

EXHIBIT B

ENGINEERING STATEMENT

This engineering statement is submitted by NextWave Telecom Inc. ("NT") in support of its request for an Experimental License that will allow NT to employ the excess capacity of its Call Signs WHT722 and WHT724 in order to deploy, test and provide service using advanced two-way broadband wireless technology in the Las Vegas, Nevada area.

NT is already operating a nine-site two-way system using channels F1 and E2 as an experimental license (Call Sign WB9XVM) pursuant to Special Temporary Authority ("STA"). It requests authority to continue to operate under the same parameters as the STA. Channels E1 and F2 will continue to be used for downstream video as currently authorized. The downstream and upstream service for all current booster sites and response station hub sites are combined in this request. Grant of this application will permit the continued operation of experimental booster stations and response station hubs and associated response stations that will allow for testing of various two-way digital equipment that is currently being considered for use by NT.

The current upstream response and downstream booster transmissions do not occur simultaneously. Furthermore, any continued transmissions on the F1 and E2 channels by the main WHT724 and WHT722 stations, including all currently authorized boosters and response stations, will be controlled to avoid simultaneous use with either the upstream response stations or the downstream booster stations. Therefore, the interference and power flux density studies associated with this STA request involve the aggregate of the downstream booster transmissions only and the aggregate of the upstream response station transmissions only.

The proposals in this request will not have any significant environmental effects as defined by 47 C.F.R. § 1.1307. A brief statement explaining why there will be no significant environmental effect is provided in **EXHIBIT B-6: ENVIRONMENTAL IMPACT**.

All of the current booster / response station hub sites employ existing facilities for its antennas. **EXHIBIT B-7: ANTENNA STRUCTURE INFORMATION** provides the antenna structure data for each site.

Eight of the nine current booster stations / response station hubs employ directional antennas with dual polarization (vertical and horizontal). The antenna radiation patterns for these antennas are provided in **EXHIBIT B-8**. The remaining booster station / response station hub will employ an omni-directional antenna.

An analysis and discussion of the downstream and upstream studies follows.

DOWNSTREAM ANALYSIS

The downstream service for all nine current booster station sites is combined in this request.

Figure 1, attached, demonstrates that the current booster sites and booster service area (BSA) boundaries are completely contained within the WHT722 and WHT724 protected service area (PSA), in compliance with 47 C.F.R. §§ 74.985(b)(1) and (2).

Figure 2, attached, demonstrates that the power flux density (PFD) limit of -73 dBW/m² is not exceeded at the WHT722 and WHT724 PSA boundary.

This STA request specifies transmit facilities that will employ digital modulation. The specific digital emission and channelization (i.e. any current subchannel use) is provided in **EXHIBIT B-1: TRANSMIT FACILITIES** and **EXHIBIT B-5: CHANNEL PLAN**.

EXHIBIT B-1: TRANSMIT FACILITIES includes a list of the herein current transmit facilities for each booster station.

DISCUSSION OF SECTION 74.985(b)(5) PROTECTION REQUIREMENTS

Attached, as **EXHIBIT B-2: MDS/ITFS CHANNELS E1, F1, E2 and F2 DOWNSTREAM STATIONS STUDIED**, is a list of those incumbent MDS and ITFS downstream stations on these channels that require an analysis of protection from interference in accordance with the provisions of 47 C.F.R. § 74.985(b)(5).

Attached, as **EXHIBIT B-3: MDS/ITFS CHANNELS E1, F1, E2 and F2 RESPONSE STATION HUBS STUDIED**, is a list of those MDS and ITFS response station hubs on these channels that require an analysis of protection in accordance with the provisions of 47 C.F.R. § 74.985(b)(5).

Attached, as **EXHIBIT B-4: INTERFERENCE STUDY RESULTS**, are interference studies and discussion regarding each co-channel and/or adjacent-channel station listed in Exhibits B-2 and B-3.

STATIONS REQUIRING SERVICE PURSUANT TO SECTION 74.985(b)(7)

The stations listed in Exhibits B-2 and B-3 require service pursuant to 47 C.F.R. § 74.985(b)(7). Also, the following BTAs have boundaries that are adjacent to the current station's PSA or are predicted to receive line-of-sight (LOS) signals from the current facility and, therefore, require service pursuant to 47 C.F.R. § 74.985(b)(7):

<u>BTA #</u>	<u>BTA NAME</u>	<u>LICENSEE</u>
B144	Flag Staff, AZ	Nucentrix Spectrum Resources, Inc.
B245	Las Vegas, NV	SuperChannels of Las Vegas, Inc.
B262	Los Angeles, CA	WorldCom Broadband Solutions, Inc.
B362	Prescott, AZ	Virginia Communications, Inc.
B392	St. George, UT	American Wireless, Inc.

DISCUSSION OF SECTION 21.938(c) REQUIREMENTS

Since there are no known co-channel or adjacent-channel non-incumbent (BTA) MDS stations located in the same BTA as the herein current MDS hub response station, no studies pursuant to 47 C.F.R. § 21.938(c) are required.

INTERNATIONAL COORDINATION

The hub site and RSA boundary are not within 50 miles of the United States/Mexican or United States/Canadian borders. International coordination is not required.

UPSTREAM ANALYSIS

DISCUSSION OF SECTIONS 74.939(d)(1) AND (d)(2) REQUIREMENTS

In this section, the technical information required by 47 C.F.R §§ 74.939(d)(1) and (d)(2) is provided. The response station hub site information is as follows:

EDX_ID	NextWave Cell Name	NAD83 Coordinates		Circular RSA Radius (km)	Gnd Elevation AMSL m	Antenna Ht AGL m (ft)	Antenna Polarization
		Latitude	Longitude				
LVG001	Best Storage	36-1-21.6N	115-6-16.1W	5	660.5	15.5 (51)	Dual
LVG002	Black Mountain Bank	36-0-41.0N	115-3-47.0W	5	668.1	12.2 (40)	Dual
LVG003	Green Valley Presbyterian	36-2-00.5N	115-3-53.1W	5	608.6	12.2 (40)	Dual
LVG004	Green Valley U. Methodist Church	36-2-59.4N	115-4-59.1W	5	609.0	12.2 (40)	Dual
LVG005	Horizon Ridge Hub Site	36-0-21.7N	115-5-10.2W	5	719.3	12.5 (41)	Dual
LVG006	Legacy Car Wash	36-2-28.7N	115-5-53.7W	5	622.3	12.2 (40)	Dual
LVG007	Nevada Power Colo	36-1-36.1N	115-7-13.1W	5	655.0	36.6 (120)	Dual
LVG008	State Farm property	36-2-31.5N	115-4-59.8W	5	609.0	12.2 (40)	Dual
LVG009	Corporate Circle	36-1-41.7N	115-5-21.1W	5	646.2	7.0 (23)	V

The accompanying ASCII file (the “ASCII File”) for each hub station and the engineering portions of this request were prepared in accordance with version 1.29 of “Methods for Predicting Interference from Response Station Transmitters and to Response Station Hubs and for Supplying Data on Response Station Systems. MM Docket No. 97-217” (the “Methodology”) as required by “Commission Amends Methodology Used For Calculation Of Interference Protection And Data Submission For MDS And ITFS Station Applications For Two-Way Systems,” *Public Notice*, DA 00-938 (rel. April 27, 2000) and as clarified in “Mass Media Bureau Provides Further Information On Application Filing Procedures and Announces Availability of Electronic Filing For Two-Way Multipoint Distribution Service and Instructional Television Fixed Service,” *Public Notice*, DA 00-1481 (rel. June 30, 2000).

Each of the attached ASCII Files specifies many of the particulars required by 47 C.F.R. § 74.939 (d)(1). A description of the specific requirements of 47 C.F.R. §§ 74.939(d)(1) and (d)(2)(i), (ii), and (iii) is provided as follows:

1. The RSA boundary (including any current sectorization) and the region boundaries are specified in the ASCII File in accordance with the Methodology. Region boundaries that extend beyond the RSA boundary are truncated at the RSA boundary for interference studies.

2. The regional classes and their parameters (max. EIRP, maximum antenna height, maximum simultaneous users, antenna envelope pattern and regions used) are described in the ASCII File in accordance with the Methodology.
3. The channel plan (including any guard bands) to be used by response stations is described in the ASCII File in accordance to the Methodology. The applicant will also transmit on a point-to-multipoint (downstream) basis in accordance with its currently authorized downstream facilities or as currently herein for this station. Upstream and downstream operation will not occur simultaneously on any channel or subchannel.
4. The number of maximum simultaneous users per region in the current network sector is four.
5. QPSK or QAM (up to 64QAM) will be employed for upstream service. The emission designator is 12M0G7D.
6. **Figure 1** is a map showing the RSA boundary and the protected service area (PSA) associated with each current station. Each hub site and RSA boundary lies within the PSA boundary.
7. **Figures 3** is a map demonstrating that the power flux density (PFD) levels are met in accordance with 47 C.F.R. § 74.939(d)(2)(iii).
8. The following information is also supplied for each site:

LVG001-008

Number of current sectors:	3
Polarization of each sector:	Dual (V and H)
Number of defined regions (including default):	2
Number of regional classes:	1

LVG009

Number of current sectors:	1 (omni)
Polarization of each sector:	V
Number of defined regions (including default):	2
Number of regional classes:	1

9. Additional interference studies prepared in accordance with 47 C.F.R. § 74.939(d)(2)(iv) and (v) are included in a separate section. All interference studies in this STA Request are conducted in accordance with the Methodology using the facilities as described above, and as further described by each ASCII File.

DISCUSSION OF SECTION 74.939(d)(2)(iv),(v) AND (vi) REQUIREMENTS

Attached, as **EXHIBIT B-2: MDS/ITFS CHANNELS E1, F1, E2 and F2 DOWNSTREAM STATIONS STUDIED**, is a list of those incumbent MDS and ITFS downstream stations on these channels that require an analysis of protection from interference in accordance with the provisions of 47 C.F.R. § 74.939(d)(2)(iv and v).

Attached, as **EXHIBIT B-3: MDS/ITFS CHANNELS E1, F1, E2 and F2 RESPONSE STATION HUBS STUDIED**, is a list of those MDS and ITFS response station hubs on these channels that require an analysis of protection in accordance with the provisions of 47 C.F.R. § 74.939(d)(2)(vi).

Attached, as **EXHIBIT B-4: INTERFERENCE STUDY RESULTS** are interference studies and discussion regarding each co-channel and/or adjacent-channel station listed in EXHIBIT B-2 and B-3.

BTA INFORMATION

The following BTAs have boundaries that are adjacent to the current station's PSA or are predicted to receive line-of-sight (LOS) signals from the current facility:

<u>BTA #</u>	<u>BTA NAME</u>	<u>LICENSEE</u>
B144	Flag Staff, AZ	Nucentrix Spectrum Resources, Inc.
B245	Las Vegas, NV	SuperChannels of Las Vegas, Inc.
B262	Los Angeles, CA	WorldCom Broadband Solutions, Inc.
B362	Prescott, AZ	Virginia Communications, Inc.
B392	St. George, UT	American Wireless, Inc.

DISCUSSION OF SECTION 74.939(g) REQUIREMENTS

The applicant will meet all requirements of 47 C.F.R. § 74.939(g) when operating the current facility. This includes maintaining response station EIRP levels at or below 32.10 dBW (1640 watts) (as adjusted for a 6 MHz bandwidth).

EXHIBIT B-1: TRANSMIT FACILITIES

The following is a list of the herein current booster transmit facilities:

LVG001

Site Name	Best Storage
Specific Frequency Bands (CH and MHz):	F1 2602 to 2608 E2 2608 to 2614
Transmitter Location	
Latitude (NAD 83):	N 36° 01' 21.6"
Longitude (NAD 83):	W 115° 06' 16.1"
Ground Elevation (m AMSL):	660.5
Emission Type:	Digital
Digital Emission Designator:	12M0G7D
Number of Antennas:	3
Antenna #1:	EMS Wireless RR90-17-00Y-PLN
Orientation:	0 degrees T
Beamtilt (electr./mech.):	0/-1
Polarization:	Dual (Vertical & Horizontal)
Radiation center hgt (m AGL):	15.5
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	24.5 dBW
Antenna #2:	EMS Wireless RR90-17-00Y-PLN
Orientation:	120 degrees T
Beamtilt (electr./mech.):	0/-1
Polarization:	Dual (Vertical & Horizontal)
Radiation center hgt (m AGL):	15.5
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	24.5 dBW
Antenna #3:	EMS Wireless RR90-17-00Y-PLN
Orientation:	240 degrees T
Beamtilt (electr./mech.):	0/-1
Polarization:	Dual (Vertical & Horizontal)
Radiation center hgt (m AGL):	15.5
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	24.5 dBW

LVG002

Site Name	Black Mountain Bank
Specific Frequency Bands (CH and MHz):	F1 2602 to 2608 E2 2608 to 2614
Transmitter Location	
Latitude (NAD 83):	N 36° 00' 41.0"
Longitude (NAD 83):	W 115° 03' 47.0"
Ground Elevation (m AMSL):	668.1
Emission Type:	Digital
Digital Emission Designator:	12M0G7D
Number of Antennas:	3
Antenna #1:	EMS Wireless RR90-17-00Y-PLN
Orientation:	60 degrees T
Beamtilt (electr./mech.):	0/0
Polarization:	Dual (Vertical & Horizontal)
Radiation center hgt (m AGL):	12.2
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	24.5 dBW
Antenna #2:	EMS Wireless RR90-17-00Y-PLN
Orientation:	180 degrees T
Beamtilt (electr./mech.):	0/-1
Polarization:	Dual (Vertical & Horizontal)
Radiation center hgt (m AGL):	12.2
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	24.5 dBW
Antenna #3:	EMS Wireless RR90-17-00Y-PLN
Orientation:	300 degrees T
Beamtilt (electr./mech.):	0/-1
Polarization:	Dual (Vertical & Horizontal)
Radiation center hgt (m AGL):	12.2
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	24.5 dBW

LVG003

Site Name	Green Valley Presbyterian
Specific Frequency Bands (CH and MHz):	F1 2602 to 2608 E2 2608 to 2614
Transmitter Location	
Latitude (NAD 83):	N 36° 02' 00.5"
Longitude (NAD 83):	W 115° 03' 53.1"
Ground Elevation (m AMSL):	608.6
Emission Type:	Digital
Digital Emission Designator:	12M0G7D
Number of Antennas:	3
Antenna #1:	EMS Wireless RR90-17-00Y-PLN
Orientation:	0 degrees T
Beamtilt (electr./mech.):	0/-1
Polarization:	Dual (Vertical & Horizontal)
Radiation center hgt (m AGL):	12.2
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	24.5 dBW
Antenna #2:	EMS Wireless RR90-17-00Y-PLN
Orientation:	120 degrees T
Beamtilt (electr./mech.):	0/-1
Polarization:	Dual (Vertical & Horizontal)
Radiation center hgt (m AGL):	12.2
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	24.5 dBW
Antenna #3:	EMS Wireless RR90-17-00Y-PLN
Orientation:	240 degrees T
Beamtilt (electr./mech.):	0/-1
Polarization:	Dual (Vertical & Horizontal)
Radiation center hgt (m AGL):	12.2
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	24.5 dBW

LVG004

Site Name	Green Valley United Methodist Church
Specific Frequency Bands (CH and MHz):	F1 2602 to 2608 E2 2608 to 2614
Transmitter Location	
Latitude (NAD 83):	N 36° 02' 59.4"
Longitude (NAD 83):	W 115° 04' 59.1"
Ground Elevation (m AMSL):	609.0
Emission Type:	Digital
Digital Emission Designator:	12M0G7D
Number of Antennas:	3
Antenna #1:	EMS Wireless RR90-17-00Y-PLN
Orientation:	0 degrees T
Beamtilt (electr./mech.):	0/-1
Polarization:	Dual (Vertical & Horizontal)
Radiation center hgt (m AGL):	12.2
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	24.5 dBW
Antenna #2:	EMS Wireless RR90-17-00Y-PLN
Orientation:	120 degrees T
Beamtilt (electr./mech.):	0/-1
Polarization:	Dual (Vertical & Horizontal)
Radiation center hgt (m AGL):	12.2
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	24.5 dBW
Antenna #3:	EMS Wireless RR90-17-00Y-PLN
Orientation:	240 degrees T
Beamtilt (electr./mech.):	0/-1
Polarization:	Dual (Vertical & Horizontal)
Radiation center hgt (m AGL):	12.2
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	24.5 dBW

LVG005

Site Name	Horizon Ridge
Specific Frequency Bands (CH and MHz):	F1 2602 to 2608 E2 2608 to 2614
Transmitter Location	
Latitude (NAD 83):	N 36° 00' 21.7"
Longitude (NAD 83):	W 115° 05' 10.2"
Ground Elevation (m AMSL):	719.3
Emission Type:	Digital
Digital Emission Designator:	12M0G7D
Number of Antennas:	3
Antenna #1:	EMS Wireless RR90-17-00Y-PLN
Orientation:	60 degrees T
Beamtilt (electr./mech.):	0/-1
Polarization:	Dual (Vertical & Horizontal)
Radiation center hgt (m AGL):	12.5
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	24.5 dBW
Antenna #2:	EMS Wireless RR90-17-00Y-PLN
Orientation:	180 degrees T
Beamtilt (electr./mech.):	0/-1
Polarization:	Dual (Vertical & Horizontal)
Radiation center hgt (m AGL):	12.5
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	24.5 dBW
Antenna #3:	EMS Wireless RR90-17-00Y-PLN
Orientation:	300 degrees T
Beamtilt (electr./mech.):	0/-1
Polarization:	Dual (Vertical & Horizontal)
Radiation center hgt (m AGL):	12.5
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	24.5 dBW

LVG006

Site Name	Legacy Car Wash
Specific Frequency Bands (CH and MHz):	F1 2602 to 2608 E2 2608 to 2614
Transmitter Location	
Latitude (NAD 83):	N 36° 02' 28.7"
Longitude (NAD 83):	W 115° 05' 53.7"
Ground Elevation (m AMSL):	622.3
Emission Type:	Digital
Digital Emission Designator:	12M0G7D
Number of Antennas:	3
Antenna #1:	EMS Wireless RR90-17-00Y-PLN
Orientation:	0 degrees T
Beamtilt (electr./mech.):	0/-1
Polarization:	Dual (Vertical & Horizontal)
Radiation center hgt (m AGL):	12.2
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	24.5 dBW
Antenna #2:	EMS Wireless RR90-17-00Y-PLN
Orientation:	120 degrees T
Beamtilt (electr./mech.):	0/-1
Polarization:	Dual (Vertical & Horizontal)
Radiation center hgt (m AGL):	12.2
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	24.5 dBW
Antenna #3:	EMS Wireless RR90-17-00Y-PLN
Orientation:	240 degrees T
Beamtilt (electr./mech.):	0/-1
Polarization:	Dual (Vertical & Horizontal)
Radiation center hgt (m AGL):	12.2
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	24.5 dBW

LVG007

Site Name	Nevada Power
Specific Frequency Bands (CH and MHz):	F1 2602 to 2608 E2 2608 to 2614
Transmitter Location	
Latitude (NAD 83):	N 36° 01' 36.1"
Longitude (NAD 83):	W 115° 07' 13.1"
Ground Elevation (m AMSL):	655.0
Emission Type:	Digital
Digital Emission Designator:	12M0G7D
Number of Antennas:	3
Antenna #1:	EMS Wireless RR90-17-00Y-PLN
Orientation:	0 degrees T
Beamtilt (electr./mech.):	0/-4
Polarization:	Dual (Vertical & Horizontal)
Radiation center hgt (m AGL):	36.6
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	24.5 dBW
Antenna #2:	EMS Wireless RR90-17-00Y-PLN
Orientation:	120 degrees T
Beamtilt (electr./mech.):	0/-4
Polarization:	Dual (Vertical & Horizontal)
Radiation center hgt (m AGL):	36.6
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	24.5 dBW
Antenna #3:	EMS Wireless RR90-17-00Y-PLN
Orientation:	240 degrees T
Beamtilt (electr./mech.):	0/-4
Polarization:	Dual (Vertical & Horizontal)
Radiation center hgt (m AGL):	36.6
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	24.5 dBW

LVG008

Site Name	State Farm
Specific Frequency Bands (CH and MHz):	F1 2602 to 2608 E2 2608 to 2614
Transmitter Location	
Latitude (NAD 83):	N 36° 02' 31.5"
Longitude (NAD 83):	W 115° 04' 59.8"
Ground Elevation (m AMSL):	609.0
Emission Type:	Digital
Digital Emission Designator:	12M0G7D
Number of Antennas:	3
Antenna #1:	EMS Wireless RR90-17-00Y-PLN
Orientation:	0 degrees T
Beamtilt (electr./mech.):	0/-1
Polarization:	Dual (Vertical & Horizontal)
Radiation center hgt (m AGL):	12.2
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	24.5 dBW
Antenna #2:	EMS Wireless RR90-17-00Y-PLN
Orientation:	120 degrees T
Beamtilt (electr./mech.):	0/-1
Polarization:	Dual (Vertical & Horizontal)
Radiation center hgt (m AGL):	12.2
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	24.5 dBW
Antenna #3:	EMS Wireless RR90-17-00Y-PLN
Orientation:	240 degrees T
Beamtilt (electr./mech.):	0/-1
Polarization:	Dual (Vertical & Horizontal)
Radiation center hgt (m AGL):	12.2
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	24.5 dBW

LVG009

Site Name	Corporate Circle
Specific Frequency Bands (CH and MHz):	F1 2602 to 2608 E2 2608 to 2614
Transmitter Location	
Latitude (NAD 83):	N 36° 01' 41.7"
Longitude (NAD 83):	W 115° 05' 21.1"
Ground Elevation (m AMSL):	646.2
Emission Type:	Digital
Digital Emission Designator:	12M0G7D
Number of Antennas:	1
Antenna #1:	Stella Doradus 8 dBi Omni
Orientation:	0 degrees T
Beamtilt (electr./mech.):	0/0
Polarization:	Vertical
Radiation center hgt (m AGL):	7.0
Frequencies:	All listed above
Max. EIRP (per 6-MHz Bandwidth):	15.0 dBW

EXHIBIT B-2: MDS/ ITFS CHANNELS E1, F1, E2 AND F2 DOWNSTREAM STATIONS STUDIED

The following known proposed, authorized or licensed MDS or ITFS downstream station(s) operating on the above-listed channels require interference protection consideration in accordance with Section 74.985(b)(5) of the FCC Rules:

Fac Num	CallSign	Service	Status	File Number	Chans	Applicant or Licensee	City, State	Distance from Las Vegas CC Prop- Km*	Azim from Las Vegas CC DegT*
1	WHT721	MMDS	CP		E1-E4	Line of Site, Inc.	Las Vegas, NV	33	151
2	WMH524	MMDS	Terminated		E1-E4	Multichannel Distribution of Am.	Kingman, AZ	156	136
3	WMI367	MMDS	Licensed		E1-E4	American Wireless, Inc.	St. George, UT	176	57
4	WMI363	MMDS	Licensed		F1-F4	American Wireless, Inc.	St. George, UT	176	57

* Las Vegas CC (Center City)'s reference coordinates are at N 36 °12' 21"; W 115 °13' 22". The specified distance and azimuths are referenced from this center city location.*

No other proposed, authorized or licensed co- or adj- channel ITFS or incumbent MDS/ MMDS stations have transmitter sites located within 100 miles of any booster site associated with the proposed system. No other proposed, authorized or licensed co- or adj- channel non-incumbent MDS stations are located in the same BTA as the current booster stations.

EXHIBIT B-3: MDS/ ITFS CHANNELS E1, F1, E2, AND F2 RESPONSE STATION HUBS STUDIED

The following known proposed, authorized or licensed MDS and ITFS response station hubs operating on the above- listed channels require interference protection consideration in accordance with Section 74.985(b)(5) of the FCC Rules:

NONE.

No proposed, authorized or licensed co- or adj- channel ITFS or MDS/ MMDS stations have transmitter sites located within 100 miles of any booster site associated with the current system.

EXHIBIT B-4: INTERFERENCE STUDY RESULTS

The following discussion pertains to the interference analysis conducted for the current downstream and upstream facilities. As previously indicated, the downstream booster and upstream response transmissions current in this STA request do not occur simultaneously. Therefore, the interference studies for the downstream and upstream proposals are conducted separately. Unless otherwise noted, the interference study results herein presented apply to both the downstream and upstream facilities.

All ITFS, incumbent MDS and incumbent MMDS stations listed in Exhibit B-2 are addressed below, in accordance with Sections 74.985(b)(5) and 74.939(d) of the FCC Rules. Also, protection to those MDS, MMDS and ITFS response station hubs listed in Exhibit B-3, in accordance with 47 C.F.R. §§ 74.985(b)(5) and 74.939(d), is addressed below.

All D/U ratio studies have been conducted in accordance with the Methodology. For purposes of this analysis, harmful cochannel interference is deemed to exist where the predicted undesired signal is not shadowed and the ratio of the desired signal level to the predicted undesired signal level (the “D/U”) exceeds 45 dB, unless one of two exceptions applies. First, pursuant to paragraphs 69 through 72 and footnote 134 of the *Report and Order on Reconsideration* in MM Docket No. 97-217 (the “*Two-Way Reconsideration Order*”), a D/U ratio of less than 45 dB is permitted where the desired station currently suffers co-channel interference within its protected service area from the authorized facilities of the undesired station and the current modifications to the undesired station will not cause the D/U ratio to become less than 45 dB at any new location within the protected service area of the station entitled to protection, nor will it result in a decrease in the D/U at any location entitled to protection where the 45 dB D/U benchmark is not currently met. Second, the desired signal is deemed protected from cochannel interference pursuant to paragraph 38 of the Methodology when the desired signal level is less than the noise floor (-106.2 dBm for a 6 MHz channel) plus 45 dB and the undesired signal is at or below the noise floor.

Regarding adjacent-channel protection, the required D/U ratio for protection is 0 dB. The Methodology allows for a similar noise floor exception to protection for adjacent-channel studies – in this case, a study point is deemed protected if the undesired signal is at or below the noise floor plus 45 dB. Also, a D/U ratio of less than 0 dB is otherwise permitted where the desired station currently suffers adjacent-channel interference within its protected service area from the authorized facilities of the undesired station and the current modifications to the undesired station will not cause the D/U ratio to become less than 0 dB at any new location within the protected service area of the station entitled to protection, nor will it result in a decrease in the D/U at any location entitled to protection where the 0 dB D/U benchmark is not currently met.

Adjustments necessary due to subchannelization or superchannelization (bandwidth use other than 6-MHz) are made internally by the software in order to

normalize to a 6-MHz bandwidth. The interference studies, therefore, are appropriately provided for an adjusted 6-MHz bandwidth, with the appropriate co-channel and adjacent-channel D/U ratio values being 45 and 0 dB, respectively. Assuming worst-case conditions, the analysis for the current system is based on full power at 6 MHz bandwidth for each frequency channel (F1 and E2).

Response station hub protection is demonstrated by a showing of effective power flux density (EPFD) or noise floor studies pursuant to the Appendix D Methodology.

DESCRIPTION OF STUDY RESULTS

The following three sections include a list of all co-channel and adjacent-channel stations listed in Exhibits B-2 and B-3 -- those stations that require study pursuant to Sections 74.985(b)(5) and 74.939(d) of the FCC Rules. The first section includes a reference to one or more "shadow" maps, each demonstrating no line-of-sight (LOS) to any portion of each station's PSA, and a list of those stations that are protected in such a manner.

The next section pertains to those remaining stations that are predicted to receive LOS to some portion of their PSAs or to one or more registered receive sites (for ITFS stations). The studied downstream stations must be analyzed using D/U ratio studies. This section includes a list of those stations that are studied in this manner (the "D/U Station List"), and includes codes to indicate the manner of protection (or lack thereof) associated with each listed station. Each code is described in the section following the D/U Station List. The D/U Station List includes a place to indicate if a consent agreement regarding predicted interference is required.

The engineering exhibits that support a showing of interference or protection to a studied station are included with this request. A copy of this request together with a copy of CD ROM with the relevant ASCII files will be served to each affected licensee, conditional licensee, and /or applicant. These exhibits generally include pertinent maps, terrain profiles, or D/U ratio tables (D/U Tables) that are applicable to the studies (desired) station. Each D/U Table provides a study of various points within the desired station's PSA, other than those study points that are within shadowed areas as illustrated by the various map exhibits. For each study point required pursuant to the Appendix D Methodology, the D/U Table demonstrates the following: (a) the desired signal level; (b) the current undesired signal level; (c) the desired signal to current undesired signal ratio; (d) the existing undesired signal level; and (e) the desired signal to existing undesired signal ratio. That analysis shows that with respect to each of the study points to which the current facilities will have line of sight, either (i) the D/U ratio is predicted to be no less than 45 dB (or the appropriately adjusted value based on the actual bandwidth used if other than 6 MHz); or (ii) where the D/U ratio is below 45 dB, either the predicted D/U level will be no worse than the current level or the noise floor exception applies. As a result, each D/U Table demonstrates that at each of the unshadowed study points, the applicant has either met its interference protection

obligations under 47 C.F.R. § 74.985 (and §74.903, if applicable), or has not met these protection obligations and must obtain a consent from the desired station's owner.

For adjacent-channel ITFS sites, all registered receive sites are considered adequately protected if the D/U ratio is greater than or equal to 0 dB. For any registered receive site (RRS) that was constructed before May 26, 1983, that is predicted to receive a D/U ratio greater than 0 dB but less than 10 dB, the applicant agrees to improve the receive equipment of the affected RRS pursuant to 47 C.F.R. § 74.903(a)(2)(ii)(B) at no expense to the protected ITFS station owner.

An ITFS RRS may or may not be individually studied, depending on its specified location and receive antenna height. Generally, for each RRS that is located within the desired station's PSA and which also does not specify an antenna height that is more than 30 feet (9.14 meters) above ground level, a study demonstrating complete terrain shadowing to the desired station's PSA is effectively a study that demonstrates shadowing to that RRS. No separate study of the assumed terrain-shielded RRS is made in such cases.

Assuming that the undesired path is not terrain-blocked to an RRS that does not specify an antenna height that is above 30 feet (9.14 meters), that RRS may still not be individually studied. A study of the desired station's PSA is effectively a study that is applicable to the RRS; therefore, the D/U ratio study to the PSA for this station is considered to also be a study of all RRSs of the desired station that are located within the PSA boundary and that do not specify an antenna radiation centerline height above 9.14meters.

Unless otherwise indicated, the FCC's reference receive antenna patterns of 47 C.F.R. §§ 21.902 and 74.937 are assumed for all RRS studies. Actual receive antenna patterns that are used for certain RRS studies are included as exhibits as identified in the list of exhibits for the desired station.

The final section deals with those response station hubs that require protection.

Table 1, attached, includes pertinent facility parameters for all studied incumbent stations.

NON-LOS STUDIES

The following cochannel or adjacent-channel stations, listed in Exhibit B-2, have PSAs and RRSs that are completely terrain-blocked from the current facilities. The studies involved the generation of shadow maps with study points that are located within the incumbent station's PSA. The resulting maps demonstrated that terrain shielding from the current undesired facility exists to the entire PSA of these cochannel or adjacent-channel station facilities.

Downstream Facility Only:

<u>Fac. Num</u>	<u>Protected Station (Call Sign, City, St)</u>
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3 & 4	WMI367 and WMI363 St. George, UT
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D/U RATIO STUDIES

D/U Station List:

<u>Fac Num</u>	<u>Studied (Desired) Station</u>	<u>Co- or Adj-Chan</u>	<u>Protected? [Y/N]</u>	<u>Consent Exhibit (if applicable)</u>	<u>CODES for Study Results</u>
1	WHT721, Las Vegas, NV	Co & Adj	N	B-10	I
2	WMI367, St. George, UT D/U Study to undesired PSA LOS points performed	Co & Adj	Y	N/A	P (See Figure 4)
3	WMI363, St. George, UT , D/U Study to undesired PSA LOS points performed	Co & Adj	Y	N/A	P (See Figure 4)

DESCRIPTION OF D/U STUDY CODES

Main Codes (Uppercase Bold):

- P** Adequate protection is predicted to exist to the desired station's protected service area (PSA) and its registered receive sites (if applicable).
- I** New areas or levels of interference are predicted to exist to the protected station's PSA and/or its registered receive sites.
- E** Existing levels of interference exist. No new areas of interference or increased levels of interference are predicted to exist to the protected station's PSA or to its registered receive sites (if applicable).

Additional Codes (Lowercase):

- con The protected station and current station are part of the same consortium of station operators in a cooperative effort to provide service to the current and desired station's service area.
- o Interference study exhibits to the desired station are omitted from the application. (Typically allowed for ITFS and ITFS only if a consent agreement from the desired station has been provided.) Such exhibits will be made available upon request.

- rrh All registered receive site (RRS) antennas of the desired station do not exceed a radiation centerline height above 30 feet (9.1 meters) AGL.
- rrn The current facility does not predict to have line-of-sight (LOS) to any RRS of the desired station.
- rrp All RRSs are adequately protected.
- rrs A separate study of the desired station's RRS locations has been made.
- rr0 A separate study of the desired station's registered receive site RRS locations has not been made.
- rr1 A separate study of the desired station's registered receive site RRS locations that do not propose an antenna height above 9.1 meters AGL has not been made. A study of the desired station's PSA is effectively also a study of each such RRS.
- rr2 The current facility does not predict to have LOS to any RRS of the desired station that has an antenna height above 9.1 meters.
- rr3 A separate study of the desired station's RRS locations that have antenna heights above 9.1 meters has been made.

RESPONSE STATION HUB STUDIES

NONE REQUIRED.

EXHIBIT B-5: CHANNEL PLAN

SECTORS	CHANNEL DESIGNATOR	Frequency Boundaries		Polarization
		Low (MHz)	High (MHz)	
1	F1-E2	2602	2614	Dual (V & H)
2	F1-E2	2602	2614	Dual (V & H)
3	F1-E2	2602	2614	Dual (V & H)

Note: Time Division Duplexing (TDD) used on all sectors

EXHIBIT B-6: ENVIRONMENTAL IMPACT

Pursuant to Part 1, Subpart I of the Commission's Rules, actions that may have a significant environmental effect must be reviewed to determine if an Environmental Assessment ("EA") must be filed. The current response station hub antenna and associated response stations will be mounted on existing structures, and thus will not involve the construction of new towers or supporting structures located in sensitive areas or whose construction will involve significant changes in surface features. Proposals such as this which encompass the mounting of antennas on an existing building or tower are categorically excluded from environmental processing, and do not require the filing of an EA, unless they: (i) may affect historic property of national significance pursuant to 47 C.F.R. § 1.1307(a)(4); (ii) will require the use of high intensity white lighting in a residential neighborhood under 47 C.F.R. § 1.1307(a)(8); or will result in human exposure to radio frequency radiation in excess of the applicable safety standards specified in 47 C.F.R. § 1.1307(b). See 47 C.F.R. § 1.1306 & Note 1.

The antennas associated with the response station hubs and response stations will be mounted on existing buildings or towers and will not involve the use of high intensity lighting. NT will not install antennas that may affect historic properties unless it first files an EA in accordance with Commission Rules. However, given the small size of the response station antenna and the non-permanent nature of the installation (*i.e.*, the antennas are easily installed and removed), the installation of such antennas is not expected to have a significant effect on historic properties.

The worst-case NT response station will operate with an EIRP of 1640 watts (32.1 dBW). Pursuant to Section 1.1307(b) of the FCC Rules and Table 1 thereof, no routine environmental assessment is required with respect to MDS/ITFS response stations operating at 1640 watts or less. See *also Two-Way Reconsideration Order*, at ¶ 29.

EXHIBIT B-7: ANTENNA STRUCTURE INFORMATION

The following nine sites have not been registered:

LVG001 Site

NAD83 N Latitude (D,M,S):	36, 01, 21.6
NAD83 W Longitude (D,M,S):	115, 06, 16.1
Street Address:	3290 E. Oleta Ave., Henderson, NV
Receive Antenna Centerline Height:	676.0 meters AMSL
Overall antenna height:	677.0 meters AMSL (16.5 m AGL)
ASR#:	None (not required)
Overall Height:	

LVG002 Site

NAD83 N Latitude (D,M,S):	36, 00, 41.0
NAD83 W Longitude (D,M,S):	115, 03, 47.0
Street Address:	1700 W. Horizon Ridge, Henderson, NV
Receive Antenna Centerline Height:	680.3 meters AMSL
Overall antenna height:	681.3 meters AMSL (13.2 m AGL)
ASR#:	None (not required)
Overall Height:	

LVG003 Site

NAD83 N Latitude (D,M,S):	36, 02, 00.5
NAD83 W Longitude (D,M,S):	115, 03, 53.1
Street Address:	1798 Wigwam Pkwy., Henderson, NV
Receive Antenna Centerline Height:	620.8 meters AMSL
Overall antenna height:	621.8 meters AMSL (13.2 m AGL)
ASR#:	None (not required)
Overall Height:	

LVG004 Site

NAD83 N Latitude (D,M,S):	36, 02, 59.4
NAD83 W Longitude (D,M,S):	115, 04, 59.1
Street Address:	2200 Robindale, Henderson, NV
Receive Antenna Centerline Height:	621.2 meters AMSL
Overall antenna height:	622.2 meters AMSL (13.2 m AGL)
ASR#:	None (not required)
Overall Height:	

LVG005 Site

NAD83 N Latitude (D,M,S):	36, 00, 21.7
NAD83 W Longitude (D,M,S):	115, 05, 10.2
Street Address:	2298 W. Horizon Ridge, Henderson, NV
Receive Antenna Centerline Height:	731.8 meters AMSL
Overall antenna height:	731.8 meters AMSL (13.5 m AGL)
ASR#:	None (not required)
Overall Height:	

LVG006 Site

NAD83 N Latitude (D,M,S):	36, 02, 28.7
NAD83 W Longitude (D,M,S):	115, 05, 53.7
Street Address:	2501 Windmill Pkwy, Henderson, NV
Receive Antenna Centerline Height:	634.5 meters AMSL
Overall antenna height:	635.5 meters AMSL (13.2 m AGL)
ASR#:	None (not required)
Overall Height:	

LVG007 Site

NAD83 N Latitude (D,M,S):	36, 01, 36.1
NAD83 W Longitude (D,M,S):	115, 07, 13.1
Street Address:	8925 S Eastern Ave., Las Vegas, NV
Receive Antenna Centerline Height:	691.6 meters AMSL
Overall antenna height:	691.6 meters AMSL (37.6 m AGL)
ASR#:	None (not required)
Overall Height:	

LVG008 Site

NAD83 N Latitude (D,M,S):	36, 02, 31.5
NAD83 W Longitude (D,M,S):	115, 04, 59.8
Street Address:	1931 Green Valley Pkwy, Henderson, NV
Receive Antenna Centerline Height:	621.2 meters AMSL
Overall antenna height:	622.2 meters AMSL (13.2 m AGL)
ASR#:	None (not required)
Overall Height:	

LVG009 Site

NAD83 N Latitude (D,M,S):	36, 01, 41.7
NAD83 W Longitude (D,M,S):	115, 05, 21.1
Street Address:	2240 Corporate Circle Dr, Ste100, Henderson, NV
Receive Antenna Centerline Height:	653.2 meters AMSL
Overall antenna height:	654.2 meters AMSL (8.0 m AGL)
ASR#:	None (not required)
Overall Height:	

The nine antenna structures listed above are not subject to FAA notification procedures pursuant to Section 17.7 of the FCC Rules. Thus, the structures are: (a) less than 60.96 meters (200 feet) in height above ground; (b) not within the horizontal distances from an airport or heliport specified in 47 C.F.R. § 17.7(b); (c) not within an instrument approach area; and (d) not situated on any airport. The nearest airport is located more than 6.4 kilometers (4 miles) from any of the antenna structures.

EXHIBIT B-8: BTS ANTENNA RADIATION PATTERNS

EMS Wireless Model RR90-17-00Y-PLN

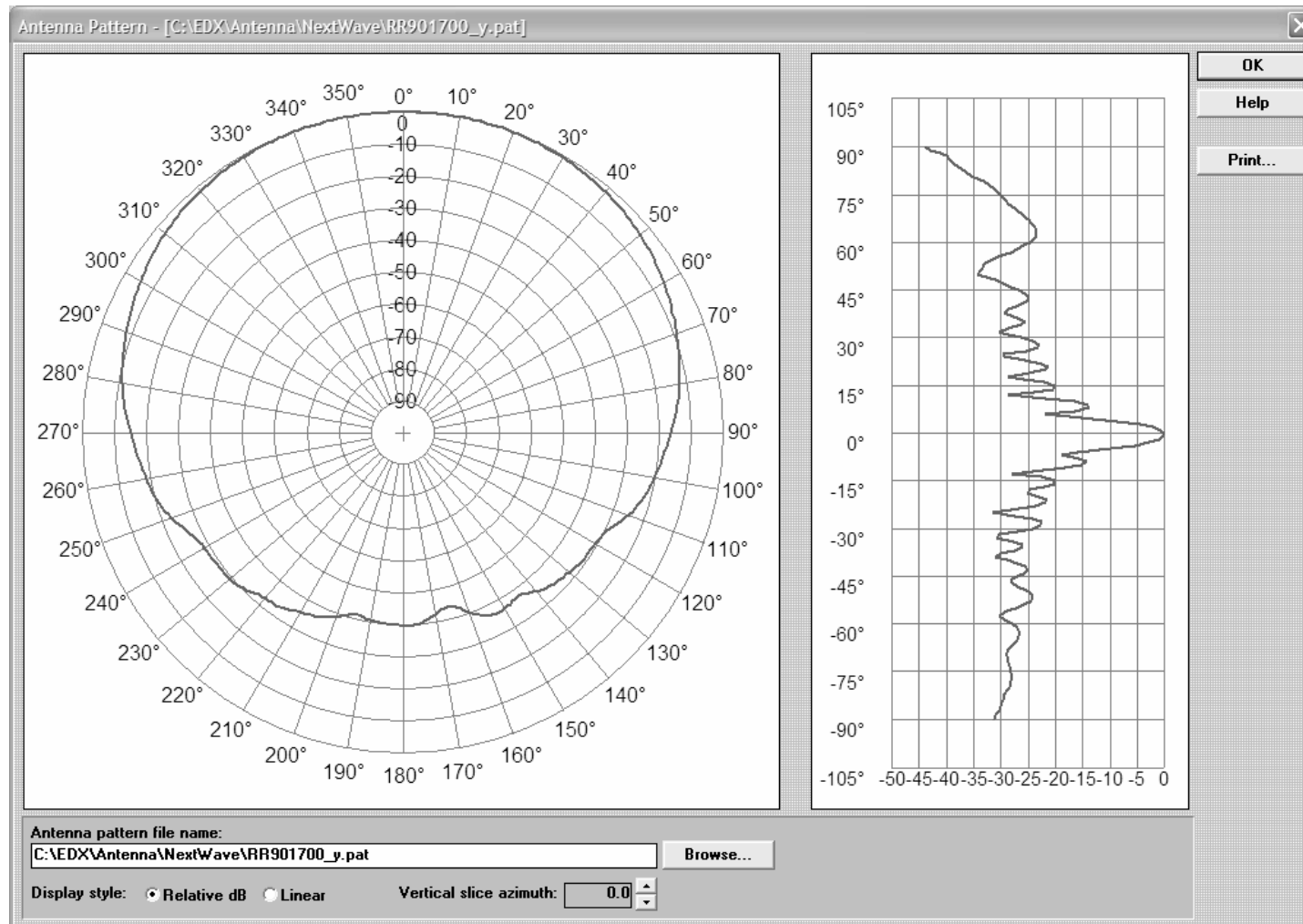


EXHIBIT B-9: IPWIRELESS UE ANTENNA RADIATION PATTERNS

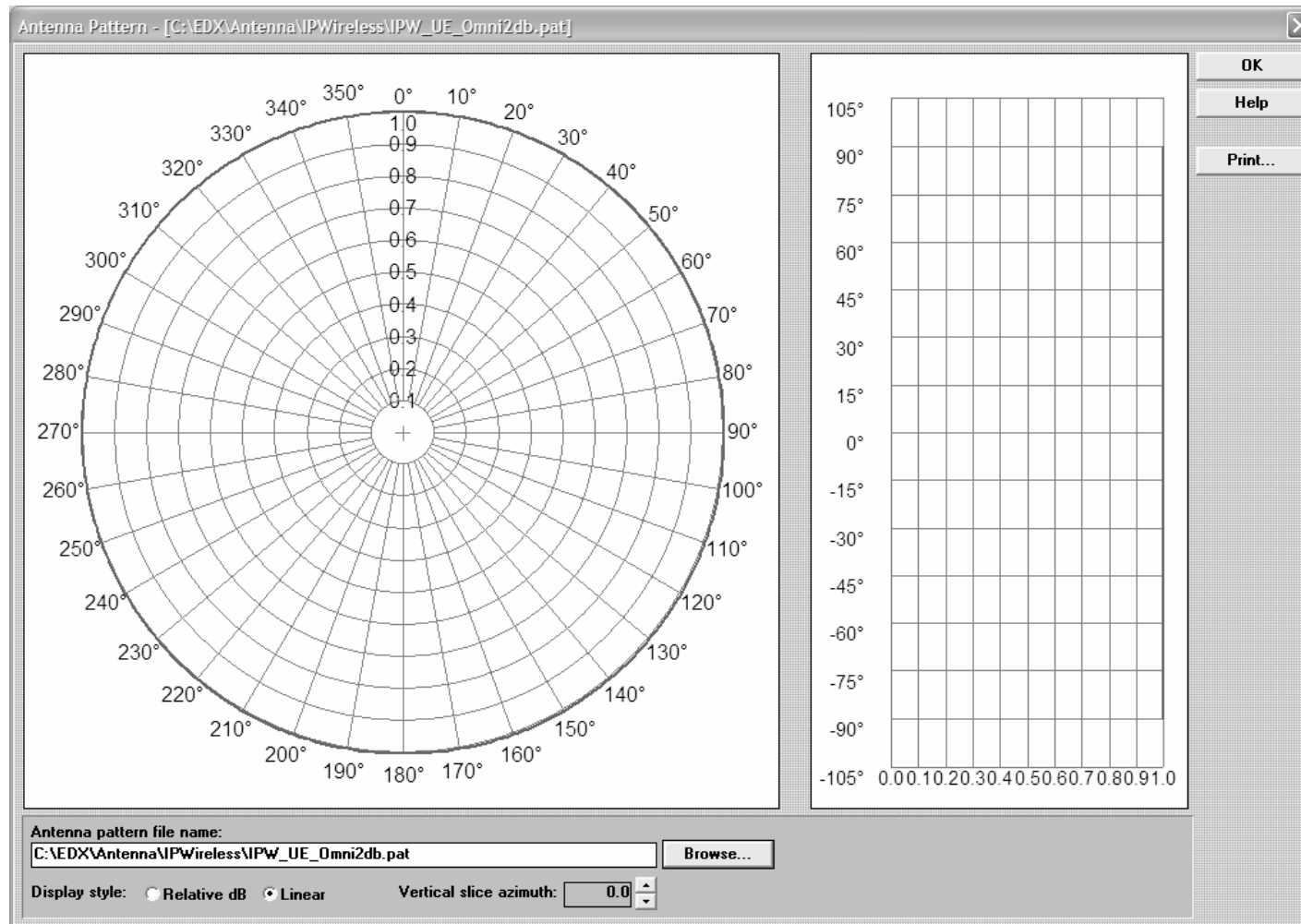


FIGURE 1: BTA, PSA, BSA/RSA Boundaries

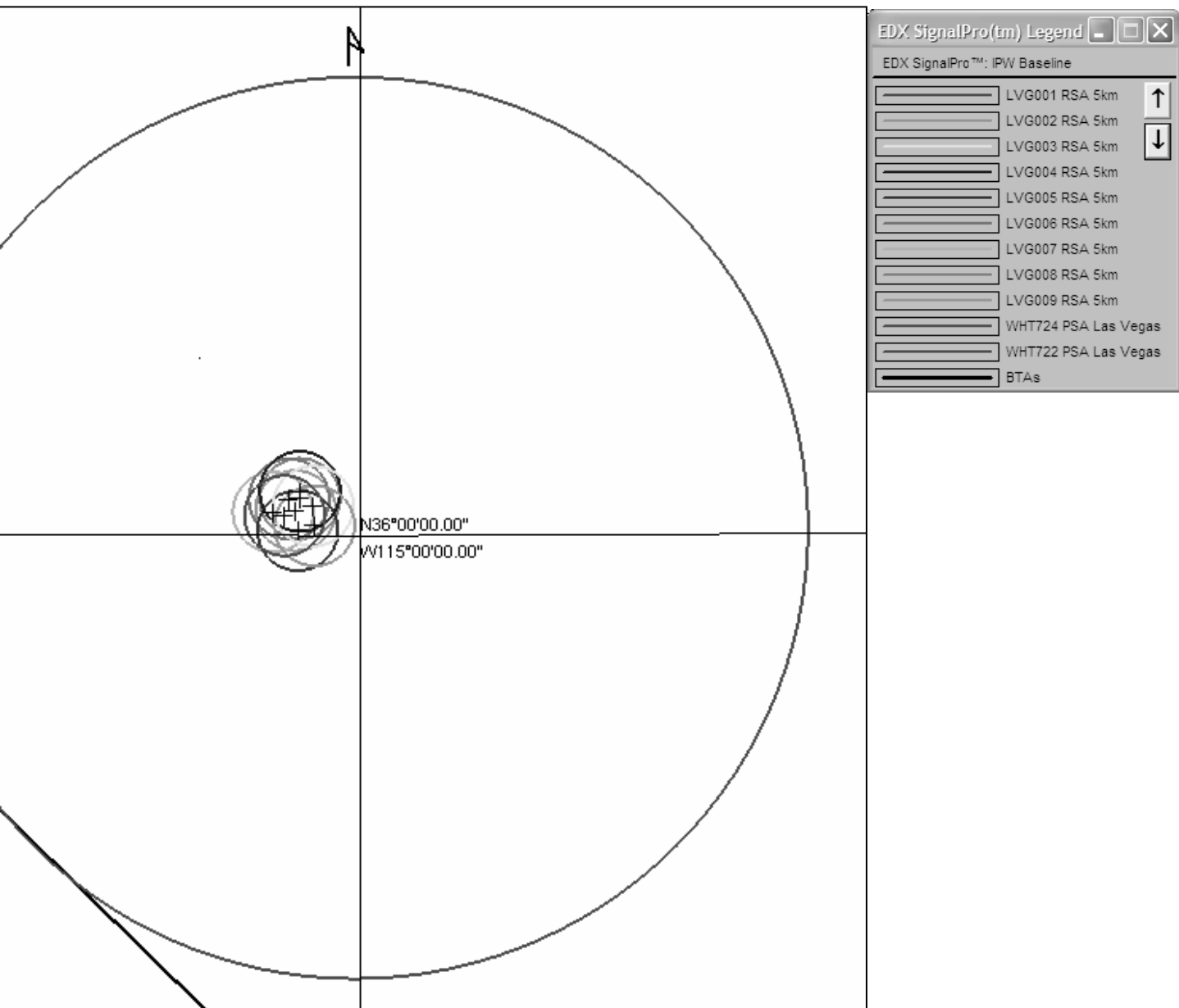


FIGURE 2: PFD STUDY -- CURRENT DOWNSTREAM

Nine Hub (Booster) Sites

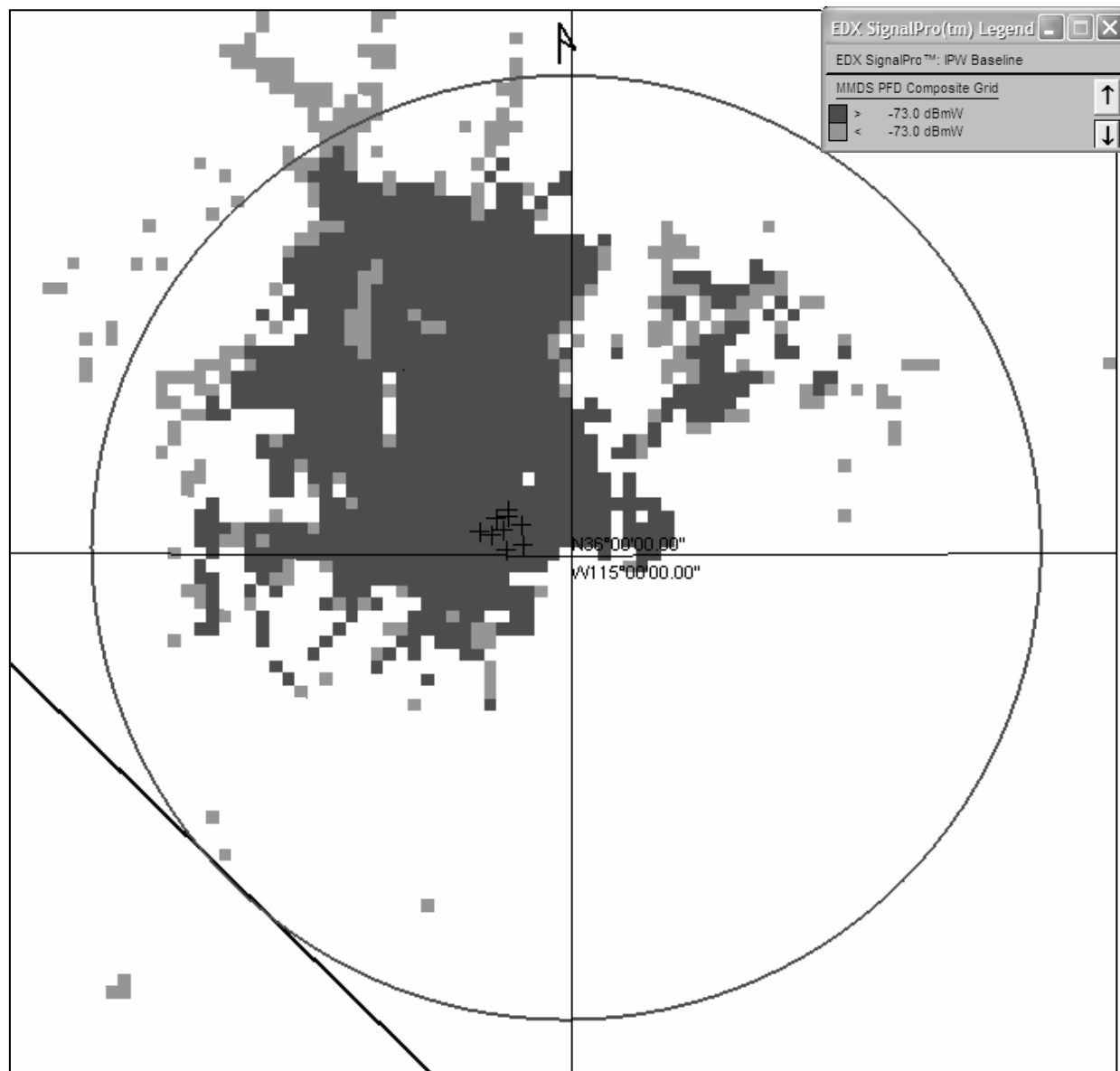
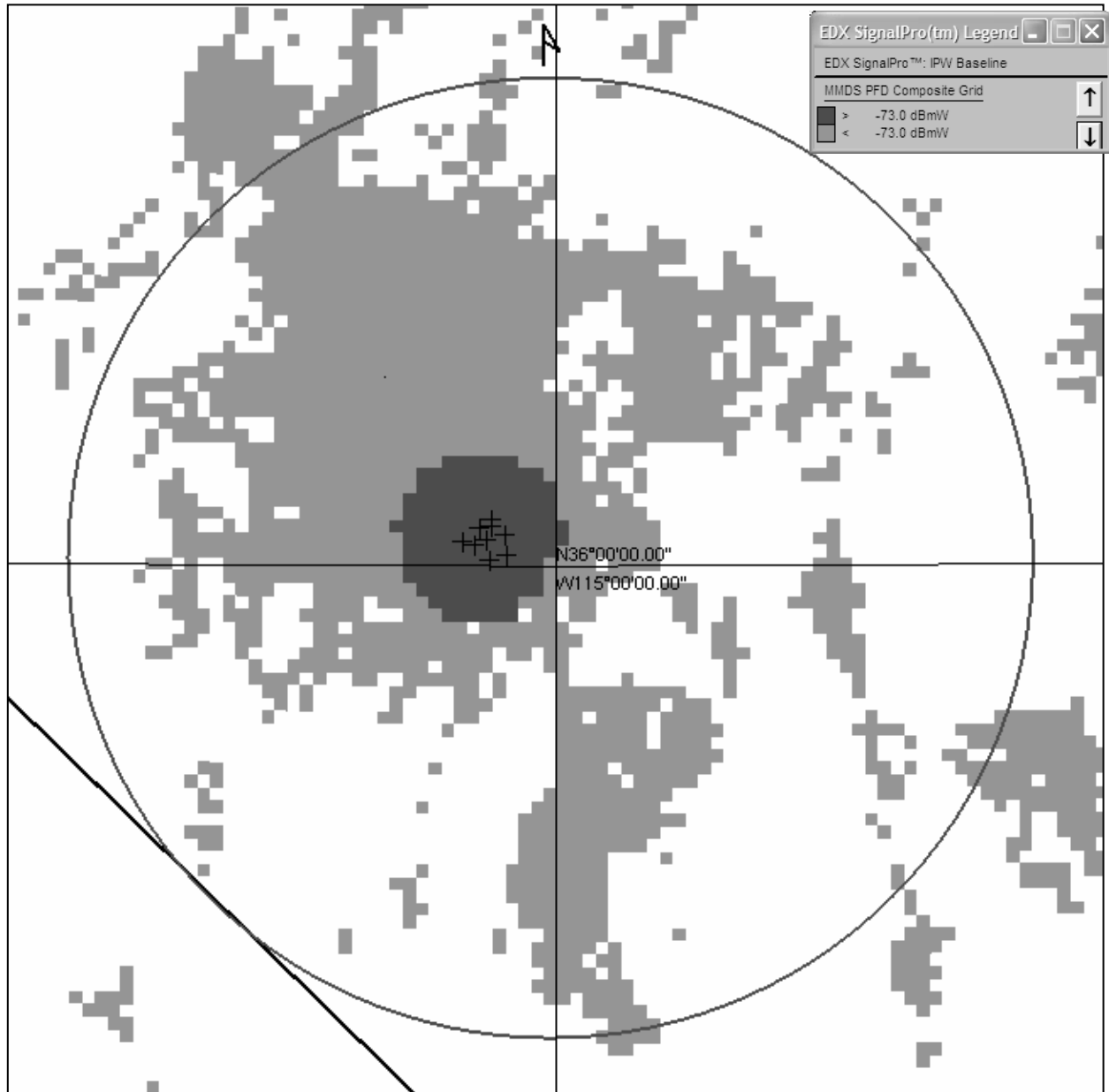
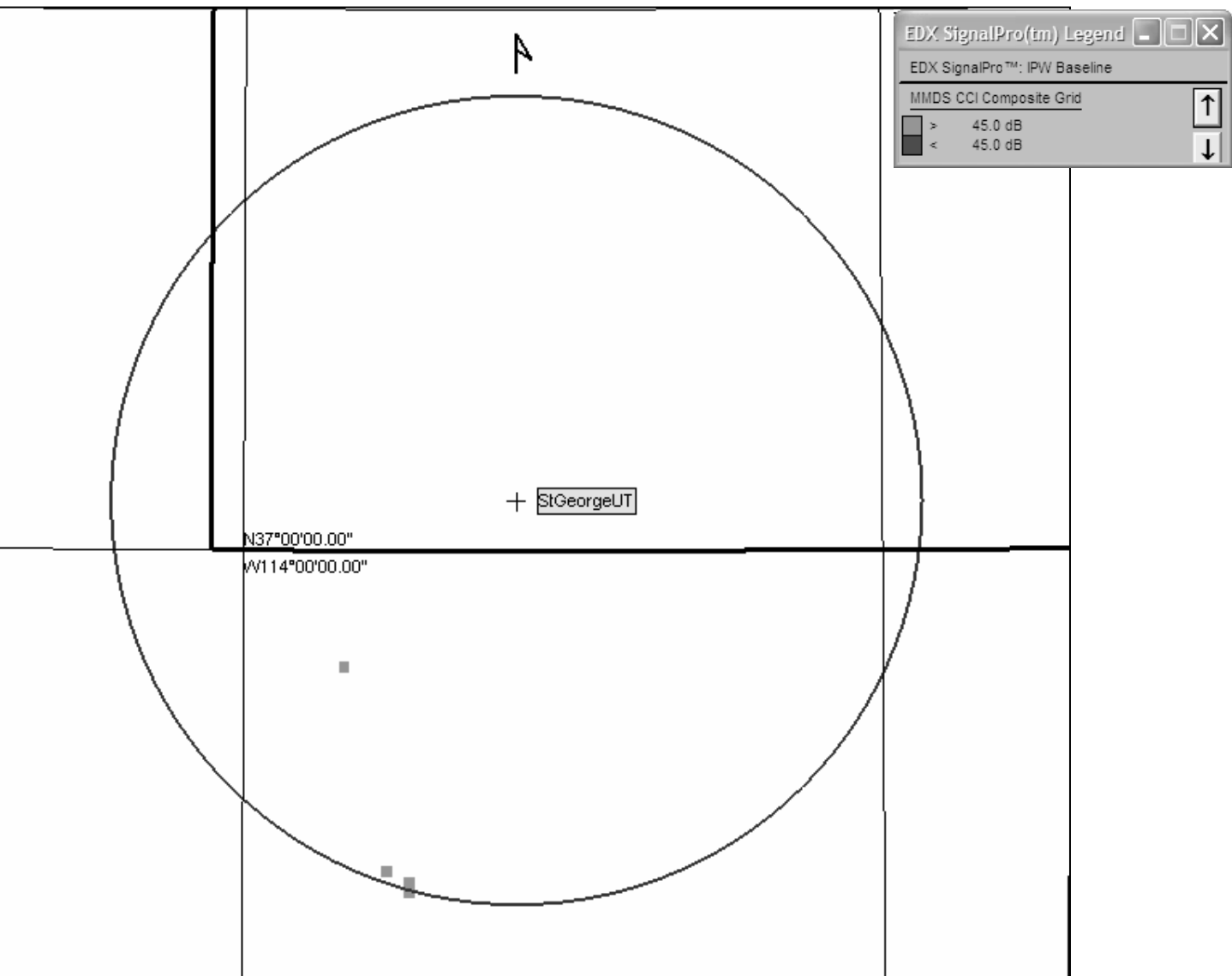


FIGURE 3: PFD STUDY -- CURRENT UPSTREAM

Nine Response Station Hubs



**FIGURE 4: UPSTREAM F1, E2 PREDICTED COCHANNEL
INTERFERENCE STUDY FOR WMI363 and WMI367**



Technical Parameters of Studied Facilities

Facility Number:	1
Station:	WHT721, Las Vegas, NV
Licensee:	Line of Site Inc
FCC File Number:	9750037
Channel 1:	E1
Channel 2:	E2
Channel 3:	E3
Channel 4:	E4
Trans. Coord. (NAD 27):	
Trans. Coord. (NAD 83):	Lat. 35-56-49.9 N; Long. 115-03-04.0 W
PSA Coord. (NAD 27):	
PSA Coord. (NAD 83):	Lat. 35-56-49.9 N; Long. 115-03-04.0 W
Ground Elevation (m, AMSL):	CONSENT PROVIDED; ALL OTHER INFO IS IRRELEVANT
Number of Trans. Antennas:	
Antenna System #1	
Antenna Make:	
Antenna Model:	
Antenna Orientation (Deg. T)	
Electrical Beamtilt:	
Mechanical Beamtilt:	
Mech. Beamtilt Azimuth (deg. T):	
Polarization:	
Radiation Center (m, AGL):	
Antenna Gain (dBi):	
Max. EIRP (dBW):	

Technical Parameters of Studied Facilities

Facility Number:	2
Station:	WMH524, Kingman, AZ
Licensee:	Multichannel Distribution of America
FCC File Number:	
Channel 1:	E1
Channel 2:	E2
Channel 3:	E3
Channel 4:	E4
Trans. Coord. (NAD 27):	
Trans. Coord. (NAD 83):	Lat. 35-11-48 N; Long. 114-01-20.8 W
PSA Coord. (NAD 27):	
PSA Coord. (NAD 83):	Lat. 35-11-48 N; Long. 114-01-20.8 W
Ground Elevation (m, AMSL):	LICENSE TERMINATED; ALL OTHER INFO IS IRRELEVANT
Number of Trans. Antennas:	
Antenna System #1	
Antenna Make:	
Antenna Model:	
Antenna Orientation (Deg. T)	
Electrical Beamtilt:	
Mechanical Beamtilt:	
Mech. Beamtilt Azimuth (deg. T):	
Polarization:	
Radiation Center (m, AGL):	
Antenna Gain (dBi):	
Max. EIRP (dBW):	

Technical Parameters of Studied Facilities

Facility Number:	3
Station:	WMI367, St. George, UT
Licensee:	American Wireless Inc. – DBA Sky-View Technologies
FCC File Number:	
Channel 1:	E1
Channel 2:	E2
Channel 3:	E3
Channel 4:	E4
Trans. Coord. (NAD 27):	
Trans. Coord. (NAD 83):	Lat. 37-03-48.9 N; Long. 113-34-22.8 W
PSA Coord. (NAD 27):	
PSA Coord. (NAD 83):	Lat. 37-03-48.9 N; Long. 113-34-22.8 W
Ground Elevation (m, AMSL):	954.3
Number of Trans. Antennas:	1
Antenna System #1:	
Antenna Make:	Andrew
Antenna Model:	HMD16HO-E
Antenna Orientation (Deg. T)	0 (omni)
Electrical Beamtilt:	-1
Mechanical Beamtilt:	0
Mech. Beamtilt Azimuth (deg. T):	0
Polarization:	H
Radiation Center (m, AGL):	9.7
Antenna Gain (dBi):	14
Max. EIRP (dBW):	28

Technical Parameters of Studied Facilities

Facility Number:	4
Station:	WMI383, St. George, UT
Licensee:	American Wireless Inc. – DBA Sky-View Technologies
FCC File Number:	
Channel 1:	F1
Channel 2:	F2
Channel 3:	F3
Channel 4:	F4
Trans. Coord. (NAD 27):	
Trans. Coord. (NAD 83):	Lat. 37-03-48.9 N; Long. 113-34-22.8 W
PSA Coord. (NAD 27):	
PSA Coord. (NAD 83):	Lat. 37-03-48.9 N; Long. 113-34-22.8 W
Ground Elevation (m, AMSL):	954.3
Number of Trans. Antennas:	1
Antenna System #1:	
Antenna Make:	Andrew
Antenna Model:	HMD16HO-E
Antenna Orientation (Deg. T)	0 (omni)
Electrical Beamtilt:	-1
Mechanical Beamtilt:	0
Mech. Beamtilt Azimuth (deg. T):	0
Polarization:	H
Radiation Center (m, AGL):	9.7
Antenna Gain (dBi):	14
Max. EIRP (dBW):	28

EXHIBIT B-10

Line of Site, Inc. – WHT721

A consent letter from Line of Site, Inc. is attached.