

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)
Deployment of Wireline Services Offering) CC Docket No. 98-147
Advanced Telecommunications Capability)
)

**COMMENTS OF THE
ALLIANCE FOR TELECOMMUNICATIONS INDUSTRY SOLUTIONS, INC.
ON BEHALF OF COMMITTEE T1**

Susan M. Miller, Vice President and General Counsel
**THE ALLIANCE FOR TELECOMMUNICATIONS
INDUSTRY SOLUTIONS, INC.**
1200 G Street, N.W.
Suite 500
Washington, D.C. 20005
(202) 434-8828

Date: June 15, 1999

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
Deployment of Wireline Services Offering)	CC Docket No. 98-147
Advanced Telecommunications Capability)	
)	

TABLE OF CONTENTS

	Page
SUMMARY	i
COMMENTS	1
I. INTRODUCTION	2
II. OVERVIEW AND CURRENT STATUS OF COMMITTEE T1'S WORK WITH RESPECT TO SPECTRUM COMPATIBILITY AND SPECTRAL MANAGEMENT STANDARDS	7
A. T1A1.7 --Working Group On Signal Processing and Network Performance: Current Work Programs Related To Spectrum Compatibility and Spectrum Management ...	7
B. T1E1.4 --Working Group On DSL Access: Current Work Programs On Spectrum Compatibility and Spectrum Management	9
III. The Continued Role of T1E1.4 and The Processes To Support Its Role With Respect To Spectrum Compatibility and Spectrum Management	10
A. T1E1.4's Future Role and An Appropriate Role For the FCC	10
B. T1E1.4 Representation and Participation	13
C. T1E1.4 Role In Deployment of Advanced Services	17
IV. CONCLUSION	18

SUMMARY

By these comments, ATIS, on behalf of its sponsored Committee T1, provides information regarding the standards development processes and procedures of Committee T1. They also detail the work of T1A1.7 -- Signal Processing and Network Performance for Voiceband Services; and the work of T1E1.4 on DSL Access which are developing spectrum compatibility and spectrum management standards. These comments also respond to those specific questions raised by the Commission with respect to the processes and work of T1E1.4.

Committee T1, accredited by the American National Standards Institute, develops interconnection and interoperability standards, technical reports and technical requirements for the U.S. telecommunications networks as well as technical positions on subjects under consideration in international standards bodies. Committee T1's standards development procedures provide a due process system, emphasizing fairness, openness, and reasoned decision-making. All meetings of Committee T1 are open to members and non-members. All committee documentation is provided electronically on the T1 Bulletin Board System ("T1BBs"). Written agenda are distributed in advance of the meetings. This openness permits the introduction of standards proposals and contributions by both Committee T1 members and interested parties. Draft standards are publicized for comment by any interested party with a two-thirds majority of Committee T1 members voting required to approve the draft standard.

Committee T1 believes that the work of T1A1.7 and T1E1.4 demonstrates the ability of the industry to develop spectrum compatibility and spectrum management standards in a timely, open, and fair manner. T1A1.7, acknowledging that the performance of V.90 digital modems were restricted by current power levels, and that there was potential for harm to the network if modem power levels were increased, published Technical Report No. 58 -- A Test Plan for Investigating the Crosstalk Potential of Digital Modems Conforming to ITU-T Recommendation

V.90 in January, 1999. At this date, ATIS is coordinating cooperative industry testing with TIA using this test plan. A final report on the test results is expected in late July.

With respect to T1E1.4, the Spectral Compatibility Standards Project (T1E1-38) launched work on a draft standard in March 1998, with the draft standard's release now slated for late June, 1999 via a letter ballot giving Committee T1 members the opportunity for review, comment and approval/disapproval. Interested parties may review and provide comments as well. T1E1.4 expects that the development of this standard will be an iterative process with revision to begin immediately after its approval.

Committee T1 submits that should the Commission formally recognize and endorse T1E1.4 as the place where spectrum compatibility and spectrum management standards should continue to be developed, T1E1.4 stands ready to be responsive. With respect to the Commission's role, Committee T1 supports interaction, in the form of informal information sharing between the FCC and private sector standards developers, to be "an effective mechanism for coordination to meet governmental objectives via the development of public standards."

With regard to whether T1E1.4 is the "best process or forum" for developing spectral density masks, T1E1.4 has been working on spectral power density masks for over a year. This work is part of the draft standard to be released via letter ballot in late June, 1999. With this work already active in T1E1.4, any other conclusion as to where this work should reside could greatly delay this important work. With respect to the concern that T1E1.4 is not representative of the advanced services industry, Committee T1 re-emphasizes the openness of its processes and the opportunities that exist for participation. The current T1E1.4 participation and mailing list distributes T1E1.4 materials to over 400 interested parties covering a wide spectrum of interests. Committee T1, on behalf of T1E1.4, will continue to take steps to encourage and to broaden participation and interest.

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matters of)
Deployment of Wireline Services Offering) CC Docket No. 98-147
Advanced Telecommunications Capability)
)

**COMMENTS OF THE
ALLIANCE FOR TELECOMMUNICATIONS INDUSTRY SOLUTIONS, INC.
ON BEHALF OF COMMITTEE T1**

The Alliance for Telecommunications Industry Solutions (“ATIS”) submits these comments on behalf of its Accredited Standards Committee, Committee T1, with the Federal Communications Commission (the “FCC” or the “Commission”) in response to the FCC’s First Report And Order And Further Notice of Proposed Rulemaking (“Further NPRM”), In the Matters of Deployment of Wireline Services Offering Advanced Telecommunications Capability, CC Docket No. 98-147, Adopted March 18, 1999 and Released March 31, 1999. ATIS’s comments on behalf of Committee T1 provide general information regarding the processes and standards development procedures of Committee T1. They also detail the current work of Committee T1’s Technical Subcommittee T1A1 - Performance and Signal Processing and its Working Group T1A1.7 - Signal Processing and Network Performance for Voiceband Services; and the work of Technical Subcommittee T1E1 - Interfaces, Power, and Protection for Networks, and its Working Group T1E1.4 - DSL Access. These Technical Subcommittees and their

and its Working Group T1E1.4 - DSL Access. These Technical Subcommittees and their respective Working groups are developing spectrum compatibility and spectrum management standards. In addition, these comments will respond to those specific questions raised by the Commission with respect to the processes and work of T1E1.4.

I. INTRODUCTION

Committee T1, a sponsored committee of ATIS,¹ and accredited by the American National Standards Institute (“ANSI”) develops interconnection and interoperability standards,

¹ In addition to Committee T1, ATIS sponsors eleven (11) other open industry committees and forums. They are the Carrier Liaison Committee, which oversees the consensus resolution of “equal access” and network interconnection issues arising on an industry-wide basis; the Ordering and Billing Forum, which deals with issues of access ordering, provisioning, billing, carrier selection and subscription, directory services, and toll free Service Management System Number Administration; the Network Interconnection Interoperability Forum, which addresses issues including interconnection architecture, testing, installation and maintenance, network management, rating and routing; the Industry Numbering Committee, which develops the North American Numbering Plan Administrator guidelines pertaining to such areas as central office codes and carrier identification codes, and addresses issues of local number portability and number pooling; the Toll Fraud Prevention Committee, which has amongst its efforts the development of procedures for distribution of suspect telephone numbers as well as exchange carrier guidelines for centrex clip-on fraud; the Telecommunications Industry Forum, which gives practical application to standards on electronic data interchange, bar coding, and standard coding language as well as the development of implementation guidelines on electronic bonding for the telecommunications industry; the Protection Engineers Group, which develops contributions for submission to accredited standards committees on electrical protection; Standards Committee O5, an accredited standards committee for wood poles and other wood products used in the construction of electrical supply and communication lines; the Network Reliability Steering Committee, which analyzes network outage data, initiates corrective actions as well as preparing Federal Communications Commission reports on these outages and serves as the industry’s liaison to the Network Reliability and Interoperability Council; the SONET Interoperability Forum, which addresses technical/operational issues regarding the implementation of SONET technology; and the Internetwork Interoperability Test Coordination Committee, which manages the cross industry testing program for network reliability, including local number portability testing and Year 2000 testing. An organizational diagram is at Attachment A, and additional information can be found on the ATIS website at <http://www.atis.org>

technical reports and technical requirements for the United States telecommunications networks. Committee T1 also develops technical positions on related subjects under consideration in various international standards bodies. It focuses on those functions and characteristics associated with the interconnection and interoperability of telecommunications networks at interfaces with end-user systems, carriers, information and enhanced service providers, including switching, signaling, transmission, performance, operation, administration and maintenance aspects. It is also concerned with procedural matters at points of interconnection, such as maintenance and provisioning methods and documentation, for which standardization would benefit the telecommunications industry.

In order to be an accredited committee of the American National Standards Institute (“ANSI”), the committee shall have a secretariat. As a legal entity, ATIS serves as the Committee T1 Secretariat and has the responsibility for a number of important duties for Committee T1, including organizing the Committee, overseeing the Committee’s compliance with its bylaws, maintaining a list of standards for which the Committee is responsible, providing a Committee Secretary to perform administrative work including meeting arrangements, preparation and distribution of meeting documentation and maintenance of all Committee T1 records. ATIS also attends all of the meetings of Committee T1 and submits standards to ANSI for review and approval as American National Standards, as well as, publishes the Committee T1 technical reports and requirements and manages the publication of Committee T1 standards.

ATIS sponsorship of the Committee T1 recognizes that there are industry efficiencies and consumer benefits to be gained by standardization, and that the formulation of basic technical standards, particularly in technologically sophisticated industries such as telecommunications, is

increasingly important. As in the case of any industry effort, ATIS acknowledges that the standards development process may present certain antitrust compliance issues. In particular, ATIS, on behalf of Committee T1, has been cognizant that the standards process must not (1) unfairly advantage one competitor over another, (2) restrict participation and consideration of a wide spectrum of views; (3) exclude competitors from the markets to which the standards apply; (4) exclude new competitors from the marketplace; or (5) inhibit innovation.

ATIS's sponsorship of Committee T1 has been sensitive to these concerns. Consistent with the requirements of ANSI's Procedures for the Development and Coordination of American National Standards,² Committee T1 has established procedural safeguards to ensure that its standards processes operate fairly, that the standards it develops are reasonable, and that its members are not exposed to antitrust risks. Most importantly, membership and full participation in Committee T1 are open to all parties with a direct and material interest in Committee T1 process and activities. There are four membership interest categories: exchange carriers, interexchange carriers, equipment manufacturers, and users and general interest which includes by way of example, user groups, professional associations, and federal and state government agencies. As the Committee T1 Secretariat, ATIS ensures a balanced membership and participation without dominance by any single interest. In keeping with these principles, the T1AG is comprised of equal representation from each of the four interest categories.³

² See The Procedures for the Development and Coordination of American National Standards, (American National Standards Institute, 1998).

³ Committee T1 has taken steps to avoid any interest category imbalance. Should any interest category constitute a majority of the membership, all votes of that interest category shall be weighed in such a way, that the interest category's total possible votes do not constitute a majority of the membership. See Committee T1 Procedures Manual, (11th Issue, October, 1998),

To accomplish its work, Committee T1 has six technical subcommittees (“TSCs”) managed by a Committee T1 Advisory Group. Each TSC recommends standards and develops technical reports in its area of focus such as performance and signal processing (T1A1); interfaces, power and protection for networks (T1E1); internetwork operations, administration, maintenance, and provisioning standards (T1M1); wireless/mobile services and systems (T1P1); services architectures, and signaling (T1S1); and digital hierarchy and synchronization (T1X1).⁴

Committee T1's standards development procedures provide for due process system, emphasizing fairness, openness, and reasoned decision-making. All meetings of the Committee T1, including its technical subcommittees, working groups, and subworking groups are pre-announced and open to members and others having a direct and material interest in the subject matter at hand. Today, all meeting notifications and committee documentation are provided in a totally electronic environment by the Committee T1 bulletin board system (“T1BBS”) as well as in hard copy for those parties requesting such documentation.⁵ Written agendas are also distributed electronically and in hard copy in advance of the meetings.

This openness in the process permits the introduction of standards proposals by both Committee T1 members as well as interested parties. Contributions are not limited to the Committee T1 membership. Draft standards are publicized for comment, and subcommittee, working group, or subworking group participation is open to any interested party. To become a Committee T1 draft standard, it must be voted on by at least one-half of the Committee T1 voting

Section 2.3.5.5, at <ftp://ftp.tl.org/pub/t1/t1proc.pdf>

⁴ An organizational diagram of Committee T1 can be found at Attachment B.

⁵ The T1BBS can be located on the world wide web at www.tl.org

members (including abstentions) and approved by at least two-thirds of the members who vote (excluding abstentions). The draft standard proposal gets circulated in the form of a "letter ballot" whereby Committee T1 and TSC members are given the opportunity to cast their vote as well as offer comment on the proposal. All letter ballots are also posted on the T1BBS and thus, are also available for public viewing and comment. Interested parties can make contributions which would be considered with the letter ballot comments at the open meeting where comment consideration occurs. A system of records documentation is maintained for all draft standards, letter ballots, objections, and appeals.

While a proposed draft standard is in the Committee T1 approval process, the standard is also submitted to ANSI for a sixty-day review on public notice.⁶ This review includes a verification that the requirements for due process, consensus, and other criteria for approval have been met, as well as consideration of any submitted evidence or comments that a proposed standard is contrary to the public interest, contains unfair provisions, is unsuitable for national use, or is technically inadequate. At each level of a standard's review, there is full opportunity to comment and to dissent to any standards proposal. Any dissenting comments must be properly

⁶ Technical Reports ("TRs") and Technical Requirements ("TRQs") do not get submitted to ANSI for further public comment and review as such reports are not intended to be designated American National Standards, although a number of TRs and TRQs have received broad acceptance and implementation like an American National Standard. Committee T1 TRs and TRQs provide a formalized means of making technical information available to the telecommunications industry. They may be typically used to: a) describe/report the status of a standard or study project or otherwise establish a "terms of reference" document for the current and future use of a TSC; b) publish technical data, such as network criteria, network characterizations or service functionality for new or existing services; c) publicize findings of a study, review or survey; or d) document procedures, interworkings or interconnection issues which would benefit the industry but which are not adaptable or practical as a standard. See Section 9.1, Standards Committee T1-Telecommunications Procedures Manual, 11th Issue--October, 1998.

addressed to reconcile differences wherever possible. Industry implementation of Committee T1-developed standards is entirely voluntary.⁷

II. OVERVIEW AND CURRENT STATUS OF COMMITTEE T1'S WORK WITH RESPECT TO SPECTRUM COMPATIBILITY AND SPECTRAL MANAGEMENT STANDARDS

Committee T1, specifically Technical Subcommittee T1A1 on performance and signal processing (hereinafter "T1A1"), and Technical Subcommittee T1E1 on Interfaces, Power and Protection of Networks (hereinafter "T1E1") initiated work on spectral compatibility and spectral management standards several years ago, in advance of the proliferation of the services which would rely on the DSL technologies. An overview and the status of the most current work follows. Committee T1 believes that this work, as discussed herein, demonstrates the ability of the industry via T1E1, as well as T1A1, to develop spectrum compatibility and spectrum management standards in a timely, open, and fair manner.

A. T1A1.7 -- Working Group On Signal Processing And Network Performance: Current Work Programs Related To Spectrum Compatibility And Spectrum Management

When modems conforming to ITU-T Recommendation V.90 were developed, questions were raised regarding the continued need for the FCC's maximum power constraint on encoded analog signals, other than voice, input into the public switched network. Advocates of relaxing these limits argued that if the V.90 digital modem were permitted to transmit at some level in excess of the FCC's current maximum power level, the modem could likely achieve downstream

⁷ For more details on the processes and the standards development procedures of Committee T1, see Committee T1 Procedures Manual (11th Issue, October 1998) at <ftp://ftp.t1.org/pub/t1/t1-proc.pdf>

data rates closer to the theoretical maximum of 56 kbit/s. In October of 1996, T1A1.7, acknowledging that the V.90 modems were restricted by the current power levels, recognized that there was an unknown factor to any increase in the modem power levels -- the potential for harm to the network in the form of impaired performance to other voiceband services in subscriber cable pairs adjacent to those carrying the V.90 signals.

In response to this potential problem, the T1A1.7 Working Group on Signal Processing and Network Performance for Voiceband Services published Technical Report No. 58 -- A Test Plan for Investigating the Crosstalk Potential of Digital Modems Conforming to ITU-T Recommendation V.90 in January, 1999.⁸ The Technical Report addresses potential quality degradation of existing voiceband services over a subscriber loop that can be caused by new high-speed voiceband data modems operating at transmit signal power in excess of that currently specified in FCC Part 68.308.

At this date and at the request of the FCC's Network Services Division,⁹ ATIS is spearheading cooperative industry testing with the Telecommunications Industry Association using the T1A1.7-developed test plan. The testing is actively underway with a final report as to the test results due in the late July time frame.

In addition, T1A1.7 is developing a draft Technical Report on unbundled voice grade analog loops. This draft technical report provides objectives for several transmission performance

⁸ A copy of the T1A1 Test Report can be obtained at ftp://ftp.tl.org/pub/techrpts/tr.0/tr_58.pdf

⁹ Letter from Anna M. Gomez, Chief, Network Services Division, Common Carrier Bureau of the Federal Communications Commission to George L. Edwards, ATIS President, (April 6, 1999) (on file with ATIS).

parameters on unbundled analog loops and will address limitations for insertion of gain (amplification) to stress that excessive gain can cause distortion and noise on voiceband services on the unbundled loops as well as adjacent loops.

Potential future work may consist of T1A1.7's collaboration with T1E1.4 to assess any potential quality degradation to voiceband services caused by the deployment of new broadband services designed to provide multimedia content to business and residential subscribers.

**B. T1E1.4 -- Working Group On DSL Access: Current Work Programs
On Spectrum Compatibility And Spectrum Management**

The thrust of the spectrum compatibility and management work is occurring in T1E1.4; it began as early as mid-1995. At that time, Committee T1 approved the Spectral Compatibility Project to produce one or more technical reports that would “. . . describe transmission system parameters and twisted pair cable characteristics that affect spectral compatibility. The purpose of the project was to help avert crosstalk problems associated with the introduction of new twisted pair transmission systems and address all aspects of spectral compatibility for facilities between a central office and the customer-to-network interface.” The results of the Study Project indicated that the output of Committee T1 should be a draft proposed American National Standard which would define a condition or set of conditions, which would minimize the probability of interference between twisted pair transmission systems within the same cable.

The Spectral Compatibility Standards Project (T1E1-38) was approved by Committee T1 on February 24, 1998 and work began on the draft American National Standard in March, 1998.¹⁰ In response to the FCC's Round table on Spectrum Compatibility held in October, 1998, T1E1.4

¹⁰ A copy of the Standards Project for Spectral Compatibility of Twisted Pair Transmission Systems (T1E1-38) is at Attachment C.

agreed to accelerate its work on the standards and set an internal milestone of June, 1999 to be ready for a letter ballot vote (i.e. full Committee T1 opportunity to review, comment, and approve/disapprove) on the first spectral compatibility draft standard. At this date, the letter ballot will be circulated for comment vote during late June, 1999, meeting the established milestone.¹¹ T1E1.4 has reviewed over one hundred and sixty (160) technical contributions directly related to the draft spectrum compatibility standard during its development. Consistent with the Commission's acknowledgment that the "standards process is continuous in nature,"¹² T1E1.4 expects that the development of this standard will be an iterative process and revision to the initial standard will begin immediately after its approval since the technologies continue to evolve rapidly and new field data is being generated virtually daily.

III. THE CONTINUED ROLE OF T1E1.4 AND THE PROCESSES TO SUPPORT ITS ROLE WITH RESPECT TO SPECTRUM COMPATIBILITY AND SPECTRUM MANAGEMENT

A. T1E1.4's Future Role and An Appropriate Role For The FCC

The Commission's Further NPRM makes several references to T1E1.4 as the appropriate forum to address spectrum compatibility standards as well as standards and practices for spectrum management.¹³ Committee T1 submits that should the Commission formally recognize and endorse T1E1.4 as the place where spectrum compatibility and spectrum management standards

¹¹ The most recent draft of the standard is available on the Committee T1 Web site (<http://www.t1.org>) as T1E1.4/99-002R3 (9e140023.pdf) (<ftp://ftp.t1.org/pub/t1e1/e1.4/dir99/9e140023.pdf>). It is expected that the new draft of the standard being circulated for letter ballot will be available on the T1BBS in late June, 1999.

¹² See Further NPRM at ¶ 80.

¹³ See Further NPRM at ¶¶ 80, 81, 85, and 90.

can be developed in a timely, fair and open manner, T1E1.4 would welcome such acknowledgment and opportunity. It stands ready to be responsive to the Commission's recognition of the role that T1E1.4 could appropriately play and is actively playing in the telecommunications industry. In fact, while the T1E1.4 spectrum work was already in process, the FCC's Office of Engineering and Technology urged Committee T1 "to develop industry based, consensus requirements for the spectral compatibility and spectral management of both new and legacy services in the copper cable plant" and publish this standard "no later than year end 1999."¹⁴ As stated earlier, it is expected that this goal will be met. In this regard and as detailed above, a conclusion by the FCC that would keep the spectrum compatibility and spectrum management standards work in T1E1.4 would take advantage of the active standards development work that T1E1.4 already has underway and has had underway for some time. Moreover, such recognition could encourage and foster even broader interest and representation in T1E1.4.

Such a Commission endorsement would also acknowledge and reinforce the well-established processes of Committee T1 and its TSCs such as T1E1. Committee T1 and its TSC organization, participation, procedures, and safeguards are designed so that technical standards may be developed with the requisite openness, fairness, efficiency, and responsiveness to the public interest. The Committee T1 processes are designed and intended to address the very goals the Commission is seeking for a spectrum compatibility standards setting process: a process which

¹⁴ Letter from Stagg Newman, Ph.D., Chief Technologist, Federal Communications Commission and Douglas C. Sicker, Technical Advisor, Office of Engineering and Technology, to Terry Yake, Chairman of the ATIS Board, George Edwards, President of ATIS, Susan Miller, Vice President and General Counsel of ATIS, Jerry Peterson, Chairman of Committee T1, and Ed Eckert, Chairman of Technical Subcommittee T1E1. (March 17, 1999) (on file with ATIS)

is “competitively neutral in both structure and procedure . . . with representation [sic] equitably spread over all segments of the industry”¹⁵ Committee T1 has been recognized and endorsed by the FCC as an “appropriate organization for developing voluntary technical interconnection standards.”¹⁶ To conclude that some other industry body might be better suited to the spectrum compatibility work at this time would impede the momentum of the current T1E1.4 work, create inefficiencies, and possibly delay the delivery of those spectrum compatibility standards to the market place.

In this regard, and with respect to the Commission’s belief that it “can play a role in fostering timely, fair, and open development of standards for current and future technologies,”¹⁷ Committee T1 submits that an appropriate role for the Commission with respect to standards setting processes for spectrum compatibility would take into account and acknowledge the existing role of Committee T1 and the work of its T1E1.4. It would also continue the record of past experiences which have shown interactions, in the form of informal information sharing, occurring between the FCC and private sector standards developers as “an effective mechanism

¹⁵ Further NPRM, at ¶ 79.

¹⁶ See, e.g., MTS and WATS Market Structure, Phase III: Establishment of Physical Connections Through Routes Among Carriers ; Establishment of Physical Connections By Carriers With Non-Carrier Communications Facilities: Planning Among Carriers for Provision of Interconnection Services, and in Connection with National Defense and Emerging Communications Services: and Regulations For an In Connection with the Foregoing, Report and Order, CC Docket 78-72, Phase III, 100 FCC 2d 860, 884 (1985), see also In the Matter of Petition to Amend Part 68 of the Commission’s Rules to Include Terminal Equipment via Integrated Services Digital Network Access Technology, CC Docket No. 93-268; and In the Matter of Petition to Amend Part 68 of the Commission’s Rules to Include Terminal Equipment Connected to Public Switched Digital Service, RM 7815 and RM 6147, Report and Order, Adopted: January 11, 1996; Released: March 7, 1996.

¹⁷ Further NPRM at ¶ 81.

for coordination to meet governmental objectives via the development of voluntary public standards.”¹⁸ As noted in the July 1997 report by the Network Reliability and Interoperability Council of the FCC entitled Network Interoperability: The Key To Competition Report and Recommendations On implementing Section 256 of the Telecommunications Act of 1996 (“NRIC Report”), “these experiences have [sic] shown that existing mechanisms for communicating FCC standardization requirements to the [open] private sector processes have been effective.”¹⁹

The NRIC Report recommended that an appropriate role for the FCC would be to provide “ 1) a single point-of-contact for the informal exchange of information between the FCC and standards developers on activities related to the interconnection requirements of Section 256; and 2) ongoing monitoring of standardization activities via the Internet and Web and, as required, through direct monitoring of key interconnection standardization activities at meetings.”²⁰

Committee T1 leadership and representatives participated in the development of these recommendations and as such Committee T1 would support their application as an appropriate and responsive role for the Commission to play in the context of spectrum compatibility and management standards.

¹⁸ Network Interoperability: The Key To Competition, Report and Recommendations On Implementing Section 256 of the Telecommunications Act of 1996, Prepared by the Network Reliability and Interoperability Council of the Federal Communications Commission, (July 1997), Section 9. Standards Development Process, 9.4.1 Key Learnings, p. 183.

¹⁹ See id.

²⁰ See id. at §9.4.3 Recommendation 3, p.186. This report also recommended that standards developers establish mechanisms to support informal communications with the FCC such as key tracking information on standardization activity. Committee T1 has implemented this recommendation. This tracking mechanism can be found at <http://www.ftl.org/reports/nric-rec.htm>

B. T1E1.4 Representation and Participation

With regard to whether T1E1.4 is the “best process or forum for developing future power spectral density masks,” T1E1.4 has been working on power spectral density masks for the spectral management of local loop transmission systems for over a year. This work is consistent with the project proposal for Spectral Compatibility of Twisted Pair Transmission Systems (T1E1-39).²¹ In addition, at the T1E1 meeting held during the week of June 7 through June 11, 1999, it was agreed that the first draft of the standard containing this work would be sent to letter ballot. Thus, Committee T1 submits that the work on spectral power density masks development already resides in and is active in T1E1.4.²² Committee T1 submits that for the Commission to conclude that this work belongs in an activity other than T1E1.4 could greatly delay and stifle this work.

In this connection and with respect to commenters’ concerns, however, that T1E1.4 is not representative of the “developing advanced services as a whole,” Committee T1 submits that this claim appears to be without basis for several reasons.²³ First, and as stated throughout these comments, the processes of Committee T1, its TSCs , and their Working groups are open to members as well as any party with a direct and material interest in the work of the group. Such openness allows Committee T1 members as well as any non-members to initiate a standard, to

²¹ T1E1-38 is at Attachment C.

²² Further NPRM, ¶ 81.

²³ Committee T1 notes that the Commission cites only one commenter in support of the claim that T1E1.4 is not representative of the developing advanced services industry as a whole and may be “overly represented by incumbent carriers and large manufacturers.” Further NPRM, ¶ 81.

make technical contributions to standards in development, and to provide comment on the developing standards. Interested parties are able to attend any of the Committee T1, TSC, working group or subworking group meetings. The only aspect of the process not available to non-T1 members is the actual letter ballot vote which is taken at the point wherein the work on each draft standard is complete, its status is relatively stable, all contributions from members and non-members have been considered, and it is "mature" enough to be sent to ANSI for designation as an American National Standard.²⁴ It is worth noting that the ANSI process allows still another opportunity for interested parties to comment and review the draft proposed American National Standard.

Second, all notices of Committee T1, its TSCs', working groups', and subworking groups' meetings and all meeting materials are readily available on the electronic T1BBS. They are also available in paper format should they be requested. With respect to T1E1.4 specifically, it maintains a mailing and participation list of over four hundred (400) interested parties covering a

²⁴ It should be noted that to become a Committee T1 and/or TSC member is a simple process. The applications are available on the T1BBS at <http://www.t1.org/html/mempkg.htm>. Members of Committee T1 consist of organizations, companies, government agencies, individuals, and others. An interested party can join Committee T1 for \$4300 per year (companies with operating revenues less than \$5 million dollars pay dues of only \$2500 per year), entitling the member to receive all Committee T1 letter ballots to vote on draft American National Standards. Membership in Committee T1 includes, at no additional fee, membership in all six Technical Subcommittees. The Committee T1 membership fees are among the most reasonable in the industry forum process. Membership participation requires that a member not miss more than two consecutive meetings nor fail to respond to at least seventy-five (75) percent of all letter ballots issued per calendar quarter. Failure to do so means the member will be reclassified as an "observer" member. An interested party can choose to join any one of or all six TSCs depending on areas of interest. TSC membership costs \$850 and entitles the TSC member to receive all TSC letter ballots to vote on the draft standards. An applicant to a TSC shall be declared a TSC member if recommended by the Secretariat, ATIS, and upon payment of the appropriate level of dues.

wide spectrum of industry representatives -- including many from the "advanced services industry" as part of the regular distribution of its work.²⁵ T1E1.4 is the largest working group in the Committee T1 organization. Many of the contacts on this extensive mailing list do not regularly attend T1E1.4 meetings, but they do receive notice of the activities, are sent or able to access the meeting materials, and are afforded every opportunity to contribute and actively participate should they choose to do so.

Committee T1 also provides electronic mail lists (i.e., majordomo exploder mail lists) which are open to any interested parties. They allow interested parties to self-subscribe to the electronic mail lists and promote the efficient exchange of information regarding activities, contributions, meetings, etc. For example, T1E1.4 has electronic mail lists which enables interested parties to subscribe to lists pertaining to such specific work efforts as HDSL, VDSL and xDSL performance evaluations.

Committee T1 and its TSCs make frequent efforts to broaden and increase participation at all levels of the Committee T1 organization. Regular "membership recruitment" efforts are made by Committee T1 through an active public relations and marketing program. With its work regularly publicized, information about its activities readily available to all, and the opportunity to participate open to all and simple to do, the concerns do not seem broadly based or well-founded. However, in keeping with Committee T1 and its TSCs' design for openness and its active interest in seeing the expansion and growth of its membership and participation ranks, Committee T1 stands ready to initiate a focused effort to target the members of the "advanced services industry." that are not already present and active in Committee T1. This effort could consist of contact by

²⁵ A copy of the T1E1.4 mailing and distribution list is attached at D.

the Committee T1 and T1E1 leadership with appropriate organizations having advanced services industry members amidst their ranks. These contacts would seek to educate these organizations and their membership about Committee T1 and its processes, review the current spectrum compatibility and spectrum management activities, and encourage membership and active participation in the T1E1 activities. Committee T1 would also continue actively publicizing its work in trade press journals and highlight the spectrum compatibility and management work on its website.²⁶ Any recognition and endorsement of T1E1.4's work as deemed appropriate by the FCC would also do much to focus attention and likely foster active and broader participation. As with all of its processes, Committee T1 is open to contributions suggesting as to how it might further expand its coverage and reach an even broader group of participants. Committee T1 believes that the broader the representation and the participation amongst its ranks, the more responsive and sound its technical solutions can be for the telecommunications industry.

C. T1E1.4 Role In Deployment Of Advanced Services

The Commission seeks comment on methods to encourage the industry to develop “fair and open practices for the deployment of advanced services technologies.”²⁷ It tentatively concludes the T1E1.4 should serve as the forum to establish these practices. While T1E1.4 and Committee T1 generally stands ready to assist, it is not clear what the Commission contemplated in its reference to “deployment practices.” The Committee T1's primary responsibility is for the Commission's tentative conclusion except to the extent that the specific reference to “deployment

²⁶ The T1E1.4 work is already fully available on the T1BBS. However, Committee T1 could consider ways to highlight this work on its opening website pages as an easy and readily accessible status report of its work.

²⁷ Further NPRM, ¶ 85.

practices” is an activity appropriate for the T1E1.4.²⁸ T1E1.4 would be prepared to provide assistance. However, the development of implementation practices related to those standards may be more within the scope of the activities performed within the ATIS-sponsored Carrier Liaison Committee’s subtending fora. For example, the NIIF addresses interconnection issues including the development of installation, maintenance, and network management practices, and related testing plans. The OBF develops guidelines and practices for access ordering, provisioning, and billing, as well as carrier selection and subscription. The Carrier Liaison Committee also has principles and procedures designed to ensure open processes and is a consensus-based, contribution-driven process, as well.

IV. CONCLUSION

In its Further NPRM, the Commission acknowledges the current role of T1E1.4 in developing standards for the various xDSL technologies and tentatively concludes that T1E1.4 could serve as a “common ground” where industry could resolve spectrum compatibility and spectrum management issues. It further recognizes that the “industry can best address many of the details concerning spectral compatibility.”²⁹

In support of these conclusions, Committee T1 submits that its organization including T1E1.4, its broad participation, and its sound procedures are designed so that technical standards may be developed with the requisite openness, fairness, efficiency, and responsiveness to the

²⁸ It might also be noted that depending on what is intended by “deployment practices” for advanced services, other ATIS-sponsored committees such as the Network Interconnection Interoperability Forum (“NIIF”) may be well-suited to this undertaking. Information about the NIIF can be obtained from the ATIS Homepage at <http://www.atis.org/atis/cic/niif/niifhom.htm>

²⁹ Further NPRM, ¶ 90.

public interest. Should the Commission ultimately conclude that the spectrum compatibility and spectrum management work best resides in T1E1.4 where it is currently and actively occurring, and endorse T1E1.4's efforts accordingly, ATIS, on behalf of Committee T1, welcomes the opportunity and stands ready to continue to provide an effective forum for the efficient consideration of these important telecommunications industry issues.

Respectfully submitted,

By: _____

Susan M. Miller
Vice President and General Counsel

Alliance For Telecommunications Industry Solutions, Inc.
1200 G Street, N.W.
Suite 500
Washington, D.C. 20005

Phone: (202) 434-8828
Facsimile: (202) 393-5481
E-mail: smiller@atis.org

Date: June 15, 1999

Committees

Standards and Guidelines Activities



**Standards Committee T1
Telecommunications**

T1A1
Performance and
Signal Processing
Network Survivability
Multimedia
Communications


T1E1
Power Systems/
Power Interfaces
Analog Access
DSL Access
Wideband Access
Electrical and
Physical Protection

T1M1
Interconnect
Planning/Engineering
Testing and
Operations Systems
and Protocols
OSMSEP

T1P1
Wireless/Public
Services & Systems
Personal
Communications
Wireless Access and
Residual Mobility

T1S1
Architecture, Services
and Control
Switching and
Signaling Protocols
Number Portability

T1X1
Synchronization
Interfaces
Metallic and Optical
Hierarchical
Interfaces



Carrier Liaison Committee

**Network
Interconnection
Interoperability
Forum**
Network Installation
and Maintenance
Network Management
Network
Interconnection and
Architecture
Network Linking &
Routing Information

**Ordering and
Billing Forum**
Access Ordering,
Portability/Billing
Layer Selection and
Subscription
ISUP/SSS SMS Number
Administration

**Industry
Numbering
Committee**
North American
Numbering Plan
Guidelines
Local Number
Portability

**Toll Fraud
Prevention
Committee**
Joint Fraud
Investigation
Guidelines
Fraud Center Contact
List



**Telecommunications
Industry Forum**

Bar Code
Bar Code Label
Specifications
Product Package
Guidelines

**Information
Product
Interchange**
Standard Generalized
Markup Language
Technical
Specifications
Interchange

Standard Coding
Product Identification
Nomenclature
Guidelines
Telecommunications
Industry Product
Identifiers

**Electronic Data
Interchange**
Data Interchange
Standards
EDI Guidelines

**Electronic
Commerce**
Electronic
Communications
Re-engineering
Business Processes

**Electronic
Communications
Implementation
Committee**
Interactive Electronic
Implementation
Implementation of
Electronic
Communications




Protection Engineers Group

Electrical Protection
Equipment
Protective Relay
Standards and
Specifications




**Standards Committee D5
Wood Poles and Products**

Wood Crossarms and
Housings for Utility
Structures
ANSI Standards for
Wood Poles,
Crossarms and Braces



**Network Reliability Steering
Committee**

Analyze Network
Outages
Initiate Corrective
Action
Industry/POC Reports
Liaison with FCC's
Network Reliability
and Interoperability
Council



**SONEF Interoperability
Forum**

Architecture
NF Representation
Agreements
IKRF Interoperability
DCN Architectural
Engineering
DCC Traffic Profiles
and Analysis

**Common
Applications**
Functions, Services
and Process Flows
Inventory
Management
and Service
Provisioning

**Distributed
Network
Management
Environment**
SN DS Platform
Requirements
Security Guidelines
and Structure
Authentication
Between OS and NE

**Information
Modeling**
Complete Network
Level Information
Model for Connection,
Management and
Fault Management

**IM
Implementation**
Implementation of a
NF Information
Model
Demonstration of
SN's Interoperable,
Open Standards

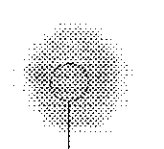
**Remote Login
and CUI/OS**
Multi-vendor NE NE
Remote Login
Specification
SN DS/DT Software
Platform Architecture
Specification
Application
Programming Interface
(API) Profiling

Testing
SN-DS Abstract Test
Suite
SN Product Register
Testing and Conflict
Resolution



**Internetwork Interoperability
Test Coordination Committee**

Cross Industry
Testing Program for
Network Reliability
Network Testing



Standards Committee T1 - Telecommunications
Project Proposal

1. Project Identification

1.1 Title

Standards Project for Spectral Compatibility of Twisted Pair
Transmission Systems

1.2 Submitted by

Tom Starr
Ameritech - Room 3C52
2000 W. Ameritech Dr.
Hoffman Estates, IL. 60196
847-248-5467

1.3 Date

This project proposal was approved to be sent to Letter Ballot at
the December 1997 T1E1 meeting.

2. Description

2.1 Description of Proposed Project

This project will describe transmission system parameters and
twisted pair cable characteristics that effect spectral
compatibility. The purpose is to help avert crosstalk problems
associated with the introduction of new twisted pair transmission
systems. This project addresses aspects of the spectral
compatibility for facilities between a central office and the
customer-to-network interface.

2.2 Work Products

The proposed project would result in one or more standards or
technical reports which would define a condition, or set of
conditions, which minimize the probability of interference between
twisted pair transmission systems within the same cable.

The conditions may quantify parameters such as:

Frequency dependent power spectral densities
Transmitted signal power
Peak output voltage
Crest factor of the transmitted signal

Outputs from the project may include:
A family of power spectral densities
Description of a loop noise environment which could be used for system performance estimates in the absence of self-NEXT.
Pair-to-pair crosstalk coupling characterization.
Cable characteristics.

2.3 Milestones

<u>Milestone</u>	<u>Target Date</u>
Project Approved by Committee T1	1Q98
Draft Standard Ready for TSC Ballot	3Q98
Standard Approved by Committee T1	4Q98
Standard Approved by ANSI	1Q99

2.4 Project Assignment and Resources

2.4.1 Technical Subcommittee Assignment

It is recommended that this project be assigned to TSC T1E1, working group T1E1.4.

2.4.2 Technical Subcommittee Resources

The participants in Working Group T1E1.4 have the necessary technical expertise for this project.

2.4.3 External Resources Required

None anticipated.

3. Justification of Need for the Proposed Project

3.1 Description of Need

Crosstalk is recognized as a principal impairment for many digital transmission systems. As the telecommunications industry becomes both more open and more competitive, spectral compatibility will become increasingly important.

Available technology allows the rapid and inexpensive development of digital transmission systems using a variety of modulation and line coding techniques to achieve very efficient transport of digital data over twisted copper wire pair transmission lines. Systems employing these technologies are found in large numbers in the subscriber loop plant of many local exchange carriers. Standards and technical reports which minimize the possibility of interference between these systems and other digital transmission systems have been written by this committee and other standards committees around the world. These documents also provide assurance of proper

operation of the standardized transport system over specified loops under stated conditions.

There are many applications which are not addressed by existing standards. There are low demand applications for which standardization may never be justified.

With increasing flexibility in the services offered by telecommunications service providers, a wide variety of transmission systems may coexist within a cable. It is essential, however, that any system which is deployed over twisted pairs neither adversely effect nor be adversely effected by other selected transmission systems already deployed or likely to be deployed in the near future. The Standard(s) and Technical report(s) generated by this project will help equipment manufacturers, facilities providers, and twisted pair transmission systems users to ensure spectral compatibility.

3.2 Existing Standards for Practices

Standards and Technical Reports exist for a number of twisted pair transmission systems which are likely to be widely deployed.

Examples are:

- DDS - ANSI T1.410
- BRI - ANSI T.601
- HDSL - TR28 and ETSI RTR/TM-03036
- T1 - T1.403 and T1.408
- ADSL - T1.413

None of these documents provides a system independent view of spectral compatibility.

4. Related Standards Activity

4.1 Other T1 Technical Subcommittees

None known. Liaison would be accomplished with T1E1.1, T1E1.2, T1M1, and T1A1.

4.2 Other Domestic Standards Activities

Liaison would be accomplished with EIA/TIA TR 41.

4.3 International Standards Activities

None known. ETSI TM6 and ITU SG 15 develop Reports and Recommendations on Digital Transmission. As progress is made within this project, consideration should be given to ETSI TM6 and ITU SG 15 Question 4.

ATTACHMENT D

Date: 06/10/99
Page No: 1

COMMITTEE REPORT
=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
3COM	FRED LUCAS 3COM Depart: SUITE 900 10440 LITTLE PATUXENT PKWY COLUMBIA MD, 21044 Phone: 410.884.4095 Fax: 410.884.4094 fred_lucas@3com.com	VR
3COM	RICHARD L. STUART 3COM Depart: SUITE 900 10440 LITTLE PATUXENT PKWY COLUMBIA MD, 21044 Phone: 410.884.4017 Fax: 410.884.4018 dick_stuart@3com.com	VA
ADC TELECOMMUNICATIONS INC.	JOE CHARBONEAU ADC TELECOMMUNICATIONS INC. Depart: M/S 125 P.O. BOX 1101 MINNEAPOLIS MN, 55440-1101 Phone: 612.936.8123 Fax: 612.936.8333 joe_charboneau@adc.com	VR
ADC TELECOMMUNICATIONS INC.	JOHN LITSTER ADC TELECOMMUNICATIONS INC. Depart: 14375 NW SCIENCE PARK DR PORTLAND OR, 97229 Phone: 503.350.6481 Fax: 503.641.3321 john_litster@kentrox.com	VA
ADTRAN INC.	KEVIN SCHNEIDER ADTRAN INC. Depart: P.O. BOX 140000 901 EXPLORER BLVD. HUNTSVILLE AL, 35814-4000 Phone: 256.963.8024 Fax: 256.963.2386 kschneider@adtran.com	VR
ADTRAN INC.	RICHARD GOODSON ADTRAN INC. Depart: P.O. BOX 140000 901 EXPLORER BLVD. HUNTSVILLE AL, 35814-4000 Phone: 256.963.8664 Fax: 256.963.2386 richard.goodson@adtran.com	VA

COMMITTEE REPORT
=====

Technical Subcommittee = T1E1

MEMBER -----	REPRESENTATIVE -----	STATUS -----
ADVANCED FIBRE COMMUNICATIONS	BEHROOZ REZVANI ADVANCED FIBRE COMMUNICATIONS Depart: 39350 CIVIC CTR DR, SUITE 430 FREMONT CA, 94538 Phone: 510.505.1220 Fax: 510.505.1226 behrooz.rezvani@fibre.com	O
ADVANCED HARDWARE ARCHITECTURE	CAJETAN M. AKUJUOBI, Ph.D. ADVANCED HARDWARE ARCHITECTURE Depart: 2365 NE HOPKINS COURT PULLMAN WA, 99163-5601 Phone: 509.334.1000 Fax: 509.334.9000 cajetan@aha.com	O
ADVANCED MICRO DEVICES	TERRY L. COLE ADVANCED MICRO DEVICES Depart: M/S 621 5900 E BEN WHITE BLVD AUSTIN TX, 78741 Phone: 512.602.2454 Fax: 512.602.6582 terry.cole@amd.com	VR
ADVANCED MICRO DEVICES	PATRICK GREEN ADVANCED MICRO DEVICES Depart: P.O. BOX 3453 ONE AMD PLACE, M/S 70 SUNNYVALE CA, 94088-3435 Phone: 408.749.4948 Fax: 408.774.7487 patrick.green@amd.com	VA
AERIAL COMMUNICATIONS	GEORGE P. LYNCH AERIAL COMMUNICATIONS Depart: SUITE 1100 8410 W. BRYN MAWR AVE CHICAGO IL, 60631-3402 Phone: 773.864.3859 Fax: 773.399.4397 lynql@aerial1.com	O
ALCATEL USA INC.	BILL CRANE ALCATEL USA INC. Depart: 2912 WAKE FOREST ROAD RALEIGH NC, 27609 Phone: 919.850.5311 Fax: 919.850.5131 crangw@aur.alcatel.com	VR

Date: 06/10/99
Page No: 3

COMMITTEE REPORT
=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
ALCATEL USA INC.	DAN QUEEN ALCATEL USA INC. Depart: 2912 WAKE FOREST ROAD RALEIGH NC, 27609 Phone: 919.850.5183 Fax: 919.850.6590 dan_queen@aur.alcatel.com	VA
AMERITECH	THOMAS J. STARR AMERITECH Depart: 2000 W AMERITECH CTR DR, 3C52 HOFFMAN ESTATES IL, 60196-1025 Phone: 847.248.5467 Fax: 847.248.3775 tom.starr@ameritech.com	VR
AMP INCORPORATED	KEITH LETO AMP INCORPORATED Depart: P.O. BOX 3680, MS 290-15 HARRISBURG PA, 17105-3608 Phone: 717.810.4657 Fax: 717.810.4655 ckleto@amp.com	VR
ANRITSU COMPANY	C. TONY PROCK ANRITSU COMPANY Depart: 685 JARVIS DRIVE MORGAN HILL CA, 95037-2809 Phone: 408.776.8355 Fax: 408.776.1744 tprock@naro.us.anritsu.com	VR
ANRITSU COMPANY	PAUL BAUER ANRITSU COMPANY Depart: 490 JARVIS DRIVE MORGAN HILL CA, 95037-2809 Phone: 408.778.2000 Fax: 408.778.0630 pbauer@namg.us.anritsu.com, pbauer@wiltron.com	VA
APPLIED DIGITAL ACCESS	PAUL R. HARTMANN APPLIED DIGITAL ACCESS Depart: 9855 SCRANTON ROAD SAN DIEGO CA, 92121 Phone: 619.623.2573 Fax: 619.623.2208 hartmann@ada.com	VR

COMMITTEE REPORT

=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
APPLIED DIGITAL ACCESS	MAYNARD WRIGHT APPLIED DIGITAL ACCESS Depart: 9855 SCRANTON RD. SAN DIEGO CA, 92121 Phone: 619.623.2573 Fax: 619.623.2208 mwright@ada.com	VA
ASCEND COMMUNICATIONS	MANOJ PURI ASCEND COMMUNICATIONS Depart: 1701 HARBOR BAY PKWY. ALAMEDA CA, 94502-3002 Phone: 510.747.2946 Fax: 501.747.2859 mpuri@ascend.com	VR
AT&T	CHERRY TOM AT&T LABS - SHANNON LABORATORY Depart: ROOM 3J01 180 PARK AVENUE FLORHAM PARK NJ, 07932-0971 Phone: 973.236.6946 Fax: 973.360.5877 ctom@att.com	VR
AT&T	JUSTIN J. BUDD AT&T Depart: ROOM 4B-215N 900 ROUTES 202/206 NORTH BEDMINSTER NJ, 07921 Phone: 980.234.4217 Fax: .. justinbudd@ems.att.com	VA
AT&T CANADA LONG DISTANCE SVCS	DAVID H. WHYTE AT&T CANADA LONG DISTANCE SVCS Depart: ROOM 10 200 WELLINGTON ST, WEST TORONTO, ONTARIO, M5V 3G2 Phone: 416.345.2697 Fax: 416.345.2909 dwhyte@attcanada.com	O
AWARE, INC.	MARCOS TZANNES AWARE, INC. Depart: 40 MIDDLESEX TURNPIKE BEDFORD MA, 01730 Phone: 781.687.0388 Fax: 781.687.0459 marcos@aware.com	VR

COMMITTEE REPORT

=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
AWARE, INC.	WILLIAM MEYER AWARE, INC. Depart: 40 MIDDLESEX TURNPIKE BEDFORD MA, 01730 Phone: 781.687.0366 Fax: 781.276.4001 bill@aware.com	VA
BELL ATLANTIC	TRONE BISHOP BELL ATLANTIC Depart: 13100 COLUMIBA PIKE, E6 SILVER SPRING MD, 20904 Phone: 301.236.3754 Fax: 301.989.6505 trone.t.bishop.jr@bellatlantic.com	VR
BELL ATLANTIC	WENDY PUGH BELL ATLANTIC Depart: 3RD FLOOR 1310 N COURT HOUSE RD ARLINGTON VA, 22201 Phone: 703.974.1985 Fax: 703.974.0616 wendy.t.pugh@bellatlantic.com	VA
BELL CANADA	P. NORMAN SMITH BELL CANADA Depart: 160 ELGIN STREET, ROOM 640 OTTAWA, ONTARIO, K2P 2C4 Phone: 613.781.7736 Fax: 613.781.1658 npsmith@post.bell.ca	VR
BELL CANADA	EFRAIN GUEVARA BELL CANADA Depart: 160 ELGIN STREET, ROOM 640 OTTAWA, ONTARIO, K2P 2C4 Phone: 613.781.7734 Fax: 613.781.1658 eguevara@post.bell.ca	VA
BELLSOUTH CELLULAR CORP.	DON ZELMER BELLSOUTH CELLULAR CORP. Depart: ROOM 840 1100 PEACHTREE ST, NE ATLANTA GA, 30309 Phone: 404.249.3689 Fax: 404.249.5157 don_zelmer@bscc.bls.com	O

COMMITTEE REPORT

=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
-----	-----	-----
BELLSOUTH TELECOMM. INC.	GARY J. TENNYSON BELLSOUTH TELECOMM. INC. Depart: 1884 DATA DRIVE BIRMINGHAM AL, 35244 Phone: 205.985.6087 Fax: 205.733.5603 Gary.J.Tennyson@bridge.bst.bls.com	VR
BRITISH TELECOM	IAIN MANN BRITISH TELECOM Depart: 207 OLD STREET POST POINT 11.1 LONDON, EC1V 9N4 Phone: 171.250.7482 Fax: 44 .171. 490 8375 mannid2@boat.bt.com	FO
BROADBAND TECHNOLOGIES, INC.	HAROLD GOODNIGHT BROADBAND TECHNOLOGIES, INC. Depart: P.O. BOX 13737 RSCH TRNGL PK NC, 27709-3737 Phone: 919.544.0015 Fax: .. whg@bbt.com	O
BROADCOM CORPORATION	DAVID C. JONES BROADCOM CORPORATION Depart: 130 W. PINE STREET LOUISVILLE CO, 80027 Phone: 949.450.8700 Fax: 949.450.8710 dcjones@broadcom.com	VR
BROADCOM CORPORATION	AIDAN O'ROURKE BROADCOM CORPORATION Depart: 16215 ALTON PKWY IRVINE CA, 92618 Phone: 714.450.8700 Fax: 714.450.8710 aidan@broadcom.com	VA
C&D TECHNOLOGIES	MIKE BOOST C&D TECHNOLOGIES Depart: SUITE 122 3400 E. BRITANNIA DRIVE TUCSON AZ, 85706 Phone: 520.295.4311 Fax: 520.295.4090 mboost@ratelco.com	O

Date: 06/10/99
Page No: 7

COMMITTEE REPORT

=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
-----	-----	-----
C.S.I. TELECOMMUNICATIONS	WILLIAM J. BUCKLEY ITRON Depart: P.O. BOX 787 VERADALE WA, 99037-0787 Phone: 509.922.1676 Fax: 509.891.3590 wjbuckley@aol.com	VR
C.S.I. TELECOMMUNICATIONS	MICHAEL S. NEWMAN C.S.I. TELECOMMUNICATIONS Depart: P O BOX 29002 SAN FRANCISCO CA, 94129 Phone: 415.751.8845 Fax: 415.292.9981 miken@csitele.com	VA
CABLETRON SYSTEMS INC.	DAVID HOERL CABLETRON SYSTEMS INC. Depart: 225 OLD NEW BRUNSWICK RD PISCATAWAY NJ, 08854 Phone: 732.394.6002 Fax: 732.562.1134 dfh@ariel.com	O
CARRIER ACCESS CORPORATION	TOM BULLINGTON CARRIER ACCESS CORPORATION Depart: 5395 PEARL PKWY BOULDER CO, 80301 Phone: 303.442.5455 Fax: 303.218.5629 tbullington@carrieraccess.com	O
CENTILLIUM TECHNOLOGY	DR. SYED ABBAS CENTILLIUM TECHNOLOGY Depart: 46531 FREMONT BLVD. FREMONT CA, 94538 Phone: 510.360.5065 Fax: 510.445.1639 syed@centillium.com	VR
CENTILLIUM TECHNOLOGY	GUOZHU LONG CENTILLIUM TECHNOLOGY Depart: 46531 FREMONT BLVD. FREMONT CA, 94538 Phone: 510.360.5012 Fax: 510.445.1639 guozhu@centillium.com	VA

Date: 06/10/99
Page No: 8

COMMITTEE REPORT

=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
-----	-----	-----
CHARLES INDUSTRIES, LTD	AVI VAIDYA CHARLES INDUSTRIES, LTD Depart: 5600 APOLLO DR ROLLING MEADOWS IL, 60008 Phone: 847.806.6300 Fax: 847.806.0522 avaidya@chasind.com	O
CICADA SEMICONDUCTOR INC.	NICK van BAVEL CICADA SEMICONDUCTOR INC. Depart: 4208 AVE. H AUSTIN TX, 78751 Phone: 512.452.5452 Fax: 512.377.4076 nvb@cicada-semi.com	O
CISCO SYSTEMS	JOHN JOYCE CISCO SYSTEMS Depart: 250 APOLLO DRIVE CHELMSFORD MA, 01824 Phone: 978.244.8622 Fax: 978.244.8039 joycej@cisco.com	VR
CISCO SYSTEMS	AMIR HINDIE CISCO SYSTEMS Depart: 12515 RESEARCH BLVD., BLDG. 4 AUSTIN TX, 78759-2220 Phone: 512.257.5433 Fax: 512.249.7236 ahindie@cisco.com	VA
COILCRAFT INC.	LEONARD CRANE COILCRAFT INC. Depart: 1102 SILVER LAKE ROAD CARY IL, 60013 Phone: 847.516.5570 Fax: 847.763.92370 lcrane@coilcraft.com	O
COMPAQ COMPUTER CORP.	RABAH HAMDI COMPAQ COMPUTER CORP. Depart: P.O. BOX 692000 13430 NW FREEWAY, MS 570803 HOUSTON TX, 77269-2000 Phone: 281.514.1058 Fax: 281.518.9792 rabah.hamdi@compaq.com	VR

COMMITTEE REPORT
=====

Technical Subcommittee = T1E1

MEMBER -----	REPRESENTATIVE -----	STATUS -----
COMSAT CORPORATION	PRAKASH CHITRE COMSAT LABS Depart: 22300 COMSAT DR, RM 3106 CLARKSBURG MD, 20871-9475 Phone: 301.428.4167 Fax: 301.428.7747 prakash.chitre@comsat.com	O
CONEXANT SYSTEMS, INC.	MICKEY C. RUSHING CONEXANT SYSTEMS, INC. Depart: 9868 SCRANTON ROAD SAN DIEGO CA, 92121-3707 Phone: 619.713.3254 Fax: 619.452.1813 mickey.rushing@conexant.com	VR
CONEXANT SYSTEMS, INC.	KEITH CHU CONEXANT SYSTEMS, INC. Depart: M/S K07-750 4311 JAMBOREE ROAD NEWPORT BEACH CA, 92660 Phone: 949.483.4121 Fax: 949.483.3667 keith.chu@conexant.com	VA
CONKLIN INSTRUMENT CORPORATION	LARRY D. BISHOP CONKLIN INSTRUMENT CORPORATION Depart: 6141 CROOKED CREEK RD. NORCROSS GA, 30092 Phone: 770.662.0317 Fax: 770.662.0319 lbishop@conklininstrument.com	O
COVAD COMMUNICATIONS CO.	RICHARD RAWSON COVAD COMMUNICATIONS CO. Depart: 2330 CENTRAL EXPRESSWAY SANTA CLARA CA, 95050 Phone: 408.844.7524 Fax: 408.844.7501 drawson@covad.com	VR
COVAD COMMUNICATIONS CO.	GREGORY WETZEL COVAD COMMUNICATIONS CO. Depart: 2330 CENTRAL EXPRESSWAY SANTA CLARA CA, 95050 Phone: 408.844.7516 Fax: 408.844.7501 gfwetzel@covad.com	VA

Date: 06/10/99
Page No: 10

COMMITTEE REPORT

=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
CREATIVE COMMUNICATIONS CONSLT	RICHARD BOBILIN CREATIVE COMMUNICATIONS CONSLT Depart: P O BOX 15189 DURHAM NC, 27704-0189 Phone: 732.842.6250 Fax: 919.220.8219 bobilinccc@aol.com	O
DAVICOM SEMICONDUCTOR, INC.	WEN S. CHEN DAVICOM SEMICONDUCTOR, INC. Depart: 1135 KERN AVENUE SUNNYVALE CA, 94086 Phone: 408.736.8600 Fax: 408.736.8688 wenc@davicom8.com	O
DIGITAL LINK CORP.	DAVE JANSEN DIGITAL LINK CORP. Depart: 10 CARLSON RD ROCHESTER NY, 14610 Phone: 716.654.5544 Fax: 716.654.6603 dave_jansen@dl.com	VR
ECI TELECOM INCORPORATED	CURTIS WATERS ECI TELECOM INCORPORATED Depart: 927 FERN STREET ALTAMONTE SPRNG FL, 32701 Phone: 407.830.2592 Fax: 407.830.2580 cwaters@eciinc.com	VR
ECI TELECOM INCORPORATED	RON MURPHY ECI TELECOM INCORPORATED Depart: 927 FERN STREET ALTAMONTE SPRNG FL, 32701 Phone: 407.830.2512 Fax: 407.830.2580 rmurphy@eciinc.com	VA
ERICSSON INCORPORATED	ALBIN JOHANSSON ERICSSON AUSTRIA Depart: POTTENDORFERSTRASSE 25-27 A-1121 VIENNA, Phone: 43 .1 8.1100 5165 Fax: 43 .1 8.1100 4694 albin.johansson@sea.ericsson.se	VR

Date: 06/10/99
Page No: 11

COMMITTEE REPORT

=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
-----	-----	-----
ERICSSON INCORPORATED	JAN BOSTROM ERICSSON TELECOM Depart: STOCKHOLM, S-126 25 Phone: 46 .8 7.19 9164 Fax: 46 .8 6.81 2428 etxjabo@tn.etx.ericsson.se	VA
ETRIUS	YOUNG IL CHOI ETRIUS Depart: 10832 BROADWATER DRIVE FAIRFAX VA, 22032 Phone: 703.383.9377 Fax: 703.383.1564 etrius@mannam.com	O
EXAR CORPORATION	TONY WONG EXAR CORPORATION Depart: 48720 KATO ROAD FREMONT CA, 94538 Phone: 510.668.7736 Fax: 510.668.7028 tony@exar.com	O
EXCESS BANDWIDTH CORPORATION	CHRISTOPHE HANSEN EXCESS BANDWIDTH CORPORATION Depart: SUITE 103 2475 AUGUSTINE DRIVE SANTA CLARA CA, 95054 Phone: 408.988.3827 111 Fax: 408.988.3834 chris@exbc.com	VR
EXCESS BANDWIDTH CORPORATION	DEBAJYOTI PAL EXCESS BANDWIDTH CORPORATION Depart: SUITE 103 2475 AUGUSTINE DRIVE SANTA CLARA CA, 95054 Phone: 408.988.3827 112 Fax: 408.988.3834 debup@msn.com	VA
FIAMM TECHNOLOGIES, INC.	STEFANO ROSELLINI FIAMM TECHNOLOGIES, INC. Depart: 119 COMMERCE ST. EAST HAVEN CT, 06512 Phone: 203.466.2808 Fax: 203.266.3108 srosellini@fiammen.com	VR

Date: 06/10/99
Page No: 12

COMMITTEE REPORT

=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
-----	-----	-----
FLUKE CORPORATION	FRED KAUDEL FLUKE CORPORATION Depart: PO BOX 9090 6920 SEAWAY BLVD., #279F EVERETT WA, 98206-9090 Phone: 425.356.6101 Fax: 425.356.5043 fredk@tc.fluke.com	O
FRAMATOME CONNECTORS USA INC.	RONALD LAI FRAMATOME CONNECTORS USA INC. Depart: FCI ELECTRICAL 47 E INDUSTRIAL PK DR MANCHESTER NH, 03108-9507 Phone: 603.647.5076 Fax: 603.647.5205 rlai@fciconnect.com	VR
FRAMATOME CONNECTORS USA INC.	GARY E. SCHRADER FRAMATOME CONNECTORS USA INC. Depart: FCI ELECTRICAL 47 E INDUSTRIAL PK DR MANCHESTER NH, 03108-9507 Phone: 603.647.5124 Fax: 603.647.5205 gschrader@fciconnect.com	VA
FUJITSU AMERICA INC.	MICHAEL GREEN FUJITSU AMERICA INC. Depart: TWO BLUE HILL PLAZA, 6TH FLR PEARL RIVER NY, 10965 Phone: 914.731.2082 Fax: 914.731.2010 m.green@tddny.fujitsu.com	O
GENERAL DATACOMM INCORPORATED	FRED CRONIN GENERAL DATACOMM INCORPORATED Depart: P.O. BOX 1299 MIDDLEBURY CT, 06762-1299 Phone: 203.574.1118 Fax: 203.573.0069 fred.cronin@gdc.com	O
GLOBESPAN SEMICONDUCTOR, INC.	MASSIMO SORBARA GLOBESPAN SEMICONDUCTOR, INC. Depart: ROOM 1W-04 100 SCHULZ DRIVE RED BANK NJ, 07701 Phone: 732.345.7535 Fax: 732.345.7598 msorbara@globespan.net	VR

Date: 06/10/99
Page No: 13

COMMITTEE REPORT
=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
-----	-----	-----
GLOBESPAN SEMICONDUCTOR, INC.	CLETE GARDENHOUR GLOBESPAN SEMICONDUCTOR, INC. Depart: 8545 126TH AVENUE, NORTH LARGO FL, 33773 Phone: 813.530.8400 Fax: 813.530.8038 cgardenhour@globespan.net	VA
GOVERNMENT OF CANADA	HENRY MAR GOVERNMENT OF CANADA Depart: 300 SLATER ST, 13TH FLOOR OTTAWA, ONTARIO, K1A 0C8 Phone: 613.990.4722 Fax: .. mar.henry@ic.gc.ca	O
GTE TELEPHONE OPERATIONS	GARY E. McANINCH GTE Depart: 700 HIDDEN RIDGE DR, HQW02J81 IRVING TX, 75038 Phone: 972.718.4142 Fax: 972.718.4393 gary.mcaninch@telops.gte.com	VR
GTE TELEPHONE OPERATIONS	PERCY E. POOL GTE Depart: SUITE 900 545 E CARPENTER FRWY, HQB09C51 IRVING TX, 75062 Phone: 972.718.7678 Fax: 972.719.7242 pepool@ieee.org	VA
HARRIS CORPORATION	JIM JOLLOTA HARRIS CORPORATION Depart: 809 CALLE PLANO CAMARILLO CA, 93012 Phone: 805.389.2379 Fax: 805.389.2231 jjollota@harris.com	VR
HARRIS CORPORATION	RICHARD D. ROBERTS HARRIS CORPORATION Depart: 1586 NORMAN ST, NE PALM BAY FL, 32907 Phone: 407.724.7022 Fax: 407.724.7094 rrober02@harris.com	VA

COMMITTEE REPORT

=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
HEKIMIAN LABORATORIES	WILLIAM H. DUNCAN HEKIMIAN LABORATORIES Depart: 15200 OMEGA DR ROCKVILLE MD, 20850-3240 Phone: 301.590.3463 Fax: 301.590.3692 wduncan@hekimian.com	VR
HEKIMIAN LABORATORIES	JONATHAN KIM HEKIMIAN LABORATORIES Depart: 15200 OMEGA DRIVE ROCKVILLE MD, 20850-3240 Phone: 301.590.3416 Fax: 301.590.3467 jkim@hekimian.com	VA
HEWLETT-PACKARD	RICHARD van GELDER HEWLETT-PACKARD Depart: 1501 PAGE MILL RD, BLDG 2L-3 PALO ALTO CA, 94304 Phone: 650.857.7727 Fax: 650.857.5686 vangelder@hpl.hp.com	VR
HITACHI TELECOM (USA), INC.	STEVE BOOTMAN HITACHI TELECOM (USA), INC. Depart: SUITE 400 801 E. CAMPBELL RD. RICHARDSON TX, 75081 Phone: 972.644.0971 8215 Fax: 972.644.7880 steve.bootman@hitel.com, sbootman@hitel.com	O
HUGHES NETWORK SYSTEMS, INC.	DR LEONARD GOLDING HUGHES NETWORK SYSTEMS, INC. Depart: 11717 EXPLORATION LN. GERMANTOWN MD, 20876 Phone: 301.212.1027 Fax: 301.212.1038 golding@c3po.hns.com, golding@hns.com	O
ICG COMMUNICATIONS	RAUL ROMERO ICG COMMUNICATIONS Depart: 161 INVERNESS DRIVE, W ENGLEWOOD CO, 80112 Phone: 303.414.8101 Fax: 303.414.5846 raul_romero@icgcomm.com	VR

Date: 06/10/99
Page No: 15

COMMITTEE REPORT
=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
ICG COMMUNICATIONS	ARAM TAYLOR ICG COMMUNICATIONS Depart: 161 INVERNESS DRIVE, W ENGLEWOOD CO, 80112 Phone: 303.414.8101 Fax: 303.441.5846 aram_taylor@icgcomm.com	VA
INRANGE TECHNOLOGIES	DR. C.P. CHENG INRANGE TECHNOLOGIES Depart: MGR SYSTEM ENG. 10 LYBERTY WAY WESTFORD MA, 01886 Phone: 978.392.3139 Fax: 978.692.0714 cp.cheng@inrange.com	O
INTEGRATED DEVICE TECHNOLOGY	GREG COPELAND INTEGRATED DEVICE TECHNOLOGY Depart: 2975 STENDER WAY SANTA CLARA CA, 95054 Phone: 408.654.6745 Fax: 408.654.6747 copeland@idt.com	VR
INTEGRATED TELECOM EXPRESS	JOW H. PENG INTEGRATED TELECOM EXPRESS Depart: 2710 WALSH AVE SANTA CLARA CA, 95051 Phone: 408.980.8689 Fax: 408.980.9232 jow.peng@itexinc.com	O
INTEL CORPORATION	CHRIS HANSEN INTEL CORPORATION Depart: 2111 NE 25TH AVE. HILLSBORO OR, 97124 Phone: 503.264.8877 Fax: 503.264.3375 chris.hansen@intel.com	VR
INTEL CORPORATION	NARJALA BHASKER INTEL CORPORATION Depart: 2111 NE 25TH AVE HILLSBORO OR, 97124 Phone: 503.264.8549 Fax: 503.264.3375 narjala.bhasker@intel.com	VA

Date: 06/10/99
Page No: 16

COMMITTEE REPORT
=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
INTEROPERABILITY LABORATORY	SCOTT A. VALCOURT INTEROPERABILITY LABORATORY Depart: UNIV. OF NH 7 LEAVITT LANE, ROOM 106 DURHAM NH, 03824 Phone: 603.862.4489 Fax: 603.862.4181 sav@unh.edu	O
LA MARCHE MFG.	THOMAS DAYMENT LA MARCHE MFG. Depart: 106 BRADROCK DRIVE DES PLAINES IL, 60018-1967 Phone: 847.299.1188 Fax: 847.299.3061 tdayment@aol.com	O
LARUS CORPORATION	ROBERT GROSS LARUS CORPORATION Depart: 1560 BERGER DRIVE SAN JOSE CA, 95112-2703 Phone: 408.494.1500 Fax: 408.494.0732 larus@laruscorp.com	O
LEVEL ONE COMMUNICATIONS INC.	ALBERT H. MILLER LEVEL ONE COMMUNICATIONS INC. Depart: 9750 GOETHE RD SACRAMENTO CA, 95827 Phone: 916.854.2832 Fax: 916.854.2804 amiller@level1.com	VR
LEVEL ONE COMMUNICATIONS INC.	JAMES QUILICI LEVEL ONE COMMUNICATIONS INC. Depart: 9750 GOETHE ROAD SACRAMENTO CA, 95827 Phone: 916.854.2853 Fax: 916.854.1102 jquilici@level1.com	VA
LUCENT TECHNOLOGIES	S. JOHN CHEN LUCENT TECHNOLOGIES Depart: ROOM 4L-322 101 CRAWFORD CORNER RD HOLMDEL NJ, 07733 Phone: 732.949.5179 Fax: 732.949.5055 sjchen@lucent.com	VR

Date: 06/10/99
Page No: 17

COMMITTEE REPORT

=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
LUCENT TECHNOLOGIES	RICK TOWNSEND LUCENT TECHNOLOGIES Depart: ROOM 4K-337 101 CRAWFORDS CORNER RD. HOLMDEL NJ, 07733 Phone: 732.949.8667 Fax: 732.949.1196 rltownsend@lucent.com	VA
LUCENT TECHNOLOGIES	RON C. McCONNELL LUCENT TECHNOLOGIES Depart: 1E-323 101 CRAWFORDS CORNER RD. HOLMDEL NJ, 07733 Phone: 732.949.2971 Fax: 732.949.0220 rcmcc@lucent.com	NR
LUCENT TECHNOLOGIES	GERALD H. PETERSON LUCENT TECHNOLOGIES Depart: ROOM 4L-338 101 CRAWFORDS CORNER RD. HOLMDEL NJ, 07733 Phone: 732.949.3498 Fax: 732.949.1196 ghpeterson@lucent.com	NR
MARCONI COMMUNICATIONS	PHIL DILLON MARCONI COMMUNICATIONS Depart: 2100 RELIANCE PKWY BEDFORD TX, 76021 Phone: 817.460.5433 Fax: .. pdillon@star-telegram.com	VR
MARCONI COMMUNICATIONS	JEFFREY VAN HORNE MARCONI COMMUNICATIONS Depart: FIRE NTKWS DIV 2655 VILLA CREEK DR, SUITE 290 DALLAS TX, 75234 Phone: 972.501.7408 Fax: 972.501.7401 jvanhorne@firenetworks.com	VA
MCI WORLDCOM	DARYL TANNIS MCI WORLDCOM Depart: DEPT 1225/107 2400 GLENVILLE DR. RICHARDSON TX, 75082 Phone: 972.729.5417 Fax: 972.729.6038 daryl.tannis@wcom.com	VR

COMMITTEE REPORT
=====

Technical Subcommittee = T1E1

MEMBER -----	REPRESENTATIVE -----	STATUS -----
MCI WORLDCOM	CURTIS BROWNMILLER MCI WORLDCOM Depart: DEPT 1206/107 2400 N GLENVILLE RD RICHARDSON TX, 75082 Phone: 972.729.7171 Fax: 972.729.7261 curtis.brownmiller@wcom.com	VA
MEDIAONE LABS	PAUL HUGHES MEDIAONE LABS Depart: SUITE 100 10355 WESTMOOR DRIVE WESTMINSTER CO, 80021 Phone: 303.404.8046 Fax: 303.404.8003 phughes@mediaone.com	VR
MEDIAONE LABS	JIM DAHL MEDIAONE LABS Depart: SUITE 100 10355 WESTMOOR DRIVE WESTMINSTER CO, 80021 Phone: 303.404.8032 Fax: 303.404.8003 jdahl@mediaone.com	VA
MICROCELL CONNEXIONS	MARILYN POIRIER MICROCELL CONNEXIONS Depart: CP 9100 SUCC PLACE BONAVENTURE MONTREAL, QUEBEC, H5A 1K3 Phone: 514.937.9100 8345 Fax: 514.846.7494 marilyn.poirier@microcell.ca	O
MITEL CORPORATION	SILVANA RODRIGUES MITEL CORPORATION Depart: 360 LEGGET DR, P O BOX 13089 KANATA, ONTARIO, K2K 1X3 Phone: 613.592.2122 Fax: 613.592.4784 s_rodrigues@mitel.com	O
MITRE CORPORATION	LARRY STINE MITRE CORPORATION Depart: MS W545 1820 DOLLEY MADISON BLVD. McLEAN VA, 22102-3481 Phone: 703.883.7623 Fax: 703.883.6389 lstine@mitre.org	O

Date: 06/10/99
Page No: 19

COMMITTEE REPORT

=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
-----	-----	-----
MOTOROLA INC.	MATT PENDLETON MOTOROLA INC. Depart: MD: J6 3501 ED BLUESTEIN BLVD. AUSTIN TX, 78721 Phone: 512.933.7826 Fax: 512.933.6688 rl3366@email.sps.mot.com	VR
MOTOROLA INC.	DEBBIE SALLEE MOTOROLA INC. Depart: MD: ASU02 935 N. NEW HAVEN MESA AZ, 85205 Phone: 602.641.0492 Fax: 602.641.8105 rzep90@email.sps.mot.com	VA
MOTOROLA INC.	RICHARD BRANDT dB CONSULTING Depart: 4 WHISPERING HILLS DRIVE ANNANDALE NJ, 08801-3400 Phone: 908.735.6171 Fax: 215.790.3208 dbcon@worldnet.att.net	NR
NATIONAL COMMUNICATIONS SYSTEM	DALE BARR NATIONAL COMMUNICATIONS SYSTEM Depart: CODE N6 701 S COURT HOUSE RD ARLINGTON VA, 22204-2198 Phone: 703.607.6157 Fax: 703.607.4830 barrd@ncr.disa.mil	O
NATIONAL SEMICONDUCTOR CORP.	WILLIAM PICKEN NATIONAL SEMICONDUCTOR CORP. Depart: M/S D2-707 P.O. BOX 58090 SANTA CLARA CA, 95052-8090 Phone: 408.721.3283 Fax: 408.733.0613 willie@galaxy.nsc.com	O
NEC AMERICA INCORPORATED	DONOVAN NAK NEC AMERICA INCORPORATED Depart: P O BOX 940 OREGON HOUSE CA, 95962 Phone: 530.692.1266 Fax: 530.692.1444 mdnak@aol.com	VR

COMMITTEE REPORT

=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
NETWORK EQUIPMENT TECHNOLOGIES	HEATHER WAGNER NETWORK EQUIPMENT TECHNOLOGIES Depart: 6500 PASEO PADRE PKWY, MS 2108 FREMONT CA, 94555 Phone: 510.574.2680 Fax: 510.574.4027 tony_raetz@net.com, heather_wagner@net.com	O
NEWBRIDGE NETWORKS CORP.	RENE LATRAVERSE NEWBRIDGE NETWORKS CORP. Depart: 600 MARCH RD, PO BOX 13600 KANATA, ONTARIO, K2K 2E6 Phone: 613.591.3600 Fax: 613.591.3680 rene_latraverse@newbridge.com	VR
NEWBRIDGE NETWORKS CORP.	MARTIN LaROSE NEWBRIDGE NETWORKS CORP. Depart: 600 MARCH RD, PO BOX 13600 KANATA, ONTARIO, K2K 2E6 Phone: 613.591.3600 Fax: 613.591.3680 mlarose@newbridge.com	VA
NEXT LEVEL COMMUNICATIONS	SABIT SAY NEXT LEVEL COMMUNICATIONS Depart: 10 WATERVIEW BLVD., 3RD FLOOR PARSIPPANY NJ, 07054 Phone: 973.299.6689 Fax: 973.299.8030 ssay@nlc.com	VR
NEXT LEVEL COMMUNICATIONS	JEFFREY WEBER NEXT LEVEL COMMUNICATIONS Depart: 10 WATERVIEW BLVD., 3RD FLOOR PARSIPPANY NJ, 07054 Phone: 973.290.0020 Fax: 973.984.5875 jweber@nlc.com	VA
NOKIA CORPORATION	KARI LANG NOKIA CORPORATION Depart: NOKIA RESEARCH CTR, PO BOX 407 FIN-00045, NOKIA GRP Phone: 358. 94.3766593 Fax: 011.358.043766227 lang@research.nokia.com	FO

Date: 06/10/99
Page No: 21

COMMITTEE REPORT
=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
-----	-----	-----
NORTEL NETWORKS	MEL N. WOINSKY NORTEL NETWORKS Depart: 465 SOUTH ST., PO BOX 1933 MORRISTOWN NJ, 07962-1933 Phone: 973.292.5726 Fax: 973.292.4160 woinsky@nortelnetworks.com	VR
NORTEL NETWORKS	ED ECKERT NORTEL NETWORKS Depart: P.O. BOX 13010 4307 EMPEROR BLVD., MS 11A120 RSCH TRNGL PK NC, 27709-3010 Phone: 919.992.3787 Fax: 919.992.7892 ejeckert@nortelnetworks.com, wbatten@nortelnetworks.com	VA
NORTEL NETWORKS	NICHOLAS TULLIUS NORTEL NETWORKS Depart: P.O. BOX 3511 STATION C OTTAWA, ONTARIO, K1Y 4H7 Phone: 613.763.2359 Fax: 613.763.7155 ntullius@nortelnetworks.com	NR
OKI AMERICA INCORPORATED	HENRI SUYDERHOUD OKI AMERICA R&D EAST Depart: P.O. BOX 771389 NAPLES FL, 34107-1389 Phone: 941.597.2997 Fax: 941.597.4060 hsuyderhoud@compuserve.com	VR
OKI AMERICA INCORPORATED	HISAO FUJIKAWA OKI AMERICA INCORPORATED Depart: THREE UNIVERSITY PLAZA HACKENSACK NJ, 07601 Phone: 201.646.0011 X213 Fax: 201.646.9229 hfujikawa@okiame.com	VA
ONE WORLD SYSTEMS	MALCOLM HERRING ONE WORLD SYSTEMS Depart: 1144 EAST ARQUES AVE. SUNNYVALE CA, 94086 Phone: 408.523.2139 Fax: 408.523.2556 malcolm_herring@globalvillage.com	O

Date: 06/10/99
Page No: 22

COMMITTEE REPORT

=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
-----	-----	-----
ORCKIT COMMUNICATIONS	JAMES SZELIGA ORCKIT COMMUNICATIONS Depart: 574 HERITAGE RD. SOUTHURY CT, 06488 Phone: 203.267.1000 Fax: 203.267.1003 szeliga@wtco.net, mariesum@wtco.net	VR
ORCKIT COMMUNICATIONS	NIGEL COLE ORCKIT COMMUNICATIONS Depart: SUITE 160 110 BLUE RAVINE RD. FOLSOM CA, 95630 Phone: 916.355.1265 Fax: 916.351.5700 nigelcolex@aol.com	VA
PAIRGAIN TECHNOLOGIES INC.	BRUCE KIMBLE PAIRGAIN TECHNOLOGIES INC. Depart: 14402 FRANKLIN AVE TUSTIN CA, 92780 Phone: 714.730.2823 Fax: 714.832.9924 bruce_kimble@pairgain.com	VR
PAIRGAIN TECHNOLOGIES INC.	GEORGE ZIMMERMAN PAIRGAIN TECHNOLOGIES INC. Depart: 14402 FRANKLIN AVE. TUSTIN CA, 92780 Phone: 714.481.4549 Fax: 714.832.9924 george_zimmerman@pairgain.com	VA
PARADYNE CORPORATION	PHIL KYEES PARADYNE CORPORATION Depart: 8545 126TH AVE. N. LARGO FL, 33773-2826 Phone: 813.530.2583 Fax: 813.530.2318 pkyees@paradyne.com	VR
PARADYNE CORPORATION	RICHARD K. SMITH PARADYNE CORPORATION Depart: 8545 126TH AVENUE N. LARGO FL, 33773-2826 Phone: 813.530.8444 Fax: 813.532.5949 rksmith@paradyne.com	VA

Date: 06/10/99
Page No: 23

COMMITTEE REPORT

=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
PICTURETEL CORPORATION	MARSHALL SCHACHTMAN PICTURETEL CORPORATION Depart: 11 N PROSPECT AVE RED BANK NJ, 07701-2325 Phone: 732.747.4509 Fax: 732.219.9365 mgs@pictel.com	O
PIRELLI TSD	JOHN McDONOUGH PIRELLI TSD Depart: 700 INDUSTRIAL DR. LEXINGTON SC, 29072 Phone: 803.951.4985 Fax: 516.261.9200 john.mcdonough@us.pirelli.com	O
PMC-SIERRA, INC.	C. KEVIN HUSCROFT PMC-SIERRA, INC. Depart: 105-8555 BAXTER PLACE BURNABY BC, V5A 4V7 Phone: 604.415.6039 Fax: 604.415.6205 huscroft@pmc-sierra.com	O
PREMISYS COMMUNICATIONS, INC.	BORIS J. AUERBUCH PREMISYS COMMUNICATIONS, INC. Depart: 48664 MILMONT DR FREMONT CA, 94538-7353 Phone: 510.353.7620 Fax: 510.353.7670 boris.auerbuch@premisys.com	O
RAYCHEM CORP.	PIETER VERSAVEL RAYCHEM CORP. Depart: MS 543/2A 300 CONSTITUTION DR MENLO PARK CA, 94025 Phone: 650.361.2224 Fax: 650.361.5157 pversave@raychem.com	O
SAFT AMERICA INC.	OLE VIGERSTOL SAFT AMERICA INC. Depart: 711 INDUSTRIAL BLVD. VALDOSTA GA, 30601 Phone: 912.247.2331 Fax: 912.245.2880 old.vigerstol@saft.alcatel-alsthom.com	O

COMMITTEE REPORT
=====

Technical Subcommittee = T1E1

MEMBER -----	REPRESENTATIVE -----	STATUS -----
SBC COMMUNICATIONS, INC.	JOHN E. ROQUET SBC TECH. RES. Depart: 9505 ARBORETUM BLVD AUSTIN TX, 78759-7299 Phone: 512.372.5843 Fax: 512.372.5891 jroquet@tri.sbc.com	VR
SBC COMMUNICATIONS, INC.	THOMAS GRIM SBC TECH. RES. Depart: 9505 ARBORETUM BLVD AUSTIN TX, 78759 Phone: 512.372.5835 Fax: 512.372.5891 tgrim@tri.sbc.com	VA
SIEMENS INFO & COMM NTWKS, INC	GUNTER NEUMEIER SIEMENS INFO & COMM NTWKS, INC Depart: 400 RINEHART ROAD LAKE MARY FL, 32746 Phone: 407.942.8201 Fax: 407.942.6776 gunter.neumeier@sic.siemens.com	VR
SILICON AUTOMATION SYSTEMS INC	R. VENKATRAMAN SILICON AUTOMATION SYSTEMS INC Depart: 2900 GORDON AVE SANTA CLARA CA, 95051 Phone: 408.730.0100 Fax: 408.774.1007 rv@sasi.com	VR
SILICON AUTOMATION SYSTEMS INC	ASHOK BARAGI SILICON AUTOMATION SYSTEMS INC Depart: 2900 GORDON AVE SANTA CLARA CA, 95051 Phone: 408.730.0100 Fax: 408.774.1007 baragi@sasi.com	VA
SOUTHWEST RESEARCH INSTITUTE	TIMOTHY A. FEY SOUTHWEST RESEARCH INSTITUTE Depart: 6220 CULEBRA ROAD SAN ANTONIO TX, 78238-5166 Phone: 210.522.3253 Fax: .. tfey@swri.edu	O

Date: 06/10/99
Page No: 25

COMMITTEE REPORT

=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
-----	-----	-----
SPRINT - LOCAL TELECOM. DIV.	IRVIN YOUNGBERG SPRINT - LOCAL TELECOM. DIV. Depart: P O BOX 11315, KSWES B0114 KANSAS CITY MO, 64112 Phone: 913.624.2740 Fax: 913.624.8963 pete.youngberg@mail.sprint.com	VR
SPRINT - LONG DISTANCE DIV.	THOMAS G. CRODA SPRINT - LONG DISTANCE DIV. Depart: 1850 GATEWAY DR, M/S CABURP05 SAN MATEO CA, 94404 Phone: 650.513.2363 Fax: 650.513.2121 thomas.g.croda@mail.sprint.com	VR
ST MICROELECTRONICS	ROY HARVEY ST MICROELECTRONICS Depart: 10 MAGUIRE RD. LEXINGTON MA, 02173 Phone: 781.402.8543 Fax: TBD.. roy.harvey@st.com	VR
ST MICROELECTRONICS	JEAN-J RAYNAL ST MICROELECTRONICS Depart: 2055 GATEWAY PLACE, SUITE 300 SAN JOSE CA, 95110 Phone: 408.438.7149 Fax: 408.452.1549 jean-j.raynal@st.com	VA
STRATUM ONE COMMUNICATIONS INC	ZINO CHAIR STRATUM ONE COMMUNICATIONS INC Depart: SUITE 202 2933 BUNKER HILL LANE SANTA CLARA CA, 95054 Phone: 408.235.8762 Fax: 408.235.8769 zino@stratumone.com	O
SUMITOMO ELECTRIC USA INC.	HIROMITSU AWAI SUMITOMO ELECTRIC USA INC. Depart: 3235 KIFER RD., SUITE 150 SANTA CLARA CA, 95051 Phone: 408.737.8517 Fax: 408.737.0134 hawai@sumitomo.com	O

COMMITTEE REPORT

=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
SYMMETRICOM INC.	KISHAN SHENOI SYMMETRICOM INC. Depart: 2300 ORCHARD PKWY SAN JOSE CA, 95131-1017 Phone: 408.428.7959 Fax: 408.428.7895 kshenoi@telecom.com	VR
SYMMETRICOM INC.	M.J. NARASIMHA SYMMETRICOM INC. Depart: 2300 ORCHARD PKWY SAN JOSE CA, 95131-1017 Phone: 408.433.0910 Fax: 408.428.7895 snarasim@telecom.com	VA
TANDEM TELECOMM. SYSTEMS INC.	JOHN L. SCHANTZ TANDEM TELECOMM SYSTEMS INC. Depart: 1255 W 15TH ST, SUITE 8000 PLANO TX, 75075 Phone: 972.516.6294 Fax: 972.516.6804 john.schantz@tandem.com	O
TECCOR ELECTRONICS, INC.	PHILLIP HAVENS TECCOR ELECTRONICS, INC. Depart: 1801 HURD DRIVE IRVING TX, 75038 Phone: 972.518.9427 Fax: 972.550.1309 phillip_havens@teccor.com	VR
TECCOR ELECTRONICS, INC.	KURT WATTELET TECCOR ELECTRONICS, INC. Depart: 1800 HURD DRIVE IRVING TX, 75038 Phone: 972.756.8235 Fax: 972.550.1309 Kurt_Wattelet@teccor.com	VA
TEKELEC INC.	VIRGIL LONG TEKELEC INC. Depart: 5151 McCRIMMON PKWY, SUITE 216 MORRISVILLE NC, 27560 Phone: 919.460.5538 Fax: 919.460.0877 long@tekelec.com	O

Date: 06/10/99
Page No: 27

COMMITTEE REPORT

=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
TEKTRONIX	DAN WOLAVER TEKTRONIX Depart: 285 MILL ROAD CHELMSFORD MA, 01824 Phone: 978.256.6800 Fax: 978.256.2038 dan.h.wolaver@tek.com	O
TELCORDIA TECHNOLOGIES	RALPH E. JENSEN TELCORDIA TECHNOLOGIES Depart: ROOM 2C407 331 NEWMAN SPRINGS ROAD RED BANK NJ, 07701-5699 Phone: 732.758.2244 Fax: 732.758.4545 rej@cc.bellcore.com	VR
TELCORDIA TECHNOLOGIES	JAMES C. STAATS TELCORDIA TECHNOLOGIES Depart: 8 CORPORATE PLACE, RM. 3M100 PISCATAWAY NJ, 08854-4156 Phone: 732.699.8430 Fax: 732.336.2304 jstaats@telcordia.com	VA
TELCORDIA TECHNOLOGIES	JIM BRUNSSSEN TELCORDIA TECHNOLOGIES Depart: 445 SOUTH ST, ROOM 1E122G MORRISTOWN NJ, 07960-6438 Phone: 973.829.2977 Fax: 973.829.5866 jbrunsse@telcordia.com	NR
TELE<COM>PUTER RELIABILITY SVC	WILLIAM BUSH TELE<COM>PUTER RELIABILITY SVC Depart: PO BOX 3459 PINEHURST NC, 28374 Phone: 812.522.7325 Fax: 812.522.7325 wbush@hsonline.net	VR
TELECOMM LABS (MOTC), (ROC)	JOHN C.C. HSUEH TELECOMM LABS (MOTC), (ROC) Depart: 12 LANE 551, MING-TSU RD SEC 5 YANG-MEI,, 326 Phone: 3 4.24 .4200 Fax: 886. 3 .424 4208 hsueh@ms1.hinet.net	FO

Date: 06/10/99
Page No: 28

COMMITTEE REPORT

=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
TELECOMMUNICATIONS TECHNIQUES	BERNARD E. WORNE TELECOMMUNICATIONS TECHNIQUES Depart: 1110 ASHFORD LANE CARY NC, 27511 Phone: 919.460.4546 Fax: 301.353.0734 worneb@ttc.com	VR
TELECOMMUNICATIONS TECHNIQUES	DOUG HOLLY TELECOMMUNICATIONS TECHNIQUES Depart: 20410 OBSERVATION DRIVE GERMANTOWN MD, 20876 Phone: 301.353.1550 Fax: 301.353.1588 hollyd2@ttc.com	VA
TELLABS OPERATIONS, INC.	BRIAN McCONNELL TELLABS OPERATIONS, INC. Depart: MAIL STOP 262 1000 REMINGTON BLVD. BOLINGBROOK IL, 60440 Phone: 630.378.6068 Fax: 630.378.6712 bam@tellabs.com	O
TELSTRA	PHIL POTTER TELSTRA Depart: 770 BLACKBURN ROAD CLAYTON, VIC, 3168 Phone: 03 .925.3 6424 Fax: 03 .925.3 6339 p.potter@trl.telstra.com.au	FO
TELTREND, INC.	GUY CERULLI TELTREND, INC. Depart: 620 STETSON AVE ST CHARLES IL, 60174 Phone: 630.377.1945 Fax: 630.377.7379 gcerulli@teltrend.com	VR
TELTRONICS, INC.	JEFF BOX TELTRONICS, INC. Depart: SUITE 166 4125 KELLER SPRINGS RD. DALLAS TX, 75244 Phone: 972.818.2829 Fax: 972.818.2893 jeffbox@compuserve.com, jbox@teltronics.com	O

Date: 06/10/99
Page No: 29

COMMITTEE REPORT
=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
TEXAS INSTRUMENTS	JAMES T. CARLO TEXAS INSTRUMENTS Depart: 9208 HEATHERDALE DRIVE DALLAS TX, 75243-6332 Phone: 972.480.2524 Fax: 972.480.2611 jcarlo@ti.com	VR
TEXAS INSTRUMENTS	PETE CHOW, Ph.D. TEXAS INSTRUMENTS Depart: 2043 SAMARITAN DRIVE SAN JOSE CA, 95124 Phone: 408.879.2043 Fax: 408.879.2906 pete@ti.com	VA
THOMAS & BETTS CORPORATION	GREG STEINMAN THOMAS & BETTS CORPORATION Depart: 8155 T&B BLVD. MEMPHIS TN, 38125 Phone: 901.252.5000 Fax: 901.252.1333 greg_steinman@tnb.com	VR
TOLLGRADE COMMUNICATIONS, INC.	ROCKY FLAMINIO TOLLGRADE COMMUNICATIONS, INC. Depart: 493 NIXON ROAD CHESWICK PA, 15024 Phone: 412.274.2156 Fax: 412.274.2482 rflaminio@tollgrade.com	VR
TOLLGRADE COMMUNICATIONS, INC.	HERMAN FLAMINIO TOLLGRADE COMMUNICATIONS, INC. Depart: 493 NIXON ROAD CHESWICK PA, 15024 Phone: 412.274.2156 Fax: 412.274.8014 hflaminio@tollgrade.com	VA
TOUCAN TECHNOLOGY LTD.	EDWARD JONES TOUCAN TECHNOLOGY LTD. Depart: IDA BUSINESS PARK DANGAN, GALWAY, Phone: 915.199.16 Fax: 353. 91. 519901 edward@toucan.ie	FO

Date: 06/10/99
Page No: 30

COMMITTEE REPORT

=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
TRANSWITCH CORPORATION	EDWIN SOLTYSIAK TRANSWITCH CORPORATION Depart: 3 ENTERPRISE DRIVE SHELTON CT, 06484 Phone: 203.929.8810 Fax: 203.944.6532 eds@txc.com	VR
TRANSWITCH CORPORATION	JITENDER VIJ TRANSWITCH CORPORATION Depart: 3 ENTERPRISE DRIVE SHELTON CT, 06484 Phone: 203.929.8810 Fax: 203.944.6532 jati@txc.com	VA
U S WEST	JIM GODBY U S WEST Depart: ROOM MT F26 700 W. MINERAL AVE. LITTLETON CO, 80120 Phone: 303.707.5695 Fax: 303.235.3168 jgodby@uswest.com	VR
U S WEST	THOMAS BROWN U S WEST Depart: 700 W. MINERAL M LITTLETON CO, 80120 Phone: 303.707.5613 Fax: 303.707.9041 twbrow1@uswest.com	VA
US TELEPHONE ASSOCIATION-USTA	VERN JUNKMANN US TELEPHONE ASSOCIATION-USTA Depart: 1401 H STREET, NW, SUITE 600 WASHINGTON DC, 20005-2164 Phone: 202.326.7298 Fax: 202.326.7333 vjunkman@usta.org	VR
WESTELL TECHNOLOGIES, INC.	GEORGE N. PITSOULAKIS WESTELL TECHNOLOGIES, INC. Depart: 750 N. COMMONS DRIVE AURORA IL, 60504 Phone: 630.375.4176 Fax: 630.375.4938 gpits@westell.com	VR

Date: 06/10/99
Page No: 31

COMMITTEE REPORT

=====

Technical Subcommittee = T1E1

MEMBER	REPRESENTATIVE	STATUS
-----	-----	-----
WESTELL TECHNOLOGIES, INC.	BRUCE KUHN WESTELL TECHNOLOGIES, INC. Depart: 750 N. COMMONS DRIVE AURORA IL, 60504 Phone: 630.375.4426 Fax: 630.375.5290 bkuhn@westell.com	VA
XEL COMMUNICATIONS, INC.	MARCEL WOLF XEL COMMUNICATIONS, INC. Depart: 17101 E OHIO DR AURORA CO, 80017-3878 Phone: 303.696.2293 Fax: 303.696.2374 wolfman@xel.com	O

=====

VR = VOTING REPRESENTATIVE
VA = VOTING ALTERNATE
O = OBSERVER
FO = FOREIGN OBSERVER
NR = NOT ON ROSTER
L = LIAISON

T1E1.4
COMBINED MAILING AND PARTICIPANTS LIST
June 14, 1999
(M = on mailing list P = on participant list)

List includes those who were on the mailing and participants list as of the above date. To make any additions or modifications to the mailing list, please contact Massimo Sorbara at 732-345-7535, Fax 732-345-7592, or email msorbara@globespan.net.

<p>Syed A. Abbas [M., P.] Centillum Technologies Inc. 46531 Fremont Blvd. Fremont, CA 94538 Tel: 510-360-5065 Fax: 510-445-1639 Email: syed@centillum.com</p>	<p>Subra Ambati [M., P.] AG Communication Systems 2500 West Utopia Road Phoenix, AZ 85027 Tel: (602) 581-4421 Fax: (602) 581-4022 Email: ambatis@agcs.com</p>
<p>Robyn Aber [M., P.] 3Com Corp. M/S 1519 5400 Bayfront Plaza Santa Clara, CA 95052 Tel: (408)764-5832 Fax: (408)764-7207 Email: Robyn_Aber@3mail.3com.com</p>	<p>Tariq Amjed [M., P.] Teltrend Inc. 620 Stetson Ave. St. Charles, IL 60174 Tel: 630-377-1945 Fax: 630-377-7379 Email: tamjed@teltrend.com</p>
<p>Oscar Agazzi [M., P.] Broadcom 16251 Laguna Canyon Road Irvine, CA 92618 Tel: (714) 450-8700 Fax: (714) 450-8710 Email: oea@broadcom.com</p>	<p>Candare M. Anderson [M., P.] General Instrument 6262 Lusk Blvd. San Diego, CA 92121 USA Tel: 619-404-2922 Fax: 619-404-2501 Email: canderson@gi.com</p>
<p>Cajetan M. Akujubi, Ph.D. [M., P.] Advanced Hardware Architectures, Inc. 2365 NE Hopkins Court Pullman, WA 99163-5601 Tel: 509-334-1000 x117 Fax: 509-334-9000 Email: cajetan@aha.com</p>	<p>Ephraim Arnon [M., P.] NORTEL P. O. Box 3511, Station C Ottawa, Ontario K1Y4H7 Canada Tel: 613-765-4937 Fax: 613-765-2173 Email: earnon@nortel.ca</p>
<p>Ron Allen [M., P.] DNA Enterprises, Inc. 239 West Renner Richardson, TX 75080 Tel: (972)644-3301 Fax: (972)644-6338 Email: rallen@dnaent.com</p>	<p>James Aslanis [M., P.] Texas Instruments 2043 Samaritan Dr. San Jose, CA 95124 Tel: (408) 879-2042 Fax: (408) 879-2900 Email:</p>

<p>Mark Astor [M., .] NORTEL 2010 Corporate Ridge 3rd Floor McLean, VA 22102 Tel: 703-712-8383 Fax: 703-712-8932 Email:</p>
<p>Keith Atwell [M., P.] Adtran 901 Explorer Blvd. P.O. Box 140000 Huntsville, AL 35814-4000 Tel: (256)963-8350 Fax: (205)963-8699 Email: keith.atwell@adtran.com</p>
<p>Hiroimitsu Awai [M., P.] Sumitomo Electric 3235 Kifer Rd. Suite 150 Santa Clara, CA 95051 Tel: (408) 737-8517 Fax: (408) 737-0134 Email: hawaii@sumitomo.com</p>
<p>Jein Baek [M., P.] Dept. Inform. & Comm. Eng. Hannam Univ. Ojung-Dong, Taejeon Korea Tel: +82-42-629-7568 Fax: Email:</p>
<p>Scott J. Baer [M., P.] AG Communication Systems P. O. Box 52179 M/C 3101 Phoenix, AZ 85072 Tel: (623) 581-4139 Fax: (623) 581-4574 Email: baers@agcs.com</p>

<p>Rupert Baines [M., P.] Analog Devices RSTC-MS116 804A Woburn St. Wilmington, MA 01887 Tel: (617)937-1103 Fax: (781)937-1022 Email: rupert.baines@analog.com</p>
<p>H. Charles Baker [M., P.] Southern Methodist University 9611 Woodmen Circle Dallas, TX 75238-1859 Tel: (214)343-3229 Fax: (214)343-3229 Email: hbaker@seas.smu.edu</p>
<p>LeRoy Baker [M., P.] RELTEC 2100 Reliance Pkwy. Bedford, TX 76095 Tel: (817)540-9628 Fax: (817)540-8260 Email: bakerr@reu.relteccorp.com</p>
<p>John T. Balinski [M., P.] Bellecore Room NVC 1H214 331 Newman Springs Road Red Bank, NJ 07701-5699 Tel: (908)758-2197 Fax: (908)758-4545 Email:</p>
<p>Chuck Balogh [M., P.] Tellabs Operations, Inc. 7000 Remington Blvd. MS212 Bolingbrook, IL 60440 Tel: (708)378-6206 Fax: (708)378-6721 Email:</p>

<p>Art Barabell [M., P.] Cascade Communications 5 Carlisle Road Westford, MA 01886 Tel: (508) 952-7480 Fax: (508) 392-1484 Email: abarabell@casc.com</p>	<p>Rafi Ben-Michael [M., P.] AT&T 101 Crawfords Corner Road Room 2G-622 Holmdel, NJ 07733 Tel: 732-949-0864 Fax: 732-949-8949 Email: rafi@att.com</p>
<p>Uri Baror [M., P.] I. C. Com 3 Hashikma St. P. O. Box 11530 Azor, 58001 ISRAEL Tel: +972-3-558-3313 Fax: +972-3-558-3308 Email: uri@ic.co.il</p>	<p>Ben Bennett [M., P.] AMP Incorporated P. O. Box 3608 MS 290-15 Harrisburgh, PA 17105 Tel: (717) 810-4641 Fax: (717) 810-4655 Email: bmbennet@amp.com</p>
<p>John Barselloti [M., P.] West End Systems Corp. 39 Winner's Circle Drive Amprior, Ontario K7S 3G9 Canada Tel: (613)623-9600 Fax: (613)623-0989 Email: john_barsellotti@newbridge.com</p>	<p>Bill Bergman [M., P.] IBM Corp. Networking Systems CNMA/664 P. O. Box 12195 Research Triangle Park, NC 27709 Tel: (919)254-4118 Fax: (919)254-5483 Email: wbergman@vnet.ibm.com</p>
<p>Don Bellenger [M., P.] 3Com 13100 La Paloma Road Los Altos Hills, CA 94022 Tel: 800-381-8108 Fax: 800-552-1301 Email: Don_Bellenger@3Com.com</p>	<p>Dev Bhattacharya [M., P.] NEC Electronics, Inc. 2880 Scott Blvd. M/S SC2202 Santa Clara, CA 95052-8062 Tel: (408)588-5449 Fax: (408)588-5464 Email: dbhattac@asic.mtv.nec.com</p>
<p>Daniel Bengtssen [M., P.] Telia Research AB Auroram 6 97753 Lalea, Sweden Tel: +46 920 75436 Fax: +46 920-75490 Email: Daniel.J.Bengtsson@telia.se</p>	<p>Nigel Billington [M., P.] BT PPB67/107 BT Laboratories Martlesham Heath, Ipswich IP712E UK Tel: +441 473 645302 Fax: +441 473 614580 Email: billinj@boat.bt.com</p>

<p>Bora Biray [M., P.] Siemens Telecom Networks 5901 Broken Sound Pkwy B6/6W Boca Raton, FL 33487 Tel: 561-955-6624 Fax: 561-955-6925 Email: bora.biray@icn.siemens.com</p>	<p>R. T. Bobilin [M., P.] Creative Communications Consult. 116 B East Edgewood Drive Durham, NC 27704 Tel: (732)842-6250 Fax: (919)220-8219 Email: bobilinccc@aol.com</p>
<p>Larry Bishop [M., P.] Conklin 6141 Crooked Creek Rd. Norcross, GA 30092 Tel: (770)662-0317 Fax: (770)662-0319 Email: ldbishop@delphi.com</p>	<p>Gary Bolton [M., P.] Nortel 4600 Emperor Blvd. Morrisville, NC 27560 Tel: (919) 992-7105 Fax: (919) 992-6685 Email: gary_bolton@nt.com</p>
<p>Richard Bishop [M., P.] Face International P.O. 10469 Burlu, VA 22019 USA Tel: 703-690-8209 Fax: 703-690-8348 Email: dbishoppe@aol.com</p>	<p>Holton Bond [M., .] Lucent Technologies Room 3S-A05 P. O. Box 4908 Warren, NJ 07059-0908 Tel: 908 580 5325 Fax: 908 580 4864 Email: hcbond@lucent.com</p>
<p>Trone Bishop [M., P.] Bell Atlantic 13100 Columbia Pike Silver Spring, MD 20904 Tel: 301-236-3754 Fax: 301-989-6505 Email: trone.t.bishop.jr@bellatlantic.com</p>	<p>Jan Bostrom [M., P.] Ericsson S-12625, Stockholm SWEDEN Tel: +46 8 719 9164 Fax: +46 8 719 0350 Email: Jan.Bostrom@ericsson.com</p>
<p>Ray Blackham [M., P.] US Robotics 438 Crown Point Circle Grass Valley, CA 95946 Tel: (916)273-1064 x139 Fax: (916)273-1091 Email: rblackha@usr.com</p>	<p>Mark F. Bowen [M., P.] Digital Link 10 Carlson Road Rochester, NY 14526 USA Tel: 716-654-5544 x2275 Fax: 716-654-6603 Email: mark@bowen@dl.com</p>
	<p>Bruce Bowie [M., P.] Diamond Lane Communications 1318 Redwood Way Suite 118 Petaluma, CA 94954 Tel: (707)792-2946 Fax: (707)792-0850 Email: bowie@dlcc.com</p>

<p>Peter Brackett [M., P.] Adtran 901 Explorer Blvd. P.O. Box 140000 Huntsville, AL 35814-4000 Tel: (256) 963-8270 Fax: (256) 963-8751 Email: peter.brackett@adtran.com</p>	<p>Les Brown [M., P.] Motorola Information Systems 400 Matheson Blvd. West Mississauga, Ontario L5R 3M1 CANADA Tel: 905-507-7361 Fax: 905-507-7230 Email: LLB005@email.mot.com</p>
<p>Americo Brajal [M., .] Laboratoires d'Electronique Philips 22, Av. Descartes B. P. 15 Limeil-Brevannes, Cedex 94453 France Tel: +33 1 45 106791 Fax: +33 1 45 106960 Email: brajal@leb-philips.fr</p>	<p>Randy Brown [M., P.] AG Communication Systems 2500 W. Utopia Rd. Phoenix, AZ 85027 Tel: (602)581-4125 Fax: (602)582-7111 Email: brownr@agcs.com</p>
<p>Richard Brandt [M., P.] Motorola (dB Consulting) 4 Whispering Hills Drive Annandale, NJ 87701-3400 Tel: (908) 735-6171 Fax: (215)790-3208 Email: dbcon@hotmail.com</p>	<p>Curtis Brownmiller [M., P.] MCI Worldcom 2400 N. Glenville Dr. Richardson, TX 75082 Tel: (972)729-7171 Fax: (972)729-7261 Email: curtis.brownmiller@mci.com</p>
<p>Dave Brier [M., P.] Texas Instruments P. O. Box 660799 MS 8650 Dallas, TX 75266-0799 Tel: 972-480-4047 Fax: 972-480-2611 Email: dbrier@ti.com</p>	<p>William Buck [M., P.] Diamond Lane Communications 1310 Redwood Way Petaluma, CA 94954 Tel: 707-793-7047 Fax: 707-742-0850 Email: bill_buck@dlcc.com</p>
<p>Dave Brooks [M., P.] GTE Labs 40 Sylvan Road Waltham, MA 02451 Tel: 781-466-2154 Fax: 781-466-2026 Email: dbrooks@gte.com</p>	<p>William Buckley [M., P.] CSI-Telecom P.O. Box 787 Veradale, WA 99037 Tel: (509)922-1676 Fax: (509)891-1822 Email: wjbuckley@aol.com</p>

<p>Bill Burton [M., P.] Bell Atlantic Corp. 5th Floor 8670 Georgia Avenue Silver Springs, MD 20904 Tel: (301)608-2794 Fax: Email:</p>	<p>Patrick Cameron [M., P.] Tellabs 1000 Remington Blvd. Bolingbrook, IL 60440 Tel: (630) 378-6677 Fax: (630) 378-6027 Email: pat_cameron@pcmail.tellabs.com</p>
<p>John Bush [M., P.] Motorola Inc. 3501 Ed Bluestein Blvd. MD:F8 Austin, TX 78721 Tel: (512) 934-5053 Fax: (512) 934-7991 Email: rxth10@email.sps.mot.com</p>	<p>Jim Carlo [M., P.] Texas Instruments 9208 Heatherdale Drive Dallas, TX 75243 Tel: 214-340-8837 Fax: 214-853-5274 Email: jcarlo@ti.com</p>
<p>Richard Cam [M., P.] PMC-Sierra 105-8555 Baxter Place Burnaby, B. C. V5A 4V7 CANADA Tel: (604) 415-6022 Fax: (604) 415-6205 Email: richard_cam@pmc-sierra.bc.ca</p>	<p>Arthur J. Carlson [M., P.] AltoCom, Inc. 13127 Woodstock Drive Nevada City, CA 95959-8957 Tel: 530-265-0817 Fax: 530-265-0764 Email: ajc@altocom.com</p>
<p>John Camagna [M., P.] Level One Communications 9750 Goethe Road Sacramento, CA 95827 Tel: (916) 854-2823 Fax: (916) 854-2804 Email: jcamagna@level1.com</p>	<p>Paulus Carpelan [M., P.] Nokia Telecommunications P. O. Box 370 Fin-00045 Nokia Group, FINLAND Tel: +358 9 511 66774 Fax: +358 9 511 66709 Email: paulus.carpelan@ntc.nokia.com</p>
<p>John Camagna [M., P.] Level One Communications 9750 Goethe Road Sacramento, CA 95827 Tel: (916) 854-2823 Fax: (916) 854-2804 Email: jcamagna@level1.com</p>	<p>C. A. Carpenter [M., P.] ECI Telecom Inc. 927 Fern St. Altamonte Springs, FL 32701 Tel: 407-830-2569 Fax: 407-830-2580 Email: ccarpenter@eciinc.com</p>

<p>Ken Cavanaugh [M., P.] Motorola 3501 Ed Bluestein Blvd. MS: F8 Austin, TX 78739 Tel: (512)934-5846 Fax: (512)934-7991 Email: ra3483@email.sps.mot.com</p>
<p>Guy Cerulli [M., P.] Teltrend, Inc. 620 Stetson Avenue St. Charles, IL 60174 Tel: (630)377-1945 Fax: (630)377-7379 Email: gcerulli@teltrend.com</p>
<p>Paul Chang [M., P.] Microwave Logic/Tektronix 285 Mill Rd. Chelmsford, MA 01824 Tel: (508)256-6800 x223 Fax: (508)256-2038 Email: paulcha@tek.com</p>
<p>Yen T. Chang [M., P.] Hiint Communications, Inc. 1037 Camarillo Ct. Milpitas, CA 95035 Tel: 408-956-0617 Fax: 408-942-8906 Email: Changyen@worldnet.att.net</p>
<p>Trang Chan-virak [M., P.] ST Microelectronics 60 Rue Lavoisier Monbonnot, 38330 FRANCE Tel: +33-4-76-58-45-29 Fax: Email: chan-virak.trang@st.com</p>

<p>Joe Charboneau [M., P.] ADC Telecommunications P. O. Box 1101 MS 125 Minneapolis, MN 55440-1101 Tel: (612)936-8123 Fax: (612)936-8333 Email: joe_charboneau@adc.com</p>
<p>Adam Chellali [M., P.] Texas Instruments, Inc. 13510 North Central Expressway MS 446 Dallas, TX 75243 Tel: (972)995-5379 Fax: (972)927-4186 Email: chellali@hc.ti.com</p>
<p>S. John Chen [M., P.] Lucent Technologies Room 4L-322 101 Crawfords Corner Rd. Holmdel, NJ 07733 Tel: 732-949-5179 Fax: 732-948-5055 Email: sjchen@lucent.com</p>
<p>W. I. H. Chen [M., P.] RELTEC 2100 Reliance Parkway Bedford, TX 76021 Tel: (817)540-8205 Fax: (817)540-8260 Email:</p>
<p>Wen S. Chen [M., P.] Davicom Semiconductor, Inc. 1135 Kern Avenue Sunnyvale, CA 94086 Tel: 408-736-8600 Fax: 408-736-8688 Email: wenc@davicom8.com</p>

<p>Raymond Chen [M., P.] RSA Communications 110 Horizon Dr., Suite 200 Raleigh, NC 27615 Tel: 919-846-7171 Fax: 919-846-0260 Email: rayc@rsa.cirrus.com</p>
<p>Daniel Chen [M., P.] Rockwell 9868 Scranton Road San Diego, CA 92121 Tel: 619-597-4456 Fax: 619-452-1813 Email: daniel.c.chen@rss.rockwell.com</p>
<p>Hoover Chen [M., P.] ESS Technology 21396 Maria Lane Saratoga, CA 95070 USA Tel: 510-492-1318 Fax: 510-492-1098 Email: hoochen@earthlink.net</p>
<p>Jacky Chow [M., P.] TI 2043 Samaritan Drive San Jose, CA 95124 Tel: (408)879-2060 Fax: (408)879-2912 Email: jschow@ti.com</p>
<p>Peter Chow [M., P.] TI 2043 Samaritan Drive San Jose, CA 95124 Tel: (408)879-2043 Fax: (408)879-2906 Email: pete@ti.com</p>

<p>Keith T. Chu [M., P.] Conexant Systems Inc. 4311 Jamboree Road Newport Beach, CA 92660 Tel: 949-483-4121 Fax: 949-483-3667 Email: keith.chu@conexant.com</p>
<p>John Cioffi [M., P.] Information Systems Laboratory 125 Durand Stanford, CA 94305-4055 Tel: (650)723-2150 Fax: (650)723-8473 Email: cioffi@isl.stanford.edu</p>
<p>Alan Cohen [M., P.] Kleven Group One Cranberry Hill Lexington, MA 02173 Tel: (617)861-1020 Fax: (617)861-1047 Email: Alan@Kleven.com</p>
<p>Nigel Cole [M., P.] Orekit Communications 110 Ravine Road Suite 160 Folsom, CA 95630 Tel: 916-351-5600 Fax: 916-351-5700 Email: nigel@orekit.com</p>
<p>Terry Cole [M., P.] AMD 5804 E. Ben Write Blvd. Mail Stop 621 Austin, TX 78731 Tel: 512-602-2454 Fax: 512-602-6582 Email: terry.cole@amd.com</p>

<p>Marty Colombatto [M., P.] Broadcom Corp. 16251 Laguna Canyon Rd. Irvine, CA 92618 Tel: (714) 450-8700 Fax: (714) 450-8710 Email: martyc@broadcom.com</p>	<p>Mauro Costa [M., P.] Italtel S. P. A. 20019 Castelletto Di Settimo Milane Se Milano, ITALY Tel: +39 2 4388 8606 Fax: +39 2 4388 7989 Email: mauro.costa@settimo.italtel.it</p>
<p>Kevin Cone [M., P.] Lucent Technologies Room 22-215 (EQ) 555 Union Blvd. Allentown, PA 18103 USA Tel: (610)712-6326 Fax: (610)712-4508 Email: kacone@lucent.com</p>	<p>Ray Countermann [M., P.] GTE Laboratories MSS1 40 Sylvan Rd. Waltham, MA 02254 Tel: (617)466-2671 Fax: (617)890-9320 Email: rcounterman@gte.com</p>
<p>Greg Copeland [M., P.] IDT Inc. MS-0318 2975 Stender Way Santa Clara, CA 95054 Tel: 408-654-6745 Fax: 408-654-6747 Email: copeland@idt.com</p>	<p>Bill Crane [M., P.] Alcatel Network Systems 2912 Wake Forest Road Raleigh, NC 27609 Tel: (919)850-5311 Fax: Email:</p>
<p>Graham C. Copley [M., P.] NORTEL Networks P. O. Box 3511 Station C Ottawa, Ontario K1Y4H7 CANADA Tel: (613)765-4128 Fax: (613)765-2173 Email: copley@nortelnetworks. om</p>	<p>Phil Crawby [., P.] Crystal Semiconductor 1741 Spyglass Drive #304 Austin, TX 78746 Tel: 512-912-3785 Fax: Email: phile@crystal.cirrus.com</p>
<p>Lawrence H. Corbett [M., P.] Gate-Net Associates, Inc. 113 Waterloo Station Drive Cary, NC 27513 USA Tel: 919-460-3839 Fax: 919-468-0324 Email: lcorbett@mindsring.com</p>	<p>David Cummings [M., P.] Hayes Microcomputer Products, Inc. P. O. Box 105203 Atlanta, GA 30348-5203 Tel: (770) 840-9200 Fax: (770) 441-1213 Email: dcumming@hayes.com</p>

<p>Kim Currie [M., P.] Mitel Corporation 350 Legget Drive P. O. Box 13089 Kanata, Ontario K2K 1X3 CANADA Tel: (613)592-2122 Fax: (613)592-4784 Email:</p>	<p>Jim Dell [M., P.] Pacific Bell 2600 Camino Ramon Room 3S750LL San Ramon, CA 94583 Tel: 510-823-4903 Fax: 510-355-3930 Email: jsdell@pacbell.com</p>
<p>Aaron Dagen [M., P.] Bell Atlantic 500 Westchester Ave. White Plains, NY 10604 USA Tel: 914-644-2508 Fax: Email:</p>	<p>Michael Demjanenko [M., P.] VOCAL Technologies Ltd. 1576j Sweet Home Road Buffalo, NY 14228 Tel: (716)688-4675 Fax: (716)636-3630 Email: maked@vocal.com</p>
<p>Tom Daly [M., P.] Promptus Communications, Inc. 4 Mount Royal Ave. Marlboro, MA 01752 Tel: (508)624-7498 Fax: (508)481-3105 Email: TDaly@Promptus.com</p>	<p>Shuang Deng [M., P.] Aptis Communications 22 A Street Burlington, MA 01803 Tel: (781) 221-1644 Fax: (781) 221-7540 Email: shuang@aptis.com</p>
<p>Tamar Danon [M., P.] I. C. Com 2 Hashikma St. Azur, 58001 ISRAEL Tel: +972-3-5583313 Fax: +972-3-5583308 Email: tdanon@ic.co.il</p>	<p>Mark Dervaes [M., P.] Copper Mountain Networks 3931 Sorrento Valley Blvd. San Diego, CA 92121 Tel: 619-453-8799 Fax: 619-453-9244 Email: mdervaes@coppermountain.com</p>
<p>Michel Darveau [M., P.] Nortel Networks P.O. Box 3551 Station C Mail Stop 115 Ottawa, Ontario K1Y 4H7 CANADA Tel: 613-765-4528 Fax: 613-765-4523 Email: darveau@nortelnetworks.com</p>	<p>Andre' P. des Rosiers [M., P.] Rockwell 9868 Scranton Road San Diego, CA 92121-3707 Tel: 619-535-3668 Fax: 619-452-1813 Email: andre.des_rosiers@rss.rockwell.com</p>

<p>Philip DesJardins [M., P.] 3Com 500 Crown Point Circle Grass Valley, CA 95945 Tel: 530-273-1064 x119 Fax: 530-273-1091 Email: pdesjard@usr.com</p>	<p>Miroslav Dokic [M., .] Adaptive Micro-Ware, Inc. 6917 Innovation Blvd. Fort Wayne, IN 46818 Tel: (219)489-0046 Fax: (219)489-8087 Email:</p>
<p>Kashmir Dhanowa [M., P.] Raychem Corp. 300 Constitution Dr. Menlo Park, CA 94025 Tel: 650-361-3802 Fax: 650-361-5157 Email: kdhanowa@raychem.com</p>	<p>Jean-Louis Dolmeta [M., P.] Motorola Le Miraip BP1029 Toulouse, Fr. 31023 FRANCE Tel: +33 5 61 19 94 82 Fax: +33 5 61 19 99 58 Email: Jean.Louis_Dolmeta@email.sps.mot.com</p>
<p>Franz Dielacher [M., P.] Siemens EZM Siemensstr. 2 A-9500 Villach, Austria Tel: +43 4242 305 376 Fax: +43 4242 305 223 Email: franz.dielacher@ezmvi.siemens.co.at</p>	<p>Guojie dong [M., P.] Digicom Systems Inc. 188 Topaz St. Milpitas, CA 95035 Tel: 408-719-5147 Fax: Email: gdong@digicomsys.com</p>
<p>Dawn Difflumeri-Kelly [M., .] GlobeSpan Technologies, Inc. 8545 126th Avenue North Largo, FL 34649 (813)530-8141 Tel: (813)530-8557 Fax: Email:</p>	<p>Paul W. Dufek [M., P.] GTE Government Systems 100 Ferguson Drive Mountain View, CA 94039 Tel: (650) 966-3042 Fax: (650) 966-2383 Email: paul.dufek@gsc.gte.com</p>
<p>Curtis Dodd [M., P.] Adtran, Inc. 901 Explorer Blvd. P.O. Box 140000 Huntsville, AL 35814-4000 Tel: (256) 963-8873 Fax: (256) 963-2386 Email: curtis.dodd@adtran.com</p>	<p>Paul Dufek [M., P.] GTE Gov't Systems 100 Ferguson Drive Mountain View, CA 94039 Tel: 650-966-3042 Fax: Email: paul.dufek@gsc.gte.com</p>

<p>Bernard Dugerdil [M., P.] Motorola P. O. Box 15 1218 LeGrand Saconnex Geneva, Switzerland Tel: +41-22-799-1385 Fax: +41-22-799-1460 Email: tte004@email.sps.mot.com</p>
<p>Edward J. Eckert [M., P.] Nortel Networks MS 11A120 P. O. Box 13010 Research Triangle Park, NC 27709 3010 Tel: 919-992-3787 Fax: 919-972-7892 Email: ejeckert@nortel.com</p>
<p>Craig Edwards [M., P.] Lucent Technologies Room 23R-119GF 555 Union Blvd. Allentown, PA 18103-1229 Tel: 610-912-6679 Fax: 610-712-4726 Email: cmedwards@lucent.com</p>
<p>George Eisler [M., P.] Rockwell 361 Mt. Holyoke Ave. Pacific Palisades, CA 90272 Tel: (310)459-9225 Fax: Email: geisler@aol.com</p>
<p>Tsur Eitan [M., P.] ECI Telecom ISRAEL 30 Hasivim St. Petah Tikva, ISRAEL 49130 Tel: +972-3-9266248 Fax: +972-3-9266411 Email: eitant@ecitele.com</p>

<p>Earl Emerson [M., P.] INC 757 Route 202/206 P. O. Box 6875 Bridgewater, NJ 08807 Tel: Fax: Email:</p>
<p>Edward S. Erlich [M., P.] NORTEL 465 South St. P. O. Box 1933 Morristown, NJ 07962-1933 Tel: (201)292-5724 Fax: (201)292-4160 Email: ed.ehrlich@nt.com</p>
<p>Dan Etz-Hadar [M., P.] ECI Telecom Inc. 927 Fern Street Altamonte Springs, FL 32701 Tel: (407)830-2570 Fax: (407)830-2580 Email: detzhadar@eciinc.com</p>
<p>Bill Euske [M., P.] NorthPoint Communications, Inc. 7th Floor 222 Sutter St. San Francisco, CA 94108 Tel: 415-659-6511 Fax: 415-403-4004 Email: beuske@northpointcom.com</p>
<p>Dave Evans [M., P.] Diamond Lane Communications 1310-C Redwood Way Petaluma, CA 94954 Tel: (707)792-2946 Fax: (707)792-0850 Email:</p>

Vedat Eyuboglu [M., P.]
 Motorola Information Systems
 20 Cabot Blvd.
 M4-10
 Mansfield, MA 02048
 Tel: (508)261-5055
 Fax: (508)337-7173
 Email: LVE001@email.mot.com

Charles Fadel [M., P.]
 Analog Devices, Inc.
 RSTC
 804 Woburn St.
 Wilmington, MA 01887
 Tel: (617)937-1113
 Fax: (617)937-1051
 Email: charles.fadel@analog.com

Guy Fedorkow [M., P.]
 Cisco Systems
 250 Apollo Drive
 Chelmsford, MA 01824
 Tel: 978-244-8189
 Fax:
 Email: fedorkow@cisco.com

Richard Fink [M., P.]
 US West
 700 W. Mineral Ave
 Room MN G18.31
 Littleton, CO 80120
 Tel: 303-707-7131
 Fax: 303-707-9498
 Email: rhfink@uswest.com

Michael Firth [M., P.]
 Texas Instruments
 8505 Forest Lane
 Dallas, TX 75243
 Tel: 972-480-2575
 Fax: 972-480-2611
 Email: z28@ti.com

Herman Flaminio [M., .]
 Tollgrade Communications Inc.
 493 Nixon Road
 Cheswick, PA 15024
 Tel: (724)274-2156
 Fax: (724)274-8014
 Email: hflaminio@tlgd.com

Rocky Flaminio [M., P.]
 Tollgrade Communications Inc.
 493 Nixon Road
 Cheswick, PA 15024
 Tel: (724)274-2156
 Fax: (724)274-2482
 Email: rflaminio@tlgd.com

Kay Fleskes [M., P.]
 Digital Transmission Sys.
 3000 Northwoods Pkwy
 Bldg. 330
 Norcross, GA 30071
 Tel: (770) 798-1300
 Fax: (770) 798-1325
 Email: kfleskas@dtsx.com

Steve Follett [M., P.]
 Tektronix
 P. O. Box 500
 MS 50-315
 Beaverton, OR 97077-0001
 Tel: (503)627-5856
 Fax: (503)627-3072
 Email: stevef@mdhost.cse.tek.com

Al Forcucci [M., P.]
 GTE Laboratories Inc
 40 Sylvan Road
 Waltham, MA 02254
 Tel: 781-466-2446
 Fax: 781-466-2387
 Email: aforcucci@gte.com

<p>Klaus Fosmark [M., P.] Efficient Networks 4201 Spring Valley Road Suite 1200 Dallas, TX 75244 Tel: 972-991-3884 Fax: 972-991-3887 Email: klaus@efficient.com</p>	<p>Neil Furukawa [M., P.] GTE 100 Ferguson Drive Mountain View, CA 94043 Tel: 650-966-3512 Fax: 650-966-3315 Email: neil.ferguson@gsc.gte.com</p>
<p>Kevin Foster [., P.] British Telecom Research Labs B67/107 Martlesham Heath Ipswich, Suffolk IP5 7RE ENGLAND Tel: +44-1473-642896 Fax: +44-1473-614580 Email: kevin@fosterabt.com</p>	<p>Clete Gardenhour [M., P.] GlobeSpan Semiconductor, Inc. 8545 126th Avenue North Largo, FL 34649 Tel: (813) 530-8400 Fax: (813) 530-8038 Email: cgardenhour@gw.paradyne.com</p>
<p>James Freeman [M., .] Edmonton Telephone Box 20500, 44 Capital Blvd. 10040-108 Street Edmonton, AB T5J-2R4 CANADA Tel: (403)441-7981 Fax: (403)423-3955 Email:</p>	<p>Juan Garza [M., P.] Level One Communications 9750 Goethe Road Sacramento, CA 95827 Tel: 916-854-2863 Fax: 916-854-2804 Email: jgarza@level1.com</p>
<p>Vladimir Friedman [M., P.] Analog Devices Inc. NJ Design Center 285 Davidson Ave., Suite 402 Somerset, NJ 08873 Tel: 732-868-7116 Fax: 732-868-7001 Email: vladimir.friedman@analog.com</p>	<p>Alan Gatherer [M., .] Texas Instruments 13510 N. Central Expressway MS 446 Dallas, TX 75243 Tel: (214)995-0370 Fax: (214)995-6194 Email: gatherer@hc.ti.com</p>
<p>Hans-Joerg Frizlen [M., P.] ETSI Norra Vaegen 5A S-14263 Trangsund, SWEDEN Tel: +46-8-771-82 34 Fax: +46-8-771-8234 Email: etxt.etxhfz@memo.ericsson.se</p>	<p>Amit Gattani [M., P.] Level One Communications 9750 Goethe Road Sacramento, CA 95827 Tel: 916-854-2816 Fax: 916-854-2804 Email: amit@level1.com</p>

<p>Lajos Gazsi [M., P.] Siemens, AG Wacholderstr. 7 Dusseldorf, D-40489 GERMANY Tel: +49 203 742 0157 Fax: +49 203 742 0113 Email:</p>
<p>Tom Geary [M., P.] Rockwell International P. O. Box C 4311 Jamboree Road Newport Beach, CA 92660 Tel: (714)221-4092 Fax: (714)221-6551 Email: tom.geary@rss.rockwell.com</p>
<p>Nabil Gebrael [M., P.] Nortel 4600 Emperor Blvd. MS #407045 Morrisville, NC 27560 Tel: 919-992-5022 Fax: 919-992-5022 Email: Nabil.gebrael@nortel.com</p>
<p>Mike Gerakoulis [M., P.] AT&T Labs Bldg 104, Room 3K12 180 Park Avenue Florham Park, NJ 07432 Tel: 973-236-6933 Fax: 973-236-5877 Email: gerakoulis@att.com</p>
<p>Al Gharakhanian [M., P.] Centillium 46824 Lakeview Blvd. Fremont, CA 94538 Tel: 510-445-1640 x54 Fax: 510-445-1639 Email: alg@centillium.com</p>

<p>Emil Ghelberg [M., P.] General Data Communications, Inc. Straits Turnpike Middlebury, CT 06762-1299 Tel: (203)574-1118 Fax: (203)598-7173 Email: emil.ghelberg@gdc.com</p>
<p>Mike Gilbert [M., P.] AG Communication Systems P. O. Box 52179 2500 West Utopia Road Phoenix, AZ 85072 Tel: (602)581-4766 Fax: (602)581-4574 Email: gilbertm@ages.com</p>
<p>Jim Girardeau [M., P.] Level One Communications 9750 Goethe Road Sacramento, CA 95827 Tel: (916) 855-5000 Fax: (916) 854-2804 Email: jgirarde@level1.com</p>
<p>Hugh Goldberg [M., P.] General Data Communications, Inc. Straits Turnpike Middlebury, CT 06762-1299 Tel: (203)574-1118 Fax: (203)758-9129 Email:</p>
<p>Yuri Goldstein [M., P.] General Data Communications, Inc. Straits Turnpike Middlebury, CT 06762-1299 Tel: (203)598-1811 Fax: (203)598-7173 Email:</p>

<p>Henry Gonzalez [M., .] Integrated Network Corp. 757 Rt. 202/206 Bridgewater, NJ 08807 Tel: (908)704-3535 Fax: (908)218-0804 Email: gonzaleh@integnet.com</p>	<p>Motti Gorei [M., P.] RAD Data Communications 31 Haborzel St. Tel Aviv, 69710 ISRAEL Tel: +972 3 6455385 Fax: +972 3 6455305 Email: motti_g@rad.co.il</p>
<p>Toni Gooch [M., .] Texas Instruments 2043 Samaritan Drive San Jose, CA 95124 Tel: (408)879-2069 Fax: (408)879-2906 Email: toni@ti.com</p>	<p>Linda Gosselin [M., P.] US West Communications 700 W. Mineral MND18.33 Littleton, CO 80120 Tel: 303-707-7075 Fax: 303-707-9497 Email: lgossel@uswest.com</p>
<p>David Goodman [M., P.] InLine Connection Corp. 730 N. Danville St. Arlington, VA 22201 Tel: (703)524-3376 Fax: (703)522-3856 Email:</p>	<p>Peter T. Griffiths [M., P.] Alcatel Network Systems, Inc. 2912 Wake Forest Road Raleigh, NC 27609 Tel: (919)850-6294 Fax: (919)850-5147 Email:</p>
<p>Richard Goodson [M., P.] Adtran, Inc. 901 Explorer Blvd. P.O. Box 140000 Huntsville, AL 35814-4000 Tel: (256)963-8664 Fax: (256)963-2386 Email: rgoodson@adtran.com</p>	<p>Glen Grochowski [M., P.] MCI Communications Corp. 400 International Pkwy. Richardson, TX 75081 Tel: 972-918-3515 Fax: 972-907-8784 Email: glen.grochowski@mci.com</p>
<p>Steven Gordon [M., P.] CTC 2655 Villa Creek Drive Suite 150 Dallas, TX 75234 Tel: (972)501-7200 Fax: (972)501-7401 Email: sgordon@firenetworks.com</p>	<p>David J. Groessl [M., P.] Teradyne Telecommunications 1405 Lake Look Road Derrfield, IL 60015 Tel: 847-914-6600 Fax: 847-940-0344 Email: david.groessl@teradyne.com</p>

<p>Alain Gronner [M., .] T-Com Corp. P. O. Box 391506 Mountain View, CA 94039 Tel: (415)964-3415 Fax: Email:</p>
<p>John Gruber [M., P.] NORTEL P. O. Box 402 Ogdensburg, NY 13669 Tel: (613)765-4150 Fax: (613)765-2983 Email: johngg@bnr.ca</p>
<p>Sanjay Gupta [M., P.] Centillium Technology 46824 Lakeview Blvd. Fremont, CA 94538 Tel: 510-445-1640 Fax: 510-445-1639 Email: sanjay@centillium.com</p>
<p>L. B. Gwinn [M., P.] Bell Atlantic 1310 North Court House Road 3rd Floor Arlington, VA 22201 Tel: (703)974-8168 Fax: (703)974-0616 Email:</p>
<p>Cliff Hall [M., P.] Netspeed, Inc. 12303 Technology Blvd. Austin, TX 78727 Tel: (512)249-4775 Fax: (512)249-8506 Email: chall@netspeed.com</p>

<p>Rabah Hamdi [M., P.] Compaq Computer Corp. 20555 SH 249 M/S 130705 Houston, TX 77070 Tel: 281-514-1058 Fax: 281-518-1397 Email: rabah.hamdi@compaq.com</p>
<p>Rabah Hamdi [M., P.] Compaq Computer Corporation 13430 NW Freeway Houston, TX 77040 Tel: 281-514-1058 Fax: 281-518-9792 Email: Rabah.Hamdi@compaq.com</p>
<p>Rodney Hanneman [M., P.] Face International 3801 Old Gun Road West Midlothian, VA 23113 USA Tel: 804-323-1649 Fax: 804-323-6948 Email: rhannem@aol.com</p>
<p>Chris Hansen [M., P.] Intel Corp. 2111 NE 25th Ave. MS-JF3-212 Hillsboro, OR 97124 Tel: (503) 264-8877 Fax: (503) 264-3375 Email: chris_hansen@ccm.jf.intel.com</p>
<p>Christopher J. Hansen [M., P.] Excess Bandwidth Corporation 2475 Augustine Drive Suite 103 Santa Clara, CA 95054 Tel: (408) 988-3827, ext. 111 Fax: (408) 988-3834 Email: hansencj@hotmail.com</p>

<p>Christopher J. Hansen [M., P.] Excess Bandwidth Corp. 2475 Augustine Drive, Suite 103 Santa Clara, CA 95054 Tel: 408-988-3827 x111 Fax: 408-988-3854 Email: chris@exbc.com</p>	<p>Roy Harvey [M., P.] ST Microelectronics 55 Old Bedford Road Lincoln, MA 01773-1125 Tel: 781-259-2543 Fax: 781-259-9721 Email: roy.harvey@st.com</p>
<p>Dan Hanson [M., P.] ADC Telecommunications 2240 Campbell Creek Blvd. Richardson, TX 75082 Tel: 972-680-4865 Fax: 972-680-7689 Email: dan_hanson@adc.com</p>	<p>Josef Hausner [M., P.] Siemens AG Balanstrasse 73 81617 Munich, GERMANY Tel: +49 89 63622145 Fax: +49 89 63622020 Email: josef.hausner@siemens-scg.com</p>
<p>Ed Hare [M., .] American Radio Relay League (ARRL) 225 Main St. Newington, CT 06111 Tel: (860)594-0318 Fax: Email: ehare@arrl.org, rfi@arrl.org</p>	<p>Shahin Hedayat [M., P.] Centillium Technology 46824 Lakeview Blvd. Fremont, CA 94538 Tel: 510-252-7808 Fax: 510-252-7804 Email: shahin@centillium.com</p>
<p>Gopal Harikumar [M., P.] Tellabs 3740 Edison Lakes Parkway Mishawaka, IN 46545 Tel: 219-258-6404 Fax: 219-258-6446 Email: gharikum@tre.tellabs.com</p>	<p>Chris Heegard [M., P.] Alantro Communications 141 Stony Circle Suite 210 Santa Rosa, CA 95401 Tel: 707-521-3062 Fax: 707-521-3066 Email: heegard@alantro.com</p>
<p>Roy Harvey [M., P.] STMicroelectronics Building 1 10 Maguire Road Lexington, MA 02173-3112 Tel: 781-402-8543 Fax: 781-861-2668 Email: roy.harvey@st.com</p>	<p>Peter Niels Heller [M., P.] Aware, Inc. 40 Middlesex Turnpike Bedford, MA 01730 Tel: 781-687-0352 Fax: 781-276-4001 Email: heller@aware.com</p>

<p>Dia Helmy [M., P.] NORTEL P. O. Box 402 Ogdensburg, NY 13669 Tel: (613)765-4132 Fax: (613)763-8904 Email: dia.helmy@nt.com</p>	<p>Amir Hindie [M., P.] Netspeed 12303 Technology Blvd. Austin, TX 78728 Tel: 512-257-5433 Fax: Email: amirhindie@netspeed.com</p>
<p>Brian Henrichs [M., P.] Westell International 75 Executive Drive Aurora, IL 60504 Tel: (708)898-2800 Fax: (708)898-5232 Email: bhenrichs@westell.com</p>	<p>Amir Hindie [M., P.] Cisco Systems 12515 Research Blvd., Bldg 4 Austin, TX 78759-2220 Tel: 512-378-1167 Fax: 512-378-1167 Email: ahindie@cisco.com</p>
<p>Malcolm Herring [M., P.] Global Village Communication 1144 East Arques Avenue Sunnyvale, CA 94086 Tel: (408)523-2139 Fax: (408)523-2303 Email: malcolm_herring@globalvillage.com</p>	<p>Minnie Ho [M., P.] Radix Technologies 329 N. Bernardo Ave. Mountain View, CA 94043 Tel: (415)988-4746 Fax: (415)988-8713 Email: minnie_ho@radixtek.com</p>
<p>Hanan Herzberg [M., P.] Level One Communications 1123 Campus Drive West Morganville, NJ 07751 Tel: 732-972-0707 x16 Fax: 732-972-4709 Email: hanan@level1.com</p>	<p>David Hoerl [M., P.] Ariel Corp. 225 Old New Brunswick Rd Piscataway, NJ 08854 Tel: 732-394-6002 Fax: 732-562-1113 Email: david.hoerl@ariel.com</p>
<p>Curt Hicks [M., P.] Ericsson, Inc. 1010 E. Arapahd MS L-03 Richardson, TX 75083 Tel: (972)583-5304 Fax: (972)669-0154 Email: curt.hicks@ericsson.com</p>	<p>David Holien [M., P.] XEL Communications 17101 E. Ohio Drive Aurora, CO 80018 Tel: (303)696-2222 Fax: (303)696-2374 Email: dholien@xel.com</p>

<p>Mahbub Hoque [M., P.] Bellcore 445 South Street Morristown, NJ 07960-6438 Tel: (201)829-2981 Fax: (201)829-5866 Email: mhoque@notes.cc.bellcore.com</p>	<p>Marlis Humphrey [M., P.] Globespan Semiconductor, Inc. 182 Bayshore Drive Melbourne Beach, FL 32951 Tel: (407) 768-0655 Fax: (407) 768-9851 Email: mhumphre@ix.netcom.com</p>
<p>James C. Horng [M., P.] PCTEL 630 Alder Drive Suite 202 Milpitas, CA 95035 USA Tel: 408-965-2143 Fax: 408-383-0455 Email: jhorng@pctel.com</p>	<p>Cannon Hwu [M., P.] Sprint 1 Adrian Court Burlingame, CA 94010 Tel: (415)375-4008 Fax: (415)375-4079 Email:</p>
<p>Gary R. Hoyne [M., P.] Westell, Inc. 750 N. Commons Drive Aurora, IL 60504 Tel: (708)898-2800 x379 Fax: 630-375-4950 Email: ghoyne@westell.com</p>	<p>Ishai Ilani [M., P.] ECI 20 Hasivim St. Petah Tikvah, 49130 ISRAEL Tel: +972-3-9268356 Fax: +972-3-9266100 Email: yeshay@ecitele.com</p>
<p>Gang Huang [M., P.] Lucent Technologies 200 Laurel Ave. Room 1E-323 Middletown, NJ 07748 732-949-2919 Tel: 732-949-0220 Fax: gang@lucent.com Email:</p>	<p>Greg Ioffe [M., P.] Tut Systems, Inc. 2495 Estand Way Pleasant Hill, CA 94523 Tel: (510)682-6540 Fax: (510)682-4125 Email: gregi@tutsys.com</p>
<p>Les Humphrey [M., P.] NORTEL Networks London Road Harlow, Essex CM17 9NA UK Tel: +44-1279-402475 Fax: +44-1279-403818 Email: l.d.humphrey@nortel.co.uk</p>	<p>Mikael Isaksson [M., P.] Telia Research AB Aurorum 6 S-97775 Lulea, Sweden Tel: +46 920 75421 Fax: +46 920 95490 Email: Mikael.R.Isaksson@telia.se</p>

Tomokazu Ito [M., P.]
 NEC Corporation
 1753 Shimonunabe
 Nkahara-Ku
 Kawasaki, Kanagawa 211 Japan
 Tel: +81-44-435-5610
 Fax: +81-44-435-5695
 Email: tito@ted.trd.tmg.nec.co.jp

Krista S. Jacobsen [M., P.]
 Texas Instruments
 2043 Samaritan Drive
 San Jose, CA 95124
 Tel: (408)879-2039
 Fax: (408)879-2912
 Email: jacobsen@ti.com

Ken Jacobson [M., P.]
 G-Tech Sales (Kyocera)
 5840 Faringdon Place
 Raleigh, NC 27609
 Tel: (919)954-7000
 Fax: (919)790-8200
 Email:

Charlie Jenkins [M., P.]
 NEC
 3033 Scott Blve
 Santa Clara, CA 95054-3316 USA
 Tel: (408)588-5102
 Fax: (408)588-5134
 Email: cjenkins@el.nec.com

Ralph Jensen [M., P.]
 Telcordia Technologies
 Room 2C407
 331 Newman Springs Road
 Red Bank, NJ 07701-5699
 Tel: 732-758-2244
 Fax: 732-758-4545
 Email: rjensen@telcordia.com

Bob Jensen [M., P.]
 3M
 6801 River Place Blvd.
 Austin, TX 78726-9000
 Tel: 512-984-6408
 Fax: 512-984-2014
 Email: rwjensen@mmm.com

Scott Jezwinski [M., P.]
 Teradyne Telecommunications
 1405 Lake Cook Road
 Deerfield, IL 60015-0344
 Tel: (847) 940-9000
 Fax: (847) 940-0344
 Email: jezwinski@ttd.teradyne.com

Albin Johansson [M., P.]
 Ericsson Austria
 Pottendorfer Strasse 25-27
 Vienna, A-1121 Austria
 Tel: +43 1 811 00 5165
 Fax: +43 1 811 00 4694
 Email: Albin.Johansson@sea.ericsson.se

Jim Jollota [M., P.]
 Harris Corp.
 809 Calle Plano
 Camarillo, CA 93012
 Tel: 805-389-2379
 Fax: 805-389-2231
 Email: jjollota@harris.com

David C. Jones [M., P.]
 Broadcom Corporation
 130 West Pine Street
 Louisville, CO 80027
 Tel: 714-450-8700
 Fax: 714-450-8710
 Email: dejones@broadcom.com

<p>Edward Jones [M., P.] Toucan Technology IDA Business Park Dangan, Galway IRELAND Tel: +353-91-519916 Fax: +353-91-519901 Email: edward@toucan.ie</p>	<p>Satoru Kawanago [M., P.] NEC Electronics Inc. 2880 Scott Blvd. Santa Clara, CA 95050 USA Tel: 408-588-6551 Fax: 408-588-5464 Email: satoru-kawanago@el.nec.com</p>
<p>Ragnar Jonsson [M., P.] Rockwell Skipholt 50b Reykjavic, 105 ICELAND Tel: +354-561-0444 Fax: +354-561-0445 Email: ragnar@rockwell.is</p>	<p>Ken Kerpez [M., P.] Bellcore 445 South Street Morristown, NJ 07960 Tel: 973-829-4747 Fax: 973-829-5886 Email: kerpez@bellcore.com</p>
<p>John Joyce [M., P.] Cisco Systems 250 Apollo Drive Chelmsford, MA 01824 Tel: 978-244-8622 Fax: 978-244-8039 Email: joycej@cisco.com</p>	<p>Babak Khalaj [M., P.] Advanced Fibre Communications 39350 Civic Center Drive #430 Fremont, CA 94538 Tel: (510) 505-1222 Fax: (510) 505-1221 Email: babak.khalaj@fibre.com</p>
<p>Vern Junkmann [M., P.] USTA 1401 H. Street Suite 600 Washington D. C., 20005 Tel: (202)326-7298 Fax: (202)326-7333 Email:</p>	<p>Sayfe kiaei [M., P.] Motorola Inc. MD: J6 POB 6000j Austin, TX 78762 Tel: 512-933-8967 Fax: 512-933-6688 Email: sayfe@voyager2.sps.mot.com</p>
<p>Wen-Juh Kang [M., P.] Itex Inc. 2710 Walsh Ave. Santa Clara, CA 95051 Tel: 408-980-8689 x289 Fax: 408-980-8831 Email: wen-juh.kang@itexinc.com</p>	<p>Sunder Kidambi [M., .] Analog Devices Inc. RSTC, MS-119 804 Woburn Street Wilmington, MA 01887-3462 Tel: 781-937-1195 Fax: 781-937-1022 Email: sunder.kidambi@analog.com</p>

<p>Paul Kish [M., P.] NORDX/CDT 101 Marcel-Laurin Blvd. St. Laurent, Quebec H4N 2M3 CANADA Tel: (514)693-2404 Fax: (514)693-2468 Email: paul.kish@sympatico.ca</p>	<p>Jouni Koljonen [M., P.] Nokia Telecommunications P. O. Box 370 SF-00045 Nokia Group Helsinki, Finland Tel: +358 9 5112 4909 Fax: +358 9 5112 4928 Email: jouni.koljonen@ntc.nokia.com</p>
<p>Avi Kliger [M., P.] Metalink Habarzel 24 Street Tel-Aviv, 61652 Israel Tel: +972-3-6420006 Fax: +972-3-6420070 Email: avi@metalink.co.il</p>	<p>Hajime Koto [M., P.] NEC Corporation 7-1, Shiba 5-Chome, Minato-Ku Tokyo, 108-01 Japan Tel: +81-3-3798-6595 Fax: +81-3-3798-9213 Email: koto@epc.ho.nec.co.jp</p>
<p>Ron Knipper [M., P.] Diamond Lane Comm. Corp. 1310 Redwood Way Suite 110 Petaluma, CA 94954 Tel: 707-793-7104 Fax: 707-792-0850 Email: knipper@dlcc.com</p>	<p>Tetsu Koyama [M., P.] NEC Corporation Data Communications Division 113 Hinode, Abikoi, Chiba 270 11, Japan, Tel: +471-85-6714 Fax: +471-85-6848 Email: koyama@dcd.abk.nec.co.jp</p>
<p>Robert Kniskern [M., P.] Adaptive Micro-Ware Inc. 6917 Innovation Blvd. Fort Wayne, IN 46818 Tel: (219)489-0046 Fax: (219)489-8087 Email:</p>	<p>James Kroll [M., P.] 3Com 1800 W. Central Road Mount Prospect, IL 60056 Tel: 847-222-2301 Fax: 847-222-2424 Email: james_kroll@mw.3com.com</p>
<p>Yosef Kofman [M., P.] Teledata Communication Ltd. P. O. B. 2003 Herzlia-B, 46120 ISRAEL Tel: +972-9-591818 Fax: +972-9-591888 Email:</p>	<p>Yatish Kumar [M., .] Nortel P. O. Box 3511 Station C Ottawa, Ontario K14 4H7 Canada Tel: (613)765-2753 Fax: (613)763-8825 Email: yak@nortel.ca</p>

<p>Philip J. Kyees [M., P.] Paradyne Corp. MS LG228 8545 126th Avenue North Largo, FL 33773 Tel: (727)530-2583 Fax: (727)530-2318 Email: pkyees@paradyne.com</p>
<p>Robert LaGrand [M., P.] Sprint KSOPKB0801 9350 Metcalf Overland Park, KS 66212 Tel: (913)534-5073 Fax: (913)534-3084 Email: robert.legrand@qm.sprintcorp.com</p>
<p>Alvin Lai [M., .] ATIS Secretariat 1200 G Street NW Washington, DC 20005 Tel: (202)434-8832 Fax: Email:</p>
<p>Simcha Laibovich [M., P.] RAD Data Communications Ltd. Modems Department 12, Hanechoshet St. Tel Aviv, 69710 ISRAEL Tel: +972-3-6459579 Fax: +972-3-6472675 Email: simcha_l@radmail.rad.co.il</p>
<p>T. K. Lala [., P.] FPN 15771 Simoni Dr. San Jose, CA 95127 Tel: (408)943-7685 Fax: (408)943-7666 Email: bklala@fpm.com</p>

<p>Martin LaRose [M., P.] Newbridge Networks Corp. 600 March Road Kanata, Ontario K2K 2E6 CANADA Tel: 613-591-3600 Fax: 613-599-2923 Email: martin_larose@newbridge.com</p>
<p>Steven C. Larsen [M., P.] ADC Telecommunications P. O. Box 10704 Portland, OR 97120 Tel: (503)350-6267 Fax: (503)641-3321 Email: steve@kentrox.com</p>
<p>Mike Lassandrello [M., P.] Tellabs Operations, Inc. 4951 Indiana Ave. Lisle, IL 60532 Tel: (708)512-7944 Fax: (708)852-7346 Email:</p>
<p>Terence Lau [M., P.] PMC-Sierra, Inc. Suite 105 8555 Baxter Place Burnaby, BC V5A 4V7 CANADA Tel: 604-415-6000 Fax: Email: terence_lau@pmc-sierra.com</p>
<p>George J. Lawrence [M., P.] AMP Incorporated P. O. Box 3608 MS 210-20 Harrisburg, PA Tel: (717)592-6105 Fax: (717)592-6179 Email: gjlawren@amp.com</p>

<p>Herve Le Pocher [M., P.] PMC-Sierra, Inc. Suite 105 8555 Baxter Place Burnaby, BC V5A 4V7 CANADA Tel: 604-415-6000 Fax: 604-415-6205 Email: Herve-Lepocher@pmc-sierra.com</p>	<p>Haixiang Liang [M., P.] Altocom Inc. 707 California St. Mountain View, CA 94041 Tel: 650-691-4500 x113 Fax: 650-691-4503 Email: liang@altocom.com</p>
<p>Gerry Leavey [M., P.] Toucan Technology IDA Business Park Dangan, Galway IRELAND Tel: +353 91 519925 Fax: +353 91 519901 Email: gerry@toucan.ie</p>	<p>Ze'ev Lichtenstein [M., P.] ECI Telecom Israel 30 Hasivim St. Petrah-Tikva, 49133 ISRAEL Tel: +972-3-9266798 Fax: +972-3-9266870 Email: zeevl@ecitele.com</p>
<p>Dong Chul Lee [M., P.] ETRI PEC Sin Sung Dong 161, Yu Sung Gu, DAE Joon Korea, Tel: 82 42 860-5919 Fax: 82 42 861 5404 Email: dong@pec.etri.re.kr</p>	<p>Jari Lindholm [M., P.] Nokia Telecommunications P.O. Box 370 FIN-00045 Nokia Group, Finland Tel: +358-9-51166762 Fax: +358-9-51166750 Email: jari.lindholm@ntc.nokia.com</p>
<p>Howard Levin [M., P.] Motorola J-6 P. O. Box 6000 Austin, TX 78762 Tel: 512-933-8771 Fax: 512-933-6688 Email: howardl@austlem.sps.mot.com</p>	<p>Peter Lindstgrom [M., P.] Nortel Networks P.O. Box 3511 Stn. C Ottawa, Ontario K1Y 4H7 CANADA Tel: 613-765-4530 Fax: 613-765-2173 Email: pta@nortelnetworks.com</p>
<p>Gabriel Li [M., P.] National Semiconductor M.S. 37-100 3565 Monroe Street Santa Clara, CA 95052 USA Tel: 408-721-4254 Fax: 408-721-1441 Email: gabriel@lan.nsc.com</p>	<p>Stan Ling [M., P.] Level One Communications MS: Loc3/7 9750 Goethe Road Sacramento, CA 95827 Tel: (916)855-5177 x4811 Fax: (916)854-2804 Email: stanl@level1.com</p>

<p>James Liou [M., P.] MCI 2400 N. Glenville Dr. M/S: 1229/107 Richardson, TX 75082 Tel: (214)918-7217 Fax: (214)918-7261 Email: 642-2758@mcimail.com</p>	<p>Valentino Liva [M., P.] Integraed Device Technology MS-C3-10 2975 Stender Way Santa Clara, CA 95054 Tel: (408)654-6479 Fax: (408)492-8362 Email: liva@idt.com</p>
<p>Dave Little [M., P.] Bell Atlantic 1 E Pratt Street 2E-007 Baltimore, MD 21202 Tel: (410)736-7666 Fax: (410)736-7697 Email: bfqj2x9@bell-atl.com</p>	<p>G. W. (Wayne) Lloyd [M., P.] Tollgrade Communications, Inc. 400 Woodland Court NE Birmingham, AL 35215 Tel: (205)520-9499 Fax: (205)520-9505 Email:</p>
<p>Fuling Frank Liu [M., P.] Silicon Dynamics 255 Santa Ana Court Sunnyvale, CA 94086-4512 Tel: (408)328-3261 Fax: (408)245-6644 Email: liu@sidynamics.com</p>	<p>Bob Locklear [M., P.] Netspeed, Inc. 2303 Technology Blvd. Austin, TX 78727 Tel: (512)257-4782 Fax: (512)249-8506 Email: blocklear@netspd.com</p>
<p>Qing Li Liu [M., P.] Bay Networks, Inc. 22 Firstfield Road Gaithersburg, MD 20878 USA Tel: 301-216-1988 Fax: 301-921-0161 Email: qliu@baynetworks.com</p>	<p>Anatoli Loewen [M., P.] Northern Telecom, Inc. P. O. Box 3511 Station C Ottawa, Ontario K14 4H7 CANADA Tel: (613)763-3927 Fax: (613)765-4523 Email:</p>
<p>Max Liu [M., P.] ITEX 2710 Walsh Ave. Santa Clara, CA 95051 Tel: 408-980-8689 Fax: 408-980-8831 Email: max.liu@itexinc.com</p>	<p>Guozhu Long [M., P.] Centillium Technology 46531 Fremont Blvd. Fremont, CA 94538 Tel: 510-360-5012 Fax: 510-445-1639 Email: guozhu@centillium.com</p>

<p>Pini Lozowick [M., P.] Broadcom Corp. 16251 Laguna Canyon Road Irvine, CA 92618 Tel: (714)450-8700 Fax: (714)450-8710 Email: lozowick@broadcom.com</p>	<p>Marcus Maranhao [M., P.] Alcatel-USA P.O. Box 750699 Petaluma, CA 94975-0699 Tel: 707-792-6452 Fax: 707-792-6406 Email: mmaranhao@dsccc.com</p>
<p>Perry Lu [M., P.] Integrated Telcom Express, Inc. 2170 Walsh Ave. Santa Clara, CA 95051 USA Tel: 408-980-8168 x269 Fax: 408-980-9214 Email: perry.lu@itexinc.com</p>	<p>Dan Marchok [M., P.] Tellabs 3740 Edison Lakes Parkway Mishawaka, IN 46545 Tel: (219)258-6411 Fax: (219)258-6446 Email: dmarchok@trc.tellabs.com</p>
<p>John MaGill [M., P.] Lucent Technologies Brinkworth House Brinkworth Chippenham, Wilts SN15 5DF UK Tel: +44 1666 510105 Fax: +44 1666 510149 Email: hjm@probecom.demon.co.uk</p>	<p>Joe Markee [M., P.] Copper Mountain Networks 3139 Sorrento Valley Blvd. San Diego, CA 92121 Tel: 619-453-8799 x102 Fax: 619-453-9244 Email: jmarkee@coppermountain.com</p>
<p>Lorenzo Magnone [M., .] CSELT Via G. Reiss Romoli 274 10148 Torino, ITALY Tel: +39-11-228-5823 Fax: +39-11-228-5840 Email: lorenzo.magnone@cse.lt.stet.it</p>	<p>Doug W. Marshall [M., P.] Northern Telecom, Inc. P. O. Box 402 Ogdenburg, NY 13669-0402 Tel: (613)765-4938 Fax: (613)763-4461 Email: dougmars@nortelnetworks.com</p>
<p>Rabih Makarem [M., P.] SMC 6 Hughes Irvine, CA 92718 Tel: (714) 707-2422 Fax: (714) 707-2434 Email: makarem@west.smc.com</p>	<p>Al Martin [M., P.] Raychem 300 Constitution Drive MS 109/2A Menlo Park, CA 94025-1164 Tel: 650-361-5822 Fax: 650-361-5301 Email: amartin@raychem.com</p>
	<p>Kazuya Matsumoto [M., P.] Sumitomo Electric Osaka 554-0024, Japan Tel: +81-6-466-5643 Fax: +81-6-466-5732 Email: matsumot@rcom.sei.co.jp</p>

Bo Matthys [M., P.]
 Pulse
 12220 World Trade Drive
 San Diego, CA 92128
 Tel: (619)674-8130
 Fax: (619)674-8262
 Email: bomatthys@pulseeng.com

Shawn McCaslin [M., P.]
 Cicada Semiconductor
 Barton Oaks Plaza One, Suite 540
 901 Mopac Expressway South
 Austin, TX 78746
 Tel: (512) 327-3500, x102
 Fax: (512) 327-3550
 Email: srm@cicada-semi.com

Jack Maynard [M., P.]
 Entechies
 95 Holstone Lane
 Willingboro, NJ 08046
 Tel: (609)877-2004
 Fax: (609)877-7288
 Email:

Scott McClennon [M., P.]
 Nortel Networks
 P.O. Box 3511
 Stn. C
 Ottawa, Ontario K1Y 4H7 CANADA
 Tel: 613-763-4824
 Fax: 613-765-4523
 Email: scottmcc@nortelnetworks.com

Gary McAninch [M., P.]
 GTE
 700 Hidden Ridge
 MC: HQWO2 J81
 Irving, TX 75015-2092
 Tel: (972)718-4142
 Fax: (972)718-4393
 Email: gary.mcaninch@telops.gte.com

Ronald C. McConnell [M., P.]
 Lucent Technologies
 101 Crawfords Corner Road
 Room 1E-323
 Holmdel, NJ 07733
 Tel: 732-949-2971
 Fax: 732-949-0220
 Email: rcmmc@lucent.com

Kent McCammon [M., P.]
 SBC Technology Resources
 4698 Wilow Rd.
 Pleasanton, CA 94588-2710
 Tel: 925-598-1246
 Fax: 925-598-1322
 Email: kmccammon@tri.sbc.com

Kieth McDonald [M., P.]
 AG Communication Systems
 2500 W. Utopia Road
 Phoenix, AZ 85027
 Tel: (602) 581-4240
 Fax: (602) 581-4676
 Email: mcdonalk@agcs.com

John McCarter [M., P.]
 Telstra
 7th Floor
 242 Exhibition St.
 Melbourne, 3000 AUSTRALIA
 Tel: +61-3-634-7829
 Fax: +61-3-634-7993
 Email:

Richard A. McDonald [M., P.]
 SBC Technology Resources
 24 Forest Drive
 Mendham, NJ 07945
 Tel: 973-543-5754
 Fax: 973-543-3139
 Email: dickmcdonald@worldnet.att.net

<p>W. J. McNamara [M., .] BellSouth Telephone Operations North WIFI 3535 Colonnade Parkway Birmingham, AL 35243 Tel: (205)258-6408 Fax: (205)258-6446 Email:</p>
<p>Denis J. G. Mestdagh [M., P.] ST Microelectronics BP33 17 Av. des Martyrs 38019 Grenoble, France Tel: +33 4 76 58 41 83 Fax: +33 4 76 58 56 18 Email: denis.mestdagh@st.com</p>
<p>William E. Meyer [M., P.] Aware, Inc. 40 Middlesex Turnpike Bedford, MA 01730-1432 Tel: 781-687-4000 Fax: 781-687-4001 Email: bill@aware.com</p>
<p>Harry Mildonian [M., P.] Lucent Technologies 1600 Osgood St. Rm. 3F-25 North Andover, MA 01845 Tel: 978-960-6226 Fax: 978-960-1477 Email: mildonian@lucent.com</p>
<p>Bob Miller [M., P.] AT&T Labs Bldg 104, Room 3K02 180 Park Avenue Florham Park, NJ 07932 Tel: 973-236-6920 Fax: 973-360-5877 Email: rrm@att.com</p>

<p>Dave Milliron [M., P.] Conklin Corp. 6141 Crooked Creek Rd. Norcross, GA 30092 Tel: (770)662-0317 Fax: (770)446-0360 Email: dmilliron@conklincorp.com</p>
<p>Khashayar Mirfakhraei [., P.] PC-Tel 630 Alder Drive Suite 202 Milpitas, CA 95035 Tel: 408-965-2139 Fax: 408-383-0455 Email: mirfakhr@petel.com</p>
<p>Steve Mlikan [M., P.] Consultronics 169 Colonnade Road Nepean, Ontario K2E 7J4 CANADA Tel: 613-225-6087 Fax: 613-225-6315 Email: smlikan@consultronics.com</p>
<p>Cory Modlin [M., P.] Texas Instruments 2043 Samaritan Dr. San Jose, CA 95124 Tel: (408)879-2068 Fax: (408)879-2912 Email: cmodlin@ti.com</p>
<p>Michael Moldoveanu [M., P.] Hefaistos Inc. 200 Cochrane Drive Unit 3 Markham, Ontario L8 E8 E8 CANADA Tel: (905)479-8344 Fax: (905)479-7432 Email: hefaisto@netcom.ca</p>

Steven Monti [M., P.]
 IBM Corp.
 EID/061
 P. O. Box 12195
 RTP, NC 27709
 Tel: (919)543-6784
 Fax:
 Email:

David R. Moon [M., P.]
 Lucent Technologies Inc.
 555 Union Boulevard
 Allentown, PA 18103-1229
 Tel: (610)712-7035
 Fax: (610)712-4072
 Email: dmoon@lucent.com

J. Lane Moss [M., P.]
 Alcatel Network Systems
 2912 Wake Forest Road
 Raleigh, NC 27609-7860
 Tel: 919-850-1251
 Fax: 919-850-6670
 Email: massjl@anc.alcatel.com

Joe Mueller [M., P.]
 3COM Corp.
 12230 World Trade Drive
 San Diego, CA 92128
 Tel: 619-674-8587
 Fax: 619-676-7587
 Email: joseph_mueller@3com.com

Kevin Mullaney [M., P.]
 Digital Link
 10 Carlson Road
 Rochester, NY 14610
 Tel: (716)654-5544 ext. 2226
 Fax: (716)654-6603
 Email: kevin-mullaney@dl.com

Frank Nabavi [M., .]
 DSC
 1318 Redwood Way
 P. O. Box 750699
 Petaluma, CA 94975-0699
 Tel: (707)792-7218
 Fax: (707)792-7058
 Email:

Donovan Nak [M., P.]
 NEC America
 P. O. Box 940
 Oregon House, CA 95962
 Tel: (530)692-1266
 Fax: (530)692-1444
 Email: mdnak@aol.com

Randy Nash [M., P.]
 Fujitsu Network Communications, Inc.
 2801 Telecom Parkway
 Richardson, TX 75082
 Tel: (972)479-2902
 Fax: (972)479-6995
 Email: r_nash@fujitsu_fnc.com

Frank Navavi [M., P.]
 DSC
 1420 McDCowell Blvd. North
 Petaluma, CA 94754
 Tel:
 Fax:
 Email:

Gunter F. Neumeier [M., P.]
 Siemens Telecom Networks
 400 Rinehart Road
 Lake Mary, FL 32746
 Tel: (407)942-8201
 Fax: (407)942-6776
 Email: gunter.neumeier@icm.siemens.com

Mai-Huang Nguyen [M., P.]
 Lucent Technologies
 200 Laurel Ave.
 Room 3B-209
 Middletown, NJ 07748
 Tel: 732-957-6699
 Fax: 732-957-7309
 Email: mhn@bell-labs.com

Ramin Nobakht [M., P.]
 Rockwell Int.
 4311 Jamboree Road
 P. O. Box C M/S 502-301
 Newport Beach, CA 92658-8902
 Tel: (714)221-6862
 Fax: (714)221-3667
 Email: ramin.nobakht@nb.rockwell.com

Andy Norrell [M., P.]
 3Com
 500 Crown Pt. Circle
 Grass Valley, CA 95945
 Tel: 530-273-1064 x114
 Fax: 530-273-1091
 Email: anorrell@usr.com

Rao Nuthalapati [M., P.]
 Analog Devices
 3 Technology Way
 Norwood, MA 02062 USA
 Tel: 781-461-3568
 Fax: 781-461-4241
 Email: rao.nuthalapati@analog.com

Yusaku Okamura [M., P.]
 NEC Corporation
 1131 Hinode
 Abiko, Chiba 270-1198 JAPAN
 Tel: +81-471-85-6714
 Fax: +81-471-85-6848
 Email: okamura@dcd.abk.nec.co.jp

Kazu Okazaki [M., P.]
 NEC Electronics Inc.
 2880 Scott Blvd.
 SC 2202
 Santa Clara, CA 95052=8062 USA
 Tel: (408)588-6548
 Fax: (408)588-5464
 Email: kazu_okazaki@el.nec.com

Vladimir Oksman [M., P.]
 Lucent Technologies
 101 Crawfords Corner Road
 Holmdel, NJ 07733
 Tel: 732-949-1553
 Fax: 732-949-0220
 Email: oksman@lucent.com

Barry O'Mahony [M., P.]
 Intel Corp.
 JF3-212
 2111 NE 25th Ave.
 Hillsboro, OR 97124
 Tel: 503-264-8579
 Fax: 503-264-3485
 Email: barry.omahony@intel.com

Al Omran [M., P.]
 Pacific Bell
 7600 Camino Ramon
 #38850
 San Ramon, CA 94583 USA
 Tel: (510)823-4539
 Fax:
 Email: ahomran@pacbell.com

Mike O'Neill [M., P.]
 Global Village Communication
 1144 East Arques Ave.
 Sunnyvale, CA 94086
 Tel: (408)523-2014
 Fax: (408)523-2556
 Email: mike_oneill@globalvillage.com

<p>Aidan O'Rourke [M., P.] Broadcom Corp. 16251 Laguna Canyon Road Irvine, CA 92618 Tel: 949-450-8700 Fax: 949-450-8710 Email: aidan@broadcom.com</p>	<p>Yatendra K. Pathak [M., P.] MCI Telecommunications Corp. Dept 1225/107 2400 Glenville Road Richardson, TX 75082 Tel: (972)918-5138 Fax: (972)918-6038 Email: yatendra.pathok@mcicom</p>
<p>Tom O'Shea [M., P.] Broadband Technologies, Inc. P. O. Box 13737 RTP, NC 27709 Tel: (919)405-4733 Fax: (919)544-5356 Email: teo@bbt.com</p>	<p>Miguel Peeters [M., P.] Alcatel Francis Wellsplein, 1 2018 Antwerp, Belgium Tel: +32 3240 7532 Fax: +32 3240 9932 Email: miguel.peeters@alcatel.be</p>
<p>Chris Paganelli [M., P.] Pairgain Technologies, Inc. 14402 Franklin Ave. Tustin, CA 92780 Tel: 714-730-2841 Fax: 714-832-9924 Email: chris-paganelli@pairgain.com</p>	<p>Michael Pellegrini [M., P.] Telecom Analysis Systems 34 Industrial Way East Eatontown, NJ 07724 Tel: 732-544-8700 Fax: 732-544-8347 Email: mpell@taskit.com</p>
<p>Eric Paneth [M., P.] Orckit Comm. Ltd. 38 Nahalat Yitzhak St. Tel Aviv, 67448 ISRAEL Tel: +972-3-694-5208 Fax: +972-3-696-5678 Email: eric@orckit.com</p>	<p>Matt Pendleton [M., P.] Motorola J-6 P. O. Box 6000 Austin, TX 78762 Tel: (512)934-7826 Fax: (512)934-6688 Email: R13366@email.sps.mot.com</p>
<p>Panos Papamichalis [M., P.] Texas Instruments 13510 N. Central Expressway MS 446 Dallas, TX 75243 Tel: (972)995-0653 Fax: (972)995-6194 Email: panos@ti.com</p>	<p>Larry Perron [M., P.] Newbridge Networks Corp. 600 March Road Kanata, Ontario K2K2EL Tel: (613)591-3600 Fax: (613)591-3686 Email: larryp@newbridge.com</p>

<p>Todd Pett [M., P.] US West Advanced Technologies 4001 Discovery Drive Boulder, CO 80303 Tel: 303-541-7081 Fax: 303-541-8344 Email: tpett@uswest.com</p>	<p>Ron Porat [M., P.] Comcore 5075 Shoreham Place #260 San Diego, CA 92121 Tel: 619-535-0074 Fax: 619-535-0084 Email: ron@comcore.com</p>
<p>Willie Picken [M., P.] National Semiconductor corp. M/S D2-707, P. O. Box 58090 2900 Semiconductor Dr. Santa Clara, CA 95052-8090 Tel: (408)721-7064 Fax: (408)733-0613 Email: willie@galaxy.nsc.com</p>	<p>Carl Posthuma [M., P.] Lucent Technologies Room 5A-435 2000 Naperville Road Naperville, IL 60566 Tel: (630)979-1636 Fax: (630)979-9364 Email: cposthuma@lucent.com</p>
<p>Thierry Pollet [M., P.] Alcatel Francis Welles Plein 1 Antwerp, 2019 Belgium Tel: +32 3 240 88 34 Fax: +32 3 240 99 32 Email: Pollett@rc.bel.alcatel.be</p>	<p>Philip Potter [M., P.] Telstra Telstra Resreach Laboratory 770 Blackburn Road Clayton, Victoria 3168 Australia Tel: +61 3 9253 6424 Fax: +61 3 9253 6339 Email: p.potter@trl.telstra.com.au</p>
<p>Michael Polley [M., P.] Texas Instruments, Inc 13510 N. Central Expressway North Building, M/S 446 Dallas, TX 75243 Tel: (972)995-7386 Fax: (972)995-6194 Email: polley@hc.ti.com</p>	<p>Amit Preuss [M., P.] ECI Telecom 30 Hasivim St. Petah-Tikva , 49133 Israel Tel: +972-3-9266257 Fax: +972-3-9266411 Email: amit@ecitele.com</p>
<p>Bob Poniatowski [M., P.] LSI Logic 1551 McCarthy Blvd. M/S A-212 Milpitas, CA 95035 Tel: (408)433-6136 Fax: (408)433-7527 Email: bobpony@lsil.com</p>	<p>Aleksandar Purkovic [M., P.] Bay Networks 22 Firstfield Road Gaithersburg, MD 20878 Tel: 301-250-3630 Fax: 301-921-0161 Email: apurkovic@baynetworks.com</p>

Gordon Purtell [M., P.]
 Charles Industries
 5600 Apollo Drive
 Rolling Meadows, IL 60008 USA
 Tel: 847-806-6300
 Fax: 847-806-6232
 Email:

Ali Rahjou [M., P.]
 NEC America
 14040 Park Center Road
 Herndon, VA 22071
 Tel: (703)834-4527
 Fax: (703)481-6904
 Email:

Dan Queen [M., P.]
 Alcatel Telecom
 2912 Wake Forest Road
 Raleigh, NC 27609
 Tel: (919)850-5183
 Fax: (919)850-6547
 Email: queepd@aur.alcatel.com

Jeffrey M. Rakos [M., P.]
 Bellcore
 445 South Street
 Morristown, NJ 07960
 Tel: 973-829-3050
 Fax: 973-829-5866
 Email: jrakos@notes.cc.bellcore.com

Jim Quilici [M., P.]
 Level One Communications
 9750 Goethe Road
 Sacramento, CA 95827
 Tel: (916)854-2853
 Fax: (916)854-2804
 Email: jqulici@level1.com

Avi Rapaport [M., P.]
 ECI Telecom
 Bar Ilan St. 15/12
 Haivim St. 30
 Petah Tikva, 49133 ISRAEL
 Tel: +972-3-9266299
 Fax: +972-3-9286114
 Email: avira@ecitele.com

Jack Quinnell [., P.]
 Larse Corporation
 4600 Patrick Henry Drive
 Santa Clara, CA 95052-8138
 Tel: (408)988-6600
 Fax: (408)988-8690
 Email:

Avi Rapaport [M., P.]
 ECI Telecom
 30 Hasivim St.
 Petah-Tikva, ISRAEL
 Tel: +972-3-9266299
 Fax: +972-3-9266411
 Email: avira@ecitele.com

Selem Radu [M., P.]
 Hefaistos, Inc.
 300 Steelcase Rd. West
 Unit 20
 Markham, Ontario L3R 2W2
 Tel:
 Fax:
 Email:

Dennis J. Rauschmayer [M., P.]
 Pulsecom
 2900 Tower View Road
 Herndon, VA 20171
 Tel: (703)478-7011
 Fax: (703)471-2904
 Email: dennis.rauschmayer@pulse.com

<p>Dick Rawson [M., P.] Covad Communications Co. 2330 Central Expressway Santa Clara, CA 95050 Tel: 408-844-7524 Fax: 408-844-7501 Email: drawson@covad.com</p>	<p>Behrooz Rezvani [M., P.] Advance Fibre Communication 39350 Civic Center Drive Suite 430 Fremont, CA 94538 Tel: (510)505-1220 Fax: (510)505-1221 Email: behrooz.rezvani@fibre.com</p>
<p>Jean-Jacques Raynal [M., .] ST Microelectronics 2055 Gateway Place, Suite 300 San Jose, CA 95110 Tel: 408-467-8402 Fax: 408-452-1549 Email: jean-j.raynal@st.com</p>	<p>Ron riegert [M., P.] Tut Systems 2495 Estand Way Pleasant Hill, CA 94523-3911 Tel: 510-682-6510 Fax: 510-682-4125 Email: riegert@tutsys.com</p>
<p>Gord Reesor [M., P.] Mitel Semiconductor 360 Leggett Dr. Kanata, Ontario K2K1X3 Canada Tel: (613) 592-2122 Fax: (613) 591-4314 Email: gord_reesor@mitel.com</p>	<p>Terry Riley [M., P.] Texas Instruments Inc. P. O. Box 660199 M/S 8650 Dallas, TX 75266-0199 Tel: (972)480-7967 Fax: (972)480-2611 Email: t-riley@ti.com</p>
<p>John Reister [M., P.] Copper Mountain 1215 Terra Bella Mountain View, CA 94043 Tel: 650-938-6000 x222 Fax: 650-938-4960 Email: jreister@coppermountain.com</p>	<p>Boaz Rippin [M., P.] Orckit Comm. Ltd. 38 Nahalat Yitzhak St. Tel Aviv, 67448 ISRAEL Tel: +972-3-694-5233 Fax: +972-3-6965678 Email: boaz@orckit.com</p>
<p>Hans-Erhard Reiter [M., .] Ericsson AG Pottendorfer Strasse 25-27 A-1121 Vienna, Austria Tel: +43 1 81100 5422 Fax: +43 1 81100 5381 Email: sea.seareit@memo.ericsson.se</p>	<p>Jorge Rivera [M., P.] DSC Comm Corp P. O. Box 750699 Petaluma, CA 94975-0699 Tel: (707)792-7201 Fax: (707)792-7058 Email: jorge_rivera@gmgate.dsc.com</p>

<p>Richard Roberts [M., P.] Harris Semiconductor P. O. Box 883 M/S# 62A-028 Melbourne, FL 32902-0883 Tel: (407)724-7022 Fax: (407)724-7094 Email: rrober02@harris.com</p>
<p>Silvana Rodrigues [M., P.] Mitel Corporation 360 Legget Dr. Kanata, Ontario K2K1X5 CANADA Tel: (613)592-2122 Fax: (613)592-6909 Email: s_rodrigues@mitel.com</p>
<p>John E. Roquet [M., P.] SBC Technology Resources 9505 Arboretum Blvd. Austin, TX 78759 Tel: (512)372-5843 Fax: (512)372-5891 Email: jroquet@tri.sbc.com</p>
<p>John Rosenlof [M., P.] 3-Com 12230 World Trade Drive San Diego, CA 92128 Tel: (619) 674-8537 Fax: (619) 674-8800 Email: John_Rosenlof@priacc.com</p>
<p>Eric J. Rossin [M., P.] Next Level Communications / GI 6153 State Farm Drive Rohnert Park, CA 94928 Tel: (707)588-5961 Fax: (707)588-8653 Email: ejr@nlc.com</p>

<p>Mike Rude [M., P.] ADC Telecommunications P. O. Box 1101 MS 125 Minneapolis, MN 55440 Tel: (612)936-8308 Fax: (612)936-8333 Email: mike_rude@adc.com</p>
<p>Iliia Rudinsky [M., P.] Westell, Inc. 750 N. Commons Drive Aurora, IL 60504 Tel: 630-375-4434 Fax: 630-375-4938 Email: irudi@westell.com</p>
<p>Mark Russell [M., P.] SBC Technology Resources 9505 Arboretum Blvd. Austin, TX 78759 Tel: 512-372-5304 Fax: 512-372-5691 Email: mrussell@tri.sbc.com</p>
<p>Christopher J. Rust [M., P.] ComCore Semiconductor Suite 210 27001 West Agoura Road Calabasas, CA 91301 Tel: 818-880-5192 Fax: 818-880-8193 Email: chris.rust@comcore.com</p>
<p>Ken Sakanashi [M., P.] Kyushu Matsushita Elec. Co. Ltd. 1-62-4-Chome Minoshima Hakata-Ku, Fukuoka 812 Japan Tel: +81-92-477-1383 Fax: +81-92-477-1380 Email:</p>

<p>Jimmy Salinas Dr. Sc. [M., P.] SBC 6500 West Loop South Room 5.3 Bellaire, TX 77401 Tel: 713-567-8095 Fax: 713-567-6133 Email: js5906@txmail.sbc.com</p>	<p>Wayne Sanderson [M., P.] Verilink 55 Spray Road Fayetteville, TN 37334 Tel: 615-438-2059 Fax: 256-774-2277 Email: sanderson@vallnet.com</p>
<p>Debbi Sallee [M., P.] Motorola SPS Phoenix Technology Center 7755 Research Dr., Suite 110 Tempe, AZ 85284-1805 Tel: (602)755-2527 Fax: (602)641-8105 Email: rzep90@email.sps.mot.com</p>	<p>Jamal Sarma [M., P.] OKI Semiconductor 785 N. Mary Ave Sunnyvale, CA 94539 Tel: (408)737-6532 Fax: (408)737-6474 Email: sarma@okisemi.com</p>
<p>Uri Salomon [M., .] Tadiran, Inc. (Telecom Group) Hasivim St. P. O. Box 500 Petah-Tikva, 49104 ISRAEL Tel: +972-3-926-2879 Fax: +972-3-926-2328 Email:</p>	<p>Sabit Say [M., P.] Next Level Communications 10 Waterview Blvd. Parsippany, NJ 07054 Tel: (973) 290-6684 Fax: (973) 299-8030 Email: ssay@nlc.com</p>
<p>Henry Samueli [M., P.] Broadcom Corporation 16251 Laguna Canyon Road Irvine, CA 92618 Tel: (714)450-8700 Fax: (714)450-8710 Email: samueli@broadcom.com</p>	<p>Denny Schart [M., P.] LSI Logic Corporation 1551 McCarthy Blvd. Milpitas, CA 95035 Tel: 408-954-3485 Fax: 408-433-7527 Email: dscharfe@lsil.com</p>
<p>Hal Sanders [M., P.] Larus Corp. 1560 Berger Drive San Jose, CA 95112 Tel: (408)494-1638 Fax: (408)494-0736 Email:</p>	<p>Kevin Schneider [M., P.] Adtran 901 Explorer Rd. P.O. Box 140000 Huntsville, AL 35814-4000 Tel: (256)963-8024 Fax: (256)963-2386 Email: kschneider@adtran.com</p>

Gary Schultz [M., P.]
 MRG Inc.
 599 N. Mathilda Ave
 #240
 Sunnyvale, CA 94086
 Tel: (408) 524-9767
 Fax: (408) 524-9770
 Email: ggs@mrgco.com

Frank Sciabica [M., .]
 AG Communication Systems
 2500 W. Utopia Road
 Phoenix, AZ 85027
 Tel: (602) 582-7088
 Fax: (602) 581-4574
 Email: sciabicf@agcs.com

Bob Scott [M., P.]
 Paradyne
 8545 126th Ave N.
 Largo, FL 34649
 Tel: (813) 530-8638
 Fax: (813) 532-5949
 Email: bscott@eng.paradyne.com

Linda Seale [M., P.]
 Ryan-Hankin-Kent, Inc.
 601 Gateway Blvd.
 Suite 550
 South San Francisco, CA 94080
 Tel: (415)737-9600
 Fax: (415)737-9766
 Email: LSEALE@Mailhost.net

Modi Segal [M., .]
 LIBIT Signal Processing Ltd.
 2 Shenkar St.
 P. O. Box 12670
 Herzlia, 46766 ISRAEL
 Tel: +972-9-564937
 Fax: +972-9-565183
 Email: modi@libit.com

Reuven Segev [M., P.]
 Diamond Lane Communications
 1310-C Redwood Way
 Petaluma, CA 94954
 Tel: (707)792-2946 x121
 Fax: (707)792-0850
 Email: segev@dlcc.com

Radu Selea [M., P.]
 Hefastios Inc.
 200 Cochrane Drive
 Unit 3
 Markham, Ontario L8 E8 E8 CANADA
 Tel: (905)479-8344
 Fax: (905)479-7432
 Email: hefaisto@netcom.ca

Ahmed Shalash [M., P.]
 University of Minnesota
 200 Union St.
 S. E. #4174
 Minneapolis, MN 55455
 Tel: 612-626-7217
 Fax: 612-626-4583
 Email: shalash@ece.umn.edu

Mark Shannon [M., P.]
 Newbridge Networks
 600 March Road
 Kanata, Ontario K2K2EL CANADA
 Tel: (613)591-3600
 Fax: (613)591-3680
 Email: mark@newbridge.com

Donald P. Shaver [., P.]
 Texas Instruments
 13510 N. Central Expressway
 North Building, M/S 446
 Dallas, TX 75243
 Tel: (214)995-0623
 Fax: (214)995-6194
 Email: shaver@hc.ti.com

<p>Thomas Shen [M., P.] AT&T Labs MS 104-3A13 180 Park Ave. Florham Park, NJ 07932 Tel: 973-236-6880 Fax: 973-236-5888 Email: tshen@att.com</p>	<p>Eli Shusterman [M., P.] Oreckit Comm. 38 Nahalat Yitzhak St. Tel-Aviv, 64778, Israel Tel: +972-3-6945362 Fax: +972-3-6965678 Email: elis@orekit.com</p>
<p>Ian Sherlock [M., P.] Texas Instruments M/S 8650 8505 Forest Lane Dallas, TX 75243 Tel: 972-480-3293 Fax: Email: isherlock@ti.com</p>	<p>Rex Siefert [M., P.] Ericsson Components, Inc. 701 N. Glenville Drive Richardson, TX 75081 Tel: (972)583-7269 Fax: (972)583-5005 Email: eurex@exu.ericsson.se</p>
<p>Greg Sherrill [M., P.] Bell Atlantic 6015 Montrose Rd. Rockville, MD 20852 Tel: (301)230-6412 Fax: (301)984-9170 Email: bg01j50@bellatlantic.com</p>	<p>Kevin Sievert [M., P.] MCI 400 International Parkway Dept 1010/041 Richardson, TX 75081 Tel: (972)729-3446 Fax: (972)907-8784 Email: kevin.sievert@mci.com</p>
<p>Guy Shoehet [M., .] Metalink Transmission Dev. P. O. B. 65270 Tel Aviv, 61652 ISRAEL Tel: +972-3-642-0006 Fax: +972-3-642-0070 Email: guy@metalink.co.il</p>	<p>Richard Silva [M., P.] TeCom Inc. 5710 Venetian Blvd. NE St. Petersburg, FL 33703 Tel: (813) 228-1832 Fax: (813) 288-1240 Email:</p>
<p>Tzvi Shukhman [M., P.] Metalink Transmission Devices P. O. B. 65270 Tel-Aviv, 61652 ISRAEL Tel: +972-3-6420006 Fax: +972-3-6420070 Email: shukhman@metalink.co.il</p>	<p>Doug Silveira [M., P.] Analog Devices RSTC, MS-116 804 Woburn Street Wilmington, MA 01887-3462 Tel: 617-937-1496 Fax: 617-937-1022 Email: doug.silveira@analog.com</p>

<p>Peter Silverman [M., P.] 3Com 8100 McCormick Blvd. Skokie, IL 60076 Tel: 847-982-5016 Fax: 847-982-3948 Email: psilverm@usr.com</p>	<p>R. K. Smith [M., P.] Paradyne Corp. 8545 126th Ave. North Largo, FL 33773 Tel: (813)530-8444 Fax: (813)530-5959 Email: rksmith@eng.paradyne.com</p>
<p>Mark Simkins [M., P.] Lucent Technologies 555 Union Blvd. Rm. 23P107 GF Allentown, PA 18103 USA Tel: 610-712-6037 Fax: 610-712-4002 Email: msimkins@lucent.com</p>	<p>Stephen Smith [M., P.] Fujitsu Communications 2801 Telecom Pkwy Richardson, TX 75082 Tel: (972)479-4084 Fax: (972)479-6995 Email: s_smith@fujitsu-fnc.com</p>
<p>Kamran Sistanizadeh [M., P.] Bell Atlantic Global Networks Inc. 5-th Floor 1320 North Courthouse Rd. Arlington, VA 22201 Tel: 703-247-7370 Fax: 703-247-7355 Email: ksistanizadeh@baglobal.com</p>	<p>Mel Smith [M., P.] Southwestern Bell 810.D4 308 South Akard St. Dallas, TX 75202 Tel: 214-858-0810 Fax: 214-858-0511 Email: ms8719@txmail.sbc.com</p>
<p>Don Skinfill [., P.] Telect Spokane Industrial Park Building 12 Spokane, WA 99216 Tel: (509)926-6000 Fax: Email:</p>	<p>Luke Smithwick [M., .] GlobeSpan Technologies, Inc. 100 Schulz Drive Room 1E26B Red Bank, NJ 07701 Tel: (908)345-7548 Fax: (908)345-7598 Email: lsmithwick@globespan.net</p>
<p>P. Norman Smith [M., P.] Bell Canada 160 Elgin Street Room 640 Ottawa, Ontario K1G 3J4 CANADA Tel: (613)781-7736 Fax: (613)781-6454 Email: npsmith@post.bell.ca</p>	<p>Edwin J. Soltysiak [M., P.] TranSwitch Corp. 3 Enterprise Drive Shelton, CT 06484 Tel: (203) 929-8810 x233 Fax: (203) 926-9453 Email: eds@txc.com</p>

<p>Ranjan Sonalkar [M., P.] AT&T Labs Room 3K16, Building 104 180 Park Avenue Florham Park, NJ 07932-0971 Tel: 973-236-6928 Fax: 973-360-5877 Email: sonalkar@att.com</p>
<p>Massimo Sorbara [M., P.] GlobeSpan Technologies, Inc. Room 1E-23 100 Schulz Drive Red Bank, NJ 07701 Tel: (732)345-7535 Fax: (732)345-7598 Email: msorbara@globespan.net</p>
<p>Andrew Sorowka [M., P.] TransGlobal Communications Research 1213 Ridgecrest Way Roseville, CA 95661-5048 USA Tel: (916)786-5217 Fax: (916)786-3717 Email: asorowka@aol.com</p>
<p>Walt Soto [M., P.] Lucent Technologies 7711 Center Ave. Suite #100 Huntington Beach, CA 92647 Tel: 714-890-4115 Fax: 714-890-4133 Email: wsoto@lucent.com</p>
<p>J. Scott Spradley [M., P.] Level One Communications 9750 goethe Road Sacramento, CA 95827 Tel: 916-854-2847 Fax: 916-854-2812 Email: sspradley@level1.com</p>

<p>Paul Spruyt [M., P.] Alcatel Telecom F. Wellesplein, 1 B-2018 Antwerp, BELGIUM Tel: +32-3-240-7743 Fax: +32-3-240-9932 Email: spruytp@btmaa.bel.alcatel.be</p>
<p>Patrick Stanley [M., P.] Elastic Networks 6120 Windward Pkwy Suite 100 Alpharetta, GA 30005 Tel: 670-297-3103 Fax: 670-297-3110 Email: pstanley@elastic.com</p>
<p>Tom Starr [M., P.] Ameritech Services Room AC-3C52 2000 W. Ameritech Drive Hoffmann Estates, IL 60196-1025 Tel: (847)248-5467 Fax: (847)248-3775 Email: tom.starr@x400gw.ameritech.com</p>
<p>Mark Steenstra [M., P.] Conexant 9868 Scranton Road San Diego, CA 92121-3707 Tel: 619-713-3646 Fax: 619-713-4004 Email: mark.steenstra@conexant.com</p>
<p>Tzvi Stein [M., .] Metalink P. O. Box 65270 Tel Aviv, 61652 ISRAEL Tel: +972-3-6420006 Fax: +972-3-6420070 Email: stein@metalink.co.il</p>

<p>William Stewart [M., P.] DSC Communications Corp. Mailstop 150 1000 Coit Rd. Plano, TX 75075 Tel: (214)519-3440 Fax: (214)519-3300 Email: wstewart@devel.dsccc.com</p>
<p>Jim Stiscia [M., P.] Virata 700 Spring Forest Road Raleigh, NC 27609 Tel: 919-790-7100 Fax: 919-790-7178 Email: jstiscia@virata.com</p>
<p>John W. Stoltes [M., .] Lucent Technologies Room 2K-555 200 Laurel Ave. Middletown, NJ 97748 Tel: (908)957-3268 Fax: (908)957-5601 Email: soltes@lucent.com</p>
<p>Jeff Strait [M., P.] 3Com 500 Crown Point Circle Grass Valley, CA 95945 Tel: (530)273-1064 Fax: (530)273-1091 Email: Jeff_Strait@3com.com</p>
<p>Caleb Strittmatter [M., P.] Lucent Technologies, Inc. Room 23-p108 555 Union Blvd. Allentown, PA 18103-1229 Tel: 610-712-6700 Fax: 610-712-4282 Email: caleb@lucent.com</p>

<p>Richard Stuart [M., P.] 3Com 10440 Little Patuxent Parkway Suite 900 Columbia, MD 21044 Tel: (410)884-4017 Fax: (410)884-4018 Email: Dick_Stuart@3com.com</p>
<p>Tom Stumbaugh [M., P.] Rhythms Netconnections 7337 South Revere Parkway Suite 100 Englewood, CO 80112 Tel: 303-476-4241 Fax: 303-476-5701 Email: tstumbaugh@rhythms.net</p>
<p>Ray Subbankar [M., P.] Ericsson 730 International Richardson, TX 75081 Tel: (214)997-6738 Fax: (214)669-0142 Email: exusray@exu.ericsson.se</p>
<p>Henri Suyderhoud [M., P.] OKI America P. O. Box 3925 Merrifield, VA 22116 Tel: (703)204-9240 Fax: (703)204-9241 Email: 73611.413@compuserve.com</p>
<p>James Szeliga [M., P.] Orckit Communications 574 Heritage Rd. Southbury, CT 06488 Tel: 203-267-1000 Fax: 203-267-1001 Email: seliga@lx.netcome.com</p>

Hiroshi Takatori [M., P.]
 Level One Communications
 9750 Goethe Road
 Sacramento, CA 95827
 Tel: (916)854-2826
 Fax: (916)854-2804
 Email: htakatori@level1.com

Daryl C. Tannis [M., P.]
 MCI Telecommunications
 2400 N. Glenville Drive
 1225/107
 Richardson, TX 75082
 Tel: 972-729-5417
 Fax: 972-729-6038
 Email: daryl.tannis@wcom.com

Larry Taylor [M., P.]
 Southwestern Bell
 530 McCullough
 Room 5-C-01
 San Antonio, TX 78215
 Tel: 210-886-1756
 Fax: 210-886-1747
 Email:

Matthew Taylor [M., P.]
 Tut Systems, Inc.
 2495 Estand Way
 Pleasant Hill, CA 94523
 Tel: (510)682-6510
 Fax: (510)682-4125
 Email: mtaylor@tutsys.com

Vivek Telang [M., P.]
 Cirrus Logic
 4210 S. Industrial Dr.
 Austin, TX 78744
 Tel: 512-912-3368
 Fax: 512-442-7340
 Email: vivek@crystal.cirrus.com

Gary Tennyson [M., P.]
 BellSouth Telecommunications
 1884 Data Drive
 Birmingham, AL 35244
 Tel: (205)985-6087
 Fax: (205)733-5603
 Email: gary.j.tennyson@bridge.bst.bls.com

Jack Terry [M., P.]
 Elastic Networks
 2033 Melodi Lane
 Cumming, GA 30041-6862
 Tel: 770-886-1170
 Fax: 770-886-1171
 Email: jack_terry@msn.com

Rainer Thoenes [M., P.]
 Philips Komm. Industrie AG
 Thurn und Taxis Str. 10-14
 8500 Nuremberg, GERMANY
 Tel: +49-911-526-0
 Fax: +49-911-526-3795
 Email:

Vernon Tice [M., P.]
 StarRise Networks
 4713 Ridge Water Court
 Holly Springs, NC 27540 USA
 Tel: 919-552-7850
 Fax:
 Email: vtice@starrise.net

Ed Tirakian [M., P.]
 Tellabs Operations, Inc.
 1000 Remington Blvd.
 Bolingbrook, IL 60440
 Tel: (708)378-6448
 Fax: (708)378-6721
 Email: ed_tirakian@pcmail.tellabs.com

<p>Steve Todd [M., .] Troncom 940 Kingsland Drive Batavia, IL 60510 Tel: 630-761-1800 Fax: 630-761-1890 Email:</p>
<p>Chi-Lin Tom [M., P.] Pulsecom 2900 Towerview Rd. Herndon, VA 20171 Tel: (703)471-2900 Fax: (703)471-2904 Email: chit@pulse.com</p>
<p>Cherry Tom [M., P.] AT&T Labs Bldg 104 - Room 3J01 180 Park Avenue Florham Park, NJ 07932-0971 Tel: 973-236-6496 Fax: 973-360-5877 Email: ctom@att.com</p>
<p>Antti Tommiska [M., P.] Nokia Telecommunications P. O. Box 370 FIN-00045 Nokia Group, Finland Tel: +358-9-51120836 Fax: +358-9-51120863 Email: antti.tommiska@ntc.nokia.com</p>
<p>J. Alberto Torres [M., P.] VOCAL Technologies Ltd. 200 John James Audubon Parkway Buffalo, NY 14228 Tel: 716-688-4675 Fax: 716-639-0713 Email: jatorres@vocal.com</p>

<p>Richard L. Townsend [M., P.] Lucent Technologies P. O. Box 3030; Room 4K-337 Crawfords Corner Road Holmdel, NJ 07733-3030 Tel: 732-949-8667 Fax: 732-949-1196 Email: rltownsend@lucent.com</p>
<p>Bob Tracy [M., P.] Pacific Bell Room 35750M 2600 Camino Ramon San Ramon, CA 94583 Tel: (510)823-4737 Fax: (510)355-3930 Email: retracy@pacbell.com</p>
<p>Markos Troulis [M., P.] Conexant Systems 4311 Jamboree Road Newport Beach, CA 92660 Tel: 949-483-7882 Fax: 949-483-3667 Email: markos.troulis@conexant.com</p>
<p>Dwen-Ren Tsai [M., P.] Chinese Culture University 55 Hwakang Road Taipei, TAIWAN Tel: +886-2-861-5945 Fax: +886-2-861-5594 Email: drtt@cu010.pccu.edu.tw</p>
<p>Marcos Tzannes [M., P.] Aware, Inc. 40 Middlesex Turnpike Bedford, MA 01730 Tel: (617)276-4000 Fax: (617)276-4001 Email: marcos@aware.com</p>

<p>Masami Ueda [M., P.] Sumitomo Electric 1-1-3 Shimaya . Konohana-ku Osaka, 554-0024 JAPAN Tel: +81-6-466-5643 Fax: +81-6-466-5732 Email: ueda@rimf.co.jp</p>
<p>John Ulankas [M., P.] Room MN E13.18 700 West Mineral Ave. Littleton, CO 80120 Tel: (303)707-7520 Fax: (303)707-9414 Email: aulansk@uswest.com</p>
<p>Juan Ramon Uribe [M., P.] Charles Industries 5600 Apollo Dr. Rolling Meadows, IL 60008 USA Tel: (847)806-6300 Fax: (847)806-6231 Email: juribe@ehasind.com</p>
<p>Peter Vaclavik [M., P.] Fujitsu Network Communications 2801 Telecom Parkway Richardson, TX 75082 Tel: 972-479-2451 Fax: 972-479-2666 Email: peter.vaclavick@fnc.fujitsu.com</p>
<p>Craig Valenti [M., P.] Bellcore 445 South St. Room 1J136G Morristown, NJ 07960 Tel: 973-829-4203 Fax: 973-829-5965 Email: cvalenti@notes.cc.bellcore.com</p>

<p>Nick van Bavel [M., P.] Cicada Semiconductor Inc. Barton Oaks Plaza One, Suite 540 901 Mopac Expressway South Austin, TX 78746 Tel: (512) 327-3500, x101 Fax: (512) 327-3550 Email: nvb@cicada-semi.com</p>
<p>Harry van der Meer [M., P.] NORDX/CDT 3701 W. Algonquin Road Rolling Meadows, IL 60008 Tel: 847-632-9915 Fax: 847-632-0104 Email: harry.vandermeer@nordx.com</p>
<p>Frank Van der Putten [M., P.] Alcatel F. Wellsplein 1 2018 Antwerp, Belgium Tel: +32 3 240 7081 Fax: +32 3 240 9920 Email: puttenf@sebb.bel.alcatel.be</p>
<p>Dick van Gelder [M., P.] Hewlett-Packard Labs Room 2L-3 1501 Page Mill Road Palo Alto, CA 94304 Tel: (650)857-7727 Fax: (650)857-5686 Email: vangelder@hpl.hp.com</p>
<p>Jeff Van Horne [M., P.] Reltec, Fire Networks Div. 2655 Villa Creek Drive Suite 290 Dallas, TX 75234 USA Tel: 972-501-7408 Fax: 972-501-7491 Email: jvanhorne@firenetworks.com</p>

M. Vautier [., P.]
 CNET Lab/RSD/DVS
 BP40
 22301 Lannion Cedex , FRANCE
 Tel: +33-96-05-24-83
 Fax: +33-96-05-22-55
 Email:

Robert L. Veal [M., P.]
 Infinite Technology Corporation
 1778 North Plano Road
 Suite 310
 Richardson, TX 75081-1958
 Tel: (972)437-7833
 Fax: (972)437-7810
 Email: les_veal@itc-usa.com

Dale Veeneman [M., P.]
 GTE Laboratories
 40 Sylvan Road
 Waltham, MA 02451-1128
 Tel: (781)466-2467
 Fax: (781)466-2387
 Email: dveeneman@gte.com

Rami Verbin [M., P.]
 Orekit
 38 Nahatt Yitzhak St.
 Tel-Aviv, Israel
 Tel: +9723 6945222
 Fax: +9723 6965678
 Email: verbin@orekit.co.il

Pieter Versavel [M., P.]
 Raychem
 MS 543/2A
 300 Constitution Drive
 Menlo Park, CA 94025
 Tel: 650-361-2224
 Fax: 650-361-5157
 Email: pversave@raychem.com

Raman Viswanathan [M., P.]
 Western Atlas
 P. O. Box 1407
 WC-1
 Houston, TX 77251-1407
 Tel: (713)972-4767
 Fax: (713)972-4780
 Email: Raman.Viswana@aws.waii.com

Jeff Waldhuter [M., P.]
 Bell Atlantic
 500 Westchester Ave
 White Plains, NY 10604
 Tel: (914) 644-2069
 Fax: (914) 644-2107
 Email:

Josef Waldinger [M., P.]
 Siemens (Munich)
 Hofmannst 51
 D-8000 Munchen 70
 Munich, UEB E M B34 GERMANY
 Tel: +49-89-722-48473
 Fax: +49-89-722-61088
 Email:

Qi Wang [M., P.]
 US West Advanced Technologies
 4001 Discovery Drive
 Suite 340
 Boulder, CO 80303
 Tel: 303-541-6650
 Fax: 303-541-8344
 Email: qwang@advtech.uswest.com

Brian Waring [M., P.]
 Lucent Technologies
 14 Fairfield Ave.
 Felixstowe, ENGLAND IP119JN UK
 Tel: +44 1394 275217
 Fax: +44 1394 275217
 Email: brian@anglianet.co.uk

<p>Dewight Warren [M., P.] Dallas Semiconductor 4401 South Beltwood Parkway Dallas, TX 75244 USA Tel: (972)371-4301 Fax: (972)371-3715 Email: dewight.warren@dalsemi.com</p>
<p>Curtis Waters [M., P.] ECI Telecom, Inc. 927 Fern St. Altamonte Springs, FL 32701 Tel: (407)830-2592 Fax: (407)830-2580 Email: cwaters@eciinc.com</p>
<p>Alan Weissberger [M., P.] Data Communications Tech. 2013 Acacia Court Santa Clara, CA 95050-3482 Tel: (408) 588-6493 Fax: (408) 982-1101 Email: alan@ccrl.sj.nec.com</p>
<p>J. J. Werner [M., P.] Lucent Technologies Room 1E-333 101 Crawfords Corner Road Holmdel, NJ 07733 Tel: (732)949-2740 Fax: (732)949-0220 Email: jwerner@lucent.com</p>
<p>Rick Wesel [M., P.] UCLA EE Dept. 7440 D Boelter Hall Box 951594 Los Angeles, CA 90095-1594 Tel: 310-267-2150 Fax: 310-794-1592 Email: wesel@ee.ucla.edu</p>

<p>Greg Whelan [M., P.] Aware, Inc. 40 Middlesex Turnpike Bedford, MA 01730 Tel: (508) 952-7170 Fax: (508) 392-8775 Email: gwhelan@casc.com</p>
<p>Albert White [M., P.] SPRINT 901 E. 104th St. Kansas City, MO 64131 Tel: (816)854-5266 Fax: (816)854-7046 Email: awhite@sprintlink.net</p>
<p>Song Wong [M., P.] Texas Instruments, Inc. 13510 N. Central Expressway North Building, M/S 446 Dallas, TX 75243 Tel: (214)995-7407 Fax: (214)995-6194 Email: snu@hc.ti.com</p>
<p>Bernard E. Worne [M., P.] Telecommunication Techniques 20410 Observation Drive Germantown, MD 20876 Tel: (301)353-1550 x2019 Fax: (301)353-1588 Email: worneb@ttc.com</p>
<p>Dror Yachil [M., P.] ECI-Telecom 30 Hasivim Street Petak Tikva, 49133 ISRAEL Tel: +972-3-9268606 Fax: +972-3-9266100 Email: drory@ecitele.com</p>

<p>Jack Yang [M., P.] Conexant 9868 Scranton Road San Diego, CA 92121 619-713-4302 Tel: 619-713-4004 Fax: jack.yang@conexant.com Email:</p>
<p>Han Yeh [M., P.] PC-TEL Inc. 70 Rio Robles San Jose, CA 95134 Tel: 408-965-2106 Fax: 408-383-0455 Email: hanyeh@pc-tel.com</p>
<p>Soobin Yim [M., P.] Digital Communication Lab Samsung A. I. T. P. O. Box 111 Suwon, 440-600 KOREA Tel: +82-331-280-9221 Fax: +82-331-280-9207 Email: sbyim@saitgw.sait.samsung.co.kr</p>
<p>Gavin Young [M., P.] BT Labs B67/107 Martlesham Heath Ipswich, Suffolk IP5 7RE England Tel: +44 1473-645963 Fax: +44 1473-614580 Email: youngg3@boat.bt.com</p>
<p>Irvin Youngberg [M., P.] Sprint - Local Division MS KSWESBO114 P. O. Box 11315 Kansas City, MO 64112 Tel: (913)624-2740 Fax: (913)624-8963 Email: pete.youngberg@mail.sprint.com</p>

<p>Xiaolong Yu [M., P.] Rockwell Semiconductor Systems, Inc. 9868 Scranton Road San Diego, CA 92121 Tel: 619-535-3498 Fax: Email: xiaolong.yu@rss.rockwell.com</p>
<p>Shaikhe Zalitzky [M., P.] ECI Telecom 30 Hasivim Street Petah Tikva, 49133 ISRAEL Tel: +972 3 926 6565 Fax: +972 3 926 6870 Email: saike@ecitele.com</p>
<p>Xuming Zhang [M., P.] Rockwell Semiconductor Systems 4311 Jamboree Road Newport Beach, CA 62960 Tel: Fax: Email:</p>
<p>George Zimmerman [M., P.] Pairgain Technologies 14402 Franklin Ave. Tustin, CA 92780 Tel: (714)481-4549 Fax: (714)832-9924 Email: george_zimmerman@pairgain.com</p>