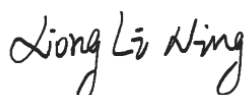


TEST REPORT

Applicant: TECNO MOBILE LIMITED
Address: FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL
CENTRE 19-25 SHAN MEI STREET FOTAN NT
HONGKONG
Equipment Type: MEGAMINI GAMING G1
Model Name: G01RA
Brand Name: TECNO
FCC ID: 2ADYY-G01RA
Test Standard: 47 CFR Part 2.1091
KDB 447498 D04 v01
Sample Arrival Date: Sep. 11, 2024
Test Date: Sep. 21, 2024 - Nov. 01, 2024
Date of Issue: Nov. 22, 2024

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

Tested by: Xiong Lining**Checked by:** Xu Rui**Approved by:** Tolan Tu
(Testing Director)

Revision History

<u>Version</u>	<u>Issue Date</u>	<u>Revisions Content</u>
<u>Rev. 01</u>	<u>Nov. 22, 2024</u>	<u>Initial Issue</u>

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1 GENERAL INFORMATION

1.1 Test Laboratory

Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100

1.2 Test Location

Name	Shenzhen BALUN Technology Co., Ltd.
Location	☐ Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
	☒ 1/F, Building B, Ganghongji High-tech Intelligent Industrial Park, No. 1008, Songbai Road, Yangguang Community, Xili Sub-district, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	TECNO MOBILE LIMITED
Address	FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG

2.2 Manufacturer Information

Manufacturer	TECNO MOBILE LIMITED
Address	FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG

2.3 General Description for Equipment under Test (EUT)

EUT Name	MEGAMINI GAMING G1
Model Name Under Test	G01RA
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	G01RA_MB_V31
Software Version	Windows 11
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.4 Technical Information

Network and Wireless connectivity	Bluetooth (BR+EDR+BLE) WIFI 802.11a, 802.11b, 802.11g, 802.11n, 802.11ac and 802.11ax
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The requirement for the following technical information of the EUT was tested in this report:

Operating Mode	2.4G WIFI, 5G WIFI, 6G WIFI, Bluetooth	
Frequency Range	802.11b/g/n(HT20/HT40)/ax(HE20/HE40)	2412 MHz ~ 2462 MHz
	802.11a/n(HT20/HT40)/ac(VHT20/VHT40/VHT80)/ax(HE20/HE40/HE80)	5150 MHz ~ 5250 MHz
		5250 MHz ~ 5350 MHz
		5470 MHz ~ 5725 MHz
		5725 MHz ~ 5850 MHz
	802.11ac(VHT160)/ax(HE160)	5150 MHz ~ 5250 MHz
		5470 MHz ~ 5725 MHz
	802.11ax(HE20/HE40/HE80/HE160)	5925 MHz ~ 6425 MHz
		6425 MHz ~ 6525 MHz
		6525 MHz ~ 6875 MHz
		6875 MHz ~ 7125 MHz
	Bluetooth	2402 MHz ~ 2480 MHz
Antenna Type	WIFI	FPC Antenna
	Bluetooth	FPC Antenna
Exposure Category	General Population/Uncontrolled exposure	
Product Type	Portable Device	

3 SUMMARY OF TEST RESULT

3.1 Test Standards

No.	Identity	Document Title
1	KDB 447498 D04 v01	447498 D04 Interim General RF Exposure Guidance v01

3.2 Limit Standards

No.	Identity	Document Title
1	47 CFR Part 2.1091	Radiofrequency radiation exposure evaluation: mobile devices

4 DEVICE CATEGORY AND LEVELS LIMITS

Mobile Devices:

CFR Title 47 §2.1091(b)

(b) For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons.

FCC KDB 447498 D04 General RF Exposure Guidance v01 Limit

For 300MHz to 6000Mhz

Evaluation of compliance with the exposure limits in § 1.1310 is necessary if the ERP of the device is greater than ERP_{20cm} in Formula (B.1) [repeated from § 2.1091(c)(1) and § 1.1307(b)(1)(i)(B)].

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

If the ERP is not easily obtained, then the available maximum time-averaged power may be used (i. e., without consideration of ERP only if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole.

SAR-based exemptions are constant at separation distances between 20 cm and 40 cm to avoid discontinuities in the threshold when transitioning between SAR-based and MPE-based exemption criteria at 40 cm, considering the importance of reflections.

The SAR-based exemption formula of § 1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold P_{th} (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by Formula (B.2).

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases} \quad (\text{B.2})$$

where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and f is in GHz, d is the separation distance (cm), and $ERP_{20 \text{ cm}}$ is per Formula (B.1). The example values shown in Table B.2 are for illustration only.

Table B.2—Example Power Thresholds (mW)

Frequency (MHz)	Distance (mm)									
	5	10	15	20	25	30	35	40	45	50
300	39	65	88	110	129	148	166	184	201	217
450	22	44	67	89	112	135	158	180	203	226
835	9	25	44	66	90	116	145	175	207	240
1900	3	12	26	44	66	92	122	157	195	236
2450	3	10	22	38	59	83	111	143	179	219
3600	2	8	18	32	49	71	96	125	158	195
5800	1	6	14	25	40	58	80	106	136	169

For 6000MHz to 10000Mhz

Frequencies above 300 kHz but at distances $R > \lambda/2\pi$, R is the antenna-person separation distance.

λ =wavelength of transmitted signal.

Can calculate from the frequency of operation using $v=f*\lambda$

v =speed of light= $3*10^8$ m/s

f =frequency(Hz)

Primarily an MPE-based exclusion but also SAR-based where $\lambda/2\pi$ is $< 20\text{cm}$.

TABLE B.1—THRESHOLDS FOR SINGLE RF SOURCES
SUBJECT TO ROUTINE ENVIRONMENTAL EVALUATION

RF Source Frequency			Minimum Distance			Threshold ERP
f_L MHz		f_H MHz	$\lambda_L / 2\pi$		$\lambda_H / 2\pi$	W
0.3	—	1.34	159 m	—	35.6 m	$1,920 R^2$
1.34	—	30	35.6 m	—	1.6 m	$3,450 R^2/f^2$
30	—	300	1.6 m	—	159 mm	$3.83 R^2$
300	—	1,500	159 mm	—	31.8 mm	$0.0128 R^2 f$
1,500	—	100,000	31.8 mm	—	0.5 mm	$19.2 R^2$
Subscripts L and H are low and high; λ is wavelength. From § 1.1307(b)(3)(i)(C), modified by adding Minimum Distance columns.						

5 ASSESSMENT RESULT

5.1 Output Power

Mode	Bluetooth
Conducted Power (dBm)	10.29
Antenna Gain (dBi)	1.89
EIRP (dBm)	12.18
Note: This report listed the worst case conducted power value, please refer to BL-SZ2490583-601, BL-SZ2490583-602 report for more details.	

Mode	2.4G WIFI	U-NII-1	U-NII-2A	U-NII-2C	U-NII-3	U-NII-5	U-NII-6	U-NII-7	U-NII-8
SISO-Main Antenna									
Conducted Power (dBm)	18.67	21.02	20.97	20.52	21.04	8.83	8.96	8.76	5.19
Antenna Gain (dBi)	1.94	2.71	2.71	2.68	2.36	2.57	2.57	2.67	2.67
EIRP (dBm)	20.61	23.73	23.68	23.20	23.40	11.40	11.53	11.43	7.86
SISO-Aux. Antenna									
Conducted Power (dBm)	17.96	20.29	20.69	20.04	20.89	8.54	8.35	8.14	8.96
Antenna Gain (dBi)	1.89	3.08	3.08	2.72	2.67	2.09	2.09	2.43	2.43
EIRP (dBm)	19.85	23.37	23.77	22.76	23.56	10.63	10.44	10.57	11.39
MIMO-Main Antenna									
Conducted Power (dBm)	15.69	17.88	17.83	17.38	18.17	5.63	5.85	5.65	5.91
Antenna Gain (dBi)	1.94	2.71	2.71	2.68	2.36	2.57	2.57	2.67	2.67
EIRP (dBm)	17.63	20.59	20.54	20.06	20.53	8.20	8.42	8.32	8.58
MIMO-Aux. Antenna									
Conducted Power (dBm)	14.92	17.27	17.67	17.02	17.49	5.20	5.01	5.12	5.43
Antenna Gain (dBi)	1.89	3.08	3.08	2.72	2.67	2.09	2.09	2.43	2.43
EIRP (dBm)	16.81	20.35	20.75	19.74	20.16	7.29	7.10	7.55	7.86
MIMO									
Conducted Power (dBm)	18.33	20.60	20.76	20.21	20.71	8.16	8.25	8.29	8.58
Antenna Gain (dBi)	1.94	3.08	3.08	2.72	2.67	2.57	2.57	2.67	2.67
EIRP (dBm)	20.27	23.68	23.84	22.93	23.38	10.73	10.82	10.96	11.25
Note: This report listed the worst case conducted power value, please refer to BL-SZ2490583-603, BL-SZ2490583-604 report for more details.									

5.2 Tune-up power

Mode		Conducted Power Range (dBm)	EIRP Range (dBm)	ERP Range (dBm)
Bluetooth		[8.50, 10.50]	[10.39, 12.39]	[8.24, 10.24]
SISO-Main Antenna	2.4G WIFI	[17.00, 19.00]	[18.94, 20.94]	[16.79, 18.79]
	U-NII-1	[19.50, 21.50]	[22.24, 24.24]	[20.09, 22.09]
	U-NII-2A	[19.00, 21.00]	[21.71, 23.71]	[19.56, 21.56]
	U-NII-2C	[19.00, 21.00]	[21.68, 23.68]	[19.53, 21.53]
	U-NII-3	[19.50, 21.50]	[21.86, 23.86]	[19.71, 21.71]
	U-NII-5	[7.00, 9.00]	[9.57, 11.57]	[7.42, 9.42]
	U-NII-6	[7.00, 9.00]	[9.57, 11.57]	[7.42, 9.42]
	U-NII-7	[7.00, 9.00]	[9.67, 11.67]	[7.52, 9.52]
	U-NII-8	[3.50, 5.50]	[6.17, 8.17]	[4.02, 6.02]
SISO-Aux. Antenna	2.4G WIFI	[16.00, 18.00]	[17.89, 19.89]	[15.74, 17.74]
	U-NII-1	[18.50, 20.50]	[21.58, 23.58]	[19.43, 21.43]
	U-NII-2A	[19.00, 21.00]	[22.08, 24.08]	[19.93, 21.93]
	U-NII-2C	[18.50, 20.50]	[21.22, 23.22]	[19.07, 21.07]
	U-NII-3	[19.00, 21.00]	[21.67, 23.67]	[19.52, 21.52]
	U-NII-5	[7.00, 9.00]	[9.09, 11.09]	[6.94, 8.94]
	U-NII-6	[6.50, 8.50]	[8.59, 10.59]	[6.44, 8.44]
	U-NII-7	[6.50, 8.50]	[8.93, 10.93]	[6.78, 8.78]
	U-NII-8	[7.00, 9.00]	[9.43, 11.43]	[7.28, 9.28]
MIMO-Main Antenna	2.4G WIFI	[14.00, 16.00]	[15.94, 17.94]	[13.79, 15.79]
	U-NII-1	[16.00, 18.00]	[18.71, 20.71]	[16.56, 18.56]
	U-NII-2A	[16.00, 18.00]	[18.71, 20.71]	[16.56, 18.56]
	U-NII-2C	[15.50, 17.50]	[18.18, 20.18]	[16.03, 18.03]
	U-NII-3	[16.50, 18.50]	[18.86, 20.86]	[16.71, 18.71]
	U-NII-5	[4.00, 6.00]	[6.57, 8.57]	[4.42, 6.42]
	U-NII-6	[4.00, 6.00]	[6.57, 8.57]	[4.42, 6.42]
	U-NII-7	[4.00, 6.00]	[6.67, 8.67]	[4.52, 6.52]
	U-NII-8	[4.00, 6.00]	[6.67, 8.67]	[4.52, 6.52]
MIMO-Aux. Antenna	2.4G WIFI	[13.00, 15.00]	[14.89, 16.89]	[12.74, 14.74]
	U-NII-1	[15.50, 17.50]	[18.58, 20.58]	[16.56, 18.56]
	U-NII-2A	[16.00, 18.00]	[19.08, 21.08]	[16.93, 18.93]
	U-NII-2C	[15.50, 17.50]	[18.22, 20.22]	[16.07, 18.07]
	U-NII-3	[15.50, 17.50]	[18.17, 20.17]	[16.02, 18.02]
	U-NII-5	[3.50, 5.50]	[5.59, 7.59]	[3.44, 5.44]
	U-NII-6	[3.50, 5.50]	[5.59, 7.59]	[3.44, 5.44]
	U-NII-7	[3.50, 5.50]	[5.93, 7.93]	[3.78, 5.78]
	U-NII-8	[3.50, 5.50]	[5.93, 7.93]	[3.78, 5.78]
MIMO	2.4G WIFI	[16.50, 18.50]	[18.44, 20.44]	[16.29, 18.29]
	U-NII-1	[19.00, 21.00]	[22.08, 24.08]	[19.93, 21.93]

U-NII-2A	[19.00, 21.00]	[22.08, 24.08]	[19.93, 21.93]
U-NII-2C	[18.50, 20.50]	[21.22, 23.22]	[19.07, 21.07]
U-NII-3	[19.00, 21.00]	[21.67, 23.67]	[19.52, 21.52]
U-NII-5	[6.50, 8.50]	[9.07, 11.07]	[6.92, 8.92]
U-NII-6	[6.50, 8.50]	[9.07, 11.07]	[6.92, 8.92]
U-NII-7	[6.50, 8.50]	[9.17, 11.17]	[7.02, 9.02]
U-NII-8	[7.00, 9.00]	[9.67, 11.67]	[7.52, 9.52]

Note1: ERP= EIRP -2.15dB.

Note2: According KDB 447498 D04, used the greater of maximum conducted power and ERP to compare with the threshold value Pth.

5.3 RF Exposure Evaluation Result

For 300MHz to 6000MHz

Evolution mode	Frequency (MHz)	Maximum power (dBm)	Maximum power (mw)	Distance (cm)	Threshold Power (mW)	Power / Limit	Verdict
Bluetooth	2402	10.50	11.22	20	3060.00	0.004	Pass
Max. 2.4G WIFI	2412	19.00	79.43	20	3060.00	0.026	Pass
Max. 5G WIFI	5150	22.09	63.10	20	3060.00	0.021	Pass

For 6000MHz to 10000MHz

Evolution mode	Distance (cm)	$\lambda / 2 \pi$ (m)	$\lambda / 2 \pi$ (cm)	$R > \lambda / 2 \pi$
Max. 6G WIFI	20	0.007	0.700	Yes

Evolution mode	Frequency (MHz)	Maximum power (dBm)	Maximum power (mw)	Distance (cm)	Threshold Power (mW)	Power / Limit	Verdict
Max. 6G WIFI	6525	9.52	8.95	20	76.800	0.117	Pass

5.4 Collocated Power Calculation

Evolution mode	Frequency (MHz)	Power /Limit	$\Sigma(\text{Power} / \text{Limit})$ of Bluetooth + Max. 2.4G WIFI + Max. 5G WIFI	Verdict
Bluetooth	2402	0.004	0.051	Pass
Max. 2.4G WIFI	2412	0.026		
Max. 5G WIFI	5150	0.021		
Evolution mode	Frequency (MHz)	Power /Limit	$\Sigma(\text{Power} / \text{Limit})$ of Bluetooth + Max. 2.4G WIFI + Max. 6G WIFI	Verdict
Bluetooth	2402	0.004	0.147	Pass
Max. 2.4G WIFI	2412	0.026		
Max. 6G WIFI	6525	0.117		
Evolution mode	Frequency (MHz)	Power /Limit	$\Sigma(\text{Power} / \text{Limit})$ of Bluetooth + Max. 5G WIFI + Max. 6G WIFI	Verdict
Bluetooth	2402	0.004	0.142	Pass
Max. 5G WIFI	5150	0.021		
Max. 6G WIFI	6525	0.117		

Note:

1. $\Sigma(\text{Power} / \text{Limit})$: This is a summation of [(power for each transmitter/ antenna included in the simultaneous transmission)/ (corresponding Power limit)], for Bluetooth + Max. 2.4G WIFI + Max. 6G WIFI.
2. Both of the 2.4GHz/5GHz/6GHz can transmit simultaneously, the formula of calculated the Power is $CP1 / LP1 + CP2 / LP2 + \dots \text{etc.} < 1$
 CP = Calculation power
 LP = Limit of power
3. The worst-case situation is 0.147, which is less than "1". This confirmed that the device comply with FCC KDB 447498 D04 Power limit.
4. The DUT work frequency range used is 2402 MHz ~ 2480 MHz, 2412 MHz ~ 2462 MHz and 6525 MHz ~ 6875 MHz the result close to the limit by the above formula, so we select worst case power to calculate the exclusion power threshold.

5.5 Conclusion

This EUT is deemed to comply with the reference level limits, therefore the basic restrictions are compliant with human exposure limits.

Statement

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--END OF REPORT--