

Project	IEEE 802.16 Broadband Wireless Access Working Group	
Title	Liaison regarding frequency plan for the 40GHz band	
Date Submitted	2000-01-27	
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Re:	Liaison and co-operation between IEEE 802.16 and ETSI. The attached liaison between CEPT and ETSI is supplied to support the liaison activity between 802.16 and ETSI WG-TM4. As detailed in previous presentations to 802.16 the work of ETSI and the CEPT is inextricably linked.	
Abstract	The document highlights some of the initial thinking of the CEPT group considering frequency plans for broadband Multimedia Wireless Systems (MWS) in the frequency band 40.5 – 43.5GHz. These thoughts are put forward for information and comment by a number of ETSI groups addressing equipment standardisation for MWS. The document highlights the requirements for the frequency plan under development, initial ideas regarding inter-operator protection, difficulties in successfully accommodating asymmetrical frequency assignments and seeks further information on spectrum requirements.	
Purpose	802.16 should consider the content in conjunction with information supplied from ETSI WG-TM4 for potential inclusion in the Co-existence Recommended Practice. These inputs will provide some complementary and alternative views to many of the issues being addressed by the draft co-existence practice document, helping to achieve a more widely applicable result. The CEPT group involved in the ongoing development of this topic has the authority and intention to provide further information when in a suitably stable form.	
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Release	The contributor acknowledges and accepts that this contribution may be made public by 802.16.	
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CEPT/ERC Project Team SE 19
11th Meeting, Mainz (Germany)
25 – 26 January 2000

Liaison Statement to ETSI

To: Chairman ETSI WG TM4, Roberto Macchi
Chairman ETSI BRAN, Jamshid Khun-Jush
Chairman ETSI/DVB-RCCL, Jean-Charles Point

cc: Chairman ETSI WG-ERM/RM, Guy Cayla
Chairman IEEE 802.16 Roger Marks

From: Chairman CEPT/ERC PT SE19 Markus Dreis

Development of a frequency plan for the 40GHz band.

Requirements

CEPT SE 19 is developing a frequency assignment plan for MWS in the band 40.5 – 43.5GHz. The following considerations are being taken into account in developing this plan:

- Accommodation of systems supporting both asymmetric and/or symmetric traffic.
- Digital MVDS.
- Make provision for both FDD and TDD operation.
- Accommodation of more than one operator must be possible in the same geographical area.
- Criteria for inter-operator protection.
- Where FDD is required duplex spacing needs to be practicable.
- Duplex spacing has to be chosen to allow efficient band planning.
- Accommodate legacy services, e.g analogue MVDS.
- Planning for growth.
- Need to protect Radio Astronomy service.
- The impact of possible band sharing with satellite services.

In order to satisfy these requirements block assignments based upon a slot frequency plan would be appropriate. The plan slots would have no relationship with equipment channelisation and be expected to be something smaller than the narrowest anticipated channel width. To facilitate band planning, symmetrical systems such as BRAN HIPERACCESS should settle on a fixed duplex spacing. SE19 is continuing to examine the issue and would welcome any comment on technical constraints that might affect the choice of the most appropriate spacing.

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Inter-operator Protection

Inter-operation protection should be assured through a “block edge mask”, out of block emission limits and power flux density limits for co-frequency assignments. Initial studies carried out by one administration and to be further verified by SE19 suggest that:

- Individual MWS transmitters should be co-ordinated when the **PFD** generated at the network’s service area boundary exceeds **-98.5 dBW/MHz/m²**.
- For a PMP **base** station transmitter generating an EIRP of 0.5 dBW / MHz (= 15 dBW in 28 MHz bandwidth), these PFD limits correspond to maximum co-ordination distances from the service area boundary of **18 km**.
- Where uplink ATPC is deployed, and assuming a maximum transmitter EIRP of 11.5 dBW / MHz, the maximum co-ordination distances from the network service area boundary for PMP **subscriber** stations and mesh network **node** stations is **10 km**.

Asymmetric uplink/downlink

Allowing for asymmetry in any frequency plan is difficult. SE19 would welcome advice on whether there is any flexibility for assigning spectrum for downstream delivery channels and associated interaction channels in asymmetric systems in terms of spacing, and if not then what is possible in terms of minimum or maximum spacing.

Spectrum Requirements

To assist in the formulation of suitable frequency plans, SE19 would welcome advice regarding minimum assignment bandwidth for viable commercial operation of MWS (not forgetting that the maximum spectrum available will be constrained by the need to ensure a number of competing operators and the number of systems).

Ongoing Activity

The outstanding issues associated with a frequency plan for this band, including those mentioned above will continue to be considered by SE19 in a 40GHz Correspondence Group co-ordinated by Mr Barry Lewis (lewisb@ra.gtnet.gov.uk) of the UK Radiocommunications Agency. The group is working on a framework document addressing this and welcomes any contribution.