

# MPE TEST REPORT

Report No.: SHE23060106-01GE

Date: 2023-09-18

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**Applicant** : SIMCom Wireless Solutions Limited  
**Address of Applicant** : SIMCom Headquarters Building, Building 3, No.289  
Linhong Road, Changning District, Shanghai,China

**Product Name** : LTE Wireless Data Module  
**Brand Name** : SIMCom  
**Model Name** : SIM8918EA  
**Sample Acquisition Method** : Sent by Client

**Sample No.** : E23060106-01#01  
E23060106-01#02  
E23060106-01#04

**FCC ID** : 2AJYU-8XRA001

**Standard** : FCC Part 2.1091

**Date of Receipt** : 2023-07-18  
**Date of Test** : 2023-07-18 ~ 2023-09-14  
**Date of Issue** : 2023-09-18

**Remark:**

*This report details the results of the testing carried out on one sample, the results contained in this report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.*

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(Authorized signatory: Echo Mu)

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## 1 General Information

### 1.1 Testing Laboratory

Company Name	ICAS Testing Technology Service (Shanghai) Co., Ltd.
Address	No.1298, Pingan Road, Minhang District, Shanghai, China
Telephone	0086 21-51682999
Fax	0086 21-54711112
Homepage	www.icasiso.com

### 1.2 Environmental conditions

Temperature (°C)	18-25
Humidity (%RH)	40-65
Barometric Pressure (mbar)	960-1060
Ambient noise & Reflection (W/kg)	< 0.012

### 1.3 Details of Application

Applicant Company Name	SIMCom Wireless Solutions Limited
Address	SIMCom Headquarters Building, Building 3, No.289 Linhong Road, Changning District, Shanghai,China
Contact Person	Yongsheng Li
Telephone	+86 21 3252 3134
Email	yongsheng.li@simcom.com
Manufacturer Company Name	SIMCom Wireless Solutions Limited
Address	SIMCom Headquarters Building, Building 3, No.289 Linhong Road, Changning District, Shanghai,China
Factory Company Name	SIMCom Wireless Solutions Limited
Address	SIMCom Headquarters Building, Building 3, No.289 Linhong Road, Changning District, Shanghai,China

### 1.4 Details of EUT

Product Name	LTE Wireless Data Module
Brand Name	SIMCom
Test Model Name	SIM8918EA
FCC ID	2AJYU-8XRA001
Mode of Operation	GSM/GPRS/EDGE 850/1900 WCDMA/HSDPA/HSUPA Band II/ IV/V LTE FDD Band 2/4/5/7 LTE TDD Band 38/41 WLAN 802.11b/g/n(HT20/40) for 2.4GHz

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	Bluetooth Dual mode BR/EDR/BLE WLAN 802.11a/n(HT20/HT40)/ac(VHT20/VHT40/VHT80) for 5GHz		
<b>Frequency Range</b>	Band	Tx (MHz)	Rx (MHz)
	GSM 850	824 ~ 849	869 ~ 894
	GSM 1900	1850 ~ 1910	1930 ~ 1990
	WCDMA Band II	1850 ~ 1910	1930 ~ 1990
	WCDMA Band IV	1710 ~ 1755	2110 ~ 2155
	WCDMA Band V	824 ~ 849	869 ~ 894
	LTE FDD Band 2	1850 ~ 1910	1930 ~ 1990
	LTE FDD Band 4	1710 ~ 1755	2110 ~ 2155
	LTE FDD Band 5	824 ~ 849	869 ~ 894
	LTE FDD Band 7	2500 ~ 2570	2620 ~ 2690
	LTE TDD Band 38	2570 ~ 2620	2570 ~ 2620
	LTE TDD Band 41	2496 ~ 2690	2496 ~ 2690
	WLAN 2.4G	2400MHz ~ 2483.5MHz	
	Bluetooth	2400~2483.5	
	U-NII-Band I	5150MHz~5250MHz	
	U-NII-Band II	5250MHz~5350MHz	
	U-NII-Band III	5470MHz~5725MHz	
U-NII-Band IV	5725MHz ~ 5850MHz		
<b>Modulation Type</b>	GSM/GPRS	GMSK	
	EGPRS	8PSK	
	WCDMA	QPSK	
	HSDPA/HSUPA	QPSK	
		16QAM	
	LTE	QPSK	
		16QAM	
	Bluetooth BR/EDR	GFSK, $\pi/4$ -DQPSK, 8-DPSK	
	BLE	GFSK	
	WLAN 2.4G	802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n(20M/40M): OFDM(64QAM, 16QAM, QPSK, BPSK)	
WLAN 5G	256QAM, 64QAM, 16QAM, BPSK, QPSK, 128QAM, OFDM		
<b>Antenna Type</b>	External Antenna		
<b>Antenna Gain</b>	GSM/GPRS/EDGE 850: 0.64 dBi GSM/GPRS/EDGE 1900: 2.12 dBi WCDMA/HSDPA/HSUPA Band II: 2.12 dBi WCDMA/HSDPA/HSUPA Band IV: 2.95 dBi WCDMA/HSDPA/HSUPA Band V: 0.64 dBi		

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	LTE FDD Band 2: 2.12 dBi LTE FDD Band 4: 2.95 dBi LTE FDD Band 5: 0.64 dBi LTE FDD Band 7: 2.90 dBi LTE TDD Band 38: 1.64 dBi LTE TDD Band 41: 2.90 dBi WLAN 2.4G&Bluetooth: 4.01dBi WLAN 5G: 4.32dBi
<b>Extreme Temperature Range</b>	-35°C~ +75°C
<b>Hardware version</b>	8XR000-SIM8918_V1.03
<b>Software version</b>	SIM8918B01V01

## 2 Maximum Permissible Exposure (MPE)

### 2.1 Limits

According to FCC Part 1.1307, systems operating under the provisions of this section shall be operated in a manner the ensures that the public is not exposed to radio frequency energy level in excess of the commission's guidelines.

**TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)**

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
<b>(A) Limits for Occupational/Controlled Exposure</b>				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f <sup>2</sup>	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
<b>(B) Limits for General Population/Uncontrolled Exposure</b>				
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
300-1,500			f/1500	30
1,500-100,000			1.0	30

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

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## 2.2 Assessment methods

Calculation Formula from FCC OET 65:

$$S = \frac{P * G}{4 * \pi * R^2}$$

Where:

S = Power Density (mW/cm<sup>2</sup>)

P = Input Power of the Antenna (mW)

G = Antenna Gain Relative to an Isotropic Antenna

R = Distance from the Antenna to the Point of Investigation (cm)

## 2.3 Test Result

Operation Mode	Frequency Range (MHz)	Max Conducted Power (dBm)	Antenna Gain (dBi)	Max EIRP (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )	Power Density / Limit	Limit (mW/cm <sup>2</sup> )
GSM 850	824 ~ 849	33.50	0.64	2594.18	0.5160	0.9382	0.55
GSM 1900	1850 ~ 1910	29.50	2.12	1452.11	0.2889	0.2889	1.0
WCDMA Band II	1850 ~ 1910	23.50	2.12	364.75	0.0726	0.0726	1.0
WCDMA Band IV	1710 ~ 1755	24.00	2.95	495.45	0.0986	0.0986	1.0
WCDMA Band V	824 ~ 849	24.50	0.64	326.59	0.0650	0.1182	0.55
LTE FDD Band 2	1850 ~ 1910	23.00	2.12	325.09	0.0647	0.0647	1.0
LTE FDD Band 4	1710 ~ 1755	23.00	2.95	393.55	0.0783	0.0783	1.0
LTE FDD Band 5	824 ~ 849	23.50	0.64	259.42	0.0516	0.0938	0.55
LTE FDD Band 7	2500 ~ 2570	22.50	2.90	346.74	0.0690	0.0690	1.0
LTE TDD Band 38	2570 ~ 2620	23.50	1.64	326.59	0.0650	0.0650	1.0
LTE TDD Band 41	2496 ~ 2690	23.00	2.90	389.05	0.0774	0.0774	1.0
WLAN 2.4GHz	2400~2483.5	16.50	4.01	112.46	0.0224	0.0224	1.0
BR/EDR	2400~2483.5	11.50	4.01	35.56	0.0071	0.0071	1.0
BLE	2400~2483.5	7.50	4.01	14.16	0.0028	0.0028	1.0
WLAN 5GHz	5150~5250	12.00	4.32	42.86	0.0085	0.0085	1.0
	5250~5350	11.50	4.32	38.19	0.0076	0.0076	1.0
	5470~5725	9.50	4.32	24.10	0.0048	0.0048	1.0
	5725~5850	16.50	4.32	120.78	0.0240	0.0240	1.0

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## 2.4 Results for transmit simultaneously

Configurations	Maximum MPE Value(WWAN + WLAN+ BT)					Limit
	WWAN	2.4G WLAN	5G WLAN	Bluetooth	Transmit Simultaneously	
GSM + 5G_WLAN	0.9382	0.0224	0.0240	0.0071	0.9622	1.0
WCDMA + 5G_WLAN	0.1182	0.0224	0.0240	0.0071	0.1422	1.0
LTE+ 5G_WLAN	0.0938	0.0224	0.0240	0.0071	0.1178	1.0

### Note(s):

1. For 300 – 1,500MHz: Power Density limit is  $f/1500$  mW/cm<sup>2</sup>
2. For 1,500 – 100,000MHz: Power Density limit is 1.0 mW/cm<sup>2</sup>
3. MPE Ratios are Calculated as  $[(MPE1/Limit) + (MPE2/Limit) + \dots] \leq 1$

## 2.5 Conclusion

The Power Density at the position which is 20 cm far from the EUT is smaller than the General Population/Uncontrolled Exposure limit.

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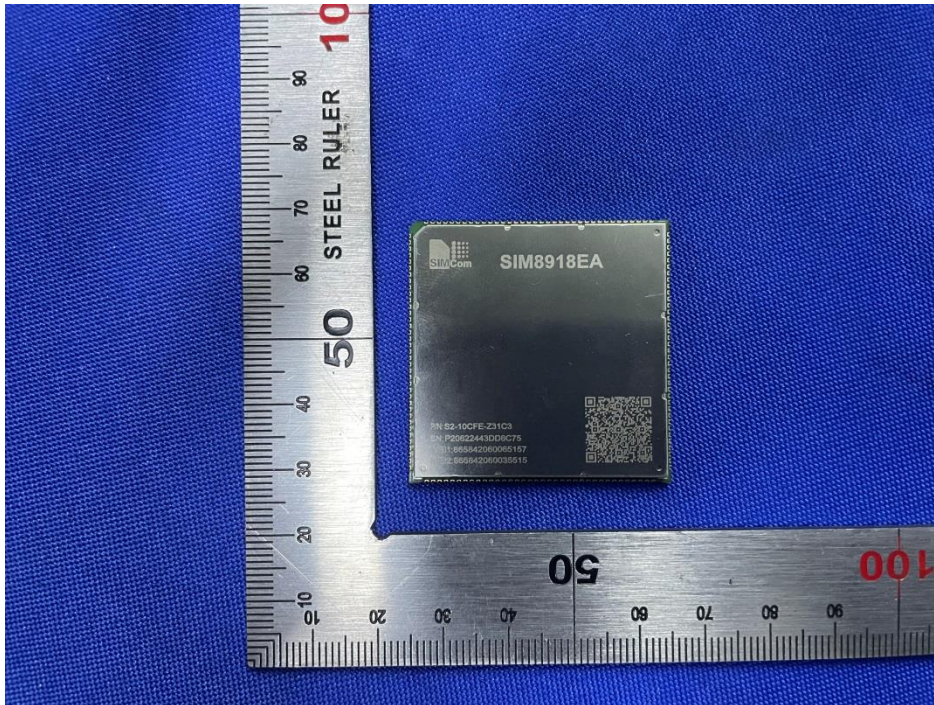
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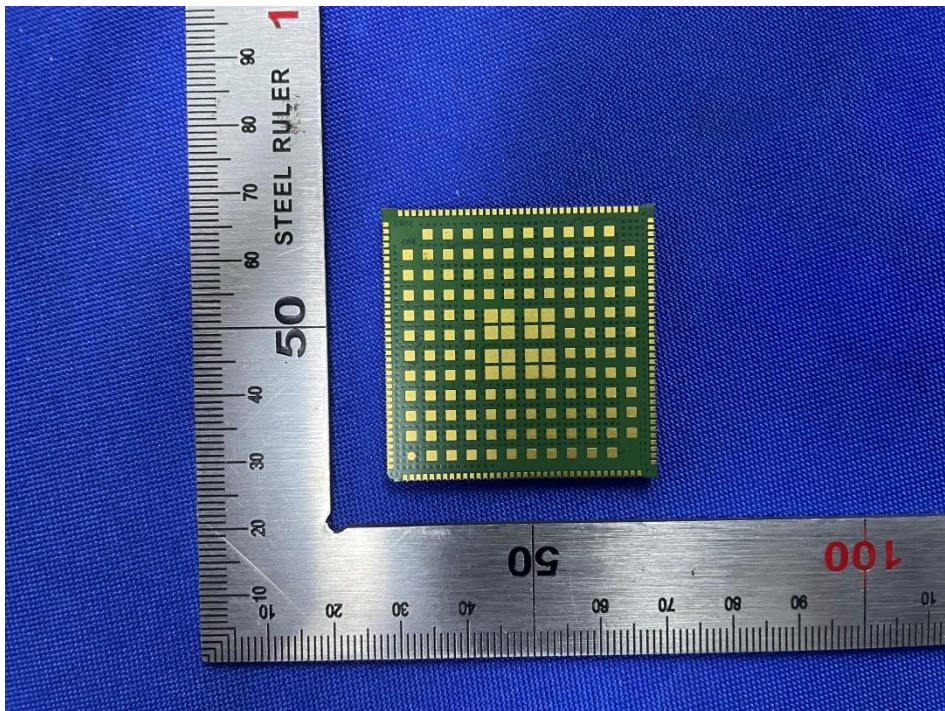
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## 3 Appendixes

### 3.1 Sample Photograph



Front of the sample



Rear of the sample

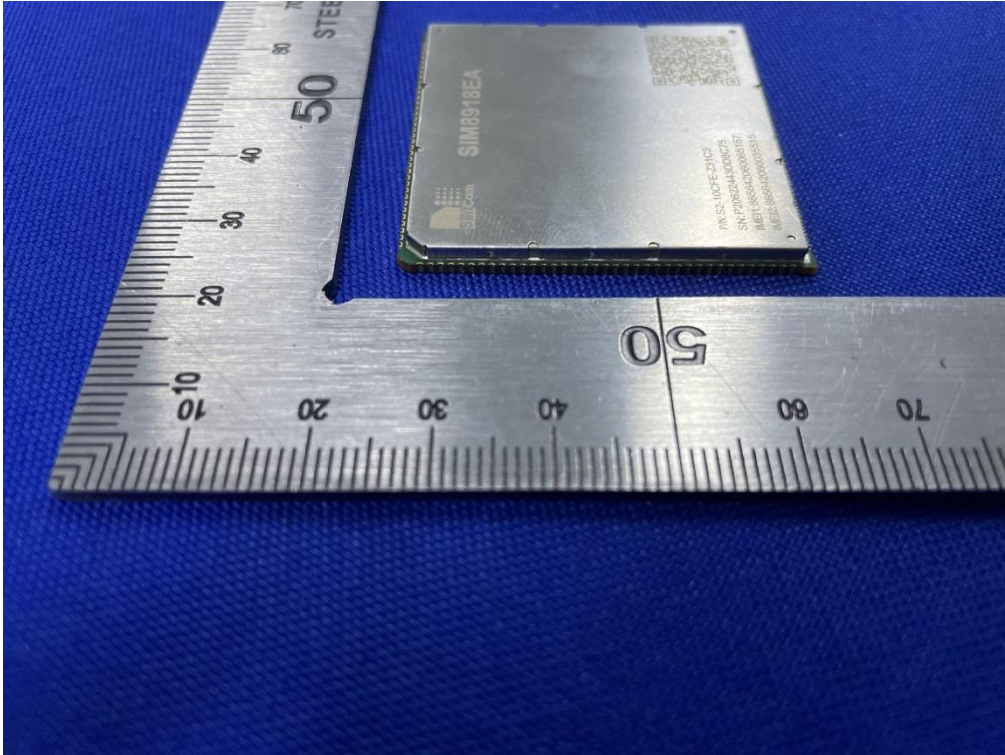


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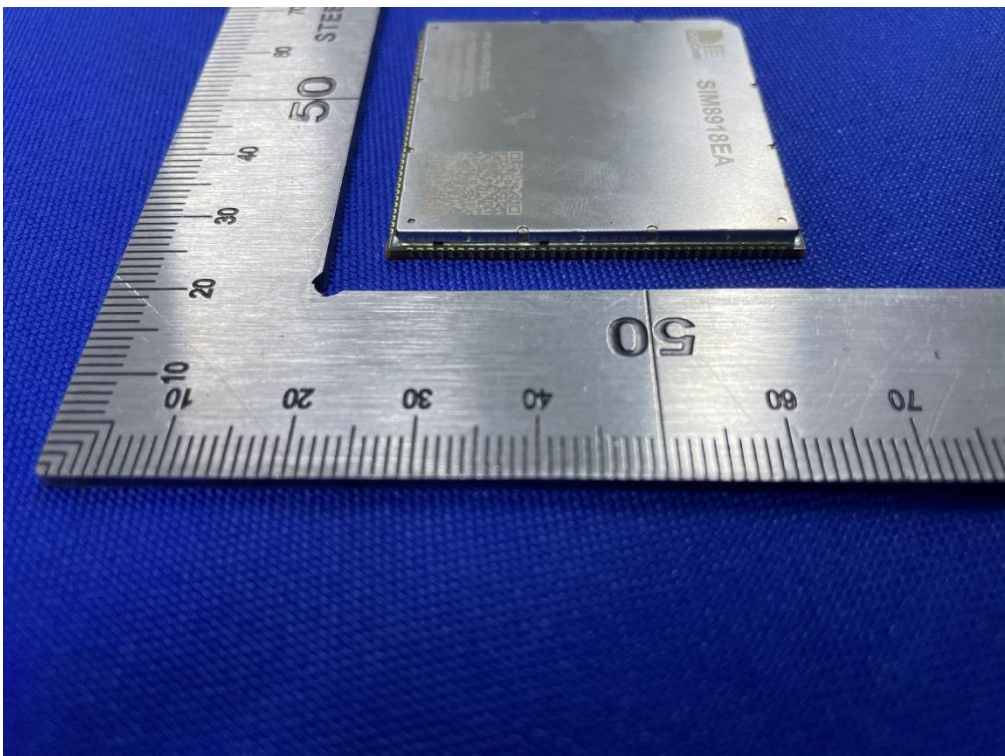
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Left of the sample



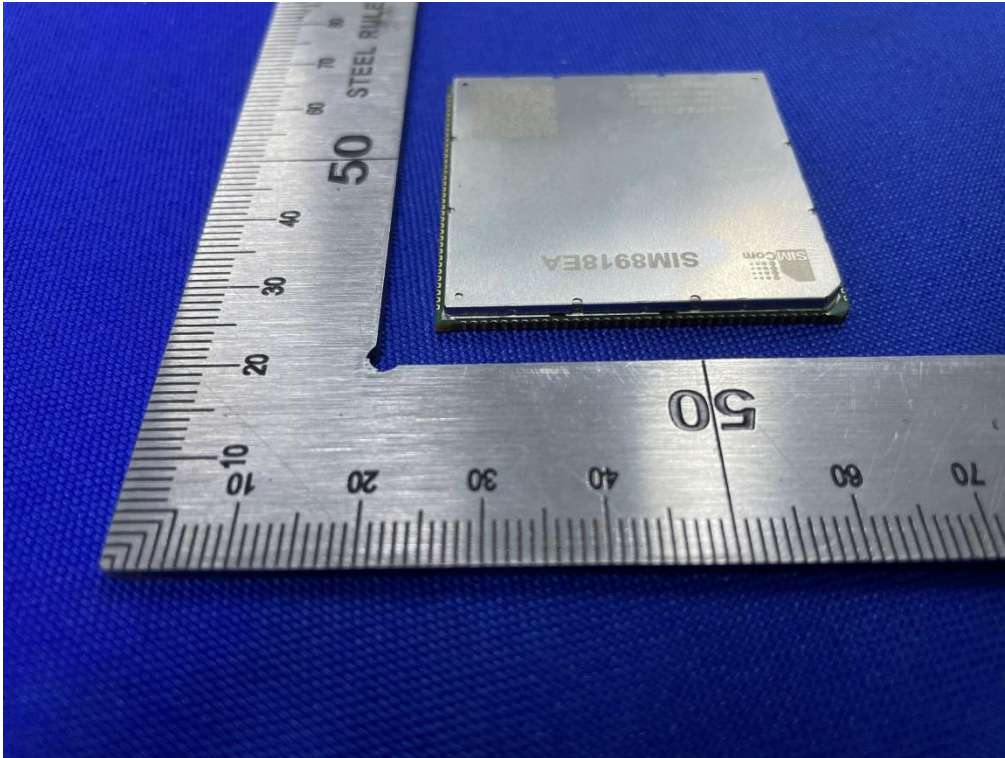
Right of the sample

# MPE TEST REPORT

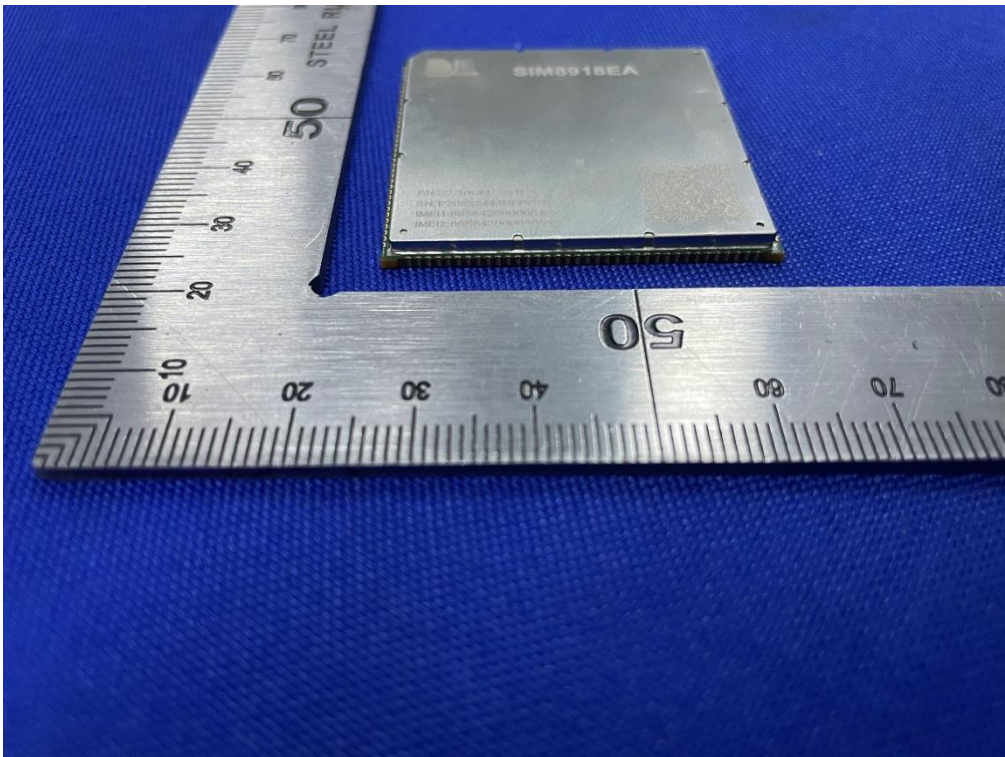
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Top of the sample



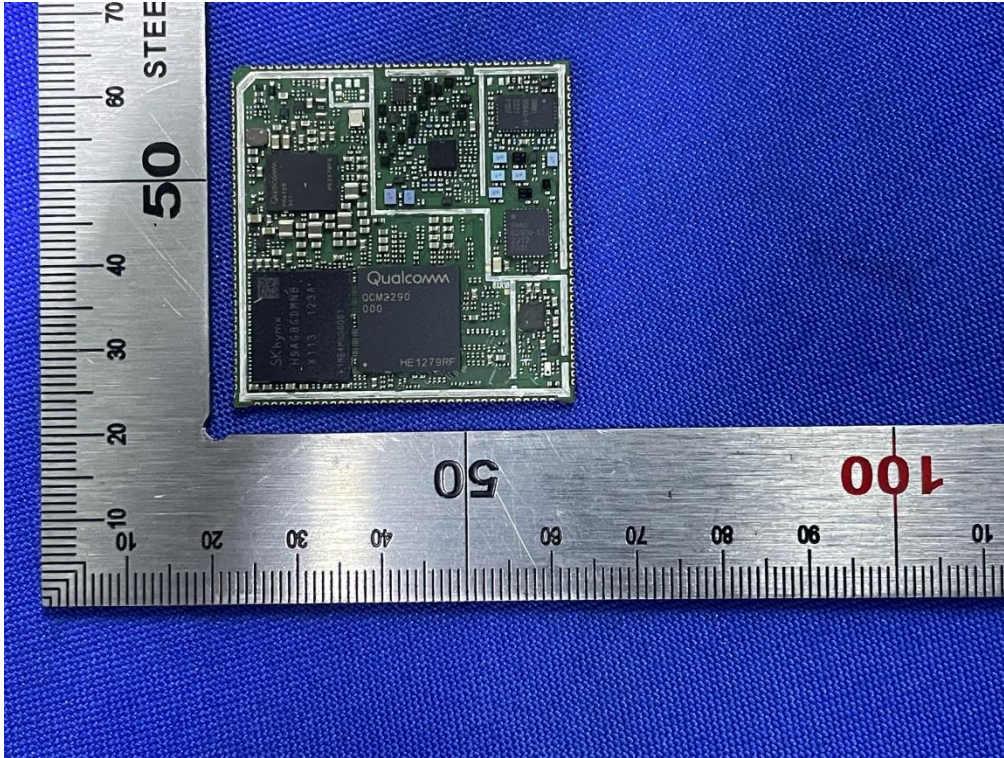
Bottom of the sample

# MPE TEST REPORT

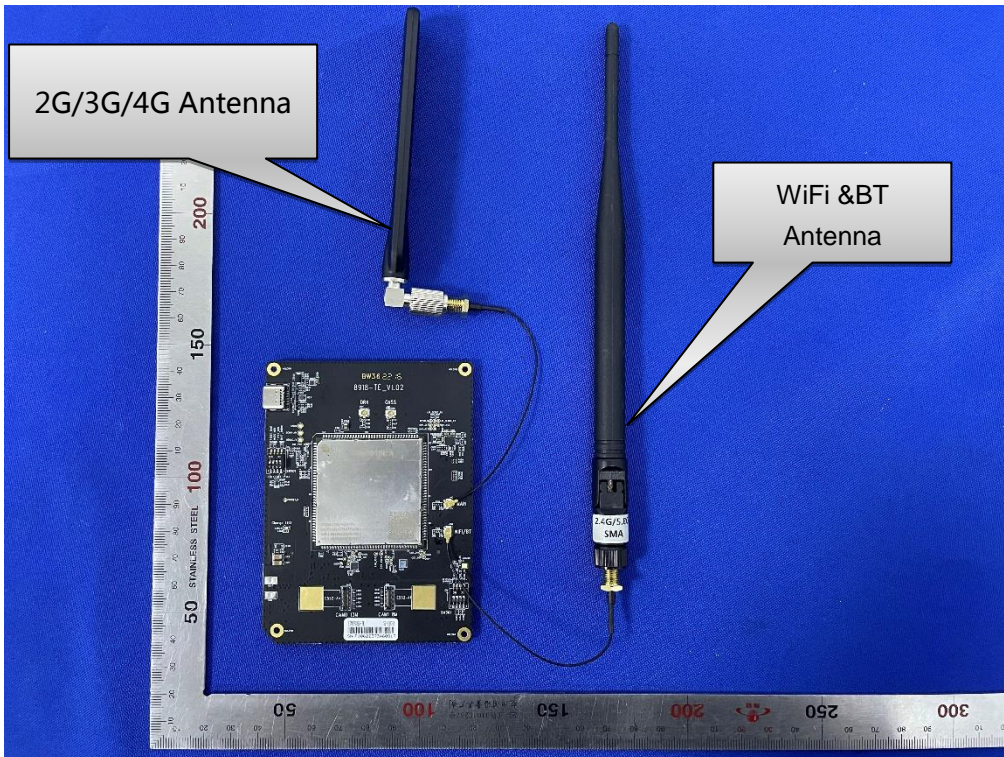
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Internal-1 of the sample



Antenna Photo

\*\*\*End of the report\*\*\*