

KaSPR (Ka-band Scanning Polarimetric Radar)

Stony Brook University

FCC Experimental License Application Narrative

FCC Form 442 File Number:

Updated: September 28, 2021.

Purpose of operation: An experimental FCC license is requested for operation of KaSPR, an advanced weather radar, by the School of Marine and Atmospheric Sciences at Stony Brook University. Stony Brook University is part of the State University of New York, an agency of the State of New York.

Stony Brook University will use the KaSPR for environmental, climate, and meteorological research. The KaSPR is the most sophisticated cloud radar ever built and the first of its kind at a US University. The KaSPR will collect unique observations in clouds and precipitation and is expected to push our frontiers in basic knowledge in ice/snow microphysics and warm clouds lifecycle.

Supplementary details:

1. Transmitter: Ka-band Scanning Polarimetric Radar (KaSPR) custom built by ProSensing, Inc. of Amherst MA USA. Previously operated by US Department of Energy under authorization of NTIA Chapter 1, Part 1.1, serial number DOE 114017. One (1) unit, experimental.
2. Transmit frequency 35290 MHz. Frequency tolerance: less than 0.001%.
3. RF Output Power at the transmitter terminals: 1.7 kW, emission P0N, Bandwidth 30.00 MHz.
4. Pulse width variable from 50 nanoseconds to 13 microseconds. PRF variable up to 10KHz.
5. Parabolic antenna beamwidth 0.5 degrees. Antenna gain 50.7 dB.
6. Base station at South P Lot, Stony Brook University Main Campus, Stony Brook NY USA. Geographic coordinates 40 degrees 53 minutes 50 second North Latitude, 73 degrees 7 minutes 38 seconds West Longitude. License for continental US requested to allow research nationwide.
7. Antenna mounted on top of shipping container containing KaSPR electronics. Tip of antenna less than 6 meters above ground level. Elevation of ground at antenna site: 49 meters.

RF Hazard Site Safety Measures:

1. Brookhaven National Laboratories RF Safety Group will be involved in all operations to ensure that no persons are subjected to RF power density levels exceeding the Maximum Permissible Exposure (MPE) limits of Part 1.1310 of the FCC Rules and and the guidelines in FCC's OET Bulletin Number 65. An RF Safety Control Plan will be in place for all operations. The Plan will define the controls and procedures required to prevent personnel exposure to levels exceeding the MPE. To verify the safety of personnel, an RF survey will be performed. All measured levels where personnel have access must be below the MPE limits before operations can proceed.