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Author: Dr. Somaia Mohamed
Egyptian Space Agency (EgSA), Egypt, somaia.mohamed@egsa.gov.eg

Dr. Haitham Akah
National Authority for Remote Sensing and Space Sciences (NARSS), Egypt, haitham_akah@narss.sci.eg
Mrs. Ranya Salah Elagooz
Egyptian Space Agency (EgSA), Egypt, ranya.elagooz@egsa.gov.eg
Mrs. aya mohamed
Egyptian Space Agency (EgSA), Egypt, aya.mohamed@EGSA.GOV.EG

CHECKOUT AND TESTING EQUIPMENT(CTE)FOR INTER-SATELLITE LINK (ISL) COMMUNICATION SUBSYSTEM

Abstract

Satellite constellations are gaining a growing interest in space industry lately, the backbone of such satellite constellation are the ISL system that connect them together. One of the key challenges in developing ISL systems is the development of a suitable checkout and test equipment (CTE) that is capable to test the functionality and the performance of ISL system. This work demonstrate the design of a generic CTE for Radio frequency (RF) based ISL communication system. The designed CTE test the functionality and performance of the ISL subsystem for wide range frequency band (up to 6 GHz) and with data rate up to 25Mbps. The CTE was designed and implemented using LabVIEW tool and USRP2944 device as RF front end. In addition, it provide different inter satellite link simulation and protocol testing.

Keywords— LEO Satellite, ISL, LabVIEW, Digital modulation, s-band, CTE,Testing, communication.