EXHIBIT NO. 1

Particulars of Operation

Transmit Frequency Band: 1626.5-1660.5 MHz
Actual operational frequencies and schedules will be coordinated with INMARSAT.

Maximum RF Output: 60 Watts = 17.8 dBW

Antenna Gain (Low Gain) = Hemispherical coverage, 0 to +5 dBi
Antenna Gain (High Gain) = Electronically Steered Array, +12 to +15 dBi
Antenna Gain (Fixed High Gain) = Manually pointed helix, +13 dBi (gain includes external 4 dB attenuator)

Maximum EIRP (Low Gain Antenna) = 17.8 + 5 = 22.8 dBW
Maximum EIRP (High Gain Antenna) = 17.8 + 16 = 33.8 dBW
Maximum EIRP (Fixed High Gain Antenna) = 17.8 + 13 = 30.8 dBW

(Above maximums are PEAK power)

Emission types:

Type	Modulating Signal		
840HG1D	A-BPSK	600 baud	(600 bits/sec)
1K68G1D	A-BPSK	1200 baud	(1200 bits/sec)
3K36G1D	A-BPSK	2400 baud	(2400 bits/sec)
5K25G1W	A-QPSK	2.625 kbaud	(5.25 kbits/sec)
6K00G1W	A-QPSK	3.00 kbaud	(6.00 kbits/sec)
10K5G1D	A-QPSK	5.25 kbaud	(10.5 kbits/sec)
10K5G1W	A-QPSK	5.25 kbaud	(10.5 kbits/sec)
21K0G1W	A-QPSK	10.5 kbaud	(21.0 kbits/sec)

Modulation Method

A-BPSK (Aviation Binary Phase Shift Keying) is a form of differentialy encoded BPSK in which alternate modulation symbols are transmitted in notational in-phase and quadrature channels. Details on A-BPSK can be found in "Differential Detection with Integrated Interference and Frequency Uncertainty," Jack H. Wintes, IEEE Transactions on Communications, January 1984, Vol. COM-32, No. 1, pp. 25-33.

A-QPSK (Aviation Quadrature Phase Shift Keying) is a particular form of Offset QPSK. Details on A-QPSK can be found in "MSK and O-QPSK Modulation," S. A. Gronemeyer, IEEE Transaction on Communications, August 1976, Vol. COM-24, pp. 809-820; and in "Quatrinary Transmission over Satellite Channels with Cascaded Non-Linear Elements and Adjacent Channel Inerference," Russel J. F. Fang, IEEE Transactions on Communications, May 1981, Vol. COM-29, No. 5, pp. 567-581.

EXHIBIT NO. 1 (Continued)

Necessary Bandwidth Calculations

The SATCOM system uses a raised cosine transmit filter to limit bandwidth. A-BPSK signals use 40% raised cosine, and A-QPSK signals use 100% raised cosine filtering. The resulting bandwidth is calculated as:

$Bn = 1/T\ (1+r)$

where $1/T$ = rate of symbol transmission in symbols/sec
r = rolloff factor.

for 600 baud, A-BPSK (r=0.4), Bn = 0.840 kHz
for 1200 baud, A-BPSK (r=0.4), Bn = 1.680 kHz
for 2400 baud, A-BPSK (r=0.4), Bn = 3.360 kHz

for 2625 baud, A-QPSK (r=1.0), Bn = 5.250 kHz
for 3000 baud, A-QPSK (r=1.0), Bn = 6.000 kHz
for 5250 baud, A-QPSK (r=1.0), Bn = 10.50 kHz
for 10.5 kbaud, A-QPSK (r=1.0), Bn = 21.00 kHz

Antenna Mounting

Antenna height above building = less than 6 meters
Height of building = 7.8 meters

Exhibit No. 2

EXPERIMENTAL PROGRAM

The Collins Air Transport Division of Rockwell International Corporation is continuing development of equipment used in the Aeronautical Mobile Satellite Service. Equipment already developed through this program has been type accepted for aeronautical use under part 87 and is deliverable to customers.

Our laboratory installations in Cedar Rapids presently have Case Approval granted by INMARSAT, the operator of the satellite system. The equipment in place at these stations presently supports data at bit rates of 600 and 1200 bps, and voice communications at 21,000 bps. Additional data rates are being developed. The scope of the continuing experimental program may be grouped into three general activities as follows:

GROUND-BASED PERFORMANCE MONITORING

One purpose of the program is to continue ground-based evaluation of the present system. The purpose is to identify through on-the-air trials any problems or possible improvements needed in the overall system, especially those that cannot be discovered in any other way.

SYSTEM INTEGRATION TESTING

We perform integration tests with new on-board (non-radiating) equipment as such equipment becomes available. Our integration lab allows us to simulate most aircraft interfaces as well as over-the-air operation with operating Ground Earth Stations.

ENHANCED FUNCTION AND NEW EQUIPMENT DEVELOPMENT

The present system is being upgraded to handle other functions presently being developed by the industry and INMARSAT. These include alternate RF data rates and the addition of interfaces to support communication of Bit Oriented Data (INMARSAT "Data-3"), FAX transmission, personal computer data, and Secure Telephone Unit (STU-3) Secure Voice telephones. On-the-air testing of new and enhanced equipment is invaluable in ensuring proper functionality under "real-world" conditions.