

RF Exposure

1. Standard Requirement:

According to §15.247 (i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

2. Limits

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{\text{(GHz)}}}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,¹⁶ where

- $f_{\text{(GHz)}}$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation¹⁷
- The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum *test separation distance* is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum *test separation distance* is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

3. EUT RF Exposure

The max. power of channel, including tune-up tolerance is 7.35dBm in lowest channel(2.412GHz); 7.35dBm logarithmic terms convert to numeric result is nearly 5.43mW.

According to the formula. Calculate the EIRP test result:

$[(\text{max.power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f_{\text{(GHz)}}}]$

General RF Exposure = $(5.43\text{mW} / 5\text{mm}) \times \sqrt{2.412\text{GHz}} = 1.69$ ①

SAR requirement:

S=3.0

②;

① < ②.

So the SAR report is not required.