



SAR Test exclusion documentation **according to FCC 19-126 / CFR 47, FCC KDB 447498, RSS-102**

Report identification number: 1-1053/20-03-20 Exclusion (FCC_ISED)

contains the module with the following certification numbers	
FCC ID	2ACAHAU5MBTEM
ISED number	11936A-AU5MBTEM
HVIN (Hardware Version Identification Number)	PA_AU5_MBTE_M
PMN (Product Marketing Name)	PA_AU5_MBTE_M
FVIN (Firmware Version Identification Number)	-/-
HMN (Host Marketing Name)	-/-

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:



Alexander Hnatovskiy
Lab Manager
Radio Communications & EMC



Marco Scigliano
Testing Manager
Radio Communications & EMC

EUT technologies:

Technologies:	Max. rated power: (AVG)	Max. gain:	Min. pathloss:
Bluetooth LE / Proprietary 2450 MHz	3.26 dBm (Conducted)	<< 0 dBi	0 dB (if applicable)
NI Link 3.8 MHz	-39.73dBm (EIRP)	--	--

NOTES:

- For **Bluetooth LE** test results see CTC advanced GmbH test report 1-1053/20-03-05 (max. Gain p.21, max peak output power 8.1 dBm p.25)
Max. duty cycle (BTLE): 32.8% according document from the manufacturer:
RF Working Principle for Cosmic_12_MiniBTE 312 M and Hubble_9_MiniBTE 312 M.pdf (p.10)
 8.1dBm Peak -> 3.26dBm AVG
- For **NI Link** test results see CTC advanced GmbH test report 1-1053/20-03-06-B (Max. measured EIRP: 55.5 dBµV/m @3m -> -39.73dBm, p.16)
- NI Link 3.84MHz - NERVE STIMULATION** measurements according SPR-002 Issue 1 are performed in CTC Advanced GmbH Report 1-1053/20-03-20.

SAR test exclusion according to FCC 19-126 Exemption Rules / 47 CFR §1.1307 (b):

Equations from Chapter 47 CFR §1.1307 (b): (3) Determination of exemption:

"...(i) A single RF source is exempt if:

(A) The available maximum time-averaged power is no more than 1 mW, regardless of separation distance. ..."

f in [MHz]	P _{max-declared} [mW]	Exclusion
3.84	<< 1 mW	yes

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 ≤ 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	3.26	2.12	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	3.26	2.12	yes

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

NOTE:

NI Link 3.84MHz - NERVE STIMULATION measurements according SPR-002 Issue 1 are performed in CTC Advanced GmbH Report 1-1053/20-03-20.