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November 7, 2002

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

BY HAND DELIVERY

Ms. Marlene Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: Ex Parte Presentation in IB Docket No. 02-10

Dear Ms. Dortch:

On Noven er 6. *2001,* representativ es of Maritime Telecommunicatic Network, I ("MTN") met with members of the International Bureau in connection with the above-referenced proceeding. During the meeting, MTN described suggested coordination procedures that could be used at various port operating areas to protect terrestrial services operating in the C-band from the co-frequency operations of satellite earth stations on board vessels ("ESVs"). MTN also distributed copies of a letter from the Chief Technical Officer of Pinnacle Telecom Group, LLC, attesting to the feasibility of these procedures. A summary of the suggested coordination procedures that was distributed during the meeting and a copy of the letter from Pinnacle Telecom Group are enclosed.

MTN also discussed how the Commission's existing earth station authorization application form (FCC Form 312, Schedule B) could be revised to accommodate ESV licensing, using the pon of Miami, Florida as an example. MTN distributed sample copies of a revised Form 312, Schedule B to demonstrate one means of modifying the foim. **A** copy of that revised form, with revisions to the existing form marked in red, is enclosed.

No. of Copies rec'd 0+1
List ABCDE

The original and one copy of this letter are provided for inclusion in the above-referenced proceeding. Please address any questions concerning this matter to the undersigned.

Respectfully submitted,

Raul R Rodriguez
Counsel to Maritime Telecommunications Network, Inc

Enclosure

cc w/ enclosure (by e-mail): Claudia Fox
Belinda Nixon
Ed Jacob
Lisa Cacciatore

Description of Coordination Procedures For C-Band ESVs

Phase I – Construction of tlic Composite Coordination Area

1. Identify the operational parameters of the types of ESV required lor coordination (see sample report) that will be used in the analysis as well as the data on the desired satellite(s) aiid frequency band(s).
2. Identify the port, port areas and piers or berths where ships with this type(s) of ESV are intended to operate.
3. Using NOAA nautical charts, identify the sea-lanes and channels that deep draft ships must use to reach a specific berth. Extend the line beyond the outer marker (the most seaward buoy leading to the channels into the port) to include all of the possible approaches to this port area out a distance of 100 km[1] from the coastline. The area enclosed by the extremes of the approaches is the operating area for that particular port (operational area or port operating area). See ITU-R Rcc. SF-[DOC. 4/85-9/108] for details.
4. Identify the break points along the edges of the operating area where a ship following that edge would change course. Because tlic coordination area drawn around these points will enclose a very large area, it is generally not necessary for the break points to be very close together to include all of tlic fixed service receivers that could potentially receive interference. However, in the unlikely case where the approach to a port is along a straight line for a very long distance, all potential victims can be included by placing intermediate break points so that there is a break point at least every 30 nautical miles.
5. Use standard FCC (or ITU) procedures for fixed satellite earth station coordination. calculate the coordination area around each break point. Join the outer edges of all the individual coordination ai-eas to form a composite coordination area for the port operating area. This procedurc is described in detail in ITU-R Rec. SF-[DOC. 4/85-9/108].

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[1] *See Mobile Satellite-Based Communications Services by Crescomm Transmission Services, Inc., and Qualcomm Incorporated*, Order, RM-7912 (Int'l Bureau and OET, 1996) (*Crescomm Order*), 11 FCC Rcd 10944. The Crescomm Order set this number at 100 km. However, MTN notes that ITU-R Rec. SF-[ESV-A] sets this number at 300 km.

Phase II – Prior Coordination of Port Operating Area

1. Using the database of licensed stations in the fixed service operating in the frequency bands of interest, identify all of the potential victim receivers that are within the composite coordination area and the frequencies they are assigned.
2. If there are any frequencies within the band of interest that are not used by any of the potential victim receivers identified in Step II.1, these frequencies may be identified for use by the ESV within the port operating area without further analysis.
3. The potential for interference must be determined where there are potential conflicts with existing users in the band. To perform this analysis, the worst-case position of the ship within the port operating area for causing interference to each victim must be identified. This point is called the critical contour point (CCP). The procedure for choosing the CCP for each potential victim receiver and assessing the potential for interference is described in ITU-R Rec. SF-[ESV-C].
4. An interference analysis is performed at each CCP for the associated victim receiver using industry-standard procedures For assessing the potential for interference from a fixed-satellite service earth station into a fixed service receiver (,seeNSMA Recommendation WG3-90.26). This analysis may be a simple free-space loss calculation or it may include OH-loss and knowledge of the topography. The results of this analysis indicate whether **the** interfering signal is likely to exceed the interference objective and if so, by how much.
5. Frequencies that exceed the interference objective generally would not be assigned for ESV use in that port operating area. However, there might be some mitigating circumstances or limitations that could be negotiated between the coordinator for the fixed service station and the coordinator for the ESVs (see Step II. *7)*.
6. All coordinators for the potential victim receivers would receive a letter with details of the analysis and the results so that they can assess the situation themselves and either verify or contest the conclusions reached by the coordinator for the ESVs. The details sent to coordinators for each victim receiver should include:
    a. The operational parameters of the type(s) of ESV including the azimuth and elevation angles;
    b. **A** map of the port operating area and the composite coordination area;

c. The coordinates of the CCP identified as the point within the port operating area that could potentially cause the worst-case interference;

d. The distance from the CCP to the victim receiver; and

e. The discrimination angle and the gain at that angle for both the type(s) of ESV and the victim receiver that have been used in the analysis.

7. To the extent that the coordinators representing the potential victims have some objections to the results of the analysis and/or that there may be mitigating circumstances for some frequencies that the frequency coordinator for the potential victim can accept in order to clear a frequency for use, ad-hoc negotiations could occur. This type of negotiation is a commonly accepted procedure for coordination between fixed-satellite stations and fixed service stations.

8. Create the list of frequencies for which the analysis shows there is no potential to cause interference. This list may also include the cases negotiated in Step 11.7 where the frequency coordinator for the fixed service station has agreed to allow operation.

Phase III – Preparation of FCC Form 312 Schedule B

1. Schedule B of the FCC Form 312 license application should give the technical description of the hub and associated type(s) of CSV terminals in the network as well as the results for prior frequency coordination in each port operating area.

2. The frequency coordination information provided to support the application should include:

   a. A map of the port area indicating the berths, channels and sea-lanes making up the operating area and the break points and the resulting composite coordination area;

   b. A list of the break points and their coordinates used in performing the analysis;

   c. A list of the frequencies that have been cleared for use in the port operating area; and

   d. The letter of certification from the coordinator who performed the analysis.

PINNACLE TELECOM GROUP, LLC

Consulting and Engineering Services *www.pinnacletelecomgroup.com*

Telecom Consulting

November 5, 2002

Donald Abelson
Chief, International Bureau
Federal Communications Commission
445 12th Street, SW
Washington. DC 20554

SUBJECT: Written ***Ex*** Parte Comments in IB Docket **02-10 –**
Interference Analysis and Frequency Coordination for
C-Band Earth Stations Operated Aboard Vessels (ESVs)

Dear Mr. Abelson.

At the request of Dr. Robert Hanson of Maritime Telecommunications Network, Inc,. (MTN), I have reviewed material on procedures for analyzing potential RF interference, performing frequency coordination, and submitting license applications for ESVs operating in frequency bands shared with point-to-point microwave systems.

My staff and I have been involved in ESV coordination since early 1997, when many of us were working for Edwards and Kelcey, and we have continued that work since forming Pinnacle Telecom Group in early 2000. We have also been continuously Involved in ESV coordination discussions in the National Spectrum Managers Association (which I currently serve as president), as well as in periodic discussions with the FCC staff.

All of the material we reviewed is fundamentally consistent with the approach we have used in all ESV coordination lo date, involving multiple clients (including MTN). Once ?he ESV operating contour has been defined and critical contour points identified, the analysis methodology relies on exactly the same mathematical analysis as has been used for earth station coordination since the early 1970s.

We are firm believers in the spectrum management principle that if some new sharing proposal can be demonstrated to work from an interference point *of* view, then it should be allowed by the FCC. With the described interference analysis and coordination procedure, C-band ESV operations match that criteria.

14 Ridgedale Avenue – Suite 262 Cedar Knolls, NJ 07927 973-471-1630

Moreover, given the significant geographic limitations of ESV operations (i.e., the limited number *of* deep-draft pons along the coastline). there is no real impact on the other services using ihe bands already shared on a primary co-equal basis by microwave and satellite operations.

We believe the interference analysis methodology and frequency coordination procedures described in the material we reviewed (and also under development within the ITU radiocornrnunications sector! are not only workable. they have been specifically demonstrated in US industry practice over some lime now Io work, and work effectively. Except for the minor fine-tuning of certain parameters, the described procedure has been used by my staff in coordinating ESV operations in nearly two dozen US ports and the Gulf of Mexico.

I am available for further discussion or to answer questions on this topic, and I can be reached via phone at 973-451-1630 on extension 102, or via email at dancollins @ pinnacletelecorngroup.com.

Regards,

Daniel J. Collins
Chief Technical Officer

FCC 312
Schedule B

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE EARTH STATION AUTHORIZATIONS
(Technical and Operational Description)

(Place an "X" in one of the blocks below)

Page 1: Location

ESV Hub

☐ License of New Station ☐ Registration of New Domestic Receive-Only Station ☐ Amendment to a Pending Application ☐ Modification of License/Registration ☐ Notification of Minor Modifications

B1. Location of Earth Station Site. If temporary-fixed, mobile, ~~or~~ VSAT remote facility, or ESV remote facility specify area of operation and point of contact. If VSAT or ESV hub station, give its location. For VSAT networks attach individual Schedule B, Page 1 sheets for each hub station and each remote station. For ESV networks, attach individual Schedule B, Page 1 sheets for each hub station and each type of remote station, and attach an exhibit for each operational area that graphically depicts that area and its associated composite coordination area. Individually provide the Location, Points of Communications, and Destination Points for each hub and remote station or type of remote station (ESV only).

B1a. Station Call Sign	B1b. Site Identifier (HUB, REMOTE 1, etc.)	B1c. Telephone Number	B1j. Geographic Coordinates N/S, Deg. - Min. - Sec E/W	B1k. Lat./Lon. Coordinates are:
KA434	HUB	732-739-2874		
B1d. Street Address of Station or Area of Operation	**B1e. Name of Contact Person**		Lat. 40 23 42.2 N	☐ NAD-27
200 Telegraph Hill Rd Holmdel, NJ 07733	Mark Desantis		Lon. 74 10 25.1 W	☐ NAD-83

B1f. City	B1g. County	B1h. State	B1i. Zip Code	B1l. Site Elevation (AMSL)

... locations of all satellite facilities licensed by the U.S. All non-U.S. licensed satellites must be listed individually.

	Satellite Name and Orbit Location
	PANAMSAT 1 @ 45.0 W. L.

B3. Destination points for communications using non-U.S. licensed satellites. For each non-U.S. licensed satellite facility identified in section B2 above, specify the destination point(s) (countries) where the services will be provided by this earth station via each non-U.S. licensed satellite system. Use additional sheets as needed.

Satellite Name	List of Destination Points

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE EARTH STATION AUTHORIZATIONS
ESV Hub

FCC Form 312 – Schedule B: (Technical and Operational Description)

B4. Earth Station Antenna Facilities: Use additional pages as needed.

(a) Site ID*	(b) Antenna ID/Terminal **	(c) Quantity	(d) Manufacturer	(e) Model	(f) Antenna/ Terminal Size (meters)	(g) Antenna/Terminal Gain Transmit and/or Receive (dBi at GHz)
Hub	16.4M	1	VERTEX	16.4THC	16.4	(T) 58.6 dBi at 6.175 GHz

B5. Antenna Heights and Maximum Power Limits: (The corresponding antenna ID in tables B4 and B5 applies to the same antenna)

(a) Antenna/Terminal ID*	(b) Antenna Structure Registration No.	Maximum Antenna Height		(e) Building Height Above Ground Level (meters) ***	(f) Maximum Antenna Height Above Rooftop (meters) ***	(g) Total Input Power at Antenna Flange (Watts)	(h) Total EIRP for all carriers (dBW)
		(c) Above Ground Level (meters)	(d) Above Mean Sea Level (meters)				
16.4M		17.4	121.0	N/R	N/R	500 W	85.6

Notes: * If this is an application for a VSAT or ESV network, identify the site (Item B1b, Schedule B, Page 1) where each antenna is located or where each terminal will operate. Also include this Site-ID on Schedule B, Page 5.

** Identify each antenna in VSAT/ESV network or multi-antenna station with a unique identifier, such as HUB, REMOTE1, A1, A2, 10M, 12M, 7M, etc. Use this same antenna ID throughout tabels B4, B5, B6, and B7 when referring to the same antenna.

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

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE EARTH STA'TION AUTHORIZATIONS
FCC FORM 312 – Schedule B: (Technical and Operational Description)

Hub Station

B6. Frequency Coordination Limits: Use additional pages as needed.

(a) Antenna/Terminal ID*	(b) Frequency Limits (MHz)	(c) Range of Satellite Arc Eastern Limit**	(d) Range of Satellite Arc Western Limit**	(e) Antenna Elevation Angle Eastern Limit	(f) Antenna Elevation Angle Western Limit	(g) Earth Station Azimuth angle Eastern Limit	(h) Earth Station Azimuth Angle Western Limit	(i)Maximum EIRP Density toward the Horizon (dBW/4kHz)
16.4M	5925-6425	31.5	143	26.3	255.9	125.1	7.4	-2.71

Notes: * Provide the ANTENNA/Terminal-ID from table B4 to identify the antenna to which each frequency band and orbital arc range is associated.

** If operating with geostationary satellites, give the orbital arc limits and the associated elevation and azimuth angles. If operating with non-geostationary satellites, give the notation "NON-GEO" for the satellite arc and give the minimum operational elevation angle and the maximum azimuth angle range.

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE EARTH STATION AUTHORIZATIONS
FCC FORM 312 – Schedule B: (Technical and Operational Description)

Hub

7. Particulars of Operation (Full particulars are required for each r.f. carrier): Use Additional pages as needed.

(a) Antenna/ Terminal ID*	(b) Frequency Bands (MHz)	(c) T/R Mode **	(d) Antenna Polarization (H,V,L,R)	(e) Emission Designator	(f) Maximum EIRP per Carrier (dBW)	(g) Maximum EIRP Density Per Carrier (dBW/4kHz)	(h) Description of Modulation and Services
16.4M	5925-6425	T	A	36M0G7W	85.6	46.06	QPSK – DIGITAL, VOICE & DATA

Notes: * Provide the ANTENNA/Terminal-ID from table B4 to identify the antenna to which each frequency band and emission is associated. For VSAT or ESV networks, include frequencies and emissions for all HUB and REMOTE units.

** Indicate whether the earth station transmits or receives in each frequency band.

FCC 312
Schedule B

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE EARTH STATION AUTHORIZATIONS
(Technical and Operational Description)

(Place an "X" in one of the blocks below)

Page 1: Location

Remote

☐ License of New Station ☐ Registration of New Domestic Receive-Only Station ☐ Amendment to a Pending Application ☐ Modification of License/Registration ☐ Notification of Minor Modifications

B1. Location of Earth Station Site. If temporary-fixed, mobile, ~~or~~ VSAT remote facility, or ESV remote facility specify area of operation and point of contact. If VSAT or ESV hub station, give its location. For VSAT networks attach individual Schedule B, Page 1 sheets for each hub station and each remote station. For ESV networks, attach individual Schedule B, Page 1 sheets for each hub station and each type of remote station, and attach an exhibit for each operational area that graphically depicts that area and its associated composite coordination area. Individually provide the Location, Points of Communications, and Destination Points for each hub and remote station or type of remote station (ESV only).

B1a. Station Call Sign	B1b. Site Identifier (HUB, REMOTE 1, etc.)	B1c. Telephone Number	B1j. Geographic Coordinates N/S, Deg. - Min. - Sec E/W	B1k. Lat./Lon. Coordinates are:
	Remote 1	732-739-2874		
B1d. Street Address of Station or Area of Operation	B1e. Name of Contact Person		Lat. 25 46 29.0 N	☐ NAD-27
MIAMI PORT OPERATING AREA	MARK DESANTIS		Lon. 80 09 55.0 W	☐ NAD-83

B1f. City	B1g. County	B1h. State	B1i. Zip Code	B1l. Site Elevation (AMSL)
				meters

B2. Points of Communications: List the names and orbit locations of all satellites with which this earth station will communicate. The entry "ALLSAT" is sufficient to identify the names and locations of all satellite facilities licensed by the U.S. All non-U.S. licensed satellites must be listed individually.

Satellite Name and Orbit Location	Satellite Name and Orbit Location	Satellite Name and Orbit Location
ALLSAT		
INTELSAT 805 in AOR @ 304.5 E. L.		

B3. Destination points for communications using non-U.S. licensed satellites. For each non-U.S. licensed satellite facility identified in section B2 above, specify the destination point(s) (countries) where the services will be provided by this earth station via each non-U.S. licensed satellite system. Use additional sheets as needed.

Satellite Name	List of Destination Points

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE EARTH STATION AUTHORIZATIONS
FCC Form 312 – Schedule B: (Technical and Operational Description)

B4. Earth Station Antenna/Terminal Facilities: Use additional pages as needed.

(a) Site ID*	(b) Antenna ID/Terminal **	(c) Quantity	(d) Manufacturer	(e) Model	(f) Antenna/ Terminal Size (meters)	(g) Antenna/Terminal Gain Transmit and/or Receive (dBi at GHz)
Remote 1	Rem 1 MTN-1	25	Sea Tel, Inc.	9697	2.4	(T) 40.8 dBi at 6.175 GHz

B5. Antenna Heights and Maximum Power Limits: (The corresponding antenna ID in tables B4 and B5 applies to the same antenna)

(a) Antenna/Terminal ID*	(b) Antenna Structure Registration No.	Maximum Antenna Height		(e) Building Height Above Ground Level (meters) ***	(f) Maximum Antenna Height Above Rooftop (meters) ***	(g) Total Input Power at Antenna Flange (Watts)	(h) Total EIRP for all carriers (dBW)
		(c) Above Ground Level (meters)	(d) Above Mean Sea Level (meters)				
Rem 1 MTN-1	—	25.6	25.6	N/A	N/A	100	57.8

Notes: If this is an application for a VSAT or ESV network, identify the site (Item B1b, Schedule B, Page 1) where each antenna is located or where each terminal will operate. Also include this Site-ID on Schedule B, Page 5.
** Identify each antenna in VSAT/ESV network or multi-antenna station with a unique identifier, such as HUB, REMOTE1, A1, A2, 10M, 12M, 7M, etc. Use this same antenna ID throughout tabels B4, B5, B6, and B7 when referring to the same antenna.
*** Attach sketch of site or exemption. See 47 CFR Part 17.

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE EARTH STATION AUTHORIZATIONS
FCC FORM 312 – Schedule B: (Technical and Operational Description)

Remote

B6. Frequency Coordination Limits: Use additional pages as needed.

(a) Antenna/Terminal ID*	(b) Frequency Limits (MHz)	(c) Range of Satellite Arc Eastern Limit**	(d) Range of Satellite Arc Western Limit**	(e) Antenna Elevation Angle Eastern Limit	(f) Antenna Elevation Angle Western Limit	(g) Earth Station Azimuth angle Eastern Limit	(h) Earth Station Azimuth Angle Western Limit	(i) Maximum EIRP Density toward the Horizon (dBW/4kHz)
em 1 MTN-1	6172-6206	41.0	103.0	37.4	50.6	118.1	224.1	-13.61

Notes: * Provide the ANTENNA/Terminal-ID from table B4 to identify the antenna to which each frequency band and orbital arc range is associated.

** If operating with geostationary satellites, give the orbital arc limits and the associated elevation and azimuth angles. If operating with non-geostationary satellites, give the notation "NON-GEO" for the satellite arc and give the minimum operational elevation angle and the maximum azimuth angle range.

FEDERAL COMMUNICATIONS COMMISSION
SATELLITE EARTH STATION AUTHORIZATIONS
FCC FORM 312 – Schedule B: (Technical and Operational Description)

Remote

B7. Particulars of Operation (Full particulars are required for each r.f. carrier): Use Additional pages as needed

(a) Antenna/ Terminal ID*	(b) Frequency Bands (MHz)	T/R Mode **	(d) Antenna Polarization (H,V,L,R)	(e) Emission Designator	(f) Maximum EIRP per Carrier (dBW)	EIRP Dennsity Per Carrier (dBW/4kHz)	(h) Description of Modulation and Services

Notes: * Provide the ANTENNA/Terminal-ID from table B4 to identify the antenna to which each frequency band and emission is associated. For VSAT o' 'S V networks, include frequencies and emissions for all HUB and REMOTE units

** Indicate whether the earth station transmits or receives in each frequency band.

SAMPLE REPORT

FREQUENCY COORDINATION AND INTERFERENCE
ANALYSIS REPORT

PREPARED FOR
MARITIME TELECOMMUNICATIONS NETWORK

MIAMI, FL
SATELLITE EARTE STATION ONBOARD VESSEL (ESV)

PREPARED BY
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, **Virginia** 20147
November 4, *2002*

SAMPLE REPORT

TABLE OF CONTENTS

SAMPLE REPORT

1. CONCLUSIONS

AN INTERFERENCE STUDY CONSIDERING ILL EXISTING, PROPOSED AND PRIOR COORDINATED MICROWAVE FACILITIES WITHIN THE COORDINATION CONTOURS OF THE PROPOSED EARTH STATION ONBOARD VESSEL (ESV) DEMONSTRATES THAT THIS SITE WILL OPERATE SATISFACTORILY WITH THE COMMON CARRIER MICROWAVE ENVIRCNMENT BASED UPON THE RESTRICTIONS NOTED IN TEE SUMMARY OF RESULTS (SECTION 2).

SAMPLE REPORT

2. SUMMARY OF RESULTS

A NUMBER OF GREAT CIRCLE INTERFERENCE CASES WERE IDENTIFIED DURING THE INTERFERENCE STUDY OF THE PROPOSED EARTH STATION ONBOARD VESSEL. EACH OF THE CASES WHICH EXCEEDED THE INTERFERENCE OBJECTIVE ON A LINE-OF-SIGHT BASIS WAS ANALYZED AND RESOLVED USING PROFILES AND THE PROPAGATION LOSSES ESTIMATED USING NBS TN101 (REVISED) TECHNIQUES OR FREQUENCY OFFSET. THE LOSSES AND/OR FREQUECNY OFFSET WERE FOUND TO BE SUFFICIENT TO REDUCE THE SIGNAL LEVELS TO ACCEPTABLE MAGNITUDES IN EVERY CASE. THE MIAMI ESV WILL ONLY OPERATE WITHIN THE FOLLOWING FREQUENCY BAND TO ENSURE THAT NO INTERFERENCE WILL OCCUR: 6172-6206 MHZ.

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 AND FREQUENCY OFFSET ARE CONSIDERED ON THE INTERFERING PATHS, SUFFICIENT BLOCKAGE EXISTS TO NEGATE HARMFUL INTERFERENCE FROM OCCURRING WITH THE PROPOSED TRANSMIT AND RECEIVE EARTH STATION

COMPANY

PALM BEACH COUNTY FAC DEV & OP
VERIZON PERSONAL COMMUNICBTIONS,L.P.(FL)
SOUTH FLORIDA WATER MANAGEMENT DISTRICT
PALM BEACH COUNTY FAC DEV & OP
FLORIDA POWER AND LIGHT COMPANY
CINGULAR WIRELESS, LLC - FL RGN
AT&T WIRELESS SERVICES OF FL INC - FL

NO OTHER CARRIERS REPORTED POTENTIAL INTERFERENCE CASES.

SAMPLE REPORT

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 NOVEMBER 4, 2002.

AT&T WIRELESS SERVICES OF FL INC - FL
CENTRAL FLORIDA CELLULAR TELEPHONE CO
CINGULAR WIRELESS, LLC - FL RGN
FLORIDA CELLULAR SERVICE, LLC
FLORIDA POWER AND LIGHT COMPANY
M/A COM PRIVATE RADIO SYSTEMS, INC.
PALM BEACH COUNTY FAC DEV & OP
SOUTH FLORIDA WATER MANAGEMENT DISTRICT
SPRINT FLORIDA, INC.
VERIZON PERSONAL COMMUNICATIONS,L.P.(FL)
WIRELESS ONE HLD CO DBA CELLONE OF SWFLA

SAMPLE REPORT

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 COOR DINATION CONTOURS.

SAMPLE REPORT

SATELLITE EARTH STATION
FREQUENCY COORDINATION DATA
10/31/2002

Company	MTN	
Earth Station Name, State		MIAMI, FL
Latitude (DMS) (NAD83)		25 46 29.0 N
Longitude (DMS) (NAD83)		80 9 55.0 W
Ground Elevation AMSL (Ft/m)		0 ∩0 / 0.GO
Antenna Centerline AGL (Ft/m)		79.99 / 24.38
Transmit Antenna Type	FCC32	FCC Reference 32-25LOG(THETA)
6.0 GHz Gain (dBi) / Diameter (m)		40.8 / 2.4
3 dB / 15 dB Half Beamhidth		0.50 / **1.40**
Operating Mode		TRANSMIT ONLY
Modulation		ANALOG
Emission / Transmit sand (MHz)		36M0F8W / **6172-6206** MHZ
Max. Available RF Power (dBW)/4 kHz)		**-7.00**
(dBW)/MHz)		**17.00**
Max. EIRF	(dBW)/4 kHz)	**33.80**
	(dBW)/MHz)	**57.80**
	(dBW)	*0.00*
Max permissible Interference Power		
6.0 GHz, **20% (dBW/4** kHz)		**-154.0**
6.0 GHz, **0.0025% (dBW/4** kHz)		**-131.0**
Range of Satellite ***Arc*** [Geostationary)		
Degrees Longitude		41.0 W / 103.0 W
Azimuth Range (Min/Max)		**118.1 / 224.1**
Corresponding Elevation Angles		31.4 / **50.6**
Radio Climate		**B**
Rain Zone		**2**
Max Great Circle Coordination Distance (Mi/Km)		
6.0 GHz		**118.9 /** 191.3
Precipitation Scatter Contour Radius !Mi/Km)		
6.0 GHz		**62.1 /** 100.0

Note: Horizon is less than 0.2 degrees *at* **all** azimuths

SAMPLE REPORT

Table of Eaith Station Coordination Values
10/31/2002

Earth Station Name MIAMI FL
Owner MTN
Latitude (DMS) (NAD83) 25 46 29.0N
Longitude (DMS) (NAD83) 80 9 55.0 W
Ground Elevation (Ft/m) 0.00 / 0.00 ***AMSL***
Antenna Centerline (Ft/m) 79.99 / 24.38 AGL
Antenna Model FCC Reference 32-25LOG(THETA)
Objectives: Transmit 154.0 (dBW /4 kHz) TX Power -7.0 (dBW/4 kHz)

Azimuth (Deg)	Horizon Elevation Angle (Deg)	Antenna Disc. Angle (Deg)	6.0 GHz Antenna Gain (dBi)	6.0 GHz Coordination Distance (Km)
0	0.00	111.98	-10.00	177.2
5	0.00	108.16	-10.00	177.2
10	0.00	104 29	-10.00	177.2
15	0.00	100.37	-10.00	177.2
20	0.00	96.43	-10.00	177.2
25	0.00	92.46	-10.00	177.2
30	0.00	88.49	-10.00	177.2
35	0.00	84.52	-10.00	177.2
40	0.00	80.57	-10.00	177.2
45	0.00	76.64	-10.00	177.2
50	0.00	72.76	-10.00	177.2
55	0.00	68.93	-10.00	177.2
60	0.00	65.17	-10.00	177.2
65	0.00	61.50	-10.00	177.2
70	0.00	57.95	-10.00	177.2
75	0.00	54.53	-10.00	177.2
80	0.00	51.29	-10.00	177.2
85	0.00	48.26	-10.00	177.2
90	0.00	45.49	-9.45	180.0
95	0.00	43.04	-8.85	183.1
100	0.00	40.95	-8.31	186.0
105	0.00	39.29	-7.86	188.4
110	0.00	38.12	-7.53	190.2
115	0.00	37.49	-7.35	191.1
120	0.00	37.42	-7.33	191.3
125	0.00	37.92	-7.47	190.5
130	0.00	38.96	-7.77	188.9
135	0.00	40.51	-8.19	186.6
140	0.00	42.50	-8.71	183.9
145	0.00	44.88	-9.30	180.8
150	0.00	47.58	-9.94	177.6
155	0.00	50.55	-10.00	177.2
160	0.00	53.58	-10.00	177.2
165	0.00	56.17	-10.00	177.2
170	0.00	58.17	-10.00	177.2
175	0.00	59.44	-10.00	177.2
180	0.00	59.87	-10.00	171.2

SAMPLE REPORT

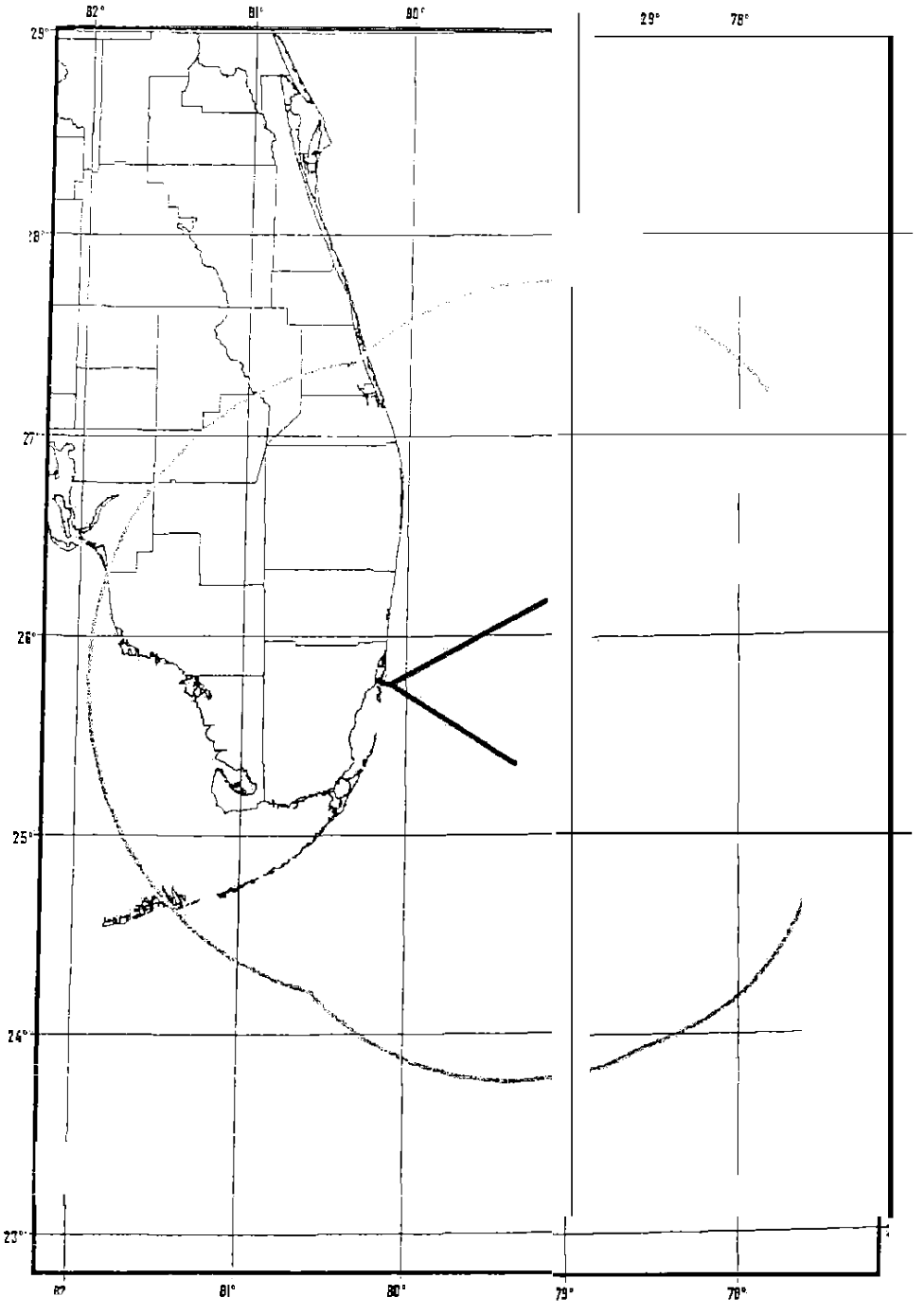
Table of Earth Station Coordination Values
10/31/2002

Earth Station Name MIAMI FL
Owner MTN
Latitude (DMS) (NAD83) 25 46 29.0 N
Longitude (DMS) (NAD83) 60 9 55.0 W
Ground Elevation (Ft/m) 0.00 / 0.00 AMSL
Antenna Centerline (Ft/m) 79.99 / 24.38 AGL
Antenna Model FCC Reference 32-25LOG(THETA)
Objectives: Transmit -154.0 (dBW /4 kHz) TX Power -7.0 (dBW/4 kHz)

Azimuth (Deg)	Horizon Elevation Angle (Deg)	Antenna Disc Angle (Deg)	6.0 GHz Antenna Gain (dBi)	6.0 GHz Coordination Distance (Km)
185	0.00	59.44	-10.00	177.2
190	0.00	58.17	-10.00	177.2
195	0.00	56.29	-10.00	177.2
200	0.00	54.57	-10.00	177.2
205	0.00	53.12	-10.00	177.2
210	0.00	51.98	-10.00	177.2
215	0.00	51.17	-10.00	177.2
220	0.00	50.70	-10.00	177.2
225	0.00	50.59	-10.00	177.2
230	0.00	50.83	-10.00	177.2
235	0.00	51.43	-10.00	177.2
240	0.00	52.37	-10.00	177.2
245	0.00	53.62	-10.00	177.2
250	0.00	55.18	-10.00	177.2
255	0.00	57.00	-10.00	177.2
260	0.00	59.06	-10.00	177.2
265	0.00	61.33	-10.00	177.2
270	0.00	63.79	-10.00	177.2
275	0.00	66.41	-10.00	177.2
280	0.00	69.16	-10.00	177.2
265	0.00	72.03	-10.00	177.2
290	0.00	74.99	-10.00	177.2
295	0.00	76.02	-10.00	177.2
300	0.00	81.12	-10.00	177.2
305	0.00	84.25	-10.00	177.2
310	0.00	87.41	-10.00	177.2
315	0.00	90.59	-10.00	177.2
320	0.00	93.76	-10.00	177.2
325	0.00	96.91	-10.00	177.2
330	0.00	100.03	-10.00	177.2
335	0.00	103.11	-10.00	177.2
340	0.00	106.12	-10.00	111.2
345	0.00	109.04	-10.00	177.2
350	0.00	111.87	-10.00	177.2
355	0.00	114.56	-10.00	177.2

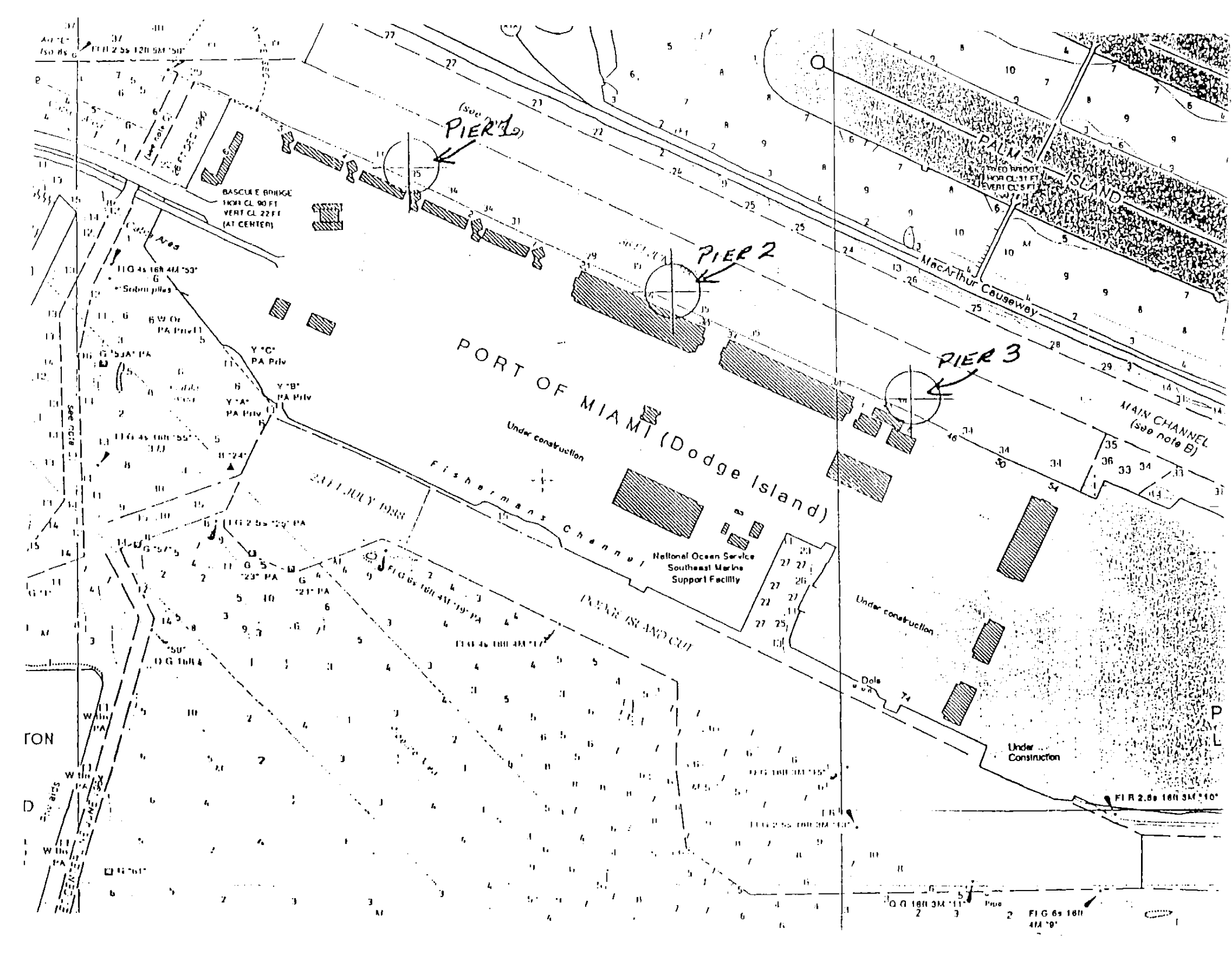
SAMPLE REPORT

MIAMI ESV GREAT CIRCLE COORDINATION CONTOUR



COMSEARCH

MIAMI Coordination Contour w/ Entensions


PIER 1
PIER 2
PIER 3
PORT OF MIAMI (Dodge Island)
PALM ISLAND
MacArthur Causeway
MAIN CHANNEL
(see note B)
Fisherman's channel
Under construction
National Ocean Service
Southeast Marine
Support Facility
BASCULE BRIDGE
HOR CL 90 FT
VERT CL 22 FT
(AT CENTER)
Under construction
Under Construction
Pipe

SAMPLE REPORT

Miami ESV Route Break Points

ID	SITE1	Latitude (deg)	(min)	(sec)	Longitude (deg)	(min)	(sec)
1	BrkPnt 1	25	46	47.35	80	10	53.40
2	BrkPnt 2	25	46	37.35	80	10	9.16
3	BrkPnt 3	25	46	26.35	80	9	48.16
4	BrkPnt 4	25	46	11.35	80	8	56.16
5	BrkPnt 5	25	46	1.35	80	8	22.16
6	BrkPnt 6	25	46	41.35	80	7	35.16
7	BrkPnt 7	25	45	21.35	80	6	54.16
8	BrkPnt 8	25	45	32.35	80	5	54.15
9	BrkPnt 9	26	10	13.30	79	9	10.96
10	BrkPnt 10	25	21	25.40	79	20	4.97

SAMPLE REPORT

5. CERTIFICATION

I HEREBY CERTIFY THAT I AM THE TECHNICALLY QUALIFIED PERSON RESPONSIBLE FOR TEE 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 7 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
SENIOR FREQUENCY COORDINATOR
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Virginia **20147**

DATED: November **4, *2002***