



SAR EVALUATION

Products: WIRELESS FLAT SWITCHES
Model: SHE5XWLS4WFT
FCC ID: SNJLS4

Nominal frequencies : 2405 MHz
2455 MHz
2475 MHz

Acceptance limits:

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

For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. separation distance, mm})] \times (\sqrt{f(\text{GHz})}) \leq 3 \text{ for 1-g SAR and } \leq 7,5 \text{ for 10-g SAR}$$

MHz	5	10	15	20	25	mm
150	39	77	116	155	194	<i>SAR Test Exclusion Threshold (mW)</i>
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	

10-g Extremity SAR Test Exclusion Power Thresholds are 2,5 times higher than the 1-g SAR Test Exclusion Thresholds indicated above.



Result

<i>Maximum permissible exposure for maximum measured power level</i>			
<i>Transmission channel (MHz)</i>	<i>Maximum measured power (dBm)</i>	<i>Antenna gain (dBi)</i>	<i>Peak Output Power (mW)</i>
2405	3,10	-2,5	2,04
2455	-0,21	-2,5	0,95
2475	-1,25	-2,5	0,75

Remarks: as the antenna gain is < 0 dBi, it is not taken into account in the calculation.

Using separation distance of 5 mm and 10-g SAR test exclusion thresholds with the formula above results:

$$(2,04 \text{ mW} / 5 \text{ mm}) * \sqrt{2,405 \text{ GHz}} = 0,63 \leq 7,5$$

Thus for portable use the SAR exclusion condition is fulfilled and SAR evaluation is not required for separation distance of 5 mm or more.

<i>Maximum permissible exposure for declared maximum specified power</i>			
<i>Operating frequency range (MHz)</i>	<i>Maximum declared power (dBm)</i>	<i>Antenna gain (dBi)</i>	<i>Peak Output Power (mW)</i>
2405 – 2475	1,80	-2,5	1,51

Remarks: as the antenna gain is < 0 dBi, it is not taken into account in the calculation.

Using separation distance of 5 mm and 10-g SAR test exclusion thresholds with the formula above results:

$$(1,51 \text{ mW} / 5 \text{ mm}) * \sqrt{2,405 \text{ GHz}} = 0,48 \leq 7,5$$

Thus for portable use the SAR exclusion condition is fulfilled and SAR evaluation is not required for separation distance of 5 mm or more.

Thiene, May 8th, 2019

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