

Exhibit 31.1

Transmitter Power Output Calculation

FM System Calculator

Options

Solve For: ☒ TPO ☐ ERP

Antenna input: ☒ End fed ☐ Center Fed

Edit Antenna Database

Transmission Line FM Mid-Band Average Power Rating is 16.4kW

User Input

ERP: kW

Frequency: MHz

Center of Radiation (COR) - AGL: ft m

2 Bay / Generic / Half-Wave Spacing Antenna

Additional Losses: dB

Distance, Transmitter to Tower: ft m

Andrew LDF7-50A, 1-5/8" Foam Heliax Trans. Line

1st Null: 90 Degrees, 0 mi.

2nd Null:

No Beam Tilt or Null Fill Used

Calculated Results

Antenna Power Gain	<input type="text" value="0.702"/>	Tx Line Length	<input type="text" value="129 ft (39.4 m)"/>
Antenna Field Gain	<input type="text" value=".8379"/>	Minimum Tower Aperture	<input type="text" value="15 ft (4.6 m)"/>
Ant. FI @ 1 mi./1kW	<input type="text" value="115.289"/> mV/m	Top Bay Elevation - AGL	<input type="text" value="95 ft (28.9 m)"/>
Antenna Input Power	<input type="text" value="1.425"/> kW	Antenna Length	<input type="text" value="5 ft (1.7 m)"/>
Line Attenuation/100 ft	<input type="text" value=".1962"/> dB	Bottom of Antenna - AGL	<input type="text" value="89 ft (27.2 m)"/>
Power Loss in Coax	<input type="text" value=".370"/> kW	% Eff	<input type="text" value="79.4"/>
TPO	<input type="text" value="1.795"/> kW		

This Software is Provided for Planning Purposes Only!

The Following Systems Will Work In This Application:

A 815D5-5 kW Solid-State Analog FM Transmitter

Line Accessories

# of Hangers	<input type="text" value="30"/>
Hanger Spacing	<input type="text" value="3"/> ft
# of Hanger Adapters	<input type="text" value="30"/>
# of Hoisting Grips	<input type="text" value="0"/>
# of Grounding Straps	<input type="text" value="2"/>

Note: "Additional Losses" shown above are from a new 4-Cavity Band Pass Filter and Hard Line Parts.