Appendix 6

RF Exposure Information

FCC ID: LU9XHW6411831 / IC: 4504A-XHW6411831
Model: XHW641183-1

Maximum transmitter power:

Frequency (MHz)	Maximum peak output power (dBm)	Output power(mW)
2402	-2.86	0.52
2440	-2.98	0.50
2480	-3.22	0.48

For FCC
According to KDB 447498 D01:

Standalone SAR test exclusion considerations:
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*)] · [$\sqrt{f_{(GHz)}}$] ≤ 3.0

for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,[24] where
• $f_{(GHz)}$ is the RF channel transmit frequency in GHz
• Power and distance are rounded to the nearest mW and mm before calculation[25]
• The result is rounded to one decimal place for comparison
• 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

Result:

$(0.52/5)*\sqrt{2.402} = 0.161 <3.0$

$(0.50/5)*\sqrt{2.440} = 0.156 <3.0$

$(0.48/5)*\sqrt{2.480} = 0.151 <3.0$

Simultaneous transmission SAR test exclusion considerations
When an antenna qualifies for the standalone SAR test exclusion and also transmits simultaneously with other antennas, the standalone SAR value must be estimated according to the following to determine the simultaneous transmission SAR test exclusion criteria:

[(*max. power of channel, including tune-up tolerance, mW*)/(*min. test separation distance, mm*)] · [$\sqrt{f_{(GHz)}}/x$] W/kg, for test separation distances ≤ 50 mm; where x = 7.5 for 1-g SAR and x = 18.75 for 10-g SAR.

Result:

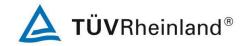BLE: $(0.52/5)*\sqrt{2.402}/7.5 = 0.021$ W/kg

RFID: $(0.00006/5)*\sqrt{0.01356}/7.5=0.00000019$ W/kg
The RFID Output power 0.00006 mW was taken from test report No.14043777 001.

Sum of 1-g SAR of all simultaneously transmitting antennas is
$(0.021+0.00000019) =0.02100019$ W/kg ≤ 1.6 W/kg

Conclusion:
No SAR is required.

<u>For IC</u>
According to table 1 in RSS-102 Issue 5, below exemption limit is applied:

- Frequency: 2450MHz
- At separation distance of ≤ 5mm
- Exemption limits: 4mW

According to 3.1.2 in RSS-102 Issue 5, SAR Measurement of Devices Containing Multiple Transmitters, Compliance of devices with multiple transmitters capable of simultaneous transmission shall be assessed in accordance with the latest version of IEEE 1528. However, other recognized methods — such as the procedures published by the FCC proven to provide a conservative estimate of the SAR value — can also be used.

BLE: $(0.52/5)*\sqrt{2.402}/7.5 = 0.021$ W/kg

RFID: $(0.00006/5)*\sqrt{0.01356}/7.5 = 0.00000019$ W/kg
The RFID Output power 0.00006 mW was taken from test report No.14043777 001.

Sum of 1-g SAR of all simultaneously transmitting antennas is
$(0.021+0.00000019) = 0.02100019$ W/kg $\leq$ 1.6 W/kg

Conclusion:
The maximum peak output power of the BLE transmitter is less than the SAR evaluation exemption threshold and sum of 1-g SAR of all simultaneously transmitting antennas is below the SAR limit, hence it complies with the RSS-102 RF exposure requirement.