

## IND Technical Interchange - JPL IRIS Radio Review

This meeting is the follow up to the initial Cubesat Policy & Technical Interface Meeting.

Logistics: All material presented will be posted on the JPL website. Please let us know if you would like to add anyone to the distribution list. Also when the WebEx is forward the WebEx number sometimes is omitted. When joining the WebEx, please use the WebEx call back feature, this helps identify participants on the WebEx page.

### Discussion Highlights:

The IRIS radio used with a Command Data & Handling (CD&H) unit is normally a Slave, and the plays the role of Master.

The new board build of the IRIS radio is on contract and should be done around March.

Setting of uplink/down link frequency id done by registers (shorting bars) on the radio using a crystal. User does not have to program the radio. The IRIS radio supports both Near Earth and Deep Space frequency. It does not support the 8300 X-band range.

The IRIS radio duty transmit cycle is normally low for power and thermal. Full duplex operation is about 1 hour or less. One hour is about the time recommended for Delta DOR and done with overlap of complexes (i.e. Goldstone & Canberra or Madrid). The one hour usually covers enough time for moving between the spacecraft and the quasar. In the case of Biosentinel they are looking at about a ½ hour track per day scenario.

IRIS Transmitter output power is not selectable in flight. The SSPA endo of life is about 3 years.

Space radiation impact on the IRIS radio, has been tested on the sub parts, but not as an integrated unit. The most susceptible to radiation is the power board.

At this time there is one software package available. Expect little changes from what was used on the MARCO spacecraft. However it is planned to increase the operation system for more data padding. There is no expected changes for the modem. One additional change is to do software changes of turnaround frequency ratio in flight. The code is simple, but verification testing may be a challenge.

Final cost of radio is still being worked.