

*“Working for quality  
and diversity in  
British broadcasting”*

Founded in 1983 by Jocelyn Hay CBE



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**Response of the Voice of the Listener and Viewer  
to  
Ofcom’s consultation on  
A Framework for Spectrum Sharing**

**September 2015**

## Response of the Voice of the Listener and Viewer to Ofcom's consultation on A Framework for Spectrum Sharing

### **EXECUTIVE SUMMARY**

- VLV is anxious to preserve the public value of Public Service Broadcasting (PSB) and robustly to protect its place in the Communications market. We value in particular its free availability to consumers through the medium of eg Digital Terrestrial Television (DTT) and Digital Audio Broadcasting (DAB) which depend upon adequate amounts of Electromagnetic Spectrum that are crucial to its future evolution. We are concerned at the continued erosion of DTT spectrum resources and the potential sharing of PSB bands with other services as yet undefined.
- VLV is well aware of increasing demands for limited spectrum resource and the pressure that this generates on existing services both commercial and public.
- Whilst we have no wish to prevent efficient spectrum use in PSB bands we would expect that entry on both regulatory and technical levels is carefully evaluated before licensing is permitted. In principle sharing is not a major threat to PSB PROVIDED that:
  - Regulatory and Technical measures and controls are in place to define the authorisation, licensing and operation of new services;
  - Reliable and fully tested tools are available to analyse, plan and subsequently approve applications for novel services;
  - Supervision is in place to monitor the new services in action, particularly if those services are fixed but intermittent and thus likely to cause confusing intermittent interference, or are mobile thus injecting varying geographical levels of interference across a given PSB service area and may also stray into an adjacent PSB service area where interference will be caused there;
  - PSB requirements take precedence as the incumbent service;

We would expect that these conditions will form a permanent basis to the planning of any sharing regime in the PSB bands.

#### **1 Information about VLV**

- 1.1 The Voice of the Listener & Viewer (VLV) is an independent, non-profit-making membership association, free from political, commercial and sectarian affiliations, working for quality and diversity in British broadcasting. VLV represents the interests of listeners and viewers as citizens and consumers across the full range of broadcasting issues. VLV is concerned with the structures, regulation, funding and institutions that underpin the British broadcasting system but also takes note of developments in Europe and the wider world. VLV is a charitable company limited by guarantee.
- 1.2 For over 30 years VLV has played a unique role within Britain in keeping a citizen's eye on major legislative proposals and action taken by British regulators and broadcasters,

enabling the voice of consumers to be heard, independent of the interests of political parties, industry players and other pressure groups. VLV also has an interest and participation in European groups concerned with Public Service Broadcasting.

## **2 General Comments**

- 2.1 VLV welcomes the opportunity to respond to the consultation on a Framework for Spectrum Sharing. VLV is well aware of increasing demands for limited spectrum resource and the pressure that this generates on existing services both commercial and public. VLV is aware of previous consultations on Television White Space (TVWS) applications which explored the many aspects of the deployment of the technology in the UHF bands and VLV has responded in detail to one on 13th December 2013 (Ref 1). It is clear that protection of PSB from inadequately controlled TVWS transmissions is vital.
- 2.2 We recognise the wide scope of the consultation and welcome the educational and analytical value of its content as well as insight into the international dimension of the issues. Whilst of interest to all spectrum users, we perceive that this consultation and its detailed set of questions is more relevant to commercial players who may wish to gain access to spectrum resources. The analysis of the market entry conditions suggests an attempt to understand the dynamics of a future spectrum market as do the Questions posed.
- 2.3 Our specific interests and concerns centre on the spectrum allocated to Public Service Broadcasting (PSB) and the prospects for sharing this spectrum with other, new services that may also be of commercial and public value. We welcome Ofcom's approach based on appropriateness to particular spectrum bands rather than a universal approach applied to all. In view of our specific interests we have not attempted answers to the set questions.
- 2.4 In general the planning of Digital Terrestrial Television (DTT) and Digital Audio Broadcasting (DAB) uses spectrum well, implementing technologies that are close to the state of the art. This is particularly true of DTT in its most recent form where MPEG4 video and audio coding is applied to the DVB-T2 modulation system. DAB is however an older technology and its audio coding scheme is now relatively inefficient and is due an upgrade to DAB+ but its use of the Single Frequency Network (SFN) topology assures its efficiency in terms of spectrum occupancy. Each of these offers different options for sharing.

The intensive use that DTT and DAB make of spectrum and the abrupt failure mechanism of digital transmission systems mean that these services are sensitive to interference at the margins of service areas. Failure in each case means the loss of a complete multiplex suite of services rather than a single service as would be the case with analogue FM for example. Thus the introduction of new services sharing with PSB should be carefully defined to contain levels of interference within appropriate bounds.

- 2.5 In general DTT uses a multi-frequency planning scheme where different co-located regional and regionally adjacent transmitters operate on different frequencies and where a national network of high power main transmitters, together with a larger set of

smaller relays, each only use a part of the spectrum band allocated to the whole service. In most regions therefore there is spectrum that can be exploited locally for other services without necessarily causing interference to local DTT transmissions but could do so in adjacent regions. However, all receivers are ordinarily sensitive to the whole band and so PSB reception can be impaired by other transmissions using locally unused PSB frequencies. For DAB this applies only for regional transmissions due to the use of SFN techniques for the national services.

- 2.6 Such spectrum sharing in a band, known as White Space, and the services carried can take very many forms and so it is not possible to provide a specific description of them, only to set technical constraints on their operation and take each new application individually. It may be possible to categorise groups of services. Generally the interference is to some degree reciprocal ie DTT or DAB transmissions may cause interference to or have deleterious effects on these new services.
- 2.7 VLV appreciates the approach described in the consultation document and the numerous issues that require resolution. We have no specific technical comments other than requiring robust protection of PSB. Whilst we have no wish to prevent efficient spectrum use in PSB bands we would expect that entry on both regulatory and technical levels is carefully evaluated before licensing is permitted. We expect also that no service should be permitted to share spectrum with PSB on an unlicensed or unsupervised basis. All services that share with PSB bands should be publically declared and their technical details, preferably based on Open Standards, made available for public inspection.
- 2.8 In the light of these technical details VLV recognises that the demand for spectrum and new services may lead to the sharing of the PSB spectrum bands. In principle this is not a major threat to PSB PROVIDED that:
- Regulatory and Technical measures and controls are in place to define the authorisation, licensing and operation of new services;
  - Reliable and fully tested tools are available to analyse, plan and subsequently approve applications for novel services;
  - Supervision is in place to monitor the new services in action, particularly if those services are fixed but intermittent and thus likely to cause confusing intermittent interference, or are mobile thus injecting geographically varying levels of interference across a given PSB service area and may also stray into an adjacent PSB service area where interference may be caused there;
  - PSB requirements take precedence as the incumbent service.
- 2.9 We would expect that these conditions will form a permanent basis to the planning of any sharing regime in the PSB bands. White Space services may be several and independent from one another and can be widely varying in type and extent and so the reception and interference environment for PSB will always be dynamic in level, over time and possibly localised thus making any particular locality more vulnerable than would be suggested by a global assessment of harm.
- 2.10 Until a mature sharing environment is in place including several different types of operational White Space services the real practical effect on consumers is unknown. Thus a conservative planning approach is needed bearing in mind that PSB services are

already subject to their own planning regime including the vagaries of propagation conditions (see 2.4 above) and are vulnerable at the edges of their respective service areas.

### **3 Sources and References**

[http://stakeholders.ofcom.org.uk/binaries/consultations/white-space-coexistence/responses/Voice\\_of\\_the\\_Listener\\_Viewer.pdf](http://stakeholders.ofcom.org.uk/binaries/consultations/white-space-coexistence/responses/Voice_of_the_Listener_Viewer.pdf)