



AMSAT-UK Response to Ofcom 24 GHz Automotive Short Range Radar Consultation

Introduction.

AMSAT-UK represents the interests of Radio Amateurs who design, build and operate satellites under the regulations of the Amateur Satellite Service.

Our members carry out innovative experimental work with satellite communications using frequencies allocated to the Amateur Satellite service between 21 MHz and 24.5 GHz.

Since the launch of the first Amateur Radio Satellite in 1961, a total of 52 satellites have been launched by Radio Amateurs from various countries. Currently there are over 15 operational satellites in orbit operating in the Amateur Satellite Service, including an Amateur Radio Station on board the International Space station, a facility supported by our members.

Further information on AMSAT UK is available at <http://www.uk.amsat.org/> and about amateur satellites generally at the AMSAT North America web site at <http://www.amsat.org/>

The Amateur Satellite Service has a Primary allocation from 24.000 GHz to 24.050 GHz. This allocation is currently used for downlinks from satellites, which may be in orbit up to 60 thousand kilometres from earth.

The signals from these satellites are very weak and Radio Amateurs have developed highly sensitive state-of-the-art receiving equipment for this band in order to receive these signals.

The deployment of SRR systems using these frequencies would raise the noise floor to such an extent as to make the reception of Amateur Satellites unfeasible.

Analysis and Comments

Comment on Section 1.3: The decision of the European Commission (2005/50/EC) does not mean that SRR devices operating in this spectrum must be Licence Exempt. It should be a requirement on the automotive manufacturers to obtain licences for the fitting of SRR devices in vehicles. Such licences should make it clear that both the Astronomy Segment and the Amateur Satellite Service Primary band are to be protected from interference by use of notching in the equipment. Having a proper licence for manufacturers would give Ofcom greater leverage to control substandard designs/safety issues, to incentives manufacturers to migrate to 79GHz, for Ofcom to fulfil its own

obligations to manage interference issues/reviews and encourage 79GHz development, and it would be more compatible with Recognised Spectrum Access (RSA) for Astronomers in the 22-24Ghz band

The average lifetime of a modern vehicle is 15 years. The proposed cut of date of 30th June 2013 would mean vehicles using 24 GHz would still be on the roads in 2028. In practice once automotive manufacturers are given the go-ahead to use these frequencies they will inevitably lobby heavily to get the cut off date extended. By 2013 there could be 10 million cars on the roads using these frequencies. There will be immense pressure to keep using 24 GHz.

Comment on Section 1.5: If Ofcom permit the use of 24 GHz then there will be no incentive for automotive manufacturers to develop equipment for 79 GHz.

Comment on Section 1.9: The proposal by Ofcom to de-activate equipment when in the vicinity of designated radio astronomy sites is unrealistic. It should be a requirement that SRR equipment is designed with notches for the Radio Astronomy and Amateur satellite segments and that these notches are in force throughout the United Kingdom.

We note that manual deactivation is permitted until 30th June 2007. How will this be enforced? It is unrealistic to expect drivers to de-activate what they will view as an important safety aid.

Comment on Section 2.3: Equipment for the 79 GHz Allocation is available now. There is no need to make 24 GHz available for SRR.

Comment on Section 2.4: It is only a requirement to make "sufficient radio spectrum available on a harmonised basis in the 24 GHz range radio spectrum band (21.65 to 26.65 GHz), while protecting existing services operating in that band from harmful interference".

The Radio Astronomy and Amateur Satellite Service allocations should be excluded from this.

Comment on Section 2.7: The automotive manufacturers should be required to obtain a licence not vehicle owners.

Comment on Section 2.9: Once the automotive industry has got an allocation they will lobby for protection "in the interests of road safety". It is unrealistic of Ofcom to expect what will inevitably develop into a safety-critical system to be unprotected. The allocation at 79 GHz should be made protected. To make SRR an unprotected service at 24 GHz is impractical. This area of the spectrum contains high power users that will inevitably cause problems with SRR systems.

Comment on Section 2.11: 2005/50/EC (6) states that:

"Member States should ... make sufficient radio spectrum available on a harmonized basis in the 24 GHz range radio spectrum band (21,65 to 26,65 GHz), while protecting existing services operating in that band from harmful interference."

The proposals by Ofcom do not adequately protect the Radio Astronomy and Primary Amateur Satellite Services between 22.21 and 24.050 GHz

Comment on Section 3.17:

As mentioned previously the manual de-activation of systems in the vicinity of radio Astronomy sites is unrealistic. The Radio Astronomy and the Primary Amateur Satellite Service allocations are particularly sensitive to interference from SRR equipment. These allocations 22.21 – 24.050 GHz should be protected from harmful interference from SRR. This can be achieved by specifying an appropriate mask for SRR throughout the UK which notches out this part of the spectrum

Conclusions

- The OFCOM document does not address the issue of high angle radiation raised in Article 4 paragraph 3 of 2005/05/EC
- The decision ignores ITU radio Regulations, footnote 5.340, which applies to the band 23.6 to 24.0GHz and which states that ***all emissions are prohibited in this band, not just in the proposed “exclusion zones”***. Furthermore, the original EU documents accept that the SRR is an exception but should not set a precedent (for other uses, as is now widely happening in the 2400MHz “WiFi” band) - Ofcom must adhere to this principle in the 24GHz band.
- There appear to be no specifications for harmonic emissions from the proposed 24GHz SRR devices – these harmonics will fall in the 47 and 75.5GHz bands where the Amateur Satellite Service also has Primary status. Has this been taken into consideration?
- Harmonic emissions from 24 GHz SRR fall within the range of the 79 GHz SRR band. Has Ofcom taken into consideration the detrimental effects caused by this harmonic emission on the function of 79 GHz SRR systems?
- The Primary Amateur Satellite Service relies on the reception of very weak signals and must be adequately protected from any “temporary” use of 24 GHz by SRR.
- SRR systems for 79 GHz exist now. There is no justification for the “temporary” use of 24 GHz.