

Exhibit 13.1 - Copy of Existing Antenna Structure Registration



Registration Detail

| | | | |
|-------------|----------|-------------|-------------|
| Reg Number | 1044988 | Status | Constructed |
| File Number | A0727253 | Constructed | 01/01/1954 |
| EMI | No | Dismantled | |
| NEPA | No | | |

Antenna Structure

Structure Type TOWER - Free standing or Guyed Structure used for Commu

Location (in NAD83 Coordinates)

| | | | |
|--------------------|----------------------------|----------------------------|---|
| Lat/Long | 36-32-31.0 N 087-19-31.9 W | Address | OLD CLARKSVILLE-RUSSELVILLE PIKE, 0.32 MI FROM CITY |
| City, State | CLARKSVILLE , TN | County | MONTGOMERY |
| Zip | 37043 | Position of Tower in Array | |
| Center of AM Array | | | |

Heights (meters)

| | |
|--|---|
| Elevation of Site Above Mean Sea Level | Overall Height Above Ground (AGL) |
| 147.8 | 113.3 |
| Overall Height Above Mean Sea Level | Overall Height Above Ground w/o Appurtenances |
| 261.1 | 112.4 |

Painting and Lighting Specifications

FCC Paragraphs 1, 3, 4, 13, 21

FAA Notification

| | | | |
|-----------|------------------|----------------|------------|
| FAA Study | 2010-ASO-4715-OE | FAA Issue Date | 10/22/2010 |
|-----------|------------------|----------------|------------|

Owner & Contact Information

| | | | |
|-----|------------|-------------------|--|
| FRN | 0005005111 | Owner Entity Type | |
|-----|------------|-------------------|--|

Owner

Saga Communications of Tuckessee, LLC
Attention To: Gregory Urbiel
73 Kercheval Avenue, Suite 201
Grosse Pointe Farms , MI 48236

P: (313)886-7070
F:
E: gurbiel@sagacommunications.com

Contact

Smithwick , Gary S Esq
5028 Wisconsin Avenue NW, Suite 301
Washington , DC 20016

P: (202)363-4050
F:
E: gsmithwick@fccworld.com

Last Action Status

| | | | |
|---------|--------------|----------|------------|
| Status | Constructed | Received | 05/09/2011 |
| Purpose | Notification | Entered | 05/09/2011 |
| Mode | Interactive | | |

Related Applications

| | |
|------------|------------------------------|
| 05/09/2011 | A0727253 - Notification (NT) |
| 05/04/2011 | A0726979 - Modification (MD) |
| 12/13/2002 | A0300187 - Change Owner (OC) |

Related applications (4)

Comments

Comments

None

History

Date

| | |
|------------|------------------------------------|
| 05/09/2011 | Construction Notification Received |
| 05/06/2011 | Registration Printed |
| 05/05/2011 | Modification Received |

All History (7)

Automated Letters

| | |
|------------|------------------------------------|
| 05/06/2011 | Authorization, Reference |
| 12/16/2002 | Authorization, Reference 255442 |
| 12/16/2002 | Ownership Change, Reference 255634 |

Exhibit 13.2

Vertical Plan of Antenna System

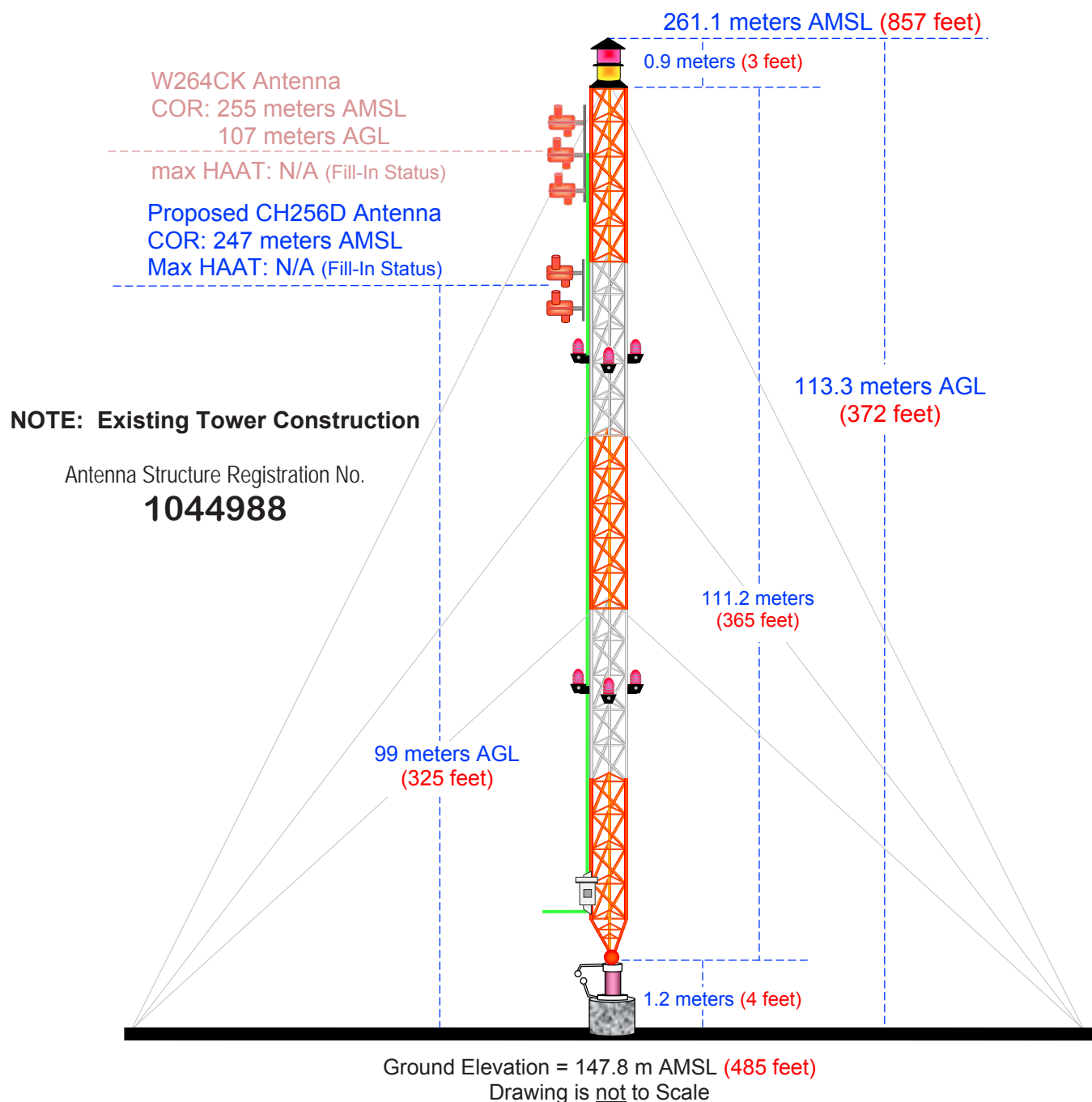
The site is located on Old Clarksville-Russellville Pike, 0.32 mi from the city of Clarksville, Montgomery County, Tennessee.

Site Location (NAD 27)

NL: 36° 32' 31"

WL: 87° 19' 32"

(N 36-32-31.0; W 87-19-31.9 (NAD '83))



MUNN-REESE, INC.

Broadcast Engineering Consultants
Coldwater, MI 49036

Terrain
106 241 m

NED 03 SEC Terrain Database
US Census 2010 PL Database

Exhibit 13.3 Present vs. Proposed Service Contour Study

CH256D.Short-Form
Clarksville, TN
BNPFT20030317MGQ
Facility ID: 154860
Latitude: 36-35-27 N
Longitude: 087-20-48 W
ERP: 0.01 kW
Channel: 256D
Frequency: 99.1 MHz
AMSL Height: 269.0 m
Horiz. Pattern: Directional

60 dBu Contour
Total Population: 51,356
Total Area: 103 sq. km

CH256D.Long-Form
Clarksville, TN
Proposed Operation
Facility ID: 154860
Latitude: 36-32-31 N
Longitude: 087-19-32 W
ERP: 0.25 kW
Channel: 256D
Frequency: 99.1 MHz
AMSL Height: 247.0 m
Horiz. Pattern: Directional

60 dBu Contour
Total Population: 136,693
Total Area: 409 sq. km

Clarksville

CH256D.Short-Form

CH256D.Long-Form

Long-Form 60 dBu F(50:50) Contour

Short-Form 60 dBu F(50:50) Contour



MUNN-REESE, INC.
Broadcast Engineering Consultants
Coldwater, MI 49036
1(517)278-7339

Scale 1:150,000

0 2 4 6 km

Terrain
88 579 m

NED 03 SEC Terrain Database
US Census 2010 PL Database

Exhibit 13.4 Proposed vs Primary Service Contour Study

WCVQ(FM)
Fort Campbell, KY
BLH19880923KB
Facility ID: 61253
Latitude: 36-32-23 N
Longitude: 087-39-45 W
ERP: 100.00 kW
Channel: 300C1
Frequency: 107.9 MHz
AMSL Height: 439.0 m
Horiz. Pattern: Omni

CH256D.Long-Form
Clarksville, TN
BNPFT20130820ABI
Facility ID: 154860
Latitude: 36-32-31 N
Longitude: 087-19-32 W
ERP: 0.25 kW
Channel: 256D
Frequency: 99.1 MHz
AMSL Height: 247.0 m
Horiz. Pattern: Directional

WCVQ(FM)
+

CH256D.Long-Form
+
Clarksville

Primary 60 dBμ F(50:50) Contour

Long-Form 60 dBμ F(50:50) Contour

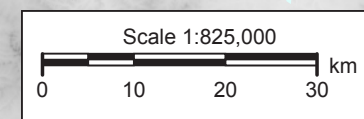


Exhibit 13.5

Tabulation of Proposed Translator Allocation Study

| REFERENCE | | CH# | 256D - 99.1 MHz, Pwr= 0.25 kW DA, HAAT= 90.2 M, COR= 247 M | | | | | DISPLAY DATES | | | |
|------------------------------------|--------------------------------------|----------------|--|---------------------------|--------------------------|-----------------|----------------|-------------------------------------|----------------------|---------------|--|
| 36 32 31.0 N. | Average Protected F(50-50)= 12.24 km | | | | | | | DATA 11-25-13 | | | |
| 87 19 32.0 W. | Standard Directional | | | | | | | SEARCH 11-25-13 | | | |
| CH CITY | CALL | TYPE ANT STATE | AZI <-- | DIST FILE # | LAT LNG | PWR(kW) HAAT(M) | INT(km) COR(M) | PRO(km) LICENSEE | *IN* (Overlap in km) | *OUT* (in km) | |
| 256D Clarksville | 1569881 | APP DC_ TN | 340.9 160.9 | 5.75 BNPFT20130820ABI | 36 35 27.0 87 20 48.0 | 0.013 114 | 19.8 269 | 6.0 Edgewater Broadcasting, Inc. | -26.4*< | -42.7*< | |
| 256D Clarksville | 1563635 | APP DC_ TN | 340.9 160.9 | 5.75 BNPFT20030317MGQ | 36 35 27.0 87 20 48.0 | 0.010 114 | 18.4 269 | 5.6 Edgewater Broadcasting, Inc. | -25.0*< | -42.3*< | |
| 254C1 Hopkinsville | WHOP-FM | LIC NCX KY | 335.4 155.2 | 47.25 BLH20041018ACH | 36 55 41.0 87 32 50.0 | 100.000 189 | 8.2 366 | 63.7 Hop Broadcasting, Inc. | 26.5 | -17.5*< | |
| 256C3 Grand Rivers | WCBF-FM | LIC NCX KY | 304.9 124.3 | 111.79 BLH20100217AAC | 37 06 47.0 88 21 34.0 | 16.000 127 | 107.8 243 | 39.0 Freel and Broadcasting Co., | -8.5< | 29.9 | |
| 258D Clarksville | W258AD | LIC HN TN | 271.5 91.4 | 8.71 BLFT19941103TA | 36 32 38.0 87 25 23.0 | 0.020 93 | 0.3 247 | 7.4 Community Broadcasting, Inc. | -2.8*< | 0.2 | |
| Translator For WNAZ, Nashville, TN | | | | | | | | | | | |
| 256D Dickson | W256CG | CP C_ TN | 168.3 348.3 | 27.91 BNPFT20130830AAA | 36 17 46.0 87 15 44.0 | 0.027 56 | 23.4 233 | 7.0 Thomas Mach D/b/a Dickson | -1.7< | 0.3 | |
| 256A Morgantown | WWKN | CP NCX KY | 30.8 211.2 | 95.01 BPH20100301ACX | 37 16 28.0 86 46 30.0 | 6.000 55 | 76.2 197 | 20.4 Newberry Broadcasting, Inc. | 7.0 | 34.1 | |
| 202C2 Clarksville | WAYQ | LIC DCX TN | 176.3 356.3 | 27.69 BLED20031020ABN | 36 17 36.0 87 18 20.0 | 14.000 227 | 17.1 416 | 5.2 Way Media, Inc. | 14.5R | 13.2M | |
| 256D Nashville | 1561477 | APP DH_ TN | 133.6 313.9 | 66.24 BNPFT20030317BPX | 36 07 48.0 86 47 28.0 | 0.011 147 | 25.8 316 | 7.6 Caron Broadcasting, Inc. | 30.6 | 25.5 | |
| 256C0 Huntsville | WAHR | LIC CN AL | 162.1 342.5 | 203.53 BLH19891219KC | 34 47 53.0 86 38 24.0 | 100.000 300 | 170.6 538 | 71.3 Southern Stone Communicati | 26.7 | 111.7 | |
| 259C0 Hendersonville | WWTN | LIC CX TN | 138.0 318.4 | 108.02 BLH20080428AAL | 35 49 03.0 86 31 24.0 | 100.000 395 | 11.3 604 | 78.1 Cumulus Licensing Lic | 87.3 | 29.2 | |
| 256D Nashville | 1570248 | APP DH_ TN | 132.7 313.0 | 67.86 BNPFT20130827AAX | 36 07 36.0 86 46 13.0 | 0.020 28 | 15.8 197 | 4.9 Caron Broadcasting, Inc. | 42.2 | 30.0 | |
| 256A Morgantown | WWKN | LIC NCX KY | 36.0 216.4 | 94.42 BLH20100629ANS | 37 13 38.0 86 41 54.0 | 0.650 69 | 50.2 219 | 14.3 Newberry Broadcasting, Inc. | 32.3 | 39.0 | |
| 255D Dickson | W255AP | LIC C_ TN | 182.8 2.8 | 47.55 BLFT20040120ABI | 36 06 53.0 87 21 05.0 | 0.023 50 | 8.0 273 | 5.7 Pennyrile Christian Commu | 32.9 | 32.5 | |

Terrain database is NED 03 SEC, R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
 Contour distances are on direct line to and from reference station. Reference zone= East Zone, Co to 3rd adjacent.
 All separation margins (if shown) include rounding
 Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)
 "***affixed to 'IN' or 'OUT' values = site inside protected contour.
 < = Contour Overlap
 Reference station has protected zone issue:

Green Text denotes the Auction 83 Application facility to be modified by this Form 349 Long-Form filing. This facility need not be protected.

Blue Highlighted Text denotes supplemental contour protection studies toward select facilities as included in **Exhibit(s) 13.6 and 13.7.**

Yellow Highlighted text denotes a §74.1204(d) waiver request for Second Adjacent Channel Given Interference toward WHOP-FM - Hopkinsville, KY (CH254C1). The portion of the §74.1204(d) WHOP-FM protection from 100 meters to the extent of the calculated 107.85 dBµ F(50:10) interference contour has been demonstrated through a downward radiation study as included in **Exhibit 13.8a**. Full protection will be afforded WHOP-FM from 100 meters to the extent of the calculated 107.85 dBµ F(50:10) interference contour as this area will not reach the ground nor a 7 meter artificial plane representing a standard two story house when taking into account the downward radiation characteristics of the antenna as supplied by the antenna manufacturer. A copy of the antenna manufacturer specifications has been included in **Exhibit 13.8c**. The portion of the §74.1204(d) WHOP-FM protection within 100 meters of the site are currently void of population, buildings (with the exception of the dedicated transmitter building) or major roads as noted in **Exhibit 13.8b**.

Exhibit 13.6

Contour Protection Studies Toward W258AD.L - Clarksville, TN

FMCommander Single Allocation Study - 11-25-2013 - NED 03 SEC
CH256D.P's Overlaps (In= -2.78 km, Out= 0.22 km)

CH256D.P CH 256 D DA
Lat= 36 32 31.0, Lng= 87 19 32.0
0.25 kW 90.2 M HAAT, 247 M COR
Prot.= 60 dBu, Intef.= 100 dBu

W258AD CH 258 D BLFT19941103TA
Lat= 36 32 38.0, Lng= 87 25 23.0
0.02 kW 93 M HAAT, 247 M COR
Prot.= 60 dBu, Intef.= 100 dBu

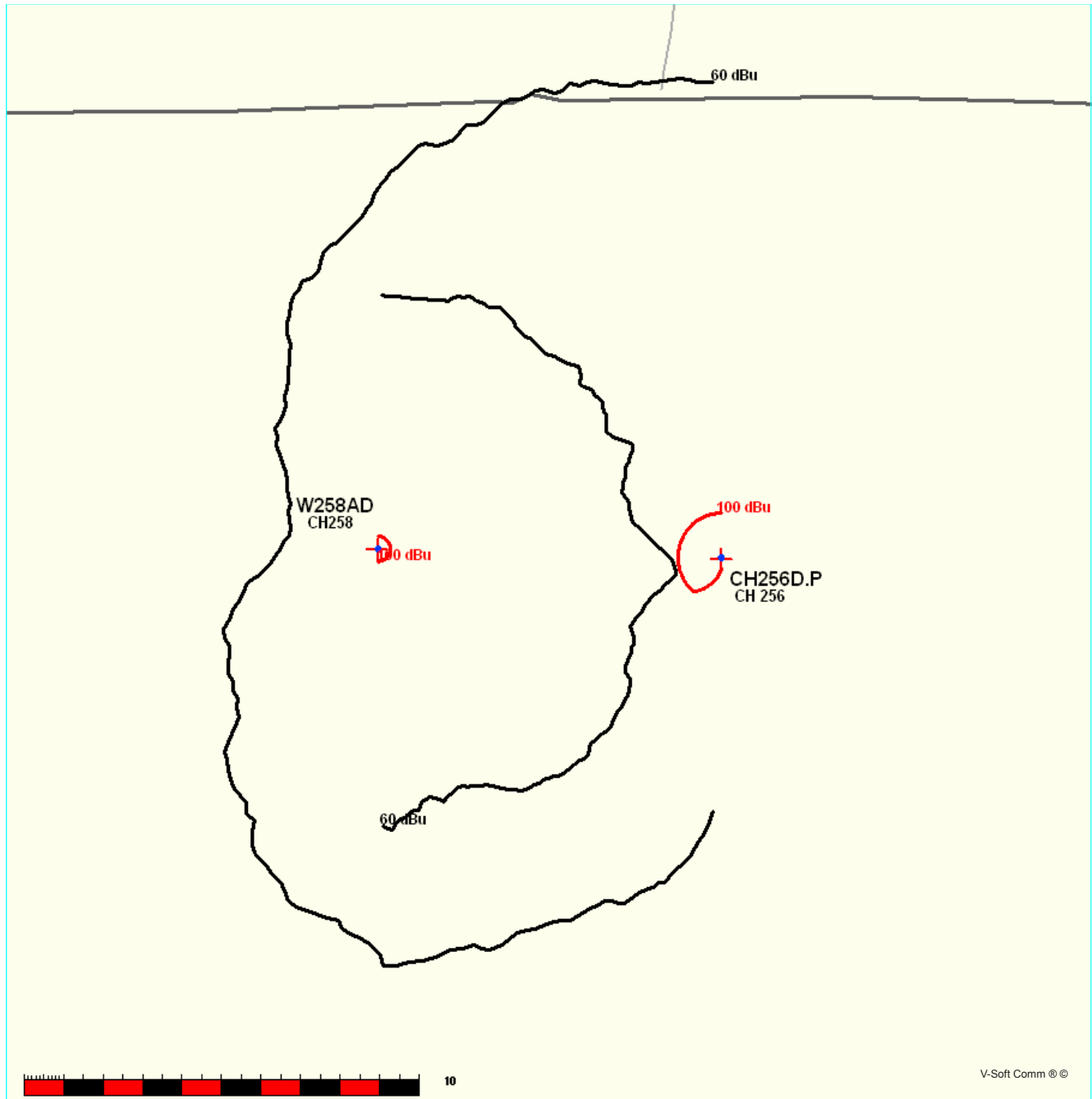


Exhibit 13.6

Contour Protection Studies Toward W258AD.L - Clarksville, TN

Channel = 256D
 Max ERP = 0.25 kW
 RCAMSL = 247 M
 N. Lat. 36 32 31.0
 W. Lng. 87 19 32.0
 Protected
 60 dBu

Channel = 258D
 Max ERP = 0.02 kW
 RCAMSL = 247 M
 N. Lat. 36 32 38.0
 W. Lng. 87 25 23.0
 Interfering
 100 dBu

| Azimuth (degrees) | ERP (kW) | HAAT (m) | Dist (km) | Azimuth (degrees) | ERP (kW) | HAAT (m) | Dist (km) | Actual (dBu) | IX (km) |
|----------------------|-------------|-------------|--------------|----------------------|-------------|-------------|--------------|-----------------|------------|
| 226.0 | 000.2500 | 0108.2 | 013.4 | 185.4 | 000.0011 | 0115.5 | 009.6 | 42.84 | |
| 227.0 | 000.2500 | 0106.7 | 013.3 | 186.1 | 000.0010 | 0113.1 | 009.3 | 42.94 | |
| 228.0 | 000.2500 | 0109.4 | 013.4 | 187.9 | 000.0009 | 0108.7 | 009.3 | 42.31 | |
| 229.0 | 000.2500 | 0112.0 | 013.6 | 189.6 | 000.0009 | 0104.3 | 009.3 | 41.66 | |
| 230.0 | 000.2500 | 0113.8 | 013.7 | 191.2 | 000.0008 | 0111.6 | 009.2 | 41.85 | |
| 231.0 | 000.2500 | 0116.4 | 013.9 | 192.9 | 000.0007 | 0110.0 | 009.2 | 41.10 | |
| 232.0 | 000.2500 | 0117.9 | 013.9 | 194.5 | 000.0006 | 0106.6 | 009.1 | 40.35 | |
| 233.0 | 000.2500 | 0116.2 | 013.9 | 195.3 | 000.0005 | 0109.5 | 008.9 | 40.65 | |
| 234.0 | 000.2500 | 0115.2 | 013.8 | 196.3 | 000.0005 | 0111.8 | 008.7 | 40.73 | |
| 235.0 | 000.2500 | 0116.3 | 013.9 | 197.9 | 000.0004 | 0111.9 | 008.6 | 40.17 | |
| 236.0 | 000.2500 | 0116.4 | 013.9 | 199.2 | 000.0003 | 0109.9 | 008.4 | 39.59 | |
| 237.0 | 000.2500 | 0116.9 | 013.9 | 200.6 | 000.0003 | 0107.7 | 008.3 | 38.97 | |
| 238.0 | 000.2500 | 0118.0 | 014.0 | 202.2 | 000.0003 | 0110.2 | 008.2 | 38.79 | |
| 239.0 | 000.2500 | 0116.8 | 013.9 | 203.4 | 000.0002 | 0106.5 | 008.0 | 38.46 | |
| 240.0 | 000.2500 | 0114.3 | 013.7 | 204.2 | 000.0002 | 0108.0 | 007.8 | 38.82 | |
| 241.0 | 000.2500 | 0110.7 | 013.5 | 204.6 | 000.0002 | 0108.7 | 007.5 | 39.43 | |
| 242.0 | 000.2500 | 0112.5 | 013.6 | 206.6 | 000.0002 | 0103.2 | 007.4 | 38.21 | |
| 243.0 | 000.2500 | 0110.6 | 013.5 | 207.6 | 000.0001 | 0102.1 | 007.2 | 38.24 | |
| 244.0 | 000.2500 | 0111.5 | 013.6 | 209.4 | 000.0001 | 0097.7 | 007.1 | 37.12 | |
| 245.0 | 000.2500 | 0112.4 | 013.6 | 211.3 | 000.0001 | 0096.7 | 007.0 | 36.77 | |
| 246.0 | 000.2500 | 0112.1 | 013.6 | 212.8 | 000.0001 | 0098.0 | 006.9 | 37.07 | |
| 247.0 | 000.2500 | 0111.5 | 013.6 | 214.4 | 000.0001 | 0098.0 | 006.7 | 37.27 | |
| 248.0 | 000.2500 | 0110.7 | 013.5 | 215.8 | 000.0001 | 0097.0 | 006.5 | 37.41 | |
| 249.0 | 000.2500 | 0110.3 | 013.5 | 217.5 | 000.0001 | 0095.6 | 006.4 | 37.42 | |
| 250.0 | 000.2500 | 0106.5 | 013.3 | 218.2 | 000.0001 | 0095.9 | 006.1 | 38.26 | |
| 251.0 | 000.2500 | 0103.1 | 013.1 | 219.1 | 000.0001 | 0097.2 | 005.8 | 39.15 | |
| 252.0 | 000.2500 | 0100.1 | 012.9 | 220.0 | 000.0001 | 0098.3 | 005.5 | 39.97 | |
| 253.0 | 000.2500 | 0099.8 | 012.8 | 221.9 | 000.0001 | 0102.1 | 005.3 | 40.77 | |
| 254.0 | 000.2500 | 0098.2 | 012.8 | 223.5 | 000.0001 | 0105.5 | 005.2 | 41.73 | |
| 255.0 | 000.2500 | 0099.4 | 012.8 | 226.0 | 000.0001 | 0101.7 | 005.1 | 41.63 | |
| 256.0 | 000.2500 | 0098.5 | 012.8 | 228.0 | 000.0001 | 0094.6 | 005.0 | 41.55 | |
| 257.0 | 000.2500 | 0099.3 | 012.8 | 230.6 | 000.0001 | 0092.9 | 004.9 | 41.79 | |
| 258.0 | 000.2500 | 0098.6 | 012.8 | 232.7 | 000.0001 | 0088.1 | 004.8 | 42.39 | |
| 259.0 | 000.2500 | 0097.6 | 012.7 | 234.9 | 000.0001 | 0089.3 | 004.6 | 43.59 | |
| 260.0 | 000.2500 | 0096.9 | 012.7 | 237.2 | 000.0001 | 0083.8 | 004.5 | 44.07 | |
| 261.0 | 000.2500 | 0098.0 | 012.7 | 240.2 | 000.0002 | 0080.5 | 004.5 | 44.53 | |

Exhibit 13.6

Contour Protection Studies Toward W258AD.L - Clarksville, TN

| (degrees) | (kW) | (m) | (km) | (degrees) | (kW) | (m) | (km) | (dBu) |
|-----------|----------|--------|-------|-----------|----------|--------|-------|-------|
| 262.0 | 000.2500 | 0098.1 | 012.7 | 242.9 | 000.0002 | 0085.7 | 004.4 | 46.65 |
| 263.0 | 000.2500 | 0095.3 | 012.6 | 245.0 | 000.0003 | 0092.2 | 004.2 | 49.07 |
| 264.0 | 000.2500 | 0093.5 | 012.5 | 247.4 | 000.0003 | 0079.2 | 004.0 | 49.45 |
| 265.0 | 000.2500 | 0090.8 | 012.3 | 249.8 | 000.0004 | 0074.4 | 003.8 | 50.74 |
| 266.0 | 000.2500 | 0088.5 | 012.1 | 252.5 | 000.0006 | 0074.7 | 003.6 | 53.47 |
| 267.0 | 000.2500 | 0087.0 | 012.0 | 255.5 | 000.0009 | 0074.1 | 003.4 | 55.80 |
| 268.0 | 000.2500 | 0081.6 | 011.7 | 258.0 | 000.0011 | 0066.4 | 003.0 | 58.14 |
| 269.0 | 000.2500 | 0078.3 | 011.5 | 261.2 | 000.0017 | 0064.2 | 002.8 | 61.17 |
| 270.0 | 000.2500 | 0076.4 | 011.3 | 265.1 | 000.0029 | 0057.2 | 002.6 | 63.67 |
| 271.0 | 000.2500 | 0074.5 | 011.2 | 269.4 | 000.0045 | 0057.5 | 002.5 | 66.71 |
| 272.0 | 000.2500 | 0073.1 | 011.1 | 273.9 | 000.0066 | 0056.2 | 002.4 | 68.89 |
| 273.0 | 000.2500 | 0071.0 | 011.0 | 278.9 | 000.0093 | 0057.3 | 002.3 | 71.60 |
| 274.0 | 000.2500 | 0070.7 | 010.9 | 283.8 | 000.0113 | 0059.5 | 002.3 | 72.62 |
| 275.0 | 000.2500 | 0071.6 | 011.0 | 288.1 | 000.0130 | 0066.5 | 002.4 | 73.14 |
| 276.0 | 000.2500 | 0072.3 | 011.0 | 292.2 | 000.0143 | 0072.5 | 002.5 | 73.38 |
| 277.0 | 000.2500 | 0071.7 | 011.0 | 296.8 | 000.0154 | 0073.6 | 002.5 | 73.65 |
| 278.0 | 000.2500 | 0072.7 | 011.1 | 300.2 | 000.0162 | 0077.5 | 002.6 | 73.31 |
| 279.0 | 000.2500 | 0073.6 | 011.1 | 303.5 | 000.0167 | 0078.6 | 002.8 | 72.67 |
| 280.0 | 000.2500 | 0074.3 | 011.2 | 306.7 | 000.0172 | 0081.1 | 002.9 | 72.24 |
| 281.0 | 000.2500 | 0075.1 | 011.2 | 309.5 | 000.0176 | 0082.2 | 003.0 | 71.64 |
| 282.0 | 000.2500 | 0077.1 | 011.4 | 311.5 | 000.0179 | 0085.2 | 003.2 | 70.88 |
| 283.0 | 000.2500 | 0078.6 | 011.5 | 313.6 | 000.0181 | 0087.2 | 003.4 | 70.22 |
| 284.0 | 000.2500 | 0080.7 | 011.6 | 315.2 | 000.0183 | 0088.5 | 003.6 | 69.38 |
| 285.0 | 000.2500 | 0081.3 | 011.7 | 317.6 | 000.0185 | 0091.4 | 003.8 | 69.09 |
| 286.0 | 000.2500 | 0082.8 | 011.8 | 319.3 | 000.0187 | 0090.5 | 004.0 | 68.22 |
| 287.0 | 000.2500 | 0081.8 | 011.7 | 322.2 | 000.0189 | 0088.9 | 004.0 | 67.87 |
| 288.0 | 000.2500 | 0081.3 | 011.7 | 324.8 | 000.0191 | 0091.3 | 004.1 | 67.78 |
| 289.0 | 000.2500 | 0081.7 | 011.7 | 326.8 | 000.0193 | 0091.2 | 004.3 | 67.23 |
| 290.0 | 000.2500 | 0083.0 | 011.8 | 328.2 | 000.0194 | 0091.5 | 004.5 | 66.55 |
| 291.0 | 000.2500 | 0083.3 | 011.8 | 330.1 | 000.0195 | 0090.9 | 004.6 | 66.00 |
| 292.0 | 000.2500 | 0083.8 | 011.8 | 331.8 | 000.0196 | 0088.4 | 004.8 | 65.23 |
| 293.0 | 000.2500 | 0085.1 | 011.9 | 333.0 | 000.0196 | 0088.6 | 005.0 | 64.61 |
| 294.0 | 000.2500 | 0086.4 | 012.0 | 334.2 | 000.0197 | 0087.7 | 005.2 | 63.87 |
| 295.0 | 000.2500 | 0087.6 | 012.1 | 335.4 | 000.0198 | 0085.6 | 005.4 | 63.03 |
| 296.0 | 000.2500 | 0088.8 | 012.2 | 336.5 | 000.0198 | 0084.4 | 005.6 | 62.28 |
| 297.0 | 000.2500 | 0092.2 | 012.4 | 336.8 | 000.0198 | 0084.2 | 005.9 | 61.31 |
| 298.0 | 000.2500 | 0093.5 | 012.4 | 337.9 | 000.0199 | 0083.8 | 006.1 | 60.67 |
| 299.0 | 000.2500 | 0094.7 | 012.5 | 338.9 | 000.0199 | 0083.5 | 006.3 | 60.06 |
| 300.0 | 000.2500 | 0096.1 | 012.6 | 339.9 | 000.0200 | 0083.4 | 006.5 | 59.47 |
| 301.0 | 000.2500 | 0096.9 | 012.7 | 341.1 | 000.0199 | 0083.2 | 006.7 | 58.93 |
| 302.0 | 000.2500 | 0096.0 | 012.6 | 342.9 | 000.0199 | 0083.1 | 006.8 | 58.63 |
| 303.0 | 000.2500 | 0097.2 | 012.7 | 343.8 | 000.0198 | 0082.9 | 007.0 | 58.06 |
| 304.0 | 000.2500 | 0094.5 | 012.5 | 346.1 | 000.0197 | 0083.6 | 007.0 | 58.08 |
| 305.0 | 000.2500 | 0093.6 | 012.5 | 347.8 | 000.0196 | 0084.0 | 007.1 | 57.82 |
| 306.0 | 000.2500 | 0095.1 | 012.6 | 348.5 | 000.0196 | 0084.8 | 007.3 | 57.36 |
| 307.0 | 000.2500 | 0096.5 | 012.6 | 349.3 | 000.0195 | 0085.6 | 007.5 | 56.92 |
| 308.0 | 000.2500 | 0096.2 | 012.6 | 350.6 | 000.0194 | 0086.5 | 007.6 | 56.69 |

Exhibit 13.6

Contour Protection Studies Toward W258AD.L - Clarksville, TN

W258AD BLFT19941103TA

CH256D.P

Channel = 258D

Max ERP = 0.02 kW

RCAMSL = 247 M

N. Lat. 36 32 38.0

W. Lng. 87 25 23.0

Protected

60 dBu

Channel = 256D

Max ERP = 0.25 kW

RCAMSL = 247 M

N. Lat. 36 32 31.0

W. Lng. 87 19 32.0

Interfering

100 dBu

| Azimuth (degrees) | ERP (kW) | HAAT (m) | Dist (km) | Azimuth (degrees) | ERP (kW) | HAAT (m) | Dist (km) | Actual (dBu) | IX (km) |
|----------------------|-------------|-------------|--------------|----------------------|-------------|-------------|--------------|-----------------|------------|
| 046.0 | 000.0200 | 0093.5 | 006.7 | 321.3 | 000.2500 | 0098.4 | 006.2 | 72.70 | |
| 047.0 | 000.0200 | 0095.1 | 006.7 | 321.9 | 000.2500 | 0098.8 | 006.1 | 73.07 | |
| 048.0 | 000.0200 | 0097.7 | 006.8 | 322.9 | 000.2500 | 0099.7 | 006.0 | 73.48 | |
| 049.0 | 000.0200 | 0096.3 | 006.8 | 322.5 | 000.2500 | 0099.5 | 005.9 | 73.82 | |
| 050.0 | 000.0200 | 0094.4 | 006.7 | 321.8 | 000.2500 | 0098.7 | 005.8 | 74.12 | |
| 051.0 | 000.0200 | 0091.2 | 006.6 | 320.7 | 000.2500 | 0098.4 | 005.6 | 74.44 | |
| 052.0 | 000.0200 | 0091.3 | 006.6 | 320.7 | 000.2500 | 0098.4 | 005.5 | 74.80 | |
| 053.0 | 000.0200 | 0093.6 | 006.7 | 321.5 | 000.2500 | 0098.5 | 005.4 | 75.19 | |
| 054.0 | 000.0200 | 0094.5 | 006.7 | 321.9 | 000.2500 | 0098.8 | 005.3 | 75.58 | |
| 055.0 | 000.0200 | 0094.1 | 006.7 | 321.6 | 000.2500 | 0098.6 | 005.2 | 75.94 | |
| 056.0 | 000.0200 | 0095.8 | 006.8 | 322.3 | 000.2500 | 0099.2 | 005.1 | 76.39 | |
| 057.0 | 000.0200 | 0096.0 | 006.8 | 322.2 | 000.2500 | 0099.1 | 004.9 | 76.76 | |
| 058.0 | 000.0200 | 0094.5 | 006.7 | 321.4 | 000.2500 | 0098.5 | 004.8 | 77.07 | |
| 059.0 | 000.0200 | 0093.2 | 006.7 | 320.7 | 000.2500 | 0098.4 | 004.7 | 77.42 | |
| 060.0 | 000.0200 | 0093.3 | 006.7 | 320.5 | 000.2500 | 0098.3 | 004.6 | 77.82 | |
| 061.0 | 000.0200 | 0091.5 | 006.6 | 319.4 | 000.2500 | 0098.6 | 004.5 | 78.20 | |
| 062.0 | 000.0200 | 0090.2 | 006.6 | 318.5 | 000.2500 | 0097.9 | 004.4 | 78.51 | |
| 063.0 | 000.0200 | 0088.4 | 006.5 | 317.2 | 000.2500 | 0097.7 | 004.3 | 78.84 | |
| 064.0 | 000.0200 | 0089.4 | 006.5 | 317.2 | 000.2500 | 0097.7 | 004.2 | 79.30 | |
| 065.0 | 000.0200 | 0091.2 | 006.6 | 317.7 | 000.2500 | 0097.6 | 004.1 | 79.80 | |
| 066.0 | 000.0200 | 0094.7 | 006.7 | 319.0 | 000.2500 | 0098.8 | 003.9 | 80.51 | |
| 067.0 | 000.0200 | 0098.6 | 006.9 | 320.5 | 000.2500 | 0098.3 | 003.8 | 81.12 | |
| 068.0 | 000.0200 | 0100.9 | 006.9 | 321.1 | 000.2500 | 0098.3 | 003.6 | 81.72 | |
| 069.0 | 000.0200 | 0099.5 | 006.9 | 319.8 | 000.2500 | 0097.9 | 003.5 | 82.13 | |
| 070.0 | 000.0200 | 0096.9 | 006.8 | 317.7 | 000.2500 | 0097.5 | 003.4 | 82.46 | |
| 071.0 | 000.0200 | 0094.4 | 006.7 | 315.5 | 000.2500 | 0095.7 | 003.4 | 82.63 | |
| 072.0 | 000.0200 | 0091.2 | 006.6 | 312.8 | 000.2500 | 0093.4 | 003.3 | 82.67 | |
| 073.0 | 000.0200 | 0090.0 | 006.5 | 311.0 | 000.2500 | 0094.0 | 003.2 | 83.07 | |
| 074.0 | 000.0200 | 0089.1 | 006.5 | 309.4 | 000.2500 | 0094.5 | 003.2 | 83.46 | |
| 075.0 | 000.0200 | 0087.1 | 006.4 | 307.1 | 000.2500 | 0096.5 | 003.1 | 83.87 | |
| 076.0 | 000.0200 | 0085.9 | 006.4 | 305.1 | 000.2500 | 0093.5 | 003.1 | 83.91 | |
| 077.0 | 000.0200 | 0084.5 | 006.3 | 302.9 | 000.2500 | 0097.2 | 003.0 | 84.45 | |
| 078.0 | 000.0200 | 0085.5 | 006.4 | 302.0 | 000.2500 | 0096.0 | 002.9 | 84.93 | |

Exhibit 13.6

Contour Protection Studies Toward W258AD.L - Clarksville, TN

| (degrees) | (kW) | (m) | (km) | | (degrees) | (kW) | (m) | (km) | (dBu) |
|-----------|----------|--------|-------|--|-----------|----------|--------|-------|-------|
| 079.0 | 000.0200 | 0087.3 | 006.4 | | 301.2 | 000.2500 | 0096.3 | 002.8 | 85.67 |
| 080.0 | 000.0200 | 0087.3 | 006.4 | | 299.5 | 000.2500 | 0095.3 | 002.7 | 86.03 |
| 081.0 | 000.0200 | 0087.2 | 006.4 | | 297.5 | 000.2500 | 0092.8 | 002.6 | 86.24 |
| 082.0 | 000.0200 | 0087.9 | 006.5 | | 295.8 | 000.2500 | 0088.5 | 002.6 | 86.47 |
| 083.0 | 000.0200 | 0087.8 | 006.5 | | 293.6 | 000.2500 | 0085.7 | 002.5 | 86.64 |
| 084.0 | 000.0200 | 0088.3 | 006.5 | | 291.5 | 000.2500 | 0083.5 | 002.4 | 86.97 |
| 085.0 | 000.0200 | 0091.5 | 006.6 | | 290.4 | 000.2500 | 0083.1 | 002.3 | 88.09 |
| 086.0 | 000.0200 | 0094.6 | 006.7 | | 288.8 | 000.2500 | 0081.5 | 002.1 | 89.12 |
| 087.0 | 000.0200 | 0097.7 | 006.8 | | 286.9 | 000.2500 | 0081.9 | 002.0 | 90.28 |
| 088.0 | 000.0200 | 0100.6 | 006.9 | | 284.4 | 000.2500 | 0081.1 | 001.8 | 91.31 |
| 089.0 | 000.0200 | 0102.1 | 007.0 | | 281.0 | 000.2500 | 0075.1 | 001.8 | 91.58 |
| 090.0 | 000.0200 | 0107.1 | 007.2 | | 277.8 | 000.2500 | 0072.4 | 001.6 | 93.08 |
| 091.0 | 000.0200 | 0112.4 | 007.3 | | 273.5 | 000.2500 | 0070.5 | 001.4 | 98.06 |
| 092.0 | 000.0200 | 0116.9 | 007.5 | | 267.8 | 000.2500 | 0082.6 | 001.3 | 98.93 |
| 093.0 | 000.0200 | 0117.7 | 007.5 | | 261.8 | 000.2500 | 0098.6 | 001.3 | 98.96 |
| 094.0 | 000.0200 | 0120.3 | 007.6 | | 255.0 | 000.2500 | 0099.4 | 001.2 | 99.23 |
| 095.0 | 000.0200 | 0120.9 | 007.6 | | 249.0 | 000.2500 | 0110.3 | 001.2 | 98.99 |
| 096.0 | 000.0200 | 0117.0 | 007.5 | | 246.3 | 000.2500 | 0112.4 | 001.4 | 97.92 |
| 097.0 | 000.0200 | 0111.8 | 007.3 | | 245.1 | 000.2500 | 0112.3 | 001.6 | 94.39 |
| 098.0 | 000.0200 | 0110.4 | 007.3 | | 242.3 | 000.2500 | 0112.3 | 001.7 | 93.62 |
| 099.0 | 000.0200 | 0105.7 | 007.1 | | 242.0 | 000.2500 | 0112.5 | 001.9 | 92.22 |
| 100.0 | 000.0200 | 0102.9 | 007.0 | | 240.9 | 000.2500 | 0111.1 | 002.1 | 91.13 |
| 101.0 | 000.0200 | 0101.3 | 007.0 | | 239.3 | 000.2500 | 0116.0 | 002.2 | 90.51 |
| 102.0 | 000.0200 | 0100.0 | 006.9 | | 237.8 | 000.2500 | 0117.8 | 002.3 | 89.83 |
| 103.0 | 000.0200 | 0098.7 | 006.9 | | 236.6 | 000.2500 | 0117.1 | 002.4 | 89.07 |
| 104.0 | 000.0200 | 0097.5 | 006.8 | | 235.4 | 000.2500 | 0117.0 | 002.5 | 88.36 |
| 105.0 | 000.0200 | 0095.5 | 006.8 | | 235.0 | 000.2500 | 0116.2 | 002.7 | 87.52 |
| 106.0 | 000.0200 | 0094.0 | 006.7 | | 234.3 | 000.2500 | 0115.8 | 002.8 | 86.79 |
| 107.0 | 000.0200 | 0093.7 | 006.7 | | 233.0 | 000.2500 | 0116.2 | 002.9 | 86.28 |
| 108.0 | 000.0200 | 0096.3 | 006.8 | | 230.2 | 000.2500 | 0114.0 | 002.9 | 85.94 |
| 109.0 | 000.0200 | 0098.0 | 006.8 | | 228.0 | 000.2500 | 0109.7 | 003.0 | 85.32 |
| 110.0 | 000.0200 | 0099.8 | 006.9 | | 226.0 | 000.2500 | 0108.1 | 003.1 | 84.83 |
| 111.0 | 000.0200 | 0099.1 | 006.9 | | 225.4 | 000.2500 | 0107.2 | 003.2 | 84.20 |
| 112.0 | 000.0200 | 0100.5 | 006.9 | | 223.8 | 000.2500 | 0105.6 | 003.3 | 83.67 |
| 113.0 | 000.0200 | 0099.6 | 006.9 | | 223.6 | 000.2500 | 0105.9 | 003.4 | 83.13 |
| 114.0 | 000.0200 | 0100.0 | 006.9 | | 222.7 | 000.2500 | 0104.3 | 003.5 | 82.54 |
| 115.0 | 000.0200 | 0100.4 | 006.9 | | 221.9 | 000.2500 | 0104.1 | 003.6 | 82.04 |
| 116.0 | 000.0200 | 0102.2 | 007.0 | | 220.5 | 000.2500 | 0106.8 | 003.7 | 81.80 |
| 117.0 | 000.0200 | 0107.3 | 007.2 | | 217.5 | 000.2256 | 0103.2 | 003.8 | 80.74 |
| 118.0 | 000.0200 | 0109.1 | 007.2 | | 216.3 | 000.2145 | 0099.7 | 003.9 | 79.78 |
| 119.0 | 000.0200 | 0110.6 | 007.3 | | 215.4 | 000.2064 | 0097.6 | 004.1 | 78.95 |
| 120.0 | 000.0200 | 0111.5 | 007.3 | | 214.9 | 000.2012 | 0095.3 | 004.2 | 78.16 |
| 121.0 | 000.0200 | 0111.5 | 007.3 | | 214.7 | 000.1999 | 0095.2 | 004.3 | 77.63 |
| 122.0 | 000.0200 | 0112.4 | 007.3 | | 214.3 | 000.1960 | 0095.7 | 004.4 | 77.12 |
| 123.0 | 000.0200 | 0112.3 | 007.3 | | 214.3 | 000.1958 | 0095.7 | 004.6 | 76.65 |
| 124.0 | 000.0200 | 0111.7 | 007.3 | | 214.5 | 000.1979 | 0095.4 | 004.7 | 76.22 |
| 125.0 | 000.0200 | 0112.1 | 007.3 | | 214.3 | 000.1964 | 0095.7 | 004.8 | 75.79 |

Exhibit 13.7

Contour Protection Studies Toward W256CG.C - Dickson, TN

FMCommander Single Allocation Study - 11-25-2013 - NED 03 SEC

CH256D.P's Overlaps (In= -1.73 km, Out= 0.33 km)

CH256D.P CH 256 D DA
Lat= 36 32 31.0, Lng= 87 19 32.0
0.25 kW 90.2 M HAAT, 247 M COR
Prot.= 60 dBu, Intef.= 40 dBu

W256CG CH 256 D BNPFT20130830AAA
Lat= 36 17 46.0, Lng= 87 15 44.0
0.027 kW 55.5 M HAAT, 233 M COR
Prot.= 60 dBu, Intef.= 40 dBu

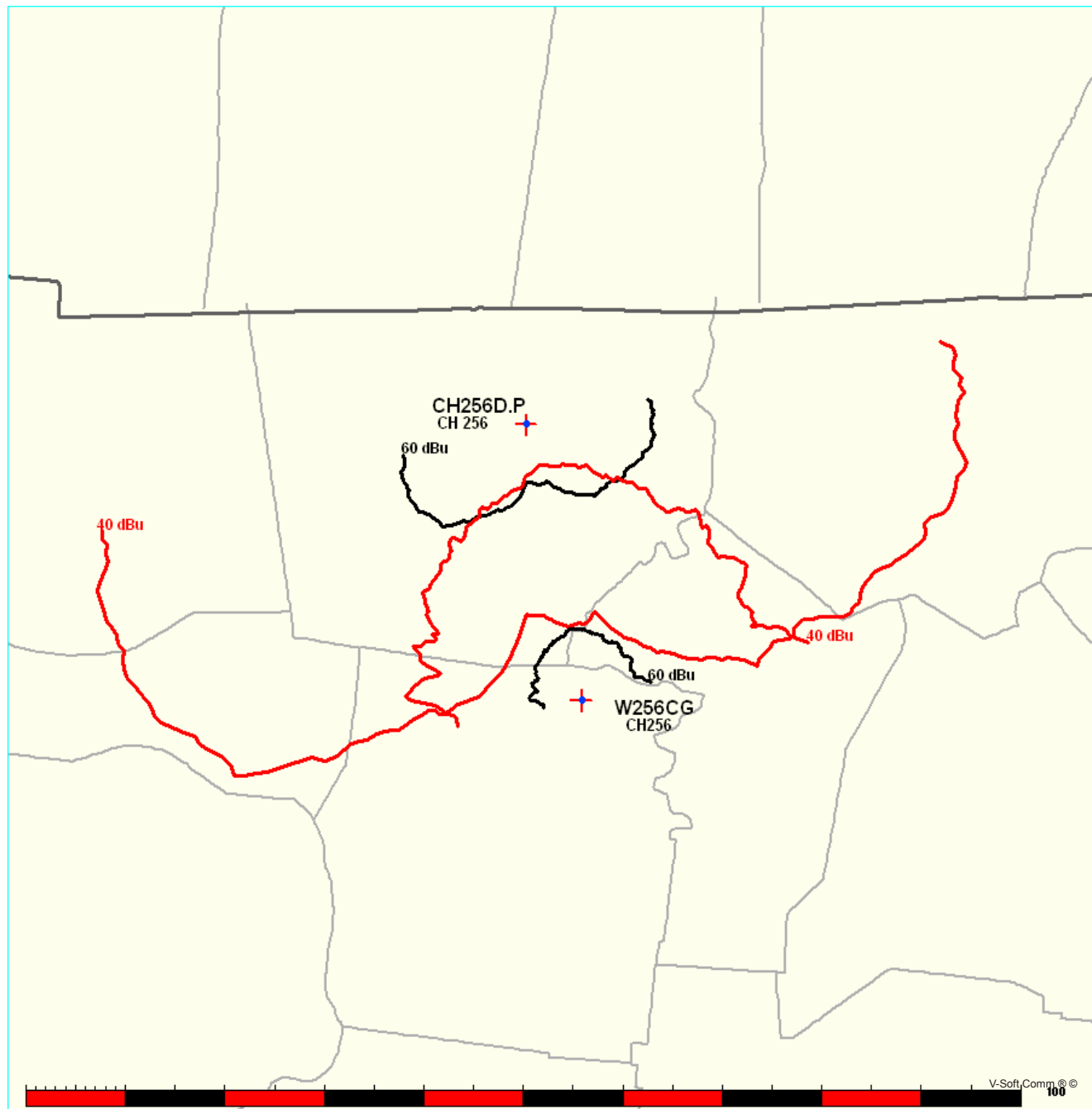


Exhibit 13.7

Contour Protection Studies Toward W256CG.C - Dickson, TN

11-25-2013

Terrain Data: NED 03 SEC

FMOver Analysis

CH256D.P

W256CG BNPFT20130830AAA

Channel = 256D

Max ERP = 0.25 kW

RCAMSL = 247 M

N. Lat. 36 32 31.0

W. Lng. 87 19 32.0

Protected

60 dBu

Channel = 256D

Max ERP = 0.027 kW

RCAMSL = 233 M

N. Lat. 36 17 46.0

W. Lng. 87 15 44.0

Interfering

40 dBu

| Azimuth (degrees) | ERP (kW) | HAAT (m) | Dist (km) | Azimuth (degrees) | ERP (kW) | HAAT (m) | Dist (km) | Actual (dBu) | IX (km) |
|----------------------|-------------|-------------|--------------|----------------------|-------------|-------------|--------------|-----------------|------------|
| 123.0 | 000.2209 | 0067.8 | 010.4 | 008.1 | 000.0242 | 0078.8 | 021.9 | 39.54 | |
| 124.0 | 000.2116 | 0067.4 | 010.3 | 007.6 | 000.0243 | 0079.0 | 021.8 | 39.66 | |
| 125.0 | 000.2025 | 0066.6 | 010.1 | 007.0 | 000.0243 | 0080.1 | 021.7 | 39.86 | |
| 126.0 | 000.1936 | 0067.5 | 010.1 | 006.6 | 000.0244 | 0081.6 | 021.6 | 40.15* | 0.19 |
| 127.0 | 000.1849 | 0068.9 | 010.0 | 006.3 | 000.0244 | 0082.3 | 021.4 | 40.33* | 0.43 |
| 128.0 | 000.1764 | 0072.4 | 010.2 | 006.4 | 000.0244 | 0082.2 | 021.2 | 40.50* | 0.63 |
| 129.0 | 000.1681 | 0073.6 | 010.1 | 006.0 | 000.0245 | 0082.2 | 021.1 | 40.61* | 0.77 |
| 130.0 | 000.1600 | 0073.2 | 010.0 | 005.4 | 000.0246 | 0080.8 | 021.0 | 40.51* | 0.65 |
| 131.0 | 000.1521 | 0073.3 | 009.8 | 004.9 | 000.0246 | 0080.5 | 020.9 | 40.54* | 0.69 |
| 132.0 | 000.1444 | 0075.7 | 009.9 | 004.6 | 000.0247 | 0081.0 | 020.8 | 40.73* | 0.92 |
| 133.0 | 000.1369 | 0078.1 | 009.9 | 004.4 | 000.0247 | 0081.4 | 020.6 | 40.90* | 1.13 |
| 134.0 | 000.1296 | 0080.2 | 009.9 | 004.1 | 000.0248 | 0081.7 | 020.5 | 41.04* | 1.32 |
| 135.0 | 000.1225 | 0081.6 | 009.8 | 003.6 | 000.0248 | 0082.2 | 020.4 | 41.19* | 1.51 |
| 136.0 | 000.1156 | 0086.4 | 010.0 | 003.6 | 000.0248 | 0082.3 | 020.2 | 41.37* | 1.73 |
| 137.0 | 000.1089 | 0082.8 | 009.6 | 002.5 | 000.0250 | 0083.6 | 020.3 | 41.45* | 1.84 |
| 138.0 | 000.1024 | 0082.4 | 009.4 | 001.8 | 000.0251 | 0084.6 | 020.3 | 41.57* | 2.00 |
| 139.0 | 000.0961 | 0082.0 | 009.3 | 001.2 | 000.0252 | 0087.2 | 020.3 | 41.85* | 2.37 |
| 140.0 | 000.0900 | 0083.8 | 009.2 | 000.7 | 000.0252 | 0089.9 | 020.3 | 42.19* | 2.82 |
| 141.0 | 000.0841 | 0082.9 | 009.0 | 000.0 | 000.0254 | 0087.3 | 020.3 | 41.89* | 2.43 |
| 142.0 | 000.0784 | 0083.6 | 008.9 | 359.5 | 000.0254 | 0085.3 | 020.3 | 41.69* | 2.16 |
| 143.0 | 000.0729 | 0085.6 | 008.8 | 359.0 | 000.0254 | 0086.1 | 020.3 | 41.82* | 2.33 |
| 144.0 | 000.0676 | 0086.2 | 008.7 | 358.4 | 000.0255 | 0087.6 | 020.3 | 41.97* | 2.53 |
| 145.0 | 000.0625 | 0087.5 | 008.6 | 357.9 | 000.0256 | 0088.4 | 020.3 | 42.05* | 2.64 |
| 146.0 | 000.0576 | 0088.0 | 008.4 | 357.3 | 000.0256 | 0088.4 | 020.4 | 42.01* | 2.59 |
| 147.0 | 000.0529 | 0086.9 | 008.2 | 356.6 | 000.0257 | 0087.4 | 020.5 | 41.81* | 2.34 |
| 148.0 | 000.0484 | 0087.1 | 008.0 | 356.0 | 000.0257 | 0088.0 | 020.6 | 41.81* | 2.34 |
| 149.0 | 000.0441 | 0088.9 | 007.9 | 355.6 | 000.0258 | 0089.7 | 020.6 | 41.97* | 2.56 |
| 150.0 | 000.0400 | 0092.0 | 007.8 | 355.1 | 000.0258 | 0089.7 | 020.6 | 42.00* | 2.59 |
| 151.0 | 000.0361 | 0091.3 | 007.6 | 354.5 | 000.0259 | 0088.5 | 020.8 | 41.75* | 2.27 |
| 152.0 | 000.0324 | 0092.6 | 007.5 | 354.1 | 000.0259 | 0087.8 | 020.9 | 41.62* | 2.09 |
| 153.0 | 000.0289 | 0092.5 | 007.3 | 353.5 | 000.0260 | 0088.4 | 021.0 | 41.58* | 2.06 |
| 154.0 | 000.0256 | 0093.9 | 007.1 | 353.1 | 000.0260 | 0088.1 | 021.1 | 41.48* | 1.92 |
| 155.0 | 000.0225 | 0096.8 | 007.0 | 352.7 | 000.0260 | 0089.0 | 021.2 | 41.53* | 2.00 |
| 156.0 | 000.0196 | 0098.9 | 006.8 | 352.2 | 000.0261 | 0089.1 | 021.3 | 41.45* | 1.90 |
| 157.0 | 000.0169 | 0100.7 | 006.7 | 351.8 | 000.0261 | 0088.9 | 021.4 | 41.33* | 1.74 |
| 158.0 | 000.0144 | 0102.3 | 006.5 | 351.4 | 000.0262 | 0088.4 | 021.6 | 41.16* | 1.52 |

MUNN-REESE, INC.

Broadcast Engineering Consultants
COLDWATER, MI 49036

Exhibit 13.7

Contour Protection Studies Toward W256CG.C - Dickson, TN

| Azimuth (degrees) | ERP (kW) | HAAT (m) | Dist (km) | Azimuth (degrees) | ERP (kW) | HAAT (m) | Dist (km) | Actual (dBu) |
|----------------------|-------------|-------------|--------------|----------------------|-------------|-------------|--------------|-----------------|
| 159.0 | 000.0121 | 0102.8 | 006.2 | 350.9 | 000.0262 | 0090.1 | 021.8 | 41.17* 1.55 |
| 160.0 | 000.0100 | 0105.9 | 006.0 | 350.6 | 000.0262 | 0091.0 | 022.0 | 41.14* 1.51 |
| 161.0 | 000.0098 | 0109.1 | 006.1 | 350.3 | 000.0263 | 0091.1 | 021.9 | 41.22* 1.61 |
| 162.0 | 000.0096 | 0114.0 | 006.2 | 350.1 | 000.0263 | 0090.9 | 021.8 | 41.29* 1.71 |
| 163.0 | 000.0094 | 0117.0 | 006.2 | 349.8 | 000.0263 | 0090.6 | 021.7 | 41.31* 1.73 |
| 164.0 | 000.0092 | 0118.3 | 006.2 | 349.5 | 000.0263 | 0090.6 | 021.7 | 41.32* 1.74 |
| 165.0 | 000.0090 | 0117.5 | 006.2 | 349.2 | 000.0264 | 0090.8 | 021.7 | 41.31* 1.72 |
| 166.0 | 000.0088 | 0118.6 | 006.2 | 349.0 | 000.0264 | 0091.1 | 021.7 | 41.35* 1.78 |
| 167.0 | 000.0086 | 0121.6 | 006.2 | 348.7 | 000.0264 | 0091.0 | 021.7 | 41.37* 1.81 |
| 168.0 | 000.0085 | 0123.6 | 006.2 | 348.4 | 000.0264 | 0089.9 | 021.7 | 41.27* 1.68 |
| 169.0 | 000.0083 | 0121.6 | 006.1 | 348.1 | 000.0264 | 0088.4 | 021.8 | 41.06* 1.39 |
| 170.0 | 000.0081 | 0121.7 | 006.1 | 347.8 | 000.0265 | 0087.2 | 021.8 | 40.90* 1.18 |
| 171.0 | 000.0083 | 0118.2 | 006.1 | 347.5 | 000.0265 | 0086.5 | 021.9 | 40.80* 1.04 |
| 172.0 | 000.0085 | 0115.0 | 006.0 | 347.3 | 000.0265 | 0086.3 | 021.9 | 40.74* 0.97 |
| 173.0 | 000.0086 | 0110.8 | 005.9 | 347.0 | 000.0265 | 0086.4 | 022.0 | 40.69* 0.90 |
| 174.0 | 000.0088 | 0107.3 | 005.9 | 346.8 | 000.0265 | 0086.6 | 022.1 | 40.65* 0.85 |
| 175.0 | 000.0090 | 0103.6 | 005.8 | 346.5 | 000.0265 | 0086.7 | 022.2 | 40.60* 0.79 |
| 176.0 | 000.0092 | 0102.3 | 005.8 | 346.3 | 000.0266 | 0086.7 | 022.2 | 40.58* 0.77 |
| 177.0 | 000.0094 | 0101.5 | 005.8 | 346.0 | 000.0266 | 0086.2 | 022.2 | 40.52* 0.69 |
| 178.0 | 000.0096 | 0100.4 | 005.8 | 345.8 | 000.0266 | 0085.3 | 022.2 | 40.41* 0.54 |
| 179.0 | 000.0098 | 0099.0 | 005.8 | 345.5 | 000.0266 | 0084.8 | 022.2 | 40.34* 0.44 |
| 180.0 | 000.0100 | 0097.7 | 005.8 | 345.3 | 000.0266 | 0084.5 | 022.3 | 40.28* 0.36 |
| 181.0 | 000.0121 | 0096.7 | 006.0 | 344.9 | 000.0267 | 0083.7 | 022.1 | 40.35* 0.46 |
| 182.0 | 000.0144 | 0098.9 | 006.4 | 344.3 | 000.0267 | 0080.7 | 021.8 | 40.25* 0.32 |
| 183.0 | 000.0169 | 0101.6 | 006.7 | 343.8 | 000.0267 | 0078.9 | 021.5 | 40.28* 0.36 |
| 184.0 | 000.0196 | 0101.6 | 006.9 | 343.2 | 000.0268 | 0078.3 | 021.3 | 40.36* 0.46 |
| 185.0 | 000.0225 | 0101.6 | 007.2 | 342.7 | 000.0268 | 0077.6 | 021.1 | 40.42* 0.54 |
| 186.0 | 000.0256 | 0103.1 | 007.4 | 342.1 | 000.0269 | 0078.4 | 020.9 | 40.68* 0.86 |
| 187.0 | 000.0289 | 0102.4 | 007.6 | 341.5 | 000.0269 | 0078.9 | 020.8 | 40.85* 1.08 |
| 188.0 | 000.0324 | 0101.1 | 007.8 | 341.0 | 000.0269 | 0078.6 | 020.7 | 40.89* 1.12 |
| 189.0 | 000.0361 | 0100.0 | 008.0 | 340.4 | 000.0270 | 0078.0 | 020.6 | 40.90* 1.14 |
| 190.0 | 000.0400 | 0100.8 | 008.2 | 339.8 | 000.0270 | 0077.2 | 020.5 | 40.93* 1.18 |
| 191.0 | 000.0441 | 0097.3 | 008.3 | 339.3 | 000.0270 | 0076.7 | 020.5 | 40.85* 1.06 |
| 192.0 | 000.0484 | 0095.7 | 008.4 | 338.8 | 000.0269 | 0076.9 | 020.5 | 40.89* 1.11 |
| 193.0 | 000.0529 | 0094.1 | 008.5 | 338.3 | 000.0269 | 0076.6 | 020.5 | 40.86* 1.07 |
| 194.0 | 000.0576 | 0092.0 | 008.6 | 337.8 | 000.0268 | 0076.9 | 020.5 | 40.87* 1.10 |
| 195.0 | 000.0625 | 0092.2 | 008.8 | 337.1 | 000.0268 | 0075.7 | 020.4 | 40.78* 0.98 |
| 196.0 | 000.0676 | 0092.1 | 009.0 | 336.5 | 000.0268 | 0074.8 | 020.4 | 40.69* 0.86 |
| 197.0 | 000.0729 | 0089.7 | 009.0 | 336.0 | 000.0267 | 0074.7 | 020.5 | 40.63* 0.78 |
| 198.0 | 000.0784 | 0086.1 | 009.0 | 335.8 | 000.0267 | 0074.6 | 020.6 | 40.52* 0.65 |
| 199.0 | 000.0841 | 0083.9 | 009.1 | 335.4 | 000.0267 | 0075.3 | 020.6 | 40.54* 0.67 |
| 200.0 | 000.0900 | 0084.8 | 009.3 | 334.6 | 000.0266 | 0075.2 | 020.6 | 40.54* 0.68 |
| 201.0 | 000.0961 | 0084.8 | 009.4 | 334.0 | 000.0266 | 0074.6 | 020.6 | 40.46* 0.58 |
| 202.0 | 000.1024 | 0086.4 | 009.7 | 333.2 | 000.0265 | 0073.5 | 020.6 | 40.35* 0.43 |
| 203.0 | 000.1089 | 0086.9 | 009.8 | 332.5 | 000.0265 | 0075.6 | 020.6 | 40.58* 0.73 |
| 204.0 | 000.1156 | 0085.8 | 009.9 | 332.0 | 000.0264 | 0076.5 | 020.7 | 40.61* 0.76 |
| 205.0 | 000.1225 | 0085.2 | 010.0 | 331.5 | 000.0264 | 0076.5 | 020.8 | 40.54* 0.68 |

Exhibit 13.7

Contour Protection Studies Toward W256CG.C - Dickson, TN

11-25-2013

Terrain Data: NED 03 SEC

FMOver Analysis

W256CG BNPFT20130830AAA

CH256D.P

Channel = 256D

Max ERP = 0.027 kW

RCAMSL = 233 M

N. Lat. 36 17 46.0

W. Lng. 87 15 44.0

Protected

60 dBu

Channel = 256D

Max ERP = 0.25 kW

RCAMSL = 247 M

N. Lat. 36 32 31.0

W. Lng. 87 19 32.0

Interfering

40 dBu

| Azimuth (degrees) | ERP (kW) | HAAT (m) | Dist (km) | Azimuth (degrees) | ERP (kW) | HAAT (m) | Dist (km) | Actual (dBu) | IX (km) |
|----------------------|-------------|-------------|--------------|----------------------|-------------|-------------|--------------|-----------------|------------|
| 303.0 | 000.0270 | 0060.8 | 005.8 | 178.1 | 000.0096 | 0100.1 | 024.2 | 36.03 | |
| 304.0 | 000.0270 | 0061.1 | 005.8 | 178.0 | 000.0096 | 0100.4 | 024.1 | 36.11 | |
| 305.0 | 000.0270 | 0059.1 | 005.7 | 177.7 | 000.0095 | 0101.5 | 024.1 | 36.20 | |
| 306.0 | 000.0270 | 0059.3 | 005.7 | 177.5 | 000.0095 | 0101.7 | 024.0 | 36.27 | |
| 307.0 | 000.0270 | 0059.9 | 005.8 | 177.4 | 000.0095 | 0101.7 | 023.9 | 36.33 | |
| 308.0 | 000.0270 | 0060.0 | 005.8 | 177.3 | 000.0095 | 0101.8 | 023.8 | 36.38 | |
| 309.0 | 000.0270 | 0059.4 | 005.7 | 177.1 | 000.0094 | 0101.6 | 023.7 | 36.39 | |
| 310.0 | 000.0270 | 0059.9 | 005.8 | 177.0 | 000.0094 | 0101.5 | 023.7 | 36.44 | |
| 311.0 | 000.0270 | 0059.7 | 005.8 | 176.8 | 000.0094 | 0101.6 | 023.6 | 36.48 | |
| 312.0 | 000.0270 | 0060.5 | 005.8 | 176.7 | 000.0093 | 0101.8 | 023.5 | 36.55 | |
| 313.0 | 000.0270 | 0062.9 | 005.9 | 176.7 | 000.0093 | 0101.8 | 023.4 | 36.66 | |
| 314.0 | 000.0270 | 0063.5 | 005.9 | 176.5 | 000.0093 | 0102.2 | 023.3 | 36.74 | |
| 315.0 | 000.0270 | 0061.4 | 005.8 | 176.2 | 000.0093 | 0102.5 | 023.3 | 36.75 | |
| 316.0 | 000.0270 | 0062.3 | 005.9 | 176.0 | 000.0092 | 0102.4 | 023.2 | 36.79 | |
| 317.0 | 000.0270 | 0064.4 | 006.0 | 176.0 | 000.0092 | 0102.2 | 023.0 | 36.87 | |
| 318.0 | 000.0270 | 0064.6 | 006.0 | 175.8 | 000.0092 | 0102.2 | 023.0 | 36.90 | |
| 319.0 | 000.0270 | 0069.0 | 006.2 | 175.9 | 000.0092 | 0102.1 | 022.7 | 37.07 | |
| 320.0 | 000.0270 | 0070.6 | 006.2 | 175.8 | 000.0092 | 0102.2 | 022.6 | 37.15 | |
| 321.0 | 000.0270 | 0070.3 | 006.2 | 175.5 | 000.0091 | 0102.5 | 022.6 | 37.19 | |
| 322.0 | 000.0270 | 0065.3 | 006.0 | 175.0 | 000.0090 | 0103.6 | 022.7 | 37.16 | |
| 323.0 | 000.0270 | 0065.5 | 006.0 | 174.8 | 000.0090 | 0104.4 | 022.6 | 37.26 | |
| 324.0 | 000.0270 | 0067.0 | 006.1 | 174.6 | 000.0090 | 0105.0 | 022.5 | 37.38 | |
| 325.0 | 000.0270 | 0069.7 | 006.2 | 174.5 | 000.0089 | 0105.3 | 022.4 | 37.52 | |
| 326.0 | 000.0270 | 0070.9 | 006.2 | 174.4 | 000.0089 | 0105.7 | 022.3 | 37.61 | |
| 327.0 | 000.0270 | 0070.9 | 006.2 | 174.1 | 000.0089 | 0106.7 | 022.2 | 37.71 | |
| 328.0 | 000.0270 | 0071.5 | 006.3 | 173.9 | 000.0088 | 0107.8 | 022.1 | 37.83 | |
| 329.0 | 000.0270 | 0071.0 | 006.2 | 173.6 | 000.0088 | 0108.3 | 022.1 | 37.87 | |
| 330.0 | 000.0270 | 0071.5 | 006.3 | 173.4 | 000.0087 | 0109.2 | 022.1 | 37.97 | |
| 331.0 | 000.0270 | 0075.4 | 006.4 | 173.3 | 000.0087 | 0109.6 | 021.9 | 38.15 | |
| 332.0 | 000.0270 | 0076.4 | 006.5 | 173.1 | 000.0087 | 0110.6 | 021.8 | 38.27 | |
| 333.0 | 000.0270 | 0073.5 | 006.3 | 172.7 | 000.0086 | 0112.0 | 021.9 | 38.28 | |
| 334.0 | 000.0270 | 0074.6 | 006.4 | 172.4 | 000.0085 | 0112.7 | 021.8 | 38.38 | |
| 335.0 | 000.0270 | 0075.8 | 006.4 | 172.2 | 000.0085 | 0113.8 | 021.7 | 38.50 | |

Exhibit 13.7

Contour Protection Studies Toward W256CG.C - Dickson, TN

| Azimuth (degrees) | ERP (kW) | HAAT (m) | Dist (km) | Azimuth (degrees) | ERP (kW) | HAAT (m) | Dist (km) | Actual (dBu) |
|----------------------|-------------|-------------|--------------|----------------------|-------------|-------------|--------------|-----------------|
| 336.0 | 000.0270 | 0074.6 | 006.4 | 171.9 | 000.0084 | 0115.8 | 021.7 | 38.62 |
| 337.0 | 000.0270 | 0075.5 | 006.4 | 171.6 | 000.0084 | 0117.0 | 021.6 | 38.73 |
| 338.0 | 000.0270 | 0076.8 | 006.5 | 171.4 | 000.0083 | 0117.4 | 021.6 | 38.79 |
| 339.0 | 000.0270 | 0077.0 | 006.5 | 171.1 | 000.0083 | 0118.1 | 021.5 | 38.84 |
| 340.0 | 000.0270 | 0077.3 | 006.5 | 170.8 | 000.0082 | 0118.6 | 021.5 | 38.88 |
| 341.0 | 000.0270 | 0078.6 | 006.6 | 170.5 | 000.0082 | 0119.6 | 021.4 | 38.97 |
| 342.0 | 000.0270 | 0078.6 | 006.6 | 170.2 | 000.0081 | 0121.1 | 021.4 | 39.07 |
| 343.0 | 000.0270 | 0078.3 | 006.5 | 169.9 | 000.0081 | 0121.9 | 021.4 | 39.11 |
| 344.0 | 000.0270 | 0079.4 | 006.6 | 169.6 | 000.0082 | 0121.4 | 021.3 | 39.16 |
| 345.0 | 000.0270 | 0084.0 | 006.8 | 169.3 | 000.0082 | 0121.2 | 021.1 | 39.32 |
| 346.0 | 000.0270 | 0086.1 | 006.9 | 169.0 | 000.0083 | 0121.6 | 021.0 | 39.45 |
| 347.0 | 000.0270 | 0086.5 | 006.9 | 168.7 | 000.0083 | 0122.3 | 021.0 | 39.55 |
| 348.0 | 000.0270 | 0087.9 | 006.9 | 168.4 | 000.0084 | 0123.0 | 021.0 | 39.67 |
| 349.0 | 000.0270 | 0091.0 | 007.1 | 168.0 | 000.0085 | 0123.6 | 020.8 | 39.84 |
| 350.0 | 000.0270 | 0090.8 | 007.1 | 167.7 | 000.0085 | 0124.3 | 020.9 | 39.91 |
| 351.0 | 000.0270 | 0089.7 | 007.0 | 167.4 | 000.0086 | 0123.4 | 020.9 | 39.84 |
| 352.0 | 000.0270 | 0088.9 | 007.0 | 167.0 | 000.0086 | 0121.7 | 020.9 | 39.72 |
| 353.0 | 000.0270 | 0088.2 | 007.0 | 166.7 | 000.0087 | 0120.8 | 021.0 | 39.66 |
| 354.0 | 000.0270 | 0087.8 | 006.9 | 166.4 | 000.0088 | 0119.7 | 021.0 | 39.59 |
| 355.0 | 000.0270 | 0089.5 | 007.0 | 166.0 | 000.0088 | 0118.7 | 021.0 | 39.60 |
| 356.0 | 000.0270 | 0088.1 | 007.0 | 165.7 | 000.0089 | 0118.3 | 021.0 | 39.53 |
| 357.0 | 000.0270 | 0088.0 | 007.0 | 165.4 | 000.0089 | 0117.8 | 021.1 | 39.52 |
| 358.0 | 000.0270 | 0088.4 | 007.0 | 165.1 | 000.0090 | 0117.6 | 021.1 | 39.52 |
| 359.0 | 000.0270 | 0086.1 | 006.9 | 164.8 | 000.0091 | 0117.5 | 021.2 | 39.44 |
| 000.0 | 000.0270 | 0087.3 | 006.9 | 164.5 | 000.0091 | 0117.7 | 021.2 | 39.50 |
| 001.0 | 000.0270 | 0088.4 | 007.0 | 164.1 | 000.0092 | 0118.0 | 021.2 | 39.56 |
| 002.0 | 000.0270 | 0084.2 | 006.8 | 163.9 | 000.0092 | 0118.3 | 021.4 | 39.45 |
| 003.0 | 000.0270 | 0083.1 | 006.8 | 163.7 | 000.0093 | 0118.4 | 021.5 | 39.41 |
| 004.0 | 000.0270 | 0081.8 | 006.7 | 163.4 | 000.0093 | 0118.0 | 021.5 | 39.34 |
| 005.0 | 000.0270 | 0080.3 | 006.6 | 163.2 | 000.0094 | 0117.5 | 021.6 | 39.24 |
| 006.0 | 000.0270 | 0082.2 | 006.7 | 162.8 | 000.0094 | 0116.3 | 021.6 | 39.21 |
| 007.0 | 000.0270 | 0080.0 | 006.6 | 162.7 | 000.0095 | 0115.6 | 021.7 | 39.08 |
| 008.0 | 000.0270 | 0078.5 | 006.6 | 162.5 | 000.0095 | 0115.1 | 021.9 | 38.98 |
| 009.0 | 000.0270 | 0081.0 | 006.7 | 162.1 | 000.0096 | 0114.4 | 021.8 | 38.99 |
| 010.0 | 000.0270 | 0079.7 | 006.6 | 161.9 | 000.0096 | 0113.4 | 021.9 | 38.85 |
| 011.0 | 000.0270 | 0079.8 | 006.6 | 161.6 | 000.0097 | 0111.8 | 022.0 | 38.71 |
| 012.0 | 000.0270 | 0079.1 | 006.6 | 161.4 | 000.0097 | 0110.7 | 022.0 | 38.58 |
| 013.0 | 000.0270 | 0079.7 | 006.6 | 161.1 | 000.0098 | 0109.6 | 022.1 | 38.49 |
| 014.0 | 000.0270 | 0077.6 | 006.5 | 161.0 | 000.0098 | 0109.0 | 022.2 | 38.35 |
| 015.0 | 000.0270 | 0077.3 | 006.5 | 160.7 | 000.0099 | 0108.7 | 022.3 | 38.28 |
| 016.0 | 000.0270 | 0077.5 | 006.5 | 160.5 | 000.0099 | 0108.3 | 022.4 | 38.22 |
| 017.0 | 000.0270 | 0078.8 | 006.6 | 160.2 | 000.0100 | 0106.8 | 022.4 | 38.11 |
| 018.0 | 000.0270 | 0075.9 | 006.4 | 160.1 | 000.0100 | 0106.5 | 022.5 | 37.97 |
| 019.0 | 000.0270 | 0074.1 | 006.4 | 160.0 | 000.0100 | 0106.0 | 022.7 | 37.83 |
| 020.0 | 000.0270 | 0071.0 | 006.2 | 160.0 | 000.0100 | 0106.0 | 022.8 | 37.70 |
| 021.0 | 000.0270 | 0070.1 | 006.2 | 159.9 | 000.0102 | 0105.2 | 022.9 | 37.67 |
| 022.0 | 000.0270 | 0069.4 | 006.2 | 159.7 | 000.0106 | 0104.5 | 023.0 | 37.66 |

MUNN-REESE, INC.

Broadcast Engineering Consultants
COLDWATER, MI 49036

WHOP-FM +

Terrain

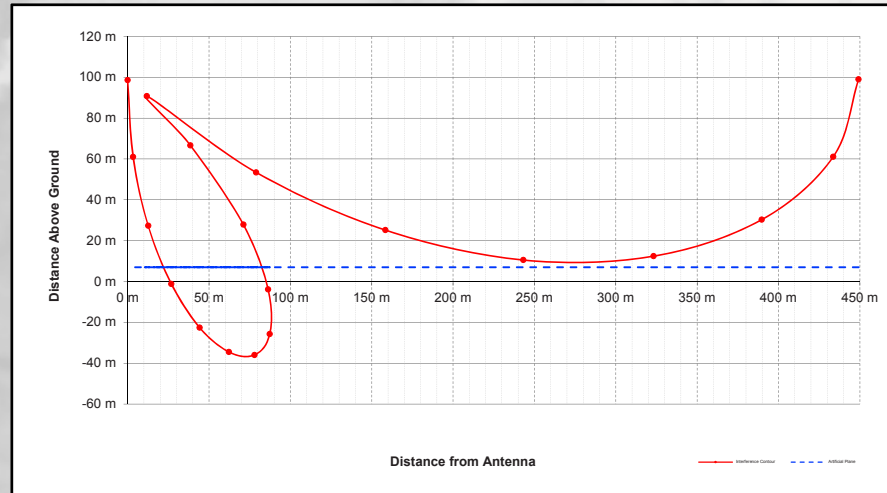
106

277 m

NED 03 SEC Terrain Database
US Census 2010 PL Database

Exhibit 13.8a §74.1204(d) Second Adjacent Channel Given Interference Waiver Request with WHOP-FM - Hopkinsville, KY

WHOP-FM
Hopkinsville, KY
BLH20041018ACH
Facility ID: 27633
Latitude: 36-55-41 N
Longitude: 087-32-50 W
ERP: 100.00 kW
Channel: 254C1
Frequency: 98.7 MHz
AMSL Height: 366.1 m
Horiz. Pattern: Omni



CH256D.P
Clarksville, TN
Proposed Operation
Facility ID: 154860
Latitude: 36-32-31 N
Longitude: 087-19-32 W
ERP: 0.25 kW
Channel: 256D
Frequency: 99.1 MHz
AMSL Height: 247.0 m
Horiz. Pattern: Directional

| Proposed Antenna: 2-Bay Shively 6812B-2 Two Bay 1.0λ (wavelength) spaced | | | | | | | | |
|---|------------------|-----------|------------|----------------------------------|--|--|------------------------------------|--------------------------------------|
| Proposed Power: 0.25 kW | | | | | | | | |
| Antenna Height AGL: 99 meters | | | | | | | | |
| Interference Contour: 107.85 dBu f(50:10) | | | | | | | | |
| Artificial Ground Plane Height: 7 meters | | | | | | | | |
| Distance (Free Space) Equation: $\approx (10^{((106.92 - [\text{desired dBu}] + [\text{ERP in dBk}]) / 20)) * 1000}$ | | | | | | | | |
| Field Strength (dBu) Equation: $\approx 106.92 - (20 * (\text{LOG10}[\text{DistMeters} / 1000])) + [\text{ERP in dBk}]$ | | | | | | | | |
| Depression Angle | Antenna Relative | ERP in kW | ERP in dBk | Distance to Interference Contour | Distance from Ant. to Artificial Plane | Field Strength in dBu @ Artificial Plane | Distance from Ant. to Ground Level | Field Strength in dBu @ Ground Level |
| 0° | 1.000 | 0.250 | -6.02 | 449.23 m | infinite | --- | --- | --- |
| -5° | 0.969 | 0.235 | -6.29 | 435.31 m | 1055.58 m | 100.16 dBu | 1135.90 m | 99.52 dBu |
| -10° | 0.881 | 0.194 | -7.12 | 395.77 m | 529.81 m | 105.32 dBu | 570.12 m | 104.68 dBu |
| -15° | 0.745 | 0.139 | -8.58 | 334.68 m | 355.46 m | 107.33 dBu | 382.51 m | 106.69 dBu |
| -20° | 0.576 | 0.083 | -10.81 | 258.76 m | 268.99 m | 107.51 dBu | 289.46 m | 106.88 dBu |
| -25° | 0.389 | 0.038 | -14.22 | 174.75 m | 217.69 m | 105.94 dBu | 234.25 m | 105.30 dBu |
| -30° | 0.203 | 0.010 | -19.87 | 91.19 m | 184.00 m | 101.75 dBu | 198.00 m | 101.12 dBu |
| -35° | 0.032 | 0.000 | -35.92 | 14.38 m | 160.40 m | 86.90 dBu | 172.60 m | 86.26 dBu |
| -40° | 0.112 | 0.003 | -25.04 | 50.31 m | 143.13 m | 98.77 dBu | 154.02 m | 98.13 dBu |
| -45° | 0.224 | 0.013 | -19.02 | 100.63 m | 130.11 m | 105.62 dBu | 140.01 m | 104.98 dBu |
| -50° | 0.299 | 0.022 | -16.51 | 134.32 m | 120.10 m | 108.82 dBu | 129.24 m | 108.19 dBu |
| -55° | 0.339 | 0.029 | -15.42 | 152.29 m | 112.31 m | 110.49 dBu | 120.86 m | 109.86 dBu |
| -60° | 0.347 | 0.030 | -15.21 | 155.88 m | 106.23 m | 111.18 dBu | 114.32 m | 110.54 dBu |
| -65° | 0.328 | 0.027 | -15.70 | 147.35 m | 101.51 m | 111.09 dBu | 109.23 m | 110.45 dBu |
| -70° | 0.288 | 0.021 | -16.83 | 129.38 m | 97.90 m | 110.27 dBu | 105.35 m | 109.63 dBu |
| -75° | 0.231 | 0.013 | -18.75 | 103.77 m | 95.25 m | 108.59 dBu | 102.49 m | 107.96 dBu |
| -80° | 0.162 | 0.007 | -21.83 | 72.78 m | 93.42 m | 105.68 dBu | 100.53 m | 105.04 dBu |
| -85° | 0.085 | 0.002 | -27.43 | 38.18 m | 92.35 m | 100.18 dBu | 99.38 m | 99.54 dBu |
| -90° | 0.001 | 0.000 | -66.02 | 0.45 m | 92.00 m | 61.62 dBu | 99.00 m | 60.99 dBu |

Scale 1:200,000



The portion of the §74.1204(d) WHOP-FM - Hopkinsville, KY (CH254C1) protection from 100 meters to the extent of the calculated 107.85 dBu F(50:10) interference contour has been demonstrated through a downward radiation study as included in **Exhibit 13.8a**. Full protection will be afforded WHOP-FM from 100 meters to the extent of the calculated 107.85 dBu F(50:10) interference contour as this area will not reach the ground nor a 7 meter artificial plane representing a standard two story house when taking into account the downward radiation characteristics of the antenna as supplied by the antenna manufacturer. A copy of the antenna manufacturer specifications has been included in **Exhibit 13.8c**.

The portion of the §74.1204(d) WHOP-FM protection within 100 meters of the site is currently void of population, buildings (with the exception of the dedicated transmitter building) or major roads as noted in **Exhibit 13.8b**.

CH256D.P

WHOP-FM - 67.85 dBu
F(50:50) Contour



**Exhibit 13.8b - Copy of USGS Aerial
Photograph of Existing Site &
§74.1204(d) Second Adjacent Channel
Given Interference Waiver Request with
WHOP-FM - Hopkinsville, KY (CH254C1)**

Proposed Site

36° 32' 31" NL

87° 19' 32" WL

NAD 1927

(36-32-31.0 NL; 87-19-31.9 WL NAD83)

100 meter Radius



The portion of the §74.1204(d) WHOP-FM - Hopkinsville, KY (CH254C1) protection from 100 meters to the extent of the calculated 107.85 dBμ F(50:10) interference contour has been demonstrated through a downward radiation study as included in **Exhibit 13.8a**. Full protection will be afforded WHOP-FM from 100 meters to the extent of the calculated 107.85 dBμ F(50:10) interference contour as this area will not reach the ground nor a 7 meter artificial plane representing a standard two story house when taking into account the downward radiation characteristics of the antenna as supplied by the antenna manufacturer. A copy of the antenna manufacturer specifications has been included in **Exhibit 13.8c**.

The portion of the §74.1204(d) WHOP-FM protection within 100 meters of the site is currently void of population, buildings (with the exception of the dedicated transmitter building) or major roads as noted in **Exhibit 13.8b**.



0 200 400ft



Exhibit 13.8c - Copy of Manufacturer's Vertical Radiation Data



Shively Labs

Antenna Mfr.: Shively Labs

Date: 12/29/2004

Antenna Type: 6812B or 6602B 2-Bay, full-wave-spaced

Frequency: 98.1

6812B Gain (Max)

1.00

-0.02 dB

6602B Gain (Max)

2.00

2.98 dB

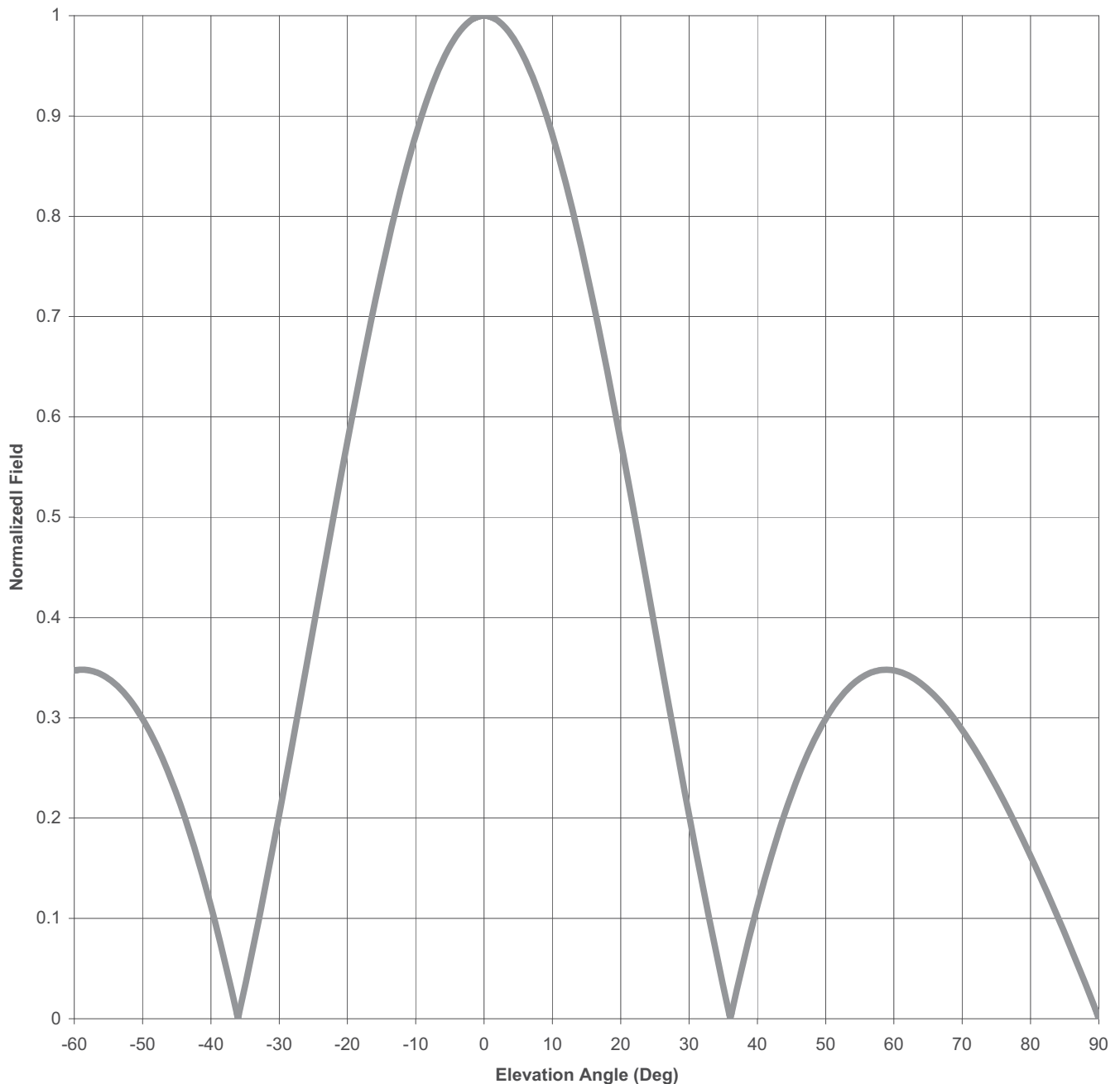


Exhibit 13.8c - Copy of Manufacturer's Vertical Radiation Data



Elevation Pattern Tabulation, 6602B and 6812B 2-Bay Full-Wave-Spaced

Relative Field at 0° Depression = 1.000

| Degrees | Rel. Field |
|---------|------------|
| 1 | 0.999 |
| 2 | 0.995 |
| 3 | 0.989 |
| 4 | 0.980 |
| 5 | 0.969 |
| 6 | 0.956 |
| 7 | 0.941 |
| 8 | 0.923 |
| 9 | 0.903 |
| 10 | 0.881 |
| 11 | 0.858 |
| 12 | 0.832 |
| 13 | 0.805 |
| 14 | 0.776 |
| 15 | 0.745 |
| 16 | 0.714 |
| 17 | 0.681 |
| 18 | 0.647 |

| Degrees | Rel. Field |
|---------|------------|
| 19 | 0.612 |
| 20 | 0.576 |
| 21 | 0.539 |
| 22 | 0.502 |
| 23 | 0.465 |
| 24 | 0.427 |
| 25 | 0.389 |
| 26 | 0.352 |
| 27 | 0.314 |
| 28 | 0.277 |
| 29 | 0.240 |
| 30 | 0.203 |
| 31 | 0.168 |
| 32 | 0.132 |
| 33 | 0.098 |
| 34 | 0.065 |
| 35 | 0.032 |
| 36 | 0.001 |

| Degrees | Rel. Field |
|---------|------------|
| 37 | 0.029 |
| 38 | 0.058 |
| 39 | 0.086 |
| 40 | 0.112 |
| 41 | 0.137 |
| 42 | 0.161 |
| 43 | 0.183 |
| 44 | 0.204 |
| 45 | 0.224 |
| 46 | 0.242 |
| 47 | 0.258 |
| 48 | 0.273 |
| 49 | 0.287 |
| 50 | 0.299 |
| 51 | 0.310 |
| 52 | 0.319 |
| 53 | 0.327 |
| 54 | 0.334 |

| Degrees | Rel. Field |
|---------|------------|
| 55 | 0.339 |
| 56 | 0.343 |
| 57 | 0.346 |
| 58 | 0.348 |
| 59 | 0.348 |
| 60 | 0.347 |
| 61 | 0.345 |
| 62 | 0.343 |
| 63 | 0.339 |
| 64 | 0.334 |
| 65 | 0.328 |
| 66 | 0.322 |
| 67 | 0.315 |
| 68 | 0.306 |
| 69 | 0.298 |
| 70 | 0.288 |
| 71 | 0.278 |
| 72 | 0.267 |

| Degrees | Rel. Field |
|---------|------------|
| 73 | 0.256 |
| 74 | 0.244 |
| 75 | 0.231 |
| 76 | 0.218 |
| 77 | 0.205 |
| 78 | 0.191 |
| 79 | 0.177 |
| 80 | 0.162 |
| 81 | 0.148 |
| 82 | 0.132 |
| 83 | 0.117 |
| 84 | 0.101 |
| 85 | 0.085 |
| 86 | 0.069 |
| 87 | 0.052 |
| 88 | 0.036 |
| 89 | 0.018 |
| 90 | 0.000 |

Exhibit 13.9

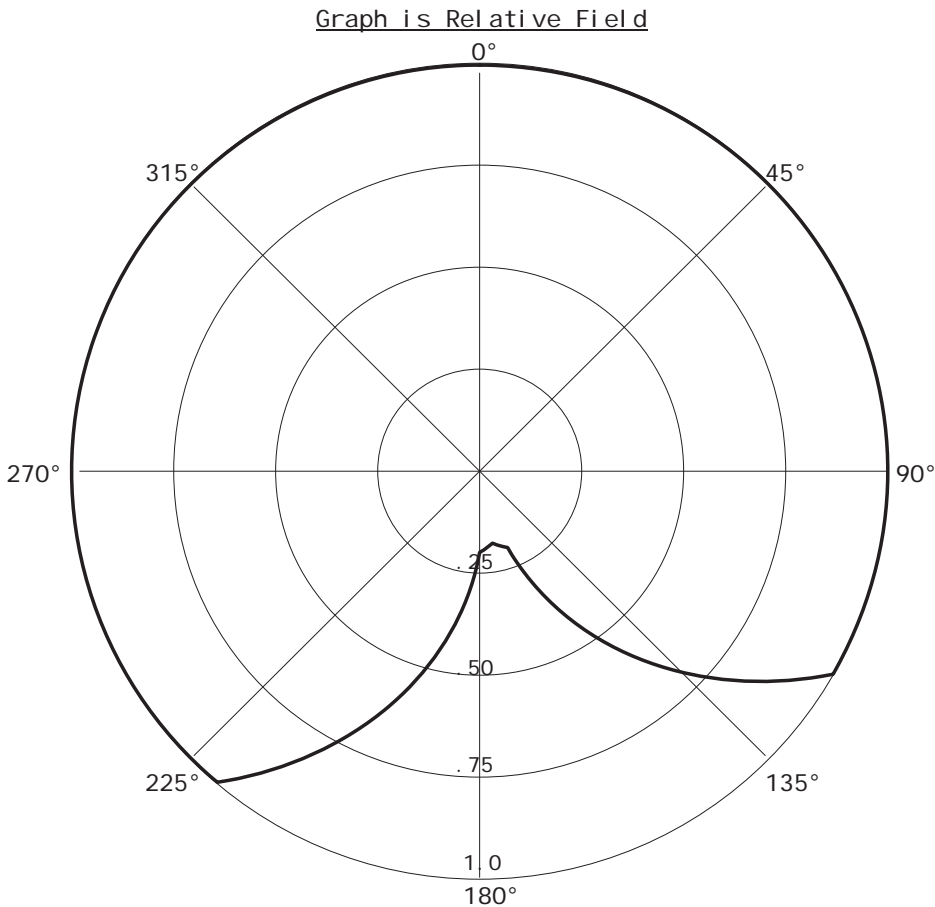
Proposed Directional Antenna Information

CH256D. P

11-25-2013

RMS(V)= .903

| Azi | Field | dBk | kW |
|-----|-------|---------|-------|
| 000 | 1.000 | -06.021 | 0.250 |
| 010 | 1.000 | -06.021 | 0.250 |
| 020 | 1.000 | -06.021 | 0.250 |
| 030 | 1.000 | -06.021 | 0.250 |
| 040 | 1.000 | -06.021 | 0.250 |
| 050 | 1.000 | -06.021 | 0.250 |
| 060 | 1.000 | -06.021 | 0.250 |
| 070 | 1.000 | -06.021 | 0.250 |
| 080 | 1.000 | -06.021 | 0.250 |
| 090 | 1.000 | -06.021 | 0.250 |
| 100 | 1.000 | -06.021 | 0.250 |
| 110 | 1.000 | -06.021 | 0.250 |
| 120 | 1.000 | -06.021 | 0.250 |
| 130 | 0.800 | -07.959 | 0.160 |
| 140 | 0.600 | -10.458 | 0.090 |
| 150 | 0.400 | -13.979 | 0.040 |
| 160 | 0.200 | -20.000 | 0.010 |
| 170 | 0.180 | -20.915 | 0.008 |
| 180 | 0.200 | -20.000 | 0.010 |
| 190 | 0.400 | -13.979 | 0.040 |
| 200 | 0.600 | -10.458 | 0.090 |
| 210 | 0.800 | -07.959 | 0.160 |
| 220 | 1.000 | -06.021 | 0.250 |
| 230 | 1.000 | -06.021 | 0.250 |
| 240 | 1.000 | -06.021 | 0.250 |
| 250 | 1.000 | -06.021 | 0.250 |
| 260 | 1.000 | -06.021 | 0.250 |
| 270 | 1.000 | -06.021 | 0.250 |
| 280 | 1.000 | -06.021 | 0.250 |
| 290 | 1.000 | -06.021 | 0.250 |
| 300 | 1.000 | -06.021 | 0.250 |
| 310 | 1.000 | -06.021 | 0.250 |
| 320 | 1.000 | -06.021 | 0.250 |
| 330 | 1.000 | -06.021 | 0.250 |
| 340 | 1.000 | -06.021 | 0.250 |
| 350 | 1.000 | -06.021 | 0.250 |



The antenna proposed in this application will be mounted in accordance with specific instructions provided by the antenna manufacturer. The antenna will be tested by the manufacturer using the type of mounting which will be employed in the field.

No other antennas of any type are or will be mounted on the same tower level as the directional antenna.

No antenna is or will be mounted within any vertical or horizontal distance specified by the antenna manufacturer as being necessary for proper operation of the directional antenna. In addition, the antenna will be assembled under the supervision of a qualified engineer and installed pursuant to the manufacturer's instructions and manufacturer specified antenna orientation.

The directional antenna pattern will be produced by means of parasitic elements and/or reflective panels adjusted to produce the required pattern.

The antenna pattern will be measured by the manufacturer on the test range, and the measurement results will be supplied to the Commission at the time Form 350-FM is filed covering the construction.