

## Cover sheet for response to an Ofcom consultation

### BASIC DETAILS

Consultation title: Spectrum Framework Review

To (Ofcom contact): Prof. William Webb

Name of respondent: Greg Mossop, Technical Team Leader

Representing (self or organisation/s): The Radio Amateurs' Emergency Network

Address (if not received by email):

### CONFIDENTIALITY

What do you want Ofcom to keep confidential?

Nothing

Name/address/contact  
details/job title

Whole response

Organisation

Part of the response

If there is no separate annex, which parts?

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Name Greg Mossop

Signed (if hard copy)



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## **Technical Team**

14<sup>th</sup> February 2005

Professor William Webb  
Ofcom  
Riverside House  
2a Southwark Bridge Road  
London  
SE1 9HA

Dear Prof. Webb.

The Radio Amateurs' Emergency Network (RAYNET) is pleased to have this opportunity to respond to Ofcom's public consultation document "Spectrum Framework Review".

RAYNET is recognised as the UK's principal organisation comprising Radio Amateurs who provide voluntary radio communications in support of the activities of Emergency Services and Government Departments, and to local communities in times of disaster and emergencies, and in providing support to local community events. In producing this response we have liaised with the Emergency Communications Co-ordinator of the Radio Society of Great Britain and canvassed the opinions of RAYNET members of all affiliations to produce a consensus view.

RAYNET's response is in the form of an Annex comprising a re-statement of the consultation document's questions with responses thereto. The Annex question numbering corresponds with that in the consultation document.

The line of questioning taken in this consultation does not allow RAYNET a full opportunity to express its concerns over the possible outcomes of the review. We have noted that Ofcom makes statements in this consultation, the stakeholder presentation, and other consultations such as the Spectrum Framework Implementation Plan regarding the future of Amateur Radio licensing. Indeed in Section 4.4.1 mention is made of Ofcom "initiating a project to consider the options for moving to a general authorisation or radically simplifying access to amateur licences". Although this consultation has been running since November 2004 there is no current sign that this project has started. This leads to concern that with the Civil Contingencies Act coming into force later this year, Government Departments and Local Emergency Services are engaging with RAYNET to determine our capabilities. We are unsure of the future of our service as decisions made now under this review may significantly affect our ability to meet the needs of Government in times of emergency and disaster.

Ofcom clearly sets out its 'Spectrum Vision', article 3 of which reads, "Rights of spectrum users should be clearly defined and users should feel comfortable that they will not be changed without good cause". Given the scope of this review and the way the Amateur Service is mentioned it may be understandable that at the moment we feel less than comfortable.



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If you require further information or amplification of any aspect of this response, then please do not hesitate to contact me. In particular, we would encourage Ofcom to meet with the Radio Society of Great Britain and make public their ideas on the future of the Amateur Service in the UK.

Yours sincerely,

Greg Mossop, MIEE, MIEEE  
Technical Team Leader



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### The RAYNET response to the Ofcom ' Spectrum Framework Review' consultation.

*Q1: Are there any other major medium- to long-term spectrum management issues that this review should be considering? Are there any other significant technological or market developments that this review should be aware of when developing its thinking?*

No. This review already covers a broad range of subjects, possibly to the point that crucial detail for certain services will be missed.

*Q2: Do you believe it is useful to publish a compendium of issues? How frequently should it be published? What information should be included?*

Yes, this should be produced yearly and should follow the format previously employed by the RA used in the last published document in April 2002.

By following this model easy comparison may be made of Ofcom's performance in management of the spectrum against the previous track record of the RA. The RA document also demonstrated an understanding of the spectrum use by each class of user and indicated any specific actions or plans for the management of the user in the future. The document will therefore allow tracking of actions set by Ofcom.

*Q3: Are there any other issues of sufficient significance to merit mention in this document?*

No – not at the level of detail used in this document.

*Q4: Are there important lessons to be learnt from experience in other countries that is not addressed here?*

We are not fully aware of the spectrum management regimes in all countries though it should be noted that the examples shown in Annex G tend to come from administrations who are either geographically isolated or who have significant economic power in the local area allowing some element of setting their own terms. It would have been useful if examples had existed within the crowded European market. Page 22 of this review indicates that there is now some evidence that the outcome of the introduction of market forces to electricity markets has produced a better approach than the command and control process used previously. It should also be pointed out however that there is a dissenting view of the effects of introducing market forces, one example of which is "Electricity restructuring in Britain: not a model to follow", *MacGregor, T.*; Spectrum, IEEE , Volume: 38 , Issue:6, June 2001 Pages:15 - 19.

*Q5: Do you agree with Ofcom's intent to maximise the use of trading and liberalisation?*

No – Ofcom should take a staged approach to implementing trading so that the process may be assessed at each step and the process halted if benefits are not being realised. It is not clear in the review whether the intent to maximise trading and liberalisation is driven by the need to maximise usage of spectrum or to reduce Ofcom's commitment and costs incurred in managing the command and control model.



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*Q6: Are there other areas, apart from those identified above, where trading and liberalisation should be restricted? Are there areas identified above where you believe the trading and liberalisation could be fully implemented?*

This is actually two questions and does not deal with the issue of services sharing a frequency allocation. Trading and liberalisation should be restricted in ITU defined radio services and shared frequency bands.

It should also be pointed out that the Amateur Radio Service is, and has been, an example of liberalisation for many years with the use of our frequency bands for a multiplicity of purposes, transmission powers and modes under internal self-regulation.

*Q7: Do you agree with Ofcom's approach to providing spectrum for licence-exempt use?*

No – the review is confusing in its approach and further clarity is sought. In one statement, under legislation there is no spectrum available for licence-exempt use, instead there is spectrum set aside solely for licence-exempt devices. Within this section the review then indicates that amateurs' usage and technology is tightly constrained. This could not be further from the truth since amateurs are actively engaged in a wide range of activities from high power to weak signal working, from experimentation to the provision of emergency communications to emergency services and Government Departments. In the latter case there is the potential for great confusion as Amateurs seek to deploy high speed data networks using IEEE 802.11 technology at higher powers than those allowed under licence-exempt usage. If Ofcom's approach is to restrict spectrum for licence-exempt use to short range applications this will cause difficulties where such spectrum overlaps with the higher power amateur usage.

We are further concerned at the link that may be drawn with 'licence-exempt' services which are normally not protected from interference from authorised services and the inclusion of the Amateur Service in section 4.4.1 headed 'Removing the need for a licence in constrained bands'. The Amateur Service is identified as the Primary or Secondary user of defined frequency bands in Article S5 of the ITU Radio Regulations, and as such have some degree of protection from interference from other services and primacy over licence-exempt services in some frequency allocations such as 2.4GHz. A reduction in the degree of protection we currently enjoy would we believe have an effect on our ability to deploy emergency communications networks in the service of the country.

*Q8: Is Ofcom's proposed methodology to estimate the amount of spectrum provided for licence-exempt use likely to deliver the right results?*

No. The step size used for the RF audit system described in Annex I is too coarse at 100kHz to identify amateur systems which whilst not normally 'channelised' can be on rasters of 100Hz, 3kHz, 12.5kHz or 25kHz. When low power signals on this raster are factored in as well, it could prove difficult to identify amateur signals in some bands, specifically how to discriminate between existing IEEE 802.11 devices and amateur usage at 2.4GHz.



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*Q9: What is the appropriate timing and frequency bands for making available any additional spectrum needed for licence-exempt use?*

Ofcom should avoid the temptation to seek a 'quick win' in the release of further spectrum for licence-exempt use. For example, while it would appear that 802.11a technology could be made available fairly quickly using frequencies in the 5GHz band, this spectrum is already shared with existing users who may find the increased noise floor from an increase in usage unacceptable. It should also be pointed out that with licence-exempt equipment readily available at reasonable costs this is also an avenue which the emergency communications community are exploring for the provision of wide area data networks at our licensed power levels.

*Q10: Do you agree with Ofcom's longer term proposals for spectrum trading?*

Yes – with emphasis on resolving issues surrounding the definition of spectrum usage rights. Radio Amateurs from both the 'weak signal' and emergency communications communities within the hobby, would be rightfully concerned if an indicative noise floor were not properly specified should spectrum trading include bands where Amateur Radio enjoys secondary status.

The role of the Amateur Service in providing emergency communications is set out in Clauses 1(2), 1(2A) and 1(3) of the Amateur Licence. Clause 1(3) however reads:-

"1(3) Notwithstanding sub-clauses 1(1) and 1(4) (a) of this Licence and subject to the limitations in paragraphs 2, 3, 4, 5, 6 and 8 of Resolution 640 of the Radio Regulations of the International Telecommunication Union, the Licensee may use the following frequency bands to meet the needs of international disaster communications: 3.5 MHz to 3.8 MHz, 7.0 MHz to 7.1 MHz, 10.10 MHz to 10.15 MHz, 14.00 MHz to 14.35 MHz, 18.068 MHz to 18.168 MHz, 21.00 MHz to 21.45 MHz, 24.89 MHz to 24.99 MHz and 144 MHz to 146 MHz."

It should be noted that all the frequency bands specified are indeed where the Amateur service is afforded Primary status. However as our User Services require more technologically challenging solutions to emergency communications problems we are moving increasingly to the microwave bands where we only enjoy secondary status. It should also be noted that Resolution 640 was suppressed at WRC-97, the spirit of this resolution now being captured in Article 25.9A of the Radio Regulations which reads :-

"Administrations are encouraged to take the necessary steps to allow amateur stations to prepare for and meet communication needs in support of disaster relief."

Work is currently ongoing within ITU Working Party WP8A to define the characteristics of systems operating in the amateur and amateur-satellite services for use in sharing studies in answer to Question ITU-R 48-4/8. Interference issues may be modelled and assessed but this must be done in sufficient detail to ensure the results can be relied upon. Until WP8A completes its work there is no baseline for Ofcom to use in resolving interference issues to or from the Amateur service.

*Q11: Is the approach set out here, and in Annex H, for developing technology-neutral spectrum usage rights appropriate? Are there alternatives?*

Yes – these do appear appropriate.



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*Q12: Should Ofcom do more to resolve interference?*

Yes – a clearer commitment is required than that demonstrated in this review document. The 'proactive' response is still only a 'consideration' of deployment of unattended monitoring stations. This network would have to be extremely dense to avoid the 'hidden terminal' problem where interference sources could be shielded from detection by the urban environment. There is also a requirement to look at the content of what are perceived to be interfering transmissions, especially in spectrum used for licence-exempt use where a perception that someone was transmitting at illegally high power may instead be a perfectly legal transmission from an Amateur station.

*Q13: To what extent should Ofcom intervene in promoting innovation?*

Ofcom will have to intervene to promote innovation by the expansion of the T&D licence. The market driven strategy promoted will not meet the needs of the small players or potentially the academic usage for radio. Ofcom will also have to be careful of inadvertent intervention which may stifle innovation. The amateur service has proved a useful training ground for generations of engineers who have continued to develop the art and science of radio communications, as such Ofcom should ensure that the service is protected and allowed to flourish.

It may be worth pointing out that the Amateur licence sets out such training as a reason for the existence of the service in the first clause :-

"1(1) The Licensee shall use the Station for the purpose of self-training in communication by radio telecommunications, which use (without limiting the generality of the foregoing) includes technical investigations."

*Q14: Do you agree with Ofcom's proposed approach to harmonisation?*

No – Ofcom's approach appears to state that where international harmonisation is not in the UK interest then a different use may be found which will cause minimal interference to the harmonised service. In the current consultation on the Implementation Plan for the Spectrum Framework Review Ofcom recognises that the management of the UK radio spectrum is governed by the European Communications Directives, which aim to harmonise the regulations of electronic communications networks and services throughout the EU. Section 4 of the 2003 Communications Act requires Ofcom to fulfil the "six community requirements" set out in that section when managing the wireless spectrum in the UK.

It remains unclear how the "requirement to promote the interests of all persons who are citizens of the European Union (s4(5))" can be achieved in the case of spectrum currently used by the Amateur Service when CEPT agreements over amateur frequencies or licensing or indeed any CEPT agreement may be set aside in the UK interest. This is at odds with the free movement of goods & equipment within the EU



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*Q15: Can you foresee any problems with the proposed approach to harmonisation other than those listed above?*

10GHz is used as an example in section 4.7.2 where national licences for fixed wireless access systems were auctioned. No comment is made however on the effects on secondary users of this band such as Amateur usage; this would be a case where indicative noise floors would need to be specified.

*Q16: Do you agree with Ofcom's proposal to continue with division by frequency as the primary method of dividing the spectrum?*

Yes – this remains the best way of segregating different classes of users.

*Q17: Is Ofcom's approach of not Intervening to mandate entitlements in time appropriate?*

Yes.

*Q18: Do you agree with the RIA?*

Within the areas of risk 'Market Mechanisms applied too widely' and 'Changes to harmonisation' further effects should be identified with respect to the possible impact of this review on the response to failures of UK Critical National Infrastructure. Should spectrum be traded freely it may be difficult to clear spectrum to expand to meet the emergent needs of the Emergency Services to respond to a major incident or disaster. In this circumstance the services of the Radio Amateurs' Emergency Network would be called upon to support both the Emergency Services and Government Departments with both narrowband and broadband networks. Should either of these risks be realised then the ability of the Amateur community to respond to such an incident might be compromised. The effects may also be felt over a wider area should overseas teams respond to the UK under the auspices of the Tampere Convention on the Provision of Telecommunication Resources for Disaster Mitigation and Relief Operations.