

Charlotte, North Carolina
Application for Minor Modification of FM Translator W262BN
On Channel 262
by
Isothermal Community College

Exhibit 12
Interference Analysis

October 2008

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Declaration

I declare, under penalty of perjury, that I am a technical consultant to broadcasting and other communications systems, that I have over twenty-five years of experience in the engineering of broadcast and other communications systems, that I am familiar with the Federal Communications Commission's Rules found in the Code of Federal Regulations Title 47, that I am a Professional Engineer registered in North Carolina, that I have prepared or supervised the preparation of the attached Exhibit 12, Interference Analysis, for Isothermal Community College, and that all of the facts therein, except for facts of which the Federal Communications Commission may take official notice, are true to the best of my knowledge and belief.



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Narrative

This Exhibit provides details of the allocations for the proposed modified facilities for FM translator W262BN to serve Charlotte, North Carolina. This proposal complies fully with the requirements of 74 C.F.R. §74.1204(a), with the exception of facilities protected under 74 C.F.R. §74.1204(d) by the Undesired to Desired (U/D) method described below.

This application is for the modification of a translator first licensed in 1994. Therefore, the requirements of Public Notice DA-03-2095, FM Translator Auction No. 83 Non-Mutually Exclusive Applications dated June 30, 2003, Footnote 8, are not applicable. The proposed modified facilities create no mutual exclusivities as shown in the allocation table in this exhibit.

Figure 1 shows the licensed 60 dBu F(50,50) coverage area and the proposed 60 dBu F(50,50) coverage area. As shown in Figure 1, this application proposes a minor modification.

Allocations

This application proposes service to Charlotte, North Carolina, on channel 262. An updated Allocations Table is included in this exhibit with a list of the stations, construction permits, allocations, and applications studied. All are protected by this application. Facilities protected by the U/D method are listed in Table 1. The allocations table was prepared using the NED 3 arcsecond terrain database which is described below.

Figure 2 shows the relationship between the proposed translator and other facilities where the lack of outgoing overlap is no more than 16 kilometers (10 miles). Figure 2a is an expanded scale map (1:10,000 scale) showing the proposed 100 dBu F(50,10) and 107.8 dBu F(50,10) contours.

Undesired to Desired Method

Protection to some facilities is provided through the use of Undesired to Desired Signal Strength Ratio (U/D) calculations. Table 2 lists the parameters studied. Figure 2 shows the relevant contours. Note that the distance to the predicted 143.7 and 107.8 dBu F(50,10) contours are too small to be visible on the Figure 2. Figure 2a shows the 107.8 dBu F(50,10) contour, but the 143.7 dBu F(50,10) contour is still too small to be visible. For the translator interference contour, free space calculations are used. Because the translator antenna is 137 meters above ground, the interference contours (91 meters to the 107.8 dBu and 1 meter to the 143.7 dBu) do not reach the ground, even assuming an omnidirectional spherical pattern. There is no land area, and therefore no population within the predicted interference area and therefore this facility is permitted under §74.1204(d). There is also no population within the 100 dBu F(50,10) interference contour (222 meters maximum distance), where population is calculated by the centroid method.

The proposed site is a communications tower. The undesired signal will not reach the ground. The land area in the guy field for the communications tower is used for automobile storage, resulting in a much lower translator signal at any occupied area than that studied for the U/D calculations.

The applicant recognizes that the U/D method is only a tool for predicting likely interference. Should any actual interference be experienced, the applicant will cooperate fully in correcting the interference. Corrective steps may require changes in the transmitting antenna or other steps which would require Commission authorization, may require that the translator cease operation except for brief equipment tests, or may require filtering at the receivers which report interference.

Directional Antenna

This application proposes the use of a directional antenna. A Scala CA-2FM-CP circularly polarized yagi antenna is proposed, oriented at 220° True. The horizontal plane and vertical plane patterns are tabulated and plotted in this exhibit.

Source of Data

Transmitter location, effective radiated power, directional antenna pattern, and elevation data are extracted from the Commission's CDBS. All contours for existing and proposed facilities are calculated using height above average terrain calculated at one degree horizontal increments.

The contours were also evaluated using terrain extracted from the V-Soft Communications NED 03 terrain database. The NED 03 database is derived from the USGS National Elevation Data 30 meter terrain database. The USGS National Elevation Dataset has been developed by merging the highest-resolution, best-quality elevation data available across the United States into a seamless raster format. NED is the result of the maturation of the USGS effort to provide 1:24,000-scale Digital Elevation Model (DEM) data for the conterminous US and 1:63,360-scale DEM data for Alaska.

All population data is from 2000 U.S. Census SF1 data files. Population is counted by considering the location of the centroid of each census bloc. The data for each block is counted if it falls within the area being counted.

Television Channel 6 Protection

There are no television channel 6 stations requiring protection. This application proposes a channel which is not subject to television channel 6 separation requirements.

Table 1: Allocations

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Asheville, North Carolina

Isothermal Community College
Allocation Study

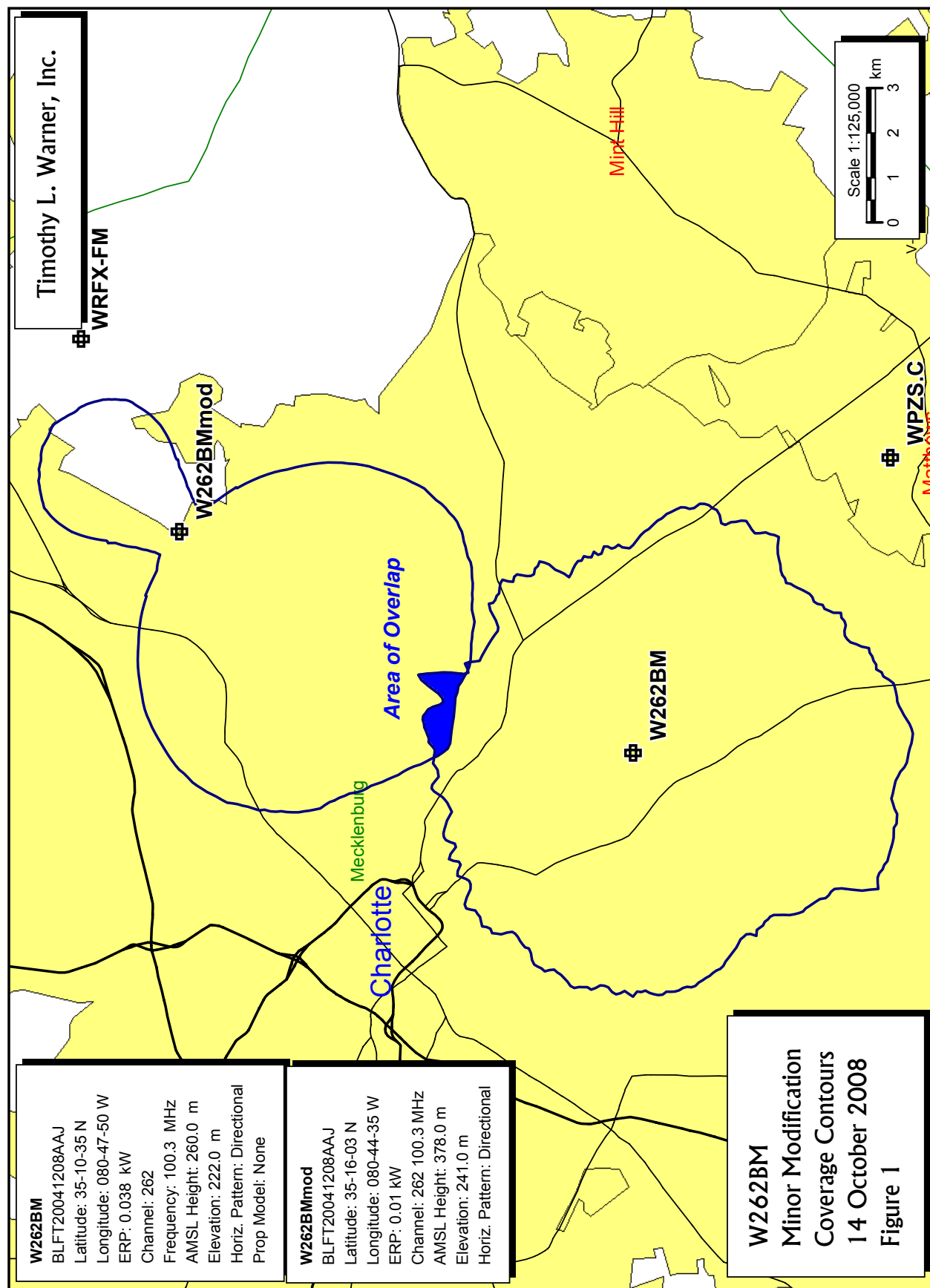
REFERENCE CH# 262D - 100.3 MHz, Pwr= 0.01 kw, HAAT= 308.5 M, COR= 525.4 M DISPLAY DATES
35 16 03.0 N. Average Protected F(50-50)= 10.3 km DATA 10-11-08
80 44 35.0 W. Standard Directional SEARCH 10-13-08

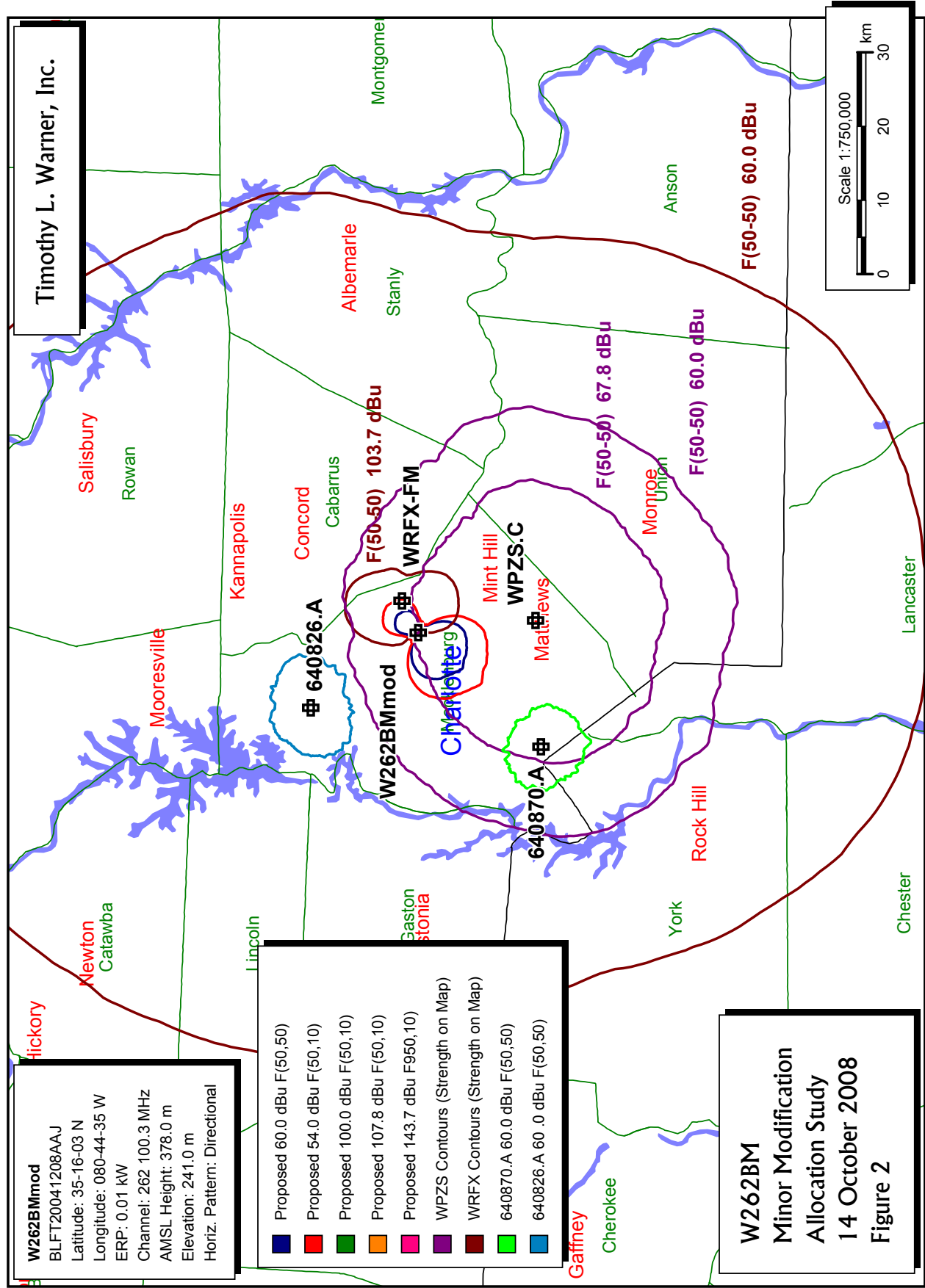
| CH CITY | CALL | TYPE STATE | ANT STATE | AZI. <-- | DIST FILE # | LAT. LNG. | Pwr(kW) HAAT(M) | INT(km) COR(M) | PRO(km) LICENSEE | *OUT* (Overlap in km) |
|---|---------|---------------|--------------|----------------|---|--------------------------|--------------------|-------------------|-------------------------------------|--------------------------|
| 262D Charlotte | W262BM | LIC | DC NC | 205.9 25.9 | 11.25 BLFT20041208AAJ | 35 10 35.0 80 47 50.0 | 0.038 | 13.0 260 | 4.1 Isothermal Community College | -26.07 |
| 262C High Point | WVBZ | LIC | CN NC | 46.5 227.0 | 113.94 BLH19880805LB | 35 58 09.0 79 49 29.0 | 100.000 316 | 173.7 554 | 73.6 Capstar Tx Limited Partner | 23.17 |
| 259C1 Kannapolis | WRFX-FM | LIC | DCN NC | 62.9 242.9 | 4.82 BLH19940128KC | 35 17 14.0 80 41 45.0 | 84.000 322 | 6.5 522 | 56.9 Capstar Tx Limited Partner | -52.16*< |
| 265A Indian Trail License application filed | WPZS | CP | CX NC | 174.1 354.1 | 15.93 BPH20080226ABM BLH20080611ABB | 35 07 29.0 80 43 30.0 | 5.200 107 | 2.4 305 | 25.0 Radio One Of North Carolina | -9.21*< |
| 261D Pineville | 640870 | APP | C NC | 222.8 42.7 | 22.63 BNPFT20030317BIK | 35 07 05.0 80 54 44.0 | 0.038 | 6.6 241 | 4.7 Radio Training Network, In | 3.45 |
| 261D Huntersville | 640826 | APP | C NC | 325.2 145.1 | 17.71 BNPFT20030317BID | 35 23 54.0 80 51 17.0 | 0.055 | 7.8 275 | 5.5 Radio Training Network, In | 10.69 |
| 263C0 Gray Court | WSSL-FM | LIC | NCX SC | 238.6 57.8 | 147.01 BLH20050923AFT | 34 34 18.0 82 06 44.0 | 100.000 381 | 117.6 587 | 79.3 Capstar Tx Limited Partner | 53.99 |
| 263L1 Stanley | WVEM-LP | LIC | NC | 292.5 112.3 | 31.70 BLL20050408ACC | 35 22 34.0 81 03 56.0 | 0.030 44 | 8.2 270 | 5.8 Voice Of Evangelism Cathed | 21.22 |
| 261D Kings Mountain | W261AP | LIC | C NC | 265.6 85.3 | 48.72 BLFT20070419AAL | 35 13 57.0 81 16 36.0 | 0.007 | 12.0 482 | 8.5 Positive Alternative Radio | 28.85 |
| 265A Albemarle Horizontally Polarized only | WPZS | LIC | HN NC | 76.0 256.3 | 51.41 BLH3002 | 35 22 40.0 80 11 38.0 | 3.000 61 | 1.7 230 | 16.1 Radio One Of North Carolina | 35.26 |
| 261D Hickory | 651420 | APP | C NC | 320.3 140.0 | 72.66 BNPFT20030317LWZ | 35 46 11.0 81 15 26.0 | 0.019 | 9.6 394 | 6.8 Conner Media Corporation | 64.42 |
| 265D Hickory | 651518 | APP | C NC | 320.3 140.0 | 72.66 BNPFT20030317MAH | 35 46 11.0 81 15 26.0 | 0.019 | 0.3 394 | 6.8 Conner Media Corporation | 65.83 |
| 265D Hickory | 640588 | APP | C NC | 313.5 133.1 | 76.99 BNPFT20030317BGV | 35 44 32.0 81 21 43.0 | 0.055 | 0.5 352 | 6.9 Radio Training Network, In | 70.12 |

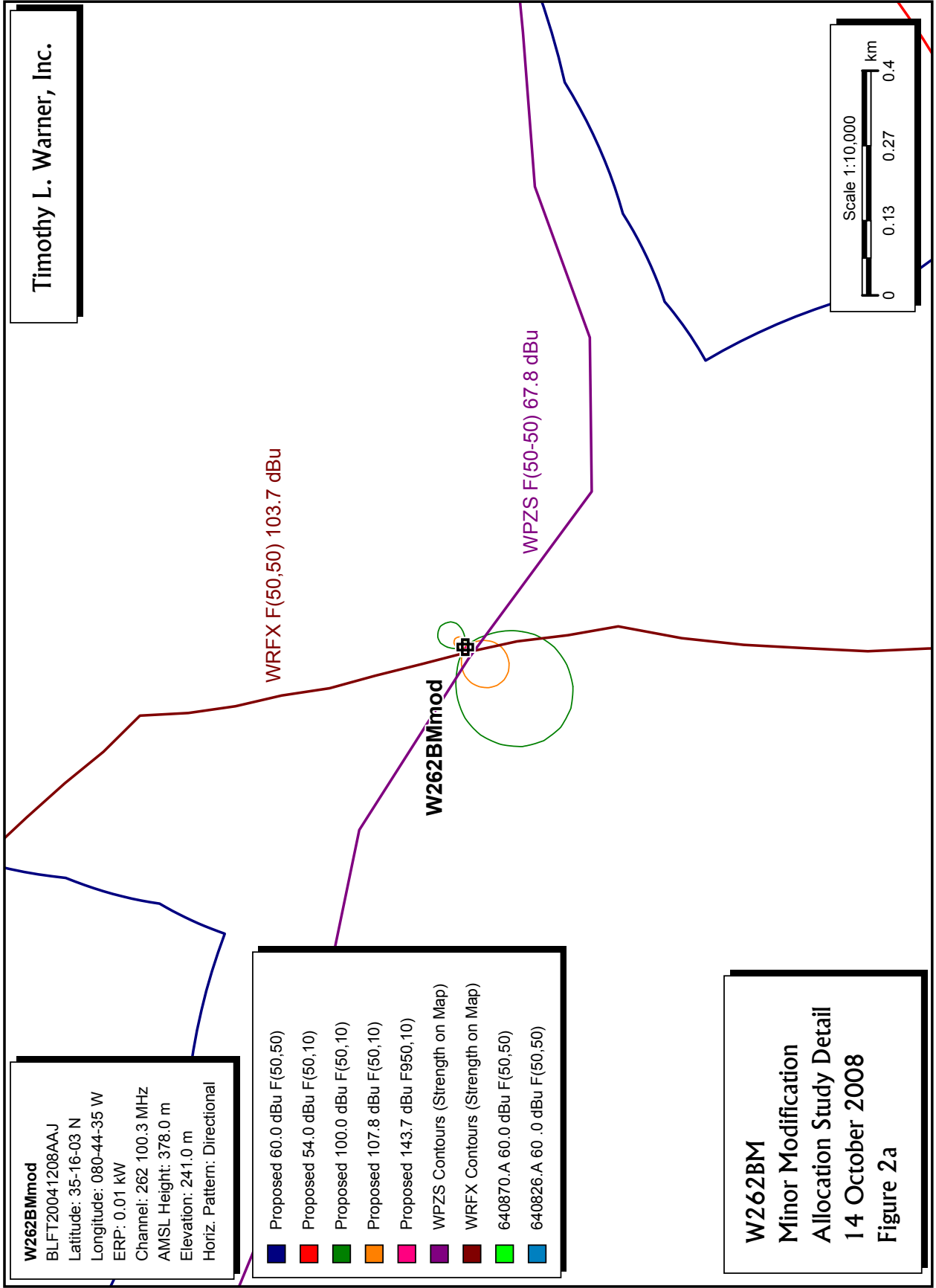
Terrain database is NED 03 SEC, R= 73.215 qualifying spacings or FCC minimum spacings in KM, M= Margin in KM
Contour distances are on direct line to and from reference station. Reference Zone = 2, Co to 3rd adjacent.
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)
Incoming contour overlap is ignored.
"*"affixed to 'IN' or 'OUT' values = site inside protected contour.
"<" = Contour overlap

Table 2: Facilities Protected by U/D Method

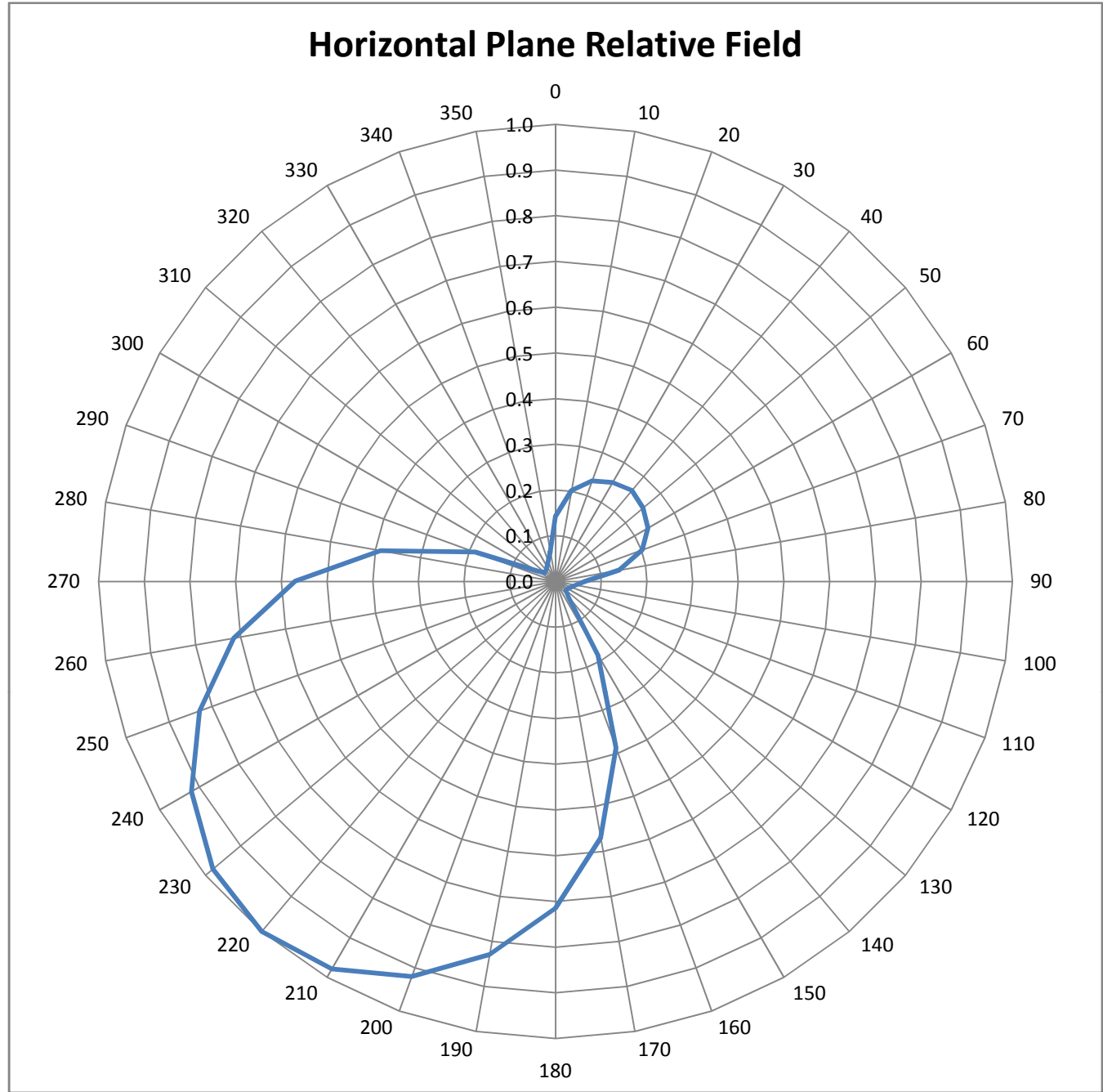
| Facility | WRFX-FM Kannapolis, North Carolina | WPZS (CP) Indian Trail, North Carolina |
|-------------------------------|--|--|
| Relationship | 259C1 third adjacent | 265A, Third Adjacent |
| Distance (km) | 4.82 | 15.93 |
| Bearing (degrees) | 62.9 | 174.1 |
| ERP (kW, on azimuth) | 22.3 | 5.2 |
| HAAT (m, on azimuth) | 291.4 | 81.9 |
| Ratio | 40 | 40 |
| Signal Strength (dBu) | 103.725 | 67.784 |
| Translator Signal Strength | 143.725 | 107.784 |
| Translator distance (km) | .001 | .091 |







| Horizontal Plane Relative Field Tabulation | | | | |
|--|----------------|--|----------------------|----------------|
| Bearing (degrees) | Relative Field | | Bearing (degrees) | Relative Field |
| 220 | 1.000 | | 40 | 0.260 |
| 230 | 0.979 | | 50 | 0.250 |
| 240 | 0.920 | | 60 | 0.234 |
| 250 | 0.829 | | 70 | 0.202 |
| 260 | 0.715 | | 80 | 0.142 |
| 270 | 0.570 | | 90 | 0.065 |
| 280 | 0.388 | | 100 | 0.046 |
| 290 | 0.187 | | 110 | 0.037 |
| 300 | 0.045 | | 120 | 0.032 |
| 310 | 0.030 | | 130 | 0.030 |
| 320 | 0.032 | | 140 | 0.045 |
| 330 | 0.037 | | 150 | 0.187 |
| 340 | 0.046 | | 160 | 0.388 |
| 350 | 0.065 | | 170 | 0.570 |
| 0 | 0.142 | | 180 | 0.715 |
| 10 | 0.202 | | 190 | 0.829 |
| 20 | 0.234 | | 200 | 0.920 |
| 30 | 0.250 | | 210 | 0.979 |



| Vertical Plane Relative Field Tabulation | | | | | | | |
|--|----------------|--|----------------------------|----------------|--|----------------------------|----------------|
| Depression Angle (degrees) | Relative Field | | Depression Angle (degrees) | Relative Field | | Depression Angle (degrees) | Relative Field |
| -15 | 0.952 | | 20 | 0.92 | | 55 | 0.487 |
| -14 | 0.958 | | 21 | 0.911 | | 56 | 0.467 |
| -13 | 0.963 | | 22 | 0.903 | | 57 | 0.447 |
| -12 | 0.969 | | 23 | 0.894 | | 58 | 0.428 |
| -11 | 0.974 | | 24 | 0.885 | | 59 | 0.408 |
| -10 | 0.979 | | 25 | 0.877 | | 60 | 0.388 |
| -9 | 0.981 | | 26 | 0.867 | | 61 | 0.369 |
| -8 | 0.984 | | 27 | 0.858 | | 62 | 0.35 |
| -7 | 0.986 | | 28 | 0.848 | | 63 | 0.33 |
| -6 | 0.988 | | 29 | 0.839 | | 64 | 0.311 |
| -5 | 0.99 | | 30 | 0.829 | | 65 | 0.292 |
| -4 | 0.992 | | 31 | 0.818 | | 66 | 0.271 |
| -3 | 0.994 | | 32 | 0.806 | | 67 | 0.25 |
| -2 | 0.996 | | 33 | 0.795 | | 68 | 0.229 |
| -1 | 0.998 | | 34 | 0.783 | | 69 | 0.208 |
| 0 | 1 | | 35 | 0.772 | | 70 | 0.187 |
| 1 | 0.998 | | 36 | 0.76 | | 71 | 0.168 |
| 2 | 0.996 | | 37 | 0.749 | | 72 | 0.15 |
| 3 | 0.994 | | 38 | 0.738 | | 73 | 0.132 |
| 4 | 0.992 | | 39 | 0.726 | | 74 | 0.113 |
| 5 | 0.99 | | 40 | 0.715 | | 75 | 0.095 |
| 6 | 0.988 | | 41 | 0.701 | | 76 | 0.085 |
| 7 | 0.986 | | 42 | 0.688 | | 77 | 0.075 |
| 8 | 0.984 | | 43 | 0.674 | | 78 | 0.065 |
| 9 | 0.981 | | 44 | 0.66 | | 79 | 0.055 |
| 10 | 0.979 | | 45 | 0.647 | | 80 | 0.045 |
| 11 | 0.974 | | 46 | 0.631 | | 81 | 0.042 |
| 12 | 0.969 | | 47 | 0.616 | | 82 | 0.04 |
| 13 | 0.963 | | 48 | 0.601 | | 83 | 0.037 |
| 14 | 0.958 | | 49 | 0.585 | | 84 | 0.034 |
| 15 | 0.952 | | 50 | 0.57 | | 85 | 0.032 |
| 16 | 0.946 | | 51 | 0.553 | | 86 | 0.031 |
| 17 | 0.939 | | 52 | 0.537 | | 87 | 0.031 |
| 18 | 0.933 | | 53 | 0.52 | | 88 | 0.031 |
| 19 | 0.927 | | 54 | 0.503 | | 89 | 0.03 |
| | | | | | | 90 | 0.03 |

