

## Cactus-1 Form 442 FCC License Attachments

### QUESTION 6: STATEMENT OF RESEARCH PROJECT

Our license is for our Cactus-I CubeSat being built by our engineering students at Capitol Technology University (a not-for-profit university) and supported by a Dec 2017 launch opportunity from NASA's CubeSat Launch Initiative (CSLI) program. The overall goal of the CACTUS-1 mission is to profile and capture orbital micro-debris using aerogel in an effort to initiate the cleanup of LEO as well as provide a platform for a technology demonstration for an Iridium network communications and command subsystem, and verify our open source bus design.

The communications facilities requested are necessary for the engineering validation and educational goals of this mission, so we can obtain health and safety telemetry and science data, and provide command uploads.

To date, there is no open communications network supporting university-class small satellites and CubeSats, and providers such as TRDRSS exceed the space and power requirements feasible for CubeSats.

### QUESTION 12: STATEMENT OF APPLICANT CLASSIFICATION APPLICANT TYPE—OTHER

Capitol Technology University is an ABET-accredited and Middle States accredited Maryland Not for Profit university.

### ANTENNA REGISTRATION QUESTION 4: DIRECTIONAL ANTENNA INFORMATION

Our ground antenna is a directional SatNOGs design ([satnogs.org](http://satnogs.org)) and will be tracking our Satellite horizon-to-horizon using a helical antenna for uplink and downlink in the 440MHz range.