

IAF SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM (B2)
Mobile Satellite Communications and Navigation Technology (3)

Author: Dr. Rui Ding

China Academy of Space Technology (CAST), China

Mr. Cai Yaxing

China Academy of Space Technology (CAST), China

Dr. Dong Chen

China Academy of Space Technology (CAST), China

Dr. Liang Liu

China Academy of Space Technology (CAST), China

RECENT DEVELOPMENT AND PROSPECT OF CHINA'S LOW-EARTH-ORBIT SATELLITE
MOBILE COMMUNICATION AND SPACE INTERNET SYSTEM

Abstract

In recent years, with the development of low earth orbit (LEO) satellite networks, corporations, including OneWeb and SpaceX, etc, have been developing low orbit satellite constellation networks, which consist of hundreds or even thousands of satellites. Meanwhile, the "Iridium Next" system is about to finish the replacement. Such tendency is going to change the satellite manufacture, service operation, and space radio regulations. China Aerospace Science and Technology Corporation (CASC) is developing a LEO satellite mobile communication and space internet system, which is also named Cygnus Constellation. Cygnus Constellation concentrates on requirements of different kinds of civilian and business users, by providing six applications, including, smart terminal communication, internet access, internet-of-things access, spreading of hot topics, navigation differential enhancement, automatic dependent surveillance-broadcast (ADS-B) and automatic identification system (AIS). In the first stage of the system construction, 54 interconnected satellites are proposed. System enhancement will be realized by the next stage of construction. The whole system consists of 300 satellites. Such system has property of global coverage and information interchange at anywhere and anytime will be realized. It also fully integrate ground internet. Wideband and narrowband communication capacity will be achieved for regions including deep sea, polar areas and along the "Belt and Road".