Subject: Consultation Paper on Assignment of Spectrum in E & V Bands, and Spectrum for Microwave Access (MWA) & Microwave Backbone (MWB)

Dear Sir,
Our response to the Consultation Paper on E and V bands, and MWA and MWB is attached.

Regards,

Shyam Ponappa
Distinguished Fellow
The Centre for Internet and Society
cis-india.org

Response to TRAI Consultation Paper No. 22 / 2023
Consultation Paper on Assignment of Spectrum in E & V Bands, and Spectrum for Microwave Access (MWA) & Microwave Backbone (MWB)

1. Item 2.1:" In V band, the device/ chipset eco-system supporting various technologies for data transfer between consumer's devices such as smartphones, camera, laptops etc. has developed. The technologies used for such devices are designed for short-range, indoor, interference-tolerant applications. Therefore, while the V band spectrum can be assigned through auction for establishment of indoor/ outdoor telecom networks, allowing low power, indoor usages of V band on license-exempt basis for consumer device to-consumer device data transfer may go a long way in serving greater public interest and realizing significant socio-economic gains."

This has changed, as V band technologies are now not limited to short-range, indoor applications. In the last couple of years, a number of manufacturers have offered devices designed for point-to-point high-speed links of over 1 km carrying over 1 Gbps per channel. Five of them use a technology developed by Meta called Terragraph comprising the first four channels of the 60 GHz band, each of 2.16 GHz. This wireless design enables deploying gigabit connectivity faster, easier, and at much lower cost than fibre. These OEMs are Cambium Networks, Siklu, Radwin, Edgecore Networks and MikroTik. Channel aggregation allows bonding of two channels up and two channels down with a throughput of over 5 Gbps. Others such as Peraso in San Jose also offer 60 GHz devices for small cell backhaul and wireless access. This enables wireless devices to be used in place of fibre for "wireless fibre" networks. Deployments include cities such as New York, San Francisco, San Jose, Seattle and many others in the USA and elsewhere, such as London and Liverpool in the UK, Paris in France, Tokyo in Japan, Singapore, Berlin in Germany, and Barcelona in Spain.

The following report published in January 2023 on urban and rural installations in Belgium is indicative of the nature and spread of these technologies, and the significant benefits at lower cost:
"Evaluating 60 GHz FWA Deployments for Urban and Rural Environments in Belgium", Castellanos et al, January 2023: https://www.mdpi.com/1424-8220/23/3/1056.

2. Item 3: The 6 GHz band extends the Wi-Fi 6 standard of 802.11ax to Wi-Fi 6E. This is being deployed globally as a Wi-Fi band, and users in India would be unnecessarily restricted if deprived of similar ease and benefits of low-cost access. The USA's FCC recently approved 6 GHz as a Wi-Fi band, which will enable the use of Augmented Reality and Virtual Reality headsets offered by Meta and Apple. This means applications such as remote surgery, detailed diagnostics, engineering and research will be technically feasible, as also other applications in education, and gaming and entertainment. Such applications are likely to proliferate with the availability of this band as Wi-Fi. It will also be facilitated by easy access to wireless microwave/mmWave for augmenting the fibre network for mid-haul and backhaul.

Issues for Consultation

Q48: Spectrum charging mechanism for i) E band; ii) V band; iii) MWA carriers; iv) MWB carriers:

The reasons for the suggestions below are because it is in our collective public interest to have policies that facilitate productivity through effectiveness and efficiency. Among the most potent enablers are

effective policies for communications. These are as important or even more so than other critical infrastructure services such as energy, transportation, and water. This is because communications catalyze and empower all other infrastructure services as well, being integrated with them, and are a necessary adjunct to digitization.

The implication is that our policies should strive to be at par or better than best practices anywhere. For instance, it does not serve our interests to have extensive nominal network coverage, with defective or erratic service delivery. Our enterprises must thrive for our people to thrive, although it takes much more than the making of profits for the latter to trickle down. This is true for our communications service providers, too. They must be able to offer high quality services to most people in most places In the country, while making healthy profits.

The paradox is that while telecom is the most profitable sector, the services are wanting in terms of spread and quality. A McKinsey report a decade ago attributed this to factors such as high government charges, high cost of spectrum, poor infrastructure, a complex regulatory environment, low-priced and poor quality services, and so on. The emphasis on high government charges upends the purpose of the need for good-quality, reliable services, with telcos weighed down with debt servicing that feeds government collections, instead of focusing on service provision while earning healthy operating profits.

If policies can be framed to achieve the latter, healthy profits through offering good services, users, service providers, and government will be well served.

Recommendations

The focus of all wireless policies needs to be on empowering and facilitating productivity. If government collections are made from ensuring good service provision, productive and profitable enterprises and higher collections will ensue. Recall that it was reasonable rates of revenue-sharing of licence fees that led to the burgeoning of mobile communications. The same principle needs to be applied to spectrum. All spectrum can be shared, with the exceptions being those that are assigned because that is most practical, and charges collected for usage. The open, liberal approach to policies such as has been employed by the US FCC (except for auctions) and other progressive regimes should be applied judiciously to our needs in India. For instance, we know now that V band can be used for point-to-point aggregation and backhaul for distances of 1 km to 1.5 km in place of fibre. Open access for these purposes would seriously undercut our telcos who carry the burden of spectrum debt and servicing legacy networks. Besides, new entrants are likely to cherry-pick lucrative target markets leaving the hinterlands untouched, whereas that is where the coverage needs to be extended. Incentives such as lower revenue shares for good service delivery in these less remunerative areas can help bring about faster rollout and delivery.

Our approach to microwave communications needs to be as liberal and reasonably priced for telcos, so that E band can be effectively used not only for backhaul, but also to extend beyond optic fibre coverage through point-to-multipoint and point-to-point connectivity, and mesh networks. Combined with V band and 6 GHz, high-speed broadband should be widely accessible to many more people, improving their lives through learning/skill development, more efficient activity, entertainment and convenience.

Shyam Ponappa – October 25, 2023
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