

Industrial Internet Innovation Center (Shanghai) Co.,Ltd.

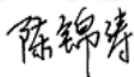
SAR TEST REPORT

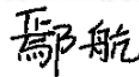
PRODUCT	SIMCom Module
BRAND	SIMCom
MODEL	SIM8262A-M2
APPLICANT	SIMCom Wireless Solutions Limited
FCC ID	2AJYU-8XN0003
ISSUE DATE	February 10, 2023
STANDARD(S)	FCC 47 CFR Part 2 §2.1091

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Approved by: *Zhang Min*







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1 Summary of Test Report

1.1 Test Standard (s)

No.	Test Standard(s)	Title	Version
1	FCC 47 CFR Part 2 §2.1091	FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS. Section 2.1091 Radiofrequency radiation exposure evaluation: mobile devices	N/A

1.2 Reference Documents

No.	Reference Document(s)	Title	Version
1	KDB447498	General RF Exposure Guidance	D01 v06

1.3 Data Provided by Applicant

No.	Item(s)	Data
1	Maximum output power	Standalone: ANT0:WCDMA Band II/IV:25.5dBm; Band V:25.7dBm ANT0:LTE Band 7:22.0dBm; Band 26:24.0dBm ANT0:LTE Band 2/4/5/17/30/66/71:23.0dBm ANT0:LTE Band 12/13/14/25/38/41:23.5dBm ANT0:NR SA n7:25.5dBm; n2/n25:25.0dBm; n12/n30/n66/n71:24.5dBm ANT0:NR SA n5/n13/n14/n26:24.0dBm ANT2:LTE Band 43:23.5dBm; LTE Band 42/48:23.0dBm ANT2:NR SA n41:27.5dBm; n78:27.0dBm; n77:26.0dBm ANT2:NR SA n38:25.0dBm; n48:22.0dBm EN-DC Configuration 1: ANT0:LTE Band 7:22.0dBm; Band 26:24.0dBm ANT0:LTE Band 2/4/5/30/66/71:23.0dBm ANT0:LTE Band 12/13/14/25/38/41:23.5dBm ANT2:NR n41:27.5dBm; n78:27.0dBm; n77:26.0dBm ANT2:NR n2/n25/n38:25.0dBm; n66:24.5dBm EN-DC Configuration 2: ANT2:LTE Band 2/66:23.0dBm ANT0:NR n7:25.5dBm; n12/n30:24.5dBm; n5/n14:24.0dBm UL MIMO(ANT0+ANT2):n41:26.0dBm
2	Maximum antenna gain	WCDMA Band II:0.98 dBi; Band IV:1.25 dBi; Band V:1.58 dBi LTE B2:1.35 dBi; B4:1.25 dBi; B5:1.58 dBi; B7:1.15 dBi; B12:0.73 dBi; B13:1.01 dBi; B14:1.32 dBi; B17:1.15 dBi; B25:0.83 dBi; B26:1.48 dBi; B30:1.25 dBi; B38:1.01 dBi; B41:1.13 dBi; B42:1.44 dBi; B43:1.12 dBi; B48:1.13 dBi; B66:1.25 dBi; B71:0.74 dBi; NR n2:1.35 dBi; n5:1.58 dBi; n7:1.15 dBi; n12:0.73 dBi; n13:1.01 dBi; n14:1.32 dBi; n25:0.83 dBi; n26:1.48 dBi; n30:1.25 dBi; n38:1.01 dBi; n41:1.13 dBi; n48:1.13 dBi; n66:1.25 dBi; n71:0.74 dBi; n77:1.44 dBi; n78:1.12 dBi;
NOTE: The data of Maximum output power and Maximum antenna gain are provided by the customer may affect the validity of the test results in this report, and the impact and consequences of this shall be undertaken by the customer.		

2 General Information of The Laboratory

2.1 Testing Laboratory

Lab Name	Industrial Internet Innovation Center (Shanghai) Co.,Ltd.
Address	Building 4, No. 766, Jingang Road, Pudong, Shanghai, China
Telephone	021-68866880
FCC Registration No.	958356
FCC Designation No.	CN1177

2.2 Laboratory Environmental Requirements

Temperature	18°C~25°C
Relative Humidity	25%RH~75%RH

2.3 Project Information

Project Manager	Zhang Heng
Test Date	N/A

3 General Information of The Customer

3.1 Applicant

Company	SIMCom Wireless Solutions Limited
Address	SIMCom Headquarters Building, Building 3, No.289 Linhong Road, Changning District, Shanghai, China
Telephone	86 21 3157 5100

3.2 Manufacturer

Company	SIMCom Wireless Solutions Limited
Address	SIMCom Headquarters Building, Building 3, No.289 Linhong Road, Changning District, Shanghai, China

4 General Information of The Product

4.1 Product Description for Equipment under Test (EUT)

Product	SIMCom Module
Model	SIM8262A-M2
Date of Receipt	N/A
EUT ID*	N/A
SN/IMEI	N/A
Supported Radio Technology and Bands	WCDMA Band I/II/IV/V/VIII LTE Band 1/2/4/5/7/8/12/13/14/17/18/19/20/25/26/ 29/30/38/41/42/43/46/48/66/71 UL CA Band 1C/2C/5B/38C/41C/42C/43C/48C/66C/ 1A-5A/1A-7A/5A-7A/2A-12A/4A-12A/2A-66A NR SA:n1/n2/n5/n7/n8/n12/n13/n14/n18/n20/n25/n26/n30/ n38/n41/n48/n66/n71/n77/n78/n79; UL MIMO:n41 NSA: DC_8A_n41A/DC_25A_n41A/DC_26A_n41A/DC_1A_n77A/DC_3A_n77A/ DC_8A_n77A/DC_18A_n77A/DC_19A_n77A/DC_41A_n77A/DC_1A_n78A/ DC_2A_n78A/DC_4A_n78A/DC_5A_n78A/DC_7A_n78A/DC_8A_n78A/ DC_12A_n78A/DC_18A_n78A/DC_19A_n78A/DC_20A_n78A/DC_38A_n78A/ DC_41A_n78A/DC_66A_n78A/DC_1A_n79A/DC_8A_n79A/DC_19A_n79A/ DC_41A_n79A/DC_13A_n66A/DC_5A_n2A/DC_14A_n2A/DC_30A_n2A/ DC_2A_n5A/DC_66A_n5A/DC_2A_n12A/DC_66A_n12A/DC_2A_n14A/ DC_66A_n14A/DC_2A_n30A/DC_2A_n66A/DC_5A_n66A/DC_12A_n66A/ DC_14A_n66A/DC_12A_n2A/DC_66A_n2A/DC_71A_n2A/DC_2A_n41A/ DC_71A_n66A/DC_66A_n25A/DC_66A_n41A/DC_66A_n7A/DC_13A_n2A/ DC_7A_n66A/DC_20A_n41A/DC_1A_n41A/DC_13A_n78A/DC_4A_n41A/ DC_66A_n38A/DC_2A_n38A/DC_4A_n38A/DC_7A_n79A/DC_12A_n25A/ DC_20A_n77A/DC_7A_n77A/DC_71A_n78A/DC_2A_n7A/DC_7A_n2A/ DC_5A_n77A/DC_13A_n77A/DC_66A_n77A/DC_5A_n79A/DC_12A_n77A/ DC_14A_n77A/DC_30A_n77A/DC_26A_n78A/DC_4A_n2A/DC_7A_n25A/ DC_26A_n25A/DC_13A_n25A/DC_25A_n78A/DC_25A_n77A/DC_71A_n77A/ DC_7C_n78A
Hardware Version	V1.02
Software Version	2212B03V03X62M44A-M2
NOTE: EUT ID is the internal identification code of the laboratory.	

4.2 Description for Auxiliary Equipment (AE)

AE ID*	Description	Model	SN/Remark
N/A	N/A	N/A	N/A
NOTE: AE ID is the internal identification code of the laboratory.			

5 General Description

5.1 Evaluation Distance

Evaluation distance 20cm as a distance between the equipment and the operator or user when it is used normally. The distance used for the assessment had be specified by the manufacturer and be onsistent with the intended usage of the equipment.

5.2 Evaluation Method

For conservative evaluation consideration, only maximum power of each frequency band based on the tighter limits respectively are used to calculate the boundary power density.

Based on the KDB447498 D01 and FCC 47 CFR Part 2 § 2.1091, the DUT is evaluated as a mobile device.

$$S = \frac{P \times G}{4\pi d^2}$$

Where

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power density in milliwatts / square centimeter

6 Assessment Results

6.1 Standalone Evaluation

6.1.1 Limit/Criterion

Table 6.1.1-1 Limits for Occupational / Controlled Exposure

Limits for Occupational / Controlled Exposure				
Frequency (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3 – 3.0	614	1.63	(100)*	6
3.0 – 30	1824/f	4.89/f	(900/f)*	6
30 – 300	61.4	0.163	1	6
300 – 1500	--	--	F/300	6
1500 - 100000	--	--	5	6
Limits for General Population / Uncontrolled Exposure				
Frequency (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Times E ² , H ² or S (minutes)
0.3 – 1.34	614	1.63	(100)*	30
1.34 – 30	824/f	2.19/f	(180/f)*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	--	--	F/1500	30
1500 - 100000	--	--	1	30
NOTE:				
f = frequency in MHz; * Plane-wave equivalent power density.				
For the DUT, the limits for General Population / Uncontrolled Exposure are applicable.				

6.1.2 Standalone Evaluation

Table 6.1.2-1: Standalone Evaluation

Antenna	Band	Frequency (MHz)	Tune Up (dBm)	Highest Output Power (dBm)	Highest Output Power (mW)	Antenna Gain(dBi)	Numeric antenna gain	Power density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Power density /Limit
ANT0	WCDMA Band II	1850	25.50	25.50	354.81	0.98	1.253	0.088	1.000	0.088
ANT0	WCDMA Band IV	1710	25.50	25.50	354.81	1.25	1.334	0.094	1.000	0.094
ANT0	WCDMA Band V	824	25.70	25.70	371.54	1.58	1.439	0.106	0.549	0.193
ANT0	LTE B2	1850	23.00	23.00	199.53	1.35	1.365	0.054	1.000	0.054
ANT0	LTE B4	1710	23.00	23.00	199.53	1.25	1.334	0.053	1.000	0.053
ANT0	LTE B5	824	23.00	23.00	199.53	1.58	1.439	0.057	0.549	0.104
ANT0	LTE B7	2500	22.00	22.00	158.49	1.15	1.303	0.041	1.000	0.041
ANT0	LTE B12	699	23.50	23.50	223.87	0.73	1.183	0.053	0.466	0.114
ANT0	LTE B13	777	23.50	23.50	223.87	1.01	1.262	0.056	0.518	0.108
ANT0	LTE B14	788	23.50	23.50	223.87	1.32	1.355	0.060	0.525	0.114
ANT0	LTE B17	704	23.00	23.00	199.53	1.15	1.303	0.052	0.469	0.111
ANT0	LTE B25	1850	23.50	23.50	223.87	0.83	1.211	0.054	1.000	0.054
ANT0	LTE B26	814	24.00	24.00	251.19	1.48	1.406	0.070	0.543	0.129
ANT0	LTE B30	2305	23.00	23.00	199.53	1.25	1.334	0.053	1.000	0.053
ANT0	LTE B38	2570	23.50	23.50	223.87	1.01	1.262	0.056	1.000	0.056
ANT0	LTE B41	2496	23.50	23.50	223.87	1.13	1.297	0.058	1.000	0.058
ANT0	LTE B66	1710	23.00	23.00	199.53	1.25	1.334	0.053	1.000	0.053
ANT0	LTE B71	663	23.00	23.00	199.53	0.74	1.186	0.047	0.442	0.106
ANT2	LTE B42	3400	23.00	23.00	199.53	1.44	1.393	0.055	1.000	0.055
ANT2	LTE B43	3600	23.50	23.50	223.87	1.12	1.294	0.058	1.000	0.058
ANT2	LTE B48	3550	23.00	23.00	199.53	1.13	1.297	0.051	1.000	0.051
ANT2	EN-DC LTE B2	1850	23.00	23.00	199.53	1.35	1.365	0.054	1.000	0.054
ANT2	EN-DC LTE B66	1710	23.00	23.00	199.53	1.25	1.334	0.053	1.000	0.053
ANT0	SA n2	1850	25.00	25.00	316.23	1.35	1.365	0.086	1.000	0.086
ANT0	SA/NSA n5	824	24.00	24.00	251.19	1.58	1.439	0.072	0.549	0.131

Antenna	Band	Frequency (MHz)	Tune Up (dBm)	Highest Output Power (dBm)	Highest Output Power (mW)	Antenna Gain(dBi)	Numeric antenna gain	Power density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Power density /Limit
ANT0	SA/NSA n7	2500	25.50	25.50	354.81	1.15	1.303	0.092	1.000	0.092
ANT0	SA/NSA n12	699	24.50	24.50	281.84	0.73	1.183	0.066	0.466	0.142
ANT0	SA n13	777	24.00	24.00	251.19	1.01	1.262	0.063	0.518	0.122
ANT0	SA/NSA n14	788	24.00	24.00	251.19	1.32	1.355	0.068	0.525	0.129
ANT0	SA n25	1850	25.00	25.00	316.23	0.83	1.211	0.076	1.000	0.076
ANT0	SA n26	814	24.00	24.00	251.19	1.48	1.406	0.070	0.543	0.129
ANT0	SA/NSA n30	2305	24.50	24.50	281.84	1.25	1.334	0.075	1.000	0.075
ANT0	SA n66	1710	24.50	24.50	281.84	1.25	1.334	0.075	1.000	0.075
ANT0	SA n71	663	24.50	24.50	281.84	0.74	1.186	0.066	0.442	0.149
ANT2	SA/NSA n38	2570	25.00	25.00	316.23	1.01	1.262	0.079	1.000	0.079
ANT2	SA/NSA n41	2496	27.50	27.50	562.34	1.13	1.297	0.145	1.000	0.145
ANT2	SA n48	3550	22.00	22.00	158.49	1.13	1.297	0.041	1.000	0.041
ANT2	SA/NSA n77	3300	26.00	26.00	398.11	1.44	1.393	0.110	1.000	0.110
ANT2	SA/NSA n78	3300	27.00	27.00	501.19	1.12	1.294	0.129	1.000	0.129
ANT2	NSA n2	1850	25.00	25.00	316.23	1.35	1.365	0.086	1.000	0.086
ANT2	NSA n25	1850	25.00	25.00	316.23	0.83	1.211	0.076	1.000	0.076
ANT2	NSA n66	1710	24.50	24.50	281.84	1.25	1.334	0.075	1.000	0.075
ANT0	UL MIMO n41	2496	23.00	23.00	199.53	1.13	1.297	0.051	1.000	0.051
ANT2	UL MIMO n41	2496	23.00	23.00	199.53	1.13	1.297	0.051	1.000	0.051

6.2 Simultaneous transmission Evaluation

Table 6.2-1 Simultaneous transmission Evaluation

Mode	Antenna	Band	1	Antenna	Band	2	1+2
			Power density /Limit			Power density /Limit	Σ (Power density /Limit)
DC_25A_n41A	ANT0	LTE Band25	0.054	ANT2	n41	0.145	0.199
DC_26A_n41A	ANT0	LTE Band26	0.129	ANT2	n41	0.145	0.274
DC_41A_n77A	ANT0	LTE Band41	0.058	ANT2	n77	0.110	0.168
DC_2A_n78A	ANT0	LTE Band2	0.054	ANT2	n78	0.129	0.183
DC_4A_n78A	ANT0	LTE Band4	0.053	ANT2	n78	0.129	0.182
DC_5A_n78A	ANT0	LTE Band5	0.104	ANT2	n78	0.129	0.233
DC_7A_n78A	ANT0	LTE Band7	0.041	ANT2	n78	0.129	0.170
DC_12A_n78A	ANT0	LTE Band12	0.114	ANT2	n78	0.129	0.243
DC_38A_n78A	ANT0	LTE Band38	0.056	ANT2	n78	0.129	0.185
DC_41A_n78A	ANT0	LTE Band41	0.058	ANT2	n78	0.129	0.187
DC_66A_n78A	ANT0	LTE Band66	0.053	ANT2	n78	0.129	0.182
DC_13A_n66A	ANT0	LTE Band13	0.108	ANT2	n66	0.075	0.183
DC_5A_n2A	ANT0	LTE Band5	0.104	ANT2	n2	0.086	0.190
DC_14A_n2A	ANT0	LTE Band14	0.114	ANT2	n2	0.086	0.200
DC_30A_n2A	ANT0	LTE Band30	0.053	ANT2	n2	0.086	0.139
DC_2A_n66A	ANT0	LTE Band2	0.054	ANT2	n66	0.075	0.129
DC_5_n66A	ANT0	LTE Band5	0.104	ANT2	n66	0.075	0.179
DC_12A_n66A	ANT0	LTE Band12	0.114	ANT2	n66	0.075	0.189
DC_14A_n66A	ANT0	LTE Band14	0.114	ANT2	n66	0.075	0.189
DC_12A_n2A	ANT0	LTE Band12	0.114	ANT2	n2	0.086	0.200
DC_66A_n2A	ANT0	LTE Band66	0.053	ANT2	n2	0.086	0.139
DC_71A_n2A	ANT0	LTE Band71	0.106	ANT2	n2	0.086	0.192
DC_2A_n41A	ANT0	LTE Band2	0.054	ANT2	n41	0.145	0.199
DC_71A_n66A	ANT0	LTE Band71	0.106	ANT2	n66	0.075	0.181
DC_66A_n25A	ANT0	LTE Band66	0.053	ANT2	n25	0.076	0.129
DC_66A_n41A	ANT0	LTE Band66	0.053	ANT2	n41	0.145	0.198
DC_13A_n2A	ANT0	LTE Band13	0.108	ANT2	n2	0.086	0.194
DC_7A_n66A	ANT0	LTE Band7	0.041	ANT2	n66	0.075	0.116
DC_13A_n78A	ANT0	LTE Band13	0.108	ANT2	n78	0.129	0.237
DC_4A_n41A	ANT0	LTE Band4	0.053	ANT2	n41	0.145	0.198
DC_66A_n38A	ANT0	LTE Band66	0.053	ANT2	n38	0.079	0.132
DC_2A_n38A	ANT0	LTE Band2	0.054	ANT2	n38	0.079	0.133
DC_4A_n38A	ANT0	LTE Band4	0.053	ANT2	n38	0.079	0.132
DC_12A_n25A	ANT0	LTE Band12	0.114	ANT2	n25	0.076	0.190
DC_7A_n77A	ANT0	LTE Band7	0.041	ANT2	n77	0.110	0.151
DC_71A_n78A	ANT0	LTE Band71	0.106	ANT2	n78	0.129	0.235
DC_7A_n2A	ANT0	LTE Band7	0.041	ANT2	n2	0.086	0.127
DC_5A_n77A	ANT0	LTE Band5	0.104	ANT2	n77	0.110	0.214
DC_13A_n77A	ANT0	LTE Band13	0.108	ANT2	n77	0.110	0.218
DC_66A_n77A	ANT0	LTE Band66	0.053	ANT2	n77	0.110	0.163
DC_12A_n77A	ANT0	LTE Band12	0.114	ANT2	n77	0.110	0.224
DC_14A_n77A	ANT0	LTE Band14	0.114	ANT2	n77	0.110	0.224
DC_30A_n77A	ANT0	LTE Band30	0.053	ANT2	n77	0.110	0.163
DC_26A_n78A	ANT0	LTE Band26	0.129	ANT2	n78	0.129	0.258
DC_4A_n2A	ANT0	LTE Band4	0.053	ANT2	n2	0.086	0.139
DC_7A_n25A	ANT0	LTE Band7	0.041	ANT2	n25	0.076	0.117
DC_26A_n25A	ANT0	LTE Band26	0.129	ANT2	n25	0.076	0.205
DC_13A_n25A	ANT0	LTE Band13	0.108	ANT2	n25	0.076	0.184
DC_25A_n78A	ANT0	LTE Band25	0.054	ANT2	n78	0.129	0.183
DC_25A_n77A	ANT0	LTE Band25	0.054	ANT2	n77	0.110	0.164
DC_71A_n77A	ANT0	LTE Band71	0.111	ANT2	n77	0.110	0.221

Mode	Antenna	Band	1	Antenna	Band	2	1+2
			Power density /Limit			Power density /Limit	Σ (Power density /Limit)
DC_7C_n78A	ANT0	LTE Band7	0.041	ANT2	n78	0.129	0.170
DC_2A_n5A	ANT2	LTE Band2	0.054	ANT0	n5	0.131	0.185
DC_66A_n5A	ANT2	LTE Band66	0.053	ANT0	n5	0.131	0.184
DC_2A_n12A	ANT2	LTE Band2	0.054	ANT0	n12	0.142	0.196
DC_66A_n12A	ANT2	LTE Band66	0.053	ANT0	n12	0.142	0.195
DC_2A_n14A	ANT2	LTE Band2	0.054	ANT0	n14	0.129	0.183
DC_66A_n14A	ANT2	LTE Band66	0.053	ANT0	n14	0.129	0.182
DC_2A_n30A	ANT2	LTE Band2	0.054	ANT0	n30	0.075	0.129
DC_66A_n7A	ANT2	LTE Band66	0.053	ANT0	n7	0.092	0.145
DC_2A_n7A	ANT2	LTE Band2	0.054	ANT0	n7	0.092	0.146
UL MIMO	ANT0	n41	0.051	ANT2	n41	0.051	0.102

Note1: Σ (Power density /Limit) : This is a summation of [(Power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)].

Note2: Considering the Highest output power of NSA and UL MIMO mode performance listed in the table above, the aggregated (Power density /Limit) is smaller than 1, and MPE collocated transmitters is compliant.

Annex A: Revised History

Version	Revised Content
V00	Initial
V01	Update Tune Up Information

END OF REPORT