

Ref: S684



**The IEE**  
Savoy Place  
London  
WC2R 0BL  
United Kingdom  
T +44 (0)20 7240 1871  
F +44 (0)20 7240 7735  
[www.iee.org](http://www.iee.org)

Radio Spectrum Policy Group  
European Union

**Engineering the future**

Attention RSPG Secretariat

2nd April 2004

Dear Sir/Madam,

**Re: Public consultation on secondary trading of rights to use radio spectrum.**

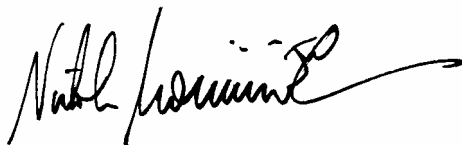
The Institution of Electrical Engineers (the IEE) is pleased to have this opportunity to comment on the Radio Spectrum Policy Group's public consultation on secondary trading of rights to use radio spectrum - February 2004. The IEE's 130,000 members are drawn from a broad range of engineering disciplines, particularly those directly concerned with broadcast, telecommunications, scientific, military and civilian use, planning and provision of services utilising the radio spectrum. The IEE's national and international membership represents all levels of professional responsibility and accountability, from engineering students through to the most senior executives of industry, government, military services and academe.

In preparing its response the IEE has requested input from its Members.

The IEE's response is in the form of an Annex, comprising a re-statement of the consultation document's questions, and responses thereto. Responses have been given to questions where the IEE feels able to add to the consultation process. The Annex question numbering corresponds with that in the Consultation document.

If you require further information, or amplification of any aspect of this response, then please do not hesitate to contact me.

Yours faithfully,



Nicholas Moiseiwitsch  
Head of Engineering Policy  
Tel: +44 (0)20 7344 5438  
Email: [nmoiseiwitsch@iee.org.uk](mailto:nmoiseiwitsch@iee.org.uk)  
Enc.



**The IEE**  
Savoy Place  
London  
WC2R 0BL  
United Kingdom  
T +44 (0)20 7240 1871  
F +44 (0)20 7240 7735  
[www.iee.org](http://www.iee.org)

**Engineering the future**

## **ANNEX**

2<sup>nd</sup> April 2004

### **The Institution of Electrical Engineers**

#### ***Response to the Radio Spectrum Policy Group's public consultation on secondary trading of rights to use radio spectrum***

Where the IEE has a view their response is in italics.

Name: *Dr Nicholas Moiseiwitsch*

Sector (Operator/Manufacturer/End-user/Other): *Europe's largest body representing professional engineers (130,000) drawn from a broad range of engineering disciplines particularly those directly concerned with broadcast, telecommunication, scientific, military and civilian use, planning and provision of services utilising the radio spectrum.*

Organisation/Company: *The Institution of Electrical Engineers (The IEE)*

Title/Responsibility: *Head of Engineering Policy*

Email: *nmoiseiwitsch@iee.org.uk*

#### **General questions**

1) Do you consider secondary trading of rights to use radio spectrum to be beneficial to consumers, businesses and radio users? why/why not?

*Yes. The IEE agrees that there is significant benefit to all stakeholders from the more efficient use of spectrum that the secondary trading of rights will bring.*

*In the circumstance of there being no change of use it is the buyers and sellers of spectrum that expect to benefit from spectrum trading. Manufacturers and end-users are less likely to benefit from spectrum trading. As a rule, increases in infrastructure costs are paid by the biggest mass of stakeholders i.e. the end users.*

*Where there is a change of use then the introduction of new services may benefit consumers, businesses and radio users.*

2) What types of transfer of rights to use radio spectrum (full, leasing, partial etc.) do you

consider can be beneficial to consumers, businesses and radio users? why/why not?

*The IEE envisages that full, partial and leasing (defined term) trades should be permitted to act as a spur to a Spectrum Market being created.*

*The expected economic benefits from spectrum trading are probably dependent upon there being options for licence reconfiguration and change of use. However, permitting changes from private to public applications appears to disregard the significant (traditional) difference in investment necessary between taking a private business use licence and a public service licence. We think it essential that any change of use is regulated in a way such that there remain obligations on the licensee to manage out-of-band power levels in order to minimise interference regardless of intended use.*

3) What rights and associated obligations do you consider should be within the scope of secondary trading of rights to use radio spectrum?

*All trades, whether or not they encompass a change of use, should be governed by a light touch regulation including that "thou shall not cause interference".*

*Emerging transmission technologies should be initially trialed using low power and preferably (band permitting) in a defined region or zone. Once the new technology, at low power, has been satisfactorily proven the licensed power, and or service area, may be progressively increased. Of necessity each stage of this process will require monitoring of any attributable interference and its mitigation.*

4) Would you want to see secondary trading of rights to use radio spectrum introduced in your country or in the countries of interest to you?

Yes.

a) If yes – why, to what extent? when? frequency bands/services?

*The IEE is supportive of the introduction of UK spectrum trading substantially in the manner proposed by the UK's Office of Communications (Ofcom). Ofcom's proposals are set out at: [http://www.ofcom.org.uk/consultations/past/spec\\_trad/spectrum\\_trading/plain\\_english/proposed\\_changes/?a=87101](http://www.ofcom.org.uk/consultations/past/spec_trad/spectrum_trading/plain_english/proposed_changes/?a=87101)*

b) If no – why not, are there other tools that better suit your needs?

5) What information and electronic communication facilities should be made available to facilitate implementation of secondary trading of rights to use radio spectrum?

*The IEE is supportive of Ofcom's proposals for a Public Spectrum Registry as depicted at: [http://www.ofcom.org.uk/consultations/past/spec\\_trad/spectrum\\_trading/market\\_mechanisms/exhibit5](http://www.ofcom.org.uk/consultations/past/spec_trad/spectrum_trading/market_mechanisms/exhibit5). However the IEE suggests that this information may be inadequate for full determination of the interference environment prior to any approach to acquire spectrum e.g. any secondary users and terms. The spectrum trading market will require full assignment details if it is to flourish - particularly in relation to terrestrial and satellite services working in shared bands. Intermediaries that build up and sell this detailed database information are likely to emerge, possibly in the form of spectrum 'estate agents'. We think these should be encouraged by, but not supported (funded) by, Ofcom.*

## Scope of trading – change of use, reconfiguration

6) Is the possibility to reconfigure rights important? If yes, what kinds of reconfiguration do you consider would benefit consumers, businesses and users of spectrum? (geography, frequency, time, other)

*Yes.*

*The novelty of spectrum trading is such that it should not initially, in principle, be constrained as to limitations on reconfiguration for known transmission means and spectrum with known propagation characteristics. Save that where propagation characteristics determine sub-optimal use e.g. using the band 1 MHz to 30 MHz for applications better suited for microwave frequencies, there should be adherence to internationally agreed band plans. Further it is considered important that in any spectrum trade due consideration should be given to secondary users of the band e.g. international emergency use or amateur radio use. The public's interest must be upheld by the national regulatory authorities when considering all trades. Where radio frequency use has been harmonised through the application of Decision No 676/2002/EC (Radio Spectrum Decision) or other Community measures, any such transfer shall not result in change of use of that radio frequency. It is considered that with newly emerging microwave band technologies, and digital technologies, it is now feasible to consider frequencies being allocated in zones with temporally defined usage permits e.g. office hours for business use, then after 18:00 through 08:00 also (or instead of) domestic use.*

7) Is the possibility to use the spectrum in a flexible way important? If yes, what kinds of flexibility do you consider would benefit consumers, business and users of spectrum (service, technical constraints, other)

*Yes.*

*Digital services and software defined radio will permit a degree of flexibility hitherto unavailable. For example, the millimetre and microwave bands may find application for multiple concurrent digital services relying upon embedded application descriptors. Cache memory can provide service continuity.*

Spectrum usage should be subject to:

*In permitting flexibility the safety of life issues must be taken into account when dealing with adjacent bands, or harmonics of, nationally and internationally recognised emergency service frequency allocations.*

*The public, as well as operators and manufacturers, should be consulted on change of spectrum use akin to the requirement (in the UK and other European countries) to do so for change of land use. The public voice in spectrum matters is likely to be heard through professional institutions and public interest bodies.*

8) To what extent is the tenure an important issue in assessing secondary trading? (indefinite, rolling, fixed, annual, other)

*In a Spectrum Trade tenure should be granted on a rolling term basis with a fixed notice period. The notice period should be commensurate with the level of infra-structure investment, plus protection of the overriding public interest.*

*Setting a 'long' notice period risks the licence assuming a quasi-perpetual status wherein there may be greater encouragement of speculative spectrum acquisition i.e. sub-optimal spectrum utilization. Setting a 'short' notice period may discourage spectrum trading as it increases the financial risk of new service roll-out.*

*A compromise might be for a defined 'long' initial licence period, for each class of licence, say 6 - 10 years, and thereafter a 'short', say 3-4 years, notice period. A downside to adopting a too 'short' notice period is that this may inhibit equipment developers, manufacturers and users investing in new product because of the increased risk of short-term loss of market.*

9) Should the same rules and regulations apply for the whole of the spectrum?

a) Is there a need for different rules and regulations for different frequency bands? geographical areas? services? users?

*Where radio frequency use has been harmonised through the application of Decision No 676/2002/EC (Radio Spectrum Decision) or other Community measures, any such transfer shall not result in change of use of that radio frequency. It is the IEE's view that no licence holder per se should be barred from trading save that fair competition must prevail in each class and the risk of monopolistic positions developing should be avoided. The functioning of a spectrum market relies to some degree on there being competition in the services that the spectrum provides. Emergency services, transportation services, public service broadcasting, military and national security services and recreational services should not be placed in jeopardy through any trade and change of use. Such requirements are likely to mandate different rules and regulations for different parts of the radio spectrum. Further in considering approval of spectrum trading of allocated broadcast bandwidth due attention should be given to the interests of the viewer/listener and not just those of the seller and buyer.*

*Given differing propagation characteristics a light touch regulation of "thou shall not cause interference" will require different rules and regulations across the radio spectrum.*

b) If you see a need for different rules and regulations in question 8a above, please give examples.

*See response to 9a.*

### **Competition aspects**

10) Should there be specific competition rules in relation to implementing secondary trading of rights to use radio spectrum, or is general competition law enough?

*In the interests of uniformity general competition law should apply to protect the interests of all stakeholders involved.*

### **The role of the spectrum management authority**

11) What do you see as the main responsibilities for a spectrum management authority in regards to secondary trading of rights to use radio spectrum?

*It is suggested that the spectrum management authority should be an advisory body to the RSPG on policy matters. In carrying out these duties it should ensure compliance with Decision No 676/2002/EC (Radio Spectrum Decision) or other Community measures.*

*Further they should insure that no emergency services, transportation services, public service broadcasting, military and national security services and recreational services are placed in jeopardy through any trade and change of use. The authority should also behave as the custodians of the 'public interest' and act accordingly.*

12) To what extent is spectrum management authority approval of trades a benefit or an impediment to the development of a market for secondary trading of rights to use radio spectrum? Under what circumstances do you consider it would be necessary for a spectrum management authority to refuse a trade?

*Approval of trades will remove uncertainty and provide the purchasers with a degree of confidence against which to set a business plan.*

*An overseeing spectrum management authority giving guidance on policy matters should help ensure development of a 'healthy' spectrum market.*

*With a light touch guidance of "thou shall not cause interference" there does not appear to be any technical circumstances where there would be the need to refuse a trade so long as the spectrum management authority is satisfied its compliance tests are met - see response to 11 above.*

13) What specific measures could a spectrum management authority take to handle the issues if secondary trading is introduced? (ex ante approval procedures, ex post notification, competition aspects, limit change of use, interference aspects, other)

*A Public Spectrum Registry should be maintained - see response to 5 above. An assessment should be made ex-ante whether a spectrum trade can be expected to result in any substantial lessening of competition. Ex-ante assessment should be made on the compliance issues (see response 11). Ex-ante assessment should be made regarding any change of use and potential interference issues. Ex-post a register of trades should be kept.*

14) To what extent should the national spectrum management authority actively facilitate secondary trading of rights to use radio spectrum?

*The IEE is supportive of the introduction of UK spectrum trading substantially in the manner proposed by the UK's Office of Communications (Ofcom). Ofcom's proposals are set out at: [http://www.ofcom.org.uk/consultations/past/spec\\_trad/spectrum\\_trading/plain\\_english/proposed\\_changes/?a=87101](http://www.ofcom.org.uk/consultations/past/spec_trad/spectrum_trading/plain_english/proposed_changes/?a=87101)*

## **Community aspects**

15) Do you consider that adoption of individual regimes by EU member states will cause problems for consumers, businesses and radio users? If yes, in what ways and to what extent?

*The IEE has concerns that unregulated spectrum trades in the range 100 kHz to 1 GHz may have cross-frontier interference implications particularly in the spectrum range 100 kHz to 100 MHz. Thus a light touch regulation of "thou shall not cause interference" should have both a national and an international context*

*European satellite services are characterised by terrestrial up-links, and down-links, being within typically a footprint spanning a plurality of countries. As a consequence to guarantee access rights the introduction of Recognised Spectrum Access (RSA) should be harmonised across Europe. Conceptually unifying spectrum trading regulation across terrestrial and satellite bands is considered desirable.*

16) Do you consider that the EU should take measures to facilitate the implementation of secondary trading of rights to use radio spectrum? If so, in what areas and to what extent?

*Yes.*

*The electronic communication framework directive (2002/21/EC) has already given permission for national spectrum trading measures to be introduced.*

*The implementation of spectrum trading should be left to the national administrations. However, the EU should provide guidance advice, and a conciliation and arbitration resource to assist member nations in any dispute resolution, and provide harmonisation where appropriate.*

17) To what extent is European harmonisation of frequencies an important issue in regards to secondary trading of rights to use radio spectrum?

*Harmonisation is important particularly in the frequency range 100 kHz to 100 MHz where normal propagation characteristics dictate frontiers are crossed by radio spectrum acts in both neighbouring and distant countries. Satellite service harmonisation is also important - see response to 15 above.*

### **Related experiences and examples of secondary trading**

18) What are your experiences with the current spectrum management regimes?

*The IEE's Communications Sector Panel, which advises the IEE on communications policy issues, includes a number of people experienced in spectrum planning and management both through their professional career activities and as members of advisory bodies on spectrum management. See <http://www.iee.org/Policy/sectorpanels/communication/index.cfm> for details of its membership.*

19) What are your experiences of secondary trading of rights to use radio spectrum?

*The IEE has submitted responses to the UK's Radiocommunications Agency, and Ofcom public consultations on spectrum trading e.g. <http://www.iee.org/policy/submissions/sub628.pdf> and <http://www.iee.org/policy/submissions/sub678.pdf>*

20) Please describe specific scenarios in which you consider that the introduction of secondary trading of rights to use radio spectrum would be beneficial

*The responses above have addressed this question.*

21) Any other comments

*It is considered inappropriate that emergency services spectrum allocations should be traded. In many circumstances inter-emergency-service use has to be undertaken and the highest levels of inter-operability and reliability should apply.*

*The amateur radio service acts as a telecommunications educational means that enthuses some young students to become next generation scientists and engineers, and acts as an educational and recreational telecommunications means for all ages. The amateur radio service use of the radio spectrum is often on a secondary basis where operation takes place*

*on a basis of non-interference with the primary user. Allocation of amateur radio bands is recognised by the ITU. To protect this valuable training and recreational resource no spectrum trading, by primary users, should be allowed where the spectrum traded encompasses a secondary amateur radio use - if such a trade is made there is the risk that the secondary user will be disadvantaged unless the trade is governed by more than just 'guidance' conditions.*

*The process of spectrum trading should be divorced from the process of determining the amount of spectrum needed for public service broadcasting.*

---ooOoo---