



# Infocom Think Tank<sub>(An)</sub>

Autonomous Scientific Body)

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To

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Hon Secy General  
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Dear Sir

## TRAI Consultation on Microwave spectrum Allocation & Pricing

The Infocom Think Tank is an unbiased group of Telecom Experts & Social Scientist, which deliberate on various issues of national importance. This Group fully recognizes the crucial role played by TRAI in the development and growth of Indian telecom network, including the mobile telephone services. The present consultation is extremely timely for the next phase of the growth of telecom network – the data or broadband network.

In this regard, the Infocom Think Tank has discussed various aspects related to the allocation and pricing of spectrum for microwave access and backbone carriers. Some Important, General aspects, which have a crucial bearing on the whole issue under consultation, are listed below.

The Radio Frequency (RF) Spectrum is a finite natural resource. With its crucial role in mobile communications, which have brought about dramatic growth of phone services in India and in other developing economies globally, large attention has been focused on the RF spectrum.

Due to its limited nature, the RF spectrum has become very important – for economic development as well as for society at large. Optimum use of this limited and scarce resource by all users is inescapable.

Microwave frequency bands are as important as the access spectrum, for the cellular mobile networks. The Microwave carriers are complimentary to the access spectrum, for the cellular network. Like any other parts of frequency spectrum, microwave frequencies are also governed by specific propagation characteristics for different bands.

Technological developments have opened the use of higher frequency bands, taking care of constraints on this resource to some extent. However, the demands

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on RF spectrum by modern technologies, services & applications have increased at a much faster pace. Consequently, the scarcity of this resource continues.

Point-to-Point links in higher frequency bands, say around 80 GHz, can satisfactorily cover a distance of less than a Km only. Also, equipments in frequency bands above 60 GHz are relatively costly at present, till economies of scale can be achieved for such equipment. Hence, many governments and spectrum regulators are levying only nominal spectrum charges for the use of these bands to encourage their usage.

Even if the direct government revenue from the spectrum charges in these higher frequency bands is relatively low, the total telecom network revenues grow substantially, besides other societal benefits. Encouraging the use of higher frequency bands would enhance the total spectrum availability for point-to-point links as well as provide relief to lower frequency bands, which can serve other competing requirements.

Hence, the use of higher frequency bands should be encouraged in India also through various measures.

Satellite back haul would be needed for connecting BTSs in difficult and remote areas like islands, forests, etc. The Ku band of FSS is ideal for this, as Earth stations in this band can work with relatively smaller size dish antennae. But most of the satellite capacity in FSS Ku band is being used for DTH services, while the BSS Plan part of Ku band is lying idle. Hence, there is an immediate need for opening the use of BSS Plan Ku band for DTH services, so that adequate capacity in FSS Ku band is available for back haul links. It is learnt that TRAI is processing a separate consultation regarding DTH services. It would be desirable if this aspect can be suitably examined in the process of that consultation.

Even for other frequency bands, their economic valuation and pricing depends on a large number of factors. Determination of appropriate and optimum spectrum pricing is an extremely complex issue, depending on the economic, cultural and many other aspects of the country. A sub-optimal pricing can lead to hoarding of spectrum, while over pricing of spectrum can deprive the society of benefits of its use. The pricing can be reviewed periodically, say every 5 – 7 years, taking into account various relevant aspects.

The Group would be happy to provide any further information in this regard.  
With best regards

Sincerely  
  
(P. K. Garg)