FCC RF Test Report

APPLICANT	**: Xiaomi Communications Co., Ltd.**
EQUIPMENT	**: Mobile Phone**
BRAND NAME	**: Xiaomi**
MODEL NAME	**: 2405CPX3DG**
FCC ID	**: 2AFZZPX3DG**
STANDARD	**: 47 CFR Part 2, 22, 24, 27**
CLASSIFICATION	**: PCS Licensed Transmitter Held to Ear (PCE)**
TEST DATE(S)	**: Apr. 03, 2024 ~ Jun. 03, 2024**

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.

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

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

Sporton International Inc. (Kunshan)
TEL : +86-512-57900158
FCC ID : 2AFZZPX3DG

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG440220I	Rev. 01	Initial issue of report	Jun. 04, 2024

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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, n26)	ERP < 7 Watt		
	§27.50(c)(10)	Effective Radiated Power (5G NR n12)	ERP < 3 Watt		
	§24.232(c) §27.50(h)(2)	Equivalent Isotropic Radiated Power (5G NR n2) (5G NR n7, n41, n38)	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, n26) (5G NR n2) (5G NR n66) (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 §22.917(a) §24.238(a) §27.53(h) §27.53(g)	Conducted Spurious Emission (5G NR n5, n26) (5G NR n2) (5G NR n66) (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	§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, n26) (5G NR n2) (5G NR n66) (5G NR n12)	< 43+10log$_{10}$(P[Watts])	PASS	Under limit 27.27 dB at 7626.00 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.

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1   General Description

1.1 Applicant

Xiaomi Communications Co., Ltd.

#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

1.2 Manufacturer

Xiaomi Communications Co., Ltd.

#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Phone
Brand Name	Xiaomi
Model Name	2405CPX3DG
FCC ID	2AFZZPX3DG
IMEI Code	Conducted : 866568070020507/866568070020515 Radiation : 866568070019426/866568070019434
HW Version	135100N8
SW Version	Xiaomi HyperOS 1.0
EUT Stage	Identical Prototype

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 n7 : 2500 MHz ~ 2570 MHz 5G NR n12 : 699 MHz ~ 716 MHz 5G NR n26 : 824 MHz ~ 849 MHz 5G NR n38 : 2570 MHz ~ 2620 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n66 : 1710 MHz ~ 1780 MHz
Rx Frequency	5G NR n2 : 1930 MHz ~ 1990 MHz 5G NR n5 : 869 MHz ~ 894 MHz 5G NR n7 : 2620 MHz ~ 2690 MHz 5G NR n12: 729 MHz ~ 746 MHz 5G NR n26 : 869 MHz ~ 894 MHz 5G NR n38: 2570 MHz ~ 2620 MHz 5G NR n41 : 2496 MHz ~ 2690 MHz 5G NR n66 : 2110 MHz~ 2200 MHz
Bandwidth	n2 : 5MHz / 10MHz / 15MHz / 20MHz / 25MHz / 30MHz / 35 MHz / 40MHz n5, n26 : 5MHz / 10MHz / 15MHz / 20MHz

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	n7, n66 : 5MHz / 10MHz / 15MHz / 20MHz / 25MHz / 30MHz / 35 MHz / 40MHz n12 : 5MHz / 10MHz / 15MHz n38 : 10MHz / 15MHz / 20MHz / 25MHz / 30MHz / 40MHz n41 : 10MHz / 15MHz / 20MHz / 25MHz / 30MHz / 40MHz / 50MHz / 60MHz / 70MHz / 80MHz / 90MHz / 100MHz
SCS	15kHz for FDD bands, 30kHz for TDD bands
Antenna Gain	<table><tr><td>**Unfolded state:**</td><td>**Folded state:**</td></tr><tr><td>**<Ant. 0>:**</td><td>**<Ant. 0>:**</td></tr><tr><td>n5: -9.7 dBi</td><td>n5: -11.3 dBi</td></tr><tr><td>n7: -4.7 dBi</td><td>n7: -7.1 dBi</td></tr><tr><td>n12: -9.3 dBi</td><td>n12: -15 dBi</td></tr><tr><td>n26: -9.7 dBi</td><td>n26: -11.3 dBi</td></tr><tr><td>n38: -4.7 dBi</td><td>n38: -7.1 dBi</td></tr><tr><td>n41: -4.7 dBi</td><td>n41: -7.1 dBi</td></tr><tr><td>n66: -4.8 dBi</td><td>n66: -6.1 dBi</td></tr><tr><td>**<Ant. 1>:**</td><td>**<Ant. 1>:**</td></tr><tr><td>n5: -5.1 dBi</td><td>n5: -8.5 dBi</td></tr><tr><td>n7: -4.5 dBi</td><td>n7: -5.7 dBi</td></tr><tr><td>n12: -5.6 dBi</td><td>n12: -13.5 dBi</td></tr><tr><td>n26: -5.1 dBi</td><td>n26: -8.5 dBi</td></tr><tr><td>n38: -4.5 dBi</td><td>n38: -5.7 dBi</td></tr><tr><td>n41: -4.5 dBi</td><td>n41: -5.7 dBi</td></tr><tr><td>n66: -5.7 dBi</td><td>n66: -6.7 dBi</td></tr><tr><td>**<Ant. 5>:**</td><td>**<Ant. 5>:**</td></tr><tr><td>n2: -2.8 dBi</td><td>n2: -3.7 dBi</td></tr><tr><td>n7: 0.34 dBi</td><td>n7: -4.1 dBi</td></tr><tr><td>n38: -0.38 dBi</td><td>n38: -3.2 dBi</td></tr><tr><td>n41: -0.34 dBi</td><td>n41: -3.2 dBi</td></tr><tr><td>n66: -2.1 dBi</td><td>n66: -2.9 dBi</td></tr><tr><td>**<Ant. 6>:**</td><td>**<Ant. 6>:**</td></tr><tr><td>n2: -6.6 dBi</td><td>n2: -2.66 dBi</td></tr><tr><td>n7: -3.9 dBi</td><td>n7: -4.18 dBi</td></tr><tr><td>n38: -3.4 dBi</td><td>n38: -5.49 dBi</td></tr><tr><td>n41: -3.2 dBi</td><td>n41: -4.98 dBi</td></tr><tr><td>n66: -2.1 dBi</td><td>n66: -6.02 dBi</td></tr></table>
Type of Modulation	CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM

Remark:

1. The EUT has two working states, folded state and unfolded state, the maximum ERP/EIRP which calculated from max output power and max antenna gain under the unfolded state are shown in the report, 5G NR n2/n7/n38/n41/n66 for Ant. 5, n5/n26/n12 for Ant. 1 and n41_UL MIMO for Ant.(5+0).

2. The device supports n7/n66/n38/n41(1T4R) SRS resources on Ant.0/1/5/6, for conducted test items, only the test data of worst Ant.0(for n7/n41) & Ant.5(for n66) are showed in the report according to the maximum power, n38 covered by n41.

3. For 5G NR n2/n5/n26/n12, the test data of worst Ant.0(for n5/n26/n12) & Ant.5(for n2) are showed in the report according to the maximum power for conducted test items.

4. 5G NR n41 supports UL MIMO mode for Ant(5+6)/Ant(5+0)/Ant(5+1)/Ant(6+0)/Ant(6+1)/Ant(0+1), only the worst test data of Ant(5+0) is shown in the report for conducted test items.

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5. For n41 MIMO mode, the two antennas are completely uncorrelated, so the directional gain is selected the maximum gain among all antennas.

6. For n41 MIMO mode, the conducted BE/Spurious are tested at single antenna port and add $10*\log(N_{ANT})$ according to KDB 662911 D01.

7. 5G NR n5/n7/n41/n66 support SA mode and NSA mode, n2/n12/n26/n38 support SA mode only. According to the maximum power between SA and NSA mode, SA covers NSA mode for n5/n7/n41/n66.

8. The device supports two PAs for 5G NR n7/n41/n66 (main PA and other PA). For conducted test items, both the PAs are full tested; For EIRP, only the worst results of main PA are shown in the report.

9. The EN-DC mode combination could be referred to the product spec.

1.5 Modification of EUT

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

1.6 Maximum ERP/EIRP and Emission Designator

5G NR n2		PI/2 BPSK / QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)
5	1852.5 ~ 1907.5	0.1403	4M46G7D	0.1135	4M49W7D
10	1855.0 ~ 1905.0	0.1578	9M27G7D	0.1227	9M28W7D
15	1857.5 ~ 1902.5	0.1581	14M1G7D	0.1236	14M1W7D
20	1860.0 ~ 1900.0	0.1545	18M9G7D	0.1216	19M0W7D
25	1862.5 ~ 1897.5	0.1592	23M8G7D	0.1262	23M8W7D
30	1865.0 ~ 1895.0	0.1600	28M6G7D	0.1259	28M6W7D
35	1867.5 ~ 1892.5	0.1306	33M6G7D	0.1016	33M6W7D
40	1870.0 ~ 1890.0	0.1600	38M6G7D	0.1216	38M6W7D

5G NR n5		PI/2 BPSK / QPSK		16QAM / 64QAM / 256QAM	
BW (MHz)	Frequency Range (MHz)	Maximum ERP(W)	Emission Designator (99%OBW)	Maximum ERP(W)	Emission Designator (99%OBW)
5	826.5 ~ 846.5	0.0495	4M46G7D	0.0406	4M49W7D
10	829.0 ~ 844.0	0.0514	9M28G7D	0.0399	9M29W7D
15	831.5 ~ 841.5	0.0502	14M1G7D	0.0394	14M1W7D
20	834.0 ~ 839.0	0.0514	19M0G7D	0.0398	18M9W7D

5G NR n7		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	2502.5 ~ 2567.5	0.2773	4M48G7D	0.2328	4M50W7D
10	2505.0 ~ 2565.0	0.2891	9M29G7D	0.2286	9M29W7D
15	2507.5 ~ 2562.5	0.2877	14M1G7D	0.2323	14M1W7D
20	2510.0 ~ 2560.0	0.2831	18M9G7D	0.2228	19M0W7D
25	2512.5 ~ 2557.5	0.2851	23M8G7D	0.2158	23M8W7D
30	2515.0 ~ 2555.0	0.2844	28M6G7D	0.2158	28M6W7D
35	2517.5 ~ 2552.2	0.2786	33M6G7D	0.2178	33M6W7D
40	2520.0 ~ 2550.0	0.2944	38M6G7D	0.2123	38M6W7D

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	0.0478	4M47G7D	0.0359	4M48W7D
10	704.0 ~ 711.0	0.0492	9M28G7D	0.0369	9M30W7D
15	706.5 ~ 708.5	0.0507	14M1G7D	0.0384	14M1W7D

5G NR n26		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	0.0521	4M46G7D	0.0415	4M48W7D
10	829.0 ~ 844.0	0.0526	9M26G7D	0.0419	9M29W7D
15	831.5 ~ 841.5	0.0526	14M1G7D	0.0418	14M1W7D
20	834.0 ~ 839.0	0.0540	18M9G7D	0.0420	19M0W7D

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	0.1702	4M48G7D	0.1432	4M48W7D
10	1715.0 ~ 1775.0	0.1770	9M29G7D	0.1452	9M30W7D
15	1717.5 ~ 1772.5	0.1795	14M1G7D	0.1449	14M1W7D
20	1720.0 ~ 1770.0	0.1758	18M9G7D	0.1419	19M0W7D
25	1722.5 ~ 1767.5	0.1875	23M8G7D	0.1567	23M8W7D
30	1725.0 ~ 1765.0	0.1884	28M6G7D	0.1567	28M6W7D
35	1727.5 ~ 1762.5	0.1897	33M6G7D	0.1585	33M6W7D
40	1730.0 ~ 1760.0	0.1905	38M6G7D	0.1483	38M6W7D

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5G NR n38		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)
10	2575.0 ~ 2615.0	0.2455	8M58G7D	0.1901	8M58W7D
15	2577.5 ~ 2612.5	0.2489	13M6G7D	0.1914	13M6W7D
20	2580.0 ~ 2610.0	0.2588	18M2G7D	0.2023	18M3W7D
25	2582.5 ~ 2607.5	0.2685	23M2G7D	0.2089	23M3W7D
30	2585.0 ~ 2605.0	0.2773	27M9G7D	0.2133	27M9W7D
40	2590.0 ~ 2600.0	0.2786	37M9G7D	0.2138	38M0W7D

5G NR n41 SISO		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)
10	2501.01 ~ 2685.00	0.2489	8M58G7D	0.1879	8M58W7D
15	2503.50 ~ 2682.48	0.2495	13M6G7D	0.1905	13M6W7D
20	2506.02 ~ 2679.99	0.2594	18M2G7D	0.2037	18M3W7D
25	2508.51 ~ 2677.50	0.2495	23M2G7D	0.1928	23M3W7D
30	2511.00 ~ 2674.98	0.2698	27M9G7D	0.2070	27M9W7D
40	2516.01 ~ 2670.00	0.2576	37M9G7D	0.2009	38M0W7D
50	2521.02 ~ 2664.99	0.2710	47M6G7D	0.2094	47M6W7D
60	2526.00 ~ 2659.98	0.2655	58M1G7D	0.2056	57M9W7D
70	2531.01 ~ 2655.00	0.2642	67M5G7D	0.2109	67M7W7D
80	2536.02 ~ 2649.99	0.2667	77M5G7D	0.2070	77M7W7D
90	2541.00 ~ 2644.98	0.2523	87M7G7D	0.1963	87M8W7D
100	2546.01 ~ 2640.00	0.2844	97M9G7D	0.2218	97M8W7D

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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)
10	2501.01 ~ 2685.00	0.1895	8M59G7D	0.1682	8M57W7D
15	2503.50 ~ 2682.48	0.1910	13M6G7D	0.1631	13M6W7D
20	2506.02 ~ 2679.99	0.2612	18M2G7D	0.2219	18M2W7D
25	2508.51 ~ 2677.50	0.1948	23M3G7D	0.1694	23M2W7D
30	2511.00 ~ 2674.98	0.2644	27M9G7D	0.2333	27M9W7D
40	2516.01 ~ 2670.00	0.2628	37M8G7D	0.2289	37M9W7D
50	2521.02 ~ 2664.99	0.2683	47M6G7D	0.2298	47M6W7D
60	2526.00 ~ 2659.98	0.2697	57M9G7D	0.2308	57M9W7D
70	2531.01 ~2655.00	0.2674	67M5G7D	0.2297	67M6W7D
80	2536.02 ~ 2649.99	0.2735	77M6G7D	0.2274	77M6W7D
90	2541.00 ~ 2644.98	0.2753	87M5G7D	0.2300	87M5W7D
100	2546.01 ~ 2640.00	0.2794	97M6G7D	0.2339	97M6W7D

Note:

1. 5G NR n41 overlaps the entire frequency range of 5G NR n38. Therefore, the test results provided in this report covers 5G NR n41 as well as 5G NR n38.

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

1.7 Testing Location

Sporton International Inc. (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

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1.8 Test Software

Item	Site	Manufacture	Name	Version
1.	TH01-KS	Tonscend	JS1120-3 test system China_210602	3.3.10
2.	03CH04-KS	AUDIX	E3	210616

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.

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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 with folded state and unfolded state. The worst cases (X plane- unfolded state) 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.
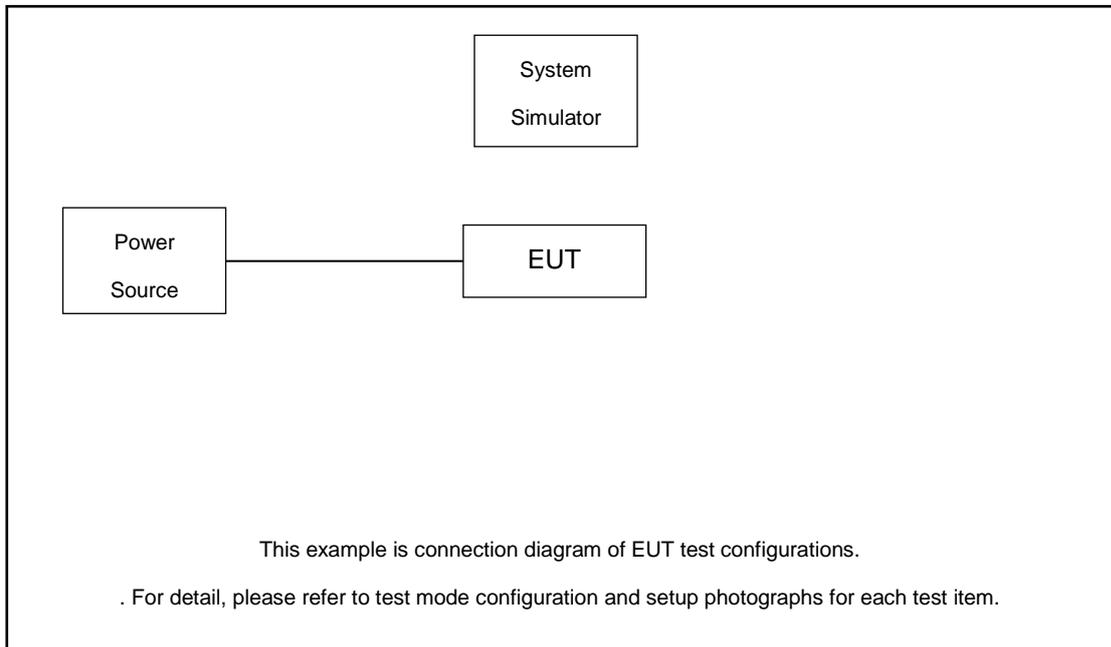
	X Plane	Y Plane	Z Plane
Orthogonal Planes of EUT			

Test Items	5G NR	5	10	15	20	25	30	35	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	n2	v	v	v	v	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
	n7	v	v	v	v	v	v	v	v	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v
	n12	v	v	v	-	-	-	-	-	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v
	n26	v	v	v	v	-	-	-	-	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v
	n38	-	v	v	v	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	v	v	v
	n66	v	v	v	v	v	v	v	v	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v
Peak-to-Average Ratio	n2				v					-	-	-	-	-	-	v	v				v	v	v		v
	n5				v	-	-	-		-	-	-	-	-	-	v	v				v	v	v		v
	n7				v					-	-	-	-	-	-	v	v				v	v	v		v
	n12			v	-	-	-	-	-	-	-	-	-	-	-	v	v				v	v	v		v
	n26				v	-	-	-	-	-	-	-	-	-	-	v	v				v	v	v		v
	n41	-			v			-								v	v				v	v	v		v
	n66				v					-	-	-	-	-	-	v	v				v	v	v		v
26dB and 99% Bandwidth	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	
	n7	v	v	v	v	v	v	v	v	-	-	-	-	-	-		v	v	v	v		v		v	
	n12	v	v	v	-	-	-	-	-	-	-	-	-	-	-		v	v	v	v		v		v	
	n26	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	
	n66	v	v	v	v	v	v	v	v	-	-	-	-	-	-		v	v	v	v		v		v	
Conducted Band Edge	n2	v			v				v	-	-	-	-	-	-	v	v				v	v	v	v	v
	n5	v		v	v	-	-	-	-	-	-	-	-	-	-	v	v				v	v	v	v	v
	n7	v			v				v	-	-	-	-	-	-	v	v				v	v	v	v	v
	n12	v	v	v												v	v				v	v	v	v	v

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	n26	v	v		v	-	-	-	-							v	v				v	v	v		v
	n41	-	v					-			v				v	v	v				v	v	v		v
	n66	v			v				v	-	-	-	-	-	-	v	v				v	v	v		v
Conducted Spurious Emission	n2	v			v				v	-	-	-	-	-	-	v	v				v		v	v	v
	n5	v		v	v	-	-	-	-	-	-	-	-	-	-	v	v				v		v	v	v
	n7	v			v				v	-	-	-	-	-	-	v	v				v		v	v	v
	n12	v	v	v	-	-	-	-	-	-	-	-	-	-	-	v	v				v		v	v	v
	n26	v	v		v	-	-	-	-	-	-	-	-	-	-	v	v				v		v	v	v
	n41	-	v					-			v					v	v	v				v		v	v	v
	n66	v			v				v	-	-	-	-	-	-	v	v				v		v	v	v
Frequency Stability	n2				v					-	-	-	-	-	-		v							v	
	n5				v	-	-	-		-	-	-	-	-	-		v							v	
	n7				v					-	-	-	-	-	-		v							v	
	n12			v	-	-	-	-	-	-	-	-	-	-	-		v							v	
	n26				v	-	-	-	-	-	-	-	-	-	-		v							v	
	n41	-						-							v		v							v	
	n66				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	v	v	v	v
	n5	v	v	v	v	-	-	-	-	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v
	n7	v	v	v	v	v	v	v	v	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v
	n12	v	v	v	-	-	-	-	-	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v
	n26	v	v	v	v	-	-	-	-	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v
	n38	-	v	v	v	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	v	v	v
	n66	v	v	v	v	v	v	v	v	-	-	-	-	-	-	v	v	v	v	v	v	v	v	v	v
Radiated Spurious Emission	n2	Worst Case																						v	
	n5	Worst Case																						v	
	n7	Worst Case																						v	
	n12	Worst Case																						v	
	n26	Worst Case																						v	
	n41	Worst Case																						v	
	n66	Worst Case																						v	

Note

1. The mark "v " means that this configuration is chosen for testing
2. The mark "-" means that this bandwidth is not supported.
3. The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.
4. Frequency Stability : Normal Voltage = 3.86V ; Low Voltage =3.60V. ; High Voltage =4.30V

2.2 Connection Diagram of Test System

```
                        ┌──────────────┐
                        │   System     │
                        │  Simulator   │
                        └──────────────┘

   ┌──────────────┐                 ┌──────────────┐
   │    Power     │                 │     EUT      │
   │   Source     │─────────────────│              │
   └──────────────┘                 └──────────────┘




            This example is connection diagram of EUT test configurations.

        . For detail, please refer to test mode configuration and setup photographs for each test item.
```

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

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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 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 6.0 dB and 20dB attenuator.

Example :

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

$$= 6.0 + 20 = 26.0 \text{ (dB)}$$

2.5 Frequency List of Low/Middle/High Channels

5G NR n2 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
40	Channel	374000	376000	378000
	Frequency	1870	1880	1890
35	Channel	373500	376000	378500
	Frequency	1867.5	1880	1892.5
30	Channel	373000	376000	379000
	Frequency	1865	1880	1895
25	Channel	372500	376000	379500
	Frequency	1862.5	1880	1897.5
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

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

5G NR n7 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
40	Channel	504000	507000	510000
40	Frequency	2520	2535	2550
35	Channel	501500	507000	503500
35	Frequency	2517.5	2535	2552.5
30	Channel	503000	507000	511000
30	Frequency	2515	2535	2555
25	Channel	502500	507000	511500
25	Frequency	2512.5	2535	2557.5
20	Channel	502000	507000	512000
20	Frequency	2510	2535	2560
15	Channel	501500	507000	512500
15	Frequency	2507.5	2535	2562.5
10	Channel	501000	507000	513000
10	Frequency	2505	2535	2565
5	Channel	500500	507000	513500
5	Frequency	2502.5	2535	2567.5

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

5G NR n26 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 n38 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
40	Channel	518000	519000	520000
	Frequency	2590	2595	2600
30	Channel	517000	519000	521000
	Frequency	2585	2595	2605
25	Channel	516500	519000	521500
	Frequency	2582.5	2595	2607.5
20	Channel	516000	519000	522000
	Frequency	2580	2595	2610
15	Channel	515500	519000	522500
	Frequency	2577.5	2595	2612.5
10	Channel	515000	519000	523000
	Frequency	2575	2595	2615

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
25	Channel	501702	518598	535500
	Frequency	2508.51	2592.99	2677.50
20	Channel	501204	518598	535998
	Frequency	2506.02	2592.99	2679.99
15	Channel	500700	518598	536496
	Frequency	2503.5	2592.99	2682.48
10	Channel	500202	518598	537000
	Frequency	2501.01	2592.99	2685

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

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
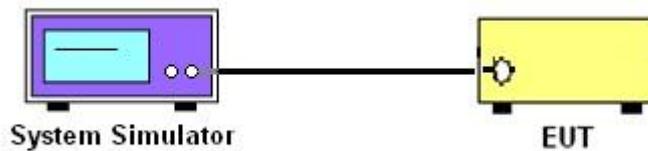
3.2.2 Peak-to-Average Ratio, Occupied Bandwidth, Conducted Band-Edge and Conducted Spurious Emission
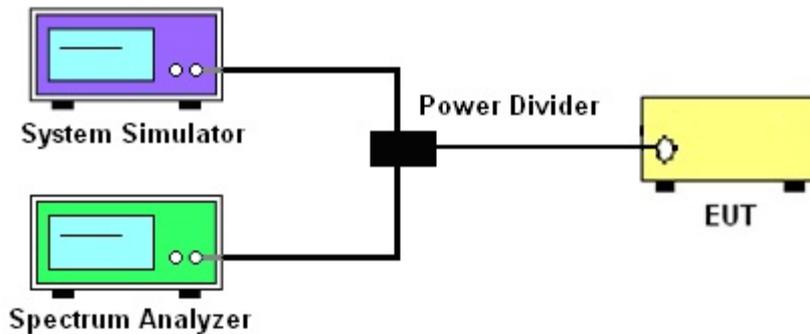
3.2.3 Frequency Stability
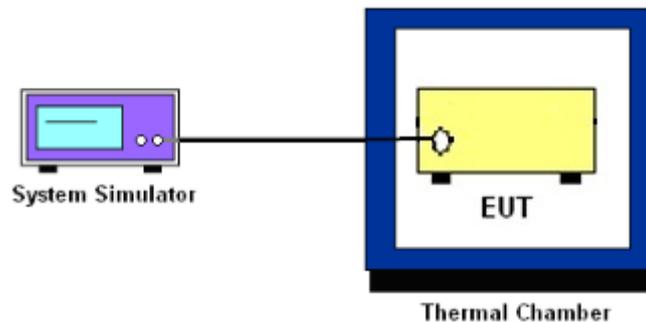
3.3 Test Result of Conducted Test

Please refer to Appendix A.

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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, n26.

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 n2, n7, n38, n41.

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.

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3.5 Peak-to-Average Ratio

3.5.1   Description of the PAR Measurement

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

3.5.2   Test Procedures

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

3.6 Occupied Bandwidth

3.6.1 Description of Occupied Bandwidth Measurement

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

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

3.6.2 Test Procedures

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

3.7 Conducted Band Edge

3.7.1 Description of Conducted Band Edge Measurement

22.917(a)

For operations in the 824 – 849 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power P(Watts) in a 100kHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

24.238 (a)

For operations in the 1850-1910 and 1930-1990 MHz band, the FCC limit is $43 + 10\log_{10}(P[\text{Watts}])$ dB below the transmitter power P(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 $43 + 10\log_{10}(P[\text{Watts}])$ 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 $43 + 10\log10(P[\text{Watts}])$ 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.

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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%/ 2% 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/n38/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.

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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.

For 5G NR n7/n38/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 10th harmonic.

3.8.2 Test Procedures

1. The testing follows ANSI C63.26 section 5.7
2. The EUT was connected to spectrum analyzer and system simulator via a power divider.
3. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
4. The middle channel for the highest RF power within the transmitting frequency was measured.
5. The conducted spurious emission for the whole frequency range was taken.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz.
7. Set spectrum analyzer with RMS detector.
8. Taking the record of maximum spurious emission.
9. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
10. The limit line is derived from 43 + 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/n38/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.

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.

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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
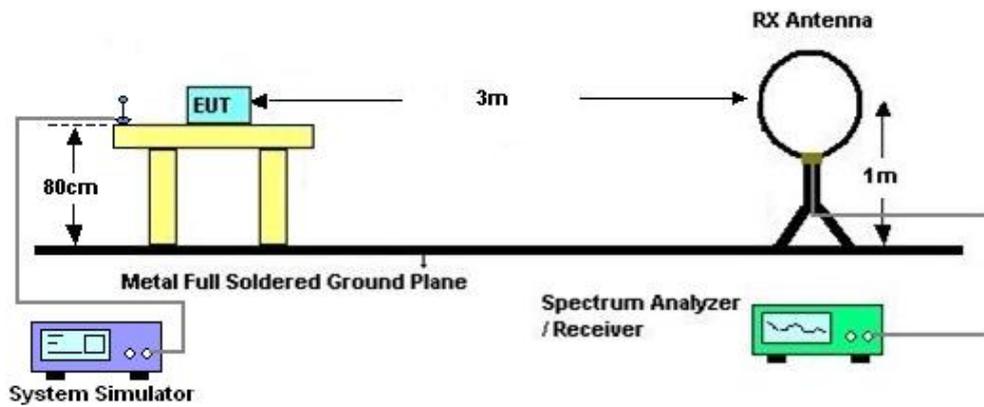
4.2.2   For radiated test from 30MHz to 1GHz

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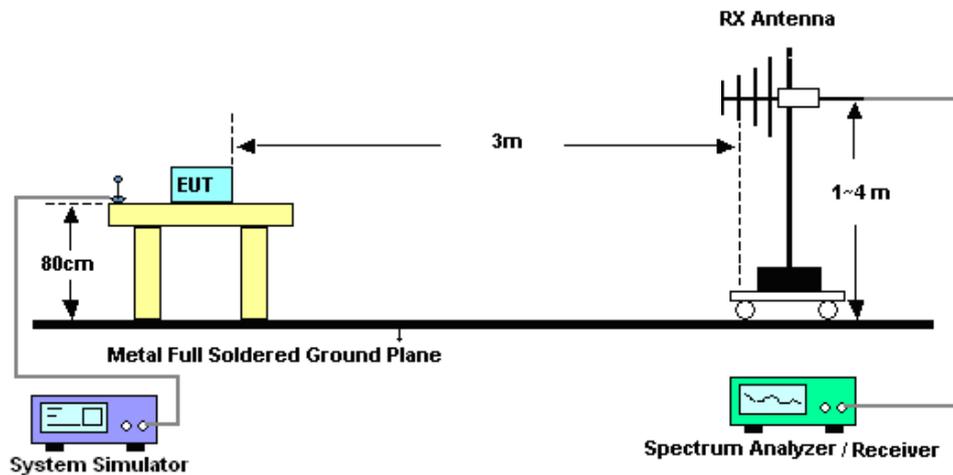
4.2.3 For radiated test above 1GHz
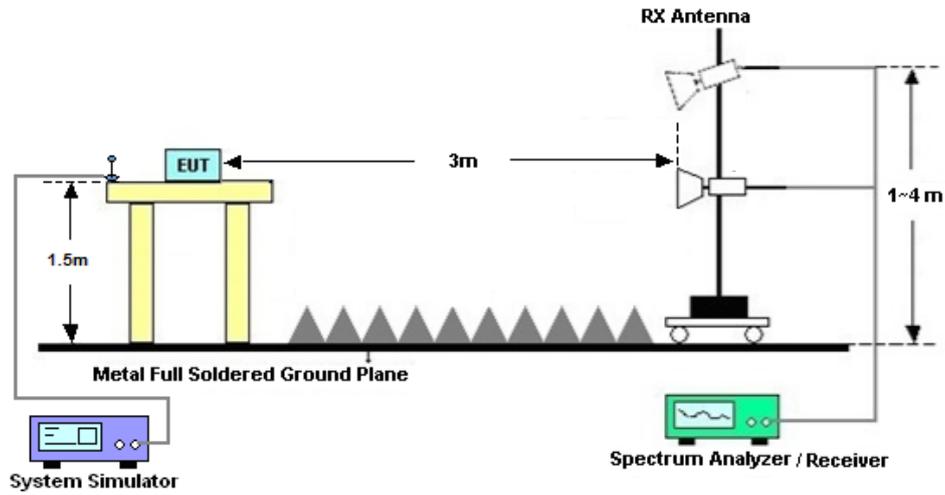
4.3 Test Result of Radiated Test

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.

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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.

For 5G NR n7/n38/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.

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.
13. For 5G NR n7/n38/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)

5   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. 10, 2023	Apr. 03, 2024~ Jun. 03, 2024	Oct. 09, 2024	Conducted (TH01-KS)
Power divider	STI	STI08-0055	-	0.5~40GHz	NCR	Apr. 03, 2024~ Jun. 03, 2024	NCR	Conducted (TH01-KS)
Temperature & humidity chamber	Hongzhan	LP-150U	H2014011440	-40~+150°C 20%~95%RH	Jul. 06, 2023	Apr. 03, 2024~ Jun. 03, 2024	Jul. 05, 2024	Conducted (TH01-KS)
EXA Spectrum Analyzer	Keysight	N9010B	MY57471079	10Hz-44G,MAX 30dB	Oct. 10, 2023	Apr. 14, 2024	Oct. 09, 2024	Radiation (03CH04-KS)
Loop Antenna	R&S	HFH2-Z2E	101125	9kHz~30MHz	Sep. 11 2023	Apr. 14, 2024	Sep. 10, 2024	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	59913	30MHz-1GHz	Aug. 19, 2023	Apr. 14, 2024	Aug. 18, 2024	Radiation (03CH04-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00251694	1GHz~18GHz	Jul. 12, 2023	Apr. 14, 2024	Jul. 11, 2024	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 05, 2024	Apr. 14, 2024	Jan. 04, 2025	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	380827	9KHz-1GHz	Jul. 06, 2023	Apr. 14, 2024	Jul. 05, 2024	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40GGA	060728	18~40GHz	Jan. 05, 2024	Apr. 14, 2024	Jan. 04, 2025	Radiation (03CH04-KS)
high gain Amplifier	EM	EM01G18GA	060840	1Ghz-18Ghz	Oct. 10, 2023	Apr. 14, 2024	Oct. 09, 2024	Radiation (03CH04-KS)
Amplifier	Agilent	8449B	3008A02370	1Ghz-18Ghz	Oct. 10, 2023	Apr. 14, 2024	Oct. 09, 2024	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Apr. 14, 2024	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Apr. 14, 2024	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Apr. 14, 2024	NCR	Radiation (03CH04-KS)

NCR: No Calibration Required

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6   Measurement Uncertainty

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

Uncertainty of Conducted Measurement

Conducted Spurious Emission & Bandedge	**±2.26 dB**
Occupied Channel Bandwidth	**±0.1%**
Conducted Power	**±0.46 dB**
Peak to Average Ratio	**±0.46 dB**
Frequency Stability	**±0.4 Hz**

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 -----------

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Appendix A. Test Results of Conducted Test

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

FR1 N2(ANT5)

Transmitter Conducted Output Power And EIRP, $(G_T - L_C)$=-2.8dB

NR Band	SCS	Band Width	Arfcn	Freq (MHz)	Modulation	RB	Conducted Power(dBm)	EIRP (dBm)	EIRP (W)
2	15	5	370500	1852.5	DFT-s-OFDM PI/2 BPSK	1@1	24.26	21.46	0.1400
2	15	5	370500	1852.5	DFT-s-OFDM QPSK	1@1	24.24	21.44	0.1393
2	15	5	370500	1852.5	DFT-s-OFDM 16 QAM	1@1	23.34	20.54	0.1132
2	15	5	376000	1880	DFT-s-OFDM PI/2 BPSK	1@1	24.19	21.39	0.1377
2	15	5	376000	1880	DFT-s-OFDM QPSK	1@1	24.2	21.4	0.1380
2	15	5	376000	1880	DFT-s-OFDM 16 QAM	1@1	23.25	20.45	0.1109
2	15	5	381500	1907.5	DFT-s-OFDM PI/2 BPSK	1@1	24.2	21.4	0.1380
2	15	5	381500	1907.5	DFT-s-OFDM QPSK	1@1	24.27	21.47	0.1403
2	15	5	381500	1907.5	DFT-s-OFDM 16 QAM	1@1	23.35	20.55	0.1135
2	15	10	371000	1855	DFT-s-OFDM PI/2 BPSK	1@1	24.27	21.47	0.1403
2	15	10	371000	1855	DFT-s-OFDM QPSK	1@1	24.41	21.61	0.1449
2	15	10	371000	1855	DFT-s-OFDM 16 QAM	1@1	23.35	20.55	0.1135
2	15	10	376000	1880	DFT-s-OFDM PI/2 BPSK	1@1	24.64	21.84	0.1528
2	15	10	376000	1880	DFT-s-OFDM QPSK	1@1	24.63	21.83	0.1524
2	15	10	376000	1880	DFT-s-OFDM 16 QAM	1@1	23.61	20.81	0.1205
2	15	10	381000	1905	DFT-s-OFDM PI/2 BPSK	1@1	24.67	21.87	0.1538
2	15	10	381000	1905	DFT-s-OFDM QPSK	1@1	24.78	21.98	0.1578
2	15	10	381000	1905	DFT-s-OFDM 16 QAM	1@1	23.69	20.89	0.1227
2	15	15	371500	1857.5	DFT-s-OFDM PI/2 BPSK	1@1	24.63	21.83	0.1524
2	15	15	371500	1857.5	DFT-s-OFDM QPSK	1@1	24.79	21.99	0.1581
2	15	15	371500	1857.5	DFT-s-OFDM 16 QAM	1@1	23.72	20.92	0.1236
2	15	15	376000	1880	DFT-s-OFDM PI/2 BPSK	1@1	24.53	21.73	0.1489
2	15	15	376000	1880	DFT-s-OFDM QPSK	1@1	24.7	21.9	0.1549
2	15	15	376000	1880	DFT-s-OFDM 16 QAM	1@1	23.59	20.79	0.1199
2	15	15	380500	1902.5	DFT-s-OFDM PI/2 BPSK	1@1	24.71	21.91	0.1552
2	15	15	380500	1902.5	DFT-s-OFDM QPSK	1@1	24.61	21.81	0.1517
2	15	15	380500	1902.5	DFT-s-OFDM 16 QAM	1@1	23.55	20.75	0.1189
2	15	20	372000	1860	DFT-s-OFDM PI/2 BPSK	1@1	24.58	21.78	0.1507
2	15	20	372000	1860	DFT-s-OFDM QPSK	1@1	24.69	21.89	0.1545
2	15	20	372000	1860	DFT-s-OFDM 16 QAM	1@1	23.62	20.82	0.1208
2	15	20	376000	1880	DFT-s-OFDM PI/2 BPSK	1@1	24.63	21.83	0.1524
2	15	20	376000	1880	DFT-s-OFDM QPSK	1@1	24.52	21.72	0.1486
2	15	20	376000	1880	DFT-s-OFDM 16 QAM	1@1	23.51	20.71	0.1178
2	15	20	380000	1900	DFT-s-OFDM PI/2 BPSK	1@1	24.6	21.8	0.1514
2	15	20	380000	1900	DFT-s-OFDM QPSK	1@1	24.68	21.88	0.1542
2	15	20	380000	1900	DFT-s-OFDM 16 QAM	1@1	23.65	20.85	0.1216
2	15	25	372500	1862.5	DFT-s-OFDM PI/2 BPSK	1@1	24.68	21.88	0.1542
2	15	25	372500	1862.5	DFT-s-OFDM QPSK	1@1	24.8	22	0.1585

2	15	25	372500	1862.5	DFT-s-OFDM 16 QAM	1@1	23.81	21.01	0.1262
2	15	25	376000	1880	DFT-s-OFDM PI/2 BPSK	1@1	24.66	21.86	0.1535
2	15	25	376000	1880	DFT-s-OFDM QPSK	1@1	24.72	21.92	0.1556
2	15	25	376000	1880	DFT-s-OFDM 16 QAM	1@1	23.63	20.83	0.1211
2	15	25	379500	1897.5	DFT-s-OFDM PI/2 BPSK	1@1	24.72	21.92	0.1556
2	15	25	379500	1897.5	DFT-s-OFDM QPSK	1@1	24.82	22.02	0.1592
2	15	25	379500	1897.5	DFT-s-OFDM 16 QAM	1@1	23.79	20.99	0.1256
2	15	30	373000	1865	DFT-s-OFDM PI/2 BPSK	1@1	24.79	21.99	0.1581
2	15	30	373000	1865	DFT-s-OFDM QPSK	1@1	24.84	22.04	0.1600
2	15	30	373000	1865	DFT-s-OFDM 16 QAM	1@1	23.8	21	0.1259
2	15	30	376000	1880	DFT-s-OFDM PI/2 BPSK	1@1	24.61	21.81	0.1517
2	15	30	376000	1880	DFT-s-OFDM QPSK	1@1	24.69	21.89	0.1545
2	15	30	376000	1880	DFT-s-OFDM 16 QAM	1@1	23.6	20.8	0.1202
2	15	30	379000	1895	DFT-s-OFDM PI/2 BPSK	1@1	24.66	21.86	0.1535
2	15	30	379000	1895	DFT-s-OFDM QPSK	1@1	24.69	21.89	0.1545
2	15	30	379000	1895	DFT-s-OFDM 16 QAM	1@1	23.8	21	0.1259
2	15	40	374000	1870	DFT-s-OFDM PI/2 BPSK	108@54	24.41	21.61	0.1449
2	15	40	374000	1870	DFT-s-OFDM PI/2 BPSK	1@1	24.46	21.66	0.1466
2	15	40	374000	1870	DFT-s-OFDM PI/2 BPSK	1@214	24.44	21.64	0.1459
2	15	40	374000	1870	DFT-s-OFDM QPSK	108@54	24.47	21.67	0.1469
2	15	40	374000	1870	DFT-s-OFDM QPSK	1@1	24.52	21.72	0.1486
2	15	40	374000	1870	DFT-s-OFDM QPSK	1@214	24.43	21.63	0.1455
2	15	40	374000	1870	DFT-s-OFDM 16 QAM	108@54	23.54	20.74	0.1186
2	15	40	374000	1870	DFT-s-OFDM 16 QAM	1@1	23.58	20.78	0.1197
2	15	40	374000	1870	DFT-s-OFDM 16 QAM	1@214	23.47	20.67	0.1167
2	15	40	374000	1870	DFT-s-OFDM 64 QAM	108@54	22.05	19.25	0.0841
2	15	40	374000	1870	DFT-s-OFDM 64 QAM	1@1	22.01	19.21	0.0834
2	15	40	374000	1870	DFT-s-OFDM 64 QAM	1@214	22.05	19.25	0.0841
2	15	40	374000	1870	DFT-s-OFDM 256 QAM	108@54	20.03	17.23	0.0528
2	15	40	374000	1870	DFT-s-OFDM 256 QAM	1@1	19.71	16.91	0.0491
2	15	40	374000	1870	DFT-s-OFDM 256 QAM	1@214	19.71	16.91	0.0491
2	15	40	374000	1870	CP-OFDM QPSK	108@54	23.12	20.32	0.1076
2	15	40	374000	1870	CP-OFDM QPSK	1@1	23.4	20.6	0.1148
2	15	40	374000	1870	CP-OFDM QPSK	1@214	23.3	20.5	0.1122
2	15	40	376000	1880	DFT-s-OFDM PI/2 BPSK	108@54	24.38	21.58	0.1439
2	15	40	376000	1880	DFT-s-OFDM PI/2 BPSK	1@1	24.47	21.67	0.1469
2	15	40	376000	1880	DFT-s-OFDM PI/2 BPSK	1@214	24.84	22.04	0.1600
2	15	40	376000	1880	DFT-s-OFDM QPSK	108@54	24.02	21.22	0.1324
2	15	40	376000	1880	DFT-s-OFDM QPSK	1@1	24.11	21.31	0.1352
2	15	40	376000	1880	DFT-s-OFDM QPSK	1@214	24.31	21.51	0.1416
2	15	40	376000	1880	DFT-s-OFDM 16 QAM	108@54	23.54	20.74	0.1186
2	15	40	376000	1880	DFT-s-OFDM 16 QAM	1@1	23.65	20.85	0.1216
2	15	40	376000	1880	DFT-s-OFDM 16 QAM	1@214	23.63	20.83	0.1211
2	15	40	376000	1880	DFT-s-OFDM 64 QAM	108@54	22.06	19.26	0.0843
2	15	40	376000	1880	DFT-s-OFDM 64 QAM	1@1	22.16	19.36	0.0863
2	15	40	376000	1880	DFT-s-OFDM 64 QAM	1@214	22.13	19.33	0.0857

2	15	40	376000	1880	DFT-s-OFDM 256 QAM	108@54	19.98	17.18	0.0522
2	15	40	376000	1880	DFT-s-OFDM 256 QAM	1@1	19.77	16.97	0.0498
2	15	40	376000	1880	DFT-s-OFDM 256 QAM	1@214	19.71	16.91	0.0491
2	15	40	376000	1880	CP-OFDM QPSK	108@54	23.16	20.36	0.1086
2	15	40	376000	1880	CP-OFDM QPSK	1@1	23.38	20.58	0.1143
2	15	40	376000	1880	CP-OFDM QPSK	1@214	23.36	20.56	0.1138
2	15	40	378000	1890	DFT-s-OFDM PI/2 BPSK	108@54	24.44	21.64	0.1459
2	15	40	378000	1890	DFT-s-OFDM PI/2 BPSK	1@1	24.25	21.45	0.1396
2	15	40	378000	1890	DFT-s-OFDM PI/2 BPSK	1@214	24.68	21.88	0.1542
2	15	40	378000	1890	DFT-s-OFDM QPSK	108@54	24.47	21.67	0.1469
2	15	40	378000	1890	DFT-s-OFDM QPSK	1@1	24.4	21.6	0.1445
2	15	40	378000	1890	DFT-s-OFDM QPSK	1@214	24.37	21.57	0.1435
2	15	40	378000	1890	DFT-s-OFDM 16 QAM	108@54	23.46	20.66	0.1164
2	15	40	378000	1890	DFT-s-OFDM 16 QAM	1@1	23.6	20.8	0.1202
2	15	40	378000	1890	DFT-s-OFDM 16 QAM	1@214	23.52	20.72	0.1180
2	15	40	378000	1890	DFT-s-OFDM 64 QAM	108@54	23.42	20.62	0.1153
2	15	40	378000	1880	DFT-s-OFDM 64 QAM	1@1	23.44	20.64	0.1159
2	15	40	378000	1890	DFT-s-OFDM 64 QAM	1@214	22.04	19.24	0.0839
2	15	40	378000	1890	DFT-s-OFDM 256 QAM	108@54	19.95	17.15	0.0519
2	15	40	378000	1890	DFT-s-OFDM 256 QAM	1@1	19.63	16.83	0.0482
2	15	40	378000	1890	DFT-s-OFDM 256 QAM	1@214	19.73	16.93	0.0493
2	15	40	378000	1890	CP-OFDM QPSK	108@54	23.19	20.39	0.1094
2	15	40	378000	1890	CP-OFDM QPSK	1@1	23.31	20.51	0.1125
2	15	40	378000	1890	CP-OFDM QPSK	1@214	23.28	20.48	0.1117
2	15	35	373500	1867.5	DFT-s-OFDM PI/2 BPSK	1@1	23.36	20.56	0.1138
2	15	35	373500	1867.5	DFT-s-OFDM QPSK	1@1	23.88	21.08	0.1282
2	15	35	373500	1867.5	DFT-s-OFDM 16 QAM	1@1	22.71	19.91	0.0979
2	15	35	376000	1880	DFT-s-OFDM PI/2 BPSK	1@1	23.86	21.06	0.1276
2	15	35	376000	1880	DFT-s-OFDM QPSK	1@1	23.88	21.08	0.1282
2	15	35	376000	1880	DFT-s-OFDM 16 QAM	1@1	22.74	19.94	0.0986
2	15	35	378500	1892.5	DFT-s-OFDM PI/2 BPSK	1@1	23.86	21.06	0.1276
2	15	35	378500	1892.5	DFT-s-OFDM QPSK	1@1	23.96	21.16	0.1306
2	15	35	378500	1892.5	DFT-s-OFDM 16 QAM	1@1	22.87	20.07	0.1016

Frequency Stability

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Deviation (ppm)	Verdict	Environment
2	15	20	376000	1880.0	DFT-s-OFDM QPS	100@0	0.00126	**PASS**	NV
2	15	20	376000	1880.0	DFT-s-OFDM QPSK	100@0	0.00231	**PASS**	LV
2	15	20	376000	1880.0	DFT-s-OFDM QPSK	100@0	-0.00256	**PASS**	HV
2	15	20	376000	1880.0	DFT-s-OFDM QPSK	100@0	0.00331	**PASS**	-30℃
2	15	20	376000	1880.0	DFT-s-OFDM QPSK	100@0	0.00448	**PASS**	-20℃
2	15	20	376000	1880.0	DFT-s-OFDM QPSK	100@0	0.00652	**PASS**	-10℃
2	15	20	376000	1880.0	DFT-s-OFDM QPSK	100@0	0.00592	**PASS**	0℃
2	15	20	376000	1880.0	DFT-s-OFDM QPSK	100@0	0.00625	**PASS**	10℃
2	15	20	376000	1880.0	DFT-s-OFDM QPSK	100@0	0.00443	**PASS**	20℃
2	15	20	376000	1880.0	DFT-s-OFDM QPSK	100@0	0.00434	**PASS**	30℃
2	15	20	376000	1880.0	DFT-s-OFDM QPSK	100@0	-0.00296	**PASS**	40℃
2	15	20	376000	1880.0	DFT-s-OFDM QPSK	100@0	0.00394	**PASS**	50℃

Peak to Average Ratio

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result (dB)	Limit (dB)	Verdict
2	15	20	376000	1880.0	DFT-s-OFDM PI/2 BPSK	100@0	3.89	13	**PASS**
2	15	20	376000	1880.0	DFT-s-OFDM PI/2 BPSK	1@0	4.02	13	**PASS**
2	15	20	376000	1880.0	DFT-s-OFDM QPSK	100@0	5.28	13	**PASS**
2	15	20	376000	1880.0	DFT-s-OFDM QPSK	1@0	5.59	13	**PASS**

N2(20M)_DFT-s-OFDM_PI_2-BPSK_Outer_Full_Mid_CH

N2(20M)_DFT-s-OFDM_PI_2-BPSK_Edge_1RB_Left_Mid_CH
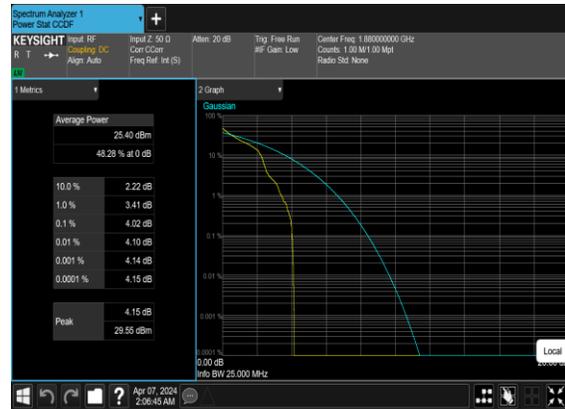
N2(20M)_DFT-s-OFDM_QPSK_Outer_Full_Mid_CH

N2(20M)_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)
2	15	5	376000	1880.0	CP-OFDM QPSK	25@0	4.4622	4.951
2	15	5	376000	1880.0	CP-OFDM 16 QAM	25@0	4.489	5.15
2	15	5	376000	1880.0	CP-OFDM 64 QAM	25@0	4.456	4.957
2	15	5	376000	1880.0	CP-OFDM 256 QAM	25@0	4.4714	5.049
2	15	10	376000	1880.0	CP-OFDM QPSK	52@0	9.2669	10.09
2	15	10	376000	1880.0	CP-OFDM 16 QAM	52@0	9.2839	9.981
2	15	10	376000	1880.0	CP-OFDM 64 QAM	52@0	9.2569	9.895
2	15	10	376000	1880.0	CP-OFDM 256 QAM	52@0	9.2786	9.953
2	15	15	376000	1880.0	CP-OFDM QPSK	79@0	14.079	14.88
2	15	15	376000	1880.0	CP-OFDM 16 QAM	79@0	14.089	14.88
2	15	15	376000	1880.0	CP-OFDM 64 QAM	79@0	14.103	14.86
2	15	15	376000	1880.0	CP-OFDM 256 QAM	79@0	14.087	14.87
2	15	20	376000	1880.0	CP-OFDM QPSK	106@0	18.911	20.01
2	15	20	376000	1880.0	CP-OFDM 16 QAM	106@0	18.95	19.82
2	15	20	376000	1880.0	CP-OFDM 64 QAM	106@0	18.895	19.82
2	15	20	376000	1880.0	CP-OFDM 256 QAM	106@0	18.887	19.84
2	15	25	376000	1880.0	CP-OFDM QPSK	133@0	23.751	24.82
2	15	25	376000	1880.0	CP-OFDM 16 QAM	133@0	23.777	24.92
2	15	25	376000	1880.0	CP-OFDM 64 QAM	133@0	23.819	24.81
2	15	25	376000	1880.0	CP-OFDM 256 QAM	133@0	23.794	24.76
2	15	30	376000	1880.0	CP-OFDM QPSK	160@0	28.566	29.81
2	15	30	376000	1880.0	CP-OFDM 16 QAM	160@0	28.64	29.62
2	15	30	376000	1880.0	CP-OFDM 64 QAM	160@0	28.537	29.54
2	15	30	376000	1880.0	CP-OFDM 256 QAM	160@0	28.607	29.77
2	15	35	376000	1880.0	CP-OFDM QPSK	188@0	33.562	34.84
2	15	35	376000	1880.0	CP-OFDM 16 QAM	188@0	33.569	34.75

2	15	35	376000	1880.0	CP-OFDM 64 QAM	188@0	33.576	34.75
2	15	35	376000	1880.0	CP-OFDM 256 QAM	188@0	33.538	34.7
2	15	40	376000	1880.0	CP-OFDM QPSK	216@0	38.635	39.86
2	15	40	376000	1880.0	CP-OFDM 16 QAM	216@0	38.586	39.96
2	15	40	376000	1880.0	CP-OFDM 64 QAM	216@0	38.551	39.91
2	15	40	376000	1880.0	CP-OFDM 256 QAM	216@0	38.6	39.91

N2(5M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

N2(5M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH

N2(5M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH

N2(5M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

N2(10M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

N2(10M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH
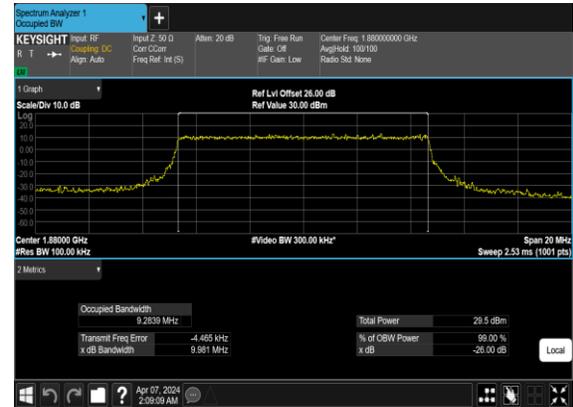
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N2(10M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

N2(15M)_CP-OFDM_QPSK_Outer_Full_Mid_CH
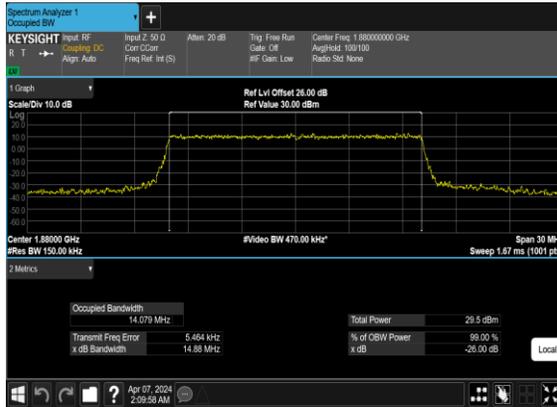
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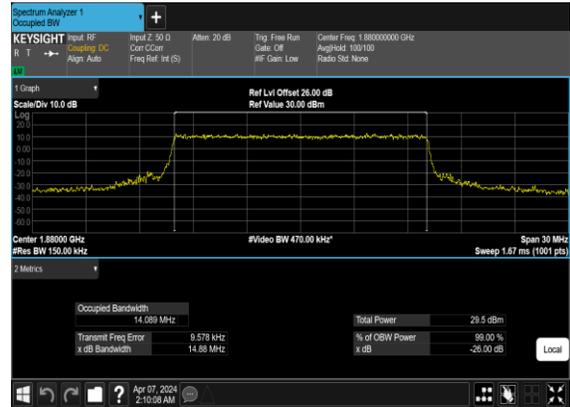
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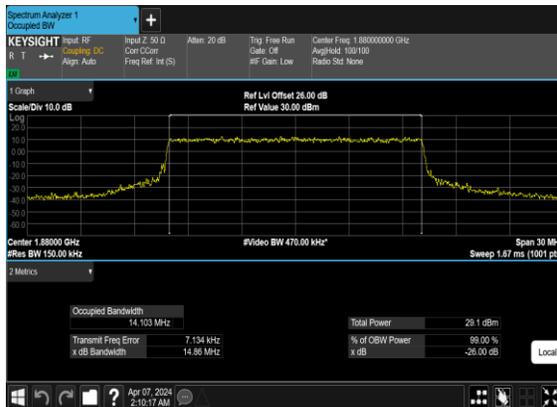
N2(15M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

N2(20M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

N2(20M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH

N2(20M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH

N2(20M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

N2(25M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

N2(25M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH
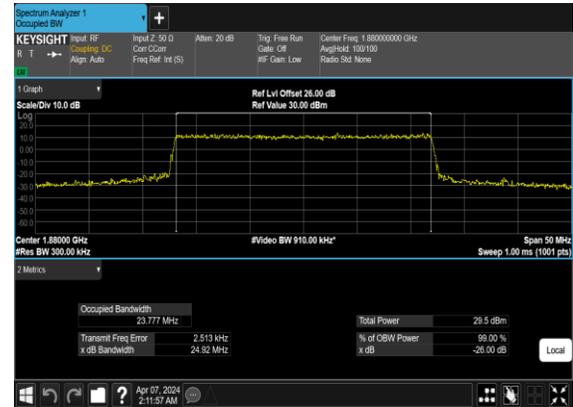
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N2(25M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

N2(30M)_CP-OFDM_QPSK_Outer_Full_Mid_CH
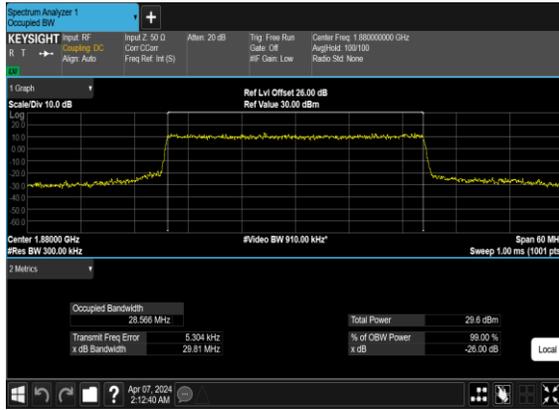
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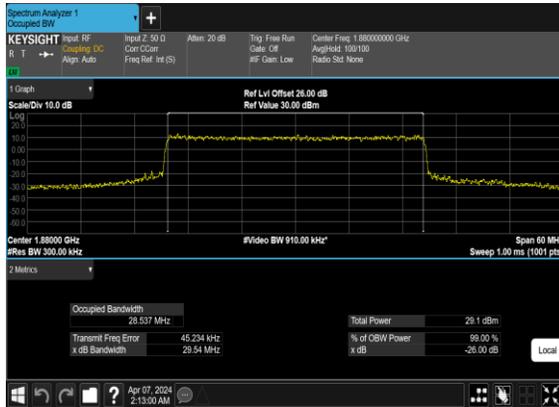
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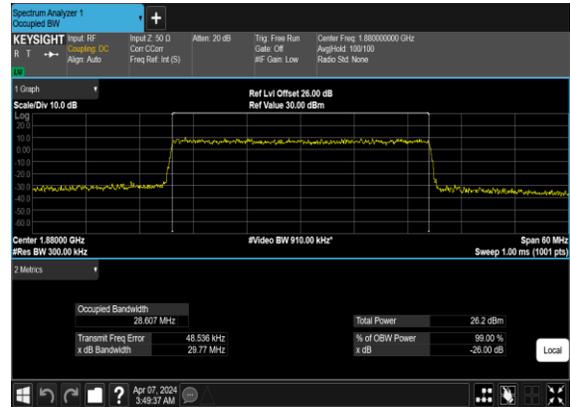
N2(35M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

N2(35M)_CP-OFDM_16 QAM_Outer_Full_Mid_CH

N2(35M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH

N2(35M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH

N2(40M)_CP-OFDM_QPSK_Outer_Full_Mid_CH
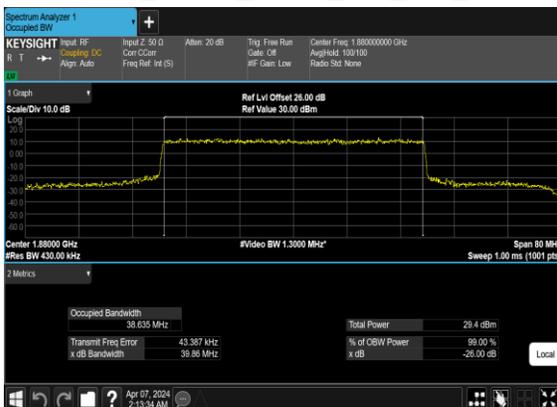
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N2(40M)_CP-OFDM_64 QAM_Outer_Full_Mid_CH

N2(40M)_CP-OFDM_256 QAM_Outer_Full_Mid_CH
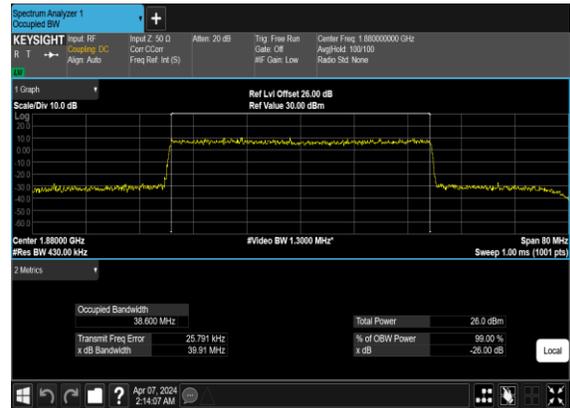
Conducted Spurious Emissions

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result	Verdict
2	15	5	370500	1852.5	DFT-s-OFDM BPSK	1@0	see graph	---
2	15	5	370500	1852.5	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
2	15	5	370500	1852.5	DFT-s-OFDM QPSK	1@0	see graph	---
2	15	5	370500	1852.5	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
2	15	5	376000	1880.0	DFT-s-OFDM BPSK	1@0	see graph	---
2	15	5	376000	1880.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
2	15	5	376000	1880.0	DFT-s-OFDM QPSK	1@0	see graph	---
2	15	5	376000	1880.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
2	15	5	381500	1907.5	DFT-s-OFDM BPSK	1@0	see graph	---
2	15	5	381500	1907.5	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
2	15	5	381500	1907.5	DFT-s-OFDM QPSK	1@0	see graph	---
2	15	5	381500	1907.5	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
2	15	20	372000	1860.0	DFT-s-OFDM BPSK	1@0	see graph	---
2	15	20	372000	1860.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
2	15	20	372000	1860.0	DFT-s-OFDM QPSK	1@0	see graph	---
2	15	20	372000	1860.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
2	15	20	376000	1880.0	DFT-s-OFDM BPSK	1@0	see graph	---
2	15	20	376000	1880.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
2	15	20	376000	1880.0	DFT-s-OFDM QPSK	1@0	see graph	---
2	15	20	376000	1880.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
2	15	20	380000	1900.0	DFT-s-OFDM BPSK	1@0	see graph	---
2	15	20	380000	1900.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
2	15	20	380000	1900.0	DFT-s-OFDM QPSK	1@0	see graph	---

2	15	20	380000	1900.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
2	15	40	374000	1870.0	DFT-s-OFDM BPSK	1@0	see graph	**---**
2	15	40	374000	1870.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
2	15	40	374000	1870.0	DFT-s-OFDM QPSK	1@0	see graph	**---**
2	15	40	374000	1870.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
2	15	40	376000	1880.0	DFT-s-OFDM BPSK	1@0	see graph	**---**
2	15	40	376000	1880.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
2	15	40	376000	1880.0	DFT-s-OFDM QPSK	1@0	see graph	**---**
2	15	40	376000	1880.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
2	15	40	378000	1890.0	DFT-s-OFDM BPSK	1@0	see graph	**---**
2	15	40	378000	1890.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
2	15	40	378000	1890.0	DFT-s-OFDM QPSK	1@0	see graph	**---**
2	15	40	378000	1890.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**

N2(5M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH

N2(5M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH

N2(5M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH

N2(5M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH

N2(5M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH

N2(5M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_High_CH
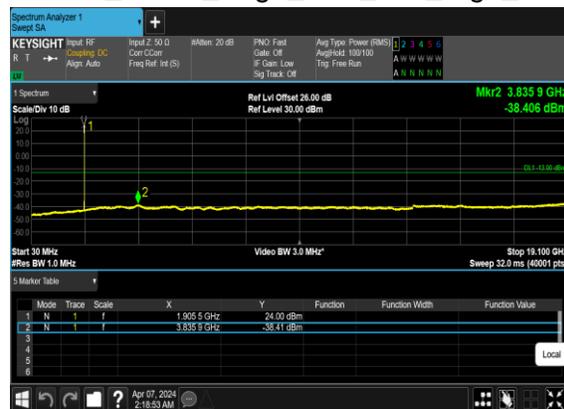
N2(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH

N2(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH

N2(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH

N2(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH
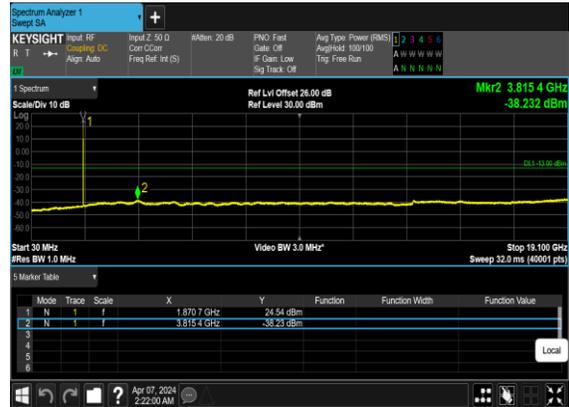
N2(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH
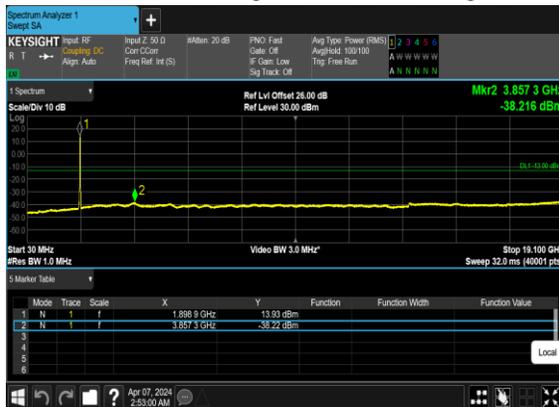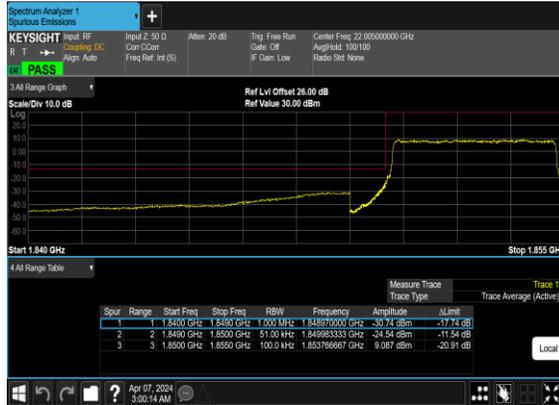

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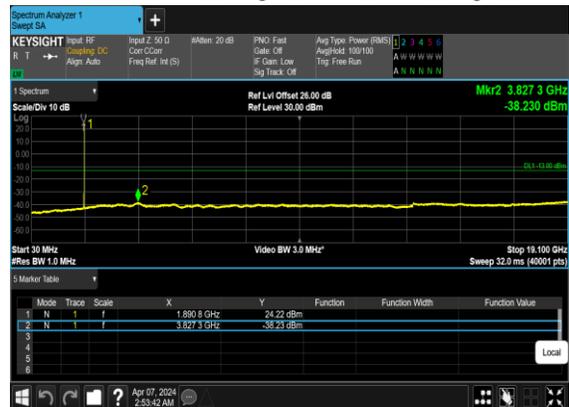
N2(40M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH
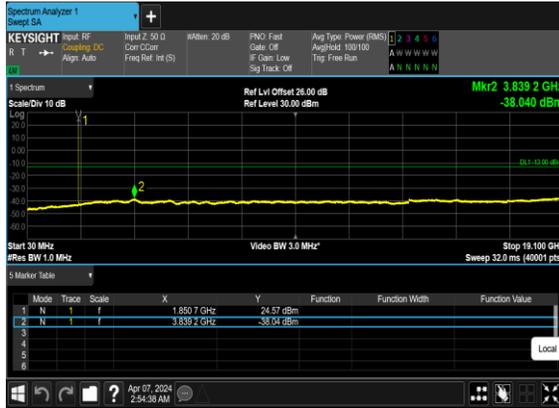
N2(40M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH

N2(40M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Mid_CH

N2(40M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Mid_CH

N2(40M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_High_CH

N2(40M)_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
2	15	5	370500	1852.5	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
2	15	5	370500	1852.5	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
2	15	5	370500	1852.5	DFT-s-OFDM BPSK	25@0	see graph	**PASS**
2	15	5	370500	1852.5	DFT-s-OFDM QPSK	25@0	see graph	**PASS**
2	15	5	381500	1907.5	DFT-s-OFDM BPSK	1@24	see graph	**PASS**
2	15	5	381500	1907.5	DFT-s-OFDM QPSK	1@24	see graph	**PASS**
2	15	5	381500	1907.5	DFT-s-OFDM BPSK	25@0	see graph	**PASS**
2	15	5	381500	1907.5	DFT-s-OFDM QPSK	25@0	see graph	**PASS**
2	15	20	372000	1860.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
2	15	20	372000	1860.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
2	15	20	372000	1860.0	DFT-s-OFDM BPSK	100@0	see graph	**PASS**
2	15	20	372000	1860.0	DFT-s-OFDM QPSK	100@0	see graph	**PASS**
2	15	20	380000	1900.0	DFT-s-OFDM BPSK	1@105	see graph	**PASS**
2	15	20	380000	1900.0	DFT-s-OFDM QPSK	1@105	see graph	**PASS**
2	15	20	380000	1900.0	DFT-s-OFDM BPSK	100@0	see graph	**PASS**
2	15	20	380000	1900.0	DFT-s-OFDM QPSK	100@0	see graph	**PASS**
2	15	40	374000	1870.0	DFT-s-OFDM BPSK	1@0	see graph	**PASS**
2	15	40	374000	1870.0	DFT-s-OFDM QPSK	1@0	see graph	**PASS**
2	15	40	374000	1870.0	DFT-s-OFDM BPSK	216@0	see graph	**PASS**
2	15	40	374000	1870.0	DFT-s-OFDM QPSK	216@0	see graph	**PASS**
2	15	40	378000	1890.0	DFT-s-OFDM BPSK	1@215	see graph	**PASS**
2	15	40	378000	1890.0	DFT-s-OFDM QPSK	1@215	see graph	**PASS**
2	15	40	378000	1890.0	DFT-s-OFDM BPSK	216@0	see graph	**PASS**
2	15	40	378000	1890.0	DFT-s-OFDM QPSK	216@0	see graph	**PASS**

N2(5M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH
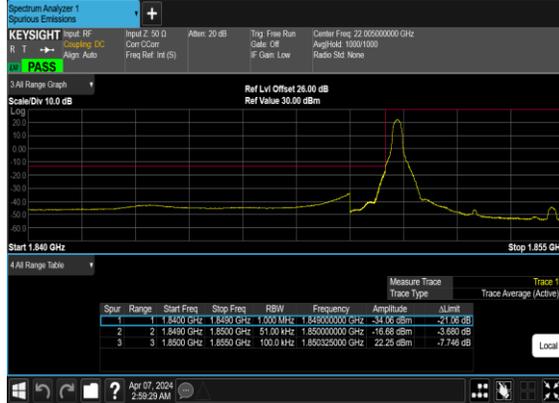
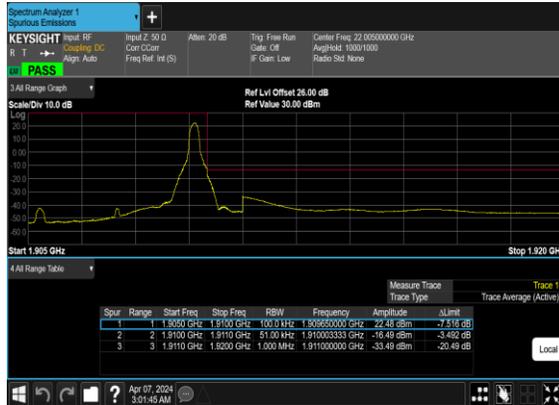## N2(5M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH
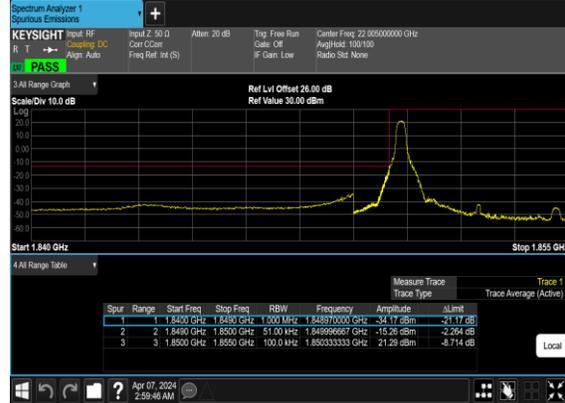
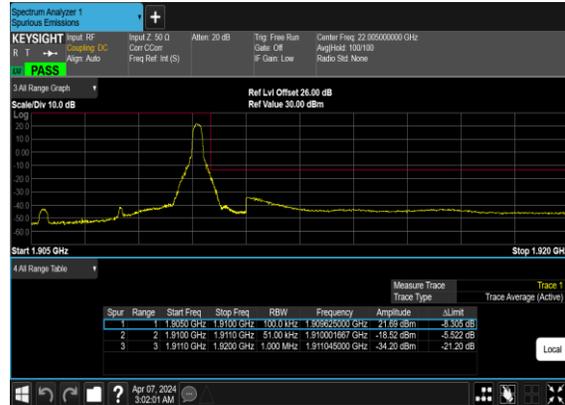## N2(5M)_DFT-s-OFDM_BPSK_Outer_Full_Low_CH

N2(5M)_DFT-s-OFDM_QPSK_Outer_Full_Low_CH
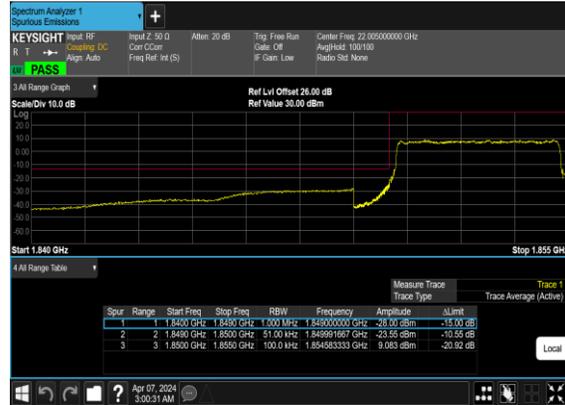
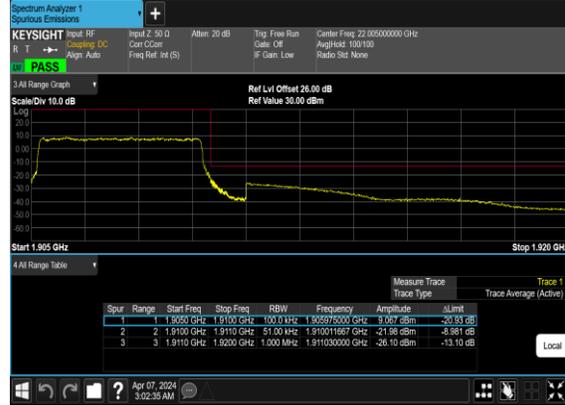## N2(5M)_DFT-s-OFDM_BPSK_Edge_1RB_Right_High_CH
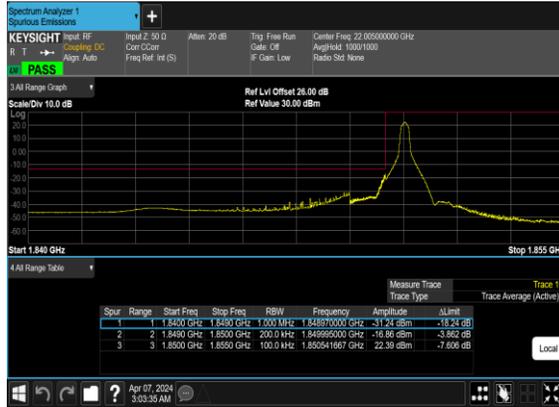

N2(5M)_DFT-s-OFDM_QPSK_Edge_1RB_Right_High_CH
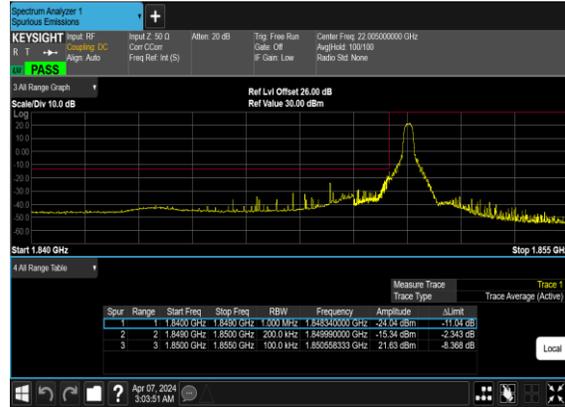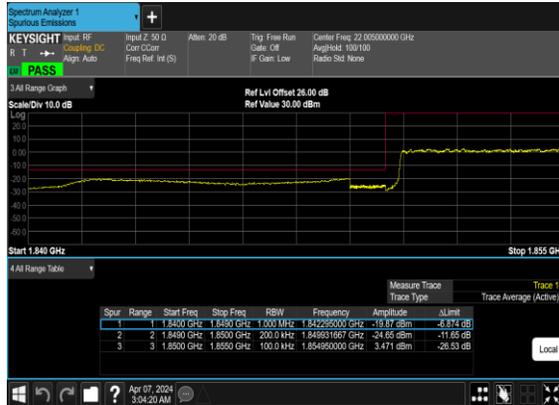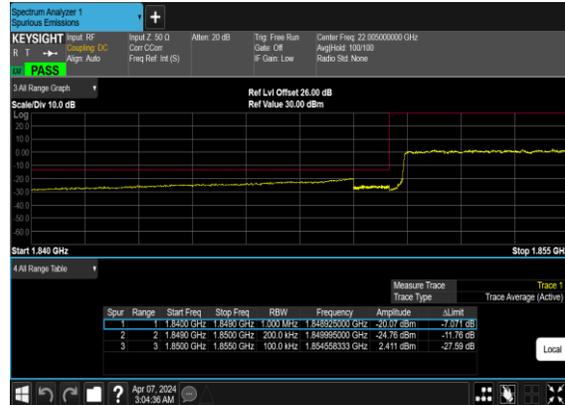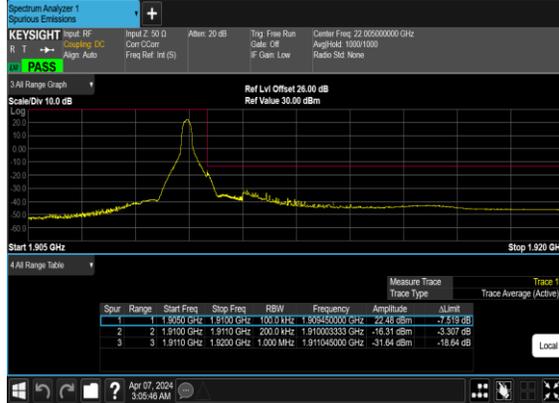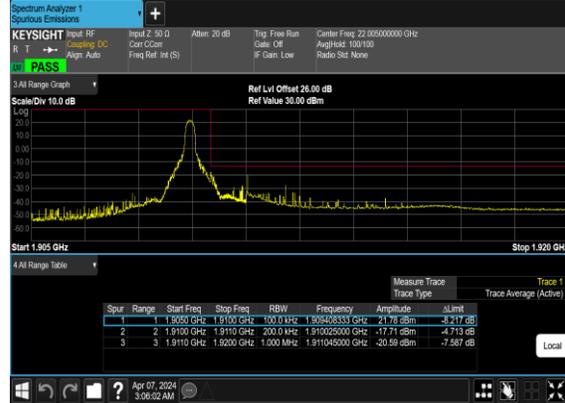
N2(5M)_DFT-s-OFDM_BPSK_Outer_Full_High_CH

N2(5M)_DFT-s-OFDM_QPSK_Outer_Full_High_CH

N2(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH

N2(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH

N2(20M)_DFT-s-OFDM_BPSK_Outer_Full_Low_CH

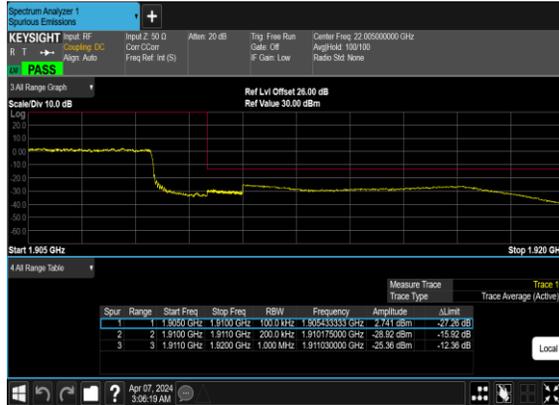### N2(20M)_DFT-s-OFDM_QPSK_Outer_Full_Low_CH

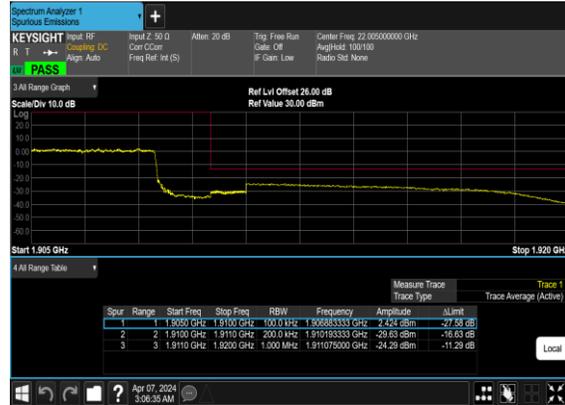## N2(20M)_DFT-s-OFDM_BPSK_Edge_1RB_Right_High_CH

N2(20M)_DFT-s-OFDM_QPSK_Edge_1RB_Right_High_CH
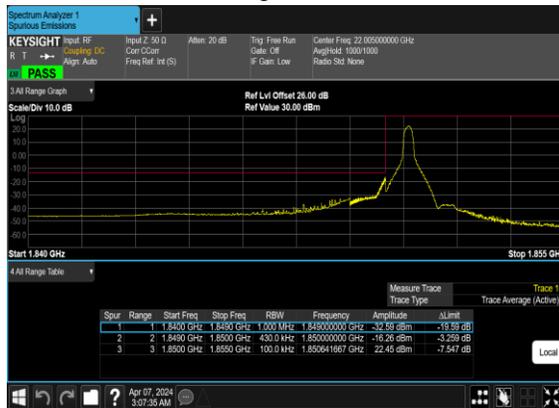

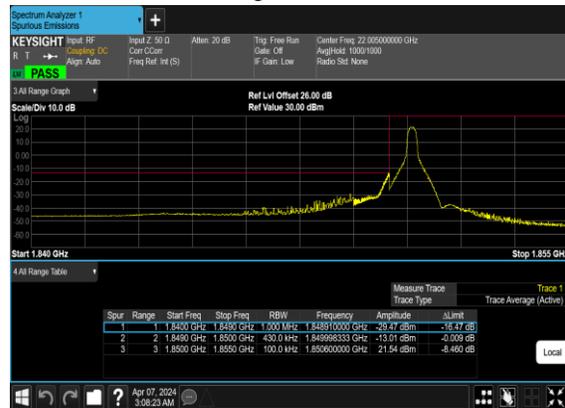## N2(20M)_DFT-s-OFDM_BPSK_Outer_Full_High_CH

N2(20M)_DFT-s-OFDM_QPSK_Outer_Full_High_CH

N2(40M)_DFT-s-OFDM_BPSK_Edge_1RB_Left_Low_CH

N2(40M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH

N2(40M)_DFT-s-OFDM_QPSK_Edge_1RB_Left_Low_CH_CHP_PASS

N2(40M)_DFT-s-OFDM_BPSK_Outer_Full_Low_CH

N2(40M)_DFT-s-OFDM_QPSK_Outer_Full_Low_CH

N2(40M)_DFT-s-OFDM_BPSK_Edge_1RB_Right_High_CH

N2(40M)_DFT-s-OFDM_QPSK_Edge_1RB_Right_High_CH

N2(40M)_DFT-s-OFDM_BPSK_Outer_Full_High_CH
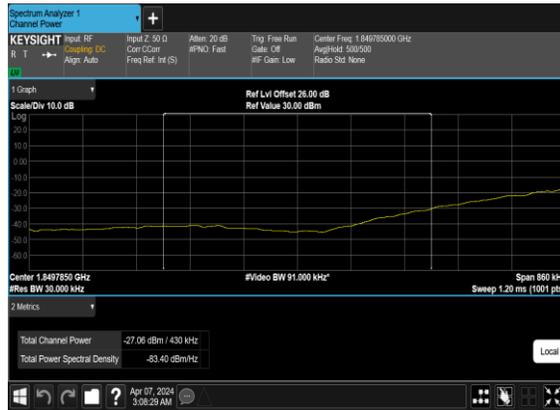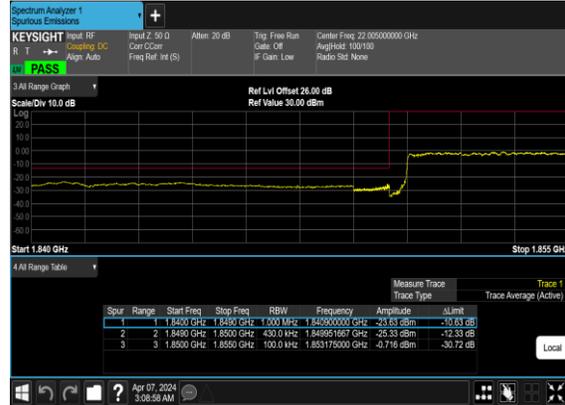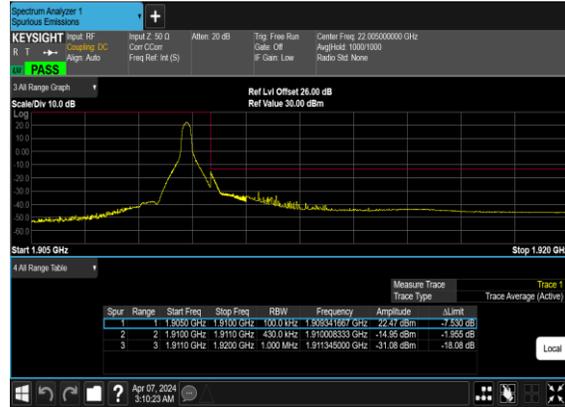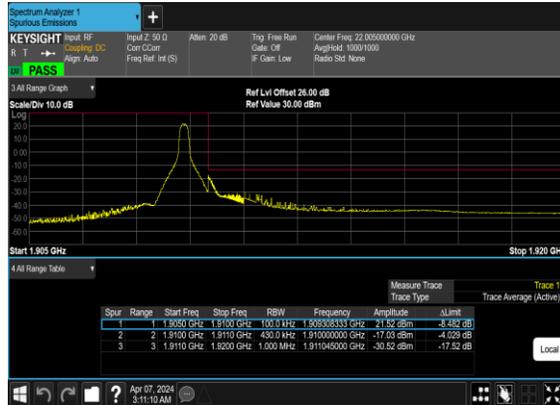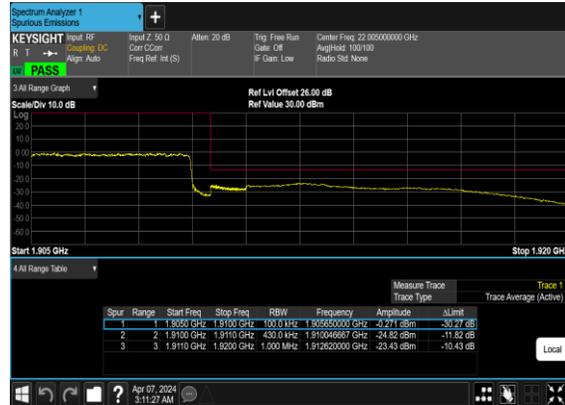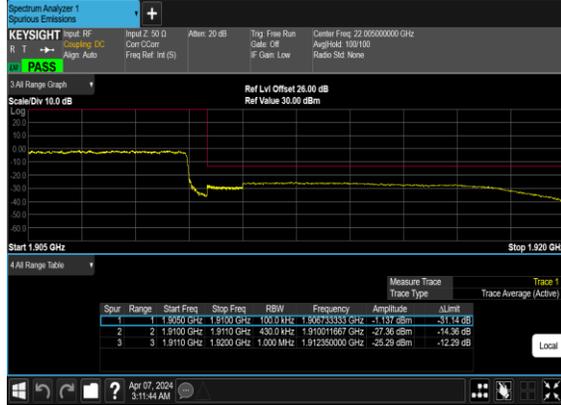
N2(40M)_DFT-s-OFDM_QPSK_Outer_Full_High_CH

FR1 N5(ANT1)

Transmitter Conducted Output Power And ERP, $(G_T - L_C)$=-5.1dB

NR Band	SCS	Band Width	Arfcn	Freq (MHz)	Modulation	RB	Conducted Power(dBm)	ERP (dBm)	ERP (W)
5	15	20	166800	834	DFT-s-OFDM PI/2 BPSK	50@25	24.2	16.95	0.0495
5	15	20	166800	834	DFT-s-OFDM PI/2 BPSK	1@1	24.05	16.8	0.0479
5	15	20	166800	834	DFT-s-OFDM PI/2 BPSK	1@104	24.22	16.97	0.0498
5	15	20	166800	834	DFT-s-OFDM QPSK	50@25	24.18	16.93	0.0493
5	15	20	166800	834	DFT-s-OFDM QPSK	1@1	24.36	17.11	0.0514
5	15	20	166800	834	DFT-s-OFDM QPSK	1@104	24.27	17.02	0.0504
5	15	20	166800	834	DFT-s-OFDM 16 QAM	50@25	23.02	15.77	0.0378
5	15	20	166800	834	DFT-s-OFDM 16 QAM	1@1	23.09	15.84	0.0384
5	15	20	166800	834	DFT-s-OFDM 16 QAM	1@104	23.25	16	0.0398
5	15	20	166800	834	DFT-s-OFDM 64 QAM	50@25	21.69	14.44	0.0278
5	15	20	166800	834	DFT-s-OFDM 64 QAM	1@1	21.54	14.29	0.0269
5	15	20	166800	834	DFT-s-OFDM 64 QAM	1@104	21.78	14.53	0.0284
5	15	20	166800	834	DFT-s-OFDM 256 QAM	50@25	19.44	12.19	0.0166
5	15	20	166800	834	DFT-s-OFDM 256 QAM	1@1	18.99	11.74	0.0149
5	15	20	166800	834	DFT-s-OFDM 256 QAM	1@104	19.34	12.09	0.0162
5	15	20	166800	834	CP-OFDM QPSK	53@26	22.64	15.39	0.0346
5	15	20	166800	834	CP-OFDM QPSK	1@1	22.62	15.37	0.0344
5	15	20	166800	834	CP-OFDM QPSK	1@104	22.64	15.39	0.0346
5	15	20	167300	836.5	DFT-s-OFDM PI/2 BPSK	50@25	24.32	17.07	0.0509
5	15	20	167300	836.5	DFT-s-OFDM PI/2 BPSK	1@1	24.03	16.78	0.0476
5	15	20	167300	836.5	DFT-s-OFDM PI/2 BPSK	1@104	24.13	16.88	0.0488
5	15	20	167300	836.5	DFT-s-OFDM QPSK	50@25	24.04	16.79	0.0478
5	15	20	167300	836.5	DFT-s-OFDM QPSK	1@1	24.08	16.83	0.0482
5	15	20	167300	836.5	DFT-s-OFDM QPSK	1@104	24.32	17.07	0.0509
5	15	20	167300	836.5	DFT-s-OFDM 16 QAM	50@25	23.12	15.87	0.0386
5	15	20	167300	836.5	DFT-s-OFDM 16 QAM	1@1	23.03	15.78	0.0378
5	15	20	167300	836.5	DFT-s-OFDM 16 QAM	1@104	22.33	15.08	0.0322
5	15	20	167300	836.5	DFT-s-OFDM 64 QAM	50@25	21.72	14.47	0.0280
5	15	20	167300	836.5	DFT-s-OFDM 64 QAM	1@1	21.55	14.3	0.0269
5	15	20	167300	836.5	DFT-s-OFDM 64 QAM	1@104	21.75	14.5	0.0282
5	15	20	167300	836.5	DFT-s-OFDM 256 QAM	50@25	19	11.75	0.0150
5	15	20	167300	836.5	DFT-s-OFDM 256 QAM	1@1	19.15	11.9	0.0155
5	15	20	167300	836.5	DFT-s-OFDM 256 QAM	1@104	19.3	12.05	0.0160
5	15	20	167300	836.5	CP-OFDM QPSK	53@26	22.69	15.44	0.0350
5	15	20	167300	836.5	CP-OFDM QPSK	1@1	22.68	15.43	0.0349
5	15	20	167300	836.5	CP-OFDM QPSK	1@104	22.63	15.38	0.0345
5	15	20	167800	839	DFT-s-OFDM PI/2 BPSK	50@25	24.26	17.01	0.0502
5	15	20	167800	839	DFT-s-OFDM PI/2 BPSK	1@1	24.04	16.79	0.0478

5	15	20	167800	839	DFT-s-OFDM PI/2 BPSK	1@104	24.15	16.9	0.0490
5	15	20	167800	839	DFT-s-OFDM QPSK	50@25	24.2	16.95	0.0495
5	15	20	167800	839	DFT-s-OFDM QPSK	1@1	24.06	16.81	0.0480
5	15	20	167800	839	DFT-s-OFDM QPSK	1@104	24.34	17.09	0.0512
5	15	20	167800	839	DFT-s-OFDM 16 QAM	50@25	23.17	15.92	0.0391
5	15	20	167800	839	DFT-s-OFDM 16 QAM	1@1	22.85	15.6	0.0363
5	15	20	167800	839	DFT-s-OFDM 16 QAM	1@104	23.13	15.88	0.0387
5	15	20	167800	839	DFT-s-OFDM 64 QAM	50@25	21.73	14.48	0.0281
5	15	20	167800	839	DFT-s-OFDM 64 QAM	1@1	21.73	14.48	0.0281
5	15	20	167800	839	DFT-s-OFDM 64 QAM	1@104	21.73	14.48	0.0281
5	15	20	167800	839	DFT-s-OFDM 256 QAM	50@25	19.58	12.33	0.0171
5	15	20	167800	839	DFT-s-OFDM 256 QAM	1@1	19.09	11.84	0.0153
5	15	20	167800	839	DFT-s-OFDM 256 QAM	1@104	19.31	12.06	0.0161
5	15	20	167800	839	CP-OFDM QPSK	53@26	22.53	15.28	0.0337
5	15	20	167800	839	CP-OFDM QPSK	1@1	22.72	15.47	0.0352
5	15	20	167800	839	CP-OFDM QPSK	1@104	22.78	15.53	0.0357
5	15	5	165300	826.5	DFT-s-OFDM PI/2 BPSK	1@1	23.99	16.74	0.0472
5	15	5	165300	826.5	DFT-s-OFDM QPSK	1@1	24.11	16.86	0.0485
5	15	5	165300	826.5	DFT-s-OFDM 16 QAM	1@1	23.2	15.95	0.0394
5	15	5	167300	836.5	DFT-s-OFDM PI/2 BPSK	1@1	23.67	16.42	0.0439
5	15	5	167300	836.5	DFT-s-OFDM QPSK	1@1	24.2	16.95	0.0495
5	15	5	167300	836.5	DFT-s-OFDM 16 QAM	1@1	23.34	16.09	0.0406
5	15	5	169300	846.5	DFT-s-OFDM PI/2 BPSK	1@1	24.09	16.84	0.0483
5	15	5	169300	846.5	DFT-s-OFDM QPSK	1@1	24.2	16.95	0.0495
5	15	5	169300	846.5	DFT-s-OFDM 16 QAM	1@1	23.27	16.02	0.0400
5	15	10	165800	829	DFT-s-OFDM PI/2 BPSK	1@1	24.05	16.8	0.0479
5	15	10	165800	829	DFT-s-OFDM QPSK	1@1	24.14	16.89	0.0489
5	15	10	165800	829	DFT-s-OFDM 16 QAM	1@1	23.15	15.9	0.0389
5	15	10	167300	836.5	DFT-s-OFDM PI/2 BPSK	1@1	24.18	16.93	0.0493
5	15	10	167300	836.5	DFT-s-OFDM QPSK	1@1	24.36	17.11	0.0514
5	15	10	167300	836.5	DFT-s-OFDM 16 QAM	1@1	23.26	16.01	0.0399
5	15	10	168800	844	DFT-s-OFDM PI/2 BPSK	1@1	24.17	16.92	0.0492
5	15	10	168800	844	DFT-s-OFDM QPSK	1@1	24.17	16.92	0.0492
5	15	10	168800	844	DFT-s-OFDM 16 QAM	1@1	23.24	15.99	0.0397
5	15	15	166300	831.5	DFT-s-OFDM PI/2 BPSK	1@1	24	16.75	0.0473
5	15	15	166300	831.5	DFT-s-OFDM QPSK	1@1	24.17	16.92	0.0492
5	15	15	166300	831.5	DFT-s-OFDM 16 QAM	1@1	23.02	15.77	0.0378
5	15	15	167300	836.5	DFT-s-OFDM PI/2 BPSK	1@1	24.2	16.95	0.0495
5	15	15	167300	836.5	DFT-s-OFDM QPSK	1@1	24.2	16.95	0.0495
5	15	15	167300	836.5	DFT-s-OFDM 16 QAM	1@1	23.1	15.85	0.0385
5	15	15	168300	841.5	DFT-s-OFDM PI/2 BPSK	1@1	24.22	16.97	0.0498
5	15	15	168300	841.5	DFT-s-OFDM QPSK	1@1	24.26	17.01	0.0502
5	15	15	168300	841.5	DFT-s-OFDM 16 QAM	1@1	23.21	15.96	0.0394

FR1 N5(ANT0)

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 QPS	100@0	0.00411	PASS	NV
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.00241	**PASS**	LV
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	-0.00236	**PASS**	HV
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.00211	**PASS**	-30℃
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.00652	**PASS**	-20℃
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.00325	**PASS**	-10℃
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.00565	**PASS**	0℃
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.00601	**PASS**	10℃
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.00261	**PASS**	20℃
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.00263	**PASS**	30℃
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	-0.00206	**PASS**	40℃
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	0.00399	**PASS**	50℃

Peak to Average Ratio

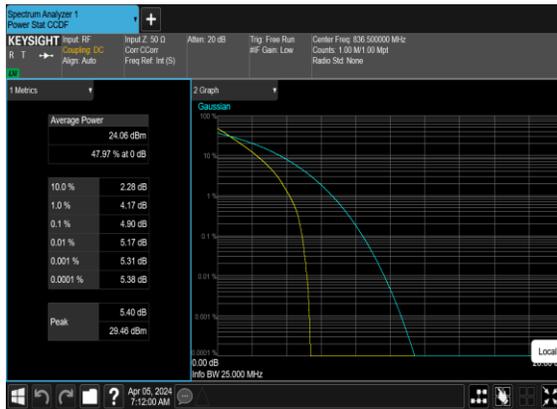| NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	Result (dB)	Limit (dB)	Verdict
5	15	20	167300	836.5	DFT-s-OFDM PI/2 BPSK	100@0	4.06	13	PASS
5	15	20	167300	836.5	DFT-s-OFDM PI/2 BPSK	1@0	3.98	13	PASS
5	15	20	167300	836.5	DFT-s-OFDM QPSK	100@0	4.9	13	PASS
5	15	20	167300	836.5	DFT-s-OFDM QPSK	1@0	4.74	13	PASS

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

Occupied Bandwidth

NR Band	SCS (kHz)	Bandwidth (MHz)	Arfcn	Freq (MHz)	Modulation	RB	OBW (MHz)	26dB BW (MHz)
5	15	5	167300	836.5	CP-OFDM QPSK	25@0	4.4639	4.905
5	15	5	167300	836.5	CP-OFDM 16 QAM	25@0	4.492	5.05
5	15	5	167300	836.5	CP-OFDM 64 QAM	25@0	4.4616	5.004
5	15	5	167300	836.5	CP-OFDM 256 QAM	25@0	4.4774	5.005
5	15	10	167300	836.5	CP-OFDM QPSK	52@0	9.2782	9.987
5	15	10	167300	836.5	CP-OFDM 16 QAM	52@0	9.2901	9.903
5	15	10	167300	836.5	CP-OFDM 64 QAM	52@0	9.2742	9.969
5	15	10	167300	836.5	CP-OFDM 256 QAM	52@0	9.273	9.98
5	15	15	167300	836.5	CP-OFDM QPSK	79@0	14.103	14.83
5	15	15	167300	836.5	CP-OFDM 16 QAM	79@0	14.111	14.92
5	15	15	167300	836.5	CP-OFDM 64 QAM	79@0	14.081	14.74
5	15	15	167300	836.5	CP-OFDM 256 QAM	79@0	14.146	14.99
5	15	20	167300	836.5	CP-OFDM QPSK	106@0	18.954	19.85
5	15	20	167300	836.5	CP-OFDM 16 QAM	106@0	18.922	19.92
5	15	20	167300	836.5	CP-OFDM 64 QAM	106@0	18.904	19.76
5	15	20	167300	836.5	CP-OFDM 256 QAM	106@0	18.944	19.85

N5(5M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

N5(5M)_CP-OFDM_16QAM_Outer_Full_Mid_CH

N5(5M)_CP-OFDM_64QAM_Outer_Full_Mid_CH

N5(5M)_CP-OFDM_256QAM_Outer_Full_Mid_CH

N5(10M)_CP-OFDM_QPSK_Outer_Full_Mid_CH

N5(10M)_CP-OFDM_16QAM_Outer_Full_Mid_CH