
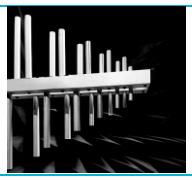
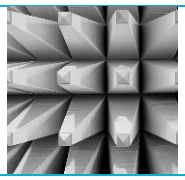

CTC advanced
member of RWTÜV group

Bundesnetzagentur

BNetzA-CAB-02/21-102

ilac-MRA DAkkS Deutsche Akkreditierungsstelle D-PL-12076-01-04

Maximum Permissible Exposure (MPE) & Exposure evaluation

Report identification number: 1-4095/22-01-01-A MPE (FCC)

Certification numbers and labeling requirements	
FCC ID	VW3DIW377

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.

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EUT technologies:

Technologies:	Power Average Conducted [dBm]			Power EIRP[2] [dBm]	Max. Power for RF Exposure [dBm]	Data taken from (#)
	Measured Value	Max. declared (Tune-Up)	Difference[1] (Tune-Up Correction)			
BT Classic 2450 MHz	3.9	N/A	N/A	5.0[1]	5.0[1]	1-4095/22-01-03-B
BT LE 2450 MHz	2.7	N/A	N/A	4.8[1]	4.8[1]	1-4095/22-01-02-B
WLAN 2450 MHz 2x2 MIMO	21.3	N/A	N/A	23.5[1]	23.5[1]	1-4095/22-01-04-A
WLAN 5000 MHz 2x2 MIMO	27.6	N/A	N/A	29.9[2]	29.9[2]	1-4095/22-01-05-A

[1] Peak Antenna Gain of 2.1 dBi added
[2] Peak Antenna Gain of 2.3 (worst case) added

Declared minimum safety distances: 30cm

Collocation overview:

Technology \ Active scenario:	1
BT LE / BT Classic	x
WLAN 2.4 GHz	x
WLAN 5 GHz	x

Prediction of MPE limit at given distance (KDB 447498 D01 General RF Exposure Guidance v06)

Equation from page 18 of OET Bulletin 65, Edition 97-01

$S = PG / 4\pi R^2$

where: S = Power density
P = Power input to the antenna
G = Antenna gain
R = Distance to the center of radiation of the antenna
PG = Output Power including antenna gain

The table below is excerpted from Table 1B of 47 CFR 1.1310 titled “Limits for Maximum Permissible Exposure (MPE), Limits for General Population/Uncontrolled Exposure”

Frequency Range (MHz)	Power Density (mW/cm^2)	Averaging Time (minutes)
300 -1500	f/1500	30
1500 - 100000	1.0	30

where f = Frequency (MHz)

Prediction: worst case

	Technologies:	BLE	WLAN 2.4	WLAN 5	
	Frequency (MHz)	2450	2450	5000	
PG	Declared max power (EIRP)	5.0	23.5	29.9	dBm
R	Distance	30.0	30.0	30.0	cm
S	MPE limit for uncontrolled exposure	1.0000	1.0000	1.0000	mW/cm^2
	Calculated Power density:	0.0003	0.0198	0.0865	mW/cm^2
	Calculated percentage of Limit:	0.03%	1.98%	8.65%	
	Collocation:				
	BT + WLAN 2.4 GHz + WLAN 5 GHz Calculated percentage of Limit:	**10.65%**			

This prediction demonstrates the following:
The power density levels for FCC at a distance of 30 cm are below the maximum levels allowed by regulations.

Conclusion: RF exposure evaluation is not required.