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Third Response to Ofcom's Digital Dividend Review: 550-630 MHz and 790-854 MHz, Consultation on detailed award design, 6 June 2008

Dear Sir

I wish to add to my previous response to *Question 8: Do you agree with the use of SURs as the approach for defining consistent TLCs for this award?*

I have additional comments on Question 8 resulting from a statement made by Professor Webb at the 3rd Annual European Spectrum Management Conference, Brussels, 24-26 June 2008, in support of continuing acceptance of the complexity and inconsistency created by technical licence conditions based on SURs, that is, aggregate power flux density limits (A-PFD). Professor Webb believes SURs are necessary because the alternative, explicit transmit rights, "*do not account for transmitter density*". Webb cited the Nextel interference case in the USA (800 MHz public safety interference) as supporting evidence.

Settlement of the Nextel interference was highly political and any technical implications must be drawn from it very carefully. The efficiency of technical licence conditions depends on their overall design *i.e.* the complete technical and legal framework. A careful assessment of the Nextel case[1] actually supports the use of explicit transmit rights in a thorough and rigorous technical and legal design incorporating:

- the use of a central device database together with precise non-linear transmit rights; and
- the setting out-of-band transmit rights with regard to total emission from an antenna or array rather than the individual conducted emissions of a number of transmitters that can be attached to a single antenna or array.

[1] For more information see section 6.6 of Whittaker M. *"Flexible Radio Spectrum Access: Moving from Device-Centric to Space-Centric Management"* Futurepace Solutions, March 2006, ISBN 0-9775232-0-9, available at www.futurepace.com.au

Both of the above design elements are included in the explicit transmit rights of space-centric management as practiced successfully under Australian Government policy for the past 11 years. Significantly, both elements were absent from the relevant USA licence conditions. The Nextel situation has never happened in Australia, indeed could not happen, because licence conditions have been fully defined prior to auction precisely to take account of '*transmitter density*'.

Professor Webb provides further ill considered support for the choice of A-PFD by also referring to the possible situation of high powered broadcast transmitters frequency-adjacent to lower powered cellular systems. This support is not, in a technical sense, well based. There are far more efficient methods for managing this type of situation using explicit transmit rights, compared to the complexity and vague spectrum usage restrictions imposed by Ofcom's A-PFD limits set within its current framework. Since February 1998, 800 MHz Australian spectrum licences have offered fully defined and efficient technical conditions based on explicit transmit rights which allow high powered broadcasting after provision of guard bands by the licensee. The conditions go one step further by requiring guard bands which have a width that depends on the total radiated power. Inefficient fixed width guard bands are not used.

In response to the envisioned difficulties with A-PFD limits, UK industry was able to persuade Ofcom to utilise explicit transmit rights for the 2.6 GHz auction: a Block Edge Mask (BEM). However, a BEM is only part of the necessary complete solution. A complete solution involving explicit transmit rights covering **all** interference mechanisms has been available to Ofcom for more than a decade. While Ofcom has explained the 2.6 GHz framework away in terms of "well it was a special situation and the operators said they would be able to make do with the partial conditions" it is blatantly obvious that the real reason for the decision is that, given the effluxion of time, BEM was the only practical alternate option provided by Ofcom at the time. It therefore remains a matter of serious concern that Ofcom now wishes to force UK industry to accept the vague licence conditions, and the implicit operational inefficiencies of aggregate power flux density limits (Ofcom's SURs) for the digital dividend when this policy option is so unnecessary. Better options more suited to market-driven innovation are available, and have been available for over a decade.

It should be emphasised that the solution being promoted by Futurepace is not a Futurepace product, it is Australian Government policy and may, on that basis, merit higher consideration than a proprietary product.

Michael Whittaker
Futurepace RF Solutions, Australia, 11 August 2008