



Telecom Regulatory Authority of India



Recommendations
on
Enhancement of Scope of Infrastructure Providers
Category-I (IP-I) Registration

New Delhi

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CHAPTER 1

INTRODUCTION

Background

- 1.1 Telecommunication has emerged as a key driver of economic and social development in an increasingly knowledge-intensive global scenario. After going through a pioneering transition in the last two decades, the Indian telecommunication sector has become the World's second largest telecommunication market in terms of the number of subscribers. In the upcoming years, this sector will play a prominent role in the growth of Digital Economy, Industry 4.0, and in successful implementation of Government programmes such as Digital India, Make in India, Startup India, Smart Cities, etc. Latest technological developments and the aforementioned programmes will provide more opportunities for the telecom sector, especially for the telecom infrastructure providers.
- 1.2 Infrastructure Providers (IPs) came into existence when the Department of Telecommunications (DoT) invited applications for IPs-I (Infrastructure Providers Category-I) registrations and IPs-II (Infrastructure Providers Category-II) licenses in the year 2000. Prior to this, telecom infrastructure was to be owned, established, and maintained by the Government and the licensed telecom service providers only.
- 1.3 IPs-I provide assets such as Dark Fibre, Right of Way, Duct space, and Tower on lease/rent-out/sale basis to the licensees of the telecom services on mutually agreed terms and conditions. These IP-I registered companies are not allowed to operate telegraph or provide telecommunications service, including end to end bandwidth.
- 1.4 IP-II licensees were authorized to lease/rent-out /sell end to end bandwidth, i.e. digital transmission capacity capable of carrying a message to the licensed telecom service providers only. The IP-II licensee was required to establish necessary telecommunication

network for this purpose. However, they were not allowed to directly access or connect the subscribers through last-mile linkages, except for Other Service Providers (OSPs) registered with the Department of Telecommunications (DoT). The IP-II licences were discontinued w.e.f. 14th December 2005 and the existing IP-II licensees were asked to migrate to NLD (National Long Distance) licence which allows leased circuit connectivity to end customers also.

- 1.5 IPs-I played a significant role in making affordable telecom services available in India. The deployment of shared tower infrastructure by IPs-I led to rapid growth of mobile networks. Over the years, the telecom tower industry in India has emerged as a trendsetter in the infrastructure sharing. Some of the Telecom Service Providers (TSPs) hived off their passive infrastructure into separate entities; and these hived-off entities have obtained IP-I registration.
- 1.6 With a vision to meet the emerging needs of the digital communications sector in India, the Government notified the National Digital Communications Policy-2018 (NDCP-2018) on 26th September 2018. The policy aims to facilitate India's effective participation in the global digital economy. Under this policy, the Government aims to provide universal broadband connectivity at 50 Mbps to every citizen. It has set a target of providing 1 Gbps connectivity to all *Gram Panchayats* by 2020 and 10 Gbps by 2022. For accelerating the migration of wireless telecom networks towards 4G/5G technologies and to improve broadband speeds, the policy aims to facilitate Fibre-to-the-tower programme to enable fiberisation of at least 60% of telecom towers. Some other objectives are to ensure connectivity to all uncovered areas and attract investments of \$100 billion in the Digital Communications Sector.
- 1.7 The NDCP-2018, in its strategy for establishing a 'National Broadband Mission — *Rashtriya Broadband Abhiyan*' to secure universal broadband access, envisages enhancement in the scope

of Infrastructure Providers. The relevant clause 1.1 (f) of the policy is reproduced below:

“Encourage and facilitate sharing of active infrastructure by enhancing the scope of Infrastructure Providers (IP) and promoting and incentivizing deployment of common sharable, passive as well as active, infrastructure.”

The Consultation Process

- 1.8 A consultation paper on “Review of Scope of Infrastructure Providers Category-I (IP-I) Registration” was issued on 16th August 2019. Its purpose was to seek the views of stakeholders on review of the scope of IP-I registration for promoting and incentivising the deployment of common sharable, passive as well as active, infrastructure.
- 1.9 Written comments and counter comments on the consultation paper were invited from stakeholders by 16th September 2019 and 30th September 2019, respectively. On request of some of the stakeholders, the date of the comments and counter comments was extended to 30th September 2019 and 14th October 2019, respectively. This consultation elicited many responses. Comments were received from 26 stakeholders and counter comments were received from 3 stakeholders. On this issue, an Open House Discussion (OHD) was conducted on 14th November 2019 at New Delhi. Based on the written submissions of the stakeholders, the discussion in the OHD and the Authority’s own analysis, the issues were examined, and the recommendations have been framed.
- 1.10 Chapter 1 provides a background to the subject. A detailed analysis of the raised issues as noted in the consultation paper along with the responses of the stakeholders is elaborated in Chapter 2. The responses were widely divergent. While finalizing the recommendations contained in Chapter 2, the Authority has taken a holistic view of the emerging needs of the sector. Chapter 3 summarizes the recommendations. The implementation of these recommendations will ensure orderly growth of the sector.

CHAPTER 2

Analysis of Issues and Recommendations

Regulatory Framework for Infrastructure Providers

- 2.1 The existing framework for regulating the telecom infrastructure providers in India is prescribed in the guidelines for ‘Registration of Infrastructure Provider Category-I’ issued by DoT. As per the Guidelines, IPs-I can provide assets such as Dark fibers, Right of Way, Duct space, and Towers on lease/rent-out/sale basis to the licensees of the telecom services on mutually agreed terms and conditions.
- 2.2 The DoT, through its letter dated 9th March 2009 (**Annexure A**) has clarified that the scope of IP-I registration, which was till then limited to passive infrastructure, has been enhanced to cover the active infrastructure, if this active infrastructure is provided on behalf of the licensees, i.e. they can create active infrastructure limited to antenna, feeder cable, Node B, Radio Access Network (RAN) and transmission system for and on behalf of UASL/CMSP licensees. Further, through its letter dated 28th November 2016 (**Annexure B**), DoT clarified that “*IP-I providers are not permitted to own and share active infrastructure. The IP-I providers can only install the active elements (limited to antenna, feeder cable, Node B, Radio Access Network (RAN) and transmission media only) on behalf of Telecom licensees i.e. these elements should be owned by the companies who have been issued license under Section 4 of Telegraph Act, 1885.*”
- 2.3 The salient features of the latest guidelines for IPs-I dated 4th July 2017 are as follows:
- I. The applicant must be an Indian company, registered under the Companies Act, 1956/2013.
 - II. FDI up to 100%, with 49% under automatic route and beyond 49% through FIPB route subject to observance of

conditions of IP-I registration by the company as well as investors as notified by the DoT from time to time.

- III. Both direct and indirect foreign investment in the applicant company shall be counted.
 - IV. The applicant company/Indian Promoters/Investing companies including their holding companies shall comply with relevant provisions of extant FDI policy of the Government.
 - V. The applicant company shall make its own arrangement for Right of Way (ROW).
 - VI. The registration for IP-I shall be on a non-exclusive basis without any restriction on the number of entrants.
 - VII. The IP-I registered company shall provide dark fibers, Right of Way, duct space, and towers on lease/rent-out / sale basis to the licensees of telecom services on mutually agreed terms and conditions.
 - VIII. The IP-I registered company shall submit a copy of an agreement entered into with the telecom service providers to the DoT within 15 days of signing of such agreement.
 - IX. IP-I registered company shall provide for the use of infrastructure in a non-discriminatory manner.
 - X. The applicant company will be issued a Registration Certificate. The terms & conditions of these guidelines as well as that of the Registration Certificate will be binding on the IP-I registered companies.
 - XI. The applicant company shall pay a processing fee of Rs. 5,000/- (non-refundable) through digital payments like e-transfers/NETT/RTGS/Debit Card/Credit Card.
- 2.4 In India, the sharing of passive infrastructure such as Dark fibres, Right of Way, Duct space, and Towers is permitted to TSPs as well as IPs-I. Based on the mutual agreements, the active infrastructure sharing has been permitted amongst TSPs only **(Annexure C)**. Presently, sharing of active infrastructure is

limited only to the antenna, feeder cable, Node B, Radio Access Network (RAN), and transmission system. The IPs-I can also install all these active elements (antenna, feeder cable, Node B, Radio Access Network (RAN) and transmission system) but for and on behalf of TSPs only.

2.5 Though sharing of the active infrastructure among TSPs is permitted, it is not very effective because the TSPs operating in the same geographical area and providing similar telecom services are competitors as well. Some TSPs may not be willing to share their resources with their competitors, if it leads to a competitive disadvantage. So, mutual agreements may not fructify. Alternatively, TSPs could be more comfortable in leasing the telecom infrastructure from a non-competing entity (e.g. Infrastructure Provider). This would also enable the TSPs to concentrate on their core competency of providing telecommunication services to the end users/subscribers, and IPs-I to invest and create active as well as passive telecom infrastructure.

2.6 On 12th April 2011 TRAI issued Recommendations on Telecommunications Infrastructure Policy. These recommendations covered various infrastructure elements including Towers, In Building Solution (IBS), Distributed Antenna System (DAS), etc. In these recommendations, the Authority inter alia recommended:

“Infrastructure providers should be permitted to install and share active network limited to antenna, feeder cable, Node B, Radio Access Network (RAN) and transmission system, subject to the condition that they are brought under the Unified Licensing regime as recommended by this Authority in May 2010.”

While recommending the above, the Authority observed:

“Since IP-I have not been issued license under Section 4, these companies cannot seek RoW as provided in Indian Telegraph Act, 1885. Therefore, IP-Is are required to be brought under licencing regime so that these companies could also be able to seek RoW for deployment of infrastructure.”

- 2.7 Subsequently, TRAI in its Recommendations on “Definition of Revenue Base (AGR) for the Reckoning of Licence Fee (LF) and Spectrum Usage Charges (SUC)” dated 6th January 2015 recommended that the IP-I players should not be brought under the licensing regime. It is pertinent to mention that while recommending, the understanding of the Authority was that bringing IPs-I under the licensing regime would subject them to Licence Fee (LF). While making these recommendations, the Authority noted that, upon careful consideration of the DoT’s position on the issue, it is now inclined not to press its previous recommendations. In taking this view, the Authority was conscious of the trajectory of evolution of infrastructure service provision in the recent past wherein IP-I services have been hived off from TSPs. In these recommendations, the Authority has also noted that *“Globally, the new conventional wisdom is that infrastructure, both active and passive, need to be shared in the interests of better spectral efficiency, reduced capital expenditures and better quality of service delivery. As demand for data has grown exponentially, the strains on a fixed quantum of spectrum as well as other passive infrastructure have become apparent. It is in this background that the old received wisdom has undergone change: it is better to save capital costs on passive infrastructure (as well as active infrastructure) through sharing. The policy orientation promoting sharing of infrastructure requires to be followed up with concrete incentives in this direction.”*

Types of Infrastructure Sharing

2.8 Worldwide, the telecom industry has adopted the concept of infrastructure sharing to reduce capital requirement for investments in infrastructure and benefit from the economies of scale. Although, worldwide, there are minor differences in the definitions of active and passive infrastructure, these were defined by International Telecommunication Union (ITU) and are as follows¹:

- i. Passive infrastructure sharing allows operators to share the non-electrical, civil engineering elements of telecommunication networks. This might include rights of way or easements, ducts, pylons, masts, trenches, towers, poles, equipment rooms and related power supplies, air conditioning, and security systems.
- ii. Active infrastructure sharing involves sharing the active electronic network elements – the intelligence in the network – embodied in base stations and other equipment for mobile networks and access node switches and management systems for fibre networks. Sharing active infrastructure is a much more contested issue, as it goes to the heart of the value-producing elements of telecom business.

2.9 GSMA² in its paper on the “Mobile Infrastructure Sharing” broadly classifies mobile infrastructure sharing into five categories³:

- Site sharing.
- Mast (tower) sharing.
- RAN sharing.
- Network roaming.
- Core network sharing.

¹TRENDS IN TELECOMMUNICATION REFORM 2008 - Summary: published by International Telecommunication Union

² The GSMA represents the interests of mobile operators worldwide, uniting more than 750 operators with over 350 companies in the broader mobile ecosystem, including handset and device makers, software companies, equipment providers and internet companies, as well as organisations in adjacent industry sectors.

³ <https://www.gsma.com/publicpolicy/wp-content/uploads/2012/09/Mobile-Infrastructure-sharing.pdf>

Passive sharing is usually defined as the sharing of space or physical supporting infrastructure which does not require active operational co-ordination between network operators. Site and mast sharing are considered to be forms of passive sharing. The remaining categories, listed above, are considered forms of active sharing as they require operators to share elements of the active network layer including, for example, radio access nodes and transmission systems. During RAN sharing, Mobile Network Operators (MNOs) continue to keep separate logical networks and the degree of operational co-ordination is less than in other types of active sharing.

2.10 “BEREC Common Position on Mobile Infrastructure Sharing”⁴ document, by Body of European Regulators for Electronic Communications (BEREC), provides common definitions of different infrastructure sharing types. It lays out the common definitions of passive sharing and active sharing as below:

- i. **“Passive sharing** is the common use by two or more operators of passive elements of their respective networks. Passive elements are those which are not able to process or convert telecommunication signals in any way and which are not integrated parts of the system dedicated specifically to the conveyance of signals. Passive elements are sometimes referred to as ‘unpowered components’ as these elements usually do not require a power supply. This is however not always the case. For instance, air conditioning for cooling equipment might be considered a passive element, but usually requires an external power supply. Passive sharing can encompass the sharing of passive backhaul elements.”

⁴https://bereg.europa.eu/eng/document_register/subject_matter/bereg/regulatory_best_practices/common_approaches_positions/8605-berec-common-position-on-infrastructure-sharing

- ii. **“Active sharing** is the common use by two or more operators of active elements of their respective networks. Active elements are those which are able to generate, process, amplify and control signals. Examples of active elements are very diverse and include many different types of electronic equipment (hardware and software) capable of various functions (transmitters, receivers, amplifiers, decoders etc.). While antennas have been traditionally classified as passive elements, technology advance has led to a paradigm shift to active antenna systems (AAS), which are considered a key enabler for 5G networks. Such antennas (or antenna arrays) can also be considered as active when equipped with radio frequency units such as amplifiers and signal processing elements. Furthermore, 5G, including virtualization technology, may enable new forms of network sharing, in particular for building common network slices tailored to specific services.”

2.11 RAN sharing is a form of active sharing where two or more operators agree to use the same radio access network equipment, including base station active equipment and possibly the antenna. Each operator uses its own core network. This type of active sharing can be split into two types, depending on whether operators share the same spectrum or not:

- i. Multi-Operator Radio Access Network (MORAN) sharing is a form of RAN sharing where only RAN equipment is shared (i.e. not spectrum). The end users of each operator access the services of their respective Mobile Network Operator (MNO) with the frequencies of their respective MNO.

- ii. Multi-Operator Core Network (MOCN) sharing is a form of RAN sharing where all elements of the radio access network, including spectrum, are shared. The end users of each operator can access the services of their respective MNO through all the frequencies that are shared in the access network. The frequencies can be provided by one or several operators that are part of the sharing. When the frequencies of several operators are used, it is called MOCN with frequency (or spectrum) pooling.

Need for Sharing Active and Passive Infrastructure

- 2.12 Even though, presently in India, the total data consumption is one of the highest in the world, per user data consumption is much lesser when compared to countries of East Asia, Europe, and America. As per the Digital Economy and Society Index (DESI) Connectivity Report 2019, published by the European Commission, Internet traffic per capita in Western Europe is 44 GB per month, and in this mobile networks' contribution is only 6%. In contrast, in India, Internet traffic per capita is approximately 10 GB per month, and mostly it is through mobile networks.
- 2.13 In India, growth in data consumption through mobile networks has its own limitations due to spectrum availability constraints and the fact that, due to non-availability of optical fiber in the access backhaul network, most of the Base Stations are working on Microwave Backhaul transmission links, which have capacity limitations. At the end of financial year 2018-19, the number of Base Transceivers Sites having optical fiber connectivity is approximately 30% only. The widespread deployment of optical fiber for connecting 4G and 5G Base Transceivers Stations (BTS) and rolling out broadband wireline access networks require substantial amount of fresh investments across the country. Here

‘access network’ refers to only ‘Access’ part of a telecommunication network. The ‘Backbone’ and ‘Core’ are other major parts of a telecommunication network. Accordingly, the NDCP-2018 emphasizes on investments in telecom infrastructure, facilitating development of Open Access Next Generation Networks, increasing access to fixed line broadband, and fiberisation of mobile networks.

2.14 Further, upgradation of the existing mobile networks to 5G technology will require additional investments at an accelerated pace. The roll out of 5G networks is expected to make use of higher frequency bands, which will entail, amongst other things, deployment of large number of small cells. This will result in massive increase in the number of Base Transceivers Stations as compared with existing networks. The upgradation of the existing mobile networks to 5G and network densification requirement may create a greater incentive for fiberisation of the networks.

2.15 By deploying small cells, mobile operators will be able to support significantly higher capacity in dense areas, as well as improved coverage in areas where building blockage otherwise reduces the signal strength. Small cells are a technology shift for operators and are leading to the emergence of new ‘as-a-service’ business model. This can be a new opportunity for Infrastructure Provider (IP) companies in our country. Small-Cell-as-a-Service (SCaaS) models allow operators to avoid much of the CapEx involved in massive small-cell roll-outs and enable cost savings through multi-operator deployments. SCaaS providers may seek to leverage existing asset ownership of sites, backhaul connections, etc. to deliver cost savings to operators.

2.16 Technological advancements as well as capacity requirements are driving the network evolution towards an integrated network called HetNet (Heterogeneous Network) consisting of macro cells, micro/small cells and Wi-Fi Access Points. Fiberisation of these integrated networks by each TSP in non-sharing mode would be

quite costly and a time-consuming process. It may increase the cost-of-service delivery to customers substantially. Any substantial increase in cost-of-telecom services to customers would affect affordability and in-turn demand for these services.

2.17 With technological advancement, it has become possible to share antenna, feeder cable, Base-Band unit, and transmission systems by multiple mobile service providers while still using their own assigned spectrum. The quality of service and other operating parameters can also be maintained separately by each mobile service provider. Despite using the shared access networks, the advances in technology and applications have enabled service providers to differentiate their offerings in the market. This will be more visible after the roll-out of 5G cellular networks. In addition, in some remote and less accessible areas, the sharing of access networks could facilitate provisioning of telecom services at affordable prices. In view all these benefits, globally, infrastructure (Active as well as Passive) sharing is being encouraged.

2.18 The last three to four years were a period of consolidation in the Indian telecommunication market. Presently, there are effectively only three private entities and two PSUs providing Access Services. These are vertically integrated service providers; providing the bouquet of telecommunication services which include Wireline and Wireless Access, Internet, National Long Distance (NLD), International Long Distance (ILD), and Enterprise Business services. Simple perusal of the performance indicators published by the Authority on regular basis indicates that the primary focus of these TSPs is on wireless access services. It is reflected in the abysmally low-level of penetration of wireline broadband services in the country. This could also be due to much higher level of efforts required for provisioning and maintenance of wireline access services. The availability of shared wireline access network in non-discriminatory manner may

encourage local entrepreneurs to start provisioning wireline broadband services in their area of operations and help in improving the wireline broadband penetration.

2.19 There is a requirement of telegraph⁵, as defined under the Indian Telegraph Act, 1885, such as transmission systems, optical fibers, etc., for provisioning different types of telecommunication service⁶, as defined under the TRAI Act, 1997, such as Cloud Services, Cable Services, Content Delivery Network (CDNs)⁷ Services, M2M connectivity, etc. Other Service Providers (OSPs) registered by DoT for providing application services such as telebanking, telemedicine, tele-trading, e-commerce, call centers, etc. also require these types of telegraph resources for interconnecting their OSP centers and providing their services. Presently, all these requirements are catered by licensed Telecom Service Providers only. IPs-I are not allowed to provide even passive infrastructure resources to anyone other than the licensed TSPs.

2.20 Infrastructure sharing tends to impact coverage, quality of service, and pricing of services to consumers positively, as the cost-saving characteristics of infrastructure sharing allow for increased efficiency. It may lead to efficient and positive outcomes such as:

- Decrease in duplication of investment tends to reduce costs for operators and prices for consumers.

⁵ 'telegraph' means any appliance, instrument, material or apparatus used or capable of use for transmission or reception of signs, signals, writing, images and sounds or intelligence of any nature by wire, visual or other electro-magnetic emissions, radio waves or Hertzian waves, galvanic, electric or magnetic means.

Explanation.—'Radio waves' or 'Hertzian waves' means electromagnetic waves of frequencies lower than 3,000 giga-cycles per second propagated in space without artificial guide;

⁶ "telecommunication service" means service of any description (including electronic mail, voice mail, data services, audio tex services, video tex services, radio paging and cellular mobile telephone services) which is made available to users by means of any transmission or reception of signs, signals, writing, images and sounds or intelligence of any nature, by wire, radio, visual or other electro-magnetic means but shall not include broadcasting services:

PROVIDED that the Central Government may notify other service to be telecommunication service including broadcasting services.

⁷A content delivery network (CDN) is a system of distributed servers (network) that deliver pages and other web content to a user, based on the geographic locations of the user, the origin of the webpage and the content delivery server.

- Positive incentives to provide services in underserved areas: reduction in costs justify serving economically poor areas.
- Improved quality of service: due to increase in network coverage and capacity.
- Product and technological innovation: permitting operators to compete on service innovation and technology rather than solely on coverage.
- Increased consumer choice: as entry and expansion becomes easier and speedier through network sharing, consumers benefit from an increased choice of providers.

2.21 BEREC’s report on infrastructure sharing⁸ provides an analysis of infrastructure sharing arrangements, which are currently in place in various individual European markets. The report includes various scenarios of sharing arrangements, benefits and challenges, as well as future evolution of sharing arrangements due to 5G. The report indicates that as per the figures provided by some European Regulators, the cost-savings’ areas are:

Table 2.1: Infrastructure Sharing — Cost Savings

Passive infra sharing Cost savings	16% to 35% CapEx	16% to 35% OpEx
Active infra sharing (excl. spectrum) Cost savings	33% to 35% CapEx	25% to 33% OpEx
Active infra sharing (incl. spectrum) Cost savings	33% to 45% CapEx	30% to 33% OpEx

Issues and Recommendations

2.22 The consultation process on “Review of Scope of Infrastructure Providers Category-I (IP-I) Registration” was *suo-motu* initiated by the Authority to recommend necessary policy changes to encourage sharing of infrastructure and incentivize and facilitate telegraph infrastructure creation in the country.

⁸https://berec.europa.eu/eng/document_register/subject_matter/berec/reports/8164-berec-report-on-infrastructure-sharing

2.23 The following issues related to scope of IPs-I were raised in the consultation paper to seek the view of the stakeholders:

“1. Should the scope of Infrastructure Providers Category –I (IP-I) registration be enhanced to include provisioning of common sharable active infrastructure also?”

2. In case the answer to the preceding question is in the affirmative, then

- i) What should be common sharable active infrastructure elements which can be permitted to be owned, established, and maintained by IP-I for provisioning on-rent/lease/sale basis to service providers licensed/permitted/registered with DoT/MIB? Please provide details of common sharable active infrastructure elements as well as the category of telecommunication service providers with whom such active infrastructure elements can be shared by IP-I, with justification.*
- ii) Should IP-I be allowed to provide end-to-end bandwidth through leased lines to service providers licensed/permitted/registered with DoT/MIB also? If yes, please provide details of category of service providers to it may be permitted with justification.*
- iii) Whether the existing registration conditions applicable for IP-I are appropriate for enhanced scope or some change is required? If change is suggested, then please provide details with reasoning and justification.”*

2.24 There were widely divergent views expressed by the stakeholders. While several stakeholders, including the IPs-I, were in favour of the enhancement of the scope of IP-I registration, most of the licensed TSPs were opposed to the enhancement of scope without the licence fee. Some of the licensed TSPs argued that instead of enhancing the scope of IPs-I, sharing of active infrastructure

among TSPs should be promoted by allowing pass through of the revenue earned by licensed TSPs on account of sharing.

- 2.25 Most of the stakeholders who have stated that the scope of IPs-I registration should be enhanced to include provisioning of common shareable active infrastructure; were of the opinion that IPs-I should be allowed to share the infrastructure in a non-discriminatory manner with such entities who have any valid license/registration from any Ministry of the Government of India including DoT/MIB/MeitY. They further submitted that IPs-I should not be allowed to provide telecom services to the end user/customer directly. This should remain under the domain of service provider/operator only.
- 2.26 A few stakeholders stated that IPs should be allowed to own and deploy active infrastructure on behalf of the telecom licensees, subject to their being an agreement in place with a telecom licensee for the IP-I to go ahead with such deployment.
- 2.27 Some stakeholders were of the view that IP-I entities should be brought under licensing framework and the licence fee on Adjusted Gross Revenue (AGR) should be made applicable for them. All provisions of the Unified Licence (UL) should also be applicable to IP-I. Any extension of scope of enhancement should be under UL. All conditions should be made applicable for IPs-I to have level playing field with TSPs. Within such licensing framework, the scope of IPs-I, should initially be for remote and rural areas. They further submitted that IPs-I offering active infrastructure, should not be directly or indirectly and jointly or separately controlled by TSPs but should be 'truly' neutral entities.
- 2.28 One of the stakeholders has stated that it is important to have level playing field, compliance to legal framework and no incidence of double taxation on revenue from sharing of infrastructure. Some of the critical compliances which are included in the Unified Licence but are not part of the IP-I

registration such as Security Conditions, Confidentiality, Technical Standard, Quality of Service norms, location of network elements, facilitating inspection, and testing of Installations should be made applicable to IP-I also.

2.29 One stakeholder has suggested that Unified Licence (Network) under Section 4 of the Indian Telegraph Act should be introduced. This licence will be meant for entities desiring to deploy and own active infrastructure for sharing with Licensed TSPs. An existing licensee already holding the Unified licence should also be allowed to get such authorization with same terms and conditions. The regime of pass through charges for admissibility of deductions from Gross Revenue for the levy of LF & SUC be reviewed and all kind of payments (either fixed or variable) made for any telecom input resource by one Licensed TSP to another should be allowed as a deduction to the former. The policy on infrastructure sharing should be further liberalized to allow sharing of core infrastructure such as Switch, MSC, HLR, IN, etc. among licensees having the UL (Access/ NLD/ ILD Authorization).

2.30 Most of the stakeholders who were in favour of the enhancement of the scope of IPs-1 suggested the following active network elements for sharing.

- i. Antenna
- ii. Feeder Cable
- iii. Base Station (eNB, gNB, Small/Micro Cells, etc.)
- iv. Radio Access Network
- v. Transmission System (Microwave & OFC)

Some stakeholders also suggested the sharing of IBS (In Building Solutions), Wi-Fi access points, and FTTX (Fiber to the X, where X can be home, curb, pillar, etc.)

2.31 Some stakeholders have argued that the active infrastructure should be allowed to be rented/leased/sold only to telecom licensees as permitted at present as otherwise, the scope of IPs-I

will be venturing into the domain of service/operating rights, which is not permissible. However, some of the stakeholders have argued that IPs-I should be allowed to share the infrastructure in a non-discriminatory manner with all legal entities.

2.32 Some of the stakeholders have argued that IPs-I should be allowed to provide Dark Fiber/leased-line to enable respective service providers to light the fiber to enable the services to their respective customers. However, some other stakeholders have argued that IPs-I should be allowed to provide transmission bandwidth to non-licensed Service Providers such as Cloud Service Providers, Internet Exchanges, Data Centers, or even IT/ITES companies for point-to-point connectivity, connecting the resources of the same customer between two nearby locations without the need to deploy additional transmission equipment.

2.33 Several stakeholders who supported the enhancement of the scope of IPs-I were of the opinion that existing registration conditions applicable for IPs-I are sufficient even for enhanced scope as any additional infrastructure/network element being allowed under the enhanced scope would remain 'passive' and in non-operating condition until powered by a service provider. They suggested that the provision of such connectivity can be included within the scope of the existing IPs-I registration framework, subject to minimal compliances and light touch regulation which are proportional to the minimal risk involved with the services. Suitable amendments could also be considered to the Indian Telegraph Rules and the Unified Licence for this purpose. Registration conditions would need explicitly allowing sharing of active infrastructure. There is no requirement to change any existing IPs-I registration conditions. A condition may be added that active infrastructure provision would require an agreement with a Licensed Telecom Service Provider.

2.34 Some stakeholders suggested that IP-I registration holders who provide active infrastructure should not be brought under the

licensing regime and no revenue sharing/licence fee shall be applicable. The focus here is on bringing efficiency in this fast-paced industry and licensing IP-I holders would be counter-productive and is also against the ease of doing business.

2.35 Some of the stakeholders stated that the creation of active network infrastructure requires a licence under Section 4 of the Indian Telegraph Act. DoT has also taken a similar stance while issuing the clarification dated 28th November 2016 and has alluded that:

“Keeping in view, that some IP-I companies have invested into creation of active network infrastructure, which requires a license under Indian Telegraph Act, 1885, all IP-I providers are hereby provided an opportunity to take either a Unified License or a Virtual Network Operator(VNO) license of requisite authorization or a UL(VNO) Cat-B license for specific geographical area within six months of issue of this letter and move all such operations involving active network elements under the license. Alternatively, within a period of six months, the IP-1 providers can transfer all such active network elements to a holder of valid license.”

2.36 Before reviewing the scope of IP-I registration, it is important to recognize its legal status. It is essential to acknowledge that the purposes of Unified License (UL) and IP-I registration are quite distinct. While the purpose of UL is to grant permission to deliver telecommunication services, the purpose of IP-I registration is to develop sharable telegraph infrastructure, which can be used by licensees to deliver telecommunication services. After the detailed analysis, once it is recognized that the registration of IP-I is nothing but a kind of license granted under Section 4 of the Indian Telegraph Act, 1885 for establishing and maintaining telegraph within its limited scope, legally the scope of IP-I registration can include any telegraph item. In such a situation, the only consideration would be the policy requirement. As mentioned earlier, the NDCP-2018 already recognizes that to

achieve its objectives, we need to encourage and facilitate sharing of active infrastructure by enhancing the scope of Infrastructure Providers (IPs).

- 2.37 Many stakeholders have argued at different occasions that while the UL is granted under Section 4 of the Indian Telegraph Act, 1885, the registration of IPs-I is different. However, on no occasion, any stakeholder has suggested that if not under Section 4 of the Indian Telegraph Act, 1885 then under which powers DoT regulates these IPs-I? Many times, the comments and analysis of the stakeholders indicates that for IPs-I registrations to be recognized under Section 4 of the Indian Telegraph Act, 1885, these registrants should also pay licence fee like the TSPs with a UL. Let's discuss all these issues and have clarity on the legal status of IP-I registration.
- 2.38 The clarification dated 28th November 2016 issued by DoT, quoted earlier, contradicts the purpose and intent behind IP-I registration. The IP-I players are supposed to provide telegraph infrastructure to TSPs whereas UL (VNO) licensees are supposed to provide services to end users using the resources of TSPs. So, if for establishing, maintaining, and sharing the active telegraph, IPs-I is required to migrate to UL (VNO) license then it would create a loop, which can't be the policy objective.
- 2.39 In the aforesaid clarification, it is stated that the creation of active network infrastructure requires a licence under Section 4 of the Indian Telegraph Act, 1885. However, there is no distinction made between the passive network infrastructure and the active network infrastructure in the Indian Telegraph Act, 1885. The Indian Telegraph Act defines 'telegraph' as the:

"telegraph" means any appliance, instrument, material or apparatus used or capable of use for transmission or reception of signs, signals, writing, images and sounds or intelligence of any nature by wire, visual or other electro-magnetic emissions, Radio waves or Hertzian waves, galvanic, electric or magnetic means."

As per the Section 4 of the Indian Telegraph Act, the Central Government shall have exclusive privilege of establishing, maintaining and working telegraphs within India. It is further provided that the Central Government may grant a license, on such conditions and in consideration of such payments as it thinks fit, to any person to establish, maintain or work a telegraph within any part of India.

2.40 In this respect, it is relevant here to take a note of analysis of this issue in the Hon'ble TDSAT judgment of 10th April 2012 in the matter of Reliance Infratel Ltd. vs Etisalat DB Telecom Pvt. Ltd. (Petition No. 75 of 2012 – M.A. No. 112 of 2012). While examining the issue as to whether IP-I registration is a license granted under Section 4 of the Indian Telegraph Act, 1885 or otherwise, vide Para 124 to 126 of the said order, Hon'ble TDSAT in respect of grant of licence under Section 4 of the Indian Telegraph Act, 1885, observed:

“124. The Department of Telecommunication (DoT) has a specific role to play in the matter of working out of the Telegraph. It can act only in terms of the provisions of the Act as also the 1933 Act. It has the exclusive privilege having regard to the Section 4 of the Act as regards establishing, maintaining and working of telegraphs. Nobody else has that right. Apart from those statutes, DoT could not have exercised its power to distribute largesse.

It could not have parted with its exclusive privilege.

125. The Central Government in a case may grant a license for establishing and maintaining telegraphs but may keep unto itself the right of exclusive privilege so far as working of telegraphs is concerned, it does so by way of grant of a license, the same may also require grant of another license under the 1933 Act or may not.

The words `work or operate' found in the ISP Registration Certificate must be held to be different from the words `establish and maintained'. All words have been used in the context of Section 4 of the Act.

When the Central Government parts with an exclusive privilege it may do so in its entirety or a part thereof.

Whereas the word `and` has been used in the main provision, the word `or` has been used in the proviso.

If, whether by way of grant of registration certificate or otherwise, any part of the exclusive privilege vested in the Central Government is to be parted with or outsourced in favour of any other entity, the same would mean a license.

The terms and conditions of the license have not been specified under the Act. No rule in this behalf has been framed.

126. Formulation of the `terms and conditions` for grant of license as well as fixation of consideration are within the exclusive domain of the Central Government. For the said purpose, it is not necessary for it to stick to one set of terms and conditions of the license. There can be different terms; depending upon the facts and circumstances of each case. It subject to the rule of `reasonable classification` as envisaged under Article 14 of the Constitution of India may lay down different terms and conditions and claim different amounts of consideration from different licensees.

If that be the legal position, it is difficult to comprehend as to why the power to lay down passive infrastructure would not come within the purview of Section 4 of the Act.

Interpretation of statute would depend on the text and context thereof. It must march with the passage of time.”

In view of the above, it can be safely stated that the registration certificate issued to IP-I is a kind of licence/permission granted under Section 4 of the Indian Telegraph Act, 1885, though on a different consideration and with specific scope.

- 2.41 It is pertinent to refer here the “Flight and Maritime Connectivity Rules, 2018” dated 14th December, 2018 notified by Ministry of Communications in exercise of the powers conferred by Section 4 read with Section 7 of the Indian Telegraph Act, 1885 (13 of 1885). These rules are for grant and regulation of authorisation for In Flight and Maritime Connectivity (IFMC). The IFMC service

provider, shall establish, maintain and work telegraph to provide wireless voice or data or both type of telegraph messages on ships within Indian territorial waters and on aircraft within or above India or Indian territorial waters. The IFMC service provider shall pay annual fee of one rupee to be paid on annual basis to the DoT through *Bharat Kosh*.

2.42 In the above referred rules, instead of license, the term ‘authorization’ has been used by the Government to part with its exclusive privilege under Section 4 of the Indian Telegraph Act, 1885. The terms and conditions of this authorisation are quite distinct from the Unified License being granted for provisioning of telecommunication services. Further as per these rules, unlike TSPs having UL paying higher LF, the IFMC service provider is required to pay annual fee of one rupee only on an annual basis to the DoT. Accordingly, in line with the observations of Hon’ble TDSAT in the above referred matter, it is quite clear that the Government is using different terms such as license, registration, authorisation, etc. for parting with its exclusive privilege under Section 4 of the Indian Telegraph Act, 1885. Further, it indicates that having a similar kind of license fee obligations on different kind of licensees is not necessary.

2.43 Under Part III — titled ‘POWER TO PLACE TELEGRAPH LINES AND POSTS’ — of the Indian Telegraph Act, 1885, Section 10 provides that the telegraph authority may, from time to time, place and maintain a telegraph line under, over, along, or across, and posts in or upon any immovable property, subject to certain conditions. Further, under the same Part, Section 19B of the Indian Telegraph Act, 1885 empowers the Central Government to confer upon licensee powers of telegraph authority under this Part. It reads as follows:

“19B. Power to confer upon licensee powers of telegraph authority under this Part

The Central Government may, by notification in the Official Gazette, confer upon any licensee under section 4, in

respect of the extent of his license and subject to any conditions and restrictions which the Central Government may think fit to impose and to the provisions of this Part, all or any of the powers which the telegraph authority possesses under this Part with regard to a telegraph established or maintained by the Government or to be so established or maintained.”(emphasis provided)

- 2.44 In exercise of the provisions of Section 19B of the Indian Telegraph Act, 1885, the Central Government vide gazette notification dated 24th May 1999 conferred the powers upon duly authorised licensee(s)/ private basic telephone service operator under Section 4 of the act to seek way-leave from any person including public authority, public corporation, autonomous body, State Government or Central Government in the respective licensed service area.
- 2.45 Department of Telecommunications has issued “Indian Telegraph Right of Way Rules, 2016” (hereinafter referred to as RoW Rules, 2016) for setting up of mobile towers and laying of cables in November 2016, providing a framework for granting approvals and settling disputes in a time-bound manner. As per these rules, the appropriate authority shall exercise the powers under these rules on an application for establishment and maintenance of underground or over-ground telegraph infrastructure by any licensee on whom the powers of the telegraph authority have been conferred by notification under Section 19B of the Act, subject to any conditions and restrictions as may be imposed in such notification. DoT through a clarification dated 22nd May 2018 (**Annexure D**) has clarified that under clause 2(d) of the said rules ‘licensee’ includes Infrastructure Providers Category-I (IPs-I). From section 19B of the Indian Telegraph Act, 1885, it is amply clear that the powers of the ‘telegraph authority’ provided under Part III of the Act can be conferred only upon any licensee under Section 4 of the Act. Accordingly, it appears that, now the DoT also considers the IPs-I registration as license under Section 4 of the Indian Telegraph Act, 1885.

- 2.46 Accordingly, in view of the observations of Hon'ble TDSAT in the aforesaid judgment, the provisions contained in Sections 4, 10, and 19B of the Indian Telegraph Act, 1885 read with DoT clarification dated 22nd May, 2018 in respect of RoW Rules, 2016, and the "Flight and Maritime Connectivity Rules, 2018", the Authority is of the view that the IP-I registration, within its existing scope of establishing and maintaining telegraph infrastructure also, is a separate class of licence under Section 4 of the Indian Telegraph Act, 1885, which is issued by means of a registration. It needs to be recognised by each stakeholder including DoT. The further analysis of the issue and recommendations of the Authority rely on this recognition.
- 2.47 Infrastructure sharing enables economies of scale, improves affordability, and avoids duplication of networks where possible. It allows faster roll out of networks and services. The Government, through NDCP-2018 has already decided to encourage and facilitate sharing of active infrastructure by enhancing the scope of Infrastructure Providers (IPs). Since IPs-I already have experience and expertise in rolling out telegraph infrastructure and sharing the same non-discriminately with the licensed TSPs, they can play a significant role in deployment of active infrastructure, if the scope of their registration is enhanced.
- 2.48 Some stakeholders have commented that instead of enhancing the scope of IP-I, sharing of active infrastructure among TSPs should be promoted by allowing pass through of the revenue earned by licensed TSPs on the account of sharing. As already noted, active infrastructure sharing, as per license conditions, is already permitted to licensed TSPs. As far as the demand for allowing pass through of the revenue earned by licensed TSPs on the account of sharing is concerned, this is not relevant to the present issue. As discussed earlier, the scope of the UL and IP-I registration are quite distinct and accordingly, the conditions for

LF. Even now, in case of passive infrastructure sharing by licensed TSPs, no pass through of the revenue is permitted.

2.49 In the present licensing regime in India, in most of the cases, the licence fee (LF) is linked to Adjusted Gross Revenue (AGR) which is obtained after deducting the pass-through charges from the Gross Revenue (GR). The TSPs in India normally make payments to different equipment vendors for installing and maintaining different active elements under different types of contracts. The payments made to these vendors and contractors are not considered for pass-through charges as these charges are costs to TSPs. In the present regime, the IP-I providers can install active equipment for and on behalf of the licensed TSP. In case, these IP-I providers are permitted to own, establish, and maintain the active elements for rent/lease/sale to the licensed TSPs, this may not make any difference to the AGR or licence fee of TSPs as the rent or lease charges for active infrastructure would be on cost side and not on revenue side. It would only reduce the cost/expenditure incurred by telecommunication service providers for effective roll out of services because of the economic benefits of sharing.

2.50 The regulatory policies should be conducive to the development of the telecom sector. One element of such policy could be the creation of regulatory and economic incentives that encourage the sharing of infrastructure as a key to foster competition and optimize investments. NDCP-2018 also suggests incentivizing the deployment of common sharable, passive as well as active, infrastructure. Accordingly, the Authority is of the view that imposition of any licence fee on the Infrastructure Providers, at this point of time, will be detrimental to the growth of much needed telegraph infrastructure in particular and the telecom sector at large. Moreover, since the IP-I are not providing telecommunication services to the public at large, it is not

appropriate and justifiable to impose any licence fee upon these players.

- 2.51 Arguments of some other stakeholders that IP-I entities should be brought under UL framework and the licence fee on Adjusted Gross Revenue (AGR) should be made applicable for them are not tenable. As discussed earlier, the objectives and the scope of UL and IP-I are distinct. Having common conditions for dissimilar licenses would not only be against the objectives but also unnecessarily burden such licensees. However, as suggested by a stakeholder, when permitting establishment and maintenance of active infrastructure to IP-I, some addition/ alteration in the registration conditions would be inevitable.
- 2.52 The arguments of some stakeholders that IPs-I offering active infrastructure, should not be directly or indirectly and jointly or separately controlled by TSPs may not be feasible at this stage as in this fast-changing technology intensive world, some understanding of telecom market by IPs-I is essential. This knowledge exchange is critical for initial roll out of active infrastructure by IPs-I. Depending upon the experience about the neutrality of IP-I players, such requests can be examined at a later date.
- 2.53 A stakeholder has suggested that UL (Network) should be introduced. As per this stakeholder this license should include core as well as access networks. Keeping in view the emerging requirements where private networks, enterprise needs for communication solutions, etc. may require access to wholesale networks, this suggestion appears to be in the right direction. However, it is important to note that the role of IPs and Network operators would be quite distinct. IP-I is not permitted to establish end-to-end telecom network. IP-I registration does not grant interconnection or switching permissions. Further, for separate network layer license TRAI has already initiated a pre-consultation on enabling unbundling of different layers (e.g.

infrastructure, network, services and applications layer) through differential licensing with stakeholders. These recommendations cater to infrastructure layer only.

- 2.54 Few stakeholders have argued that IPs should be allowed to own and deploy active infrastructure only when an agreement is in place with a telecom licensee. This is not necessary as it can be taken care by the market forces. In an open market, suppliers would produce only such items which have reasonable level of demand. So, putting an extra obligation on IPs-I may not be advisable as it also goes against the principle of ease of doing business.
- 2.55 As per the objectives of the NDCP-2018, to secure universal broadband access, densification of wireless as well as wireline access networks is an immediate challenge. NDCP-2018 also talks of facilitating open-access next generation networks to attain the policy objectives. Further, the fiberisation of radio access network has become critical to provide next generation services. As discussed earlier, IPs-I can play a significant role in meeting these challenges. Accordingly, the Authority agrees with the views of some stakeholders that IPs-I be allowed to own, establish, and maintain all such network elements which are necessary for densification of wireless as well as wireline access networks and fiberisation of radio access networks.
- 2.56 In 4G and 5G environment, to boost performance in traffic hotspots such as offices, stadiums, city squares and commuter hubs, centralized baseband deployments have become increasingly necessary for TSPs. In a fully centralized baseband deployment, all baseband processing is located at a central location that serves multiple distributed radio sites. Shared transmission links, to be established by IPs-I, would be required between the central baseband units and distributed radio units. Further, these shared central baseband units need to be connected to core network of the individual TSPs. The individual

TSPs may not have fiber connectivity available right up to central baseband unit location. So, for this connectivity shared transmission links may require to be established by IPs-I. IPs-I can use the same fiber network to establish wireline access networks also. In case of wireline transmission links, since the transmission systems as well as optical fiber would be owned by IPs-I, it should be permitted to share the end-to-end transmission link so created with “eligible service providers”. Here, “eligible service providers” refers to any service provider who has valid authorization from the Government of India to establish, maintain, and work a telegraph to deliver telecommunication services, within any part of India. However, the IPs-I should not be allowed to provision end-to-end bandwidth using transmission systems to any customer other than the eligible service providers. In case of wireless transmission links, since the transmission systems would only be owned by IPs-I and the spectrum would be assigned to licensee, IPs-I should not be permitted to share the end-to-end bandwidth so created with other service providers. This would require the spectrum sharing agreement among such service providers and then that bandwidth can be shared by licensed TSP only. This way the objective of densification of wireless as well as wireline access networks and fiberisation of radio access networks can be realized in timely manner at optimal costs and efforts.

2.57 The IPs-I are presently allowed to install active elements (limited to antenna, feeder cable, Node B, Radio Access Network (RAN) and transmission media only) on behalf of telecom licensee. The Authority is of the view that the scope of IPs-I should be enhanced, and they should be allowed to own and install these elements and provide them on lease/rent/sale basis to licensed TSPs. The Authority is of the view that the expanded scope of the IPs-I registration should include to own, establish, maintain, and work all such infrastructure items, equipment, and systems

which are required for establishing Wireline Access Network, Radio Access Network (RAN), and Transmission Network. It should include, but not limited to, Right of Way, Duct Space, Optical Fibers, Tower, Feeder cable, Antenna, Base Station, In-Building Solution (IBS), Distributed Antenna System (DAS) etc., within any part of India. As the proposed enhancement in the scope of IPs-I registration does not include the assignment of licensed spectrum to IPs-I, MORAN sharing would only be permitted. As described earlier, Multi-Operator Radio Access Network (MORAN) sharing is a form of RAN sharing where only RAN equipment is shared (i.e. not spectrum). The end users of each operator access the services of their respective Mobile Network Operator (MNO) with the frequencies of their respective MNO.

2.58 While some stakeholders have argued that IPs-I should share active infrastructure with TSPs only, as permitted at present, some other stakeholders have suggested allowing sharing of telegraph infrastructure in a non-discriminatory manner with all legal entities. Few other stakeholders have argued that IPs-I should be allowed to provide transmission bandwidth to non-licensed Service Providers such as Cloud Service Providers, Internet Exchanges, Data Centers, or even IT/ITES companies for point-to-point connectivity to connect the resources of the same customer between two nearby locations without the need to deploy additional transmission equipment. While considering these suggestions, it is important to keep in mind the objectives of different types of licenses/registrations such as UL, IPs-I, etc. and the legal framework regulating the telecommunication sector. As discussed earlier, while the objective of UL is to permit TSPs to deliver telecommunication service to end consumers, the objective of IPs-I is to facilitate telegraph infrastructure creation and reap the benefits of economies of scale and scope. Further, as per the legal framework in place, telecommunication services can be

provided by any entity only after obtaining permission from the Government either under the Indian Telegraph Act, 1885 or Cable TV Network Regulation Act, 1995. Therefore, permitting sharing of telegraph infrastructure with any such entity that does not hold permission to provide telecommunication services would not be tenable.

2.59 Accordingly, the Authority is of the view that the eligibility to obtain telegraph infrastructure items, equipment and systems on lease/sale/rent basis from IPs-I should not be restricted to TSPs holding licence from DoT alone. By encouraging sharing of infrastructure with more players in the telecom ecosystem the benefits of economies of scale and scope would increase further. The Authority is of the view that any service provider who has valid authorization from Government of India to establish, maintain, and work a telegraph to deliver telecommunication services, within any part of India, should be eligible to obtain such a telegraph on lease/rent/sale basis from IPs-I registration holder. The IPs-I should be allowed to provide such infrastructure items, equipment and systems on mutually agreed terms and conditions to eligible service provider in fair, reasonable and non-discriminatory manner.

2.60 It is hereby reiterated that the Authority is of the view that the IPs-I registration, within its existing scope of establishing and maintaining telegraph infrastructure also, is a separate class of licence under Section 4 of the Indian Telegraph Act, 1885 which is issued by means of a registration. Based on this understanding of the Authority, the following is recommended:

2.61 **The Authority recommends that the scope of Infrastructure Providers Category – I (IP-I) Registration should be expanded to satisfy the present need for telegraph in the country.**

2.62 **The Authority recommends that any Service Provider who has a valid authorization from the Government of India to establish, maintain, and work a telegraph to deliver**

Telecommunication Services, within any part of the country, shall only be eligible to obtain such a telegraph infrastructure on lease/rent/ purchase basis from IP-I registration holders. Hereinafter these service providers have been referred to as eligible service providers.

- 2.63 **The Authority recommends that the expanded scope of the IP-I registration should include to own, establish, maintain, and work all such infrastructure items, equipment, and systems which are required for establishing Wireline Access Network, Radio Access Network (RAN), and Transmission Links. However, it shall not include core network elements such as Switch, MSC, HLR, IN etc. The scope of the IP-I Registration should include, but not limited to, Right of Way, Duct Space, Optical Fiber, Tower, Feeder cable, Antenna, Base Station, In-Building Solution (IBS), Distributed Antenna System (DAS), etc. within any part of India.**

Explanations:

(1) It is pertinent to clarify that the permission to work infrastructure items, equipment, and systems to IP-I registration holder is only for the purpose of sharing them with eligible Service Providers only. In no case, IP-I registration holder would use these working infrastructure items, equipment, and systems to provide telecommunication services to end customers.

(2) As the proposed enhancement in the scope of IP-I registration does not include the assignment of licensed spectrum to IP-I, MORAN sharing would only be permitted. Multi-Operator Radio Access Network (MORAN) sharing is a form of RAN sharing where only RAN equipment is shared (i.e. not spectrum). The end users of each operator access the services of their respective Mobile Network Operator (MNO) with the frequencies of their respective MNO.

2.64 **The Authority recommends that the IP-I registration holder should be authorised:**

- a). **to provide only such infrastructure items, equipment and systems on lease/rent/sale basis to an eligible service provider for which that Service Provider has an authorization from the Government of India, and**
- b). **to provide such infrastructure items, equipment and systems on mutually agreed terms and conditions to eligible service provider in fair, reasonable and non-discriminatory manner.**

2.65 **The Authority recommends that the expanded scope of the IP-I Registration should not include:**

- a). **providing access to infrastructure items, equipment, and systems to any customer other than the eligible service providers.**
- b). **provisioning of end-to-end bandwidth using transmission systems to any customer other than the eligible service providers.**
- c). **use of the licensed spectrum, assigned to an eligible service provider, for provisioning of wireless Telecommunication Services to other eligible service providers.**

2.66 The following issues were raised to get the opinion of the stakeholders on the eligibility of IP-I Providers to obtain wireless telegraphy licence and microwave backhaul spectrum:

“2.iv) Should IP-I be made eligible to obtain Wireless Telegraphy Licenses from Wireless Planning and Coordination (WPC) wing of the DoT for possessing and importing wireless equipment? What methodology should be adopted for this purpose?”

2.v) Should Microwave Backbone (MWB) spectrum allocation be permitted to IP-I for establishing point to point backbone connectivity using wireless transmission systems?”

- 2.67 Several stakeholders have suggested that IP-I should be allowed to own and install MW antennas enabling licensees/service providers to establish point-to-point backbone connectivity. Those stakeholders who have supported the enhancement of scope of IP-I have suggested that it should be made eligible to obtain Wireless Telegraphy Licenses from WPC wing to possess and import wireless equipment on the same terms and conditions as applicable to other licensees. Some have suggested that IP-I should be allowed to obtain Wireless Telegraphy Licenses from WPC wing of the DoT, subject to an agreement in place with a licensed telecom service provider. Those who have not supported the enhancement of scope of IP-I providers have argued that IP-I should not be allowed to obtain wireless telegraphy licenses since they are not allowed to install wireless equipment.
- 2.68 Few stakeholders have suggested that assignment of Microwave Access spectrum to IPs-I be included in its scope, for establishing point-to-point to multipoint backhaul connectivity using wireless transmission systems. However, most of the stakeholders have argued against the assignment of microwave backbone spectrum to IPs-I.
- 2.69 The Authority is of the view that allocating Microwave Access spectrum to IPs-I may not be advisable due to complexities relating to SUC links with AGR. It may go against the principle of light touch regulatory framework for telegraph infrastructure creation. Further, the assignment of Microwave Backbone (MWB) spectrum to IPs-I for establishing point-to-point backbone communication links may also be not advisable as the focus of IP-I registration is for access networks and after fiberisation of the access networks, the backbone networks would also be completely fiberized. Hence, in view of the Authority, the IP-I registration holder should not be made eligible to apply for and assignment of any kind of licensed spectrum.

- 2.70 As Base Station, RAN, DAS, etc., proposed to be included in the expanded scope of IP-I registration, will require the deployment of wireless telegraphy equipment, it is imperative to make IPs-I eligible to obtain Wireless Telegraphy Licenses from WPC wing to possess and import wireless equipment. Hence, the Authority is of the view that IPs-I should be eligible to apply for and issue the licence under the Indian Wireless Telegraphy Act, 1933 to possess such wireless telegraphy apparatus that is permitted under the scope of IP-I registration.
- 2.71 In view of the above, **The Authority recommends that the IP-I registration holder should be eligible to apply for and issue of licence under the Indian Wireless Telegraphy Act, 1933 to possess such wireless telegraphy apparatus that is permitted under the scope of IP-I Registration. However, the IP-I registration holder should not be eligible to apply for and assignment of any kind of licensed spectrum.**
- 2.72 The arguments of some of the stakeholders that the present conditions mentioned in the IP-I registration are enough is not tenable. Operations and maintenance of active telegraph requires certain changes/additions in the existing conditions to address issues relating to Security Conditions, Confidentiality, and Technical Standards. As far as compliance to QoS regulations/ license conditions is concerned, these are applicable for network operator/service provider. The quality of individual network elements must be ensured by complying to applicable technical standards and through commercial contracts between contracting parties.
- 2.73 There are several clauses in the Unified Licence related to norms on Technical Standards, Electromagnetic Field exposure by BTS (Base Stations), Sharing of Infrastructure, Confidentiality of Information, and Security Conditions. There are no corresponding clauses in the IP-I registration which deals with Technical Standards, Electromagnetic Radiations, Confidentiality of

Information, etc. However, there are only a few security-related clauses in IP-I registration.

- 2.74 Keeping in line with the recommendations of the Authority, with enhanced scope the IPs-I will be installing active network elements. These network elements must be compliant to requisite technical standards for proper inter-working with other networks.
- 2.75 The Authority is of the view that the IP-I registration holders should be permitted to use any technology as per the prescribed standards. They should utilize type of equipment and products that meet TEC standards, wherever made mandatory by the Licensor from time to time. In the absence of mandatory TEC standards, the IP-I registration holder should be permitted to utilize only those equipment and products which meet the relevant standards set by International standardization bodies, such as, ITU, ETSI, IEEE, ISO, IEC etc.; or set by International Fora, such as 3GPP, 3GPP-2, IETF, MEF, WiMAX, Wi-Fi, IPTV, IPv6, etc. as recognized by TEC and subject to modifications/adaptation, if any, as may be prescribed by TEC/Licensor from time to time.
- 2.76 The Authority is also of the view that the IP-I should, wherever applicable as per the scope of the IP-I registration, with necessary adaptations and modifications, comply with the norms stipulated in the Unified Licence under the heads of Electromagnetic Field exposure by BTS (Base Stations), Sharing of Infrastructure, Confidentiality of Information, and Security Conditions.
- 2.77 Infrastructure sharing is a continuously evolving space. This is truer in the access network space where the real action lies ahead. Traditional RAN is evolving into Open RAN with rising data demand. Open RAN would be based on open interfaces and use vendor-neutral hardware and software-defined technology. These developments would further facilitate active infrastructure sharing. To address these emerging scenarios, the Authority is of the view that the IPs-I should also be bounded by the instructions

issued by the Licensor and by such orders/directions/regulations of TRAI issued from time to time as per the provisions of the TRAI Act, 1997, as amended.

2.78 Since the scope of IPs-I is getting expanded, it is necessary to update and revise the registration format. A copy of proposed registration format is placed as **Annexure E**.

2.79 In view of the above, **The Authority recommends that the IP-I registration holder:**

- a). **should be permitted to own, establish, maintain, and work infrastructure items, equipment and systems, so permitted under its scope, using any technology as per the prescribed standards.**
- b). **should utilize type of equipment and products that meet TEC standards, wherever made mandatory by the Licensor from time to time. In the absence of mandatory TEC standards, the IP-I registration holder should be permitted to utilize only those equipment and products which meet the relevant standards set by International standardization bodies, such as, ITU, ETSI, IEEE, ISO, IEC etc., or set by International Fora, such as 3GPP, 3GPP-2, IETF, MEF, WiMAX, Wi-Fi, IPTV, IPv6, etc. as recognized by TEC and subject to modifications/adaptation, if any, as may be prescribed by TEC/Licensor from time to time.**
- c). **should be bounded by the terms and conditions of IP-I registration as well as instructions issued by the Licensor and by such orders/directions/regulations of TRAI issued as per the provisions of the TRAI Act, 1997, as amended from time to time.**
- d). **should, wherever applicable as per the scope of the IP-I registration, with necessary adaptations and modifications, comply with the norms stipulated in the Unified Licence under the heads of Electromagnetic Field**

exposure by BTS (Base Stations), Sharing of Infrastructure, Confidentiality of Information, and Security Conditions.

2.80 The Authority recommends the revised IP-I registration format as given in the Annexure E attached with these recommendations.

CHAPTER 3

Summary of Recommendations

- 3.1 The Authority recommends that the scope of Infrastructure Providers Category – I (IP-I) Registration should be expanded to satisfy the present need for telegraph in the country.**
- 3.2 The Authority recommends that any Service Provider who has a valid authorization from the Government of India to establish, maintain, and work a telegraph to deliver Telecommunication Services, within any part of the country, shall only be eligible to obtain such a telegraph infrastructure on lease/rent/ purchase basis from IP-I registration holders. Hereinafter these service providers have been referred to as eligible service providers.**
- 3.3 The Authority recommends that the expanded scope of the IP-I registration should include to own, establish, maintain, and work all such infrastructure items, equipment, and systems which are required for establishing Wireline Access Network, Radio Access Network (RAN), and Transmission Links. However, it shall not include core network elements such as Switch, MSC, HLR, IN etc. The scope of the IP-I Registration should include, but not limited to, Right of Way, Duct Space, Optical Fiber, Tower, Feeder cable, Antenna, Base Station, In-Building Solution (IBS), Distributed Antenna System (DAS), etc. within any part of India.**

Explanations:

(1) It is pertinent to clarify that the permission to work infrastructure items, equipment, and systems to IP-I registration holder is only for the purpose of sharing them with eligible Service Providers only. In no case, IP-I registration holder would use these working infrastructure items, equipment, and systems to provide telecommunication services to end customers.

(2) As the proposed enhancement in the scope of IP-I registration does not include the assignment of licensed spectrum to IP-I, MORAN sharing would only be permitted. Multi-Operator Radio Access Network (MORAN) sharing is a form of RAN sharing where only RAN equipment is shared (i.e. not spectrum). The end users of each operator access the services of their respective Mobile Network Operator (MNO) with the frequencies of their respective MNO.

3.4 The Authority recommends that the IP-I registration holder should be authorised:

- a). to provide only such infrastructure items, equipment and systems on lease/rent/sale basis to an eligible service provider for which that Service Provider has an authorization from the Government of India, and**
- b). to provide such infrastructure items, equipment and systems on mutually agreed terms and conditions to eligible service provider in fair, reasonable and non-discriminatory manner.**

3.5 The Authority recommends that the expanded scope of the IP-I Registration should not include:

- a). providing access to infrastructure items, equipment, and systems to any customer other than the eligible service providers.**
- b). provisioning of end-to-end bandwidth using transmission systems to any customer other than the eligible service providers.**
- c). use of the licensed spectrum, assigned to an eligible service provider, for provisioning of wireless Telecommunication Services to other eligible service providers.**

3.6 The Authority recommends that the IP-I registration holder should be eligible to apply for and issue of licence under the Indian Wireless Telegraphy Act, 1933 to possess

such wireless telegraphy apparatus that is permitted under the scope of IP-I Registration. However, the IP-I registration holder should not be eligible to apply for and assignment of any kind of licensed spectrum.

3.7 The Authority recommends that the IP-I registration holder:

- a). should be permitted to own, establish, maintain, and work infrastructure items, equipment and systems, so permitted under its scope, using any technology as per the prescribed standards.**
- b). should utilize type of equipment and products that meet TEC standards, wherever made mandatory by the Licensor from time to time. In the absence of mandatory TEC standards, the IP-I registration holder should be permitted to utilize only those equipment and products which meet the relevant standards set by International standardization bodies, such as, ITU, ETSI, IEEE, ISO, IEC etc., or set by International Fora, such as 3GPP, 3GPP-2, IETF, MEF, WiMAX, Wi-Fi, IPTV, IPv6, etc. as recognized by TEC and subject to modifications/adaptation, if any, as may be prescribed by TEC/Licensor from time to time.**
- c). should be bounded by the terms and conditions of IP-I registration as well as instructions issued by the Licensor and by such orders/directions/regulations of TRAI issued as per the provisions of the TRAI Act, 1997, as amended from time to time.**
- d). should, wherever applicable as per the scope of the IP-I registration, with necessary adaptations and modifications, comply with the norms stipulated in the Unified Licence under the heads of Electromagnetic Field exposure by BTS (Base Stations), Sharing of**

Infrastructure, Confidentiality of Information, and Security Conditions.

- 3.8 The Authority recommends the revised IP-I registration format as given in the Annexure E attached with these recommendations.**

Annexure A (Chapter no. 2/Para no. 2.2)

Clarification Regarding the Scope of IP-I Providers

Government of India
Ministry of Communications & IT
Department of Telecommunications
Sanchar Bhawan, 20-Ashoka Road, New Delhi-110001.
(Carrier Services Cell)

No. 10-51/2008-Cs-III

Dated: 09-03-2009

To.

All IP-I Providers

Subject: Clarification regarding scope of IP-I providers.

It is to clarify that the scope of IP-I category providers, which is presently limited to passive infrastructure, has been enhanced to cover the active infrastructure if this active infrastructure is provided on behalf of the licensees, i.e., they can create active infrastructure limited to antenna, feeder cable, Node B, Radio Access Network(RAN) and transmission system only for/on behalf of UASL/CMSL licensees.

This issues with the approval of competent authority.


9-3-2009
(S.T.Abbas)
Director(CS-III)

Annexure B (Chapter no. 2/Para no. 2.2)
Clarification Regarding Scope of IP-I Providers

No. 10-40/2007-CS-III
Government of India
Ministry of Communications
Department of Telecommunications
Sanchar Bhawan, 20, Ashoka Road, New Delhi-110001.
(Carrier Services Cell)

Dated: 28.11.2016.

To

All Infrastructure Provider Cat-I (IP-I) Service Providers

Subject: Clarification regarding scope of IP-I providers.

With reference to DOT Letter No. 10-51/2008-CS-III dated 09.03.2009, the undersigned is directed to convey the following clarification regarding scope of IP-I Providers:-

"The IP-I providers are not permitted to own and share active infrastructure. The IP-I provider can only install the active elements (limited to antenna, feeder cable, Node B, Radio Access Network (RAN) and transmission system only) on behalf of Telecom licensees i.e. these elements should be owned by the companies who have been issued license under section 4 of Telegraph Act, 1885.

Keeping in view, that some IP-I companies have invested into creation of active network infrastructure, which requires a license under Indian Telegraph Act, 1885, all IP-I providers are hereby provided an opportunity to take either a Unified License or a Virtual Network Operator(VNO) license of requisite authorization or a UL(VNO) Cat-B license for specific geographical area within six months of issue of this letter and move all such operations involving active network elements under the license. Alternatively, within a period of six months, the IP-I providers can transfer all such active network elements to a holder of valid license."

2. This issues with the approval of Competent Authority.


(Sanjeev Kumar Sharma)
Director (CS-III)

Copy to:

- (i) Sr. DDG(TERM), DoT HQ for circulation amongst the TERM Cell Units.
- (ii) Sr. DDG(AS) / WA / DDG(DS), DoT HQ – for information please
- (iii) All Licensed Telecom Service Providers
- (iv) ADG(IT), DoT HQ- for uploading the document on DoT's website.

Annexure C (Chapter no. 2/Para no. 2.4)
Guidelines on Infrastructure Sharing Among the Service Providers and Infrastructure Providers

No. 6/21/2007-Policy-1
Government of India
Ministry of Communications and IT
Department of Telecommunications
20, Ashtoka Road, Sanchar Bhawan, New Delhi

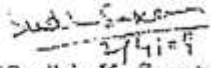
Dated: April 2008

Subject: Guidelines on Infrastructure Sharing among the Service Providers and Infrastructure Providers.

Availability of affordable and effective communications for the citizens is at the core of the vision and goal of the National Telecom Policy 1999. The proactive policies of the Department of Telecommunications (DoT) have resulted in exponential growth of telecom services. DoT has been able to provide state of the art world class infrastructure at globally competitive tariffs and reduce the digital divide by extending connectivity to the unconnected areas.

2. For maintaining the unprecedented growth in the telecom sector, there is a need for creation of huge infrastructure which require significant investment. DoT is of the view that there should be an optimum utilization of the available resources by way of sharing of infrastructure among the Service Providers and Infrastructure Providers. This would not only bring down the cost of providing the service but also would help in preventing the deterioration of the skyline.

3. In order to facilitate sharing of infrastructure among the Service Providers and Infrastructure Providers, the Department has formulated "Guidelines on Infrastructure Sharing among the Service Providers and Infrastructure Providers", a copy of which is enclosed. These guidelines are also available on the DoT website, www.dot.gov.in.


(Sudhir K. Saxena)
Director (I)
Ph: 23372575

To

All Service Providers (As per list enclosed)

Guidelines on Infrastructure Sharing

In order to reduce input cost of Telecom access Service Providers, thereby facilitating reduction in tariff further, and to enhance the teledensity including rural areas, the Department of Telecom has formulated the following guidelines on infrastructure sharing among the Service Providers and Infrastructure Providers:-

- i. Sharing of active infrastructure amongst Service Providers based on the mutual agreements entered amongst them is permitted. Active infrastructure sharing will be limited to antenna, feeder cable, Node B, Radio Access Network (RAN) and transmission system only. Sharing of the allocated spectrum will not be permitted. The licensing conditions of UASL/CMSP will be suitably amended wherever necessary to permit such sharing.
- ii. Infrastructure Providers (IP) Category-I are allowed to seek SACFA siting clearance for erecting towers with or without agreement with licensed Service Providers.
- iii. SACFA procedure is being further simplified to reduce the time for SACFA clearance to about 45 days. Sites located beyond 7 Kms from Airport Reference Point (ARP) and the antenna height not exceeding 40 meters from airport level need only to be "registered" on WPC Website and clearance to be issued accordingly.
- iv. Service Providers may share passive infrastructure in accordance with the existing provisions in the licences of BSOs, CMSPs and UASLs.
- v. For giving financial incentives on the infrastructure sharing in the urban areas, State Governments shall be requested to charge same amounts for setting up of the shared tower irrespective of the number of Service Providers sharing the same tower at par with unshared tower.
- vi. For giving financial incentives for infrastructure sharing in rural areas, all the eligible Service Providers/ Infrastructure Providers (IP)Category-I shall be permitted to participate in the forthcoming scheme of USOF on infrastructure sharing irrespective of the fact they were beneficiary in the first phase of the scheme of infrastructure sharing within that particular area.
- vii. The IP shall set up Ground Base Tower (GBT) of minimum 40 m height with design duly approved by TEC/ SERC/ IITs. Such tower shall be capable of catering to the requirement of minimum three Service Providers sharing the

~~infrastructure for provision of mobile services.~~ However, the number of Service Providers sharing this tower may vary depending upon the proposal submitted by Infrastructure Provider at the time of registration with USOFA.

viii. The IP will have to set up the infrastructure site within one year from the date of signing of the Agreement with Administrator USOF. No subsidy shall be payable to the IP if such infrastructure is set up after expiry of the LD period.

ix. The subsidy payable to the IPs for the Second Phase of the USOF scheme on infrastructure sharing shall be based on the Representative Rate emerged as an outcome of the bidding process for Part-A of the First Phase of the Scheme. However, the same shall be moderated taking into account the changes in some of the economic parameters, which have since undergone a change. If the number of Service Providers in the second phase of the scheme, irrespective of the fact that they were beneficiary or not in the first phase of the scheme, is less than the number of Service Providers proposed at the time of registration, then amount of subsidy payable from USO Fund to the IP shall be proportionally reduced from the amount when tower would be shared between the proposed number of Service Providers.

x. To encourage concept of infrastructure sharing in rural and remote areas, no subsidy shall be paid if newly erected tower is not shared.

xi. In the second phase of the scheme of USOF , an IP with two or more Service Providers (irrespective of the fact that they were beneficiary or not in the first phase of the scheme) or a group of two or more Service Providers, could come together and register themselves with USOFA for setting up the tower and providing mobiles services along with the consent of the three USPs to share the towers. All Licensed Access Service Providers (BSOs/ CMSPs/ UASLs) having spectrum allocated from WPC and all Infrastructure Providers Category-I (IP-I) registered with DoT shall be eligible to set up the infrastructure sites under the second phase of the Scheme, irrespective of the fact that they were beneficiary in the first phase or not.

xii. For using non-conventional energy sources, the Service Providers may avail several fiscal and financial incentives under the various schemes/programmes of the Ministry of New and Renewable Energy, details of which are available on the ministry's website: www.mnes.nic.in

Annexure D (Chapter no. 2/Para no. 2.45)

Clarification Regarding the Scope of Indian Telegraph Right of Way Rules, 2016

No. 2-6/2014-Policy I
Government of India
Ministry of Communications
Department of Telecommunications

Sanchar Bhawan, New Delhi- 110001.


Dated: 22nd May, 2018

OFFICE MEMORANDUM

Subject:- Clarification regarding the scope of Indian Telegraph Right of Way Rules, 2016.

With reference to Indian Telegraph Right of Way (RoW) Rules, 2016 which were notified on 15th November, 2016, it is clarified that under clause 2(d) of the said Rules, "licensee" includes Infrastructure Provider Category I (IP-I) authorised to establish and maintain the assets such as Dark fibres, Right of Way, Duct space and tower for the purpose of granting the same on lease/ rent/ sale basis to the licensees of Telecom services licensed under Section 4 of the Indian Telegraph Act, 1885 on mutually agreed terms and conditions.

2. It is reiterated that the IP-I registrants shall in no case work and operate or provide telegraph service, including end to end bandwidth as defined in the Indian Telegraph Act, 1885 either to any service provider or any other customer.


(Neeraj Mehrotra)
Director (Policy)
Tel. No.: 2303 6530

Annexure E (Chapter no. 2/Para no. 2.78)

Revised Format for

Registration Certificate for Infrastructure Provider Category-I (IP-I)

This is to certify that M/s -----with registered office at -----is a registered as Infrastructure Provider Category- I (IP-I) under Section 4 of the Indian Telegraph Act 1885 to share authorized telegraph infrastructure under this registration with any service provider who has valid authorization from Government of India to establish, maintain, and work a telegraph to deliver telecommunication service within any part of the country.

2.0 This registration shall be valid for a period of 20 years from the effective date unless revoked earlier as per the provisions of the Indian Telegraph Act, 1885 and the rules made there under, and the TRAI Act, 1997 and the Regulations/Orders/Directions made there under.

3.0 Scope of the IP-I Registration:

- (a) It shall be permitted to own, establish, maintain, and work all such infrastructure items, equipment, and systems which are required for establishing Wireline Access Network, Radio Access Network (RAN), and Transmission Network. However, it shall not include core network elements such as Switch, MSC, HLR, IN, etc. The scope of the IPs-I Registration shall include, but not limited to, Right of Way, Duct Space, Optical Fibers, Tower, Feeder cable, Antenna, Base Station, In-Building Solution (IBS), Distributed Antenna System (DAS), etc., within any part of India.

Explanations:

- (1) It is pertinent to clarify here that the permission to work infrastructure items, equipment, and systems to IP-I registration holder is only for the purpose of sharing them with eligible Service Providers only. In no case, IP-I registration holder would use these working infrastructure items, equipment, and systems to provide telecommunication services to end customers.
- (2) As the proposed enhancement in the scope of IP-I registration does not include the assignment of licensed spectrum to IP-I, MORAN sharing would only be permitted. Multi-Operator Radio Access Network (MORAN) sharing is a form of RAN sharing where only RAN equipment is shared (i.e. not spectrum). The end users of each operator access the services of their respective Mobile Network Operator (MNO) with the frequencies of their respective

MNO.

- (b) Any Service Provider who has valid authorization from the Government of India to establish, maintain, and work a telegraph to deliver Telecommunication Services, within any part of India, shall only be eligible to obtain such a telegraph infrastructure on lease/rent/purchase basis from IP-I registration holder. These service providers have been referred to as eligible service providers.
- (c) It shall be eligible to apply for and issue of license under the Indian Wireless Telegraphy Act, 1933 to possess such wireless telegraphy apparatus that is permitted under the scope. However, it shall not be eligible to apply for and assignment of any kind of licensed spectrum.

3.1 The scope of the IP-I registration shall not include:

- a). providing access to infrastructure items, equipment, and systems to any customer other than the eligible service providers.
- b). provisioning of end-to-end bandwidth using transmission systems to any customer other than the eligible service providers.
- c). use of the licensed spectrum, assigned to an eligible service provider, for provisioning of wireless telecommunication services to other eligible service providers.

4.0 The registered company is authorized:

- a) to provide only such infrastructure items, equipment and systems on lease/rent/sale basis to an eligible Service Provider for which that Service Provider has authorization from the Government of India, and
- b) to provide such infrastructure items, equipment and systems on mutually agreed terms and conditions to eligible Service Provider in fair, reasonable and non-discriminatory manner.

5.0 The company shall submit a copy of an Agreement entered into with the service providers within 15 days of signing of such Agreement.

6.0 In the event of any question, dispute or difference arising under this registration, or in connection thereof, except as to the matter, the decision of which is specifically provided elsewhere under this Registration, the same shall be referred to the sole Arbitrator appointed and nominated by the Director General Telecommunications or by whatever designation Director General Telecom may be called, hereinafter called the "ARBITRAL TRIBUNAL".

6.1 This Registration Certificate and any dispute thereof shall be governed by the substantive provisions of the Indian law.

- 6.2 The venue of Arbitration shall be New Delhi or as may be fixed by the ARBITRAL TRIBUNAL anywhere in India.
- 6.3 The arbitration proceedings shall be conducted in accordance with the provisions of the Indian Arbitration and Conciliation Act, 1996 and rules framed there under or any modifications or re-enactment thereof made from time to time.
- 7.0 It shall provide necessary facilities depending upon the specific situation at the relevant time to the Government to counteract espionage, subversive act, sabotage or any other unlawful activity.
- 7.1 It shall make available on demand to the agencies authorized by the Government of India, full access to the network for technical scrutiny and for inspection which can be visual inspection or any operational inspection.
- 7.2. All foreign personnel likely to be deployed by the registered company for installation, operation and maintenance of telegraph shall be security cleared by the Government of India prior to their deployment. The security clearance will be obtained from the Ministry of Home Affairs, Government of India, who will follow standard norms in the matter.
- 7.3. The registered company shall ensure protection of privacy of communication and ensure that unauthorized interception of messages does not take place.
- 7.4 The Government shall have the right to take over the equipment and networks of the registered company or invoke/terminate/suspend the registration of the company either in part or in whole as per directions if any, issued in the public interest by the Government in case of emergency or war or low intensity conflict or any other eventuality. Provided any specific orders or direction from the Government issued under such conditions shall be applicable to the registered company and shall be strictly complied with. Further, the Government reserves the right to keep any area out of the operation zone of the service if implications of security so requires.
- 7.5. Government reserves the right to modify these conditions or incorporate new conditions considered necessary in the interest of

national security and public interest.

7.6 The registered company will ensure that the telegraph installation carried out by it should not become a safety hazard and is or in contravention of any statute, rule or regulation and public policy.

8.0. The Registered company:

- a). shall be permitted to own, establish, maintain, and work infrastructure items, equipment and systems, so permitted under its scope, using any technology as per the prescribed standards.
- b). shall utilize type of equipment and products that meet TEC standards, wherever made mandatory by the Licensor from time to time. In the absence of mandatory TEC standards, the IP-I registration holder should be permitted to utilize only those equipment and products which meet the relevant standards set by the International standardization bodies, such as, ITU, ETSI, IEEE, ISO, IEC etc.; or set by the International Fora, such as 3GPP, 3GPP-2, IETF, MEF, WiMAX, Wi-Fi, IPTV, IPv6, etc. as recognized by TEC and subject to modifications/adaptation, if any, as may be prescribed by TEC/Licensor from time to time.
- c). shall be bounded by the terms and conditions of IPs-I Registration as well as the instructions issued by the Licensor and by such orders/directions/regulations of TRAI issued as per the provisions of the TRAI Act, 1997, as amended from time to time.
- d). shall, wherever applicable as per the scope of the IPs-I registration, with necessary adaptations and modifications, comply with the norms stipulated in the Unified License under the heads of Electromagnetic Field exposure by BTS (Base Stations), Sharing of Infrastructure, Confidentiality of Information, and Security Conditions.

9.0 The Registered Company shall be governed by the provision of Indian Telegraph Act, 1885, Indian Wireless Telegraphy Act, 1933, and Telecom Regulatory Authority of India Act, 1997 as modified or replaced from time to time or any other relevant Act.

10.0 Any breach of the above terms will lead to cancellation of the registration without any further notice.

List of Acronyms

S.No.	Acronym	Description
1	AAS	Active Antenna Systems
2	AGR	Adjusted Gross Revenue
3	BEREC	Body of European Regulators for Electronics Communications
4	BTS	Base Station
5	CDN	Content Delivery Network
6	CMSP	Cellular Mobile Service Provider
7	DAS	Distributed Antenna System (DAS)
8	DESI	Digital Economy and Society Index
9	DoT	Department of Telecommunications
10	ETSI	European Telecommunications Standards Institute
11	FDI	Foreign Direct Investment
12	FIPB	Foreign Investment Promotion Board
13	FTTB	Fibre to the Building
14	FTTH	Fibre to the Home
15	GR	Gross Revenue
16	GSMA	GSM association
17	HetNet	Heterogeneous Network
18	IBS	In-building Solutions
19	IEC	International Electrotechnical Commission
20	IETF	Internet Engineering Task Force
21	IEEE	Institute of Electrical and Electronics Engineers
22	ILD	International Long Distance
23	IP-I	Infrastructure Provider Category-I
24	IPTV	Internet Protocol television
25	IPv6	Internet Protocol version 6
26	ISO	International Standards Organization
27	ITU	International Telecommunication Union
28	LF	Licence Fee
29	MEF	Metro Ethernet Forum
30	M2M	Machine to Machine
31	MeitY	Ministry of Electronics and Information Technology
32	MIB	Ministry of Information & Broadcasting
33	MNO	Mobile Network Operator
34	MORAN	Multi-Operator Radio Access Network
35	MOCN	Multi Operator Core Network

36	MSO	Multi-System Operator
37	MWA	Microwave Access
38	MWB	Microwave Backbone
39	NDCP	National Digital Communication Policy
40	NLD	National Long Distance
41	NP	Network Provider
42	OAN	Open Access Network
43	OFC	Optical Fibre Cable
44	OSP	Other Service Provider
45	PIP	Physical Infrastructure Provider
46	RAN	Radio Access Network
47	ROW	Right of Way
48	SCaaS	Small-Cell-as-a-Service
49	SP	Service Provider
50	SUC	Spectrum Usage Charges
51	TDSAT	Telecom Disputes Settlement and Appellate Tribunal
52	TEC	Telecommunication Engineering Centre
53	UASL	Unified Access Service License
54	UL	Unified Licence
55	UL(VNO)	Unified Licence (Virtual Network Operator)
56	Wi-Fi	Wireless fidelity
57	WiMAX	Worldwide Interoperability for Microwave Access
58	WPC	Wireless Planning and Coordination
59	3GPP	3rd Generation Partnership Project