

SAR Test exemption documentation according to CFR 47 §1.1307

Report identification number: 1-3693/21-03-07 Exemption / MPE (FCC)

contains the module with the following certification numbers	
FCC IDs:	K8C3408LB

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:	Max. rated power: (AVG _{ERP})	Max. gain:
Level probing radar ¹⁾ 77-81 GHz	-35.36 dBm / 0.29μW	<0 dBi
BT LE 2450 MHz ²⁾	0.05 dBm (1.01 mW)	0.1 dBi

Note:

¹⁾ max. measured peak EIRP taken from CTC advanced GmbH report 1-3693/21-01-09 (page 24)
 (AVG factor -64.38 dB)
 Max. peak EIRP: 25.33 dBm
 AVG EIRP: -33.21 dBm, AVG ERP: -35.36 dBm

²⁾ BT LE result taken from CTC advanced GmbH report 1-3693/21-01-10,
 AVG EIRP: 2.2 dBm, AVG ERP: 0.05dBm

Collocation overview:

Active scenario: Technology	1	2	3	4
RADAR	x		x	
BT LE	x	x		

Declared minimum safety distance: 20cm

According the manual a safety distance of 20cm shall be applied between the user (and/or bystanders) to the EUT antenna whilst active transmitting.

MPE-Based Exemption following 47 CFR 1.1307 amendment:

If the declared ERP does not exceed the specified threshold based on the calculations below, the device is exempt from routine evaluation.

Transmitter Frequency (MHz)	Threshold ERP (W)
0.3 – 1.34	$1.920 R^2$
1.34 – 30	$3.450 R^2/f^2$
30 – 300	$3.83 R^2$
300 – 1500	$0.0128 R^2$
1500 – 100 000	$19.2 R^2f$

where

f is the frequency (MHz)

R is the separation distance (at least $\lambda/2\pi$)

Prediction: worst case

Technology	Transmitter frequency (MHz)	R_{min} (mm)	Max. decl. ERP (mW)	Treshhold ERP		Minimal Safety Distance (mm)	Verdict
				(mW)	(dBm)		
LPR	77000	10	0.00029	768.00	28.8	200	EXEMPTED
LPR	81000	10	0.00029	768.00	28.8	200	EXEMPTED
BT	2450	10	1.01	3060.00	34.8	200	EXEMPTED

Collocation:

Overview:

Technology , [MHz]	LPR	BT, 2450
Exemption based on	SAR , 5mm distance	
Limit ERP [mW]:	768	3060
Result ERP [mW]:	0.0	1.01
Limit-Exhaustion [%]	0.00004	0.033
Collocated percentage [%]	0.0330	
Verdict:	PASS	

This prediction demonstrates the following:

The power density levels for FCC that are larger than the minimum safety-distances stated above, are below the maximum levels allowed by regulations.