

# TPO Calculation Summary

## Main Antenna Operation

Call letters: KAFE(FM).C  
 City of License: Bellingham, WA  
 Frequency: CH281C (104.1 MHz)  
 File No: BMXPH-20161007AAN  
 Facility ID: 58886  
 Applicant: Saga Broadcasting, LLC

Operating Effective Radiated Power (ERP): 0.680 kW

Antenna Make: Nicom USA, Inc. (NIC)  
 Antenna Model: BKG77/3M  
 No of Elements: Three (3)  
 Antenna COR AGL: 62 meters AGL  
 Antenna COR AMSL: 134 meters AMSL  
 Max Input Power: 5.0 kW  
 Power Gain: 1.41

$\text{Log}[\text{power gain}] * 10 = \text{Antenna Gain: } 1.492 \text{ dBd}$

Calculated Antenna Input Power: 0.482 kW

Transmitter Make/Model: Gates Air Vlexiva FAX-1000

Transmitter Rated Power: 1.100 kW

### System Loss Info:

Description	Component Make/Model	Length	Loss
Interbay End Connector(s)	Generic (3@0.02 dB each)		-0.060 dBd
Interbay Antenna Leads	RG-213(foam) (10 feet x 3 leads) (2.000 dB/100 ft)	30 ft	-0.600 dBd
Interbay End Connector(s)	Generic (3@0.02 dB each)		-0.060 dBd
Interbay Power Divide	Nicom Series BAP3N		-0.300 dBd
1 5/8 Inch End Connector	Generic (1@0.02 dB each)		-0.020 dBd
Main Feedline (Tower)	Cablewave LCF158-50JA ( 1 5/8" (0.205 dB/100 ft)	205 ft	-0.420 dBd
1 5/8 Inch End Connector	Generic (1@0.02 dB each)		-0.020 dBd
AM Isocoupler	Kintronic ISO-170-FM Isocoil (High Power)		-0.800 dBd
1 5/8 Inch End Connector	Generic (1@0.02 dB each)		-0.020 dBd
Main Feedline (Ground 1)	Cablewave LCF158-50JA ( 1 5/8" (0.205 dB/100 ft)	340 ft	-0.370 dBd
1 5/8 Inch End Connector	Generic (1@0.02 dB each)		-0.020 dBd
Combiner	Kintronics FMC-5X1K Five Port Custom Combiner		-0.570 dBd
1 5/8 Inch End Connector	Generic (1@0.02 dB each)		-0.020 dBd
1 5/8 Inch to Type N Coupler	Generic (1@0.02 dB each)		-0.020 dBd
Type N End Connector	Generic (1@0.02 dB each)		-0.020 dBd
Main Feedline (Ground 2)	Cablewave LCF12-50JA (1/2" (0.684 dB/100 ft)	30 ft	-0.205 dBd
Type N End Connector	Generic (1@0.02 dB each)		-0.020 dBd

TOTAL SYSTEM GAIN/LOSS: -2.05 dBd

$1 / [10^{(-2.05/10)}] = \text{CALCULATED TRANSMITTER POWER OUTPUT: } 1.091 \text{ kW}$