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Laurence Green Radiocommunications Agency 11 B/20C
Wyndham House
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London
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Dear Sir,

REVIEW OF RADIO SPECTRUM MANAGEMENT

The RRAC (Radio Research Advisory Committee) has reviewed the Cave report and wishes to make the following both general and specific comments in relation to and in support of the report's recommendations. In December 2001 the RRAC advised the RA on what they considered to be the short/medium term research strategy that the RA should adopt.

In January 2002 RA fully endorsed that strategy and is now ensuring that all research projects comply with the strategy's four research themes. However a number of the Cave recommendations, if they are to be achieved, will require further long-term research. Although some of these research requirements are clearly embraced within the agreed research themes, others, likely to benefit spectral efficiency, will require additional research projects if the projected economic benefits are to be achieved. We recommend that if the Cave report's economic benefits are to be achieved within realistic time scales then RA should establish a 'Focus Group' to assess in detail the cost of such additional research programmes.

It is not clear that market forces always give convergence to an optimum solution therefore further research is proposed below in specific areas to avoid unwanted outcomes where the economic cost of rectifying the resulting problems outweighs the potential economic benefits.

In considering the requirements of quality of service, interference criteria for each grade and type of service and other co-ordination issues that could arise from implementation of the Cave recommendations we wish to raise the following specific examples in addition to the above general comments.

1. UWB

Although proposed systems will be low power and likely to have emission levels below recommended CEPT/ETSI standard requirements we believe co-location with conventional systems will be a common occurrence. This issue should be assessed in more detail from both an interference and co-ordination viewpoint requiring spectral information about the UWB system and other users' systems in the area and the ambient noise/propagation characteristics. This should form the basis of an early research project to assist the introduction of such systems.

2. BROADCAST

If excess spectrum in the broadcast bands is to be used by others for economic benefit, interference protection criteria would need to be specified/assessed by the RA to produce guidelines dependant upon the type of service and quality of service. We believe this would form the basis of a useful research project.

3. FIXED SERVICES

In accepting the future rapid growth of Fixed services and in particular point-to-multipoint and multipoint-to-multipoint (mesh type) technologies, recognition of the move by regulating bodies towards issuing 'block allocations' to licensees as against discrete RF channel allocations raises the issue of block edge mask definition in various RF bands against the traditional transmitter spectrum mask definition. The likely future benefits of such a flexible approach allows an operator to provide all types of services within the confines of the block and the UK should assess the long-term benefits to spectrum management and the availability benefits in respect of the present 'system guard band' approach.

4. LICENSE-EXEMPT SPECTRUM

Current allocations are made for ISM bands. These should be retained to provide for existing services where licensing would not be practical. There are a number of services in these bands, such as wireless LANs, where spectrum pricing would impede progress towards Broadband Britain. Such services include home and office LANs and commercial service providers. We suggest that an economic benefit will arise from the services supported by these bands (and any additional licence-exempt allocations) which is likely to exceed the revenue generated by applying spectrum pricing.

5. QUALITY OF SERVICE

Present *C/I* ratios have been based on the UK's traditional planning approach from the early analogue days with a perceived necessary fade margin and quality of service. A reduction of, for example, 3dB on *C/I* requirements of a fixed service could greatly increase the capability of communal sites to support more users and additional transmission links through the site. Benefits here would be welcomed by the 'City planners' and a re-modelling research programme would again assist the 'Cave Debate'.

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6. INTERFERENCE MANAGEMENT

Where responsibility is transferred to operators to manage interference issues in a given allocation the RA should first establish some basic performance guidelines and these should be based on *C/I* ratios, interference immunity of modern equipment designs and quality of service relevant to the proposed usage of the allocation. This in our opinion requires very considerable modelling exercises and the establishing of an urgent research project for each proposed allocation.



Peter Kiddle OBE
Chairman of the Radio Research Advisory Committee