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Exhibit 1
Particulars of Operation

Frequency: a single channel of 2 contiguous MHz in the band 960-970 MHz of exact center frequency to be determined by FAA.

Power: 20 w peak

Maximum Effective Radiated Power From Antenna: 20W peak airborne terminal (0 dBi antenna), 80W peak 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:

Bedford, Ma.	(Hanscom Field--BED; 42 28 N, 71 17 W)	MIDDLESEX
Salt Lake City, Ut	(Salt Lake City Int'l --SLC; 40 47 N, 111 58 W)	BACHARD
Melbourne, Fl.	(Melbourne Regional--MLB; 28 06 N, 80 39 W)	SALT LAKE

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 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 boadcast 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. The applicant has made contact with the Federal Aviation Admnistration Office of Spectrum Management and Policy (ASR-1) .