

Name of Licensee: UNIVERSITY OF NORTHWESTERN-ST. PAUL

Station Location: MINNEAPOLIS, MN

Frequency (kHz): 900

Station Class: B

Antenna Coordinates:

Day

Latitude: N 44 Deg 59 Min 24 Sec

Longitude: W 92 Deg 58 Min 52 Sec

Night

Latitude: N 44 Deg 59 Min 24 Sec

Longitude: W 92 Deg 58 Min 52 Sec

Transmitter(s): Type Accepted. See Sections 73.1660, 73.1665 and 73.1670 of the Commission's Rules.

Nominal Power (kW): Day: 50.0 Night: 0.50

Antenna Input Power (kW): Day: 52.7 Night: 0.54

Antenna Mode: Day: DA Night: DA

(DA=Directional Antenna, ND=Non-directional Antenna; CH=Critical Hours)

Current (amperes): Day: 32.45 Night: 3.29

Resistance (ohms): Day: 50 Night: 50

Antenna Registration Number(s):

Day:

Tower No.	ASRN	Overall Height (m)
1	1023286	
2	1023287	
3	1023288	
4	1023289	

Night:

Tower No.	ASRN	Overall Height (m)
1	1023286	
2	1023287	
3	1023288	
4	1023289	

DESCRIPTION OF DIRECTIONAL ANTENNA SYSTEM

Theoretical RMS (mV/m/km): Day: 2021.31 Night: 221.556

Standard RMS (mV/m/km): Day: 2123.68 Night: 232.871

Augmented RMS (mV/m/km):

Q Factor: Day: Night:

Theoretical Parameters:

Day Directional Antenna:

Tower No.	Field Ratio	Phasing (Deg.)	Spacing (Deg.)	Orientation (Deg.)	Tower Ref Switch *	Height (Deg.)
1	0.8300	-7.100	0.0000	0.000	0	90.0
2	1.0000	0.000	180.0000	35.000	0	90.0
3	1.0000	87.500	90.0000	125.000	0	90.0
4	1.2050	94.600	180.0000	35.000	1	90.0

* Tower Reference Switch

0 = Spacing and orientation from reference tower

1 = Spacing and orientation from previous tower

Theoretical Parameters:

Night Directional Antenna:

Tower No.	Field Ratio	Phasing (Deg.)	Spacing (Deg.)	Orientation (Deg.)	Tower Ref Switch *	Height (Deg.)
1	0.5510	-114.000	0.0000	0.000	0	90.0
2	1.0000	0.000	180.0000	35.000	0	90.0
3	0.4570	5.200	90.0000	125.000	0	90.0
4	0.2290	171.600	180.0000	35.000	1	90.0

* Tower Reference Switch

0 = Spacing and orientation from reference tower

1 = Spacing and orientation from previous tower

Day Directional Operation:

Twr. No.	Phase (Deg.)	Antenna Monitor Sample Current Ratio
1	3.5	0.995
2	0	1
3	99	1.038
4	95.8	1.239

Night Directional Operation:

Twr. No.	Phase (Deg.)	Antenna Monitor Sample Current Ratio
1	-114.9	0.633
2	0	1
3	2.9	0.572

Callsign: KTIS

Program Test Authority

Night Directional Operation:

Twr. Phase	Antenna Monitor
No. (Deg.)	Sample Current Ratio
4 172.2	0.266

Antenna Monitor: POTOMAC INSTRUMENTS AM-1900

Monitoring Points:

Day Operation:

Radial (Deg. T)	Distance From Transmitter (kM)	Maximum Field Strength (mV/m)
20.5	5.9	33.96
54	5.59	31.38
99	3.76	69.3
149	5.1	48.8
208	5.63	38

Night Operation:

Radial (Deg. T)	Distance From Transmitter (kM)	Maximum Field Strength (mV/m)
51.5	4.51	20.95
118	4.58	24.69
204.5	4.19	24.52
327.5	5.02	2.83

*** END OF AUTHORIZATION ***