

# Broadcast Technology Society Newsletter

The technologies to deliver information and entertainment to audiences worldwide, at home and on the go.

## From the President



Dear BTS Members:

I recently returned from the February IEEE Board Meeting Series in Scottsdale, Arizona, where I attended meetings of the Society Presidents Forum, Technical Activities Board (TAB), and Membership Development Committee (MDC). I also participated in a special Governance Workshop focusing on ways to make TAB more effective. As I begin my fifth year as BTS President, this is also my fifth year as a voting member of TAB. So, I've had plenty of time to observe its workings. One of the things I've observed is the diversity of issues and concerns across the 39 societies repre-

sented in TAB. So, I hope that any new approach to governance will be able to balance them effectively. The societies range in size from the fledgling Product Safety Society, with fewer than 600 members, to the mammoth Computer Society, with nearly 100,000 members. So, achieving balance is tricky, at best. BTS – with just over 2,000 members – is near the small end of the scale. And, with our largely industry-based membership, we are often “fish out of water” with respect to many other societies that are more academic and research-oriented. But, I'll get back to that later.

While I was in Scottsdale, I received the January IEEE Membership Development Progress Report. It contained some good news for BTS, but with a caveat. I reported to you in my last col-

umn the good news that BTS membership appeared to have leveled off, after a decade of steady decline. The further good news in the January report was

*continued on page 2*

## From the Editor



Over the past few years there has been considerable discussion about the state of the BTS. We have heard disturbing reports of dwindling membership most likely due to a maturing of the technology and industry that has been the focus of the Society and the members that it attracts. Although the Society has served the development of the “broadcast

industry” well over the years it had failed in recent years to adapt to the major changes in what broadcasting now encompasses. After some initial hand wringing and thoughts that BTS might fade into oblivion, its leadership has put a considerable amount of effort into looking at the root cause of the decline and more importantly what steps could be taken to reverse the trend and revitalize the BTS.

In looking at the content of this newsletter it appears that the effort *continued on page 2*

### Inside

IEEE International Symposium on Broadband Multimedia Systems and Broadcasting 2006 .....	3
NAB 2006 .....	7
The Committee on Man and Radiation (COMAR) .....	8
Report of IEC/ISO/ITU World Design Standards Cooperation Conference Digital Technologies in the Home ..	8
Chapter Activity Reports:	
New York City .....	10
Japan .....	10
Taipei .....	11
Ottawa .....	12
Perceived Use of DMB Cellular Phone	13
Congrats New Senior Members .....	14
Summary of 2005 IEEE/BTS AdCom Meeting .....	15
Visit the IEEE BTS Booth at NAB .....	15
CTIA Wireless 2007 .....	16
Call for Papers .....	17
IEEE BTS Organization .....	19

### IEEE Broadband Multimedia Symposium

#### Program Inside!

Featuring keynote speeches by Roger Quayle, Chief Technology Officer and a co-founder of IPWireless; and Chuck Dages, Executive VP, Emerging Technology, Warner Bros. Technical Operations Inc.

## From the President continued

that our membership actually had grown by 2.7 percent over last year. This is especially noteworthy in that, overall, society memberships are down 1.7 percent. In fact, of the 39 societies, only 13 had membership gains and only five had larger percentage gains than BTS. But this good news for BTS membership, in total, comes at the expense of a 6.6-percent loss of student memberships, offsetting our 3.6-percent gain in higher-grade memberships. It's interesting that overall IEEE membership shows the opposite trend – student memberships are up 5.8 percent, but higher-grade memberships are down 1.2 percent, giving a net membership increase of only 0.2 percent. And, as was pointed out in the MDC meeting, while membership from academia has grown, membership from those working in industry has been declining. The geographic distribution is also interesting – the non-US IEEE membership grew by 2.5 percent over last year, but the US membership declined by 1.4 percent. So, IEEE's growth has come mostly from non-US student members.

The big caveat that came with this Membership Report was that January normally represents the peak month for IEEE membership in any given year, because January is the month immediately prior to the running of the “terminator.” No, I'm not talking about the re-election bid of the California governor. The terminator is a software program that analyzes the membership database to find all members who have not renewed for the current year and ter-

minates their services. This program was scheduled to run in late February, so I'll be able to report the post-terminator membership statistics to you next time.

Another aspect of IEEE's membership demographics was cited by IEEE President Mike Lightner – a former TAB VP – in a pair of passionate presentations at the Governance Workshop and the Plenary Session preceding the TAB meetings in Scottsdale. Mike challenged the assembled IEEE volunteers to break out of what he perceived as a “same-old-same-old” complacency that perpetuates “our fathers' IEEE,” and to create an organization that attracts and serves the new generations of technical professionals. In particular, he noted that 75 percent of IEEE members are not engaged in research and development, and that IEEE is not serving their needs – as evidenced by the decline in membership from industry that I cited earlier.

It was good to hear the IEEE President express this view. But in some

respects, BTS is already ahead of the curve on this. Our society's membership is more industry-oriented than most, and we've already recognized the need for more practical, applications-related content in our publications and conferences. Moreover, we know that our industry is no longer “our fathers' broadcast industry.” We're beginning to evolve, through our Strategic Planning and our Initiatives in Mobile and Multimedia Broadcasting Technology. Perhaps, if IEEE can evolve as Mike Lightner has challenged it to, our BTS volunteers will feel less like “fish out of water” in TAB and IEEE, and we can achieve greater synergy by working through common concerns together, toward a mutual goal of providing products and services of value to our members' careers.

**Tom Gurley**  
**President**

**IEEE Broadcast Technology Society**  
**[tgurley@ieee.org](mailto:tgurley@ieee.org)**

## From the Editor continued

is paying off and that the patient has begun the road to recovery. In his President's column Tom Gurley has some good news about membership that may in some part be due to the new diversification of the activities of the BTS. It is also clear that we are emerging from your father's BTS that in recent years had many saying we should rename the BTS the RF Society. In this issue we have a call for papers for a special issue of our transactions that will focus on “Mobile Multimedia Broadcasting”, an announcement for the BTS sponsored IEEE International Symposium

on Broadband Multimedia Systems and Broadcasting 2006 (April 6-7, 2006 in Las Vegas), a call for papers for the 2007 edition of that symposium and an announcement for the IEEE/BTS Technology Tutorial “Delivering Television to Handheld Devices” to be presented at NAB 2006 (April 24, 2006). We also have a paper related to market research and acceptance of video delivery to cell phones in Korea and a report on the IEC/ISO/ITU World Standards Cooperation Conference - Digital

*continued on page 11*

## Newsletter Deadlines

The BTS Newsletter welcomes contributions from every member. Please forward materials you would like included to the editor at [wmeintel@computer.org](mailto:wmeintel@computer.org). Here are our deadlines for upcoming issues:

Issue	Due Date
Summer, 2006	April 20, 2006
Fall, 2006	July 20, 2006
Winter, 2006	October 20, 2006
Spring, 2007	January 20, 2007

IEEE Broadcast Technology Society Newsletter (ISSN 1067-490X) is published quarterly by the Broadcast Technology Society of the Institute of Electrical and Electronics Engineers, Inc. Headquarters address: 345 East 47th Street, New York, NY 10017-2394. Sent at a cost of \$1.00 per year to each member of the Broadcast Technology Society. Printed in USA. Periodicals postage paid at New York, NY and at additional mailing offices. Postmaster: Send address changes to: IEEE Broadcast Technology Society Newsletter, IEEE, 445 Hoes Lane, Piscataway, NJ 08855.

© 2006 IEEE. Information contained in this newsletter may be copied without permission provided that copies are not made or distributed for direct commercial advantage, and the title of the publication and its date appear.

# IEEE International Symposium on Broadband Multimedia Systems and Broadcasting 2006

*"Mobile and handheld systems for entertainment on the go"*

April 6-7, 2006

Las Vegas Hilton, Las Vegas, NV USA

Sponsored by the IEEE Broadcast Technology Society

[www.ieee.org/bts/multimedia](http://www.ieee.org/bts/multimedia)

Broadcasting, consumer electronics, telecommunications and networking technologies are rapidly converging to create new ways to broadcast rich media content to consumers on the go, via portable devices such as cell phones, PDAs, and video players. This new industry-oriented Symposium will bring together content originators and distributors, wireless service providers, and technology developers and suppliers of equipment, systems, and consumer platforms – focusing on research and development, applications, and implementation of mobile and portable multimedia systems.

Three simultaneous tracks of technical presentations on two full days:

## Thursday, April 6

- Opening Plenary Addresses
  - *FLO Forum*
  - *Mobile DTV Alliance*
- Applications & Implementation I
  - *Spectrum & Coverage Planning*
  - *Field Experience*
- Research & Development I
  - *Wireless Networks*
  - *Diversity & Space-Time Coding*
  - *Synchronization & Equalization*
- Research & Development II
  - *Video Processing*

## Friday, April 7

- Plenary Session
- Applications & Implementation II
  - *System & Service Planning*
  - *Consumer Platforms*
  - *Networks*
- Research & Development III
  - *Receiver RF Design*
  - *Video/Audio Coding & Quality Assessment*
  - *Video Compression*
- Research & Development IV
  - *Datacasting & Interactive Services*
  - *Digital Radio & DTV Enhancement*

Thursday Luncheon Keynote: Roger Quayle, Chief Technology Officer and Co-founder, IPWireless

Friday Luncheon Keynote: Chuck Dages, Executive VP, Emerging Technology, Warner Bros. New Media

Registration includes Keynote Luncheons and Thursday evening Welcome Reception.

More information can be found at: [www.ieee.org/bts/multimedia](http://www.ieee.org/bts/multimedia) or at the Symposium registration desk in the Las Vegas Hilton Pavilion, adjacent to the Convention Center.



# Thursday, 6 April 2006

## Opening Plenary

Welcoming Remarks	Tom Gurley, IEEE-BTS
MediaFLO Technology Overview – From Lab Bench to Launch	Kamil Grajski, Qualcomm & FLO Forum
Complementary Unicast/Broadcast/Podcast Topologies and Open Standards in Mobile DTV	Yoram Solomon, Texas Instruments & Mobile DTV Alliance

## Applications & Implementation I

### Spectrum & Coverage Planning

Potential Frequency Bands for Deployment of Mobile Broadcasting Applications	Christine Di Lapi, Motorola
New Needs for Radio Network Planning for TV on Mobile: Convergence of Cellular and Broadcast Networks.	Dr. Yves Lostanlen, Siradel
Coverage Issues and System Planning for Mobile Media Broadcasting	Dave Neff, Axcera

### Field Experience

Making Mobile Broadcasting a Reality in the UK	Hyacinth Nwana, Arqiva
ADTB-T Field Trials and Service Deployments in Shanghai	Zhang Wenjun, Shanghai Jiao Tong University
Handheld Digital TV Transmission Trial in Brazil	Gunnar Bedicks, Jr., Mackenzie Presbyterian University
Mobile Broadcast Testbed Development and Results	Adrian Hornsby & Irek Defée, Tampere University of Technology
Multipath and Burst Error Characterization on IP Data Transmission over ATSC DTV Channels	Wei Li, Communications Research Centre Canada
Empirical Findings on the Usage of Digital Multimedia Broadcasting (DMB) Cellular Phone	J. P. Shim, Mississippi State University

## Research & Development I

### Wireless Networks

RTP-Level Hybrid Error Correction (HEC) for DVB Systems in Wireless Home Network	Guoping Tan, Saarland University
An Approach to Efficient and Reliable Media Streaming Scheme in Mobile IPv6 Networks	Byungjoo Park, University of Florida
An MPEG-21-enabled Video Adaptation Engine for Universal IPTV Access	Toufik Ahmed, University of Bordeaux

### Diversity & Space- Time Coding

New Transmitter/Receiver Diversity Scheme in DVB-H systems over Outdoor and Indoor Environments	Yue Zhang, Brunel University
Implementing Antenna Selection in Wireless LAN	Hongyuan Zhang, NC State University
Space-Time Block Coded OFDM-based Transmitters for Mobile Wireless Multimedia Applications	Steven Freear, University of Leeds

A Novel Frame Timing Synchronization Method for MIMO-OFDM Systems

Dong Wang, Philips Research USA

### **Synchronization & Equalization**

Kahn EER Delay Mismatch Equalization for OFDM Applications

Jorge Martires, BenQ Mobile

Frequency-Domain ICI Estimation, Shortening, and Cancellation for OFDM Receivers

Charles Sestok, Texas Instruments

## **Research & Development II**

### **Video Processing**

Video Splicing for Tune-in Time Reduction in IP Datacasting over DVB-H

Mehdi Rezaei, Tampere University of Technology

A Layered Securing and Governing Approach for Scalable Video Contents Using MPEG-21 IPMP

Hendry Kim, Information & Communications University, Korea

Mobile Digital Video Broadcasting with Scalable Video Coding

Jiho Park, Samsung Electronics

Data Processing for Portable 3D Displays

Meriem Mazri and Amar Aggoun, Brunel University

MPEG-1 Video Semi-Blind Watermarking Algorithm in the DWT Domain

Ersin Elbasi, The City University of New York

Power-Dependent Adaptation Algorithm for Mobile Multimedia Networking

Janet Adams and Gabriel-Miro Muntean, Dublin City University

## **Friday, 7 April 2006**

### **Plenary**

INSTINCT: Towards a DVB-CBMS Compliant Converged Broadband Wireless Platform

John Cosmas, Brunel University

Broadband Multimedia in the Home

Jin Zhang, Mitsubishi

## **Applications & Implementation II**

### **System & Service Planning**

Bringing Video Content to Wireless Subscribers: The Need for a Mobile TV Service Platform

Jean Macher, Thales

Motivation and Implementation of a Software H.264 Real-Time CIF Encoder for Mobile Devices

Gad Berger & Richard Goedecken, Thomson

3GPP Release 6 Codecs for Audio-Visual Broadcast Services

Anisse Taleb, Ericsson Research

### **Consumer Platforms**

Developing an H.264 Video Player for Windows Mobile Devices

David Anderson, Thomson

Pocket TV: DVB-H Receiver and Mobile Phone

Ranier Grossmann, BenQ Mobile

Handset System Architectures for Mobile DTV

Rick Wietfeldt, Texas Instruments

### **Networks**

DVB-H Over WLAN

Guillaume Bichot, Thomson

A New Approach for Transmitting Localized Content within Digital Single Frequency Broadcast Networks

Gunther May & Peter Unger, Braunschweig Technical University

### Research & Development III

#### Receiver RF Design

A DVB-T Receiver Suitable for RF-SOC

Rajitha Bandara Palipana, Curtin University of Technology

A Low Power DVB-H Zero-IF Tuner IC Design in BiCMOS 0.25 $\mu$ m Technology for Mobile TV Reception

Sebastien Amiot, Philips Semiconductors

Analysis, Realisation and Measurement of Broadband Miniature Antennas for Digital TV Receivers in Handheld Terminals

Martin Buchholz, University of Applied Sciences, Saarbruecken

#### Video/Audio Coding & Quality Assessment

MPEG Surround -- Multichannel Audio for Portable and Mobile Devices

Stefan Meltzer, Coding Technologies

AMR-WB+: Low Bit Rate Audio Coding for Mobile Multimedia

Kalervo Kontola, Nokia Research Center

Subjective Video Quality Estimation

Nuno Martins, Siemens SA

Video Streaming over 1xRTT CDMA Networks Characterization and Optimization

Jim Black, Sprint-Nextel

#### Video Compression

Wavelet Video Coding Using a New Method to Reduce GOP Boundary Artifacts

Demin Wang, Communications Research Centre Canada

New Linear Loop Convolution for Improving Energy Compaction in Wavelet Transform of Image

JoonHyeon Jeon, DongGuk University

Side Information Generation for Low Complexity Video Coding Systems Based on Wyner-Ziv Theorem

Ligang Lu, IBM

### Research & Development IV

#### Datacasting & Interactive Services

Use of CDMA200 and WCDMA for the Digital Television Return Channel

Marcelo S. Alencar, Institute for Advanced Studies in Communications

Performance Evaluation of DVB-RCT Standard

Andre Reis, University of Brazil

A Modular Approach for a Java-based Service Framework in Hybrid Networks

Frank Klinkenberg, Braunschweig Technical University

Identification of Critical Degrading Parameters in a On-Board Processing Satellite for Digital Multimedia Broadcasting (DMB)

Junghwan Kim, University of Toledo

#### Digital Radio and DTV Enhancement

A New 1/4-Rate Modulation Technique for Enhanced-xVSB System

Sung Hoon Kim, ETRI

The Performance Analysis of Backward Compatible Modulation with Higher Spectrum Efficiency for DAB Eureka 147

Dr. Chih-Yang Kao, Industry Technology Research Institute

Local Radio Coverage Using the Digital Radio Mondiale International Standard: Time Variability Characterization

Pablo Angueira, University of the Basque Country



Plan to attend the

IEEE BTS Technology Tutorial

Delivering Television to Handheld Devices

to be presented at



Las Vegas, Nevada USA

Monday, April 24, 2006

1:00 PM to 5:00 PM

Chairperson

Tom Gurley, President, IEEE Broadcast Technology Society

PROGRAM

The Emergence of Digital Video Broadcast TV in Mobile Terminals: DVB-H  
Don Shaver, Director, Communications Systems Laboratory, Texas Instruments, Dallas, TX

---

Using Broadcast Standards for Handheld Devices: A DVB-H System Architecture  
Brett Jenkins, Vice President Engineering, Thales Broadcast & Multimedia, Southwick, MA

---

DVB-H Field Trials and Implementation Plans  
Michael Schueppert, Modeo LLC, Houston, TX

---

Media FLO Technology and Implementation  
Kamil Grajski, Vice President, Engineering, Qualcomm, San Diego, CA

---

WRAL Wireless – Local News to the Mobile Phone  
Sam Matheny, General Manager, Capitol Broadcasting, Raleigh, NC

---

For more information about this tutorial, and to read summaries and biographies, visit the NAB web site: <http://www.nabshow.com/Conferences/sessiondetail.asp?id=1204039>

# The Committee on Man and Radiation (COMAR)

by Jules Cohen, IEEE Life Fellow, COMAR BTS Liaison Member

COMAR was formed in 1972 as a committee under the auspices of the Technical Activities Board (TAB) of the IEEE in recognition of the fact that no “formally constituted body of scientists existed in the United States with a collective expertness in physical, engineering, biological, and medical aspects of nonionizing electromagnetic radiation.” After approximately twenty-five years of operation under TAB sponsorship, COMAR found a new home as a Technical Committee of the IEEE Engineering in Medicine and Biology Society (EMBS). A Committee Charter was approved by the EMBS AdCom on March 27, 1998.

The Charter defines the COMAR primary area of interest to be: “[T]he biological effects of non-ionizing electromagnetic energy, examining and interpreting the biological effects, and presenting its findings in an authoritative and professional manner.” Further, the Charter states that “COMAR is not charged to establish safety standards per se, although it will have an inherent interest in the standards

activities within its scope.” Membership in the Committee consists of two classes: Elected Members and Liaison Members. At present, the Committee has 36 Elected Members and ten Liaison Members. An attempt is made to maintain a balance among its engineering, physical sciences and life sciences constituencies. Membership in the IEEE is not required (except for officers) but it is encouraged.

COMAR meets twice yearly. Its meetings are coordinated with those of the International Committee on Electromagnetic Safety (ICES) since virtually all COMAR members are also members of ICES subcommittees. ICES reports to the IEEE Standards Board and develops the RF exposure standards published and sold by the IEEE.

COMAR’s principal output is represented by Technical Information Statements that are published in the IEEE Engineering in Medicine and Biology Magazine. Titles include: “The IEEE Exposure Limits for Radio Frequency and Microwave Energy”, “Electromagnetic Hypersensitivity”, “Use of ‘Pro-

TECTIVE DEVICES’ FOR CELLULAR TELEPHONES”, “Human Exposure to Radio Frequency and Microwave Radiation from Portable and Mobile Telephones and other Wireless Communications Devices”, “Safety Issues Associated with Base Stations Used for Personal Wireless Communications”, “Possible Hazards from Exposure to Power Frequency Electric and Magnetic Fields”, “Radio Frequency Interference with Medical Devices”, “Biological Effects of Electric and Magnetic Fields from Video Display Terminals”, and “Public Exposure to Radio Frequency Fields from High Definition Television (HDTV) Broadcasting”. In preparation is a TIS on exposure of medical personnel to electromagnetic fields from open Magnetic Resonance Imaging Systems.

Reports on other topics and responses to misleading comments relative to RF exposure have been prepared and printed in such places as IEEE Spectrum. Some Technical Information Statements have been translated to Spanish for wider circulation.

---

## Report of IEC/ISO/ITU World Standards Cooperation Conference on Digital Technologies in the Home

Jinyun Zhang, Mitsubishi Electric Research Labs, Boston  
Yiyang Wu, Communications Research Centre Canada

The World Standards Cooperation (WSC) conference on February 2 – 3, 2006, in Geneva, was organized and sponsored by the International Electrotechnical Commission (IEC), International Standard Organization (ISO), and International Telecommunications Union (ITU). It was targeted at high-level representatives of the major players in digital technologies in the home. IEEE BTS was invited as a representative of the broadcasting industry to participate in the conference and give a presentation. The European Broadcast Union (EBU) was the other participant from the broadcast

industry. There were about eighty delegates from different industry sectors and standards bodies, including BT, BellSouth, Canon, ETRI, KDD, Hitachi, HP, Huawei, Honeywell, NEC, NIST, Nokia, Nortel, NTT, Panasonic, Philips, Samsung, Sharp, Siemens, Sony, SUN, TI, Telecom Italia, Toshiba, IEEE-SA, ITU, HomePA, DSL Forum, and IEEE 802.15.

As the Broadcast Technology Society representatives, we found the meeting was timely and very productive. We heard various talks and discussions regarding digital home technologies, different standards,

industry organization activities, market needs, trends and related issues. The IEC, ISO and ITU-T plan to follow-up these discussions. Jinyun Zhang also gave a presentation on “Wireless Multimedia Home Applications” in the “In-Home Networking” session. The talk attracted a high level of attention and generated a number of follow-up discussions. The representatives from the IEEE Standards Board were impressed with our contribution. Following are some highlights from the conference.

This conference is the second workshop on international standards.

The first conference was held in 2004 on medical technologies. The focus of this WSC conference was digital home technologies. The objectives of the conference were:

- Highlight the strategic role of standards within this sector
- Analyze investment in standardization infrastructures
- Identify the key role standards can play from participants' different perspectives
- Review the present situation identifying key strengths of different standards development processes and their added-value as well as possible improvements
- Provide inputs on priorities and approaches to be undertaken for the future

Approximately 100 attendees from 19 countries participated. They represented all major players in the sector including IEC, ISO, ITU-T, IEEE SA and IEEE BTS, DLNA, ECHONET, DVB, CEPCA (a PLC alliance), DSL Forum, HomePNA, ZigBee/IEEE 802.15, and key CE manufacturers.

There were six sessions consisting of: (1) Access to the Home, (2) In-Home Networking, (3) Content Management, (4) Management of Equipment in the Home, (5) Best Practices, and (6) Standardizers Review. There were also two keynote speeches. One was on Networking Access given by Alan McGuire from BT, and the other was on Applications, given by Hitomi Murakami, Vice President and General Manager of the IT Development Division of KDDI.

In the opening address, Aharon Amit, IEC General Secretary, stated that the goal was to improve efficiency of the work by identifying and prioritizing the issues requiring standardization, and seeking inputs on what is needed for standardization and when it is needed.

In the Networking Access keynote speech, Alan McGuire from BT indicated that, from the application point of view, traffic bandwidth is growing. However, the cost, based on the current solution, is also rising very fast..

To maintain bandwidth growth, while keeping cost under control, is a challenge. He suggested a solution of using long reach Passive Optical Networks (PON) to integrate the access network with backhaul so intermediate equipments, interfaces and nodes can be eliminated.

During the session on "Access to the Home" the DSL representative presented an overview on DSL and indicated that the DSL Forum is focusing on solutions such as ADSL2plus & VDSL, IP-based broadband network architecture (WT-101) and so on. The next speaker was Yoichi Maeda from NTT and ITU-SG15 talked about the FTTH (fibre to the home). Based on his talk, in Japan, DSL and cable modem growth showed signs of saturation. The FTTH is an idea access solution for future digital home and can provide up to 100 Mbps per home user. It is important to have unified specifications for components and systems. The CEPCA (power line) chair gave an overview of CEPCA, emphasized the goal is to ensure a healthy PLC market, not focus on only one PLC technology, but co-existence of multiple PLC technologies. Mr. Matsumoto from NEC presented a cable perspective on access to the home.

The "In-Home Networking" Session included: Bob Heile, the chair of the ZigBee Alliance and IEEE 802.15, gave an overview on wireless technologies for home networking, including 802.11, 802.15, ZigBee and Bluetooth. He was followed by Richard Nesin, the president of HomePNA, who talked about multimedia home networking over coax and phone line. HomePNA V3 is now moving towards high volume production, and it can offer 95 Mbps user throughput over 6,000 feet for coax and 2,000 feet for phone line. IEEE BTS' representative Jin Zhang talked about wireless multimedia applications and indicated future applications require up to 2-3 Gbps wireless communications. Besides other issues, interference management is needed for both in-home and inter-home. Cognitive

radio is a candidate solution.

In the Application keynote speech, Mr. Murakami from KDDI pointed out that mobile broadband has been an important part of network access. Therefore, it is important to determine what content is to be produced and who manages the digital rights.

Four panel speakers discussed the "Content Management" session, including the challenges for home gateway, introduction of HGI's solution, home services, DRM and its interoperability. The Coral Consortium is to build an interoperability framework to work across different DRM systems.

In the session of "Management of Equipment in the Home", Wayne Daniel from Siemens discussed the issue of remote device management (RDM) using a DSL network. A speaker from Toshiba and ECHONET pointed out that over 3 million "ECHONET ready" appliances have already been shipped to the market, and they have created a new "life service solution" market. Heinz Lux introduced the EN 500090, a standard for home & building control based on KNX technology. Mr. Okamura from Panasonic discussed future DTV receivers. He highlighted high speed connectivity requirements such as IEEE 1394 and HDMI. Also, there are some new trends including multi-room access to TV content, mobility access, DTV centric network or server centric network.

The last session was on "Best Practices" which included a summary session and panel discussion.

Scott Smyers, VP, Network & System Architectures, Sony, and President of DLNA (Digital Living Network Alliance), first gave a keynote speech on DLNA, which was established in 2003 by 17 companies. The objectives of the 272-member organization are the inter-operability based on open standards and established standards. This group published the V1.0 guidelines in 2004. Current activities include designing guidelines for interoperable products and developing liaisons with other industry standards bodies

Nobuyoshi Ando of Hitachi, Vice-chairman of ECHONET (Energy Conservation and Homecare NETWORK), presented an overview of ECHONET. Edgar Wilson, DVB Commercial Module, introduced the DVB standards and activities. DVB is an industry initiative – not a standards body. All specifications are approved by consensus and all standards are based on commercial requirements

Finally, Leonardo Chiariglione (MPEG chair), Digital Media Strategist, CEDEO.net, reviewed MPEG's history and evolutions. The Moving Picture Experts Group (MPEG) is a working group of ISO/IEC JTC1/SC29, established in 1988, meeting quarterly with 300 experts from 25 countries. It created standards for digital media

including, among others, audio/video compression, system aspects, application driven aspects, video and audio description, digital items, and IP management and protection. The objective of MPEG is to define the digital media layer for all industries. The evolution has been: MPEG 2 → MPEG 4 → MPEG 7 → MPEG 21 → MPEG →, etc.

During the discussion session, attendees suggested that it is beneficial to have such meetings periodically, that coordination of various standardization bodies is necessary, and that it is advantageous to designate someone to combine all related bodies into one comprehensive picture to identify any overlaps and gaps. It was also suggested that, perhaps, there should be an organization

created to facilitate cooperation among the bodies without creating a new entity/body but, perhaps, using a specific group to ensure coordination.

During the wrap-up and summary session, all of the issues raised during the presentations and discussions were summarized, and the ISO Secretary General indicated that ISO will take actions to follow-up on this meeting. Houlin Zhao (ITU-T director) suggested that ITU-T, IEC and ISO need to promote their organizations' services and benefits more effectively. Any consortium without a strong person in charge cannot survive, he said. ITU-T JCA welcomes people to participate in their initiatives in home networking technologies. The topics for the next set of initiatives are RFID and IPTV.

---

## Activity Report: IEEE BTS New York Chapter

by Warner W. Johnston, Chair

The IEEE BTS New York Chapter will be participating in Engineering Expo 06, which is an exposition for the purpose of interesting high school students in any and all forms of engineering and technology. The regional chapters of the National Society of Professional Engineers and the American Society of Civil Engineers have developed Engineering Expo 06 as a means to allow interested students in the lower Hudson Valley region to meet representative of the some of the nation's leading learning institutions, professional societies, and businesses. By having representatives

of the New York BTS Chapter sharing their knowledge, the hope is to inspire young science and math students to pursue a career in engineering. This engineering expo is an excellent opportunity for students and their parents to discover and visit displays and interactive exhibits focusing on higher learning opportunities in engineers to meet the challenges of today and the future. In addition at least four credit earning seminars will be held for New York Professional Engineers.

The New York Section of the IEEE will have a booth at this event which

will be staffed by: GOLD representatives; Student Activities represented by Chair Balvinder Blah; Women in Engineering represented by Chair Darlene Rivera; the BTS by Chair Warner W. Johnston; the Tappan-Zee Subsection represented by Chair Robert Pellegrino; and representatives of the IEEE New York Section.

Engineering Expo 06 will be held at Dominican College, 470 Western Highway, Orangeburg, NY on Sunday April 2, 2006 from 11 AM o 4 PM.

For additional information, visit the Engineering Expo 06 web page at <http://www.engineeringexpo.org>.

---

## Activity Report: IEEE BTS Japan Chapter

by Keiichi Kubota, Chair

BTS Japan Chapter had six joint meetings below with the Institute of Image Information and Television Engineers (ITE) below during 2005.

On January 27 to 28, 2005 at Fukuoka Institute of Technology, Fukuoka, Japan. There were 34 technical presentations including 24 presen-

tations by young students on general topics for broadcasting technology.

On February 18, 2005 at NHK Hiroshima Station, Hiroshima, Japan. There were 6 technical presentations on digital broadcasting and HDTV, especially for program production for 5.1 surround audio system.

On February 25 to 26, 2005 at Hotel Sunshine Kinugawa, Tochigi, Japan. There were 13 technical presentations including 7 presentations by young students on general topics for broadcasting technology.

On June 24, 2005 at Japan Society for the Promotion of Machine Industry,



**Meeting at Fukuoka Institute of Technology on Jan., 2005.**



**Meeting at Hokkaido University on July, 2005.**



**Meeting at University of Fukui on Oct., 2005.**

Tokyo, Japan. There were 4 technical presentations on digital broadcasting and equipment for digital broadcasting.

On July 28 to 29 2005 at Hokkaido University, Sapporo, Japan. There were 17 technical presentations on transmission and reception technology for digital broadcasting.

On October 6 to 7, 2005 at University of Fukui, Fukui, Japan. There were 17 technical presentations on

digital broadcasting and antennas.

BTS Japan Chapter is planning to have six joint meetings below with the Institute of Image Information and Television Engineers (ITE) during 2006.

On January 19 to 20, 2006 at NHK Fukuoka Station, Fukuoka, Japan.

On February 10, 2006 at NHK Hiroshima Station, Hiroshima, Japan.

On February 24 to 25, 2006 at Hotel Tsubakien, Oshima, Tokyo, Japan.

On June 24, 2006 at Japan Society for the Promotion of Machine Industry, Tokyo, Japan.

On July 28 to 29, 2006 at Hokkaido University, Sapporo, Japan.

On October 6 to 7, 2006 in Tohoku Region, Japan.

For information on the Japan Council BTS Chapter, visit web site: [http://www.ieee-jp.org/japancouncil/index\\_e.htm](http://www.ieee-jp.org/japancouncil/index_e.htm)

## Activity Report: IEEE BTS Taipei Chapter

by Ying Li, Chair

A special joint event was held by the BTS Taipei Chapter with the China Radio Association (CRA) on November 20, 2005 at Taiwan Normal University, Taipei, Taiwan to celebrate the 50th anniversary of CRA (<http://www.cra.org.tw/V50CRA/En/En-Main.aspx>). A strong link exists between the CRA (members are mostly engineers at TV and Radio broadcasting stations) and the IEEE BTS Taipei Chapter. In fact our Chapter was founded by several members of CRA. The November

20, 2005 event had over 110 attendees and featured an invited presentation by Professor S. T. Peng who is an IEEE Fellow, Professor Peng is also head of the Communications Research Center and a Professor in the Communications Engineering Department of Yuan Ze University, Chungli, Taiwan.

Professor Peng's lecture, titled "Future Trend of Wireless Communications", described issues on wireless communications for automobiles (see

Fig. 1). For example, in order to deliver specific content to specific vehicle, the required location information can be collected from the vehicle's GPS but must be refined by base stations or roadside beacon information. Voice recognition and noise suppression are also very important. Another challenge lies in system integration. The on-board unit (OBU) may need to include Cellular, WLAN, DVB, DAB, GPS, and possibly other consumer electronics



**Fig. 1 Professor Song-Tsuen Peng, IEEE fellow, gave the speech "Future Trend of Wireless Communications"**



**Fig. 2 Attendees at the lecture on the future trend of wireless communications**

functions. Space, cost, and power consumption are all important issues.

Attendees of this special event (Fig. 2) included many distinguished engineers who played important roles in the development of broadcasting and communications in Taiwan. Present at this event was 91 year old Tim Chen who was the first chairman of

CRA and the first person in Taiwan to hold an amateur radio license. His station (call sign BV2A, Morse code only) was the only amateur radio station in Taiwan for a period of time and was widely referred to as the "light house". In 1974 a single side band transceiver was obtained (call sign BV2B) and voice communica-

tions became possible. I had the privilege to see these two stations and the antennas on the rooftop (Tim practiced Tai-Chi there also).

A stand was setup to promote the IEEE BTS during this event. Newsletters, membership applications, and call for papers were displayed together with a brief introduction of IEEE.

---

## Activity Report: IEEE Ottawa Joint BTS/ComSoc Chapter

by Bahram Zahir, Chair

During 2005, the BTS/ComSoc Joint Chapter in Ottawa organized and conducted several full day seminars. The seminars were focused on a variety of domains including:

- IPv6;
- Software Defined Radio (SDR);
- Wireless Applications.

Each seminar day consisted of several presentations by speakers well known in their field of expertise. The seminars were generally followed by discussions related to the topics that were presented.

We also conducted a few seminars with one speaker, such as a tutorial on SNET and a talk on "Moving Wired VoIP Services to the Wireless Device."

The BTS/ComSoc Joint Chapter, in addition, continues excellent collaboration with various local research centers (such as Communications Research Centre Canada), a number of affinity groups and companies such as the Ottawa Wireless Cluster, Modasolutions, and Knowledge Bridge, to name a few.

In June 2005, during the BTS/ComSoc series of seminars, Bahram Zahir assumed his new duties as Chair of the BTS/ComSoc Chapter. In addition, the BTS/ComSoc Joint Chapter maintains close cooperation with Robert Crawhall who has been appointed as the new director of the Ottawa Wireless Research Alliance (OWRA).

For more information about the IEEE Ottawa Section, visit their web page at <http://ottawa.ieee.ca/welcome.html>

---

## From the Editor continued

Technologies in the Home in which the BTS was a participant.

Furthermore, there are activity reports from a number of our chapters from around the world where we can see that they are also participating in presentations, seminars and symposia on subjects that have not previously been considered as related to our traditional view of the broadcast industry. In addition Jules Cohen, IEEE Life Fellow and long time BTS member has provided a paper that provides a history and updates us on activities of The Committee on Man and Radiation (COMAR); although, this is not a new activity for the BTS it further shows that we are involved in areas beyond the

traditional aspects of "broadcasting".

And finally as I look at the Call for Papers for our annual Washington, DC fall Symposium, the subjects mentioned as possible topics more than ever before show the changing interests of our industry and the BTS. All of these clearly show that the BTS is moving in a new and I believe a better and necessary direction that is sure to broaden our membership appeal while better serving our current members.

And lastly for those who have wondered exactly what your AdCom has been up to the past year, we have a summary of the minutes from their meetings. This form is a departure

from past practice where we just printed minutes. I believe and I hope you agree that this is a better way to keep you informed of the AdCom's activities and to spare you the time it takes to read the "blow-by-blow" happening of the meetings.

As always let us hear from you and also remember to mark your calendars for the Fall Symposium to be held in September this year (27-29 Sept. 2006) and the IEEE International Symposium on Broadband Multimedia Systems and Broadcasting 2007 (March 28 – 29, 2007 in Orlando, FL).

**Bill Meintel**  
[wmeintel@computer.org](mailto:wmeintel@computer.org)

# Perceived Use of DMB Cellular Phone

by J.P. Shim, Kyungmo Ahn, Julie M. Shim, and Sungmin Park

## INTRODUCTION

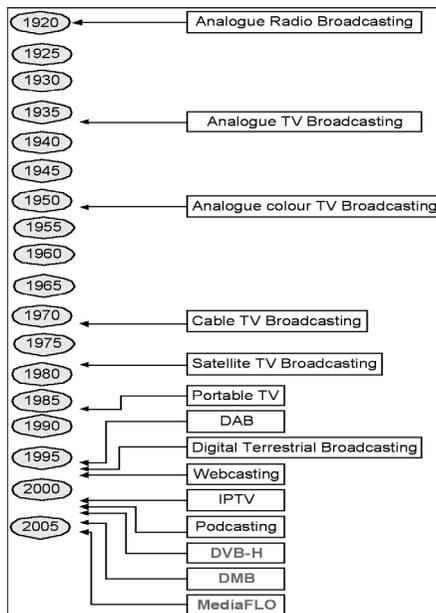
Korea's introduction of digital multimedia broadcasting (DMB), video-on-the-go services that deliver television to cell phones, has marked a milestone in the world of technology. DMB cellular phones, dubbed as, "takeout TV" or "cellevision", is a multicast process that captures digital broadcasts and delivers multimedia to mobile devices in motion, including mobile phones, PDAs, in-automobile devices. Known for their early adopter behavior, the consumers in Korea provide optimal test-beds for mobile operators and manufacturers.

The history of DMB began with U.S. and European countries' development of the DAB services around mid-1990s. DMB is based on Digital Audio Broadcasting (DAB), which is based on the Eureka 147 DAB radio standard. The DMB technology is a process of broadcasting multimedia to the mobile phone at any location and any time, even in motion. The DMB cell phone users receive content and programs through satellites, towers, or through "gap-fillers" to ensure that no reception problems exist, even in underground subways.

DMB is characterized by two subtypes which are satellite-DMB (S-DMB) and terrestrial-DMB (T-DMB). S-DMB is based on videos beamed from a communication satellite while T-DMB works on receiving over-the-air signals. Korea is the only country to provide both satellite and terrestrial DMB services to cellular phones while in motion (in-automobile devices). DVB-H, similar to T-DMB, broadcasts digital mobile TV via terrestrial signals to handheld terminal devices. The DVB-H technology has been adopted as the standard in Europe, and is gaining popularity as pilot tests are conducted across the U.S. and Europe. Qualcomm's MediaFLO was designed to rival the technology of DMB and DVB-H.

Figure 1 displays the evolution of broadcasting technologies, focusing on the use of such technologies rather than the technological development. The evolution of broadcasting technologies over the years illustrates the progress of digitalization and platform convergence in the communications sector.

**Figure 1. Evolution of Broadcasting Technologies**



**Note: MediaFLO expects to begin commercial operation of the new network in 2006.**

To determine how integral DMB phones were and will be utilized in the daily lives of the users, the authors developed a questionnaire. The research instrument underwent two pretests to ensure the content validity. A five point Likert-type scale as a measurement of attitudes (e.g., agree or disagree with a given statement) was used for recording the responses.

## DATA ANALYSIS AND FINDINGS

264 usable research instruments were collected from respondents, and were well represented in terms of gender, age,

and occupation. Of those respondents, 62.2% were satisfied with their current DMB service whereas 30.3% considered the DMB service mediocre. The current users accessed their DMB phones for news headlines, leisure & tourism, shopping, games, and education.

The results also indicated that among the sample respondents, the non-users considered the following factors would be essential in selecting a new DMB mobile phone: 1) price of DMB phone, 2) video quality, 3) program content, 4) quality of handset, and 5) ease of navigation/use. The following independent variables determined DMB services: price, usage time, and program content. The dependent variable was: service. Overall, the model provides a valid representation of the data and the constructs are reliable (note that Cronbach's alpha as a reliability coefficient showed 0.73). The price factor of the DMB phone usage was not an issue if the user perceived the DMB program content to be valuable. In other words, the users believed that high-quality and useful DMB program content would offset the highly priced DMB phone price/usage cost.

The users were asked to rate the importance of price issues of the DMB handset and related service fees, which included price per program content, price per usage time, and price of the DMB handset. The mean response among the teens was 4.46 (on a scale of 1=unimportant and 5=very important), 4.23 for 20s, 4.33 for 30s, 4.00 among the older generation (40s and older). Of all the age groups, the teens placed highest priority on the price of the DMB handset and related services. The users were asked to rate the importance of access/usage time issues of DMB services such as access time, airtime, and hands-on navigation time with the DMB handset and services. The mean response among the teens was 4.02, 3.73 for 20s, 3.82 for 30s, 3.86 for 40s

and older. The analysis of variance (ANOVA), which is designed to test for significant difference between means, showed that there was not a significant difference between age groups. All groups placed similar emphasis on the importance of DMB access/usage time.

The users were asked to rate the importance of DMB program content including video content quality, audio content quality, and a content selection quality. The mean response among teens was 4.69, 4.29 for 20s, 4.30 for 30s, and 4.32 for 40s and older. The teens placed highest emphasis on DMB program content quality. The users were asked to rate the importance of DMB services such as credibility and after-warranty service provided by the DMB equipment maker or service provider and the performance of the DMB phone device. The teens placed highest emphasis on the DMB services provided.

## CONCLUSION

The DMB technology will have a great impact on us as our personalized digital tool. Given the demand for ubiquitous computing in an instant gratification seeking population, the desire for DMB will be growing. DMB may become a personal entertainment device similar to today's radio in the long run. The DMB market strategy will benefit best by targeting the next untapped market – teenagers – as this age group is seen as the most lucrative wireless market for the next several years. Since these teenagers view phones as a primary mode of socializing, they expect the convergence of entertainment and cell phones. This expectation intensifies competition among telecommunication and related companies to bring out more personalized and sophisticated entertainment devices.

The cellular service industry is currently facing many complex issues,

which span technical, logistical, social, and cultural issues. This situation requires cooperation among the cellular and network service providers, the service developers, and the equipment makers, to collaborate with the government and users to create continuing growth in the cellular telecommunications industry.

A complete paper with references is available upon request by contacting Professor J. P. Shim at [jshim@cobilan.msstate.edu](mailto:jshim@cobilan.msstate.edu).

## About the authors:

*Professor J. P. Shim is with the Department of Management & Information Systems at Mississippi State University USA, Kyungmo Ahn is an Assistant Professor at Kyunghee University, Seoul Korea, Julie M. Shim is a Project Manager at Soldier Design in Cambridge, Massachusetts, USA, and Sungmin Park is a Researcher at Brunel University, Uxbridge, Middlesex, UK.*

## Congratulations to Three BTS Members Recently Elevated to Senior Member Level!

The new BTS Senior Members elevated since 1 January 2006 are:

### **Timothy J. Amsdon**

Dallas Section

### **M. A. Mick**

Chicago Section

### **Keeyoung Suh**

Santa Clara Valley Section

### **Robert Weller**

San Francisco Section

### **Edmund A. Williams**

Northern Virginia Section, BTS AdCom Member

IEEE Senior Members are honored members of the IEEE organization. We hope you'll consider joining the ranks of Senior Members. IEEE Bylaw I-105.3 sets forth the criteria for elevation to Senior Member Grade, as follows:

*"... a candidate shall be an engineer, scientist, educator, technical*

*executive or originator in IEEE-designated fields. The candidate shall have been in professional practice for at least ten years and shall have shown significant performance over a period of at least five of those years."*

When you become a Senior Member, you will receive a bronze and wood plaque, a letter to your employ-

er (upon request), \$25 towards a new Society Membership, the recognition of your peers, and the opportunity to become an executive IEEE volunteer. Visit <http://www.ieee.org/seniormember> for more information. If you would like to become a Senior Member and need some help, please contact [a.monroe@ieee.org](mailto:a.monroe@ieee.org)

# Summary of the 2005 IEEE Broadcast Technology Society Administrative Committee (AdCom) Meetings

The IEEE Broadcast Technology Society (BTS) conducted three regular AdCom meetings during 2005. Presented below is a summary of those meetings.

## **April 2005 – Las Vegas, Nevada,**

**USA:** The AdCom received a presentation by its new 2005-2006 Division IV Director, Stuart Long, a Member of the Antennas and Propagation Society (AP). He provided an overview of the IEEE and answered questions regarding governance by the IEEE Technical Activities Board. Dr. Elena Gerstmann, Director of IEEE Strategic Research and Planning, provided a presentation on the IEEE Membership Initiative. BTS is participating in this initiative, which originated as a result of a 2003/2004 Board of Directors strategic focus. Ralph Justus, Consumer Electronics Society President and candidate for Division IV Director-Elect, also attended the meeting as a guest. The Society AdCom discussed increasing joint activities with the Consumer Electronics Society. Yiyang Wu was introduced as the new Editor-in-Chief for the Transactions on Broadcasting.

## **June 2005 – Chantilly, Virginia,**

**USA:** This meeting centered on finance discussions. BTS receives sig-

nificant income each year from its partnership in the IBC. The AdCom's general sentiment was that extra funds should be allocated for the benefit of Society members. Extra 2005 funds will go toward the IEEE digitalization project in which all BTS Transactions on Broadcasting, back to 1950, will be scanned and posted on the IEEE Xplore site. The AdCom further discussed possible uses of the 2005 funds to hire a BTS webmaster, convert the BTS yearbook to HTML for ease of use and search capability, and purchase projectors for use at the annual Fall Symposium and other BTS events. Three new initiatives for 2006 were unanimously approved in principle. The new BTS initiatives are (1) Mobile & Multimedia Broadcasting Technology, (2) Conference/Publication on Mobile/Multimedia Broadcasting, and (3) Broadcaster Education. A motion, approved unanimously, authorized the Society President to begin the three initiatives using 2005 funds and assign one person to lead each of three projects. A motion, approved unanimously, authorized the Society President to work with the Portable Information Devices (PID) conference, to volunteer resources and to contribute up to \$10K USD for BTS to become a financial co-sponsor of this event.

## **October 2005 – Washington, DC:**

The Awards & Nominations discussion included a search for candidates for the 2006-2008 AdCom. The Publications Committee report noted that the Society has employed Ted Kuligowski as a part time IEEE employee to assist April Monroe with the production of the Newsletter. Additional initiatives were considered for use of 2005 surplus funds which, among several suggestions, included a BTS outreach to all Student Chapters via IEEE Student Services. The President reported on a combined NAB & IBC focus group report, which stressed the need for cross training of IT and broadcast engineers who need to understand each other's technology. Gerald Berman reported on the USTTI program, supported by BTS, which offers two courses in Washington, DC annually to overseas broadcasters. Reports were presented on the BTS new initiatives, Strategic Planning, IEEE TAB NTDC Portable Information Devices (PID) Group, and the 2006 International Symposium on Broadband Multimedia Systems and Broadcasting. Guy Bouchard, Chair, presented an overview of the Fall 2005 IEEE Broadcast Symposium.

---

## Visit the IEEE BTS Booth at the NAB Convention

The IEEE BTS will be staffing a booth during the NAB Convention in the South Hall Lobby. The booth will be open daily during the Broadcast Engineering Conference and exhibit hours.

You are invited to visit the IEEE

BTS Booth and bring your colleagues where you can meet with the BTS representatives and learn about BTS Symposiums, Conferences and new initiatives. The BTS representatives will be glad to answer any questions

you may have and also tell you about opportunities to participate on the BTS AdCom or its Committees. The BTS Staff will be glad to meet with prospective members and explain the benefits of joining the IEEE and BTS.



# IEEE Events @ CTIA Wireless 2007

**IEEE Event Dates:** Sunday, 25 – Thursday, 29 March 2007  
**CTIA Show Dates:** Tuesday, 27 – Thursday, 29 March 2007  
 Orange County Convention Center, Orlando, Florida USA

**IEEE BTS International Symposium on  
 Broadband Multimedia Systems & Broadcasting\***  
 Wednesday, 28 – Thursday, 29 March 2007

**IEEE International Conference on Portable Information Devices \*\***  
 Sunday, 25 – Tuesday, 27 March 2007

**IEEE ComSoc 802.16e Standards Symposium**  
 Tuesday, 27 – Wednesday, 28 March 2007



**CALL FOR PAPERS COMING SOON**

**\*IEEE BROADBAND MULTIMEDIA 2007** is an industry-oriented Symposium that will bring together content originators and distributors, wireless service providers, and technology developers and suppliers of equipment, systems, and consumer platforms. The Symposium will focus on research and development, applications, and implementation of mobile and portable multimedia systems worldwide.

Potential topic areas may include:

- Streaming; IPTV; VoIP; VoD
- Mobile TV; Wireless Multimedia
- Spectrum; Coverage
- Networks; Systems; Services
- Field Experience
- Compression; Coding
- Content Adaptation
- Consumer Platforms

Visit [www.ieee.org/bts/multimedia](http://www.ieee.org/bts/multimedia) after May 1 for details on abstract submission.

**CALL FOR PARTICIPATION**

**\*\*IEEE PORTABLE 2007** will bring together communications, electrical, industrial, manufacturing, materials, mechanical, optical, and reliability engineers and business leaders involved in various types of Portable Information Devices (PIDs), to address and discuss state-of-the-art challenges, attributes and pitfalls in PID-related areas of engineering and applied science, with an emphasis on the interaction of the hardware and software, as well as their functional and physical (mechanical) performance, reliability and durability.

Submissions are currently being accepted for:

- Papers
- Tutorials
- Technology / Business Applications Panels
- Demonstrations

Visit [www.ieee-portable.org/2007](http://www.ieee-portable.org/2007) for complete information.

# Call for Papers

## **IEEE Transactions on Broadcasting** **Special issue on “Mobile Multimedia Broadcasting”**

### **Scope**

Broadcasting of multimedia content to mobile and portable devices such as cell phones or PDAs is a fast emerging area with huge economic impact. Broadcasting networks especially designed for mobile broadcasting like DVB-H, DMB and MediaFLO are currently under deployment. On the other side, 2.5G and 3G cellular networks are already offering multimedia services like Mobile TV to mobile devices. Whereas unicast multimedia streaming is used for Mobile TV today, multicast/broadcast extensions to mobile networks like 3GPP MBMS and 3GPP2 BCMCS are under standardization resulting in high capacity gains for mobile broadcasting via mobile networks. Combinations of cellular and non-cellular broadcasting networks are currently under investigation. New services for mobile multimedia broadcasting are on the way introducing new forms of interactivity, customization and personalization.

The objective of this special issue is to present state-of-the-art research activities contributing to all aspects of mobile multimedia broadcasting. Original contributions previously unpublished and not currently under review by another journal are solicited in relevant areas including (but are not limited to):

- Broadcasting via cellular networks
- Cellular Multicast/Broadcast services: 3GPP MBMS, 3GPP2 BCMCS
- Mobile broadcasting via DVB-H, DMB, MediaFLO and other systems
- Mobile broadcasting via satellite
- Standards for mobile multimedia broadcasting
- Hybrid cellular/non-cellular broadcasting
- Source coding for mobile multimedia broadcasting
- Channel coding, modulation and signal processing techniques
- Transceiver architecture and design
- RF, antenna, receiver and hardware technologies
- Mobile multimedia broadcasting applications
- Mobile television
- Interactive broadcasting services
- Service layer for mobile broadcasting
- Security and DRM
- Field trials for mobile multimedia broadcasting

### **Important dates**

*Deadline for submissions:* 1 July 2006

Notification of review outcome: 1 October 2006

Submission of final version: 15 November 2006

Publication date: 1<sup>st</sup> Quarter/2007

### **Submission guidelines**

Authors should follow the *IEEE Transactions on Broadcasting* format described in the Information for Authors at <http://www.ieee.org/organizations/society/bt/authorinfo.htm>. There will be only one round of reviews and acceptance will be limited to papers needing only moderate revisions. Please indicate that the submission is for the special issue on “Mobile Multimedia Broadcasting”.

Prospective authors should submit a PDF version of their paper to Kathy Colabaugh at [bt-pubs@ieee.org](mailto:bt-pubs@ieee.org)

#### **Guest editors**

Dr. Markus Kampmann  
Ericsson Research  
Ericsson Allee 1  
52134 Herzogenrath,  
Germany  
[markus.kampmann@ericsson.com](mailto:markus.kampmann@ericsson.com)

Dr. Shuji Hirakawa.  
Technology Planning  
Division, Toshiba  
Corporation  
Toshiba Building, 36B Zone  
1-1, Shibaura 1-Chome,  
Minato-Ku,  
TOKYO 105-8001 Japan  
[shuji.hirakawa@toshiba.co.jp](mailto:shuji.hirakawa@toshiba.co.jp)

Dr. Xianbin Wang  
Communications Research  
Centre Canada  
3701 Caring Avenue  
Ottawa Ontario  
Canada K2H 8S2  
[xianbin.wang@crc.ca](mailto:xianbin.wang@crc.ca)

Dr. Yiyan Wu  
Editor-in-Chief, IEEE  
Transactions on  
Broadcasting  
3701 Caring Avenue  
Ottawa Ontario  
Canada K2H 8S2  
[yiyan.wu@crc.ca](mailto:yiyan.wu@crc.ca)

# The IEEE Broadcast Technology Society

## 56<sup>th</sup> ANNUAL BROADCAST SYMPOSIUM

Guy Bouchard, Canadian Broadcasting Corp, Chair

## CALL FOR PAPERS

27-29 September 2006

Hotel Washington

Washington, DC

USA

Potential topic areas for papers may include:

- Digital radio and television systems: terrestrial, cable, satellite, Internet, wireless
- Streaming, IPTV, VoIP, VoD, Mobile TV, Wireless Multimedia
- Transmission, propagation, reception, re-distribution of broadcast signals
  - AM, FM, and TV transmitter and antenna systems
  - Tests and measurements
  - Cable and satellite technologies:  
*Interconnections with over-the-air broadcasters • Transport stream issues • Re-purposing of navigational information*
- Advanced technologies and systems for emerging broadcasting applications
  - Reception:  
*Software-based receivers • DTV and IBOC reception issues • Smart antennas for indoor use • Noise-figure management in a home environment • Compression and modulation for mobile and hand-held sets • Diversity reception under dynamic multipath • Frequency- and time-domain equalization • Wireless home distribution*
  - Transmission:  
*Dynamic sharing of bandwidth • Spectrum re-packing optimization • New extensions for the ATSC VSB standard*
- Wireless Broadband Networks; e.g., IEEE 802.22 Wireless Regional Area Networks ("WRANs")
- Information Technology for broadcasters

**Abstracts are due by 1 June 2006**

For complete information, visit the 2006 Broadcast Symposium Web Site:

**[www.ieee.org/bts/symposium](http://www.ieee.org/bts/symposium)**

# IEEE Broadcast Technology Society Organization

## IEEE Broadcast Technology Society Administrative Committee

### Society Officers

*President:* Thomas M. Gurley  
*Vice-President:* Charles W. Einolf Jr.  
*Treasurer:* E. Lanny Nass  
*Secretary:* Thomas Silliman  
*Senior Past President:* E. Bruce Hunter  
*Junior Past President:* Garrison C. Cavell

### Administrative Committee Members-at-Large (elected by membership for 3 year term)

2003-2005	2004-2006	2005-2007
Walter Ciciora	Robert Baker	Dave Bancroft
Stephen Dukes	Greg Best	Richard Friedel
Sid Shumate	Guy Bouchard	Seung Won Kim
Thomas Silliman	William T. Hayes	William Meintel
Valentin Trainotti	Eric Wandel	Dmitry A. Tkachenko

## Standing Committees and Representatives

<i>Advanced Television Systems Committee (ATSC)</i> Yiyan Wu	<i>Committee on Communications and Information Policy (CCIP)</i> Richard Biby	<i>Newsletter Editor</i> William Meintel	<i>Strategic Planning</i> Eric R. Wandel P.E.
<i>Awards, Nomination and Publicity</i> Sid Shumate	<i>Historian</i> E. Noel Luddy	<i>Publications Chair</i> Dr. Charles W. Einolf Jr.	<i>Technical Activities</i> Edmund A. Williams
<i>Broadcast Symposium Chair</i> Guy Bouchard	<i>IBC Representative</i> Michael Bennett	<i>Society on Social Implications of Technology (SSIT)</i> Richard Biby	<i>United States Telecommunications Training Institute (USTTI)</i> Gerald Berman
<i>BroadcastAsia Representative</i> Yiyan Wu	<i>PACE</i> Theodore J. Kuligowski		<i>IEEE Transactions on Broadcasting Editor-in-Chief</i> Yiyan Wu
<i>Committee on Man and Radiation (COMAR)</i> Jules Cohen			<i>Yearbook Editor</i> Kerry Cozad

### Baker, Robert

13 Dillon Rd  
 Harrison, ME USA 04040  
 tel: 207 583 2657  
 rbaker@exh4rf.com

### Bancroft, David

Old Boundary House  
 The Warren  
 Caversham, UK  
 Reading, RG4 7<sup>th</sup>  
 dave.bancroft@thomson.net

### Berman, Gerald A.

11430 Strand Dr.  
 Apt. #4  
 North Bethesda, MD 20852  
 tel: 301 881 3224  
 g.a.berman@ieee.org

### Best, Greg

Greg Best Consulting, Inc.  
 9223 N. Manning Ave.  
 Kansas City, MO 64157  
 tel: 816 792 2913  
 gbconsulting@kc.rr.com

### Bennett, Michael

mikebennett@supanet.com

### Biby, Richard, P.E.

Richard P. Biby, P.E.  
 PO Box 364  
 Waterford, VA 20197  
 Tel: 540 882 4290  
 rich@biby.net

### Bouchard, Guy

CBC Radio  
 1400 Boul. Rene-Levesque E.  
 Montreal, Canada H2L 2M2  
 tel: 514 597 3863  
 fax: 514 597 3838  
 guy\_bouchard@radio-canada.ca

### Cavell, Garrison

Cavell, Mertz & Davis  
 7839 Ashton Ave.  
 Manassas, VA 20109  
 tel: 703 392 9090  
 gcavell@cmdconsulting.com

### Ciciora, Walter S.

45 Hulls Farm Rd.  
 Southport, CT 06490  
 tel: 203 259 5183  
 walt@ciciora.com

### Cohen, Jules

Consulting Engineer  
 2111 Wilson Blvd., Suite 600  
 Arlington, VA 22201  
 tel: 703 351 5033  
 jcohen@denny.com

### Cozad, Kerry

P.O. Box 949  
 22 Tower Rd.  
 Raymond, ME 04071  
 tel: 207 655 8133  
 kerry.cozad@dielectric.com

### Dukes, Stephen D.

Imaginary Universes, LLC  
 206 Amanda Lane  
 Camano Island, WA 98282  
 tel: 360 387 8667  
 stephendukes@ieee.org

### Einolf, Charles

3007 Argentina Place  
 Mitchellville, MD 20716  
 c.einolf@ieee.org

### Friedel, Richard

FOX Broadcasting  
 10201 W. Pico Blvd  
 Bldg. 101  
 Los Angeles, CA 90064  
 tel: 310 369 6655  
 richardfr@fox.com

### Gurley, Thomas M.

229 Old Colony Way  
 Rocky Mount, NC 27804  
 tgurley@ieee.org

### Hunter, E. Bruce

255 Rose Avenue  
 Mill Valley, CA 94941  
 tel: 415 384-0401  
 e.b.hunter@ieee.org

### Kim, Seung Won

Kook Wha Dong Sung Apt  
 105-202  
 Seo-Gu Sam Cheon Dong  
 Taejon, Korea 302-782  
 swkimm@etri.re.kr

### Kuligowski, Theodore J.

t.kuligowski@ieee.org

### Luddy, E. Noel

11121 Hurdle Hill Dr.  
 Potomac, MD 20854  
 tel: 301 299 2270  
 luddyen@aol.com

### Meintel, William

TechWare, Inc.  
 Suite 206  
 14101 Parke Long Ct.  
 Chantilly, VA 20151  
 tel: 703 222 5842  
 wmeintel@computer.org

### Nass, E. Lanny

Viacom Inc.  
 Suite 725, 2000 K Street, NW  
 Washington, DC 20006  
 tel: 202-457-4602  
 elnass@cbs.com

### Shumate, Sidney

BIA Financial Network  
 15120 Enterprise Ct.  
 Ste 100

### Chantilly, VA 20151

tel: (703) 802 2964

### Silliman, Thomas

Electronics Research, Inc.  
 7777 Gardner Rd.  
 Chandler, IN 47610  
 tel: 812 925 6000  
 tom@eriinc.com

### Tkachenko, Dmitry

St. Petersburg State Polytechnic  
 Polytechnicheskaya 29  
 St. Petersburg, Russia 195251  
 tel: +7 812 554 2982  
 dtkach@mail.wplus.net

### Trainotti, Valentin

Bernardo de Irigoyen 650 2° 10  
 1072 Buenos Aires, Argentina  
 tel & fax (5411) 4334 3529  
 vtrainotti@ieee.org

### Wandel, Eric R., P.E.

Research Associates of  
 Syracuse  
 7444 Timber View Drive  
 Newburgh, IN 47630  
 Tel: 812 490-7947  
 ericwandel@sigeecom.net

### Williams, Edmund A.

ed.williams@ieee.org

### Wu, Yiyan

Communications Research Ctr.  
 3701 Carling Ave.,  
 P.O. Box 11490  
 Station H, Ottawa, Ontario  
 Canada K2H 8S2  
 tel: 613 998 2870  
 yiyan.wu@crc.ca

## Welcome to New BTS Members!

January through March 2006 brought good news for the Membership of the IEEE Broadcast Technology Society! 139 New Members joined our Society! We will print your names in the next issue of the newsletter.

All BTS Members should have received by now the March 2006 issue of the IEEE Transactions on Broadcasting. This issue was bundled with the January 2006 issue of the Proceedings of the IEEE special issue on "Global Digital

Television" Technology & Emerging Services which was edited by our Transactions Editor in Chief, Yiyang Wu. We hope that, with special features and events, and the regular, outstanding level of technical papers in the Transactions, you will value your membership. As always, we welcome comments and suggestions on how we can make the Society better serve your needs. You can reach us at: [bts@ieee.org](mailto:bts@ieee.org)

### Mark Your Calendar

for the **BTS Tutorial at NAB2006**

**"Delivering Television to Handheld Devices: A Technology Tutorial"**

April 24, 2006 • 1:00PM - 5:00PM

Program information at: <http://www.nabshow.com/conferences/bec.asp>

---

Institute of Electrical and Electronics Engineers, Inc.  
445 Hoes Lane  
P.O. Box 1331  
Piscataway, NJ 08855-1331