

TECHNICAL EXHIBIT  
MINOR AMENDMENT TO THE APPLICATION  
FOR CONSTRUCTION PERMIT  
STATION WPXS-DT (FACILITY ID 40861)  
MOUNT VERNON, ILLINOIS

JUNE 25, 2001

CH 21    1000 KW (MAX-DA)    276 M

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Technical Narrative

This Technical Exhibit supports a minor amendment to the application for construction permit for digital television (DTV) station WPXS-DT on channel 21 at Mount Vernon, Illinois. Station WPXS-DT has an application pending to operate with a non-directional antenna effective radiated power (ERP) of 1000 kW and an antenna height above average terrain (HAAT) of 316 meters (BPCDT-19990701KI).

Proposed Facilities

This amendment proposes changes to the currently pending application that include (1) reduce antenna HAAT, (2) change to a directional antenna and (3) change transmitter site location (coordinates). Operation at a new transmitter site (coordinates: 38-32-55 N, 89-28-53 W) with a directional antenna maximum ERP of 1000 kW and antenna HAAT of 276 meters is hereby proposed.

The Federal Aviation Administration (FAA) is being notified of the proposed construction. When a *Determination of No Hazard* from the FAA is made available, the tower will be registered and the FCC notified of this information.

The proposed transmitter site is more than 650 kilometers from the closest point of the Canadian border. The site is more than 1,400 kilometers from the closest point of the Mexican border. The closest FCC monitoring station is at Allegan, Michigan, more than 500 kilometers to the northeast. The closest point of the National Radio Quiet Zone (VA/WV) is more than 700 kilometers to the west. The closest point of the Table Mountain Radio Quiet Zone (CO) is more than 1,300 kilometers to the west. The closest radio astronomy site operating on TV channel 37 is at North Liberty, Iowa, approximately 400 kilometers to the north-northwest. These separations are sufficient to not be a concern for coordination purposes.

Allocation Study

Interference calculations have been made using the procedures outlined in the FCC's OET-69 bulletin, using a 2 kilometer grid spacing. The proposed WPXS-DT operation does not cause excessive (greater than 2%, up to 10% total) calculated interference to any analog or DTV assignment and therefore complies with the FCC's 2%/10% interference standard. Below is the list of stations considered in the OET-69 analysis.

<b>Stations Potentially Affected by WPXS-DT</b>						
Chan	Call	City/State	Bear (°T)	Dist (km)	Status	App Ref. No.
14	WSEC	JACKSONVILLE IL	338	126.9	APP	BMPET-20000404AAU
18	951211KI	EDWARDSVILLE IL	265	80.1	APP	BPET-19951211KI
20	WICS	SPRINGFIELD IL	1	139.6	CP	BPCT-19990429KM
20	WICS	SPRINGFIELD IL	1	139.6	LIC	BLCT-2187
20	WAZE-DT	MADISONVILLE KY	126	212.7	CP	BPCDT-19991101AHC
20	WLCN-DT	MADISONVILLE KY	126	212.8	PLN	DTVPLN-DTVP0376
20	KNLJ	JEFFERSON CITY MO	275	227.1	CP	BPCDT-19991028AFN
20	KNLJ-DT	JEFFERSON CITY MO	275	227.1	PLN	DTVPLN-DTVP0383
21	WYCC-DT	CHICAGO IL	22	404.4	APP	BPEDT-20000428ACO
21	WYCC-DT	CHICAGO IL	22	404.4	PLN	DTVPLN-DTVP0412
21	WMEC-DT	MACOMB IL	333	231.9	APP	BPEDT-20000501AGY
21	WMEC-DT	MACOMB IL	333	231.9	PLN	DTVPLN-DTVP0413
21	WFYI-DT	INDIANAPOLIS IN	61	319.9	CP	BPEDT-20000428ACR
21	WFYI-DT	INDIANAPOLIS IN	61	319.9	PLN	DTVPLN-DTVP0415
21	WBNA	LOUISVILLE KY	93	318.3	CP	BPCT-19960702KJ
21	WBNA	LOUISVILLE KY	99	330.1	LIC	BLCT-19890201KS
21	WKMU	MURRAY KY	158	222.5	LIC	BLET-19830812KO
21	KOZK	SPRINGFIELD MO	245	338.2	LIC	BLET-377
21	WUXP-DT	NASHVILLE TN	136	347.5	CP	BPCDT-19991101AKK
21	WUXP-DT	NASHVILLE TN	136	347.5	PLN	DTVPLN-DTVP0433
21	WUXP-DT	NASHVILLE TN	136	347.5	APP	BMPCDT-20010525AAJ
22	WBUI	DECATUR IL	19	165.2	CP	BPCDT-19991022ABS
22	WFHL-DT	DECATUR IL	19	164.6	PLN	DTVPLN-DTVP0453
22	WVUT	VINCENNES IN	86	174.5	LIC	BLET-344
22	KBSI-DT	CAPE GIRARDEAU MO	183	127.2	CP	BPCDT-19991028AAS
22	KBSI-DT	CAPE GIRARDEAU MO	183	127.2	PLN	DTVPLN-DTVP0461
23	KBSI	CAPE GIRARDEAU MO	183	127.2	LIC	BLCT-19951120KT
24	KNLC	ST. LOUIS MO	258	95.2	CP	BPCT-19970509KE
24	KNLC	ST. LOUIS MO	258	95.3	LIC	BLCT-19860123KG

Class A Consideration

The FCC's CDBS and its list of low power television (LPTV) assignments eligible for Class A status has been reviewed for potential impact. Interference calculations have been made using the procedures outlined in the FCC's OET-69 Bulletin. The proposed WPXS-DT operation does not cause any calculated interference to any current or potential Class A station. If necessary, a waiver of the FCC rules is requested based on use of the

FCC's OET-69 procedures to demonstrate no interference to LPTV assignments requesting Class A status.

Radiofrequency Electromagnetic Field Exposure

The proposed WPXS-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 DTV antenna is located 255.7 meters above ground level. The maximum DTV ERP is 1000 kW. A conservative relative field value of 0.15 was used for the calculation (see Figure 2C). Therefore, the "worst-case" calculated power density at a point 2 meters above ground level is  $0.0117 \text{ mW/cm}^2$ . This is 3.4% of the FCC's recommended limit of  $0.34 \text{ mW/cm}^2$  for channel 21 for an "uncontrolled" environment.

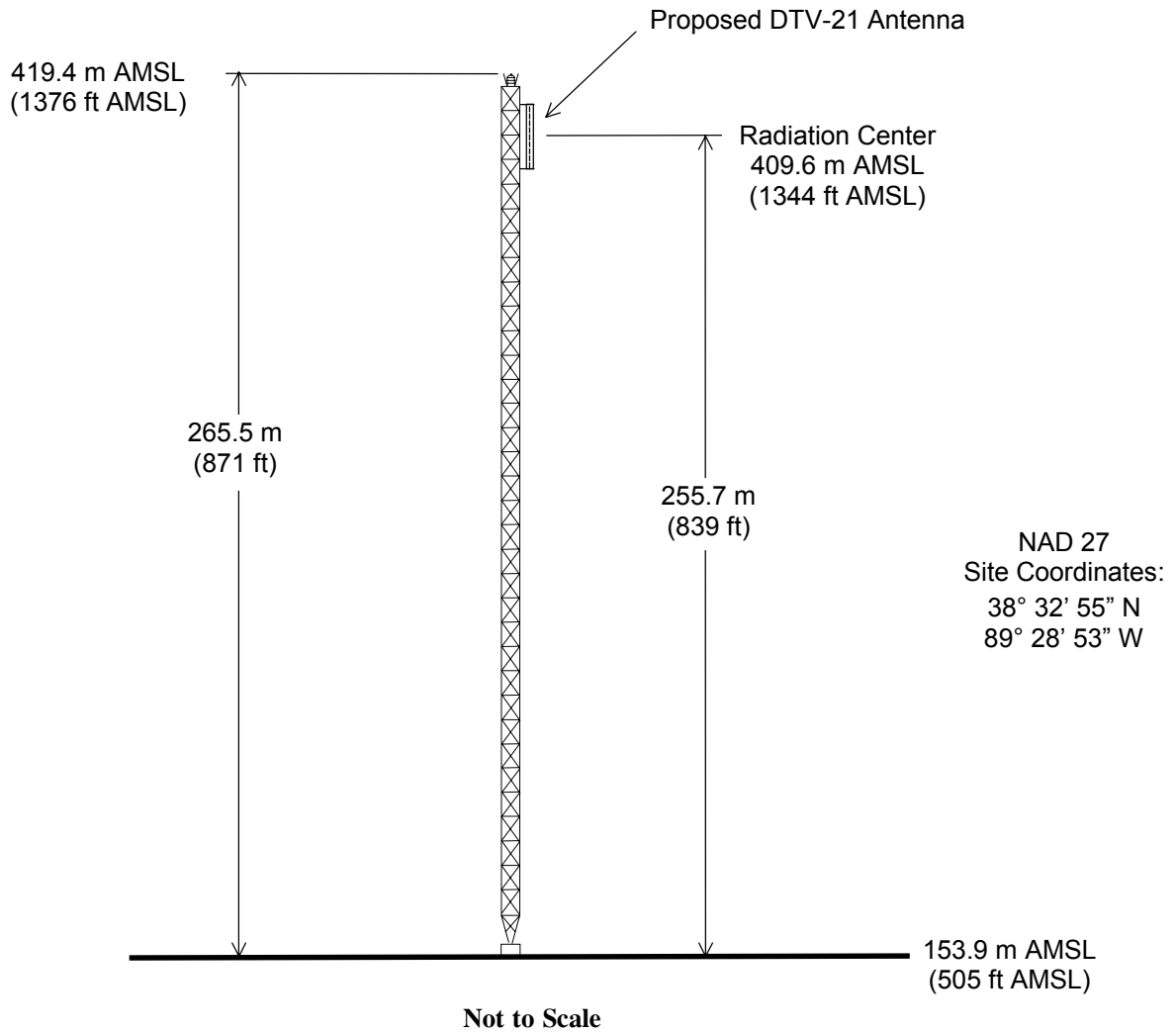
Access to the transmitting site will be restricted and appropriately marked with warning signs. In the event that workers or other authorized personnel enter restricted areas or climb the tower, appropriate measures will be taken to assure worker safety with respect to radio frequency radiation exposure. 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 WPXS-DT operation appears to be otherwise categorically excluded from environmental processing.

If there are questions concerning the technical portion of this application, please contact the office of the undersigned.

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Sarasota, Florida 34237  
(941) 329-6000

June 25, 2001



## PROPOSED ANTENNA AND SUPPORTING STRUCTURE

STATION WPXS-DT

MOUNT VERNON, ILLINOIS

CH 21 1000 KW (MAX-DA) 276 M

du Treil, Lundin & Rackley, Inc. Sarasota, Florida



Date	23 Jun 2001		
Call Letters	WPXS-DT	Channel	21
Location	MOUNT VERNON, IL		
Customer			
Antenna Type	TFU-26DSC-R C170		

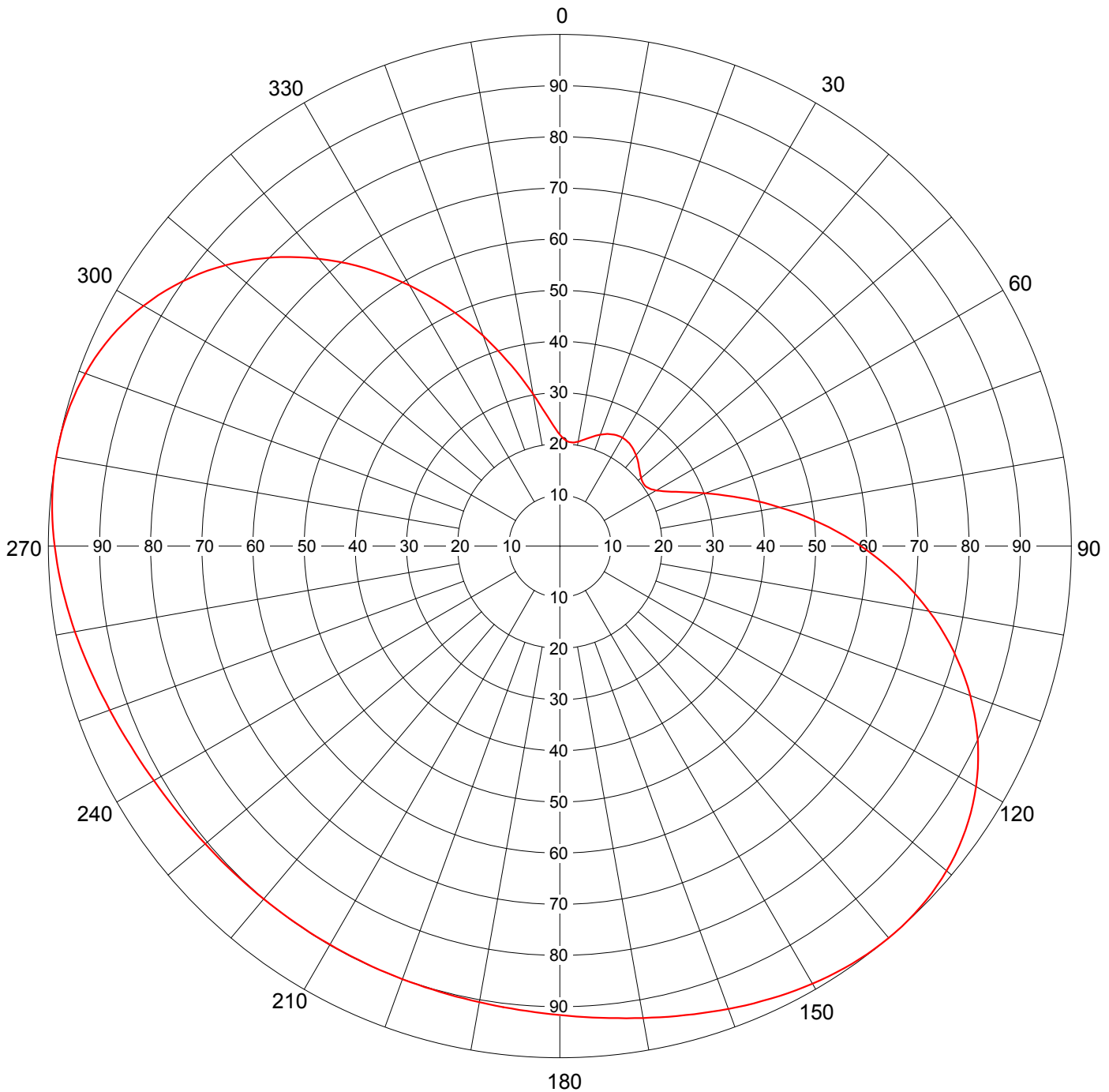
### AZIMUTH PATTERN

RMS Gain at Main Lobe  
Calculated / Measured

**1.70 (2.30 dB)**  
**Calculated**

Frequency  
Drawing #

**515 MHz**  
**TFU-C170**



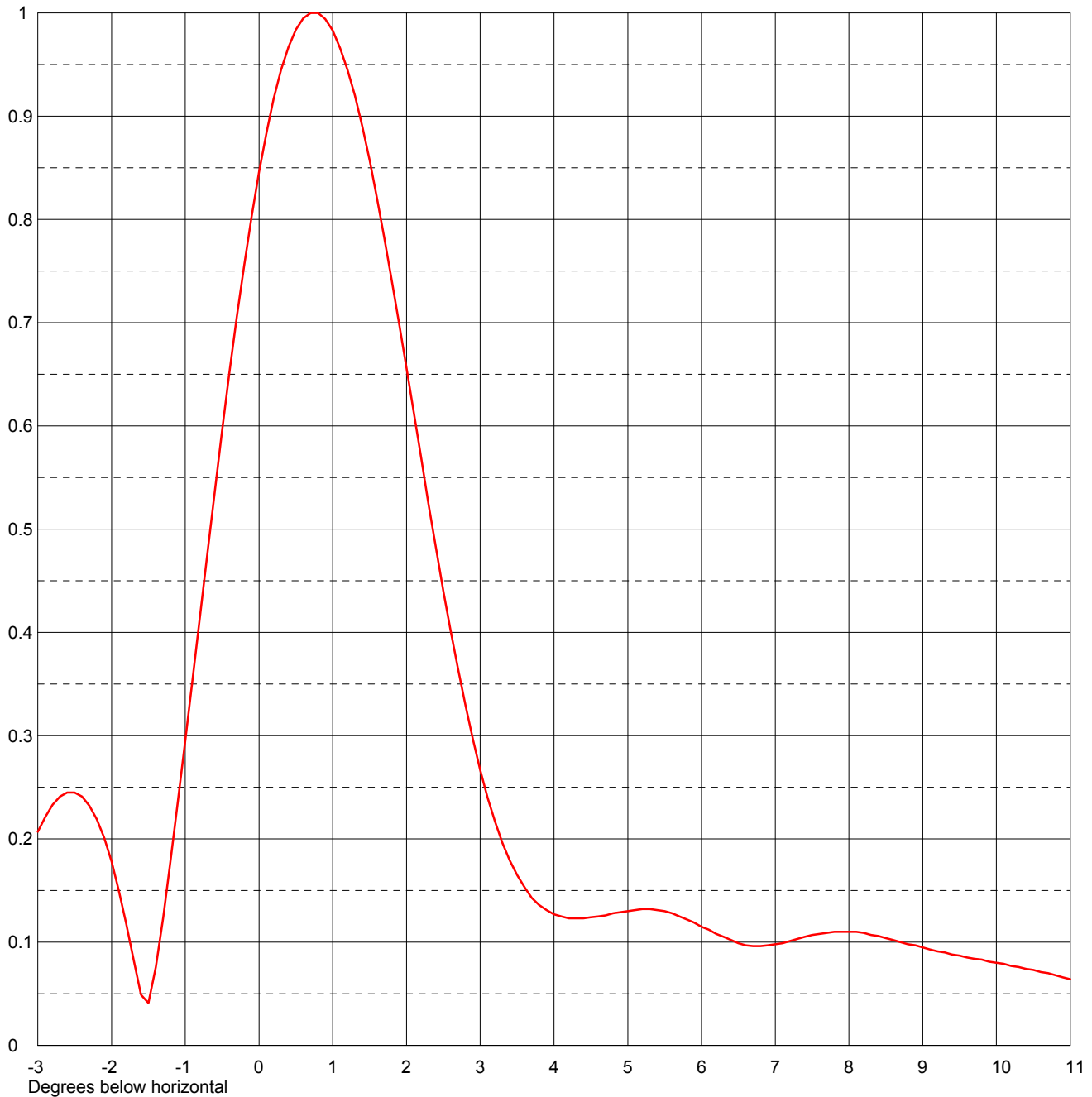
Remarks:



Date	23 Jun 2001		
Call Letters	WPXS-DT	Channel	21
Location	MOUNT VERNON, IL		
Customer			
Antenna Type	TFU-26DSC-R C170		

### ELEVATION PATTERN

RMS Gain at Main Lobe	22.5 (13.52 dB)	Beam Tilt	0.75 Degrees
RMS Gain at Horizontal	16.1 (12.07 dB)	Frequency	515.00 MHz
Calculated / Measured	Calculated	Drawing #	26Q225075



Remarks:

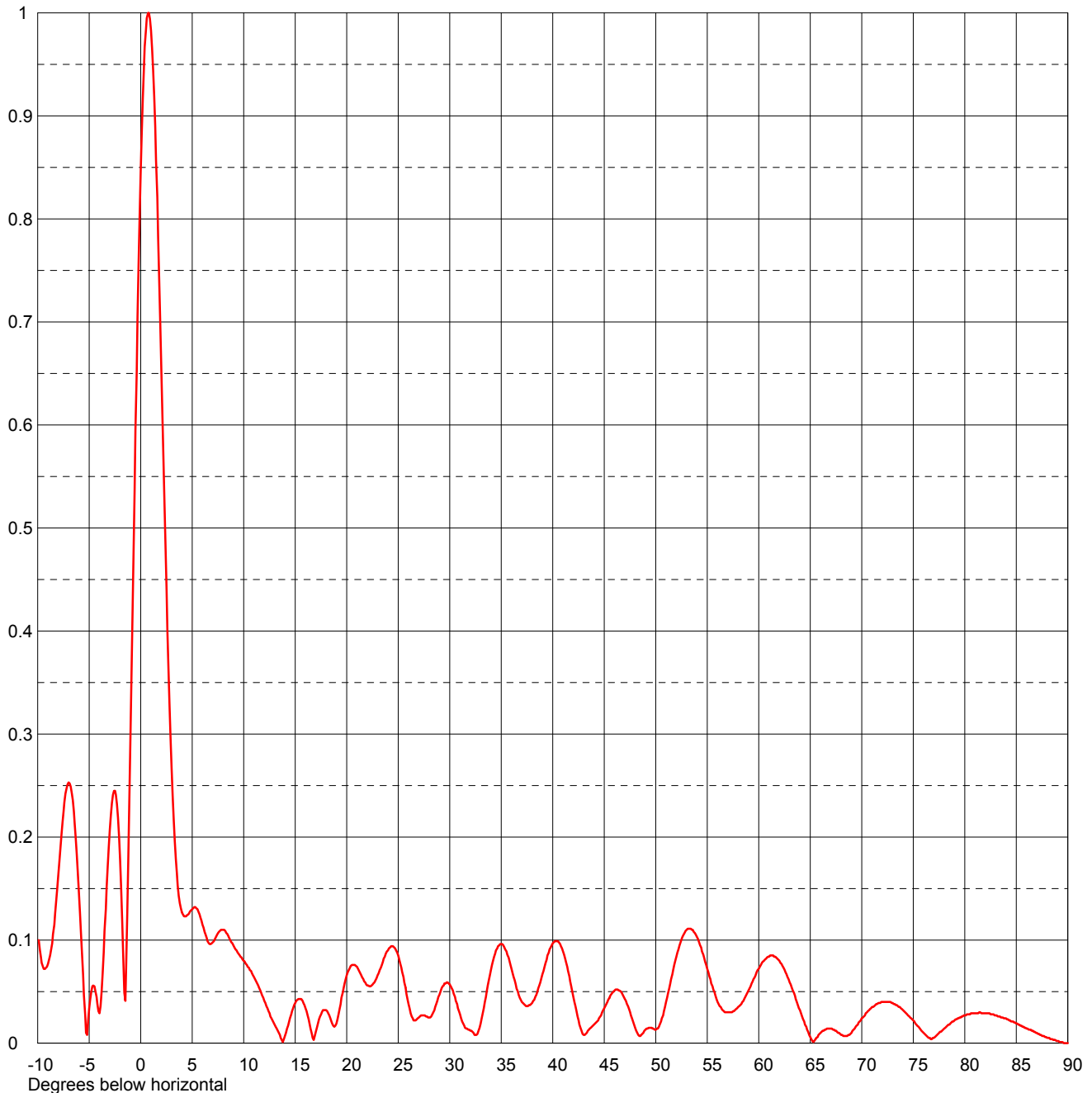




Date	23 Jun 2001		
Call Letters	WPXS-DT	Channel	21
Location	MOUNT VERNON, IL		
Customer			
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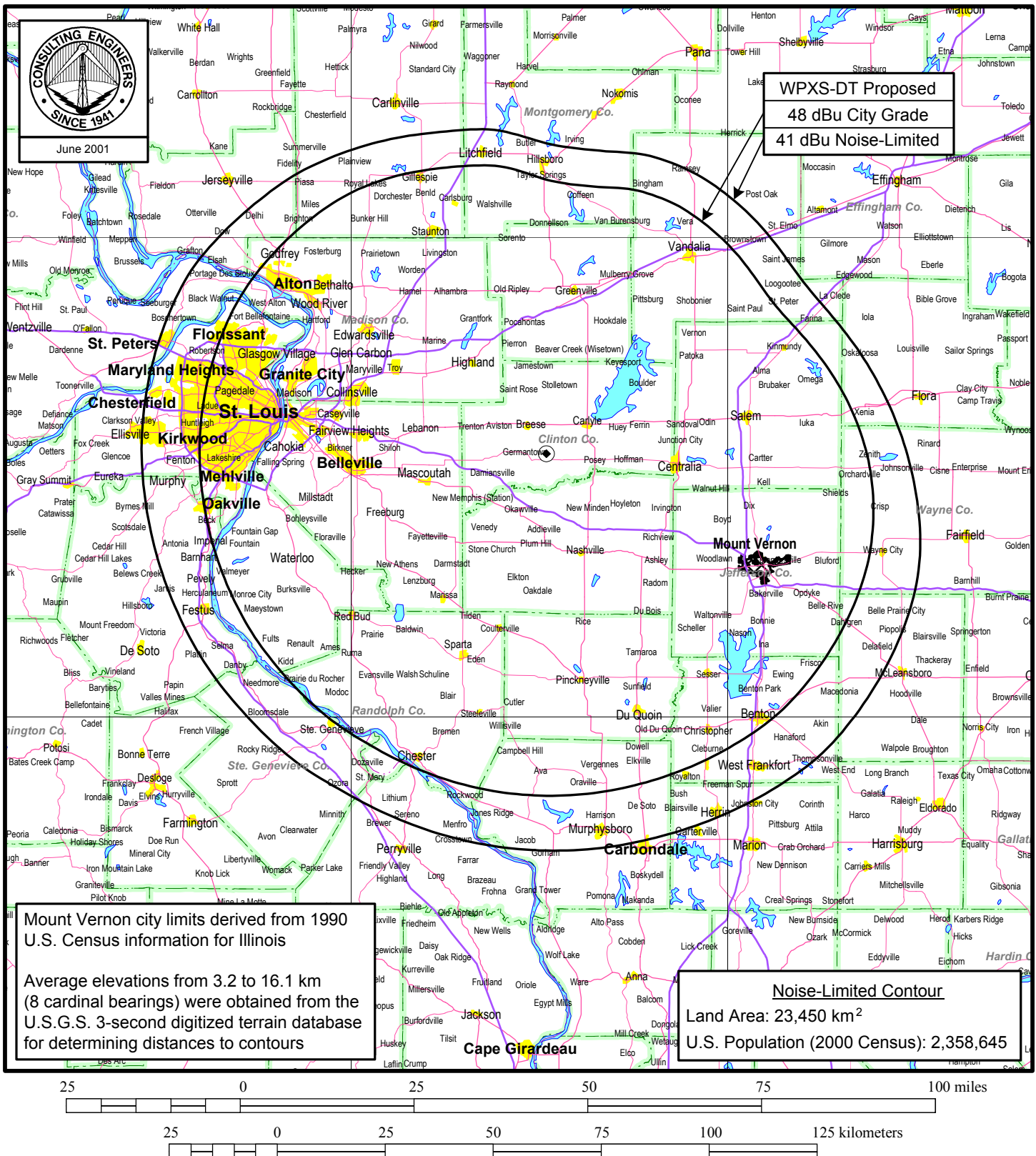
### ELEVATION PATTERN

RMS Gain at Main Lobe	22.5 (13.52 dB)	Beam Tilt	0.75 Degrees
RMS Gain at Horizontal	16.1 (12.07 dB)	Frequency	515.00 MHz
Calculated / Measured	Calculated	Drawing #	26Q225075-90



Remarks:

### Figure 3



## PREDICTED F(50,90) COVERAGE CONTOURS

STATION WPXS-DT

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du Treil, Lundin & Rackley, Inc Sarasota, Florida

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Technical Specifications

Channel	21
Frequency	512-518 MHz
Proposed Site Coordinates (NAD 27)	38° 32' 55" North Latitude 89° 28' 53" West Longitude
Site Elevation above mean sea level	153.9 m
Average elevation above mean sea level of 8 equally spaced radials, 3-16 kilometers	133.9 m
Overall height of antenna structure	
Above ground	265.5 m
Above mean sea level	419.4 m
Height of antenna radiation center	
Above ground	255.7 m
Above mean sea level	409.6 m
Above average terrain	276 m
Transmitter rated power output (average)	40 kW
Transmission line	EIA Style Rigid TL
Length	(900 ft) 274 m
Efficiency (0.99 dB loss)	79.6%
Antenna	Dielectric TFU-26DSC-R C170
Polarization	Horizontal
Peak Power Gain	38.3
Beam Tilt (electrical)	0.75±
Main Lobes	140° & 280° T

Proposed Operation

Transmitter output power (average)	32.8 kW
Transmission line loss	6.7 kW
Antenna input power	26.1 kW
Maximum Effective Radiated Power (MAX-DA)	1000 kW