Approved by OMB
3060-0440
Expires 2/28/93

FEDERAL COMMUNICATIONS COMMISSION

# FEE PROCESSING FORM

FOR FCC USE ONLY

FCC/MELLON FEB 1 4 1994

INT'L FACILITIES
PUBLIC REFERENCE

02-14-94 8115381 001

Please read instructions on back of this form before completing it. Section I MUST accompany all payments. Only one Fee Processing Form may be submitted per a concurrent actions which require you to list more than one Fee Type Code, you must legibly. All required blocks must be completed or application/filing will be returned without action.

FEB 17 10 21 AM '94

RECEIVED

CSG-94-075-P/L

## SECTION I

APPLICANT NAME (Last, first, middle initial)

AmericaSky Corporation

MAILING ADDRESS (Line 1) (Maximum 35 characters - refer to Instruction (2) on reverse of form)

4045 N.W. 97th Avenue

MAILING ADDRESS (Line 2) (if required) (Maximum 35 characters)

CITY

Miami,

| STATE OR COUNTRY (if foreign address) | ZIP CODE | CALL SIGN | OTHER FCC IDENTIFIER |
|---|---|---|---|
| Florida | 33178 | | |

Enter in Column (A) the correct Fee Type Code for the service you are applying for. Fee Type Codes may be found in FCC Fee Filing Guides. Enter in Column (B) the Fee Multiple, if applicable. Enter in Column (C) the result obtained from multiplying the value of the Fee Type Code in Column (A) by the number entered in Column (B), if any.

| | (A) FEE TYPE CODE | (B) FEE MULTIPLE (if required) | (C) FEE DUE FOR FEE TYPE CODE IN COLUMN (A) | FOR FCC USE ONLY |
|---|---|---|---|---|
| (1) | B A X | | $ 1,525.00 | |

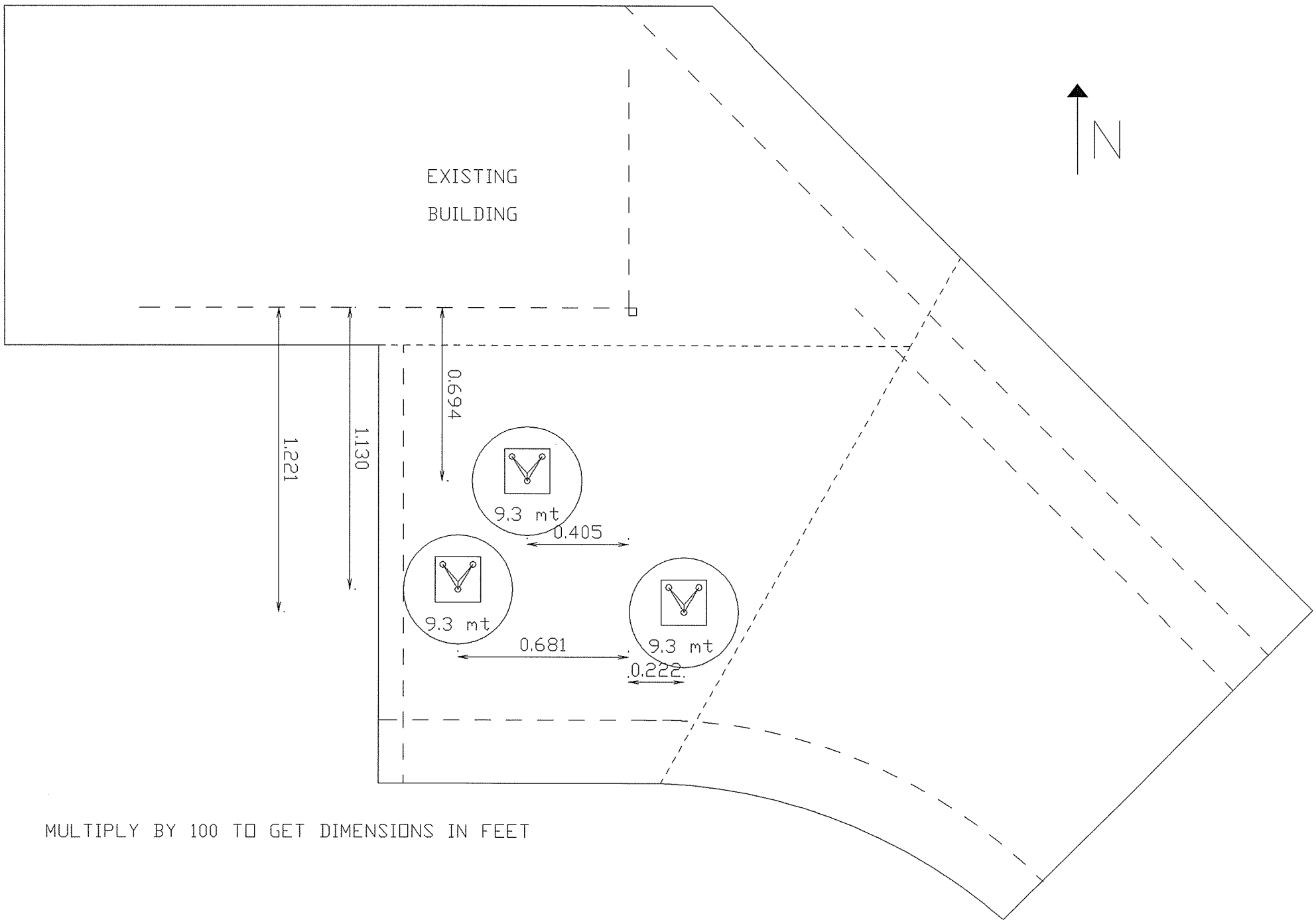
## SECTION II

— To be used only when you are requesting concurrent actions which result in a requirement to list more than one Fee Type Code.

| | (A) FEE TYPE CODE | (B) FEE MULTIPLE (if required) | (C) FEE DUE FOR FEE TYPE CODE IN COLUMN (A) | FOR FCC USE ONLY |
|---|---|---|---|---|
| (2) | | | $ | |
| (3) | | | $ | |
| (4) | | | $ | |
| (5) | | | $ | |

ADD ALL AMOUNTS SHOWN IN COLUMN C, LINES (1) THROUGH (5), AND ENTER THE TOTAL HERE. THIS AMOUNT SHOULD EQUAL YOUR ENCLOSED REMITTANCE. →

| TOTAL AMOUNT REMITTED WITH THIS APPLICATION OR FILING | FOR FCC USE ONLY |
|---|---|
| $ | 1,525.00 |




MULTIPLY BY 100 TO GET DIMENSIONS IN FEET

SHAW, PITTMAN, POTTS & TROWBRIDGE
A PARTNERSHIP INCLUDING PROFESSIONAL CORPORATIONS

2300 N STREET, N. W.
WASHINGTON, D. C. 20037
(202) 663-8000

FACSIMILE
(202) 663-8007

1501 FARM CREDIT DRIVE
MCLEAN, VIRGINIA 22102-5004
(703) 790-7900

FACSIMILE
(703) 821-2397

201 LIBERTY STREET, S.W.
LEESBURG, VIRGINIA 22075
(703) 777-0004
METRO 478-8989

FACSIMILE
(703) 777-9320

ROBERT E. CONN
SENIOR COUNSEL
(202) 663-8093

February 9, 1994

Federal Communications Commission
Common Carrier Satellite Earth Stations
P.O. Box 358115
Pittsburgh, PA 15251-5115

Re: International Fixed Earth Station

Dear Madam/Sir:

AmericaSky Corporation submits an original and two copies of a FCC Form 493 Application for an international earth station authorization. Enclosed is a FCC Form 155 and a check in the amount of $1,525.00 to cover the applicable fee.

Please return a receipt-stamped copy of this letter in the enclosed self-addressed stamped envelope.

Sincerely,

Robert E. Conn

Robert E. Conn

Enclosures

0388:249REC.93

CSG-94-075 P/L ORIGINAL

FCC 493
September 1991

FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

Approved by OMB
3060-0480
Expires 05/31/94
Est. Avg. Burden Hrs. Per Response: 24 Hrs.

FCC USE ONLY
File Number

Call Sign

## APPLICATION FOR EARTH STATION AUTHORIZATION OR FOR MODIFICATION OF STATION LICENSE

Read Instructions Before Completing and For Information Regarding Public Burden Estimate

1. Name of Applicant (must be same as reported on FCC 430 Form, Licensee Qualification Report)

AmericaSky Corporation

Mailing Street Address or P.O. Box, City, State and ZIP Code
4045 N.W. 97th Avenue
Miami, Florida 33178

(Area Code) Telephone Number
(305) 716-8700

2. Contact Representative. Provide the following if the person to contact is other than applicant.

Name

Mailing Street Address or P.O. Box, City, State and ZIP Code

(Area Code) Telephone Number

3. Class of Station
- [X] Fixed Earth Station
- b [ ] Temporary Fixed Earth Station
- c [ ] 12/14 GHz VSAT Network
- d [ ] Mobile Earth Station
- e [ ] Other (Specify):

4. Nature of Service
- a [ ] Domestic Fixed-Satellite
- b [X] International Fixed-Satellite
- c [ ] Radiodetermination-Satellite
- d [ ] Mobile-Satellite
- e [ ] Other (Specify):

5. Is developmental operation requested?
[ ] YES [X] NO

6(a) Type of Request
- 1 [X] License for transmit/receive earth station
- 2 [ ] License for transmit-only earth station
- 3 [ ] Registration or License for receive-only earth station
- 4 [ ] Modification of License/Registration (Complete Items 7(a)-(c)

6(b) Number of Stations: ▶ Three

7(a) Purpose of Proposed Modification
- 1 [ ] Change in emissions
- 2 [ ] Change in antenna
- 3 [ ] Change in location
- 4 [ ] Change in assigned frequencies
- 5 [ ] Change in points of communications
- 6 [ ] Change in range of satellite arc
- 7 [ ] Other (Specify):

(b) Call Sign of Station

(c) File No. of Current Authorization

8. Location (Number, Street, City, County, State and ZIP Code) and Telephone Number of Earth Station Site. (If temporary fixed or VSAT Network license, specify area of operation and point of contact - name and telephone number)

4045 N.W. 97th Avenue
Miami, Dade Co., Florida 33178
(305) 716-8700

9. Latitude and Longitude

| | Deg. | Min. | Sec. | |
|---|---|---|---|---|
| Lat. | 25 | 48 | 35 | North |
| Long. | 80 | 21 | 11 | West |

10. Site Elevation (AMSL)

6 feet 1.8 meters

11. Points of Communications (For satellites operating within the frequency bands and geostationary arc coordinated for these facilities, in most cases, the entry "ALSAT" is sufficient for Domestic Fixed-Satellite Service; for all other services each satellite must be listed).

PAS 1, the INTELSAT Satellites located within the International Satellite Arc of 6 to 60 Degrees West Longitude, TDRSS located at 40.7 Degrees West Longitude and MORELOS at 113.5 Degrees West Longitude.

12. Frequency Coordination Limits

| (a) Frequency Limits | (b) Range of Satellite Arc | | (c) Antenna Elevation Angle | | (d) Earth Station Azimuth | | (e) Maximum EIRP Density Toward the Horizon (dBW/4kHz) |
|---|---|---|---|---|---|---|---|
| | (i) Eastern Limit | (ii) Western Limit | (i) Eastern Limit | (ii) Western Limit | (i) Eastern Limit | (ii) Western Limit | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | SEE EXHIBIT #1 | | | | | | |
| | | | | | | | |
| | | | | | | | |

13. Transmitting Equipment

| (a) No. of HPA's | (b) Manufacturer | (c) Model No. | (d) Maximum Power Output (watts) |
|---|---|---|---|
| 5 | MCL | 10541 | 400 |
| | | | |
| | | | |
| | | | |
| | | | |

14. Antenna Facilities (Corresponding line number in items 14 and 15 applies to same antenna)

| Line No. | (a) Quantity | (b) TT&C* | (c) Manufacturer | (d) Model | (e) Size (meters) | (f) Type of Feed | (g) Gain Transmit and/or Receive (_____dBi at _____ GHz) |
|---|---|---|---|---|---|---|---|
| 1 | 3 | | Andrew Corp. | ES93 | 9.3 | Gregorian | 50.5 dBi @ 3.950 GHz |
| 2 | | | | | | | 54.0 dBi @ 6.175 GHz |
| 3 | | | | | | | |
| 4 | | | | | | | |

15. Antenna Heights (Measurements to be given in English and metric units)

| Line No. | (h) Maximum Antenna Height | | | | (i) Building Height** | | (j) Maximum Antenna Height** | |
|---|---|---|---|---|---|---|---|---|
| | Above Ground Level | | Above Mean Sea Level | | Above Ground Level | | Above Rooftop | |
| 1 | 33.0 feet | 10.1 meters | 39.0 feet | 11.9 meters | feet | meters | feet | meters |
| 2 | feet | meters | feet | meters | feet | meters | feet | meters |
| 3 | feet | meters | feet | meters | feet | meters | feet | meters |
| 4 | feet | meters | feet | meters | feet | meters | feet | meters |

16. Particulars of Operation (Full particulars are required for each r.f. carrier)

| (a) Frequency Bands (MHz) | (b) Antenna Polarization (H,V,L,R) | (c) Emission Designator | (d) Maximum EIRP (dBW) | (e) Maximum EIRP Density (dBW/4kHz) | (f) Description of Modulation |
|---|---|---|---|---|---|
| DOMESTIC | | | | | |
| | | | | | |
| 3700 - 4200 | H,V, | 3M17G7D | | | Digital Data & Voice |
| | L,R | | | | FEC = 3/4 |
| 5925 - 5958, | H,V, | 3M17G7D | 76.5 | 52.2 | 2048 KBPS, BPSK |
| 6021 - 6076 and | L,R | | | | Emission Bandwidth = 3.17 MHz |
| 6145 - 6425 | | | | | |
| | | | | | |
| INTERNATIONAL | | | | | |
| 3625 - 4200 | H,V, | 3M17G7D | | | Digital Data & Voice |
| | L,R | | | | FEC = 3/4 |
| 5850 - 5958, | H,V, | 3M17G7D | 76.5 | 52.2 | 2048 KBPS, BPSK |
| 6021 - 6076 and | L,R | | | | Emission Bandwidth = 3.17 MHz |
| 6145 - 6425 | | | | | |
| | | | | | |

17. Receiving System Noise Temperature: (in kelvin with applicable antenna elevation angle and frequency)

80 Degrees Kelvin @ 5.4 Degrees Elevation at 3950 MHz

*Check only for antennas used for satellite Telemetry, Tracking and Control (TT&C).

**Attach sketch of site or exemption. See 47 CFR Part 17.

| Place an "X" in the appropriate column. | YES | NO |
|---|---|---|
| 18. Does the proposed antenna(s) comply with the antenna gain patterns specified in Section 25.209(a) and (b) as demonstrated by the manufacturer's qualification measurements? ▶ Attach manufacturer's verification that the antenna complies with these patterns if not on file. | X | |
| 19. Is the facility to be operated by remote control? ▶ If "YES," provide the location (street, city, county, state, zip code) and telephone number of the control point. | | X |
| 20. Small Antenna Impact | | |
| (a) Will an antenna less than 9 meters in diameter be used at this site to transmit to a fixed-satellite below 7075 MHz? ▶ | | X |
| (b) Will an antenna less than 5 meters in diameter be used at this site to transmit to a fixed-satellite from 7075 MHz to 14.5 GHz? ▶ | | X |
| (c) If the answer to (a) or (b) above is "YES", answer all of the following questions that apply to the proposed earth station facilities. | | |
| (i) Transmissions in the band 5925-7075 MHz will be limited to a maximum bandwidth of _____ MHz and maximum EIRP density of _____ dBW/4kHz. | | |
| (ii) Transmissions in the band 7075 MHz to 14.5 GHz will be limited to a maximum bandwidth of _____ MHz and maximum EIRP density of _____ dBW/4kHz. | | |
| (iii) Will operation of this facility be governed by a previous small antenna authorization? ▶ If "YES", provide cite: _____ If "NO", attach small antenna analysis. | | |
| 21. Is the facility to be used to provide Radiodetermination-Satellite Service (RDSS) in the frequencies allocated for RDSS? ▶ If "YES", attach exhibit demonstrating that operations are compatible with other operations. | | X |
| 22. Is the facility to be used to provide Mobile-Satellite Service (MSS) in the frequencies allocated for MSS? ▶ If "YES", attach exhibit demonstrating that facility is consistent with operations in these frequencies. | | X |
| 23. Frequency Coordination | | |
| (a) Is frequency coordination required? ▶ If "YES", attach a frequency coordination report. | X | |
| (b) Is coordination with another country required? ▶ If "YES", attach name of country and plot of coordination contours. Cuba & Bahamas | X | |
| 24. FAA Notification - (See 47 CFR Part 17) Is FAA notification required for any of the new or modified structures proposed in this application? ▶ If "YES", attach a copy of FCC 854 form and/or the FAA's study regarding the potential hazard to aviation of the structure. | | X |
| 25. Environmental Impact Would a commission grant of this application be an action which may have a significant environmental effect as defined by Section 1.1307 of the Commission's Rules? ▶ If "YES", submit the statement as required by Sections 1.1308 and 1.1311. | | X |

26. Description. (Summarize the nature of the application and the services to be provided).

The earth station will operate digital data and voice traffic to those satellites specified in #11 of this form.

| Place an "X" in the appropriate column. | YES | NO |
|---|---|---|
| 27. Rule Waivers and Exceptions<br>Is this application inconsistent with any of the Commission's Rules?<br>If "YES", attach a copy of requests for waivers or exceptions with supporting documents. ▶ | X | |
| 28. Eligibility<br>(a) Is the applicant a foreign government or a representative thereof? ▶ | | X |
| (b) Does the applicant meet the requirements of Section 310(b)(1), (2) and (3) of the Communications Act (47 USC 310(b)(1), (2) and (3))? ▶ | X | |
| (c) Does the applicant meet the requirements of Section 310(b)(4) of the Communications Act (47 USC 310(b)(4))?<br>If "NO", attach an exhibit explaining why grant is in the public interest. ▶ | X | |
| 29. Will the station be used to provide common carrier services? ▶ | X | |
| 30. Will the station be used for developmental purposes?<br>If "YES", attach an exhibit detailing the developmental plan. ▶ | | X |
| 31. If transmitting antenna, will individual applicant, partner (in case of partnership) or full-time manager (in case of corporation) actively participate in the day-to-day management and operation of proposed facility?<br>If "NO", submit an exhibit providing an explanation, and including a demonstration of how control over the facility will be retained. ▶ | X | |
| 32. For transmitting antennas that provide domestic or international service, attach FCC 430 form, or if a complete and accurate FCC 430 form is already on file with the FCC give date filed: October 5, 1993<br>Is FCC 430 form attached? ▶ | | |

33. Exhibits. Identify the exhibits that are attached to this application.

| Exhibit No. | |
|---|---|
| 1 | Frequency Coordination Limits (#12) |
| 2 | Frequency Coordination Plots (#23b) |
| 3 | Frequency Coordination Report & Request for Waivers |
| 4 | Radiation Hazard Study |
| 5 | Plot Plan of Proposed Antenna Site |

34. **Certification of Person Responsible for Preparing Engineering Information in this Application.** I hereby certify that I am the technically qualified person responsible for preparation of the engineering information contained in this application, that I am familiar with Part 25 of the Commission's Rules, that I have either prepared or reviewed the engineering information submitted in this application, and that it is complete and accurate to the best of my knowledge.

| Date | Typed Name of Person Signing | Signature |
|---|---|---|
| 01/26/94 | Jeffrey E. Cowles | |

35. Certification of Applicant. The applicant waives any claim to the use of any particular frequency or of the electromagnetic spectrum as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and requests a construction permit, if necessary, in accordance with this application. All statements made in the attached exhibits are a material part hereof and are incorporated herein as if set out in full in this application. The undersigned, individually and for the applicant, hereby certifies that the statements made in this application are true, complete and correct to the best of the signer's knowledge and belief, and are made in good faith.

| Date | Typed Name of Person Signing | Signature |
|---|---|---|
| 2-4-94 | Marco A. Northland | |

**WILLFUL FALSE STATEMENTS MADE ON THIS APPLICATION ARE PUNISHABLE BY FINE AND IMPRISONMENT** (U.S. Code, Title 18, Section 1001), and/or **REVOCATION OF ANY AUTHORIZATION** (U.S. Code, Title 47, Section 312(a)(1)), and/or **FORFEITURE** (U.S. Code, Title 47, Section 503).

**Notice to Individuals Required by the Privacy Act of 1974 and the Paperwork Reduction Act of 1980**
The information requested by this form will be used by Federal Communications Commission staff to determine eligibility for issuing authorizations in the use of frequency spectrum and to effect the provisions of regulatory responsibilities rendered the Commission by the Communications Act of 1934, as amended. Response to the information requested is required to obtain the requested authorization. Information requested by this form will be available to the public. Public reporting burden for this collection of information is estimated to average 24 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Federal Communications Commission, Information Resources Branch, Room 416, Washington, D.C. 20554, and to Office of Management and Budget, Paperwork Reduction Project (3060-0480), Washington, D.C. 20503.

EXHIBIT 1

# FREQUENCY COORDINATION LIMITS

12. Frequency Coordination Limits

| (a) Frequency Limits | (b) Range of Satellite Arc | | (c) Antenna Elevation Angle | | (d) Earth Station Azimuth | | (e) Maximum EIRP Density Toward the Horizon (dBW/4kHz) |
|---|---|---|---|---|---|---|---|
| | (i) Eastern Limit | (ii) Western Limit | (i) Eastern Limit | (ii) Western Limit | (i) Eastern Limit | (ii) Western Limit | |
| DOMESTIC | | | | | | | |
| 3700 - 4200 | 60.0 | 114.0 | 52.3 | 42.1 | 139.6 | 236.8 | |
| 5925 - 5958, 6021 - 6076 and 6145 - 6425 | 60.0 | 114.0 | 52.3 | 42.1 | 139.6 | 236.8 | 5.2 |
| INTERNATIONAL | | | | | | | |
| 3625 - 4200 | 6.0 | 60.0 | 5.4 | 52.3 | 97.0 | 139.6 | |
| 5850 - 5958, 6021 - 6076 and 6145 - 6425 | 6.0 | 60.0 | 5.4 | 52.3 | 97.0 | 139.6 | 5.2 |

EXHIBIT 2

# COORDINATION CONTOUR PLOTS FOR CUBA AND THE BAHAMAS

COMSEARCH

(703) 620-6300

● 11720 Sunrise Valley Drive ● Reston, Virginia 22091

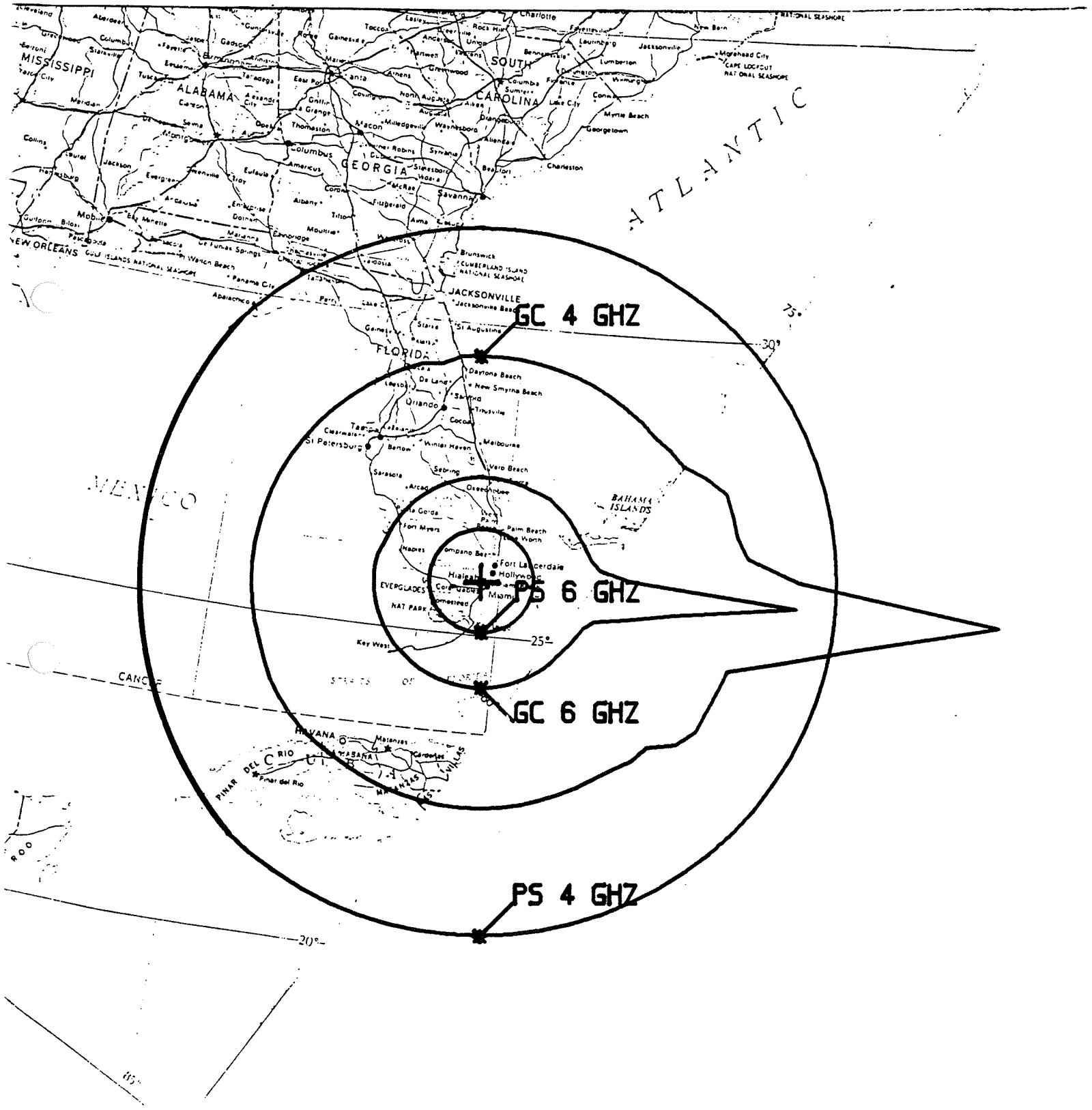


EXHIBIT 3

# FREQUENCY COORDINATION REPORT AND REQUEST FOR WAIVERS

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

PREPARED FOR

AMERICASKY CORPORATION

MIAMI, FLORIDA

SATELLITE EARTH STATION

PREPARED BY
COMSEARCH
11720 SUNRISE VALLEY DRIVE
RESTON, VIRGINIA 22091
JANUARY 26, 1994

TABLE OF CONTENTS

# 1. CONCLUSIONS

AN INTERFERENCE STUDY CONSIDERING ALL EXISTING, PROPOSED AND PRIOR COORDINATED MICROWAVE FACILITIES WITHIN THE COORDINATION CONTOURS OF THE PROPOSED EARTH STATION DEMONSTRATES THAT THIS SITE WILL OPERATE SATISFACTORILY WITH THE COMMON CARRIER MICROWAVE ENVIRONMENT. BASED UPON TRANSMIT FREQUENCY LIMITATIONS IMPOSED UPON THIS STATION, ALL OF THE CARRIERS HAVE AGREED THAT THE FREQUENCY OFFSET IDENTIFIED IN THE REVISED COORDINATION LETTER DATED DECEMBER 1, 1993, WILL BE ADEQUATE TO ENSURE INTERFERENCE DOES NOT EXIST IN THEIR SHARED BAND FACILITIES.

## 2. SUMMARY OF RESULTS

A NUMBER OF GREAT CIRCLE INTERFERENCE CASES WERE IDENTIFIED DURING THE INTERFERENCE STUDY OF THE PROPOSED EARTH STATION. EACH OF THE CASES WHICH EXCEEDED THE INTERFERENCE OBJECTIVE ON A LINE-OF-SIGHT BASIS WAS PROFILED AND THE PROPAGATION LOSSES ESTIMATED USING NBS TN101 (REVISED) TECHNIQUES. THE LOSSES WERE FOUND TO BE SUFFICIENT TO REDUCE THE SIGNAL LEVELS TO ACCEPTABLE MAGNITUDES.

THE FOLLOWING COMPANIES REPORTED POTENTIAL GREAT CIRCLE INTERFERENCE CONFLICTS WHICH DID NOT MEET THE OBJECTIVES ON A LINE-OF-SIGHT BASIS. WHEN OVER-THE-HORIZON LOSSES ARE CONSIDERED ON THE INTERFERING PATHS, SUFFICIENT BLOCKAGE EXISTS TO NEGATE HARMFUL INTERFERENCE FROM OCCURRING WITH THE PROPOSED TRANSMIT AND RECEIVE EARTH STATION.

COMPANY

FLORIDA CELLULAR SERVICE, INC - (BMI)
FLORIDA CELLULAR RSA LIMITED PARTNERSHIP
MCCAW COMM. OF THE MIDSOUTH - MIAMI
AT&T COMMUNICATIONS

NO OTHER CARRIERS REPORTED POTENTIAL INTERFERENCE CASES.

3. SUPPLEMENTAL SHOWING
RE: PART 25.203 (C)

THE SATELLITE EARTH STATION PROPOSED IN THIS APPLICATION WAS COORDINATED BY COMSEARCH. USING COMPUTER TECHNIQUES AND IN ACCORDANCE WITH PART 25 OF THE FCC RULES AND REGULATIONS.

COORDINATION DATA FOR THIS EARTH STATION WAS SENT TO THE BELOW LISTED CARRIERS WITH A LETTER DATED OCTOBER 13, 1993, AND A REVISION DATED DECEMBER 1, 1993.

FLORIDA CELLULAR RSA LIMITED PARTNERSHIP
MCCAW COMM. OF THE MIDSOUTH - W PALM
MCCAW COMM. OF THE MIDSOUTH - FT. PIERCE
AT&T COMMUNICATIONS
FLORIDA CELLULAR SERVICE, INC. - (BMI)
MCCAW COMM. OF THE MIDSOUTH - MIAMI
BELLSOUTH TELECOMMUNICATIONS, INC.
TELUS COMMUNICATIONS, INC.
BELL ATLANTIC NETWORK SERVICES, INC.
SOUTHWESTERN BELL TELEPHONE COMPANY
COMSAT CORPORATION
INDIANA BELL TELEPHONE COMPANY INC
CUBAN COMPANY
TCI CABLEVISION OF FLORIDA, INC.
PALMER CELLULAR PARTNERSHIP - FT. MEYERS
UNITED TELEPHONE COMPANY OF FLORIDA
COMMUNICATIONS INNOVATIONS CORPORATION
ILLINOIS BELL TELEPHONE COMPANY
WESTERN UNION CORPORATION
BELLSOUTH TELECOMMUNICATIONS, INC.
MICHIGAN BELL TELEPHONE COMPANY
GTE FLORIDA, INC.

4. REQUEST FOR WAIVER
RE: PART 25.203(E)

PURSUANT TO PART 25.203(E) OF THE FCC RULES AND REGULATIONS, AN ANALYSIS WAS PERFORMED TO DETERMINE IF THE ANTENNA BEAM OF ANY TERRESTRIAL MICROWAVE STATION INTERSECTS THAT OF THE PROPOSED EARTH STATION. USING THE PARAMETERS SET FORTH IN THE PERTINENT PARAGRAPHS OF THE RULES AND IN CONJUNCTION WITH THE CURRENTLY ACCEPTED COMPUTATIONAL PROCEDURES, TWO SUCH INTERSECTIONS WERE FOUND TO EXIST. DETAILS ARE PROVIDED ON THE FOLLOWING PAGE(S).

PRECIPITATION SCATTER BEAM INTERSECTIONS 10/14/93

EARTH STATION NAME: MIAMI ,FL
OWNER: AMERICASKY
LATITUDE: 25 48 35.0 NORTH
LONGITUDE: 80 21 11.0 WEST
GROUND ELEVATION: 6 FEET AMSL
CENTERLINE: 18 FEET AGL

6.0 GHZ BAND

| OWNER | TRANSMITTER CALL SIGN | RECEIVER CALL SIGN | MARGIN (DB) RCN |
|---|---|---|---|
| P3105 FLORIDA CELL | MIA-DEX *FL WLC902 | MIA-D *FL WLC901 | -10.6 87072020 |
| P5161 MCCAW COMM. | MIAMI LAKES*FL WLB702 | COOPER CITY*FL WLM760 | -11.4 86070906 |

## 5. EARTH STATION COORDINATION DATA

THIS SECTION PRESENTS THE DATA PERTINENT TO FREQUENCY COORDINATION OF THE PROPOSED EARTH STATION WHICH WAS CIRCULATED TO ALL COMMON CARRIERS WITHIN ITS' COORDINATION CONTOURS.

COMSEARCH

December 1, 1993

*** COMSEARCH **********
*** FILE COPY **********
*** DO NOT MAIL *******
*** TO ANYBODY *********

Re: AmericaSky Corporation
Miami, Florida (Andrew 9.3 meter)
C-Band Transmit/Receive Earth Station
Comsearch Job ID Number: 931201A

Dear Frequency Coordinator:

This notice is being provided in accordance with Section 25.203 (c) of the FCC Rules and Regulations. We are forwarding the attached revised coordination data on behalf of AmericaSky Corporation, 801 Brickell Avenue, Miami Florida 33131 for a C-Band Transmit/ Receive earth station located in Miami, Florida.

The revision involves a change in transmit frequencies as defined on the attached earth station data sheet. This information replaces that which was previously coordinated. Please update your databases to reflect this modification.

The coordination notice is being circulated to the owners (or their protection agents) of all existing or proposed terrestrial facilities operating in a shared frequency band within the coordination contours of the proposed station(s).

Since this is a minor modification and does not increase the interference potential, no response to this letter is required.

If there are any questions, concerning this coordination notice, please contact Comsearch.

Sincerely,

Comsearch

David W. Donohoe
Frequency Coordinator

Enclosures

SATELLITE EARTH STATION
FREQUENCY COORDINATION DATA
12/01/93

| | |
|---|---|
| APPLICANT: | AMERICASKY |
| EARTH STATION NAME, STATE | MIAMI FL |
| LATITUDE (DMS): | 25 48 35.0 |
| LONGITUDE (DMS): | 80 21 11.0 |
| GROUND ELEVATION AMSL (FEET/METERS) | 6.0 / 1.8 |
| ANTENNA CENTERLINE AGL (FEET/METERS) | 18.0 / 5.5 |
| RECEIVE ANTENNA TYPE: A40935 | ANDREW CORPORATION ES93 |
| 4.0 GHZ GAIN (DBI)/DIAMETER (METERS): | 50.5/ 9.3 |
| 3 DB/15 DB HALF BEAMWIDTH (DEG.): | 0.25/0.50 |
| TRANSMIT ANTENNA TYPE : A60935 | ANDREW CORPORATION ES93 |
| 6.0 GHZ GAIN (DBI)/DIAMETER (METERS): | 54.0/ 9.3 |
| 3 DB/15 DB HALF BEAMWIDTH (DEG.): | 0.17/0.32 |
| OPERATING MODE: | TRANSMIT AND RECEIVE |
| RECEIVE BAND (MHZ): | 3625 - 4200 |
| TRANSMIT BAND (MHZ): | 5850 - 5958, 6021 - 6076, 6145 - 6425 |
| EMISSION DESIGNATOR | 3M17G7D |
| MODULATION: | DIGITAL |
| MAX. AVAILABLE RF POWER (dBW/4KHZ): | -1.8 |
| (dBW/MHZ): | 22.2 |
| MAX. EIRP (dBW/4KHZ): | 52.2 |
| (dBW/MHZ): | 76.2 |
| (dBW): | 76.5 |
| MAX. PERMISSIBLE INTERFERENCE POWER | |
| 4.0 GHZ, 20% (dBW/1 MHZ) | -158.0 |
| 4.0 GHZ, 0.0100% (dBW/1 MHZ) | -148.0 |
| 6.0 GHZ, 20% (dBW/4KHZ) | -154.0 |
| 6.0 GHZ, 0.0025% (dBW/4KHZ) | -131.0 |
| RANGE OF SATELLITE ARC IN DEGREES (MIN/MAX): | 6.0/ 114.0 |
| AZIMUTH RANGE (MIN/MAX): | 97.0/ 236.8 |
| CORRESPONDING ELEVATION ANGLES: | 5.4/ 42.1 |
| RADIO CLIMATE: | B |
| RAIN ZONE: | 1 |
| MAX. GREAT CIRCLE COORDINATION DISTANCE (MI/KM) | |
| 4.0 GHZ: | 620.4 / 998.4 |
| 6.0 GHZ: | 377.6 / 607.7 |
| PRECIPITATION SCATTER CONTOUR RADIUS (MI/KM) | |
| 4.0 GHZ: | 424.7 / 683.4 |
| 6.0 GHZ: | 62.1 / 100.0 |

TABLE OF EARTH STATION COORDINATION VALUES 10/14/93

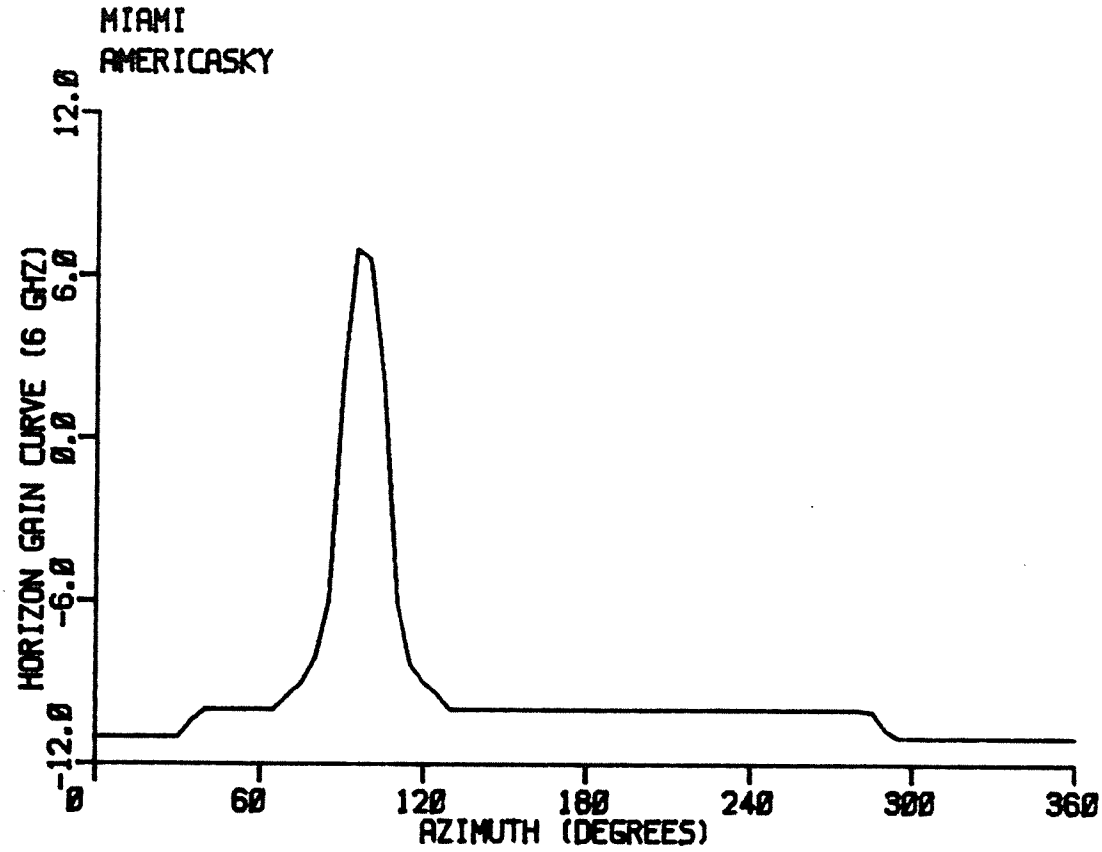
EARTH STATION NAME: MIAMI ,FL
COORDINATES: 25 48 35.0 80 21 11.0
ANTENNA: ANDREW CORPORATION ES93

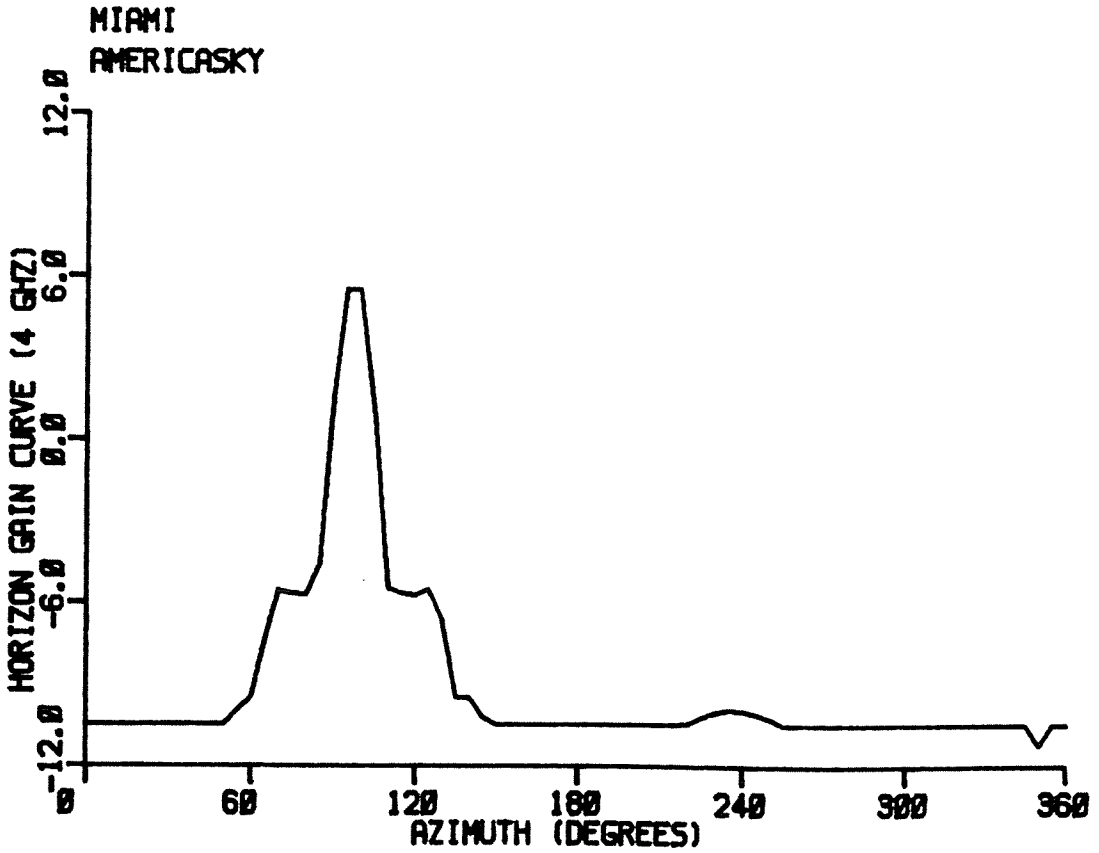
| AZIMUTH (DEG) | HORIZON ELEVATION ANGLE (DEG) | ANTENNA DISC. ANGLE (DEG) | 4.0 GHZ ANTENNA GAIN (DBI) | 4.0 GHZ COORDINATION DISTANCE (KM) | 6.0 GHZ ANTENNA GAIN (DBI) | 6.0 GHZ COORDINATION DISTANCE (KM) |
|---|---|---|---|---|---|---|
| 0. | 0.0 | 96.9 | -10.5 | 437.0 | -11.0 | 200.5 |
| 5. | 0.0 | 91.9 | -10.5 | 437.0 | -11.0 | 200.5 |
| 10. | 0.0 | 87.0 | -10.5 | 437.0 | -11.0 | 200.5 |
| 15. | 0.0 | 82.0 | -10.5 | 437.0 | -11.0 | 200.5 |
| 20. | 0.0 | 77.0 | -10.5 | 437.0 | -11.0 | 200.5 |
| 25. | 0.0 | 72.0 | -10.5 | 437.0 | -11.0 | 200.5 |
| 30. | 0.0 | 67.1 | -10.5 | 437.0 | -11.0 | 200.5 |
| 35. | 0.0 | 62.1 | -10.5 | 437.0 | -10.4 | 203.7 |
| 40. | 0.0 | 57.1 | -10.5 | 437.0 | -10.0 | 206.1 |
| 45. | 0.0 | 52.2 | -10.5 | 437.0 | -10.0 | 206.1 |
| 50. | 0.0 | 47.2 | -10.5 | 437.0 | -10.0 | 206.1 |
| 55. | 0.0 | 42.2 | -9.9 | 443.8 | -10.0 | 206.1 |
| 60. | 0.0 | 37.3 | -9.5 | 449.4 | -10.0 | 206.1 |
| 65. | 0.0 | 32.4 | -7.4 | 476.8 | -10.0 | 206.1 |
| 70. | 0.0 | 27.4 | -5.6 | 501.6 | -9.5 | 209.0 |
| 75. | 0.0 | 22.6 | -5.7 | 500.2 | -9.0 | 211.9 |
| 80. | 0.0 | 17.8 | -5.7 | 499.6 | -8.1 | 217.2 |
| 85. | 0.0 | 13.1 | -4.6 | 515.6 | -6.0 | 230.2 |
| 90. | 0.0 | 8.8 | 1.5 | 611.8 | 2.0 | 287.1 |
| 95. | 0.0 | 5.7 | 5.5 | 998.4 | 7.0 | 607.7 |
| 100. | 0.0 | 6.2 | 5.5 | 738.9 | 6.6 | 375.0 |
| 105. | 0.0 | 9.7 | 0.8 | 600.3 | 2.0 | 287.1 |
| 110. | 0.0 | 14.0 | -5.5 | 502.8 | -6.0 | 229.9 |
| 115. | 0.0 | 18.5 | -5.7 | 500.4 | -8.4 | 215.5 |
| 120. | 0.0 | 22.8 | -5.8 | 499.1 | -9.0 | 211.9 |
| 125. | 0.0 | 27.1 | -5.5 | 502.2 | -9.4 | 209.4 |
| 130. | 0.0 | 31.4 | -6.6 | 487.6 | -10.0 | 206.1 |
| 135. | 0.0 | 35.5 | -9.5 | 449.4 | -10.0 | 206.1 |
| 140. | 0.0 | 39.5 | -9.5 | 449.4 | -10.0 | 206.1 |
| 145. | 0.0 | 43.4 | -10.2 | 440.9 | -10.0 | 206.1 |
| 150. | 0.0 | 47.1 | -10.5 | 437.0 | -10.0 | 206.1 |
| 155. | 0.0 | 50.5 | -10.5 | 437.0 | -10.0 | 206.1 |
| 160. | 0.0 | 53.5 | -10.5 | 437.0 | -10.0 | 206.1 |
| 165. | 0.0 | 56.1 | -10.5 | 437.0 | -10.0 | 206.1 |
| 170. | 0.0 | 58.1 | -10.5 | 437.0 | -10.0 | 206.1 |
| 175. | 0.0 | 59.4 | -10.5 | 437.0 | -10.0 | 206.1 |
| 180. | 0.0 | 59.8 | -10.5 | 437.0 | -10.0 | 206.1 |
| 185. | 0.0 | 59.4 | -10.5 | 437.0 | -10.0 | 206.1 |
| 190. | 0.0 | 58.1 | -10.5 | 437.0 | -10.0 | 206.1 |
| 195. | 0.0 | 56.1 | -10.5 | 437.0 | -10.0 | 206.1 |
| 200. | 0.0 | 53.6 | -10.5 | 437.0 | -10.0 | 206.1 |
| 205. | 0.0 | 50.9 | -10.5 | 437.0 | -10.0 | 206.1 |
| 210. | 0.0 | 48.5 | -10.5 | 437.0 | -10.0 | 206.1 |
| 215. | 0.0 | 46.5 | -10.5 | 437.0 | -10.0 | 206.1 |
| 220. | 0.0 | 44.7 | -10.4 | 437.6 | -10.0 | 206.1 |

TABLE OF EARTH STATION COORDINATION VALUES 10/14/93

EARTH STATION NAME: MIAMI ,FL
COORDINATES: 25 48 35.0 80 21 11.0
ANTENNA: ANDREW CORPORATION ES93

| AZIMUTH (DEG) | HORIZON ELEVATION ANGLE (DEG) | ANTENNA DISC. ANGLE (DEG) | 4.0 GHZ ANTENNA GAIN (DBI) | 4.0 GHZ COORDINATION DISTANCE (KM) | 6.0 GHZ ANTENNA GAIN (DBI) | 6.0 GHZ COORDINATION DISTANCE (KM) |
|---|---|---|---|---|---|---|
| 225. | 0.0 | 43.4 | -10.2 | 440.9 | -10.0 | 206.1 |
| 230. | 0.0 | 42.5 | -10.0 | 443.0 | -10.0 | 206.1 |
| 235. | 0.0 | 42.1 | -9.9 | 444.1 | -10.0 | 206.1 |
| 240. | 0.0 | 42.2 | -9.9 | 443.9 | -10.0 | 206.1 |
| 245. | 0.0 | 42.7 | -10.0 | 442.6 | -10.0 | 206.1 |
| 250. | 0.0 | 43.7 | -10.2 | 440.1 | -10.0 | 206.1 |
| 255. | 0.0 | 45.2 | -10.5 | 437.0 | -10.0 | 206.1 |
| 260. | 0.0 | 47.0 | -10.5 | 437.0 | -10.0 | 206.1 |
| 265. | 0.0 | 49.2 | -10.5 | 437.0 | -10.0 | 206.1 |
| 270. | 0.0 | 51.6 | -10.5 | 437.0 | -10.0 | 206.1 |
| 275. | 0.0 | 54.3 | -10.5 | 437.0 | -10.0 | 206.1 |
| 280. | 0.0 | 57.3 | -10.5 | 437.0 | -10.0 | 206.1 |
| 285. | 0.0 | 60.4 | -10.5 | 437.0 | -10.1 | 205.7 |
| 290. | 0.0 | 63.6 | -10.5 | 437.0 | -10.7 | 202.0 |
| 295. | 0.0 | 67.0 | -10.5 | 437.0 | -11.0 | 200.5 |
| 300. | 0.0 | 70.5 | -10.5 | 437.0 | -11.0 | 200.5 |
| 305. | 0.0 | 74.0 | -10.5 | 437.0 | -11.0 | 200.5 |
| 310. | 0.0 | 77.6 | -10.5 | 437.0 | -11.0 | 200.5 |
| 315. | 0.0 | 81.3 | -10.5 | 437.0 | -11.0 | 200.5 |
| 320. | 0.0 | 85.0 | -10.5 | 437.0 | -11.0 | 200.5 |
| 325. | 0.0 | 88.7 | -10.5 | 437.0 | -11.0 | 200.5 |
| 330. | 0.0 | 92.4 | -10.5 | 437.0 | -11.0 | 200.5 |
| 335. | 0.0 | 96.1 | -10.5 | 437.0 | -11.0 | 200.5 |
| 340. | 0.0 | 99.8 | -10.5 | 437.0 | -11.0 | 200.5 |
| 345. | 0.0 | 103.4 | -10.5 | 437.0 | -11.0 | 200.5 |
| 350. | 0.0 | 106.9 | -11.3 | 427.9 | -11.0 | 200.5 |
| 355. | 0.0 | 101.9 | -10.5 | 437.0 | -11.0 | 200.5 |


MIAMI
AMERICASKY
HORIZON GAIN CURVE (6 GHZ)
12.0
6.0
0.0
-6.0
-12.0
0
60
120
180
240
300
360
AZIMUTH (DEGREES)


MIAMI
AMERICASKY
HORIZON GAIN CURVE (4 GHZ)
12.0
6.0
0.0
-6.0
-12.0
0
60
120
180
240
300
360
AZIMUTH (DEGREES)

SCALE 1:10,000,000

1 INCH EQUALS 158 MILES

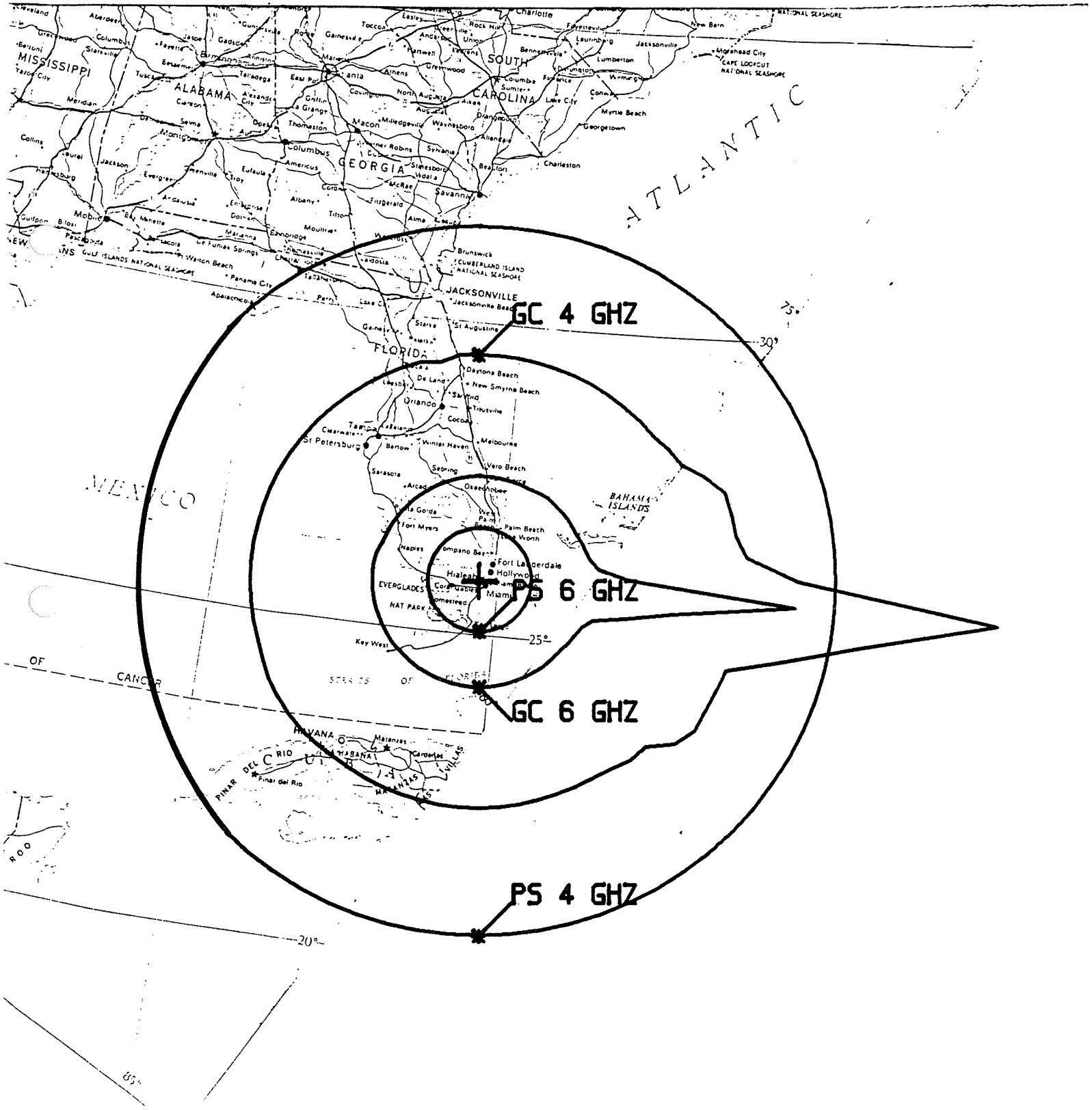
100 50 0 100 200 300 400 500 600 700 800 KILOMETRES

100 50 100 200 300 400 500 STATUTE MILES

COMSEARCH

(703) 620-6300

● 11720 Sunrise Valley Drive ● Reston, Virginia 22091



EARTH STATION NAME : MIAMI
EARTH STATION STATE CODE : FL
OWNER NAME : AMERICASKY
LATITUDE : 25 48 35.0 North
LONGITUDE : 80 21 11.0 West
GROUND ELEVATION : 6.0 Feet AMSL
CENTERLINE : 18.0 Feet AGL
EASTERN ARC : 6.0 Degrees
WESTERN ARC : 114.0 Degrees
SATELLITE DEGREE SPACING : 1.0 Degrees

C - BAND SATELLITES

## EARTH STATION AZIMUTH AND ELEVATION TABLE

| SATELLITE LONGITUDE | AZIMUTH (DEGREES) | ELEVATION (DEGREES) | SATELLITE NAME |
|---|---|---|---|
| 6.0 | 97.0 | 5.4 | |
| 7.0 | 97.4 | 6.3 | |
| 8.0 | 97.9 | 7.2 | TELECOM-2A |
| 9.0 | 98.4 | 8.1 | |
| 9.8 | 98.7 | 8.8 | TELECOM-1A |
| 10.0 | 98.8 | 9.0 | |
| 11.0 | 99.3 | 9.9 | |
| 11.8 | 99.7 | 10.7 | GORIZONT-11 |
| 12.0 | 99.8 | 10.9 | |
| 13.0 | 100.3 | 11.8 | |
| 13.7 | 100.6 | 12.4 | GORIZONT-15 |
| 14.0 | 100.8 | 12.7 | |
| 15.0 | 101.3 | 13.6 | INMARSAT 2 F1 |
| 16.0 | 101.8 | 14.5 | |
| 17.0 | 102.3 | 15.4 | |
| 18.0 | 102.8 | 16.3 | INTELSAT 515 (V-F6) |
| 18.5 | 103.1 | 16.8 | INTELSAT 515 (V-F6) |
| 19.0 | 103.4 | 17.3 | |
| 20.0 | 103.9 | 18.2 | |
| 21.0 | 104.5 | 19.1 | |
| 21.4 | 104.7 | 19.5 | INTELSAT 502 (V-F6) |
| 21.5 | 104.7 | 19.6 | INTELSAT 502 (V-F2) |
| 22.0 | 105.0 | 20.0 | |
| 23.0 | 105.6 | 20.9 | |
| 24.0 | 106.2 | 21.9 | |
| 24.5 | 106.5 | 22.3 | INTELSAT 605 (VI-F2) |
| 25.0 | 106.7 | 22.8 | |
| 25.6 | 107.1 | 23.3 | RADUGA-23 |
| 25.8 | 107.2 | 23.5 | MARECS-B2 |
| 26.0 | 107.3 | 23.7 | INMARSAT 2-F2 |
| 27.0 | 107.9 | 24.6 | |
| 27.5 | 108.3 | 25.1 | INTELSAT 601 (VI-F4) |
| 28.0 | 108.6 | 25.5 | |
| 29.0 | 109.2 | 26.4 | |
| 30.0 | 109.8 | 27.3 | |
| 30.9 | 110.4 | 28.2 | RADUGA-16 |
| 31.0 | 110.5 | 28.2 | |

EARTH STATION AZIMUTH AND ELEVATION TABLE (CONT'D)

| SATELLITE LONGITUDE | AZIMUTH (DEGREES) | ELEVATION (DEGREES) | SATELLITE NAME |
|---|---|---|---|
| 32.0 | 111.2 | 29.2 | |
| 33.0 | 111.9 | 30.1 | |
| 34.0 | 112.6 | 31.0 | |
| 34.5 | 112.9 | 31.4 | INTELSAT 603 (VI-F4) |
| 35.0 | 113.3 | 31.9 | |
| 35.5 | 113.6 | 32.3 | INTELSAT 504 |
| 36.0 | 114.0 | 32.8 | |
| 37.0 | 114.8 | 33.7 | |
| 38.0 | 115.5 | 34.5 | |
| 39.0 | 116.3 | 35.4 | |
| 40.0 | 117.1 | 36.3 | |
| 40.7 | 117.7 | 36.9 | TDRS-4 |
| 41.0 | 118.0 | 37.2 | |
| 42.0 | 118.8 | 38.1 | |
| 43.0 | 119.7 | 38.9 | PAS-2 |
| 44.0 | 120.6 | 39.8 | |
| 45.0 | 121.5 | 40.7 | |
| 45.9 | 122.4 | 41.4 | PAS-1 |
| 46.0 | 122.5 | 41.5 | |
| 47.0 | 123.5 | 42.3 | |
| 48.0 | 124.5 | 43.2 | |
| 49.0 | 125.6 | 44.0 | |
| 50.0 | 126.6 | 44.8 | INTELSAT 506 |
| 51.0 | 127.7 | 45.6 | |
| 52.0 | 128.9 | 46.4 | |
| 53.0 | 130.1 | 47.2 | INTELSAT 513 |
| 53.1 | 130.2 | 47.3 | INTELSAT 513 (VA-F13) |
| 54.0 | 131.3 | 48.0 | INMARSAT-II F4 |
| 55.0 | 132.6 | 48.7 | |
| 55.5 | 133.2 | 49.1 | INMARSAT-2-F5 |
| 56.0 | 133.9 | 49.5 | |
| 57.0 | 135.2 | 50.2 | |
| 58.0 | 136.6 | 50.9 | |
| 59.0 | 138.1 | 51.6 | |
| 60.0 | 139.6 | 52.3 | |
| 61.0 | 141.1 | 52.9 | |
| 62.0 | 142.7 | 53.5 | |
| 63.0 | 144.3 | 54.2 | |
| 64.0 | 146.0 | 54.7 | |
| 65.0 | 147.8 | 55.3 | |
| 65.1 | 147.9 | 55.4 | SBTS-1 (Brasilsat) |
| 66.0 | 149.6 | 55.8 | |
| 67.0 | 151.4 | 56.3 | |
| 68.0 | 153.3 | 56.8 | |
| 69.0 | 155.2 | 57.3 | SPACENET II |
| 70.0 | 157.2 | 57.7 | SBTS-2 (Brasilsat-2) |
| 71.0 | 159.3 | 58.1 | |
| 71.8 | 160.9 | 58.4 | ANIK C-2 |
| 72.0 | 161.4 | 58.4 | SATCOM IIR |
| 73.0 | 163.5 | 58.7 | |

EARTH STATION AZIMUTH AND ELEVATION TABLE (CONT'D)

| SATELLITE LONGITUDE | AZIMUTH (DEGREES) | ELEVATION (DEGREES) | SATELLITE NAME |
|---|---|---|---|
| 74.0 | 165.7 | 59.0 | GALAXY II |
| 75.0 | 167.9 | 59.2 | |
| 75.8 | 169.6 | 59.4 | ANIK C-1 |
| 76.0 | 170.1 | 59.4 | COMSTAR D2/D4 |
| 77.0 | 172.3 | 59.6 | |
| 78.0 | 174.6 | 59.7 | |
| 79.0 | 176.9 | 59.8 | |
| 80.0 | 179.2 | 59.8 | |
| 81.0 | 181.5 | 59.8 | |
| 82.0 | 183.8 | 59.8 | SATCOM 4R |
| 83.0 | 186.1 | 59.7 | |
| 84.0 | 188.3 | 59.6 | |
| 85.0 | 190.6 | 59.4 | TELSTAR 302 |
| 86.0 | 192.8 | 59.2 | |
| 87.0 | 195.0 | 58.9 | SPACENET III |
| 88.0 | 197.1 | 58.6 | |
| 89.0 | 199.3 | 58.3 | |
| 90.0 | 201.3 | 58.0 | |
| 91.0 | 203.4 | 57.6 | GALAXY VII |
| 92.0 | 205.3 | 57.1 | |
| 93.0 | 207.3 | 56.7 | |
| 93.5 | 208.2 | 56.4 | GALAXY III |
| 94.0 | 209.1 | 56.2 | |
| 95.0 | 211.0 | 55.7 | |
| 96.0 | 212.8 | 55.1 | TELSTAR 301 |
| 97.0 | 214.5 | 54.6 | |
| 98.0 | 216.2 | 54.0 | |
| 99.0 | 217.8 | 53.4 | GALAXY IV |
| 99.0 | 217.8 | 53.4 | GALAXY VI |
| 100.0 | 219.3 | 52.7 | |
| 101.0 | 220.9 | 52.1 | SPACENET IV |
| 102.0 | 222.3 | 51.4 | |
| 103.0 | 223.8 | 50.7 | |
| 104.0 | 225.2 | 50.0 | |
| 105.0 | 226.5 | 49.2 | |
| 106.0 | 227.8 | 48.5 | |
| 107.0 | 229.1 | 47.7 | |
| 107.5 | 229.7 | 47.4 | ANIK E2 |
| 108.0 | 230.3 | 47.0 | |
| 109.0 | 231.4 | 46.2 | |
| 110.0 | 232.6 | 45.4 | |
| 111.0 | 233.7 | 44.6 | |
| 111.1 | 233.8 | 44.5 | ANIK E1 |
| 112.0 | 234.8 | 43.8 | |
| 113.0 | 235.8 | 42.9 | |
| 113.5 | 236.3 | 42.5 | MORELOS-1 |
| 114.0 | 236.8 | 42.1 | |

6. CERTIFICATION

I HEREBY CERTIFY THAT I AM THE TECHNICALLY QUALIFIED PERSON RESPONSIBLE FOR THE PREPARATION OF THE FREQUENCY COORDINATION DATA CONTAINED IN THIS APPLICATION, THAT I AM FAMILIAR WITH PARTS 21 AND 25 OF THE FCC RULES AND REGULATIONS, THAT I HAVE EITHER PREPARED OR REVIEWED THE FREQUENCY COORDINATION DATA SUBMITTED WITH THIS APPLICATION, AND THAT IT IS COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

BY: _____

JEFFREY E. COWLES
FREQUENCY COORDINATOR
COMSEARCH
11720 SUNRISE VALLEY DRIVE
RESTON, VIRGINIA 22091

DATED: 1/26/94

EXHIBIT 4

# RADIATION HAZARD ASSESSMENT

Table 1

Summary of Expected Radiation Levels

| Region | Calculated Maximum Radiation Level (mW/cm**2) | Hazard Assessment |
|---|---|---|
| 1. Far Field, (Rf)= 1068.2m | 0.70 | SATISFIES ANSI |
| 2. Near Field, (Rn)= 445.06m | 1.30 | SATISFIES ANSI |
| 3. Transition Region, (Rt) Rn < Rt < Rf | 1.30 | SATISFIES ANSI |
| 4. Between Main Reflector and Subreflector | 68.55 | POTENTIAL HAZARD |
| 5. Reflector Surface | 1.18 | SATISFIES ANSI |
| 6. Between Antenna and Ground | 0.59 | SATISFIES ANSI |

## 7. Conclusions

Based on the above analysis it is concluded that harmful levels of radiation will not exist in regions normally occupied by the public or the earth station's operating personnel. The transmitter will be turned off during antenna maintenance so that the ANSI Standard of 5.0 mW/cm**2 will be complied with for those regions with close proximity to the reflector that exceed acceptable levels.

## 4. Region Between Main Reflector and Subreflector

Transmissions from the feed horn are directed toward the subreflector surface, and are reflected back toward the main reflector. The energy between the subreflector and reflector surfaces can be calculated by determining the power density at the subreflector surface. This can be accomplished as follows:

Power Density at Subreflector, (Ws) = 2(P) / As

= 68.55 mW/cm**2

## 5. Main Reflector Region

The power density in the main reflector region is determined in the same manner as the power density at the subreflector, above, but the area is now the area of the main reflector aperture:

Power Density at Main Reflector Surface, (Wm) = (2(P) / Sa)

= 11.78 W/m**2

= 1.18 mW/cm**2

## 6. Region between Main Reflector and Ground

Assuming uniform illumination of the reflector surface, the power density between the antenna and ground can be calculated as follows:

Power density between Reflector and Ground, (Wg) = (P / Sa)

= 5.89 W/m**2

= 0.59 mW/cm**2

8.Certification

I hereby certify that I am the technically qualified person responsible for the preparation of the radiation hazard assessment, and that I have reviewed this radiation hazard assessment, and that it is complete and correct to the best of my knowledge.

BY: _____

JEFFREY E. COWLES
FREQUENCY COORDINATOR
COMSEARCH

DATED: 1/26/94

EXHIBIT 5

PLOT PLAN OF PROPOSED ANTENNA SITE

# ANALYSIS OF NON-IONIZING RADIATION FOR A 9.3 METER EARTH STATION

This report analyzes the non-ionizing radiation levels for a 9.3 meter earth station. The Office of Science and Technology Bulletin, No. 65, October 1985, specifies that the maximum level of non-ionizing radiation that a person may be exposed to over a six minute period is an average power density equal to 5 mW/cm**2 (five milliwatts per centimeter squared). It is the purpose of this report to determine the power flux densities of the earth station in the far field, near field, transition region, between the subreflector and main reflector surface, at the main reflector surface, and between the antenna edge and the ground.

The following parameters were used to calculate the various power flux densities for this earth station:

| | | |
|---|---|---|
| Antenna Diameter, (D) | = 9.3 meters | |
| Antenna surface area, (Sa) | = pi (D**2) / 4 | = 67.93 m**2 |
| Subreflector Diameter, (Ds) | = 121.9 cm | |
| Area of Subreflector, (As) | = pi (Ds**2) / 4 | =11670.71 cm**2 |
| Wavelength at 6.1750 GHz, (lambda) | | = 0.049 meters |
| Transmit Power at Flange, (P) | = 400.00 Watts | |
| Antenna Gain, (Ges) | Antenna Gain at 6.1750 GHz = 54.0 dBi Converted to a Power Ratio Given By: AntiLog (54.0 / 10) | = 0.251E+06 |
| pi, (pi) | = 3.1415927 | |
| Antenna aperture efficiency, (n) | = 0.55 | |

## 1. Far Field Calculations

The distance to the beginning of the far field region can be found by the following equation: (1)

$$\text{Distance to the Far Field Region, (Rf)} = \frac{0.60(D^{**}2)}{\text{lambda}}$$

$$= 1068.2 \text{ m}$$

---

(1) Federal Communications Commission, Public Notice of January 28, 1986, "Further Guidance for Broadcasters Regarding Radiofrequency Radiation and the Environment", pp. 17 & 18.

The maximum main beam power density in the far field can be calculated as follows: (1)

$$\text{On-Axis Power Density in the Far Field, (Wf)} = \frac{(GES)\ (P)}{4\ pi\ (Rf^{**}2)}$$

$$= \quad 7.01\ W/m^{**}2$$

$$= \quad 0.70\ mW/cm^{**}2$$

## 2. Near Field Calculations

Power flux density is considered to be at a maximum value throughout the entire length of the defined region. The region is contained within a cylindrical volume having the same diameter as the antenna. Past the extent of the near field region the power density decreases with distance from the transmitting antenna.

The distance to the end of the near field can be determined by the following equation: (1)

$$\text{Extent of near field, (Rn)} = D^{**}2 / 4(\text{lambda}) = 445.06\ m$$

The maximum power density in the near field is determined by: (1)

$$\text{Near field Power Density, (Wn)} = \frac{16.0(n)P}{pi(D^{**}2)}$$

$$= \quad 12.95\ W/m^{**}2$$

$$= \quad 1.30\ mW/cm^{**}2$$

## 3. Transition Region Calculations

The transition region is located between the near and far field regions. As stated above, the power density begins to decrease with distance in the transition region. While the power density decreases inversely with distance in the transition region, the power density decreases inversely with the square of the distance in the far field region. The maximum power density in the transition region will not exceed that calculated for the near field region. The power density in the near field region, as shown above, will not exceed 1.30 mW/cm**2.

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(1) IBID