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Shri Sudhir Gupta
Pr. Advisor (MS)
Telecom Regulatory Authority of India
Mahanagar Doorsanchar Bhawan
Jawahar Lal Nehru Marg, (Old Minto Road)
New Delhi - 110002

Dear Sir

Subject: Consultation Paper No. 06/2011 on IMT-Advanced Mobile Wireless Broadband Services

Kindly find enclosed herewith, Etisalat DB Telecom's response to the consultation paper, for your kind consideration.

With *bind regards,*
For Etisalat DB Telecom Private Limited

(Dr. Vinod Kumar Budhiraja)
Chief Regulatory Officer & Authorised Signatory

CC: *Dr. J. S. Sarma - Chairman TRAI*
Mr. R.K. Arnold - Secretary TRAI
Mr. R. Ashok - Member, TRAI
Prof. Jamdagni - Member, TRAI

Please Reply To:

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Consultation Paper on IMT-Advanced, Mobile Wireless Broadband Services
- Comments of Etisalat DB Telecom

The industry is currently deliberating the strategic course for the Indian Telecom Sector over the next decade through the framework of NTP 2011. The draft policy encompasses issues related to spectrum & technology, broadband, Unified Licensing entwined with NSO-SDO (Network Service Operator & Service Delivery Operator) concept, M&A policy which have far-reaching implications for the Sector. The Government is expected to firm up the NTP-2011 within the next 2-3 months. Given the criticality and inter-dependence of the issues contained in the NTP with the regulatory framework for IMT-A services, we request that the Authority should defer the discussion on this paper, till such time as the new Telecom Policy is in place.

Q-1: Whether there is a need to define a particular user equipment or architecture to be used by the vendors or this may be left to the market forces?

Etisalat DB Telecom:

There is no need to define such requirements. Vendor equipment will always be standards specific when it comes to the market. The choice of user equipment and architecture specifications should be left to market forces to give operators flexibility to use the spectrum in the most efficient way.

Q-2: Whether there is a minimal set of performance characteristics the UE has to meet before it is permitted to enter a network? These characteristics are over and above the inter-operability, protocol conformance and emission tests which presumably the UE has already passed.

Etisalat DB Telecom:

3G has both Circuit Switched & Packet Switched infrastructures whereas 4G will have only packet switching for which performance standards will evolve as per industry norms. IPv6 support is considered essential. TSPs and Managed Network Partners shall work together to set best performance characteristics based on lessons learnt from existing deployments under progress. There is no need to define such requirements.

Q-3: In addition to what has been described above, what can be the other security issues in IMT-Advanced services? How these security issues can be addressed?

Etisalat DB Telecom:

IMT-Advanced systems will be required to protect its resources from attacks as well as misuse. Protection from unauthorized access, denial of service as well as theft of service are just a few issues to name. Mutual authentication of base station as well as mobile station is required for data protection, integrity and privacy.

An end to end security system shall be implemented by using:

- TLS (Transport Layer Security),
- SSL(Secure Sockets Layer) and
- IPSec (Internet Protocol Security).

Security aspects include:

- Mutual Authentication
- Authentication / Credentials of user or device
- Data confidentiality
- Message Integrity and Origin authentication
- Maintain security association across networks without losing connection
- Protection against replay attacks
- Privacy and Integrity

Q-4: What basic security frameworks should be mandated in all networks to protect customer?

Etisalat DB Telecom:

There is no need to mandate additional security framework beyond what is specified vide amendment dated 31-May-2011 to UAS/NLD/ILD licenses. As it is a Licensee's responsibility to ensure security of its Network, Licensee is obliged to take all necessary measures to protect the integrity of its Network.

Q-5: Which spectrum bands should be identified for the IMT-Services in India?

Etisalat DB Telecom:

In India, 800 MHz and 900 MHz spectrum bands are presently being used for 2G mobile services. Though, TRAI has recommended reframing it and allocating for IMT services, currently spectrum in these bands is not available. For re-faming these bands, spectrum in 1900 & 1800 MHz bands can be allocated, when available.

Spectrum has been auctioned in the blocks of 2x5MHz in the 2.1GHz band for 3G services. If additional spectrum is available in the 2100 MHz band, it will be utilized for 3G services only.

In this scenario, following spectrum bands alone are available for future technologies in India:

- 700 MHz band (698-806 MHz)
- 2010-2025 MHz band
- 2.3-2.4 GHz band
- 2.5-2.69 GHz band
- 3.4-3.6 GHz band

The 700 MHz (698-806 MHz) spectrum band is considered the most important band for broadband deployment. It is suitable from the point of both capacity and coverage. TRAI has recommended that

698-806 MHz be earmarked only for IMT applications which has also been incorporated & approved by DoT in the NFAP 2011.

Q-6: What should be the block size of spectrum to be put on auction? How many blocks of spectrum should be allocated/ auctioned per service area?

Etisalat DB Telecom:

Minimum block size of spectrum in a future auction should be 10MHz (in both FDD and TDD block context). It is commonly acknowledged that the larger the contiguous block of spectrum, the better the spectral efficiency and the higher the cell throughput.

Q-7: What is the minimum spectrum block size for effective use of 4G technologies?

Etisalat DB Telecom:

The minimum block size for effective deployment of 4G networks should be 10MHz (in both an FDD and TDD block context).

Q-8: What should be the maximum amount of spectrum which a service provider can be allocated through auction?

Etisalat DB Telecom:

TRAI should guard against over-concentration of spectrum in sub-1 GHz and total spectrum holding that is licensed for mobile use by any entity either currently or future operating in the Indian mobile market.

Q-9: Whether there is a need to specify the use of particular duplexing scheme based on the band in which spectrum allocation is done? If yes, in the case of TDD, is it required to specify further the frame duration, mandate frame synchronization using one of a specified set of timing sources and a permissible set of Uplink/Downlink sub-frame schemes compatible with the IMT-A standards?

Etisalat DB Telecom:

There is a need to specify duplexing scheme and these should be based on standards specified by 3GPP to achieve global/regional harmonization.

TDD parameters may be left for operators who may choose them based on user/market requirements. This would allow service providers to deploy independent configurations based on their market needs. However, it is necessary that sufficient guard band, as identified globally, be provided between spectrum blocks allocated to different service providers to avoid any interference, and thus undermine service quality.

Q-10: What should be the reserve price per MHz in different spectrum bands?

Etisalat DB Telecom:

There is no need to specify a *Reserve Price*. This should be left to market forces and should promote efficient and effective utilization.

Q-11: What should be the eligibility conditions for bidding for spectrum?

Etisalat DB Telecom:

Winners of 3G and BWA auctions should not be allowed to participate in the auction of IMT-A spectrum in that LSA to avoid concentration of market power with few players and to promote greater choice for customers.

Q-12: Should there be any roll out obligations for spectrum given through auction? Should it be different in different bands?

Etisalat DB Telecom:

Since spectrum would be acquired through market mechanism, there is no need to specify roll-out obligations. However, USO funding schemes may be used to incentivize roll-out in non-lucrative areas.

Q-13: Whether there should be any specific rollout obligations in respect of rural areas?

Etisalat DB Telecom:

As stated above, roll out in rural areas should be supported by USO schemes.

Q-14: What should be the spectrum usages charges? Should it be based on revenue share or be a fixed charge?

Etisalat DB Telecom:

Annual Spectrum Usage Charges should be specified on the basis of overall holding of spectrum by a Licensee (2G/3G/4G). As stated before, entities holding 3G / BWA spectrum should not be allowed to participate in auction for IMT-A spectrum otherwise it would lead to market concentration in hands of a few players exposing subscribers to risks of cartelization.

Q-15: Using MIMO technology what can be the possible infrastructure sharing issues and what can be the probable solutions.

Etisalat DB Telecom:

We do not anticipate any problems with active infrastructure sharing issues in using MIMO technology as this would be in the interest of the operators. As a pre-requisite, relevant guidelines for such practices in the sector will have to be put in place through a consultative process

Q-16: What regulatory mechanisms are to be provided for delivery of voice services over IMT-A systems?

Etisalat DB Telecom:

There is no requirement for any further regulatory mechanism from those currently applicable to the current 2G and 3G systems.

Q-17: Should the interoperability of services to legacy 2G/3G systems be left to market forces?

Etisalat DB Telecom:

Interoperability between IMT-A systems and legacy 2G/3G systems should be left to market forces. Given the number of consumers currently connected to 2G/3G service networks, the support of voice services and the general matter of migration to 4G, it is inconceivable that new 4G mobile networks will not need to interoperate with such legacy infrastructure.

Q-18: What are the QoS measurements that can be reported on IMT-A systems? Suggest the appropriate KPI for data and voice services to guarantee customer satisfaction

Etisalat DB Telecom:

It is not possible to define accurately the KPIs for IMT-A systems at this stage, but any KPIs that apply should evolve from the experiences and practices that have been gained from 3G packet switching systems.

Q-19: In view of the likely deployment of scenarios where the cell radius is scalable to much smaller levels using the concepts of femto and pico cells:

- a) What will be the impact of femto cells/SoN architecture on KPI?
- b) What will be the impact of Relays/femto cells on spectrum policy?
- c) What will be the impact on infrastructure sharing?
- d) What policy guidelines are required to encourage low emission low energy and high capacity architecture like femto cells overlaid over macro cells?

Etisalat DB Telecom:

Regulatory supervision in the deployment scenarios where the cell radius is scalable should be limited to broad guidelines on the safety and security of the technologies. The exploitation of some of these latest technologies (such as femto and pico cells) should be allowed to enable operators to freely apply relevant solutions to meet the needs of their customers (for quality and throughput) on a commercial basis.
