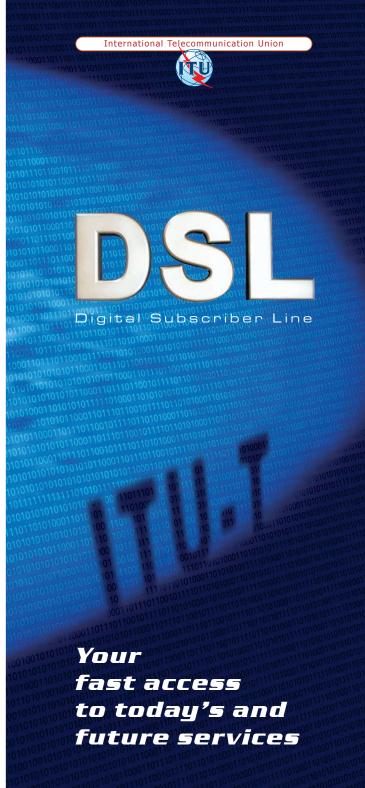
Sophisticated Technology

Modulation technologies like
DMT (Discrete Multitone) or
CAP (Carrierless Amplitude and Phase Modulation),
handshake procedures

subscriber access Forecast worldwide



For more information on ongoing DSL Recommendation activities please check the ITU-T Study Group 15 website at: http://www.itu.int/ITU-T/com15



Customer Premises Central Office xTU-C, xTU-R. Video Transceiver Unit, Transceiver Unit, Remote end Central Office - Video Services. end e.g. Video on Demand IP Based Services - Leased Lines xTU-R, xTU-C, Audio Subscriber Line Copper Twisted Pair Splitter Splitter Data - N-ISDN Services PSTN Voice UNI/XNI ser Network Interface Service Node Interface ADSL lite HDSL SHDSL High bitrate digital Single pair high bitrate subscriber line digital subscriber line ADSL Asymmetric digital subscriber line VDSL Very high bitrate digital subscriber line

ITU-T Study Group 15 Question 4 is responsible for the development of Recommendations in the area of "Transceivers for customer access and in-premises phone line networking systems on metallic pairs". For more detailed information, see also Recommendation G.995.1, "Overview of Digital Subscriber Line (DSL) Recommendations".