

**ABERTIS TELECOM COMMENTS ON THE CONSULTATION DOCUMENT
TRANSFORMING THE DIGITAL DIVIDEND OPPORTUNITY INTO SOCIAL
BENEFITS AND ECONOMIC GROWTH IN EUROPE**

September 2009

CONTENTS

1. Introduction.....	3
2. General features: flexible policy and the protection of broadcasting services.....	3
3. DTT Migration criteria and implementation dates.....	5
4. Technical and network conditions.....	6
5. Spectrum Policy of Digital Dividend.....	8
6. The Cost of the Implementation of Digital Dividend.....	10

1. INTRODUCTION

abertis telecom, the leading broadcaster network operator in Spain, welcomes the opportunity to express its views on the Transforming the Digital Dividend opportunity into social benefits and economic growth in Europe which is the object of this public consultation.

In this document, the Commission proposes the main action lines of an EU Roadmap concerning the digital dividend, and intends to rely on the future multi-annual radio spectrum policy programme, as foreseen in the reformed regulatory framework for electronic communications services which is expected to be adopted by the end of this year, as the main vehicle to achieve the endorsement by the European Parliament and the Council of its most strategic elements. Moreover, the Commission has identified two urgent actions which should be undertaken without delay.

abertis telecom recognises the importance of take strategic and concrete steps towards a common approach to the use of the Digital Dividend in Europe and outlines a set of action lines under consideration in order to meet both short term as well as medium to long term objectives. An overall EU roadmap according to these action lines can be considered as the way to achieving this common approach, but it's necessary to take into account the national particularities that could affect the achievement of the objective.

These actions have to be clearly defined, transparent, selective in nature and proportional to produce the desired effect in the market, so as not to reduce profitability and crowd out investment by market players and contribute to economic recovery of all the sectors involved without any negative impact on cultural and social aspects.

2. GENERAL FEATURES: FLEXIBLE POLICY AND THE PROTECTION OF THE BROADCASTING SERVICES.

Abertis telecom endorses the EC statement on a **flexible** approach in relation to the definition and implementation of the Digital Dividend, following the CEPT non-mandatory appraisal, to cope with the national specificities in terms of DTT legacy and future needs.

The DSO in Spain is foreseen to be done in April 2010, but the clearing of the 800 MHz band will be expensive and difficult to manage, due to the fact that we have deployed the new DTT networks mainly in the 800 MHz band. In our opinion, the Spanish Government objective to clear the band by 2015 is very challenging

It is critical to take fully into account the national circumstances as well as the future requirements on the terrestrial broadcasting services: new DTT channels, radio, interactive digital TV, high definition TV, IP Datacasting, Mobile TV, 3D TV, as a priority allocation into the UHF band 470-790 MHz.

This perspective entails additional demands from the EU Member States regarding the deployment of more MUX, or layers, than those agreed upon during the GE06 conference, which must be based in bilateral and multilateral settlements among the concerned States, following the rules of GE06, articles 4/5 in particular.

On the other hand, it is appropriate to put the emphasis on the enhanced QUALITY of the DTT services and reception, just associated to the introduction of DTT or HDTV systems, leading to the adoption of the measures to assure the level **protection of the digital TV** reception as a sheer main priority of the digital dividend process. That aspect becomes more significant considering the consumers rights and expectations unleashed by the arrival of the DTT, namely amongst the low income segment of the population.

The almost universal penetration of terrestrial hertzian TV, nowadays analog, later on digital TV, even in those countries presenting a relevant market share for CATV, Satellite DTH or IPTV services, leads to the imperative of avoiding to the FINAL USERS the bearing of the economic or operational burden of the clearing of the 800 MHz band, additionally to the costs already supported due to the DTT migration.

The evolution from analog TV to Digital TV is based on DVB-T standard, developed by the DVB Project (European Initiative). The first version of the standard was published in March 1997 and in the twelve years since then it has become the most widely adopted DTT system in the world, with more than 100 millions receivers sold in more than 35 countries. The most successful markets, with DVB-T receivers readily available for less than EUR 30, include the UK (43M), Germany (8M), France (17M), Spain (20M), Italy (11M) and Australia (2,5M).

The ITU international frequency planning conference Geneva in 2006 resulted in a new agreement, GE06, signed by more than 100 countries in Europe, Africa and Middle East. All of the signatories to this agreement will ultimately deploy DVB-T. The standard is also being adopted extensively outside these areas (Taiwan, Vietnam, Colombia, Uruguay, India, Malaysia, Indonesia ...). Following an April 2007 agreement amongst ASEAN broadcasters, the likelihood is that DVB-T will be adopted right across Southeast Asia, a region with a population of more than 500 million people.

The success of this European Technology will encourage to create a window of opportunity for the introduction of new technologies, that will facilitate the introduction of new services, but the limitation or reduction of the spectrum available for broadcast uses will reduce those developments and the success of European Technology in this environment.

Since the 800 MHz band is particularly apt to provide wireless in-building services offering very high headline speed data, it is necessary to clarify the optimal ways and means to serve the RURAL market segment, presumably viable under affordable economic conditions to demand another category of broadband multimedia services.

Further, the Resolutions 749(WRC-07) and 224(version WRC-07) establish the adequate PROTECTION of terrestrial television broadcasting, inviting ITU-R to conduct for Regions 1 and 3 sharing studies in order to protect the services to which the band 790-862 is currently allocated, or asserting that administrations

should take into account the need to protect the existing and future broadcasting stations. Otherwise, the ECC has produced the Report 138 on the performance of DVB-T receivers in the presence of interference from mobile (especially for UMTS), and further studies are needed to assess the level of protection of digital TV to resist interference from LTE signals, as adopted by the ECC Committee, June 2009.

Therefore, we propose to the European Commission to consider the adequate Protection of the DTT services and reception as one of the **FUNDAMENTALS** of the Digital Dividend Roadmap, as well as to preserve the Quality of DTT services in UHF band, extended to other advanced DTV systems, as a **strategic** component of the Digital Dividend policy.

3. DTT MIGRATION CRITERIA AND IMPLEMENTATION DATES

The principal objective of the EC COM is to elaborate a Digital Dividend Roadmap for Europe, but the Commission text is rather downplaying the complexity of the works to move the DVB-T frequencies from the 790-862 MHz sub-band to the channels below 790 MHz, 21 to 60, which should be a critical component of the Roadmap, although anticipating a "long transitional period" for the purpose. Several of the ongoing Digital Dividend plans launched by the EU Member States shed light on the difficulties of that action: technical, social or economical.

As an example, OFCOM, 30/06/2009, listed a set of criteria to clear the 800 MHz band in UK:

- a) not be a material adverse effect on DSO, digital switchover;
- b) existing and planned users(operators) of channels 61/62 should not bear extra costs to clear the UHF spectrum;
- c) the solution to be consistent with current DTT policy objectives, in particular to minimize the impact on viewers.

Moreover, along the CEPT/ECC technical endeavour to respond to the EC-RSCOM Second Mandate, a DELIVERABLE C on Rearrangement Activities for Broadcasting Services to free the sub-band 790-862 MHz, outside the scope of the Second Mandate, has been undertaken by the group ECC TG4, to be completed by next September 2009 during the scheduled meeting of the group.

The referred document, deliverable C, shows the high complexity of identifying new spectrum for DVB-T below 790 MHz, to accommodate current and future digital TV services, in accordance with the **GE06** resolutions and fully respecting the principle of equitable access to the spectrum. Multinational negotiations within the GE06 frame are required not only for the border coordination attached to the flexible, non mandatory use, technology NEUTRAL, of different services in the 790-862 band but for a coordinated introduction of DTT services within the 470-790 span.

Moreover, the internal national schemes for DTT migration are riddled with significant obstacles related to the modification of the broadcasting transmission networks or services; the potential need of new or modified aerials; the retuning of DTT reception set or antennas, etc, all actions to be implemented in parallel with

the digital switchover completion and the deployment of the upcoming advanced digital TV services.

Therefore, we propose the draft EC on Digital Dividend Roadmap to take very much into account the complexity (technical and economical) of moving DTT spectrum below 790 MHz as a critical factor to achieve the policy objectives of Digital Dividend, asking the Commission to put forward a set of DTT MIGRATION CRITERIA, in line with the quoted OFCOM approach.

Above all, the appropriate criteria on the associated COSTS must be addressed, to prevent the charging of the current or planned DTT users of the spectrum, or to avoid the conveyance of those costs to end users.

We note that the broadcasters, DTT network operators and citizens have already bear the costs of migrating from the analog TV to DTT, allowing the DSO and, hence, the digital dividend. It would be unfair to charge them again with the costs of the 800 MHz band harmonization.

We endorse the EC position of not to fix a FINAL DATE to implement the Digital Dividend (which would be in contradiction to the criteria of flexibility, and likely technical neutrality). A national date to accomplish the digital dividend, as the target of the year 2015 established by the SPANISH ADMINISTRATION is very challenging in Spain but other countries with different situations may require different dates.

Concerning the Commission suggestion to “consider proposing a final date for implementation” it is necessary to reflect on the situation after sufficient time elapsed on the application of the national Digital Dividend plans, to accumulate an adequate experience on the subject and, namely, to reach a very broad consensus amongst the EU Member States and other stakeholders, before thinking upon the definition of a “European date”.

Moreover, it is necessary to reach a more consistent technical-commercial status regarding the new LTE technology and services, in order to allow the use of the 800 MHz band by these new enhanced services.

4. TECHNICAL AND NETWORK CONDITIONS.

We endorse the proposal of ensure the availability of MPEG 4 in all DTT receivers sold after 1 January 2012, but we would prefer a more challenging one, as the date of April 2010 that Spanish Administration has proposed in Spain.

MPEG 4, as a code and compression technology, is a general accepted standard, which has been proposed by the national administrations launching country programmes for the introduction of HDTV services: France, United Kingdom, Spain, etc., thus it would be feasible, at European level, to extend its application.

Nevertheless, the deployment of HDTV systems could require that several countries ask for additional GE06 layers, increasing the demand for DTT spectrum.

The important technical work carried on by the ECC/CEPT groups on digital dividend: TG4, PT1, SE42, etc, has been aware of the convenience to arrive to an EQUILIBRIUM to have a consensus around the common least restrictive technical conditions in UHF band. CEPT Report 31 identifies a preferred frequency channelling 790-862 carefully pondering the need for additional filtering in the base stations when fixing the guard band upon the 790 boundary, or the selection of duplex gap, duplex spacing, as a function of the interference parameters, the selected option based on the allocation of the entire sub-band to the mobile services.

CEPT Reports 30 and 31 refer to other MITIGATION TECHNIQUES to be applied at national level, since the least restrictive technical conditions should not be deemed as providing full protection against the interfering signal in the adjacent channels. Such mitigation techniques must be introduced in a BALANCED MANNER IN BOTH SIDES of the 790 MHz boundary when implementing the digital dividend at national level to grant authorizations to the mobile broadband operators within the 790-862 band, having in mind that is more fair, easier and less expensive to apply the mitigation techniques on the new networks and terminals to deploy than on the networks and terminals already deployed, as it is the case of DTT in Spain.

Similar criteria for DTT or Mobile services on EFFICIENT use of the spectrum are pertinent, to concede equal importance to assure full operation of all DTT channels below 790 MHz, or to preserve the preferred channelling of Report 31.

All the measures and technical conditions have an economic and operational impact on the concerned services: DTT and ECN. An example of mitigation measure could be the positive effect of a moderate REDUCTION OF THE ECN BASE STATIONS POWER to meet the requirements of the broadcasting channels just below 790 MHz, or, on the other hand, the upgrading of TV receivers.

The upgrading of millions of legacy Digital TV sets or set top boxes entails significant extra costs and time delays mainly affecting to low income families which have no access to other digital TV platforms.

We endorse the proposal to engage CENELEC on the project in close cooperation with Member States, but particularly by means of a fruitful coordination with ETSI and CEPT/ECC to assure the correspondence between common technical conditions, European standards and quality of the equipment, but, in order to decide the use of appropriate mitigation techniques, it is necessary to take into account the time needed to define the new standard and to renew the legacy DTT receivers with the new and more resilient ones.

The European Commission intends to encourage the deployment of SFNs, single frequency networks, over MFNs, multiple frequency networks, but also recognizes that the cost of investments might exceed the potential benefits. We consider that, at this stage, is better the Commission not being involved on defining the best option for NETWORK CONFIGURATION in broadcasting transmission systems. Both modes present advantages and disadvantages, SFN's economies of spectrum might be offset by self-interference, bandwidth limitations, distances, complex synchronization, etc. It is a matter to arrange at national level pending on the technical instruments, market or quality demands, or legacy conditions.

Same reasoning is valid regarding the suggestion to "migrate progressively to lower power-higher density" networks. There are many variables to shape the network

topology in a region: market demand, transmission costs, quality assurance, advance multiplexing, etc, to be pondered at national level based on the broadcaster's needs and the objectives of the DTT deployment and coverage..

In the case of DVB-T2 standard, the analysis of the significant costs of introduction and the related cumbersome process of substitution offer no clear picture when compared with the benefits on performance. The DVB Project Office says the transition from DVB-T to DVB-T2 will need to be managed very carefully, **if such a transition happens**, to remark the viability of terrestrial HDTV services without using DVB-T2, as well as to forecast a long period of coexistence between both systems more than an outright replacement. It would be an issue to assess at a national level.

In our opinion, from an European perspective, the sheer priority should be the achievement of Digital Switchover national plans and the general access to DTT reception, better than pushing on the convergence on some particular network-architecture disputable solution.

5. SPECTRUM POLICY OF DIGITAL DIVIDEND

The communication of the European Commission, notably the "EC study" appears as giving full support to the national initiatives to open the 800 MHz to wireless broadband services, even the allocation of the whole sub band to those new services, as the "most pragmatic way forward". CEPT has elaborated a non mandatory, flexible approach, to a "preferred solution", Report 31, including some "second best" alternatives concerning the partial use of the 800 MHz for other primary services including broadcasting. This FLEXIBLE concept should be part of EC policy and Digital Dividend **Roadmap**, to integrate those Member States which cannot cope with the moving of digital TV spectrum.

The principal virtue of the CEPT arrangement is to have only one spectral point of adjacency, 790 MHz, to ease the interference levels from the mobile terminal stations over the DTT reception. The drawback is to oblige to administrations, broadcasters, operators, to undertake a very complex migration of the current DTT frequencies to lower UHF spectrum under the auspices of GE06 agreement without altering the structure of this international treaty. Some of the candidates mobile technologies to use in the 800 band, LTE, has not been adequately tested in commercial terms, **therefore** the policy measures must be referred to the EVOLUTION of the technology and market DEMAND of those services, leaving apart the costs of the new investments to capture that market.

The use of the 800 MHz for broadband services cannot be treated in ISOLATION. Other frequency bands are available for the same purpose. The European Commission/RSCOM, radio spectrum committee, has just produced a new Mandate to CEPT upon the 900/1800 band to study the technical conditions to deploy LTE in those bands, apart to examine other technologies besides LTE for the same purpose and investigate the insertion of UMTS services beyond 960 MHz.

That comes after France launched five years ago the REFARMING of the 900/1800 band for mobile broadband to demonstrate the compatibility between GSM and UMTS channels. ARCEP, the French regulator launched an open consultation regarding the allocation of 800 MHz/2.6 GHz for mobile broadband services, looking

after an integrated policy and decisions on authorizations on 800/900/1800/2600 MHz for UMTS/LTE systems. Digital Britain and OFCOM have announced the future call for a big auction oriented jointly to 800 MHz and 2600 MHz, at the same time to open, short term, the 900 band for mobile broadband systems, having similar performance than 800 MHz signals on in-building penetration.

Therefore, the opening of the 800 band should be presented under the umbrella of a COMMON POLICY on the suitable bands for IMT-Mobile Broadband services, in accordance with WRC-07 decisions, having in mind the actual performance of commercial technologies and tested market demand. That means getting sufficient fresh spectrum for Mobile Broadband in the 900 band (short term), or within the 2600 band (medium term) to ease the pressure upon the very crowded 800 MHz band.

It is of **strategic** importance to avoid any proposal to further insert other systems into the UHF, 470-790 band. The implementation of the Digital Dividend should be accomplished by means of a timely coordination with the culmination of DSO, digital switchover, the migration of DTT frequencies, the launch of advanced Digital TV services, etc. GREAT UNCERTAINTY is created among broadcasters, manufacturers, investors, or the administrations managing the national DSO plans when some European initiatives or studies put forward potential actions leading to unleash additional disturbances on the very complex articulation of UHF band.

Innovative technologies like the usage of **white** spaces, the introduction of **cognitive** radio systems, etc, deserve a previous calm and deepen technical and commercial analysis with the support of CEPT/ECC and Member States, at European level, without prejudging the merits of private or national undertakings.

CEPT ongoing work on digital dividend, so far, has some incompleteness concerning the **actual LTE data**, hence the ECC decided to develop a new Report on the measurements of the performance of DTT receivers in front of mobile service(especially for LTE).

Many of the arguments to justify the opening of 800 band for mobile broadband are based on the superior features of LTE, which might offer a much higher transmission flow, up to 150 Mbs; lower latency; a common TCP/IP layer; a different multiple access, SC-FDMA, than WCDMA, based on DFT algorithms, discrete Fourier transform; flexible channel bandwidth; MIMO multiple antennas, etc, several of them susceptible to affect the definition of the least restrictive technical conditions, in particular those related to the PROTECTION of DTT receivers, or to modify the selection of the appropriate mitigation techniques.

Similar reasoning can apply to the case of **Portable** DTT reception interfered by IMT adjacent services, likely in need of additional technical studies on the best parameters for the protection of DTT portable reception. Otherwise, the representatives of the CATV industry, Cable TV, have provided to the ECC groups the technical elements to show the risks of **harmful** interference produced by mobile broadband signals in the vicinity of the CATV digital reception devices. The continuation of those studies depends on the identification of the proper institutional frame on electromagnetic compatibility, but it deserves a serious attention.

Therefore, our point of view is that the EC should have very much into consideration the pending ECC studies on the protection of DTT receivers interfered by LTE signals, Portable DTT reception, or CATV interference, as critical **elements of the Digital Dividend Policy and Roadmap**.

The protection of both services, mobile and broadcasting, and the treatment given to the definition of the technical measures on both sides of the 790 MHz boundary, should be confirmed in the Digital Dividend Roadmap and Policy.

Mitigation techniques have to be fixed at national level, to take very much into account the economic and operational implications on networks and services.

Moreover, the objective of the EFFICIENT use of the spectrum has to be a common feature of different services deployed over the 800 MHz band.

Existing or planned DTT services in Channels 59/60 require a sufficient degree of protection, preventing any sort of **subordinated** status for the broadcasting services, on the other hand impelled to migrate to new frequencies and suffering the impact of that action.

6. THE COSTS OF THE IMPLEMENTATION OF DIGITAL DIVIDEND.

The readiness of the European Commission to collaborate with the European Parliament and the Council on the decisions associated to the formal harmonization of the 800 MHz must be appreciated, following the path of the Multi-Annual Policy Programme, MAPP, expected to be finally enforced as part of the new Telecom Directives. To this end, we deem it quite significant to provide to the MPs and Member States all the technical and socio-economic inputs, background information, etc, to support their decision-making process on a rather sensible policy decision.

European institutions are in the best position to integrate the national priorities shaping the practice of the digital dividend. The preference given to the completion of the DIGITAL SWITCHOVER and the target of an almost 100% coverage to deploy DIGITAL TERRESTRIAL TV are principal priorities in almost all the EU Member States, in many cases supported by a specific Law.

Therefore, a common EU Policy and ROADMAP on digital dividend shall be compatible with the national priorities on DSO and DTT coverage, which implies the adequate protection of DTT services as one of the most strategic components of it, to preserve the rights of the European citizens to receive a high quality DTT signal.

To meet the COSTS attached to the clearing of the 800 MHz is a crucial exercise to make viable the objectives proposed by the European Commission, based on the consensus among the interested parties. Without a clear picture on this subject the digital dividend risks to become blocked or derailed, unleashing more **uncertainties** about the implementation of the digital terrestrial TV.

A good reference would be the document Digital Britain published by the UK Government, jointly with the OFCOM statement issued June 30, 2009, which establish several categories of COSTS associated to the DTT spectrum migration, to

conclude the British Government decision and policy to cover those costs by means of PUBLIC FUNDING.

We REITERATE the need to adopt a balanced set of technical measures since they can modify the infrastructure of the network or the costs of the terminals, instead of pointing out to a particular remedy: the upgrading of TV sets.

The CEPT Reports 30/31 show the advantages of limiting the EIRP in block power of the mobile Base Stations to ease the compatibility between both signals in adjacent bands.

On the other hand, the installing of rejection filters in DTT receivers, as an example, might alter the spectral budget link, so likely affecting to DTT coverage and DTT cell size which implies additional costs and re-engineering of the system, besides the need to renew or adapt the legacy DTT receivers by the citizens.

Several millions of households were estimated as susceptible of going through changes on the roof aerials, the retuning of TV sets, or even the change of the DTT receivers in case of not to adopt appropriate mitigation techniques, just after to have bear the costs of the DTT migration.

Even in the case that appropriate mitigation techniques have been adopted, the clearing of the 800 MHz band will result in costs of:

- a) the spectrum migration and planning;
- b) the re-engineering of the transmission system and infrastructure;
- c) the citizen's aerials modification (mainly the collective aerials)
- d) the simulcast of the moving DTT emissions to allow the aerials modification.
- e) communications and support to the citizens;
- f) programme management.

A further intangible but sensible cost would be the people confusion on the completion of DTT deployment, due to changes associated to the digital dividend, if the action is not properly managed or there are interrogations upon the bearing of the migration costs, pervading a certain alarm among the population.

Therefore, the European Commission would have a perspective on the importance of the implementation costs and the main common criteria to manage them by means of a good cooperation with EU Member States. Following the UK approach, and taking into account that the broadcasters, DTT network operators and citizens have already bear the costs of migrating from the analog TV to DTT, allowing the DSO and, hence, the digital dividend, a general understanding has to be reached as to assert that neither of the current users of the 800 MHz spectrum (DTT broadcasters, DTT network operators and families and citizens), will have to bear the costs of clearing the 800 MHz band, and that these cost will be public funded in a proper manner, fully respecting the peculiarities of each Member State.

As part of the Digital Dividend Policy and Roadmap the Commission is in the best situation to offer guidelines and coordination to transmit to the European citizens the necessary **confidence on the DTT deployment**, to give answer to the

possible uncertainties coming out as consequence of the complexity of going through to DSO, the clearing of the 800 MHz band and the harmonization of the digital dividend, and the introduction of HDTV and other advanced digital TV systems. A successful DSO process is **INDISPENSABLE** to have an applicable and cost affordable harmonised DIGITAL DIVIDEND.