



RF EXPOSURE EVALUATION

FCC ID: 2BMCK-8309WL

Product Name	:	wireless sensor pad
Model Name	:	8309WL
Serial model	:	8309WL-02,8309WL-04,8309WL-06,8283WL,8283WL-02, 8283WL-04,8283WL-06,8332WL,8332WL-02,8333WL, 8333WL-02,8307WL-02,8307WL-04,8307WL-06,8308WL-02, 8308WL-04,8308WL-06,8316WL-02,8316WL-04,8316WL-06, 8317WL-02,8317WL-04,8317WL-06
Operation Frequency	:	2402-2480MHz NFC_13.56MHz
Type of Modulation	:	40 channels For DTS 1 channel For NFC
Antenna installation	:	PCB Antenna NFC_PCB coil Antenna
Antenna Gain	:	BT: -0.15 dBi NFC: 0 dBi
Power supply	:	Input: DC 9V Lithium Ceil: DC 3V
Hardware Version	:	1.0
Software Version	:	1.1



Standard Requirement

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 v06, section 4. 3. 1.

a) 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:

$$\left[\frac{\text{max. power of channel, including tune-up tolerance, mW}}{\text{min. test separation distance, mm}} \right] \cdot$$

$$[\sqrt{f \text{ (GHz)}}] \leq 3.0 \text{ for 1-g SAR,}$$

and ≤ 7.5 for 10-g extremity SAR, 30 where

- f (GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation ³¹
- The result is rounded to one decimal place for comparison
- The values 3.0 and 7.5 are referred to as numeric thresholds in step b) 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 4.1 f) is applied to determine SAR test exclusion.

c) For frequencies below 100 MHz, the following may be considered for SAR test exclusion (also

illustrated in Appendix C): ³³

1) For test separation distances > 50 mm and < 200 mm, the power threshold at the corresponding test separation distance at 100 MHz in step b) is multiplied by

$$[1 + \log(100/f_{\text{(MHz)}})]$$

2) For test separation distances ≤ 50 mm, the power threshold determined by the equation in c) 1) for 50 mm and 100 MHz is multiplied by $\frac{1}{2}$

3) SAR measurement procedures are not established below 100 MHz.

When SAR test exclusion cannot be applied, a KDB inquiry is required to determine SAR evaluation requirements for any SAR test results below 100 MHz to be acceptable. ³⁴



RF Output power

Freq. (MHz)	Field strength(max)(dBuV/m)	EIRP (max) (dBm)
13.56	57.41	-37.79
Note: $EIRP = E - 104.8 + 20 \log D$, Where E is the electric field strength in dBuV/m = $9.68 + 40(\text{Distance Factor})$. EIRP is the equivalent isotropically radiated power in dBm. d is the specified measurement distance in m. where $D=3$, $EIRP = E - 95.2$.		

Test Result

Channel (MHz)	Maximum output power (dBm)	Tune up tolerance (dBm)	Max Tune Up Power (mW)	Distance(mm)	Calculation results	Limit	Operating Mode
2480	-8.70	-8.70 ± 1	0.169824	5	0.053488	3	BLE

Channel (MHz)	Maximum output power (dBm)	Tune up tolerance (dBm)	Max Tune Up Power (mW)	Limit (mW)	Operating Mode
13.56	-37.79	-37.79 ± 1	0.000209	459.226	NFC

Simultaneous Result

BLE_1M Ratio	NFC Ratio	simultaneous Ratio	Limits ratio	Test result
0.01783	0.00000	0.01783	1	PASS

The measurement results comply with the FCC Limit per 47 CFR 2.1093 for the uncontrolled RF Exposure and SAR Exclusion Threshold per KDB 447498 v06, No SAR is required.

Signature

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Manager

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