



FCC RF Test Report

APPLICANT : Viavi Solutions Inc.
EQUIPMENT : 5G Sub-6 GHz M.2 Module with WCDMA and LTE
BRAND NAME : VIAVI
MODEL NAME : RM520N-GL
FCC ID : WUW-RM520NGL
STANDARD : 47 CFR Part 27 Subpart O (3700-3980MHz)
CLASSIFICATION : PCS Licensed Transmitter (PCB)
TEST DATE(S) : Jul. 30, 2024 ~ Nov. 04, 2024

The product was installed into a host (Brand Name: VIAVI, Model Name: NXE-DEVICE-4M) during the test, only Conducted Power, EIRP and RSE test items are tested in this report.

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**



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG452001O	Rev. 01	Initial issue of report	Dec. 18, 2024



SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1046	Conducted Output Power	Reporting Only	PASS	-
	§27.50(j)(3)	Equivalent Isotropic Radiated Power (5G NR n77, n78)	EIRP < 1Watt		
-	§27.50(j)(4)	Peak-to-Average Ratio	<13 dB	PASS	1
-	§2.1049	Occupied Bandwidth	Reporting Only	PASS	1
-	§2.1051 §27.53(l)(2)	Conducted Band Edge Measurement (5G NR n77, n78)	< 43+10log ₁₀ (P[Watts])	PASS	1
-	§2.1051 §27.53(l)(2)	Conducted Spurious Emission (5G NR n77, n78)	< 43+10log ₁₀ (P[Watts])	PASS	1
-	§27.54	Frequency Stability Temperature & Voltage	Within Authorized Band	PASS	1
4.4	§2.1053 §27.53(l)(2)	Radiated Spurious Emission (5G NR n77, n78)	< 43+10log ₁₀ (P[Watts])	PASS	Under limit 45.04 dB at 15536.00 MHz

Remark 1: Test results are leveraged from module RF report No “SEWA2204000008RG02”.

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/manufacture 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

Viavi Solutions Inc.

1445 South Spectrum Boulevard, Suite 102, Chandler, Arizona 85286

1.2 Manufacturer

Viavi Solutions Inc.

1445 South Spectrum Boulevard, Suite 102, Chandler, Arizona 85286

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	5G Sub-6 GHz M.2 Module with WCDMA and LTE
Brand Name	VIAVI
Model Name	RM520N-GL
FCC ID	WUW-RM520NGL
EUT Stage	Identical Prototype

Host Product Feature	
Equipment	XEDGE 2.0
Brand Name	VIAVI
Model Name	NXE-DEVICE-4M
IMEI Code	Conducted : IMEI A: 868371051639645 IMEI B: 868371051635213 IMEI C: 868371051635338 IMEI D: 868371051639819 Radiation : IMEI A: 868371051120539 IMEI B: 868371051121032 IMEI C: 868371051143184 IMEI D: 868371051635312
Applicant	Viavi Solutions Inc. 1445 South Spectrum Boulevard, Suite 102, Chandler, Arizona 85286
Manufacturer	Viavi Solutions Inc. 1445 South Spectrum Boulevard, Suite 102, Chandler, Arizona 85286

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Frequency	5G NR n77: 3700 MHz ~ 3980 MHz 5G NR n78: 3700 MHz ~ 3800 MHz
SCS	30kHz
Bandwidth	n77/n78: 10 / 15 / 20 / 30 / 40 / 50 / 60 / 70 / 80 / 90 / 100MHz
Antenna Gain	< Module A/B/C/D > <Ant. 2> 5G NR n77: 5.5 dBi 5G NR n78: 5.5 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 is shown in the report, 5G NR n77 for Module D ANT2 and n78 for Module C ANT2.
2. 5G NR n77/n78 support SA and NSA mode. The whole testing has assessed SA mode for n77 by referring to the higher conducted power.
3. The device supports HPUE mode for 5G NR n77/n78.
4. All the supported EN-DC combinations are verified conducted power, only the EN-DC combination with highest power are shown in the report.
5. The EN-DC mode combination could be referred to the product spec.
6. The four Modules are the same include Power setting, but we still verified the real power, which is within the uncertainty range, so we chose the module of the higher power for testing, each Module has four antennas, for 5G NR n77/n78, only Ant.2 supports TX/RX function, the others are RX only.
7. For RSE testing, we choice the module of the higher conducted Power to test, because between four modules do not support MIMO mode.

1.5 Modification of EUT

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



1.6 Maximum EIRP

5G NR n77 SA		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	3705.00 ~ 3975.00	0.6223	-	0.5781	-
15	3705.52 ~ 3972.48	0.6081	-	0.5689	-
20	3710.01 ~ 3969.99	0.6026	-	0.5636	-
30	3715.02 ~ 3964.98	0.5984	-	0.5598	-
40	3720.00 ~ 3960.00	0.6180	-	0.5781	-
50	3725.01 ~ 3954.99	0.6124	-	0.5741	-
60	3730.02 ~ 3949.98	0.6166	-	0.5821	-
70	3735.00 ~ 3945.00	0.6053	-	0.5610	-
80	3740.01 ~ 3939.99	0.6166	-	0.5781	-
90	3745.02 ~ 3934.98	0.6138	-	0.5702	-
100	3750.00 ~ 3930.00	0.6412	-	0.6026	-

5G NR n78 SA		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	3705.00 ~ 3795.00	0.6180	-	0.6012	-
15	3707.52 ~ 3792.48	0.6180	-	0.6053	-
20	3710.01 ~ 3789.99	0.6194	-	0.6124	-
30	3715.02 ~ 3784.98	0.6081	-	0.5984	-
40	3720.00 ~ 3780.00	0.6194	-	0.6124	-
50	3725.01 ~ 3774.99	0.6109	-	0.6039	-
60	3730.02 ~ 3769.98	0.6209	-	0.6109	-
70	3735.00 ~ 3765.00	0.6166	-	0.6067	-
80	3740.01 ~ 3759.99	0.6194	-	0.5998	-
90	3745.02 ~ 3754.98	0.6209	-	0.5998	-
100	3750.00 ~ 3750.00	0.6353	-	0.6095	-

Note:

1. All modulations have been tested, and only the worst test results of PSK & QAM are shown in the report.
2. Band n77 overlaps the entire frequency range of Band n78. Therefore, the test results provided in this report covers Band n77 as well as Band n78.



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

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 270
- ♦ ANSI C63.26-2015
- ♦ FCC KDB 971168 D01 Power Meas License Digital Systems v03r01
- ♦ FCC KDB 412172 D01 Determining ERP and EIRP v01r01

Remark:

All test items were verified and recorded according to the standards and without any deviation during the test.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

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

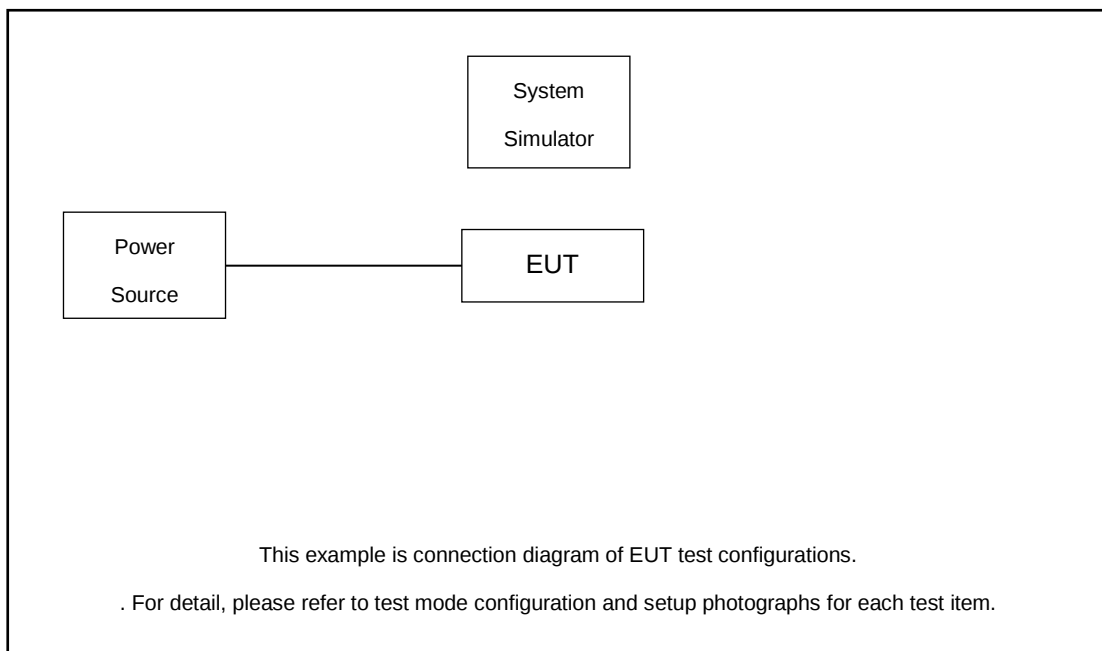
For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y plane) were recorded in this report.

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

Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			

Test Items	5G NR	Bandwidth (MHz)										Modulation					RB #			Test Channel		
		10	15	20	25	30	40	50	60	70~90	100	PI/2 BPSK	QPSK	16QAM	64QAM	256 QAM	1	Partial	Full	L	M	H
Max. Output Power	n77	v	v	v	-	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	n78	v	v	v	-	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
E.I.R.P	n77	v	v	v	-	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	n78	v	v	v	-	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v	v
Radiated Spurious Emission	n77	Worst Case																		v	v	v
	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 = 24V ; Low Voltage =11V. ; High Voltage =28V																					

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.	LTE Base Station	Anritsu	MT8821C	N/A	N/A	Unshielded, 1.8 m
2.	NR Base Station	Anritsu	MT8000A	N/A	N/A	Unshielded, 1.8 m



2.4 Frequency List of Low/Middle/High Channels

5G n77 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
100	Channel	650000	656000	662000
	Frequency	3750	3840	3930
90	Channel	649668	656000	662332
	Frequency	3745.02	3840	3934.98
80	Channel	649334	656000	662666
	Frequency	3740.01	3840	3939.99
70	Channel	649000	656000	663000
	Frequency	3735	3840	3945
60	Channel	648668	656000	663332
	Frequency	3730.02	3840	3949.98
50	Channel	648334	656000	663666
	Frequency	3725.01	3840	3954.99
40	Channel	648000	656000	664000
	Frequency	3720	3840	3960
30	Channel	647668	656000	664332
	Frequency	3715.02	3840	3964.98
20	Channel	647334	656000	664666
	Frequency	3710.01	3840	3969.99
15	Channel	647168	656000	664832
	Frequency	3707.52	3840	3972.48
10	Channel	647000	656000	665000
	Frequency	3705	3840	3975



5G n78 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
100	Channel	650000		
	Frequency	3750		
90	Channel	649668	650000	650332
	Frequency	3745.02	3750	3754.98
80	Channel	649334	650000	650666
	Frequency	3740.01	3750	3759.99
70	Channel	649000	650000	651000
	Frequency	3735	3750	3765
60	Channel	648668	650000	651332
	Frequency	3730.02	3750	3769.98
50	Channel	648334	650000	651666
	Frequency	3725.01	3750	3774.99
40	Channel	648000	650000	652000
	Frequency	3720	3750	3780
30	Channel	647668	650000	652332
	Frequency	3715.02	3750	3784.98
20	Channel	647334	650000	652666
	Frequency	3710.01	3750	3789.99
15	Channel	647168	650000	652832
	Frequency	3707.52	3750	3792.48
10	Channel	647000	650000	653000
	Frequency	3705	3750	3795

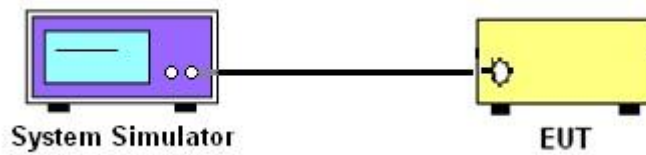
3 Conducted Test Items

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 and EIRP

3.4.1 Description of the Conducted Output Power Measurement and 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 EIRP of mobile transmitters must not exceed 1 Watts for 5G NR n77, n78.

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.

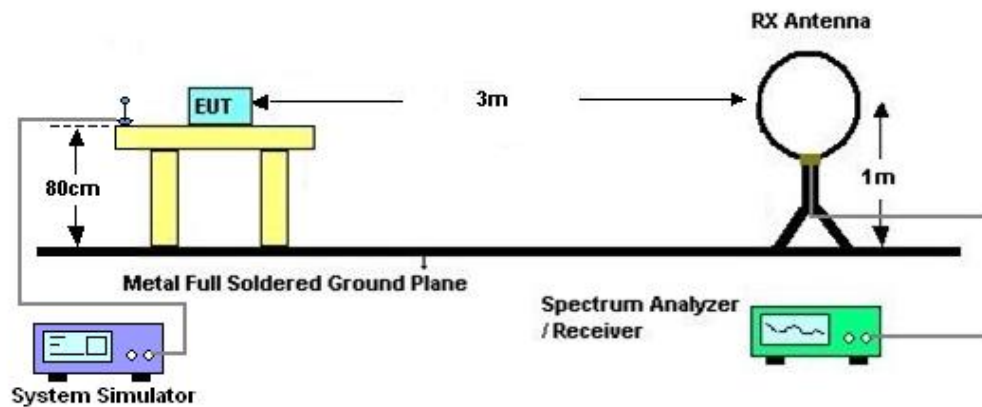
4 Radiated Test Items

4.1 Measuring Instruments

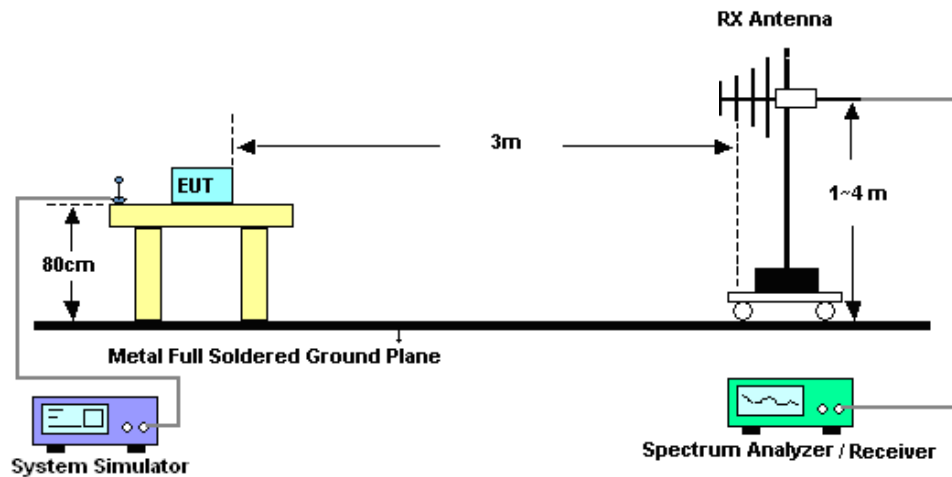
See list of measuring instruments of this test report.

4.2 Test Setup

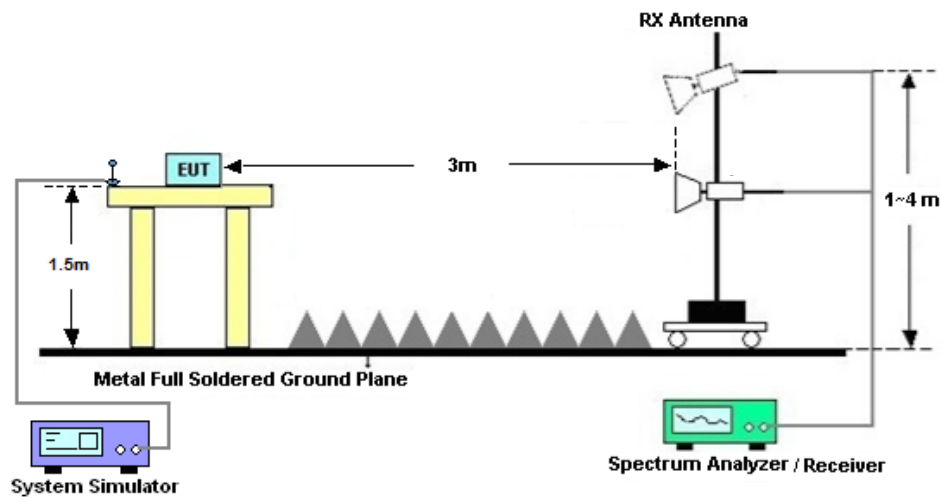
4.2.1 For radiated test below 30MHz



4.2.2 For radiated test from 30MHz to 1GHz



4.2.3 For radiated test above 1GHz



4.3 Test Result of Radiated Test

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

Please refer to Appendix B.

4.4 Radiated Spurious Emission

4.4.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI C63.26. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB.

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

4.4.2 Test Procedures

1. The testing follows ANSI C63.26 Section 5.5
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.
9. $EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
10. $ERP \text{ (dBm)} = EIRP - 2.15$
11. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)

$$= P(W) - [43 + 10\log(P)] \text{ (dB)}$$

$$= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$$

$$= -13\text{dBm}.$$



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. 10, 2024	Oct. 16, 2024~ Nov. 04, 2024	Oct. 09, 2025	Conducted (TH01-KS)
Power divider	STI	STI08-0055	-	0.5~40GHz	NCR	Oct. 16, 2024~ Nov. 04, 2024	NCR	Conducted (TH01-KS)
EXA Spectrum Analyzer	Keysight	N9010B	MY57471079	10Hz~44G,MAX 30dB	Oct. 11, 2023	Jul. 30, 2024	Oct. 10, 2024	Radiation (03CH04-KS)
Loop Antenna	R&S	HFH2-Z2E	101125	9kHz~30MHz	Sep. 09, 2023	Jul. 30, 2024	Sep. 08, 2024	Radiation (03CH04-KS)
Bilog Antenna	TeseQ	CBL6111D	44483	30MHz~1GHz	Dec. 06, 2023	Jul. 30, 2024	Dec. 05, 2024	Radiation (03CH04-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Oct. 23, 2023	Jul. 30, 2024	Oct. 22, 2024	Radiation (03CH04-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 27, 2024	Jul. 30, 2024	Jan. 26, 2025	Radiation (03CH04-KS)
Amplifier	SONOMA	310N	413740	9KHz~1GHz	Jan. 03, 2024	Jul. 30, 2024	Jan. 02, 2025	Radiation (03CH04-KS)
Amplifier	EM	EM18G40G A	060728	18~40GHz	Jan. 02, 2024	Jul. 30, 2024	Jan. 01, 2025	Radiation (03CH04-KS)
high gain Amplifier	EM	EM01G18G A	060840	1Ghz~18Ghz	Oct. 11, 2023	Jul. 30, 2024	Oct. 10, 2024	Radiation (03CH04-KS)
Amplifier	EM	EM01G18G A	060892	1Ghz~18Ghz	Oct. 11, 2023	Jul. 30, 2024	Oct. 10, 2024	Radiation (03CH04-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Jul. 30, 2024	NCR	Radiation (03CH04-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Jul. 30, 2024	NCR	Radiation (03CH04-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Jul. 30, 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 Power	± 0.50 dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.83 dB
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Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.83 dB
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Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	2.82 dB
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----- THE END -----



Appendix A. Test Results of Conducted Test

Test Engineer :	Smile Wang	Temperature :	22~23°C
		Relative Humidity :	40~42%

Conducted Output Power(Average power) and EIRP

5G NR n77_Modem D Ant2:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	EIRP (W)		
Channel				650000	656000	662000	L	M	H
Frequency (MHz)				3750	3840	3930			
100	PI/2 BPSK	1	1	22.44	22.52	22.56	0.6223	0.6339	0.6397
100	PI/2 BPSK	1	137	22.31	22.23	22.31	0.6039	0.5929	0.6039
100	PI/2 BPSK	1	271	22.48	22.56	22.50	0.6281	0.6397	0.6310
100	PI/2 BPSK	135	0	22.45	22.50	22.41	0.6237	0.6310	0.6180
100	PI/2 BPSK	135	69	22.35	22.23	22.27	0.6095	0.5929	0.5984
100	PI/2 BPSK	135	138	22.27	22.27	22.24	0.5984	0.5984	0.5943
100	PI/2 BPSK	270	0	22.24	22.38	22.27	0.5943	0.6138	0.5984
100	QPSK	1	1	22.51	22.57	22.52	0.6324	0.6412	0.6339
100	QPSK	1	137	22.26	22.23	22.23	0.5970	0.5929	0.5929
100	QPSK	1	271	22.21	22.24	22.23	0.5902	0.5943	0.5929
100	QPSK	135	0	22.45	22.40	22.40	0.6237	0.6166	0.6166
100	QPSK	135	69	22.33	22.47	22.28	0.6067	0.6266	0.5998
100	QPSK	135	138	22.41	22.36	22.34	0.6180	0.6109	0.6081
100	QPSK	270	0	22.32	22.33	22.29	0.6053	0.6067	0.6012
100	16QAM	1	1	22.21	22.27	22.25	0.5902	0.5984	0.5957
100	64QAM	1	1	22.21	22.27	22.30	0.5902	0.5984	0.6026
100	256QAM	1	1	20.73	20.79	20.73	0.4198	0.4256	0.4198
Channel				649668	656000	662334	L	M	H
Frequency (MHz)				3745.02	3840	3935.01			
90	QPSK	1	1	22.26	22.28	22.38	0.5970	0.5998	0.6138
90	16QAM	1	1	21.95	21.98	22.06	0.5559	0.5598	0.5702
Channel				649334	656000	662668	L	M	H
Frequency (MHz)				3740.01	3840	3940.02			
80	QPSK	1	1	22.32	22.40	22.17	0.6053	0.6166	0.5848
80	16QAM	1	1	22.01	22.12	21.95	0.5636	0.5781	0.5559
Channel				649000	656000	663000	L	M	H
Frequency (MHz)				3735	3840	3945			
70	QPSK	1	1	22.32	22.22	22.24	0.6053	0.5916	0.5943
70	16QAM	1	1	21.99	21.92	21.95	0.5610	0.5521	0.5559
Channel				648668	656000	663334	L	M	H
Frequency (MHz)				3730.02	3840	3950.01			
60	QPSK	1	1	22.40	22.23	22.39	0.6166	0.5929	0.6152



60	16QAM	1	1	22.08	21.97	22.15	0.5728	0.5585	0.5821
Channel				648334	656000	663668	L	M	H
Frequency (MHz)				3725.01	3840	3955.02			
50	QPSK	1	1	22.37	22.27	22.25	0.6124	0.5984	0.5957
50	16QAM	1	1	22.09	22.07	22.03	0.5741	0.5715	0.5662
Channel				648000	656000	664000	L	M	H
Frequency (MHz)				3720	3840	3960			
40	QPSK	1	1	22.41	22.24	22.39	0.6180	0.5943	0.6152
40	16QAM	1	1	22.12	22.01	22.09	0.5781	0.5636	0.5741
Channel				647668	656000	664334	L	M	H
Frequency (MHz)				3715.02	3840	3965.01			
30	QPSK	1	1	22.21	22.25	22.27	0.5902	0.5957	0.5984
30	16QAM	1	1	21.95	21.97	21.98	0.5559	0.5585	0.5598
Channel				647334	656000	664668	L	M	H
Frequency (MHz)				3710.01	3840	3970.02			
20	QPSK	1	1	22.28	22.30	22.16	0.5998	0.6026	0.5834
20	16QAM	1	1	22.00	22.01	21.95	0.5623	0.5636	0.5559
Channel				647168	656000	664834	L	M	H
Frequency (MHz)				3707.52	3840	3972.51			
15	QPSK	1	1	22.34	22.21	22.28	0.6081	0.5902	0.5998
15	16QAM	1	1	22.05	21.97	21.94	0.5689	0.5585	0.5546
Channel				647000	656000	665000	L	M	H
Frequency (MHz)				3705	3840	3975			
10	QPSK	1	1	22.27	22.44	22.36	0.5984	0.6223	0.6109
10	16QAM	1	1	21.98	22.12	22.09	0.5598	0.5781	0.5741



5G NR n78_Modem C Ant2:

BW [MHz]	Modulation	RB Size	RB Offset	Power Low Ch. / Freq.	Power Middle Ch. / Freq.	Power High Ch. / Freq.	EIRP (W)		
Channel					650000		L	M	H
Frequency (MHz)					3750				
100	PI/2 BPSK	1	1		22.10			0.5754	
100	PI/2 BPSK	1	137		22.02			0.5649	
100	PI/2 BPSK	1	271		22.36			0.6109	
100	PI/2 BPSK	135	0		22.04			0.5675	
100	PI/2 BPSK	135	69		22.06			0.5702	
100	PI/2 BPSK	135	138		22.24			0.5943	
100	PI/2 BPSK	270	0		22.19			0.5875	
100	QPSK	1	1		22.53			0.6353	
100	QPSK	1	137		22.12			0.5781	
100	QPSK	1	271		22.38			0.6138	
100	QPSK	135	0		22.23			0.5929	
100	QPSK	135	69		22.48			0.6281	
100	QPSK	135	138		22.36			0.6109	
100	QPSK	270	0		22.19			0.5875	
100	16QAM	1	1		22.16			0.5834	
100	64QAM	1	1		22.35			0.6095	
100	256QAM	1	1		20.20			0.3715	
Channel				649668	650000	650334	L	M	H
Frequency (MHz)				3745.02	3750	3755.01			
90	QPSK	1	1	22.39	22.36	22.43	0.6152	0.6109	0.6209
90	16QAM	1	1	22.22	22.21	22.28	0.5916	0.5902	0.5998
Channel				649334	650000	650668	L	M	H
Frequency (MHz)				3740.01	3750	3760.02			
80	QPSK	1	1	22.33	22.42	22.29	0.6067	0.6194	0.6012
80	16QAM	1	1	22.28	22.25	22.21	0.5998	0.5957	0.5902
Channel				649000	650000	651000	L	M	H
Frequency (MHz)				3735	3750	3765			
70	QPSK	1	1	22.33	22.36	22.40	0.6067	0.6109	0.6166
70	16QAM	1	1	22.22	22.31	22.33	0.5916	0.6039	0.6067
Channel				648668	650000	651334	L	M	H
Frequency (MHz)				3730.02	3750	3770.01			
60	QPSK	1	1	22.34	22.43	22.35	0.6081	0.6209	0.6095
60	16QAM	1	1	22.28	22.36	22.29	0.5998	0.6109	0.6012
Channel				648334	650000	651668	L	M	H
Frequency (MHz)				3725.01	3750	3775.02			
50	QPSK	1	1	22.28	22.36	22.36	0.5998	0.6109	0.6109
50	16QAM	1	1	22.22	22.31	22.28	0.5916	0.6039	0.5998
Channel				648000	650000	652000	L	M	H
Frequency (MHz)				3720	3750	3780			
40	QPSK	1	1	22.39	22.42	22.39	0.6152	0.6194	0.6152
40	16QAM	1	1	22.32	22.37	22.32	0.6053	0.6124	0.6053
Channel				647668	650000	652334	L	M	H



Frequency (MHz)				3715.02	3750	3785.01			
30	QPSK	1	1	22.34	22.28	22.32	0.6081	0.5998	0.6053
30	16QAM	1	1	22.25	22.21	22.27	0.5957	0.5902	0.5984
Channel				647334	650000	652668	L	M	H
Frequency (MHz)				3710.01	3750	3790.02			
20	QPSK	1	1	22.42	22.33	22.27	0.6194	0.6067	0.5984
20	16QAM	1	1	22.37	22.31	22.22	0.6124	0.6039	0.5916
Channel				647168	650000	652834	L	M	H
Frequency (MHz)				3707.52	3750	3792.51			
15	QPSK	1	1	22.34	22.41	22.35	0.6081	0.6180	0.6095
15	16QAM	1	1	22.26	22.32	22.28	0.5970	0.6053	0.5998
Channel				647000	650000	653000	L	M	H
Frequency (MHz)				3705	3750	3795			
10	QPSK	1	1	22.41	22.41	22.34	0.6180	0.6180	0.6081
10	16QAM	1	1	22.27	22.28	22.29	0.5984	0.5998	0.6012



Appendix B. Test Results of Radiated Test

Radiated Spurious Emission

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

n77 SA / NR 100MHz / QPSK(ANT2)								
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)
Lowest	7407	-63.58	-13	-50.58	-73.79	3.03	13.24	H
	11114	-62.16	-13	-49.16	-71.61	3.56	13.01	H
	14821	-61.72	-13	-48.72	-71.24	3.92	13.44	H
	7407	-63.79	-13	-50.79	-74.00	3.03	13.24	V
	11114	-62.24	-13	-49.24	-71.69	3.56	13.01	V
	14821	-61.85	-13	-48.85	-71.37	3.92	13.44	V
Middle	7594	-62.66	-13	-49.66	-72.87	3.03	13.24	H
	11389	-62.03	-13	-49.03	-71.48	3.56	13.01	H
	15184	-63.66	-13	-50.66	-73.18	3.92	13.44	H
	7594	-62.61	-13	-49.61	-72.82	3.03	13.24	V
	11389	-62.34	-13	-49.34	-71.79	3.56	13.01	V
	15184	-63.72	-13	-50.72	-73.24	3.92	13.44	V
Highest	7770	-63.03	-13	-50.03	-73.24	3.03	13.24	H
	11653	-61.43	-13	-48.43	-70.88	3.56	13.01	H
	15536	-61.83	-13	-48.83	-71.35	3.92	13.44	H
	7770	-62.81	-13	-49.81	-73.02	3.03	13.24	V
	11653	-61.44	-13	-48.44	-70.89	3.56	13.01	V
	15536	-62.28	-13	-49.28	-71.80	3.92	13.44	V

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



n78 SA / NR 100MHz / QPSK(ANT2)								
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	7407	-63.34	-13	-50.34	-73.55	3.03	13.24	H
	11114	-61.48	-13	-48.48	-70.93	3.56	13.01	H
	14821	-60.23	-13	-47.23	-69.75	3.92	13.44	H
	7407	-63.60	-13	-50.60	-73.81	3.03	13.24	V
	11114	-61.89	-13	-48.89	-71.34	3.56	13.01	V
	14821	-60.36	-13	-47.36	-69.88	3.92	13.44	V

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

EN-DC_66A_n77A / LTE 20MHz + NR 100MHz / QPSK(0+2)								
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)
Lowest	7407	-63.42	-13	-50.42	-73.63	3.03	13.24	H
	11114	-60.88	-13	-47.88	-70.33	3.56	13.01	H
	14821	-59.37	-13	-46.37	-68.89	3.92	13.44	H
	7407	-63.52	-13	-50.52	-73.73	3.03	13.24	V
	11114	-61.27	-13	-48.27	-70.72	3.56	13.01	V
	14821	-59.39	-13	-46.39	-68.91	3.92	13.44	V
Middle	7594	-62.38	-13	-49.38	-72.59	3.03	13.24	H
	11389	-60.54	-13	-47.54	-69.99	3.56	13.01	H
	15184	-58.78	-13	-45.78	-68.30	3.92	13.44	H
	7594	-62.18	-13	-49.18	-72.39	3.03	13.24	V
	11389	-61.17	-13	-48.17	-70.62	3.56	13.01	V
	15184	-59.08	-13	-46.08	-68.60	3.92	13.44	V
Highest	7770	-62.40	-13	-49.40	-72.61	3.03	13.24	H
	11653	-60.38	-13	-47.38	-69.83	3.56	13.01	H
	15536	-58.08	-13	-45.08	-67.60	3.92	13.44	H
	7770	-62.82	-13	-49.82	-73.03	3.03	13.24	V
	11653	-60.32	-13	-47.32	-69.77	3.56	13.01	V
	15536	-58.04	-13	-45.04	-67.56	3.92	13.44	V

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