Qualcomm Europe Inc.

Ofcom consultation on Annual Plan 2014/2015

Qualcomm response

October 2013

Qualcomm welcomes the opportunity to respond to Ofcom consultation for the development of the "Annual Plan 2014/2015" to support its continuous effort to enhance communications platforms for UK citizens.

LSA

The 2014-2015 timeframe will be a key period for the setup and implementation of Licensed Shared Access (LSA). LSA will be a key tool for Ofcom and the Ministry of Defence to make available additional spectrum in the 2.3GHz, beyond the 40 MHz currently considered, in line with the harmonised framework being developed by CEPT. It will also enable the release of the 3.8-4.2GHz on a geographic licensed sharing in a near future.

Additional spectrum is needed due to the very rapid increase of mobile broadband traffic which is doubling year-on-year in many countries around the world, with the internet going fully mobile. In the UK, mobile broadband traffic has doubled between 2011 and 2012 according to the Ofcom commissioned report on Infrastructure[1]. Higher access throughput and thus larger channel bandwidths up to 100MHz will be required to accommodate this demand. This pace of growth challenges in a number of aspects the traditional spectrum licensing approach.

The implementation of LSA responds to the need for additional prime harmonised spectrum, to be released in a timely manner to increase the capacity and quality of mobile broadband access. In this form of implementation, LSA corresponds to Authorised Shared Access (ASA) which has been promoted and backed by the mobile industry. CEPT, ETSI and RSPG have all been working on the harmonised use of 2.3GHz for mobile broadband under an LSA framework and an ECC Decision is planned for approval in June 2014. It provides the harmonised technical rules for mobile broadband use and guidelines for LSA implementation in the band. A draft ECC Report 205 was recently approved for public consultation by WG

[1] Ofcom report on infrastructure: http://stakeholders.ofcom.org.uk/market-data-research/other/telecoms-research/broadband-speeds/infrastructure-report-2012/

FM and it provides an overall definition and guidelines for the implementation of LSA. ETSI had also published a System Reference Document on mobile broadband in 2.3GHz under LSA and approved a work item on the requirements for LSA in this band: "System requirements for operation of Mobile Broadband Systems in the 2300-2400MHz band under LSA regime".

In the United States, ASA/LSA is under consideration by the FCC for the use of 3.5GHz for mobile broadband on a shared basis with coastal radars. Similarly countries in Latin America and Asia are also considering ASA/LSA regulatory framework to increase the availability of various IMT bands.

LSA does not only increase the global footprint of IMT bands but also speeds up the availability of this spectrum on a regional basis. It took nearly 8 years from the IMT identification of the 2.1GHz band to the first releases of this spectrum in Europe. This period went up to 10 years for the 2.6GHz band. With the 2.3GHz, which was identified for IMT by the ITU in 2007, the period would have been even longer if LSA was not used to enable a positive decision by the ECC to harmonise this band. Shortening the time needed between the identification of a band for IMT and its actual release will be critically important going forward to cope with the explosive growth of data traffic. This is the genesis of LSA.

The 2.3GHz band (3GPP band 40) is already used by mobile broadband networks around the world and implemented in many devices. According to GSA, 112 devices[2] already support LTE in the 3GPP Band 40. The release of the 2.3GHz band on an LSA basis through geographic or time sharing will enable its efficient use without any changes to the devices.

Such use will foster the development of innovative services and drive considerable social and economic benefits. Those benefits have been assessed and described in a new study from Plum Consulting called "the economic benefits of LSA in the 2.3GHz in Europe". It has been shown that the net economic benefits for Europe derived from LSA implementation at 2.3GHz could reach €22bn:

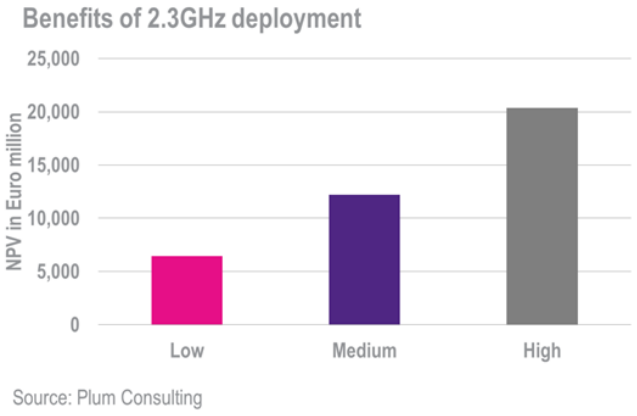

Figure 1: Benefits of 2.3GHz LSA in Europe (Source: Plum)

[2] Source GSA: http://www.gsacom.com/news/gsa_374.php

Qualcomm would therefore invite Ofcom to include LSA in the list of priorities for the Annual Plan 2014/2015 both to maximise spectrum release at 2.3GHz and to shape LSA definition and endorsement at European and global levels.

700MHz frequency arrangement

In line with Ofcom Annual Plan 2013/2014, Qualcomm considers the global harmonisation of the 700MHz based on 3GPP Band 28 as a priority for 2014/15. This band plan is, or planned to be, adopted globally as shown in the Figure 2.

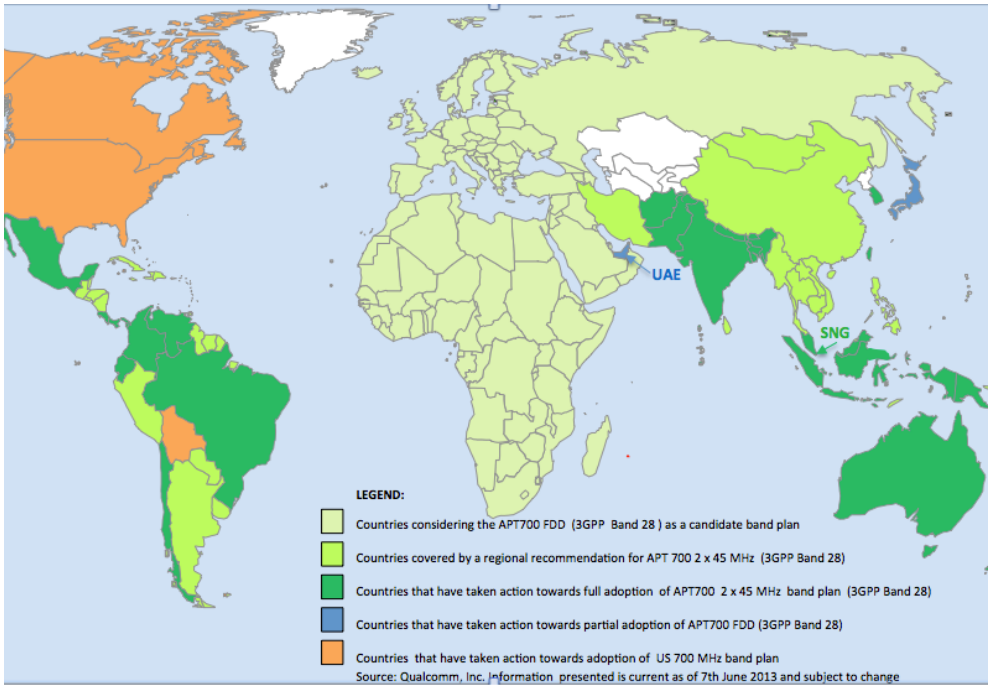

Figure 2: Status of the 700MHz globally (Source: Qualcomm)

Technical studies to ensure the coexistence between broadcasting below 694MHz and mobile services are undertaken by CEPT and ITU-R for Region 1 in the WRC-15 context. The adoption in the Region 1 of same technical characteristics as those already in place in the APT Region allows operators to benefit from large economies of scale and would give to the European and UK consumers better roaming capabilities, better performances and access to more affordable devices.

In particular, the use of the lower duplexer of 3GPP Band 28 in Region 1 with the same technical characteristics in terms of Out-Of-Band Emission (OOBE) i.e. -25dBm/8MHz below 694MHz will prove to be key. With this approach, 2x30MHz of the 3GPP Band 28 (703-733MHz Uplink paired with 758-788MHz Downlink) would become a nearly global band for IMT and a baseline for an efficient European solution for the ITU-R Region 1.

Applications for Machine-to-Machine (M2M), Internet-of-Things (IoT) and Public Protection and Disaster Relief (PPDR) have expressed interest for UHF spectrum including this band. While choices on the most appropriate usage hasn't been made, we believe that dedicated spectrum band for specific application should be avoided as it is not future proof.