RF Exposure calculations

From §FCC 1.1310 table 1A, the maximum permissible RF exposure for an uncontrolled environment is 1mW/(cm*cm), where, (cm*cm) = square cm.
The electric field generated for a 1mW/(cm*cm) exposure (S) is calculated as follows:

$$S = E*E/Z$$

where, S = Power density
      E = Electric field
      Z = Impedance
so, 1mW/(cm*cm) = 10 W/(m*m)

Z is 377 ohm of the impedance of free space, where E and H field are perpendicular.
Thus the Electric field to produce a 1mW/(cm*cm) exposure is:
$E = (10 \times 377)^{\frac{1}{2}} = 61.4$ V/m, which is equivalent to 1mW/(cm*cm)

Maximum conducted peak output power is 17.6 dBm and maximum antenna gain is 0 dBi. The maximum radiated output power resulted in 57.54 mW.

Using the relationship between electric field E, effective radiated power in watts P, and distance in meters D, the corresponding distance D to produce a 1mW/(cm*cm) is calculated in the following expression:

$D = (P \times 30)^{\frac{1}{2}} /E = (57.54 \times 10 \times 30)^{\frac{1}{2}} /61.4 = 2.14$ cm
where, P: maximum effective radiated power measured, 17.6 dBm (57.54 mW)
      E: electric field equivalent to 1mW/(cm*cm), 61.4 V/m

Notice in Installation Manual:
While installing and operating this transmitter, the radio frequency exposure limit of 1mW/(cm*cm) may be exceeded at distances close to the transmitter. therefore, the user must maintain a minimum distance of 20 cm from the device at all time.

The table below identifies the distance where the 1mW/(cm*cm) exposure limits may be exceeded during continuous transmission using this device.

Peak output power		calculated RF Exposure Separation Distance(cm)	Minimum RF Exposure Separation Distance(cm)
dBm	mW	2.14	20
17.6	57.54		