Maximum Public Exposure to RF (MPE) CFR 1.1310 (e), CFR 2.1091, CFR 15.247 (i)

The maximum exposure level to the public from the RF power of the EUT shall not exceed a power density, **S**, as per the respective limits in Table 1 below, at a distance, **d**, of 20 cm (Mobile condition) from the EUT.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time (minutes)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	$*180/f^2$	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

Therefore, for:

MPE for 13.56 MHz for this EUT:

Limit: 0.98 mW/cm^2
Peak Power (dBm) = -34.38dBm
Peak Power (Watts) = 0.0000003 W
Gain of Transmit Antenna = -10 dB_i = 0.1 numeric (Highest Gain)
d = Distance = 20 cm = 0.2 m

$S = (PG/ 4\pi d^2)$ = EIRP/4A = 0.0000003(0.1)/4*π*0.2*0.2
= 0.00000003/0.5030 = 5.96 *10^{-8} W/m^2
= (5.96 *$10^{-8}$$W/m^2$) ($1m^2/W$) (0.1 mW/cm^2)
= 5.96 *10^{-9} mW/cm^2

which is << less than S = 0.98 mW/cm^2

RF Exposure Evaluation – IC

According to RSS-102 (Issue 6), 2.5.2 Exemption Limits for Routine Evaluation:

below 20 MHz and the source-based, time-averaged maximum EIRP of the device is equal to or less than 1 W (adjusted for tune-up tolerance)

For 13.56 MHz Band:

Limit = 1 Watts

Max EIRP for this EUT = -34.38 dBm + -10 dB = -44.38dBm = $3.65*10^{-8}$ W<< 1W