

SAR Test exclusion documentation according to FCC KDB 447498, RSS-102

Report identification number: 1-4687/22-02-06 Exclusion (FCC)

contains the module with the following certification numbers	
FCC ID	2AXDT-RFM006

This test report is electronically signed and valid without handwritten signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

Document authorised:

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EUT technologies:

Technologies:	Max. declared cond. AVG Power*	Max. measured EIRP:
MI Mode 3.27 MHz	-9.47dBm (=0.113 mW)	-44.6dBm (= 0.035 µW)
BT LE 2450	-3.7 dBm (=0.43 mW)	(4.2 dBm – 3.5 dBi) 0.7 dBm (= 1.17 mW)

*) Declared by manufacturer

MI mode - max. measured EIRP is 64.2dBµV @1m see CTC advanced GmbH report 1-4688/22-01-04

BT LE - max. conducted measured power is 4.2 dBm and max antenna gain is – 3.5 dBi according CTC advanced GmbH report 1-4687/22-02-03.

Max declared power for BT LE is 6 dBm peak with a correction factor of -9.7dBm.

Collocation:

Technology \ Active scenario:	1	2	3	4
MI Mode	x		x	
BT LE	x	x		

SAR test exclusion according to KDB447498 (General RF Exposure Guidance v06)

Equation from Chapter 4.3.1: Standalone SAR test exclusion considerations page 11 and ff.

BT LE:

(1) Standalone SAR test exclusion for 100 MHz to 6 GHz at test separation distances ≤ 50mm

$$(\text{Threshold}_{1\text{-g};10\text{-g}}) \times d_{\text{separation}} / f^{0.5}$$

where

Threshold_{1-g;10-g} is 3 for 1-g; 7.5 for 10-g

d_{separation} is the min. test separation distance; 5mm is used if the distance is less

f is the RF channel transmit frequency

The table below gives the calculated maximal power that could be used for source based time averaged conducted or radiated power, adjusted for tune up tolerance. If this is at or below the calculated value the DUT is exempted from SAR evaluation.

frequency [MHz]	d _{separation} [mm]	Threshold _{1-g}	Powerlimit [mW]	P _{max-declared}		Exclusion
				[dBm]	[mW]	
2450.00	5	3	9.58	-3.70	0.43	yes

MI Mode:

(c) (2) Standalone SAR test exclusion below 100 MHz < 50mm

$$0.5 \times (\text{Threshold}_{100\text{MHz}}) \times (1 + \log(100/f))$$

where

Threshold_{1-g;10-g} is 3 for 1-g; 7.5 for 10-g
 f is the RF channel transmit frequency
 Threshold_{100MHz,50mm} is Threshold_{1-g;10-g} × d / f^{0.5}; with f = 100MHz and d=50mm

The table below gives the calculated maximal power that could be used for source based time averaged conducted power, adjusted for tune up tolerance. If this is below the calculated value SAR testing is excluded.

frequency [MHz]	d _{separation} [mm]	Threshold _{1-g;10-g}	Threshold _{100MHz,50mm}	Powerlimit [mW]	P _{max-declared}		Exclusion
					[dBm]	[mW]	
3.27	5	3	474.34	589.48	-9.47	0.112980	yes

Collocation:

Overview:

Technology , [MHz]	MI Mode	BT LE
Exemption based on	SAR Exclusion	
Limit EIRP [mW]:	589.48	9.58
Result EIRP [mW]:	0.113	0.43
Limit-Exhaustion [%]	0.02	4.49
Collocated percentage [%] [MI Mode + BT LE]	4.5	
Verdict:	Excluded	

This prediction demonstrates the following:

The power density levels for FCC that are larger than the minimum safety-distances stated above, are below the maximum levels allowed by regulations.