In this case, the power output is taken as the "pulsed power" delivered by the pulse generator to the antenna structure and represents a maximum value for the transmitter. The maximum anticipated current delivered to the antenna terminals by the pulse generator is 20 kA. With this current the maximum power delivered to the resonant circuit and antenna is 62 MW (Based on extrapolation of measurements of the current gain achieved in a laboratory test).

The radiation efficiency of the unit is expected to be low since the matching between the source and antenna has not been fine-tuned as the transmitter is in its early stages of development. For the radiated field, the transmitter vendor quotes a maximum peak field value of 5kV/m on boresight at a range of 10 meters. The radiated power, then, can be calculated as:

$$P_r = \frac{|E_r|^2}{Z} r^2 \, \Omega_A,$$

where, E_r is the peak electric field at range, r, and Ω_A is the beam solid angle, and Z is the characteristic impedance of free space, 377 ohms.

The beam solid angle is given by,

$$\Omega_A = \frac{4\pi}{D}$$

so that,

$$P_r = \frac{|E_r|^2}{Z\ D} 4\pi r^2$$

For a small loop antenna, directivity D = 1.5. (The loop antenna is taken as the worst case as it has the best coupling with the flux compression generator circuit). Solving for the radiated power (that is, the effective radiated power referenced to a small loop antenna, $A< \lambda^2/100$), we find

$$P_r = 56 \ MW$$