WCQS

Mars Hill, North Carolina

Application for Noncommercial FM Station

Change of Community

On Channel 201 Class C3

by

Western North Carolina Public Radio, Inc.

Exhibit: Technical Compliance

October 2023

Timothy L. Warner, P.E.
Post Office Box 8045
Asheville, North Carolina 28814-8045
(828) 258-1238
twarner@tlwinc.net

Table of Contents

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: Technical Compliance, for Western North Carolina Public Radio, Inc., 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.

Timothy L. Warner, P.E.
Post Office Box 8045
Asheville, North Carolina 28801
(828) 258-1238
twarner@tlwinc.net
18 October 2023

Narrative

This Exhibit provides details of the allocations for the noncommercial FM facilities for WCQS at Mars Hill, North Carolina. This proposal complies fully with the requirements of 47 C.F.R. §73.509, with the exception of a waiver request to continue contour overlap with WNCW, Spindale, North Carolina. A separate Exhibit addresses the waiver. A separate Exhibit provides Section 307(b) analysis of the proposed change of community.

No Change in Technical Facilities

This application represents no change in technical facilities compared to the licensed facilities for WCQS. This application is filed to provide local service to Mars Hill, North Carolina, to replace local service provided by co-owned WYQS. A separate application is being filed to modify WYQS to specify Asheville, North Carolina, as its community of license.

Allocations

This application proposes service to Mars Hill, North Carolina, on channel 201 as a Class C3 facility. The Allocations Table in this exhibit provides a list of the stations, construction permits, allocations, and applications studied. All currently licensed facilities are protected from interference from the proposed facilities under 47 C.F.R. §73.509 by this application, with the exception of WNCW, Spindale, North Carolina, authorized under a waiver.

No change to the technical parameters of the licensed facilities is proposed.

Where there are facilities whose overlap is less than 3.2 kilometers (2 miles) allocation study figures are provided, along with the output tables from the computer program FMOVER. Four (4) facilities are identified below.

Figure/Table	Facility ID	Community	Channel and Relationship
2	WCQR-FM	Kingsport, Tennessee	202C2, first adjacent
3	WLXK	Boiling Springs, North Carolina	202C2, first adjacent
4	WSBF-FM	Clemson, South Carolina	201A, co-channel
5	WJYJ	Hickory, North Carolina	201C2, co-channel

To provide clarity, an additional detail maps are included as Figures 2A through 4A. The distances to the relevant contours are included in Tables 2 through 5, the FMOVER output.

Table 1: Allocations

```
                              Allocation Study
                        Western North Carolina Public
REFERENCE         CH# 201C3- 88.1 MHz, Pwr= 1.9 kW DA,  HAAT= 359.5 M,  COR= 1100 M   DISPLAY DATES
35 35 23.3 N.               Average Protected F(50-50)= 39.3 km                        DATA   10-18-23
82 40 25.4 W.                     Standard Directional                                SEARCH 10-18-23
-----------------------------------------------------------------------------------------------------
CH    CALL      TYPE  ANT    AZI.   DIST        LAT.       Pwr(kW)  INT(km) PRO(km)   *IN*     *OUT*
CITY                STATE    <--    FILE #      LNG.       HAAT(M)  COR(M)  LICENSEE  (Overlap in km)
-----------------------------------------------------------------------------------------------------
201C2 WCQS!     CP  DCN    0.0    0.00       35 35 23.30  5.000                  ---Reference---
Asheville           NC     0.0 0000160521    82 40 25.40   356      1100 Western North Carolina Pub
         Unbuilt Construction Permit.

201C3 WCQS!     LIC DCN    0.0    0.00       35 35 23.30  1.900                  ---Reference---
Asheville           NC     0.0 0000158308    82 40 25.40   356      1100 Western North Carolina Pub
         Licensed facility.

6  -- WCES-TV-A CHA   Y   172.1  261.53      38 28 33.30  7.900    64.4    300.2    364.6R   -103.1M
Wrens               GA   352.3 DTVBL23937    82 14 59.50   429      544

06 2E WCES-TV   LI   HN   172.1  261.55      38 28 33.30  7.900    64.4    300.0    364.4R   -102.8M
Wrens               GA   352.3 0000016506    82 14 59.50   426      541

204C  WNCW      LIC DCN   65.1   38.55       35 44 06.40  17.000   7.4     73.7    -10.3*    -37.9*
Spindale            NC   245.3 0000143612    82 17 10.40   926      2022 Isothermal Community College
         Continuation of present waiver requested in separate exhibit.

202C2 WCQR-FM   LIC DCN   27.1   105.26      36 25 53.30  1.200    56.8    36.9      4.1       0.1
Kingsport           TN   207.4 BLED19961120KB 82 08 15.40  650      1276 Positive Alternative Radio

202C2 WLXK      LIC DCN  114.4   95.52       35 13 52.40  50.000   47.1    28.4      7.0       0.1
Boiling Springs     NC   294.9 BLED19950221KD 81 42 56.40   92      343 Educational Media Foundation

201A  WSBF-FM   LIC  CN  187.6  102.20       34 40 42.30  3.000    61.1    13.2     10.6       1.4
Clemson             SC     7.5 BLED19920327KB 82 49 14.50   61      307 Clemson University Board O

201C2 WJYJ      LIC DEN   83.3   138.69      35 43 34.50  26.500   96.8    27.2      2.3       3.5
Hickory             NC   264.2 BLED20011024AAG 81 08 51.30   77      372 Positive Alternative Radio

201A  WUBK      LIC  CN  151.1  121.59       34 37 50.40  0.097    25.6     7.0     54.9      10.0
Enoree              SC   331.5 0000123248    82 01 52.40   59      267 Richburg Educational Broad

202C2 WYLV      LIC  CN  292.3  123.34       36 00 13.10  2.850    73.3    48.4     12.5      21.3
Maynardville        TN   111.5 BLED20150515AAL 83 56 34.00  452      761 Educational Media Foundation

201C2 762690    CP  DCN  335.1  148.74       36 48 05.00  3.000    68.5    22.1     37.8      17.3
Harlan              KY   154.7 0000166440    83 22 37.00   407      960 Torstrick Ministries, Inc.

255C  WYRD-FM   LIC  CN  143.3   58.14       35 10 11.40 100.000   0.0      0.0     30.5R     27.6M
Spartanburg         SC   323.5 BLH20160511AAE 82 17 27.40  581      1016 Audacy License, LLC

201C1 WUTC      LIC  CN  260.6  240.08       35 12 26.20  30.000  157.8    67.5     50.0      87.2
Chattanooga         TN    79.0 BLED19931130KA 85 16 51.80  271      673 University Of Tennessee

-----------------------------------------------------------------------------------------------------
Terrain database is GLOBE 30 Sec,  R= 73.215 qualifying spacings or FCC minimum spacings in KM, M= Margin in KM
In & Out distances between contours are shown at closest points. Reference Zone= - ZN2, Co to 3rd adjacent.
All separation margins (if shown) include rounding. Call signs with exclamation marks need not be protected.
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 restricted contour.
  = Station meets FCC minimum distance spacing for its class.
```

Source of Data

Transmitter location, effective radiated power, directional antenna pattern, and elevation data are extracted from the Commission's LMS. All contours for existing and proposed facilities are calculated using height above average terrain calculated at one degree horizontal increments. All contours for existing and proposed facilities are calculated using height above average terrain calculated at one degree horizontal increments. The contours were evaluated using terrain extracted from the GLOBE 30 arcsecond terrain database, formatted by V-Soft Communications to work with its allocation and mapping programs.

Population data is from 2020 U.S. Census data files. Population is counted by considering the location of the centroid of each census block. The data for each block is counted if it falls within the area being counted.

Nonionizing Radiofrequency Radiation Evaluation

The potential for nonionizing radiofrequency radiation at the site was evaluated, summing the horizontal and vertical ERP for the licensed facility. Using the worst case procedures in OET-65, the power density at 2 meters above ground at the tower base would not exceed 0.22 milliwatts per square centimeter, which is 110% of the Uncontrolled/General Population limit. FMModel produces a peak value of 23.3 microwatts per square centimeter at 45 meters from the tower base, or less than 12% of the Uncontrolled/General Population limit, using the licensed ERP, and a two bay "rototiller" half wave spaced antenna.

No change is proposed in the technical parameters of the licensed facility.

Area and Population

The area within the proposed 60 dBu F(50,50) service contour is calculated by a computer program which sums the areas within the contours based on 360 radials. The area is shown on Figure 1 of this Exhibit, and presented below. The population is calculated by the centroid method and is also listed on the Figure and presented below. As required, the 2020 US Census data is used.

```
Population Database: 2020 US Census (PL)
Total Population: 433,280
Total Area: 4,592.8 sq. km
```

Table 2: FMOVER protection of WCQR-FM, Kingsport, Tennessee

```
       10-18-2023      Terrain Data: GLOBE 30 Sec    FMOver Analysis

       WCQS                                 WCQR-FM  BLED19961120KB

       Channel =  201C3                     Channel = 202C2
       Max ERP = 1.9 kW                     Max ERP = 1.2 kW
       RCAMSL =  1100 m                     RCAMSL =  1276 m
       N. Lat. 35 35 23.30                  N. Lat. 36 25 53.30
       W. Lng. 82 40 25.40                  W. Lng. 82 08 15.40
       Protected                            Interfering
         60  dBu                              54  dBu


   Azimuth     ERP    HAAT    Dist  | Azimuth     ERP    HAAT    Dist   Actual   IX
  (degrees)   (kW)    (m)     (km)  |(degrees)   (kW)    (m)     (km)   (dBu)   (km)
 ------------------------------------|-------------------------------------------------
   327.0  001.9000  0398.3  041.1 | 230.2  000.3775  0638.9  092.0   42.61
   328.0  001.9000  0397.4  041.1 | 230.1  000.3770  0638.8  091.3   42.82
   329.0  001.9000  0398.1  041.1 | 230.1  000.3767  0638.6  090.5   43.04
   330.0  001.9000  0402.4  041.3 | 230.1  000.3770  0638.7  089.8   43.27
   331.0  001.9000  0411.4  041.7 | 230.3  000.3779  0639.1  089.0   43.54
   332.0  001.9000  0419.9  042.1 | 230.4  000.3787  0639.5  088.2   43.80
   333.0  001.9000  0424.9  042.3 | 230.5  000.3790  0639.6  087.5   44.05
   334.0  001.9000  0426.0  042.4 | 230.4  000.3786  0639.4  086.7   44.28
   335.0  001.9000  0426.5  042.4 | 230.3  000.3780  0639.2  086.0   44.50
   336.0  001.9000  0427.3  042.4 | 230.2  000.3774  0638.9  085.3   44.72
   337.0  001.9000  0428.7  042.5 | 230.1  000.3768  0638.7  084.5   44.94
   338.0  001.9000  0430.5  042.6 | 230.0  000.3763  0638.5  083.8   45.16
   339.0  001.9000  0432.4  042.7 | 229.9  000.3760  0638.2  083.1   45.39
   340.0  001.9000  0433.9  042.7 | 229.8  000.3757  0637.9  082.4   45.61
   341.0  001.9000  0435.0  042.8 | 229.6  000.3753  0637.5  081.6   45.83
   342.0  001.9000  0435.8  042.8 | 229.4  000.3748  0637.0  080.9   46.04
   343.0  001.9000  0437.2  042.9 | 229.3  000.3743  0636.6  080.2   46.25
   344.0  001.9000  0439.8  043.0 | 229.1  000.3740  0636.4  079.5   46.47
   345.0  001.9000  0443.4  043.2 | 229.0  000.3736  0636.2  078.7   46.70
   346.0  001.9000  0445.9  043.3 | 228.8  000.3732  0635.9  078.0   46.92
   347.0  001.9000  0446.4  043.3 | 228.6  000.3725  0635.5  077.3   47.12
   348.0  001.9000  0448.1  043.4 | 228.4  000.3719  0635.0  076.6   47.33
   349.0  001.9000  0450.8  043.5 | 228.1  000.3714  0634.6  075.9   47.54
   350.0  001.9000  0453.6  043.7 | 227.9  000.3708  0634.3  075.2   47.76
   351.0  001.9000  0455.0  043.7 | 227.7  000.3700  0633.9  074.5   47.96
   352.0  001.9000  0455.8  043.8 | 227.3  000.3692  0633.7  073.9   48.15
   353.0  001.9000  0456.7  043.8 | 227.0  000.3684  0633.4  073.2   48.34
   354.0  001.9000  0456.3  043.8 | 226.7  000.3674  0633.5  072.6   48.52
   355.0  001.9000  0456.7  043.8 | 226.3  000.3664  0633.6  072.0   48.70
   356.0  001.9000  0457.6  043.9 | 225.9  000.3655  0633.8  071.4   48.89
   357.0  001.9000  0457.8  043.9 | 225.5  000.3644  0634.0  070.8   49.07
   358.0  001.9000  0458.8  043.9 | 225.1  000.3634  0634.3  070.2   49.25
   359.0  001.9000  0462.4  044.1 | 224.8  000.3625  0634.4  069.5   49.46
   000.0  001.9000  0466.7  044.3 | 224.5  000.3616  0634.5  068.8   49.67
   001.0  001.8962  0470.7  044.5 | 224.1  000.3606  0634.8  068.2   49.87
   002.0  001.8924  0466.8  044.3 | 223.5  000.3591  0635.3  067.8   49.98
   003.0  001.8886  0462.7  044.1 | 222.9  000.3574  0635.6  067.5   50.07
   004.0  001.8848  0459.3  043.9 | 222.3  000.3559  0636.1  067.1   50.17
   005.0  001.8810  0459.8  043.9 | 221.8  000.3545  0636.9  066.7   50.31
   006.0  001.8773  0460.6  043.9 | 221.2  000.3531  0637.7  066.2   50.45
   007.0  001.8735  0460.2  043.9 | 220.7  000.3516  0639.1  065.8   50.58
```

```
008.0  001.8697  0460.3  043.9 | 220.1  000.3502  0641.1  065.4  50.72
009.0  001.8660  0461.9  043.9 | 219.5  000.3487  0643.1  065.0  50.87
010.0  001.8622  0464.7  044.0 | 219.0  000.3473  0645.3  064.5  51.04
011.0  001.8622  0465.6  044.1 | 218.4  000.3458  0647.8  064.1  51.19
012.0  001.8622  0465.3  044.1 | 217.8  000.3442  0650.2  063.8  51.31
013.0  001.8584  0463.7  044.0 | 217.1  000.3425  0652.8  063.5  51.39
014.0  001.8584  0461.6  043.9 | 216.5  000.3408  0655.3  063.3  51.47
015.0  001.8584  0459.4  043.8 | 215.8  000.3391  0657.7  063.1  51.54
016.0  001.8584  0458.3  043.7 | 215.1  000.3373  0659.9  062.9  51.62
017.0  001.8584  0459.2  043.8 | 214.5  000.3357  0661.7  062.7  51.71
018.0  001.8547  0462.1  043.9 | 213.8  000.3341  0663.1  062.3  51.82
019.0  001.8547  0465.8  044.1 | 213.2  000.3324  0664.0  062.0  51.94
020.0  001.8547  0468.2  044.2 | 212.5  000.3307  0664.8  061.7  52.02
021.0  001.8584  0468.8  044.2 | 211.8  000.3290  0665.6  061.5  52.08
022.0  001.8622  0468.9  044.2 | 211.1  000.3272  0666.5  061.3  52.12
023.0  001.8660  0469.7  044.3 | 210.4  000.3255  0667.6  061.2  52.17
024.0  001.8697  0471.2  044.4 | 209.7  000.3245  0668.9  061.0  52.23
025.0  001.8735  0472.2  044.5 | 209.0  000.3245  0670.9  060.8  52.30
026.0  001.8810  0472.3  044.5 | 208.2  000.3245  0673.9  060.8  52.37
027.0  001.8848  0471.7  044.5 | 207.5  000.3245  0677.9  060.8  52.42
028.0  001.8886  0471.3  044.5 | 206.8  000.3245  0682.6  060.8  52.48
029.0  001.8924  0471.1  044.5 | 206.0  000.3245  0687.5  060.8  52.53
030.0  001.8962  0470.1  044.5 | 205.3  000.3245  0692.1  060.9  52.56
031.0  001.8962  0467.9  044.4 | 204.6  000.3245  0695.8  061.1  52.54
032.0  001.8962  0465.1  044.2 | 203.9  000.3245  0699.0  061.3  52.50
033.0  001.8962  0463.0  044.1 | 203.2  000.3245  0701.8  061.5  52.46
034.0  001.8962  0462.1  044.1 | 202.5  000.3245  0704.3  061.7  52.43
035.0  001.9000  0462.4  044.1 | 201.8  000.3245  0706.4  061.9  52.41
036.0  001.9000  0462.9  044.1 | 201.1  000.3245  0706.8  062.0  52.36
037.0  001.9000  0463.4  044.2 | 200.4  000.3245  0706.0  062.2  52.29
038.0  001.9000  0463.0  044.1 | 199.7  000.3251  0703.8  062.5  52.18
039.0  001.9000  0461.1  044.0 | 199.1  000.3267  0701.6  062.8  52.06
040.0  001.9000  0458.0  043.9 | 198.5  000.3282  0700.0  063.2  51.92
041.0  001.9000  0454.9  043.7 | 197.9  000.3297  0698.4  063.7  51.78
042.0  001.9000  0452.0  043.6 | 197.3  000.3311  0696.6  064.1  51.63
043.0  001.9000  0448.9  043.5 | 196.8  000.3325  0694.5  064.6  51.47
044.0  001.9000  0445.3  043.3 | 196.3  000.3339  0691.9  065.1  51.29
045.0  001.9000  0441.6  043.1 | 195.8  000.3351  0689.1  065.6  51.11
046.0  001.9000  0437.7  042.9 | 195.3  000.3364  0686.3  066.1  50.91
047.0  001.9000  0433.1  042.7 | 194.8  000.3375  0683.3  066.7  50.71
048.0  001.9000  0427.9  042.5 | 194.4  000.3386  0680.2  067.3  50.48
049.0  001.9000  0423.5  042.2 | 194.0  000.3396  0676.9  067.9  50.27
050.0  001.9000  0421.4  042.2 | 193.6  000.3408  0673.4  068.4  50.07
051.0  001.9000  0421.2  042.1 | 193.1  000.3420  0670.2  068.9  49.90
052.0  001.9000  0420.6  042.1 | 192.6  000.3432  0667.8  069.4  49.73
053.0  001.9000  0417.9  042.0 | 192.2  000.3442  0666.2  069.9  49.54
054.0  001.9000  0413.0  041.8 | 191.9  000.3450  0665.2  070.6  49.34
055.0  001.9000  0407.0  041.5 | 191.6  000.3457  0664.3  071.3  49.12
056.0  001.9000  0400.1  041.2 | 191.4  000.3464  0663.5  072.0  48.89
057.0  001.9000  0392.7  040.9 | 191.2  000.3469  0662.8  072.8  48.65
058.0  001.9000  0385.0  040.5 | 191.0  000.3474  0662.0  073.5  48.41
059.0  001.9000  0378.5  040.2 | 190.8  000.3479  0661.0  074.2  48.18
060.0  001.9000  0375.3  040.1 | 190.5  000.3486  0659.3  074.8  47.98
061.0  001.9000  0376.4  040.1 | 190.1  000.3496  0656.9  075.4  47.79
062.0  001.9000  0380.8  040.3 | 189.7  000.3507  0654.2  075.8  47.63
063.0  001.9000  0387.4  040.6 | 189.2  000.3520  0651.0  076.2  47.48
064.0  001.9000  0396.1  041.0 | 188.7  000.3534  0647.7  076.5  47.33
065.0  001.9000  0405.3  041.4 | 188.1  000.3549  0645.1  076.9  47.19
066.0  001.9000  0413.2  041.8 | 187.6  000.3562  0643.5  077.3  47.05
067.0  001.9000  0417.6  042.0 | 187.2  000.3572  0642.4  077.9  46.88
068.0  001.9000  0416.0  041.9 | 187.0  000.3578  0641.8  078.5  46.67
069.0  001.9000  0410.8  041.7 | 186.9  000.3581  0641.5  079.3  46.43
070.0  001.9000  0403.6  041.3 | 186.9  000.3581  0641.4  080.1  46.18
```

```
071.0  001.8962  0397.4  041.0 | 186.8  000.3582  0641.3  080.9  45.93
072.0  001.8962  0391.1  040.8 | 186.8  000.3583  0641.2  081.6  45.69
073.0  001.8924  0383.3  040.4 | 186.8  000.3582  0641.3  082.4  45.44
074.0  001.8886  0374.5  040.0 | 186.9  000.3581  0641.5  083.2  45.18
075.0  001.8886  0366.5  039.6 | 186.9  000.3579  0641.7  084.0  44.93
076.0  001.8848  0361.7  039.4 | 186.9  000.3580  0641.6  084.7  44.70
077.0  001.8810  0363.2  039.4 | 186.7  000.3585  0641.0  085.4  44.50
078.0  001.8773  0368.3  039.7 | 186.4  000.3592  0640.1  085.9  44.31
079.0  001.8773  0374.4  039.9 | 186.1  000.3601  0639.1  086.5  44.12
080.0  001.8735  0381.1  040.2 | 185.8  000.3609  0638.9  087.1  43.93
081.0  001.8697  0386.2  040.4 | 185.6  000.3615  0639.7  087.7  43.75
082.0  001.8622  0391.0  040.6 | 185.3  000.3621  0640.9  088.4  43.58
083.0  001.8584  0396.1  040.8 | 185.1  000.3627  0642.3  089.0  43.40
084.0  001.8509  0401.2  041.0 | 184.9  000.3633  0643.5  089.7  43.22
085.0  001.8472  0407.6  041.3 | 184.7  000.3639  0644.8  090.4  43.04
086.0  001.8434  0413.5  041.5 | 184.4  000.3645  0645.8  091.0  42.85
--- ------------------------|----------------------------------------- ---



        10-18-2023     Terrain Data: GLOBE 30 Sec    FMOver Analysis

        WCQR-FM  BLED19961120KB              WCQS

        Channel = 202C2                      Channel =  201C3
        Max ERP = 1.2 kW                     Max ERP = 1.9 kW
        RCAMSL =   1276 m                     RCAMSL =   1100 m
        N. Lat. 36 25 53.30                  N. Lat. 35 35 23.30
        W. Lng. 82 08 15.40                  W. Lng. 82 40 25.40
        Protected                            Interfering
          60  dBu                              54  dBu


 Azimuth    ERP    HAAT   Dist  | Azimuth    ERP    HAAT   Dist  Actual   IX
(degrees)  (kW)    (m)    (km)  |(degrees)  (kW)    (m)    (km)   (dBu)  (km)
------------------------------|-----------------------------------------------
147.0  000.6625  0584.3  040.3 | 049.4  001.9000  0422.4  092.3  44.60
148.0  000.6430  0585.3  040.0 | 049.2  001.9000  0422.9  091.6  44.82
149.0  000.6238  0586.5  039.8 | 049.0  001.9000  0423.6  091.0  45.05
150.0  000.6049  0586.1  039.5 | 048.7  001.9000  0424.5  090.3  45.28
151.0  000.5931  0582.6  039.2 | 048.5  001.9000  0425.7  089.7  45.52
152.0  000.5813  0577.2  038.8 | 048.1  001.9000  0427.2  089.2  45.76
153.0  000.5697  0574.4  038.6 | 047.8  001.9000  0428.7  088.6  46.00
154.0  000.5581  0576.1  038.5 | 047.7  001.9000  0429.7  087.9  46.23
155.0  000.5467  0580.8  038.4 | 047.5  001.9000  0430.4  087.3  46.46
156.0  000.5355  0585.8  038.4 | 047.4  001.9000  0431.2  086.7  46.70
157.0  000.5243  0590.6  038.4 | 047.2  001.9000  0432.0  086.0  46.93
158.0  000.5133  0592.8  038.3 | 047.0  001.9000  0433.1  085.5  47.16
159.0  000.5023  0588.5  038.0 | 046.6  001.9000  0434.9  085.0  47.38
160.0  000.4915  0582.1  037.5 | 046.2  001.9000  0436.9  084.5  47.58
161.0  000.4839  0579.9  037.3 | 045.9  001.9000  0438.2  084.0  47.79
162.0  000.4763  0586.5  037.4 | 045.7  001.9000  0438.7  083.4  48.01
163.0  000.4688  0598.7  037.7 | 045.7  001.9000  0438.8  082.7  48.25
164.0  000.4613  0610.3  037.9 | 045.6  001.9000  0439.1  082.0  48.48
165.0  000.4539  0620.6  038.1 | 045.5  001.9000  0439.5  081.3  48.71
166.0  000.4465  0630.5  038.3 | 045.4  001.9000  0440.0  080.6  48.94
167.0  000.4392  0639.7  038.4 | 045.2  001.9000  0440.6  080.0  49.17
168.0  000.4320  0645.6  038.5 | 045.0  001.9000  0441.5  079.4  49.39
169.0  000.4248  0646.4  038.3 | 044.7  001.9000  0442.8  078.9  49.59
170.0  000.4177  0649.7  038.3 | 044.4  001.9000  0444.0  078.4  49.79
171.0  000.4135  0657.0  038.4 | 044.2  001.9000  0444.7  077.8  50.02
172.0  000.4093  0665.2  038.6 | 044.0  001.9000  0445.5  077.1  50.25
173.0  000.4051  0668.6  038.6 | 043.6  001.9000  0446.6  076.6  50.45
```

```
174.0   000.4009   0663.1   038.3 |  043.2   001.9000   0448.3   076.3   50.61
175.0   000.3967   0653.6   037.9 |  042.6   001.9000   0450.2   076.0   50.74
176.0   000.3926   0641.8   037.5 |  042.0   001.9000   0451.9   075.8   50.84
177.0   000.3885   0640.6   037.3 |  041.6   001.9000   0453.1   075.5   51.00
178.0   000.3844   0642.1   037.3 |  041.2   001.9000   0454.2   075.0   51.17
179.0   000.3804   0643.6   037.2 |  040.8   001.9000   0455.4   074.6   51.33
180.0   000.3763   0645.0   037.2 |  040.4   001.9000   0456.7   074.2   51.50
181.0   000.3736   0646.7   037.2 |  040.1   001.9000   0457.9   073.8   51.66
182.0   000.3710   0648.3   037.2 |  039.6   001.9000   0459.1   073.4   51.83
183.0   000.3683   0649.6   037.1 |  039.2   001.9000   0460.4   073.1   51.98
184.0   000.3656   0647.3   037.0 |  038.8   001.9000   0461.7   072.8   52.11
185.0   000.3630   0642.9   036.8 |  038.3   001.9000   0462.7   072.6   52.20
186.0   000.3604   0638.9   036.6 |  037.7   001.9000   0463.2   072.4   52.27
187.0   000.3577   0641.9   036.7 |  037.3   001.9000   0463.4   072.1   52.40
188.0   000.3551   0644.7   036.7 |  036.9   001.9000   0463.4   071.7   52.51
189.0   000.3525   0649.7   036.8 |  036.5   001.9000   0463.2   071.3   52.63
190.0   000.3499   0656.1   036.9 |  036.1   001.9000   0463.0   070.9   52.76
191.0   000.3473   0662.1   037.0 |  035.6   001.9000   0462.7   070.5   52.88
192.0   000.3448   0665.5   037.1 |  035.2   001.9000   0462.5   070.2   52.97
193.0   000.3422   0669.8   037.1 |  034.7   001.8988   0462.2   069.9   53.06
194.0   000.3396   0676.9   037.3 |  034.2   001.8971   0462.1   069.6   53.18
195.0   000.3371   0684.5   037.4 |  033.8   001.8962   0462.1   069.2   53.31
196.0   000.3345   0690.4   037.5 |  033.3   001.8962   0462.6   068.9   53.42
197.0   000.3320   0695.3   037.6 |  032.8   001.8962   0463.3   068.6   53.53
198.0   000.3295   0698.7   037.7 |  032.3   001.8962   0464.4   068.4   53.63
199.0   000.3270   0701.2   037.7 |  031.7   001.8962   0465.9   068.2   53.72
200.0   000.3245   0704.8   037.7 |  031.2   001.8962   0467.3   068.1   53.82
201.0   000.3245   0706.7   037.8 |  030.7   001.8962   0468.8   067.9   53.91
202.0   000.3245   0705.9   037.7 |  030.1   001.8962   0469.9   067.8   53.97
203.0   000.3245   0702.4   037.6 |  029.6   001.8945   0470.7   067.8   53.98
204.0   000.3245   0698.5   037.5 |  029.0   001.8924   0471.1   067.9   53.97
205.0   000.3245   0693.7   037.4 |  028.4   001.8903   0471.2   068.0   53.94
206.0   000.3245   0687.7   037.2 |  027.9   001.8881   0471.3   068.1   53.89
207.0   000.3245   0681.0   037.0 |  027.3   001.8861   0471.4   068.3   53.82
208.0   000.3245   0675.0   036.8 |  026.8   001.8840   0471.8   068.5   53.77
209.0   000.3245   0670.7   036.7 |  026.3   001.8820   0472.2   068.6   53.72
210.0   000.3245   0668.3   036.6 |  025.7   001.8790   0472.4   068.7   53.69
211.0   000.3270   0666.6   036.6 |  025.2   001.8750   0472.4   068.8   53.66
212.0   000.3295   0665.4   036.6 |  024.7   001.8722   0472.0   068.8   53.64
213.0   000.3320   0664.3   036.7 |  024.1   001.8702   0471.4   068.9   53.60
214.0   000.3345   0662.7   036.7 |  023.6   001.8682   0470.6   068.9   53.54
215.0   000.3371   0660.2   036.7 |  023.1   001.8663   0469.8   069.1   53.48
216.0   000.3396   0656.9   036.7 |  022.6   001.8643   0469.2   069.2   53.40
217.0   000.3422   0653.3   036.6 |  022.1   001.8624   0468.9   069.4   53.32
218.0   000.3448   0649.4   036.6 |  021.6   001.8606   0468.8   069.7   53.24
219.0   000.3473   0645.3   036.5 |  021.1   001.8587   0468.8   069.9   53.16
220.0   000.3499   0641.4   036.4 |  020.6   001.8569   0468.8   070.2   53.07
221.0   000.3525   0638.2   036.4 |  020.1   001.8551   0468.4   070.4   52.97
222.0   000.3551   0636.5   036.4 |  019.6   001.8547   0467.6   070.6   52.88
223.0   000.3577   0635.6   036.5 |  019.2   001.8547   0466.3   070.8   52.77
224.0   000.3604   0634.9   036.5 |  018.7   001.8547   0464.7   071.1   52.66
225.0   000.3630   0634.4   036.5 |  018.2   001.8547   0462.8   071.3   52.53
226.0   000.3656   0633.8   036.6 |  017.7   001.8557   0461.1   071.5   52.41
227.0   000.3683   0633.4   036.6 |  017.3   001.8575   0459.8   071.8   52.29
228.0   000.3710   0634.4   036.7 |  016.8   001.8584   0458.9   072.0   52.19
229.0   000.3736   0636.2   036.9 |  016.3   001.8584   0458.4   072.3   52.10
230.0   000.3763   0638.5   037.0 |  015.8   001.8584   0458.4   072.5   52.02
231.0   000.3817   0641.1   037.2 |  015.3   001.8584   0458.9   072.7   51.97
232.0   000.3871   0644.5   037.4 |  014.8   001.8584   0459.9   072.9   51.93
233.0   000.3926   0648.0   037.7 |  014.2   001.8584   0461.1   073.1   51.89
234.0   000.3981   0652.1   037.9 |  013.7   001.8584   0462.2   073.3   51.85
235.0   000.4037   0655.7   038.2 |  013.2   001.8584   0463.3   073.6   51.79
236.0   000.4093   0658.5   038.4 |  012.7   001.8595   0464.3   073.9   51.73
```

```
237.0  000.4149  0660.2  038.5 | 012.2  001.8613  0465.0  074.2  51.64
238.0  000.4206  0663.1  038.8 | 011.8  001.8622  0465.5  074.6  51.55
239.0  000.4263  0668.6  039.1 | 011.2  001.8622  0465.6  074.8  51.45
240.0  000.4320  0677.2  039.5 | 010.7  001.8622  0465.4  075.1  51.37
241.0  000.4451  0685.9  040.0 | 010.0  001.8622  0464.7  075.3  51.29
242.0  000.4583  0692.2  040.5 | 009.4  001.8645  0463.0  075.5  51.17
243.0  000.4718  0696.0  040.9 | 008.8  001.8666  0461.5  075.9  51.02
244.0  000.4854  0698.9  041.2 | 008.3  001.8686  0460.6  076.2  50.88
245.0  000.4992  0701.7  041.6 | 007.8  001.8705  0460.1  076.6  50.74
246.0  000.5133  0704.0  041.9 | 007.3  001.8724  0459.9  077.1  50.60
247.0  000.5275  0706.8  042.2 | 006.8  001.8743  0460.5  077.5  50.47
248.0  000.5419  0710.0  042.6 | 006.3  001.8761  0460.9  078.0  50.33
249.0  000.5565  0714.2  043.0 | 005.8  001.8780  0460.4  078.5  50.16
250.0  000.5713  0719.2  043.4 | 005.3  001.8800  0460.0  079.0  50.00
251.0  000.5897  0724.3  043.8 | 004.8  001.8820  0459.6  079.5  49.83
252.0  000.6083  0727.8  044.2 | 004.3  001.8838  0459.4  080.0  49.65
253.0  000.6273  0729.9  044.6 | 003.8  001.8855  0459.4  080.6  49.47
254.0  000.6465  0731.7  044.9 | 003.4  001.8871  0460.8  081.2  49.31
255.0  000.6660  0733.3  045.3 | 003.0  001.8886  0462.6  081.9  49.16
256.0  000.6858  0735.5  045.6 | 002.6  001.8901  0464.3  082.5  49.00
257.0  000.7059  0737.5  046.0 | 002.2  001.8916  0465.9  083.2  48.83
258.0  000.7263  0739.6  046.3 | 001.9  001.8930  0467.4  083.9  48.65
259.0  000.7470  0741.1  046.6 | 001.5  001.8942  0468.9  084.6  48.46
260.0  000.7680  0743.4  047.0 | 001.2  001.8955  0470.3  085.3  48.27
261.0  000.8069  0745.1  047.5 | 000.7  001.8973  0469.7  086.0  48.03
262.0  000.8467  0747.5  048.0 | 000.3  001.8990  0467.9  086.8  47.75
263.0  000.8875  0750.3  048.6 | 359.8  001.9000  0466.0  087.5  47.46
264.0  000.9293  0752.7  049.1 | 359.4  001.9000  0464.3  088.3  47.17
265.0  000.9720  0755.2  049.6 | 359.1  001.9000  0462.7  089.1  46.87
266.0  001.0157  0758.4  050.1 | 358.7  001.9000  0461.1  090.0  46.56
--- --------------------------|------------------------------------- ---
```

Table 3: FMOVER protection of WLXK, Boiling Springs, North Carolina

```
     10-18-2023    Terrain Data: GLOBE 30 Sec    FMOver Analysis

   WCQS                                WLXK   BLED19950221KD

   Channel =  201C3                    Channel = 202C2
   Max ERP = 1.9 kW                    Max ERP = 50 kW
   RCAMSL =   1100 m                   RCAMSL =   343 m
   N. Lat. 35 35 23.30                 N. Lat. 35 13 52.40
   W. Lng. 82 40 25.40                 W. Lng. 81 42 56.40
   Protected                           Interfering
      60  dBu                             54  dBu
```

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
054.0	001.9000	0413.0	041.8	320.8	009.6749	0069.9	083.2	41.53	
055.0	001.9000	0407.0	041.5	320.6	009.6268	0070.3	082.5	41.71	
056.0	001.9000	0400.1	041.2	320.3	009.5713	0070.8	081.8	41.89	
057.0	001.9000	0392.7	040.9	320.0	009.5106	0071.5	081.2	42.07	
058.0	001.9000	0385.0	040.5	319.7	009.4689	0072.2	080.5	42.26	
059.0	001.9000	0378.5	040.2	319.4	009.4334	0072.9	079.9	42.45	
060.0	001.9000	0375.3	040.1	319.2	009.4091	0073.4	079.2	42.64	
061.0	001.9000	0376.4	040.1	319.2	009.4002	0073.5	078.5	42.82	
062.0	001.9000	0380.8	040.3	319.2	009.4032	0073.5	077.8	43.01	
063.0	001.9000	0387.4	040.6	319.3	009.4134	0073.3	077.0	43.21	
064.0	001.9000	0396.1	041.0	319.4	009.4315	0072.9	076.2	43.40	
065.0	001.9000	0405.3	041.4	319.6	009.4511	0072.6	075.4	43.60	
066.0	001.9000	0413.2	041.8	319.7	009.4643	0072.3	074.6	43.80	
067.0	001.9000	0417.6	042.0	319.7	009.4619	0072.4	073.9	44.01	
068.0	001.9000	0416.0	041.9	319.4	009.4321	0072.9	073.2	44.21	
069.0	001.9000	0410.8	041.7	319.1	009.3855	0073.8	072.6	44.40	
070.0	001.9000	0403.6	041.3	318.6	009.3292	0074.8	072.0	44.58	
071.0	001.8962	0397.4	041.0	318.2	009.2747	0075.8	071.5	44.77	
072.0	001.8962	0391.1	040.8	317.7	009.2197	0076.7	071.0	44.94	
073.0	001.8924	0383.3	040.4	317.2	009.1564	0077.5	070.5	45.10	
074.0	001.8886	0374.5	040.0	316.7	009.0877	0078.1	070.0	45.22	
075.0	001.8886	0366.5	039.6	316.1	009.0213	0078.4	069.6	45.32	
076.0	001.8848	0361.7	039.4	315.7	008.9644	0078.2	069.1	45.42	
077.0	001.8810	0363.2	039.4	315.4	008.9323	0078.0	068.5	45.56	
078.0	001.8773	0368.3	039.7	315.2	008.9135	0077.8	067.8	45.73	
079.0	001.8773	0374.4	039.9	315.1	008.8977	0077.7	067.1	45.92	
080.0	001.8735	0381.1	040.2	315.0	008.8796	0077.4	066.3	46.10	
081.0	001.8697	0386.2	040.4	314.8	008.8531	0077.0	065.7	46.25	
082.0	001.8622	0391.0	040.6	314.5	008.8219	0076.6	065.0	46.39	
083.0	001.8584	0396.1	040.8	314.2	008.7916	0076.1	064.3	46.54	
084.0	001.8509	0401.2	041.0	314.0	008.7580	0075.6	063.6	46.68	
085.0	001.8472	0407.6	041.3	313.7	008.7283	0075.1	062.9	46.84	
086.0	001.8434	0413.5	041.5	313.5	008.6948	0074.6	062.2	46.99	
087.0	001.8359	0418.7	041.7	313.1	008.6551	0074.0	061.5	47.13	
088.0	001.8322	0422.5	041.9	312.7	008.6093	0073.4	060.9	47.26	
089.0	001.8248	0425.8	042.0	312.3	008.5581	0072.9	060.3	47.38	
090.0	001.8210	0429.0	042.1	311.9	008.5061	0072.6	059.7	47.52	
091.0	001.8210	0432.2	042.3	311.4	008.4528	0072.3	059.1	47.65	
092.0	001.8210	0434.1	042.4	310.9	008.3928	0072.1	058.6	47.78	
093.0	001.8210	0435.4	042.4	310.4	008.3288	0071.8	058.1	47.89	
094.0	001.8210	0436.0	042.5	309.8	008.2825	0071.7	057.6	48.01	

```
095.0  001.8210  0437.3  042.5 | 309.2  008.2825  0071.7  057.2  48.16
096.0  001.8248  0439.5  042.7 | 308.7  008.2825  0071.6  056.7  48.32
097.0  001.8248  0442.4  042.8 | 308.1  008.2825  0071.6  056.2  48.49
098.0  001.8248  0444.5  042.9 | 307.5  008.2825  0071.8  055.7  48.65
099.0  001.8248  0444.0  042.9 | 306.8  008.2825  0072.0  055.4  48.79
100.0  001.8248  0442.7  042.8 | 306.1  008.2825  0072.2  055.1  48.90
101.0  001.8322  0441.7  042.8 | 305.4  008.2825  0072.4  054.8  49.02
102.0  001.8397  0441.7  042.8 | 304.7  008.2825  0072.5  054.5  49.13
103.0  001.8472  0443.2  042.9 | 304.0  008.2825  0072.5  054.1  49.26
104.0  001.8547  0445.1  043.1 | 303.3  008.2825  0072.7  053.7  49.40
105.0  001.8622  0446.1  043.1 | 302.5  008.2825  0073.2  053.4  49.55
106.0  001.8697  0446.3  043.2 | 301.7  008.2825  0074.1  053.2  49.72
107.0  001.8773  0446.0  043.2 | 301.0  008.2825  0075.3  053.0  49.90
108.0  001.8848  0445.3  043.2 | 300.2  008.2825  0076.7  052.8  50.07
109.0  001.8924  0444.6  043.2 | 299.4  008.3553  0077.9  052.7  50.26
110.0  001.9000  0443.2  043.2 | 298.5  008.4490  0078.7  052.6  50.42
111.0  001.8848  0441.4  043.0 | 297.7  008.5453  0079.5  052.6  50.51
112.0  001.8697  0438.9  042.8 | 296.9  008.6416  0080.3  052.8  50.58
113.0  001.8547  0435.9  042.6 | 296.1  008.7375  0081.7  052.9  50.69
114.0  001.8397  0433.4  042.4 | 295.3  008.8322  0083.3  053.1  50.81
115.0  001.8248  0432.4  042.3 | 294.5  008.9263  0085.0  053.2  50.95
116.0  001.8136  0433.4  042.3 | 293.7  009.0205  0086.6  053.2  51.11
117.0  001.7988  0435.7  042.4 | 292.9  009.1154  0087.7  053.3  51.24
118.0  001.7840  0438.4  042.4 | 292.1  009.2111  0088.1  053.3  51.32
119.0  001.7693  0440.6  042.4 | 291.3  009.3067  0088.3  053.3  51.35
120.0  001.7547  0442.6  042.5 | 290.5  009.4023  0088.2  053.4  51.35
121.0  001.7547  0443.8  042.5 | 289.7  009.5602  0087.8  053.5  51.36
122.0  001.7547  0444.2  042.5 | 288.9  009.8138  0087.5  053.7  51.40
123.0  001.7547  0443.8  042.5 | 288.2  010.0651  0087.4  053.9  51.43
124.0  001.7547  0443.1  042.5 | 287.4  010.3144  0087.5  054.1  51.46
125.0  001.7547  0442.2  042.4 | 286.7  010.5612  0087.4  054.4  51.45
126.0  001.7510  0441.1  042.4 | 286.0  010.8030  0087.2  054.7  51.42
127.0  001.7510  0440.2  042.3 | 285.3  011.0461  0086.9  055.0  51.38
128.0  001.7510  0439.7  042.3 | 284.6  011.2897  0086.6  055.3  51.34
129.0  001.7510  0439.5  042.3 | 283.9  011.5333  0086.4  055.6  51.30
130.0  001.7510  0439.1  042.3 | 283.2  011.7727  0086.5  056.0  51.28
131.0  001.7474  0438.4  042.2 | 282.6  012.0030  0086.7  056.4  51.23
132.0  001.7438  0437.7  042.2 | 282.0  012.2295  0087.1  056.8  51.20
133.0  001.7401  0437.5  042.2 | 281.3  012.4566  0087.4  057.2  51.15
134.0  001.7365  0437.7  042.2 | 280.7  012.6838  0087.5  057.6  51.10
135.0  001.7328  0438.0  042.1 | 280.1  012.9071  0087.5  058.0  51.03
136.0  001.7292  0438.2  042.1 | 279.5  013.2023  0087.7  058.5  50.98
137.0  001.7256  0438.8  042.1 | 279.0  013.5195  0088.1  058.9  50.96
138.0  001.7220  0440.1  042.2 | 278.4  013.8430  0088.5  059.3  50.95
139.0  001.7184  0441.8  042.3 | 277.8  014.1688  0089.0  059.8  50.93
140.0  001.7147  0443.2  042.3 | 277.3  014.4832  0089.4  060.2  50.90
141.0  001.7147  0443.8  042.3 | 276.7  014.7854  0089.9  060.7  50.85
142.0  001.7147  0443.6  042.3 | 276.3  015.0666  0090.4  061.3  50.79
143.0  001.7147  0442.2  042.3 | 275.8  015.3160  0090.8  061.8  50.70
144.0  001.7147  0439.3  042.1 | 275.5  015.5274  0091.1  062.5  50.57
145.0  001.7147  0434.8  041.9 | 275.2  015.6992  0091.3  063.2  50.41
146.0  001.7147  0428.4  041.6 | 275.0  015.8245  0091.5  063.9  50.23
147.0  001.7147  0421.1  041.3 | 274.8  015.9206  0091.7  064.7  50.03
148.0  001.7147  0413.3  040.9 | 274.7  015.9984  0091.8  065.5  49.83
149.0  001.7147  0405.6  040.6 | 274.6  016.0701  0091.9  066.3  49.62
150.0  001.7147  0398.8  040.3 | 274.5  016.1483  0092.0  067.0  49.43
151.0  001.6788  0393.3  039.9 | 274.4  016.1699  0092.1  067.8  49.20
152.0  001.6433  0389.4  039.5 | 274.4  016.2118  0092.1  068.6  48.99
153.0  001.6082  0385.0  039.2 | 274.3  016.2375  0092.2  069.4  48.78
154.0  001.5734  0380.3  038.8 | 274.3  016.2477  0092.2  070.1  48.56
155.0  001.5390  0375.3  038.4 | 274.3  016.2427  0092.2  070.9  48.33
156.0  001.5050  0370.9  038.0 | 274.3  016.2369  0092.2  071.7  48.11
157.0  001.4714  0367.8  037.7 | 274.3  016.2463  0092.2  072.4  47.91
```

```
158.0  001.4381  0367.9  037.5 | 274.2  016.3106  0092.3  073.1  47.74
159.0  001.4052  0368.7  037.4 | 274.1  016.3801  0092.4  073.7  47.58
160.0  001.3728  0367.5  037.2 | 274.0  016.4025  0092.4  074.4  47.39
161.0  001.3534  0366.8  037.0 | 274.0  016.4580  0092.5  075.1  47.23
162.0  001.3343  0367.5  036.9 | 273.8  016.5358  0092.6  075.7  47.08
163.0  001.3152  0368.2  036.9 | 273.7  016.6066  0092.7  076.3  46.92
164.0  001.2963  0367.7  036.7 | 273.6  016.6481  0092.7  077.0  46.75
165.0  001.2776  0366.8  036.6 | 273.6  016.6734  0092.8  077.7  46.58
166.0  001.2589  0362.6  036.3 | 273.7  016.6271  0092.7  078.4  46.37
167.0  001.2404  0354.2  035.7 | 273.9  016.4867  0092.5  079.1  46.12
168.0  001.2221  0343.0  035.1 | 274.3  016.2731  0092.2  079.9  45.83
169.0  001.2039  0332.6  034.4 | 274.6  016.0668  0091.9  080.6  45.55
170.0  001.1858  0322.9  033.8 | 274.9  015.8698  0091.6  081.4  45.28
171.0  001.1412  0312.4  032.9 | 275.4  015.5769  0091.1  082.2  44.96
172.0  001.1003  0308.2  032.4 | 275.7  015.4286  0090.9  082.8  44.72
173.0  001.0602  0304.4  031.9 | 275.9  015.2840  0090.8  083.5  44.50
--- ------------------------|----------------------------------------- ---


        10-18-2023      Terrain Data: GLOBE 30 Sec    FMOver Analysis

        WLXK   BLED19950221KD                WCQS

        Channel = 202C2                      Channel =  201C3
        Max ERP = 50 kW                      Max ERP = 1.9 kW
        RCAMSL =   343 m                     RCAMSL =  1100 m
        N. Lat. 35 13 52.40                  N. Lat. 35 35 23.30
        W. Lng. 81 42 56.40                  W. Lng. 82 40 25.40
        Protected                            Interfering
          60  dBu                              54  dBu


 Azimuth     ERP    HAAT    Dist | Azimuth     ERP    HAAT    Dist   Actual  IX
(degrees)   (kW)    (m)     (km) |(degrees)   (kW)    (m)     (km)   (dBu)  (km)
------------------------------|-------------------------------------------------
235.0  047.3851  0083.1  041.1 | 139.8  001.7155  0442.9  083.0  47.83
236.0  047.0062  0083.9  041.2 | 139.8  001.7154  0443.0  082.2  48.07
237.0  046.6288  0084.9  041.4 | 139.9  001.7152  0443.0  081.5  48.31
238.0  046.2530  0086.2  041.6 | 139.9  001.7150  0443.1  080.8  48.55
239.0  045.8786  0087.8  041.8 | 140.0  001.7147  0443.2  080.0  48.80
240.0  045.5058  0089.5  042.1 | 140.1  001.7147  0443.3  079.2  49.05
241.0  044.7269  0091.3  042.3 | 140.2  001.7147  0443.3  078.5  49.30
242.0  043.9547  0092.9  042.4 | 140.2  001.7147  0443.3  077.7  49.55
243.0  043.1892  0094.0  042.5 | 140.1  001.7147  0443.3  077.0  49.79
244.0  042.4305  0094.9  042.5 | 140.0  001.7147  0443.2  076.3  50.02
245.0  041.6784  0095.7  042.5 | 139.9  001.7152  0443.0  075.5  50.25
246.0  040.9332  0097.0  042.6 | 139.8  001.7155  0442.9  074.8  50.49
247.0  040.1946  0099.2  042.8 | 139.8  001.7155  0442.9  074.0  50.75
248.0  039.4627  0101.9  043.1 | 139.9  001.7152  0443.0  073.2  51.02
249.0  038.7376  0105.3  043.5 | 140.0  001.7148  0443.1  072.4  51.30
250.0  038.0192  0108.9  043.9 | 140.1  001.7147  0443.2  071.5  51.59
251.0  036.9112  0112.3  044.2 | 140.1  001.7147  0443.2  070.7  51.86
252.0  035.8196  0115.2  044.4 | 140.0  001.7147  0443.2  069.9  52.11
253.0  034.7444  0117.0  044.4 | 139.8  001.7156  0442.9  069.2  52.35
254.0  033.6856  0117.0  044.1 | 139.3  001.7172  0442.3  068.6  52.54
255.0  032.6432  0115.1  043.6 | 138.6  001.7197  0441.2  068.1  52.67
256.0  031.6172  0112.0  042.9 | 137.8  001.7227  0439.8  067.8  52.76
257.0  030.6075  0109.0  042.1 | 137.0  001.7257  0438.7  067.5  52.84
258.0  029.6142  0107.2  041.6 | 136.3  001.7283  0438.3  067.1  52.95
259.0  028.6373  0106.7  041.2 | 135.7  001.7304  0438.1  066.7  53.10
260.0  027.6768  0106.5  040.9 | 135.1  001.7324  0438.0  066.3  53.25
261.0  026.7327  0105.9  040.6 | 134.5  001.7347  0437.9  065.9  53.37
```

```
262.0  025.8049  0105.0  040.1 |  133.8  001.7371  0437.7  065.6  53.48
263.0  024.8936  0104.0  039.7 |  133.1  001.7396  0437.5  065.3  53.57
264.0  023.9986  0102.7  039.2 |  132.4  001.7422  0437.6  065.1  53.64
265.0  023.1200  0101.2  038.7 |  131.7  001.7450  0437.9  065.0  53.71
266.0  022.2578  0099.6  038.1 |  130.9  001.7478  0438.5  064.9  53.77
267.0  021.4120  0098.3  037.6 |  130.2  001.7505  0439.0  064.8  53.82
268.0  020.5825  0096.9  037.0 |  129.4  001.7510  0439.4  064.7  53.84
269.0  019.7695  0095.6  036.5 |  128.7  001.7510  0439.6  064.7  53.85
270.0  018.9728  0095.0  036.0 |  128.0  001.7510  0439.7  064.7  53.88
271.0  018.3194  0094.5  035.7 |  127.3  001.7510  0439.9  064.6  53.91
272.0  017.6775  0093.9  035.3 |  126.7  001.7510  0440.4  064.5  53.95
273.0  017.0470  0093.2  034.9 |  126.1  001.7510  0441.0  064.5  53.97
274.0  016.4279  0092.5  034.5 |  125.4  001.7533  0441.7  064.5  53.98
275.0  015.8203  0091.5  034.0 |  124.7  001.7547  0442.4  064.6  53.97
276.0  015.2242  0090.7  033.5 |  124.1  001.7547  0443.1  064.7  53.95
277.0  014.6395  0089.7  033.0 |  123.4  001.7547  0443.6  064.9  53.91
278.0  014.0662  0088.9  032.6 |  122.8  001.7547  0443.9  065.1  53.86
279.0  013.5044  0088.0  032.1 |  122.2  001.7547  0444.1  065.3  53.80
280.0  012.9541  0087.5  031.7 |  121.6  001.7547  0444.1  065.4  53.74
281.0  012.5801  0087.5  031.5 |  121.0  001.7547  0443.8  065.4  53.73
282.0  012.2117  0087.0  031.2 |  120.5  001.7547  0443.3  065.5  53.68
283.0  011.8487  0086.5  030.8 |  120.0  001.7552  0442.5  065.7  53.62
284.0  011.4912  0086.4  030.6 |  119.5  001.7626  0441.6  065.7  53.59
285.0  011.1392  0086.8  030.4 |  119.0  001.7697  0440.5  065.8  53.58
286.0  010.7927  0087.2  030.3 |  118.5  001.7768  0439.6  065.8  53.56
287.0  010.4516  0087.5  030.1 |  118.0  001.7838  0438.5  065.8  53.53
288.0  010.1160  0087.5  029.9 |  117.5  001.7910  0437.2  066.0  53.47
289.0  009.7859  0087.5  029.7 |  117.1  001.7980  0435.8  066.1  53.40
290.0  009.4613  0087.9  029.5 |  116.6  001.8049  0434.6  066.2  53.36
291.0  009.3398  0088.3  029.5 |  116.1  001.8115  0433.6  066.2  53.36
292.0  009.2192  0088.1  029.4 |  115.7  001.8170  0432.9  066.2  53.33
293.0  009.0994  0087.5  029.2 |  115.2  001.8221  0432.4  066.4  53.28
294.0  008.9803  0085.9  028.8 |  114.8  001.8278  0432.4  066.7  53.18
295.0  008.8621  0083.8  028.4 |  114.4  001.8342  0432.8  067.1  53.07
296.0  008.7446  0081.8  028.0 |  113.9  001.8404  0433.5  067.5  52.96
297.0  008.6279  0080.2  027.7 |  113.6  001.8464  0434.4  067.9  52.88
298.0  008.5119  0079.3  027.4 |  113.2  001.8523  0435.5  068.2  52.83
299.0  008.3968  0078.3  027.2 |  112.8  001.8580  0436.5  068.4  52.78
300.0  008.2825  0076.9  026.9 |  112.4  001.8635  0437.6  068.8  52.71
301.0  008.2825  0075.3  026.6 |  112.1  001.8689  0438.7  069.1  52.64
302.0  008.2825  0073.7  026.4 |  111.7  001.8741  0439.7  069.4  52.57
303.0  008.2825  0072.8  026.2 |  111.4  001.8794  0440.6  069.7  52.53
304.0  008.2825  0072.5  026.2 |  111.0  001.8848  0441.4  069.8  52.52
305.0  008.2825  0072.5  026.2 |  110.6  001.8903  0442.1  069.9  52.52
306.0  008.2825  0072.2  026.1 |  110.3  001.8957  0442.8  070.0  52.50
307.0  008.2825  0072.0  026.1 |  109.9  001.8995  0443.4  070.2  52.47
308.0  008.2825  0071.7  026.1 |  109.6  001.8969  0443.9  070.4  52.42
309.0  008.2825  0071.6  026.1 |  109.2  001.8942  0444.4  070.5  52.37
310.0  008.2825  0071.8  026.1 |  108.9  001.8916  0444.7  070.7  52.33
311.0  008.4009  0072.1  026.2 |  108.5  001.8887  0445.0  070.7  52.32
312.0  008.5202  0072.6  026.4 |  108.1  001.8856  0445.2  070.7  52.31
313.0  008.6403  0073.8  026.6 |  107.7  001.8824  0445.5  070.7  52.33
314.0  008.7613  0075.6  027.0 |  107.2  001.8788  0445.8  070.5  52.38
315.0  008.8831  0077.5  027.4 |  106.7  001.8751  0446.1  070.4  52.42
316.0  009.0058  0078.4  027.6 |  106.3  001.8719  0446.3  070.4  52.41
317.0  009.1293  0077.8  027.6 |  105.9  001.8693  0446.3  070.7  52.32
318.0  009.2536  0076.1  027.4 |  105.7  001.8674  0446.3  071.1  52.18
319.0  009.3788  0073.9  027.2 |  105.5  001.8659  0446.3  071.6  52.01
320.0  009.5048  0071.6  026.9 |  105.3  001.8645  0446.3  072.1  51.84
321.0  009.7152  0069.5  026.6 |  105.1  001.8630  0446.2  072.5  51.69
322.0  009.9280  0068.1  026.5 |  104.9  001.8611  0446.1  072.9  51.56
323.0  010.1430  0067.0  026.5 |  104.6  001.8592  0445.9  073.2  51.44
324.0  010.3604  0065.6  026.4 |  104.4  001.8575  0445.6  073.6  51.31
```

```
325.0  010.5800  0063.8  026.2 | 104.2  001.8560  0445.4  074.0  51.16
326.0  010.8578  0062.0  026.0 | 104.0  001.8546  0445.1  074.4  51.01
327.0  011.1392  0060.4  025.9 | 103.8  001.8532  0444.8  074.8  50.87
328.0  011.4242  0059.0  025.8 | 103.6  001.8517  0444.5  075.2  50.73
329.0  011.7128  0057.6  025.7 | 103.4  001.8503  0444.1  075.6  50.58
330.0  012.0050  0056.5  025.6 | 103.2  001.8489  0443.7  076.0  50.45
331.0  012.3008  0055.4  025.5 | 103.0  001.8475  0443.3  076.4  50.31
332.0  012.6002  0053.7  025.3 | 102.9  001.8468  0443.1  076.9  50.14
333.0  012.9032  0051.3  024.9 | 103.0  001.8468  0443.1  077.5  49.95
334.0  013.2098  0048.7  024.4 | 103.0  001.8473  0443.3  078.1  49.75
335.0  013.5200  0046.6  024.0 | 103.1  001.8476  0443.3  078.7  49.56
336.0  013.7708  0044.9  023.7 | 103.1  001.8476  0443.3  079.2  49.39
337.0  014.0238  0043.5  023.4 | 103.0  001.8474  0443.3  079.7  49.23
338.0  014.2792  0042.4  023.2 | 103.0  001.8470  0443.2  080.1  49.08
339.0  014.5368  0041.8  023.2 | 102.8  001.8460  0442.9  080.5  48.95
340.0  014.7968  0041.9  023.3 | 102.6  001.8442  0442.4  080.8  48.85
341.0  014.9714  0042.7  023.6 | 102.3  001.8419  0442.0  081.0  48.76
342.0  015.1470  0043.8  023.9 | 101.9  001.8391  0441.6  081.1  48.69
343.0  015.3236  0045.3  024.4 | 101.5  001.8359  0441.5  081.3  48.63
344.0  015.5013  0046.6  024.8 | 101.1  001.8330  0441.6  081.5  48.56
345.0  015.6800  0047.7  025.1 | 100.7  001.8303  0441.9  081.7  48.49
346.0  015.8259  0048.9  025.5 | 100.4  001.8277  0442.2  081.9  48.42
347.0  015.9726  0049.5  025.7 | 100.1  001.8257  0442.6  082.3  48.32
348.0  016.1198  0049.8  025.8 | 099.9  001.8248  0442.8  082.6  48.20
349.0  016.2678  0049.8  025.9 | 099.8  001.8248  0443.1  083.0  48.08
350.0  016.4165  0050.7  026.1 | 099.5  001.8248  0443.4  083.4  47.98
351.0  016.3821  0052.6  026.6 | 099.1  001.8248  0443.9  083.6  47.90
352.0  016.3478  0054.9  027.1 | 098.7  001.8248  0444.4  083.9  47.82
353.0  016.3135  0056.3  027.4 | 098.4  001.8248  0444.6  084.3  47.71
354.0  016.2792  0057.2  027.6 | 098.2  001.8248  0444.6  084.7  47.57
---  --------------------------|-------------------------------------- ---
```

Table 4: FMOVER protection of WSBF-FM Clemson, South Carolina

```
        10-18-2023     Terrain Data: GLOBE 30 Sec    FMOver Analysis

        WCQS                                 WSBF-FM  BLED19920327KB

        Channel =  201C3                     Channel = 201A
        Max ERP = 1.9 kW                     Max ERP = 3 kW
        RCAMSL =   1100 m                     RCAMSL =   307 m
        N. Lat. 35 35 23.30                  N. Lat. 34 40 42.30
        W. Lng. 82 40 25.40                  W. Lng. 82 49 14.50
        Protected                            Interfering
          60  dBu                              40  dBu


  Azimuth    ERP    HAAT    Dist  | Azimuth    ERP    HAAT    Dist   Actual  IX
 (degrees)  (kW)    (m)     (km)  |(degrees)  (kW)    (m)     (km)   (dBu)  (km)
 -------------------------------|-------------------------------------------
 128.0  001.7510  0439.7  042.3 | 031.8  003.0000  0034.0  088.6  33.28
 129.0  001.7510  0439.5  042.3 | 031.7  003.0000  0034.0  087.9  33.44
 130.0  001.7510  0439.1  042.3 | 031.6  003.0000  0034.1  087.2  33.60
 131.0  001.7474  0438.4  042.2 | 031.5  003.0000  0034.2  086.4  33.76
 132.0  001.7438  0437.7  042.2 | 031.4  003.0000  0034.4  085.7  33.92
 133.0  001.7401  0437.5  042.2 | 031.3  003.0000  0034.5  085.0  34.08
 134.0  001.7365  0437.7  042.2 | 031.2  003.0000  0034.7  084.3  34.25
 135.0  001.7328  0438.0  042.1 | 031.1  003.0000  0034.9  083.6  34.41
 136.0  001.7292  0438.2  042.1 | 030.9  003.0000  0035.1  082.9  34.57
 137.0  001.7256  0438.8  042.1 | 030.8  003.0000  0035.3  082.2  34.74
 138.0  001.7220  0440.1  042.2 | 030.7  003.0000  0035.5  081.4  34.91
 139.0  001.7184  0441.8  042.3 | 030.6  003.0000  0035.7  080.7  35.07
 140.0  001.7147  0443.2  042.3 | 030.4  003.0000  0036.0  080.0  35.24
 141.0  001.7147  0443.8  042.3 | 030.3  003.0000  0036.3  079.3  35.41
 142.0  001.7147  0443.6  042.3 | 030.1  003.0000  0036.8  078.6  35.58
 143.0  001.7147  0442.2  042.3 | 029.8  003.0000  0037.4  078.0  35.76
 144.0  001.7147  0439.3  042.1 | 029.5  003.0000  0038.2  077.3  35.95
 145.0  001.7147  0434.8  041.9 | 029.1  003.0000  0039.1  076.8  36.14
 146.0  001.7147  0428.4  041.6 | 028.7  003.0000  0040.2  076.2  36.33
 147.0  001.7147  0421.1  041.3 | 028.2  003.0000  0041.3  075.8  36.51
 148.0  001.7147  0413.3  040.9 | 027.7  003.0000  0042.2  075.3  36.68
 149.0  001.7147  0405.6  040.6 | 027.2  003.0000  0042.9  074.9  36.83
 150.0  001.7147  0398.8  040.3 | 026.7  003.0000  0043.4  074.4  36.96
 151.0  001.6788  0393.3  039.9 | 026.2  003.0000  0043.7  074.1  37.06
 152.0  001.6433  0389.4  039.5 | 025.6  003.0000  0043.8  073.7  37.15
 153.0  001.6082  0385.0  039.2 | 025.1  003.0000  0043.9  073.4  37.23
 154.0  001.5734  0380.3  038.8 | 024.5  003.0000  0044.1  073.1  37.31
 155.0  001.5390  0375.3  038.4 | 024.0  003.0000  0044.4  072.8  37.39
 156.0  001.5050  0370.9  038.0 | 023.4  003.0000  0044.5  072.6  37.46
 157.0  001.4714  0367.8  037.7 | 022.8  003.0000  0044.3  072.3  37.50
 158.0  001.4381  0367.9  037.5 | 022.4  003.0000  0044.0  072.0  37.55
 159.0  001.4052  0368.7  037.4 | 021.9  003.0000  0043.5  071.6  37.59
 160.0  001.3728  0367.5  037.2 | 021.4  003.0000  0042.8  071.4  37.58
 161.0  001.3534  0366.8  037.0 | 020.9  003.0000  0042.0  071.1  37.58
 162.0  001.3343  0367.5  036.9 | 020.5  003.0000  0041.2  070.7  37.59
 163.0  001.3152  0368.2  036.9 | 020.0  003.0000  0040.5  070.4  37.59
 164.0  001.2963  0367.7  036.7 | 019.6  003.0000  0039.7  070.1  37.58
 165.0  001.2776  0366.8  036.6 | 019.1  003.0000  0039.0  069.9  37.57
 166.0  001.2589  0362.6  036.3 | 018.5  003.0000  0038.5  069.8  37.54
 167.0  001.2404  0354.2  035.7 | 017.8  003.0000  0038.0  069.9  37.47
 168.0  001.2221  0343.0  035.1 | 017.1  003.0000  0037.5  070.2  37.37
```

```
169.0  001.2039  0332.6  034.4 | 016.4  003.0000  0037.0  070.5  37.27
170.0  001.1858  0322.9  033.8 | 015.7  003.0000  0036.2  070.7  37.13
171.0  001.1412  0312.4  032.9 | 015.0  003.0000  0034.8  071.3  36.90
172.0  001.1003  0308.2  032.4 | 014.4  003.0000  0033.2  071.5  36.70
173.0  001.0602  0304.4  031.9 | 013.9  003.0000  0031.5  071.8  36.51
174.0  001.0181  0292.1  031.0 | 013.2  003.0000  0029.9  072.5  36.24
175.0  000.9768  0279.4  030.0 | 012.6  003.0000  0028.8  073.2  36.10
176.0  000.9390  0272.5  029.3 | 012.0  003.0000  0027.9  073.7  36.02
177.0  000.8994  0278.3  029.3 | 011.7  003.0000  0027.4  073.5  36.05
178.0  000.8631  0284.3  029.4 | 011.3  003.0000  0027.0  073.4  36.07
179.0  000.8276  0292.8  029.5 | 010.9  003.0000  0026.6  073.2  36.12
180.0  000.7904  0308.0  029.9 | 010.6  003.0000  0025.9  072.7  36.21
181.0  000.7807  0323.2  030.6 | 010.3  003.0000  0025.3  071.9  36.34
182.0  000.7685  0337.8  031.2 | 009.9  003.0000  0024.5  071.2  36.47
183.0  000.7589  0336.4  031.0 | 009.5  003.0000  0023.3  071.3  36.45
184.0  000.7469  0330.6  030.6 | 009.0  003.0000  0022.1  071.7  36.39
185.0  000.7374  0324.3  030.2 | 008.5  003.0000  0020.8  072.0  36.32
186.0  000.7257  0317.6  029.8 | 008.1  003.0000  0020.0  072.4  36.25
187.0  000.7140  0309.1  029.3 | 007.7  003.0000  0020.1  072.9  36.16
188.0  000.7047  0302.9  028.9 | 007.3  003.0000  0020.3  073.3  36.09
189.0  000.6932  0307.1  029.0 | 006.9  003.0000  0020.5  073.2  36.10
190.0  000.6840  0311.4  029.1 | 006.5  003.0000  0020.7  073.2  36.12
191.0  000.6863  0316.0  029.3 | 006.1  003.0000  0020.9  073.0  36.15
192.0  000.6886  0320.2  029.5 | 005.7  003.0000  0021.3  072.8  36.18
193.0  000.6909  0326.7  029.9 | 005.2  003.0000  0021.4  072.5  36.23
194.0  000.6932  0339.7  030.5 | 004.7  003.0000  0021.2  072.0  36.33
195.0  000.6954  0348.6  031.0 | 004.3  003.0000  0020.8  071.6  36.40
196.0  000.6977  0353.0  031.2 | 003.8  003.0000  0020.2  071.5  36.42
197.0  000.7001  0355.7  031.4 | 003.3  003.0000  0019.6  071.4  36.43
198.0  000.7024  0358.6  031.5 | 002.9  003.0000  0019.2  071.4  36.43
199.0  000.7047  0360.1  031.6 | 002.4  003.0000  0018.9  071.5  36.42
200.0  000.7070  0359.3  031.6 | 002.0  003.0000  0018.6  071.7  36.39
201.0  000.7398  0360.8  032.0 | 001.5  003.0000  0018.2  071.4  36.43
202.0  000.7734  0366.2  032.6 | 000.9  003.0000  0017.9  071.1  36.49
203.0  000.8077  0370.2  033.1 | 000.3  003.0000  0017.5  070.8  36.54
204.0  000.8428  0370.1  033.5 | 359.8  003.0000  0017.4  070.7  36.55
205.0  000.8786  0366.9  033.7 | 359.3  003.0000  0017.9  070.8  36.54
206.0  000.9151  0364.4  033.9 | 358.8  003.0000  0018.4  070.9  36.52
207.0  000.9524  0362.4  034.1 | 358.3  003.0000  0019.0  071.0  36.51
208.0  000.9904  0358.6  034.2 | 357.8  003.0000  0019.4  071.2  36.48
209.0  001.0292  0352.1  034.2 | 357.4  003.0000  0019.9  071.5  36.42
210.0  001.0687  0343.1  034.0 | 357.1  003.0000  0020.2  071.9  36.34
211.0  001.1119  0333.9  033.9 | 356.7  003.0000  0020.5  072.4  36.25
212.0  001.1560  0326.4  033.8 | 356.4  003.0000  0020.7  072.8  36.18
213.0  001.2008  0322.1  033.8 | 356.0  003.0000  0020.8  073.1  36.12
214.0  001.2466  0320.1  034.0 | 355.6  003.0000  0021.2  073.3  36.08
215.0  001.2932  0318.2  034.2 | 355.1  003.0000  0021.7  073.6  36.04
216.0  001.3406  0315.1  034.3 | 354.7  003.0000  0022.2  073.9  35.99
217.0  001.3889  0310.0  034.3 | 354.3  003.0000  0022.7  074.3  35.91
218.0  001.4381  0303.0  034.2 | 354.1  003.0000  0023.3  074.8  35.83
219.0  001.4881  0293.4  033.9 | 353.9  003.0000  0023.8  075.4  35.72
220.0  001.5390  0281.8  033.5 | 353.8  003.0000  0024.0  076.1  35.59
221.0  001.5734  0271.2  033.1 | 353.7  003.0000  0024.2  076.8  35.45
222.0  001.6082  0263.1  032.8 | 353.6  003.0000  0024.5  077.4  35.33
223.0  001.6433  0258.9  032.7 | 353.4  003.0000  0025.0  077.9  35.24
224.0  001.6788  0259.0  032.9 | 353.0  003.0000  0025.8  078.2  35.17
225.0  001.7147  0261.6  033.2 | 352.6  003.0000  0026.5  078.5  35.13
226.0  001.7510  0266.3  033.6 | 352.1  003.0000  0027.1  078.7  35.09
227.0  001.7877  0272.2  034.1 | 351.5  003.0000  0027.7  078.9  35.05
228.0  001.8248  0276.8  034.6 | 351.0  003.0000  0028.1  079.1  35.00
229.0  001.8622  0279.5  034.9 | 350.6  003.0000  0028.4  079.5  34.93
230.0  001.9000  0280.9  035.1 | 350.2  003.0000  0028.8  079.9  34.85
231.0  001.9000  0282.8  035.2 | 349.9  003.0000  0029.2  080.4  34.76
```

```
232.0   001.9000   0285.0   035.4 |  349.6   003.0000   0029.8   080.8   34.66
233.0   001.9000   0287.1   035.5 |  349.4   003.0000   0030.4   081.3   34.59
234.0   001.9000   0288.0   035.5 |  349.1   003.0000   0031.0   081.9   34.52
235.0   001.9000   0288.8   035.6 |  348.9   003.0000   0031.5   082.4   34.44
236.0   001.9000   0290.2   035.7 |  348.7   003.0000   0032.1   083.0   34.36
237.0   001.9000   0290.4   035.7 |  348.5   003.0000   0032.5   083.5   34.27
238.0   001.9000   0288.0   035.5 |  348.5   003.0000   0032.6   084.2   34.15
239.0   001.9000   0282.0   035.2 |  348.5   003.0000   0032.4   084.9   33.99
240.0   001.9000   0273.4   034.7 |  348.7   003.0000   0032.0   085.6   33.81
241.0   001.9000   0263.0   034.1 |  349.0   003.0000   0031.3   086.4   33.61
242.0   001.9000   0250.2   033.3 |  349.4   003.0000   0030.4   087.2   33.39
243.0   001.9000   0235.5   032.3 |  349.9   003.0000   0029.3   088.0   33.20
244.0   001.9000   0220.1   031.2 |  350.4   003.0000   0028.6   088.8   33.03
245.0   001.9000   0205.2   030.1 |  351.0   003.0000   0028.1   089.7   32.86
246.0   001.9000   0193.8   029.3 |  351.5   003.0000   0027.7   090.4   32.71
247.0   001.9000   0187.5   028.8 |  351.6   003.0000   0027.5   091.0   32.58
--- -------------------------|------------------------------------------- ---



        10-18-2023      Terrain Data: GLOBE 30 Sec    FMOver Analysis

        WSBF-FM   BLED19920327KB                 WCQS

        Channel = 201A                           Channel =  201C3
        Max ERP = 3 kW                           Max ERP = 1.9 kW
        RCAMSL =   307 m                         RCAMSL =   1100 m
        N. Lat. 34 40 42.30                      N. Lat. 35 35 23.30
        W. Lng. 82 49 14.50                      W. Lng. 82 40 25.40
        Protected                                Interfering
          60   dBu                                 40   dBu
```

| Azimuth | ERP | HAAT | Dist | | Azimuth | ERP | HAAT | Dist | Actual | IX |
(degrees)	(kW)	(m)	(km)		(degrees)	(kW)	(m)	(km)	(dBu)	(km)
307.0	003.0000	0060.1	019.0		197.6	000.7015	0357.5	094.3	37.60	
308.0	003.0000	0058.9	018.8		197.5	000.7012	0357.0	094.1	37.65	
309.0	003.0000	0059.7	018.9		197.5	000.7011	0357.0	093.7	37.76	
310.0	003.0000	0062.2	019.3		197.6	000.7014	0357.4	093.3	37.91	
311.0	003.0000	0064.8	019.7		197.7	000.7017	0357.8	092.8	38.07	
312.0	003.0000	0066.9	019.9		197.8	000.7019	0358.0	092.4	38.21	
313.0	003.0000	0068.1	020.1		197.8	000.7019	0358.0	092.0	38.33	
314.0	003.0000	0068.1	020.1		197.7	000.7017	0357.7	091.7	38.42	
315.0	003.0000	0066.9	020.0		197.5	000.7013	0357.2	091.4	38.47	
316.0	003.0000	0064.8	019.7		197.3	000.7006	0356.4	091.3	38.50	
317.0	003.0000	0062.1	019.3		196.9	000.6999	0355.5	091.2	38.50	
318.0	003.0000	0060.0	019.0		196.7	000.6993	0354.8	091.0	38.52	
319.0	003.0000	0060.0	019.0		196.6	000.6990	0354.5	090.7	38.60	
320.0	003.0000	0061.7	019.2		196.6	000.6991	0354.6	090.3	38.73	
321.0	003.0000	0063.6	019.5		196.6	000.6991	0354.6	089.9	38.87	
322.0	003.0000	0065.1	019.7		196.6	000.6991	0354.6	089.5	39.00	
323.0	003.0000	0066.2	019.9		196.5	000.6990	0354.5	089.1	39.11	
324.0	003.0000	0066.7	019.9		196.4	000.6988	0354.2	088.8	39.20	
325.0	003.0000	0066.6	019.9		196.3	000.6984	0353.8	088.5	39.28	
326.0	003.0000	0066.5	019.9		196.1	000.6981	0353.4	088.3	39.34	
327.0	003.0000	0066.0	019.8		196.0	000.6977	0352.9	088.1	39.40	
328.0	003.0000	0065.3	019.7		195.8	000.6972	0352.2	087.9	39.43	
329.0	003.0000	0063.9	019.5		195.5	000.6966	0351.2	087.8	39.44	
330.0	003.0000	0062.2	019.3		195.3	000.6960	0350.0	087.7	39.42	
331.0	003.0000	0061.0	019.1		195.0	000.6955	0348.7	087.6	39.41	
332.0	003.0000	0060.6	019.1		194.8	000.6951	0347.4	087.4	39.43	
333.0	003.0000	0060.8	019.1		194.7	000.6947	0346.3	087.1	39.47	

```
334.0  003.0000  0061.0  019.1 | 194.5  000.6944  0345.1  086.9  39.51
335.0  003.0000  0061.1  019.1 | 194.4  000.6940  0343.6  086.7  39.54
336.0  003.0000  0060.8  019.1 | 194.2  000.6935  0341.6  086.5  39.53
337.0  003.0000  0059.9  019.0 | 193.9  000.6930  0339.0  086.4  39.48
338.0  003.0000  0059.1  018.8 | 193.7  000.6925  0336.1  086.3  39.41
339.0  003.0000  0058.7  018.8 | 193.5  000.6920  0333.3  086.2  39.37
340.0  003.0000  0058.1  018.7 | 193.3  000.6916  0330.4  086.1  39.31
341.0  003.0000  0056.3  018.4 | 193.0  000.6909  0326.9  086.1  39.17
342.0  003.0000  0053.2  017.8 | 192.6  000.6901  0323.5  086.4  38.96
343.0  003.0000  0049.9  017.2 | 192.3  000.6892  0321.3  086.8  38.75
344.0  003.0000  0046.7  016.5 | 191.9  000.6883  0319.7  087.3  38.56
345.0  003.0000  0042.9  015.7 | 191.5  000.6874  0318.0  087.9  38.31
346.0  003.0000  0038.7  014.9 | 191.1  000.6865  0316.3  088.5  38.04
347.0  003.0000  0035.7  014.3 | 190.8  000.6858  0315.1  089.0  37.86
348.0  003.0000  0033.5  013.9 | 190.5  000.6852  0314.0  089.3  37.73
349.0  003.0000  0031.3  013.5 | 190.3  000.6847  0312.8  089.5  37.60
350.0  003.0000  0029.1  013.2 | 190.1  000.6842  0311.9  089.7  37.52
351.0  003.0000  0028.1  013.2 | 190.0  000.6844  0311.2  089.6  37.53
352.0  003.0000  0027.2  013.2 | 189.8  000.6857  0310.6  089.5  37.54
353.0  003.0000  0025.9  013.2 | 189.7  000.6870  0310.1  089.5  37.56
354.0  003.0000  0023.5  013.2 | 189.5  000.6883  0309.6  089.4  37.57
355.0  003.0000  0021.8  013.2 | 189.4  000.6896  0309.0  089.3  37.58
356.0  003.0000  0020.8  013.2 | 189.2  000.6909  0308.4  089.3  37.58
357.0  003.0000  0020.3  013.2 | 189.1  000.6922  0307.7  089.2  37.58
358.0  003.0000  0019.2  013.2 | 189.0  000.6937  0306.8  089.2  37.58
359.0  003.0000  0018.2  013.2 | 188.8  000.6954  0306.0  089.1  37.58
000.0  003.0000  0017.3  013.2 | 188.7  000.6970  0305.2  089.1  37.57
001.0  003.0000  0017.9  013.2 | 188.5  000.6987  0304.4  089.1  37.57
002.0  003.0000  0018.6  013.2 | 188.4  000.7004  0303.7  089.1  37.57
003.0  003.0000  0019.3  013.2 | 188.2  000.7021  0303.2  089.0  37.57
004.0  003.0000  0020.5  013.2 | 188.1  000.7039  0302.9  089.0  37.58
005.0  003.0000  0021.4  013.2 | 187.9  000.7054  0302.9  089.0  37.59
006.0  003.0000  0021.0  013.2 | 187.8  000.7068  0303.3  089.0  37.61
007.0  003.0000  0020.4  013.2 | 187.6  000.7081  0303.9  089.0  37.64
008.0  003.0000  0020.0  013.2 | 187.5  000.7095  0304.9  089.0  37.68
009.0  003.0000  0022.1  013.2 | 187.3  000.7109  0306.1  089.0  37.73
010.0  003.0000  0024.7  013.2 | 187.2  000.7123  0307.5  089.0  37.78
011.0  003.0000  0026.7  013.2 | 187.0  000.7137  0308.8  089.0  37.82
012.0  003.0000  0027.9  013.2 | 186.9  000.7153  0310.1  089.0  37.87
013.0  003.0000  0029.5  013.2 | 186.7  000.7170  0311.5  089.1  37.92
014.0  003.0000  0031.8  013.6 | 186.6  000.7191  0313.2  088.8  38.08
015.0  003.0000  0034.7  014.1 | 186.4  000.7215  0315.0  088.3  38.30
016.0  003.0000  0036.6  014.4 | 186.2  000.7238  0316.5  087.9  38.46
017.0  003.0000  0037.5  014.6 | 186.0  000.7259  0317.8  087.8  38.56
018.0  003.0000  0038.1  014.8 | 185.8  000.7281  0318.8  087.7  38.62
019.0  003.0000  0038.9  014.9 | 185.6  000.7303  0319.7  087.6  38.70
020.0  003.0000  0040.4  015.2 | 185.4  000.7328  0321.0  087.4  38.82
021.0  003.0000  0042.1  015.6 | 185.2  000.7355  0322.9  087.2  38.98
022.0  003.0000  0043.6  015.9 | 184.9  000.7381  0325.0  086.9  39.14
023.0  003.0000  0044.4  016.0 | 184.7  000.7401  0326.5  086.8  39.22
024.0  003.0000  0044.4  016.0 | 184.5  000.7417  0327.4  086.9  39.23
025.0  003.0000  0044.0  016.0 | 184.4  000.7432  0328.3  087.1  39.21
026.0  003.0000  0043.7  015.9 | 184.2  000.7447  0329.2  087.3  39.20
027.0  003.0000  0043.2  015.8 | 184.1  000.7460  0330.1  087.5  39.17
028.0  003.0000  0041.7  015.5 | 184.0  000.7468  0330.5  087.9  39.06
029.0  003.0000  0039.5  015.0 | 184.0  000.7472  0330.7  088.4  38.90
030.0  003.0000  0037.0  014.5 | 184.0  000.7473  0330.8  089.0  38.72
031.0  003.0000  0035.0  014.1 | 183.9  000.7477  0331.0  089.4  38.59
032.0  003.0000  0033.8  013.9 | 183.9  000.7486  0331.4  089.7  38.51
033.0  003.0000  0033.6  013.9 | 183.7  000.7501  0332.2  089.9  38.49
034.0  003.0000  0033.4  013.8 | 183.6  000.7515  0332.9  090.0  38.47
035.0  003.0000  0032.2  013.6 | 183.6  000.7522  0333.3  090.3  38.39
036.0  003.0000  0029.9  013.2 | 183.6  000.7521  0333.2  090.8  38.24
```

```
037.0  003.0000  0027.2  013.2 |  183.4  000.7536  0334.0  090.9  38.23
038.0  003.0000  0025.1  013.2 |  183.3  000.7550  0334.7  091.1  38.22
039.0  003.0000  0023.8  013.2 |  183.2  000.7564  0335.4  091.2  38.21
040.0  003.0000  0023.6  013.2 |  183.1  000.7578  0336.0  091.3  38.19
041.0  003.0000  0024.0  013.2 |  183.0  000.7591  0336.5  091.5  38.17
042.0  003.0000  0024.3  013.2 |  182.9  000.7602  0337.0  091.6  38.15
043.0  003.0000  0024.4  013.2 |  182.8  000.7613  0337.3  091.8  38.12
044.0  003.0000  0024.8  013.2 |  182.6  000.7623  0337.6  091.9  38.08
045.0  003.0000  0026.0  013.2 |  182.5  000.7634  0337.8  092.1  38.05
046.0  003.0000  0027.4  013.2 |  182.4  000.7644  0338.0  092.2  38.01
047.0  003.0000  0028.4  013.2 |  182.3  000.7654  0338.3  092.4  37.97
048.0  003.0000  0028.8  013.2 |  182.2  000.7663  0338.5  092.6  37.93
049.0  003.0000  0028.9  013.2 |  182.1  000.7673  0338.4  092.7  37.89
050.0  003.0000  0029.6  013.2 |  182.0  000.7682  0338.0  092.9  37.83
051.0  003.0000  0031.5  013.5 |  181.8  000.7708  0335.7  092.9  37.77
052.0  003.0000  0034.0  014.0 |  181.5  000.7747  0330.8  092.8  37.68
053.0  003.0000  0036.5  014.4 |  181.2  000.7786  0325.9  092.7  37.58
054.0  003.0000  0038.4  014.8 |  180.9  000.7818  0321.5  092.6  37.48
055.0  003.0000  0039.7  015.1 |  180.7  000.7839  0318.2  092.7  37.36
056.0  003.0000  0040.4  015.2 |  180.5  000.7855  0315.7  092.8  37.25
057.0  003.0000  0040.6  015.2 |  180.4  000.7866  0314.0  093.0  37.14
058.0  003.0000  0041.0  015.3 |  180.3  000.7879  0311.9  093.2  37.03
059.0  003.0000  0042.5  015.6 |  180.0  000.7903  0308.2  093.3  36.91
060.0  003.0000  0045.0  016.2 |  179.6  000.8039  0302.4  093.2  36.81
061.0  003.0000  0047.6  016.7 |  179.3  000.8179  0296.7  093.2  36.71
062.0  003.0000  0049.2  017.1 |  179.0  000.8278  0292.8  093.3  36.61
063.0  003.0000  0049.7  017.2 |  178.9  000.8328  0291.5  093.6  36.52
064.0  003.0000  0049.6  017.1 |  178.8  000.8349  0290.9  093.8  36.43
065.0  003.0000  0049.0  017.0 |  178.8  000.8354  0290.8  094.2  36.33
066.0  003.0000  0048.3  016.9 |  178.8  000.8351  0290.9  094.5  36.23
---  --------------------------|------------------------------------------ ---
```

Table 5: FMOVER protection of WJYJ Hickory, North Carolina

```
    10-18-2023     Terrain Data: GLOBE 30 Sec    FMOver Analysis

    WCQS                                WJYJ  BLED20011024AAG

    Channel =  201C3                    Channel = 201C2
    Max ERP = 1.9 kW                    Max ERP = 26.5 kW
    RCAMSL =  1100 m                    RCAMSL =  372 m
    N. Lat. 35 35 23.30                 N. Lat. 35 43 34.50
    W. Lng. 82 40 25.40                 W. Lng. 81 08 51.30
    Protected                           Interfering
       60  dBu                             40  dBu
```

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
023.0	001.8660	0469.7	044.3	282.4	026.5000	0047.3	122.9	36.69	
024.0	001.8697	0471.2	044.4	282.4	026.5000	0047.3	122.1	36.83	
025.0	001.8735	0472.2	044.5	282.3	026.5000	0047.3	121.4	36.97	
026.0	001.8810	0472.3	044.5	282.3	026.5000	0047.3	120.6	37.11	
027.0	001.8848	0471.7	044.5	282.2	026.5000	0047.4	119.8	37.25	
028.0	001.8886	0471.3	044.5	282.0	026.5000	0047.4	119.1	37.39	
029.0	001.8924	0471.1	044.5	281.9	026.5000	0047.4	118.4	37.53	
030.0	001.8962	0470.1	044.5	281.8	026.5000	0047.4	117.6	37.66	
031.0	001.8962	0467.9	044.4	281.6	026.5000	0047.5	116.9	37.79	
032.0	001.8962	0465.1	044.2	281.4	026.5000	0047.5	116.3	37.92	
033.0	001.8962	0463.0	044.1	281.2	026.5000	0047.6	115.6	38.05	
034.0	001.8962	0462.1	044.1	281.1	026.5000	0047.6	114.9	38.18	
035.0	001.9000	0462.4	044.1	280.9	026.5000	0047.7	114.2	38.31	
036.0	001.9000	0462.9	044.1	280.8	026.5000	0047.7	113.5	38.44	
037.0	001.9000	0463.4	044.2	280.6	026.5000	0047.8	112.8	38.57	
038.0	001.9000	0463.0	044.1	280.4	026.5000	0047.8	112.1	38.70	
039.0	001.9000	0461.1	044.0	280.2	026.5000	0047.9	111.5	38.82	
040.0	001.9000	0458.0	043.9	279.9	026.3965	0048.1	110.9	38.92	
041.0	001.9000	0454.9	043.7	279.6	026.0784	0048.2	110.3	38.98	
042.0	001.9000	0452.0	043.6	279.4	025.7576	0048.4	109.8	39.04	
043.0	001.9000	0448.9	043.5	279.1	025.4277	0048.6	109.2	39.09	
044.0	001.9000	0445.3	043.3	278.8	025.0820	0048.8	108.7	39.13	
045.0	001.9000	0441.6	043.1	278.5	024.7256	0048.8	108.2	39.16	
046.0	001.9000	0437.7	042.9	278.1	024.3631	0048.8	107.7	39.19	
047.0	001.9000	0433.1	042.7	277.8	023.9821	0048.8	107.3	39.20	
048.0	001.9000	0427.9	042.5	277.4	023.5848	0048.7	106.9	39.20	
049.0	001.9000	0423.5	042.2	277.1	023.2043	0048.6	106.5	39.20	
050.0	001.9000	0421.4	042.2	276.8	022.8656	0048.6	106.0	39.22	
051.0	001.9000	0421.2	042.1	276.5	022.5578	0048.6	105.5	39.26	
052.0	001.9000	0420.6	042.1	276.2	022.2381	0048.6	105.0	39.29	
053.0	001.9000	0417.9	042.0	275.8	021.8746	0048.8	104.6	39.30	
054.0	001.9000	0413.0	041.8	275.5	021.4715	0049.0	104.3	39.29	
055.0	001.9000	0407.0	041.5	275.1	021.0495	0049.3	104.0	39.26	
056.0	001.9000	0400.1	041.2	274.6	020.6180	0049.7	103.8	39.23	
057.0	001.9000	0392.7	040.9	274.2	020.1832	0050.4	103.7	39.19	
058.0	001.9000	0385.0	040.5	273.8	019.7486	0051.0	103.5	39.15	
059.0	001.9000	0378.5	040.2	273.4	019.3374	0051.6	103.4	39.11	
060.0	001.9000	0375.3	040.1	273.0	018.9715	0052.1	103.1	39.10	
061.0	001.9000	0376.4	040.1	272.7	018.6583	0052.5	102.7	39.12	
062.0	001.9000	0380.8	040.3	272.4	018.3804	0052.9	102.2	39.17	
063.0	001.9000	0387.4	040.6	272.1	018.1189	0053.2	101.6	39.24	

```
064.0  001.9000  0396.1  041.0 |  271.9  017.8731  0053.5  100.9  39.32
065.0  001.9000  0405.3  041.4 |  271.6  017.6226  0053.8  100.2  39.41
066.0  001.9000  0413.2  041.8 |  271.3  017.3475  0054.2  099.6  39.48
067.0  001.9000  0417.6  042.0 |  271.0  017.0295  0054.6  099.1  39.51
068.0  001.9000  0416.0  041.9 |  270.6  016.6501  0055.1  098.9  39.48
069.0  001.9000  0410.8  041.7 |  270.1  016.2423  0055.6  098.9  39.40
070.0  001.9000  0403.6  041.3 |  269.7  016.0415  0056.2  098.9  39.36
071.0  001.8962  0397.4  041.0 |  269.2  015.9308  0056.8  099.0  39.34
072.0  001.8962  0391.1  040.8 |  268.8  015.8220  0057.3  099.0  39.32
073.0  001.8924  0383.3  040.4 |  268.3  015.7117  0057.9  099.2  39.28
074.0  001.8886  0374.5  040.0 |  267.9  015.6021  0058.5  099.4  39.23
075.0  001.8886  0366.5  039.6 |  267.4  015.4959  0059.0  099.6  39.17
076.0  001.8848  0361.7  039.4 |  267.0  015.3949  0059.3  099.8  39.13
077.0  001.8810  0363.2  039.4 |  266.6  015.3017  0059.4  099.6  39.15
078.0  001.8773  0368.3  039.7 |  266.3  015.2111  0059.5  099.3  39.19
079.0  001.8773  0374.4  039.9 |  265.9  015.1197  0059.5  098.9  39.24
080.0  001.8735  0381.1  040.2 |  265.5  015.0264  0059.3  098.6  39.28
081.0  001.8697  0386.2  040.4 |  265.1  014.9306  0059.2  098.3  39.29
082.0  001.8622  0391.0  040.6 |  264.7  014.8334  0059.0  098.1  39.30
083.0  001.8584  0396.1  040.8 |  264.3  014.7353  0058.7  097.9  39.31
084.0  001.8509  0401.2  041.0 |  263.9  014.6361  0058.7  097.7  39.32
085.0  001.8472  0407.6  041.3 |  263.4  014.5355  0058.8  097.4  39.35
086.0  001.8434  0413.5  041.5 |  263.0  014.4337  0059.0  097.2  39.37
087.0  001.8359  0418.7  041.7 |  262.6  014.3314  0059.3  097.1  39.38
088.0  001.8322  0422.5  041.9 |  262.1  014.2290  0059.8  097.0  39.39
089.0  001.8248  0425.8  042.0 |  261.7  014.1272  0060.3  097.0  39.38
090.0  001.8210  0429.0  042.1 |  261.2  014.0250  0060.9  097.0  39.38
091.0  001.8210  0432.2  042.3 |  260.8  013.9224  0061.5  096.9  39.38
092.0  001.8210  0434.1  042.4 |  260.4  013.8216  0062.1  097.0  39.35
093.0  001.8210  0435.4  042.4 |  259.9  013.7325  0062.6  097.1  39.32
094.0  001.8210  0436.0  042.5 |  259.5  013.6999  0063.2  097.3  39.30
095.0  001.8210  0437.3  042.5 |  259.1  013.6672  0063.9  097.4  39.29
096.0  001.8248  0439.5  042.7 |  258.6  013.6339  0064.4  097.5  39.28
097.0  001.8248  0442.4  042.8 |  258.2  013.6004  0064.7  097.7  39.25
098.0  001.8248  0444.5  042.9 |  257.8  013.5677  0064.9  097.8  39.22
099.0  001.8248  0444.0  042.9 |  257.4  013.5373  0065.0  098.1  39.15
100.0  001.8248  0442.7  042.8 |  257.0  013.5080  0065.3  098.5  39.08
101.0  001.8322  0441.7  042.8 |  256.6  013.4784  0065.6  098.8  39.01
102.0  001.8397  0441.7  042.8 |  256.2  013.4484  0065.9  099.1  38.95
103.0  001.8472  0443.2  042.9 |  255.8  013.4173  0066.2  099.3  38.90
104.0  001.8547  0445.1  043.1 |  255.4  013.3861  0066.5  099.6  38.85
105.0  001.8622  0446.1  043.1 |  255.0  013.3561  0066.8  099.9  38.79
106.0  001.8697  0446.3  043.2 |  254.6  013.3275  0067.2  100.3  38.72
107.0  001.8773  0446.0  043.2 |  254.2  013.3000  0067.6  100.6  38.65
108.0  001.8848  0445.3  043.2 |  253.9  013.2734  0067.8  101.1  38.56
109.0  001.8924  0444.6  043.2 |  253.5  013.2474  0067.9  101.5  38.47
110.0  001.9000  0443.2  043.2 |  253.2  013.2227  0068.0  102.0  38.37
111.0  001.8848  0441.4  043.0 |  252.9  013.2020  0068.0  102.6  38.24
112.0  001.8697  0438.9  042.8 |  252.7  013.1831  0068.1  103.2  38.12
113.0  001.8547  0435.9  042.6 |  252.4  013.1654  0068.2  103.9  37.99
114.0  001.8397  0433.4  042.4 |  252.2  013.1480  0068.3  104.5  37.86
115.0  001.8248  0432.4  042.3 |  251.9  013.1293  0068.4  105.1  37.74
116.0  001.8136  0433.4  042.3 |  251.7  013.1081  0068.6  105.6  37.64
117.0  001.7988  0435.7  042.4 |  251.4  013.0862  0068.7  106.1  37.55
118.0  001.7840  0438.4  042.4 |  251.1  013.0643  0068.9  106.6  37.45
119.0  001.7693  0440.6  042.4 |  250.8  013.0438  0069.0  107.1  37.34
120.0  001.7547  0442.6  042.5 |  250.5  013.0241  0069.2  107.7  37.24
121.0  001.7547  0443.8  042.5 |  250.3  013.0040  0069.4  108.2  37.14
122.0  001.7547  0444.2  042.5 |  250.0  012.9856  0069.7  108.8  37.04
123.0  001.7547  0443.8  042.5 |  249.8  012.9689  0070.0  109.4  36.93
124.0  001.7547  0443.1  042.5 |  249.6  012.9533  0070.4  110.0  36.82
125.0  001.7547  0442.2  042.4 |  249.4  012.9388  0070.7  110.7  36.71
126.0  001.7510  0441.1  042.4 |  249.2  012.9257  0071.1  111.3  36.60
```

```
127.0  001.7510  0440.2  042.3 | 249.0  012.9123  0071.4  112.0  36.49
128.0  001.7510  0439.7  042.3 | 248.8  012.8989  0071.8  112.6  36.38
129.0  001.7510  0439.5  042.3 | 248.7  012.8855  0072.1  113.3  36.27
130.0  001.7510  0439.1  042.3 | 248.5  012.8731  0072.4  113.9  36.15
131.0  001.7474  0438.4  042.2 | 248.3  012.8624  0072.6  114.6  36.03
132.0  001.7438  0437.7  042.2 | 248.2  012.8523  0072.8  115.3  35.91
133.0  001.7401  0437.5  042.2 | 248.1  012.8419  0073.0  116.0  35.80
134.0  001.7365  0437.7  042.2 | 247.9  012.8314  0073.1  116.7  35.68
135.0  001.7328  0438.0  042.1 | 247.8  012.8215  0073.3  117.3  35.56
136.0  001.7292  0438.2  042.1 | 247.7  012.8122  0073.4  118.0  35.44
137.0  001.7256  0438.8  042.1 | 247.5  012.8028  0073.6  118.7  35.32
138.0  001.7220  0440.1  042.2 | 247.4  012.7928  0073.7  119.4  35.20
139.0  001.7184  0441.8  042.3 | 247.3  012.7827  0073.8  120.1  35.08
140.0  001.7147  0443.2  042.3 | 247.1  012.7737  0073.9  120.8  34.96
141.0  001.7147  0443.8  042.3 | 247.0  012.7657  0073.9  121.5  34.84
142.0  001.7147  0443.6  042.3 | 246.9  012.7595  0074.0  122.2  34.71
--- ------------------------|-------------------------------------------- ---
```

```
     10-18-2023      Terrain Data: GLOBE 30 Sec    FMOver Analysis

     WJYJ   BLED20011024AAG                WCQS

     Channel = 201C2                       Channel =  201C3
     Max ERP = 26.5 kW                     Max ERP = 1.9 kW
     RCAMSL =   372 m                      RCAMSL =  1100 m
     N. Lat. 35 43 34.50                   N. Lat. 35 35 23.30
     W. Lng. 81 08 51.30                   W. Lng. 82 40 25.40
     Protected                             Interfering
       60  dBu                               40  dBu
```

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
204.0	014.1993	0076.5	030.3	095.3	001.8221	0437.6	126.4	35.65	
205.0	013.7376	0077.3	030.2	095.2	001.8217	0437.5	125.9	35.76	
206.0	013.2835	0078.0	030.1	095.0	001.8212	0437.3	125.4	35.87	
207.0	012.8370	0078.1	029.9	094.9	001.8210	0437.1	125.0	35.97	
208.0	012.3982	0078.0	029.7	094.7	001.8210	0436.7	124.6	36.06	
209.0	011.9670	0078.5	029.5	094.5	001.8210	0436.4	124.2	36.15	
210.0	011.5434	0079.5	029.4	094.4	001.8210	0436.3	123.8	36.26	
211.0	011.5434	0080.1	029.5	094.3	001.8210	0436.2	123.3	36.39	
212.0	011.5434	0079.7	029.5	094.2	001.8210	0436.1	122.8	36.49	
213.0	011.5434	0078.6	029.3	094.0	001.8210	0436.0	122.5	36.59	
214.0	011.5434	0077.8	029.1	093.8	001.8210	0435.9	122.1	36.68	
215.0	011.5434	0077.1	029.0	093.7	001.8210	0435.8	121.7	36.77	
216.0	011.5434	0075.9	028.8	093.5	001.8210	0435.7	121.4	36.85	
217.0	011.5434	0074.2	028.5	093.2	001.8210	0435.5	121.1	36.91	
218.0	011.5434	0072.5	028.2	093.0	001.8210	0435.3	120.9	36.97	
219.0	011.5434	0071.4	028.0	092.8	001.8210	0435.2	120.6	37.04	
220.0	011.5434	0071.1	028.0	092.6	001.8210	0435.0	120.2	37.13	
221.0	011.5434	0071.3	028.0	092.5	001.8210	0434.8	119.8	37.23	
222.0	011.5434	0071.2	028.0	092.3	001.8210	0434.6	119.4	37.32	
223.0	011.5434	0070.3	027.8	092.1	001.8210	0434.3	119.2	37.38	
224.0	011.5434	0068.9	027.6	091.9	001.8210	0433.9	118.9	37.42	
225.0	011.5434	0067.9	027.4	091.7	001.8210	0433.4	118.7	37.47	
226.0	011.6135	0067.4	027.4	091.5	001.8210	0433.0	118.4	37.54	
227.0	011.6837	0067.0	027.3	091.3	001.8210	0432.7	118.1	37.62	
228.0	011.7542	0066.5	027.3	091.1	001.8210	0432.4	117.8	37.68	
229.0	011.8249	0065.8	027.2	090.9	001.8210	0432.1	117.5	37.74	
230.0	011.8959	0065.4	027.2	090.8	001.8210	0431.5	117.2	37.80	

```
231.0  011.9314  0065.7  027.2 | 090.6  001.8210  0431.0  116.8  37.88
232.0  011.9670  0066.4  027.4 | 090.5  001.8210  0430.6  116.4  37.98
233.0  012.0026  0067.1  027.5 | 090.3  001.8210  0430.1  116.0  38.07
234.0  012.0383  0067.4  027.6 | 090.2  001.8210  0429.6  115.7  38.14
235.0  012.0741  0067.3  027.6 | 090.0  001.8212  0428.9  115.4  38.20
236.0  012.1099  0067.3  027.6 | 089.8  001.8219  0428.3  115.1  38.26
237.0  012.1457  0067.8  027.7 | 089.6  001.8225  0427.8  114.7  38.33
238.0  012.1816  0068.5  027.8 | 089.4  001.8231  0427.2  114.4  38.42
239.0  012.2176  0069.3  028.0 | 089.3  001.8237  0426.7  114.0  38.50
240.0  012.2536  0070.5  028.2 | 089.1  001.8243  0426.2  113.5  38.61
241.0  012.3258  0072.0  028.5 | 089.0  001.8249  0425.7  113.0  38.73
242.0  012.3982  0073.5  028.9 | 088.8  001.8260  0425.2  112.5  38.85
243.0  012.4708  0074.4  029.0 | 088.6  001.8274  0424.6  112.1  38.93
244.0  012.5436  0074.6  029.1 | 088.4  001.8290  0423.9  111.8  38.99
245.0  012.6166  0074.2  029.1 | 088.2  001.8308  0423.1  111.6  39.02
246.0  012.6899  0074.2  029.1 | 088.0  001.8324  0422.3  111.4  39.06
247.0  012.7634  0074.0  029.1 | 087.7  001.8333  0421.5  111.2  39.09
248.0  012.8370  0073.1  029.0 | 087.4  001.8343  0420.7  111.1  39.09
249.0  012.9109  0071.5  028.8 | 087.2  001.8354  0419.3  111.2  39.04
250.0  012.9850  0069.7  028.5 | 086.9  001.8370  0418.1  111.3  38.98
251.0  013.0593  0068.9  028.4 | 086.6  001.8389  0416.7  111.3  38.95
252.0  013.1338  0068.4  028.3 | 086.4  001.8408  0415.4  111.2  38.94
253.0  013.2086  0068.0  028.3 | 086.1  001.8427  0414.0  111.1  38.93
254.0  013.2835  0067.7  028.3 | 085.9  001.8440  0412.7  111.0  38.92
255.0  013.3587  0066.8  028.1 | 085.6  001.8450  0411.1  111.0  38.87
256.0  013.4340  0066.0  028.0 | 085.3  001.8459  0409.6  111.0  38.83
257.0  013.5096  0065.3  027.9 | 085.1  001.8469  0408.0  111.0  38.78
258.0  013.5854  0064.8  027.9 | 084.8  001.8478  0406.5  111.0  38.74
259.0  013.6614  0064.0  027.8 | 084.6  001.8488  0404.9  111.1  38.68
260.0  013.7376  0062.5  027.5 | 084.3  001.8498  0403.3  111.3  38.59
261.0  013.9675  0061.2  027.4 | 084.1  001.8507  0401.6  111.3  38.52
262.0  014.1993  0059.9  027.3 | 083.8  001.8524  0399.9  111.4  38.45
263.0  014.4331  0059.0  027.2 | 083.6  001.8542  0398.6  111.5  38.40
264.0  014.6687  0058.7  027.2 | 083.3  001.8560  0397.6  111.5  38.38
265.0  014.9063  0059.1  027.4 | 083.1  001.8579  0396.4  111.3  38.40
266.0  015.1457  0059.5  027.6 | 082.8  001.8591  0395.1  111.1  38.41
267.0  015.3871  0059.3  027.6 | 082.6  001.8600  0393.8  111.1  38.38
268.0  015.6303  0058.3  027.5 | 082.3  001.8610  0392.6  111.2  38.31
269.0  015.8755  0057.1  027.4 | 082.1  001.8619  0391.4  111.4  38.22
270.0  016.1226  0055.8  027.2 | 081.9  001.8633  0390.3  111.7  38.13
271.0  017.0449  0054.5  027.3 | 081.6  001.8651  0389.1  111.7  38.10
272.0  017.9929  0053.4  027.3 | 081.4  001.8670  0387.9  111.7  38.07
273.0  018.9665  0052.1  027.3 | 081.1  001.8688  0386.8  111.8  38.02
274.0  019.9657  0050.7  027.3 | 080.9  001.8701  0385.7  111.9  37.95
275.0  020.9906  0049.3  027.2 | 080.7  001.8710  0384.5  112.0  37.88
276.0  022.0412  0048.7  027.4 | 080.4  001.8720  0383.2  112.0  37.85
277.0  023.1174  0048.6  027.7 | 080.1  001.8730  0381.8  111.9  37.84
278.0  024.2193  0048.8  028.0 | 079.8  001.8741  0380.2  111.7  37.85
279.0  025.3468  0048.7  028.2 | 079.6  001.8751  0378.5  111.6  37.82
280.0  026.5000  0048.0  028.3 | 079.3  001.8761  0376.6  111.7  37.74
281.0  026.5000  0047.6  028.2 | 079.1  001.8769  0375.0  112.0  37.62
282.0  026.5000  0047.4  028.2 | 078.9  001.8773  0373.5  112.2  37.51
283.0  026.5000  0047.4  028.2 | 078.6  001.8773  0372.1  112.4  37.41
284.0  026.5000  0047.6  028.2 | 078.4  001.8773  0370.6  112.6  37.32
285.0  026.5000  0047.6  028.2 | 078.2  001.8773  0369.2  112.7  37.21
286.0  026.5000  0048.0  028.3 | 077.9  001.8776  0367.8  112.9  37.13
287.0  026.5000  0049.0  028.6 | 077.6  001.8787  0366.2  112.9  37.07
288.0  026.5000  0050.1  028.9 | 077.3  001.8798  0364.6  112.8  37.02
289.0  026.5000  0051.0  029.2 | 077.0  001.8809  0363.3  112.9  36.96
290.0  026.5000  0051.4  029.3 | 076.8  001.8818  0362.5  113.1  36.89
291.0  026.5000  0051.3  029.3 | 076.6  001.8826  0362.0  113.3  36.79
292.0  026.5000  0051.2  029.2 | 076.4  001.8834  0361.7  113.7  36.70
293.0  026.5000  0050.9  029.2 | 076.2  001.8841  0361.6  114.0  36.61
```

```
294.0  026.5000  0050.5  029.1 |  076.0  001.8848  0361.7  114.4  36.51
295.0  026.5000  0050.2  029.0 |  075.8  001.8854  0362.1  114.8  36.44
296.0  026.5000  0050.0  028.9 |  075.7  001.8861  0362.7  115.1  36.37
297.0  026.5000  0050.0  028.9 |  075.5  001.8868  0363.6  115.5  36.32
298.0  026.5000  0050.4  029.0 |  075.3  001.8877  0364.8  115.7  36.31
299.0  026.5000  0051.6  029.3 |  075.0  001.8886  0366.8  115.8  36.36
300.0  026.5000  0052.6  029.6 |  074.7  001.8886  0368.9  116.0  36.40
301.0  026.5000  0052.4  029.6 |  074.5  001.8886  0370.2  116.4  36.34
302.0  026.5000  0051.0  029.2 |  074.5  001.8886  0370.5  117.0  36.19
303.0  026.5000  0049.4  028.7 |  074.5  001.8886  0370.6  117.7  36.02
304.0  026.5000  0048.7  028.5 |  074.4  001.8886  0371.3  118.2  35.92
305.0  026.5000  0049.0  028.6 |  074.2  001.8886  0372.8  118.5  35.89
306.0  026.5000  0049.9  028.9 |  073.9  001.8888  0375.0  118.7  35.91
307.0  026.5000  0050.9  029.1 |  073.7  001.8898  0377.3  119.0  35.92
308.0  026.5000  0051.6  029.4 |  073.5  001.8907  0379.3  119.3  35.92
309.0  026.5000  0052.3  029.5 |  073.2  001.8915  0381.2  119.6  35.90
310.0  026.5000  0053.0  029.7 |  073.0  001.8923  0383.0  119.9  35.87
311.0  026.5000  0053.7  029.9 |  072.8  001.8931  0384.8  120.2  35.84
312.0  026.5000  0054.6  030.2 |  072.6  001.8940  0386.7  120.5  35.82
313.0  026.5000  0055.6  030.4 |  072.4  001.8949  0388.5  120.9  35.79
314.0  026.5000  0056.9  030.7 |  072.1  001.8958  0390.4  121.2  35.77
315.0  026.5000  0058.5  031.1 |  071.8  001.8962  0392.4  121.5  35.76
316.0  026.5000  0060.0  031.5 |  071.5  001.8962  0394.2  121.8  35.73
317.0  026.5000  0061.3  031.8 |  071.3  001.8962  0395.7  122.1  35.68
318.0  026.5000  0061.9  031.9 |  071.1  001.8962  0396.6  122.6  35.59
319.0  026.5000  0061.7  031.9 |  071.1  001.8962  0397.1  123.1  35.47
320.0  026.5000  0061.1  031.7 |  071.0  001.8962  0397.3  123.7  35.34
321.0  026.5000  0060.3  031.6 |  071.0  001.8962  0397.4  124.3  35.19
322.0  026.5000  0059.3  031.3 |  071.0  001.8962  0397.4  124.9  35.04
323.0  026.5000  0057.7  030.9 |  071.1  001.8962  0396.9  125.5  34.86
---  --------------------------|--------------------------------------- ---
```

Figure 1: Allocation Study
Western North Carolina Public

FMCommander Full Allocation Study - GLOBE 30 Sec

10-18-2023

WCQS   CH 201 C3 DA
Lat= 35 35 23.30,   Lng= 82 40 25.4
1.9 kW 359.5 m HAAT, 1100 m COR

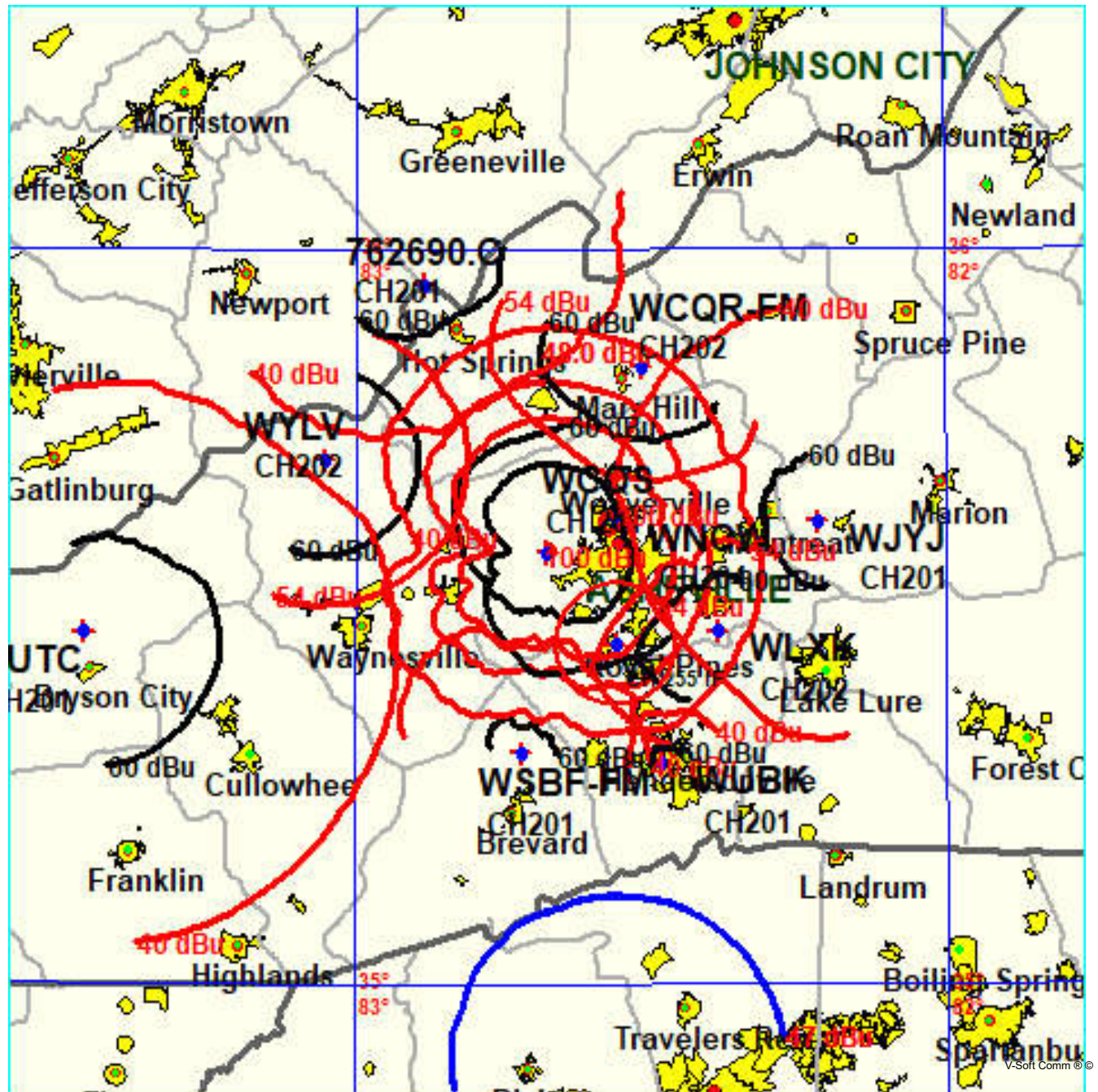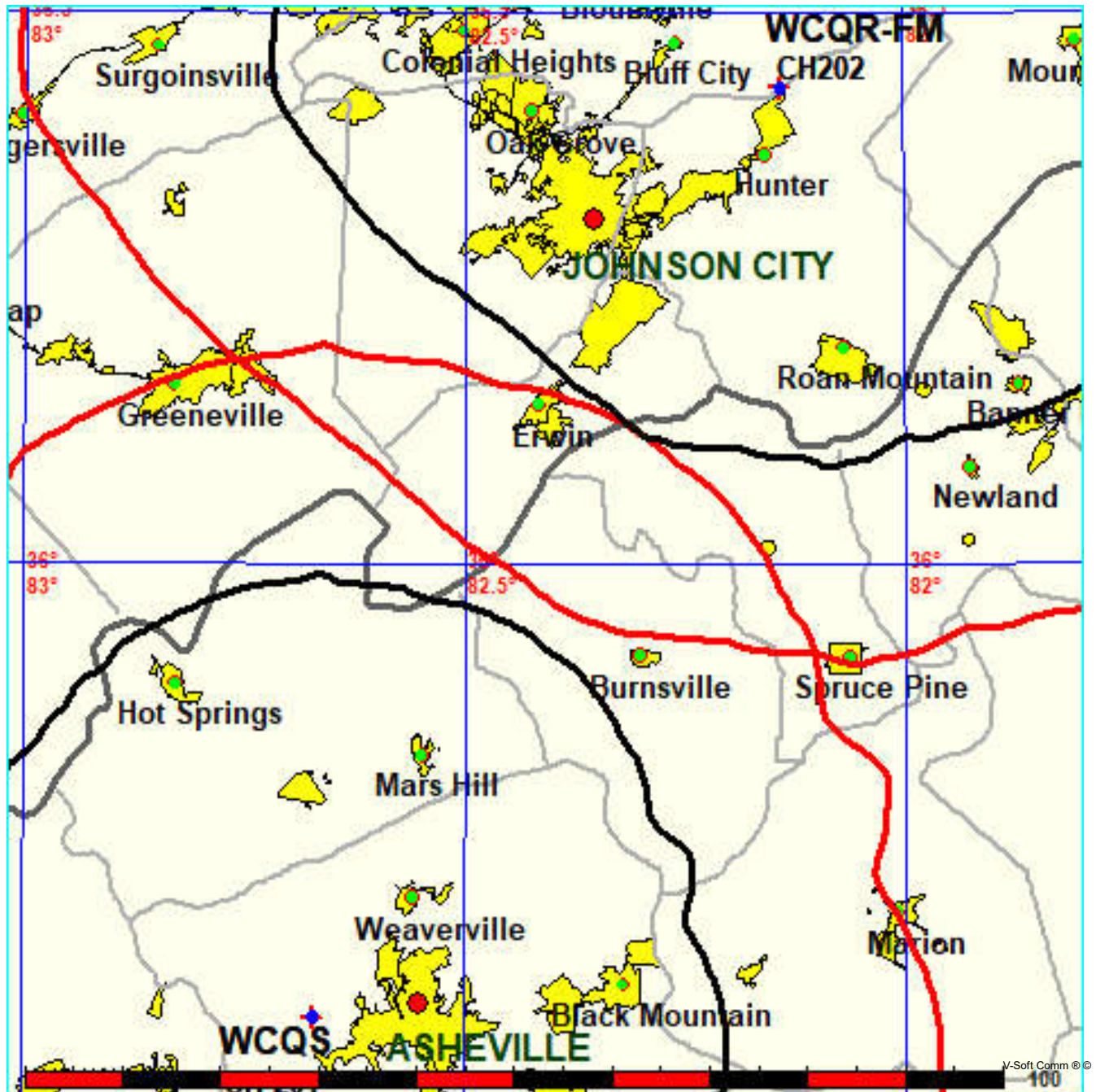Timothy L. Warner, P.E. Asheville, North Carolina

Figure 2: Allocation Study: WCQR-FM
Western North Carolina Public

FMCommander Single Allocation Study - 10-18-2023 - GLOBE 30 Sec
WCQS's Overlaps (In= 4.07 km, Out= 0.06 km)

WCQS CH 201 C3 DA   WCQR-FM CH 202 C2 DA   BLED19961120KB
Lat= 35 35 23.30,   Lng= 82 40 25.40   Lat= 36 25 53.30,   Lng= 82 08 15.40
1.9 kW 359.5 m HAAT, 1100 m COR   1.2 kW 650 m HAAT, 1276 m COR
Prot.= 60 dBu, Intef.= 54 dBu   Prot.= 60 dBu, Intef.= 54 dBu

Timothy L. Warner, P.E. Asheville, North Carolina

Figure 2A: Allocation Study: WCQR-FM Detail
Western North Carolina Public

FMCommander Single Allocation Study - 10-18-2023 - GLOBE 30 Sec
WCQS's Overlaps (In= 4.07 km, Out= 0.06 km)

WCQS CH 201 C3 DA
Lat= 35 35 23.30,   Lng= 82 40 25.40
1.9 kW 359.5 m HAAT, 1100 m COR
Prot.= 60 dBu, Intef.= 54 dBu

WCQR-FM CH 202 C2 DA   BLED19961120KB
Lat= 36 25 53.30,   Lng= 82 08 15.40
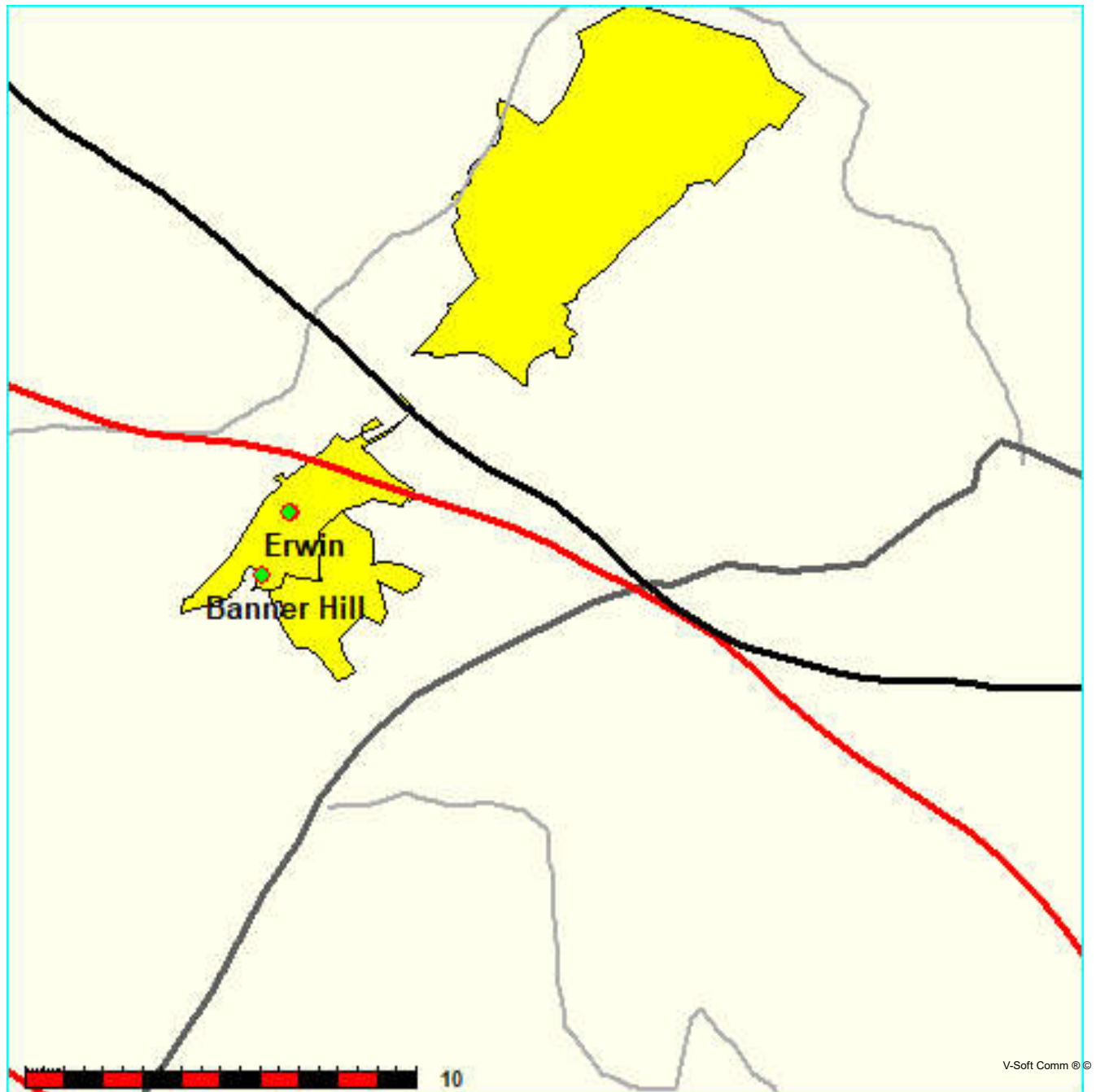1.2 kW 650 m HAAT, 1276 m COR
Prot.= 60 dBu, Intef.= 54 dBu

V-Soft Comm ® ©

10

Timothy L. Warner, P.E. Asheville, North Carolina
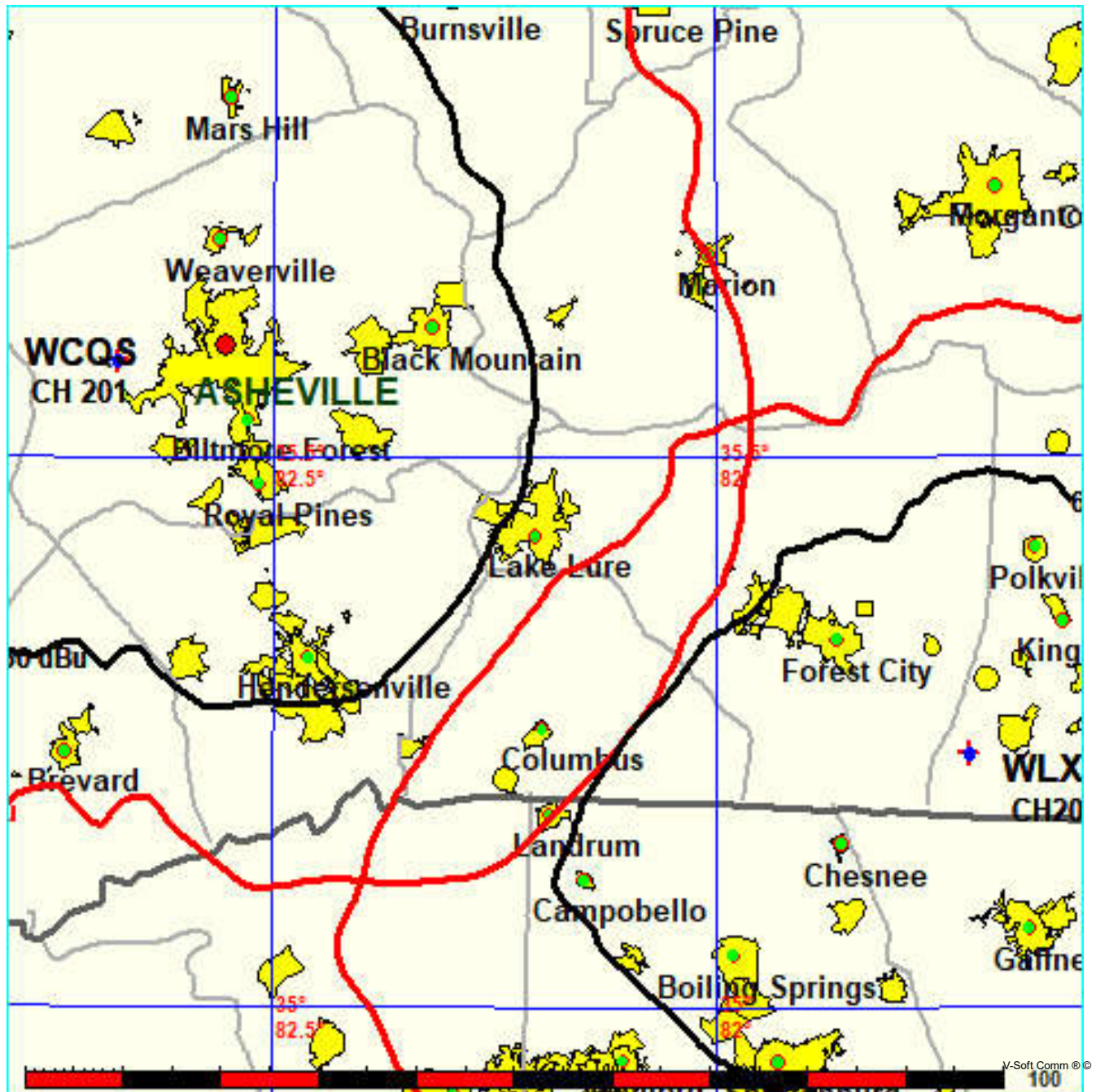
Figure 3: Allocation Study: WLXK
Western North Carolina Public

FMCommander Single Allocation Study - 10-18-2023 - GLOBE 30 Sec
WCQS's Overlaps (In= 6.99 km, Out= 0.06 km)

WCQS CH 201 C3 DA   WLXK CH 202 C2 DA   BLED19950221KD
Lat= 35 35 23.30,   Lng= 82 40 25.40   Lat= 35 13 52.40,   Lng= 81 42 56.40
1.9 kW 359.5 m HAAT, 1100 m COR   50.0 kW 92 m HAAT, 343 m COR
Prot.= 60 dBu, Intef.= 54 dBu   Prot.= 60 dBu, Intef.= 54 dBu

Timothy L. Warner, P.E. Asheville, North Carolina

Figure 3A: Allocation Study: WLXK Detail
Western North Carolina Public

FMCommander Single Allocation Study - 10-18-2023 - GLOBE 30 Sec
WCQS's Overlaps (In= 6.99 km, Out= 0.06 km)

WCQS CH 201 C3 DA
Lat= 35 35 23.30,   Lng= 82 40 25.40
1.9 kW 359.5 m HAAT, 1100 m COR
Prot.= 60 dBu, Intef.= 54 dBu

WLXK CH 202 C2 DA   BLED19950221KD
Lat= 35 13 52.40,   Lng= 81 42 56.40
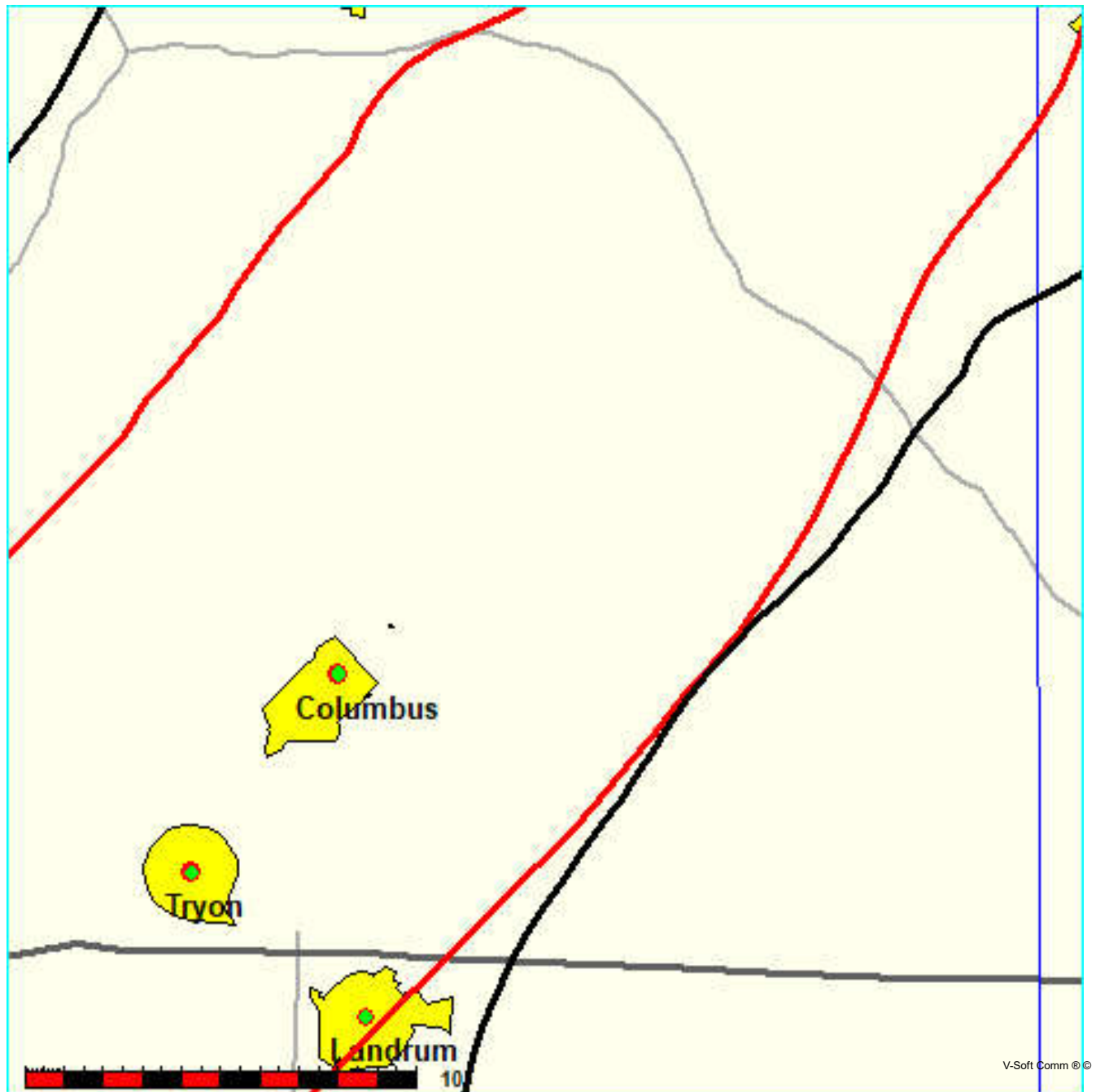50.0 kW 92 m HAAT, 343 m COR
Prot.= 60 dBu, Intef.= 54 dBu
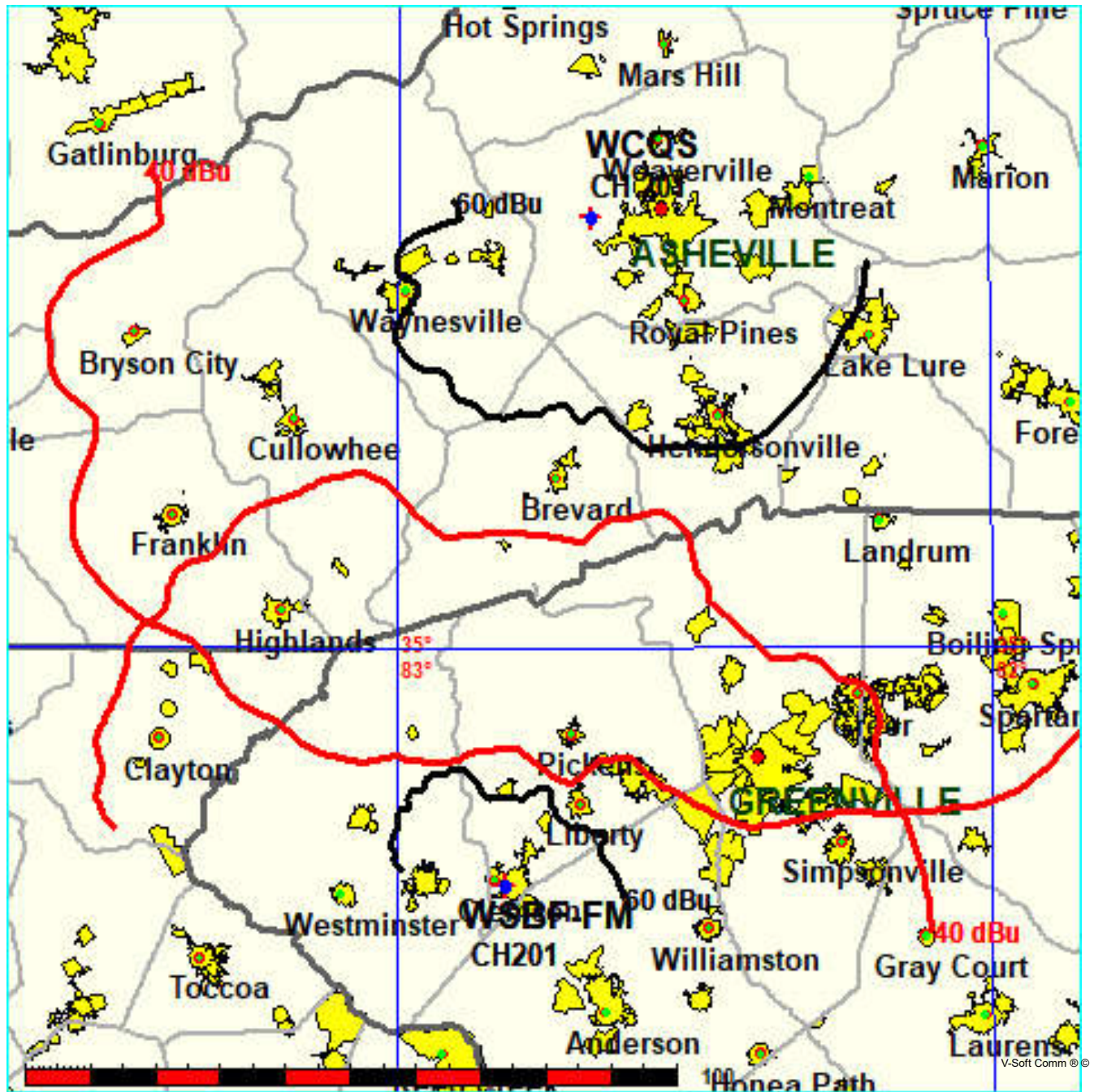

Timothy L. Warner, P.E. Asheville, North Carolina

Figure 4: Allocation Study: WSBF-FM
Western North Carolina Public

FMCommander Single Allocation Study - 10-18-2023 - GLOBE 30 Sec
WCQS's Overlaps (In= 10.57 km, Out= 1.42 km)

WCQS CH 201 C3 DA   WSBF-FM CH 201 A   BLED19920327KB
Lat= 35 35 23.30,   Lng= 82 40 25.40   Lat= 34 40 42.30,   Lng= 82 49 14.50
1.9 kW 359.5 m HAAT, 1100 m COR   3.0 kW 61 m HAAT, 307 m COR
Prot.= 60 dBu, Intef.= 40 dBu   Prot.= 60 dBu, Intef.= 40 dBu

Timothy L. Warner, P.E. Asheville, North Carolina

Figure 4A: Allocation Study: WSBF-FM Detail
Western North Carolina Public

FMCommander Single Allocation Study - 10-18-2023 - GLOBE 30 Sec
WCQS's Overlaps (In= 10.57 km, Out= 1.42 km)

WCQS CH 201 C3 DA   WSBF-FM CH 201 A   BLED19920327KB
Lat= 35 35 23.30,   Lng= 82 40 25.40   Lat= 34 40 42.30,   Lng= 82 49 14.50
1.9 kW 359.5 m HAAT, 1100 m COR   3.0 kW 61 m HAAT, 307 m COR
Prot.= 60 dBu, Intef.= 40 dBu   Prot.= 60 dBu, Intef.= 40 dBu

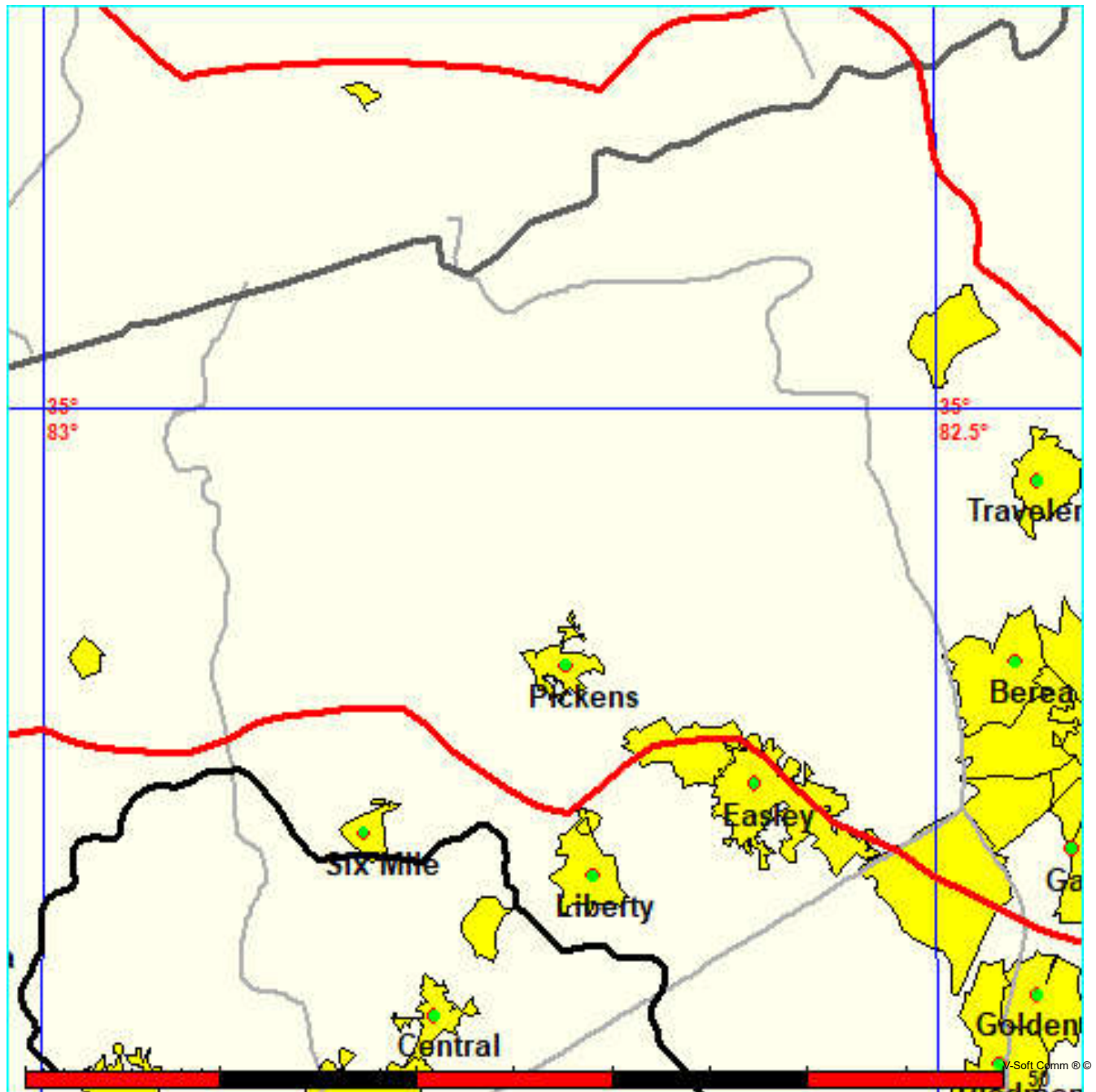Timothy L. Warner, P.E. Asheville, North Carolina

Figure 5: Allocation Study: WJYJ
Western North Carolina Public

FMCommander Single Allocation Study - 10-18-2023 - GLOBE 30 Sec
WCQS's Overlaps (In= 2.34 km, Out= 3.45 km)

WCQS CH 201 C3 DA   WJYJ CH 201 C2 DA   BLED20011024AAG
Lat= 35 35 23.30,   Lng= 82 40 25.40   Lat= 35 43 34.50,   Lng= 81 08 51.30
1.9 kW 359.5 m HAAT, 1100 m COR   26.5 kW 77 m HAAT, 372 m COR
Prot.= 60 dBu, Intef.= 40 dBu   Prot.= 60 dBu, Intef.= 40 dBu

Timothy L. Warner, P.E. Asheville, North Carolina

Figure 6: Antenna Pattern

Pre-Rotation Antenna Pattern....

Azimuth (deg)	Relative Field
0.0	1.0
10.0	0.99
20.0	0.988
30.0	0.999
40.0	1.0
50.0	1.0
60.0	1.0
70.0	1.0
80.0	0.993
90.0	0.979
100.0	0.98
110.0	1.0
120.0	0.961
130.0	0.96
140.0	0.95
150.0	0.95
160.0	0.85
170.0	0.79
180.0	0.645
190.0	0.6
200.0	0.61
210.0	0.75
220.0	0.9
230.0	1.0
240.0	1.0
250.0	1.0
260.0	1.0
270.0	1.0
280.0	1.0
290.0	1.0
300.0	1.0
310.0	1.0
320.0	1.0
330.0	1.0
340.0	1.0
350.0	1.0

Rotation Angle = 0