

TPO Calculation Summary

Main Antenna Operation

Call letters: W249CD
City of License: Ithaca, NY
Frequency: CH249D (97.7 MHz)
File No: BPFT-20130919ADD
Facility ID: 156452
Applicant: Saga Communications of New England, LLC

Operating Effective Radiated Power (ERP): 0.175 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: 0.022 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) (0.653 dB/100 ft) | 271 ft | -1.770 dB |
| Main Antenna Feedline (ground) | Andrew Heliax 1/2" LDF4-50A (Foam) (0.653 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) (0.653 dB/100 ft) | 23 ft | -0.150 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: 3.396 dB
 $1 / [10^{(3.396/10)} / \text{ERP}] = \text{CALCULATED TRANSMITTER POWER OUTPUT:}$ 0.080 kW