



NON-CONFIDENTIAL

Vodafone Response to Ofcom
Consultation:

Exploring future use of the unpaired
2100 MHz (1900 - 1920 MHz)
spectrum



Response

Vodafone welcomes the opportunity to comment on Ofcom's proposals for the future usage of unpaired 2100MHz spectrum.

Proposal to revoke licences

Whilst the potential revocation of the spectrum licence is a matter for debate between Ofcom and the licensees, we do believe that Ofcom has taken a somewhat binary approach to the topic. Our understanding is that as the spectrum licences approached the end of their initial term, Ofcom proposed an Annual Licence Fee (ALF) based on the value of similar high power mobile spectrum bands. The licensees felt that the level of the proposed ALF was too high given the utility to which they could put the spectrum, and argued this point, highlighting the restrictions. In response Ofcom now proposes to revoke the licences and re-issue the band for other purposes such as utility or rail industry usage.

A more nuanced market-driven approach would be to test the value that the licensees place on the spectrum. If Ofcom were to assess the value that alternate users would place on the spectrum (either by willingness-to-pay or by Ofcom research), then this would represent the value to the currently-excluded user. Under the Administered Incentive Pricing (AIP) regime, Ofcom could then impose ALFs based on this value. It would then leave the decision in the hands of the incumbent licensees whether to retain the spectrum and pay the fee, return the spectrum to Ofcom, or trade it to a third party. There is evidence that this approach works: Ofcom recently imposed fees on certain 28GHz licensees, and presumably as a consequence, Arqiva chose to return much of its licensed spectrum to Ofcom¹. We understand that Ofcom has concerns on coordination effects, but examining the band plan for the unpaired 2100MHz spectrum, alternate users could secure 5MHz or even 10MHz of spectrum via negotiation with a single licensee. We believe that Ofcom's approach shows a marked lack of faith in market mechanisms delivering optimal spectrum efficiency: taken in combination with the parallel consultation on mm-wave which proposes fixed term licences because of a concern that an auction may not deliver the best long-term outcome, we wonder whether Ofcom's approach is evolving to a more interventionist approach rather than relying on the market?

¹ For the avoidance of doubt, we acknowledge that some form of ALF can act as an incentive to return (or trade) unused spectrum. In no way should this be taken as evidence that we support ALFs set at "full market value," as is applied to mobile bands – our suggestion for 2100TDD would be based, for example, on the value lost to utilities as a sector that is seeking access to spectrum but is currently unable to obtain it, rather than seeking to estimate the value to a hypothetical excluded purchaser via usage of auction pricing.



Alternate uses of the unpaired spectrum



Rail sector usage

We note the potential usage of the spectrum for the rail sector, and wouldn't have any objection in principle. However, Ofcom needs to look extremely careful at the specific technical characteristics. We are concerned that the coexistence analysis at CEPT has placed greatest emphasis on maintaining the safety of the rail network and perhaps not fully addressed the issue of interference to mobile services. Analysis undertaken in our other European operating companies has produced significant concerns about potential interference from FRMCS usage to 2100FDD uplink services (and in the extreme, to 1800MHz downlink). Our analysis shows that for most sites that are within 500m of an FRMCS base station, an additional 42dB of selectivity is required in our equipment as a consequence – in practice mitigation is needed even where the separation distance exceeds 3km. Interference with FRMCS terminal equipment to receipt of uplink services is possible if the terminal is within 700m of the mobile mast.

In practical terms we believe that the worst impact will be for uplink pertaining to the nearest 2100FDD licensee (i.e. H3G), but this is a sector-wide issue.

We would be happy to share the results of our analysis with Ofcom on a confidential basis (including facilitating introductions to the teams in our European operations who have faced these issues), in order to inform any requirements that you might place on this alternate usage.

Utility sector usage

We understand that there has been a long-standing desire for dedicated spectrum for the utility sector, in particular power networks. Utility sector needs could be met via a dedicated network (which would require dedicated spectrum), or alternatively via usage of multiservice (public) communications networks, or indeed by a hybrid of the two. Our view is that the most cost and spectrum-efficient method is to use multiservice communications networks wherever possible, with dedicated facilities being used only where the needs of the utility sector cannot be met. We understand that the primary concerns driving a requirement for dedicated networks are having an assured quality of service and an assured availability of service, in particular with respect to power resilience.

The deployment of Standalone 5G (SA 5G) networks represent a step change in the functionality of communications networks, allowing industry sectors – including utility – the capability of having a dedicated network slice providing an assured quality of service. Deploying SA 5G to support utility needs is a win-win: the cost will be lower for the utility sector than installing and operating a dedicated communications network, and the scale/scope economies will allow communications network providers to more readily cost-justify rapid rollout of SA 5G. We also believe that usage of a multiservice network is more spectrally efficient, and introduces scope for more compelling propositions that might not be possible with the relatively small amounts of spectrum that could be made available for a dedicated network.



We accept that SA 5G does not, however, address the issue of power resilience. Once again, though, there is potential for win-win. Ofcom is concerned about the power resilience of mobile communications networks, both from a perspective of climate change increasing the probability of outage events, and also because fixed PSTN switch-off results in greater consumer reliance on mobile telephony². We believe that resolving this conundrum requires inter-sector working – better to prioritise power restoration at mobile mast sites than deploy huge volumes of batteries to cope with prolonged outages. If communications and power networks are mutually reliant, there is a far higher chance of coming to an optimal cost solution than if we act independently: it makes sense to engineer a solution that makes public communications networks resilient to the level required by the utility sector, and we can best do this with the utility sector’s help.

We therefore think it would be the wrong solution to solely build dedicated networks for utilities, in particular if this decision is distorted by spectrum pricing when compared to the amount paid for spectrum by mobile networks. For clarity, we do not oppose the availability of spectrum for the utility sector or the usage of dedicated networks, we just believe it should be targeted for where multiservice networks cannot meet the utility sector needs. Any regulatory impact assessment by Ofcom should address these points.

Vodafone UK

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² As fixed telephony will no longer be line-powered, the “network of last resort” for calling emergency services becomes the mobile network.