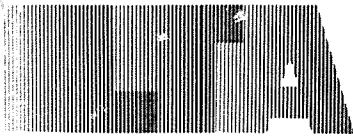


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OCT 29 1991

Federal Communications Commission
Office of the Secretary



**Leslie Taylor
Associates**

Telecommunications Consultants
6800 Carlynn Court
Bethesda, Maryland, 20817-4302
Tel: (301) 229-9341
Fax: (301) 229-3148

October 29, 1991

Ms. Donna Searcy
Secretary
Federal Communications Commission
Room 222
Washington, D.C. 20054

Re: Application of Norris Satellite Communications to Construct two, and launch and operate a Ka-band Communications Satellite, File Nos. 54-DSS-P/L-90 and 55-DSS-P-90.

Dear Ms. Searcy:

The purpose of this letter is to ask the Commission to proceed with the processing of the above-referenced application, limiting the Commission's consideration to the applicant's request, within its application, "to the fixed-satellite service, subject to revision of the authorization at a later date." Application, p. I-9. The Applicant, in including this statement, considered the possibility that "the Commission [might] require additional time to evaluate Norris's frequency reallocation proposal." The applicant is ready, willing and able to proceed with the construction and operation of Ka-band communications satellites providing services permitted in the domestic fixed-satellite service and further, believes it is in the public interest for the Commission to enable the commercial introduction of satellite communications in this frequency band by acting expeditiously on the application.

In support of this request, the Applicant is submitting as an attachment to this letter, a revised Exhibit I-E, Income Statement, which demonstrates that the Applicant can obtain the needed revenue from services it would be permitted to provide with a domestic fixed-satellite authorization. This revised Income Statement supports the assertion, at page I-30 of the application, that "Revenues from lease reservations and the sale of transponders on the proposed NorStar I are projected to reach a total of \$630 million for the life of the satellite." The Applicant is confident that it can achieve the necessary revenues through the offering of services permitted in the domestic fixed-satellite service.

In addition, the Applicant is submitting an interference analysis which demonstrates the feasibility of operating the proposed spacecraft two degrees from adjacent spacecraft with similar technical characteristics operating in the Ka-band. As the spacecraft design in the application is of the "bent-pipe" variety, no change is required to the technical description of the facility to enable it to provide fixed-satellite service from the entire communications capacity. This interference analysis should assure the Commission that

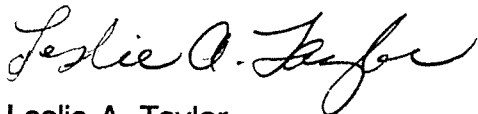
satellites operating in the Ka-band can operate in such a manner as to accommodate numerous other Ka-band satellites in the orbital arc, thus promoting the Commission's goals of open entry and competition.

Finally, the Applicant requests that, upon the Commission's acting on its request to provide domestic fixed-satellite services, that the remainder of its application, addressing the provision of any services that may be authorized in the "General Satellite Service," be held pending the Commission's action pursuant to its rulemaking request, RM-7511, to create a General Satellite Service. The Applicant notes that the Commission adopted its proposal for a General Satellite Service in the 19.5-20.2 GHz and 29.5-30.0 GHz bands within its proceedings developing United States' positions for the 1992 World Administrative Radio Conference. See, In the Matter of an Inquiry Relating to Preparation for the International Telecommunication Union World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum, 6 FCC Rcd 3900, released June 20, 1991. This proposal was included in the United States proposals for the Conference. See, United States Proposals for the 1992 World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum, U.S. Department of State, Washington, D.C., July, 1991. Thus, after the Commission concludes a rulemaking on the subject of the General Satellite Service, it should revisit the requests for authorization to operate in that service contained in Applicant's application.

The Applicant believes that the above, together with the attachments to this letter, provide sufficient information for the Commission to act on its application to construct and operate satellites in the domestic fixed-satellite service. Norris Satellite Communications, Inc. respectfully requests the Commission to move forward expeditiously in the processing of this portion of its application.

If there any questions with respect to this matter, or as to the application, please contact the undersigned.

Sincerely yours,



Leslie A. Taylor

Attachments

cc: Fern Jarmulnek, Esq., Satellite Radio Branch
Chris Kendall, Esq., Satellite Radio Branch
Harry Ng, Satellite Radio Branch

Exhibit I-E

NORSTAR
Income Statement
(in millions)

<u>Revenues</u>	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
Video Distribution	0.00	0.00	20.00	30.00	40.00	40.00	45.00	40.00	25.00	240.00
Data Networks	0.00	0.00	10.00	20.00	35.00	35.00	40.00	40.00	45.00	225.00
Government	0.00	0.00	15.00	20.00	30.00	20.00	25.00	25.00	30.00	165.00
Total Revenues	0.00	0.00	45.00	70.00	105.00	95.00	110.00	105.00	100.00	630.00
<u>Operating Expenses</u>										
ACTS Experiments	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00
Development	0.80	1.30	1.80	2.00	0.00	0.00	0.00	0.00	0.00	5.90
Marketing	1.00	1.80	2.00	2.60	3.50	4.20	5.00	6.00	7.20	33.30
Operations	0.50	1.20	3.50	7.00	8.50	10.00	11.20	13.00	14.50	69.40
Administration	0.50	1.00	1.30	1.60	2.00	2.50	2.80	3.30	4.00	19.00
TT&C Services	0.00	0.00	3.50	1.50	1.50	1.60	1.75	1.90	2.20	13.95
Depreciation	0.00	0.00	11.20	19.70	19.70	19.70	19.70	19.70	8.51	118.21
Total Expenses	2.80	5.30	23.30	34.40	35.20	38.00	40.45	43.90	36.41	259.76
EBIT	-2.80	-5.30	21.70	35.60	69.80	57.00	69.55	61.10	63.59	370.24
Interest expense	0.98	8.61	15.70	15.21	11.96	8.06	2.86	0.00	0.00	63.38
Income taxes	0.00	-6.19	7.60	12.46	24.43	19.95	24.34	21.39	22.26	126.23
Total Interest & taxes	0.98	2.42	23.29	27.67	36.39	28.01	27.20	21.39	22.26	189.60
Net Income	-3.78	-7.72	-1.59	7.93	33.41	28.99	42.35	39.72	41.33	180.64

INTERFERENCE ANALYSIS FOR THE NORSTAR SATELLITE

Submitted to

Federal Communications Commission
Satellite Radio Branch
ATTN: Mr. Henry Ng or Mr. George Sharp, Room 6120B
1919 M Street, N.W.
Washington, DC 20554

in behalf of
Norris Communication Corporation's
application for license

Analysis performed by

M. Belzer

Mentor Technologies, Inc.
12750 Twinbrook Parkway, Suite 101
Rockville, MD 20852
(301)881-0881

October 04, 1991

1.0 Introduction

Being one of the first Ka-Band satellite's proposed to the FCC (the other being the ACTS satellite, 10 degrees away), the model used for interference into the NorStar satellite assumes that 1 "almost" identical satellite exists at a 2 degree spacing. Thus, the identical satellite is the only source of interference. Table A lists the traffic characteristics for NorStar in the format used by the G. Sharp adjacent satellite interference evaluation program. These characteristics were based upon the Application*, except for the last 4 signal types which were taken from a comparable Ku-band (12/14 GHz) RCA satellite (see Table B). The single entry interference objective was set to "program determination". In this mode, criteria used are those recommended by the Reduced Orbital Spacings Advisory Committee in its Phase I Report dated September 1985. In addition, the following sequence of choices were made during the interactive part of the program:

1,y,2,3,1,2.,4,2.,20.,norstar.par,1,8

Table C presents an essential part of the output of the G. Sharp interference evaluation program for the above input (the entire output as it appears in files summary.dom and detail.dom is provided in the Appendix). In all cases, the adjacent satellite is assumed to be cross-polarized with the nominal one (7th choice in above sequence), and this is the only source of disparity between the two. The values listed in the table are the margin by which the interference from the "almost" identical NorStar is below the "program determined" objectives. The traffic types shown numerically are as listed in Table A.

2.0 Results

As can be seen from these tables, only 17.9% of the combinations show a negative margin. For these cases, if necessary, Norris will further coordinate between these systems.

If, after the awarding of this Application, the neighbors of NorStar are different from that assumed here, the above analysis will be updated to include the traffic modes and characteristics of the actual Ka-Band neighboring systems.

* Uplink transmit power (dBw) = 8 (clear sky) or 23 (rain), with rain chosen.

Satellite receive antenna gain (dBi) = 30 (Conus reception) or 45 (spot beam), with CONUS chosen. A small amount of power from 1 or 2 beams will be used to feed spot beams to Alaska & Hawaii. No additional spot beams to earth are proposed in the Application.

Application and

norstar.par	from RCA	(which was from newdom12.dat)																						
NRSc 0	54.000	1	3800	4.508	0.012	16.516-15.	-11.3	0	0.	0.	29.650	19.850	01	23.0	4.0	60.0	30.1	2000	55.1	.9	43.2	400	0.	
NRSW 1	24.000	0	1	2.538	0.025	4.200	47.	12.8	0	0.	29.650	19.850	01	23.0	4.0	60.0	30.1	2000	55.1	.9	43.2	400	0.	
NRSW 1	24.000	0	1	2.538	0.025	4.200	45.	12.8	0	0.	29.650	19.850	01	23.0	4.0	60.0	30.1	2000	55.1	.9	43.2	400	0.	
NRSe 1	24.000	0	1	2.538	0.025	4.200	47.	12.8	0	0.	29.650	19.850	01	23.0	4.0	60.0	30.1	2000	55.1	.9	43.2	400	0.	
NRSc 1	30.000	0	1	2.538	0.025	4.200	45.	12.8	0	0.	29.650	19.850	01	23.0	4.0	60.0	30.1	2000	55.1	.9	43.2	400	0.	
NRSc 1	24.000	0	1	2.538	0.025	4.200	47.	12.8	0	0.	29.650	19.850	01	23.0	4.0	60.0	30.1	2000	55.1	.9	43.2	400	0.	
NRSc 1	26.000	0	2	2.438	0.025	4.200	53.	12.8	0	0.	26.000	29.650	19.850	01	23.0	4.0	60.0	30.1	2000	55.1	.9	43.2	400	0.
NRSc 2	45.714	0	1	0.875	0.	0.	11.8	0.	4	80.000	0.	29.650	19.850	01	23.0	4.0	60.0	30.1	2000	55.1	.9	43.2	400	0.
NRSc 2	1.029	0	20	0.750	0.	0.	7.5	0.	4	1.544	1.5	29.650	19.850	01	-4.4	4.0	60.0	30.1	2000	55.1	.9	43.2	400	0.
NRSc 3	0.064	0	100	0.875	0.	0.	10.1	0.	2	0.056	0.500	29.650	19.850	01	-4.4	4.0	60.0	30.1	2000	55.1	.9	43.2	400	0.
NRSc 3	0.064	0	400	0.875	0.	0.	10.1	0.	2	0.056	0.125	29.650	19.850	01	-10.4	4.0	60.0	30.1	2000	55.1	.9	43.2	400	0.
NRSc 4	0.037	0	500	4.412	0.	0.0031	-9.3	25.8	0	0.	0.100	29.650	19.850	01	-16.3	4.0	60.0	30.1	2000	55.1	.9	43.2	400	0.

Table A

RCA from newdom12.dat

RCAC 0	54.000	1	3800	.4508	0.012	16.516-15.	-11.3	0	0.	14.250	11.950	01	19.6	10.0	61.6	30.1	650	45.0	10.0	60.4	165	0.		
RCAC 1	24.000	0	1	2.538	0.025	4.200	47.	12.8	0.	14.250	11.950	01	21.7	7.7	59.5	30.1	650	51.0	2.0	46.4	365	0.		
RCAC 1	24.000	0	1	2.538	0.025	4.200	45.	12.8	0.	14.250	11.950	01	21.7	7.7	59.5	30.1	650	51.0	1.0	40.4	365	0.		
RCAC 1	24.000	0	1	2.538	0.025	4.200	47.	12.8	0.	14.250	11.950	01	21.7	7.7	59.5	30.1	650	48.0	2.0	46.4	365	0.		
RCAC 1	24.000	0	1	2.538	0.025	4.200	45.	12.8	0.	14.250	11.950	01	21.7	7.7	59.5	30.1	650	48.0	1.0	40.4	365	0.		
RCAC 1	30.000	0	1	2.619	0.025	4.200	57.	12.8	0.	14.250	11.950	01	21.7	7.7	59.5	30.1	650	45.0	5.5	55.0	365	0.		
RCAC 1	24.000	0	1	2.538	0.025	4.200	47.	12.8	0.	14.250	11.950	01	21.7	7.7	59.5	30.1	650	45.0	3.0	50.0	365	0.		
RCAC 1	26.000	0	2	2.438	0.025	4.200	53.	12.8	0.	26.000	14.250	11.950	01	16.7	7.7	59.5	30.1	650	40.5	5.5	55.0	165	0.	
RCAC 1	26.000	0	2	2.438	0.025	4.200	53.	12.8	0.	26.000	14.263	11.963	01	16.7	7.7	59.5	30.1	650	40.5	5.5	55.0	165	0.	
RCAC 2	45.714	0	1	0.875	0.	0.	11.8	0.	4	80.000	0.	14.250	11.950	01	19.6	10.0	61.6	30.1	650	45.0	10.0	60.4	165	0.
RCAC 2	1.029	0	20	0.750	0.	0.	7.5	0.	4	1.544	1.5	14.250	11.950	01	-4.4	10.0	61.6	30.1	650	26.0	10.0	60.4	165	0.
RCAC 3	0.064	0	100	0.875	0.	0.	10.1	0.	2	0.056	0.500	14.250	11.950	01	-4.4	5.0	55.6	30.1	650	20.0	5.0	54.4	165	0.
RCAC 3	0.064	0	400	0.875	0.	0.	10.1	0.	2	0.056	0.125	14.250	11.950	01	-10.4	5.0	55.6	30.1	650	14.0	5.0	54.4	165	0.
RCAC 4	0.037	0	500	4.412	0.	0.0031	-9.3	25.8	0	0.	0.100	14.250	11.950	01	-16.3	7.7	59.5	30.1	650	12.0	7.7	58.0	165	0.

Table B

SINGLE ENTRY MARGIN (dB) (2.00 DEGREE SPACING)
Antenna Patterns as given ; A = Geocentric Angle

W A N T E D	INTERFERING													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	4.6	3.8	3.8	3.8	3.8	3.8	3.8	1.2	1.2	4.1	-8.8	-15.8	-21.8	-22.8
2	12.0	6.6	6.6	6.6	6.6	6.6	6.6	9.5	9.5	14.7	1.3	-3.3	-9.3	-10.2
3	14.0	8.6	8.6	8.6	8.6	8.6	8.6	11.5	11.5	16.7	3.3	-1.3	-7.3	-8.2
4	12.0	6.6	6.6	6.6	6.6	6.6	6.6	9.5	9.5	14.7	1.3	-3.3	-9.3	-10.2
5	14.0	8.6	8.6	8.6	8.6	8.6	8.6	11.5	11.5	16.7	3.3	-1.3	-7.3	-8.2
6	6.3	.9	.9	.9	.9	.9	.9	3.7	3.7	8.3	-5.4	-10.1	-16.0	-17.0
7	12.0	6.6	6.6	6.6	6.6	6.6	6.6	9.5	9.5	14.7	1.3	-3.3	-9.3	-10.2
8	6.2	6.3	6.3	6.3	6.3	6.3	6.3	.3	.3	9.2	-3.7	-10.5	-16.5	-17.5
9	6.2	6.3	6.3	6.3	6.3	6.3	6.3	.3	.3	9.2	-3.7	-10.5	-16.5	-17.5
10	6.4	6.4	6.4	6.4	6.4	6.4	6.4	3.9	3.9	6.4	-6.5	-12.7	-18.7	-19.7
11	13.3	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	15.9	11.4	7.3	2.1	1.1
12	25.1	26.2	26.2	26.2	26.2	26.2	26.2	26.2	26.2	27.7	22.1	11.1	11.2	11.2
13	19.3	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	22.0	21.8	10.9	11.1	11.2
14	16.1	17.2	17.2	17.2	17.2	17.2	17.2	17.2	17.2	18.7	23.5	11.9	12.8	11.3

Table C

APPENDIX

SUMMARY.DOM

Table 1: Domestic Satellite R.F. Carrier Listing - 30/18 GHz

Carrier Number	Signal Type & (channels)	Bandwidth (MHz)	E.S. Antennas (m) up/down	EIRP (dBW) up/down
1: NRSc	CFDM/FM (3800)	54.000	4.0/ .9	83.0/55.1
2: NRSw	TV/FM (1)	24.000	4.0/ .9	83.0/55.1
3: NRSw	TV/FM (1)	24.000	4.0/ .9	83.0/55.1
4: NRSe	TV/FM (1)	24.000	4.0/ .9	83.0/55.1
5: NRSe	TV/FM (1)	24.000	4.0/ .9	83.0/55.1
6: NRSc	TV/FM (1)	30.000	4.0/ .9	83.0/55.1
7: NRSc	TV/FM (1)	24.000	4.0/ .9	83.0/55.1
8: NRSc	TV/FM (2)	26.000	4.0/ .9	83.0/55.1
9: NRSc	TV/FM (2)	26.000	4.0/ .9	83.0/55.1
10: NRSc	QPSK/ 80 MBPS	45.714	4.0/ .9	83.0/55.1
11: NRSc	QPSK/ 1.544 MBPS (20)	1.029	4.0/ .9	55.6/55.1
12: NRSc	BPSK/ 56 KBPS (100)	.064	4.0/ .9	55.6/55.1
13: NRSc	BPSK/ 56 KBPS (400)	.064	4.0/ .9	49.6/55.1
14: NRSc	SCPC/FM (500)	.037	4.0/ .9	43.7/55.1

LINK P
CPAND P

PARAMETERS

17:45:28

3-OCT-91

CAR COM- IER PANY E	RF BAND- WIDTH (MHz)	NO. OF CHAN	CODE RATE/ MOD.	MOD. INDEX	BOT FREQ. (MHz)	TOP FREQ. (MHz)	AVE. TALKER LEVEL (dBm0)	PREMP NOISE WEIGH S	CPAND H	DATA RATE (MBPS)	CHAN. SPACE (MHz)	TRANSPONDER FREQUENCY UP DN	POL U D	EARTH STATION POWR DIAM (m)	TRANSMITTER GAIN (dB)	SATELLITE RECEIVER TEMP (K)	XMTR EIRP (dBW)	EARTH STATION RECEIVER DIAM (m)	RECEIVER GAIN (dB)	TEMP (K)				
1 NRSc 0	54.000	3800	.451	.012	16.516	16.516	-15.0	-11.3	0	.000	.000	29.650	19.850	0	1	23.0	4.0	60.0	30.1	2000.	55.1	.9	43.2	400
2 NRSh 1	24.000	1	2.538	.025	4.200	4.200	.0	12.8	0	.000	.000	29.650	19.850	0	1	23.0	4.0	60.0	30.1	2000.	55.1	.9	43.2	400
3 NRSh 1	24.000	1	2.538	.025	4.200	4.200	.0	12.8	0	.000	.000	29.650	19.850	0	1	23.0	4.0	60.0	30.1	2000.	55.1	.9	43.2	400
4 NRSe 1	24.000	1	2.538	.025	4.200	4.200	.0	12.8	0	.000	.000	29.650	19.850	0	1	23.0	4.0	60.0	30.1	2000.	55.1	.9	43.2	400
5 NRSe 1	24.000	1	2.538	.025	4.200	4.200	.0	12.8	0	.000	.000	29.650	19.850	0	1	23.0	4.0	60.0	30.1	2000.	55.1	.9	43.2	400
6 NRSc 1	30.000	1	2.619	.025	4.200	4.200	.0	12.8	0	.000	.000	29.650	19.850	0	1	23.0	4.0	60.0	30.1	2000.	55.1	.9	43.2	400
7 NRSc 1	24.000	1	2.538	.025	4.200	4.200	.0	12.8	0	.000	.000	29.650	19.850	0	1	23.0	4.0	60.0	30.1	2000.	55.1	.9	43.2	400
8 NRSc 1	26.000	2	2.438	.025	4.200	4.200	.0	12.8	0	.00026	.000	29.650	19.850	0	1	23.0	4.0	60.0	30.1	2000.	55.1	.9	43.2	400
9 NRSc 1	26.000	2	2.438	.025	4.200	4.200	.0	12.8	0	.00026	.000	29.650	19.850	0	1	23.0	4.0	60.0	30.1	2000.	55.1	.9	43.2	400
10 NRSc 2	45.714	1	.875	.000	.000	.000	.0	.0	4	80.000	.000	29.650	19.850	0	1	23.0	4.0	60.0	30.1	2000.	55.1	.9	43.2	400
11 NRSc 2	1.029	20	.750	.000	.000	.000	.0	.0	4	1.544	1.500	29.650	19.850	0	1	-4.4	4.0	60.0	30.1	2000.	55.1	.9	43.2	400
12 NRSc 3	.064	100	.875	.000	.000	.000	.0	.0	2	.056	.500	29.650	19.850	0	1	-4.4	4.0	60.0	30.1	2000.	55.1	.9	43.2	400
13 NRSc 3	.064	400	.875	.000	.000	.000	.0	.0	2	.056	.125	29.650	19.850	0	1	-10.4	4.0	60.0	30.1	2000.	55.1	.9	43.2	400
14 NRSc 4	.037	500	4.412	.000	.000	.000	.0	25.8	0	.000	.100	29.650	19.850	0	1	-16.3	4.0	60.0	30.1	2000.	55.1	.9	43.2	400

17:45:28 3-OCT-91

THERMAL NOISE SUMMARY

CAR- RIER	COM- PANY	EARTH-TO-SHACE		SPACE-TO-EARTH		C/No - (dB-Hz)	C/N - (dB)	LINK THERMAL NOISE	S/N	S/1	C/In	C/1tv	SINGLE ENTRY INTERFERENCE	OBJ+ IMPAIR- MENT						
		PATH LOSS* (dB)	RCV G/T (dB/K)	PATH LOSS* (dB)	RCV G/T (dB/K)										UP	DN	TOTAL	UP	DN	TOTAL
1	NRSC	83.0	208.3	-2.9	55.1	206.1	17.2	100.4	94.8	93.7	23.1	17.5	16.4	12902.	48.9	60.0		60.0		
2	NRSW	83.0	208.3	-2.9	55.1	206.1	17.2	100.4	94.8	93.7	26.6	21.0	19.9		57.1	56.1	=18.9	=25.0	<4.43>	
3	NRSW	83.0	208.3	-2.9	55.1	206.1	17.2	100.4	94.8	93.7	26.6	21.0	19.9		57.1	54.1	=16.9	=23.0	<4.36>	
4	NRSe	83.0	208.3	-2.9	55.1	206.1	17.2	100.4	94.8	93.7	26.6	21.0	19.9		57.1	56.1	=18.9	=25.0	<4.43>	
5	NRSe	83.0	208.3	-2.9	55.1	206.1	17.2	100.4	94.8	93.7	26.6	21.0	19.9		57.1	54.1	=16.9	=23.0	<4.36>	
6	NRSc	83.0	208.3	-2.9	55.1	206.1	17.2	100.4	94.8	93.7	25.6	20.0	19.0		56.5	62.1	=24.6	=30.7	<4.60>	
7	NRSc	83.0	208.3	-2.9	55.1	206.1	17.2	100.4	94.8	93.7	26.6	21.0	19.9		57.1	56.1	=18.9	=25.0	<4.43>	
8	NRSc	83.0	208.3	-2.9	55.1	206.1	17.2	100.4	94.8	93.7	26.2	20.6	19.6		56.3	62.1	=25.4	=31.4	<4.60>	
9	NRSc	83.0	208.3	-2.9	55.1	206.1	17.2	100.4	94.8	93.7	26.2	20.6	19.6		56.3	62.1	=25.4	=31.4	<4.60>	
10	NRSc	83.0	208.3	-2.9	55.1	206.1	17.2	100.4	94.8	93.7	23.8	18.2	17.1		14.7	25.2		25.2		
11	NRSc	55.6	208.3	-2.9	55.1	206.1	17.2	73.0	94.8	73.0	12.9	34.7	12.8		11.1	20.3		20.3		
12	NRSc	55.6	208.3	-2.9	55.1	206.1	17.2	73.0	94.8	73.0	24.9	46.7	24.9		25.5	20.5		20.5		
13	NRSc	49.6	208.3	-2.9	55.1	206.1	17.2	67.0	94.8	67.0	18.9	46.7	18.9		19.5	20.5		20.5		
14	NRSc	43.7	208.3	-2.9	55.1	206.1	17.2	61.1	94.8	61.1	15.4	49.1	15.4		217.	66.6		20.3		

*** FOOTNOTES ***

LINK PARAMETERS

SIGNAL TYPE INDEX	POLARIZATION TYPE INDEX	POLARIZATION ISOLATION MATRIX (dB)						
		INTERFERING SENSE						
		0	1	2	3	4	5	
0 = FDM/FM	0 = HORIZONTAL	0	10.0	10.0	10.0	10.0	10.0	10.0
1 = TV/FM	1 = VERTICAL							
2 = DIGITAL	2 = 20 DEG CANTED HORIZONTAL	D 1	10.0	10.0	10.0	10.0	10.0	10.0
3 = SCPC/PSK	3 = 20 DEG CANTED VERTICAL	E 2	10.0	10.0	10.0	10.0	10.0	10.0
4 = SCPC/FM	4 = LEFT-HAND CIRCULAR	I 3	10.0	10.0	10.0	10.0	10.0	10.0
5 = CSSB/AM	5 = RIGHT-HAND CIRCULAR	R 4	10.0	10.0	10.0	10.0	10.0	10.0
6 = SS/PSK		D 5	10.0	10.0	10.0	10.0	10.0	10.0

SPECTRA ASSUMED FOR INTERFERENCE INTO SCPC & PSK

TV/FM: FLAT YELLOW SPECTRAL MASKS

FDM/FM: GAUSSIAN, EXCEPT FOR THOSE MARKED WITH "+" UNDER SIGNAL TYPE

* INDICATES SCPC AND SMALL FDMA CARRIERS WHOSE TRANSPONDER FREQUENCY PLANS AVOID +/- 2.0 MHz AT THE TRANSPONDER CENTER.

"PLAN" UNDER CHANNEL SPACING INDICATES A FIXED FREQUENCY PLAN.

THERMAL NOISE SUMMARY

* PATH LOSSES INCLUDE FREE SPACE LOSS FOR A 20 DEGREE ELEVATION ANGLE, CLEAR SKY ATMOSPHERIC LOSSES, AND ANTENNA POINTING LOSSES IN THE RANGE OF 0.0-0.5 dB. POINTING LOSSES ARE INCLUDED ONLY FOR THE THERMAL NOISE C/N, NOT IN INTERFERENCE CALCULATIONS.

UPLINK LOSSES = 207.6 + .2 dB + Pointing Loss
 DOWNLINK LOSSES = 205.9 + .2 dB + Pointing Loss

+ THE TV/FM INTERFERENCE OBJECTIVE IS EITHER THE S/I OR C/I VALUE(S) WITHOUT THE "=" THE VALUE(S) WITH THE "=" ARE FOR COMPARISON ONLY. IF THE S/I HAS THE "=", THEN THE C/I OBJECTIVE IS USED AND THE S/I IS THE EQUIVALENT LEVEL FROM A CO-CHANNEL TV/FM INTERFERER. IF THE C/I'S HAVE "=", THEN THE S/I OBJECTIVE IS USED AND THE C/I'S INDICATE THE EQUIVALENT SINGLE ENTRY LEVELS IN FOR A NOISE-LIKE INTERFERER (C/I_n) AND FOR A CO-CHANNEL TV/FM

INTERFERER (C/I_{tv}). CCIR Rec. 500-1 IMPAIRMENT GRADES ARE GIVEN FOR THE AGGREGATE TV/FM
C/I = C/I_{tv} - 4 dB INTO A "REASONABLY CRITICAL STILL SCENE". THE IMPAIRMENT GRADES ARE:

- 5.0 = IMPERCEPTIBLE (Never achieved)
- 4.6 = JUST PERCEPTIBLE OR JUST UNPERCEPTIBLE (Highest achievable grade)
- 4.3 = APPROXIMATE GRADE FOR CATV AGGREGATE OBJECTIVE OF 18 dB
- 4.0 = PERCEPTIBLE, BUT NOT ANNOYING
- 3.0 = SLIGHTLY ANNOYING
- 2.0 = ANNOYING
- 1.0 = VERY ANNOYING

COMBINATIONS FAILING TO MEET SINGLE ENTRY INTERFERENCE OBJECTIVES (dB)
 (2.00 DEGREE SPACING) Antenna Patterns as given ; A = Geocentric Angle

17:45:28

3-OCT-91

WANTED LINK	INTERFERING LINK -->
NRSc 1	9 * * *
NRSc 2	3 9 *
NRSc 3	1 7 8
NRSc 4	3 9 *
NRSe 5	1 7 8
NRSc 6	5 * * *
NRSc 7	3 9 *
NRSc 8	4 * * *
NRSc 9	4 * * *
NRSc 10	7 * * *
NRSc 11	
NRSc 12	
NRSc 13	
NRSc 14	

17:45:28

3-OCT-91

FAILURE SUMMARY*
(NUMBER)

	S A T E L L I T E S P A C I N G			
	2.00 DEG	.00 DEG	.00 DEG	.00 DEG
TOTAL COMBINATIONS	196	196	196	196
TOTAL FAILURES	35	0	0	0

FAILS BY:

- .0 - 1.5 dB 2
- 1.5 - 2.5 dB 0
- 2.5 - 3.5 dB 3
- 3.5 - 4.5 dB 2
- 4.5 - 5.5 dB 1
- 5.5 - 6.5 dB 0
- 6.5 - 7.5 dB 3
- 7.5 - 8.5 dB 2
- 8.5 - 9.5 dB 4
- MORE THAN 9.5 dB 18

(PERCENT)

	S A T E L L I T E S P A C I N G			
	2.00 DEG	.00 DEG	.00 DEG	.00 DEG
TOTAL FAILURES	17.9 %	.0 %	.0 %	.0 %

FAILS BY:

- .0 - 1.5 dB 1.0 %
- 1.5 - 2.5 dB .0 %
- 2.5 - 3.5 dB 1.5 %
- 3.5 - 4.5 dB 1.0 %
- 4.5 - 5.5 dB .5 %
- 5.5 - 6.5 dB .0 %
- 6.5 - 7.5 dB 1.5 %
- 7.5 - 8.5 dB 1.0 %
- 8.5 - 9.5 dB 2.0 %
- MORE THAN 9.5 dB 9.2 %

* Antenna Patterns as given ; A = Geocentric Angle

DETAIL.DOM

CAR- COM- RIER PANY (MHZ)	TRANSPONDER CENTER FREQUENCY UP DN (MHZ)	CARRIER FREQUENCIES RELATIVE TO TRANSPONDER CENTER FREQUENCY (MHZ)
1 NRSc 29650.	19850.	.000
2 NRSc 29650.	19850.	.000
3 NRSh 29650.	19850.	.000
4 NRSe 29650.	19850.	.000
5 NRSe 29650.	19850.	.000
6 NRSc 29650.	19850.	.000
7 NRSc 29650.	19850.	.000
8 NRSc 29650.	19850.	.000
9 NRSc 29650.	19850.	.000
10 NRSc 29650.	19850.	.000
11 NRSc 29650.	19850.	.000
12 NRSc 29650.	19850.	.000
13 NRSc 29650.	19850.	.000
		-13.000 13.000
		-13.000 13.000
		.000
		-15.500 -14.000 -12.500 -11.000 -9.500 -8.000 -6.500 -5.000 -3.500 -2.000 2.000 3.500 5.000
		6.500 8.000 9.500 11.000 12.500 14.000 15.500
		-26.500 -26.000 -25.500 -25.000 -24.500 -24.000 -23.500 -23.000 -22.500 -22.000 -21.500 -21.000 -20.500
		-20.000 -19.500 -19.000 -18.500 -18.000 -17.500 -17.000 -16.500 -16.000 -15.500 -15.000 -14.500 -14.000
		-13.500 -13.000 -12.500 -12.000 -11.500 -11.000 -10.500 -10.000 -9.500 -9.000 -8.500 -8.000 -7.500
		-7.000 -6.500 -6.000 -5.500 -5.000 -4.500 -4.000 -3.500 -3.000 -2.500 -2.000 2.000 2.500
		3.000 3.500 4.000 4.500 5.000 5.500 6.000 6.500 7.000 7.500 8.000 8.500 9.000
		9.500 10.000 10.500 11.000 11.500 12.000 12.500 13.000 13.500 14.000 14.500 15.000 15.500
		16.000 16.500 17.000 17.500 18.000 18.500 19.000 19.500 20.000 20.500 21.000 21.500 22.000
		22.500 23.000 23.500 24.000 24.500 25.000 25.500 26.000 26.500
		-26.875 -26.750 -26.625 -26.500 -26.375 -26.250 -26.125 -26.000 -25.875 -25.750 -25.625 -25.500 -25.375
		-25.250 -25.125 -25.000 -24.875 -24.750 -24.625 -24.500 -24.375 -24.250 -24.125 -24.000 -23.875 -23.750
		-23.625 -23.500 -23.375 -23.250 -23.125 -23.000 -22.875 -22.750 -22.625 -22.500 -22.375 -22.250 -22.125
		-22.000 -21.875 -21.750 -21.625 -21.500 -21.375 -21.250 -21.125 -21.000 -20.875 -20.750 -20.625 -20.500
		-20.375 -20.250 -20.125 -20.000 -19.875 -19.750 -19.625 -19.500 -19.375 -19.250 -19.125 -19.000 -18.875
		-18.750 -18.625 -18.500 -18.375 -18.250 -18.125 -18.000 -17.875 -17.750 -17.625 -17.500 -17.375 -17.250
		-17.125 -17.000 -16.875 -16.750 -16.625 -16.500 -16.375 -16.250 -16.125 -16.000 -15.875 -15.750 -15.625
		-15.500 -15.375 -15.250 -15.125 -15.000 -14.875 -14.750 -14.625 -14.500 -14.375 -14.250 -14.125 -14.000
		-13.875 -13.750 -13.625 -13.500 -13.375 -13.250 -13.125 -13.000 -12.875 -12.750 -12.625 -12.500 -12.375
		-12.250 -12.125 -12.000 -11.875 -11.750 -11.625 -11.500 -11.375 -11.250 -11.125 -11.000 -10.875 -10.750
		-10.625 -10.500 -10.375 -10.250 -10.125 -10.000 -9.875 -9.750 -9.625 -9.500 -9.375 -9.250 -9.125
		-9.000 -8.875 -8.750 -8.625 -8.500 -8.375 -8.250 -8.125 -8.000 -7.875 -7.750 -7.625 -7.500
		-7.375 -7.250 -7.125 -7.000 -6.875 -6.750 -6.625 -6.500 -6.375 -6.250 -6.125 -6.000 -5.875
		-5.750 -5.625 -5.500 -5.375 -5.250 -5.125 -5.000 -4.875 -4.750 -4.625 -4.500 -4.375 -4.250
		-4.125 -4.000 -3.875 -3.750 -3.625 -3.500 -3.375 -3.250 -3.125 -3.000 -2.875 -2.750 -2.625
		-2.500 -2.375 -2.250 -2.125 -2.000 2.000 2.125 2.250 2.375 2.500 2.625 2.750 2.875
		3.000 3.125 3.250 3.375 3.500 3.625 3.750 3.875 4.000 4.125 4.250 4.375 4.500
		4.625 4.750 4.875 5.000 5.125 5.250 5.375 5.500 5.625 5.750 5.875 6.000 6.125
		6.250 6.375 6.500 6.625 6.750 6.875 7.000 7.125 7.250 7.375 7.500 7.625 7.750
		7.875 8.000 8.125 8.250 8.375 8.500 8.625 8.750 8.875 9.000 9.125 9.250 9.375
		9.500 9.625 9.750 9.875 10.000 10.125 10.250 10.375 10.500 10.625 10.750 10.875 11.000
		11.125 11.250 11.375 11.500 11.625 11.750 11.875 12.000 12.125 12.250 12.375 12.500 12.625
		12.750 12.875 13.000 13.125 13.250 13.375 13.500 13.625 13.750 13.875 14.000 14.125 14.250
		14.375 14.500 14.625 14.750 14.875 15.000 15.125 15.250 15.375 15.500 15.625 15.750 15.875

16.000	16.125	16.250	16.375	16.500	16.625	16.750	16.875	17.000	17.125	17.250	17.375	17.500
17.625	17.750	17.875	18.000	18.125	18.250	18.375	18.500	18.625	18.750	18.875	19.000	19.125
19.250	19.375	19.500	19.625	19.750	19.875	20.000	20.125	20.250	20.375	20.500	20.625	20.750
20.875	21.000	21.125	21.250	21.375	21.500	21.625	21.750	21.875	22.000	22.125	22.250	22.375
22.500	22.625	22.750	22.875	23.000	23.125	23.250	23.375	23.500	23.625	23.750	23.875	24.000
24.125	24.250	24.375	24.500	24.625	24.750	24.875	25.000	25.125	25.250	25.375	25.500	25.625
25.750	25.875	26.000	26.125	26.250	26.375	26.500	26.625	26.750	26.875			
-26.900	-26.800	-26.700	-26.600	-26.500	-26.400	-26.300	-26.200	-26.100	-26.000	-25.900	-25.800	-25.700
-25.600	-25.500	-25.400	-25.300	-25.200	-25.100	-25.000	-24.900	-24.800	-24.700	-24.600	-24.500	-24.400
-24.300	-24.200	-24.100	-24.000	-23.900	-23.800	-23.700	-23.600	-23.500	-23.400	-23.300	-23.200	-23.100
-23.000	-22.900	-22.800	-22.700	-22.600	-22.500	-22.400	-22.300	-22.200	-22.100	-22.000	-21.900	-21.800
-21.700	-21.600	-21.500	-21.400	-21.300	-21.200	-21.100	-21.000	-20.900	-20.800	-20.700	-20.600	-20.500
-20.400	-20.300	-20.200	-20.100	-20.000	-19.900	-19.800	-19.700	-19.600	-19.500	-19.400	-19.300	-19.200
-19.100	-19.000	-18.900	-18.800	-18.700	-18.600	-18.500	-18.400	-18.300	-18.200	-18.100	-18.000	-17.900
-17.800	-17.700	-17.600	-17.500	-17.400	-17.300	-17.200	-17.100	-17.000	-16.900	-16.800	-16.700	-16.600
-16.500	-16.400	-16.300	-16.200	-16.100	-16.000	-15.900	-15.800	-15.700	-15.600	-15.500	-15.400	-15.300
-15.200	-15.100	-15.000	-14.900	-14.800	-14.700	-14.600	-14.500	-14.400	-14.300	-14.200	-14.100	-14.000
-13.900	-13.800	-13.700	-13.600	-13.500	-13.400	-13.300	-13.200	-13.100	-13.000	-12.900	-12.800	-12.700
-12.600	-12.500	-12.400	-12.300	-12.200	-12.100	-12.000	-11.900	-11.800	-11.700	-11.600	-11.500	-11.400
-11.300	-11.200	-11.100	-11.000	-10.900	-10.800	-10.700	-10.600	-10.500	-10.400	-10.300	-10.200	-10.100
-10.000	-9.900	-9.800	-9.700	-9.600	-9.500	-9.400	-9.300	-9.200	-9.100	-9.000	-8.900	-8.800
-8.700	-8.600	-8.500	-8.400	-8.300	-8.200	-8.100	-8.000	-7.900	-7.800	-7.700	-7.600	-7.500
-7.400	-7.300	-7.200	-7.100	-7.000	-6.900	-6.800	-6.700	-6.600	-6.500	-6.400	-6.300	-6.200
-6.100	-6.000	-5.900	-5.800	-5.700	-5.600	-5.500	-5.400	-5.300	-5.200	-5.100	-5.000	-4.900
-4.800	-4.700	-4.600	-4.500	-4.400	-4.300	-4.200	-4.100	-4.000	-3.900	-3.800	-3.700	-3.600
-3.500	-3.400	-3.300	-3.200	-3.100	-3.000	-2.900	-2.800	-2.700	-2.600	-2.500	-2.400	-2.300
-2.200	-2.100	-2.000	-2.000	-2.000	-2.000	-2.000	-2.000	-2.000	-2.000	-2.000	-2.000	-2.000
3.000	3.100	3.200	3.300	3.400	3.500	3.600	3.700	3.800	3.900	4.000	4.100	4.200
4.300	4.400	4.500	4.600	4.700	4.800	4.900	5.000	5.100	5.200	5.300	5.400	5.500
5.600	5.700	5.800	5.900	6.000	6.100	6.200	6.300	6.400	6.500	6.600	6.700	6.800
6.900	7.000	7.100	7.200	7.300	7.400	7.500	7.600	7.700	7.800	7.900	8.000	8.100
8.200	8.300	8.400	8.500	8.600	8.700	8.800	8.900	9.000	9.100	9.200	9.300	9.400
9.500	9.600	9.700	9.800	9.900	10.000	10.100	10.200	10.300	10.400	10.500	10.600	10.700
10.800	10.900	11.000	11.100	11.200	11.300	11.400	11.500	11.600	11.700	11.800	11.900	12.000
12.100	12.200	12.300	12.400	12.500	12.600	12.700	12.800	12.900	13.000	13.100	13.200	13.300
13.400	13.500	13.600	13.700	13.800	13.900	14.000	14.100	14.200	14.300	14.400	14.500	14.600
14.700	14.800	14.900	15.000	15.100	15.200	15.300	15.400	15.500	15.600	15.700	15.800	15.900
16.000	16.100	16.200	16.300	16.400	16.500	16.600	16.700	16.800	16.900	17.000	17.100	17.200
17.300	17.400	17.500	17.600	17.700	17.800	17.900	18.000	18.100	18.200	18.300	18.400	18.500
18.600	18.700	18.800	18.900	19.000	19.100	19.200	19.300	19.400	19.500	19.600	19.700	19.800
19.900	20.000	20.100	20.200	20.300	20.400	20.500	20.600	20.700	20.800	20.900	21.000	21.100
21.200	21.300	21.400	21.500	21.600	21.700	21.800	21.900	22.000	22.100	22.200	22.300	22.400
22.500	22.600	22.700	22.800	22.900	23.000	23.100	23.200	23.300	23.400	23.500	23.600	23.700
23.800	23.900	24.000	24.100	24.200	24.300	24.400	24.500	24.600	24.700	24.800	24.900	25.000
25.100	25.200	25.300	25.400	25.500	25.600	25.700	25.800	25.900	26.000	26.100	26.200	26.300
26.400	26.500	26.600	26.700	26.800	26.900							

UPLINK PASSBAND C/I (dB) (2.00 DEGREE SPACING)
Antenna Patterns as given ; A = Geocentric Angle

W	A	N	T	E	D	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
			INTERFERING																	
1	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53
2	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53
3	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53
4	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53
5	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53
6	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53
7	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53
8	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53
9	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53
10	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53	48.53
11	33.87	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	35.00	36.52	48.53	44.44	45.20	50.06
12	45.93	47.06	47.06	47.06	47.06	47.06	47.06	47.06	47.06	47.06	47.06	47.06	47.06	47.06	47.06	48.58	59.48	48.53	54.53	60.43
13	39.93	41.06	41.06	41.06	41.06	41.06	41.06	41.06	41.06	41.06	41.06	41.06	41.06	41.06	41.06	42.58	53.48	42.53	48.53	54.43
14	36.41	37.54	37.54	37.54	37.54	37.54	37.54	37.54	37.54	37.54	37.54	37.54	37.54	37.54	39.06	49.96	38.28	44.28	48.53	

DOWNLINK PASSBAND C/I(dB)(2.00 DEGREE SPACING)
 Antenna Patterns as given ; A = Geocentric Angle

W	INTERFERING														
A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
N	1	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	18.72	11.73	5.71	4.74
T	2	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	20.26	15.59	9.66	8.69
E	3	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	20.26	15.59	9.66	8.69
D	4	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	20.26	15.59	9.66	8.69
	5	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	20.26	15.59	9.66	8.69
	6	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	20.26	15.59	9.66	8.69
	7	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	20.26	15.59	9.66	8.69
	8	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	20.26	15.59	9.66	8.69
	9	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	20.26	15.59	9.66	8.69
	10	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	31.73	20.26	15.59	9.66	8.69
	11	44.47	45.60	45.60	45.60	45.60	45.60	45.60	45.60	45.60	45.60	47.12	31.73	27.64	22.40
	12	56.53	57.66	57.66	57.66	57.66	57.66	57.66	57.66	57.66	57.66	59.18	42.68	31.73	31.73
	13	56.53	57.66	57.66	57.66	57.66	57.66	57.66	57.66	57.66	57.66	59.18	42.68	31.73	31.73
	14	58.91	60.04	60.04	60.04	60.04	60.04	60.04	60.04	60.04	60.04	61.56	45.06	33.38	31.73

TOTAL PASSBAND C/I (dB) (2.00 DEGREE SPACING)
Antenna Patterns as given ; A = Geocentric Angle

W A N T E D	INTERFERING													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	31.64	31.64	31.64	31.64	31.64	31.64	31.64	31.64	31.64	31.64	18.72	11.73	5.71	4.74
2	31.64	31.64	31.64	31.64	31.64	31.64	31.64	31.64	31.64	33.64	20.26	15.59	9.66	8.69
3	31.64	31.64	31.64	31.64	31.64	31.64	31.64	31.64	31.64	33.64	20.26	15.59	9.66	8.69
4	31.64	31.64	31.64	31.64	31.64	31.64	31.64	31.64	31.64	33.64	20.26	15.59	9.66	8.69
5	31.64	31.64	31.64	31.64	31.64	31.64	31.64	31.64	31.64	33.64	20.26	15.59	9.66	8.69
6	31.64	31.64	31.64	31.64	31.64	31.64	31.64	31.64	31.64	32.85	19.17	14.48	8.52	7.56
7	31.64	31.64	31.64	31.64	31.64	31.64	31.64	31.64	31.64	33.64	20.26	15.59	9.66	8.69
8	31.64	31.64	31.64	31.64	31.64	31.64	31.64	31.64	31.64	34.65	21.73	14.87	8.88	7.91
9	31.64	31.64	31.64	31.64	31.64	31.64	31.64	31.64	31.64	34.65	21.73	14.87	8.88	7.91
10	31.64	31.64	31.64	31.64	31.64	31.64	31.64	29.12	29.12	31.64	18.72	12.48	6.48	5.51
11	33.51	34.64	34.64	34.64	34.64	34.64	34.64	34.64	36.15	31.64	27.55	22.38	21.36	
12	45.57	46.70	46.70	46.70	46.70	46.70	46.70	46.70	48.22	42.59	31.64	31.70	31.72	
13	39.84	40.97	40.97	40.97	40.97	40.97	40.97	40.97	42.48	42.33	31.38	31.64	31.70	
14	36.39	37.52	37.52	37.52	37.52	37.52	37.52	37.52	39.03	43.84	32.17	33.04	31.64	

FM-AM S/I & PSK C/I (dB) (2.00 DEGREE SPACING)
 Antenna Patterns as given ; A = Geocentric Angle

W A N T E D	INTERFERING													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	64.62	63.84	63.84	63.84	63.84	63.84	63.84	61.17	61.17	64.13	51.21	44.22	38.20	37.23
2	68.13	62.73	62.73	62.73	62.73	62.73	62.73	65.65	65.65	70.81	57.43	52.76	46.83	45.86
3	68.13	62.73	62.73	62.73	62.73	62.73	62.73	65.65	65.65	70.81	57.43	52.76	46.83	45.86
4	68.13	62.73	62.73	62.73	62.73	62.73	62.73	65.65	65.65	70.81	57.43	52.76	46.83	45.86
5	68.13	62.73	62.73	62.73	62.73	62.73	62.73	65.65	65.65	70.81	57.43	52.76	46.83	45.86
6	68.40	63.00	63.00	63.00	63.00	63.00	63.00	65.80	65.80	70.39	56.71	52.02	46.06	45.10
7	68.13	62.73	62.73	62.73	62.73	62.73	62.73	65.65	65.65	70.81	57.43	52.76	46.83	45.86
8	68.33	68.43	68.43	68.43	68.43	68.39	68.43	62.38	62.38	71.34	58.42	51.56	45.58	44.61
9	68.33	68.43	68.43	68.43	68.39	68.43	68.39	62.38	62.38	71.34	58.42	51.56	45.58	44.61
10	31.64	31.64	31.64	31.64	31.64	31.64	31.64	29.12	29.12	31.64	18.72	12.48	6.48	5.51
11	33.51	34.64	34.64	34.64	34.64	34.64	34.64	34.64	36.15	31.64	27.55	22.38	21.36	
12	45.57	46.70	46.70	46.70	46.70	46.70	46.70	46.70	48.22	42.59	31.64	31.70	31.72	
13	39.84	40.97	40.97	40.97	40.97	40.97	40.97	40.97	42.48	42.33	31.38	31.64	31.70	
14	87.61	88.74	88.74	88.74	88.74	88.74	88.74	88.74	88.74	90.26	95.06	83.39	84.27	82.86

(C/I)up - (C/I)down (dB)(2.00 DEGREE SPACING)
Antenna Patterns as given ; A = Geocentric Angle

W	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
A	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	44.20	44.20	50.20	56.10
N	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	44.20	44.20	50.20	56.10
T	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	44.20	44.20	50.20	56.10
E	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	44.20	44.20	50.20	56.10
D	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	44.20	44.20	50.20	56.10
1	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	44.20	44.20	50.20	56.10
2	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	44.20	44.20	50.20	56.10
3	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	44.20	44.20	50.20	56.10
4	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	44.20	44.20	50.20	56.10
5	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	44.20	44.20	50.20	56.10
6	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	44.20	44.20	50.20	56.10
7	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	44.20	44.20	50.20	56.10
8	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	44.20	44.20	50.20	56.10
9	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	44.20	44.20	50.20	56.10
10	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	16.80	44.20	44.20	50.20	56.10
11	10.60	10.60	10.60	10.60	10.60	10.60	10.60	10.60	10.60	10.60	16.80	16.80	22.80	28.70	
12	10.60	10.60	10.60	10.60	10.60	10.60	10.60	10.60	10.60	10.60	16.80	16.80	22.80	28.70	
13	16.60	16.60	16.60	16.60	16.60	16.60	16.60	16.60	16.60	16.60	10.80	10.80	16.80	22.70	
14	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	22.50	4.90	4.90	10.90	16.80	

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**CERTIFICATION OF PERSON RESPONSIBLE
FOR PREPARING ENGINEERING INFORMATION**

I hereby certify that I am the technically qualified person responsible for preparation of the engineering information contained in this interference analysis; that I am familiar with Part 25 of the Commission's Rules; that I have either prepared or reviewed the engineering information submitted and that it is complete and accurate to the best of my knowledge.

By: Mitchell R. Belzer
Mitchell R. Belzer, Ph.D.

Dated this Oct 24, 1991

Robert J. Hester
Notary Public
My Commission Expires: 1-1-93