

**T1E1.4
Meeting Report
September 22–25, 1997
Minneapolis, Minnesota**

Chair: Tom Starr (Ameritech)
Vice Chair: Massimo Sorbara (GlobeSpan)
Secretary: Ken Hohhof (Westell)

1. OVERVIEW

158 persons attended this T1E1.4 meeting, which was held September 22–25, 1997.

The Working Group considered:

- 4 Spectral Compatibility contributions
- 19 HDSL2 contributions
- 55 ADSL contributions (plus 2 deferred to the December meeting)
- 16 VDSL contributions (plus 12 deferred to the December meeting)
- 1 Breakout Group report (on ADSL Initialization and Timing)

There were no contributions on HSDL Iss. 2 Technical Report, ISDN Basic Rate U or S/T Interfaces, Baseband Digital Data At 64 Kb/s and Below (DDS), V-Interface, or CSDC Network Interface.

2. BUSINESS

2.1 CALL TO ORDER

The meeting was called to order by the Chair at 8:38 AM on Monday, September 22, 1997. The host, ADC, was thanked for providing facilities for the meeting.

2.2 ANTITRUST NOTICE

The Chair reviewed Committee T1 antitrust policies. WG members were asked to review their contributions and advise the Chair of any material that might be in violation of antitrust guidelines.

2.3 DISTRIBUTION OF CONTRIBUTIONS

The contributions were distributed according to contribution list T1E1.4/97-000R1. Several additional contributions were added to the list at this time and distributed.

3. LIAISONS/MEETING REPORTS

T1A1 Dick Bobilin, Creative Communications, reported that T1A1 met August 4–8 in Kansas City. T1A1.2 resolved all letter ballot comments on the draft Supplement to TR24 (Network Survivability Performance) and the draft revision of T1.511 (B-ISDN ATM Layer Cell Transfer Performance). T1A1.3 resolved all letter ballot comments on the draft revision of T1.511 (B-ISDN ATM Layer Cell Transfer Performance). These 3 documents are now approved by Committee T1 and will be sent to ANSI for publication. T1A1.3 made good progress on the development of a draft standard on "Internet Protocol (IP) Data Communication Service - User Information Transfer and Availability Performance Parameters". T1A1.5 agreed to send out a letter ballot withdrawing T1.314 (Digital Processing of Video Signals - Video Coder/Decoder for

Audiovisual Services at 56 to 1536 kbit/s) which is being replaced by ITU-T H.261. Letter ballots for new T1A1.7 projects on "Objective Measures for the Assessment of Audio Quality" and "Interaction between the PSTN and other networks and terminals" both passed. The next meeting of T1A1 will be October 27-31 in Austin, Texas.

T1M1 Dick Bobilin, Creative Communications, reported that T1M1 met August 11-15 in Torrance, California. T1M1.3 resolved all comments from the second default letter ballot on the revision of T1.231 (Layer 1 In-Service Digital Transmission Performance Monitoring), which is now approved by Committee T1 and will be sent to ANSI for publication. It was agreed that T1.217 (ISDN Management - Primary Rate Physical Layer) will be sent out for reaffirmation. The next T1M1 meeting will be November 3-7 in Providence, Rhode Island.

T1S1 Dick Bobilin, Creative Communications, reported that T1S1 met August 4-8 in Kansas City. T1S1 resolved all letter ballot comments on the draft Intelligent Network standard, and a default T1 letter ballot will be sent out as soon as the revised text is available. The next meeting of T1S1 will be November 17-21 in Dallas, Texas.

T1X1 Dick Bobilin, Creative Communications, reported that T1X1 met June 24-27 in Minneapolis. T1X1.3 developed new technical input to the Issue 3 text for T1.101 (Synchronization Interfaces). It was agreed that Stratum 3 clock specifications will be added to T1.101. The entry into holdover transient was discussed and modifications were made to the T1.101 annexes. A living list for synchronization status messaging is being developed which identifies topics to be studied. It was noted that TR33 (Synchronization Status Messages) needs to be reopened. Work is beginning on the development of two new Technical Reports on "Effect of ATM Network Timing on Constant Bit Rate Services" and "Synchronization Network Architecture". T1X1.5 dealt with patent issues concerning the draft Issue 3 T1.105.01 SONET Automatic Protection Switching standard, which was approved for T1 balloting. The development of a new Supplement to T1.105.07 (SONET - Sub STS-1 Interface Rates and Formats Specification) which includes n×VT Group interfaces was completed and approved for T1 letter balloting. The next meeting of T1X1 will be October 13-17 in Naperville, Illinois.

T1AG Ed Eckert talked about electronic document distribution. It has been made a priority to develop a system which allows document number assignment and uploading via web browser forms, without dealing with things like .tid files. In response to a question about viruses, he noted that a nightly scan has always been done on the server, but updating of the virus definition files had lapsed. This has been corrected, and the VDFs will be updated monthly. Also, virus scanning has been added to the upload directory - files will be scanned before being posted to the working group directories.

TR41 No report at this meeting.

ITU-T Dick Stuart, 3COM, reported that Q4/SG15 met in July in Columbia, Maryland. The group agreed to start work on series of recommendations:

- G.DMT (fashioned after T.413 Iss. 2,)
- G.Lite
- G.HS (common handshaking recommendations for xDSL)
- G.Test

G.CAP and G.QAM were also considered, but no work was started.

There was a proposal to have interested parties meet some evening during the week, but it was decided that a meeting restricted to ITU members would conflict with the ANSI open meetings policy. Les Brown asked whether T1E1.4 should add ADSL Lite to its agenda, and suggested that if we intend to have input to the ITU terms of reference, we should not delay. Tom Starr clarified that the term ADSL Lite is used to describe 2 concepts - reduced complexity ADSL, and simplified CPE environment by removing POTS splitters. John Bingham noted that the main intent of G.Lite was to simplify the CPE end, while retaining

compatibility with standard ADSL at the CO end. Gordon Bremer noted that ITU hasn't determined the implementation, which could be HDSL Lite, but Dick Stuart said all discussion to date has been on ADSL. Dick also noted that there may be a trademark close to ADSL Lite, and he suggested use of the term G.Lite. Tom Starr suggested that the WG take an active role and coordinate with ITU. There were no objections, and the WG agreed to consider both meanings of ADSL Lite for Iss. 3, but not to discuss ADSL Lite at this meeting which concentrated on Iss. 2. Chris Hansen agreed to work with others to draft a liaison to ITU saying T1E1.4 will work on ADSL Lite and desires close cooperation.

The next meeting of Q4/SG15 will be October 27-29 in Red Bank, New Jersey. Note that only ITU-T members may attend or participate on conference calls. Work is posted on a reflector and ftp site.

ETSI Hans-Jörg Frizlen, Ericsson, reported that ETSI TM6 met in Berlin, Germany, June 2-6.

TM6 dealt with all their four work-items at this meeting. For all this work tight cooperation with T1E1.4 is desirable.

Basic Rate ISDN: A Living List captures the items that were unresolved with the last revision of ETR80 to stabilize these points and to give visibility to future potential revision points. It is the preference of TM6 that T1E1, as originator of the ISDN-BA

HDSL: A proposed single pair HDSL system with adaptive bitrates was discussed again, but due to insufficient support no work-item was created. The proposal shall be kept under study. TM6 intends at next weeks meeting to edit and reformat ETR 152 into an ETS.

ADSL: In principle the ETSI specification on ADSL is similar to T1.413 version 1 with some European additions as 2 Mb/s and different test loops. Even the version 2 of T1.413 may be treated in a similar way. Additional to this TM6 has two study work items dealing with ADSL and ISDN BA on the same pair, and the study of higher bitrates for future systems

T1E1.4/97-305 (Liaison from ETSI WG TM6)

Discussion: ADSL startup currently requires around 10 seconds, and while this is acceptable at service turn-up, some operators are concerned about losing service for this long after a "mini-interruption", and would like a warm-start procedure that takes around 100-300 ms. TM6 prefers that this be captured in T1.413 Iss. 2, but realistically realizes that it may fall into Iss. 3.

Resolution: This is already on the Iss. 3 living list (item 1)-*as-Under Study*.

VDSL: The biggest work in TM6 is momentarily on the VDSL system. A specification covering functional requirements, network characteristics, service needs, bitrates, RFI will be finalized to the end of this year (an ETS can be approved more quickly than an ETR). Following this, electrical characteristics including line code will be developed.

Future meetings:

September 29 – October 3	Lannion, France
November 17-21	Verona, Italy
January 26-30, 1998	tbd (probably Spain)
April 20-24	tbd (probably Belgium)
June 22-26	tbd (probably Sweden)
September 21-25	tbd

Hans-Jörg announced his retirement from Ericsson at the end of the year as he will reach 65. There is some possibility that he may continue as chair for ETSI TM6 if funding is allocated to this work. Tom Starr recognized Hans' long service as liaison to T1E1.4 and its predecessor, T1E1.3.

IEEE P.1007 No report at this meeting.

IEEE 802.14 No report at this meeting.

ADSL Forum Gavin Young, BT Labs, gave an informal report. ADSL Forum met the previous week in Brussels. There were previously 7 technical groups, which have been reduced to 5. The network migration group finished its Working Text, which was sent out for letter ballot. The SNAG (architecture) group merged into the packet mode and ATM groups. The CPE group will be renamed because it also covers the CO splitter. The test group was renamed operations and test. The CPE and packet groups are putting Working Texts out for ballot, and the network management group will be publishing a MIB soon.

ATM Forum ATM Forum was meeting the same week. No report at this meeting.

DAVIC DAVIC met the previous week. No report at this meeting.

T1E1 Ad Hoc Massimo Sorbara, Globespan, reported that the ad hoc group is in the process of constructing a CAP/QAM specification. There is provisional agreements on the CAP and QAM sections. There is agreement on a system model. The draft document specifies bit sync, packet mode and ATM TCs, as well as an embedded operations channel. The group expects to have a complete document at the end of this week's meeting.

TR30.1 Les Brown presented the following liaison from TR30.1:

T1E1.4/97-370 (Aspects of xDSL Specifications which may affect V-Series Modems – TIA TR-30.1)

Corrections: In the first line, "Recommendations" should have been "Standards".

Discussion: It is important that xDSL devices not impact V-series modem performance. Note that modems currently use up to 3700 Hz, but implementations need some excess BW so the liaison says 4000 Hz. TR-30.1 asks T1E1.4 to adopt the following requirements:

- Interference due to xDSL equipment should be limited to -75 dBm averaged over the 0-4000 Hz band
- POTS splitter LPF should introduce no significant attenuation or phase distortion out to at least 4 kHz

The current Iss. 2 draft limits delay distortion to 200 s which is a typo, it should be 200 μ s. V.34 can alter its symbol rate, but V.pcm uses a fixed symbol rate and needs the full 4 kHz. The impact from any given location will be the same all the time, and won't be random.

Resolution: The Chair suggested that the WG make a "best effort" to limit impact on performance of V-series modems and take into account the concerns expressed in this liaison, with consideration for performance and implementability of both V-series and ADSL modems

4. REVIEW/APPROVAL OF REVISED AGENDA

The chair presented the following contribution:

T1E1.4/97-268R2 (Revised Preliminary Agenda for this T1E1.4 Meeting – Chair)

Discussion: The chair provided a revised agenda for the meeting.

Resolution: Approved as modified by the WG. Due to the number of contributions, the WG agreed to a presentation time limit of 8 minutes. The WG agreed to a breakout session on ADSL Initialization and Timing on Monday evening, chaired by Peter Melsa.

5. REVIEW/APPROVAL OF MINUTES OF JULY MEETING

T1E1.4/97-261 The minutes of the interim meeting of June 30–July 2, which were distributed in the mailing, were approved with no changes.

6. SPECTRAL COMPATIBILITY

T1E1.4/97-271 (On Spectral Compatibility with DFE-Based Systems using Baud Rate Sampling and Fixed Receive Filters – PairGain)

Abstract: Spectral compatibility computations for DFE-based systems are normally based on an optimal DFE relation due to J. Salz, which implicitly assumes front-end filtering optimized for the SNR environment. Commonly deployed systems such as HDSL and ISDN, however, nominally employ fixed receive filters and baud rate sampling, which could result in significant deviations from optimal performance. This contribution modifies optimal DFE analysis to reflect the fixed receive filters of these systems. Margins are evaluated for HDSL, in the presence of echo-canceled ADSL and proposed HDSL2 systems, showing substantial implementation dependence of results. Due to this dependence, an informative annex, rather than new normative text, is proposed for the Spectral Compatibility TR.

Discussion: Some systems in the field have fixed received filters based on the noise environment expected at that time, but our spectral compatibility analysis has focused on DFE implementations. In baud sampled systems, noise is folded in non-coherently. Older HDSL systems have either weak analog filters (e.g. 3rd order at 200 kHz), while newer systems have higher order digital filters (e.g. can be modeled by 4th order at 171 kHz). Older systems will exhibit degradation on the order of 2-3 dB due to the high frequency crosstalk from EC ADSL or HDSL2, but the impact on newer systems is minimal because of the greater high frequency attenuation of the integrated AFE. The contribution provides an analytical technique for looking at these systems.

Resolution: There was support and no objections for including this method of calculation as an informative annex in the technical report. Contributions proposing draft text are needed.

T1E1.4/97-336 (Interference from ADSL into HDSL due to fine PSD adjustments – ADTRAN)

Abstract: Section 6.13.3 of T1.413 and Section 6.15.3 of the Iss. 2 draft specify the runtime PSD of the ATU-C transmitter. Although the average PSD over the entire used bandwidth is limited to -40 dBm/Hz, the average PSD in smaller bandwidths is only limited by the peak PSD limitation of -36.5 dBm/Hz. This contribution shows that this may lead to reduced performance of existing services. An example is shown where HDSL performance is reduced by 2.5 dB. Draft text, limiting the average PSD over an ADSL sub-band, is provided to eliminate this problem.

Discussion: Frank Van der Putten said this scenario was possible but improbable, it is more likely that the higher tones would get the higher power. Peter Melsa thought the intent in T1.413 was to use gi only to equalize BER across the used tones for a given bi allocation. Two proposals were discussed:

- specify total power below 300 kHz based on -38 and -40 dBm/Hz psd
- specify 3 bands each 300 kHz wide

Some members were concerned about extra rules for the gi algorithm to check (e.g. every time you do a bitswap).

Resolution: For further study. Additional discussion was deferred to ADSL PSD on the agenda.

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