TERACOM

Teracom comments to the draft RSPG opinion on EU spectrum policy implications of the digital dividend

Teracom, the Swedish network operator for terrestrial radio and TV transmission, welcomes the opportunity to present its comments to the draft RSPG opinon on EU spectrum policy implications of the digital dividend.

1. Introduction

Teracom's contribution is based on our experience of operating in Sweden, where the digital terrestrial broadcasting network is one of the most developed in Europe. Digital terrestrial television, DTV, was launched already in 1999 and today five national multiplexes are in operation. After the relatively long take-up period, DTV is now a mature technology showing high growth and a successful market development. More than 1,5 million receivers have been sold in Sweden so far. The transition to digital is well under way and analogue switch-off will be finalized in October 2007.

During the 2006 FIFA World Cup, high definition services, HDTV, was offered through the terrestrial digital network in five different areas in Sweden, including Stockholm, with very positive response from viewers. Presently Teracom is also running a pilot project for mobile television in the Stockholm area based on DVB-H. Generally there is a large demonstrated market demand for further deployment of digital terrestrial services, provided that the appropriate regulatory framework is put into place and that sufficient spectrum resources remain available.

2. Broadcasting related demand for spectrum

DTV is more spectrum efficient than analogue television but to realize the switch-over, large investments in networks as well as domestic receiver equipment are needed. To motivate such investments, conditions that enable a successful market development must be provided, not least in the light of the hard competition between the television distribution platforms in operation.

One of the key issues for a successful introduction of DTV is that consumers find the digital offer attractive enough to consider the necessary investment in receiver equipment. It is essential that the terrestrial platform can compete also in terms of attractive programme offering. The digital bouquet must at least provide a significantly wider offer than existing analogue transmissions. It is our experience that there is a critical number of programme channels needed. This critical number depends on local market conditions and vary from country to country. Also the appropriate balance between pay services and free-to-air services vary from market to market. The requisite number of programmes can indeed be provided in the terrestrial platform, but only as long as the available spectrum admits. The experience in Sweden shows that a digital terrestrial network with an attractive programme offer is

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essential to get general acceptance for analogue switch-off, especially from the relatively large number of households that rely on the analogue terrestrial network for their television reception. If spectrum for digital broadcasting applications is too limited to provide the necessary market offer, then as a consequence, the digital terrestrial alternative will be less attractive, making the switch-over more difficult and reducing competition in the television distribution market.

When households, in the switch-over process, invest in a terrestrial digital receiver, they have the right to expect the terrestrial platform to be future-proof, i e being able to develop to be competitive also in the future. This includes the flexibility and capacity to provide new television channels/programmes but also to embrace new technical development and changes in market demand, e g for higher quality services such as HDTV or for mobile tv reception. Demands for better coverage, including indoor coverage, may also need to be met. Broadcasting licences generally contain coverage requirements and in most, if not all, countries at least public service transmissions are required to have universal or near universal coverage.

DTV is generally introduced in parallell with existing analogue transmissions and the requirement to protect the analogue services in certain areas gives rise to reduced coverage of the digital services. At switch-over the digital coverage must be made at least as good as the analogue coverage and sufficient additional spectrum must be allocated.

Different types of receivers for DTV are now available, including digital integrated tv sets, set top boxes, USB devices for PCs and handheld mobile receivers. All these receiver types should be considered when designing the networks and the corresponding spectrum needs must be recognized. The market driven development towards flat screens is also an issue to take into account since flat screens are generally more demanding than traditional CRT:s in terms of necessary coding bit rate.

Introduction of new technology in the networks, such as MPEG 4 coding, providing enhanced functionality and/or higher spectrum efficiency, also requires additional spectrum resources, at least during the migration process. MPEG 4 is for example needed for HDTV services. Generally it is very difficult, if not impossible, to introduce new technology in the broadcasting area without securing backwards compatibility. A simulcasting period is therefore normally needed if more extensive upgrades should be possible.

Terrestrial broadcasting in Europe is based on open standards, developed in Europe, with clear roles for different players, thus providing the basis for horisontal mass markets. Many different brands and types of devices are already available. This development needs to be supported.

T-DAB is in operation in many countries, with great success in at least some of them, using frequencies in VHF band III. To continue this development more spectrum for T-DAB must be assigned, also for audio a wide offer of programme services is essential for market success. This is very clearly demonstrated in the experiences regarding T-DAB development in different countries so far. For audio services the need for good portable indoor coverage as

well as mobile coverage is self evident. Band III is also expected to be used for multimedia applications using enhanced systems based on T-DAB, such as T-DMB and/or DAB IP.

Teracom thus finds a number of broadcasting applications that will require spectrum in the bands under consideration, such as

- increased number of television services
- digital audio services
- high-definition television, HDTV
- increased and improved coverage for digital services, including indoor coverage for portable reception
- mobile tv services for handheld reception
- data broadcasting services
- regional and local programmes
- enhanced television and multimedia services, including interactive services

It must also be possible to introduce new, perhaps presently unknown, services in the future. A certain amount of flexibility in the frequency allocations within the broadcasting service is therefore necessary.

3. Broadcasting vs other services

Teracom is of the firm view that broadcasting related needs for spectrum in the broadcasting bands must be given priority before claims from other services. The broadcasting bands provide the main possibility for further development of broadcasting related services. Restricting access to these bands for broadcasting purposes would severly hamper market development in this area. Other services competing for spectrum, N B mobile services and broadband wireless access services, already have large amounts of spectrum allocated in other frequency bands, many of them unused, thus supporting further development for those services. The existing broadcasting bands should primarily remain available for broadcasting applications and any other services should be introduced only on a secondary basis.

In particular, if uplink services were introduced in the broadcasting bands this would be very spectrum inefficient since large guard bands then would be required in order not to cause unacceptable mutual interference. This would be a waste of valuable spectrum and should in Teracom’s opinion be avoided. The broadcasting bands are internationally harmonized for downlink only and should remain so.

The GE06 agreement defines the playing field for the frequency bands under consideration, providing de facto harmonisation of planning criteria and parameters. Any introduction of services, broadcasting services or other services, must comply with the rules of GE06. The GE06 plan is designed for broadcasting purposes and introduction of other services, even if this would be technically possible, is less efficient in terms of spectrum usage. Channel bandwidth, interference levels and other regulatory provisions were established based on broadcasting requirements. It should in this context be noted that control of interference is

more crucial for digital television services than for analogue services, due to the fact that when interference to a digital service exceeds a certain level the picture is completely lost.

It should also be noted that GE06 manifests the use of European based technologies such as DVB-T and T-DAB for digital broadcasting not only in Europe, but also in Africa and in the Middle East. In order to fully benefit from this harmonisation of standards the necessary corresponding spectrum must be safe-guarded.

Furthermore, Teracom generally believes that it is too early to fully evaluate the spectrum needs for digital broadcasting and that therefore any new allocation in the broadcasting bands to the mobile service at the ITU level should wait at least until WRC-11. This is also supported by the fact that most European countries have not yet in detail considered the planned switch-over to fully digital television services. During the transition period appropriate protection of analogue services needs to be maintained.

4. Sub-bands and potential rearrangement of the GE06 plan

Teracom generally thinks that no parts of the existing television bands planned by GE06 should be excluded for broadcasting purposes and the detailed use should be subject to national decisions. Any rearrangement of the existing frequency plan means large costs, especially for those countries that has paved the way for digital switch-over and already implemented extensive digital networks. Also the impact on existing digital broadcasting licences should be studied before initiating any replanning activities.

The process for developing and agreeing the GE06 plan was extremely complicated. To reopen such a process would create severe difficulties. If a rearrangement should be tried out in Europe only, countries with non-European borders will suffer in particular, since they will have to protect the GE06 plan in neighbouring countries and accept incoming interference in accordance with the plan. Teracom's conclusion is that a formal replanning activity should be avoided as long as possible and that further development should be on a national basis under the framework provided by the GE06 agreement.

Any introduction of sub-bands for broadcasting or other purposes should be carefully studied and evaluated before being settled. Advantages in terms of terminal design and link budget may be overruled by disadvantages in terms of decreased flexibility and inefficient frequency use. For instance, if only a limited sub-band was allocated to mobile television applications, then terminals would be designed for this sub-band only and future expansion would be difficult. The introduction of sub-bands may also be in conflict with the WAPECS concept.

5. Additional comments

Teracom has noted that the information given for Sweden in item 5 of Annex 1 in the draft opinion is incorrect. The plan entries for the seven DVB-T layers in UHF are using RPC-2 and the four T-DAB layers in VHF are using RPC-5.