

United States of America
FEDERAL COMMUNICATIONS COMMISSION
EXPERIMENTAL
SPECIAL TEMPORARY AUTHORIZATION

EXPERIMENTAL
(Nature of Service)

XD MO
(Class of station)

KS2XAT
(Call Sign)

9-2929-EX-97
(File number)

NAME TRW/ESD

CONUS
(Location of station)

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

Frequency (MHz)	Authorized Power (watts)	Emission Designator
1636.5 - 1645	1000 (ERP)	25K0F3E

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) The station identification requirements of Section 5.152 of the Commission's Rules are waived.
- (3) Point of Communication: INMARSAT Satellite.
- (4) Equipment: Two (2) Hughes MagnaPhone MX 2020P INMARSAT-A terminals.

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 May 30, 1997 and
will expire 3:00 A.M. EST. October 20, 1997



Enclosure (1)
TRW/ESD FCC License Request

TRW/ESD SUNYVALE, CALIFORNIA
REQUEST FOR FCC SPECIAL TEMPORARY
AUTHORIZATION
TO
CONTINUE OPERATION OF INMARSAT-A UNITS

REQUEST FOR SPACE SEGMENT TO BE USED WITH LAND-BASED SES TERMINALS

The Federal Communications Commission (FCC) requires COMSAT Mobile Communications to obtain authorization for providing space segment to be used in providing services via land-based ship earth station terminals. The FCC will authorize COMSAT to provide space segment for such services only under certain conditions. The FCC will approve temporary limited use of such stations only where no other means of communications are available such as in the case of emergency situations resulting from disasters or where these terminals are the only adequate means of meeting urgent communications requirements in remote locations. In order to enable us to obtain FCC authorization, the following information is required.

Applicant: TRW/ESD

Brief description of applicant's business: TRW/ESD is a United States of America Corporation organized and incorporated in the state of Ohio (TRW Incorporated). TRW/ESD currently develops and integrates specialized communications systems

Ultimate user of terminal: TRW/ESD

Who will operate the terminal?: TRW/ESD ENGINEERING staff

Where will the terminal be operated? San Joaquin County, California.

Explain the services for which the terminal will be used and why no other means of communications are available: _____

TRW/ESD is developing COMMUNICATIONS CONTROL centers for civil and police applications. We INTEND TO CONDUCT TESTS AND DEMONSTRATIONS TO EVALUATE THE VALUE OF INCLUDING LAND MOBILE EARTH STATIONS (INMARSAT UNITS) IN these CONTROL stations.

What is the required timeframe for use of the terminal for this service? OCTOBER 1997 through OCTOBER 1999

Have you obtained authorization from the FCC (commercial applicants) or NTIA (USG applicants) for ground segment use of the terminal? Please provide authorization date or date the authorization request was submitted. YES, May 30, 1997

Special Temporary Authorization

**(NOTE) - Customers are to be informed that they are responsible for filing with the FCC' Office of Engineering Technology an experimental license form (Form 442) which is the procedure the FCC follows for these TAs. This applies to all Land-Based terminals for domestic (U.S.) only.

REQUEST FOR SPACE SEGMENT CAPACITY TO OPERATE INMARSAT TERMINALS FROM LAND-BASED LOCATIONS IN THE UNITED STATES

The Federal Communications Commission ("FCC") requires COMSAT Corporation ("COMSAT") to obtain authority prior to providing service to Inmarsat terminals operated from land-based (i.e., nonmaritime locations) within the United States. The FCC will only grant domestic service authority to COMSAT under certain circumstances. The FCC's determination is made on a case-by-case basis with regard to the specific facts of each request. For instance, the FCC has authorized COMSAT to provide space segment capacity in the United States where:

- (1) the capacity is required to test and demonstrate the communications capabilities of an Inmarsat terminal to prospective customers;
- (2) the performance of an Inmarsat terminal is to be tested prior to sending/taking it abroad;
- (3) personnel are to be trained in the use of Inmarsat terminal(s) prior to being deployed abroad;
- (4) an Inmarsat terminal is needed for emergency communications (either as backup communications or disaster relief); or
- (5) an Inmarsat terminal is required to provide services from a remote location where no alternative means of communications is available.

Therefore, the following information is necessary for COMSAT to prepare its request for authority from the FCC to provide domestic Inmarsat space segment capacity to your terminal(s) in a timely manner. The more specific and detailed the information you provide us about the intended use(s) of the terminal, the more likely it will be that COMSAT will be able to obtain timely FCC authorization to provide the services you need! Please feel free to attach additional pages if needed to answer questions fully.

1. Company's Name: TRW Incorporated (TRW/ESD Sunnyvale)
2. Company's Business: Communications System Development
AND Integration

3. Who will operate the terminal? TRW/ESA Sunnyvale, CA
4. By what date do you need to operate the terminal in the U.S.? Extend to OCT 99
For how long? Two years from end of current special temporary authori-
zation date of October 20, 1997
Please indicate on page 3 your reasons for needing to use the terminal by the specified date.
Currently operating under special temporary authorization which
expires on 20 OCT 1997.
5. Will the same terminal also be used in one or more foreign countries or globally?
Yes ☐ No ☒.

IF YES, please state on page 3 the country or countries involved, and how frequently you intend to use the terminal outside of the U.S.

6. Will the terminal be used for test and/or demonstration purposes?
Yes ☒ No ☐.

IF YES, please indicate on page 3 where the test(s) or demonstration(s) will take place, their duration and whether (a) this is a test prior to sale, (b) this is a test after sale prior to use, (c) this is a demonstration to potential customers, (d) the terminal will be a part of a test or demo pool, or (e) other (please describe).

7. Will the terminal be used to train your employees, customers, or other users?
Yes ☐ No ☒.

IF YES, please explain on page 3 the nature, purpose, and duration of the training (indicating in particular whether the terminal will be used outside the U.S. or if personnel being trained will be deployed outside the U.S.):

8. Will the terminal be used for emergency communications or in a remote location where no alternative means of communications exist? Yes ☐ No ☒.

IF YES, please describe on page 3 the nature of the emergency communication (if applicable), state the location, describe the communications service desired, and explain the reason(s) why existing means of communications, in particular those of the U.S. domestic mobile satellite service licensee (AMSC), are not available or are inadequate to meet your communications requirements:

9. If the terminal is to be used for high speed data applications, please indicate the speed at which transmissions will be conducted: _____

10. Does your use of the Inmarsat terminal relate to a U.S. Government contract?
Yes _____ No X.

IF YES, please briefly describe below how the terminal will be used in fulfilling the government contract: _____

11. If not otherwise provided above, state the purpose for which the terminal will be used in the United States: _____

12. You are required to obtain a separate FCC license before operating the terminal in the United States. Have you applied to the FCC for a license to operate the terminal?
Yes X No _____.

IF YES, give the date you filed the license application: 22 April 1997; or the grant date: May 30, 1997. Please attach a copy of the terminal license application.

IF NO, please complete the enclosed FCC application form and return it with the other commissioning materials, or explain on page 3 why no additional FCC license is required.

Use the space below to provide any additional requested information:

Item 6. Test and/or Demonstration

Test Location: Santa Clara County, California

This is a test to determine

Feasibility of incorporating INMARSAT

capability into a communications control

center. The terminals will be part of a demo/test
pool

Thank you for your assistance in providing us the above information.



Registration for service activation of Land Mobile Earth Station & Aero-C

Sections 1-4 and 7 are to be completed by all customers.

Tick boxes as appropriate.

Please write in block capitals.

RO use only ROcode

Application number

Date Day Month Year

Customer's reference number

1 Your details (See note A)

Your name or the name of your organisation:

TRW/ESD

Address:

495 Java Drive

Town/city:

Sunnyvale

State/province:

CA

Post/ZIP code:

94088-3510

Country:

USA

Telephone: + Country code (01) - Area code (408) Telephone number (752-2818)

Facsimile: + Country code (01) - Area code (408) Facsimile number (743-6081)

Contact person:

Charles H. Munch

Title:

Program Manager

Department:

5810

What is their telephone number and/or extension? + Country code (01) - Area code (408) Telephone number (752-2818)

2 Paying the bill (See note B)

With whom have you arranged payment of calls for this MES?

The Service Provider ☐

The Accounting Authority ☒

What is their Code?

U S Ø 1

If the Code is unknown, enter their name:

3 What type of Mobile Earth Station (MES) are you registering? (See note C)

Environment usage	The system	What will be the primary use of the MES?		Aero-C
		Land mobile/Land fixed		
Land mobile ☒	Inmarsat-A ☒	Government ☐	Agents ☐	Government ☐
Land fixed ☐	Inmarsat-B ☐	Transport ☐	Tourism ☐	Private/corporate ☐
Aero-C ☐	Inmarsat-C ☐	Media ☐	Rental ☐	Commercial ☐
	Inmarsat-M ☐	Security ☐	Energy and resource management ☐	Other ☐
	Inmarsat-phone mini-M ☐	Finance ☐		please specify
	Inmarsat Aero-C ☐	Humanitarian and emergency ☐	Agriculture ☐	
		Construction ☐	Other ☒	
		Mining ☐	please specify	
			Test & demo	

What will be the country of registry of this MES?

USA

Mobile Earth Station (MES) manufacturer

Hughes MagnaPhone

Mobile Earth Station (MES) model

MX2020P Config D

Inmarsat-A services: (See note D)

Enter your Mobile Earth Station (MES) Serial number 2209

Primary Inmarsat Mobile number (if known)

Privacy ☒ Voice ☒ Fax ☐ HSD ☐ DHSD ☐ Telex ☒ Telex answerback

Secondary Inmarsat Mobile number (if known)

Privacy ☒ Voice ☒ Fax ☐ HSD ☐ DHSD ☐ (for billing purposes)

Preferred service activation region Pacific ☒ Indian ☐ Atlantic East ☐ Atlantic West ☐

Preferred service activation LES: Santa Paula Preferred service activation date: (day/month/year) 4/29/97

Agent to conduct test: Hughes Technical Services Country: USA

Telephone: + Country code (01) - Area code (310) Telephone number (517-6031)

Facsimile: + Country code (01) - Area code (310) Facsimile number (517-6110) Go to Section 5

RO use only Type of test: Full ☒ Reduced ☐

Inmarsat-B services: (See note E)

Enter your Inmarsat Serial number (ISN) 3

Tick only 1 service per row and Privacy if required

Number	Privacy	Voice	Fax	Data	HSD	Telex	Telex answerback	Service code	RO use only Inmarsat Mobile number
1	☐	☐	☐	☐	☐	☐			
2	☐	☐	☐	☐	☐	☐			
3	☐	☐	☐	☐	☐	☐			
4	☐	☐	☐	☐	☐	☐			
5	☐	☐	☐	☐	☐	☐			

To enter more services, copy and complete this page as required, then go to Section 5

Inmarsat-M services: (See note F)

Enter your Inmarsat Serial number (ISN) 6

Tick only 1 service per row and Privacy if required

Number	Privacy	Voice	Fax	Data	Service code	RO use only Inmarsat Mobile number
1	☐	☐	☐	☐		
2	☐	☐	☐	☐		
3	☐	☐	☐	☐		
4	☐	☐	☐	☐		

To enter more services, copy and complete this page as required, then go to Section 5

Inmarsat-phone-mini-M and SIM card services (See note G)

Enter your Inmarsat serial number (ISN)

7 6

Service	Privacy	Service code	RO use only Inmarsat Mobile number
Voice	☐	☐	
Fax	☐	☐	
Data	☐	☐	

Enter your SIM card serial number (SSN)

Service	Privacy	Service code	RO use only Inmarsat Mobile number
Voice	☐	☐	
Fax	☐	☐	
Data	☐	☐	

Enter your Mobile Earth Station (MES) Serial number

Privacy Telex answerback

☐

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RD use only
Inmarsat Mobile number

--	--	--	--	--	--	--	--	--	--

Go to section 6

5. Multi-channel details (see Note I)

If you are NOT applying for a multi-channel or the Mobile Earth Station (MES) is not part of a multi-channel GO TO SECTION 6

If the Mobile Earth Station (MES) applied for is part of a multi-channel but is NOT the primary channel enter the required information below:

INMARSAT-A ONLY

Enter the Primary Inmarsat Mobile number of the primary channel

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INMARSAT-B/M/Inmarsat-phone mini-M ONLY

Enter the Inmarsat Serial number of the primary channel

--	--	--	--	--	--	--	--	--	--	--	--

If you are applying for more than one channel copy and complete Sections 4 and 5 for each MES that is part of this multi-channel application.

6 To be completed for Aero-C Mobile Earth Stations (MES) only (see Note J)

What is the aircraft's registration or tail number?

Fuselage/airframe number

In which country is the aircraft registered?

Type of aircraft

Name of model

7 Certification and agreement

I, _____ the owner, have read and agree to comply with the 'Terms and Conditions for the use of the Inmarsat space segment' on the next page.

Signed

Date



Registration for service activation of Land Mobile Earth Station & Aero-C

Sections 1-4 and 7 are to be completed by all customers.

Tick boxes as appropriate.

Please write in block capitals.

RO use only ROcode

Application number

Date Day Month Year

Customer's reference number

1 Your details (See note A)

Your name or the name of your organisation:

TRW/ESD

Address:

495 Java Drive

Town/city:

Sunnyvale

State/province:

CA

Post/ZIP code:

94088-3510

Country:

USA

Telephone: + Country code (01) - Area code (408) Telephone number (752-2818)

Facsimile: + Country code (01) - Area code (408) Facsimile number (743-6081)

Contact person:

Charles H. Munch

Title:

Program Manager

Department:

5810

What is their telephone number and/or extension? + Country code (01) - Area code (408) Telephone number (752-2818)

2 Paying the bill (See note B)

With whom have you arranged payment of calls for this MES?

The Service Provider ☐

The Accounting Authority ☒

What is their Code?

U S 0 1

If the Code is unknown, enter their name:

3 What type of Mobile Earth Station (MES) are you registering? (See note C)

Environment usage

Land mobile ☒

Land fixed ☐

Aero-C ☐

The system

Inmarsat-A ☒

Inmarsat-B ☐

Inmarsat-C ☐

Inmarsat-M ☐

Inmarsat-phone
mini-M ☐

Inmarsat
Aero-C ☐

What will be the primary use of the MES?

Land mobile/Land fixed

Government ☐

Transport ☐

Media ☐

Security ☐

Finance ☐

Humanitarian
and emergency ☐

Construction ☐

Mining ☐

Agents ☐

Tourism ☐

Rental ☐

Energy
and resource
management ☐

Agriculture ☐

Other ☒

please specify

Test & demo

Aero-C

Government ☐

Private/corporate ☐

Commercial ☐

Other ☐

please specify

What will be the country of registry of this MES?

USA

Mobile Earth Station (MES) manufacturer

Hughes MagnaPhone

Mobile Earth Station (MES) model

MX2020P Config D

4 What services are you applying for?

Inmarsat-A services (See note D)

Enter your Mobile Earth Station (MES) Serial number

2208

Primary Inmarsat Mobile number (if known)

Privacy ☒

Voice ☒

Fax ☐

HSD ☐

DHSD ☐

Telex ☒

Telex answerback

Secondary Inmarsat Mobile number (if known)

Privacy ☒

Voice ☒

Fax ☐

HSD ☐

DHSD ☐

(for billing purposes)

Preferred service activation region

Pacific ☒

Indian ☐

Atlantic East ☐

Atlantic West ☐

Preferred service activation LES:

Santa Paula

Preferred service activation date: (day/month/year)

4/29/97

Agent to conduct test:

Hughes Technical Services

Country:

USA

Telephone: + Country code (01) - Area code (310) Telephone number (517-6031)

Facsimile: + Country code (01) - Area code (310) Facsimile number (517-6110)

Go to Section 5

RO use only

Type of test:

Full ☒

Reduced ☐

Inmarsat-B services (See note E)

Enter your Inmarsat Serial number (ISN)

Tick only 1 service per row and Privacy if required

Number	Privacy	Voice	Fax	Data	HSD	Telex	Telex answerback	Service code	RO use only Inmarsat Mobile number
1	☐	☐	☐	☐	☐	☐			
2	☐	☐	☐	☐	☐	☐			
3	☐	☐	☐	☐	☐	☐			
4	☐	☐	☐	☐	☐	☐			
5	☐	☐	☐	☐	☐	☐			

To enter more services, copy and complete this page as required, then go to Section 5

Inmarsat-M services (See note F)

Enter your Inmarsat Serial number (ISN)

Tick only 1 service per row and Privacy if required

Number	Privacy	Voice	Fax	Data	Service code	RO use only Inmarsat Mobile number
1	☐	☐	☐	☐		
2	☐	☐	☐	☐		
3	☐	☐	☐	☐		
4	☐	☐	☐	☐		

To enter more services, copy and complete this page as required, then go to Section 5

Inmarsat-phone mini-M and SIM card services (See note G)

Enter your Inmarsat serial number (ISN)

Service	Privacy	Service code	RO use only Inmarsat Mobile number
Voice	☐		
Fax	☐		
Data	☐		

Enter your SIM card serial number (SSN)

Service	Privacy	Service code	RO use only Inmarsat Mobile number
Voice	☐		
Fax	☐		
Data	☐		

Enter your Mobile-Earth Station (MES) Serial number

Privacy Telex answerback

☐

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RD use only

Inmarsat Mobile number

--	--	--	--	--	--	--	--	--	--

Go to section 6

5. Multi-channel details (see Note I)

If you are NOT applying for a multi-channel or the Mobile Earth Station (MES) is not part of a multi-channel GO TO SECTION 6

If the Mobile Earth Station (MES) applied for is part of a multi-channel but is NOT the primary channel enter the required information below:

INMARSAT-A ONLY

Enter the Primary Inmarsat Mobile number of the primary channel

--	--	--	--	--	--	--	--	--	--

INMARSAT-B/M/inmarsat-phone mini-M ONLY

Enter the Inmarsat Serial number of the primary channel

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

If you are applying for more than one channel copy and complete Sections 4 and 5 for each MES that is part of this multi-channel application.

6. To be completed for Aero-C Mobile Earth Stations (MES) only (see Note J)

What is the aircraft's registration or tail number?

Fuselage/airframe number

In which country is the aircraft registered?

Type of aircraft

Name of model

7. Certification and agreement

I, _____ the owner, have read and agree to comply with the 'Terms and Conditions for the use of the Inmarsat space segment' on the next page.

Signed

Date

FCC FORM 442

TRW/ESD SUNYVALE, CALIFORNIA

REQUEST FOR FCC RADIO STATION AUTHORIZATION

FEDERAL COMMUNICATIONS COMMISSION
MELLON BANK APPLICATION RETURN FORM

Date: *Nov. 18, 1997*

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

Re: *TRW - ESD*

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. *NOV. 7, 1997.*
- ☐ 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 *EAE*.
- ☐ Process as overpayment.

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

Sincerely,

Dee Punnett
Regina W. Dorsey, Chief
Billings & Collections Branch

Enclosure

ck # 217240195
\$45.00

STA

READ INSTRUCTIONS CAREFULLY
BEFORE PROCEEDING

FEDERAL COMMUNICATIONS COMMISSION
REMITTANCE ADVICE

APPROVED BY OMB

3060-0589

SPECIAL USE

FCC USE ONLY
FCC/MELTON NOV 19 1997

PAGE NO. _____ OF _____

1) LOCKBOX #

SECTION A - PAYER INFORMATION

(2) PAYER NAME (if paying by credit card, enter name exactly as it appears on your card)

TRW Electromagnetic System Division

(3) TOTAL AMOUNT PAID (dollars and cents)

\$ 45.00

(4) STREET ADDRESS LINE NO. 1

495 Jave Drive

(5) STREET ADDRESS LINE NO. 2

P.O. Box 3515

(6) CITY

Sunnyvale

(7) STATE

CA

(8) ZIP CODE

94088-3510

(9) DAYTIME TELEPHONE NUMBER (include area code)

(10) COUNTRY CODE (if not in U.S.A.)

IF PAYER NAME AND THE APPLICANT NAME ARE DIFFERENT, COMPLETE SECTION B
IF MORE THAN ONE APPLICANT, USE CONTINUATION SHEETS (FORM 159-C)

SECTION B - APPLICANT INFORMATION

(11) APPLICANT NAME (if paying by credit card, enter name exactly as it appears on your card)

(12) STREET ADDRESS LINE NO. 1

(13) STREET ADDRESS LINE NO. 2

(14) CITY

(15) STATE

(16) ZIP CODE

(17) DAYTIME TELEPHONE NUMBER (include area code)

(18) COUNTRY CODE (if not in U.S.A.)

COMPLETE SECTION C FOR EACH SERVICE, IF MORE BOXES ARE NEEDED, USE CONTINUATION SHEETS (FORM 159-C)

SECTION C - PAYMENT INFORMATION

(19A) FCC CALL SIGN/OTHER ID

(20A) PAYMENT TYPE CODE (PTC)

E A E

(21A) QUANTITY

1

(22A) FEE DUE FOR (PTC) IN BLOCK 20A

\$ 45.00

FCC USE ONLY

(23A) FCC CODE 1

(24A) FCC CODE 2

(19B) FCC CALL SIGN/OTHER ID

(20B) PAYMENT TYPE CODE (PTC)

(21B) QUANTITY

(22B) FEE DUE FOR (PTC) IN BLOCK 20B

FCC USE ONLY

(23B) FCC CODE 1

(24B) FCC CODE 2

(19C) FCC CALL SIGN/OTHER ID

(20C) PAYMENT TYPE CODE (PTC)

(21C) QUANTITY

(22C) FEE DUE FOR (PTC) IN BLOCK 20C

FCC USE ONLY

(23C) FCC CODE 1

(24C) FCC CODE 2

(19D) FCC CALL SIGN/OTHER ID

(20D) PAYMENT TYPE CODE (PTC)

(21D) QUANTITY

(22D) FEE DUE FOR (PTC) IN BLOCK 20D

FCC USE ONLY

(23D) FCC CODE 1

(24D) FCC CODE 2

SECTION D - TAXPAYER INFORMATION (REQUIRED)

(25)

PAYER TIN

0

APPLICANT TIN

0

SECTION E - CERTIFICATION

(27) CERTIFICATION STATEMENT

I, _____, Certify under penalty of perjury that the foregoing and supporting information
(PRINT NAME)
are true and correct to the best of my knowledge, information and belief. SIGNATURE _____

SECTION F - CREDIT CARD PAYMENT INFORMATION

(28)

MASTERCARD/VISA ACCOUNT NUMBER:

MASTERCARD

VISA

I hereby authorize the FCC to charge my VISA or MASTERCARD
for the service(s)/authorizations(s) herein described.

AUTHORIZED SIGNATURE

EXPIRATION DATE:

MONTH YEAR

DATE

SEE PUBLIC BURDEN ESTIMATE ON REVERSE

FCC FORM 159 JULY 1997 (REVISED)