



## SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

SZEMC-TRF-01 Rev. A/0 Aug01,2022

Report No.: SZCR240100038411

Page: 1 of 16

# TEST REPORT

**Application No.:** SZCR2401000384AT  
**Applicant:** Quectel Wireless Solutions Co., Ltd.  
**Address of Applicant:** Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China  
**Manufacturer:** Quectel Wireless Solutions Co., Ltd.  
**Address of Manufacturer:** Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China  
**Equipment Under Test (EUT):**  
**EUT Name:** 5G Sub-6 GHz Smart Module with Wi-Fi 6E & Bluetooth  
**Model No.:** SG560D-NA  
**Trade Mark:** QUECTEL  
**FCC ID:** XMR2024SG560DNA  
**Standard(s) :** FCC Part 96.47  
FCC KDB 940660 D01 Part 96 CBRS Eqpt v03  
WINNF-TS-0122-V1.0.2 CBRS CBSD Test Specification  
WINNF-18-IN-00178 CBRS End User Device as UUT Test Guidelines  
**Date of Receipt:** 2024-01-29  
**Date of Test:** 2024-05-09 to 2024-05-10  
**Date of Issue:** 2024-05-10

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

Keny Xu  
EMC Laboratory Manager



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Shenzhen Branch EMC Laboratory

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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2024-05-10		Original

Authorized for issue by:			
		<i>Benson Wang</i>	
		<b>Benson Wang/Project Engineer</b>	
		<i>Eric Fu</i>	
		<b>Eric Fu/Reviewer</b>	



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## 2 Test Summary

Item	Standard	Test Case ID	Result
End User Device additional requirement	96.47	/	Pass

The UUT is an End User Device. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**Test standards:**

FCC Part 96.47

FCC KDB 940660 D01 Part 96 CBRS Eqpt v03

WINNF-TS-0122-V1.0.2 CBRS CBSD Test Specification

WINNF-18-IN-00178 CBRS End User Device as UUT Test Guidelines



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## 4 General Information

### 4.1 Details of E.U.T.

Power supply:	DC 4.0V
Sample Type:	Module
CBSD Class:	End User device
Hardware Version:	R1.0
Software Version:	SG560DNAPAR03A05
Transmitter Frequency Band:	LTE: Band 48 5G NR: n48
Transmitter Frequency Range:	3550~3700MHz
Antenna Gain:	-3.6dBi (Provided by manufacturer)
Antenna Type:	External

### 4.2 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	$\pm 7.25 \times 10^{-8}$
2	RF conducted power	$\pm 0.75\text{dB}$
3	Temperature test	$\pm 1^{\circ}\text{C}$
4	Humidity test	$\pm 3\%$
5	Supply voltages	$\pm 1.5\%$
6	Time	$\pm 3\%$

Remark:

The Ulab (lab Uncertainty) is less than Ucispr/ETSI (CISPR/ETSI Uncertainty), so the test results

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

### 4.3 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
DP	Lanner Electronics Inc.	LICA-1513A	/
EPC	Lanner Electronics Inc.	LICA-1513A	LR202002004052
Router	TP-LINK	TL-R860+	1175379002425
LTE Base Station	Baicells	mBS31010 (FCC ID: 2AG32MBS31010)	120300010220B6B0002



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## SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch

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5G NR Base station	Baicells	BSC7048A243 (FCC ID: 2AG32BSC7048A243)	1202000577233VB0002
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### 4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

### 4.5 Test Facility

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

• **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• **VCCI (Member No. 1937)**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen EMC laboratory have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• **FCC –Designation Number: CN1336**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1336. Test Firm Registration Number: 787754.

• **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.



## 5 Equipment List

Test Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Laptop (With SAS Test harness)	Lenovo	T14	/	/	/
Spectrum Analyzer	Keysight	N9020B	SEM004-24	2024-03-20	2025-03-19
Shield Room	SAEMC	MSR433	SEM001-11	2024-03-13	2027-03-12
Coaxial Cable	SGS	N/A	SEM031-01	2023-07-11	2024-07-10
Attenuator	Weinschel Associates	WA41	SEM021-09	N/A	N/A
Splitter	MACOM	2090-6214-00	N/A	N/A	N/A
Humidity/ Temperature Indicator	deli	8838	SEM002-32	2023-07-28	2024-07-27





## 6 Test Method and Environment

### 6.1 End User Device Conformance and Performance

Test Requirement: FCC Part 96.47

Test Method: WINNF-18-IN-00178 CBRS End User Device as UUT Test Guidelines

### 6.2 Test Environment

Environmental Conditions: 25deg. C, 65%RH

### 6.3 Test Requirement

FCC Part 96.47

- End User Devices may operate only if they can positively receive and decode an authorization signal transmitted by a CBSD, including the frequencies and power limits for their operation.
- An End User Device must discontinue operations, change frequencies, or change its operational power level within 10 seconds of receiving instructions from its associated CBSD.

### 6.4 Test Procedure

For LTE:

Following procedure can be done by applying WINNF-TS-0122-V1.0.2 CBRS CBSD Test Specification, use the certified Base station CBSD (FCC ID: 2AG32MBS31010) as companion device to show compliance with Part 96.47 requirement for End User Device (EUD):

- Setup with frequency 3590-3610MHz and power level 18dBm/MHz;
- Enable CBSD service ;
- Check EUD Tx Frequency and power;
- Disable CBSD service ;
- Check EUD stops transmission within 10seconds;
  
- Setup with frequency 3630-3650MHz and power level 5dBm/MHz;
- Enable CBSD service;
- Check EUD Tx Frequency and power;
- Disable CBSD service;
- Check EUD stops transmission within 10seconds.



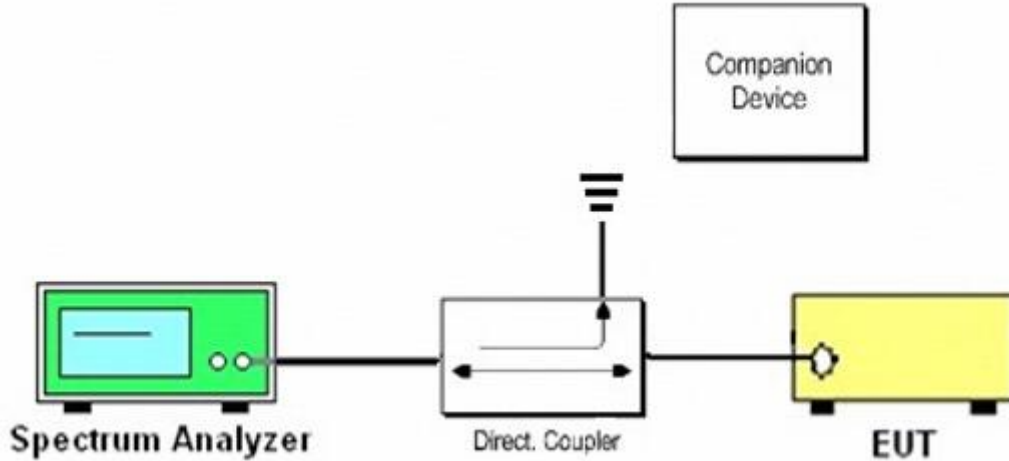
For NR:

Following procedure can be done by applying WINNF-TS-0122-V1.0.2 CBRS CBSD Test Specification, use the certified Base station CBSD (FCC ID: 2AG32BSC7048A243) as companion device to show compliance with Part 96.47 requirement for End User Device (EUD):

1. Setup with frequency 3590-3610MHz and power level 18dBm/MHz;
2. Enable CBSD service ;
3. Check EUD Tx Frequency and power;
4. Disable CBSD service ;
5. Check EUD stops transmission within 10seconds;
  
6. Setup with frequency 3610-3630MHz and power level 5dBm/MHz;
7. Enable CBSD service;
8. Check EUD Tx Frequency and power;
9. Disable CBSD service;
10. Check EUD stops transmission within 10seconds.



### 6.5 Test Setup



End User Device as UUT, the companion device is certified CBSD



### 6.6 Test Result

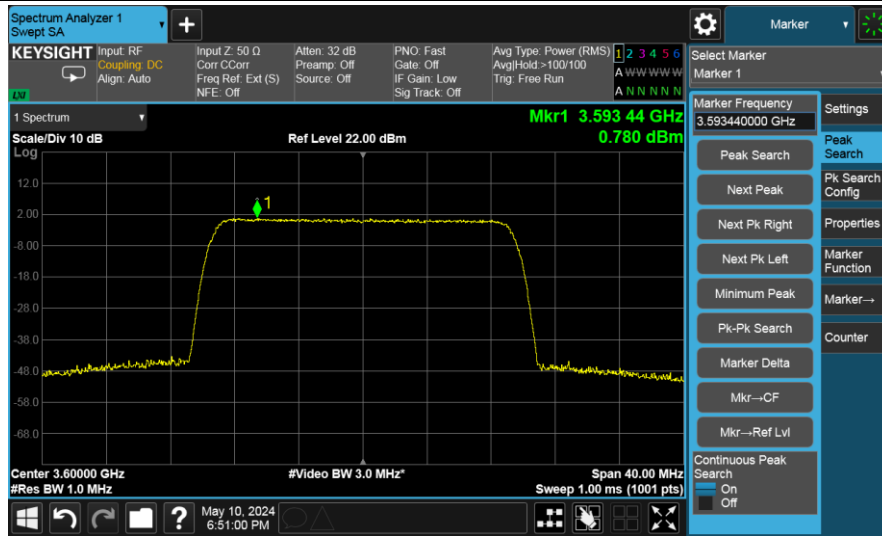


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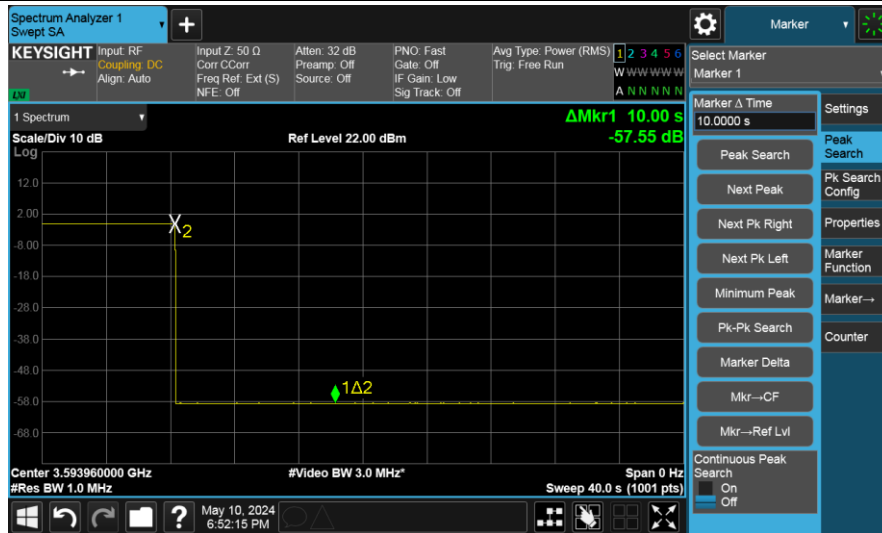
[Step 6] Setup with frequency 3610-3630MHz and power level 5dBm/MHz

[Step 8] Check EUD Tx Frequency and power



EIRP PSD=-12.456-4+5.0=-11.456dBm/MHz, loss of Cable and Splitter is 5.0dB, Antenna gain is -4.0dBi

[Step 10] EUD stops transmission within 10 seconds of receiving instructions from its associated CBSD.



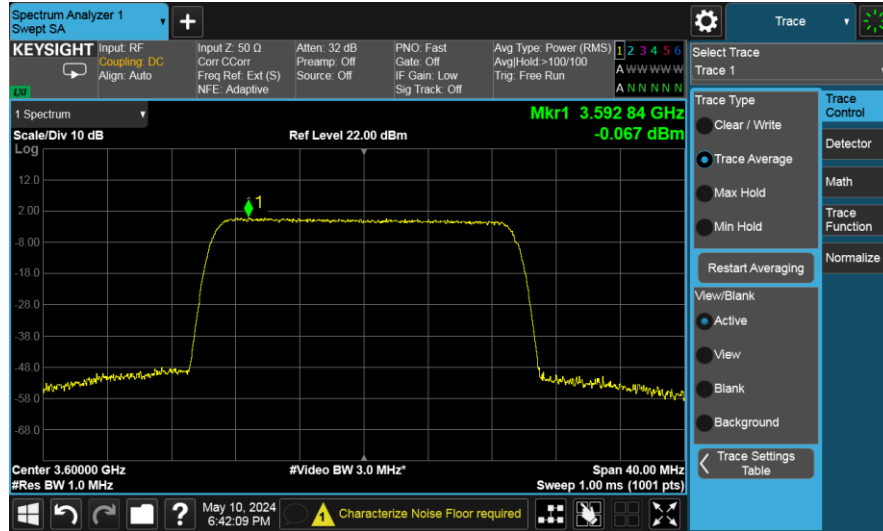
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NR

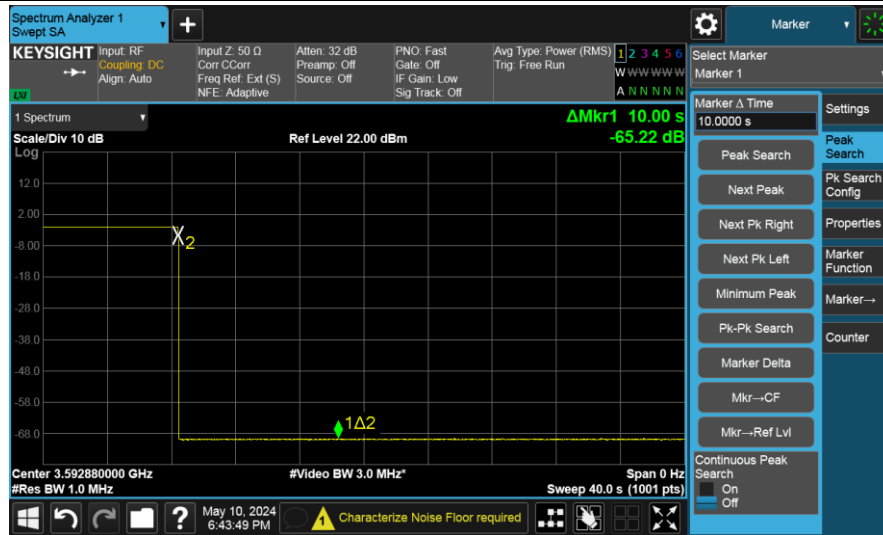
[Step 1] Setup with frequency 3590-3610MHz and power level 18dBm/MHz

[Step 3] Check EUD Tx Frequency and power



EIRP PSD=-0.067-4+5.0=0.933dBm/MHz, loss of Cable and Splitter is 5.0dB, Antenna gain is -4.0dBi

[Step 5] EUD stops transmission within 10 seconds of receiving instructions from its associated CBSD.



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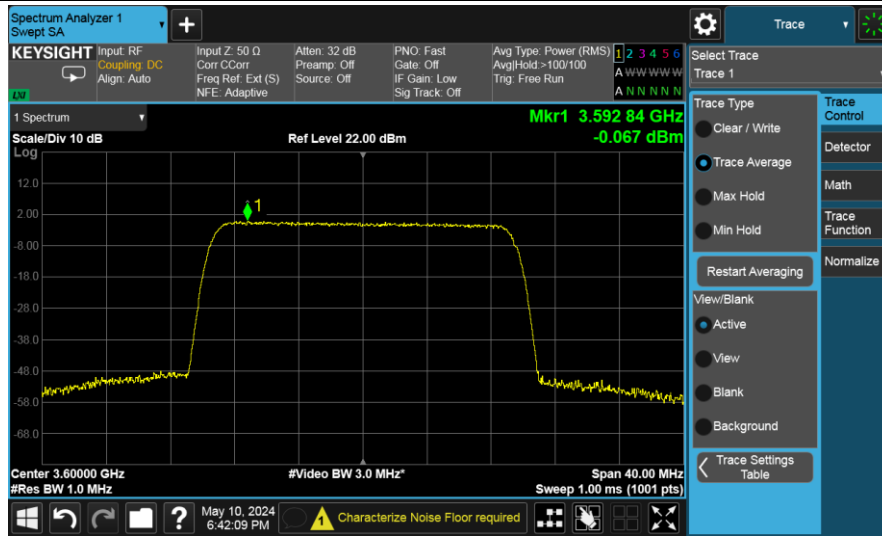
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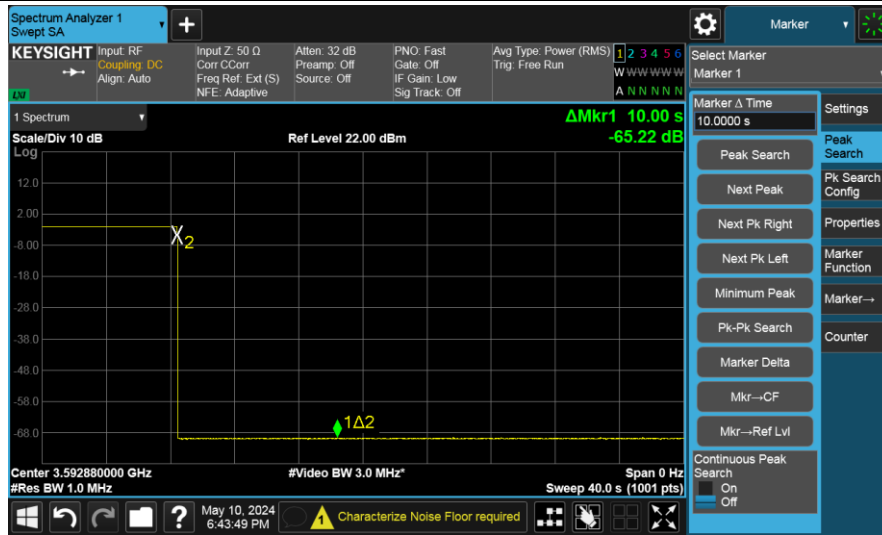
[Step 6] Setup with frequency 3610-3630MHz and power level 5dBm/MHz

[Step 8] Check EUD Tx Frequency and power



EIRP PSD=-14.802-4+5.0=-13.802dBm/MHz, loss of Cable and Splitter is 5.0dB, Antenna gain is -4.0dBi

[Step 10] EUD stops transmission within 10 seconds of receiving instructions from its associated CBSD.



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## 7 Photographs

### 7.1 EUT Constructional Details (EUT Photos)

Please Refer to external and internal photos for details.

- End of the Report -

