

The TPO of 7.28 kW was calculated as follows:

93.3 meters of Andrew HJ8-50 3" Helix was employed. According to the manufacturer, this line has 0.433 dB loss per 100 meters, giving a total line loss of 0.403 dB for a calculated efficiency of 91.1%.

Based on the manufacturer's specifications, the maximum power gain of the installed Collins 37CP 4-bay antenna is 2.05. Therefore, this antenna requires an input of 7.28 kW to produce 13.6 kW ERP. The transmitter output power is calculated below.

$$\text{TPO} = 13.6 \text{ kW [ERP]} / (0.911 \text{ [Line efficiency]} * 2.05 \text{ [Antenna gain]}) = 7.28 \text{ kW}$$

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