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ESA Telecommunications Newsletter

Dear Reader,

Our commitment to supporting an ever-wider spectrum of companies in our Member States is stronger than ever. ESA Telecom will continue to stimulate industry to create leading-edge technology, and to maintain and defend the competitiveness of the European Industry. The activities supported by ESA address the need for continuous innovation in satellite telecommunications technology and the need to match the demands of Satellite Operators, Service Providers and users in a very complex and competitive marketplace.
We look forward to working with you in 2005.

On behalf of the ESA Telecom team, I wish you all a very Merry Christmas and prosperous New Year.

Pietro Lo Galbo
Head of ESA Telecommunications Department

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Satellite Two-way Broadband Internet Access soon to be included in the ESA Technical Assets

Thanks to the sponsorship of the Belgian National Delegation (Belgian Federal Science Policy Office, formerly OSTC), from the first quarter of 2005 the User Support Office will be offering Telecom projects a 2-way satellite Broadband always-on Internet access service based on the DVB-RCS standard.

The service is based on the Multi Service Provider Platform developed jointly by Belgacom (B) and Newtec (B) in the framework of the ARTES 4 Project 'Broadband in the Sky'.

Projects also have the opportunity to receive equipment ***'on loan'*** from a small pool of terminals for access to the satellite network. A typical configuration would include an ODU with a 90 cm antenna and 2 W amplifier, an IDU and POP router. Available data rates range from up to 2048 kbit/s in download and up to 512 kbit/s in upload over most of Europe, as served by Eutelsat's Atlantic Bird 3 positioned at 5 deg W.

The ESA DVB-RCS Internet access service will be activated in the first quarter of 2005. To this end, all interested Projects that wish to exploit this new opportunity in the framework of ARTES activities are kindly invited to make early contact with the USO.

For more detailed information, please refer to ***http://telcom.esa.int/uso/technicalassets*** or contact the Programme Development Officer, Andrea Cotellessa, at ***andrea.cotellessa@esa.int.***

For further information about ESA Telecommunications visit our website at:

http://telecom.esa.int

Telecom Applications Workshop 2004

The Telecom Applications Workshop 2004 was a great success, with over one hundred people attending on each of the two days, and many more following it at various remote sites throughout Europe.

Most notably in Greece, where over forty persons attended on each of the two days. Mr Liapis, the Greek Minister for Transport and Communication, opened by stating: ***"Our first priority is to place Space Applications at the service of the citizen".*** The HellasSAT satellite made this link possible, connecting ESRIN to the Greek Ministerial Amphitheatre in Athens.

The purpose of the workshop, held on 10 and 11 November 2004, was twofold:

- Firstly to share the knowledge and experience in satcom applications that has been built up over recent years within the ESA Telecom programmes.
- Secondly to help individuals and companies involved in ESA's Telecom Applications Projects get acquainted with each other and encourage relationship building among participants. Harald Hackenburg from the Austrian company F5 echoed this sentiment by saying: ***"The workshop is an excellent opportunity to build up interdisciplinary contacts and other possible synergies."***

ESA Telecom Applications Workshop at ESA/ ESRIN in Frascati (I)

This year's workshop saw Project Teams from Europe and Canada meet and present their projects and give their opinions on a wide array of topics. It opened with a Plenary session, covering aspects of ESA Telecom's ***Applications Initiative, a Multimedia Market Study,*** the UK's ***Perspective on Satellite Multimedia Applications*** and the ***Venture Academy***, for which a questionnaire was handed out to probe interest in this potential USO initiative.

What followed fell into six areas of ESA Telecom's Applications: ***Telemedicine and Medical Education, Location-Based Services, Broadband Access and Services, B2B & B2C, Disaster Relief, Emergency and Security***, and finally ***Distance Learning.***

The workshop ended with an informative briefing from Andrea Cotellessa, of the USO, on ***Market Development and Technical Assets for Projects.*** ***News from the SatLabs Group,*** was presented by Chairman Xavier Lobao. Francesco Feliciani, Head of Applications and organiser of the workshop, concluded the event by discussing ***New Opportunities.***

In addition, throughout the two-day event, four projects provided practical demonstrations. These included the NESA ambulance with satellite connection, the TeLeCare project for home health care via satellite, the recently completed OTV Channel, as well as EDIBS from F5, which had just been honoured with an award from the Austrian Ministry of Commerce.

For more information about the workshop and to access the presentations (Member States only), please go to ***http://telecom.esa.int/taw2004***

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"The European Space Agency (ESA) inspires the vision for Europe's future in space and, through a diverse range of projects, develops the strategies needed to see it realised"

Analysis Shows Benefits for Broadband Connectivity in Europe

Bridging the Digital Divide will remain a key issue in Europe for the coming years. ESA and the European Commission wish to address the potential of space-based technologies, in conjunction where appropriate with other systems, to bring affordable broadband to disadvantaged or neglected areas such as rural and mountain regions, islands and far-flung outlying regions.

To underpin the policy decisions, ESA assessed a Cost Benefit Analysis of satcom and alternative technologies, which had concluded that widespread adoption of broadband in Europe would have significant economic benefits.

The above-mentioned PriceWaterhouseCooper analysis indicated a total benefit/cost ratio of 1.69x for the provision of broadband services across the European Union, taking into account the more material net benefits estimated to arise in the period after 2013. This should be regarded as a strongly positive ratio, as it suggests that the rewards of rolling out infrastructure to bridge the Digital Divide in Europe are likely to be substantially greater than the investment required to do so.

Rural areas

The benefit ratio is, however, significantly lower in rural than in urban areas, primarily because the costs are higher in rural areas while the benefits per user are comparable.

The analysis also looked at ***'un-met demand'***, which was defined as the number of enterprises and consumers in areas not currently covered by terrestrial broadband networks who would take up broadband services if they were made available at the prices prevailing in areas where those services are available. Findings showed that the majority of 'un-met demand' for broadband in Europe is forecast to be in the rural regions.

Given the likelihood that commercially acceptable returns on investment in broadband networks in these areas will not be forthcoming for at least 10 years, the private sector is unlikely to be persuaded of the commercial merits of rolling out terrestrial broadband networks into these regions, despite the fact that these areas hold the key to bridging the Digital Divide in Europe. As a result, it is expected that between 13 and 20 million people across Europe will remain unserved.

Satcom solutions

The potential role of satcom in bridging the Digital Divide across Europe may be key if the objective of offering near 100% connectivity across the EU is to be achieved. It is estimated that satcom may prove to be the optimal method (in terms of financing and speed of rollout) to meet the demand from many of the 4.7 to 7 million unserved homes across Europe, especially those in the most challenging locations. Only 1 million of these otherwise unserved homes could be carried by existing satellite systems, even including the expected incremental growth of those systems over the next ten years; larger numbers of users would require the introduction of new, more cost-efficient satellite systems.

The study can be downloaded from the ESA Telecom website:
http://telecom.esa.int/digitaldivide

AlphaBus in Race to the Market

Europe's first 12-18 kW telecommunications satellite platform known as 'AlphaBus' is slated to begin its Development Phase-C/D in December 2004 with a newly created European consortium. This follows the preparatory phase, during which the level of co-operation between ESA and CNES has been exemplary, and represents the first step in a race to reach the market.

To make this possible, AlphaBus began a Phase-B in 2002, which included the initiation of over twenty projects as a Preparatory Phase. The results have been promising with each having been designed to push the limits of technology and led by industry teams from a variety of European Member States. They are progressing well and will help secure the much-needed enabling technologies for AlphaBus.

European solutions

Though the consortium is led by an unprecedented alliance between the French companies Alcatel and Astrium, equipment providers spread around Europe and including SMEs also play an important role. Two competing projects by Jena-Optronik of Germany and Galileo Avionica of Italy are each working on an Active Pixel Sensor Based Star Tracker predevelopment. This critical component will provide a cost advantage over current CCD-Based Star Trackers.

Similarly, the Belgian company Euro Heat Pipes, with a team of 20 engineers and technicians, is developing new high-capacity heat-pipe technology. As part of the thermal regulation system, heat pipes are key elements of any spacecraft. Satellites based on an AlphaBus platform may contain several hundred metres of heat pipes.

Added to this, a host of other preparatory projects will ensure European competitiveness in the coming decades. A new-generation high-power electric propulsion system is being developed for the efficient station-keeping of the AlphaBus satellites. A new 500 N apogee boost motor will not only benefit AlphaBus, but will be an important asset for European space projects. A fibre-optic gyro will provide a strategic non-US source for this crucial technology.

Furthermore, a predevelopment is underway to take advantage of the new-generation of Li-Ion cells, which are more efficient and will improve the competitiveness of AlphaBus.

Saab Ericsson Space of Sweden and EADS CASA Espacio of Spain are each involved in competing predevelopments to prepare the manufacturing technology for the central tube of the satellite platform.

These are just a few examples of current predevelopments in the Preparatory Phase, which involve companies from Belgium, Germany, France, Italy, the Netherlands, Spain, Sweden, Switzerland and the United Kingdom, striving to become part of the AlphaBus consortium which will work together to benefit the European space programme and give Europe a competitive edge. Jack Bosma, Head of the Large Platform Mission Office, wants AlphaBus to be a true European endeavour: ***"To realise a project of this scope, it will be necessary to build up an interdependent consortium that is going to be competitive and efficient in terms of industrial return. Participation from every ESA Member State is very important."***

The future is high powered

The importance of AlphaBus for Europe is clear. Although well represented in the small- and medium-sized satellite markets, European satellite power ranges above this have been restricted to Alcatel's Eurostar and Astrium's SpaceBus, both of which are limited to 12 kW. What this has meant is that between 1998 and 2003 the 4 billion Euro global market for high-power satcoms has been left entirely to US manufacturers.

The AlphaBus design removes the growth constraints of existing European platforms by providing up to 50% more payload power – up to 18 kW – and significantly increasing the payload mass capability and accommodation area. With the expected retirement of 100 satellites between 2006 and 2011 and the trend towards increasingly greater masses and powers, the need for AlphaBus becomes very apparent.

AlphaBus is Europe's answer to satisfying the growing demand within the commercial Large Platform Market for the coming 15 years.

To view the AlphaBus Preparatory Project Pages, please go to: ***http://telecom.esa.int/alphabus***

Visitors to the ESA stand: Mr Ehud Olmert, Israel's Vice Prime Minister (first left), Mr Maurizio Gasparri, Italian Minister for Communications (second left) and Mr Giuseppe Viriglio, ESA's Director for EU and Industrial Programmes (right middle)

ESA Telecom Shows Satcom Potential

ESA Telecom had the opportunity to demonstrate the value of satcom-based solutions to the public as well as invited dignitaries at the recent international event SAT Expo 2004, held in Vicenza Italy.

Alcatel Space's DVB-RCS interactive, collaborative and video-conferencing tool attracted great attention. Most observers noted how impressive the tool was in terms of both its flexibility and potential for applications ranging from video-conferencing to telemedicine and distance learning. Among the attendees was Bernard Mathieu, Chairman of ESA's Joint Communication Board (JCB), who got the opportunity to take part in a live interactive session between the ESA stand and the Alcatel Space remote site in Cannes France.

The ESA Telecom stand was also honoured by the visit of the Italian Minister for Communications, Mr Maurizio Gasparri and Mr Ehud Olmert, Vice Prime Minister and Minister of Industry, Trade, Labour and Communications of Israel. Mr Olmert remarked, ***"As I get my first look at the possibilities supplied by this DVB-RCS technology, I realise that we are already living in the future."***

A variety of attendees from several Non-Governmental Organisations (NGOs) came to learn how DVB-RCS could be applied to info-poverty solutions in Africa, South America and East Asia. Other visitors took note of the potential applications for banking services and the automotive industry.

Of additional interest to participants in the three-day event were the benefits that two-way technologies can bring to users. Demonstrations of SES-Astra's SATMODE project to deliver low-cost two-way TV communication via satellite, and Aramiska's DVB-RCS fast internet via satellite, produced many positive reactions from on-lookers.

The ESA stand at SAT Expo 2004

ESA Telecom-funded projects NESA and REMSAT were there to provide ample evidence of the broad range of applications that satcom solutions can offer the user community. Many participants at SAT Expo 2004 were surprised to learn that even the fighting of forest fires is an area in which satcom can be a very useful aid. Likewise, the NESA ambulance received special attention by virtue of its satellite link to the local Vicennes Hospital.

Mr Giuseppe Viriglio, ESA's Director of European Union and Industrial Programmes, made a presentation on the relationship between HDTV and satcom during the Session on High Definition Television. In it, he discussed how HDTV might affect future satcom development and how they can mutually benefit from each other.

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