FCC TEST REPORT

Name of Sample:	**Mobile Cellular Phone**
Model of Sample:	**XT2307-1**
Applicant:	**Motorola Mobility LLC**
Issue Date:	**2023-08-09**

ADR TEST AND CERTIFICATION CENTER

Motorola Mobility LLC, a Lenovo Company

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Name of Client	Motorola Mobility LLC		
Address of Client	222 W, Merchandise Mart Plaza, Chicago IL 60654 USA		
Trademark	Motorola	**Type Name or ID**	FCC ID: IHDT56AM7
Applicant No.	RF165831	**Sample No.**	NNSR270101
Delivering Date	2023-06-19	**Test Date**	2023-06-20 to 2023-07-20
Sample Illustration	None		
Standard	47 CFR Part 2; 47 CFR Part 22; 47 CFR Part 24; 47 CFR Part 27;		
Conclusion	Pass		
Remarks	N/A		

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Revision History

Report No.	Version	Description	Issued Date
TR-23ADRTCC7001	Rev.01	Initial issue of report	2023/07/21
TR-23ADRTCC7001	Rev.02	1, Remove XT2307-2, XT2307-3 SKU 2, Update accessories information. 3, Update client address. 4, Update EUT operating Bandwidth.	2023/07/28
TR-23ADRTCC7001	Rev.03	1, Add test mode configuration description on Page 11. 2, Update the list of test equipment. 3, detail conducted uncertainty. 4, Add n38 Ant2/Ant6 Gain info.	2023/08/09

Catalogue

1. Test Summary

1.1. NR Band n2

Test Item	Rule No.	Requirements	Test Result	Verdict
Conducted Power	§2.1046	Report Only	Section 1 of Appendix B	Pass
Effective Isotropic Radiated Power	§24.232(c)	EIRP < 2W		
Peak-Average Ratio	§24.232(d)	<13 dB	Section 2 of Appendix B	Pass
Modulation Characteristics	§2.1047	Digital modulation	Section 3 of Appendix B	Pass
Occupied Bandwidth	§2.1049	No limit	Section 4 of Appendix B	Pass
26dB Emission Bandwidth		No limit		
Conducted Band Edges	§2.1051 §24.238(a)	< -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	Section 5 of Appendix B	Pass
Conducted Spurious Emission	§2.1051 §24.238(a)	< -13 dBm/MHz, from 9 kHz to 10th harmonics but outside authorized operating frequency ranges.	Section 6 of Appendix B	Pass
Frequency Stability	§24.235	< ±2.5 ppm	Section 7 of Appendix B	Pass

1.2. NR Band n5

Test Item	Rule No.	Requirements	Test Result	Verdict
Conducted Power	§2.1046	Report Only	Section 1 of Appendix B	Pass
Effective Radiated Power	§22.913(a)(5)	ERP < 7W		
Peak-Average Ratio	§22.913(d)	<13 dB	Section 2 of Appendix B	Pass
Modulation Characteristics	§2.1047	Digital modulation	Section 3 of Appendix B	Pass
Occupied Bandwidth	§2.1049	No limit	Section 4 of Appendix B	Pass
26dB Emission Bandwidth		No limit		
Conducted Band Edges	§2.1051 §22.917(a)	< -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	Section 5 of Appendix B	Pass
Conducted Spurious Emission	§2.1051 §22.917(a)	< -13 dBm/100 kHz, from 9 kHz to 10th harmonics but outside authorized operating frequency ranges	Section 6 of Appendix B	Pass
Frequency Stability	§2.1055 §22.355	< ±2.5ppm	Section 7 of Appendix B	Pass

1.3. NR Band n7/n38/n41

Test Item	Rule No.	Requirements	Test Result	Verdict
Conducted Power	§2.1046	Report Only	Section 1 of Appendix B	Pass
Effective Isotropic Radiated Power	§27.50(h) (2)	EIRP < 2W		
Peak-Average Ratio	§27.50(a)	<13 dB	Section 2 of Appendix B	Pass
Modulation Characteristics	§2.1047	Digital modulation	Section 3 of Appendix B	Pass
Occupied Bandwidth	§2.1049	No limit	Section 4 of Appendix B	Pass
26dB Emission Bandwidth		No limit		
Conducted Band Edges	§2.1051 §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	Section 5 of Appendix B	Pass

Test Item	Rule No.	Requirements	Test Result	Verdict
Conducted Spurious Emission	§2.1051 §27.53(m) (4)	< -25 dBm/MHz for outside Band Edge Range	Section 6 of Appendix B	Pass
Frequency Stability	§27.54	Within authorized bands	Section 7 of Appendix B	Pass

1.4. NR Band n66

Test Item	Rule No.	Requirements	Test Result	Verdict
Conducted Power	§2.1046	Report Only	Section 1 of Appendix B	Pass
Effective Isotropic Radiated Power	§27.50(d)	EIRP < 1W		
Peak-Average Ratio	---	<13 dB	Section 2 of Appendix B	Pass
Modulation Characteristics	§2.1047	Digital modulation	Section 3 of Appendix B	Pass
Occupied Bandwidth	§2.1049	No limit	Section 4 of Appendix B	Pass
26dB Emission Bandwidth		No limit		
Conducted Band Edges	§2.1051 §27.53(h)	< -13 dBm/1%*EBW, in 1 MHz bands immediately outside and adjacent to the frequency block.	Section 5 of Appendix B	Pass
Conducted Spurious Emission	§2.1051 §27.53(h)	< -13 dBm/MHz, from 9 kHz to 10th harmonics but outside authorized operating frequency ranges	Section 6 of Appendix B	Pass
Frequency Stability	§27.54	Within authorized bands	Section 7 of Appendix B	Pass

1.5. NR Band n77 (3700-3980) / n78 (3700-3800)

Test Item	Rule No.	Requirements	Test Result	Verdict
Conducted Power	§2.1046	Report Only	Section 1 of Appendix B	Pass
Effective Isotropic Radiated Power	§27.50(j) (3)	EIRP < 1W		
Peak-Average Ratio	§27.50(j) (4)	<13 dB	Section 2 of Appendix B	Pass
Modulation Characteristics	§2.1047	Digital modulation	Section 3 of Appendix B	Pass
Occupied Bandwidth	§2.1049	No limit	Section 4 of Appendix B	Pass
26dB Emission Bandwidth		No limit		
Conducted Band Edges	§2.1051 §27.53(l) (2)	< -13 dBm/MHz	Section 5 of Appendix B	Pass
Conducted Spurious Emission	§2.1051 §27.53(l) (2)	< -13 dBm/MHz	Section 6 of Appendix B	Pass
Frequency Stability	§27.54	Within authorized bands	Section 7 of Appendix B	Pass

Remark:

1, Only 5G NR Bands conducted test performed and the data displayed in this report, the radiated test data can refer to another report (Report No.: FG361225G).

2, The maximum E(I)RP is calculated from max output power and max antenna gain, only the max E(I)RP data displayed in this report, n2/n5/n38 for Antenna 0; n7/n41/n66 for antenna 1; n77/n78 for antenna 4.

3, 5G NR Bands support SA mode for n5/n7/n38/n41/n77/n78 and NSA mode for n2/n5/n7/n38/n41/n66/n77/n78.

4, The test has been assessed on SA and NSA mode, but only the worst mode performed the whole conducted test items by referring to the max conducted power.

5, The ENDC combination could be referred to the product specification.

6, 5G NR n77/n78 support HPUE mode.

7, n7 supports other PA, and the data displayed in the appendix B.4.

2. Maximum Effective Radiated (Isotropic) Power and Emission Designator

2.1. NR System

5G NR NSA (DC_66A_n2A)		Pi/2 BPSK / QPSK		16QAM/64QAM/256QAM	
Bandwidth	Frequency Range (MHz)	Max EIRP (W)	Emission Designator	Max EIRP (W)	Emission Designator
5MHz	1852.5-1907.5	0.182390	4M48G7D	0.145881	4M48W7D
10MHz	1855.0-1905.0	0.213796	9M29G7D	0.146555	9M29W7D
15MHz	1857.5-1902.5	0.209894	14M1G7D	0.145211	14M1W7D
20MHz	1860.0-1900.0	0.214289	18M9G7D	0.146218	18M9W7D
25MHz	1862.5-1897.5	0.201372	23M7G7D	0.141906	23M9W7D
30MHz	1865.0-1895.0	0.202302	28M5G7D	0.143219	28M5W7D
40MHz	1870.0-1890.0	0.201372	38M7G7D	0.142233	38M6W7D
50MHz	1875.0-1885.0	0.205116	48M3G7D	0.141579	48M3W7D

5G NR SA (n5A)		Pi/2 BPSK / QPSK		16QAM/64QAM/256QAM	
		Max ERP (W)	Emission Designator	Max ERP (W)	Emission Designator
5MHz	826.5-846.5	0.220293	4M49G7D	0.176198	4M47W7D
10MHz	829.0-844.0	0.248313	9M29G7D	0.181552	9M31W7D
15MHz	831.5-841.5	0.239332	14M1G7D	0.177011	14M2W7D
20MHz	834.0-839.0	0.239332	18M9G7D	0.180717	18M9W7D
25MHz	836.5	0.235505	22M9G7D	0.170608	22M8W7D

5G NR SA (n7A)		Pi/2 BPSK / QPSK		16QAM/64QAM/256QAM	
		Max EIRP (W)	Emission Designator	Max EIRP (W)	Emission Designator
5MHz	2502.5-2567.5	0.213304	4M47G7D	0.158489	4M48W7D
10MHz	2505.0-2565.0	0.247172	9M29G7D	0.161808	9M29W7D
15MHz	2507.5-2562.5	0.238781	14M2G7D	0.164437	14M1W7D
20MHz	2510.0-2560.0	0.250035	18M9G7D	0.162930	18M9W7D
25MHz	2512.5-2557.5	0.217270	22M9G7D	0.146555	22M8W7D
30MHz	2515.0-2555.0	0.222331	28M5G7D	0.149624	28M6W7D
40MHz	2520.0-2550.0	0.219280	38M6G7D	0.152055	38M6W7D
50MHz	2525.0-2545.0	0.217270	48M2G7D	0.148594	48M1W7D

5G NR NSA (DC_42A_n7A)		Pi/2 BPSK / QPSK		16QAM/64QAM/256QAM	
		Max EIRP (W)	Emission Designator	Max EIRP (W)	Emission Designator
5MHz	2502.5-2567.5	0.226464	4M48G7D	0.182810	4M48W7D
10MHz	2505.0-2565.0	0.236048	9M29G7D	0.186638	9M29W7D
15MHz	2507.5-2562.5	0.236048	14M1G7D	0.187068	14M2W7D
20MHz	2510.0-2560.0	0.234423	18M9G7D	0.185353	18M9W7D
25MHz	2512.5-2557.5	0.246037	23M8G7D	0.179473	23M8W7D
30MHz	2515.0-2555.0	0.248313	28M6G7D	0.179473	28M6W7D

40MHz	2520.0-2550.0	0.250611	38M6G7D	0.177419	38M5W7D
50MHz	2525.0-2545.0	0.246037	48M2G7D	0.176604	48M3W7D

5G NR SA (n38A)		Pi/2 BPSK / QPSK		16QAM/64QAM/256QAM	
		Max EIRP (W)	Emission Designator	Max EIRP (W)	Emission Designator
5MHz	2572.5-2617.5	0.206538	4M48G7D	0.168267	4M48W7D
10MHz	2575.0-2615.0	0.216770	9M27G7D	0.180302	9M29W7D
15MHz	2577.5-2612.5	0.219280	14M1G7D	0.177011	14M1W7D
20MHz	2580.0-2610.0	0.217270	18M9G7D	0.172187	18M9W7D
25MHz	2582.5-2607.5	0.199067	23M7G7D	0.168655	23M7W7D
30MHz	2585.0-2605.0	0.206538	28M5G7D	0.159221	28M6W7D
40MHz	2590.0-2600.0	0.206538	38M5G7D	0.169824	38M6W7D

5G NR SA (n41A)		Pi/2 BPSK / QPSK		16QAM/64QAM/256QAM	
		Max EIRP (W)	Emission Designator	Max EIRP (W)	Emission Designator
10MHz	2501.0-2685.0	0.224388	8M61G7D	0.182390	8M59W7D
15MHz	2503.5-2682.5	0.224388	13M6G7D	0.176604	13M6W7D
20MHz	2506.0-2680.0	0.229087	18M2G7D	0.177828	18M2W7D
30MHz	2511.0-2675.0	0.207014	27M8G7D	0.161436	27M9W7D
40MHz	2516.0-2670.0	0.210378	37M8G7D	0.160694	37M8W7D
50MHz	2521.0-2665.0	0.202768	47M7G7D	0.163682	47M5W7D
60MHz	2526.0-2660.0	0.203704	57M8G7D	0.159588	57M8W7D
70MHz	2531.0-2655.0	0.217270	67M4G7D	0.166725	67M4W7D
80MHz	2536.0-2650.0	0.213304	77M5G7D	0.168267	77M5W7D
90MHz	2541.0-2645.0	0.213796	87M4G7D	0.164059	87M6W7D
100MHz	2546.0-2640.0	0.219786	97M5G7D	0.162930	97M5W7D

5G NR NSA (DC_2A_n66A)		Pi/2 BPSK / QPSK		16QAM/64QAM/256QAM	
		Max EIRP (W)	Emission Designator	Max EIRP (W)	Emission Designator
5MHz	1712.5-1777.5	0.212324	4M47G7D	0.163682	4M48W7D
10MHz	1715.0-1775.0	0.234423	9M29G7D	0.167109	9M29W7D
15MHz	1717.5-1772.5	0.234423	14M1G7D	0.168267	14M1W7D
20MHz	1720.0-1770.0	0.233346	18M9G7D	0.170608	18M9W7D
25MHz	1722.5-1767.5	0.221820	23M7G7D	0.172584	23M8W7D
30MHz	1725.0-1765.0	0.231739	28M6G7D	0.159588	28M6W7D
40MHz	1730.0-1760.0	0.232274	38M5G7D	0.164437	38M5W7D

5G NR NSA (DC_41A_n77A)		Pi/2 BPSK / QPSK		16QAM/64QAM/256QAM	
		Max EIRP (W)	Emission Designator	Max EIRP (W)	Emission Designator
10MHz	3705.0-3975.0	0.457088	8M59G7D	0.354813	8M59W7D
15MHz	3707.5-3972.5	0.450817	13M6G7D	0.348337	13M6W7D
20MHz	3710.0-3970.0	0.453942	18M2G7D	0.338844	18M3W7D
30MHz	3715.0-3965.0	0.449780	27M9G7D	0.343558	27M9W7D
40MHz	3720.0-3960.0	0.459198	37M9G7D	0.361410	37M9W7D
50MHz	3725.0-3955.0	0.472063	47M5G7D	0.353997	47M5W7D
60MHz	3730.0-3950.0	0.458142	58M0G7D	0.353997	57M8W7D
70MHz	3735.0-3945.0	0.480839	67M4G7D	0.365595	67M4W7D
80MHz	3740.0-3940.0	0.458142	77M5G7D	0.359749	77M5W7D
90MHz	3745.0-3935.0	0.463447	87M4G7D	0.349140	87M4W7D
100MHz	3750.0-3930.0	0.465586	97M3G7D	0.368129	97M5W7D

5G NR SA (n78A)		Pi/2 BPSK / QPSK		16QAM/64QAM/256QAM	
		Max EIRP (W)	Emission Designator	Max EIRP (W)	Emission Designator
10MHz	3705.0-3795.0	0.477529	8M57G7D	0.358922	8M59W7D
15MHz	3707.5-3792.5	0.439542	13M6G7D	0.361410	13M6W7D
20MHz	3710.0-3790.0	0.448745	18M2G7D	0.355631	18M2W7D
30MHz	3715.0-3785.0	0.425598	27M9G7D	0.352371	27M9W7D
40MHz	3720.0-3780.0	0.445656	37M8G7D	0.337287	37M9W7D
50MHz	3725.0-3775.0	0.438531	47M4G7D	0.340408	47M4W7D
60MHz	3730.0-3770.0	0.438531	57M8G7D	0.343558	57M8W7D
70MHz	3735.0-3765.0	0.450817	67M4G7D	0.353997	67M4W7D
80MHz	3740.0-3760.0	0.447713	77M5G7D	0.374111	77M7W7D
90MHz	3745.0-3755.0	0.463447	87M4G7D	0.364754	87M4W7D
100MHz	3750.0-3750.0	0.451856	97M3G7D	0.353183	97M5W7D

3. General Information

3.1. General Description of EUT

EUT Description:	Mobile Cellular Phone
Brand Name:	Motorola
Model Name:	XT2307-1
FCC ID:	IHDT56AM7
IMEI Code:	353852880032013 (Conducted);
Hardware Version:	DVT2
Software Version:	T3TM33.3
Operating Frequency:	5G NR n2 : 1850-1910 (Tx) ; 1930-1990 (Rx) ; 5G NR n5 : 824-849 (Tx) ; 869-894 (Rx) ; 5G NR n7 : 2500-2570 (Tx) ; 2620-2690 (Rx) ; 5G NR n38 : 2570-2620 (Tx) ; 2570-2620 (Rx) ; 5G NR n41 : 2496-2690 (Tx) ; 2496-2690 (Rx) ; 5G NR n66 : 1710-1780 (Tx) ; 2110-2180 (Rx) ; 5G NR n77 : 3700-3980 (Tx) ; 3700-3980 (Rx) ; 5G NR n78 : 3700-3800 (Tx) ; 3700-3800 (Rx) ;
Operating Bandwidth:	n2_15KHz:5MHz /10MHz /15MHz /20MHz /25MHz /30MHz /40MHz /50MHz n2_30KHz:10MHz /15MHz /20MHz /25MHz /30MHz /40MHz /50MHz n5_15KHz: 5MHz /10MHz /15MHz /20MHz /25MHz n5_30KHz: 10MHz /15MHz /20MHz /25MHz n7_15KHz: 5MHz /10MHz /15MHz /20MHz /25MHz /30MHz /40MHz /50MHz n7_30KHz: 10MHz /15MHz /20MHz /25MHz /30MHz /40MHz /50MHz n38_15KHz: 5MHz /10MHz /15MHz /20MHz /25MHz /30MHz /40MHz n38_30KHz: 10MHz /15MHz /20MHz /25MHz /30MHz /40MHz n41_15KHz: 10MHz /15MHz /20MHz /30MHz /40MHz /50MHz n41_30KHz: 10MHz /15MHz /20MHz /30MHz /40MHz /50MHz /60MHz /70MHz /80MHz /90MHz /100MHz n66_15KHz: 5MHz /10MHz /15MHz /20MHz /25MHz /30MHz /40MHz n66_30KHz: 10MHz /15MHz /20MHz /25MHz /30MHz /40MHz n77/n78_15KHz: 10MHz /15MHz /20MHz /30MHz /40MHz /50MHz n77/n78_30KHz: 10MHz /15MHz /20MHz /30MHz /40MHz /50MHz /60MHz /70MHz /80MHz /90MHz /100MHz
NR Modulation:	DFT-s-OFDM: ☒Pi/2BPSK；☒QPSK；☒16QAM；☒64QAM；☒256QAM CP-OFDM: ☒QPSK；☒16QAM；☒64QAM；☒256QAM
Antenna Gain:	n2: -0.80dBi (Ant0); -2.00dBi (Ant1); n5: -3.50dBi (Ant0); -6.00dBi (Ant1); n7: -2.00dBi (Ant0); -3.00dBi (Ant1); n38: -2.00dBi (Ant0); -3.00dBi (Ant1); -5.00dBi (Ant2); -6.00dBi (Ant6); n41: -2.00dBi (Ant0); -3.00dBi (Ant1); n66: -0.50dBi (Ant0); -1.50dBi (Ant1); n77: -4.00dBi (Ant2); -3.50dBi (Ant4); -2.00dBi (Ant7); -5.00dBi (Ant8); n78: -4.00dBi (Ant2); -3.50dBi (Ant4); -2.00dBi (Ant7); -5.00dBi (Ant8);

3.2. Test Environment

Relative Humidity:	52.0% - 62.0%	
Atmospheric Pressure:	101.32 KPa	
Temperature:	NT (normal temperature)	25.0 °C – 27.5 °C
Voltage:	LV (Low voltage)	3.50V
	NV (Nominal voltage)	3.91V
	HV (High voltage)	4.50V

3.3. Specification of Accessories

Accessory	Brand Name	Model Name
AC Adapter 1 (US)	Acbel (Motorola)	MC-681N
AC Adapter 1 (EU)	Acbel (Motorola)	MC-682N
AC Adapter 1 (UK)	Acbel (Motorola)	MC-683N
AC Adapter 1 (AU)	Acbel (Motorola)	MC-685N
AC Adapter 1 (AR)	Acbel (Motorola)	MC-686N
AC Adapter 1 (BR)	Acbel (Motorola)	MC-687N
AC Adapter 2 (US)	Chenyang (Motorola)	MC-681N
AC Adapter 2 (EU)	Chenyang (Motorola)	MC-682N
AC Adapter 2 (UK)	Chenyang (Motorola)	MC-683N
AC Adapter 2 (AU)	Chenyang (Motorola)	MC-685N
AC Adapter 2 (AR)	Chenyang (Motorola)	MC-686N
AC Adapter 2 (BR)	Chenyang (Motorola)	MC-687N
AC Adapter 2 (CHILE)	Chenyang (Motorola)	MC-689N
AC Adapter 2 (KR)	Chenyang (Motorola)	MC-680N
Battery 1	Motorola (SUNWODA)	QM50
Battery 2	Motorola (CosMX)	QM50
Earphone 1	Motorola(Lyand)	MI181C(SH38D62338)
USB Cable 1	Saibao(Motorola)	SC18D71644
USB Cable 2	Saibao(Motorola)	SC18D86731

4. Test Configuration of Equipment Under Test

4.1. Test Mode Configuration

Test Case	5G NR	SCS		Bandwidth	Modulation					Channel			RB	
		15KHz	30KHz		Pi/2BPSK	QPSK	16QAM	64QAM	256QAM	LCH	MCH	HCH	1	Full
Effective Isotropic Radiated Power	N2 (1850-1910)	●	●	All Supported BW	●	●	●	●	●	●	●	●	●	●
	N5 (824-849)	●	●	All Supported BW	●	●	●	●	●	●	●	●	●	●
	N7 (2500-2570)	●	●	All Supported BW	●	●	●	●	●	●	●	●	●	●
	N38 (2570-2620)	●	●	All Supported BW	●	●	●	●	●	●	●	●	●	●
	N41 (2496-2690)	●	●	All Supported BW	●	●	●	●	●	●	●	●	●	●
	N66 (1710-1780)	●	●	All Supported BW	●	●	●	●	●	●	●	●	●	●
	N77 (3700-3980)	●	●	All Supported BW	●	●	●	●	●	●	●	●	●	●
	N78(3700-3800)	●	●	All Supported BW	●	●	●	●	●	●	●	●	●	●
Peak-Average Ratio	N2 (1850-1910)	●	○	Highest BW	●	●	○	○	○	●	●	●	○	●
	N5 (824-849)	●	○	Highest BW	●	●	○	○	○	●	●	●	○	●
	N7 (2500-2570)	●	○	Highest BW	●	●	○	○	○	●	●	●	○	●
	N38 (2570-2620)	●	○	Highest BW	●	●	○	○	○	●	●	●	○	●
	N41 (2496-2690)	○	●	Highest BW	●	●	○	○	○	●	●	●	○	●
	N66 (1710-1780)	●	○	Highest BW	●	●	○	○	○	●	●	●	○	●
	N77 (3700-3980)	○	●	Highest BW	●	●	○	○	○	●	●	●	○	●

	N78(3700-3800)	○	●	Highest BW	●	●	○	○	○	●	●	●	○	●
Modulation Characteristics	N2 (1850-1910)	●	○	Highest BW	●	●	●	●	●	○	●	○	○	●
	N5 (824-849)	●	○	Highest BW	●	●	●	●	●	○	●	○	○	●
	N7 (2500-2570)	●	○	Highest BW	●	●	●	●	●	○	●	○	○	●
	N38 (2570-2620)	●	○	Highest BW	●	●	●	●	●	○	●	○	○	●
	N41 (2496-2690)	○	●	Highest BW	●	●	●	●	●	○	●	○	○	●
	N66 (1710-1780)	●	○	Highest BW	●	●	●	●	●	○	●	○	○	●
	N77 (3700-3980)	○	●	Highest BW	●	●	●	●	●	○	●	○	○	●
	N78(3700-3800)	○	●	Highest BW	●	●	●	●	●	○	●	○	○	●
Occupied Bandwidth & 26dB Emission Bandwidth	N2 (1850-1910)	●	○	All Supported BW	●	●	●	●	●	○	●	○	○	●
	N5 (824-849)	●	○	All Supported BW	●	●	●	●	●	○	●	○	○	●
	N7 (2500-2570)	●	○	All Supported BW	●	●	●	●	●	○	●	○	○	●
	N38 (2570-2620)	●	○	All Supported BW	●	●	●	●	●	○	●	○	○	●
	N41 (2496-2690)	○	●	All Supported BW	●	●	●	●	●	○	●	○	○	●
	N66 (1710-1780)	●	○	All Supported BW	●	●	●	●	●	○	●	○	○	●
	N77 (3700-3980)	○	●	All Supported BW	●	●	●	●	●	○	●	○	○	●
	N78(3700-3800)	○	●	All Supported BW	●	●	●	●	●	○	●	○	○	●
Conducted Band Edges	N2 (1850-1910)	●	○	All Supported BW	●	●	○	○	○	●	○	●	●	●
	N5 (824-849)	●	○	All Supported BW	●	●	○	○	○	●	○	●	●	●
	N7 (2500-2570)	●	○	All Supported BW	●	●	○	○	○	●	○	●	●	●
	N38 (2570-2620)	●	○	All Supported BW	●	●	○	○	○	●	○	●	●	●
	N41 (2496-2690)	○	●	All Supported BW	●	●	○	○	○	●	○	●	●	●
	N66 (1710-1780)	●	○	All Supported BW	●	●	○	○	○	●	○	●	●	●
	N77 (3700-3980)	○	●	All Supported BW	●	●	○	○	○	●	○	●	●	●
	N78(3700-3800)	○	●	All Supported BW	●	●	○	○	○	●	○	●	●	●
Conducted Spurious Emission	N2 (1850-1910)	●	○	All Supported BW	●	●	○	○	○	●	●	●	●	○
	N5 (824-849)	●	○	All Supported BW	●	●	○	○	○	●	●	●	●	○
	N7 (2500-2570)	●	○	All Supported BW	●	●	○	○	○	●	●	●	●	○
	N38 (2570-2620)	●	○	All Supported BW	●	●	○	○	○	●	●	●	●	○
	N41 (2496-2690)	○	●	All Supported BW	●	●	○	○	○	●	●	●	●	○
	N66 (1710-1780)	●	○	All Supported BW	●	●	○	○	○	●	●	●	●	○
	N77 (3700-3980)	○	●	All Supported BW	●	●	○	○	○	●	●	●	●	○
	N78(3700-3800)	○	●	All Supported BW	●	●	○	○	○	●	●	●	●	○
Frequency Stability	N2 (1850-1910)	●	○	Highest BW	○	●	○	○	○	○	●	○	○	●
	N5 (824-849)	●	○	Highest BW	○	●	○	○	○	○	●	○	○	●
	N7 (2500-2570)	●	○	Highest BW	○	●	○	○	○	○	●	○	○	●
	N38 (2570-2620)	●	○	Highest BW	○	●	○	○	○	○	●	○	○	●
	N41 (2496-2690)	○	●	Highest BW	○	●	○	○	○	○	●	○	○	●
	N66 (1710-1780)	●	○	Highest BW	○	●	○	○	○	○	●	○	○	●
	N77 (3700-3980)	○	●	Highest BW	○	●	○	○	○	○	●	○	○	●
	N78(3700-3800)	○	●	Highest BW	○	●	○	○	○	○	●	○	○	●

Remark:

1, the mark "●" means this configuration was chosen for testing, mark "○" means not selected, and the mark "✘" means not applicable.

2, All Supported BW means all supported bandwidth for selected SCS configuration.

4.2. Test Frequencies

4.2.1. 5G NR System

4.2.1.1. NR Band n2 (1850-1910)

SCS (KHz)	BW (MHz)	LCH		MCH		HCH	
		Arfcn	Freq	Arfcn	Freq	Arfcn	Freq
15	5	370500	1852.5	376000	1880.0	381500	1907.5
	10	371000	1855.0	376000	1880.0	381000	1905.0
	15	371500	1857.5	376000	1880.0	380500	1902.5
	20	372000	1860.0	376000	1880.0	380000	1900.0
	25	372500	1862.5	376000	1880.0	379500	1897.5
	30	373000	1865.0	376000	1880.0	379000	1895.0
	40	374000	1870.0	376000	1880.0	378000	1890.0
	50	375000	1875.0	376000	1880.0	377000	1885.0
30	10	371000	1855.0	376000	1880.0	381000	1905.0
	15	371500	1857.5	376000	1880.0	380500	1902.5
	20	372000	1860.0	376000	1880.0	380000	1900.0
	25	372500	1862.5	376000	1880.0	379500	1897.5
	30	373000	1865.0	376000	1880.0	379000	1895.0
	40	374000	1870.0	376000	1880.0	378000	1890.0
	50	375000	1875.0	376000	1880.0	377000	1885.0

4.2.1.2. NR Band n5 (824-849)

SCS (KHz)	BW (MHz)	LCH		MCH		HCH	
		Arfcn	Freq	Arfcn	Freq	Arfcn	Freq
15	5	165300	826.5	167300	836.5	169300	846.5
	10	165800	829.0	167300	836.5	168800	844.0
	15	166300	831.5	167300	836.5	168300	841.5
	20	166800	834.0	167300	836.5	167800	839.0
	25	167300	836.5	167300	836.5	167300	836.5
30	10	165800	829.0	167300	836.5	168800	844.0
	15	166300	831.5	167300	836.5	168300	841.5
	20	166800	834.0	167300	836.5	167800	839.0
	25	167300	836.5	167300	836.5	167300	836.5

4.2.1.3. NR Band n7 (2500-2570)

SCS (KHz)	BW (MHz)	LCH		MCH		HCH	
		Arfcn	Freq	Arfcn	Freq	Arfcn	Freq
15	5	500500	2502.5	507000	2535.0	513500	2567.5
	10	501000	2505.0	507000	2535.0	513000	2565.0
	15	501500	2507.5	507000	2535.0	512500	2562.5
	20	502000	2510.0	507000	2535.0	512000	2560.0
	25	502500	2512.5	507000	2535.0	511500	2557.5
	30	503000	2515.0	507000	2535.0	511000	2555.0
	40	504000	2520.0	507000	2535.0	510000	2550.0

	50	505000	2525.0	507000	2535.0	509000	2545.0
30	10	501000	2505.0	507000	2535.0	513000	2565.0
	15	501500	2507.5	507000	2535.0	512500	2562.5
	20	502000	2510.0	507000	2535.0	512000	2560.0
	25	502500	2512.5	507000	2535.0	511500	2557.5
	30	503000	2515.0	507000	2535.0	511000	2555.0
	40	504000	2520.0	507000	2535.0	510000	2550.0
	50	505000	2525.0	507000	2535.0	509000	2545.0

4.2.1.4. NR Band n38 (2570-2620)

SCS (KHz)	BW (MHz)	LCH		MCH		HCH	
		Arfcn	Freq	Arfcn	Freq	Arfcn	Freq
15	5	514500	2572.5	519000	2595.0	523500	2617.5
	10	515000	2575.0	519000	2595.0	523000	2615.0
	15	515500	2577.5	519000	2595.0	522500	2612.5
	20	516000	2580.0	519000	2595.0	522000	2610.0
	25	516500	2582.5	519000	2595.0	521500	2607.5
	30	517000	2585.0	519000	2595.0	521000	2605.0
	40	518000	2590.0	519000	2595.0	520000	2600.0
30	10	515000	2575.0	519000	2595.0	523000	2615.0
	15	515500	2577.5	519000	2595.0	522500	2612.5
	20	516000	2580.0	519000	2595.0	522000	2610.0
	25	516500	2582.5	519000	2595.0	521500	2607.5
	30	517000	2585.0	519000	2595.0	521000	2605.0
	40	518000	2590.0	519000	2595.0	520000	2600.0

4.2.1.5. NR Band n41 (2496-2690)

SCS (KHz)	BW (MHz)	LCH		MCH		HCH	
		Arfcn	Freq	Arfcn	Freq	Arfcn	Freq
15	10	500202	2501.01	518601	2593.005	537000	2685.00
	15	500700	2503.50	518601	2593.005	536496	2682.48
	20	501204	2506.02	518601	2593.005	535998	2679.99
	30	502200	2511.00	518601	2593.005	534996	2674.98
	40	503202	2516.01	518601	2593.005	534000	2670.00
	50	504202	2521.005	518601	2593.005	532998	2664.99
30	10	500202	2501.01	518598	2592.99	537000	2685.00
	15	500700	2503.50	518598	2592.99	536496	2682.48
	20	501204	2506.02	518598	2592.99	535998	2679.99
	30	502200	2511.00	518598	2592.99	534996	2674.98
	40	503202	2516.01	518598	2592.99	534000	2670.00
	50	504204	2521.02	518598	2592.99	532998	2664.99
	60	505200	2526.00	518598	2592.99	531996	2659.98
	70	506202	2531.01	518598	2592.99	531000	2655.00
	80	507204	2536.02	518598	2592.99	529998	2649.99

	90	508200	2541.00	518598	2592.99	528996	2644.98
	100	509202	2546.01	518598	2592.99	528000	2640.00

4.2.1.6. NR Band n66 (1710-1780)

SCS	BW	LCH		MCH		HCH	
(KHz)	(MHz)	Arfcn	Freq	Arfcn	Freq	Arfcn	Freq
15	5	342500	1712.5	349000	1745.0	355500	1777.5
	10	343000	1715.0	349000	1745.0	355000	1775.0
	15	343500	1717.5	349000	1745.0	354500	1772.5
	20	344000	1720.0	349000	1745.0	354000	1770.0
	25	344500	1722.5	349000	1745.0	353500	1767.5
	30	345000	1725.0	349000	1745.0	353000	1765.0
	40	346000	1730.0	349000	1745.0	352000	1760.0
30	10	343000	1715.0	349000	1745.0	355000	1775.0
	15	343500	1717.5	349000	1745.0	354500	1772.5
	20	344000	1720.0	349000	1745.0	354000	1770.0
	25	344500	1722.5	349000	1745.0	353500	1767.5
	30	345000	1725.0	349000	1745.0	353000	1765.0
	40	346000	1730.0	349000	1745.0	352000	1760.0

4.2.1.7. NR Band N77 (3700-3980)

SCS	BW	LCH		MCH		HCH	
(KHz)	(MHz)	Arfcn	Freq	Arfcn	Freq	Arfcn	Freq
15	10	647000	3705.00	656000	3840.00	665000	3975.00
	15	647168	3707.52	656000	3840.00	664832	3972.48
	20	647334	3710.01	656000	3840.00	664666	3969.99
	30	647668	3715.02	656000	3840.00	664332	3964.98
	40	648000	3720.00	656000	3840.00	664000	3960.00
	50	648334	3725.01	656000	3840.00	663666	3954.99
30	10	647000	3705.00	656000	3840.00	665000	3975.00
	15	647168	3707.52	656000	3840.00	664832	3972.48
	20	647334	3710.01	656000	3840.00	664666	3969.99
	30	647668	3715.02	656000	3840.00	664332	3964.98
	40	648000	3720.00	656000	3840.00	664000	3960.00
	50	648334	3725.01	656000	3840.00	663666	3954.99
	60	648668	3730.02	656000	3840.00	663332	3949.98
	70	649000	3735.00	656000	3840.00	663000	3945.00
	80	649334	3740.01	656000	3840.00	662666	3939.99
	90	649668	3745.02	656000	3840.00	662332	3934.98
	100	650000	3750.00	656000	3840.00	662000	3930.00

4.2.1.8. NR Band N78 (3700-3800)

SCS (KHz)	BW (MHz)	LCH		MCH		HCH	
		Arfcn	Freq	Arfcn	Freq	Arfcn	Freq
15	10	647000	3705.00	650000	3750.00	653000	3795.00
	15	647168	3707.52	650000	3750.00	652832	3792.48
	20	647334	3710.01	650000	3750.00	652666	3789.99
	30	647668	3715.02	650000	3750.00	652332	3784.98
	40	648000	3720.00	650000	3750.00	652000	3780.00
	50	648334	3725.01	650000	3750.00	651666	3774.99
30	10	647000	3705.00	650000	3750.00	653000	3795.00
	15	647168	3707.52	650000	3750.00	652832	3792.48
	20	647334	3710.01	650000	3750.00	652666	3789.99
	30	647668	3715.02	650000	3750.00	652332	3784.98
	40	648000	3720.00	650000	3750.00	652000	3780.00
	50	648334	3725.01	650000	3750.00	651666	3774.99
	60	648668	3730.02	650000	3750.00	651332	3769.98
	70	649000	3735.00	650000	3750.00	651000	3765.00
	80	649334	3740.01	650000	3750.00	650666	3759.99
	90	649668	3745.02	650000	3750.00	650332	3754.98
	100	650000	3750.00	650000	3750.00	650000	3750.00

5. Description of Tests

5.1. Conducted Output Power Measurement

5.1.1. Description of Conducted Output Power Measurement

A base station simulator was used to establish communication with the EUT, Its parameters were set to transmit the maximum power on the EUT. The measured power in the radio frequency on the transmitter output terminals shall be reported.

5.1.2. 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, Highest channels for each band and each modulation.
5，Record the reading power from the system simulator.

5.2. Effective (Isotropic) Radiated Power

Measurement Procedure: ANSI C63.26

Calculate power in dBm by the following formula:

ERP (dBm) = Conducted Power (dBm) + antenna gain (dBd)

EIRP (dBm) = Conducted Power (dBm) + antenna gain (dBi)

EIRP=ERP+2.15dB

5.3. Peak-to-Average Ratio Measurement

5.3.1. Description of 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 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 13dB.

5.3.2. Test Procedures

1， The testing follows ANSI C63.26 Section 5.2.3.4(CCDF)
2， Refer to instrument's analyser instruction manual for details on how to use the power statistics/CCDF function.
3， Centre Frequency = Carrier centre frequency.
4， Set resolution bandwidth ≥ signal's occupied bandwidth.
5， Set the number of counts to a value that stabilizes the measured CCDF curve.
6， Set the measurement interval as follows:
1) for continuous transmissions (>98% duty cycle), set to 1ms.
2) for burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.
7， Record the maximum PAR level associated with a probability of 0.1%.

5.3.3. Alternate procedure for PAR

Measurement Procedure: 5.2.6 of ANSI C63.26

Some regulatory requirements specify a PAR limit when the output power limits are specified in terms of average power. If it becomes necessary to provide measurement data to demonstrate compliance to a PAR limit, then the appropriate procedure from those provided in 5.2.3 shall be utilized to determine the peak power (or peak PSD) and the appropriate procedure from those provided in 5.2.4 shall be used to determine the average power (or average PSD). The data from these measurements is then used in Equation (2) to determine the PAR of a narrowband CW-like signal. See 5.2.3.4 for guidance on determining the PAR of a broadband noise-like signal.

PAR (dB) = P_{Pk} (dBm or dBW) − P_{Avg} (dBm or dBW)

where

PAR peak-to-average power ratio, in dB

P_{Pk} measured peak power or peak PSD level, in dBm or dBW

P_{Avg} measured average power or average PSD level, in dBm or dBW

5.4. 99% Occupied Bandwidth & 26dB Emission Bandwidth

5.4.1. Description of 99% Occupied Bandwidth & 26dB Emission Bandwidth Measurement

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyser, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at three frequencies (low channel, middle channel and high channel). The span of the analyser shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1 percent of the selected span as is possible without being below 1 percent. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual.

The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 percent of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded. The span between the two recorded frequencies is the occupied bandwidth.

5.4.2. Test Procedures

1, The testing follows ANSI C63.26 Section 5.4
2, The signal analyzer's automatic measurement capability was used to perform the 99% occupied bandwidth and the 26dB emission bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
3, RBW ⩾1% - 5% of the expected OBW.
4, VBW ⩾3 * RBW
5, Detector=Peak
6, Trace Mode= Max Hold.
7, Sweep Time=Auto
8, The trace was allowed to stabilize.
9, If necessary, steps 2-7 were repeated after changing the RBW such that it would be within 1%-5% of the 99% occupied bandwidth observed in step 7.

5.5. Conducted Band Edge Measurement

5.5.1. Description of Conducted Band Edge Measurement

The transmitter output was connected to a calibrated coaxial cable, attenuator and spectrum analyser, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at two frequencies (low channel and high channel).in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of 100kHz or 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed. The EUT emission bandwidth is measured as the width of the signal between two points, outside of which all emissions are attenuated at least 26dB below the transmitter power. The video bandwidth of the spectrum analyser was set at thrice the resolution bandwidth. Detector Mode was set to peak or peak hold power.

5.5.2. Test Procedures

1, The testing follows ANSI C63.26 Section 5.7
2, Start and stop frequency were set such that the band edge would be placed in the center of the spectrum analyzer screen.
3, Span was set large enough to capture all out of band emissions near the band edge.
4, RBW ⩾1% of the emission bandwidth (2% of the emission bandwidth for n7/n38/n41 except when 1MHz band is 2495-2496MHz);
5, VBW ⩾3 x RBW
6, Detector=RMS
7, Trace Mode=Trace Average for continuous emissions, Max Hold for pulse emissions.
8, Sweep Points ⩾2 x Span/RBW
9, Sweep Time = Auto
10, The trace was allowed to stabilize.

5.6. Conducted Spurious Emission Measurement

5.6.1. Description of Conducted Spurious Emission Measurement

The transmitter output was connected to a calibrated coaxial cable, attenuator and Spectrum analyser, the other end of which was connected to a Base Station Simulator. The Base Station Simulator was set to force the EUT to its maximum power setting. The tests were performed at three frequencies (low channel and high channel). The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyser. The spectrum is scanned from 9KHz up to a frequency including its 10th harmonic or 40GHz, which is lower.

5.6.2. Test Procedures

1, The testing follows ANSI C63.26 Section 5.7
2, RBW ⩾100KHz for emissions below 1GHz,1MHz for emissions above 1GHz.
3, VBW ⩾3 * RBW
4, Detector = RMS
5, Trace Mode = Average.
6, Sweep Points ⩾2 * Span/RBW
7, Sweep Time = Auto
8, The trace was allowed to stabilize.

5.7. Frequency Stability Measurement

5.7.1. Description of Frequency Stability Measurement

The Frequency Stability should be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emissions stays within the authorized frequency block.

5.7.2. Measurement Procedure 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 change in frequency was recorded within one minute.

5.7.3. Measurement Procedure for Voltage Variation

1, The testing follows ANSI C63.26 section 5.6.5.
2, The EUT was placed in a thermal 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.

6. List of Measuring Equipment

6.1. Equipment of Conducted Measurement

Equipment	Model	Manufacture	Device No.	Cal Date	Cal Due
Radio Communication Analyzer	MT8000A	Anritsu	6272478367	2022-09-15	2023-09-14
	MT8821C	Anritsu	6272498303	2022-09-21	2023-09-20
Spectrum Analyzer (50Hz-40GHz)	FSV	R&S	101046	2022-12-24	2023-12-23
Power Supply	2036	Keithley	4058748	2022-12-27	2023-12-26
Temperature Chamber	C/64/40/3	Weiss	56246017780020	2023-04-07	2024-04-06
Power Divider	-	WOKEN	0120A04051801O	NCR	
Power Divider	-	WOKEN	0120A02056002D	NCR	

Remark:

1, For equipment listed above that has a calibration date or calibration due date that falls within the test date range, and the equipment was used after calibrate date and before calibrate due date.

2, “NCR” means no calibration required.

7. Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.26. All the measurement uncertainties 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 directly to specified limit to determine compliance.

7.1. Uncertainty of Conducted Measurement

Contribution	Expanded Uncertainty
Conducted Power	± 0.77
Conducted Emission	± 0.76
Channel Bandwidth	± 0.08%

8. Appendixes

Appendix B.1	n2A (1850-1910)
Appendix B.2	n5A (824-849)
Appendix B.3	n7A (2500-2570)
Appendix B.4	DC_42A_n7A (2500-2570)_Other PA
Appendix B.5	n38A (2570-2620)
Appendix B.6	n41A (2496-2690)
Appendix B.7	n66A (1710-1780)
Appendix B.8	n77A (3700-3980)
Appendix B.9	n78A (3700-3800)

The End