RF EXPOSURE REPORT

CERTIFICATE OF CONFORMITY

FCC Rule Part:	**FCC Part 2 (Section 2.1091)**
Report No.:	MFBEDW-WTW-P24070638
FCC ID:	GKRRXLN3
Product:	LGA Module
Brand:	COMPAL
Model No.:	RXL-N3
Received Date:	2024/7/29
Test Date:	2024/10/15
Issued Date:	2024/11/22
Applicant:	Compal Electronics, Inc.
Address:	No.581 & 581-1, Ruiguang Rd., Neihu District, Taipei, (114) Taiwan
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan
FCC Registration / Designation Number:	788550 / TW0003

Approved by: Jeremy Lin , **Date:** 2024/11/22

Jeremy Lin / Project Engineer

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Prepared by : Pettie Chen / Senior Specialist

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1 Release Control Record

Issue No.	Description	Date Issued
MFBEDW-WTW-P24070638	Original release.	2024/11/22

2 Certificate

Product:	LGA Module
Brand:	COMPAL
Test Model:	RXL-N3
Sample Status:	Engineering sample
Applicant:	Compal Electronics, Inc.
Test Date:	2024/10/15
FCC Rule Part:	FCC Part 2 (Section 2.1091)
Standard:	KDB 447498 D04 Interim General RF Exposure Guidance v01

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

3 Applicable RF Exposure Limit

§ 1.1310 Radiofrequency radiation exposure limits.

(a) Specific absorption rate (SAR) shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in § 1.1307(b) of this part within the frequency range of 100 kHz to 6 GHz (inclusive).
(b) The SAR limits for occupational/controlled exposure are 0.4 W/kg, as averaged over the whole body, and a peak spatial-average SAR of 8 W/kg, averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the parts of the human body treated as extremities, such as hands, wrists, feet, ankles, and pinnae, where the peak spatial-average SAR limit for occupational/controlled exposure is 20 W/kg, averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). Exposure may be averaged over a time period not to exceed 6 minutes to determine compliance with occupational/controlled SAR limits.
(c) The SAR limits for general population/uncontrolled exposure are 0.08 W/kg, as averaged over the whole body, and a peak spatial-average SAR of 1.6 W/kg, averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube). Exceptions are the parts of the human body treated as extremities, such as hands, wrists, feet, ankles, and pinnae, where the peak spatial-average SAR limit is 4 W/kg, averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube). Exposure may be averaged over a time period not to exceed 30 minutes to determine compliance with general population/uncontrolled SAR limits.

(e) Maximum Permissible Exposure (MPE) to radiofrequency electromagnetic fields

➢ Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
0.3-1.34	614	1.63	(100)*	<30
1.34-30	824/f	2.19/f	($180/f^2$)*	<30
30-300	27.5	0.073	0.2	<30
300-1,500	…	…	f/1500	<30
1,500-100,000	…	…	1.0	<30

f = frequency in MHz. * = Plane-wave equivalent power density.

➢ Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (minutes)
Limits For General Population / Uncontrolled 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
300-1,500			f/300	<6
1,500-100,000			5	<6

f = frequency in MHz. * = Plane-wave equivalent power density.

MPE-based Exemption – §1.1307(b)(3)(i)(C)

- The minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. The MPE-based test exemption condition is in terms of ERP, defined as the product of the maximum antenna gain and the delivered maximum time-averaged power.
- Table applies to any RF source (i.e. single fixed, mobile, and portable transmitters) and specifies power and distance criteria for each of the five frequency ranges used for the MPE limits.

RF Source frequency (MHz)	Minimum Distance		Threshold ERP (watts)
	$\lambda_L/2\pi$	$\lambda_H/2\pi$	
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^2f.
1,500-100,000	31.8 mm–0.5 mm		19.2 R^2.
R must be at least $\lambda/2\pi$, where λ is the free-space operating wavelength in meters.			

4 Test Results

Environmental Conditions:	25°C, 60% RH	Tested By:	Ted Chang

MPE-based Exemption §1.1307(b)(3)(i)(C)							
Operation Mode	Frequency Band (MHz)	Average Power (mW)	Antenna Gain (dBi)	Maximum ERP (mW)	Distance (cm)	Limit Threshold (mW)	Test Result
LTE B2	1850-1910	251.189	3.2	319.89	20	768	Pass
LTE B4	1710-1755	281.838	3.31	368.129	20	768	Pass
LTE B5	824-849	281.838	1.25	229.087	20	421.888	Pass
LTE B12	698-716	251.189	0.78	183.232	20	357.376	Pass
LTE B13	777-787	251.189	0.91	188.799	20	397.824	Pass
LTE B25	1850-1915	281.838	3.2	358.922	20	768	Pass
LTE B26	814-849	281.838	1.25	229.087	20	416.768	Pass
LTE B38	2570-2620	251.189	2.75	288.404	20	768	Pass
LTE B41	2496-2690	251.189	2.75	288.404	20	768	Pass
LTE B42	2496-2690	251.189	-0.3	142.89	20	768	Pass
LTE B48	3550-3700	199.526	0	121.618	20	768	Pass
LTE B66	1710-1780	251.189	3.31	328.096	20	768	Pass
LTE B71	663-698	316.228	0.53	217.771	20	339.456	Pass
NR n2	1850-1910	251.189	3.2	319.89	20	768	Pass
NR n5	824-849	251.189	1.25	204.174	20	421.888	Pass
NR n12	698-716	251.189	0.78	183.232	20	357.376	Pass
NR n25	1850-1915	251.189	3.2	319.89	20	768	Pass
NR n30	2305-2315	251.189	0	153.109	20	768	Pass
NR n41	2496-2690	251.189	2.75	288.404	20	768	Pass
NR n41 HPUE	2496-2690	630.957	2.75	724.436	20	768	Pass
NR n41 MIMO	2496-2690	630.957	2.75	724.436	20	768	Pass
NR n48	3550-3700	199.526	0	121.618	20	768	Pass
NR n66	1710-1780	251.189	3.31	328.096	20	768	Pass
NR n71	663-698	251.189	0.53	172.982	20	339.456	Pass
NR n77	3300-4200	281.838	-0.3	160.324	20	768	Pass
NR n77 PC2	3300-4200	501.187	-0.3	285.102	20	768	Pass
NR n77 PC1.5	3300-4200	1122.018	-0.3	638.263	20	768	Pass
NR n78	3300-3800	281.838	-0.3	160.324	20	768	Pass
NR n78 PC2	3300-3800	562.341	-0.3	319.889	20	768	Pass

Mode		Average Power (dBm)	Gain (dBi)	EIRP (dBm)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)	Co-located Ratio<1	Test Result
ENDC 5G NR n2		24	3.2	27.20	20	0.104	1.000	-	Pass
ENDC n2	LTE Band 5	24.5	1.25	25.75	20	0.075	0.549	0.241	Pass
	LTE Band 12	24	0.78	24.78	20	0.060	0.466	0.233	Pass
	LTE Band 13	24	0.91	24.91	20	0.062	0.549	0.217	Pass
	LTE Band 48	23	0	23.00	20	0.040	1.000	0.144	Pass
	LTE Band 66	24	3.31	27.31	20	0.107	1.000	0.211	Pass
ENDC 5G NR n5		24	1.25	25.25	20	0.075	0.549	-	Pass
ENDC n5	LTE Band 2	24	3.2	27.20	20	0.104	1.000	0.241	Pass
	LTE Band 48	24	0	24.00	20	0.040	1.000	0.177	Pass
	LTE Band 66	24	3.31	27.31	20	0.107	1.000	0.244	Pass
ENDC 5G NR n41		28	2.75	30.75	20	0.236	1.000	-	Pass
ENDC n41	LTE Band 2	24	3.2	27.20	20	0.104	1.000	0.340	Pass
	LTE Band 66	24	3.31	27.31	20	0.107	1.000	0.343	Pass
ENDC 5G NR n66		24	3.31	27.31	20	0.107	1.000	-	Pass
ENDC n66	LTE Band 2	24	3.2	27.20	20	0.104	1.000	0.211	Pass
	LTE Band 5	24.5	1.25	25.75	20	0.075	0.549	0.244	Pass
	LTE Band 12	24	0.78	24.78	20	0.060	0.466	0.236	Pass
	LTE Band 13	24	0.91	24.91	20	0.062	0.549	0.220	Pass
	LTE Band 48	23	0	23.00	20	0.040	1.000	0.147	Pass
ENDC 5G NR n71		24	0.53	24.53	20	0.056	1.000	-	Pass
ENDC n71	LTE Band 2	24	3.2	27.20	20	0.104	1.000	0.160	Pass
	LTE Band 48	23	0	23.00	20	0.040	1.000	0.096	Pass
	LTE Band 66	24	3.31	27.31	20	0.107	1.000	0.163	Pass
ENDC 5G NR n77		30.5	-0.3	30.20	20	0.208	1.000	-	Pass
ENDC n77	LTE Band 2	24	3.2	27.20	20	0.104	1.000	0.312	Pass
	LTE Band 5	24.5	1.25	25.75	20	0.075	0.549	0.345	Pass
	LTE Band 12	24	0.78	24.78	20	0.060	0.466	0.337	Pass
	LTE Band 66	24	3.31	27.31	20	0.107	1.000	0.316	Pass

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

5 Conclusion

Source-base time average power is below Exemption Criteria and/or Routine Evaluation MPE thresholds, therefore the device is compliant FCC RF exposure requirement.

6 Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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The address and road map of all our labs can be found in our web site also.

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