UK Microwave Group Response to Ofcom Notice on Automotive Short Range Radar at 79GHz

Who we are

The UK Microwave Group (UKuG, www.microwavers.org) is the representative body specifically for UK amateur radio enthusiasts who operate on the microwave bands. It is affiliated to the Radio Society of Great Britain (RSGB, www.rsgb.org) and the RSGB Spectrum Forum. This response is intended to complement and in no way replaces the RSGB's own comments which have been submitted separately but in co-operation with UKuG.

Noting that:-

a) The UK is obliged to implement Community Decision 2004/545/EC in relation to 79GHz wideband Short Range Radar (SRR)

b) That UKuG wishes to foster UK and EU technology and educational developments on the millimetre wavebands, much of it by UK Companies and Universities.

c) That it is impractical to individually license SRR devices for cars.

d) That SRR is essentially a Safety of Life related system for collision avoidance

e) That the Ofcom document also raises the unwelcome prospect of interim SRR in the 24GHz band

Considering:-

a) Short Range Radar in the 79GHz band covers a instantaneous bandwidth of 77-81GHz

b) Recall that Automotive long range radar for Cruise Control already exists in the 76-77GHz band

c) That the Amateur Service and Amateur Satellite Service are Primary users in parts of this band, and Secondary in the rest (see allocations in Table-1)

d) That under a July 2003 RA (now Ofcom) Notice that the Amateur service is currently being asked to move from 75.5-76GHz up to the 77-81GHz band by the end of 2006

e) Our original dismay that existing users of these bands including ourselves had been totally overlooked until the issue of the Corrigendum on 15-Dec-2004 [2]

f) Our concern at the prospect of Interim SRR for many years in the 24GHz band where Amateurs are both Primary and very active at 24-24.05GHz (Notably at 24.048GHz)

g) SRR applications may involve several SRR installations on a single vehicle to assure full 360 degree coverage

Wish to Highlight:-

a) Paragraph 4 of Commission decision 2004/545/EC (reproduced on p21 of the Ofcom notice) which refers to the CEPT and its Electronic Communications Committee (ECC)

b) That implementation should be on a non-interference basis and pursuant to the ECC decision of 19 March 2004

c) That the decision referenced is ECC/DEC/(04)03, as per reference [3].

d) That on p3 paragraph h) of ECC/DEC/(04)03. It states

> **that the use of SRR within the band 77-81 may be incompatible with the Radio Amateur Service which has been resolved by allowing the Amateur Service to remain in the 75.5-76 GHz band after 2006 (see footnote 5.559A);**

Footnote 5.559A in the European Frequency Tables as originally drafted prior to SRR stated:

> The band 75.5-76 GHz is also allocated to the amateur and amateur-satellite services on a primary basis until the year 2006. (WRC-2000)

which is now amended by Footnote EU35:

> The band 75.5-76 GHz is in Europe also allocated to the Amateur and Amateur Satellite services **after year 2006**

Frequency Compatibility Details

The CEPT/ECC have issued report ECC Report 56 [4] entitled:

COMPATIBILITY OF AUTOMOTIVE COLLISION WARNING SHORT RANGE RADAR OPERATING AT 79 GHZ WITH RADIOCOMMUNICATION SERVICES, Stockholm, October 2004

From the Executive Summary on page 2 of in ECC Report 056:-

> **However, it was agreed within CEPT to extend the timescale for Radio Amateur Service on a primary basis within the band 75.5-76GHz beyond 2006**. This modification was made in the update of the European Common Allocation Table, January 2004 (footnote 5.559A). This was done to compensate potential incompatibility problems with the Amateur (Satellite) Service that operates with a primary status in the 77.5-78GHz band.

Similarly on page 4:-

> **As for the Amateur (Satellite) Service, it was concluded that the use of 79GHz SRR systems might be incompatible. WGFM agreed consequently to extend the timescales given in footnote 5.559A, which permits Radio Amateur Service on a primary basis within band 75.5-76GHz beyond 2006. This change was included in the update of the European Common Allocation Table, January 2004.** This Frequency Management solution compensates for potential incompatibility problems with the Amateur (Satellite) Service that operates with a primary status in the 77.5-78GHz band

UKuG wishes that Ofcom note the above in regard of the Corrigendum comments on sharing studies

Interim SRR on 24GHz

We (UKuG) wish to express our dismay that our Primary allocation on 24-24.05GHz also appears to be under threat, nor has interference to it been adequately assessed. Amateur radio microwave communications and development at these frequencies is largely of a weak signal nature, often with received signals just 1 to 3dB above the noise floor. We feel that wideband SSR/LRR RF radiation on adjacent frequencies could cause severe interference problems to users of this Primary segment of 24GHz. We would appreciate genuine consultation on matters such as these in the future.

UKuG wishes to highlight that no studies have been done in CEPT on interference to the Primary Amateur Radio allocation in the 24-24.05GHz band. This is immediately adjacent to the 24.075-24.175GHz centre frequency of the interim SRRs. Furthermore Amateur Receivers are more numerous and sensitive to interference in this band and, unlike 79GHz, our allocation is not wide enough to permit operation outside of the bandwidth of SRR operations. UKuG is also aware that interference is likely [5] in the 23.6-24GHz band, which is a Primary Exclusive and passive one for scientific and environmental use.

On balance the UKuG prefers SRR Operation to be at 79GHz and not at 24GHz both on an interference basis, and to foster technology development of the higher millimetre wave bands

The UK Microwave Group therefore requests that:-

a) Footnote EU35 is acknowledged and implemented in the UK Allocation Tables and the Schedule for UK Radio Amateurs (BR68). Specifically that the band 75.5-76GHz will continue to be available and allocated to the Amateur Service on a Primary basis beyond 2006. This would avoid interference to both amateur and LRR/SRR users as well as avoid unnecessary, technically difficult and expensive changes to existing amateur equipment. The request would not affect the status of other users in that part of the band.

b) That Ofcom takes note of our dismay at the prospect of 24GHz SRR in our Primary allocation. UKuG requests that meaningful consultations are held with UK Amateurs, Astronomers, Earth Resource, Meteorological and other weak signal flux users of the 24GHz band prior to any decision of interim use of that band for SRR, especially as many of these users have Primary and Primary Exclusive status.

c) Ofcom should also make it abundantly clear that, as per Article 2c of 2004/545/EC, that SRR is being licensed on a non-protected basis, so vendors and users can properly assess liability issues in advance of deployment.

Frequency, GHz	Allocation	Comment
75.5-76.0	**Primary**	Until Dec-31 2006 EU35 for 2006+ extension not yet implemented in the UK UK centre of activity 75.976
76.0-77.5	Secondary	
77.5-78.0	**Primary**	Proposed centre of activity 77.502GHz
78.0-81.0	Secondary	

Table-1: Amateur Service Allocations in the 75.5 – 81GHz band

REFERENCES

[1] "Notice of Ofcom's proposal to exempt automotive short range radar users at 79GHz from wireless telegraphy licensing", Ofcom, 9-Dec-2004

[2] Corrigendum to [1] issued on 15-Dec-2004

[3] "ECC Decision of 19 March 2004 on the frequency band 77–81GHz to be designated for the use of Automotive Short Range Radars", CEPT Electronic Communications Committee ECC/DEC/(04)03

[4] "Compatibility of Automotive Collision Warning Short Range Radar Operating at 79GHz with Radiocommunication Services ", CEPT ECC Report 56, Stockholm, October 2004

[5] "Compatibility of Automotive Collision Warning Short Range Radar Operating at 24GHz with FS, EESS and Radio Astronomy", CEPT ECC Report 23, Cavtat, May 2003