

# Figure 7

## TPO Calculation Summary Main Antenna Operation

**PRELIMINARY - NOT FINAL!!!**

Call letters: WPHN-FM  
City of License: Gaylord, MI  
Frequency: CH213C (90.5 MHz)  
File No: BLED-19850419LP  
Facility ID: 49536  
Applicant: Northern Christian Radio, Inc.

Operating Effective Radiated Power (ERP): 100.000 kW

Antenna Make: Jampro  
Antenna Model: JHPC-10D  
No of Elements: Ten (10)  
Antenna COR AGL: 257 meters AGL  
Antenna COR AMSL: 579 meters AMSL  
Max Input Power: 30.0 kW  
Power Gain: 5.495

$\text{Log}[\text{power gain}] * 10 = \text{Antenna Gain: } 7.400 \text{ dB}$

Calculated Antenna Input Power: 18.198 kW

Transmitter Make/Model: Broadcast Electronics FM-30B

Transmitter Rated Power: 30.0 kW

### System Loss Info:

<u>Description</u>	<u>Component Make/Model</u>	<u>Length</u>	<u>Loss</u>
3-1/8 EIA Flange	Generic (1@0.01 dB each)		-0.010 dB
Main Antenna Feedline (Tower)	Andrew 3.0" HJ8-50A (Air)	(0.137 dB/100 ft)	-1.212 dB
3-1/8 EIA Flange	Generic (1@0.01 dB each)		-0.010 dB

TOTAL SYSTEM GAIN/LOSS: 6.167 dB

$1 / [10^{(6.167/10)}] = \text{CALCULATED TRANSMITTER POWER OUTPUT: } 24.170 \text{ kW}$

**Yellow Highlighted Text Denotes Sample (generic) Values Requiring Verification**

