FCC RADIO TEST REPORT

FCC ID	:	**2AJN7-TP00145AU**
Equipment	:	**Notebook Computer**
Brand Name	:	**Lenovo**
Compliance ID	:	**TP00145A; TP00145B**
Applicant	:	**LC Future Center Limited Taiwan Branch** **7F., No.780, Beian Rd., Zhongshan Dist., Taipei 104, Taiwan**
Manufacturer	:	**LCFC (HeFei) Electronics Technology Co., Ltd.** **No. 3188-1, Yungu Road (Hefei Export Processing Zone), Hefei Economics & Technology Development Area, Anhui, CHINA**
Standard	:	**FCC 47 CFR Part 2, 27**

Equipment: Fibocom FM350-GL tested inside of Lenovo Notebook Computer.

The product was received on Nov. 14, 2022 and testing was performed from Dec. 09, 2022 to Jan. 12, 2023. We, Sporton International Inc. Wensan Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA-603-E and has been in compliance with the applicable technical standards.

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

Louis Wu

Approved by: Louis Wu

Sporton International Inc. Wensan Laboratory

Table of Contents

History of this test report

Report No.	Version	Description	Issue Date
FG2N1462I	01	Initial issue of report	Jan. 19, 2023
FG2N1462I	02	Revise Product Feature	Feb. 20, 2023
FG2N1462I	03	Revise cover page and Product Feature	Feb. 21, 2023

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1046	Conducted Output Power	Reporting only	-
	§27.50 (k)(3)	Equivalent Isotropic Radiated Power (n77) (n78)	Pass	
-	§27.50 (k)(4)	Peak-to-Average Ratio	-	See Note
-	§2.1049	Occupied Bandwidth	-	See Note
-	§2.1051 §27.53 (n)(2)	Conducted Band Edge Measurement (n77) (n78)	-	See Note
-	§2.1051 §27.53 (n)(2)	Conducted Spurious Emission (n77) (n78)	-	See Note
-	§2.1055 §27.54	Frequency Stability Temperature & Voltage	-	See Note
4.2	§2.1053 §27.53 (n)(2)	Radiated Spurious Emission (n77) (n78)	Pass	16.51 dB at under the limit 13805.000 MHz
Note: The certified module (model: FM350-GL) which supports normal mode and TX switching mode being integrated into a notebook computer. Spot check on both modes were performed and no degradation occur. Thus additionally reporting the spot check results in this report.				

Declaration of Conformity:
1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers. It's means measurement values may risk exceeding the limit of regulation standards, if measurement uncertainty is include in test results. 2. The measurement uncertainty please refer to report "Uncertainty of Evaluation".
Comments and Explanations:
1. The product specifications of the EUT presented in the report are declared by the manufacturer who shall take full responsibility for the authenticity. 2. The purpose of different model name is for CPU (Intel/AMD).

Reviewed by: Sheng Kuo

Report Producer: Rachel Hsieh

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Notebook Computer
Brand Name	Lenovo
Compliance ID	TP00145A; TP00145B
FCC ID	2AJN7-TP00145AU
Sample 1	EUT with Amphenol Taiwan Corporation Antenna
Sample 2	EUT with Speed Antenna
Integrated WLAN Module	Brand Name: Qualcomm Model Name: QCNFA725 FCC ID: A5M-QCNFA725
Integrated WLAN Module	Brand Name: Intel Model Name: AX211D2W FCC ID: PD9AX211D2
Integrated NFC Module	Brand Name: Foxconn Model Name: T77H747
EUT supports Radios application	WCDMA/HSPA/LTE//5G NR/GNSS/NFC WLAN 11a/b/g/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80/VHT160 WLAN 11ax HE20/HE40/HE80/HE160 Bluetooth BR/EDR/LE
EUT Stage	Production Unit

Remark:

1. The above EUT's information was declared by manufacturer.
2. Equipment: Fibocom FM350-GL tested inside of Lenovo Notebook Computer.

	Normal mode	TX switching mode
	TX/RX	TX/RX
Ant_0 (Main)	WCDMA : 2/4/5 LTE : 2/4/5/7/12/13/14/17/25/26/30/38/66/71 NR : 2/5/7/25/30/38/66/71	WCDMA : 5 LTE : 5/12/13/14/17/26/41/48/71 NR : 5/41/71/77/78
Ant_2 (MIMO2)	LTE : 41/48 NR : 41/77/78	WCDMA : 2/4 LTE : 2/4/7/25/30/38/66 NR : 2/7/25/30/38/66

WWAN Antenna Information				
Main Antenna	**Manufacturer**	Amphenol Taiwan Corporation	**Peak gain (dBi)**	5G NR n77 : 1.7 5G NR n78 : 1.7
	Part number	DC33001YS50	**Type**	PIFA
	Manufacturer	Speed	**Peak gain (dBi)**	5G NR n77 : 1.7 5G NR n78 : 1.7
	Part number	DC33001YT50	**Type**	PIFA
MIMO 2 Antenna	**Manufacturer**	Amphenol Taiwan Corporation	**Peak gain (dBi)**	5G NR n77 : 1.9 5G NR n78 : 0.8
	Part number	DC33001YS40	**Type**	PIFA
	Manufacturer	Speed	**Peak gain (dBi)**	5G NR n77 : 1.9 5G NR n78 : 0.8
	Part number	DC33001YT40	**Type**	PIFA

Remark: The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.

1.2 Product Specification of Equipment Under Test

Product Specification is subject to this standard	
Tx/Rx Frequency	3455.01 MHz ~ 3544.98 MHz
Bandwidth	**SCS 15kHz:** 10MHz/15MHz/20MHz **SCS 30kHz:** 10MHz/15MHz/20MHz/40MHz/50MHz/60MHz/80MHz/100MHz
Maximum Output Power to Antenna	**Main Antenna:** 5G NR n77: 25.62 dBm for HPUE 5G NR n78: 26.32 dBm for HPUE **MIMO 2 Antenna:** 5G NR n77: 25.39 dBm for HPUE 5G NR n78: 26.22 dBm for HPUE
Type of Modulation	CP-OFDM: QPSK/16QAM/64QAM/256QAM DFT-s-OFDM: PI/2 BPSK/QPSK/16QAM/64QAM/256QAM

1.3 Modification of EUT

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

1.4 Testing Location

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333
Test Site No.	**Sporton Site No.**
	TH03-HY (TAF Code: 1190)
Test Engineer	Mike Yeh
Temperature (℃)	22.2~23
Relative Humidity (%)	51~56
Remark	The Conducted test item subcontracted to Sporton International Inc. EMC & Wireless Communications Laboratory

Test Site	Sporton International Inc. Wensan Laboratory
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City 333010
Test Site No.	**Sporton Site No.**
	03CH12-HY
Test Engineer	Jesse Fan, Tim Lee and Wilson Wu
Temperature (℃)	20~25
Relative Humidity (%)	50~60

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC Designation No.: TW1190 and TW3786

1.5 Applicable Standards

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

- ANSI C63.26-2015
- ANSI / TIA-603-E
- FCC 47 CFR Part 2, 27
- FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- FCC KDB 412172 D01 Determining ERP and EIRP v01r01
- FCC KDB 414788 D01 Radiated Test Site v01r01.

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. The TAF code is not including all the FCC KDB listed without accreditation.

2 Test Configuration of Equipment Under Test

2.1 Test Mode

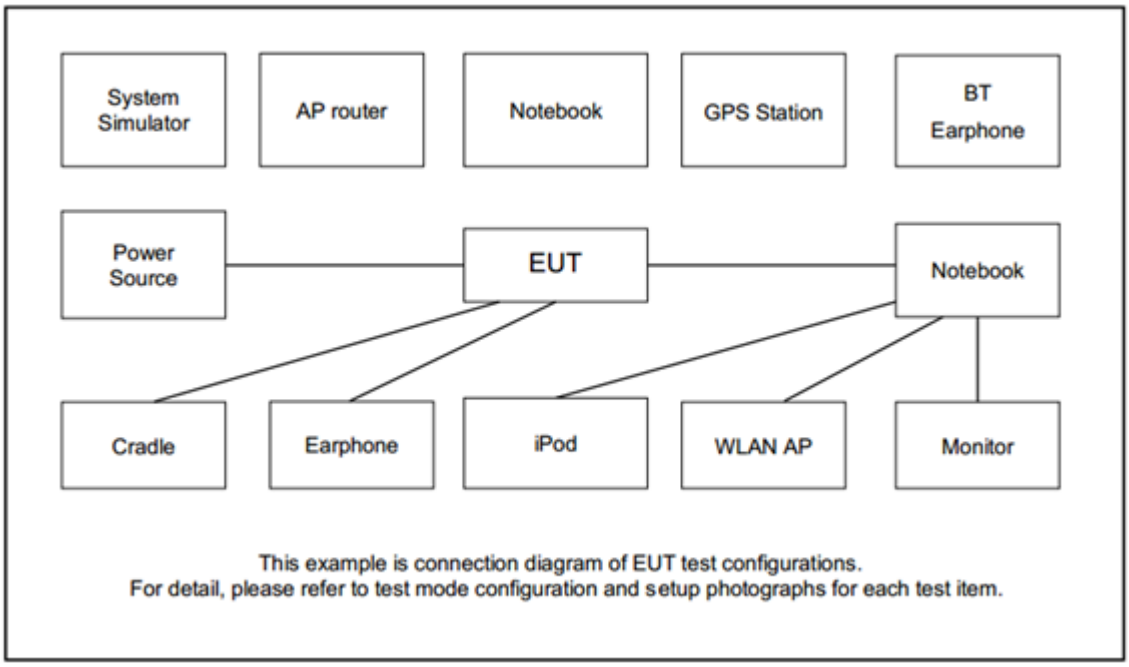
Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.

Test Items	NR Band	Bandwidth (MHz)												Modulation					RB #			Test Channel		
		5	10	15	20	25	30	40	50	60	80	90	100	PI/2 BPSK	QPSK	16QAM	64QAM	256QAM	1	Half	Full	L	M	H
Max. Output Power	n77	-	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
E.I.R.P	n77	-	v	v	v	-	-	v	v	v	v	-	v	v	v	v			Max. Power					
	n78	-	v	v	v	-	-	v	v	v	v	-	v	v	v	v								
Radiated Spurious Emission	n77	-				-	-					-	v	v					v				v	
	n78	-				-	-		v			-	v	v					v			v	v	v

Remark

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. For modulation of 64QAM/256QAM, the maximum power of 64QAM/256QAM is lower than other modulation (PI/2 BPSK /QPSK/16QAM), therefore, for Normal Mode, according to engineering evaluation, we choose higher power (PI/2 BPSK /QPSK/16QAM) to perform all tests and show in the report.
5. For radiated measurement, pre-scanned in two modes, DFT-s OFDM and CP OFDM. The worst cases (DFT-s OFDM) were recorded in this report, and the worst modes of FR1 and LTE for simultaneous transmission were verified and compliant.
6. Test combination are EN-DC 2A_n77A and EN-DC 2A_n78A.
7. All the radiated test cases were performed with Battery 1 and Sample 2.

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8821C	N/A	N/A	Unshielded, 1.8 m
2.	System Simulator	Anritsu	MT8000A	N/A	N/A	Unshielded, 1.8 m
3.	iPod Earphone	Apple	N/A	Verification	Unshielded, 1.0 m	N/A

2.4 Frequency List of Low/Middle/High Channels

5G NR n77/n78 Channel and Frequency List for SCS 15kHz				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
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	636332
	Frequency	3455.01	3500.01	3544.98

5G NR n77/n78 Channel and Frequency List for SCS 30kHz				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
100	Channel	-	633334	-
	Frequency	-	3500.01	-
80	Channel	632668	633334	634000
	Frequency	3490.02	3500.01	3510
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
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

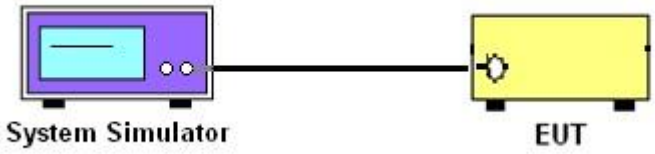
3 Conducted Test Items

3.1 Measuring Instruments

See list of measuring instruments of this test report.

3.1.1 Test Setup

3.1.2 Conducted Output Power



3.1.3 Test Result of Conducted Test

Please refer to Appendix A.

3.2 Conducted Output Power and EIRP

3.2.1 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 and 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

3.2.2 Test Procedures

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

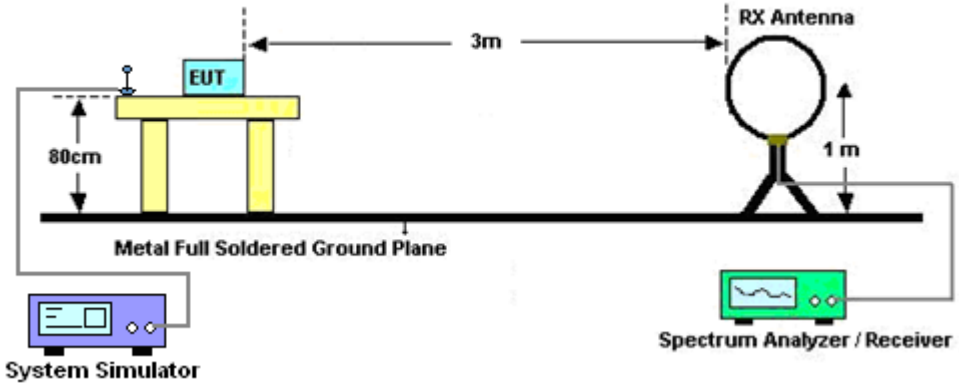
4 Radiated Test Items

4.1 Measuring Instruments

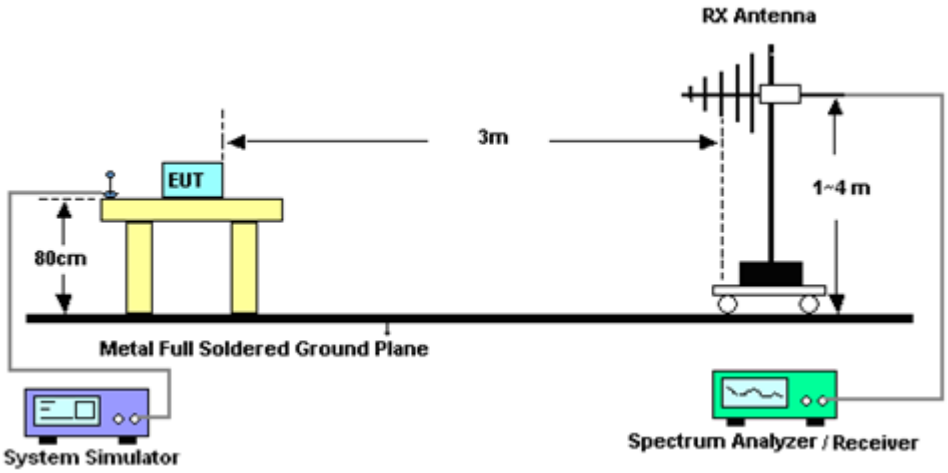
See list of measuring instruments of this test report.

4.1.1 Test Setup

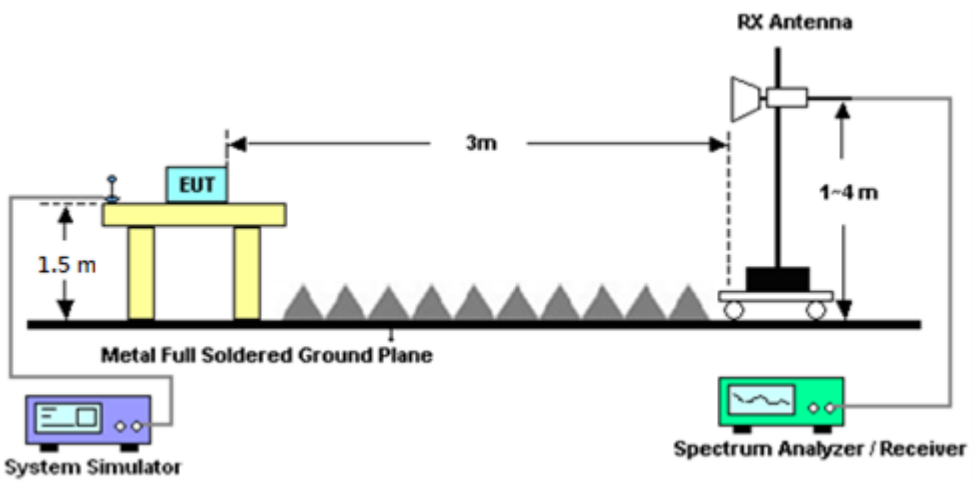
For radiated test below 30MHz



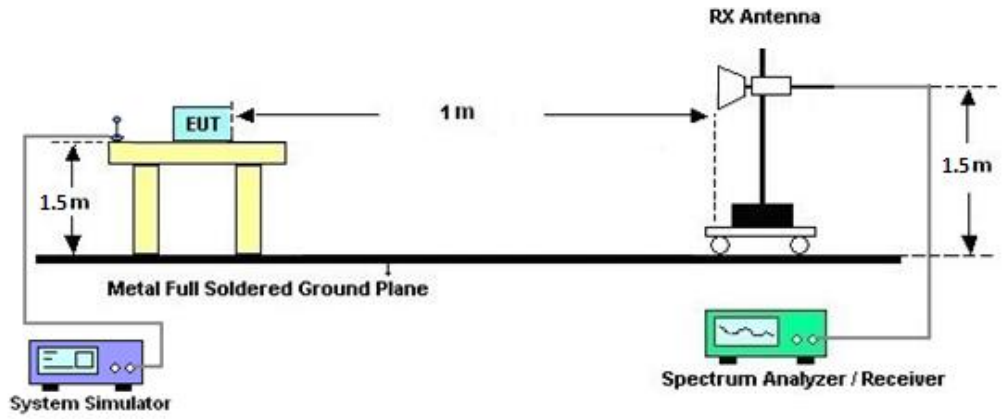
For radiated test from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



4.1.2 Test Result of Radiated Test

Please refer to Appendix B.

Note:

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.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

4.2 Radiated Spurious Emission Measurement

4.2.1 Description of Radiated Spurious Emission Measurement

The radiated spurious emission was measured by substitution method according to ANSI / TIA-603-E. 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.

4.2.2 Test Procedures

The testing follows FCC KDB 971168 D01 v03r01 Section 7 and ANSI / TIA-603-E Section 2.2.12.

1. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
2. The EUT was set 3 meters from the receiving antenna, which was 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 one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

5 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Base Station (Measure)	Anritsu	MT8000A	6262134933	FR1	Jun. 13, 2022	Dec. 09, 2022 ~ Dec. 20, 2022	Jun. 12, 2023	Conducted (TH03-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	May 13, 2022	Dec. 23, 2022~ Jan. 12, 2023	May 12, 2023	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-02114	1GHz~18GHz	Aug. 09, 2022	Dec. 23, 2022~ Jan. 12, 2023	Aug. 08, 2023	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01 N-06	40103 & 07	30MHz~1GHz	Apr. 24, 2022	Dec. 23, 2022~ Jan. 12, 2023	Apr. 23, 2023	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CBL 6111D & N-6-06	35414 & AT-N0602	30MHz~1GHz	Oct. 08, 2022	Dec. 23, 2022~ Jan. 12, 2023	Oct. 07, 2023	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1212	1GHz~18GHz	Mar 10, 2022	Dec. 23, 2022~ Jan. 12, 2023	Mar 09, 2023	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	00993	18GHz~40GHz	Nov. 24, 2022	Dec. 23, 2022~ Jan. 12, 2023	Nov. 23, 2023	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170576	18GHz~40GHz	May 14, 2022	Dec. 23, 2022~ Jan. 12, 2023	May 13, 2023	Radiation (03CH12-HY)
Preamplifier	COM-POWER	PA-103	161075	10MHz~1GHz	Mar. 23, 2022	Dec. 23, 2022~ Jan. 12, 2023	Mar. 22, 2023	Radiation (03CH12-HY)
Preamplifier	Aglient	8449B	3008A02375	1GHz~26.5GHz	May 24, 2022	Dec. 23, 2022~ Jan. 12, 2023	May 23, 2023	Radiation (03CH12-HY)
Preamplifier	E-INSTRUMENT TECH LTD.	ERA-100M-18G-56-01-A70	EC1900249	1GHz-18GHz	Dec. 21, 2022	Dec. 23, 2022~ Jan. 12, 2023	Dec. 20, 2023	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec. 07, 2022	Dec. 23, 2022~ Jan. 12, 2023	Dec. 06, 2023	Radiation (03CH12-HY)
Spectrum Analyzer	Keysight	N9010A	MY53470118	10Hz~44GHz	Jan. 12, 2022	Dec. 23, 2022~ Jan. 04, 2023	Jan. 11, 2023	Radiation (03CH12-HY)
Signal Analyzer	Keysight	N9010B	MY60241055	N/A	Jul. 22, 2022	Jan. 05, 2023~ Jan. 12, 2023	Jul. 21, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30MHz~18GHz	Dec. 20, 2022	Dec. 23, 2022~ Jan. 12, 2023	Dec. 19, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Dec. 20, 2022	Dec. 23, 2022~ Jan. 12, 2023	Dec. 19, 2023	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	803953/2	30MHz~40GHz	Dec. 20, 2022	Dec. 23, 2022~ Jan. 12, 2023	Dec. 19, 2023	Radiation (03CH12-HY)
Filter	Wainwright	WHKX8-5872.5-6750-18000-40ST	SN2	6.75GHz High Pass Filter	Mar. 15, 2022	Dec. 23, 2022~ Jan. 12, 2023	Mar. 14, 2023	Radiation (03CH12-HY)
Hygrometer	TECPEL	DTM-303B	TP140325	N/A	Oct. 03, 2022	Dec. 23, 2022~ Jan. 12, 2023	Oct. 02, 2023	Radiation (03CH12-HY)
Controller	EMEC	EM1000	N/A	Control Turn table & Ant Mast	N/A	Dec. 23, 2022~ Jan. 12, 2023	N/A	Radiation (03CH12-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Dec. 23, 2022~ Jan. 12, 2023	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Dec. 23, 2022~ Jan. 12, 2023	N/A	Radiation (03CH12-HY)
Software	Audix	E3 6.2009-8-24	RK-000989	N/A	N/A	Dec. 23, 2022~ Jan. 12, 2023	N/A	Radiation (03CH12-HY)

6 Uncertainty of Evaluation

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.31 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.25 dB**

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**3.81 dB**

Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power) and EIRP

<Main Antenna>

<SCS 15kHz>

NR n77 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.7 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
10	1	1	PI/2 BPSK	24.97	25.03	25.16	27.16	0.5200
10	1	50		25.00	25.07	25.28		
10	25	12		25.05	25.15	25.28		
10	1	1	QPSK	25.05	25.13	25.31		
10	1	50		25.13	25.24	25.46		
10	25	12		24.99	25.09	25.28		
10	1	1	16-QAM	23.97	24.01	24.14	25.84	0.3837
Limit	EIRP < 1W			Result			Pass	

NR n77 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.7 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
15	1	1	PI/2 BPSK	25.08	25.14	25.24	27.27	0.5333
15	1	77		25.21	25.25	25.39		
15	36	18		25.25	25.24	25.41		
15	1	1	QPSK	25.21	25.30	25.44		
15	1	77		25.31	25.39	25.57		
15	36	18		25.19	25.32	25.45		
15	1	1	16-QAM	23.97	24.09	24.25	25.95	0.3936
Limit	EIRP < 1W			Result			Pass	

NR n77 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.7 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
20	1	1	PI/2 BPSK	25.16	25.11	25.20	27.17	0.5212
20	1	104		25.15	25.14	25.31		
20	50	25		25.27	25.27	25.41		
20	1	1	QPSK	25.23	25.18	25.31		
20	1	104		25.31	25.30	25.47		
20	50	25		25.28	25.31	25.45		
20	1	1	16-QAM	23.97	24.02	24.14	25.84	0.3837
Limit	EIRP < 1W			Result			Pass	

NR n78 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.7 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
10	1	1	PI/2 BPSK	25.89	25.84	25.87	27.85	0.6095
10	1	50		25.91	25.96	25.97		
10	25	12		25.93	25.91	26.04		
10	1	1	QPSK	26.07	26.01	26.02		
10	1	50		26.09	26.15	26.12		
10	25	12		25.99	25.93	25.96		
10	1	1	16-QAM	24.97	24.82	24.93	26.67	0.4645
Limit	EIRP < 1W			Result			Pass	

NR n78 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.7 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
15	1	1	PI/2 BPSK	26.05	25.98	26.02	28.02	0.6339
15	1	77		25.99	26.07	26.11		
15	36	18		26.11	26.10	26.15		
15	1	1	QPSK	26.21	26.17	26.15		
15	1	77		26.25	26.32	26.21		
15	36	18		26.12	26.14	26.12		
15	1	1	16-QAM	24.97	25.03	24.91	26.73	0.4710
Limit	EIRP < 1W			Result			Pass	

NR n78 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.7 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
20	1	1	PI/2 BPSK	26.05	25.91	25.94	27.94	0.6223
20	1	104		26.01	26.04	26.01		
20	50	25		26.21	26.10	26.07		
20	1	1	QPSK	26.23	26.10	26.12		
20	1	104		26.18	26.24	26.14		
20	50	25		26.15	26.17	26.14		
20	1	1	16-QAM	24.95	25.00	24.98	26.70	0.4677
Limit	EIRP < 1W			Result			Pass	

<SCS 30kHz>

NR n77 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.7 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
10	1	1	PI/2 BPSK	25.02	25.30	25.44	27.32	0.5395
10	1	22		25.01	25.23	25.47		
10	12	6		25.13	25.31	25.62		
10	1	1	QPSK	25.00	25.26	25.45		
10	1	22		24.98	25.20	25.42		
10	12	6		25.11	25.33	25.61		
10	1	1	16-QAM	24.06	24.29	24.43	26.13	0.4102
Limit	EIRP < 1W			Result			Pass	

NR n77 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.7 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
15	1	1	PI/2 BPSK	25.07	25.29	25.43	27.25	0.5309
15	1	36		25.05	25.17	25.45		
15	18	9		25.14	25.36	25.55		
15	1	1	QPSK	25.03	25.22	25.36		
15	1	36		25.06	25.16	25.41		
15	18	9		25.17	25.37	25.55		
15	1	1	16-QAM	24.04	24.31	24.44	26.14	0.4111
Limit	EIRP < 1W			Result			Pass	

NR n77 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.7 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
20	1	1	PI/2 BPSK	25.02	25.23	25.24	27.22	0.5272
20	1	49		25.06	25.10	25.25		
20	25	12		25.22	25.36	25.48		
20	1	1	QPSK	25.04	25.18	25.19		
20	1	49		25.11	25.07	25.30		
20	25	12		25.20	25.38	25.52		
20	1	1	16-QAM	24.01	24.32	24.28	26.02	0.3999
Limit	EIRP < 1W			Result			Pass	

NR n77 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.7 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
40	1	1	PI/2 BPSK	24.68	24.94	24.77	27.12	0.5152
40	1	104		24.99	24.90	25.14		
40	50	25		25.24	25.38	25.42		
40	1	1	QPSK	24.69	25.32	24.74		
40	1	104		24.97	24.84	25.09		
40	50	25		25.24	25.37	25.37		
40	1	1	16-QAM	23.79	23.86	23.84	25.56	0.3597
Limit	EIRP < 1W			Result			Pass	

NR n77 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.7 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
50	1	1	PI/2 BPSK	24.93	25.09	25.03	27.10	0.5129
50	1	131		25.19	25.15	25.40		
50	64	32		25.25	25.39	25.25		
50	1	1	QPSK	24.90	25.05	24.93		
50	1	131		25.22	25.13	25.33		
50	64	32		25.28	25.37	25.24		
50	1	1	16-QAM	23.95	24.10	23.98	25.80	0.3802
Limit	EIRP < 1W			Result			Pass	

NR n77 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.7 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
60	1	1	PI/2 BPSK	25.01	25.00	25.12	27.15	0.5188
60	1	160		25.14	25.17	25.45		
60	81	40		25.32	25.32	25.30		
60	1	1	QPSK	24.92	24.99	25.11		
60	1	160		25.12	25.23	25.42		
60	81	40		25.33	25.30	25.29		
60	1	1	16-QAM	24.07	24.03	24.20	25.90	0.3890
Limit	EIRP < 1W			Result			Pass	

NR n77 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.7 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
80	1	1	PI/2 BPSK	24.61	24.65	24.67	27.04	0.5058
80	1	215		24.88	25.02	25.04		
80	108	54		25.27	25.28	25.29		
80	1	1	QPSK	24.60	24.63	24.66		
80	1	215		24.89	24.97	25.00		
80	108	54		25.30	25.34	25.30		
80	1	1	16-QAM	23.60	23.72	23.79	25.49	0.3540
Limit	EIRP < 1W			Result			Pass	

NR n77 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.7 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
100	1	1	PI/2 BPSK	-	24.38	-	26.95	0.4955
100	1	271		-	24.80	-		
100	135	67		-	25.23	-		
100	1	1	QPSK	-	24.36	-		
100	1	271		-	24.75	-		
100	135	67		-	25.25	-		
100	1	1	16-QAM	-	23.49	-	25.19	0.3304
Limit	EIRP < 1W			Result			Pass	

NR n78 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.7 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
10	1	1	PI/2 BPSK	26.01	26.04	26.04	27.91	0.6180
10	1	22		26.02	26.02	26.08		
10	12	6		26.15	26.14	26.14		
10	1	1	QPSK	26.15	26.21	26.15		
10	1	22		26.11	26.21	26.15		
10	12	6		26.15	26.17	26.18		
10	1	1	16-QAM	25.08	24.91	25.09	26.79	0.4775
Limit	EIRP < 1W			Result			Pass	

NR n78 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.7 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
15	1	1	PI/2 BPSK	26.10	25.96	26.04	27.91	0.6180
15	1	36		26.00	26.01	26.03		
15	18	9		26.20	26.13	26.17		
15	1	1	QPSK	26.09	26.03	26.05		
15	1	36		25.99	26.07	26.05		
15	18	9		26.21	26.17	26.17		
15	1	1	16-QAM	25.13	24.96	25.07	26.83	0.4819
Limit	EIRP < 1W			Result			Pass	

NR n78 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.7 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
20	1	1	PI/2 BPSK	26.08	25.93	25.94	27.94	0.6223
20	1	49		25.91	26.03	25.92		
20	25	12		26.21	26.15	26.11		
20	1	1	QPSK	26.05	26.10	26.01		
20	1	49		25.94	26.18	25.96		
20	25	12		26.24	26.21	26.12		
20	1	1	16-QAM	25.07	24.72	24.97	26.77	0.4753
Limit	EIRP < 1W			Result			Pass	

NR n78 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.7 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
40	1	1	PI/2 BPSK	25.69	25.46	25.64	27.85	0.6095
40	1	104		25.59	25.67	25.64		
40	50	25		26.08	26.10	26.12		
40	1	1	QPSK	25.69	25.63	25.64		
40	1	104		25.61	25.83	25.62		
40	50	25		26.15	26.07	26.14		
40	1	1	16-QAM	24.62	24.42	24.72	26.42	0.4385
Limit	EIRP < 1W			Result			Pass	

NR n78 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.7 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
50	1	1	PI/2 BPSK	25.90	25.85	25.77	27.83	0.6067
50	1	131		25.76	25.75	25.74		
50	64	32		25.99	25.99	26.12		
50	1	1	QPSK	25.88	25.89	25.92		
50	1	131		25.81	25.78	25.92		
50	64	32		26.07	26.04	26.13		
50	1	1	16-QAM	24.89	24.92	24.82	26.62	0.4592
Limit	EIRP < 1W			Result			Pass	

NR n78 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.7 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
60	1	1	PI/2 BPSK	25.87	25.82	25.76	27.90	0.6166
60	1	160		25.93	25.80	25.87		
60	81	40		26.04	26.01	26.12		
60	1	1	QPSK	26.00	25.88	25.79		
60	1	160		26.11	25.87	25.88		
60	81	40		26.07	26.03	26.20		
60	1	1	16-QAM	24.77	24.87	24.79	26.57	0.4539
Limit	EIRP < 1W			Result			Pass	

NR n78 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.7 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
80	1	1	PI/2 BPSK	25.51	25.41	25.38	27.77	0.5984
80	1	215		25.50	25.47	25.51		
80	108	54		25.98	25.98	26.07		
80	1	1	QPSK	25.59	25.58	25.52		
80	1	215		25.58	25.64	25.74		
80	108	54		25.98	26.00	26.04		
80	1	1	16-QAM	24.57	24.51	24.43	26.27	0.4236
Limit	EIRP < 1W			Result			Pass	

NR n78 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.7 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
100	1	1	PI/2 BPSK	-	25.26	-	27.66	0.5834
100	1	271		-	25.27	-		
100	135	67		-	25.96	-		
100	1	1	QPSK	-	25.45	-		
100	1	271		-	25.46	-		
100	135	67		-	25.95	-		
100	1	1	16-QAM	-	24.24	-	25.94	0.3926
Limit	EIRP < 1W			Result			Pass	

<MIMO 2 Antenna>
<SCS 15kHz>

NR n77 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.9 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
10	1	1	PI/2 BPSK	24.75	25.05	25.19	27.12	0.5152
10	1	50		24.77	25.00	25.14		
10	25	12		24.68	25.01	25.16		
10	1	1	QPSK	24.70	25.00	25.22		
10	1	50		24.74	25.02	25.14		
10	25	12		24.73	25.03	25.15		
10	1	1	16-QAM	23.86	24.03	24.21	26.11	0.4083
Limit	EIRP < 1W			Result			Pass	

NR n77 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.9 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
15	1	1	PI/2 BPSK	25.09	25.19	25.28	27.28	0.5346
15	1	77		25.15	25.18	25.20		
15	36	18		25.11	25.35	25.36		
15	1	1	QPSK	25.05	25.25	25.30		
15	1	77		25.28	25.20	25.28		
15	36	18		25.20	25.38	25.37		
15	1	1	16-QAM	24.15	24.30	24.30	26.22	0.4188
Limit	EIRP < 1W			Result			Pass	

NR n77 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.9 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
20	1	1	PI/2 BPSK	25.10	25.16	25.16	27.26	0.5321
20	1	104		25.24	25.10	25.14		
20	50	25		25.22	25.20	25.33		
20	1	1	QPSK	25.04	25.16	25.20		
20	1	104		25.22	25.18	25.19		
20	50	25		25.24	25.21	25.36		
20	1	1	16-QAM	24.13	24.24	24.21	26.14	0.4111
Limit	EIRP < 1W			Result			Pass	

NR n78 (HPUE) Maximum Average Power [dBm] (GT - LC = 0.8 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
10	1	1	PI/2 BPSK	25.93	25.93	25.87	26.86	0.4853
10	1	50		26.05	25.99	25.85		
10	25	12		25.96	25.93	25.86		
10	1	1	QPSK	26.01	25.83	25.96		
10	1	50		26.06	25.89	25.95		
10	25	12		25.99	25.91	25.94		
10	1	1	16-QAM	24.97	24.93	24.95	25.77	0.3776
Limit	EIRP < 1W			Result			Pass	

NR n78 (HPUE) Maximum Average Power [dBm] (GT - LC = 0.8 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
15	1	1	PI/2 BPSK	26.05	26.01	26.04	27.02	0.5035
15	1	77		26.18	26.06	25.87		
15	36	18		26.22	26.07	26.11		
15	1	1	QPSK	26.19	26.01	26.09		
15	1	77		26.16	26.05	25.97		
15	36	18		26.21	26.13	26.04		
15	1	1	16-QAM	25.14	25.01	25.04	25.94	0.3926
Limit	EIRP < 1W			Result			Pass	

NR n78 (HPUE) Maximum Average Power [dBm] (GT - LC = 0.8 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
20	1	1	PI/2 BPSK	26.02	25.98	25.94	27.01	0.5023
20	1	104		26.04	26.06	25.79		
20	50	25		26.21	26.04	26.04		
20	1	1	QPSK	26.14	25.87	25.95		
20	1	104		26.19	26.05	25.83		
20	50	25		26.21	26.01	26.08		
20	1	1	16-QAM	25.16	25.06	25.02	25.96	0.3945
Limit	EIRP < 1W			Result			Pass	

<SCS 30kHz>

NR n77 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.9 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
10	1	1	PI/2 BPSK	25.07	25.14	25.35	27.26	0.5321
10	1	22		25.06	25.07	25.21		
10	12	6		25.17	25.20	25.35		
10	1	1	QPSK	25.04	25.12	25.27		
10	1	22		25.07	25.06	25.18		
10	12	6		25.26	25.15	25.36		
10	1	1	16-QAM	24.08	24.12	24.35	26.25	0.4217
Limit	EIRP < 1W			Result			Pass	

NR n77 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.9 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
15	1	1	PI/2 BPSK	25.06	25.19	25.30	27.26	0.5321
15	1	36		25.19	25.07	25.17		
15	18	9		25.21	25.19	25.36		
15	1	1	QPSK	25.04	25.15	25.27		
15	1	36		25.14	25.06	25.16		
15	18	9		25.26	25.24	25.35		
15	1	1	16-QAM	24.11	24.23	24.23	26.13	0.4102
Limit	EIRP < 1W			Result			Pass	

NR n77 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.9 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
20	1	1	PI/2 BPSK	25.05	25.12	25.21	27.26	0.5321
20	1	49		25.19	25.03	25.04		
20	25	12		25.31	25.24	25.34		
20	1	1	QPSK	25.03	25.07	25.12		
20	1	49		25.17	24.96	25.02		
20	25	12		25.31	25.21	25.36		
20	1	1	16-QAM	24.13	24.12	24.15	26.05	0.4027
Limit	EIRP < 1W			Result			Pass	

NR n77 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.9 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
40	1	1	PI/2 BPSK	24.75	24.92	24.76	27.24	0.5297
40	1	104		24.87	24.88	24.90		
40	50	25		25.33	25.19	25.34		
40	1	1	QPSK	24.69	24.83	24.68		
40	1	104		24.85	24.80	24.88		
40	50	25		25.30	25.17	25.32		
40	1	1	16-QAM	23.85	23.95	23.75	25.85	0.3846
Limit	EIRP < 1W			Result			Pass	

NR n77 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.9 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
50	1	1	PI/2 BPSK	24.98	25.15	24.93	27.24	0.5297
50	1	131		25.01	25.16	25.14		
50	64	32		25.32	25.24	25.26		
50	1	1	QPSK	24.91	25.14	24.89		
50	1	131		24.96	25.06	25.12		
50	64	32		25.34	25.31	25.24		
50	1	1	16-QAM	23.97	24.19	23.94	26.09	0.4064
Limit	EIRP < 1W			Result			Pass	

NR n77 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.9 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
60	1	1	PI/2 BPSK	25.13	25.16	25.04	27.29	0.5358
60	1	160		25.10	25.24	25.18		
60	81	40		25.37	25.24	25.32		
60	1	1	QPSK	25.01	25.09	24.93		
60	1	160		25.06	25.19	25.16		
60	81	40		25.39	25.25	25.25		
60	1	1	16-QAM	24.10	24.10	24.06	26.00	0.3981
Limit	EIRP < 1W			Result			Pass	

NR n77 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.9 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
80	1	1	PI/2 BPSK	24.65	24.76	24.82	27.12	0.5152
80	1	215		24.78	24.83	24.73		
80	108	54		25.18	25.17	25.18		
80	1	1	QPSK	24.62	24.69	24.76		
80	1	215		24.78	24.81	24.68		
80	108	54		25.22	25.21	25.15		
80	1	1	16-QAM	23.64	23.72	23.73	25.63	0.3656
Limit	EIRP < 1W			Result			Pass	

NR n77 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.9 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
100	1	1	PI/2 BPSK	-	24.35	-	27.03	0.5047
100	1	271		-	24.49	-		
100	135	67		-	25.13	-		
100	1	1	QPSK	-	24.32	-		
100	1	271		-	24.42	-		
100	135	67		-	25.11	-		
100	1	1	16-QAM	-	23.35	-	25.25	0.3350
Limit	EIRP < 1W			Result			Pass	

NR n78 (HPUE) Maximum Average Power [dBm] (GT - LC = 0.8 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
10	1	1	PI/2 BPSK	25.95	25.89	25.85	27.91	0.6180
10	1	22		25.93	25.85	25.73		
10	12	6		26.01	25.96	25.94		
10	1	1	QPSK	25.96	25.94	25.95		
10	1	22		25.91	25.87	25.78		
10	12	6		26.01	26.00	25.95		
10	1	1	16-QAM	24.76	24.82	24.82	25.62	0.3648
Limit	EIRP < 1W			Result			Pass	

NR n78 (HPUE) Maximum Average Power [dBm] (GT - LC = 0.8 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
15	1	1	PI/2 BPSK	25.98	25.95	25.92	26.89	0.4887
15	1	36		25.98	25.85	25.72		
15	18	9		26.03	25.98	25.92		
15	1	1	QPSK	26.03	25.92	25.85		
15	1	36		26.01	25.83	25.63		
15	18	9		26.09	25.98	25.91		
15	1	1	16-QAM	24.92	24.72	24.76	25.72	0.3733
Limit	EIRP < 1W			Result			Pass	

NR n78 (HPUE) Maximum Average Power [dBm] (GT - LC = 0.8 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
20	1	1	PI/2 BPSK	25.98	25.82	25.84	26.94	0.4943
20	1	49		25.93	25.77	25.58		
20	25	12		26.11	26.02	25.91		
20	1	1	QPSK	25.97	25.83	25.89		
20	1	49		25.96	25.78	25.72		
20	25	12		26.14	26.04	25.86		
20	1	1	16-QAM	24.85	24.72	24.68	25.65	0.3673
Limit	EIRP < 1W			Result			Pass	

NR n78 (HPUE) Maximum Average Power [dBm] (GT - LC = 0.8 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
40	1	1	PI/2 BPSK	25.58	25.54	25.49	26.90	0.4898
40	1	104		25.54	25.55	25.32		
40	50	25		26.06	25.87	25.96		
40	1	1	QPSK	25.65	25.58	25.45		
40	1	104		25.62	25.68	25.32		
40	50	25		26.10	25.92	25.98		
40	1	1	16-QAM	24.46	24.36	24.32	25.26	0.3357
Limit	EIRP < 1W			Result			Pass	

NR n78 (HPUE) Maximum Average Power [dBm] (GT - LC = 0.8 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
50	1	1	PI/2 BPSK	25.76	25.76	25.56	26.85	0.4842
50	1	131		25.72	25.83	25.49		
50	64	32		25.97	26.05	25.90		
50	1	1	QPSK	25.89	25.96	25.68		
50	1	131		25.95	25.92	25.57		
50	64	32		26.01	25.98	25.96		
50	1	1	16-QAM	24.68	24.79	24.76	25.59	0.3622
Limit	EIRP < 1W			Result			Pass	

NR n78 (HPUE) Maximum Average Power [dBm] (GT - LC = 0.8 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
60	1	1	PI/2 BPSK	25.84	25.78	25.75	26.92	0.4920
60	1	160		25.78	25.79	25.62		
60	81	40		26.11	26.01	26.06		
60	1	1	QPSK	25.86	25.94	25.83		
60	1	160		25.84	25.95	25.74		
60	81	40		26.12	26.02	26.04		
60	1	1	16-QAM	24.76	24.78	24.57	25.58	0.3614
Limit	EIRP < 1W			Result			Pass	

NR n78 (HPUE) Maximum Average Power [dBm] (GT - LC = 0.8 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
80	1	1	PI/2 BPSK	25.48	25.44	25.42	26.75	0.4732
80	1	215		25.46	25.38	25.18		
80	108	54		25.94	25.86	25.91		
80	1	1	QPSK	25.42	25.62	25.45		
80	1	215		25.49	25.45	25.32		
80	108	54		25.95	25.91	25.89		
80	1	1	16-QAM	24.35	24.42	24.23	25.22	0.3327
Limit	EIRP < 1W			Result			Pass	

NR n78 (HPUE) Maximum Average Power [dBm] (GT - LC = 1.9 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	EIRP (dBm)	EIRP(W)
100	1	1	PI/2 BPSK	-	25.24	-	26.69	0.4666
100	1	271		-	24.98	-		
100	135	67		-	25.89	-		
100	1	1	QPSK	-	25.32	-		
100	1	271		-	25.05	-		
100	135	67		-	25.86	-		
100	1	1	16-QAM	-	24.19	-	24.99	0.3155
Limit	EIRP < 1W			Result			Pass	

Appendix B. Test Results of Radiated Test

5G NR n77 (HPUE) (Ant. Main)

5G NR n77(HPUE) / 100MHz / PI/2 BPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	6903	-35.06	-13	-22.06	-63.47	-43.25	1.84	12.19	H
	10354	-36.97	-13	-23.97	-71.77	-43.45	2.26	10.89	H
	13805	-30.23	-13	-17.23	-73.13	-38.00	2.63	12.56	H
	20708	-63.39	-13	-50.39	-76.09	-75.93	3.22	17.92	H
	24159	-60.09	-13	-47.09	-76.88	-72.65	3.78	18.50	H
	27610	-57.47	-13	-44.47	-77.16	-70.92	3.95	19.54	H
									H
	6903	-35.01	-13	-22.01	-63.92	-43.20	1.84	12.19	V
	10354	-37.61	-13	-24.61	-71.62	-44.09	2.26	10.89	V
	13805	-31.27	-13	-18.27	-73.14	-39.04	2.63	12.56	V
	20708	-63.43	-13	-50.43	-75.89	-75.97	3.22	17.92	V
	24159	-60.11	-13	-47.11	-76.54	-72.67	3.78	18.50	V
	27610	-58.30	-13	-45.30	-77.67	-71.75	3.95	19.54	V
									V

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

5G NR n78 (HPUE) (Ant. Main)

5G NR n78(HPUE) / 100MHz / PI/2 BPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	6903	-34.81	-13	-21.81	-63.22	-43.00	1.84	12.19	H
	10354	-37.15	-13	-24.15	-72.44	-43.63	2.26	10.89	H
	13805	-29.88	-13	-16.88	-72.78	-37.65	2.63	12.56	H
	20708	-63.41	-13	-50.41	-76.11	-75.95	3.22	17.92	H
	24159	-59.85	-13	-46.85	-76.64	-72.41	3.78	18.50	H
	27610	-57.97	-13	-44.97	-77.66	-71.42	3.95	19.54	H
									H
	6903	-33.05	-13	-20.05	-61.96	-41.24	1.84	12.19	V
	10354	-37.07	-13	-24.07	-71.94	-43.55	2.26	10.89	V
	13805	-31.00	-13	-18.00	-72.87	-38.77	2.63	12.56	V
	20708	-62.95	-13	-49.95	-75.41	-75.49	3.22	17.92	V
	24159	-60.33	-13	-47.33	-76.76	-72.89	3.78	18.50	V
	27610	-56.89	-13	-43.89	-76.26	-70.34	3.95	19.54	V
									V

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

5G NR n77 (HPUE) (Ant. MIMO 1 SRS)

5G NR n77(HPUE) / 100MHz / PI/2 BPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	6903	-43.70	-13	-30.70	-72.11	-51.89	1.84	12.19	H
	10354	-36.67	-13	-23.67	-71.47	-43.15	2.26	10.89	H
	13805	-29.72	-13	-16.72	-72.62	-37.49	2.63	12.56	H
	20708	-63.48	-13	-50.48	-76.18	-76.02	3.22	17.92	H
	24159	-60.01	-13	-47.01	-76.8	-72.57	3.78	18.50	H
	27610	-57.74	-13	-44.74	-77.43	-71.19	3.95	19.54	H
									H
	6903	-43.17	-13	-30.17	-72.08	-51.36	1.84	12.19	V
	10354	-37.68	-13	-24.68	-71.69	-44.16	2.26	10.89	V
	13805	-31.15	-13	-18.15	-73.02	-38.92	2.63	12.56	V
	20708	-63.31	-13	-50.31	-75.77	-75.85	3.22	17.92	V
	24159	-60.27	-13	-47.27	-76.7	-72.83	3.78	18.50	V
	27610	-57.80	-13	-44.80	-77.17	-71.25	3.95	19.54	V
									V

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

5G NR n78 (HPUE) (Ant. MIMO 1 SRS)

5G NR n78(HPUE) / 100MHz / PI/2 BPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	6903	-34.76	-13	-21.76	-63.17	-42.95	1.84	12.19	H
	10354	-36.74	-13	-23.74	-71.54	-43.22	2.26	10.89	H
	13805	-29.51	-13	-16.51	-72.41	-37.28	2.63	12.56	H
	20708	-63.43	-13	-50.43	-76.13	-75.97	3.22	17.92	H
	24159	-60.00	-13	-47.00	-76.79	-72.56	3.78	18.50	H
	27610	-57.94	-13	-44.94	-77.63	-71.39	3.95	19.54	H
									H
	6903	-34.17	-13	-21.17	-63.08	-42.36	1.84	12.19	V
	10354	-33.86	-13	-20.86	-67.87	-40.34	2.26	10.89	V
	13805	-30.75	-13	-17.75	-72.62	-38.52	2.63	12.56	V
	20708	-63.27	-13	-50.27	-75.73	-75.81	3.22	17.92	V
	24159	-60.07	-13	-47.07	-76.5	-72.63	3.78	18.50	V
	27610	-57.91	-13	-44.91	-77.28	-71.36	3.95	19.54	V
									V

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

5G NR n77 (HPUE) (Ant. MIMO 2)

5G NR n77(HPUE) / 100MHz / PI/2 BPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	6903	-44.15	-13	-31.15	-72.56	-52.34	1.84	12.19	H
	10354	-36.97	-13	-23.97	-71.77	-43.45	2.26	10.89	H
	13805	-30.32	-13	-17.32	-73.22	-38.09	2.63	12.56	H
	20708	-63.21	-13	-50.21	-75.91	-75.75	3.22	17.92	H
	24159	-59.94	-13	-46.94	-76.73	-72.50	3.78	18.50	H
	27610	-57.95	-13	-44.95	-77.64	-71.40	3.95	19.54	H
									H
	6903	-43.50	-13	-30.50	-72.41	-51.69	1.84	12.19	V
	10354	-37.78	-13	-24.78	-71.79	-44.26	2.26	10.89	V
	13805	-31.51	-13	-18.51	-73.38	-39.28	2.63	12.56	V
	20708	-63.55	-13	-50.55	-76.01	-76.09	3.22	17.92	V
	24159	-60.66	-13	-47.66	-77.08	-73.22	3.78	18.50	V
	27610	-58.42	-13	-45.42	-77.79	-71.87	3.95	19.54	V
									V

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

5G NR n78 (HPUE) (Ant. MIMO 2)

5G NR n78(HPUE) / 100MHz / PI/2 BPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	6903	-44.14	-13	-31.14	-72.55	-52.33	1.84	12.19	H
	10354	-37.07	-13	-24.07	-71.87	-43.55	2.26	10.89	H
	13805	-30.07	-13	-17.07	-72.97	-37.84	2.63	12.56	H
	20708	-63.40	-13	-50.40	-76.1	-75.94	3.22	17.92	H
	24159	-60.01	-13	-47.01	-76.8	-72.57	3.78	18.50	H
	27610	-57.57	-13	-44.57	-77.26	-71.02	3.95	19.54	H
									H
	6903	-43.47	-13	-30.47	-72.38	-51.66	1.84	12.19	V
	10354	-38.02	-13	-25.02	-72.02	-44.50	2.26	10.89	V
	13805	-31.09	-13	-18.09	-72.96	-38.86	2.63	12.56	V
	20708	-63.71	-13	-50.71	-76.17	-76.25	3.22	17.92	V
	24159	-60.02	-13	-47.02	-76.44	-72.58	3.78	18.50	V
	27610	-58.37	-13	-45.37	-77.74	-71.82	3.95	19.54	V
									V

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

5G NR n77 MIMO (HPUE) (Ant. MIMO 2 + Ant. Main)

5G NR n77MIMO(HPUE) / 100MHz / PI/2 BPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	6902	-40.52	-13	-27.52	-68.93	-48.72	1.84	12.19	H
	10353	-37.44	-13	-24.44	-72.24	-43.92	2.26	10.89	H
	13805	-30.56	-13	-17.56	-73.46	-38.33	2.63	12.56	H
	20707	-63.68	-13	-50.68	-76.38	-76.22	3.22	17.92	H
	24158	-59.99	-13	-46.99	-76.78	-72.55	3.78	18.49	H
	27610	-57.88	-13	-44.88	-77.57	-71.33	3.95	19.54	H
									H
	6902	-40.65	-13	-27.65	-69.56	-48.85	1.84	12.19	V
	10353	-38.02	-13	-25.02	-72.02	-44.50	2.26	10.89	V
	13805	-31.65	-13	-18.65	-73.52	-39.42	2.63	12.56	V
	20707	-63.60	-13	-50.60	-76.06	-76.14	3.22	17.92	V
	24158	-60.45	-13	-47.45	-76.87	-73.01	3.78	18.49	V
	27610	-58.15	-13	-45.15	-77.52	-71.60	3.95	19.54	V
									V

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

5G NR n78 MIMO (HPUE) (Ant. MIMO 2 + Ant. Main)

5G NR n78MIMO(HPUE) / 100MHz / PI/2 BPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	6903	-38.88	-13	-25.88	-67.29	-47.07	1.84	12.19	H
	10354	-37.04	-13	-24.04	-71.84	-43.52	2.26	10.89	H
	13805	-29.82	-13	-16.82	-72.72	-37.59	2.63	12.56	H
	20707	-63.02	-13	-50.02	-75.72	-75.56	3.22	17.92	H
	24158	-60.09	-13	-47.09	-76.88	-72.65	3.78	18.49	H
	27610	-57.90	-13	-44.90	-77.59	-71.35	3.95	19.54	H
									H
	6903	-38.38	-13	-25.38	-67.29	-46.57	1.84	12.19	V
	10354	-38.04	-13	-25.04	-72.05	-44.52	2.26	10.89	V
	13805	-31.23	-13	-18.23	-73.1	-39.00	2.63	12.56	V
	20707	-63.65	-13	-50.65	-76.11	-76.19	3.22	17.92	V
	24158	-60.59	-13	-47.59	-77.01	-73.15	3.78	18.49	V
	27610	-57.92	-13	-44.92	-77.29	-71.37	3.95	19.54	V
									V

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

EN-DC 2A-n77A (Ant. Main + Ant. MIMO 2)

EN-DC 2A-n77A / 20+100MHz / PI/2 BPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	6903	-43.88	-13	-30.88	-72.29	-52.07	1.84	12.19	H
	10354	-36.33	-13	-23.33	-71.13	-42.81	2.26	10.89	H
	13805	-30.41	-13	-17.41	-73.31	-38.18	2.63	12.56	H
	20708	-63.25	-13	-50.25	-75.95	-75.79	3.22	17.92	H
	24159	-59.78	-13	-46.78	-76.57	-72.34	3.78	18.50	H
	27610	-57.84	-13	-44.84	-77.53	-71.29	3.95	19.54	H
									H
	6903	-43.07	-13	-30.07	-71.98	-51.26	1.84	12.19	V
	10354	-37.54	-13	-24.54	-71.54	-44.02	2.26	10.89	V
	13805	-31.21	-13	-18.21	-73.08	-38.98	2.63	12.56	V
	20708	-63.32	-13	-50.32	-75.78	-75.86	3.22	17.92	V
	24159	-60.21	-13	-47.21	-76.63	-72.77	3.78	18.50	V
	27610	-57.98	-13	-44.98	-77.35	-71.43	3.95	19.54	V
									V

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

EN-DC 2A-n78A (Ant. Main + Ant. MIMO 2)

EN-DC 2A-n78A / 20+50MHz / PI/2 BPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	6906	-43.91	-13	-30.91	-72.31	-52.09	1.84	12.18	H
	10358	-37.32	-13	-24.32	-72.13	-43.79	2.26	10.89	H
	13811	-29.79	-13	-16.79	-72.66	-37.56	2.64	12.55	H
	20717	-63.71	-13	-50.71	-76.41	-76.25	3.22	17.91	H
	24170	-60.13	-13	-47.13	-76.94	-72.70	3.78	18.50	H
	27622	-57.73	-13	-44.73	-77.41	-71.18	3.95	19.55	H
									H
	6906	-42.81	-13	-29.81	-71.71	-50.99	1.84	12.18	V
	10358	-37.93	-13	-24.93	-71.95	-44.40	2.26	10.89	V
	13811	-31.23	-13	-18.23	-73.09	-39.00	2.64	12.55	V
	20717	-63.29	-13	-50.29	-75.75	-75.83	3.22	17.91	V
	24170	-60.51	-13	-47.51	-76.96	-73.08	3.78	18.50	V
	27622	-58.18	-13	-45.18	-77.54	-71.63	3.95	19.55	V
									V
Middle	6956	-43.42	-13	-30.42	-71.88	-51.40	1.84	11.98	H
	10433	-36.72	-13	-23.72	-71.62	-43.15	2.26	10.84	H
	13911	-30.53	-13	-17.53	-73	-38.20	2.65	12.47	H
	20867	-63.76	-13	-50.76	-76.46	-76.23	3.23	17.85	H
	24344	-59.89	-13	-46.89	-77.05	-72.58	3.77	18.61	H
	27822	-57.83	-13	-44.83	-77.38	-71.35	3.96	19.63	H
									H
	6956	-42.13	-13	-29.13	-70.87	-50.11	1.84	11.98	V
	10433	-37.78	-13	-24.78	-72.02	-44.21	2.26	10.84	V
	13911	-31.53	-13	-18.53	-73.22	-39.20	2.65	12.47	V
	20867	-63.90	-13	-50.90	-76.33	-76.37	3.23	17.85	V
	24344	-59.99	-13	-46.99	-76.82	-72.68	3.77	18.61	V
	27822	-58.24	-13	-45.24	-77.43	-71.76	3.96	19.63	V
									V

Highest	7006	-43.35	-13	-30.35	-71.9	-51.14	1.84	11.79	H
	10508	-37.20	-13	-24.20	-72.2	-43.60	2.25	10.80	H
	14011	-30.78	-13	-17.78	-72.88	-38.35	2.67	12.39	H
	21017	-63.57	-13	-50.57	-76.33	-76.00	3.24	17.82	H
	24519	-59.82	-13	-46.82	-77.29	-72.61	3.75	18.69	H
	28022	-57.37	-13	-44.37	-76.81	-70.94	3.97	19.69	H
									H
	7006	-43.06	-13	-30.06	-71.69	-50.85	1.84	11.79	V
	10508	-37.74	-13	-24.74	-72.19	-44.14	2.25	10.80	V
	14011	-31.18	-13	-18.18	-72.73	-38.75	2.67	12.39	V
	21017	-63.52	-13	-50.52	-75.98	-75.95	3.24	17.82	V
	24519	-60.42	-13	-47.42	-77.58	-73.21	3.75	18.69	V
	28022	-57.76	-13	-44.76	-76.8	-71.33	3.97	19.69	V
									V

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

5G NR n77 (HPUE) (Ant. Aux._SRS)

SA NR n77(HPUE) / 100MHz / PI/2 BPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	6903	-43.51	-13	-30.51	-71.92	-51.70	1.84	12.19	H
	10354	-36.59	-13	-23.59	-71.39	-43.07	2.26	10.89	H
	13805	-30.11	-13	-17.11	-73.01	-37.88	2.63	12.56	H
	20708	-62.95	-13	-49.95	-75.65	-75.49	3.22	17.92	H
	24159	-60.12	-13	-47.12	-76.91	-72.68	3.78	18.50	H
	27610	-58.04	-13	-45.04	-77.73	-71.49	3.95	19.54	H
									H
	6903	-42.16	-13	-29.16	-71.07	-50.35	1.84	12.19	V
	10354	-37.68	-13	-24.68	-71.69	-44.16	2.26	10.89	V
	13805	-30.83	-13	-17.83	-72.7	-38.60	2.63	12.56	V
	20708	-63.06	-13	-50.06	-75.52	-75.60	3.22	17.92	V
	24159	-60.09	-13	-47.09	-76.52	-72.65	3.78	18.50	V
	27610	-58.08	-13	-45.08	-77.45	-71.53	3.95	19.54	V
									V

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

5G NR n78 (HPUE) (Ant. Aux._SRS)

SA NR n78(HPUE) / 100MHz / PI/2 BPSK									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	6903	-33.49	-13	-20.49	-61.9	-41.68	1.84	12.19	H
	10354	-35.40	-13	-22.40	-70.2	-41.88	2.26	10.89	H
	13805	-30.02	-13	-17.02	-72.92	-37.79	2.63	12.56	H
	20708	-63.73	-13	-50.73	-76.43	-76.27	3.22	17.92	H
	24159	-59.97	-13	-46.97	-76.76	-72.53	3.78	18.50	H
	27610	-58.06	-13	-45.06	-77.75	-71.51	3.95	19.54	H
									H
	6903	-34.82	-13	-21.82	-63.73	-43.01	1.84	12.19	V
	10354	-32.14	-13	-19.14	-66.14	-38.61	2.26	10.89	V
	13805	-31.13	-13	-18.13	-73	-38.90	2.63	12.56	V
	20708	-63.23	-13	-50.23	-75.69	-75.77	3.22	17.92	V
	24159	-59.97	-13	-46.97	-76.4	-72.53	3.78	18.50	V
	27610	-57.77	-13	-44.77	-77.14	-71.22	3.95	19.54	V
									V

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