

RF EXPOSURE EVALUATION

EUT Specification

EUT	Vehicle Anti-Theft Adapter
Model Number	kez-lte
FCC ID	2BCYZ-KEZ01
Antenna gain (Max)	1dBi
Operation Frequency	2402 MHz to 2480 MHz
Input Rating	9~36Vdc
Max. output power	0.91dBm(1.233mW)

Test Requirement:

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/cm ²)	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: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

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 cm=20cm

Pd the limit of MPE, $1\text{mW}/\text{cm}^2$. If we know the maximum gain of the nd total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

11.2 Measurement Result

BLE:

Mode	Channel Freq. (MHz)	Measured power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain (Numeric)	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
GFSK	2402	0.91	1±1	2	1.259	0.000379	1.000000
GFSK	2440	0.83	1±1	2	1.259	0.000379	1.000000
GFSK	2480	0.71	1±1	2	1.259	0.000379	1.000000

4G:

Mode	Channel Freq. (MHz)	Measured power (dBm)	Tune-up power (dBm)	Max tune-up power (dBm)	Antenna Gain (Numeric)	Evaluation result (mW/cm ²)	Power density Limits (mW/cm ²)
Band 2 Standalone	1909.8	21.40	21±1	22	1.442	0.0455	1.0000
Band 4 Standalone	1754.8	21.60	22±1	23	1.585	0.0629	1.0000
Band 5 Standalone	824.2	21.64	22±1	23	1.694	0.0673	0.5495
Band 12 Standalone	715.8	21.55	22±1	23	2.483	0.1106	0.4772
Band 13 Standalone	777.2	21.28	21±1	22	2.786	0.0455	0.5181
Band 25 Standalone	1914.8	21.75	22±1	23	1.442	0.0621	1.0000
Band 66 Standalone	1779.8	21.63	22±1	23	1.563	0.0582	1.0000
Band 71 Standalone	663.2	21.46	21±1	22	1.466	0.0783	0.4421
Band 85 Standalone	715.8	21.56	22±1	23	2.483	0.0573	0.4772
LTE Band 2	1852.5	21.52	22±1	23	1.442	0.0583	1.0000
LTE Band 4	1754.3	21.60	22±1	23	1.469	0.0673	1.0000
LTE Band 5	829	21.45	21±1	22	1.694	0.0535	0.5527
LTE Band 12	707.5	21.36	21±1	22	1.466	0.0462	0.4717
LTE Band 13	782	21.02	21±1	22	2.500	0.0789	0.5213
LTE Band 25	1850.7	21.63	22±1	23	1.442	0.0573	1.0000
LTE Band 26	844	21.54	22±1	23	1.694	0.0673	0.5627
LTE Band 66	1779.3	21.30	21±1	22	1.469	0.0463	1.0000
LTE Band 85	700.5	21.70	22±1	23	1.466	0.0582	0.4670

Signature:

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Date: 2023-11-14

