Greensboro, North Carolina

Long Form Application for New FM Translator

BNPFT-20030317FTC

On Channel 228

by

Wake Forest University

Exhibit 13

Interference Analysis

March 2013

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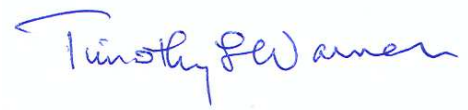
Declaration

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 Wake Forest University, and that all of the facts therein, except for facts of which the Federal Communications Commission may take official notice, are true to the best of my knowledge and belief.



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Narrative

This Exhibit supports a long form application in response to a filing window[1] for FM translator file number BNPFT-20030317FTC, CDBS application ID 634884, on Channel 228 in Greensboro, North Carolina. Allocation details are provided in this exhibit. The application proposes minor modification changes from the tech box filing. Specific changes are a change to fill-in, a change of site, a change of antenna, a decrease in height, and an increase in Effective Radiated Power.

This proposal creates no new mutual exclusivities with any Auction 83 Tech Box filings.

Figure 1 shows the tech box 60 dBu F(50,50) coverage area, and the proposed 60 dBu F(50,50) coverage area. This application proposed a minor modification of the Tech Box facilities. The 60 dBu F(50,50) contour for primary station WFDD, Winston-Salem, North Carolina, is shown on Figure 1. The proposed 60 dBu F(50,50) contour is within the WFDD protected 60 dBu F(50,50) contour.

Allocations

This application proposes service to Greensboro, North Carolina, on channel 228. 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. Figure 2 shows contour

[1] *Public Notice, Media Bureau Announces FM Translator Auction 83 Filing Window and Filing Procedures*, DA13-283, released February 26, 2013. (Singleton Notice)

protection to co-channel W228BE, Winston-Salem, North Carolina, the only non D/U protected facility where the lack of contour overlap is less than 3.2 kilometers (2 miles).

Table 1: Allocations

Allocation Study
Wake Forest University

REFERENCE — CH# 228D - 93.5 MHz, Pwr= 0.2 kW, HAAT= 99.1 M, COR= 339 M — DISPLAY DATES
36 04 58.0 N. — Average Protected F(50-50)= 12.1 km — DATA 03-24-13
79 46 08.0 W. — Omni-directional — SEARCH 03-24-13

CH CITY	CALL STATE	TYPE	ANT <--	AZI. FILE #	DIST	LAT. LNG.	Pwr(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
226C Winston-salem	WPAW NC	LIC	C	324.4 144.3 BMLH20030303ABL	26.40	36 16 33.0 79 56 26.0	100.000 335	10.4 568	73.7 Entercom Greensboro Licens	4.2	-48.3*
Protected by D/U ratio, see text.											
228D Greensboro	634884 APP NC		C	15.6 195.6 BNPFT20030317FTC	1.95	36 05 59.0 79 45 47.0	0.010 201	27.2 439	8.1 Wake Forest University	-37.2*	-46.9*
Tech Box application for which this is the long form application.											
231C Lexington	WWLV NC	LIC	DCN	248.8 68.5 BLH19940909KH	50.75	35 55 02.0 80 17 37.0	100.000 309	8.7 543	66.3 Davidson County Broadcasting	31.1	-16.6*
Protected by D/U ratio, see text and figures.											
228D Winston Salem	W228BE NC	LIC	C	269.4 89.1 BLFT20120521ACL	40.48	36 04 41.0 80 13 06.0	0.013	16.1 348	4.9 Calvary Chapel Of Twin Fal	14.0	0.8
228C3 Wadesboro	WYFQ-FM NC	LIC	NCN	203.2 22.9 BLED19951010KE	124.74	35 02 57.0 80 18 38.0	8.700 169	104.5 310	40.4 Bible Broadcasting Network	8.3	44.2
230C Cary	WKSL NC	LIC	ZCX	115.3 295.9 BLH20080416AAZ	95.12	35 42 50.0 78 49 04.0	100.000 453	11.2 557	80.2 Capstar Tx Llc	70.5	13.6
231C1 Lexington 73.215 applicant.	WWLV NC	CP	NCX	241.4 60.8 BPH20030303ACA	99.49	35 39 04.0 80 44 04.0	43.000 408	9.3 653	72.8 Davidson County Broadcasti	79.1	25.5
281C Winston-salem	WTQR« NC	LIC	NC	301.4 121.1 BLH20110809ABB	63.05	36 22 36.4 80 22 08.6	100.000 528	12.8 850	58.8 Clear Channel Broadcasting	28.5R	34.6M
228A Salem	WSNV VA	LIC	CN	351.6 171.5 BMLH19910801KB	134.30	37 16 47.0 79 59 29.0	5.800 30	76.3 434	18.9 Capstar Tx Llc	47.3	71.5
227D Salisbury From Channel 216D	WOGR-FM NC	LIC	CN	234.1 53.6 BLED19961216KC	78.32	35 40 03.0 80 28 13.0	0.010 55	6.7 277	4.7 Victory Christian Center,	60.4	57.5
225D Durham	634779 NC	APP	C	97.7 278.2 BNPFT20030311ATV	79.08	35 59 06.0 78 53 59.0	0.055 41	0.5 147	4.8 Community Public Radio, In	64.9	73.0
225D Lowes Grove	650280 NC	APP	C	104.2 284.7 BNPFT20030317JBZ	81.84	35 53 58.0 78 53 23.0	0.055 40	0.5 138	5.7 Radio Training Network, In	67.7	75.0
228C3 Blackstone From Channel 228A per D95-100	WBBC-FM VA	LIC	CN	54.8 235.9 BLH19971210KE	189.99	37 03 14.0 78 01 15.0	17.500 120	108.5 230	38.9 Denbar Communications, Inc	68.1	106.4
225D Morrisville	631055 NC	APP	C	107.6 288.2 BNPFT20030314BRQ	86.99	35 50 34.0 78 51 03.0	0.250 61	1.1 162	11.8 Capstar Tx Limited Partner	72.3	74.0

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.
« = Station meets FCC minimum distance spacing for its class.

Table 2: Facilities Protected by U/D Method

Facility	WPAW Winston-Salem, North Carolina	WWLV Lexington, North Carolina
Relationship	226C, second adjacent	231C, third adjacent
Distance (km)	26.41	50.74
Bearing (degrees)	324.4	248.8
ERP (kW, on azimuth)	100.0	63.37
HAAT (m, on azimuth)	318.0	281.5
Ratio	40	40
Signal Strength (dBu)	83.6	67.1
Translator Signal Strength	123.6	107.1
Translator distance (km)	.066	.438

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 WPAW field strength calculated at ground level at the proposed 634884 site is 83.6 dBu, using the FM Curves calculator on the FCC web site. For the translator interference contour, free space calculations are used. The corresponding 123.6 dBu field strength distance is .066 kilometers in the horizontal plane. Because the radiation center is 107 meters above ground, the interference level signal will not reach any populated area.

The WWLV field strength calculated at ground level at the proposed 634884 site is 67.1 dBu, using the FM Curves calculator on the FCC web site. For the translator interference contour, free space calculations are used. The corresponding 107.1 dBu field strength distance is .438 kilometers in the horizontal plane.

Figure 3 is a vertical plane plot of the 107.1 dBu contour, calculated using the vertical elevation pattern of the Dielectric DCR-T4E75 transmitting antenna, a four bay antenna with

elements spaced 0.75 wavelengths vertically. When the vertical elevation pattern is considered, the 107.1 dBu contour remains at least 58 meters (190 feet) above ground. Figure 4 is an aerial photo of the transmitter site area. Figure 5 is a topographic map of the area, showing the generally level terrain around the site. Because the interference contour does not reach the ground or any occupied areas, 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 also evaluated using terrain extracted from the V-Soft Communications NED 03 terrain database. The NED 03 database is derived from the USGS National Elevation Data 30 meter terrain database.

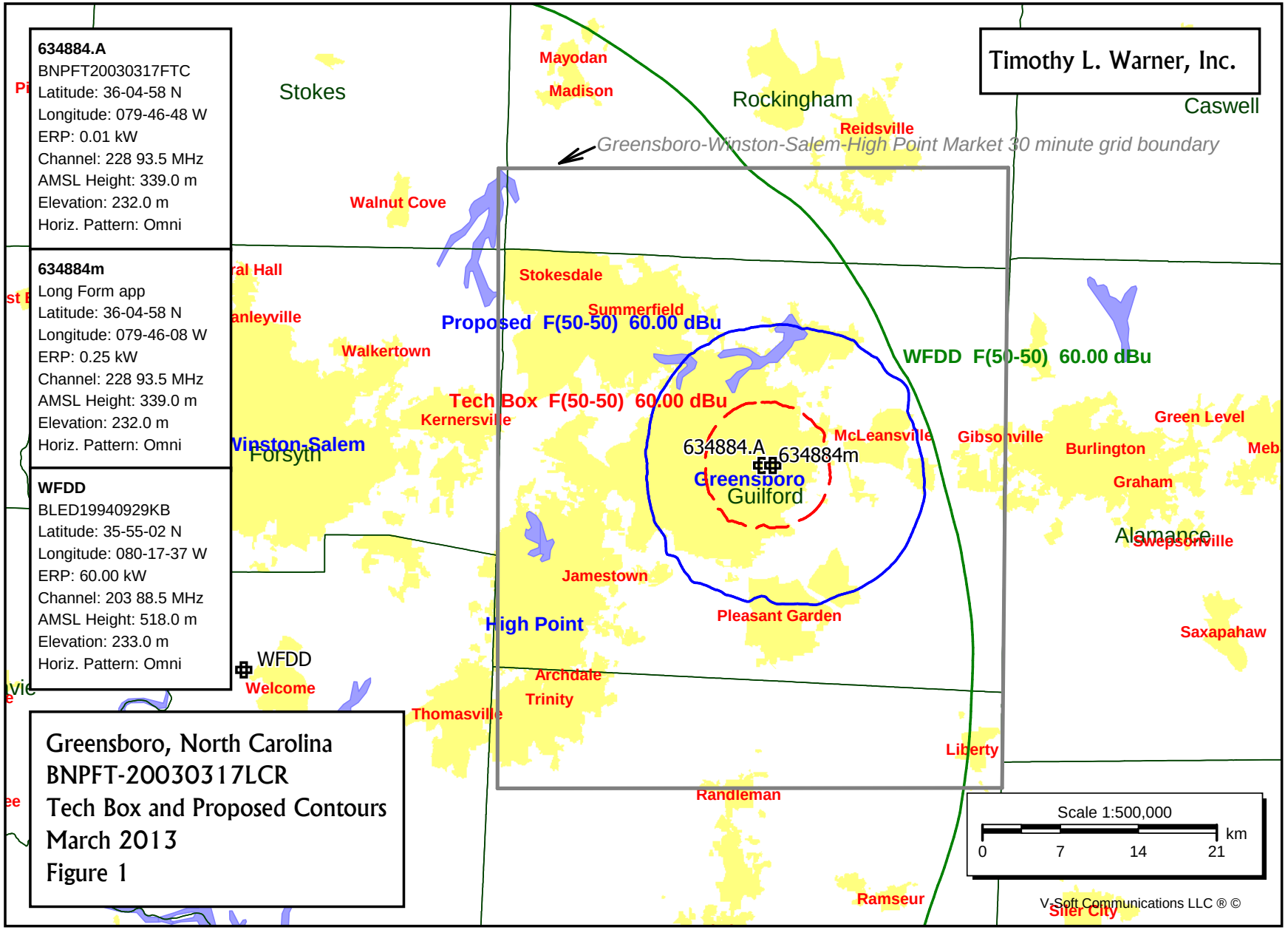
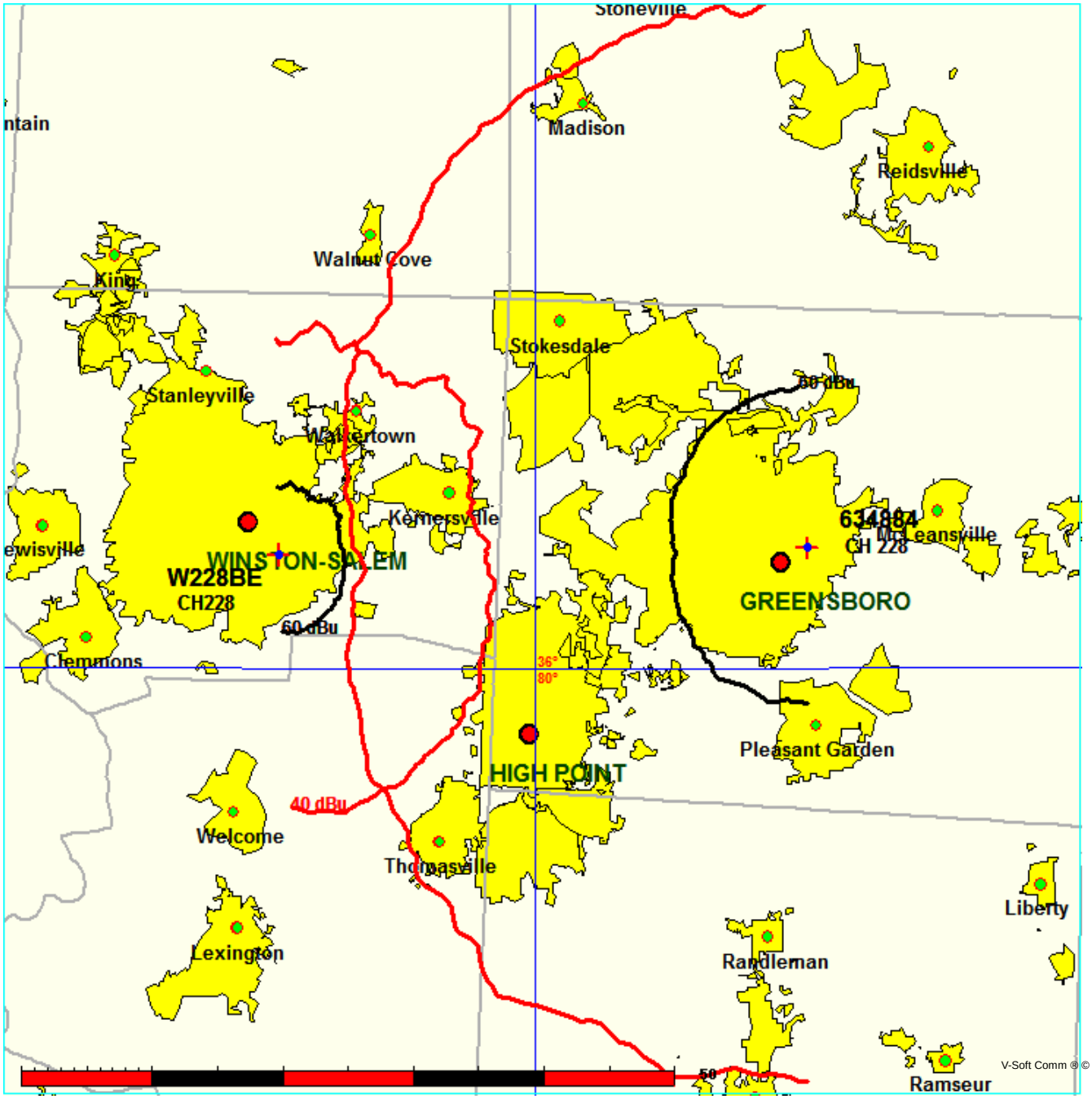

634884.A
BNPFT20030317FTC
Latitude: 36-04-58 N
Longitude: 079-46-48 W
ERP: 0.01 kW
Channel: 228 93.5 MHz
AMSL Height: 339.0 m
Elevation: 232.0 m
Horiz. Pattern: Omni
634884m
Long Form app
Latitude: 36-04-58 N
Longitude: 079-46-08 W
ERP: 0.25 kW
Channel: 228 93.5 MHz
AMSL Height: 339.0 m
Elevation: 232.0 m
Horiz. Pattern: Omni
WFDD
BLED19940929KB
Latitude: 35-55-02 N
Longitude: 080-17-37 W
ERP: 60.00 kW
Channel: 203 88.5 MHz
AMSL Height: 518.0 m
Elevation: 233.0 m
Horiz. Pattern: Omni
Timothy L. Warner, Inc.
Greensboro-Winston-Salem-High Point Market 30 minute grid boundary
Proposed F(50-50) 60.00 dBu
WFDD F(50-50) 60.00 dBu
Tech Box F(50-50) 60.00 dBu
634884.A
634884m
Greensboro
Guilford
Stokes
Rockingham
Caswell
Mayodan
Madison
Reidsville
Walnut Cove
Stokesdale
Summerfield
Walkertown
Kernersville
Winston-Salem
Forsyth
McLeansville
Gibsonville
Burlington
Green Level
Graham
Alamance
Swepsonville
Jamestown
High Point
Pleasant Garden
Saxapahaw
WFDD
Welcome
Archdale
Trinity
Thomasville
Liberty
Randleman
Ramseur
Siler City
Scale 1:500,000
0 7 14 21 km
V-Soft Communications LLC ® ©
Greensboro, North Carolina
BNPFT-20030317LCR
Tech Box and Proposed Contours
March 2013
Figure 1

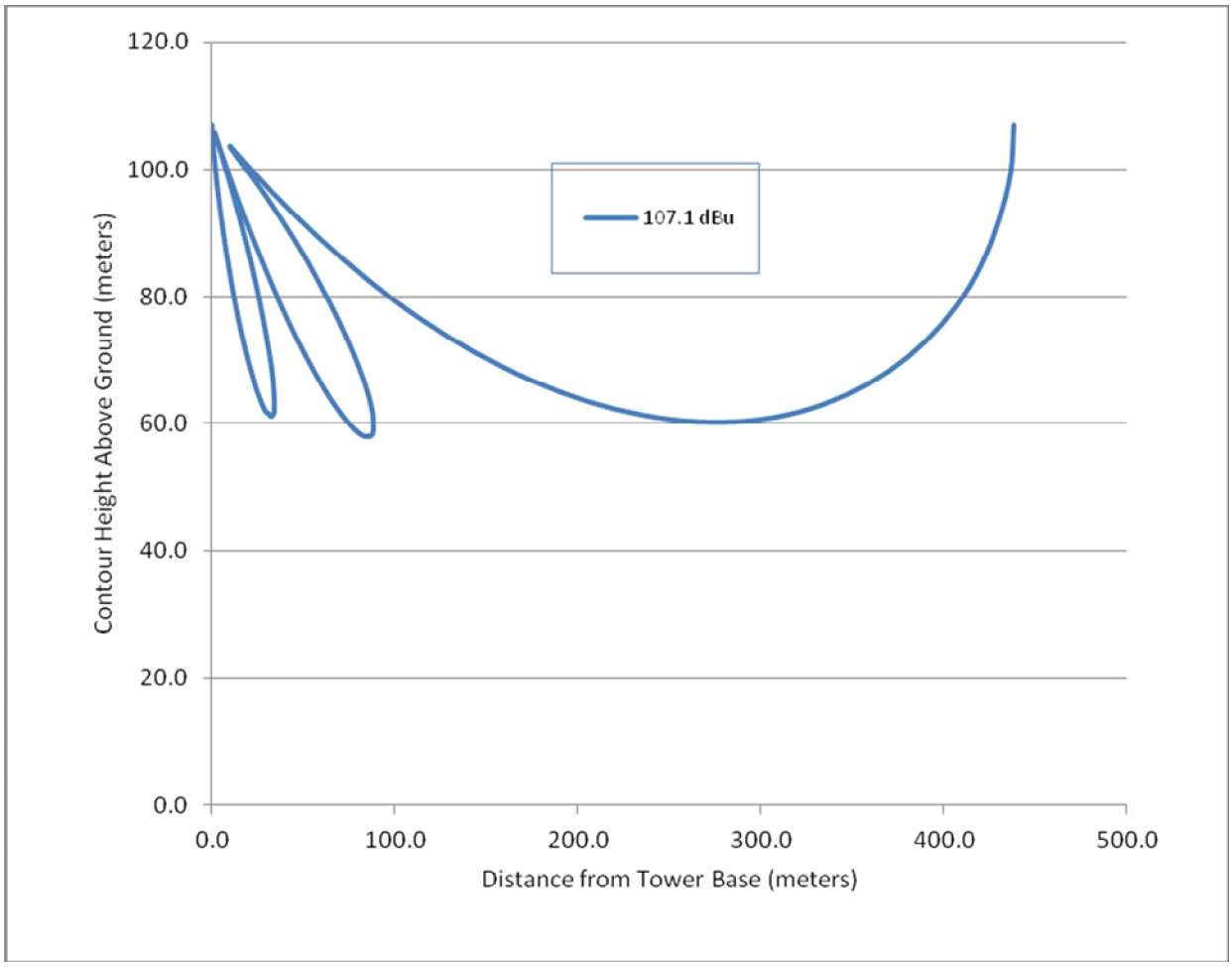
Figure 2: Allocation Study W228BE
Wake Forest University

FMCommander Single Allocation Study - 03-24-2013 - NED 03 SEC
634884's Overlaps (In= 14.01 km, Out= 0.76 km)

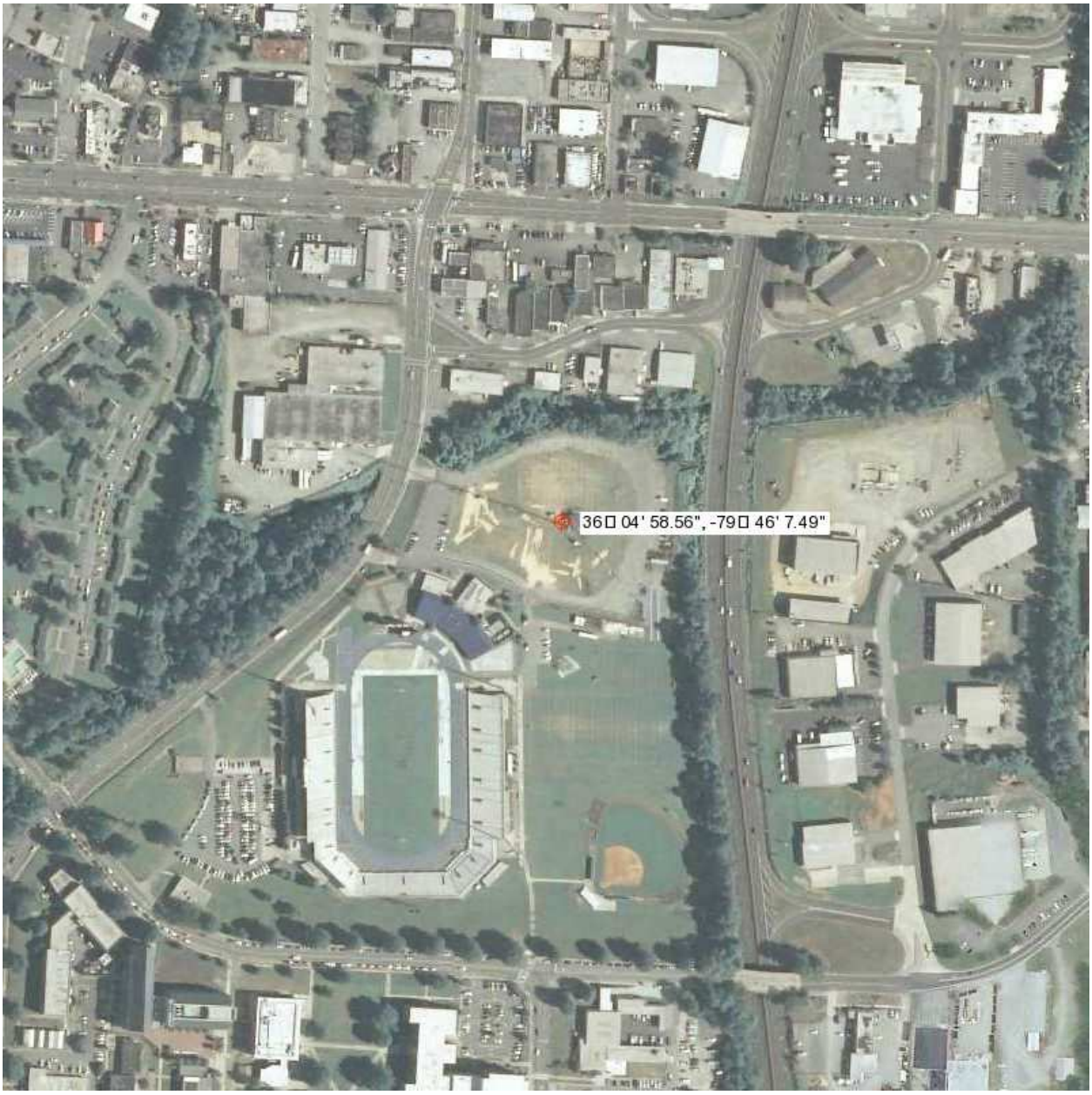
634884 CH 228 D
Lat= 36 04 58.0, Lng= 79 46 08.0
0.2 kW 99.1 M HAAT, 339 M COR
Prot.= 60 dBu, Intef.= 40 dBu

W228BE CH 228 D BLFT20120521ACL
Lat= 36 04 41.0, Lng= 80 13 06.0
0.013 kW 0 M HAAT, 348 M COR
Prot.= 60 dBu, Intef.= 40 dBu

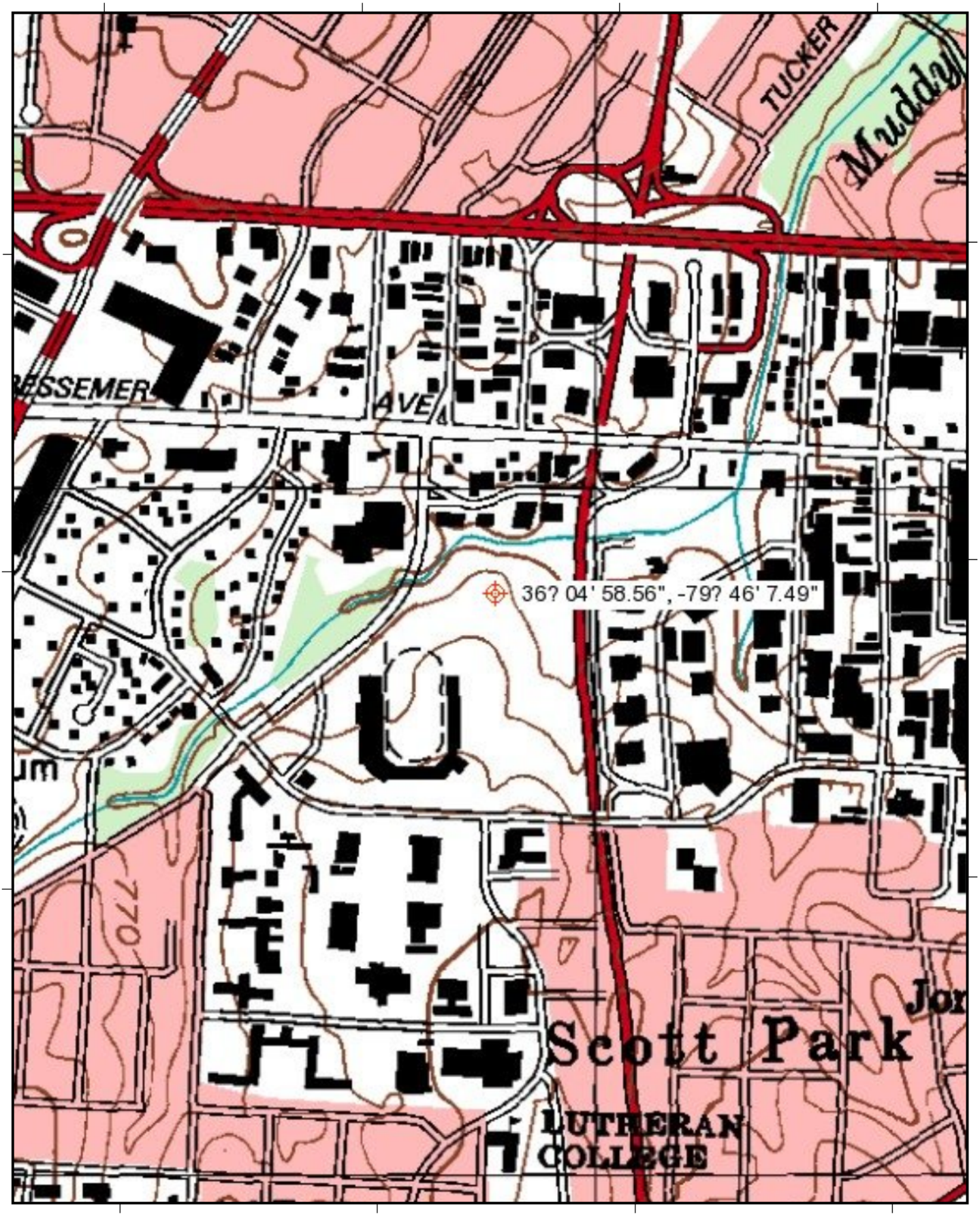




Free space propagation
Dielectric DCR-T4E75, three quarter wave spaced
Center of Radiation 107 meters Above Ground Level
ERP 200 Watts



Transmitter site aerial photo



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

Greensboro, NC 228D
Figure 5

1:7500 scale
0 200 400 600 800 1000 Feet
0 100 200 300 Meters

GN
MN 7°
TN 1°

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