



# IAF Committee Briefs

July 2021

## IAF SPACE COMMUNICATION AND NAVIGATION COMMITTEE (SCAN)

### 1. Introduction

The IAF Space Communications And Navigation (SCAN) Symposium is gathering professionals and experts from all over the world active in the wide field of space communications and space navigation area, from both governmental and private organizations.

### 2. Latest Developments

Compared with total new GEO communication satellite orders of 19 in 2019, 2020 saw an increase to 23 new orders. Airbus Defense and Space received 6 orders, Space Systems Loral also received 6 orders, Northrup Grumman got 4 orders, Thales Alenia Space received 3 orders and Boeing Satellite systems two orders. Both IAI (Israel Aircraft Industries) and CGWI (China Great Wall Industries) obtained one order each. In 2021 so far, two new orders were logged by Airbus Space and Defense.

This shows that the low order numbers of GEO communication satellites of the last several years have recovered. Just in 2021, the operator's income from video distribution (TV programs) was overtaken by income from voice and data transmissions. This underlines the trend of non-GEO (mega) constellations which are targeted to provide internet connectivity at low latency.

In spring 2020, OneWeb had to enter into Chapter 11 and was acquired by the UK Government and Barathi telecommunications of India in summer 2020 by an auction with equal shares of about 500 million \$ each.

Space X continues to launch its Starlink satellites and has about 1,737 spacecrafts in-orbit after 3 June 2021. SpaceX claims to have more than 500,000 orders for ground terminals and services. SpaceX is currently providing interim Internet services through the Starlink satellites to consumers who have signed up for a beta testing program in the United States, Canada,

the United Kingdom, Germany, New Zealand, France, Austria, Belgium, and the Netherlands. SpaceX has regulatory approval from the Federal Communications Commission (FCC) to eventually launch and operate up to 12,000 internet relay satellites.

Another event happened in 2020, the sharing of part of the C-band spectrum in the US with terrestrial operators for 5G applications. The major operators, Intelsat, SES, Eutelsat and the FCC reached an agreement and started to order new spacecrafts to adjust to the new frequency plan.

### 3. Breakthroughs

In January 2021, Telesat of Canada (Ottawa) announced the award of a contract to Thales Alenia Space for the construction of their Lightspeed constellation.

Another trend is observable, the use of optical links as intersatellite and for space to/from ground links. The US Space Development Agency (SDA) has ordered several tens of optical ISL terminals from US and European manufacturers.

A 3U CubeSat equipped with an optical space to ground link for 100 Mbit/s was launched in January 2021. The optical terminal, weighing 390 grams was manufactured by the German TeSat company and the DLR Institute for Communication and Navigation.

### 4. Action plan for the year

Thanks to the expertise of the committee members, coming from all over the world, from satellite operators and manufacturers and regulators, the SCAN committee will continue to follow the fascinating world of satellite communications and will report on the latest developments at the upcoming Dubai IAC.