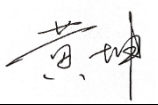
TEST REPORT

Applicant:	Sercomm Corporation
EUT Description:	G5SEM
Model:	G5SEM
Brand:	N/A
FCC ID:	P27-TMOG5SEM
Standards:	FCC 47 CFR Part 2.1091
Date of Receipt:	2025/02/06
Date of Issue:	2025/04/18

TOWE. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

the results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of the model are manufactured with identical electrical and mechanical components. All sample tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise. without written approval of TOWE, the test report shall not be reproduced except in full.



Huang Kun
Approved By:

Chen Chengfu
Reviewed By:

Revision History

Rev.	Issue Date	Description	Revised by
01	2025/04/18	Original	Chen Chengfu

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1 General Description

1.1 Lab Information

1.1.1 Testing Location

These measurements tests were conducted at the Sushi TOWE Wireless Testing(Shenzhen) Co., Ltd. facility located at F401 and F101, Building E, Hongwei Industrial Zone, Liuxian 3rd Road, Bao'an District, Shenzhen, China. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014
Tel.: +86-755-27212361
Contact Email: info@towewireless.com

1.1.2 Test Facility / Accreditations

A2LA (Certificate Number: 7088.01)
This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).

FCC Designation No.: CN1353
Sushi TOWE Wireless Testing(Shenzhen) Co., Ltd. has been recognized as an accredited testing laboratory. Designation Number: CN1353.

ISED CAB identifier: CN0152
Sushi TOWE Wireless Testing(Shenzhen) Co., Ltd. has been recognized by ISED as an accredited testing laboratory.
CAB identifier: CN0152
Company Number: 31000

1.2 Client Information

1.2.1 Applicant

Applicant:	Sercomm Corporation
Address:	8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C.

1.2.2 Manufacturer

Manufacturer:	Sercomm Corporation
Address:	8F, No. 3-1, YuanQu St., NanKang, Taipei 115, Taiwan, R.O.C.

1.3 Product Information

EUT Description:	G5SEM
Model:	G5SEM
Brand:	N/A
Hardware Version:	V1.1
Software Version:	0.00.02
IMEI:	355660790004917
Antenna Type:	☒ External, ☐ Integrated
Power Class:	Class 2: n41/77 for NSA; n25/66/71 for SA UL MIMO/TXD Class 1.5: n41 and n77 for SA UL MIMO/TXD Class 3: All
Feature:	UL 2*2 MIMO: NR Band n25; NR Band n41; NR Band n48; NR Band n66; NR Band n71; NR Band n77;

Frequency Bands:

Band	TX Frequency	RX Frequency
LTE Band 2	1850 to 1910 MHz	1930 to 1990 MHz
LTE Band 4	1710 to 1755 MHz	2110 to 2155 MHz
LTE Band 5	824 to 849 MHz	869 to 894 MHz
LTE Band 12	699 to 716 MHz	729 to 746 MHz
LTE Band 25	1850 to 1915MHz	1930 to 1995 MHz
LTE Band 41	2496 to 2690MHz	2496 to 2690MHz
LTE Band 48	3550 to 3700 MHz	3550 to 3700 MHz
LTE Band 66	1710 to 1780 MHz	2110 to 2200 MHz
LTE Band 71	663 to 698 MHz	617 to 652 MHz
NR Band n25	1850 to 1915MHz	1930 to 1995 MHz
NR Band n41	2496 to 2690 MHz	2496 to 2690 MHz
NR Band n48	3550 to 3700 MHz	3550 to 3700 MHz
NR Band n66	1710 to 1780 MHz	2110 to 2200 MHz
NR Band n71	663 to 698 MHz	617 to 652 MHz
NR Band n77	3450 to 3550 MHz	3450 to 3550 MHz
	3700 to 3980 MHz	3700 to 3980 MHz

LTE UL CA:
UL CA_2C; UL CA_66C; UL CA_66B;
UL CA_2A-4A; UL CA_2A-5A; UL CA_2A-12A; UL CA_2A-66A;
UL CA_2A-71A; UL CA_4A-5A; UL CA_4A-12A; UL CA_4A-71A;
UL CA_5A-66A; UL CA_12A-66A; UL CA_66A-71A;

NSA:
DC_66A_n25A; DC_2A_n41A; DC_66A_n41A; DC_2A_n66A;
DC_2A_n71A; DC_66A_n71A;

NR CA:
n25A-n41A; n25A-n48A; n25A-n66A; n41A-n66A; n48A-n66A;
n25A-n71A; n41A-n71A; n48A-n71A; n66A-n71A;
n25A-n77A; n66A-n77A; n71A-n77A;

Antenna Gain:	Band	Ant1(dBi)	Ant2(dBi)	Ant7(dBi)	Ant8(dBi)
	LTE Band 2	4.5	/	4.5	/
	LTE Band 4	1.5	/	1.5	/
	LTE Band 5	/	5	/	5
	LTE Band 12	/	5	/	5
	LTE Band 25	4.5	/	4.5	/
	LTE Band 41	2.5	/	2.5	/
	LTE Band 48	0	/	0	/
	LTE Band 66	1.5	/	1.5	/
	LTE Band 71	/	4.4	/	4.4
	NR Band n25	4.5	/	4.5	/
	NR Band n41	2.5	/	2.5	/
	NR Band n48	0	/	0	/
	NR Band n66	1.5	/	1.5	/
	NR Band n71	/	4.4	/	4.4
	NR Band n77 (3450 to 3550 MHz)	0	/	0	/
	NR Band n77 (3700 to 3980 MHz)	0	/	0	/
Remark: The above EUT's information was declared by applicant, please refer to the specifications or user manual for more detailed description.					

2 Maximum Permissible RF Exposure

2.1 RF Exposure Limit Introduction

§1.1310 the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to RF radiation as specified in §1.1307(b).

(1) Table 1 to § 1.1310(e)(1)sets forth limits for Maximum Permissible Exposure (MPE) to radiofrequency electromagnetic fi elds.

Table 1 to § 1.1310(e)(1) - Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strengtl (A/m)	Power density (mW/cm)	Averaging time (minutes)
(i) Limits for Occupational/Controlled 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
300~1500			f/300	<6
1500~100000			5	<6
(ii) 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
1500~100000			1.0	<30

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

(2) Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. The phrase *fully aware* in the context of applying these exposure limits means that an exposed person has received written and/or verbal information fully explaining the potential for RF exposure resulting from his or her employment. With the exception of transient persons, this phrase also means that an exposed person has received appropriate training regarding work practices relating to controlling or mitigating his or her exposure. In situations when an untrained person is transient through a location where occupational/controlled limits apply, he or she must be made aware of the potential for exposure and be supervised by trained personnel pursuant to § 1.1307(b)(2) of this part where use of time averaging is required to ensure compliance with the general population exposure limit. The phrase exercise control means that an exposed person is allowed and also knows how to reduce or avoid exposure by administrative or engineering work practices, such as use of personal protective equipment or time averaging of exposure.

(3) General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure. For example, RF sources intended for consumer use shall be subject to the limits for general population/uncontrolled exposure in this section.

The MPE was calculated at **20cm** to show compliance with the power density limit.

2.2 Equations

Power Density is given by:

$$S=\frac{EIRP}{4\pi R^2}$$

Where:
S = Power density in mW/cm^2
EIRP= Equivalent isotropic Radiated power in mW
R = Distance from transmitting antenna in cm

Power density in units of mW/cm^2 is converted to units of W/m^2 by multiplying by 10.

Distance:

$$R=\sqrt{\frac{EIRP}{4\pi S}}$$

Where:
S = Power density in mW/cm^2
EIRP= Equivalent isotropic Radiated power in mW
R = Distance from transmitting antenna in cm

EIRP:

$$EIRP = P+G$$

Where:
EIRP = Equivalent isotropic Radiated power in mW
P = Output power at Antenna Terminals
G = Gain of Transmit Antenna (linear gain)

Source-Based Duty Cycle:
Where applicable (for example, multi-slot cell phone applications) a duty cycle factor may be applied.
Source-based time-averaged EIRP = (DC / 100)* EIRP
Where:
DC = Duty Cycle in %, as applicable
EIRP= Equivalent isotropic Radiated power in mW

MIMO and collocated transmitters (identical limit for all transmitters):
For multiple chain devices, and collocated transmitters operating simultaneously in frequency bands where the limit is identical, the total power density is calculated using the total EIRP obtained by summing the PG (in linear units) of each transmitter.
Total EIRP = (EIRP 1) + (EIRP 2) + … + (EIRP n)

MIMO and collocated transmitters:
For multiple collocated transmitters operating simultaneously in frequency bands where different limit apply:
The power density at the specified separation distance is calculated for each transmitter chain or transmitter.
The fraction of the exposure limit is calculated for each chain or transmitter as
Power density of chain or transmitter / limit applicable to the chain or transmitter.
The fractions are summed.
Compliance is established if the sum of the fractions is less than or equal to one.

3 RF Exposure Results

3.1 Standalone Exposure Calculations

For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band.
The manufacturing configures output power so that the maximum power, after accounting for manufacturing tolerances, will never exceed the maximum power level measured.
The antenna gain in the tables below is the maximum antenna gain among various channels within the specified band.

Operating Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	EIRP/ERP (dBm)	EIRP/ERP Limit (dBm)	Maximum Power (mW)	Power Density at R=20cm (mW/cm2)	Limit (mW/cm2)	Gain According to EIRP/ERP (dBi)	Gain According to Pd (dBi)	Maximum Gain Allowed (dBi)	Results
LTE Band 2/CA_2C	1850.7	4.5	25.50	30.00	33.00	354.8134	0.1989	1.0000	7.50	11.51	7.50	Pass
LTE Band 4	1710.7	1.5	25.50	27.00	30.00	354.8134	0.0997	1.0000	4.50	11.51	4.50	Pass
LTE Band 5	824.7	5	26.00	28.85	38.45	398.1072	0.1527	0.5498	14.60	10.56	10.56	Pass
LTE Band 12	699.7	5	26.00	28.85	34.77	398.1072	0.1527	0.4665	10.92	9.85	9.85	Pass
LTE Band 25	1850.7	4.5	25.50	30.00	33.00	354.8134	0.1989	1.0000	7.50	11.51	7.50	Pass
LTE Band 41	2498.5	2.5	25.50	28.00	33.00	354.8134	0.1255	1.0000	7.50	11.51	7.50	Pass
LTE Band 48	3552.5	0	23.00	23.00	23.00	199.5262	0.0397	1.0000	0.00	14.01	0.00	Pass
LTE Band 66/CA_66C/CA_66B	1710.7	1.5	25.50	27.00	30.00	354.8134	0.0997	1.0000	4.50	11.51	4.50	Pass
LTE Band 71	665.5	4.4	26.00	28.25	34.77	398.1072	0.1330	0.4437	10.92	9.63	9.63	Pass
NR Band n25	1852.5	4.5	25.50	30.00	33.00	354.8134	0.1989	1.0000	7.50	11.51	7.50	Pass
NR Band n41	2501.01	2.5	27.50	30.00	33.00	562.3413	0.1989	1.0000	5.50	9.51	5.50	Pass
NR Band n48	3555	0	23.00	23.00	23.00	199.5262	0.0397	1.0000	0.00	14.01	0.00	Pass
NR Band n66	1712.5	1.5	25.50	27.00	30.00	354.8134	0.0997	1.0000	4.50	11.51	4.50	Pass
NR Band n71	665.5	4.4	26.00	28.25	34.77	398.1072	0.1330	0.4437	10.92	9.63	9.63	Pass
NR Band n77 (3450 to 3550)	3455.01	0	28.50	28.50	30.00	707.9458	0.1408	1.0000	1.50	8.51	1.50	Pass
NR Band n77 (3700 to 3980)	3705	0	28.50	28.50	30.00	707.9458	0.1408	1.0000	1.50	8.51	1.50	Pass
NR Band n25 (MIMO)	1852.5	4.5	28.50	33.00	33.00	707.9458	0.3969	1.0000	4.50	8.51	4.50	Pass
NR Band n41(MIMO)	2501.01	2.5	30.50	33.00	33.00	1122.0185	0.3969	1.0000	2.50	6.51	2.50	Pass
NR Band n48(MIMO)	3555	0	23.00	23.00	23.00	199.5262	0.0397	1.0000	0.00	14.01	0.00	Pass
NR Band n66(MIMO)	1712.5	1.5	28.50	30.00	30.00	707.9458	0.1989	1.0000	1.50	8.51	1.50	Pass
NR Band n71(MIMO)	665.5	4.4	29.00	31.25	34.77	794.3282	0.2653	0.4437	7.92	6.63	6.63	Pass
NR Band n77(MIMO) (3450 to 3550)	3455.01	0	30.00	30.00	30.00	1000.0000	0.1989	1.0000	0.00	7.01	0.00	Pass
NR Band n77(MIMO) (3700 to 3980)	3705	0	30.00	30.00	30.00	1000.0000	0.1989	1.0000	0.00	7.01	0.00	Pass

Remark: "Maximum Power" comes from the largest "Tune-up" provided by the customer.

3.2 Multiple Sources Exposure Calculations

When a number of sources at different frequencies, and/or broadband sources, contribute to the total exposure, it becomes necessary to weigh each contribution relative to the MPE in accordance with the provisions of Table(A) and Table(B). To comply with the MPE, the fraction of the MPE in terms of E2, H2 (or power density) incurred within each frequency interval should be determined and the sum of all such fractions should not exceed unity.
In order to ensure compliance with the MPE for a controlled environment, the sum of the ratios of the power density to the corresponding MPE should not exceed unity.

$$\sum_{i=1}^{n} \frac{S_i}{MPE_i} \leq 1$$

The product also has multiple transmitters The Simultaneous Transmission Possibilities are as below:

Operating Band	Frequency (MHz)	Power Density at R=20cm (mW/cm2)	Limit (mW/cm2)	MEs
LTE Band 2/CA_2C	1850.7	0.1989	1.0000	0.1989
LTE Band 4	1710.7	0.0997	1.0000	0.0997
LTE Band 5	824.7	0.1527	0.5498	0.2777
LTE Band 12	699.7	0.1527	0.4665	0.3273
LTE Band 25	1850.7	0.1989	1.0000	0.1989
LTE Band 41	2498.5	0.1255	1.0000	0.1255
LTE Band 48	3552.5	0.0397	1.0000	0.0397
LTE Band 66/CA_66C/CA_66B	1710.7	0.0997	1.0000	0.0997
LTE Band 71	665.5	0.1330	0.4437	0.2997
NR Band n25	1852.5	0.1989	1.0000	0.1989
NR Band n41	2501.01	0.1989	1.0000	0.1989
NR Band n48	3555	0.0397	1.0000	0.0397
NR Band n66	1712.5	0.0997	1.0000	0.0997
NR Band n71	665.5	0.1330	0.4437	0.2997
NR Band n77 (3450 to 3550)	3455.01	0.1408	1.0000	0.1408
NR Band n77 (3700 to 3980)	3705	0.1408	1.0000	0.1408
NR Band n25 (MIMO)	1852.5	0.3969	1.0000	0.3969
NR Band n41(MIMO)	2501.01	0.3969	1.0000	0.3969
NR Band n48(MIMO)	3555	0.0397	1.0000	0.0397
NR Band n66(MIMO)	1712.5	0.1989	1.0000	0.1989
NR Band n71(MIMO)	665.5	0.2653	0.4437	0.5980
NR Band n77(MIMO) (3450 to 3550)	3455.01	0.1989	1.0000	0.1989
NR Band n77(MIMO) (3700 to 3980)	3705	0.1989	1.0000	0.1989

The product also has multiple transmitters. The Simultaneous Transmission Possibilities are as below:

LTE inter-band CA, EN_DC, NR inter-band CA and MIMO

The worst-case combination:

Combination	Total MEs	Limit	Conclusion
LTE UL CA_2A-12A	0.1989 + 0.3273 = 0.5262	<1	PASS
DC_2A_n71A	0.1989 + 0.2997 = 0.4986	<1	PASS
n25A-n71A	0.1989 + 0.2997 = 0.4986	<1	PASS
NR Band n71(MIMO)	0.5980	<1	PASS

~The End~