Stanford SSDL Satellite Ground Station

Rev. C, 11 March 2016

Jan Kolmas

Document History

Rev.	Date	Pages	Author	Description
A	27 February 2016	All	Jan Kolmas	Document Created
B	29 February 2016	All	Stephen West	SSDL template applied, footer updated, captions added
C	11 March 2016	All	Nicolas Lee	Formatting, footer

1. Overview

Stanford's satellite ground station is located on university campus in Durand Building, 496 Lomita Mall, Stanford, CA 94305, at coordinates 37.427138 N, 122.173319 W.
The station operates in half-duplex mode on UHF - 70 cm amateur radio band. It uses AX.25 Packet standard with GMSK modulation on FM.
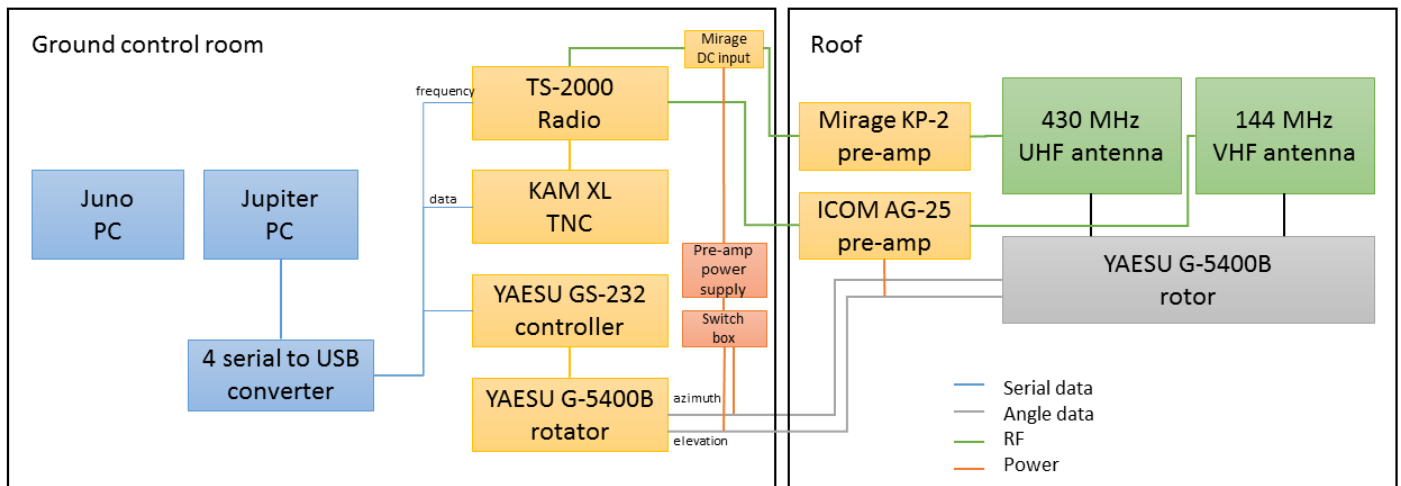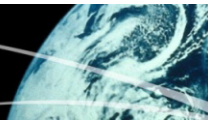
2. Equipment block diagram

Figure 1 Satellite Ground Station Block Diagram

The information contained on this page is the product of Stanford University fundamental research as defined by the EAR and ITAR and is not export controlled.

Stanford SSDL Satellite Ground Station p.1/3
Rev. C, 11 March 2016

3. Software

Ham Radio Deluxe

This free program for radio amateurs is connected to the radio and rotator controller. It is used to schedule passes, and is responsible for pointing the antenna to the satellite as it is passing above the horizon, and adjusting the Doppler frequency shift to compensate for the relative velocity.

Satellite Control System

SCS is a software package provided by EPFL/Solenix to QB50 teams. It features processes to encode and decode AX.25 frames and CCSDS packets. It also stores and displays satellite telemetry, and allows uplink of telecommands to the satellite.
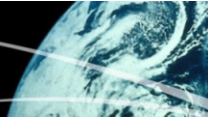

Figure 2 TS-2000 Transceiver in SSDL Ground Control Room

Figure 3 UHF/VHF Antenna on Durand Building Roof