



JRC Response to Ofcom Consultation on 870-876 MHz and 915-921 MHz

JRC Ltd

Dean Bradley House
52 Horseferry Road
London SW1P 2AF
United Kingdom

+44 (0)20 7706 5199

+44 (0)20 7222 4862

www.jrc.co.uk/about

Key Point

- JRC welcomes and supports Ofcom's overall intentions in this consultation.

Q1: 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?

- 1.1 The ambitious European goals ("20-20-20 goals") to reduce carbon emissions by means of extensive deployment of renewable energy technologies, demand management and increased energy efficiency requires more extensive and trusted communications than previously needed. Additionally the smart meter roll-out obligation (by 2018 – 2022) adds to the increasing communication demands faced by utilities.
- 1.2 This is recognized in the European Radio Spectrum Policy Programme (RSPP) which states that "The Commission shall, in cooperation with the Member States, conduct studies on saving energy in the use of spectrum in order to contribute to a low-carbon policy, and shall consider making spectrum available for wireless technologies with a potential for improving energy saving and efficiency of other distribution networks such as water supply, including smart energy grids and smart metering systems."
- 1.3 In so much as these Ofcom proposals make available additional spectrum for smart meters and smart grids, they support these EU policy obligations.

Q2: 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?

- 2.1 The European Utility Telecom Council (EUTC) published a study in January 2012 on "The Socio-Economic Value of Radio Spectrum used by Utilities in support of their operations." This concluded that:
 - "... societal benefit of spectrum used by the electricity industry to ensure reliable operation of the electricity supply network may have a societal benefit 50 to 150 times the economic value of the electricity itself."
 - Utilities need to be able to apply innovative ICT solutions to increase their efficiency.
 - Access to radio spectrum will enable utilities to respond to the changing regulatory environment more quickly, efficiently and cost effectively.
- 2.2 This analysis supports that part of the consultation which proposes designating this spectrum for use in intelligent energy networks.

Q3: 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?

- 3.1 Utilities face an energy trilemma:
- Reducing carbon dioxide emissions
 - Ensuring security of energy supplies
 - Maintaining an adequate supply of energy at affordable cost
- 3.2 The universal solution proposed is a more intelligent energy network, commonly termed a 'Smart Grid'. The Smart Grid is generally considered to be the application of information and communication technologies to an existing largely passive network. This will require substantial growth in telecommunications applied to the networks, much of which will have to use radio as, even is desirable, fixed telecommunications cannot be deployed on the timescales essential to meet energy policy objectives.
- 3.3 Telecommunications to support the smart grid will require a range of solutions, supported by a mix of radio frequencies, powers and bandwidth. The EUTC has thus identified a portfolio of spectrum to meet these requirements:
- VHF spectrum (50-200 MHz) for resilient voice comms & distribution automation for rural and remote areas. [2 x 1 MHz]
 - UHF spectrum (450-470 MHz) for SCADA & automation. [2 x 3 MHz]
 - Lightly regulated or deregulated shared spectrum for smart meters and mesh networks (870-876 MHz).
 - L-band region (1500 MHz) for more data intensive smart grid, security and point-to-multipoint applications. [10 MHz]
 - Public microwave & satellite bands (1.5-58 GHz) for access to utilities' core fibre network or strategic resilient back-haul.
- 3.4 Within this portfolio, 870-876 MHz constitutes a block of spectrum for smart meters and certain smart grid functions. In particular, the RF mesh technologies available in this band enable hard-to-reach locations to be accessed by hopping from a resilient communications hub into the desired element of infrastructure. Experience in other countries indicates that this is a particularly cost effective means of communicating with infrastructure below ground, within large industrial and commercial sites and in tunnels. Using licence-exempt spectrum provides a valuable communications technique without consuming scarce and more valuable licensed high power spectrum.
- 3.5 As the consultation observes, this spectrum has lain largely unused for over ten years. JRC had previously expressed interest in purchasing this spectrum in 1999/2000 when alternative uses were being considered, especially Tetra. Over the intervening period, it has not proven possible to use this spectrum for higher powered licensed services due to restrictions necessary to protect use in adjacent bands, or because of interference from those adjacent services. Releasing the band for licence-exempt or light licensing thus represents exploitation of a currently underutilised natural resource.

Q4: 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?

- 4.1 The rationale outlined in response to Question 3 above applies equally in response to this question.

Q5: 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?

- 5.1 Because of the government's intentions on smart meter roll-out, and the energy policy objectives driving forward smart grid deployment, it is imperative that this spectrum is put to productive use as quickly as possible. However, the consultation recognises that there may be issues with access to the spectrum for ER-GSM, and that the timetable for European harmonisation might not align with UK timescales.
- 5.2 The consultation also recognises that there is an element of risk in releasing spectrum for licence-exempt use in that, once authorised, it is very difficult to reverse or tighten control if subsequent events make that desirable.
- 5.3 If this situation should become an impediment to rapid progress in the UK, there might be a 'middle way' in using the light licensing process outlined in the consultation, but rejected for various reasons. Light licensing would enable use of the band at early date, but the licensee could assume obligations to maintain records in order that any interference reports could be investigated and, if necessary, remedied. This may be especially important in relation to the introduction of safety critical services such as ER-GSM.
- 5.4 This approach would enable early use of the band in the UK, followed by the removal of the light licensing regime to be replaced by a complete full licence exempt regime at a later date if subsequent European harmonisation facilitated such a move.

Background on JRC

I. JRC Ltd is a joint venture between the UK electricity and gas industries specifically created to manage the radio spectrum allocations for these industries that is used to support emergency and safety critical operations.

II. JRC manages blocks of VHF and UHF spectrum for both Private Business Radio applications and for telemetry & telecontrol services. JRC manages national cellular plans for co-ordinating frequency assignments for a number of radio networks.

III. The VHF and UHF frequency allocations managed by JRC support telecommunications networks to keep the electricity and gas industries in touch with their field engineers throughout the country. The networks provide comprehensive geographical coverage to support the installation, maintenance and repair of plant in all weather conditions on a 24 hour / 365 days per year basis.

IV. JRC's Scanning Telemetry Service is used by radio based System Control And Data Acquisition (SCADA) networks which control and monitor safety critical gas and electricity industry plant and equipment throughout the country. These networks provide resilient and reliable communications at all times to unmanned sites and plant in remote locations in order to maintain the integrity of the UK's energy generation, transmission and distribution systems and networks.

Adrian Grilli
Managing Director
JRC Ltd
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