

TECHNICAL EXHIBIT
MINOR MODIFICATION OF CONSTRUCTION PERMIT
STATION WTTK-DT (FACILITY ID 56526)
KOKOMO, INDIANA

FEBRUARY 5, 2003

CH 54 1000 KW (MAX-DA) 285 M

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Technical Narrative

This Technical Exhibit was prepared on behalf of digital television broadcast station WTTK-DT at Kokomo, Indiana. Station WTTK-DT is authorized to operation on channel 54 with a non-directional antenna effective radiated power (ERP) of 250 kW and an antenna height above average terrain (HAAT) of 236 meters (BPCDT-19991019ABC). This minor modification application proposes to change transmitter site, employ a directional antenna, increase ERP and increase antenna HAAT. There is no proposed change in channel (54) or city of license (Kokomo). A request for waiver of the channel 52-59 Freeze Order is submitted separately as part of this application.

A waiver of the FCC's interference analysis procedure is respectfully requested pursuant to paragraph 66 of the First Report and Order of the FCC's Biennial Review (MM Docket No. 00-39, FCC 01-24, Adopted January 18, 2001, released January 19, 2001). As further detailed in this application, this involves an anomaly in the FCC processing software described in FCC OET-Bulletin No. 69 ("OET-69"). In early January 2003, a copy of this waiver request was provided to the licensee of WALV-CA, Indianapolis, Indiana. As demonstrated below, WALV-CA is the station impacted by the anomaly in the FCC's OET-69 processing software.

Proposed Facilities

It is proposed to share an antenna with station WXIN-DT at the present WXIN transmitter site. The WXIN site is located 54 kilometers south-southwest of the current WTTK-DT site with the following site coordinates (NAD27): 39-53-20 N, 86-12-07 W. A directional antenna maximum ERP of 1000 kW and antenna HAAT of 285 meters are proposed. The FCC antenna structure registration number (ASRN) is 1030684.

The proposal is located 342 kilometers from the Canadian border. However, the proposed operation meets all of the minimum separation requirements to Canadian stations as described in the Canadian Letter of Understanding (LOU). Therefore, it is believed that Canadian coordination is not necessary. If the FCC still feels coordination with Canada is required, it is respectfully requested.

The closest FCC monitoring station is at Allegan Michigan, more than 300 kilometers to the north. The closest point of the National Radio Quiet Zone (VA/WV) is more than 450 kilometers to the east. The closest point of the Table Mountain Radio Quiet Zone (CO) is more than 1,600 kilometers to the west. The closest radio astronomy site operating on TV channel 37 is at North Liberty, Iowa, more than 450 kilometers to the west-northwest. These separations are sufficient to not be a concern for coordination purposes.

There are no AM stations within 5 kilometers of the proposed site. Although no adverse electromagnetic impact is expected to other nearby broadcast stations, the applicant recognizes its responsibility to correct problems that result from its proposed operation.

Allocation Considerations

Interference calculations have been made using the procedures outlined in the FCC's OET-69 bulletin, using a 2 kilometer grid spacing. Below is the list of stations considered in the OET-69 analysis.

Stations Potentially Affected by Proposed WTTK-DT						
Chan	Call	City/State	Bear (°T)	Dist (km)	Status	App. Ref. No.
40	WHMB-TV	INDIANAPOLIS IN	332	0.7	LIC	BLCT-19990922AAW
47	WBXI-CA	INDIANAPOLIS IN	164	13.8	LIC	BLTTL-20000211AAQ
50	WALV-CA	INDIANAPOLIS IN	21	4.7	LIC	BLTTA-20020621AAJ
53	WTTV-DT	BLOOMINGTON IN	175	53.7	CP	BPCDT-19991019ABF
53	WTTV-DT	BLOOMINGTON IN	175	53.7	PLN	DTVPLN-DTVP1529
54	960920WE	KANKAKEE IL	316	199.4	APP	BPET-19960920WE
54	WREX-DT	ROCKFORD IL	317	369.3	PLN	DTVPLN-DTVP1546
54	WNIN-DT	EVANSVILLE IN	206	230.2	PLN	DTVPLN-DTVP1547
54	WCVN-TV	COVINGTON KY	123	174.0	LIC	BLET-19830812KM
54	NEW	OWENSBORO KY	206	230.2	ADD	BPRM-20000717ADR
54	WTLJ	MUSKEGON MI	4	341.9	LIC	BLCT-19861110KI
54	WOWK-DT	HUNTINGTON WV	113	376.7	PLN	DTVPLN-DTVP1558
55	WFFT-TV	FT. WAYNE IN	32	160.1	LIC	BLCT-20001002APS
55	WHAS-DT	LOUISVILLE KY	170	173.1	LIC	BLCDT-20020503AAT
55	WHAS-DT	LOUISVILLE KY	170	173.1	PLN	DTVPLN-DTVP1566

From the above list of stations considered, the table below shows the calculated interference caused to each station. Only stations that are predicted to receive interference from the proposed WTTK-DT operation are shown in the interference table.

Study Station			Baseline	Net Population Change/Interference
47	WBXI-CA	INDIANAPOLIS IN	846,494	0 (0.0%) New Interference
50	WALV-CA	INDIANAPOLIS IN	795,261	6,974 (0.9%) New Interference
53	WTTV-DT	BLOOMINGTON IN (CP)	2,065,547	142,733 (6.9%) New Interference
53	WTTV-DT	BLOOMINGTON IN (PLN)	2,065,547	139,676 (6.8%) New Interference
54	960920WE	KANKAKEE IL	1,442,448	2,376 (0.2%) New Interference
54	WNIN-DT	EVANSVILLE IN	717,821	4,501 (0.6%) New Interference
54	WCVN-TV	COVINGTON KY	1,571,873	30,585 (1.9%) New Interference
54	NEW	OWENSBORO KY	719,514	606 (0.1%) New Interference

Class A Consideration

The FCC's list of low power television (LPTV) assignments eligible for Class A status and the FCC CDBS system have been reviewed for potential Class A impact. Predicted contour overlap will occur toward stations WBXI-CA and WALV-CA. OET-69 interference studies indicate no interference will be caused to WBXI-CA. OET-69 interference studies with regards to WALV-CA have been conducted and are detailed in this narrative. The proposed WTTK-DT operation will not cause any prohibited contour overlap to any other Class A station.

With the exception of stations WALV-CA, WTTV-DT and 960920WE (Kankakee), the proposed WTTK-DT operation does not cause excessive (greater than 2%, up to 10% total) calculated interference to any analog or DTV assignment.

Waiver Requested With Respect to WALV-CA

The proposed site is located 4.7 kilometers from Class A station WALV-CA. WALV-CA operates on channel 50 with a directional antenna maximum ERP of 14.9 kilowatts (BLTTA-20020621AAJ). Based on the FCC's standard OET-69 interference software, interference is predicted to be caused by the proposed WTTK-DT operation to 6,974 people, or 0.88%, of the WALV-CA service population, based on a 2 kilometer square grid resolution. This is in excess of the allowable "de minimis" value of 0.5 %.

There are 2 cells of interference that combine to make up this value. The more significant cell is located only 0.66 kilometers from the WTTK-DT site and contains 5,893 people (see Figure 4). The depression angle to this interference cell at 9.1 meters above ground level, based on the distance from the tower (660 meters), antenna height above ground (289.6 meters) and relatively smooth terrain is 23 degrees. OET Bulletin No. 69 (released July 2, 1997), in Table 8, states that the vertical pattern to be assumed for angles exceeding 5 degrees downward should be a relative field of 0.150. However, according to the OET-69

processing software code all points within 1 kilometer of the transmitter site default to a unity value, regardless of the depression angle. An excerpt from the FCC software code is shown below (under File global.inc):

```
c  mod2 - Set the vertical radiation factor to the last value
c        of the pattern array for points within 1 km of the
c        transmitter. The vertical radiation factor for
c        these points was erroneously set to unity in
c        computations for Appendix B tables of the 6th R&O
c        and the reconsideration orders.
```

Further explanation on “mod2” is found in the OET-69 code under File options.inc:

```
c  Corrections to program code since Appendix B tables of 6th
c  R&O and reconsideration orders. Per_6th_order causes all
c  these mods to be bypassed. That is, mod1, mod2, mod3 and
c  mod4 are effectively false if per_6th_order is true.
c
c  These mods are appropriate and presumably produce more
c  accurate results. Nevertheless, the FCC is currently
c  (February, 1999) processing applications for new or
c  modified facilities with per_6th_order set true.
c
c
c  :
c  :
mod2 = .false.      !Set reasonable value for vertical
                    radiation factor near TX
```

The above code indicates that the FCC’s OET-69 software uses a vertical relative field value of unity (1.0) for calculations to all points within 1 kilometer of the transmitter site. This is more than 16 dB greater than what would result if Table 8 of OET Bulletin No. 69 were referenced. Using a value of unity to calculate interference to cells within 1 kilometer is not logical given the vertical radiation characteristics of the proposed antenna and most broadcast antennae in general. Furthermore, the OET-69 software code even states that this “was erroneously set to unity” and that the mods “appropriately and presumable produce more accurate results”.

Based on the above, OET-69 interference studies were also run with a modified version of OET-69, thus reflecting the vertical radiation pattern as specified in Table 8 of the OET Bulletin No. 69 (mod2 = true). The results are tabulated below.

Study Station	Baseline	Net Population Change/Interference
47 WBXI-CA INDIANAPOLIS IN	846,494	0 (0.0%) New Interference
50 WALV-CA INDIANAPOLIS IN	795,261	1,081 (0.1%) New Interference
53 WTTV-DT BLOOMINGTON IN (CP)	2,065,547	142,733 (6.9%) New Interference
53 WTTV-DT BLOOMINGTON IN (PLN)	2,065,547	139,676 (6.8%) New Interference
54 960920WE KANKAKEE IL	1,442,448	2,376 (0.2%) New Interference
54 WNIN-DT EVANSVILLE IN	717,821	4,501 (0.6%) New Interference
54 WCVN-TV COVINGTON KY	1,571,873	30,585 (1.9%) New Interference
54 NEW OWENSBORO KY	719,514	606 (0.1%) New Interference

From the above it can be seen that the only change was in the interference calculation to station WALV-CA. Specifically, the single interference point in question, located within 1 kilometer of the WTTK-DT site, has been omitted due to the more reasonable vertical field assumed for WTTK-DT (i.e., interference is no longer calculated to occur to this single cell since the D/U ratio of -25 dB is met). The other remaining interference point outside of the 1 kilometer radius, as shown in Figure 4, becomes the only actual interference cell with a population of 1,081 people, or 0.1%, thus “de minimis” interference. Based on the above, a waiver of the FCC’s OET-69 processing software with respect to Class A station WALV-CA is respectfully requested. As noted above, a copy of this waiver request was provided to the licensee of WALV-CA in early January 2003.

WTTV-DT

As shown in the table above the proposed WTTK-DT operation is predicted to caused excessive (greater than 2%) interference to both the WTTV-DT allotment and authorized (CP) facility. However, station WTTV is commonly owned with WTTK (Tribune

Denver Radio, Inc.) and agrees to accept the additional interference caused by the proposed WTTK-DT operation.¹ It is noted that this calculated interference does not exceed 10%.

Kankakee NTSC Application

As shown in the table above the proposed WTTK-DT operation is predicted to cause excessive (only 0.2%, but greater than 10% cumulative) interference to the pending application for a new NTSC station at Kankakee, IL (BPET-19960920WE). The pending Kankakee application appears to cause excessive interference to the DTV allotment for station WREK-DT, Rockford, IL, on channel 54. OET-69 studies indicate that interference will be caused to 170,618 people, or 11.6 % of the WREK-DT service population. The application, filed in 1996, has not been accepted for filing and was never “cut-off”. Therefore, it is believed it should be dismissed and has been ignored.

Radiofrequency Electromagnetic Field Exposure

The proposed WTTK-DT facilities were evaluated in terms of potential radio frequency (RF) energy exposure at ground level to workers and the general public. The radiation center for the proposed antenna is located 289.6 meters above ground level with a maximum ERP of 1000 kW. A conservative relative field value of 0.1 was assumed for the antenna's downward radiation (see Figure 2C). The calculated power density at a point 2 meters (6.6 feet) above ground level is 0.004 mW/cm². This is less than 1% of the FCC's recommended limit of 0.48 mW/cm² for channel 54 for an “uncontrolled” environment.

Access to the transmitting site will be restricted and appropriately marked with warning signs. As this will be a multi-user site, an agreement will control access to the site. In the event that workers or other authorized personnel enter restricted areas or climb the tower, appropriate measures will be taken to assure worker safety with respect to radio

¹ If necessary, a formal letter from station WTTV-DT agreeing to the excess interference from WTTK-DT can be provided.

frequency radiation exposure. Such measures include reducing the average exposure by spreading out the work over a longer period of time, wearing "accepted" RFR protective clothing and/or RFR exposure monitors or scheduling work when the stations are at reduced power or shut down. The proposed WTTK-DT operation appears to be otherwise categorically excluded from environmental processing.

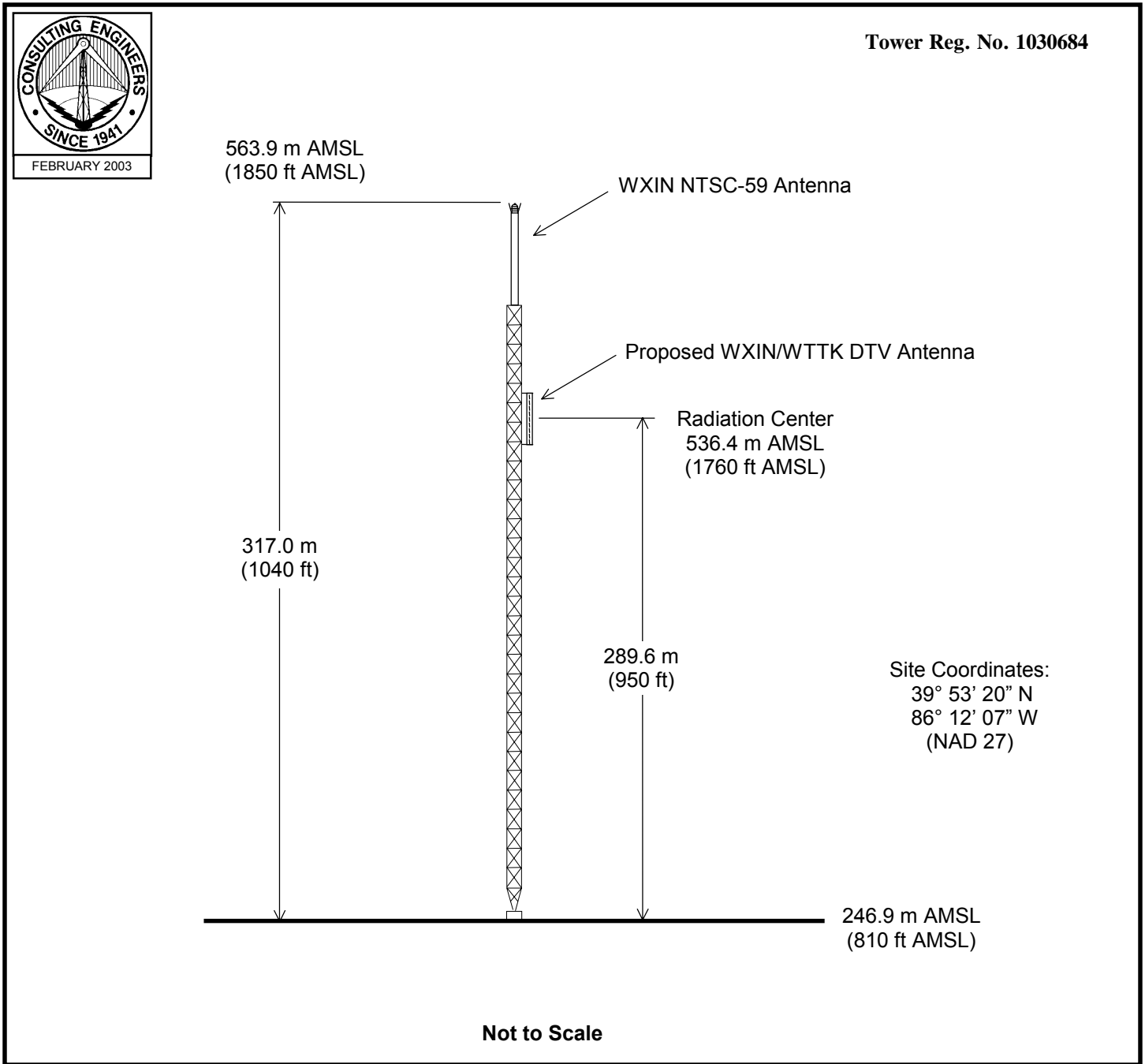


Jonathan N. Edwards

du Treil, Lundin & Rackley, Inc.
201 Fletcher Avenue
Sarasota, Florida 34237
(941) 329-6000

February 5, 2003

Figure 1



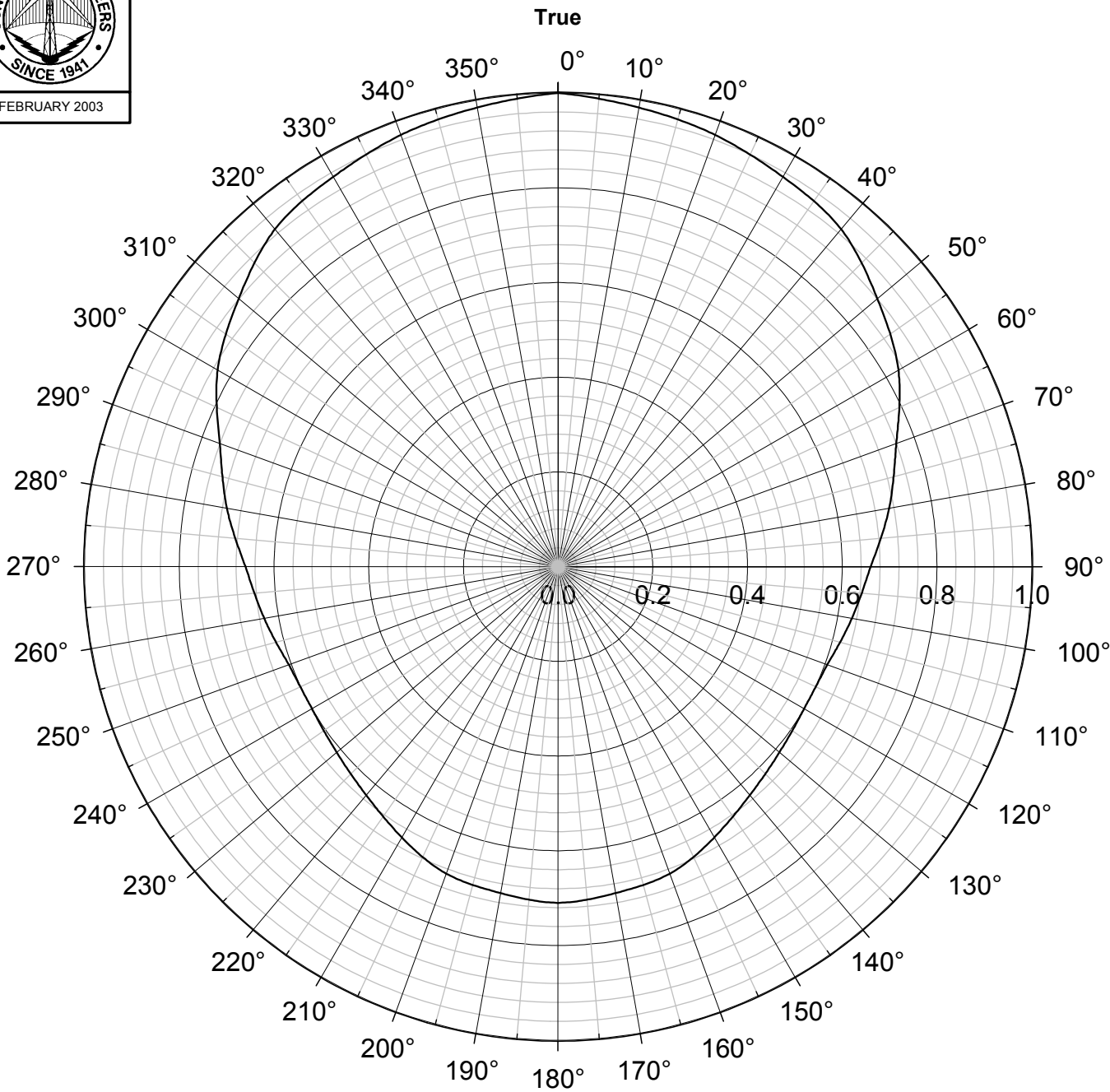
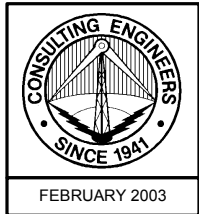
ANTENNA AND SUPPORTING STRUCTURE

STATION WTTK-DT

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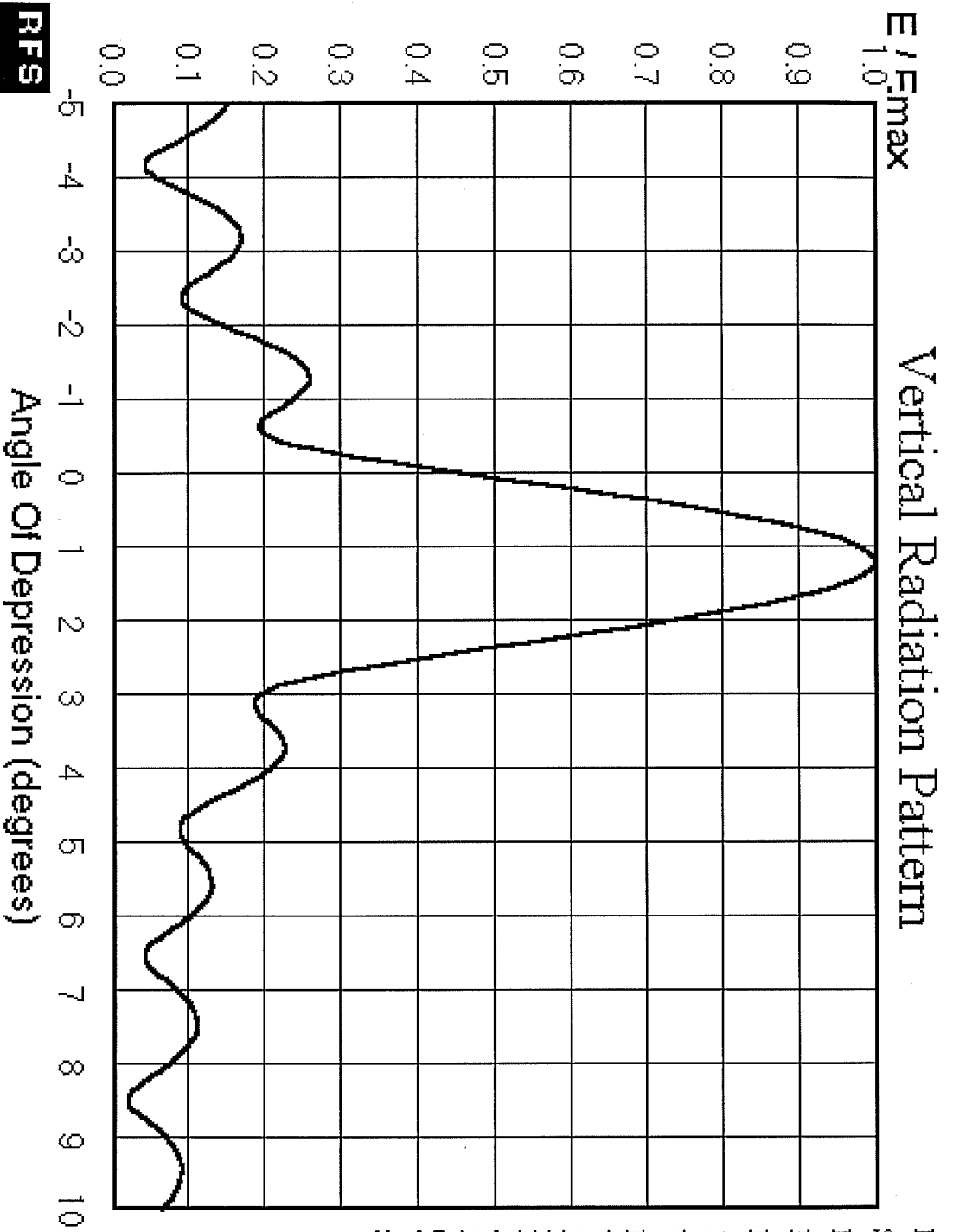
RFS RD32UOM

HORIZONTAL RELATIVE FIELD PATTERN

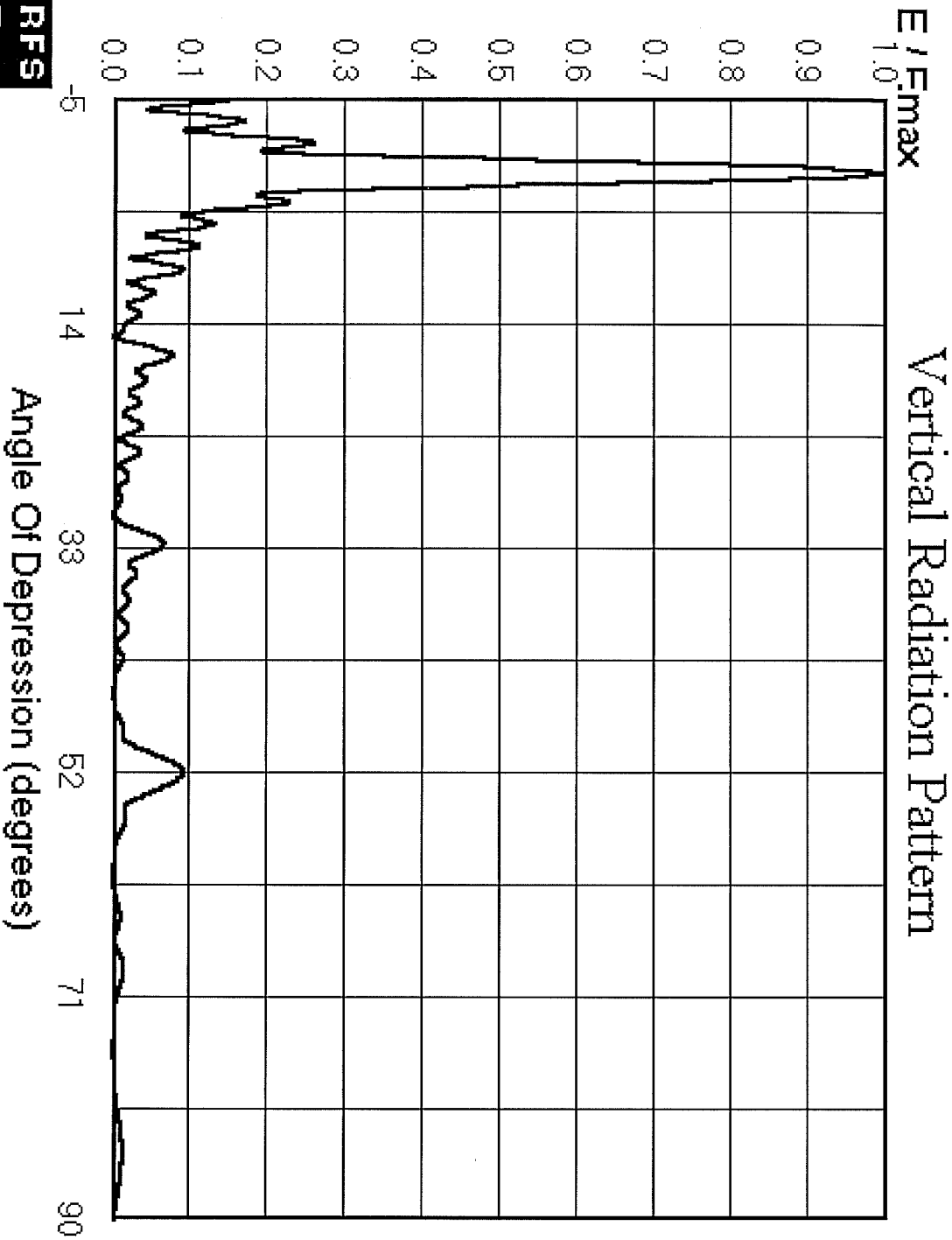
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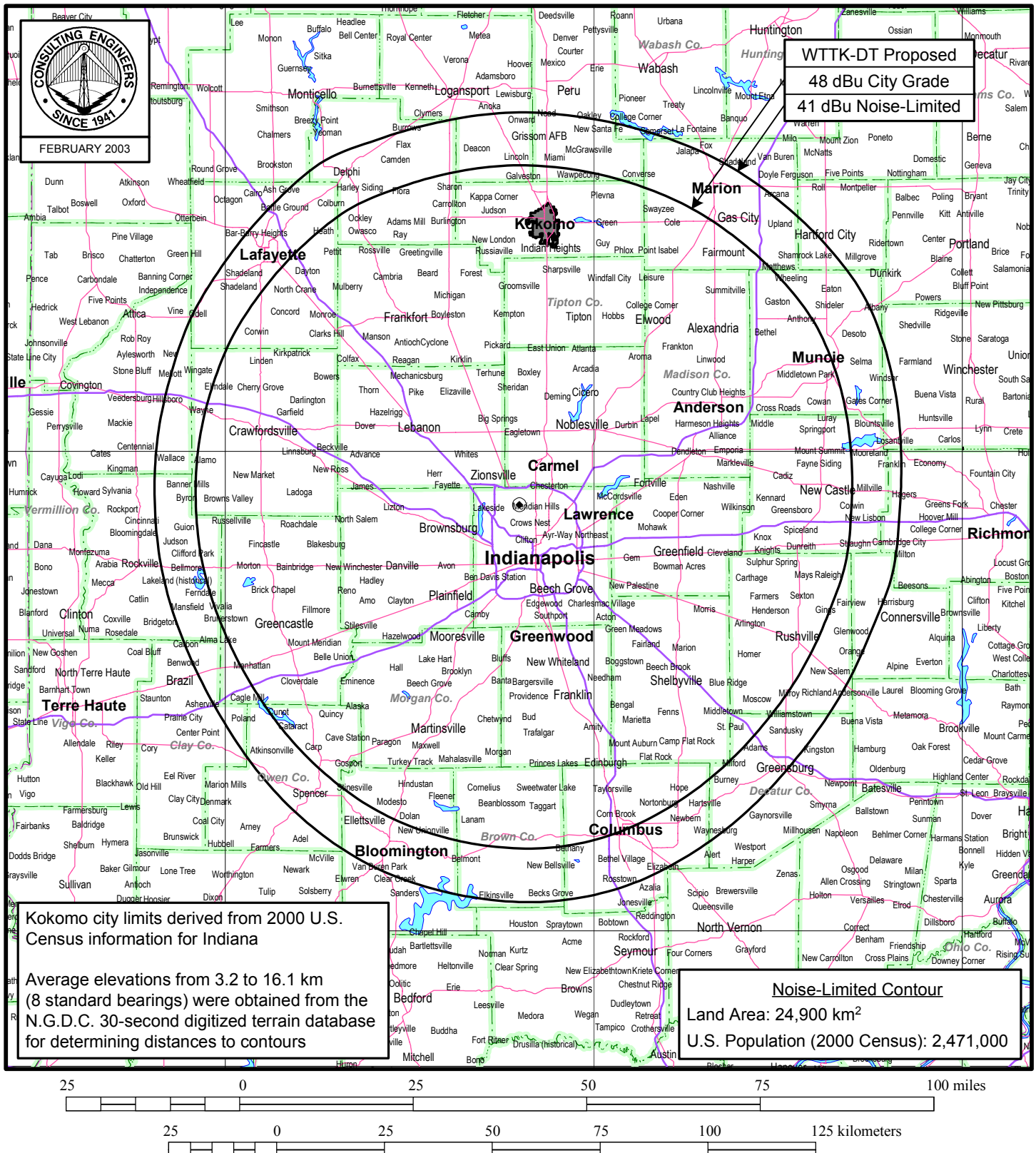


Date :	8/5/02		
Station :	CHANNEL 54		
Frequency (MHz):	713.00		
Directivity (dB) :	15.25		
Beam Tilt (deg) :	1.2		
1/2 3dB Beamwidth :	6.7		
Vertical Spacing (m)	1.645		
Level	Power	Phase	Loch'n
1	1.0	221.2	0.00
2	1.0	159.1	1.64
3	1.0	119.6	3.29
4	1.0	88.5	4.93
5	1.0	52.3	6.58
6	1.0	32.9	8.23
7	1.0	0.0	9.87
8	1.0	11.6	11.52



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3	1.0	119.6	3.29
4	1.0	88.5	4.93
5	1.0	52.3	6.58
6	1.0	32.9	8.23
7	1.0	0.0	9.87
8	1.0	11.6	11.52

Figure 3



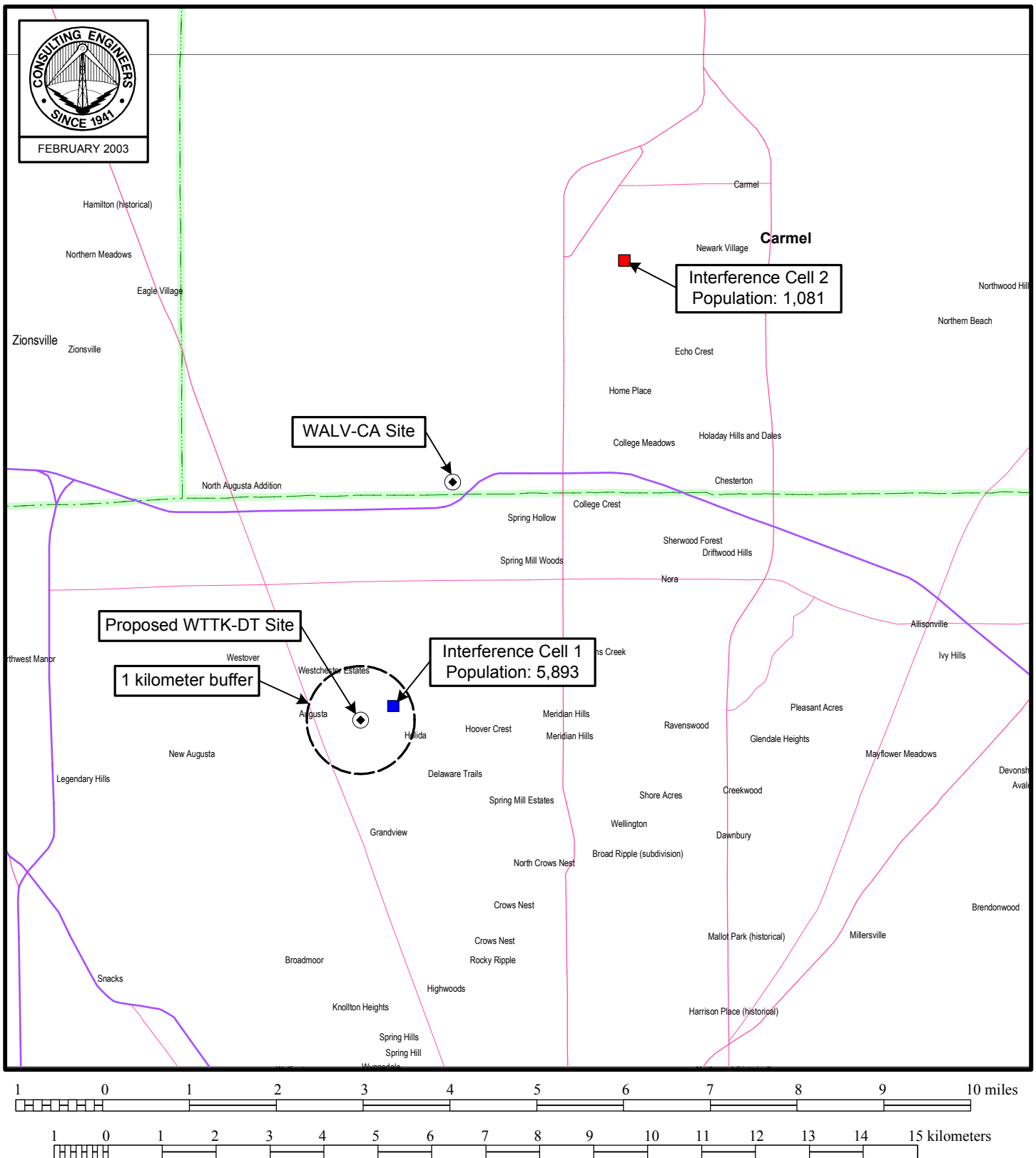
PREDICTED F(50,90) COVERAGE CONTOURS

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Figure 4



PREDICTED OET-69 INTERFERENCE

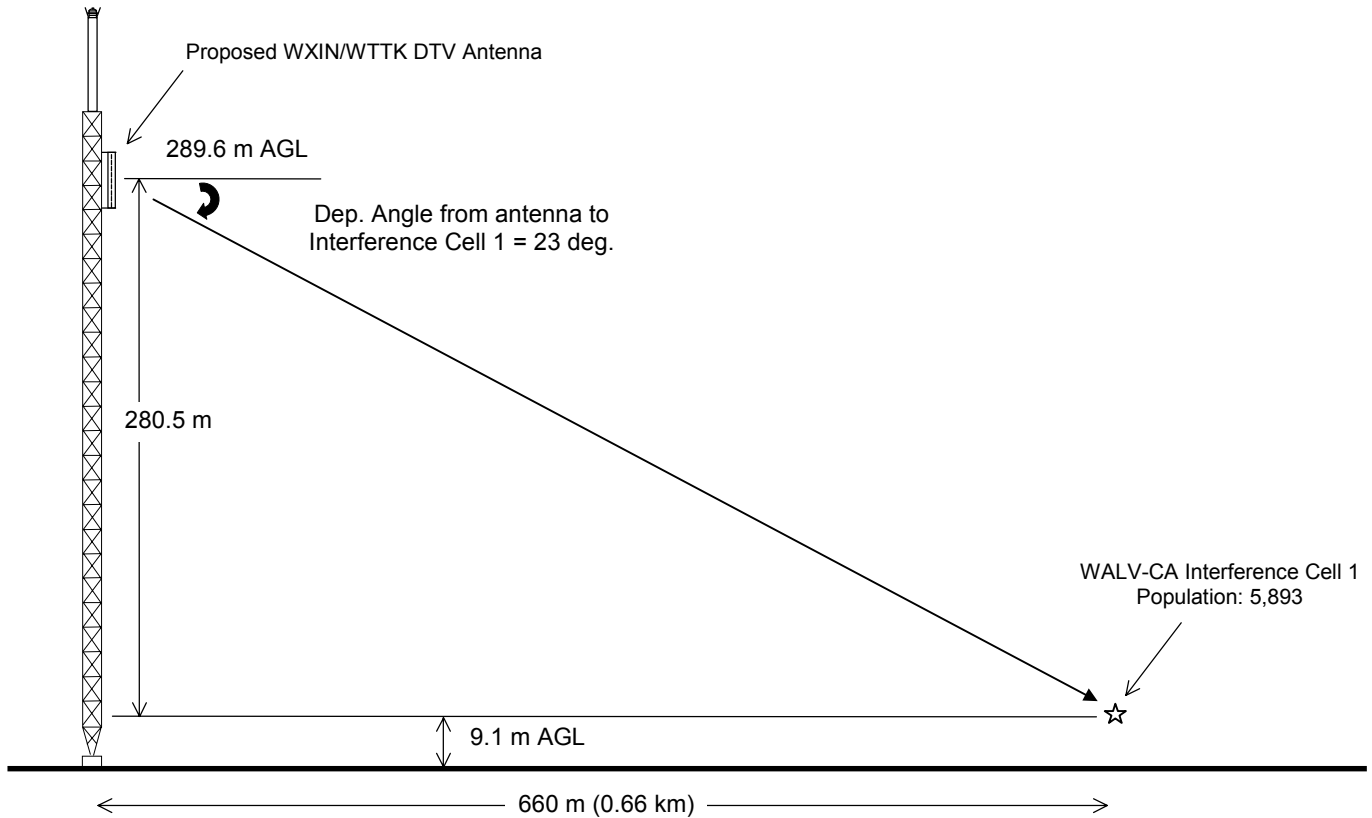
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Figure 5



Not to Scale

DEPRESSION ANGLE CALCULATION

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