Asheville, North Carolina

Long Form Application for FM Translator 1564408

File Number BNPFT-20030317IDO

On Channel 271

by

Isothermal Community College

Exhibit 13

Interference Analysis

August 2013

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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 13, 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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28 August 2013

Narrative

This Exhibit supports a long form application for CDBS application ID 1564408, an amended "Tech Box" application in response to a filing window[1] for FM translator file number BNPFT-20030317IDO, CDBS application ID 649980, on Channel 271 in Asheville, North Carolina. Allocation details are provided in this exhibit. The application proposes reduction of power from the tech box filing.

This proposal creates no new mutual exclusivities with any Auction 83 Tech Box filings or any other facility. A preclusion showing, provided in the amendment, is unchanged.

Figure 1 shows the proposed 60 dBu F(50,50) coverage area. The primary station WNCW 60 dBu F(50,50) contour is also shown.

Allocations

This application proposes service to Asheville, North Carolina, on channel 271. An updated Table 1: Allocations is included in this exhibit with a list of the stations, construction permits, allocations, and applications studied. All are protected by this application, with the exception of facilities which are listed in Table 2 below. Those facilities are protected by the Desired to Undesired (D/U) Ratio method which is described below.

[1] *Public Notice, Media Bureau Announces FM Translator Auction 83 Filing Window and Filing Procedures, August 30, 2013 Deadline Set for Form 349 Applications for Certain Non-Mutually Exclusive Tech Box Proposals*, Report No. AUC-03-83-E, DA13-1675, released July 31, 2013.

Table 1: Allocations

Allocation Study
Isothermal Community College

REFERENCE CH# 271D - 102.1 MHz, Pwr= 0.005 kW DA, HAAT= 0.0 M, COR= 748 M DISPLAY DATES
35 35 42.0 N. Average Protected F(50-50)= 2.7 km DATA 08-28-13
82 33 09.0 W. Standard Directional SEARCH 08-28-13

CH CITY	CALL	TYPE	ANT STATE	AZI. <--	DIST FILE #	LAT. LNG.	Pwr(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
271C1 Sevierville	WWST	LIC	CN TN	283.8 103.1	103.84 BLH19860519KF	35 48 41.0 83 40 08.0	15.000 603	161.6 981	73.8 Journal Broadcast Corporat	-60.7*	27.0
271D Asheville	1564408	APP	DC NC	0.0 0.0	0.00 BNPFT20030317IDO	35 35 42.0 82 33 09.0	0.015	15.9 748	4.9 Isothermal Community College	-19.6*	-16.8*
Tech box facility for which this is the long form application											
273C1 Hendersonville	WMYI	LIC	NC NC	185.7 5.7	50.99 BLH20110929AKK	35 08 15.6 82 36 30.6	44.000 416	7.8 1079	62.8 Capstar Tx Llc	41.3	-11.9*
Protected by U/D ratio, see text and figures.											
268C Johnson City	WQUT	LIC	CY TN	14.3 194.4	77.18 BMLH19980904KD	36 16 07.0 82 20 21.0	100.000 457	11.5 1069	79.5 Radio License Holding Cbc,	61.8	-2.4*
Protected by U/D ratio, see text and figures.											
271D Hendersonville	1563167	APP	DC NC	160.8 340.8	32.94 BNPFT20030317GUB	35 18 53.0 82 25 58.0	0.250	23.8 697	7.1 Western North Carolina Pub	7.5	18.7
269D Hendersonville	1564121	APP	C NC	167.9 348.0	23.07 BNPFT20030317ADB	35 23 30.0 82 29 57.0	0.120	0.8 686	5.9 Bible Broadcasting Networ	20.5	16.2
270C0 Gastonia	WBAV-FM	LIC	CY NC	108.8 289.6	122.68 BLH19880129KD	35 13 57.0 81 16 35.0	100.000 301	103.3 552	70.9 Cbs Radio Stations Inc.	18.0	50.2
269D Balfour	649200	APP	DC NC	167.5 347.5	27.43 BNPFT20030317EGC	35 21 13.0 82 29 12.0	0.010 178	0.0 865	0.9 Frank G. Mccoy	25.6	26.5
268D Tryon	W268BS	CP	DC NC	142.4 322.5	46.02 BNPFT20130327AMD	35 16 00.0 82 14 34.0	0.010	0.2 994	9.0 Western North Carolina Pub	44.3	35.8
271D Greenville	W271BS	CP	DC SC	169.6 349.7	74.48 BNPFT20130328AAR	34 56 05.0 82 24 16.0	0.032	29.7 579	8.9 Ted A Mccall	42.9	58.8
269A Walhalla	WGOG	CP	CX SC	209.5 29.2	93.72 BPH20120718ABS	34 51 33.0 83 03 30.0	6.000 92	2.9 497	30.5 Appalachian Broadcasting C	89.1	60.1
One Step Application											
272A Beech Mountain	WECR-FM	LIC	ZCX NC	42.6 223.0	89.22 BLH20080422AAO	36 11 03.0 81 52 48.0	0.150 597	25.1 1665	15.8 High Country Adventures, L	61.3	66.2
274C3 Weber City	WVEK-FM	LIC	C VA	358.3 178.3	103.42 BLH20080821ABX	36 31 36.0 82 35 13.0	1.750 376	2.6 835	38.5 Holston Valley Broadcastin	96.5	64.8
274C3 Weber City	AL5363	RSV-A	VA	358.3 178.3	103.42 RM11280	36 31 36.0 82 35 13.0	25.000 100	3.3 543	31.9	95.8	66.0
271C0 Reidsville	WJMH	LIC	C NC	71.4 252.9	247.50 BMLH20010731ACA	36 16 33.0 79 56 26.0	100.000 367	176.8 600	75.4 Entercom Greensboro Licens	69.1	170.3

Terrain database is NED 03 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= East Zone, Co to 3rd adj.
All separation margins (if shown) include rounding
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)
"*"affixed to 'IN' or 'OUT' values = site inside protected contour.

Table 2: Facilities Protected by U/D Method

Facility	WMYI Hendersonville, North Carolina	WQUT Johnson City, Tennessee
Relationship	273 C1, second adjacent	268 C, third adjacent
Distance (km)	50.99	77.18
Bearing (degrees)	185.7	14.3
ERP (kW, on azimuth)	44	100
HAAT (m, on azimuth)	283.2	395.8
Ratio	40	40
Signal Strength (dBu)	65.5	61.0
Translator Signal Strength	105.5	101.0
Translator distance (km)	.083	.140

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. The proposed antenna is a Scala YA7-slant four level 0.69 wavelength spaced directional antenna. Figure 2 is a plot of the antenna vertical elevation pattern.

The WMYI field strength calculated at ground level at the proposed 1564408 site is 65.5 dBu, using the FM Curves calculator on the FCC web site. For the translator interference contour, free space calculations are used. The corresponding 105.5 dBu field strength distance is .083 kilometers in the horizontal plane. The proposed antenna location is 74 meters above ground, and 21 meters above the highest occupied floor in the building. As Figure 3 shows, the 105.5 dBu signal level will never reach ground, nor will it be present at any other location on the ground.

The WQUT field strength calculated at ground level at the proposed 1564408 site is 61.0 dBu, using the FM Curves calculator on the FCC web site. For the translator interference

contour, free space calculations are used. The corresponding 101.0 dBu field strength distance is .140 kilometers in the horizontal plane. The proposed antenna location is 74 meters above ground, and 21 meters above the highest occupied floor in the building. As Figure 3 shows, the 101.0 dBu signal level will never reach ground, nor will it be present at any other location on the ground.

For the 101.0 dBu contour, the minimum elevation is 3.6 meters above the occupied floor at 26 meters from the tower base, which is beyond the far edge of the building.

Figure 4 is a topographic map of the transmitter site, showing the generally flat nature of the terrain. Figure 5 is an aerial photograph of the site. The proposed site, known as the BB&T Building, is the tallest structure in Asheville. There is no population within the predicted interference area and therefore this facility is permitted under §74.1204(d).

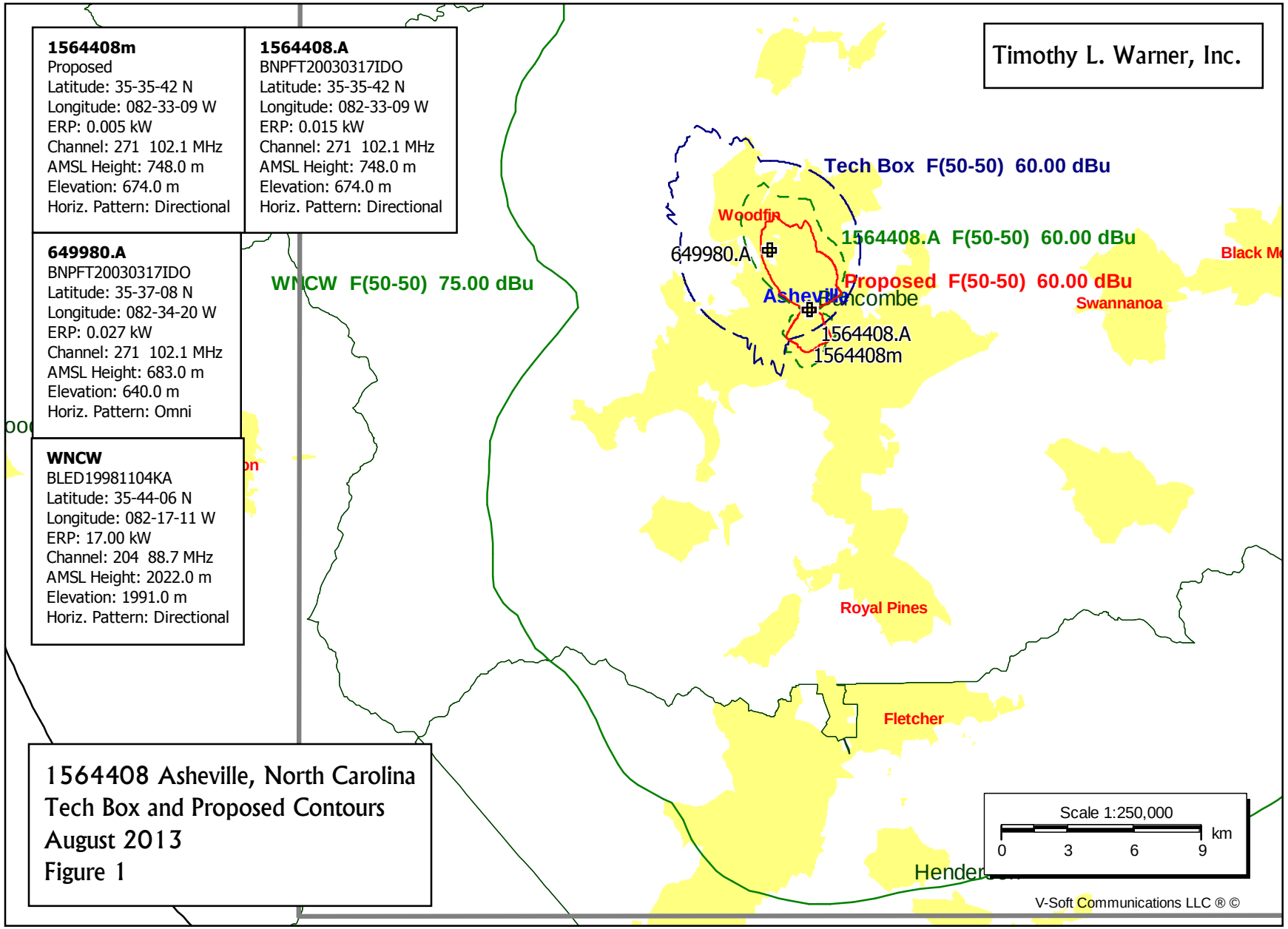
The applicant recognizes that the U/D method is only a tool for predicting likely interference. Should any actual interference be experienced, the applicant will cooperate fully in correcting the interference. Corrective steps may require changes in the transmitting antenna or other steps which would 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.

Source of Data

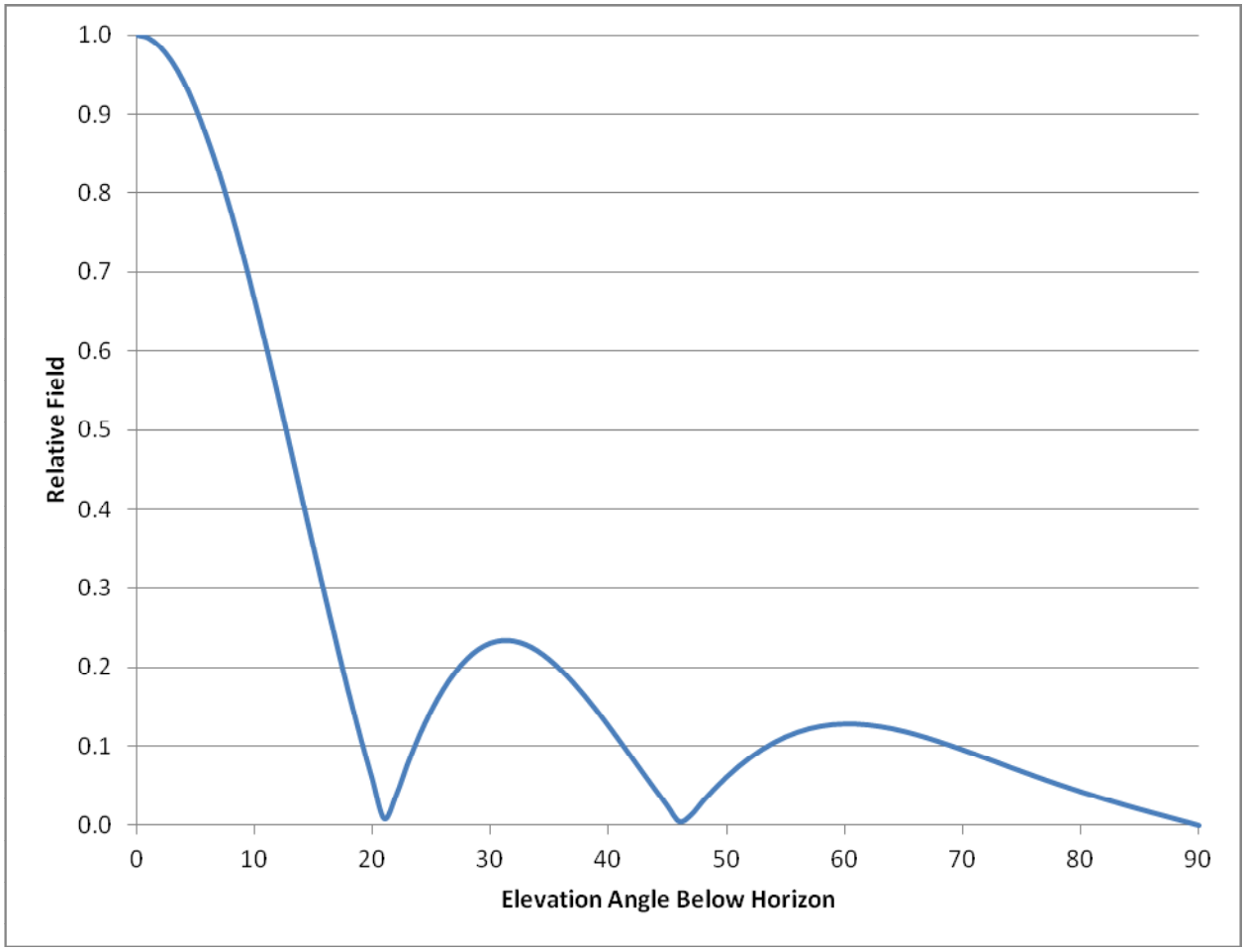
Transmitter location, effective radiated power, directional antenna pattern, and elevation data are extracted from the Commission's CDBS. All contours for existing and proposed facilities are calculated using height above average terrain calculated at one degree horizontal increments.

The contours were 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.

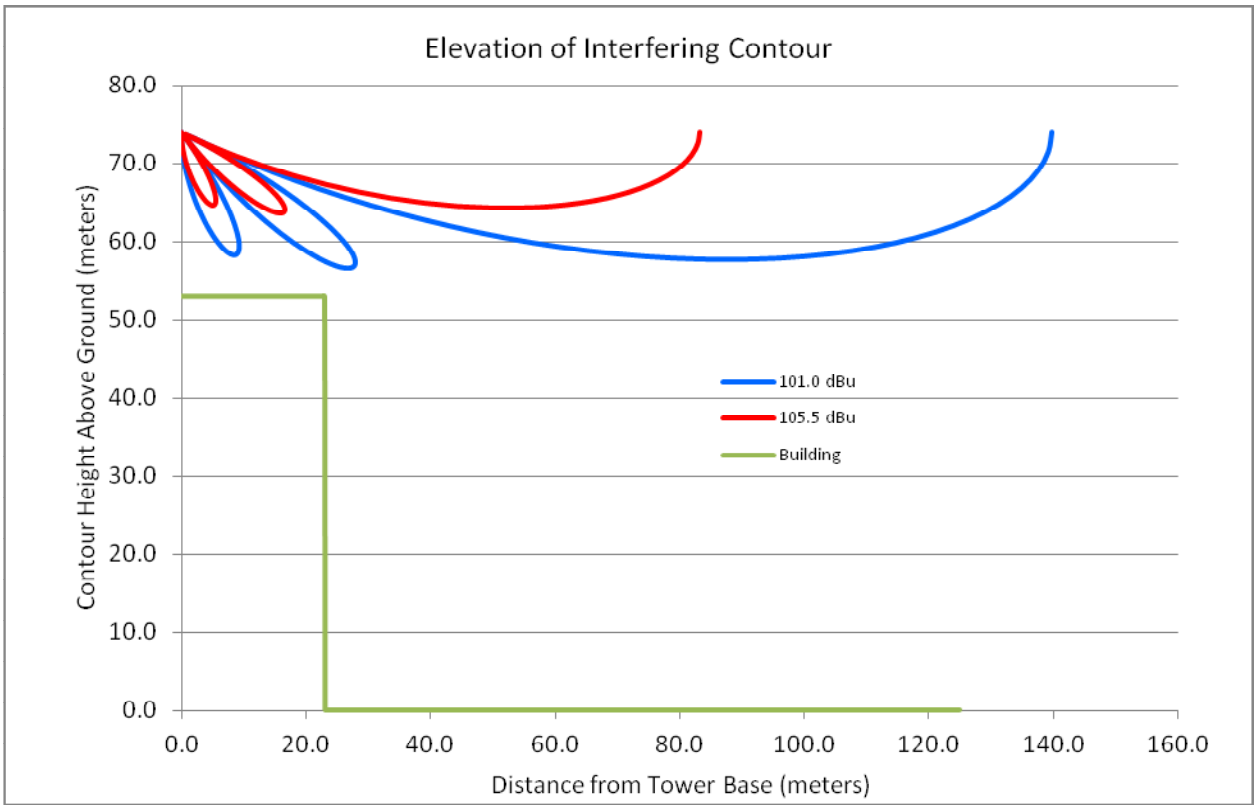
All population data is from 2010 U.S. Census PL data files. Population is counted by considering the location of the centroid of each census block. The data for each block is counted if it falls within the area being counted.


Timothy L. Warner, Inc.
1564408m
Proposed
Latitude: 35-35-42 N
Longitude: 082-33-09 W
ERP: 0.005 kW
Channel: 271 102.1 MHz
AMSL Height: 748.0 m
Elevation: 674.0 m
Horiz. Pattern: Directional
1564408.A
BNPFT20030317IDO
Latitude: 35-35-42 N
Longitude: 082-33-09 W
ERP: 0.015 kW
Channel: 271 102.1 MHz
AMSL Height: 748.0 m
Elevation: 674.0 m
Horiz. Pattern: Directional
649980.A
BNPFT20030317IDO
Latitude: 35-37-08 N
Longitude: 082-34-20 W
ERP: 0.027 kW
Channel: 271 102.1 MHz
AMSL Height: 683.0 m
Elevation: 640.0 m
Horiz. Pattern: Omni
WNCW
BLED19981104KA
Latitude: 35-44-06 N
Longitude: 082-17-11 W
ERP: 17.00 kW
Channel: 204 88.7 MHz
AMSL Height: 2022.0 m
Elevation: 1991.0 m
Horiz. Pattern: Directional
Tech Box F(50-50) 60.00 dBu
1564408.A F(50-50) 60.00 dBu
Proposed F(50-50) 60.00 dBu
WNCW F(50-50) 75.00 dBu
649980.A
1564408.A
1564408m
Woodfin
Asheville
Buncombe
Black M
Swannanoa
Royal Pines
Fletcher
Hender
Scale 1:250,000
km
0 3 6 9
V-Soft Communications LLC ® ©
1564408 Asheville, North Carolina
Tech Box and Proposed Contours
August 2013
Figure 1

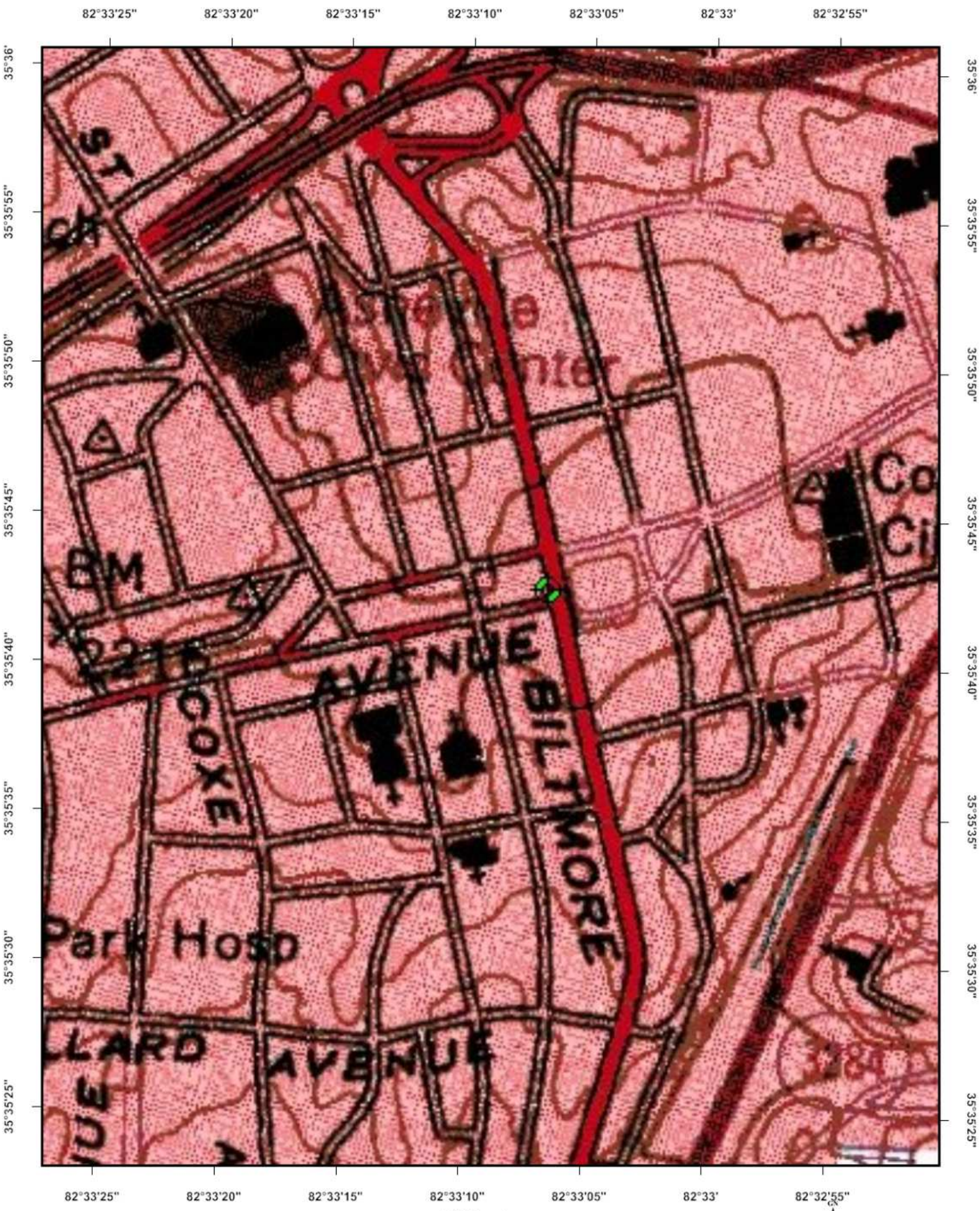
Antenna Elevation Pattern



Interference Contour Elevation Plot



Free space propagation
Scala YA7-slant -4 .69 wavelength spacing
Center of Radiation 74 meters Above Ground Level
ERP 5 Watts



Universal Transverse Mercator (UTM) Projection Zone 17
North American Datum of 1983

1:5000 scale

0 100 200 300 400 500 Feet

0 50 100 150 Meters

GN
MN 7°
TN 1°

Magnetic declination of 7W at center of map
on March 17, 2011

Figure 4

Universal Transverse Mercator (UTM) Projection Zone 17
North American Datum of 1983

1:3000 scale

0 100 200 300 400 500 Feet

0 50 100 150 Meters

Magnetic declination of 7W at center of map
on March 17, 2011

Figure 5