

TELEFÓNICA UK LIMITED RESPONSE TO:

**"TV WHITE SPACES – A CONSULTATION ON WHITE SPACE
DEVICE REQUIREMENTS"**

10 JANUARY 2013

I. INTRODUCTION

1. Telefónica UK Limited (“Telefónica”) welcomes this opportunity to comment on Ofcom’s consultation on White Spaces in the current UHF TV band (470 MHz to 790 MHz).
2. Telefónica considers cognitive access to be an important long term issue and we responded positively to the prospect of its introduction in interleaved DTT spectrum that was proposed in Ofcom’s consultation on “Digital Dividend: Cognitive Access” in 2009.
3. Since then, Telefónica has also responded to the Radio Spectrum Policy Group (RSPG) final draft Report on Cognitive Technologies (CT) in December 2009 and to the previous RSPG Opinion on aspects of a European approach to the collective use of spectrum.
4. At that time Telefónica did not comment in detail on the conclusions or methodology used to calculate the parameters proposed for licence-exempt cognitive devices using interleaved spectrum. However, we supported Ofcom’s proposal to seek to align the parameters used for cognitive devices using interleaved spectrum with parameters in use outside the UK, where possible, in order to promote international economies of scale. As we have stated on other past occasions, alignment of the UK’s spectrum plans with the international community is important to Telefónica.
5. We recognise that this is primarily a consultation on White Space (WS) device requirements, and although we do not wish to comment on the detailed technical specifications of the wireless communication protocols between the devices and databases, we would like to make some general comments in relation to WS proposals.

II. GENERAL COMMENTS

6. Telefónica continues to agree that CT such as White Spaces in the current UHF TV band, have the *potential* to play a role in enhancing spectrum management by increasing the efficiency of spectrum usage, and to increase the opportunity for innovation in spectrum using industries. Indeed, we believe that one of the most important considerations when assessing the potential of CT is the need for a global perspective. Not only are there significant economies of scale to be

reached when technologies with global applicability are developed, but there are important lessons to be learnt for the business and regulatory environments in Europe from the experiences gained in other regions.

7. In general, any increase in availability of License Exempt (LE) spectrum could lead to a series of issues in competition terms. Current operators are faced with payments for licences and for use of the spectrum, as well as regulatory obligations such as quality, rates and coverage, amongst others. On the other hand, new entrants that are able to address the same markets as current operators using LE spectrum may not have to face these burdens and may therefore be able to operate at an unfair cost advantage. This implies that the increase in availability of LE spectrum could lead to a distortion at the competition level. To help mitigate against this we believe that there should be open access to TVWS systems as they are licence exempt, in the same way as open access is available for Wi-Fi bands.
8. The use of WS must not distort the market through inappropriate regulation. The use of unlicensed spectrum eliminates the cost of acquiring licensed spectrum. In such a case, WS networks are not seen as complementary networks, but substitutive for mobile cellular mobile services. If both networks compete in providing the same services this could create an unfair advantage and distort the market.
9. The development and implementation of CT is still at a relatively nascent stage, therefore Telefónica continues to believe that a gradual and evolutionary approach to its introduction should be adopted in the UK. Continued close international cooperation and discussion between industry stakeholders, regulators and other institutions is required to ensure international harmonisation and specification of parameters which align with the appropriate international standardisation bodies (such as ETSI) to protect against harmful interference to licensed users.
10. Telefónica believes that WS systems should only operate in licensed bands used by existing networks with the consent of the respective primary license holders. We therefore support Ofcom's consultation work in this area and efforts to develop a framework to protect and mitigate against any harmful interference to existing (and future) users of the band. We believe that it is vitally important that robust protection for licensed users is ensured.
11. White Space Devices (WSDs) inherently present a risk to the operation of the incumbent services in this band (currently DTT & PMSE), the White Space

Database (WSDB) model has been developed to minimise cases of interference, but it is still a potential issue. The technical conditions are tailored around the characteristics of those incumbent services, thus the rules adopted for TVWS will be different from any future WS sharing model adopted where the incumbent service differs. It is therefore important that WS systems use true cognitive technology that can adapt to any changes to the primary allocation decision and adjust their databases accordingly.

12. Telefónica believes that spectrum sharing should be a complimentary tool to exclusive access and not become a general rule in all bands. The more actors that share a given spectrum band, particularly in a well formalised framework, the more difficult it will be to free this band in the future for exclusive access, including for mobile services. For instance, if TVWS are deployed in a given part of the UHF band, based on an ability to coexist with existing TV, then cleaning this band for LTE for example will require not only to switch-off DTT in the band but also to at least downgrade TVWS QoS, if not move this service away due to the fact that mobile networks use spectrum more intensively and leave less WS than TV broadcast.
13. Whilst we agree that new sharing paradigms should be explored as another option for spectrum management, we believe that sharing technologies have been long promised but remain largely unproven. Sharing technologies such as Cognitive Radio (CR) or Dynamic Spectrum Access (DSA) are still far from technical maturity or widespread market arrival, remaining as expected technologies. Spectrum sharing based on geographical databases is a short term solution, but still has great uncertainties as it is not clear it works even in small and controlled deployments. The U.S experience with databases and TVWS do not appear to have achieved sufficiently promising results to justify a full scale deployment.
14. Additionally, the industry has not yet identified or developed a clear and robust business case that makes spectrum sharing sustainable. Beneficial sharing opportunities will not be easy to achieve as new spectrum and technology needs to reach economies of scale to develop a sufficient variety of equipment and ecosystem.
15. Telefónica believes that there may be some opportunities in WS but these will not supplant existing services or provide a high incremental value to society, when compared to alternative uses, from use of such spectrum by low power applications.

16. The way to create sustainable consumer benefits and increased competition should start by creating legal certainty in the market that will consolidate solid investment incentives and will foster innovative services and increase competition in order to achieve benefits for consumer, producer and society.
17. Telefónica also considers it necessary that an evaluation, prior to the allocation of additional spectrum to LE use, is undertaken to ensure that potential users can exploit these bands whilst maintaining an adequate level of quality for the intended range of services, as there is an inherent uncertainty over the level of interference associated with LE spectrum use. We note that Ofcom have spent significant time in the TVWS Technical Working Group taking representations from the DTT and PMSE communities and we believe that it is right that any proposals take those views into account.

III. CONCLUSIONS

18. Telefónica believes that it is important to continue with further study and engagement among spectrum stakeholders, including industry and regulators, before the widespread introduction of CT. We support the ongoing international studies and initiatives in this area, in particular within the ITU, CEPT, ETSI and IEEE in order to address potential challenges.
19. A harmonised approach, both at an international as well as EU level, towards CT is considered by Telefónica as the right way to move gradually forward in the implementation phase. Stakeholders need to consider technological, business and regulatory issues; in particular, business models are critical for success.
20. Experiences with pre-cognitive technologies need to be taken into account. Opportunities for experience/trials in certain specific bands and applications (with lower demand) would seem to be appropriate. In particular, we support the focus being put through consultations such as the present one on the use of WS in the UHF TV band.
21. The widespread use of CT is seen by Telefónica to be a medium-to-long term issue. It is right that any steps taken should carefully consider current spectrum users and uses, in order to avoid any potential disruption to their ongoing operations. There is a need for confidence to be maintained in the regulatory approach to spectrum management.