

## RF EXPOSURE EVALUATION

### EUT Specification

<b>EUT</b>	SMART Pico
<b>Frequency band (Operating)</b>	<input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input type="checkbox"/> WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz <input type="checkbox"/> WLAN: 5.745GHz ~ 5825GHz <input checked="" type="checkbox"/> Others(Bluetooth: 2.402GHz ~ 2.480GHz)
<b>Device category</b>	<input checked="" type="checkbox"/> Portable (<20cm separation) <input type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others _____
<b>Antenna diversity</b>	<input checked="" type="checkbox"/> Single antenna <input type="checkbox"/> Multiple antennas <input type="checkbox"/> Tx diversity <input type="checkbox"/> Rx diversity <input type="checkbox"/> Tx/Rx diversity
<b>Max. output power</b>	9.11dBm(8.15mW) For WIFI; 5.16dBm(3.28mW) For BLE -0.29dBm(0.94mW) For BT 2.1+EDR
<b>Antenna gain</b>	0dBi
<b>Evaluation applied</b>	<input type="checkbox"/> MPE Evaluation <input checked="" type="checkbox"/> 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 v05, section 4.3.1.

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances  $\leq 50$  mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR,}^{16}$  where

- $f(\text{GHz})$  is the RF channel transmit frequency in GHz

- Power and distance are rounded to the nearest mW and mm before calculation<sup>17</sup>

- The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is  $\leq 50$  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	Channel Frequency (MHz)	Max Output AVG power (dBm)	Max Output AVG power (mW)	Calculation Value <sup>(Note 1)</sup>	Threshold Value
For BT2.1+EDR GFSK					
Low	2402.00	-0.29	0.94	0.29	3.0
Middle	2441.00	-0.93	0.81	0.25	3.0
High	2480.00	-1.81	0.66	0.21	3.0
π/4-DQPSK					
Low	2402.00	-0.29	0.94	0.29	3.0
Middle	2441.00	-0.71	0.85	0.27	3.0
High	2480.00	-1.60	0.69	0.22	3.0
8DPSK					
Low	2402.00	-0.44	0.90	0.28	3.0
Middle	2441.00	-0.70	0.85	0.27	3.0
High	2480.00	-1.61	0.69	0.22	3.0
For BLE GFSK					
Low	2402.00	4.09	2.56	0.79	3.0
Middle	2442.00	5.16	3.28	1.03	3.0
High	2480.00	4.06	2.55	0.80	3.0
For WIFI 802.11b					
Low	2412.00	9.11	8.15	2.53	3.0
Middle	2437.00	8.34	6.82	2.13	3.0
High	2462.00	7.81	6.04	1.90	3.0
802.11g					
Low	241200	8.62	7.28	2.26	3.0
Middle	2437.00	8.09	6.44	2.00	3.0
High	2462.00	7.51	5.64	1.77	3.0
802.11n(HT20)					
Low	2412.00	7.44	5.55	1.72	3.0
Middle	2437.00	6.96	4.97	1.55	3.0
High	2462.00	6.50	4.47	1.40	3.0

Note 1: Calculation Value =[(max. power of channel, mW)/(min.

test separation distance, mm)] • [ √ f(GHz)].

For example:  $0.94/5 * \sqrt{2.402} = 0.29 \leq 3.0$

According to KDB447498 D01 v05, threshold at which no SAR required is  $\leq 3.0$  for 1-g SAR, separation distance is 5mm, and no simultaneous SAR measurement is required.