# EU INITIATIVES TO PROMOTE BROADBAND WIRELESS ACCESS

## INTRODUCTION

This note provides background information on initiatives at the EU level in three areas which should help to promote broadband wireless access in remote areas, which may be of interest to other countries in their activities in similar fields:

1. Commission initiation of a **policy debate on how to bring broadband to underserved areas**: comments are being sought during summer and autumn 2005, and these comments can be accessed on the web (see press release below).
2. **Commission Communication on mobile broadband services**, 2004, which examines the broader policy and regulatory environment for mobile broadband services, with the aim of outlining how the remaining challenges to mobile broadband rollout can be addressed (see the Communication below).
3. **Spectrum policies to support broadband wireless access** (see short article).

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## 1. BRINGING HIGH SPEED INTERNET ACCESS TO UNSERVED AREAS OF THE EU

Brussels, 14 July 2005

**Press release: High-speed internet access: Commission opens policy debate on closing the broadband gap**

*A public consultation on policy measures needed to bring high-speed internet access to Europe's under-served areas was opened by the European Commission today. Stakeholders, EU Member States and local/regional authorities are invited to contribute their views on the serious broadband challenge now facing Europe, as set out in a Commission staff working paper entitled "Broadband access and public supp in under-served areas". High-speed and secure broadband networks are vital to the Commission's "i2010" strategy for boosting growth and jobs in the digital economy*

Information Society and Media Commissioner Viviane Reding said: "Europeans are connecting to broadband fast, but discrepancies remain between urban and rural area of the European Union. Yet broadband is key to our competitiveness and the challeng of closing this gap must be addressed urgently. I invite the Governments of Member experiencing a digital divide to act now, in close coordination with the European Commission, so that all households and businesses that need and want broadband acces to the web can obtain it as soon as possible."

Access to high-speed broadband communications networks and broadcasts opens up acce to the digital economy for all, and provides a new vehicle for creativity to generate growth and jobs. It also fosters Europe as a cross-border community, by making it easi to form and inform communities of interest, irrespective of geographic location.

Take-up of high-speed "broadband" internet connections, driven by competition to supply faster, lower-priced internet access, is growing fast. There are now 40 mill broadband lines in the EU, an increase of 70% on last year. Nevertheless, commercia deployment in remote and scarcely populated areas has been constrained by high costs. In January 2005, broadband was available to 90% of the urban population in the EU (Member States[1]) and in the European Economic Area (EEA), but to only 62% of the rura population. This phenomenon has come to be known as the broadband digital divide.

The Commission staff working paper published today, which was prepared with stakeho input, illustrates the development of the rural broadband markets of the EU15/EEA. It explains the pros and cons of government initiatives for extending broadband covera

describes alternative technologies and provides examples of publicly-financed broadband projects. The paper concludes that, although commercial forces are expected to drive further broadband deployment, some areas of the EU are likely to suffer de coverage or will be excluded from the rollout of broadband-enabled services altogether. Public projects aiming at extending broadband deployment are best focused on addressi local needs and demand. Furthermore, initiatives to widen broadband coverage should be complemented by other actions that depend on broadband availability, e.g. retrai people or the promotion of eBusiness.

The paper proposes two policy orientations:

• strengthening national broadband strategies (as part of the Commission's growth jobs strategy and of the Commissioner Reding's new i2010 Roadmap;

• improving the exchange of best practices, inter alia by gathering and sharing information on broadband deployment projects and tenders.

Please join in the debate on:

http://europa.eu.int/information_society/eeurope/i2010/digital_divide/index_en.htm

On Commissioner Reding's i2010-Roadmap:

http://europa.eu.int/information_society/eeurope/i2010/index_en.htm

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[1] Reliable data for the 10 new Member State will not be available before the end o 2005.

## 2. BROADBAND WIRELESS ACCESS IN THE EU: COMMUNICATION ON MOBILE BROADBAND SERVICES

Brussels, 30.6.2004
COM(2004) 447 final

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**COMMUNICATION FROM THE COMMISSION
TO THE COUNCIL, THE EUROPEAN PARLIAMENT,
THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE
AND THE COMMITTEE OF THE REGIONS**

**Mobile Broadband Service**

### 1. INTRODUCTION

The growth in mobile communications has had a profound economic and social impact in Europe and beyond. The mobile phone is now pervasive and is used in virtually every sphere of human activity, private, business and governmental. While penetration levels are likely to continue to increase, the most significant future development will be the growth of mobile broadband services, as the potential provided by third generation mobile (3G) and its enhancements, as well by other wireless technologies, including RLAN, satellite and others, is realised. The dissemination of these technologies represents a paradigm shift that will enable the emergence of new data services, combining the benefits of broadband with mobility. While these services could have a major social impact and will change the way public services are provided, they will also produce significant economic effects by potentially transforming the way business is done.

Electronic communication services have effectively been the largest contributors to EU labour productivity over recent years[1]. Within the sector there are two significant trends. First, with broadband growth at more than 80% last year, Europe is well placed to reap even greater productivity dividends[2]. Second, the relative weight of mobile revenues is increasing and has overtaken that of fixed telephony. User-centric mobile broadband services can therefore be exploited to deliver significant social and productivity gains for the whole economy. Anywhere, anytime availability will be essential requirements in an environment where mobility of people, goods and services is growing. The ability to update customer records wherever sales/support work occurs and to link the mobile workforce with the enterprise and its data resources as well as the ability to exchange large amounts of data will impact on

[1] COM(2004) 61 final.
[2] COM(2004) 369 final.

working processes and organisational change, improving firms' efficiency. Companies will invest in changing business and working practices as long as managers are forced to innovate in the face of strong competition.

Europe's success in mobile communications was built upon a solid regulatory and policy foundation. A single, open digital standard for second generation (2G) mobile (GSM), pre-competitive R&D, a competitive market, a strategic approach to spectrum management and certification of equipment to stabilise the technology were critical factors.

The importance for Europe to maintain its lead in key technology areas such as mobile communications was underlined by the Lisbon European Summit in 2000. Successive European Councils, in particular that held in Seville in June 2002, have called on the Member States to lift barriers to the roll-out of mobile services. Most recently, the Presidency Conclusions of the 2004 Spring European Summit recalled that "*the Union must develop timely responses to new challenges: in the vital area of electronic communications, for example, new EU mobile and broadband strategies must keep the Union at the cutting edge.*" While a number of the issues raised have been addressed, some remain to be resolved not least by market players but also by the authorities of the Member States and the European institutions.

This Communication examines the broader policy and regulatory environment for mobile broadband services. Its primary aim is to outline how the remaining challenges can be addressed, as a contribution to continued long term success. In preparing this Communication, the Commission consulted widely with industry players through the Mobile Communications and Technology Platform and through a workshop on the mobile sector held in June 2004.

This Communication is without prejudice to forthcoming decisions on the next Financial Perspectives (2007/2013) and decisions related to the 7th Framework Programme for R&D.

## 2. DEVELOPMENTS IN THE MOBILE COMMUNICATIONS SECTOR

After a few years of slower growth the mobile sector is now showing signs of recovery. Over the past year, European 3G mobile operators have launched commercial services in ten Member States, and more networks are expected in the next six months. Looking forward, the convergence of telecommunications, broadcasting and internet will result in the proliferation of high speed multimedia services delivered over mobile networks. 2.5G/3G and R-LANs will co-exist and provide complementary services.

Users can avail themselves of high-speed wireless access when near a hot-spot, and receive 3G services over a wider area. Mobile "enterprise solutions" will effectively drive the take-up of 3G data services. Continued technological innovation will also affect other platforms (e.g. broadcasting and wireless access) which, in turn, may affect the development of 3G by giving a broader technology base from which new innovative services could develop to the benefit of all. The convergence of fixed and mobile services, for example, through unified fixed/mobile offerings, will also bring additional opportunities for innovation.

## 3. FORWARD-LOOKING POLICY ISSUES

The world landscape for mobile and wireless communications is changing. Several developing countries are investing heavily in R&D in order to improve their industrial capabilities at very competitive cost. However, to ensure success in 3G and to go beyond and prepare the future, determined and concerted action at EU level is needed on all fronts, from R&D to policy, regulation and spectrum management. In this section the broader policy and regulatory environment for mobile broadband services is examined.

### 3.1. Research and development

The research environment has changed dramatically since 1998, when ETSI adopted the UMTS standard for 3G. Global competitiveness is based on innovative capability as well as cost-efficiency. In order to maintain and improve competitiveness, Europe must focus on innovation as the primary driver of competitive advantage. This can only be achieved if a comprehensive programme of integrated activities, based on the approach that has been successful to date, is launched in the very near future. Because of the complexity of future systems and the desirability of achieving global standards**,** early cooperation between major players is essential in the pre-competitive research phase.

The complexity and magnitude of the technological challenges ahead require a major cooperative R&D effort involving a critical mass of resources, strengthening excellence, exercising a catalytic effect on national initiatives and improving the coordination of the activities of the Member States in the sector. This can only be conducted at European level. An increased effort at EU level would above all have a powerful and specific leverage effect on private investment in research and respond to the competitive challenges presented by similar large-scale R&D initiatives in other regions of the world.

Research in the mobile and wireless communications sector must necessarily address the entire value chain, from technology development (radio access, networking, service platform, system architecture, end-to-end re-configurability, etc.) up to the development of services and applications as well as content, taking into consideration the fact that the associated (radio, network and services) cycles of innovation, although interrelated and inter-dependent, are subject to different time constraints. Global standards and platforms for the development of innovative and high-speed mobile broadband services will be essential for creating a "de facto" global market and for enhancing competition. Such standards and platforms will need adoption on a large scale - European and then on a world-wide basis - in order to avoid fragmentation of the market.

In the context of the preparation of the 7th Framework Programme, the current Mobile Communications and Technology Platform initiative, launched by the Commission[3], is likely to evolve into a formal technology platform as described in the Communications "A European Initiative for Growth"[4] and "Building our Common Future"[5].

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[3] COM(2004) 61 final.

[4] Communication from the Commission on a European Initiative for Growth: investing in networks and knowledge for growth and jobs, COM(2003) 690 final.

[5] Communication from the Commission to the Council and the European Parliament on Building our Common Future: policy challenges and budgetary means of the enlarged Union 2007-2013, COM(2004) 101 final.

The key objectives of this technology platform would be:

- The drawing up of a strategic research agenda;
- The achievement of the necessary critical mass for research and innovation;
- The mobilisation of substantial public and private funding.

**Conclusion**

**The preparation of the Seventh Framework Programme provides an opportunity to launch a technology platform in the area of mobile and wireless communications.**

### 3.2. Interoperability

Interoperability is critical for the deployment of mobile broadband services. It is a multi-faceted issue and is necessary at various levels: device to network (radio access and core network); device to device; network to network; and between content and/or applications.

Without appropriate interoperability between different infrastructure and terminal solutions, the 3G market could remain fragmented. Different services and terminals should be available for different types of user. The significance of interoperability will be manifested in the ability of a network and a terminal to support reliably the functions required for a given service and/or content. Interoperability of services, content and terminals is therefore critical for achieving the goal of mass market adoption.

In a converging environment, new challenges to achieving interoperability emerge. Converging technology means that new systems and services are developed with inputs from multiple industries, including telecommunications, broadcasting, internet service provision, computer and software industries and media and publishing industries, where the meaning of and reliance upon standardisation and interoperability differ.

In this context, a number of fora are involved in service specification and standardisation with the aim of providing service interoperability. There is, however, a strong consensus that, while there is much ongoing work on interoperability, the increased complexity brought about by a converging environment presents a new challenge that needs to be addressed. There is a need to accelerate the dialogue and to improve coordination among all stakeholders.

The cooperation between 3GPP[6] and the GCF[7] is a good basis on which to build. GCF is also working on MMS in the context of the overall OMA[8] agenda, and discussions are continuing about expanding this agenda to other OMA standards.

Without interoperability, which is an industry responsibility, markets may fail. This could frustrate the policy objectives of encouraging innovation and promoting competition and service diversity. In that event, regulatory intervention may be required[9].

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6 3rd Generation Partnership Project.

7 Global Certification Forum.

8 Open Mobile Alliance.

9 Directive 91/250/EEC contains specific provisions that allow for interoperablity in certain circumstances. In addition, the Directive is without prejudice to the application of competition rules, if a

**Conclusion**

**The Commission encourages industry to take steps towards interoperability for mobile broadband services as a matter of urgency.**

### 3.3. Content: technical challenges

Increasing content applications over mobile, both in terms of type and quality, will prove essential to stimulate the demand for mobile communications and the development of new services. Possible road-blocks on the path to advanced mobile services which may hinder their fast uptake need therefore to be identified and removed where appropriate. In that context a sector inquiry into the sale of sports rights for use over 3G networks was recently launched by the Commission to ensure that the development of such crucial services is not blocked under the pressure of more mature media markets. The Commission also intends to conduct a study on technical and other potential obstacles that may hinder the fast take-up of mobile services in Europe, and on consumer aspects.

The creation of a secure environment for content is crucial for the development of richer services. Interoperable Digital Rights Management (DRM) technologies which prevent unauthorised use of protected content and ensure the enforcement of the rights involved, and adequate payment for protected digital content to rightsholders, could provide a significant opportunity for the new mobile content market. These could support the emergence of new business models together with the effectiveness of the enforcement of intellectual property rights. At the same time the rights of consumers especially with respect to data protection and security must also be respected.

The High Level Group on Digital Rights Management, convened by the Commission, aims at addressing the issues concerning interoperability of DRM systems as well as other user and consumer requirements.

While the collection of levies by collecting societies to compensate for the private use reproduction of protected content remains to be considered within the national regulatory framework, the likely detrimental effect such levies could have on the development of content for mobile services, if extended to mobile equipment and handsets, needs to be further considered. The availability of DRM systems and services for the distribution of content over mobile communications needs to be taken into consideration for the determination of the level of fair compensation applying in the case of private use in the light of the provisions of the Copyright Directive[10]. The report on the application of the Directive, to be issued in due course, can provide the basis for the Commission to evaluate the situation in each Member State.

The traditional system of territorial licences granted by national rightholders is regarded by the mobile industry as inadequate to meet the needs of the Information Society in an enlarged EU. Efforts to promote Community-wide licensing of mobile content, including through a one-stop-shop approach, should be further considered in

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dominant supplier refuses to make information available which is necessary for interoperability as required by the Directive.

[10] Directive 2001/29/EC of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society. OJ L 167, 22.6.2001, p. 10.

the context of the current consultation process regarding the management of copyright and related rights in the Internal Market[11].

Depending on their characteristics, mobile broadcasting services could either be considered as Information Society Services[12] or as broadcasting services[13]. In a multi-platform environment, many service providers will increasingly use broadcasting techniques to distribute their services to their subscribers and customers. This does not render their services television broadcasting services within the meaning of the Television Without Frontiers Directive[14].

**Conclusion**

**To address potential roadblocks to advanced mobile services the Commission intends, in addition to the current sector inquiry, to conduct a study on technical and other potential obstacles that may hinder the fast take-up of mobile services in Europe, and on consumer aspects.**

**The Commission will continue to monitor the implementation of Directive 2001/29 and report in due course on its implementation. The Commission will also consider how best to further promote Community wide licensing, including through a one-stop-shop approach, in the context of the follow up to the Communication on the management of copyright and related rights in the Internal Market adopted on 16 April 2004[15].**

### 3.4. Spectrum

With the introduction of the new regulatory framework, a shift in spectrum policy has taken place with the aim of providing at EU level greater flexibility in spectrum usage where needed, based on a consensual and co-ordinated EU approach. Looking forward, several spectrum policy issues will be addressed. The Radio Spectrum Policy Group (RSPG) is currently reviewing approaches to spectrum management .In particular the following issues relevant to broadband mobile services are under consideration:

- In line with the objective of fostering the coordinated introduction of innovative means to manage radio spectrum across Member States, the need for Community action on trading of spectrum rights will be assessed, based on an opinion by the RSPG[16] and on an independent study conducted for the Commission[17].
- The RSPG will set policy priorities for the preparation of the 2007 World Radio Conference (WRC-07). It is likely that one priority will relate to 3G and systems beyond.

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11 Communication from the Commission on the Management of Copyright and Related Rights in the Internal Market, COM(2004) 261 final.

12 If they fall under the definition laid down in Directive 2000/31/EC (e-Commerce Directive), Article 2.

13 If they fall under the definition laid down in Directive 97/36/EC (Television Without Frontiers), Article 1.

14 COM(2003) 410: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on Barriers to widespread access to new services and applications of the information society through open platforms in digital television and third generation mobile communications.

15 COM(2004) 261 final.

16 Document RSPG03-13 on http://rspg.groups.eu.int/documents/meeting_documents/index_en.htm.

17 Analysys, http://www.analysys.com/default_acl.asp?mode=article&iLeftArticle=1361.

- A new request for an opinion will be issued by the Commission to the RSPG on a co-ordinated approach dealing with spectrum resources for wireless platforms. This will promote a forward-looking strategic vision for the spectrum. The viability of such a strategic concept will have to be tested on current access platforms such as GSM, 3G, R-LAN, satellite communications etc.
- Besides specific issues, the RSPG will continue assessing the possible benefits and difficulties associated with different spectrum management models, namely traditional centralised administrative decisions, market-oriented solutions and free or "unlicensed" use of spectrum and reduction of spectrum with exclusive usage rights. The Community should ensure the introduction of new policies for spectrum management in a manner that ensures the creation of a single market for goods and services.

**Conclusion**

**Spectrum policy issues should continue to be addressed to ensure a co-ordinated European approach to making sufficient spectrum resources available and allowing for flexible usage whilst ensuring an internal market for products and services.**

### 3.5. Trusted and secure environment

The emergence of mobile broadband services will include corporate and consumer applications involving personal and sensitive data. For these transactions a trusted and secure identification and authentication process is needed. A common interoperable authentication framework is needed to ensure general purpose authentication across Europe. Mobile communication-based authentication is well placed to serve as a basis, as it is already assisted by the universal availability of GSM networks and terminals across Europe.

Appropriate measures concerning illegal and harmful content and the protection of minors must also be provided.

**Conclusion**

**The industry, in the appropriate fora, should agree on common interoperable authentication mechanisms that will ensure general purpose authentication uses across Europe.**

### 3.6. M-payments

A proportionate and clear regulatory environment for e-money is crucial to the growth of mobile broadband services. When mobile phone pre-paid cards are used as a means of payment to purchase products and services, other than communication services, this activity may constitute the issuance of e-money, and mobile operators may thereby become e-money institutions, under the e-Money Directive[18]. This in turn raises the question of how to apply the rules concerning e-money institutions to mobile operators.

There is at present considerable uncertainty regarding the application of EC rules on e-money and money laundering to mobile payment services. The Commission services have launched a public consultation to clarify the application of the directive to mobile operators. For those mobile payment services that fall within the scope of

[18] Directive 2000/46/EC.

the directive, the consultation will identify how to apply the Directive proportionately. Redeemability rules must be applied in a way that reflects the inherent risks to consumers. Furthermore, regulation of these services needs to be applied in a proportionate way in order to ensure the continuing viability of mobile content services and the maintenance of incentives to create new mobile content services in future. Some mobile operators report that they have already delayed service deployment for reasons of regulatory uncertainty.

A forthcoming proposal for a New Legal Framework for Payments in the EU provides for a single EU payment area. This instrument would extend to post-paid services billed to a subscriber's account provided by third parties. Such services must also be regulated proportionately. The forthcoming proposal for a third money laundering directive, as is the case for the existing two directives, will also apply to mobile operators. However, applying a proportionate and risk-sensitive approach, Member States will be given the possibility of derogating from the directive in respect of products and transactions which represent a low risk of money laundering. In this regard, the intention is to allow Member States to derogate from the directive as regards e-money[19] issued or used in small amounts.

In the short term, the mobile industry needs an appropriate interim solution under the e-Money Directive that provides legal certainty. The Commission will consider adopting guidance for national regulators, possibly in a set of criteria for applying the directive, that may emerge from the ongoing consultation. Such criteria should reflect the financial stability, money laundering and consumer protection risks posed by mobile operators' activities in the financial services area. In the longer term, the e-Money Directive may have to be amended or repealed, to take account of the difference in the way the mobile payment services operate. This can be done in a technologically neutral way, taking into account the outcome of the consultation.

**Conclusion**

**A proportionate and technologically neutral legal environment should include the following suggested aspects:**

- **Payments made directly to mobile operators for services provided by such mobile operators do not fall within the scope of provision of payment services.**
- **Only the e-money element of the prepaid mobile float should be regulated under the e-Money Directive.**

[19] As defined in Directive 2000/45/EC.

- **Regulators should aim to apply only the minimum regulation needed to ensure appropriate coverage of financial stability risks and consumer protection.**
- **Redeemability rules must be applied in a way that reflects the inherent risks to consumers.**
- **Money laundering rules will be adapted to take account of products and transactions, including e-money[20], issued or used in small amounts, which represent a low risk of money laundering.**

### 3.7. Barriers to roll-out of networks

In its Communication "Connecting Europe at High Speed" [21], the Commission points out that one of the policy challenges for the deployment of 3G networks and services lies in the regulatory barriers to the establishment of new base stations and masts in some of the Member States. Third generation mobile communications will in particular require a greater number of base stations than previous GSM networks owing to the higher frequency bands.

The Seville European Council of 21 and 22 June 2002 called upon all relevant administrations to act to overcome difficulties encountered in the physical deployment of 3G networks. In some parts of the Community, the timeframe to obtain local authorisations to install base stations is unpredictable due to procedural delays, stringent planning requirements and contention on alleged health effects. As to the latter, the Commission takes the view that the health and safety of citizens is adequately protected, provided that exposure of the public remains below the EU limits.[22]

**Conclusion**

**Member States must address the problems caused by fragmented local policies on siting base stations and should ensure, that those are based on the generally accepted assessment of the health risks. Difficulties encountered in the physical deployment of networks must be overcome by harmonising the conditions and speeding up the procedures applicable to the acquisition and establishment of base station sites. In addition, they should foster greater public awareness of the risks associated with mobile technologies and the legislation in force that protect the public against such risks.**

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20 As defined in Directive 2000/46/EC.

21 COM(2004) 61 final.

22 Council Recommendation 1999/519/EC.

### 3.8. International co-operation

As mobile communications have strong global characteristics, both on the services and the equipment side, international co-operation and dialogue which includes the mobile sector is essential. An important mechanism in this context is cooperation on research and development. Given the likely future importance of mobile broadband services, in particular, the benefits of open and global standards should continue to be recommended at international level in order to achieve global interoperability and roaming, as well as wider economies of scale. Moreover, the importance of clear and predictable regulatory frameworks for advanced mobile services should be emphasised internationally.

## 4. CONCLUSION

The evolution to mobile broadband services can be exploited to deliver significant productivity, efficiency and social gains. However, new challenges are emerging as other regions of the world push forward. This Communication has identified ways in which these challenges can be met by relevant stakeholders.

The Commission will continue to work with all stakeholders, including Member States, in appropriate fora to progress the key policy issues identified in this Communication.

## 3. SPECTRUM POLICIES TO SUPPORT BROADBAND WIRLESS ACCESS

Policy Spotlight: R-LANs

**Radio Local Area Networks (R-LANs)** are not cellular, so users cannot access the Internet 'on the move' as they can with a 3G service. Instead they access the Internet via R-LAN 'hotspots', generally found in company offices, cafés, airport lounges and other areas where users congregate. R-LANs therefore provides a complementary form of broadband wireless internet access to 3G. The EC policy towards R-LANs aims to stimulate their development in two phases:

- **phase one**: a March 2003 Recommendation encouraged Member States to allow deployment of public R-LAN access networks without any 'sector specific' conditions. The idea was to not risk stifling their growth by imposing stricter licensing regimes;
- **phase two - harmonisation of R-LAN spectrum:** At the World Radiocommunication Conference 2003 (WRC-03), the EU achieved its objective of getting agreement *"on world-wide primary allocations ... of a sizeable amount of spectrum (some 455 MHz) for RLANs in the required bands. The agreement will enable RLAN systems to use new, less cluttered frequency bands around 5 GHz and foster the uptake of these wireless systems globally."* -