EXHIBIT 1
EQUIPTMENT DESCRIPTION

PROGRAM DESCRIPTION

ARINC will be operating one fixed mobile satellite pallet equipped with Thrane and Thrane satellite avionics at an Aeronautical Radio Inc (ARINC) office in San Diego, CA.. The equipment will be operated for the purpose of:

a) Test and demonstrate operation of an INMARSAT aircraft earth station (AES) with a Land Earth Station (LES), the ARINC Packet Network (APN) and ARINC Corporate LAN for voice and data applications.

The equipment shall operate in the Marine and Aeronautical positions of the Mobile Satellite spectrum. Demonstration of the operational capability of this equipment requires transmitting. No "FOR HIRE" communications are to be provided during the use of this equipment.

DIGITAL VOICE AND DATA

The equipment shall transmit one channel of digital voice or data using 8.4 kbps A-QPSK modulation. The system shall use an intermediate gain stationary antenna. In addition, low speed data will be transmitted using an A-BPSK modulation. All modulation complies with ICAO/aviation standards. Ground earth station communication services shall be provided by Comsat Mobile Communication (CMC).

OPERATING DETAILS

The mobile satellite bands comprising 1626.5 to 1660.5 MHz will be used. Specific frequencies and operating schedules will be coordinated with Inmarsat, in cooperation with CMC.

RF Power Output

The maximum RF power output of the equipment will be 25 Watts per carrier (14 dBW peak).

Antenna Gain

An intermediate gain antenna shall be used to provide a gain 6 dBic (nominal) and half power beam width of 60 degrees.

EIRP

The maximum equivalent isotropic radiated power (EIRP) shall be 23 dBW (peak).

Emission Types

Emission Type	Modulation Type	Symbol Rate	Convolutionally Encoded Rate
840HG1D	A-BPSK	600 baud	600 bps ½ FEC
1K68G1D	A-BPSK	1200 baud	1200 bps ½ FEC
6K72G1W	A-QPSK	4.2 kbaud	8400 bps 2/3 FEC

Modulation Methods

Type	Description
A-QPSK	Aviation Quadrature Phase Shift Keying uses a specific form of Offset QPSK where the modulation filtering is optimized for satellite communications with aviation applications (Reference: "Quaternary Transmission Over Satellite Channels with Cascaded Non-Linear Elements and Adjacent Interference" by Russel Fang in IEEE Transactions on Communications, May 1981, Vol. COM-29, No. 5, pp 567-581.)
A-BPSK	Aviation Binary Phase Shift Keying uses a specific form of differentially encoded BPSK where in-phase and quadrature channels are used to transmit alternate symbols. (Referenced: "Differential Detection With Intersymbol Interference and Frequency Uncertainty" by J.H. Wintore in IEEE Transactions on Communications, January 1984, Vol. Comm-32, No. 1, pp. 25-33.)

Necessary Bandwidth

Radiated bandwidth from the equipment is controlled by the use of raised cosine filters in the transmitter. The A-QPSK are signals subjected to either a 60% or 100% raised cosine filter.

The associated necessary bandwidth calculation is:

$$BW=1/T(1+r)$$

Where 1/T is the symbol transmission rate in symbols per second and r is the roll-off factor.

Symbol Rate (Baud)	Modulation Type	Rolloff (r)	Bandwidth (BW)
600	A-BPSK	0.4	0.840 kHz
1200	A-BPSK	0.4	1.680 kHz
4200	A-QPSK	.6	6.720 kHz