

**Response to Consultation Paper On
Issues Relating to Mobile Television Service
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by**

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1. Whether the technology for mobile television service should be regulated or whether it should be left to the service provider.

The technology shouldn't be regulated under any circumstances. Regulator should always be technology neutral. Whoever wins among DVB-H or T-DMB or MediaFLO or any other technology should be left to the market force. At this instance I would like to highlight the success of our technology neutral approach in cellular domain. The cost of call rates came down only because of CDMA operators. This has happened only because DoT and TRAI followed technology neutral approach.

Regulator should only concentrate on the QoS to be met. Any technology which can meet the Regulator's QoS requirements should be allowed to be deployed.

The following should be characteristics of the Regulator's QoS

Necessary -> The stated requirement is an essential capability, physical characteristic, or quality factor of the service. If it is removed or deleted, a deficiency will exist, which cannot be fulfilled by other capabilities of the service.

Unambiguous -> Each requirement must have one and only one interpretation

Implementation free -> The requirement states what is required, not how the requirement should be met.

Complete -> The stated requirement is complete and does not need further amplification.

Verifiable -> The stated requirement is verifiable if there exists some cost-effective process with which a person or machine can check that the service meets the requirements

Concise -> The requirement statement includes only one requirement stating what is required and only what must be required, stated simply and clearly. It is easy to read and understand.

Consistent -> The stated requirement does not contradict other requirements. It is not a duplicate of another requirement. The same term is used for the same item in all requirements.

Feasible -> The stated requirement can be achieved by one or more developed system concepts at an acceptable cost, schedule, and technology

Scalable -> Further enhancements/reductions to a requirement or group of requirements can be scaled up/down without affecting other requirements in parts

2. If the technology is to be regulated, then please indicate which technology should be chosen and why. Please give reasons in support of your answer.

Technology should never be regulated. Only QoS has to be regulated.

3. What will be the frequency requirement for different broadcast technological standards for terrestrial and satellite mobile television transmission in India?

The frequency allocation for different technologies should follow the international practices in order to help the availability of equipments from global vendors in short time. The frequency requirements for different technologies of DTT and Mobile TV should be thoroughly studied and finalized. If we allow for deployment of all technologies on the same frequency band then we should analyze the interference problems in detail and appropriate guard bands should be specified. License and spectrum should be separated and the spectrum charge should be function of bandwidth and frequency used. Larger bandwidth in lower frequencies is equal to

smaller bandwidth in higher frequencies. The motto of spectrum charge should be to promote technologies which are spectrum efficient.

4. Which route would be preferable for mobile TV transmission – dedicated terrestrial transmission route or the satellite route? Should the mobile TV operator be free to decide the appropriate route for transmission?

The route of transmission should be left to the operator. This approach will complement the technology neutral approach which is suggested in suggestion 1.

5. How should the spectrum requirements for analogue/ Digital/ Mobile TV terrestrial broadcasting be accommodated in the frequency bands of operation? Should mobile TV be earmarked some limited assignment in these broadcasting bands, leaving the rest for analog and digital terrestrial transmission?

Analog terrestrial transmission should not be allowed for private operators. TRAI should insist Doordarshan to shift all their operations to digital form as quickly as possible. This would free up good amount of spectrum for DTT. DTT and Mobile TV are almost same and only differ in target screen aspect ratio. DTT should be given priority over mobile TV since it'll cater to fixed wireless TVs and limited mobile TVs. I would preferably say DTT and mobile TV should be given with same license.

6. In the case of terrestrial transmission route, how many channels of 8 MHz should be blocked for mobile TV services for initial and future demand of the services as there are nearly 270 TV channels permitted under downlinking guidelines by Ministry of Information and broadcasting?

7. Whether Digital Terrestrial Transmission should be given priority for the spectrum assignment over mobile TV, particularly in view of the fact that the Mobile TV all over the world is essentially at a trial stage.

DTT should be given priority over mobile TV. Since DTT technologies like DVB-T, ATSC and ISDB-T supports mobile reception, it'll become popular in automobiles (like buses, cars, trains etc.). Regulator should only regulate the QoS requirements. The QoS of DTT should involve mobile reception requirement. The target screen aspect ratio should involve both SDTV and HDTV. DTT will push broadcasters to adopt HDTV transmission. Private operators should immediately be allowed to start DTT.

8. Whether the frequency allocation for the mobile TV should be made based on the Single Frequency network (SFN) topology for the entire service area or it should follow Multi Frequency Network (MFN) approach.

It should be certainly on SFN since spectrum is a national and limited resource. All the possible mechanisms to optimally use the spectrum have to be deployed. One of them is not to allow MFN. For both DTT and Mobile TV only SFN should be allowed.

9. Whether frequency spectrum should be assigned through a market led approach – auctions and roll out obligation or should there be a utilization fee?

Spectrum for both DTT and Mobile TV should be auctioned. It should have roll out obligations to avoid spectrum hoarding.

10. What should be the eligibility conditions for grant of license for mobile television services?

11. Whether net worth requirements should be laid down for participation in licensing process for mobile television services? If yes, what should be the net worth requirements for participation in licensing process for mobile television services?

12. What should be the limit for FDI and portfolio investment for mobile television service providers?

All the telecom and broadcasting domain operators should have identical FDI limit. Current vagaries have to be ploughed and should be made flat on all the fields.

13. What should be the tenure of license for the mobile television service providers?

The tenure of the DTT/Mobile TV providers should be similar to the tenure of UASL license since these operators can migrate to USAL whenever they feel they can do it.

14. What should be the license fee to be imposed on the mobile television service providers?

15. Whether in view of the high capital investment and risk associated with the establishment of mobile television service, a revenue share system would be more appropriate?

The revenue share system should be followed in both DTT and Mobile TV since that would help the operators to ramp up during initial high investment and low return periods.

16. Whether any Bank Guarantee should be specified for licensing of the mobile television service providers. If yes, then what should be the amount of such bank guarantee? The basis for arriving at the amount should also be indicated.

Bank guarantee should be specified in order to weed out non serious players. Since DTT/mobile TV is spectrum consuming service its imperative that we make sure that spectrum is allocated to capable organizations. Ideally DDT/Mobile TV license should be subset of UASL license.

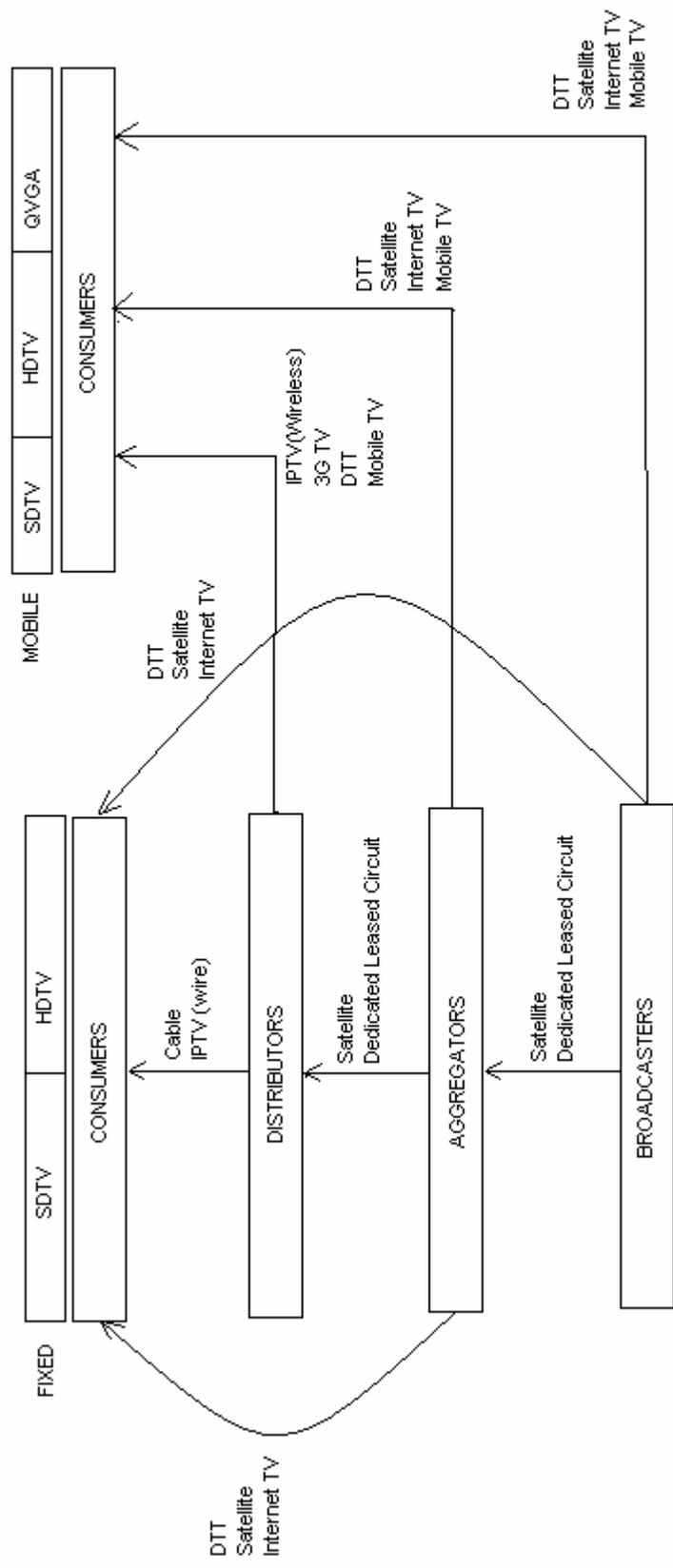
17. Whether the licenses for mobile television service should be given on national/ regional/ city basis.

The licenses should be given circle-wise similar to telecom licenses. This would help us to avoid future litigations. Since obviously telecom operators can deploy DTT or Mobile TV and their licenses are circle-based, its better to follow the same approach to avoid future confusion in licensing regime.

In addition to the above discussions, I would like to add following points.

- 1) QoS requirement of Mobile TV should specify the target screen aspect ratio e.g QVGA
- 2) QoS requirement of Mobile TV should specify no. of frames per second e.g 30fps
- 3) The Net Neutrality should be maintained at any cost. Especially telecom operators providing 3G TV shouldn't allowed to block any of the internet TV channels if the consumer pays for internet access and he doesn't need operator's 3G TV.
- 4) Mobile TV and DTT should be allowed for all 3 entities of signal chain (broadcasters, aggregators or distributors).
- 5) QoS should specify minimum number of channels to be carried by the licensee to avoid wasting of the spectrum

The following page will show the signal-flow chain of broadcasted signals after the introduction of DTT and Mobile TV.



PUSH TELEVISIONS

DTT --> Technologies (DVB-T, ATSC and ISDB-T)
 Screen aspect ratio(SDTV & HDTV)
 Mobile TV --> Technologies (DVB-H,MediaFLO,T-DMB)
 Screen aspect ratio(GVGA)

PULL TELEVISIONS

3G TV --> Technologies(MBMS on UMTS or BCMCS on EVDO)
 Screen aspect ratio(GVGA)
 IPTV --> Technology (IP based) (for wireless predominantly WMMAX)
 Screen aspect ratio (SDTV, HDTV & GVGA)

