

Requested Transmit Frequency: 360 MHz – 470 MHz
Type of Modulation: CW
Transmitter Output Power: 2 Watts Max (33 dBm)
Effective Isotropic Radiated Power: 1.52 Watts
Transmitting Antenna: ETS Model 3144 Log-Periodic Dipole Array Antenna
Transmitting Antenna Beamwidth: 85 degrees at half power point in Azimuth & Elevation

Purpose:

This request is being made to facilitate the pattern testing of antennas for use in the various communications and radar services in the UHF band from May 2006 through October 2006. Testing will typically occur between the hours of 6 AM and 8 PM Monday through Friday. All antennas under test (AUT) will be tested as receive antennas allowing the use of a single log-periodic dipole array (LPDA) antenna as the sole transmitting antenna for pattern testing.

Location:

All testing will be performed at our Cazenovia test site on the 40 foot outdoor range at 1315 feet of elevation, about 40 feet below the ridge peak directly in line with the antenna transmission path. The transmitting antenna bore sight will be pointing approximately due west. The transmitting antenna is approximately located at 42.9271 degrees North by 75.9240 degrees West.

Effective Isotropic Radiated Power (EIRP):

The EIRP of the transmitting antenna has been calculated using the equations (1), (2), (3), (4); vendor published antenna factor data and measured feed line loss data from the test site.

The model 3144 LPDA has an antenna factor (AF) of 17 at 360 MHz.

Antenna Feed line loss is 5.5 dB

$$\text{Antenna Gain} = 20 \log (F_{\text{MHz}}) - \text{AF} - 29.79 \quad (1)$$

$$\text{Antenna Gain} = 20 \log (360) - 17 - 29.79 = 4.336 \approx 4.3 \text{ dB}$$

$$\text{Gain (G)} = \text{Antenna Gain} - \text{feed line loss} = 4.3 \text{ dB} - 5.5 \text{ dB} \quad (2)$$

$$G = \underline{\underline{-1.2 \text{ dB}}}$$

$$\text{EIRP} = \text{Transmitter Output Power} * M \quad (3)$$

$$\text{Where } M = 10^{G/10} \quad (4)$$

$$\text{Therefore } M = 10^{-1.2/10} = 0.758$$

$$\text{EIRP} = 2 \text{ Watts} * 0.758 = \underline{\underline{1.517 \text{ Watts}}}$$