FCC RF Test Report

APPLICANT	**:**	**Motorola Mobility LLC**
EQUIPMENT	**:**	**Mobile Cellular Phone**
BRAND NAME	**:**	**Motorola**
MODEL NAME	**:**	**XT2323-2, XT2323-5, XT2323-6**
FCC ID	**:**	**IHDT56AL9**
STANDARD	**:**	**47 CFR Part 2, 27**
CLASSIFICATION	**:**	**PCS Licensed Transmitter Held to Ear (PCE)**
TEST DATE(S)	**:**	**May 18, 2023 ~ May 29, 2023**

We, Sporton International Inc. (Kunshan), 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.

This report contains data that were produced under subcontract by Sporton International Inc. (Shenzhen).

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

Jason Jia

Approved by: Jason Jia

ACCREDITED
Cert #5145.02

Sporton International Inc. (Kunshan)
No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China

TABLE OF CONTENTS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG340401-01I	Rev. 01	Initial issue of report	Jun. 05, 2023

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
4.4	§2.1046	Conducted Output Power	Reporting Only	PASS	-
	§27.50(h)(2)	Equivalent Isotropic Radiated Power (5G NR n7, n41)	EIRP < 2Watt		
	§27.50(c)(10)	Effective Radiated Power (5G NR n12)	ERP < 3 Watt		
	§27.50(d)(4)	Equivalent Isotropic Radiated Power (5G NR n66, n70)	EIRP < 1Watt		
3.6	§2.1049	Occupied Bandwidth	Reporting Only	PASS	-
3.7	§2.1051 §27.53(h) §27.53(g)	Conducted Band Edge Measurement (5G NR n66, n70) (5G NR n12)	< 43+10log10(P[Watts])	PASS	-
	§27.53(m)(4)	Conducted Band Edge Measurement (5G NR n7, n41, n38)	§27.53(m)(4)		
3.8	§2.1051 §27.53(h) §27.53(g)	Conducted Spurious Emission (5G NR n66, n70) (5G NR n12)	< 43+10log10(P[Watts])	PASS	-
	§2.1051 §27.53(m)(4)	Conducted Spurious Emission (5G NR n7, n41, n38)	< 55+10log$_{10}$(P[Watts])		
3.9	§27.54	Frequency Stability Temperature & Voltage	Within Authorized Band	PASS	-
5.4	§2.1053 §27.53(h) §27.53(g)	Radiated Spurious Emission (5G NR n66, n70) (5G NR n12)	< 43+10log$_{10}$(P[Watts])	PASS	Under limit 24.43 dB at 7486.000 MHz
	§2.1053 §27.53(m)(4)	Radiated Spurious Emission (5G NR n7, n41, n38)	< 55+10log$_{10}$(P[Watts])		

Conformity Assessment Condition:

1. 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/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. 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

Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

1.2 Manufacturer

Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2323-2, XT2323-5, XT2323-6
FCC ID	IHDT56AL9
IMEI Code	Conducted: 351606570017474/351606570017482 Radiation: 351606570016070
HW Version	DVT2
SW Version	T2TV33.23
EUT Stage	Identical Prototype

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx Frequency	5G NR n7 : 2500 MHz ~ 2570 MHz 5G NR n12 : 699 MHz ~ 716 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz 5G NR n70 : 1695 MHz ~ 1710 MHz
Rx Frequency	5G NR n7 : 2620 MHz ~ 2690 MHz 5G NR n12: 729 MHz ~ 746 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n66 : 2110 MHz~ 2200 MHz 5G NR n70 : 1995 MHz ~ 2020 MHz
Bandwidth	n12/n70: 5MHz / 10MHz / 15MHz n7: 5MHz / 10MHz / 15MHz / 20MHz / 25MHz / 30MHz / 40MHz n41 : 20MHz / 30MHz / 40MHz / 50MHz / 60MHz / 70MHz / 80MHz / 90MHz / 100MHz n66: 5MHz / 10MHz / 15MHz / 20MHz / 30MHz / 40MHz
SCS	n7/n12/n66/n70: 15kHz n41: 30kHz
Antenna Gain	**<Ant. 0>** n7: -0.37 dBi n12: -4.57 dBi

	n41: -0.37 dBi n66: -3.20 dBi n70: -3.00 dBi **<Ant. 1>** n7: -3.80 dBi n12: -4.20 dBi n41: -3.80 dBi n66: -3.10 dBi n70: -3.70 dBi **<Ant. 2>** n7: -4.60 dBi n66: -2.80 dBi n41: -4.70 dBi n70: -2.50 dBi **<Ant. 3>** n7: -1.20 dBi n66: -1.00 dBi n41: -1.00 dBi n70: -1.00 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, 5G NR n12/n70 for Ant. 0 and n41 for Ant. 3 and n41_UL MIMO for Ant.(3+1).
2. 5G NR n12/n41 support SA mode and NSA mode. According to the maximum power between SA and NSA mode, SA covers NSA mode.
3. 5G NR n70 only support SA mode.
4. The device supports Power class 2 mode for 5G NR n41 single carrier.
5. 5G NR n41 support UL MIMO mode for Ant(3+1) / Ant(2+0), only the worst test data of Ant(3+1) for n41 is shown in the report by referring to the higher conducted power.
6. 5G NR n41 supports UL MIMO mode for Power class 1.5, the MIMO mode is completely uncorrelated, so the directional gain is selected the maximum gain among all antennas.
7. The device supports two PAs for 5G NR n41 (main PA and other PA), after comparison, we chose the max EIRP to show in the report.
8. For n41 MIMO mode, the conducted BE/Spurious are tested at single antenna port and add 10*log(NANT) according to KDB 662911 D01.
9. All the supported EN-DC combinations are verified conducted power, only the EN-DC combination with highest power are shown in the report.
10. The EN-DC mode combination could be referred to the product spec.

1.5 Specification of Accessory

Accessories Information				
AC Adapter	**Brand Name**	Motorola(Salom)	**Model Name**	MC-301
Base Battery	**Brand Name**	Motorola (ATL)	**Model Name**	PM29
Flip Battery	**Brand Name**	Motorola (ATL)	**Model Name**	PV11
USB Cable 1	**Brand Name**	Motorola(Cabletech)	**Model Name**	SC18D13216
USB Cable 2	**Brand Name**	Motorola(Luxshare)	**Model Name**	SC18D13217
USB Cable 3	**Brand Name**	Motorola(Saibao)	**Model Name**	SC18D13215
USB Cable 4	**Brand Name**	Motorola(Saibao)	**Model Name**	SC18D86732

1.6 Modification of EUT

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

1.7 Maximum ERP/EIRP Power and Emission Designator

5G NR n12		PI/2 BPSK / QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum ERP(W)	Emission Designator (99%OBW)	Maximum ERP(W)	Emission Designator (99%OBW)
5	701.5 ~ 713.5	0.0406	4M47G7D	0.0407	4M49W7D
10	704.0~ 711.0	0.0406	9M25G7D	0.0410	9M27W7D
15	706.5 ~ 708.5	0.0418	14M1G7D	0.0423	14M1W7D

5G NR n41		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)
20	2506.02 ~ 2679.99	0.3177	18M2G7D	0.2582	18M3W7D
30	2511.00 ~ 2674.98	0.3192	27M8G7D	0.2612	27M9W7D
40	2516.01 ~ 2670.00	0.3170	37M9G7D	0.2541	37M9W7D
50	2521.02 ~ 2664.99	0.3155	47M6G7D	0.2679	47M6W7D
60	2526.00 ~ 2659.98	0.3170	57M9G7D	0.2518	57M9W7D
70	2531.01 ~ 2655.00	0.3184	67M6G7D	0.2553	67M5W7D
80	2536.02 ~ 2649.99	0.3170	77M5G7D	0.2477	77M6W7D
90	2541.00 ~ 2644.98	0.3177	87M7G7D	0.2606	87M7W7D
100	2546.01 ~ 2640.00	0.3214	97M7G7D	0.2642	97M6W7D

5G NR n41 UL MIMO		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)**
20	2506.02 ~ 2679.99	0.5970	18M2G7D	0.4699	18M2W7D
30	2511.00 ~ 2674.98	0.5957	27M9G7D	0.4710	27M8W7D
40	2516.01 ~ 2670.00	0.6053	37M9G7D	0.4699	38M0W7D
50	2521.02 ~ 2664.99	0.5970	47M6G7D	0.4624	47M6W7D
60	2526.00 ~ 2659.98	0.5848	58M0G7D	0.4624	58M0W7D
70	2531.01 ~ 2655.00	0.5572	67M5G7D	0.4498	67M6W7D
80	2536.02 ~ 2649.99	0.5572	77M7G7D	0.4375	77M6W7D
90	2541.00 ~ 2644.98	0.5546	87M5G7D	0.4426	87M8W7D
100	2546.01 ~ 2640.00	0.6427	97M8G7D	0.4977	97M7W7D

5G NR n70		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	1697.5 ~ 1707.5	0.1178	4M46G7D	0.1175	4M48W7D
10	1700.0 ~ 1705.0	0.1153	9M28G7D	0.1119	9M28W7D
15	1702.5	0.1186	14M1G7D	0.1183	14M1W7D

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

1.8 Testing Location

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	03CH04-KS TH01-KS	CN1257	314309

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

<table>
<tr><td>Test Firm</td><td colspan="3">Sporton International Inc. (ShenZhen)</td></tr>
<tr><td>Test Site Location</td><td colspan="3">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</td></tr>
<tr><td rowspan="2">Test Site No.</td><td>Sporton Site No.</td><td>FCC Designation No.</td><td>FCC Test Firm Registration No.</td></tr>
<tr><td>TH01-SZ</td><td>CN1256</td><td>421272</td></tr>
</table>

Test data subcontracted: Conducted test case for 5G NR n41 UL MIMO of this report.

1.9 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH04-KS	AUDIX	E3	6.2009-8-24al

1.10 Applicable Standards

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

- 47 CFR Part 2, 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 Re-use of Measured Data

2.1 Introduction Section

This application re-uses data collected on a similar device. The subject device of this application (Model: XT2323-2,XT2323-5,XT2323-6, FCC ID: IHDT56AL9) is electrically identical to the reference device (Model: XT2323-1, FCC ID: IHDT56AL8) for the portions of the circuitry corresponding to the data being re-used. Based on their similarity, the FCC Part 27 (equipment class: PCE) reuse the original model's result and do spot-check, following the FCC KDB 484596 D01 v01.

The applicant takes full responsibility that the test data as referenced in this report represent compliance for this FCC ID: IHDT56AL9.

2.2 Model Difference Information

The **main** difference between FCC ID: IHDT56AL8 and FCC ID: IHDT56AL9 is as below:

- Remove LTE B19/32/42/43/38C, 5G NR n8/n38/n40.
- Add LTE B14/29/30/46/71/5B/66B/48C, 5G NR n12/n14/n25/n29/n30/n48/n70/n71;

Other differences and all the details of similarity and difference can be found in the confidential documents (XT2323-2, XT2323-5, XT2323-6_Operational Description of Product Equality Declaration).

2.3 Reference detail Section:

Rule Part	Equipment Class	Frequency Band (MHz)	Reference FCC ID (Parent)	Type Grant/ Permissive Change	Reference Title	FCC ID Filling (Variant)	Report Title/Section
27	PCE (5GNR)	5GNR n7/n66	IHDT56AL8	Original Grant	FG340401I	IHDT56AL9	All sections applicable

2.4 Spot Check Verification Data Section

Conducted power test and radiated spurious emission test against the variant model based on the worst-case condition from the original model was performed in this filing to demonstrate the test data from original model remains representative for the variant model

Summary for power and RSE spot check for each rule entry and technology is listed as below:

Test Item	Mode	IHDT56AL8 Parent Worst Result	IHDT56AL9 Variant Check Result	Difference (dB)
Conducted Power (dBm)	5GNR n7	23.33	23.26	-0.07
	5GNR n66	23.45	23.43	-0.02
	ENDC 2A_n66A	23.52	22.98	-0.54
Radiated Spurious Emission (dBm)	5GNR n7	-18.13	-20.66	-2.53

Conclusion:

Radiated spurious emission test against the variant model based on the worst-case condition from the original model was performed in this filing to demonstrate the test data from original model remains representative for the variant model.

Based on the spot check test result, the test data from the original model is representative for the variant model. The power level and RSE spot check are shown within expected level compliant to limit line.

We are using power and EIRP measurements from the original parent model reports to list on the grant.

We confirm that the test data reuse policy of FCC KDB 484596 D01 Referencing Test Data v01 has been followed and the test data as referenced from the parent model report represents compliance with new FCC ID.

3 Test Configuration of Equipment Under Test

3.1 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 flip open and close state in three orthogonal panels X, Y, Z. The worst cases (X plane with flip close, Z plane with flip open) were recorded in this report

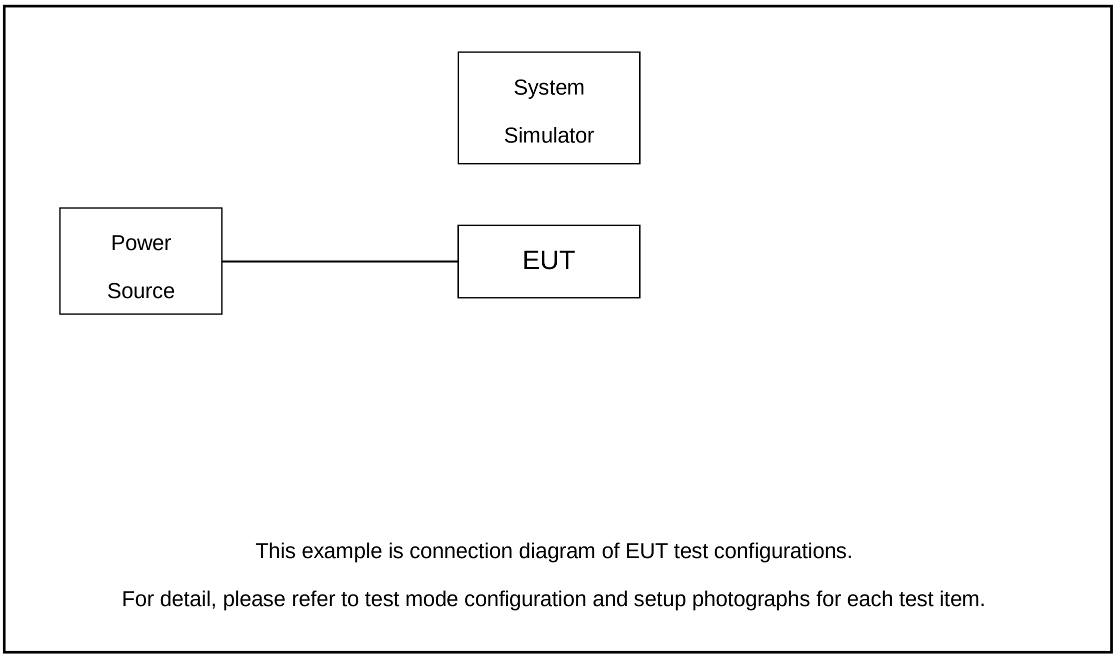
The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.

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	40	50	60	70	80	90	100	PI/2 BPSK	QPSK	16 QAM	64 QAM	256 QAM	1	Full	L	M	H
Max. Output Power	n12	v	v	v	-	-	-	-	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v
	n41	-	-	-	v	-	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	n70	v	v	v	-	-	-	-	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v
Peak-to-Average Ratio	n12			v	-	-	-	-	-	-	-	-	-	-	v	v				v	v		v	
	n41	-	-	-		-								v	v	v				v	v		v	
	n70			v	-	-	-	-	-	-	-	-	-	-	v	v				v	v		v	
26dB and 99% Bandwidth	n12	v	v	v	-	-	-	-	-	-	-	-	-	-		v	v	v	v		v		v	
	n41	-	-	-	v	-	v	v	v	v	v	v	v	v		v	v	v	v		v		v	
	n70	v	v	v	-	-	-	-	-	-	-	-	-	-		v	v	v	v		v		v	
Conducted Band Edge	n12	v	v	v	-	-	-	-	-	-	-	-	-	-	v	v				v	v	v		v
	n41	-	-	-	v	-				v				v	v	v				v	v	v		v
	n70	v	v	v	-	-	-	-	-	-	-	-	-	-	v	v				v	v	v		v
Conducted Spurious Emission	n12	v	v	v	-	-	-	-	-	-	-	-	-	-	v	v				v		v	v	v
	n41	-	-	-	v	-				v				v	v	v				v		v	v	v
	n70	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	50	60	70	80	90	100	PI/2 BPSK	QPSK	16 QAM	64 QAM	256 QAM	1	Full	L	M	H
Frequency Stability	n12	v			-	-	-	-	-	-	-	-	-	-		v					v		v	
	n41	-	-	-	v	-										v					v		v	
	n70	v			-	-	-	-	-	-	-	-	-	-		v					v		v	
E.R.P / E.I.R.P	n12	v	v	v	-	-	-	-	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v
	n41	-	-	-	v	-	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	n70	v	v	v	-	-	-	-	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v
Radiated Spurious Emission	n12	Worst Case																				v	v	v
	n41	Worst Case																				v	v	v
	n66	Worst Case																				v	v	v
	n70	Worst Case																				v	v	v
Note	The mark "**v** " means that this configuration is chosen for testing The mark "-" means that this bandwidth is not supported. 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. Frequency Stability : Normal Voltage = 3.91V ; Low Voltage =3.4V. ; High Voltage =4.5V All test items are based on engineering evaluation.																							

3.2 Connection Diagram of Test System



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

3.3 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

3.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor 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 and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.4 dB and 20dB attenuator.

Example :

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.4 + 20 = 24.4 (dB)

3.5 Frequency List of Low/Middle/High Channels

5G NR n7 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
40	Channel	504000	507000	510000
	Frequency	2520	2535	2550
30	Channel	503000	507000	511000
	Frequency	2515	2535	2555
25	Channel	502500	507000	511500
	Frequency	2512.5	2535	2557.5
20	Channel	502000	507000	512000
	Frequency	2510	2535	2560
15	Channel	501500	507000	512500
	Frequency	2507.5	2535	2562.5
10	Channel	501000	507000	513000
	Frequency	2505	2535	2565
5	Channel	500500	507000	513500
	Frequency	2502.5	2535	2567.5

5G NR n12 Channel and Frequency List for SCS 15k/30k				
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 n41 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
100	Channel	509202	518598	528000
	Frequency	2546.01	2592.99	2640
90	Channel	508200	518598	528996
	Frequency	2541	2592.99	2644.98
80	Channel	507204	518598	529998
	Frequency	2536.02	2592.99	2649.99
70	Channel	506202	518598	531000
	Frequency	2531.01	2592.99	2655
60	Channel	505200	518598	531996
	Frequency	2526	2592.99	2659.98
50	Channel	504204	518598	532998
	Frequency	2521.02	2592.99	2664.99
40	Channel	503202	518598	534000
	Frequency	2516.01	2592.99	2670
30	Channel	502200	518598	534996
	Frequency	2511	2592.99	2674.98
20	Channel	501204	518598	535998
	Frequency	2506.02	2592.99	2679.99

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
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 n70 Channel and Frequency List for SCS 15k/30k				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
15	Channel		340500	
	Frequency		1702.5	
10	Channel	340000	340500	341000
	Frequency	1700	1702.5	1705
5	Channel	399500	340500	341500
	Frequency	1697.5	1702.5	1707.5

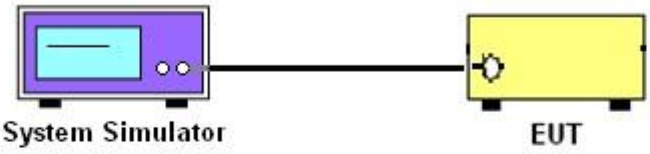
4 Conducted Test Items

4.1 Measuring Instruments

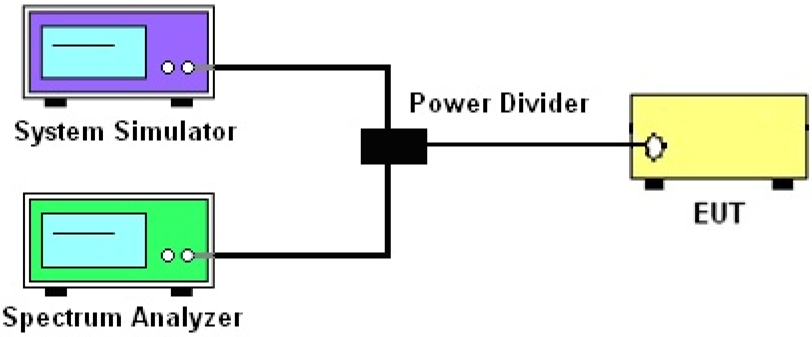
See list of measuring instruments of this test report.

4.2 Test Setup

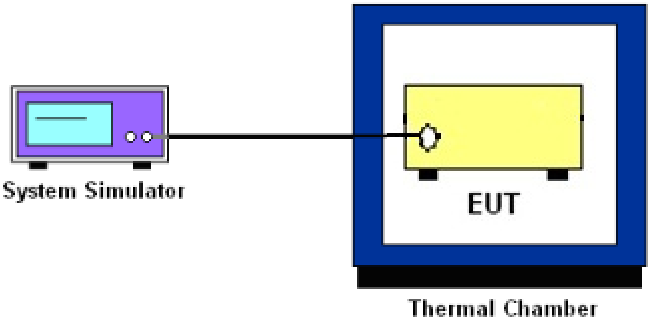
4.2.1 Conducted Output Power



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



4.2.3 Frequency Stability



4.3 Test Result of Conducted Test

Please refer to Appendix A.

4.4 Conducted Output Power and ERP/EIRP

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

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

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

The EIRP of mobile transmitters must not exceed 2 Watts for 5G NR n7, n41.

The EIRP of mobile transmitters must not exceed 1 Watts for 5G NR n66, n70.

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

4.4.2 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.

4.5 Peak-to-Average Ratio

4.5.1 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.

4.5.2 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.

4.6 Occupied Bandwidth

4.6.1 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.

4.6.2 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.

4.7 Conducted Band Edge

4.7.1 Description of Conducted Band Edge Measurement

27.53 (h)

For operations in the 1710 – 1755 MHz band, the FCC limit is 43 + $10\log_{10}$(P[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.

27.53(m)(4)

For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

4.7.2 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. For 5G NR n7/n41, the other 40 dB, and 55 dB have additionally applied same calculation above.
10. 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.

4.8 Conducted Spurious Emission

4.8.1 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.

For 5G NR n7/n41:

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 55 + 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.

4.8.2 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.
11. For 5G NR n7/n41
    The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [55+ 10log(P)] (dB)
    = [30+ 10log(P)] (dBm) - [55+ 10log(P)] (dB)
    = -25dBm.

4.9 Frequency Stability

4.9.1 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.

4.9.2 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.

4.9.3 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.

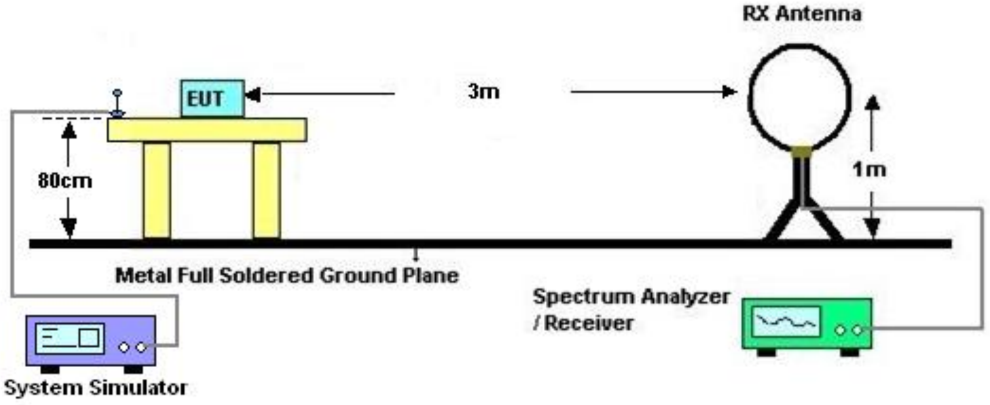
5 Radiated Test Items

5.1 Measuring Instruments

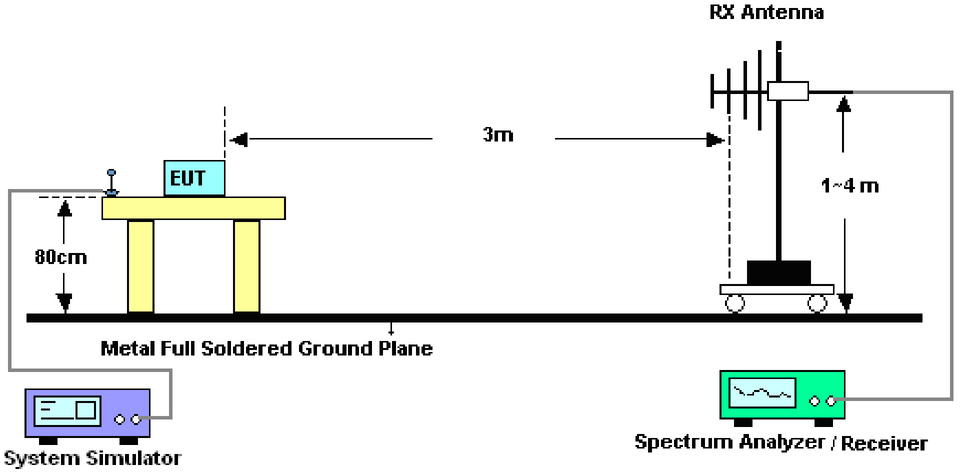
See list of measuring instruments of this test report.

5.2 Test Setup

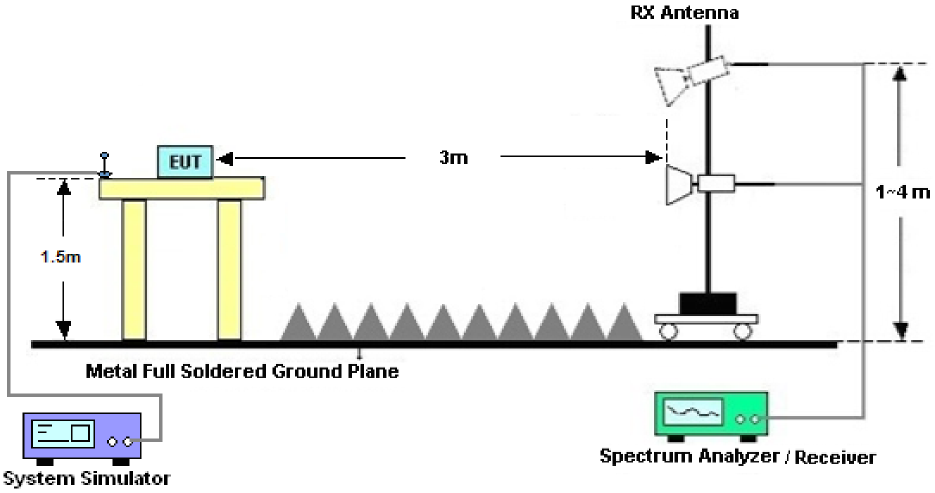
5.2.1 For radiated test below 30MHz



5.2.2 For radiated test from 30MHz to 1GHz



5.2.3 For radiated test above 1GHz



5.3 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.

5.4 Radiated Spurious Emission

5.4.1 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.

For 5G NR n7/n41

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 55 + 10 log (P) dB.

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

5.4.2 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.
13. For 5G NR n7/n41:
    The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)

6 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EXA Spectrum Analyzer	Keysight	N9010B	MY57471079	10Hz-44G,MAX 30dB	Oct. 12, 2022	May 18, 20233~ May 25, 2023	Oct. 11, 2023	Conducted (TH01-KS)
Power divider	STI	STI08-0055	-	0.5~40GHz	NCR	May 18, 20233~ May 25, 2023	NCR	Conducted (TH01-KS)
Temperature & humidity chamber	Hongzhan	LP-150U	H2014011440	-40~+150°C 20%~95%RH	Jul. 15, 2022	May 18, 20233~ May 25, 2023	Jul. 14, 2023	Conducted (TH01-KS)
EXA Spectrum Analyzer	Keysight	N9010B	MY57471079	10Hz-44G,MAX 30dB	Oct. 12, 2022	May 17, 20233~ May 19, 2023	Oct. 11, 2023	Conducted (TH01-SZ)
Power Divider	TOJOIN	PS-2SM-04 265	60.06.020.007 7	0.4GHz~26.5GHz	Dec. 25, 2022	May 17, 20233~ May 19, 2023	Dec. 24, 2023	Conducted (TH01-SZ)
Thermal Chamber	Ten Billion Hongzhangroup	LP-150U	H2014081803	-40~+150°C	Jul. 07, 2022	May 17, 20233~ May 19, 2023	Jul. 06, 2023	Conducted (TH01-SZ)
EXA Spectrum Analyzer	Keysight	N9010B	MY57471079	10Hz-44G,MAX 30dB	Oct. 12, 2022	May 29, 2023	Oct. 11, 2023	Radiation (03CH04-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 16, 2022	May 29, 2023	Oct. 15, 2023	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz-1GHz	Apr. 09, 2023	May 29, 2023	Apr. 08, 2024	Radiation (03CH04-KS)
Horn Antenna	Schwarzbeck	BBHA9120D	1284	1GHz~18GHz	Oct. 16, 2022	May 29, 2023	Oct. 15, 2023	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 08, 2023	May 29, 2023	Jan. 07, 2024	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	380827	9KHz-1GHz	Jul. 11, 2022	May 29, 2023	Jul. 10, 2023	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40G GA	060728	18~40GHz	Jan. 05, 2023	May 29, 2023	Jan. 04, 2024	Radiation (03CH04-KS)
high gain Amplifier	EM	EM01G18G A	060840	1Ghz-18Ghz	Oct. 12, 2022	May 29, 2023	Oct. 11, 2023	Radiation (03CH04-KS)
Amplifier	Agilent	8449B	3008A02370	1Ghz-18Ghz	Oct. 12, 2022	May 29, 2023	Oct. 11, 2023	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	May 29, 2023	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	May 29, 2023	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	May 29, 2023	NCR	Radiation (03CH04-KS)

NCR: No Calibration Required

7 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 for TH01-KS

Test Item	Uncertainty
Conducted Power	±0.46 dB
Conducted Emissions	±0.48 dB
Occupied Channel Bandwidth	±0.1 %

Uncertainty of Conducted Measurement for TH01-SZ

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))	3.82 dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.56 dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.54 dB

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

Appendix A. Test Results of Conducted Test

Test Engineer :	Simle Wang	**Temperature :**	22~23℃
		Relative Humidity :	40~42%

Software Version: 23.04.1201

FR1 N12(ANT0)

Transmitter Conducted Output Power And ERP, (G_T - L_C)=-4.57dB

NR Band	SCS	BandWidth	Arfcn	Freq(MHz)	Modulation	RB	Conducted Power(dBm)	ERP (dBm)	ERP(W)
12	15	5	140300	701.5	DFT-s-OFDM PI/2 BPSK	1@1	22.63	15.91	0.0390
12	15	5	140300	701.5	DFT-s-OFDM QPSK	1@1	22.73	16.01	0.0399
12	15	5	140300	701.5	DFT-s-OFDM 16 QAM	1@1	22.73	16.01	0.0399
12	15	5	141500	707.5	DFT-s-OFDM PI/2 BPSK	1@1	22.69	15.97	0.0395
12	15	5	141500	707.5	DFT-s-OFDM QPSK	1@1	22.81	16.09	0.0406
12	15	5	141500	707.5	DFT-s-OFDM 16 QAM	1@1	22.82	16.1	0.0407
12	15	5	142700	713.5	DFT-s-OFDM PI/2 BPSK	1@1	22.65	15.93	0.0392
12	15	5	142700	713.5	DFT-s-OFDM QPSK	1@1	22.76	16.04	0.0402
12	15	5	142700	713.5	DFT-s-OFDM 16 QAM	1@1	22.68	15.96	0.0394
12	15	10	140800	704	DFT-s-OFDM PI/2 BPSK	1@1	22.72	16	0.0398
12	15	10	140800	704	DFT-s-OFDM QPSK	1@1	22.8	16.08	0.0406
12	15	10	140800	704	DFT-s-OFDM 16 QAM	1@1	22.78	16.06	0.0404
12	15	10	141500	707.5	DFT-s-OFDM PI/2 BPSK	1@1	22.65	15.93	0.0392
12	15	10	141500	707.5	DFT-s-OFDM QPSK	1@1	22.76	16.04	0.0402
12	15	10	141500	707.5	DFT-s-OFDM 16 QAM	1@1	22.78	16.06	0.0404
12	15	10	142200	711	DFT-s-OFDM PI/2 BPSK	1@1	22.7	15.98	0.0396
12	15	10	142200	711	DFT-s-OFDM QPSK	1@1	22.78	16.06	0.0404
12	15	10	142200	711	DFT-s-OFDM 16 QAM	1@1	22.85	16.13	0.0410
12	15	15	141300	706.5	DFT-s-OFDM PI/2 BPSK	36@18	22.84	16.12	0.0409
12	15	15	141300	706.5	DFT-s-OFDM PI/2 BPSK	1@1	22.83	16.11	0.0408
12	15	15	141300	706.5	DFT-s-OFDM PI/2 BPSK	1@77	22.71	15.99	0.0397
12	15	15	141300	706.5	DFT-s-OFDM QPSK	36@18	22.87	16.15	0.0412
12	15	15	141300	706.5	DFT-s-OFDM QPSK	1@1	22.84	16.12	0.0409
12	15	15	141300	706.5	DFT-s-OFDM QPSK	1@77	22.8	16.08	0.0406
12	15	15	141300	706.5	DFT-s-OFDM 16 QAM	36@18	22.88	16.16	0.0413
12	15	15	141300	706.5	DFT-s-OFDM 16 QAM	1@1	22.93	16.21	0.0418
12	15	15	141300	706.5	DFT-s-OFDM 16 QAM	1@77	22.77	16.05	0.0403
12	15	15	141300	706.5	DFT-s-OFDM 64 QAM	36@18	21.8	15.08	0.0322
12	15	15	141300	706.5	DFT-s-OFDM 64 QAM	1@1	22	15.28	0.0337
12	15	15	141300	706.5	DFT-s-OFDM 64 QAM	1@77	21.9	15.18	0.0330
12	15	15	141300	706.5	DFT-s-OFDM 256 QAM	36@18	19.64	12.92	0.0196
12	15	15	141300	706.5	DFT-s-OFDM 256 QAM	1@1	19.56	12.84	0.0192
12	15	15	141300	706.5	DFT-s-OFDM 256 QAM	1@77	19.48	12.76	0.0189
12	15	15	141300	706.5	CP-OFDM QPSK	39@19	22.78	16.06	0.0404
12	15	15	141300	706.5	CP-OFDM QPSK	1@1	22.58	15.86	0.0385

12	15	15	141300	706.5	CP-OFDM QPSK	1@77	22.33	15.61	0.0364
12	15	15	141500	707.5	DFT-s-OFDM PI/2 BPSK	36@18	22.87	16.15	0.0412
12	15	15	141500	707.5	DFT-s-OFDM PI/2 BPSK	1@1	22.85	16.13	0.0410
12	15	15	141500	707.5	DFT-s-OFDM PI/2 BPSK	1@77	22.67	15.95	0.0394
12	15	15	141500	707.5	DFT-s-OFDM QPSK	36@18	22.85	16.13	0.0410
12	15	15	141500	707.5	DFT-s-OFDM QPSK	1@1	22.88	16.16	0.0413
12	15	15	141500	707.5	DFT-s-OFDM QPSK	1@77	22.83	16.11	0.0408
12	15	15	141500	707.5	DFT-s-OFDM 16 QAM	36@18	22.84	16.12	0.0409
12	15	15	141500	707.5	DFT-s-OFDM 16 QAM	1@1	22.97	16.25	0.0422
12	15	15	141500	707.5	DFT-s-OFDM 16 QAM	1@77	22.98	16.26	0.0423
12	15	15	141500	707.5	DFT-s-OFDM 64 QAM	36@18	21.78	15.06	0.0321
12	15	15	141500	707.5	DFT-s-OFDM 64 QAM	1@1	22.01	15.29	0.0338
12	15	15	141500	707.5	DFT-s-OFDM 64 QAM	1@77	21.85	15.13	0.0326
12	15	15	141500	707.5	DFT-s-OFDM 256 QAM	36@18	19.65	12.93	0.0196
12	15	15	141500	707.5	DFT-s-OFDM 256 QAM	1@1	19.61	12.89	0.0195
12	15	15	141500	707.5	DFT-s-OFDM 256 QAM	1@77	19.43	12.71	0.0187
12	15	15	141500	707.5	CP-OFDM QPSK	39@19	22.75	16.03	0.0401
12	15	15	141500	707.5	CP-OFDM QPSK	1@1	22.87	16.15	0.0412
12	15	15	141500	707.5	CP-OFDM QPSK	1@77	22.3	15.58	0.0361
12	15	15	141700	708.5	DFT-s-OFDM PI/2 BPSK	36@18	22.87	16.15	0.0412
12	15	15	141700	708.5	DFT-s-OFDM PI/2 BPSK	1@1	22.78	16.06	0.0404
12	15	15	141700	708.5	DFT-s-OFDM PI/2 BPSK	1@77	22.68	15.96	0.0394
12	15	15	141700	708.5	DFT-s-OFDM QPSK	36@18	22.77	16.05	0.0403
12	15	15	141700	708.5	DFT-s-OFDM QPSK	1@1	22.93	16.21	0.0418
12	15	15	141700	708.5	DFT-s-OFDM QPSK	1@77	22.92	16.2	0.0417
12	15	15	141700	708.5	DFT-s-OFDM 16 QAM	36@18	22.88	16.16	0.0413
12	15	15	141700	708.5	DFT-s-OFDM 16 QAM	1@1	22.45	15.73	0.0374
12	15	15	141700	708.5	DFT-s-OFDM 16 QAM	1@77	22.32	15.6	0.0363
12	15	15	141700	708.5	DFT-s-OFDM 64 QAM	36@18	21.73	15.01	0.0317
12	15	15	141700	708.5	DFT-s-OFDM 64 QAM	1@1	21.97	15.25	0.0335
12	15	15	141700	708.5	DFT-s-OFDM 64 QAM	1@77	21.82	15.1	0.0324
12	15	15	141700	708.5	DFT-s-OFDM 256 QAM	36@18	19.68	12.96	0.0198
12	15	15	141700	708.5	DFT-s-OFDM 256 QAM	1@1	19.58	12.86	0.0193
12	15	15	141700	708.5	DFT-s-OFDM 256 QAM	1@77	19.39	12.67	0.0185
12	15	15	141700	708.5	CP-OFDM QPSK	39@19	22.71	15.99	0.0397
12	15	15	141700	708.5	CP-OFDM QPSK	1@1	22.83	16.11	0.0408
12	15	15	141700	708.5	CP-OFDM QPSK	1@77	22.41	15.69	0.0371

Frequency Stability

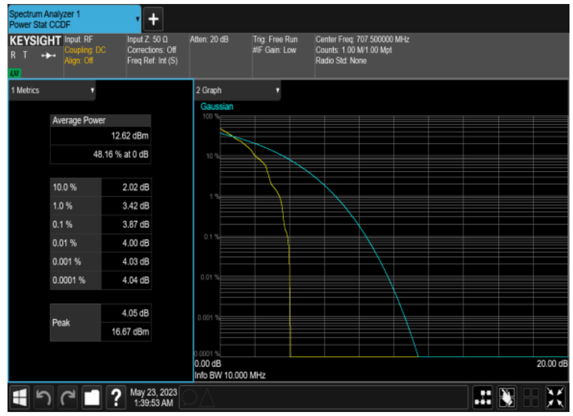
NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Deviation (ppm)	Verdict	Environment
12	15	5	141500	707.5	DFT-s-OFDM QPSK	25@0	0.0019	**PASS**	NV
12	15	5	141500	707.5	DFT-s-OFDM QPSK	25@0	0.0015	**PASS**	LV
12	15	5	141500	707.5	DFT-s-OFDM QPSK	25@0	0.0016	**PASS**	HV
12	15	5	141500	707.5	DFT-s-OFDM QPSK	25@0	0.0023	**PASS**	-30℃
12	15	5	141500	707.5	DFT-s-OFDM QPSK	25@0	0.0025	**PASS**	-20℃
12	15	5	141500	707.5	DFT-s-OFDM QPSK	25@0	-0.0018	**PASS**	-10℃
12	15	5	141500	707.5	DFT-s-OFDM QPSK	25@0	0.0013	**PASS**	0℃
12	15	5	141500	707.5	DFT-s-OFDM QPSK	25@0	-0.0009	**PASS**	10℃
12	15	5	141500	707.5	DFT-s-OFDM QPSK	25@0	0.0014	**PASS**	20℃
12	15	5	141500	707.5	DFT-s-OFDM QPSK	25@0	0.0025	**PASS**	30℃
12	15	5	141500	707.5	DFT-s-OFDM QPSK	25@0	0.0019	**PASS**	40℃
12	15	5	141500	707.5	DFT-s-OFDM QPSK	25@0	0.0033	**PASS**	50℃

Peak to Average Ratio

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result (dB)	Limit (dB)	Verdict
12	15	15	141500	707.5	DFT-s-OFDM PI/2 BPSK	75@0	3.35	13	**PASS**
12	15	15	141500	707.5	DFT-s-OFDM PI/2 BPSK	1@0	3.87	13	**PASS**
12	15	15	141500	707.5	DFT-s-OFDM QPSK	75@0	4.97	13	**PASS**
12	15	15	141500	707.5	DFT-s-OFDM QPSK	1@0	4.84	13	**PASS**

N12(15M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH

N12(15M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Left_Mid_CH



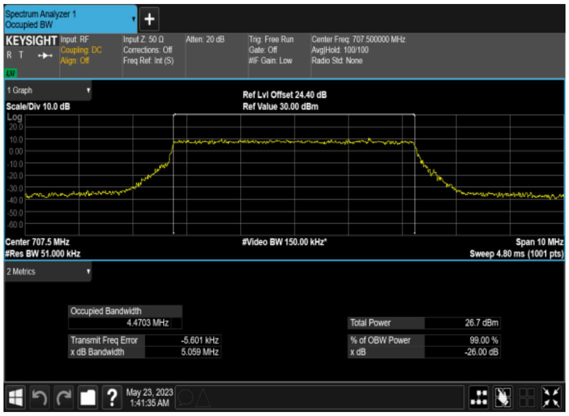
N12(15M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH

N12(15M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH

Occupied Bandwidth

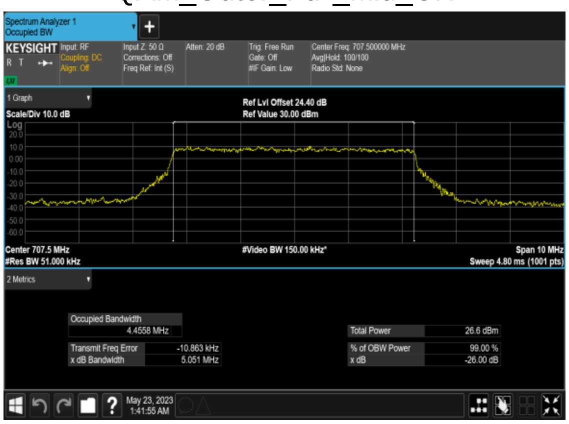
NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	OBW (MHz)	26dB BW (MHz)
12	15	5	141500	707.5	CP-OFDM QPSK	25@0	4.4703	5.059
12	15	5	141500	707.5	CP-OFDM 16 QAM	25@0	4.486	5.115
12	15	5	141500	707.5	CP-OFDM 64 QAM	25@0	4.4558	5.051
12	15	5	141500	707.5	CP-OFDM 256 QAM	25@0	4.475	5.003
12	15	10	141500	707.5	CP-OFDM QPSK	52@0	9.2516	10.09
12	15	10	141500	707.5	CP-OFDM 16 QAM	52@0	9.2715	9.794
12	15	10	141500	707.5	CP-OFDM 64 QAM	52@0	9.2299	9.824
12	15	10	141500	707.5	CP-OFDM 256 QAM	52@0	9.2524	9.898
12	15	15	141500	707.5	CP-OFDM QPSK	79@0	14.076	14.68
12	15	15	141500	707.5	CP-OFDM 16 QAM	79@0	14.06	14.91
12	15	15	141500	707.5	CP-OFDM 64 QAM	79@0	14.076	14.85
12	15	15	141500	707.5	CP-OFDM 256 QAM	79@0	14.055	14.76

N12(5M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

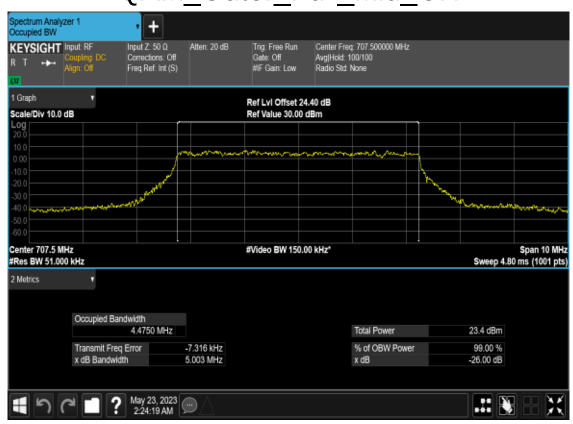


N12(5M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH

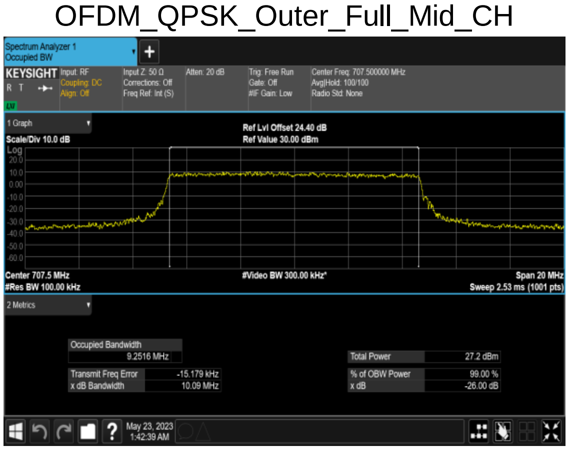
N12(5M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



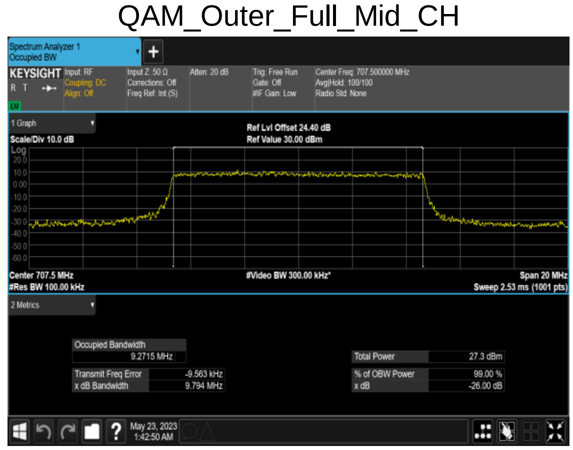
N12(5M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



N12(10M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



N12(10M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH

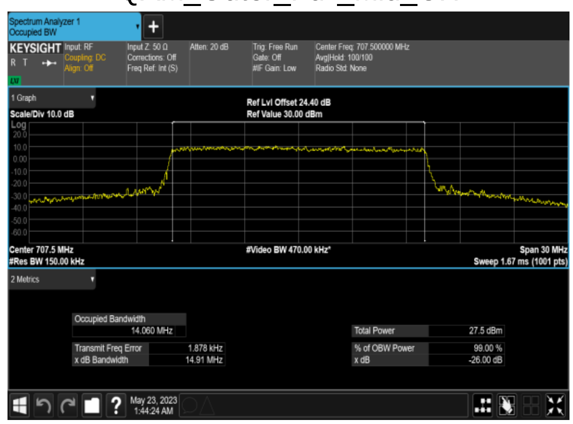


N12(10M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH

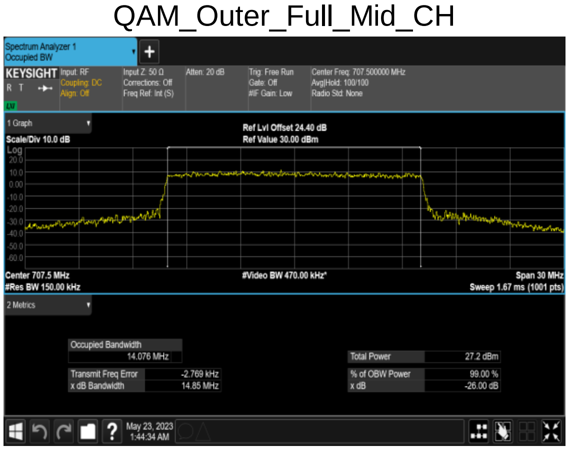
N12(10M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

N12(15M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

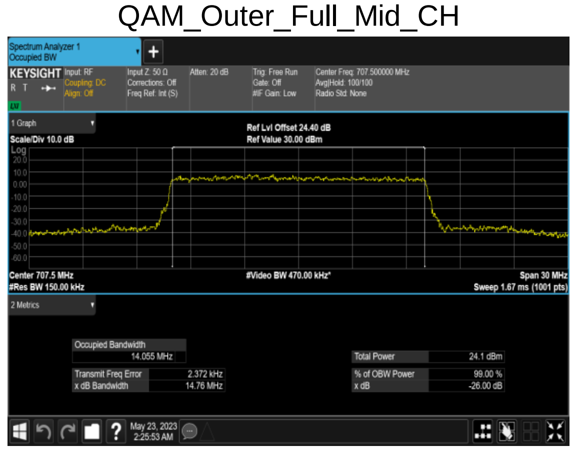
N12(15M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



N12(15M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



N12(15M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

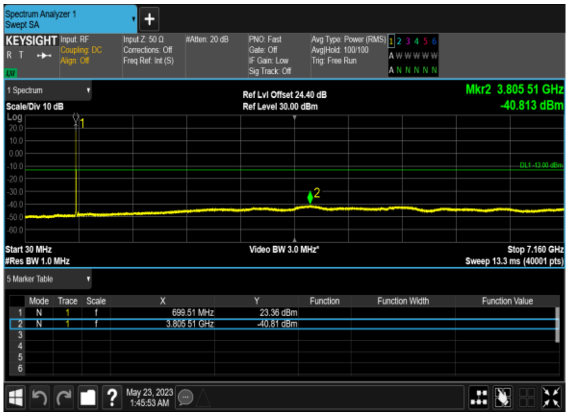


Conducted Spurious Emissions

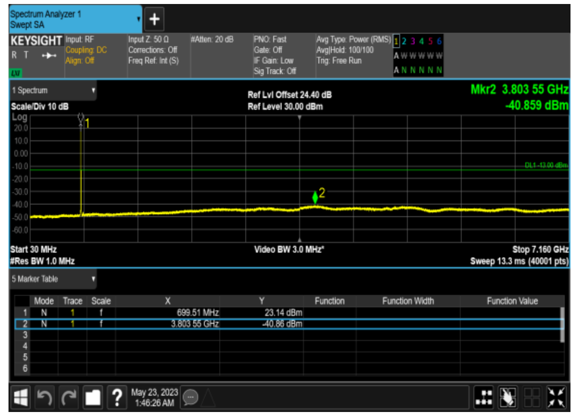
NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
12	15	5	140300	701.5	DFT-s-OFDM BPSK	1@0	see graph	**---**
12	15	5	140300	701.5	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
12	15	5	140300	701.5	DFT-s-OFDM QPSK	1@0	see graph	**---**
12	15	5	140300	701.5	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
12	15	5	141500	707.5	DFT-s-OFDM BPSK	1@0	see graph	**---**
12	15	5	141500	707.5	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
12	15	5	141500	707.5	DFT-s-OFDM QPSK	1@0	see graph	**---**
12	15	5	141500	707.5	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
12	15	5	142700	713.5	DFT-s-OFDM BPSK	1@0	see graph	**---**
12	15	5	142700	713.5	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
12	15	5	142700	713.5	DFT-s-OFDM QPSK	1@0	see graph	**---**
12	15	5	142700	713.5	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
12	15	10	140800	704.0	DFT-s-OFDM BPSK	1@0	see graph	**---**
12	15	10	140800	704.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
12	15	10	140800	704.0	DFT-s-OFDM QPSK	1@0	see graph	**---**
12	15	10	140800	704.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
12	15	10	141500	707.5	DFT-s-OFDM BPSK	1@0	see graph	**---**
12	15	10	141500	707.5	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
12	15	10	141500	707.5	DFT-s-OFDM QPSK	1@0	see graph	**---**
12	15	10	141500	707.5	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
12	15	10	142200	711.0	DFT-s-OFDM BPSK	1@0	see graph	**---**

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

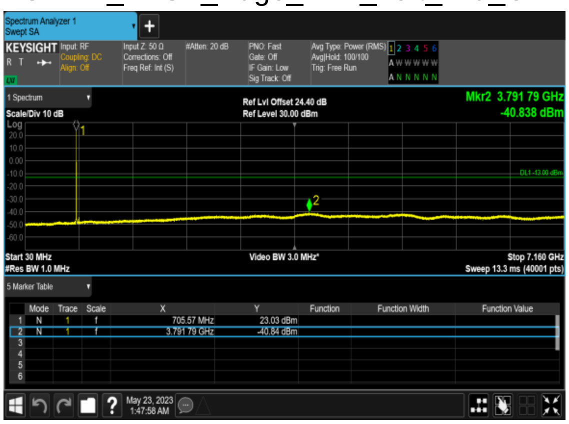
N12(5M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



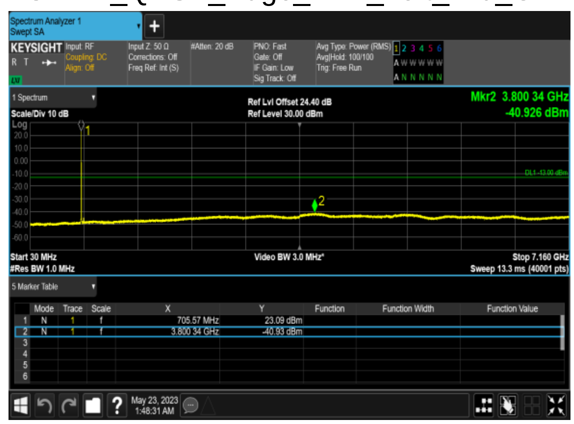
N12(5M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



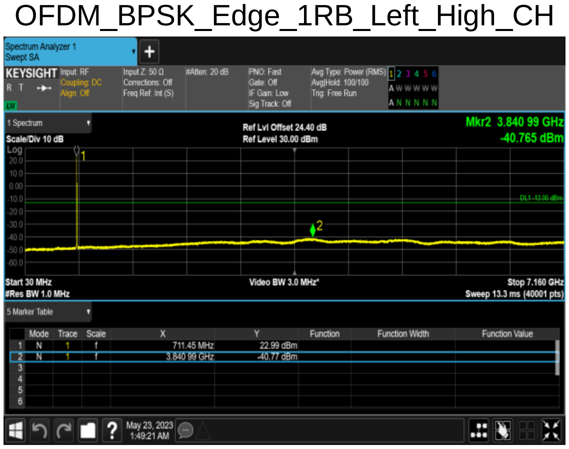
N12(5M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH



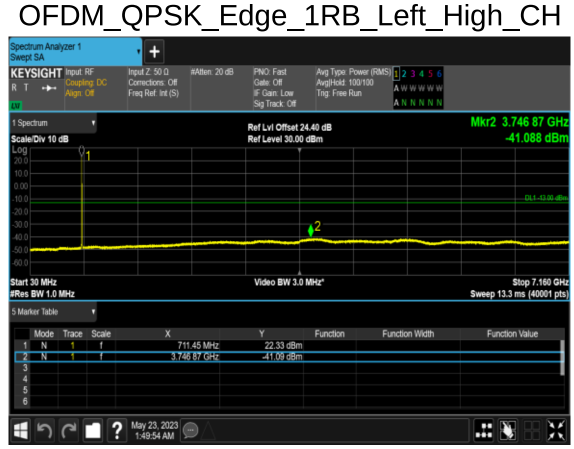
N12(5M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



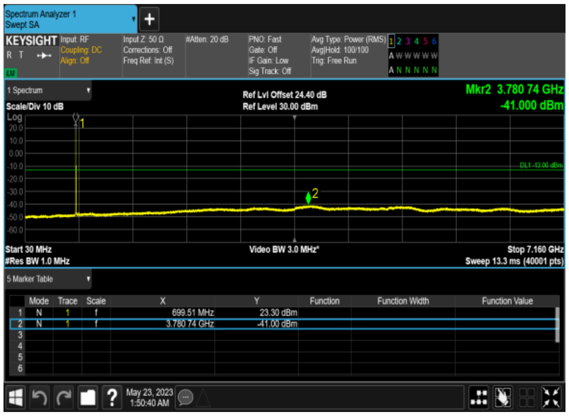
N12(5M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH



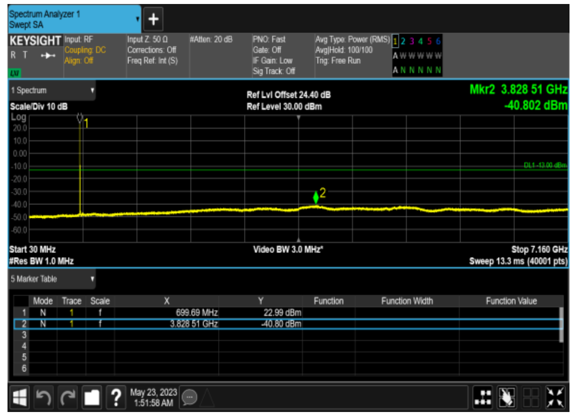
N12(5M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



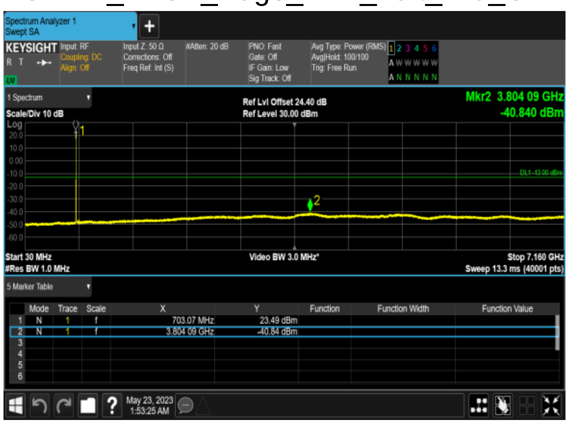
N12(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



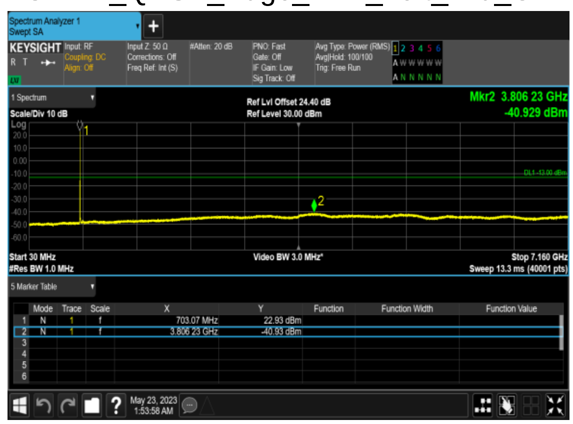
N12(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



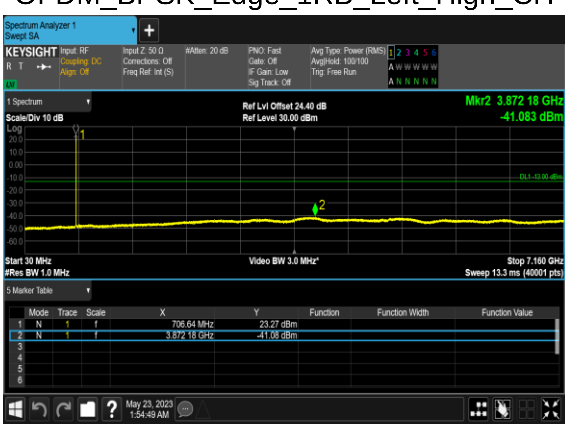
N12(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH



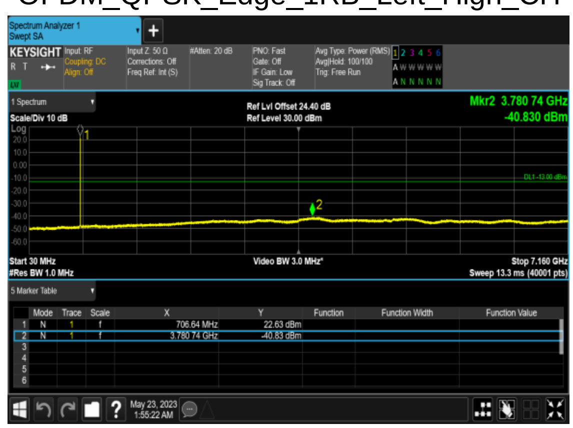
N12(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



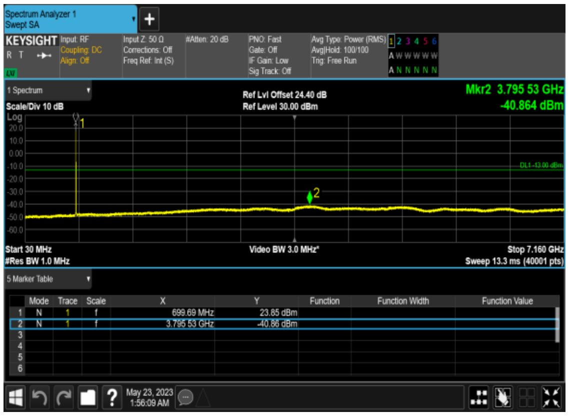
N12(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH



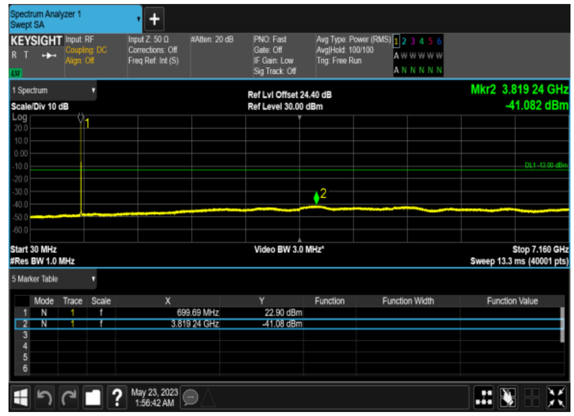
N12(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



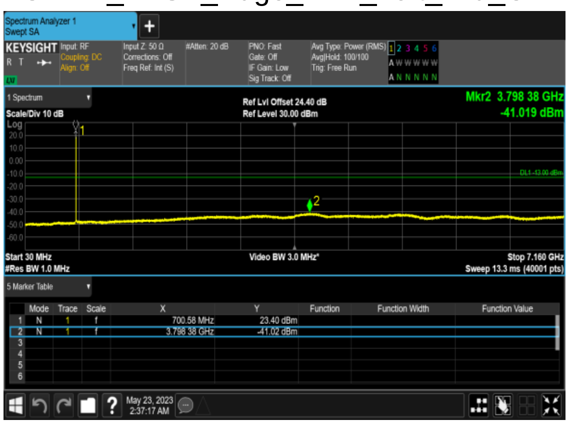
N12(15M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



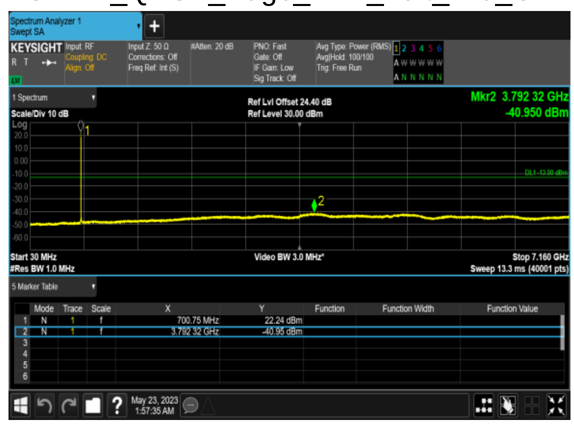
N12(15M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



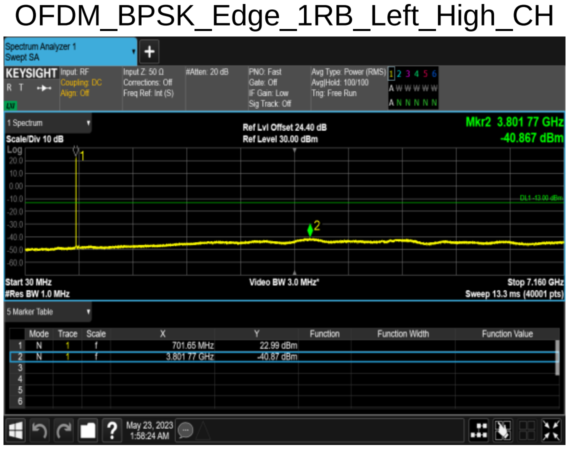
N12(15M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH



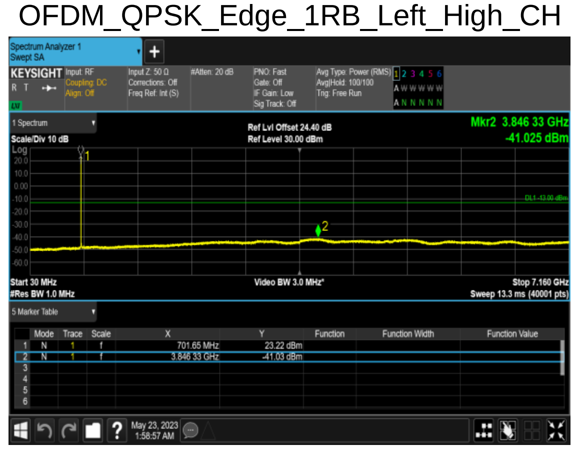
N12(15M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH



N12(15M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH



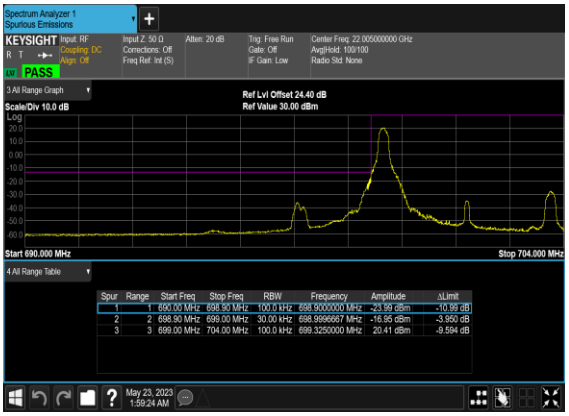
N12(15M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH



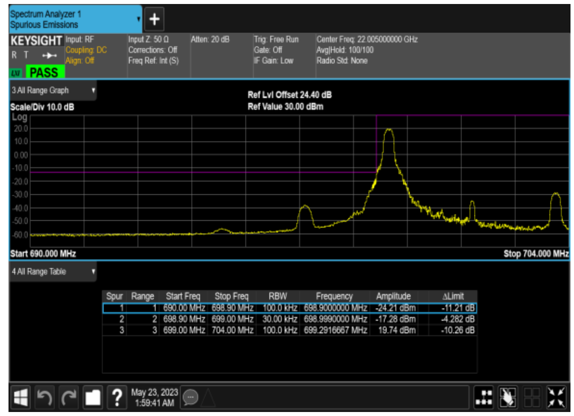
Conducted Band Edge

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
12	15	5	140300	701.5	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
12	15	5	140300	701.5	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
12	15	5	140300	701.5	DFT-s-OFDM BPSK	25@0	see graph	**PASS**
12	15	5	140300	701.5	DFT-s-OFDM QPSK	25@0	see graph	**PASS**
12	15	5	142700	713.5	DFT-s-OFDM BPSK	1@24	see graph	**PASS**
12	15	5	142700	713.5	DFT-s-OFDM QPSK	1@24	see graph	**PASS**
12	15	5	142700	713.5	DFT-s-OFDM BPSK	25@0	see graph	**PASS**
12	15	5	142700	713.5	DFT-s-OFDM QPSK	25@0	see graph	**PASS**
12	15	10	140800	704.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
12	15	10	140800	704.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
12	15	10	140800	704.0	DFT-s-OFDM BPSK	50@0	see graph	**PASS**
12	15	10	140800	704.0	DFT-s-OFDM QPSK	50@0	see graph	**PASS**
12	15	10	142200	711.0	DFT-s-OFDM BPSK	1@51	see graph	**PASS**
12	15	10	142200	711.0	DFT-s-OFDM QPSK	1@51	see graph	**PASS**
12	15	10	142200	711.0	DFT-s-OFDM BPSK	50@0	see graph	**PASS**
12	15	10	142200	711.0	DFT-s-OFDM QPSK	50@0	see graph	**PASS**
12	15	15	141300	706.5	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
12	15	15	141300	706.5	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
12	15	15	141300	706.5	DFT-s-OFDM BPSK	75@0	see graph	**PASS**
12	15	15	141300	706.5	DFT-s-OFDM QPSK	75@0	see graph	**PASS**
12	15	15	141700	708.5	DFT-s-OFDM BPSK	1@78	see graph	**PASS**
12	15	15	141700	708.5	DFT-s-OFDM QPSK	1@78	see graph	**PASS**
12	15	15	141700	708.5	DFT-s-OFDM BPSK	75@0	see graph	**PASS**
12	15	15	141700	708.5	DFT-s-OFDM QPSK	75@0	see graph	**PASS**

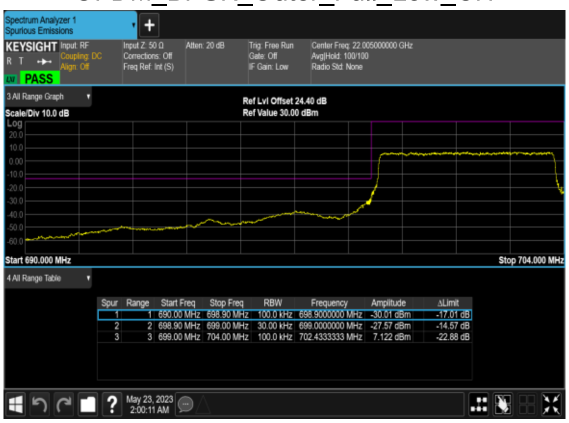
N12(5M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



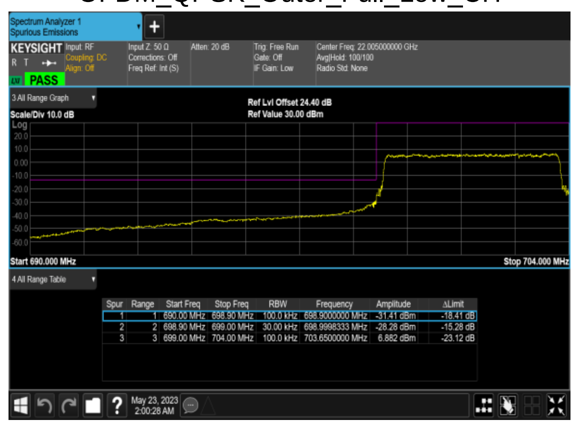
N12(5M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



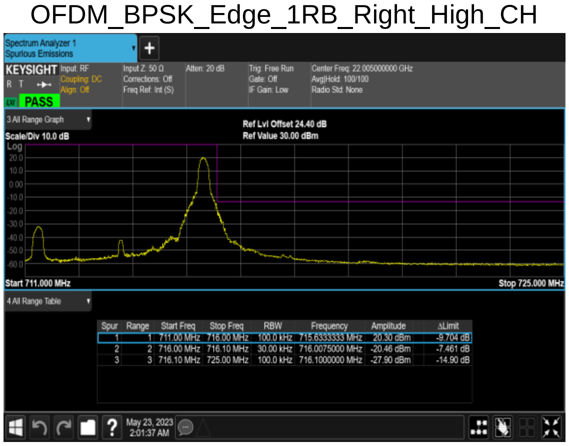
N12(5M)_DFT-s-OFDM_BPSK_Outer_Full_Low_CH



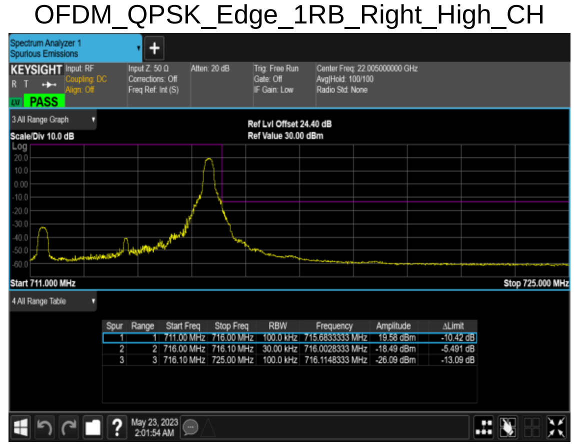
N12(5M)_DFT-s-OFDM_QPSK_Outer_Full_Low_CH



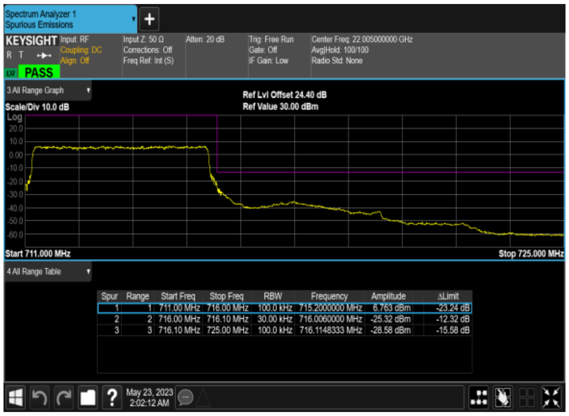
N12(5M)_DFT-s-OFDM_BPSK_Edge_1RB_Right_High_CH



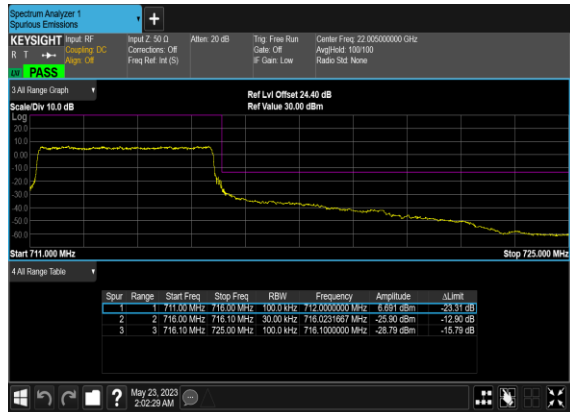
N12(5M)_DFT-s-OFDM_QPSK_Edge_1RB_Right_High_CH



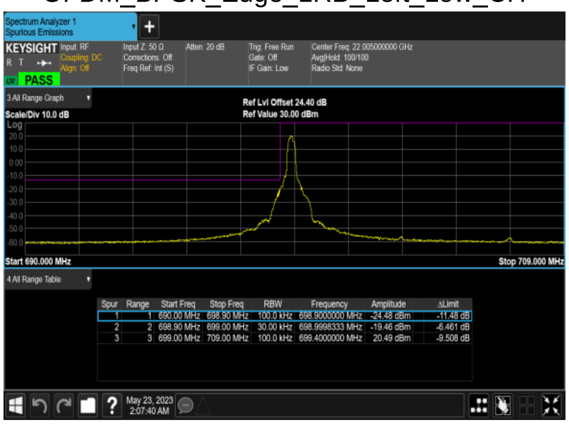
N12(5M)_DFT-s-OFDM_BPSK_Outer_Full_High_CH



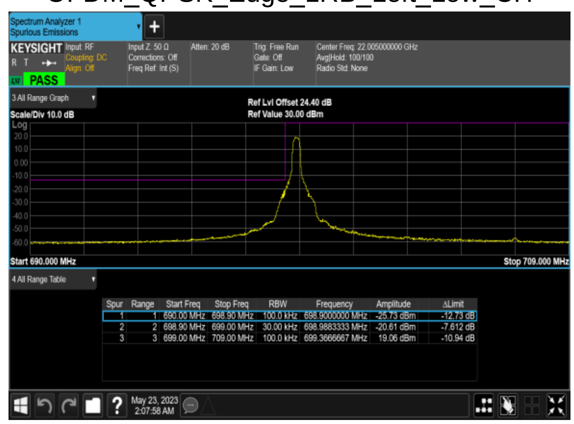
N12(5M)_DFT-s-OFDM_QPSK_Outer_Full_High_CH



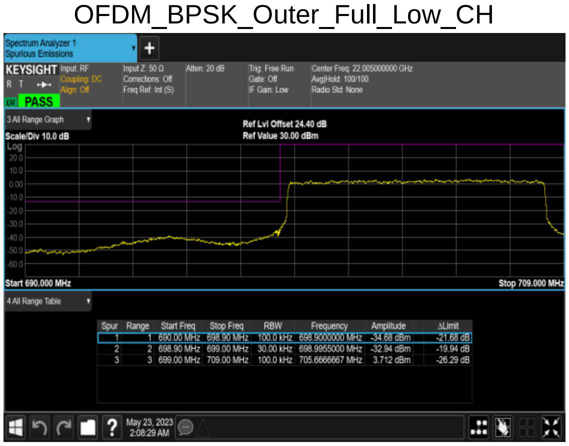
N12(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



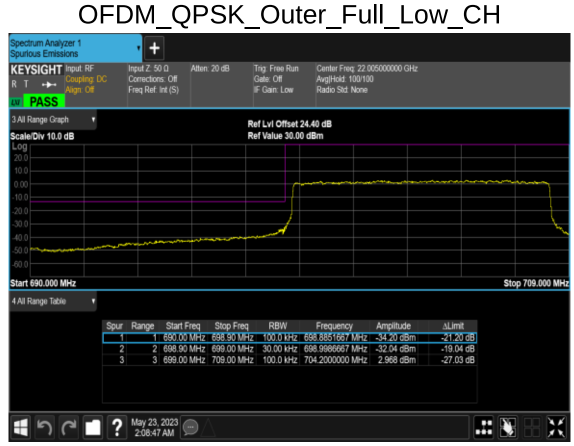
N12(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



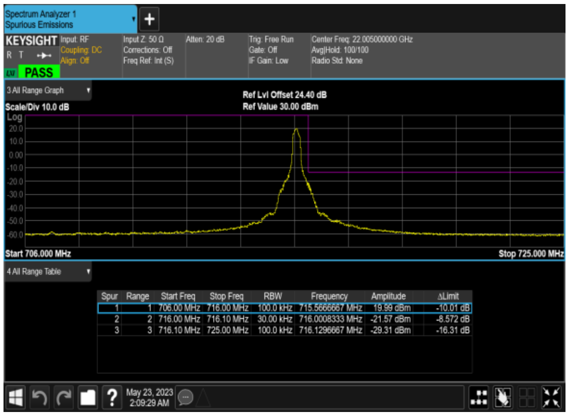
N12(10M)_DFT-s-OFDM_BPSK_Outer_Full_Low_CH



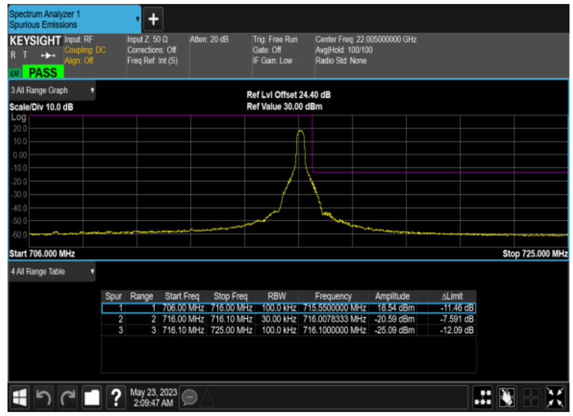
N12(10M)_DFT-s-OFDM_QPSK_Outer_Full_Low_CH



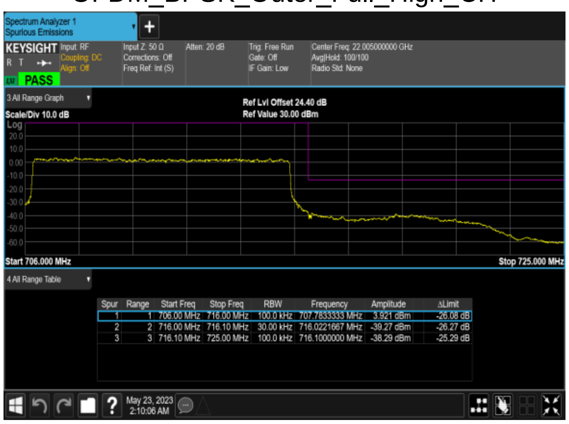
N12(10M)_DFT-s-OFDM_BPSK_Edge_1RB_Right_High_CH



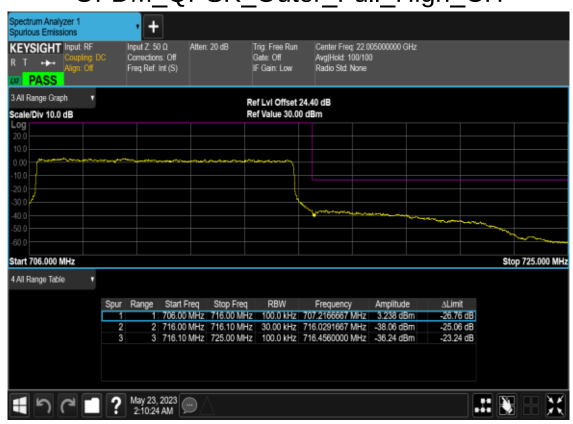
N12(10M)_DFT-s-OFDM_QPSK_Edge_1RB_Right_High_CH



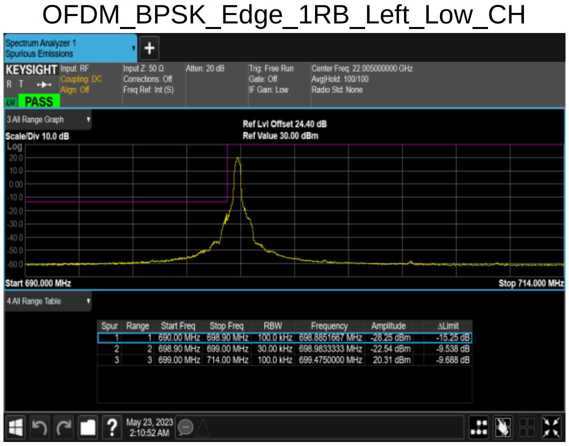
N12(10M)_DFT-s-OFDM_BPSK_Outer_Full_High_CH



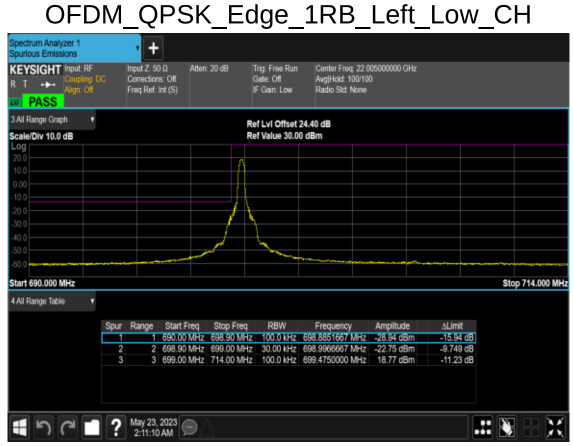
N12(10M)_DFT-s-OFDM_QPSK_Outer_Full_High_CH



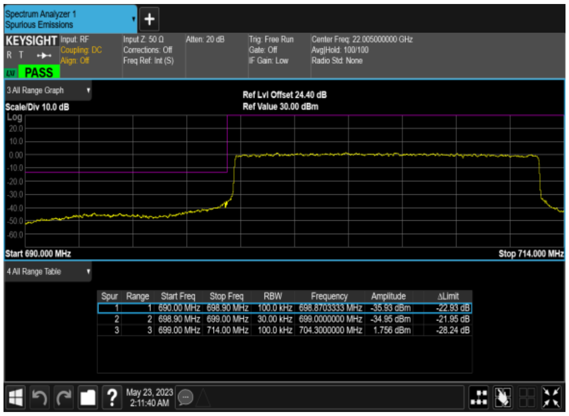
N12(15M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH



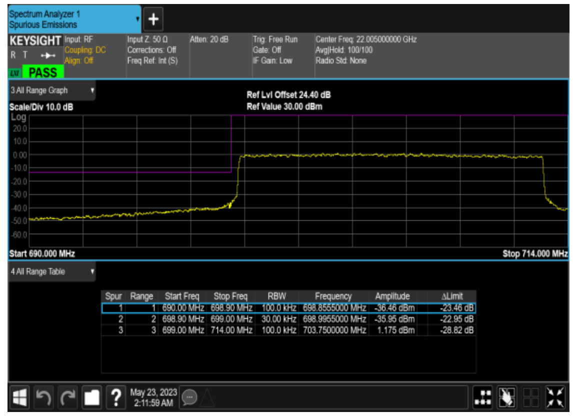
N12(15M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH



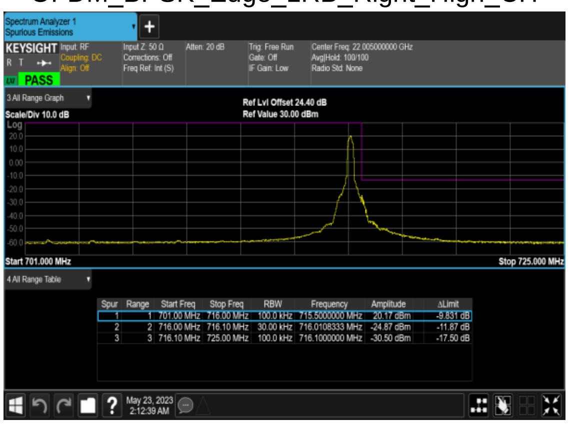
N12(15M)_DFT-s-OFDM_BPSK_Outer_Full_Low_CH



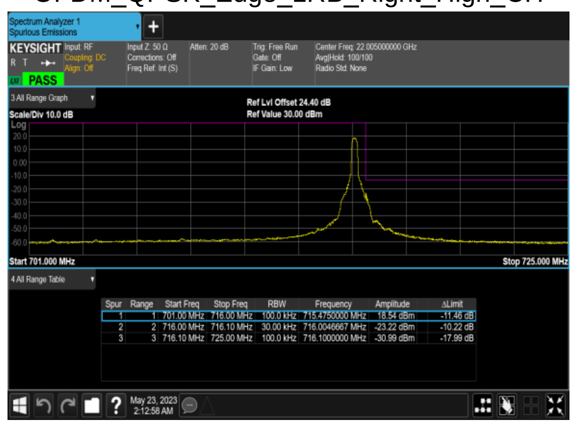
N12(15M)_DFT-s-OFDM_QPSK_Outer_Full_Low_CH



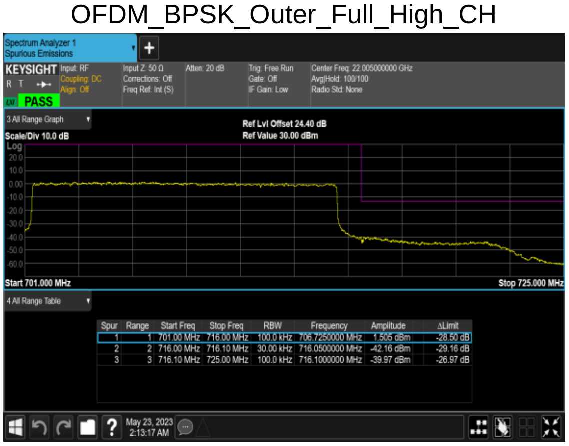
N12(15M)_DFT-s-OFDM_BPSK_Edge_1RB_Right_High_CH



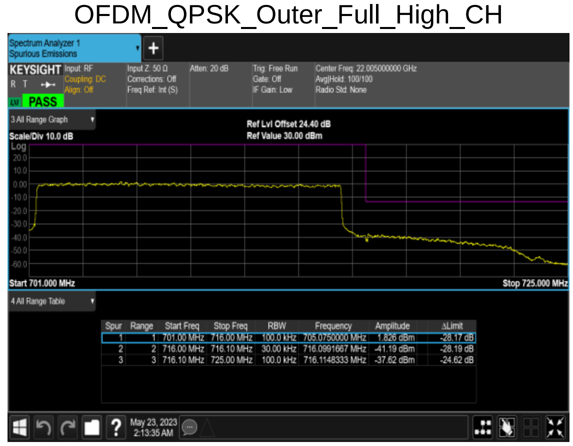
N12(15M)_DFT-s-OFDM_QPSK_Edge_1RB_Right_High_CH



N12(15M)_DFT-s-OFDM_BPSK_Outer_Full_High_CH



N12(15M)_DFT-s-OFDM_QPSK_Outer_Full_High_CH



Software Version: 23.04.1201

FR1 N41(ANT3) - Main PA

Transmitter Conducted Output Power And ERP, (G_T - L_C)=-1.0dB

NR Band	SCS	BandWidth	Arfcn	Freq(MHz)	Modulation	RB	Conducted Power(dBm)	EIRP (dBm)	EIRP(W)
41	30	100	509202	2546.01	DFT-s-OFDM PI/2 BPSK	135@67	25.88	24.88	0.3076
41	30	100	509202	2546.01	DFT-s-OFDM PI/2 BPSK	1@1	25.82	24.82	0.3034
41	30	100	509202	2546.01	DFT-s-OFDM PI/2 BPSK	1@271	25.88	24.88	0.3076
41	30	100	509202	2546.01	DFT-s-OFDM QPSK	135@67	25.88	24.88	0.3076
41	30	100	509202	2546.01	DFT-s-OFDM QPSK	1@1	25.87	24.87	0.3069
41	30	100	509202	2546.01	DFT-s-OFDM QPSK	1@271	25.9	24.9	0.3090
41	30	100	509202	2546.01	DFT-s-OFDM 16 QAM	135@67	24.95	23.95	0.2483
41	30	100	509202	2546.01	DFT-s-OFDM 16 QAM	1@1	24.88	23.88	0.2443
41	30	100	509202	2546.01	DFT-s-OFDM 16 QAM	1@271	24.98	23.98	0.2500
41	30	100	509202	2546.01	DFT-s-OFDM 64 QAM	135@67	23.01	22.01	0.1589
41	30	100	509202	2546.01	DFT-s-OFDM 64 QAM	1@1	22.77	21.77	0.1503
41	30	100	509202	2546.01	DFT-s-OFDM 64 QAM	1@271	22.87	21.87	0.1538
41	30	100	509202	2546.01	DFT-s-OFDM 256 QAM	135@67	19.45	18.45	0.0700
41	30	100	509202	2546.01	DFT-s-OFDM 256 QAM	1@1	19.36	18.36	0.0685
41	30	100	509202	2546.01	DFT-s-OFDM 256 QAM	1@271	19.43	18.43	0.0697
41	30	100	509202	2546.01	CP-OFDM QPSK	137@68	23.95	22.95	0.1972
41	30	100	509202	2546.01	CP-OFDM QPSK	1@1	23.96	22.96	0.1977
41	30	100	509202	2546.01	CP-OFDM QPSK	1@271	24.06	23.06	0.2023
41	30	100	518598	2592.99	DFT-s-OFDM PI/2 BPSK	135@67	26.01	25.01	0.3170
41	30	100	518598	2592.99	DFT-s-OFDM PI/2 BPSK	1@1	26.07	25.07	0.3214
41	30	100	518598	2592.99	DFT-s-OFDM PI/2 BPSK	1@271	25.92	24.92	0.3105
41	30	100	518598	2592.99	DFT-s-OFDM QPSK	135@67	26.04	25.04	0.3192
41	30	100	518598	2592.99	DFT-s-OFDM QPSK	1@1	26.06	25.06	0.3206
41	30	100	518598	2592.99	DFT-s-OFDM QPSK	1@271	25.96	24.96	0.3133
41	30	100	518598	2592.99	DFT-s-OFDM 16 QAM	135@67	25.03	24.03	0.2529
41	30	100	518598	2592.99	DFT-s-OFDM 16 QAM	1@1	25.22	24.22	0.2642
41	30	100	518598	2592.99	DFT-s-OFDM 16 QAM	1@271	25.05	24.05	0.2541
41	30	100	518598	2592.99	DFT-s-OFDM 64 QAM	135@67	23.08	22.08	0.1614
41	30	100	518598	2592.99	DFT-s-OFDM 64 QAM	1@1	23.03	22.03	0.1596
41	30	100	518598	2592.99	DFT-s-OFDM 64 QAM	1@271	22.92	21.92	0.1556
41	30	100	518598	2592.99	DFT-s-OFDM 256 QAM	135@67	19.65	18.65	0.0733
41	30	100	518598	2592.99	DFT-s-OFDM 256 QAM	1@1	19.62	18.62	0.0728
41	30	100	518598	2592.99	DFT-s-OFDM 256 QAM	1@271	19.43	18.43	0.0697
41	30	100	518598	2592.99	CP-OFDM QPSK	137@68	23.97	22.97	0.1982
41	30	100	518598	2592.99	CP-OFDM QPSK	1@1	24.21	23.21	0.2094
41	30	100	518598	2592.99	CP-OFDM QPSK	1@271	23.83	22.83	0.1919
41	30	100	528000	2640	DFT-s-OFDM PI/2 BPSK	135@67	25.77	24.77	0.2999
41	30	100	528000	2640	DFT-s-OFDM PI/2 BPSK	1@1	25.89	24.89	0.3083

41	30	100	528000	2640	DFT-s-OFDM PI/2 BPSK	1@271	25.73	24.73	0.2972
41	30	100	528000	2640	DFT-s-OFDM QPSK	135@67	25.8	24.8	0.3020
41	30	100	528000	2640	DFT-s-OFDM QPSK	1@1	25.88	24.88	0.3076
41	30	100	528000	2640	DFT-s-OFDM QPSK	1@271	25.94	24.94	0.3119
41	30	100	528000	2640	DFT-s-OFDM 16 QAM	135@67	24.93	23.93	0.2472
41	30	100	528000	2640	DFT-s-OFDM 16 QAM	1@1	24.73	23.73	0.2360
41	30	100	528000	2640	DFT-s-OFDM 16 QAM	1@271	24.92	23.92	0.2466
41	30	100	528000	2640	DFT-s-OFDM 64 QAM	135@67	22.95	21.95	0.1567
41	30	100	528000	2640	DFT-s-OFDM 64 QAM	1@1	22.7	21.7	0.1479
41	30	100	528000	2640	DFT-s-OFDM 64 QAM	1@271	22.86	21.86	0.1535
41	30	100	528000	2640	DFT-s-OFDM 256 QAM	135@67	19.37	18.37	0.0687
41	30	100	528000	2640	DFT-s-OFDM 256 QAM	1@1	19.33	18.33	0.0681
41	30	100	528000	2640	DFT-s-OFDM 256 QAM	1@271	19.42	18.42	0.0695
41	30	100	528000	2640	CP-OFDM QPSK	137@68	23.88	22.88	0.1941
41	30	100	528000	2640	CP-OFDM QPSK	1@1	23.97	22.97	0.1982
41	30	100	528000	2640	CP-OFDM QPSK	1@271	24.03	23.03	0.2009
41	30	20	501204	2506.02	DFT-s-OFDM PI/2 BPSK	1@1	26	25	0.3162
41	30	20	501204	2506.02	DFT-s-OFDM QPSK	1@1	26.02	25.02	0.3177
41	30	20	501204	2506.02	DFT-s-OFDM 16 QAM	1@1	25.03	24.03	0.2529
41	30	20	518598	2592.99	DFT-s-OFDM PI/2 BPSK	1@1	25.98	24.98	0.3148
41	30	20	518598	2592.99	DFT-s-OFDM QPSK	1@1	25.97	24.97	0.3141
41	30	20	518598	2592.99	DFT-s-OFDM 16 QAM	1@1	25.11	24.11	0.2576
41	30	20	535998	2679.99	DFT-s-OFDM PI/2 BPSK	1@1	25.76	24.76	0.2992
41	30	20	535998	2679.99	DFT-s-OFDM QPSK	1@1	25.88	24.88	0.3076
41	30	20	535998	2679.99	DFT-s-OFDM 16 QAM	1@1	25.12	24.12	0.2582
41	30	30	502200	2511	DFT-s-OFDM PI/2 BPSK	1@1	25.96	24.96	0.3133
41	30	30	502200	2511	DFT-s-OFDM QPSK	1@1	25.96	24.96	0.3133
41	30	30	502200	2511	DFT-s-OFDM 16 QAM	1@1	24.99	23.99	0.2506
41	30	30	518598	2592.99	DFT-s-OFDM PI/2 BPSK	1@1	26.04	25.04	0.3192
41	30	30	518598	2592.99	DFT-s-OFDM QPSK	1@1	26.01	25.01	0.3170
41	30	30	518598	2592.99	DFT-s-OFDM 16 QAM	1@1	25.17	24.17	0.2612
41	30	30	534996	2674.98	DFT-s-OFDM PI/2 BPSK	1@1	25.83	24.83	0.3041
41	30	30	534996	2674.98	DFT-s-OFDM QPSK	1@1	25.82	24.82	0.3034
41	30	30	534996	2674.98	DFT-s-OFDM 16 QAM	1@1	25.04	24.04	0.2535
41	30	40	503202	2516.01	DFT-s-OFDM PI/2 BPSK	1@1	26.01	25.01	0.3170
41	30	40	503202	2516.01	DFT-s-OFDM QPSK	1@1	25.96	24.96	0.3133
41	30	40	503202	2516.01	DFT-s-OFDM 16 QAM	1@1	25.05	24.05	0.2541
41	30	40	518598	2592.99	DFT-s-OFDM PI/2 BPSK	1@1	25.97	24.97	0.3141
41	30	40	518598	2592.99	DFT-s-OFDM QPSK	1@1	25.98	24.98	0.3148
41	30	40	518598	2592.99	DFT-s-OFDM 16 QAM	1@1	25.04	24.04	0.2535
41	30	40	534000	2670	DFT-s-OFDM PI/2 BPSK	1@1	25.93	24.93	0.3112
41	30	40	534000	2670	DFT-s-OFDM QPSK	1@1	26.01	25.01	0.3170
41	30	40	534000	2670	DFT-s-OFDM 16 QAM	1@1	24.93	23.93	0.2472
41	30	50	504204	2521.02	DFT-s-OFDM PI/2 BPSK	1@1	25.99	24.99	0.3155
41	30	50	504204	2521.02	DFT-s-OFDM QPSK	1@1	25.97	24.97	0.3141

41	30	50	504204	2521.02	DFT-s-OFDM 16 QAM	1@1	24.92	23.92	0.2466
41	30	50	518598	2592.99	DFT-s-OFDM PI/2 BPSK	1@1	25.97	24.97	0.3141
41	30	50	518598	2592.99	DFT-s-OFDM QPSK	1@1	25.96	24.96	0.3133
41	30	50	518598	2592.99	DFT-s-OFDM 16 QAM	1@1	25.28	24.28	0.2679
41	30	50	532998	2664.99	DFT-s-OFDM PI/2 BPSK	1@1	25.92	24.92	0.3105
41	30	50	532998	2664.99	DFT-s-OFDM QPSK	1@1	25.82	24.82	0.3034
41	30	50	532998	2664.99	DFT-s-OFDM 16 QAM	1@1	24.85	23.85	0.2427
41	30	60	505200	2526	DFT-s-OFDM PI/2 BPSK	1@1	25.99	24.99	0.3155
41	30	60	505200	2526	DFT-s-OFDM QPSK	1@1	25.96	24.96	0.3133
41	30	60	505200	2526	DFT-s-OFDM 16 QAM	1@1	25.01	24.01	0.2518
41	30	60	518598	2592.99	DFT-s-OFDM PI/2 BPSK	1@1	26.01	25.01	0.3170
41	30	60	518598	2592.99	DFT-s-OFDM QPSK	1@1	25.98	24.98	0.3148
41	30	60	518598	2592.99	DFT-s-OFDM 16 QAM	1@1	24.98	23.98	0.2500
41	30	60	531996	2659.98	DFT-s-OFDM PI/2 BPSK	1@1	25.88	24.88	0.3076
41	30	60	531996	2659.98	DFT-s-OFDM QPSK	1@1	25.9	24.9	0.3090
41	30	60	531996	2659.98	DFT-s-OFDM 16 QAM	1@1	24.89	23.89	0.2449
41	30	70	505200	2531.01	DFT-s-OFDM PI/2 BPSK	1@1	25.96	24.96	0.3133
41	30	70	505200	2531.01	DFT-s-OFDM QPSK	1@1	26	25	0.3162
41	30	70	505200	2531.01	DFT-s-OFDM 16 QAM	1@1	24.94	23.94	0.2477
41	30	70	518598	2592.99	DFT-s-OFDM PI/2 BPSK	1@1	26.03	25.03	0.3184
41	30	70	518598	2592.99	DFT-s-OFDM QPSK	1@1	26.02	25.02	0.3177
41	30	70	518598	2592.99	DFT-s-OFDM 16 QAM	1@1	25.07	24.07	0.2553
41	30	70	531996	2655	DFT-s-OFDM PI/2 BPSK	1@1	25.8	24.8	0.3020
41	30	70	531996	2655	DFT-s-OFDM QPSK	1@1	25.82	24.82	0.3034
41	30	70	531996	2655	DFT-s-OFDM 16 QAM	1@1	24.9	23.9	0.2455
41	30	80	507204	2536.02	DFT-s-OFDM PI/2 BPSK	1@1	25.87	24.87	0.3069
41	30	80	507204	2536.02	DFT-s-OFDM QPSK	1@1	26.01	25.01	0.3170
41	30	80	507204	2536.02	DFT-s-OFDM 16 QAM	1@1	24.86	23.86	0.2432
41	30	80	518598	2592.99	DFT-s-OFDM PI/2 BPSK	1@1	26	25	0.3162
41	30	80	518598	2592.99	DFT-s-OFDM QPSK	1@1	25.98	24.98	0.3148
41	30	80	518598	2592.99	DFT-s-OFDM 16 QAM	1@1	24.94	23.94	0.2477
41	30	80	529998	2649.99	DFT-s-OFDM PI/2 BPSK	1@1	25.68	24.68	0.2938
41	30	80	529998	2649.99	DFT-s-OFDM QPSK	1@1	25.8	24.8	0.3020
41	30	80	529998	2649.99	DFT-s-OFDM 16 QAM	1@1	24.77	23.77	0.2382
41	30	90	508200	2541	DFT-s-OFDM PI/2 BPSK	1@1	25.94	24.94	0.3119
41	30	90	508200	2541	DFT-s-OFDM QPSK	1@1	25.91	24.91	0.3097
41	30	90	508200	2541	DFT-s-OFDM 16 QAM	1@1	24.94	23.94	0.2477
41	30	90	518598	2592.99	DFT-s-OFDM PI/2 BPSK	1@1	26.02	25.02	0.3177
41	30	90	518598	2592.99	DFT-s-OFDM QPSK	1@1	25.99	24.99	0.3155
41	30	90	518598	2592.99	DFT-s-OFDM 16 QAM	1@1	25.16	24.16	0.2606
41	30	90	528996	2644.98	DFT-s-OFDM PI/2 BPSK	1@1	25.96	24.96	0.3133
41	30	90	528996	2644.98	DFT-s-OFDM QPSK	1@1	25.86	24.86	0.3062
41	30	90	528996	2644.98	DFT-s-OFDM 16 QAM	1@1	24.96	23.96	0.2489

Frequency Stability

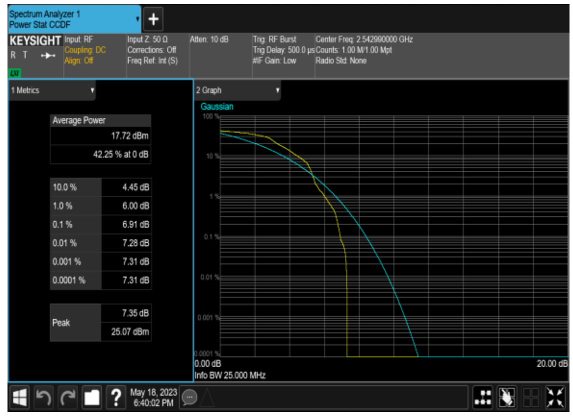
NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Deviation (ppm)	Verdict	Environment
41	30	20	518598	2506.02	DFT-s-OFDM QPSK	50@0	0.0019	**PASS**	NV
41	30	20	518598	2506.02	DFT-s-OFDM QPSK	50@0	-0.0006	**PASS**	LV
41	30	20	518598	2506.02	DFT-s-OFDM QPSK	50@0	0.0023	**PASS**	HV
41	30	20	518598	2506.02	DFT-s-OFDM QPSK	50@0	-0.0014	**PASS**	-30℃
41	30	20	518598	2506.02	DFT-s-OFDM QPSK	50@0	0.0016	**PASS**	-20℃
41	30	20	518598	2506.02	DFT-s-OFDM QPSK	50@0	0.0004	**PASS**	-10℃
41	30	20	518598	2506.02	DFT-s-OFDM QPSK	50@0	0.0016	**PASS**	0℃
41	30	20	518598	2506.02	DFT-s-OFDM QPSK	50@0	-0.0024	**PASS**	10℃
41	30	20	518598	2506.02	DFT-s-OFDM QPSK	50@0	0.0026	**PASS**	20℃
41	30	20	518598	2506.02	DFT-s-OFDM QPSK	50@0	0.0017	**PASS**	30℃
41	30	20	518598	2506.02	DFT-s-OFDM QPSK	50@0	0.0025	**PASS**	40℃
41	30	20	518598	2506.02	DFT-s-OFDM QPSK	50@0	0.0011	**PASS**	50℃

Peak to Average Ratio

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result (dB)	Limit (dB)	Verdict
41	30	100	518598	2592.99	DFT-s-OFDM PI/2 BPSK	270@0	10.16	13	**PASS**
41	30	100	518598	2592.99	DFT-s-OFDM PI/2 BPSK	1@0	6.91	13	**PASS**
41	30	100	518598	2592.99	DFT-s-OFDM QPSK	270@0	10.48	13	**PASS**
41	30	100	518598	2592.99	DFT-s-OFDM QPSK	1@0	7.08	13	**PASS**

N41(100M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH

N41(100M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Left_Mid_CH



N41(100M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH

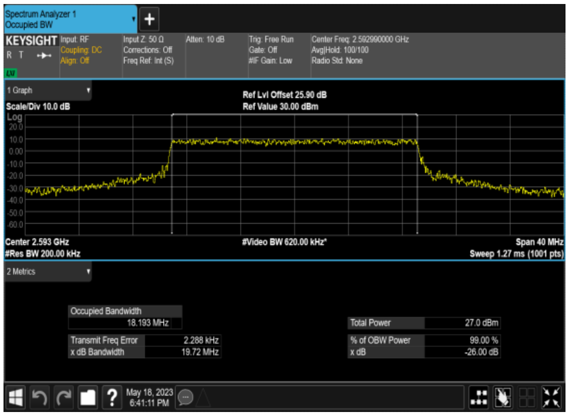
N41(100M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH

Occupied Bandwidth

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	OBW (MHz)	26dB BW (MHz)
41	30	20	518598	2592.99	CP-OFDM QPSK	51@0	18.193	19.72
41	30	20	518598	2592.99	CP-OFDM 16 QAM	51@0	18.218	19.46
41	30	20	518598	2592.99	CP-OFDM 64 QAM	51@0	18.267	19.73
41	30	20	518598	2592.99	CP-OFDM 256 QAM	51@0	18.187	19.59
41	30	30	518598	2592.99	CP-OFDM QPSK	78@0	27.803	29.19
41	30	30	518598	2592.99	CP-OFDM 16 QAM	78@0	27.831	29.32
41	30	30	518598	2592.99	CP-OFDM 64 QAM	78@0	27.9	29.5
41	30	30	518598	2592.99	CP-OFDM 256 QAM	78@0	27.824	29.1
41	30	40	518598	2592.99	CP-OFDM QPSK	106@0	37.856	39.66
41	30	40	518598	2592.99	CP-OFDM 16 QAM	106@0	37.911	39.12
41	30	40	518598	2592.99	CP-OFDM 64 QAM	106@0	37.73	39.09
41	30	40	518598	2592.99	CP-OFDM 256 QAM	106@0	37.721	39.36
41	30	50	518598	2592.99	CP-OFDM QPSK	133@0	47.581	49.2
41	30	50	518598	2592.99	CP-OFDM 16 QAM	133@0	47.504	49.61
41	30	50	518598	2592.99	CP-OFDM 64 QAM	133@0	47.493	49.49
41	30	50	518598	2592.99	CP-OFDM 256 QAM	133@0	47.546	49.06
41	30	60	518598	2592.99	CP-OFDM QPSK	162@0	57.931	59.96
41	30	60	518598	2592.99	CP-OFDM 16 QAM	162@0	57.749	59.88
41	30	60	518598	2592.99	CP-OFDM 64 QAM	162@0	57.947	59.63
41	30	60	518598	2592.99	CP-OFDM 256 QAM	162@0	57.798	59.99
41	30	70	518598	2592.99	CP-OFDM QPSK	189@0	67.637	69.93
41	30	70	518598	2592.99	CP-OFDM 16 QAM	189@0	67.36	69.62
41	30	70	518598	2592.99	CP-OFDM 64 QAM	189@0	67.458	69.65
41	30	70	518598	2592.99	CP-OFDM 256 QAM	189@0	67.439	69.76
41	30	80	518598	2592.99	CP-OFDM QPSK	217@0	77.397	79.9
41	30	80	518598	2592.99	CP-OFDM 16 QAM	217@0	77.363	79.93

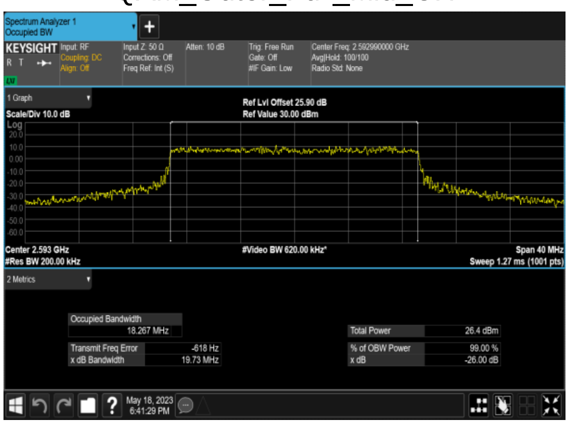
41	30	80	518598	2592.99	CP-OFDM 64 QAM	217@0	77.387	80.0
41	30	80	518598	2592.99	CP-OFDM 256 QAM	217@0	77.369	80.18
41	30	90	518598	2592.99	CP-OFDM QPSK	245@0	87.362	90.31
41	30	90	518598	2592.99	CP-OFDM 16 QAM	245@0	87.369	90.15
41	30	90	518598	2592.99	CP-OFDM 64 QAM	245@0	87.341	90.23
41	30	90	518598	2592.99	CP-OFDM 256 QAM	245@0	87.534	90.34
41	30	100	518598	2592.99	CP-OFDM QPSK	273@0	97.294	100.7
41	30	100	518598	2592.99	CP-OFDM 16 QAM	273@0	97.512	100.6
41	30	100	518598	2592.99	CP-OFDM 64 QAM	273@0	97.381	100.7
41	30	100	518598	2592.99	CP-OFDM 256 QAM	273@0	97.464	100.7

N41(20M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

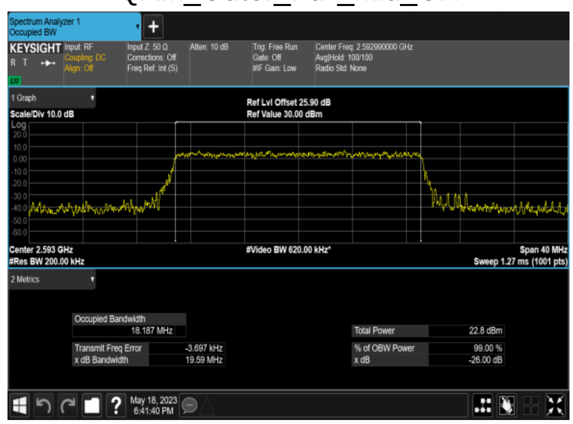


N41(20M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH

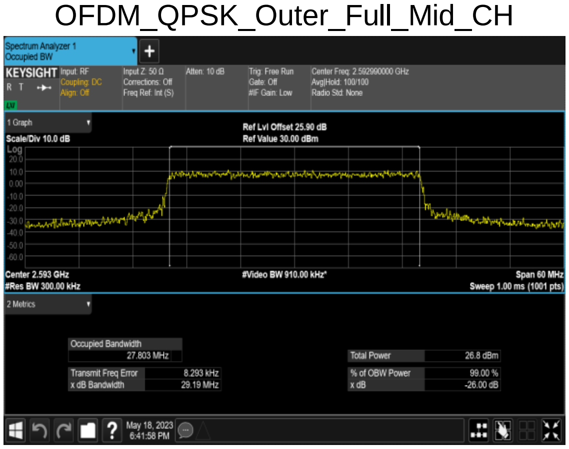
N41(20M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



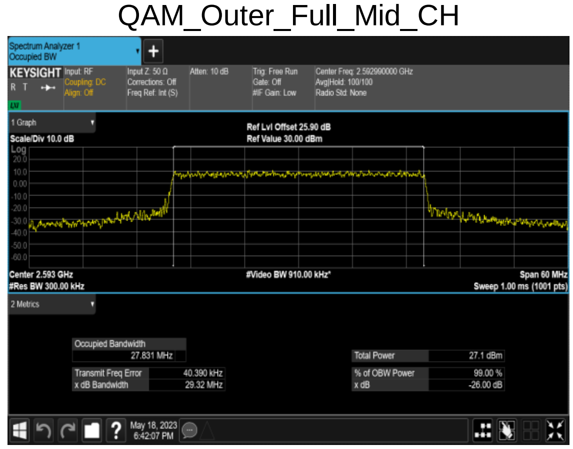
N41(20M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



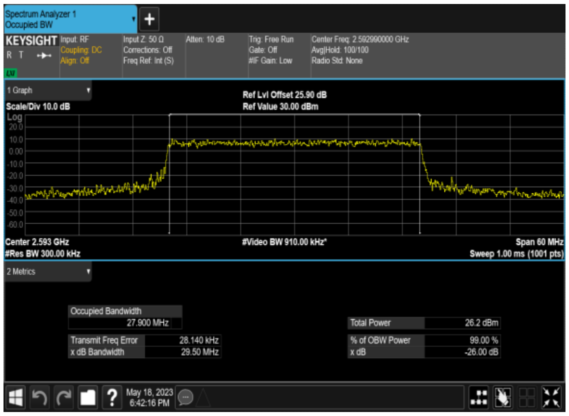
N41(30M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



N41(30M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH

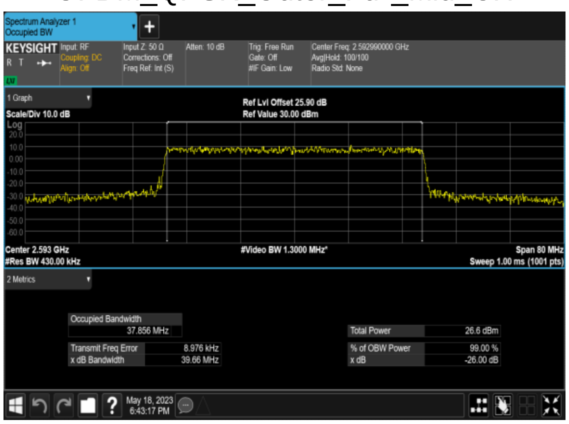


N41(30M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH

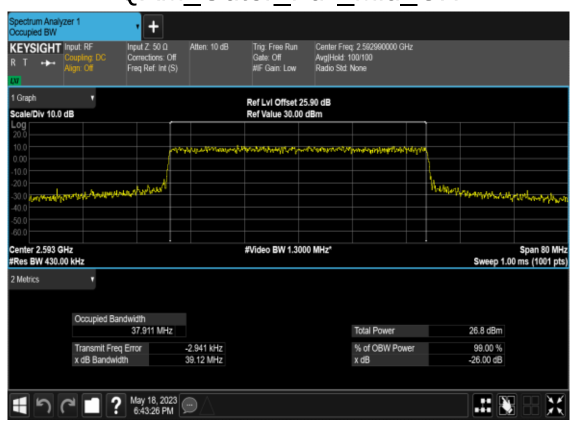


N41(30M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

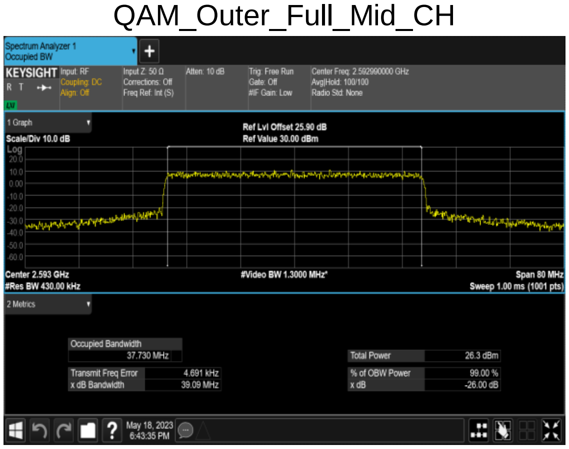
N41(40M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



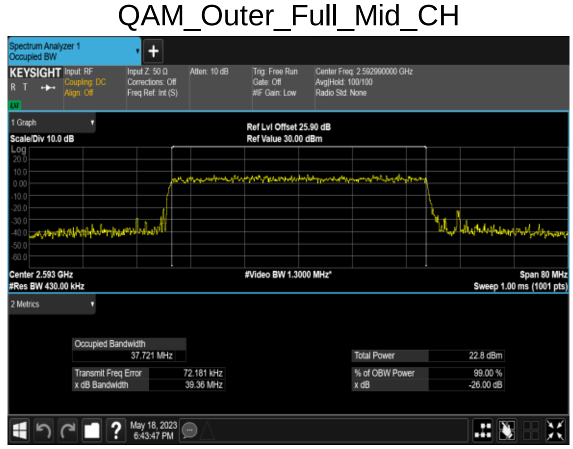
N41(40M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



N41(40M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH

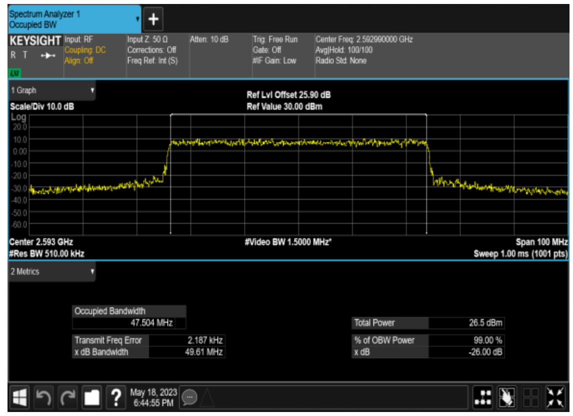


N41(40M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

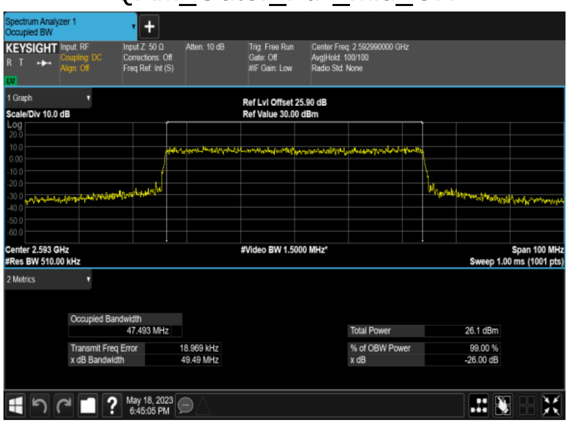


N41(50M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

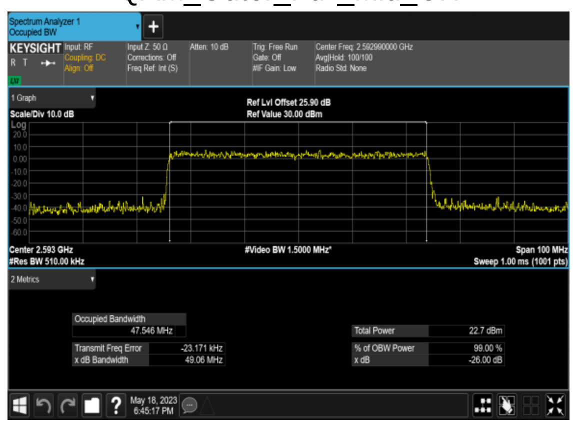
N41(50M)_CP-OFDM_16QAM_Outer_Full_Mid_CH



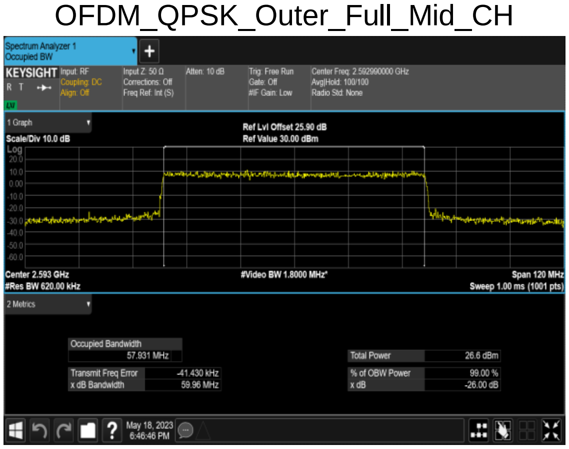
N41(50M)_CP-OFDM_64QAM_Outer_Full_Mid_CH



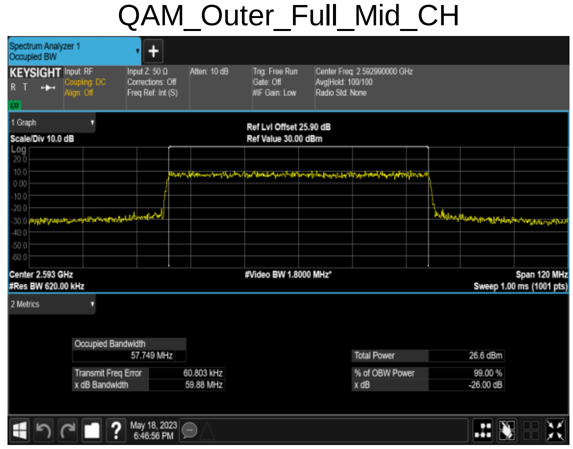
N41(50M)_CP-OFDM_256QAM_Outer_Full_Mid_CH



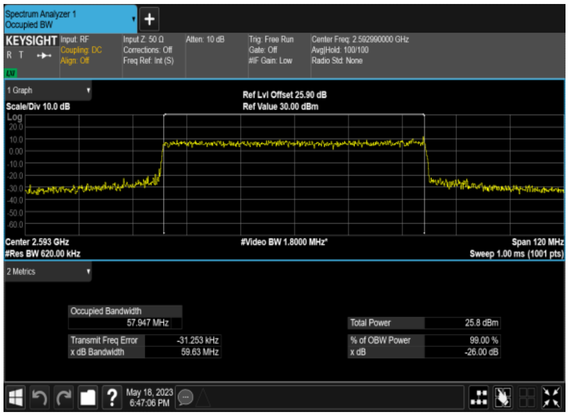
N41(60M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



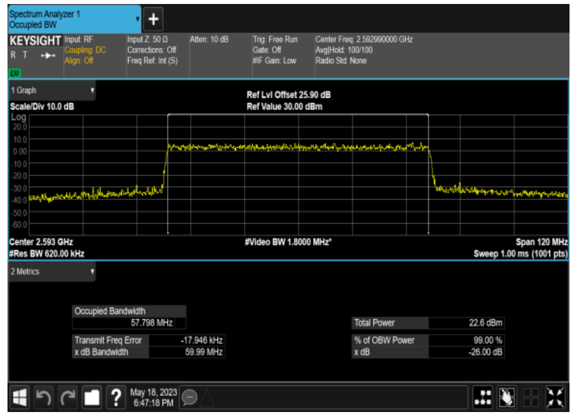
N41(60M)_CP-OFDM_16QAM_Outer_Full_Mid_CH



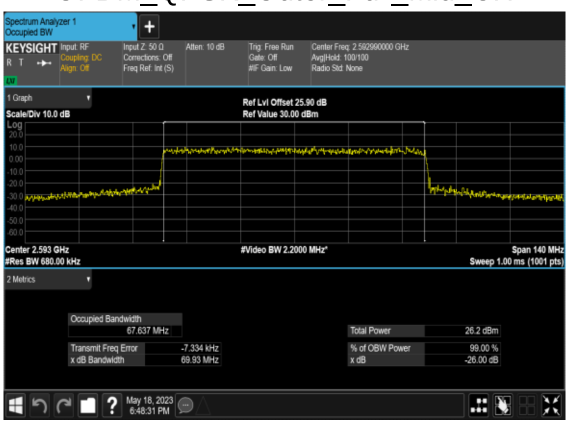
N41(60M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



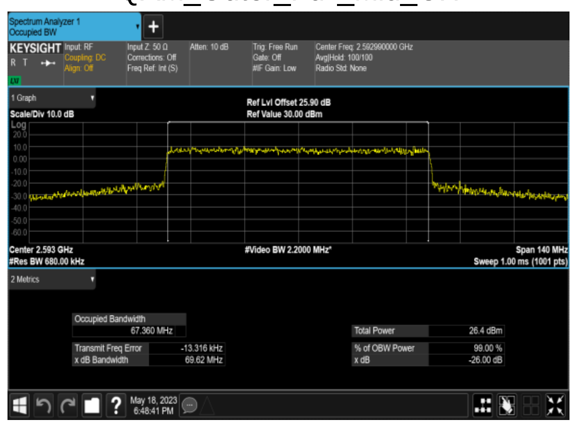
N41(60M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH



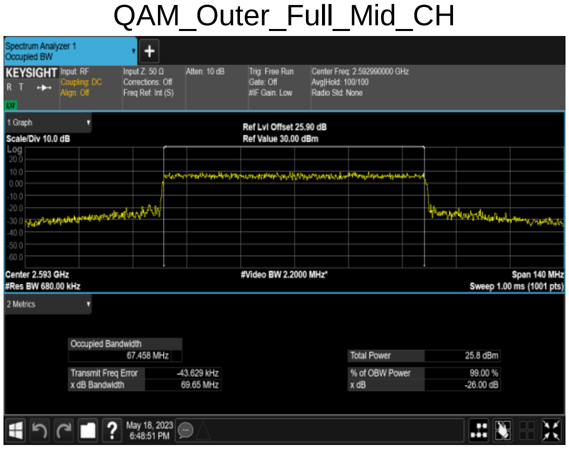
N41(70M)_CP-OFDM_QPSK_Outer_Full_Mid_CH



N41(70M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH



N41(70M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH



N41(70M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH