

# TPO Calculation Summary

## Main Antenna Operation

**Call letters:** W254BF  
**City of License:** Ithaca, NY  
**Frequency:** CH254D (98.7 MHz)  
**File No:** BPFT-20140428ABM  
**Facility ID:** 25008  
**Applicant:** Saga Communications of New England, LLC

**Operating Effective Radiated Power (ERP):** 0.054 kW

**Antenna Make:** Kathrein Inc., Scala Division  
**Antenna Model:** CL-FM(SLANT-45)-4 (4-BAY, 1.0 SPACED)  
**No of Elements:** Four (4)  
**Antenna COR AGL:** 84 meters AGL  
**Antenna COR AMSL:** 529 meters AMSL  
**Power Gain:** 7.943 (12 dB - 3 dB)  
 $\text{Log}[\text{power gain}] * 10 = \text{Antenna Gain:}$  9.000 dB  
**Calculated Antenna Input Power:** 0.007 kW

### System Loss Info:

<u>Description</u>	<u>Component Make/Model</u>	<u>Length</u>	<u>Loss</u>
1/2 Inch End Connector	Generic (4@0.02 dB each)		-0.080 dB
Antenna Bay Leads	RG-8 (Foam) (15ft x 4 jumpers) (1.900 dB/100 ft)	60 ft	-1.140 dB
1/2 Inch End Connector	Generic (4@0.02 dB each)		-0.080 dB
Power Divide (4-way)	Kathrein Scala PDH(x) Series		-0.500 dB
1/2 inch End Connector	Generic (1@0.02 dB each)		-0.020 dB
Main Antenna Feedline (tower)	Andrew Heliax 1/2" LDF4-50A (Foam) (0.657 dB/100 ft)	271 ft	-1.780 dB
Main Antenna Feedline (ground)	Andrew Heliax 1/2" LDF4-50A (Foam) (0.657 dB/100 ft)	5 ft	-0.033 dB
7/8 inch to 1/2 inch Coupler	Generic (1@0.02 dB each)		-0.020 dB
AM Isocoupler	Kintronics FMC1.5		-0.200 dB
1/2 inch to 7/8 inch Coupler	Generic (1@0.02 dB each)		-0.020 dB
Isocoupler to Diplexer Jumper	Andrew Heliax 1/2" LDF4-50A (Foam) (0.657 dB/100 ft)	23 ft	-0.151 dB
7/8 inch to 1/2 inch Coupler	Generic (1@0.02 dB each)		-0.020 dB
FM Multi-Frequency Triplexer	Microwave Filter Co. Model 18930-2 Triplexer		-1.500 dB
7/8 inch End Connector	Generic (1@0.02 dB each)		-0.020 dB
Diplexer to Transmitter Jumper	Eupen EC5-50A 7/8" EC5-50A (Foam) (0.310 dB/100 ft)	10 ft	-0.031 dB
7/8 inch End Connector	Generic (1@0.02 dB each)		-0.020 dB

**TOTAL SYSTEM GAIN/LOSS:** 3.385 dB  
 $1 / [10^{(3.385/10)} / \text{ERP}] = \text{CALCULATED TRANSMITTER POWER OUTPUT:}$  0.025 kW