

## CEPT DRAFT ECC DECISION (06)EE ON HARMONISED CONDITIONS FOR DEVICES USING UWB TECHNOLOGY IN THE 3.1-4.8GHz BAND



### Joint response from the Radio Society of Great Britain, UK Microwave Group and Amsat-UK.

#### Introduction

This response is a joint one from the Radio Society of Great Britain (RSGB, [www.rsgb.org.uk](http://www.rsgb.org.uk)) and its affiliates UK Microwave Group (UKuG, [www.microwavers.org](http://www.microwavers.org)) and Amsat-UK ([www.uk.amsat.org](http://www.uk.amsat.org)). It follows an earlier response [1] made to the consultation on Draft ECC Decision (06)AA [2]. The earlier consultation is now enacted as ECC/DEC(06)04 and identifies the 6-8.5GHz band for long-term UWB operation in Europe - a position we wholeheartedly endorse.

Draft ECC Decision (06)EE [3] covers UWB transmissions in the 3.1-4.8GHz range. This band includes the 3.4GHz allocation for the Amateur Service. We recognise that the 3.4GHz band is not universally allocated to the Amateur Service in all CEPT administrations. However within the UK and other States that have amateur allocations, the 3.40-3.41GHz sub-band is fully harmonised in alignment with footnote EU17 to the European Allocation Tables and hosts the centre of narrowband long-range weak-signal flux activity.

We do of course recognise that most UWB vendors desire UWB operation in the 3-5GHz range as it offers a lower cost route to market. **In order to protect our services (notably in the 3.40-3.41GHz band where we are aligned as per EU17) we generally urge adoption of the mask proposals in Annex-1 of the draft consultation, notably the -85dBm/MHz level at 3.4GHz.** We consider this level to be an important improvement compared to the previous -70dBm/MHz level. We also continue to seek thorough evaluation of mitigation techniques before permitting any relaxation.

In general we applaud this ECC Draft Decision and would urge its adoption subject to the reservations regarding band-edge, phasing, harmonisation and outdoor usage as detailed more fully below. Our standpoint, reasoning and requests are laid out in more detail below:-

#### General Regulatory Considerations

Footnote EU17 to the European Frequency Tables states that CEPT administrations are requested wherever possible to maintain specified Amateur sub-bands in such a way as to facilitate the reception of Amateur Service emissions with minimal power flux densities. **Additional background regarding the significant investment in and use of the 3.40-3.41GHz band by the Amateur Service is provided in the Annex.**

#### Comments in regard to points in the Consultation

##### Mask Adjustments near the 3.4GHz Band Edge

We note that in Considers-f and Decides-7, there is the likelihood of a mask boundary at 3.4GHz. If this were implemented we request consideration of an upward 10MHz adjustment to 3.41GHz in line with EU17 to ensure maximum protection for the Amateur Service. This would certainly be compatible with the 3.69GHz band edge of WiMedia UWB, for example.

##### Phased Approach in the 4.2-4.8GHz Band

Whilst not an amateur band, we prefer Option-2 (No Phasing) or, failing that, a tight 2010 sunset date in order to send the strongest possible indications to UWB developers that the 6-8.5GHz band is preferred as a permanent solution for UWB. It also seems sensible to harmonise with Japan who we note has a tight 2008 deadline by which mitigation must be introduced for UWB to retain access to their band.

Phasing would inevitably lead to far greater difficulties than those encountered in the more controlled interim 24GHz UWB Car Radar compromise. One other option would be a relatively short deferral until the outcome of WRC2007 is known, which has agenda item 1.4 regarding post-IMT2000 systems in this band.

#### **Mitigation Techniques such as Detect and Avoid (DAA)**

We request that when evaluating DAA and other mitigation techniques, full consideration of EU17 is given in regard to the band 3.40 to 3.41GHz where narrowband amateur weak signal flux activity is centred. A major concern is that amateur equipment spends high proportions of its time in receive mode - a 'hidden terminal' situation. This would be compounded should outdoor UWB usage rise coupled with the increased propagation range of UWB in these lower bands.

Our view is that the effort and delay associated with successful implementation of mitigation techniques could be better spent on maturing high-band UWB which is not restricted and thus potentially simpler.

#### **Outdoor Usage**

Compared to UWB devices in the 6-8.5GHz band, we would caution that the increased propagation range of UWB in this lower frequency range underlines the need for strict effective mitigation measures.

#### **UWB Mask in the Band 6–9GHz**

We note the upper frequency band mask is now 6-8.5GHz. Although outside of the scope of this consultation, the Amateur Services would not have a problem if this were revised back to 6-9GHz to match WiMedia channel alignments, to harmonise with Japan and thus generally promote adoption of 'high-band' UWB. We would highlight that such 'high-band' technology is rapidly maturing [4].

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We again thank CEPT for this opportunity to comment. We would be pleased to provide additional information on request or participate in any future discussions.

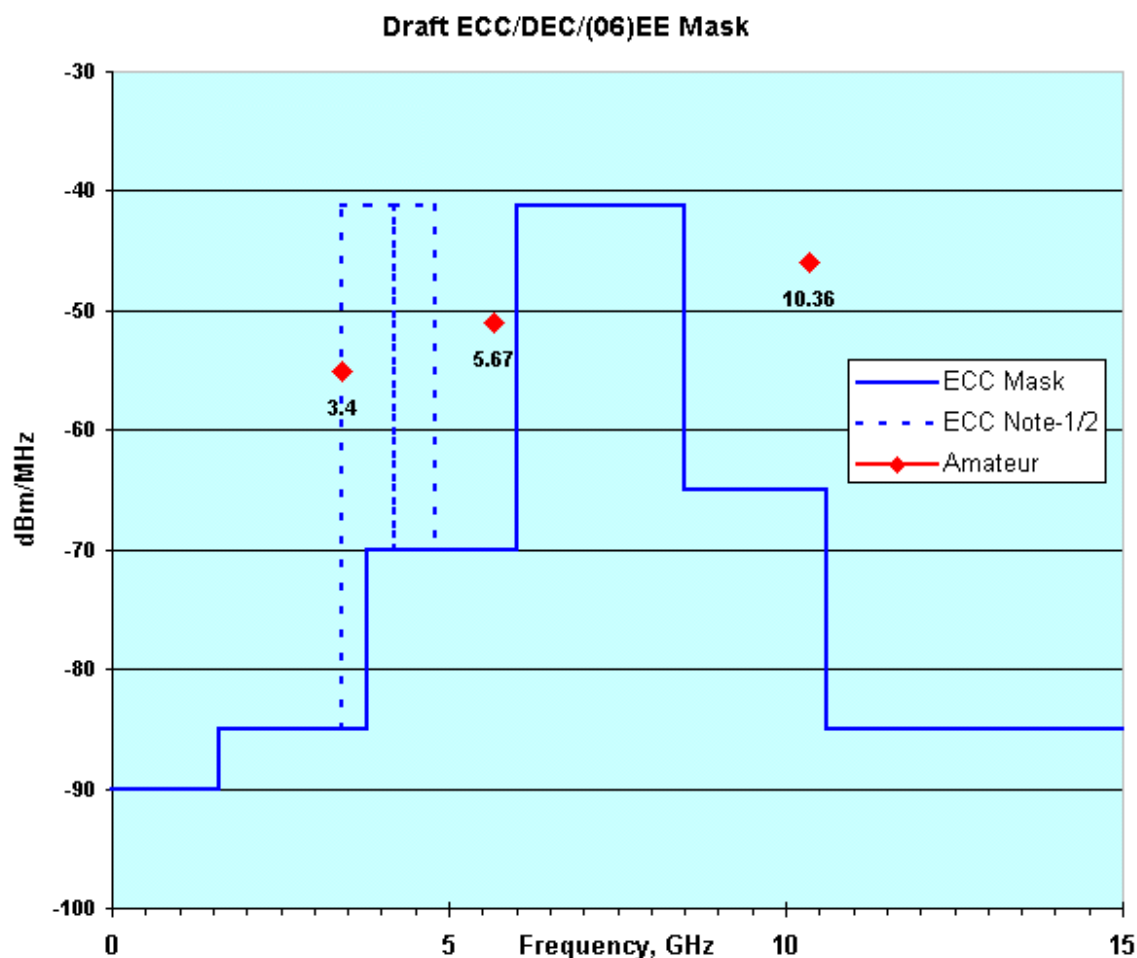
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RSGB, UKuG & Amsat-UK, May 2006

#### **References**

- [1] "Joint Response from the Radio Society of Great Britain, UK Microwave Group and Amsat-UK" to Draft ECC Decision (06)AA, 23-December 2005
- [2] CEPT Draft ECC Decision (06)AA, "On Harmonised Conditions for Devices Using UWB Technology in Bands Below 10.6GHz", November 2005 – now adopted as ECC/DEC(06)/04, March 2006
- [3] CEPT Draft ECC Decision (06)EE, "On Harmonised Conditions for Devices Using UWB Technology in the Frequency Band 3.1-4.8GHz", March 2006
- [4] "WiMedia UWB Solutions with Low Band and High Band Capability in a Single Device for Certified Wireless USB and Bluetooth", [http://artimi.com/news/archive/press\\_releases/03\\_apr\\_06.html](http://artimi.com/news/archive/press_releases/03_apr_06.html)
- [5] "The Protection Requirements of Radiocommunications Systems Below 10.6GHz from Generic UWB Applications", CEPT Report 64, Helsinki, February 2005

## Annex: Amateur Service Allocations in Relation to UWB



The plot above is the mask level specified in the Annex of the Draft Decision, compared to the protection levels that ECC Report 64 [5] determined are necessary for the Amateur Services. Note that 3.1-3.4GHz may also be investigated according to the draft decision.

Band, MHz	Comment
3400-3475	EU17* applies to 3400-3410 where weak signal flux narrowband activity is centred

### Amateur Services Allocations within the 3.1-4.8GHz Low-Band UWB Range

#### Note to the European Allocation Tables

**\*EU17:** In the sub-bands 3400-3410MHz, 5660-5670MHz, 10.36-10.37GHz, 10.45-10.46GHz the Amateur Service operates on a secondary basis. In making assignments to other services, CEPT administrations are requested wherever possible to maintain these sub-bands in such a way as to facilitate the reception of amateur emissions with minimal power flux densities.

## Current Amateur Service Usage

Having largely vacated 3456MHz, most usage is concentrated within the 3.40-3.41GHz sub-band. The European Amateur Test & Propagation Beacon Network resides in the 3400-3401MHz range, with weak signal communications between individual amateurs conducted at 3402MHz over ranges of typically 200-400km (with records up to 900km) – fully aligned with EU17. Communications are largely of a CW/SSB nature with detection thresholds increasingly assisted by ‘Spectran’ weak signal reception software.

For information the active Amateur Service Beacons as of 27<sup>th</sup> May 2006 are listed below, courtesy of the UK Microwave Group Beacon Monitoring Service:-

Frequency	Callsign	Locator	Nearest Town/City	Power	Antenna	Direction	Height (m asl)
3400.025	DB0HF	JO53BO	Hamburg			SSW	65
3400.040	DB0KI	JO50WC	Bayreuth	50Werp	Slot	Omni	925
3400.045	DB0EZ	JO31BS	Kleve	1.2Werp	Schlitz	Omni	100
3400.050	DB0JL	JO31MC	Munster	1Werp	Helical	Omni	195
3400.060	DB0MFI	JN58KR	Pfaefflingen	10Werp	slot	Omni	532
3400.080	OK0EX	JN79OW	Vysoka				500
3400.085	DB0AS	JN67CR	Rosenheim	0.5Werp	2 slot	10°	1565
3400.090	S55ZMS	JN86CR	Dolina	0.5W	Slot	Omni	350
3400.160	PI7CKK	JO33GE	Groningen	5Werp	Slotted	Omni	55
3400.400	OK0EL	JO70SQ	Benecko	0.1Werp	Horn 5dB	West	900
3400.800	DB0KHT	JO40FE	Kronberg	10Werp	Horn	Omni	247
3400.800	OH3SHF	KP11VK	Tampere	13.5Werp	Alford Slot	Omni	222
3400.810	DB0ANU	JN59GG	Ansbach	10Werp	Dish	NW	
3400.830	GB3MHS	JO02PB	Ipswich	75Werp	2 x slot vg	090/270	
3400.833	DB0FGB	JO50WB	Schneeberg	10Werp	slot vg	Omni	1100
3400.850	DL0UB	JO62KK	Berlin	12Werp	Slot	Omni	120
3400.850	DB0GW	JO31JK	Duisburg	8Werp	Helical	Omni	80
3400.888	OM0MZA	JN88NE	Bratislava	0.11W	Horn	45°	
3400.900	ON0VRT	JO20CS	Brussels	50Werp	10dB Colinear	Omni (vert)	295
3400.900	GB3OHM	IO92AJ	Birmingham	1W	8 slot	Omni	171
3400.905	GB3SCF	IO80UU	Poole	15Werp	Alford Slot	Omni	287
3400.910	GB3ZME	IO82SQ	Telford	15W	Slot 14dBi	South-East	198
3400.912	DB0RG	JO51GO	nr Bad Sachsa	5Werp		Omni	690
3400.930	OZ7IGY	JO65GP	Copenhagen	30Werp	Slot vg	Omni	20
3400.945	DB0AJA	JN59AS	Würzburg-Gieshügel	20W	3x Sect.horn	Omni	
3400.955	OZ1UHF	JO57FJ	Frederikshavn			Omni	150
3400.973	OK0EQ	JN89AR	Svatka	1Werp	Slot	Omni	745
3400.064	GM4LBV	IO86RQ	Montrose	15W	Sect Horn	120°	