

SAR Test exclusion documentation

according to FCC KDB 447498, CFR 47 §1.1307 and RSS-102

Report identification number: 1-1604/20-01-04 Exclusion (FCC) / MPE (ISED)

contains the module with the following certification numbers	
FCC ID	PFJGM20
ISED number	909C-GM20
HVIN (Hardware Version Identification Number)	GM20
PMN (Product Marketing Name)	GM20
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 < 1mW output power:

Technologies:	Max. measured E.I.R.P. per BW=1MHz (RMS):		BW (MHz)	Max. Effective Power (Calculated) Max.meas.E.I.R.P. @1MHz X (BW/1MHz) (RMS)		#
	(dBm)	(µW)		(µW)	(dBm)	
UWB 6.2 to 6.8 GHz	-45.7	0.027	538.7	14.55*	-18.37	A
UWB 7.6 to 8.3 GHz	-46.1	0.025	572.7	14.32*	-18.44	A

Details and origins of the measurements shown in the table above:

#	Results from:	Additional information
A	1-1604/20-01-02 CTC Advanced GmbH	--

*) < 1mW qualifies for blanket test exemption according CFR 47 §1.1307

Further technologies:

Technologies:	Max. measured power [dBm]		Antenna gain max.: [dBi]	#
	conducted	EIRP		
BT LE 2450 MHz	-0.2	6.4	6.6	B

Details and origins of the measurements shown in the table above:

#	Results from:	Additional information
B	1-1604/20-01-03 CTC Advanced GmbH	Antenna gain page 19, Max conducted page 23

Blanket test exemption according CFR 47 §1.1307:

§1.1307(b)(3)(i)(A) – A single RF source is exempt if the available maximum time-averaged power is **no more than 1 mW**, regardless of separation distance.

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

$d_{\text{separation}}$ 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]	$d_{\text{separation}}$ [mm]	Threshold _{1-g}	Powerlimit [mW]	P _{max-declared}		Exclusion
				[dBm]	[mW]	
2450.00	5	3	9.58	6.40	4.37	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]	$d_{\text{separation}}$ [mm]	tissue volume	Powerlimit [mW]	P _{max-declared}		Exclusion
				[dBm]	[mW]	
2450.00	10	1 g	7.00	6.40	4.37	yes

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