



# ATMOSPHERIC & SPACE TECHNOLOGY RESEARCH ASSOCIATES, LLC

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EIN: 20-2946717

DUNS# 60-1975803

Re: Application for New or Modified Station (Form 442),  
QUESTION 4: STATEMENT REGARDING GOVERNMENT CONTRACT

FCC Registration Number (FRN): 0015091481

To Whom It May Concern:

This letter is written in support of an application being submitted to the FCC, and provides a brief narrative describing the government project, agency, and contract number. A second accompanying letter describes a Research Statement for the project.

The requested operation of the Traveling Ionospheric Detector Built in Texas (TIDDBIT) sounder system near Mauna Loa, HI, will support an investigation to study how tsunamis couple energy and momentum into the upper atmosphere. The TIDDBIT system has the unique capability of measuring Traveling Ionospheric Disturbances (TIDs), which are wave-like corrugations in the ionosphere. It has been recently shown that tsunamis can transport energy and momentum into the ionosphere and produce TIDs. Given that these scientific findings are relatively new, it is important to study and characterize TIDs caused by tsunamis. In fact, TID measurements from the effects of tsunamis may aid a tsunami-warning detection system in the near future.

Under the proposed FCC license, we plan to assist the Navy by measuring TIDs in the ionosphere with the TIDDBIT sounder. It is crucial that the transmitters measuring TIDs be in Hawaii in order to accurately characterize TIDs in the Pacific Ocean region, where tsunamis are largely present and can affect the West coast of the United States.

The TIDDBIT deployment is supported by Navy Grant N00014-13-1-0343 to ASTRA under the contract title, "Observation and Modeling of Tsunami-Generated Gravity Waves in the Earth's Upper Atmosphere". The analysis of the Doppler data will also be supported by The Office of the Secretary of Defense (DIA), with point of contact being Dr. Bill Borer (the contract is being put in place).

The Principal Investigator for the subcontract is Dr. Geoff Crowley of ASTRA. Dr. Crowley is recognized as a leading expert in the field of TIDs and the use of HF sounders to detect them, and has worked in this field for over 30 years. Dr. Crowley has successfully operated similar HF

Doppler systems under the Experimental Call Sign WC2XRM (File #0161-EX-PL-2001 and FILE #0132-EX-RR-2003).

Further information about the TIDDBIT HF sounder and the proposed experiment is provided in the 2<sup>nd</sup> accompanying letter with this application.

The Navy contract monitor for the TIDDBIT sounder is:

Dr. Scott Budzien

Geospace Science and Technology Branch

Space Science Division, Code 7634

Naval Research Laboratory

4555 Overlook Ave. S.W.

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Please contact Dr. Geoff Crowley at ASTRA with any additional questions.

Your help in approving this application would be much appreciated.

Sincerely,

Dr. Geoff Crowley

President | Chief Scientist

ASTRA, LLC

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