VIA E-MAIL
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Mr. Tariq Al Awadhi
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Telecommunications Regulatory Authority
P.O. Box 26662
Abu Dhabi, UAE

Re: Outline for New TRA Policy – Space Telecommunications Policy

Dear Mr. Al Awadhi,

The Satellite Industry Association would like to thank the Telecommunications Regulatory Authority ("TRA") for publishing the Outline for New TRA Policy – Space Telecommunications Policy (the "Policy"), and appreciates the opportunity to submit comments for your consideration. We applaud your commitment to the values of transparency and sector engagement.

The Satellite Industry Association ("SIA")[1] is a U.S.-based trade association providing worldwide representation of the leading satellite operators, service providers, manufacturers, launch services providers, and ground equipment suppliers. Since its creation more than fifteen years ago, SIA has become the unified voice of the U.S. satellite industry on policy, regulatory, and legislative issues affecting the satellite business.

[1] SIA Executive Members include: Artel, Inc.; The Boeing Company; The DIRECTV Group; EchoStar Satellite Services LLC; Harris CapRock Communications; Hughes Network Systems, LLC; Intelsat, S.A.; Iridium Communications Inc.; Kratos Defense & Security Solutions; LightSquared; Lockheed Martin Corporation.; Northrop Grumman Corporation; Rockwell Collins Government Systems; SES S.A.; and Space Systems/Loral. SIA Associate Members include: ATK Inc.; Cisco; Cobham SATCOM Land Systems; Comtech EF Data Corp.; DRS Technologies, Inc.; Eutelsat, Inc.; GE Satellite; Globecomm Systems, Inc.; Glowlink Communications Technology, Inc.; iDirect Government Technologies; Inmarsat, Inc.; Marshall Communications Corporation.; MTN Government Services; NewSat America, Inc.; Orbital Sciences Corporation; Panasonic Avionics Corporation; Spacecom, Ltd.; Spacenet Inc.; TeleCommunication Systems, Inc.; Telesat Canada; Ultisat, Inc.; ViaSat, Inc., and XTAR, LLC. Additional information about SIA can be found at www.sia.org.

As such, SIA has a strong interest in satellite licensing policies that encourage operators to evolve technologies and enable them to maximize their spectrum efficiency. Satellites are the most efficient technology for providing communications services to large geographical and sparsely populated areas, including to end-users dispersed throughout entire countries, continents or large oceanic regions. Satellites operate in an inherently international environment, both from the perspective of their orbital position in space and their service coverage capabilities on the ground. In order to continue existing services and expand into new services, satellite operators must be able to rely on spectrum policies that create a reasonable regulatory environment. Accordingly, national policies should facilitate realization of the full potential of satellite capabilities for both satellite operators and the customers that they serve.

While our full comments are included below, SIA would like to call particular attention to three specific principles:

1. **Maintain a "no landing rights" approach.** There is no need to require licenses or to impose other regulatory requirements on satellite operators for the provision of satellite capacity (so-called 'landing rights' on the provision of space segment). In most countries, there is no requirement to duplicate the licensing of space segment capacity, where another country serves as the ITU Notifying Administration. We would recommend such an approach as this regime has worked very effectively in the many countries where it has been applied.
2. **Network & Services Licensing Fees Should be Predictable, Non-discriminatory and Stable.** Licensing procedures that apply to national network or service providers should be streamlined and transparent and not favor one technology over another, regardless of whether they access domestic or foreign systems. Satellites typically have long business cycles (15-20 years), and in order to attract sufficient capital to foster innovation and launch a satellite network, fees must be predictable, reasonable, and stay stable over time.
3. **Administrative Costs Recovery.** Licensing fees and other regulatory/administrative charges ought to be limited to the recovery of the actual costs of the regulation of satellite services.

SIA presents for your consideration the following comments on policy issues that are of importance to the satellite industry. These issues are listed in order of the question number in the *Policy,* as per the TRA's comment instructions. The paragraph numbers correspond to the question numbers in the *Policy*.

Article 1: Purpose

Question 1: Would you like to give inputs on the purpose and scope?

The purpose of the *Policy* should be to enhance economic development and social welfare by facilitating the development and deployment of advanced satellite

communications systems in the UAE to the benefit of all public, private and government users. The *Policy* should facilitate the creation of a stable and transparent environment that can attract investment, promote fair competition, and guarantee the rights of users, operators and investors, domestic and non-domestic, on a non-discriminatory basis. The Policy should also consider protections for licensed users against radio frequency interference.

The scope of the *Policy* should include electromagnetic transmission from satellites to the UAE (i.e. space-to-Earth transmissions) as well as transmission and reception of electromagnetic signals from within the UAE to satellites by any entity, public or private (i.e. Earth-to-space transmissions). The scope of the *Policy* should also include the use of terrestrial equipment, fixed and mobile, for conducting such transmission and reception.

The *Policy* should not include regulation of content, but rather should promote the use of satellite technology for all forms of communications services. SIA respectfully suggests that the *Policy* be applied to providers and users of satellite space segment, terrestrial services and equipment in the UAE. To minimize potential interference and conflicts over spectrum, SIA suggests the *Policy* be applied to all users, both public and private, including government users except where national security or other legitimate public safety considerations apply. We also note the need to create a level playing field between attracting foreign investment and enabling a truly competitive environment. In furtherance of this goal, the concept of an "Open Skies" policy is discussed in greater depth in SIA's response to Question 10.

Article 4: Space Services and Applications

Question 3: Do you agree on including this Article in the Policy? Please provide justification.

SIA believes that it would be appropriate to include a description of various space services and applications. We would propose to base most of the descriptions on the International Telecommunications Union ("ITU") nomenclature and definitions, while taking into consideration new technologies and innovative ways of providing satellite services.

Question 4: Would you like to give inputs on this Article?

SIA suggests that, to the extent possible, the TRA adopt current existing and internationally accepted definitions of terms, services and applications such as those developed by the ITU at: http://www.ictregulationtoolkit.org/en/PracticeNote.aspx?id=2824. As mentioned above, the ITU definitions could be used as a baseline without compromising the

provision of innovative services.

Article 5: Satellites and Earth Stations

Question 5: Do you agree on including this Article in the Policy? Please provide justification.

SIA respectfully suggests that in the *Policy* technical details of satellites, earth stations and networks be kept to a minimum. Satellite, earth station, and network technology will change over time, and including such details in a broad overarching policy document could reduce its utility as a long-term guide for derivative policy-making and regulatory action.

Question 6: Would you like to give inputs on this Article?

SIA suggests that technical details of satellite definitions might be more appropriately defined in specific regulations regarding specific services. These specific regulations can be adjusted as changes in technology dictate without changing the overall *Policy*. SIA would like to recommend that the TRA emphasize regulation of electronic communications services as opposed to a regulation of specific hardware or technologies.

Article 6: Roles and Responsibilities

Question 7: Do you agree on including this Article in the Policy? Please provide justification.

SIA agrees that the roles and responsibilities of the TRA with regards to satellite networks and space services could be included in the *Policy*. Satellite service providers tend to prefer investing in satellite services markets where specific regulatory responsibilities are delineated in a transparent fashion. For example, SIA would welcome information on the specific roles and responsibilities of the TRA and any future UAE Space Agency, should such an agency be established.

Question 8: Would you like to give inputs on this Article?

SIA respectfully suggests that the TRA adopt a statement of Roles and Responsibilities to create a transparent, competitive and interference-free environment, which could include items such as the following:

1. The development of a comprehensive frequency usage plan for the UAE, taking into consideration the needs of all stakeholders as well as regional agreements and coordination under the auspices of the ITU.

2. The examination of applications for frequency assignments and allotments concerning satellite services and related terrestrial equipment and the formulation of the corresponding findings;
3. The maintenance and enforcement of the frequency allotment plans via both space-based satellite and terrestrial usage;

Article 7: UAE and Foreign Satellite Networks
Question 9: Do you agree on including this Article in the Policy? Please provide justification.

SIA agrees that the topics in Article 7 are important to include in the *Policy*. It is important for satellite operators and service providers to have certainty over which set of regulations apply to them. However, as explained under Question 10, SIA strongly recommends that the TRA not include the concept of "landing rights" in its *Policy* or any future regulations.

Question 10: Would you like to give input on this Article?

SIA would like to encourage TRA to adopt an "Open Skies" regulatory approach. Under such a regulatory approach, any service provider providing satellite services to/from and within the UAE would be able to choose satellite capacity from any national or foreign satellite operator it wishes to provide services to its client or end-user (national or international). The experience of SIA's member companies in jurisdictions applying an "Open Skies" approach has been that such an approach increases the choice of innovative services for consumers and lowers end-user prices due to increased competition.

SIA strongly encourages TRA not to adopt a "landing rights" approach. Satellites of foreign satellite operators are already licensed by a national administration, and their satellites networks have been coordinated according to the ITU Rules and Regulations. Any additional "landing rights" requirement would only duplicate a licensing approach that is well-established and effective. Needless to say, this approach is equally applicable to UAE satellite operators providing services abroad.

Article 8: Licensing and Types of Licenses and Authorizations
Question 11: Do you agree on including this Article in the Policy? Please provide justification.

SIA believes that the Topics in Article 8 are appropriate for inclusion in the *Policy*. It is important for stakeholders in the satellite industry to understand the types of licenses that are available and the elements of the authorization process.

Question 12: Would you like to give inputs on this Article?

Some of the details such as authorization fees might better be included in a separate schedule so that they can be updated without changing the overall *Policy.* All information, including fees, should be as transparent as possible. It is important for potential entrants to understand any regulatory advantages or challenges they are bound to encounter. The fundamental goal of the schedule for licensing fees should be to allow TRA to recoup its administrative costs to the regulator, and not to create a source of profit.

TRA should strive to adopt a light-touch licensing regime. For example, receive-only earth stations should not require any kind of license. Very Small Aperture Terminals ("VSATs") that meet specific technical criteria that eliminate the risk of unacceptable or harmful interference can operate under a single general "blanket license." In this case little or no administration is necessary, and there would be no need to require an individual license prior to operating a terminal. In cases where licenses can only be issued to locally-registered companies or licensees, we recommend allowing the satellite operator to provide its services by means of service agreements with these local companies without the need for additional licensing or authorizations of their own, and without restrictions on the choice of the space segment.

Article 9: Frequency Spectrum Selection and Use

Question 13: Do you agree on including this Article in the Policy? Please provide justification.

SIA agrees with the inclusion of Article 9 in the *Policy*. As radio frequency spectrum is the crucial medium over which satellites operate, it is important for industry participants to understand the allowable uses of each frequency, and how interference issues will be addressed.

Question 14: Would you like to give inputs on this Article?

Compliance with ToFA and ITU

Because a single satellite typically covers many countries, particularly in the UAE's region, standard allowable uses, such as those contained in a National Table of Frequency Allocation and the ITU International Radio Regulations, are crucial in allowing efficient use of spectrum across national borders. By contrast, any unique national frequency allocation that poses frequency or coordination conflicts with that of neighboring regional countries could make serving the UAE by satellite highly problematic. In this context, we note that many of the countries in the region have not yet developed and/or published a National Table of Frequency Allocation, and we would encourage all regulators to make this a priority as it provides stakeholders with the visibility they need to plan services accordingly.

Interference Analysis
SIA encourages the TRA to develop a clear procedure for the identification and rapid resolution of harmful interference. Because satellites operate hundreds or thousands of kilometers above the equator, their signals can be quite weak by the time they are received on the ground, and are therefore very susceptible to interference from terrestrial users of adjacent spectrum. The identification of a TRA contact point on the TRA web site in order to help address instances of harmful interference would be helpful.

Article 10: International Relations and Cooperation
Question 15: Do you agree on including this Article in the Policy?

SIA agrees with the inclusion of Article 10. Satellites in the UAE's region typically cover several countries with a single broadcasting beam, each with its own regulatory regime. Moreover, these beams are largely unchangeable once a satellite is launched. Therefore, it is important for companies to understand how TRA's policies relate to those of the ITU and to have confidence in the long-term stability of the national regulatory regime.

Standardization of rules across neighboring countries allows for more efficient use of satellite networks and would ultimately lower costs and increase competitive options for UAE customers.

Question 16: Would you like to give inputs on this Article?

SIA encourages the TRA to adopt policies and procedures that are consistent with the UAE's obligations as a member of the World Trade Organization and the ITU. In particular, we would urge the TRA to allow the free circulation of foreign-registered and visiting terminals in its territory, including land, air, and sea, and especially those that have completed coordination and where no interference is expected. This will also allow for mutual recognition of UAE terminals in other administrations.

Article 11: Bringing Into Use of Satellite Networks
Question 17: Do you agree on including this Article in the Policy? Please provide justification.

SIA believes that any such requirement imposed by the TRA should carefully follow the regulations already approved and in force at the ITU.

Question 18: Would you like to give inputs on this Article:

SIA believes that the *Policy* should include the ITU policies requirements by reference.

General Comments

SIA is attaching as Annex 1 to this submission several relevant sections of the SIA White Paper on Spectrum Policies for Satellite Services. These sections may prove useful for TRA as it begins to consider the regulation of satellite services in greater detail.

SIA is grateful for the opportunity to share these comments with the TRA as it writes its new Space Telecommunications Policy. We would welcome further dialogue with TRA on this matter, as the agency continues on its process of policy development. Please do not hesitate to contact us if you have any questions about this submission or questions of a more general nature.

Respectfully submitted,

SATELLITE INDUSTRY ASSOCIATION

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Annex 1

Spectrum Policies for Satellite Services

Satellites Use Spectrum to Provide Critical Communications

- Satellites provide secure and essential communications, navigation, weather, and imaging services in the United States and around the world.
- Governments, media, industry, first responders, and consumers across the world rely on satellite networks to provide primary and backup communications for essential business transactions, operational missions and mass communications. End users include:
    - Federal government agencies;
    - State and local law enforcement, public safety and administrative officials;
    - National and local media;
    - Businesses, including utilities, banks, retail outlets, transportation and oil and gas companies;
    - Millions of American and global consumers, who receive broadband, video, and audio in their homes and while on the move via satellites.
- Satellites are *the* most efficient technology for providing communications coverage to large geographical and sparsely populated areas, including to end-users dispersed throughout entire countries, continents or large oceanic regions.
- Every day, satellites provide backhaul connectivity for wireless communications and network redundancy to back up global submarine cable communications.
- In a disaster, satellite-based communications are heavily relied upon by first responders in the first hours and days, when terrestrial communications are disrupted. As these networks are restored, satellites augment local networks, add international connectivity, and allow ongoing media coverage throughout recovery phases from a disaster.

Government Policies are Especially Important for Satellite Systems

- In order to continue existing services and expand into new ones, satellite operators must be able to rely on consistent spectrum policies that provide protection from interference and accommodate evolving technologies and user requirements.
- Satellites operate in an inherently international environment, both from the perspective of their orbital position in space and their service coverage capabilities on the ground. This international nature of satellite services requires complex spectrum coordination on multiple levels, often among competitors. It also requires coordination between international regulatory bodies.

Satellite Systems Require Policies that Protect Against Radio Interference

- A stable, interference-protected spectrum environment is essential for satellite services to continue providing the important services they offer today, and for realizing the full potential of those capabilities.
- The introduction of new, separately-operated terrestrial services in this spectrum can harmfully interfere with critical satellite operations and services, which are optimized to balance considerations of cost, performance, and the signal strength received at the earth's surface.
- Terrestrial devices can interfere with satellite services in ways that are often unpredictable and difficult to resolve, and the aggregate impact of multiple interfering devices can exacerbate interference. Once interfering terrestrial services and devices are deployed, adjustments are difficult. The adoption of strict technical requirements is essential to prevent potential interference before existing satellite services are harmed.
- Despite the adoption of rules to prevent harmful interference to satellite services, some harmful interference may nonetheless occur. The mechanism to resolve those instances must be swift, comprehensive, and effective. Service providers should have an affirmative responsibility to report any interference, with some mechanism for an expedited complaint resolution process where regulatory intervention is required.

Satellites and Spectrum Efficiency

- Satellite systems have extremely high up-front infrastructure costs. The business of purchasing, launching, operating and insuring even a single satellite is highly capital intensive. Satellite operators have powerful economic incentives to quickly maximize spectrum efficiency so as to recover their upfront investment.
- Continued advances in satellite technology have resulted in greater overall system capacity and higher levels of frequency reuse.
    - The newest satellites are able to reuse frequencies up to nine times across the country.
    - Increased processing power allows for real-time communications with less lag time and less spectrum use.

Spectrum Policies That Recognize Long-Term Investments Are Essential

- The time required to design, launch, and operate the space and ground segments of satellite networks represents a relatively longer development time – and relatively higher up-front and fixed financial investment – than most terrestrial systems. This holds true for upgrades as well, which must be planned for and financed far in advance and must last for many years for the business to be viable.

- Regulatory frameworks for satellite systems need to be consistent and predictable. They also need to produce timely decisions so as to support the continued significant, up-front infrastructure investments required to deploy these networks. Furthermore, regulatory approvals must be consistent throughout the system design and development phase.
- A stable spectrum environment, protected from harmful interference, is essential for satellite operators to continue to provide their unique and important services as well as new innovative services in the future.