

TECHNICAL EXHIBIT  
APPLICATION FOR MODIFICATION OF  
DTV CONSTRUCTION PERMIT  
DTV STATION WBKP-DT  
CALUMET, MICHIGAN

January 18, 2002

CH 11	96.2 KW (MAX-DA)	388 M
-------	------------------	-------

TECHNICAL EXHIBIT  
APPLICATION FOR MODIFICATION OF  
DTV CONSTRUCTION PERMIT  
DTV STATION WBKP-DT  
CALUMET, MICHIGAN  
CH 11      96.2 KW (MAX-DA)      388 M

Table of Contents

Technical Narrative

Figure 1	Proposed Antenna and Supporting Structure
Figure 2	Antenna Data
Figure 3	Predicted Coverage Contours

TECHNICAL EXHIBIT  
APPLICATION FOR MODIFICATION OF  
DTV CONSTRUCTION PERMIT  
DTV STATION WBKP-DT  
CALUMET, MICHIGAN  
CH 11      96.2 KW (MAX-DA)      388 M

Technical Narrative

This Technical Exhibit supports a "checklist" application for DTV station WBKP-DT at Calumet, Michigan. Specifically this application proposes to modify the WBKP-DT authorized construction permit (BPCDT-19991020ABO) by proposing operation on DTV channel 11. In MM Docket No. 01-166, RM-10182, the FCC allotted channel 11 for WBKP-TV's DTV operation in place of channel 18. The FCC assigned a maximum directional ERP of 96.2 kilowatts (kW) and an antenna radiation center height above average terrain (HAAT) of 388 meters for the DTV allotment. This application proposes to modify the WBKP-DT construction permit by proposing the same facilities allotted in MM Docket No. 01-166. Since this application proposes the same facilities allotted in MM Docket No. 01-166, it is considered a "checklist" application.

Specifically, WBKP-DT proposes to operate DTV channel 11 at its allotted DTV site (N 46°-26'-17", W 88°-02'-58"). It is proposed to operate with a Dielectric THA-C3-8/24-1 directional antenna with a maximum ERP of 96.2 kilowatts and an HAAT of 388 meters.

Figure 1 is a sketch of antenna showing the location of the proposed WBKP-DT DTV antenna system. The

FCC antenna registration number for the proposed tower is 1231874.

Figure 2 is the horizontal and vertical plane radiation patterns for the proposed Dielectric THA-C3-8/24-1 antenna.

There are no known authorized full service AM stations within 5 kilometers (3 miles) of the WBKP-DT transmitter site. There are also no known full service FM stations within 16 kilometers of the WBKP-DT transmitter site. The only full service TV station within 16 kilometers is station WBUP on NTSC channel 10 at Ishpeming, Michigan.

The WBKP-DT transmitter site is approximately 158 kilometers from the closest point of the Canadian border. Since the application is a "checklist" application, it is not believed coordination with Canada is required. However, if the FCC differs, coordination is respectfully requested.

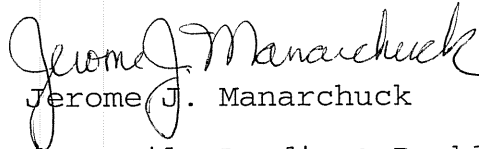
The site is more than 2100 kilometers from the closest point of the Mexican border. The closest FCC monitoring station is at Allegan Michigan approximately 457 kilometers to the south-southeast. The closest point of the National Radio Quiet Zone (VA/WV) is more than 1000 kilometers to the southeast. The closest point of the Table Mountain Radio Quiet Zone (CO) is approximately 1551 kilometers to the west-southwest. The closest radio astronomy site operating on TV channel 37 is at North Liberty, Iowa, approximately 590 kilometers to the south-southwest.

Figure 3 is a map showing the FCC predicted coverage contours for the proposed WBKP-DT facility. The map provides the FCC predicted 36 dBu f(50,90) noise limited contour and also the 43 dBu f(50,90) city grade contour. The extent of the contours has been calculated using the normal FCC prediction method. The Calumet city limits were derived from information contained in the 2000 U.S. Census for Michigan.

The proposed WBKP-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 WBKP-DT antenna is located 390 meters above ground level. The maximum DTV ERP is 96.2 kW. A relative field value of 0.15 is presumed for the antenna's downward radiation (see Sheet 3 of Figure 2). The calculated power density at two meters above ground level is  $0.0005 \text{ mW/cm}^2$ . This is less than 1.0% of the FCC's recommended limit of  $0.2 \text{ mW/cm}^2$  for channel 11 for an "uncontrolled" environment. Therefore, based on the responsibility threshold of 5%, the proposal will comply with the new RF emission rules.

Access to the transmitting site will be restricted and appropriately marked with warning signs. As this is 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 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 WBKP-DT operation appears to be otherwise categorically excluded from environmental processing.

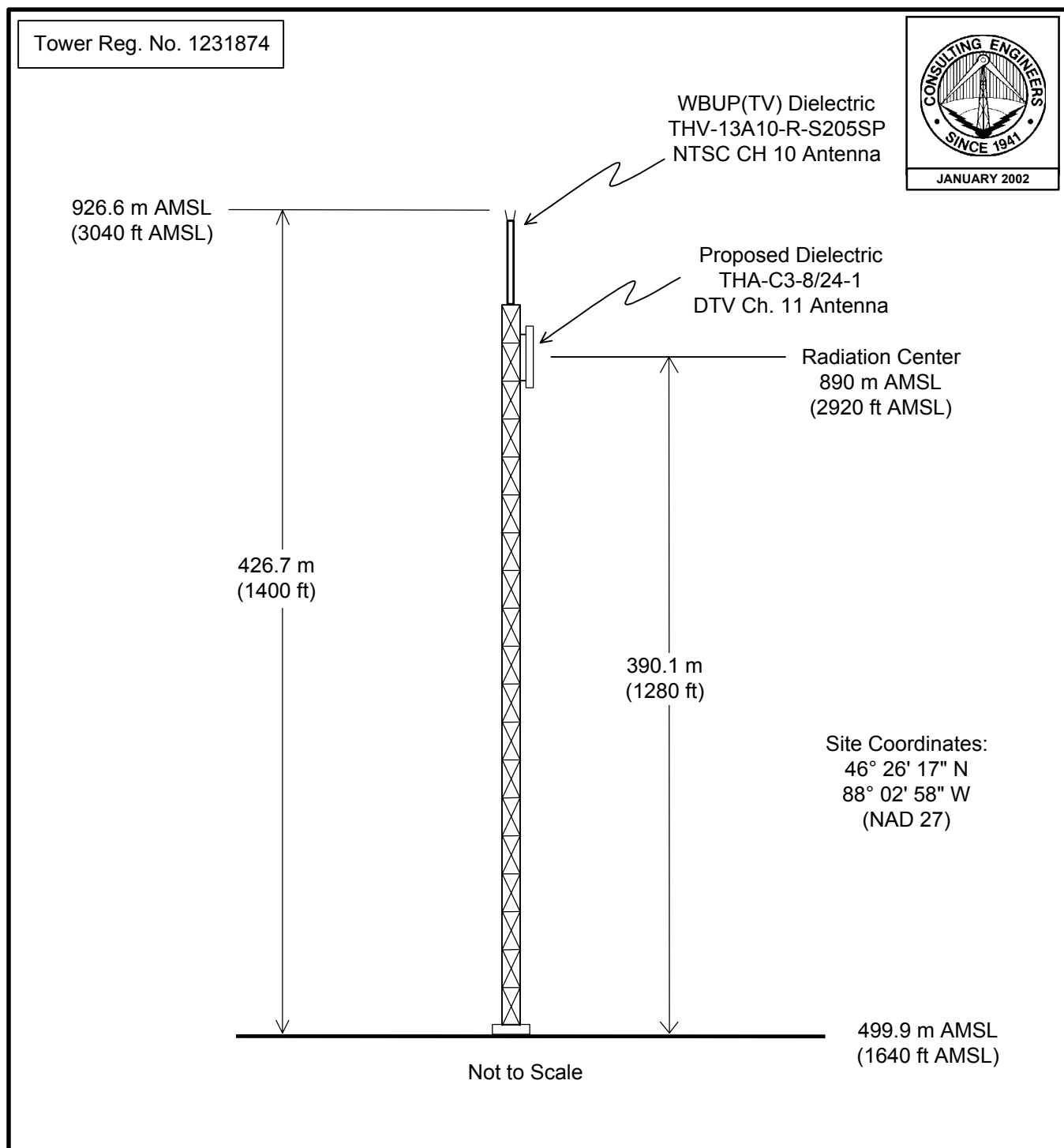


Jerome J. Manarchuck

du Treil, Lundin & Rackley, Inc.  
201 Fletcher Avenue  
Sarasota, Florida 34237

January 18, 2002

Figure 1



## **PROPOSED ANTENNA AND SUPPORTING STRUCTURE**

DTV STATION WBKP-DT

CALUMET, MICHIGAN

CH 11 96.2 KW (MAX-DA) 388 M

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

Date  
Call Letters  
Location  
Customer  
Antenna Type

**03 May 2001**  
**WBKP-DT**  
**Calumet, MI**  
  
**THA-C3-8/24-1**

Channel **11**

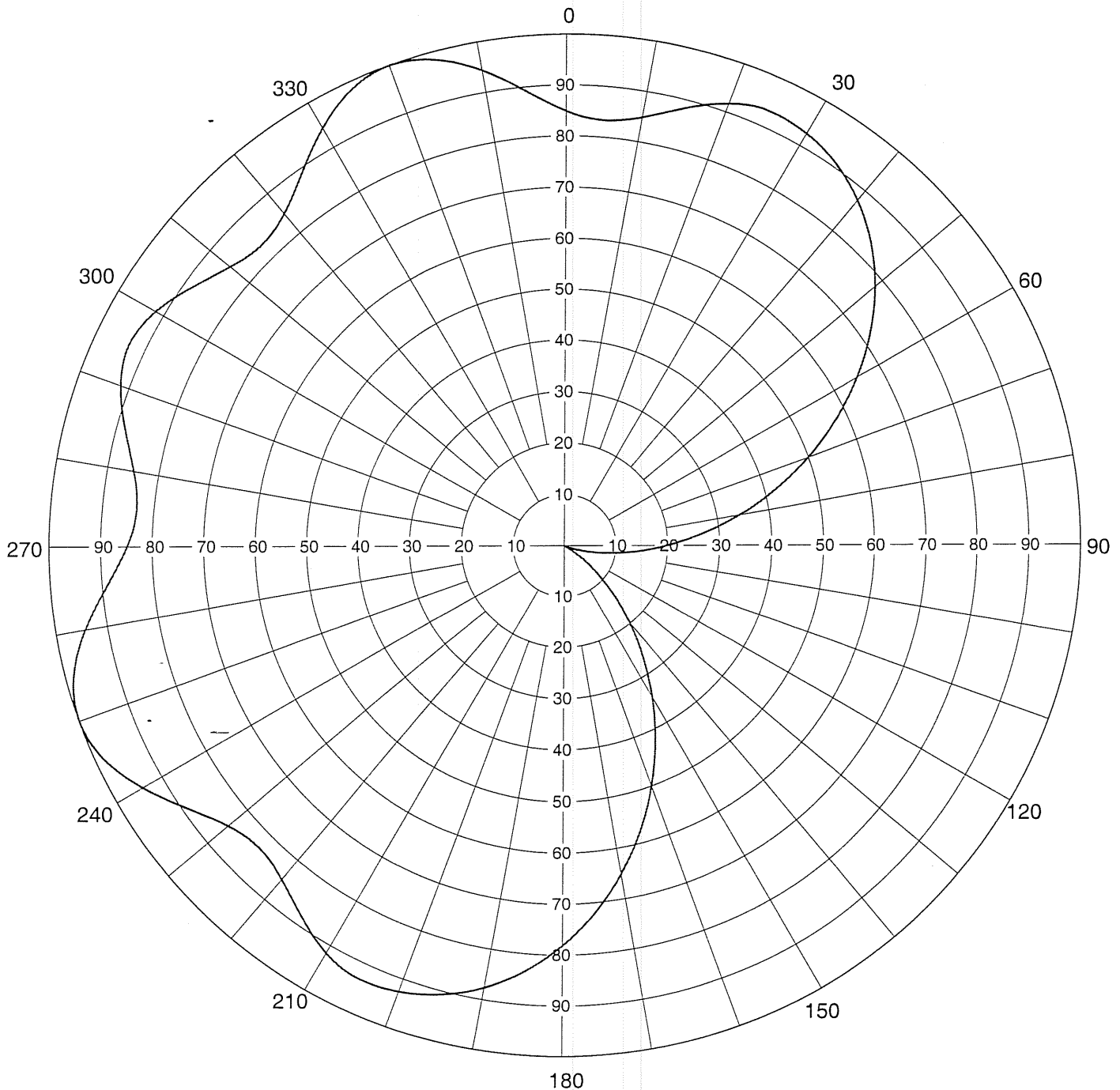
## AZIMUTH PATTERN

RMS Gain at Main Lobe  
Calculated / Measured

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

Frequency  
Drawing #

**201 MHz**  
**THA-C3**



Remarks:



# Dielectric

Date  
Call Letters  
Location  
Customer  
Antenna Type

03 May 2001

WBKP-DT

Calumet, MI

Channel 11

THA-C3-8/24-1

## ELEVATION PATTERN

RMS Gain at Main Lobe  
RMS Gain at Horizontal  
Calculated / Measured

8.0 (9.03 dB)

7.8 (8.92 dB)

Calculated

Beam Tilt

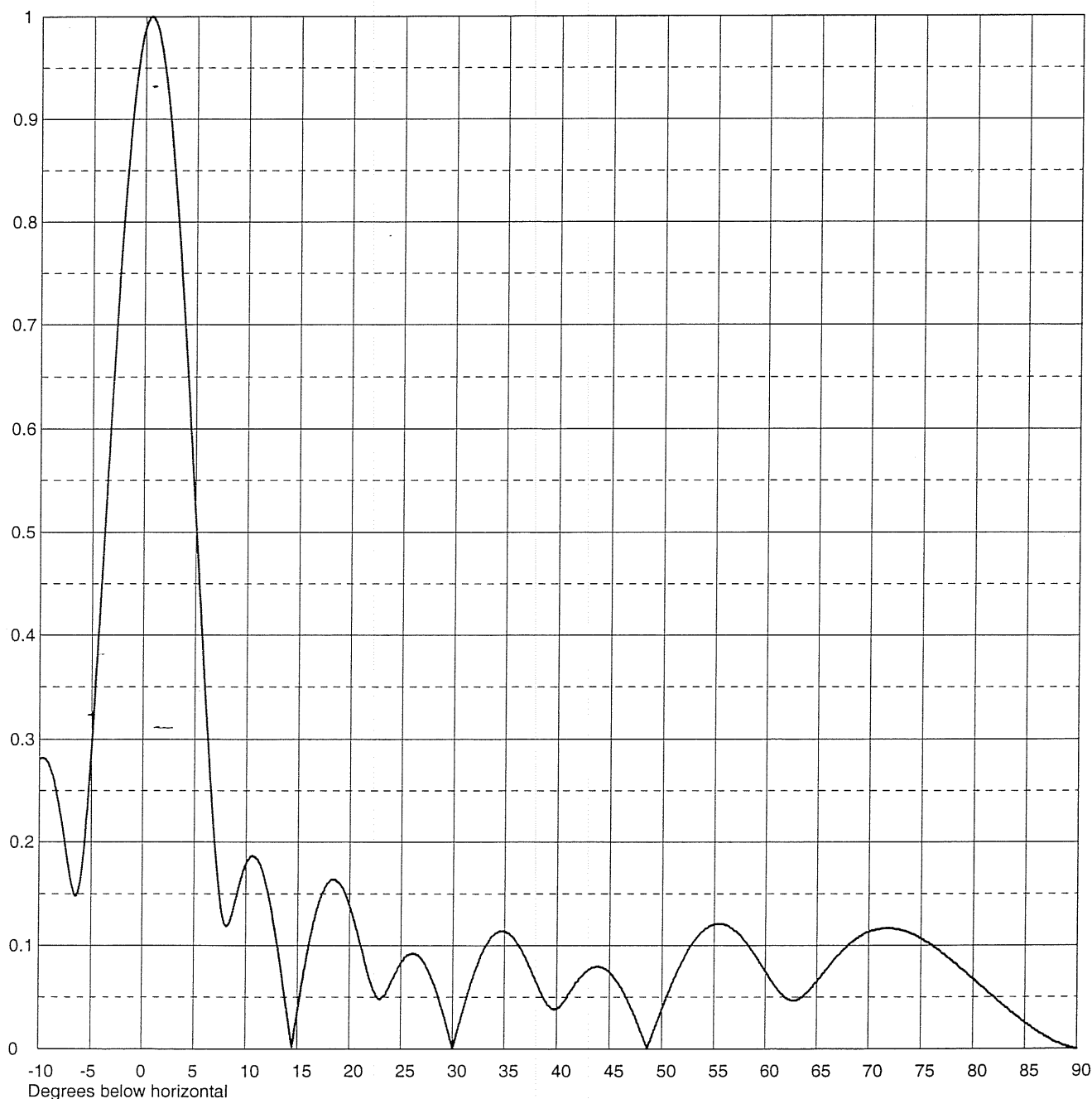
0.60 Degrees

Frequency

201.00 MHz

Drawing #

08H080060-90



Remarks:



Date **03 May 2001**  
 Call Letters **WBKP-DT** Channel **11**  
 Location **Calumet, MI**  
 Customer  
 Antenna Type **THA-C3-8/24-1**

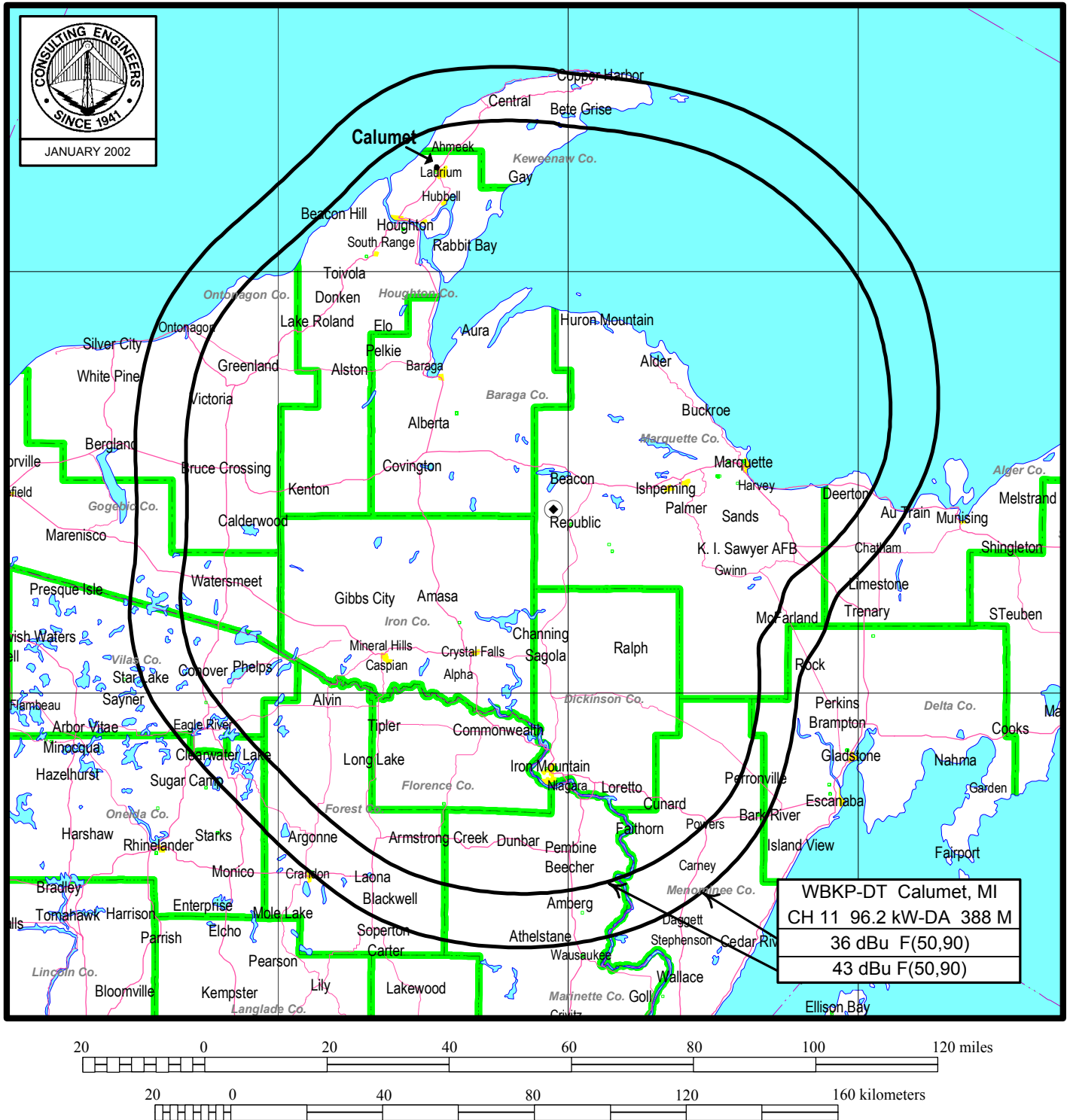
### TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing # **08H080060-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.280	2.4	0.903	10.6	0.187	30.5	0.019	51.0	0.064	71.5	0.117
-9.5	0.281	2.6	0.882	10.8	0.186	31.0	0.037	51.5	0.076	72.0	0.117
-9.0	0.273	2.8	0.858	11.0	0.184	31.5	0.055	52.0	0.086	72.5	0.116
-8.5	0.255	3.0	0.833	11.5	0.174	32.0	0.071	52.5	0.096	73.0	0.115
-8.0	0.228	3.2	0.806	12.0	0.156	32.5	0.085	53.0	0.104	73.5	0.114
-7.5	0.195	3.4	0.778	12.5	0.132	33.0	0.096	53.5	0.110	74.0	0.112
-7.0	0.164	3.6	0.748	13.0	0.102	33.5	0.105	54.0	0.115	74.5	0.110
-6.5	0.148	3.8	0.717	13.5	0.069	34.0	0.111	54.5	0.119	75.0	0.107
-6.0	0.167	4.0	0.685	14.0	0.034	34.5	0.114	55.0	0.121	75.5	0.104
-5.5	0.220	4.2	0.652	14.5	0.002	35.0	0.114	55.5	0.121	76.0	0.101
-5.0	0.293	4.4	0.619	15.0	0.036	35.5	0.111	56.0	0.120	76.5	0.097
-4.5	0.378	4.6	0.584	15.5	0.068	36.0	0.105	56.5	0.118	77.0	0.093
-4.0	0.467	4.8	0.550	16.0	0.097	36.5	0.098	57.0	0.114	77.5	0.089
-3.5	0.558	5.0	0.515	16.5	0.122	37.0	0.088	57.5	0.110	78.0	0.085
-3.0	0.646	5.2	0.480	17.0	0.141	37.5	0.077	58.0	0.104	78.5	0.081
-2.8	0.680	5.4	0.445	17.5	0.154	38.0	0.065	58.5	0.097	79.0	0.077
-2.6	0.713	5.6	0.410	18.0	0.162	38.5	0.054	59.0	0.090	79.5	0.072
-2.4	0.745	5.8	0.376	18.5	0.164	39.0	0.045	59.5	0.083	80.0	0.068
-2.2	0.775	6.0	0.343	19.0	0.160	39.5	0.039	60.0	0.075	80.5	0.063
-2.0	0.804	6.2	0.310	19.5	0.152	40.0	0.039	60.5	0.067	81.0	0.059
-1.8	0.832	6.4	0.279	20.0	0.138	40.5	0.044	61.0	0.060	81.5	0.054
-1.6	0.857	6.6	0.249	20.5	0.122	41.0	0.051	61.5	0.054	82.0	0.050
-1.4	0.881	6.8	0.221	21.0	0.103	41.5	0.059	62.0	0.049	82.5	0.045
-1.2	0.903	7.0	0.195	21.5	0.084	42.0	0.066	62.5	0.047	83.0	0.041
-1.0	0.923	7.2	0.172	22.0	0.066	42.5	0.072	63.0	0.047	83.5	0.037
-0.8	0.941	7.4	0.153	22.5	0.053	43.0	0.077	63.5	0.050	84.0	0.033
-0.6	0.956	7.6	0.137	23.0	0.048	43.5	0.079	64.0	0.054	84.5	0.029
-0.4	0.970	7.8	0.126	23.5	0.053	44.0	0.080	64.5	0.059	85.0	0.025
-0.2	0.981	8.0	0.120	24.0	0.064	44.5	0.078	65.0	0.065	85.5	0.022
0.0	0.989	8.2	0.119	24.5	0.074	45.0	0.074	65.5	0.072	86.0	0.018
0.2	0.995	8.4	0.122	25.0	0.084	45.5	0.068	66.0	0.078	86.5	0.015
0.4	0.999	8.6	0.128	25.5	0.090	46.0	0.060	66.5	0.084	87.0	0.012
0.6	1.000	8.8	0.135	26.0	0.092	46.5	0.051	67.0	0.090	87.5	0.009
0.8	0.999	9.0	0.144	26.5	0.091	47.0	0.040	67.5	0.095	88.0	0.006
1.0	0.995	9.2	0.153	27.0	0.087	47.5	0.029	68.0	0.100	88.5	0.004
1.2	0.989	9.4	0.161	27.5	0.078	48.0	0.016	68.5	0.104	89.0	0.002
1.4	0.980	9.6	0.168	28.0	0.067	48.5	0.002	69.0	0.108	89.5	0.001
1.6	0.969	9.8	0.174	28.5	0.053	49.0	0.011	69.5	0.111	90.0	0.000
1.8	0.956	10.0	0.179	29.0	0.037	49.5	0.025	70.0	0.113		
2.0	0.941	10.2	0.183	29.5	0.019	50.0	0.039	70.5	0.115		
2.2	0.923	10.4	0.186	30.0	0.000	50.5	0.052	71.0	0.116		

Remarks:

Figure 3



## PREDICTED COVERAGE CONTOURS

STATION WBKP-DT

CALUMET, MICHIGAN

CH 11 96.2 KW-DA 388 M

du Treil, Lundin & Rackley, Inc Sarasota, Florida