

Description of Proposed Experimental Operations

Pursuant to Sections 5.3(j) and 5.54(a)(1) of the Commission’s rules (47 C.F.R. §§ 5.3(j), 5.54(a)(1)), Patriot One Technologies, Inc. (“Patriot One”), requests authorization to conduct experimental operations under a conventional radio experimental license issued by the Commission for a term of one year after Commission approval, which we respectfully request to be on or about July 8, 2019.

Patriot One seeks authorization to conduct pre-commercial field trials of its innovative radar technology and software solution in its PATSCAN-CMR 2.0, which can detect the presence of concealed weapons on persons. **[[BEGIN CONFIDENTIAL]]** [REDACTED]

[REDACTED]

[[END CONFIDENTIAL]] The PATSCAN-CMR 2.0 device operates at extremely low power levels from 220 MHz – 9 GHz. The field test will evaluate the performance of Patriot One’s proprietary pre-commercial equipment in order to obtain data and advance Patriot One’s understanding of the full potential of the technology utilized in these experimental operations.

Location of Testing

Patriot One will conduct fixed testing in targeted areas with radio frequency emissions (“RF”) contained to a roughly 1-meter radius. Specifically, testing will be conducted for limited periods within a 1-meter radius of the following locations:

# Units	Address	Latitude	Longitude
1	4201 James Ray Drive Grand Forks, ND 58202	47.922157	-97.090627
1	3000 Paradise Road, Las Vegas, NV 89109	36.147447	-115.152701

Description of Testing

The experimental operations will field test Patriot One's pre-commercial threat detection equipment in various configurations and at various frequencies from 220 MHz – 9 GHz.¹ Field testing will take place for limited periods of time over the course of one year at the locations listed above. Through this testing, Patriot One hopes to validate the use of its PATSCAN technology, and in particular, the physical presentation of the PATSCAN-CMR 2.0 in paired, solid objects such as **[[BEGIN CONFIDENTIAL]]** [REDACTED] **[[END CONFIDENTIAL]]** between which the radiated signals would pass. Patriot One will also test to ensure that it has accounted for real-world factors that are not practical or possible to obtain in laboratory settings, such as interference, variation in subjects, clothing and materials.

Radio Equipment Description

The radio equipment that will be used in the proposed experiment will consist of a Keysight PXIe VNA (model M9802A), or alternatively a Copper Mountain Technologies USB 2-port VNA C1209, as well as a HPE controller and chassis (model Edgeline EL1000 Converged Edge System or alternatively NI PXIe-8861 controller and PXIe-1071), and antipodal vivaldi linear polarization antennas QTY 2 (model AP_V01). The radio equipment will operate in the UWB spectrum bands set aside for, among other things, "D-wall imaging" systems utilized by law enforcement (which are regulated by Section 15.510 of the Commission's rules) and would utilize roughly 5.7 GHz of bandwidth to perform its imaging functions. However, the device differs from devices that traditionally operate as UWB devices in that the specific bandwidth used during any frequency step is less than 500 MHz, with a stepped frequency modulation technique, whereas UWB devices have a bandwidth equal to or greater than 500 MHz.

Prototype Equipment

Patriot One will test the following prototypes at the peak and mean power levels shown below. These prototypes, which incorporate the Keysight and Copper Mountain VNAs, would be used at the higher power levels shown below only during testing. As the testing progresses, Patriot One would reduce the power levels to the lower levels shown in the second table below in order to ready the device for commercial sales. This is the prototype that Patriot One plans to ultimately bring to market. Once the device is found to function properly at the lower power level, Patriot One would seek a permanent Commission certification for the device at the lower power level.

¹ Note that no device will ever use the entirety of the spectrum from 220 MHz – 9 GHz. Patriot One requests authorization to test from 220 MHz – 9 GHz to determine which segment of spectrum best supports the device's threat detection goal.

Keysight VNA and Copper Mountain VNA Prototypes—During Testing Only

Transmitter	Mean Tx Power (W)	EIRP (dBm)	ERP (Watts)	Mean or Peak	Emissions Designator	Frequency Tolerance	Modulation
Prototype 1 ²	.001 Watts	+5	0.001 Watts or 0 dBm	Peak	8G78P0N	9.22kHz	No
Prototype 1	7.26e-6 Watts	-16.39	7.26e-6 Watts or -21.39 dBm	Mean	8G78P0N	9.22kHz	No

Keysight VNA Prototype Once Ready for Market

Transmitter	Mean Tx Power (W)	EIRP (dBm)	ERP (Watts)	Mean or Peak	Emissions Designator	Frequency Tolerance	Modulation
Prototype 2 ³	0.0001 Watts	-5	0.0001 Watts or -0dBm	Peak	8G78P0N	32.27kHz	No
Prototype 2	1.55e-8 Watts	-43.1	1.55e-8 Watts or -48.1dBm	Mean	8G78P0N	32.27kHz	No

Protection Against Interference

Pursuant to the Commission’s experimental licensing rules,⁴ Patriot One understands that, for purposes of the experimental operations described in this application, it must accept interference from any incumbent users in the bands of operation, and that Patriot One’s experimental operation will be conducted on a secondary basis. The device is designed with antennas that are bi-static and oriented opposite one another, and radiating energy between the two solid objects in which they are installed. This will ensure that as much of the radiated energy is absorbed by the other solid object as possible. Moreover, the PATSCAN-CMR 2.0 device will be located in or at doorways and thresholds, rather than in places where other devices are likely to linger, further reducing the risk of harmful interference.

To ensure prompt resolution of any potential interference events, Patriot One will establish a point of contact, available 24/7 during the time when all experiments are conducted. This person will have authority and the ability to disable all transmissions when notified that interference is impacting incumbent users in the services. Should interference occur during these testing periods,

² This transmitter is also a directional antenna. The width of the beam at the half-power point is 70 degrees. When installed in the testing locations described above, the antennas will be oriented at directions variable in the horizontal plane depending on the location. Furthermore, the antennas will be oriented at variable directions in vertical plane from horizontal depending on the location. All testing will be confined to a 1 m radius at extremely low power levels.

³ This transmitter is a directional antenna. The width of the beam at the half-power point is 70 degrees. When installed in the testing locations described above, the antennas will be oriented at directions variable in the horizontal plane depending on the location. Furthermore, the antennas will be oriented at variable directions in vertical plane from horizontal depending on the location. All testing will be confined to a 1 m radius at extremely low power levels.

⁴ See 47 C.F.R Part 5.

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Patriot One will take immediate steps to resolve the interference, including discontinuing operations, or, if appropriate, moving operations to a different channel.

Restrictions on Operation

Patriot One does not seek authority to perform a commercial market study under the requested experimental license. Patriot One will retain control over all of the prototype equipment utilized in the testing at all times.

Contact Information

FCC licensing issues:

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Field Test Managers (available at all-times for all issues and requests to cease transmissions)

Address	Manager
4201 James Ray Drive Grand Forks, ND	Chief Eric Plummer plummereric@hotmail.com 1-870-818-5153
3000 Paradise Rd, Las Vegas, NV 89109	Tim Cook, Director of Security 702-882-6005 Tim_cook@wgrsorts.com 1-702-882-6005