Exhibit 1

Radiation Hazard Study
(1.8 Meter)

ANALYSIS OF NON-IONIZING RADIATION FOR A 1.8 METER EARTH STATION

This report analyzes the non-ionizing radiation levels for a 1.8 meter earth station. The Office of Engineering and Technology Bulletin, No. 65, Edition 97-01, specifies that there are two separate tiers of exposure limits that are dependent on the situation in which exposure takes place and/or the status of the individuals who are subject to the exposure. The Maximum Permissible Exposure (MPE) limit for persons in a Uncontrolled/Public environment to non-ionizing radiation over a thirty minute period is a power density equal to 1 mW/cm**2 (one milliwatts per centimeter squared). The Maximum Permissible Exposure (MPE) limit for persons in a Controlled/Occupational environment to non-ionizing radiation over a six minute period is a 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)	= 1.8 meters		
Antenna surface area, (Sa)	= pi (D**2) / 4	=	2.54 m**2
Subreflector Diameter, (Ds)	= 19.0 cm		
Area of Subreflector, (As)	= pi (Ds**2)/ 4	=	283.53 cm**2
Wavelength at 6.1750 GHz, (lambda)		=	0.049 meters
Transmit Power at Flange, (P)	= 13.80 Watts		
Antenna Gain, (Ges)	Antenna Gain at 6.1750 GHz Converted to a Power Ratio Given By: AntiLog (39.5 / 10)	= =	8.913E+03 39.5 dBi
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)

Distance to the Far Field Region, (Rf) = 0.60(D**2) / lambda

= 40.0 m

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(1) Federal Communications Commission, Office of Engineering & Technology, Bulletin No. 65, pp. 17 & 18.

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

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

= 6.11 W/m**2

= 0.61 mW/cm**2

2. Near Field Calculation

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)

Extent of near field, (Rn) = D**2 / 4(lambda) = 16.67 m

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

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

= 11.93 W/m**2

= 1.19 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 1.19 mW/cm**2.

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(1) IBID

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) = 4(P) / As

= 194.69 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) = (4(P) / Sa)

= 21.69 W/m**2

= 2.17 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)

= 0.54 mW/cm**2

Table 1

Summary of Expected Radiation Levels

Based on (5 mW/cm**2) MPE for Controlled Environment

Region			Calculated Maximum Radiation Level (mW/cm**2)	Hazard Assessment
1. Far Field, (Rf)=	40.0	m	0.61	SATISFIES ANSI
2. Near Field, (Rn)=	16.67	m	1.19	SATISFIES ANSI
3. Transition Region, (Rt) Rn < Rt < Rf			1.19	SATISFIES ANSI
4. Between Main Reflector and subreflector			194.69	POTENTIAL HAZARD
5. Reflector Surface			2.17	SATISFIES ANSI
6. Between Antenna and Ground			0.54	SATISFIES ANSI

It is the applicants responsibility to ensure that the public and operational personnel are not exposed to harmful levels of radiation.

Table 2

Summary of Expected Radiation Levels

Based on (1 mW/cm**2) MPE for Uncontrolled Environment

Region	Calculated Maximum Radiation Level (mW/cm**2)	Hazard Assessment
1. Far Field, (Rf)= 40.0 m	0.61	SATISFIES ANSI
2. Near Field, (Rn)= 16.67 m	1.19	POTENTIAL HAZARD
3. Transition Region, (Rt) Rn < Rt < Rf	1.19	POTENTIAL HAZARD
4. Between Main Reflector and subreflector	194.69	POTENTIAL HAZARD
5. Reflector Surface	2.17	POTENTIAL HAZARD
6. Between Antenna and Ground	0.54	SATISFIES ANSI

It is the applicants responsibility to ensure that the public and operational personnel are not exposed to harmful levels of radiation.

7. Conclusions

Based on the above analysis it is concluded that the FCC RF Guidelines have been exceeded in the specified region(s) of Tables 1 and 2. The applicant proposes to comply with the Maximum Permissible Exposure (MPE) limits of 1 mW/cm2 for the Uncontrolled areas and the MPE limits of 5 mW/cm2 for the Controlled areas by restricting access to the antenna, which will be located in a fenced area where pubic access is restricted. The antenna transmitter will be turned off during maintenance in order to comply with the MPE limit of 5 mW/cm2 at the Reflector Surface.

Exhibit 2

Frequency Coordination Report

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

PREPARED FOR
HALLIBURTON ENERGY SERVICES
HOUSTON, TX
SATELLITE EARTH STATION

PREPARED BY
COMSEARCH
2002 EDMUND HALLEY DRIVE
RESTON, VIRGINIA 20191
December 13, 1999

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. FURTHER, THERE WILL BE NO RESTRICTIONS OF ITS OPERATION DUE TO INTERFERENCE CONSIDERATIONS.

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 IN EVERY CASE.

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.

<u>COMPANY</u>

SHELL OFFSHORE SERVICES COMPANY

NO OTHER CARRIERS REPORTED POTENTIAL INTERFERENCE CASES.

3. SUPPLEMENTAL SHOWING
RE: PART 25.203(C)

PURSUANT TO PART 25.203(C) OF THE FCC RULES AND REGULATIONS, 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 DECEMBER 6, 1999.

AT&T COMM. OF THE SOUTH CENTRAL STATES
AT&T COMMUNICATIONS OF THE SOUTHWEST
ATC TELEPORTS, INC
CELLCO PARTNERSHIP - SOUTHWESTERN
DOBSON CELLULAR OF TEXAS, INC.
GTE MOBILNET OF SOUTH TEXAS LTD PARTNERS
GTE MOBILNET OF TEXAS RSA #16 LTD PRTNSH
GTE MOBILNET OF TEXAS RSA #17 LTD PRTNSH
GTE SOUTHWEST INCORPORATED
GTE WIRELESS OF HOUSTON INCORPORATED
HOUSTON LIGHTING AND POWER COMPANY
IWL COMMUNICATIONS, INC.
KHOU-TV, L.P.
LEGACY WORLDCOM
LOWER COLORADO RIVER AUTHORITY
MCI WORLDCOM NETWORK SERVICES INC.
PATHNET, INC.
PG&E TEXAS PIPELINE LP
POST NEWSWEEK CABLE SOUTHERN
POST NEWSWEEK CABLE SOUTHWESTERN
QWEST TRANSMISSION, INC.
SHELL OFFSHORE SERVICES COMPANY
SOUTHWESTERN BELL TELEPHONE COMPANY
TCI CABLEVISION OF TEXAS INC
TEXAS CABLE PARTNERS, LP
WILLIAMS COMMUNICATIONS, INC.

4. 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.

SATELLITE EARTH STATION
FREQUENCY COORDINATION DATA
12/06/1999

Company	HALLIBURTON ENERGY SERVICES		
Owner code		S07240	
Earth Station Name, State		HOUSTON, TX	
Latitude (DMS) (NAD83)		29 42 27.0 N	
Longitude (DMS) (NAD83)		95 33 45.0 W	
Ground Elevation AMSL (Ft/m)		52.99 /	16.15
Antenna Centerline AGL (Ft/m)		4.99 /	1.52
Receive Antenna Type:	FCC32	Prodelin Model 4091-718	
4 GHz Gain (dBi) / Diameter (m)		35.5 /	1.8
3 dB / 15 dB Half Beamwidth		0.50 /	1.00
Transmit Antenna Type:	FCC32	Prodelin Model 4091-718	
6 GHz Gain (dBi) / Diameter (m)		39.5 /	1.8
3 dB / 15 dB Half Beamwidth		0.60 /	1.20

Operating Mode		TRANSMIT AND RECEIVE		
Modulation		DIGITAL		
Emission / Receive Band (MHz)	8K00G7D	819KG7D /	3700.0000 -	4200.0000
Emission / Transmit Band (MHz)	8K0G7DW	819KG7D /	5925.0000 -	6425.0000

Max. Available RF Power	(dBW)/4 kHz	-11.71
	(dBW)/MHz	12.29
Max. EIRP	(dBW)/4 kHz	27.79
	(dBW)/MHz	51.79

Max permissible Interference Power	
4 GHz, 20% (dBW/1 MHz)	-156.0
4 GHz, 0.0100% (dBW/1 MHz)	-146.0
6 GHz, 20% (dBW/4 kHz)	-154.0
6 GHz, 0.0025% (dBW/4 kHz)	-131.0

Range of Satellite Arc (Geostationary) Degrees Longitude	58.0 W /	58.0 W
Azimuth Range (Min/Max)	122.8 /	122.8
Corresponding Elevation Angles	36.5 /	36.5
Radio Climate	A	
Rain Zone	2	
Max Great Circle Coordination Distance (Mi/Km)		
4 GHz	177.2 /	285.3
6 GHz	91.3 /	147.0
Precipitation Scatter contour radius (Mi/Km)		
4 GHz	301.3 /	485.0
6 GHz	62.1 /	100.0

Table of Earth Station Coordination Values
12/06/1999

Earth Station Name HOUSTON TX
Owner HALLIBURTON ENERGY SERVICES
Latitude (DMS) (NAD83) 29 42 27.0 N
Longitude (DMS) (NAD83) 95 33 45.0 W
Ground Elevation (Ft/m) 52.99 / 16.15 AMSL
Antenna Centerline (Ft/m) 4.99 / 1.52 AGL
Antenna Model Prodelin 1.8 Meter
Objectives: Receive -156.0 (dBW /1 MHz)
Transmit -154.0 (dBW /4 kHz) TX Power -11.7 (dBW/4 kHz)

Azimuth (Deg)	Horizon Elevation Angle (Deg)	Antenna Disc. Angle (Deg)	4 GHz Antenna Gain (dBi)	4 GHz Coordination Distance (Km)	6 GHz Antenna Gain (dBi)	6 GHz Coordination Distance (Km)
0	0.00	115.80	-10.00	285.2	-10.00	137.9
5	1.21	112.37	-10.00	213.7	-10.00	137.9
10	1.21	108.43	-10.00	213.7	-10.00	137.9
15	1.22	104.45	-10.00	213.4	-10.00	137.9
20	1.24	100.42	-10.00	212.9	-10.00	137.9
25	1.25	96.36	-10.00	212.7	-10.00	137.9
30	1.25	92.29	-10.00	212.5	-10.00	137.9
35	1.27	88.23	-10.00	212.0	-10.00	137.9
40	1.28	84.22	-10.00	211.6	-10.00	137.9
45	1.30	80.22	-10.00	211.2	-10.00	137.9
50	1.32	76.25	-10.00	210.8	-10.00	137.9
55	1.33	72.33	-10.00	210.3	-10.00	137.9
60	1.34	68.45	-10.00	210.0	-10.00	137.9
65	1.35	64.65	-10.00	209.6	-10.00	137.9
70	1.37	60.93	-10.00	209.3	-10.00	137.9
75	1.37	57.33	-10.00	209.1	-10.00	137.9
80	1.38	53.87	-10.00	208.9	-10.00	137.9
85	1.37	50.59	-10.00	209.2	-10.00	137.9
90	1.33	47.51	-9.71	211.6	-9.92	138.1
95	1.31	44.70	-9.02	215.5	-9.26	140.1
100	1.30	42.21	-8.36	219.3	-8.63	142.0
105	1.29	40.09	-7.76	222.6	-8.08	143.7
110	1.28	38.41	-7.27	225.5	-7.61	145.2
115	1.27	37.24	-6.91	227.7	-7.28	146.3
120	1.26	36.62	-6.72	229.3	-7.09	146.9
125	1.22	36.59	-6.72	230.5	-7.08	146.9
130	1.18	37.14	-6.90	231.0	-7.25	146.4
135	1.15	38.25	-7.25	230.0	-7.56	145.4
140	1.13	39.86	-7.74	227.8	-8.01	143.9
145	1.12	41.93	-8.32	225.1	-8.56	142.2
150	1.11	44.38	-8.97	222.1	-9.18	140.3
155	1.10	47.16	-9.67	218.9	-9.84	138.4
160	1.09	50.21	-10.00	217.6	-10.00	137.9
165	1.08	53.47	-10.00	217.8	-10.00	137.9
170	1.07	56.91	-10.00	218.0	-10.00	137.9
175	1.07	60.50	-10.00	218.1	-10.00	137.9
180	0.00	64.20	-10.00	285.2	-10.00	137.9

Table of Earth Station Coordination Values

12/06/1999

Earth Station Name HOUSTON TX
Owner HALLIBURTON ENERGY SERVICES
Latitude (DMS) (NAD83) 29 42 27.0 N
Longitude (DMS) (NAD83) 95 33 45.0 W
Ground Elevation (Ft/m) 52.99 / 16.15 AMSL
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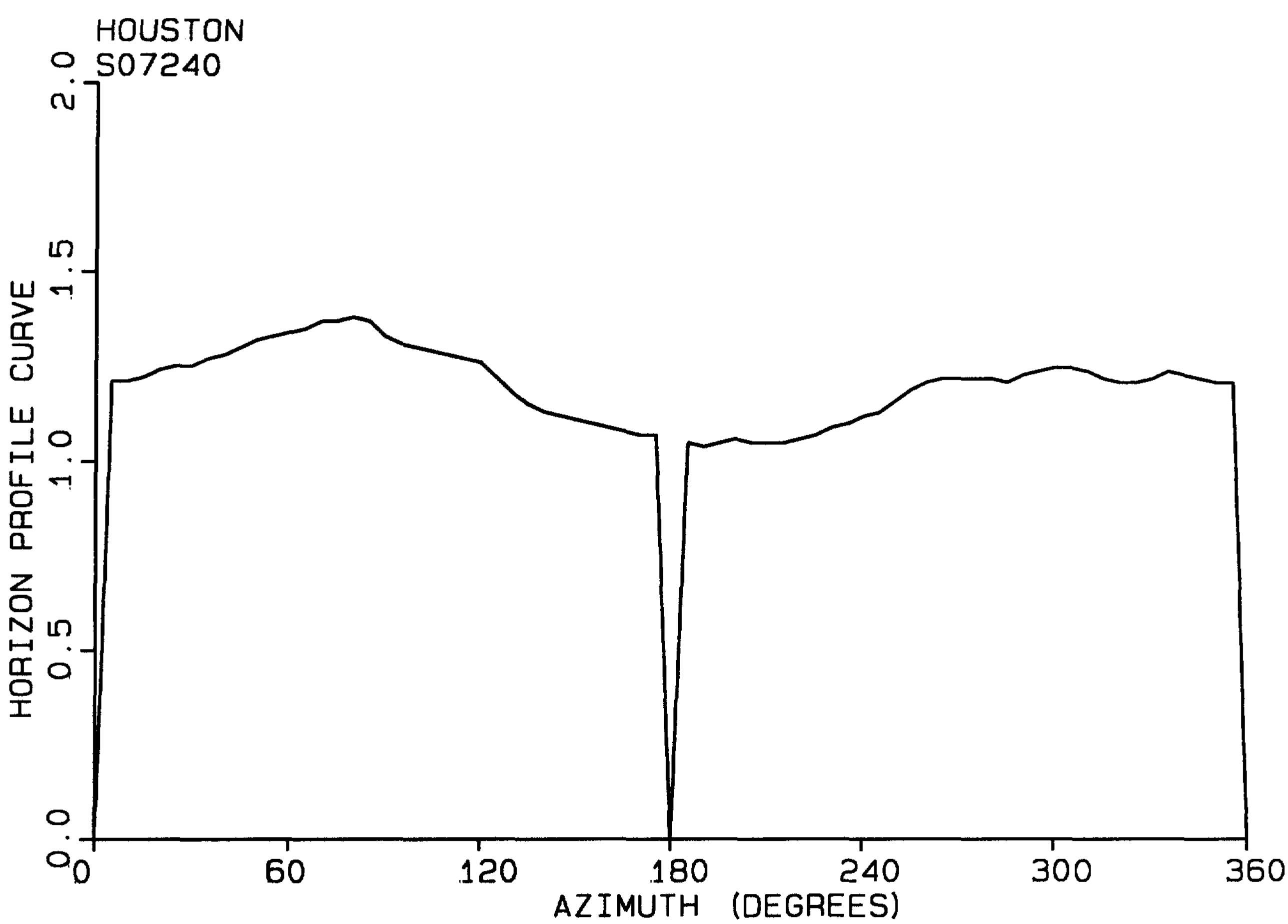
Antenna Model Prodelin 1.8 Meter
Objectives: Receive -156.0 (dBW /1 MHz)
Transmit -154.0 (dBW /4 kHz) TX Power -11.7 (dBW/4 kHz)

Azimuth (Deg)	Horizon Elevation Angle (Deg)	Antenna Disc. Angle (Deg)	4 GHz Antenna Gain (dBi)	4 GHz Coordination Distance (Km)	6 GHz Antenna Gain (dBi)	6 GHz Coordination Distance (Km)
185	1.05	67.99	-10.00	218.7	-10.00	137.9
190	1.04	71.86	-10.00	219.0	-10.00	137.9
195	1.05	75.78	-10.00	218.8	-10.00	137.9
200	1.06	79.75	-10.00	218.5	-10.00	137.9
205	1.05	83.74	-10.00	218.7	-10.00	137.9
210	1.05	87.75	-10.00	218.7	-10.00	137.9
215	1.05	91.79	-10.00	218.8	-10.00	137.9
220	1.06	95.86	-10.00	218.3	-10.00	137.9
225	1.07	99.91	-10.00	218.0	-10.00	137.9
230	1.09	103.94	-10.00	217.4	-10.00	137.9
235	1.10	107.93	-10.00	217.0	-10.00	137.9
240	1.12	111.87	-10.00	216.6	-10.00	137.9
245	1.13	115.74	-10.00	216.2	-10.00	137.9
250	1.16	119.54	-10.00	215.3	-10.00	137.9
255	1.19	123.22	-10.00	214.5	-10.00	137.9
260	1.21	126.78	-10.00	213.8	-10.00	137.9
265	1.22	130.15	-10.00	213.6	-10.00	137.9
270	1.22	133.31	-10.00	213.5	-10.00	137.9
275	1.22	136.21	-10.00	213.5	-10.00	137.9
280	1.22	138.78	-10.00	213.6	-10.00	137.9
285	1.21	140.98	-10.00	213.8	-10.00	137.9
290	1.23	142.73	-10.00	213.4	-10.00	137.9
295	1.24	143.97	-10.00	212.9	-10.00	137.9
300	1.25	144.62	-10.00	212.6	-10.00	137.9
305	1.25	144.66	-10.00	212.6	-10.00	137.9
310	1.24	144.07	-10.00	213.0	-10.00	137.9
315	1.22	142.90	-10.00	213.5	-10.00	137.9
320	1.21	141.21	-10.00	213.8	-10.00	137.9
325	1.21	139.06	-10.00	213.9	-10.00	137.9
330	1.22	136.53	-10.00	213.5	-10.00	137.9
335	1.24	133.68	-10.00	212.9	-10.00	137.9
340	1.23	130.55	-10.00	213.2	-10.00	137.9
345	1.22	127.19	-10.00	213.5	-10.00	137.9
350	1.21	123.67	-10.00	213.7	-10.00	137.9
355	1.21	120.00	-10.00	213.8	-10.00	137.9



HOUSTON
S07240
HORIZON PROFILE CURVE
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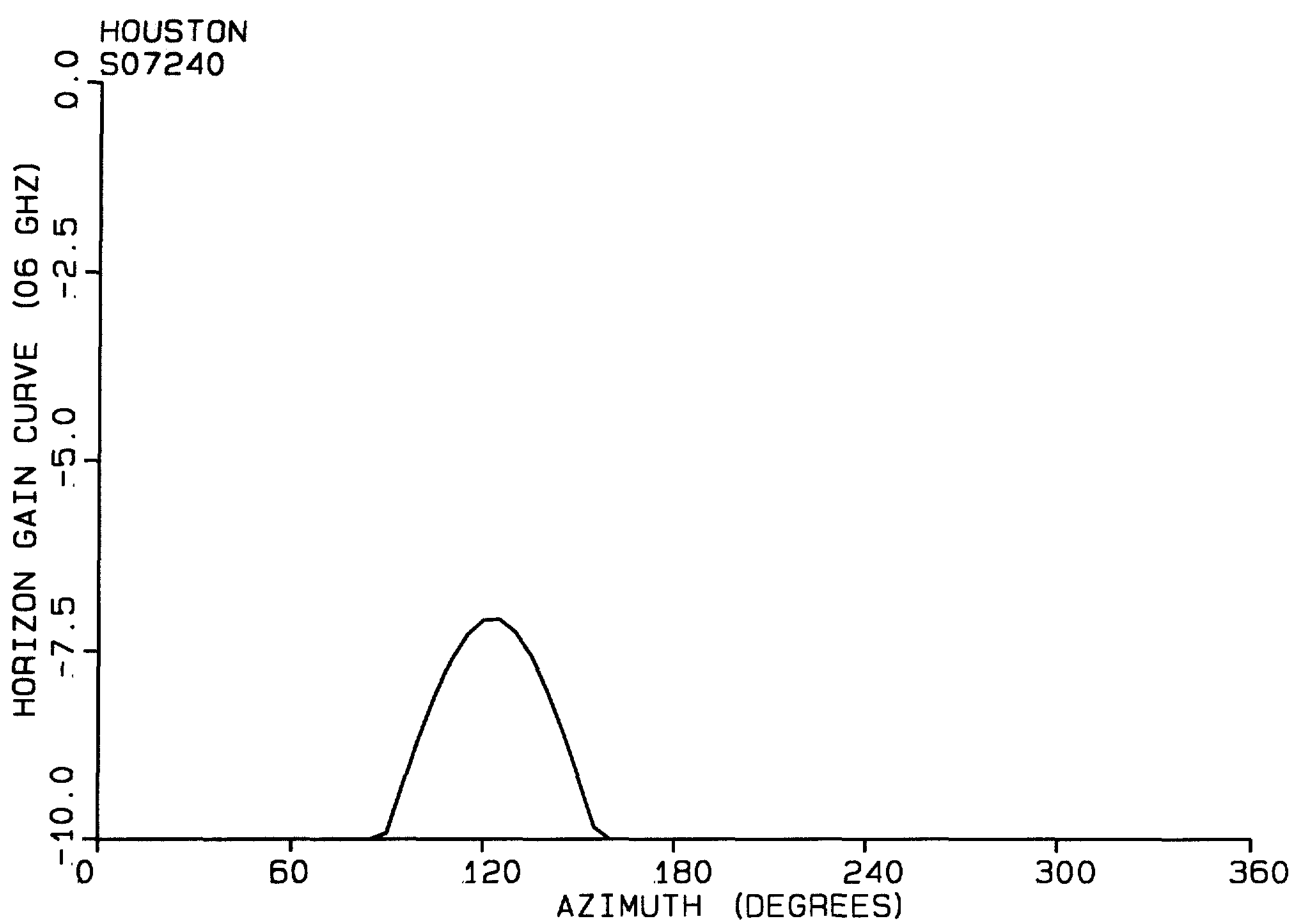
0.5
1.0
1.5
2.0
0
60
120
180
240
300
360
AZIMUTH (DEGREES)


HOUSTON
S07240
HORIZON GAIN CURVE (06 GHZ)
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-7.5
-10.0
0
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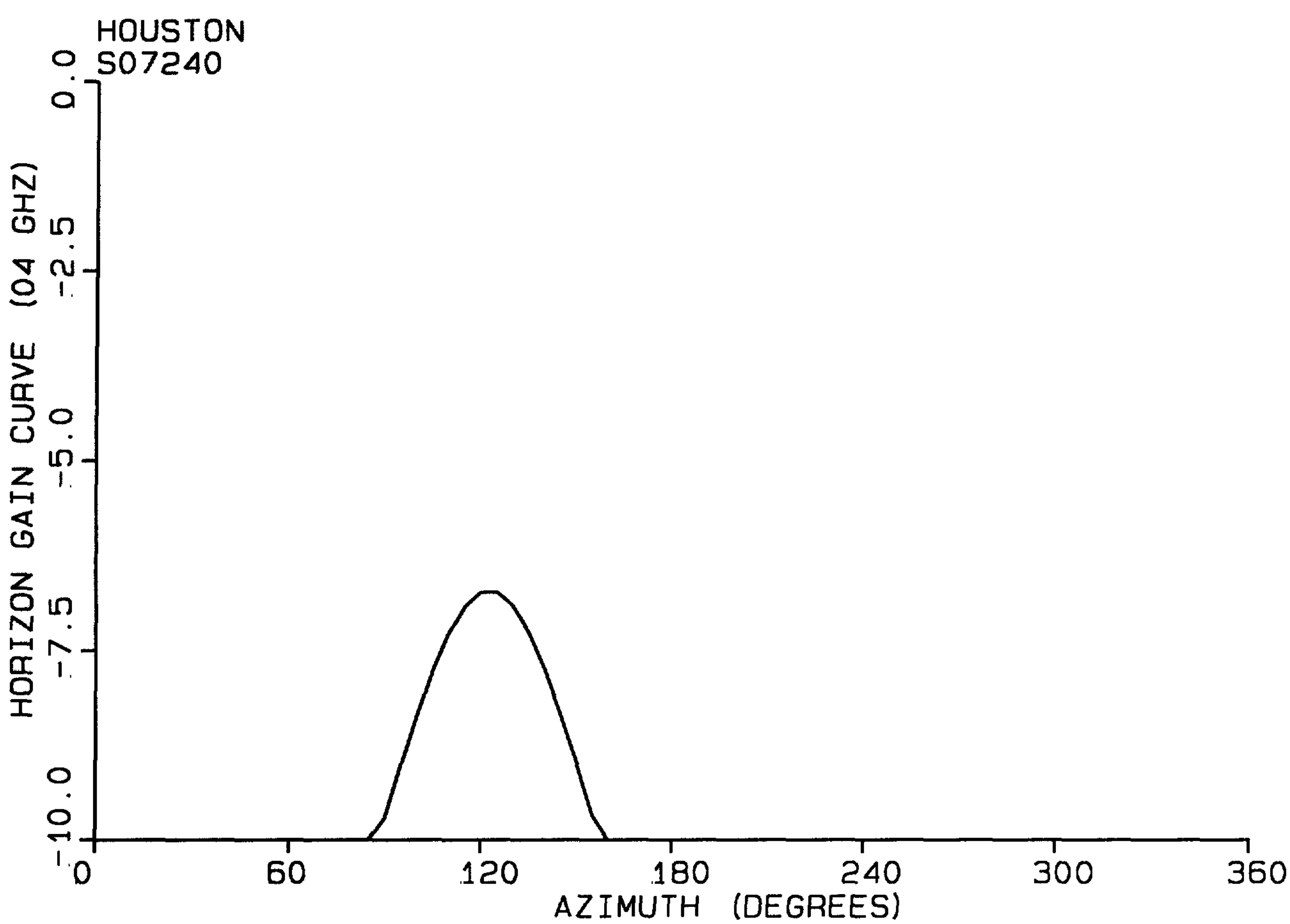
120
180
240
300
360
AZIMUTH (DEGREES)


HOUSTON
S07240
HORIZON GAIN CURVE (04 GHZ)
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-5.0
-7.5
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0
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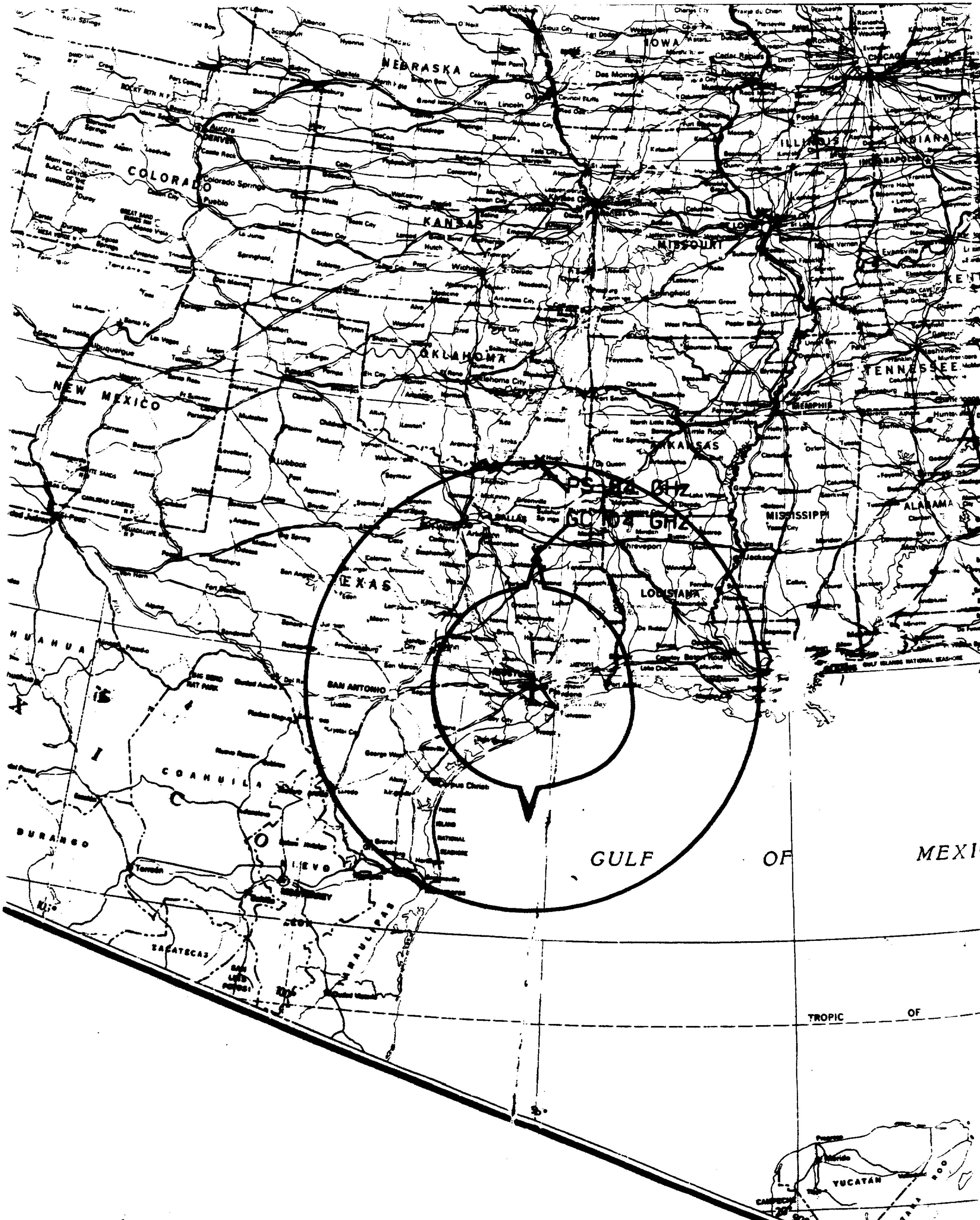
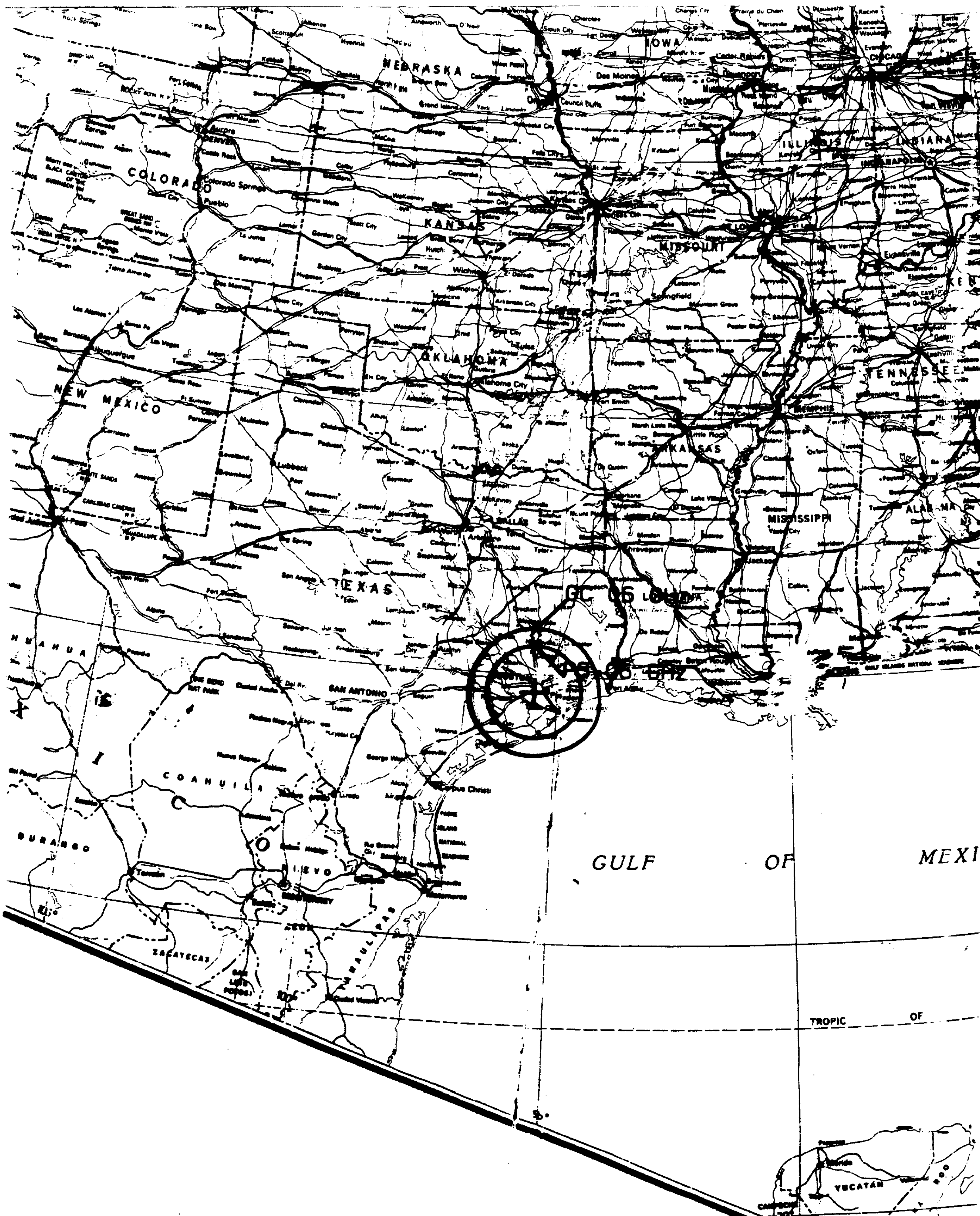
180
240
300
360
AZIMUTH (DEGREES)



Comsearch

Scale 1: 10000000



Comsearch

Scale 1: 10000000

5. 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 101 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: ______________________

GARY K. EDWARDS
MANAGER SATELLITE SERVICES
COMSEARCH
2002 EDMUND HALLEY DRIVE
RESTON, VIRGINIA 20191

DATED: December 13, 1999

Exhibit 3

Proposed Experimentation

Program of Experimentation and Equipment Description

The program of experimentation is intended to demonstrate the suitability for operations of a C-band demand assigned multiple access (DAMA) frequency division multiple access (FDMA) single channel per carrier (SCPC) voice and data communications network using remote control of very small aperture terminals (VSATs).

The network is comprised of a DAMA network control center run by ViaSat, Inc. and located in Carlsbad, CA., a 4.5 m hub antenna located in Houston, TX, and four 1.8 m VSATs also located in Houston, TX. The network will operate on the PAS-5 satellite located at 58 degrees West longitude. An important consideration regarding the use of the PAS-5 satellite and the 1.8 m C-band antennas is that the satellites located to either side of PAS-5 are greater than 2 degrees away.

The hub antenna is an industry standard Andrew model ES45 4.5 m C-band and the 1.8 m VSAT antennas are industry standard Prodelin model 1184 units with a custom designed base to aid in rapid installation and antenna pointing.

The baseband and IF modulating equipment used at both the hub and VSAT is manufactured by ViaSat, Inc. of Carlsbad, CA. The baseband processing equipment supports the capability of encoding voice band telephony at either 8 or 16 kbps and Ethernet TCP/IP data at various rates. The desired transmission rate for data is user programmed and may range from 8 kbps to 1024 kbps - though 256 kbps full duplex transmissions are the maximum planned for this program.

The RF transmission equipment is manufactured by AnaCom, Inc. of Campbell, CA. The hub equipment will utilize redundant 40 watt AnaCom model AnaSat-40W EC transceivers and the VSAT equipment will utilize single thread AnaCom model AnaSat-20W EC transceivers.

The ViaSat network operations center (NOC) in Carlsbad, CA controls all transmissions in the bandwidth leased on PAS-5. The NOC transmits a 19.2 kbps outbound common control carrier which is received by all terminals in the network. Requests for service from either the hub or VSAT terminals are transmitted to the NOC via a 19.2 kbps inbound common control carrier. The computing equipment at the NOC will perform a link budget using a database of earth station equipment and satellite performance parameters and then transmit the frequency and EIRP assignment information back out to the hub and VSAT terminals via the outbound common control carrier.

All transmission from hub and VSAT terminals are under the control of the NOC and no service channel transmissions are ever initiated by the hub or VSAT terminals without involvement of the NOC. In the event that hub or VSAT terminals lose contact or receive synchronization with the outbound common control channel transmitted by the NOC, the terminals will cease transmissions to the satellite until communications with the NOC is reestablished.

Specific Objectives

The specific objectives for this program are:

A) to demonstrate that VSAT antenna pointing and alignment may be reliably performed by field personnel who have only moderate electronic communications skills by using precise location information, computer generated satellite look angle and polarization angle generation software, proportional DC signal strength indication, and remote DAMA network lock indicating equipment.
B) to demonstrate that ViaSat, Inc. NOC personnel can reliably remotely verify that VSAT terminals are pointed properly to the satellite and commissioned for service and that the terminals access the satellite at the desire frequency and power level.
C) to demonstrate that the ViaSat, Inc. NOC maintains positive control of the network and can remotely diagnose and adjust VSAT terminals as required.
D) to demonstrate that voice and TCP/IP applications perform as desired over this system.

Contributions to the Development of the Radio Art

The ViaSat, Inc. demand assigned multiple access communications system actively and continuously controls access to the satellite bandwidth and insures that only the necessary amount of satellite bandwidth and power are used to establish the desired communications. This results in a cost savings to both satellite and network operators as less of the precious satellite resources are wasted in excess margin. The more efficient operation of the satellite allows greater effective capacity per transponder. Further, the reduced signal levels transmitted from earth stations are also less likely to cause interference into other networks and satellite systems.