

**United States of America
FEDERAL COMMUNICATIONS COMMISSION
EXPERIMENTAL
RADIO STATION CONSTRUCTION PERMIT
AND LICENSE**

EXPERIMENTAL

(Nature of Service)

WH2XPW

(Call Sign)

XT FX

(Class of Station)

0317-EX-CM-2019

(File Number)

NAME Northrop Grumman Innovation Systems, Inc.

Subject to the provisions of the Communications Act of 1934, subsequent acts, and treaties, and all regulations heretofore or hereafter made by this Commission, and further subject to the conditions and requirements set forth in this license, the licensee hereof is hereby authorized to use and operate the radio transmitting facilities hereinafter described for radio communications in accordance with the program of experimentation described by the licensee in its application for license.

Operation: In accordance with Sec. 5.3(g) of the Commission's Rules

Station Locations

(1) Chandler (MARICOPA), AZ - NL 33-15-23; WL 111-53-11

Frequency Information

Chandler (MARICOPA), AZ - NL 33-15-23; WL 111-53-11

Frequency	Station Class	Emission Designator	Authorized Power	Frequency Tolerance (+/-)
1575.42 MHz	FX	20M0G1D	0.323593 pW (ERP)	0.1 %

Special Conditions:

- (1) The occupied bandwidth of the emission shall not extend beyond the band limits set forth above.
- (2) Licensee should be aware that other stations may be licensed on these frequencies and if any interference occurs, the licensee of this authorization will be subject to immediate shut down.
- (3) GPS re-radiators are limited to a maximum ERP value that will result in power levels not to exceed a power spectral density of -140 dBm/24 MHz measured at a distance of 100 ft outside the building of operation. Any malfunction, misalignment, or tampering of the equipment or its location which results in an increased power spectral density outside the building could cause harmful radio frequency interference to GPS receivers, including those in aircraft and/or ground based facilities.

This authorization effective December 30, 2019 and
will expire 3:00 A.M. EST March 01, 2021

**FEDERAL
COMMUNICATIONS
COMMISSION**



Special Conditions:

- (4) Operation of a GPS re-radiating signal device must meet the following conditions:
 1. Authorization is for indoor use only
 2. The device is to be used as an Experimental RNSS Test Equipment for the purpose of testing RNSS equipment/systems
 3. The area of potential interference to GPS reception (e.g., military or contractor facility) has to be under the control of the user.
 4. 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
 5. GPS users in the area of potential interference to GPS reception must be notified that GPS information may be impacted for periods of time.
 6. 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.

- (5) STOP BUZZER IS
 - 1) DANIEL GRINNELL 480-814-6673
 - 2) WILLIAM ROTHENBACH 480 814-6009
- (6) Licensee shall post signs on doors to the test area notifying that, "GPS re-radiator is in use and the GPS information you receive may be in error."
- (7) Operation is limited to activity for the purpose of testing radio navigation satellite service (RNSS) equipment and systems.

- (8) The test equipment shall only be used indoors and shall be under the control of the licensee.

- (9) GPS re-radiators must operate in accordance with Section 8.3.28 of the NTIA Manual. Power spectral density of the signal should be very well controlled beyond the building.

- (10) This authorization SUPERSEDES the previously issued authorization with the same call sign and file number: amended conditions.