Auburn Range #3 RF Test System
STA Information for Boeing Auburn

February 11, 2005 Submitted to FAA
February 25, 2005 Submitted to FCC-OET

Submitted by:

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This antenna range has a pending application for a 2-year Experimental License. A short term STA is needed for a single frequency that is not on the pending application.

Location

Boeing Auburn Antenna Range and Lab*
17-80 Building
301 Pacific Ave.
Algona (King County), WA
47-16-33N
122-14-23W
NAD83
Ground elevation 22.9 meters

*Boeing calls this site the Auburn Antenna Range. Technically the site is located in Algona, WA.

Technical Description

Purpose: Test the operational characteristics of a commercial aircraft antenna, such as radiation pattern, directivity, gain, side lobes and f/b ratio.

We wish to apply for an STA to transmit at 14.25 GHz (CW) using one of the sources identified below. The maximum power output will be 0 dBm into a 6 ft wave guide feed to the 2-foot diameter parabolic dish. The antenna gain at

14.25 GHz is 36.2 dBi with a 3 dB beam width of 2.5 degrees. The EIRP is about 4.2 watts maximum. This antenna will be installed on the Auburn Antenna Range #3 mounting fixture as shown in the attachment which results in an ant height of 30 ft with a beam direction of 181 deg (true) at an elevation angle of 0 deg. The power delivered to the transmit antenna will always be less or equal to 0 dBm. The emissions will be CW (N0N).

NOTE: The parabolic dish antenna in the photographs is not the actual antenna.

The test cube moves on tracks out to a maximum distance of 500 feet on a bearing of 181° True from the transmit dish. The actual test distance is determined by the far field distance of the transmit dish. The test cube supports the receive antenna that makes the measurement. A partially wooded wetland owned by Boeing extends an additional 1300 feet beyond the end of the receive antenna tower tracks. An equipment list, block diagram and site layout are attached.

We are requesting this STA from March 1 to March 31, 2005.

STOP BUZZER INFORMATION

Auburn Antenna Range	253-351-6672
Jim Daniels (Range Focal)	206-662-4842
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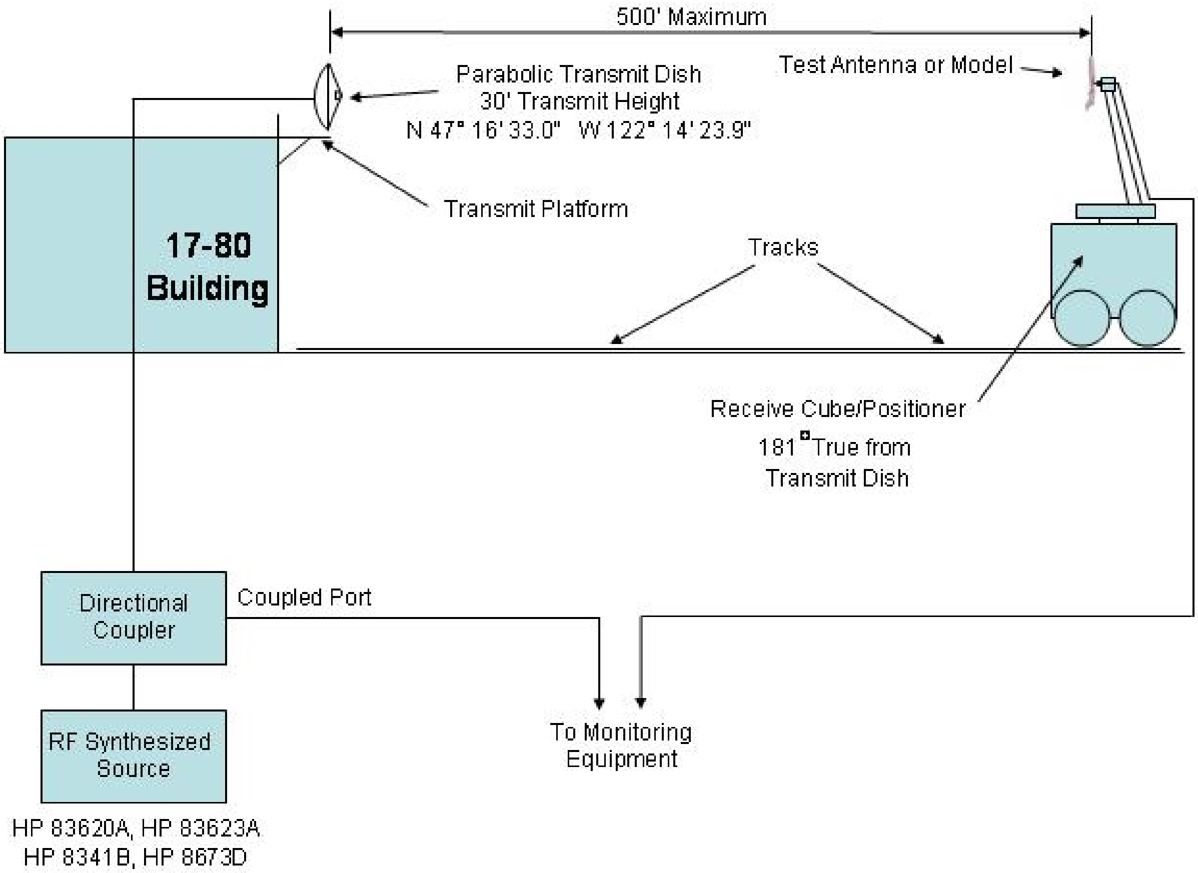
Nathan Ahn (Manager)	206-662-4841

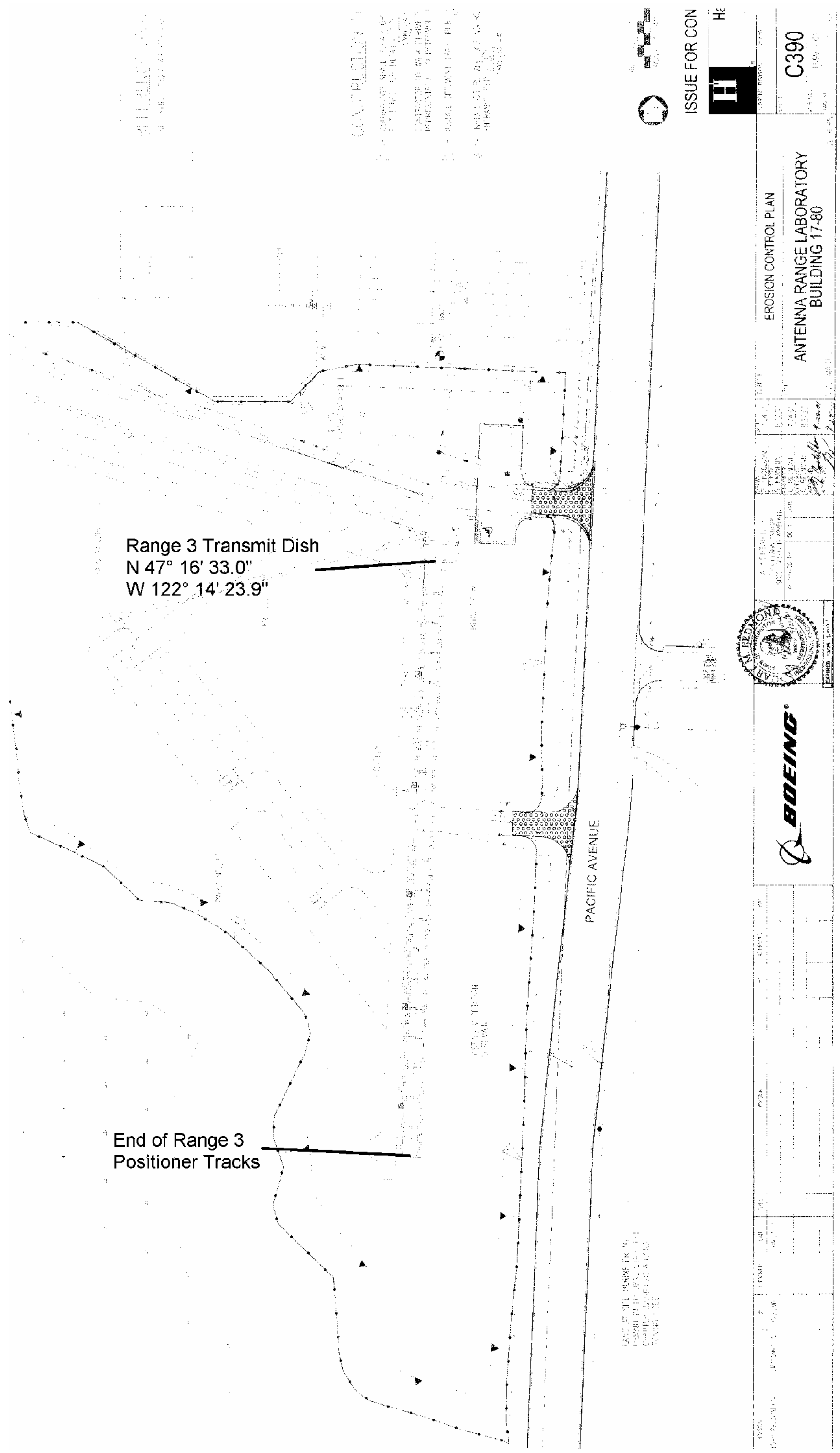
Radome Range Additional Equipment List

Other RF Equipment Used
RF Sources which are used interchangeably:
Hewlett Packard 83620A (10 MHz - 20 GHz)
Hewlett Packard 83623A (10 MHz - 20 GHz)
Hewlett Packard 8341B (10 MHz - 20 GHz)
Hewlett Packard 8673D (10 MHz - 26.5 GHz)
Other Components:
Hewlett Packard X281A N-WG Adapters (4 ea.)
Hewlett Packard X382A Precision Wave guide Attenuator
Ku, K and Ka Band Wave guide - 6 feet
Narda 3292-1 1-18 GHz Directional Coupler
Narda 4226-10 0.5-18 GHz Directional Coupler
Ku, K and Ka Band Waveguide Directional Couplers

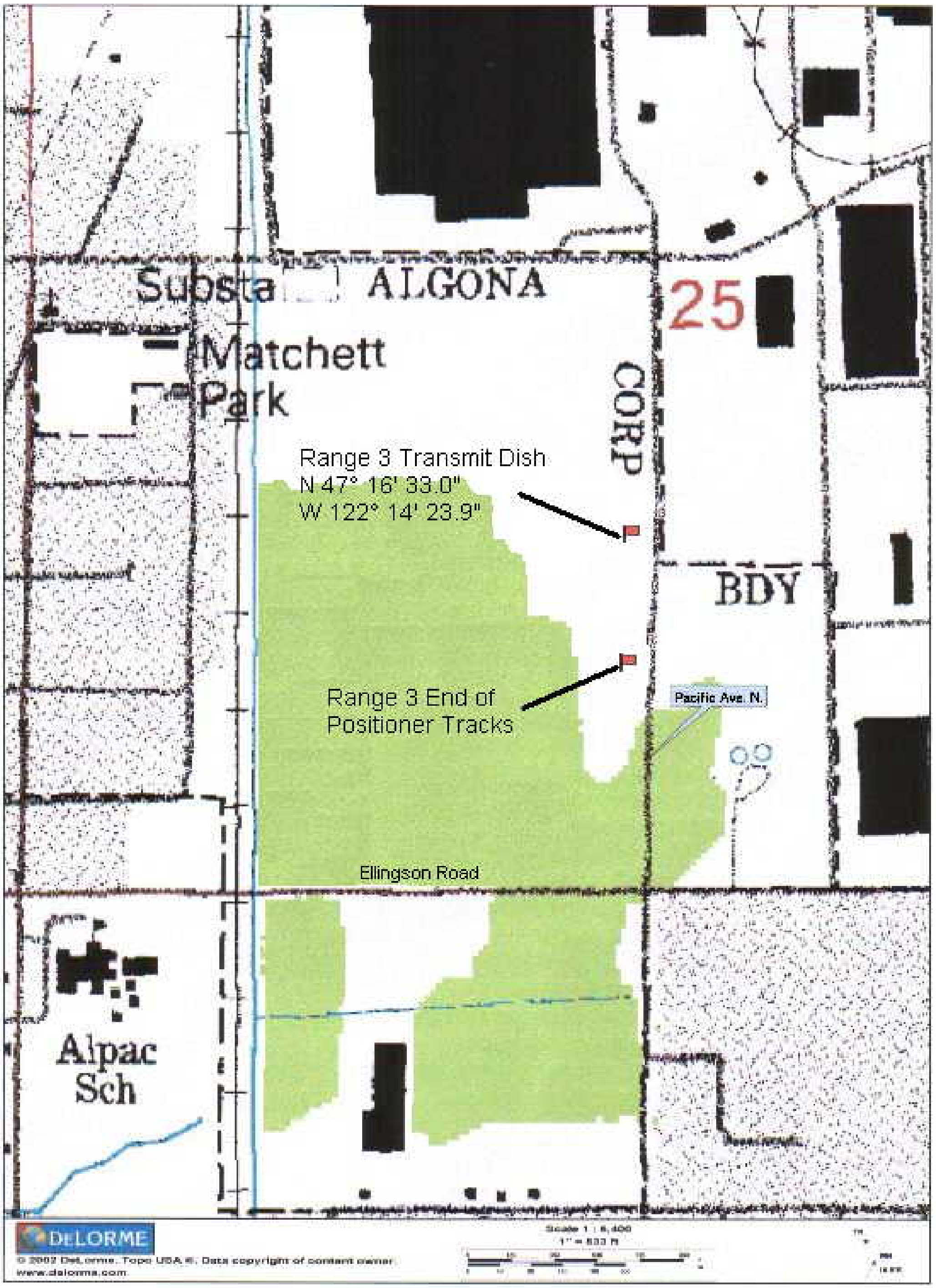


Auburn Range 3 Block Diagram

Site Layout


Range 3 Transmit Dish
N 47° 16' 33.0"
W 122° 14' 23.9"
End of Range 3
Positioner Tracks
PACIFIC AVENUE
ISSUE FOR CON
H
C390
EROSION CONTROL PLAN
ANTENNA RANGE LABORATORY
BUILDING 17-80
BOEING

Site Map


Substa
ALGONA
25
Matchett
Park
CORP
BDY
Range 3 Transmit Dish
N 47° 16' 33.0"
W 122° 14' 23.9"
Range 3 End of
Positioner Tracks
Pacific Ave. N.
Ellingson Road
Alpac
Sch
DeLORME
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Scale 1 : 6,400
1" = 533 ft

Range 3 Looking North

Range 3 Looking South