

StormQuant

Application for Experimental Authority to Undertake Testing and Demonstrations

Narrative Statement

Purpose of Experiment

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. 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).

Existing Experimental Authorization

StormQuant holds experimental authority to test and demonstrate its Doppler weather radar technology. See WK2XTJ, File No. 0793-EX-CN-2019, effective February 13, 2020. In this application, StormQuant seeks authority to increase the power level for its testing from 100 watts (10 watts average power) to 2400 watts (240 watts average power). StormQuant also seeks to test from 4 sites, one of which is the same and three of which are different, from the sites authorized in the current experimental authorization.

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 up to 10%, which is a 50 microsecond pulse. This low duty cycle will result in a low average power level.
- Narrow bandwidth: the radar will use 5 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 systems 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 3.05 degrees.

Stop Buzzer POC

Bradley Isom
VP Radar System Development
1431 Chaffee Drive, Suite 1
Titusville, FL 32780
Phone: 402-659-7173
E-mail: brad@stormquant.com