Licence Exemption of Wireless Telegraphy Devices: second consultation

Question 1): Do you agree with Ofcom's proposal to extend the current 10.577 to 10.597 GHz radio-determination allocation to 10.575 to 10.6 GHz?

As a world leading UK based manufacturer and supplier of X Band Doppler radar modules, we have designed and supplied many millions of these modules into the European market over the past 20 years. The highest volumes of these modules (approximately 60%) are destined for incorporation into dual technology intruder alarm detectors that use a combination of Passive Infra-red and microwave Doppler technologies to ensure a high level of immunity to false alarms in domestic, commercial and industrial installations, whilst providing the level of sensitivity required to reliably detect genuine intrusions. The next highest volume (approximately 25%) are ultimately incorporated into microwave Doppler occupancy sensors that are used increasingly for energy management purposes, primarily in public and government buildings, including schools. More than 50% of our production has been supplied into the UK market and for these products the microwave part currently operates in the 10.675 GHz to 10.699 GHz band as designated in IR2030 – UK Interface Requirements and the subject of this consultation. It will be a minor technical task to change our products to operate within the 10.575 to 10.6 GHz allocation.

A typical commercial or industrial security equipment installation consists of at least 5 dual technology detectors, some of which can be installed in close proximity to each other (for example on opposite sides of a partition wall projecting into adjacent offices) where experience has shown the benefit of operating physically adjacent detectors at different frequencies within the allowed band, as part of a strategy to avoid mutual interference between detectors. This is a common strategy for many of our customers.

In the energy management scenario, detectors are placed in similar locations to security detectors, as detailed above, or in a regular matrix on the ceiling of open plan office areas in both cases potentially in close physical proximity to each other and requiring the same frequency separation.

The transmission frequency of all our 10GHz microwave modules is stabilised by a dielectric resonator. Stability measurements have shown that a guard band of 5MHz at each end of the band is required to ensure that modules do not drift outside the designated band with temperature and/or installation location. This reduces the currently useable bandwidth from 25MHz to 15MHz. Installation experience shows that a minimum spacing of 7MHz is required between security detectors in close proximity to avoid the potential for mutual interference in all circumstances. For energy management detectors, where a minimum of 4 frequencies is required to provide sufficient physical separation in a regular matrix an absolute minimum spacing of 5MHz is required. Both of these scenarios will be accommodated within the proposed extension of the 10.577 to 10.597 GHz allocation to 10.575 to 10.6 GHz.

We acknowledge and welcome the proposed extension of the 10.577 to 10.597 GHz allocation to 10.575 to 10.6 GHz, which meets the minimum requirement in our response to the previous consultation on this subject, but request that OFCOM do not lose sight of the other points we raised as summarised below:-

1) Our preference would be for a UK allocation of the 10.500 GHz – 10.550 GHz band for this application, in common with the many other EU countries, including Holland, Belgium, Spain and Italy – the major installers of this type of equipment. Such a change would simplify our product offering, allowing us to be more competitive in Europe and to offer lower costs to UK consumers.
2) The 10.577 GHz – 10.597 GHz band has not been widely adopted by security or energy management equipment suppliers because of concerns about the potential for interference with outdoor traffic light detectors that have historically used this band employing high gain, narrow beam antennas. Since many of these systems are portable, they can be deployed at short notice, posing the potential for intermittent interference problems and which potentially could be used as an intentional "jammer". The proposed extension to the allocation would be equally accessible to outdoor traffic light detector manufacturers, so will not mitigate this problem.
3) All major EU countries offer a minimum bandwidth of 40 MHz in the 10 GHz range for this application, with many offering considerably more. Available frequency bands above or below this range suffer from a number of problems that currently preclude their widespread use for security applications (see below).
4) The 2.4 GHz ISM band is no longer suitable for this equipment, because of the proliferation of Wi-Fi and Bluetooth equipment (amongst others) in this band. Moving to this band would not be secure.
5) The 24 GHz ISM band provides inadequate performance at an increased cost and although this situation is likely to change in the next decade, for the near future 10GHz will remain the band of choice for an acceptable combination of cost & performance.

In summary we recognise the current proposal meets our minimum requirements, but need additional spectrum in the 10 GHz region, preferably harmonised with other major EU countries, to maintain our performance and improve our competitiveness in the EU.