

**HARRIS CORPORATION
EXPERIMENTAL LICENSE REQUEST
FILE NO. 0579-EX-PL-2011
NOVEMBER 2011**

Harris Corporation ("Harris") hereby submits the following showing under FCC File No. 0579-EX-PL-2011¹ in compliance with Section 8.3.28 of the NTIA Manual.

8.3.28 Use of Fixed Devices That Re-Radiate Signals Received From the Global Positioning System

8.3.28 - 1. Individual authorization is for indoor use only, and is required for each device at a specific site.

Harris confirms that the authorization will be used for indoor use only. As previously noted, the installation will occur in Building 102, Room 3220 located at the coordinates of NL 28-01-45, WL 080-36-17

8.3.28 - 2. Applications for frequency assignment should be applied for as an XT station class with a note indicating the device is to be used as an "Experimental RNSS Test Equipment for the purpose of testing GPS receivers" and describing how the device will be used.

Harris concurs the XT station class and the device will be used as "Experimental RNSS Test Equipment for the purpose of testing GPS receivers. The installation of a GPS repeater will retransmit the GPS signal within the Harris laboratory so that the noted Army Tactical Radios will receive the repeated GPS signal

8.3.28 - 3. Approved applications for frequency assignment will be entered in the GMF.

Harris will assist in any way necessary to have the approved application entered into the GMF.

8.3.28 - 4. The maximum length of the assignment will be two years, with possible renewal.

Harris is seeking a twenty-four month license term.

8.3.28 - 5. The area of potential interference to GPS reception (e.g., military or contractor facility) has to be under the control of the user.

Harris confirms that the area of potential interference to GPS reception will be under its control at all times. As previously noted, the GPS repeater will be placed in a laboratory located on the Palm Bay, Florida Harris campus.

¹ Harris filed a duplicate experimental Special Temporary Authority ("STA") request on May 24, 2011 (File No. **0340-EX-ST-2011**). Due to NTIA coordination restrictions involving temporary authorizations for GPS repeater systems, this request is being filed as a permanent experimental authorization.

8.3.28 - 6. The maximum equivalent isotropically radiated power (EIRP) must be such that the calculated emissions are no greater than -140 dBm/24 MHz as received by an isotropic antenna at a distance of 100 feet (30 meters) from the building where the test is being conducted. The calculations showing compliance with this requirement must be provided with the application for frequency assignment and should be based on free space propagation with no allowance for additional attenuation (e.g., building attenuation.)

Location: Building 102, Room 3220 located at the coordinates of NL 28-01-45, WL 080-36-17. Harris Palm Bay, FL Campus

<u>GPS Re-radiator</u>	<u>EIRP Equivalent dBm</u>
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70 pico-watts	-72 dBm
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Calculation of loss for free space propagation using ITU model:

Using the simplified equation for path loss in free space:

$$L \text{ (dB)} = 20\log(f) + N \log(d) - 27.54$$

Where:

N is the distance power loss coefficient = 20

d (Distance in meters from the source to 30 meters away from the building) = 38

f = 1575.24 MHz

L=Free space path loss in dB

$$\begin{aligned} L(\text{dB}) &= 20\log(1575.24) & + 20\log(38) & - 27.54 \\ &= 63.95 & + 31.6 & - 27.54 \\ &= 68.01 \text{ dB} \end{aligned}$$

The re-radiated GPS signal at 100 feet (30 meters) from the building will be:

$$\begin{aligned} S \text{ (dBm)} &= \text{GPS Re-radiator Power (EIRP) dBm} - \text{Free space path loss (dB)} \\ &= -72 \text{ dBm} - 68.01 \text{ dB} \\ &= -140.01 \text{ dBm (-140 dBm maximum permitted)} \end{aligned}$$

8.3.28 - 7. GPS users in the area of potential interference to GPS reception must be notified that GPS information may be impacted for periods of time.

Harris confirms that it will provide advance notification to GPS users in the area that GPS information may be impacted for periods of time during testing.

8.3.28 - 8. The use is limited to activity for the purpose of testing RNSS equipment/systems.

Harris concurs use will be limited to activity for the purpose of testing RNSS equipment/systems.

8.3.28 - 9. A "Stop Buzzer" point of contact for the authorized device must be identified and available at all times during GPS re-radiation operation of the device under any condition.

As previously noted, the Stop Buzzer point of contact for the authorized device will be John Hall, Systems Engineer for Harris, mobile: 321-394-5114, e-mail: jhall@harris.com. Mr. Hall will be available at all times during GPS re-radiation operation of the device under any condition.