

From: Tim Royce
To: Doug Young
Date: October 03, 2006
Subject: Request for Info - STA File #0697-EX-ST-2006
General Dynamics Armament and Technical Products, Inc.
File No. 0697-EX-ST-2006

Response to Commission Inquiry Dated September 25, 2006

In connection with the above-referenced pending request ("STA Request") of General Dynamics Armament and Technical Products, Inc. ("GDATP"), the following is provided in response to the Commission's inquiry dated September 25, 2006 ("Inquiry"):

Item #1

Q: Requests for expedited processing for six-month STAs with no firm, documented scheduling dates draw several suspicions. Is this part of a long-term project that should have been filed on a Form 442 but wasn't to avoid the difficulties associated with getting high-power, wide-spectrum applications approved for insertion in the Government Master File (GMF)? How long has the applicant known of their contract?

A: GDATP wishes to assure the Commission that none of the proposed operations – neither the operations associated with the specified Air Force contract nor the specified internal research activities – are expected to be long term in nature and therefore do not require the grant of a two year license. As an initial matter, the funding for the specified internal research activities are currently funded only through the end of 2006, and therefore such activities are expected to last well under six months in total duration. As to the specified Air Force contract, GDATP has been identified as a subcontractor for the specified contract only since January, 2006. The delivery requirements for the subject contract are not "long-term" in nature, as completion of delivery is expected to be completed prior to the end of 2007, and GDATP has received requests from its customer to increase delivery rate, which would, if achieved, further hasten the completion date. GDATP's immediate need for transmission authority relates to a current production and testing schedule that involves intermittent transmission requirements associated with the manufacture of only eight articles per month on the average. Such a limited manufacturing schedule is expected to result in only about ten (10) days of transmission per month. Assuming a scenario of a production schedule lasting through November, 2007 (unless further expedited in response to customer requests), with a 10% margin for re-testing, the cumulative duration of operation under the requested STA would be only an estimated 150 days.

As such, although completion of delivery for the specified contract is likely to occur around November, 2007 (unless further expedited in response to customer requests), the duration of the program itself is expected to fall well under the two year period specified for regular licenses. The intermittent nature of the transmissions to be conducted under the requested STA, and the expected 150 days of cumulative duration of the proposed transmissions, demonstrate that the program will not be "long-term" in nature and that the instant request for expedited approval of Special Temporary Authority was made in good faith and GDATP respectfully requests a grant

of STA in this case. Assuming that some brief additional operational authority will be required beyond the initial requested STA period in order to fulfill any remaining delivery requirements, GDATP will submit any appropriate filing with the Commission to obtain authority for such extended operation, including the submission of an application for a two year license pursuant to applicable rules and procedures. GDATP understands that long-term authority for operation of a two-year experimental license requires substantial and often lengthy coordination and review and the company does not intend to avoid such review in the event that long-term authority must be sought for this experiment.

As specified in the submission, based on currently identified contract delivery dates, the range testing proposed in the STA Request is required to be commenced no later than October 16, 2006. Prior to that date, the articles to be tested will continue to be manufactured in order to meet the customer's scheduling requirements. Such manufacturing steps are to include assembly, bond and drill, fasteners, straps/trim, paint, wire install, etc., and such steps must be completed within specifically identified timeframes.

Item #2

Q: Requesting 8-18 GHz at 2 kW ERP and wanting it quickly is a tall order. This application will need to be coordinated with NTIA and three FCC bureaus. 47CFR5.85(b) speaks of assigning no more than one frequency in a band unless a showing is made that more than one is necessary. We generally interpret this as meaning that the applicant shall request the minimum amount of spectrum necessary to accomplish the experiment's goals. This means we will approve bands, but we still need to limit the amount of spectrum granted. 47CFR5.111(a)(2) states that the power radiated shall be reduced to the lowest practical value consistent with the program of experimentation. Two thousand watts ERP seems excessive. Also, powers this large raise concerns about radiofrequency exposure. Has an environmental assessment in accordance with 47CFR1.1307 (as corrected in Federal Register Vol. 71, No. 50) been made? Please address these issues.

A: GDATP is mindful of the need to ensure that its frequency requests are as narrowly defined as possible to meet the requirements of its experiments while not unnecessarily intruding upon bands that are not available due to government or other critical use. The requested band appropriately addresses the spectrum needs associated with the identified USAF contract, as well as additional spectrum needs associated with the internal range development, characterization and IRAD activities also referenced at Exhibit 1. The test range equipment is designed to operate over the entire requested frequency range, and such wideband operation is important in this case in order to determine range operational capabilities, i.e., certain frequencies may show range anomalies which need to be analyzed and understood in order to prevent error sources in our data. In any event, GDATP confirms, as explained in Exhibit 1 to the STA Request, that the company "is aware that the Commission and/or other stakeholders are likely to identify carve out frequencies and bands within the requested bands" and GDATP reiterates that does not seek

authority in any such areas. Finally, GDATP is fully prepared to communicate and work directly with the relevant Commission Bureaus, FAA and any relevant Armed Services spectrum management offices in order to ensure that expedited coordination can occur in a prompt and efficient manner.

GDATP appreciates the Commission's concern regarding power levels reported in any application, and GDATP understands the obligation of licensees in the Experimental Services to avoid interference with licensees in other Commission-authorized services, as well as with governmental users. In this case, however, despite the apparent high ERP figure reported in the STA Request, GDATP confirms that the nature of the experiment and the antenna involved should not implicate interference or other related concerns. As an initial point, the actual power into the transmit antenna is only slightly more than 1 watt. Although the ERP figure itself appears high, the impact of the experiment on co-channel and adjacent channel users, and the environment is negligible, primarily because the experiment will involve the use of an antenna with a very narrow beamwidth. When discussing ERP in this context of this proposed experiment, one would identify 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. 2000 watts into a dipole would melt most dipoles. By using such a narrow beam antenna, GDATP intends to greatly reduce the emissions in all directions except where we will be measuring (See Footnote No. 1 Below). Additionally – as depicted in Figure 1 to the STA Application – our receive area contains large amounts of RF absorber with over 40 dB of attenuation. The narrow beam of our antenna, combined with the absorber in the receive area, will reduce our stray emissions greatly. Our test range is a very contained environment, and 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. Further, this is to confirm that one watt of transmitted power is the lowest practical value for this experiment. Transmitting less power will require us to develop and build sensitive receivers at significant cost. As explained above, our ERP appears high only because of our very narrow beamwidth antennas, not because of the actual power we are transmitting.

Finally, regarding the environmental issues referenced in the inquiry, GDATP is aware of the exposure limits set forth in the Commission's rules and related materials, and the company has confirmed that the proposed experiment is in compliance with such exposure limits and, as such, the preparation of an environmental assessment in this context is not required.

Signed,

Daran Eastridge, Senior Program Manager, Radomes

Footnote No. 1:

See, e.g., Amendment of Part 90 Concerning Secondary Fixed Operations in the 450-470 MHz Band, Report and Order, 7 FCC Rcd 3498 (1992) ("We also believe that establishing an ERP limit is impractical....The narrow beamwidth obtained with directional antennas enable a signal

to be directed so as to minimize the likelihood for interference to co-channel mobile operations. Licensees, therefore, can now employ highly directional antennas to focus their point-to-point signals in a particular direction over a relatively long distance without causing interference to co-channel mobile systems. Thus, they can achieve a high effective radiated power without employing a high transmitter power. To place a fixed 100-watt limit on ERP, however, would place a fixed limit on signal coverage area below that which is necessary for effective secondary fixed operations.”)