



RADIO PHYSICS

Supplemental Statement of Radio Physics Solutions

FCC Experimental License File 1454-EX-ST-2018

This STA is similar to ones granted previously under licenses WM9XHF, WM9XDS, WM9XQB and WM9XSN. The technical details are basically the same, with the exception of the specific frequencies and antenna height as mentioned below. This 4 day license is requested for a demonstration for a trade show at the Las Vegas Convention Center

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 including school security.

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)

This request includes the 86-92 GHz band listed in US Allocation Footnote US246. Such a request is permitted under the terms of § 5.85(a)(2) which requires the following information:

- 1) **An explicit justification of why nearby bands that have non-passive allocations are not adequate for the experiment.** This is not a communications systems, it is a short range sensing system for guns and explosives designed for indoor use. Functionality requires both access to the 75-100 GHz region as well as a large amount of bandwidth for this short range application.
- 2) **The applicant acknowledges that long term or multiple location use of passive bands is not possible and that the applicant intends to transition any long-term use to a band with appropriate allocations.** Under present FCC Rules long term or multiple location use of this spectrum is not possible. RPS seeks to show that this technology can be developed in ways that

protect both radio astronomy facilities and EESS passive sensors and to request long term regulatory changes to allow spectrum access under strict protections for the passive systems subject to the criteria given in ITU-R RS.2017, ITU-R RS.1858, ITU-R RA.517, ITU-R RA.517, ITU-R RA.611, ITU-R RA.769-2 and ITU-R RA.1031.

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 35 dBi antenna will be zero degrees, also protecting licensed users in this band.

This demonstration will be at a large convention center. To minimize the likelihood of any impact on either federal or nonfederal users of this spectrum, care will be taken to avoid transmissions towards doors leading outside or walls that are not solid.

Technical Issues in Application

The transmitter in this test will have a power of 8 mW and will be feeding a 35 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 4m and will only be used at indoor locations.

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

The earlier STA asked for a height of 2m, we are increasing that to 4m in this application as the TSA testing needs a higher height. We expect this will not affect any possible interference considerations.

The STOP BUZZER contacts for this experiment are Gary King, g.king@rpssys.com, (832) 812-3760, & Michael Marcus, 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

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