

FCC ID: 2BUQ3-KY06LNDM01

Maximum Permissible Exposure (MPE)

According to FCC 2.1091, FCC 1.1310 and KDB 447498 D04 Interim General RF Exposure Guidance v01, The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency(RF) Radiation as specified in §1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f ²	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

MPE Calculation Method

$$E \text{ (V/m)} = \frac{\sqrt{30 * P * G}}{d}$$

$$\text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m)

P = Average RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 * P * G}{377 * D^2}$$

From the EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.

Measurement Result

BR, EDR:

Antenna gain: -0.24dBi;

R=20cm

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result	Power density
		(dBm)		tune-up power		Gain		(mW/cm2)	(mW/cm2)
				(dBm)	(mW)	(dBi)	Numeric		
2402	1DH5	1.39	1±1	2	1.585	-0.24	0.95	0.0003	1
2441		1.64	1±1	2	1.585	-0.24	0.95	0.0003	1
2480		1.59	1±1	2	1.585	-0.24	0.95	0.0003	1
2402	2DH5	1.25	1±1	2	1.585	-0.24	0.95	0.0003	1
2441		1.62	1±1	2	1.585	-0.24	0.95	0.0003	1
2480		1.65	1±1	2	1.585	-0.24	0.95	0.0003	1
2402	3DH5	1.25	1±1	2	1.585	-0.24	0.95	0.0003	1
2441		1.61	1±1	2	1.585	-0.24	0.95	0.0003	1
2480		1.56	1±1	2	1.585	-0.24	0.95	0.0003	1

BLE:

Antenna gain: -0.24dBi;

R=20cm

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result	Power density
		(dBm)		tune-up power		Gain		(mW/cm2)	(mW/cm2)
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK	4.09	4±1	5	3.162	-0.24	0.95	0.0006	1
2441		4.13	4±1	5	3.162	-0.24	0.95	0.0006	1
2480		4.01	4±1	5	3.162	-0.24	0.95	0.0006	1

WPT

EQUIPMENTS LIST FOR ALL TEST ITEMS

Item	Equipment No.	Equipment name	Manufacturer	Model	Serial No.	Calibration date	Due date
1	HB-E077	Magnetic Amplitude and Gradient Probe System	Schmid & Partner Engineering AG	MAGPy - 8H3D+E3D	3107	2026-05-11	2027-05-10
2	HB-E078	Magnetic Amplitude and Gradient Probe System	Schmid & Partner Engineering AG	MAGPy-DAS	3097	2026-05-11	2027-05-10

Measurement results directly tested using MAGPy.

Maximum permissible Exposure (115-205kHz)				
Battery levels	Test sides	Test distance(cm)	E –field(V/m)	H–field(A/m)
<1%	Top	10	11.5	0.06
<1%	Left	10	5.25	0.05
<1%	Right	10	4.37	0.04
<1%	Front	10	9.9	0.04
<1%	Back	10	1.32	0.02

<1%	Bottom	10	1.41	0.01
Limit			614	1.63
Margin Limit (%)			1.87%	3.68%

When setting MAGPy to select compliance location as probe tip, the measured value is extrapolated to 0mm as the result.

Maximum permissible Exposure (115-205kHz)				
Battery levels	Test sides	Test distance(cm)	E –field(V/m)	H–field(A/m)
<1%	Top	10	12.2	0.13
<1%	Left	10	5.74	0.09
<1%	Right	10	5.19	0.06
<1%	Front	10	12	0.1
<1%	Back	10	1.7	0.03
<1%	Bottom	10	3.59	0.02
Limit			614	1.63
Margin Limit (%)			1.99%	7.98%

Measurement results directly tested using MAGPy.

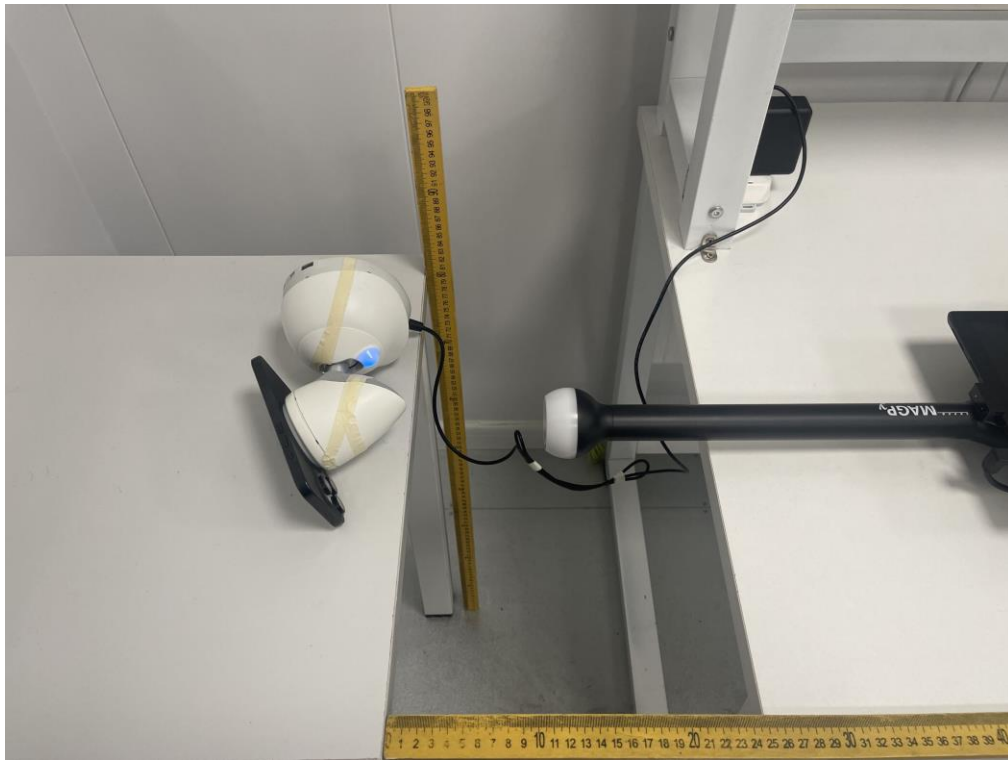
Maximum permissible Exposure (360kHz)				
Battery levels	Test sides	Test distance(cm)	E –field(V/m)	H–field(A/m)
<1%	Top	10	3.52	0.03
<1%	Left	10	1.98	0.03
<1%	Right	10	2.36	0.04
<1%	Front	10	2.33	0.03
<1%	Back	10	0.89	0.02
<1%	Bottom	10	0.66	0.007
Limit			614	1.63
Margin Limit (%)			0.57%	2.45%

When setting MAGPy to select compliance location as probe tip, the measured value is extrapolated to 0mm as the result.

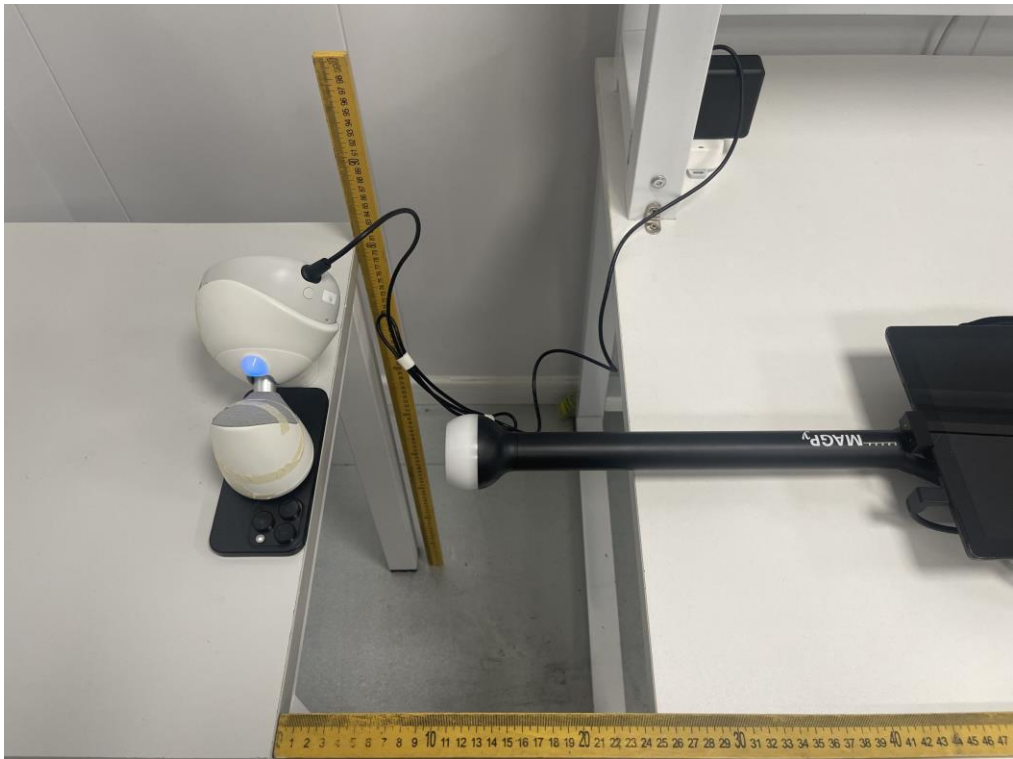
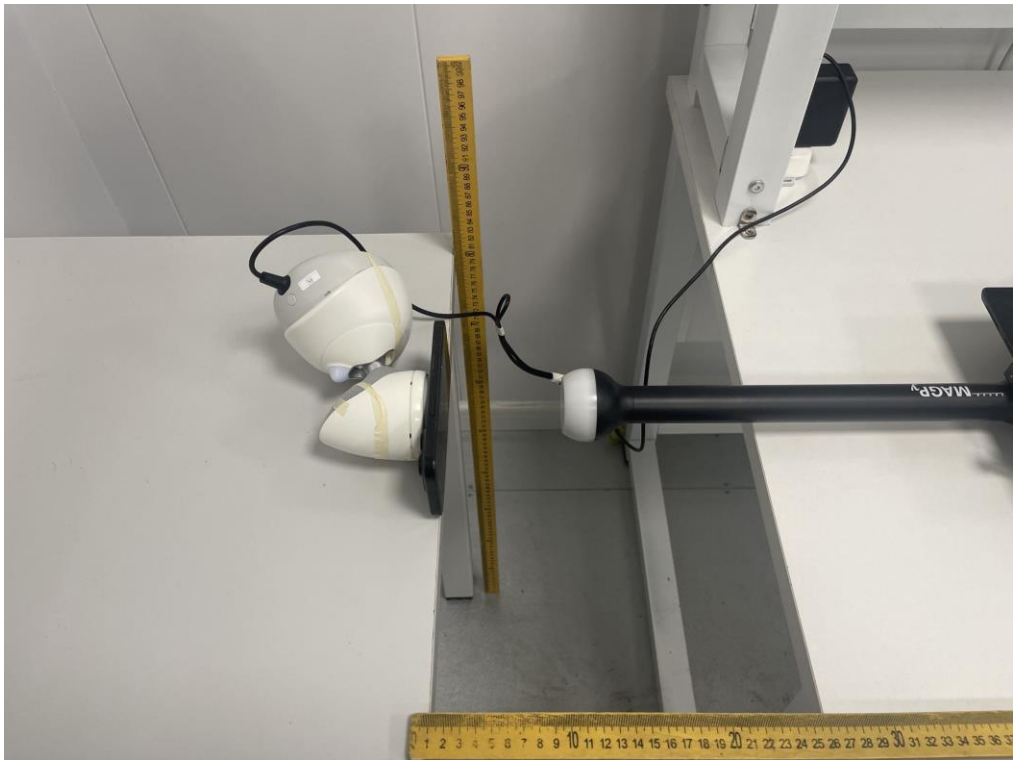
Maximum permissible Exposure (360kHz)				
Battery levels	Test sides	Test distance(cm)	E –field(V/m)	H–field(A/m)
<1%	Top	10	4.21	0.04
<1%	Left	10	3.28	0.04
<1%	Right	10	2.57	0.07
<1%	Front	10	5.58	0.05
<1%	Back	10	1.57	0.03
<1%	Bottom	10	1.18	0.01
Limit			614	1.63
Margin Limit (%)			0.91%	4.29%

Test Setup photo

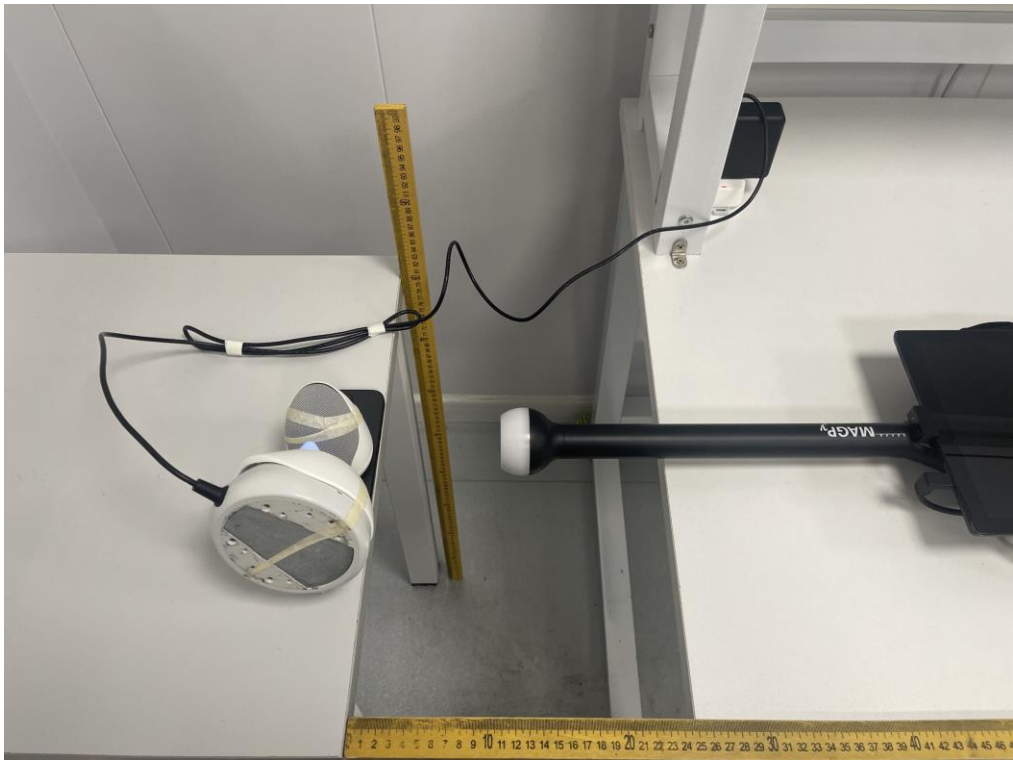
Radiated Measurement Photos



Radiated Measurement Photos



Radiated Measurement Photos



SIMULTANEOUS TRANSMISSIONS

When a number of sources at different frequencies, and/or broadband sources, contribute to the total exposure, it becomes necessary to weigh each contribution relative to the MPE. To comply with the MPE, the fraction of the MPE in terms of E^2 , H^2 (or power density) incurred within each frequency interval should be determined and the sum of all such fractions should not exceed unity. In order to ensure compliance with the MPE for a controlled environment, the sum of the ratios of the power density to the corresponding MPE should not exceed unity. That is

$$\sum_{i=1}^n \frac{S_i}{MPE_i} \leq 1$$

worse case: $0.06\% + 7.98\% = 8.04\% < 100\%$

Note: BR, EDR and BLE share the same antenna cannot TX simultaneously.

Conclusion: Pass

Signature: 

Date: 2026-05-25

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