JRC response to the consultation of the Dutch Ministry of Economic Affairs and Climate Policy on the 450-470 MHz PAMR licence

Input to be given through www.internetconsultatie.nl/pamr

Response to the consultation questions: Deadline 23 April 2018

- *Wat vindt u van het beleidsvoornemen 'Toekomst van de PAMR-vergunning in de 450 – 470 MHz frequentieband'?*
- *What do you think of the policy intentions in the document 'The future of the PAMR-license in the 450-470 MHz spectrum?'*

JRC notes that the policy objectives behind the 'Public Access Mobile Radio' (PAMR) concept have been difficult to fulfil. PAMR arose when the critical element of PMR – Private Mobile Radio – was a 'push-to-talk' service enabling groups of workers to communicate with each other over a wide area at low cost.

The PAMR concept became possible with technology changes in the decades 1990 – 2010 as 'trunked' PMR networks grew using standards such as MPT1327 and Tetra. Competition from mobile phones was in its infancy and very expensive.

However, rapid technology change has prevented the PAMR concept achieving significant market success. Its cost attractiveness has been undermined by the dramatic reduction in cost of mobile phones call charges and the growth of network coverage. The final challenge to the ability of PAMR to survive is the development of 'push-to-talk' over cellular which is being perfected in LTE Releases 12 onwards.

Regulators and policy makers will recall the most significant attempt at PAMR commercial success was the 'Dolphin Telecom' service launched in the UK, France, Germany and Belgium which ultimately failed. Most other attempts to commercialize the PAMR concept in Europe have similarly failed. In the increasingly competitive telecoms market, it is likely that PAMR will follow the same pathway as public CT2 networks –the 'Rabbit' network in the UK and the 'Greenpoint' network in the Netherlands from 1992 to 1999.

- *In hoeverre herkent u dat ontwikkelingen op het gebied van LTE-communicatietechnologie nieuwe mogelijkheden zullen scheppen voor professioneel gebruik in de PAMR-frequentieband? Op welke termijn verwacht u dat?*
- *To what extent do you recognize that developments in the field of LTE communication technology will create new opportunities for professional use in the PAMR frequency band? When do you expect that?*

It is important to distinguish between PAMR (which is a service) and the 450-470 MHz spectrum which has unique radio properties. The 400 MHz band combines characteristics of geographic coverage, penetration through both man-made and natural physical obstructions and data capacity in combination of particular value to utilities and similar critical users. LTE enables the benefits of a technology developed for mass consumer markets to be adapted to utility operations, enabling gas and electricity consumers to benefit from the deployment of advanced technology without disproportionate development costs.

LTE technology has only relatively recently become price competitive in the 400 MHz bands, attracting attention from utilities world-wide. In the UK, one electricity distribution company – Western Power Distribution – has installed a trial LTE system, and another collaborative LTE system is Scotland is currently being built. A few utilities around the world are currently deploying private LTE systems through joint ventures in a variety of frequency bands, but the increasing availability of LTE equipment in the 400 MHz band together with spectrum release programmes will accelerate the trend.

- In hoeverre herkent u dat de PAMR-band (in de toekomst) met name kanvoorzien in de behoefte aan kritische datacommunicatie / machine-to-machine communicatie?
- To what extent do you recognize that the PAMR band (in the future) can provide in particular for the need for critical data communication / machine-to-machine communication?

As stated above, 400 MHz spectrum provides important characteristics not available from other spectrum. The commercial model whereby this spectrum is brought to the market is a different issue.

In terms of machine-to-machine and critical data communications, it should be noted that utilities commenced utilizing radio systems for M2M and critical communications in the 1950s. 400 MHz spectrum has been used to support critical communications in the gas, water and electricity industries for much of this period. The future need of these sectors is the increase in connectivity and geographic reach to enable 100 or 1000 times increase in the number of data monitoring and control points to be added.

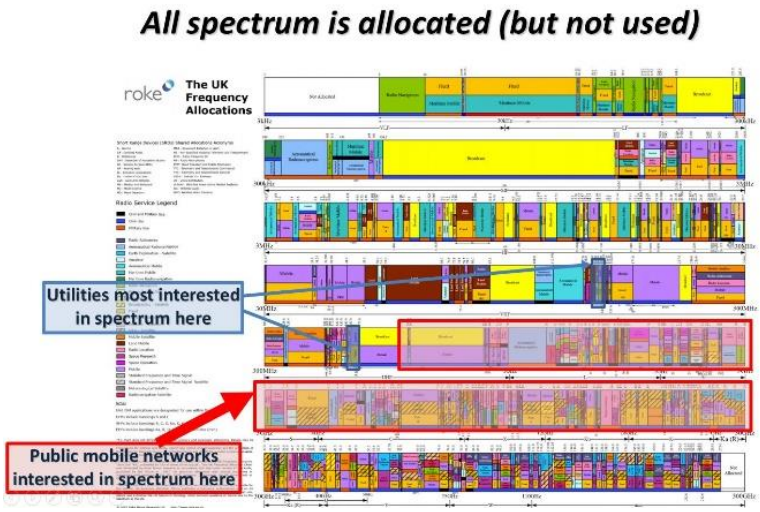
- *Wat vindt u van de keuze om de PAMR-band beschikbaar te houden voor gespecialiseerde, openbare dienstverlening?*
- *What do you think of the choice to keep the PAMR-band available for specialized, public services?*

Trying to keep the PAMR 400 MHz band available for specialized, public services has not proved successful in Europe to-date, and there are no indications that the market is becoming more favourable to these services – if anything the climate has become more difficult. Commercial mobile operators now require higher data rates than can be delivered in 400 MHz spectrum, and handset manufacturers do not wish to include a band in their handsets which cannot ever have a large market.

Utilities are making massive investments in infrastructure to deliver public policy objectives, especially environmental and energy, to deliver 'smart' networks which depend increasingly on critical telecommunications elements. The commercial, regulatory, environmental and safety implications of failures of the specialized operational telecoms supporting these utility networks makes it unlikely that third party telecoms operators will be able to own and operate these networks profitably.

400 MHz spectrum is ideal for utility applications, but has limited use outside this field. The lack of significant successful ventures for wide-area networks anywhere in the world not involving electric power companies in 400 MHz spectrum, despite a multitude of initiatives by regulators and policy makers, illustrates the point.

JRC is responding to this consultation as we see utilities around the world applying more intelligence to their networks, generating telecommunications requirements which commercial operators do not wish to, or cannot fulfil at a viable cost. This leaves utilities needing to procure their own telecommunications facilities, often through self-provision or joint ventures over which they can exercise control. This is the space within which JRC operates.



To deliver competitive and attractive service offerings, smart phones operate at frequencies above 700 MHz, with technological progress pushing operations to ever higher frequencies, 5G having now identified 26 GHz as a 'pioneer band'.

For technical reasons, demand for spectrum below 500 MHz has been falling for many years, leaving utilities, military, aeronautical, maritime and sound broadcasting as the only major users of the lower frequency spectrum. Supply of spectrum in the 406-470 MHz now exceeds demand with utilities, military and private mobile radio (PMR) becoming the dominant users. This creates the opportunity for utilities, already used to collaboration and cross-border co-operation to look to developing common communications systems in the 400 MHz bands.

- *Wat vindt u van de voorgestelde verlengingstermijn van 4 jaar?*
- *What do you think of the proposed extension of 4 years?*

An extension of 4 years is insufficient in the context of a modern telecoms network. Although the consumer telecoms handset market looks at life cycles of 18 months, even there the trend is towards 20 years for network asset lives. Mobile phone networks use a variety of radio frequencies from 800 MHz to 2.6 GHz and thus a high density of radio base stations. An operational utility network based around 450 MHz spectrum has a unique footprint which cannot simply or cheaply be adapted to different frequency bands, risking stranded assets to the ultimate cost of electricity and gas consumers if adequate asset life is not secured.

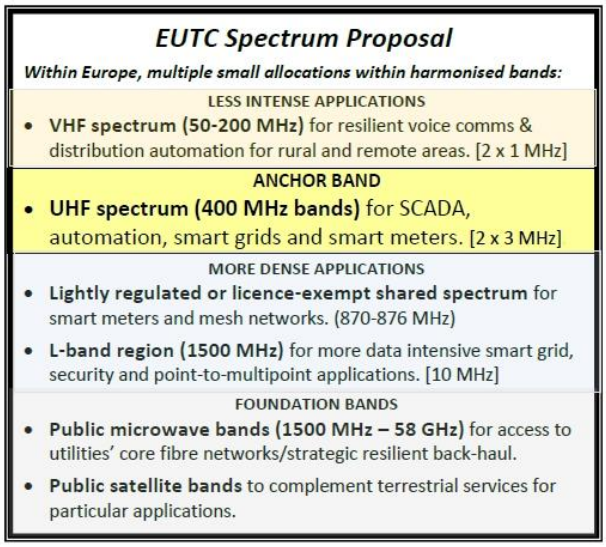
BACKGROUND

The Joint Radio Company Ltd (JRC) is a wholly owned joint venture between the UK electricity and gas industries created to manage radio spectrum allocations for these industries used to support operational, safety and emergency communications.

JRC manages blocks of VHF and UHF spectrum for Private Business Radio applications, telemetry & telecontrol services and network operations. These 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, plus emergency voice communications in some instances.

Radio based System Control And Data Acquisition (SCADA) networks control and monitor safety critical gas and electricity industry plant and equipment throughout the UK. These networks provide resilient and reliable communications at all times to unmanned sites and plant in remote locations to maintain the integrity of the UK's energy generation, transmission and distribution.

JRC also manages microwave fixed link and satellite licences on behalf of the energy sector, amounting to radio licence worth over two million Euros per year.



JRC supports the European Utility Telecommunications Council's (EUTC) Radio Spectrum Group, and participates in other global utility telecom organisations. JRC participates in European Telecommunications Standards Institute (ETSI) working groups developing new radio standards, and also European telecommunications regulatory groups and workshops.

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