



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

Report identification number: 1-0213/20-02-18 Exclusion (FCC_ISED)

contains the module with the following certification numbers	
FCC ID	2ACAHAU5MRTRC
ISED number	11936A-AU5MRTRC
HVIN (Hardware Version Identification Number)	DA_AU5_MNR_R
PMN (Product Marketing Name)	DA_AU5_MNR_R
FVIN (Firmware Version Identification Number)	-/-
HMN (Host Marketing Name)	-/-

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Technologies:	Max. rated power: (AVG)	Max. gain:	Max. EIRP:
BT LE 2450 MHz	2.6 dBm / 1.82 mW	<1.7 dBi	< 4.5 dBm / 2.82 mW

Note: See results in the following Annex A for details on the AVG output power and its derivation from the measurements.

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.

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

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

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	4.50	2.82	yes

SAR test exclusion according to RSS-102 Issue 5 Section 2.5.1/Table 1

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]	tissue volume	Powerlimit [mW]	P _{max-declared}		Exclusion
				[dBm]	[mW]	
2450.00	5	1 g	4.00	4.50	2.82	yes

The limits above are defined for body worn application and therefore cover all use cases.

Annex A: Derivation of the max. AVG output power

Outputpower: **Max AVG Outputpower** = Peak_{max} - Duty cycle correction = 7.4 dBm – 4.8dB = **2.6dBm**

Peak output power	Frequency		
	2404 MHz	2440 MHz	2478 MHz
Maximum output power conducted [dBm] 1 Msps	-1.3	0.8	-0.4
Maximum output power conducted [dBm] 2 Msps High power	6.3	7.4	6.8

Antenna gain:

Antenna Gain	Low channel (2402 MHz)	Mid channel (2440 MHz)	High channel (2480 MHz)
Gain [dBi] Declared	1.7	1.3	1.4

Note: Details for Output power and Antenna gain can be seen in CTC advanced GmbH report 1-0213/20-02-03

Duty Cycle correction: 0.328

