FCC RF Exposure

EUT Description:Car MP3 FM Transmitter
Model Name:E01
Series Model:W1,W2,W3,W5,W6,W7,W8,W9,W10,W11,W12,W13,W15,W16,W17,W18,W19, W20,E02,E03,E05,E06,E07,E08,E09,E10,E11,E12,E13,E15,E16,E17,E18,E19,E20,E21,E22,E23, E25,E26,E27,E28,E29,E30,E31,E32
FCC ID: 2BDHR-SMR01
Equipment type: Stationary equipment

Test procedures according to the technical standards: KDB 447498 D01 V06 andFCC 2.1091.

1. Limits

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 Exposures				
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
300–1500			f/300	6
1500–100,000			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
300–1500			f/1500	30
1500–100,000			1.0	30

F = frequency in MHz
Formula: $Pd = (Pout*G)/(4*\pi*r^2)$
Where :
Pd = power density in mW/cm^2,
Pout = output power to antenna in mW;
G = gain of antenna in linear scale,
$\pi = 3.14$;
R = distance between observation point and center of the radiator in cm
Pd id the limit of MPE, 1 mW/cm2. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE

limit is reached.

2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

3. Test Result of RF Exposure Evaluation

BT

Modulation	Channel Freq. (MHz)	Conducted power (dBm)	Max tune-up power (mW)	Antenna Gain (dBi)	Antenna gain numeric	Evaluation result (mW/cm2)	Power density Limits (mW/cm2)
GFSK	2402	4.25	2.66	-0.68	0.855	0.000452687	1
	2441	4.38	2.74	-0.68	0.855	0.000466359	1
	2480	4.12	2.58	-0.68	0.855	0.000439072	1

FM

	Output power (dBm/ mW) 54.91	Antenna Gain(dBi)	Power Density at R=20cm (mW/cm^2)	Limit (mW/cm^2)	Result
108MHz	-43.26/0.00004	-0.68	0.000000008	0.2	Pass

Note:(1) EIRP=EMeas+20log(dmeas)-104.7

EIRP is the equivalent isotropically radiated power,

EMeas in dBmis the field strength of the emission at the measurement distance, in dB u V/m

dMeas is the measurement distance, in m

(2) Limit=*(180/f^2)

FM=0.000000008/0.2=0.00000004

BT+FM(0.000466359+0.00000004)=0.000466399

Conclusion: the max result : 0.000466399≤ 0.2 compliance with FCC's RF Exposure.