

RF EXPOSURE EVALUATION

EUT Specification

EUT	Nano TX V2 Module
Model Number	ExpressLRS 2.4G
FCC ID	2AT6X-NANOTXV2
Antenna gain (Max)	2.4G WIFI -22.4 dBi for antenna 1 -22.4 dBi for antenna 2 2.4G 2.13 dBi for antenna 3 BLE -22.4 dBi for antenna 2
Operation Frequency	2.4G WIFI 2412-2462MHz 2.4G 2405.4-2478.4MHz BLE 2402-2480MHz
Power Supply	DC 7-13V
Classification Per Stipulated Test Standard	§15.247(i), §2.1093
Modulation	2.4G WIFI IEEE 802.11b: DSSS(CCK, DQPSK, DBPSK) IEEE 802.11g/n: OFDM(64-QAM, 16-QAM, QPSK, BPSK) 2.4G: GFSK BLE: GFSK
Max. output power	2.4G WIFI IEEE 802.11b: 8.26 dBm IEEE 802.11g: 8.30 dBm IEEE 802.11n HT20: 8.28 dBm 2.4G: 7.35dBm BLE: 5.7 dBm

Test Requirement:

According to §15.247(i) and §1.1307(b)(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 level in excess of the Commission's guidelines.

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:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f_{(\text{GHz})}}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,²⁴ where

- $f_{(\text{GHz})}$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation²⁵
- 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

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 5) in section 4.1 is applied to determine SAR test exclusion.

Routine SAR evaluation refers to that specifically required by §2.1093, using measurements or computer simulation. When routine SAR evaluation is not required, portable transmitters with output power greater than the applicable low threshold require SAR evaluation to qualify for TCB approval.

The minimum separation distance is 5mm.

2.4G WIFI

Transmit Frequency (MHz)	Mode	Measured Power (dBm)	Tune up Power (dBm)	Max tune up power(dBm)	Calculation Result	1-g SAR
2412	802.11b	8.26	8±1	9	2.47	3
2437	802.11g HT20	8.30	8±1	9	2.48	3
2437	802.11n HT20	8.28	8±1	9	2.48	3

2.4G

Transmit Frequency (MHz)	Mode	Measured Power (dBm)	Tune up Power (dBm)	Max tune up power(dBm)	Calculation Result	1-g SAR
2478.4	2.4G	7.35	7±1	8	1.99	3

BLE

Transmit Frequency (MHz)	Mode	Measured Power (dBm)	Tune up Power (dBm)	Max tune up power(dBm)	Calculation Result	1-g SAR
2440	BLE 1M	5.7	5±1	6	1.24	3

According to KDB 447498, BLE & WLAN 2.4G & 2.4G can't transmit simultaneously, and no simultaneous SAR measurement is required.

Signature:



Shawn Wen

Date: 2024-6-26