FCC RF Test Report

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	XT2435-1
FCC ID	:	IHDT56AM4
STANDARD	:	47 CFR Part 2, Part 27 Subpart Q
CLASSIFICATION	:	PCS Licensed Transmitter Held to Ear (PCE)
TEST DATE(S)	:	May 23, 2024 ~ Jun. 04, 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

ACCREDITED
Cert #5145.02

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

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG352916-18	Rev. 01	Initial issue of report	Jun. 21, 2024

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	—	Report Only	-
-	§27.50 (k)(4)	Peak-to-Average Ratio	<13dB	PASS	
3.5	§27.50 (k)(3)	EIRP	EIRP < 1W (30dBm)	PASS	-
-	§2.1049	Occupied Bandwidth	—	Report Only	-
-	§2.1051 §27.53 (n)(2)	Conducted Band Edge Measurement	-13dBm/MHz	PASS	-
-	§2.1051 §27.53 (n)(2)	Conducted Spurious Emission	-13dBm/MHz	PASS	-
-	§2.1055 §27.54	Frequency Stability Temperature & Voltage	Within the band	PASS	-
4.4	§2.1053 §27.53 (n)(2)	Radiated Spurious Emission	-13dBm/MHz	PASS	Under limit 41.27 dB at 6900.00 MHz

Note:

This is a variant report for XT2435-1. The change note could be referred to the XT2435-1_Operational Description of Product Equality Declaration which is exhibit separately. Based on the similarity between current and previous project, only the power/RSE related test cases from original test report (Sporton Report Number FG352916I) were verified for the differences.

Conformity Assessment Condition:
1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account. 2. The measurement uncertainty please refer to each test result in the section “Measurement Uncertainty”
Disclaimer:
The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

1 General Description

1.1 Applicant

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

1.2 Manufacturer

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

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2435-1
FCC ID	IHDT56AM4
IMEI Code	Conducted : 352433390004452/352433390004460 Radiation : 352433390002530/352433390002548
HW Version	DVT1
SW Version	U3UT34.4
EUT Stage	Identical Prototype

1.4 Product Specification of Equipment Under Test

Product Feature	
Tx/Rx Frequency	5G NR n78: 3450 MHz ~ 3550 MHz
SCS	15kHz, 30kHz
Bandwidth	n78(15kHz): 10 / 15 / 20 / 30 / 40 / 50MHz n78(30kHz): 10 / 15 / 20 / 30 / 40 / 50 / 60 / 70 / 80 / 90 / 100MHz
Antenna Gain	<Ant. 1> -3.7 dBi <Ant. 2> -3.5 dBi <Ant. 5> -3.71 dBi <Ant. 7> -5.6 dBi
Type of Modulation	CP-OFDM: QPSK / 16QAM / 64QAM / 256QAM DFT-s-OFDM: PI/2 BPSK / QPSK / 16QAM / 64QAM / 256QAM

Remark:

1. The maximum EIRP is calculated from max output power and max antenna gain, only the maximum EIRP of Ant.5 for n78 is shown in the report.
2. The device supports n78(1T4R) SRS resources on Antenna 1/2/5/7, only the test data of worst Antenna 5 is showed in the report according to the maximum power.
3. 5G NR n78 support SA and NSA mode..
4. The EN-DC mode combination could be referred to the product spec.

1.5 Modification of EUT

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

1.6 Specification of Accessory

Specification of Accessory				
AC Adapter 1 (US)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-331L
AC Adapter 1 (EU)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-332L
AC Adapter 1 (UK)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-333L
AC Adapter 1 (BR)	**Brand Name**	Motorola(Salcomp)	**Model Name**	MC-337L
AC Adapter 2 (US)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-331
AC Adapter 2 (EU)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-332
AC Adapter 2 (BR)	**Brand Name**	Motorola(Chenyang)	**Model Name**	MC-337
Battery 1	**Brand Name**	Motorola(Jiade)	**Model Name**	QA50
Battery 2	**Brand Name**	Motorola (ATL)	**Model Name**	QA50
USB Cable 1	**Brand Name**	Motorola (WASHIN)	**Model Name**	S928D92375
USB Cable 2	**Brand Name**	Motorola (Saibao)	**Model Name**	S928D95755

1.7 Maximum EIRP Power and Emission Designator

EN DC_41A-n78A SCS 15kHz		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	3455.01 ~ 3544.995	0.0789	-	0.0637	
15	3457.50 ~ 3542.49	0.0811	-	0.0668	
20	3460.005 ~ 3540.00	0.0809	-	0.0630	
30	3465.00 ~ 3534.99	0.0767	-	0.0594	
40	3470.01 ~ 3529.995	0.0736	-	0.0604	
50	3475.005 ~ 3525.00	0.0809	-	0.0656	

EN DC_41A-n78A SCS 30kHz		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	3455.01 ~ 3544.98	0.0767	-	0.0597	
15	3457.50 ~ 3542.49	0.0771	-	0.0604	
20	3460.02 ~ 3540.00	0.0764	-	0.0607	
30	3465.00 ~ 3534.99	0.0729	-	0.0556	
40	3470.01 ~ 3529.98	0.0697	-	0.0560	
50	3475.02 ~ 3525.00	0.0750	-	0.0601	
60	3480.00 ~ 3519.99	0.0729	-	0.0565	
70	3485.01 ~ 3514.98	0.0743	-	0.0583	
80	3490.02 ~ 3510.00	0.0729	-	0.0589	
90	3495.00 ~ 3504.99	0.0718	-	0.0581	
100	3500.01	0.0769	-	0.0612	

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

1.8 Testing Site

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

1.9 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

1.10 Applied Standards

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

- 47 CFR Part 2, Part 27 Subpart Q
- ANSI C63.26-2015
- FCC KDB 971168 Power Meas License Digital Systems D01 v03r01
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

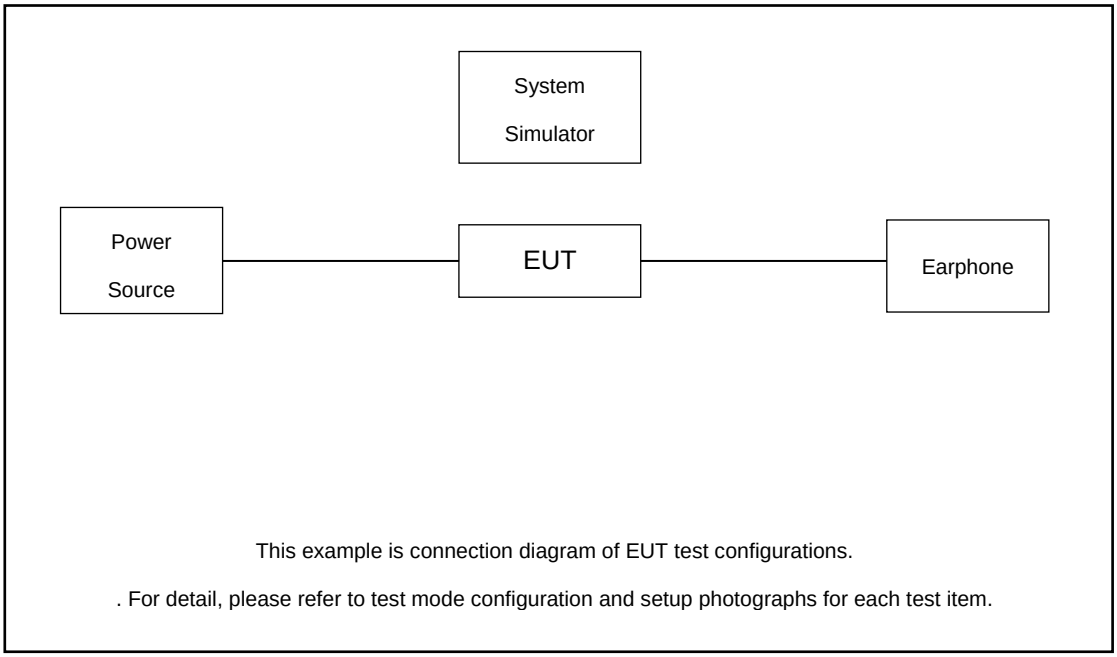
2.1 Test Mode

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission.

Test Items	5G NR	Bandwidth (MHz)													Modulation					RB #		Test Channel		
		5	10	15	20	25	30	40	50	60	70	80	90	100	PI/2 BPSK	QPSK	16 QAM	64 QAM	256 QAM	1	Full	L	M	H
Max. Output Power	n78	-	v	v	v	-	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
E.I.R.P	n78	-	v	v	v	-	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
Radiated Spurious Emission	n78	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 = 3.91V ；Low Voltage =3.60V.；High Voltage =4.45V																							

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	Power Supply	GWINSTEK	PSS-2002	N/A	N/A	Unshielded, 1.8 m
2.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
3.	NR Base Station	Anritsu	MT8000A	N/A	N/A	Unshielded, 1.8 m
4.	Earphone	N/A	N/A	N/A	N/A	N/A

2.4 Frequency List of Low/Middle/High Channels

5G n78 Channel and Frequency List for SCS 15kHz				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
50	Channel	631667	633334	635000
	Frequency	3475.005	3500.01	3525
40	Channel	631334	633334	635333
	Frequency	3470.01	3500.01	3529.995
30	Channel	631000	633334	635666
	Frequency	3465	3500.01	3534.99
20	Channel	630667	633334	636000
	Frequency	3460.005	3500.01	3540
15	Channel	630500	633334	636166
	Frequency	3457.5	3500.01	3542.49
10	Channel	630334	633334	636333
	Frequency	3455.01	3500.01	3544.995

5G n78 Channel and Frequency List for SCS 30kHz				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
100	Channel	-	633334	-
	Frequency	-	3500.01	-
90	Channel	633000	633334	633666
	Frequency	3495	3500.01	3504.99
80	Channel	632668	633334	634000
	Frequency	3490.02	3500.01	3510
70	Channel	632334	633334	634332
	Frequency	3485.01	3500.01	3514.98
60	Channel	632000	633334	634666
	Frequency	3480	3500.01	3519.99
50	Channel	631668	633334	635000
	Frequency	3475.02	3500.01	3525
40	Channel	631334	633334	635332
	Frequency	3470.01	3500.01	3529.98
30	Channel	631000	633334	635666
	Frequency	3465	3500.01	3534.99
20	Channel	630668	633334	636000
	Frequency	3460.02	3500.01	3540
15	Channel	630500	633334	636166
	Frequency	3457.5	3500.01	3542.49
10	Channel	630334	633334	636332
	Frequency	3455.01	3500.01	3544.98

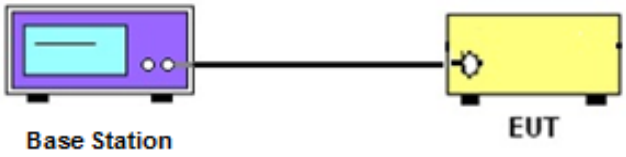
3 Conducted Test Items

3.1 Measuring Instruments

See list of measuring instruments of this test report.

3.2 Test Setup

3.2.1 Conducted Output Power



3.3 Test Result of Conducted Test

Please refer to Appendix A.

3.4 Conducted Output Power Measurement

3.4.1 Description of the 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.

3.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.2
2. The transmitter output port was connected to the system simulator.
3. Set EUT at maximum power through the system simulator.
4. Select lowest, middle, and highest channels for each band and different modulation.
5. Measure and record the power level from the system simulator.

3.5 EIRP

3.5.1 Description of EIRP Limit

§ 27.50 (k)(3)

Mobile devices are limited to 1Watt (30 dBm) EIRP. Mobile devices operating in these bands must employ a means for limiting power to the minimum necessary for successful communications

3.5.2 Test Procedures

1. According to KDB 412172 D01 Power Approach,
2. EIRP = $P_T + G_T – L_C$, ERP = EIRP -2.15, where

   P_T = transmitter output power in dBm

   G_T = gain of the transmitting antenna in dBi

   L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

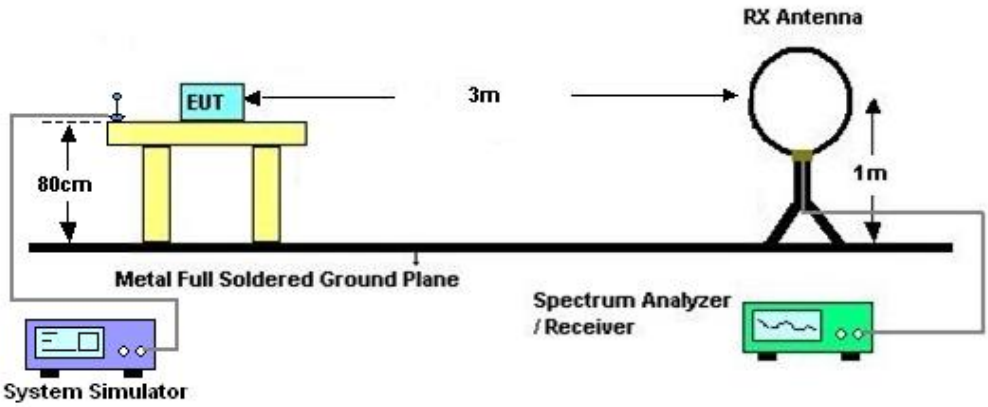
4 Radiated Test Items

4.1 Measuring Instruments

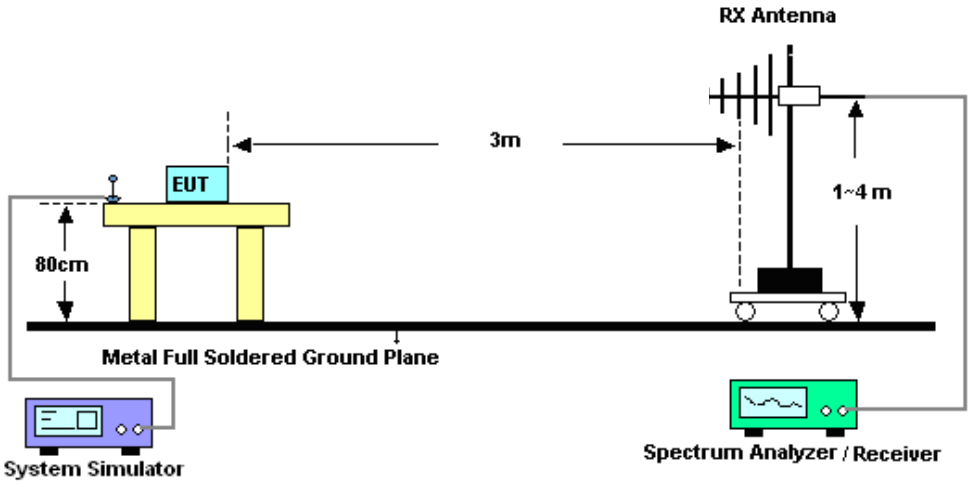
See list of measuring instruments of this test report.

4.2 Test Setup

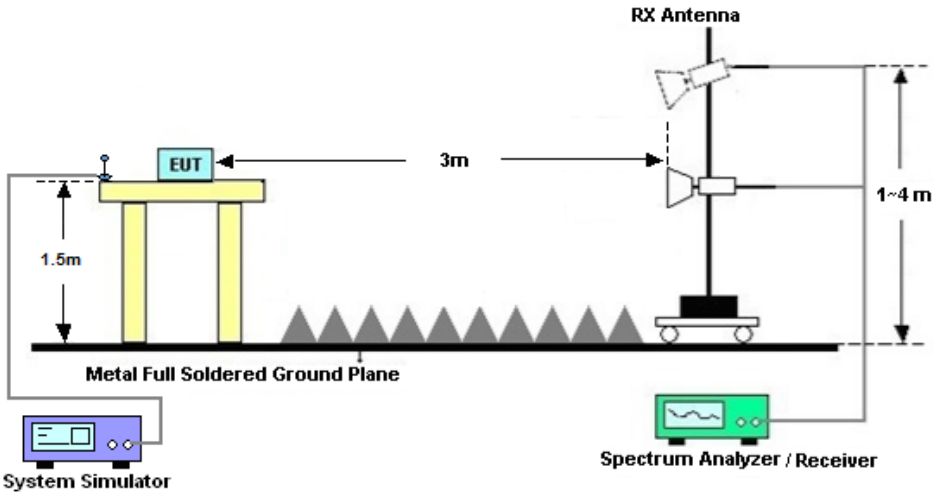
4.2.1 For radiated test below 30MHz



4.2.2 For radiated test from 30MHz to 1GHz



4.2.3 For radiated test above 1GHz



4.3 Test Result of Radiated Test

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

Please refer to Appendix B.

4.4 Radiated Spurious Emission Measurement

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 shall not exceed −13 dBm/MHz.

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
1. 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.
2. The EUT was set 3 meters from the receiving antenna mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between 1m to 4m to search the maximum spurious emission for both horizontal and vertical polarizations.
5. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
   EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
   ERP (dBm) = EIRP - 2.15
9. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Oct. 11, 2023	Jun. 04, 2024	Oct. 10, 2024	Conducted (TH01-KS)
Power divider	STI	STI08-0055	-	0.5~40GHz	NCR	Jun. 04, 2024	NCR	Conducted (TH01-KS)
Temperature &humidity chamber	Hongzhan	LP-150U	H2014011440	-40~+150°C 20%~95%RH	Jul. 06, 2023	Jun. 04, 2024	Jul. 05, 2024	Conducted (TH01-KS)
EXA Spectrum Analyzer	Keysight	N9010B	MY57471079	10Hz-44G,MAX 30dB	Oct. 10, 2023	May 23, 2024	Oct. 09, 2024	Radiation (03CH04-KS)
Loop Antenna	R&S	HFH2-Z2E	101125	9kHz~30MHz	Sep. 11 2023	May 23, 2024	Sep. 10, 2024	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	59913	30MHz-1GHz	Aug. 19, 2023	May 23, 2024	Aug. 18, 2024	Radiation (03CH04-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00251694	1GHz~18GHz	Jul. 12, 2023	May 23, 2024	Jul. 11, 2024	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 05, 2024	May 23, 2024	Jan. 04, 2025	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	380827	9KHz-1GHz	Jul. 06, 2023	May 23, 2024	Jul. 05, 2024	Radiation (03CH04-KS)
Amplifier	MITEQ	EM18G40GGA	060728	18~40GHz	Jan. 05, 2024	May 23, 2024	Jan. 04, 2025	Radiation (03CH04-KS)
high gain Amplifier	EM	EM01G18GA	060840	1Ghz-18Ghz	Oct. 10, 2023	May 23, 2024	Oct. 09, 2024	Radiation (03CH04-KS)
Amplifier	Agilent	8449B	3008A02370	1Ghz-18Ghz	Oct. 10, 2023	May 23, 2024	Oct. 09, 2024	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	May 23, 2024	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	May 23, 2024	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	May 23, 2024	NCR	Radiation (03CH04-KS)

NCR: No Calibration Required

6 Measurement Uncertainty

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

Uncertainty of Conducted Measurement

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))	**2.83dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.83dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**2.82dB**

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

Appendix A. Test Results of Conducted Test

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

Software Version: 23.06.1602

FR1 N78(EN DC_41A-n78A)_15K

Transmitter Conducted Output Power And EIRP, (G_T - L_C)=-3.71dB

NR Band	SCS	BandWidth	Arfcn	Freq(MHz)	Modulation	RB	Conducted Power(dBm)	EIRP(dBm)	EIRP(W)
78	15	50	631667	3475.005	DFT-s-OFDM PI/2 BPSK	135@67	22.71	19	0.0794
78	15	50	631667	3475.005	DFT-s-OFDM PI/2 BPSK	1@1	22.51	18.8	0.0759
78	15	50	631667	3475.005	DFT-s-OFDM PI/2 BPSK	1@268	22.5	18.79	0.0757
78	15	50	631667	3475.005	DFT-s-OFDM QPSK	135@67	22.73	19.02	0.0798
78	15	50	631667	3475.005	DFT-s-OFDM QPSK	1@1	22.5	18.79	0.0757
78	15	50	631667	3475.005	DFT-s-OFDM QPSK	1@268	22.42	18.71	0.0743
78	15	50	631667	3475.005	DFT-s-OFDM 16 QAM	135@67	21.79	18.08	0.0643
78	15	50	631667	3475.005	DFT-s-OFDM 16 QAM	1@1	21.65	17.94	0.0622
78	15	50	631667	3475.005	DFT-s-OFDM 16 QAM	1@268	21.6	17.89	0.0615
78	15	50	631667	3475.005	DFT-s-OFDM 64 QAM	135@67	20.31	16.6	0.0457
78	15	50	631667	3475.005	DFT-s-OFDM 64 QAM	1@1	20.23	16.52	0.0449
78	15	50	631667	3475.005	DFT-s-OFDM 64 QAM	1@268	20.07	16.36	0.0433
78	15	50	631667	3475.005	DFT-s-OFDM 256 QAM	135@67	18.28	14.57	0.0286
78	15	50	631667	3475.005	DFT-s-OFDM 256 QAM	1@1	18.37	14.66	0.0292
78	15	50	631667	3475.005	DFT-s-OFDM 256 QAM	1@268	18.2	14.49	0.0281
78	15	50	631667	3475.005	CP-OFDM QPSK	135@67	21.2	17.49	0.0561
78	15	50	631667	3475.005	CP-OFDM QPSK	1@1	21.16	17.45	0.0556
78	15	50	631667	3475.005	CP-OFDM QPSK	1@268	20.98	17.27	0.0533
78	15	50	633334	3500.01	DFT-s-OFDM PI/2 BPSK	135@67	22.75	19.04	0.0802
78	15	50	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@1	22.55	18.84	0.0766
78	15	50	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@268	22.43	18.72	0.0745
78	15	50	633334	3500.01	DFT-s-OFDM QPSK	135@67	22.75	19.04	0.0802
78	15	50	633334	3500.01	DFT-s-OFDM QPSK	1@1	22.52	18.81	0.0760
78	15	50	633334	3500.01	DFT-s-OFDM QPSK	1@268	22.34	18.63	0.0729
78	15	50	633334	3500.01	DFT-s-OFDM 16 QAM	135@67	21.88	18.17	0.0656
78	15	50	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	21.71	18	0.0631
78	15	50	633334	3500.01	DFT-s-OFDM 16 QAM	1@268	21.59	17.88	0.0614
78	15	50	633334	3500.01	DFT-s-OFDM 64 QAM	135@67	20.35	16.64	0.0461
78	15	50	633334	3500.01	DFT-s-OFDM 64 QAM	1@1	20.13	16.42	0.0439
78	15	50	633334	3500.01	DFT-s-OFDM 64 QAM	1@268	20.07	16.36	0.0433
78	15	50	633334	3500.01	DFT-s-OFDM 256 QAM	135@67	18.32	14.61	0.0289
78	15	50	633334	3500.01	DFT-s-OFDM 256 QAM	1@1	18.35	14.64	0.0291
78	15	50	633334	3500.01	DFT-s-OFDM 256 QAM	1@268	18.15	14.44	0.0278
78	15	50	633334	3500.01	CP-OFDM QPSK	135@67	21.26	17.55	0.0569
78	15	50	633334	3500.01	CP-OFDM QPSK	1@1	21.24	17.53	0.0566
78	15	50	633334	3500.01	CP-OFDM QPSK	1@268	20.97	17.26	0.0532
78	15	50	635000	3525	DFT-s-OFDM PI/2 BPSK	135@67	22.79	19.08	0.0809
78	15	50	635000	3525	DFT-s-OFDM PI/2 BPSK	1@1	22.69	18.98	0.0791
78	15	50	635000	3525	DFT-s-OFDM PI/2 BPSK	1@268	22.4	18.69	0.0740

78	15	50	635000	3525	DFT-s-OFDM QPSK	135@67	22.77	19.06	0.0805
78	15	50	635000	3525	DFT-s-OFDM QPSK	1@1	22.62	18.91	0.0778
78	15	50	635000	3525	DFT-s-OFDM QPSK	1@268	22.43	18.72	0.0745
78	15	50	635000	3525	DFT-s-OFDM 16 QAM	135@67	21.81	18.1	0.0646
78	15	50	635000	3525	DFT-s-OFDM 16 QAM	1@1	21.8	18.09	0.0644
78	15	50	635000	3525	DFT-s-OFDM 16 QAM	1@268	21.57	17.86	0.0611
78	15	50	635000	3525	DFT-s-OFDM 64 QAM	135@67	20.3	16.59	0.0456
78	15	50	635000	3525	DFT-s-OFDM 64 QAM	1@1	20.33	16.62	0.0459
78	15	50	635000	3525	DFT-s-OFDM 64 QAM	1@268	20.11	16.4	0.0437
78	15	50	635000	3525	DFT-s-OFDM 256 QAM	135@67	18.29	14.58	0.0287
78	15	50	635000	3525	DFT-s-OFDM 256 QAM	1@1	18.4	14.69	0.0294
78	15	50	635000	3525	DFT-s-OFDM 256 QAM	1@268	18.22	14.51	0.0282
78	15	50	635000	3525	CP-OFDM QPSK	135@67	21.28	17.57	0.0571
78	15	50	635000	3525	CP-OFDM QPSK	1@1	21.31	17.6	0.0575
78	15	50	635000	3525	CP-OFDM QPSK	1@268	21.02	17.31	0.0538
78	15	15	630500	3457.5	DFT-s-OFDM PI/2 BPSK	1@1	22.71	19	0.0794
78	15	15	630500	3457.5	DFT-s-OFDM QPSK	1@1	22.73	19.02	0.0798
78	15	15	630500	3457.5	DFT-s-OFDM 16 QAM	1@1	21.88	18.17	0.0656
78	15	15	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@1	22.69	18.98	0.0791
78	15	15	633334	3500.01	DFT-s-OFDM QPSK	1@1	22.66	18.95	0.0785
78	15	15	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	21.82	18.11	0.0647
78	15	15	636166	3542.49	DFT-s-OFDM PI/2 BPSK	1@1	22.8	19.09	0.0811
78	15	15	636166	3542.49	DFT-s-OFDM QPSK	1@1	22.74	19.03	0.0800
78	15	15	636166	3542.49	DFT-s-OFDM 16 QAM	1@1	21.96	18.25	0.0668
78	15	20	630667	3460.005	DFT-s-OFDM PI/2 BPSK	1@1	22.68	18.97	0.0789
78	15	20	630667	3460.005	DFT-s-OFDM QPSK	1@1	22.66	18.95	0.0785
78	15	20	630667	3460.005	DFT-s-OFDM 16 QAM	1@1	21.59	17.88	0.0614
78	15	20	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@1	22.67	18.96	0.0787
78	15	20	633334	3500.01	DFT-s-OFDM QPSK	1@1	22.64	18.93	0.0782
78	15	20	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	21.6	17.89	0.0615
78	15	20	636000	3540	DFT-s-OFDM PI/2 BPSK	1@1	22.79	19.08	0.0809
78	15	20	636000	3540	DFT-s-OFDM QPSK	1@1	22.72	19.01	0.0796
78	15	20	636000	3540	DFT-s-OFDM 16 QAM	1@1	21.7	17.99	0.0630
78	15	30	631000	3465	DFT-s-OFDM PI/2 BPSK	1@1	22.4	18.69	0.0740
78	15	30	631000	3465	DFT-s-OFDM QPSK	1@1	22.31	18.6	0.0724
78	15	30	631000	3465	DFT-s-OFDM 16 QAM	1@1	21.31	17.6	0.0575
78	15	30	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@1	22.4	18.69	0.0740
78	15	30	633334	3500.01	DFT-s-OFDM QPSK	1@1	22.36	18.65	0.0733
78	15	30	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	21.36	17.65	0.0582
78	15	30	635666	3534.99	DFT-s-OFDM PI/2 BPSK	1@1	22.56	18.85	0.0767
78	15	30	635666	3534.99	DFT-s-OFDM QPSK	1@1	22.46	18.75	0.0750
78	15	30	635666	3534.99	DFT-s-OFDM 16 QAM	1@1	21.45	17.74	0.0594
78	15	40	631334	3470.01	DFT-s-OFDM PI/2 BPSK	1@1	22.18	18.47	0.0703
78	15	40	631334	3470.01	DFT-s-OFDM QPSK	1@1	22.08	18.37	0.0687
78	15	40	631334	3470.01	DFT-s-OFDM 16 QAM	1@1	21.21	17.5	0.0562
78	15	40	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@1	22.19	18.48	0.0705
78	15	40	633334	3500.01	DFT-s-OFDM QPSK	1@1	22.09	18.38	0.0689

78	15	40	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	21.27	17.56	0.0570
78	15	40	635333	3529.995	DFT-s-OFDM PI/2 BPSK	1@1	22.38	18.67	0.0736
78	15	40	635333	3529.995	DFT-s-OFDM QPSK	1@1	22.27	18.56	0.0718
78	15	40	635333	3529.995	DFT-s-OFDM 16 QAM	1@1	21.52	17.81	0.0604
78	15	10	630334	3455.01	DFT-s-OFDM PI/2 BPSK	1@1	22.61	18.9	0.0776
78	15	10	630334	3455.01	DFT-s-OFDM QPSK	1@1	22.52	18.81	0.0760
78	15	10	630334	3455.01	DFT-s-OFDM 16 QAM	1@1	21.38	17.67	0.0585
78	15	10	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@1	22.63	18.92	0.0780
78	15	10	633334	3500.01	DFT-s-OFDM QPSK	1@1	22.52	18.81	0.0760
78	15	10	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	21.65	17.94	0.0622
78	15	10	636333	3544.995	DFT-s-OFDM PI/2 BPSK	1@1	22.68	18.97	0.0789
78	15	10	636333	3544.995	DFT-s-OFDM QPSK	1@1	22.68	18.97	0.0789
78	15	10	636333	3544.995	DFT-s-OFDM 16 QAM	1@1	21.75	18.04	0.0637

Software Version: 23.06.1602

FR1 N78(EN DC_41A-n78A)_30K

Transmitter Conducted Output Power And EIRP, (G_T - L_C)=-3.71dB

NR Band	SCS	BandWidth	Arfcn	Freq(MHz)	Modulation	RB	Conducted Power(dBm)	EIRP(dBm)	EIRP(W)
78	30	15	630500	3457.5	DFT-s-OFDM PI/2 BPSK	1@1	22.58	18.87	0.0771
78	30	15	630500	3457.5	DFT-s-OFDM QPSK	1@1	22.46	18.75	0.0750
78	30	15	630500	3457.5	DFT-s-OFDM 16 QAM	1@1	21.38	17.67	0.0585
78	30	15	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@1	22.56	18.85	0.0767
78	30	15	633334	3500.01	DFT-s-OFDM QPSK	1@1	22.45	18.74	0.0748
78	30	15	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	21.39	17.68	0.0586
78	30	15	636166	3542.49	DFT-s-OFDM PI/2 BPSK	1@1	22.58	18.87	0.0771
78	30	15	636166	3542.49	DFT-s-OFDM QPSK	1@1	22.51	18.8	0.0759
78	30	15	636166	3542.49	DFT-s-OFDM 16 QAM	1@1	21.52	17.81	0.0604
78	30	20	630668	3460.02	DFT-s-OFDM PI/2 BPSK	1@1	22.47	18.76	0.0752
78	30	20	630668	3460.02	DFT-s-OFDM QPSK	1@1	22.37	18.66	0.0735
78	30	20	630668	3460.02	DFT-s-OFDM 16 QAM	1@1	21.49	17.78	0.0600
78	30	20	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@1	22.5	18.79	0.0757
78	30	20	633334	3500.01	DFT-s-OFDM QPSK	1@1	22.37	18.66	0.0735
78	30	20	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	21.3	17.59	0.0574
78	30	20	636000	3540	DFT-s-OFDM PI/2 BPSK	1@1	22.54	18.83	0.0764
78	30	20	636000	3540	DFT-s-OFDM QPSK	1@1	22.41	18.7	0.0741
78	30	20	636000	3540	DFT-s-OFDM 16 QAM	1@1	21.54	17.83	0.0607
78	30	30	631000	3465	DFT-s-OFDM PI/2 BPSK	1@1	22.26	18.55	0.0716
78	30	30	631000	3465	DFT-s-OFDM QPSK	1@1	22.13	18.42	0.0695
78	30	30	631000	3465	DFT-s-OFDM 16 QAM	1@1	21.05	17.34	0.0542
78	30	30	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@1	22.24	18.53	0.0713
78	30	30	633334	3500.01	DFT-s-OFDM QPSK	1@1	22.13	18.42	0.0695
78	30	30	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	21.07	17.36	0.0545
78	30	30	635666	3534.99	DFT-s-OFDM PI/2 BPSK	1@1	22.34	18.63	0.0729
78	30	30	635666	3534.99	DFT-s-OFDM QPSK	1@1	22.25	18.54	0.0714
78	30	30	635666	3534.99	DFT-s-OFDM 16 QAM	1@1	21.16	17.45	0.0556
78	30	40	631334	3470.01	DFT-s-OFDM PI/2 BPSK	1@1	21.96	18.25	0.0668
78	30	40	631334	3470.01	DFT-s-OFDM QPSK	1@1	21.99	18.28	0.0673
78	30	40	631334	3470.01	DFT-s-OFDM 16 QAM	1@1	21	17.29	0.0536
78	30	40	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@1	22	18.29	0.0675
78	30	40	633334	3500.01	DFT-s-OFDM QPSK	1@1	21.95	18.24	0.0667
78	30	40	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	21.05	17.34	0.0542
78	30	40	635332	3529.98	DFT-s-OFDM PI/2 BPSK	1@1	22.12	18.41	0.0693
78	30	40	635332	3529.98	DFT-s-OFDM QPSK	1@1	22.14	18.43	0.0697
78	30	40	635332	3529.98	DFT-s-OFDM 16 QAM	1@1	21.19	17.48	0.0560
78	30	50	631668	3475.02	DFT-s-OFDM PI/2 BPSK	1@1	22.3	18.59	0.0723
78	30	50	631668	3475.02	DFT-s-OFDM QPSK	1@1	22.28	18.57	0.0719
78	30	50	631668	3475.02	DFT-s-OFDM 16 QAM	1@1	21.38	17.67	0.0585

78	30	50	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@1	22.34	18.63	0.0729
78	30	50	633334	3500.01	DFT-s-OFDM QPSK	1@1	22.29	18.58	0.0721
78	30	50	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	21.37	17.66	0.0583
78	30	50	635000	3525	DFT-s-OFDM PI/2 BPSK	1@1	22.46	18.75	0.0750
78	30	50	635000	3525	DFT-s-OFDM QPSK	1@1	22.41	18.7	0.0741
78	30	50	635000	3525	DFT-s-OFDM 16 QAM	1@1	21.5	17.79	0.0601
78	30	60	632000	3480	DFT-s-OFDM PI/2 BPSK	1@1	22.23	18.52	0.0711
78	30	60	632000	3480	DFT-s-OFDM QPSK	1@1	22.19	18.48	0.0705
78	30	60	632000	3480	DFT-s-OFDM 16 QAM	1@1	21.2	17.49	0.0561
78	30	60	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@1	22.3	18.59	0.0723
78	30	60	633334	3500.01	DFT-s-OFDM QPSK	1@1	22.26	18.55	0.0716
78	30	60	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	21.21	17.5	0.0562
78	30	60	634666	3519.99	DFT-s-OFDM PI/2 BPSK	1@1	22.34	18.63	0.0729
78	30	60	634666	3519.99	DFT-s-OFDM QPSK	1@1	22.31	18.6	0.0724
78	30	60	634666	3519.99	DFT-s-OFDM 16 QAM	1@1	21.23	17.52	0.0565
78	30	70	632334	3485.01	DFT-s-OFDM PI/2 BPSK	1@1	22.35	18.64	0.0731
78	30	70	632334	3485.01	DFT-s-OFDM QPSK	1@1	22.35	18.64	0.0731
78	30	70	632334	3485.01	DFT-s-OFDM 16 QAM	1@1	21.28	17.57	0.0571
78	30	70	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@1	22.42	18.71	0.0743
78	30	70	633334	3500.01	DFT-s-OFDM QPSK	1@1	22.39	18.68	0.0738
78	30	70	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	21.37	17.66	0.0583
78	30	70	634332	3514.98	DFT-s-OFDM PI/2 BPSK	1@1	22.3	18.59	0.0723
78	30	70	634332	3514.98	DFT-s-OFDM QPSK	1@1	22.25	18.54	0.0714
78	30	70	634332	3514.98	DFT-s-OFDM 16 QAM	1@1	21.26	17.55	0.0569
78	30	80	632668	3490.02	DFT-s-OFDM PI/2 BPSK	1@1	22.3	18.59	0.0723
78	30	80	632668	3490.02	DFT-s-OFDM QPSK	1@1	22.26	18.55	0.0716
78	30	80	632668	3490.02	DFT-s-OFDM 16 QAM	1@1	21.39	17.68	0.0586
78	30	80	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@1	22.34	18.63	0.0729
78	30	80	633334	3500.01	DFT-s-OFDM QPSK	1@1	22.32	18.61	0.0726
78	30	80	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	21.41	17.7	0.0589
78	30	80	634000	3510	DFT-s-OFDM PI/2 BPSK	1@1	22.32	18.61	0.0726
78	30	80	634000	3510	DFT-s-OFDM QPSK	1@1	22.29	18.58	0.0721
78	30	80	634000	3510	DFT-s-OFDM 16 QAM	1@1	21.38	17.67	0.0585
78	30	90	633000	3495	DFT-s-OFDM PI/2 BPSK	1@1	22.17	18.46	0.0701
78	30	90	633000	3495	DFT-s-OFDM QPSK	1@1	22.17	18.46	0.0701
78	30	90	633000	3495	DFT-s-OFDM 16 QAM	1@1	21.26	17.55	0.0569
78	30	90	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@1	22.19	18.48	0.0705
78	30	90	633334	3500.01	DFT-s-OFDM QPSK	1@1	22.19	18.48	0.0705
78	30	90	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	21.28	17.57	0.0571
78	30	90	633666	3504.99	DFT-s-OFDM PI/2 BPSK	1@1	22.27	18.56	0.0718
78	30	90	633666	3504.99	DFT-s-OFDM QPSK	1@1	22.25	18.54	0.0714
78	30	90	633666	3504.99	DFT-s-OFDM 16 QAM	1@1	21.35	17.64	0.0581
78	30	100	633334	3500.01	DFT-s-OFDM PI/2 BPSK	135@67	22.57	18.86	0.0769
78	30	100	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@1	22.06	18.35	0.0684
78	30	100	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@271	21.79	18.08	0.0643
78	30	100	633334	3500.01	DFT-s-OFDM QPSK	135@67	22.55	18.84	0.0766
78	30	100	633334	3500.01	DFT-s-OFDM QPSK	1@1	22.06	18.35	0.0684

78	30	100	633334	3500.01	DFT-s-OFDM QPSK	1@271	21.75	18.04	0.0637
78	30	100	633334	3500.01	DFT-s-OFDM 16 QAM	135@67	21.58	17.87	0.0612
78	30	100	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	21.09	17.38	0.0547
78	30	100	633334	3500.01	DFT-s-OFDM 16 QAM	1@271	20.6	16.89	0.0489
78	30	100	633334	3500.01	DFT-s-OFDM 64 QAM	135@67	20.06	16.35	0.0432
78	30	100	633334	3500.01	DFT-s-OFDM 64 QAM	1@1	19.56	15.85	0.0385
78	30	100	633334	3500.01	DFT-s-OFDM 64 QAM	1@271	19.36	15.65	0.0367
78	30	100	633334	3500.01	DFT-s-OFDM 256 QAM	135@67	18.09	14.38	0.0274
78	30	100	633334	3500.01	DFT-s-OFDM 256 QAM	1@1	17.7	13.99	0.0251
78	30	100	633334	3500.01	DFT-s-OFDM 256 QAM	1@271	17.38	13.67	0.0233
78	30	100	633334	3500.01	CP-OFDM QPSK	137@68	21.07	17.36	0.0545
78	30	100	633334	3500.01	CP-OFDM QPSK	1@1	20.58	16.87	0.0486
78	30	100	633334	3500.01	CP-OFDM QPSK	1@271	20.26	16.55	0.0452
78	30	10	630334	3455.01	DFT-s-OFDM PI/2 BPSK	1@1	22.52	18.81	0.0760
78	30	10	630334	3455.01	DFT-s-OFDM QPSK	1@1	22.51	18.8	0.0759
78	30	10	630334	3455.01	DFT-s-OFDM 16 QAM	1@1	21.47	17.76	0.0597
78	30	10	633334	3500.01	DFT-s-OFDM PI/2 BPSK	1@1	22.48	18.77	0.0753
78	30	10	633334	3500.01	DFT-s-OFDM QPSK	1@1	22.52	18.81	0.0760
78	30	10	633334	3500.01	DFT-s-OFDM 16 QAM	1@1	21.16	17.45	0.0556
78	30	10	636332	3544.98	DFT-s-OFDM PI/2 BPSK	1@1	22.56	18.85	0.0767
78	30	10	636332	3544.98	DFT-s-OFDM QPSK	1@1	22.45	18.74	0.0748
78	30	10	636332	3544.98	DFT-s-OFDM 16 QAM	1@1	21.25	17.54	0.0568

Appendix B. Test Results of Radiated Test

Radiated Spurious Emission

Test Engineer :	Bruce	Temperature :	23~25℃
		Relative Humidity :	41~42%

RSE pre-scanned harmonic for different antennas, choose the worst antenna perform final test and record in the report.

EN-DC_41A_n78A / LTE 10MHz + NR 100MHz / QPSK / ANT1 (LTE) & ANT5(NR)								
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	6900	-54.27	-13	-41.27	-64.48	3.03	13.24	H
	10368	-61.21	-13	-48.21	-70.66	3.56	13.01	H
	13800	-60.63	-13	-47.63	-70.15	3.92	13.44	H
	6900	-54.27	-13	-41.27	-64.48	3.03	13.24	V
	10368	-61.21	-13	-48.21	-70.66	3.56	13.01	V
	13800	-60.63	-13	-47.63	-70.15	3.92	13.44	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.