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UNCOPUOS and ITU Registration of Large Constellations (2)

Author: Dr. Huiliang Liu
China Academy of Space Technology (CAST), China

Mrs. Qian Sun
China Academy of Space Technology (CAST), China
Mr. Siyuan Han
China National Space Administration (CNSA), China

POTENTIAL OF MUTUAL REFERENCE BETWEEN ITU AND UNCOPUOS FOR CONSTELLATION REGISTRATION

Abstract

In the last decades, the International Telecommunications Union (ITU) has established a regulatory framework of space radiocommunication systems for the purpose of securing rights and protection from technical harmful interference of subsequent networks. The well-known steps in the Radio Regulation (RR) include the advance publication of information (API)——Section I, Article 9 RR, coordination (CR/R)—Section II, Article 9 RR, notification and recording of frequency assignments in the Master International Frequency Register (MIFR)—Article 11 RR. The basic principles of these steps are to release information of radiocommunication systems in the early days and to figure out coordination procedures for the use of frequencies and for avoiding harmful interference with regard to other existing and planned terrestrial or space service users. Finally, declaration of Bringing into Use (BIU) of frequency assignments to a satellite network will be conducted by providing the conditions following Article 11.44B RR. The first condition is that at least one space station with the confirmed capability of transmitting or receiving that frequency assignment has to be deployed in orbit. The second condition imposes a continuous period of 90 days at the notified orbital position. The whole process ran well with the conventional GSO and non-GSO satellites until the emergence of large constellations. At the time of writing this abstract, OneWeb has already launched 394 satellites completing almost 80% of its low Earth orbit network. SpaceX has launched more than 3,500 Starlink satellites to date. These large constellations challenge the regulatory framework from several aspects. The scope of this paper is to introduce the current approach for ITU to regulate the registration of large constellation and point out the underlying issues. The first issue is whether any non-GSO system can been brought into use when one satellite from a planned system is deployed in space and capable of transmitting and/or receiving that assignment. This issue has been partially solved in WRC-19 with a milestone-based approach to enforce the deployment schedule. The second issue is whether a non-GSO satellite can be used for BIU of different networks. The third issue is whether there is a practical method to inspect the truth of orbital information and transmitting records which are submitted from the satellite operators for BIU. We will also try to explore whether the additional information from UNCOPUOS or North American Aerospace Defense Command (NORAD) dataset would help offer a mutual reference to the BIU process of ITU.