



AEROSPACE & FLIGHT TEST RADIO COORDINATING COUNCIL®

REQUEST FOR TELEMETRY FREQUENCY COORDINATION
(1435-1525 MHz)
(2310-2320 MHz and 2345-2390 MHz)

Date of Application October 29, 2007 Identity Control No. _____
(Not to be filled in by applicant.)

Date Required December 4, 2007 Date Complete _____
(Not to be filled in by applicant.)

NOTE: PROPRIETARY DATA/CLASSIFIED INFORMATION SHOULD NOT BE SUBMITTED.

1. (a) Name of applicant Northrop Grumman Corporation
(b) Number and street 7323 Aviation Blvd.
(c) City, state and zip code Baltimore, MD. 21240
(d) Name and telephone for system contact Jan Sochurek (410) 765-5626
(e) Email jan.sochurek@ngc.com

2. (a) Application for (check one): New Station ☐ Renewal ☒ Modification ☐
For Renewal or Modification please enclose a copy of the existing License, Call Sign: KA2XGP

(b) If for modification state modification proposed _____

3. Frequency(ies) requested 2310-2320 MHz and 2345-2390 MHz (see attached copy of current license)

4. Bandwidth and emission: (See instructions)

(a) Occupied bandwidth-kHz N/A - antenna pattern testing
Emission bandwidth-kHz N/A - antenna pattern testing

(b) Emission designator N0N

5. Category(ies) of station(s): Air-to-ground ☐ Air-to-air ☐ Ground checkout ☒
Other ☐ (Explain) _____

6. Transmitter and associated antenna(s):

- (a) Power See additional e-mail attachment Ave ☐ Peak ☐
- (b) Transmitter nomenclature: Make N/A Model HP83623B Signal Gen
- (c) Transmitter frequency range N/A XTAL ☐ Synthesized ☐
- (d) Frequency stability under all operating conditions N/A %
- (e) JFP status or Type Acceptance No. of transmitter N/A
- (f) Type of transmitting antenna Various, see additional e-mail No. per vehicle
- (g) Gain in dB above isotropic 12 to 31 Polarization Various
- (h) Altitude and area of operation See additional e-mail attachment
- (i) Ground (Receiver): Address 7147 Ridge Road
City Hanover County Anne Arundel State MD, 21076
Latitude N39-11-05 Longitude W076-42-23
- (j) Receiver Antenna Type Various Gain in dB Various
- (k) Receiver Antenna Elevation above MSL in feet 5 to 85 feet above ground

7. Duration and description of proposed operational program (attach additional sheets if required):

This is for a renewal of a license Northrop Grumman has had for over ten years. There is no one particular program using this license. It's use is for experimentation and testing of various antennas. See e-mail for additional information.

8. **AFTRCC COORDINATION TERMS AND CONDITIONS**

- AFTRCC recommends use of the 2360 to 2390 MHz bands for all telemetry operations required within the "S" band. Coordination for telemetry operations in the bands 2310-2320 MHz and 2345-2360 MHz will be on a secondary basis, and may require additional coordination with the Wireless Communications Services.
- All requests for frequency coordination by Aerospace & Flight Test Radio Coordinating Council ("AFTRCC") are subject to the following terms and conditions:
- AFTRCC provides recommendations to the Federal Communications Commission ("FCC") for non-Government use of flight test voice and telemetry frequencies. AFTRCC's role is strictly advisory; in all cases the FCC makes the decision whether to issue a license.
- Applicants are advised that no representations or warranties, express or implied, are made as to the interference-free nature of any given frequency or frequencies which AFTRCC coordinates, or as to whether any given frequency recommendation is best suited for the Applicant's purposes.
- Applicants should also be aware that frequencies coordinated by AFTRCC are shared with other users; no one user is entitled to exclusive use of a frequency in any given area. Multiple users may be, and often are, licensed or have government assignments for use of the same frequencies. Hence, notwithstanding FCC issuance of a license to the Applicant, transmission on any given frequency may be subject to day-to-day, hour-by-hour scheduling with Government Area Frequency Coordinators ("AFC's") or other agencies.
- In return for AFTRCC's processing of the Applicant's request, the Applicant agrees to release and hold harmless AFTRCC, its officers, directors, agents, representatives, and member companies (and their respective officers, directors, employees, owners, and agents) from and against any and all claims, losses, liabilities, damages or expenses which may arise now or in the future as a result of the Applicant's acceptance of AFTRCC's recommendation, or its use of the recommended frequency(ies).
- By the signature of its duly authorized official below, the applicant accepts and acknowledges these limitations and conditions.
- Information supplied in support of this coordination request is part of the FCC application process. Accordingly, this information is considered public record material.

Signature: _____

Print Name: Jan Sochurek

Title: Specialist, Spectrum Licensing

Date: October 29, 2007

From: Sochurek, Jan E. [mailto:jan.sochurek@ngc.com]
Sent: Monday, October 29, 2007 10:43 AM
To: Holtmeyer, Darryl J; Hart, W. Clark
Cc: Schuemann, Vance W.; john.kennedy@fcc.gov; James.Burtle@fcc.gov; Fremd, Rodney W.
Subject: Request for AFTRCC Coordination

Darryl,

Northrop Grumman is asking AFTRCC for coordination for the upcoming renewal of the experimental license, KA2XGP, which expires on January 16, 2008. Attachments to this e-mail are the AFTRCC 87-1 Form and a current copy of the license, KA2XGP. As you will notice, there are numerous frequencies, both governmental and non-governmental on this license. The frequencies needing AFTRCC coordination are: 2310 - 2320 MHz and 2345 - 2390 MHz. You, Gina and Clark worked with us to renew this same license about this same time two years ago. Below is additional information which I refer to on the 87-1 Form.

Northrop Grumman requests this Experimental License in order to operate its antenna measurement range facility, which provides Northrop Grumman the flexibility to evaluate a wide range of antenna design concepts and to verify the performance of production units. Northrop Grumman has numerous contracts with various agencies of the U.S. government that involve matters the national defense and homeland security. It is through the use of this antenna measurement range facility that enables Northrop Grumman to fulfill those contracts. The facility also enables Northrop Grumman to develop and test new systems in anticipation of future U.S. Government contracts, and fulfill its contracts with various foreign military and civil aviation agencies.

The antenna measurement facility range consists of a range control building with several antenna positioners, a 500 meter ground range with 3 transmit sites and another positioner opposite the control building. The antenna range has an assortment of source antennas from 12dB gain horns to 31dB gain parabolic dishes. The selection of source antenna varies with frequency, distance, and size of antenna to be tested. An antenna under evaluation is illuminated by an unmodulated radio frequency position such that the boresight faces the source and the reference receive signal strength is taken. The source for all testing is through the use of an HP/Agilent 83623B High Power Swept Signal Generator. The receiver for all testing is an HP/Agilent 8530A Microwave Receiver.

The antenna measurement facility range has a hillside along one side that has trees on it. The other side and end that we transmit towards are flat with trees as a buffer on the perimeter of our property. The range is flat and at 180 feet above sea level. The hillside on the one side is at an elevation of 220 feet.

Maximum Power is 100 Watts (ERP).

We use various antennas - linear horns, parabolic dishes, log periodical, dipoles, spiral (non-polarity).

Antenna gain varies from 12dB to 31dB.

Elevation of site above sea level is 180 feet.

Height above ground of focal points of the antennas range from 5 feet to the highest which is 85 feet.

Antenna polarization varies depending on the antenna being tested.

Antennas are pointed on boresight, none of the antennas rotate.

Pulse widths at most are 100usec during transmit and 200usec during receive.

There are no equipment nomenclatures due to research and development work.

There is no blanking capability.

Radius of operation is non applicable due to none of the antennas rotate or movable. They are fixed on various positioners.

1090 MHz is one of the frequencies that is being requested for use. No transmissions will be made on 1030 MHz.

Again, a majority of the work done at this site and on this Experimental License is experimental work involving research and development. Contracts for work is developed from the experimental development.

Do not hesitate to contact me if you have any questions or concerns.

<<87_1form KA2XGP 2007.doc>> <<KA2XGP.pdf>>

Regards,

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Northrop Grumman Electronic Systems
Radio Frequency Spectrum and Licensing
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