

## Ofcom Consultation – Space Spectrum Strategy

### Introduction

JRC are concerned that proposals to introduce spectrum sharing for new satellite services could have a detrimental impact to some terrestrial services – especially in the VHF band where UK energy utilities have considerable deployments. (Details of this specific issue can be found in our answer to Question 1 on the next page).

In general, JRC are supportive of Ofcom’s recent consultations around making spectrum access more readily available to numerous industry verticals (including the space sector - the subject of this consultation). These activities are important for the UK and are an essential element of the enablement of ‘Industry 4.0’. JRC are also closely involved with Ofcom’s ongoing ‘Spectrum for Utilities’ study which is examining spectrum requirements for the utility sector - as an industry vertical in its own right.

### Background – JRC Limited

JRC Ltd is a wholly owned joint venture between the UK electricity and gas industries specifically created to manage the 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 & tele-control services and network operations. JRC created and manages a national cellular plan for co-ordinating frequency assignments for a number of large radio networks in the UK. As critical systems users, the Joint Radio Company (JRC) welcomes the opportunity to respond to this consultation on behalf of the electricity and gas network operators. JRC highlights that communication networks are dependent on access to resilient and robust electricity supplies. As the smart grid evolves, existing monitoring and control systems will need to be significantly expanded and extended. This expansion in the operational communications needs of the energy utilities will require access to additional spectrum.

### *JRC Response*

JRC welcomes the opportunity to respond to this consultation on the subject of Space Spectrum Strategy. JRC is a supporter of Ofcom’s initiatives to improve connectivity for all – especially in relation to improved economic output for UKPLC, home working and associated climate impact of reduced need for commuting etc. The rapidly evolving area of space technology deserves special attention due to its potential to provide benefits to UK consumers and manufacturing industries. Indeed, many JRC members make effective use of some satellite systems in combination with terrestrial networks and would be interested to exploit further space-based solutions if proven to be appropriate for their operational requirements.

Nevertheless, JRC has particular concerns that the proposals to increase sharing between terrestrial frequency bands and satellite-based systems has not been fully considered or technically assessed from the perspective of likely impact to performance degradation of incumbent users of terrestrial systems – including JRC’s Members. Although the proposals for increased sharing of spectrum between terrestrial and space-based systems appear to pose only a limited risk of mutual interference, those risks are real and need to be understood in the context of utility systems which are used to monitor and control critical national infrastructure and require overall system availability of over 99.999%. Any degradation to the performance of these systems will have a detrimental impact on the

power industry's capability to monitor and control its assets with subsequent impact on operational reliability and restoration times in the event of faults.

JRC encourage Ofcom to consider the following two actions before moving to introduce the sharing arrangements contemplated;-

- i) Detailed technical studies (including on site measurements) of actual impact on terrestrial system performance of the satellite systems positioned at a variety of distances and locations from fixed link end points. JRC believe this is particularly important in any sub 1GHz spectrum (especially VHF and UHF) where antennas systems typically have less directional properties and as such can receive interfering signals from a broader range of azimuth and elevation values.
- ii) Consider an option to include exclusion zones around terrestrial system end points - the specifics of any exclusion zone to be informed by the findings of item (i)
- iii) Where migration of incumbent terrestrial users is deemed necessary, investigate the establishment of a 'migration fund' to facilitate transfer of the systems and also identify appropriate and make available alternative spectrum to be utilised.

*\* Ultimately the cost of any technology change in the energy utility sector is funded by bill payers – who are already under increasing pressure due to the well-publicised energy price rises. JRC would remind Ofcom that such a fund was previously in operation to assist with the PMSE sector's migration from the 700 MHz band.*

#### **Answers to Specific Questions**

***Question 1: Are there other trends in the space sector (or the broader spectrum environment) that we should monitor and/or take account of in our strategy?***

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**Question 2: Do you agree with the broad areas we have prioritised for our work?**

No Comment

**Question 3: Are there other issues and actions that are likely to be important over the next 2 – 4 years?**

No Comment

**Question 4: Do you have any evidence on whether specific actions should be a high priority?**

No Comment

**Question 5: Do you have any other issues you wish to comment on?**

JRC's main concerns are captured in the response to question 1. Separately, we do have some additional reservations with two terrestrial microwave frequency bands where changes are proposed (13 GHz and 26 GHz). However, we acknowledge that the highly directional properties of microwave antennas in those bands significantly reduces the possibility of harmful interference.

**Question 6: Are there other issues and actions specifically relating to NGSO communication systems that are likely to be important over the next 2 – 4 years?**

No Comment

**Question 7: Do you have any evidence on whether specific actions relating to NGSO communication systems should be a high priority?**

The proposed increase in the number of satellites in orbit is a concern which appears to be understood only partially at present. JRC believe that further work into the potential for ever larger volumes of space debris should be undertaken. Collisions between and space vehicles (or components of) has the potential to severely disrupt existing and new constellations.

**Question 8: Do you have any other comments relating to NGSO systems?**

JRC will maintain a 'watching brief' in relation to the development of NGSO systems. It is possible that in future such systems may provide an additional connectivity option at some locations. However, at present JRC's perspective is that active systems to date have not reached the operational and commercial maturity to be suitable for demanding utility applications.