



FCC RF Test Report

APPLICANT : TCL Communication Ltd.
EQUIPMENT : USB Connect 5G (NA)
BRAND NAME : Vodafone
MODEL NAME : IK512US
FCC ID : 2ACCJSCD002
STANDARD : 47 CFR Part 22, 24, 27
CLASSIFICATION : PCS Licensed Transmitter (PCB)
TEST DATE(S) : Jul. 12, 2024 ~ Aug. 06, 2024

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.

Jason Jia

Approved by: Jason Jia



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People's Republic of China



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG450613I	Rev. 01	Initial issue of report	Aug. 16, 2024



SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	Reporting Only	PASS	-
	§22.913(a)(5)	Effective Radiated Power (5G NR n5)	ERP < 7 Watt		
	§27.50(c)(10)	Effective Radiated Power (5G NR n12, n71)	ERP < 3 Watt		
	§24.232(c)	Equivalent Isotropic Radiated Power (5G NR n2, n25)	EIRP < 2Watt		
3.5	§24.232(d) §27.50(j)(4)	Peak-to-Average Ratio	<13 dB	PASS	-
3.6	§2.1049	Occupied Bandwidth	Reporting Only	PASS	-
3.7	§2.1051 §22.917(a) §24.238(a) §27.53(g)	Conducted Band Edge Measurement (5G NR n5) (5G NR n2, n25) (5G NR n12, n71)	< 43+10log ₁₀ (P[Watts])	PASS	-
3.8	§2.1051 §22.917(a) §24.238(a) §27.53(g)	Conducted Spurious Emission (5G NR n5) (5G NR n2, n25) (5G NR n12, n71)	< 43+10log ₁₀ (P[Watts])	PASS	-
3.9	§2.1055 §22.355	Frequency Stability Temperature & Voltage	< 2.5 ppm for Part 22	PASS	-
	§24.235 §27.54		Within Authorized Band		
4.4	§2.1053 §22.917(a) §24.238(a) §27.53(g)	Radiated Spurious Emission (5G NR n5) (5G NR n2, n25) (5G NR n12, n71)	< 43+10log ₁₀ (P[Watts])	PASS	Under limit 14.70 dB at 9222.00 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

TCL Communication Ltd.

5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong

1.2 Manufacturer

Vodafone Procurement Company S.à.r.l.

15 rue Edward Steichen, L-2540 Luxembourg, Grand-Duché de Luxembourg

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	USB Connect 5G (NA)
Brand Name	Vodafone
Model Name	IK512US
FCC ID	2ACCJSCD002
IMEI Code	Conducted : 352912230200263 Radiation : 352912230200271
HW Version	V3.0
SW Version	IK512US_ZZ_01.00_04
EUT Stage	Production Unit

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	5G NR n2 : 1850 MHz ~ 1910 MHz 5G NR n5 : 824 MHz ~ 849 MHz 5G NR n12 : 699 MHz ~ 716 MHz 5G NR n25 : 1850 MHz ~ 1915 MHz 5G NR n71: 663 MHz ~ 698 MHz
Rx Frequency	5G NR n2 : 1930 MHz ~ 1990 MHz 5G NR n5 : 869 MHz ~ 894 MHz 5G NR n12: 729 MHz ~ 746 MHz 5G NR n25 : 1930 MHz ~ 1995 MHz 5G NR n71: 617 MHz ~ 652 MHz
Bandwidth	n2, n5: 5MHz / 10MHz / 15MHz / 20MHz n12: 5MHz / 10MHz / 15MHz n25 : 5MHz / 10MHz / 15MHz / 20MHz / 25MHz / 30MHz / 35MHz / 40MHz n71 : 5MHz / 10MHz / 15MHz / 20MHz
SCS	15kHz
Antenna Gain	<Ant. 1>: n2: 2.25 dBi n5: 0.26 dBi

	n12: 2.71 dBi n25: 2.55 dBi n71: 1.83 dBi <Ant. 2>: n2: 2.01 dBi n25: 2.01 dBi
Type of Modulation	CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM

Remark:

1. The maximum ERP/EIRP is calculated from max output power and max antenna gain, only the maximum ERP/EIRP of ANT 1 for 5G NR n2/n5/n12/n25/n71 are shown in the report.
2. All the supported ENDC combinations are verified conducted power, only the ENDC combination with highest power are shown in the report.
3. 5G NR n12 only support SA mode, and n2/n5/n25/n71 support SA & NSA mode. According to the maximum power between SA and NSA mode, SA covers NSA mode.
4. 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 n2		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	1852.5 ~ 1907.5	0.3141	4M47G7D	0.2512	4M48W7D
10	1855.0 ~ 1905.0	0.3177	9M28G7D	0.2535	9M30W7D
15	1857.5 ~ 1902.5	0.3214	14M1G7D	0.2612	14M1W7D
20	1860.0 ~ 1900.0	0.3221	18M9G7D	0.2570	18M9W7D
5G NR n25		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	1852.5 ~ 1912.5	0.3532	4M47G7D	0.2818	4M48W7D
10	1855.0 ~ 1910.0	0.3459	9M28G7D	0.2786	9M30W7D
15	1857.5 ~ 1907.5	0.3606	14M1G7D	0.2897	14M1W7D
20	1860.0 ~ 1905.0	0.3556	18M9G7D	0.2818	18M9W7D
25	1862.5 ~ 1902.5	0.3524	23M7G7D	0.2844	23M8W7D
30	1865.0 ~ 1900.0	0.3614	28M5G7D	0.2924	28M6W7D
35	1867.5 ~ 1897.5	0.3622	33M5G7D	0.2911	33M6W7D
40	1870.0 ~ 1895.0	0.3631	38M6G7D	0.2951	38M6W7D

5G NR n5		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	826.5 ~ 846.5	0.1384	4M46G7D	0.1119	4M49W7D
10	829.0 ~ 844.0	0.1358	9M26G7D	0.1091	9M29W7D
15	831.5 ~ 841.5	0.1422	14M1G7D	0.1146	14M1W7D
20	834.0 ~ 839.0	0.1426	18M9G7D	0.1140	18M9W7D

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	0.2307	4M48G7D	0.1824	4M48W7D
10	704.0 ~ 711.0	0.2301	9M28G7D	0.1849	9M29W7D
15	706.5 ~ 708.5	0.2432	14M1G7D	0.1905	14M1W7D

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	0.1954	4M47G7D	0.1581	4M48W7D
10	668.0 ~ 693.0	0.1954	9M27G7D	0.1585	9M27W7D
15	670.5 ~ 690.5	0.1945	14M1G7D	0.1560	14M1W7D
20	673.0 ~ 688.0	0.1972	18M9G7D	0.1567	18M9W7D

Note:

- 5G NR n25 overlaps the entire frequency range of 5G NR n2. Therefore, the test results provided in this report covers 5G NR n25 as well as 5G NR n2.
- 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	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	TH01-SZ	CN1256	421272

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.
	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 22, 24, 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 (Y plane) 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.

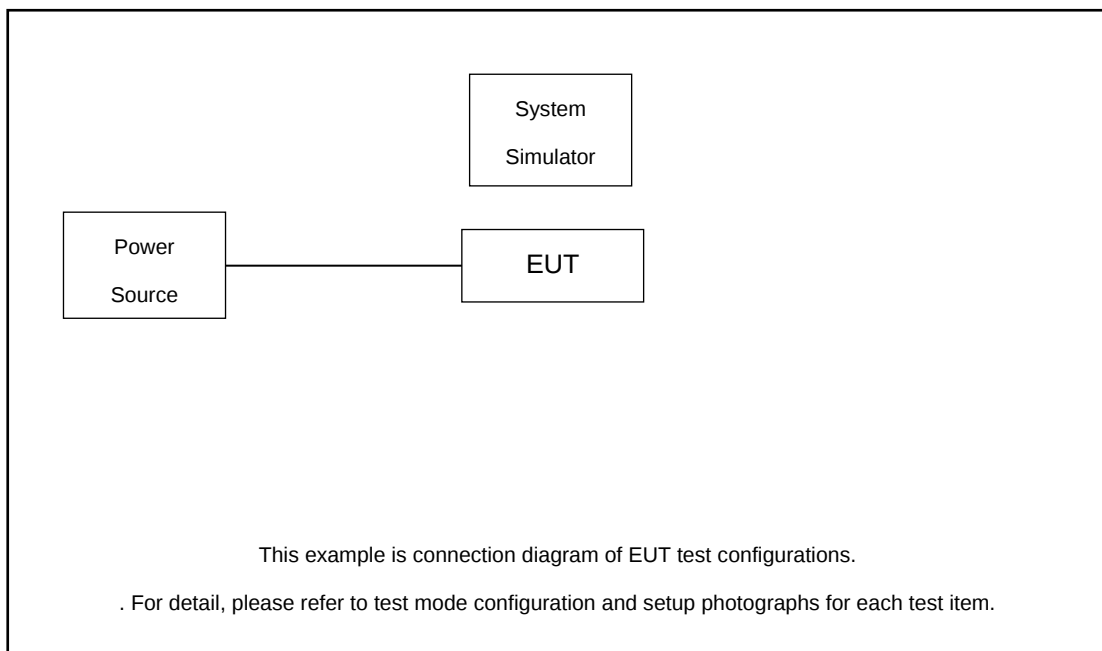
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane

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	16 QAM	64 QAM	256 QAM	1	Full	L	M	H
Max. Output Power	n2	v	v	v	v	-	-	-	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v
	n5	v	v	v	v	-	-	-	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v
	n12	v	v	v	-	-	-	-	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v
	n25	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	n5				v	-	-	-	-	-	-	-	-	-	v	v					v		v	
	n12		v		-	-	-	-	-	-	-	-	-	-	v	v					v		v	
	n25				v					-	-	-	-	-	v	v					v		v	
	n71				v	-	-	-	-	-	-	-	-	-	v	v					v		v	
26dB and 99% Bandwidth	n5	v	v	v	v	-	-	-	-	-	-	-	-	-		v	v	v	v	v	v		v	
	n12	v	v	v	-	-	-	-	-	-	-	-	-	-		v	v	v	v	v	v		v	
	n25	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	
Conducted Band Edge	n5	v	v		v	-	-	-	-	-	-	-	-	-	v	v				v	v	v		v
	n12	v	v	v	-	-	-	-	-	-	-	-	-	-	v	v				v	v	v		v
	n25	v			v				v	-	-	-	-	-	v	v				v	v	v		v
	n71	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	16 QAM	64 QAM	256 QAM	1	Full	L	M	H	
Conducted Spurious Emission	n5	v	v		v	-	-	-	-	-	-	-	-	-	v	v						v	v	v	
	n12	v	v	v	-	-	-	-	-	-	-	-	-	-	v	v						v	v	v	
	n25	v			v				v	-	-	-	-	-	v	v						v	v	v	
	n71	v	v		v	-	-	-	-	-	-	-	-	-	v	v						v	v	v	
Frequency Stability	n5				v	-	-	-	-	-	-	-	-	-		v					v		v		
	n12		v		-	-	-	-	-	-	-	-	-	-		v					v		v		
	n25				v					-	-	-	-	-		v					v		v		
	n71				v	-	-	-	-	-	-	-	-	-		v					v		v		
E.R.P / E.I.R.P	n2	v	v	v	v	-	-	-	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v	
	n5	v	v	v	v	-	-	-	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v	
	n12	v	v	v	-	-	-	-	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v	
	n25	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	n5	Worst Case																					v		
	n12	Worst Case																					v		
	n25	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 = 5.0V ; Low Voltage =4.75V. ; High Voltage =5.25V																								

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.	Notebook	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 7.5 dB.

Example :

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)}. \\ &= 7.5 \text{ (dB)} \end{aligned}$$

2.5 Frequency List of Low/Middle/High Channels

5G NR n2 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	372000	376000	380000
	Frequency	1860	1880	1900
15	Channel	371500	376000	380500
	Frequency	1857.5	1880	1902.5
10	Channel	371000	376000	381000
	Frequency	1855	1880	1905
5	Channel	370500	376000	381500
	Frequency	1852.5	1880	1907.5

5G NR n5 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	166800	167300	167800
	Frequency	834	836.5	839
15	Channel	166300	167300	168300
	Frequency	831.5	836.5	841.5
10	Channel	165800	167300	168800
	Frequency	829	836.5	844
5	Channel	165300	167300	169300
	Frequency	826.5	836.5	846.5



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 n25 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
40	Channel	390000	392500	395000
	Frequency	1870	1882.5	1895
35	Channel	373500	376500	379500
	Frequency	1867.5	1882.5	1897.5
30	Channel	389000	392500	396000
	Frequency	1865	1882.5	1900
25	Channel	388500	392500	396500
	Frequency	1862.5	1882.5	1902.5
20	Channel	372000	376500	381000
	Frequency	1860	1882.5	1905
15	Channel	371500	376500	381500
	Frequency	1857.5	1882.5	1907.5
10	Channel	371000	376500	382000
	Frequency	1855	1882.5	1910
5	Channel	370500	376500	382500
	Frequency	1852.5	1882.5	1912.5



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

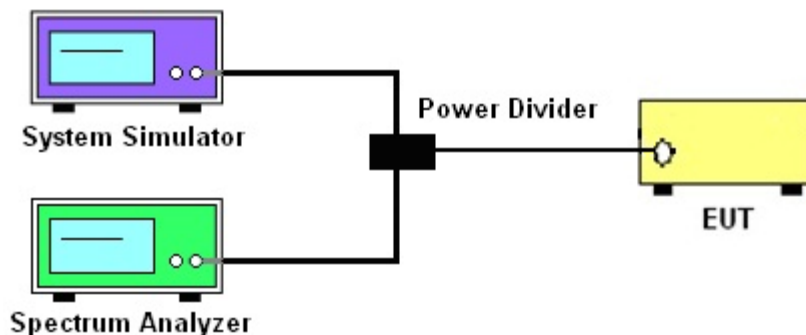
See list of measuring instruments of this test report.

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 7 Watts for 5G NR n5.

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

The EIRP of mobile transmitters must not exceed 2 Watts for 5G NR n2, n25.

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

22.917(a)

For operations in the 824 – 849 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ in a 100kHz 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.

24.238 (a)

For operations in the 1850-1910 and 1930-1990 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power $P(\text{Watts})$ in a 1MHz bandwidth. However, in the 1 MHz bands immediately outside and adjacent to the 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. The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ ($\pm 2.5\text{ppm}$) of the center frequency.

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 $20\pm 5^{\circ}\text{C}$ 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

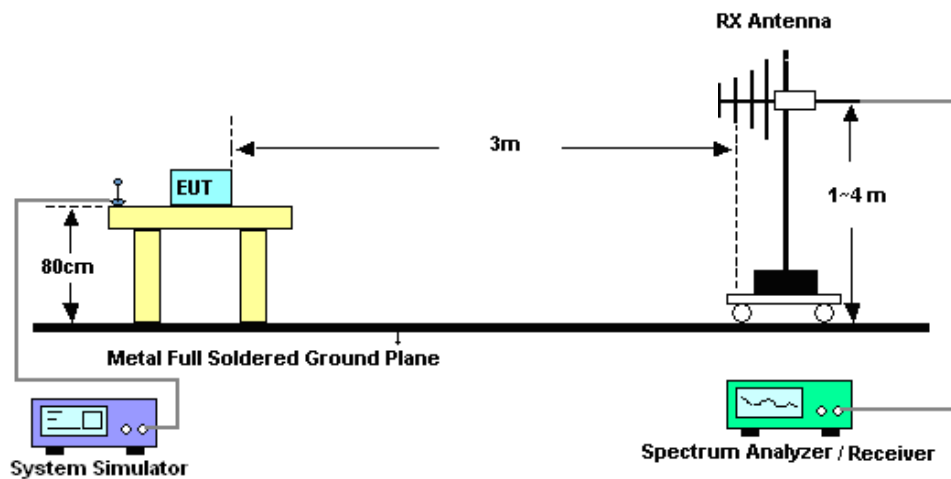
See list of measuring instruments of this test report.

4.2 Test Setup

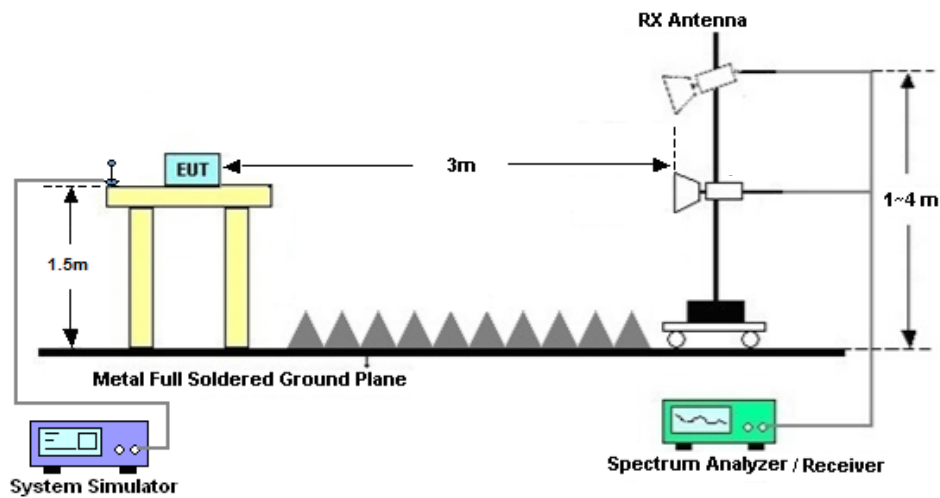
4.2.1 For radiated test below 30MHz



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	Jul. 16, 2024~ Aug. 06, 2024	Apr. 08, 2025	Conducted (TH01-SZ)
DC Power Supply	TTI	PL330P	290070	Max 32V , 3A	Oct. 16, 2023	Jul. 16, 2024~ Aug. 06, 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	Jul. 16, 2024~ Aug. 06, 2024	Dec. 24, 2024	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhonggroup	LP-150U	H2014081803	-40~+150°C	Jul. 03, 2024	Jul. 16, 2024~ Aug. 06, 2024	Jul. 02, 2025	Conducted (TH01-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz	Jul. 03, 2024	Jul. 12, 2024~ Jul. 16, 2024	Jul. 02, 2025	Radiation (03CH02-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	Jul. 28, 2022	Jul. 12, 2024~ Jul. 16, 2024	Jul. 27, 2024	Radiation (03CH02-SZ)
Bilog Antenna	TeseQ	CBL6112D	35407	30MHz~2GHz	Oct. 24, 2023	Jul. 12, 2024~ Jul. 16, 2024	Oct. 23, 2025	Radiation (03CH02-SZ)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00119436	1GHz~18GHz	Jul. 04, 2024	Jul. 12, 2024~ Jul. 16, 2024	Jul. 04, 2025	Radiation (03CH02-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18GHz~40GHz	Apr. 09, 2024	Jul. 12, 2024~ Jul. 16, 2024	Apr. 08, 2025	Radiation (03CH02-SZ)
LF Amplifier	Burgeon	BPA-530	102211	0.01~3000Mhz	Oct. 18, 2023	Jul. 12, 2024~ Jul. 16, 2024	Oct. 17, 2024	Radiation (03CH02-SZ)
HF Amplifier	KEYSIGHT	83017A	MY53270105	0.5GHz~26.5Ghz	Oct. 18, 2023	Jul. 12, 2024~ Jul. 16, 2024	Oct. 17, 2024	Radiation (03CH02-SZ)
HF Amplifier	MITEQ	TTA1840-35 -HG	1871923	18GHz~40GHz	Jul. 03, 2024	Jul. 12, 2024~ Jul. 16, 2024	Jul. 03, 2025	Radiation (03CH02-SZ)
AC Power Source	Chroma	61601	616010003043	N/A	Oct. 18, 2023	Jul. 12, 2024~ Jul. 16, 2024	Oct. 17, 2024	Radiation (03CH02-SZ)
Turn Table	Chaintek	T-200	N/A	0~360 degree	NCR	Jul. 12, 2024~ Jul. 16, 2024	NCR	Radiation (03CH02-SZ)
Antenna Mast	Chaintek	MBS-400	N/A	1 m~4 m	NCR	Jul. 12, 2024~ Jul. 16, 2024	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 :	22~23°C
		Relative Humidity :	40~42%



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Transmitter Conducted Output Power And EIRP, ($G_T - L_C$)=2.25dB

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Conducted Power(dBm)	EIRP (dBm)	EIRP (W)
2	15	5	370500	1852.5	DFT-s-OFDM QPSK	1@1	22.65	24.9	0.3090
2	15	5	370500	1852.5	DFT-s-OFDM 16 QAM	1@1	21.61	23.86	0.2432
2	15	5	376000	1880	DFT-s-OFDM QPSK	1@1	22.72	24.97	0.3141
2	15	5	376000	1880	DFT-s-OFDM 16 QAM	1@1	21.75	24	0.2512
2	15	5	381500	1907.5	DFT-s-OFDM QPSK	1@1	22.48	24.73	0.2972
2	15	5	381500	1907.5	DFT-s-OFDM 16 QAM	1@1	21.66	23.91	0.2460
2	15	10	371000	1855	DFT-s-OFDM QPSK	1@1	22.77	25.02	0.3177
2	15	10	371000	1855	DFT-s-OFDM 16 QAM	1@1	21.79	24.04	0.2535
2	15	10	376000	1880	DFT-s-OFDM QPSK	1@1	22.55	24.8	0.3020
2	15	10	376000	1880	DFT-s-OFDM 16 QAM	1@1	21.75	24	0.2512
2	15	10	381000	1905	DFT-s-OFDM QPSK	1@1	22.59	24.84	0.3048
2	15	10	381000	1905	DFT-s-OFDM 16 QAM	1@1	21.71	23.96	0.2489
2	15	15	371500	1857.5	DFT-s-OFDM QPSK	1@1	22.74	24.99	0.3155
2	15	15	371500	1857.5	DFT-s-OFDM 16 QAM	1@1	21.92	24.17	0.2612
2	15	15	376000	1880	DFT-s-OFDM QPSK	1@1	22.82	25.07	0.3214
2	15	15	376000	1880	DFT-s-OFDM 16 QAM	1@1	21.82	24.07	0.2553
2	15	15	380500	1902.5	DFT-s-OFDM QPSK	1@1	22.68	24.93	0.3112
2	15	15	380500	1902.5	DFT-s-OFDM 16 QAM	1@1	21.81	24.06	0.2547
2	15	20	372000	1860	DFT-s-OFDM PI/2 BPSK	50@25	22.71	24.96	0.3133
2	15	20	372000	1860	DFT-s-OFDM PI/2 BPSK	1@1	22.52	24.77	0.2999
2	15	20	372000	1860	DFT-s-OFDM PI/2 BPSK	1@104	22.64	24.89	0.3083
2	15	20	372000	1860	DFT-s-OFDM QPSK	50@25	22.71	24.96	0.3133
2	15	20	372000	1860	DFT-s-OFDM QPSK	1@1	22.83	25.08	0.3221
2	15	20	372000	1860	DFT-s-OFDM QPSK	1@104	22.76	25.01	0.3170
2	15	20	372000	1860	DFT-s-OFDM 16 QAM	50@25	21.73	23.98	0.2500
2	15	20	372000	1860	DFT-s-OFDM 16 QAM	1@1	21.77	24.02	0.2523
2	15	20	372000	1860	DFT-s-OFDM 16 QAM	1@104	21.85	24.1	0.2570
2	15	20	372000	1860	DFT-s-OFDM 64 QAM	50@25	20.3	22.55	0.1799
2	15	20	372000	1860	DFT-s-OFDM 64 QAM	1@1	20.37	22.62	0.1828
2	15	20	372000	1860	DFT-s-OFDM 64 QAM	1@104	20.37	22.62	0.1828
2	15	20	372000	1860	DFT-s-OFDM 256 QAM	50@25	18.17	20.42	0.1102
2	15	20	372000	1860	DFT-s-OFDM 256 QAM	1@1	17.96	20.21	0.1050
2	15	20	372000	1860	DFT-s-OFDM 256 QAM	1@104	17.92	20.17	0.1040
2	15	20	372000	1860	CP-OFDM QPSK	53@26	21.27	23.52	0.2249
2	15	20	372000	1860	CP-OFDM QPSK	1@1	21.23	23.48	0.2228
2	15	20	372000	1860	CP-OFDM QPSK	1@104	21.28	23.53	0.2254
2	15	20	376000	1880	DFT-s-OFDM PI/2 BPSK	50@25	22.66	24.91	0.3097



2	15	20	376000	1880	DFT-s-OFDM PI/2 BPSK	1@1	22.63	24.88	0.3076
2	15	20	376000	1880	DFT-s-OFDM PI/2 BPSK	1@104	22.67	24.92	0.3105
2	15	20	376000	1880	DFT-s-OFDM QPSK	50@25	22.72	24.97	0.3141
2	15	20	376000	1880	DFT-s-OFDM QPSK	1@1	22.66	24.91	0.3097
2	15	20	376000	1880	DFT-s-OFDM QPSK	1@104	22.76	25.01	0.3170
2	15	20	376000	1880	DFT-s-OFDM 16 QAM	50@25	21.72	23.97	0.2495
2	15	20	376000	1880	DFT-s-OFDM 16 QAM	1@1	21.78	24.03	0.2529
2	15	20	376000	1880	DFT-s-OFDM 16 QAM	1@104	21.83	24.08	0.2559
2	15	20	376000	1880	DFT-s-OFDM 64 QAM	50@25	20.22	22.47	0.1766
2	15	20	376000	1880	DFT-s-OFDM 64 QAM	1@1	20.32	22.57	0.1807
2	15	20	376000	1880	DFT-s-OFDM 64 QAM	1@104	20.4	22.65	0.1841
2	15	20	376000	1880	DFT-s-OFDM 256 QAM	50@25	17.98	20.23	0.1054
2	15	20	376000	1880	DFT-s-OFDM 256 QAM	1@1	17.93	20.18	0.1042
2	15	20	376000	1880	DFT-s-OFDM 256 QAM	1@104	17.91	20.16	0.1038
2	15	20	376000	1880	CP-OFDM QPSK	53@26	21.21	23.46	0.2218
2	15	20	376000	1880	CP-OFDM QPSK	1@1	21.26	23.51	0.2244
2	15	20	376000	1880	CP-OFDM QPSK	1@104	20.86	23.11	0.2046
2	15	20	380000	1900	DFT-s-OFDM PI/2 BPSK	50@25	22.6	24.85	0.3055
2	15	20	380000	1900	DFT-s-OFDM PI/2 BPSK	1@1	22.63	24.88	0.3076
2	15	20	380000	1900	DFT-s-OFDM PI/2 BPSK	1@104	22.49	24.74	0.2979
2	15	20	380000	1900	DFT-s-OFDM QPSK	50@25	22.63	24.88	0.3076
2	15	20	380000	1900	DFT-s-OFDM QPSK	1@1	22.61	24.86	0.3062
2	15	20	380000	1900	DFT-s-OFDM QPSK	1@104	22.54	24.79	0.3013
2	15	20	380000	1900	DFT-s-OFDM 16 QAM	50@25	21.58	23.83	0.2415
2	15	20	380000	1900	DFT-s-OFDM 16 QAM	1@1	21.79	24.04	0.2535
2	15	20	380000	1900	DFT-s-OFDM 16 QAM	1@104	21.66	23.91	0.2460
2	15	20	380000	1900	DFT-s-OFDM 64 QAM	50@25	20.15	22.4	0.1738
2	15	20	380000	1900	DFT-s-OFDM 64 QAM	1@1	20.38	22.63	0.1832
2	15	20	380000	1900	DFT-s-OFDM 64 QAM	1@104	20.24	22.49	0.1774
2	15	20	380000	1900	DFT-s-OFDM 256 QAM	50@25	18.13	20.38	0.1091
2	15	20	380000	1900	DFT-s-OFDM 256 QAM	1@1	18.01	20.26	0.1062
2	15	20	380000	1900	DFT-s-OFDM 256 QAM	1@104	17.78	20.03	0.1007
2	15	20	380000	1900	CP-OFDM QPSK	53@26	21.16	23.41	0.2193
2	15	20	380000	1900	CP-OFDM QPSK	1@1	21.31	23.56	0.2270
2	15	20	380000	1900	CP-OFDM QPSK	1@104	21.14	23.39	0.2183



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Transmitter Conducted Output Power And ERP, ($G_T - L_C$)=0.26dB

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Conducted Power(dBm)	ERP (dBm)	ERP (W)
5	15	5	165300	826.5	DFT-s-OFDM QPSK	1@1	23.3	21.41	0.1384
5	15	5	165300	826.5	DFT-s-OFDM 16 QAM	1@1	22.38	20.49	0.1119
5	15	5	167300	836.5	DFT-s-OFDM QPSK	1@1	23.24	21.35	0.1365
5	15	5	167300	836.5	DFT-s-OFDM 16 QAM	1@1	22.27	20.38	0.1091
5	15	5	169300	846.5	DFT-s-OFDM QPSK	1@1	23.19	21.3	0.1349
5	15	5	169300	846.5	DFT-s-OFDM 16 QAM	1@1	22.24	20.35	0.1084
5	15	10	165800	829	DFT-s-OFDM QPSK	1@1	23.22	21.33	0.1358
5	15	10	165800	829	DFT-s-OFDM 16 QAM	1@1	22.27	20.38	0.1091
5	15	10	167300	836.5	DFT-s-OFDM QPSK	1@1	23.18	21.29	0.1346
5	15	10	167300	836.5	DFT-s-OFDM 16 QAM	1@1	22.26	20.37	0.1089
5	15	10	168800	844	DFT-s-OFDM QPSK	1@1	23.06	21.17	0.1309
5	15	10	168800	844	DFT-s-OFDM 16 QAM	1@1	22.22	20.33	0.1079
5	15	15	166300	831.5	DFT-s-OFDM QPSK	1@1	23.33	21.44	0.1393
5	15	15	166300	831.5	DFT-s-OFDM 16 QAM	1@1	22.41	20.52	0.1127
5	15	15	167300	836.5	DFT-s-OFDM QPSK	1@1	23.42	21.53	0.1422
5	15	15	167300	836.5	DFT-s-OFDM 16 QAM	1@1	22.48	20.59	0.1146
5	15	15	168300	841.5	DFT-s-OFDM QPSK	1@1	23.27	21.38	0.1374
5	15	15	168300	841.5	DFT-s-OFDM 16 QAM	1@1	22.36	20.47	0.1114
5	15	20	166800	834	DFT-s-OFDM PI/2 BPSK	50@25	23.33	21.44	0.1393
5	15	20	166800	834	DFT-s-OFDM PI/2 BPSK	1@1	23.26	21.37	0.1371
5	15	20	166800	834	DFT-s-OFDM PI/2 BPSK	1@104	23.03	21.14	0.1300
5	15	20	166800	834	DFT-s-OFDM QPSK	50@25	23.34	21.45	0.1396
5	15	20	166800	834	DFT-s-OFDM QPSK	1@1	23.42	21.53	0.1422
5	15	20	166800	834	DFT-s-OFDM QPSK	1@104	22.99	21.1	0.1288
5	15	20	166800	834	DFT-s-OFDM 16 QAM	50@25	22.28	20.39	0.1094
5	15	20	166800	834	DFT-s-OFDM 16 QAM	1@1	22.46	20.57	0.1140
5	15	20	166800	834	DFT-s-OFDM 16 QAM	1@104	22.28	20.39	0.1094
5	15	20	166800	834	DFT-s-OFDM 64 QAM	50@25	20.9	19.01	0.0796
5	15	20	166800	834	DFT-s-OFDM 64 QAM	1@1	20.9	19.01	0.0796
5	15	20	166800	834	DFT-s-OFDM 64 QAM	1@104	20.73	18.84	0.0766
5	15	20	166800	834	DFT-s-OFDM 256 QAM	50@25	18.55	16.66	0.0463
5	15	20	166800	834	DFT-s-OFDM 256 QAM	1@1	18.57	16.68	0.0466
5	15	20	166800	834	DFT-s-OFDM 256 QAM	1@104	18.45	16.56	0.0453
5	15	20	166800	834	CP-OFDM QPSK	53@26	21.76	19.87	0.0971
5	15	20	166800	834	CP-OFDM QPSK	1@1	21.87	19.98	0.0995
5	15	20	166800	834	CP-OFDM QPSK	1@104	21.26	19.37	0.0865



5	15	20	167300	836.5	DFT-s-OFDM PI/2 BPSK	50@25	23.43	21.54	0.1426
5	15	20	167300	836.5	DFT-s-OFDM PI/2 BPSK	1@1	23.2	21.31	0.1352
5	15	20	167300	836.5	DFT-s-OFDM PI/2 BPSK	1@104	23.03	21.14	0.1300
5	15	20	167300	836.5	DFT-s-OFDM QPSK	50@25	23.36	21.47	0.1403
5	15	20	167300	836.5	DFT-s-OFDM QPSK	1@1	23.23	21.34	0.1361
5	15	20	167300	836.5	DFT-s-OFDM QPSK	1@104	23.03	21.14	0.1300
5	15	20	167300	836.5	DFT-s-OFDM 16 QAM	50@25	22.33	20.44	0.1107
5	15	20	167300	836.5	DFT-s-OFDM 16 QAM	1@1	22.4	20.51	0.1125
5	15	20	167300	836.5	DFT-s-OFDM 16 QAM	1@104	22.29	20.4	0.1096
5	15	20	167300	836.5	DFT-s-OFDM 64 QAM	50@25	20.86	18.97	0.0789
5	15	20	167300	836.5	DFT-s-OFDM 64 QAM	1@1	20.94	19.05	0.0804
5	15	20	167300	836.5	DFT-s-OFDM 64 QAM	1@104	20.76	18.87	0.0771
5	15	20	167300	836.5	DFT-s-OFDM 256 QAM	50@25	18.45	16.56	0.0453
5	15	20	167300	836.5	DFT-s-OFDM 256 QAM	1@1	18.58	16.69	0.0467
5	15	20	167300	836.5	DFT-s-OFDM 256 QAM	1@104	18.49	16.6	0.0457
5	15	20	167300	836.5	CP-OFDM QPSK	53@26	21.75	19.86	0.0968
5	15	20	167300	836.5	CP-OFDM QPSK	1@1	21.86	19.97	0.0993
5	15	20	167300	836.5	CP-OFDM QPSK	1@104	21.31	19.42	0.0875
5	15	20	167800	839	DFT-s-OFDM PI/2 BPSK	50@25	23.27	21.38	0.1374
5	15	20	167800	839	DFT-s-OFDM PI/2 BPSK	1@1	23.28	21.39	0.1377
5	15	20	167800	839	DFT-s-OFDM PI/2 BPSK	1@104	22.93	21.04	0.1271
5	15	20	167800	839	DFT-s-OFDM QPSK	50@25	23.27	21.38	0.1374
5	15	20	167800	839	DFT-s-OFDM QPSK	1@1	23.13	21.24	0.1330
5	15	20	167800	839	DFT-s-OFDM QPSK	1@104	23.03	21.14	0.1300
5	15	20	167800	839	DFT-s-OFDM 16 QAM	50@25	22.23	20.34	0.1081
5	15	20	167800	839	DFT-s-OFDM 16 QAM	1@1	22.37	20.48	0.1117
5	15	20	167800	839	DFT-s-OFDM 16 QAM	1@104	22.19	20.3	0.1072
5	15	20	167800	839	DFT-s-OFDM 64 QAM	50@25	20.79	18.9	0.0776
5	15	20	167800	839	DFT-s-OFDM 64 QAM	1@1	20.9	19.01	0.0796
5	15	20	167800	839	DFT-s-OFDM 64 QAM	1@104	20.76	18.87	0.0771
5	15	20	167800	839	DFT-s-OFDM 256 QAM	50@25	18.71	16.82	0.0481
5	15	20	167800	839	DFT-s-OFDM 256 QAM	1@1	18.58	16.69	0.0467
5	15	20	167800	839	DFT-s-OFDM 256 QAM	1@104	18.44	16.55	0.0452
5	15	20	167800	839	CP-OFDM QPSK	53@26	21.79	19.9	0.0977
5	15	20	167800	839	CP-OFDM QPSK	1@1	21.79	19.9	0.0977
5	15	20	167800	839	CP-OFDM QPSK	1@104	21.63	19.74	0.0942

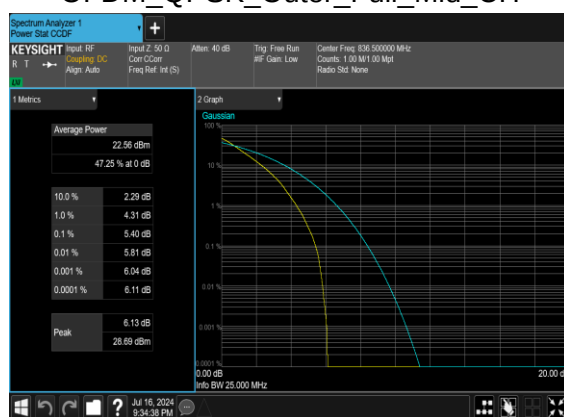
**Frequency Stability**

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Deviation (ppm)	Verdict	Environment
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.0048	PASS	NV
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.0037	PASS	LV
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.0037	PASS	HV
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.0062	PASS	-30℃
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.0033	PASS	-20℃
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.0033	PASS	-10℃
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.0045	PASS	0℃
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.0039	PASS	10℃
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.0048	PASS	20℃
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.0068	PASS	30℃
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.0028	PASS	40℃
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.0024	PASS	50℃



Peak to Average Ratio

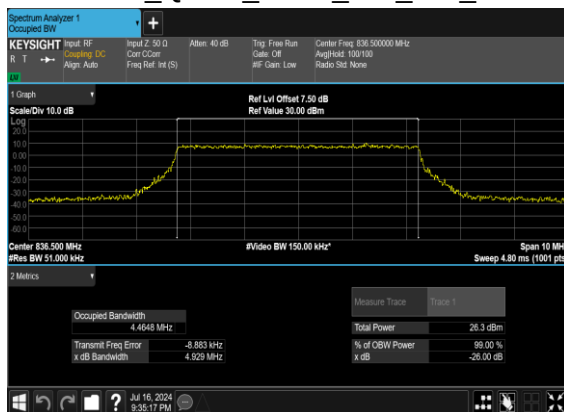
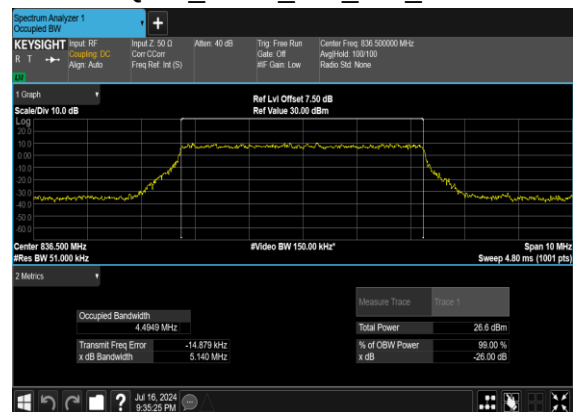
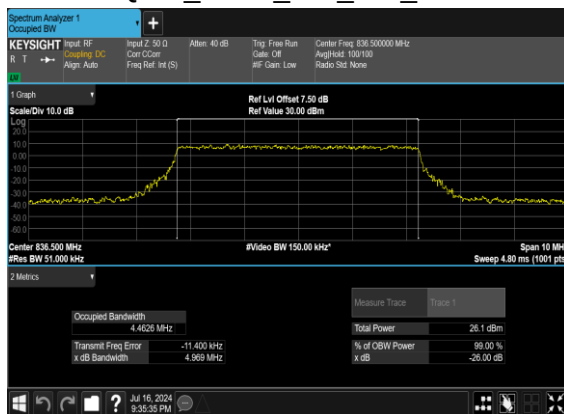
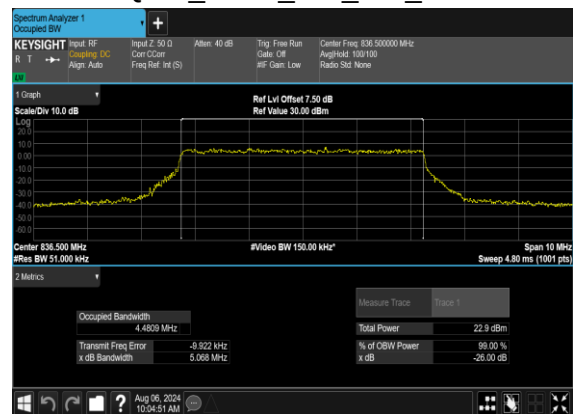
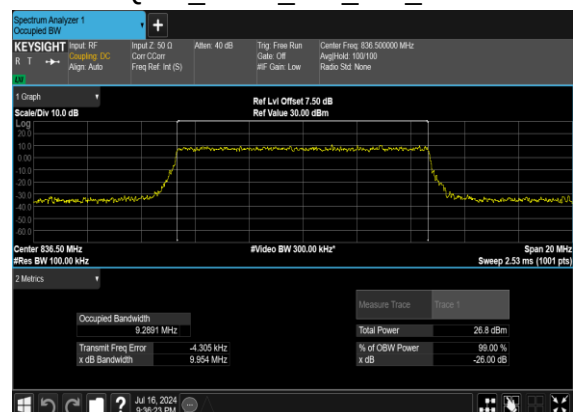
NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result (dB)	Limit (dB)	Verdict
5	15	20	167300	836.5	DFT-s-OFDM PI/2 BPSK	100@0	4.21	13	PASS
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	5.4	13	PASS

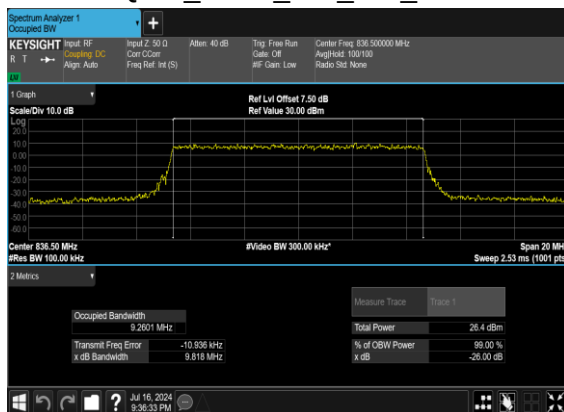
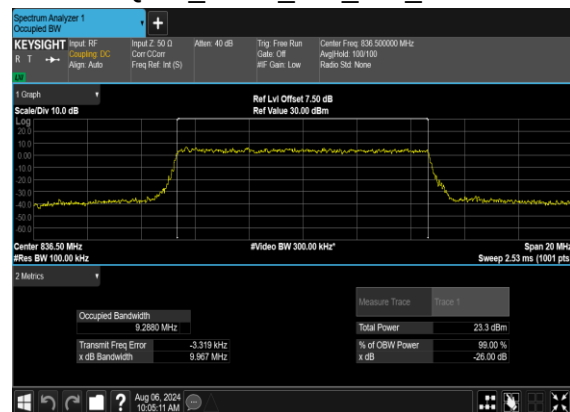
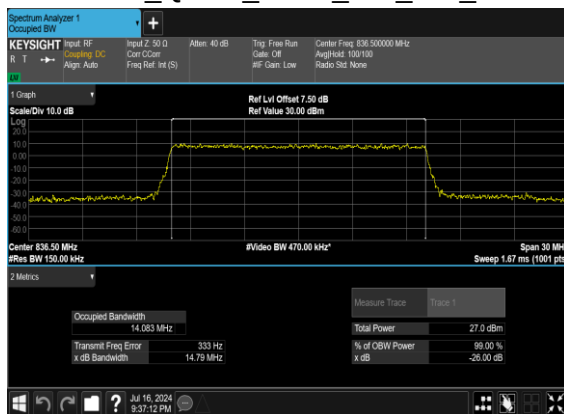
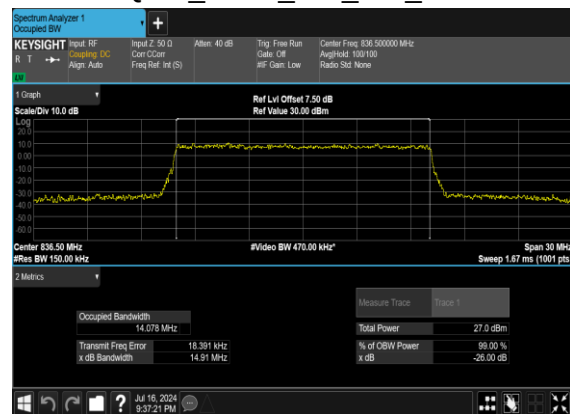
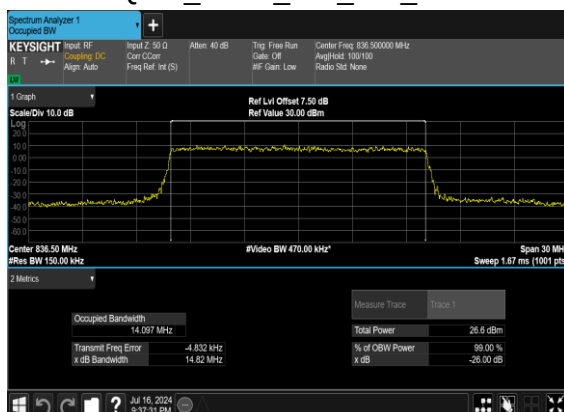
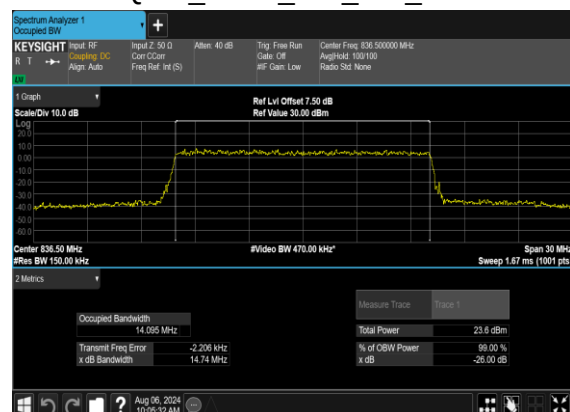
N5(20M)_DFT-s-OFDM_PI_2-
BPSK_Outer_Full_Mid_CHN5(20M)_DFT-s-
OFDM_QPSK_Outer_Full_Mid_CH



Occupied Bandwidth

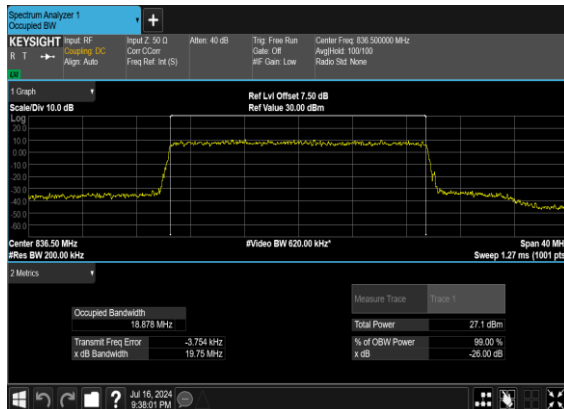
NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	OBW (MHz)	26dB BW (MHz)
5	15	5	167300	836.5	CP-OFDM QPSK	25@0	4.4648	4.929
5	15	5	167300	836.5	CP-OFDM 16 QAM	25@0	4.4949	5.14
5	15	5	167300	836.5	CP-OFDM 64 QAM	25@0	4.4626	4.969
5	15	5	167300	836.5	CP-OFDM 256 QAM	25@0	4.4809	5.068
5	15	10	167300	836.5	CP-OFDM QPSK	52@0	9.2616	9.949
5	15	10	167300	836.5	CP-OFDM 16 QAM	52@0	9.2891	9.954
5	15	10	167300	836.5	CP-OFDM 64 QAM	52@0	9.2601	9.818
5	15	10	167300	836.5	CP-OFDM 256 QAM	52@0	9.288	9.967
5	15	15	167300	836.5	CP-OFDM QPSK	79@0	14.083	14.79
5	15	15	167300	836.5	CP-OFDM 16 QAM	79@0	14.078	14.91
5	15	15	167300	836.5	CP-OFDM 64 QAM	79@0	14.097	14.82
5	15	15	167300	836.5	CP-OFDM 256 QAM	79@0	14.095	14.74
5	15	20	167300	836.5	CP-OFDM QPSK	106@0	18.878	19.75
5	15	20	167300	836.5	CP-OFDM 16 QAM	106@0	18.886	19.77
5	15	20	167300	836.5	CP-OFDM 64 QAM	106@0	18.861	19.77
5	15	20	167300	836.5	CP-OFDM 256 QAM	106@0	18.898	19.7

N5(5M)_CP-
OFDM_QPSK_Outer_Full_Mid_CHN5(5M)_CP-OFDM_16
QAM_Outer_Full_Mid_CHN5(5M)_CP-OFDM_64
QAM_Outer_Full_Mid_CHN5(5M)_CP-OFDM_256
QAM_Outer_Full_Mid_CHN5(10M)_CP-
OFDM_QPSK_Outer_Full_Mid_CHN5(10M)_CP-OFDM_16
QAM_Outer_Full_Mid_CH

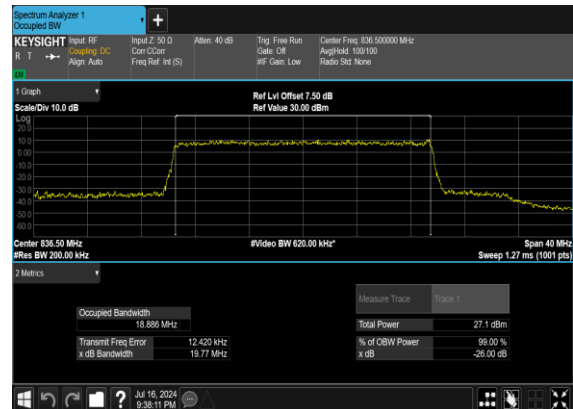
N5(10M)_CP-OFDM_64
QAM_Outer_Full_Mid_CHN5(10M)_CP-OFDM_256
QAM_Outer_Full_Mid_CHN5(15M)_CP-
OFDM_QPSK_Outer_Full_Mid_CHN5(15M)_CP-OFDM_16
QAM_Outer_Full_Mid_CHN5(15M)_CP-OFDM_64
QAM_Outer_Full_Mid_CHN5(15M)_CP-OFDM_256
QAM_Outer_Full_Mid_CH



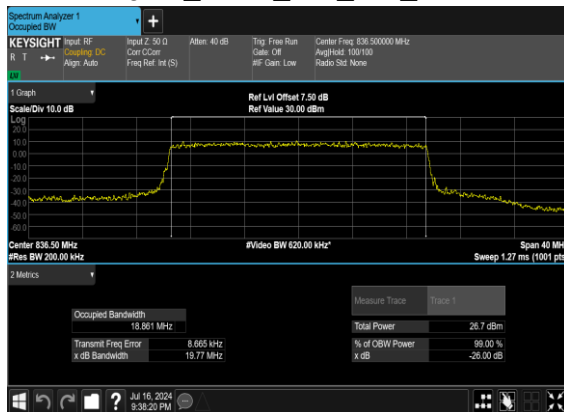
N5(20M)_CP-
OFDM_QPSK_Outer_Full_Mid_CH



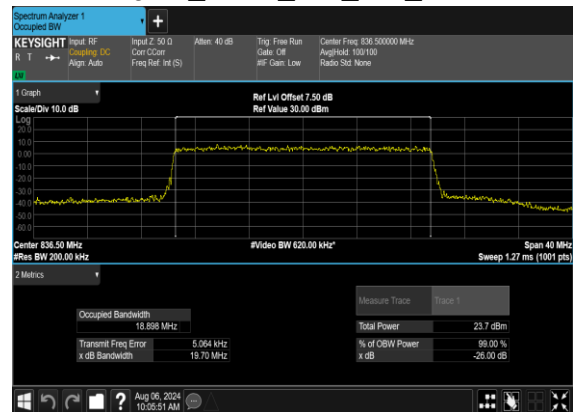
N5(20M)_CP-OFDM_16
QAM_Outer_Full_Mid_CH



N5(20M)_CP-OFDM_64
QAM_Outer_Full_Mid_CH



N5(20M)_CP-OFDM_256
QAM_Outer_Full_Mid_CH





Conducted Spurious Emissions

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
5	15	5	165300	826.5	DFT-s-OFDM BPSK	1@0	see graph	---
5	15	5	165300	826.5	DFT-s-OFDM BPSK	1@0	see graph	PASS
5	15	5	165300	826.5	DFT-s-OFDM QPSK	1@0	see graph	---
5	15	5	165300	826.5	DFT-s-OFDM QPSK	1@0	see graph	PASS
5	15	5	167300	836.5	DFT-s-OFDM BPSK	1@0	see graph	---
5	15	5	167300	836.5	DFT-s-OFDM BPSK	1@0	see graph	PASS
5	15	5	167300	836.5	DFT-s-OFDM QPSK	1@0	see graph	---
5	15	5	167300	836.5	DFT-s-OFDM QPSK	1@0	see graph	PASS
5	15	5	169300	846.5	DFT-s-OFDM BPSK	1@0	see graph	---
5	15	5	169300	846.5	DFT-s-OFDM BPSK	1@0	see graph	PASS
5	15	5	169300	846.5	DFT-s-OFDM QPSK	1@0	see graph	---
5	15	5	169300	846.5	DFT-s-OFDM QPSK	1@0	see graph	PASS
5	15	10	165800	829.0	DFT-s-OFDM BPSK	1@0	see graph	---
5	15	10	165800	829.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
5	15	10	165800	829.0	DFT-s-OFDM QPSK	1@0	see graph	---
5	15	10	165800	829.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
5	15	10	167300	836.5	DFT-s-OFDM BPSK	1@0	see graph	---
5	15	10	167300	836.5	DFT-s-OFDM BPSK	1@0	see graph	PASS
5	15	10	167300	836.5	DFT-s-OFDM QPSK	1@0	see graph	---
5	15	10	167300	836.5	DFT-s-OFDM QPSK	1@0	see graph	PASS
5	15	10	168800	844.0	DFT-s-OFDM BPSK	1@0	see graph	---
5	15	10	168800	844.0	DFT-s-OFDM BPSK	1@0	see graph	PASS



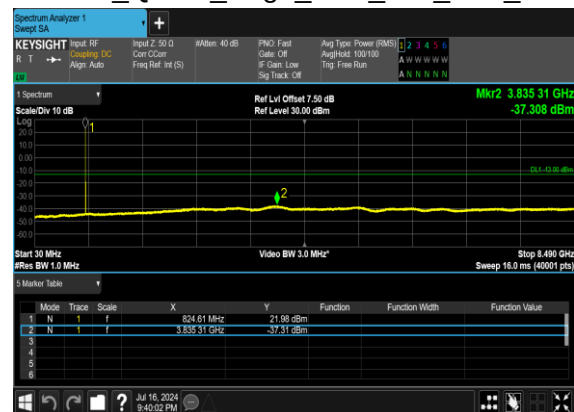
5	15	10	168800	844.0	DFT-s-OFDM QPSK	1@0	see graph	---
5	15	10	168800	844.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
5	15	20	166800	834.0	DFT-s-OFDM BPSK	1@0	see graph	---
5	15	20	166800	834.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
5	15	20	166800	834.0	DFT-s-OFDM QPSK	1@0	see graph	---
5	15	20	166800	834.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
5	15	20	167300	836.5	DFT-s-OFDM BPSK	1@0	see graph	---
5	15	20	167300	836.5	DFT-s-OFDM BPSK	1@0	see graph	PASS
5	15	20	167300	836.5	DFT-s-OFDM QPSK	1@0	see graph	---
5	15	20	167300	836.5	DFT-s-OFDM QPSK	1@0	see graph	PASS
5	15	20	167800	839.0	DFT-s-OFDM BPSK	1@0	see graph	---
5	15	20	167800	839.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
5	15	20	167800	839.0	DFT-s-OFDM QPSK	1@0	see graph	---
5	15	20	167800	839.0	DFT-s-OFDM QPSK	1@0	see graph	PASS



N5(5M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Low_CH



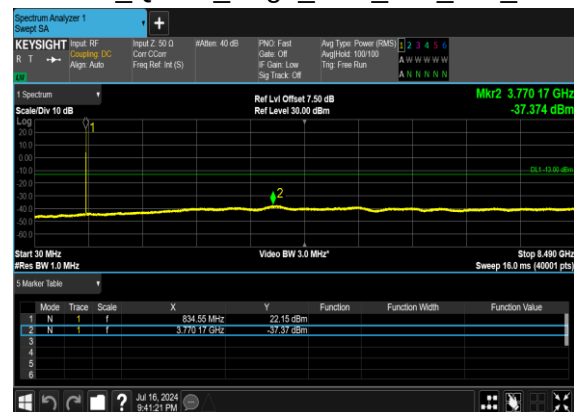
N5(5M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CH



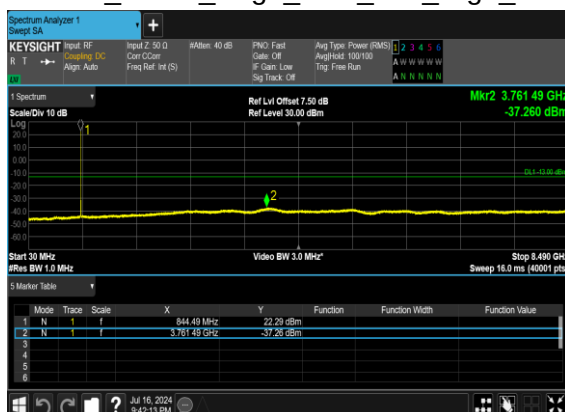
N5(5M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Mid_CH



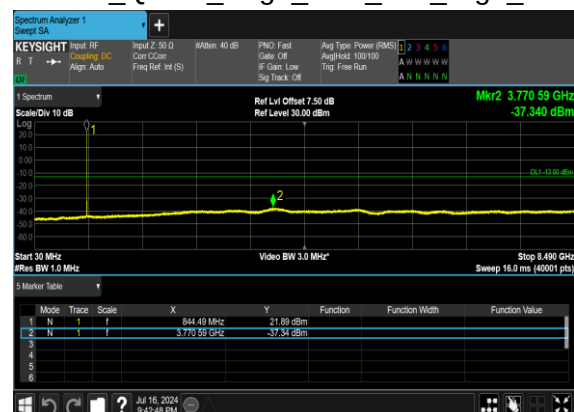
N5(5M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Mid_CH

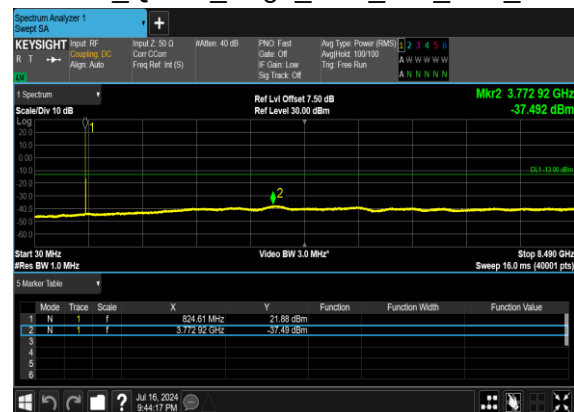
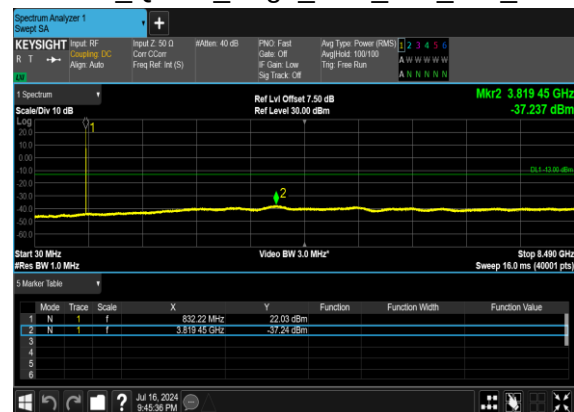
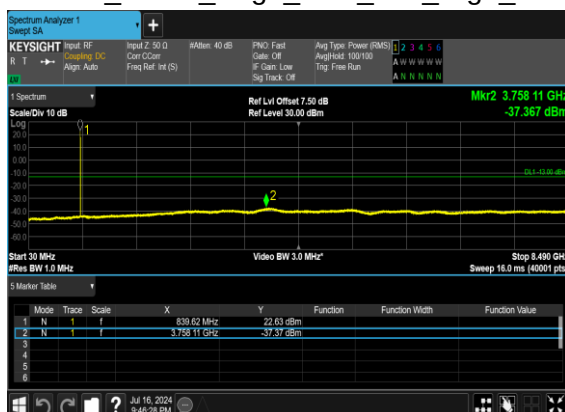
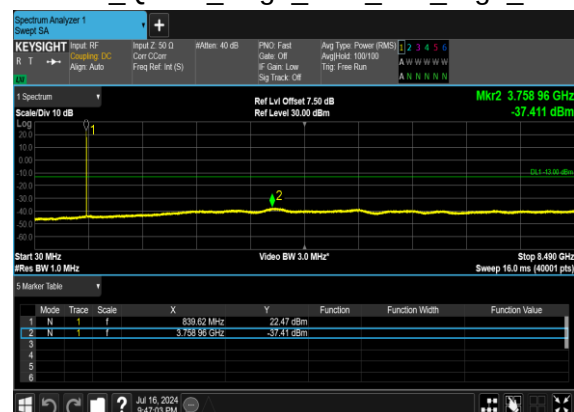


N5(5M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_High_CH



N5(5M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_High_CH



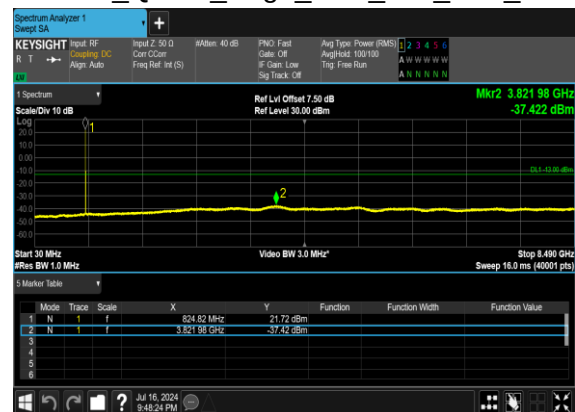
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OFDM_BPSK_Edge_1RB_Left_Low_CHN5(10M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CHN5(10M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Mid_CHN5(10M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Mid_CHN5(10M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_High_CHN5(10M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_High_CH



N5(20M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Low_CH



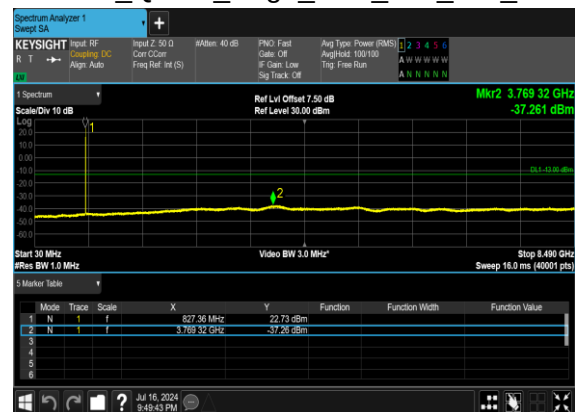
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OFDM_QPSK_Edge_1RB_Left_Low_CH



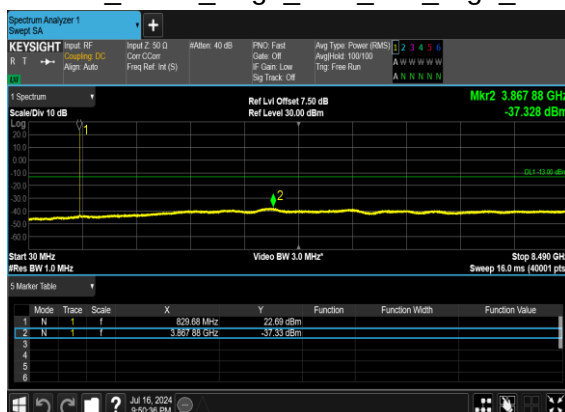
N5(20M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Mid_CH



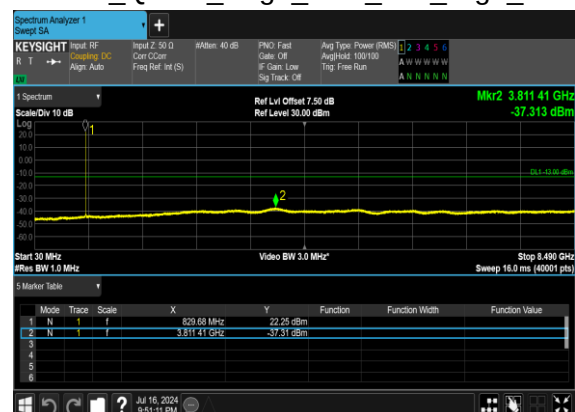
N5(20M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Mid_CH



N5(20M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_High_CH

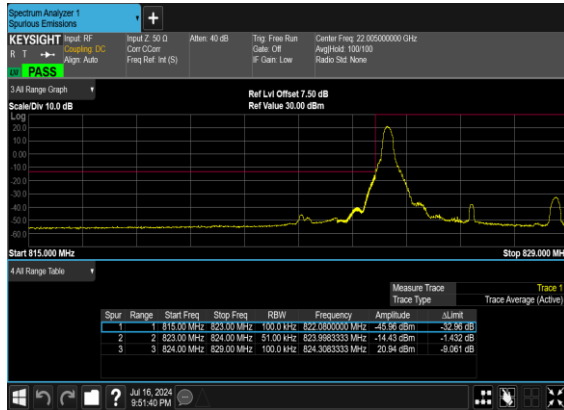
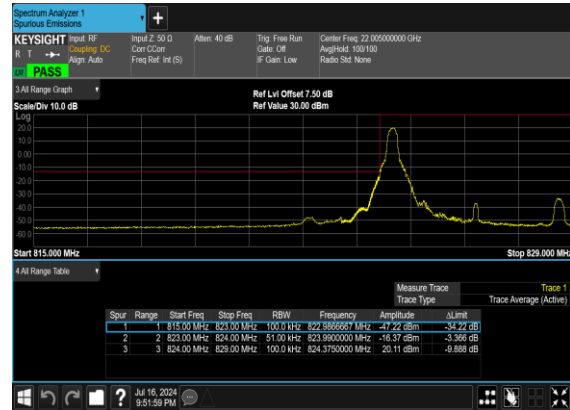
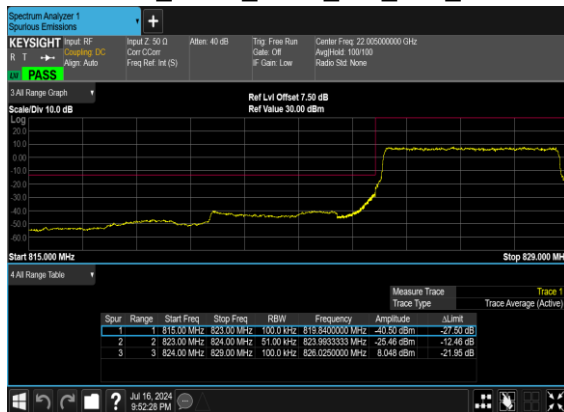
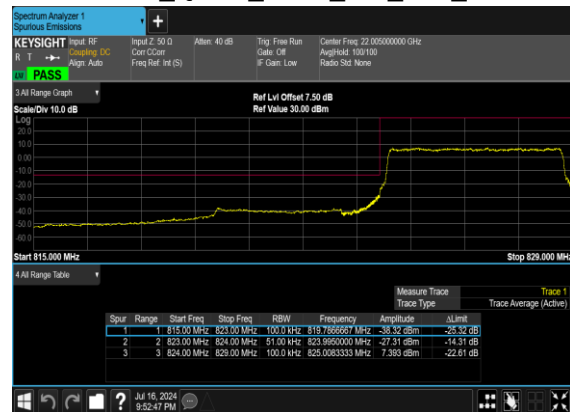
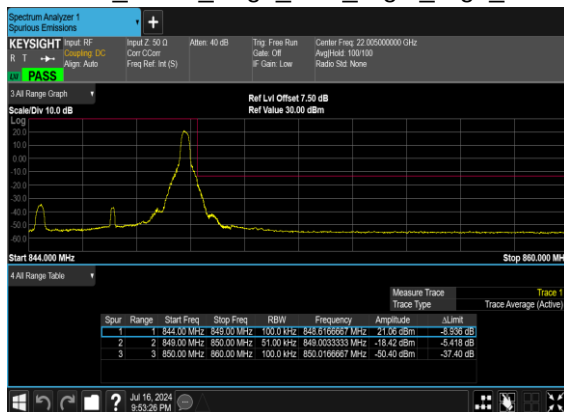
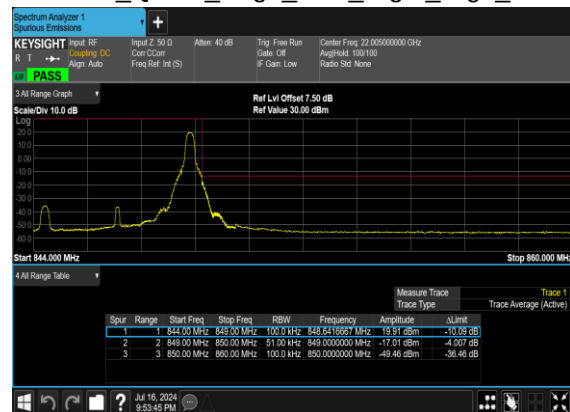


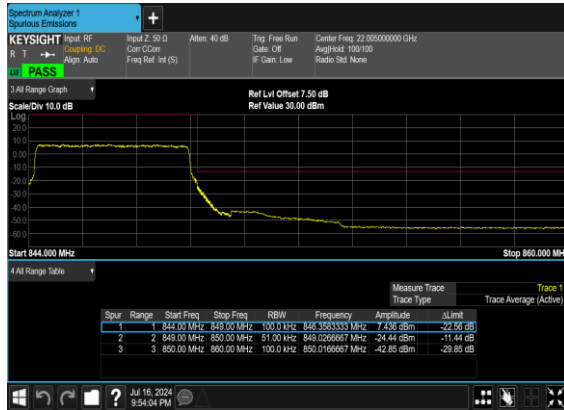
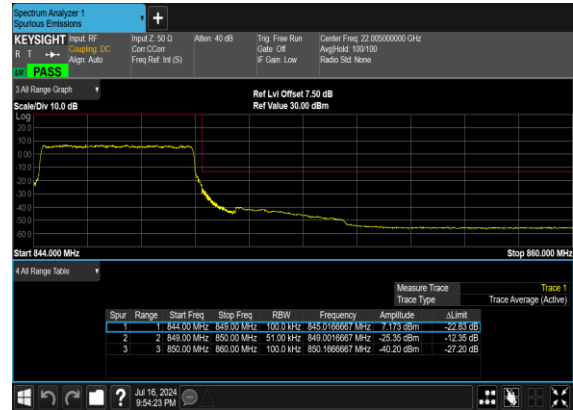
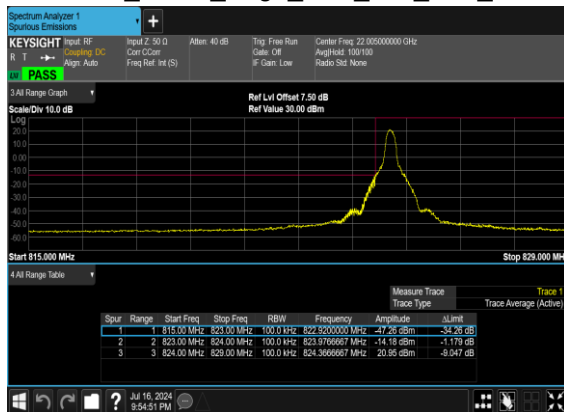
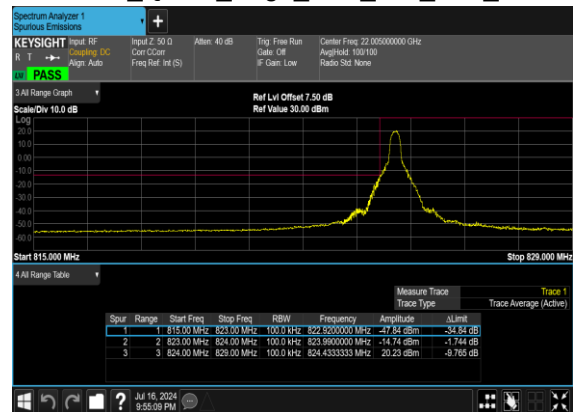
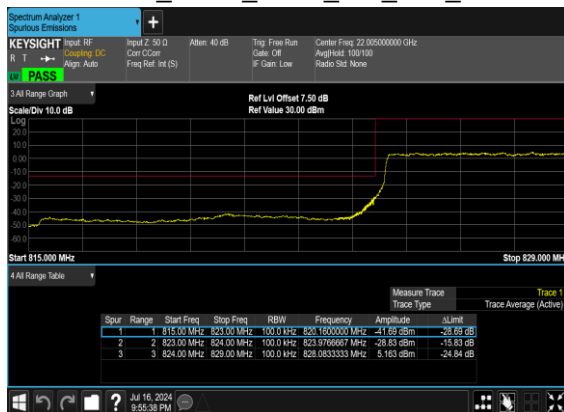
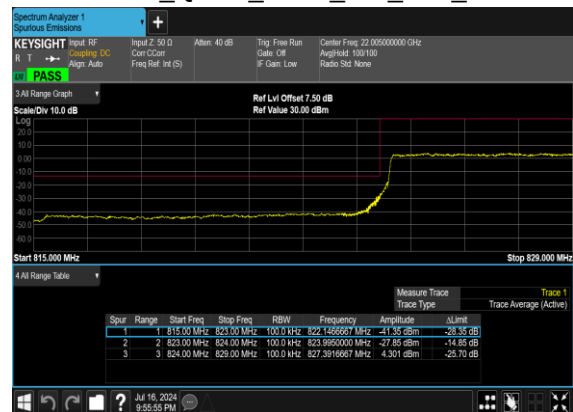
N5(20M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_High_CH

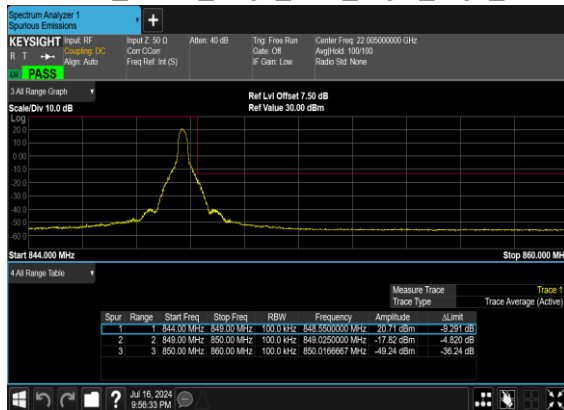
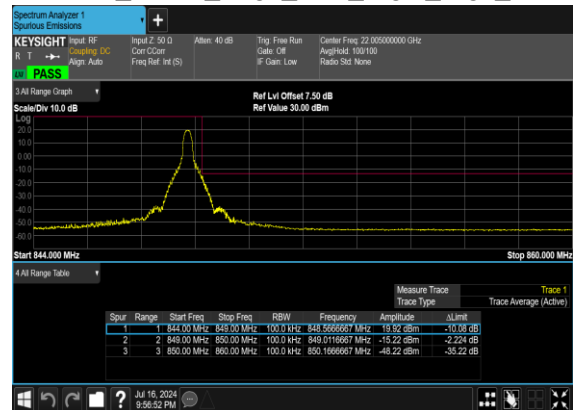
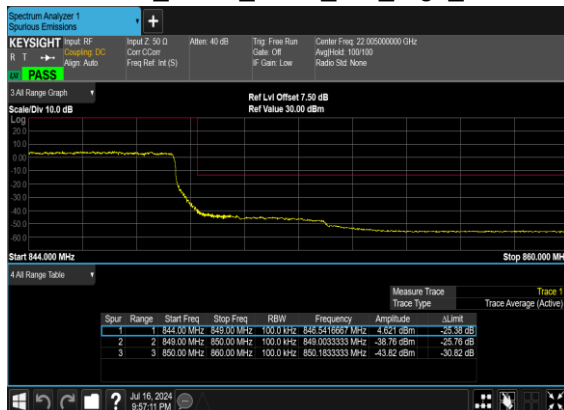
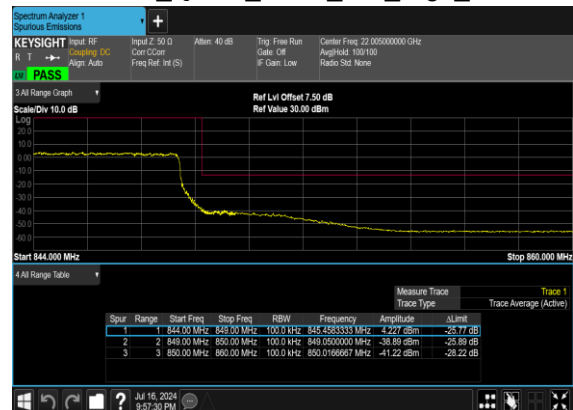
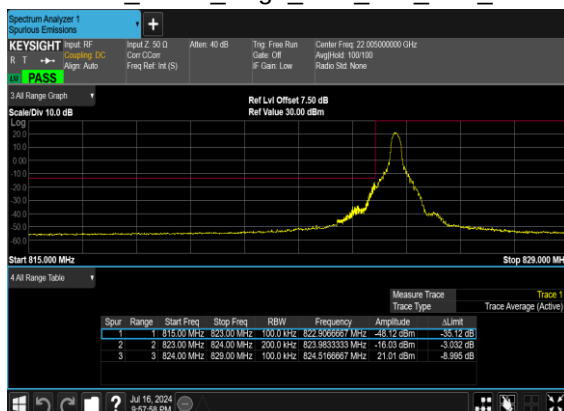
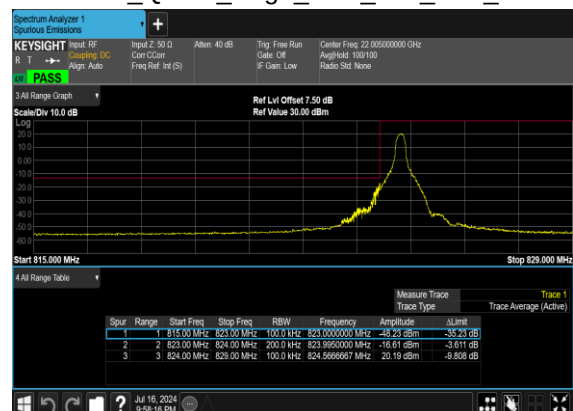


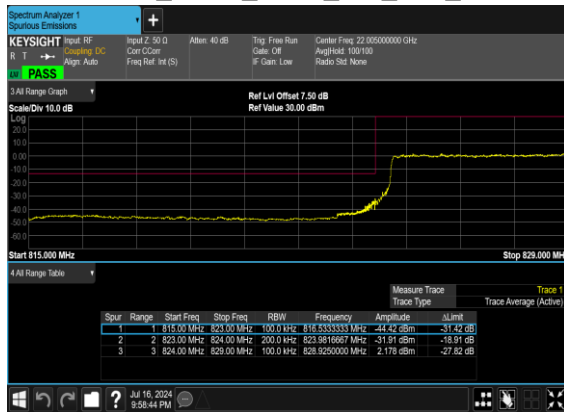
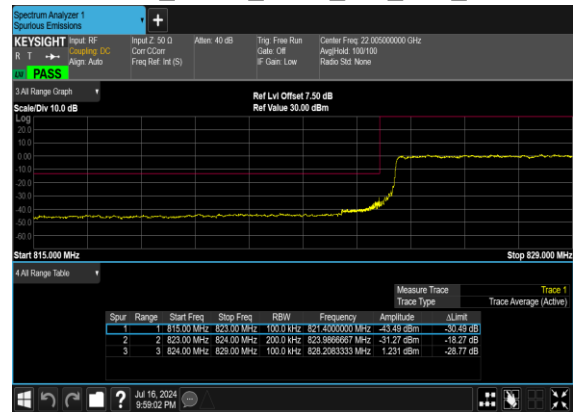
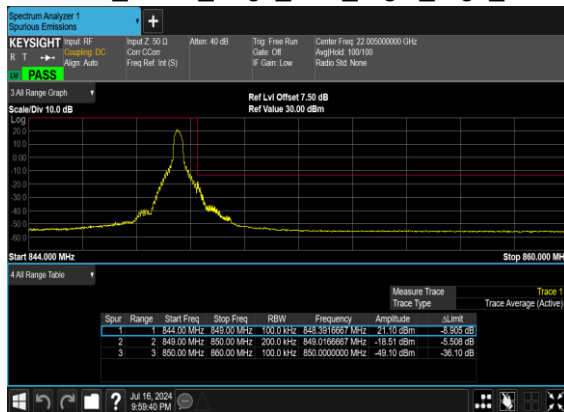
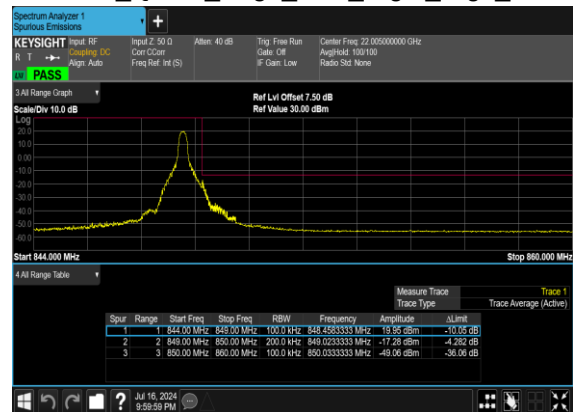
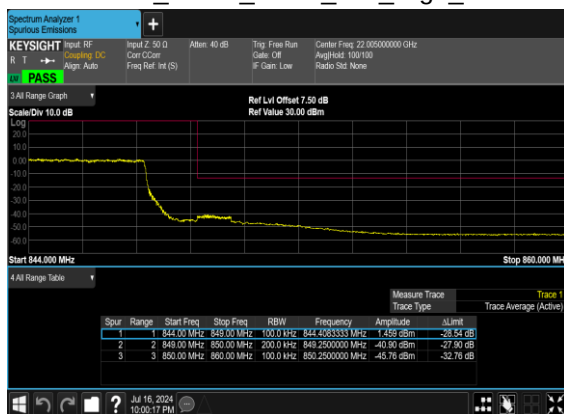
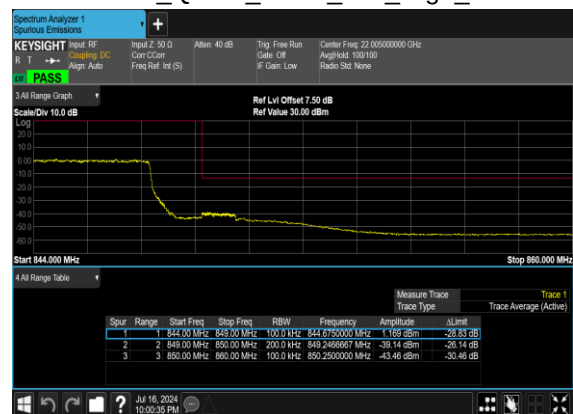
**Conducted Band Edge**

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
5	15	5	165300	826.5	DFT-s-OFDM BPSK	1@0	see graph	PASS
5	15	5	165300	826.5	DFT-s-OFDM QPSK	1@0	see graph	PASS
5	15	5	165300	826.5	DFT-s-OFDM BPSK	25@0	see graph	PASS
5	15	5	165300	826.5	DFT-s-OFDM QPSK	25@0	see graph	PASS
5	15	5	169300	846.5	DFT-s-OFDM BPSK	1@24	see graph	PASS
5	15	5	169300	846.5	DFT-s-OFDM QPSK	1@24	see graph	PASS
5	15	5	169300	846.5	DFT-s-OFDM BPSK	25@0	see graph	PASS
5	15	5	169300	846.5	DFT-s-OFDM QPSK	25@0	see graph	PASS
5	15	10	165800	829.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
5	15	10	165800	829.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
5	15	10	165800	829.0	DFT-s-OFDM BPSK	50@0	see graph	PASS
5	15	10	165800	829.0	DFT-s-OFDM QPSK	50@0	see graph	PASS
5	15	10	168800	844.0	DFT-s-OFDM BPSK	1@51	see graph	PASS
5	15	10	168800	844.0	DFT-s-OFDM QPSK	1@51	see graph	PASS
5	15	10	168800	844.0	DFT-s-OFDM BPSK	50@0	see graph	PASS
5	15	10	168800	844.0	DFT-s-OFDM QPSK	50@0	see graph	PASS
5	15	20	166800	834.0	DFT-s-OFDM BPSK	1@0	see graph	PASS
5	15	20	166800	834.0	DFT-s-OFDM QPSK	1@0	see graph	PASS
5	15	20	166800	834.0	DFT-s-OFDM BPSK	100@0	see graph	PASS
5	15	20	166800	834.0	DFT-s-OFDM QPSK	100@0	see graph	PASS
5	15	20	167800	839.0	DFT-s-OFDM BPSK	1@105	see graph	PASS
5	15	20	167800	839.0	DFT-s-OFDM QPSK	1@105	see graph	PASS
5	15	20	167800	839.0	DFT-s-OFDM BPSK	100@0	see graph	PASS
5	15	20	167800	839.0	DFT-s-OFDM QPSK	100@0	see graph	PASS

N5(5M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Low_CHN5(5M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CHN5(5M)_DFT-s-
OFDM_BPSK_Outer_Full_Low_CHN5(5M)_DFT-s-
OFDM_QPSK_Outer_Full_Low_CHN5(5M)_DFT-s-
OFDM_BPSK_Edge_1RB_Right_High_CHN5(5M)_DFT-s-
OFDM_QPSK_Edge_1RB_Right_High_CH

N5(5M)_DFT-s-
OFDM_BPSK_Outer_Full_High_CHN5(5M)_DFT-s-
OFDM_QPSK_Outer_Full_High_CHN5(10M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Low_CHN5(10M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CHN5(10M)_DFT-s-
OFDM_BPSK_Outer_Full_Low_CHN5(10M)_DFT-s-
OFDM_QPSK_Outer_Full_Low_CH

N5(10M)_DFT-s-
OFDM_BPSK_Edge_1RB_Right_High_CHN5(10M)_DFT-s-
OFDM_QPSK_Edge_1RB_Right_High_CHN5(10M)_DFT-s-
OFDM_BPSK_Outer_Full_High_CHN5(10M)_DFT-s-
OFDM_QPSK_Outer_Full_High_CHN5(20M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Low_CHN5(20M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CH

N5(20M)_DFT-s-
OFDM_BPSK_Outer_Full_Low_CHN5(20M)_DFT-s-
OFDM_QPSK_Outer_Full_Low_CHN5(20M)_DFT-s-
OFDM_BPSK_Edge_1RB_Right_High_CHN5(20M)_DFT-s-
OFDM_QPSK_Edge_1RB_Right_High_CHN5(20M)_DFT-s-
OFDM_BPSK_Outer_Full_High_CHN5(20M)_DFT-s-
OFDM_QPSK_Outer_Full_High_CH



FR1 N12-SCS 15k-ANT 1

Transmitter Conducted Output Power And ERP, $(G_T - L_C)=2.71\text{dB}$

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Conducted Power(dBm)	ERP (dBm)	ERP (W)
12	15	5	140300	701.5	DFT-s-OFDM QPSK	1@1	23.02	23.58	0.2280
12	15	5	140300	701.5	DFT-s-OFDM 16 QAM	1@1	22.05	22.61	0.1824
12	15	5	141500	707.5	DFT-s-OFDM QPSK	1@1	22.99	23.55	0.2265
12	15	5	141500	707.5	DFT-s-OFDM 16 QAM	1@1	21.98	22.54	0.1795
12	15	5	142700	713.5	DFT-s-OFDM QPSK	1@1	23.07	23.63	0.2307
12	15	5	142700	713.5	DFT-s-OFDM 16 QAM	1@1	22.03	22.59	0.1816
12	15	10	140800	704	DFT-s-OFDM QPSK	1@1	23.06	23.62	0.2301
12	15	10	140800	704	DFT-s-OFDM 16 QAM	1@1	22.01	22.57	0.1807
12	15	10	141500	707.5	DFT-s-OFDM QPSK	1@1	23	23.56	0.2270
12	15	10	141500	707.5	DFT-s-OFDM 16 QAM	1@1	22.11	22.67	0.1849
12	15	10	142200	711	DFT-s-OFDM QPSK	1@1	23.05	23.61	0.2296
12	15	10	142200	711	DFT-s-OFDM 16 QAM	1@1	22.09	22.65	0.1841
12	15	15	141300	706.5	DFT-s-OFDM PI/2 BPSK	36@18	23.2	23.76	0.2377
12	15	15	141300	706.5	DFT-s-OFDM PI/2 BPSK	1@1	23.1	23.66	0.2323
12	15	15	141300	706.5	DFT-s-OFDM PI/2 BPSK	1@77	23.02	23.58	0.2280
12	15	15	141300	706.5	DFT-s-OFDM QPSK	36@18	23.16	23.72	0.2355
12	15	15	141300	706.5	DFT-s-OFDM QPSK	1@1	23.3	23.86	0.2432
12	15	15	141300	706.5	DFT-s-OFDM QPSK	1@77	23.1	23.66	0.2323
12	15	15	141300	706.5	DFT-s-OFDM 16 QAM	36@18	22.17	22.73	0.1875
12	15	15	141300	706.5	DFT-s-OFDM 16 QAM	1@1	22.24	22.8	0.1905
12	15	15	141300	706.5	DFT-s-OFDM 16 QAM	1@77	22.24	22.8	0.1905
12	15	15	141300	706.5	DFT-s-OFDM 64 QAM	36@18	20.76	21.32	0.1355
12	15	15	141300	706.5	DFT-s-OFDM 64 QAM	1@1	20.79	21.35	0.1365
12	15	15	141300	706.5	DFT-s-OFDM 64 QAM	1@77	20.82	21.38	0.1374
12	15	15	141300	706.5	DFT-s-OFDM 256 QAM	36@18	18.58	19.14	0.0820
12	15	15	141300	706.5	DFT-s-OFDM 256 QAM	1@1	18.51	19.07	0.0807
12	15	15	141300	706.5	DFT-s-OFDM 256 QAM	1@77	18.42	18.98	0.0791
12	15	15	141300	706.5	CP-OFDM QPSK	39@19	21.68	22.24	0.1675
12	15	15	141300	706.5	CP-OFDM QPSK	1@1	21.84	22.4	0.1738
12	15	15	141300	706.5	CP-OFDM QPSK	1@77	21.72	22.28	0.1690
12	15	15	141500	707.5	DFT-s-OFDM PI/2 BPSK	36@18	23.2	23.76	0.2377
12	15	15	141500	707.5	DFT-s-OFDM PI/2 BPSK	1@1	23.05	23.61	0.2296
12	15	15	141500	707.5	DFT-s-OFDM PI/2 BPSK	1@77	23.06	23.62	0.2301
12	15	15	141500	707.5	DFT-s-OFDM QPSK	36@18	23.21	23.77	0.2382
12	15	15	141500	707.5	DFT-s-OFDM QPSK	1@1	23.11	23.67	0.2328
12	15	15	141500	707.5	DFT-s-OFDM QPSK	1@77	23.14	23.7	0.2344
12	15	15	141500	707.5	DFT-s-OFDM 16 QAM	36@18	22.22	22.78	0.1897
12	15	15	141500	707.5	DFT-s-OFDM 16 QAM	1@1	22.24	22.8	0.1905



12	15	15	141500	707.5	DFT-s-OFDM 16 QAM	1@77	22.21	22.77	0.1892
12	15	15	141500	707.5	DFT-s-OFDM 64 QAM	36@18	20.73	21.29	0.1346
12	15	15	141500	707.5	DFT-s-OFDM 64 QAM	1@1	20.74	21.3	0.1349
12	15	15	141500	707.5	DFT-s-OFDM 64 QAM	1@77	20.79	21.35	0.1365
12	15	15	141500	707.5	DFT-s-OFDM 256 QAM	36@18	18.47	19.03	0.0800
12	15	15	141500	707.5	DFT-s-OFDM 256 QAM	1@1	18.51	19.07	0.0807
12	15	15	141500	707.5	DFT-s-OFDM 256 QAM	1@77	18.42	18.98	0.0791
12	15	15	141500	707.5	CP-OFDM QPSK	39@19	21.64	22.2	0.1660
12	15	15	141500	707.5	CP-OFDM QPSK	1@1	21.7	22.26	0.1683
12	15	15	141500	707.5	CP-OFDM QPSK	1@77	21.37	21.93	0.1560
12	15	15	141700	708.5	DFT-s-OFDM PI/2 BPSK	36@18	23.18	23.74	0.2366
12	15	15	141700	708.5	DFT-s-OFDM PI/2 BPSK	1@1	23.16	23.72	0.2355
12	15	15	141700	708.5	DFT-s-OFDM PI/2 BPSK	1@77	23	23.56	0.2270
12	15	15	141700	708.5	DFT-s-OFDM QPSK	36@18	23.11	23.67	0.2328
12	15	15	141700	708.5	DFT-s-OFDM QPSK	1@1	23.09	23.65	0.2317
12	15	15	141700	708.5	DFT-s-OFDM QPSK	1@77	23.09	23.65	0.2317
12	15	15	141700	708.5	DFT-s-OFDM 16 QAM	36@18	22.1	22.66	0.1845
12	15	15	141700	708.5	DFT-s-OFDM 16 QAM	1@1	22.18	22.74	0.1879
12	15	15	141700	708.5	DFT-s-OFDM 16 QAM	1@77	22.22	22.78	0.1897
12	15	15	141700	708.5	DFT-s-OFDM 64 QAM	36@18	20.7	21.26	0.1337
12	15	15	141700	708.5	DFT-s-OFDM 64 QAM	1@1	20.76	21.32	0.1355
12	15	15	141700	708.5	DFT-s-OFDM 64 QAM	1@77	20.79	21.35	0.1365
12	15	15	141700	708.5	DFT-s-OFDM 256 QAM	36@18	18.44	19	0.0794
12	15	15	141700	708.5	DFT-s-OFDM 256 QAM	1@1	18.47	19.03	0.0800
12	15	15	141700	708.5	DFT-s-OFDM 256 QAM	1@77	18.41	18.97	0.0789
12	15	15	141700	708.5	CP-OFDM QPSK	39@19	21.73	22.29	0.1694
12	15	15	141700	708.5	CP-OFDM QPSK	1@1	21.64	22.2	0.1660
12	15	15	141700	708.5	CP-OFDM QPSK	1@77	21.33	21.89	0.1545



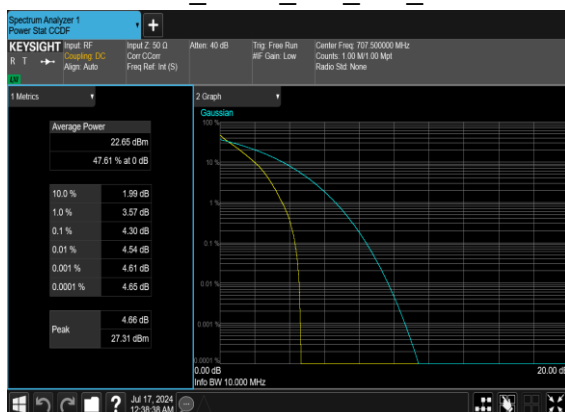
Frequency Stability

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Deviation (ppm)	Verdict	Environment
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	0.0036	PASS	NV
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	0.0023	PASS	LV
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	0.0062	PASS	HV
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	0.0030	PASS	-30℃
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	0.0064	PASS	-20℃
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	0.0054	PASS	-10℃
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	0.0037	PASS	0℃
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	0.0070	PASS	10℃
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	0.0036	PASS	20℃
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	0.0051	PASS	30℃
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	0.0058	PASS	40℃
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	0.0038	PASS	50℃



Peak to Average Ratio

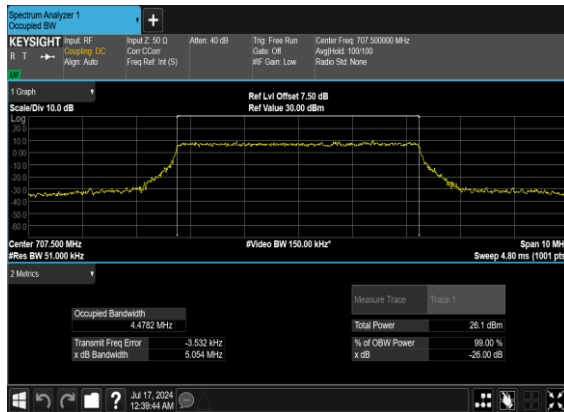
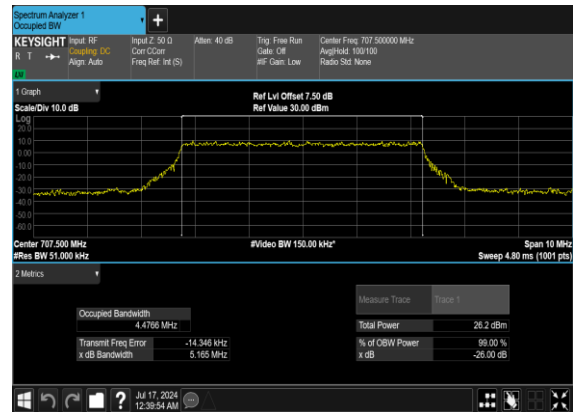
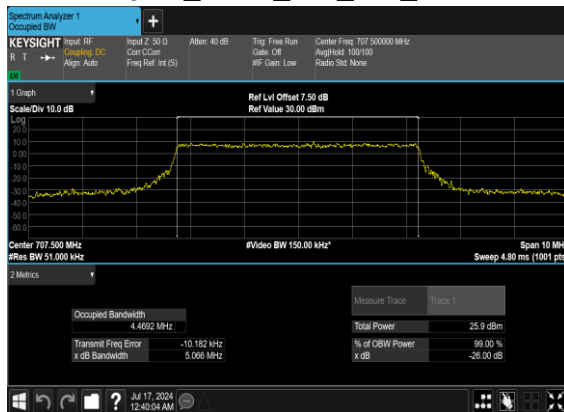
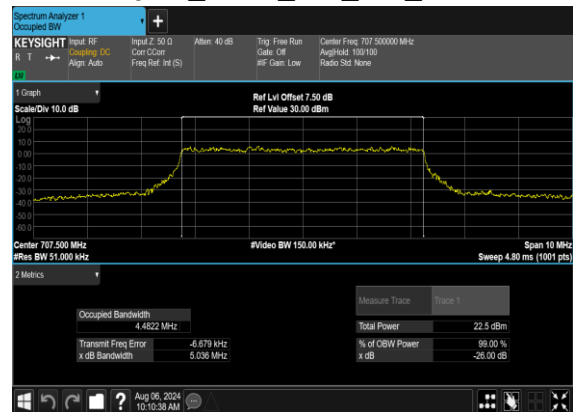
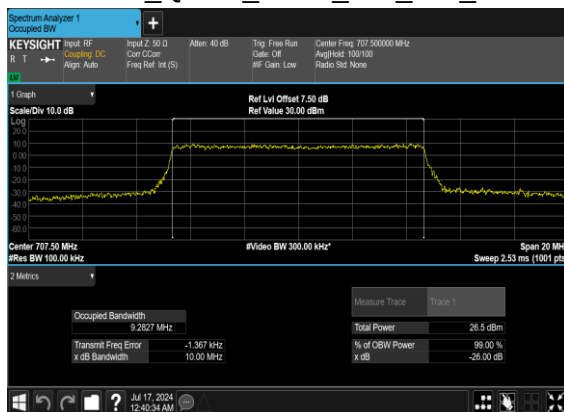
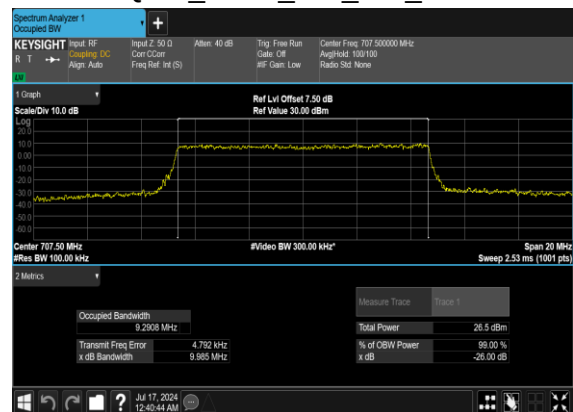
NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result (dB)	Limit (dB)	Verdict
12	15	10	141500	707.5	DFT-s-OFDM PI/2 BPSK	50@0	4.3	13	PASS
12	15	10	141500	707.5	DFT-s-OFDM QPSK	50@0	5.48	13	PASS

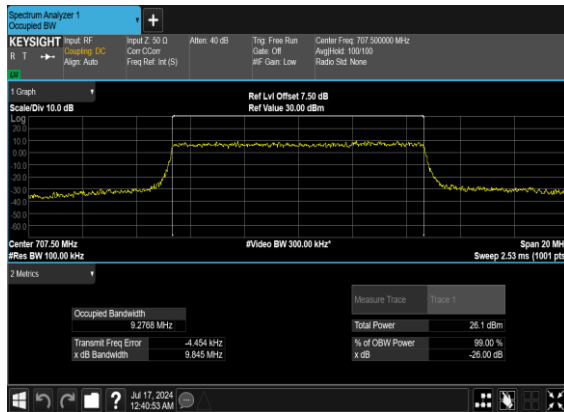
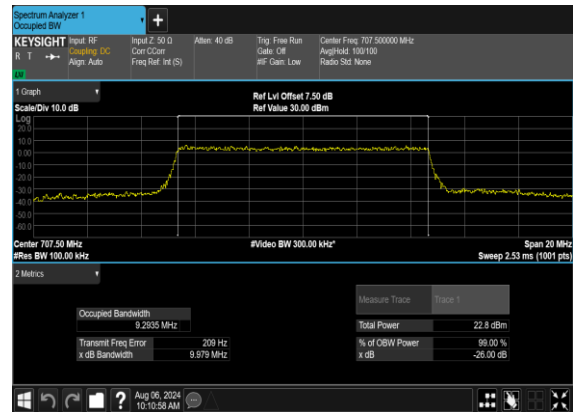
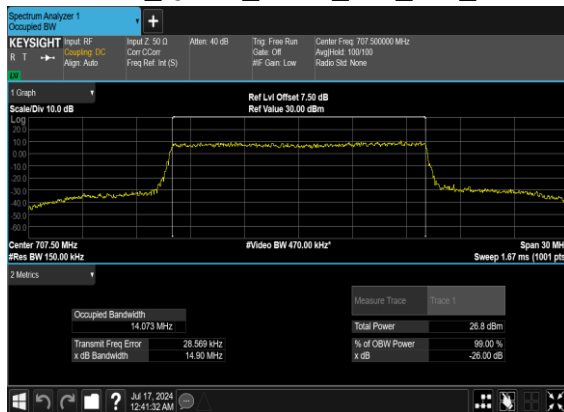
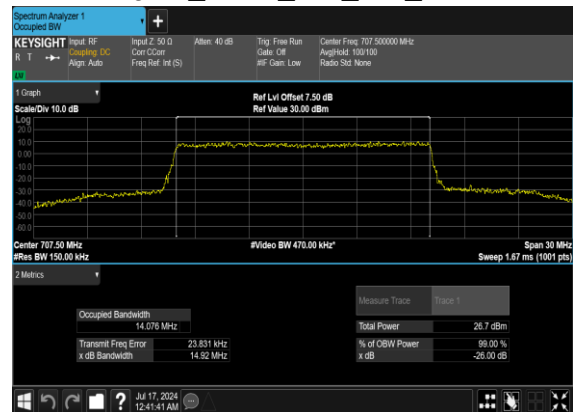
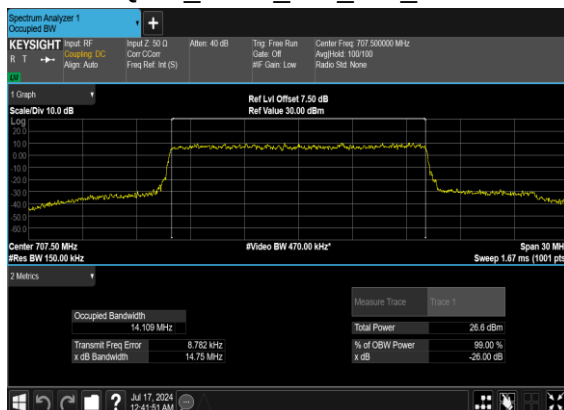
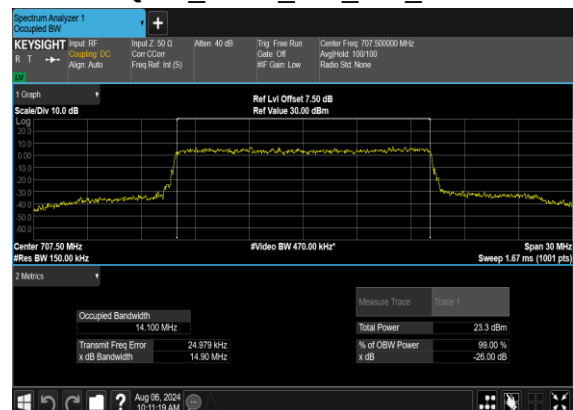
N12(10M)_DFT-s-OFDM_PI_2-
BPSK_Outer_Full_Mid_CHN12(10M)_DFT-s-
OFDM_QPSK_Outer_Full_Mid_CH



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	4.4782	5.054
12	15	5	141500	707.5	CP-OFDM 16 QAM	25@0	4.4766	5.165
12	15	5	141500	707.5	CP-OFDM 64 QAM	25@0	4.4692	5.066
12	15	5	141500	707.5	CP-OFDM 256 QAM	25@0	4.4822	5.036
12	15	10	141500	707.5	CP-OFDM QPSK	52@0	9.2827	10.0
12	15	10	141500	707.5	CP-OFDM 16 QAM	52@0	9.2908	9.985
12	15	10	141500	707.5	CP-OFDM 64 QAM	52@0	9.2768	9.845
12	15	10	141500	707.5	CP-OFDM 256 QAM	52@0	9.2935	9.979
12	15	15	141500	707.5	CP-OFDM QPSK	79@0	14.073	14.9
12	15	15	141500	707.5	CP-OFDM 16 QAM	79@0	14.076	14.92
12	15	15	141500	707.5	CP-OFDM 64 QAM	79@0	14.109	14.75
12	15	15	141500	707.5	CP-OFDM 256 QAM	79@0	14.1	14.9

N12(5M)_CP-
OFDM_QPSK_Outer_Full_Mid_CHN12(5M)_CP-OFDM_16
QAM_Outer_Full_Mid_CHN12(5M)_CP-OFDM_64
QAM_Outer_Full_Mid_CHN12(5M)_CP-OFDM_256
QAM_Outer_Full_Mid_CHN12(10M)_CP-
OFDM_QPSK_Outer_Full_Mid_CHN12(10M)_CP-OFDM_16
QAM_Outer_Full_Mid_CH

N12(10M)_CP-OFDM_64
QAM_Outer_Full_Mid_CHN12(10M)_CP-OFDM_256
QAM_Outer_Full_Mid_CHN12(15M)_CP-
OFDM_QPSK_Outer_Full_Mid_CHN12(15M)_CP-OFDM_16
QAM_Outer_Full_Mid_CHN12(15M)_CP-OFDM_64
QAM_Outer_Full_Mid_CHN12(15M)_CP-OFDM_256
QAM_Outer_Full_Mid_CH

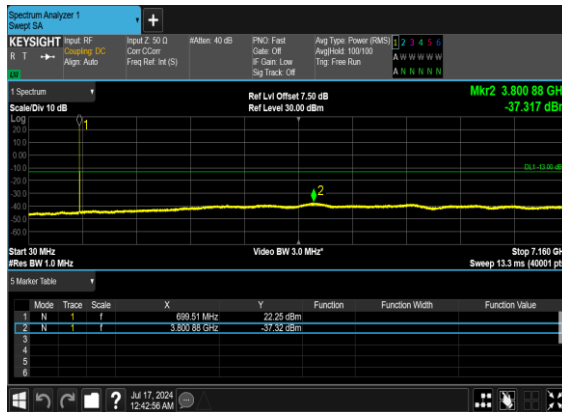
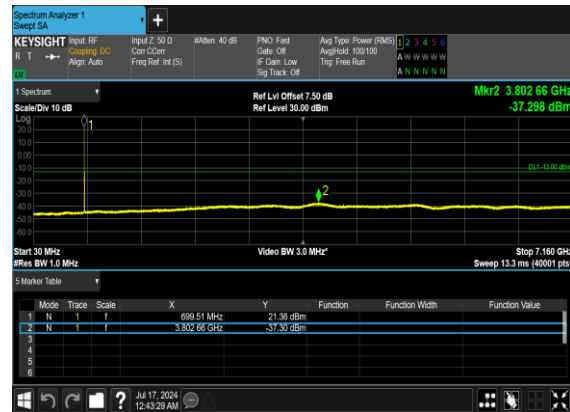
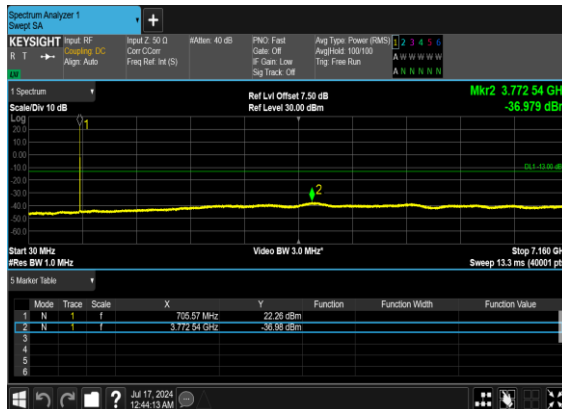
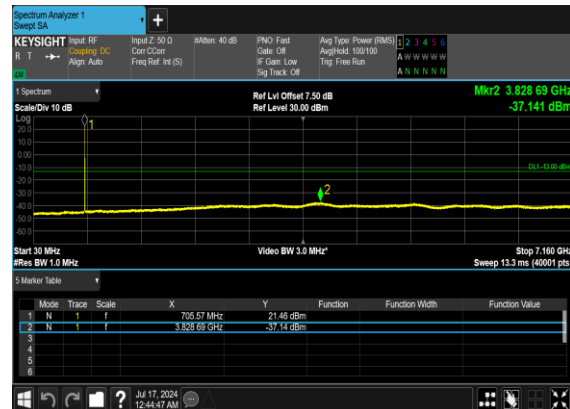
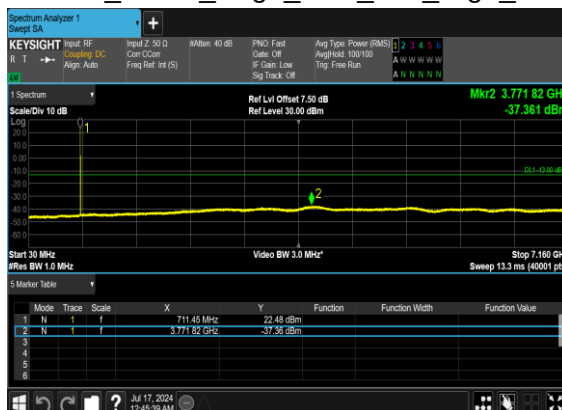
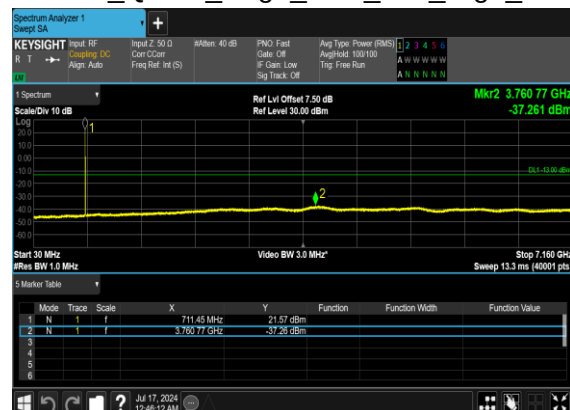


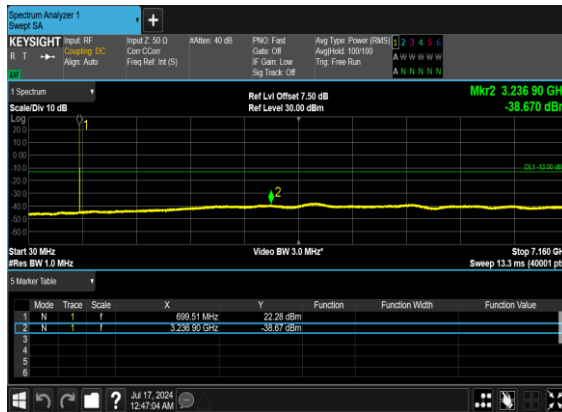
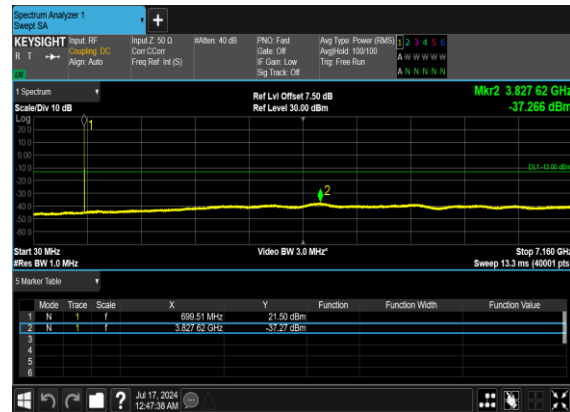
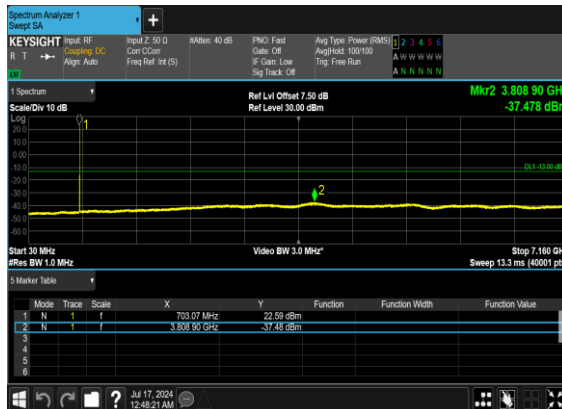
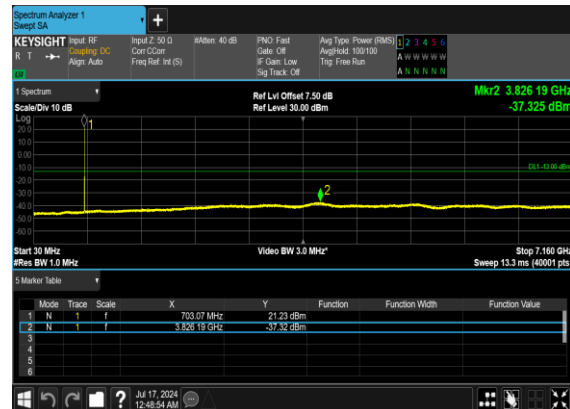
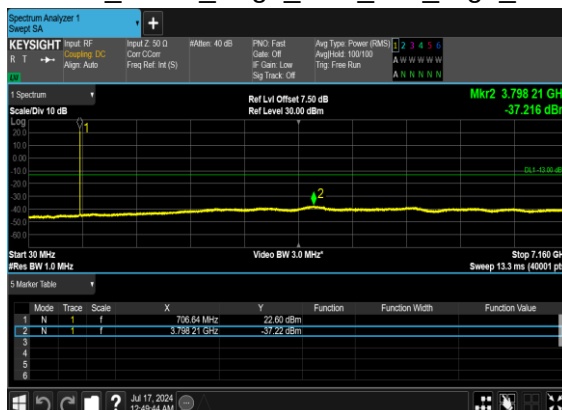
Conducted Spurious Emissions

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_CHN12(5M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CHN12(5M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Mid_CHN12(5M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Mid_CHN12(5M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_High_CHN12(5M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_High_CH

N12(10M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Low_CHN12(10M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Low_CHN12(10M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_Mid_CHN12(10M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_Mid_CHN12(10M)_DFT-s-
OFDM_BPSK_Edge_1RB_Left_High_CHN12(10M)_DFT-s-
OFDM_QPSK_Edge_1RB_Left_High_CH