



FCC RF Test Report

APPLICANT : Sonim Technologies, Inc.
EQUIPMENT : Mobile Hotspot
BRAND NAME : Sonim
MODEL NAME : H700B
FCC ID : WYPH700B
STANDARD : 47 CFR Part 27
CLASSIFICATION : PCS Licensed Transmitter (PCB)
TEST DATE(S) : Aug. 16, 2024 ~ Apr. 17, 2025

We, Sporton International Inc. (ShenZhen), would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.26-2015 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (ShenZhen), the test report shall not be reproduced except in full.

Fly Liang

Approved by: Fly Liang



Sporton International Inc. (ShenZhen)

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People's Republic of China



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG480204M	Rev. 01	Initial issue of report	May 27, 2025

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	Reporting Only	PASS	-
	§27.50(b)(10) §27.50(c)(10)	Effective Radiated Power (5G NR n12, n13, n71)	ERP < 3 Watt		
	§27.50(d)(4)	Equivalent Isotropic Radiated Power (5G NR n66)	EIRP < 1Watt		
3.5	N/A	Peak-to-Average Ratio	<13 dB	PASS	-
3.6	§2.1049	Occupied Bandwidth	Reporting Only	PASS	-
3.7	§2.1051 §27.53(h) §27.53(g)	Conducted Band Edge Measurement (5G NR n66) (5G NR n12, n13, n71)	< 43+10log ₁₀ (P[Watts])	PASS	-
3.8	§2.1051 §27.53(h) §27.53(g)	Conducted Spurious Emission (5G NR n66) (5G NR n12, n13, n71)	< 43+10log ₁₀ (P[Watts])	PASS	-
3.9	§27.54	Frequency Stability Temperature & Voltage	Within Authorized Band	PASS	-
4.4	§2.1053 §27.53(h) §27.53(g)	Radiated Spurious Emission (5G NR n66) (5G NR n12, n13, n71)	< 43+10log ₁₀ (P[Watts])	PASS	Under limit 15.14 dB at 9221.60 MHz

Conformity Assessment Condition:

- The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
- The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty"

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.



1 General Description

1.1 Applicant

Sonim Technologies, Inc.

4445 Eastgate Mall,Suite200,San Diego, CA92121, USA

1.2 Manufacturer

Sonim Technologies, Inc.

4445 Eastgate Mall,Suite200,San Diego, CA92121, USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Hotspot
Brand Name	Sonim
Model Name	H700B
FCC ID	WYPH700B
IMEI Code	Conducted : 351393280001029 Radiation : 351393280007273
HW Version	V3.0
SW Version	H70.0-01-22.3.0-10.25.00
EUT Stage	Identical Prototype

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	5G NR n12 : 699 MHz ~ 716 MHz 5G NR n13 : 777 MHz ~ 787 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz 5G NR n71: 663 MHz ~ 698 MHz
Rx Frequency	5G NR n12: 729 MHz ~ 746 MHz 5G NR n13 : 746 MHz ~ 756 MHz 5G NR n66 : 2110 MHz~ 2200 MHz 5G NR n71: 617 MHz ~ 652 MHz
Bandwidth	n12: 5MHz / 10MHz / 15MHz n13: 5MHz / 10MHz n66 : 5MHz / 10MHz / 15MHz / 20MHz / 25MHz / 30MHz / 35MHz / 40MHz n71: 5MHz / 10MHz / 15MHz / 20MHz
SCS	15kHz
Antenna Gain	<External Antenna> <ANT0>: LTE Band 12 : 3.5 dBi LTE Band 13 : 5.0 dBi LTE Band 66 : 4.0 dBi LTE Band 71 : 3.5 dBi

	<ANT1> n66: 4.0 dBi <Internal Antenna> <ANT0> n12: -3.84 dBi n13: -1.75 dBi n66: -0.03 dBi n71: -5.60 dBi <ANT1> n66: -0.33 dBi
Type of Modulation	CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM

Remark:

1. The device supports two types of WWAN antennas: Internal Antenna and External Antenna, they share the same RF test port, and the two antennas cannot work at the same time. After evaluation, the antenna difference does not affect the Conducted measurement. For RSE, only the test results of the worse External Antenna are shown.
2. The maximum ERP is calculated from max output power and max antenna gain, so only the maximum ERP of Antenna 0 (External Antenna) are shown in the report.
3. 5G NR support SA (n12/n13/n66/n71) mode and NSA(n66) mode. According to the maximum power between SA and NSA mode, SA covers NSA mode.
4. The device supports two PAs for 5G NR n66 (main PA for SA on Ant0 and other PA for NSA on Ant1), both the PAs are full tested, only the worst EIRP is shown.
5. All the supported ENDC combinations are verified conducted power, only the ENDC combination with highest power are shown in the report.
6. The EN-DC mode combination could be referred to the product spec.

1.5 Modification of EUT

No modifications are made to the EUT during all test items.

1.6 Maximum ERP/EIRP and Emission Designator

5G NR n12		PI/2 BPSK / QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum ERP(W)	Emission Designator (99%OBW)	Maximum ERP(W)	Emission Designator (99%OBW)
5	701.5 ~ 713.5	0.3334	4M47G7D	0.2679	4M48W7D
10	704.0~ 711.0	0.3281	9M28G7D	0.2704	9M29W7D
15	706.5 ~ 708.5	0.3420	14M1G7D	0.2679	14M1W7D



5G NR n13		PI/2 BPSK / QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum ERP(W)	Emission Designator (99%OBW)	Maximum ERP(W)	Emission Designator (99%OBW)
5	779.5 ~ 784.5	0.4581	4M46G7D	0.3698	4M49W7D
10	782	0.4710	9M25G7D	0.3758	9M25W7D

5G NR n66		PI/2 BPSK / QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
5	1712.5 ~ 1777.5	0.5420	4M49G7D	0.4305	4M50W7D
10	1715.0 ~ 1775.0	0.5508	9M28G7D	0.4467	9M30W7D
15	1717.5 ~ 1772.5	0.5483	14M1G7D	0.4539	14M1W7D
20	1720.0 ~ 1770.0	0.5458	18M9G7D	0.4335	19M0W7D
25	1722.5 ~ 1767.5	0.5610	23M8G7D	0.4688	23M8W7D
30	1725.0 ~ 1765.0	0.5623	28M6G7D	0.4571	28M6W7D
35	1727.5 ~ 1762.5	0.5495	33M5G7D	0.4529	33M5W7D
40	1730.0 ~ 1760.0	0.5649	38M6G7D	0.4519	38M6W7D

5G NR n71		PI/2 BPSK / QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum ERP(W)	Emission Designator (99%OBW)	Maximum ERP(W)	Emission Designator (99%OBW)
5	665.5 ~ 695.5	0.3289	4M46G7D	0.2692	4M48W7D
10	668.0 ~ 693.0	0.3258	9M28G7D	0.2588	9M28W7D
15	670.5 ~ 690.5	0.3258	14M1G7D	0.2588	14M1W7D
20	673.0 ~ 688.0	0.3296	18M9G7D	0.2630	18M9W7D

Note: All modulations have been tested, only the worst test results of PSK & QAM are shown in the report.

1.7 Testing Location

Sporton International Inc. (ShenZhen) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Test Firm	Sporton International Inc. (ShenZhen)		
Test Site Location	101, 1st Floor, Block B, Building 1, No. 2, Tengfeng 4th Road, Fenghuang Community, Fuyong Street, Baoan District, Shenzhen City, Guangdong Province 518103 People's Republic of China TEL: +86-755-86066985		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	TH01-SZ 03CH02-SZ	CN1256	421272

1.8 Test Software

Item	Site	Manufacture	Name	Version
1.	03CH02-SZ	AUDIX	E3	6.2009-8-24a

1.9 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR Part 27
- ♦ ANSI C63.26-2015
- ♦ FCC KDB 971168 D01 Power Meas License Digital Systems v03r01
- ♦ FCC KDB 412172 D01 Determining ERP and EIRP v01r01

Remark:

All test items were verified and recorded according to the standards and without any deviation during the test.



2 Test Configuration of Equipment Under Test

2.1 Test Mode

Antenna port conducted and radiated test items are performed according to KDB 971168 D01 Power Meas License Digital Systems v03r01 with maximum output power.

For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases were recorded in this report.

The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.

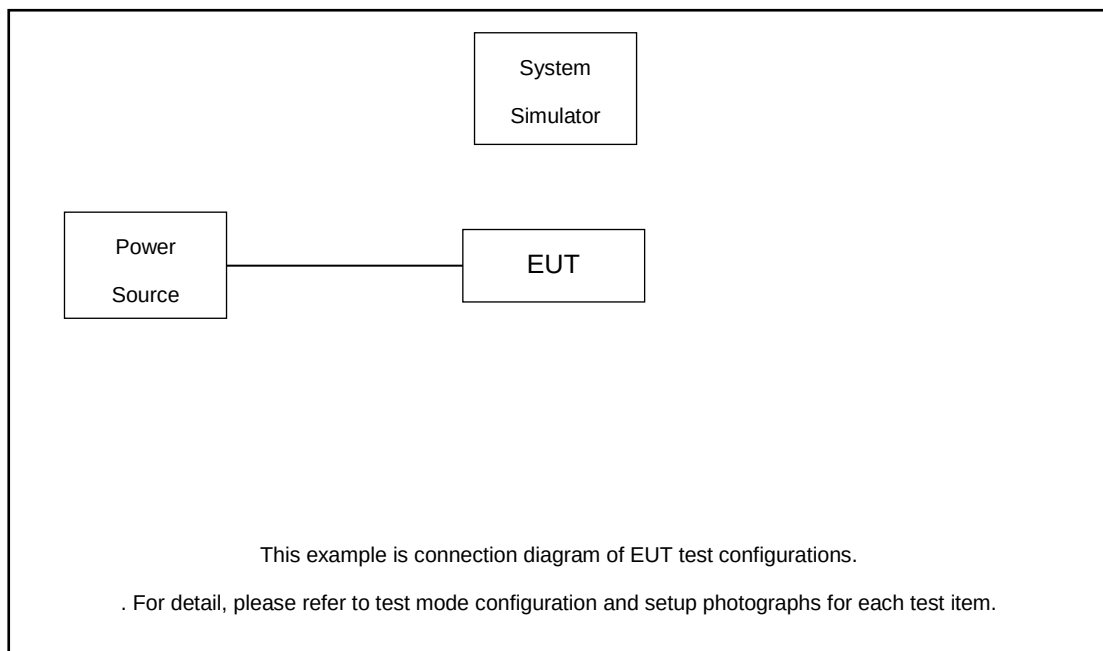
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane

Test Items	5G NR	Bandwidth (MHz)														Modulation					RB #		Test Channel		
		5	10	15	20	25	30	35	40	60	70	80	90	100	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	1	Full	L	M	H	
Max. Output Power	n12	v	v	v	-	-	-	-	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v	
	n13	v	v	-	-	-	-	-	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v	
	n66	v	v	v	v	v	v	v	v	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v	
	n71	v	v	v	v	-	-	-	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v	
Peak-to- Average Ratio	n12		v		-	-	-	-	-	-	-	-	-	-	v	v					v		v		
	n13		v	-	-	-	-	-	-	-	-	-	-	-	v	v					v		v		
	n66				v					-	-	-	-	-	v	v					v		v		
	n71				v	-	-	-	-	-	-	-	-	-	v	v					v		v		
26dB and 99% Bandwidth	n12	v	v	v	-	-	-	-	-	-	-	-	-	-		v	v	v	v		v		v		
	n13	v	v	-	-	-	-	-	-	-	-	-	-	-		v	v	v	v		v		v		
	n66	v	v	v	v	v	v	v	v	-	-	-	-	-		v	v	v	v		v		v		
	n71	v	v	v	v	-	-	-	-	-	-	-	-	-		v	v	v	v		v		v		
Conducted Band Edge	n12	v	v	v	-	-	-	-	-	-	-	-	-	-	v	v				v	v	v		v	
	n13	v	v	-	-	-	-	-	-	-	-	-	-	-	v	v				v	v	v		v	
	n66	v			v				v	-	-	-	-	-	v	v				v	v	v		v	
	n71	v	v		v	-	-	-	-	-	-	-	-	-	v	v				v	v	v		v	
Conducted	n12	v	v	v	-	-	-	-	-	-	-	-	-	-	v	v				v		v	v	v	



Test Items	5G NR	Bandwidth (MHz)														Modulation					RB #		Test Channel		
		5	10	15	20	25	30	35	40	60	70	80	90	100	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	1	Full	L	M	H	
Spurious Emission	n13	v	v	-	-	-	-	-	-	-	-	-	-	-	v	v				v		v	v	v	
	n66	v			v				v	-	-	-	-	-	v	v				v		v	v	v	
	n71	v	v		v	-	-	-	-	-	-	-	-	-	v	v				v		v	v	v	
Frequency Stability	n12		v		-	-	-	-	-	-	-	-	-			v					v		v		
	n13		v	-	-	-	-	-	-	-	-	-	-			v					v		v		
	n66				v					-	-	-	-			v					v		v		
	n71				v	-	-	-	-	-	-	-	-			v					v		v		
E.R.P / E.I.R.P	n12	v	v	v	-	-	-	-	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v	
	n13	v	v	-	-	-	-	-	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v	
	n66	v	v	v	v	v	v	v	v	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v	
	n71	v	v	v	v	-	-	-	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v	
Radiated Spurious Emission	n12	Worst Case																					v		
	n13	Worst Case																					v		
	n66	Worst Case																					v		
	n71	Worst Case																					v		
Note	1. The mark “v “ means that this configuration is chosen for testing 2. The mark “-“ means that this bandwidth is not supported. 3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported. 4. Frequency Stability : Normal Voltage = 3.8V ; Low Voltage =3.5V. ; High Voltage =4.3V																								

2.2 Connection Diagram of Test System



The EUT has been configuration operated in a manner tended to maximize its emission characteristics in a typical application.

2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	DC Power Supply	GW	GPS-3030D	N/A	N/A	Unshielded, 1.8 m
2.	LTE Base Station	Anritsu	MT8821C	N/A	N/A	Unshielded, 1.8 m
3.	NR Base Station	Anritsu	MT8000A	N/A	N/A	Unshielded, 1.8 m
4.	External Antenna	N/A	N/A	N/A	N/A	N/A

2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss.

Offset = RF cable loss.

Following shows an offset computation example with cable loss 7.3 dB.

Example :

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)}. \\ &= 7.3 \text{ (dB)} \end{aligned}$$

2.5 Frequency List of Low/Middle/High Channels

5G NR n12 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
15	Channel	141300	141500	141700
	Frequency	706.5	707.5	708.5
10	Channel	140800	141500	142200
	Frequency	704	707.5	711
5	Channel	140300	141500	142700
	Frequency	701.5	707.5	713.5

5G NR n13 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
10	Channel	156400		
	Frequency	782		
5	Channel	155900	156400	156900
	Frequency	779.5	782	784.5



5G NR n66 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
40	Channel	346000	349000	352000
	Frequency	1730	1745	1760
35	Channel	345500	349000	352500
	Frequency	1727.5	1745	1762.5
30	Channel	345000	349000	353000
	Frequency	1725	1745	1765
25	Channel	344500	349000	353500
	Frequency	1722.5	1745	1767.5
20	Channel	344000	349000	354000
	Frequency	1720	1745	1770
15	Channel	343500	349000	354500
	Frequency	1717.5	1745	1772.5
10	Channel	343000	349000	355000
	Frequency	1715	1745	1775
5	Channel	342500	349000	355500
	Frequency	1712.5	1745	1777.5

5G NR n71 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	134600	136100	137600
	Frequency	673	680.5	688
15	Channel	134100	136100	138100
	Frequency	670.5	680.5	690.5
10	Channel	133600	136100	138600
	Frequency	668	680.5	693
5	Channel	133100	136100	139100
	Frequency	665.5	680.5	695.5

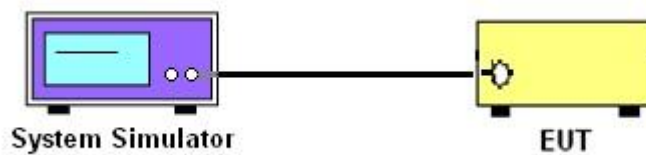
3 Conducted Test Items

3.1 Measuring Instruments

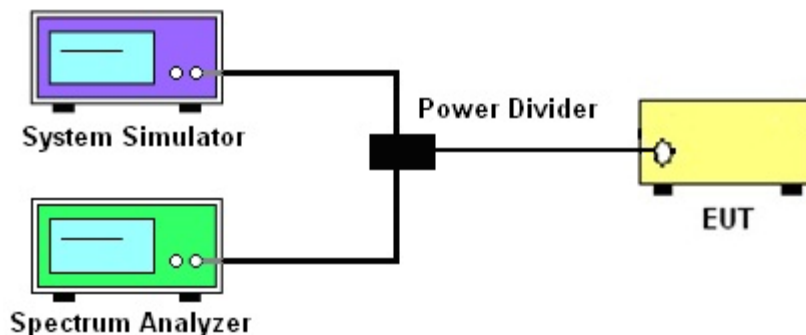
See list of measuring instruments of this test report.

3.2 Test Setup

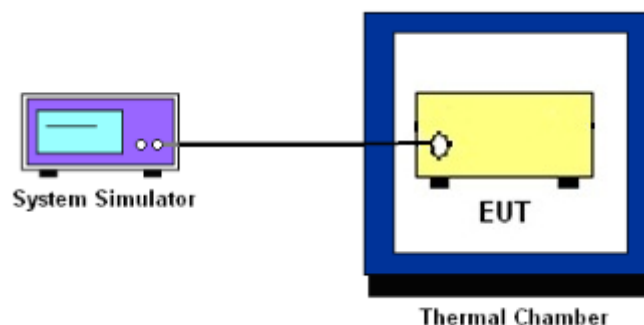
3.2.1 Conducted Output Power



3.2.2 Peak-to-Average Ratio, Occupied Bandwidth ,Conducted Band-Edge and Conducted Spurious Emission



3.2.3 Frequency Stability



3.3 Test Result of Conducted Test

Please refer to Appendix A.

3.4 Conducted Output Power and ERP/EIRP

3.4.1 Description of the Conducted Output Power Measurement and ERP/EIRP Measurement

A system simulator was used to establish communication with the EUT. Its parameters were set to force the EUT transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The ERP of mobile transmitters must not exceed 3 Watts for 5G NR n12, n13, n71.

The EIRP of mobile transmitters must not exceed 1 Watts for 5G NR n66.

According to KDB 412172 D01 Power Approach,

$EIRP = P_T + G_T - L_C$, $ERP = EIRP - 2.15$, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.2
2. The transmitter output port was connected to the system simulator.
3. Set EUT at maximum power through the system simulator.
4. Select lowest, middle, and highest channels for each band and different modulation.
5. Measure and record the power level from the system simulator.

3.5 Peak-to-Average Ratio

3.5.1 Description of the PAR Measurement

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

3.5.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.2.3.4 (CCDF).
2. The EUT was connected to spectrum and system simulator via a power divider.
3. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
4. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.
5. Record the deviation as Peak to Average Ratio.

3.6 Occupied Bandwidth

3.6.1 Description of Occupied Bandwidth Measurement

The occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

3.6.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.4
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the spectrum analyzer shall be between two and five times the anticipated OBW.
4. The nominal resolution bandwidth (RBW) shall be in the range of 1 to 5 % of the anticipated OBW, and the VBW shall be at least 3 times the RBW.
5. Set the detection mode to peak, and the trace mode to max hold.
6. Determine the reference value: Set the EUT to transmit a modulated signal. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace.
(this is the reference value)
7. Determine the “-26 dB down amplitude” as equal to (Reference Value – X).
8. Place two markers, one at the lowest and the other at the highest frequency of the envelope of the spectral display such that each marker is at or slightly below the “-X dB down amplitude” determined in step 6. If a marker is below this “-X dB down amplitude” value it shall be placed as close as possible to this value. The OBW is the positive frequency difference between the two markers.
9. Use the 99 % power bandwidth function of the spectrum analyzer and report the measured bandwidth.



3.7 Conducted Band Edge

3.7.1 Description of Conducted Band Edge Measurement

27.53 (h)

For operations in the 1710 – 1755 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ in a 1 MHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

27.53 (g)

For operations in the 600MHz band and 698 -746 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ in a 100 kHz bandwidth. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

3.7.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The band edges of low and high channels for the highest RF powers were measured.
4. Set RBW $\geq$ 1% EBW in the 1MHz band immediately outside and adjacent to the band edge.
5. Beyond the 1 MHz band from the band edge, RBW=1MHz was used or a narrower RBW was used (generally limited to no less than 1% of the OBW) and the measured power was integrated over the full required measurement bandwidth.
6. Set spectrum analyzer with RMS detector.
7. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
8. Checked that all the results comply with the emission limit line.

Example:

The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)

$$= P(W) - [43 + 10\log(P)] \text{ (dB)}$$

$$= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)} = -13\text{dBm}.$$

9. When using the integration method, the starting frequency of the integration shall be centered at one-half of the RBW away from the band edge.

3.8 Conducted Spurious Emission

3.8.1 Description of Conducted Spurious Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

3.8.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.
The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz.
7. Set spectrum analyzer with RMS detector.
8. Taking the record of maximum spurious emission.
9. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
10. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
 $= P(W) - [43 + 10\log(P)]$ (dB)
 $= [30 + 10\log(P)]$ (dBm) - $[43 + 10\log(P)]$ (dB)
 $= -13\text{dBm}$.

3.9 Frequency Stability

3.9.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block.

3.9.2 Test Procedures for Temperature Variation

1. The testing follows ANSI C63.26 section 5.6.4
2. The EUT was set up in the thermal chamber and connected with the system simulator.
3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
4. With power OFF, the temperature was raised in 10°C step up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

3.9.3 Test Procedures for Voltage Variation

1. The testing follows ANSI C63.26 section 5.6.5
2. The EUT was placed in a temperature chamber at 20±5°C and connected with the system simulator.
3. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value for other than hand carried battery equipment.
4. For hand carried, battery powered equipment, reduce the primary ac or dc supply voltage to the battery operating end point, which shall be specified by the manufacturer.
5. The variation in frequency was measured for the worst case.

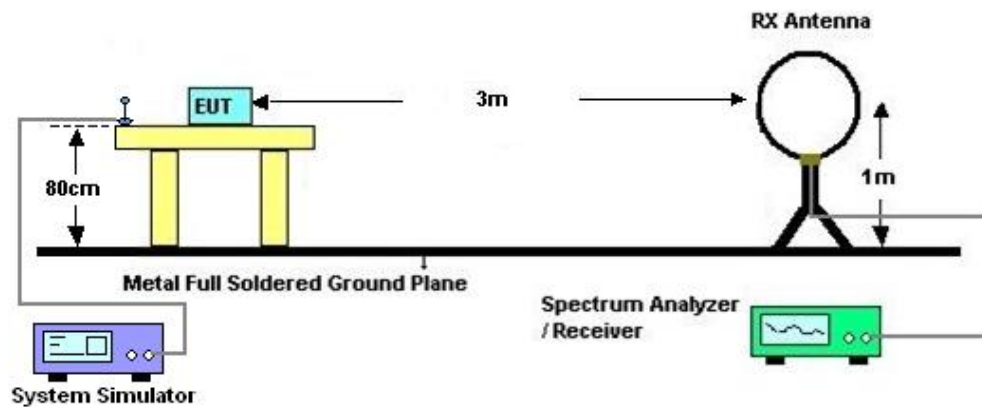
4 Radiated Test Items

4.1 Measuring Instruments

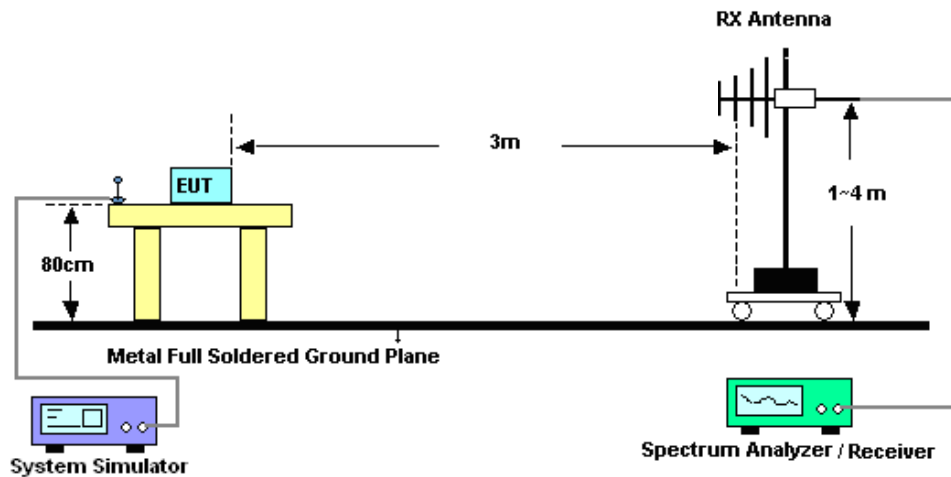
See list of measuring instruments of this test report.

4.2 Test Setup

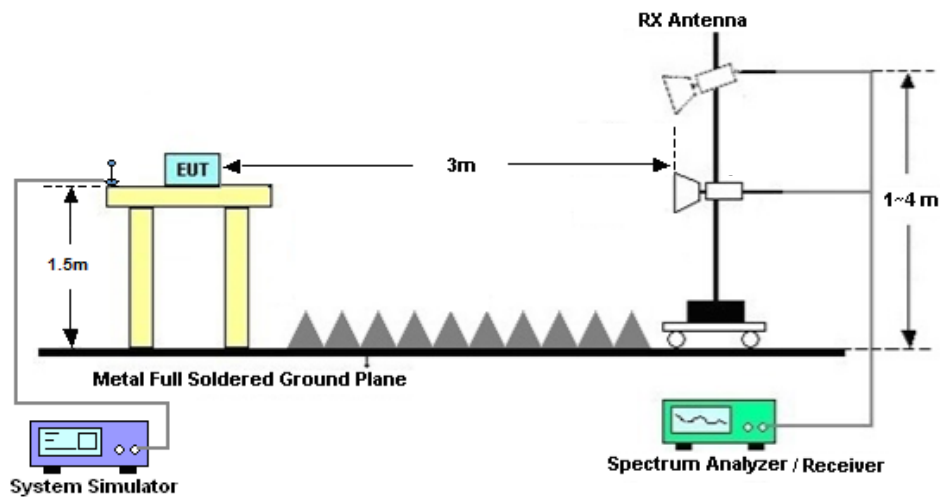
4.2.1 For radiated test below 30MHz



4.2.2 For radiated test from 30MHz to 1GHz



4.2.3 For radiated test above 1GHz



4.3 Test Result of Radiated Test

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

Please refer to Appendix B.

4.4 Radiated Spurious Emission

4.4.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI C63.26. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB.

The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

4.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.5
2. The EUT was placed on a turntable with 0.8 meter height for frequency below 1GHz and 1.5 meter height for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. The height of the receiving antenna is varied between 1m to 4m to search the maximum spurious emission for both horizontal and vertical polarizations.
6. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
7. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
8. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
9. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
10. $EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
11. $ERP \text{ (dBm)} = EIRP - 2.15$
12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)

$$= P(W) - [43 + 10\log(P)] \text{ (dB)}$$

$$= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$$

$$= -13\text{dBm}.$$



5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101078	10Hz~40GHz	Apr. 09, 2024	Aug. 16, 2024~ Sep. 12, 2024	Apr. 08, 2025	Conducted (TH01-SZ)
DC Power Supply	TTI	PL330P	290070	Max 32V, 3A	Oct. 16, 2023	Aug. 16, 2024~ Sep. 12, 2024	Oct. 15, 2024	Conducted (TH01-SZ)
Power Divider	TOJOIN	PS-2SM-04 265	60.06.020.007 7	0.4GHz~26.5GHz	Dec. 25, 2023	Aug. 16, 2024~ Sep. 12, 2024	Dec. 24, 2024	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangroup	LP-150U	H2014081803	-40~+150°C	Jul. 03, 2024	Aug. 16, 2024~ Sep. 12, 2024	Jul. 02, 2025	Conducted (TH01-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz	Jul. 03, 2024	Apr. 17, 2025	Jul. 02, 2025	Radiation (03CH02-SZ)
Loop Antenna	R&S	HFH2-Z2E	101141	9kHz~30MHz	Dec. 28, 2024	Apr. 17, 2025	Dec. 27, 2025	Radiation (03CH02-SZ)
Bilog Antenna	TeseQ	CBL6112D	35407	30MHz~2GHz	Oct. 24, 2023	Apr. 17, 2025	Oct. 23, 2025	Radiation (03CH02-SZ)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00119436	1GHz~18GHz	Jul. 04, 2024	Apr. 17, 2025	Jul. 04, 2025	Radiation (03CH02-SZ)
HF Amplifier	MITEQ	TTA1840-35 -HG	1871923	18GHz~40GHz	Jul. 03, 2024	Apr. 17, 2025	Jul. 03, 2025	Radiation (03CH02-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz~40GHz	Apr. 03, 2025	Apr. 17, 2025	Apr. 02, 2027	Radiation (03CH02-SZ)
LF Amplifier	EM Electronics	EM330	060788	20MHz~3GHz	Dec. 25, 2024	Apr. 17, 2025	Dec. 24, 2025	Radiation (03CH02-SZ)
HF Amplifier	KEYSIGHT	83017A	MY53270105	0.5GHz~26.5Ghz	Oct. 14, 2024	Apr. 17, 2025	Oct. 13, 2025	Radiation (03CH02-SZ)
AC Power Source	Chroma	61601	616010003043	N/A	Oct. 18, 2024	Apr. 17, 2025	Oct. 17, 2025	Radiation (03CH02-SZ)
Turn Table	Chaintek	T-200	N/A	0~360 degree	NCR	Apr. 17, 2025	NCR	Radiation (03CH02-SZ)
Antenna Mast	Chaintek	MBS-400	N/A	1 m~4 m	NCR	Apr. 17, 2025	NCR	Radiation (03CH02-SZ)

NCR: No Calibration Required

6 Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.26-2015. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Conducted Measurement

Test Item	Uncertainty
Conducted Spurious Emission & Bandedge	± 1.34 dB
Occupied Channel Bandwidth	± 0.012 MHz
Conducted Power	± 1.34 dB
Peak to Average Ratio	± 1.34 dB
Frequency Stability	± 1.3 Hz

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.47 dB
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Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.31 dB
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Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.72 dB
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----- THE END -----



Appendix A. Test Results of Conducted Test

Test Engineer :	Khan Zhen	Temperature :	24~26℃
		Relative Humidity :	50~53%



Software Version: 23.06.1602

FR1 N12 ANT0

Transmitter Conducted Output Power And ERP, (G_T - L_C)=3.50dB

NR Band	SCS	Band Width	Arfcn	Freq (MHz)	Modulation	RB	Conducted Power(dBm)	ERP(dBm)	ERP(W)
12	15	5	140300	701.5	DFT-s-OFDM QPSK	1@1	23.82	25.17	0.3289
12	15	5	140300	701.5	DFT-s-OFDM 16 QAM	1@1	22.9	24.25	0.2661
12	15	5	141500	707.5	DFT-s-OFDM QPSK	1@1	23.88	25.23	0.3334
12	15	5	141500	707.5	DFT-s-OFDM 16 QAM	1@1	22.93	24.28	0.2679
12	15	5	142700	713.5	DFT-s-OFDM QPSK	1@1	23.68	25.03	0.3184
12	15	5	142700	713.5	DFT-s-OFDM 16 QAM	1@1	22.77	24.12	0.2582
12	15	10	140800	704	DFT-s-OFDM QPSK	1@1	23.72	25.07	0.3214
12	15	10	140800	704	DFT-s-OFDM 16 QAM	1@1	22.89	24.24	0.2655
12	15	10	141500	707.5	DFT-s-OFDM QPSK	1@1	23.81	25.16	0.3281
12	15	10	141500	707.5	DFT-s-OFDM 16 QAM	1@1	22.85	24.2	0.2630
12	15	10	142200	711	DFT-s-OFDM QPSK	1@1	23.8	25.15	0.3273
12	15	10	142200	711	DFT-s-OFDM 16 QAM	1@1	22.97	24.32	0.2704
12	15	15	141300	706.5	DFT-s-OFDM PI/2 BPSK	36@18	23.99	25.34	0.3420
12	15	15	141300	706.5	DFT-s-OFDM PI/2 BPSK	1@1	23.78	25.13	0.3258
12	15	15	141300	706.5	DFT-s-OFDM PI/2 BPSK	1@77	23.67	25.02	0.3177
12	15	15	141300	706.5	DFT-s-OFDM QPSK	36@18	23.84	25.19	0.3304
12	15	15	141300	706.5	DFT-s-OFDM QPSK	1@1	23.87	25.22	0.3327
12	15	15	141300	706.5	DFT-s-OFDM QPSK	1@77	23.77	25.12	0.3251
12	15	15	141300	706.5	DFT-s-OFDM 16 QAM	36@18	22.75	24.1	0.2570
12	15	15	141300	706.5	DFT-s-OFDM 16 QAM	1@1	22.83	24.18	0.2618
12	15	15	141300	706.5	DFT-s-OFDM 16 QAM	1@77	22.83	24.18	0.2618
12	15	15	141300	706.5	DFT-s-OFDM 64 QAM	36@18	21.28	22.63	0.1832
12	15	15	141300	706.5	DFT-s-OFDM 64 QAM	1@1	21.4	22.75	0.1884
12	15	15	141300	706.5	DFT-s-OFDM 64 QAM	1@77	21.29	22.64	0.1837
12	15	15	141300	706.5	DFT-s-OFDM 256 QAM	36@18	19.25	20.6	0.1148
12	15	15	141300	706.5	DFT-s-OFDM 256 QAM	1@1	19.13	20.48	0.1117



12	15	15	141300	706.5	DFT-s-OFDM 256 QAM	1@77	19.4	20.75	0.1189
12	15	15	141300	706.5	CP-OFDM QPSK	39@19	22.39	23.74	0.2366
12	15	15	141300	706.5	CP-OFDM QPSK	1@1	22.6	23.95	0.2483
12	15	15	141300	706.5	CP-OFDM QPSK	1@77	22.4	23.75	0.2371
12	15	15	141500	707.5	DFT-s-OFDM PI/2 BPSK	36@18	23.87	25.22	0.3327
12	15	15	141500	707.5	DFT-s-OFDM PI/2 BPSK	1@1	23.8	25.15	0.3273
12	15	15	141500	707.5	DFT-s-OFDM PI/2 BPSK	1@77	23.7	25.05	0.3199
12	15	15	141500	707.5	DFT-s-OFDM QPSK	36@18	23.83	25.18	0.3296
12	15	15	141500	707.5	DFT-s-OFDM QPSK	1@1	23.84	25.19	0.3304
12	15	15	141500	707.5	DFT-s-OFDM QPSK	1@77	23.63	24.98	0.3148
12	15	15	141500	707.5	DFT-s-OFDM 16 QAM	36@18	22.66	24.01	0.2518
12	15	15	141500	707.5	DFT-s-OFDM 16 QAM	1@1	22.93	24.28	0.2679
12	15	15	141500	707.5	DFT-s-OFDM 16 QAM	1@77	22.83	24.18	0.2618
12	15	15	141500	707.5	DFT-s-OFDM 64 QAM	36@18	21.24	22.59	0.1816
12	15	15	141500	707.5	DFT-s-OFDM 64 QAM	1@1	21.35	22.7	0.1862
12	15	15	141500	707.5	DFT-s-OFDM 64 QAM	1@77	21.41	22.76	0.1888
12	15	15	141500	707.5	DFT-s-OFDM 256 QAM	36@18	19.3	20.65	0.1161
12	15	15	141500	707.5	DFT-s-OFDM 256 QAM	1@1	19.05	20.4	0.1096
12	15	15	141500	707.5	DFT-s-OFDM 256 QAM	1@77	18.89	20.24	0.1057
12	15	15	141500	707.5	CP-OFDM QPSK	39@19	22.48	23.83	0.2415
12	15	15	141500	707.5	CP-OFDM QPSK	1@1	22.35	23.7	0.2344
12	15	15	141500	707.5	CP-OFDM QPSK	1@77	22.23	23.58	0.2280
12	15	15	141700	708.5	DFT-s-OFDM PI/2 BPSK	36@18	23.95	25.3	0.3388
12	15	15	141700	708.5	DFT-s-OFDM PI/2 BPSK	1@1	23.76	25.11	0.3243
12	15	15	141700	708.5	DFT-s-OFDM PI/2 BPSK	1@77	23.76	25.11	0.3243
12	15	15	141700	708.5	DFT-s-OFDM QPSK	36@18	23.88	25.23	0.3334
12	15	15	141700	708.5	DFT-s-OFDM QPSK	1@1	23.73	25.08	0.3221
12	15	15	141700	708.5	DFT-s-OFDM QPSK	1@77	23.82	25.17	0.3289
12	15	15	141700	708.5	DFT-s-OFDM 16 QAM	36@18	22.75	24.1	0.2570
12	15	15	141700	708.5	DFT-s-OFDM 16 QAM	1@1	22.84	24.19	0.2624
12	15	15	141700	708.5	DFT-s-OFDM 16 QAM	1@77	22.82	24.17	0.2612
12	15	15	141700	708.5	DFT-s-OFDM 64 QAM	36@18	21.37	22.72	0.1871
12	15	15	141700	708.5	DFT-s-OFDM 64 QAM	1@1	21.39	22.74	0.1879



12	15	15	141700	708.5	DFT-s-OFDM 64 QAM	1@77	21.4	22.75	0.1884
12	15	15	141700	708.5	DFT-s-OFDM 256 QAM	36@18	19.25	20.6	0.1148
12	15	15	141700	708.5	DFT-s-OFDM 256 QAM	1@1	19.04	20.39	0.1094
12	15	15	141700	708.5	DFT-s-OFDM 256 QAM	1@77	18.93	20.28	0.1067
12	15	15	141700	708.5	CP-OFDM QPSK	39@19	22.46	23.81	0.2404
12	15	15	141700	708.5	CP-OFDM QPSK	1@1	22.23	23.58	0.2280
12	15	15	141700	708.5	CP-OFDM QPSK	1@77	22.34	23.69	0.2339



Frequency Stability

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Deviation (Hz)	Verdict	Environment
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	10.8	PASS	NV
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	14.2	PASS	LV
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	13.5	PASS	HV
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	18.4	PASS	-30°C
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	13.8	PASS	-20°C
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	17.3	PASS	-10°C
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	18.3	PASS	0°C
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	10.8	PASS	10°C
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	12.1	PASS	20°C
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	14.1	PASS	30°C
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	13.9	PASS	40°C
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	14.6	PASS	50°C

 $|\text{MAX}(\Delta f)| = 18.4 \text{ Hz}$

Frequency Stability	Frequency (MHz)	Limit Line	Result
$f_L - \text{MAX}(\Delta f) $	699.3761739	$\geq 699 \text{ MHz}$	PASS
$f_H + \text{MAX}(\Delta f) $	714.8284515	$\leq 716 \text{ MHz}$	

Peak to Average Ratio

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result (dB)	Limit (dB)	Verdict
12	15	10	141500	707.5	DFT-s-OFDM PI/2 BPSK	50@0	3.9	13	PASS
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	5.22	13	PASS

N12(10M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



N12(10M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH





Occupied Bandwidth

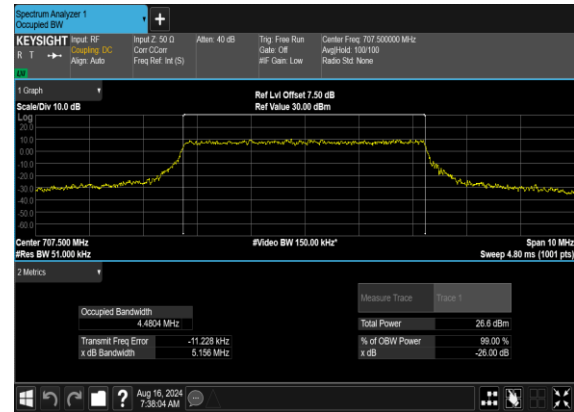
NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	OBW (MHz)	26dB BW (MHz)
12	15	5	141500	707.5	CP-OFDM QPSK	25@0	4.4691	5.058
12	15	5	141500	707.5	CP-OFDM 16 QAM	25@0	4.4804	5.156
12	15	5	141500	707.5	CP-OFDM 64 QAM	25@0	4.4656	4.989
12	15	5	141500	707.5	CP-OFDM 256 QAM	25@0	4.4717	4.991
12	15	10	141500	707.5	CP-OFDM QPSK	52@0	9.28	10.17
12	15	10	141500	707.5	CP-OFDM 16 QAM	52@0	9.293	9.973
12	15	10	141500	707.5	CP-OFDM 64 QAM	52@0	9.2811	9.917
12	15	10	141500	707.5	CP-OFDM 256 QAM	52@0	9.2855	9.964
12	15	15	141500	707.5	CP-OFDM QPSK	79@0	14.081	14.84
12	15	15	141500	707.5	CP-OFDM 16 QAM	79@0	14.083	15.01
12	15	15	141500	707.5	CP-OFDM 64 QAM	79@0	14.087	14.92
12	15	15	141500	707.5	CP-OFDM 256 QAM	79@0	14.092	14.92



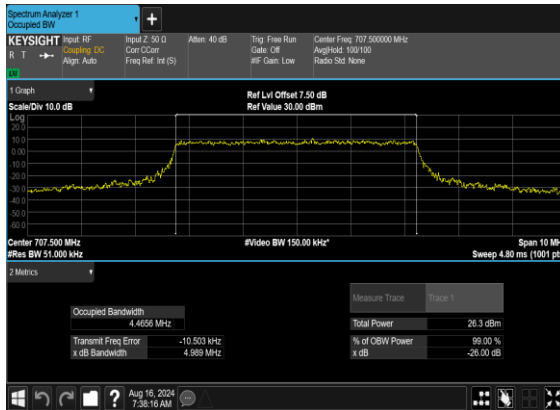
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OFDM_QPSK_Outer_Full_Mid_CH



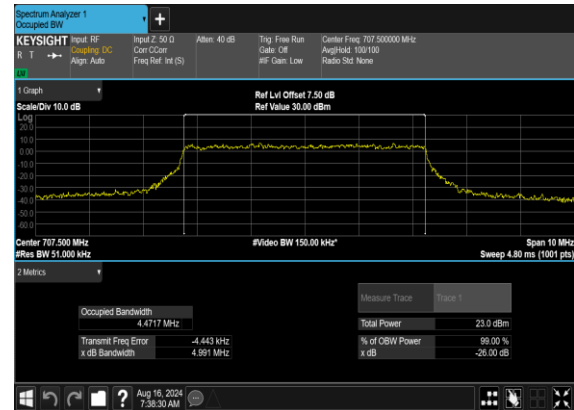
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QAM_Outer_Full_Mid_CH



N12(5M)_CP-OFDM_64
QAM_Outer_Full_Mid_CH

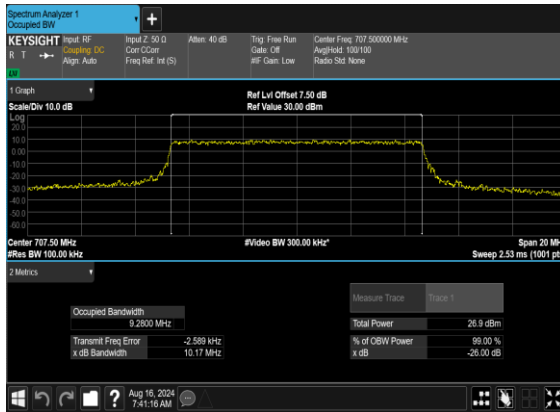


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QAM_Outer_Full_Mid_CH

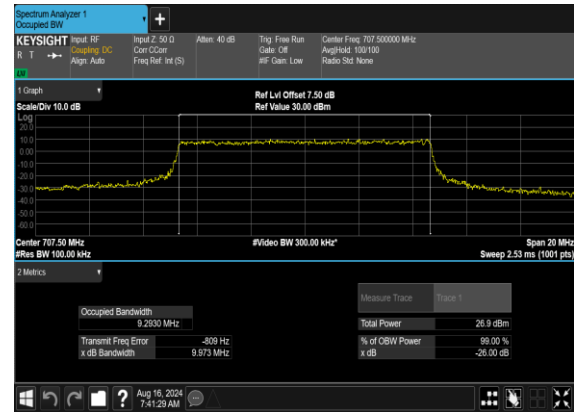




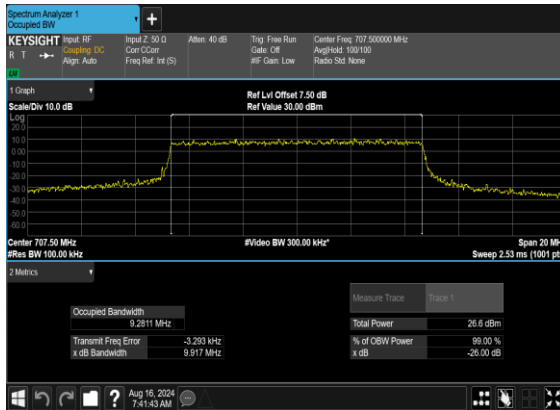
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OFDM_QPSK_Outer_Full_Mid_CH



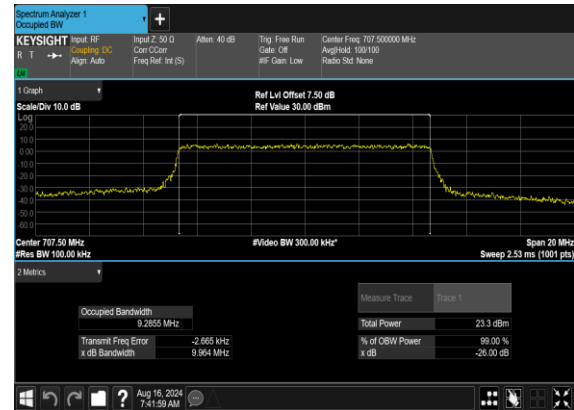
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QAM_Outer_Full_Mid_CH



N12(10M)_CP-OFDM_64
QAM_Outer_Full_Mid_CH

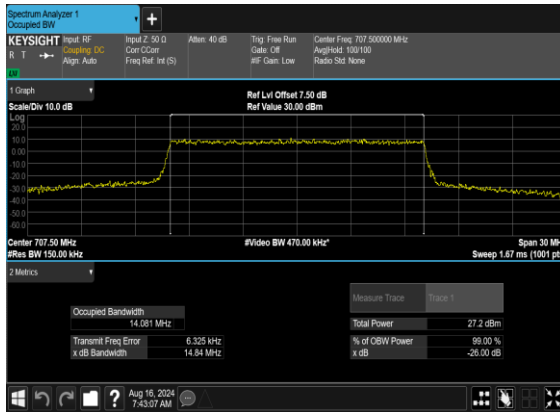


N12(10M)_CP-OFDM_256
QAM_Outer_Full_Mid_CH

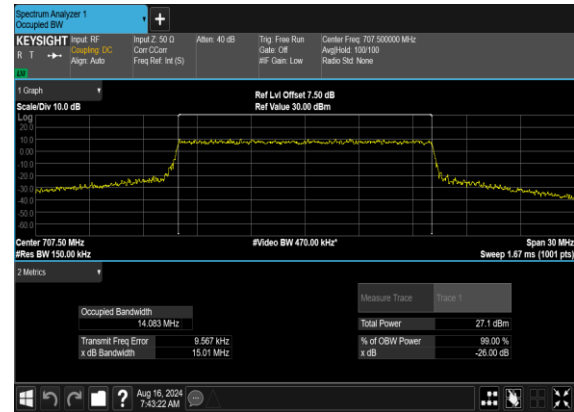




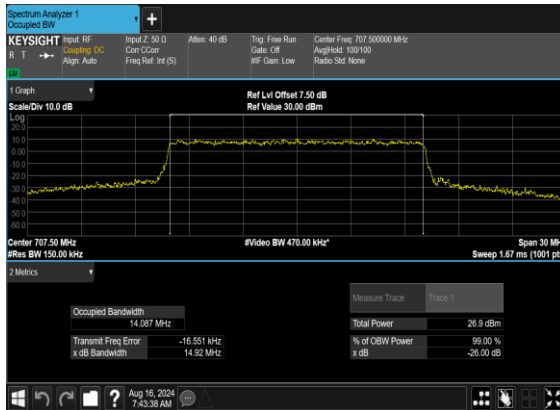
N12(15M)_CP-
OFDM_QPSK_Outer_Full_Mid_CH



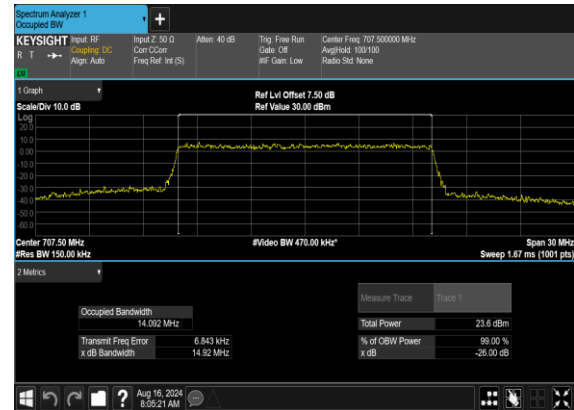
N12(15M)_CP-OFDM_16
QAM_Outer_Full_Mid_CH



N12(15M)_CP-OFDM_64
QAM_Outer_Full_Mid_CH



N12(15M)_CP-OFDM_256
QAM_Outer_Full_Mid_CH





Conducted Spurious Emissions

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
12	15	5	140300	701.5	DFT-s-OFDM BPSK	1@0	see graph	---
12	15	5	140300	701.5	DFT-s-OFDM BPSK	1@0	see graph	PASS
12	15	5	140300	701.5	DFT-s-OFDM QPSK	1@0	see graph	---
12	15	5	140300	701.5	DFT-s-OFDM QPSK	1@0	see graph	PASS
12	15	5	141500	707.5	DFT-s-OFDM BPSK	1@0	see graph	---
12	15	5	141500	707.5	DFT-s-OFDM BPSK	1@0	see graph	PASS
12	15	5	141500	707.5	DFT-s-OFDM QPSK	1@0	see graph	---
12	15	5	141500	707.5	DFT-s-OFDM QPSK	1@0	see graph	PASS
12	15	5	142700	713.5	DFT-s-OFDM BPSK	1@0	see graph	---
12	15	5	142700	713.5	DFT-s-OFDM BPSK	1@0	see graph	PASS
12	15	5	142700	713.5	DFT-s-OFDM QPSK	1@0	see graph	---
12	15	5	142700	713.5	DFT-s-OFDM QPSK	1@0	see graph	PASS
12	15	10	140800	704.0	DFT-s-OFDM BPSK	1@0	see graph	---
12	15	10	140800	704.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
12	15	10	140800	704.0	DFT-s-OFDM QPSK	1@0	see graph	---
12	15	10	140800	704.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
12	15	10	141500	707.5	DFT-s-OFDM BPSK	1@0	see graph	---
12	15	10	141500	707.5	DFT-s-OFDM BPSK	1@0	see graph	PASS
12	15	10	141500	707.5	DFT-s-OFDM QPSK	1@0	see graph	---
12	15	10	141500	707.5	DFT-s-OFDM QPSK	1@0	see graph	PASS



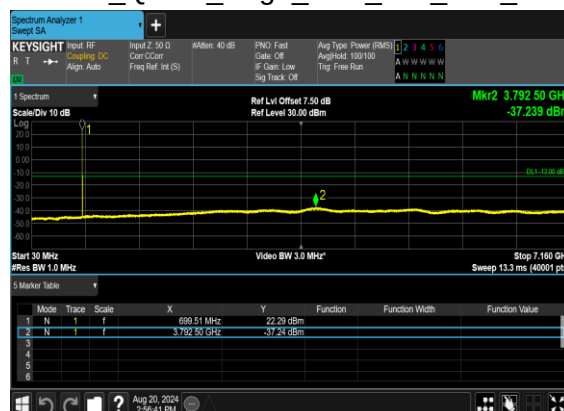
12	15	10	142200	711.0	DFT-s-OFDM BPSK	1@0	see graph	---
12	15	10	142200	711.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
12	15	10	142200	711.0	DFT-s-OFDM QPSK	1@0	see graph	---
12	15	10	142200	711.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
12	15	15	141300	706.5	DFT-s-OFDM BPSK	1@0	see graph	---
12	15	15	141300	706.5	DFT-s-OFDM BPSK	1@0	see graph	PASS
12	15	15	141300	706.5	DFT-s-OFDM QPSK	1@0	see graph	---
12	15	15	141300	706.5	DFT-s-OFDM QPSK	1@0	see graph	PASS
12	15	15	141500	707.5	DFT-s-OFDM BPSK	1@0	see graph	---
12	15	15	141500	707.5	DFT-s-OFDM BPSK	1@0	see graph	PASS
12	15	15	141500	707.5	DFT-s-OFDM QPSK	1@0	see graph	---
12	15	15	141500	707.5	DFT-s-OFDM QPSK	1@0	see graph	PASS
12	15	15	141700	708.5	DFT-s-OFDM BPSK	1@0	see graph	---
12	15	15	141700	708.5	DFT-s-OFDM BPSK	1@0	see graph	PASS
12	15	15	141700	708.5	DFT-s-OFDM QPSK	1@0	see graph	---
12	15	15	141700	708.5	DFT-s-OFDM QPSK	1@0	see graph	PASS



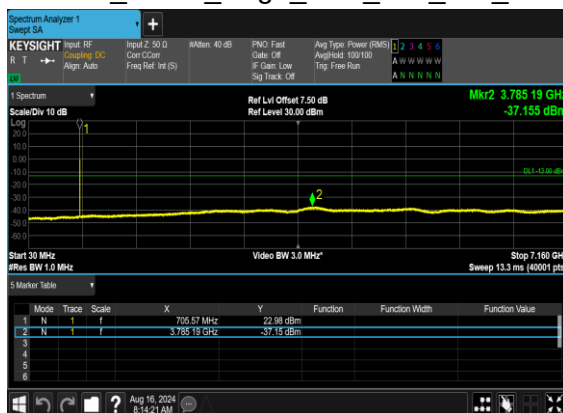
N12(5M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Low_CH



N12(5M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CH



N12(5M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Mid_CH



N12(5M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Mid_CH

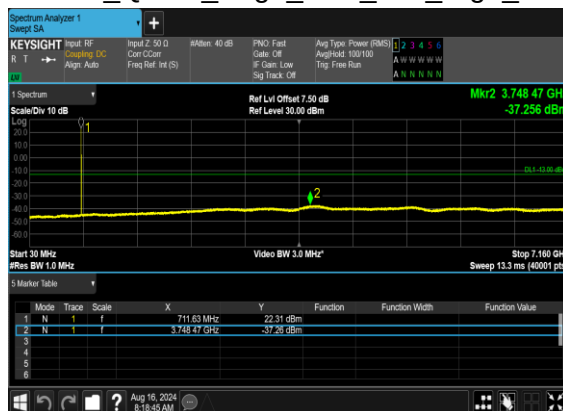




N12(5M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_High_CH



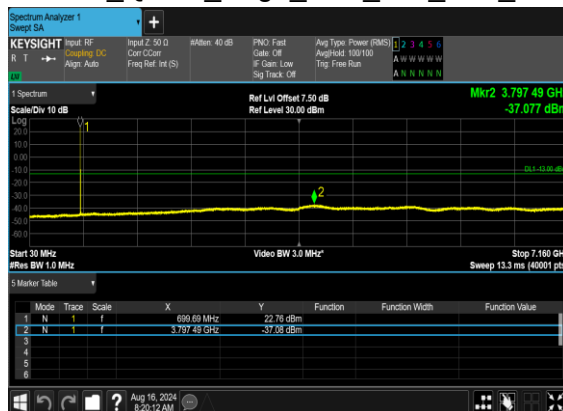
N12(5M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_High_CH



N12(10M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Low_CH

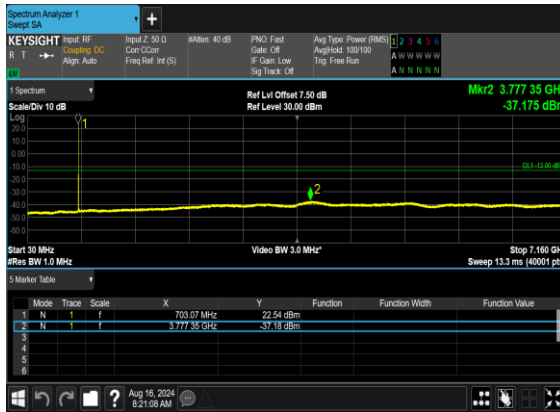


N12(10M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CH

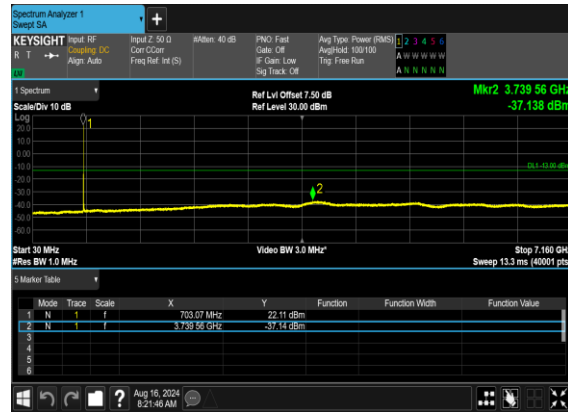




N12(10M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Mid_CH



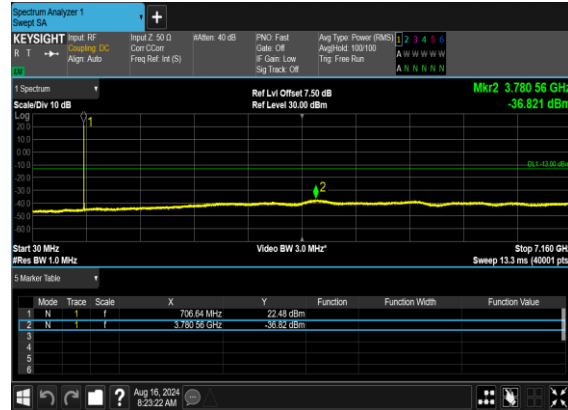
N12(10M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Mid_CH



N12(10M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_High_CH



N12(10M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_High_CH

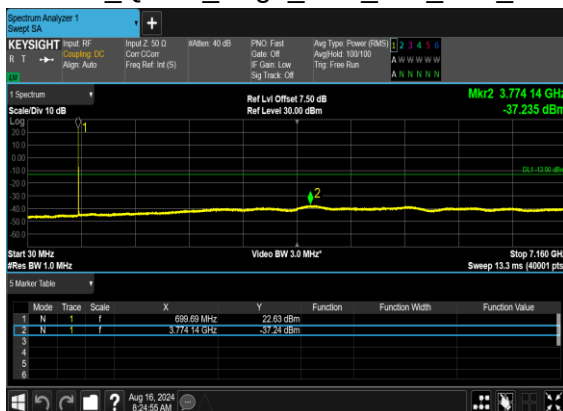




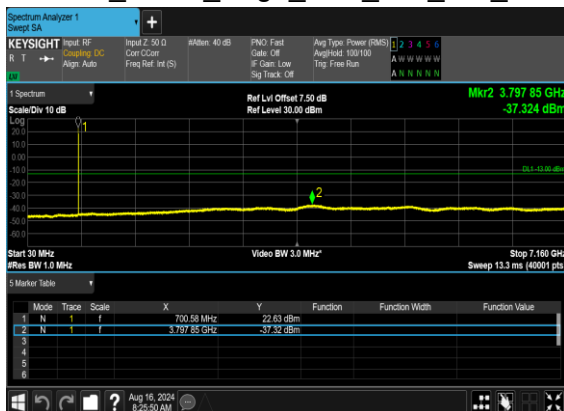
N12(15M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Low_CH



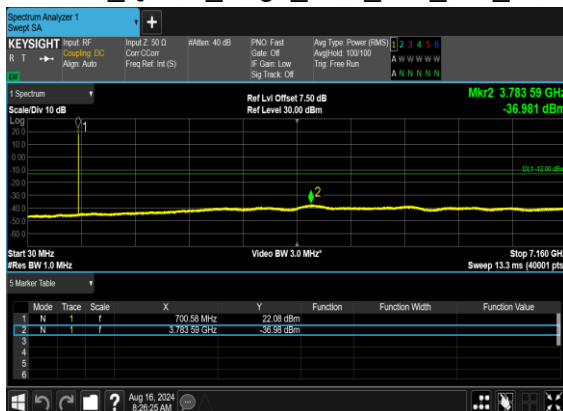
N12(15M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CH



N12(15M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Mid_CH

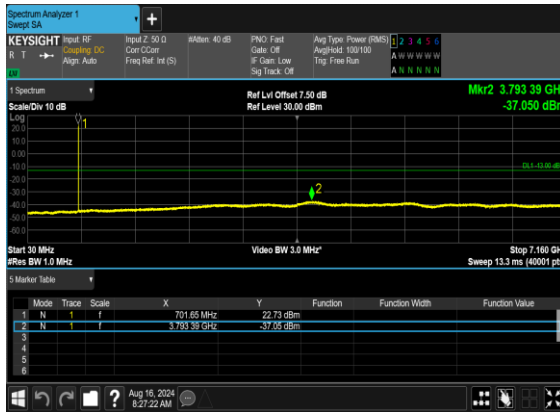


N12(15M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Mid_CH





N12(15M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_High_CH



N12(15M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_High_CH



**Conducted Band Edge**

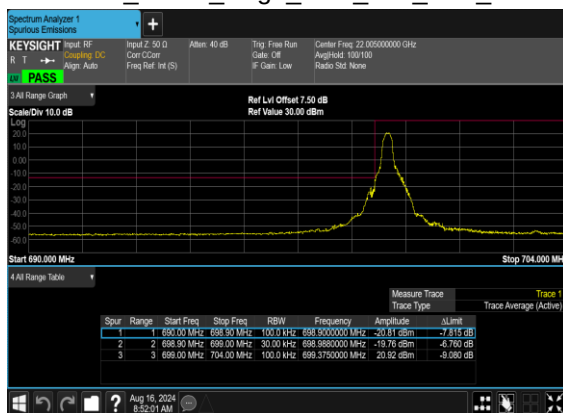
NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
12	15	5	140300	701.5	DFT-s-OFDM BPSK	1@0	see graph	PASS
12	15	5	140300	701.5	DFT-s-OFDM QPSK	1@0	see graph	PASS
12	15	5	140300	701.5	DFT-s-OFDM BPSK	25@0	see graph	PASS
12	15	5	140300	701.5	DFT-s-OFDM QPSK	25@0	see graph	PASS
12	15	5	142700	713.5	DFT-s-OFDM BPSK	1@24	see graph	PASS
12	15	5	142700	713.5	DFT-s-OFDM QPSK	1@24	see graph	PASS
12	15	5	142700	713.5	DFT-s-OFDM BPSK	25@0	see graph	PASS
12	15	5	142700	713.5	DFT-s-OFDM QPSK	25@0	see graph	PASS
12	15	10	140800	704.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
12	15	10	140800	704.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
12	15	10	140800	704.0	DFT-s-OFDM BPSK	50@0	see graph	PASS
12	15	10	140800	704.0	DFT-s-OFDM QPSK	50@0	see graph	PASS
12	15	10	142200	711.0	DFT-s-OFDM BPSK	1@51	see graph	PASS
12	15	10	142200	711.0	DFT-s-OFDM QPSK	1@51	see graph	PASS
12	15	10	142200	711.0	DFT-s-OFDM BPSK	50@0	see graph	PASS
12	15	10	142200	711.0	DFT-s-OFDM QPSK	50@0	see graph	PASS
12	15	15	141300	706.5	DFT-s-OFDM BPSK	1@0	see graph	PASS
12	15	15	141300	706.5	DFT-s-OFDM QPSK	1@0	see graph	PASS
12	15	15	141300	706.5	DFT-s-OFDM BPSK	75@0	see graph	PASS
12	15	15	141300	706.5	DFT-s-OFDM QPSK	75@0	see graph	PASS



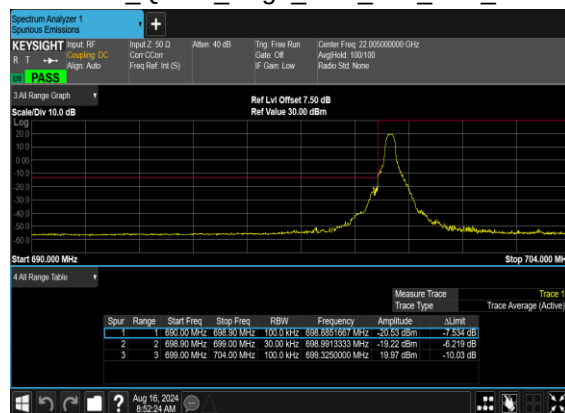
12	15	15	141700	708.5	DFT-s-OFDM BPSK	1@78	see graph	PASS
12	15	15	141700	708.5	DFT-s-OFDM QPSK	1@78	see graph	PASS
12	15	15	141700	708.5	DFT-s-OFDM BPSK	75@0	see graph	PASS
12	15	15	141700	708.5	DFT-s-OFDM QPSK	75@0	see graph	PASS



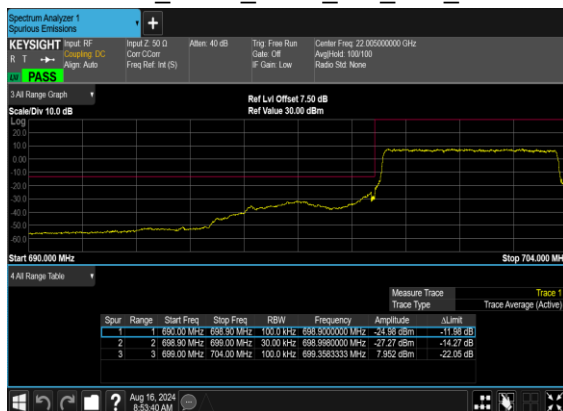
N12(5M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Low_CH



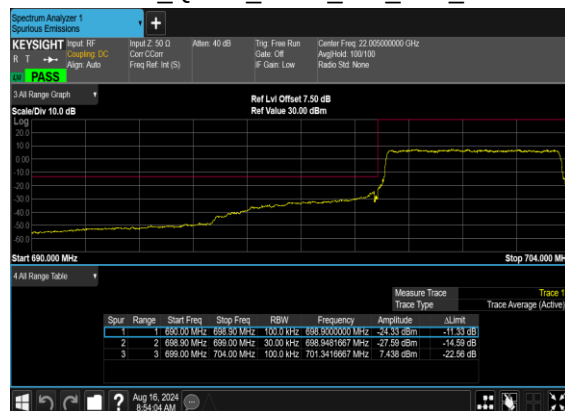
N12(5M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CH



N12(5M)_DFT-s-
OFDM_BPSK_Outer_Full_Low_CH

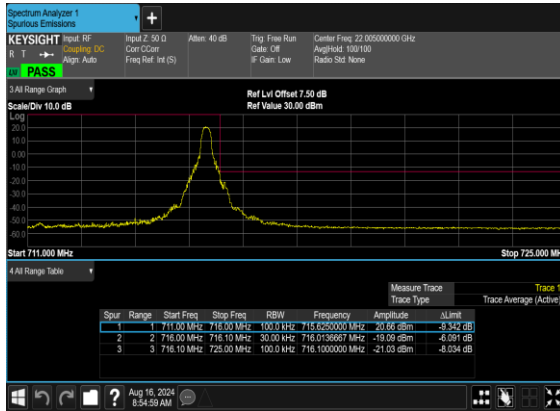


N12(5M)_DFT-s-
OFDM_QPSK_Outer_Full_Low_CH

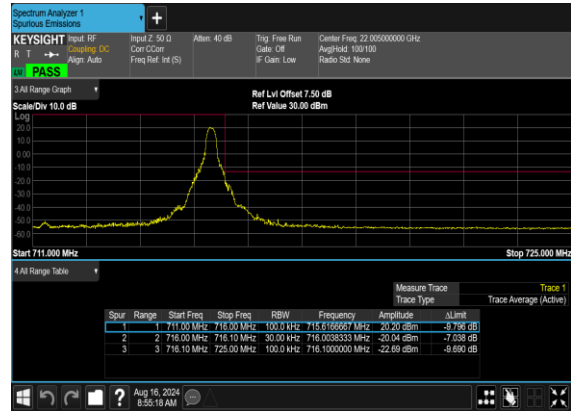




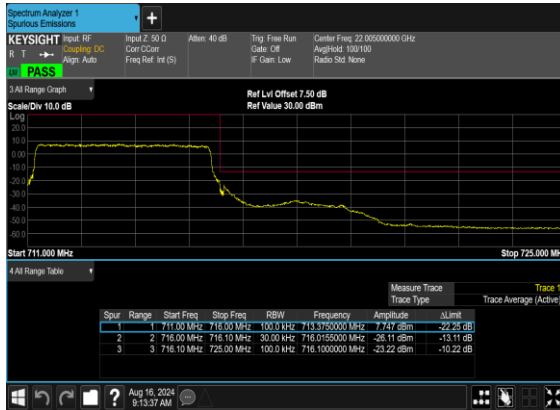
N12(5M)_DFT-s-
OFDM_BPSK_Edge_1RB_Right_High_CH



N12(5M)_DFT-s-
OFDM_QPSK_Edge_1RB_Right_High_CH



N12(5M)_DFT-s-
OFDM_BPSK_Outer_Full_High_CH

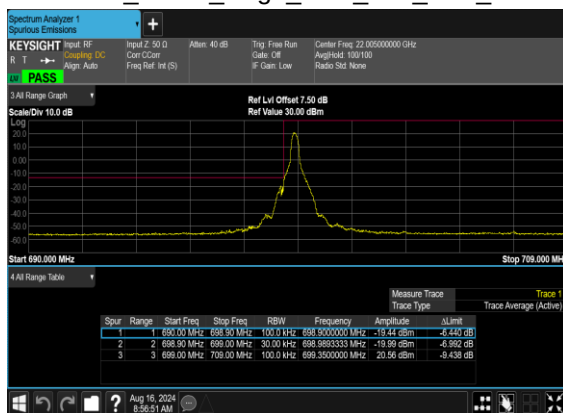


N12(5M)_DFT-s-
OFDM_QPSK_Outer_Full_High_CH

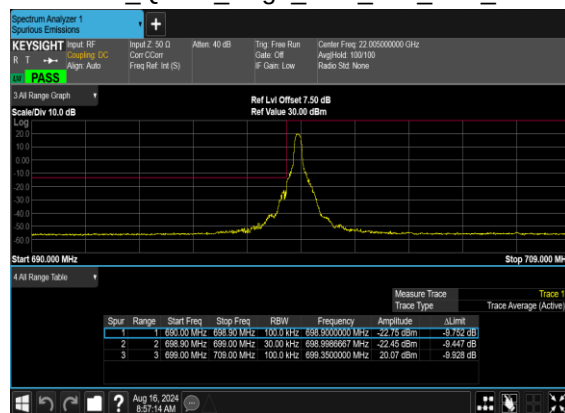




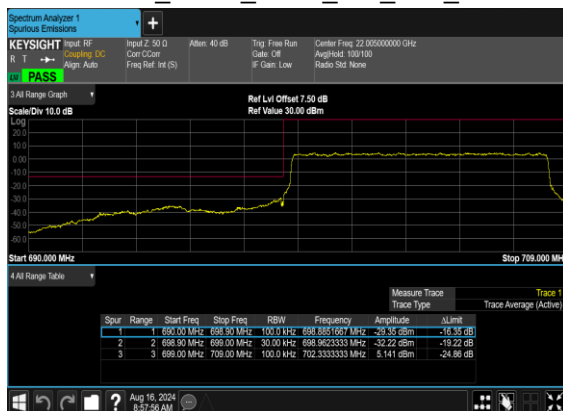
N12(10M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Low_CH



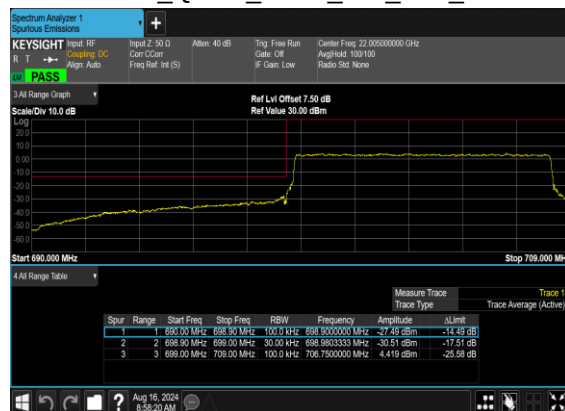
N12(10M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CH



N12(10M)_DFT-s-
OFDM_BPSK_Outer_Full_Low_CH

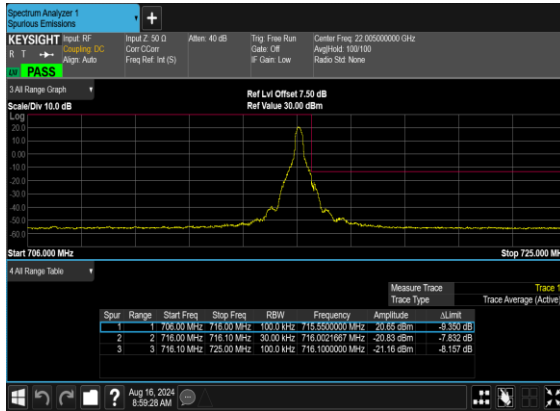


N12(10M)_DFT-s-
OFDM_QPSK_Outer_Full_Low_CH

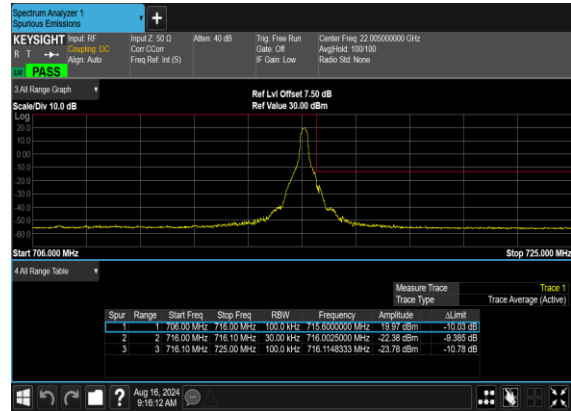




N12(10M)_DFT-s-
OFDM_BPSK_Edge_1RB_Right_High_CH



N12(10M)_DFT-s-
OFDM_QPSK_Edge_1RB_Right_High_CH



N12(10M)_DFT-s-
OFDM_BPSK_Outer_Full_High_CH

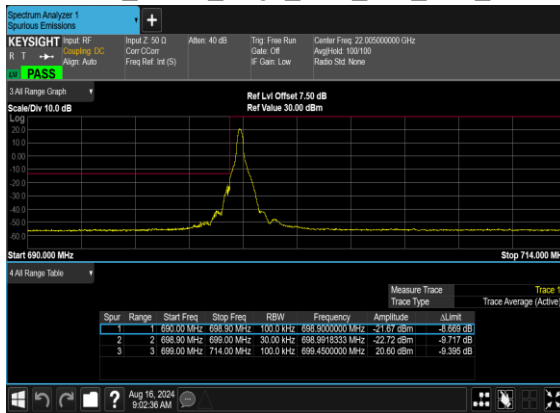


N12(10M)_DFT-s-
OFDM_QPSK_Outer_Full_High_CH

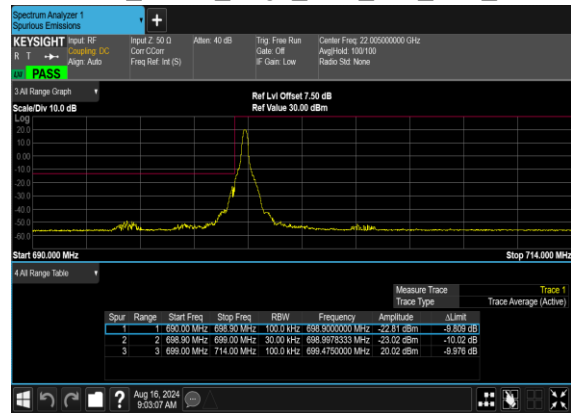




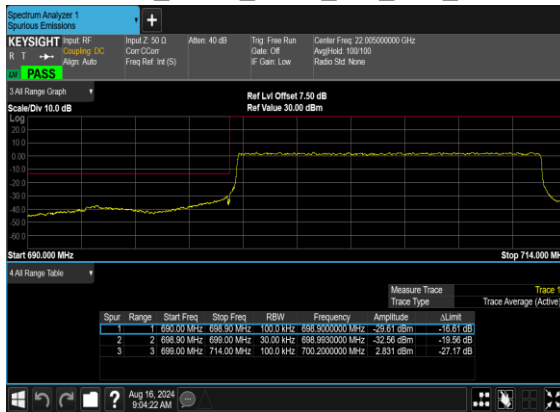
N12(15M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Low_CH



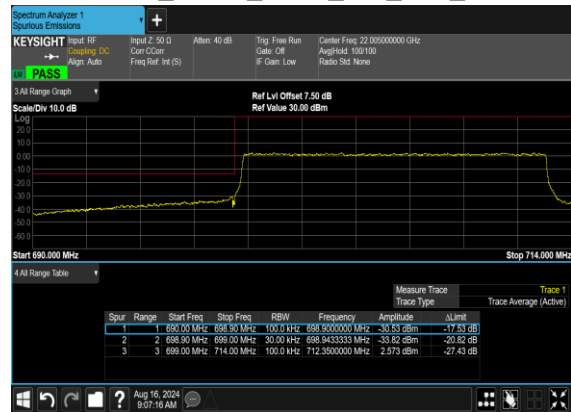
N12(15M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CH



N12(15M)_DFT-s-
OFDM_BPSK_Outer_Full_Low_CH

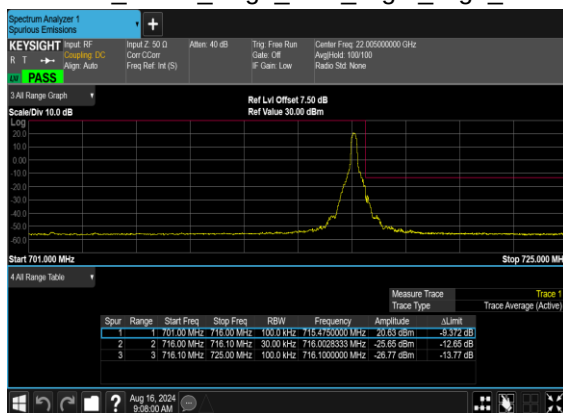


N12(15M)_DFT-s-
OFDM_QPSK_Outer_Full_Low_CH

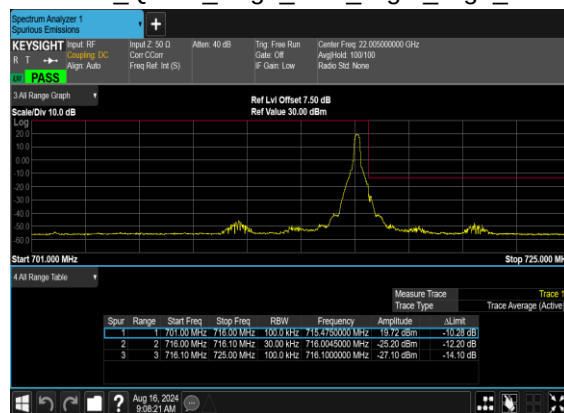




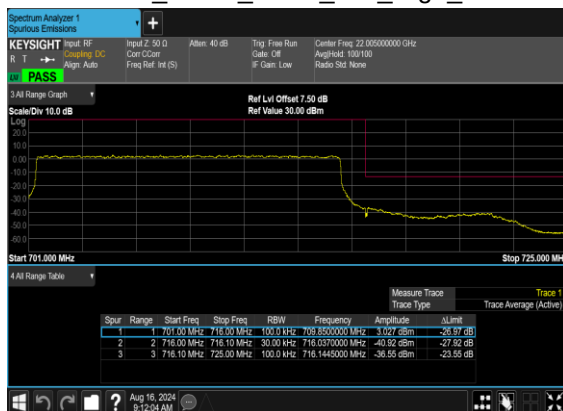
N12(15M)_DFT-s-
OFDM_BPSK_Edge_1RB_Right_High_CH



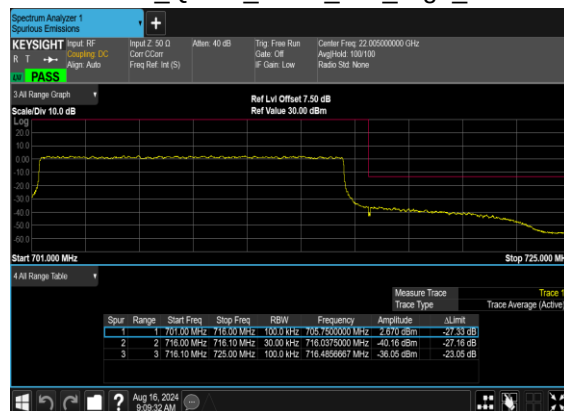
N12(15M)_DFT-s-
OFDM_QPSK_Edge_1RB_Right_High_CH



N12(15M)_DFT-s-
OFDM_BPSK_Outer_Full_High_CH



N12(15M)_DFT-s-
OFDM_QPSK_Outer_Full_High_CH





FR1 N13 ANT0

Transmitter Conducted Output Power And ERP, (G_T - L_C)=5.0dB

NR Band	SCS	Band Width	Arfcn	Freq (MHz)	Modulation	RB	Conducted Power(dBm)	ERP(dBm)	ERP(W)
13	15	5	149700	779.5	DFT-s-OFDM QPSK	1@1	23.76	26.61	0.4581
13	15	5	149700	779.5	DFT-s-OFDM 16 QAM	1@1	22.57	25.42	0.3483
13	15	5	150200	782	DFT-s-OFDM QPSK	1@1	23.66	26.51	0.4477
13	15	5	150200	782	DFT-s-OFDM 16 QAM	1@1	22.83	25.68	0.3698
13	15	5	150700	784.5	DFT-s-OFDM QPSK	1@1	23.51	26.36	0.4325
13	15	5	150700	784.5	DFT-s-OFDM 16 QAM	1@1	22.58	25.43	0.3491
13	15	10	150200	782	DFT-s-OFDM PI/2 BPSK	25@12	23.59	26.44	0.4406
13	15	10	150200	782	DFT-s-OFDM PI/2 BPSK	1@1	23.56	26.41	0.4375
13	15	10	150200	782	DFT-s-OFDM PI/2 BPSK	1@50	23.56	26.41	0.4375
13	15	10	150200	782	DFT-s-OFDM QPSK	25@12	23.63	26.48	0.4446
13	15	10	150200	782	DFT-s-OFDM QPSK	1@1	23.88	26.73	0.4710
13	15	10	150200	782	DFT-s-OFDM QPSK	1@50	23.58	26.43	0.4395
13	15	10	150200	782	DFT-s-OFDM 16 QAM	25@12	22.87	25.72	0.3733
13	15	10	150200	782	DFT-s-OFDM 16 QAM	1@1	22.9	25.75	0.3758
13	15	10	150200	782	DFT-s-OFDM 16 QAM	1@50	22.61	25.46	0.3516
13	15	10	150200	782	DFT-s-OFDM 64 QAM	25@12	21.17	24.02	0.2523
13	15	10	150200	782	DFT-s-OFDM 64 QAM	1@1	21.34	24.19	0.2624
13	15	10	150200	782	DFT-s-OFDM 64 QAM	1@50	21.15	24	0.2512
13	15	10	150200	782	DFT-s-OFDM 256 QAM	25@12	18.88	21.73	0.1489
13	15	10	150200	782	DFT-s-OFDM 256 QAM	1@1	18.86	21.71	0.1483
13	15	10	150200	782	DFT-s-OFDM 256 QAM	1@50	18.76	21.61	0.1449
13	15	10	150200	782	CP-OFDM QPSK	26@13	22.04	24.89	0.3083
13	15	10	150200	782	CP-OFDM QPSK	1@1	22.28	25.13	0.3258
13	15	10	150200	782	CP-OFDM QPSK	1@50	22.18	25.03	0.3184



Frequency Stability

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Deviation (Hz)	Verdict	Environment
13	15	10	150200	782.0	DFT-s-OFDM QPSK	50@0	12.9	PASS	NV
13	15	10	150200	782.0	DFT-s-OFDM QPSK	50@0	11.9	PASS	LV
13	15	10	150200	782.0	DFT-s-OFDM QPSK	50@0	18.9	PASS	HV
13	15	10	150200	782.0	DFT-s-OFDM QPSK	50@0	18.7	PASS	-30°C
13	15	10	150200	782.0	DFT-s-OFDM QPSK	50@0	15.6	PASS	-20°C
13	15	10	150200	782.0	DFT-s-OFDM QPSK	50@0	15.1	PASS	-10°C
13	15	10	150200	782.0	DFT-s-OFDM QPSK	50@0	10.6	PASS	0°C
13	15	10	150200	782.0	DFT-s-OFDM QPSK	50@0	12.9	PASS	10°C
13	15	10	150200	782.0	DFT-s-OFDM QPSK	50@0	13.8	PASS	20°C
13	15	10	150200	782.0	DFT-s-OFDM QPSK	50@0	18.3	PASS	30°C
13	15	10	150200	782.0	DFT-s-OFDM QPSK	50@0	19	PASS	40°C
13	15	10	150200	782.0	DFT-s-OFDM QPSK	50@0	14.5	PASS	50°C

 $|\text{MAX}(\Delta f)| = 19 \text{ Hz}$

Frequency Stability	Frequency (MHz)	Limit Line	Result
$f_L - \text{MAX}(\Delta f) $	777.3259798	$\geq 777\text{MHz}$	PASS
$f_H + \text{MAX}(\Delta f) $	786.2794269	$\leq 787\text{MHz}$	

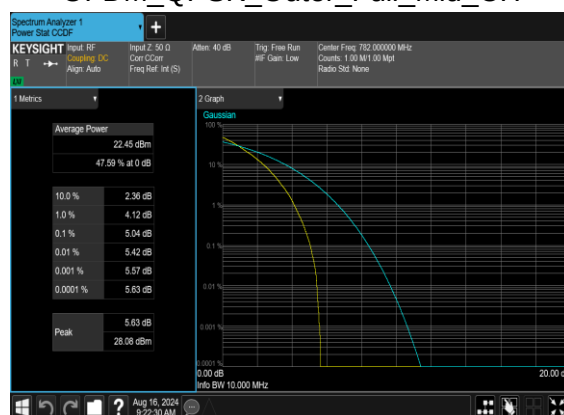
Peak to Average Ratio

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result (dB)	Limit (dB)	Verdict
13	15	10	150200	782.0	DFT-s-OFDM PI/2 BPSK	50@0	3.74	13	PASS
13	15	10	150200	782.0	DFT-s-OFDM QPSK	50@0	5.04	13	PASS

N13(10M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



N13(10M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



**Occupied Bandwidth**

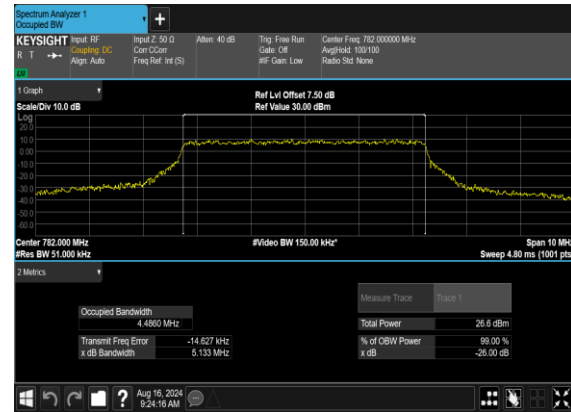
NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	OBW (MHz)	26dB BW (MHz)
13	15	5	150200	782.0	CP-OFDM QPSK	25@0	4.4633	5.027
13	15	5	150200	782.0	CP-OFDM 16 QAM	25@0	4.486	5.133
13	15	5	150200	782.0	CP-OFDM 64 QAM	25@0	4.4607	5.061
13	15	5	150200	782.0	CP-OFDM 256 QAM	25@0	4.4738	5.019
13	15	10	150200	782.0	CP-OFDM QPSK	52@0	9.252	9.897
13	15	10	150200	782.0	CP-OFDM 16 QAM	52@0	9.2544	9.914
13	15	10	150200	782.0	CP-OFDM 64 QAM	52@0	9.2413	9.873
13	15	10	150200	782.0	CP-OFDM 256 QAM	52@0	9.2374	9.924



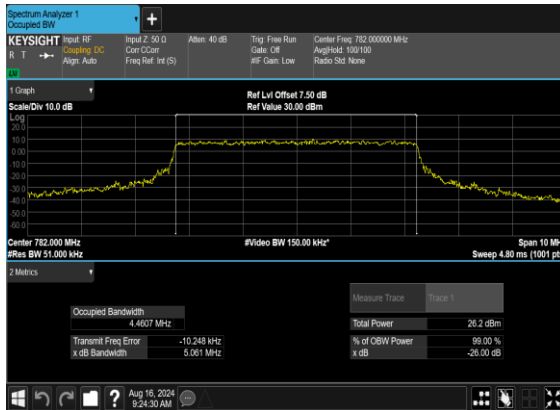
N13(5M)_CP-
OFDM_QPSK_Outer_Full_Mid_CH



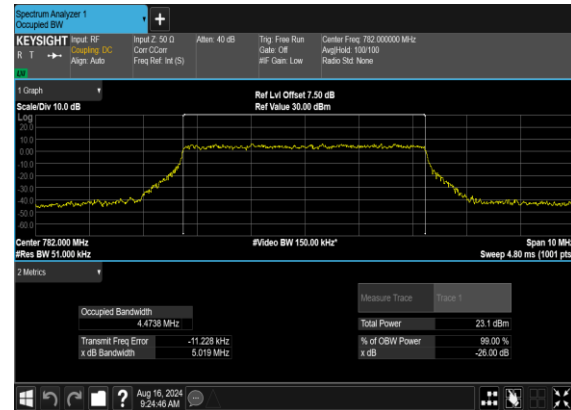
N13(5M)_CP-OFDM_16
QAM_Outer_Full_Mid_CH



N13(5M)_CP-OFDM_64
QAM_Outer_Full_Mid_CH



N13(5M)_CP-OFDM_256
QAM_Outer_Full_Mid_CH

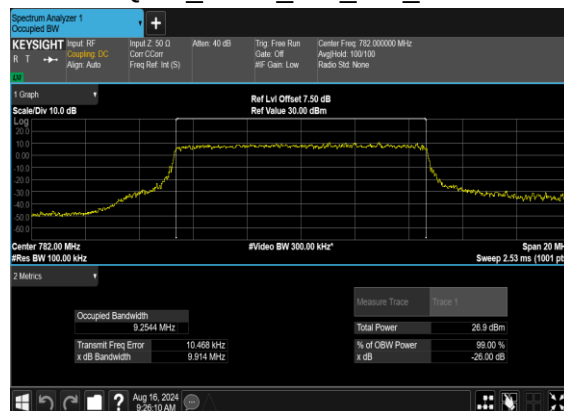




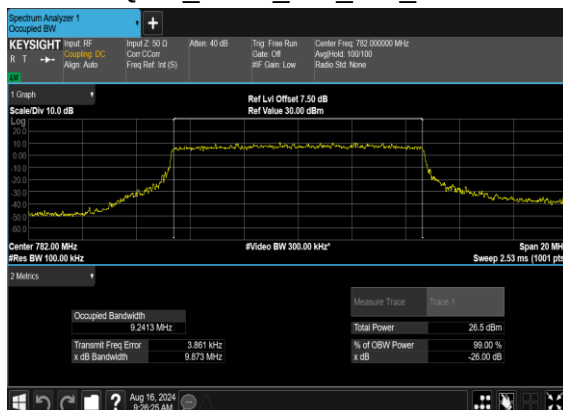
N13(10M)_CP-
OFDM_QPSK_Outer_Full_Mid_CH



N13(10M)_CP-OFDM_16
QAM_Outer_Full_Mid_CH



N13(10M)_CP-OFDM_64
QAM_Outer_Full_Mid_CH



N13(10M)_CP-OFDM_256
QAM_Outer_Full_Mid_CH



Conducted Spurious Emissions

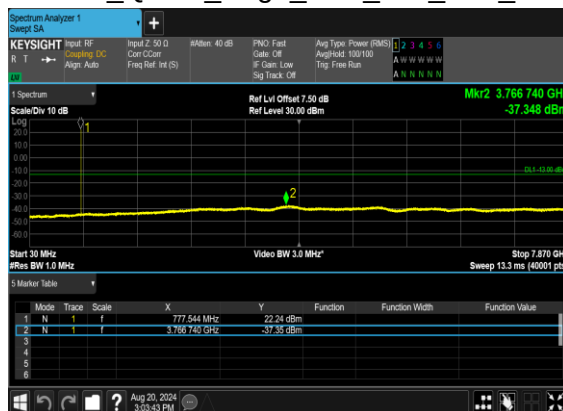
NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
13	15	5	149700	779.5	DFT-s-OFDM BPSK	1@0	see graph	---
13	15	5	149700	779.5	DFT-s-OFDM BPSK	1@0	see graph	PASS
13	15	5	149700	779.5	DFT-s-OFDM QPSK	1@0	see graph	---
13	15	5	149700	779.5	DFT-s-OFDM QPSK	1@0	see graph	PASS
13	15	5	150200	782.0	DFT-s-OFDM BPSK	1@0	see graph	---
13	15	5	150200	782.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
13	15	5	150200	782.0	DFT-s-OFDM QPSK	1@0	see graph	---
13	15	5	150200	782.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
13	15	5	150700	784.5	DFT-s-OFDM BPSK	1@0	see graph	---
13	15	5	150700	784.5	DFT-s-OFDM BPSK	1@0	see graph	PASS
13	15	5	150700	784.5	DFT-s-OFDM QPSK	1@0	see graph	---
13	15	5	150700	784.5	DFT-s-OFDM QPSK	1@0	see graph	PASS
13	15	10	150200	782.0	DFT-s-OFDM BPSK	1@0	see graph	---
13	15	10	150200	782.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
13	15	10	150200	782.0	DFT-s-OFDM QPSK	1@0	see graph	---
13	15	10	150200	782.0	DFT-s-OFDM QPSK	1@0	see graph	PASS



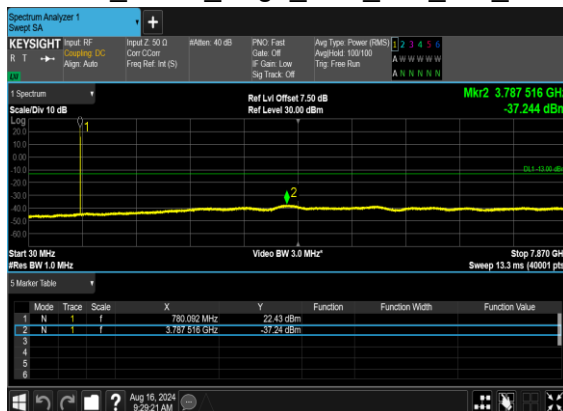
N13(5M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Low_CH



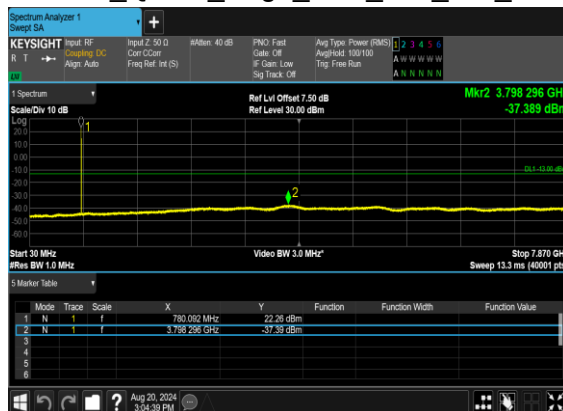
N13(5M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CH



N13(5M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Mid_CH

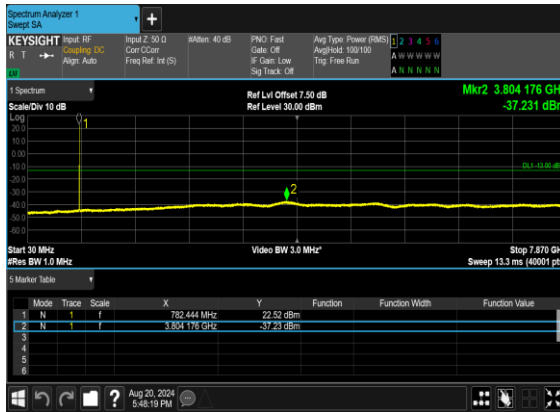


N13(5M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Mid_CH

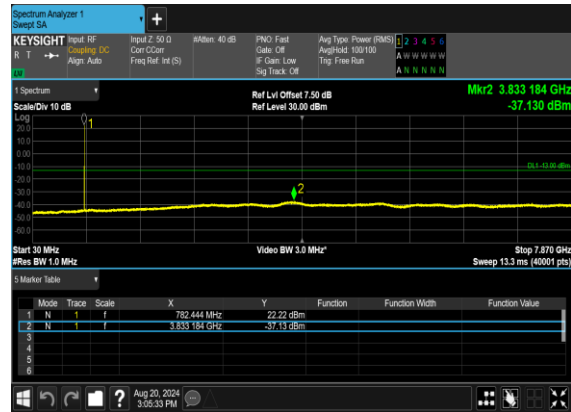




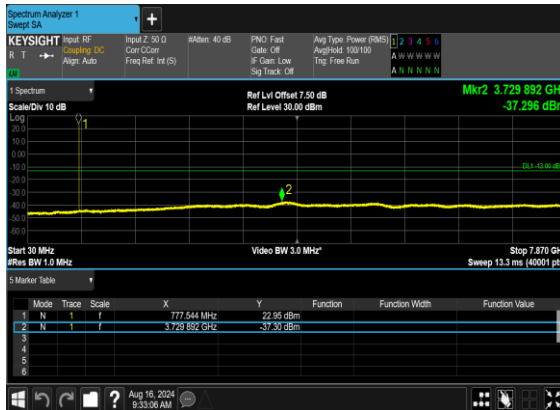
N13(5M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_High_CH



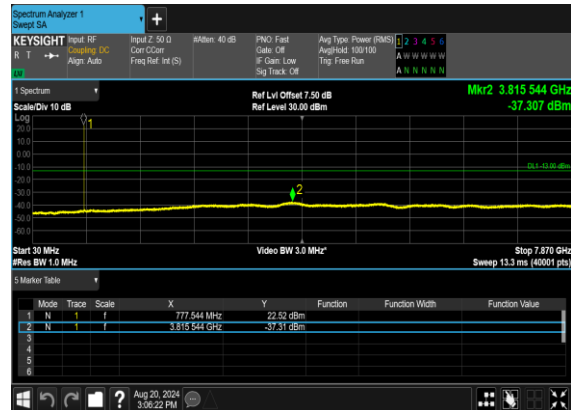
N13(5M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_High_CH



N13(10M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Mid_CH



N13(10M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Mid_CH



**Conducted Band Edge**

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
13	15	5	149700	779.5	DFT-s-OFDM BPSK	1@0	see graph	PASS
13	15	5	149700	779.5	DFT-s-OFDM QPSK	1@0	see graph	PASS
13	15	5	149700	779.5	DFT-s-OFDM BPSK	25@0	see graph	PASS
13	15	5	149700	779.5	DFT-s-OFDM QPSK	25@0	see graph	PASS
13	15	5	150700	784.5	DFT-s-OFDM BPSK	1@24	see graph	PASS
13	15	5	150700	784.5	DFT-s-OFDM QPSK	1@24	see graph	PASS
13	15	5	150700	784.5	DFT-s-OFDM BPSK	25@0	see graph	PASS
13	15	5	150700	784.5	DFT-s-OFDM QPSK	25@0	see graph	PASS
13	15	10	150200	782.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
13	15	10	150200	782.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
13	15	10	150200	782.0	DFT-s-OFDM BPSK	1@51	see graph	PASS
13	15	10	150200	782.0	DFT-s-OFDM QPSK	1@51	see graph	PASS
13	15	10	150200	782.0	DFT-s-OFDM BPSK	50@0	see graph	PASS
13	15	10	150200	782.0	DFT-s-OFDM QPSK	50@0	see graph	PASS