



FCC RADIO TEST REPORT

FCC ID : PU5-TP00139AS
Equipment : Notebook Computer
Brand Name : Lenovo
Model Name : TP00139A
Applicant : Wistron Corporation
21F, No. 88, Sec. 1, Hsin Tai Wu Rd., Hsichih Dist,
New Taipei City 221, Taiwan
Manufacturer : Lenovo PC HK Limited.
23/F, Lincoln House, Taikoo Place, 979 King's Road,
Quarry Bay, Hong Kong, China
Standard : FCC 47 CFR Part 2, 22(H), 24(E), 27(L)

Equipment: Foxconn T99W175 tested inside of Lenovo Notebook Computer.

The product was received on Dec. 21, 2021 and testing was performed from Jan. 20, 2022 to Feb. 11, 2022. 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.....	3
Summary of Test Result.....	4
1 General Description	5
1.1 Product Feature of Equipment Under Test	5
1.2 Product Specification of Equipment Under Test	6
1.3 Modification of EUT	6
1.4 Testing Location	7
1.5 Applicable Standards	7
2 Test Configuration of Equipment Under Test	8
2.1 Test Mode.....	8
2.2 Connection Diagram of Test System	8
2.3 Support Unit used in test configuration	9
2.4 Frequency List of Low/Middle/High Channels	9
3 Conducted Test Result	10
3.1 Measuring Instruments.....	10
3.2 Conducted Output Power and ERP/EIRP	11
4 Radiated Test Items	12
4.1 Measuring Instruments.....	12
4.2 Test Setup	12
4.3 Test Result of Radiated Test.....	13
4.4 Field Strength of Spurious Radiation Measurement	14
5 List of Measuring Equipment.....	15
6 Uncertainty of Evaluation	16
Appendix A. Test Results of Conducted Test	
Appendix B. Test Results of Radiated Test	
Appendix C. Test Setup Photographs	



History of this test report

Report No.	Version	Description	Issued Date
FG1D1645-01A	01	Initial issue of report	Feb. 22, 2022

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1046	Conducted Output Power	Pass	-
	§22.913 (a)(5)	Effective Radiated Power (WCDMA Band V)		
	§24.232 (c)	Equivalent Isotropic Radiated Power (WCDMA Band II)		
	§27.50 (d)(4)	Equivalent Isotropic Radiated Power (WCDMA Band IV)		
-	§24.232 (d)	Peak-to-Average Ratio	-	See Note
-	§2.1049 §22.917 (b) §24.238 (b) §27.53 (g)	Occupied Bandwidth (WCDMA Band V) (WCDMA Band II) (WCDMA Band IV)	-	See Note
-	§2.1051 §22.917 (a) §24.238 (a) §27.53 (g)	Band Edge Measurement (WCDMA Band V) (WCDMA Band II) (WCDMA Band IV)	-	See Note
-	§2.1051 §22.917 (a) §24.238 (a) §27.53 (g)	Conducted Emission (WCDMA Band V) (WCDMA Band II) (WCDMA Band IV)	-	See Note
-	§2.1055 §22.355 §24.235 §27.54	Frequency Stability Temperature & Voltage	-	See Note
4.4	§2.1053 §22.917 (a) §24.238 (a) §27.53 (h)	Field Strength of Spurious Radiation (WCDMA Band V) (WCDMA Band II) (WCDMA Band IV)	Pass	Under limit 40.41 dB at 7409.000 MHz

Note: The module (Model: T99W175) makes no difference after verifying output power, this report reuses test data from the module report.

Declaration of Conformity:

- 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.
- The measurement uncertainty please refer to this report "Uncertainty of Evaluation".

Comments and Explanations:

The product specifications of the EUT presented in the report are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Sheng Kuo

Report Producer: Cindy Liu

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Notebook Computer
Brand Name	Lenovo
Model Name	TP00139A
FCC ID	PU5-TP00139AS
Sample 1	EUT with AWAN Antenna
Sample 2	EUT with LUXSHARE-ICT Antenna
EUT supports Radios application	WCDMA/HSPA/LTE/5G NR/GNSS 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: Foxconn T99W175 tested inside of Lenovo Notebook Computer.

WWAN Antenna Information				
Main Antenna	Manufacturer	AWAN	Peak gain (dBi)	WCDMA Band II: 0.18 WCDMA Band IV: 0.18 WCDMA Band V: 0.04
	Part number	SA30Y56103AA	Type	PIFA
	Manufacturer	LUXSHARE-ICT	Peak gain (dBi)	WCDMA Band II: 0.80 WCDMA Band IV: 1.70 WCDMA Band V: -2.30
	Part number	SA30Y56102AA	Type	PIFA
MIMO2 Antenna	Manufacturer	AWAN	Peak gain (dBi)	WCDMA Band II: -0.31 WCDMA Band IV: -0.14
	Part number	SA30Y56105AA	Type	PIFA
	Manufacturer	LUXSHARE-ICT	Peak gain (dBi)	WCDMA Band II: 1.70 WCDMA Band IV: 1.00
	Part number	SA30Y56104AA	Type	PIFA

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to Comments and Explanations in report summary.
2. The output power measurement was performed with "AWAN Antenna", and performed with "LUXSHARE-ICT Antenna" in radiated spurious emission test as representative.

1.2 Product Specification of Equipment Under Test

Product Specification subjective to this standard	
Tx Frequency	WCDMA: Band V: 826.4 MHz ~ 846.6 MHz Band II: 1852.4 MHz ~ 1907.6 MHz Band IV: 1712.4 MHz ~ 1752.6 MHz
Rx Frequency	WCDMA: Band V: 871.4 MHz ~ 891.6 MHz Band II: 1932.4 MHz ~ 1987.6 MHz Band IV: 2112.4 MHz ~ 2152.6 MHz
Maximum Output Power to Antenna	WCDMA: Band V: 23.48 dBm Band II: 23.51 dBm Band IV: 23.46 dBm
Type of Modulation	WCDMA: BPSK (Uplink) HSDPA: QPSK (Downlink) HSUPA: 16QPSK (Uplink)

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	Oscar Chi
Temperature (°C)	23.7
Relative Humidity (%)	53.6
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.
	03CH15-HY
Test Engineer	Leo Li, Mancy Chou and Bigshow Wang
Temperature (°C)	22.5~24.5
Relative Humidity (%)	45~55

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, 22(H), 24(E), 27(L)
- ♦ 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 were performed according to KDB 971168 D01 Power Meas. License Digital Systems v03r01 with maximum output power.

Radiated emissions were investigated as following frequency range:

1. 30 MHz to 9000 MHz for WCDMA Band V
2. 30 MHz to 18000 MHz for WCDMA Band IV
3. 30 MHz to 19100 MHz for WCDMA Band II

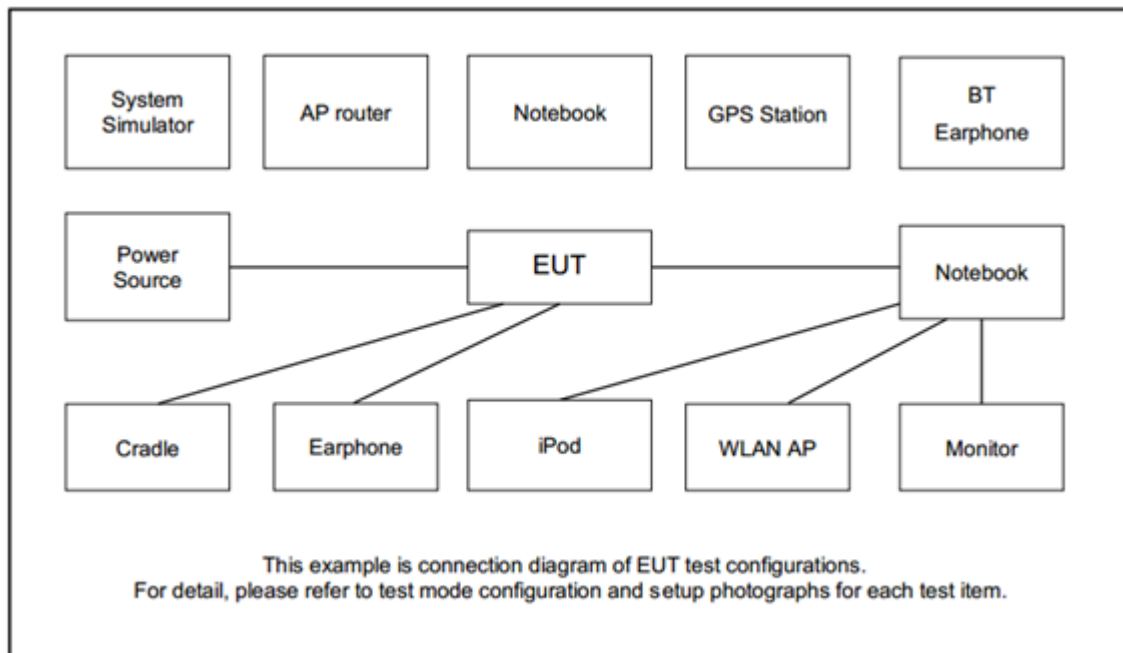
All modes, data rates and positions were investigated.

Test modes are chosen to be reported as the worst case configuration below:

Test Modes		
Band	Radiated TCs	Conducted TCs
WCDMA Band V	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band II	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link
WCDMA Band IV	■ RMC 12.2Kbps Link	■ RMC 12.2Kbps Link

Remark: All the radiated test cases were performed with Adapter 2.

2.2 Connection Diagram of Test System





2.3 Support Unit used in test configuration

Item	Equipment	Brand Name	Model No.	FCC ID	Data Cable	Power Cord
1.	iPod Earphone	Apple	N/A	Verification	Unshielded, 1.0 m	N/A
2.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m

2.4 Frequency List of Low/Middle/High Channels

Frequency List				
Band	Channel/Frequency(MHz)	Lowest	Middle	Highest
WCDMA Band V	Channel	4132	4182	4233
	Frequency	826.4	836.4	846.6
WCDMA Band II	Channel	9262	9400	9538
	Frequency	1852.4	1880.0	1907.6
WCDMA Band IV	Channel	1312	1413	1513
	Frequency	1712.4	1732.6	1752.6

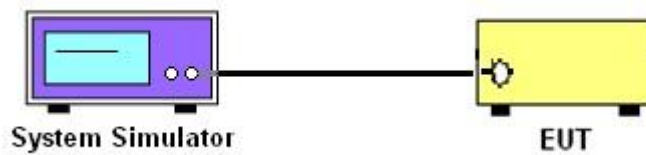
3 Conducted Test Result

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 ERP/EIRP

3.2.1 Description of the Conducted Output Power and ERP/EIRP

A system simulator was used to establish communication with the EUT. Its parameters were set to enforce EUT transmitting at the maximum power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The ERP of mobile transmitters must not exceed 7 Watts for WCDMA Band V

The EIRP of mobile transmitters must not exceed 2 Watts for WCDMA Band II

The EIRP of mobile transmitters must not exceed 1 Watts for WCDMA Band IV

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 system simulator.
3. Select the lowest, middle, and the highest channels for each band and different modulation.
4. Measure the maximum burst average power for GSM and maximum average power for other modulation signal.

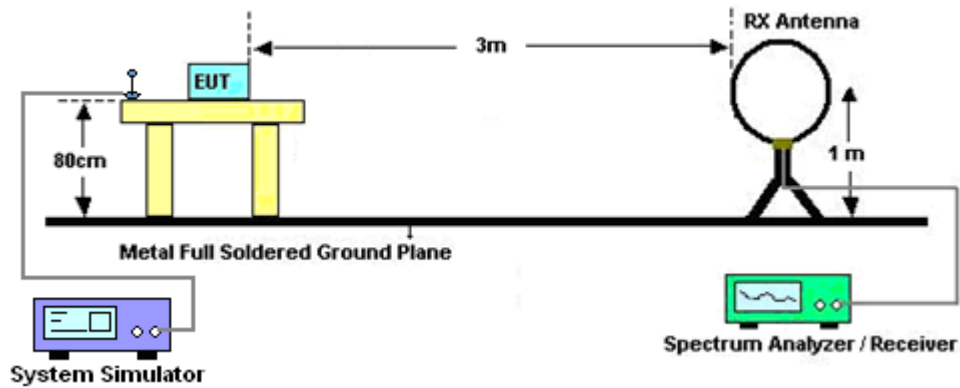
4 Radiated Test Items

4.1 Measuring Instruments

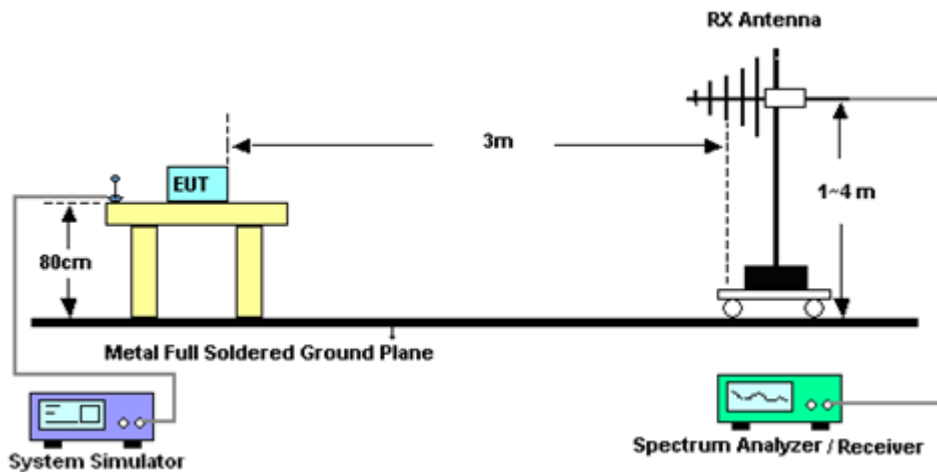
See list of measuring instruments of this test report.

4.2 Test Setup

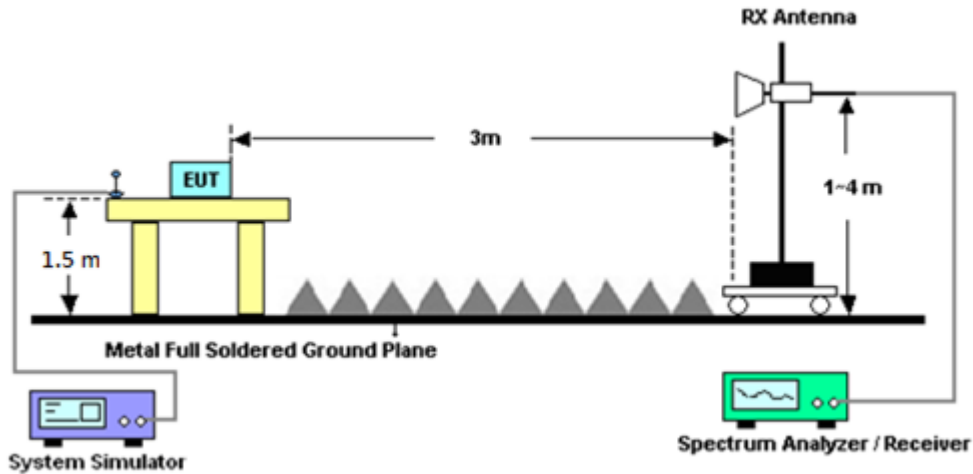
For radiated test below 30MHz



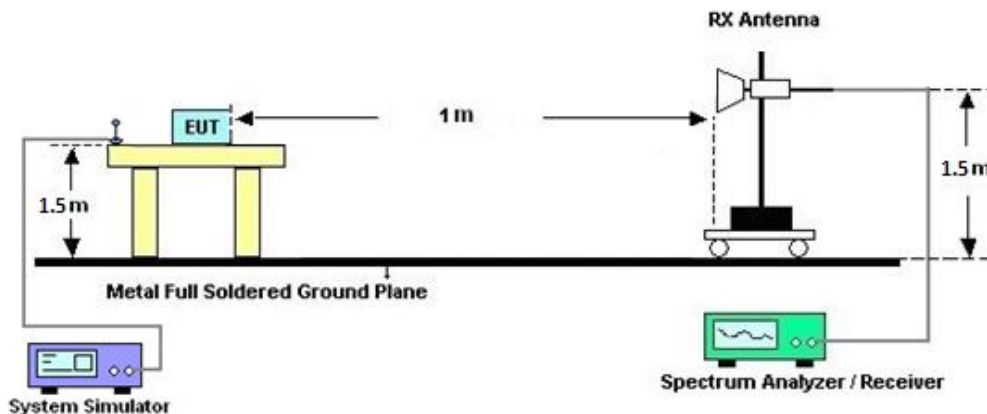
For radiated test from 30MHz to 1GHz



For radiated test from 1GHz to 18GHz



For radiated test above 18GHz



4.3 Test Result of Radiated Test

Please refer to Appendix B.

Note:

The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB 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.

4.4 Field Strength of Spurious Radiation Measurement

4.4.1 Description of Field Strength of Spurious Radiated Measurement

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

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 rotatable wooden table 0.8 meters for frequency below 1 GHz and 1.5 meter for frequency above 1 GHz above the 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 for the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1 MHz, VBW = 3 MHz, taking 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. Take the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. $EIRP \text{ (dBm)} = S.G. \text{ Power} - Tx \text{ Cable Loss} + Tx \text{ Antenna Gain}$
11. $ERP \text{ (dBm)} = EIRP - 2.15$
12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
13. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)



5 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Sep. 07, 2021	Jan. 20, 2022~ Feb. 08, 2022	Sep. 06, 2022	Radiation (03CH15-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N-06	37059 & 01	30MHz~1GHz	Oct. 09, 2021	Jan. 20, 2022~ Feb. 08, 2022	Oct. 08, 2022	Radiation (03CH15-HY)
Bilog Antenna	TESEQ	CBL6111D&0080 0N1D01N-06	40103 & 07	30MHz to 1GHz	Apr. 28, 2021	Jan. 20, 2022~ Feb. 08, 2022	Apr. 27, 2022	Radiation (03CH15-HY)
Amplifier	SONOMA	310N	363440	9kHz~1GHz	Dec. 27, 2021	Jan. 20, 2022~ Feb. 08, 2022	Dec. 26, 2022	Radiation (03CH15-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-02038	1-18GHz	Aug. 04, 2021	Jan. 20, 2022~ Feb. 08, 2022	Aug. 03, 2022	Radiation (03CH15-HY)
Horn Antenna	SCHWARZBE CK	BBHA 9120 D	9120D-1326	1GHz~18GHz	Oct. 25, 2021	Jan. 20, 2022~ Feb. 08, 2022	Oct. 24, 2022	Radiation (03CH15-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	00991	18GHz- 40GHz	May 11, 2021	Jan. 20, 2022~ Feb. 08, 2022	May 10, 2022	Radiation (03CH15-HY)
Preamplifier	Jet-Power	JPA0118-55-303	17100018000 55006	1GHz~18GHz	May 06, 2021	Jan. 20, 2022~ Feb. 08, 2022	May 05, 2022	Radiation (03CH15-HY)
Preamplifier	EM Electronics	EM01G18G	060803	1GHz-18GHz	Dec. 16, 2021	Jan. 20, 2022~ Feb. 08, 2022	Dec. 15, 2022	Radiation (03CH15-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 22, 2021	Jan. 20, 2022~ Feb. 08, 2022	Jun. 21, 2022	Radiation (03CH15-HY)
Spectrum Analyzer	Keysight	N9038A	MY54130085	20MHz~8.4GHz	Oct. 21, 2021	Jan. 20, 2022~ Feb. 08, 2022	Oct. 20, 2022	Radiation (03CH15-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200485	10Hz~44GHz	Mar. 05, 2021	Jan. 20, 2022~ Feb. 08, 2022	Mar. 04, 2022	Radiation (03CH15-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Jan. 20, 2022~ Feb. 08, 2022	N/A	Radiation (03CH15-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Jan. 20, 2022~ Feb. 08, 2022	N/A	Radiation (03CH15-HY)
Software	Audix	E3 6.2009-8-24(k5)	RK-000451	N/A	N/A	Jan. 20, 2022~ Feb. 08, 2022	N/A	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104, 102E	MY36980/4, MY9838/4PE ,508405/2E	30MHz~18G	Nov. 15, 2021	Jan. 20, 2022~ Feb. 08, 2022	Nov. 14, 2022	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104, 102E	MY36980/4, MY9838/4PE ,508405/2E	30MHz~18G	Nov. 15, 2021	Jan. 20, 2022~ Feb. 08, 2022	Nov. 14, 2022	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104, 102E	MY36980/4, MY9838/4PE ,508405/2E	30MHz~18G	Nov. 15, 2021	Jan. 20, 2022~ Feb. 08, 2022	Nov. 14, 2022	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz-40GHz	Feb. 22, 2021	Jan. 20, 2022~ Feb. 08, 2022	Feb. 21, 2022	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	800740/2	30MHz-40GHz	Feb. 22, 2021	Jan. 20, 2022~ Feb. 08, 2022	Feb. 21, 2022	Radiation (03CH15-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	9kHz~30MHz	Mar. 11, 2021	Jan. 20, 2022~ Feb. 08, 2022	Mar. 10, 2022	Radiation (03CH15-HY)
Filter	Wainwright	WLK4-1000-1530 -8000-40SS	SN12	1.53GHz Low Pass Filter	Sep. 14, 2021	Jan. 20, 2022~ Feb. 08, 2022	Sep. 13, 2022	Radiation (03CH15-HY)
Filter	Wainwright	WHKX12-935-100 0-15000-40ST	SN1	1GHz High Pass Filter	Apr. 29, 2021	Jan. 20, 2022~ Feb. 08, 2022	Apr. 28, 2022	Radiation (03CH15-HY)
Filter	Wainwright	WHKX12-2700-30 00-18000-60ST	SN4	3GHz High Pass Filter	Sep. 15, 2021	Jan. 20, 2022~ Feb. 08, 2022	Sep. 14, 2022	Radiation (03CH15-HY)
Signal Generator	Rohde & Schwarz	SMF100A	101107	0.1Hz~40GHz	Dec. 08, 2021	Jan. 20, 2022~ Feb. 08, 2022	Dec. 07, 2022	Radiation (03CH15-HY)
Base Station(Measure)	Rohde & Schwarz	CMU200	117995	GSM / GPRS / WCDMA / CDMA	Jul. 13, 2021	Feb. 11, 2022	Jul. 12, 2022	Conducted (TH03-HY)

6 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	2.92 dB
--	---------

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.72 dB
--	---------

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.94 dB
--	---------



Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power) & ERP / EIRP

WCDMA Band V Maximum Average Power [dBm] (GT - LC = 0.04 dB)					
Channel	4132	4182	4233	ERP (dBm)	ERP (W)
Frequency	826.4	836.4	846.6		
RMC 12.2K	23.48	23.38	23.28	21.37	0.1371
HSDPA Subtest-1	22.33	22.46	22.01		
HSDPA Subtest-2	22.69	22.40	22.20		
HSDPA Subtest-3	21.97	21.74	21.77		
HSDPA Subtest-4	22.06	21.97	21.67		
HSUPA Subtest-1	22.37	22.52	22.29		
HSUPA Subtest-2	20.48	20.42	20.03		
HSUPA Subtest-3	21.41	21.38	21.39		
HSUPA Subtest-4	20.40	20.29	20.38		
HSUPA Subtest-5	22.52	22.14	22.31		
Limit	ERP < 7W			Result	Pass

WCDMA Band II Maximum Average Power [dBm] (GT - LC = 0.8 dB)					
Channel	9262	9400	9538	EIRP (dBm)	EIRP (W)
Frequency	1852.4	1880	1907.6		
RMC 12.2K	23.50	23.51	23.50	24.31	0.2698
HSDPA Subtest-1	22.81	22.65	22.56		
HSDPA Subtest-2	22.53	22.51	22.49		
HSDPA Subtest-3	22.09	22.43	22.15		
HSDPA Subtest-4	22.18	22.44	22.35		
HSUPA Subtest-1	22.87	22.50	22.66		
HSUPA Subtest-2	20.68	20.91	20.50		
HSUPA Subtest-3	21.82	21.70	21.84		
HSUPA Subtest-4	20.69	20.84	20.53		
HSUPA Subtest-5	22.93	22.88	22.55		
Limit	EIRP < 2W			Result	Pass

WCDMA Band IV Maximum Average Power [dBm] (GT - LC = 1.7 dB)					
Channel	1312	1413	1513	EIRP (dBm)	EIRP (W)
Frequency	1712.4	1732.6	1752.6		
RMC 12.2K	23.45	23.45	23.46	25.16	0.3281
HSDPA Subtest-1	22.45	22.43	22.61		
HSDPA Subtest-2	22.26	22.36	22.77		
HSDPA Subtest-3	21.76	22.02	21.97		
HSDPA Subtest-4	22.12	21.94	22.14		
HSUPA Subtest-1	22.40	22.74	22.49		
HSUPA Subtest-2	20.59	20.48	20.59		
HSUPA Subtest-3	21.70	21.57	21.70		
HSUPA Subtest-4	20.59	20.66	20.47		
HSUPA Subtest-5	22.67	22.36	22.78		
Limit	EIRP < 1W			Result	Pass



Appendix B. Test Results of Radiated Test

WCDMA 850

WCDMA 850									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	1656	-67.00	-13	-54.00	-73.65	-72.35	1.84	9.34	H
	2479	-64.48	-13	-51.48	-75.2	-70.75	2.25	10.67	H
	3305	-63.62	-13	-50.62	-76.2	-71.18	2.63	12.34	H
									H
									H
									H
									H
	1656	-66.49	-13	-53.49	-73.6	-71.84	1.84	9.34	V
	2479	-64.37	-13	-51.37	-75.27	-70.64	2.25	10.67	V
	3305	-63.11	-13	-50.11	-76.09	-70.67	2.63	12.34	V
									V
									V
									V
									V
Middle	1672	-66.81	-13	-53.81	-73.55	-72.24	1.85	9.43	H
	2509	-64.29	-13	-51.29	-75.12	-70.68	2.26	10.80	H
	3345	-63.81	-13	-50.81	-76.27	-71.67	2.65	12.66	H
									H
									H
									H
									H
	1672	-66.54	-13	-53.54	-73.75	-71.97	1.85	9.43	V
	2509	-63.94	-13	-50.94	-74.87	-70.33	2.26	10.80	V
	3345	-63.25	-13	-50.25	-76.1	-71.11	2.65	12.66	V
									V
									V
									V
									V



Highest	1696	-66.42	-13	-53.42	-73.31	-71.99	1.86	9.58	H
	2539	-63.78	-13	-50.78	-74.49	-70.15	2.28	10.80	H
	3386	-64.16	-13	-51.16	-76.5	-71.97	2.67	12.63	H
									H
									H
									H
									H
	1696	-66.18	-13	-53.18	-73.55	-71.75	1.86	9.58	V
	2539	-63.83	-13	-50.83	-74.83	-70.20	2.28	10.80	V
	3386	-63.86	-13	-50.86	-76.57	-71.67	2.67	12.63	V
									V
									V
									V
									V

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

**WCDMA 1700**

WCDMA 1700									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3427	-63.48	-13	-50.48	-76.88	-73.40	2.68	12.60	H
	5137	-60.27	-13	-47.27	-77.83	-69.40	3.32	12.45	H
	6849	-56.13	-13	-43.13	-78.29	-64.67	3.86	12.40	H
									H
									H
									H
									H
	3427	-63.14	-13	-50.14	-76.91	-73.06	2.68	12.60	V
	5137	-59.76	-13	-46.76	-77.87	-68.89	3.32	12.45	V
	6849	-55.74	-13	-42.74	-78.25	-64.28	3.86	12.40	V
									V
									V
									V
									V
Middle	3462	-63.47	-13	-50.47	-77.14	-73.32	2.70	12.55	H
	5197	-60.53	-13	-47.53	-78.32	-69.97	3.34	12.78	H
	6930	-55.48	-13	-42.48	-77.93	-63.59	3.89	12.00	H
									H
									H
									H
									H
	3462	-63.05	-13	-50.05	-77.09	-72.90	2.70	12.55	V
	5197	-59.93	-13	-46.93	-78.21	-69.37	3.34	12.78	V
	6930	-55.46	-13	-42.46	-78	-63.57	3.89	12.00	V
									V
									V
									V
									V



Highest	3504	-62.90	-13	-49.90	-76.87	-72.56	2.72	12.38	H
	5257	-59.95	-13	-46.95	-77.75	-69.82	3.36	13.23	H
	7010	-54.95	-13	-41.95	-77.66	-62.88	3.91	11.84	H
									H
									H
									H
									H
	3504	-62.55	-13	-49.55	-76.89	-72.21	2.72	12.38	V
	5257	-59.46	-13	-46.46	-77.66	-69.33	3.36	13.23	V
	7010	-54.81	-13	-41.81	-77.41	-62.74	3.91	11.84	V
									V
									V
									V
									V

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

**WCDMA 1900**

WCDMA 1900									
Channel	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Lowest	3707	-61.42	-13	-48.42	-75.85	-71.06	2.77	12.41	H
	5557	-59.16	-13	-46.16	-77.49	-69.08	3.46	13.39	H
	7409	-54.31	-13	-41.31	-78.08	-61.49	3.98	11.16	H
									H
									H
									H
									H
	3707	-60.60	-13	-47.60	-75.43	-70.24	2.77	12.41	V
	5557	-58.96	-13	-45.96	-77.37	-68.88	3.46	13.39	V
	7409	-53.41	-13	-40.41	-77.64	-60.59	3.98	11.16	V
									V
									V
									V
									V
Middle	3763	-61.44	-13	-48.44	-76.04	-71.13	2.78	12.47	H
	5640	-59.49	-13	-46.49	-77.88	-69.47	3.48	13.46	H
	7520	-54.56	-13	-41.56	-78.26	-61.75	4.01	11.20	H
									H
									H
									H
									H
	3763	-61.38	-13	-48.38	-76.37	-71.07	2.78	12.47	V
	5640	-59.20	-13	-46.20	-77.82	-69.18	3.48	13.46	V
	7520	-54.28	-13	-41.28	-78.37	-61.47	4.01	11.20	V
									V
									V
									V
									V



Highest	3812	-61.83	-13	-48.83	-76.52	-71.41	2.79	12.38	H
	5722	-59.13	-13	-46.13	-77.99	-69.03	3.50	13.40	H
	7630	-54.37	-13	-41.37	-77.71	-61.78	4.05	11.46	H
									H
									H
									H
									H
	3812	-61.43	-13	-48.43	-76.51	-71.01	2.79	12.38	V
	5722	-58.51	-13	-45.51	-77.6	-68.41	3.50	13.40	V
	7630	-53.86	-13	-40.86	-77.74	-61.27	4.05	11.46	V
									V
									V
									V
									V

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