RF Exposure

FCC ID: 2A6WT-GD6HD

1.0 INTRODUCTION

These calculations are based on the highest EIRP possible from the EUT considering maximum power and antenna gain. The highest output power of the EUT is 89.1 mW and the gain of the antenna is 3 dBi

1.0 SAR EXCLUSION RESULT

In accordance with FCC KDB Publication 447498 D01 V05R06 Clause 4.3.1 a),
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, mW)/(min. separation distance, mm)] x [$\sqrt{f_{(GHz)}}$] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- $f_{(GHz)}$ 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
- 3.0 and 7.5 are referred to as the numeric thresholds as shown below

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 according to 5) in section 4.1 of KDB 447498 is applied to determine SAR test exclusion.

According to the radiated max measurement, max. power of channel, including tune-up tolerance = 1 mW rounded to the nearest mW. The min. test separation distance = 200mm

The result is (1/5) * ((2.45)^0.5) = 0.31 which is less than 3.0 for 1-g SAR limit and ≤ 7.5 for 10-g SAR, hence the EUT is excluded from SAR evaluation according to FCC KDB Publication 447498 D01: General RF Exposure Guidance V06.

KDB 447498 D01 Section 4.3.1 b); For transmit from 100-1500 MHz:
[(max. power allowed at numeric threshold for 50mm in 4.3.1a, mW)] + [(min. separation distance - 50, mm)*(√Freq(MHz)]

This table is for devices with a separation greater than 50 mm

MHz	Max Power dBm	Max Ant Gain dBi	Duty Cycle %	EIRP mW	Min Sep mm	SAR Exc Threshold at 50mm 4.3.1 a) in mW	Result	Notes	Notes
464.5	19.3	3	100.0	169.8	100	220.1	Exempt	Peak	
464.55	19.5	3	100.0	177.8	100	220.1	Exempt	Peak	
469.5	19.4	3	100.0	173.8	100	218.9	Exempt	Peak	
469.55	19.5	3	100.0	177.8	100	218.9	Exempt	Peak	

Judgement: The product is exempt from SAR testing

2.0 MPE CALCULATION FROM OET 65 & FCC 1.1310

MHz	Max Power dBm	Max Ant Gain dBi	Duty Cycle %	EIRP Watts	(S) GP Limit mW/cm^2	Declared Minimum seperation Distance (cm)	EUT power Density mW/cm2	Result
464.50	19.3	3	100.0	0.1698	0.310	10.0	0.1351	Pass
464.55	19.5	3	100.0	0.1778	0.310	10.0	0.1415	Pass
469.50	19.4	3	100.0	0.1738	0.313	10.0	0.1383	Pass
469.55	19.5	3	100.0	0.1778	0.313	10.0	0.1415	Pass

Notes on the above table:
The max power of 19 dBm between the two Wi-Fi modules of the 2.4 GHz was applied.
In accordance with OET 65, 97-01, Power Density is calculated by
$S = P*G/(4*\pi*R^2)$
Where
S = power density (mW/cm2)
P = power input to the antenna (mW)
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna (cm)

S is the power density General Population Limit from FCC 1.1310 Table 1
EIRP Power is the Peak Effective Radiated Power.
EIRP = (Average Conducted Power + Antenna gain) * Duty Cycle.

Since the calculated power density is less than the limit, this product fully meets the OET 65 requirements for the general population.