

Test No.13

Name of Test:	Radio Frequency Exposure	Test Standard:	FCC OET Bulletin 65 & RSS-GEN
Tested By:	WEI LI	Test Date:	12/01/2022-12/16/2022

Minimum *For FCC:*

Standard: Public Exposure to Radio Frequency Energy Levels (1.1307 (b)(1)) Limits:

From §1.1310 Table 1 (B),
 for Public $S = 1.0 \text{ mW/cm}^2$
 for Professional, $S = 5.0 \text{ mW/cm}^2$

Method of Measurement:

$$d = 0.282 * 10^{((P + G) / 20) / \sqrt{S}}$$

$$S = 0.0795 * 10^{((P + G) / 10) / d^2}$$

Equation (1)
 Equation (2)

where

- d = MPE distance in cm
- P = Power in dBm
- G = Antenna Gain in dBi
- S = Power Density Limit in mW/cm^2

Equation (1) and the measured peak power is used to calculate the MPE distance.
 Equation (2) and the measured peak power is used to calculate the Power density.

For IC:

Per RSS-102 Section 2.5.2.

- RF** exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:
- below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
 - at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $4.49/f^{0.5} \text{ W}$ (adjusted for tune-up tolerance), where f is in MHz;
 - at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
 - at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 * 10^{-2} * f^{0.6834} \text{ W}$ (adjusted for tune-up tolerance), where f is in MHz;
 - at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

Test Result:

Complies

Test Data:

NA

Calculation

For this EUT, max emission level is under the limit set in Section 15.209. No RF hazard need to be concerned.

Applicable limit for separation $\geq 20\text{cm}$:

FCC: From §1.1310 Table 1 (B), for Public $S = 1.0 \text{ mW/cm}^2$; for Professional, $S = 5.0 \text{ mW/cm}^2$

IC: Per RSS-102 Section 2.5.2, the most restricted limit is 0.6W in the range of 40-3440MHz

RESULTS

No non-compliance noted.

The max. allowed eirp for UWB devices is 0dBm.

---For FCC, the following calculation is using the max. $P+G=0\text{dBm}$ and $d=20\text{cm}$

Plug all three items into equation (2), yielding,

Power Density Limit (mW/cm²)	Max. Output Power+ Antenna] Gain (dBm)	Calculated Power Density (mW/ cm²)
1.0/5.0	0	0.0002

---For ISED, the most restricted limit is 0.6W in the range of 40-3440MHz. EUT max. e.r.i.p (0dBm, 1mW) < limit 0.6W.

NOTE: For mobile or fixed location transmitters, the minimum separation distance is 20 cm, even if calculations indicate that the MPE distance would be less.