

**Exhibit E-12**

The specified transmitter power output achieves the authorized effective radiated power. This exhibit contains the calculations utilized to determine the necessary transmitter power output for the facility.

The authorized effective radiated power is 0.250 kW or 250 Watts. The antenna utilized by the facility is a Shively Labs model 6812-3. The data from the manufacturer specifies 1.52 as the power gain. The necessary input power to achieve the authorized effective radiated power is therefore 164.5 Watts.

The antenna is fed with 300 feet of Andrew LDF4-50A 1/2" semi-flexible coaxial cable. Data from the manufacturer indicates that 0.6219 is the value of the fractional efficiency of this length of transmission line at the frequency of operation. The necessary input power to the transmission line to achieve the authorized effective radiated power is therefore 264.5 Watts.

Ahead of the transmission line is a Polyphaser lightning protection device that has an insertion loss of 0.1 dB as specified by the manufacturer. The necessary input power to the Polyphaser to achieve the authorized effective radiated power is 270.6 Watts.

Between the Polyphaser and the transmitter is a super-flexible jumper cable 3 feet in length. The manufacturer of this jumper cable specifies a fractional efficiency of 0.9853 for this cable at the frequency of operation. The necessary input power to this jumper to achieve the authorized

effective radiated power is 274.7 Watts, which rounds to 275 Watts. This is also the transmitter power output since the input to the jumper is at the output of the transmitter. It is therefore demonstrated that the specified transmitter power output achieves the authorized effective radiated power.