

# RF Exposure Report

**Report No.:** MTi210907019-01E4

**Date of issue:** December 20, 2021

**Applicant:** MAXMADE AUTO ELECTRONICS CO., LTD.

**Product:** Car multimedia player

**Model(s):** CAR110W, CAR110X, DCPA101

**FCC ID:** 2AT9B-AV1377W

Shenzhen Microtest Co., Ltd.

<http://www.mtitest.com>

## Instructions

1. This test report shall not be partially reproduced without the written consent of the laboratory.
2. The test results in this test report are only responsible for the samples submitted
3. This test report is invalid without the seal and signature of the laboratory.
4. This test report is invalid if transferred, altered, or tampered with in any form without authorization.
5. Any objection to this test report shall be submitted to the laboratory within 15 days from the date of receipt of the report.

**Test Result Certification**

<b>Applicant:</b>	<b>MAXMADE AUTO ELECTRONICS CO., LTD.</b>
Address:	Building 2, GIEC Industrial Park, Puzai Road, Pingdi, Longgang District, Shenzhen, China
<b>Manufacturer:</b>	<b>MAXMADE AUTO ELECTRONICS CO., LTD.</b>
Address:	Building 2, GIEC Industrial Park, Puzai Road, Pingdi, Longgang District, Shenzhen, China
<b>Factory:</b>	<b>MAXMADE AUTO ELECTRONICS CO., LTD.</b>
Address:	Building 2, GIEC Industrial Park, Puzai Road, Pingdi, Longgang District, Shenzhen, China

**Product description**

Product name:	Car multimedia player
Trademark:	Dual, Jensen
Model name:	CAR110W
Serial Model:	CAR110X, DCPA101
Standards:	FCC CFR 47 PART 1 Subpart I
Test method:	KDB 447498 D01 v06

**Date of Test**

Date of test:	2021-09-07 ~ 2021-12-20
Test result:	Pass

**Test Engineer :**


(Danny Xu)

**Reviewed By:** :



(Leon Chen)

**Approved By:** :



(Tom Xue)

**FCC Requirement**

§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), except in the case of portable devices which shall be evaluated according to the provisions of FCC part 2.1093 of this chapter.

**Table 1 to §1.1310(e)(1) - Limits for Maximum Permissible Exposure (MPE)**

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
<b>(i) Limits for Occupational/Controlled Exposure</b>				
0.3-3.0	614	1.63	*(100)	≤6
3.0-30	1842/f	4.89/f	*(900/f <sup>2</sup> )	<6
30-300	61.4	0.163	1.0	<6
300-1500			f/300	<6
1500-100000			5	<6
<b>(ii) Limits for General Population/Uncontrolled Exposure</b>				
0.3-1.34	614	1.63	*(100)	<30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	<30
30-300	27.5	0.073	0.2	<30
300-1500			f/1500	<30
1500-100000			1.0	<30

f = frequency in MHz

\* = Plane-wave equivalent power density

**Notes:**

Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure.

General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0, according to calculated/estimated, numerically modeled, or measured field strengths or power density. The MPE ratio of each antenna is determined at the minimum test separation distance required by the operating configurations and exposure conditions of the host device, according to the ratio of field strengths or power density to the MPE limit at the test frequency. Either the maximum peak or spatially averaged results from measurements or numerical simulations may be used to determine the MPE ratios. Spatial averaging should not be applied when MPE is estimated using simple calculations based on far-field plane-wave equivalent conditions. The antenna installation and operating requirements for the host device must meet the minimum test separation distances required for all antennas, in both standalone and simultaneous transmission operations, to satisfy compliance.

## RF Exposure Results

### Equations

Power density:

$$S = \text{EIRP} / (4\pi D^2)$$

Where

S = Power density in mW/cm<sup>2</sup>

EIRP = Equivalent Isotropic Radiated Power in mW

D = Separation distance in cm

### Standalone transmission operations:

Mode	Frequency (MHz)	Separation distance (cm)	Output power (dBm)	Turn-up Power (dBm)	Antenna Gain (dBi)	EIRP (mW)	Power Density (mW/cm <sup>2</sup> )	Limit
<b>Bluetooth BR+EDR</b>								
BR-GFSK	2402	20	13.25	13±1	3.64	58.08	0.145	1
	2441		13.13	13±1		58.08	0.145	
	2480		12.65	12±1		46.13	0.115	
EDR-π/4-DQPSK	2402	20	13.22	13±1	3.64	58.08	0.145	1
	2441		10.98	10±1		29.11	0.073	
	2480		10.50	10±1		29.11	0.073	
EDR-8DPSK	2402	20	9.59	10±1	3.64	29.11	0.073	1
	2441		10.55	10±1		29.11	0.073	
	2480		11.06	11±1		36.64	0.092	
<b>Bluetooth LE</b>								
LE-GFSK	2402	20	12.43	12±1	3.64	46.13	0.115	1
	2440		12.20	12±1		46.13	0.115	
	2480		11.85	12±1		46.13	0.115	

Note: EIRP is calculated inducing the turn-up tolerance



Mode	Frequency (MHz)	Separation distance (cm)	Output power (dBm)	Turn-up Power (dBm)	Antenna Gain (dBi)	Max. EIRP (mW)	Power Density (mW/cm <sup>2</sup> )	Limit
<b>WLAN UNII-1</b>								
802.11a	5180	20	13.68	13±1	0.56	28.58	0.071	1
	5200		13.83	13±1		28.58	0.071	
	5240		13.48	13±1		28.58	0.071	
802.11n HT20	5180		11.71	11±1		18.03	0.045	
	5200		11.68	11±1		18.03	0.045	
	5240		11.35	11±1		18.03	0.045	
802.11n HT40	5190		11.79	11±1		18.03	0.045	
	5230		11.71	11±1		18.03	0.045	
802.11ac VHT20	5180		13.80	13±1		28.58	0.071	
	5200		13.87	13±1		22.7	0.057	
	5240		13.52	13±1		22.7	0.057	
802.11ac VHT40	5190		13.89	13±1		22.7	0.057	
	5230		13.91	13±1		22.7	0.057	
802.11ac VHT80	5210		11.87	11±1		14.32	0.036	
<b>WLAN UNII-2</b>								
802.11a	5745	20	12.26	12±1	0.56	22.7	0.057	1
	5785		11.40	11±1		18.03	0.045	
	5825		11.03	11±1		18.03	0.045	
802.11n HT20	5745		11.95	11±1		18.03	0.045	
	5785		11.48	11±1		18.03	0.045	
	5825		11.06	11±1		18.03	0.045	
802.11n HT40	5755		12.05	12±1		22.7	0.057	
	5795		11.39	11±1		18.03	0.045	
802.11ac VHT20	5745		12.03	12±1		22.7	0.057	
	5785		11.35	11±1		14.32	0.036	
	5825		10.87	10±1		11.38	0.028	
802.11ac VHT40	5755		12.21	12±1		18.03	0.045	
	5795		10.57	10±1		11.38	0.028	
802.11ac VHT80	5775		11.94	12±1		18.03	0.045	

**Simultaneous transmission operations**

Band	Mode	Max. Power Density mW/cm <sup>2</sup>	Power Density Limit (mW/cm <sup>2</sup> )	Fraction of limit (%)
2.4 GHz	Bluetooth	0.145	1	14.5
5 GHz	WLAN	0.071	1	7.1
Sum of Fraction (%)		21.6		

**----END OF REPORT----**