

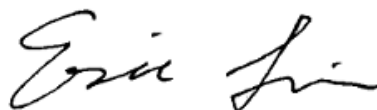
## 1 Cover Page

# RF MPE REPORT

**Application No.:** KSCR2210001989AT  
**FCC ID:** 2AJONSEED-060A-06G  
**Applicant:** Shanghai Rising Digital Co., Ltd.  
**Address of Applicant:** No. 318, Chuanda Road, Pudong New District, Shanghai, China  
**Manufacturer:** Shanghai Rising Digital Co., Ltd.  
**Address of Manufacturer:** No. 318, Chuanda Road, Pudong New District, Shanghai, China  
**Factory:** Shanghai Rising Digital Co., Ltd.  
**Address of Factory:** No. 318, Chuanda Road, Pudong New District, Shanghai, China  
**Equipment Under Test (EUT):**  
**EUT Name:** Controller  
**Model No.:** SEED-060A-06(G)  
**Add Model No.:** SEED-060A-06, SEED-060A-06(L), SEED-060B-06, SEED-060C-06, SEED-060D-06  
**Standard(s) :** FCC Rules 47 CFR §2.1091  
 KDB 447498 D01 General RF Exposure Guidance v06  
**Date of Receipt:** 2022-10-21  
**Date of Test:** 2022-10-25 to 2022-12-14  
**Date of Issue:** 2022-12-23

<b>Test Result:</b>	<b>Pass*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.



Eric Lin  
EMC Lab Manager



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Revision Record			
Version	Description	Date	Remark
00	Original	2022-12-23	/

Authorized for issue by:			
		Damon Zhou	
		Damon Zhou / Project Engineer	
		Eric Lin	
		Eric Lin / Reviewer	



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### 3 General Information

#### 3.1 General Description of E.U.T.

Power supply:	DC 24V
---------------	--------

#### 3.2 Technical Specifications

For BLE

Operation Frequency:	2402MHz to 2480MHz
Modulation Type:	GFSK
Number of Channels:	40
Channel Spacing:	2MHz
Antenna Type:	PCB Antenna
Antenna Gain:	-1.58dBi (Provided by manufacturer)
Antenna Number:	1

For GSM

Operation Frequency Band:	GSM850/GSM1900
Modulation Type:	GMSK for GSM/GPRS 8PSK for EGPRS
Antenna Type:	PIFA Antenna
Antenna Gain:	GSM850: -0.42dBi (Provided by the manufacturer) GSM1900: -0.27dBi (Provided by the manufacturer)

Test mode:	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
GSM850	TX	Channel 128	Channel 190	Channel 251
		824.2MHz	836.6 MHz	848.8 MHz
	RX	Channel 128	Channel 190	Channel 251
		869.2 MHz	881.6 MHz	893.8 MHz
Test mode:	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
GSM1900	TX	Channel 512	Channel 661	Channel 810
		1850.2MHz	1880.0 MHz	1909.8 MHz
	RX	Channel 512	Channel 661	Channel 810



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		1930.2 MHz	1960.0 MHz	1989.8 MHz
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## For WCDMA

Operation Frequency Band:	UMTS B2, B4, B5
Modulation Type:	QPSK, BPSK
Antenna Type:	PIFA Antenna
Antenna Gain:	UMTS B2: -0.27dBi (Provided by the manufacturer) UMTS B4: -0.27dBi (Provided by the manufacturer) UMTS B5: -0.42dBi (Provided by the manufacturer)

Test mode:	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
WCDMA B2	TX	Channel 9262	Channel 9400	Channel 9538
		1852.4 MHz	1880.0 MHz	1907.6 MHz
	RX	Channel 9662	Channel 9800	Channel 9938
		1932.4 MHz	1960 MHz	1987.6 MHz
Test mode:	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
WCDMA B4	TX	Channel 1312	Channel 1413	Channel 1513
		1712.4 MHz	1732.6 MHz	1752.6 MHz
	RX	Channel 1537	Channel 1638	Channel 1738
		2112.4 MHz	2132.6 MHz	2152.6 MHz
Test mode:	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
WCDMA B5	TX	Channel 4132	Channel 4183	Channel 4233
		826.4 MHz	836.6 MHz	846.6 MHz
	RX	Channel 4357	Channel 4408	Channel 4458
		871.4 MHz	881.6 MHz	891.6 MHz

## For LTE

LTE Operation Frequency Band:	LTE Band 2,4,5,7,12,13,25,26,38,41
Modulation Type:	QPSK, 16QAM, 64QAM
Antenna Type:	PIFA Antenna
Antenna Gain:	Band 2: -0.27dBi (Provided by the manufacturer)



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	Band 4: -0.27dBi (Provided by the manufacturer) Band 5: -0.42dBi (Provided by the manufacturer) Band 7: -0.27dBi (Provided by the manufacturer) Band 12: -0.42dBi (Provided by the manufacturer) Band 13: -0.42dBi (Provided by the manufacturer) Band 25: -0.27dBi (Provided by the manufacturer) Band 26: -0.42dBi (Provided by the manufacturer) Band 38: -0.27dBi (Provided by the manufacturer) Band 41: -0.27dBi (Provided by the manufacturer)
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Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE FDD Band 2	1.4	1850.7	1880	1909.3
	3	1851.5	1880	1908.5
	5	1852.5	1880	1907.5
	10	1855.0	1880	1905.0
	15	1857.5	1880	1902.5
	20	1860.0	1880	1900.0
Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE FDD Band 4	1.4	1710.7	1732.5	1754.3
	3	1711.5	1732.5	1753.5
	5	1712.5	1732.5	1752.5
	10	1715.0	1732.5	1750.0
	15	1717.5	1732.5	1747.5
	20	1720.0	1732.5	1745.0
Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE FDD Band 5	1.4	824.7	836.5	848.3
	3	825.5	836.5	847.5
	5	826.5	836.5	846.5
	10	829.0	836.5	844.0
Test mode:	Nominal Bandwidth	RF Channel		
		Low (L)	Middle (M)	High (H)



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	(MHz)	MHz	MHz	MHz
LTE FDD Band 7	5	2502.5	2535	2567.5
	10	2505	2535	2565
	15	2507.5	2535	2562.5
	20	2510	2535	2560

Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE FDD Band 12	1.4	699.7	707.5	715.3
	3	700.5	707.5	714.5
	5	701.5	707.5	713.5
	10	704	707.5	711
Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE FDD Band 13	5	779.5	782	784.5
	10	782	782	782
Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE FDD Band 25	1.4	1850.7	1880	1914.3
	3	1851.5	1880	1913.5
	5	1852.5	1880	1912.5
	10	1855.0	1880	1910
	15	1857.5	1880	1907.5
	20	1860.0	1880	1905
Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE FDD Band 26	1.4	824.7	836.5	848.3
	3	825.5	836.5	847.5
	5	826.5	836.5	846.5
	10	829	836.5	844
	15	831.5	836.5	841.5



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Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE TDD Band 38	5	2572.5	2595.0	2617.5
	10	2575.0	2595.0	2615.0
	15	2577.5	2595.0	2612.5
	20	2580.0	2595.0	2610.0
Test mode:	Nominal Bandwidth (MHz)	RF Channel		
		Low (L)	Middle (M)	High (H)
		MHz	MHz	MHz
LTE TDD Band 41	5	2502.5	2595.0	2687.5
	10	2505.0	2595.0	2685.0
	15	2507.5	2595.0	2682.5
	20	2510.0	2595.0	2680.0



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### 3.3 Test Location

All tests were performed at:

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588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China  
Tel: +86 21 6191 5666 Fax: +86 21 6191 5678

No tests were sub-contracted.

Note:

1. SGS is not responsible for wrong test results due to incorrect information (e.g., max. internal working frequency, antenna gain, cable loss, etc) is provided by the applicant. (If applicable).
2. SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (If applicable).

### 3.4 Test Facility

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

• **A2LA (Certificate No. 6332.01)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the American Association for Laboratory Accreditation(A2LA).

• **FCC (Designation Number: CN1301)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

• **ISED (CAB Identifier: CN0020)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 8617A

• **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.



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## 4 Test Standards and Limits

### 4.1 FCC Radiofrequency radiation exposure limits:

According to §1.1310, the limit for general population/uncontrolled exposures

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging 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 <sup>2</sup> )	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30



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## 4.2 Maximum transmit power

The Power Data is based on the RF Test Report KSCR221000198901&HR/2019/1001601.

### MPE Calculation

According to the formula  $S=P/4\pi R^2$ , we can calculate S which is MPE.

Note:

- 1) P (mW)
- 2) R = distance to the center of radiation of antenna (in centimeter)
- 3) MPE limit = 1mW/cm<sup>2</sup>

Band Information	Frequency (MHz)	Antenna Gain (dBi)	Gain in Linear Scale	Operation Distance R(cm)	Max Tune-up power (dBm)	Max Tune-up power (mW)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Result
GSM 850	824.2	-0.42	0.91	20	26	398.11	0.072	0.55	Pass
GSM 1900	1850.2	-0.27	0.94	20	23	199.53	0.037	1	Pass
WCDMA Band 2	1852.4	-0.27	0.94	20	25	316.23	0.059	1	Pass
WCDMA Band 4	1712.4	-0.27	0.94	20	25	316.23	0.059	1	Pass
WCDMA Band 5	826.4	-0.42	0.91	20	25	316.23	0.057	0.55	Pass
LTE Band 2	1850.7	-0.27	0.94	20	25	316.23	0.059	1	Pass
LTE Band 4	1710.7	-0.27	0.94	20	25	316.23	0.059	1	Pass
LTE Band 5	824.7	-0.42	0.91	20	25	316.23	0.057	0.55	Pass
LTE Band 7	2502.5	-0.27	0.94	20	25	316.23	0.059	1	Pass
LTE Band 12	699.7	-0.42	0.91	20	25	316.23	0.057	0.47	Pass
LTE Band 13	779.5	-0.42	0.91	20	25	316.23	0.057	0.52	Pass
LTE Band 25	1850.7	-0.27	0.94	20	25	316.23	0.059	1	Pass
LTE Band 26	814.7	-0.42	0.91	20	25	316.23	0.057	0.54	Pass
LTE Band 38	2572.5	-0.27	0.94	20	25	316.23	0.059	1	Pass
LTE Band 41	2498.5	-0.27	0.94	20	25	316.23	0.059	1	Pass
BT	2402	-1.58	0.70	20	-1.65	0.68	0.0001	1	Pass

### Simultaneous transmission:

The BT&GSM/WCDMA/LTE function can simultaneous transmitting.so the maximum rate of MPE is  $0.0001/1+0.072/0.55=0.131\leq 1.0$ .

According to the KDB447498 section 7.2 determine the device is exclusion from SAR test.

--End of the Report--



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