

NARRATIVE STATEMENT

By this application, Gap Inc. seeks an experimental special temporary authorization to operate prototype radiofrequency identification (RFID) within the band 13.553-13.567 MHz for the purpose of evaluating functionality and customer suitability. Experimental activities will be conducted at a few locations (distribution center and store) in the United States. Gap Inc. proposes to commence the experimentation on **March 01, 2001**. Operations are to continue for up to 180 days from the date of commencement. If the evaluation requires additional time, an application for an experimental license will be submitted.

The following information is provided in support of this request:

Need for an Authorization:

Gap Inc. is a leading apparel manufacturer and retailer with three distinct brands—Gap, Banana Republic and Old Navy. It currently operates over 3,500 stores in the United States, and additional stores in Canada, France, Germany, Japan and the United Kingdom. Gap Inc. ships approximately 3 billion garments annually.

Gap Inc. has entered into a joint design and development arrangement with Texas Instruments RFID Systems and Symbol Technologies, Inc. and their subcontractors, to develop RF identification equipment for use in inventory and product tracking and control. Gap Inc. seeks to test and evaluate the functionality and suitability of prototypes at distribution center and store prior to obtaining equipment authorization needed for the possible roll-out of this product in most of its retail outlets and inventory distribution centers.

Grant of a license will serve the public interest, necessity and convenience, as it will allow Gap Inc. to develop and improve innovative equipment to meet its needs, which include the more efficient distribution of goods and provision of service to customers. Note that this test will involve only two distribution centers, no more than three stores, and a very limited number of passive tags.

Proposed Locations:

Gap Inc. proposes to conduct its experimental activities at the following building locations identified below:

Test articles completed at the following distribution centers before proceeding to the store location:

- ONO Distribution Center, 1405 Worldwide Blvd, Hebron, KY 41048
- Tennessee Distribution Center, 200 Gap Blvd, Gallatin, TN 37066

Pilot will be completed at one or more of the following new store locations:

- Store # 660 - 2510 Chemical Road, Plymouth Meeting, PA 19462
- Store # 1326 - 214 City Circle, Peachtree City, GA 30269
- Store # 1550 - 5331 E. Mockingbird Lane, Dallas, TX 75206

Also, the equipment may be evaluated at Gap's engineering campus (4123 Olympic Boulevard, Suite 100, Erlanger, KY 41018) and headquarters (345 Spear Street, San Francisco, CA 94105) facilities. Operations will be conducted indoors except for possible brief operations outside on a loading dock.

Technical Specifications:

The prototypes to be evaluated under the experimental license include portable stationary and handheld RFID readers as well as associated RFID tags that will be placed on garments and containers. The units designed in cooperation with Texas Instruments RFID Systems under the joint development arrangement include 1) TI Tag-it Reader 6000, (previously authorized under FCC ID: A92COM320 pursuant to Part 15 of the FCC Rules) but with different antennas used in fixed shelf identification systems, portable "tunnel cart" applications and a portable dock loader. The checkout POS uses Securakey's ET-RS-A-SN reader that has passed Part 15 testing limits but application has not been submitted.

Handheld units designed in cooperation with Symbol Technologies are modified versions of Symbol's PDT 2740 product incorporating RFID (AWID USR1002). The prototypes will eventually be authorized under Part 15 of the Commission's rules. 47 C.F.R. Parts 15 (2002). Operation of the PDT2740 will be under Section 2.803 of the FCC Rules and need not be authorized under the STA.

Frequency: 13.553-13.567

- Number of Transmitters: A total of no more than 60 readers will be utilized.

The readers will communicate with passive tags that will be powered by RF from the readers. The signals from the tags will be more than 35 dB below the field strength of the signal from the reader. Tag's read distance is less than 24" from reader's antenna. A total of no more than 350,000 tags are expected to be utilized.

Necessary

Bandwidth: The necessary bandwidth in the write mode is based on the calculation that the maximum signaling speed from the reader to the tag is approximately 9 kilobaud and the reader uses pulse width modulation in writing to the tag. Using $B_n = BK$ in which B = maximum modulation

rate in bauds and K is a constant of 3 (for a non-fading circuit), the necessary bandwidth would be approximately 27 kHz, specified above as 30KL1D. Note, however, that the levels of the modulating sidebands from the tags in the *receive* mode are below that of the carrier (e.g., about >-35dBc at 13.56 +/- 50 kHz and even more at +/- 200 kHz and greater removed from the carrier).

Emission

Designators: While the emission designator proposed for the readers is 30KL1D, other emissions not exceeding this bandwidth may be employed in the writing mode. The tags, which are powered by the signal from the reader, have an emission that could be described as 500KB1D.

Modulation: The emission from the readers uses pulse width modulation with a maximum data rate of 9000 baud. The duration of a high bit is 150 usec; the duration of a low bit is 100 usec. The off period is 11 usec.

The tag sends back to the reader a signal at a maximum baud rate of 26.7 kilobaud using FM FSK with two subcarriers that are removed +/- 423.75 kHz and +/- 484.29 kHz from the 13.56 MHz signal that illuminates the tag and is emitted by the reader. The signal from the tag employs Manchester coding.

Power:

The enclosed tunnel reader will have a maximum EIRP in the prototype stage of up to 20 mW based on calculations. The other readers will not exceed 150 microwatts.

Antenna Information:

The antennas for these devices will not extend more than 3.5 meters above the ground. If the antennas are mounted on an existing structure other than a building, they will be installed in accordance with FAA and FCC rules and regulations.

All of the antennas are designed for H (magnetic) field coupling such that the system will use induction. The proposed sizes of the antennas used are as follows:

- Fixed Shelf – 12"x 12" & 20"x 12"
- Portable Dock Loader – 20"x30"
- Portable Tunnel Cart – 26"x28"x14" Enclosed Antenna Array (with largest single antenna 25"x 27").
- Checkout Point-of-Sale – 9"x11"
- Handheld Terminal – 1"x2"

Equipment to be Used:

Gap Inc. expects that it will be able to complete its experimentation with <60 readers (<20 TI Reader 6000s, <15 Securakey's Model ETR and <25 AWID's Models) and not more than _50K_ tags units per store location and _100K_ *per distribution center*. will also limit the power, area of operation, and transmitting times to the minimum necessary to evaluate the equipment.

Restrictions on Operation:

Gap Inc. recognizes that the operation of any equipment under experimental authority must not cause harmful interference to authorized facilities. Should interference occur, Gap Inc. will take immediate steps to resolve the interference, including if necessary arranging for the discontinuance of operation.

In addition, Gap Inc. understands that permission to operate has been granted under experimental authority issued to Gap Inc., that such operation is strictly temporary, and that the equipment may not cause harmful interference. To that end, Gap Inc. proposes to label the prototype readers as follows:

FCC STATEMENT Permission to operate this device has been granted under experimental authority issued by the Federal Communications Commission to Gap Inc., is strictly temporary, and may be cancelled at any time. Operation is subject to the condition that it not cause harmful interference. This device has not been authorized as required by the rules of the FCC. This device is not, and may not be, offered for sale or sold until the authorization is obtained.

Environmental Assessment:

This application, which requests authority to operate radio facilities under Part 5 of the FCC Rules, is not subject to routine environmental review because the effective radiated power will be substantially less than the 100 Watt level specified in Table 1 of Section 1.1307 of the Commission's Rules.

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