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Exhibit 1
Particulars of Operation

Frequency: A single channel of 2 contiguous MHz around previously granted center frequency of 966 MHz.

Power: 50 peak (Change)

Maximum Effective Radiated Power From Antenna: 50 peak (Change) airborne terminal (0 dBi antenna), 200W peak (Change) ground terminal (6 dBi antenna)

Emission: 1MF1D

- –2 LFM modulation
- – 450 kbaud
- –+/- 250 kHz frequency deviation from carrier
- –1 pulse per second at 10 ms duration max.
- –>60 dB attenuation of signal outside of 2 MHz assigned operating channel

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Exhibit 2
Proposed Locations of Transmitters

Tx Locations: Locations of field tests of the Universal Access Transceiver (UAT) system. The following is the list of airport sites currently planned for testing: (NOTE: Experimental operation will not occur at more than four sites simultaneously)

Bedford, MA	(Hanscom Field—BED; 42 28 N, 71 17 W)
~~Salt Lake City, UT~~	~~(Salt Lake City Int'l. SLC; 40 47 N, 111 58 W)~~ [Delete]
Melbourne, FL	(Melbourne Regional—MLB; 28 06 N, 80 39 W)

[Add]

~~Olathe, KS~~	~~(FAA Air Traffic Control Center; 38 51 00 N, 94 50 00 W)~~
~~Atlanta, GA~~	~~(Hartsfield Int'l. Airport; 33 36 00 N, 84 12 00 W)~~
~~Daytona, FL~~	~~(Airport; 37 54 00 N, 75 30 00 W)~~
Wallops Island, VA	(Airport; 37 54 00 N, 73 30 00 W)
~~Anchorage, AK~~	~~(Int'l. Airport; 61 12 00 N, 150 00 00 W)~~
~~Oshkosh, WI~~	~~(Airport; 43 54 00 N, 88 36 00 W)~~
~~Lakeland, FL~~	~~(Airport; 27 54 00 N, 82 00 00 W)~~

A ground transmitter would be operated at all sites. In addition, airborne transmitters would operate within a 100 nmi radius of each site at altitudes of up to 10,000 feet.

Number of Mobile Units: 20 aircraft maximum

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Exhibit 3
Research Program Description

Universal Access Transceiver (UAT)

UAT is an internally funded project at MITRE/CAASD started in December 1994 to develop and demonstrate a transceiver system designed specifically to support the function of Automatic Dependent Surveillance–Broadcast mode (ADS–B). The ADS–B concept involves autonomous transmissions of position from aircraft and vehicles operating on the airport surface in order to support air–air and air–ground surveillance. Since ADS–B is a cooperative system that relies on a high degree of user equipage, the goal of the project is to develop and demonstrate a new alternative data link approach "tuned" for the ADS–B application that can meet aviation's needs in a cost effective manner.

The UAT is a research project to develop, demonstrate and evaluate a simple, inexpensive, and robust data link medium for the ADS–B application. To meet this objective, the design will employ a single channel transceiver with a bandwidth of approximately 2 MHz. The UAT will operate on the same frequency for transmit and receive in order to allow full air–air connectivity with a minimum of new hardware. In order to keep channel management simple and robust, all aircraft access the channel autonomously at random, *without* the need for centralized ground control or on–board logic to "self organize" channel access amongst aircraft.

In addition to supporting ADS–B, the UAT system will also support uplink broadcast of data from ground stations in a time coordinated fashion using only a small portion of the UAT channel bandwidth. Uplink broadcast data could include a variety of flight information services (FIS) products of general interest (e.g., ground–based weather radar imagery and ATIS messages). Current project plans include demonstration of such a capability in addition to the ADS–B application. This uplink broadcast capability is believed to be very important to foster equipage in the early phases before a significant population of aircraft is equipped for ADS-B. In order to minimize complexity in terms of communications protocols, use of only a broadcast mode is envisioned for all traffic on the UAT common channel.

Flight demonstrations are a key part of the research project. An experimental license is being pursued in order to support this research. Operation in the band 960-970 MHz has been selected and a frequency of 966 MHz was previously assigned by the Commission. The applicant has fully coordinated this revision with the Federal Aviation Administration Office of Spectrum Management and Policy (ASR-1).

This modification requests approval to increase the transmitter power from 20W to 50W and to add possible experimental test sites. No more than four sites will be used simultaneously.