

Title: FCC Form 442 Exhibit C – Research Project	Number: 39669RPTxxxxxx	Revision: 1
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**FCC FORM 442 – EXHIBIT C
OTB-3 SATELLITE, RESPONSE TO QUESTION 6**

Research Project:

Is this authorization to be used for providing communications essential to a research project? (The radio communication is not the objective of the research project)? If “YES”, include as an exhibit the following information:

- a. A description of the nature of the research project being conducted.**
- b. A showing that the communications facilities requested are necessary for the research project involved.**
- c. A showing that the existing communications facilities are inadequate.**

(a) The OTB-3 satellite is a small LEO experimental satellite that will provide an in-orbit test bed for the experimentation and demonstration of scientific research payloads, subsystems, and equipment. The OTB-3 will accommodate a primary experimental payload called the Radiation Monitor (RADMON), sponsored by GA, which provides measured data on the long-term radiation environment experienced in the LEO environment, and correlates the radiation activity with on-board electronics performance.

As discussed in more detail in the attached technical narrative, OTB-3 also hosts the National Oceanic and Atmospheric Administration A-DCS payload.

(b) The RADMON is a passive instrument and does not radiate RF signals. The OTB-3 satellite uses an RF downlink to retrieve data from the on-board experiment. The S-Band downlink transmitters are essential to the operation of the satellite, and for the retrieval of data from the experimental RADMON payload. The RF equipment is not the objective of the research.

All data generated from the primary payload will be multiplexed with the federally sponsored Argos Hosted Payload telemetry data, and the spacecraft telemetry. The primary payload data volume is very low, and will not burden the overall S-Band downlink power or bandwidth requirement. The OTB-3 spacecraft is expected to require one to three 10-minute RF link sessions every day for satellite Telemetry and Commanding. This is the minimum necessary to ensure spacecraft health, Hosted Payload health, and primary payload scientific data downlinks. The S-Band link will not radiate RF when not in view of an appropriate Telemetry and Commanding Ground Station.

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(c) There are no existing communications facilities associated with the RADMON payload.