

TECHNICAL EXHIBIT  
MINOR AMENDMENT TO THE APPLICATION  
FOR CONSTRUCTION PERMIT  
STATION WXMI-DT (FACILITY ID 68433)  
GRAND RAPIDS, MICHIGAN

JULY 10, 2001

CH 19    725 KW (MAX-DA)    306 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 WXMI-DT on channel 19 at Grand Rapids, Michigan. Station WXMI-DT has an application pending to operate with a directional antenna maximum effective radiated power (ERP) of 725 kW and an antenna height above average terrain (HAAT) of 306 meters (BPCDT-19990825LD).

Proposed Facilities

This amendment proposes only to rotate the current antenna by +10 degrees. Operation at the currently proposed transmitter site (coordinates: 42-41-15 N, 85-31-57 W) with a directional antenna maximum ERP of 725 kW and antenna HAAT of 306 meters is still proposed (*FCC tower registration no. 1005702*).

The proposed transmitter site is approximately 230 kilometers from the closest point of the Canadian border. The proposal meets the required minimum separation distances to all Canadian allotments. It is therefore believed that the proposed WXMI-DT operation is in compliance with the U.S./Canada LOU. If coordination with Canada is still necessary, it is respectfully requested.

The site is more than 2,000 kilometers from the closest point of the Mexican border. The closest FCC monitoring station is at Allegan, Michigan, approximately 36 kilometers to the west-southwest. This new antenna orientation will result in a 0.26 dB higher

signal towards the FCC monitoring station than what was proposed in the currently pending application. If notification with the Allegan monitoring station is necessary, it is respectfully requested.

The closest point of the National Radio Quiet Zone (VA/WV) is approximately 570 kilometers to the southeast. 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, approximately 508 kilometers to the west. 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 1 kilometer grid spacing**. The proposed WXMI-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.

Stations Potentially Affected by WXMI-DT						
Chan	Call	City/State	Bear (°T)	Dist (km)	Status	App. Ref. No.
16	WNDU-TV	SOUTH BEND IN	205	132.7	LIC	BLCT-19990216KE
17	WXMI	GRAND RAPIDS MI	106	0.0	LIC	BLCT-19911028KE
18	WHTV	JACKSON MI	109	87.8	LIC	BLCT-20001023ADV
18	WDCQ-DT	UNIVERSITY CENTER MI	52	159.0	APP	BPEDT-20000217ABB
18	WDCQ-DT	UNIVERSITY CENTER MI	52	159.0	PLN	DTVPLN-DTVP0293
18	WVTV	MILWAUKEE WI	284	198.5	LIC	BLCT-19870804KE
19	WGN-DT	CHICAGO IL	243	192.9	PLN	DTVPLN-DTVP0333
19	WGN-DT	CHICAGO IL	243	194.9	APP	BPCDT-20010504AAC
19	WGN-DT	CHICAGO IL	243	194.9	LIC	BLCDT-20010312AAQ
19	WHOI	PEORIA IL	238	405.5	LIC	BLCT-19880803KG
19	WKJG-DT	FORT WAYNE IN	170	179.5	APP	BPCDT-19991101AFL
19	WKJG-DT	FORT WAYNE IN	170	179.5	PLN	DTVPLN-DTVP0335
19	WXIX-TV	NEWPORT KY	168	404.8	LIC	BLCT-19851107KH
19	WXIX-TV	NEWPORT KY	168	404.8	CP	BPCT-19960712KF
19	WDCQ-TV	UNIVERSITY CENTER MI	52	159.0	LIC	BLET-19811124KP
19	WOIO	SHAKER HEIGHTS OH	113	348.1	LIC	BLCT-19850603KE
19	WTVG-DT	TOLEDO OH	122	207.1	PLN	DTVPLN-DTVP0350
19	WMTV-DT	MADISON WI	279	324.6	CP	BPCDT-19991028AEZ
19	WMTV-DT	MADISON WI	279	324.6	PLN	DTVPLN-DTVP0361
19	WTHX-DT	MANITOWOC WI	314	232.7	PLN	DTVPLN-DTVP0362
20	WYCC	CHICAGO IL	244	192.9	LIC	BLET-19830302KH

Chan	Call	City/State	Bear(°T)	Dist(km)	Status	App. Ref. No.
20	WOTV-DT	BATTLE CREEK MI	158	14.0	APP	BPCDT-19991022AAW
20	WOTV-DT	BATTLE CREEK MI	158	13.9	PLN	DTVPLN-DTVP0380
20	WDWB	DETROIT MI	96	183.1	LIC	BLCT-2597
20	WDWB	DETROIT MI	97	195.0	CP	BPCT-19981203KE
22	WSBT-TV	SOUTH BEND IN	206	131.7	LIC	BLCT-19880523KH
23	WKAR-TV	EAST LANSING MI	89	91.4	LIC	BLET-19790912KF

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 WXMI-DT operation are shown in the interference table.

Study Station			Baseline	Net Population Change/Interference
19	WGN-DT	CHICAGO IL (PLN)	8,404,135	27,684 (0.3%)
19	WGN-DT	CHICAGO IL (APP)	8,404,135	16,418 (0.2%)
19	WGN-DT	CHICAGO IL (LIC)	8,404,135	20,710 (0.2%)
19	WKJG-DT	FORT WAYNE IN (APP)	634,041	12,805 (2.0%)
19	WKJG-DT	FORT WAYNE IN (PLN)	634,041	39 (0.0%)
19	WDCQ-TV	UNIVERSITY CENTER MI (LIC)	681,316	7,858 (1.2%)
20	WOTV-DT	BATTLE CREEK MI (APP)	1,788,973	15,385 (0.9%)
20	WOTV-DT	BATTLE CREEK MI (PLN)	1,788,973	35,428 (2.0%)

The proposed WXMI-DT operation does not cause calculated interference to any other analog or DTV assignment. Therefore, it is believed the proposal complies with the FCC's 2%/10% interference standard.

#### 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 WXMI-DT operation does not cause any new 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 new interference to LPTV/Class A assignments.

Radiofrequency Electromagnetic Field Exposure

The proposed WXMI-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 290.2 meters above ground level. The maximum DTV ERP is 725 kW. A conservative relative field value of 0.15 was used for the calculation (see Figure 1C). Therefore, the "worst-case" calculated power density at a point 2 meters above ground level is  $0.0066 \text{ mW/cm}^2$ . This is 2% of the FCC's recommended limit of  $0.34 \text{ mW/cm}^2$  for channel 19 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 WXMI-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.

Jonathan N. Edwards

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

July 10, 2001



Date	10 Jul 2001		
Call Letters	WXMI-DT	Channel	19
Location	Grand Rapids, MI		
Customer			
Antenna Type	TFU-24DSB-M (C)		

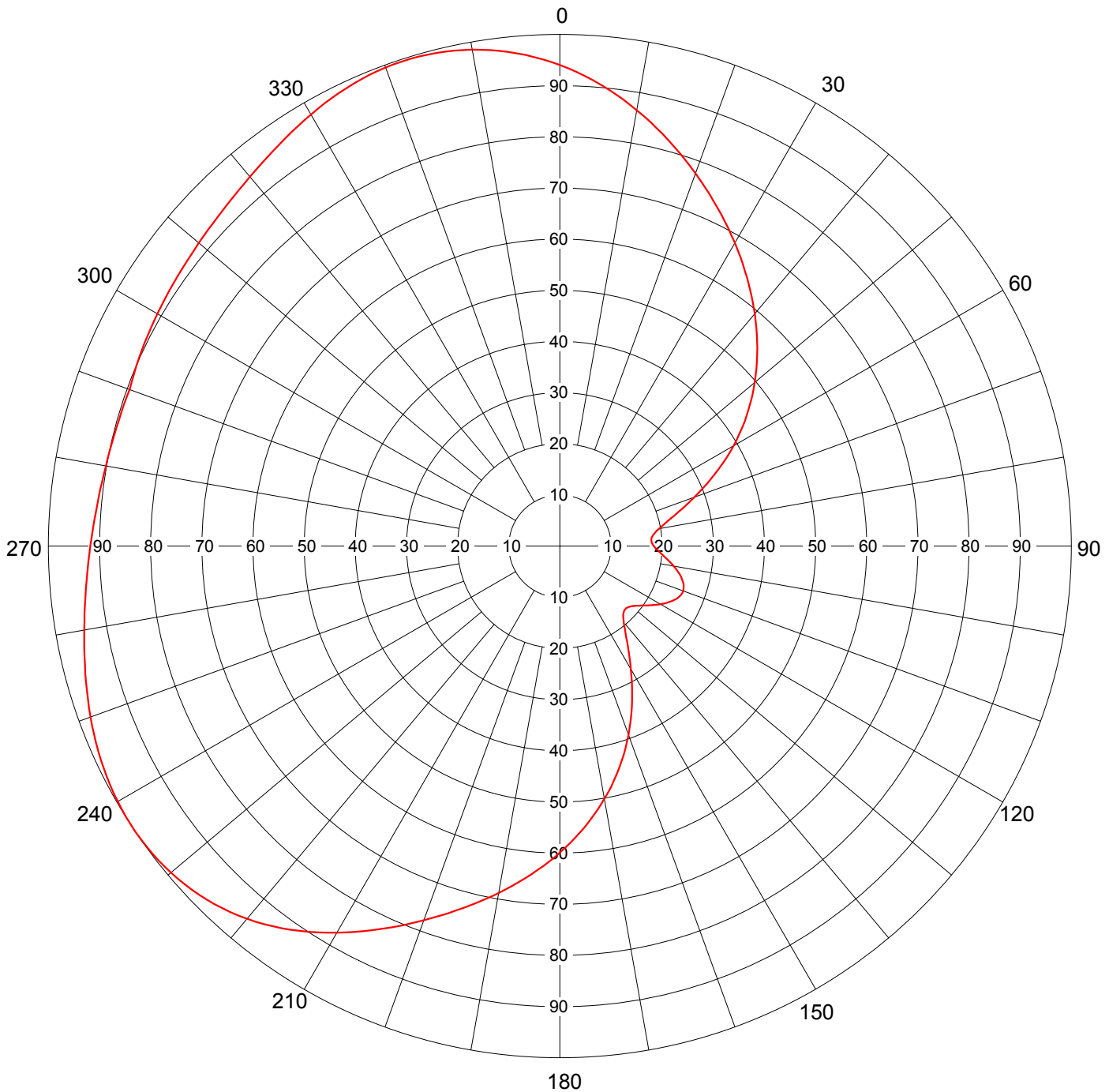
### AZIMUTH PATTERN

RMS Gain at Main Lobe  
Calculated / Measured

**1.90 (2.79 dB)**  
**Calculated**

Frequency  
Drawing #

**503 MHz**  
**DSB-M**



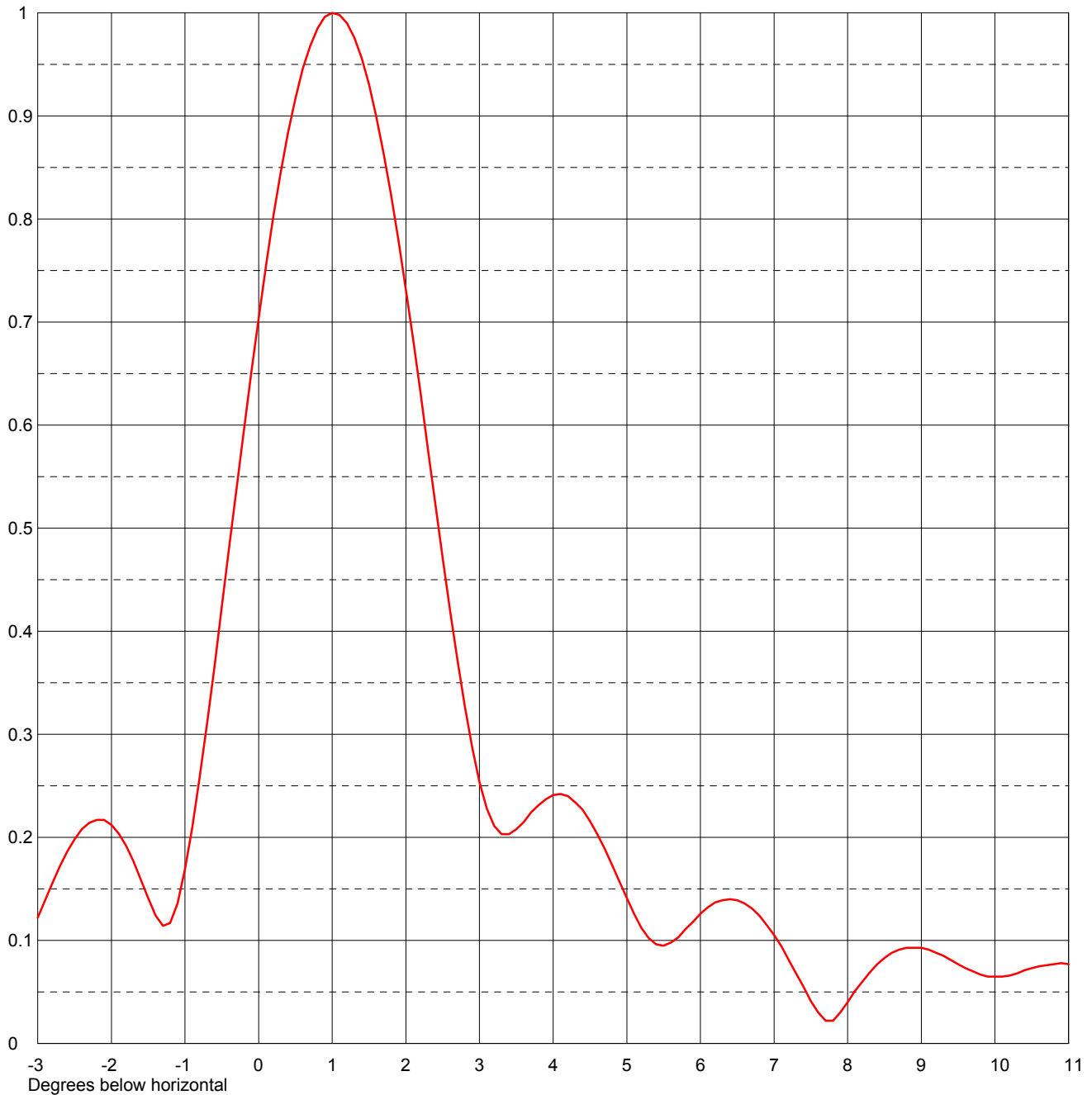
Remarks:



Date	10 Jul 2001		
Call Letters	WXMI-DT	Channel	19
Location	Grand Rapids, MI		
Customer			
Antenna Type	TFU-24DSB-M (C)		

### ELEVATION PATTERN

RMS Gain at Main Lobe	24.0 (13.80 dB)	Beam Tilt	1.00 Degrees
RMS Gain at Horizontal	11.9 (10.76 dB)	Frequency	503.00 MHz
Calculated / Measured	Calculated	Drawing #	24B240100



Remarks:

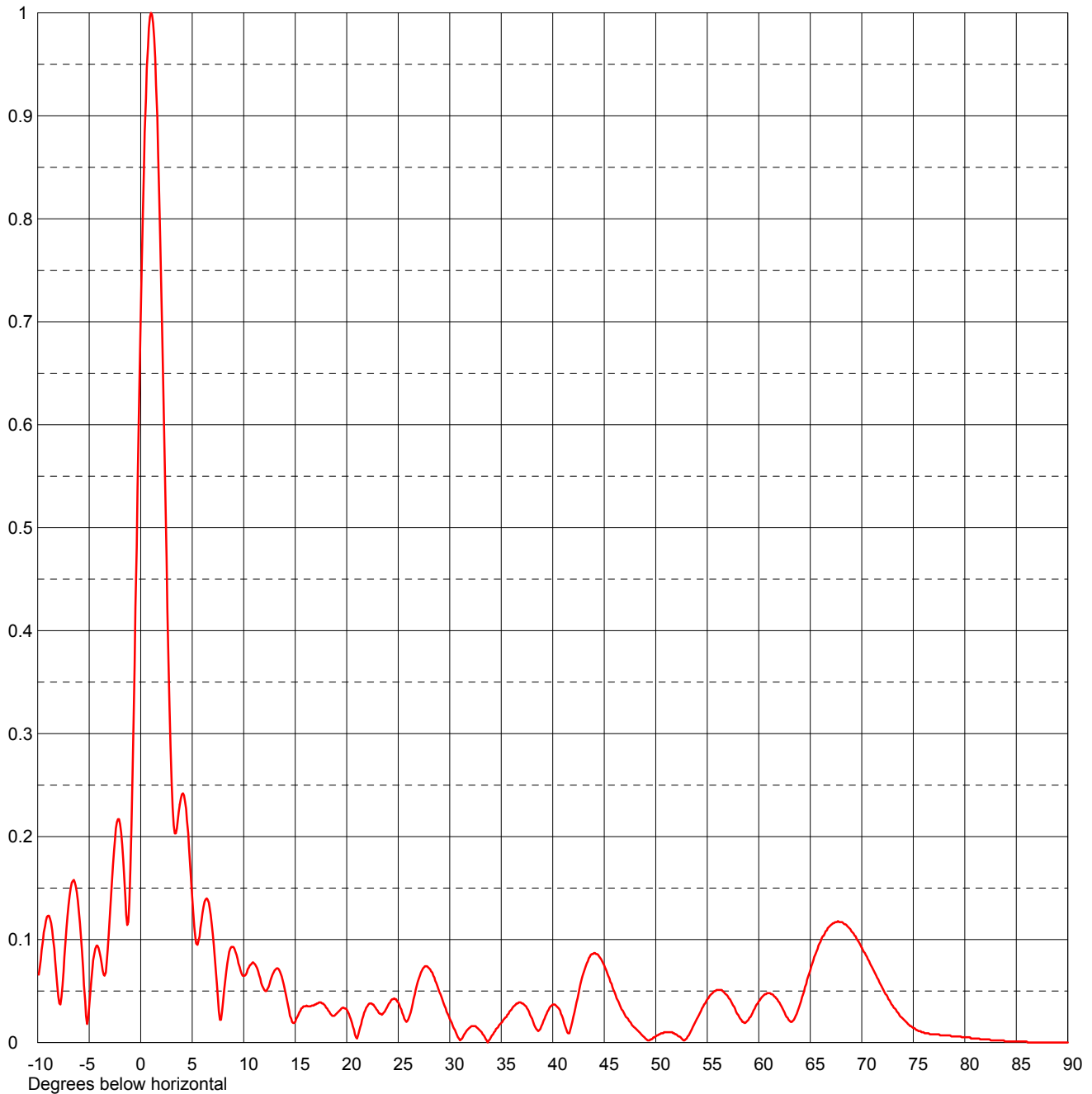




Date	10 Jul 2001	
Call Letters	WXMI-DT	Channel 19
Location	Grand Rapids, MI	
Customer		
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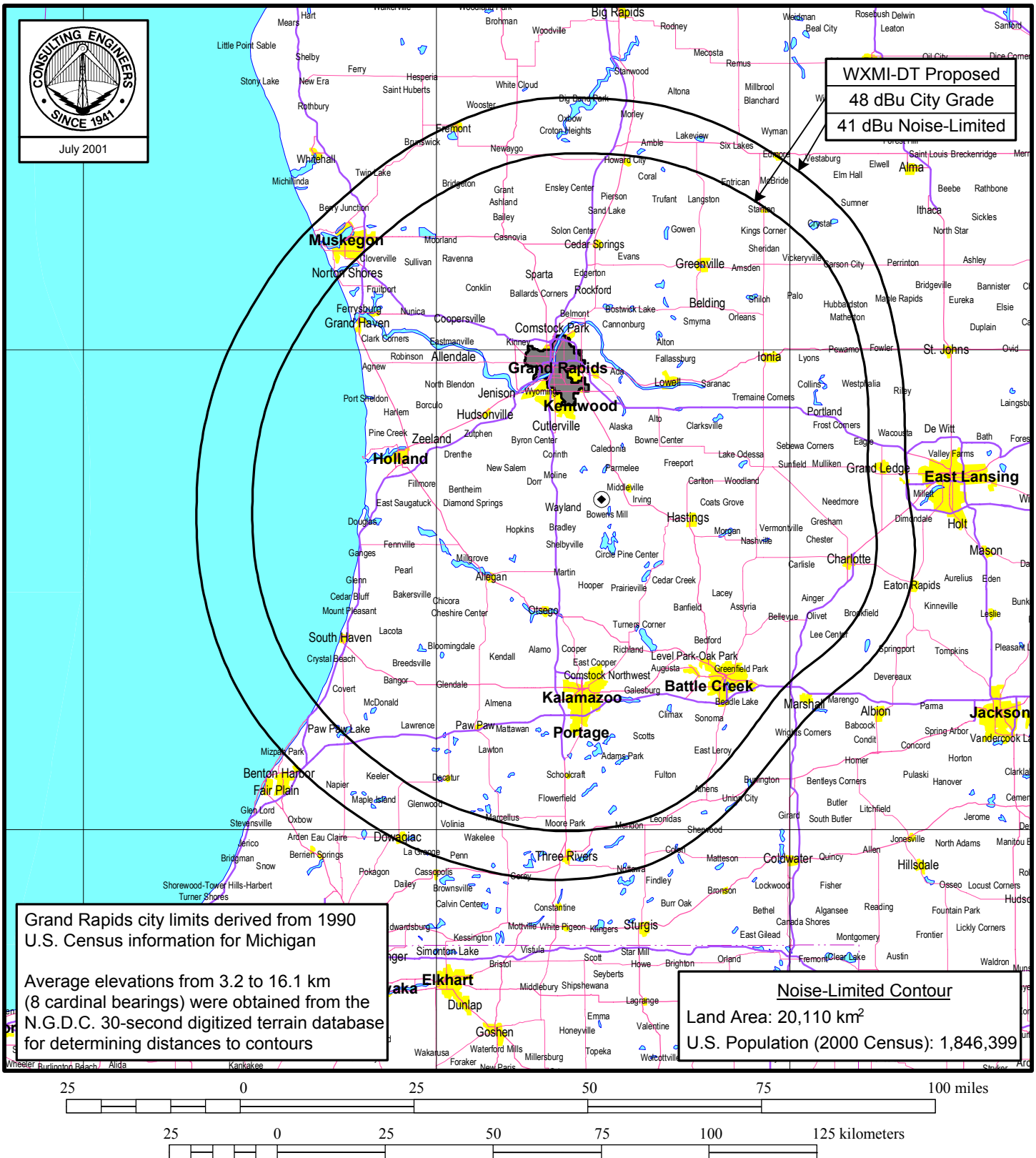
### ELEVATION PATTERN

RMS Gain at Main Lobe	24.0 (13.80 dB)	Beam Tilt	1.00 Degrees
RMS Gain at Horizontal	11.9 (10.76 dB)	Frequency	503.00 MHz
Calculated / Measured	Calculated	Drawing #	24B240100-90



Remarks:

**Figure 2**



## **PREDICTED F(50,90) COVERAGE CONTOURS**

**STATION WXMI-DT**

**GRAND RAPIDS, MICHIGAN**

**CH 19 725 KW (MAX-DA) 306 M**

du Treil, Lundin & Rackley, Inc Sarasota, Florida