FCC RF Exposure evaluation

FCC ID: 2AGKH-PD-RC01-0102

Product Category: Portable Device
Exposure Category: General population/uncontrolled environment
Applicable Standard(s): KDB 447498 D01 General RF Exposure Guidance v06
FCC Part 2 §2.1093

According to KDB 447498 D01 General RF Exposure Guidance v06 Section 4.3.1 for Standalone SAR test exclusion considerations “Unless specifically required by the *published RF exposure KDB procedures*, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding *SAR Test Exclusion Threshold condition(s)*, listed below, is (are) satisfied. These test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum *test separation distance* required for the exposure conditions.[28] The minimum *test separation distance* defined in 4.1 f) is determined by the smallest distance from the antenna and radiating structures or outer surface of the device, according to the host form factor, exposure conditions and platform requirements, to any part of the body or extremity of a user or bystander. To qualify for SAR test exclusion, the *test separation distances* applied must be fully explained and justified, typically in the SAR measurement or SAR analysis report, by the operating configurations and exposure conditions of the transmitter and applicable host platform requirements, according to the required *published RF exposure KDB procedures*. When no other RF exposure testing or reporting are required, a statement of justification and compliance must be included in the equipment approval, in lieu of the SAR report, to qualify for SAR test exclusion. When required, the device specific conditions described in the other *published RF exposure KDB procedures* must be satisfied before applying these SAR test exclusion provisions; for example, handheld PTT two-way radios, handsets, laptops and tablets, etc. [29] “

Since this device has two transmitters, it is subject to simultaneous SAR test exclusion evaluation as specified in section 4.3.2., applying the equation in section 4.3.2 b) in order to compare with the SAR limit:

[(*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).

- $f_{(GHz)}$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- 7.5 and 18.75 are referred to as the *numeric thresholds*

Average Conducted Power (* = highest)

Mode: **WIFI**	Channel	Frequency (MHz)	Measured (dBm)	Measured (mW)	Target (dBm)	Tolerance ±(dB)
11b	01	2412	9.360		9.5	0.5
	06	2437	9.280		9.5	0.5
	11	2462	9.330		9.5	0.5
11g	01	2412	9.430		9.5	0.5
	06	2437	9.570		9.5	0.5
	11 *	2462	**9.670**	**9.268**	**9.5**	**0.5**
11n HT20	01	2412	9.480		9.5	0.5
	06	2437	9.520		9.5	0.5
	11	2462	9.470		9.5	0.5

Mode: **GFSK**	Channel	Frequency (MHz)	Measured (dBm)	Measured (mW)	Target (dBm)	Tolerance ±(dB)
Ant. 1	01 *	2405.5	**6.510**	**4.477**	**7.0**	**0.5**
	08	2419	5.810		6.0	0.5
	16	2438	4.710		5.0	0.5
Ant. 2	01	2405.5	6.260		6.0	0.5
	08	2419	5.060		5.0	0.5
	16	2438	4.410		4.0	0.5

Evaluation Band / Mode (worst case)	f (GHz)	Antenna Distance (mm)	RF output power (including tune-up tolerance)			1-g SAR Test Exclusion (W/kg)		Test Exclusion Conclusion (Note 1)
			dBm	mW	mW (round-up)	Calculated	Limit	
WIFI: 11g	**2.45**	**50**	**10**	10.00	**10**	**0.042**	**≤ 8.0**	**PASS**
GFSK: Ant. 1	**2.45**	**50**	**7.5**	5.62	**6**	**0.025**	**≤ 8.0**	**PASS**
Simultaneous					**16**	**0.067**	**≤ 8.0**	**PASS**

Note 1: The 1-g SAR limit of 8 W/kg for exposure category Partial Body (General Population, Uncontrolled) was applied. In addition, the sum of powers and the sum of power densities remain within the limits.