
Rivada Space Networks:
Response to consultation on
Regulatory framework for
satellite-based electronic
communications services in The
Bahamas



1. Introduction of Rivada

Rivada Space Networks ("Rivada") is pioneering the world's first truly global non-geostationary satellite network, designed to deliver secure, low-latency, point-to-point and point-to-multipoint data connectivity for businesses, governments, gas and oil as well other users. This advanced constellation, known as the Rivada Outernet, represents a breakthrough in satellite communications with its unique gateway-less architecture and unmatched security features.

Unlike traditional satellite networks, which rely heavily on terrestrial gateways, the Rivada Outernet employs an innovative optical meshed network in space. Using intelligent on-board routing and fully laser-linked satellites, Rivada eliminates the need for data to transit through vulnerable terrestrial infrastructure. This design ensures end-to-end connectivity directly between origin and destination, offering unparalleled data security and minimising exposure to potential cyber threats. No external entity can interfere with the network, making it the most secure satellite connectivity solution available today.

The Rivada Outernet is composed of a secure low-Earth orbit (LEO) satellite constellation providing pole-to-pole coverage, operating within the Ka-band spectrum:

Downlink: 17.3–20.2 GHz

Uplink: 27.5–30.0 GHz

Rivada collaborates with locally licensed partners for the deployment of user terminals, ensuring compliance with national regulatory frameworks. While Rivada's network does not directly interconnect with the public internet, local service providers have the option to do so under their own control and responsibility.

Rivada is committed to fostering competition, innovation, and sustainable connectivity solutions that align with the regulatory goals of The Bahamas. We appreciate the opportunity to contribute to this consultation and support the development of frameworks that enable cutting-edge technologies to thrive in the region.

2. Rivada's Responses

Question 1:

Do you have any other comments on the demand and the importance of satellite communication services for The Bahamas? If so, please provide a detailed explanation of these observations, including supporting evidence where available.



Response to Question 1: Rivada appreciates URCA’s recognition of the growing demand for satellite-based electronic communications services in The Bahamas. The increasing reliance on satellite systems for connectivity highlights the essential role these services play in driving economic growth, ensuring disaster resilience, and bridging digital divides.

The demand for NGSO high data rate connectivity using bands like Ka-band has shown significant growth globally due to its ability to provide highly secure, low-latency, and high-capacity broadband services. NGSO high data rate connectivity solutions are well-suited to offering tailored connectivity for diverse sectors, including enterprises, governments, telecom operators, and industries such as oil and gas, as well connectivity using Earth Stations in Motion (ESIMs) for land, maritime, and aviation sectors, ensuring seamless, reliable, and high-speed communication for users on the move.

This capability is especially critical for The Bahamas’ tourism and maritime industries, where cruise ships and aircraft require uninterrupted connectivity to meet the expectations of visitors and operators. Satellite systems’ resilience in the face of natural disasters makes them a vital component of disaster response and recovery efforts in The Bahamas.

Furthermore, as outlined in the introduction, Rivada’s Outernet architecture offers a unique advantage over subsea cables. Unlike traditional satellite systems that rely on gateways, which in turn depend on subsea cables for global connectivity, Rivada’s Outernet eliminates this dependency, providing global connectivity independent of vulnerable terrestrial and subsea cable infrastructures, particularly in light of recent disruptions to subsea cables.

In contrast, Rivada’s network ensures continuous, reliable connectivity, even in scenarios where subsea cables, terrestrial networks, and gateway-based satellite infrastructures fail.

This unparalleled resilience and security position Rivada’s Outernet as a superior solution for global connectivity, directly supporting The Bahamas’ critical industries and ensuring uninterrupted communication in all circumstances.

Question 2:

Do you agree with the regulatory and policy objectives to consider in this review and the resulting five key objectives guiding URCA’s review?

Response to Question 2: Rivada Space Networks commends URCA for its comprehensive identification of key regulatory and policy objectives in the context of satellite-based electronic communications services. The outlined objectives align well with the needs of the industry and the goals of fostering connectivity and economic growth in The Bahamas.

Rivada strongly supports facilitating the development and market entry of satellite-based services in all regions of The Bahamas; accommodating a wide range of use cases, including ESIM connectivity; recognising that satellite systems infrastructure are naturally resilient and ideal for offering critical connectivity during natural disasters when terrestrial infrastructure may be unavailable; establishing non-discriminatory spectrum fees to



encourage market entry that are fair and predictable, allowing satellite operators to deploy services effectively while ensuring affordability for consumers.

Question 3:

Do you agree with URCA's preliminary assessment of the current licence regime meeting Objective 1? If not, please clearly specify any potential gaps or issues that should be addressed to achieve this objective. In doing so, please provide a detailed explanation of these observations, including supporting evidence where available.

Response to Question 3: Rivada appreciates URCA's efforts to establish a licensing framework that supports the provision of satellite-based electronic communications services across all regions of The Bahamas, particularly in underserved areas such as the Family Islands. We concur with URCA's assessment that the current licensing regime allows for a national scope of service delivery and that it has facilitated the entry of satellite operators to extend connectivity to these regions.

Rivada also appreciates the separation of the responsibilities of different players in the value chain of satellite-based communication service provision. This separation enables satellite operators, who typically provide wholesale satellite capacity, and local satellite service providers, who utilise this capacity to deliver services to end customers, to focus on their core competencies. Such a division promotes efficiency, flexibility, and innovation within the satellite ecosystem, ultimately benefiting end users.

Question 4:

Do you agree with URCA's preliminary assessment of the current licence regime meeting Objective 2? If not, please clearly specify any potential gaps or issues that should be addressed to achieve this objective. In doing so, please provide a detailed explanation of these observations, including supporting evidence where available.

Response to Question 4: Rivada agrees with URCA's preliminary assessment that the current licensing regime accommodates a range of use cases and provides flexibility for satellite operators and service providers. The technology-neutral approach and streamlined application processes create a favourable environment for innovation and market entry.

Question 5:

Do you agree with URCA's preliminary assessment of the current licence regime meeting Objective 3? If not, please clearly specify any potential gaps or issues that should be addressed to achieve this objective. In doing so, please provide a detailed explanation of these observations, including supporting evidence where available.

Response to Question 5: Rivada supports URCA's preliminary assessment that the current licensing regime effectively enables operators to provide disaster-resilient network solutions based on satellite architecture. Satellite systems, particularly those using NGSO high data rate connectivity in bands like Ka-band, are uniquely positioned to maintain



reliable communication during and after natural disasters when terrestrial networks are often unavailable.

Rivada agrees with URCA's assessment and commends its recognition of the vital role satellite systems play in disaster resilience. By incentivising disaster-ready infrastructure and simplifying emergency operations, and others, URCA can further enhance the effectiveness of the licensing framework in achieving Objective 3 and ensuring reliable, high-quality connectivity in The Bahamas during emergencies

Question 6:

Do you agree with URCA's proposed way forward on the licensing regime to accommodate satellite-based services in The Bahamas? If not, please provide a detailed explanation of your suggestions, including supporting evidence where available.

Response to Question 6: Rivada appreciates URCA's thoughtful approach to maintaining a flexible and technology-neutral licensing regime that can adapt to ongoing advancements in satellite technology and business models. We broadly agree with URCA's proposed way forward, which balances regulatory oversight with the need to encourage innovation and market growth.

However, Rivada offers the following suggestions to further strengthen the licensing framework:

1. **Clarity on Disaster Support Obligations:** Rivada understands that satellite operators have a role to play during emergencies, however, we seek clarity on disaster support obligations, particularly on the scope and implementation of these obligations need to be clarified to ensure they are both practical and effective. These clarifications would help align operator capabilities with government expectations.
2. **Exemption for Visiting ESIMs:** Rivada urges URCA to explicitly exempt foreign-licensed ESIMs on visiting aircraft and ships from licensing requirements in The Bahamas. Such an exemption aligns with international practices and facilitates seamless global connectivity without imposing unnecessary regulatory burdens on operators. This approach would support The Bahamas' tourism and maritime sectors, which rely heavily on visiting vessels and aircraft.
3. **Support for Temporary Licenses:** Rivada welcomes URCA's flexibility in issuing temporary licenses to support the testing of new services. Expanding this approach to include rapid approvals for emergency deployments or experimental operations would further encourage innovation and ensure readiness for disaster scenarios.

In conclusion, Rivada agrees with URCA's proposed way forward and commends its focus on fostering satellite-based services in The Bahamas. By providing clarity on disaster support obligations, exempting visiting ESIMs, and enhancing provisions for temporary licenses, URCA can further enhance the effectiveness and inclusivity of its licensing framework.



Question 7:

Do you agree with URCA's preliminary views on the expected spectrum demand in low-frequency and high-frequency bands from satellite-based communication services in The Bahamas? Do you have any other comments on the precise bands that should be opened in priority to satellite-based communication services in The Bahamas?

Response to Question 7: Rivada agrees with URCA's recognition of the growing spectrum demand for satellite-based communication services and supports its commitment to ensuring adequate spectrum availability to facilitate innovative and reliable satellite services in The Bahamas.

Rivada highlights the importance of prioritising spectrum bands that are critical for NGSO high data rate connectivity services, particularly in bands like Ka-band. These bands support secure, low-latency, and high-capacity broadband services that cater to diverse sectors, including enterprises, governments, telecom operators, and industries such as oil and gas, as well as enabling Earth Stations in Motion (ESIMs) for land, maritime, and aviation applications.

Rivada also provides the following recommendations to address spectrum demand and allocation priorities:

1. **Harmonisation with Global and Regional Allocations:** Rivada urges URCA to align its spectrum policies with global and regional standards, particularly those established by the ITU and CITEL. Harmonised spectrum allocations, such as the 17.3-17.7 GHz band for Fixed Satellite Services (FSS) will facilitate seamless operations and foster global connectivity.
2. **Flexibility in Spectrum Use:** To meet the dynamic and evolving needs of satellite-based communication services, URCA should consider adopting a flexible spectrum management approach. Allowing shared use of spectrum, particularly in bands that can accommodate co-primary users without significant interference risks, will maximise spectrum efficiency while supporting diverse applications.

In conclusion, Rivada supports URCA's preliminary views on spectrum demand and emphasises the importance of prioritising spectrum bands like Ka-band for NGSO high data rate connectivity. By aligning with international standards, adopting flexible spectrum management practices, and engaging with industry stakeholders, URCA can ensure that The Bahamas remains at the forefront of satellite-based communication innovation.

Question 8:

Do you agree with URCA's preliminary views on interference risks for satellite-based communication services in The Bahamas? Please provide a detailed explanation of your views, including supporting evidence where available.

Response to Question 8: Rivada agrees with URCA's preliminary views that interference risks for satellite-based communication services in The Bahamas are minimal, particularly given the operational separation between satellite and terrestrial services. Effective spectrum management practices and international coordination frameworks, such as the ITU Radio Regulations, provide a robust foundation for mitigating interference risks.

Question 9:



Do you agree with URCA’s proposed safeguards to prevent any future interference issues? Please provide a detailed explanation of your views, including supporting evidence where available.

Response to Question 9: Rivada agrees with URCA’s proposed safeguards to prevent future interference issues and supports the proactive measures outlined in the consultation document. We support emphasising the importance of implementing advanced interference-mitigation techniques, harmonising with international standards, and maintaining flexibility for future technologies. By fostering stakeholder collaboration and providing clarity on safeguard implementation, URCA can ensure the efficient and interference-free use of spectrum for satellite-based communication services in The Bahamas.

Question 10:

Do you have any comments on the principles and revised structure proposed by URCA for satellite-based electronic communications services in The Bahamas? Please provide a detailed explanation of your views, including supporting evidence where available.

Response to Question 10: Rivada commends URCA for its thoughtful approach to revising the fee structure for satellite-based electronic communications services. The proposed principles align well with the objectives of promoting market entry, ensuring efficient spectrum use, and maintaining fairness in spectrum pricing.

Question 11:

Do you have any comments on the proposed requirements for satellite service providers conducting the administration and management of their business from premises outside of The Bahamas? Please provide a detailed explanation of your views, including supporting evidence where available.

Response to Question 11: Rivada recognises URCA’s focus on maintaining national security and ensuring compliance with regulatory requirements. However, Rivada believes that the proposed requirements for local data storage and local representation for satellite service providers conducting business administration and management outside The Bahamas merit reconsideration to avoid undue burdens on operators.

- 1. Challenges of Local Data Storage Requirements:** Rivada appreciates the importance of ensuring lawful interception capabilities and the protection of network security. However, requiring satellite operators to store communications data locally may not align with the global architecture of satellite networks. Satellite systems are designed to operate seamlessly across multiple jurisdictions, and imposing local data storage requirements can lead to increased operational complexity and costs.

Modern satellite systems can meet lawful interception obligations through robust security measures and compliance with international standards without requiring local data storage. Rivada recommends that URCA explore alternative solutions, such as ensuring secure remote access to data for lawful interception purposes, to address national security concerns while reducing the regulatory burden.



- 2. Minimising Local Representation Requirements:** Rivada urges URCA to minimize local representation requirements for foreign-licensed satellite operators. Requiring a local representative for compliance management may impose additional costs on operators, particularly for those providing transient services, such as Earth Stations in Motion (ESIMs) on visiting aircraft and ships.

Instead, Rivada recommends a framework that allows satellite operators to fulfill compliance obligations through designated regional representatives or global headquarters, provided they can meet lawful interception and other regulatory requirements remotely. This approach aligns with international best practices and facilitates the efficient deployment of satellite-based services.

In conclusion, Rivada respectfully requests that URCA reconsider the proposed requirements for local data storage and representation. By adopting flexible alternatives that leverage modern network capabilities, URCA can achieve its objectives of national security and regulatory compliance while reducing barriers for satellite operators and fostering the growth of satellite-based communication services in The Bahamas.

Question 12:

Do you have any comments on other topics related to the provision of satellite-based communication services in The Bahamas which should be considered by URCA? Please provide a detailed explanation of your views, including supporting evidence where available.

Response to Question 12: Rivada appreciates URCA's comprehensive approach to updating the regulatory framework for satellite-based communication services in The Bahamas. Rivada offers the following additional considerations to further enhance the provision of satellite-based services:

1. Rivada recommends that URCA explicitly exempt foreign-licensed ESIMs on visiting aircraft and ships from licensing requirements in The Bahamas. Such exemptions are consistent with international practices and facilitate seamless global connectivity, particularly for the country's tourism and maritime sectors.
2. Rivada values URCA's approach to using Class Licences Requiring Registration and recommends maintaining the current practice of deeming applications approved unless an objection is raised within 45 days. Establishing clear procedures and timelines not only enhances transparency but also provides satellite operators and service providers with the predictability needed for efficient service deployment. This approach fosters better resource management, accelerates implementation timelines, reduces costs, and ultimately improves the quality of service available to consumers in The Bahamas. Additionally, Rivada encourages URCA to ensure that updates to the regulatory framework are communicated and implemented in a timely and transparent manner. Such an approach is essential to facilitating the continued growth and adoption of satellite-based communication services, enabling stakeholders to respond effectively to changes while meeting the evolving connectivity needs of the country.