The device as documented in the exhibits for FCC ID: WJLWCH-303 contains a NFC transmitter operating at 13.56 MHz and a WPT transmitter operating at 127.55 kHz. The following RF exposure evaluation is in accordance with the guidance as provided in KDB Publication 447498 D01 General RF Exposure Guidance v06. The NFC transmitter can not simultaneously transmit with the WPT transmitter.

Determination of the SAR test exclusion power thresholds:

KDB Publication 447498 D01 General RF Exposure Guidance v06
Clause 4.3.1 - Standalone SAR test exclusion considerations

Clause 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:

$$\left(\frac{\text{max. power of channel, including tune-up tolerance, mW}}{\text{min. test separation distance, mm}}\right) \times \sqrt{f_{(GHz)}} \leq 3.0 \text{ for 1-g SAR or } \leq 7.5 \text{ for 10-g extremity SAR}$$

$$\text{max. power of channel, including tune-up tolerance, mW} \leq \left(\frac{3.0}{\sqrt{f_{(GHz)}}}\right) \times \text{(min. test separation distance, mm)}$$

f (GHz) = 0.1 ; Minimum test separation distance = 50 mm

$$\text{1-g SAR test exclusion power threshold: max. power of channel, including tune-up tolerance, mW} \leq \left(\frac{3.0}{\sqrt{0.1}}\right) \times 50$$

$$\text{1-g SAR test exclusion power threshold: max. power of channel, including tune-up tolerance, mW} \leq 475 \text{ mW}$$

Clause 4.3.1 b):

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:

Clause 4.3.1 b) 1):

$$\text{Power allowed at numeric threshold for 50 mm in step 4.3.1 a)} + \left(\text{(test separation distance} - 50 \text{ mm)} \times \left(\frac{f_{MHz}}{150}\right)\right) \text{ mW for 100 MHz to 1500 MHz}$$

f (MHz) = 100
Minimum test separation distance = 50 mm

$$\text{1-g SAR test exclusion power threshold: 475 mW} + \left((50 - 50) \times \left(\frac{100}{150}\right)\right) \text{ mW for 100 MHz to 1500 MHz}$$

1-g SAR test exclusion power threshold: 475 mW for 100 MHz to 1500 MHz

Clause 4.3.1 c):

For frequencies below 100 MHz, the following may be considered for SAR test exclusion:

Clause 4.3.1 c) 1):

For test separation distances > 50 mm and < 200 mm, the power threshold at the corresponding test separation distance at 100 MHz in step 4.3.1 b) is multiplied by:

$$\left(1 + \log\left(\frac{100}{f_{MHz}}\right)\right)$$

f (MHz) = 13.56 ; 1-g SAR test exclusion threshold obtained in step 4.3.1 b) 1): 475 mW

1-g SAR test exclusion power threshold for step 4.3.1 c) 1) is:

$$475 \text{ mW} \times \left(1 + \log\left(\frac{100}{f_{MHz}}\right)\right) = 475 \text{ mW} \times \left(1 + \log\left(\frac{100}{13.56}\right)\right) = 475 \text{ mW} \times (1 + \log(7.375)) = 475 \text{ mW} \times 1.868 = 888 \text{ mW}$$

Clause 4.3.1 c) 2):

For test separation distances ≤ 50 mm, the power threshold determined by the equation in 4.3.1 c) 1) for 50 mm and 100 MHz is multiplied by ½:

1-g SAR test exclusion power threshold for step 4.3.1 c) 2) is: 888 mW x ½ = 444 mW (for operation on 13.56 MHz and where the minimum separation distance between the user and the transmitter is ≤ 50 mm).

Conversion of measured field strength on 13.56 MHz (NFC) from dBuV/m to mW:

$PG / 4\pi D^2 = E^2 / 120\pi$

Assuming G = 1 (unity gain antenna) and D = 3 meters;

$P / 36\pi = E^2 / 120\pi$

$P = 0.3 * E^2$

Measured field strength = 67.57 dBuV/m @ 3 m = 2390.56 uV/m @ 3 m = 0.002390562 V/m @ 3 m

$P = 0.3 \times E^2 = 0.3 \times (0.002390562)^2 = 1.71 \times 10^{-6}$ Watts

$P = 1.71 \times 10^{-3}$ mW

Conclusion:

The 1-g SAR test exclusion power threshold for operation on 13.56 MHz, and where the minimum separation distance between the user and the transmitter is ≤ 50 mm, is: 444 mW

The radiated RF output power of the NFC transmitter as contained in FCC ID: WJLWCH-303 is determined as being: 1.71×10^{-3} mW.

The NFC transmitter as contained in FCC ID: WJLWCH-303 is deemed to comply with CFR 47, Part 1.1310 (Radiofrequency radiation exposure limits) and therefore meets the requirement for portable devices as stipulated by CFR 47, Part 2.1093.