

**Appendix I: Decisions on Recommendations (DORs) Matrix from the First of Two Rounds of Public Consultation on the *Framework for the Authorisation of Standalone Ancillary Terrestrial Component (ATC) Systems (March 2024)***

The following summarises the comments and recommendations received from the first of two rounds of public consultation on the *Framework for the Authorisation of Standalone Ancillary Terrestrial Component (ATC) Systems* (the Framework), which took place from 18<sup>th</sup> December 2023 to 29<sup>th</sup> January 2024 and extended for a further 3 weeks. The decisions made by the Telecommunications Authority of Trinidad and Tobago (the Authority) have been incorporated in the approved version (ver. 0.2) of the Framework, where applicable. The Authority wishes to express its thanks for all comments and recommendations received from the following stakeholders:

1. Digicel (Trinidad & Tobago) Limited (Digicel)
2. Globalstar Inc.

Item	Stakeholder	Policy Section	Comments	Recommendations	TATT's Decision
1	Digicel	1.7 Review Cycle	The Authority needs to provide specificity with regard to the review cycle. There has to be clearly defined timelines. Given, the proliferation of Mobile Satellite Services.	Authority to provide clearly defined timelines for review of the Authorization.	The Authority thanks Digicel for its comments on the Framework.  The Authority agrees and has updated subsection 1.7 to specify a four-year review cycle, in keeping with the World Radiocommunication Conference (WRC).
2	Digicel	3.1 Low Power ATC Authorization	The policy statement should be revised to specifically capture the fact that this deployment of low-power, standalone ATC is not applicable to the deployment of standard public commercial mobile services.	Policy statement to be revised in alignment with comment on Section 3.1.	Subsection 3.1 has been revised and the following new policy statement (#2) added:  “Standalone, low-power ATC systems cannot be deployed to support public mobile telecommunications services.”  This was added to preclude the deployment of standalone, low-power ATC systems for standard public commercial mobile services.
3	Digicel	3.2 ATC Licences, Fees, and Annual Reporting	The Authority needs to provide clarification/specificity on the following statement.  “As ATC systems can only be offered concurrently with MSS, authorisation for ATC operation is conditional on licensees having MSS authorisation from a recognised jurisdiction”.  As it reads, it raises the question as to whether a potential ATC	Authority to provide clarification on its statement in Section 3.2. which reads as follows:  “As ATC systems can only be offered concurrently with MSS, authorisation for ATC operation is conditional on licensees having MSS authorisation from a recognised jurisdiction”.	The fixed base station of ATC systems uses the same authorised frequency band as the operating MSS system. Therefore, to support harmonisation and mitigate harmful interference to the operating MSS, the Authority shall offer ATC authorisation only to entities with MSS authorisation from other ITU jurisdictions, where the MSS satellite footprint covers Trinidad and Tobago. Subsection 3.2 has been revised accordingly.

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			<p>licensee with MSS authorization from another jurisdiction (i.e., USA/Canada) could offer ATC services in Trinidad without obtaining an initial license for MSS in Trinidad &amp; Tobago.</p> <p>This also raises a question as to the Authority's position on whether a potential MSS operator has to apply for a Concession to provide said (MSS and Standalone Low Power ATC) service in Trinidad &amp; Tobago.</p>		<p>As the ATC systems to be authorised shall be standalone, an MSS licence from Trinidad and Tobago is not required to license the ATC systems.</p> <p>The Authority agrees that a concession would be required to operate MSS networks that provide public telecommunications services in Trinidad and Tobago. In the 2024/2025 financial year, the Authority will begin developing the relevant framework to address all satellite-related services including MSS.</p> <p>Digicel is reminded of policy statement #1, which states:</p> <p>“The Authority shall authorise the deployment of standalone, low-power ATC systems in Trinidad and Tobago for private or closed user group use.”</p> <p>In keeping with the Telecommunications Act, Chap. 47:31 (the Act), no concession is required for private or closed user group use.</p>
4	Digicel	3.3 Technical Operating Parameters	We have noted the Authority's statement that “...a full 5 MHz frequency separation is not warranted, given the low-power operation of ATC systems.”	Digicel (Trinidad & Tobago) Limited would strongly recommend that a guard band of 5 MHz be maintained and that there is no co-mingling or overlapping spectrum assignments between MSS and terrestrial systems.	<p>The Authority shall maintain the 5 MHz frequency separation until the results of relevant studies have confirmed the appropriate frequency separation that will ensure the coexistence of ATC and IMT systems.</p> <p>Additionally, the authorisation of ATC systems in the 2495–2500 MHz frequency range shall be considered when a wider TDD channel is standardised by 3GPP.</p>
5	Globalstar	General	<p>Globalstar, Inc. (“Globalstar”) hereby submits these comments to the First Round of the Consultative Document on the Framework for the Authorization of standalone Ancillary Terrestrial (ATC) Systems as published by the Telecommunications Authority of Trinidad and Tobago in December of 2023.</p> <p>Globalstar appreciates the Authority's commitment to ensuring due process and allowing for all interested parties to submit their comments on a new framework for authorizing standalone ATC in</p>		<p>The Authority acknowledges Globalstar's appreciation for the development of the <i>Framework for the Authorisation of</i></p>

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			Trinidad and Tobago. Globalstar fully supports the Authority's intention to develop such a framework and to ensure that the regulatory and administrative principles that ensure continued co-existence and sharing of services within key frequency bands are upheld.		<i>Standalone Ancillary Terrestrial Component (ATC) Systems</i> (the Framework) and its support for due process as it relates to allowing interested parties to submit comments.
6	Globalstar	General	<p>1. Globalstar and Its MSS and ATC Business</p> <p>Globalstar is a leading provider of global Mobile Satellite Services ("MSS"). Operating continuously in the S-Band and L-Bands for more than two decades, Globalstar's non- Geostationary ("NGSO") system supports the delivery of reliable MSS to consumers, public safety personnel, and enterprise customers globally. Globalstar utilizes a "bent-pipe" architecture with satellites that receive and transmit voice and data traffic between an expanding ecosystem of mobile Earth terminals and a global network of Gateway Earth Stations ("GES").</p> <p>As is noted in the Consultative Document, Globalstar was authorized by the FCC in 2016 to deploy and operate Ancillary Terrestrial Components that function independently of its satellite system whilst utilizing the same MSS S-Band frequencies from 2483.5 MHz to 2495.0 MHz. Such ATCs are able to provide localized, high-throughput data links for Internet of Things ("IoT") applications in critical operational environments. The S-Band is ideally suited for such LTE and 5G access points and devices as it presents optimal dispersion characteristics, whilst suffering from little to no interference from other systems, such as would Wi-Fi or public network spectrum. Use cases include public safety, industrial mining and oil and gas operations, remote site connectivity, manufacturing, port management and logistics, and more.</p> <p>Finally, Globalstar has shown over many years that it is able to effectively manage the deployment and management of such ATC operating within the S-Band whilst ensuring that none of its MSS or any neighboring services are negatively affected.</p>		<p>The Authority is thankful for the information provided on the network architecture ("bent-pipe") and the frequency bands (S-band and L-band) of Globalstar's satellite network used to provide global Mobile Satellite Services (MSS).</p> <p>The Authority agrees in principle with the comments that the operation of the ancillary terrestrial component (ATC) systems that function independently of the satellite network can provide high throughput data links for Internet of Things (IoT) applications in critical operational environments.</p> <p>The Authority acknowledges Globalstar's ability to deploy and manage the ATC systems operating in the S-band without negatively affecting neighbouring services.</p>

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7	Globalstar	2.0 Global Authorisation of ATC Systems	<p>2. ATC Licensed Markets</p> <p>In Section 2 of the Consultative Document, the Authority correctly lists the administrations that have already authorized Globalstar to deploy and operate its ATC in its S-Band MSS allocation, including the FCC of the United States, the ISED of Canada, BOCRA of Botswana, ANATEL of Brazil, and SSTD I of Spain. Further to this list, Globalstar would like to confirm that it also holds authorizations to deploy and operate ATC in its S-Band MSS issued to it by the following administrations:</p> <ul style="list-style-type: none"> <li>- The Independent Communications Authority of the Republic of South Africa (“ICASA”)</li> <li>- The “Autorité de Régulation des Communications Électroniques et des Postes (“ARCEP”) of Gabon</li> <li>- The “Instituto Nacional das Comunicações de Moçambique” (“INCM”) of Mozambique</li> <li>- The Communications Authority of Kenya</li> <li>- The Rwanda Space Agency and the Rwanda Utilities Regulatory Authority of Rwanda</li> <li>- The Communications Regulatory Authority of Namibia of Namibia</li> </ul> <p>Along with these, Globalstar continues to pursue harmonization of the ATC authorization across many more countries in the world.</p>		The Authority notes the information provided on the authorisation received from other administrations and has listed the same in the revisions to section 2.
8	Globalstar	<p>3. Authorisation of ATC Systems in Trinidad and Tobago</p> <p>3.1 Low-Power ATC Authorization</p>	<p>3.1 Low-Power ATC Authorization</p> <p>Globalstar strongly supports the proposed conditions of usage within this section of the Consultation Document, in particular as they apply to the co-existence of MSS and ATC within the same band. Further, Globalstar notes that in South Africa, Gabon, Mozambique, Kenya, Rwanda, and Namibia, it has been awarded spectrum assignments that do not specify that the ATC be “low-power”. This flexibility reflects the more expansive geographic</p>		<p>The Authority acknowledges the comments from Globalstar regarding the use of the term “low-power ATC authorisation” and its support for the proposed conditions with respect to the operation of ATC systems.</p> <p>Globalstar is asked to note that the technical operating conditions outlined in Appendix I provide the proposed flexibility. ATC licensees are required to use the minimum</p>

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			<p>nature of the industrial applications in these administrations, allowing such localized ATC systems to provide maximized coverage and throughput while minimizing the costs to customer. The conditions of deployment within these administrations impose only out-of-band emissions limits to ensure the protection of neighboring services.</p>		<p>technical operating requirements necessary to achieve the desired level of service and shall not, under any circumstances, exceed the maximum permissible values.</p>
9	Globalstar	3.2 ATC Licenses, Fees, and Annual Reporting	<p>3.2 ATC Licenses, Fees, and Annual Reporting</p> <p>Globalstar strongly supports the Authority's proposed approach of licensing specific base stations operating as ATC on the same basis as it does for point-to-multipoint station licenses. This includes levying spectrum fees only on those base stations that have been deployed and are operating and actively making use of the spectrum resources. Globalstar further supports the addition of an explicit allocation for ATC in the S-Band spectrum as a footnote in the Trinidad and Tobago Frequency Allocation Table. This follows best practices in ensuring that all services authorized within specific bands are clearly denoted within the TTFAT.</p>		<p>The Authority notes Globalstar's support for the proposed requirements for ATC licences, fees and annual reporting, and the updating of the <i>Trinidad and Tobago Frequency Allocation Table</i> (TTFAT) in keeping with the Consultation Procedure to include a footnote to permit standalone ATC operations in the 2.4 GHz S-band, in conjunction with the operation of MSS systems, subject to the Authority's rules for ATC systems. These provisions shall be maintained in the Framework.</p>
10	Globalstar	3.3 Technical Operating Parameters	<p>3.3 Technical Operating Parameters</p> <p>Globalstar supports the Authority's intention to assign the ATC authorizations in Trinidad and Tobago in the full frequency range of 2483.5 MHz —2500.0 MHz. Such an assignment would be in line with Globalstar's ATC licenses in South Africa, Gabon, Mozambique, Kenya, Rwanda, and Namibia, all of which have assigned the full band to ATC.</p> <p>Appendix I: Licensing Conditions for the Low-Power Ancillary Terrestrial Component (ATC) Spectrum License</p> <p>Globalstar is in full agreement with all of the technical licensing conditions listed in the Appendix I, which are in line with its existing licenses and authorizations globally.</p> <p>Conclusion</p>		<p>As stated in the Framework, the Authority will only consider authorising ATC systems in the 2495–2500 MHz frequency range when a wider time division duplex TDD channel is standardised by 3GPP.</p>

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			<p>Globalstar would like to reiterate its gratefulness to the Authority for its excellent and transparent handling of its application to date, and the opportunity to provide its comments and contributions to the Consultation Document. Globalstar remains committed to ensuring that it can operate its ATC and MSS services and technologies in co-existence with all other services in Trinidad and Tobago, and to continue to ensure compliance to all of its laws and regulations.</p>		