Boeing Commercial Airplane Group
Electromagnetics and Antenna Lab
Fuselage RF Characterization Testing

Reference: Current STA WB9XYX, 0454-EX-ST-2004
This application effectively is requesting an extension of time, since we are not able to complete all the testing as planned.

01/17/05

Submitted by:

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This STA application is only for BOEING COMMERCIAL AIRPLANES and IS NOT classified.

Justification for Confidentiality

See separate attachment.

The information contained in this STA application is BOEING PROPRIETARY.

Frequencies, Emissions and Power:

The frequencies are listed directly in the frequency table in the application section. Approximately 400 MHz to 6.0 GHz, N0N, A3N**,** 2.0 Watts (Maximum EIRP)

For the first STA, the process we used to select the frequencies was to apply for all non-restricted frequencies between 200 MHz to 6 GHz. We expected the FCC to apply further restrictions and required coordination by applying Special Conditions. This was indeed the case and we complied.

We are applying for the same non-restricted bands between 400 MHz and 6 GHz and will accept the same restrictions as previously noted on the current STA. Therefore, we will continue to follow the coordination instructions from ComSearch and the Special Restrictions especially the frequencies listed in the Public Safety Frequency Pool Table under 47 CFR, Part 90.2(c)(3).

The bandwidth will be a maximum of 50 MHz, but will be adjusted no less than 2 MHz to utilize smaller band segments that are available for our use.

The minimum amount of power will always be used to facilitate the test.

We are pleased to report that our actual previous measurement work has been conducted in at least 3 locations without interference. We have taken extra precaution at each location using a spectrum analyzer to observe the spectrum segments for other uses and avoided these frequencies.

Why an STA is necessary:

See Confidentiality Exhibit

Purpose:

See Confidentiality Exhibit

Period of Research and Development

Boeing requests that the STA be authorized from August 2, 2004 to February 2, 2005. Boeing does not foresee a need to apply for a full experimental license.

Locations:

The elevation listed below is for the nearest township, not the actual airfield, so it may be off by a few feet.

1) Phoenix-Litchfield Airport, Goodyear, (Maricopa County), AZ

5 KMRA of 33° 25' 48"N, 112° 21' 49"W (WGS84/NAD83) Elevation = 963 ft

Link to location:
http://www.topozone.com/map.asp?z=12&n=3699805.00006684&e=373233.999998748&datum=nad83&u=7

2) Marana Air Park, Marana, (Pinal County), AZ

5 KMRA of 32° 30' 42"N, 111° 19' 11"W (WGS84/NAD83) Elevation = 1992 ft

Link to location:
http://www.topozone.com/map.asp?z=12&n=3597207&e=469964&s=100&size=l&u=6&datum=nad83&layer=DRG25

3) Mojave Airport, Mojave, (Kern County), CA

5 KMRA of 35° 03' 24"N, 118° 09' 26"W (WGS84/NAD83) Elevation = 2757 ft

Link to location:
http://www.topozone.com/map.asp?z=11&n=3879959&e=394463&s=100&size=m&u=6&datum=nad83&layer=DRG25

4) George Air Force Base, Victorville, (San Bernardino County), CA

5 KMRA of 34° 35' 16"N, 117° 22' 31"W (WGS84/NAD83) Elevation = 2715 ft

Link to location:
http://www.topozone.com/map.asp?z=11&n=3827405&e=465576&s=100&size=m&u=6&datum=nad83&layer=DRG25

5) Roswell Industrial Air Center Airport, Roswell, (Chaves County), NM

5 KMRA of 33° 24' 24"N, 104° 32' 36"W (WGS84/NAD83) Elevation = 3573 ft

Link to location:
http://www.topozone.com/map.asp?z=13&n=3696469.0000798&e=542467&datum=nad83&u=6

6) Boeing Field, Seattle, (King County), WA

5 KMRA of 47° 32' 20"N, 122° 18' 46"W (WGS84/NAD83) Elevation=15 ft

Link to location
http://www.topozone.com/map.asp?z=10&n=5265278.00017739%20&e=551707.000000014&u=6&datum=nad83

7) Paine Field, Everett, (Snohomish County), WA

5 KMRA of 47° 54' 43"N, 122° 16' 20"W (WGS84/NAD83) Elevation=583 ft

Link to location
http://www.topozone.com/map.asp?lat=47.9119444444444&lon=-122.272222222222&datum=nad83&u=6

STOP BUZZER Contact for all locations:

Kenny Kirchoff Cell phone# (425)681-3802
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Transmit Antennas

Two different antennas are used for transmitting and are described as follows:

200 MHz – 1 GHz

A log periodic EMCO 3146 antenna is used for this frequency range.

Specifications	**EMCO 3146**
Frequency Range	200 MHz to 1 GHz
Max Gain	6.5 dBi @ 990 MHz
Beamwidth	~87° @ 500 MHz

200 MHz – 18 GHz

A broadband double ridged wave guide EMCO 3115 horn is used for this frequency range.

Specifications	**EMCO 3115**
Frequency Range	1 to 18 GHz
Max Gain (1-18 GHz)	16.5 dBi @ 15.5 GHz
Max Gain (1-6 GHz)	11.2 dBi @ 6.0 GHz
Beamwidth	~30° horizontal ~50° vertical

Antenna Azimuth:

The transmitting antenna azimuth depends on the orientation of the aircraft on the ground. The antennas are being treated as omni-directional for coordination purposes.