

# TPO Calculation Summary

## Main Antenna Operation

**Call letters:** KNWC  
**City of License:** Sioux Falls, SD  
**Frequency:** CH243C (96.5 MHz)  
**File No:** BXPED-20181113AAY  
**Facility ID:** 49776  
**Applicant:** University of Northwestern-St. Paul

**Operating Effective Radiated Power (ERP):** 2.000 kW

**Antenna Make:** Shively  
**Antenna Model:** 6832  
**No of Elements:** 2  
**Antenna COR AGL:** 53 meters AGL  
**Antenna COR AMSL:** 506 meters AMSL  
**Power Gain:** 0.994

$\text{Log}[\text{power gain}] * 10 = \text{Antenna Gain: } -0.026 \text{ dBd}$   
**Calculated Antenna Input Power:** 2.012 kW

**System Loss Info:**

<u>Description</u>	<u>Component Make/Model</u>	<u>Length</u>	<u>Loss</u>
Connector	EIA 7/8" Male		-0.050 dBd
Connector	Andrew HJ5-50 (7/8" Heliax) (0.384 dB/100 ft)	205 ft	-0.787 dBd
Connector	EIA 7/8" Male		-0.050 dBd
EIA Reducer	Generic 7/8" - 1-5/8"		-0.100 dBd
Matcher	Shively 99952-G502	3 ft	-0.010 dBd
EIA Elbow	Myat 101-021		-0.010 dBd
Connector	Andrew H5FB-014-S		-0.050 dBd
Jumper to Matcher	Andrew HJ5-50 (7/8" Heliax) (0.384 dB/100 ft)	12 ft	-0.046 dBd
Connector	Andrew H5FB-014-S		-0.050 dBd
Combiner	Shively 2630		-0.486 dBd
Connector	Andrew H5FB-010-S		-0.050 dBd
Jumper to Combiner	Andrew HJ5-50 (7/8" Heliax) (0.362 dB/100 ft)	10 ft	-0.036 dBd
Connector	Andrew H5FB-014-S		-0.050 dBd
EIA Elbow	Myat 101-021		-0.010 dBd

**TOTAL SYSTEM GAIN/LOSS:** -1.811 dBd  
 $1 / [10^{(dB/10)/ERP}] = \text{CALCULATED TRANSMITTER POWER OUTPUT: } 3.035 \text{ kW}$