

The Colorado Space Grant Consortium (COSGC) was granted an experimental license (WE2XYS) for the following frequencies: 2400-2483.5MHz at 1W Effective Radiated Power. The supporting documentation in the original application included a 35dBi (32.85 dBd) parabolic ground dish antenna and 1W of RF power from the transmitter. Assuming line losses close to zero and thus a maximum system ERP, this configuration will yield an ERP of 1927W. We are requesting a modification in the allowed ERP from 1W to 1930W ERP for this experimental license.

COSGC requires a highly directional antenna to close the RF link between a CubeSat satellite called Hermes, orbiting at an altitude of 643km yielding a slant range of 1,716km at a 15 degree elevation from the horizon. Hermes is manifested to launch in November 2010. The project will deliver the flight article to the launch provider on July 15, 2010. Hermes mission is to validate a high rate data communications system that will enable future more complex science missions.

Much like ground station designs for other 2.4GHz CubeSat missions, the COSGC dish will be pointed no lower than 15 degrees in elevation from the horizon to prevent terrestrial interference. The operation range of 15-90 degrees elevation will insure power from this dish will not impact local users of the 2.4 to 2.5GHz spectrum. Additionally, fencing and other safety measures surrounding the Ground Station will ensure RF exposure is lower than the IEEE Uncontrolled environment levels to people and animals near the Ground Station.

A secondary 1200bps communication system on this satellite utilizes a UHF system and this frequency coordination has been completed for our UHF Ground Station at Boulder, Colorado along with IARU coordination.

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