RF EXPOSURE EVALUATION

EUT Specification

EUT	Wallswitch
Model Name	**DMWB**
Frequency band (Operating)	☐ WLAN: 2.412GHz ~ 2.462GHz ☐ WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz ☐ WLAN: 5.745GHz ~ 5825GHz ☒ Others(433.92MHz)
Device category	☒ Portable (<20cm separation) ☐ Mobile (>20cm separation) ☐ Others ___
Antenna diversity	☒ Single antenna ☐ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☐ Tx/Rx diversity
Max. output power	77.38dBuV/m (-17.88dBm)(0.0163mW)
Antenna gain	0 dBi
Evaluation applied	☐ MPE Evaluation ☒ SAR Evaluation

Standard Requirement

Portable Device

According to §15.247(i) and §1.1307b(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 levels in excess of the Commission's guidelines. See KDB 447498 D01 General RF Exposure Guidance V6, section 4.3.1.

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)] • [√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.

Measurement Result

Channel Frequency (MHz)	Max Output power (dBm)	Max tune-up tolerance Output power (dBm)	Max Output power (mW)	Calculation Value (Note 1)	Threshold Value
433.92	-17.88	-17.88±1	0.0205	0.0027	3.0

$$E = EIRP - 20\log D + 104.8$$

where:

E = electric field strength in dBμV/m,

EIRP = equivalent isotropic radiated power in dBm

D = specified measurement distance in meters.

EIRP=E-104.8+20logD=**77.38** -104.8+20log3= **-17.88**dbm

Note 1: Calculation Value =[(max. power of channel, mW)/(min. test separation distance, mm)] • [√f(GHz)]. ≤3.0

Fox example: 0.0205/5* √0.43392= 0.0027

According to KDB447498 D01 V6, threshold at which no SAR required is ≤3.0 for 1-g SAR, separation distance is 5mm, and no simultaneous SAR measurement is required.

Standard Applicable

According to 2.1093 this is a portable device. According to KDB 447498 D01 V6, Appendix A SAR test exclusion thresholds for below table, the power level 22mW at 5mm.

MHz	5	10	15	20	25	mm
150	39	77	116	155	194	SAR Test Exclusion Threshold (mW)
300	27	55	82	110	137	
450	22	45	67	89	112	
835	16	33	49	66	82	
900	16	32	47	63	79	
1500	12	24	37	49	61	
1900	11	22	33	44	54	
2450	10	19	29	38	48	
3600	8	16	24	32	40	
5200	7	13	20	26	33	
5400	6	13	19	26	32	
5800	6	12	19	25	31	

Measurement Result:

This is a portable device and the Max. peak output power is -17.88dBm(0.0163mW) lower than low threshold 22mW at 5mm in general population category;

The SAR measurement is not necessary.