

## RF Exposure Evaluation according to KDB 447498 D01 v06

**Report identification number: 1-5003/22-01-13\_MPE\_FCC**

Certification numbers and labeling requirements	
FCC ID	2AJW5ACCM1

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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## 1. MPE 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 <sup>2</sup> )	Averaging Time (minutes)
300 -1500	f/1500	30
1500 - 100000	1.0	30

where f = Frequency (MHz)

## 2. EUT technologies

Declared minimum safety distance: **20 cm**

Cellular Technology	Frequency [MHz]		Reference #	Output Power [dBm]				Power Density [mW/cm <sup>2</sup> ]		Share of Limit %
	f <sub>Min</sub>	f <sub>Max</sub>		Conducted		Correction		S <sub>Result</sub>	S <sub>Limit</sub>	
			P <sub>Meas</sub>	P <sub>Max</sub>	Peak Gain	P <sub>RF Exp</sub>				
GSM 850	824	849	A	31.55	32.00	-6.29	<b>22.71</b>	0.04	0.55	<b>6.76%</b>
GSM 1900	1850	1910	B	28.55	30.50	2.75	<b>30.25</b>	0.21	1.00	<b>21.07%</b>
WCDMA Band II	1850	1910	B	23.08	24.00	2.75	<b>26.75</b>	0.09	1.00	<b>9.41%</b>
WCDMA Band V	824	849	A	23.27	24.00	-6.29	<b>17.71</b>	0.01	0.55	<b>2.14%</b>
LTE Band 2	1850	1910	C	23.47	25.00	2.75	<b>27.75</b>	0.12	1.00	<b>11.85%</b>
LTE Band 4	1710	1755	D	23.96	25.00	2.31	<b>27.31</b>	0.11	1.00	<b>10.71%</b>
LTE Band 5	824	849	E	24.04	25.00	-6.29	<b>18.71</b>	0.01	0.55	<b>2.69%</b>
LTE Band 12	699	716	F	24.39	25.00	0.88	<b>25.88</b>	0.08	0.47	<b>16.53%</b>
LTE Band 13	777	787	G	24.07	25.00	-1.93	<b>23.07</b>	0.04	0.52	<b>7.79%</b>
LTE Band 26	814	849	H	24.13	25.00	-6.29	<b>18.71</b>	0.01	0.54	<b>2.72%</b>

Notes:

- GSM corrected by  $10 \log(4/8) = -3$  dB (time slots considerations)
- Max rated conducted output power taken from customer's tune up info

## Referenced Documents:

#	Results from:
A	Test Report Module PCB - GSM, WCDMA, LTE Part 1: Page 53
B	Test Report Module PCB - GSM, WCDMA, LTE Part 2: Page 106
C	Test Report Module PCB - GSM, WCDMA, LTE Part 2: Page 108
D	Test Report Module PCB - GSM, WCDMA, LTE Part 2: Page 157
E	Test Report Module PCB - GSM, WCDMA, LTE Part 1: Page 55
F	Test Report Module PCB - GSM, WCDMA, LTE Part 2: Page 158
G	Test Report Module PCB - GSM, WCDMA, LTE Part 2: Page 159
H	Test Report Module PCB - GSM, WCDMA, LTE Part 1: Page 56

SRD Technology	Frequency [MHz]		Reference #	Output Power [dBm]			Power Density [mW/cm <sup>2</sup> ]		Share of Limit
	f <sub>Min</sub>	f <sub>Max</sub>		P <sub>ERP</sub>	P <sub>EIRP</sub>	P <sub>RF Exp</sub>	S <sub>Result</sub>	S <sub>Limit</sub>	%
Bluetooth LE	2402	2480	H	N/A	3.0	<b>3.0</b>	<b>0.00</b>	<b>1.00</b>	<b>0.04%</b>

## Referenced Documents:

#	Results from:
H	Test Report 1-5003_22-01-12: Page 18

**3. Collocation overview:**

Technology	Share of Limit [%]
GSM 1900	21.07%
Bluetooth LE	0.04%
Sum	<b>21.11%</b>

**4. Conclusion**

This prediction demonstrates the following:

The power density levels for FCC at a distance of 20 cm are below the maximum levels allowed by regulations.

**Conclusion:** RF exposure evaluation is not required.