

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:



cn=Alexander Hnatovskiy, o=cetecom
advanced GmbH, ou=HNA-230601,
email=alexander.hnatovskiy@cetecomadva
nced.com, c=DE
2024.01.16 12:09:58 +01'00'

Alexander Hnatovskiy
Lab Manager
Radio Labs



cn=Michael Dorongovski, o=cetecom
advanced GmbH, ou=DOR-230601,
email=michael.dorongovski@cetecomad
vanced.com, c=DE
2024.01.16 10:02:42 +01'00'

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.