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Attending to this matter
GR/EIL/MCM Sreenivasa Reddy

CC:
Shri. Nripendra Misra
Chairman, TRAI

To:
Shri. Sudhir Gupta, Advisor (MN)
THE TELECOM REGULATORY AUTHORITY OF INDIA
Mahanagar Doorsanchar Bhawan,
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New Delhi : 110 002

Ericsson's Response to TRAI Consultation Paper on Allocation and Pricing for 2.3-2.4 GHz, 2.5-2.69 GHz & 3.3-3.6 GHz Bands

Dear Sir,

We thank TRAI for providing an opportunity to respond to the above consultation paper. Ericsson supports and welcomes the release of additional spectrum which can further support valuable mobile broadband access services and the ever increasing broadband traffic in the current mobile networks.

a. Ericsson understands that it is important to keep a right balance of FDD and TDD, because
    1. The recent bids have shown that there is more competition for FDD spectrum and that the bidders value the FDD bands much higher than TDD bands. This is because the FDD technologies provide proven efficiency by representing a significant innovative force, larger ecosystem and economies of scale, which guarantee affordable broadband services to the consumers.
    2. All current public mobile communication network are operated under FDD access schemes serving more than 3 billion subscriptions
    3. Hence, the FDD bands should not be turned into a TDD band as it represent such a valuable resource and fore reasons that is more demanding to identify in the first place.
    4. In the recent bids, the FDD part of the bands has collected much larger monetary amounts to the government than the TDD part. Therefore, to get maximum returns from the auction, the authorities should plan FDD bands as much as possible.
    5. Furthermore, the authorities should auction the FDD and TDD spectrum parts of the bands at the same time to get the highest possible returns and avoid time to market advantage to one particular system [*note: in the future technologies will be able to provide both FDD and TDD schemes.].* Secondly, if relatively new TDD technologies fail to deliver, the other proven FDD technologies will keep the Govt.'s broadband agenda on track.
    6. The balance between the amount of FDD and TDD spectrum parts should be optimal to allow for the best possible competition situation and also be subject to evaluations of market developments.

b. Ericsson understands that it would be important to follow **globally harmonized channelization plans** in these bands because:
    1. India is the fastest growing telecom market today, and this is entirely because India followed globally harmonized bands for GSM and CDMA.

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2. The globally harmonized bands facilitate unmatched variety of services, economies of scale and proven consumer acceptance providing inclusion for the masses.
3. Greater flexibility and interoperability
4. International roaming
5. Based on detailed and internationally agreed sharing studies

c. Ericsson understands that it would be favorable for the authority to use the denomination **"IMT"** in place of "BWA" in the bands under consideration because:
    1. ITU has identified these bands for the internationally harmonized IMT application and keeping the globally harmonized usage of spectrum in view, these bands should be earmarked for IMT only.
    2. The conditions for roaming agreement would be clearer.
    3. Other non-harmonized applications can be considered in frequency bands other than the bands already identified for IMT.
    4. IMT is part of the BWA conception as defined in ITU-R Recommendation M.1801.
    5. IMT covers several approved international standards, defined in ITU-R Recommendation M.1457
    6. ITU has neither allocated nor identified any band for the BWA conception in general.
    7. BWA is more of a conception on how standards, including the IMT family of standards, are operated in networks while serving a particular purpose; e.g. IMT may offer a fixed or a mobile high bit rate data service which is regarded a broadband wireless access. Also standards other than IMT standards may provide services with the broadband wireless access conception.

d. Authorities are invited to further consider a roadmap for expansion of IMT/3G, because :
    1. Today, stakeholders in India are expecting only a partial availability of 2 X 25 MHz for IMT-2000/3G deployments in 2.1 GHz band; which generally means, that only a maximum of five operators can be accommodated, with just one carrier each.
    2. In worst case situation, additional spectrums may not be available in 2.1GHz in an appropriate timeframe for the expected very high growth of IMT/3G subscribers; which is the current experience from other countries.
    3. Stakeholders and consumers in India should not be denied the access to the much needed spectrums to allow operators to respond to traffic demands.
    4. Authorities may plan to allow more operators to provide IMT/3G services for optimized competition, which would in turn suggest a need for much more spectrum.
    5. The need to include additional spectrum; a first and perhaps the most suitable bands for this would be the FDD portion of 2.5-2.69 GHz band.

RESPONSE TO QUESTIONS

In the light of the above Ericsson is giving below the issue-wise response, as below:

Q.1) What should be the revised reserve price for the spectrum in 3.3-3.6 GHz band? The various options available are as below:

- **The reserve price of this spectrum remains as recommended earlier.**
- **The reserve price for the spectrum is made equal to 50% of the reserve price recommended for the 3G spectrum.**
- **The reserve price is made equal to the price recommended for the 3G spectrum**

Ans) The reserve price of 3.3-3.6 GHz should be same as for 2.1 GHz band. This is because the services and applications that will be provisioned in the sub bands of 3.4-3.6 GHz & 2.1 GHz bands are expected to be the same. It is correct to assume that the bidders will factor in the propagation characteristics of different bands in their business case calculations, but considering the opportunities for higher bit rate services and the bandwidth available in the sub band 3.4 – 3.6 GHz the price level could remain equal between the bands in question.

Q.2) What should be the eligibility conditions for bidding for spectrum in the bands of 2.3-2.4 GHz and 2.5-2.69 GHz?

Ans) The eligibility conditions for these two bands should be same because the services and applications that will be provisioned in these two bands are also expected to the same.

For optimal competition, and because all these bands have been identified for IMT applications, the eligibility conditions for bidding for spectrum should be the same.

Q.3) In the 2.3-2.4 GHz band, the maximum amount of spectrum which a licensee can bid for?

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Q.4) In the 2.3-2.4 GHz band, the size of the spectrum blocks for the bidding?

Ans) As IMT encompasses six different standards, including standards from 3GPP, 3GPP2 and IEEE (WiMAX), it should be appreciated that the size of the spectrum block should be such that allows for bidding by operators interested in offering services on any standard included in the IMT family of standards.

Q.5) In view of limited availability of spectrum in this band and possible conflict between the technologies using FDD and TDD modes, how the spectrum in 2.6 GHz band be allocated?

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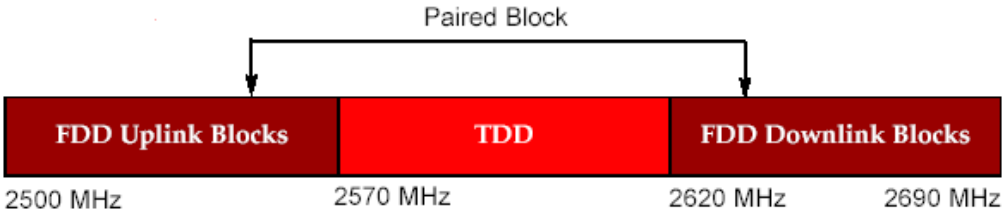
Q.6) In case the present available spectrum is allocated for BWA technologies using unpaired spectrum, then, will it be feasible in future, from technical and economic angle, to refarm the allocated spectrum in the 2.6 GHz band in line with the global practices?

Ans to both questions Q5 and Q6)

It is pertinent to state that this band is regarded to be the most important band, as it was identified at the ITU WRC-2000, and products from multiple proven standards are either available or will soon be available. Hence, it is submitted that both FDD and TDD may be allocated following the harmonized and structured channeling arrangements. The option suggested by Ericsson in this regard is given below:



The arrangement of these three blocks provides both for FDD and TDD operations and has the advantage of reducing the risk of interference while considering the need for guard band between the blocks. Structuring the band in this way will encourage investment in networks and services, through minimizing the risks and costs associated with interference management.

The co-existence of FDD and TDD operations, across the same band, without proper channeling arrangements would have a significant, negative impact on the efficiency of that usage including the additional interference problems. Besides, it will also result into far lower returns to the government from auctions.

In case, the parts of the 2.6 GHz band that are harmonized for paired FDD operations would be allocated for unpaired TDD operations, Ericsson firmly believe that it will not be technically and economically feasible to later re-farm the allocated spectrum in 2.6 GHz band in line with global practices within a reasonable time frame.

Such an approach is also not recommended because lack of global commitment to a harmonized and structured band plan, this would be disadvantageous as regards the economies of scale in a country like India, for both operators and manufacturers. It would increase costs and result in slower times to market for innovative mobile data services.

Further, the recent bids have shown that there is more competition for FDD spectrum and that the bidders value the FDD bands much higher than TDD bands. This is because the FDD technologies provide proven efficiency by representing a significant innovative force, larger ecosystem and economies of scale, which guarantee affordable broadband services to the consumers.

In the recent bids, the FDD part of this band has collected much larger monetary amounts to the government than the TDD part. Therefore, to get maximum returns from the auction, the authorities should plan FDD bands as much as possible.

Furthermore, the authorities should auction the FDD and TDD spectrum parts of the bands at the same time to get the highest possible returns and avoid time to market advantage to one particular system [*note: in the future technologies will be able to provide both FDD and TDD schemes*]. Secondly, if relatively new TDD technologies fail to deliver, the other proven FDD technologies will keep the Govt.'s broadband agenda on track.

Q.7) Unlike a number of other countries, a major portion of spectrum in the 2.6 GHz band is yet to be got vacated by WPC. What measures can be taken to accelerate the process of vacation so that the Indian telecom sector is not at a disadvantage in relation to other countries?

Ans) The 2.6 GHz band in India at present is allocated for Mobile Satellite Services, Broadcast Satellite Services and LMDS/MMDS applications. Since there are limited LMDS/MMDS systems existing at present in different parts of the country, Ericsson understands that a bandwidth of 40 MHz of spectrum earmarked for LMDS/MMDS systems can be easily re-farmed for IMT.

It is further suggested that the Mobile Satellite Service (MSS) operations in this band should be restricted as per Radio Regulations and from now on, no future allocations in this band should be made for MSS systems. In the longer-term perspective the MSS operations could be considered to be refarmed to the band 1980 – 2010 MHz paired with 2170 – 2200 MHz.

Ericsson would also like to re-iterate that the band 2.5-2.69 GHz is an extension band for IMT and the entire band should be fully allocated to IMT applications.

Q.8) What should be their reserve price for the purpose of auction for the spectrum in 2.3-2.4 GHz and 2.5-2.69 GHz?

Ans) The reserve price of 2.3-2.4 GHz and 2.5 – 2.69GHz should be same as for 2.1GHz band. This is because the services and applications that will be provisioned in these two bands are same and the propagation characteristics for these bands are quite similar to that of 2.1GHz.

Thanking you and assuring you of our best attention & services at all times

For Ericsson India Pvt Limited

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