

**Brief of Development of a GEO Data Relay Satellite having high speed optical Inter-Satellite Link capable of communicating with Satellites in LEO**

LEO imaging satellites are visible to any single GES (Ground Earth Station) for a short period of time. For rapidly increasing voluminous data download from sensors in space, necessitates more number of GES to enable complete data dump by the satellites before the next imaging session. However, the LEO satellites are visible to a GEO satellite for comparatively more amount of time and GEO satellite is constantly visible to GES.

It is proposed to develop a GEO satellite with modular TDRS (Tracking and Data Relay Satellite) payload for communicating with LEO satellites along with the pointing assembly and the power electronics. The GEO TDRS module to have a high speed Laser based Optical Inter-Satellite Link (ISL) facility. This module should be able to seamlessly integrate with a LEO ISR satellite and should be able to transmit data at rates greater than 1.5 Gbps. The TDRS to have a High Throughput System (HTS) for data downlink with GES preferably in Ku band.