

TECHNICAL EXHIBIT  
MINOR MODIFICATION APPLICATION  
STATION KBMY-DT (FACILITY ID 22121)  
BISMARCK, NORTH DAKOTA

OCTOBER 29, 2004

CH 16 1000 KW (MAX-DA) 275 M

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Technical Narrative

This Technical Exhibit was prepared on behalf of digital television broadcast station KBMY-DT at Bismarck, North Dakota. Station KBMY-DT is authorized for operation on channel 16 with a non-directional antenna effective radiated power (ERP) of 1000 kW and an antenna height above average terrain (HAAT) of 294 meters (BPCDT-19991028AEC).

The proposed facility will not result in any extension of the authorized noise-limited contour as shown in Figure 3. Therefore, the proposal meets the terms of the FCC Filing Freeze for digital television stations.<sup>1</sup>

Proposed Facilities

This application proposes to employ a directional antenna and reduce the antenna HAAT. There is no proposed change in site, ERP, channel (16), city of license (Bismarck). The site coordinates remain (NAD27): 46-35-15 N, 100-48-20 W. A directional antenna maximum ERP of 1000 kW and antenna HAAT of 275 meters are proposed. The FCC antenna structure registration number remains 1038762.

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<sup>1</sup> See August 2004 Filing Freeze PN, DA 04-2446 (MB released Aug. 3, 2004).

Figure 3 is a map showing the predicted noise-limited (41 dBu) and city-grade (48 dBu) contours for the proposed operation, along with the noise-limited contour for the authorized KBMY-DT operation. The Bismarck city limits were derived from information contained in the 2000 U.S. Census for North Dakota. The proposal complies with the city coverage requirements of Section 73.625(a).

There are no known authorized full service AM stations within 3.2 kilometers of the proposed transmitter site. There is no proposed change in site. Although no adverse electromagnetic impact is expected, the applicant recognizes its responsibility to correct problems that may 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. The proposed KBMY-DT operation does not cause excessive (greater than 2%, up to 10% total) calculated interference to any analog or DTV assignment. Below is the list of stations considered in the OET-69 analysis.

<b>Stations Potentially Affected by Proposed KBMY-DT</b>						
Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
15	KMCY	MINOT ND	168.6	CP	BPCDT	-19991028AEA
15	KMCY-DT	MINOT ND	168.7	PLN	DTVPLN	-DTVP0178
15	KQSD-DT	LOWRY SD	159.0	PLN	DTVPLN	-DTVP0191
16	NEW	CROOKSTON MN	352.3	APP	BNPEDT	-20010323ABR
16	KCGE-DT	CROOKSTON MN	352.3	LIC	BLEDT	-20031024AAC
16	KDSD-TV	ABERDEEN SD	270.0	LIC	BLET	-19931130KH
16	KCLO-DT	RAPID CITY SD	338.7	PLN	DTVPLN	-DTVP0241
16	KCLO-TV	RAPID CITY SD	338.7	CP	BPCDT	-19991021AAT
17	KBMY	BISMARCK ND	0.1	LIC	BLCT	-19850412KH

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 KBMY-DT operation are shown in the interference table.

Study Station	Baseline	Net Population Change/Interference
15 KQSD-DT LOWRY SD (PLN)	28,607	0 (0.0%) New Interference
16 KDSD-TV ABERDEEN SD (LIC)	75,029	22 (0.0%) New Interference
17 KBMY BISMARCK ND (LIC)	89,696	271 (0.3%) New Interference

The proposed KBMY-DT operation does not cause calculated interference to any other analog or DTV station. Therefore, it is believed the proposal complies with the FCC’s “de minimis” interference policy.

With respect to Class A TV station protection, the proposal has been evaluated according to the requirements of Section 73.613 of the FCC Rules. The analysis reveals no potential impact to any Class A station.

Canadian Allocation Analysis

As the proposal is located within the U.S./Canada border zone (400 km), a Canadian allocation study was conducted to confirm compliance with the Canadian Letter of Understanding (LOU). A separation study indicates that the proposed operation meets all of the minimum separation requirements to Canadian stations except to DTV station CBWFT-10 at Brandon, Manitoba, on channel 16. The KBMY-DT operation is only 0.7 kilometer “short” of the minimum required separation distance of 367 kilometers with respect to CBWFT-10.

It is not expected that Canadian coordination is necessary since the predicted interfering contour for the proposed KBMY-DT operation (19.5 dBu, F(50,10) for Class VL) is completely within the currently authorized KBMY-DT interfering contour. Therefore, the proposed KBMY-DT operation will *reduce contour overlap* with CBWFT-10 (see map in Figure 4).

Radiofrequency Electromagnetic Field Exposure

The proposed KBMY-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 172.5 meters above ground level with a maximum ERP of 1000 kW. A downward relative field value of 0.11 was assumed for the antenna's downward radiation (see Figure 2B). The calculated power density at a point 2 meters (6.6 feet) above ground level is  $0.0139 \text{ mW/cm}^2$ . This is less than five percent of the FCC's recommended limit of  $0.32 \text{ mW/cm}^2$  for channel 16 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.

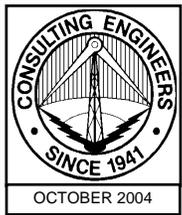
It is noted that this statement only addresses the potential for radiofrequency electromagnetic field exposure. All other aspects of the environmental processing analysis will be or already have been provided to the FCC by the tower owner as part of the tower registration process.



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October 29, 2004



Tower Reg. No. 1038762

878 m AMSL  
(2881 ft AMSL)

Proposed KBMY DTV-16 Antenna

Radiation Center  
852.2 m AMSL  
(2796 ft AMSL)

198.3 m  
(651 ft)

172.5 m  
(566 ft)

Site Coordinates:  
46° 35' 15" N  
100° 48' 20" W  
(NAD 27)

679.7 m AMSL  
(2230 ft AMSL)

Not to Scale

## ANTENNA AND SUPPORTING STRUCTURE

STATION KBMY-DT

BISMARCK, NORTH DAKOTA

CH 16 1000 KW (MAX-DA) 275 M

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

Date **29 Oct 2004**  
Call Letters **KBMY-DT** Channel **16**  
Location  
Customer  
Antenna Type **TFU-26DSC-R S190**

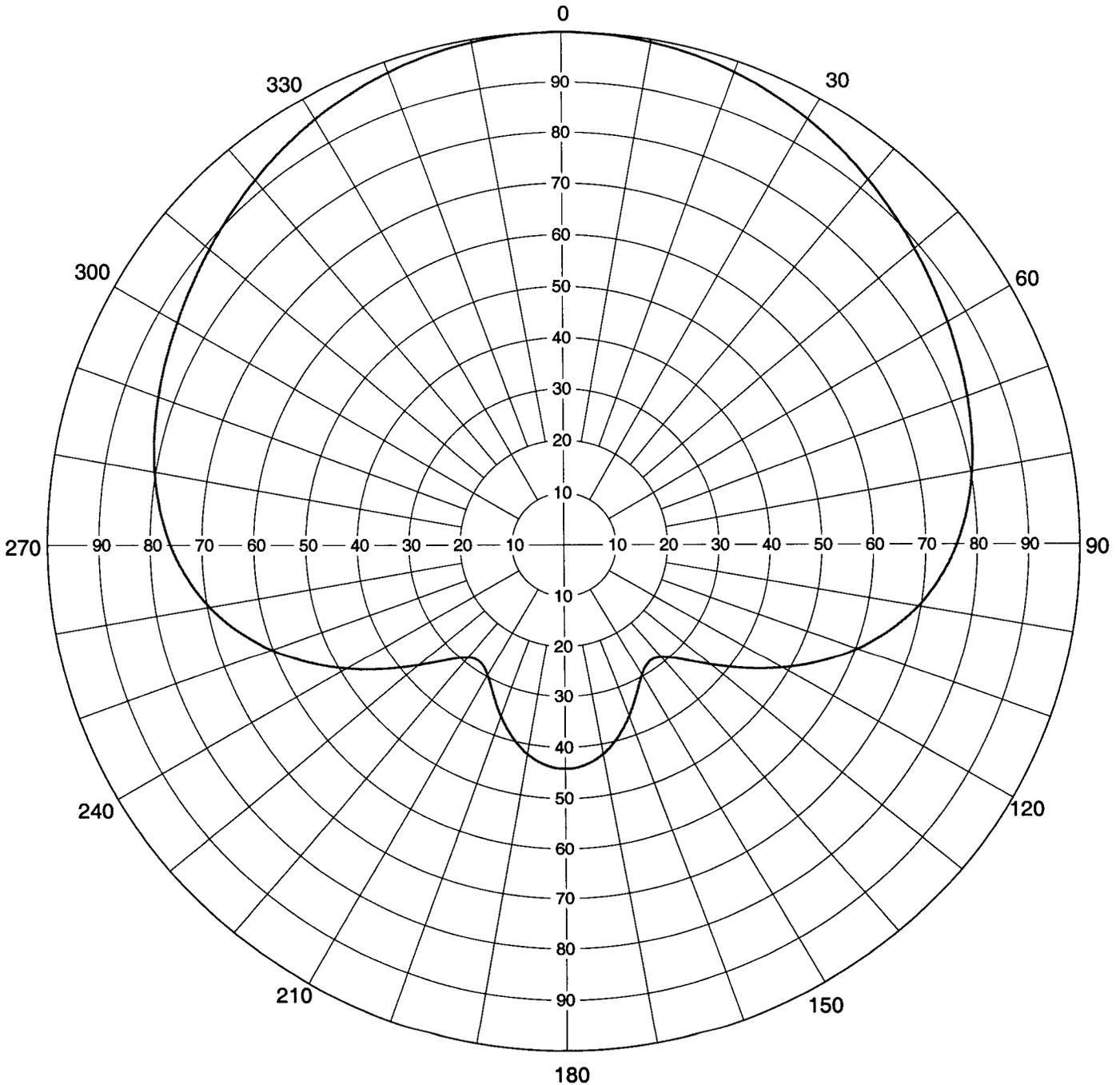
### AZIMUTH PATTERN

RMS Gain at Main Lobe  
Calculated / Measured

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

Frequency  
Drawing #

**485 MHz**  
**TFU-S190**

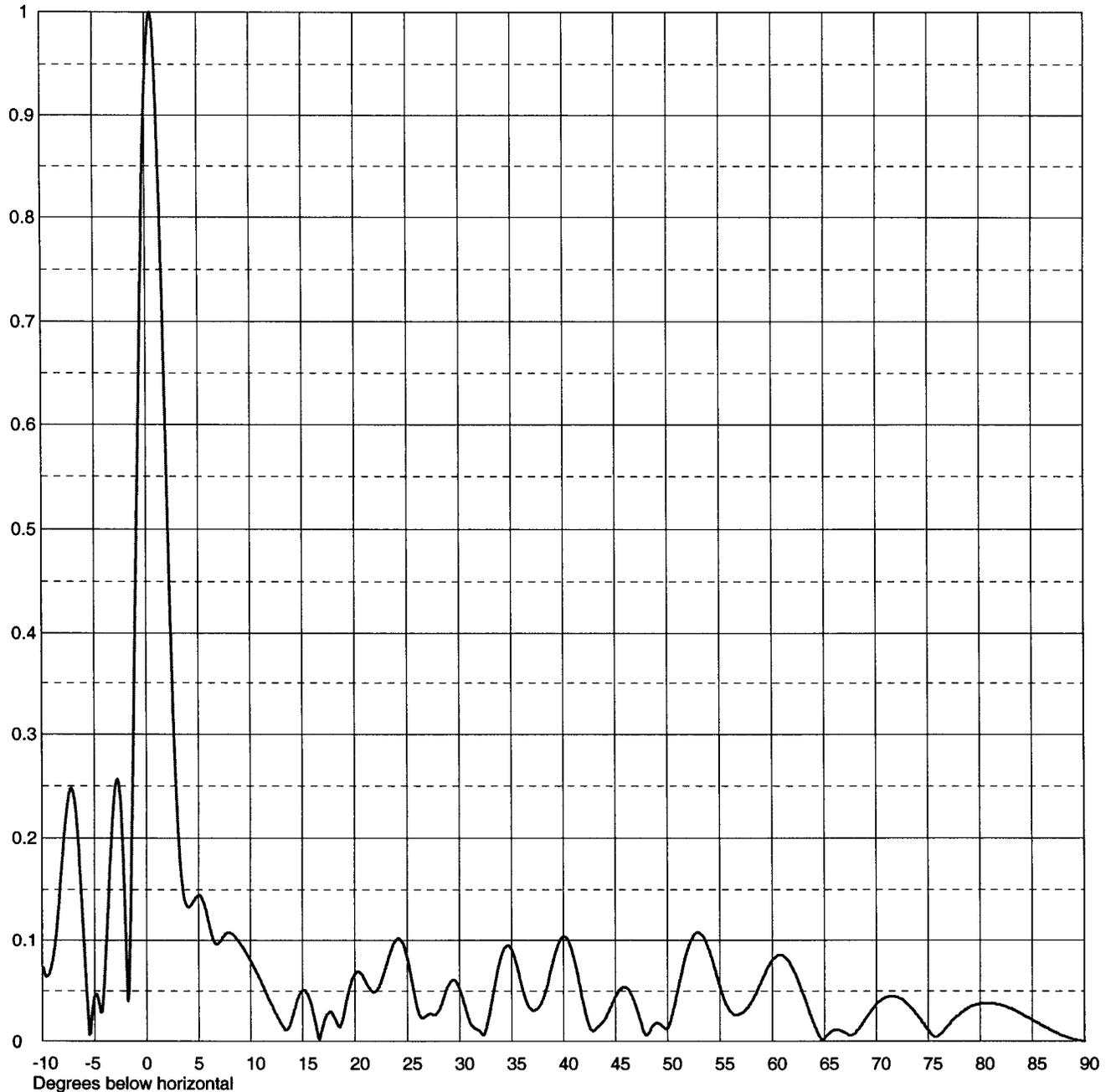


Remarks:

Date **29 Oct 2004**  
Call Letters **KBMY-DT** Channel **16**  
Location  
Customer  
Antenna Type **TFU-26DSC-R S190**

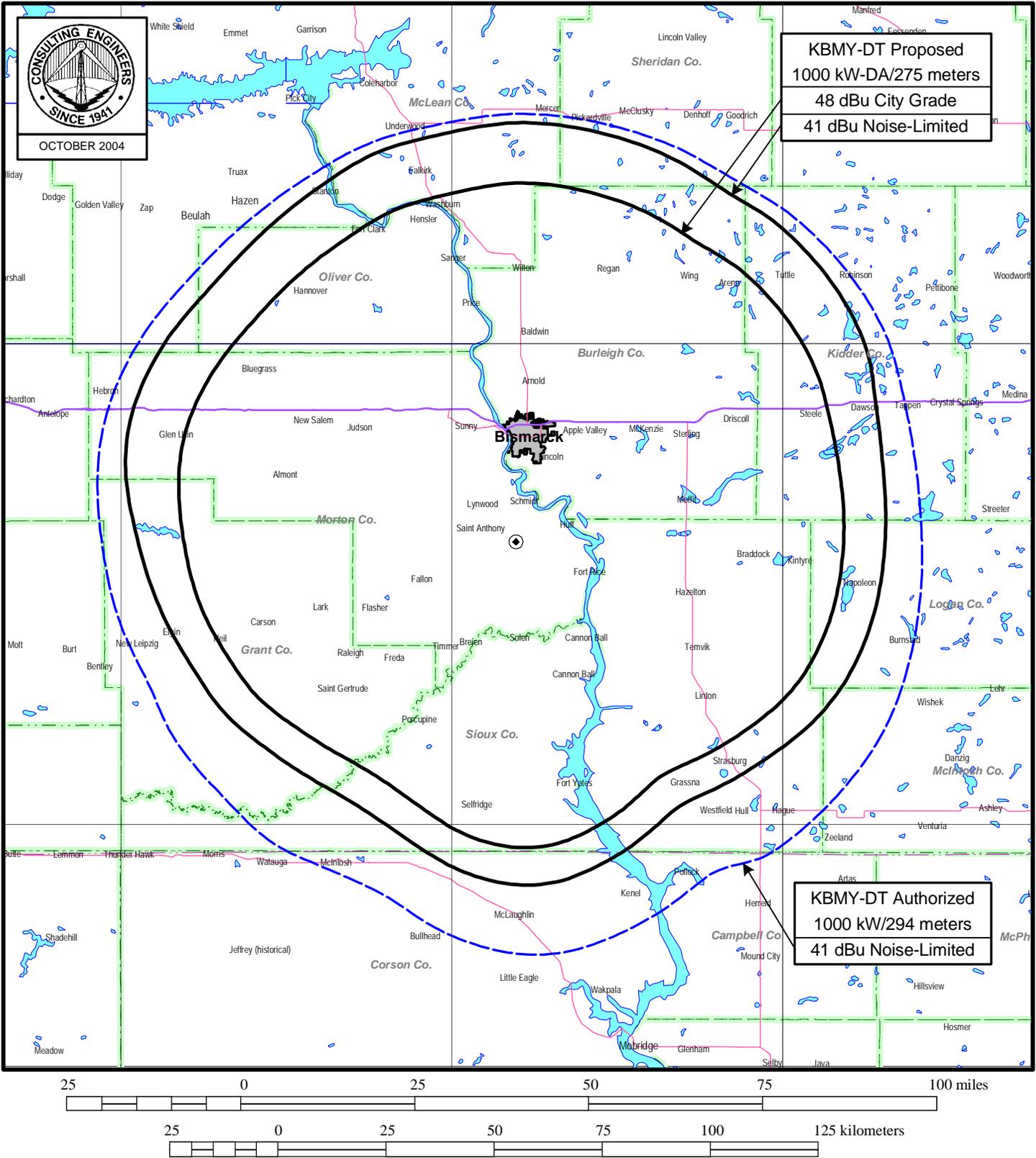
### ELEVATION PATTERN

RMS Gain at Main Lobe	<b>22.5 (13.52 dB)</b>	Beam Tilt	<b>0.50 Degrees</b>
RMS Gain at Horizontal	<b>19.4 (12.88 dB)</b>	Frequency	<b>485.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>26Q225050-90</b>



Remarks:

Figure 3



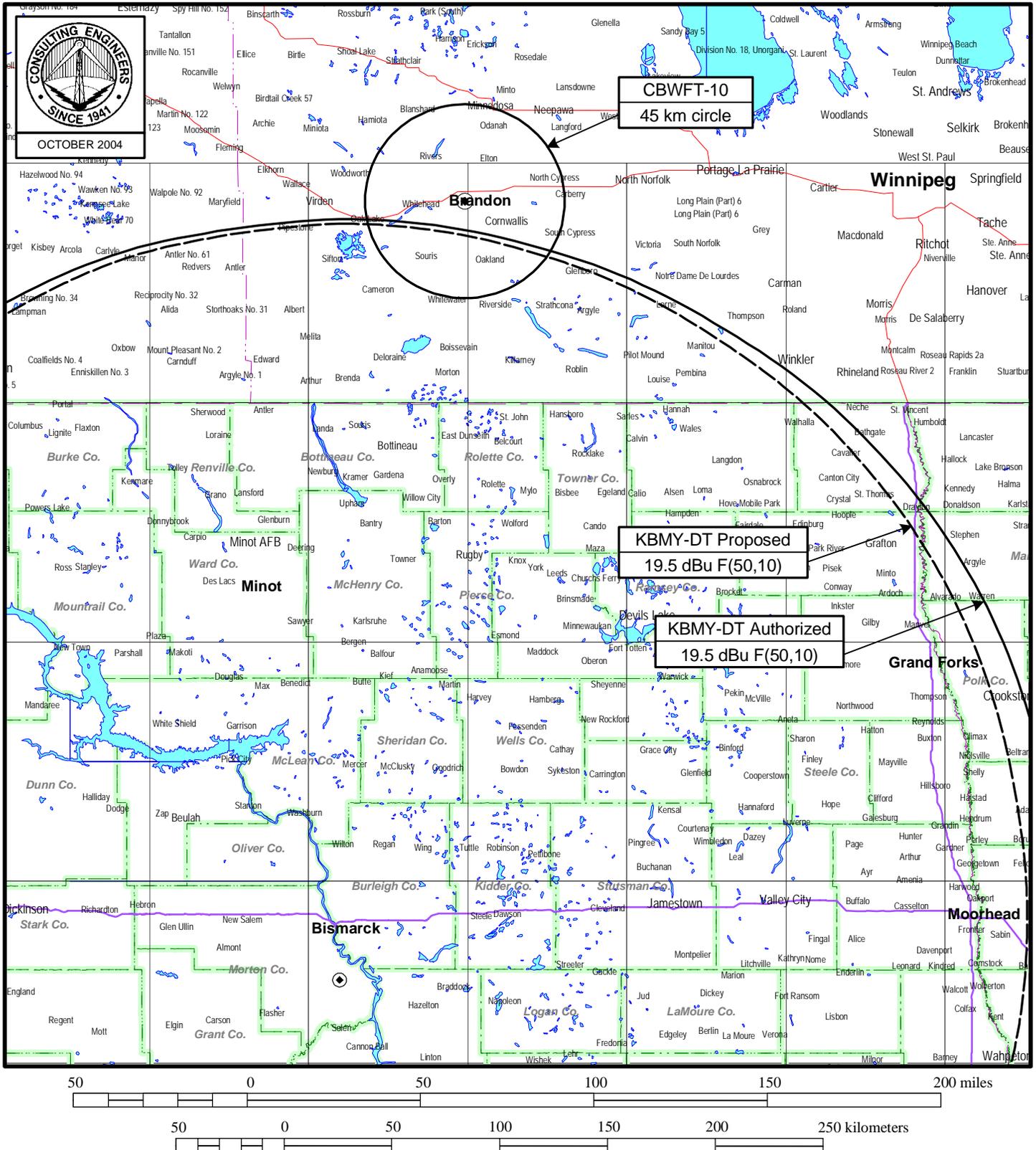
**PREDICTED F(50,90) COVERAGE CONTOURS**

STATION KBMY-DT

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du Treil, Lundin & Rackley, Inc Sarasota, Florida



# CANADIAN INTERFERENCE STUDY

STATION KBMY-DT

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du Treil, Lundin & Rackley, Inc Sarasota, Florida