Regulation Cell,
Room no. 504,
5th Floor, Bharat Sanchar Bhawan,
Janpath, New Delhi – 110001
Tel.: 011 – 23734081-82
e-mail: agmregln@gmail.com

भारत संचार निगम लिमिटेड
(भारत सरकार का उपक्रम)
BHARAT SANCHAR NIGAM LIMITED
(A Govt. of India Enterprise)

To,
Shri Syed Tausif Abbas,
Advisor (Networks, Spectrum and Licensing),
TRAI, New Delhi.
(by email: advmn@trai.gov.in)

No. BSNLCO-RGLN/25/1/2021-REGLN dated 07.05.2021

Sub: Comments on Consultation Paper on Licensing Framework for Satellite-based connectivity for low bit rate applications.

Sir,

Please find below the comments of BSNL on the Consultation Paper as mentioned in the subject matter. Further, it is submitted that due to severity of virulent second wave of Covid-19, all officers/ staff falling in the chain for providing comments in BSNL had got infected with the virus and remained hospitalised/ quarantined during this period. This has caused delay in submitting comments to TRAI. It is requested to condone the delay in submitting comments considering above facts and incorporate our comments at the stage of counter comments.

Issues for Consultation:

Q1. There are two models of provision of Satellite-based connectivity for IoT and low-bit-rate applications—

(i) Hybrid model consisting of LPWAN and Satellite and (ii) Direct to satellite connectivity.

i. **Whether both the models should be permitted to provide satellite connectivity for IoT devices and low-bit-rate applications? Please justify your answer.**

ii. **Is there any other suitable model through which the satellite-based connectivity can be provided for IoT devices? Please explain in detail with justifications.**

BSNL Response: Both models (i.e. Hybrid and Direct to Satellite) should be permitted. There are use cases that require a Hybrid model where a number of IoT devices, usually of low power, are connected to a satellite terminal which serves for aggregating the data from these devices and connecting it to the relevant application server through satellite backhauling. Examples of such use cases include agriculture and mining. Other use cases may need single IoT devices which could be connectable directly to the satellite like for asset tracking/management for example. In both cases, the licensing

framework should be flexible enough to encourage these important services. It is also felt that network architecture shouldn't be part of licensing framework and it should be left to Licensee.

Q2. Satellite-based low-bit-rate connectivity is possible using Geo Stationary, Medium and Low Earth orbit Satellites. Whether all the above type of satellites should be permitted to be used for providing satellite-based low-bit-rate connectivity? Please justify your answer.

BSNL Response: IoT/M2M services are in most cases low data rate applications that do not require very low latency. The ground terminals of LEO and MEO may be complex and costly to meet IoT systems technical and business requirement. Also, only those constellations having global coverage shall be allowed to ensure seamless integration of Indian ecosystem with Global ecosystem. Accordingly, GEO satellites are very well suited to enable these applications and at the same time provide global and reliable coverage.

Q3. There are different frequency bands in which communication satellites operate such as L-band, S-band, C-band, Ku-band, Ka-band and other higher bands. Whether any specific band or all the bands should be allowed to be used for providing satellite-based IoT connectivity? Please justify your answer.

BSNL Response: Satellites operate in different bands (L-band, Ka-band, Ku-band and S-band). Two primary requirement of IoT systems are Antenna Size and Reliability. Reliability is most critical parameter as most of use cases for satellite based IoT System presently are in Disaster and Rescue area. Based on global experience with IoT/M2M applications and services worldwide, L-band is the most convenient band for this type of services as it presents the highest reliability, mobility, global coverage, devices availability and can accommodate low data rates.

Q4. (i) Whether a new licensing framework should be proposed for the provision of Satellite-based connectivity for low-bit-rate applications or the existing licensing frame work maybe suitably amended to include the provisioning of such connectivity? Please justify your answer.

BSNL Response: Creating a separate regime for merely a different type of device will create unnecessary regulatory complexity. Also, the present size of business also doesn't justify a separate regime. Rather existing GMPCS/GSPS license may be amended to enable growth of satellite based IoT Systems. The Licensee Fee and SUC need to be waived off under these licenses to push the growth of satellite based IoT System. Apart from this issue nothing in these regimes prevent the satellite based IoT system of proliferate exponentially.

GMPCS/GSPS are most suitable licensing framework to provide these services. Other frameworks like NLD, VSAT etc. were not designed structurally to regulate satellite based IoT systems, so amendment in these frameworks, to provide satellite based IoT based service, will lead to regulatory confusion and non-compliance.

Accordingly, using the existing licensing framework that enables satellite services and relaxing per terminal licensing fees in the particular case of

IoT/M2M would be a suitable approach to make these services available to end users in a manner that will guarantee their success and rapid update.

Existing licensing framework for satellite services includes regulatory requirements that cover both data and voice services via satellite. IoT/M2M is a particular type of data services using low data throughput and doesn't have much difference from the satellite backhauling perspective compared to other data services. Accordingly, the existing licensing framework should be suitable to cover these services from a connectivity perspective. However, it is necessary to relax certain requirements in relation to the terminals licensing to make the business case viable for IoT/M2M and to encourage the uptake of these services. For instance, IoT/M2M terminals are expected to be very large in number in many use cases, and imposing licensing fees per terminal would be a huge burden to IoT/M2M providers.

(ii) In case you are in favour of a new licensing framework, please suggest suitable entry fee, license fee, bank guarantee, NOCC charges, spectrum usage charges/royalty fee, etc.

BSNL Response: Not Applicable

Q5. The existing authorization of GMPCS service under Unified License permits the licensee for provision of voice and non-voice messages and data services. Whether the scope of GMPCS authorization may be enhanced to permit the licensees to provide satellite-based connectivity for IoT devices within the service area? Please justify your answer.

BSNL Response: As stated in response to Q4, existing licensing framework for satellite services includes regulatory requirements that cover both data and voice services via satellite. This includes current authorizations and licenses for GMPCS/GSPS which have very stringent requirements including the establishment of a satellite gateway in India. IoT/M2M should be permitted under these existing licenses/authorizations for GMPCS/GSPS with appropriate relaxation of the terminals licensing scheme.

Q6. Commercial VSAT CUG Service authorization permits provision of data connectivity using VSAT terminals to CUG users.

i. **Whether the scope of Commercial VSAT CUG Service authorization should be enhanced to permit the use of any technology and any kind of ground terminals to provide the satellite-based low-bit-rate connectivity for IoT devices?**

BSNL Response: Frameworks like VSAT etc. were not designed structurally to regulate satellite based IoT like systems, so amendment in these frameworks, to provide satellite based IoT based service, will lead to regulatory confusion and non-compliance.

ii. **Whether the condition of CUG nature of user group should be removed for this authorization to permit provision of any kind of satellite-based connectivity within the service area? Please justify your answer.**

BSNL Response: Not only the CUG, but other requirement like Antenna size and mobility also needs to be waived off to enable Satellite based IoT services. Such large-scale changes will lead to compliance problems and misreporting.

Q7 (i) What should be the licensing framework for Captive licensee, in case an entity wishes to obtain captive license for using satellite-based low-bit-rate IoT connectivity for its own captive use?

BSNL Response: This will lead to creation of propriety islands of IoT systems. Also meeting the LI requirement for these captive users may be economically not viable. So, it is not advisable to allow this.

(ii) Whether the scope of Captive VSAT CUG Service license should be modified to include the satellite-based low-bit-rate IoT connectivity for captive use?

BSNL Response: No.

(iii) If yes, what should be the charging mechanism for spectrum and license fee, in view of requirement of a large number of ground terminals to connect large number of captive IoT devices?

BSNL Response: Not applicable

Q8. Whether the scope of INSAT MSS-R service authorization should be modified to provide the satellite-based connectivity for IoT devices? Please justify your answer.

BSNL Response: These systems are for one way messaging only, so not suited for such requirement.

Q9. (i) As per the scope mentioned in the Unified License for NLD service Authorization, whether NLD Service providers should be permitted to provide satellite-based connectivity for IoT devices.

BSNL Response: frameworks like NLD etc. were not designed structurally to regulate satellite based IoT like systems, so amendment in these frameworks, to provide satellite based IoT based service, will lead to regulatory confusion and non-compliance.

(ii) What measures should be taken to facilitate such services? Please justify your answer.

BSNL Response: Not applicable

Q10. Whether the licensees should be permitted to obtain satellite bandwidth from foreign satellites in order to provide low-bit-rate applications and IoT connectivity? Please justify your answer.

BSNL Response: Yes, to drive down the cost and to bring competition, providers of low bit rate applications and IoT connectivity, as well as any other satellite enabled services, should have non-discriminatory access to both domestic and foreign satellite capacity. This is the most appropriate way to simplify the access to satellite services and to encourage investment in the sector by lowering the cost burdens associated with the licensing requirements. This in turn stimulates technological developments and

increases competition in the market. The end result would be a better access to satellite services at lower cost and higher quality, with innovative use cases.

Q11. In case, the satellite transponder bandwidth has been obtained from foreign satellites, what conditions should be imposed on licensees, including regarding establishment of downlink Earth station in India? Please justify your answer.

BSNL Response: As mentioned in GMPCS/GSPS licenses, the appropriate conditions considering the security aspects of satellite-based systems are already there in these regulations.

Q12. The cost of satellite-based services is on the higher side in the country due to which it has not been widely adopted by end users. What measures can be taken to make the satellite-based services affordable in India? Please elaborate your answer with justification.

BSNL Response: There are two main set of actions that will have direct impact on the cost of satellite-based services in general:

Increasing competition: the key enabler to increase competition amongst players in the satellite market is to allow non-discriminatory access to both domestic and foreign satellite capacity in a level playing field.

Lowering licensing costs: this can take the form of reducing the current complexity of the licensing journey and simplifying the overall licensing process, as well as reducing the direct licensing costs. Therefore, the following be considered:

i. Allow sourcing of capacity directly from foreign satellite provider without involving ISRO.
ii. Single window clearance for DoT, NoCC, ISRO, WPC, RLO etc.
iii. Reduce the number of compliances
iv. Waive off License fee and SUC

Q13. Whether the procedures to acquire a license for providing satellite-based services in the existing framework convenient for the applicants? Is there any scope of simplifying the various processes? Please give details and justification.

BSNL Response: The current procedures to acquire licenses/authorizations for satellite-based services in general are very complex with a large number of licensing stakeholders with whom an applicant shall communicate separately. This makes the licensing journey very lengthy, costly, and in some instances confusing. Reducing the number of entities involved in the licensing process and streamlining the overall licensing journey, together with ensuring a non-discriminatory access to domestic and foreign satellite capacity in a level playing field, will be very beneficial to the satellite market in India.

In order to simplify:

i. Single window clearance for DoT, NoCC, ISRO, WPC, RLO etc. The present process involves frequency allocation by ISRO, Carrier Plan

approval by NoCC, WPC clearance, MPVT by NoCC etc. to start with. This is followed by yearly renewal of WoL and seeking clearance from RLO for importing equipment. This process makes cost of compliance prohibitive.

ii. Reduce the number of compliances.

Q14. If there are any other issues/suggestions relevant to the subject, stakeholders are invited to submit the same with proper explanation and justification.

BSNL Response: As the size of business is still not very big, creation of separate licensing regime is not justified at this moment. The best strategy is to relax License Fee and SUC requirement in existing GMPCS/GSPS license.

Yours faithfully,

(Ved Prakash Verma)

DGM (Regulation-II)