§1.1307 (b) (1) &§2.1093 – RF EXPOSURE

Applicable Standard

According to FCC §2.1093 and §1.1307(b) (1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

According to KDB 447498 D01 General RF Exposure Guidance

1. For Standalone SAR test exclusion considerations：

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, where
1. $f_{(GHz)}$ is the RF channel transmit frequency in GHz.
2. Power and distance are rounded to the nearest mW and mm before calculation.
3. The result is rounded to one decimal place for comparison.
4. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test Exclusion.

Evaluation data:

The maximum tune-up conducted peak output power is 20 dBm(100 mW) @1928.448 MHz

And
Duty Cycle = Ton/Tp*100% = 4.10%
Which, Ton = 412 μs, Tp= 10.05 ms, please refer to the report RSZ151110830-00 with model number RF1G9V1 (FCC ID: B4HRF1900V1) page 44 and 45 for plot detail

So,the maximum conducted source-based, time-averaged output power is:
100*4.10%mW=4.10 mW@1928.448 MHz

(4.10/5)* $\sqrt{1.928448}$=1.14<3.0

Result: No SAR test is required for Standalone SAR

2. Simultaneous transmission SAR test exclusion considerations

When an antenna qualifies for the standalone SAR test exclusion of 4.3.1 and also transmits simultaneously with other antennas, the standalone SAR value must be estimated according to the following to determine the simultaneous transmission SAR test exclusion criteria:

[(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)]·[$\sqrt{f_{(GHz)}}$/x] W/kg, for test separation distances ≤ 50 mm;
where x = 7.5 for 1-g SAR and x = 18.75 for 10-g SAR.

Estimated SAR (1-g SAR) per chain:
(4.10/5)* ($\sqrt{1.928448}$/7.5)=0.152 W/kg

Summation SAR=0.152*2=0.304 <1.6 W/kg

Result: No SAR test is required for Simultaneous transmission SAR