

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

Report identification number: 1-1607/20-01-06 Exclusion (FCC_ISED)

contains the module with the following certification numbers	
FCC ID	2AXDT-RFM003
ISED number	26428-RFM003
HVIN (Hardware Version Identification Number)	RFM003
PMN (Product Marketing Name)	RF Module 3
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:



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EUT technologies:

Technologies:	Max. rated EIRP
Bluetooth LE	8.0 dBm (Peak) -1.7 dBm (AVG)
MI Link 3.27 MHz)*	0.1 dBµV/m @ 30m (QP)

Note: Bluetooth LE test results see CTC advanced test report 1-1607/20-01-05

)* exempt from routine evaluation for FCC according to CFR47 § 2.1093

Duty cycle correction with worst case operation mode see plots and calculations at the end of the document.

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 $\leq 50\text{mm}$

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

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	-1.70	0.68	yes

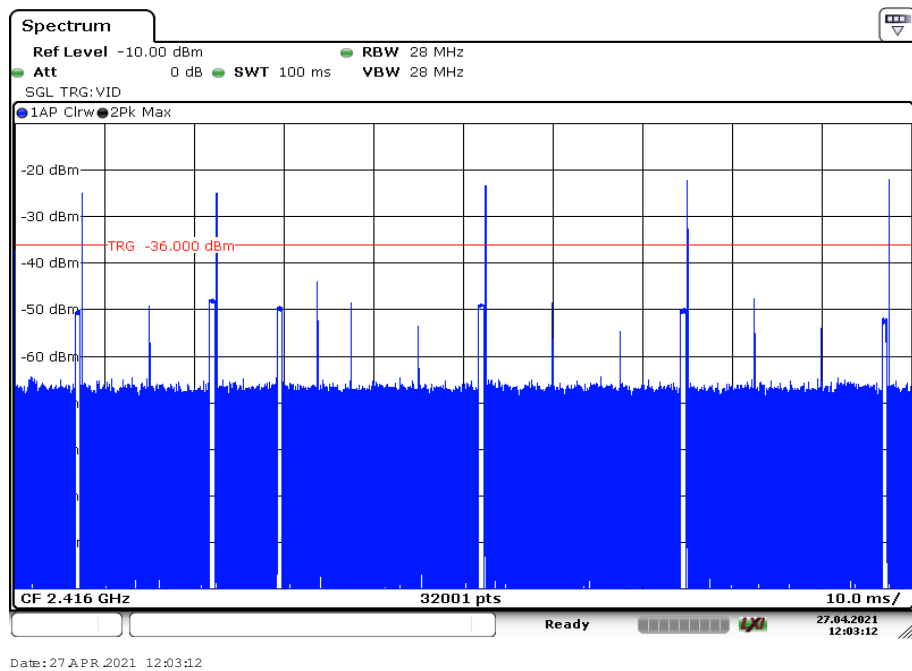
SAR test exclusion according to RSS-102 Issue 5 Section 2.5.1/Table 1

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.

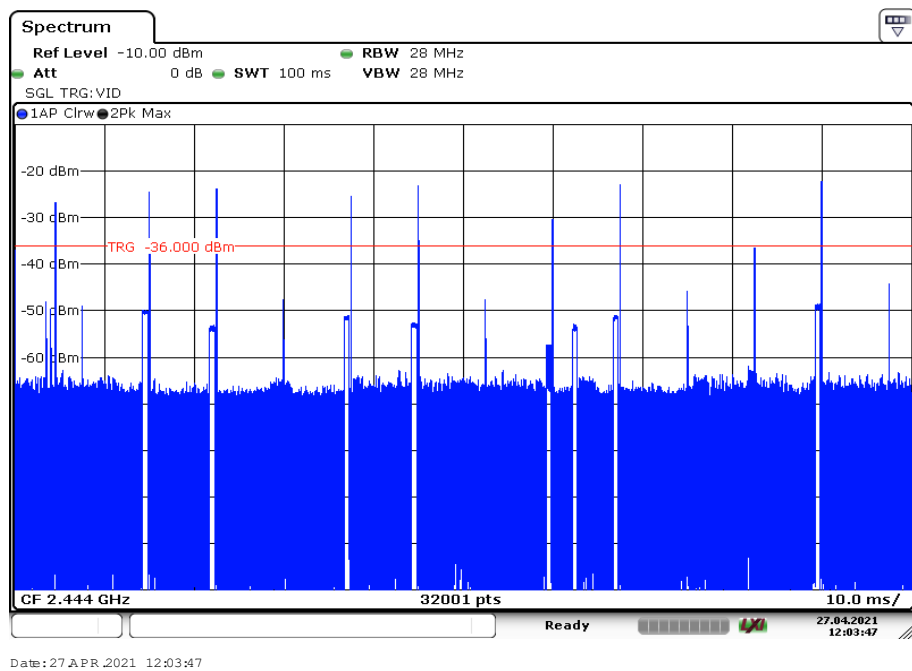
frequency [MHz]	d _{separation} [mm]	tissue volume	Powerlimit [mW]	P _{max-declared}		Exclusion
				[dBm]	[mW]	
2450.00	5	1 g	4.00	-1.70	0.68	yes

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

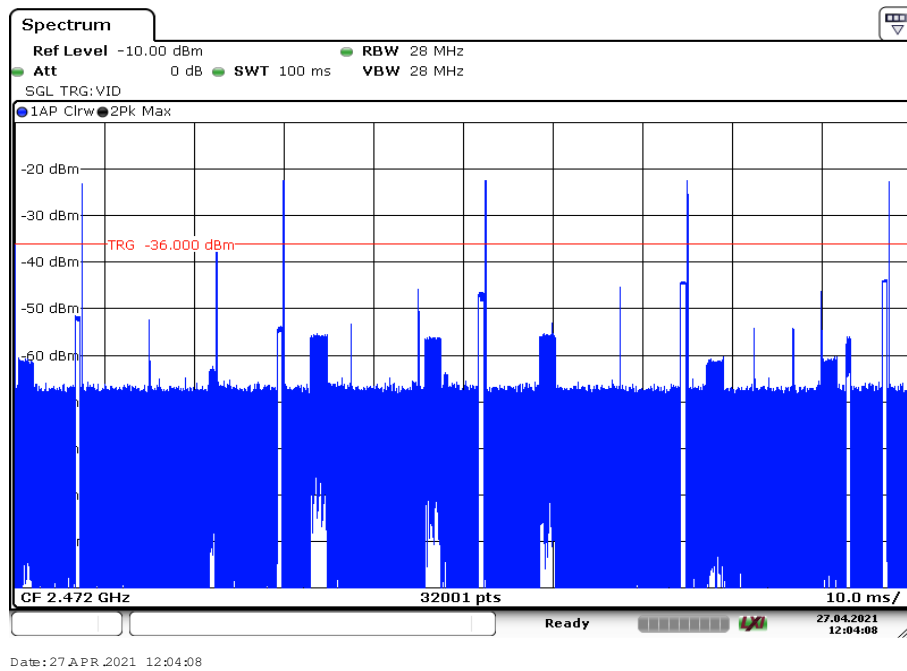
Plot 1:



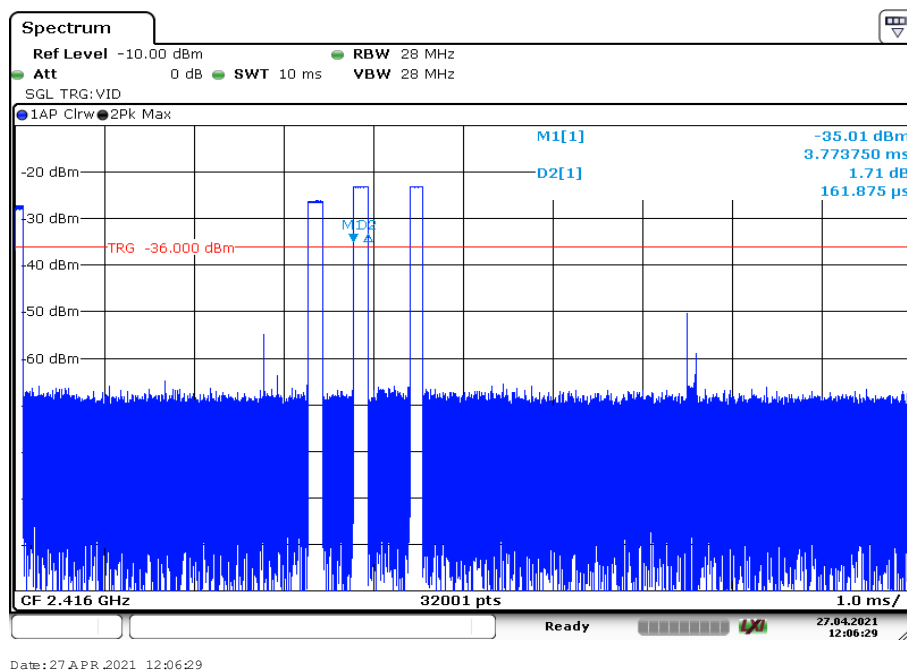
Plot 2:



Plot 3:



Plot 4:



	2416 MHz	2444 MHz	2472 MHz	2.4 GHz band
Number of bursts	6	10	6	-/-
Burst duration (worst case) [ms]	3*0.161 = 0.483	3*0.161 = 0.483	3*0.161 = 0.483	-/-
Sum of each plot [ms]	2.898	4.83	2.898	-/-
Sum of the whole 2.4 GHz band [ms]	-/-	-/-	-/-	10.626

This leads to a duty cycle correction factor of:

$$F = 10 * \log (\text{duty cycle} / 100 \text{ ms}) = -9.7 \text{ dB}$$