



# FCC RADIO TEST REPORT

**FCC ID** : PU5-TP00137BLQ  
**Equipment** : Notebook Computer  
**Brand Name** : Lenovo  
**Model Name** : TP00137A, TP00137B  
**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, P.R. China  
**Standard** : FCC 47 CFR Part 2, 22(H), 24(E), 27(L)

Equipment: Quectel EM05-G tested inside of Lenovo Notebook Computer.

The product was received on Dec. 08, 2021 and testing was performed from Dec. 17, 2021 to Dec. 28, 2021. We, Sporton International Inc. EMC & Wireless Communications 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 from Sporton International Inc. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Louis Wu

**Sporton International Inc. EMC & Wireless Communications Laboratory**



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## 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	26.60 dB under the limit at 7630.000 MHz

**Note:** The module (Model: EM05-G) 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: Tina Chuang**



# 1 General Description

## 1.1 Product Feature of Equipment Under Test

Product Feature	
Equipment	Notebook Computer
Brand Name	Lenovo
Model Name	TP00137A, TP00137B
FCC ID	PU5-TP00137BLQ
Sample 1	EUT with AVX Antenna
Sample 2	EUT with AWAN Antenna
EUT supports Radios application	WCDMA/HSPA/LTE/GNSS
EUT Stage	Production Unit

**Remark:**

1. The above EUT's information was declared by manufacturer.
2. Equipment: Quectel EM05-G tested inside of Lenovo Notebook Computer.

WWAN Antenna Information				
Main Antenna	Manufacturer	AVX	Peak gain (dBi)	WCDMA Band II: 1.99 WCDMA Band IV: 1.99 WCDMA Band V: 1.96
	Part number	025.901X1.0001	Type	PIFA
	Manufacturer	AWAN	Peak gain (dBi)	WCDMA Band II: -1.24 WCDMA Band IV: -0.20 WCDMA Band V: -2.27
	Part number	025.901WX.0001	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 subjective to this standard	
<b>Tx Frequency</b>	<b>WCDMA:</b> Band V: 826.4 MHz ~ 846.6 MHz Band II: 1852.4 MHz ~ 1907.6 MHz Band IV: 1712.4 MHz ~ 1752.6 MHz
<b>Rx Frequency</b>	<b>WCDMA:</b> Band V: 871.4 MHz ~ 891.6 MHz Band II: 1932.4 MHz ~ 1987.6 MHz Band IV: 2112.4 MHz ~ 2152.6 MHz
<b>Maximum Output Power to Antenna</b>	<b>WCDMA:</b> Band V: 23.73 dBm Band II: 24.18 dBm Band IV: 24.19 dBm
<b>Type of Modulation</b>	WCDMA: BPSK (Uplink) HSDPA: 64QAM (Downlink) HSUPA: QPSK (Uplink)

## 1.3 Modification of EUT

No modifications made to the EUT during the testing.



### 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.	<b>Sporton Site No.</b>
	TH03-HY
Test Engineer	Benjamin Lin
Temperature (°C)	23.5~25
Relative Humidity (%)	49.4~52

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.	<b>Sporton Site No.</b>
	03CH16-HY (TAF Code: 3786)
Test Engineer	Andy Yang, Karl Hou and Wilson Wu
Temperature (°C)	20~25
Relative Humidity (%)	50~60
Remark	The Radiated Spurious Emission test item subcontracted to Sporton International Inc. Wensan Laboratory

**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 declared by 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 the test items were validated and recorded in accordance with the standards without any modification during the testing.
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.

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, and adjusting the measurement antenna orientation, following C63.26 exploratory test procedures and find EUT with accessory for Cellular Band and PCS Band; Z Plane with 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.

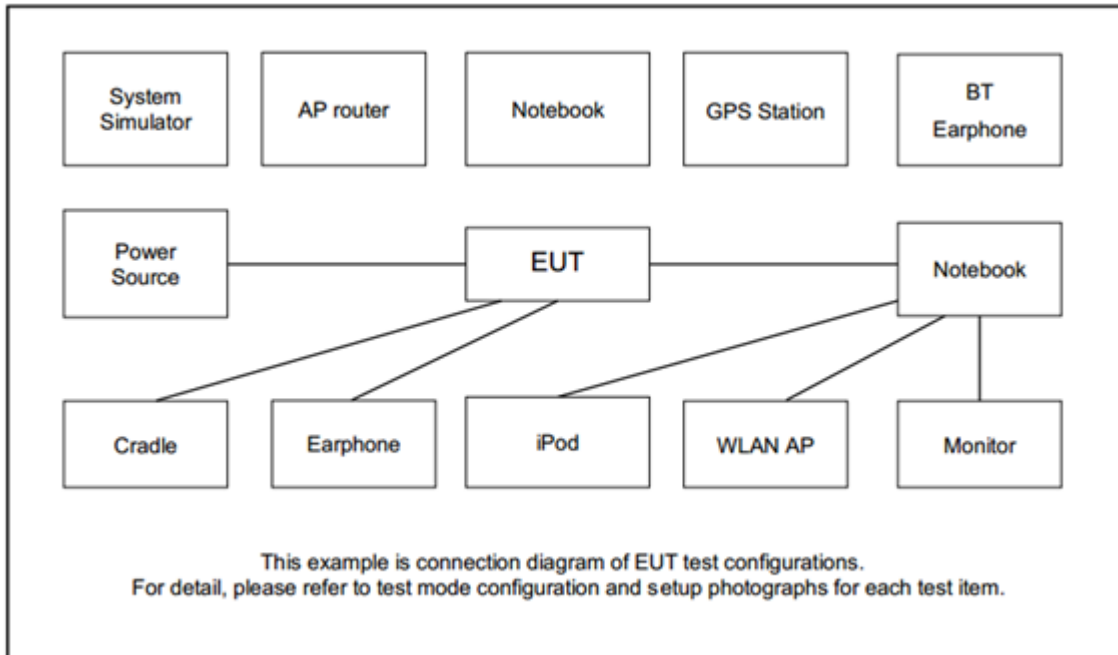
Test modes are chosen to be reported as the worst case configuration below:

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	8821C	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

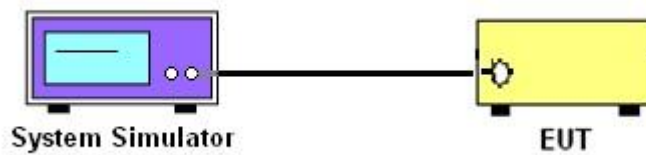
### 3 Conducted Test Result

#### 3.1 Measuring Instruments

Please refer to the measuring equipment list in 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 is 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.

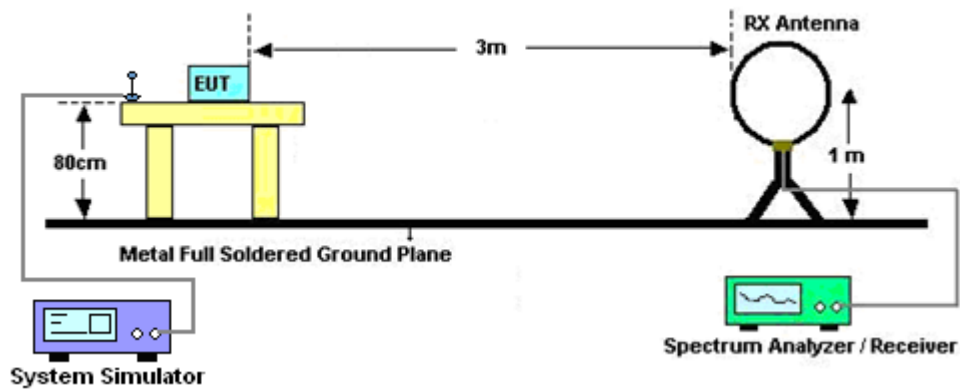
## 4 Radiated Test Items

### 4.1 Measuring Instruments

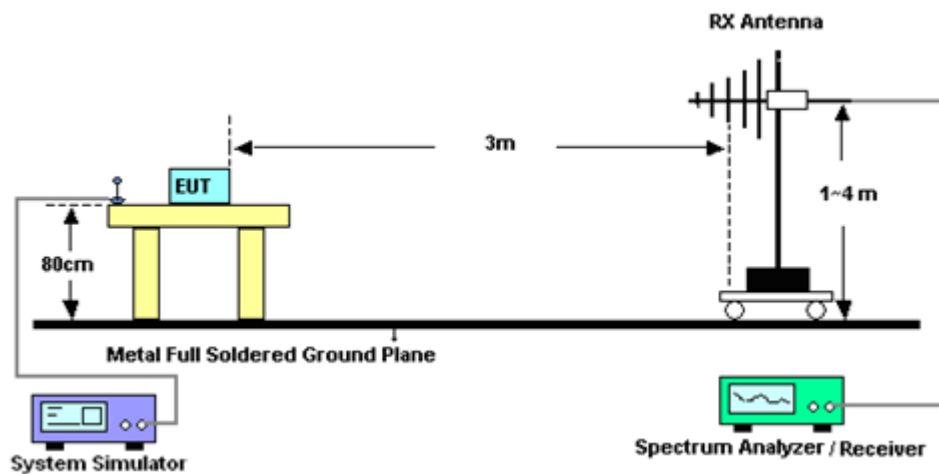
Please refer to the measuring equipment list in this test report.

### 4.2 Test Setup

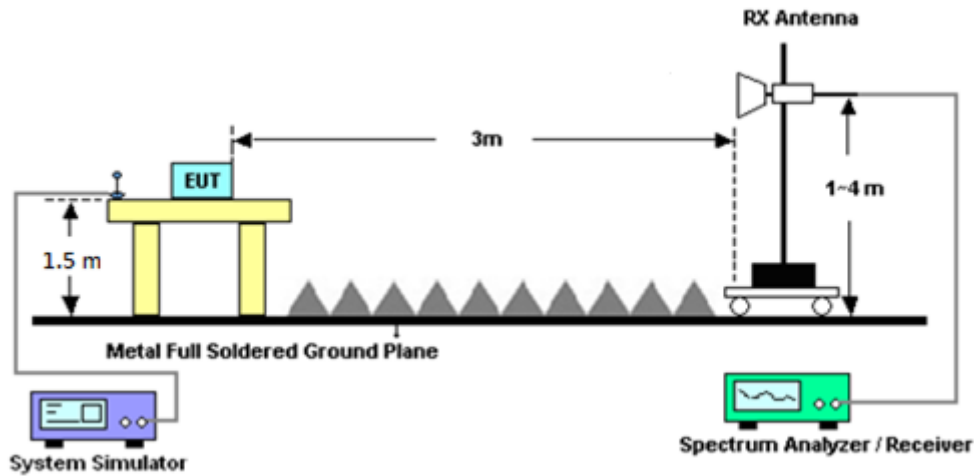
For radiated test below 30MHz



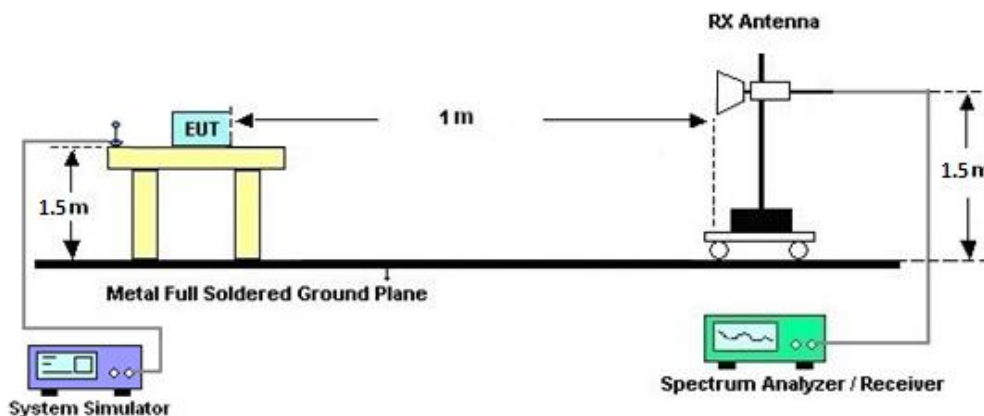
For radiated test from 30MHz to 1GHz



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 starts from 9 kHz to 30 MHz, is pre-scanned and the result which is 20 dB lower than the limit line is 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 is 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 is set 3 meters away from the receiving antenna, which is mounted on the antenna tower.
3. The table is 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 is substituted in place of the EUT and is 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.  $EIRP (dBm) = S.G. Power - Tx Cable Loss + Tx Antenna Gain$
11.  $ERP (dBm) = EIRP - 2.15$
12. The RF fundamental frequency shall 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	Dec. 25, 2021~ Dec. 28, 2021	Sep. 06, 2022	Radiation (03CH16-HY)
Signal Generator	Agilent	MG3694C	163401	0.1Hz~40GHz	Jan. 31, 2021	Dec. 25, 2021~ Dec. 28, 2021	Jan. 30, 2022	Radiation (03CH16-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00800N1D01N-06	41912 & 05	30MHz to 1GHz	Feb. 08, 2021	Dec. 25, 2021~ Dec. 28, 2021	Feb. 07, 2022	Radiation (03CH16-HY)
Bilog Antenna	TESEQ	CBL 6111D & 00802N1D01N-06	47020 & 06	30MHz to 1GHz	Oct. 09, 2021	Dec. 25, 2021~ Dec. 28, 2021	Oct. 08, 2022	Radiation (03CH16-HY)
Horn Antenna	SCHWARZBECK	BBHA 9120 D	9120D-02114	1G~18GHz	Aug. 04, 2021	Dec. 25, 2021~ Dec. 28, 2021	Aug. 03, 2022	Radiation (03CH16-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA9170	00991	18GHz-40GHz	May 12, 2021	Dec. 25, 2021~ Dec. 28, 2021	May 11, 2022	Radiation (03CH16-HY)
Amplifier	SONOMA	310N	371607	9kHz~1G	Jul. 05, 2021	Dec. 25, 2021~ Dec. 28, 2021	Jul. 04, 2022	Radiation (03CH16-HY)
Amplifier	EMCI	EMC051845SE	980729	1-18GHz	Jul. 09, 2021	Dec. 25, 2021~ Dec. 28, 2021	Jul. 08, 2022	Radiation (03CH16-HY)
Preamplifier	Keysight	83017A	MY53270264	1GHz~26.5GHz	Dec. 09, 2021	Dec. 25, 2021~ Dec. 28, 2021	Dec. 08, 2022	Radiation (03CH16-HY)
EMI Test Receiver	Keysight	N9038A	MY57290111	3Hz~26.5GHz	Dec. 15, 2021	Dec. 25, 2021~ Dec. 28, 2021	Dec. 14, 2022	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY11680/4PE	NA	Aug. 28, 2021	Dec. 25, 2021~ Dec. 28, 2021	Aug. 27, 2022	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 104	MY11688/4PE	NA	Aug. 28, 2021	Dec. 25, 2021~ Dec. 28, 2021	Aug. 27, 2022	Radiation (03CH16-HY)
RF Cable	HUBER + SUHNER	SUCOFLEX 102	EC-A5-300-5757	NA	Aug. 28, 2021	Dec. 25, 2021~ Dec. 28, 2021	Aug. 27, 2022	Radiation (03CH16-HY)
Software	Audix	E3 6.2009-8-24	RK-001136	N/A	N/A	Dec. 25, 2021~ Dec. 28, 2021	N/A	Radiation (03CH16-HY)
Controller	ChainTek	3000-1	N/A	Control Turn table & Ant Mast	N/A	Dec. 25, 2021~ Dec. 28, 2021	N/A	Radiation (03CH16-HY)
Antenna Mast	ChainTek	MBS-520-1	N/A	1m~4m	N/A	Dec. 25, 2021~ Dec. 28, 2021	N/A	Radiation (03CH16-HY)
Turn Table	ChainTek	T-200-S-1	N/A	0~360 Degree	N/A	Dec. 25, 2021~ Dec. 28, 2021	N/A	Radiation (03CH16-HY)
Base Station (Measure)	Rohde & Schwarz	CMU200	117995	GSM / GPRS / WCDMA / CDMA	Jul. 13, 2021	Dec. 17, 2021	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% ( $U = 2Uc(y)$ )	2.86 dB
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### Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	3.68 dB
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### Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	4.00 dB
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## Appendix A. Test Results of Conducted Test

### Conducted Output Power(Average power) & ERP / EIRP

WCDMA Band V Maximum Average Power [dBm] (GT - LC = 1.96 dB)					
Channel	4132	4182	4233	ERP (dBm)	ERP (W)
Frequency	826.4	836.4	846.6		
RMC 12.2K	23.73	23.61	23.55	23.54	0.2259
HSDPA Subtest-1	22.95	22.82	22.90		
HSDPA Subtest-2	22.91	22.98	22.73		
HSDPA Subtest-3	22.34	22.37	22.43		
HSDPA Subtest-4	22.33	22.30	22.39		
HSUPA Subtest-1	22.70	22.84	22.86		
Limit	ERP < 7 W				

WCDMA Band II Maximum Average Power [dBm] (GT - LC = 1.99 dB)					
Channel	9262	9400	9538	EIRP (dBm)	EIRP (W)
Frequency	1852.4	1880	1907.6		
RMC 12.2K	23.97	24.02	24.18	26.17	0.4140
HSDPA Subtest-1	23.18	22.91	23.22		
HSDPA Subtest-2	23.04	22.89	23.08		
HSDPA Subtest-3	22.69	22.61	22.80		
HSDPA Subtest-4	22.58	22.72	22.76		
HSUPA Subtest-1	23.04	23.10	23.21		
Limit	EIRP < 2W				

WCDMA Band IV Maximum Average Power [dBm] (GT - LC = 1.99 dB)					
Channel	1312	1413	1513	EIRP (dBm)	EIRP (W)
Frequency	1712.4	1732.6	1752.6		
RMC 12.2K	24.12	24.02	24.19	26.18	0.4150
HSDPA Subtest-1	23.16	23.35	23.53		
HSDPA Subtest-2	23.09	23.20	23.51		
HSDPA Subtest-3	22.81	22.88	23.12		
HSDPA Subtest-4	22.73	22.89	22.88		
HSUPA Subtest-1	23.19	23.29	23.26		
Limit	EIRP < 1W				



## 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	1652	-57.34	-13	-44.34	-72.97	-60.82	3.89	9.51	H
	2480	-41.64	-13	-28.64	-61	-45.24	4.81	10.56	H
	3305	-53.52	-13	-40.52	-75.7	-58.03	5.56	12.22	H
									H
									H
									H
	1652	-57.60	-13	-44.60	-73.13	-61.08	3.89	9.51	V
	2480	-46.30	-13	-33.30	-65.65	-49.9	4.81	10.56	V
	3305	-53.32	-13	-40.32	-75.41	-57.83	5.56	12.22	V
									V
									V
									V
Middle	1672	-56.35	-13	-43.35	-72.01	-59.92	3.91	9.63	H
	2512	-47.27	-13	-34.27	-66.64	-50.95	4.84	10.67	H
	3344	-53.59	-13	-40.59	-75.7	-58.22	5.60	12.38	H
									H
									H
									H
	1672	-55.48	-13	-42.48	-71.07	-59.05	3.91	9.63	V
	2512	-48.42	-13	-35.42	-67.76	-52.1	4.84	10.67	V
	3344	-53.81	-13	-40.81	-75.85	-58.44	5.60	12.38	V
									V
									V
									V



Highest	1696	-55.71	-13	-42.71	-71.43	-59.4	3.94	9.78	H
	2539	-49.64	-13	-36.64	-69.26	-53.46	4.87	10.83	H
	3386	-53.71	-13	-40.71	-75.75	-58.4	5.64	12.47	H
									H
									H
									H
	1696	-55.74	-13	-42.74	-71.42	-59.43	3.94	9.78	V
	2539	-48.78	-13	-35.78	-68.18	-52.6	4.87	10.83	V
	3386	-53.93	-13	-40.93	-75.91	-58.62	5.64	12.47	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	3705	-51.31	-13	-38.31	-75.11	-57.6814	5.93	12.30	H
	5557	-47.79	-13	-34.79	-77.01	-53.35726	7.75	13.31	H
	7409	-40.94	-13	-27.94	-76.48	-43.41822	8.72	11.20	H
									H
									H
									H
	3705	-51.54	-13	-38.54	-75.26	-57.9114	5.93	12.30	V
	5557	-47.86	-13	-34.86	-77.11	-53.42726	7.75	13.31	V
	7409	-40.51	-13	-27.51	-76.31	-42.98822	8.72	11.20	V
									V
									V
									V
Middle	3760	-52.05	-13	-39.05	-76.14	-58.37	5.98	12.30	H
	5640	-47.86	-13	-34.86	-77.19	-53.53	7.81	13.48	H
	7520	-40.28	-13	-27.28	-76.22	-42.79	8.77	11.28	H
									H
									H
									H
	3760	-51.20	-13	-38.20	-75.25	-57.52	5.98	12.30	V
	5640	-47.76	-13	-34.76	-77.08	-53.43	7.81	13.48	V
	7520	-40.24	-13	-27.24	-76.52	-42.75	8.77	11.28	V
									V
									V
									V



Highest	3815	-52.02	-13	-39.02	-76.32	-58.2602	6.03	12.27	H
	5722	-47.58	-13	-34.58	-77.24	-53.10996	7.88	13.41	H
	7630	-39.60	-13	-26.60	-76.06	-42.4402	8.82	11.66	H
									H
									H
									H
	3815	-51.97	-13	-38.97	-76.26	-58.21	6.03	12.27	V
	5722	-47.13	-13	-34.13	-76.77	-52.66	7.88	13.41	V
	7630	-39.61	-13	-26.61	-76.3	-42.45	8.82	11.66	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	3424	-52.63	-13	-39.63	-75.45	-59.46	5.67	12.50	H
	5137	-46.69	-13	-33.69	-75.32	-51.62	7.55	12.47	H
	6849	-43.68	-13	-30.68	-77.04	-47.44	8.44	12.20	H
									H
									H
									H
	3424	-53.26	-13	-40.26	-76.02	-60.09	5.67	12.50	V
	5137	-48.52	-13	-35.52	-76.97	-53.45	7.55	12.47	V
	6849	-43.02	-13	-30.02	-76.2	-46.78	8.44	12.20	V
									V
									V
									V
Middle	3465	-52.35	-13	-39.35	-75.55	-59.1122	5.71	12.47	H
	5197	-44.69	-13	-31.69	-73.07	-49.99326	7.57	12.88	H
	6930	-42.45	-13	-29.45	-76.28	-45.889	8.50	11.94	H
									H
									H
									H
	3465	-52.82	-13	-39.82	-75.94	-59.5822	5.71	12.47	V
	5197	-44.69	-13	-31.69	-73.02	-49.99326	7.57	12.88	V
	6930	-42.56	-13	-29.56	-76.44	-45.999	8.50	11.94	V
									V
									V
									V



Highest	3505	-52.05	-13	-39.05	-75.58	-58.68	5.74	12.37	H
	5257	-46.41	-13	-33.41	-74.96	-52.04	7.60	13.23	H
	7010	-41.97	-13	-28.97	-76.27	-45.26	8.55	11.84	H
									H
									H
									H
	3505	-52.46	-13	-39.46	-75.89	-59.09	5.74	12.37	V
	5257	-44.59	-13	-31.59	-73.05	-50.22	7.60	13.23	V
	7010	-41.46	-13	-28.46	-76	-44.75	8.55	11.84	V
									V
									V
									V

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