



Shenzhen CTA Testing Technology Co., Ltd.

Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, China

RF Exposure MPE

Report Reference No.....: CTA26060300504

FCC ID.....: 2AOMX-KAR-990

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Date of issue: Jun. 10, 2026

Testing Laboratory Name.....: Shenzhen CTA Testing Technology Co., Ltd.

Address.....: Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community, Fuhai Street, Bao'an District, Shenzhen, China

Applicant's name.....: QFX Inc.

Address.....: 2957 E. 46th Street, Vernon, CA 90058

Standard.....: 47CFR §1.1310

47CFR §2.1091

KDB447498 D01 General RF Exposure Guidance v06

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Test item description: **Speaker**

Trade Mark: N/A

Manufacturer: GUANGZHOU MINFU ELECTRONIC AUDIO CO.,LTD.

Model/Type reference: KAR-990

Listed Models: KAR-210, KAR-212, KAR-215, KAR-100, KAR-200, KAR-300, KAR-400, KAR-500, KAR-600, KAR-620, KAR-660, KAR-801, KAR-802, KAR-808, KAR-880, Kar-900, KAR-910, KAR-912, KAR-928
AC Input: 100-240V, 50/60Hz 90W

Rating: DC Input: 12V==90W
built-in rechargeable Li-ion Battery: 11.1V/7200mAh/79.92Wh

Result: **PASS**

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TEST REPORT

Equipment under Test : Speaker

Model /Type : KAR-990

Listed Models : KAR-210, KAR-212, KAR-215, KAR-100, KAR-200, KAR-300, KAR-400, KAR-500, KAR-600, KAR-620, KAR-660, KAR-801, KAR-802, KAR-808, KAR-880, Kar-900, KAR-910, KAR-912, KAR-928

Model difference : The PCB board, circuit, structure and internal of these models are the same, Only model number and colour is different for these model. So the tests were performed on model KAR-990 and the test results for the main test model can cover the listed models.

Applicant : QFX Inc.

Address : 2957 E. 46th Street, Vernon, CA 90058

Manufacturer : GUANGZHOU MINFU ELECTRONIC AUDIO CO.,LTD.

Address : No. 2, Dongsheng Sanheng Road, Dalong Street, Panyu District, Guangzhou, Guangdong Province, China

Test Result:	PASS
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The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Contents

1	TEST STANDARDS	4
2	SUMMARY	5
2.1	General Remarks	5
2.2	Product Description	5
2.3	Special Accessories	6
2.4	Modifications	6
3	TEST ENVIRONMENT	7
3.1	Address of the test laboratory	7
3.2	Test Facility	7
3.3	Statement of the measurement uncertainty	7
4	Test limit	8
4.1	Requirement	8
4.2	MPE Calculation Method	8
4.3	Conducted Power Results	9
4.4	Manufacturing tolerance	10
4.5	Standalone MPE Result	10
4.6	Simultaneous Transmission for MPE Result	10
5	Conclusion	10

1 TEST STANDARDS

The tests were performed according to following standards:

[ANSI C95.1-1999](#): IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

[FCC KDB 447498 D01 General RF Exposure Guidance v06](#): Mobile and Portable Device, RF Exposure, Equipment Authorization Procedures.

[FCC CFR 47 part1 1.1310](#): Radiofrequency radiation exposure limits.

[FCC CFR 47 part2 2.1091](#): Radiofrequency radiation exposure evaluation: mobile devices

2 SUMMARY

2.1 General Remarks

Date of receipt of test sample	:	Jun. 03, 2026
Testing commenced on	:	Jun. 03, 2026
Testing concluded on	:	Jun. 10, 2026

2.2 Product Description

Product Name:	Speaker			
Model/Type reference:	KAR-990			
Power supply:	AC Input: 100-240V, 50/60Hz 90W DC Input: 12V=== 90W built-in rechargeable Li-ion Battery: 11.1V/7200mAh/79.92Wh			
Hardware version:	V1.0			
Software version:	V1.0			
Testing sample ID:	CTA260603005-1# (Engineer sample) CTA260603005-2# (Normal sample)			
Bluetooth :				
Supported Type:	Bluetooth BR/EDR			
Modulation:	GFSK, π /4DQPSK, 8DPSK			
Operation frequency:	2402MHz~2480MHz			
Channel number:	79			
Channel separation:	1MHz			
Antenna type:	PIFA antenna			
Antenna gain:	1.5 dBi			
2.4GWIFI :				
Supported type:	802.11b/802.11g/802.11n(HT20)/ 802.11n(HT40)			
Modulation:	802.11b: DSSS 802.11g/802.11n(HT20)/ 802.11n(HT40): OFDM			
Operation frequency:	802.11b/802.11g/802.11n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz			
Channel number:	802.11b/802.11g/802.11n(HT20): 11 802.11n(HT40):7			
Channel separation:	5MHz			
Antenna type:	PIFA antenna			
Antenna gain:	1.5 dBi			
5GWIFI				
Supported type:	20MHz system	40MHz system	80MHz system	160MHz system
	802.11a 802.11n	802.11n	N/A	N/A

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Operation frequency:	5180MHz-5240MHz 5745MHz-5825MHz	5190MHz-5230MHz 5755MHz-5795MHz	N/A	N/A
Modulation:	OFDM	OFDM	N/A	N/A
Channel number:	9	4	N/A	N/A
Channel separation:	20MHz	40MHz	N/A	N/A
Antenna type:	PIFA antenna			
Antenna gain:	1.79dBi for 5180-5240MHz 1.93 dBi for 5180-5240MHz			

2.3 Special Accessories

The following is the EUT test of the auxiliary equipment provided by the laboratory:

Description	Manufacturer	Model	Technical Parameters	Certificate	Provided by
/	/	/	/	/	/

2.4 Modifications

No modifications were implemented to meet testing criteria.

3 TEST ENVIRONMENT

3.1 Address of the test laboratory

Shenzhen CTA Testing Technology Co., Ltd.

Room 106, Building 1, Yibaolai Industrial Park, Qiaotou Community,
Fuhai Street, Bao'an District, Shenzhen, China

3.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC-Registration No.: 517856 Designation Number: CN1318

Shenzhen CTA Testing Technology Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA-Lab Cert. No.: 6534.01

Shenzhen CTA Testing Technology Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

ISED#: 27890 CAB identifier: CN0127

Shenzhen CTA Testing Technology Co., Ltd. has been listed by Innovation, Science and Economic Development Canada to perform electromagnetic emission measurement.

3.3 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2" and is documented in the Shenzhen CTA Testing Technology Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen CTA Testing Technology Co., Ltd. :

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	9KHz~30MHz	3.02 dB	(1)
Radiated Emission	30~1000MHz	4.06 dB	(1)
Radiated Emission	1~18GHz	5.14 dB	(1)
Radiated Emission	18-40GHz	5.38 dB	(1)
Conducted Disturbance	0.15~30MHz	2.14 dB	(1)
Output Peak power	30MHz~18GHz	0.55 dB	(1)
Power spectral density	/	0.57 dB	(1)
Spectrum bandwidth	/	1.1%	(1)
Radiated spurious emission (30MHz-1GHz)	30~1000MHz	4.10 dB	(1)
Radiated spurious emission (1GHz-18GHz)	1~18GHz	4.32 dB	(1)
Radiated spurious emission (18GHz-40GHz)	18-40GHz	5.54 dB	(1)
Time	/	±2%	(1)

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4 Test limit

4.1 Requirement

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
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

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 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

*=Plane-wave equivalent power density

4.2 MPE Calculation Method

Predication of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S=PG/4\pi R^2$$

Where: S=power density

P=power input to antenna

G=power gain of the antenna in the direction of interest relative to an isotropic radiator

R=distance to the center of radiation of the antenna

4.3 Conducted Power Results

Type	Channel	Output power (dBm)
GFSK	00	1.21
	39	1.14
	78	1.0
$\pi/4$ DQPSK	00	-0.13
	39	0.05
	78	-0.21
8DPSK	00	0.35
	39	0.19
	78	0.2

Type	Channel	Output power PK (dBm)
802.11b	01	14.73
	06	14.65
	11	14.84
802.11g	01	13.64
	06	13.74
	11	14.06
802.11n(HT20)	01	13.48
	06	13.55
	11	13.79
802.11n(HT40)	03	13.98
	06	14.15
	09	14.2

Test Mode	Antenna	Freq(MHz)	Result [dBm]
11A	Ant1	5180	15.13
		5220	15.26
		5240	15.12
		5745	14.79
		5785	14.54
		5825	14.34
11N20SISO	Ant1	5180	14.62
		5220	15.0
		5240	14.83
		5745	14.51
		5785	14.76
		5825	14.49
11N40SISO	Ant1	5190	14.74
		5230	14.97
		5755	14.77
		5795	14.61

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4.4 Manufacturing tolerance

Mode	Max. Peak Conducted Output Power (dBm)	Max. tune-up
BR/EDR	1.21	1.0 ± 1
2.4GWIFI	14.84	15.0 ± 1
Mode	Max. Average Conducted Output Power (dBm)	Max. tune-up
5.2GWIFI	15.26	16.0 ± 1
5.8GWIFI	14.79	15.0 ± 1

4.5 Standalone MPE Result

As declared by the Applicant, the EUT is a wireless device used in a fix application, at least 20 cm from any body part of the user or nearby persons; from the maximum EUT RF output power, the minimum separation distance, $r = 20\text{cm}$, as well as the gain of the used antenna is refer to section 2.2, the RF power density can be obtained.

Modulation Type	Output power		Antenna Gain (dBi)	Antenna Gain (linear)	MPE (mW/cm ²)	MPE Limits (mW/cm ²)
	dBm	mW				
BR/EDR	2.0	1.5849	1.5	1.2590	0.0004	1.0000
2.4GWIFI	16.0	39.8107	1.5	1.2616	0.0100	1.0000
5.2GWIFI	17.0	50.1187	1.79	1.2616	0.0126	1.0000
5.8GWIFI	16.0	39.8107	1.93	1.2616	0.0100	1.0000

Remark:

1. Output power including turn-up tolerance;
2. MPE evaluate distance is 20cm from user manual provide by manufacturer.

4.6 Simultaneous Transmission for MPE Result

5.2GWIFI MPE (Ratio)	BLE MPE (Ratio)	simultaneous MPE (Ratio)	MPE Limits (Ratio)
0.0126	0.0004	0.013	1.0000

5 Conclusion

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device Threshold per KDB 447498 D01v06

***** End of Report *****