FCC RF Test Report

APPLICANT	: OnePlus Technology (Shenzhen) Co., Ltd.
EQUIPMENT	: Mobile Phone
BRAND NAME	: 1+, ONEPLUS
MODEL NAME	: CPH2451
FCC ID	: 2ABZ2-AA516
STANDARD	: 47 CFR Part 2, 22, 24, 27
CLASSIFICATION	: PCS Licensed Transmitter Held to Ear (PCE)
TEST DATE(S)	: Oct. 31, 2022 ~ Nov. 08, 2022

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

ACCREDITED Cert #5145.01

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
FG2O2001I	Rev. 01	Initial issue of report	Dec. 21, 2022

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 n71)	ERP < 3 Watt		
	§24.232(c)	Equivalent Isotropic Radiated Power (5G NR n2, n25)	EIRP < 2Watt		
	§27.50(d)(4)	Equivalent Isotropic Radiated Power (5G NR n66)	EIRP < 1Watt		
3.5	§24.232(d)	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(h) §27.53(g)	Conducted Band Edge Measurement (5G NR n5) (5G NR n2, n25) (5G NR n66) (5G NR n71)	< 43+10log10(P[Watts])	PASS	-
3.8	§2.1051 §22.917(a) §24.238(a) §27.53(h) §27.53(g)	Conducted Spurious Emission (5G NR n5) (5G NR n2, n25) (5G NR n66) (5G NR n71)	< 43+10log10(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(h) §27.53(g)	Radiated Spurious Emission (5G NR n5) (5G NR n2, n25) (5G NR n66) (5G NR n71)	< 43+10log$_{10}$(P[Watts])	PASS	Under limit 12.97 dB at 10847.25 MHz

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

1 General Description

1.1 Applicant

OnePlus Technology (Shenzhen) Co., Ltd.
18C02, 18C03, 18C04, and 18C05, Shum Yip Terra Building, Binhe Avenue North, Futian District, Shenzhen, Guangdong, P.R. China.

1.2 Manufacturer

OnePlus Technology (Shenzhen) Co., Ltd.
18C02, 18C03, 18C04, and 18C05, Shum Yip Terra Building, Binhe Avenue North, Futian District, Shenzhen, Guangdong, P.R. China.

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Phone
Brand Name	1+, ONEPLUS
Model Name	CPH2451
FCC ID	2ABZ2-AA516
IMEI Code	Conducted : 864921060035732 864921060035674 864921060035575 Radiation : 864921060027531/864921060027523
HW Version	11
SW Version	OxygenOS 13.0
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 n25 : 1850 MHz ~ 1915 MHz 5G NR n66 : 1710 MHz ~ 1780 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 n25 : 1930 MHz ~ 1995 MHz 5G NR n66 : 2110 MHz~ 2200 MHz 5G NR n71: 617 MHz ~ 652 MHz
SCS	15kHz
Bandwidth	n2, n5, n71: 5MHz / 10MHz / 15MHz / 20MHz n25, n66: 5MHz / 10MHz / 15MHz / 20MHz / 25MHz / 30MHz / 40MHz
Antenna Type	IFA Antenna
Antenna Gain	<Ant. 0> for n5/n71: -4.5 dBi <Ant. 1> for n5/n71: -4.0 dBi <Ant. 4> for n2/n25/n66: -3.0 dBi <Ant. 5> for n2/n25/n66: -2.0 dBi <Ant. 6> for n2/n25/n66: -3.0 dBi <Ant. 7>for n2/n25/n66: -3.0 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 are shown in the report: Ant. 1 for 5G NR n5/n71 and Ant. 5 for n2/n25/n66.
2. 5G NR support SA and NSA mode. The whole testing has assessed SA mode by referring to the higher conducted power for conducted test items.
3. For NSA mode of all EN-DC combination, we only show the combination of the maximum power among all NSA combinations in the report.
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 Power 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	0.1574	4M49G7D	0.1297	4M48W7D
10	1855.0 ~ 1905.0	0.1574	9M29G7D	0.1291	9M31W7D
15	1857.5 ~ 1902.5	0.1542	14M1G7D	0.1340	14M1W7D
20	1860.0 ~ 1900.0	0.1581	18M9G7D	0.1343	19M0W7D

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	0.0703	4M48G7D	0.0573	4M50W7D
10	829.0 ~ 844.0	0.0692	9M28G7D	0.0569	9M28W7D
15	831.5 ~ 841.5	0.0724	14M1G7D	0.0592	14M1W7D
20	834.0 ~ 839.0	0.0731	18M9G7D	0.0581	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	0.1578	4M49G7D	0.1279	4M48W7D
10	1855.0 ~ 1910.0	0.1528	9M29G7D	0.1227	9M31W7D
15	1857.5 ~ 1907.5	0.1581	14M1G7D	0.1300	14M1W7D
20	1860.0 ~ 1905.0	0.1600	18M9G7D	0.1276	19M0W7D
25	1862.5 ~ 1902.5	0.1596	23M8G7D	0.1271	23M8W7D
30	1865.0 ~ 1900.0	0.1589	28M6G7D	0.1291	28M6W7D
40	1870.0 ~ 1895.0	0.1603	38M6G7D	0.1288	38M6W7D

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	0.1514	4M49G7D	0.1213	4M49W7D
10	1715.0 ~ 1775.0	0.1500	9M28G7D	0.1178	9M30W7D
15	1717.5 ~ 1772.5	0.1542	14M1G7D	0.1242	14M1W7D
20	1720.0 ~ 1770.0	0.1531	18M9G7D	0.1233	18M9W7D
25	1722.5 ~ 1767.5	0.1528	23M7G7D	0.1250	23M8W7D
30	1725.0 ~ 1765.0	0.1517	28M6G7D	0.1211	28M5W7D
40	1730.0 ~ 1760.0	0.1545	38M6G7D	0.1233	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	0.0650	4M48G7D	0.0532	4M49W7D
10	668.0 ~ 693.0	0.0649	9M28G7D	0.0530	9M29W7D
15	670.5 ~ 690.5	0.0653	14M1G7D	0.0538	14M1W7D
20	673.0 ~ 688.0	0.0655	18M9G7D	0.0527	18M9W7D

Note:

1. 5G NR Band n25 overlaps the entire frequency range of Band n2. Therefore, the conducted test results provided in this report covers Band n25 as well as Band n2.
2. All modulations have been tested, and 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 China 518103 TEL: +86-755-33202398		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	03CH01-SZ	CN1256	421272

1.8 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH01-SZ	AUDIX	E3	6.2009-8-24

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 2, 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, Z plane) were recorded in this report.

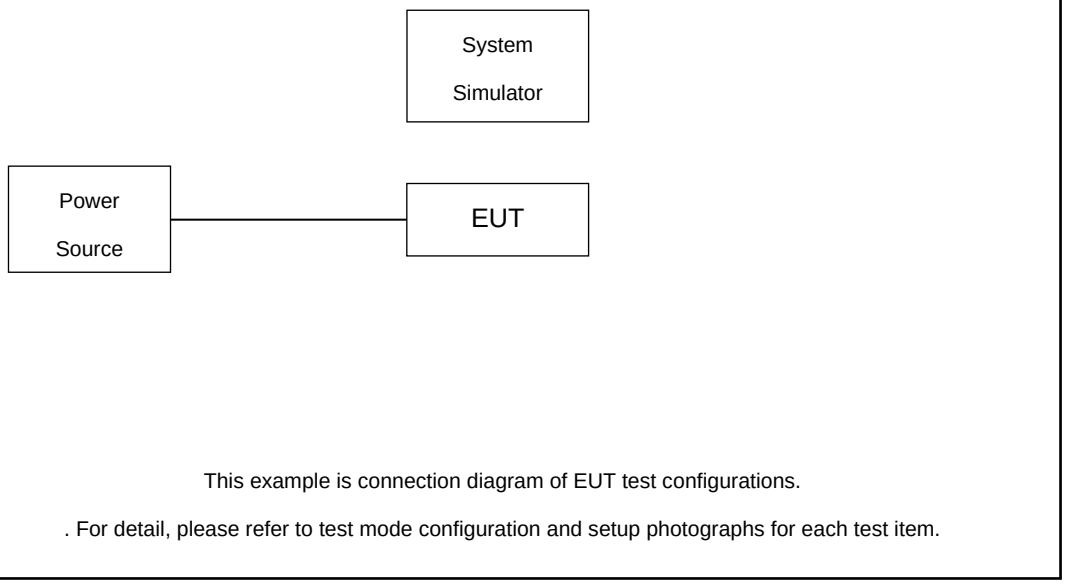
The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.

	X Plane	Y Plane	Z Plane
Orthogonal Planes of EUT			

Test Items	5G NR	Bandwidth (MHz)							Modulation					RB #		Test Channel		
		5	10	15	20	25	30	40	PI/2 BPSK	QPSK	16QAM	64QAM	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
	n25	v	v	v	v	v	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
	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	v	v	v
	n25				v				v	v				v	v	v	v	v
	n66				v				v	v				v	v	v	v	v
	n71				v	-	-	-	v	v				v	v	v	v	v
26dB and 99% Bandwidth	n5	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	
	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		v	
Conducted Band Edge	n5	v	v		v	-	-	-	v	v				v	v	v		v
	n25	v			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

Test Items	5G NR	Bandwidth (MHz)							Modulation					RB #		Test Channel		
		5	10	15	20	25	30	40	PI/2 BPSK	QPSK	16QAM	64QAM	256 QAM	1	Full	L	M	H
Conducted Spurious Emission	n5	v	v		v	-	-	-	v	v				v		v	v	v
	n25	v			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	n5				v	-	-	-		v					v		v	
	n25				v					v					v		v	
	n66				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
	n25	v	v	v	v	v	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
	n71	v	v	v	v	-	-	-	v	v	v	v	v	v	v	v	v	v
Radiated Spurious Emission	n5	Worst Case														v	v	v
	n25	Worst Case														v	v	v
	n66	Worst Case														v	v	v
	n71	Worst Case														v	v	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 = 7.78V ；Low Voltage =6.6V. ；High Voltage =8.96V																	

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

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 7.6 dB.

Example :

Offset(dB) = RF cable loss(dB).

= 7.6 (dB)

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 n25 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
40	Channel	374000	376500	379000
	Frequency	1870	1882.5	1895
30	Channel	373000	376500	380000
	Frequency	1865.0	1882.5	1900.0
25	Channel	372500	376500	380500
	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 n66 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
40	Channel	346000	349000	352000
	Frequency	1730	1745	1760
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

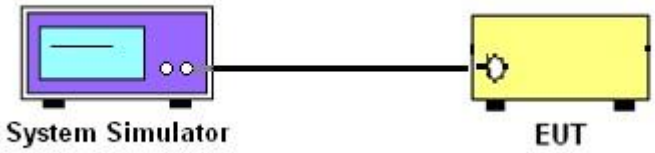
3 Conducted Test Items

3.1 Measuring Instruments

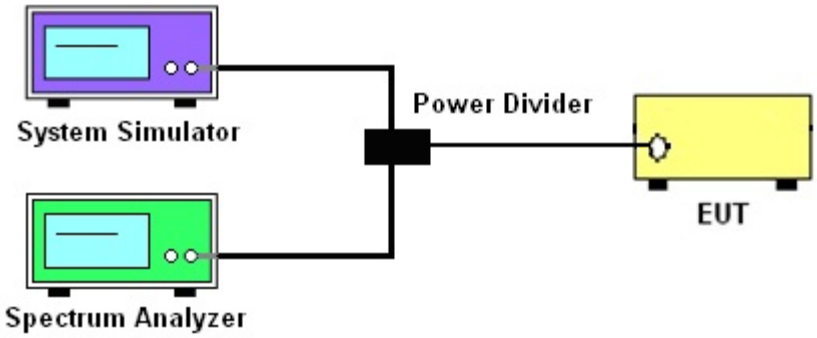
See list of measuring instruments of this test report.

3.2 Test Setup

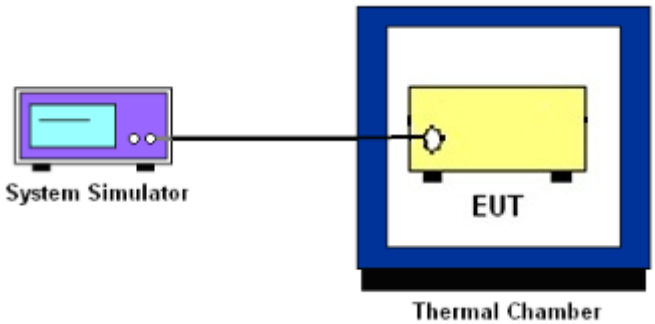
3.2.1 Conducted Output Power



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 7 Watts for 5G NR n5.

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

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

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

22.917(a)

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

For operations in the 1710 – 1755 MHz band, the FCC limit is 43 + $10\log_{10}$(P[Watts]) dB below the transmitter power P(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 + 10log10(P[Watts]) dB below the transmitter power P(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 >= 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 + 10log(P)dB below the transmitter power P(Watts)
   = P(W)- [43 + 10log(P)] (dB)
   = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB) = -13dBm.
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 10^{th} 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 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.

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 ±0.00025% (±2.5ppm) 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±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.

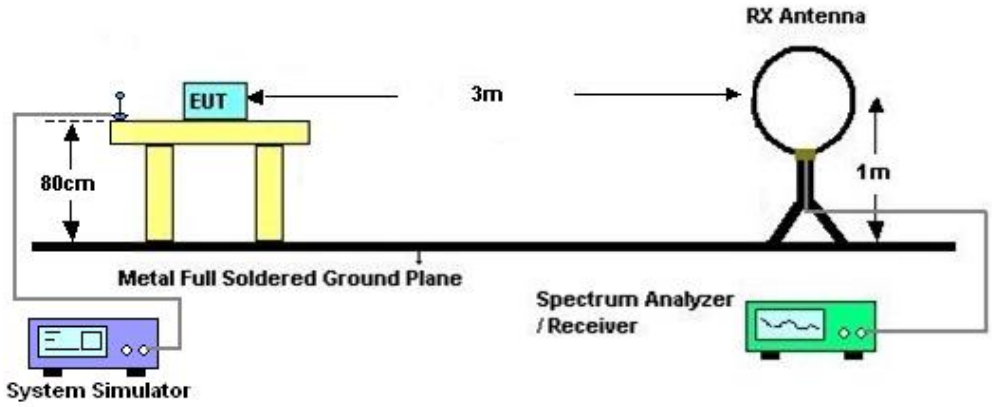
4 Radiated Test Items

4.1 Measuring Instruments

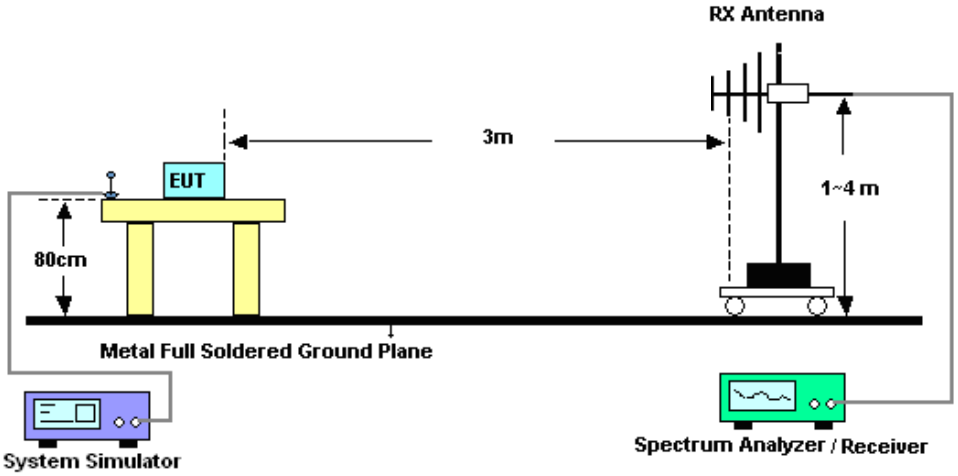
See list of measuring instruments of this test report.

4.2 Test Setup

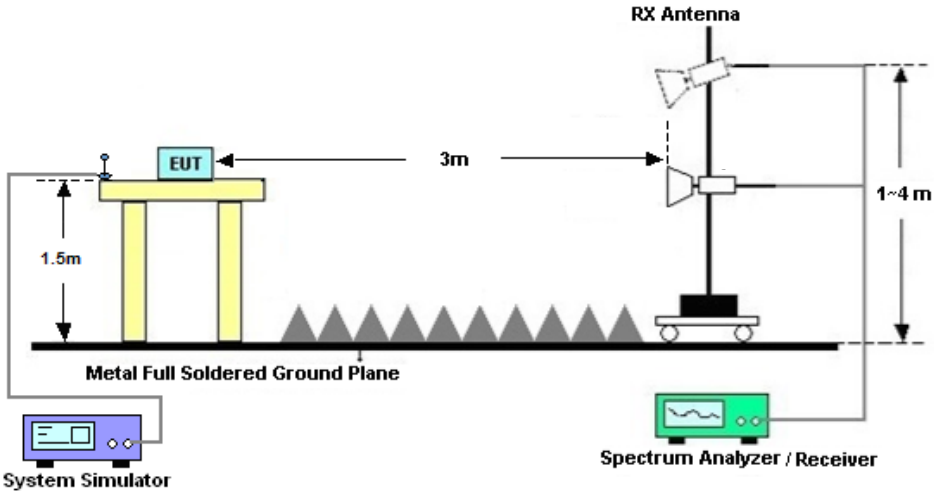
4.2.1 For radiated test below 30MHz



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 (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
11. ERP (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 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.

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. 07, 2022	Nov. 07, 2022~ Nov. 08, 2022	Apr. 08, 2023	Conducted (TH01-SZ)
Power Divider	TOJOIN	PS-2SM-04 265	60.06.020.007 7	0.4GHz~26.5GHz	Dec. 25, 2021	Nov. 07, 2022~ Nov. 08, 2022	Dec. 24, 2022	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangroup	LP-150U	H2014081803	-40~+150°C	Jul. 07, 2022	Nov. 07, 2022~ Nov. 08, 2022	Jul. 06, 2023	Conducted (TH01-SZ)
EMI Test Receiver&SA	Agilent	N9038A	MY52260185	20Hz~26.5GHz	Dec. 27, 2021	Oct. 31, 2022	Dec. 26, 2022	Radiation (03CH01-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz	Jul. 07, 2022	Oct. 31, 2022	Jul. 06, 2023	Radiation (03CH01-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	Jul. 28, 2022	Oct. 31, 2022	Jul. 27, 2024	Radiation (03CH01-SZ)
Bilog Antenna	TeseQ	CBL6112D	35407	30MHz-2GHz	Sep. 28, 2021	Oct. 31, 2022	Sep. 27, 2023	Radiation (03CH01-SZ)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00119436	1GHz~18GHz	Jul. 07, 2022	Oct. 31, 2022	Jul. 06, 2023	Radiation (03CH01-SZ)
SHF-EHF Horn	com-power	AH-840	101071	18Ghz-40GHz	Apr. 10, 2022	Oct. 31, 2022	Apr. 09, 2023	Radiation (03CH01-SZ)
LF Amplifier	Burgeon	BPA-530	102209	0.01~3000Mhz	Apr. 06, 2022	Oct. 31, 2022	Apr. 05, 2023	Radiation (03CH01-SZ)
HF Amplifier	MITEQ	AMF-7D-00 101800-30-1	1943528	1GHz~18GHz	Oct. 19, 2022	Oct. 31, 2022	Oct. 18, 2023	Radiation (03CH01-SZ)
HF Amplifier	KEYSIGHT	83017A	MY53270105	0.5GHz~26.5Ghz	Oct. 19, 2022	Oct. 31, 2022	Oct. 18, 2023	Radiation (03CH01-SZ
HF Amplifier	MITEQ	TTA1840-35 -HG	1871923	18GHz~40GHz	Jul. 06, 2022	Oct. 31, 2022	Jul. 05, 2023	Radiation (03CH01-SZ)
AC Power Source	Chroma	61601	616010001985	N/A	NCR	Oct. 31, 2022	NCR	Radiation (03CH01-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Oct. 31, 2022	NCR	Radiation (03CH01-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Oct. 31, 2022	NCR	Radiation (03CH01-SZ)

NCR: No Calibration Required

6 Uncertainty of Evaluation

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 Power	±1.34 dB
Conducted Emissions	±1.34 dB
Occupied Channel Bandwidth	±0.13 %

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.48dB

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.53dB

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.02dB

---------- THE END ----------

Appendix A. Test Results of Conducted Test

Test Engineer :	Jung Kuo	**Temperature :**	22~23℃
		Relative Humidity :	40~42%

Software Version: 22.09.0601

FR1 N2

Transmitter Conducted Output Power And EIRP, (G_T - L_C)=-2dBi

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Conducted Power(dBm)	ERP(dBm)	ERP(W)
2	15	5	370500	1852.5	DFT-s-OFDM QPSK	1@1	23.92	21.92	0.1556
2	15	5	370500	1852.5	DFT-s-OFDM 16 QAM	1@1	23.05	21.05	0.1274
2	15	5	376000	1880	DFT-s-OFDM QPSK	1@1	23.97	21.97	0.1574
2	15	5	376000	1880	DFT-s-OFDM 16 QAM	1@1	23.11	21.11	0.1291
2	15	5	381500	1907.5	DFT-s-OFDM QPSK	1@1	23.88	21.88	0.1542
2	15	5	381500	1907.5	DFT-s-OFDM 16 QAM	1@1	23.13	21.13	0.1297
2	15	10	371000	1855	DFT-s-OFDM QPSK	1@1	23.97	21.97	0.1574
2	15	10	371000	1855	DFT-s-OFDM 16 QAM	1@1	23.08	21.08	0.1282
2	15	10	376000	1880	DFT-s-OFDM QPSK	1@1	23.96	21.96	0.1570
2	15	10	376000	1880	DFT-s-OFDM 16 QAM	1@1	23.11	21.11	0.1291
2	15	10	381000	1905	DFT-s-OFDM QPSK	1@1	23.85	21.85	0.1531
2	15	10	381000	1905	DFT-s-OFDM 16 QAM	1@1	23.08	21.08	0.1282
2	15	15	371500	1857.5	DFT-s-OFDM QPSK	1@1	23.88	21.88	0.1542
2	15	15	371500	1857.5	DFT-s-OFDM 16 QAM	1@1	23.27	21.27	0.1340
2	15	15	376000	1880	DFT-s-OFDM QPSK	1@1	23.85	21.85	0.1531
2	15	15	376000	1880	DFT-s-OFDM 16 QAM	1@1	23.13	21.13	0.1297
2	15	15	380500	1902.5	DFT-s-OFDM QPSK	1@1	23.86	21.86	0.1535
2	15	15	380500	1902.5	DFT-s-OFDM 16 QAM	1@1	23.24	21.24	0.1330
2	15	20	372000	1860	DFT-s-OFDM PI/2 BPSK	50@25	22.67	20.67	0.1167
2	15	20	372000	1860	DFT-s-OFDM PI/2 BPSK	1@1	22.64	20.64	0.1159
2	15	20	372000	1860	DFT-s-OFDM PI/2 BPSK	1@104	22.6	20.6	0.1148
2	15	20	372000	1860	DFT-s-OFDM QPSK	50@25	23.98	21.98	0.1578

2	15	20	372000	1860	DFT-s-OFDM QPSK	1@1	23.96	21.96	0.1570
2	15	20	372000	1860	DFT-s-OFDM QPSK	1@104	23.88	21.88	0.1542
2	15	20	372000	1860	DFT-s-OFDM 16 QAM	50@25	23.12	21.12	0.1294
2	15	20	372000	1860	DFT-s-OFDM 16 QAM	1@1	23.26	21.26	0.1337
2	15	20	372000	1860	DFT-s-OFDM 16 QAM	1@104	23.05	21.05	0.1274
2	15	20	372000	1860	DFT-s-OFDM 64 QAM	50@25	21.71	19.71	0.0935
2	15	20	372000	1860	DFT-s-OFDM 64 QAM	1@1	21.74	19.74	0.0942
2	15	20	372000	1860	DFT-s-OFDM 64 QAM	1@104	21.57	19.57	0.0906
2	15	20	372000	1860	DFT-s-OFDM 256 QAM	50@25	19.59	17.59	0.0574
2	15	20	372000	1860	DFT-s-OFDM 256 QAM	1@1	19.44	17.44	0.0555
2	15	20	372000	1860	DFT-s-OFDM 256 QAM	1@104	19.36	17.36	0.0545
2	15	20	372000	1860	CP-OFDM QPSK	53@26	22.64	20.64	0.1159
2	15	20	372000	1860	CP-OFDM QPSK	1@1	22.79	20.79	0.1199
2	15	20	372000	1860	CP-OFDM QPSK	1@104	22.57	20.57	0.1140
2	15	20	376000	1880	DFT-s-OFDM PI/2 BPSK	50@25	22.58	20.58	0.1143
2	15	20	376000	1880	DFT-s-OFDM PI/2 BPSK	1@1	22.56	20.56	0.1138
2	15	20	376000	1880	DFT-s-OFDM PI/2 BPSK	1@104	22.65	20.65	0.1161
2	15	20	376000	1880	DFT-s-OFDM QPSK	50@25	23.97	21.97	0.1574
2	15	20	376000	1880	DFT-s-OFDM QPSK	1@1	23.73	21.73	0.1489
2	15	20	376000	1880	DFT-s-OFDM QPSK	1@104	23.98	21.98	0.1578
2	15	20	376000	1880	DFT-s-OFDM 16 QAM	50@25	23.12	21.12	0.1294
2	15	20	376000	1880	DFT-s-OFDM 16 QAM	1@1	23.02	21.02	0.1265
2	15	20	376000	1880	DFT-s-OFDM 16 QAM	1@104	23.28	21.28	0.1343
2	15	20	376000	1880	DFT-s-OFDM 64 QAM	50@25	21.72	19.72	0.0938
2	15	20	376000	1880	DFT-s-OFDM 64 QAM	1@1	21.48	19.48	0.0887
2	15	20	376000	1880	DFT-s-OFDM 64 QAM	1@104	21.72	19.72	0.0938
2	15	20	376000	1880	DFT-s-OFDM 256 QAM	50@25	19.54	17.54	0.0568

2	15	20	376000	1880	DFT-s-OFDM 256 QAM	1@1	19.38	17.38	0.0547
2	15	20	376000	1880	DFT-s-OFDM 256 QAM	1@104	19.35	17.35	0.0543
2	15	20	376000	1880	CP-OFDM QPSK	53@26	22.83	20.83	0.1211
2	15	20	376000	1880	CP-OFDM QPSK	1@1	22.55	20.55	0.1135
2	15	20	376000	1880	CP-OFDM QPSK	1@104	22.82	20.82	0.1208
2	15	20	380000	1900	DFT-s-OFDM PI/2 BPSK	50@25	22.57	20.57	0.1140
2	15	20	380000	1900	DFT-s-OFDM PI/2 BPSK	1@1	22.7	20.7	0.1175
2	15	20	380000	1900	DFT-s-OFDM PI/2 BPSK	1@104	22.52	20.52	0.1127
2	15	20	380000	1900	DFT-s-OFDM QPSK	50@25	23.93	21.93	0.1560
2	15	20	380000	1900	DFT-s-OFDM QPSK	1@1	23.99	21.99	0.1581
2	15	20	380000	1900	DFT-s-OFDM QPSK	1@104	23.82	21.82	0.1521
2	15	20	380000	1900	DFT-s-OFDM 16 QAM	50@25	23.08	21.08	0.1282
2	15	20	380000	1900	DFT-s-OFDM 16 QAM	1@1	23.28	21.28	0.1343
2	15	20	380000	1900	DFT-s-OFDM 16 QAM	1@104	23.05	21.05	0.1274
2	15	20	380000	1900	DFT-s-OFDM 64 QAM	50@25	21.71	19.71	0.0935
2	15	20	380000	1900	DFT-s-OFDM 64 QAM	1@1	21.76	19.76	0.0946
2	15	20	380000	1900	DFT-s-OFDM 64 QAM	1@104	21.43	19.43	0.0877
2	15	20	380000	1900	DFT-s-OFDM 256 QAM	50@25	19.58	17.58	0.0573
2	15	20	380000	1900	DFT-s-OFDM 256 QAM	1@1	19.44	17.44	0.0555
2	15	20	380000	1900	DFT-s-OFDM 256 QAM	1@104	19.21	17.21	0.0526
2	15	20	380000	1900	CP-OFDM QPSK	53@26	22.65	20.65	0.1161
2	15	20	380000	1900	CP-OFDM QPSK	1@1	22.77	20.77	0.1194
2	15	20	380000	1900	CP-OFDM QPSK	1@104	22.71	20.71	0.1178

Software Version: 22.09.0601

FR1 N5

Transmitter Conducted Output Power And ERP, (G_T - L_C)=-4dBi

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	24.62	18.47	0.0703
5	15	5	165300	826.5	DFT-s-OFDM 16 QAM	1@1	23.73	17.58	0.0573
5	15	5	167300	836.5	DFT-s-OFDM QPSK	1@1	24.6	18.45	0.0700
5	15	5	167300	836.5	DFT-s-OFDM 16 QAM	1@1	23.65	17.5	0.0562
5	15	5	169300	846.5	DFT-s-OFDM QPSK	1@1	24.39	18.24	0.0667
5	15	5	169300	846.5	DFT-s-OFDM 16 QAM	1@1	23.48	17.33	0.0541
5	15	10	165800	829.0	DFT-s-OFDM QPSK	1@1	24.55	18.4	0.0692
5	15	10	165800	829.0	DFT-s-OFDM 16 QAM	1@1	23.7	17.55	0.0569
5	15	10	167300	836.5	DFT-s-OFDM QPSK	1@1	24.44	18.29	0.0675
5	15	10	167300	836.5	DFT-s-OFDM 16 QAM	1@1	23.59	17.44	0.0555
5	15	10	168800	844.0	DFT-s-OFDM QPSK	1@1	24.38	18.23	0.0665
5	15	10	168800	844.0	DFT-s-OFDM 16 QAM	1@1	23.49	17.34	0.0542
5	15	15	166300	831.5	DFT-s-OFDM QPSK	1@1	24.75	18.6	0.0724
5	15	15	166300	831.5	DFT-s-OFDM 16 QAM	1@1	23.86	17.71	0.0590
5	15	15	167300	836.5	DFT-s-OFDM QPSK	1@1	24.73	18.58	0.0721
5	15	15	167300	836.5	DFT-s-OFDM 16 QAM	1@1	23.87	17.72	0.0592
5	15	15	168300	841.5	DFT-s-OFDM QPSK	1@1	24.66	18.51	0.0710
5	15	15	168300	841.5	DFT-s-OFDM 16 QAM	1@1	23.7	17.55	0.0569
5	15	20	166800	834.0	DFT-s-OFDM PI/2 BPSK	50@25	24.17	18.02	0.0634
5	15	20	166800	834.0	DFT-s-OFDM PI/2 BPSK	1@1	24.16	18.01	0.0632
5	15	20	166800	834.0	DFT-s-OFDM PI/2 BPSK	1@104	23.8	17.65	0.0582
5	15	20	166800	834.0	DFT-s-OFDM QPSK	50@25	24.68	18.53	0.0713

5	15	20	166800	834.0	DFT-s-OFDM QPSK	1@1	24.73	18.58	0.0721
5	15	20	166800	834.0	DFT-s-OFDM QPSK	1@104	24.32	18.17	0.0656
5	15	20	166800	834.0	DFT-s-OFDM 16 QAM	50@25	23.72	17.57	0.0571
5	15	20	166800	834.0	DFT-s-OFDM 16 QAM	1@1	23.73	17.58	0.0573
5	15	20	166800	834.0	DFT-s-OFDM 16 QAM	1@104	23.66	17.51	0.0564
5	15	20	166800	834.0	DFT-s-OFDM 64 QAM	50@25	21.92	15.77	0.0378
5	15	20	166800	834.0	DFT-s-OFDM 64 QAM	1@1	22.28	16.13	0.0410
5	15	20	166800	834.0	DFT-s-OFDM 64 QAM	1@104	21.88	15.73	0.0374
5	15	20	166800	834.0	DFT-s-OFDM 256 QAM	50@25	19.77	13.62	0.0230
5	15	20	166800	834.0	DFT-s-OFDM 256 QAM	1@1	19.98	13.83	0.0242
5	15	20	166800	834.0	DFT-s-OFDM 256 QAM	1@104	19.63	13.48	0.0223
5	15	20	166800	834.0	CP-OFDM QPSK	53@26	23.17	17.02	0.0504
5	15	20	166800	834.0	CP-OFDM QPSK	1@1	23.26	17.11	0.0514
5	15	20	166800	834.0	CP-OFDM QPSK	1@104	22.8	16.65	0.0462
5	15	20	167300	836.5	DFT-s-OFDM PI/2 BPSK	50@25	24.07	17.92	0.0619
5	15	20	167300	836.5	DFT-s-OFDM PI/2 BPSK	1@1	24.19	18.04	0.0637
5	15	20	167300	836.5	DFT-s-OFDM PI/2 BPSK	1@104	23.74	17.59	0.0574
5	15	20	167300	836.5	DFT-s-OFDM QPSK	50@25	24.69	18.54	0.0714
5	15	20	167300	836.5	DFT-s-OFDM QPSK	1@1	24.79	18.64	0.0731
5	15	20	167300	836.5	DFT-s-OFDM QPSK	1@104	24.28	18.13	0.0650
5	15	20	167300	836.5	DFT-s-OFDM 16 QAM	50@25	23.57	17.42	0.0552
5	15	20	167300	836.5	DFT-s-OFDM 16 QAM	1@1	23.79	17.64	0.0581
5	15	20	167300	836.5	DFT-s-OFDM 16 QAM	1@104	23.49	17.34	0.0542
5	15	20	167300	836.5	DFT-s-OFDM 64 QAM	50@25	21.93	15.78	0.0378
5	15	20	167300	836.5	DFT-s-OFDM 64 QAM	1@1	22.34	16.19	0.0416
5	15	20	167300	836.5	DFT-s-OFDM 64 QAM	1@104	21.87	15.72	0.0373
5	15	20	167300	836.5	DFT-s-OFDM 256 QAM	50@25	20.1	13.95	0.0248

5	15	20	167300	836.5	DFT-s-OFDM 256 QAM	1@1	19.91	13.76	0.0238
5	15	20	167300	836.5	DFT-s-OFDM 256 QAM	1@104	19.63	13.48	0.0223
5	15	20	167300	836.5	CP-OFDM QPSK	53@26	23.1	16.95	0.0495
5	15	20	167300	836.5	CP-OFDM QPSK	1@1	23.3	17.15	0.0519
5	15	20	167300	836.5	CP-OFDM QPSK	1@104	22.86	16.71	0.0469
5	15	20	167800	839.0	DFT-s-OFDM PI/2 BPSK	50@25	24.01	17.86	0.0611
5	15	20	167800	839.0	DFT-s-OFDM PI/2 BPSK	1@1	24.09	17.94	0.0622
5	15	20	167800	839.0	DFT-s-OFDM PI/2 BPSK	1@104	23.7	17.55	0.0569
5	15	20	167800	839.0	DFT-s-OFDM QPSK	50@25	24.61	18.46	0.0701
5	15	20	167800	839.0	DFT-s-OFDM QPSK	1@1	24.75	18.6	0.0724
5	15	20	167800	839.0	DFT-s-OFDM QPSK	1@104	24.16	18.01	0.0632
5	15	20	167800	839.0	DFT-s-OFDM 16 QAM	50@25	23.58	17.43	0.0553
5	15	20	167800	839.0	DFT-s-OFDM 16 QAM	1@1	23.71	17.56	0.0570
5	15	20	167800	839.0	DFT-s-OFDM 16 QAM	1@104	23.61	17.46	0.0557
5	15	20	167800	839.0	DFT-s-OFDM 64 QAM	50@25	22.13	15.98	0.0396
5	15	20	167800	839.0	DFT-s-OFDM 64 QAM	1@1	22.26	16.11	0.0408
5	15	20	167800	839.0	DFT-s-OFDM 64 QAM	1@104	21.81	15.66	0.0368
5	15	20	167800	839.0	DFT-s-OFDM 256 QAM	50@25	19.99	13.84	0.0242
5	15	20	167800	839.0	DFT-s-OFDM 256 QAM	1@1	19.88	13.73	0.0236
5	15	20	167800	839.0	DFT-s-OFDM 256 QAM	1@104	19.54	13.39	0.0218
5	15	20	167800	839.0	CP-OFDM QPSK	53@26	23.07	16.92	0.0492
5	15	20	167800	839.0	CP-OFDM QPSK	1@1	22.88	16.73	0.0471
5	15	20	167800	839.0	CP-OFDM QPSK	1@104	22.85	16.7	0.0468

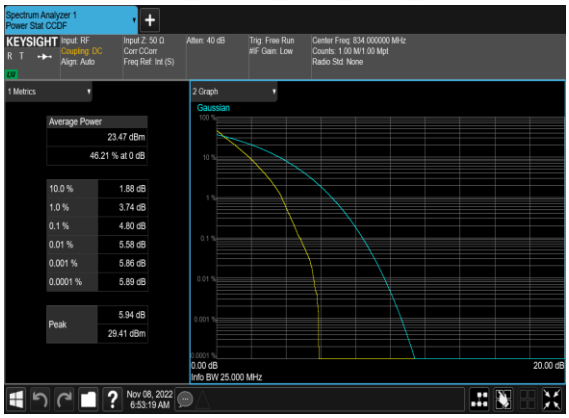
Frequency Stability

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	0.0051	**PASS**	NV
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.0057	**PASS**	LV
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.0051	**PASS**	HV
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.0037	**PASS**	-30℃
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.0043	**PASS**	-20℃
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.0036	**PASS**	-10℃
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.0033	**PASS**	0℃
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.0040	**PASS**	10℃
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.0051	**PASS**	20℃
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.0038	**PASS**	30℃
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.0044	**PASS**	40℃
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.0029	**PASS**	50℃

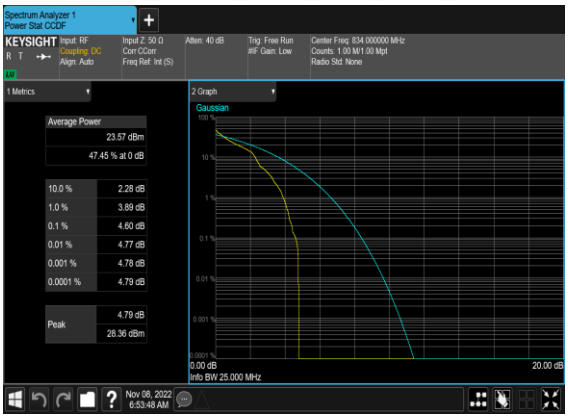
Peak to Average Radio

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result (dB)	Limit (dB)	Verdict
5	15	20	166800	834.0	DFT-s-OFDM PI/2 BPSK	100@0	4.8	13	**PASS**
5	15	20	166800	834.0	DFT-s-OFDM PI/2 BPSK	1@0	4.6	13	**PASS**
5	15	20	166800	834.0	DFT-s-OFDM QPSK	100@0	5.62	13	**PASS**
5	15	20	166800	834.0	DFT-s-OFDM QPSK	1@0	5.66	13	**PASS**
5	15	20	167300	836.5	DFT-s-OFDM PI/2 BPSK	100@0	4.73	13	**PASS**
5	15	20	167300	836.5	DFT-s-OFDM PI/2 BPSK	1@0	4.58	13	**PASS**
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	5.7	13	**PASS**
5	15	20	167300	836.5	DFT-s-OFDM QPSK	1@0	5.65	13	**PASS**
5	15	20	167800	839.0	DFT-s-OFDM PI/2 BPSK	100@0	4.66	13	**PASS**
5	15	20	167800	839.0	DFT-s-OFDM PI/2 BPSK	1@0	4.62	13	**PASS**
5	15	20	167800	839.0	DFT-s-OFDM QPSK	100@0	5.65	13	**PASS**
5	15	20	167800	839.0	DFT-s-OFDM QPSK	1@0	5.59	13	**PASS**

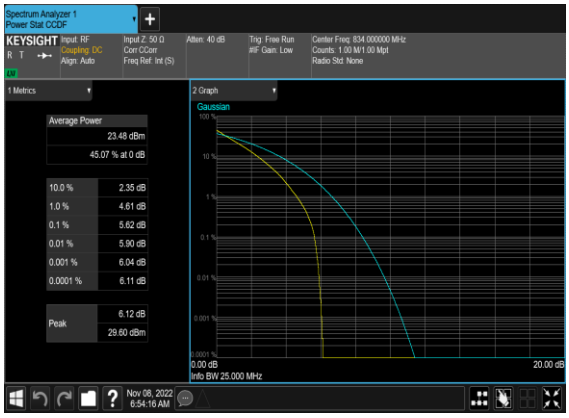
N5(20M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Low_CH



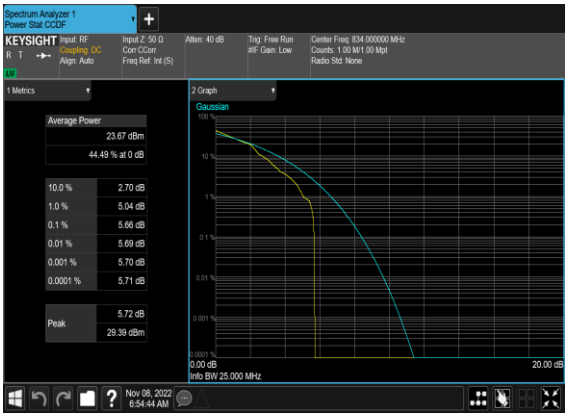
N5(20M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Left_Low_CH



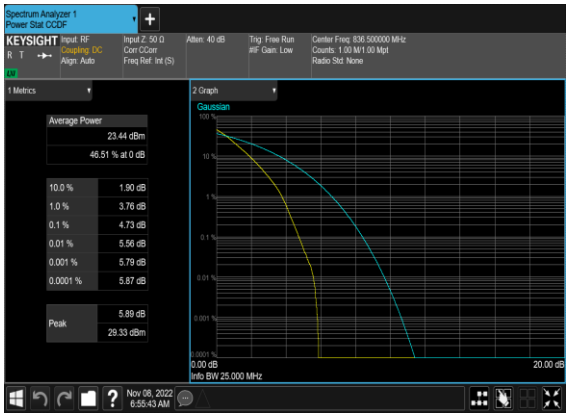
N5(20M)_DFT-s-OFDM_QPSK_Outer_Full_Low_CH



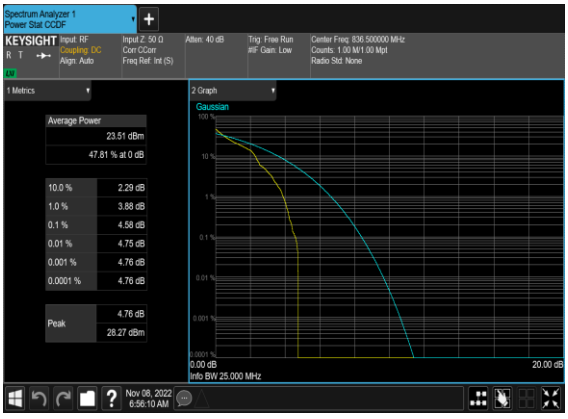
N5(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



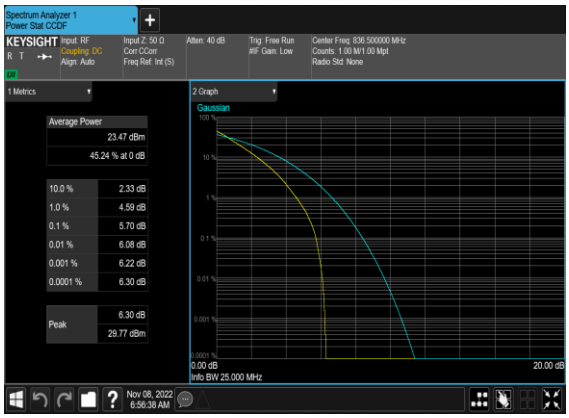
N5(20M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



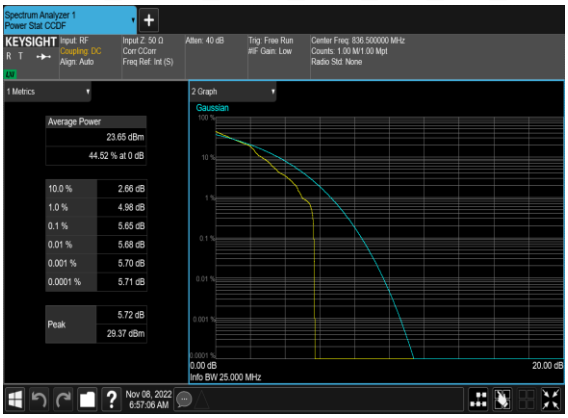
N5(20M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Left_Mid_CH



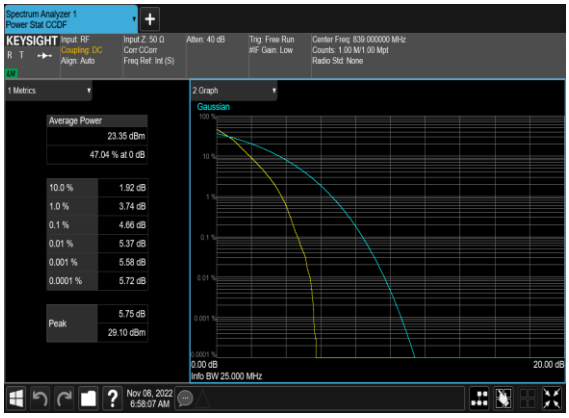
N5(20M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH



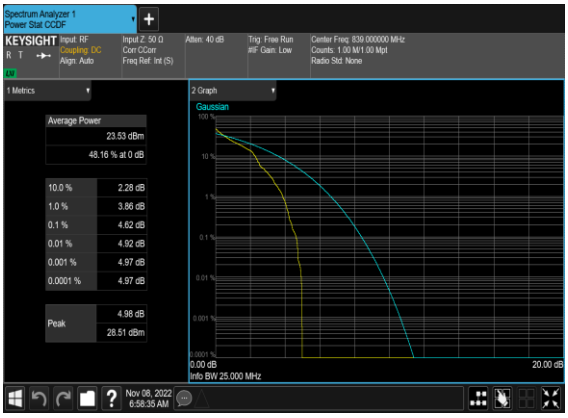
N5(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



N5(20M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_High_CH

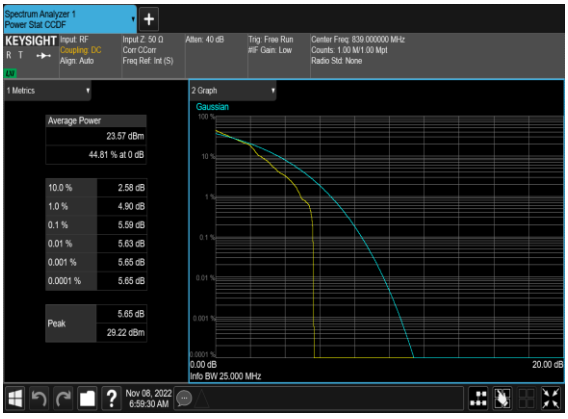


N5(20M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Left_High_CH



N5(20M)_DFT-s-OFDM_QPSK_Outer_Full_High_CH

N5(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



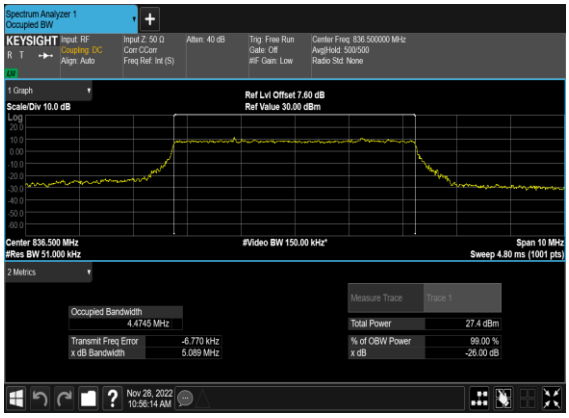
Occupied Bandwidth

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	OBW (MHz)	26dB OBW (MHz)
5	15	5	167300	836.5	DFT-s-OFDM PI/2 BPSK	25@0	4.4823	4.968
5	15	5	167300	836.5	DFT-s-OFDM QPSK	25@0	4.4768	5.069
5	15	5	167300	836.5	CP-OFDM QPSK	25@0	4.4745	5.089
5	15	5	167300	836.5	CP-OFDM 16 QAM	25@0	4.5039	5.151
5	15	5	167300	836.5	CP-OFDM 64 QAM	25@0	4.4654	5.035
5	15	5	167300	836.5	CP-OFDM 256 QAM	25@0	4.494	5.12
5	15	10	167300	836.5	DFT-s-OFDM PI/2 BPSK	50@0	8.9196	9.563
5	15	10	167300	836.5	DFT-s-OFDM QPSK	50@0	8.9267	9.689
5	15	10	167300	836.5	CP-OFDM QPSK	52@0	9.2813	10.02
5	15	10	167300	836.5	CP-OFDM 16 QAM	52@0	9.2838	10.06
5	15	10	167300	836.5	CP-OFDM 64 QAM	52@0	9.2715	10.03
5	15	10	167300	836.5	CP-OFDM 256 QAM	52@0	9.2846	10.07
5	15	15	167300	836.5	DFT-s-OFDM PI/2 BPSK	75@0	13.397	14.33
5	15	15	167300	836.5	DFT-s-OFDM QPSK	75@0	13.401	14.27
5	15	15	167300	836.5	CP-OFDM QPSK	79@0	14.094	14.98
5	15	15	167300	836.5	CP-OFDM 16 QAM	79@0	14.103	14.99
5	15	15	167300	836.5	CP-OFDM 64 QAM	79@0	14.106	14.93
5	15	15	167300	836.5	CP-OFDM 256 QAM	79@0	14.084	15.12
5	15	20	167300	836.5	DFT-s-OFDM PI/2 BPSK	100@0	17.907	18.76
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	17.857	18.82
5	15	20	167300	836.5	CP-OFDM QPSK	106@0	18.892	19.94
5	15	20	167300	836.5	CP-OFDM 16 QAM	106@0	18.91	19.88
5	15	20	167300	836.5	CP-OFDM 64 QAM	106@0	18.888	19.93
5	15	20	167300	836.5	CP-OFDM 256 QAM	106@0	18.912	19.85

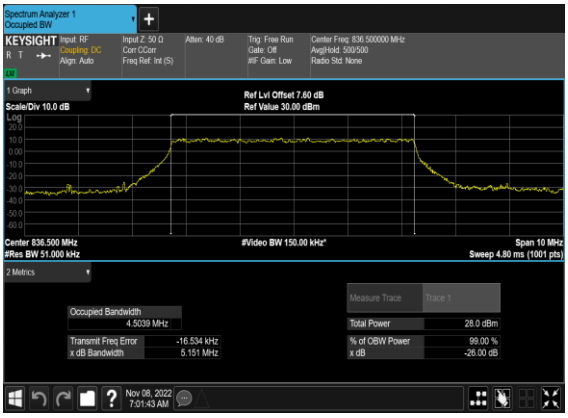
N5(5M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH

N5(5M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH

N5(5M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

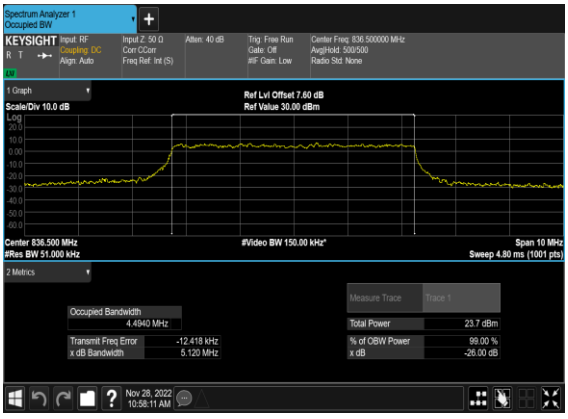


N5(5M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



N5(5M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH

N5(5M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



N5(10M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH

N5(10M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH

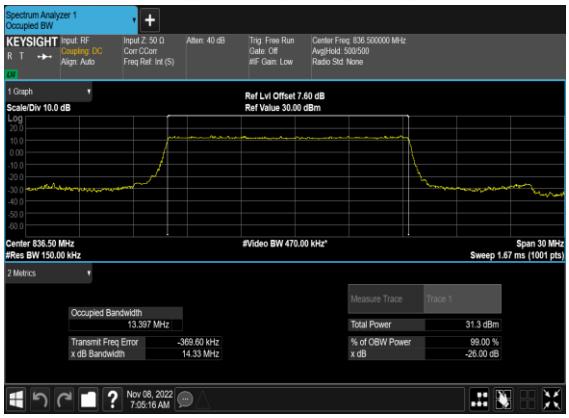
N5(10M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

N5(10M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH

N5(10M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH

N5(10M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

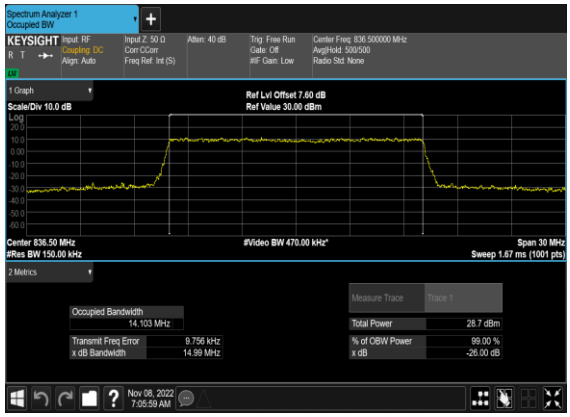
N5(15M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH



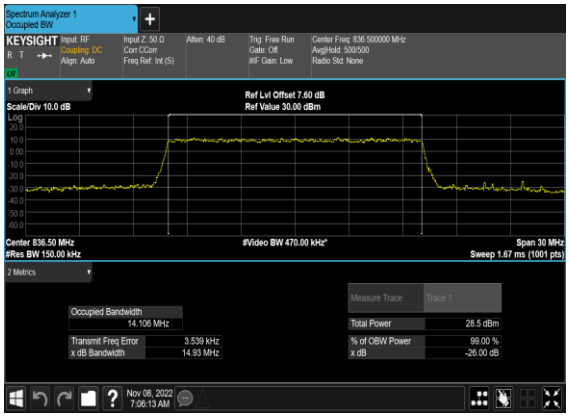
N5(15M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH

N5(15M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

N5(15M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



N5(15M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



N5(15M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

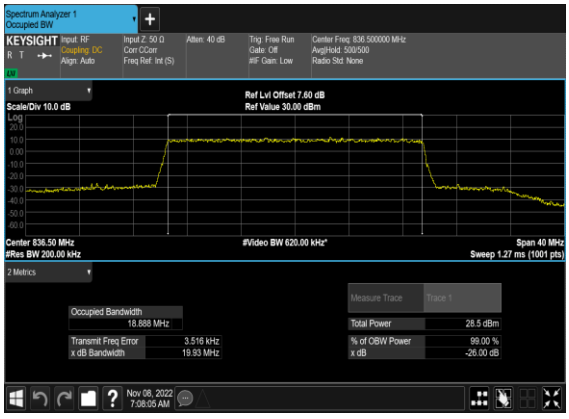
N5(20M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH

N5(20M)_DFT-s-OFDM_QPSK_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

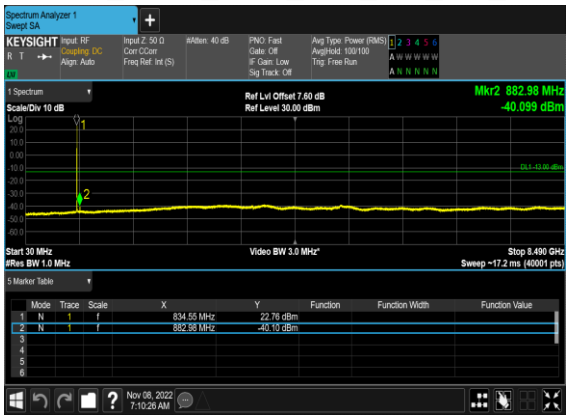
NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
5	15	5	165300	826.5	DFT-s-OFDM BPSK	1@0	see graph	**---**
5	15	5	165300	826.5	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
5	15	5	165300	826.5	DFT-s-OFDM QPSK	1@0	see graph	**---**
5	15	5	165300	826.5	DFT-s-OFDM QPSK	1@0	see graph	**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**

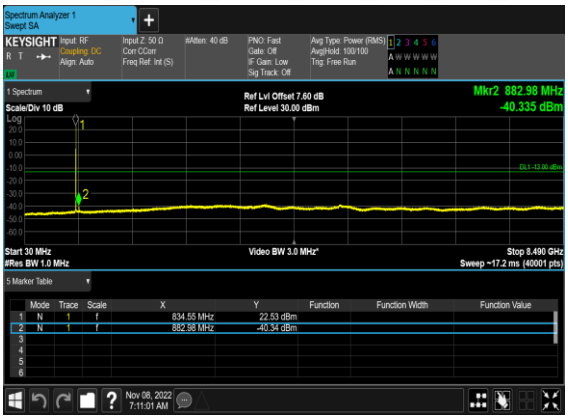
N5(5M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH

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

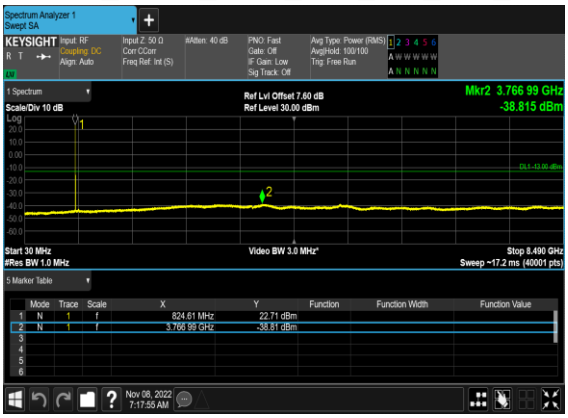


N5(5M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH

N5(5M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH

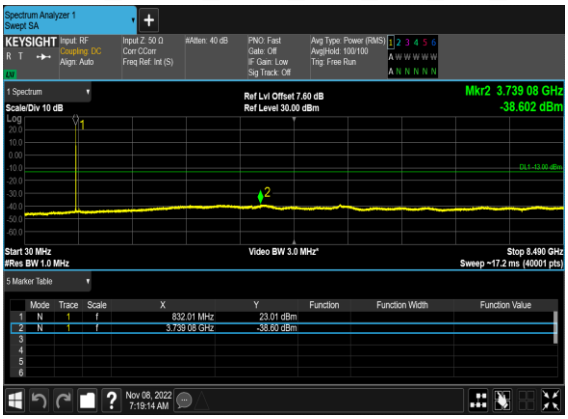
N5(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH

N5(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



N5(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH

N5(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH

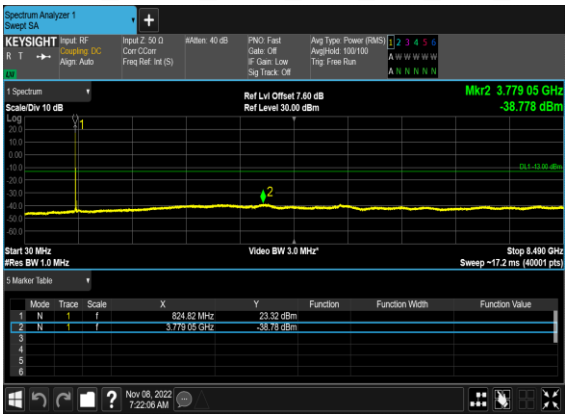


N5(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH

N5(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH

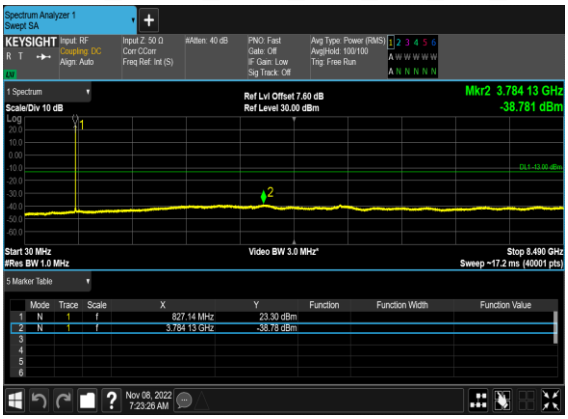
N5(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH

N5(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



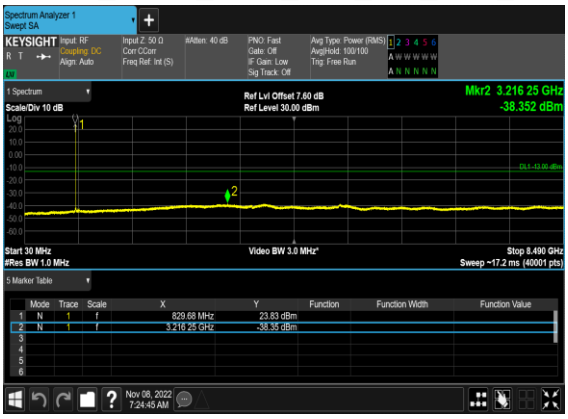
N5(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH

N5(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



N5(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH

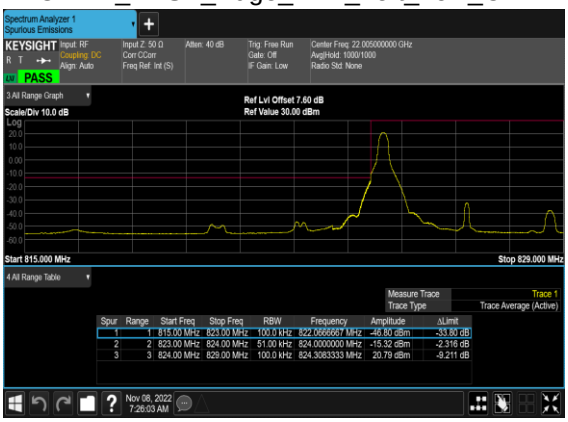
N5(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



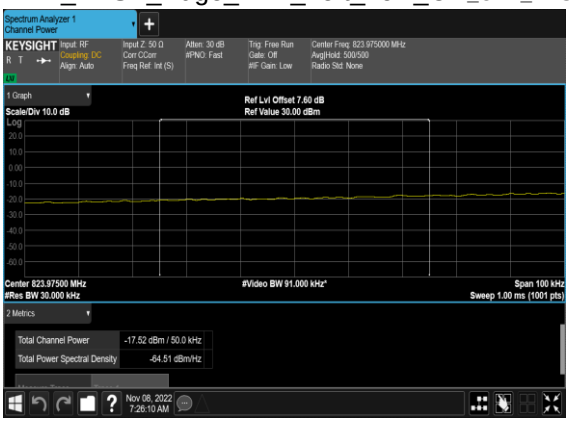
Conducted Band Edge

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**

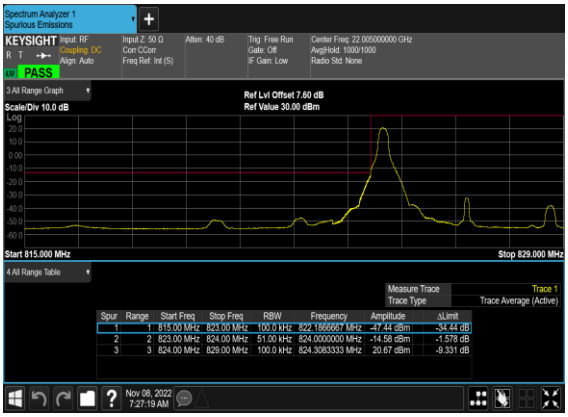
N5(5M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



N5(5M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH_**CHP_PASS**

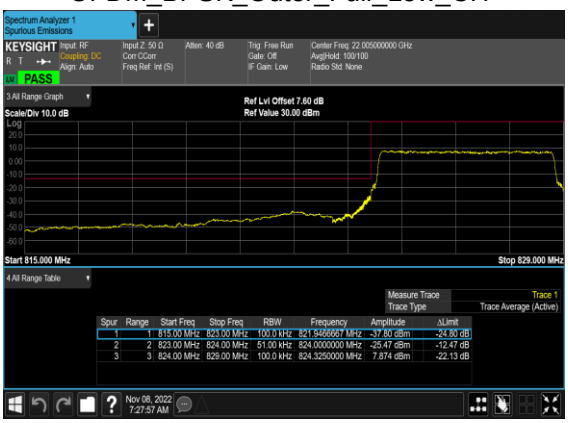


N5(5M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH

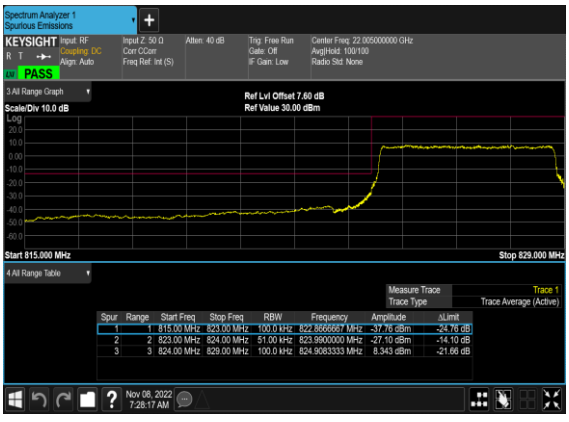


N5(5M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH_**CHP_PASS**

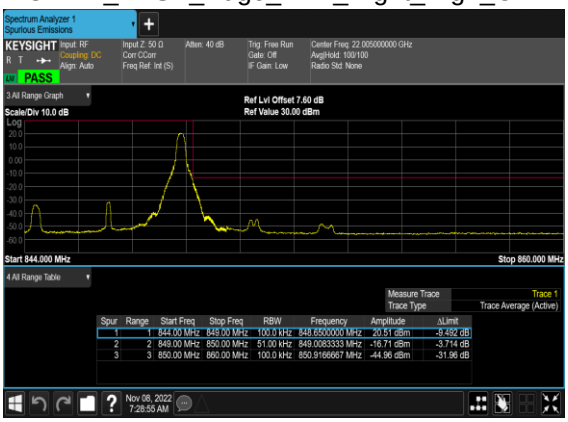
N5(5M)_DFT-s-OFDM_BPSK_Outer_Full_Low_CH



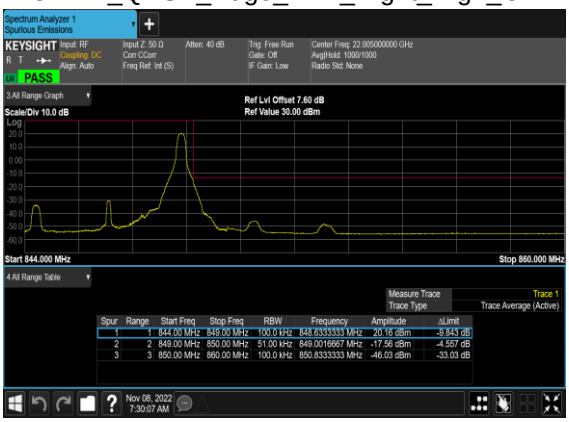
N5(5M)_DFT-s-OFDM_QPSK_Outer_Full_Low_CH



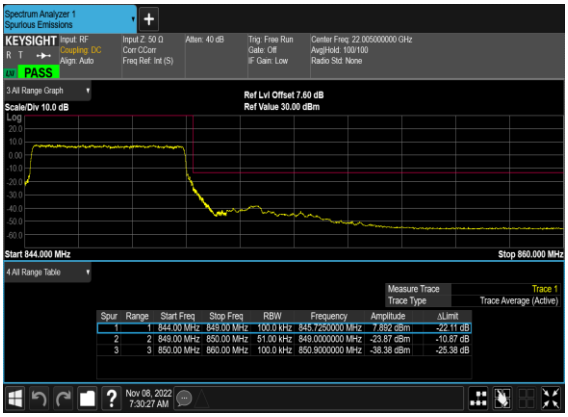
N5(5M)_DFT-s-OFDM_BPSK_Edge_1RB_Right_High_CH



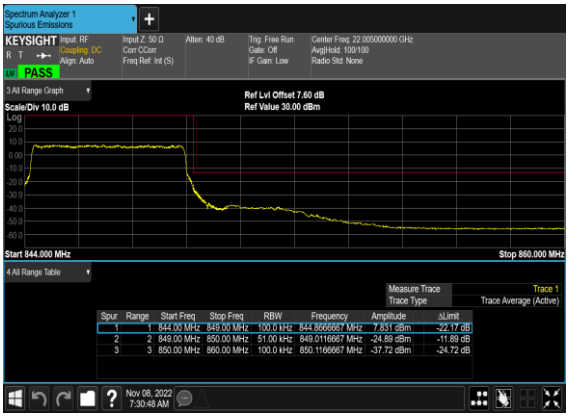
N5(5M)_DFT-s-OFDM_QPSK_Edge_1RB_Right_High_CH



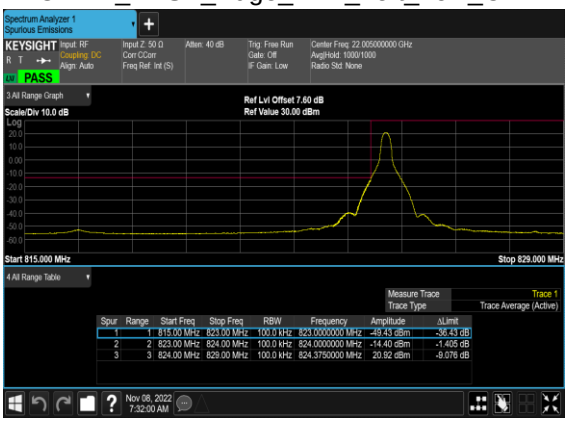
N5(5M)_DFT-s-OFDM_BPSK_Outer_Full_High_CH



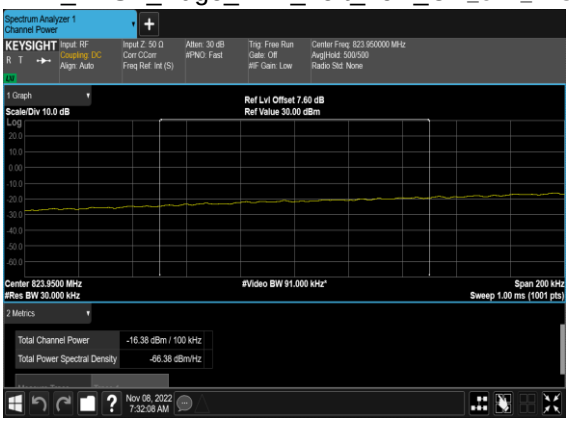
N5(5M)_DFT-s-OFDM_QPSK_Outer_Full_High_CH



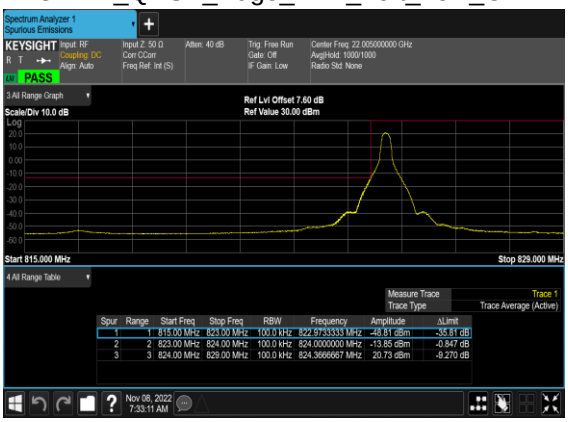
N5(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



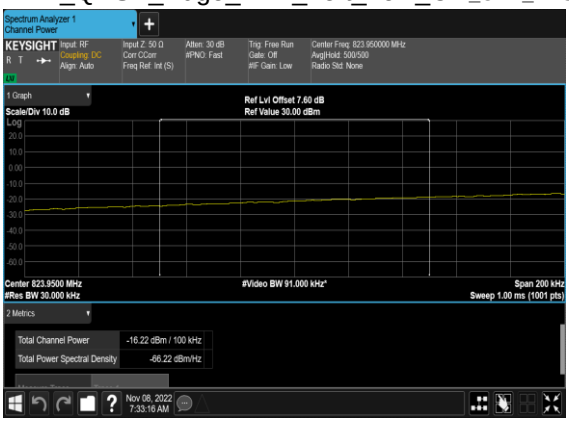
N5(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH_**CHP_PASS**



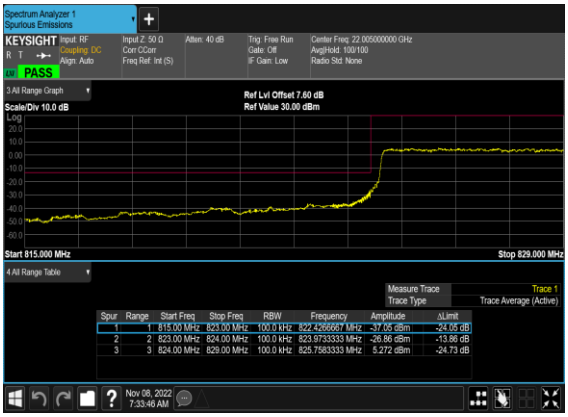
N5(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



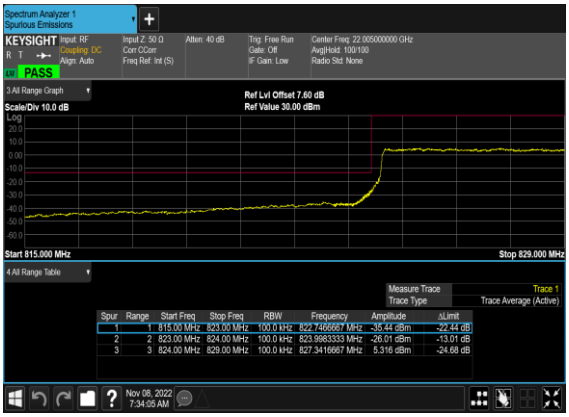
N5(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH_**CHP_PASS**



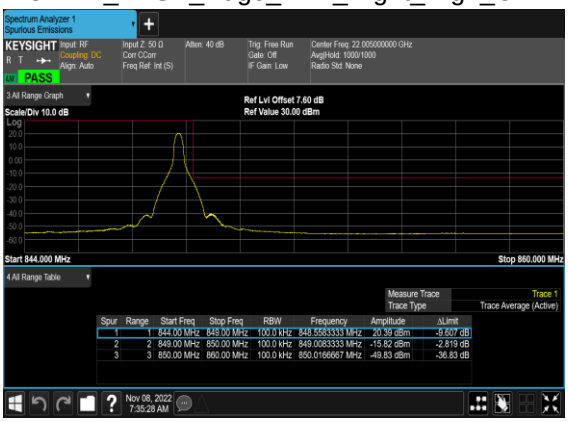
N5(10M)_DFT-s-OFDM_BPSK_Outer_Full_Low_CH



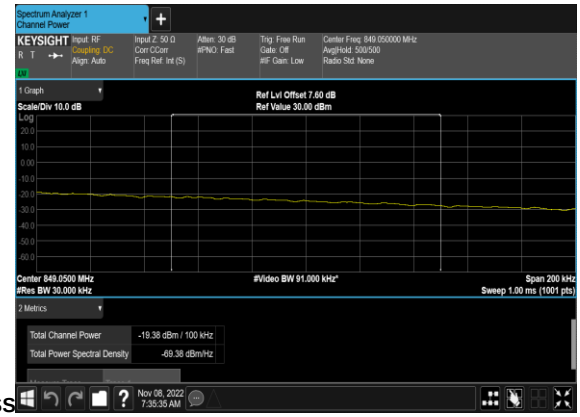
N5(10M)_DFT-s-OFDM_QPSK_Outer_Full_Low_CH



N5(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Right_High_CH

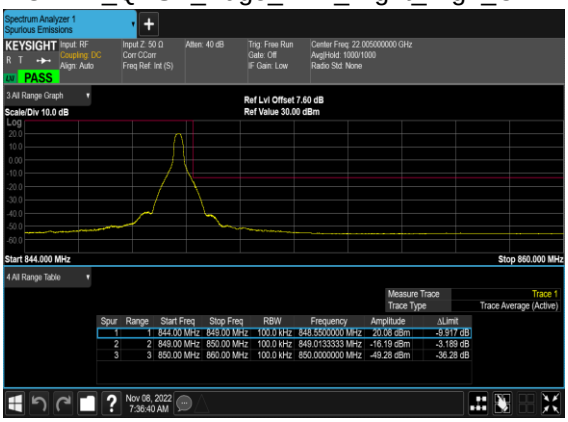


N5(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Right_High_CH_**CHP_PA**



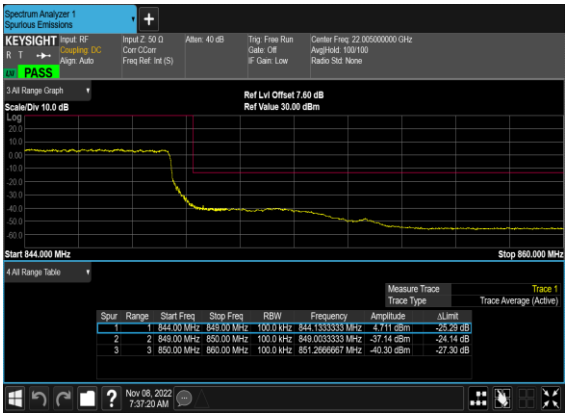
SS

N5(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Right_High_CH

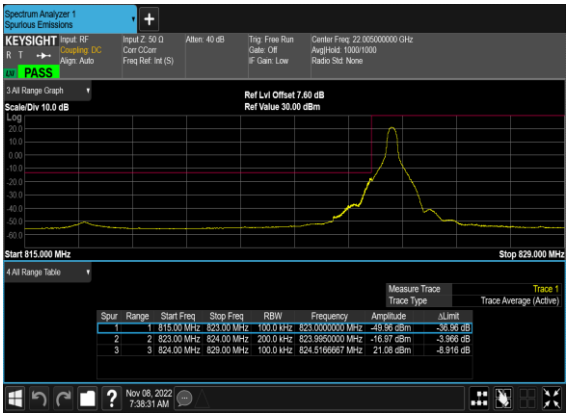


N5(10M)_DFT-s-OFDM_BPSK_Outer_Full_High_CH

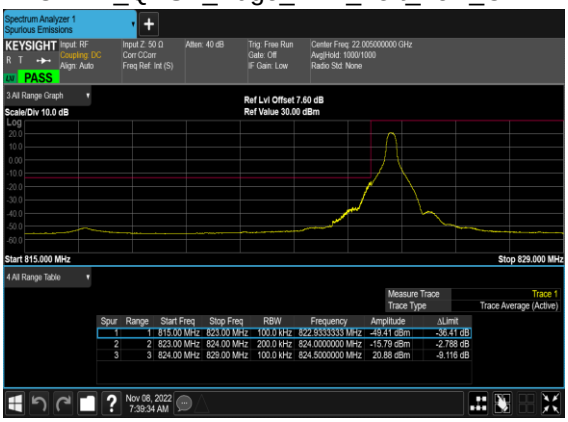
N5(10M)_DFT-s-OFDM_QPSK_Outer_Full_High_CH



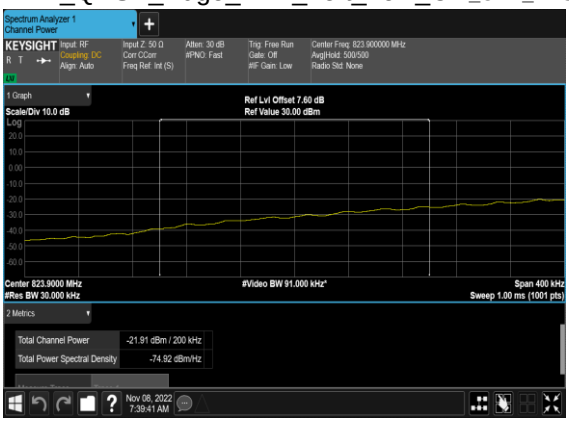
N5(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



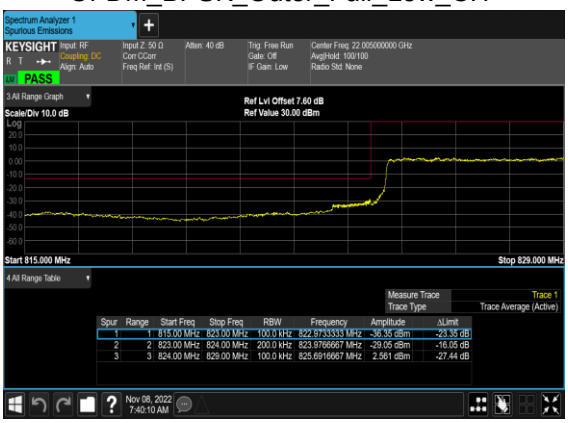
N5(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



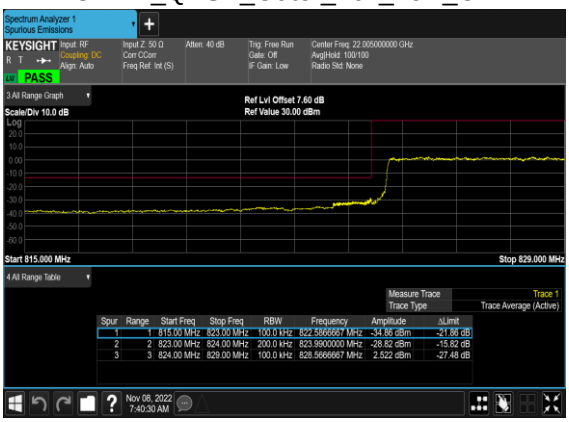
N5(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH_**CHP_PASS**



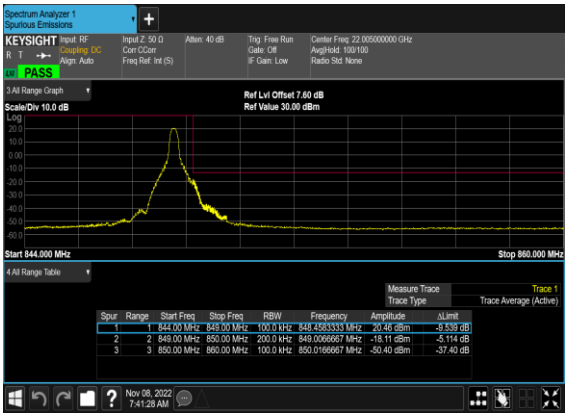
N5(20M)_DFT-s-OFDM_BPSK_Outer_Full_Low_CH



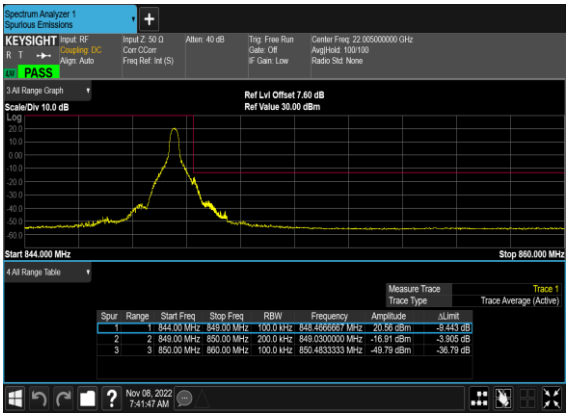
N5(20M)_DFT-s-OFDM_QPSK_Outer_Full_Low_CH



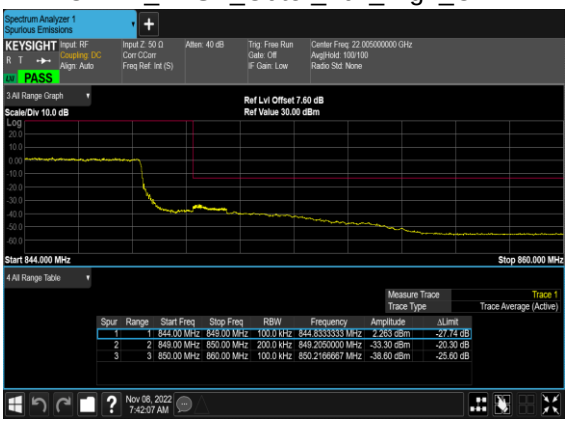
N5(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Right_High_CH



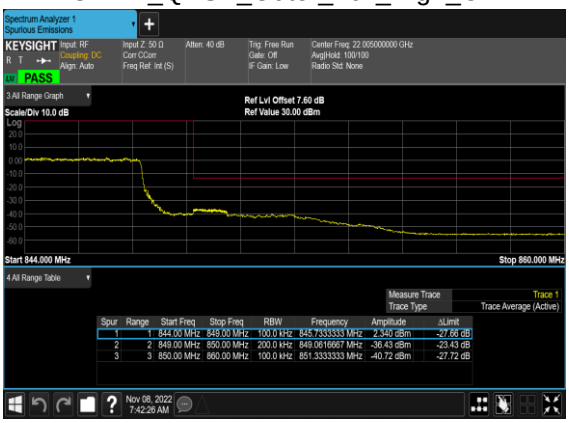
N5(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Right_High_CH



N5(20M)_DFT-s-OFDM_BPSK_Outer_Full_High_CH



N5(20M)_DFT-s-OFDM_QPSK_Outer_Full_High_CH



Software Version: 22.09.0601

FR1 N25

Transmitter Conducted Output Power And EIRP, (G_T - L_C)=-2dBi

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Conducted Power(dBm)	EIRP (dBm)	EIRP (W)
25	15	5	370500	1852.5	DFT-s-OFDM QPSK	1@1	23.96	21.96	0.1570
25	15	5	370500	1852.5	DFT-s-OFDM 16 QAM	1@1	23.05	21.05	0.1274
25	15	5	376500	1882.5	DFT-s-OFDM QPSK	1@1	23.98	21.98	0.1578
25	15	5	376500	1882.5	DFT-s-OFDM 16 QAM	1@1	23.07	21.07	0.1279
25	15	5	382500	1912.5	DFT-s-OFDM QPSK	1@1	23.63	21.63	0.1455
25	15	5	382500	1912.5	DFT-s-OFDM 16 QAM	1@1	22.8	20.8	0.1202
25	15	10	371000	1855.0	DFT-s-OFDM QPSK	1@1	23.8	21.8	0.1514
25	15	10	371000	1855.0	DFT-s-OFDM 16 QAM	1@1	22.89	20.89	0.1227
25	15	10	376500	1882.5	DFT-s-OFDM QPSK	1@1	23.84	21.84	0.1528
25	15	10	376500	1882.5	DFT-s-OFDM 16 QAM	1@1	22.88	20.88	0.1225
25	15	10	382000	1910.0	DFT-s-OFDM QPSK	1@1	23.73	21.73	0.1489
25	15	10	382000	1910.0	DFT-s-OFDM 16 QAM	1@1	22.85	20.85	0.1216
25	15	15	371500	1857.5	DFT-s-OFDM QPSK	1@1	23.99	21.99	0.1581
25	15	15	371500	1857.5	DFT-s-OFDM 16 QAM	1@1	23.14	21.14	0.1300
25	15	15	376500	1882.5	DFT-s-OFDM QPSK	1@1	23.97	21.97	0.1574
25	15	15	376500	1882.5	DFT-s-OFDM 16 QAM	1@1	23.05	21.05	0.1274
25	15	15	381500	1907.5	DFT-s-OFDM QPSK	1@1	23.85	21.85	0.1531
25	15	15	381500	1907.5	DFT-s-OFDM 16 QAM	1@1	22.89	20.89	0.1227
25	15	20	372000	1860.0	DFT-s-OFDM QPSK	1@1	23.94	21.94	0.1563
25	15	20	372000	1860.0	DFT-s-OFDM 16 QAM	1@1	23.06	21.06	0.1276
25	15	20	376500	1882.5	DFT-s-OFDM QPSK	1@1	24.04	22.04	0.1600
25	15	20	376500	1882.5	DFT-s-OFDM 16 QAM	1@1	22.73	20.73	0.1183

25	15	20	381000	1905.0	DFT-s-OFDM QPSK	1@1	23.85	21.85	0.1531
25	15	20	381000	1905.0	DFT-s-OFDM 16 QAM	1@1	22.92	20.92	0.1236
25	15	25	372500	1862.5	DFT-s-OFDM QPSK	1@1	24.03	22.03	0.1596
25	15	25	372500	1862.5	DFT-s-OFDM 16 QAM	1@1	23.04	21.04	0.1271
25	15	25	376500	1882.5	DFT-s-OFDM QPSK	1@1	23.52	21.52	0.1419
25	15	25	376500	1882.5	DFT-s-OFDM 16 QAM	1@1	22.7	20.7	0.1175
25	15	25	380500	1902.5	DFT-s-OFDM QPSK	1@1	23.88	21.88	0.1542
25	15	25	380500	1902.5	DFT-s-OFDM 16 QAM	1@1	22.99	20.99	0.1256
25	15	30	373000	1865.0	DFT-s-OFDM QPSK	1@1	23.96	21.96	0.1570
25	15	30	373000	1865.0	DFT-s-OFDM 16 QAM	1@1	23.04	21.04	0.1271
25	15	30	376500	1882.5	DFT-s-OFDM QPSK	1@1	23.57	21.57	0.1435
25	15	30	376500	1882.5	DFT-s-OFDM 16 QAM	1@1	22.69	20.69	0.1172
25	15	30	380000	1900.0	DFT-s-OFDM QPSK	1@1	24.01	22.01	0.1589
25	15	30	380000	1900.0	DFT-s-OFDM 16 QAM	1@1	23.11	21.11	0.1291
25	15	40	374000	1870	DFT-s-OFDM PI/2 BPSK	108@54	24.03	22.03	0.1596
25	15	40	374000	1870	DFT-s-OFDM PI/2 BPSK	1@1	23.92	21.92	0.1556
25	15	40	374000	1870	DFT-s-OFDM PI/2 BPSK	1@214	23.98	21.98	0.1578
25	15	40	374000	1870	DFT-s-OFDM QPSK	108@54	23.71	21.71	0.1483
25	15	40	374000	1870	DFT-s-OFDM QPSK	1@1	23.21	21.21	0.1321
25	15	40	374000	1870	DFT-s-OFDM QPSK	1@214	24.02	22.02	0.1592
25	15	40	374000	1870	DFT-s-OFDM 16 QAM	108@54	22.93	20.93	0.1239
25	15	40	374000	1870	DFT-s-OFDM 16 QAM	1@1	22.51	20.51	0.1125
25	15	40	374000	1870	DFT-s-OFDM 16 QAM	1@214	23.1	21.1	0.1288
25	15	40	374000	1870	DFT-s-OFDM 64 QAM	108@54	21.49	19.49	0.0889
25	15	40	374000	1870	DFT-s-OFDM 64 QAM	1@1	20.93	18.93	0.0782
25	15	40	374000	1870	DFT-s-OFDM 64 QAM	1@214	21.59	19.59	0.0910
25	15	40	374000	1870	DFT-s-OFDM 256 QAM	108@54	19.46	17.46	0.0557

25	15	40	374000	1870	DFT-s-OFDM 256 QAM	1@1	19.07	17.07	0.0509
25	15	40	374000	1870	DFT-s-OFDM 256 QAM	1@214	19.34	17.34	0.0542
25	15	40	374000	1870	CP-OFDM QPSK	108@54	22.24	20.24	0.1057
25	15	40	374000	1870	CP-OFDM QPSK	1@1	21.95	19.95	0.0989
25	15	40	374000	1870	CP-OFDM QPSK	1@214	22.65	20.65	0.1161
25	15	40	376500	1882.5	DFT-s-OFDM PI/2 BPSK	108@54	23.99	21.99	0.1581
25	15	40	376500	1882.5	DFT-s-OFDM PI/2 BPSK	1@1	23.83	21.83	0.1524
25	15	40	376500	1882.5	DFT-s-OFDM PI/2 BPSK	1@214	23.81	21.81	0.1517
25	15	40	376500	1882.5	DFT-s-OFDM QPSK	108@54	24.05	22.05	0.1603
25	15	40	376500	1882.5	DFT-s-OFDM QPSK	1@1	23.5	21.5	0.1413
25	15	40	376500	1882.5	DFT-s-OFDM QPSK	1@214	23.99	21.99	0.1581
25	15	40	376500	1882.5	DFT-s-OFDM 16 QAM	108@54	23.03	21.03	0.1268
25	15	40	376500	1882.5	DFT-s-OFDM 16 QAM	1@1	22.94	20.94	0.1242
25	15	40	376500	1882.5	DFT-s-OFDM 16 QAM	1@214	23.07	21.07	0.1279
25	15	40	376500	1882.5	DFT-s-OFDM 64 QAM	108@54	21.62	19.62	0.0916
25	15	40	376500	1882.5	DFT-s-OFDM 64 QAM	1@1	21.46	19.46	0.0883
25	15	40	376500	1882.5	DFT-s-OFDM 64 QAM	1@214	21.47	19.47	0.0885
25	15	40	376500	1882.5	DFT-s-OFDM 256 QAM	108@54	19.34	17.34	0.0542
25	15	40	376500	1882.5	DFT-s-OFDM 256 QAM	1@1	19.32	17.32	0.0540
25	15	40	376500	1882.5	DFT-s-OFDM 256 QAM	1@214	19.27	17.27	0.0533
25	15	40	376500	1882.5	CP-OFDM QPSK	108@54	22.44	20.44	0.1107
25	15	40	376500	1882.5	CP-OFDM QPSK	1@1	22.37	20.37	0.1089
25	15	40	376500	1882.5	CP-OFDM QPSK	1@214	22.42	20.42	0.1102
25	15	40	379000	1895	DFT-s-OFDM PI/2 BPSK	108@54	23.92	21.92	0.1556
25	15	40	379000	1895	DFT-s-OFDM PI/2 BPSK	1@1	23.83	21.83	0.1524
25	15	40	379000	1895	DFT-s-OFDM PI/2 BPSK	1@214	23.72	21.72	0.1486
25	15	40	379000	1895	DFT-s-OFDM QPSK	108@54	23.94	21.94	0.1563

25	15	40	379000	1895	DFT-s-OFDM QPSK	1@1	23.54	21.54	0.1426
25	15	40	379000	1895	DFT-s-OFDM QPSK	1@214	23.64	21.64	0.1459
25	15	40	379000	1895	DFT-s-OFDM 16 QAM	108@54	23.01	21.01	0.1262
25	15	40	379000	1895	DFT-s-OFDM 16 QAM	1@1	22.28	20.28	0.1067
25	15	40	379000	1895	DFT-s-OFDM 16 QAM	1@214	22.45	20.45	0.1109
25	15	40	379000	1895	DFT-s-OFDM 64 QAM	108@54	21.62	19.62	0.0916
25	15	40	379000	1895	DFT-s-OFDM 64 QAM	1@1	21.51	19.51	0.0893
25	15	40	379000	1895	DFT-s-OFDM 64 QAM	1@214	21.52	19.52	0.0895
25	15	40	379000	1895	DFT-s-OFDM 256 QAM	108@54	19.26	17.26	0.0532
25	15	40	379000	1895	DFT-s-OFDM 256 QAM	1@1	19.25	17.25	0.0531
25	15	40	379000	1895	DFT-s-OFDM 256 QAM	1@214	19.18	17.18	0.0522
25	15	40	379000	1895	CP-OFDM QPSK	108@54	22.5	20.5	0.1122
25	15	40	379000	1895	CP-OFDM QPSK	1@1	21.57	19.57	0.0906
25	15	40	379000	1895	CP-OFDM QPSK	1@214	21.66	19.66	0.0925

Frequency Stability

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Deviation (ppm)	Verdict	Environment
25	15	20	376500	1882.5	DFT-s-OFDM QPSK	100@0	0.0049	**PASS**	NV
25	15	20	376500	1882.5	DFT-s-OFDM QPSK	100@0	0.0035	**PASS**	LV
25	15	20	376500	1882.5	DFT-s-OFDM QPSK	100@0	0.0069	**PASS**	HV
25	15	20	376500	1882.5	DFT-s-OFDM QPSK	100@0	0.0039	**PASS**	-30℃
25	15	20	376500	1882.5	DFT-s-OFDM QPSK	100@0	0.0046	**PASS**	-20℃
25	15	20	376500	1882.5	DFT-s-OFDM QPSK	100@0	0.0062	**PASS**	-10℃
25	15	20	376500	1882.5	DFT-s-OFDM QPSK	100@0	0.0062	**PASS**	0℃
25	15	20	376500	1882.5	DFT-s-OFDM QPSK	100@0	0.0041	**PASS**	10℃
25	15	20	376500	1882.5	DFT-s-OFDM QPSK	100@0	0.0049	**PASS**	20℃
25	15	20	376500	1882.5	DFT-s-OFDM QPSK	100@0	0.0063	**PASS**	30℃
25	15	20	376500	1882.5	DFT-s-OFDM QPSK	100@0	0.0054	**PASS**	40℃
25	15	20	376500	1882.5	DFT-s-OFDM QPSK	100@0	0.0038	**PASS**	50℃

Peak to Average Radio

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result (dB)	Limit (dB)	Verdict
25	15	20	372000	1860.0	DFT-s-OFDM PI/2 BPSK	100@0	4.65	13	**PASS**
25	15	20	372000	1860.0	DFT-s-OFDM PI/2 BPSK	1@0	4.92	13	**PASS**
25	15	20	372000	1860.0	DFT-s-OFDM QPSK	100@0	5.63	13	**PASS**
25	15	20	372000	1860.0	DFT-s-OFDM QPSK	1@0	6.17	13	**PASS**
25	15	20	376500	1882.5	DFT-s-OFDM PI/2 BPSK	100@0	4.71	13	**PASS**
25	15	20	376500	1882.5	DFT-s-OFDM PI/2 BPSK	1@0	4.22	13	**PASS**
25	15	20	376500	1882.5	DFT-s-OFDM QPSK	100@0	5.77	13	**PASS**
25	15	20	376500	1882.5	DFT-s-OFDM QPSK	1@0	5.69	13	**PASS**
25	15	20	381000	1905.0	DFT-s-OFDM PI/2 BPSK	100@0	4.74	13	**PASS**
25	15	20	381000	1905.0	DFT-s-OFDM PI/2 BPSK	1@0	4.92	13	**PASS**
25	15	20	381000	1905.0	DFT-s-OFDM QPSK	100@0	5.85	13	**PASS**
25	15	20	381000	1905.0	DFT-s-OFDM QPSK	1@0	6.23	13	**PASS**