

UMTS Forum response on the consultation 07-3984 regarding licences in the frequency bands 1900–1905 and 2500–2690 MHz

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The UMTS Forum represents a significant group of spectrum users, who are interested in the development of public mobile communication networks including UMTS/IMT-2000 and, especially, its related spectrum topics. UMTS Forum is a cross sector group with many different players involved in third generation (3G) mobile communication systems, including equipment manufacturers, operators, administrations, service providers and software developers.

UMTS Forum appreciates the opportunity to express its views and concerns on setting out the effective use of the radio frequency spectrum, to public mobile broadband communication usage, particularly for the band 2500 – 2690 MHz. UMTS Forum largely agrees with the proposals from PTS.

Please find below the UMTS Forum detailed responses as per your consultative request 07- 3984.

Question 1: What is your opinion on PTS's proposal to award the frequency bands 1900–1905 and 2500–2690 MHz during the first six months of 2008?

- In regard to the sub-band 1900 – 1905 MHz

UMTS Forum understands that neither the commercial activities nor the technologies in the band 1900 – 1920 MHz have matured enough to provide any services of significance, since the earlier award process. This may still be relevant to the near-future; therefore, it might be beneficial to wait with any new award process of this band until a later time, when more mature solutions are available.

- In regard to the sub-band 2500 – 2690 MHz

From a technology point of view the timing is probably appropriate for some of the technologies for public mobile communications, such as UMTS/IMT-2000 HSPA; however for technologies



such as UMTS/IMT-2000 LTE and in particular for some other technologies the timing is somewhat early.

The band is identified for use on worldwide basis for terrestrial IMT-2000; therefore it could be beneficial to coordinate the timing of an award process and the availability with other countries.

Question 2: What is your opinion on PTS's proposal to award national licences in the frequency bands 1900–1905 and 2500–2690 MHz?

Based on the estimated future traffic increase, UMTS Forum agrees that there are predicted needs for the extension of the UMTS/IMT-2000 services in the band 2500 – 2690 MHz, and that harmonization is necessary to provide clarity, and the need for having a predictable regulatory framework in place to be able to develop technologies and services in a timely manner is crucial.

UMTS Forum considers the band 2500 – 2690 MHz to be the most important, and the only available, international extension band for UMTS/IMT-2000, which will provide for the evolution of IMT-2000 standards and services up to the point in time where spectrum identified at ITU-R WRC-07 and would be made available perhaps around year 2015.

On a more general note, the bands are internationally harmonized for terrestrial IMT-2000 systems and designated to UMTS/IMT-2000 within CEPT in accordance with ECC/DEC/(05)05 and ECC/DEC(06)01. UMTS Forum is surprised that PTS yet not signed and endorsed the Decisions ECC/DEC/(05)05, and encourages PTS to do so.. UMTS Forum understands that the failure to sign this Decision has created uncertainty to its members.

UMTS Forum agrees with the assessments, made by PTS, in regard to favouring national licenses, and understands that local or regional licenses would risk destabilizing the longer-term public mobile broadband communication business developments in this band. Additionally, national licenses in these internationally harmonized bands would better provide for roaming and seamless operations between countries while providing affordable devices and services to consumers benefiting from the economy of scale of devices and services. UMTS Forum agrees with the view that spectrum trading is better facilitated by national licenses and this could also provide for a higher value of spectrum and an adequate market based spectrum management practice and as such most of all, consumers would be better served.

Question 3: What is your opinion on PTS's proposal to award:

- a) Technology and service neutral licences in the 2500–2690 MHz band, and**
- b) 1900–1905 MHz for UMTS–TDD?**

- In regard to Q3a (sub-band 2500 – 2690 MHz)

UMTS Forum understands that the current legislation already provides a “technology neutral” policy, the international treaty text of the ITU-R RR Article 5 provides for a “technology neutral” approach, the ECC/DEC/(05)05 allows for “technology neutral” implementation, the IMT-2000 Recommendation ITU-R M.1457 contains 5-6 standards; accordingly UMTS Forum does not see any new break-through spectrum policy aspects to be considered in the award process in relation to this sub-band.

UMTS Forum does not fully understand what is intended with the connotation “service neutrality”, and accordingly cannot respond to that part of the question.

- In regard to Q3b (sub-band 1900 – 1905 MHz)

In general the radiocommunication systems using a frequency duplex division (FDD) scheme are better suited for mobile operations in multi operator situations and for wide area coverage networks. The sub-band is located adjacent to other channels that was earlier awarded for unpaired operations, but also adjacent to the UMTS/IMT-2000 uplink band 1920 – 1980 MHz. UMTS Forum understands that the earlier coexistence studies did not fully take into account the difficult coexistence situation between the unpaired sub-band 1900 – 1920 MHz and the paired band 1920 – 1980 MHz. PTS is invited to consider reviewing the remaining regulatory conditions in relation to the whole band 1900 – 1920 MHz as to allow the band to be used as an uplink band for pairing with any other suitable downlink bank in order to resolve the difficult coexistence situation between the unpaired and paired operations while trying to find improved technical and business solutions.

Question 4: What is your opinion on PTS's proposal to award:

a) 2570–2620 MHz for TDD, and

b) 2500–2570 and 2620–2690 MHz for FDD uplink and downlink?

UMTS Forum largely agrees with PTS with regard to the suggested spectrum arrangement in the band 2500 – 2690 MHz.

- In regard to Q4a (sub-band 2570 – 2620 MHz)

UMTS Forum understands that TDD could be considered in this band; however, other duplex methods should also be allowed subject to market demand.

UMTS Forum agrees that any need for guard bands between operations in the different sub-bands should be taken from the sub-band 2570–2620 MHz. According to 3GPP, if TDD would be introduced in the sub-band 2570 – 2620 MHz, there is an estimated need to introduce a 15 megahertz guard band in the block 2570 – 2585 MHz and 10 megahertz guards band in the block 2610 – 2620 MHz. This would only allow for one TDD operator for reasons of the need for additional guard bands between several TDD operators, as also noted in the proposal of PTS.



Usually, in order to provide viable business cases there is a need to have several channels per operator.

Therefore UMTS Forum sees some merit in referring TDD technologies to other bands, such as the band 3400 – 3600 MHz, 3600 – 3800 MHz, or perhaps the band 2300 – 2400 MHz.

- In regard to Q4b (sub-bands 2500 – 2570 MHz and 2620 – 2690 MHz)

UMTS Forum strongly advocates the view that the bands 2500 – 2570 MHz and 2620 – 2690 MHz should only be used for FDD, in agreement with the PTS proposal. These internationally harmonized sub-bands would best support international roaming, interoperability and seamless operations between countries. A possible mixture of duplex schemes, as suggested by one country in Europe, in these paired bands would make the interference situations and cross border coordination exceptionally complex and part of the spectrum would be lost to guard bands and geographical restrictions.

UMTS Forum agrees with PTS on the general suggested spectrum arrangement and regarding the paired sub-bands 2500 – 2570 MHz and 2620 – 2690 MHz as being essential for UMTS/IMT-2000 and its long term evolution (LTE) systems to provide the consumers with public mobile broadband communication services. These paired sub-bands will be essential to provide the more capable broadband services using wider channel bandwidth, but still adhering to the 5 megahertz channelling arrangement in accordance with ECC/DEC/(05)05. There is also a fair possibility for different FDD standards and technologies to operate within the sub-bands 2500 – 2570 MHz and 2620 – 2690 MHz, and within the 5 megahertz channelling arrangement; therefore, the tentative wish of introducing a “technology neutral” practice in Sweden would be satisfied already within the IMT-2000 framework.

Question 5: What is your opinion on PTS's proposal to award:

a) One licence (5 MHz) in the 1900–1905 MHz band (UMTS–TDD)

b) One licence (50 MHz) in the 2570–2620 MHz band (TDD)

c) 14 paired frequency blocks each of 2×5 MHz in the 2500–2570 and 2620–2690 MHz bands (FDD)?

- In regard to Q5a (sub-band 1900 – 1905 MHz)

UMTS Forum has no further views on the number of licenses; however, for a viable business case this band is too small in terms of bandwidth even for one operator to operate a UMTS-TDD network. Therefore, the PTS is invited to consider further options, such as allowing for pairing with other bands using this band as the uplink band. This is also addressed in the ECC/DEC/(06)01. See also our answer to Question 3b.

- In regard to Q5b (sub-band 2570 – 2620 MHz)

UMTS Forum has no further views on the number of licenses; however, PTS could further consider assessing the market needs for FDD or TDD in this band as the DEC/ECC/(05)05 indicates that the national usage in this band could be either FDD or TDD, and in addition the ECC/DEC/(06)01 suggests the option of pairing this sub-band with uplink bands external to the band 2500 – 2690 MHz. PTS might find this useful to consider further before any firm decision is taken. This band is regarded to be too narrow for a viable business case for TDD multi operator environment, therefore other bands could be considered for TDD operations. It is further noted that other technologies, using TDD schemes have profiles that would allow for operations in other bands such as the bands 2300 – 2400 MHz and 3400 – 3800 MHz. See also our answer to Question 2.

- In regard to Q5c (sub-bands 2500 – 2570 MHz and 2620 – 2690 MHz)

UMTS Forum has no further views on the number of licenses; however based on the estimated future traffic increase for public mobile broadband communication services, UMTS Forum agrees that there are predicted needs for the extension of the IMT-2000 services in the paired sub-bands 2500 – 2570 MHz and 2620 – 2690 MHz, and that harmonization to the channelling arrangements to adhere to the 5 megahertz structure is essential. For a mobile system and in a multi operator environment providing services for wide area coverage a FDD arrangement is superior over a TDD arrangement. This arrangement is supported by associated international regulations, such as ECC/DEC/(05)05. Further considering the evolution of UMTS/IMT-2000 towards UMTS/IMT-2000 LTE, it is important that operators could introduce wider and contiguous blocks of spectrum (at least 2 x 20 MHz as a minimum) to be able to provide high data rate services. See also our answer to Questions 2 and 4b.

Question 6: What is your opinion on PTS's proposal for bids in the auction for 2500–2570 and 2620–2690 MHz to refer to a specific 2×5 MHz block?

UMTS Forum agrees with PTS, and is of the view that it is essential to implement the 2 x 5 megahertz channelling structure while allowing operators to acquire contiguous blocks of paired spectrum that would allow for the later introduction of evolutionary UMTS/IMT-2000 systems such as UMTS/IMT-2000 LTE, which are capable of using wider channels than the current 5 megahertz but operating within the 5 megahertz bandwidth channel raster. UMTS Forum is pleased to take note of the fact that the proposal of referring to specific 2 x 5 megahertz block is in line with the ECC/DEC/(05)05.

Question 7: What is your opinion on PTS's proposal to not have roll-out or coverage obligations in the licences?

UMTS Forum has no comments to this proposal.



UMTS
Forum

Page 6 (7)

Question 8: What is your opinion on PTS's proposal for a 110 MHz spectrum cap for those applying for both FDD and TDD frequencies in the frequency band 2500–2690 MHz?

UMTS Forum has no comments to this proposal.

Question 9: What is your opinion on PTS's proposed spectrum masks for FDD base stations (Figures 1–3)?

UMTS Forum has several technical concerns with the proposed spectrum mask for the FDD base stations. The masks are largely built on the 3GPP specifications, but are also based on assumptions on the radio frequency (RF) power and antenna gain that goes beyond what is comfortable for the manufacturing industry. Particularly while considering the future deployments of UMTS/IMT-2000 LTE. Considering that the proposed spectrum masks could introduce unforeseen exposure to interference and that operators might have to take particular measures, including site engineering, UMTS Forum invites PTS to reconsider the limits of the proposed spectrum mask and revert to the original 3GPP spectrum mask specification. This would remove barriers to international roaming and placing products on the Swedish market.

Question 10: What is your opinion on PTS's proposed spectrum masks for TDD base stations (Figures 4–5)?

UMTS Forum is concerned of likely unfortunate influence from the UK Ofcom proposals. The Forum therefore wishes to invite PTS to reconsider by introducing the 3GPP characteristics which better provides for coexistence.

Question 11: What is your opinion on PTS's proposed spectrum masks for FDD and TDD terminals (Figures 6–7)?

UMTS Forum has several technical concerns with the proposed spectrum mask for the FDD mobile stations. Particularly while considering the future deployments of IMT-2000 LTE. Considering that the proposed spectrum masks could introduce unforeseen exposure to interference, UMTS Forum invites PTS to reconsider the limits of the proposed spectrum mask and revert to the original 3GPP spectrum mask specification. This would remove barriers to international roaming and placing products on the Swedish market. Particular concerns are raised in regard to the diverting regulatory conditions for the mobile station; UMTS Forum is convinced that regulatory conditions for the mobile station should refer to international recognized technical conditions taken from relevant Harmonized Standards, e.g. by referencing the EN 301 908.



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Page 7 (7)

Question 12: What is your opinion on PTS's proposed technical conditions for the frequency band 1900–1905 MHz?

See our response to Question 1.
