

REPORT OF THE PUBLIC CONSULTATION ON THE DIGITAL DIVIDEND

I – FRAMEWORK

According to Law number 5/2004, of 10 February (ECL) it is incumbent on ICP – ANACOM, among other regulatory aims, “to promote competition in the offer of electronic communications networks and services, resources and associated services”, “to contribute to the development of the European Union internal market”, and “to protect citizens’ interests” (article 5). It is ICP-ANACOM’s particular responsibility, in pursuing the first of these objectives, “to foster an efficient use and ensure an effective management of frequencies”¹.

In the same sense, within the scope of spectrum management, the ECL also establishes that it is ICP - ANACOM’s responsibility to plan frequencies according to the principles of radio spectrum availability, guarantee of effective competitive conditions in the relevant markets, and the effective and efficient use of frequencies².

By way of corollary, it is incumbent on ICP-ANACOM to allocate and assign frequencies, in accordance with objective, transparent, non-discriminatory and proportional criteria³.

Within this framework, and given powers set out in ICP – ANACOM’s Statutes⁴ to manage spectrum, to promote public consultation procedures and to collect expressions of interest⁵, as regards the technical representation of the Portuguese State both in international and Community bodies, by determination of the Management Board of 25 March 2009, it was determined to launch the consultation procedure at stake and to approve a document including the issues to be submitted to the market’s opinion. This determination established that the consultation period would run from 30 March until 13 May.

Given the relevance of the matter opened for discussion, the consultation registered a strong participation from a wide range of market stakeholders, originating a cascade of requests for an extension of the deadline to submit contributions, from entities that, despite their efforts, were not able to submit their contributions within the deadline set up originally, or that submitted such contributions belatedly.

Having regard to the fact that this public consultation is framed within ICP – ANACOM’s set of discretionary powers, that no time limit had been legally established and given the importance of the issue, it was determined that all contributions submitted to this Authority until 22 May would be accepted, being also accepted all responses received at the premises of this Authority during the original time period and up until the expiry of the new deadline⁶.

In this context, in the course of the consultation procedure, responses were received from the following entities:

ACCESS PARTNERSHIP, representing Dell, Google and Microsoft, hereinafter referred to collectively and at their own request, as “GRUPO INFORMAL”;

ALCATEL-LUCENT PORTUGAL, SA (ALCATEL-LUCENT);

APRITEL, Associação dos Operadores de Telecomunicações (APRITEL)⁷;

¹ Article 5, paragraph 2 d) of the ECL.

² Article 15, paragraph 2 of the ECL.

³ Article 15, paragraph 3 of the ECL.

⁴ Published in annex to Decree-Law number 309/2001 of 7 December.

⁵ Article 6, paragraph 1 b), c), f), m), o) and r) of the Statutes.

⁶ According to Order of 18 May 2009 of the Chairman of the Management Board, under paragraph 3 of article 29 of the Statutes of ICP – ANACOM.

⁷ Whose contribution AR TELECOM declares to endorse.

ASSOCIAÇÃO PORTUGUESA DE IMPRENSA (APIMPRENSA);

ASSOCIAÇÃO PORTUGUESA DE RADIODIFUSÃO- APR, in a joint response with **ASSOCIAÇÃO DE RÁDIOS DE INSPIRAÇÃO CRISTÃ- ARIC (APR/ARIC);**

AR TELECOM – Acessos e Redes de Telecomunicações, S.A. (AR TELECOM);

CABOVISÃO – Televisão por Cabo, S.A. (CABOVISÃO);

GRUPO MEDIA CAPITAL, SGPS, SA (MEDIA CAPITAL);

GRUPO PORTUGAL TELECOM, on behalf of Portugal Telecom, SGPS, S.A., PT - Comunicações, S.A., PT Prime — Soluções Empresariais de Telecomunicações e Sistemas, S.A. and TMN – Telecomunicações Móveis Nacionais, S.A and PT Inovação (GRUPO PT);

GSM ASSOCIATION (GSMA);

NOKIA in a joint response with **NOKIA SIEMENS NETWORKS (NOKIA);**

ONITELECOM – Infocomunicações, S.A. (ONITELECOM);

RTP – Rádio e Televisão de Portugal, S.A. (RTP);

SIC – Sociedade Independente de Comunicação S.A (SIC);

SONAECOM, Serviços de Comunicações, S.A. (SONAECOM);

VODAFONE PORTUGAL – Comunicações Pessoais, S.A. (VODAFONE);

ZON – TV CABO PORTUGAL, S.A. (ZON).

A contribution was also received from a body that requested to remain confidential.

We thank for all responses from participants, which shall unquestionably enrich this Authority's decision-making process.

All replies received, except for the one for which confidentiality was requested, are publicly available at ICP – ANACOM's website at www.anacom.pt.

II – SUMMARY OF RESPONSES

As referred in the document submitted to consultation and in the light of the current stage of development of the digital dividend, both at international and national level, this consultation is part of an information gathering process that will support ICP - ANACOM-ANACOM on a future decision on this matter.

It does not and should not replace the consultation procedures provided for in article 8 of the ECL and in the remaining legal provisions which apply within the legal framework in force.

ICP - ANACOM now needs to draw up a final report with the main conclusions resulting from this procedure. In this sense and given doubts explicitly raised, this document is a summary of positions taken by respondents and of this Authority's general view on the subject.

The position hereby conveyed to the market, more than a target in itself, should be taken as a starting point and a guideline underlying decision-making processes which will subsequently take place, and which are expected to be participated in the same degree.

Due to the strong involvement in this consultation and to this Authority's option to draw up a brief report oriented towards responses to issues actually raised, contributions have been aggregated in order to identify the main positions at stake.

Moreover, as some of the participants in this consultation procedure chose to reply to questions referred in a general fashion, their positions are mentioned in the scope of concrete issues, where views expressed concern the matter.

This report is thus not intended to be a detailed account of replies received, and for this reason it is necessary to consult contributions on which it is based and which are publicly available, where not identified as confidential, at www.anacom.pt.

1. What is the desired impact of using the digital dividend at the economic and social levels, among others?

As regards the question on the desired impact of the digital dividend, ALCATEL-LUCENT, APRITEL, CABOVISÃO, GRUPO INFORMAL, MEDIA CAPITAL, GRUPO PT, GSMA, SIC, SONAECOM, VODAFONE and ZON see it as an opportunity to create wealth for the country and to correct the so-called “digital divide”.

This is further supported by the entity that requested to remain confidential.

Its potential impact at a social, cultural and economic level is acknowledged, being regarded in this context as an important tool for audiovisual and communication policies and a factor promoting the freedom of speech, pluralism and diversity.

In these circumstances, it is deemed that the dividend may contribute to national cohesion, and to tackle the present crisis, both domestically and internationally.

All those who provided an opinion to this effect agree that the dividend is an opportunity for the provision of new services and innovative solutions at better prices, and consequently for the development of the information society.

APRITEL, CABOVISÃO, GRUPO INFORMAL, ONITELECOM, SONAECOM, VODAFONE and ZON integrate this issue at a supranational level, mentioning Community initiatives in this scope and the advantages of a European and international harmonization, as a factor which will create benefits to the introduction of new communication services and economies of scale, resulting from the development by manufacturers of common equipment.

VODAFONE’s position in this scope should be stressed, as it starts by considering that frequencies to be released, as regards the process of transition from analogue to digital television, are enough to meet all applications from interested parties, further highlighting the boost provided by the activity developed by mobile services, namely through mobile broadband, to the economic, social and cultural growth of the country, referring in this context the need for a specific action plan for the electronic communications sector in Portugal.

The need to maximize the digital dividend potential is pointed out by ALCATEL-LUCENT, CABOVISÃO, and GRUPO PT, as well as by the body that requested confidentiality, as a weighting factor for options taken in the future by ICP - ANACOM.

In this regard also, APRITEL, AR TELECOM and GRUPO PT refer the need to clearly define the digital dividend’s subject-matter, considering that this matter should not be dissociated from a general spectrum management policy, neither from issues such as the transmission of rights of use for frequencies, the secondary trading of spectrum, its license-exempt use, or conditions involving technological neutrality. APRITEL also mentions the need to avoid a transition leading to market distortions, namely in markets based on the availability of spectrum.

2. What role do you consider the EU should have in the coordination of the ways to use the digital dividend? Which possible harmonization level, in which frequencies and for which type of service do you consider would be desirable by the EU?

In the scope of the response to this question, ALCATEL-LUCENT, APRITEL, AR TELECOM, CABOVISÃO, GRUPO INFORMAL, GSMA, NOKIA, ONITELECOM, SIC, SONAECOM, VODAFONE, ZON and the entity who requested to remain confidential fully supported the idea of harmonization. Without prejudice, some of these entities, namely APRITEL, AR TELECOM, CABOVISÃO, SONAECOM and ZON, stressed the need to balance national and Community intervention, on account of discrepancies among Member States, which require a flexible course of action and consequently the maintenance of spectrum management powers at national level, the need for a Portuguese-Spanish coordination being also emphasized. APRITEL sets off that a coordinated action at European level should not mean that the European Commission should prevail over national competences on spectrum management and CABOVISÃO underlines that National Regulatory Authorities should be endowed with the sufficient degree of flexibility to meet local needs at national, cultural and market levels.

A set of proposals put forward by this group of bodies, that favoured harmonization, are now presented, as regards specific means of intervention and frequency bands.

ALCATEL-LUCENT suggests coordination at political level (involving the Council and European Parliament) - by means of a Recommendation to Member States to provide part of the digital dividend in the UHF band for Mobile/Fixed applications – and at technical level, by acknowledging, possibly through a European Commission decision (in a comitology procedure), CEPT's technical work so as to define an agreement on channels and less strict technical conditions for the introduction of UHF Mobile/Fixed communications networks.

APRITEL takes the view that ICP - ANACOM should promote the harmonization of the 790-862 MHz sub-band at European level, especially as regards IMT systems, an issue with which GSMA, NOKIA, ONITELECOM, SONAECOM, VODAFONE and the entity who requested confidentiality agree. NOKIA adds also that in its opinion all other possible uses/services would benefit from harmonization (common spectrum, frequency plans, etc.), which should be supported by the EU.

CABOVISÃO deems that a coordinated Community approach as regards spectrum would be fundamental, combined with the removal of over-prescriptive regulatory constraints, stating that social, cultural and political considerations must be taken into account in line with article 151 of the Treaty. In this context, CABOVISÃO underlines that part of the dividend should be reserved for European harmonization purposes, which should be viewed in the framework of a viable implementation of pan-European services, including the common adoption of flexible approaches to spectrum management, such as spectrum trading, license-exempt use or even the resort to auctions for the purpose of allocation of frequencies, namely as regards the conditions and modalities of such sales, and the usage of such revenue.

GRUPO INFORMAL considers that upon conclusion of the study by ECC on technical and operational requirements of cognitive radio systems, European regulation on the harmonization of the 470-790 MHz frequency band would facilitate the provision of innovative devices at competitive prices for consumers.

SONAECOM, although supporting that the EU should play an active role, takes the view that EU's mandate to CEPT to carry out all technical studies on the digital dividend is fundamental for future decisions on the matter, and for this reason any suggestion put

forward at this moment would be pending on the conclusions reached in those studies, especially in the scope of issues related with (i) border coordination of mobile services in a country and broadband service in a neighbouring country, which is essential to Portugal given the need of coordination with Spain, and; (ii) a Recommendation on a possible reschedule of the broadcasting service, to release the 790-862 MHz sub-band.

VODAFONE emphasizes also, in the scope of its response to this question, that as there are services provided on multiple frequency bands, the uncertainty or delay of decisions affecting UHF bands will also affect investment decisions for other bands.

On the other hand, GRUPO PT, MEDIA CAPITAL and RTP are not as supportive of harmonization.

GRUPO PT, although acknowledging that only a committed EU coordination will protect national interests, believes that the European Commission should only promote and monitor coordination actions which are strictly necessary to render operational the strategic guidelines set out by the European Parliament and RSPG, essentially on the interoperability of systems at European level, in view of the single market. Notwithstanding, it agrees that the European Commission should promote “guidelines” based on experience and best practises, being incumbent on National Regulatory Authorities to decide how to apply them at national level. GRUPO PT thus admits harmonization in situations where the development and self-assertion of European industry, benefits for consumers and strengthening of the internal market are at stake. It supports also the idea that exclusive digital dividend management powers should be given to ICP - ANACOM, covering the UHF band, considering that national reality and interests must be carefully weighed against Community and regional interests. GRUPO PT actually disagrees with European Commission’s proposal for three management models for the three UHF sub-bands, deeming that they would not serve best the objective of the European Commission, nor national interests. It further declares that the harmonization of the 790-862 MHz sub-band should not be regarded as an imposition from the European Commission, but should rather be discussed in a wide and weighted manner, given its relevance and appropriateness to the sector, notwithstanding the need to assess its impact in the light of the current situation, international coordination and transition process. GRUPO PT, however, points out that mobile television is one of areas where harmonization would be useful, so as to reap benefits from a wider market.

MEDIA CAPITAL states that the use of spectrum is attached to strategic national goals, which differ from one Member State to another, and for this reason it does not support full harmonization throughout Europe. It underlines the fact the legislative alterations on electronic communications at EU level are still ongoing, and given that spectrum policy differences between Member States are very visible, the intervention of EU’s bodies in this scope should be reduced to a mere coordination, in order to avoid harmful interferences in spectrum the management of which is incumbent on each Member State. MEDIA CAPITAL admits, at the most, a harmonized use of some frequency bands, namely for the provision of pan-European mobile telecommunication services, in case demand and a model of a viable business are demonstrated.

RTP considers that the use of digital dividend spectrum as regards broadcasting activities should reflect the country’s situation. In spite of acknowledging that a better cooperation as regards spectrum policy between Member States could lead to a more efficient use, it considers that it would be difficult to harmonize the use of the digital dividend at European level, as markets radically differ, and the date on which the digital dividend is available is also not the same. For this reason, national authorities should be

free to decide the necessary critical mass of Digital Terrestrial Television (DTT) in the respective markets.

RTP highlights also that the European Commission's proposal to create three sub-bands, for broadcasting, mobile television and access to broadband fixed and mobile systems, would imply remaking part of the GE06, and it would not be as consensual to allocate sub-band 790-862 MHz to mobile services, in fact in Portugal this would pose added difficulties to the implementation of DTT, as channels 61 to 69 are covered.

APIMPRENSA declares that the harmonization should be gauged at technological level, depending on a possible cross-border evolution.

APR/ARIC disagrees, for the time being, with the proposal to divide the UHF band (470-862 MHz) between broadcasting and other services.

3. Do you consider that the use of the digital dividend overall should favour (i) strengthening the television service in diversity and quality (such as more television services and programmes, HDTV, regional and local television, etc.), (ii) new convergent services and multimedia (for example, mobile cellular services, emergency services etc.) (iv) other services?

On this matter, APR/ARIC believes that all available spectrum should be reserved for broadcasting purposes, a position which is shared by MEDIA CAPITAL, which also highlights the importance of spectrum for the reinforcement of accessibility measures for citizens with special needs and for PMSE (programme-making and special events) services. In APR/ARIC's view, the Television Law, which provides for regional and local television, raised many expectations, and for this reason it would be negative if in the future no spectrum was available to meet society's needs.

In APIMPRENSA's opinion all bandwidth should be reserved for HDTV purposes.

NOKIA states that the 7 coverages reserved for all countries in the RRC-06 should be used for broadcasting purposes, including the evolution of BC technology, and that the 790-862 MHz should be reserved for IMT.

ONITELECOM declares that as the digital dividend is an opportunity for better competition opportunities among operators, favouring new electronic communications offers and advanced services at better prices, this possibility would only be a fact where the appropriate conditions were created to use and allocate released frequencies. This would imply, in the view of that company, that such frequencies were not allocated to mobile operators, who already hold dominant market positions. Fixed network operators, in ONITELECOM's opinion, should thus be allowed to access released bands to supply alternative mobile/nomadic BWA services.

RTP states that the reinforcement of television services and mobile TV should be privileged, a position with which SIC agrees, that the creation of a sub-band for mobile services does not fully solve the problem of interferences and that, as regards mobile television, the creation of a specific sub-band would not be necessary, as interferences between these services are easily solved through the use of DVB-H and broadcasting for fixed reception.

In SONAECOM's perspective, the allocation of the digital dividend may cover different services, however the allocation thereof to mobile broadband networks is obvious: the latter are info-inclusion tools, its use has a high power to create value and they are important for the offer of services in areas where fixed broadband is deficient, such as

rural areas. SONAECOM puts forward also the possibility of its use as far as mobile television services are concerned. As regards allocating spectrum for local and/or regional television programmes, it considers that there is not a strong interest in generating these contents for distribution in terrestrial television platforms; on the contrary, Internet-based distribution should be privileged to enable the population to access local and regional contents regardless of its location.

GRUPO PT considers that a use or uses which maximize global benefits should be defined, however the allocation of the digital dividend should only take place after some aspects are clarified: (i) the amount of the digital dividend; (ii) its division between the different bands, identifying those where demand is concentrated; (iii) the existence of adjacent uses, with the identification of any constraints; (iv) whether the allocated spectrum will be effectively used by existent applications or not and (v) in case the allocated and reserved spectrum is effectively necessary and sufficient, on what grounds can more spectrum be requested.

As regards the questioned specific uses, the PT Group stresses that there are no reasons of substance to privilege the allocation of spectrum to the television broadcasting service. The evolution should involve the provision of content in alternative platforms, namely mobile television, which enable access regardless of the place and time. It deems that a band for mobile TV should be identified immediately, as its growth is currently limited by technological aspects, however the allocation of digital dividend spectrum should not be privileged.

It considers that digital dividend bands should be reserved for broadband mobile services and for other broadband electronic communications services, namely access services, which contribute to the development of the Information Society. In addition, consideration should be given to the allocation of spectrum to promote SRD applications, cognitive radio networks, RFID and PMSE, as well as to the use of nomadic access broadband, based on home networks, to complement the provision of mobile broadband services.

VODAFONE supports, based on the results of studies carried out by Analysys Mason⁸ and Spectrum Value Partners⁹, a model of spectrum sharing between mobile communications and broadcasters.

ALCATEL-LUCENT declares that it is possible to combine HDTV programmes with the introduction of new services in the UHF band, such as the introduction of Mobile Cellular networks for broadband applications and the introduction of PPDR systems.

APRITEL is of the opinion that the use of the digital dividend should be as open and flexible as possible at the level of the different services. It acknowledges its importance for the development of broadband mobile, fixed and nomadic services, mobile television services and high-definition television.

AR TELECOM takes the view that some uses should not be privileged where their assumptions are subject to future alteration, but stresses the high prices of mobile services relatively to fixed ones and, as such, the need to guarantee guiding criteria of the relative merit of the different applications for spectrum. Highlighting the option for

⁸ Analysys Mason, "Valuation of the Digital Dividend in France" – 27 May 2008, [http://www.analysismason.com/PageFiles/4324/Valuation%20of%20the%20digital%20dividend%20in%20France%20\(English%20Version\).pdf](http://www.analysismason.com/PageFiles/4324/Valuation%20of%20the%20digital%20dividend%20in%20France%20(English%20Version).pdf)

⁹ <http://www.spectrumstrategy.com/Pages/GB/perspectives/Spectrum-Getting-the-most-out-of-the-digital-dividend-2008.pdf>

wireless networks, it deems that the preference for mobile offers over fixed ones would represent a cannibalisation of the digital dividend's potential for the promotion of competition, as much of the mobile market concerns business groups that also operate fixed networks.

The entity that requested to remain confidential is of the opinion that spectrum should be allocated to broadband mobile services.

For GSMA, the UHF band is able, on account of its characteristics, to be shared among mobile services, television services and potentially other service providers.

CABOVISÃO focuses the mobility of radio technologies, as a factor of acceleration of broadband implementation. These broadband communications may also contribute, in the EU, to the interoperability of essential public safety applications, and may be used in future innovative broadcasting services. In addition, it stresses other categories of use, exempt from licenses, by non-commercial, educational and local community service providers, with a public service mission, supporting the allocation of spectrum to television broadcasting companies, in view of the fact that UHF band frequencies are the only ones which are appropriate for television broadcasting purposes.

4. How do you evaluate and quantify (with as much detail as possible) the socioeconomic impact of the different ways of allocating the digital dividend, particularly the one you support in the response to the previous question?

Although ZON does not mention an actual use for the digital dividend, it mentions that this is an important matter as far as the development of the Information society and the combat against info-exclusion are concerned. Notwithstanding, it mentions also that the economic impact will depend on how issues such as technological neutrality, interoperability of services, non-discrimination, scope and sharing of spectrum, are dealt with.

ONITELECOM emphasizes the high prices of mobile services in relation to fixed services, both for data communications and for internet broadband access. On the other hand, it believes that the use of BWA technologies enables the construction of more efficient networks supporting fixed, nomadic and mobile services, and for this reason the provision to the market of advanced and competitive services, more functional and at better prices, is very likely.

RTP stresses that in case broadcasters have to support additional costs, the investment in European content will fall sharply. It also states that at this stage broadcasters are in a transition to becoming content producer/distributors, and this enables partnerships and new platforms, the common model of broadcasters with their own network becoming outdated.

SIC recalls in the scope of HDTV the preamble of the Recommendation of the Council of Ministers number 12/2008, of 22 January. On DVB-H, it stresses its value as regards the combat to info-exclusion and the increase of the consumption of television outside common time-slots, which will contribute, on its turn, to the increase of advertising investment in television.

NOKIA and SONAECOM refer in this scope the study carried out by Spectrum Value Partners mentioned in the previous question, which demonstrates the gains which can be obtained by allocating part of the spectrum to mobile services relatively to broadcasting services, a conclusion which is shared by MEDIA CAPITAL and ALCATEL-LUCENT.

GRUPO PT agrees with the assessment of the European Parliament and with the estimate referred in the joint declaration signed by Commissioner Viviane Reding and the head of RSPG, at the end of a meeting held on 7 April.

It is of the opinion, just like the entity that requested confidentiality, that the main priority for the UHF band should be the allocation of spectrum to broadband mobile services and other broadband access services, so as to ensure a wider coverage throughout national territory, contribute to lower info-exclusion and minimize the digital divide, improving the conditions of access to the service. It takes the view that these aspects will affect the performance of economic activities that depend on the internet. It further notes that the allocation of the dividend to mobile TV could improve the quality and extent of the service. Lastly, it supports that applications concerning security services should not be accommodated in the UHF band.

According to MEDIA CAPITAL, the economic value created by mobile telecommunication businesses is higher than that which broadcasting operations can generate; nevertheless, and having regard to the social role of the broadcasting activity and its direct access to population, it deems fundamental that broadcasting bodies are not unable to make business plans where the component of access to telecommunications networks and the component of content distribution may contribute to business results.

On the basis of studies mentioned in the previous question, VODAFONE stresses that a shared allocation would have a much more positive effect, as far as the GDP is concerned, than an allocation solely to broadcasting activities. It refers also that, given the weight of the electronic communications sector, especially of mobile communications, in the GDP, the allocation of spectrum to this sector would boost innovation, with positive repercussions in the scope of employment and productivity.

APRITEL deems that services that satisfy the mobility requirement will step up the exploitation of the social, cultural and economic broadband potential, as a means of combat against info-exclusion and of promotion of productivity and well-being. At the level of terrestrial television broadcasting, the released spectrum will enable the increase and improvement of the television programming technical quality, a position with which GSMA agrees.

5. In your opinion is the digital dividend suitable for a uniform application all over the national territory or should a more varied use be considered depending on the area of the country?

ALCATEL-LUCENT, MEDIA CAPITAL, GRUPO PT, RTP, SIC, SONAECOM, VODAFONE and the body that requested to remain confidential plead in favour of a uniform application throughout national territory, considering unanimously that this would benefit coordination at national and international level as well as among the different operators and services, allowing an optimal use of spectrum.

Nevertheless, it should be noted that GRUPO PT and ALCATEL-LUCENT support this uniform application as regards the UHF band only; as other bands are concerned, GRUPO PT takes the view that it would be premature to decide whether applications should be uniform throughout national territory.

On its turn, APRITEL seems to support a different application according to the areas of the country, as it declares that the specific conditions of the country at a socio-economic, demographic, orographic and geographic level force solutions that meet national as well as regional needs, as far as the dividend is concerned.

ONITELECOM considers that the dividend allows multiple applications, and admits the definition of both national and regional coverage.

ZON feels it would be premature to indicate whether applications should be national or regional, and supports a case-by-case analysis as well as the weighting of costs and benefits.

6. What do you consider to be the appropriate spectrum distribution for the several types of use? Or do you consider it is more appropriate to adopt a technological and/or service neutrality criteria and that the market should decide on its potential uses?

As regards the appropriate spectrum distribution for the several types of use, SIC states that this distribution should at the least ensure that HDTV and DVB-H broadcasts of all multiplexer A national television channels on the DTT platform have national coverage. It adds that the possibility of reserving spectrum for more DVB-H channels, to be operated by owners of multiplexer A national TV channels on the DTT platform, should be provided for.

APIMPRENSA is of the opinion that all remaining bandwidth should be reserved for high-definition television.

ALCATEL-LUCENT supports the definition of separate sub-bands for radio broadcasting and mobile access applications.

GRUPO PT stresses that information available does not allow it to put forward a specific scenery as regards the distribution of spectrum among the several types of use, and highlights that the position taken by Commissioner Viviane Reding, who supports an UHF band spectrum allocation in equal parts to the broadcasting services and to other services, is not realistic.

As far as neutrality is concerned, ZON, SONAECOM and VODAFONE support the adoption of technological neutrality criteria, the first two bodies stressing the need for guard bands to reduce the risk of possible interference. VODAFONE adds that it does not anticipate any advantage in adopting criteria of service neutrality, on account of the risk of interference between services with different natures.

ONITELECOM deems that it would be desirable to adopt criteria of technological and/or service neutrality, along with a European harmonisation. However, it considers that the allocation of bands should focus on specific services not limited by support technologies.

APRITEL states that a use as flexible and open as possible at the level of the different services should be allowed, as regards the use of the digital dividend spectrum.

ALCATEL-LUCENT does not support the “total neutrality” of the service in the UHF band, endorsing an approach based on the technological neutrality for “the part of spectrum dedicated to mobile networks”.

CABOVISÃO deems that a mixed regime of spectrum management, combining a political approach with a market approach, would be fundamental.

MEDIA CAPITAL believes that, excluding sub-band 790-862 MHz, concerning which the general consensus points towards an allocation to mobile services, spectrum should be allocated to other types of applications deemed to be possible in the scope of the present public consultation, the principle of technological neutrality being fully applied, in compliance with the space to be occupied by broadcasters. As regards the possibility of adopting criteria of service neutrality, it supports that its adoption should be

rendered compatible with the applicable Community regulatory framework, currently under a co-decision process. However, this should not be allowed for the spectrum reserved and/or to be reserved for television or radio broadcasting services, as this would be a measure which would imply a disproportionate risk for the promotion of the cultural and linguistic diversity of the media, specifically for the provision of television or radio broadcasting services, which are general interest activities.

GRUPO PT supports that as far as DTT and mobile TV are concerned, the technological and service neutrality issue has been dealt with by the harmonization Decisions already adopted, supporting also criteria of neutrality for other electronic communications services. It stresses that the mobile TV band has yet to be defined.

RTP considers that an allocation of spectrum according to the various types of use would be more than appropriate, declaring that the adoption of criteria of technological and/or service neutrality would lead to interferences.

As regards sub-band 790-862 MHz, the entity that requested to remain confidential considers that the allocation thereof to mobile broadband applications is a good starting point, and in the future it should be allocated more spectrum in the 470-790 MHz band.

VODAFONE highlights that the mentioned sub-band should be dedicated to mobile services in Portugal right now, and in a coordinated manner at European level.

SONAECOM stresses that the sub-band should be allocated to the Mobile Land Service, namely mobile broadband systems, allowing for the allocation of the duplex gap to other services, if ongoing CEPT studies so recommend.

MEDIA CAPITAL admits that Portugal's position may not work as an obstacle to the implementation of the European Commission's wishes as regards the use of the sub-band for mobile pan-European services.

NOKIA declares that the sub-band should be reserved for IMT services (or for "fixed/mobile services according to ECC's decision").

7. Should technological and/or service neutrality criteria be adopted, how can it be implemented in terms of the regulation of spectrum use and of equipments? Please justify. And which selection procedure do you consider the most appropriate – tender, auction, other? Please justify.

As regards the means of implementation in terms of regulation of the use of spectrum and equipment, in case technological and/or service neutrality criteria are adopted, GRUPO PT and ONITELECOM support the imposition of broadcast masks, and GRUPO PT adds that the conditions of use should follow the WAPECS concept as much as possible.

AR TELECOM considers that the evolving regulatory framework as well as constant technological developments require an approach based on large action lines and principles of use, instead of privileging specific means of use the assumptions of which may change.

CABOVISÃO stresses that the spectrum management should take into account how each service uses radio frequencies (unidirectional or bidirectional services, high or low power services, etc.). For this reason, it proposes the adoption of a hybrid model based on a traditional command-and-control regulatory model and on secondary spectrum markets, reserving some bands not requiring licenses, in compliance with conduct rules and pre-defined techniques.

VODAFONE declares that both the use of spectrum and equipment should comply with rules and procedures identified by European standardization bodies, both at the level of ETSI or CEPT, and of Community bodies.

As far as the neutrality of services is concerned, ALCATEL-LUCENT supports that operators are able to choose between the implementation of a fixed or mobile service, but highlights that the co-existence between high-power broadcasting service and fixed/mobile service in an adjacent channel and in the same geographic area is not possible. It adds that in its opinion TDD and FDD technologies cannot be mixed in sub-band 790-862 MHz.

The entity that requested to remain confidential supports service neutrality, a position with which MEDIA CAPITAL does not agree, considering that the allocation of spectrum resulting from the digital dividend should not be governed by service neutrality.

In the scope of technological neutrality, APIMPRENSA considers that it should refer only to the portion of spectrum allocated to each economic activity sector, and not the general remaining spectrum; the entity that requested to remain confidential deems that technological neutrality should apply insofar as the spectrum has been planned in a harmonized manner.

RTP does not consider that the adoption of criteria of technological and or service neutrality is acceptable.

As regards the most appropriate selection procedure, GRUPO PT and VODAFONE consider that this can only be determined if several issues are first clarified. However, GRUPO PT deems that, taking into account that as neither the spectrum secondary trading nor the regime of transfer of rights of use for frequencies have been defined, the tender is the most appropriate procedure.

ONITELECOM, SONAECOM, MEDIA CAPITAL and APIMPRENSA support the tender as the most appropriate selection procedure.

ONITELECOM considers that it would enable the selection of the best technical and economic proposal, as well as the weighing of tenderers' know-how. It mentions also the importance of a clear coordination in the allocation of frequencies in bands 2,6 GHz, 3,5 GHz and in bands that constitute the digital dividend, to ensure a viable development of alternative offers supported in BWA technologies.

SONAECOM stresses that a beauty contest forces tenderers to maximize an effective use of spectrum, both at a technical and service level, as tenderers have to submit the best possible proposal to win the tender. On the contrary, in case of an auction, competitors lack the incentive to commit to a more effective use than that which is required by the auction conditions. It adds that past experience in spectrum auctions indicates that values paid are very high and limit the ability of winners to subsequently invest in a quick development of the network and service offer.

APRITEL, ZON and NOKIA stress that the procedure should be transparent and non-discriminatory, with APRITEL highlighting the need to create conditions for a sustained development on the part of operators, ensuring the necessary return, ZON supporting that this will be the only means not to hinder the promotion of competition and innovation and NOKIA stressing the need to ensure an equal participation both of new and current operators.

SIC declares that DVB-H and HDTV services should not be included in an auction selection procedure, as HDTV is an upgrade of an existing service and DVB-H is a re-transmission of existing services, accessed through a new platform.

RTP states that the market economy should not govern this matter as it can be contrary to media pluralism and to cultural diversity, favouring the most financially empowered competitor, the main interest of which may not necessarily be the effective use of spectrum or public interest in the long run.

CABOVISÃO stresses that the selection procedure should be governed by public interest and benefits to society, nor by maximum profit concerns.

8. In this context, what conditions do you think should be ensured for high definition television broadcasting, based on the use of the designated digital dividend spectrum, namely what overall bandwidth could/should be reserved for that purpose?

Of entities that assessed this matter, GRUPO PT, MEDIA CAPITAL, RTP and SIC expressed an objective view that spectrum should be ensured for HD TV broadcasting, namely of current television programmes of unrestricted free-to-air access.

GRUPO PT considers that standard definition broadcasting is integrated in a transition stage to HD broadcasting and subsequently to three-dimensional television, which in its opinion will require a new broadcasting plan. It thus supports the need to re-examine the DTT model in Portugal and to assess a possible review of the planning of the band allocated to broadcasting, so as to ensure that in due time broadcasts evolve to high-definition, considering also the accommodation of other uses, namely the converging ones.

MEDIA CAPITAL considers high-definition TV as a factor which differentiates television service distribution platforms, stressing that content demand in such formats will significantly increase over the next few years. It also states that it is fundamental to impose on services broadcast in high-definition levels of signal compression that guarantee a “good perception of quality” by viewers, adding that, currently and in its opinion, with the MPEG 4 format, a multiplexer planned in parameters that provide an aggregated bit rate of 19,91 Mbps will broadcast 3 high-definition channels.

RTP, based on the fact that, according to EBU, 24 MHz will accommodate 4 high-definition programmes at the most (in MPEG-4) and that in terms of free reception, 5 programme services and one high-definition programme service are expected, supports the allocation thereto of 36 MHz. RTP refers another EBU study, which considers that all service programmes will in the future be high-definition and that this format will only be viable if there are at least 20 to 25 high-definition programme services. In this context, it refers that it is possible to aggregate 4 or 5 high-definition programme services per multiplexer for fixed reception and 2 or 3 for mobile reception (compatible with GE06, as long as DVB-T2 is used). RTP concludes that the different national markets require a critical mass of DTT to ensure a fully functional, dynamic and universal broadcasting market.

SIC supports that the bandwidth to be reserved for high-definition television should clearly ensure, at least, that all multiplexer A television programme services on the DTT platform have their high-definition broadcasts covered at national level.

APIMPRENSA and APR/ARIC show similar concerns, but assess the issue in a broader sense. As referred in issue 7, APIMPRENSA considers that the technological neutrality criteria should refer only to the portion of spectrum allocated to each economic activity sector, and not the general remaining spectrum, and that all the remaining bandwidth should be reserved for high-definition television. APR/ARIC considers that, in view of the uncertainty of the radio and television digitalization and of the serious worldwide

economic and financial crisis, it is difficult to establish medium and long term plans, and thus the most correct decision would be to reserve all available spectrum as from 2012 for broadcasting purposes, and ICP - ANACOM must adapt the planning as required in the future, other services being concessioned if available in the medium or long term.

APRITEL, AR TELECOM and CABOVISÃO consider that the use of the digital dividend provides broadcasters, although not exclusively, with the possibility of developing and even expanding their service, namely ensuring important social and economic uses. In this context they stress the possibility of introducing a larger number of programmes that promote general interest objectives, stressing the freedom of speech and pluralism of the media, and cultural and linguistic diversity, but also services with an increased technical quality, the growth of content production and the improvement of the television experience with interactive services. CABOVISÃO also states that broadcasting is entering a period of intense transformation and high innovation as it makes the transition to digital services, with the improvement of high-definition television experience, deeming it appropriate that broadcasters should be able to claim a fair stake in the digital dividend in return for their efforts and investment in the digital switchover, as frequencies in the UHF band are the only ones which are appropriate for TV broadcasting.

ALCATEL-LUCENT, GSMA, SONAECOM, ZON and the entity that requested to remain confidential questioned the allocation of capacity to HD television. ALCATEL-LUCENT considers that at the moment it will be difficult to foresee the necessary bandwidth for HD television and ZON, as mentioned in point 6, deems that the digital dividend should take on a nature of technological neutrality. GSMA and the entity that requested to remain confidential point to the provision of alternative means of television distribution, such as cable, copper, fibre and satellite, which are more appropriate to the transmission of HD television, and SONAECOM stresses that the first three do not require the use of spectrum and enable interactivity and broadcast time-shifts, among other features.

9. What schedule and what mode for the release/allocation of the corresponding spectrum would be desirable?

In this matter, APIMPrensa generally points towards a tender.

GRUPO PT considers that once the planning of the broadcasting band they support is reviewed, the spectrum should be made available promptly and the transition programmed.

MEDIA CAPITAL supports that all current broadcasters should have immediate access to the current HD service and, potentially, to an additional programme service, as soon as the additional spectrum is made available. Moreover, it states that frequencies should be submitted to a tender subsequently to the switch-off.

RTP is of the opinion that a precise schedule should only be established after the digital dividend has been accurately determined. It stresses that the broadcasting business is constantly evolving, which facilitates an effective use of spectrum and the introduction of innovative services. It also considers that several switchover stages will probably take place and that developments will vary according to the country in terms of time and technology.

SIC considers that as spectrum will only be available subsequently to the analogue television switch-off, the schedule should be adjusted to this circumstance, and the

spectrum allocated as soon as possible. It also supports that as the current spectrum intended for multiplexer A is not enough to accommodate, in HD television, all foreseen television programme services, new multiplexers should be provided for to ensure this target.

SONAECOM and ZON assessed the matter in a general manner, and did not focus specifically on HD television. SONAECOM supports the allocation of spectrum through a beauty contest, as this would enable the definition of a set of conditions which lead to a more effective and efficient use of the spectrum, and ZON refers that transparent and non-discriminatory procedures should be used, so as to avoid jeopardizing the promotion of competition and innovation.

10. What other television programme services, as well as uses, such as higher high definition (e.g. Ultra HDTV) or three-dimensional television, do you suppose could require, in the long run, the use of the spectrum now under analysis?

GRUPO PT, MEDIA CAPITAL, RTP and SIC chose not to take a strong stand on this issue, declaring only that such possibilities should not be disregarded.

GRUPO PT refers to its reply to question 8, considering that standard definition broadcasting are integrated in a transition stage to HD broadcasting and subsequently to three-dimensional television, thus supporting the need to re-examine the DTT model in Portugal and to assess a possible review of the planning of the band allocated to broadcasting, so as to ensure that in due time broadcasts evolve to high-definition, and also a possible accommodation of other uses, namely the converging ones.

MEDIA CAPITAL emphasizes that three-dimensional television is regarded with great interest by manufacturers, content producers and broadcasters, expecting it to be a “revolution” in the experience of watching television which will certainly win many supporters. In this context, and notwithstanding the fact that it considers that this type of services tends to be considered from a perspective of “Premium offers”, it does not rule out the possibility of providing them, supporting that expected evolutions as regards new image and sound formats should be considered, namely 3D technologies, when radio spectrum for television broadcasting services is allocated. It forecasts also the provision of new technologies which, to be made available to consumers, require spectrum resources, an issue which will need to be addressed in due time.

RTP points out that the broadcasting business is constantly evolving, and thus it would be unwise to adopt measures which would prevent broadcasters from developing new services in the future.

SIC deems that currently the impact in terms of spectrum of Ultra HDTV and three-dimensional television is not entirely clear, and that it would be premature to try to understand if these uses would be commercially viable.

SONAECOM’s position must also be highlighted. This company lays emphasis upon the great importance of the digital dividend as regards the creation of conditions for the development of new technological solutions, as well as of new services, in view of the fact that the digital technology uses spectrum in a very efficient manner. It is thus of the opinion that the digital dividend will contribute to the development and innovation of services and technologies of potential users, favouring the different uses. SONAECOM concludes by declaring that Portugal should follow the sector’s best practises, widely accepted by a majority of European countries, without focusing on the subject-matter of the issue.

The entity that requested to remain confidential, on the other hand, considers that, prior to allocating any of the UHF spectrum specifically to future television services requiring large bandwidths, alternative means of distribution for the purposes should be considered, reinforcing that the economic and social value of the use of the digital dividend for mobile communications surpasses that of its value for HD television.

11. Given this framework and based on the coverage use planned in the scope of GE06, what conditions do you consider should be created for mobile television services in the “broadcast” mode? What is the number of coverages needed for that purpose?

As regards conditions which should be created for mobile television services in the “broadcast” mode, GRUPO PT, NOKIA and SONAECOM consider that this process must start with a clear definition of the associated regulatory regime. In this context, GRUPO PT deems that competencies of each sector regulator must be clearly defined, while NOKIA and SONAECOM refer that service providers should be allowed to share the platform. SONAECOM stresses also the need to boost innovation and sharing, interoperability being a fundamental factor. NOKIA refers the Austrian example as a model of a good regulatory regime.

As far as the number of coverages is concerned, ALCATEL-LUCENT, MEDIA CAPITAL, NOKIA and SONAECOM share the view that nation-wide coverage will be sufficient for the introduction of the service. ALCATEL-LUCENT admits however that depending on the acceptance of the service, a new coverage may be required. MEDIA CAPITAL refers that, even with only one operating network, mobile operators may differentiate their offers by combining personalized user services and interfaces.

GRUPO PT considers that, save for exceptional reasons, the three coverages must all be made available, and that it should be left to the market to decide whether they will all be necessary and viable.

SIC is of the opinion that the bandwidth must clearly ensure, at the least, that all multiplexer A national television channels on DTT platform have their DVB-H broadcasts covered at national level.

APRITEL acknowledges the importance of the digital dividend for the development of mobile television services.

The entity that requested to remain confidential takes the view that spectrum should generally be allocated to mobile broadband applications, and not to a specific application.

12. What is the schedule and the model suited for the allocation of rights of use for frequencies for mobile television services?

As far as the schedule is concerned, ALCATEL-LUCENT, MEDIA CAPITAL, NOKIA and SIC consider that the allocation of rights of use should start as soon as possible, taking into account the expected switch-off schedule.

GRUPO PT and RTP consider that the procedure should begin after the digital dividend process is concluded, the former referring that procedures involving transmission of rights of use and secondary trading of spectrum must first be concluded, and that final decisions adopted at EU level must be known, both in the scope of the 2006 Review and of the specific field of mobile television. RTP recommends that a work group is set up,

consisting of representatives of the different markets, to develop an articulated schedule between all involved.

ONITELECOM considers that the allocation of additional frequencies to mobile operators must be preceded by an assessment that guarantees an effective and efficient use of frequencies already allocated, so that new allocations limit the possibility of additional competition for mobile/nomadic services, namely by alternative offers supported in net BWA technologies.

SONAECOM deems that doubts still remain about the format to adopt to make this type of service viable, and for this reason the evolution of mobile TV services provision conditions, in the different available models, must be monitored, ensuring on the other hand a flexible use of spectrum to enable the national market to adopt a solution in line with other European countries, to benefit from economies of scale.

As regards the model for the allocation of rights of use for frequencies, MEDIA CAPITAL, NOKIA and SONAECOM consider that a public tender is the most appropriate model, an option which GRUPO PT also supports, in case the allocation procedure starts before procedures mentioned above are concluded. SONAECOM refers, nonetheless, that a holder of a DVB-T network is in a highly privileged position to install a DVB-H network additionally on the platform it already holds, and thus upstream measures that ensure level playing between all potential competitors must be ensured.

ONITELECOM generally supports a tender model as it enables the selection of the best technical and economical solution, and also takes into account the experience and know-how of tenderers. On the other hand, it avoids the selection of companies on account of the economic power as well as anti-competition actions to attract spectrum by dominant operators.

SIC considers that rights of use should be allocated directly to television operators, as in the case of DVB-H, a first stage involves the re-broadcast of television channels which already exist, and which may be accessed through mobile devices.

VODAFONE considers that ICP - ANACOM should identify the most appropriate model, according to the interests expressed for the provision of these services.

ZON considers that rights of use for frequencies should be allocated through transparent and non-discriminatory procedures, to avoid jeopardizing the promotion of competition and innovation.

13. Do you consider that the use of frequencies for mobile television should be limited to the DVB-H technology? What advantages/disadvantages do you associate to that option?

As far as this matter is concerned, GRUPO PT, RTP, VODAFONE, ZON and the entity that requested to remain confidential consider that a principle of technological neutrality should be adopted.

GRUPO PT is of the opinion that this principle should be adopted as it does not prevent the adoption of the DVB-H standard, and at the same time does not make the use of other technologies impracticable, in specific situations.

RTP considers that digital broadcasting is constantly evolving, and thus the choice for technology must be flexible.

VODAFONE, which always supported technological neutrality, considers that it should be left to interested parties to choose the technology for the provision of the mobile

television service, a position with which the entity who requested to remain confidential agrees.

ZON generally supports the principle of technological neutrality, to avoid jeopardizing the promotion of competition and innovation.

On the contrary, MEDIA CAPITAL, NOKIA, SIC and SONAECOM support the use of the DVB-H standard.

MEDIA CAPITAL considers that this standard has clear benefits relatively to other technologies, being endorsed at European Union level and currently used in several European countries.

NOKIA supports the use of DVB-H as this is a widely used technology throughout Europe, effectively open and with much equipment in the market. It also considers that the adoption of any other technology will delay the launch of the service.

SIC believes that the use of the DVB-H technology should be privileged as this broadcasting service tends to be free of charge, enables all-over access to audio-visual contents and contributes to the combat against info-exclusion, especially in the most peripheral regions of the territory.

SONAECOM highlights the benefits of harmonization and defends the use of DVB-H as this technology is widely used in most countries, considering, however, that in specific contexts, the DVB-H alternative is relevant in the mobile television scenario.

ALCATEL-LUCENT considers that the best technologies are those of the DVB family, considering that the DVB-SH is the most recent, most flexible and most profitable. It thus favours the use of DVB-H standards, instead of the specific DVB-H standard.

14. Do you consider that the market will be interested in the release of coverage planned for this type of reception in the scope of GE06? If so, in which terms?

NOKIA, SIC and SONAECOM make some considerations related to the DVB-H technology and the reception of television services over GSM-type mobile terminals, however the question was related to the provision of a DVB-T network for mobile reception in vehicles, such as trains, cars, etc. GRUPO PT, although acknowledging the interest in the provision of coverage, refers that the DVB-H should not be imposed.

ALCATEL-LUCENT and MEDIA CAPITAL consider that the provision of this coverage would be interesting, as this network may provide commercially appealing services and the vehicle market is an important segment for television reception.

The entity that requested to remain confidential considers that there will be no market interest in this coverage, in case it concerns a specific application only.

As regard the terms of the allocation, PT GROUP considers that the allocation procedure must be preceded of a consultation for expressions of interest, in the scope of which ANACOM may refer any operation constraints and conditions.

15. What spectrum do you consider admissible to reserve, in what way and with what geographical distribution, for the provision of television services under a more limited coverage, such a regional or local coverage?

MEDIA CAPITAL and SIC consider that it would be pointless to reserve spectrum for television services under a more limited coverage, as this type of operations shows a difficult economic viability.

MEDIA CAPITAL states that Portugal has no market for this type of services, while SIC considers that, as an overwhelming part of revenues from broadcast television services come from advertising, and as Portugal is not large enough to ensure the existence of strong regional or local advertising markets, regional or local services would always be highly in deficit.

GRUPO PT, SONAECOM, VODAFONE, ZON and the entity that requested to remain confidential, although not disregarding completely the possibility of using the digital dividend for regional or local television services, do not indicate that specific spectrum should be reserved for this purpose, while some entities put forward alternative means which they deem to be more appropriate.

GRUPO PT considers that the reservation of spectrum for regional television must take into account, among other aspects, the market interest, public interest and viability. GRUPO PT also refers to its reply to question 3, stressing that at least 60% of the population uses alternative platforms to television broadcasting, or is able to do so, and emphasizes that the roll out of an additional infrastructure (optical fibre) is foreseen, and as such there seems to be no reason to support the non-existence of diversity and pluralism. It stresses also the existence of a large variety of contents, covering several subjects, in several available channels.

SONAECOM admits the reservation of spectrum for these purposes in case it generates value, and the assessment must consider the cost of such an allocation to the detriment of the allocation to other services, stressing that other alternative platforms should be taken into account, as the disclosure of contents to which the latter contributes goes beyond that of the distribution through a terrestrial television platform. SONAECOM stresses also that the increase in the number of programme channels available in the terrestrial platform will imply very low audience rates for some of them, as is the case with other distribution platforms. This would lead, in addition to a potential financial sustainability risk, to a likely inefficient use of spectrum, contrary in its opinion to fixed data networks, which deliver content according to the needs of customers and with an increased regional granularity.

VODAFONE deems that precautions should be taken so that the provision of spectrum bands to some types of services (regional television, digital sound broadcasting, low power equipment, testing, etc.) does not jeopardize the allocation of spectrum with sufficient capacity for a harmonized provision, with the rest of Europe, of mobile broadband services, as it estimates that the corresponding allocated spectrum/social benefit ratio is higher than for other services under consideration.

ZON does not focus specifically on television, but declares that it would be premature, for now, to limit the national or regional scope of the allocation of the digital dividend's frequencies, preferring a case-by-case analysis and the weighting of costs and benefits.

The entity that requested to remain confidential, underlining the optimal planning of spectrum so as to maximize economical and social benefits for citizens, points up to a possible distribution of local television content/programmes through national mobile networks, broadcast according to local needs, identifying the mobile broadband platform, supported on the digital dividend, as an efficient support for Web TV with local contents.

Notwithstanding the doubts presented by several entities as regards regional or local television operations, namely those supported on a terrestrial television platform, other entities pointed towards possible solutions for the purpose or drew attention to aspects which merit attention or which must be safeguarded.

In this context, ALCATEL-LUCENT considers that an appropriate scheme of reuse of frequencies would allow a satisfactory number of regional programmes – up to 6, depending on the type – if only 6 UHF channel were reserved, in addition to those used in the SFG network. According to ALCATEL-LUCENT, this allocation would enable a significant reduction relatively to the provisions in Annex II of the consultation document under analysis.

APIMPRENSA considers that a reservation for television should be local, covering as much as possible geographical areas similar to the existing Associations of Municipalities.

APR/ARIC warns to the fact the Television Law provided for local and regional televisions, and that such future stations should be preferably “open channels” with terrestrial broadcasts. It stresses that the law raised many expectations at local and regional level, in many potential interested parties, including local broadcasting operators, suggesting that it would be useful to decrease the coverage foreseen for the national DVB-H network, including in that space one or more regional and local multimedia television networks.

RTP is of the opinion that reservation should be made for the spectrum that enables the broadcaster to develop services that are more adapted to existing needs at a given time, and even if it estimates that needs focus on HD television and mobile services, in a market in constant evolution, it declares it is not possible to specify all services to be provided. It is thus of the opinion that the broadcaster should not be restricted by a possible lack of spectrum in its attempts to make services dynamic, which could relegate to other distribution platforms such revitalising objectives, strongly restricting its use at national level.

16. What is the best way to have access to the possibility to use the mentioned spectrum (tender, auction, other) and what release schedule?

In this regard APIMPRENSA points generally towards a tender solution.

GRUPO PT restates its comments to question 12, on the schedule issue, and to question 7, on the selection procedure to be adopted.

MEDIA CAPITAL and SIC, reiterating their opinion on the previous question, consider respectively that Portugal lacks market for this type of service and that there is no point in reserving spectrum for the purpose.

SONAECOM supports in principle a beauty contest system, the conditions of which should favour the sharing of infrastructures in order to increase the effectiveness of the use of resources, although it does not specify the case of regional or local television.

17. What spectrum do you consider admissible to reserve, in what way and with what geographical distribution, for the provision of digital audio broadcasting services?

APR/ARIC take the view that the reserved amount of spectrum should be enough to allow the transition of existing broadcasting operators (national, regional and local) and also a future expansion, in case the need arises.

RTP considers that the spectrum it holds is sufficient for now; notwithstanding, in case the business model changes with the entry of new operators, more frequencies may be required.

MEDIA CAPITAL and SIC consider that there is no point in reserving additional spectrum as the current network operated by RDP has not registered any commercial success. Nevertheless, MEDIA CAPITAL assumes that current AM and FM frequencies will continue to be used for broadcasting purposes.

CABOVISÃO refers that spectrum allocation decisions must be governed by public interest and benefits to society, not by maximum profit concerns.

APRITEL refers that an audio broadcasting strategy should be defined, enabling a better use of spectrum resources through the introduction of digital technology, and stressing that broadcasters should continue to provide and expand their services, using this resource for the provision of new services intended for other important social and economic uses.

GRUPO PT considers that it would be appropriate to test the possibility and to assess the advantages and drawbacks of a programme, setting a time-limit/date for the audio broadcasting switch-off in Portugal, adding that only in such a context, and assuming an effective use, the reservation of spectrum for audio broadcasting would be admissible. It adds that the VHF band (174-230 MHz) is the most appropriate band to accommodate the digital sound broadcasting and that criteria of effectiveness and efficiency should prevail in the establishment of amounts and types of coverage.

SONAECOM generally refers that the amount of spectrum to be allocated, taking into account the efficiency of the scarce resource which the spectrum is, should follow an analysis of the value produced by such an allocation, weighed against the value produced by the different spectrum allocation alternatives, that is, its opportunity cost, and consequently, that services that generate an increased value – in a comprehensive perspective, not only a financial one – should benefit from the allocation of more spectrum. It is also of the opinion that decisions taken in Portugal should closely follow decisions taken by most countries, as the option for harmonized solutions, in countries as small as Portugal, is in general the one that makes the most of the value resulting from the digital dividend.

VODAFONE refers that precautions should be taken so that the provision of spectrum bands for digital audio broadcasting does not jeopardize the allocation of spectrum with sufficient capacity for a harmonized provision, with the rest of Europe, of mobile broadband services, as it estimates that the corresponding allocated spectrum/social benefit ratio is higher than for other services under consideration.

18. Do you consider that the possible allocation of some of the available networks to Media Groups would make T-DAB' development viable, since the several radios held by these Groups have analogue technology that could be hosted in the same multiplexer?

Both APR/ARIC and RTP believe that such an allocation would make T-DAB development viable.

APR/ARIC declares this would be a good solution, in view of the success and experience achieved, in similar situations, by the associative sector, adding that one of the negative effects of DAB, that current audio broadcasters lose their autonomy as operators, would thus be avoided.

RTP refers that the existence of diversified and numerous offers of radio channels in T-DAB will make this technology successful.

MEDIA CAPITAL refers that in case a viable business model is found for T-DAB, and in case there investment candidates are available, the introduction of this system should be considered.

SIC believes that this solution could apparently be an incentive for a viable T-DAB development, however this is a very complex matter, which will not be easily solved.

SONAECOM takes the view that the allocation of spectrum resulting from the digital dividend to potential interested parties should be based on a comparative analysis of the generated value.

19. Traditionally, the audio broadcasting service has been free for subscribers. With the possibilities offered by digital technologies will there be room for paid services? What kind?

APR/ARIC believes that digital technologies may lead to the provision of paid services, dedicated to niche markets. This entity supports, nevertheless, that regardless of the associated technology, the large broadcasting advantages should be maintained, such as a free service for customers, good coverage at national level and being easy and convenient to listen to both on the move and standing still, due to the general quality of networks and general disclosure of receivers.

On the other hand, MEDIA CAPITAL considers that Portugal does not have a market for this type of service, while SIC considers that existence of such markets would be difficult, as listeners are not used to pay for this type of service.

RTP and ALCATEL-LUCENT refer that this issue should be defined by the audio broadcasting commercial market.

As regards the type of paid services, APR/ARIC suggests information services in several areas, such as updated traffic or specific music content, preferably using multimedia platforms.

20. DMB and DAB-IP technologies enable video broadcasting. Do you consider that some of the planned networks should be released for this technology? How many? In what context?

Both APR/ARIC and RTP believe that some of the networks planned for T-DAB could be made available for these technologies.

APR/ARIC prefers multimedia platforms, although it considers that the technological support in the future, either DMB, DAB-IP or other is not clear, but a “multimedia television” network, possible a regional or local one, will be necessary to make it economically viable.

RTP declares that if the expected T-DAB increase does not occur, consideration should be given to the use given to the current network, and in this case, the DMB is one of the possibilities which should be weighted.

On the other hand, SIC and MEDIA CAPITAL consider that networks planned for T-DAB should not be made available for these technologies.

SIC is of the opinion that the DVB-H provides a better guarantee as regards the adoption of mobile television services by consumers.

MEDIA CAPITAL takes the view that our market does not offer a big potential for T-DMB or DAB-IP technology networks, given the “radio channel” lower width compared to the one used in DVB-H, which requires the operation of several networks in order to provide the same service offer. For this reason, it supports DVB-H as the best current technology for mobile television offers (for equipment such as mobile phones, smart phones, PDA’s, etc.)

SONAECONOM refers that national options should be in line with international practises, specifically European ones. However, it is concerned that national options for the different services which may benefit from the digital dividend may hinder a harmonized allocation of the additional spectrum for mobile services, although it is convinced that a proper spectrum management by ICP - ANACOM will allow the development and innovation of several services.

21. What is the best way to have access to the possibility to use the mentioned spectrum (tender, auction, other) and what release schedule?

APR/ARIC, MEDIA CAPITAL and SONAECONOM consider the public tender to be the most appropriate way. APR/ARIC adds, however, that this would be the best solution for potential new operators, as for existing operators the spectrum access to digital should be carried out in an economic and automatic manner, as this would be a necessary condition for continuity, after the switch-off.

RTP refers that as far as broadcasters are concerned, the allocation must take into account social and cultural values, and as regards other markets, the allocation model must be defined by the respective commercial market.

CABOVISÃO refers only that, as regards auctions, the value of the winning bid may not represent the public interest, as the economic value must be weighted according not to the price that an operator or potential interested party is willing to pay, but by the way it uses the spectrum taking the public interest into consideration.

VODAFONE generally states that specific spectrum bands for this type of services must be allocated through a transparent, non-discriminatory and economically efficient procedure, safeguarding the necessary capacity to provide mobile broadband and television broadcasting services, minimizing the possibility of interference in the provision thereof.

22. What is the digital dividend’s contribution for the development of Next Generation Networks, and what will be their impact on its use?

ALCATEL-LUCENT, GSMA and the entity that required to remain confidential focused their replies on the mobile feature of next generation networks (NGN), considering that the digital dividend is an excellent opportunity to provide mobile services with frequencies that allow the provision of more and better broadband services, throughout national territory.

In this regard, ALCATEL-LUCENT’s position should be highlighted: assuming a 3G national mobile coverage by means of a new commercial operation of current GSM frequencies, it is of the opinion that the main target for the dividend band allocated to mobile service should be the provision of an economic coverage at national level for next generation

public services (LTE and future generations), as a complement to higher band allocations, providing an additional capacity to high-traffic areas.

SONAECOM and VODAFONE also support the allocation of part of the dividend's spectrum for the implementation of the LTE technology, in order to provide wider broadband services throughout national territory, namely in rural areas, known for their low demographic density.

On their turn, APRITEL, AR TELECOM, CABOVISÃO, GRUPO PT and ONITELECOM believe that the dividend arises in an evolving regulatory framework, resulting from their positions that they support a national integrated vision in this regard. As such, and bearing in mind that the NGN concept is technologically neutral, comprising both fixed and mobile networks, GRUPO PT considers that the digital dividend is an opportunity to take NGN products and services to regions of the country where optic fibre network investments are economically unviable. It is thus aware that opportunities which result from the dividend complement the implementation of services supported on next generation infrastructures (fibre optic networks).

ONITELECOM, in line with this view of complementarity (fixed-mobile) considers that mobile services are preferred in situations of mobility/nomadism, whereas fixed services are preferred in situations where a higher bandwidth, quality of service and availability are necessary.

CABOVISÃO deems that efforts to ensure access to broadband services should not focus on the digital dividend.

SIC considers that the allocation of spectrum resulting from the digital dividend will take place at a time where high speed services will be provided through next generation networks (presumed to be fixed ones). And in this context, the advantage of the dividend will be the possibility of access to such services in an "always on" environment.

23. In the medium and long run, will the digital dividend spectrum be more suited for supporting the provision of electronic communications services (i) mainly under mobility, (ii) also contemplating the use at a fixed location or (iii) regardless, for any type of use?

GSMA, VODAFONE, SONAECOM and NOKIA regard the digital dividend spectrum as an opportunity for the expansion of mobile services.

GSMA considers that at least 100 MHz of the digital dividend could be released for mobile services. It specifically believes that there is enough spectrum to allocate spectrum between 790 MHz and 862 MHz in Portugal to new mobile services.

VODAFONE believes that the spectrum resulting from the digital dividend should be allocated to mobile communication services, in order to allow the provision or disclosure of services with high social impact.

SONAECOM considers that the digital dividend spectrum will tend in the medium and long term to serve different types of use. It refers that the allocation of the spectrum under consideration potentiates mobile broadband, enabling the fixed broadband offer to be complemented and/or replaced.

NOKIA takes the view that the characteristics of the 790-862 MHz are appropriate for use by mobile networks.

GRUPO PT, SIC, ALCATEL-LUCENT, APRITEL, ONITELECOM, AR TELECOM and the entity that requested to remain confidential consider that the spectrum under consideration may also satisfy uses in fixed location, in addition to mobile services.

GRUPO PT deems that operators should have the freedom to choose the business model which best suits them, as wireless broadband platforms to be developed for the digital dividend spectrum are meant for mobile, nomadic and fixed services.

SIC believes that the digital dividend spectrum is best suited for mobile services, namely mobile TV. As regards fixed services, it admits that this should occur only if it is deemed to be a more efficient measure to “fight against info-exclusion and the so-called digital deficit.”

ALCATEL-LUCENT declares that the digital dividend spectrum will allow, in the medium and long run, wireless fixed and mobile broadband in rural and remote areas, thus it considers that there should be no discrimination between fixed/mobile/nomadic uses.

APRITEL refers the importance of the digital dividend for the development of mobile, fixed and nomadic broadband services, mobile television services and HD television offer. It also states that there are great expectations as regards the allocation of the digital dividend spectrum, highlighting mobile services for the purpose.

ONITELECOM supports multiple types of services, including fixed, nomadic and mobile.

AR TELECOM tends towards a solution that allows both mobile and fixed services.

The entity that requested to remain confidential considers that the spectrum that results from the digital dividend is more appropriate for mobile electronic communications services, in the light of the increasing interest in mobile broadband. Moreover, it considers that mobile communications with a wider coverage area could provide efficient fixed broadband services, as far as costs are concerned.

MEDIA CAPITAL does not reply specifically to this issue, declaring that the spectrum manager should establish the differences between the potential uses of the spectrum to be released.

24. In your opinion, how will mobile services evolve and what are your forecasts for mobile broadband consumption? Please justify.

As regards the evolution of mobile services and of mobile broadband consumption, NOKIA considers, given the high rate of growth of mobile data traffic, that users will tend to require all services currently provided by the fixed network to be available through the mobile network. It also stresses the fact that mobile networks are, at the level of cost control, more efficient for the supply of high speed services in rural areas, and that the user is not concerned with how the Internet is provided.

ONITELECOM considers that mobile data services and the Internet will evolve in a complementary manner with equivalent fixed services, and that it is likely that an approximation of the levels of quality of service and speed of mobile services and fixed services occur, which on its turns will generate business opportunities for operators that deal in the carrier segment, given the growth of mobile network needs.

SIC forecasts a considerable increase of mobile broadband, given the increase of mobile services (via LTE) and mass “always on”.

In SONAECOM’s opinion, the tendency for growth which broadband mobile networks have registered will be maintained, a position shared by MEDIA CAPITAL and by

ALCATEL-LUCENT, in the light of a higher population info-exclusion and the provision of new services. It thus supports that more spectrum will be required, to accommodate the technological evolution brought about by LTE, which on its turn will allow the development of current services and the provision of new ones, with competitiveness gains.

GRUPO PT, in spite of acknowledging that the evolution of the UMTS network with HSPA indicates that GSM and UMTS systems will continue to be used, admits that an increase of the volume of data traffic could lead to an early implementation of mobile LTE systems, with the necessary implications at the level of spectrum demand. It also stresses the role of mobile networks for the promotion of mobile television and needs at the level of bandwidth and mobile network coverage for emerging services.

VODAFONE expects HSPA+ technology to evolve in the downlink with the introduction of the multi-carrier mode operation and respective combination with 64QAM and MIMO, and that in the uplink, 16QAM modulation and multi-carrier mode are introduced, forecasting speeds above 20 Mbps and the evolution to LTE to be the step forward.

The entity that requested to remain confidential considers that broadband mobile communications will maintain the tendency to grow, and that services involved are fundamentally based on HSPA, HSPA+ and LTE technologies. Network architectures will be in line with 3GPP specifications and equipment will be more versatile. The traffic increase which base stations will be forced to bear will require a more appropriate transport network, such as next generation networks, which could stimulate the provision of more services, both fixed and mobile.

25. In your opinion, what will be the impact of mobile Internet access on the growing ubiquity of broadband Internet access, on the economic, social and cultural scenes?

On this issue, NOKIA reiterates the comments made in the scope of the previous question.

In ONITELECOM's perspective, Internet mobile access will contribute to the implementation of new forms of work, such as nomadic and telework, and to the development of specific services adapted to mobile terminals and of content industry. It considers also that it is likely that the development of mobile Internet will encourage fixed Internet, given that both types of access are complementary.

SIC forecasts an increase of the number of broadband services users and consumers. An easy use of DTT will make it easier for consumers to regard the disclosure of services provided in this support as an additional integrated service.

SONAECOM considers that the use of mobile broadband will make Internet penetration and a wider population coverage easier. The use of new technologies, such as the LTE, will allow companies to develop new services and functionalities - Internet/Web browsing /FTP; videos/audio streaming, TV; real-time services and VoIP (with 3G and 2G CS mobility) that can be extended to the whole population and which will contribute to economic development, to the promotion and protection of a cultural and linguistic diversity and to the freedom of speech.

GRUPO PT stresses at an economic level the impact that a wider coverage of access to broadband Internet and access to other technologies will have on productivity and competitive capacity of companies; at social level, the contribution to the decrease of info-exclusion and digital divide; and at a cultural level, the contribution for a quicker

and more comprehensive access to information. This position is also shared by VODAFONE and by GSMA, which further highlights benefits for the environment, with a reduced number of base stations required.

MEDIA CAPITAL considers that the increasing use of mobile Internet will speed up the convergence process, with implications on telecommunications operators, on equipment manufacturers and on content producers.

The entity that requested to remain confidential believes that mobile broadband is an opportunity for growth in the telecommunications industry, for end users on account of its several possibilities, and for network operators due to the cost/benefit ratio. Moreover, it mentions the impact of services such as e-commerce, telework and teleconference on the environment and on CO2 reduction.

26. What bandwidth do you consider necessary for this type of applications in the short, medium and long run? Please justify.

In this scope, GSMA, GRUPO PT and VODAFONE identified 72 MHz (790-862 MHz band) for broadband in the short term, and suggested 100 MHz in the medium/long term as the ideal spectrum.

ALCATEL-LUCENT also refers 72 MHz for mobile/fixed access application in the short/medium term, emphasizing additionally that the mobile community forecasts the need for an additional 100 MHz; it supports the need for more spectrum in the long term.

GSMA, VODAFONE and SONAECOM specify, on the other hand, that the minimum spectrum per operator in the short term should be 2x10 MHz and in the medium term 2x20 MHz, while VODAFONE and SONAECOM declare that 2x20 MHz would allow the full potential of LTE technology to be used.

NOKIA refers that 10 MHz bandwidths below 1 GHz could be enough, however above 1 GHz, or in hot spots, bandwidths up to 100 MHz could be necessary.

The entity that requested to remain confidential refers 10 MHz as the appropriate bandwidth, subject to the spectrum to be provided and the required duplex spacing. This entity mentions also an increased difficulty for Portugal, resulting from the fact that the 822-862 MHz spectrum is intended for terrestrial digital television.

SIC points towards an appropriate bandwidth to support new services and consumer needs, but fails to quantify.

MEDIA CAPITAL considers that the necessary spectrum is related with the number of users, binary rates provided and "contention rates". As an example, it refers 2 blocks of 30 MHz, with 5 MHz channels.

CABOVISÃO considers that the sharing of frequencies between the several possible uses should be preceded by a careful and technologically neutral technical analysis.

27. According to the CEPT 22 report, it will be virtually impossible, considering the level of interferences produced by GE06's digital entries, for a country to start using this sub-band without the previous agreement of the adjacent countries. Under these circumstances, do you consider that sub-band 790-862 MHz should be released in Portugal for mobile broadband applications, regardless of its release in the adjacent countries?

RTP and SIC consider that under these circumstances the 790-862 MHz sub-band should not be provided for broadband mobile applications, as the appearance of interference would not take customers' rights and legitimate interests into due account.

APR/ARIC consider that the most correct decision would be to reserve, for the time being, all available spectrum for broadcasting, as from 2012.

ALCATEL-LUCENT considers that the supply of mobile applications in this sub-band would be very difficult in case neighbouring countries strictly implemented the GE-06 plan.

On the other hand, APRITEL, GSMA, SONAECOM and VODAFONE defend that the 790-862 MHz sub-band should be made available for mobile broadband applications as soon as possible, as the spectrum harmonization is an essential factor for the success of the implementation of services, and the earlier the sub-band is provided, the sooner interested operators will confirm their investment plans in this type of networks. SONAECOM and VODAFONE consider also that an international coordination is fundamental to ensure the necessary border compatibility between mobile services in a country and broadcasting service in a neighbouring country, a position with which the entity that requested to remain confidential agrees, as it also deems that this sub-band should be made available for mobile applications.

ONITELECOM and GRUPO PT support coordination between neighbouring countries, as this has allowed solutions of an efficient use of spectrum and control of interference risks. However, GRUPO PT feels that the decision for the provision of the 790-862 MHz sub-band should wait for the results of studies carried out by CEPT's TG4 group, and that conclusions of RSPG's Opinion should be assessed in a national, Iberian and European context.

MEDIA CAPITAL admits that in case Spain provided the sub-band for broadband mobile applications, the position adopted by Portugal should not be an obstacle to a sub-band harmonization at European level, a target which the European Commission holds so dear.

NOKIA believes that all European countries will provide this sub-band for IMT purposes as from a specific date, and that an approximation of dates will make trans-border coordination easier.

28. Should this release occur before 9 December 2023, it will require DTT networks operating in this sub-band to change the corresponding radio channels. What do you think will be the impact of that transition and in what way can it be minimized?

GRUPO PT, MEDIA CAPITAL, RTP and SIC consider that a change in radio channels will have a negative impact on and will pose increased difficulties to the implementation of DTT in Portugal, and will likely negatively affect the preparation for the switch-off. These companies refer negative implications at the level of network planning, filters, combiners and radiant systems, not only for the high costs these changes imply, but also for the possible breaks in service supply during the stage of work performance, which will have negative impact on network implementation deadlines. The need on the part of consumers to tune their receivers to new channels, will also have a negative impact on subscription to DTT. However, and in GRUPO PT's opinion, the main issue should not be whether the service provision occurs before or after 9 December 2023, but above all, what the national public interest is and how can global benefits be maximised.

ALCATEL-LUCENT believes that it will be probably very difficult to alter radio channel in DTT networks before the switch-off, but notes that even after that, it will be possible to alter them to channel below channel 61, in order to make the use of the 790-862 MHz sub-band by other services prior to 2023.

SONAECOM is also of the opinion that the provision of the 790-862 MHz sub-band for other services only as from 2023 should not be even considered as a scenery, otherwise Portugal will irreversibly fall behind as regards the development of mobile services, jeopardizing the benefits for the country of having a vanguard mobile service market like the existing one.

VODAFONE and the entity that requested to remain confidential acknowledge the challenges that the release of the 790-862 MHz sub-band pose to ICP - ANACOM, however they declare that the advantages resulting from a harmonized use of this spectrum for the Portuguese society and economy should not be overlooked, as they unquestionably justify the difficulties and efforts to be made. Aware that these alterations will bear due costs, they are certain that they will be lower to those that result from a scenery in which the DTT is implemented in this sub-band and reviewed only in 2023. They also consider that the Portuguese situation as regards the digital dividend spectrum is quite similar to the one in the UK and that, after a thorough economic analysis, the respective regulator concluded that the costs of releasing the full sub-band were modest compared to the benefits obtained. VODAFONE believes that a similar study for channel 67 in Portugal would reach the same conclusions, proving that it would be technically feasible to change radio channels, withdrawing DTT from channel 67.

APRITEL considers that ICP - ANACOM will have to define and impose the necessary measures that allow national operators to be provided with a harmonized spectrum to promote the evolution of wireless electronic communications services.

ONITELECOM views the partial allocation of the 790-862 MHz sub-band to DTT systems until 2023 as limiting, as only four channels not allocated to other applications are left. The spectrum still free in this band should be allocated to alternative systems of broadband access within a shorter time-limit, so as to foster competitiveness in this service market. It would be desirable to gradually release this sub-band from DTT as soon as the switch-off is concluded, allowing its use by alternative systems as soon as possible.

As regards the means to minimize the impact of this transition, GRUPO PT considers that such impact will be lower in case the change of channels takes place in a stage where the subscription to DTT is not still very wide, and in case the provision of the sub-band takes place before 9 December 2023, the decision should be taken as soon as possible and with its involvement, in the light of the schedule and plans established for the transition from analogue to digital. This decision should be followed by a new radio channel plan and of a transition period for installed transmitters, if necessary, and also by provisions that ensure compensation for loss and change costs.

MEDIA CAPITAL considers that to minimize the requirements for changes in transmitting antennas and reception systems, DTT frequencies should be as close as possible to those already operating. It also declares that it does not accept to bear the costs of such a change, referring that the RSPG recommended that Member States that wished to implement fixed or mobile services should establish mechanisms to ensure that costs of the necessary measures to minimize or counter these effects should be borne by those who would benefit from such modifications.

ONITELECOM considers that the adoption of a schedule for this migration and of clear strategic objectives by the Regulator would give the market the necessary signs for a timely preparation of investments in alternative systems, to provide competitive offers of electronic communications advanced services. This would also allow the DTT operator the appropriate preparation time to migrate to other radio channels already allocated for this purpose in other spectrum sub-bands.

SONAECOM deems that it is essential to define and safeguard frequency allocation mechanisms in issued licenses and those to be issued. The transition would thus be smooth, if license holders are informed of allocation needs and acquire network equipment that enables the configuration of other radio channels, avoiding major technical and financial impacts. It also considers that the definition of requirements for end user equipment and reception network that is compatible with the whole UHF band may minimize in the future the possible frequency migration costs, and that the regulator should immediately consider the need to rearrange frequencies allocated to DTT, taking into account the provision of spectrum to mobile services in line with options taken in most countries.

VODAFONE considers that the earlier ICP - ANACOM takes the necessary measures to release the sub-band under consideration, the significantly lower will be the impact of such a change. It is thus crucial that responsible entities immediately attempt to launch the necessary course of action both with neighbouring countries, to ensure the respective harmonization, and at national level to alter radio channels allocated to DTT networks, so that the country may fully benefit from economic and social advantages that result from the allocation of the 790-862 MHz sub-band to mobile broadband services.

29. In this context, do you consider that spectrum should be allocated for the exclusive use of this type of applications? What are the reasons? In what band? What bandwidth do you consider necessary? Please justify.

SIC, VODAFONE and ONITELECOM view favourably an allocation of spectrum for the exclusive use of low-power equipment.

SIC points out the social and economic impact to justify an exclusive use spectrum allocation, whereas VODAFONE makes some considerations on allocation conditions, which in its opinion should not jeopardize the allocation of spectrum with sufficient capacity for the provision of mobile broadband services, harmonized with the rest of the European countries. Moreover, it deems that the allocation process should be transparent, non-discriminatory, economically efficient, and should safeguard the necessary capacity for the provision of mobile broadband services and television broadcasting, minimizing the possibility of interferences in the provision thereof.

ONITELECOM considers that the risk of interference in the operation of these systems may prevent the adoption and development of innovative and socially relevant applications. On the other hand, and as currently RDIF applications generally operate in the 2,4 GHz band, according to the 802.11b/g (Wi-Fi) standard, with around 125 kHz bandwidths, it is of the opinion that the adoption of the UHF band could lead to a substantial reduction in the price of these devices and contribute to a mass offer.

RTP and APIMPrensa do not agree with an exclusive allocation of spectrum.

RTP is contrary to an allocation of spectrum as it considers that this equipment may produce harmful interference, while APIMPrensa feels that an allocation is not required

given this equipment's specification capacity for the operation on a non-interference and non-protection basis.

The entity that requested to remain confidential is also contrary, for the time being, with an exclusive allocation of spectrum to low-power equipment, and recommends that a prior study is carried out before any specific spectrum is reserved.

MEDIA CAPITAL considers that the compatibility analysis between digital broadcasting and bidirectional systems, currently ongoing, should be awaited, in order to ensure that there will be no interferences.

30. In this context, do you consider that spectrum should be allocated for the exclusive use of this type of applications [PPDR]? What are the reasons? In what band? What bandwidth do you consider necessary? Please justify.

SIC, VODAFONE, ONITELECOM, SONAECOM and RTP view favourably an allocation of spectrum for the exclusive use of Public Protection and Disaster Relief (PPDR) Systems.

SIC declares it makes sense to allocate spectrum on an exclusive basis to this type of applications on account of its public utility.

VODAFONE agrees with ETSI's proposal to allocate frequencies to PPDR systems. It supports wider coverage for remote areas, such as mountain and low population density areas, in order to minimize the investment required to implement these systems.

ONITELECOM declares there are advantages in adopting a common European band to support emergency and security networks and systems, so as to ensure an improved efficiency, equipment compatibility and reduction of costs.

SONAECOM deems that the digital technology uses spectrum in a very efficient manner and that the digital dividend should be allocated to several services, including security systems for civil emergencies and natural disasters; however it stresses that no specific use should be favoured.

In RTP's opinion, security systems for civil emergencies and natural disasters are a responsibility incumbent on the civil society.

As regards the band in which the spectrum should be allocated, only VODAFONE showed a preference for an allocation in the limit below the 470-862 MHz band.

On the contrary, GRUPO PT, ALCATEL-LUCENT and the entity that requested to remain confidential do not agree with an exclusive allocation of spectrum for PPDR purposes in the 470-862 MHz band.

GRUPO PT supports an exclusive allocation of spectrum to PPDR systems; notwithstanding, it deems that such an allocation should be based on rational, efficient and complementary criteria, and also that these systems should operate in an integrated manner with SIRESP systems, which do not operate in the 470-862 MHz band.

ALCATEL-LUCENT believes that in the European context it is not likely that spectrum for PPDR purposes is allocated in the 470-862 MHz band.

The entity that requested to remain confidential takes the view that the allocation of additional spectrum for mobile broadband public communications will allow the introduction of any service based on broadband connectivity, as well as emergency services, without a specific allocation of spectrum to such services.

MEDIA CAPITAL reiterates its comments to the preceding question.

31. What is the evolution you foresee for the use of these equipments in Portugal [PMSE]? Do you consider that it is advantageous to allocate spectrum exclusively for the use of this type of applications? In what band? What bandwidth do you consider necessary? Please justify.

As regards the evolution in the use of equipment for programme-making and special events (PMSE), GRUPO PT, SIC, MEDIA CAPITAL and RTP forecast an increase in such a use in Portugal, and in this light they deem as beneficial an exclusive allocation of spectrum for this type of equipment.

APIMPrensa does not deem an exclusive allocation for this type of equipment as beneficial, as it could interfere and conflict with rights of access to events and special programmes by the media, leading to an even greater distortion of the current competition situation as regards coverage of such events.

As far as the identification of the band for PMSE is concerned, VODAFONE emphasizes the conclusion reached by the ECC on March 2009 on the use of a band separating the uplink and downlink (in FDD channelling) of the 790-862 MHz sub-band by wireless microphones, which would guarantee an exclusive spectrum for PMSE in Portugal through cooperation with the majority of European countries.

GRUPO PT considers that the use of PMSE equipment should be removed from the 790-862 MHz sub-band.

MEDIA CAPITAL stresses that, at the same time, equipment manufacturers should support frequencies and technologies considered.

RTP is of the opinion that spectrum should be allocated in the same bands which are currently used by this type of equipment.

As regards the required bandwidth, RTP stresses that it should be larger than the current one in order to enable the licensing of all operating equipment in a given occasion and at national level, while GRUPO PT indicates that a reservation of around 8 MHz could be enough.

32. What do you consider to be the current development state of these technologies [cognitive radio systems]? What conditions to you consider should be fulfilled in order to make its use possible? Please justify.

Relatively to the current stage of development of cognitive radio systems, GRUPO INFORMAL declares that the market is provided with cognitive radio devices for some applications. It refers also that these devices can cause harmful interference in uses of incumbent services through the definition of operational parameters to ensure that wireless devices use the band efficiently and by resorting to one or more of the following cognitive technologies: geolocation, spectrum sensing (listen before talk- LBT) and control signals.

ALCATEL-LUCENT considers that works in these systems have moved on from the initial stage, and that standardization of these systems is ongoing both at the level of IEEE and ETSI. It refers, moreover, that data models and the cognitive pilot channel (CPC) mechanism are now under investigation within an ETSI technical committee. It also considers that regulatory amendments to spectrum detection modes are not required, as a project Team has been established within WG SE to define the technical and

operational requirements for cognitive radio operation in white spaces of UHF broadcasting band (470-790 MHz), to ensure the protection of current radio systems/services and to assess the consequent amount of possibly available spectrum as white space.

GRUPO PT considers that conditions that allow the use of the 470-862 MHz band, to foster the use of the so-called white spaces, are not currently fulfilled, and refers to the preparation work for discussion of this subject at WRC-11. It also recommends that studies are carried out to identify which applications could share spectrum, with a quantification of spectrum efficiency gains and economic gains. It favours testing this type of systems in digital dividend spectrum bands to be possibly identified and reserved for testing purposes with equipment and/or systems developed with new technologies and testing of innovative solutions.

RTP requires the guarantee that sufficient studies will be made before a possible application is implemented, to avoid any interference in its use.

VODAFONE, as well as the entity that requested to remain confidential, believe that this technology is at a very early stage of development, and that it would be too soon to clearly define the conditions which should be fulfilled to enable such a use. It indicates that the USA has registered some interest in the implementation of this technology, however cognitive system testing carried out by FCC, apart from failing to achieve a significant success, are not so relevant for Europe. VODAFONE is also of the opinion that when the cognitive system technology matures, ICP - ANACOM should consider authorizing only systems which use a data base with references to the remaining spectrum users.

MEDIA CAPITAL reiterates its comments to question 29.

33. What other applications, services and technologies do you consider that could now or in the future be specifically supported on the digital dividend's frequency bands?

GRUPO PT, ONITELECOM and SONAECOM do not identify any other applications, services or technologies to be supported on the digital dividend's frequency bands than those already identified in the consultation document. SONAECOM, however, stresses the need to safeguard spectrum for the development of technological innovation and of services.

VODAFONE reiterates the support of services related to mobile broadband Internet access and broadcasting.

RTP takes the view that the development of applications, services or technologies will be more relevant after a wider DTT dissemination among the Portuguese population.

The entity that requested to remain confidential reinforces that the provision of part of the digital dividend to mobile communications will allow the provision of broadband to all and anywhere, without a limitation in the type of services supplied.

34. Do you consider that it is desirable to allow long-run pilot-tests of technologies and services using the digital dividend's spectrum? In any domain, specifically?

GRUPO PT, SIC, ALCATEL-LUCENT, VODAFONE, ONITELECOM, SONAECOM, RTP and ZON consider it desirable to allow long-run pilot-tests of technologies and services using the digital dividend's spectrum.

GRUPO PT deems it important to assess the possibility of reserving digital dividend's spectrum for testing purposes with technologically innovative technologies.

SIC declares it would be useful to authorize long-run pilot-tests, insofar as the spectrum occupation of such technologies is not excessive.

ALCATEL-LUCENT also supports extensive testing of technologies and services using the digital dividend's spectrum, although subject to a controlled scope and conditions.

VODAFONE shows interest in performing for itself mobile broadband pilot-tests using the digital dividend's spectrum.

ONITELECOM favours BWA system testing to support fixed, mobile and nomadic applications in sub-bands in which equipment is available.

SONAECOM considers that it would be in the national interest to authorize long-run pilot-tests of technologies and services using the digital dividend's spectrum. It adds that it deems necessary to ensure the disclosure of authorizations granted by ICP - ANACOM, stating the time-limit, objective of tests, identity of applicants and geographic scope.

RTP believes that pilot-tests could help identifying the potential interest of each use in the different areas, the scope and period of performance being clearly defined, to allow supervision by any monitoring committees to be established, thus avoiding the spectrum occupation to be definitive.

ZON considers pilot-testing of technologies and services using the digital dividend's spectrum to be an extremely relevant initiative.

III. ICP – ANACOM'S POSITION

The most consistent conclusion which may be drawn from this consultation procedure is that the market believes the digital dividend to be an opportunity to create wealth for the country and to correct the so-called "digital divide". Assumed by most respondents to be a potential contribution to national cohesion and to a boost to economy, both at national and international level, an appropriate use of the digital dividend may possibly lead to the provision of new services and to innovative solution at better prices, and consequently, it is regarded as a relevant factor for the development of the information society.

Part of the market also acknowledges the potential impact of the digital dividend on a social and cultural level, and in this context, it is regarded as an important instrument for audiovisual and communication policies, and as a factor for promotion of freedom of speech, pluralism and diversity.

In a more or less explicit way, respondents acknowledge the benefits of a harmonized use of spectrum as regards the digital dividend, or at least part of it, although tending to disagree on whether it should be compulsory, in order to leave room for consideration of each Member State's specificities in this domain.

Although not all entities agree on the extent of a possible harmonization, degree of Community intervention and involved services, respondents acknowledge the positive consequences of such a harmonization, namely: i) economies of scale at the level of network and terminal equipment (which is even more relevant in less populated countries) with positive impact on costs; ii) better performance of equipment operation; iii) minimization of interference in the use of spectrum between Member-States and between the latter and third countries; iv) greater service interoperability/compatibility (fundamental as regards roaming services). These positive consequences should be understood as enabling the maximum

efficiency in the use of spectrum, leading, in an economic and social perspective, to more consumer benefits.

As regards the identification of frequency bands which could be used in a harmonized context, the 790-862 MHz sub-band is specially preferred by respondents.

It is also clear from the present consultation procedure that most respondents favour a uniform use of the digital dividend throughout national territory, given that they consider that this benefits both national and international coordination, and also the articulation between the several operators and services, enabling an optimal use of spectrum. ICP - ANACOM broadly supports this position.

As far as the implementation of technological and service neutrality principles in the allocation of spectrum is concerned, views were mixed between respondents. If, on the one hand, the principles of technological and service neutrality seem to have some support, on the other hand a group of entities maintains its position against flexible technologies and/or services to be implemented, because they generally believe that these measures would lead to interferences, a fragmented use of spectrum and, in bands allocated for broadcasting, a disproportionate risk for the promotion of cultural and linguistic diversity of the media.

In this scope, it should be reminded that ICP - ANACOM has special powers as regards the guarantee of the technological neutrality of regulation, under paragraph 8 of article 5 of the ECL, being also responsible for implementing the principle of the use of spectrum in conditions of neutrality and flexibility according to EC's Decisions, namely considering studies carried out by CEPT for bands identified as WAPECS. The Authority also acknowledges the relevance of the definition of the framework that applies to the secondary trading of spectrum (already governed in Law number 5/2004) and to the improvement of the regime of transfer of rights of use for frequencies, which are in a development stage and will in due time be submitted to public consultation.

With regard to the selection procedure, some entities showed their preference for a public tender, while others chose not to specify any model, emphasizing however that it should be transparent and non-discriminatory, ensuring equal conditions of participation by all competitors. In the appropriate framework and resorting to the common consultation mechanisms, ICP - ANACOM will define the procedure to be adopted, which will be unmistakably clear.

As regards high-definition television, although most entities who assessed this issue acknowledge the possibility of a development based on terrestrial digital broadcasting, replies vary on the values of bandwidths which should be reserved for the purpose. As far as a schedule is concerned, television operators unanimously consider that they should be given an opportunity to broadcast their programme services in HD mode as soon as possible after the switch-off, a view with which ICP - ANACOM agrees, in the perspective of the use of radio spectrum, taking into account technical issues which may arise.

In the scope of transmission formats that require larger bandwidths, namely Ultra HDTV or three-dimensional, entities more directly involved in television activity seem to agree that measures on spectrum which in the future may hinder television operators from developing these new services should not be taken.

As far as the allocation of digital dividend frequencies for broadcast mobile television service is concerned, most respondents consider that radio coverage for the provision of this service, to be shared by all interested operators, should be made available as soon as possible and following a public tender procedure. As regards the technology to be used, opinions of respondents are mixed between a compulsory use of the DVB-H standard and the adoption of a principle of technological neutrality.

With regard to regional or local television services, replies received do not enable a clear conclusion on the allocation of additional spectrum for this type of coverage.

In the scope of questions on digital audio broadcasting, replies received also fail to lead to any major conclusions, both as regards the spectrum to be reserved and the future of T-DAB, DAB-IP or T-DMB technologies, nonetheless, it seems that the allocation of some of the planned networks to media groups could possibly make the service viable.

The possibility of allocating part of the digital dividend for mobile broadband applications was by large the issue which raised the most participation and interest of respondents.

Most respondents, although acknowledging the challenges posed by such a measure, support the allocation, as soon as possible, of the 790-862 MHz sub-band to mobile broadband applications. This support exists even if Spain continues to use this sub-band for broadcasting services, case in which international coordination is deemed to be fundamental to ensure the necessary compatibility in border areas.

In this context, most respondents consider that the benefits resulting from the allocation of the 790-862 MHz sub-band would have repercussions on national society and economy, namely enabling a wider broadband Internet access in rural areas, on account of the lower number of stations to be implemented, compared to other bands currently used. In their opinion, access to broadband application through these frequencies will be an instrument for info-inclusion, minimizing the digital divide, enabling at the same time that Portugal remains at the forefront of the mobile service market.

However, entities connected to the broadcasting sector expressed views against the allocation of the referred sub-band, although one of them acknowledges that it will be very difficult for Portugal to adopt a position which may hinder the harmonization of the sub-band at European level.

Several respondents refer in this scope the study prepared by Spectrum Value Partners, which demonstrates the value obtained with the allocation of spectrum to mobile services, by comparison to benefits achieved in case spectrum is allocated to the broadcasting service.

In this respect, ICP - ANACOM stresses that since the launch of this consultation up to the present day, several European countries decided to provide the 790-862 MHz sub-band to broadband electronic communications services, according to WAPECS principles, namely Denmark and the United Kingdom, and in the light of proposals put forward by the respective Government, it seems that an identical decision will be adopted by Spain, which naturally will have a stronger impact on Portugal's decision in this scope. It should also be highlighted that it is likely that more European countries take an identical decision, increasingly reinforcing a *de facto* harmonization at European level as far as this band is concerned. As such, a general tendency for its allocation to mobile broadband applications – now also in Spain – is starting to shape up, a fact which must be carefully weighted on a final decision in this matter, namely taking into account the high isolation risks Portugal could face in this scope. On the other hand, the European Commission clearly points towards a European harmonization of this sub-band in the ongoing public consultation. ERG's opinion¹⁰ of 3 June 2009 on this issue is also relevant, supporting RSPG's preliminary opinion¹¹, of 13 May 2009, and acknowledging that the implementation schedule in the different Member States, as regards harmonization, will depend on national circumstances.

¹⁰ http://erg.ec.europa.eu/documents/docs/index_en.htm - ERG (09)26 – Digital Dividend: a once in a lifetime opportunity for Europe.

¹¹ http://rspg.groups.eu.int/ref_doc/index_en.htm - RPSG09-272.

Following this consultation procedure, and taking into consideration the expected developments at Community level, ICP - ANACOM will take a formal position on this matter, in the appropriate framework given the current legal system, and it is likely that this position tends towards the provision of this sub-band to broadband electronic communications services, according to WAPECS principles.

In this perspective, it should be referred that any decision to provide the 790-862 MHz sub-band to broadband electronic communications services will imply the alteration of radio channels currently used by DTT in Portugal, and probably impact the respective implementation. However, it should be stressed that such an allocation should not jeopardize the possibility of television development, namely as regards the possibility of implementation of DTT networks of a narrower coverage and for other reception modalities, such as mobile.

ICP - ANACOM is aware that the impact of a decision on these lines will be considerably lower the sooner it is taken.

Lastly, and as regards the remaining potential uses of the digital dividend identified in the consultation – except for the permission for long-run pilot-tests, with which all respondents who assessed the issue agreed on and which will be taken into due account by ICP - ANACOM in the future use of the dividend – contributions received are mixed as far as an exclusive allocation of spectrum to these applications is concerned, being ICP – ANACOM's opinion that it will be appropriate to await for any developments at European and national level, before a decision on this matter is taken.