



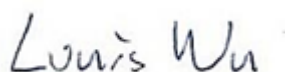
FCC RADIO TEST REPORT

FCC ID : 2AJN7-TP00128B
Equipment : Notebook Computer
Brand Name : Lenovo
Model Name : TP00128B
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, 22(H), 24(E), 27(L)

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

The product was received on Sep. 06, 2021 and testing was performed from Oct. 12, 2021 to Jan. 10, 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.



Approved by: Louis Wu

Sporton International Inc. Wensan Laboratory



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History of this test report

Report No.	Version	Description	Issued Date
FG190605A	01	Initial issue of report	Jan. 25, 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 27.69 dB at 5198.000 MHz

Note:

1. 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 the module test results were leveraged in this report and additionally reporting the spot check results in this report.
2. In normal mode, Conducted power was verified to be consistent with the original modular approval, so the output power level in the original modular grant is referenced in this report for determining ERP/EIRP of this host product, and verified the TX switching mode of Radiated Spurious Emission and Conducted power.

**Declaration of Conformity:**

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Sheng Kuo

Report Producer: Ruby Zou

1 General Description

1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Notebook Computer
Brand Name	Lenovo
Model Name	TP00128B
FCC ID	2AJN7-TP00128B
Sample 1	EUT with Amphenol Antenna
Sample 2	EUT with JYT/NVC Antenna
EUT supports Radios application	WCDMA/HSPA/LTE/5G NR/GNSS
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	Peak gain (dBi)	WCDMA Band II: 0.50 WCDMA Band IV: 0.95 WCDMA Band V: -0.43
	Part number	TKC114-16-000-C	Type	PIFA
	Manufacturer	JYT/NVC	Peak gain (dBi)	WCDMA Band II: -1.83 WCDMA Band IV: -1.18 WCDMA Band V: -2.02
	Part number	JYAAE0154HR	Type	PIFA
MIMO 2 Antenna	Manufacturer	Amphenol	Peak gain (dBi)	WCDMA Band II: 0.60 WCDMA Band IV: 1.00
	Part number	TKC113-16-000-C	Type	PIFA
	Manufacturer	JYT/NVC	Peak gain (dBi)	WCDMA Band II: -1.31 WCDMA Band IV: -3.23
	Part number	JYAAE0155HR	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 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	<Main Antenna> WCDMA: Band V: 23.60 dBm Band II: 23.46 dBm Band IV: 23.45 dBm
	<MIMO 2 Antenna> WCDMA: Band II: 23.83 dBm Band IV: 23.87 dBm
Type of Modulation	WCDMA: BPSK (Uplink) HSDPA: 64QAM (Downlink) HSUPA: QPSK (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	Benjamin Lin
Temperature (°C)	23.5~25
Relative Humidity (%)	49.4~52
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	Jack Cheng, Lance Chiang and Chuan Chu
Temperature (°C)	21.6~26.2
Relative Humidity (%)	56~68

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.

For radiated measurement, the measured emission level of the EUT was maximized by rotating the EUT on a turntable, adjusting the orientation of the EUT and EUT antenna in Tablet Type (three orthogonal axis (X: flat, Y: portrait, Z: landscape)) and Notebook Type, adjusting the measurement antenna orientation, following C63.26 exploratory test procedures and find (<Ant. Main>: Y Plane without accessory for Cellular Band and AWS Band; Y Plane with accessory for PCS Band; <Ant. MIMO2>: Y Plane with accessory for PCS Band; Z Plane without accessory for AWS Band) as worst plane.

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

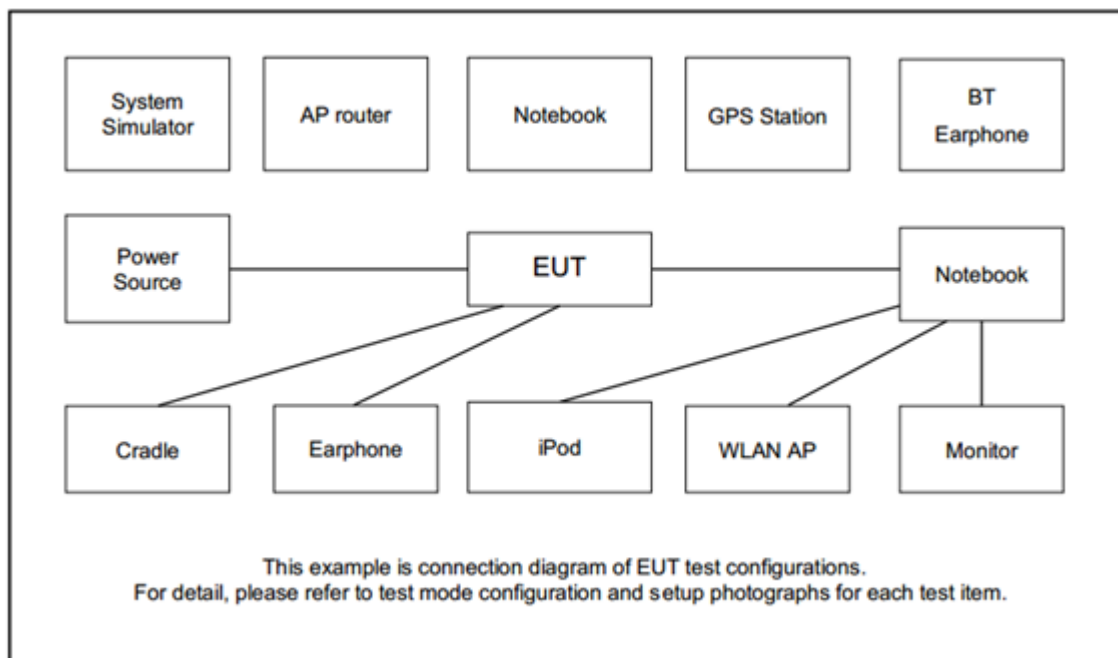
All modes, data rates and positions were investigated.

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 Sample 1.

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.	System Simulator	Anritsu	MT8821C	N/A	N/A	Unshielded, 1.8 m
2.	iPod Earphone	Apple	N/A	Verification	Unshielded, 1.0 m	N/A

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

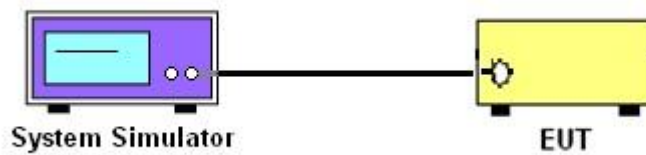
3 Conducted Test Result

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.

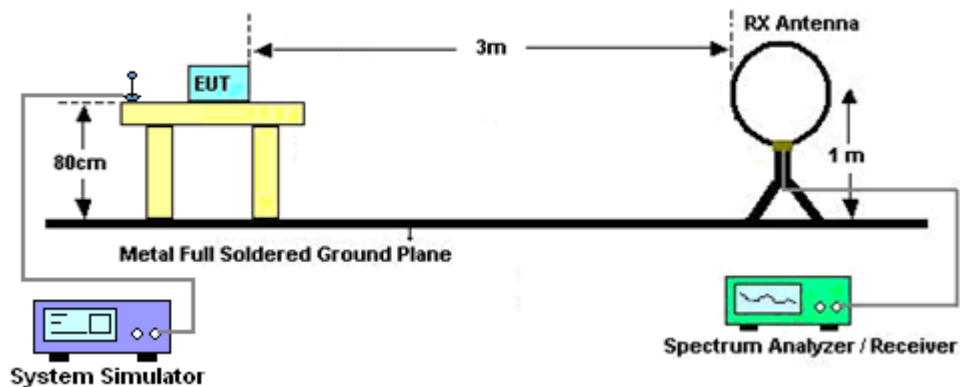
4 Radiated Test Items

4.1 Measuring Instruments

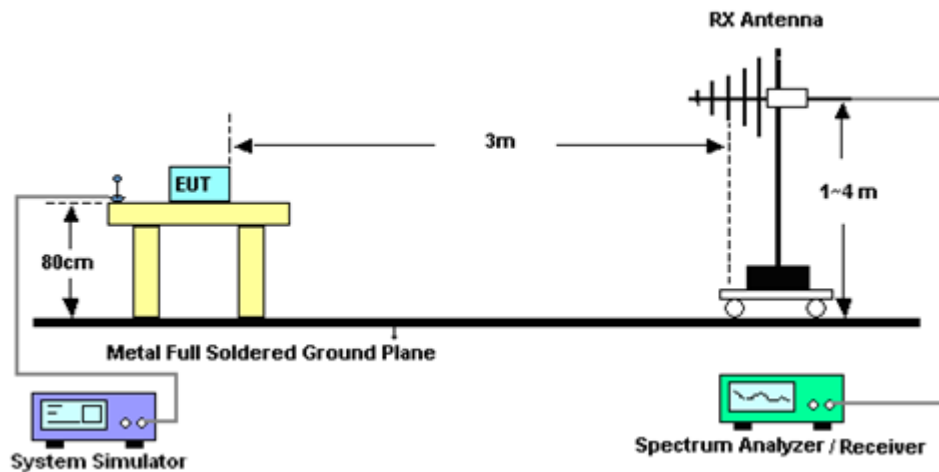
See list of measuring instruments of this test report.

4.2 Test Setup

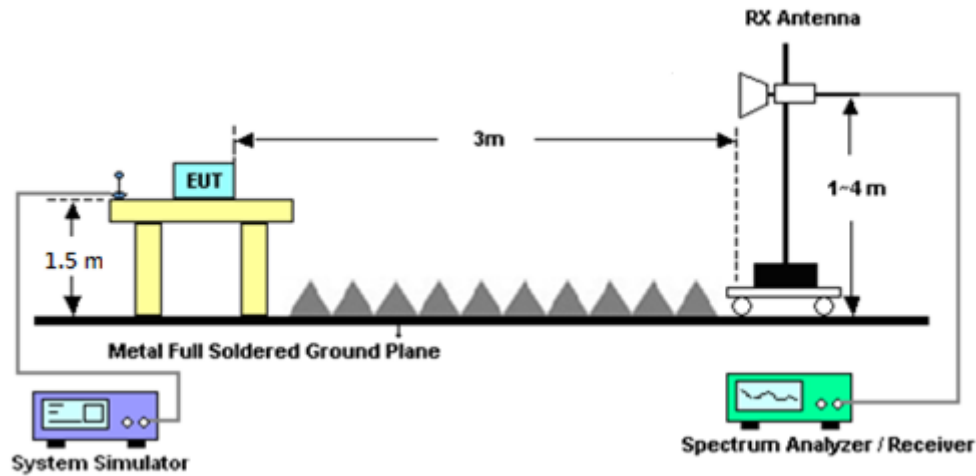
For radiated test below 30MHz



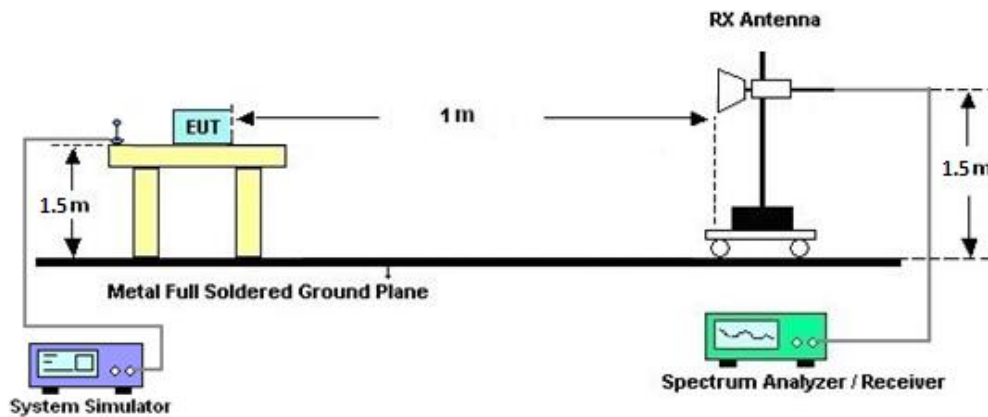
For radiated test from 30MHz to 1GHz



For radiated test above 1GHz



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
Base Station (Measure)	Rohde & Schwarz	CMU200	117995	GSM / GPRS / WCDMA / CDMA	Jul. 13, 2021	Oct. 12, 2021~Jan. 10, 2022	Jul. 12, 2022	Conducted (TH03-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100315	9 kHz~30 MHz	Jan. 04, 2021	Oct. 14, 2021~Nov. 13, 2021	Jan. 03, 2022	Radiation (03CH12-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Sep. 07, 2021	Dec. 28, 2021~Jan. 08, 2022	Sep. 06, 2022	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CCBL 6111D & 00800N1D01N-06	41912 & 05	30MHz~1GHz	Feb. 08, 2021	Oct. 14, 2021~Jan. 08, 2022	Feb. 07, 2022	Radiation (03CH12-HY)
Bilog Antenna	TESEQ	CCBL 6111D & 00800N1D01N-06	40103 & 07	30MHz~1GHz	Apr. 28, 2021	Oct. 14, 2021~Jan. 08, 2022	Apr. 27, 2022	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1328	1GHz~18GHz	Nov. 23, 2020	Oct. 14, 2021~Nov. 13, 2021	Nov. 22, 2021	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1328	1GHz~18GHz	Dec. 03, 2021	Dec. 28, 2021~Jan. 08, 2022	Dec. 02, 2022	Radiation (03CH12-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-1212	1GHz~18GHz	May 18, 2021	Oct. 14, 2021~Jan. 08, 2022	May 17, 2022	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	00993	18GHz~40GHz	Nov. 19, 2020	Oct. 14, 2021~Nov. 13, 2021	Nov. 18, 2021	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	00993	18GHz~40GHz	Nov. 30, 2021	Dec. 28, 2021~Jan. 08, 2022	Nov. 29, 2022	Radiation (03CH12-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170576	18GHz~40GHz	May 21, 2021	Oct. 14, 2021~Jan. 08, 2022	May 20, 2022	Radiation (03CH12-HY)
Preamplifier	COM-POWER	PA-103	161075	10MHz~1GHz	Mar. 24, 2021	Oct. 14, 2021~Jan. 08, 2022	Mar. 23, 2022	Radiation (03CH12-HY)
Preamplifier	Agilent	8449B	3008A02375	1GHz~26.5GHz	May 25, 2021	Oct. 14, 2021~Jan. 08, 2022	May 24, 2022	Radiation (03CH12-HY)
Preamplifier	JPA0118-55-3 03K	JPA0118-55-3 03K	1710001800 054002	1GHz~18GHz	Jun. 16, 2021	Oct. 14, 2021~Nov. 13, 2021	Jun. 15, 2022	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060715	18GHz~40GHz	Dec. 11, 2020	Oct. 14, 2021~Nov. 13, 2021	Dec. 10, 2021	Radiation (03CH12-HY)
Preamplifier	E-INSTRUMENT TECH LTD.	ERA-100M-18 G-56-01-A70	EC1900249	1GHz~18GHz	Dec. 22, 2021	Dec. 28, 2021~Jan. 08, 2022	Dec. 21, 2022	Radiation (03CH12-HY)
Preamplifier	EMEC	EM18G40G	060801	18GHz~40GHz	Jun. 22, 2021	Dec. 28, 2021~Jan. 08, 2022	Jun. 21, 2022	Radiation (03CH12-HY)
Spectrum Analyzer	Agilent	N9010A	MY53470118	10Hz~44GHz	Jan. 15, 2021	Oct. 14, 2021~Jan. 08, 2022	Jan. 14, 2022	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY9837/4PE	9kHz~30MHz	Mar. 11, 2021	Oct. 14, 2021~Jan. 08, 2022	Mar. 10, 2022	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30MHz~18GHz	Dec. 11, 2020	Oct. 14, 2021~Nov. 13, 2021	Dec. 10, 2021	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 126E	0058/126E	30MHz~18GHz	Dec. 10, 2021	Dec. 28, 2021~Jan. 08, 2022	Dec. 09, 2022	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	505134/2	30MHz~40GHz	Feb. 22, 2021	Oct. 14, 2021~Jan. 08, 2022	Feb. 21, 2022	Radiation (03CH12-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	800740/2	30MHz~40GHz	Feb. 22, 2021	Oct. 14, 2021~Jan. 08, 2022	Feb. 21, 2022	Radiation (03CH12-HY)



Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1m~4m	N/A	Oct. 14, 2021~ Jan. 08, 2022	N/A	Radiation (03CH12-HY)
Turn Table	EMEC	TT2000	N/A	0~360 Degree	N/A	Oct. 14, 2021~ Jan. 08, 2022	N/A	Radiation (03CH12-HY)
Software	Audix	E3 6.2009-8-24	RK-000989	N/A	N/A	Oct. 14, 2021~ Jan. 08, 2022	N/A	Radiation (03CH12-HY)
Filter	Wainwright	WLKS1200-12 SS	SN2	1.2GHz Low Pass Filter	Mar. 17, 2021	Oct. 14, 2021~ Jan. 08, 2022	Mar. 16, 2022	Radiation (03CH12-HY)
Filter	Wainwright	WHKX12-2700 -3000-18000-6 0ST	SN2	3GHz High Pass Filter	Jul. 12, 2021	Oct. 14, 2021~ Jan. 08, 2022	Jul. 11, 2022	Radiation (03CH12-HY)
Filter	Wainwright	WHKX8-5872. 5-6750-18000- 40ST	SN2	6.75GHz High Pass Filter	Mar. 17, 2021	Oct. 14, 2021~ Jan. 08, 2022	Mar. 16, 2022	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% ($U = 2Uc(y)$)	3.10 dB
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Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.39 dB
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Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.34 dB
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Appendix A. Test Results of Conducted Test

<Main Antenna>

WCDMA Band V Maximum Average Power [dBm] (GT - LC = -0.43 dB)					
Channel	4132	4182	4233	ERP (dBm)	ERP (W)
Frequency	826.4	836.4	846.6		
RMC 12.2K	23.55	23.50	23.60	21.02	0.1265
Limit	ERP < 7W			Result	Pass

WCDMA Band II Maximum Average Power [dBm] (GT - LC = 0.5 dB)					
Channel	9262	9400	9538	EIRP (dBm)	EIRP (W)
Frequency	1852.4	1880	1907.6		
RMC 12.2K	23.46	23.40	23.19	23.96	0.2489
Limit	EIRP < 2W			Result	Pass

WCDMA Band IV Maximum Average Power [dBm] (GT - LC = 0.95 dB)					
Channel	1312	1413	1513	EIRP (dBm)	EIRP (W)
Frequency	1712.4	1732.6	1752.6		
RMC 12.2K	23.41	23.44	23.45	24.40	0.2754
Limit	EIRP < 1W			Result	Pass



<MIMO 2 Antenna>

WCDMA Band II Maximum Average Power [dBm] (GT - LC = 0.6 dB)					
Channel	9262	9400	9538	EIRP (dBm)	EIRP (W)
Frequency	1852.4	1880	1907.6		
RMC 12.2K	23.73	23.83	23.76	24.43	0.2773
Limit	EIRP < 2W			Result	Pass

WCDMA Band IV Maximum Average Power [dBm] (GT - LC = 1 dB)					
Channel	1312	1413	1513	EIRP (dBm)	EIRP (W)
Frequency	1712.4	1732.6	1752.6		
RMC 12.2K	23.87	23.77	23.72	24.87	0.3069
Limit	EIRP < 1W			Result	Pass



Appendix B. Test Results of Radiated Test

<Sample 1>

<Main Antenna>

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	1652	-61.06	-13	-48.06	-70.71	-66.67	0.92	8.68	H
	2479	-50.07	-13	-37.07	-64.01	-57.45	1.15	10.67	H
	3305	-55.44	-13	-42.44	-71.49	-64.00	1.32	12.03	H
									H
									H
	1652	-61.51	-13	-48.51	-70.62	-67.12	0.92	8.68	V
	2479	-48.04	-13	-35.04	-62.15	-55.42	1.15	10.67	V
	3305	-54.95	-13	-41.95	-71.47	-63.51	1.32	12.03	V
									V
									V
Middle	1672	-60.69	-13	-47.69	-70.41	-66.37	0.93	8.75	H
	2509	-49.95	-13	-36.95	-63.9	-57.36	1.15	10.71	H
	3345	-55.35	-13	-42.35	-71.33	-64.00	1.33	12.13	H
									H
									H
	1672	-60.81	-13	-47.81	-69.9	-66.49	0.93	8.75	V
	2509	-48.67	-13	-35.67	-62.82	-56.08	1.15	10.71	V
	3345	-54.80	-13	-41.80	-71.24	-63.45	1.33	12.13	V
									V
									V



Highest	1693	-60.70	-13	-47.70	-70.47	-66.45	0.94	8.83	H
	2539	-53.11	-13	-40.11	-67.08	-60.55	1.16	10.75	H
	3386	-55.35	-13	-42.35	-71.24	-64.09	1.34	12.23	H
									H
									H
	1693	-60.45	-13	-47.45	-69.52	-66.20	0.94	8.83	V
	2539	-52.18	-13	-39.18	-66.28	-59.62	1.16	10.75	V
	3386	-54.97	-13	-41.97	-71.3	-63.71	1.34	12.23	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	3425	-54.51	-13	-41.51	-71.23	-65.48	1.35	12.32	H
	5137	-48.66	-13	-35.66	-71.24	-59.81	1.65	12.79	H
	6850	-46.07	-13	-33.07	-72.29	-56.44	1.74	12.11	H
									H
									H
	3425	-54.12	-13	-41.12	-71.26	-65.09	1.35	12.32	V
	5137	-47.62	-13	-34.62	-69.95	-58.77	1.65	12.79	V
	6850	-46.35	-13	-33.35	-72.16	-56.72	1.74	12.11	V
									V
									V
Middle	3462	-53.92	-13	-40.92	-71	-64.98	1.35	12.41	H
	5198	-40.69	-13	-27.69	-63.28	-51.91	1.66	12.88	H
	6930	-45.21	-13	-32.21	-71.84	-55.48	1.73	12.00	H
									H
									H
	3462	-53.73	-13	-40.73	-71.2	-64.79	1.35	12.41	V
	5198	-42.72	-13	-29.72	-65.15	-53.94	1.66	12.88	V
	6930	-45.55	-13	-32.55	-71.73	-55.82	1.73	12.00	V
									V
									V



Highest	3505	-53.75	-13	-40.75	-71.25	-64.89	1.36	12.50	H
	5258	-48.87	-13	-35.87	-71.66	-60.15	1.68	12.96	H
	7010	-44.68	-13	-31.68	-71.7	-54.84	1.73	11.88	H
									H
									H
	3505	-53.39	-13	-40.39	-71.23	-64.53	1.36	12.50	V
	5258	-49.12	-13	-36.12	-71.68	-60.40	1.68	12.96	V
	7010	-45.25	-13	-32.25	-71.79	-55.41	1.73	11.88	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	3708	-51.54	-13	-38.54	-70.11	-62.75	1.41	12.62	H
	5557	-49.24	-13	-36.24	-72.13	-60.80	1.74	13.30	H
	7410	-44.95	-13	-31.95	-71.91	-54.25	1.94	11.24	H
									H
									H
	3708	-52.10	-13	-39.10	-70.82	-63.31	1.41	12.62	V
	5557	-49.03	-13	-36.03	-71.47	-60.59	1.74	13.30	V
	7410	-45.16	-13	-32.16	-71.97	-54.46	1.94	11.24	V
									V
									V
Middle	3762	-52.06	-13	-39.06	-70.76	-63.29	1.43	12.66	H
	5640	-48.50	-13	-35.50	-71.45	-60.07	1.73	13.30	H
	7518	-45.43	-13	-32.43	-71.92	-54.54	1.99	11.10	H
									H
									H
	3762	-52.04	-13	-39.04	-70.96	-63.27	1.43	12.66	V
	5640	-48.92	-13	-35.92	-71.46	-60.49	1.73	13.30	V
	7518	-45.42	-13	-32.42	-71.87	-54.53	1.99	11.10	V
									V
									V



Highest	3816	-52.05	-13	-39.05	-70.86	-63.30	1.44	12.69	H
	5722	-48.04	-13	-35.04	-71.38	-59.61	1.73	13.30	H
	7632	-45.74	-13	-32.74	-71.81	-54.86	2.01	11.13	H
									H
									H
	3816	-51.83	-13	-38.83	-70.88	-63.08	1.44	12.69	V
	5722	-49.12	-13	-36.12	-71.84	-60.69	1.73	13.30	V
	7632	-45.86	-13	-32.86	-71.84	-54.98	2.01	11.13	V
									V
									V

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



<MIMO 2 Antenna>

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	3708	-52.48	-13	-39.48	-71.05	-63.69	1.41	12.62	H
	5556	-49.03	-13	-36.03	-71.92	-60.59	1.74	13.30	H
	7410	-44.15	-13	-31.15	-71.11	-53.45	1.94	11.24	H
									H
									H
	3708	-52.47	-13	-39.47	-71.19	-63.68	1.41	12.62	V
	5556	-49.53	-13	-36.53	-71.97	-61.09	1.74	13.30	V
	7410	-44.77	-13	-31.77	-71.58	-54.07	1.94	11.24	V
									V
									V
Middle	3762	-52.56	-13	-39.56	-71.26	-63.79	1.43	12.66	H
	5640	-48.42	-13	-35.42	-71.37	-59.99	1.73	13.30	H
	7518	-45.21	-13	-32.21	-71.7	-54.32	1.99	11.10	H
									H
									H
	3762	-52.01	-13	-39.01	-70.93	-63.24	1.43	12.66	V
	5640	-48.44	-13	-35.44	-70.98	-60.01	1.73	13.30	V
	7518	-45.40	-13	-32.40	-71.85	-54.51	1.99	11.10	V
									V
									V



Highest	3816	-52.34	-13	-39.34	-71.15	-63.59	1.44	12.69	H
	5722	-47.93	-13	-34.93	-71.27	-59.50	1.73	13.30	H
	7632	-45.36	-13	-32.36	-71.43	-54.48	2.01	11.13	H
									H
									H
	3816	-51.97	-13	-38.97	-71.02	-63.22	1.44	12.69	V
	5722	-48.50	-13	-35.50	-71.22	-60.07	1.73	13.30	V
	7632	-45.40	-13	-32.40	-71.38	-54.52	2.01	11.13	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)
Middle	3462	-53.56	-13	-40.56	-70.8	-64.62	1.35	12.41	H
	5198	-49.82	-13	-36.82	-71.43	-61.04	1.66	12.88	H
	6927	-45.89	-13	-32.89	-71.73	-56.16	1.73	12.00	H
									H
									H
	3462	-53.51	-13	-40.51	-71.14	-64.57	1.35	12.41	V
	5198	-48.91	-13	-35.91	-70.36	-60.13	1.66	12.88	V
	6927	-46.60	-13	-33.60	-71.99	-56.87	1.73	12.00	V
									V
									V

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