



NON-CONFIDENTIAL

Vodafone response to Ofcom
Consultation:
Mobile Phone Repeaters
Indoor and in-vehicle



1. Introduction

Vodafone welcomes the opportunity to provide feedback on Ofcom's proposals to liberalise mobile phone repeaters.

Vodafone has consistently argued that the uncontrolled usage of mobile repeaters threatens to desensitize network equipment, and paradoxically make coverage worse for the majority of customers. We continue to hold this view - while mobile repeaters have a role to play, the best approach all round is that they are allowed only with the consent of the parties licensed to use the spectrum, in this case the mobile operators who pay many tens of £millions annually to utilise that spectrum. None-the-less, we acknowledge that Ofcom has the legal ability to sanction overlay usage of spectrum even where it has been licensed to operators and that Ofcom has a desire to allow a secondary market to develop in mobile repeater equipment. Therefore, this response provides suggestions of measures that Ofcom could take in order to mitigate at least some of the risks with the proposed approach.

2. Proposals for static/indoor mobile repeaters

Vodafone's preference is that such repeaters be brought to market only with the express approval of the mobile operator that holds the spectrum licence. The technical specification put forward by Ofcom is, on the whole, acceptable to Vodafone. However, issuing such a specification and stating that any device meeting such a specification be license-exempt risks a free-for-all. There are responsible suppliers of repeater devices, but our experience to date is that there are also many others which are not so. Amongst the marketing activities we've experienced are:

- Websites exhibiting a Vodafone logo, stating that repeater equipment is approved by Vodafone (we have not given any such approval, to date), and
- Websites historically exhibiting the Ofcom logo, claiming that repeaters are (already) legal for usage in the UK, and even providing a link which if one clicks through goes to the [Ofcom webpage](#) that explains that usage of the devices is in fact illegal – we can only assume on the basis that not many people will bother to click through and instead be reassured that there is (supposedly) an Ofcom page stating all is well.

Vodafone's concern is that having a set of repeaters which are authorised for usage by Ofcom, without a suitable testing and enforcement regime, will simply lead to the less scrupulous suppliers slapping an "as approved by Ofcom" label on any mobile repeater equipment, regardless of whether it meets the specification.

Further, a key aspect of mobile repeaters implemented/authorised by mobile operators is that the operator knows precisely where the equipment has been deployed. Therefore, in the event of an interference case,



prior to engaging with Ofcom's investigations teams, we check for the presence of such equipment. We will not have that capability with a blanket licence exemption. Knowledge of the location of such equipment also provides valuable crowd-sourced data for our planning teams to investigate why there is a poor coverage area – a license-exempt approach as proposed in the consultation would remove that capability. Therefore, whilst acknowledging that Ofcom prefers a license-exempt regime based upon the proposed specification, Vodafone suggests the following amendments:

Approval

In an ideal world, Ofcom would test and approve all repeaters to its proposed specification, before issuing a "green triangle" style certificate of conformity. A part of the specification would then be that the equipment must bear that logo.

In the event that this would be unacceptable to Ofcom, an alternative could be for Ofcom to register a trademarked approval logo, and encourage vendors to use this logo. Were a supplier to use the trademark on equipment not meeting the specification, Ofcom could then take legal action for breach of their trademark – as such Ofcom would have the ability to take civil action against the supplier rather than just the user. This would be a step forward in view of the difficulty of taking action for supply under the Wireless Telegraphy Act (versus for usage of the equipment). Although this would be a reactive regime compared to our preference for a proactive testing one, it would at least allow Ofcom to take some action to discourage unscrupulous marketing of non-conformant equipment.

Specification – registration

Vodafone recognises Ofcom's reluctance to adopt a licensing regime whereby individual repeaters would need to be registered. Nevertheless, it must be acknowledged that adopting a license-exempt approach is largely a one-way step: it will be incredibly difficult to revert to a lightly licensed regime once there are unknown quantities of repeater equipment in usage.

A half-way house would be to mandate that equipment is specified to incorporate a reporting routine whereby as part of its configuration, the repeater would report geolocation data to the equipment supplier. That supplier would then be required to provide this information in a standardised format for interrogation by Ofcom and the licensed spectrum holders, in order that an installed database could be collated. This is not science-fiction: the capability is already present in certain vendors' equipment; incorporating it into Ofcom's specification would merely codify best-practise. Vodafone strongly encourages Ofcom to implement such a reporting regime.

Specification – assumptions

Vodafone notes that Ofcom's specification assumes a maximum of fifty mobile repeaters within a given mast catchment area, in order to work backwards from the maximum desired increase in noise floor. We don't believe that assumption is flawed, but nor do we have any evidence that it is correct either. It is important



that Ofcom acts with prudence, and on this basis Vodafone considers that the registration requirements that we set out above would allow Ofcom to validate its assumptions, and revise the technical specification if it has underestimated take-up.

Regulation – actual versus intended usage

We note that throughout the consultation, Ofcom refers to equipment that is “*Intended* for indoor usage” – indeed, the proposed Interface Requirement contains that wording. But Section 8 of the Wireless Telegraphy Act refers to the actual establishment or usage of wireless telegraphy equipment; it is this “usage” wording that provides the loophole whereby equipment which is clearly illegal to use can be legally sold.

By referring to an intended use, Ofcom is once again opening up a legal loophole. Consider the case whereby someone bought equipment compliant with the specification and then installed it in an outdoor location, where it was more likely to cause interference. Under the proposed approach, such usage of equipment for a purpose other than intended would seemingly be perfectly legal. We therefore consider that Ofcom should be clear that the license-exemption only applies when the equipment is used for the purpose intended, i.e. for indoor usage. In summary, the draft IRs in Annexes 6 and 7 should have the words “intended for” deleted from their titles.

3. Proposals for low gain in-vehicle use repeaters

Vodafone acknowledges the difficulty in providing coverage solutions for modern cars with glass designed to shield the interior from UV radiation. Low gain repeaters will certainly assist in achieving better coverage, and we are supportive of their usage – inherently the high attenuation of mobile signals from exterior to interior also apply in the reverse case, meaning there is limited scope for interference via raising the outdoor noise floor.

Vodafone supports the specification as set out, however as with the indoor/static repeater case, we query why Ofcom’s proposed exemption applies to equipment “intended” for deploying in cars – the exemption should narrowly be for equipment that is actually being used in a vehicle. We also query whether usage should be restricted to enclosed vehicles, i.e. not be permitted on convertible vehicles (or at the least disabled when the roof is retracted).

Vodafone Ltd

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