

From: Derrick Delahaye

To: Nimesh Sangani

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Subject: Additional Information Request

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Message:

1) What orbital parameters will the Cygnus spacecraft be using during this extended mission duration (after the separation from the ISS)?

The Cygnus spacecraft will be using the same orbital parameters as the early segment of the mission. Orbital parameters will be approximately 350km altitude at 51.6 degrees inclination.

2) What ground stations will be used to support the Cygnus during this extended mission duration?

The Cygnus spacecraft will be supported by the same ground stations utilized during the early segment of the mission. The ground stations are listed below.

3) What are the operational characteristics of the ground station uplinks used to support the Cygnus during this extended mission duration (location, transmit power, antenna gain, EIRP, Emission BW, etc.)?

Only one ground station, NASA Wallops, will provide an uplink signal to the Cygnus spacecraft. The signal characteristics are:

- o EIRP is approximately 66 dBW
- o Uplink Frequency is 2106.40625 MHz
- o Modulation: 2 kbps data PSK modulated with a 8 kHz subcarrier. The subcarrier is then PM modulated with the uplink signal (2106.4062 MHz)
- o Emissions BW is approximately 20 kHz.

Thanks.

Derrick Delahaye