Joint Conference 2005

23rd AIAA International Communications Satellite Systems Conference (ICSSC-2005)

25-28 September 2005

Aurelia Convention Centre

Rome, Italy

Final Program

Welcome

On behalf of the Organizing Committees
we welcome you to the Joint Conference 2005 in Rome.
We hope you will find this conference
an enlightening and pleasant experience.

Contents

Committees

Joint Conference 2005 Executive Chair	**Enrico Saggese**	*Finmeccanica, Italy*

11TH KA AND BROADBAND COMMUNICATIONS CONFERENCE

General Chair	**Frank Gargione**	*Satellite Systems Consultant, USA*
Technical Chair	**Franco Vatalaro**	*University of Rome Tor Vergata, Italy*
Technical Co-Chairs	**Frank Gargione**	*Satellite Systems Consultant, USA*
	Franco Marconicchio	*Agenzia Spaziale Italiana (ASI), Italy*
Organizing Committee	**Frank Gargione**	Chair - *Satellite Systems Consultant, USA*
	Clotilde Canepa Fertini	*Istituto Internazionale delle Comunicazioni (IIC), Italy*
Technical Committee	**Roberto J. Acosta**	*NASA Glenn Research Center, USA*
	William T. Brandon	*Harris Corp., USA*
	Michel Bousquet	*SUPAERO, France*
	Mario Caron	*Communications Research Centre (CRC), Canada*
	Barry G. Evans	*University of Surrey - CCSR, United Kingdom*
	Richard T. Gedney	*Efficient Channel Coding (ECC), USA*
	Naoto Kadowaki	*Adaptive Communications Research Laboratories (ATR), Japan*
	Hans Kruse	*Ohio University, USA*
	Pietro Lo Galbo	*ESA, The Netherlands*
	Roberto Viola	*AGCOM, Italy*
	Wallace D. Williams	*NASA Glenn Research Center, USA*
	Clotilde Canepa Fertini	Secretary - *IIC, Italy*

23RD AIAA INTERNATIONAL COMMUNICATIONS SATELLITE SYSTEMS CONFERENCE (ICSSC 2005)

General Chair	**Thomas C. Butash**	*BAE Systems, USA*
Technical Chair	**Jorgen Sandberg**	*ESA/ESTEC, The Netherlands*
Colloquium Chair	**Michel Bousquet**	*SUPAERO, France*
Organizing Committee	AIAA Technical Committee on Communications Systems	
	Thomas C. Butash	Chair - *BAE Systems, USA*
	Eduardo L. Elizondo	Secretary - *Spacecraft Systems Consultant, USA*
Technical Program Committee	**Fulvio Ananasso**	*Consultant, Italy*
	Mario Caron	Canada Regional Chair - *Communications Research Centre (CRC), Canada*
	Barry G. Evans	*University of Surrey - CCSR, Great Britain*
	Marco Ferrari	*Telespazio, Italy*
	Filippo Graziani	*University of Rome La Sapienza, Italy*
	Susumu Kitazume	*Asia Regional Chair - JEPICO, Japan*
	Marco Lisi	*Telespazio, Italy*
	Mario Lopriore	*ESA, The Netherlands*
	Luigi de Magistris	*Agenzia Spaziale Italiana (ASI), Italy*
	Carlo Alberto Penazzi	*Alcatel Alenia Space, Italy*
	Bruno Perrot	Administrative Chair - *SES ASTRA, Luxembourg*
	Raul Rey	Americas Regional Chair - *Boeing Satellite Systems, USA*
	Philipp Rieger	*Tesat-Spacecom, Germany*
	Raffaele Rizzi	*ENAV, Italy*
	Pietro De Santis	*INTELSAT (retired), USA*
	Antonio Vernucci	*Space Engineering, Italy*

Joint Conference 2005

For the first time, two of the most prestigious technical conferences on satellite communications, the **11th Ka and Broadband Communications Conference** and the **23rd AIAA International Communications Satellite Systems Conference (ICSSC 2005)** are joining forces.

Our Joint Conference coincidentally marks the 60th anniversary of the publication of Arthur C. Clarke's landmark paper, "Extra-Terrestrial Relays" (Wireless World, October 1945), in which he described for the first time the principles of world communications using satellites in Geosynchronous Earth Orbit (GEO). Only 18 years after Clarke's visionary concept, the NASA/Hughes SYNCOM-2 became the first successful GEO communications satellite in 1963. The communications satellite industry has since grown to become the global enterprise it is today.

Joint Conference Synopsis

Invited plenary and panel sessions of this Joint Conference explore major current and anticipated industry trends. In these sessions industry leaders talk about important current topics such as the direction and future of satellite communications, the impact of High Definition TV on the satellite industry, steps the satellite manufacturing industry can take to improve satellite reliability and regulatory issues affecting satellite communications.

With 270 papers from 30 countries, the conference offers the opportunity to hear technical presentations on the following subjects:

Systems:
- Broadband Systems
- Broadcast Systems
- Satellite Bus Systems
- Ground Systems
- High Altitude Communications Platforms
- Mobile Systems
- Navigation and Positioning Systems
- New Communication Systems
- Ka-band and Higher Frequency Systems
- Payload Systems

Technology:
- Advanced Communications Techniques
- Advances in Components
- Antenna Technology
- Satellite Architectures
- Satellite Bus Technology
- Digital Signal Processors
- Inter-Satellite Links & Data Relay
- Modulation and Coding
- Payload Technology
- Propagation and Fade Mitigation

Satellite Networks:
- Code Division Multiple Access (CDMA) Systems
- Digital Video Broadcasting (DVB) and Return Channel via Satellite (RCS)

Networks:
- Low Earth Orbit (LEO) Communications Satellite Networks
- Network and Resource Management
- Network Protocols
- Traffic and Quality of Service (QoS) Management

Applications:
- Military Satellite Communications
- Mobile Broadband Services
- Mobile Direct Video Broadcasting - Return Channel via Satellite (DVB-RCS)
- Scientific and other Civil Space Communications
- Other Satellite Applications

Business Aspects:
- Satellite Economics and Market Issues
- Regulations and Spectrum Sharing

Colloquium Synopsis
"Future Directions for Satellite Communications"

The Colloquium is a unique opportunity to share the insights and perspectives of research and industry leaders as they discuss the future challenges for satellite communications, and future applications for broadband and mobile satellite communications.

The theme of this year's Colloquium is "Future Directions for Satellite Communications".

A commonly held view is that the commercial satellite communications industry has matured.
Reliability, availability and performance are taken for granted and profit margins are squeezed by competition with terrestrial communications systems. Only in broadcast digital TV and Radio is satellite communications currently achieving significant market expansion.

There are, however, new areas of significant growth for satellite communications. Growing interest is seen in providing broadband communications to isolated Small Office Home Office (SOHO) users and to a wide range of mobile users in aircraft, trains, ships, ferries, buses, automobiles and even for pedestrians.

These broadband links are envisioned to enable a range of new services such as constant Internet connectivity, traffic facilitation, emergency assistance and portable entertainment.
There is also explosive growth in demand for broadband communications in the military arena. Mobile users need instant access to the latest in-theater and local information, while their commanders are demanding instantaneous visual feedback and evaluation of the overall tactical situation. Unmanned Aerial Vehicles used for surveillance are generating enormous demands for mobile broadband capacity. Reduction of support costs and provision of emergency surge capacity increasingly rely on commercial and dual-use satellite systems.

This colloquium provides an opportunity for discussions on emerging applications, market evolution, technology trends, networking research and systems development. It introduces new systems initiatives and innovative concepts, such as mobile multimedia broadcasting and advanced heterogeneous architectures (e.g. satcom plus Wi-Fi/Wi-Max). Interoperability requirements, standards development and the role of radio-regulations in the success of satellite communications are discussed. Innovative financial arrangements between the public and private sectors that will play a key role in future satellite procurements are presented.

The Colloquium is held just prior to the Joint Conference on **Sunday, 25 September 2005** in **Auditorium Bachelet** and requires separate registration. It is organized under the auspices of the AIAA Technical Committee on Communications Systems.

Panel Sessions

SESSION PAN1 - The Impact of HDTV Transmission on the Satellite Industry

The transformation from Standard Definition to High Definition Television (HDTV) could have major impact on the satellite industry. We would like to discuss how this would increase demand for satellite transmission services? What new transmission technologies will influence the situation? How will HDTV affect satellite design and the number of satellites?

SESSION PAN2 - Steps the Satellite Manufacturing Industry can Take to Improve Satellite Reliability

This is the hot topic because insurance premiums have increased partly due to the larger number of satellite failures. What processes or design changes could be implemented to increase satellite reliability? How can the industry share its experience to improve the situation? Are insurance premiums too high? Is it safe not to insure launches? Is it safe not to insure satellites in-orbit?

SESSION PAN3 - International Regulations: What Works and What Doesn't

Telecommunication satellite technologies, applications and services are increasingly diversified. New frequency bands are becoming available, new services and applications such as broadband services, high definition and interactive television are placing increased demands on scarce spectrum and orbital resources. As a result, the role of national and international regulatory agencies and organizations is becoming more important. This panel will discuss the issues faced by satellite regulators, operators, and the industry in general. Do national and international regulatory regimes provide the proper balance for moving the industry into the 21st century?

3rd BroadSky Workshop 2nd Generation Broadband Systems: Services and Technologies

Broadband access networks are becoming a reality for millions of people worldwide, delivering new services and providing operators and equipment manufacturers with new streams of revenue. As the technology gains acceptance, new challenges are arising, including new applications (multicast, VoIP, video,...) that are placing new demands on the network, provisioning of broadband access to moving transportation systems (planes, trains, buses...) and securing user data in the service. Clearly, seamless integration and high data rate are the two key elements to achieve the ITU-R vision of "optimally connected anywhere anytime".

Delivering these services by satellite requires new propositions and research to overcome the challenges. The BroadSky Workshop focuses on second generation architectures and technologies for broadband via satellite. Broadband satellite platforms should be flexible enough to support different types of multimedia services targeting different types of applications.

The first session of the Broadsky Workshop discusses the research activities in radio interfaces and networking within the European Satellite Communications Network of Excellence "SatNEx", with a special focus on the DVB-S2 and DVB-RCS networks.

The second session of the Broadsky Workshop presents challenges, techniques, architectures and examples of systems for aeronauticals and terrestrial mobile satellite communications.

The **3rd BroadSky Workshop** is organized under the auspices of the National Institute of Information and Communications Technology (NICT) of Japan and the European Satellite Communications Network of Excellence (SatNEx) and will be held on **Tuesday, 27 September,** in **Auditorium Bachelet**.

Sponsors

Technical Sponsors
- **Istituto Internazionale delle Comunicazioni** (IIC)
- **AIAA Technical Committee on Communications Systems**
- **IEEE Communications Society** (IEEE ComSoc)

Corporate Sponsors
- **AIAA Japan Forum on Satellite Communications** (JFSC), Japan
- **Airclaims**, United Kingdom
- **Alcatel Alenia Space** (an Alcatel / Finmeccanica Company), Italy
- **Communications & Power Industries - Satcom Division** (CPI), USA
- **EMS Technologies**, Canada
- **European Space Agency** (ESA), The Netherlands
- **Finmeccanica**, Italy
- **Satlynx**, Luxembourg
- **Space Engineering**, Italy
- **Telespazio** (a Finmeccanica / Alcatel Company), Italy

Organization and Secretariat

IIC - Istituto Internazionale delle Comunicazioni
Via Pertinace - Villa Piaggio - 16125 GENOVA, Italy
Phone: +39-010-2722383
Fax: +39-010-2722183
E-mail: info@iicgenova.it - fertini@iicgenova.it

Program

Sunday, September 25

Auditorium Bachelet

9:00 – 10:00 — SESSION COL1

'Colloquium: Future Directions for Satellite Communications - Challenges 1'
Moderated by **M. BOUSQUET**, *SUPAERO, France*

Colloquium Introduction

Future Satellite Communications Visions
Barry G. Evans, *CCSR, University of Surrey, United Kingdom*

Technology Trends & Research Needs
Oscar Del Rio Herrera, *ESA/ESTEC, The Netherlands*

Role & Status of Standards
Harald Skinnemoen, *ANSUR, Norway*

Regulatory Issues
Francois Rancy, *Agence Nationale des Fréquences, France*

BREAK

11:00 – 12:00 — SESSION COL2

'Colloquium: Future Directions for Satellite Communications - Challenges 2'
Moderated by **M. BOUSQUET**, *SUPAERO, France*

Markets Perspectives
Pacome Revillon, *Euroconsult, France*

PFI/PPP: A New and Innovative Approach for Financing Space Projects
Jean-Francois Gambart, *EADS Space Services, France*

Japan Views on Future Directions
Yoshiaki Suzuki, *National Institute of Information and Communications Technology, Japan*

12:00 – 13:00 — SESSION COL3

'Colloquium: Future Directions for Satellite Communications - Dual Use and Military Communications'
Moderated by **D. LEBOULCH**, *CNES, France*

An Example of Dual Use System Architecture in Ka-band
Didier LeBoulch, *CNES, France*

One-stop-Shop Service Provision for Secure Communications Service
Paul Millington, *Paradigm Secure Communications, United Kingdom*

XSTAR: Evolution of an X-Band Commercial Communications Satellite System
Denis J. Curtin, *XTAR LLC., USA*

LUNCH

Auditorium Bachelet

14:00 – 16:00 — SESSION COL4

'Colloquium: Future Directions for Satellite Communications - Broadband Applications'
Moderated by S. KOTA, Harris Corporation, USA

Satellite Networks for Multimedia: QoS Considerations
Sastri Kota, *Harris Corp., USA*

The SatLabs Initiative: Leading the DVB-RCS Standard to Success
Xavier Lobao, *ESA/ESTEC, The Netherlands*

SATLYNX Broadband Services via Satellite
Paul Heinerscheid, *SATLYNX, Luxembourg*

Twister: A Widespread European Deployment of (Sat + WiFi) Services
Bernard Laurent, *EADS Astrium, France*

The IPSTAR System Challenges
Paiboon Panuwattanawong, *Shin Satellite Public Company Ltd., Thailand*

BREAK

16:30 – 18:30 — SESSION COL5

'Colloquium: Future Directions for Satellite Communications - Mobile Applications'
Moderated by **G. E. CORAZZA**, *University of Bologna, DEIS/ARCES, Italy*

Digital Multimedia Broadcasting: the Emerging Opportunity
Giovanni Emanuele Corazza, *University of Bologna, DEIS/ARCES, Italy*

Evolution of Satellite Digital Audio Radio Service
Robert David Briskman, *Sirius Satellite Radio, USA*

Convergence of Satellite and Cellular Technologies for Efficient Mobile Broadcast Service Delivery
Nicolas Chuberre, *Alcatel Alenia Space, France*

Satellite DMB System and Service in Korea
Ho-Jin Lee, *ETRI, South Korea*

Broadband Mobile Services: from Telecommunications to Broadcasting
Antonio Arcidiacono, *Eutelsat, France*

Round Table Discussions and Colloquium Wrap-up
Michel Bousquet, *SUPAERO, France*

Monday, September 26

	Auditorium Bachelet	Room Colonna	Room Giovanni XXIII	Room Pio XII	Room Benedetto XV	Room Torlonia	Room Orsini	Room Pio XI	Room Barelli (K)
9:00 10:30	**SESSION OPEN (Auditorium Bachelet)** **Welcome and Opening Ceremony** - Welcome Speeches: - **Frank Gargione**, *11th Ka and Broadband Communications Conference General Chair, Satellite Systems Consultant, USA* - **Thomas Butash**, *ICSSC-2005 General Chair, BAE Systems, USA* - **Enrico Saggese**, *Joint Conference 2005 Executive Chair, Finmeccanica, Italy* - **Pier Francesco Guarguaglini**, *Chairman and CEO, Finmeccanica, Italy* - **Hon. Walter Veltroni**, *Major of Rome, Italy* - **Hon. Piero Marrazzo**, *President of the Region of Lazio, Italy* - **Hon. Mario Landolfi**, *Minister of Communications, Italy*								
BREAK									
11:00 13:00	**SESSION PLEN (Auditorium Bachelet)** **Joint Plenary Session** - Moderated by E. SAGGESE, *Finmeccanica, Italy* - **Rick Fleeter**, *CEO, AeroAstro, USA* - **Gen. Pietro Finocchio,** *Director General, TELEDIFE, Ministry of Defense, Italy* - **Fabio Pistella**, *President, Consiglio Nazionale delle Ricerche (CNR), Italy* - **Saverio Strati**, *CEO, Avio, Italy* - **Giuseppe Veredice**, *CEO, Telespazio, Italy* - **Sergio Vetrella**, *President, Agenzia Spaziale Italiana (ASI), Italy* - **Giuseppe Viriglio**, *European Programs Director General, European Space Agency (ESA), France* - **Akiro Yamahura**, *Director General, Spatial Unit, Mitsubishi Corp., Japan*								
AWARDS LUNCHEON									
15:00 17:00	**SESSION KA1** **Mobile Broadband Services** Chaired by **F. VATALARO**, *Università di Roma Tor Vergata, Italy* K000107 **Broadband Connectivity to Aircraft and Passengers - a Progress Report** M. de La Chapelle, *Connexion by Boeing, USA* K000089 **Satellite Link Extension in Railway Tunnels: System Design and Modulation Techniques Analysis** P. Conforto, A. Miglietta, G. Losquadro, *Alcatel Alenia Space SpA, Italy* K000082 **Improved Multi Service Traffic Modelling and Satellite System Dimensioning for Collectively Mobile User Groups** M. Holzbock, O. Lücke, *TriaGnoSys GmbH, Germany* K000020 **The United States Department of Defense and Ka-band: Can a Relationship Re-emerge?** J. A. Mazzei, *The Aerospace Corp., USA,* S. Mittal, *Defense Information Systems Agency, USA* K000055 **A Best Practice Model for Deploying Wi-Fi On-Board** M. Le Saux, C. Dubuc, *PointShot Wireless, Canada* K000026 **The Business Case for Aeronautical InFlight Telecom Services** M. De Sanctis, *Ericsson Telecomunicazioni, Italy,* M. Werner, *TriaGnoSys GmbH, Germany,* P. Febvre, *Inmarsat, United Kingdom,* F. Y. Hu, *University of Bradford, United Kingdom* K000021 **Satcom-On-The-Move Broadband Mobile Satellite Terminals in Ku-Band and Ka-Band Operation** T. Shroyer, *General Dynamics C4 Systems, USA*		**SESSION MOD1** **'Modulation and Coding 1'** Chaired by **A. DUVERDIER**, *CNES, France* and **F. DE POLI,** *Stellar Solutions Aerospace, Italy* I000177 **Simple Regenerative Repeating Process for Broadband Communication Satellite** T. Yamazato, *Nagoya University, Japan,* A. Ogawa, *Meijo University, Japan* I000186 **Prediction of QoS in Mobile Satellite Systems Using FEC and Interleavers** A. Heuberger, M. Breiling, *Fraunhofer-Institute for Integrated Circuits IIS, Germany* I000160 **Integrated Packet Level FEC Coding for Bulk Data Transfer over Satellite Networks** G. Akkor, J. S. Baras, M. Hadjitheodosiou, *University of Maryland at College Park, USA* I000194 **On 2-D Reed-Solomon Packet-Level FEC and Its Use in SDMB** M. Chipeta, L. Fan, B.G. Evans, *CCSR, University of Surrey, United Kingdom,* M. Karaliopoulos, *Teltel SA, Greece*	**SESSION PSYS1** **'Payload Systems 1'** Chaired by **F. COROMINA**, *ESA, The Netherlands* and **S. TAYLOR,** *EADS Astrium, United Kingdom* I000113 **Future Trends in On-Board Payload Subsystems: a Systemic View-point** P. Angeletti, *European Space Agency, The Netherlands*, M. Lisi, *Telespazio SpA, Italy* I000148 **BEAM*LINK® Processors for Communication Satellites - ANIK F2 Application** A. Malarky, G. Healy, *COM DEV Ltd., Canada*, J. King, *Communications Research Centre Canada, Canada* I000269 **Advances Payload For Multibeam Satellites that Support Highdate Rate Broadband Global Area Network** M. J. Mallison, R. K. Gill, S.A. Curtis, R. S. Manku, *EADS Astrium, United Kingdom* I000244 **Next Generation Communications Payload Systems Overview** L. Dayaratna, P. Rawicz, L. Ramos, R. McCann, M. Marchi, *Lockheed Martin Commercial Space Systems, USA*	**SESSION MIL1** **'Military Satellite Communications 1'** Chaired by **N. KARABUDAK**, *Lockheed Martin Corporation, USA* and **T. BUTASH**, *BAE Systems, USA* I000265 **Transforming Sitcom Bent-Pipes to Mitigate Jamming** L. Yen, *Northrop Grumman Mission Systems, USA* I000234 **The XTAR System** D. J. Curtin, C. Westerhoff, *XTAR, LLC, USA* I000128 **REMUS a New Communication System to Support European Military and Homeland Security Mission** B. Troy, C. Michel, B. Chene, *EADS Astrium SAS, France* I000163 **Advances in Bandwidth Management** A. H. Rana, *Arrowhead Global Solutions, USA*	**SESSION NET1** **'Network and Resource Management 1'** Chaired by **S. KIMURA**, *National Institute of Information and Communications Technology, Japan* and **S. COMBES,** *Alcatel Space, France* I000147 **MAC and Encapsulation Efficiency of Satellite DVB using Fade Mitigation Techniques** O. Lücke, A. Jahn, *TriaGnoSys GmbH, Germany*, R. Schweikert, T. Wörz, *Audens ACT GmbH, Germany,* R. Rinaldo, *ESA, The Netherlands* I000048 **Contention Resolution Diversity Slotted Aloha Plus Demand Assignment (CRDSA-DA): an Enhanced MAC Protocol for Satellite Access Packet Networks** O. Del Rio Herrero, E. Casini, R. De Gaudenzi, *ESA, The Netherlands* I000254 **Programmable Active Networking supporting Next Generation Multimedia Services in Satellite Networks** W. Fritsche, K. Mayer, *IABG, Germany*, P. Kirstein, S. Bhatti, L. Sacks, S. Zachariadis, *UCL, United Kingdom* I000037 **Satellite Network Transport Architecture (SaNTA)** E. Kristiansen, *European Space Agency, The Netherlands,* A. Nuñes, *Skysoft Portugal,* J. Brazio, A. Zúquete, *Instituto de Telecomunicações, Portugal*		**SESSION ISL1** **'Intersatellite Links 1'** Chaired by **B. LAURENT**, *EADS Astrium, France* and **J. GAYRAD**, *Alcatel Space, France* I000040 **Optical Inter-Satellite Links for SkyLAN Clusters of Broadband Communications satellites** J-D. Gayrard, *Alcatel Space, France*, G. Baister, *Contraves Space AG, Switzerland*, M. Molina Cobos, *GMV SA, Spain*, A. Cotellessa, *ESA-ESTEC, The Netherlands* I000218 **Study on UWB for Intersatellite Links in Formation Flying-ICSSC-new** Xu H., Wu S.-Q, *University of Electronic Science and Technology of China, China (PRC)* I000280 **In-Orbit Verification of Laser Communication Terminals** R. Lange, B. Smutny, *Tesat-Spacecom, Germany* I000081 **A Ring-Based Layered Space Communication Infrastructure** L. Shi, S-W. Lu, *Institute of Computing Technology, Chinese Academy of Sciences, China (PRC)*	**SESSION PAN1** **'Panel 1: The Impact of HDTV Transmission on the Satellite Industry'** Moderated by **R. RUSCH**, *TelAstra Inc., USA* **Laurent Valignon**, *Vice President, AON Explorer, France* **Thomas Wrede**, *Vice President Product Management, SES ASTRA, Luxembourg* **David M. Brown**, *Director Business Development, Lockheed Martin Corp., USA* **Olivier Coste,** *Senior Vice President, Strategy & Business Development, Alcatel Alenia Space, France*
BREAK									

Monday, September 26

17:30 – 19:30

Auditorium Bachelet

SESSION KA2

'Ground Systems'
Chaired by **R. GEDNEY**, Efficient Channel Coding, USA

K000001
A Reflector Antenna for Operation in Rain at mm-Wavelengths
M. Kharadly, T. Street, R. Ross, *University of British Columbia, Canada*

K000015
ESA's Roadmap to Ka-Band Support for Space Research Missions - the Smart-1 Experience
M. Lanucara, E. Vassallo, R. Maddé, *European Space Agency, Germany*

K000017
Low Profile Antenna Products for Rail and Aeronautical Satcom
M. W. Shelley, J. Vazquez, *ERA Technology Ltd., United Kingdom*

K000024
Ka-Band Mobile Terminal
M. Barakat, S. Sharma, G. Bistyak, L. Shafai, F. Franczyk, *InfoMagnetics Technologies Corp., Canada*

K000064
The Software Radio-Based L*IP Satellite Gateway
M. Schmidt, O. Koudelka, J. Ebert, H. Schlemmer, S. Kastner, W. Taschner, *TU Graz, Austria,* W. Gappmair, W. Kogler, *Joanneum Research, IAST, Austria*

K000068
Development of a Ka Band Transportable IOT System for the Anik F2 ka Band Payload
K. Skublics, H. Doepner, *Telesat Canada, Canada*

K000095
Definition of a Hierarchical Network Management Architecture for a Multi Sub-Network SkyPlexNet System
S. Buratti, G. Tomasicchio, *Alcatel Alenia Space SpA, Italy*

Room Colonna

Room Giovanni XXIII

SESSION MOD2

'Modulation and Coding 2'
Chaired by **T. YAMAZATO**, *Nagoya University, Japan* and **L. ERUP**, *EMS Technologies Canada Ltd., Canada*

I000145
Low-Density Parity-Check Codes for the Transport Layer of Satellite Broadcast
C. Di, H. Ernst, *Deutsches Zentrum fuer Luft- und Raumfahrt (DLR), Germany,* E. Paolini, S. Coletto, M. Chiani, *University of Bologna, Italy*

I000042
Max/max* Operation Replacement to Improve the DVB-RCS Turbo Decoder
S. Papaharalabos, P. Sweeney, B. G. Evans, *CCSR, University of Surrey, United Kingdom*

I000250
Packet Layer FEC for SDMB Services
R. Firrincieli, G. Albertazzi, G. E. Corazza, A. Vanelli-Coralli, *University of Bologna, DEIS/ARCES, Italy*

I000273
Interferences and Performances of New Communications Satellite Systems
X. Deplancq, F. Cornet, F. Lacoste, A. Duverdier, *CNES, France*

Room Pio XII

SESSION PSYS2

'Payload Systems 2'
Chaired by **F. COROMINA**, *ESA, The Netherlands* and **S. TAYLOR**, *EADS Astrium, United Kingdom*

I000228
Interactive Service Validation trials with SkyPlexNet/HB6 network system
G.Pastore , R.Winkler, *Alcatel Alenia Space SpA, Italy*

I000033
Ka Band Transponder Experiment (KaTE) On-Board the SMART-1 Spacecraft. First year in-orbit results
P. McManamon, *European Space Agency, The Netherlands*

I000264
Using EVM to Determine BER on a Satellite Link
R. Peters, *Stellar Solutions, USA*

Room Benedetto XV

SESSION MIL2

'Military Satellite Communications 2'
Chaired by **N. KARABUDAK**, *Lockheed Martin Corporation, USA and* **T. BUTASH**, *BAE Systems, USA*

I000262
DoD SATCOM IP Modem Standard
A. C. Bartko, *Defense Information Systems Agency, USA*, P. Chitre, *ViaSat, USA,* R. Gedney, *Efficient Channel Coding, USA*

I000126
Benefits of Satellite Based Services to Network Centric Operations
C. Michel, B. Troy, B. Laurent, *EADS Astrium SAS, France*

Room Torlonia

SESSION NET2

'Network and Resource Management 2'
Chaired by **S. KIMURA**, *National Institute of Information and Communications Technology, Japan* and **S. COMBES**, *Alcatel Space, France*

I000130
Routing Techniques for Ad-hoc Space Networks
M. Berioli, L. Rosati, *DLR, Germany*, G. Reali, *University of Perugia, Italy*

I000176
Priority-based Adaptive Shortest Path Routing for IP over LEO Satellite Networks
Ö. Korçak, F. Alagöz, *Boğaziçi University, Turkey*

I000255
A MAC Scheduling Mechanism in SkyplexNet Satellite Networks
G. Ciccarese, M. De Blasi, C. Palazzo, L. Patrono, *University of Lecce, Italy,* G. Tomasicchio, *Alcatel Alenia Space SpA, Italy*

I000091
DOCSIS Over Satellite at Ka Band
R.A. Wilson, *ViaSat, Inc., USA*

Room Orsini

Room Pio XI

SESSION DRL1

'Data Relay'
Chaired by **J. GAYRARD**, *Alcatel Space, France* and **B. LAURENT**, *EADS Astrium, France*

I000124
A Proposed Data Relay Infrastructure in Europe After Artemis in Orbit Validation
B. Chene, C. Michel, B. Laurent, *EADS Astrium, France*

I000072
Autonomy of the Second Generation Tracking and Data Relay Satellite (TDRS) Its Implications on users' spacecraft and operations
M. Toral, R. Zaleski, *NASA/Goddard Space Flight Center, USA,* C. A. Bénet, *Orbital Sciences Corporation, USA,* D. Bender, M. Romanoski, *Boeing Space and Intelligence Systems, USA,* M. Antholzner, D. Perry, *White Sands Complex, USA*

I000164
Dynamic Resource Allocation for an IP-based Communications Network Supporting Space Exploration
H. Zeng, M. Hadjitheodosiou, J. Baras, *University of Maryland, USA*

I000153
Integrated RF-Optical TT&C Subsystems for Missions to Mars and to Libration Points
T. Dreischer, K. Kudielka, T. Weigel, G. Baister, *Contraves Space AG, Switzerland*

Room Barelli (K)

SESSION PAN2

'Panel 2: Steps that Satellite Manufacturing Industry can take to Improve Satellite Reliability'
Moderated by **R. RUSCH,** *TelAstra Inc., USA*

Chris Hoeber, *Sr. Vice President, Program Management & Systems Engineering, Space Systems/Loral, USA*

Jonathan F. Binkley, *Aerospace Corporation, USA*

David Todd, *Airclaims, United Kingdom*

Jean-Francois Charrier, *Head of Marketing, Telecommunication Satellites Sales and Marketing, EADS Astrium, France*

Olivier Coste, *Senior Vice President, Strategy & Business Development, Alcatel Alenia Space, France*

Xavier Lacombe, *AON Explorer, France*

Martin Halliwell, *Chief Technology Officer, SES ASTRA, Luxembourg*

Barry Noakes, *Chief Technical Officer, Commercial Space Systems, Lockheed Martin Corp., USA*

19:30 COCKTAIL RECEPTION

Tuesday, September 27

9:00 10:30

Auditorium Bachelet

SESSION KA3

Satellite Architectures 1
Chaired by **W. T. BRANDON**, *Harris Corp., USA*

K000002
A KaBand Satellite System for Homeland Security
W. T. Brandon, *Harris Corp., USA*

K000004
Performance Analysis and Simulation of Different Frequency Reuse Schemes for Indian Multibeam Ka-Band Satellite
J. Shah, K. Karthikeyan, A. K. Sisodia, V. K. Garg, *Indian Space Research Organization, India*

K000070
Integration and Sharing of Data Between Disparate Enterprise Architecture Models
E. Bonilla, M. M. Gordon, M. J. Law, M. P. Schiedt, *Northrop Grumman, USA,* R. P. Williams, *TASC, USA*

K000045
A Preliminary Design of Rf Performances Ka-Band Communications Payload System for COMS
Y.-M. Lee, S.-P. Lee, *ETRI, Korea*

K000035
A Roadmap for Commercial Flexible Ka-Band Telecommunication Satellites
J. B. Sombrin, *CNES, France*

K000112
KaBSat a Major Step Towards Broadband Everywhere
A. Ceccarelli, A. Puccio, *Telespazio SpA, Italy*

Room Colonna

Room Giovanni XXIII

SESSION MOD3

'Modulation and Coding 3'
Chaired by **L. ERUP,** *EMS Technologies Canada Ltd., Canada* and **H. ERNST**, *DLR German Aerospace Center, Germany*

I000249
New M-ary QAM Transmission Payload System
M. Tanaka, *Nihon University, Japan*

I000261
Optimization of 16-QAM Modulation for Nonlinear Satellite Channels
I. Otung, *University of Glamorgan, United Kingdom*

I000200
A New Coded QAM Modulation Scheme for Broadband Satellite Communication
T. Yamazato, T. Yamaoka, H. Okada, M. Katayama, *Nagoya University, Japan*, A. Ogawa, *Meijo University, Japan*

Room Pio XII

SESSION PTECH1

'Payload Technology 1'
Chaired by **J. BELMONT**, *Alcatel Space, France* and **Y. KAZEKAMI**, *Advanced Space Systems Business Corp., Japan*

I000122
A New Generation of Input Multiplexers in Ka-Band
F.-J. Görtz, *Tesat-Spacecom GmbH & Co. KG, Germany*

I000156
Ultra-Wideband Direct Conversion Receivers for Satellite On-Board Processing: System Analysis and Digital Error Compensation
H. G. Göckler, H. Kopmann, *Ruhr-University Bochum, Germany*

I000075
Compact and High Efficient C-band Solid State Power Amplifier for Satellite Use
S. Ogura, Y. Yamamori, R. Hayashi, K. Seino, M. Kido, A. Kiyohara, T. Ono, T. Tsunoda, T. Yuasa, *Mitsubishi Electric Corp., Japan*

Room Benedetto XV

SESSION BBS1

'Broadband Systems 1'
Chaired by **X. LOBAO**, *ESA / ESTEC, The Netherlands* and **T. IIDA**, *Japan Aerospace Exploration Agency (JAXA), Japan*

I000179
Anik F2 Ka-band Multimedia System Design
A. Shoamanesh, R. Tinley, *Telesat Canada, Canada*, J. King, *Communications Research Centre Canada, Canada*

I000092
AmerHis: Triple Play over an OBP-based DVB-RCS Satellite Platform
F. Vallejo, A. Yun, *Alcatel ESPACIO, Spain*

I000271
Multimedia Services Over DVB-RCS OBP Satellite Systems
H. Cruickshank, S. Iyengar, Z. Sun, *University of Surrey, CCSR, United Kingdom,* A. S. Esguevillas, C. G. Garcia, J. T. Gijon, *Telefonica I + D, Spain*

Room Torlonia

Room Orsini

SESSION MSS1

'Mobile Systems 1'
Chaired by **A. JAHN**, *TriaGnoSys GmbH, Germany* and **H. WAKANA**, *National Institute of Information and Communications Technology, Japan*

I000205
MBMS Architechture for Satellite-UMTS
C. Párraga, N. Courville, *Deutsches Zentrum für Luft- und Raumfahrt (DLR), Germany,* P. Pregler, *Siemens AG Österreich, Austria*, J. Furrer, *ASCOM AG, Switzerland*

I000279
Double Use of the Link Margin - Advanced Physical Layer for Satellite Broadcast to Mobile Users
E. Eberlein, A. Heuberger, M. Breiling, *Fraunhofer Institute for Integrated Circuits IIS, Germany*

I000288
Mobile satellite availability for non- critical telecommunication and navigation services in urban environment
G. Scot, C. Loisel, S. May, M. Jeannot, *Centre National d'Etudes Spatiales, France,* J. Marais, *INRETS, France*

Room Pio XI

SESSION NAV1

'Navigation and Positioning Systems 1'
Chaired by **R. LUCAS RODRIGUEZ**, *ESA / ESTEC, The Netherlands* and **S. RAGHAVAN**, *The Aerospace Corporation, USA*

I000237
Status of EGNOS and Galileo Projects
R. Lucas-Rodriguez, *ESA/ ESTEC, The Netherlands*

I000245
Bandwidth Criteria for GNSS Signals - Impact on Code-Tracking Performance
S. Raghavan, J. Jameson, *The Aerospace Corp., USA,* L. M. Vaughn, *United States Air Force, USA*

I000275
Statistical Analysis of BP-SK-like Techniques for the Acquisition of Galileo Signals
E. Lohan, *Tampere University on Technology, Finland*

Room Barelli (K)

SESSION PAN3

'Panel 3: International Regulations: What Works and What Doesn't'
Moderated by **V. MIMIS**, *Industry Canada, Canada*

John Forsey, *Director of New Satellite Ventures and International Coordination, Telesat Canada, Canada*

Don Jansky, *President, Barmat-Jansky, USA*

Blaise Soury Lavergne, *Agence Nationale des Frèquences (ANFR), France*

Alexandre Vallet, *Research and Development, France Telecom, France*

Roberto Viola, *Italian Communications Authority (AGCOM), Italy*

BREAK

11:00 13:00

Auditorium Bachelet

SESSION KA4

'Propagation and Fade Mitigation 1'
Chaired by **R. J. ACOSTA**, *NASA Glenn Research Center, USA*

K000018
Long Term Correlation Between Scintillation and Rain Attenuation in a Slant Path at 18.7 GHz from Italsat
E. Matricciani, C. Riva, *Politecnico di Milano, Italy*

K000063
Empirical Propagation Channel Model for High Altitude Platform Communication Systems
S. Plevel, T. Javornik, M. Mohorcic, G. Kandus, *Jozef Stefan Institute, Slovenia*

K000039
Characterisation and Modelling of Propagation Effects in 20-50 GHz Band
C. Riva, C. Capsoni, L. Luini, E. Matricciani, A. Paraboni, *Politecnico di Milano, Italy,* J. Lemorton, L. Castanet, V. Fabbro, L. Feral, *ONERA, France,* E. Kubista, M. Schoenhuber, *Joanneum Research, Austria,* A. Martellucci, *ESA/ESTEC TEC-EEP, The Netherlands*

K000066
Noise Correlation Radiometer
H. Helmken, *Florida Atlantic University, USA*

K000103
Simulation and Verification of a Fade Mitigation System
O. Koudelka, *TU Graz, Austria,* M. Bousquet, *SUPAERO, France*, L. Castanet, *ONERA, France*

K000080
A Study on Frequency Reuse and Available Time Statistics for S-Band Mobile Communications Using Multi-beam Geostationary Satellite
I. Nakazawa, *NT Wireless Laboratory, Japan,* T. Ide, S.-I Yamamoto, N. Hamamoto, *NICT, Japan*

K000067
One Year of Propagation Measurement Results at Ka-band
A. Rocha, *University of Aveiro, Portugal,* J. Neves, R. Teixeira, *Institute of Telecommunications, Portugal*

Room Colonna

SESSION ECO1

'Satellite Economics and Market Issues 1'
Chaired by **J. CHARRIER**, *EADS Astrium, France* and **C. HOEBER**, *Space Systems/Loral, USA*

I000014
Impact of Subsystem Reliability on Satellite Revenue Generation and Present Value
J. H. Saleh, J. Torres-Padilla, R. Hassan, D. E. Hastings, D. Newman, *M.I.T, USA*

I000032
Utilization Rates of GEO Communication Satellites: Statistical analysis of loading dynamics
J. H. Saleh, J. Torres-Padilla, E. Morgan, R. Sperber, *Massachusetts Institute of Technology, USA*

I000223
Are Satellite Clusters a Good Deal for Commissioning Broadband Satellite Systems?
J. Gayrard, *Alcatel Space, France,* E. Bertenyi, *Telesat, Canada*, B. Perrot, *SES-Astra, Luxembourg,* A. Cotellessa, *ESA ESTEC, The Netherlands*

I000073
Commercial Spacecraft Evolution - Driven by the Business Case
C. F. Hoeber, *Space Systems/Loral, USA*

Room Giovanni XXIII

SESSION NPTC1

'Protocols 1'
Chaired by **B. G. EVANS**, *CCSR, University of Surrey, United Kingdom* and **M. HADJITHEODOSIOU**, *University of Maryland, USA*

I000142
Investigation on the Self-Similarity of Web Traffic Generated by Aggregated Individual Browsers
V. Boussemart, O. Grèmillet, N. Copurville, *DLR, Germany*

I000139
Transport Protocols for Reliability in Satellite Multicast
S. Thilakawardana, G. Acar, A. Widiawan, R. Tafazolli, *Mobile Communications Research Group Centre for Communication Systems Research (CCSR), United Kingdom*

I000167
AeroTCP: A Splitting Transport Protocol for an IP-based Satellite Network Supporting Aeronautical Communications
Y. Shang, M. Hadjitheodosiou, J. Baras, *University of Maryland, USA*

I000224
Evaluation of Reliable Multicast Transport Protocols For Satellite Networks
S. Ramachandran, G. Fairhurst, *University of Aberdeen, United Kingdom,* S. Iyengar, *University of Surrey, United Kingdom*

Room Pio XII

SESSION PTECH2

'Payload Technology 2'
Chaired by **P. RIEGER**, *Tesat-Spacecom GmbH, Germany* and **G. HEALY**, *COM DEV Ltd., Canada*

I000088
Consideration of Future Satellite Communication Technology to Lead New Technology
M. Tanaka, *National Institute of Information and Communications Technology, Japan,* T.Iida, *Japan Aerospace Exploration Agency, Japan*

I000104
Evolution of Analog to Digital Conversion Technology for Wideband Space Applications
P. Angeletti, L. Hili, X. Maufroid, *European Space Agency, The Netherlands,* G. Gallinaro, *Space Engineering SpA, Italy*

I000158
Development Status of Reconfigurable Communication Equipment on Smart-Sat-1
N. Nishinaga, K. Suzuki, *National Institute of Information and Communications Technology, Japan*

I000079
Flexible Ka-Band LCAMP for In-Orbit Output Power Adjustable MPM
M. Khilla, W. Gross, H. Schreiber, D. Leucht, *Tesat-Spacecom GmbH, Germany*

Room Benedetto XV

SESSION BBS2

'Broadband Systems 2'
Chaired by **A. SHOAMANESH**, *Telesat, Canada* and **M. LISI**, *Telespazio SpA, Italy*

I000252
Techniques and technologies for Next Generation Broadband Satellite Systems
I. Buret, K. Leconte, S. Combes, J-D. Gayrard, *Alcatel Alenia Space France, France,* B. Perrot, *SES-ASTRA, Luxembourg*, M. Fitch, *BT, United Kingdom*

I000109
Star / Mesh - the Truly Hybrid Solution
J. Lange, F. Thaller, *ND SatCom AG, Germany*

I000134
DDSO: the satellite contribution to European government actions for the e-Inclusion of citizens and regions
L. Thomasson, M. Vaissière, F. Joly, M. - P. Kluth, S. Taylor, *EADS Astrium, France,* C. Elia, R. de Gaudenzi, *ESA/ESTEC, The Netherlands*

I000140
Scalable Ka-band Satellite System for Broadband Services
B. Ziegler, M. Kassebom, *OHB-System AG, Germany,* W. Milcz, *Tesat-Spacecom GmbH, Germany*

Room Torlonia

NQOS1

'Traffic and QoS Management'
Chaired by **O. DEL RIO HERRERO**, *ESA/ESTEC, The Netherlands* and **S. KRILE**, *University of Dubrovnic, Croatia*

I000098
Reliable Multicast Optimization in the SatIPSec Protocol
A.-L. Beylot, E. Chaput, R. Dhaou, *ENSEEIHT/IRIT, France,* L. Duquerroy, *Alcatel Space Industries, France*

I000038
The Satellite Link Resource Management for Mobile Network
S. Krile, *University of Dubrovnik, Croatia*

I000099
Performance Evaluation of Congestion Control Strategies for 3G Mobile Satellite Systems
F. Schlapansky, J. Rammer, *Siemens AG Österreich, Program and System Engineering PSE, Austria,* N. Courville, *Deutsches Zentrum für Luft- und Raumfahrt (DLR), Germany,* J. Furrer, *ASCOM Systec AG, Switzerland*

Room Orsini

SESSION MSS2

'Mobile Systems 2'
Chaired by **A. VERNUCCI**, *Space Engineering, Italy* and **R. SUZUKI**, *National Institute of Information and Communications Technology, Japan*

I000207
Broadband Global Area Network Air Interface Evolution
M. Richharia, E. Trachtman, *Inmarsat, United Kingdom,* P. Fines, *Wireless Intelligent Systems Ltd., United Kingdom*

I000117
NEMO: a NEw MObile Satellite Concept with a Complementary Ground Component
S.Boichon, B. Laurent, C. Michel, V. A. Abian, *EADS Astrium SAS, France*

I000132
The Challenges Of Delivering Mobile Telephony Services to Passengers Onboard Commercial Aircraft
V. Blanc, A. Charlton, D. Froehly, C. Stam, *OnAir, Switzerland*

I000214
A Feasibility Study of Broadband and Scalable Mobile Satellite Communication System for Ubiquitous Networks
M. Ueba, K. Ohata, A. Meguro, K. Kobayashi, *NTT Access Network Service Systems Laboratories, NTT Corporation, Japan*

Room Pio XI

SESSION NAV2

'Navigation and Positioning Systems 2'
Chaired by **R. LUCAS RODRIGUEZ**, *ESA/ESTEC, The Netherlands* and **S. RAGHAVAN**, *The Aerospace Corporation, USA*

I000110
Development of Time Management System for Navigation Mission of Quasi-Zenith Satellite System
K. Kimura, Y. Takahashi, J. Amagai, M. Fujieda, S. Yokota, H. Ito, S. Hama, T. Morikawa, *National Institute of Information and Communications Technology, Japan,* I. Kawano, S. Kogure, *Japan Aerospace Exploration Agancy (JAXA), Japan*

I000241
Position Augmentation Solutions for Location Based Services
F. Rodriguez, G. Plaia, *Telespazio SpA, Italy*

I000082
Effect of Alternate Path on Satellite Positioning Accuracy in an Urban Environment
J. Marais, M. Berbineau, D. F. Nahimana, *INRETS, France*

I000202
Next Generation Sub-Systems for Navigation Payloads
S. Iannitti, M. Donati, L. Zuliani, *Agenzia Spaziale Italiana, Italy*

Room Barelli (K)

SESSION KA5

'Communication Protocols 1'
Chaired by **P. LO GALBO**, *ESA, The Netherlands*

K000079
Performance for DVB-S2 Receiver
W. Thesling, F. Mo, M. Nimon, R. Gedney, *Efficient Channel Coding Inc., USA*

K000032
On Adopting the GAP Model to Estimate TCP Throughput of Broadband Satellite Links
A. E. Drougas, P. M. Arapoglou, A. D. Panagopoulos, P. G. Cottis, *Wireless & Satellite Communications Group, National Technical University of Athens, Greece*

K000057
Robust Frame Synchronization Design in the Presence of Frequency Errors
R. Pedone, M. Villanti, G. E. Corazza, *University of Bologna,* DEIS/ARCES, *Italy,* T. P. Mathiopoulos, *ISARS, National Observatory of Athens, Greece*

K000090
QoS Architectures for DVB-RCS Networks
S. Combes, C. Baudoin, N. Sanniers, G. Smaoui, *Alcatel Alenia Space, France,* O. Alphand, P. Berthou, T. Gayraud, *CNRS/LAAS, France*

K000071
Performance Evaluation of UDP Multimedia Traffic Flows in Satellite-WLAN Integrated Paths[r]
A. Annese, P. Barsocchi, N. Celandroni, E. Ferro, *WNLAB, ISTI CNR, Italy*

K000019
VoIP-with-QoS and Bandwidth-on-Demand for DVB - RCS
H. Skinnemoen, A. Vermesan, *Nera SatCom, Norway,* G. Adams, *Newtec Cy, Belgium,* A. Iuoras, *EMS Satellite Networks, Canada,* X. Lobao, *ESA/ESTEC, The Netherlands*

K000077
Performance of DT-OFDM for Satellite Communications in Ka Band
X. Da, *Northwestern Polytechnical University and Air Force Engineering University, China, (PRC),* Y. Li, T. Zhu, *The Telecommunication Engineering Institute, Air Force Engineering University, China (PRC)*

LUNCH

Tuesday, September 27

14:00 16:00

Auditorium Bachelet

SESSION BSKY1

3rd BROADSKY WORKSHOP 1 SatNEx Advances in Air Interfaces for Broadband Satellite Communications
Moderated by **M. BOUSQUET**, *SUPAERO, France*

Overview of the European FP6 Satellite Communications Network of Excellence SatNEx
Eric Lutz, *German Aerospace Research Center (DLR), Germany*

The Integral Satcom Initiative (ISI) - a new European FP7 Technology Platform
Giovanni E. Corazza, *University of Bologna, DEIS/ARCES, Italy*

Channel Modelling and Fade Mitigation Techniques for Broadband Satellite Communications
Michel Bousquet, *SUPAERO, France*

Flexible Waveforms for DVB-S2/RCS Physical Layers
Giovanni E. Corazza, *University of Bologna, DEIS/ARCES, Italy*

Radio Resource Management and Cross-layer Approach in Satellite Networks
Giovanni Giambene, *University of Siena, Italy*

IP networking challenges for the next generation of DVB-RCS
Gorry Fairhurst, *University of Aberdeen, United Kingdom*

Room Colonna

SESSION REG1

'Regulations and Spectrum Sharing 1'
Chaired by **G. STETTE**, *Norwegian University of Science and Technology, Norway* and **R. REY**, *Boeing Satellite Systems, USA*

I000028
Interference Potential to MSS Due to Terrestrial Reuse of Satellite Band Frequencies
P. D. Karabinis, S. Dutta, W.W. Chapman, *Mobile Satellite Ventures, LP, USA*

I000196
Interference into Ka-Band Satellite Networks from UWB Devices
A. Shoamanesh, R. Bowen, *Telesat Canada, Canada,* M. Hebert, *Canadian Space Agency, Canada*

I000229
Global Bilsat-1 VHF frequency usage visualization
A. Telli, A. Es, *The Scientific and Technical Research Council of Turkey, Turkey*

I000087
Frequency Coordination for Navigation Services of Japan's Quasi-Zenith Satellite System (QZSS)
S. Kogure, *Aerospace Exploration Agency, Japan,* Y. Kazekami, S. Hayashi, T. Mitome, *Advanced Space Business Corporation, Japan*

Room Giovanni XXIII

SESSION NPTC2

'Protocols 2'
Chaired by **B. EVANS**, *CCSR, University of Surrey, United Kingdom* and **M. HADJITHEODOSIOU**, *University of Maryland, USA*

I000185
Packet Scheduling Techniques for HSDPA and MBMS Transmissions in Satellite UMTS
G. Giambene, S. Riannetti, *Università degli Studi di Siena, Italy,* V. Y. H. Kueh, *University of Surrey, United Kingdom,* C. Párraga, *German Aerospace Center (DLR), Germany*

I000095
Evaluation of Authentication and Encryption Algorithms for Telecommand and Telemetry in Space Missions
S. Spinsante, M. Baldi, F. Chiaraluce, E. Gambi, G. Righi, *Università Politecnica delle Marche, DEIT, Italy*

I000272
Secure Satellite IP Multicast Using Group Secure Association Key Management Protocol
S. Iyengar, H. Cruickshank, Z. Sun, *University of Surrey, CCSR, United Kingdom*

I000268
Test Considerations for Satellite Network Performance Enhancing Technologies
C. Younghusband, K. Fodil-Lemelin, *XipLink Networking Inc., Canada*

Room Pio XII

SESSION PTECH3

'Payload Technology 3'
Chaired by **P. ANGELETTI**, *ESA, The Netherlands* and **N. MENON**, *Stellar Solutions Aerospace, Italy*

I000169
Non-Mechanical Two-Dimensional Optical Beam Deflector Operated By Wavelength Tuning
M. Toyoshima, F. Fidler, M. Pfennigbauer, W. R. Leeb, *Vienna University of Technology, Austria*

I000203
High Frequency Band Technologies for Satellite Broadband Telecommunications
L. Zuliani, V. Catalano, G. Codispoti, S. Iannitti, *Agenzia Spaziale Italiana, Italy*

I000114
Modular Microwave Hybrid Technology
G. Thomas, G. Weaver, S. Taylor, *EADS Astrium Ltd, United Kingdom,* D. Schmitt, *ESA /ESTEC, The Netherlands*

I000083
A Fast Converging Full-Wave Electromagnetic Designing Procedure for The Synthesis and Optimization of Space Applications Filters
S. Kosmopoulos, S. Petrucci, V. Speziale, M. Albertini, *Space Engineering SpA, Italy*

Room Benedetto XV

SESSION BBS3

'Broadband Systems 3'
Chaired by **A. VERNUCCI**, *Space Engineering SpA, Italy* and **R. SUZUKI**, *National Institute of Information and Communications Technology, Japan*

I000062
Advances in Satellite Communications, Applications and Solutions
H. Skinnemoen, *Nera SatCom, Norway*

I000159
Development of Communication Subsystem for the WINDS
R. Suzuki, N. Yoshimura, Y. Hashimoto, Y. Ogawa, *National Institute of Information and Communications Technology, Japan,* T. Kuroda, T. Takahashi, M. Shimada, *Japan Aerospace Exploration Agency, Japan*

I000166
Distributed Satellite Communication Systems: First-Order Interactions between System and Network Architectures
J. E. Underwood, D. Poppe, *Charles Stark Draper Laboratory, USA,* O. de Weck, *Massachusetts Institute of Technology, USA*

I000221
Reducing Satellite Communication Cost Using Terrestrial Peer-to-Peer for Lost Recovery
F. de Belleville, *ENSICA/TéSA and ENSEEIHT/IRIT, France*, L. Dairaine, *National ICT Australia, Australia and ENSICA/TéSA, France,* M. Gineste, *ENSICA, France*, C. Fraboul, *ENSEEIHT/IRIT, France*

Room Torlonia

SESSION DVB1

'DVB and DVB-RCS Networks 1'
Chaired by **J. GAYRARD**, *Alcatel Space, France* and **J. KING**, *Communications Research Centre, Canada*

I000187
Active Emulation of a DVB-RCS Satellite Link in an End-toend QoS-oriented Heterogeneous Network
M. Gineste, H. Thalmensy, P. Senac, *ENSICA, France*, L. Dairaine, *National ICT Australia, Australia*, M. Diaz, *LAAS / CNRS, France*

I000129
DVB-S and DVB-RCS Regenerative Satellite System Architecture with onboard switching for optimal QoS-aware transmission of IP traffic.
N. G. Courville, H. Bischl, *DLR, Germany*

I000282
DVB-RCS2 Satellite Network with Dual Fade Mitigation Technique
E. Noussi, B. Grémont, A. Hewitt, *University of Portsmouth, U.K.*

I000206
Design and Performance Evaluation of Efficient Scheduling Techniques for Second Generation DVB-S Systems
C. Párraga Niebla, C. Kissling, E. Lutz, *Deutsches Zentrum für Luft- und Raumfahrt (DLR), Germany*

Room Orsini

SESSION MSS3

'Mobile Systems 3'
Chaired by **F. GRAZIANI**, *University of Rome La Sapienza, Italy* and **S. MAY**, *CNES, France*

I000151
On the Application of DVB-S2 and DVB-RCS for Mobile Services
S. Cioni, G. Albertazzi, G.E. Corazza, M. Neri, A. Vanelli-Coralli, *University of Bologna, DEIS/ARCES, Italy*

I000213
DVB-RCS For Mobile Applications: A Way To Reduce The Costs Through The Extension Of The DVB-RCS Standard
S. Defever, C. Moreau, E. Alberty, N. Lerouge, *EADS Astrium SAS, France,* P. Takats, A. Iuoras, L. Erup, *EMS Technologies Canada, Canada*

I000106
Development of Mobile Broadband Interactive Satellite Access System for Ka/Ku band
Y.-J. Song, D.-G. Oh, H.-J. Lee, *Satellite Communications Research Group, Korea*

I000141
Analysis of standardized air interface solution for mobile satellite services in Ku band
F. Arnal, C. Bazile, *CNES, France,* H. Ernst, S. Scalise, *DLR, Germany*, M. Bousquet, *Ecole Nationale Superieure de l'Aeronautique et de l'Espace, France*

Room Pio XI

SESSION MISC1

'Other Satellite Applications 1'
Chaired by **E. ELIZONDO**, *Spacecraft Systems Consultant, USA* and **M. HADJITHEODOSIOU**, *University of Maryland, USA*

I000210
A Study on the Interface Design of SATCOM System for Communication, Ocean and Meteorological Satellite
C. S. Sin , J. W. Park, S. P. Lee, *Global Area Wireless Technology Research Group, Korea*

I000183
Modeling and Design of a Communication Architecture Supporting Lunar Exploration
A. Roy-Chowdhury, M. Hadjitheodosiou, J. S. Baras, *University of Maryland, USA,* N. Rentz, *INP Grenoble Telecom, France*

I000193
The Envisat Data Dissemination System for Africa
B. Collini-Nocker, *Global Communication & Services GmbH, Austria*, S. Badessi, *ESA / ESRIN, Italy,* D. Tomassini, *Vitrociset (ESA/ ESRIN), Italy,* D. Castrovillari, *Intecs, Italy*

I000246
Efficient Use of Ka-band Channels for LEO-to-Exoatmospheric Communication
M. J. Furman, *Harris Corp., USA*

Room Barelli (K)

SESSION KA6

'Advances in Components 1'
Chaired by **W. WILLIAMS**, *NASA Glenn Research Center, USA*

K000113
G/T and Noise Figure of Active Phased Array Antenna
R. J. Acosta, J. Nessel, *NASA Glenn Research Center, USA,* C. F. Du Toit, *QSS Group, Inc., USA*

K000083
Optimum Low Phasenoise Architecture for Communication Payload Frequency Converters
F. Barletta, M. C. Comparini, J. R. Linkowski, M. Micaloni, A. Suriani, *Alcatel Alenia Space SpA, Italy*

K000092
20 Watt Ka-Band Solid State Up Converter
M. Mongrain, *AdvantechAMT, Canada*

K000058
Design & Implementation of Fast Frequency Hopping TDMA Tx Module for Mobile Satellite Terminal
J. Ryu, D.-G. Oh., H.-J. Lee, *ETRI, South Korea*

K000084
Design of Onboard Multibeam Antenna System for Giga Bit Class Communication Satellite
S. Ozawa, T. Maeda, M. Shimada, *Japan Aerospace Exploration Agency, Japan,* K. Hirayama, A. Fukatsu, Y. Koishi, *NEC TOSHIBA Space Systems, Ltd., Japan*

K000041
Ka-Band High Speed Digital Modulators for Multimedia Satellites and Mission Data Downlinks
W. Chen, J. Dokas, A. Malarky, *COM DEV Ltd., Canada*

K000076
C/Ka-Band Upconverter for Satellite
S. Kurose, S. Suzuki, R. Koyama, M. Kojima, *NEC TOSHIBA Space Systems, Ltd., Japan*

BREAK

Tuesday, September 27

16:30 – 18:30

Auditorium Bachelet

SESSION BSKY2

3rd BroadSky Workshop 2 'Aeronautical and Terrestrial Mobile Satellite Communications'
Moderated by **N. KADOWAKI**, *National Institute of Information and Communications Technology, Japan*

Aeronautical Image Transmission Utilizing Ka-band Communications Satellite
Shinji Ogawa, *Satellite Applications Center, JAXA, Japan*

New Trends in Aircraft Passenger Communications: the Satellite Opportunity
Axel Jahn, *TriaGnoSys, Germany*

Always-on Connection for Train Passengers: Internet and Digital TV via Satellite-based Systems
Sandro Scalise, *German Aerospace Research Center (DLR), Germany*

Examples of European Framework Programme Satellite Projects on Aeronautical and Terrestrial Mobile Satellite Communications

Panel Discussion

Room Colonna

SESSION BUS1

'Satellite Bus 1'
Chaired by **M. EDRIDGE**, *Lockheed Martin Commercial Space Systems, USA* and **J. PORTIER**, *Alcatel Space, France*

I000189
Alcatel Space SPACEBUS™ Latest Advances
L. Pelenc, J.-D. Gayrard, *Alcatel Alenia Space, France*

I000287
Evolution of the Eurostar product line
G. Berger, J.-M. Stephan, *EADS Astrium, France*

I000253
A High Efficiency Advanced Quad-Junction Solar Cell Model, Designed and Optimized Using the SILVACO/ ATLAS Software Package
S. Michael, *Naval Postgraduate School, USA*

I000260
Improving Spacecraft Power Using an Advanced Maximum Power Tracking Circuit Onboard the Naval Postgraduate School Satellite: NPSAT1
S. Michael, R. Fernandez, *Naval Postgraduate School, USA*

Room Giovanni XXIII

SESSION GND1

'Ground Systems 1'
Chaired by **M. MIURA**, *SCC, Japan and* **M. KOHL**, *ND Satcom AG, Germany*

I000035
MiniT - A Way Forward to Achieve High Data Rates with Small Terminal Sizes
M. Kohl, U. Slansky, *ND Satcom AG, Germany,* E. Eberlein, R. Wansch, *Fraunhofer IIS, Germany*

I000055
Implementation and Tests of a Simple Amplitude Predistorter to Linearize Saturated SSPAs.
P. Tardif, S. Morris, X. Huang, *Communications Research Centre Canada (CRC), Canada*

I000217
Linearized microwave and millimeter wave power modules (L-MPMS) for space ground station applications
A. Katz, R. Gray, R. Dorval, *Linearizer Technology Inc., USA*

Room Pio XII

SESSION DSP1

'Digital Signal Processors 1'
Chaired by **T. BUTASH**, *BAE Systems, USA* and **T. CRAIG**, *EADS Astrium, United Kingdom*

I000086
Efficient Digital On-Board De- and Remultiplexing of FDM Signals Allowing for Flexible Bandwidth Allocation
M. N. Abdulazim, Heinz G. Göckler, *Ruhr-Universitaet Bochum, Digital Signal Processing Group, Germany*

I000135
SpaceMux On-Board Processor
J.S. Cherkaoui, C.J. Black, *EMS Technologies, Canada*

I000119
The INMARSAT 4 Digital Processor and Next Generation Developments
A. M. Bishop, O. Emam, A. D. Craig, L. Farrugia, R. J. F. Hughes, M. Childerhouse, M. Ali, P. Cornfield, P. Marston, S. Taylor, G. Thomas, *EADS Astrium Ltd., United Kingdom,* D. Schmitt, X. Maufroid, L. Hili, *ESTEC, The Netherlands*

I000154
Regenerative Payload Processor Architectures and Technology for DVB-RCS/ DVB-S(2) Satellite Systems
C. K. Leong, P.C. Marston, B. L. Combridge, C.L. Topping, I. Cameron, S. Holroyd, *EADS Astrium Ltd., United Kingdom,* F. Petz, X. Maufroid, *ESTEC, The Netherlands*

Room Benedetto XV

SESSION BSS1

'Broadcast Systems 1'
Chaired by **B. PERROT**, *SES ASTRA, Luxembourg* and **E. KLEIN-LEBBINK**, *Boeing Satellite Systems, USA*

I000144
Personalized Radio and Multimedia Services for Vehicular Terminals: the "Ku Mobile" System
S. Scalise, H. Ernst, *DLR (German Aerospace Center), Germany*, C. Loeillet, G. Harles, *Société Européenne des Satellites, Luxembourg,* H.-J. Voegel, *BMW Group Research and Technology, Germany,* R. Midthassel, A.J.P.-C. Rios, *ESA/ESTEC, The Netherlands*

I000034
Satellite DAB Gapfilling Methodology
R. D. Briskman, *Sirius Satellite Radio Inc., USA*

I000192
Service Characterization and Traffic Mix Derivation for Satellite Digital Multimedia Broadcast (SDMB) System
V. Y. H. Kueh, M. Karaliopoulos, B.G. Evans, *CSSC, University of Surrey, United Kingdom*

I000201
New Market opportunities for Satellite: Broadcast over Mobile
R. Montagne, *IDATE, France*

Room Torlonia

SESSION DVB2

'DVB and DVB-RCS Networks 2'
Chaired by **Y. NAGAI**, *JSAT Corporation, Japan* and **J. KING**, *Communications Research Centre, Canada*

I000274
Comparison of the DVB-S and DVB-S2 performances
A. Duverdier, *CNES, France,* X. Giraud, *Cabinet Novacom, France*

I000239
Performance Analysis and Trade-off of Forward Link Adaptive Coding and Modulation in DVB-S2/ DVB-RCS Multi-Beam Satellite System
G. Gallinaro, A. Vernucci, *Space Engineering SpA, Italy,* A. Ginesi, *ESTEC, The Netherlands*

I000259
Performance Evaluation and Tuning of Voip in DVB-RCS Satellite Networks
A. Vermesan, Å.S. Clausen, R. Mosand, *Nera SatCom AS, Norway*

I000243
Adaptive margins: a new feature to improve ACM systems performances
K. Leconte, A. Bolea-Alamañac, I. Buret, *Alcatel Alenia Space France, France*

Room Orsini

SESSION MSS4

'Mobile Systems 4'
Chaired by **G.E. CORAZZA**, *University of Bologna, DEIS/ ARCES, Italy* and **S. TAIRA**, *Kashima Space Research Center, Japan*

I000225
An Experimental Mobile Satellite Communications System with an Onboard Packet Switch
S. Taira, *Kashima Space Research Center, Japan,* N. Hamamoto, *National Institute of Information and Communications Technology, Japan,* M. Yoneda, *NEC TOSHIBA Space Systems Ltd., Japan*

I000242
'Mobile Wideband Global Link sYstem' (MOWGLY) - Aeronautical, Train and Maritime Global High-Speed Satellite Services
P. Vincent, *Alcatel Alenia Space, France,* A. Arcidiacono, *Eutelsat,* N. Chevet, *Airbus*, L. Audounet, *Rockwell Collins France, France,* G. Naym, *Orbit,* J. Alvarez, *Alstom*, L. Babarit, *Alcatel CIT*, A. Vaccaro, *MBI, Italy,* M. Le Saux, *Pointshot Wireless,* M. Holzbock, *TriaGnoSys, Germany,* R. Lo Forti, *TeS*, C. Charatsaris,*Video& Suono,* R. Alvarez, *Ineco,* P. Bates, *Broadreach Network,* M. Smith, *Advantech*, B.G. Evans, *CCSR, University of Surrey, United Kingdom*

I000029
Adaptive Beam-Forming with Interference Suppression in MSS with ATC
D. Zheng, P. D. Karabinis, *Mobile Satellite Ventures, LP, USA*

I000195
Network Architecture Evolution for Satellite Digital Multimedia Broadcast (SDMB) Interworking with 3G and Beyond Mobile Networks
L. Liang, Z. Sun, H. Cruickshank, S. Iyengar, *CCSR, University of Surrey, United Kingdom*, M. Fitch, *British Telecom, United Kingdom,* M. Cole, *Logica-CMG,* T. Boivin, *Alcatel CIT, France,* N. Chuberre, *Alcatel Space, France*

Room Pio XI

SESSION ACT1

'Advanced Communications Techniques 1'
Chaired by **X. MAUFROID**, *ESA/ESTEC, The Netherlands* and **T. GILES**, *DSpace, Australia*

I000161
A study on the Transponder System in the 21GHz-band Broadcasting Satellites using Phased-array Antenna
M. Kamei, *NHK Engineering Administration Department, Japan,* K. Yamagata, S. Tanaka, K. Imai, K. Shogen, *NHK Science & Technical Research Laboratories, Japan*

I000115
Combined Optimization of Capacity and Availability on a Ka broadband communication satellite system
M. P. Rodriguez, S. May, G. Scot, *CNES, France*

I000078
Non-Uniform Bandwidth and Power Allocation in Multi-Beam Broadband Satellite Systems
R. Rinaldo, X. Maufroid, R. C. Garcia, *European Space Agency ESTEC, The Netherlands*

I000118
Analysis of Beam Hopping Techniques in Future Multi-Beam Broadband Satellite Networks
X. Maufroid, R. Rinaldo, R.C. Garcia, *ESA/ESTEC, The Netherlands*

Room Barelli (K)

SESSION KA7

'Propagation and Fade Mitigation 2'
Chaired by **A. PARABONI**, *Politecnico di Milano, Italy*

K000114
NASA Radio Frequency Propagation Program
R. J. Acosta, P. Harbath, J. Nessel, S. Sands, *NASA Glenn Research Centre, USA,* R. Gonzalez, *University of Puerto Rico, USA*

K000065
Variable Slant-Path Ka-Band Propagation Measurements on the Australian LEO Microsatellite "FedSat"
T. Kostulski, S. Reisenfeld, *University of Technology of Sydney, Australia*

K000081
Statistical Characteristic of Rainfall at Ka-band in China Typical Region
Y. Liu, G. Huang, M. Li, A. Song, *The Telecommunication Engineering Institute, Air Force Engineering University, China (PRC)*

K000101
Resources Allocation for Broadband Internet Communications Via High Altitude Platform with Rain Attenuation: Strategies and Performance Evaluation
I. Bisio, M. Marchese, *University of Genoa, Italy*

K000094
Applying the Synthetic Storm Technique for Converting Simulated Rain-Rate Series Into Attenuation Series
F. Perez Fontan, A. Nuñez, A. Valcarce, *University of Vigo, Spain,* U. Fiebig, *DLR, Germany*

K000043
1-min Rain Rate Statistics Predictions from 1-hour Rain Rate Statistics Measurements
C. Capsoni, L. Luini, C. Riva, *Politecnico di Milano, Italy*

K000046
Study on Rain Attenuation Compensation for WINDS SatCom System
N. Yoshimura, R. Suzuki, Y. Ogawa, Y. Hashimoto, *National Institute of Information and Communications Technology, Japan*

K000106
Reconfigurability of the On-Board Antenna for Front-End as a Countermeasure Against Tropospheric Attenuation
A. Paraboni, C. Capsoni, M. Buti, S. Bertorelli, *Politecnico di Milano, Italy,* P. Rinous, A. Martellucci, *ESA/ESTEC, The Netherlands,* N. Gatti, P. Gabellini, *Space Engineering SpA, Italy*

20:00 CONFERENCE DINNER

Wednesday, September 28

9:00 10:30

Auditorium Bachelet

SESSION KA8

'Advances in Components 2'
Chaired by **N. KADOWAKI**, *Adaptive Communications Research Lbs., Japan*

K000033
High Data Rate Ka-Band Transmitter for Planetary Exploration
B. Oney, *L-3 Communications Cincinnati Electronics, USA*

K000038
Dual Ka-Band Integrated Radio for Satcom-on-the-Move™
V. Babiak, I. Tchaplia, M. Garzon, *ITS Electronics Inc., Canada*

K000040
High Speed On-Board ATM Based Switch Subsystem for Broadband Satellite Communication System
Y. Yamasa, H. Katagiri, T. Kumagai, M. Yoneda, *NEC TOSHIBA Space Systems, Ltd., Japan,* R. Suzuki, N. Yoshimura, Y. Hashimoto, Y. Ogawa, *National Institute of Information and Communication Technology, Japan*

K000047
Flexible Frequency Synthesizers for Ka-Band Payloads
B. Hespeler, K. Schieber, *Tesat Spacecom GmbH & Co. KG, Germany*

K000050
Advanced Ka-Band Antennas for High Performance Spot Beam Applications
S. Taylor, S. Stirland, M. Harvey, D. Shepherd, R. Roberts, M. Schneider, G. Connor, M. Skeen, H. Wolf, *EADS Astrium Ltd, United Kingdom*

K000069
Ka-Band Advanced Technologies for Broadband Satellite Telecommunications
V. Catalano, L. Zuliani, *Agenzia Spaziale Italiana, Italy*

Room Colonna

SESSION BUS2

'Satellite Bus 2'
Chaired by **J. STEPHAN**, *EADS Astrium, United Kingdom* and **N. MENON**, *Stellar Solutions Aerospace, Italy*

I000057
Update on Life Estimation Model of Large Lithium Ion Cells for Satellite Applications
T. Inoue, N. Imamura, T. Iwamoto, H. Yoshida, K. Komada, *GS Yuasa Technology Ldt., Japan*

I000215
Eurostar E3000 Lithium-ion batteries in orbit experience
P. Mattesco, A. Didier, J-F. Diraison, *EADS Astrium, France*

I000286
Eurostar E3000 Plasma Propulsion System Initial Flight Operations
H. L Gray, *EADS Astrium Ltd, United Kingdom,* A. Demairé, *EADS Astrium SAS, France*

Room Giovanni XXIII

SESSION GND2

'Ground Systems 2'
Chaired by **D. BOULANGER**, *INTELSAT, USA* and **S. CIONI**, *University of Bologna - DEIS/ARCES, Italy*

I000096
A DVB-S2 Modem Prototype Supporting Interactive Applications with Adaptive Coding and Modulation
T. Botticchio, P. Burzigotti, F. Richichi, A. Vernucci, *Space Engineering SpA., Italy,* A. Ginesi, *ESTEC, The Netherlands*

I000125
Modem for High Order Modulation Schemes (MHOMS)
R. De Gaudenzi , A. Ginesi, *ESA/ESTEC, The Netherlands,* D. Giancristofaro, *Alcatel Alenia Space Italia, Italy,* S. Benedetto, G. Montorsi, *Politecnico of Torino, Italy,* M. Luise, *University of Pisa, Italy,* L. Giugno, *Wiser S.r.l, Italy,* C. Berrou, C. Douillard, *ENST Bretagne, France,* G. Gallinaro, *Space Engineering SpA, Italy*

I000127
1Gbps near-Shannon SCCC-based Modem Prototype
D. Giancristofaro, M. Fonte, A. Bernardi, *Alcatel Alenia Space Italia, Italy,* A. Ginesi, *ESA/ESTEC, The Netherlands,* S. Benedetto, G. Montorsi, *Politecnico of Torino, Italy* M. Luise, M. Straniero, *University of Pisa, Italy*

Room Pio XII

SESSION ANT1

'Antenna Technology 1'
Chaired by **A. MARTELLUCCI**, *ESA, The Netherlands* and **M. DONATO**, *EMS Technologies Canada Ltd., Canada*

I000100
Large Deployable Reflectors, an Enabling Technology for Challenging Space Missions
P. Angeletti, K. Van 'T Kloster, J. Santiago-Prowald, *European Space Agency, The Netherlands,* F. Mini, L. Scialino, *Alenia Spazio, Italy*

I000105
ARTEMIS LLM Payload Antenna Design Concepts and PIM Test Results
P. Russo, *Space Engineering SpA, Italy,* A. Pullara, *Alenia Spazio, Italy*

I000108
Development of a Q/V Band Antenna Subsystem for Broadband Space Communications
E. Vetrano, A. Catalani, G. Bellaveglia, P. Russo, *Space Engineering SpA., Italy,* R. Ravanelli, R. Mizzoni, *Alcatel Alenia Space, Italy*, P. Angeletti, G. Toso, *European Space Agency, The Netherlands*

Room Benedetto XV

SESSION MISC2

'Other Satellite Applications 1'
Chaired by **H. TANAKA**, *NTT Corporation, Japan* and **M. BOUSQUET**, *SUPAERO, France*

I000232
Traffic Capacity Estimation of a Satellite System for Emergency Situations
G. Sow, Marie-Laure Boucheret, *ENST / IRIT, France,* C. Guiraud, J.-D. Gayrard, *Alcatel Space, France*

I000041
Autonomus rendezvous technologies using mini satellites - planned experiments
S. Kimura, Y. Nagai, H. Yamamoto, *National Institute of Information and Communications Technology, Japan*, K. Masuda, N. Abe, *Mitsubishi Heavy Industries, Japan*

I000093
UNISAT microsatellites: an affordable way to test in orbit innovative technologies and ideas
F. Graziani, F. Santoni, F. Piergentili, F. Bulgarelli, M. Sgubini, M. Ronzitti, M. L. Battagliere, *Università degli Studi di Roma 'La Sapienza', Italy*

Room Torlonia

SESSION HALE1

'High Altitude Communications Platforms'
Chaired by **M. BERIOLI**, *DLR German Aerospace Center, Germany* and **M. FREIRE**, *ESA, The Netherlands*

I000199
Optimizing Soft Handover Scheme for High Altitude Platform Station Networks
M. Asvial, E. Simanjuntak, E. Agung, A. Purwo, *Center for Information and Communication Engineering Research (CICER), University of Indonesia, Indonesia*

I000198
Hybrid HAP-Satellite Architecture for Reliable Multicast Transmissions
M. Berioli, *German Aerospace Center (DLR), Germany,* G. Giambene, I. Alocci, *University of Siena, Italy,* M. Mohorcic, *Jozef Stefan Institute, Slovenia*, E. Ferro, *Information Science and Technology Institute "Alessandro Faedo", Italy*, F.P. Fontan, *University of Vigo, Spain,* F.-N. Pavlidou, *Aristotle University of Thessaloniki, Greece*

Room Orsini

SESSION PRO1

'Propagation and Rain Fade 1'
Chaired by **B. GREMONT**, *University of Portsmouth, United Kingdom* and **U. FIEBIG**, *DLR German Aerospace Center, Germany*

I000146
Aeronautical Channel Model for Broadband L-Band Satellite Communication
M. Richharia, N. Kaluvala, *Inmarsat, United Kingdom*, P. Fines, *Wireless Intelligent Systems Ltd., United Kingdom,* M. Alvarez-Diaz, *University of Vigo, Spain,* A. Jahn, *TriaGnoSys GmbH, Germany*

I000157
Review and Testing Analysis of Rain Rate and Rain Attenuation Prediction Models for Satellite Applications in the Aburrá Valley in the Country of Colombia
L. D. Emiliani, *Politecnico di Milano, Italy,* L. Castanet, L. Feral, *ONERA-CERT, France*

I000263
Considerations of rain attenuation models for Ka-Band Satellite - Based Wideband Systems
L. Yen, *Northrop Grumman Mission Systems, USA*

Room Pio XI

SESSION ACT2

'Advanced Communications Techniques 2'
Chaired by **I. BURET**, *Alcatel Space, France* and **R. SCHWEIKERT**, *AUDENS ACT Consulting GmbH, Germany*

I000077
A Comprehensive Assessment Tool For Satellite Systems Embodying Adaptive Coding And Modulation Techniques: Implementation Approach And Main Results
G. Gallinaro, A. Vernucci, *Space Engineering, Italy*, G. E. Corazza, *Università di Bologna, DEIS/ARCES, Italy,* R. Rinaldo, *ESTEC, The Netherlands,* A. Paraboni, *Politecnico di Milano, Italy*

I000089
Tunable Fairness-Based Capacity Allocation for Satellite Systems with Adaptive Physical Layer
F. Vieira, A. Vazquez Castro, *Escola Tècnica Superior d'Enginyeria, Spain*

I000102
Feasibility Study of an Operational Satellite Systems Exploiting the Q/V Frequency Bands
P. Angeletti, A. Vernucci, *Space Engineering SpA, Italy*, G. Codispoti, , L. Zuliani, *Agenzia Spaziale Italiana, Italy*

Room Barelli (K)

SESSION KA9

'Communication Protocols 2'
Chaired by **M. CARON**, *Communications Research Centre, Canada*

K000056
A Cross-Layer Mechanism for Efficient Management of TCP-based Traffic
M. Luglio, C. Roseti, *University of Rome Tor Vergata, Italy,* G. Giambene, *University of Siena, Italy*

K000061
Bandwidth on Demand Strategies for Mixed Traffic in Broadband DVB-RCS Satellite Networks
A. Vermesan, *Nera SatCom, Norway*

K000072
Performance Evaluation of TCP Congestion Control Algorithms Over UMTS
P. Camarda, L. A. Grieco, G. Boggia, A. M. Mebabi, *Politecnico di Bari, Italy*

K000105
5 m Ka Uplink Station-ESVA and Stability Test Results
G. Nicolai, A. Noro, *Aersat, Italy,* R. Bardelli, *Eutelsat, France,* P. Vita, C. Squadrito, *Antech SpA, Italy*

K000030
Advanced Coding and Decoding Techniques with Continuous Phase Modulations for Satellite Communications
A. Ginesi, *ESA/ESTEC, The Netherlands,* E. Pascale, *Alcatel, Italy,* A. Barbieri, *Università di Parma, Italy*

BREAK

Wednesday, September 28

11:00 13:00

Auditorium Bachelet

SESSION KA10

'Navigation and New Communication Systems'
Chaired by **H. HELMKEN**, *Florida Atlantic University, USA*

K000122
NASA's Space Communication and Navigation Architecture for 2010-2030
W.D. Williams, J.S. Schier, J.J. Rush, P. Vrotsos, B. Geldzahler, *NASA Headquarters, USA*

K000110
Global Harmonization of Aeronautical Communications
R. J. Kerczewski, *NASA Glenn Research Center, USA*

K000087
Design of the KaB-Sat Satellite System
R. Winkler, G. Losquadro, *Alcatel Alenia Spazio Italia, Italy*

K000097
Wireless Communications for Airport Surface: 5 GHz Measurement Procedures and Results
R. D. Apaza, *Federal Aviation Administration, USA,* D. W. Matolak, *Ohio University, USA*

K000117
Study of an Helicopter NavCom Terminal employing a new Galileo Concept for Crisis Area Remote Management
G. De Franco, G. Morante, A. Cicogna, V. Artibani, *Alcatel Alenia Space SpA, Italy*

K000054
NASA Study for Establishing Baseline Requirements for the Future Terminal Airspace Communications, Navigation, and Surveillance (CNS) Systems
R.D. Apaza, *Federal Aviation Administration, USA,* C.A. Wargo, *Computer Networks & Software, Inc., USA*

K000096
System Design and Enabling Technologies for CASCADE: a Gigabit Speed Store and Forward Satellite System
M. Wlodyka, G. Giffin, K. Magnussen, *MDA Space Missions, Canada*

K000042
Express AM1 Communication Payload Module
Y. Izmailov, V. Ganzhenko, *RSCC, Russia,* A. Kozlov, E. Korchaguin, V. Korovin, *NPO PM, Russia,* T. Moriguchi, J. Nakajima, Y. Yanagi, A. Michizuki, T. Asai, *NEC Toshiba Space Systems Ltd., Japan*

Room Colonna

SESSION BUS3

'Satellite Bus 3'
Chaired by **N. MENON**, *Stellar Solutions Aerospace, Italy* and **J. STEPHAN**, *EADS Astrium, United Kingdom*

I000289
Solarbus Solar Array: New generation of High Power Solar generators (8-20KW) with innovative light weight mechanical architecture
F. Geyer, *Alcatel Space, France*

I000290
Deployment Analysis of Very Large Advanced Structures for Solar Arrays and Model Correlation
A. Carpine, G. Ladurée, *Alcatel Space, France*

Room Giovanni XXIII

SESSION GND3

'Ground Systems 3'
Chaired by **M. CARON**, *Communications Research Centre, Canada* and **D. BOULANGER**, *INTELSAT, USA*

I000240
Requirements for Earth Station Systems and Facilities
D. Hawkins, *Telenor UK Ltd, United Kingdom*

I000233
High Speed Burst Modem for WINDS
R. Gedney, M. Dollard, *Efficient Channel Coding., USA,* Y. Ogawa, Y. Hashimoto, N. Yoshimura, R. Suzuki, *National Institute of Information and Communications Technology, Japan*

I000291
Antenna Pointing Accuracy Impact on Geostationary Satellite Link Quality and Interference
R. Brooker, *RBrooker Engineering, USA.,* D. Vorderbrueggen, *Andrew Corporation, USA.*

I000999
Cost-Effective Two-Way Broadband Terminals: A Ka/Ku-band ODU and a Ku-band Multi-feed ODU
M. Chorev, *Gilat Satellite Networks, Israel,* B. Perrot, *SES GLOBAL, Luxembourg,* P. Gardner, *Andrew Corp., USA,* T. Jozuka, *NJRC, Japan,* T. Cheung, *Zinwell Corp., Taiwan*

Room Pio XII

SESSION ANT2

'Antenna Technology 2'
Chaired by **P. RUSSO**, *Space Engineering SpA, Italy* and **D. WHITEMAN**, *NASA DFRC, USA*

I000074
Ku- and Ka-Band Phased Array Antenna for the Space-Based Telemetry and Range Safety Project
D.E. Whiteman, L.M. Valencia, *NASA, USA,* R. B. Birr, *ASRC Aerospace, USA*

I000150
Phased-Array Multi-beam Antenna Feeder with Beam-Group Configuration for Broadband and Scalable Mobile Satellite Communication Systems
Y. Suzuki, A. Meguro, M. Ueba, *NTT Corporation, Japan*

I000236
Performance of Adaptive Satellite Antenna Array Processing and Comparison with Optimal Multi-User Communications
O. Lücke, *TriaGnoSys GmbH, Germany*

Room Benedetto XV

SESSION MISC3

'Other Satellite Applications 3'
Chaired by **H. TANAKA**, *NTT Corporation, Japan* and **M. BOUSQUET**, *SUPAERO, France*

I000230
Performance Evaluation of a Single Microsatellite Data Collection System Using Small Ground Terminals
E. Zantou, *CRERS, Morocco,* A. Addaim, A. Kherras, *CRES/EMI, Morocco*

I000085
Efficient Multi-Point Data Gathering Satellite Communication System
H. Tanaka, S. Inoue, S. Nogami, T. Tsuchida, H. Kazama, *NTT Corporation, Japan*

I000276
Satellite and Wireless Network Evolution for Broadband Applications
G. Nicolai, P. Cerrito, *Aersat SpA, Italy*, D. Di Zenobio, *FUB, Italy*

I000257
Fiber Pigtailed Lasers for Intra-Satellite Communication
S. Laaksonen, P. Sipilä, V. Vilokkinen, *Modulight, Finland,* M. Mosberger, P. Mueller, *Contraves Space AG, Switzerland*

Room Torlonia

SESSION DVB3

'DVB and DVB-RCS Networks 3'
Chaired by **E. LUTZ**, *DLR German Aerospace Center, Germany* and **N. KARABUDAK**, *Lockheed Martin Corporation, USA*

I000061
Advances in Satellite Communications, Applications and Solutions
H. Skinnemoen, *Nera SatCom, Norway*

I000131
Overhead of IP over Two DVB GEO Satellites: Comparison Between Bent-Pipe and OBP Systems
J. Fasson, E. Chaput, C. Fraboul, *IRIT/ENSEEIHT, France*

I000112
Satellite Resource Management Combining Distributed Cooperative Methods and Central Control Using BoD Variants of DVB-RCS
H. Lexow, T. Navekvien, V. Paxal, *Nera Broadband Satellite, Norway*

I000231
FMT control loop for the return link of DVB-RCS systems
A. B. Alamanac, K. Leconte, M.C. Monaco, I. Buret, *Alcatel Alenia Space France, France*

Room Orsini

SESSION LEO1

'LEO Communications Satellite Networks'
Chaired by **S. KARAPANTAZIS**, *Aristotle University of Thessaloniki, Greece* and **Y. KAZEKAMI**, *Advanced Space Systems Business Corp., Japan*

I000103
On Call Admission Control and Handover Management in Multimedia LEO Satellite Systems
S. Karapantazis, F. Pavlidou, *Aristotle University of Thessaloniki, Greece,* P. Todorova, *Fraunhofer Institute FOKUS, Germany*

I000165
Multi-constraint Routing Algorithm for LEO Satellite Networks
Z. Luo, Z. Sun, H. Cruickshank, *University of Surrey, United Kingdom*

I000178
Dynamic handover and routing to improve QoS for IP-based LEO satellite network
T. Nameki, Y. Yasuda, *Waseda University, Japan,* F. Nakamura, Y. Wakahara, *The University of Tokyo, Japan*

I000292
Satellite-Based Smart Tags for Global Applications
R. Fleeter, *AEROASTRO, USA,* M. Lisi, *Telespazio SpA, Italy*

Room Pio XI

SESSION ACT3

'Advanced Communications Techniques 3'
Chaired by **I. BURET**, *Alcatel Space, France* and **R. SCHWEIKERT**, *AUDENS ACT Consulting GmbH, Germany*

I000076
Perspectives Of Adopting Inteference Mitigation Techniques In The Context Of Broadband Multimedia Satellite Systems
G. Gallinaro, *Space Engineering SpA, Italy,* G. Caire, M. Debbah, *Institut Eurecom, France*, L. Cottatellucci, R. Mueller, *Forschungszentrum Telekommunikation Wien Betriebs-GmbH, Austria,* R. Rinaldo, *ESTEC, The Netherlands*

I000133
Physical Layer Efficiency of Satellite DVB using Fade Mitigation Techniques
T. Wörz, R. Schweikert, *Audens ACT GmbH, Germany,* A. Jahn, *TriaGnoSys GmbH, Germany,* R. Rinaldo, *ESA, The Netherlands*

I000097
Pilot Symbol Distributions for Satellite Burst Waveforms
T. Giles, M. Peake, M. Rice, *DSpace Pty. Ltd, Australia*

I000071
A Semi-Analytical Method to Assess Satellite Non Linear Channel Performance
E. Casini, A. Ginesi, R. De Gaudenzi, *European Space Agency, The Netherlands*

Room Barelli (K)

SESSION KA11

'Advances in Components 3'
Chaired by **S. TIRRÒ**, *Space Engineering SpA, Italy*

K000075
Ka-band Receiver for Satellite
M. Kojima, S. Suzuki, R. Koyama, *NEC TOSHIBA Space Systems Ltd, Japan*

K000093
A Tunable, Low-Noise Ka-Band Signal Generator for Space Applications
G. Arbery, D. Mason, D. Henry, Z. Ahmad, *COM DEV Ltd., Canada*, L. Hotte, *Canadian Space Agency, Canada*

K000102
A 500 Watt Ka-Band Coupled-Cavity TWT for 29 to 31 GHz Communication Systems
J. R. Legarra, M. Cascone, D. Andker, *CPI Inc., USA*

K000123
Spectral Regrowth in Spatially Combined Power Amplifiers
H. Thelander, C.-T. Cheung, M. DeLisio, *Wavestream Corp., USA*

SESSION KA12

'Satellite Architectures 2'
Chaired by **Y. SUZUKI**, *National Institute of Information and Communications Technology, Japan*

K000109
Design and Performance Analysis of a Synchronization Technique to Boost Peer-to-Peer on Satellite Networks
R. Asorey-Cacheda, F. J. Gonzalez-Castano, M. Crespo-Alonso, *Universidad de Vigo, Spain,* L. Caviglione, F. Davoli, *University of Genoa, Italy*

K000028
Reliable Millimeter Wave (72-100 GHz) Satellite Communication with Angle Diversity
P. Christopher, *PFC Associates, USA*

000100
High Performance Data Communications in Interplanetary Networks
T. de Cola, M. Marchese, *CNIT, Italy,* H. Ernst, *DLR, German Aerospace Center, Germany*

K000051
Validation of DVB-RCS Systems with Satellite OBP
N. Girault, S. Defever, E. Alberty, F. Joly, M.-P. Kluth, *EADS Astrium, France*

LUNCH

Wednesday, September 28

	Auditorium Bachelet	Room Colonna	Room Giovanni XXIII	Room Pio XII	Room Benedetto XV	Room Torlonia	Room Orsini	Room Pio XI	Room Barelli (K)
14:00 16:00	**SESSION KA13** **'Market and Regulatory Issues'** Chaired by **R. VIOLA**, *AGCOM, Italy* K000060 **Preparing for the Future of Satellite Communications** R. J. Rusch, *TelAstra, Inc., USA* K000111 **The Market of Broadband** M. Di Crescenzo, G. La Gioia, *Telespazio Spa, Italy* K000108 **Providing an e-Lecture Facility Between Malta and Gozo Using Skyplex Data** H.T. Fenech, E. Lance, *Eutelsat, France,* P. J. Micallef, C. J. Debono, *University of Malta, Malta,* M. Zapata Margeli, G. Verelst, B. Durin, *EADS Astrium, France* K000052 **Fixed Broadband Satellite Services for Rural Areas** L. Pagni, M. Mancini, *Hughes Network Systems Europe, Italy* K000029 **A Brave New Wireless Home: Ka-Broadband, Direct Digital & Ultra-Wideband** G. Burke, *Harris Corp., USA* K000121 **An Overview on VoIP Satellite Services and Relevant Regulatory Issues** G. Santella, R. De Martino, *AGCOM, Italy*		**SESSION GND4** **'Ground Systems 4'** Chaired by **H. SKINNEMOEN**, *NERA SatCom, Norway* and **M. CARON**, *Communications Research Centre, Canada* I000184 **Extension of the Direction Locked Loop Tracking Algorithm to Mobile Satellite Communications** R. Gieron, P. Siatchoua, *IMST GmbH, Germany* I000256 **A Programmable Multi-protocol User Terminal in SkyplexNet Satellite Networks** F. Di Cola, G. Tomasicchio, *Alcatel Alenia Space SpA, Italy* I000222 **On the State of the Art in Mobile Broadband: The Smallest and Lightest BGAN Terminal** H. Skinnemoen, E. Eriksen, J. Smedberg, *Nera SatCom, Norway*				**SESSION ACT4** **'Advanced Communications Techniques 4'** Chaired by **H. ERNST**, *DLR German Aerospace Center, Germany* and **E. KRISTIANSEN**, *ESA/ESTEC, The Netherlands* I000211 **W-CDMA / OFDM comparison for future mobile broadcasting services by satellite** C. Bazile, X. Deplancq, *CNES, France* I000172 **Despreading of DS-CDMA Signals with Carrier By the Summed Gradient Method Using DSP** S. Egami, K. Sakaguchi, X. Wang, *Shizuoka University, Japan,* Y. Kitagawa, *Shizuoka University (Presently With Hitachi Ltd.), Japan* I000226 **Joint Detection with Channel Estimation for Multibeam Satellite Systems** J. Millerioux, *CNES/Tesa, France,* C. Bazile, *CNES, France,* M. Boucheret, *IRIT/ENSEEIHT, France,* A. Ducasse, *Alcatel Space, France*	**SESSION KA14** **'Communications Protocols 3'** Chaired by **C. BONIFAZI**, *Agenzia Spaziale Italiana (ASI), Italy* K000044 **Uplink Capacity Limits for DVB-RCS Systems with Dynamic Framing and Adaptive Coding** M. A. Vazquez Castro, *Universitat Autonoma de Barcelona, Spain,* M. Ruggiano, L. S. Ronga, *CNIT, Università di Firenze, Italy*, M. Werner, *DLR, Germany* K000119 **A Ka/Ku Band Integrated Satellite Network Platform for Experimental Measurements and Services: the CNIT Experience** F. Davoli, S. Vignola, S. Zappatore, A. Zinicola, *CNIT, National Laboratory for Multimedia Communications, Italy,* G. Nicolai, *Aersat SpA, Italy,* L. S. Ronga, *CNIT, Università di Firenze, Italy* K000088 **A GNSS-based Access Scheme for Mobile Satellite Communications** E. Russo, *Agenzia Spaziale Italiana, Italy,* E. Gill, *DLR, Germany* K000031 **A Feedback Suppression Model Using Representatives for Satellite Reliable Multicast Protocols** A. D. Panagopoulos, M. P. Anastasopoulos, P. G. Cottis, *Wireless & Satellite Communications Group, National Technical University of Athens, Greece*
16:00 16:30	**SESSION CLOSE (Auditorium Bachelet)** **Closing Ceremony** **11th Ka and Broadband Conference Acknowledgements and Closing** Frank Gargione, *11th Ka and Broadband Conference General Chair, Satellite Systems Consultant, USA* **Plans for 12th Ka and Broadband Conference** Franco Marconicchio, *11th Ka and Broadband Conference Technical Co-Chair, Agenzia Spaziale Italiana (ASI), Italy* **ICSSC-2005 Acknowledgements: Survey Drawing and Closing** Thomas C. Butash, *ICSSC-2005 General Chair, BAE Systems, USA* **Plans for ICSSC-2006 and ICSSC-2007** Richard Houston, *ICSSC-2006 General Chair, Jacobs Sverdrup, USA*								

General Information

Venue
The Joint Conference and the Colloquium are held at the Grand Hotel Palazzo Carpegna of the Aurelia Convention Centre, via Aurelia 481, Rome, Italy.

Language
The working language of the Joint Conference will be English.

Badges
All delegates must wear the badge at all Joint Conference events.

Help Desk
Should you encounter any problems or have any questions during the Conference, please visit the Conference Help Desk located at Ground Floor (adjacent to the Registration Desk) and someone from the Conference Staff will try to assist you.

Timing of Technical Paper Presentations
As in past conferences, ICSSC technical presentations will be 30 minutes in length. Ka and Broadband Communications Conference technical presentations will be 15 minutes in length. Session Chairs have been instructed to strictly maintain this schedule.
Speakers and co-chairs should be in the conference room at least 15 minutes before the start of the session.

Meals
Breakfast is included in the room rate at the Conference Hotels. All luncheons and coffee breaks during the Conference, the Cocktail Reception on Monday and the Conference Dinner on Tuesday are included in the Conference registration fee. Lunch and coffee breaks on Sunday are included in the Colloquium registration fee.

Accompanying Persons
The Cocktail reception admission is free of charge.
Additional companion tickets for the Conference Dinner (Tuesday) are available for sale for ?70.

Messages and Information
Messages will be recorded and posted on a bulletin board in the registration area. It is not possible to page conference attendees.

Internet Access during Conference
Wireless LAN access will be possible for participants carrying a portable PC suitably equipped. Desktop PC's connected to the Internet will be also available at the Ground Floor of the Joint Conference venue.

Smoking Policy
Out of courtesy to others, smoking is not permitted in any sessions.

Restrictions
Audio or video recording of any session during this conference is prohibited.

DEPARTMENT OF DEFENSE APPROVAL

The Department of Defense finds this event meets the minimum regulatory standards for attendance by DoD employees. This finding does not constitute blanket approval or endorsement for attendance. Individual DoD component commands or organizations are responsible for approving attendance of its DoD employees based on mission requirements and DoD regulations.

CONFERENCE QUESTIONNAIRE

We would appreciate your feedback on how to improve future conferences.
A brief questionnaire is included with your registration materials. As an inducement for providing your thoughts, an Apple iPod will be given away at the Closing Ceremony in a random drawing from among the *completed* questionnaires returned. You must be present to win. (Members of the Organizing Committees and Conference Staff are, of course, not eligible to win). Even those who are ineligible or who cannot be present to win are encouraged to complete and return the questionnaire.

Social Events

THE 2005 AIAA AEROSPACE COMMUNICATIONS AWARD LUNCHEON

Monday, 26 September, 13:00 - 15:00

The prestigious AIAA Aerospace Communications Award is presented for an outstanding contribution in the field of aerospace communications.
Previous award recipients include Arthur C. Clarke. A complete list of award recipients can be found on the AIAA web site at: www.aiaa.org/content.cfm?pageid=194

The award will be presented on **Monday, 26 September 2005** and will take place at the Restaurant of the Terrarossa Park Hotel, located at walking distance from the Conference venue.
A complimentary bus shuttle service is provided from and to the Conference venue.
The luncheon is included in the Conference Registration fee. Additional tickets are available for purchase at Euro 50.

The Awards Luncheon is sponsored by the AIAA Japan Forum on Satellite Communications (JFSC).

COCKTAIL RECEPTION

Monday, 26 September, 19:30 - 20:30

An informal Cocktail reception takes place at the Joint Conference venue in the late afternoon of Monday, 26 September. Wine and other beverages are offered to participants and their spouses together with some typical snacks and dishes from Italy.
The Cocktail is included in the Conference Registration fee.

CONFERENCE DINNER

Tuesday, 27 September, 20:00 - 23:00

The Joint Conference Dinner takes place in the evening of Tuesday, September 27 at Palazzo Brancaccio, a 19th century Roman palace with beautiful adjoining gardens. This event is a must for all conference attendees and their companions. The dinner offers an opportunity to mingle, revel, and relax after the long day spent on the technical issues and concerns. IA bus service from and to the hotels will be organized for registered attendees.
(Included in the Conference Registration fee. Additional tickets are available for purchase at Euro 70)

The Conference Dinner is sponsored by Alcatel Alenia Space and Telespazio.

Registration Information

The Registration Desk opens for on-site registration and material pick up for pre-registered delegates

- on **Sunday**, **25 September 2005** from **8:00 to 18:00**,
- on **Monday**, **26 September 2005** from **8:00 to 18:00**,
- and the following days during the Conference hours.

All payments must be in Euro. Registration fees are inclusive of Italian VAT (20%).
The payment can be made by credit card (VISA, MasterCard, American Express) and cash.

A single registration fee provides access to both Conferences and all joint Plenary and Social events. Separate registration is, however, required for the Colloquium.

REGISTRATION FEES

	before 5 Aug 2005	after 5 Aug 2005
Joint Conference	€ 850,00	€ 950,00
Colloquium	€ 150,00	€ 200,00

Included in the Conference registration fee are:

- Access to both conferences (Monday-Wednesday)
- CD ROM of Joint Conference Proceedings
- Proceedings of the 11th Ka and Broadband Communications Conference (printed book)
- Book of Abstracts and access to the online Proceedings of the ICSSC-2005 Conference
- Luncheons and coffee breaks (Monday-Wednesday)
- Awards Luncheon (Monday)
- Cocktail Reception (Monday)
- Conference Dinner (Tuesday)

Included in the Colloquium registration fee are:

- Access to Colloquium Sessions (Sunday)
- Printed copy of the presentations as provided by the speakers
- Lunch and coffee breaks

Additional Material
Additional copies of the CD-ROM containing the papers of the Joint Conference and a printed book of the Proceedings of the 11th Ka and Broadband Communications Conference and Proceedings are available to registered participants for a fee of € 150,00.

Cancellation and Refund Policy
Registration fee (75%) can be refunded only if notification is given in writing before **September 2, 2005**.
After this date, the registration fee will not be refunded and the Joint Conference Proceedings (book and CD-ROM) will be mailed to the registrant. All refunds will be processed after the Conference.

Istituto Internazionale delle Comunicazioni (IIC)

The Istituto Internazionale delle Comunicazioni (www.iicgenova.it) was founded in 1962 by the city of Genoa, the Genoa Port Authority, and other local agencies, but received its major boost with the participation of Italy's National Research Council (Consiglio Nazionale delle Ricerche, CNR). The Institute was founded to carry on the legacy of the "Congressi Colombiani", international communications meetings started in Genoa in 1953 to celebrate Columbus Day in honor of native son Christopher Columbus. In 1964 the Institute was recognized as a non-profit agency by the Italian government. The mission of the Institute was the organization of international communications conferences, and the process of selecting the recipients of the Premio Internazionale Cristoforo Colombo in collaboration with the CNR and the Medaglia d'Oro Colombiana (Colombian Gold Medal) in collaboration with the city of Genoa. These prestigious awards were given to outstanding individuals and organizations worldwide in recognition of their contributions to the progress and diffusion of telecommunications and transportation in the second half of the twentieth century. As part of its mission, the Institute has promoted and continues the promotion of telecommunications and transportation through research, information sharing, and instructional programs.

American Institute of Aeronautics and Astronautics (AIAA)

Headquartered in suburban Washington, DC, the American Institute of Aeronautics and Astronautics (AIAA) serves over 35,000 members in 65 regional sections and 79 countries. AIAA membership is drawn from all levels of industry, academia, private research organizations, and government and focuses on emerging technologies in aviation, space, and defense. For more information, visit www.aiaa.org

Technical Committee on Communications Systems (TCCS)

The TCCS is a part of the Information and Logistics Systems Division of AIAA. As such, the TCCS focuses on the broad range of technical, programmatic and regulatory issues related to domestic and international commercial, government and military communications systems and networks. Such systems and networks include spaceborne, airborne and terrestrial elements. The primary focus is on satellite communications systems and services. TCCS activities include:

- Organizing the International Communications Satellite Systems Conference (ICSSC), in the United States, Asia and Europe.
- Encouraging and facilitating networking among space communications professionals around the world, and
- Addressing critical satellite communications issues and disseminating such information widely.

Another initiative has been the creation of the AIAA Japan Forum on Satellite Communications (JFSC) to facilitate networking among space communications professionals in Japan and the Asia Pacific region. The JFSC publishes the bi-monthly on-line magazine *Space Japan Review* in Japanese and English (the English version can be found at www2.nict.go.jp/mt/b150/SJR/English/) and organizes ICSSC Conferences held in Asia.

Membership in the TCCS is open to any AIAA member, subject to Committee membership limits and approval. Committee membership is limited by the AIAA to a maximum of 35 members. Membership in the TCCS is normally for a one-year term, but can be renewed at the discretion of the TCCS based on the member's participation in Committee activities.

For nomination instructions and forms visit www.aiaa.org/content.cfm?pageid=192

For more information on TCCS activities, visit the TCCS web site at http://www.aiaa.org/tc/cms/

The TCCS particularly welcomes international members.

International Communications Satellite Systems Conference (ICSSC)

For almost 40 years, the TCCS has organized this premier international technical conference on satellite communications. Since 2000, the ICSSC has been held outside North America during every odd numbered year.

ICSSC Conferences held or planned outside the United States include:

- ICSSC-1976 - Montreal, Canada
- ICSSC-1998 - Yokohama, Japan
- ICSSC-2001 - Toulouse, France
- ICSSC-2002 - Montreal, Canada
- ICSSC-2003 - Yokohama, Japan
- ICSSC-2005 - Rome, Italy
- ICSSC-2007 - Seoul, Korea

Held in conjunction with each ICSSC, the Colloquium is a unique opportunity to share the insights and perspectives of research and industry leaders as they discuss future challenges and applications for satellite communications. Each year, a particular topic of interest is selected and prominent individuals in that field are invited to share their respected views.

Notes