FCC 47 CFR MPE REPORT

Soundmax Electronics Ltd

Car radio

Model Number: CMS20

FCC ID: 2AB7S-CMS20

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Report Number:	ESTE-R1801031
Date of Test:	Dec. 06, 2017~Jan. 10, 2018
Date of Report:	Jan. 11, 2018

Maximum Permissible Exposure

1、Applicable Standard

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

(a)、Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm2)	Averaging Times｜E｜2，｜H｜2 or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-10000			5	6

(b)、Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm2)	Averaging Times｜E｜2，｜H｜2 or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-10000			1.o	30

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

2、MPE Calculation Method

E (V/m) = $(30*P*G)^{0.5}/d$ Power Density: Pd (W/m2) = $E^2/377$

E = Electric Field (V/m)

P = Peak 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

$Pd = (30*P*G) / (377*d^2)$

From the peak 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

3、**Conducted Power Result**

Mode	Frequency (MHz)	Peak output power (dBm)	Peak output power (mW)	Target power （dBm）	Antenna gain (dBi)	Antenna gain (Linear)
GFSK	2402	4.111	2.577	4±2	0	1
GFSK	2441	3.911	2.461	4±2	0	1
GFSK	2480	3.521	2.250	3±2	0	1
8-DPSK	2402	3.242	2.110	3±2	0	1
8-DPSK	2441	3.005	1.998	3±2	0	1
8-DPSK	2480	2.569	1.807	2±2	0	1

4、Calculated Result and Limit

Mode	Target power（dBm）	Antenna gain		Power Density (S) (mW/cm2)	Limited of Power Density (S) (mW/cm2)	Test Result
		(dBi)	(Linear)			
2.4G Band						
GFSK	6	0	1	**0.00079**	1	Compiles
8-DPSK	5	0	1	**0.00063**	1	Compiles