

November 18, 2024

To,  
Telecom Regulatory Authority of India  
Advisor (Networks, Spectrum and Licensing)  
[advmn@traai.gov.in](mailto:advmn@traai.gov.in)

*Attention: Shri Akhilesh Kumar Trivedi*

**Subject: Comments from Globalstar, Inc. on Consultation Paper No. 16 / 2024 on the Terms and Conditions of Network Authorisations to be Granted Under the Telecommunications Act, 2023**

Dear Sir,

We have enclosed comments from Globalstar, Inc. on Consultation Paper No. 16 / 2024 on the Terms and Conditions of Network Authorisations to be Granted Under the Telecommunications Act, 2023.

Thank you for giving us the opportunity to provide comments on this consultation paper.

Sincerely,



L. Barbee Ponder IV  
Globalstar, Inc.

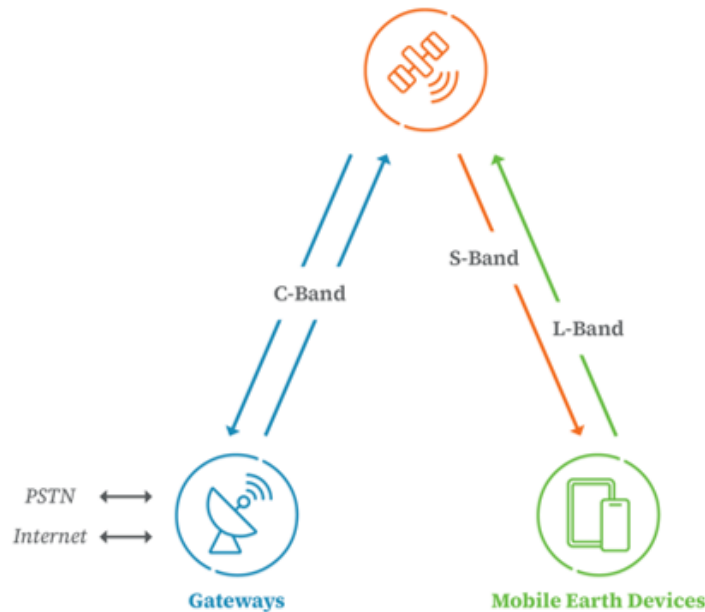
## ANNEXURE

### 1. **COMMENTS OF GLOBALSTAR, INC.**

- 1.1. Globalstar, Inc. ("**Globalstar**") appreciates the opportunity to provide comments in support of the Consultation Paper issued by the Telecom Regulatory Authority of India ("**TRAI**") on the Terms and Conditions of Network Authorisations to be Granted Under the Telecommunications Act, 2023 dated October 22, 2024 ("**Consultation Paper**").
- 1.2. Globalstar is a US publicly traded company (NYSE: GSAT) duly registered in the State of Delaware. It owns and operates a Low Earth Orbit ("**LEO**") satellite system providing near global coverage, including India ("**Globalstar System**"). Founded in 1995, Globalstar has been providing mobile satellite services ("**MSS**") to the public for more than 20 years, having invested approximately US \$5 billion in its satellite network and ground operations during this period.
- 1.3. The Globalstar System consists of three separate components: (i) a constellation of LEO satellites, properly notified to the International Telecommunications Union ("**ITU**"); (ii) a global network of 28 gateway Earth Stations located in eighteen countries; and (iii) mobile devices and terminals operating over Globalstar's MSS network, including those used by over 760,000 of Globalstar's own end-user customers in over 120 countries worldwide to meet their communications needs.
- 1.4. In a significant breakthrough, Apple Inc. in 2022 announced a revolutionary, direct-to-handset "Emergency SOS *via* satellite" feature using Globalstar's MSS network that is now available to users of the iPhone 14, 15 & 16 family of devices. Apple's Emergency SOS *via* satellite feature allows users to initiate emergency communications through MSS transceivers contained in the Apple iPhone 14, 15 & 16 family of devices. This satellite-enabled feature is now available in the US, Canada, 12 European countries, Australia, New Zealand, and most recently Japan. The iPhone 14, 15 & 16's Emergency SOS *via* satellite feature is being used daily to request emergency assistance in the countries where the feature has been introduced. Most recently, Apple announced that with iOS 18, users in the United States and Canada will be able to send non-emergency messages *via* satellite, including texts, SMS, emoji and tapbacks. Further, on October 29, 2024, Globalstar agreed to establish a new satellite constellation, expanded ground infrastructure and increased global MSS licensing in order to deliver expanded services to Apple. This extended MSS network will be owned by Globalstar affiliates and operated by Globalstar. With investments in the new and expanded infrastructure, Globalstar will be able to offer enhanced mobile satellite capabilities, catering to evolving customer needs.
- 1.5. As Globalstar grows its satellite communication business, it has embarked on a comprehensive global strategy to develop its direct presence and regulatory compliance in numerous countries around the world. India represents the single largest market that Globalstar has been previously unable to enter. It is Globalstar's hope that this consultation results in the TRAI instituting regulatory reforms in satellite networks that ease its proposed entry in India.

### 2. **THE GLOBALSTAR SYSTEM**

- 2.1. Globalstar operates a "bent-pipe" system with its satellites relaying messages between a global network of ground stations and millions of mobile earth terminals.



Licensed FSS Spectrum		Licensed MSS Spectrum	
<b>C-Band:</b>		<b>L-Band:</b>	<b>S-Band:</b>
5091-5250 MHz	6875-7055 MHz	1610-1618.725 MHz*	2483.5-2500 MHz

\* 0.95 MHz shared with Iridium Satellite Communications

- 2.2. Globalstar’s global MSS system supports reliable, essential services to consumers, public safety personnel, and customers covered by its network. Since initiating commercial MSS in 2000, Globalstar has focused its MSS products and services on individual consumer and commercial industrial applications. Reflecting its strong emphasis on the retail consumer market, Globalstar’s MSS devices are easy to use and have long provided consumers with inexpensive, life-saving services.
- 2.3. Over its history, Globalstar has been dedicated to providing state-of-the-art, mission-critical, and safety-of-life services in remote, unserved, and underserved areas not reached by terrestrial deployments. Globalstar’s MSS network provides critical back-up capabilities for public safety personnel during disasters, when terrestrial networks can be rendered inoperable. In situations where all terrestrial wireless facilities are down in an affected area, Globalstar’s global MSS network will continue to function normally. Public safety entities involved in relief efforts around the world have relied on Globalstar’s satellite services after earthquakes, hurricanes, and other disasters. Over the past fifteen years, Globalstar has developed the affordable and innovative “SPOT” family of MSS devices, which has played a critical role in providing emergency and safety-of-life services to individual consumers beyond terrestrial wireless reach. SPOT products work virtually everywhere in the world, offering communication through satellite connectivity to hundreds of thousands of people who travel off the grid. In recent years, Globalstar’s SPOT-X product has enabled two-way satellite communications, allowing, for example, remote workers to check in and provide detailed status of their situation when working at distant jobsites. Overall, the SPOT family

of products to date is responsible for initiating over 10,000 emergency rescues via satellite in over 100 countries on six continents – often lifesaving, on land and at sea.

- 2.4. Globalstar has also developed an array of satellite IoT solutions for customers in a wide range of industries, including oil and gas, mining, construction, transportation, agriculture, emergency management, government, maritime, and commercial fishing. Globalstar's satellite IoT products allow enterprises to streamline their operations and intelligently manage, monitor, and track their mobile assets remotely via Globalstar's MSS network. Globalstar's commercial IoT products include its SmartOne asset tracking solutions and IoT satellite transmitters, which enable its customers to manage their remote assets utilizing motion sensors, comparative GPS positions, and custom-configured sensors. Globalstar complements its IoT devices with a centralized cloud-based platform that provides live or historical tracking of personnel, vehicles, and assets on-demand.
- 2.5. Globalstar is also providing wholesale services to Apple in order to deliver transformational direct-to-device features for users of the iPhone 14, 15 and 16 families of devices. Since its rollout in November 2022, the Emergency SOS via satellite feature has led to numerous emergency and lifesaving rescues. Most recently, two-way messaging via satellite has been introduced in North America, allowing non-emergency text communications via satellite. These first commercially available direct-to-device satellite features have drawn a renewed focus on MSS spectrum and the potential offered by satellite connectivity.
- 2.6. Use of these Big LEO MSS frequencies will increase in the future as consumers take advantage of potential new direct-to-device features. With the increasingly widespread availability of Apple's direct-to-device features, the Big LEO MSS frequency band is already the most broadly available MSS frequency band in existence and can be used by more people than any other.
- 2.7. The availability of these direct-to-device satellite features along with other technological developments supporting the convergence of satellite and terrestrial services present substantial growth potential for MSS. As described, Globalstar allocates substantial network capacity to support these new Apple communications features and hopes to support potential additional features, while continuing to retain capacity to support its existing and future duplex, SPOT and IoT subscribers.

### 3. GLOBALSTAR'S RESPONSES TO THE SELECT ISSUES FOR CONSULTATION

- 3.1. ***Q7. Whether there is a need to make any changes in the eligibility conditions, area of operation, validity period of authorisation, scope, and terms & conditions (general, technical, operational, security etc.) of the Satellite Earth Station Gateway (SESG) authorisation, as recommended by TRAI on 29.11.2022? If yes, what changes should be made in the eligibility conditions, area of operation, validity period of authorisation, scope, and terms & conditions (general, technical, operational, security etc.) of the SESG authorisation? Kindly provide a detailed response with justification.***

**Response:** We understand that TRAI is considering a separate authorization for entities who propose to install and operate satellite earth station gateways ("**SESG**") in order to provide 'SESG as a service' to any entity which holds the relevant license / permission granted by Department of Telecom ("**DoT**") and / or Ministry of Information & Broadcasting. In the context of the operations of an authorized telecommunication entity, it must be noted that under the current licensing regime, a Global Mobile Personal Communication by Satellite ("**GMPCS**") services authorized entity is required to establish a SESG in India in order to comply with the terms of the GMPCS authorization as provided under the unified license ("**UL**"). This same condition to establish a SESG is provided under the Telecommunications Act, 2023 (the "**Act**") as well.

In light of the above, to begin with, Globalstar is keen on establishing a wholly owned subsidiary in India to provide emergency and safety-of-life services for which Globalstar intends to apply for a GMPCS authorization. In accordance with the terms of the GMPCS authorization, Globalstar will establish two land earth station gateway(s) in India (only for the purpose of providing its services) which is sufficient to provide coverage to the entire country.

Therefore, given the existing requirement of establishment of SESG under the terms of the GMPCS authorization, it is our limited submission that the terms of the separate SESG authorization should not impose new or onerous requirements upon a GMPCS authorized entity and should not adversely impact the SESG operations and infrastructure intrinsic to efficient provision of services by a GMPCS licensee. In other words, a GMPCS authorized entity should not be required to comply with any additional terms for the purpose of establishing the SESG in order to provide its services in India. Additionally, it is also our submission that expedited clearance, and priority should be given to authorized telecommunication entities who need to establish their own SESGs in India for obtaining the GMPCS authorization in connection with providing its services in India. The authorized telecommunication entities need to establish such operations in an expedited manner to meet timelines and conditions arising from spectrum allocation and their GMPCS authorization terms, and therefore due priority should be given to their plans to operationalize their SESG setup for internal infrastructural requirements.

3.2. ***Q8. Whether there is a need to introduce a new authorisation for establishing, operating, maintaining or expanding satellite communication network, which may be used to provide network as a service to the entities authorised under Section 3(1)(a) of the Telecommunications Act, 2023? If yes-***

***(a) What should be the eligibility conditions, area of operation, validity period of authorisation, scope, and terms & conditions (general, technical, operational, security etc.) of such authorisation?***

***(b) Whether an entity holding such authorisation should be made eligible for the assignment of spectrum for both feeder link as well as user link?***

***Kindly provide a detailed response with justification.***

**Response:** As mentioned above, to begin with, Globalstar intends to provide emergency and safety-of-life services in India for the purpose of which it will obtain the GMPCS authorization. In order to provide the aforesaid services, Globalstar intends to establish and operate its own satellite communication networks ("**SCN**") infrastructure, which will comprise the Globalstar System. Globalstar may expand and / or maintain such SCN in order to provide uninterrupted services in India.

In relation to the specific question on the need to introduce a new authorization for establishing, operating, maintaining or expanding satellite communication network, we are of the view that such an addition to the existing licensing regime will be duplicative, and strain the spectrum allocation process for entities intending to provide satellite communication services under a UL. We further submit our para-wise reservations with this proposal:

(a) We wish to highlight that neither the Act nor the Consultation Paper define the scope and ambit of the term 'satellite communication network'. Therefore, we request TRAI and / or DoT to carve out the definition of 'satellite communication network' prior to suggesting new license categories. In our view, having a clear definition of satellite communication network will help authorized telecommunication entities and the overall telecommunication industry

better understand the scope of activities (whether in establishing, operating, maintaining, or expanding such satellite networks) permitted to be carried out within the scope of this new proposed authorization, and then be able to comment on the justifiable need for such authorization. Given the nascent and complex nature of satellite communications networks globally and particularly in India, in the event the nature of activities proposed to be covered under this new authorization are best carried out by authorized telecommunication entities, we are keen to be part of a broader discussion on such aspects, after a clear definition is available for review.

- (b) TRAI is already considering introducing a separate SESG authorization for entities who wish to provide SESG as a service to authorized telecommunication entities, and by way of its recommendation dated 18.09.2024 proposes to allow Virtual Network Providers ("VNO") to enter into agreements with NSO entities holding satellite-based telecommunication service authorizations. It is worth mentioning that TRAI has acknowledged in Para 2.50 of the Consultation Paper that the scope of authorization for satellite communication network as envisaged by the DoT is analogous with the scope of the authorization for SESG providers (proposed under Q. 7). We submit that given the similarity between these proposed authorizations, it is reasonable to understand that many of the activities envisaged under the satellite communication network authorization can be more efficiently conducted by authorized telecommunication entities, particularly at this nascent stage of expansion of satellite communication sector in India. The introduction of too many similar & duplicative authorizations is likely to lead to inefficiency in the delivery of telecommunication services to users, as network responsibilities may overlap.
- (c) It is also submitted that neither the SESG authorized entities, nor the VNO entities are entitled to assignment of spectrum. It is, however, contemplated that the new satellite communication network authorization, if introduced, will entitle these entities for the assignment of spectrum. Given the finite nature of spectrum available for telecommunication activities, we urge TRAI to deliberate on and consider if enabling spectrum assignment for this new authorization will serve the objective of delivering efficient telecommunication networks, which cannot otherwise be implemented by authorized telecommunication entities. This specifically concerns Globalstar as it delivers safety-of-life MSS over Big LEO MSS bands and exclusive allocation of this band for provision MSS services is a standard global practice, established by ITU. This is because sharing of spectrum for MSS services with multiple authorized entities (including SCN authorized entities) is not feasible since user service experience is likely to be subject to harmful interference, preventing the delivery of critical, safety-of-life mobile satellite services. We urge TRAI to make note of such factors while considering eligibility for spectrum assignment for multiple entities.

While we await more clarity on the permitted scope of this authorization, at this stage, we submit that a GMPCS authorized entity should not be required to take any additional authorization or comply with any additional or onerous terms, when it expands or maintains its own SCN for the purpose of providing its services. We are of the view that a separate satellite communication network authorization must be limited to only such entities that seek to provide 'satellite communication network as a service' on a standalone basis to other authorized telecommunication entities.

**3.3. Q9. Whether there is a need to introduce an authorisation under Section 3(1) of the Telecommunications Act, 2023 for establishing, operating, maintaining or expanding**

***ground stations, which may be used to provide ground station as a service (GSaaS)? If yes, what should be the eligibility conditions, area of operation, validity period of authorisation, scope, and terms & conditions (general, technical, operational, security etc.) for the authorisation to establish, operate, maintain, or expand ground stations, which may be used to provide GSaaS? Kindly provide a detailed response with justifications.***

**Response:** In accordance with DoT's 'Guidelines for establishing satellite-based communication network(s)' dated October 26, 2022, and the 'Norms, Guidelines and Procedures for Implementation of Indian Space Policy-2023 in respect of Authorization of Space Activities' issued by IN-SPACe in May 2024, any entity that proposes to provide satellite communication services in India is required to, in addition to other permissions, obtain the relevant authorization from IN-SPACe for its space segment and for operating and maintaining its ground station (such as its SCC, TT&C and MCC) in and outside India.

In the above context, in addition to the GMPCS authorization from DoT, Globalstar will be required to obtain the relevant authorization from IN-SPACe for its space segment and ground station, to provide emergency MSS services in India. Globalstar further plans to operate and expand the ground stations as per its business requirements in India, for which it will obtain any further authorizations from Government departments / ministries.

Therefore, it is our limited submission that no new or onerous requirements should be imposed on an authorized telecommunication entity (other than the authorization from IN-SPACe as mentioned above) that proposes to operate and expand its ground station solely for the purpose of providing its services. This will ensure that there is no adverse impact on ground station operations that are intrinsic to efficient provision of telecommunication services by the authorized telecommunication entity(ies). In other words, such an authorization must be kept distinct and separate from an entity that seeks to offer 'ground station as a service' to other authorized telecom entities.

Additionally, we submit that expedited clearance, and priority should be given to authorized telecommunication entities who operate and maintain their own ground station for obtaining the IN-SPACe authorization in connection with providing their services in India. The authorized telecommunication entities need to establish such ground station operations in an expedited manner to meet timelines and conditions arising from spectrum allocation and their GMPCS authorization terms, and therefore due priority should be given to their plans to operationalize their ground station setup for internal infrastructural requirements.