

RF EXPOSURE REPORT

OF

FCC Applicant: Compal Electronics, Inc
No.581 & 581-1, Ruiguang Rd., Neihu District, Taipei, (114)
Taiwan

Product Name: 5G M.2 Module

Brand Name: Compal

Model No.: RXM-G1

Model Difference: N/A

Report Number: ER/2019/A0138

FCC ID: GKRRXMG1

FCC Rule Part Part 2.1091

Issue Date: Jun. 04, 2020

We hereby certify that:

The above equipment was verified by SGS Taiwan Ltd. The evaluation in this report is in compliance with the above rule(s).

The results of this report relate only to the sample identified in this report.

Approved By: _____

John Teh

John Yeh / Asst. Manager

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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Revision History

Report Number	Revision	Description	Issue Date	Remark
ER/2019/A0138	Rev.00	Original.	Jun. 04, 2020	Revised By: Karen Huang

Note:

1、Disclaimer

Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.

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1 DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

1.1 General:

Product Name:	5G M.2 Module
Brand Name:	Compal
Model No.:	RXM-G1
Model Difference:	N/A
Hardware Version:	DVT-1
Software Version:	RXMG1.00.00.036
Power Supply:	DC 3.3V

Note: The device does not support MIMO transmitting mode.

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2 FCC MAXIMUM PERMISSIBLE EXPOSURE (MPE)

2.1 FCC Standard Applicable

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

This is a Mobile device, the MPE is required.

According to §1.1310 and §2.1091 RF exposure is calculated.

Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
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
300-1500	/	/	f/1500	30
1500-15000	/	/	1.0	30

f = frequency in MHz

* = Plane-wave equipment power density

Prediction of MPE limit at a given distance

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

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

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2.2 Power Density Calculation (Worst Case)

3G & 4G LTE

Operation Mode	Freq. (MHz)	Operation Distance (cm)	Conducted Average output power (dBm)	Max. output Power include tolerance (dBm)	Max. Allowable Antenna Gain (dBi)	EIRP (ERP) Limit (dBm)	Max. output Power (mW)	Power Density (PD) (mW/cm ²)	PD Limit (mW/cm ²)	Power Density / Limit
WCDMA / HSPA Band 2	1852.40	20	22.93	25.00	10.07	33.00	3213.66	0.640	1.000	0.640
WCDMA / HSPA Band 4	1712.40	20	23.80	25.00	6.20	30.00	1318.26	0.262	1.000	0.262
WCDMA / HSPA Band 5	826.40	20	23.39	25.00	9.42	38.45	2766.94	0.551	0.551	1.000
LTE-Band 2	1850.70	20	23.34	25.00	7.50	33.00	1778.28	0.354	1.000	0.354
LTE-Band 4	1710.70	20	23.86	25.00	6.14	30.00	1300.17	0.259	1.000	0.259
LTE-Band 5	824.70	20	23.24	25.00	7.00	38.45	1584.89	0.315	0.550	0.573
LTE-Band 5B	824.70	20	23.06	25.00	7.00	38.45	1584.89	0.315	0.550	0.573
LTE-Band 7	2502.50	20	23.02	25.00	8.00	33.00	1995.26	0.397	1.000	0.397
LTE-Band 7C	2502.50	20	21.09	25.00	8.00	33.00	1995.26	0.397	1.000	0.397
LTE-Band 12	699.70	20	22.87	25.00	6.40	34.77	1380.38	0.275	0.466	0.590
LTE-Band 13	779.50	20	21.02	25.00	7.00	34.77	1584.89	0.315	0.520	0.606
LTE-Band 14	788.00	20	20.53	25.00	9.21	34.77	2636.33	0.525	0.525	1.000
LTE-Band 25	1850.70	20	24.61	25.00	8.39	33.00	2182.73	0.434	1.000	0.434
LTE-Band 26	824.70	20	21.65	25.00	7.40	38.45	1737.80	0.346	0.550	0.629
LTE-Band 26 Part 90	814.70	20	21.50	25.00	7.40	50.00	1737.80	0.346	0.543	0.637
LTE-Band 30	2307.50	20	22.78	25.00	1.22	24.00	418.79	0.083	1.000	0.083
LTE-Band 41	2498.50	20	25.32	28.00	7.68	33.00	3698.28	0.736	1.000	0.736
LTE-Band 41C	2498.50	20	22.83	28.00	7.68	33.00	3698.28	0.736	1.000	0.736
LTE-Band 48	3552.50	20	24.92	25.00	-1.92	23.00	203.24	0.040	1.000	0.040
LTE-Band 48C	3552.50	20	21.23	25.00	-1.92	23.00	203.24	0.040	1.000	0.040
LTE-Band 66	1710.70	20	23.70	25.00	7.50	38.45	1778.28	0.354	1.000	0.354
LTE-Band 66B	1710.70	20	21.88	25.00	7.50	38.45	1778.28	0.354	1.000	0.354
LTE-Band 66C	1710.70	20	20.42	25.00	7.50	38.45	1778.28	0.354	1.000	0.354
LTE-Band 71	665.50	20	24.17	25.00	6.50	38.45	1412.54	0.281	0.444	0.633

4G ULCA Inter Band

Operation Mode	Freq. (MHz)	Operation Distance (cm)	Max. output Power include tolerance (dBm)	Max. Allowable Antenna Gain (dBi)	Max. output Power (mW)	Power Density (PD) (mW/cm ²)	PD Limit (mW/cm ²)	Power Density / Limit	Operation Mode	Max PCC PD / Limit	Max SCC PD / Limit	Σ (Power Density / Limit) of PCC + SCC
LTE-Band 2	1850.70	20	25.00	7.50	1778.28	0.354	1.000	0.354	2A-5A	0.354	0.573	0.927
LTE-Band 4	1710.70	20	25.00	6.14	1300.17	0.259	1.000	0.259	2A-12A	0.354	0.590	0.944
LTE-Band 5	824.70	20	25.00	7.00	1584.89	0.315	0.550	0.573	2A-13A	0.354	0.606	0.960
LTE-Band 7	2502.50	20	25.00	8.00	1995.26	0.397	1.000	0.397	4A-5A	0.259	0.573	0.832
LTE-Band 12	699.70	20	25.00	6.40	1380.38	0.275	0.466	0.590	4A-12A	0.259	0.590	0.849
LTE-Band 13	779.50	20	25.00	7.00	1584.89	0.315	0.520	0.606	4A-13A	0.259	0.606	0.865
LTE-Band 66	1710.70	20	25.00	7.50	1778.28	0.354	1.000	0.354	5A-7A	0.573	0.397	0.970
									5A-66A	0.573	0.354	0.927
									12A-66A	0.590	0.354	0.944

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5G NR ENDC														
Operation Mode	Freq. (MHz)	Operation Distance (cm)	Max. output Power include tolerance (dBm)	Max. Allowable Antenna Gain (dBi)	Max. output Power (mW)	Power Density (PD) (mW/cm ²)	PD Limit (mW/cm ²)	Power Density / Limit		Operation Mode	Max LTE PD / Limit	Max ENDC PD / Limit	Σ (Power Density / Limit) of PCC + SCC	
LTE-Band 2	1850.70	20	25.00	7.50	1778.28	0.354	1.000	0.354		L5 + n2A	0.573	0.354	0.927	
LTE-Band 5	824.70	20	25.00	7.00	1584.89	0.315	0.550	0.573		L12 + n2A	0.590	0.354	0.944	
LTE-Band 12	699.70	20	25.00	6.40	1380.38	0.275	0.466	0.590		L2 + n5A	0.354	0.573	0.927	
LTE-Band 13	779.50	20	25.00	7.00	1584.89	0.315	0.520	0.606		L30 + n5A	0.083	0.573	0.656	
LTE-Band 25	1850.70	20	25.00	8.39	2182.73	0.434	1.000	0.434		L48 + n5A	0.040	0.573	0.613	
LTE-Band 26	824.70	20	25.00	7.40	1737.80	0.346	0.550	0.629		L66 + n5A	0.354	0.573	0.927	
LTE-Band 30	2307.50	20	25.00	1.22	418.79	0.083	1.000	0.083		L2 + n41A	0.354	0.369	0.723	
LTE-Band 48	3552.50	20	25.00	-1.92	203.24	0.040	1.000	0.040		L25 + n41A	0.434	0.369	0.803	
LTE-Band 66	1710.70	20	25.00	7.50	1778.28	0.354	1.000	0.354		L26 + n41A	0.629	0.369	0.998	
n2	1850.70	20	25.00	7.50	1778.28	0.354	1.000	0.354		L66 + n41A	0.354	0.369	0.723	
n5	824.70	20	25.00	7.00	1584.89	0.315	0.550	0.573		L5 + n66A	0.573	0.354	0.927	
n41	2498.50	20	25.00	7.68	1853.53	0.369	1.000	0.369		L12 + n66A	0.590	0.354	0.944	
n66	1710.70	20	25.00	7.50	1778.28	0.354	1.000	0.354		L13 + n66A	0.606	0.354	0.960	
n71	665.50	20	25.00	6.50	1412.54	0.281	0.444	0.633		L48 + n66A	0.040	0.354	0.394	
										L2 + n71A	0.354	0.633	0.987	
										L66 + n71A	0.354	0.633	0.987	

Note:

- For conservativeness, the lowest uplink frequency of each band is used to determine the MPE limit of that band.
- Σ (E- Field Strength / Limit): This is a summation of [(E- Field Strength for each transmitter/antenna included in the simultaneous transmission) / (corresponding MPE limit)].
- Considering the collocated transmitters, the aggregated (E- Field Strength /limit) is smaller than 1, and MPE of collocated transmitters is compliant

~ End of Report ~

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