

FCC ID : KA2WRM921

RF EXPOSURE EVALUATION

According to FCC 1.1310: 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/cm²)	Average Time
(A) Limits for Occupational/Control Exposures				
300-1500	--	--	F/300	6
1500-100000	--	--	5	6
(B) Limits for General Population/Uncontrol Exposures				
300-1500	--	--	F/1500	6
1500-100000	--	--	1	30

11.1 Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

P_d = Power density in mW/cm²

P_{out} =output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

π =3.1416

R = distance between observation point and center of the radiator in 30cm

P_d the limit of MPE, 1mW/cm². If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

11.2 Measurement Result

Mode	Max Measured power (dBm)	Antenna gain (dBi)	Antenna Gain Numeric	R (cm)	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
WIFI	17.32	4.4	2.754	30	0.00131	1

Remark: Refer to report ES210517011W for EUT test Max Conducted Output Power value.

Mode	Frequency (MHz)	Max Measured power (dBm)	Antenna gain (dBi)	Antenna Gain Numeric	R (cm)	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
GSM850	824.2	33.5	4	2.512	30	0.4972	0.5495
GSM1800	1850.2	30.5	4	2.512	30	0.2492	1.0000
WCDMA B2	1850.4	24.5	4	2.512	30	0.0626	1.0000
WCDMA B4	1712.4	24.5	4	2.512	30	0.0626	1.0000
WCDMA B5	826.4	24.5	4	2.512	30	0.0626	0.5509
LTE B2	1850.7	24	4	2.512	30	0.0558	1.0000
LTE B4	1710.7	24	4	2.512	30	0.0558	1.0000
LTE B5	824.7	24	4	2.512	30	0.0558	0.5498
LTE B7	2502.5	24	4	2.512	30	0.0558	1.0000
LTE B12	699.7	24	4	2.512	30	0.0558	0.4665
LTE B17	706.5	24	4	2.512	30	0.0558	0.4710
LTE B38	2572.5	24	4	2.512	30	0.0558	1.0000
LTE B66	1710.7	24	4	2.512	30	0.0558	1.0000

Remark: Refer to report No. ZR/2019/5001701 for EUT test Max Conducted Output Power value.

MAX RF EXPOSURE EVALUATION

WIFI	GSM850	Summation of Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
0.00131	0.4972	0.49851	<0.5495