MINOR CHANGE APPLICATION
FOR THE KTCI-DT CHANNEL *23
POST-TRANSITION DTV FACILITY
ST. PAUL, MINNESOTA

(Twin Cities Public Television)

KESSLER AND GEHMAN ASSOCIATES, INC.
TELECOMMUNICATIONS CONSULTING ENGINEERS

20090715

Prepared by William T. Godfrey, Jr.

507 N.W. 60th Street, Suite C
Gainesville, Florida 32607

ENGINEERING TECHNICAL STATEMENT PREPARED BY WILLIAM T. GODFREY, JR OF THE FIRM KESSLER AND GEHMAN ASSOCIATES, INC., TELECOMMUNICATIONS CONSULTING ENGINEERS IN CONNECTION WITH TWIN CITIES PUBLIC TELEVISION, INC. (TPT) MINOR CHANGE APPLICATION TO CHANGE CHANNELS FROM *26 TO *23 AS AUTHORIZED BY THE FCC IN THE REPORT & ORDER (MB DOCKET NUMBER 09-71) ADOPTED JULY 1, 2009 FOR THE KTCI-DT DIGITAL TELEVISION BROADCAST FACILITY.

The firm Kessler and Gehman Associates, Inc., (KGA) has been retained by the Twin Cities Public Television, Inc. (tpt), St. Paul, MN to prepare the engineering portion of a minor change application to change channels from DTV Channel *26 to DTV Channel *23 as authorized by the FCC in a Report and Order released on July 1, 2009.

Discussion

On July 1st the Commission released a Report and Order stating that the public interest would be served by allotting DTV Channel *23 in lieu of DTV Channel *26 for KTCI-DT. In the Order, the FCC stated that tpt shall submit to the Commission a minor change application for a construction permit specifying DTV Channel *23 in lieu of DTV Channel *26 for station KTCI-DT. Accordingly, this timely filed minor change application requests authorization to operate it's final post-transition DTV facility using Channel *23 with an Effective Radiated Power (ERP) of 375 kW and an antenna height radiation center of 412.9 m Above Average Terrain (AAT).

Exhibits

Exhibits 1 and 2 represent KTCI's administration data, antenna and antenna structure specifications.

Exhibit 3 depicts the profile view of the proposed antenna on the antenna structure with all the appropriate elevations.

Exhibits 4 (11 deg) and 5 (90 deg) display the elevation pattern and Exhibit 6 displays the elevation pattern tabulation.

Exhibits 7 and 8 display the azimuth pattern and azimuth pattern tabulation respectively in ten degree increments.

Exhibit 9 depicts the location of the KTCI-DT site on a 7.5-Minute (Series) Topographic map.

Certification

This technical statement was prepared by William T. Godfrey, Telecommunications Consultant with Kessler and Gehman Associates, Inc. having offices in Gainesville, Florida and has been working in the field of radio and television broadcast consulting since 1998. He graduated from the University of North Florida with a Bachelor of Arts degree in Criminal Justice and a minor in Mathematics in 1993. As a Professional in the field of Telecommunications he states under penalty of perjury that the information contained in this report is true and correct to the best of his knowledge and belief.

KESSLER AND GEHMAN ASSOCIATES, INC.

WILLIAM T. GODFREY, JR.
Telecommunications Technical Consultant 15 July, 2009

KTCI-DT CHANNEL *23

ST. PAUL, MINNESOTA

ENGINEERING SPECIFICATIONS

A. ***Transmitter Site:***
Geographic coordinates (NAD27):

North Latitude: 45° 03' 30"
West Longitude: 93° 07' 27"

Transmitter Site Address: **540 Gramsie Road**
Shoreview, MN 55126-7021

B. ***Main Studio Address:*** **Twin Cities Public Television**
172 East Fourth Street
Saint Paul, MN 55101

Post-Transition Facility:
DTV Channel: Number: **23**
Frequency: **524-530 MHz**
Offset: **N/A**

C. ***Antenna Height:***
Height of Site Above Mean Sea Level (AMSL): **277.0 M**
Overall Height of Structure Above Ground: **446.8 M**
(including all appurtenances)
Overall Height of Structure Above Mean Sea Level: **723.8 M**
(including all appurtenances)
Height of Site Above Average Terrain: **-3.1 M**
Antenna Height Radiation Center (R/C) Above Ground: **416.0 M**
Antenna Height R/C Above Mean Sea Level: **693.0 M**
Average of All Non-Odd Radials: **280.1 M**
Antenna Height R/C Above Average Terrain: **412.9 M**

D. ***System Parameters – Horizontal Polarization:***
Transmitter Power Required: **14.7 kW**
Maximum Power Input to Antenna: **9.9 kW**
Transmission Line Loss: **1.73 dB**
Transmission Line Efficiency: **67.1%**
Maximum Antenna Gain in Beam Maximum: **15.79 dB**
Maximum Antenna Gain in Horizontal Plane: **14.38 dB**
Maximum Effective Radiated Power: **25.74 dBk**
In Beam Maximum: **375.0 kW**
Maximum Effective Radiated Power: **24.33 dBk**
In Horizontal Plane: **271.0 kW**

KTCI-DT CHANNEL *23

ST. PAUL, MINNESOTA

DATA FOR DIRECTIONAL TRANSMITTING ANTENNA

A. ***Antenna:*** Dielectric Model TUP-SP4-12S-1, Horizontally Polarized, Directional, Broadband, Panel Antenna.

B. ***Electrical Beam Tilt:*** 0.75 degrees

C. ***Mechanical Beam Tilt:*** None

D. ***Maximum Power Gain*** **Horizontal Polarization**

Maximum:	37.9 (15.79 dB)
Horizontal:	27.4 (14.38 dB)

E. ***Length:*** 45.3 feet (13.8 meters) not including appurtenances.

F. ***TPO:*** 14.7 kW

G. ***Null Fill:*** 20.0%

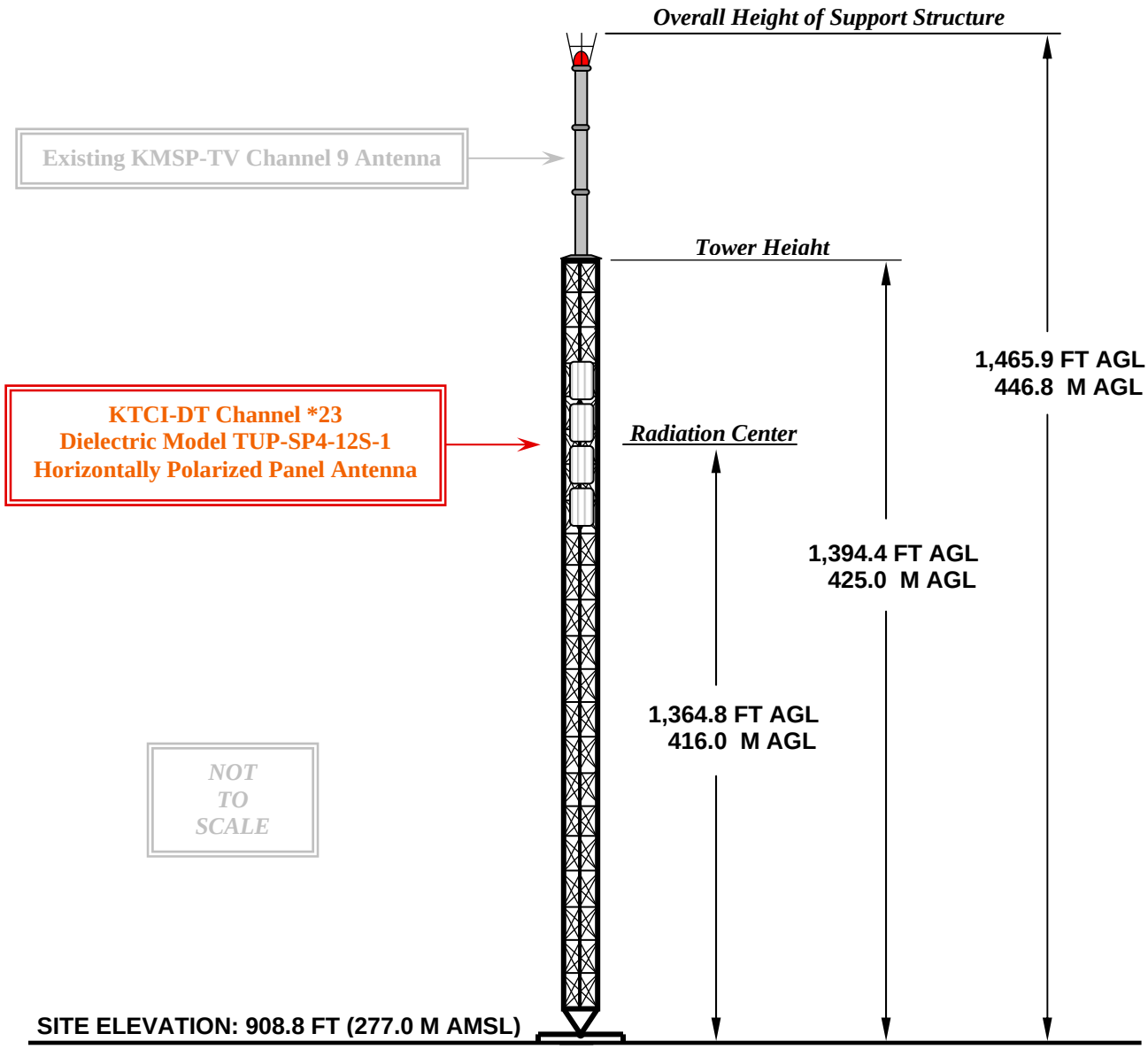
H. ***Transmission Line:*** 6-1/8" 50 ohm EHT digiTLine

I. ***Transmission Line Attenuation:*** 0.119 dB/100-feet

J. ***Transmission Line Length:*** 1,450 feet

K. ***Transmission Line Loss:*** 1.73 dB

KTCI-DT CHANNEL *23 TOWER ELEVATION VIEW



OVERALL HEIGHT AGL:	446.8 M
OVERALL HEIGHT AMSL:	723.8 M
RADIATION CENTER AGL:	416.0 M
RADIATION CENTER AMSL:	693.0 M
RADIATION CENTER HAAT:	412.9 M
AVG OF ALL NON-ODD RADIALS:	280.1 M
SITE HAAT:	-3.1 M

COORDINATES (NAD 27):

N. LATITUDE 45° 03’ 30”

W. LONGITUDE 93° 07’ 27”

Antenna Structure Registration Number: 1022899

NOTE: NOT TO SCALE

KESSLER AND GEHMAN

TELECOMMUNICATIONS CONSULTING ENGINEERS

507 N.W. 60th Street, Suite C

Gainesville, Florida 32607

KTCI-DT CHANNEL *23

ST. PAUL, MINNESOTA

20090702

EXHIBIT 3

Proposal Number			
Date			
Call Letters	**KTCI-DT**	Channel	
Location	**Minneapolis, MN**		
Customer			
Antenna Type	**TUP-SP4-12S-1**		

ELEVATION PATTERN: 6 Panels

RMS Gain at Main Lobe	**12.70 (11.04 dB)**	Beam Tilt	**0.75 deg**
RMS Gain at Horizontal	**11.70 (10.68 dB)**	Frequency	**545.00 MHz**
Calculated / Measured	**Calculated**	Drawing #	**06U127075**

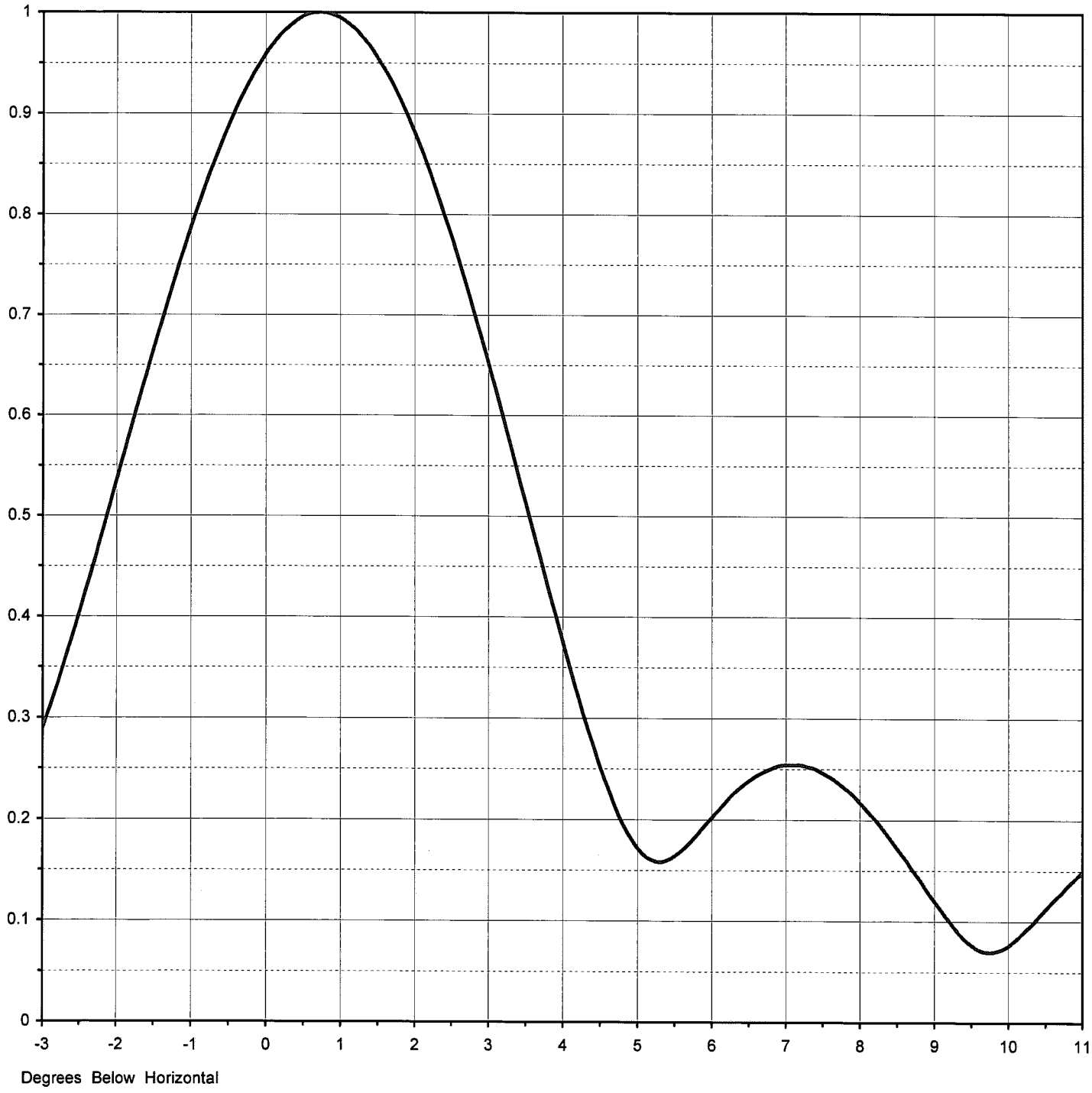


EXHIBIT 4

Proposal Number			
Date			
Call Letters	**KTCI-DT**	Channel	
Location	**Minneapolis, MN**		
Customer			
Antenna Type	**TUP-SP4-12S-1**		

ELEVATION PATTERN: 6 Panels

RMS Gain at Main Lobe	**12.70 (11.04 dB)**	Beam Tilt	**0.75 deg**
RMS Gain at Horizontal	**11.70 (10.68 dB)**	Frequency	**545.00 MHz**
Calculated / Measured	**Calculated**	Drawing #	**06U127075-90**

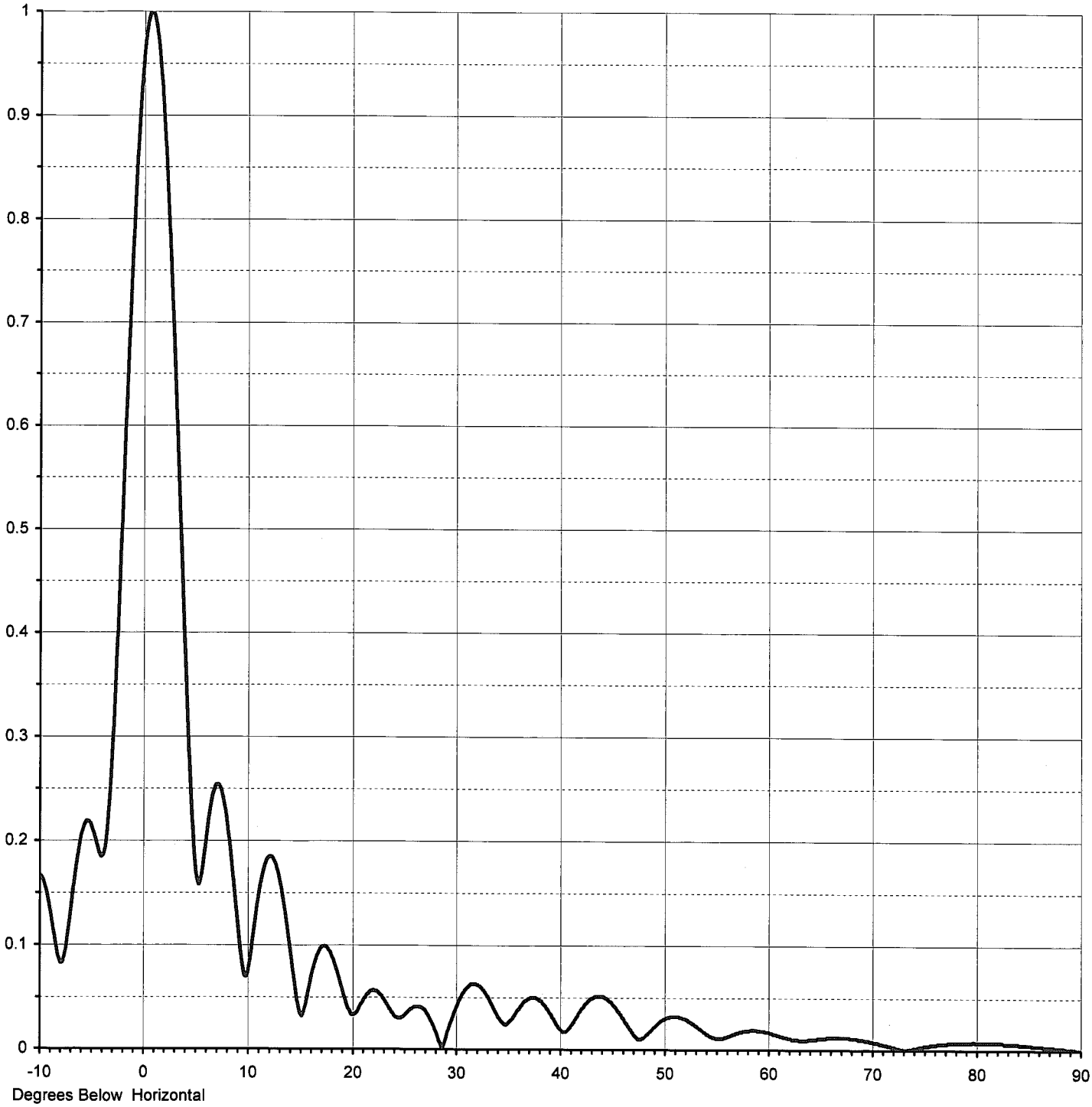


EXHIBIT 5

Proposal Number
Date
Call Letters KTCI-DT Channel
Location **Minneapolis, MN**
Customer
Antenna Type **TUP-SP4-12S-1**

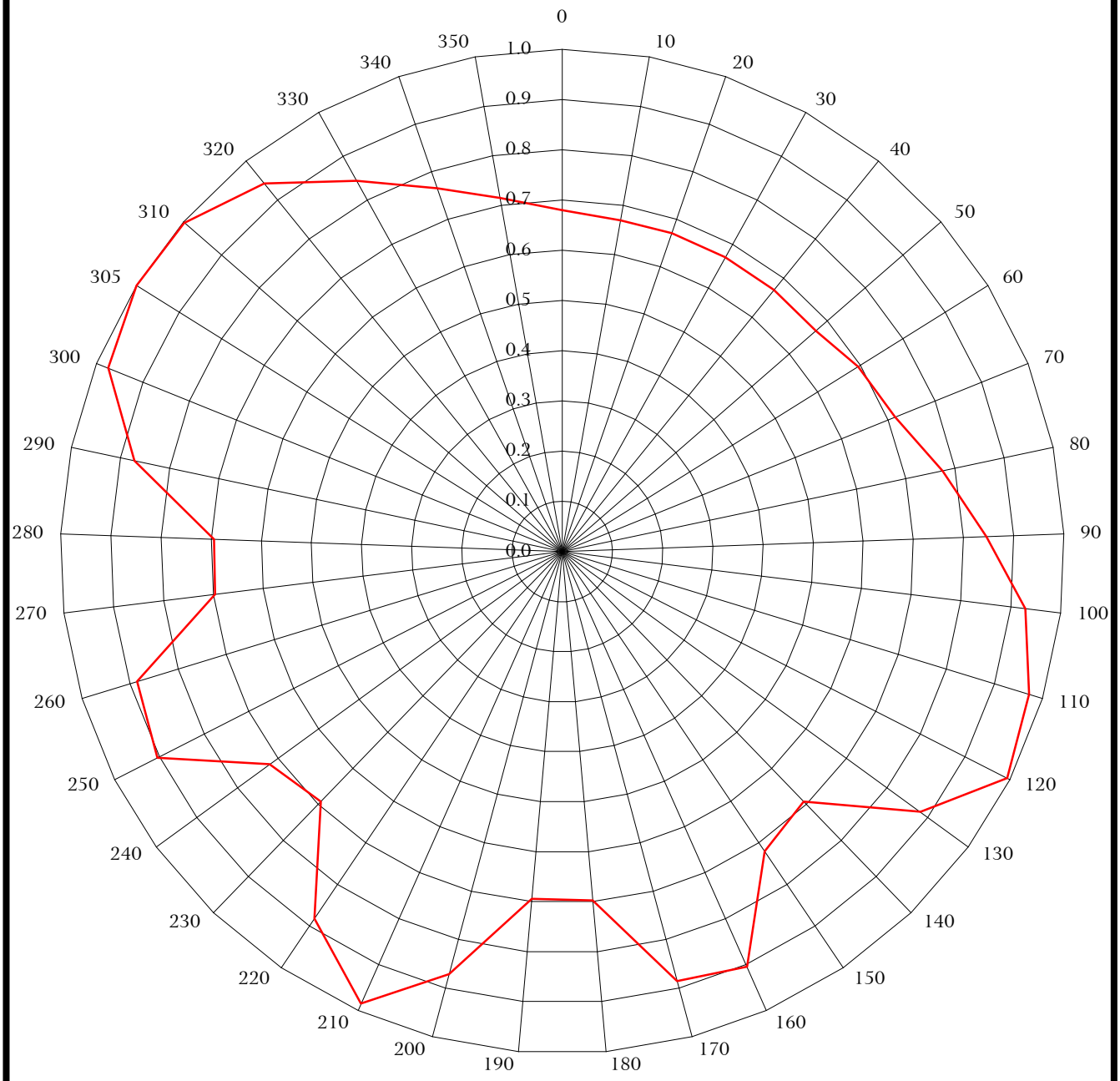
TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: **06U127075-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.167	2.4	0.801	10.6	0.112	30.5	0.050	51.0	0.032	71.5	0.004
-9.5	0.157	2.6	0.755	10.8	0.127	31.0	0.058	51.5	0.031	72.0	0.003
-9.0	0.133	2.8	0.705	11.0	0.142	31.5	0.063	52.0	0.030	72.5	0.002
-8.5	0.103	3.0	0.653	11.5	0.170	32.0	0.063	52.5	0.027	73.0	0.000
-8.0	0.083	3.2	0.598	12.0	0.184	32.5	0.059	53.0	0.023	73.5	0.001
-7.5	0.096	3.4	0.542	12.5	0.182	33.0	0.052	53.5	0.020	74.0	0.002
-7.0	0.134	3.6	0.486	13.0	0.166	33.5	0.043	54.0	0.016	74.5	0.003
-6.5	0.174	3.8	0.430	13.5	0.138	34.0	0.033	54.5	0.013	75.0	0.004
-6.0	0.205	4.0	0.376	14.0	0.102	34.5	0.026	55.0	0.011	75.5	0.005
-5.5	0.219	4.2	0.323	14.5	0.064	35.0	0.025	55.5	0.011	76.0	0.005
-5.0	0.214	4.4	0.275	15.0	0.035	35.5	0.030	56.0	0.012	76.5	0.006
-4.5	0.197	4.6	0.232	15.5	0.041	36.0	0.038	56.5	0.014	77.0	0.006
-4.0	0.185	4.8	0.196	16.0	0.065	36.5	0.045	57.0	0.016	77.5	0.007
-3.5	0.211	5.0	0.172	16.5	0.085	37.0	0.049	57.5	0.017	78.0	0.007
-3.0	0.290	5.2	0.160	17.0	0.097	37.5	0.050	58.0	0.018	78.5	0.007
-2.8	0.333	5.4	0.160	17.5	0.099	38.0	0.048	58.5	0.019	79.0	0.007
-2.6	0.380	5.6	0.170	18.0	0.092	38.5	0.043	59.0	0.018	79.5	0.007
-2.4	0.430	5.8	0.185	18.5	0.078	39.0	0.036	59.5	0.018	80.0	0.007
-2.2	0.482	6.0	0.202	19.0	0.060	39.5	0.028	60.0	0.017	80.5	0.007
-2.0	0.535	6.2	0.218	19.5	0.043	40.0	0.020	60.5	0.015	81.0	0.007
-1.8	0.588	6.4	0.232	20.0	0.033	40.5	0.017	61.0	0.014	81.5	0.007
-1.6	0.640	6.6	0.243	20.5	0.036	41.0	0.021	61.5	0.012	82.0	0.007
-1.4	0.691	6.8	0.250	21.0	0.045	41.5	0.029	62.0	0.011	82.5	0.007
-1.2	0.740	7.0	0.254	21.5	0.053	42.0	0.037	62.5	0.010	83.0	0.006
-1.0	0.787	7.2	0.254	22.0	0.057	42.5	0.044	63.0	0.009	83.5	0.006
-0.8	0.830	7.4	0.250	22.5	0.055	43.0	0.049	63.5	0.009	84.0	0.006
-0.6	0.869	7.6	0.242	23.0	0.049	43.5	0.051	64.0	0.010	84.5	0.005
-0.4	0.904	7.8	0.231	23.5	0.041	44.0	0.051	64.5	0.010	85.0	0.005
-0.2	0.934	8.0	0.217	24.0	0.033	44.5	0.049	65.0	0.011	85.5	0.004
0.0	0.959	8.2	0.201	24.5	0.030	45.0	0.045	65.5	0.011	86.0	0.004
0.2	0.978	8.4	0.182	25.0	0.032	45.5	0.038	66.0	0.012	86.5	0.003
0.4	0.991	8.6	0.162	25.5	0.037	46.0	0.031	66.5	0.012	87.0	0.003
0.6	0.999	8.8	0.141	26.0	0.041	46.5	0.023	67.0	0.012	87.5	0.002
0.8	1.000	9.0	0.120	26.5	0.041	47.0	0.016	67.5	0.012	88.0	0.002
1.0	0.995	9.2	0.100	27.0	0.038	47.5	0.010	68.0	0.011	88.5	0.001
1.2	0.984	9.4	0.083	27.5	0.030	48.0	0.011	68.5	0.011	89.0	0.001
1.4	0.967	9.6	0.072	28.0	0.019	48.5	0.016	69.0	0.010	89.5	0.000
1.6	0.944	9.8	0.070	28.5	0.006	49.0	0.021	69.5	0.009	90.0	0.000
1.8	0.916	10.0	0.072	29.0	0.009	49.5	0.026	70.0	0.008		
2.0	0.882	10.2	0.082	29.5	0.025	50.0	0.029	70.5	0.007		
2.2	0.844	10.4	0.096	30.0	0.038	50.5	0.031	71.0	0.005		

EXHIBIT 6

RELATIVE FIELD AZIMUTH PATTERN



DIELECTRIC MODEL TUP-SP4-12S-1
BEAM MAXIMA AT 305º
AZIMIUTH GAIN: 3.0 (4.75 dB)
POLARIZATION: HORIZONTAL

KESSLER AND GEHMAN
TELECOMMUNICATIONS CONSULTING ENGINEERS
507 N.W. 60th Street, Suite C
Gainesville, Florida 32607

KTCI-DT CHANNEL *23

ST. PAUL, MINNESOTA

20090702 **EXHIBIT 7**

KTCI-DT CHANNEL *23

ST. PAUL, MINNESOTA

TABULATION OF RELATIVE FIELD FOR DIRECTIONAL ANTENNA

AZIMUTH	RELATIVE FIELD	AZIMUTH	RELATIVE FIELD
N000ºE	0.680	N180ºE	0.697
N010ºE	0.670	N190ºE	0.694
N020ºE	0.670	N200ºE	0.871
N030ºE	0.670	N210ºE	0.985
N040ºE	0.670	N220ºE	0.882
N050ºE	0.670	N230ºE	0.691
N060ºE	0.695	N240ºE	0.720
N070ºE	0.715	N250ºE	0.905
N080ºE	0.774	N260ºE	0.885
N090ºE	0.845	N270ºE	0.697
N100ºE	0.930	N280ºE	0.694
N110ºE	0.972	N290ºE	0.871
N120ºE	0.995	N300ºE	0.976
N130ºE	0.882	N310ºE	0.998
N140ºE	0.691	N320ºE	0.943
N150ºE	0.720	N330ºE	0.845
N160ºE	0.905	N340ºE	0.765
N170ºE	0.885	N350ºE	0.715

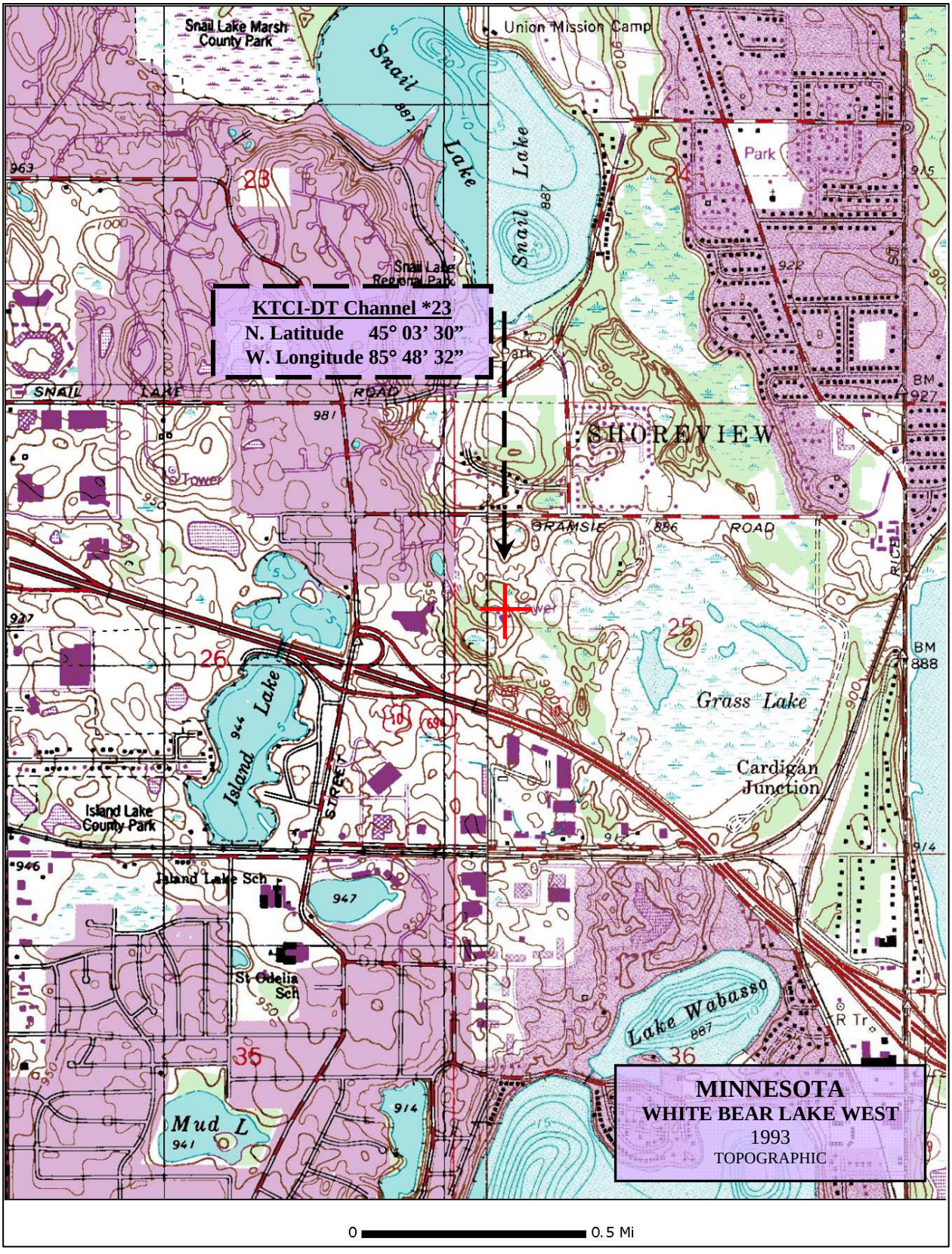
MAXIMUM RELATIVE FIELD OF 1.000 AT N305ºE
MINIMUM RELATIVE FIELD OF 0.670 AT N010ºE - N050ºE

KESSLER AND GEHMAN
TELECOMMUNICATIONS CONSULTING ENGINEERS
507 N.W. 60th Street, Suite C
Gainesville, Florida 32607

KTCI-DT CHANNEL *23

ST. PAUL, MINNESOTA

20090702 **EXHIBIT 8**



KESSLER AND GEHMAN
TELECOMMUNICATIONS CONSULTING ENGINEERS
507 N.W. 60th Street, Suite C
Gainesville, Florida 32607

KTCI-DT CHANNEL *23

ST. PAUL, MINNESOTA

20090702 **EXHIBIT 9**