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:

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

- $f_{(GHz)}$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation[17]
- 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 -3.88dBm in middle channel(2.402GHz);
-3.88dBm logarithmic terms convert to numeric result is nearly 0.41mW.
According to the formula. Calculate the EIRP test result:

[(max.power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)] * [√f(GHz)]

General RF Exposure = (0.41mW / 5mm) x √ 2.402GHz = 0.13 … ①
SAR requirement: S=3.0 … ②;
① < ②.

So the SAR report is not required.