



# RADIO PHYSICS

## Supplemental Statement of Radio Physics Solutions

### FCC Experimental License File 0671-EX-ST-2018

This STA is a follow-up to the ones granted previously under Files 1758-EX-ST-2017 and 0161-EX-ST-2018. The technical details are very similar. Johnson Controls, Inc. is having a competition for entrepreneurs with new technology in the security area. The preliminary phase of this competition is a demonstration in the main ballroom of the Philadelphia Marriott West Hotel. Our present authority for demonstrations is limited to California, Texas, New York, Maryland, Virginia. Thus we request authority to demonstrate this technology at this hotel. The event is April 26, 2018 with set up the day before. Thus we seek only a 2 day STA. If we are selected for the finals of this competition, we will seek another STA for a Milwaukee location - details presently unknown.

This application is demonstrating to potential clients a concealed threat detection solution – MiRTLE 30. This technology has been developed by RPS in the United Kingdom and tested there for the Home Office. Radio Physics MiRTLE® patented technology fuses proprietary millimeter wave radar techniques with artificial intelligence to provide instant standoff threat detection of concealed person borne threats. The system is optimized to detect person borne suicide bomb vests and assault weapons. Radio Physics plans to expand the detection capability to include hand guns and knives. MiRTLE's stand-off detection capability remains unmatched and is gaining traction as a critical system for a wide range of security applications.

We believe that the technology being tested here is "new technology" in the context of 47 U.S.C. 157. Therefore we ask that this be treated under the provisions of Section 7, particularly with respect to the burden test of § 157(a):

Any person or party (other than the Commission) who opposes a new technology or service proposed to be permitted under this chapter shall have the burden to demonstrate that such proposal is inconsistent with the public interest. (Emphasis added)

The unit to be tested is designated here MiRTLE 3y and uses less bandwidth than the unit being developed and tested in UK in order to minimize regulatory complexity under FCC Rules. The MiRTLE 3y in this test will be limited in emissions to the band 75-100 GHz which also contains Fixed Service units under the "licensed light" provisions of Part 101, Subpart Q (47 C.F.R §§ 101.1501,1527)

The use of this equipment will be indoor only and we request such a restriction as a special condition in order to assure other users that this test will not interfere with them. At this frequency range normal building material is essentially opaque. Furthermore the maximum elevation angle of the 36 dBi antenna will be zero degrees, also protecting licensed users in this band. The location is shown in the photo below:



The main ballroom is in the 17 story main tower at ground level. So the upper floors of the building provide high attenuation of signals in the direction of other terrestrial or satellite users.

## **Technical Issues in Application**

The transmitter in this test will have a power of 3.2 mW and will be feeding a 36 dBi antenna.

The maximum elevation angle will be zero degrees. The azimuthal angle will vary as the antenna is rotated to look at various objects in the indoor location. The antenna will have a maximum height of 2m and will only be used at this indoor location.

All exposed surfaces of the device will comply with FCC RF safety limits.

The STOP BUZZER contact for this experiment is Michael Marcus, [mjmarcus@marcus-spectrum.com](mailto:mjmarcus@marcus-spectrum.com), 301-229-7714

Any questions about this application should be directed to Dr. Michael Marcus, consultant to RPS, 301-229-7714, [mjmarcus@marcus-spectrum.com](mailto:mjmarcus@marcus-spectrum.com)

/s/

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