



Spectrum for the Police Service of Northern Ireland

Cellnex UK Response

November 2022



Overview of Cellnex UK

Cellnex Group

This response is submitted by Cellnex UK ([link](#)), which is part of Cellnex Group ([link](#)) which:

- Supports over 420 million mobile connections across Europe
- Operates >70,000 mobile sites today, which will grow to >130,000 by 2030
- Is Europe's leading neutral host mobile infrastructure provider, covering 12 countries: Austria, Denmark, France, Ireland, Italy, Netherlands, Poland, Portugal, Spain, Sweden, Switzerland and the UK
- Provides mobile infrastructure services, private and mission-critical networks, distributed antenna systems & small cells and smart/IoT & innovative services
- 16 mission critical networks operated in Spain for Public Safety (emergency bodies)
- 40 private networks operated across Europe for Critical Business (enterprise)
- Had an annual turnover of €2.5bn in 2021
- Is a member of the FTSE4Good, Standard Ethics, United Nations Global Compact

Where possible, we have sought to provide international examples from the wider Cellnex Group in our response.

Cellnex UK

We are the trusted partner of all the major UK mobile network operators, hundreds of private businesses, the emergency services, as well as the UK Government, specifically Cellnex UK:

- Is the UK's leading independent wireless connectivity infrastructure company
- Operates >7,000 mobile sites today, which will grow to >13,000 by 2031
- Has deployed over 1,000 small cells to date
- Is a provider of private networks in campus and indoor environments
- Is an indoor mobile coverage provider, most notably in the Etihad stadium in Manchester
- Is deploying contiguous mobile coverage and capacity along the 81km Brighton to London Mainline and three major stations
- Has won three DCMS 5G competitions, working collaboratively with universities and start-ups to deliver 5G innovation
- Employs 300 people across four major UK locations – Reading, Manchester, Scotland and Leamington Spa
- Has invested £6.1bn in the UK since 2016

Basis of Response

Cellnex UK is primarily a neutral host infrastructure and service business that serves the UK mobile network operators ('MNOs'), other communications providers, including mission critical providers such as Airwave and PSNI, and enterprises.

However internationally, we have extensive experience in providing mission critical networks and solutions to over 80,000 users from in excess of 1,000 sites with notable examples including:

- 8 regional networks in Spain with TETRA/DMR and LTE technology (RESCAT, COMDES,...)
- 1 national network for Maritime Security
- 7 municipality networks

We have used this experience and knowledge to inform our consultation response, and should Ofcom wish to discuss any aspects of this further we would welcome this opportunity.

1. Do you agree with our provisional view that the spectrum 733 to 736 MHz paired with 788 to 791 MHz should be made available to and authorised for use by the PSNI in Northern Ireland? If you disagree with our view and consider there is a higher value use, please provide details of this alternative use, particularly considering the issue of the risk of interference from SDL.

Cellnex Group, as an operator of Public Protection and Disaster Recovery (PPDR) networks and services in multiple countries, agrees that that Public Safety Agencies (PSAs) must have allocated a dedicated PPDR spectrum to enable them to transition to broadband solutions.

Cellnex Spain has commenced transition of some of the regional PPDR networks in Spain following the allocation by the Spanish telecommunications regulator in July 2021 of the following bands for PPDR Broadband:

- B28 (2x3 MHz) and B31 (2x5 MHz) for national networks
- B68 (2x5 MHz) for regional networks

We also note that for a 4G-LTE modern mobile technology network, spectrum options are limited to standardised bands (or ones that are likely to be standardised in the near future) in the 3GPP specifications for mobile telecommunications. These frequencies are within these (i.e. B28), we return to this point about standardisation in our response to Question 2.

Given PSNI is likely to look to maximise the use of existing site locations and infrastructure as much as possible, particularly in rural areas, utilisation of spectrum below 1 GHz is a sensible option.

Hence we agree that 733 to 736 MHz paired with 788 to 791 MHz is a good solution to start the transition in Northern Ireland from legacy narrowband TETRA technology to a broadband solution.

Conclusion: Cellnex UK is supportive of Ofcom allocating this spectrum to PSNI

1.1 International Context

We are seeing use of B68 in countries across Europe as the trend for harmonisation increases. However we are also seeing that whilst the upper zone (i.e. 759 – 783 MHz) is free and can be used the lower zone (i.e. 753 to 758 MHz) is not due to allocation for SDL services. We also seeing RAN and device vendors confirming their support and roadmaps for devices to support B68 for PPDR operators and applications.

B31 (452.5 – 457.5 MHz), B72 (451-456 MHz), and B88 (412-417 MHz) bands in the 400 MHz range are also seen as key target bands to allocate for use in providing (i) PPDR broadband (ii) wide area critical control networks for utilities given their lower frequency is an efficient way of providing wide area geographic coverage.

As per other recent Cellnex UK consultation responses, we note that near term release of spectrum in the 400 MHz band for use by the utilities sector for smart grid/critical communication services is now critical.

1.2 Trial and Test Activity

Cellnex Spain has completed a proof of concept for a police force using B28 and the results met all user and authority requirements. We can confirm that the current broadband device ecosystem (e.g. smartphones, tablets) has wide support for the B28 band and hence PSNI will have a suitable choice of compatible devices in this band for a 4G-LTE solution.

2. Do you agree with our provisional view that the spectrum 876 to 880 MHz paired with 921 to 925 MHz should be made available to and authorised for use by the PSNI in Northern Ireland? If you disagree and consider there is a higher value use, please provide details of this alternative use, particularly considering the small market potential of this spectrum.

We consider for a broadband PPDR service to be truly effective it needs a bandwidth of 2x5 MHz for current requirements and ideally a path to at least 2x10 MHz to support future use cases (e.g. real time video). Noting the PPDR community is currently proposing studies of possible future use cases regarding video and augmented reality to regulators across Europe.

As noted in our response to Question 1, we support allocation of spectrum for PPDR in the 700 MHz bands (B28); acknowledging this will only be for 2x3 MHz due to current adjacent spectrum usage. We observe there is the potential for carrier aggregation to be undertaken between B28 and other bands reference in our response to Question 1.

2.1. FRMCS Considerations

Regarding 876 – 880 MHz and 921 – 925 MHz we note Ofcom’s observation that this is not used for GSM-R in Northern Ireland like the rest of the UK. However the Future Railway Mobile Communication System (FRMCS) is likely to be standardised across Europe in the near term in this band, ideally with an expansion to 2x5 MHz bandwidth, alongside with 1900 – 1920 MHz.

Hence allocation of this band to PPDR in Northern Ireland may prevent/inhibit technically or economically this critical next generation safety and control technology being deployed across Northern Ireland’s railway network.

2.2. PPDR Hardware Ecosystem

These frequencies are not a ‘standard’ PPDR band across Europe. As a result the availability of ‘commercial off the shelf’ radio network and end user equipment should be confirmed by Ofcom before allocation to avoid PSNI facing an economically and/or technical suboptimal deployment.

As noted earlier B28, B31 and B68 are the ‘standard’ bands being considered across Europe for evolution of PPDR solutions to enable broadband use cases and the global hardware ecosystem is forming around these. Consideration is also being given to potential use of B72 and B88 for PPDR but we note these are also target bands and indeed already starting to be used in Europe to provide critical comms and control networks for the utilities network.

Ofcom should confirm/validate that there is appetite in the PPDR ecosystem to adapt radio and endpoint equipment for this specific band and make this available at an economic price point as compared to ‘standard’ bands.

In addition Ofcom should note in its determination that award of this spectrum to PSNI is likely to rule out or significantly inhibit deployment of FRMCS in Northern Ireland .

3. Do you have any other comments on the proposals?

We note that future 3GPP releases, notably Rel.18 and Rel.19 will support further Mission Critical requirements and use cases. As a result in the next 5 to 10 years further bandwidth will be needed to support PPDR 5G, which is likely to start with a requirement of at least 2x10 MHz and then expand to 2x20 MHz

Overall forecast spectrum requirements for mission-critical broadband range from 20 MHz (10 + 10) up to 60 MHz; several studies and methodologies for calculating spectrum needs for PPDR can be found in the report ITU-R M.24159.

Ofcom should consider the overall medium and longer term spectrum requirements of PPDR in its overall spectrum roadmap and any localisation of that to Northern Ireland and/or other nations.