

1. **Introduction**

By the instant application (“STA Request”), General Dynamics Armament and Technical Products, Inc. (GDATP) requests that the Commission grant Special Temporary Authority (“STA”) to permit GDATP to operate the facilities (the “Facilities”) specified in the instant STA Request.

The instant STA Request seeks authority to operate frequencies in exact accordance with grants previously obtained by GDATP in other adjacent locations. Namely:

Frequencies Previously Authorized Pursuant to File No. 0027-EX-ST-2007
6-8 GHz

Frequencies Previously Authorized Pursuant to File No. 0697-EX-ST-2006
8-10.6 GHz
10.7-14.47 GHz
14.5-15.35 GHz
15.4-18 GHz

Because this STA Request seeks authority to operate on these same previously-granted bands, at a test range that is adjacent to the ranges for which the above grants were issued, GDATP trusts that consideration of this STA Request will be permitted to proceed under a streamlined basis.

2. **Purpose of the Operation**

The testing specified in this STA Request will be conducted by General Dynamics Armament and Technical Products (GDATP), a business unit of General Dynamics. GDATP, a major producer of radomes for the Armed Forces of the United States, manufactures radomes for varied customers.

In general, the testing performed at the Marion Test Range Facilities in Marion, VA involves active, radiating testing related to GDATP’s contracts with various defense contractors and the United States Government for the development, manufacture, characterization, and acceptance testing of military and commercial radomes. The testing at the Marion Test Facilities is a critical part of the development and manufacture of military radomes supplied to the Armed Forces of the United States.

This specific STA Request applies to the manufacture of radomes for the F-18, AV-8B, and F-5 aircraft, internal range development and characterization, and Independent Research and Development (IR&D). Although internal range development and characterization, and IR&D are not associated with any particular contract, such internal experimental use is essential to demonstrate and verify our ability to meet the needs required of our customers. It is critical for GDATP that this range be granted a license to radiate on this basis. As to the manufacture of radomes for the F-18, AV-8B, and F-5 aircraft, the contracts pursuant to which these experiments will be conducted are as follows:

Aircraft: F-18 FW
Customer Name: US Navy/Boeing
Customer Contact: Mary Suzanne Arndt-Kettler (314) 234-5368
Contract Number: Prime: N00383-02-G-001H
Contract DPAS Rating: DOA1 (some DOA1, some Unrated)

Aircraft: F-18 AESA
Customer Name: US Navy/Boeing
Customer Contact: Jim Regalla (314) 777-8586
Contract Number: Prime: N00019-03-C-0054 Subcontract: S50254
Contract DPAS Rating: DOA1

Aircraft: AV-8B
Customer Name: US Navy/Boeing
Customer Contact: Hugh Bell (314) 232-2048
Contract Number: Prime: N00383-05-G-003H Subcontract: 118143
Contract DPAS Rating: DOA1

Aircraft: F-5
Customer Name: Galileo Avio Brazilian/Italian Air Force
Customer Contact: Mario Zucchelli 39 02 357901
Contract Number: Prime: 4521000052
Contract DPAS Rating: Not Rated

GDATP is aware that the Commission and/or other stakeholders are likely to identify carve out frequencies and bands within the requested bands; this license application does not seek authorization to radiate in those restricted areas. **GDATP wishes to obtain permission to operate over as much of the requested frequency ranges as possible while minimizing difficulties in obtaining authorization.** Military systems operate over wide bands and GDATP needs the ability to evaluate and characterize our range through as much of the requested frequency range as possible in order to be able to support our customers' testing.

3. Why Grant of STA is in the Public Interest

Grant of an STA is requested in this case to permit the required acceptance testing of radomes. It is highly important that the STA be granted to support current, ongoing military operations. As stated above, the testing at the Marion Test Range Facilities is a critical part of the manufacture and delivery of military radomes provided to the Armed Forces in support of current war efforts. A STA is requested in this case because the radome contract work referenced below is anticipated to be completed within six months of grant.

In this regard, please note that three of the instant contracts are "rated orders" (DOA1) under applicable military procedures and therefore the instant application reflects an experiment of importance to the nation's military effort. Based on currently identified contract delivery dates, it is important that the range testing specified in this STA Request commence no later than April 20, 2007.

4. Blanking Capabilities

GDATP understands that FAA or other stakeholders may require certain frequency blanking, or certain limited azimuth and/or elevation blanking in order to ensure that the

Facilities do not pose a threat of interference to adjacent emitters. This is to confirm that the subject system has such blanking capabilities and that GDATP stands ready to work with the Commission to identify and implement any reasonable restrictions that may be required.

In this regard, to help expedite processing of the STA Request and ease the administrative burden on the Commission, NTIA and any other entities coordinating this application, GDATP has already “carved out” from this STA Request certain frequencies between 8-18 GHz that were carved-out by the FCC in its prior grant to GDATP under File No. 0697-EX-ST-2006.

5. Other Issues

A. Transmitting Equipment

Manufacturer	Model	Band	Frequency Band	Quantity	Experimental
Microwave Power, Inc.	L0618-32	1	6.0 to 18 GHz	1	Yes
Agilent	E8257D Analog Signal Generator	1	6.0 to 18 GHz	1	No

B. Directionality/Orientation of Antenna

Frequency Band	Elevation (Vertical)	Azimuth (Horizontal)
6.0 to 18 GHz	0°	38° NE

3dB Beamwidth of Antenna (widest beam/worst case)

Frequency Band	3dB BW E (Vertical)	3dB BW H (Horizontal)
6.0 to 18 GHz	6.5°	6.5°

C. Prevention of Interference

GDATP hereby advises the Commission that the tests to be conducted under the requested Commission authorization are to be conducted on GDATP’s Marion, Virginia facilities. The test range is designed such that the transmitting antenna is pointed directly at the radome under test which is located 324 feet away on an elevated roofed porch with three walls. The walls have 6 inch broadband pyramidal RF absorber on them to absorb the RF energy from the transmitting antenna. Additional RF absorber covered panels will be used to further absorb the RF energy. The 3 dB beamwidth of the transmit antenna is contained within the porch area for the upper third of the band. The range is located in a low area surrounded mostly by hills and trees. The range configuration is designed to minimize RF energy propagation outside of the actual test area. Please refer to the attached diagram of the range (Figure 1).

Although the ERP entered in our application gives the impression of higher power, the actual power into the transmit antenna is only about 1 watt (less than many walkie-talkies). The reported ERP is deceptive because we are using an antenna with a very narrow beamwidth (35 dBi gain at 18 GHz). The ERP is the Equivalent or Effective Radiated Power. It is how much power would have to be input into a dipole antenna (very broad beamwidth) to equal the power density in the peak of the beam of our very narrow beam antenna. 1800 watts into a dipole would melt most dipoles. By using such a narrow beam antenna, we are greatly reducing the emissions in all directions except where we are measuring. Additionally, our receive area contains large amounts of RF absorber with over 30 dB of attenuation. The narrow beam of our antenna and the absorber in the receive area reduce our stray emissions greatly. Our test range is a very contained environment, and probably has significantly lower stray emission levels than if we hooked up our 1 Watt transmitter to a dipole and had an ERP of 1 Watt. It should be noted also that the ERP entered in our submission is for the worst case of the highest frequency/narrowest beamwidth.

D. Stop Buzzer

The range shift supervisor, Gerald Hicks, will be personally supervising the testing and will be available by telephone at (276) 783-3121 x 1392. Mr. Hicks will act as a “stop buzzer” if any issues regarding interference arise during testing. The range operator will also be available by telephone at (276) 783-3121 x 1394 if Mr. Hicks cannot be reached.

For the foregoing reasons, review and approval of this STA Request is in the public interest, convenience and necessity.

Radar 2 Range

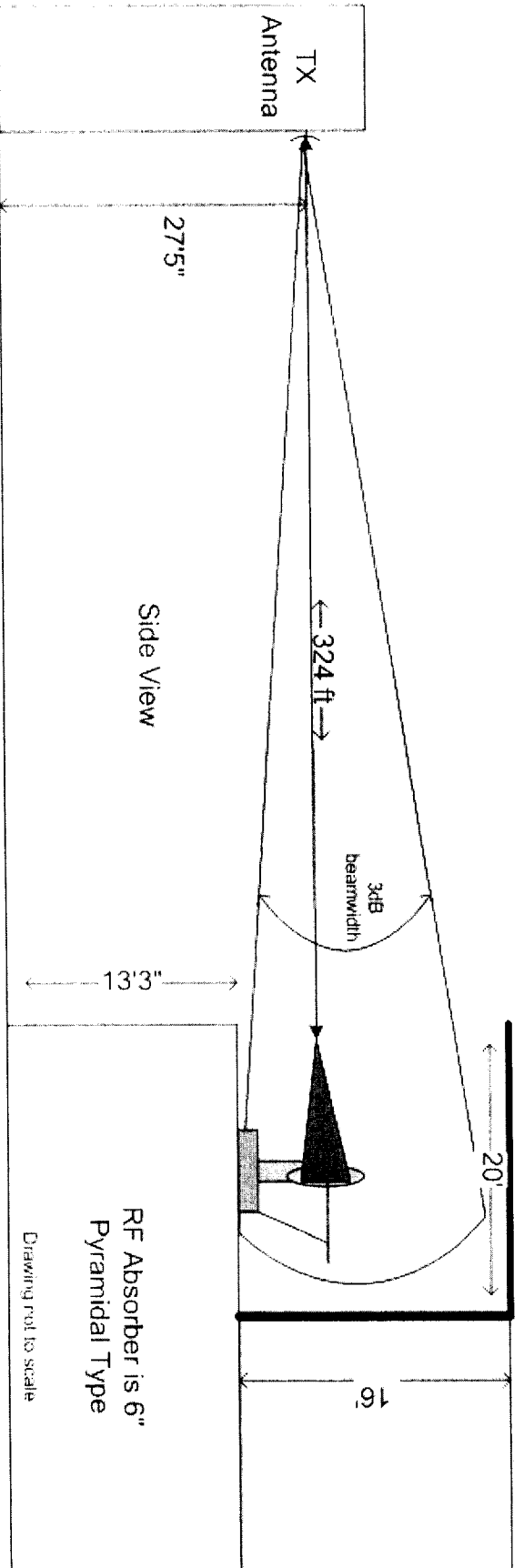
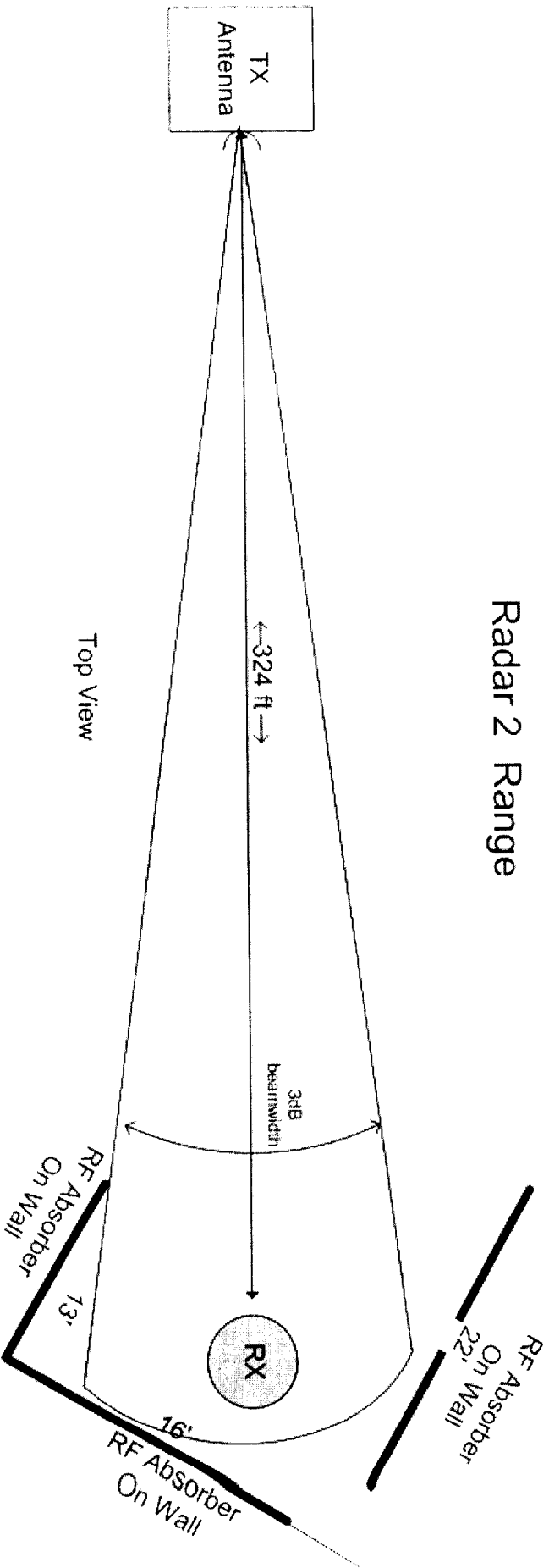


Figure 1