GSM Association response to Ofcom's public consultation concerning the re-tender for and award of mobile radio frequencies in Switzerland by 1 January 2014

The GSMA welcomes the opportunity to respond to Ofcom's consultation on mobile radio frequencies in Switzerland. Our response focuses in particular on the UHF frequencies referred to in section 1.1.3 of the Analysis report – the digital dividend spectrum.

Our response consists of two sections:

1. Overview and general comments relating to the digital dividend in Switzerland
2. Answers to specific questions posed in the consultation questionnaire

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SECTION 1: GENERAL COMMENTS

Cross-Border Coordination

The GSMA believes that the digital dividend has the facility to enable new and innovative communications products and services for the benefit of all citizens, in particular enhanced mobile broadband services and Internet connectivity, and calls for harmonised spectrum across Europe to control interference and reduce terminal costs.

Switzerland, which already has nationwide DSL availability and higher than average broadband penetration (36.1%[1]), has decided to introduce mobile radio services in the 790-862MHz sub-band, in line with WRC 07 recommendations. The GSMA is strongly supportive of Switzerland's decision to follow a harmonised approach to the allocation of the band across Europe.

There is a growing tide of countries that are committed to using the bands 790–862MHz for new and innovative services such as mobile. These include Germany, Sweden, Finland, Spain, Denmark, the UK and France. Countries such as Belgium and Ireland have consulted on the issue. However, Italy remains undecided on the issue and this could potentially cause problems in the use of these bands for mobile services in Switzerland. As draft CEPT Report 29 makes clear, the likely key problem is from broadcasting services interfering with mobile broadband base stations. This will be from television channels 66 – 69 (mobile base receive is proposed to be from 832 to 862MHZ). This makes it important that coordination between Italy and Switzerland finds a means of resolving this problem.

The GSMA has not carried out any detailed investigation on this issue, but believes that there are likely to be a small number of high power Italian transmitter sites, near the Swiss

[1] Source: ITU Eye, 2007

border, that will cause problems. For example, Valcava (north of Milan and less than 50 km from the border) is a high-powered site radiating in all directions, with a high elevation. It uses channel 67 (838 – 846 MHz)[2]. This could make two 5 MHz blocks in the uplink mobile band unusable in the areas of Switzerland close to the Italian border (mobile channels 837 – 842 MHz and 842 – 847 MHz). This would also make the corresponding blocks in the base transmit band unusable. This would mean that of 2 x 30 MHz in total, 2 x 10 MHz would be unusable in some areas of Switzerland. Ideally the Italian TV site would change its antenna pattern, to reduce the amount of interference radiating into Switzerland.

Whilst we believe international pressure on Italy to reconsider its position is likely to grow, this process may take time, and timing is critical in terms of digital dividend allocations. Analogue switch-off is happening now and it is important to have strong indications of commitment as early as possible to allow for R&D investment and infrastructure planning. If decisions are delayed, solutions for mobile will become more expensive and complex and more re-planning of broadcasting networks will be required.

As Switzerland borders with many EU countries, decisions taken by the European Commission will have a significant impact. The current draft RSPG Opinion calls on the European Commission to develop a common framework work consisting of:

- Developing technical elements such as band plans
- Encouraging Member States to make the 800 MHz spectrum available
- Encouraging Member States to enter into frequency coordination agreements (and assisting them with other non Member States)

Currently, allocation of the digital dividend to mobile broadband in EU Member States is on a non-mandatory basis. It is, however, possible that – as the number of countries in favour of allocation to mobile broadband reaches critical mass – making the 800MHz band available to mobile broadband will be mandated under EU rules.

Licence Renewal Issues

The GSMA has seen the issue of licence renewal versus tender debated in a number of markets. We believe that the scenarios modelled in Section 2 of the Ofcom Analysis report may not fully capture the risks involved to consumers of the proposed course of action (of tendering the bands currently used by mobile operators). There could be a significant risk that uncertainty, that harms investment, will be created by such a process. It is also not clear where such a process has ever been carried out for all operators in a country.

The risk is that if one of the existing operators does not win such a process, then the access to the network infrastructure required by the new entrant will be complex, and there is no guarantee that a handover will be smooth. Indeed, if transmitter sites are leased from third parties there is no guarantee that they will be available to a new entrant, even if the incumbent is willing to transfer the site. The consultation makes it clear that getting access to sites is a problem in Switzerland. The worst case scenario is that one or more operators is not successful and large numbers of base station sites are not transferred to the new entrant. The new entrant will then be unable to offer a national service (or even a contiguous one). This situation might be made worse with limited access to the old incumbent's backhaul network. The risk is of serious disruption to consumers during this period of uncertainty. With nearly 9 million mobile phone users in Switzerland, the potential interruption of their service is not a trivial issue.

[2] source GE06 plan

It is not clear what the counter-balancing benefit is of this approach. As has been noted in the consultation, spectrum is available in other bands (2100 and 1800 MHz) for mobile services. If new entrants exist, they can have access to these bands. There is also the upcoming availability of 790 – 862 MHz, which could be made available at or around the year 2013 (licence renewal data). If there is a concern that the spectrum is used inefficiently or should be reallocated between existing operators, this could more easily be facilitated by allowing spectrum trading.

The cost of running a licence renewal process should also not be ignored. We have seen in the recent report by the UK Government that their solution to licence renewal is to make 3G licences indefinite. As far as the GSMA is aware, no other country in Europe has adopted a process of selling spectrum out from under incumbent operators (except in response to serious licence breaches such as failure to roll out).

Under those circumstances, GSMA recommends that the bands currently used by mobile operators should not be subject to reallocation through new invitation to tender, but through licence renewal.

SECTION 2: QUESTIONNAIRE RESPONSES

5.1 Questions concerning technological development

1. In your opinion, within what timeframe could GSM technologies be definitively superseded by technologies with higher transmission bandwidths and better spectral efficiency?

GSM technology is already superseded by such technologies. HSPA offers considerably greater spectral efficiency and far higher bandwidths. LTE offers higher bandwidths again, but with similar spectral efficiency. Higher bandwidth is achieved through utilisation of large spectrum band allocations.

In the 800MHz band, operators will provide mobile broadband services to rural communities using LTE and HSPA and to fill in mobile broadband coverage deep within buildings and other black-spots.

Technically it is possible for both HSPA and LTE to operate at 800MHz; however, the vast majority of industry momentum is for LTE 800.

2. Within what timeframe do you see the introduction of LTE (Long Term Evolution) in Switzerland, with regard to the frequency bands which are the subject of the invitation to tender (800MHz, 900MHz, 1800MHz, 2.1GHz, and 2.6GHz)? What migration scenarios do you identify with reference to the introduction of LTE in the different frequency bands?

The timing of deployment of LTE will depend on individual operators' strategies. It is unlikely that any two operators will be faced with identical circumstances, meaning there will be a broad spread of adoption strategies and associated timescales. These will range from aggressive LTE deployment in markets where demand for mobile broadband is high, to a longer-term strategy to move to LTE where the mobile broadband market is relatively new or can be addressed by HSPA and HSPA+ for some time to come. There is also a possibility that, where HSPA is

not currently deployed, the HSPA step could be skipped completely and operators will move directly to LTE.

The first LTE networks will be rolled out in 2009 with commercial services available in early 2010, probably in the US (where AT&T and Verizon have said they will initially use spectrum in the 700MHz band for LTE) and Japan.

3. In your view, should LTE transmission technology be regarded as exclusively for mobile data networks to enhance GSM/UMTS or as an integrated overall solution which also provides voice services, in a quality commensurate with that currently provided by the use of GSM or UMTS technology?

LTE creates a fundamental change in the way that services normally supported via the Circuit Switched domain are deployed, since LTE does not offer CS Domain Radio bearers. This means that operators deploying LTE have a choice of either maintaining their existing CS Domain networks through use of 2G and 3G Radio networks (and hence allowing the LTE network to be data focused), or evolving their voice delivery mechanism towards a service that amounts to an 'application' over an LTE radio bearer. Both approaches are valid and both have been considered in the development of 3GPP Standards for LTE, including interoperability between the two approaches both for Roaming and interconnection. As a result, the deployment of LTE in combination with either approach to voice support should be an operator decision.

4. In your opinion, from when will network components and terminals be available in sufficient quantities for use with LTE/ UMTS transmission technology for the 800 MHz frequency band (digital dividend) and the 900 and 1800 MHz frequency bands?

Devices supporting LTE in the 800MHz band are likely to be available within 2011 since 800MHz band allocation for LTE is a focus in many markets. However, it is likely to take three to four years to reach mass-market consumer levels, so 2014 is a more realistic date for LTE800 become a viable technology. Vendors will be keen to support operator demand for a range of devices supporting LTE800 services.

The use of the 900MHz and 1800MHz frequency bands for LTE cannot be envisaged in the near future as these bands are currently allocated to UMTS/GSM technologies. As a result, vendors may be slower to develop products to support LTE in these bands.

5. In your view, what reasons are there for or against a technology-neutral configuration of the licences?

The licensing of the 800MHz band should be made in a technology neutral manner, but also in a manner that ensures the efficient use of radio spectrum, and allows the band to be used to maximise rural coverage. For example, the coexistence of TDD and FDD is a problem, and requires large frequency guard bands for wide area systems. Given the small size of the band it will be difficult to support both FDD and TDD in this band. The industry momentum is around an FDD band plan for the 800MHz band and this is supported by CEPT.

5.4 Questions concerning frequency configuration

16. Which bandwidths from which frequency ranges do you consider appropriate for the operation of a national mobile radio network? What is the minimum necessary for the operation of a national network?

The question is complex and depends on assumptions made about an operator's business model. In theory, a GSM network could begin national operation with less than 2 x 5 MHz. However it is not clear how viable such a network would be, as it would have very little capacity.

17. Do you consider a bandwidth of 5 MHz appropriate as an allocation unit? If not, in what units, in your view, should the frequencies being allocated and why?

The current CEPT band plan specifies 5 MHz channel spaces. It would appear to be logical that Switzerland adopt the same allocation unit size consistent with the most likely outcome of the CEPT process. However, we consider units of 5MHz to be the absolute minimum size necessary when determining the size of allocation units. Any allocation based on 5MHz units must only be granted subject to ensuring that all operators allocated spectrum in a given band receive sufficient additional units as cohesive as possible (at least two) to operate services in that band.

5.5 Questions concerning environmental issues

21. Will additional base station sites be needed in the future as the result of the introduction of new transmission technologies such as LTE? If so, to what extent?

In the sub-band 790-862MHz the spectrum has excellent propagation characteristics as it is less attenuated by obstacles such as buildings. This means that approximately 70% fewer base stations are required to cover a given area than in networks operating at 2100MHz[3], leading to significant environmental benefits.

22. Will additional exposure to non-ionising radiation occur as a result of the use of new transmission technologies? What effect will new networks and technologies have on transmitter power and exposure to radiation?

Total exposure from all wireless communication technologies is currently only a small fraction of WHO (World Health Organization) safety recommendations [4] and new mobile or digital TV technologies [5] are not likely to significantly change total exposures relative to the WHO recommendations. Improved propagation characteristics (see answer to Q.21) will assist to minimise needed base station transmitter powers. The GSMA is commissioning measurements of exposures in

[3] Source: SCF Associates
[4] Schubert et al, 2007, Exposure of the general public to digital broadcast transmitters compared to analogue ones, Radiation Protection Dosimetry, 124(1):53-57.
[5] WHO, 2006. [http://www.who.int/mediacentre/factsheets/fs304/en/index.html]

public areas from mobile and wireless broadband technologies (including LTE) and the results are expected to be published in 2010.

23. How many infrastructures and networks respectively will an operator have to operate in parallel in future, at least for a transition period? How long do you estimate the duration of this transition period?

The range of mobile technologies needed will be determined by the consumer demand for various services. LTE offers some operational savings with fewer access nodes than 3G-WCDMA and significantly improved capacity. LTE has the advantage of being backwards compatible with existing GSM and HSPA networks. [6]

24. In your view, to what extent might resistance based on the fear of non-ionising radiation and spatial planning concerns impede or prevent the extension of the existing networks with additional frequencies from the digital dividend and the UMTS extension band?

The improved propagation characteristics (see Q.21) means that fewer new base stations are likely to be required and it may be possible to reuse a portion of existing locations. It will continue to be important that governments provide a stable and scientifically based policy framework. The mobile industry must also employ good practice communications[7] to respond to community concerns.

25. In your view, to what extent do planning concerns and resistance to non-ionising radiation impede or prevent the deployment of new antenna equipment by existing or additional network operators? Is the construction of an additional country-wide mobile radio network still realistic under the general conditions prevailing today?

See answer to Q24. There is evidence that the current Swiss policy framework based on the NIR (Non Ionising Radiation) regulation with installation limit values that are more restrictive than the WHO recommendations contributes to increased public concern[8]. In order to maximise the potential societal benefits of the digital dividend spectrum the Swiss authorities should also reconsider the current approach to electromagnetic fields.

26. Do you see any possibilities of using the additional frequencies to be allocated to reduce the transmission power of existing base stations?

Base station powers are determined by the need to satisfy demand for services. Improvements in propagation characteristics and the greater capacity of new mobile technologies will offer greater flexibility to mobile network operators in network configuration.

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[6] Analysys Mason, 2009. [http://hspa.gsmworld.com/upload/news/files/10032009144953.pdf]
[7] GSMA, 2009. [http://www.gsmworld.com/health/links/papers.shtml]
[8] Wiedemann et al., 2006, The Impacts of Precautionary Measures and the Disclosure of Scientific Uncertainty on EMF Risk Perception and Trust, Journal of Risk Research, 9(4):361 - 372.

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About the GSMA

Founded in 1987, the GSMA is the global trade association of the mobile industry, representing more than 750 GSM and 3G mobile phone operators across 218 countries and territories of the world. In addition, more than 180 manufacturers and suppliers support the Association's initiatives as associate members.

The primary goals of the GSMA are to ensure that mobile phones and wireless services work globally and are easily accessible, enhancing their value to individual customers and national economies, while creating new business opportunities for operators and their suppliers. The Association's members represent more than 3.7 billion GSM and 3G connections – nearly 90% of the world's mobile phone connections.

The GSMA plays a pivotal role in the development of the GSM platform and the global wireless industry. Much of the GSMA's work is focused on two areas: Emerging Services and Developing Markets. The GSMA helps its members develop and launch new services, ranging from mobile instant messaging to video sharing to mobile Internet access, which will work across networks and across national boundaries. At the same time, the GSMA is heavily engaged in the industry's push to extend basic voice, text and broadband access services to more people and assisting Administrations in developing communications infrastructure in their countries.

More information about the Digital Dividend is available on our website at:
www.gsmworld.com/digitaldividend