

Updated Exhibit

Anthony Serafini

From: Olcott, Bruce A. [BOlcott@ssd.com]
Sent: Tuesday, October 03, 2006 11:20 AM
To: Anthony Serafini
Subject: Experimental STA File No. 0596-EX-ST-2006

This morning, Boeing filed on the OET website further additional information in support of experimental STA file number 0596-EX-ST-2006. In order to make your life easier, I have consolidated all the additional information in the following attachment, which preempts and replaces all the other attachments that Boeing has provided to you. Please let me know if you have any questions. We are still hoping to secure approval by October 11th. Have you already sent the application to NTIA?

Thanks,
Bruce

<<Narrative (DNW).doc>>

10/4/2006

The Boeing Company
STA File No. 0596-EX-ST-2006

Demonstration Description

Based upon future government requirements, Boeing has used internal research funding (IRAD) to develop the Direct Network Waveform (DNW) system. This TF system links airborne and surface platforms into a local area network. This demo will not include airborne link.

Operating frequency, beam direction, power level, and operation time can be coordinated to avoid known in-band receivers. The system computer will remove transmit beam power if the beam is within 2 degrees from any interference angle. The system inertial reference unit and GPS will determine beam azimuth and elevation in real time.

The demonstration involves three mobile stations within the demo area located at St. Mary's County Airport that will be transmitting and receiving.



Technical Information

Transmitter

- Manufacturer: Radio was developed by BAE and Antenna subsystem by Boeing. The antenna subsystem includes the transmitter (Power Amplifier).
- Tuning range: 14.600 GHz - 15.350 GHz
- Frequency tolerance: Modem/Radio frequency accuracy is below $\pm 5 \times 10^{-8}$. Transmitter tolerance should be similar since it uses the same 10 MHz reference signal.
- Power output: EIRP = 59dBm, which yields an expected worst case transmitter power of 4.47W.
- Channeling capability: The radio is capable to tuning and up convert to any frequency specified in the Tuning Range above.

- Emission bandwidth (measured bandwidth at the output of the radio at IF frequency for 10.71 Mbps data rate):

- a) -3dB: 10.71 MHz
- b) -20 dB: 20.0 MHz
- c) -40 dB: 36.0 MHz
- d) -60 dB: ~ 60 MHz (This is about the noise level)

- Harmonic Level (specification for the 10 MHz reference signal. The transmitter harmonic level should be similar since it uses the same 10 MHz reference signal):

- a) 2nd: -60 dBc
- b) 3rd: -70 dBc

Receiver

- Manufacturer: Radio was developed by BAE and the antenna subsystem was developed by Boeing.

- Tuning Range: 14.600 GHz - 15.350 GHz

- Frequency tolerance: Similar to transmitter

Antenna

- Manufacturer: DNW antenna is made by Boeing.

- Frequency range: 14.600 GHz - 15.350 GHz

- Gain

a) Main Beam: 22.5 dB

b) First Major side lobe:

- Beamwidth at 3dB down is 10.6°

a) Horizontal: 10.6°

b) Vertical: 10.6°

-JN

Based upon future government requirements, Boeing has used internal research funding (IRAD) to develop the Direct Network Waveform (DNW) system. This TF system links airborne and surface platforms into a local area network.

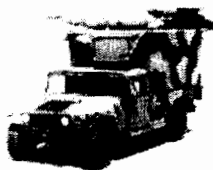
Operating frequency, beam direction, power level, and operation time can be coordinated to avoid known in-band receivers. The system computer will remove transmit beam power if the beam is within 2 degrees from any interference angle. The system inertial reference unit and GPS will determine beam azimuth and elevation in real time.

The demonstration involves a mobile airborne station over the demo area located at St. Mary's County Airport and two mobile vehicles that will be transmitting and receiving to the airborne station.



(DNW)
15-15.35 GHZ

(DNW)
15-15.35 GHZ



(DNW)
15-15.35 GHZ

