

0073-EX-ST-1998

November 30, 1998
G-8930-RBD-1332

Federal Communications Commission
Experimental Radio Service
P.O. Box 358320
Pittsburgh, PA 15251-5315



Subject: Request for Special Temporary Authorization (STA)
HIRF - Lightning Renton, WA

Gentlemen:

This request for a Special Temporary Authorization (STA) is submitted in accordance with CFR 47, Part 5.56. Its purpose is to perform High Intensity Radiated Field (HIRF) Testing on a new derivative of Boeing aircraft. Previous HIRF testing has been conducted at this location. A copy of that license, KS2XAB, FCC File S-3109-EX-97, is enclosed.

1. **Name and Address:**
The Boeing Company
Frequency Management M/C 3U-AJ
P.O. Box 3707
Seattle, WA 98124-2207
2. **Need for Special Action:** This STA is required to conduct High Intensity Radiated Field (HIRF) tests on a Boeing 757, in accordance with directives listed in Exhibit 1. The testing window is for a duration of three weeks.
3. **Type of Operations:** The tests to be conducted between 100 Hz and 50 MHz are direct drive, swept carrier wave transfer function tests on production airplanes. These tests require driving a transmission line formed by the airplane parked over a wire grid return. Current is driven onto the aircraft by directly attaching the output of a 25 watt amplifier to the nose, wing tip, or engine nacelle. A "stepped swept" test is required

to measure as many aircraft and cable resonance's as possible. Testing using widely spaced discrete frequencies would miss critical resonant frequencies. The dwell time per frequency point will be a maximum of 75 milliseconds per point, based on 401 points in a 30 second maximum sweep. The maximum number of sweeps per test will be 64.

4. **Time and Date:** Testing is planned to occur between the dates of November 30, 1997 and December 23, 1997. If approved, Boeing will coordinate the use of frequencies and dates for testing with the appropriate agency Frequency Management Office(s).

BOEING

5. **Class of Station:** XR
Call Sign: TBD
Nature of Service: Experimental

6. **Location (Only checked boxes apply):**

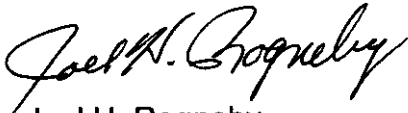
- ☐ Boeing Field International, Seattle, WA. This is a Company facility located at the following coordinates: 47°32'21"N 122°18'44"W.
- ☐ Glasgow Industrial Airpark, Glasgow, MT. This is a Company facility located at the following coordinates: 48°25'21"N 106°32'10"W.
- ☐ Paine Field, Everett, WA. This is a Company facility located at the following coordinates: 47°54'12"N 122°17'12"W
- ☒ Renton International Airport, Renton, WA. This is a Company facility located at the following coordinates: 47°29'42"N 122°12'18"W
- ☐ Tuscon International Airport, Tuscon AZ. 32°07'00"N 110°56'24"W
- ☐ Yuma International, Yuma, AZ. This location is a Company owned facility located at coordinates: 32°39'23" N 114°36'22"W.

7. **Equipment Manufacturer:** RF Power Labs M125L
8. **Frequency Bands:** 100 Hz - 50 MHz
9. **Power Output to Antenna:** 25 watts
10. **Emission:** NON

11. **Antenna height:** Less than 18 feet above ground level
 Antenna Type: Direct Drive, as described in paragraph 3 above
 Gain: 10dB
 Beamwidth: Less than 60° at the ½ power point
 Polarization: Various
 Direction: 360° North

Should you require additional information, please contact Bob Douglass at 253-657-6421 or bob.douglass@boeing.com email.

BOEING



Joel H. Rogneby
Manager, Frequency Management Services
Boeing Shared Services Group
253-657-6095

Enclosures:

FCC Form 159
Check #: 0422821
Exhibit One (Pertinent HIRF Directives)
Previous FCC License KS2XAB

J. Daniels 19-HL D. Bakke 9W-FX D. Woltz 05-AP

Pertinent HIRF Directives

This temporary license is required to conduct testing necessary to support airframe certification for induced lightning and high intensity radiated fields (HIRF). The test data will be used to validate low frequency HIRF and lightning models and assure compliance with HIRF and lightning requirements as specified by the following directives:

FAA issue paper SE-2, Boeing 777, "Lightning Grounding and Protection Requirements."

JAA document JAR25X899, Boeing 777, "Electrical Grounding and Protection against Lightning and Static Electricity."

FAA issue paper SE-1, Boeing 777, "Protection from High Intensity Radiated Fields (HIRF)."

JAA HIRF Certification Review Item D-5 - Stage 2, Boeing 777, "Special Condition Protection from External High Intensity Radiated Fields."

FAA Special Condition #25-ANM-25, Boeing 747-400 and 747-400F, "Boeing 747-400 Lightning and Radio Frequency Energy Protection."

JAA Special Condition AAB747-400F/02, Boeing 747-400F, "Lightning Protection Indirect Effects."

JAA Special Condition AAB747-400F/01, Boeing 747-400F, "High Intensity Radiated Fields (HIRF)."

**United States of America
FEDERAL COMMUNICATIONS COMMISSION
EXPERIMENTAL
SPECIAL TEMPORARY AUTHORIZATION**

EXPERIMENTAL
(Nature of Service)

K S 2 X A B
(Call Sign)

XD FX
(Class of station)

S-3109-EX-97
(File number)

NAME The Boeing Company

Renton International Airport, Renton, WA; NL 47-29-42, WL 122-12-18
(Location of station)

Special Temporary Authority is hereby granted to operate the radio transmitting apparatus described below:

Frequency (MHz)	Authorized Power (watts)	Emission Designator
0.1 - 50.0	25 (output)	NON

Purpose of Operation: Perform High-Intensity Radiated Field (HIRF) tests on an aircraft.

This special temporary authorization is granted upon the express condition that it may be terminated by the Commission at any time without advance notice or hearing if in its discretion the need for such action arises. Nothing contained herein shall be construed as a finding by the Commission that the authority herein granted is or will be in the public interest beyond the express terms hereof.

This special temporary authorization shall not vest in the grantee any right to operate the station nor any right in the use of the frequencies designated in the authorization beyond the term hereof, nor in any other manner than authorized herein. Neither the authorization nor the right granted hereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934. This authorization is subject to the right of use of control by the Government of the United States conferred by Section 706 of the Communications Act of 1934.

This authorization effective November 19, 1997 and
will expire 3:00 A.M. EST. December 23, 1997

