



# Telecommunications Industry Association



## 2007/08 ★ Standards & Technology Annual Report

Setting the Standards for  
Emerging Technologies

TIA is accredited by the American National  
Standards Institute (ANSI) to develop voluntary  
industry standards for the information and  
communications technology (ICT) industry

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The Telecommunications Industry Association (TIA) represents the global information and communications technology (ICT) industry through standards development, advocacy, tradeshow, business opportunities, market intelligence and world-wide environmental regulatory analysis. With roots dating back to 1924, TIA enhances the business environment for broadband, mobile wireless, information technology, networks, cable, satellite and unified communications. Members' products and services empower communications in every industry and market, including healthcare, education, security, public safety, transportation, government, the military, the environment and entertainment. TIA co-owns the SUPERCOMM® tradeshow and is accredited by the American National Standards Institute (ANSI). Visit [www.tiaonline.org](http://www.tiaonline.org).

## Letter from Chairman of the Board and TIA President



Rob Pullen  
TIA Chairman



Grant E. Seiffert  
TIA President

**“The overall technical effort is extensive, thanks to more than 70 committees, subcommittees and working groups with 1,100+ volunteers from TIA members and non-members.”**

**Mention TIA's 20+ years of technical standards development work** to co-workers in the ICT industry, and some may think first of cdma2000® or Cat5e—the key wireless and infrastructure cabling standards our association helped pioneer. However, TIA has published more than 3,000 standards and other technical documents used in the industry and throughout the world.

As a standards development organization accredited by the American National Standards Institute (ANSI), TIA and its comprehensive technical program are first class and globally respected. The overall technical effort is extensive, thanks to more than 70 committees, subcommittees and working groups with 1,100+ volunteers from TIA members and non-members. They are working to assure the interoperability, connectivity and compatibility of thousands of products.

*2007/08 Standards and Technology Annual Report* chronicles the technical work accomplished last year and the current efforts under way. There are new initiatives in the vehicular telematics and healthcare fields and ongoing cutting-edge work in the wireless, fiber optics and user premises arenas. We encourage you to use this report as a frequent reference and hope you'll continue to support TIA's standards development efforts.

On behalf of the association's Board of Directors and staff, as well as the thousands of communications leaders who participate in TIA's activities, we thank the dedicated standards development volunteers who have contributed so much to our industry.

Sincerely,

Rob Pullen  
TIA Chairman

Grant E. Seiffert  
TIA President



## Letter from TIA Technical Committee Chairman



Charles Kenmore  
TIA Technical  
Committee Chairman

**“The policy arena and the standards forum converge just like technologies—and TIA is very active on all fronts.”**

**It is my privilege to serve** as the newly elected chair of TIA's Technical Committee, succeeding outstanding technologists such as Anil Kripalani, Bob Coakley and Jim Romlein. With the dedicated help of more than 1,100 volunteers and some 70 technical committees, as well as the firm support and foresight of TIA's Board of Directors and staff, this committee has led the way for TIA to become a world-class standards development organization (SDO) with ANSI accreditation.

My goals for TIA's Technical Committee are fourfold:

- Strive to work even more closely with TIA's counterpart SDOs, as well as other fora and consortia throughout the world, to foster cooperation and the technical compatibility so critical to industry and consumers
- Encourage continued and even better teamwork between TIA's policy program and standards development efforts to deliver the best focus and prioritization
- Assure that the association's standards efforts remain timely, relevant and forward-looking
- Provide whatever resources are needed by the TIA member and non-member volunteers, as well as staff, to facilitate even faster development timeframes

Serving as a member of TIA's Board of Directors, I am well aware that the association's standards efforts get the highest ranking in terms of overall importance among TIA's many other key activities. We realize that standards impact policy issues and international trade, as well as product compatibility.

Regarding coordination with other SDOs, we are going to start meeting with the Metro Ethernet Forum, and, of course, already work

with the International Telecommunication Union's telecommunication and radiocommunication divisions. The Internet Engineering Task Force, the IEEE, and the Hearing Loss Association of America are also groups we cooperate with to develop standards. Subject matter ranges from wireless to Internet protocol to hearing aid compatibility.

The policy arena and the standards forum converge just like technologies—and TIA is very active on all fronts. With member company and association staff cooperation, we must address and impact major public interest issues such as emergency response needs and universal service, as well as broadband proliferation and spectrum harmonization.

From a forward-looking perspective, the TIA initiatives last year to launch standards committee work in the vehicular telematics and healthcare ICT arenas exemplify what we need to do to keep our SDO program world class and timely. We will also closely monitor, and contribute to where appropriate, the emerging long term evolution standards.

In terms of resources for TIA's standards efforts, I am pleased to report that the association has added a dedicated Webmaster to support the program. And I am proud to add my thanks to TIA technical staff and the volunteers who make this standards program so successful.

Sincerely,

Charles Kenmore  
TIA Technical Committee Chairman

## TR-8 Mobile and Personal Private Radio Standards

**ENGINEERING COMMITTEE TR-8** formulates and maintains standards for private radio communications systems and equipment for both voice and data applications. TR-8 addresses all technical matters for systems and services, including definitions, interoperability, compatibility and compliance requirements. The types of systems addressed by these standards include business and industrial dispatch applications, as well as public safety (such as police, ambulance and fire fighting) applications.

### 2007 OVERVIEW

The **TR-8 Committee** is responsible for standards relating to Private Land Mobile Radio systems and equipment. The committee is made up of 13 subcommittees, which formulate standards for many of the technologies involved in private radio systems. The work runs the gamut from antennas and propagation issues to equipment measurement and performance, over-the-air protocols, and infrastructure wireline interface. Communications systems of this type are used in a variety of applications including business and industrial applications, transportation systems, and public safety applications. They span

technology from the traditional analog frequency modulated radio systems to more advanced digital systems to broadband data systems. Often these communications systems are used in

mission-critical applications. Here, issues of communications reliability are of paramount importance. Communications among users in a single jurisdiction, as well as interoperability between users in multiple jurisdictions are also of great importance. The standards generated by the committee are aimed at promoting reliable and interoperable communications systems.

Much of the work of the committee continues to be the formulation and maturation of standards for Project 25 and the development of standards for the Project 34 suite of standards. These are standards projects created by the Association of Public Safety Officials (APCO), the National Association of State Telecommunications Directors (NASTD) and agencies of the federal government. Project 25 standards are developed to provide voice and data communications systems tailored for public safety and first-responder applications. The current Project 25 standards

suite consists of 44 documents, including 35 TIA standards, 23 of which are ANSI standards, and nine Telecommunications Systems Bulletins. Project 34 is a standards project aimed at broadband data for public safety applications. The work of TR-8 is unique among the various engineering committees, in that there is significant participation by users of the technology, as well as manufacturers. In order to encourage such participation, much of the initial standards drafting work is carried out in ad hoc task groups made up of technology users as well as TIA member organizations. This affords user representatives an equal voice with the manufacturers in the early standards drafting work.

TR-8 and its subcommittees meet quarterly, with many of the subcommittees and working groups having additional frequent teleconference calls and face-to-face working sessions. The 2007 quarterly meetings were held in conjunction with the Project 25 and 34 committee meetings. TR-8 makes extensive use of electronic

working tools, including electronic distribution of documents at the meetings and the use of FTP sites for document distribution outside of the meetings.

TR-8 is the oldest of the TIA standards committees, tracing its roots to the early days of the use of land mobile radio. For many years, the standards formulated by TR-8 focused on the simpler traditional analog FM systems. However, with the emphasis on public safety interoperable communications systems, spectrum-efficient technologies and advanced capabilities, the work of TR-8 has taken on new importance. The standards being developed are crucial for the advanced mission-critical communications systems of today and the future. TR-8 anticipates continuing challenges in the future, as well as increased interest and participation in the work of the committee.

## 2007 ACTIVITIES

### Subcommittee TR-8.1 Equipment Measurement

**Procedures** is responsible for formulation of standards for measurement methods for R.F. transmitter and receiver equipment. Within the year, TR-8.1 has published TIA-902.CAAA, *Radio Communications – Public Safety Wideband Data Equipment – Performance Measurement Procedures*. In addition, work has begun on an update to TIA-102.CAAA-B, *Digital C4FM/CQPSK Transceiver Measurement Methods*.

### Subcommittee TR-8.3

**Encryption** is responsible for standards relating to encryption. Although the subcommittee published no documents in 2007, work is going on in the task groups that will result in anticipated standards documents in 2008.

### Subcommittee TR-8.4

**Vocoders** is responsible for standards relating to vocoders. In 2007, the subcommittee published TSB-102.BABE, *Project 25 Vocoder Evaluation, Mean Opinion Score Test*. In addition, the subcommittee is working on TSB-102.BABF, which is a vocoder test plan document.

### Subcommittee TR-8.5 Signaling and Data Transmission

is responsible for standards relating to data applications. A large part of the work of this subcommittee throughout the year has been to round out and upgrade the TIA-902 suite of standards for wideband data. Within the year, two standards have been revised and upgraded from TIA to ANSI/TIA standards. Two additional standards have been revised and have been approved for publication. In addition, the subcommittee is working on an upgrade to TIA-102.BAEB, *Project 25 Packet Data Specification*.

### Subcommittee TR-8.6 Equipment Performance

**Recommendations** is responsible for standards relating to transceiver performance. In 2007, the subcommittee worked on several documents including performance recommendations for wideband data systems

using IOTA modulation. The subcommittee also worked on upgrades to TIA-102.CAAB-B, *Land Mobile Radio Transceiver Recommendations, Project 25 – Digital Radio Technology, C4FM/CQPSK Modulation*.

### Subcommittee TR-8.8

**Broadband Data Systems** is responsible for standards relating to broadband data systems for use in public safety applications. Much of the initial drafting work for this effort is occurring in task group meetings. It is expected that TR-8.8 will become active in standards formulating work in the next year.

### Subcommittee TR-8.10 Trunking and Conventional

**Control** is responsible for standards relating to trunking systems. Much of the work of the subcommittee is to revise and update many of the Project 25 trunking standards. TIA-102.AABD, *Project 25 Trunking Procedures*, was revised and published as an ANSI/TIA standard. Addenda were also published for two other trunking standards, with others in the ballot process.

TR-8 is the oldest of the TIA standards committees, tracing its roots to the early days of the use of land mobile radio.



**Subcommittee TR-8.11**

**Antenna Systems** is responsible for formulation of standards for antennas and antenna subsystems. In 2007, the subcommittee published TIA-156-A, *Land Mobile Radio Systems Minimum Standards for R.F. Signal Booster*. In addition, the subcommittee has balloted a standard for mobile antennas.

**Subcommittee TR-8.12**

**Two-Slot TDMA Systems** is responsible for formulation of standards for two-slot TDMA systems. Much of the work on drafting these standards documents is being done in working groups. Thus, there has been no work done within TR-8.12 itself. However, it is anticipated that work will begin during 2008.

**Subcommittee TR-8.15**

**Common Air Interface** is responsible for formulation of standards for the air interface for

Project 25 systems.

The subcommittee was not active during 2007, but is expected to return to activity in 2008.

**Subcommittee TR-8.17 Radio Frequency (R.F.) Exposure**

is responsible for standards relating to testing, reporting and labeling issues concerning to R.F. exposure limits. Since the 2006 publication of TSB-159, *Private Land Mobile Radio Two-Way Mobile Equipment Radio Frequency Electromagnetic Exposure Test Report Guidelines*, the subcommittee has been inactive.

**Subcommittee TR-8.18****Wireless Systems Compatibility – Interference and Coverage**

is responsible for issues relating to radio propagation and interference. Within the year, the subcommittee published TIA-845-A, *Radio Wave Propagation Path Loss Measurement Presentation Format*. In addition, the subcommittee has been working on an upgrade to TSB-88-B, a document on radio performance in noise and interference-limited situations. To date, two of the four sections of the updated document have been balloted.

**Subcommittee TR-8.19****Wireline System Interface**

is responsible for standards for radio system network interfaces. With the priority of completing standards for the Project 25 network interfaces, the subcommittee has been very prolific in the formulation of standards. During 2007, four standards were published, addenda to two additional standards were published, and four documents are in the ballot process.

**Subcommittee TR-8.25**

**Compliance Assessment** is the newest of the subcommittees. It was created to formulate standards for interoperability and assessment of compliance to standards. The subcommittee balloted its first document in 2007 and is expected to have several more documents to formulate in 2008.

**TR-8.18 is responsible for issues relating to radio propagation and interference.**





## TR-8 Mobile and Personal Private Radio Standards



### **Chair, TR-8**

**John Oblak**

VP Standards and Regulatory Affairs  
E.F. Johnson Co.

### **Vice Chair, TR-8**

**Alan Wilson**

Tyco Electronics

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**TR-8.3** Encryption  
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**TR-8.4** Vocoders  
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**TR-8.5** Signaling and Data Transmission  
*Chair:* Jim Eastwood  
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**TR-8.6** Equipment Performance  
Recommendations  
*Chair:* Terry Mansfield  
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**TR-8.8** Broadband Data Systems  
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**TR-8.10** Trunking and Conventional Control  
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**TR-8.11** Antenna Systems  
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**TR-8.12** Two-Slot TDMA Systems  
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**TR-8.15** Common Air Interface  
*Chair:* Alan Wilson  
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**TR-8.17** R.F. Exposure  
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**TR-8.18** Wireless Systems Compatibility  
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**TR-8.19** Wireline System Interface  
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**TR-8.25** Compliance Assessment  
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### **TR-8 Committee Participants**

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## TR-14 Point-to-Point Communications Systems

**ENGINEERING COMMITTEE TR-14** is responsible for standards and recommended practices related to terrestrial fixed point-to-point radio communications equipment and systems (microwave radio), primarily in the frequency bands above 960 MHz. Within the TR-14 Committee, only Subcommittee TR-14.7, *Structural Standards for Steel Antenna Towers and Antenna Supporting Structures* was active during 2007.

### 2007 OVERVIEW

**TR-14.7** is the formulating subcommittee for the popular TIA Standard, TIA-222, Revision G, *Structural Standard for Antenna Supporting Structures and Antennas*. The objective of the TIA-222 standard is to provide recognized literature for antenna-supporting structures and antennas pertaining to minimum load requirements and design criteria for steel and concrete. The standard provides the requirements for the structural design and fabrication of new, and the modification of existing, structural antennas, antenna-supporting structures, mounts, structural components, guy assemblies, insulators and foundations. During 2007, the TR-14.7 Subcommittee released Addendum 1 to Revision G. The addendum includes various minor editorial changes and other adjustments with

respect to cantilevered structures, shielding factors and modified bearing factors for foundations. The subcommittee also continued to be active in fielding technical questions on TIA-222 Revision G and the newly-released TIA-222-G Addendum 1.

TR-14.7 also continued work on the revision to TIA-1019, *Structural Standards for Steel Gin Poles Used for Installation of Antenna Towers and Antenna Supporting Structures*. First released in 2004, the standard was intended to provide minimum design criteria for the design and use of steel gin poles for installation of antennas and antenna supporting structures. The standard is being updated to provide minimum loading requirements for towers under construction, alteration or maintenance, and to address specialized equipment such as gin poles, frames, hoists and the temporary supports necessary to safely complete those tasks, along with the design requirements for a gin pole. It will consider special

construction requirements and processes commonly used when removing an existing antenna from an existing tower or removing all or a portion of an existing tower. The revised standard will be entitled *Structural Standards for Installation, Alteration and Maintenance of Communication Towers, Antennas and Antenna Supporting Structures*.

TR-14.7's newly-formed task group, Structural Reliability, is addressing structural performance and reliability issues pertinent to the structures utilized in the telecommunications industry. As the industry's support structures continue to age, reliability and maintenance issues will be crucial to the longevity of the industry's infrastructure.

The 2008 subcommittee goals include working on an Addendum 2 to TIA-222 Revision G and Revision H of the TIA-222 standard, with meetings planned around the country.

## TR-14 Point-to-Point Communications Systems



### **Chair, TR-14**

**Brian Reese**

AeroSolutions, LLC

### **Vice Chair, TR-14**

**John Erichsen**

EET, LLC

### **SUBCOMMITTEE:**

#### **TR-14.7 Structural Standards for Steel Antenna Towers and Antenna Supporting Structures**

*Chair:* Brian Reese

AeroSolutions, LLC

*Vice Chair:* John Erichsen

EET, LLC

**TR-14.7's newly-formed task group, Structural Reliability, is addressing structural performance and reliability issues pertinent to the structures utilized in the telecommunications industry.**

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### **TR-14 Committee Participants**

4SE Inc., AeroSolutions, LLC, Aluma-Form, Inc., American Tower Corp., AT&T Mobility, AT&T SKYNET Services, B&C Contracting Co., B&T Engineering, Inc., Bechtel Telecom, Black & Veatch Telecomm., Broadcast Tower Technologies, Inc., Cell Trees Inc, Crown Castle Int'l. Corp., CSI TeleComm., Damiano Long, Davidson Engineering, EET, LLC, Ehresmann Engineering, Inc., Electronics Research Inc., Engineered Endeavors, Inc., Fibrebond Corp., FWT, Inc., Genivar, LP, Glen Martin Engineering, Industrial Engineering & Testing, Industry Canada, KCI Technologies, Inc., Malouf Engineering Int'l., MLD Engineering Solutions, Inc., Nello Corp., NTIA, Paul J. Ford & Co., Power Line Systems, Inc., Radian Comm. Services, Rohn Products, RISA Technologies, RTKL Associates Inc., Sabre Towers & Poles, Shively Labs, Sioux Falls Tower Specialists, Stainless LLC, Stealth Concealment Solutions, Technical Associates, Tower Consultants, Inc., Tower Engineering Professionals, Tower Technology, Towerkraft Engineering, P.C., U.S. Dept. of Commerce, Valmont Comm., Walker Engineering Inc., Weisman Consultants, WesTower Communications Inc.

## TR-30 Multi-Media Access, Protocols and Interfaces

**ENGINEERING COMMITTEE TR-30** develops standards related to the functional, electrical and mechanical characteristics of interfaces between data circuit terminating equipment (DCE), data terminal equipment (DTE) and multimedia gateways, the telephone and Voice-over-Internet Protocol (VoIP) networks, and other DCE and facsimile systems.

### 2007 OVERVIEW

**TR-30** and its subcommittees had an active year in 2007. Each subcommittee had its own goals for the year, which were met. TR-30.1 moved forward, bringing to ballot and ballot comment resolution, TIA-1113, *Medium-Speed (up to 14 Mbps) Power Line Communications (PLC) Modem*. TR-30.2 continued to maintain the many interface standards under its oversight. TR-30.3 worked to complete the revision of ANSI/TIA-921, *Network Model for Evaluating Multimedia Transmission Performance Over Internet Protocol*, for ballot.

TR-30 provides many technical contributions to the work taking place in ITU-T Study Groups 9, 12 and 16. Many of these contributions through the United States Department of State International Trade Assistance Center (ITAC)

process, become the official U.S. contribution to ITU-T. In addition to technical contributions, liaisons have been established with a number of the ITU-T study groups.

### 2007 ACTIVITIES

**Subcommittee TR-30.1 Modems and Facsimile Systems** had a very active year working to resolve comments received on the ballot for TIA-1113, *Medium-Speed (up to 14 Mbps) Power Line Communications (PLC) Modem*. Comments were resolved at the December meeting with a re-ballot of the draft standard authorized. In addition, TR-30.1 continued its work to revise TIA-1001, *Transport of TIA-825-A Signals Over IP Networks*, to align it with ITU-T Recommendation V.151. This subcommittee continues to work very closely with ITU-T Study Group 16/Questions 11, 14 and 26.

**Subcommittee TR-30.2 DTE-DCE Interfaces** worked in maintenance mode during 2007. The subcommittee reaffirmed the following standards:

- ANSI/TIA-232-F, *Interface Between Data Terminal Equipment and Data Circuit-Terminating Equipment Employing Serial Binary Data Interchange*
- ANSI/TIA/EIA-404-B, *Start-Stop Signal Quality for Non-Synchronous Data Terminal Equipment*
- ANSI/TIA/EIA-423-B, *Electrical Characteristics of Unbalanced Voltage Digital Interface Circuits*
- ANSI/TIA/EIA-644-A, *Electrical Characteristics of Low Voltage Differential Signaling (LVDS) Interface Circuits*
- ANSI/TIA/EIA-687, *Medium Speed Interface for Data Terminal Equipment and Data Circuit Terminating Equipment*



- ANSI/TIA/EIA-694, *Electrical Characteristics for an Unbalanced Digital Interface for Data Signaling Rates Up to 512 kb/s*

- ANSI/TIA/EIA-899, *Electrical Characteristics of Multipoint-Low-Voltage Differential Signaling (M-LVDS) Interface Circuits for Multipoint Data Interchange*

### Subcommittee TR-30.3 Data Communications Equipment Evaluation and Network Interfaces

focused on revising ANSI/TIA-921, *Network Model for Evaluating Multimedia Transmission Performance Over Internet Protocol* and the ITU-T version Recommendation G.1050. The documents were revised to include higher data rates to reflect the evolving IP network and to add network models for Core to LAN  $\leq 3\text{MB/s}$  (excluding IPTV) and Core to LAN  $\geq 3\text{MB/s}$  (IPTV). ITU-T Study Group 12/Question 13 ratified the revised version of Recommendation G.1050 in December. ANSI/TIA-921-A will be sent for ballot in January 2008. TR-30.3 conducted liaison activities with ITU-T Study Group 12/Question 13, ITU-T Study Group 13, and ETSI TISPAN associated with ANSI/TIA-921-A and G.1050 work. TIA/EIA-793, *North American Telephone Network Transmission Model for Evaluating Analog Client and Digitally Connected Server Modems* and TSB-18-B, *The Mechanical/Functional Characteristics Between DCEs and Voiceband Analog Channels* were reaffirmed.

## TR-30 Multi-Media Access, Protocols and Interfaces



**Chair, TR-30**  
**Fred Lucas**  
FAL Associates

### SUBCOMMITTEE:

#### TR-30.1 Modems and Facsimile Systems

*Chair:* Keith Chu  
Mindspeed Technologies

#### TR-30.2 DTE-DCE Interfaces

*Chair:* Fred Lucas  
FAL Associates

#### TR-30.3 Data Communications Equipment Evaluation and Network Interfaces

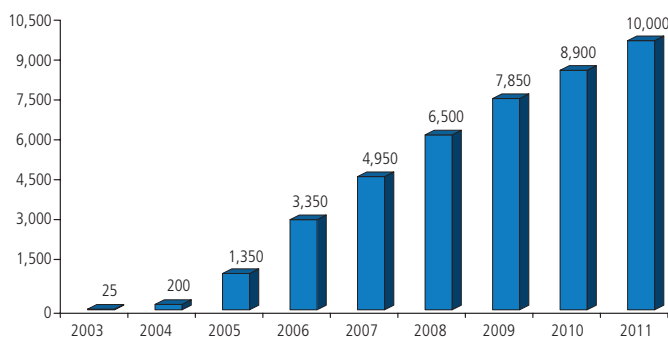
*Chair:* Jack Douglas  
Spirent Comm.

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### TR-30 Committee Participants

ADTRAN, Airvana, Inc., Analog Devices, Inc., Anue Systems, Berk-Tek, Broadcom Corp., Cisco Systems, Inc., Conexant Systems, Inc., CSI Telecomm., FAL Associates, Flykees, Gemalto, Intel Corp., Intellon, LSI Corp., Mindspeed Technologies, Motorola, Inc., Nokia Siemens Networks, Nortel Networks, PacketStorm Comm., Inc., Panasonic Computer Solutions Co., Sony Wireless Tech Div., Spirent Comm., Telchemy, Inc., Telcordia Technologies, Texas Instruments, Inc., Westell Technologies, Inc.

### Residential VoIP Revenue in the United States (\$ Millions)



Source: TIA 2008 Telecommunications Market Review and Forecast

## TR-34 Satellite Equipment and Systems

**ENGINEERING COMMITTEE TR-34** is responsible for standards and studies related to satellite communications systems, including both the space and earth segments. The committee focuses on standards for space-borne and terrestrial hardware; interfaces on standards for satellite and terrestrial systems; and the efficient use of spectrum and orbital resources, including sharing between satellite and terrestrial services. Active projects range from studies on how best to accomplish interservice spectrum sharing to developing standards for achieving interoperability between satellite systems as well as among satellite and terrestrial systems, networks and services.

### 2007 OVERVIEW

In 2007, the committee met its goal of finalizing a joint publication with the European Telecommunications Standards Institute (ETSI) on Connection Control Protocol C2P protocol activities.

This document addresses the following issues: how inputs from ETSI/DVB can be utilized in the Satellite Network Modem System (SNMS) standard, how connection request profiles relate to channel capacity and how Return Channel Satellite Terminals (RCSTs) determine their rate parameters from the profiles. The standard also supports important

functionality such as Quality of Service (QoS), encryption and the generation of dummy traffic.

In addition, the TR-34 committee affirmed the two Geo-Mobile Radio (GMR) Interface Specifications standards and continues to pursue new versions of this technology.

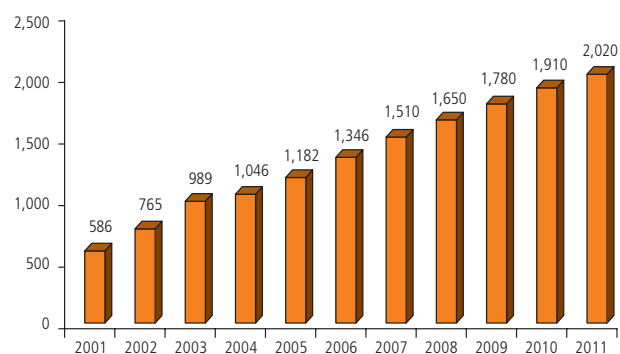
In order to advance joint publication with ETSI on C2P, the groups met jointly with ETSI Satellite Earth Station Systems (SES) Broadband Satellite Multimedia (BSM) in development of the C2P protocol. These meetings were held in Sophia Antipolis, France, in March, June, September and December 2007.

### 2007 ACTIVITIES

#### Subcommittee TR-34.1 Communications and Interoperability

held three meetings in 2007, in January, April and October. This group regularly meets at TIA Headquarters in Arlington, Va.

Global Mobile Satellite Service Revenue (\$ Millions)



Source: TIA 2008 Telecommunications Market Review and Forecast

## TR-34 Satellite Equipment and Systems



**Chair, TR-34**  
**Prakash Chitre**  
 ViaSat, Inc.

### SUBCOMMITTEE:

#### TR-34.1 Communications and Interoperability

*Chair:* Tony Noerpel  
 Hughes Network Systems, LLC

*Vice Chair:* Jack Rieser  
 ViaSat, Inc.

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### TR-34 Committee Participants

AASKI Technology, Inc., Advantech Satellite Networks, Anagran, Inc., Cisco Systems, Inc., Comtech EF Data, CSI TeleComm., Gilat Satellite Networks Ltd., Globalstar, Hughes Network Systems, LLC, ICO Global Comm., Lockheed Martin Corp., MITRE Corp., RTKL Associates Inc., Space Data Corp., Telcordia Technologies, University of Maryland, ViaSat, Inc., Westell Technologies, Inc.



## TR-41 User Premises Telecommunications Requirements

**ENGINEERING COMMITTEE TR-41** develops and maintains voluntary standards for telecommunications terminal equipment and systems, specifically those used for voice services, integrated voice and data services, and Internet protocol (IP) applications. The work involves developing performance and interface criteria for equipment, systems and private networks, as well as the information necessary to ensure their proper interworking with each other, with public networks, with IP telephony infrastructures and with carrier-provided private-line services. It also includes providing input on product safety issues, identifying environmental considerations for user premises equipment and addressing the administrative aspects of product approval processes. In addition, TR-41 develops criteria for preventing harm to the telephone network, which become mandatory when adopted by the Administrative Council for Terminal Attachments (ACTA). Many of the standards developed by TR-41 include detailed testing methods in addition to performance requirements.

### 2007 OVERVIEW

**Committee TR-41** develops standards for wireline and IP telephony terminal equipment ranging from individual consumer telephones to large enterprise systems. TR-41 held four weeklong meetings during the year with its subcommittees and their working groups. Additional interim meetings were conducted via teleconference as needed. Semi-annual recognition events were held in conjunction with the May and November meetings. A total of 89 certificates were awarded to 59 individuals in acknowledgement of their contributions to the development of 11 documents that were submitted for publication. A letter of thanks expressing

TIA's appreciation for their company's support was sent to the management of each recipient who requested it. Special recognition plaques

were also presented to three individuals in appreciation of their career service to TR-41.

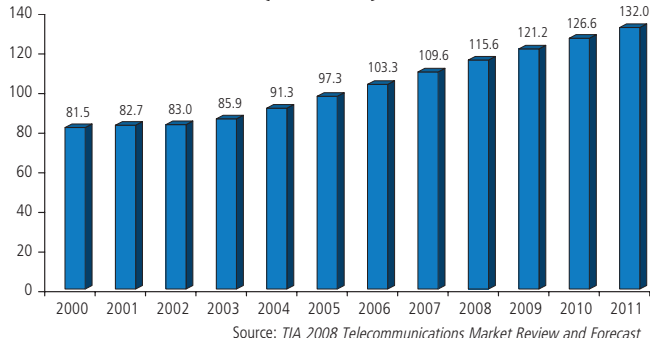
Several changes occurred in the TR-41 leadership during the year. Phillip Havens of Littelfuse was elected to the vacant TR-41.9 Chair position, with Roger Hunt of Thomson subsequently elected to the TR-41.9 Vice Chair position vacated by Mr. Havens. Roger Britt, who had been serving as TR-41 Vice Chair, TR-41.4 Vice Chair, and TR-41.3.3 Chair retired from Nortel. Al Baum of Uniden succeeded Mr. Britt as TR-41.3.3 Chair and TR-41 Vice Chair. He also exchanged TR-41.3 leadership positions with James Bress of AST Technology Labs, with Mr. Baum being elected TR-41.3 Chair and Mr. Bress TR-41.3 Vice Chair. Randy Ivans of Underwriters Laboratories (UL) and Phillip Havens of Littelfuse were re-elected TR-41.7 Chair and Vice Chair, respectively. Steve Whitesell of VTech was re-elected Chair of TR-41.

TR-41 exchanged liaison information with a number of standards bodies, consortia, councils and associations during 2007. The list includes the European Telecommunications Standards Institute's Speech Transmission Quality (ETSI STQ) Technical Committee, the IEEE Subcommittee on Telephone Instrument Testing (STIT), and three IEEE 802 groups: the 802.1 Higher Layer Local Area Network (LAN) Working Group, the 802.11 Wireless Local Area Network (WLAN) Working Group and the 802.19 Coexistence Technical Advisory Group. TR-41 members worked closely with representatives of the Hearing Loss Association of America (HLAA) and continued liaison relationships with the National Emergency Number Association (NENA) and two Alliance for Telecommunications Industry Solutions (ATIS) groups: the Network Interface, Power and Protection Committee (NIPP) and the Emergency Services Interconnection Forum (ESIF).





Enterprise Equipment Revenue in the United States  
(\$ Billions)



TR-41 takes a leadership role in providing support to the Administrative Council for Terminal Attachments (ACTA), both in terms of submitting technical criteria for ACTA adoption and by providing input on administrative matters. It also maintains liaison with Industry Canada's Terminal Attachment Program Advisory Committee (TAPAC), and the Telecommunication Certification Body (TCB) Council. In addition, TR-41 provides input to UL and the Canadian Standards Association (CSA) and their Bi-National Working Group (BNWG) on the Safety of Information Technology Equipment. Liaison was also maintained with the TR-42 Engineering Committee, including holding a co-located meeting with them in February.

#### Subcommittee TR-41.3

**Analog and Digital Wireline Terminals** completed TIA-1083, *Handset Magnetic Measurement Procedures and Performance Requirements*, and the document was published in March. This standard addresses magnetic interference problems experienced by people with hearing loss who try to use digital cordless telephones with their hearing aids in the T-coil mode. Work on this document was done in close cooperation with HLAA, which

also expressed a strong desire to provide information on the telephone product packaging so potential customers can identify compliant products. A logo was developed for this purpose and is included as the first of perhaps several such marks in TSB-177, *Guidelines for Marking and Labeling CPE Complying with TIA TR-41 Standards*. However, publication of the document has been held up pending establishment of a license agreement that manufacturers would need to enter into with TIA for use of the logo. We expect to complete establishment of this license agreement in early 2008. Work will also begin on an addendum to TIA-1083 to include telephones with digital interfaces, such as VoIP phones.

TR-41.3 also published TIA-1063, *Analog Telephone Port Requirements for Packet-Based Terminal Adapters*, and TIA-470.110-C-1, *Handset Acoustic Performance Requirements Addendum 1*. Work continued in several TR-41.3 Working Groups to add additional documents to the TIA-470 series. TR-41.3.11 completed its work on TIA-470.130-C, *Transmission Requirements for Analog Telephones with Headsets*, and the document should be published

early in 2008. Other current projects include requirements for speakerphone acoustic performance (TR-41.3.10) and features unique to telephone answering systems (TR-41.3.12). TR-41.3.3 is revising TIA-920, *Transmission Requirements for Wideband Digital Wireline Telephones*, and the TR-41.3.2 Working Group is being re-activated to revise TIA-855, *Stutter Dial Tone Detection Device Performance Requirements*. There is also ongoing liaison activity with ATIS NIPP concerning the impedance effects of DSL splitters and filters on telephone sidetone and possibly on the reception of Caller ID signaling.

#### Subcommittee TR-41.4

##### IP Telephony Infrastructures

published a new Telecommunications Systems Bulletin, TSB-160, *Synchronization in IP Networks – Methods and Perceptions*, and completed revision of two other IP-related documents: TIA-912-B, *Voice Gateway Transmission Requirements*, and TSB-146-A, *IP Telephony Support for Emergency Calling Service*. It also completed its work on TIA-1003, *Requirements for a Wireless LAN Based IP Telephony Endpoint*, and should be publishing the document in 2008. In addition, it voted to reaffirm TSB-32-A, *Overall Transmission Plan Aspects for Telephony in a Private Network*.

TR-41.4 currently has a number of maintenance projects in progress. While working on a roll up of the TIA-464-C-1 addendum into the

TR-41 takes a leadership role in providing support to the Administrative Council for Terminal Attachments (ACTA).

TIA-1083 Compliance Logo

Compatible with  
Hearing Aid T-Coil



**TR-41.7 has decided to open a new project to investigate the applicability of power fault (overvoltage) tests in UL-60950-1 to Ethernet First Mile (EFM) circuits.**

main document, the subcommittee realized that revision of several references would also be required. When finished, the revised document will become TIA-464-D, *Requirements for PBX Switching Equipment*. The subcommittee has also submitted TIA-596, *Network Channel Terminating Equipment for Public Switched Digital Service*, for reaffirmation as an American National Standard. Several older projects that had received no contributions in the past year were closed. Unless suggestions for new work come into the subcommittee by the second quarter of 2008, it will likely go inactive once the current maintenance work is completed.

#### **Subcommittee TR-41.7**

##### **Environmental and Safety**

**Considerations** published the revised TIA-571-B, *Electrical, Thermal, and Mechanical Performance Requirements*. The White Paper on *Low-Voltage Surge Withstand Telecommunications Overcurrent Protector Components*, developed by the TR-41.7.5 Working Group, was submitted to UL as a seed document for an Outline of Investigation for these types of devices. The working group will continue to interact with UL by reviewing and commenting on

drafts of the Outline of Investigation as it proceeds toward publication. TR-41.7 has decided to open a new project to investigate the applicability of power fault (overvoltage) tests in UL-60950-

1 to Ethernet First Mile (EFM) circuits. The concern is that the current requirements are based on the distribution of standard POTS lines with much longer lengths of cable exposed to power induction and may not be directly applicable to EFM.

The TR-41.7.1 Working Group that deals with harmonization of international safety standards has continued to follow a proposal that would allow inappropriate test procedures for receive acoustic-limiting tests in UL 60950-1.

TR-41.7 previously sent a letter to the convener of the UL Standards Technical Panel (STP) expressing concerns about this proposal. Although some changes were made to the proposal, the working group still found it unacceptable, and TR-41.7 sent a second liaison letter expressing its concern. In a separate matter, UL has received another proposal to add a "candle flame" test to UL-60950-1. TR-41.7.1 reviewed a very similar proposal a few years ago and had expressed serious concerns regarding the lack of substantiation or rationale for the test. Since the same concerns remain, TR-41.7 again sent a comment letter to UL questioning the need for this test.

#### **Subcommittee TR-41.9**

##### **Technical and Administrative Regulatory Considerations**

continued its Federal Communications Commission (FCC) Part 68-related work of creating updates to technical criteria for preventing harm to the network. The Fourth Addendum to TIA-968-A, *Technical Requirements for Connection*

*of Terminal Equipment to the Telephone Network*, was published in late 2007. It was circulated by ACTA and was adopted. A Fifth Addendum to TIA-968-A, adding requirements for VDSL2 modems, was also approved and adopted by ACTA. Work on a major revision to roll up all five addenda into the main document and restructure it along the lines of interface types continues and is expected to result in the publication of TIA-968-B in the coming year.

There have been several glitches in getting TSB-31-C, *Rationale and Measurement Guidelines for US Network Protection*, ready for publication. It appears that all problems have been addressed and that the document should be available early in 2008. Work is already under way on an amendment to the document to provide additional clarification of the hearing-aid compatibility and receive volume control test procedures for products with digital interfaces, such as VoIP telephones. TR-41.9 also completed a revision and upgrade of TSB-168-A to TIA-168-B, *Labeling Requirements*. The document has been submitted for publication and will be sent to ACTA for adoption. In addition, TR-41.9 provides industry responses to questions about TIA-968-A and Part 68. The list of Frequently Asked Questions (FAQs) and their answers may be found on the TR-41 page at the TIA Web site. There is also a link to it from the ACTA Web site.



## TR-41 User Premises Telecommunications Requirements



**Chair, TR-41**  
**Stephen R. Whitesell**  
 VTech Comm.

**Vice Chair, TR-41**  
**Al Baum**  
 Uniden America Corp.

### SUBCOMMITTEES:

#### TR-41.3 Analog and Digital Wireline Terminals

*Chair:* Al Baum  
 Uniden America Corp.

*Vice Chair:* James Bress  
 AST Technology Labs, Inc.

#### TR-41.4 IP Telephony Infrastructures

*Chair:* Joanne McMillen  
 Avaya, Inc.

#### TR-41.7 Environmental and Safety Considerations

*Chair:* Randy Ivans  
 Underwriters Laboratories (UL)

*Vice Chair:* Phillip Havens  
 Littelfuse Inc.

#### TR-41.9 Technical and Administrative Regulatory Considerations

*Chair:* Phillip Havens  
 Littelfuse Inc.

*Vice Chair:* Roger Hunt  
 Thomson, Inc.

### TR-41 Committee Participants

ADTRAN, Advent Instruments, Inc., Allied Telephone and Data Corp., AST Technology Labs, Inc., AT&T Labs, Avaya, Belden Networks Div., Berk-Tek, Bourns Limited, Broadcom Corp., Business Comm. Svcs., Cisco Systems, Inc., CML Microcircuits (USA) Inc., CommScope Network Div., Conexant Systems, Inc., Corning Inc., CSI TeleComm., Dietrich Lockard Group, Inc., EMBARQ Corp., Ericsson Inc., FAL Associates, Fluke Networks, Flykees, Fultec Semiconductor Inc., G.R.A.S. Sound & Vibration, Gemalto INC, Hewlett-Packard (formerly BT&D Technologies), Industry Canada (IC), Intel Corp., Intertek Testing Services, Intrado, ITW Linx, Leviton Network Solutions, Littelfuse Inc., Microtronix Systems Ltd., Motorola, Inc., National Comm. System, National Technical Systems (NTS), NeuStar Inc., Nokia Siemens Networks, Nortel Networks, Panasonic Computer Solutions Co., Panduit Corp., Plantronics, RTKL Associates Inc., San-O Industrial Corp., Sanyo Fisher Co., Sharp Laboratories of America, Sigma Delta Comm., Inc., Sony Wireless Tech Div., Spirent Comm., Sprint Nextel, Telchemy, Inc., Telocity Technologies, Texas Instruments, Inc., The Siemon Co., Thomson Inc., Tyco Electronics, U.S. Dept. of Commerce, UL Underwriters Laboratories Inc, Uniden America Corp., Verizon Wireless, VTech Comm., Westell Technologies, Inc., Wiltec Technologies

## TR-42 User Premises Telecommunications Cabling Infrastructure

**ENGINEERING COMMITTEE TR-42** develops and maintains voluntary telecommunications standards for telecommunications cabling infrastructure in user-owned buildings, such as commercial buildings residential buildings, homes, data centers, industrial buildings, etc. The generic cabling topologies, design, distances and outlet configurations, as well as specifics for these locations are addressed. The committee's standards work covers requirements for copper and optical fiber cabling components (such as cables, connectors and cable assemblies), installation and field testing, in addition to the administration, pathways and spaces to support the cabling.

### 2007 OVERVIEW

**TR-42** was successful in completing many projects in 2007 and making significant progress on several long-term projects, all of which are described in the subcommittee summaries below. Additionally, the J-STD-607-A standard on bonding and grounding was transferred to TR-42 from TR-41 to support a revision to this document. A pending merger of TR-42 and FO-4, approved by the TIA Technical Committee and set for February 2008, was supported through co-located meetings in 2007.

Activities in TR-42 focused on the cabling infrastructure requirements of higher bandwidth applications, such as 10 Gigabit Ethernet on twisted-pair cabling; the growing use of IP-based technologies, such as VoIP; and a new standard for industrial cabling.

Additionally, TR-42 is creating a third revision to the very popular TIA-568 standard. This comprehensive revision process involves multiple subcommittees, and centers around the creation of a new standard, 568-C.0 *Generic Customer-Owned Telecommunications Cabling* for generic cabling systems, which should simplify the use of other TR-42 documents and enable simpler and faster creation of standards. Looking forward, projects are expected to create new standards for customer-owned telecommunications cabling in new markets such as healthcare facilities and large-area facilities.

### 2007 ACTIVITIES

**Subcommittee TR-42.1 Generic Telecommunications Cabling and Premise Cabling**, as the owner of the TIA-568 series, has been the focal point for the creation of 568-C.0 and the revision to 568-B.1 *Commercial Building Telecommunications*

*Cabling Standard – Part 1: General Requirements* for commercial building cabling. Both the 568-C.0 and 568-C.1 documents are expected to be published in the first half of 2008. Additionally, an ongoing task group has been developing text for a Technical Systems Bulletin (TSB) on healthcare facility cabling.

### Subcommittee TR-42.2 Residential Telecommunications Infrastructure

finalized an addendum to the TIA-570-B *Residential Telecommunications Infrastructure* standard, which provides additional requirements for broadband coaxial cabling used for residential cabling. The information contained in the addendum is based on the requirements of the cable industry as promulgated by the Society of Cable Telecommunications Engineers (SCTE) and also contains satellite video delivery requirements.



### Subcommittee TR-42.3 Commercial Building Telecommunications Pathways and Spaces

continued development of a draft addendum for contribution to TR-42.9, which will cover industrial pathways and spaces for the developing industrial cabling standard (which will be ANSI/TIA-1005 *Industrial Telecommunications Infrastructure Standard*). A specific request from the industry regarding the use of pulling lubricants on data cabling was addressed and resulted in the formation of the Conduit Fill Task Group, which continues investigating several issues related to this topic, with results expected to appear in the next revision of TIA-569-B *Commercial Building Standard for Telecommunications Pathways and Spaces*. TR-42.3 also created a working group, TR-42.3.1.

TR-42.3.1, a working group established in 2007 for premises telecommunications bonding and grounding, develops and maintains standards for premises telecommunications bonding and grounding systems that specify the requirements for a telecommunications bonding and grounding infrastructure and its interconnection to other systems where telecommunications equipment will be installed. The working group was formed to revise J-STD-607-A *Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications* and bring this document to current industry

standards, as well as to broaden the scope and address additional applications such as data centers and industrial buildings.

### Subcommittee TR-42.5 Telecommunications Infrastructure Terms and Symbols

maintains a master list of terms, definitions and abbreviations for the suite of documents in TR-42. In 2008, initiatives were started to begin additional master lists of symbols and historical references.

### Subcommittee TR-42.6 Telecommunications Infrastructure and Equipment

**Administration**, owners of the TIA-606-A *Administration Standard for Commercial Telecommunications Infrastructure* standard on administration of cabling networks, reaffirmed this standard and issued an erratum to remove a cable color coding that could create a potential point of conflict with some national and local codes.

TR-42.6 initiated a project to create an addendum to TIA-606-A, expected in 2008, describing requirements for administration of equipment rooms and data center computer rooms. Additionally, TR-42.6 is expected to begin work on a second revision to the 606-A standard in order to expand the administration elements beyond commercial building cabling.

### Subcommittee TR-42.7 Telecommunications Copper Cabling Systems

worked more closely than ever with IEEE 802.3 and other standards development committees to ensure that twisted-pair cabling will support new and emerging applications such as 10GBASE-T and Power over Ethernet Plus (PoE Plus).

The majority of TR-42.7's efforts were focused on finalizing the requirements for Category 6A ("augmented Category 6") cabling, the minimum grade of copper cabling that can support 10GBASE-T over generic 100-meter, 4-connector topologies. These requirements are expected to be published as ANSI/TIA/EIA-568-B.2-10 *Performance Specifications for 4-Pair 100 Ohm Augmented Category 6 Cabling* in early 2008.

Of particular interest to TR-42.7 is the specification of the maximum current carrying capability of twisted-pair cabling, which will potentially allow IEEE to double the power supplied to remote devices over Category 5e, and higher, rated channels. Work on this subject commenced in 2007 and the subcommittee's research and conclusions are anticipated to be published in a TSB in 2008.

Looking forward, projects are expected to create new standards for customer-owned telecommunications cabling in new markets such as healthcare facilities and large-area facilities.



**TR-42.8 revised a table for applications and optical fiber testing requirements for inclusion in developing 568-C.0 standard under the TR-42.1 subcommittee.**

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2007 also marked the year that TR-42.7 initiated the massive task of drafting the ANSI/TIA/EIA-568-C.2 *Commercial Building Telecommunications Cabling Standard Part 2: Balanced Twisted-Pair Cabling and Components* standard, which will contain all the requirements and performance criteria for category 3, 5e, 6 and 6A components (connecting hardware, patch cords and cable) and cabling (channels and permanent links), as well as laboratory verification and field test measurement procedures.

**Subcommittee TR-42.8 Telecommunications Optical Fiber Cabling Systems** had

a busy 2007, with a focus on the revision of ANSI/TIA/EIA-568-B.3 *Commercial Building Telecommunications Cabling Standard – Part 3 Optical Fiber Cabling Components* standard while also supporting the new ANSI/TIA-568-C.0 *Generic Telecommunications Cabling for Customer Premises* standard. ANSI/TIA/EIA-568-C.3 *Optical Fiber Cabling Component* standard, released for publication

in late 2007, contains requirements for premises optical fiber components including cable, connectors and mounting hardware. ANSI/TIA-568-C.0, on the other hand, includes requirements for the use of these components. For example, both documents include array connectors – ANSI/TIA 568-C.3 having a component specification and ANSI/TIA-568-C.0 ensuring the polarity of the cabling system. These systems are intended to support new work in IEEE for 40 Gigabit Ethernet and 100 Gigabit Ethernet.

TR-42.8 revised a table for applications and optical fiber testing requirements for inclusion in developing the TIA-568-C.0 standard under the TR-42.1 subcommittee.

**Subcommittee TR-42.9 Industrial Telecommunications Infrastructure** has been

writing a standard for telecommunications infrastructure serving industrial spaces. The standard will be based on the TIA-568 series standards

and will detail exceptions required to accommodate industrial environments and applications. This standard will define requirements for cabling components and limits for the system performance. This standard is intended for, among others, vendors, IT personnel and controls engineers who design, install and maintain industrial networks and components.



## TR-42 User Premises Telecommunications Cabling Infrastructure



**Chair, TR-42**  
**Herb Congdon**  
Tyco Electronics

**Vice Chair, TR-42**  
**Bob Jensen**  
Fluke Networks

### SUBCOMMITTEES:

**TR-42.1** Generic Telecommunications  
Cabling and Premise Cabling  
*Chair:* Henry Franc  
Belden Networks Div.

*Vice Chair:* Glenn Sexton  
Northwest Information Services

**TR-42.2** Residential Telecommunications  
Infrastructure

*Chair:* John Pryma  
Genesis Cable

*Vice Chair:* Tom Boucino  
CommScope Network Div.

**TR-42.3** Commercial Building  
Telecommunications Pathways  
and Spaces

*Chair:* Steve Huffaker  
JPMorgan Chase

*Vice Chair:* Ray Emplit  
Wiremold

**TR-42.4** Customer-owned Outside Plant  
Telecommunications Infrastructure  
—Inactive

*Chair:* Henry Franc  
Belden Networks Div.

**TR-42.5** Telecommunications Infrastructure  
Terms and Symbols

*Chair:* Paul Kish  
Belden Networks

*Vice Chair:* Henry Franc  
Belden Networks Div.

**TR-42.6** Telecommunications Infrastructure  
and Equipment Administration

*Chair:* Steve Huffaker  
JPMorgan Chase

*Vice Chair:* Jonathan Jew  
J&M Consultants

**TR-42.7** Telecommunications Copper  
Cabling Systems

*Chair:* Valerie Maguire  
The Siemon Co.

*Vice Chair:* Jonathan Jew  
J&M Consultants

**TR-42.8** Telecommunications Optical Fiber  
Cabling Systems

*Chair:* Bob Jensen  
Fluke Networks

*Vice Chair:* Julie Roy  
C2 Consulting

**TR-42.9** Industrial Telecommunications  
Infrastructure

*Chair:* Bob Lounsbury  
ODVA Rockwell

*Vice Chair:* Brian Shuman  
Belden Networks Div.

### TR-42 Committee Participants

3M Comm. Markets Div., ADC Telecomm., Inc., Agilent Technologies, Inc., Allied Telephone and Data Corp., Anixter Inc., Avaya, Baxter Enterprises, Beast Cabling Systems, Bechtel Telecom, Bel Stewart Connectors, Belden Networks Div., Berk-Tek, Broadcom Corp., Business Comm. Svcs., C2 Consulting, Chatsworth Products, Inc., Ciena Corp., Cisco Systems, Inc., CommScope Network Div., Connectivity Technologies, Inc., Corning Inc., CSI TeleComm., Defense Supply Center, Columbus, Diamond USA, Inc., Dietrich Lockard Group, Inc., Draka Comteq Optical Fibre, Emtelle US Inc, ERICO Inc., EXFO E.O. Engineering, Inc., Expor Photonics, Inc., FiberSource Inc., Fluke Networks, Furukawa Industrial S.A., GarrettCom, Gemalto, Inc., General Cable, Genesis Cable Systems, Graybar, Greenlee Textron Inc., HARTING, Inc. of North America, Henkels & McCoy Inc., Hitachi Cable, Ltd., Homaco, Hubbell Premise Wiring, ICC, Ideal Industries, Inc., Intertek Testing Services, ITW Linx, J&M Consultants, Inc., JPMorgan Chase & Co., KITCO Fiber Optics, Leviton Network Solutions, MC Comm., Molex Inc., Motorola, Inc., National Technical Systems (NTS), NetGemini, Inc., NIES (Nexans Intel. Ent. Solutions), Nortel Networks, Northwest Information Services, Noyes Fiber Systems, ODVA Open DeviceNet Vendor Assoc., Inc., OFS, Ortronics, Inc., Panasonic Electric Works Laboratory of America, Panduit Corp., Phoenix Contact, Photon Kinetics, Inc., PPC, Quabbin Wire & Cable Co., Inc., RIT Technologies Inc., RTKL Associates Inc., SMP Data Comm. Inc., Soapstone Networks, Solvay Solexis, Sumitomo Electric Lightwave Corp., Superior Essex, Surtec America, Telcordia Technologies, Inc., Tellabs, Inc., The Fiber Optic Assoc., The Siemon Co., The Wiremold Co., Timbercon, Inc., Tyco Electronics, U.S. Dept. of Commerce, UL Underwriters Laboratories Inc., US Conec LTD, Westell Technologies, Inc., Wiltec Technologies, Wiremold, Xtellus Dynamic Optics, Yazaki NA Inc., Y-Connect Oper.

## TR-45 Mobile and Personal Communications Systems

**ENGINEERING COMMITTEE TR-45** develops performance, compatibility, interoperability and service standards for mobile and personal communications systems. These standards pertain to, but are not restricted to, service information, wireless terminal equipment, wireless base station equipment, wireless switching office equipment, ancillary apparatus, auxiliary applications, inter-network and intersystem operations, interfaces, and wireless packet data technologies.

### 2007 OVERVIEW

2007 was another very active year for TR-45 standards development. Among the subcommittees and ad-hoc groups, 75 projects were opened, 172 documents were balloted and 98 documents were published. Highlights of 2007 include completion of the Ultra Mobile Broadband (UMB) air interface standards, standards to support the UMB Converged Access Network (CAN) and the continued harmonization of IMS/MMD (IP Multimedia Subsystem/Multimedia Domain) standards, along with significant progress in the migration of this work toward a common IMS in 3GPP, IMT-2000 TDMA-SC and CDMA-MC updates to the ITU-R M.1457 series of documents, and interoperability standards for HRPD (High Rate Packet Data) and UMB.

In addition to standards development, TR-45 was a key contributor to the Global Standards Coordination (GSC) - 12 meeting held in July 2007 in Japan. It played an active role in the FCC Commercial Mobile Service Alert Advisory Committee (CMSAAC) on behalf of TIA and commenced two Joint Standards Development projects with ATIS based on the new ATIS/TIA Memorandum of Understanding for Joint Standards Work. It continued its outreach and education programs for ESN and UIMID migration to the new Mobile Equipment Identifier (MEID) and Expanded UIMID (E-UIMID) through the tremendous efforts of the ESN/UIMID/MEID Ad-Hoc Group (EUMAG) in collaboration with the TIA ESN Administrator, the Wireless Communications Division (WCD), 3GPP2, the CDG and the FCC.

2008 is anticipated to be another exciting and busy year for TR-45, particularly for the

development of interoperability standards to support the converging world of technologies, and also, as TIA moves forward as a partner in 3GPP2, with standards to support the ITU-R requirements for IMT-Advanced.

TR-45 is comprised of five subcommittees and a number of standing ad hoc groups (AHGs), which focus on various aspects of wireless mobile and Personal Communications Systems (PCS) specifications and standards. In addition to maintaining and enhancing standards for legacy cellular and PCS, the committee continues to support the International Telecommunication Union (ITU) with input to the Recommendations for International Mobile Telecommunications (IMT)-2000 and IMT-Advanced and to work in conjunction with the Third Generation Partnership Project 2 (3GPP2) on development of standards for the Next Generation Networks (NGN).



## 2007 ACTIVITIES

Committee TR-45 and its subcommittees published many industry standards and Telecommunications Systems Bulletins (TSBs) that provide the basis for mobiles and the mobile infrastructure for multiple radio interfaces. Highlights of the numerous projects, publications and activities of the subcommittees and AHGs are described below.

### Subcommittee TR-45.2

#### Wireless Intersystem

**Technology** is focused on the development of network interface standards and service definitions to support interoperability and intersystem operations for interfaces between those network elements that comprise the wireless intersystem infrastructure. Subcommittee TR-45.2 continues to work closely with 3GPP2 TSG-X and 3GPP2 TSG-S to transpose specifications developed in 3GPP2 into TIA standards.

During 2007, Subcommittee TR-45.2 approved more than 70 standards for publication. Key among these standards were nearly 50 revisions of the multi-part TIA-664, *Wireless Features Description* series of standards; more than a dozen legacy TIA-41, *Mobile Application Part (MAP)* series of standards associated with voice feature scenarios, signaling protocols, call processing, intersystem operations and more; two revisions of the TSB-151, *IP Network Architecture Model for*

*cdma2000® Spread Spectrum Systems* TSB-151-A and TSB-151-B; and more.

In addition, Subcommittee TR-45.2 has approved for publication standards in the IMS/MMD ("All IP" Core Network) and MMS (Multimedia Messaging Service) domain including:

- TIA-1069, *Conferencing Using the IP Multimedia (IM) Core Network (CN) Subsystem*
- TIA-1124, *All-IP System – MMD Policy Enhancements System Requirements*
- TIA-1133, *All-IP Network Emergency Call Support – Stage 1 Requirements*
- TIA-1109, *Short Message Service over IMS*

Looking forward to 2008, Subcommittee TR-45.2 will play a significant role in two key industry initiatives. The first is the industry migration of work from various organizations (e.g., TISPAN, CableLabs, 3GPP2, WiMAX Forum) into 3GPP for the development of a Common Core IMS. The other initiative is the joint standards development work with ATIS to support Commercial Mobile Alert Service (CMAS).

**Subcommittee TR-45.3 Time Division Digital Technology** is assigned the authority to develop performance, compatibility and interoperability standards for equipment that makes use of the Time Division Multiple Access (TDMA) technology for radio access in a system that supports any combination of

international, public, non-public or residential mobile and personal communications.

In 2007, TR-45.3 continued to work jointly with the ATIS Wireless Technologies and Systems Committee (WTSC) to provide updates to the ITU-R Working Party 5D (formerly 8F) on the TDMA-Single Carrier (SC) in Recommendation ITU-R M.1457 on IMT-2000. In 4Q07, TR-45.3 adopted the following TIA/EIA-136-F specifications for ANSI letter balloting:

- SP-3-4027-370-RV2-EAD1 to be published as TIA/EIA-136-370-B-1(E) *TDMA Third Generation Wireless Enhanced General Packet-Data Service (EGPRS-136)*, which provides an overview of the Enhanced TDMA Packet-Data Service for 200 KHz channels
- SP-3-4027-376-RV2-EAD1 to be published as TIA/EIA-136-376-B-1(E) *TDMA Third Generation Wireless Enhanced General Packet-Data Service (EGPRS-136) Mobility Management (MM)*, which provides a description of mobility management for the Enhanced Packet-Data Service of TIA-136, including location tracking and confidentiality

2008 is anticipated to be another exciting and busy year for TR-45, particularly for the development of interoperability standards to support the converging world of technologies...



Overall, cdma2000® standards for spread spectrum systems approved by TR-45.5 for publication in 2007 are too numerous to list in this report.

- SP-3-4027-377-RV2-EAD1 to be published as TIA/EIA-136-377-B-1(E) *Third Generation Wireless EGPRS-136 Gs Interface Specifications*, which provides a description of the packet data service interface between the MSC/VLR and the SGSN
- SP-3-4027-440-RV2-EAD1 to be published as TIA/EIA-136-440-B-1(E) *Third Generation Wireless Adaptive Multi Rate (AMR) Codec*, which provides a description of the AMR speech service, including speech coding, channel coding and link adaptation

Looking forward to 2008, Subcommittee TR-45.3, along with Subcommittee TR-45.5, will work with ATIS WTSC on a joint standards development project for an interference and co-existence standard. TR-45.3 will continue to work jointly with ATIS WTSC on providing updates to IMT-2000 TDMA-SC in ITU-R M.1457.

#### **Subcommittee TR-45.4 Radio to Switching Technology and Spaces**

is responsible for standards that pertain to the interface between the radio network and those network elements that comprise the infrastructure. Subcommittee TR-45.4 continues to work closely with 3GPP2 TSG-A on the

development of these standards in support of services to wireless subscribers, service definitions, ancillary apparatus and auxiliary applications related to the Radio Access Network (RAN).

In 2007, Subcommittee TR-45.4 approved several standards for publication, including:

- TIA-878-0 v4.0 and TIA-878-A v2.0 and TIA-878-C, *High Rate Packet Data (HRPD) Interoperability Specification (IOS) Radio Access Network Interfaces with Session Control in the Access Network*
- TIA-1878-0 v3.0 and TIA-1878-A v2.0 and TIA-1878-C, *High Rate Packet Data (HRPD) Interoperability Specification (IOS) Radio Access Network Interfaces with Session Control in the Packet Control Function*
- TIA-1134, *Interoperability Specification (IOS) for Ultra Mobile Broadband (UMB) Radio Access Network Interface*
- TIA-2001.1-E ~ TIA-2001.7-E, *Interoperability Specification (IOS) for cdma2000® Access Network Interfaces*
- TIA-2006-A, *Broadcast Multicast (BCMCS) Interoperability Specifications (IOS)*

Looking forward to 2008, Subcommittee TR-45.4 expects to complete standards on Inter-Technology handoff, E-UTRAN-HRPD IOS Interworking, WiMAX-HRPD Interworking and more.

#### **Subcommittee TR-45.5 Spread Spectrum Digital Technology**

has been charged with authority to develop performance, compatibility and interoperability standards for Spread Spectrum Digital wireless access systems standards. In 2007, TR-45.5, in conjunction with 3GPP2 TSG-C, continued to enhance and evolve cdma2000®

standards for spread spectrum systems.

TR-45.5 is proud to announce that the Ultra Mobile Broadband (UMB) Air Interface Specification series of standards, TIA-1121.000 through TIA-1121.009, was completed in an unprecedented time frame. Overall, cdma2000® standards for spread spectrum systems approved by TR-45.5 for publication in 2007 are too numerous to list in this report. Therefore a representative list is provided below highlighting a few of the key cdma2000® family of standards for spread spectrum systems developed in 2007.

- TIA-127-C, *Enhanced Variable Rate Codec Speech Service Option 3 and 68 for Wideband Spread Spectrum Digital Systems*
- TIA-707.10-B-1 and TIA-707.12-B-1, *Data Service Option for Spread Spectrum Systems*
- TIA-718-B, *Minimum Performance Specification for the Enhanced Variable Rate Codec, Speech Service Options 3 and 68 for Spread Spectrum Digital Systems*
- TIA-637-B-1 and TIA-637-C-1, *Short Message Services (SMS) for Wideband Spread Spectrum Systems*
- TIA-864-A-1, *Recommended Minimum Performance Standards for cdma2000® High Rate Packet Data Access Network*
- TIA-856-A-2 and TIA-856-B and TIA-856-B-1, *cdma2000®, High Rate Packet Data Air Interface Specification*



- TIA-915-A-1, *CDMA Card Application Toolkit (CCAT)*
- TIA-924, *Packet Switched Video Telephony Services (PSVT/MCS)*
- TIA-1006-1 and TIA-1006-A, *High Rate Broadcast Packet Data Air Interface Specifications*
- TIA-1011-1 and TIA-1011-A, *Multimedia Messaging Service Media Formats and Codecs for cdma2000® Spread Spectrum Systems*
- TIA-1012, *Multimedia Streaming Service (MSS) for cdma2000® Spread Spectrum Systems*
- TIA-1037, *Recommended Minimum Performance Standards for cdma2000® Spectrum Repeaters*
- TIA-1054-A and TIA-1054-A-1, *High Rate Packet Data Supplemental Services*
- TIA-1094, *Interworking Specification for cdma2000®, 1x and High Rate Packet Data Systems*
- TIA-1133, *Video Code for 3GPP2 Packet Switched Multimedia Services*

As the industry leader in spread spectrum standards development, TR-45.5 supports and contributes to many regional and international standards-related organizations. TR-45.5 continues to provide updates to the ITU-R Working Party 5D (formerly, WP 8F) on CDMA Multi-Carrier (MC) in the ITU-R Recommendation M.1457 on IMT-2000. Additionally, TR-45.5 continues to support other ITU-R initiatives, such as Land Mobile Handbook on the Deployment of Broadband Wireless Access Systems (BWA), IMT-Advanced, LMS PPDR WHF-UHF and more.

Key focal points for TR-45.5 in

2008 will be projects on inter-working standards for cdma2000® High Rate Packet Data (HRPD) between Long Term Evolution (LTE) and WiMAX systems, along with enhancements to Location Based Services, UMB feature enhancements, minimum performance, as well as test and software distribution. Moving forward, TR-45.5 will continue to lead by example by continuing to produce high quality and technically sound standards.

#### **Subcommittee TR-45.6**

##### **Adjunct Wireless Packet**

**Data Technology** is chartered with developing performance, compatibility and interoperability standards for equipment that supports wireless packet data services, which may be deployed as an integral part of a cdma2000® system. In addition, TR-45.6 is charged with developing standards relative to cdma2000® packet data network technologies and lawfully authorized electronic surveillance standards.

Projects completed for publication in 2007 include standards (to be published as TIA 835-D); WLAN Interworking (to be published as TIA-1050); Alternate PPP (to be published as TIA-1100); and the series of documents for the Converged Access Network (to be published as TIA-1137).

Projects under way include Revision A of the CAN series (to be published as TIA-1137-A); Interworking between HRPD and WiMAX (to be published as TIA-1056); Interworking between

HRPD and LTE (to be published as TIA-1057); Core Network Aspects for Femtocells; HRPD Fast Handoff (to be published as TIA-1115); Mobile IP Enhancements (IMIPv4) (to be published as TIA-1116); Mobile IP Enhancements (MIPv6) (to be published as TIA-1117); LAES for cdma2000® Packet Data Services; WLAN Interworking (to be published as TIA-1050); and cdma2000® Wireless IP Network standard (to be published as TIA-835-E).

#### **The TR-45 Ad Hoc**

##### **Authentication Group (AHAG)**

continued to develop drafts of procedures and to conduct reviews of requirements related to any number of security and authentication-related topics and issues. During 2007 the AHAG recommended that TR-45 approve for publication the following standards:

- TIA-946-2[E], *Enhanced Cryptographic Algorithms*
- TIA-1091, *IMS Security Framework*
- TIA-1097, *Security Mechanisms Using GBA*
- TIA-1098, *Generic Bootstrapping Architecture (GBA) Framework*

**As the industry leader in spread spectrum standards development, TR-45.5 supports and contributes to many regional and international standards-related organizations.**



Thanks to the conservation efforts of the EUMAG and the TIA ESN Administrator, the expected timeframe for ESN exhaust has been extended into 2008.

On behalf of TR-45, the AHAG reaffirmed that the revised Authentication and Key Agreement (AKA) joint control agreement with 3GPP SA remained in effect in 2007. During 2008, the AHAG anticipates recommending that TR-45 approve the publication of standards on CAVE-based IMS security, revisions to TIA-946, TIA-1098, TIA-1097 and UMB security algorithms.

**TR-45 Electronic Serial Number (ESN)/User Identification Module ID (UIM)/ Mobile Equipment Identity (MEID) Ad Hoc Group (EUMAG)** continues to support TIA on global numbering issues and administrative initiatives. Through TIA, the EUMAG has led the industry by providing recommendations on numbering topics paramount to the industry including the migration to MEID, MEID global hexadecimal administration and guidelines, UIM ID manufacturer codes, UIM administration, ESN manufacturer codes, ESN reclamation and re-use, and ESN administration.

One of the primary issues addressed by the EUMAG during 2007 was to research (with the support of the ESN and UIM ID

Administrators) ESN assignments for UIM IDs derived from ESNs, paying particular attention to the distribution sequence in anticipation of ESN exhaust. The ESN Administrator and EUMAG continue to research candidate ranges for the voluntary return of ESN Manufacturer Codes from manufacturers. Thanks to the conservation efforts of the EUMAG and the TIA ESN Administrator, the expected timeframe for ESN exhaust was been extended into 2008.

EUMAG continues to reach out and work closely with related industry fora. Per the direction of TR-45, EUMAG sustains a working relationship with 3GPP2 on MEID, expanded UIM ID and other topics. Additionally, the work of EUMAG includes maintaining the editorship of the *TIA ESN Assignment Guidelines and Procedures* and of the *TIA MEID Global Hexadecimal Administrator (GHA) Assignment Guidelines and Procedures*.

As a leader in the industry, EUMAG continues to educate the industry through outreach awareness programs in the management of the ESN exhaust timeline and transition to MEID. TIA has posted ESN and MEID

resource documents developed by EUMAG and related information on the TIA Web site at <http://www.tiaonline.org/standards/resources/esn> and <http://www.tiaonline.org/standards/resources/meid>. A list of answers to Frequently Asked Questions and the milestone timelines for ESN migration to MEID, as well as related links, are also available on the TIA Web site. Moreover, a TIA ESN White Paper developed by EUMAG, under the auspices of the TIA Wireless Communication Division (WCD), is posted on the Web site to raise awareness on ESN exhaust and the need to migrate to MEIDs.

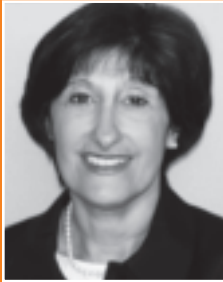
#### The **TR-45 Ad Hoc Group on Electronic Media Documentation (AHM)**

continues to recommend the use of electronic methods to support the work of Committee TR-45. Electronic methods the AHM continued to champion during 2007 include a Web-based calendar, an electronic database of contributions, Internet access at meetings and electronic sign-in at meetings.





## TR-45 Mobile and Personal Communications Systems



**Chair, TR-45**  
**Cheryl J. Blum**  
Alcatel-Lucent

**Vice Chair, TR-45**  
**Gerry Flynn**  
Verizon Wireless

**Secretary, TR-45**  
**Jane Brownley**  
Alcatel-Lucent

### SUBCOMMITTEES:

#### **TR-45.2** Wireless Intersystem Technology

*Chair:* Lewis Milton  
Motorola, Inc.

*Vice Chair:* Glenn Sexton  
Northwest Information Services

#### **TR-45.3** Time Division Digital Technology

*Chair:* Peter Musgrove  
AT&T Network Div.

#### **TR-45.4** Radio to Switching Technology and Spaces

*Chair:* George Turnipseed  
Sprint Nextel

#### **TR-45.5** Spread Spectrum Digital Technology

*Chair:* Orlett Pearson  
Alcatel-Lucent

#### **TR-45.6** Adjunct Wireless Packet Data Technology

*Chair:* Brent Hirschman  
Sprint Nextel

#### **TR-45** Ad Hoc Authentication Group (AHAG)

*Chair:* Frank Quick  
Qualcomm Inc.

#### **TR-45** Ad Hoc Group on ESN/UIM/MEID

*Chair:* Gary Pellegrino  
CommFlow Resources

#### **TR-45** AHEM Ad Hoc Group on Electronic Media Documentation (AHEM)

*Chair:* Peter Nurse  
Sigma Delta Comm.

### TR-45 Committee Participants

Aeroflex, Agilent Technologies, Inc., Airvana, Inc., Alcatel-Lucent, Alltel Comm., Inc., Apple, AT&T, Bell Canada, Bridgewater Systems Inc., Camiant, CDMA Development Group, Cingular Wireless, Cisco Systems, Inc., CML Microcircuits (USA) Inc., Coding Technologies, CommFlow Resources Inc., CSI TeleComm., DoCoMo Comm. Lab USA, Inc., Ericsson, Inc., ETI Connect, FBI, FTR&D LLC, Fujitsu Network Comm., Inc., Gemalto Inc., Hitachi Telecom (USA) Inc., Huawei Technologies USA, Hughes Network Systems, LLC, I'M Technologies Ltd., Intel Corp., Intellon, Intrado, IP Fabrics, Kyocera Telecomm. Research Corp., LG InfoComm U.S.A., Inc., Lockheed Martin Corp., Motorola, Inc., Movius Interactive Corp., National Comm. System, NeuStar Inc., Nokia Inc., Nokia Siemens Networks, Nortel Networks, ORCA SYSTEMS, INC., Panasonic Computer Solutions Co., Qualcomm Inc., Research In Motion Corp., Rogers Wireless, Rohde & Schwarz, Inc., RTKL Associates Inc., Samsung Electronics, Samsung Telecom America, Sanyo Fisher Co., Sharp Laboratories of America, Sigma Delta Comm., Inc., Spirent Comm., Sprint Nextel, SS8 Networks, Inc., Starent Networks Corp., Telcordia Technologies, TeleComm. Systems, Inc., Telus Mobility, Texas Instruments, Inc., Ulticom, US Cellular, UTStarcom, Inc., Verizon Wireless, VIA Telecom, Westell Technologies, Inc., ZTE USA Inc.



## TR-47 Terrestrial Mobile Multimedia Multicast (TM3)

**ENGINEERING COMMITTEE TR-47** is responsible for development and maintenance of downlink standards for a terrestrial mobile multimedia multicast system. These standards are intended to be employed by users and suppliers to promote compatible and interoperable systems to support multicast audio, video and data requirements for a wide range of commercial and public services. The committee works with other national and international standards development organizations in promoting standards harmonization. Work items are encouraged that are not duplicative of wireless data services architecture, interface and protocol development such as is done in 3GPP, 3GPP2 and the Open Mobile Alliance, among others. The engineering committee's focus is on standards for radio interfaces, testing methodologies, performance and reliability standards, and equipment design guides as they relate to terrestrial mobile multimedia multicast.

### 2007 OVERVIEW

Significant work was accomplished by the committee to support emerging deployments of TM3 systems. Committee participants continued their rigorous work pace, building on a very productive 2006. This pace was a reflection of industry interest in deploying TM3-based services. Subscribers of the TM3 services supported by the committee specifications are forecast to be more than 20 million by 2010 according to an October 2007 report by Infonetics Research ([www.infonetics.com](http://www.infonetics.com)).

With the high level of global cooperation required to support the growing TM3 market needs, the committee

continues to interact with a number of external organizations including the Mobile DTV Alliance, ETSI, 3GPP, DVB Project and the FLO Forum.

### 2007 ACTIVITIES

#### **Subcommittee TR-47.1 TM3 Forward Link Only Air Interface**

is responsible for the development and maintenance of downlink standards for a subclass of TM3 systems.

The subclass is characterized by combining the following features, among others: purpose-built, high spectral efficiency; multiple simultaneous services; layered modulation and service support; advanced coding; customized transport methods, not limited to Internet Protocol encapsulation; statistical multiplexing of variable-rate services; high-quality audio, video and data; content protection; multiple coverage areas (wide and local) within a single R.F. channel, supporting different QoS for different services within a single R.F. channel and a single service. Further features are fast switching time between services; minimized receiver power consumption without sacrificing the time-diversity performance or the speed of service switching

regardless of the service rate; and a deterministic frame structure based on a time synchronizing signal such as GPS.

These standards are intended to be employed by users and suppliers to promote compatible and interoperable systems to support multicast audio, video and data requirements for a wide range of commercial and public services.

The TR-47.1 subcommittee developed and ratified three specifications in 2007. This work builds on the four specifications (TIA-1099 *Forward Link Only Air Interface Specification for Terrestrial Mobile Multimedia Multicast*, TIA-1102 *Minimum Performance Specification for Terrestrial Mobile Multimedia Multicast Forward Link Only Devices*, TIA-1103 *Minimum Performance Specification for Terrestrial Mobile Multimedia Multicast Forward Link Only Transmission*, and TIA-1105 *Terrestrial Mobile Multicast Based on Digital Video Broadcasting for Handheld Devices Systems*) completed in 2006.

- TIA-1120 *Forward Link Only Transport Specification*
- *Minimum Performance Specification for Terrestrial Mobile Multimedia Multicast Forward Link Only Repeaters* (if approved to be published as TIA-1132)
- *Forward Link Only Media Adaptation Layer Specification* (if approved, to be published as TIA-1130), this document is progressing through an approval ballot in early 2008

The subcommittee members anticipate additional new and significant projects for 2008.

#### **Subcommittee TR-47.2 TM3**

##### **Digital Video Broadcasting**

**for Handheld Air Interface** is responsible for the development and maintenance of downlink standards for a subclass of TM3 systems based on Digital Video Broadcasting for Handheld Devices technology.

TR-47.2 specifications encompass, but are not limited to transmission system, implementation guides, validation of transmission systems and appropriate ETSI documents related to Digital Video Broadcasting for Handheld Devices. These standards are intended to be employed by users and suppliers to promote compatible and interoperable systems to support multicast audio, video and data requirements for a wide range of commercial and public services.

## **TR-47 Terrestrial Mobile Multimedia Multicast (TM3)**



**Chair, TR-47**  
**Jerry Upton**  
J. Upton Consulting

**Vice Chair, TR-47**  
**Marlis Humphrey**  
Harris Corp.

#### **SUBCOMMITTEES:**

##### **TR-47.1 TM3 Forward Link Only Air Interface**

*Chair:* Carl Stevenson  
WK3C Wireless LLC

##### **TR-47.2 TM3 Digital Video Broadcasting for Handheld Air Interface**

*Chair:* Carolyn Taylor  
Motorola, Inc.

#### **TR-47 Committee Participants**

Airvana, Inc., Alcatel-Lucent, Coding Technologies, Corning Inc., DoCoMo Comm. Lab USA, Electronics Research, Inc., Ericsson, Inc., FLO Forum, FTR&D LLC, Harris Corp., Intel Corp., Intellon, J. Upton Consulting, Kyocera Telecomm. Research Corp., LG InfoComm U.S.A., Inc., Mobile Satellite Ventures, Motorola, Inc., National Comm. System, Newport Media Inc., Nokia Inc., Nokia Siemens Networks, Nortel Networks, Panduit Corp., Qualcomm Inc., Rogers Wireless, Rohde & Schwarz, Inc., Samsung Telecom. America, Sanyo Fisher Co., Sharp Laboratories of America, Space Data Corp., Sprint Nextel, Texas Instruments, Inc., Thomson Inc., Verizon Wireless, WK3C Wireless LLC

A number of liaisons continue to progress with other organizations. Further projects are expected to start in 2008 based on work completed.

**Subscribers of the TM3 services supported by the committee specifications are forecasted to be more than 20 million by 2010 per an October 2007 report by Infonetics Research.**

## TR-48 Vehicular Telematics

**ENGINEERING COMMITTEE TR-48** is responsible for the development and maintenance of standards relating to vehicular telematics equipment and services. These standards are intended to be employed in support of vehicles that send, receive and store information. TR-48 will work with other TIA committees, national and international standards organizations, and other relevant entities to ensure work items are necessary and not duplicative.

### 2007 OVERVIEW

The new committee was approved at the TIA Technical Committee (TC) meeting on May 2, 2007, in Baltimore, Md. The first two committee meetings were held on August 16 and September 27, 2007, at TIA in Arlington, Va., to define the committee scope and then elect a Chair and Vice Chair. Subsequently, the committee met via teleconference on November 8 and December 6, 2007 to discuss the following committee tasks proposed by Tom Kurihara, Chair of the IEEE P1609 Dedicated Short Range Communication (DSRC) Working Group:

- Task 1: Develop use cases and requirements as precursors to developing standards for vehicular telematics.

- Task 2: Develop a notional architecture diagram representative of the TR-48 work program.
- Task 3: Select and extend an existing architecture to identify gaps as an initial starting point for discussion on standardization activities.
- Task 4: Develop notional market packages including the devices into a vehicular telematics system for equipment suppliers and service providers.

### 2007 ACTIVITIES

David Aylward, Director of the COMCARE Alliance, proposed the following project to review the extension of the notional architecture and standards use suggested by prior telematics emergency work (by COMCARE, HITSP ER-EHR and others) to related market segments:

The existing notional architecture and standards use include an open architecture, XML standards-

based system for delivery of messaging to various parties with interest in telematics emergency information. Organizations publish and subscribe using core services specifically for agency locator and access control/identity management, where recipients register for data, subject to policy override. Thus, any relevant organization can register for real-time notification (not only 9-1-1, but also traffic management center, EMS, air transport, police, hospital, etc.), for any incident type, for specific geographic areas, and have that data sent to the location (application, server, etc.) the organization desires – again subject to policy override. OASIS Emergency Data Exchange Language Distribution Element is used as an “envelope” for any data payload. Payloads include Vehicular Emergency Data Set (VEDS) used for telematics data, HITSP constructs used for patient information and Common Alerting Protocol (CAP) used to notify telematics service providers and others of events.



The project will investigate 1) how the above approach can be used for all mobile transportation emergency data messages, e.g., heavy trucks—especially those carrying hazardous materials; 2) what are the practical benefits of doing so; and 3) what existing data structure payloads lend themselves to this approach, e.g., the IEEE Incident Management Working Group 1512.

In addition, the committee has liaisons with a number of external organizations. For example, Dave Kraft is a member of the Society of Automobile Engineers (SAE) Truck and Bus Council and Electrical/Electronics Committee. Mr. Kraft also participated in the development of the SAE J2728 Heavy Vehicle Event Data Recorder (HVEDR) and the Wireless Roadside Inspection (WRI) Program of the Federal Motor Carrier Safety Administration (FMCSA). Tom Kurihara is a member of IEEE P1616 on Motor Vehicle Event Data Recorders (MVEDR) and SAE J1698 on Vehicle Event Data Interface (VEDI). Mr. Kurihara also participated in the SAE Ground Vehicle Council and the J2375 project on DSRC Data Dictionary and Message Sets.

## TR-48 Vehicular Telematics



**Chair, TR-48**  
**Kevin Lu**  
Telcordia Technologies

**Vice Chair, TR-48**  
**David Kraft**  
Qualcomm Inc.

### TR-48 Committee Participants

Alcatel-Lucent, ATX Group, COMCARE, Connexis, E-Copernicus, Hughes Network Systems, LLC, Kyocera Telecommunications Research Corp., OnStar Corp., Qualcomm Inc., Rogers Wireless, SAE International, Space Data Corp., Teema

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**Organizations publish and subscribe using core services specifically for agency locator and access control/identity management, where recipients register for data, subject to policy override.**



## TR-49 Healthcare ICT

**ENGINEERING COMMITTEE TR-49**, one of TIA's newest Engineering Committees, is responsible for development and maintenance of standards for healthcare ICT applications that involve medical devices, network infrastructure, applications and operations support.

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### 2007 OVERVIEW

The committee was created by the TIA Technical Committee in May 2007, had its inaugural meeting in Chicago in June 2007 during NXTcomm, joined and participated in meetings of the ANSI Healthcare Information Technology Standards Panel (ANSI HITSP), and held its elections meeting at the TIA headquarters on January 14, 2008. At this meeting the committee elected Shoshana Loeb from Telcordia Technologies as Chair.

### 2007 ACTIVITIES

TIA provided a briefing on the creation of TR-49 at the Global Standards Collaboration (GSC-12) meeting held in Kobe, Japan, in July 2007. At the previous GSC-11 meeting hosted by TIA in Chicago in 2006, the GSC had adopted resolution GSC-11/5, which

created healthcare ICT standards as a new High Interest Subject for GSC and urged a spirit of collaboration and mutual support to healthcare ICT standards development.

TIA joined the ANSI HITSP on behalf of TR-49 and sent representation to its September plenary meeting.

The committee took actions to investigate the following four areas in healthcare:

- Device systems
- Network infrastructure
- Applications/services
- Operations support

The committee noted that the Joint Advisory Committee on Communications Capabilities of Emergency Medical and Public Health Care Facilities (Joint Advisory Committee), which was established by the Chairman of the Federal Communications Commission

(FCC) and the Assistant Secretary for Communications and Information, U.S. Department of Commerce, pursuant to the Implementing Recommendations of the 9/11 Commission Act of 2007 (Act), would be issuing its report soon. The Joint Advisory Committee's mission is to examine the communications capabilities and needs of emergency medical and public healthcare facilities. Specifically, the Joint Advisory Committee is to assess:

- Specific communications capabilities and needs of emergency medical and public healthcare facilities, including the improvement of basic voice, data and broadband capabilities
- Options to accommodate growth of basic and emerging communications services used by emergency medical and public healthcare facilities



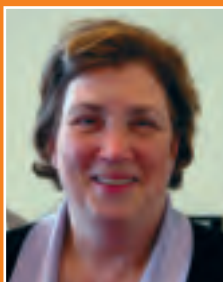


- Options to improve integration of communications systems used by emergency medical and public healthcare facilities with existing or future emergency communications networks

The Joint Advisory Committee must report its findings to the Senate Committee on Commerce, Science and Transportation and the House of Representatives Committee on Energy and Commerce within six months after the date of enactment of the Act (i.e., February 4, 2008). TR-49 scheduled its next meeting in 2008 to analyze the standards needs that will be evidenced in that report.

TR-49 continues to work on defining its role in this arena and establishing its structure.

## TR-49 Healthcare ICT



**Chair, TR-49**  
**Shoshana Loeb**  
Telcordia Technologies

### TR-49 Committee Participants

AT&T, Alcatel-Lucent, Cingular Wireless, Motorola, Inc., Qualcomm Inc., Sigma Delta Comm., Inc., Telcordia Technologies, Tyco Electronics

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**TIA joined the ANSI HITSP on behalf of TR-49 and sent representation to its September plenary meeting.**



## FO-4 Fiber Optics

**ENGINEERING COMMITTEE FO-4** is comprised of four subcommittees and eight working groups covering a wide range of fiber optic standardization subjects. The committee's goals include the timely development of high-quality standards meeting the needs of manufacturers, end users and applications employing fiber optic components and systems. The committee meets formally twice a year and is open to all interested parties.

### 2007 OVERVIEW

The committee co-located with TR-42 in February 2007 in Houston, Texas, and in June 2007 in Halifax, Nova Scotia. The meetings were attended by participants of the subcommittees and working groups, as well as by the International Electrotechnical Commission (IEC) Technical Advisory Groups (TAGs) to IEC Technical Committee (TC) 86, Fibre Optics.

TIA FO-4 takes an active interest in the ongoing activities of both domestic and international standards organizations and continues to establish liaisons with organizations having mutual interests. In North America, these include the Alliance for Telecommunications Industry Solutions (ATIS), the IEEE, the Insulated Cable Engineers Association (ICEA), International

Electronics Manufacturing Initiative (iNEMI) and IPC Optoelectronic Packaging. Internationally, the committee developed several technical contributions in support of work in the International Telecommunication Union - Telecommunication Standardization Sector (ITU-T). The committee also participated in the relevant TAGs of the International Organization for Standardization (ISO) and the IEC including:

- IEC TC 86 and its subcommittees
- Subcommittee 86A, Fibre and Cables
- Subcommittee 86B, Fibre Optic Interconnecting Devices
- Subcommittee 86C, Fibre Optic Systems and Active Devices
- ISO/IEC Joint Technical Committee 1/SC25 on Interconnection of Information Technology Equipment

### 2007 ACTIVITIES

In 2007, the FO-4 committee implemented its plan to co-locate the 2007 meetings with TIA TR-42 User Premises Telecommunications Cabling Infrastructure, with the intent to consider a merger of FO-4 and TR-42 Engineering Committees. Bob Jensen agreed to continue to serve as Acting Chair of FO-4 during the transition period.

The committee started work on upgrading 24 Fiber Optic Test Procedures (FOTP) to American National Standards. FO-4 also published a revision of TIA-455-127-A, *FOTP-127, Basic Spectral Characterization of Laser Diodes*.

The FO-4 Engineering Committee is committed to worldwide harmonization of fiber optic standards and continues to nationally adopt IEC-published standards where possible. FO-4 published TIA-472D000-B *Sectional Specification (Adopted*

**TIA FO-4 takes an active interest in the ongoing activities of both domestic and international standards organizations and continues to establish liaisons with organizations having mutual interests.**

ICEA S-87-640-2006) Standard for Optical Fiber Outside Plant Communications Cable.

The subcommittees of FO-4 balloted 25 documents and approved the following documents for publication:

- TIA-455-179  
*FOTP-179 Inspection of Cleaved Fiber End Faces by Interferometry (reaffirmed 2007)*
- TIA-455-239  
*FOTP-239 Fiber Optic Splice Loss Measurement Methods*
- TIA-604-5-D  
*Fiber Optic Connector Intermateability Standard, Type MPO*
- TSB-172  
*Higher Data Rate Multimode Fiber Transmission Techniques*

In 2008, FO-4 will be fully merged with TR-42. The subcommittees of FO-4 will become TR-42.11 (FO-4.1 Optical Systems); TR-42.12 (FO-4.2 Optical Fibers and Cables); TR-42.13 (FO-4.3 Passive Optical Devices and Components); TR-42.15 (FO-4.5 Fiber Optic Metrology). These committees will continue their excellent work in developing essential test procedures for the fiber optic cables that support the world of broadband communication.

## FO-4 Fiber Optics



**Chair, FO-4**  
**Bob Jensen**  
Fluke Networks

### SUBCOMMITTEES:

#### FO-4.1 Optical Systems

*Chair:* James Matthews  
Corning Inc.

*Vice Chair:* Gair Brown  
U.S. Navy Surface Warfare,  
DoD

#### FO-4.2 Optical Fibers and Cables

*Chair:* Tom Hanson  
Corning Inc.

*Vice Chair:* Mike Kinard  
OFS

#### FO-4.3 Passive Optical Devices and Components

*Chair:* Andre Girard  
EXFO

*Co-Chair:* Greg Sandels  
OFS

#### FO-4.5 Fiber Optic Metrology

*Chair:* Lorenz Cartellieri  
Expor Photonics, Inc.

*Vice Chair:* Tim Drapella  
NIST

### FO-4 Committee Participants

3M Communication Markets Div., ADC Telecomm., Inc., Agilent Technologies, Inc., Alcatel-Lucent, Allied Telephone and Data Corp., Beast Cabling Systems, Belden Networks Div., Berk-Tek, BTR Netcom Inc., Business Communication Services., Ciena Corporation, Cisco Systems, Inc., CommScope Network Div., Connectivity Technologies, Inc., Corning Inc., CSI Telecommunications, dbi, Defense Information Systems Agency, Defense Supply Center, Diamond USA, Inc., Draka Comteq Optical Fibre, DSM Desotech Inc., Emtelle US Inc., EXFO E.O. Engineering, Inc., Expor Photonics, Inc., FiberSource Inc., Fluke Networks, Fujitsu Network Communications, Inc., Furukawa Industrial S.A., General Cable, Greenlee Textron Inc., Hitachi Telecom (USA) Inc., Ideal Industries, Inc., Intertek Testing Services, JDSU, KITCO Fiber Optics, Leviton Network Solutions, Luna Technologies, Maz-Sky Canadian International, National Technical Systems (NTS), NIST, Nortel Networks, Northwest Information Services, Noyes Fiber Systems, OFS, Ortronics, Inc., Panduit Corporation, Phoenix Contact, Photon Kinetics, Inc., PPC, Prior Scientific, Inc., Prysmian Cables and Systems, Rogers Wireless, Soapstone Networks, Solvay Solexis, Sumitomo Electric Lightwave Corp., Superior Essex, Telcordia Technologies, Tellabs, Texas Instruments, Inc., The Fiber Optic Association, The Siemon Company, Timbercon, Inc., Tyco Electronics, U.S. Dept. of Commerce, UL Underwriters Laboratories Inc., US Conec LTD, Westell Technologies, Inc., Wiltec Technologies, Xtellus Dynamic Optics, Yazaki N.A.



## TIA Global Involvement

In addition to facilitating the formation of standards in the United States, TIA promotes the use of U. S. standards internationally and advocates U.S. policy and technical positions in international and regional standards organizations. TIA is active in numerous international standards development projects through participation in the International Electrotechnical Commission (IEC), International Organization for Standardization (ISO) and the International Telecommunication Union (ITU).

U.S. positions on technical – and certain policy – issues under consideration within the IEC and ISO technical committee structures are developed by approved U.S. Technical Advisory Groups (US TAGs) and forwarded to the international bodies as a U.S. position. TAGs also nominate the experts who will represent the United States in technical committee discussions at IEC and ISO meetings around the world. International standards development technical committees are administered by Secretariats.

Currently, TIA administers four International Secretariats and 16 US TAGs to International Technical Standards committees. TIA is also an active partner in 3GPP2. TIA shares members, co-develops standards and houses the Secretariat of 3GPP2. The following sections highlight some of these activities.



## ISO/IEC JTC 1/SC 25

### Interconnection of Information Technology Equipment

**ISO/IEC JTC 1/SC 25** focuses on the standardization of microprocessor systems and of interfaces, protocols, architectures and associated interconnecting media for information technology equipment and networks, generally for commercial and residential environments, to support embedded and distributed computing environments, storage systems, and other input/output components. NOTE: This scope includes requirements for components but excludes component specifications. It excludes the development of standards for public networks and interfaces to public networks.

#### 2007 OVERVIEW

Subcommittee 25 (SC 25) operates under Joint Technical Committee 1 (JTC 1), the committee responsible for information technology standards under two international standards bodies: ISO and IEC.

At the end of the report period, there were 150 active projects assigned to JTC 1/SC 25. Of these, 94 are published IEC or ISO/IEC standards, technical reports, amendments and corrigenda. Nine documents, varying in size from 1 to 123 pages, have been published since September 2007. Of the remaining 56 projects, four are at Final Draft International Standard (FDIS) or Final Draft Amendment (FDAM) stage, and another four are in the process of publication; for details see SC 25 N 1406. For another 17 projects, New Work Item Proposals (NWIPs) have been announced. A complete listing of the projects, including published standards and technical reports from JTC 1/SC 25, is included in the program of work as distributed by the SC 25 Secretariat.

ISO/IEC JTC 1/SC 25 is organized into three working groups and one project team, each of which is responsible for specific aspects of information technology infrastructure:

- **ISO/IEC JTC 1/SC 25/WG 1**  
- Home Electronic System
- **ISO/IEC JTC 1/SC 25/WG 3**  
- Customer Premises Cabling
- **ISO/IEC JTC 1/SC 25/WG 4**  
- Interconnection of Computer Systems and Attached Equipment
- **ISO/IEC JTC 1/SC 25 PTTT**  
- Project Team for Taxonomy and Terminology

Due to the diverse spectrum of activities, the mode of operation and liaisons differs considerably among the three working groups of SC 25. Liaisons between SC 25 and other standards committees are either for effective contribution and active participation for most of the questions, or the liaison committee wishes only to be informed of the work of JTC 1/SC 25. The committee has many liaisons within JTC 1 and IEC as well as with the European Telecommunications Standards Institute (ETSI), CENELEC, ECMA

International, ATM Forum, DSL Forum, ITU-T, the European Committee of Domestic Equipment Manufacturers (CECED) and the Open Building Information Xchange (oBIX).

#### 2007 ACTIVITIES

##### **ISO/IEC JTC 1/SC 25/WG 1 – Home Electronic System**

produces standards for home and building systems. The scope of WG 1 includes the control of equipment for environmental comfort (heating, ventilation and cooling), energy management (for conservation and utility cost containment), lighting and window coverings, audio/video entertainment, telecommunications, security, home computer networks and appliances. Home networks may be enabled by structured cabling, wireless technologies and power line carrier. This working group also considers similar network and management functions in commercial buildings.



**The architecture standard accommodates national and regional standards around the world.**

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The scope of WG 1 encompasses access to external services via residential gateways. A residential gateway links the home network, which is based on local area network technology, with an external network, based on wide area network technology such as the Internet. The gateway also provides data security, privacy and safety for devices on the home network.

In addition to the gateway project, WG 1 is writing standards for the Home Electronic System architecture, product interoperability, data security, functional safety, and device discovery and integration on a network. The architecture standard accommodates national and regional standards around the world. About a dozen countries send experts to participate at WG 1 meetings, held twice a year. WG 1 maintains liaisons with the ITU-T and with other standards bodies involved with multi-media systems, cabling systems, applications and safety.

WG 1 formal and informal liaisons include, but are not limited to, the following standards bodies:

◦ **IEC TC 65, SC 65C**, Field Bus

◦ **IEC SC 77B/WG 5**, Mains Signaling

◦ **IEC TC 79**,

Alarm Systems

◦ **IEC SC 86C**, Fibre Optics

◦ **IEC TC 100**, Audio/Video

◦ **IEC ACOS WG 1**, Advisory Committee on Safety

◦ **ISO TC 205/WG 3**, Building Automation and Protocols

◦ **ITU-T, SG-9**, Video Distribution

◦ **CENELEC TC 205 WG 5**, Gateways

◦ **CENELEC TC205 WG 16**, Monitor Single Residential Environment

◦ **INCITS R1.1**, Real-time Systems

Liaisons also include DSL Forum, GridWise Alliance and UPnP Forum.

WG 1 approved the following key standards for publication, among others:

• IEC 60948 Ed. 1.0 (1988-06) *Information technology – Home Electronic Systems (HES) – Numeric keyboard for home electronic systems (HES)*

• ISO/IEC 10192-1 Ed. 1.0 (2002-08) *Information technology – Home Electronic Systems (HES) interfaces – Part 1: Universal Interface (UI) Class 1*

• ISO/IEC 14543-2-1 (2006-08) *Information Technology – Home Electronic Systems (HES) Architecture – Part 2-1: Introduction and device modularity*

• ISO/IEC 15045 Ed. 1-0 (2004-01) *Information Technology – HES HomeGate – Part 1: A Residential Gateway Model for HES*

• ISO/IEC TR 15067-3 Ed. 1.0 (2000-10) *Information Technology – Home Electronic Systems (HES) application model – Part 3: Model of an energy management system for HES*

• ISO/IEC 18012-1 Ed. 1.0 (2004-07) *Information Technology – Home Electronic Systems (HES) - Guidelines for product interoperability – Part 1: Introduction*

• ISO/IEC 14543-3-1: 2006-08, *Information Technology –*

*Home Electronic Systems (HES) Architecture – Part 3-1: Communication layers – Application layer for HES Class 1 parts 1-7.*

WG 1 is working on the following key projects, among others:

• FDIS 14543-4-1 *Information Technology – Home Electronic Systems (HES) Architecture Part 4-1: Communications layers – application layer for the network enhanced control devices of HES Class 1*

• FDIS 14543-4-2 *Information Technology – Home Electronic Systems (HES) architecture – Part 4-2: Communications layers – Transport, network and general parts of data link layer for network enhanced control devices of HES Class 1*

• FCD 14543-5-1 *Information Technology – Home Electronic Systems (HES) architecture – Intelligent grouping and resource sharing for HES Class 2 & Class 3 – Part 5-1: Core Protocol*

• NWIP/CD 14543-5-21 *Information Technology – Home Electronic Systems (HES) architecture – Intelligent grouping and resource sharing for HES Class 2 & Class 3 – Part 5-21: Application Profile – AV Profile*

• FCD 14762 *Information Technology – Functional safety requirements for Home Electronic Systems (HES)*

• CD 15045-2 *Information Technology – HES Residential Gateway, Part 2: Modularity and Protocol*

• CD 20587 *Information Technology – A Broadband Home Network for the Home Electronic Systems (HES)*

- FCD 24767-1 *Information Technology – Home Network Security – Part 1: Security Requirements and Internal Security Services: Secure Communication Middleware Protocol*
- CD 29104-1 *Information Technology – Centralized Management Protocol (CMP) for ubiquitous home network services – Part 1: Remote management of residential gateways*

### ISO/IEC JTC 1/SC 25/WG

#### 3 – Customer Premises

**Cabling** develops generic telecommunications cabling standards. These standards support a wide variety of applications including voice, data, video and building automation. The group develops ISO standards and has participants from more than 20 countries.

Cooperation with committees developing applications for cabling include TIA TR-42, which serves as the primary technical resource used to formulate U.S. contributions and ballot responses; SC 25/WG 1; SC 25/WG 4; IEEE 802; ATM Forum; IEC SC 65C; TC 100, Information Technology ITU-T; and SC 6 to gain early knowledge about their needs and to inform them of future cabling system standards, capabilities and configurations.

Continued collaboration with IEC component committees such as TC 46, TC 48 and TC 86 provides standards on which this working group depends to create cabling system standards that ensure a consistently high level of performance and reliability

when cables and connectors are configured according to standard implementation schemes. Cooperation with committees that specify environmental conditions and test methods also supports the ongoing work of this committee and ensures market relevance of the standards it creates.

Bilateral exchange of information with regional and national standards organizations such as CENELEC, JIS, AS/NZS, TIA and others helps to maintain a high level of harmonization between international and regional standards.

Cooperation with IEC SC 65C has resulted in publication of ISO/IEC 24702: *Generic cabling for the industrial premises*. Recent approval of ISO/IEC 14763-3: *Information Technology – Implementation and operation of customer premises cabling – Part 3: Testing of optical fiber cabling*, has resulted from close cooperation with IEC TC 86, providing test specifications that may be used for cabling components, assemblies and installed systems.

WG 3 published four standards in the area of structure, minimum performance and interfaces of premises cabling: ISO/IEC 11801, Ed. 2: 2002, *Generic cabling for customer premises*; ISO/IEC 15018: *Generic cabling system for homes*; ISO/IEC 24704: *Customer premises cabling for wireless access points*; and ISO/IEC TR 24746: *Mid-span DTE power insertion into generic cabling*. WG 3 published three standards in the area of implementation and

operation of customer premises cabling: ISO/IEC 14063 Part 1: *Administration plus Amendment 1*; ISO/IEC TR 14063 Part 2: *Planning and installation*; and ISO/IEC TR 14063 Part 3: *Testing of optical fibre cabling*. The group also processed FDIS 14763-3: *Testing of optical fibre cabling*. Lastly, the group published ISO/IEC 18010: *Pathways and spaces for customer premises cabling including Amendment 1 for multi-tenant buildings*.

WG3 continues work in the area of structure, minimum performance and interfaces of premises cabling. The working group provided input on FCD ISO/IEC 24702: *ICT cabling systems for industrial premises*; PDAM 24750: *Assessment of installed cabling performance for 10GBASE-T*; FPAM Amendment 1 to ISO/IEC 11801: *to cabling classes up to 500 MHz & 1 GHz*; PDAM Amendment 1 to ISO/IEC 15018: *on baluns CD cabling for CCCB (commands, controls and communications in buildings)*; and a CD for ISO/IEC 24764: *Generic cabling for data centers*.

#### ISO/IEC JTC 1/SC 25/WG 4 Microprocessor Inter-connection of Computer Systems and Attached Equipment

develops documents for the standardization of microprocessor systems and of interfaces and protocols for the interconnection of computer systems and computer peripheral equipment.

These standards support a wide variety of applications including voice, data, video and building automation.



**The latest interfaces used in almost all computing systems are included in WG 4's program of work.**

WG 4 maintains liaisons with JTC 1 committees working on network standards and with IEC committees working on components, as well as on multimedia standards. These include, but are not limited to, IEC TC 86 (Fibre Optics) and IEC TC 65 (Field Bus).

There are about 25 active projects, and the working group published eight standards last year. Most of these projects are initiated by industry, expanded and reviewed in detail in the INCITS SCSI Technical Committee (T10), the INCITS Fibre Channel Technical Committee (T11), the IEEE MSC, and other Standards Development Organizations, and used in commonly available computer products. The latest interfaces used in almost all computing systems are included in WG 4's Program of Work. These include:

- The Fibre Channel family of standards implementing Storage Area Networks (SANs). Versions of Fibre Channel support the SCSI command set, three different avionic buses, and FICON, the latest generation of the IBM ESCON interface
- The SCSI family of protocols and commands used for all

open storage devices and almost all enterprise storage devices and for all multi-media CD drives. This includes Serial Attached SCSI, Fibre Channel, USB, FCoE and iSCSI

- Parallel and serial ATA family of standards used for the attachment of small disks in all personal computers and many small servers
- Storage management standards and Application Programming Interfaces (APIs)
- The Floating Point processors used in almost all computers (update pending)
- Responsive link, a real-time network for embedded systems, particularly robotics
- A variety of standard computer backplanes and interconnect interfaces, including Rapid I/O, VME, VMS and SBus

Standards processed by WG 4 are used throughout the world in more than a billion computing and storage systems.

The lists below show some of the latest revisions of the relevant documents that are being approved or are published by JTC 1 SC 25 WG 4. In most cases, previous revisions of the documents undergoing approval are already published as international standards. In many cases, new revisions introducing advanced and improved technologies are being developed by the responsible organizations and have not yet been submitted for international standardization.

### JTC1 SC 25 WG 14 Latest Revisions Approved or Published

ISO Part Number	Name of Standard	Title	Status	Developing Organization
14165-116	10GFC	10 Gigabit Fibre Channel	Published	INCITS T11
14165-312	FC-AE-1553	Fibre Channel Avionics Environment - ULP MIL-STD-1553B	Approval	INCITS T11
14165-314	FC-AE-RDMA	Fibre Channel Avionics Environment - SCSI-3 Remote Direct Memory Access	Approval	INCITS T11
14165-122	FC-AL-2	Fibre Channel Arbitrated Loop - Second Generation	Published	INCITS T11
14165-414	FC-GS-4	Fibre Channel Generic Services - 4	Published	INCITS T11
14165-261	FC-LS	Fibre Channel Link Services	NWIP	INCITS T11
14165-372	FC-MI-2	Fibre Channel Methodologies for Interconnects - 2	Approval	INCITS T11
14165-117	FC-MJSQ	Fibre Channel Methodologies for Jitter and Signal Quality	Published	INCITS T11
14165-331	FC-VI	Fibre Channel Virtual Interface	Published	INCITS T11

### Principal SCSI Standards

ISO Part Number	Name of Standard	Title	Status	Developing Organization
14776-413	SAM-3	SCSI Architectural Model - 3	Published	INCITS T11
14776-321	SBC-2	SCSI Block Command Set - 2	Published	INCITS T11
14776-326	RBC-2	SCSI Reduced Block Command Set - 2	Approval	INCITS T11
14776-331	SSC	SCSI Stream Commands	Published	INCITS T11
14776-351	SMC	SCSI-3 Media Changer Commands	Published	INCITS T11
14776-362	MMC-2	SCSI-3 Multi-Media Commands	Published	INCITS T11
14776-372	SES-2	SCSI-3 Enclosure Services - 2	NWIP	INCITS T11
14776-115	SPI-5	SCSI-3 Physical Interface - 5	Published	INCITS T11
14776-921	SAT	SCSI to ATA Translation	NWIP	INCITS T11
14776-232	SBP-2	Serial Bus Protocol - 2 (For IEEE 1394 bus)	Published	INCITS T11



### ISO/IEC JTC 1/SC 25 Project Team for Taxonomy and Terminology (PTTT)

resulted from a special meeting held in March 2006, which provided recommendations to make use of the established cooperation between ITU-T and ISO/IEC JTC 1 in the development of specifications with common or aligned text through a project team formed directly under SC 25. These recommendations were processed at the plenary of SC 25 in September 2006.

This team will work jointly with ITU-T, subcommittees of the IEC and JTC 1 to provide common tools that are instrumental for the development of a consistent set of standards for intelligent homes. PTTT has been chartered with responsibility for two projects:

- IT – Intelligent homes — Taxonomy of specifications (1.25.05.01)
- IT – Terminology for intelligent homes (1.25.05.02)

The primary expert representing the United States at the PTTT meeting held in Jeju, Korea, the week of September 27, 2007, was Grace Wei.

## ISO/IEC JTC 1/SC 25



### US TAG Chair:

**John Siemon**  
The Siemon Company



### ISO/IEC JTC 1/SC 25/WG 1 – Home Electronic System

#### US TAG Chair:

**Dr. Kenneth Wacks**  
MIT



### ISO/IEC JTC 1/SC 25/WG 3 – Customer Premises Cabling

#### US TAG Chair:

**David Hess**  
Berk-Tek



### ISO/IEC JTC 1/SC 25/WG 4 – Microprocessor Interconnection of Computer Systems and Attached Equipment

#### US TAG Chair:

**Robert Snively**  
Brocade Communications

## ISO/IEC JTC 1/SC 25 Committee Participants

ADC, Agilent Technologies, Inc., Bel Stewart Connectors, Berk-Tek, Brocade Communications, CommScope Network Div., Corning Inc., CyberLYNX -Gateway Corporation, Echelon Corporation, EMC Corporation, Fluke Networks, General Cable, HARTING, Inc. of North America, IBM, Ideal Industries, Inc., Intel Corp., J&M Consultants, Inc., JPMorgan Chase & Co., Leviton Network Solutions, LONMARK International, MIT, Molex Inc., Open DeviceNet Vendor Association, Inc., Panasonic Computer Solutions, Panduit Corporation, PPC, R.L. Pritchard, Sony Electronics, Surtec America, The Siemon Company, The Wiremold Company, Tyco Electronics



## IEC TC 46

### Cables, Wires, Waveguides, R.F. Connectors, R.F. and Microwave Passive Components and Accessories

**IEC TC 46** works to establish and maintain standards for the terminology, design, characteristics, related test methods and requirements for quality assessment of metallic conductors, wires, waveguide, R.F. connectors, R.F. and microwave passive components and accessories for analog and digital transmission systems and equipment for communication networks and cabling.

TC 46 has routine liaisons with IEC/TC 100, IEC/SC 65C/JWG 10A, International Telecommunication Union – Radiocommunications (ITU-R) and International Telecommunication Union – Telecommunications (ITU-T).

#### 2007 OVERVIEW

In TC 46 the U.S. Expert is the International Secretary and the United States also holds the Secretariat. The committee is comprised of 24 countries' participants who are full fledged members (i.e. "P" members) of the IEC program, and 13 countries participate as observers. The committee has three subcommittees, as well as a series of working groups that directly report to TC 46. Between July and October 2007 there were three different types of documents distributed for voting. The US TAG participated in all the voting that occurred in 2007.

The eight publications that have been issued by the committee are due for maintenance between 2008 and 2010.

The committee has formal working liaisons with the following IEC Committees: IEC/TC 100—Audio, video and multimedia systems and equipment; IEC/SC 65C/JWG10—Industrial Networks; IEC/SC 48B—Connectors; and ISO/IEC JTC 1/SC 25—Interconnection of Information Technology Equipment.

#### 2007 ACTIVITIES

##### IEC SC 46A – Coaxial Cables

is responsible for the preparation and maintenance of standards for coaxial cables and cable assemblies for analog and digital transmission systems. Currently these are for general purpose and R.F. cables of rigid, semi-rigid and flexible construction used on transmission lines, cabled distribution and similar systems. The U.S. Expert is the international Convener.

The U.S. members of IEC SC 46A voted on eight different document types (four CDV, one NP, three FDIS) in 2007.

There are multiple IEC documents due for review and comments by May 2008. The US TAG held a teleconference on March 10 to review the action documents. In all, 32 publications have been issued and eight are due for maintenance cycle review between 2008 and 2010.

In March 2007, the committee met in Washington, D.C. The International Working Group (46A/WG 3) meeting was held in Myrtle Beach, S.C. April 21-22, 2008. There were about 30 experts from Europe, Asia and the United States.

##### IEC SC 46C – Wires and Symmetric Cables

is to establish and maintain standards for wires and symmetric cable pairs and quads for analog and digital transmission systems and equipment for communication and signaling. These standards may include the following: general cable construction, electrical characteristics, transmission characteristics, mechanical



characteristics, environmental characteristics, related test methods and requirements, and quality assessment procedures.

The committee circulated 38 documents to the US TAG for review and comments. There were 11 different types of documents for voting. The U.S. participation in voting was 100 percent out of the 22 countries that are "Participating" members. Twenty publications were issued since July 2007 and 10 are due for maintenance between 2008 and 2010.

This group has one Working Group (SC 46C/WG 7) on premises cables for digital communication. US TAG is actively involved in this WG. The United States hosted its last meeting in Seattle, Wash., in August 2007. An international meeting of SC 46C has been scheduled to take place in Philadelphia May 6-9, 2008.

#### **IEC-SC 46F – R.F. and Microwave Passive**

**Components** develops standardization of R.F. and microwave passive components used in networks and cabling, including test methods for electrical, mechanical and environmental characteristics, as well as product standards.

The committee has formal liaisons with TC 100 – Audio, video and multimedia systems and equipment, JTC1/SC 25 – Interconnection of information Technology Equipment and ITU-T.

## **IEC TC 46**

### **US TAG Technical Advisor:**

**Dr. Jim Tyler**  
Superior Essex

### **Secretary:**

**John Kincaid (US)**  
CommScope

### **IEC TAG TC 46 Committee Participants**

ADC, Andrew Corporation, Applied Engineering Products, Inc., Berk-Tek, CommScope Network Div., Copperweld Bimetallic Product Business, Corning Inc., Defense Supply Center Columbus, Fluke Networks, General Cable, Ideal Industries, Inc., Jesch Consulting Company, PPC, Superior Essex, SV Microwave, Tensolite Company, TFC/Amphenol, The Siemon Company

In the past 12 months, 50 publications were issued. Most of them are due for maintenance between 2008 and 2010. Currently, two documents are open for voting. Sixteen countries voted on five different types of documents.

**IEC SC 46A – Coaxial Cables is responsible for the preparation and maintenance of standards for coaxial cables and cable assemblies for analogue and digital transmission systems.**

### **Project Stages and Associated Documents for ISO/IEC Work Items**

Project Stage	Associated Document	
	Name	Abbreviation
Preliminary Stage	Preliminary Work Item	PWI
	Approved Work Item	AWI
Proposal Stage	New Work Item Proposal	NP
Preparatory Stage	Working Draft	WD
Committee Stage	Committee Draft	CD
Committee Stage	Final Committee Draft	FCD
Enquiry Stage*	Enquiry Draft	ISO/DIA, IEC/CDV
Approval Stage	Final Draft International Standard	FDIS
Publication Stage	International Standard	ISO, IEC or ISO/IEC

\*Draft International Standard (DIS) in ISO, committee draft for vote (CDV) in IEC

**Other Abbreviations:** \*\*Technical Report ..... TR  
 \*\*Technical Specification ..... TS  
 \*\*TR & TS voting/approval procedures slightly different from above listed information

## IEC TC 76

### Optical Radiation Safety and Laser Equipment

**IEC TC 76** develops and maintains safety standards for products that generate laser and other optical radiation. The products covered range from fiber optic and free-space telecommunications systems and other information technology equipment to industrial, medical and entertainment products. Standards relating to the safety of these products are vital to achieving market acceptance. The standards need not only assure safety but also to be practical so that they do not impose an undue burden on the manufacturers and users of the products. Because of the wide diversity of product applications and the overlap of interest, TC 76 is made up of relatively permanent working groups according to application and support functions.

#### 2007 OVERVIEW

IEC TC 76 maintains liaisons with the following IEC committees:

- **IEC/TC 66** – Safety of measuring, control and laboratory equipment. Equipment under the purview of TC 66 often incorporates lasers or other optical radiation sources. TC 76 monitors TC 66 documents and provides comments or consultation as needed.
- **IEC/TC 92** – is now merged into TC 108, responsible for audio, video and other consumer electronic equipment, which often incorporates lasers or other optical radiation sources. TC 76 monitors TC 66 documents and provides comments or consultation as needed.
- **IEC/TC 110** – Flat Panel Display Devices. This equipment generates optical radiation. Therefore, their documents reference

TC 76 documents for radiation safety issues.

- **ISO/TC 172** — ISO/TC 172/SC 9 Liaison. This is a joint working group with TC 76/WG 10, which is responsible for the development and maintenance of the ISO 11553 series of standards for laser-based machine tools.
- **CIE — ICNIRP — ICNIRP** establishes safe exposure limits for non-ionizing, including optical, radiation. Liaison is maintained by joint membership. TC 76 develops hazard classifications based on the ICNIRP exposure limits. CIE and IEC TC 34A are responsible for lamps and lamp systems. IEC 62471 is a joint IEC/CIE standard for the photobiological safety of lamps and lamp systems.

62471, 60601 — Medical electrical equipment) and ISO 11553 series as follows:

#### WG 1: Optical Radiation

**Safety** reviews biological and physical data and makes recommendations/revisions of Maximum Permissible Exposure (MPE), Accessible Emission Limits (AEL) and measurement conditions.

#### WG 3: Laser Radiation

**Measurement** develops and maintains, as necessary, technical reports to be used as guides in making radiometric measurements of laser radiation levels for comparison with the AEL and MPE and performing hazard evaluations pursuant to IEC 60825-1 (Safety of laser products) — Part 1: Equipment classification and requirements.

#### WG 4: Safety of Medical Laser

**Equipment** is developing the second edition of IEC 60601-2-22 2, (Medical electrical equipment) – Part 2-22: Particular requirements for basic safety and essential performance of surgical, therapeutic and diagnostic laser equipment) as well as a guide for the safe use of medical laser equipment.

#### 2007 ACTIVITIES

There are seven working groups in TC 76. These working groups develop and maintain their respective specialty interests in the IEC 60825 – (Safety of laser products — Part 1: Equipment classification and requirements)

**WG 5: Safety of fibre optics communications systems**

deals with the safety of fiber optics communications systems. The WG develops international standards on safety of fiber optics consistent with IEC 60825 Safety of Laser Products. This includes enclosed transmission systems and semiconductor lasers.

**WG 7: High Power Lasers**

develops requirements for the radiation safety of high power lasers.

**WG 8: Development and maintenance of basic standards**

develops and maintains basic standards and annexes for the safe use of lasers, except those with specific application tasks, including complete editing of IEC 825-1, complete development of a laser light show document, a complete labels and symbols document, and a manufacturer's checklist standard.

**WG 9: Non-Coherent Sources**

develops MPEs and measurement conditions for these MPEs for broadband sources.

U.S. votes and comments were submitted on the following standards documents:

- FDIS-60601-2-22 Ed. 3 for Class 3B and 4 medical laser products
- CDV-Annex G 60825-4 Beam Delivery Systems – Normative
- CD60825-16 TR for Intense Pulsed Lights for photobiological effects
- CD60601-2-57 for Intense Pulsed Lights for photobiological effects

**IEC TC 76 Optical Radiation Safety and Laser Equipment****Chairman: Technical Advisor**

**Jerome E. (Jerry) Dennis**  
FDA/CDRH

**Secretary:**

**Dr. Gerald L. Glen**  
Consultant

**Deputy Technical Advisor:**

**Robert Weiner**  
Weiner Associates

**IEC TAG TC 76 Committee Participants**

Agilent Technologies, Inc., Alcatel-Lucent, AT&T Labs, Bushnell Performance Optics, Corning Inc., David Sliney Consulting, FDA/CDRH, Handren Associates, Inc., IBM, Intertek Testing Services, L.A.I International, Laser Product Safety LLC, Lucent Technologies Inc., Metrologic Instruments, Inc., Naval Surface Warfare Center, NIST, PSC Scanning, Inc., Rockwell Laser Industries, Texas Instruments, Inc., TÜV Rheinland of N.A., Inc., US Army Center for Health, Weiner Associates

- ISH Interpretation sheet for 60826-2 for fiber optic communications systems based on Edition 2 of 60825-1
  - DTR 60825-3 TR for laser light show and display safety
  - 60601-2-22, Medical electrical equipment – Part 2-22: Particular requirements for basic safety and essential performance of surgical, cosmetic, therapeutic and diagnostic laser equipment
  - 60825-2, Ed. 3.1: 2007-01 – Safety of laser products – Part 2: Safety of optical fibre communication systems (OFCS)
- TC 76 published the following three documents in 2007:
- 60825-1, Ed 2.0: 2007-03- Safety of laser products – Part 1: Equipment classification and requirements

## IEC TC 86 Fibre Optics

**IEC TC 86** has as its goal the preparation of standards for fiber optic systems, modules, devices and components intended primarily for use with communications equipment. This activity covers terminology, characteristics, related tests, calibration and measurement methods, functional interfaces, and optical, environmental and mechanical requirements to ensure reliable system performance.

### 2007 OVERVIEW

In TC 86, the U.S. Expert is the International Secretary, and the United States also holds the Secretariat. There are two working groups, and the committee has liaisons with IEC TC 100-Audio, video and multimedia systems and equipment and with ITU-T International Telecommunication Union.

In the past year, TC 86 has processed 23 documents and published 12 documents.

US TAG held meetings in Palm Springs, Calif. in September 2007 and in Tampa, Fla., in February 2008. The IEC general meeting will be held in Kyoto, Japan (October 27- 31, 2008). The US TAG meetings often collocate with the TIA TR-42 committee meetings.

### 2007 ACTIVITIES

**IEC/SC 86A** – Fibres and Cables prepares international standards for optical fibers and cables embracing all types of communications applications. This activity covers terminology, generic characteristics, test and measurement methods, and specifications for all types of single-mode and multimode optical fibers and all types of optical fiber indoor and outdoor cables to ensure reliable system performance and operation.

The subcommittee has formal liaisons with the following committees: IEC/TC 7 – Overhead electrical conductors; IEC/TC 11 – Overhead lines; IEC/TC 20 – Electric cables; IEC/TC 46 – Cables, wires, waveguides; R.F. connectors, R.F. and microwave passive components and accessories; IEC/TC 48 – Electromechanical components and mechanical structures for electronic equipment; IEC/TC 76 – Optical radiation safety and laser equipment; IEC/TC 78 – Live working; IEC/TC 81 –

Lightning protection; IEC/TC 89 – Fire hazard testing; IEC/TC 100 – Audio, video and multimedia systems and equipment; and ISO/IEC JTC 1/SC 25 – Interconnection of Information Technology Equipment.

The subcommittee has two working groups: WG1 – Fibres and associated measuring methods and WG 3 – Cables.

**IEC/SC 86B – Fibre Optic Interconnecting Devices and Passive Components** prepares international standards for fiber optic interconnecting devices and passive components, embracing all types of communications applications. This activity covers terminology, characteristics, related test and measurement methods and functional interfaces, including all mechanical, environmental and optical requirements to ensure interoperability and reliable performance of fiber optic interconnecting devices and passive components.

The subcommittee has liaisons with the following groups: IEC/SC

65C – Industrial networks; ISO/IEC JTC 1/SC 25 – Interconnection of Information Technology Equipment; ITU-T SG 6 – Outside Plant and related indoor installations and ITU-T (SG 15) – Optical and other transport network infrastructures.

The subcommittee has four Working Groups: WG 4: Standard tests and measurement methods for fibre optic interconnecting devices and passive components; WG 6: Standards and specifications for fibre optic interconnecting devices and related components; WG 7: Standards and specifications for fibre optic passive components; and WG COG: Fibre optic interconnecting devices and passive components – Chairman's Officers Group (COG) – Terms of reference.

In the past 12 months, more than 320 documents have been posted and circulated for US TAG review and comments. Fourteen documents are open for voting.

### **IEC/SC 86C – Fibre Optic Systems and Active Devices**

prepares international standards for fiber optic systems and active devices embracing all types of communications applications. This activity covers terminology, characteristics, test and measurement methods, and functional interfaces, including all mechanical, environmental, optical and electrical requirements to ensure interoperability and reliable system performance.

The subcommittee has liaisons with IEC/TC 76 – IEC/TC 100, ISO/IEC JTC 1/SC 25, ITU-T SG 6.

## **IEC TC 86 Fibre Optics**

### **Secretary**

**James E. Matthews III (US)**

Corning, Inc.

### **Assistant Secretary**

**Elaina Finger (US)**

Corning, Inc.

### **IEC TAG TC 86 Committee Participants**

ADC Telecomm., Agilent Technologies, Inc., Avanex New York, Berk-Tek, Chromis Fiberoptics, Ciena Corporation, Cisco Systems, Inc., CommScope Network Div., Condumex, Inc., Corning Cable Systems, Corning Inc., Defense Supply Center, Diamond USA, Inc., Draka Comteq Optical Fibre, Emtelle US Inc., EXFO E.O. Engineering, Inc., FiberSource Inc., Fluke Networks, General Cable, Greenlee Textron Inc., JDS Uniphase Inc., Lucent Technologies, Noyes Fiber Systems, NSW DoD, OFS, One Terabit, Optical Test & Standards Consultants, Photon Kinetics, Inc., R.M. MANNING Consulting, Sumitomo Electric Lightwave Corp., The Siemon Company, Tyco Electronics, U.S. Dept. of Commerce, U.S. Navy, US Conec LTD, Westover Scientific, Xtellus Dynamic Optics, Yazaki NA Inc.

There are four working groups:  
WG 1: Fibre optic communications systems and sub-systems; WG 3: Optical amplifiers; WG 4: Fiber optic active components and devices; and WG 5: Dynamic modules and devices.  
The subcommittee has seven documents open for voting.

**In the past 12 months, more than 320 documents have been posted and circulated for US TAG review and comments.**



## ISO Technical Committee 204 (ISO/TC 204) Intelligent Transport Systems

**ISO/TC 204 INTELLIGENT TRANSPORT SYSTEMS** encompasses standardization of information, communication and control systems in the field of urban and rural surface transportation, including intermodal and multimodal aspects, traveler information, traffic management, public transport, commercial transport, emergency services and commercial services, generally referred to as Intelligent Transport Systems (ITS).

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The following aspects of intercity rail are included in the work of ISO/TC 204: intermodal movement of passengers and freight; information systems relating to passenger and freight rail transport; and the use of ITS technology at the intersection of roads and rails (grade crossings or level crossings). Other aspects of intercity rail are not included in the work of ISO/TC 204.

ISO/TC 204's work does not include ITS systems that are completely self-contained in the vehicle and that do not interact with other vehicles or the infrastructure (responsibility of ISO/TC 22).

ISO/TC 204 is responsible for the overall system and infrastructure aspects of ITS, as well as the coordination of the overall ISO work program in this field, including the schedule for standards development, taking into account the

work of existing international standardization bodies.

The U.S. Technical Advisory Group (US TAG) to ISO/TC 204 is the official U.S. delegation to ISO/TC 204. Both the structure and scope of the US TAG are identical to that of ISO/TC 204, one exception being that ISO/TC 204 Working Groups (WGs) have been replaced by Working Advisory Groups (WAGs) in the US TAG.

The work program of the US TAG is also identical to that of ISO/TC 204. All work items in ISO/TC 204 have been circulated and, in many cases, developed in the US TAG prior to their approval at the international level.

### 2007 ACTIVITIES

ISO/TC 204 meets twice a year; the first meeting in 2007 took place April 23-27, 2007, in Lexington, Ky.

New work items approved for adoption in Lexington include:

- (WG 8) Interoperable fare management system – Part 2:

Recommended Business Practices for Set of Rules

- (WG 14) Curve speed warning systems (CSWS)
- (WG 14) Lane keeping assist systems (LKAS)
- (WG 16) 24101-2 Conformance Test of Application Management
- (Ad Hoc Task Force) 17384 Centrally Determined Route Guidance System – Air Interface Definition
- (WG 17\*) The use of Nomadic Devices to support ITS Service and Multimedia Provision in Vehicles

*\*At the time of the adoption of this work item, WG 17 did not yet exist.*

Work items approved for publication in Lexington include:

- (WG 1) TR 24529 Using UML in ITS standards
- (WG 1) TR 25100 User guide for harmonization of data concepts and data elements
- (WG 1) TR 25102 ITS Use Case pro forma template
- (WG 1) TR 25104 Training requirements for ITS system architecture
- (WG 9) DTR 21707 Quality of Input Data for ITSs

- (WG 14) 17387 Lane change decision aid systems
- (Ad Hoc Task Force) 17384 Centrally Determined Route Guidance System – Air Interface Definition

The second meeting of ISO/TC 204 took place October 15-19, 2007 in Qingdao, China.

New work items adopted at Qingdao include:

- (WG 16) CALM – Millimetre, MAC-related parameters
- (WG 16) Lawful Interception in ITS and CALM
- (WG 16) CALM Using 802.11

Work items approved for publication at Qingdao include:

- (WG 8) IS 22951: Data Dictionary and Message Sets for Pre-emption and Prioritization Signal Systems for Emergency

and Public Transport Vehicles (PRESTO)

- (WG 16) IS 21212: CALM using 2G Cellular Systems
- (WG 16) IS 21213: CALM using 3G Cellular Systems
- (WG 16) IS 24101: CALM – Application Management
- (WG 16) IS 21218: CALM Networking – Lower Layer SAPs

The committee also agreed to launch a revision process for the following work items:

- (WG 14) IS 17386: 2004 – Maneuvering Aids for Low Speed Operation (MALSO)
- (WG 14) IS 15622: 2002 – Adaptive Cruise Control (ACC)
- (WG 16) IS 21214: 2006 – CALM – Infrared systems

Other notable actions at the Qingdao meetings included the ISO/TC 204 resolution to create Working Group 17, Nomadic Devices in ITS Systems. The

committee also noted the approval of the preliminary work item 10992: *The use of nomadic devices to support ITS service and multimedia provision in vehicles* and resolved to call the first editing group meeting (March 12, 2008, Jeju Island, Korea) to clarify the scope of the work and to determine a plan for the project. Lastly, TC 204 resolved to hold a fourth joint workshop with the APEC/TPT (IEG) on November 10, 2008, in Ottawa, Canada.

In 2008, ISO/TC 204 will be meeting in April in Munich, Germany, and in September in Ottawa, Canada.

The US TAG to ISO/TC 204 typically meets three to four times a year with the purpose of formulating the U.S. position on the technical issues of the TC. The US TAG will meet in February, June and September 2008.



## ISO/TC 204 Leadership

**Committee Chair:** Michael Noblett  
Connexis LLC

**Committee Vice Chair:** Prof. Hironao Kawashima  
Center for Open Systems Management, Faculty of  
Science & Technology, Keio University

**Secretary:** Tyler Messa  
Telecommunications Industry Association (TIA)

### Working Groups

**WG 1: Architecture**  
Convenor: Bob Williams, United Kingdom

**WG 3: ITS Database Technology**  
Convenor: Jun Shibata, Japan

**WG 4: Automotive Vehicle & Equipment Identification**  
Convenor: Knut Evensen, Norway

**WG 5: Electronic Fee and Toll Collection**  
Convenor: Jesper Engdahl, Sweden

**WG 7: General Fleet, Commercial & Freight  
Management**  
Convenor: Lewis Sabounghi, Canada

**WG 8: Public Transport/Emergency**  
Convenor: Koorosh Olyai, USA

**WG 9: Integrated Transport Information,  
Management & Control**  
Convenor: Dean Zabrieszsch, Australia

**WG 10: Traveler Information Systems**  
Convenor: Ralf Duckeck, Germany

**WG 14: Vehicle/Roadway Warning and Control  
Systems**  
Convenor: Yoshimi Furukawa, Japan

**WG 16: Wide Area Communications/Protocol  
and Interfaces**  
Convenor: T.R. Shields, USA

**WG 17: Nomadic Devices**  
Convenor: Young-Jun Moon, Korea

## U.S. TAG ISO 204 Leadership

**Chair:** Richard Weiland  
Ygomi LLC

### Working Advisory Groups

**WAG 1: Architecture**  
Chair: Thomas Kurihara, IEEE

**WAG 3: ITS Database Technology**  
Chair: Thomas Lydon, NAVTEQ

**WAG 4: Automotive Vehicle & Equipment  
Identification**  
Chair: Dick Schnacke, Transcore

**WAG 5: Electronic Fee and Toll Collection**  
Chair: Vacant

**WAG 7: General Fleet, Commercial & Freight  
Management**  
Chair: Michael Onder, US DOT: Federal Highway  
Administration

**WAG 8: Public Transport/Emergency**  
Chair: Lou Sanders, American Public Transport  
Association (APTA)

**WAG 9: Integrated Transport Information,  
Management & Control**  
Chair: Robert Rausch, Transcore

**WAG 10: Traveler Information Systems**  
Chair: Joel Markowitz, Metropolitan Transportation  
Commission

**WAG 14: Vehicle/Roadway Warning and Control  
Systems**  
Chair: Steven Shladover, Caltrans/U of CA

**WAG 16: Wide Area Communications/Protocol  
and Interfaces**  
Chair: Richard Weiland, Ygomi LLC

**WAG 17: Nomadic Devices**  
Chair: Vacant

## Third Generation Partnership Project 2 (3GPP2)

TIA is a founding Partner of 3GPP2 and has served as the Project's Secretariat since its inception in 1999. 3GPP2 brings together more than 65 member companies of five standards developing organizations to create globally-applicable third generation and beyond wireless communications specifications based on cdma2000® technology. These specifications are then submitted to the project's organizational partners for conversion into standards. Joining TIA as the project's organizational partners are the Association of Radio Industries and Businesses (ARIB) in Japan, the Telecommunications Technology Committee (TTC), also in Japan, the Telecommunications Technology Association (TTA) in Korea, and the China Communications Standards Association (CCSA). Within TIA, TR-45 has the responsibility of balloting and approving 3GPP2 specifications into TIA standards.

2007 began with a change of leadership within the project. CCSA assumed the chairmanship of 3GPP2's Steering Committee, the body responsible for overseeing the project's technical work. This transition was accompanied by

leadership elections and changes in the project's four Technical Specification Groups (TSGs) known as TSG-A—Access Network Interfaces, TSG-C—Radio Access, TSG-S—Services and Systems Aspects, and TSG-X—Core Networks. A rotating position, in 2009 the Steering Committee chairmanship is scheduled to be held by TIA.

2007 also saw the expansion of the project's scope beyond the traditional interpretation of third generation wireless services to include features on data rates deemed to be beyond 3G or "IMT-Advanced," the term used by the ITU to denote mobile systems that include new capabilities that go beyond those of the International Mobile Telecommunications or IMT-2000 initiative.

Continuing an aggressive schedule of 10 week-long technical meetings per year, 3GPP2's 120 expert volunteers produced and published more than 150 specifications and reports in 2007 ranging from updates to the Mobile Application Part (MAP) – 3GPP2 X.S0004, which describes procedures necessary to provide subscribers with certain services requiring interaction between different

wireless systems, to a suite of Ultra Mobile Broadband (UMB) air interface specifications – 3GPP2 C.S0084.

More than 20 new work items were initiated in 2007, covering topics including:

- Enhancements to the IP Multi-Media Domain (MMD),
- Support for HRPD and 1XRTT and E-UTRAN (LTE) Mobility Interworking and Inter-Technology Handoff
- Inter-Technology Handoff support for HRPD-WiMAX™
- Interworking of UMB and E-UTRAN
- Band Class Enhancement to support 700 MHz Public Safety Band

As of December 2007, the cdma2000® customer base exceeded 417 million subscribers, per CDMA Development Group (CDG) statistics. As 3GPP2 enters its ninth year, its members will be focusing on developing IMT-Advanced enhancements and upgrades, and setting the project's strategic goals and future direction.

More information on 3GPP2's structure, activities and specifications can be found at <http://www.3gpp2.org>.

### 3GPP2 Committee Participants

Aeroflex, Agilent Technologies, AirCell, LLC, Airvana, Alcatel Shanghai Bell, Alcatel-Lucent, Alltel Comm., Inc., Award Solutions, Inc., Bell Canada, Bridgewater Systems, Camiant, Inc., China Unicom, Cisco Systems, Inc., DoCoMo US Comm. Laboratory, Dolby Laboratories, Inc., Ericsson, Inc., ETRI, France Telecom R&D, Gemalto, Inc., Hitachi, Ltd., Huawei Technologies Co., Ltd., I'M Technologies Ltd, Itochu Techno-Solutions Corp., KDDI Corp., KT Freetel, Kyocera Corp., LG Electronics, Inc., LG Telecom, Ltd., Mobile Satellite Ventures (MSV), Motorola, Inc., National Comm. System, NEC Corp., Nokia Siemens Networks, Nortel Networks, Oki Electric Industry Co., Ltd., Qualcomm Inc., Redknee, Inc., Research In Motion, Research Institute of Telecommunication Transmission, MII, Rohde&Schwarz, America, Samsung Electronics Co., Ltd., Sierra Wireless, SK Telecom, Sony Ericsson Mobile Comm. Japan, Inc., Spirent Comm., Sprint Nextel, Starent Networks Corp., Tata Systems, Tekelec, TelASIC Comm., Telcordia Technologies, Inc., TeleCommunication Systems, Inc., Telespree Comm., Telus Mobility, US Cellular, Verizon Wireless, VIA Telecom, Wireless Test Systems, ZTE Corp.

## TIA Standards Development Program Participants

TIA standards activities and programs are open to TIA members and non-members. TIA thanks the following companies and organizations for their 2007/2008 participation in formulating positions and preparing international standards and reports for use by industry and government.

3M Communication Markets Division	Cell Trees Inc	Fibrebond Corp.
4SE, Inc.	Chatsworth Products, Inc.	FLO Forum
4-WINDS LLP	Ciena Corporation	Fluke Networks
ADC	Cingular Wireless	Flykees
ADC Telecomm., Inc.	Cisco Systems, Inc.	FTR&D LLC
ADTRAN	City of Mesa, Communications Div.	Fujitsu Network Comm.
Advent Instruments, Inc.	CML Microcircuits (USA) Inc.	Fultec Semiconductor Inc.
AeroSolutions, LLC	Coding Technologies	Furukawa Industrial S.A.
Aeroflex	CommFlow Resources Inc.	FWT, Inc.
Agilent Technologies, Inc.	CommScope Inc.,	G.R.A.S. Sound & Vibration
AirCell, LLC	CommScope Network Div.	GarrettCom
Airvana, Inc.	Conexant Systems, Inc.	Gemalto Inc.
Alcatel-Lucent	Connectivity Technologies, Inc.	General Cable
Allied Telephone and Data Corp.	Corning Cable Systems	General Dynamics C4 Systems
Alltel Comm.	Corning Inc.	Genesis Cable Systems
Aluma-Form, Inc.	Crown Castle International Corp.	Genivar, LP
American Tower Corp.	CSI Telecommunications	Glen Martin Engineering
Analog Devices, Inc.	Damiano Long	Global Tower Partners
Anixter Inc.	Daniels Electronics Ltd.	Graybar
Anue Systems	Datron World Comm. Div.	Greenlee Textron Inc.
APCO Project 25	Davidson Engineering	Harger, Inc.
Apple	dbi	Harris Corp.
Aselsan Inc.	Defense Information Systems	HARTING, Inc. of North America
AST Technology Labs, Inc.	Agency	Henkels & McCoy Inc.
AT&T	Defense Supply Center, Columbus	Hewlett-Packard (formerly BT&D T)
AT&T Labs	Diamond USA, Inc.	Hitachi Cable, Ltd.
AT&T Mobility	Dielectric Comm.	Hitachi Telecom (USA) Inc.
AT&T SKYNET Services	Dietrich Lockard Group, Inc.	Homaco
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B&C Contracting Company	DoCoMo Comm. USA, Inc.	Hubbell Premise Wiring
B&T Engineering, Inc.	Draka Comteq Optical Fibre	Hughes Network Systems, LLC
Baxter Enterprises	E.F. Johnson	ICC
Beast Cabling Systems	EADS Public Safety Inc.	Icom America Inc.
Bechtel Telecom	EET, LLC	Ideal Industries, Inc.
Bel Stewart Connectors	Ehresmann Engineering, Inc.	I'M Technologies Ltd.
Belden Networks Division	Electronics Research Inc.	Industrial Engineering & Testing
Bell Canada	EMBARQ Corp.	Industry Canada
Berk-Tek	Emtelle US Inc.	Institute for Telecommunication
Black & Veatch Telecommunication	Engineered Endeavors, Inc.	Intel Corp.
Booz Allen Hamilton	ERICO Inc.	Intellon
Bourns Limited	Erico, Inc. Caddy Fastener Div.	Intertek Testing Services
Bridgewater Systems Inc.	Ericsson Inc.	Intrado
Broadcast Tower Technologies, Inc.	Etherstack	IP Fabrics
Broadcom Corp.	ETI Connect	IPC Positron
BTR Netcom Inc.	EXFO E.O. Engineering, Inc.	ITW Linx
Business Communication Svcs.	Experior Photonics, Inc.	J&M Consultants, Inc.
C2 Consulting	FAL Associates	J. Upton Consulting
Camiant	FBI	JDSU
Catena Networks	FDH Engineering	JPMorgan Chase & Co.
CDMA Development Group	FiberSource Inc.	KCI Technologies, Inc.

## TIA Standards Development Program Participants

Kenwood USA Corp.	of America	Technical Associates
KITCO Fiber Optics	Panasonic Service & Technology Co.	Technisonic Industries Ltd.
Kyocera Telecomm. Research Corp.	Panduit Corp.	Telchemy, Inc.
Leviton Network Solutions	Paul J. Ford & Co.	Telcordia Technologies, Inc.
LG InfoComm U.S.A., Inc.	Phoenix Contact	TeleCommunication Systems, Inc.
Littelfuse Inc.	Photon Kinetics, Inc.	Tellabs, Inc.
Lockheed Martin Corp.	Plantronics	Telus Mobility
LSI Corporation	POFTO & Information Gatekeepers	Texas Instruments, Inc.
Luna Technologies	Power Line Systems, Inc.	Thales Comm., Inc.
M/A-Com, Inc.	PPC	The Fiber Optic Association
Malouf Engineering International	Prysmian Cables and Systems	The Siemon Company
Marketing Information Technologies, Inc. (MIT)	Quabbin Wire & Cable Co., Inc.	The Wiremold Company
Maz-Sky Canadian International Group	Qualcomm Inc.	Thomson Inc.
MC Comm.	Radian Comm. Services	Timbercon, Inc.
Microtronix Systems Ltd.	Rohn Products	Tower Consultants, Inc.
Midland Radio Corp.	RELM Wireless Corp.	Tower Engineering Professionals
Mindspeed Technologies	Research In Motion Corp.	Tower Technology
MITRE Corp.	RISA Technologies	Towerkraft Engineering, P.C.
MLD Engineering Solutions, Inc.	RIT Technologies Inc.	TranSwitch Corporation
Mobile Satellite Ventures	Rogers Wireless	TX RX Systems, Inc.
Molex Inc.	Rohde & Schwarz, Inc.	Tyco Electronics
Motorola, Inc.	RTKL Associates Inc.	U.S. Department of Homeland Security
Movius Interactive Corp.	Sabre Towers & Poles	U.S. Dept. of Commerce
National Comm. System	SAIC	UL Underwriters Laboratories Inc.
National Technical Systems (NTS)	Samsung Electronics	Ulticom
Nello Corporation	Samsung Telecom America	Uniden America Corp.
NetGemini, Inc.	San-O Industrial Corp.	Uniden Engineering Services
NeuStar Inc.	Sanyo Fisher Company	US Cellular
Newport Media Inc.	Sharp Laboratories of America	US Conec LTD
NIES (Nexans Intel. Ent. Solutions)	Shively Labs	UTStarcom, Inc.
NIST-OLES	Sierra Wireless America, Inc.	Valmont Comm.
Nokia Inc.	Sigma Delta Comm., Inc.	Valmont-PennSummit
Nokia Siemens Networks	Sioux Falls Tower Specialists	Verizon Wireless
NORDX/Belden CDT Inc.	SMP Data Communications Inc.	Vertex Standard
Nortel Networks	Soapstone Networks	VIA Telecom
Northwest Information Services	Solvay Solexis	VTech Comm.
Noyes Fiber Systems	Sony Wireless Tech Division	Walker Engineering Inc.
NTIA	Space Data Corp.	Weisman Consultants
ODVA Open Devicenet Vendor Association, Inc.	Spirent Comm.	Westell Technologies, Inc.
OFS	Sprint Nextel	WesTower Communications Inc.
ORCA SYSTEMS, INC.	SS8 Networks, Inc.	Wiltex Technologies
Oregon State Police/SAFECOM	Stainless LLC	WK3C Wireless LLC
Ortronics, Inc.	Starent Networks Corp.	Xtellus Dynamic Optics
PacketStorm Comm., Inc.	Stealth Concealment Solutions, Inc.	Yazaki NA Inc., Y-Connect Oper.
Panasonic Computer Solutions Co.	Sumitomo Electric Lightwave Corp.	Zetron, Inc.
Panasonic Electric Works Laboratory	Superior Essex	ZTE USA Inc.
	Surtec America	
	Tait Radio Comm.	
	Tatara Systems	



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## TIA and IHS Growing the Partnership

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