

VIRTUAL CONFERENCE ON SATELLITE GROUND SEGMENT IN INDIA - WAY FORWARD

SIA-India organized an important Space conference 'Satellite Ground segment - Way forward' on Friday, 17 December 2021.



Ground Segments are a critical part of the space ecosystem and plays a critical link between the satellites and the earth stations. Due to its limited role so far this has remained a less addressed sector in India.

SIA-India initiated this timely discussion on the important subject. This is the first such conference on the topic with participation of some of the eminent dignitaries and industry leaders in the country. The conference was a success with participation by 25 distinguished speakers and professionals alongside Policymakers, legal experts and standards association. Close to 500 delegates from 31 countries had attended the event. Some of the eminent speakers were Shree Suneel Kumar Niraniyan, DDG, Satellite, DoT, Shri K. Rathnakara, Director, Satcom Program Office, ISRO HQ, Shri Sanjeev Kumar, CMD, Telecommunications Consultants India Limited, Shri Udai Kumar Srivastava, Sr. DDG & Head, NTIPRIT, Department of Telecom, Dr. P. K. Jain, Associate Director, Freq.

Management & Satcom Planning, Satcom PO, ISRO, Shri A. K. Mittal, Advisor-Networks, TSDSI and Mr. S. Parameswaran, Planet Aerospace, Ex-Director, MCF, ISRO

India is witnessing a satcom revolution and has achieved a notable position on the global stage. As the space segment matures from limited earth observation and communication applications to the multiple constellations that need to be supported with necessary ground infrastructure, including multiple gateways, data centers and communications links, the ground segment requirements increase

enormously.

So far the need for ground stations has been limited with the use of conventional satellites operating upon GSO, which operated with a single wide beam spanning a large area. Now new space brings up innovation in Launch vehicles, satellites, payloads etc. The future of space technology lies in satellite constellations. Several satellite constellations are launched and many are planned which would be operating on the LEO and MEO through narrow beams requiring multiple earth stations and terminals for smooth operation of satellites.

There is a rapid growth and growing interest in the ground segment market world over and this cannot be overlooked in India when talking about innovation in satellite systems. Global experts highlight that the ground segment ecosystem is at a turning point, driven by technology innovation and changes in demand patterns from private and government users.

“In India the share of ground equipment in the total space economy is 48% at \$3.4 Billion, which is the highest followed by the share of space application services at 45%, rocket launch service at 2% and manufacturing of



VIRTUAL CONFERENCE

satellites 5%. Even though the contribution in totality is substantial, in actual terms it is negligible in the global Ground Segment market. Globally, the Ground Segment is projected to be \$67 Billion cumulated market from 2021 to 2030” Dr. Subba Rao Pavuluri, President, Satcom Industry Association (India) and CMD, Ananth Technologies Ltd

etc. The govt. aims for a satcom revolution in the country and to achieve that, transformative initiatives have to be taken at the highest level. From creating state-of-the-art infrastructure to providing services,



from indigenous manufacturing of products to human resource development.

Unlocking of this huge potential calls for innovative and pragmatic approach along with diligent implementation. A

resilient end-to-end ground segment, with a high level of security, is very critical today. The task is huge for all the stakeholders to shape a new route of success.

"The ground segment ecosystem is driven by technology innovation. For high throughput ground stations, we need gateways to be shared by multiple users to reduce the cost and have a commercially viable business model." Shri K. Rathnakara, Director, SPO, ISRO

SATELLITE GROUND SEGMENT BUSINESS ECONOMICS:

This session focused on the pricing models, business drivers, operational models, regulatory hurdles and international best practices. Global best practices suggest that the demand and market economics will bring the costs (CAPEX and OPEX) down gradually; especially a shift of functionality moving into the cloud will result in virtualizing the services in line with Ground Station as a Service trends (GSAAS). The ground stations are not just driven by technology innovation but also need to be shared with multiple users to reduce the cost and have a commercially viable business model. The market and business models must be explored in this context with M&A transactions and strategic partnerships providing unparalleled end-user experience and value add to the economy.

"Satellites hold the potential to reach out to areas where other technologies cannot provided the services" Shri Sanjeev Kumar, CMD, TCIL INDIA



“Various measures are being taken to simplify the processes involved in getting the clearances for the Satcom sector in India”. Shri Suneel Kumar Niraniyan, DDC, Satellite, DoT.

The half-day virtual conference deliberated upon three key topics under three panel discussion/session:

1. Satellite ground segment technologies
2. The satellite ground segment business economics
3. Standardization in Ground Segment

SATELLITE GROUND SEGMENT TECHNOLOGIES:

“The underlying technology, Multi-frequency operations including optical, Software-defined networking, Virtualization, Manufacturing and collaborations, cloudification, Security



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companies to create new technologies and compete with each other on new capabilities. India has to move very fast in terms of bringing facilitating policies and catch up with

government is focused in an effort to build on the foundational eras of space communication, competition and cooperation to facilitate a conducive space for an increased private sector participation. There are several key policy decisions announced and several are in the draft stage to create a robust digital infrastructure to connect the unconnected.

The new draft Spacecom Policy would be addressing the ground segment sector, licensing, spectrum as well as ease of doing business. With newer High Throughput Satellites (HTS), new antennas will be needed to track mega constellations, driving a huge demand in frequency needs. Availability of spectrum is critical for both the constellations and its ground counterpart. Once the foundational rules are set, India would be all set to take the next leap of getting a rightful pie of the world space economy by exploiting the space capabilities for fulfilling the unmet needs of the nation and tapping into domestic and international markets. ■

STANDARDIZATION IN SATELLITE GROUND SEGMENT:

The panel discussed the need, efforts and developments on Standardization and global harmonization that impact the Satellite Ground Segment. Data collection is at a nascent stage in India and in absence of Data Protection Law, Standards would play a critical role to protect businesses in case of liability. Standardization can help in making sure the scale is reached, and ensure seamless interoperability between systems. It will also allow the

the global developments.

"The government is committed to having an open-minded approach to promote standardization which will allow the companies to create new technologies and compete with each other on new capabilities". Shri Udai Kumar Srivastava, Sr DDG & Head, NTIPRIT, DOT

CONCLUSION:

A Capex high industry with long gestation period like the Space sector where the ground segments hold a substantial chunk, needs a long term vision and timely policy decisions. The

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