



EMC TEST REPORT

Product Name: Radio DIY Welding kit

FCC ID: 2BHWL-EK1998

Trade mark: GIKFUN

Model No.: EK1998 ASIN:B0D4QGRBD2, EK1997 ASIN:B0D2SSXLXX, EK1989 ASIN:
B0C2T938DW

Report No.: CTB240712072EX

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Date of Receipt: Jul. 10, 2024

Date of Test(s): Jul. 10, 2024 ~ Jul. 12, 2024

Date of Issue: Jul. 12, 2024

Test Standard(s): CFR47, FCC Part 15 Subpart B, ANSI C63.4: 2014

Test Result: Pass

In the configuration tested, the EUT complied with the standards specified above.

Compiled by:

Reviewed by:

Approved by:

Michael Niu

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Rita Xiao

Note: If there is any objection to the inspection results in this report, please submit a written report to the company within 15 days from the date of receiving the report. The test report is effective only with both signature and specialized stamp. This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen CTB Testing Technology Co., Ltd. this report can't be reproduced except in full. The tested sample(s) and the sample information are provided by the client. "★" indicates the testing items were fulfilled by subcontracted lab. "※" indicates the items are not in CNAS accreditation scope.

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Report No.: CTB240712072EX

1. Description of version

Report No.	Issue Date	Description	Approved
CTB240712072EX	Jul. 12, 2024	Original	Valid

2. Test summary

Test procedures according to the technical standards:

Standard	Test Item	Test Result
§15.107	Conducted Emission	N/A ¹
§15.109	Radiated Emission	PASS

Note: N/A is abbreviation for Not Applicable.

1. The Product is powered by DC power, this test items is not applicable.

3. Measurement uncertainty

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %

Test Item	Frequency	Expanded Uncertainty (U_{Lab})
No.1 Conducted Emission	150 kHz to 30 MHz	± 3.1 dB
No.2 Conducted Emission	150 kHz to 30 MHz	± 3.2 dB
Radiated Emission	30 MHz to 1000 MHz	± 4.1 dB
Radiated Emission	1000 MHz to 6000 MHz	± 4.8 dB

4. General information

4.1. Description of EUT

Product name	Radio DIY Welding kit
Trade mark	GIKFUN
Model No.	EK1998 ASIN:B0D4QGRBD2
Serial Model No.	EK1997 ASIN:B0D2SSXLXX, EK1989 ASIN: B0C2T938DW
Model Difference	The three models of wireless modules are RDA5807, the frequency is 87-108MHz, only the appearance are different, the rest are the same. Test sample model: EK1998 ASIN:B0D4QGRBD2
Rated Power	/
Rated Voltage& current	DC 4.5V by 1.5V*3 AA battery
Configuration	☒ Table-top ☐ Floor-standing
The highest frequency of the internal sources of the EUT	☐ below 1.705 MHz, the measurement shall only be made up to 30 MHz. ☒ between 1.705 MHz and 108 MHz, the measurement shall only be made up to 1 GHz. ☐ between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz. ☐ between 500 MHz and 1 GHz, the measurement shall only be made up to 5 GHz. ☐ above 1 GHz, the measurement shall be made up to 5th harmonic of the highest frequency or 40 GHz, whichever is lower.

Note: The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

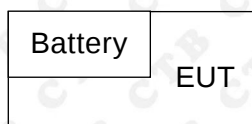
4.2. Description of accessory device

No.	Device Type	Brand	Model	Specification	Note
1	/	/	/	/	/

4.3. Test conditions

Temperature: 15-25℃
 Relative Humidity: 30-60 %
 Atmospheric pressure: 800hPa-1060hPa

4.4. Block diagram of EUT configuration



4.5. Operating condition of EUT

Operating condition	Mode 1	FM RX	Test Voltage	DC 4.5V
Note: This test covers all possible operating modes of the device, only the worst data are list in report. The worst data are shows (*) is the nearest standard limit which were recorded in this report.				

5. List of Test and Measurement Instruments

Radiated emission(No.2 Chamber)						
No.	Equipment	Manufacturer	Model No.	Serial No.	Firmware version	Calibrated until
1	966 Chamber	C/ R/ T	966	/	/	2026/11/14
2	Double Ridged Broadband Horn Antenna	Schwarzbeck	BBHA 9120 D	01911	/	2026/7/07
3	Broadband Antenna	Schwarzbeck	VULB 9168	1471	/	2025/7/06
4	Amplifier	Agilent	8449B	3008A01838	/	2025/6/30
5	Preamplifier	Schwarzbeck	BBV 9743 B	00500	/	2025/5/23
6	EMI TEST RECEIVER	R&S	ESCI7	100861	/	2024/11/27
7	Spectrum Analyzer	KEYSIGHT	N9020A	MY51289897	A.14.16	2025/6/28
8	EMI test software	Farad	EZ-EMC	/	Ver. FARAD-3A1+	/
9	Coaxial cable	Rosenberg	8m	/	/	2024/11/27
10	Coaxial cable	Times	2m	/	/	2024/11/27
11	Coaxial cable	Times	2m	/	/	2024/11/27
12	Coaxial cable	Times	1m	/	/	2024/11/27
13	loop antenna	Schwarzbeck	FMZB 1519B	1519B-224	/	2025/6/29
14	Communication test set	R&S	CMW500	108058	B.19.07 (E1962B)	2025/6/28
15	Communication test set	Agilent	E5515C	MY50102567	V3.5.80	2025/6/28

6. Radiated emissions

6.1. Limit

Except for Class A devices (at 3m):

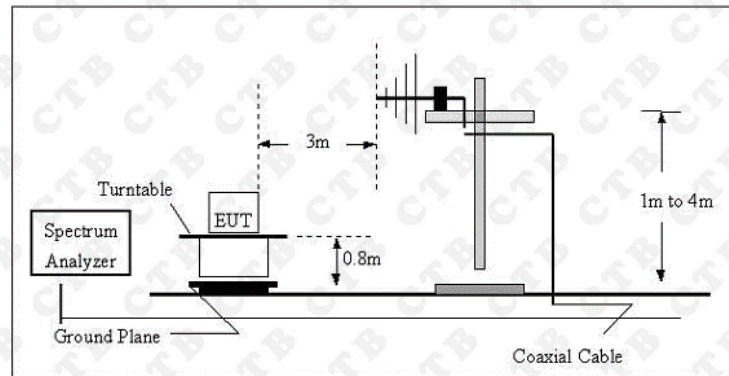
Frequency of emission (MHz)	Field strength (microvolts/meter)	
	(microvolts/meter)	(dB μ V/m)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

For Class A devices (at 10m):

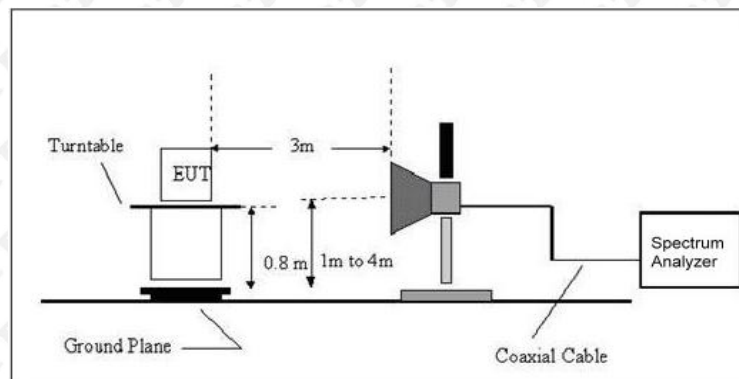
Frequency of emission (MHz)	Field strength (microvolts/meter)	
	(microvolts/meter)	(dB μ V/m)
30-88	90	39
88-216	150	43.5
216-960	210	46.4
Above 960	300	49.5

6.2. Test setup

Radiated Emission Test Set-Up Frequency Below 1 GHz



Radiated Emission Test Set-Up Frequency Above 1GHz



The radiated tests were performed in 3 meter Chamber test site, using the setup accordance with the ANSI C63.4:2014.

6.3. EMI test receiver setup and spectrum analyzer setup

During the radiated emission test, the EMI test receiver and Spectrum Analyzer were set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30MHz-1000MHz	100kHz	300kHz	120kHz	QP
Above 1GHz	1MHz	3MHz	/	PK
	1MHz	10Hz	/	AVG

6.4. Test procedure

1. The measurement was performed in a semi-anechoic chamber, and instruments used were followed clause 4 of ANSI C63.4
2. Detailed test procedure was following clause 8 of ANSI C63.4.

6.5. Corrected Amplitude & Margin Calculation

1. The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

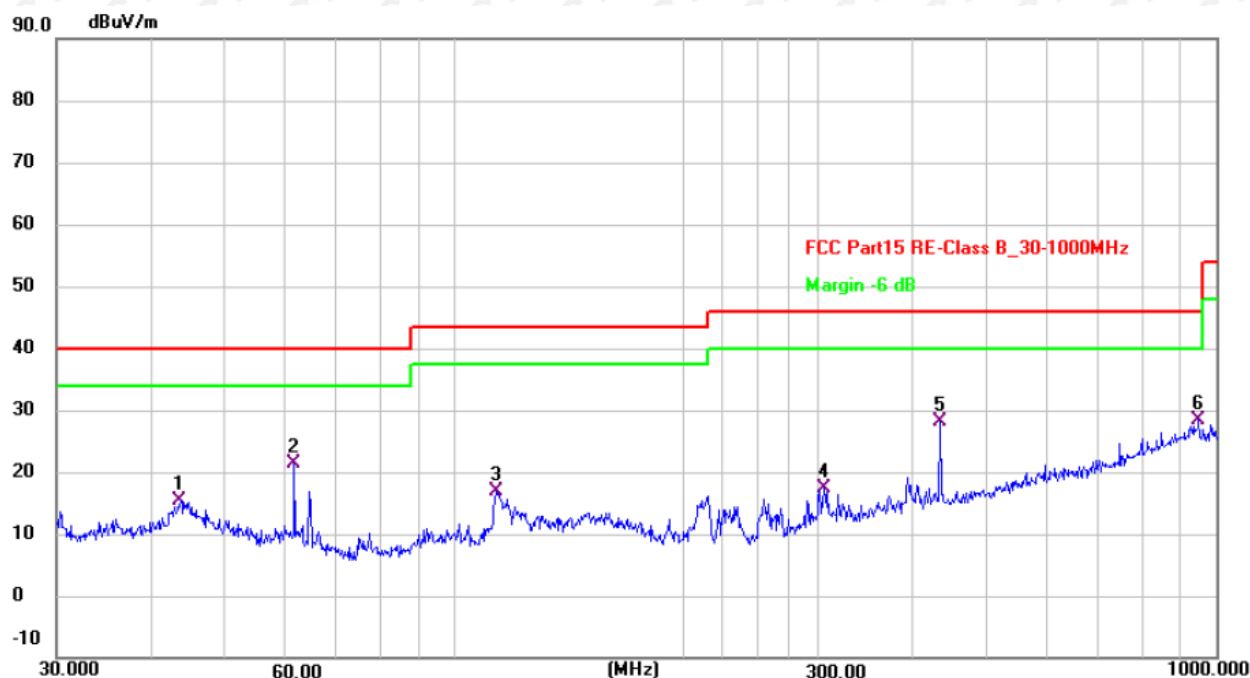
$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

2. The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

6.6. Test results

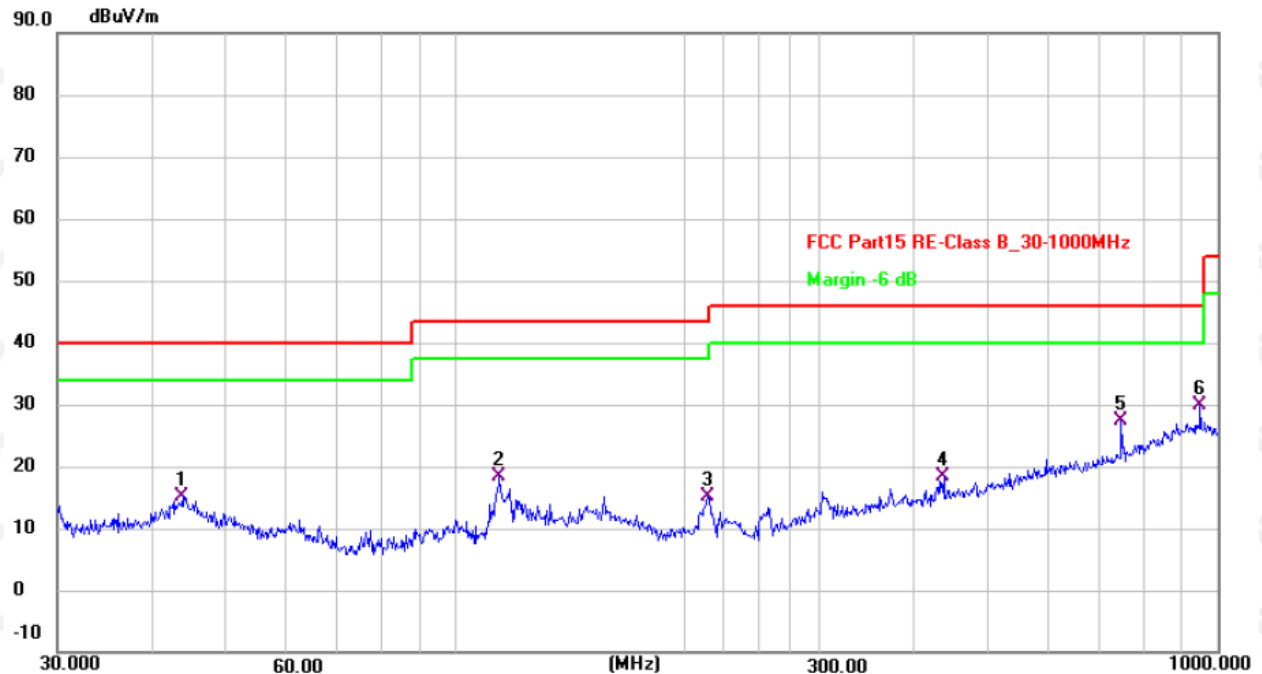
Temperature:	23°C	Relative Humidity:	54 %
Pressure:	101kPa	Polarization :	Horizontal
Test Voltage :	DC 4.5V	Test Mode:	Mode 1



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	43.6584	29.57	-14.22	15.35	40.00	-24.65	QP
2	61.5618	37.09	-15.70	21.39	40.00	-18.61	QP
3	113.3163	32.94	-16.17	16.77	43.50	-26.73	QP
4	305.6800	30.37	-12.92	17.45	46.00	-28.55	QP
5	434.0651	38.43	-10.40	28.03	46.00	-17.97	QP
6 *	948.7610	27.22	1.05	28.27	46.00	-17.73	QP

Note: Result=Reading+Factor
Over Limit=Result-Limit

Temperature:	23℃	Relative Humidity:	54 %
Pressure:	101kPa	Polarization :	Vertical
Test Voltage :	DC 4.5V	Test Mode:	Mode 1



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	43.8119	29.47	-14.25	15.22	40.00	-24.78	QP
2	114.1138	34.48	-16.07	18.41	43.50	-25.09	QP
3	213.7634	31.28	-16.14	15.14	43.50	-28.36	QP
4	437.1199	28.62	-10.31	18.31	46.00	-27.69	QP
5	747.4825	30.13	-2.77	27.36	46.00	-18.64	QP
6 *	948.7610	28.94	1.05	29.99	46.00	-16.01	QP

Note: Result=Reading+Factor

Over Limit=Result-Limit

7. Photographs of test setup

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End of report