The Response of Motorola Ltd

to the

Consultation on The Digital Dividend Review: 550-630 MHz and 790-854 MHz

Motorola is grateful for the opportunity to contribute to the consultation on the auction of the cleared spectrum arising from the switch off of analogue television

Question 1: This executive summary sets out our proposals for the Digital Dividend Cleared Award. Do you agree with these proposals?

Motorola appreciates the early consultation on the Digital Dividend and also agrees in principle with the proposals outlined in the executive summary. However, we have some comments regarding particular points.

We fully support the award of the two spectrum bands 550-630 MHz and 790-854 MHz. However, Motorola advocates that activities within CEPT should be taken into account, in relation to the sub-band 790-862 MHz. This is also inline with the decision taken at the WRC-07, where the spectrum 790-862 MHz was allocated to the mobile service on a primary basis together with identification to IMT. We are therefore also of the belief that the upper band will be mainly used for mobile communication systems and thus for this part only one slot size, namely 5 MHz should be considered. Regarding the technical license conditions we are of the belief that the BEM approach would be more suitable as opposed to Spectrum Usage Rights (SUR), especially for the band 790-854 MHz due to the more complex and cost intensive verification required for SUR.

Question 2: Do you agree with our proposal to include the interleaved spectrum in channels 61 and 62 in the cleared award?

Yes, we agree to include the interleaved spectrum in channels 61 and 62 in the cleared award.

Question 3: Do you agree with our proposal not to allow licence-exempt use of channels 61 and 62 by cognitive devices?

Yes. We support the reasons OFCOM mentioned in the consultation document and so we believe licence-exempt use of channel 61 and 62 by cognitive devices should not be allowed.

Question 4: Do you have any comments on our assessment of the most likely uses of the cleared spectrum and the amount of spectrum required for these services? Are there any other potential uses that we should consider?

Based on the decision taken WRC-07 to allocate the 790-862 MHz band to the mobile service on a primary basis together with identification to IMT and the ongoing activities within CEPT this part of the UHF band will be very likely be used for mobile communication systems. Therefore, we are of the opinion that the band 806-854 MHz of the cleared spectrum should be only available for mobile communication. Motorola is also of the belief that including channel 69 (855-864 MHz) in the award process would be of great benefit for deploying mobile communication systems due to the harmonization with the other CEPT countries.

There is a projected future need for broadband mobile communications for the emergency services. Whilst work on these requirements is at an early stage, an allocation somewhere in the UHF band (therefore including consideration of the sub-bands under discussion in this consultation) appears most suitable. However, such use would be unlikely to require special channel or other technical arrangements and so could be considered as another possible mobile service consistent with the arrangements foreseen were it to be decided to locate these services in these sub-bands.

Question 5: Do you agree that we should proceed with our current timetable, with a view to holding the cleared award in summer 2009?

The award should be done as soon as practicable taking into account the ongoing activities within the European arena.

Question 6: Do you have any views on the appropriate notice period for temporary PMSE access to channels 63-68, and/or on whether or not extend temporary access to channels 31-40?

No view.

Question 7: What are your views on deferring the start date for rights to use cleared spectrum in London to help meet the need for wireless microphones and other audio links for the London 2012 Olympic Games and Paralympic Games?

As the Olympic Games are of high public interest and therefore increased demand for such equipment will be required, Motorola is of the opinion that it is reasonable to defer the start date of the licenses.

Question 8: Do you agree with the use of SURs as the approach for defining consistent TLCs for this award?

Motorola believes it will be very likely that the upper part of the band (790-854 MHz) will be used by public mobile communication networks, the BEM would be the more appropriate way to define TLCs. As Motorola already comment in previous consultations, mainly regarding the 2.6 GHz band, we perceive it to be difficult and very costly to measure and verify the pfd limits, especially for terminals.

Question 9: Do you have any comments on the SUR parameters listed in Tables 5.1 to 5.5 and the assumptions used to derive them?

The values defined in Tables 5.1 to 5.5 are derived from simulation results for a single network using different current standards (3GPP, IEEE 802.16e,…). For the definition of future-proofed technical license conditions also the latest developments by standardisation bodies, such as from 3GPP, should, in our opinion, be considered.

However, as mentioned in response to the previous question, we have concerns regarding the verification of the SUR limits, especially for terminals. Therefore, Motorola would prefer that TLCs are defined based on BEMs.

Question 10: Do you agree with our proposals for managing interference between new services in the DDR cleared spectrum?

We agree that a guard-band would be an appropriate measure to manage interference between services in the band. However, it is beneficial to minimise the number of guard bands. So therefore, it would be appropriate to group operators deploying same services together. In particular for the upper part of the spectrum (790-854 MHz), taking into account that here mobile communication systems will be deployed, we belief that the most appropriate band plan would be to use the whole band for FDD with FDD DL in the lower part to minimize the guard band. Although the proposed guard bands are based on measurements (ERA) taking into account one transmitter and one receiver, we are of the belief that this assessment is a worst case situation with similar outcomes as when using a deterministic analysis. So, performing system simulations could lead to more realistic guard bands, which could be maybe smaller.

Question 11: Do you agree that the most efficient and effective means of preventing interference to the existing DTT services is by the addition of a protection clause to licences in the cleared spectrum? If not, what alternative approach would you suggest?

We share the opinion with OFCOM that a protection clause as proposed would be effective. We note this approach has advantages for broadcasters as well as new licensees.

Question 12: Do you agree that the best way to finalise the protection clause approach and to address the practical implementation issues is through direct engagement with interested stakeholders? With which stakeholders should we engage?

We agree that the best way forward in finalisation of this protection clause will be by engagement of stakeholders. Operators of new services as well as DTT operators should be involved in this process. Where necessary, the involvement of equipment vendors should also be considered.

Question 13: What do you believe would be the implications of protecting indoor/set-top antennas? Should a distinction be drawn between set-top antennas and larger antennas designed for external reception of TV signals that are loft-mounted?

Although we recognize that approximately 5% of households currently use set-top antennas, OFCOM should retain its current interference policy due to the additional difficulties to protect this type of antennas.

Question 14: Do you agree with our proposals for managing interference between new and existing users?

Motorola agrees with OFCOM that awarding the channel adjacent to existing DTT as a specific lot category in the auction would be more valuable then utilising it as a guard-band.

Question 15: Do you agree with the proposed propagation models and databases to be used for compliance assessment?

We agree to use the ITU-R P.1545-3 and propagation model for base station to mobile station, base station to base station and mobile station to base station interference scenarios when distance is over 1km. If distance is less than 1km then the ITU-R P.1411-4 model should be used. For the mobile to mobile interference scenario we support the use of ITU-R P.1411-4.

Question 16: Do you have any comments on the transmit masks set out in paras 5.130 to 5.132?

In principle we agree with the spectrum transmit masks as set out in these paragraphs. However, as already indicated in this response (see above) we also note the recent developments within the different standard bodies, like 3GPP and others and advocated that they be considered as well. The defined spectrum masks for the different systems should be future-proof and therefore also taken into account channel bandwidths up to 10 MHz.

Question 17: Do you agree that where the cleared spectrum is used for the operation of a DTT multiplex, we should replicate the ownership restrictions from the Broadcasting Act regime relating to (a) local authorities, (b) political bodies, (c) religious bodies and (d) bodies exerting undue influence but not replicate restrictions relating to (e) broadcasting bodies and (f) advertising agencies?

No view

Question 18: Do you agree that we should facilitate interoperability between existing DTT multiplex operators and new operators using cleared spectrum?

No view

Question 19: We welcome views on the relative merits of such an approach to information provision; in particular concerning the type of information that may be helpful and any impacts that publication of information might have both on licence holders and the wider spectrum market.

No view

Question 20: Do you agree that the cleared award should include both 8 MHz lots for DVB-T and MMS TLCs and 5 MHz lots for FDD and TDD TLCs across the band?

In our opinion considering two different lot sizes across the whole band will lead to a very complex auction. Therefore, it would be probably more reasonable to have only one slot size for a certain spectrum band. For the upper sub-band (790-854 MHz), it will be very likely that only mobile communication systems will be deployed, which are using 5 MHz lots. Therefore, especially for this upper part only a 5 MHz slot arrangement could be used for the auction.

Question 21: Do you agree that the cleared award requires a mixture of frequency-specific and frequency-generic lots to be offered in the auction?

Motorola supports the hybrid approach as proposed by OFCOM to use a mixture of frequency-specific and frequency-generic lots, however, the upper part (806-854 MHz) should be reserved for mobile communications.

Question 22: Do you agree with the proposed outline definition of lots suitable for MMS, DVB-T, TDD and FDD applications?

Motorola appreciates that mobile communication systems would be also permitted in the lower part of the band (channel 31-37). Recognising that the upper part was assigned to mobile communication at the WRC07 and due to the digital switchover, not all the spectrum would be required for DVB-T, we would prefer to limit the lots for MMS and DVB-T to the lower part (channels 31-40). Because the upper part is only 64 MHz, we believe that FDD and TDD cannot efficiently coexist due to requirement of a guard band. Therefore, only FDD UL and FDD DL should be available as lot categories, with FDD

DL set below FDD UL as proposed by OFCOM. Further we would see an advantage for the auction process, if FDD DL and FDD UL would be awarded together (in matched pairs) to have a fixed duplex distance between FDD UL and FDD DL.

Question 23: Should the flexibility to bid for lots defined on both fixed and variable-frequency rasters be preserved in the auction? If not, which are preferred?

Motorola would see to an advantage of having a fixed frequency raster to facilitate the process of international coordination and harmonisation across Europe. For the upper sub-band a 5 MHz raster would be reasonable.

Question 24: Do you agree with the proposed basis for awarding Channel 38 as a distinct lot in the auction?

No strong view

Question 25: Do you agree with the proposed structure of frequency rules for allocating different licence types in the auction? Are there any amendments that would improve the efficiency of spectrum allocation via an auction?

The OFCOM proposal for FDD/TDD is 1 MHz raster, duplex gap at least 10 MHz, FDD DL paired with FDD UL with a duplex distance of at least 25 MHz; FDD UL always at higher frequency, except for channels 39 & 40;

In principle we agree with the proposed frequency rules. However, we note that a fixed raster could be used in the upper sub-band to simplify the award process. This could be a fixed raster of 5 MHz to be consistent with mobile communication standards. We also support that FDD DL and UL should be separated by a duplex gap of at least 10 MHz. Regarding the duplex distance between FDD DL and FDD UL we see 25 MHz a reasonable size for smaller channel bandwidths. However, for higher channel bandwidths (e.g. 10 MHz) we would see a duplex distance of 30 MHz more realistic.

Question 26: Do you agree with our proposal to proceed on the basis of UK-wide lots?

Yes, we agree that UK-wide slots would be most meaningful to address a UK-wide market.

Question 27: Do you favour including the available cleared spectrum in (a) Guernsey and (b) Jersey in the geographic coverage of the licences to be awarded? If not, what approach do you favour instead?

No view

Question 28: Do you agree that the combinatorial clock auction is the most suitable auction design for the cleared DDR award?

No view

Question 29: What potential simplifications, if any, could be made to the proposed lot structure for DVB-T, MMS, TDD and FDD lot categories which would still reflect the most important differences in value between lots?

No view

Question 30: Do you have any comments on our proposals for the Application and Qualification Stages of the combinatorial clock auction for the cleared DDR award, including our proposals for initial deposits?

No view

Question 31: Do you consider that it is important to distinguish relative weightings in advance between the eligibility points of the different 1 MHz blocks available in this award? If so should this be restricted to channels 36, 38, 61 and 62 and what do you consider these relative weightings should be?

No view

Question 32: Do you have any views on whether an ex ante eligibility points activity rule or a revealed preference activity rule should be used in this award?

No view

Question 33: Do you have any views on whether there should be restrictions on bidders' ability to bid on multiple technical licence types within single package bids or between different rounds of the auction and whether bidder association rules should potentially be adjusted to cater for any such restrictions being imposed?

No view

Question 34: Do you have any further comments on any aspect of our proposals for the Principal Stage of the combinatorial clock auction for the cleared DDR award?

No view

Question 35: Do you have any comments on any aspect of our proposals for the Assignment Stage or the Grant Stage of the combinatorial clock auction for the cleared DDR award?

No view

Question 36: Do you agree with our approach to assessing whether the award of cleared spectrum fully promotes competition and efficiency?

No view

Question 37: Do you have particular concerns about possibilities for award outcomes to fail to fully promote competition in downstream markets or to result in inefficient use of spectrum? If so, please explain what these are and provide supporting evidence.

No view

Question 38: Do you agree with our view that we should introduce a general safeguard cap aimed at promoting diversity of spectrum holdings? Do you have views concerning the level of such a cap?

We agree that a spectrum cap of approximately 50 MHz would be appropriate.

Question 39: Do you agree with our proposals to include an information provision licence condition to help facilitate efficient secondary trading?

Yes, we agree.

Question 40: Do you agree with our view that we should not apply any other general remedies in the cleared award?

No view

Question 41: Do you agree with our identification of the three areas requiring further attention?

We agree that the area of mobile broadband requires further attention. We are aware that on European level there are several ongoing activities, which may have to be taken into account. Motorola sees a strong benefit of a harmonised approach across Europe.

Question 42: Do you agree with our assessment that the limitations on the amount of cleared spectrum available for mobile broadband applications, and the particular advantages of sub 1GHz spectrum, could result in an outcome where there are limits on the level of competition possible in the provision of these services?

No view

Question 43: Do you think that a soft spectrum cap on either (a) the cleared spectrum suitable for mobile broadband applications alone, or (b) the holding of any sub 1GHz spectrum suitable for mobile broadband applications, which would trigger action if a significant competition concern emerges in relation to the market structure in the future mobile broadband market, could be an appropriate approach to these concerns?

No view

Question 44: Do you agree with our assessment that issues in the pay TV market are not at this stage primarily an issue for the cleared award?

No view

Question 45: Do you agree with our initial assessment that we should not intervene further in the cleared award to remedy any potential impact on competition resulting from the holding of cleared spectrum by NGW/Arqiva?

No view

Questions and comments regarding this response should be addressed to T. Cull in the first instance

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