

EXHIBIT A – NARRATIVE STATEMENT

By this application, and pursuant to Sections 5.3(d) and 5.61 of the FCC Rules, 47 C.F.R. §§ 5.3(d) and 5.61 (2012), Booz Allen Hamilton, Inc. (“Booz Allen”), respectfully seeks a 6 month experimental special temporary authorization (“STA”) through January 31, 2015, to develop, test and demonstrate prototype remote sensors with low power communications equipment that will operate in the 317 MHz band allocated for non-multilateration operations. A separate request for expedited treatment is included with this application.

The following information is provided in support of this request:

1) Need for a 6-month authorization

Booz Allen needs a 6-month license to accommodate ongoing testing of equipment that is expected to change and evolve over this period as a result of Booz Allen’s research and development.

2) Purpose of Operation

The proposed operation will allow Booz Allen to develop, test, and demonstrate to Department of Defense (“DoD”) representatives sensors that employ a low power communication transceiver module.

Booz Allen does not seek authority to conduct market studies or provide communications services under the requested experimental authority. The participants in the test will be advised that: (a) the test is being conducted under an experimental authority issued to Booz Allen, (b) Booz Allen is responsible for operations, (c) all operations are conducted on a non-interference basis, and (d) after the test is completed, Booz Allen will retrieve and recover all devices that do not comply with FCC regulations. Booz Allen understands that the FCC may specify these as well as other conditions on its authorization.

3) Sponsorship

Booz Allen has discussed the communications capability and application with DoD agencies which have interest in advanced communications devices and systems and interest in demonstration of technologies and devices. Attached is a letter for spectrum use approval from the Department of the Army. See Letter from Michael J. Lombardi, Deputy Director, CERDEC I2WD, to Booz Allen Hamilton, Inc. (July 30, 2014).

Booz Allen is cognizant that the spectrum access requested is allocated to the U.S. Federal Government for fixed and mobile services, and that it is also allocated to the U.S. Federal Government on a primary basis for mobile-satellite service, limited to military operations. Because of this allocation, Booz Allen will coordinate and

cooperate with U.S. Federal Government and military entities to demonstrate the prototype equipment. It will only perform demonstrations and experiments with the spectrum coordination and cognizance of entities with authorization to use and coordinate operations in these bands.

In addition, Booz Allen will work with identified Government entities to coordinate specific experiments and demonstrations, in a determined sub-set of channels in the requested band, detailed in Appendix A. Booz Allen's technology and experimental prototypes are frequency agile and can be tuned at the time of the experiment or demonstration on channels centered on frequencies from 317.015 through 317.325 MHz, as shown in Appendix A and the attached application. In addition, Booz Allen can monitor the band and channels, and it will work with the Government coordinators, to operate only on channels that are unused at the time of the demonstration or testing. Because Booz Allen technology uses short burst transmissions, typically only a few second in duration, it can monitor the channel and avoid interference with other users.

4) Technical Specifications

a. Power Levels

- i. Transmitter Power Output ("TPO"): 2W peak
- ii. Effective Radiated Power ("ERP"): 3W peak
- iii. Necessary bandwidth:
 - 1. 5 kHz for low data rate operations
 - 2. 25 kHz for high data rate operations
- iv. Modulation: BFSK, QFSK, QAM
- v. Emissions: F1D, F2D
- vi. Frequencies: Exact center frequencies, as directed by the sponsor, are listed in Appendix A.
- vii. Antenna: Omnidirectional, Low-gain directional or steerable
- viii. Notes: Other emission modes may be utilized, but in no event will the emissions extend beyond the frequency bands requested. All power levels will comply with the limits set forth in the FCC's rules, including those relating to human exposure to radiation.

b. Antenna Information

The antennas that would be deployed under this license will not extend more than 3 meters above the ground.

Omnidirectional antennas will be used in experiments that require uniform azimuthal coverage; directional antennas will be used in experiments to prevent interference or to limit azimuthal coverage.

c. Proposed Locations

Booz Allen seeks authority to conduct its experimental operations at the locations specified in the attached table and FCC Form 442. Although it will conduct tests and demonstrations primarily at DoD sponsor sites, Booz Allen also plans to test and demonstrate equipment at other locations. Specifically, Booz Allen seeks authority to operate and demonstrate products: (i) at its own premises; and (ii) at the premises of entities working under Booz Allen's authorization in the design and development of the devices and related products. Indeed, these operations would be consistent with the requirements set forth in Section 2.803 of the Commission's marketing rules and 47 C.F.R. § 2.803 (2012); *see also* Revision of Part 2 of the Commission's Rules Relating to the Marketing and Authorization of Radio Frequency Devices, ET Docket No. 94-45, Report and Order, released Feb. 12, 1997, at 11-13, 19-20 ("Marketing Rule Revisions").

d. Equipment to be used

Booz Allen proposes to deploy only a limited number of units which, as noted above, would operate at low power levels. Booz Allen expects that it will be able to complete its experimentation and demonstration with a maximum of 4 units per test location. In all experiments, Booz Allen will also limit the power, area of operation, and transmitting times of these units to the minimum necessary to evaluate the equipment.

e. Sponsor coordination and cognizance

Booz Allen will work with the sponsor to perform tests and demonstrations under the sponsor's guidance, on sponsor licensed and specified channels, on a secondary and on a non-interference basis.

As shown in the separate request for expedited treatment, Booz Allen will only perform demonstrations with the cognizance and coordination of DoD sponsors that have requested a demonstration of the communication device, and it will operate only on specific frequencies on a secondary and non-interference basis.

5) Restrictions on Operation

Booz Allen understands that the FCC permits (a) companies to enter into agreements and contracts to manufacture new products and (b) manufacturers to sell—but not deliver—products on a conditional basis to wholesalers and retailers. Booz Allen also understands that the FCC permits the operation of equipment for, among other things, compliance testing, demonstration at trade shows and other exhibitions with

appropriate notices displayed, and evaluation of product performance and customer acceptability at the manufacturer's facilities or at certain non-residential sites during the developmental, design and pre-production stages. See Marketing Rule Revisions, § 2.803; Part 15 Revisions, 6 FCC Rcd 1683, 1685 (1991).

Notwithstanding these general rules, the FCC requires parties to seek authorization to use devices that normally require a license to operate, or that will be operated, at residential locations. Such authority may be granted under the FCC's experimental rules set forth in Part 5 of the Code of Federal Regulations, 47 C.F.R. Part 5 (2012). Accordingly, Booz Allen seeks an experimental license to conduct experimental operations permitted under Part 5 of the Commission's rules. Those rules permit such operation provided that: (a) participants are advised that the service or device is granted under experimental authority and is strictly temporary; and (b) the devices are owned by the licensee.

Booz Allen does not propose to market, sell, or lease any prototype equipment to end users, however. After the experimentation and demonstrations cease, Booz Allen would recall and recover all devices. If any different treatment becomes necessary during the course of its experimentation and demonstrations, Booz Allen will seek separate and additional authority from the agency.

Booz Allen also recognizes that the operation of any unapproved or unlicensed devices under experimentation must not cause harmful interference to authorized facilities. Should interference occur, Booz Allen will immediately take reasonable steps to resolve the interference, including if necessary discontinuing operation. To that end, Booz Allen would advise entities using the equipment that permission to operate the equipment has been granted under experimental authority issued to Booz Allen, is strictly temporary and may be canceled at any time. It will also advise entities that operation is subject to the condition that the equipment may not cause harmful interference. Specifically, Booz Allen proposes to label the equipment conspicuously as follows:

FCC STATEMENT

Permission to operate this device has been granted under experimental authority issued by the Federal Communications Commission to Booz Allen Hamilton, Inc., is strictly temporary, and may be canceled at any time. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received including interference that may cause undesired operation.

This device has not been authorized as required by the rules of the Federal Communications Commission. This device is not, and may not be, offered for sale or sold until the approval of the FCC has been obtained. Thus, the user does not hold a property right in the device and may be required to return the device.

Moreover, Booz Allen submits that its experimental operations and demonstrations are unlikely to cause interference. Booz Allen intends to monitor use of the relevant frequencies before commencing transmissions, and it will not operate if the frequencies are in use. Booz Allen's experimental prototypes are frequency agile and can be tuned at the time of the experiment or demonstration to any frequency or channel in the requested band. In addition, Booz Allen will monitor the band and channels, and work with the Government coordinators, to operate only on channels that are unused at the time of the demonstration or experiments. Because the prototype devices use short burst transmissions, typically only a few second in duration, Booz Allen can monitor the channel and avoid interference with other users.

6) Public Interest

Booz Allen submits that issuance of a license is in the public interest, convenience, and necessity. Grant of a license will permit Booz Allen to develop innovative equipment that will accommodate the communications needs of prospective DoD users.

7) Contact Information

a. Technical Point of Contact

Dr. John C. Swartz, Lead Associate
Booz Allen Hamilton, Inc.
511 Davis Drive, Suite 400
Morrisville, NC 27560
Office: (919) 595-4825
Facsimile: (919) 595-4825
Mobile: (919) 270-5074
Email: swartz_john@bah.com

b. Legal Contact

Ms. Debra Storms
Associate General Counsel
Booz Allen Hamilton, Inc.
8283 Greensboro Drive
McLean, VA 22102
Office: (703) 377-1456
Email: storms_debra@bah.com

LOCATIONS

16 kilometer radius of Booz Allen Hamilton, Inc., 511 Davis Drive, Suite 400, Morrisville, NC 27560 (N 35.874524, W7 8.859994)
32 kilometer radius of Fort Story, Guadalcanal Rd, Virginia Beach, VA 23451 (N 36.922456, W 76.003287)
32 kilometer radius of 1771 Felix Canyon Rd., Flying H, NM 88339 (N 33.020755, W 105.113869)
32 kilometer radius of Falcon St, Fort Bragg, NC 28307 (N 35.129912, W 79.024905)
16 kilometer radius of 8190 Condor St, Tampa, FL 33621 (N 27.851537, W 82.489046)
3 kilometer radius of 5499 15th St SE, Rochester, MN 55904 (N 44.000614, W 92.369879)
32 kilometer radius of 155 County Road 270, Mico, TX 78056 (N 29.576138, W 98.900573)

APPENDIX A - SPONSOR-SPECIFIED FREQUENCIES FOR USE

Decimal Channel#**	UHF Channel	Frequency (MHz)
199	N19	317.015
200	N20	317.025
201	N21	317.035
202	N22	317.045
203	N23	317.055
204	N24	317.065
205	N25	317.075
206	N26	317.085
208	O19	317.095
210	O20	317.105
212	O21	317.115
213	O22	317.125
214	O23	317.135
215	O24	317.145
216	O25	317.155
217	O26	317.165
218	P19	317.175
219	P20	317.185
221	P21	317.195
223	P22	317.205
225	P23	317.215
226	P24	317.225
227	P25	317.235
228	P26	317.245
229	Q19	317.255
230	Q20	317.265
231	Q21	317.275
232	Q22	317.285
233	Q23	317.295
234	Q24	317.305
235	Q25	317.315
236	Q26	317.325

** Per MIL-STD-188-181A Table A-I.



DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT AND ENGINEERING COMMAND
COMMUNICATIONS-ELECTRONICS RESEARCH, DEVELOPMENT AND ENGINEERING CENTER
ABERDEEN PROVING GROUND, MARYLAND, 21005-1846

July 30, 2014

Booz Allen Hamilton, Inc.
RTP Office
511 Davis Drive, Suite 400
Morrisville, NC 27560

Subject: Spectrum use approval

Based on our existing authorization to use the indicated RF spectrum, we approve Booz Allen Hamilton to perform experiments and demonstrate RF hardware operating, with our cognizance, as described in Table 1 and Table 2.

Table 1. Authorized Transmission Frequencies.

Decimal Chnl#**	UHF Chnl	Frequency (MHz)
199	N19	317.015
200	N20	317.025
201	N21	317.035
202	N22	317.045
203	N23	317.055
204	N24	317.065
205	N25	317.075
206	N26	317.085
208	O19	317.095
210	O20	317.105
212	O21	317.115
213	O22	317.125
214	O23	317.135
215	O24	317.145
216	O25	317.155
217	O26	317.165
218	P19	317.175
219	P20	317.185
221	P21	317.195
223	P22	317.205
225	P23	317.215
226	P24	317.225
227	P25	317.235
228	P26	317.245

229	Q19	317.255
230	Q20	317.265
231	Q21	317.275
232	Q22	317.285
233	Q23	317.295
234	Q24	317.305
235	Q25	317.315
236	Q26	317.325

** Per MIL-STD-188-181A Table A-I.

Table 2. Experimental operation emission parameters.

Emission Type	Bandwidth	Modulations	Power (ERP)
F1D, F2D	5 kHz,	BFSK, QFSK, QAM	3 Watt, peak
F1D, F2D	25 kHz	BFSK, QFSK, QAM	3 Watt, peak

The undersigned supports the utilization of the above referenced radio spectrum in order to validate and address current requirements and authorizes Booz Allen to conduct the experimental work and demonstrations outlined above. Experiment and demonstration duration is from July 28, 2014 until January 31, 2015 subject to modification by the undersigned.


MICHAEL J. LOMBARDI
Deputy Director, CERDEC I2WD

Lombardi, Michael 31 July 2014
Name Date

<u>Dep Div, IAWO</u>	<u>6003 Combat Drive</u>	<u>443 861 1307</u>
Title	Address	Phone