



Met Office response to Ofcom Consultation:

870-876 & 915-921 MHz – Update and Way Forward

As outlined in the above consultation document, the Met Office currently operates two Doppler Wind Profiling Radars (WPRs) in the 915-917 MHz sub-band of the broader 915-921 MHz band. Radiolocation is denoted in the UK FAT across a wide portion of the 900 MHz band and the Met Office has had access to this particular assignment for a number of years through agreement with the MOD. As a result, the Met Office has been involved in discussions within government with respect to the proposed release of this band to new uses. In addition, we have also engaged with Ofcom, CEPT and interested industry participants in order to gauge the potential risks posed to continued WPR operations by interference from proposed new applications.

Please find below the Met Office's response to specific questions raised in this consultation in relation to the proposed 915-917/921 MHz band changes:

Question 1. What other developments, in addition to the international and public sector developments we have identified, are relevant to our identification and assessment of options for release?

Current Met Office WPR use focuses on the sub-band 915-917 MHz. Future requirements for WPR operation would expect to include an expanded network across the UK over a wider bandwidth.

Question 2. Do you have any additional information or analyses that could help to inform our assessment of the value that could be created through different uses of the spectrum?

Met Office services underpin the protection of life and property through accurate prediction of severe weather and associated impacts, in partnership and collaboration with stakeholders such as the Cabinet Office, Environment Agency and Civil Aviation Authority. It is difficult to calculate the full value of meteorological services provided to the UK economy (as many services are provided to the public free at the point of use), but significant efforts have been made to try to quantify a measure of the *socioeconomic* value provided by Met Office services as a whole¹. Such meteorological and climatological services are dependent on access to a broad range of spectrum bands for remote sensing and radiocommunications in order to undertake activities such as climate monitoring, weather forecasting and earth observation. Whilst it is not possible to fully quantify the direct societal benefit of 915 MHz WPRs in relation to its use of spectrum, it should be noted that these radars provide important information on the state of the atmosphere that is used to drive NWP (Numerical Weather Prediction) models and inform weather forecasts and severe weather warnings to the public, the emergency response community, industry and key stakeholders across Government. These particular existing WPR locations in the west of the UK are especially significant in respect of this being the prevailing direction from which weather approaches the UK and thus every effort should be taken to ensure their ongoing operation.

Question 3. Do you agree with our proposal to release 870-876 MHz / 915-921 MHz for licence exempt SRD and RFID applications if Government releases 870-872 MHz / 915-917 MHz?

Recent studies within CEPT and testing in collaboration with Ofcom and RFID/ALD manufacturers at the Met Office's Camborne facility in Cornwall have shown that without sufficient and effective mitigation the proposed new SRD applications would be expected to generate an increased risk of unwanted interference to the WPRs. Met Office WPRs provide vertical wind profile data by measuring very small amounts of reflected signal that have been backscattered by atmospheric turbulence and thus would be sensitive to additional potential interference from incoming services to the band. Interference was demonstrated in testing scenarios (captured in a subsequent ETSI report) to significantly disrupt these measurements both directly and more generally by the degradation of the background signal-to-noise ratio.

In the ECC report being compiled by CEPT SE24, certain assumptions were made (eg – a guaranteed 100m perimeter protected site area, not applicable in the case of the much smaller Camborne site) in arriving at a

¹ A 2006 Met Office study estimated that the total annual value of Met Office services to the UK based on access to spectrum would be in the region of £1.6 billion, whilst a further 2007 study estimated that the services provided by the Met Office to the public through the Public Weather Service alone were valued at an average of £7.30 per person per annum. See "Impact on UK from pollution of spectral wavebands used for meteorological observing", July 2006; and "Met Office: The Public Weather Service's contribution to the UK economy", May 2007.



potential separation protection distance of 1km. Whilst we believe that such a separation distance cannot yet be fully confirmed, we are uncertain as to how a license-exempt regime would provide for such a distance to be enforced and would appreciate feedback from Ofcom on how protection can be assured. In addition, the ECC report conclusion also states the option of implementing Detect & Avoid (DAA) technology within the proposed SRD to mitigate any interference risk to existing services. Given our experience of similar RLAN Dynamic Frequency Selection technology in the 5.6 GHz meteorological radar band and continued interference to the UK Weather Radar Network in that band, we remain to be convinced of the effectiveness of this technology.

In summary, we cannot yet fully envisage how a license-exempt regime will provide sufficient assurance of the ability to protect our existing WPR use from harmful interference and thus believe at this time that some form of licensing regime would be preferable in respect of maintaining a suitable separation distance. However, we welcome further discussion with Ofcom in order to scope the facilitation of this requirement.

Question 4. Do you agree with our proposal to release 872-876 MHz / 917-921 MHz for licence exempt SRD and RFID applications if Government does not release 870-872 MHz / 915-917 MHz?

N/A – see above.

Question 5. Do you have a view on the sequencing and timing of Ofcom's next steps if the spectrum is released for licence exempt SRD and RFID applications?

Depending on the form of mitigation required in order to protect Met Office WPRs, a sufficient lead time should be provided for in implementation of new regulations to ensure continued operation. The Met Office reserves its position in terms of the proposed Spring 2014 implementation date in view of the need to finalise discussions with Ofcom on conditions for mitigation and use of the band.

Any questions or comments regarding this response should be sent to:

*Alastair Price
Met Office
FitzRoy Road
Exeter
Devon
EX1 3PB
Or email: alastair.price@metoffice.gov.uk*

OR

*Roger Carter
Met Office
FitzRoy Road
Exeter
Devon
EX1 3PB
Or email: roger.carter@metoffice.gov.uk*