

RF Exposure Requirements

Product Description: NFC Module

Model No.: PN7150

FCC ID: 2AQ5RNFCPN7150

IC: 24301-NFCPN7150

According to the KDB 447498 D01 V06, clause 4.3, the following RF exposure evaluation shall to demonstrate RF exposure compliance.

13.56 MHz

Tx frequency: 13.56 MHz Type of Modulation: ASK

Antenna Type: Integral antenna (Gain: 0 dBi)

Nominal rated field strength: 61.07 dB μ V/m at 3m

Maximum allowed field strength of production tolerance: +/- 3dB

Based on the Maximum allowed field strength of production tolerance was 64.07dB μ V/m at 3m in frequency 13.56MHz, thus;

The EIRP = $[(FS \cdot D)^2 \cdot 1000 / 30] = 0.0077 \text{ mW}$

Thus;

Conducted power = Radiated Power (EIRP) – Antenna Gain

So;

Conducted Power = 0.0077 mW.

The SAR Exclusion Threshold Level for 13.56MHz when the minimum test separation distance is < 50mm:

$$= [474 * (1 + \log_{10}(f(\text{MHz}))) / 2]$$

$$= 443\text{mW}$$

Since the source-based time-averaging conducted output power is well below the SAR low threshold level, so the EUT is considered to comply with SAR requirement without testing.

According to the RSS-102 Issue 5, the following RF exposure evaluation shall to demonstrate RF exposure compliance.

Conducted Power = 0.0077 mW.

The SAR Exclusion Threshold Level for 13.56MHz when the minimum test separation distance is < 50mm:

Frequency (MHz)	Exemption Limits (mW)				
	At separation distance of ≤5 mm	At separation distance of 10 mm	At separation distance of 15 mm	At separation distance of 20 mm	At separation distance of 25 mm
≤300	71 mW	101 mW	132 mW	162 mW	193 mW
450	52 mW	70 mW	88 mW	106 mW	123 mW
835	17 mW	30 mW	42 mW	55 mW	67 mW
1900	7 mW	10 mW	18 mW	34 mW	60 mW
2450	4 mW	7 mW	15 mW	30 mW	52 mW
3500	2 mW	6 mW	16 mW	32 mW	55 mW
5800	1 mW	6 mW	15 mW	27 mW	41 mW

Since the source-based time-averaging conducted output power is well below the SAR low threshold level, so the EUT is considered to comply with SAR requirement without testing.