

Narrative Statement

By this application, and pursuant to Section 5.3 (d), (g) and (i) of the FCC Rules, 47 C.F.R. § 5.3 (d), (g), (i) (2012), Booz Allen Hamilton Inc. ("Booz Allen"), respectfully seeks a 24 month experimental license beginning **December 6, 2013**, to develop, test and demonstrate prototype remote sensors with low power communications equipment that will operate in the 902-904 MHz and 909.750-921.750 MHz bands allocated for non-multilateration operations.

The following information is provided in support of this request:

1) Need for a 24-month license

Booz Allen seeks a 24-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 new industrial, environmental, infrastructure, and meteorological sensors with wireless data infrastructure equipment for emerging applications in safety, security, environmental monitoring, and associated research. For example, Booz Allen will evaluate low power, low probability of detection and interference wireless methods for sensor data communications. Booz Allen will evaluate sensor network data capacity, data rates, multi-path and interference performance, and steered RF signal technologies.

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 and 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) Technical Specifications

a. Power Levels

- i. Transmitter Power Output ("TPO"): 2W peak
- ii. Effective Radiated Power ("ERP"): 3W peak
- iii. Effective Isotropic Radiated Power ("EIRP"): 5W peak
- iv. Necessary bandwidth:
 - 1. 20kHz for low data rate operations
 - 2. 300kHz for high data rate operations
- v. Modulation: BFSK, QFSK, QAM
- vi. Emissions: F1D, F2D
- vii. Antenna: Omnidirectional
- 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 6 meters above the ground or, if mounted on an existing building, will not extend more than 6 meters above the building. If an antenna is mounted on an existing structure other than a building, it will be installed in accordance with FAA and FCC rules and regulations.

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 primarily indoors at its research and development site at Morrisville, North Carolina, Booz Allen also plans to test and demonstrate equipment at these other locations. Specifically, Booz Allen seeks authority to operate and demonstrate products: (i) at its own premises; (ii) at the premises of entities working under Booz Allen's authorization in the design and development of the devices and related products; (iii) at trade shows or non-residential exhibitions; and (iv) at non-residential, business, commercial, industrial, scientific, or medical locations during the design, development, and pre-production stages. 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 10 base units and 25 sensor 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.

4) 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 ceases, Booz Allen would recall and recover all devices that are not in compliance with FCC regulations. If any different treatment becomes necessary during the course of its experimentation, 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 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.

5) 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 users.

6) Contact Information

a. Technical Point of Contact

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b. Legal Contact

Ms. Callie Carr, Lead Associate
Booz Allen Hamilton Inc.
8283 Greensboro Drive
McLean, VA 22102
Office: (703) 377-4473
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LOCATIONS

16 kilometer radius of 7000 River Road Fredericksburg, VA 22407 (N 38.331835, W 77.575795)	1.6 kilometer radius of Booz Allen Hamilton Inc. Virginia Square Office 3811 Fairfax Dr. Arlington, VA 22203 (N 38.882648, W 77.105829)
32 kilometer radius of 1771 Felix Canyon Rd. Flying H, NM 88339 (N 33.020755, W 105.113869)	1.6 kilometer radius of Booz Allen Hamilton Inc. McLean Office 8283 Greensboro Dr. McLean, VA 22102 (N 38.922708, W 77.231936)
16 kilometer radius of Booz Allen Hamilton Inc. 511 Davis Drive, Suite 400 Morrisville, NC 27560 (N 35.874524, W 78.859994)	1.6 kilometer radius of Booz Allen Hamilton Inc. Tampa Office 4890 W Kennedy Blvd #475 Tampa, FL 33609 (N 27.943991, W 82.525855)
1.6 kilometer radius of Booz Allen Hamilton Inc. One Dulles Facility 13200 Woodland Park Road Herndon, VA 20171 (N 38.955112, W 77.403705)	1.6 kilometer radius of Booz Allen Hamilton Inc. Fayetteville Office 4200 Morganton Rd. Fayetteville, NC 28314 (N 35.068572, W 78.95341)