



Compliance Certification Services (Kunshan) Inc.

Report No.: KSCR220500076901

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## TEST REPORT

**Application No.:** KSCR2205000769AT  
**FCC ID:** WBKRU4370  
**Applicant:** BTI Wireless  
**Address of Applicant:** 6185 Phyllis Drive #D, Cypress, California 90630, United States  
**Manufacturer:** BTI Wireless  
**Address of Manufacturer:** 6185 Phyllis Drive #D, Cypress, California 90630, United States  
**Factory:** Sunwave Communications Co., Ltd  
**Address of Factory:** 581 Huoju Avenue, Binjiang District Hangzhou China  
**Equipment Under Test (EUT):**  
**EUT Name:** Remote Radio Unit  
**Model No.:** RU4370  
**Trade mark:**



**Standard(s) :** 47 CFR Part 2  
47 CFR Part 96  
**Date of Receipt:** 2022-05-20  
**Date of Test:** 2022-06-26 to 2022-08-05  
**Date of Issue:** 2022-08-09

<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 Laboratory Manager



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Revision Record				
Version	Chapter	Date	Modifier	Remark
00	Original	2022-08-09		/

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



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## 2 Test Summary

Test Item	FCC Rule No.	Verdict
Effective (Isotropic) Radiated Power Output Data	§2.1046, §96.41	PASS
Peak-Average Ratio	§96.41	PASS
Modulation Characteristics	§2.1047	PASS
Bandwidth	§96.41	PASS
Band Edge Compliance	§2.1051, §96.41	PASS
Spurious emissions at antenna terminals	§2.1051, §96.41	PASS
Field strength of spurious radiation	§2.1051, §96.41	PASS
Frequency stability	§2.1055,	PASS



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## 4 General Information

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

Product Name:	Remote Radio Unit
Model No.:	RU4370
Antenna Type:	External Antenna
Antenna Gain:	Max Antenna Gain 15.0 dBi(Provided by manufacturer)
Power Supply:	48V DC, $\pm 20\%$
Test Voltage	DC 48V
Sample Type:	Fixed device
Support Bandwidth:	100MHz
Type of Modulation	5G NR: CP-OFDM: QPSK, 16QAM, 64QAM, 256QAM
Frequency Band:	3550MHz-3700MHz
Normal Output Power:	For SISO Mode: $30\pm 2\text{dBm}$ (downlink) For MIMO Mode: $32\pm 2\text{dBm}$ (downlink)
MIMO Type:	4T4R MIMO

### 4.2 Test Frequency

5G NR Band n48 (3550-3700MHz)	SCS	Carrier	Bandwidth (MHz)	Channel		
				Low	Middle	High
	30kHz	1CC	100	3600	3625.02	3649.98



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## 4.3 Test Support Unit

Description	Manufacture	Model No.	S/N
Notebook	ThinkPad	K27	EB24537645

## 4.4 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	$8.4 \times 10^{-8}$
2	Timeout	2s
3	Duty Cycle	0.37%
4	Occupied Bandwidth	3%
5	RF Conducted Power	0.6dB
6	RF Power Density	2.9dB
7	Conducted Spurious Emissions	0.75dB
8	RF Radiated Power	5.2dB (Below 1GHz)
		5.9dB (Above 1GHz)
9	Radiated Spurious Emission Test	4.2dB (Below 30MHz)
		4.5dB (30MHz-1GHz)
		5.1dB (1GHz-18GHz)
		5.4dB (Above 18GHz)
10	Temperature Test	1°C
11	Humidity Test	3%
12	Supply Voltages	1.5%
13	Time	3%

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



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## 4.5 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888

Fax: +86 512 5737 0818

No tests were sub-contracted.

## 4.6 Test Facility

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

### • CNAS (No. CNAS L4354)

CNAS has accredited Compliance Certification Services (Kunshan) Inc. to ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

### • A2LA (Certificate No. 2541.01)

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

### • FCC (Designation Number: CN1172)

Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory.

Designation Number: CN1172.

### • ISED (CAB identifier: CN0072)

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.

Company Number: 2324E

### • VCCI (Member No.: 1938)

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.

## 4.7 Deviation from Standards

None

## 4.8 Abnormalities from Standard Conditions

None



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## 5 Equipment List

Item	Equipment	Manufacturer	Model	Serial Number	Cal Date	Cal. Due Date
<b>RF Conducted Test</b>						
1	Spectrum Analyzer	Agilent	E4446A	MY44020154	04/16/2022	04/15/2023
2	Spectrum Analyzer	Keysight	N9020A	MY55370209	10/11/2021	10/10/2022
4	Signal Generator	Agilent	N5182A	MY50142015	08/27/2021	08/26/2022
5	Spectrum Analyzer	Keysight	N9030B	MY61330164	01/22/2022	01/21/2023
6	Vector Signal Generator	R&S	SMW200A	110074	10/12/2021	10/11/2022
7	Radio Communication Test Station	Anritsu	MT8000A	6262012849	09/23/2021	09/22/2022
8	Radio Communication Analyzer	Anritsu	MT8821C	6201692222	09/23/2021	09/22/2022
9	Universal Radio Communication Tester	R&S	CMW500	159275	10/12/2021	10/11/2022
10	Universal Radio Communication Tester	R&S	CMW500	167239	04/16/2022	04/15/2023
11	Power Meter	Anritsu	ML2495A	1445010	04/15/2022	04/14/2023
12	Switcher	CCSRF	FY562	KUS2001M001-3	10/12/2021	10/11/2022
13	AC Power Source	EXTECH	6605	1570106	N.C.R	N.C.R
14	DC Power Supply	Aglient	E3632A	MY50340053	N.C.R	N.C.R
15	6dB Attenuator	Mini-Circuits	NAT-6-2W	15542-1	N.C.R	N.C.R
16	Power Divider	AISI	IOWOPE2068	PE2068	N.C.R	N.C.R
17	Filter	MICRO-TRONICS	BRM50701	5	N.C.R	N.C.R
18	Conducted Test Cable	/	RF01-RF04	/	04/15/2022	04/14/2023
19	Software	BST	TST-PASS	N/A	N/A	N/A
20	Temp. / Humidity Chamber	TERCHY	MHK-120AK	X30109	04/15/2022	04/14/2023
21	Thermometer	Anymetre	TH603	CCS007	10/14/2021	10/13/2022
<b>RF Radiated Test</b>						
1	Spectrum Analyzer	R&S	FSV40	101493	10/11/2021	10/10/2022
2	Signal Generator	Agilent	E8257C	MY43321570	10/18/2021	10/17/2022
3	Loop Antenna	Com-Power	AL-130R	10160008	04/13/2021	04/12/2023
4	Bilog Antenna	TESEQ	CBL 6112D	35403	06/21/2021	06/20/2023
5	Bilog Antenna	SCHWARZBECK	VULB9160	9160-3342	04/13/2021	04/12/2023
6	Horn-antenna(1-18GHz)	Schwarzbeck	BBHA9120D	267	10/26/2020	10/25/2022
7	Horn-antenna(1-18GHz)	ETS-LINDGREN	3117	00143290	02/22/2021	02/21/2023
8	Horn Antenna(18-40GHz)	Schwarzbeck	BBHA9170	BBHA9170171	02/20/2022	02/19/2023
9	Pre-Amplifier(30MHz~18GHz)	LNA	/	/	04/15/2022	04/14/2023
10	Amplifier(18~40GHz)	COM-POWER	PAM-840A	461332	10/18/2021	10/17/2022
11	Low Pass Filter	MICRO-TRONICS	VLFX-950	RV142900829	N.C.R	N.C.R
12	High Pass Filter	Mini-Circuits	VHF-1200	15542	N.C.R	N.C.R
13	Filter (5450MHz~5770 MHz)	MICRO-TRONICS	BRC50704-01	2	N.C.R	N.C.R
14	Filter (5690 MHz~5930 MHz)	MICRO-TRONICS	BRC50705-01	4	N.C.R	N.C.R
15	Filter (5150 MHz~5350 MHz)	MICRO-TRONICS	BRC50703-01	2	N.C.R	N.C.R
16	Filter (885 MHz~915 MHz)	MICRO-TRONICS	BRM14698	1	N.C.R	N.C.R
17	Filter (815 MHz~860 MHz)	MICRO-TRONICS	BRM14697	1	N.C.R	N.C.R
18	Filter (1745 MHz~1910 MHz)	MICRO-TRONICS	BRM14700	1	N.C.R	N.C.R
19	Filter (1922 MHz~1977 MHz)	MICRO-TRONICS	BRM50715	1	N.C.R	N.C.R



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20	Filter (2550 MHz)	MICRO-TRONICS	HPM13362	5	N.C.R	N.C.R
21	Filter (1532 MHz~1845 MHz)	MICRO-TRONICS	BRM50713	1	N.C.R	N.C.R
22	Filter (2.4GHz)	MICRO-TRONICS	BRM50701	5	N.C.R	N.C.R
23	RE test cable	/	RE01-RE04	/	04/15/2022	04/14/2023



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## 6 Radio Spectrum Matter Test Results

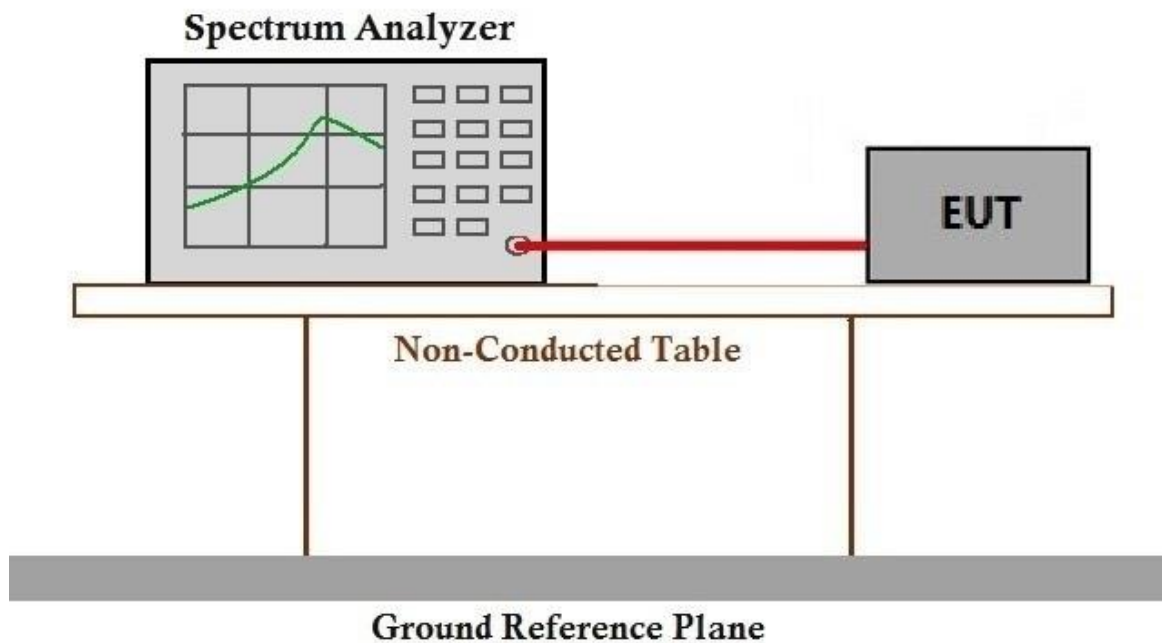
### 6.1 Effective (Isotropic) Radiated Power Output Data

Test Requirement: §2.1046, §96.41  
 Test Method: ANSI C63.26, KDB 971168 D01 v03  
 Limit: EIRP ≤ 47dBm/10MHz, PSD ≤ 37dBm/MHz

#### 6.1.1 E.U.T. Operation

Operating Environment:  
 Temperature: 20.4 °C Humidity: 56.4 % RH Atmospheric Pressure: 1030 mbar  
 Test mode: 00: Tx mode, Keep the EUT in transmitting mode.

#### 6.1.2 Test Setup Diagram



#### 6.1.3 Measurement Data



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1 Carriers _ SCS 30kHz												
BW Arrange	Frequency	Modulation	RB Allocation		4x4 MIMO Conducted Power		Total PSD (dBm /MHz)	Ant Gain (dBi)	EIRP (dBm)	EIRP dBm /10MHz	E.I.R.P Limit (dBm /10MHz)	PSD (dBm/ MHz)
			Size	Off set	Total Power (dBm)	Channel Power (dBm /10MHz)						
100	LCH	QPSK	Full	0	40.36	31.09	22.23	15.0	55.36	46.09	47.00	37.00
		16QAM	Full	0	40.08	30.74	22.09	15.0	55.08	45.74	47.00	37.00
		64QAM	Full	0	39.89	30.55	21.90	15.0	54.89	45.55	47.00	37.00
		256QAM	Full	0	40.40	31.06	22.41	15.0	55.40	46.06	47.00	37.00
	MCH	QPSK	Full	0	40.28	31.11	22.43	15.0	55.28	46.11	47.00	37.00
		16QAM	Full	0	39.52	30.35	21.67	15.0	54.52	45.35	47.00	37.00
		64QAM	Full	0	39.79	30.62	21.94	15.0	54.79	45.62	47.00	37.00
		256QAM	Full	0	40.32	31.08	22.29	15.0	55.32	46.08	47.00	37.00
	HCH	QPSK	Full	0	40.41	31.07	22.37	15.0	55.41	46.07	47.00	37.00
		16QAM	Full	0	40.36	31.02	22.32	15.0	55.36	46.02	47.00	37.00
		64QAM	Full	0	40.39	31.05	22.35	15.0	55.39	46.05	47.00	37.00
		256QAM	Full	0	40.45	31.13	22.49	15.0	55.45	46.13	47.00	37.00



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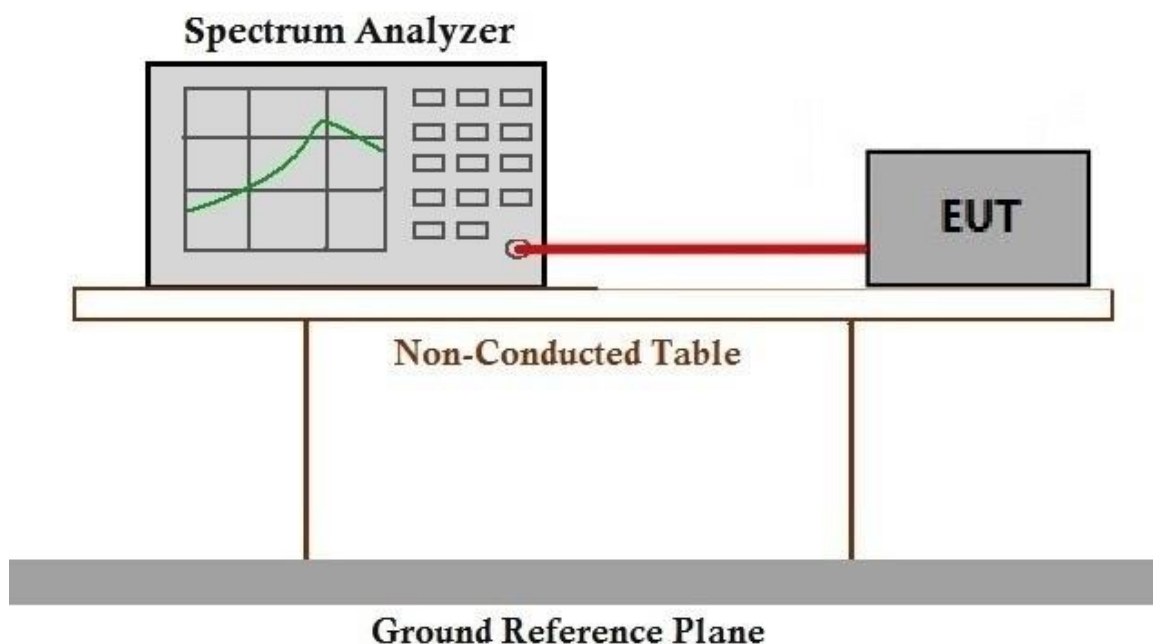
## 6.2 Peak-Average Ratio

Test Requirement: §96.41  
 Test Method: ANSI C63.26, KDB 971168 D01 v03  
 Limit: ≤13dB

### 6.2.1 E.U.T. Operation

Operating Environment:  
 Temperature: 20.4 °C Humidity: 56.4 % RH Atmospheric Pressure: 1030 mbar  
 Test mode: 00: Tx mode, Keep the EUT in transmitting mode.

### 6.2.2 Test Setup Diagram



### 6.2.3 Measurement Data

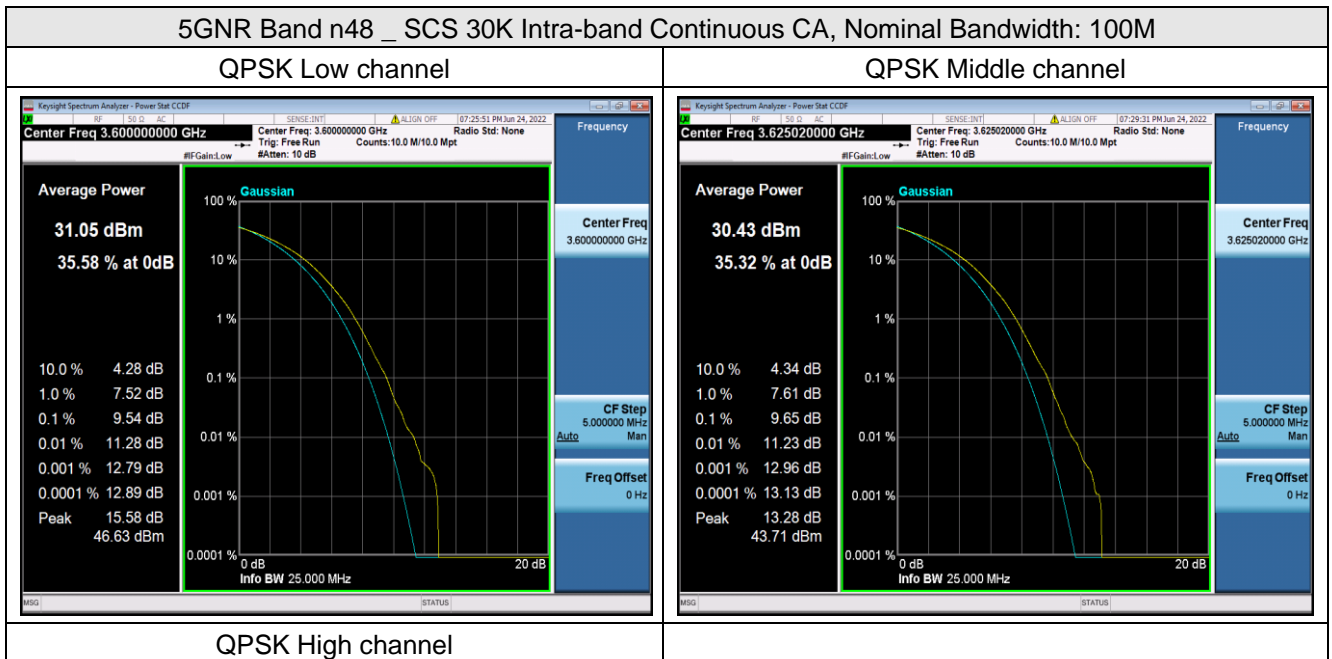


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5GNR Band n48 _ SCS 30K Intra-band Continuous CA, Nominal Bandwidth: 100M						
Modulation	Channel	RB Configuration		Test result (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	LCH	Full	0	9.54	13	Pass
	MCH	Full	0	9.65	13	Pass
	HCH	Full	0	9.91	13	Pass

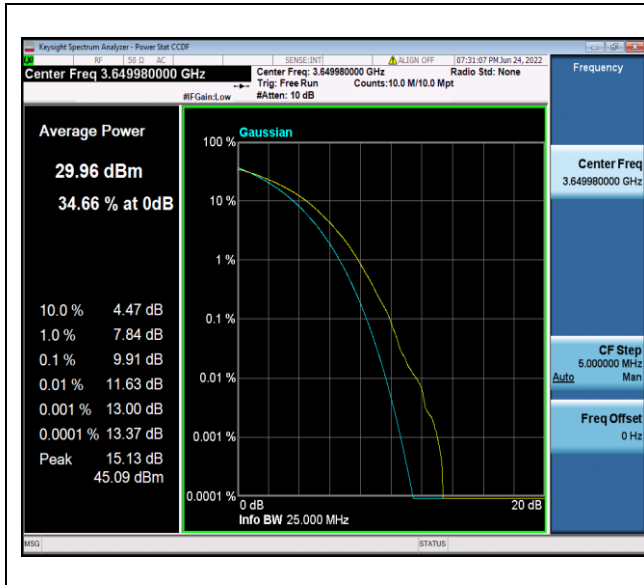
Note:  
1) Test results of QPSK//256QAM have been evaluated, and only the worst results are recorded.



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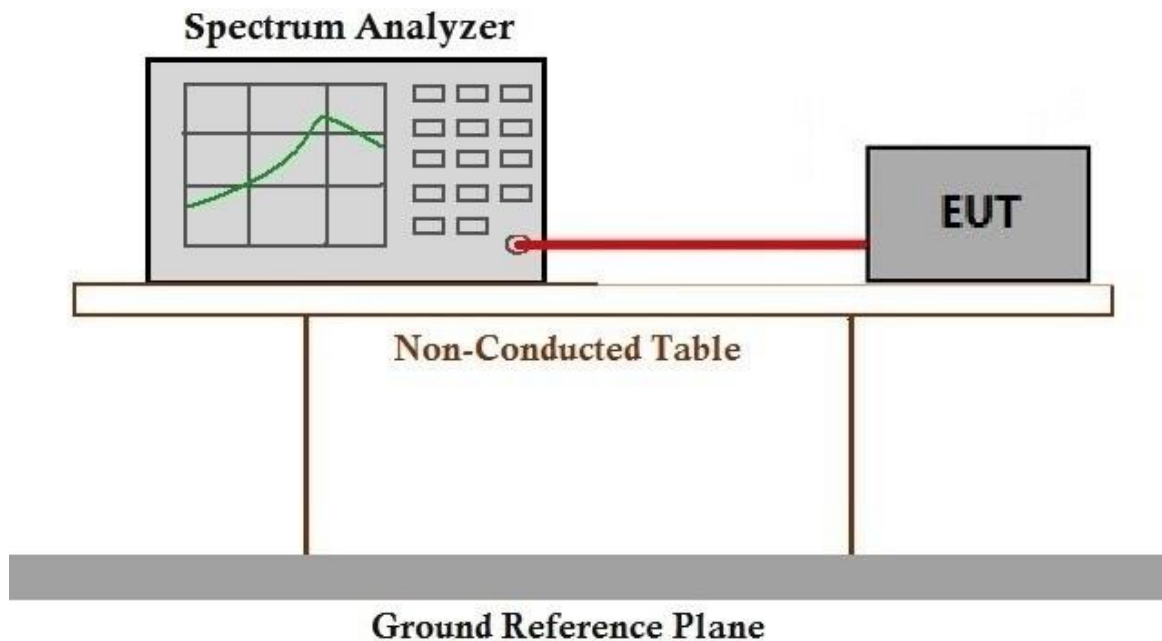
## 6.3 Bandwidth

Test Requirement: §2.1049(h)  
 Test Method: ANSI C63.26, KDB 971168 D01 v03  
 Limit: OBW: No limit  
 EBW: No limit

### 6.3.1 E.U.T. Operation

Operating Environment:  
 Temperature: 20.4 °C Humidity: 56.4 % RH Atmospheric Pressure: 1030 mbar  
 Test mode: 00: Tx mode, Keep the EUT in transmitting mode.

### 6.3.2 Test Setup Diagram



### 6.3.3 Measurement Data



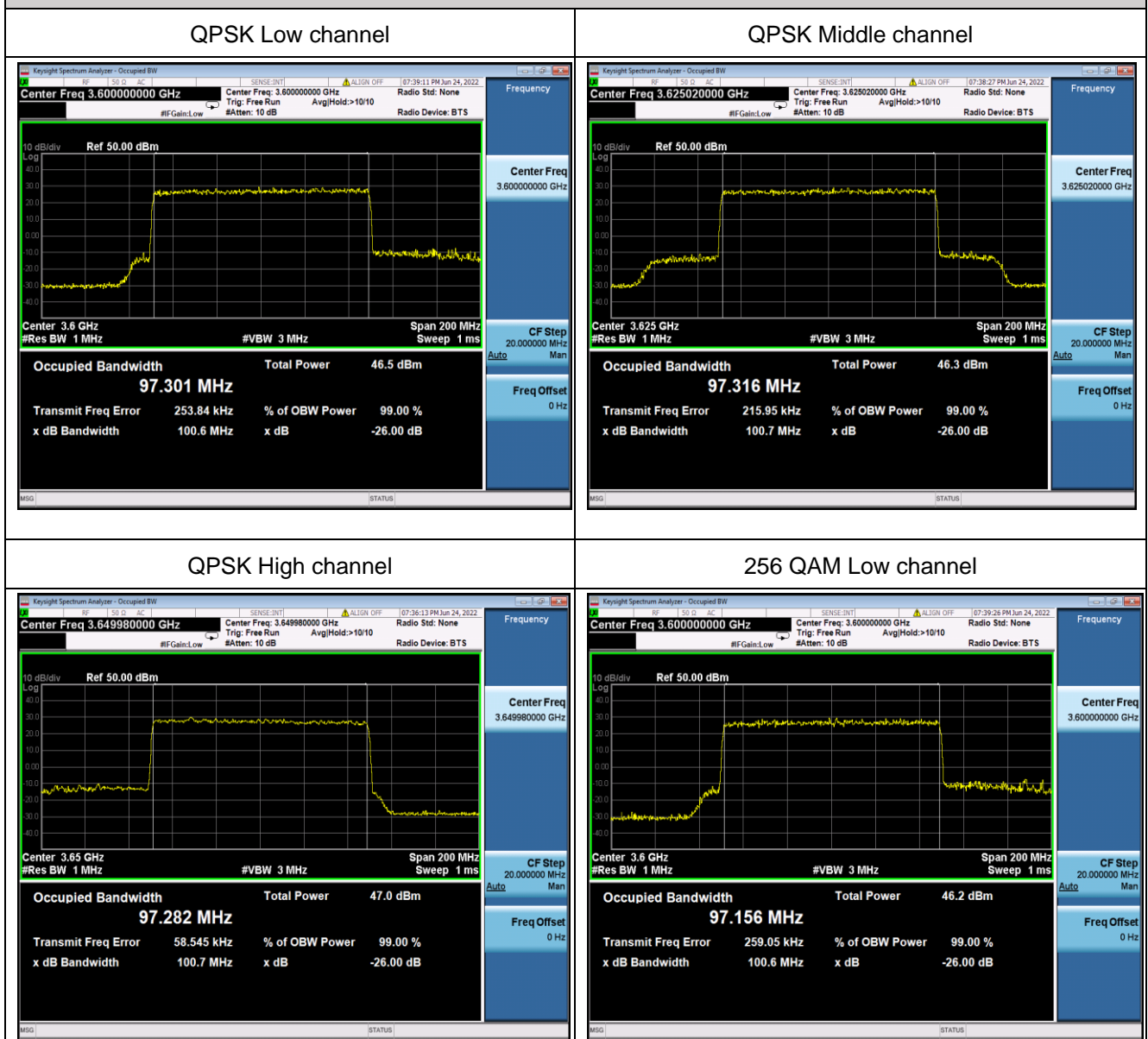
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5GNR Band n48 _ SCS 30K Intra-band Continuous CA							
Nominal Bandwidth	Modulation	Test result (MHz)					
		99% OBW			26dB bandwidth		
		LCH	MCH	HCH	LCH	MCH	HCH
100	QPSK	97.301	97.316	97.282	100.60	100.70	100.70
	256QAM	97.156	97.400	97.235	100.60	100.60	100.60

5GNR Band n48 \_ SCS 30K Intra-band Continuous CA, Nominal Bandwidth: 100M



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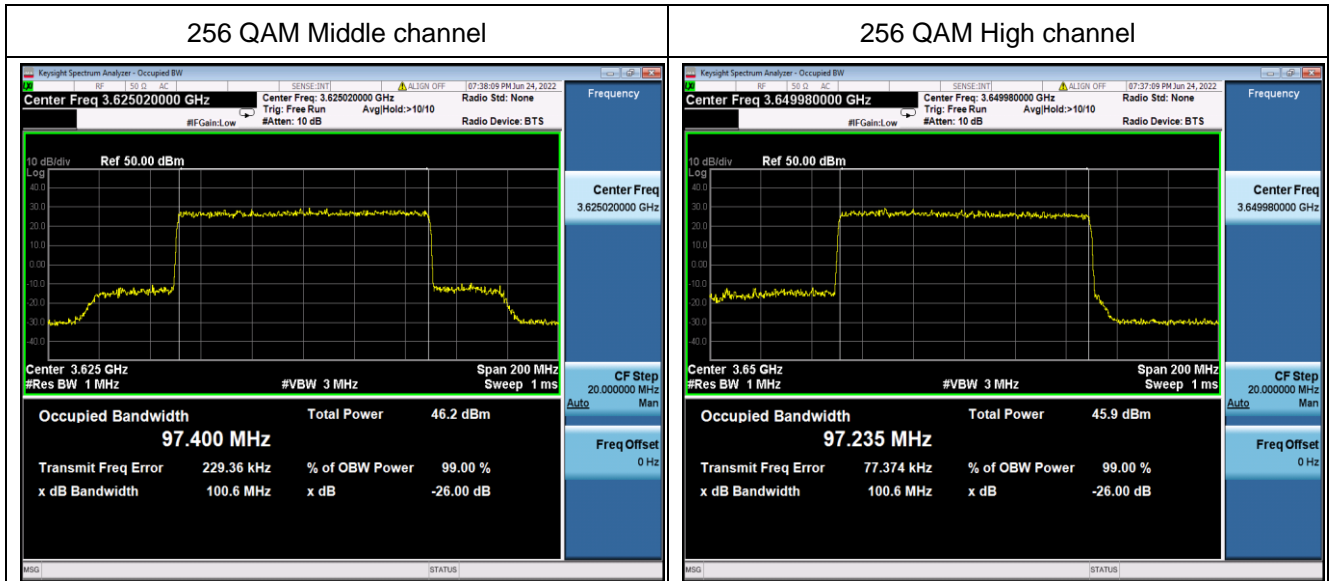
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## 6.4 Band Edge Compliance

Test Requirement: §2.1051, §96.41

Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: Except as otherwise specified in paragraph (e)(2) of this section, for channel and frequency assignments made by the SAS to CBSDs, the conducted power of any CBSD emission outside the fundamental emission bandwidth as specified in paragraph (e)(3) of this section (whether the emission is inside or outside of the authorized band) shall not exceed -13 dBm/MHz within 0-10 megahertz above the upper SAS-assigned channel edge and within 0-10 megahertz below the lower SAS-assigned channel edge. At all frequencies greater than 10 megahertz above the upper SAS assigned channel edge and less than 10 MHz below the lower SAS assigned channel edge, the conducted power of any CBSD emission shall not exceed -25 dBm/MHz. The upper and lower SAS assigned channel edges are the upper and lower limits of any channel assigned to a CBSD by an SAS, or in the case of multiple contiguous channels, the upper and lower limits of the combined contiguous channels.

Additional protection levels. Notwithstanding paragraph (e)(1) of this section, for CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed -25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.

### 6.4.1 E.U.T. Operation

Operating Environment:

Temperature: 20.4 °C Humidity: 56.4 % RH Atmospheric Pressure: 1030 mbar

Test mode: 00: Tx mode, Keep the EUT in transmitting mode.



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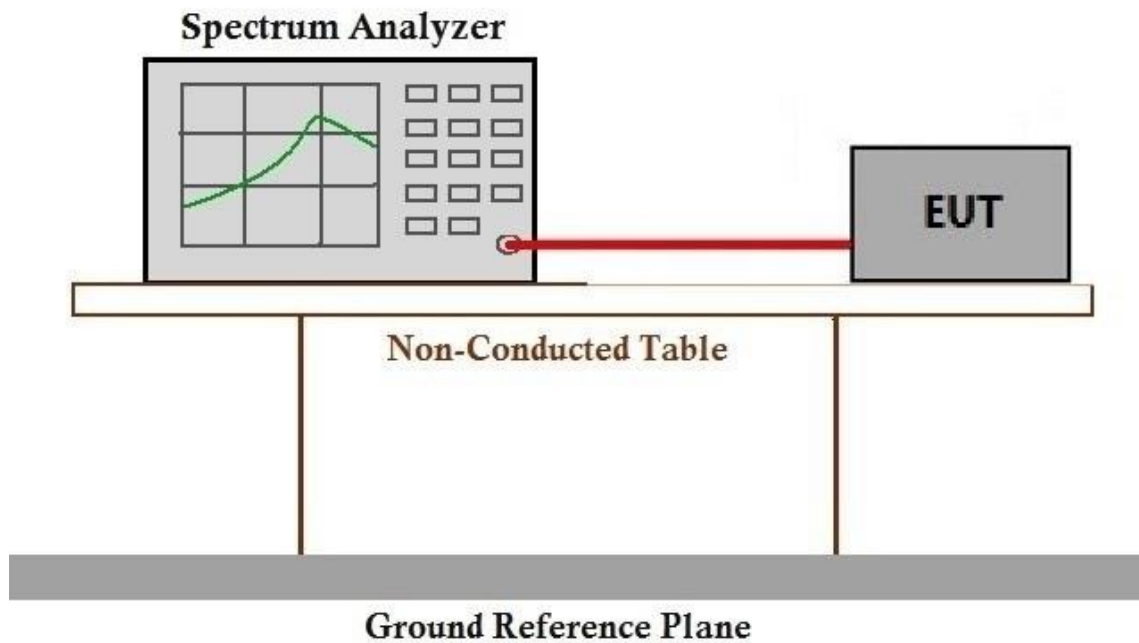
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## 6.4.2 Test Setup Diagram



## 6.4.3 Measurement Data



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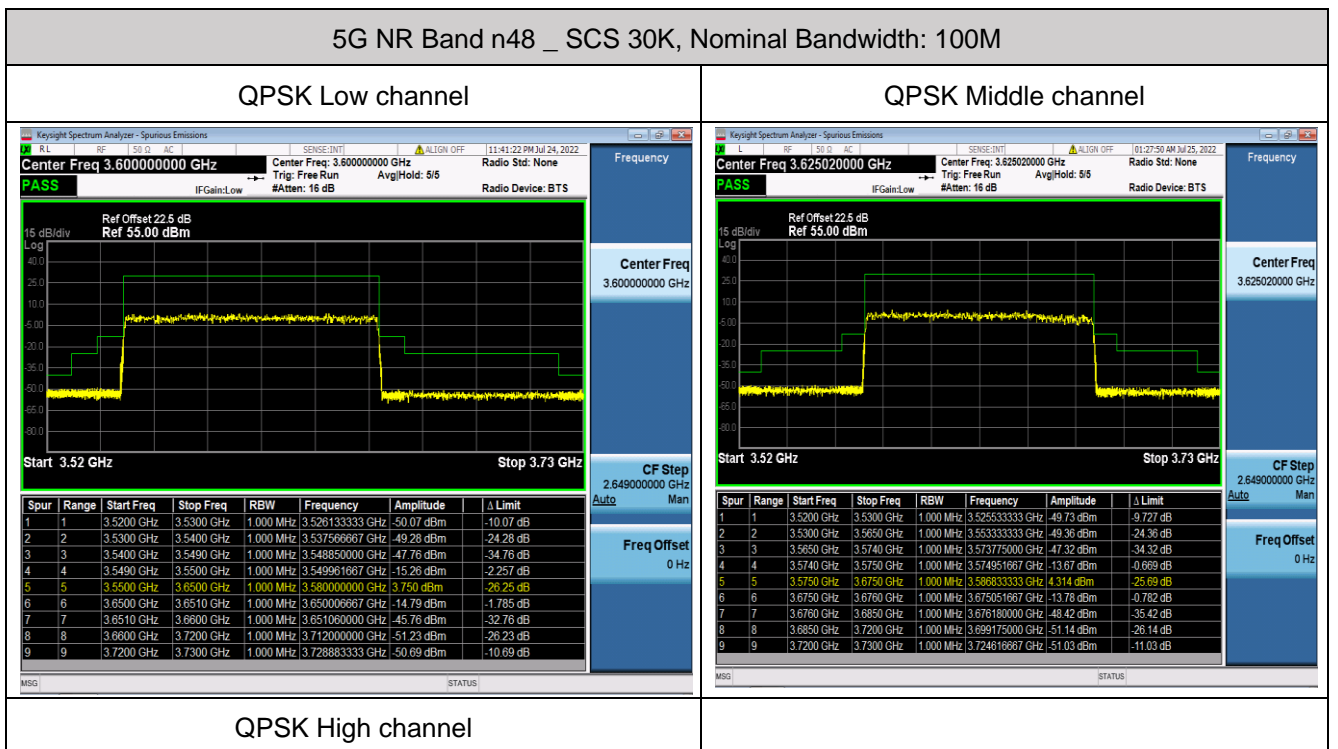
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BW Arrange	SCS (kHz)	Frequency	Modulation	RB Allocation		Test Result
				Size	Offset	
Single Carrier						
100M	30	LCH / MCH / HCH	QPSK	Full	0	Pass

Note:

1) Test results of QPSK/256QAM and different RB configuration have been evaluated, and only the worst results are recorded.

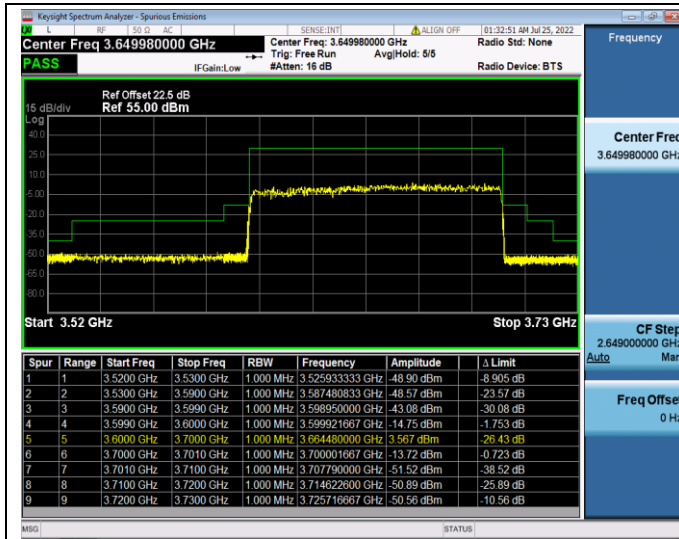


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## 6.5 Spurious emissions at antenna terminals

Test Requirement: §2.1051, §96.41

Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: Except as otherwise specified in paragraph (e)(2) of this section, for channel and frequency assignments made by the SAS to CBSDs, the conducted power of any CBSD emission outside the fundamental emission bandwidth as specified in paragraph (e)(3) of this section (whether the emission is inside or outside of the authorized band) shall not exceed -13 dBm/MHz within 0-10 megahertz above the upper SAS-assigned channel edge and within 0-10 megahertz below the lower SAS-assigned channel edge. At all frequencies greater than 10 megahertz above the upper SAS assigned channel edge and less than 10 MHz below the lower SAS assigned channel edge, the conducted power of any CBSD emission shall not exceed -25 dBm/MHz. The upper and lower SAS assigned channel edges are the upper and lower limits of any channel assigned to a CBSD by an SAS, or in the case of multiple contiguous channels, the upper and lower limits of the combined contiguous channels.

Additional protection levels. Notwithstanding paragraph (e)(1) of this section, for CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed -25 dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.

### 6.5.1 E.U.T. Operation

Operating Environment:

Temperature: 20.4 °C Humidity: 56.4 % RH Atmospheric Pressure: 1030 mbar

Test mode: 00: Tx mode, Keep the EUT in transmitting mode.



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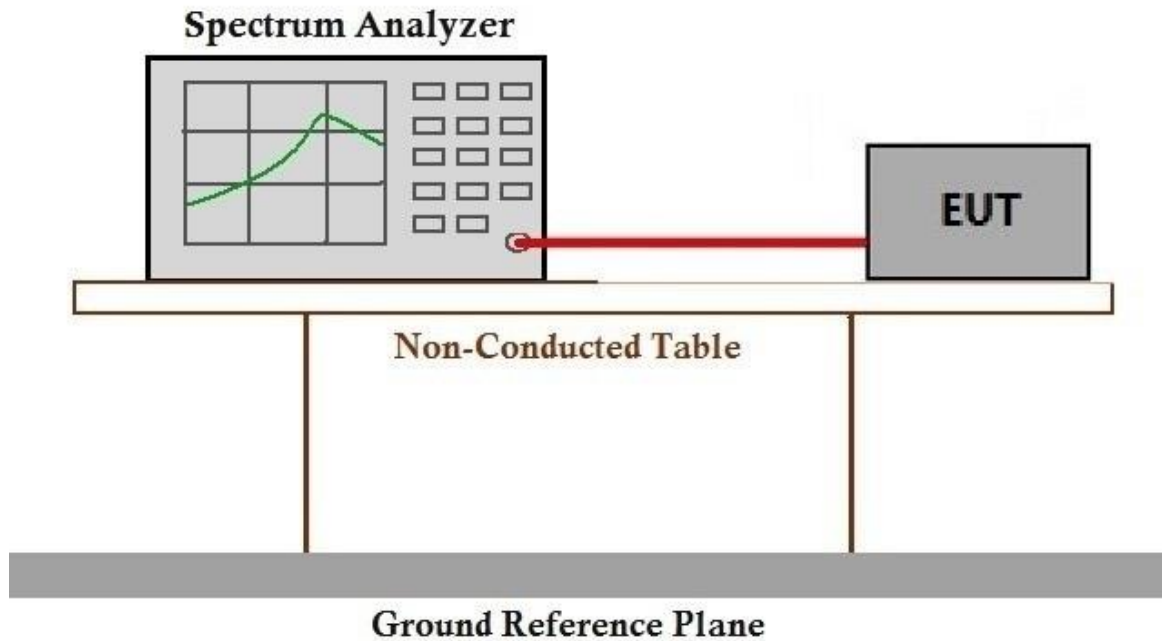
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## 6.5.2 Test Setup Diagram



## 6.5.3 Measurement Data



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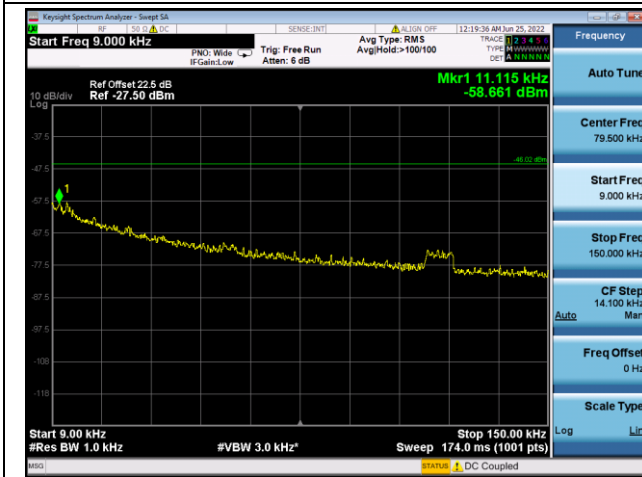
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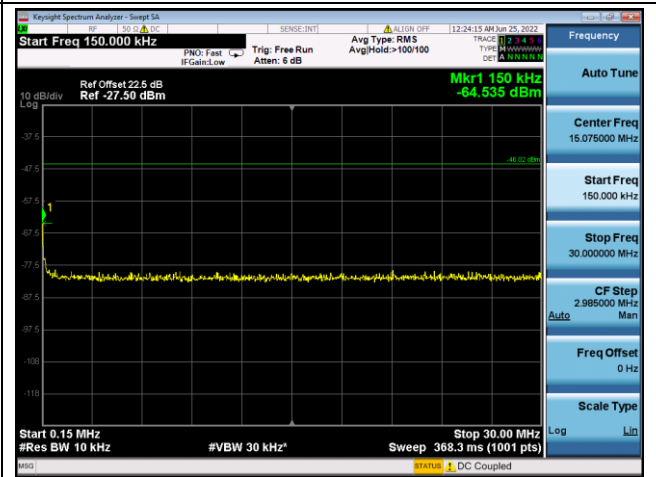
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5G NR Band n48 \_ SCS 30K, Nominal Bandwidth: 100M

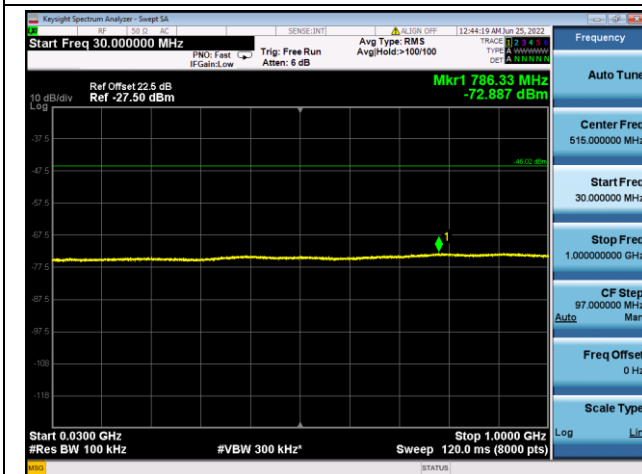
QPSK Low channel - 9kHz~30MHz



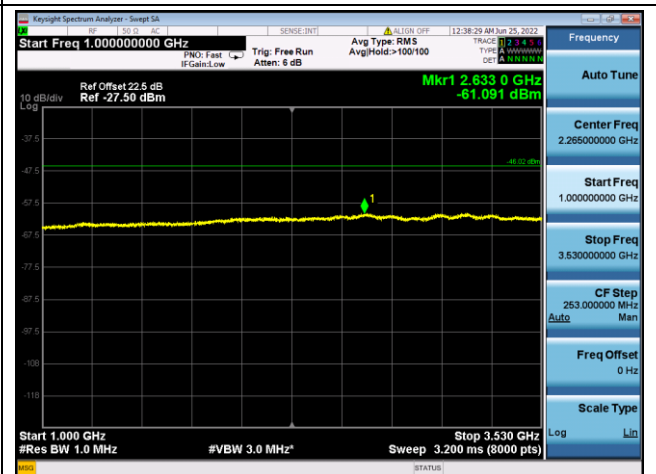
QPSK Low channel - 150KHz~30MHz



QPSK Low channel - 30MHz~1000MHz



QPSK Low channel - 1000MHz~3530MHz



QPSK Low channel - 3720MHz~5000MHz

QPSK Low channel - 5GHz~12.75GHz

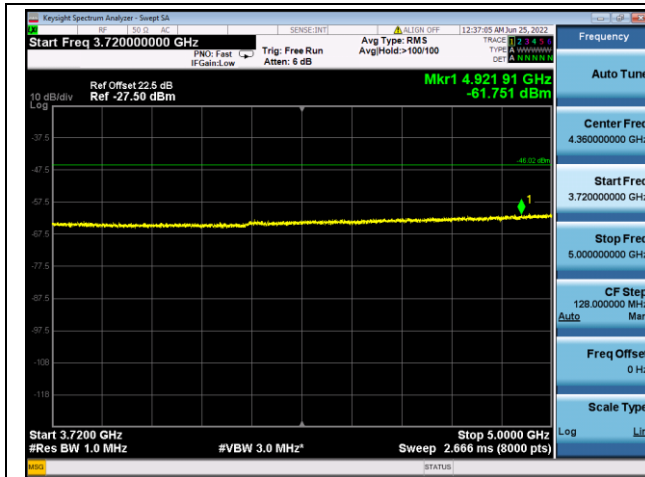


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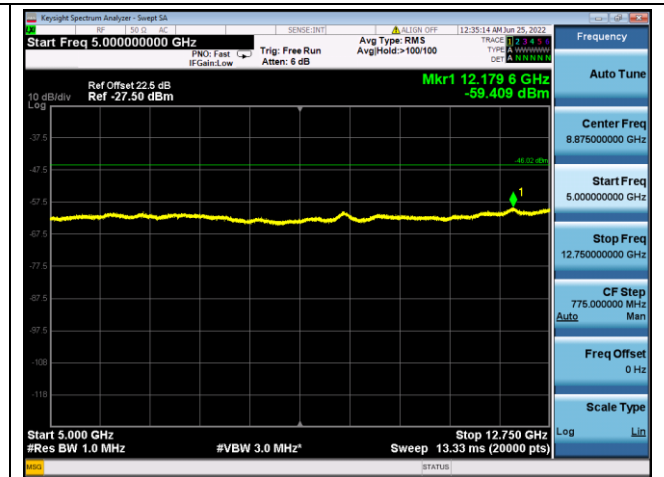
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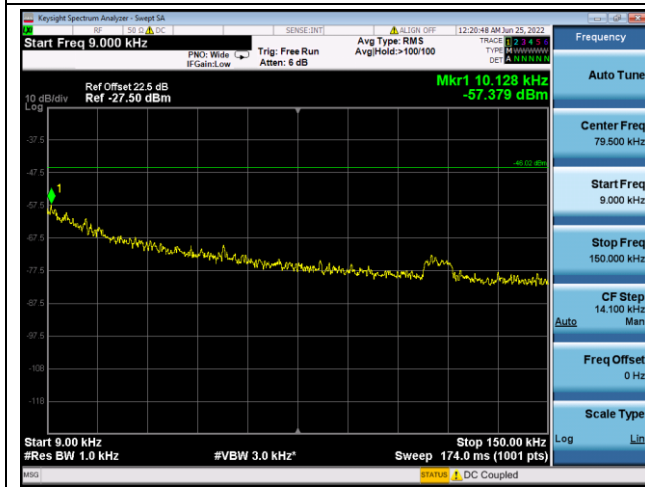
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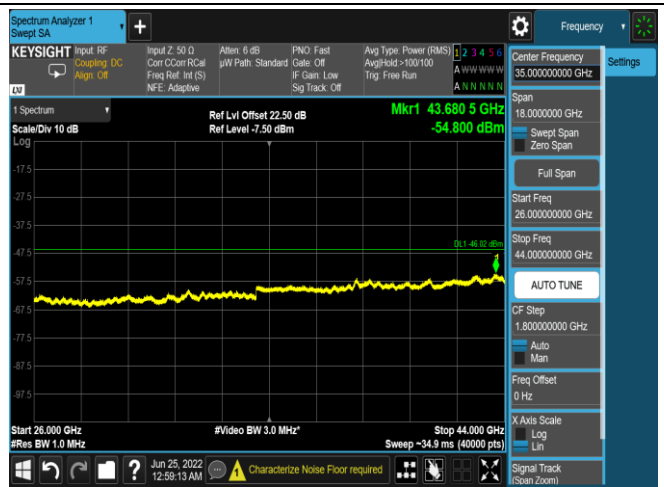
QPSK Low channel – 12.75GHz~26GHz



QPSK Low channel – 26GHz~44GHz



QPSK Middle channel - 9kHz~30MHz



QPSK Middle channel – 150KHz~30MHz

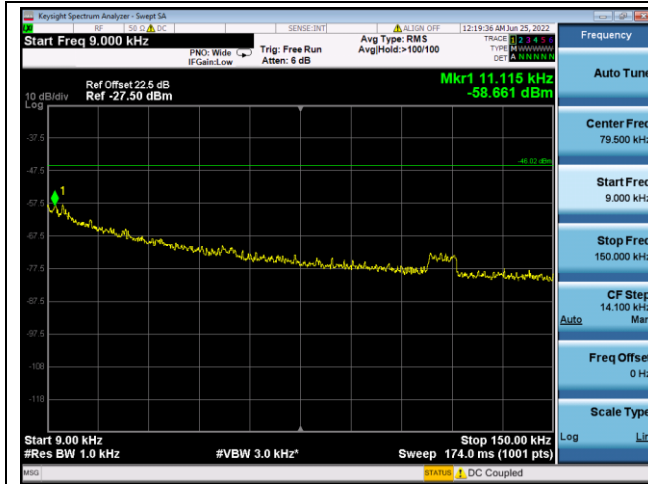


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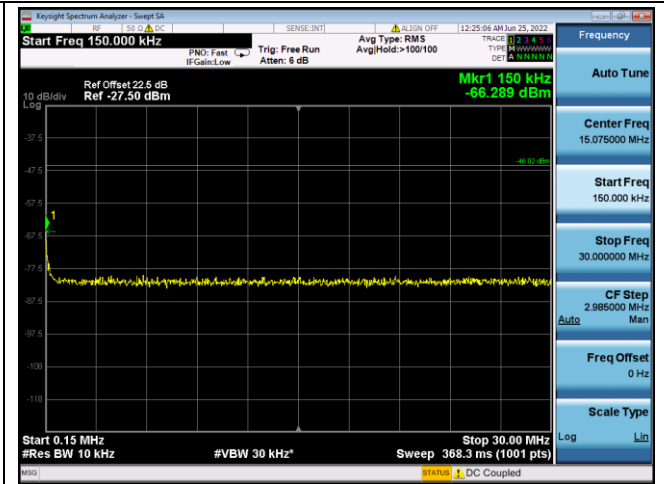
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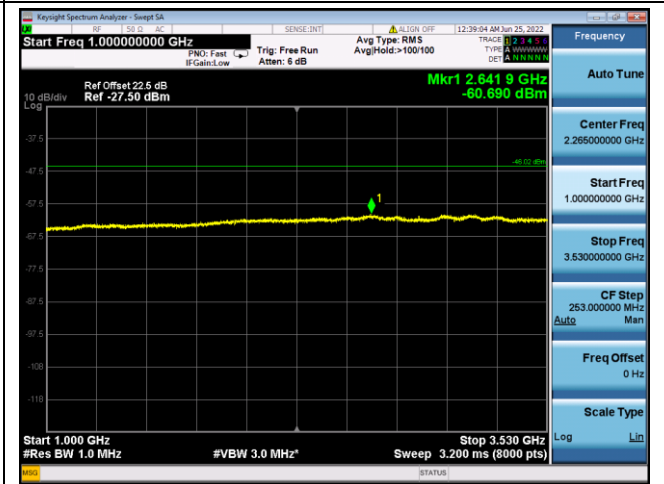
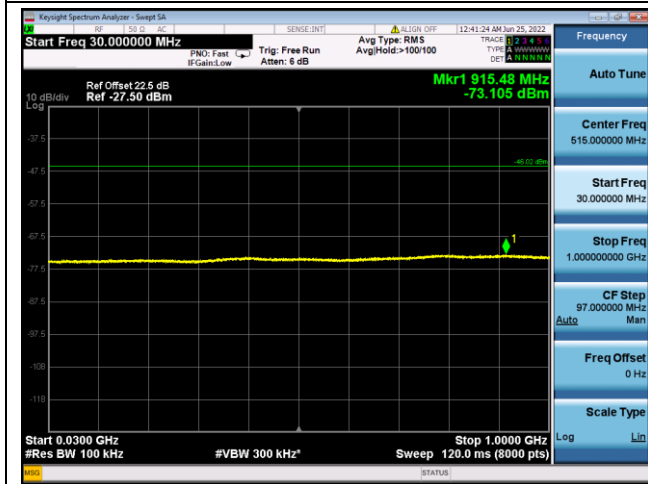
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QPSK Middle channel - 30MHz~1000MHz



QPSK Middle channel - 1000MHz~3530MHz



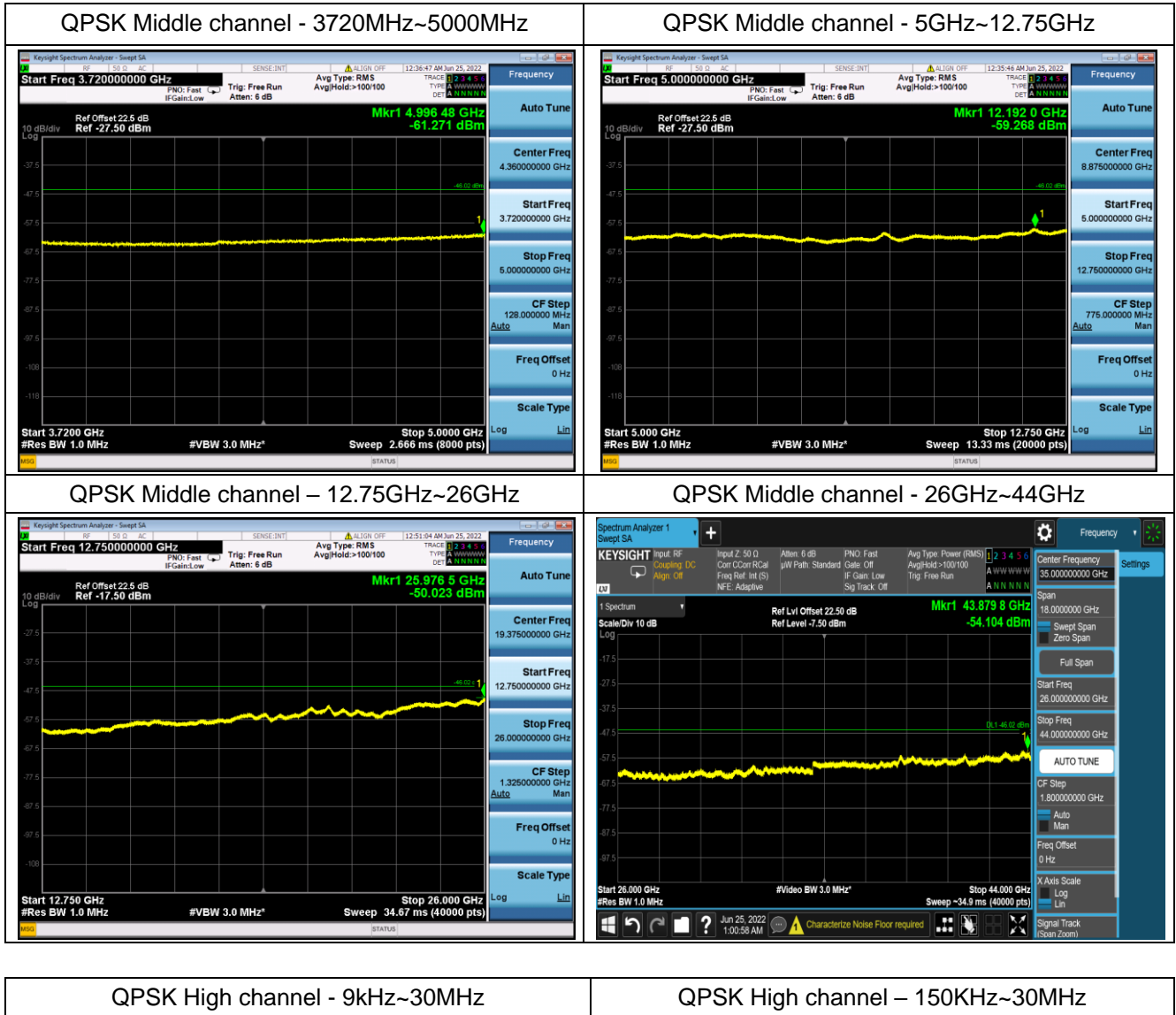
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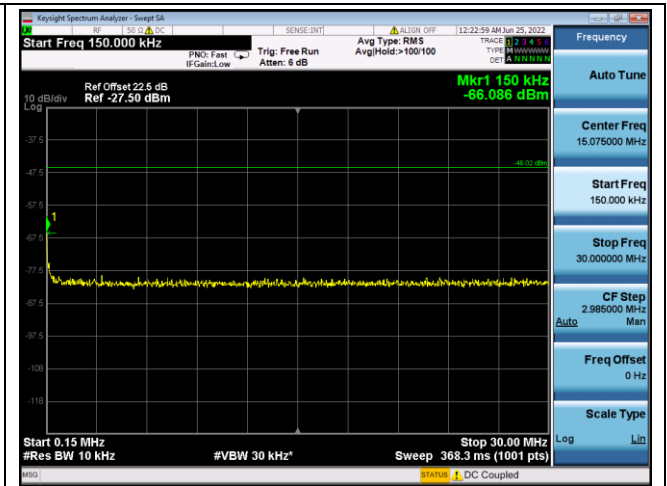
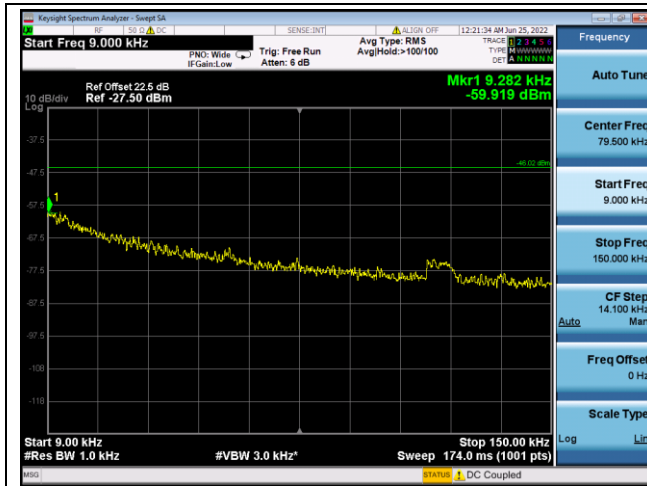
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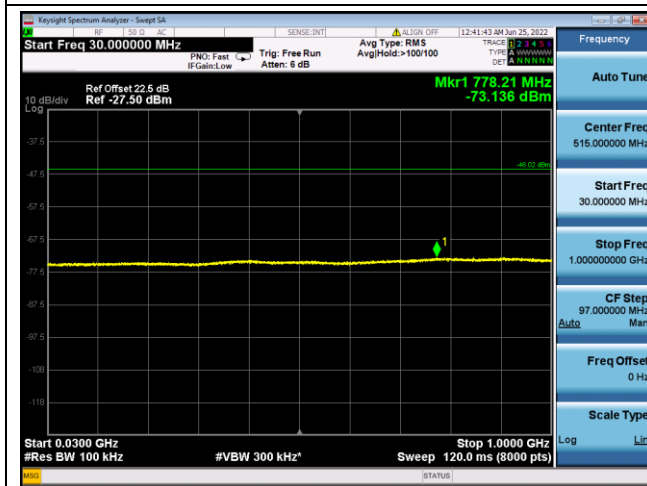
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QPSK High channel - 30MHz~1000MHz



QPSK High channel - 3720MHz~5000MHz

QPSK High channel - 1000MHz~3530MHz



QPSK High channel - 5GHz~12.75GHz

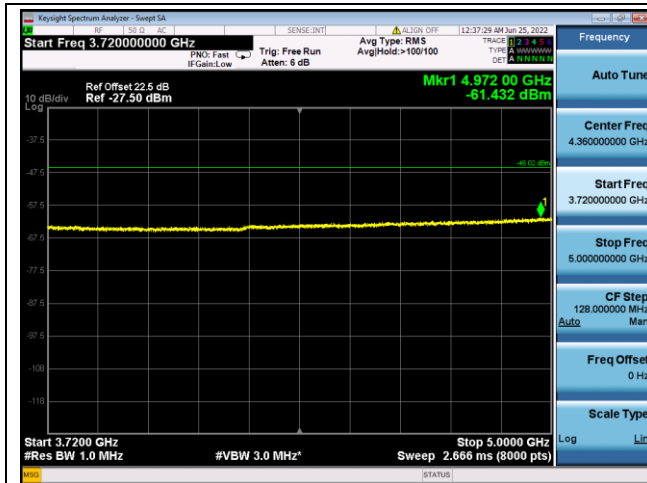


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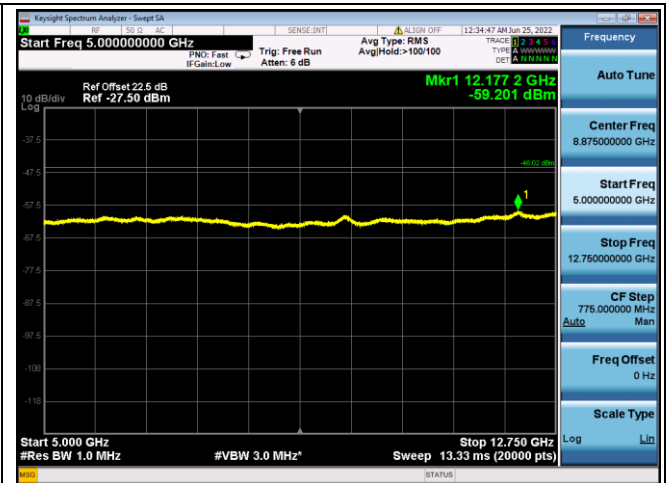
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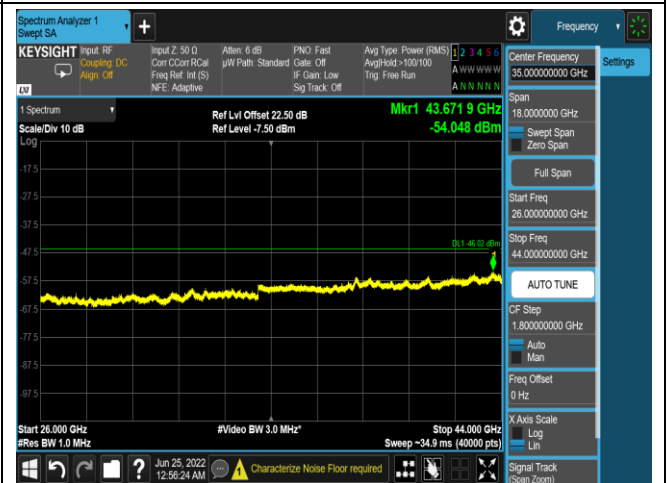
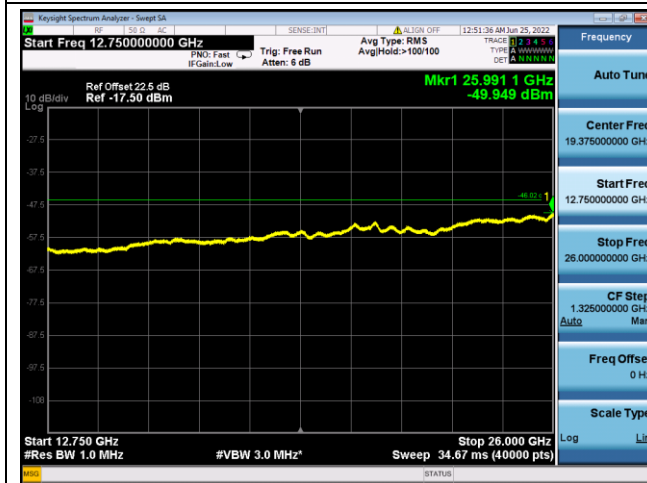
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QPSK High channel – 12.75GHz~26GHz



QPSK High channel - 26GHz~44GHz



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## 6.6 Field strength of spurious radiation

Test Requirement: §2.1051, §96.41

Test Method: ANSI C63.26, KDB 971168 D01 v03

Limit: Except as otherwise specified in paragraph (e)(2) of this section, for channel and frequency assignments made by the SAS to CBSDs, the conducted power of any CBSD emission outside the fundamental emission bandwidth as specified in paragraph (e)(3) of this section (whether the emission is inside or outside of the authorized band) shall not exceed  $-13$  dBm/MHz within 0-10 megahertz above the upper SAS-assigned channel edge and within 0-10 megahertz below the lower SAS-assigned channel edge. At all frequencies greater than 10 megahertz above the upper SAS assigned channel edge and less than 10 MHz below the lower SAS assigned channel edge, the conducted power of any CBSD emission shall not exceed  $-25$  dBm/MHz. The upper and lower SAS assigned channel edges are the upper and lower limits of any channel assigned to a CBSD by an SAS, or in the case of multiple contiguous channels, the upper and lower limits of the combined contiguous channels.

Additional protection levels. Notwithstanding paragraph (e)(1) of this section, for CBSDs and End User Devices, the conducted power of emissions below 3540 MHz or above 3710 MHz shall not exceed  $-25$  dBm/MHz, and the conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed  $-40$  dBm/MHz.

### 6.6.1 E.U.T. Operation

Operating Environment:

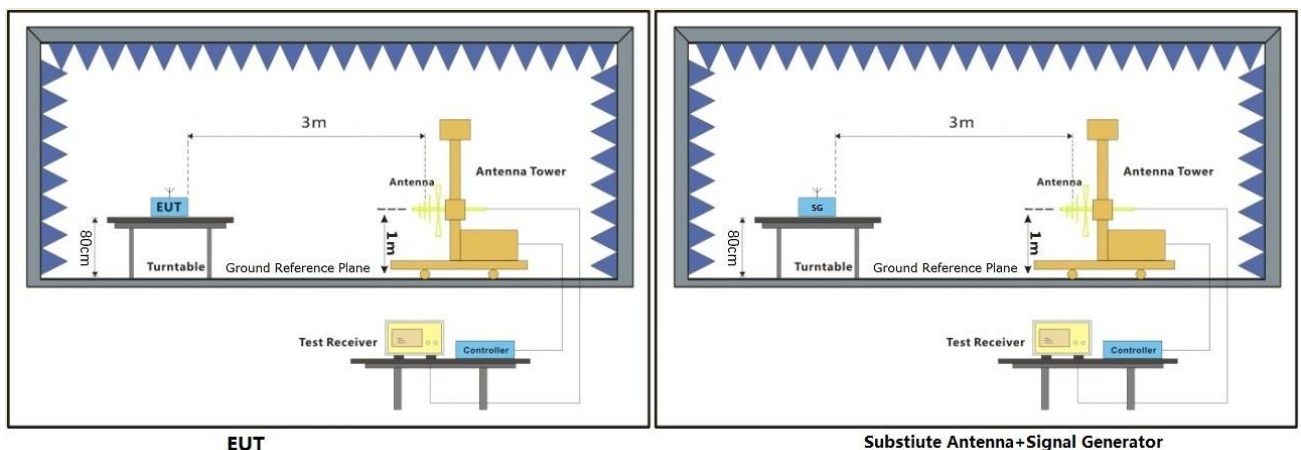
Temperature:  $20.4^{\circ}\text{C}$

Humidity:  $56.4\%$  RH

Atmospheric Pressure:  $1030$  mbar

Test mode: 00: Tx mode, Keep the EUT in transmitting mode.

### 6.6.2 Test Setup Diagram



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## 6.6.3 Measurement Procedure and Data

### Test Procedure:

- (1) On a test site, the EUT shall be placed on a turntable and in the position closest to the normal use as declared by the user.
- (2) The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the transmitter.
- (3) The output of the antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.
- (4) The transmitter shall be switched on; if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.
- (5) The test antenna shall be raised and lowered through the specified range of height until the measuring receiver detects a maximum signal level.
- (6) The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- (7) The test antenna shall be raised and lowered again through the specified range of height until the measuring receiver detects a maximum signal level.
- (8) The maximum signal level detected by the measuring receiver shall be noted.
- (9) The measurement shall be repeated with the test antenna set to horizontal polarization.
- (10) Replace the antenna with a proper Antenna (substitution antenna).
- (11) The substitution antenna shall be oriented for vertical polarization and, if necessary, the length of the substitution antenna shall be adjusted to correspond to the frequency of transmitting.
- (12) The substitution antenna shall be connected to a calibrated signal generator.
- (13) If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- (14) The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.
- (15) The input signal to substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.
- (16) The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
- (17) The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.



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Low Channel					
Frequency	Spurious Emission Level			Limit	Over limit
(MHz)	(Deg)	Polaxis	(dBm)	dBm	(dB)
240.0	73	Horizontal	-51.9	-40.0	-11.9
585.8	88	Horizontal	-45.1	-40.0	-5.1
899.1	171	Horizontal	-42.8	-40.0	-2.8
2521.4	31	Horizontal	-48.0	-40.0	-8.0
6412.0	166	Horizontal	-43.8	-40.0	-3.8
11517.6	227	Horizontal	-42.4	-40.0	-2.4
189.3	76	Vertical	-49.9	-40.0	-9.9
463.6	231	Vertical	-43.6	-40.0	-3.6
741.0	343	Vertical	-45.4	-40.0	-5.4
2552.0	266	Vertical	-42.6	-40.0	-2.6
6428.2	308	Vertical	-43.5	-40.0	-3.5
12177.1	251	Vertical	-43.2	-40.0	-3.2

Middle Channel					
Frequency	Spurious Emission Level			Limit	Over limit
(MHz)	(Deg)	Polaxis	(dBm)	dBm	(dB)
279.3	82	Horizontal	-52.0	-40.0	-12.0
641.4	104	Horizontal	-45.5	-40.0	-5.5
976.6	186	Horizontal	-43.3	-40.0	-3.3
2622.0	55	Horizontal	-49.0	-40.0	-9.0
6506.3	177	Horizontal	-44.7	-40.0	-4.7
11661.7	240	Horizontal	-42.3	-40.0	-2.3
262.0	77	Vertical	-51.5	-40.0	-11.5
556.4	240	Vertical	-45.2	-40.0	-5.2
895.1	354	Vertical	-47.0	-40.0	-7.0
2581.1	273	Vertical	-44.1	-40.0	-4.1
6552.6	320	Vertical	-43.8	-40.0	-3.8
12236.6	266	Vertical	-43.3	-40.0	-3.3



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High Channel					
Frequency	Spurious Emission Level			Limit	Over limit
(MHz)	(Deg)	Polaxis	(dBm)	dBm	(dB)
247.2	84	Horizontal	-52.6	-40.0	-12.6
738.1	101	Horizontal	-46.4	-40.0	-6.4
1006.5	198	Horizontal	-43.0	-40.0	-3.0
2645.4	56	Horizontal	-49.5	-40.0	-9.5
6596.5	188	Horizontal	-45.5	-40.0	-5.5
11708.5	246	Horizontal	-43.3	-40.0	-3.3
281.3	83	Vertical	-50.9	-40.0	-10.9
700.4	238	Vertical	-45.1	-40.0	-5.1
902.4	357	Vertical	-47.7	-40.0	-7.7
2591.8	277	Vertical	-45.7	-40.0	-5.7
6646.9	318	Vertical	-43.6	-40.0	-3.6
12258.6	275	Vertical	-43.8	-40.0	-3.8

Remark:

- 1) Pretest with normal and extreme conditions, only the worst case data was showed in the test report.
- 2) We have tested all modulation and all Channel, but only the worst case data displayed in this report.



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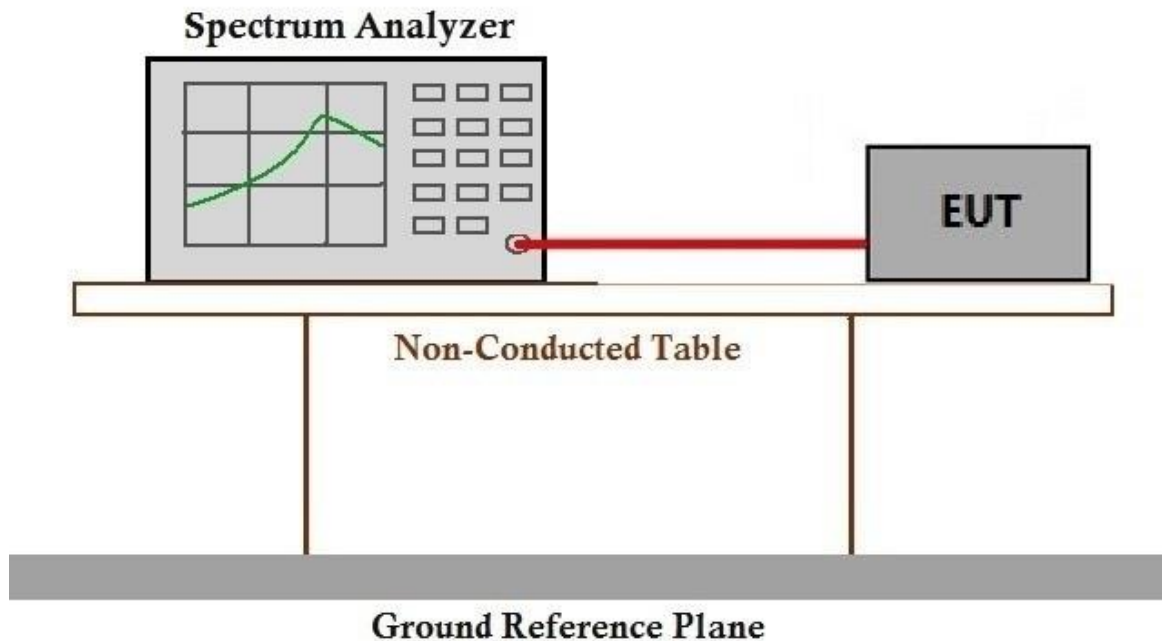
## 6.7 Frequency stability

Test Requirement: §2.1055  
 Test Method: ANSI C63.26, KDB 971168 D01 v03  
 Limit: Fundamental emission stays within authorized frequency block

### 6.7.1 E.U.T. Operation

Operating Environment:  
 Temperature: 20.4 °C Humidity: 56.4 % RH Atmospheric Pressure: 1030 mbar  
 Test mode: 00: Tx mode, Keep the EUT in transmitting mode.

### 6.7.2 Test Setup Diagram



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## 6.7.3 Measurement Data

Frequency Stability vs temperature:

1. Test for 5G NR Band n48 Downlink (Middle Channel 3625.02MHz)

Temperature(°C)	Voltage (V dc)	Frequency Error (Hz)	Tolerance(ppm)
50	48.00	51.65	0.0142
40	48.00	45.45	0.0125
30	48.00	2.01	0.0006
20	48.00	19.91	0.0055
10	48.00	64.58	0.0178
0	48.00	3.90	0.0011
-10	48.00	16.49	0.0045
-20	48.00	26.02	0.0072
-30	48.00	37.00	0.0102



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Frequency Stability vs voltage:

1. Test for 5G NR Band n48 Downlink (Middle Channel 3625.02MHz)

Voltage (V dc)	Temperature(°C)	Frequency Error (Hz)	Tolerance(ppm)
43.20	25	61.40	0.0190
48.00	25	62.07	0.0185
52.80	25	33.53	0.0112

Remark:

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## 7 Test Setup Photographs

Refer to the < Test Setup photos-FCC>.

## 8 EUT Constructional Details

Refer to the < External Photos > & < Internal Photos >.

- End of the Report -



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