

StormQuant

Application for Experimental Special Temporary Authority to Undertake Testing and Demonstrations

Narrative Statement

(1) Name, address, phone number (also e-mail address and facsimile number, if available) of the applicant.

Kevin O. Shoemaker
Chief Science Officer
1431 Chaffee Drive, Suite 1
Titusville, FL 32780
Phone: 321-446-2961
E-mail: kevin@stormquant.com

Copy to:

Robert S. Koppel, Esq.
Lukas LaFuria Gutierrez & Sachs, LLP
8300 Greensboro Drive, Suite 1200
McLean, VA 22102
Phone: 703-584-8669
E-mail: bkoppel@fcclaw.com

(2) Description of why an STA is needed.

StormQuant is developing commercial “fine grain” Doppler radar technology to provide real-time monitoring of local weather conditions. StormQuant is dedicated to providing access to real time, local HD weather information for underserved areas of the United States including rural municipalities, small regional airports, ports, power companies, energy companies, shipping and transportation companies, and first responders.

After obtaining the requisite FCC authorizations, including equipment authorization and Part 90 licenses, StormQuant plans to build a private network using its Doppler IoT radar sensors. StormQuant will own and operate each of the radar units, and deliver a cost-effective subscription service using its big data platform.

Grant of experimental authority will allow StormQuant to test and demonstrate its technology.

(3) Description of the operation to be conducted and its purpose.

StormQuant will test and demonstrate its weather radar to identify both meteorological events (fog, drizzle, rain, hail, sleet, snow, tornados) and non-meteorological events (wildfire smoke plumes, volcanic smoke plumes, bird/insect migration).

(4) Time and dates of proposed operation.

StormQuant requests an STA for a period a six (6) months commencing no later than May 24, 2019 so that StormQuant can demonstrate its weather radar at a conference held at the San Jose State University's Fire Weather Research Lab.

(5) Class(es) of station (fixed, mobile, fixed and mobile) and call sign of station (if applicable).

The weather radar will operate at fixed locations.

(6) Description of the location(s) and, if applicable, geographical coordinates of the proposed operation.

StormQuant will test and demonstrate its radar technology from four (4) fixed locations:

StormQuant East Coast Office
1431 Chaffee Drive
Titusville, FL 32780
28-31-30 N / 80-49-06 W

Embry Riddle University
Daytona, FL
29-11-19 N / 81-02-55 W

San Jose State University
San Jose, CA
37-20-05 N / 121-52-31 W

StormQuant Headquarters
695 E. McGlinchy Lane
Campbell, CA
37-17-14 N / 121-57-00 W

Radius of operation: 40 km.

(7) Transmit equipment to be used, including name of manufacturer, model and number of units.

StormQuant Weather Radar – 1 unit at each location

(8) Frequencies desired.

Transmit: 9.3 – 9.5 GHz

Receive: 9.3 – 9.5 GHz

(9) Maximum output power and maximum effective radiated power (ERP) or equivalent isotropically radiated power (EIRP).

Output power from the transmitter: 100 Watts

Antenna gain: 32.5 dBi

ERP: 108.43 kW

Duty cycle: 0.02%

Average power: 0.02 Watts

(10) Emission designator (see §2.201 of this chapter) or describe emission (bandwidth, modulation, etc.)

Transmit: 200HP0N to 3M00P0N (channel bandwidth: 4 Hz to 3 MHz)

(11) Overall height of antenna structure above the ground (if greater than 6 meters above the ground or an existing structure, see part 17 of this Chapter concerning notification to the FAA).

The overall height of the antenna above ground level (or roof top level) will not exceed 6 meters.

(12) Additional Technical Information

StormQuant has designed its weather radar to maximize compatibility with other radar devices operating in the band, and to ensure that no harmful interference will occur to operations in adjacent bands, by incorporating the following technical design elements:

- Pulsed: the duty cycle will be 0.02%, which is a 4 microsecond pulse. This low duty cycle will result in a very low average power level.
- Narrow bandwidth: the radar will use 3 MHz or less of bandwidth.
- Tunable: the radar is continuously tunable across the entire 9.3 – 9.5 GHz band.

- Filtering: the radar incorporates filtering components to suppress harmonics.
- Solid state transmitters: the radar uses solid state transmitters, which are inherently more stable and less noisy than traditional magnetron-based systems. Unlike current magnetron systems, solid state system do not “chirp” or use a significant amount of bandwidth due to magnetron instability.
- StormQuant will own and operate all of the radars in its network. This will ensure coordinated control over all nodes and enable a single point of contact.
- Beam Width: the transmit and receive antennas will operate with a beam width (at the half-power point) of 2.1 degrees.
- Frequency tolerance: 0.001%.

Stop buzzer POC

Kevin O. Shoemaker
Chief Science Officer
1431 Chaffee Drive, Suite 1
Titusville, FL 32780
Phone: 321-446-2961
E-mail: kevin@stormquant.com