

RF Exposure Evaluation according to KDB 447498 D01 v06

Report identification number: 1-4000_22-01-04_TR1-R01_MPE_FCC

Certification numbers and labeling requirements	
FCC ID	2AFNG-EGW02

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 Labs



Michael Dorongovski
Lab Manager
Radio Labs

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 ²)	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/cm²]		Share of Limit %
	f _{Min}	f _{Max}		Conducted		Radiated		Corrected	S _{Result}	S _{Limit}	
GSM 850	824	849	A			N/A	29.1	22.3	0.03	0.55	6.08%
GSM 1900	1850	1910	A			N/A	31.1	22.1	0.03	1.00	3.23%
WCDMA Band II	1850	1910	A			N/A	27.6	27.6	0.11	1.00	11.45%
WCDMA Band IV	1710	1755	A			N/A	27.7	27.7	0.12	1.00	11.71%
WCDMA Band V	824	849	A			N/A	25.4	25.4	0.07	0.55	12.56%
LTE Band 2	1850	1910	B+C			N/A	30.4	30.4	0.22	1.00	21.81%
LTE Band 4	1710	1755	B+C			N/A	30.4	30.4	0.22	1.00	21.81%
LTE Band 5	824	849	B+C			27.1	N/A	29.3	0.17	0.55	30.47%
LTE Band 7	2500	2570	B+C			N/A	30.4	30.4	0.22	1.00	21.81%
LTE Band 12	699	716	B+C			27.1	N/A	29.3	0.17	0.47	35.92%
LTE Band 13	777	787	B+C			27.1	N/A	29.3	0.17	0.52	32.31%
LTE Band 25	1850	1915	B+C			N/A	30.4	30.4	0.22	1.00	21.81%
LTE Band 26	814	849	B+C			27.1	N/A	29.3	0.17	0.54	30.85%
LTE Band 38	2570	2620	B+C			N/A	30.4	30.4	0.22	1.00	21.81%
LTE Band 41	2496	2690	B+C			N/A	30.4	30.4	0.22	1.00	21.81%

Notes:

- GSM corrected by $10 \log(1/8) = -9$ dB (time slots considerations)
- Max rated conducted output power taken from customer information

Referenced Documents:

#	Results from:
A	Test Report 1-4000-01-02-A
B	Module documentation and user manual from the FCC database (FCC ID: XMR201903EG25G)
C	2j6983ba.pdf (Antenna datasheet)

SRD Technology	Frequency [MHz]		Reference #	Output Power [dBm]			Power Density [mW/cm²]		Share of Limit %
	f _{Min}	f _{Max}		P _{ERP}	P _{EIRP}	P _{RF Exp}	S _{Result}	S _{Limit}	
Bluetooth LE	2402	2480	A	N/A	8.7	8.7	0.00	1.00	0.15%

Referenced Documents:

#	Results from:
A	Test Report 1-4000_22-01-03-B
B	2j6702b.pdf (antenna datasheet)

3. Collocation overview:

Technology	Share of Limit
Bluetooth LE	0.15%
LTE Band 12	35.92%
Sum	36.07%

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.