

United States of America
FEDERAL COMMUNICATIONS COMMISSION
EXPERIMENTAL
SPECIAL TEMPORARY AUTHORIZATION

EXPERIMENTAL
(Nature of Service)

KE2XAG
(Call Sign)

XD MO
(Class of station)

S-2239-EX-95
(File number)

NAME ROCKWELL INTERNATIONAL CORPORATION

continental United States
(Location of station)

Special Temporary Authority is hereby granted to operate the radio transmitting apparatus described below:

Frequency (MHz)	Authorized Power (watts)	Emission Designator
1626.5 - 1660.5	60 (output)	10K5G1D/21K0G1W

Special Conditions:

- (1) In lieu of frequency tolerance, the occupied bandwidth of the emission shall not extend beyond the band limits set forth above.
- (2) Point of Communication: INMARSAT Satellite.
- (3) The station identification requirements of Section 5.152 of the Commission's Rules are waived.
- (4) This authorization is granted for the purpose of test and demonstration of equipment that has not received FCC authorization.

This special temporary authorization is granted upon the express condition that it may be terminated by the Commission at any time without advance notice or hearing if in its discretion the need for such action arises. Nothing contained herein shall be construed as a finding by the Commission that the authority herein granted is or will be in the public interest beyond the express terms hereof.

This special temporary authorization shall not vest in the grantee any right to operate the station nor any right in the use of the frequencies designated in the authorization beyond the term hereof, nor in any other manner than authorized herein. Neither the authorization nor the right granted hereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934. This authorization is subject to the right of use of control by the Government of the United States conferred by Section 706 of the Communications Act of 1934.

This authorization effective December 5, 1995 and will expire 3:00 A.M. EST. June 5, 1996



Rockwell International Corporation
Washington Office
1745 Jefferson Davis Highway
Arlington, Virginia 22202



Rockwell
International

5-2239-6A 2 r

(Handwritten signature)
11/21/95

November 30, 1995

Federal Communications Commission
Experimental Radio Service
P.O. Box 358320
Pittsburgh, PA 15251-5320

Gentlemen:

Pursuant to Sections 5.202 and 5.56 of the Commission's Rules and Regulations, Rockwell International Corporation (Rockwell) hereby requests a Special Temporary Authorization (STA) to utilize station KE2XAG for testing and/or demonstrations of its aeronautical satellite communications equipment using the Inmarsat aeronautical network.

1. The applicant is Rockwell International Corporation, 1745 Jefferson Davis Highway, Arlington, VA 22202.
2. This STA is needed to allow immediate mobile testing and/or demonstration of Rockwell's satellite communications avionics equipment using the Inmarsat aeronautical network.
3. The type of operation will be equipment testing pursuant to Section 5.202(g) and (h) and/or technical and customer demonstrations pursuant to Section 5.202 (d) and (f). Rockwell will secure a special Inmarsat authorization from an Inmarsat service provider prior to each period of operation.
4. The purpose of operation is to test and/or demonstrate the capabilities and functionality of Rockwell's aeronautical satellite communications equipment. The equipment will be installed on a corporate aircraft owned and operated by the Dial Corporation and operations under this STA will be carried out by employees of the Dial Corporation. In a telephone conversation between Mr. Carl Huie, FCC-OET, and Mr. Brett Wilson of this office, Mr. Huie indicated that the proposed operations would be acceptable under an STA and that, although Rockwell would not actually be operating the equipment, Rockwell, as the grantee of the STA, would be responsible for ensuring compliance with FCC Rules and Regulations. Mr. Huie also indicated that Rockwell would be responsible for contacting Dial Corporation in the event that the FCC should require an interruption in operations authorized under the STA.

5. Operations under this STA will be sporadic and non-continuous 24 hours a day from November 30, 1995 to May 30, 1996.
6. The STA is requested for experimental radio station call sign KE2XAG, a XD FX class station used for experimental satellite communications. A copy of the license certificate is enclosed for your convenience.
7. Operations under the STA may be conducted anywhere within the Continental United States.
8. The equipment to be used under this STA includes a Rockwell Collins SAT-906 satellite communications system using a new High Power Amplifier, the HPA-901A, for which Rockwell currently has an application for Equipment Authorization pending with the FCC.
9. Operations will be conducted in the transmit band of 1626.5 to 1660.5 MHz and the receive band of 1530 to 1559 MHz. Specific frequencies used will be specified by the Inmarsat service provider's ground station facility.
10. The transmitter complies with Inmarsat guidelines and has a maximum RF output of 60 Watts.
11. A list of applicable emission types and a description of modulation methods is attached as exhibit A.
12. The overall height of the antenna above ground will vary depending on the latitude of the Aircraft.

A form 159 is enclosed along with our check for \$45.00. It is requested that a date-stamped copy of this letter be returned to the undersigned. A duplicate copy of this letter and a stamped envelope are enclosed for this purpose.

Please direct any questions to the undersigned at (703) 412-6696.

Respectfully submitted,



Linda C. Sadler
Manager, Governmental Affairs

cc: Carl Huie, FCC
Frank Wright, FCC
Norm Kelley, 112-111

Emission types:

<u>Type</u>	<u>Modulating Signal</u>		
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 differentially 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 "Quaternary Transmission over Satellite Channels with Cascaded Non-Linear Elements and Adjacent Channel Interference," Russel J. F. Fang, IEEE Transactions on Communications, May 1981, Vol. COM-29, No. 5, pp. 567-581.

1/25/96

Rockwell International Corporation
Washington Office
1745 Jefferson Davis Highway
Arlington, Virginia 22202



December 22, 1995

Federal Communications Commission
Experimental Radio Service
P.O. Box 358320
Pittsburgh, PA 15251-5320

Subject: Regulatory Fees for Special Temporary Authorization
(STA) No. S-2239-EX-95

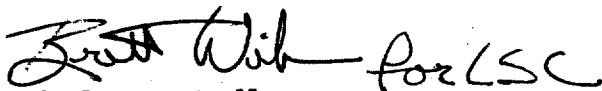
Gentlemen:

Enclosed on behalf of Rockwell International Corporation is a Form 159 and a check for \$45.00 to cover the necessary processing fees for S-2239-EX-95, an STA authorized under experimental radio license call sign KE2XAG. Also enclosed for your convenience is a copy of the letter requesting Special Temporary Authorization.

It is requested that a date-stamped copy of this letter be returned to the undersigned. A duplicate copy of this letter and a stamped envelope are enclosed for this purpose.

Please direct any questions to the undersigned at (703) 412-6696.

Respectfully submitted,



Linda C. Sadler
Manager, Governmental Affairs

cc: Carl Huie, FCC

FEDERAL COMMUNICATIONS COMMISSION
MELLON BANK APPLICATION RETURN FORM

Date: *January 22, 1996*

Data Preparation Center
Mellon Bank
Room 153-2718
Pittsburgh, PA 1559-001

Re: *Rockwell International Corp.*

The enclosed application(s) can be processed as filed. Please refer to the following instructions:

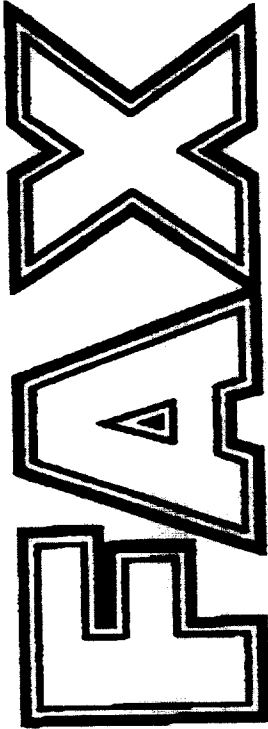
- Use original date stamped, and stamp all receipt copies with the same date.
- Restamp application(s) and all other documents.
- Application was sent to the wrong location, and is being forwarded for processing.
- Process application(s) in Lockbox *358320*.
- Process filing using Payment Type Code _____.
- Process as overpayment.

Please contact the Billings & Collections Branch at (202) 418-1995, if you have any questions.

Sincerely,

Regina W. Dorsey
Regina W. Dorsey, Chief *JWR*
Billings & Collections Branch

T R A N S M I T T A L



To: Carl Huie - FCC
Fax: (202) 887-5637
From: M. Brett Wilson
Date: November 30, 1995
Pages: Lead + 4
Subject: Another SATCOM STA

Carl -

Re our conversation earlier today, here is Rockwell's latest request for STA to operate SATCOM equipment. Unfortunately, we need this STA as soon as possible but we understand that there might be some delay because of the recent shutdown.

Thanks for your help,

Brett Wilson

**M. Brett Wilson
Rockwell International
Suite 1200
1745 Jefferson Davis Highway
Arlington, VA 22202**

**Telephone: 703/412-6635
Fax: 703/412-6811
Comnet: 747-6635/6811**

FACSIMILE MESSAGE

FACSIMILE MESSAGE

FACSIMILE MESSAGE



**FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF ENGINEERING AND TECHNOLOGY**

2000 M STREET, N.W., SUITE 230
WASHINGTON, D.C. 20554

December 5, 1995 12 24 pm

FROM:

Carl Huie

Telephone: (202) 418-2430
Fax #: (202) 418-1918

TO:

Name: Brett Wilson
Organization: Rockwell International Corp.
Telephone: (703) 412-6635 x
Fax #: (703) 412-6603

This cover sheet is page 1 of 2 pages

COMMENTS:

License will be mailed after receipt of original application.