

Partial FCC Test Report

(PART 24)

Report No.: RFBFLF-WTW-P22010014A-1

Test Model: B2502CB, B2502CBA, P2552CB, PX560CB, BW560CB, B2502FB,
B2502FBA, P2552FB, PX560FB, BW560FB

Received Date: Dec. 20, 2021

Test Date: Jun. 24 ~ Jun. 29, 2022

Issued Date: Jul. 05, 2022

Applicant: ASUSTeK COMPUTER INC.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lin Kou Laboratories

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

Test Location: No. 70, Wenming Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)

**FCC Registration /
Designation Number:** 281270 / TW0032



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Release Control Record

Issue No.	Description	Date Issued
RFBFLF-WTW-P22010014A-1	Original Release	Jul. 05, 2022

1 Certificate of Conformity

Product: Notebook PC/ExpertBook

Brand: ASUS

Test Model: B2502CB, B2502CBA, P2552CB, PX560CB, BW560CB, B2502FB, B2502FBA, P2552FB, PX560FB, BW560FB

Sample Status: Engineering Sample

Applicant: ASUSTeK COMPUTER INC.

Test Date: Jun. 24 ~ Jun. 29, 2022

Standards: FCC Part 24, Subpart E

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Lena Wang, **Date:** Jul. 05, 2022
Lena Wang / Specialist

Approved by : Jeremy Lin, **Date:** Jul. 05, 2022
Jeremy Lin / Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 24 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 24.232	Equivalent Isotropic Radiated Power	N/A	Refer to Note
2.1047	Modulation Characteristics	N/A	Refer to Note
24.232(d)	Peak to Average Ratio	N/A	Refer to Note
2.1055 24.235	Frequency Stability	N/A	Refer to Note
2.1049	Occupied Bandwidth	N/A	Refer to Note
24.238	Band Edge Measurements	N/A	Refer to Note
2.1051 24.238	Conducted Spurious Emissions	N/A	Refer to Note
2.1053 24.238	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -35.21 dB at 47.46 MHz.

Note:

1. This report is a partial report, only test items of Radiated Spurious Emissions tests was performed for this report. Other testing data please refer to Sporton report no.: FG051802A_R01, FG051802B_R01, FG051802G_R01, FG051802H_R01 for module (Brand: Fibocom, Model: FM350-GL).
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.00 dB
	30MHz ~ 200MHz	2.91 dB
	200MHz ~ 1000MHz	2.93 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	1.76 dB
	18GHz ~ 40GHz	1.77 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Rohde & Schwarz	ESR3	102783	Dec. 20, 2021	Dec. 19, 2022
Spectrum Analyzer KEYSIGHT	N9020B	MY60110513	Dec. 24, 2021	Dec. 23, 2022
BILOG Antenna SCHWARZBECK	VULB9168	1214	Oct. 27, 2021	Oct. 26, 2022
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1170	Nov. 14, 2021	Nov. 13, 2022
HORN Antenna SCHWARZBECK	BBHA 9170	995	Nov. 14, 2021	Nov. 13, 2022
Loop Antenna EMCI	EM-6879	269	Sep. 16, 2021	Sep. 15, 2022
Loop Antenna TESEQ	HLA 6121	45745	Jul. 21, 2021	Jul. 20, 2022
Preamplifier EMCI	EMC330N	980798	Jan. 17, 2022	Jan. 16, 2023
Preamplifier EMCI	EMC118A45SE	980809	Dec. 30, 2021	Dec. 29, 2022
Preamplifier EMCI	EMC184045SE	980786	Jan. 17, 2022	Jan. 16, 2023
RF signal cable EMCI	EMC104-SM-SM- (9000+2000+1000)	201244+ 201232+ 210103	Jan. 17, 2022	Jan. 16, 2023
RF signal cable EMCI	EMCCFD400-NM- NM-(9000+300+500)	201251+ 201249+ 201248	Jan. 17, 2022	Jan. 16, 2023
RF signal cable EMCI	EMC101G-KM-KM- (5000+3000+2000)	201261+201258+2 01249	Jan. 17, 2022	Jan. 16, 2023
Software BV ADT	ADT_Radiated_V7.6. 15.9.5	NA	NA	NA
Antenna Tower Max-Full	MFA-515BSN	NA	NA	NA
Turn Table Max-Full	MFT-201SS	NA	NA	NA
Turn Table Controller Max-Full	MF-7802BS	MF780208676	NA	NA
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY551 90004/MY55190007/ MY55210005	Jul. 12, 2021	Jul. 11, 2022
Radio Communication Test Station Anritsu	MT8000A	6262135011	Nov. 18, 2021	Nov. 17, 2022
Radio Communication Test Station Anritsu	MT8821C	6261806803	Feb. 16, 2022	Feb. 15, 2023

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in WM Chamber 9.

3 General Information

3.1 General Description of EUT

Product	Notebook PC/ExpertBook	
Brand	ASUS	
Test Model	B2502CB, B2502CBA, P2552CB, PX560CB, BW560CB, B2502FB, B2502FBA, P2552FB, PX560FB, BW560FB	
Model Difference	Refer to Note as below	
Status of EUT	Engineering Sample	
Power Supply Rating	11.4 Vdc (Battery) 5V/9V/15V/20V Vdc (Adapter)	
Modulation Type	WCDMA	QPSK
	LTE	QPSK, 16QAM, 64QAM, 256QAM
	5GNR	$\pi/2$ BPSK, QPSK, 16QAM, 64QAM, 256QAM
Frequency Range	WCDMA	1852.4 ~ 1907.6 MHz
	LTE Band 2 (Channel Bandwidth: 1.4 MHz)	1850.7 ~ 1909.3 MHz
	LTE Band 2 (Channel Bandwidth: 3 MHz)	1851.5 ~ 1908.5 MHz
	LTE Band 2 (Channel Bandwidth: 5 MHz)	1852.5 ~ 1907.5 MHz
	LTE Band 2 (Channel Bandwidth: 10 MHz)	1855.0 ~ 1905.0 MHz
	LTE Band 2 (Channel Bandwidth: 15 MHz)	1857.5 ~ 1902.5 MHz
	LTE Band 2 (Channel Bandwidth: 20 MHz)	1860.0 ~ 1900.0 MHz
	LTE Band 25 (Channel Bandwidth: 1.4 MHz)	1850.7 ~ 1914.3 MHz
	LTE Band 25 (Channel Bandwidth: 3 MHz)	1851.5 ~ 1913.5 MHz
	LTE Band 25 (Channel Bandwidth: 5 MHz)	1852.5 ~ 1912.5 MHz
	LTE Band 25 (Channel Bandwidth: 10 MHz)	1855.0 ~ 1910.0 MHz
	LTE Band 25 (Channel Bandwidth: 15 MHz)	1857.5 ~ 1907.5 MHz
	LTE Band 25 (Channel Bandwidth: 20 MHz)	1860.0 ~ 1905.0 MHz
	n2 (Channel Bandwidth 5MHz)	1852.5MHz ~ 1907.5MHz
	n2 (Channel Bandwidth 10MHz)	1855.0MHz ~ 1905.0MHz
	n2 (Channel Bandwidth 15MHz)	1857.5MHz ~ 1902.5MHz
	n2 (Channel Bandwidth 20MHz)	1860.0MHz ~ 1900.0MHz
	n25 (Channel Bandwidth 5MHz)	1852.5MHz ~ 1912.5MHz
n25 (Channel Bandwidth 10MHz)	1855.0MHz ~ 1910.0MHz	
n25 (Channel Bandwidth 15MHz)	1857.5MHz ~ 1907.5MHz	
n25 (Channel Bandwidth 20MHz)	1860.0MHz ~ 1905.0MHz	

Antenna Type	Refer to Note as below
Accessory Device	Refer to Note as below
Data Cable Supplied	Refer to Note as below
Tx / Rx Function	1Tx / 4Rx

Note:

1. All models are listed as below.

Brand	Model	Difference
ASUS	B2502CB	For marketing purpose
	B2502CBA	
	P2552CB	
	PX560CB	
	BW560CB	
	B2502FB	
	B2502FBA	
	P2552FB	
	PX560FB	
	BW560FB	

2. The EUT contains the following accessories.

Accessories information		
Main Board	Brand	ASUS
	Model	B2402FBA MB
LCD Panel 1	Brand	BOE
	Model	NT156WHM-N44
	spec	LCD 15.6' HD US EDP
LCD Panel 2	Brand	INNOLUX
	Model	N156BGA-EA3
	spec	LCD 15.6' HD US EDP
LCD Panel 3	Brand	BOE
	Model	NT156FHM-N62
	spec	LCD 15.6' FHD EDP
LCD Panel 4	Brand	INNOLUX
	Model	N156HGA-EA3
	spec	LCD 15.6' FHD EDP
LCD Panel 5	Brand	BOE
	Model	NE156FHM-N41
	spec	LCD 15.6' FHD WVV EDP
LCD Panel 6	Brand	AUO
	Model	B156HAN02.1
	spec	LCD 15.6' FHD WVV EDP
LCD Panel 7	Brand	INNOLUX
	Model	N156HCE-EN1
	spec	LCD 15.6' FHD WV US EDP 400NITS
Camera 1	Brand	AZWAVE
	Model	AM-9BF56EB-D
	spec	CAMERA HD RGB/IR ARRAY MIC CR
Camera 2	Brand	SUPREME
	Model	AHDFN050
	spec	CAMERA HD FIX 3.3V ARRAYMIC CL
Camera 3	Brand	AZWAVE
	Model	AM-6SF56A2-J
	spec	CAMERA HD FIX 3.3V ARRAYMIC CL
Camera 4	Brand	SUPREME
	Model	AHDFN171
	spec	CAMERA HD FIX 3.3V ARRAYMIC CL

Accessories information		
CPU 1	Brand	Intel/BGA1744
	Model	I7-1260P 12C

Accessories information		
CPU 2	spec	2.1G
	Brand	Intel/BGA1744
	Model	I5-1240P 12C
CPU 3	spec	1.7G
	Brand	Intel/BGA1744
	Model	I3-1215U 6C
V-Pro CPU 1	spec	1.2GHz
	Brand	Intel/BGA1744
	Model	I5-1250P
V-Pro CPU 2	spec	1.7GHz
	Brand	Intel/BGA1744
	Model	I7-1270P
M.2 SSD 1	spec	2.2GHz
	Brand	WD
	Model	SDBPNPZ-256G-1002
M.2 SSD 2	spec	256GB M2 2280 NVME
	Brand	KST
	Model	OM8PDP3256B-AB1
M.2 SSD 3	spec	256GB M2 2280 NVME
	Brand	INT
	Model	SSDPEKNU512GZ
M.2 SSD 4	spec	512GB M2 2280 NVME
	Brand	MICRON
	Model	MTFDHBA512QFD
M.2 SSD 5	spec	512G M2 2280 NVME
	Brand	INT
	Model	SSDPEKNU010TZ
M.2 SSD 6	spec	1TB M2 2280 NVME
	Brand	MICRON
	Model	MTFDHBA1T0QFD
M.2 SSD 7	spec	1TB M2 2280 NVME
	Brand	SAMSUNG
	Model	MZVL2512HCJQ
M.2 SSD 8	spec	512GB M2 2280 NVME
	Brand	MICRON
	Model	MTFDKBA512TFH
M.2 SSD 9	spec	512GB M2 2280 NVME
	Brand	SAMSUNG
	Model	MZVL21T0HCLR
M.2 SSD 10	spec	1TB M2 2280 NVME
	Brand	MICRON
	Model	MTFDKBA1T0TFH
M.2 SSD 11	spec	1TB M2 2280 NVME
	Brand	SAMSUNG
	Model	MZVL22T0HBLB
M.2 SSD 12	spec	2TB M2 2280 NVME
	Brand	MICRON
	Model	MTFDKBA2T0TFH
HDD 1	spec	2TB M2 2280 NVME
	Brand	TOSHIBA
	Model	MQ04ABF100
HDD 2	spec	1 TB-5400rpm
	Brand	SEAGATE
	Model	ST1000LM035
HDD 3	spec	1 TB-5400rpm
	Brand	SEAGATE
	Model	ST1000LM049
HDD 4	spec	1 TB-7200rpm
	Brand	SEAGATE
	Model	ST2000LM007
HDD 4	spec	2 TB-5400rpm
	Brand	SEAGATE

Accessories information		
BT/WLAN Module	Brand	INTEL
	Model	AX211D2W
WWAN Module	Brand	Fibocom
	Model	FM350-GL
Battery 1	Brand	ASUS
	Model	B31N1909
	Power Rating	CPT/GLP606080R/3S1P/11.4V/48WH
SO-DIMM	Manufacturer	CPT
	SPEC	DDR4, 3200 MHz (4G/8G/16G/32G)
AC Adapter 1	Brand	ASUS
	Model	AD10380
	AC Input	100 - 240 Vac; 50 - 60 Hz; 1.5 A
	DC Output	5Vdc; 3A / 9Vdc; 3A / 15Vdc; 3A / 20Vdc; 3.25A
	DC Output Cable	1.5m / 0 core shielding
	Manufacturer	R33164
AC Adapter 2	Brand	PI
	Model	ASUS
	AC Input	A19-065N3A
	DC Output	100 - 240 Vac; 50 - 60 Hz; 1.5 A
	DC Output Cable	5Vdc; 3A / 9Vdc; 3A / 15Vdc; 3A / 20Vdc; 3.25A
AC power cable	Manufacturer	1.5m / 0 core shielding
	Signal Line	0.8 meter / no shielding/ o core
AC Adapter 3	Brand	ASUS
	Model	ADP-65TW A
	AC Input	100 - 240 Vac; 50 - 60 Hz; 1.5 A
	DC Output	5Vdc; 3A / 9Vdc; 3A / 15Vdc; 3A / 20Vdc; 3.25A
Type C to Type C USB Cable 1	Manufacturer	DELTA
	Brand	MECIMEX
	Model	USB2.0 TYPE C TO C CABLE
Stylus Pen	Signal Line	1.5 meter
	Brand	Shenzhen qianfenyi intelligent technology co., LTD.
	Model	Active Stylus SA201H
	Manufacturer	MAXEYE

**After pretesting, Adapter 1 was the worst case and chosen for final test.

3. The antenna information is listed as below.

Ant. Type	Brand	Model
PIFA	PULSE	Ant. 0: TZ21131 (1415-08YT0A9)
		Ant. 1: TZ21134 (1415-08YQ0A9)
		Ant. 2: TZ21138 (1415-08YR0A9)
		Ant. 3: TZ21139 (1415-08YS0A9)

Band	WCDMA			LTE																		
	II	IV	V	2	4	5	7	12	13	14	17	25	26	30	38	41	48	66	71			
Peak Gain (dBi)	NB	Ant. 0	2.1	2.33	-0.74	2.1	2.33	-0.74	1.7	0.8	1.49	1.54	0.77	2.1	0.22	3.38	2.42	2.68	1.78	2.47	1.03	
		Ant. 1	0.23	2.96	-0.07	0.23	2.96	-0.07	2.72	-	0.6	0.36	-	0.23	-0.07	3.9	3.13	3.22	2.21	2.96	-	
		Ant. 2	3.33	-	-	3.33	-	-	4.24	-	-	-	-	-	3.33	-	1.35	3.59	4.93	5.07	-	-
		Ant. 3	2.44	1.52	-	2.44	1.52	-	2.31	-	-	-	-	-	2.44	-	1.1	1.93	2.31	2.67	1.52	-
	TB	Ant. 0	2.21	1.35	-3.19	2.21	1.35	-3.19	0.73	-2.15	-3.91	-4.53	-2.21	2.25	-3.19	2.85	0.98	2.18	6.67	1.35	-1.81	
		Ant. 1	0.35	-0.29	-3.13	0.35	-0.29	-3.13	3.92	-	-6.59	-4.41	-	0.35	-3.13	0.99	3.92	3.96	4.89	-0.29	-	
		Ant. 2	1.65	-	-	1.65	-	-	2.36	-	-	-	-	-	1.65	-	1.42	2.25	2.86	7.94	-	-
		Ant. 3	0.79	-0.12	-	0.79	-0.12	-	0.18	-	-	-	-	-	1.7	-	4.16	-0.64	0.28	3.05	-0.12	-

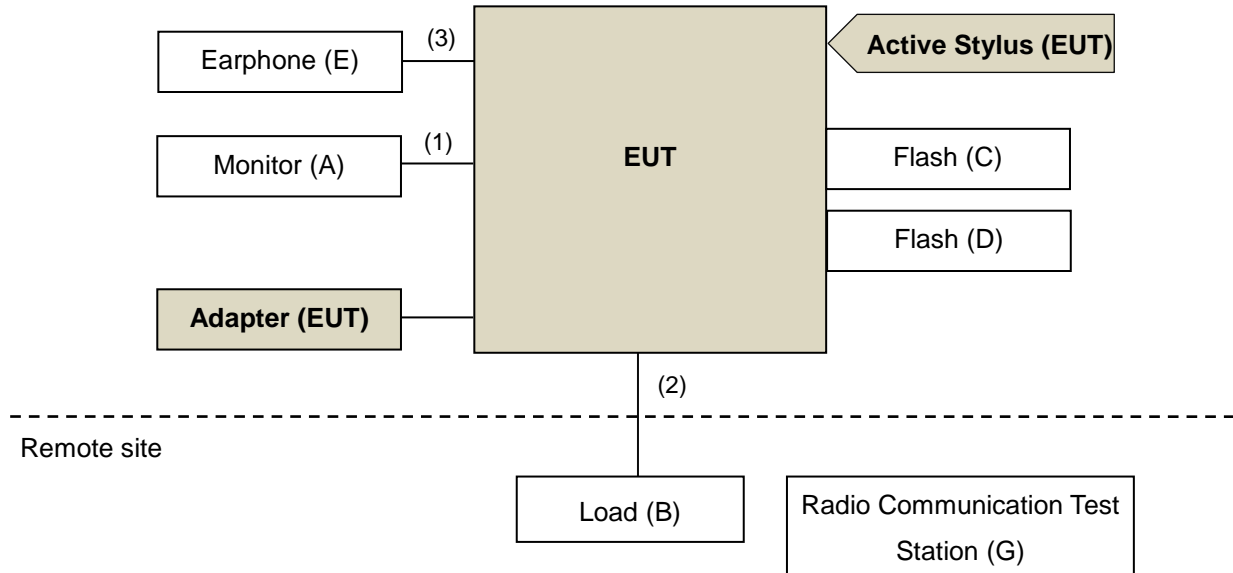
Band			5G NR										
			2	5	7	25	30	38	41	66	71	77	78
Peak Gain (dBi)	NB	Ant. 0	2.1	-0.74	1.7	2.1	3.38	2.42	2.68	2.47	1.03	1.78	1.08
		Ant. 1	0.23	-0.07	2.72	0.23	3.9	3.13	3.22	2.96	-	2.6	5.38
		Ant. 2	3.33	-	4.24	3.33	1.35	3.59	4.93	-	-	5.07	5.8
		Ant. 3	2.44	-	2.31	2.44	1.1	1.93	2.31	1.52	-	3.36	2.62
	TB	Ant. 0	2.21	-3.19	0.73	2.25	2.85	0.98	2.18	1.35	-1.81	7.8	6.92
		Ant. 1	0.35	-3.13	3.92	0.35	0.99	3.92	3.96	-0.29	-	5.34	4.23
		Ant. 2	1.65	-	2.36	1.65	1.42	2.25	2.86	-	-	7.94	7.55
		Ant. 3	0.79	-	0.18	1.7	4.16	-0.64	0.28	-0.12	-	4.28	2.35

4. The above Antenna information refers to the manufacturer's antenna specifications, the laboratory shall not be held responsible.
5. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.
6. The EUT contains certified WWAN module with FCC ID: MSQFM350GL.

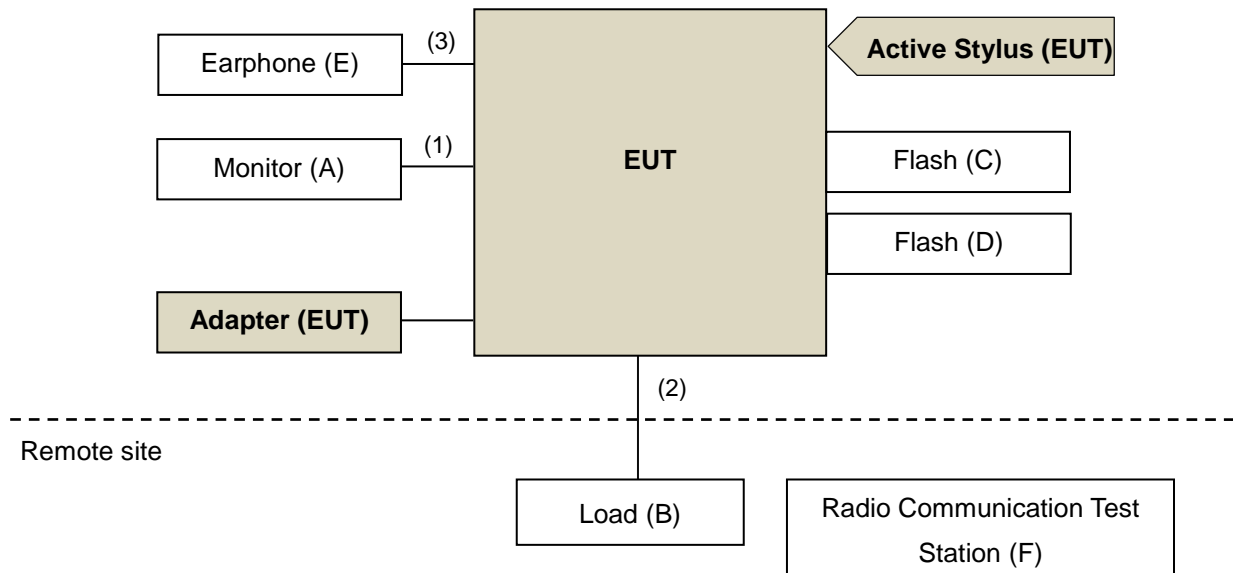
3.2 Configuration of System under Test

<Radiated Emission Test>

WCDMA & LTE



5GNR



3.2.1 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Product	Brand	Model No.	Serial No.	FCC ID
A	Monitor	ASUS	VP247	N/A	N/A
B	Load	N/A	N/A	N/A	N/A
C	Flash	HP	v250W	05	N/A
D	Flash	SanDisk	SDDDC3-032G	N/A	N/A
E	Earphone	Apple	MB77PFEB	N/A	N/A
F	Radio Communication Test Station	Anritsu	MT8000A	6262135011	N/A
G	Radio Communication Test Station	Anritsu	MT8821C	6261806803	N/A

No.	Signal Cable Description of The Above Support Units
1.	HDMI Cable: 2m
2.	LAN Cable: 1.5m
3.	Audio Cable: 1.6m

Note:

1. All power cords of the above support units are non-shielded (1.8m).

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis, and antenna ports.

The worst case was found when positioned as the table below. Following channel(s) was (were) selected for the final test as listed below:

Band	Radiated Emission
WCDMA	X-plane
LTE Band 2	X-plane
LTE Band 25	X-plane
NR Band 2	X-plane
NR Band 25	X-plane

WCDMA

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	Radiated Emission	9262 to 9538	9262	WCDMA

LTE Band 2

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Radiated Emission	18700 to 19100	18700	20 MHz	QPSK	1 RB / 0 RB Offset

LTE Band 25

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Radiated Emission	26140 to 26590	26365	20 MHz	QPSK	1 RB / 0 RB Offset

NR Band 2

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Radiated Emission	372000 to 380000	376000	20MHz	QPSK	1 RB / 1 RB Offset

NR Band 25

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Radiated Emission	372000 to 381000	376500	20MHz	QPSK	1 RB / 1 RB Offset

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
Radiated Emission	22 deg. C, 67 % RH	120 Vac, 60 Hz	Edison Lee, Wade Huang

3.4 EUT Operating Conditions

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

3.5 General Description of Applied Standards and references

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards and references:

Test Standard:

FCC 47 CFR Part 2

FCC 47 CFR Part 24

ANSI 63.26-2015

NOTE: All test items have been performed and recorded as per the above standards.

References Test Guidance:

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI/TIA/EIA-603-E 2016

NOTE: All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Radiated Emission Measurement

4.1.1 Limits of Radiated Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The emission limit is equal to -13 dBm.

4.1.2 Test Procedure

- a. In the semi-anechoic chamber, EUT placed on the 0.8m(below or equal 1GHz) and/or 1.5m(above 1GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- c. Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.
- d. Following C63.26 section 5.5 and 5.2.7
 $EIRP \text{ (dBm)} = E \text{ (dB}\mu\text{V/m)} + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m.
 $ERP \text{ (dBm)} = E \text{ (dB}\mu\text{V/m)} + 20\log(D) - 104.8 - 2.15$; where D is the measurement distance (in the far field region) in m.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz.
2. The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:

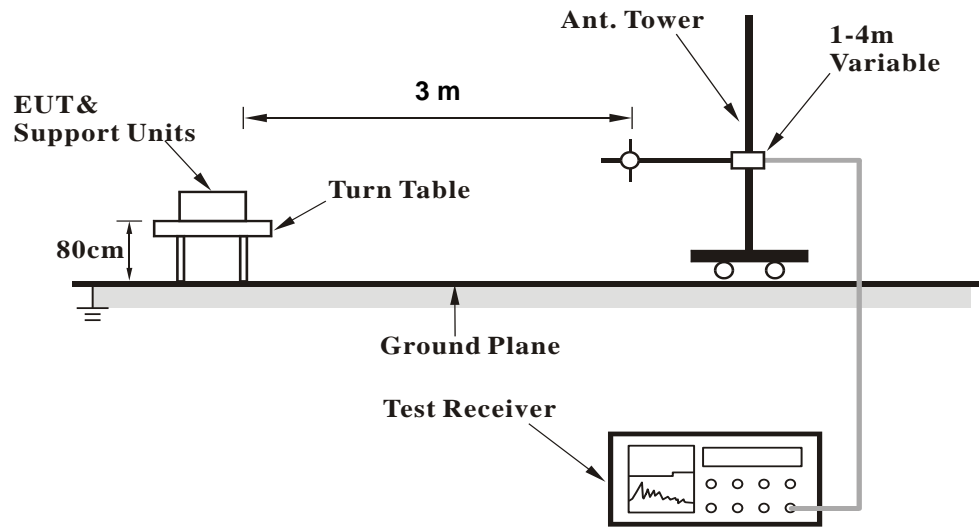
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

4.1.3 Deviation from Test Standard

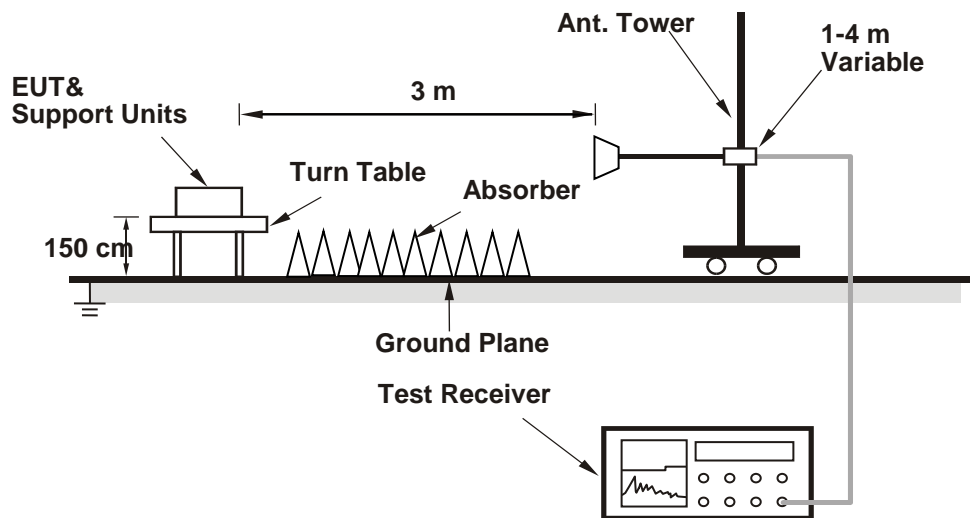
No deviation.

4.1.4 Test Setup

<Radiated Emission below or equal 1 GHz>



<Radiated Emission above 1 GHz>



For the actual test configuration, please refer to the attached file (Test Setup Photo).

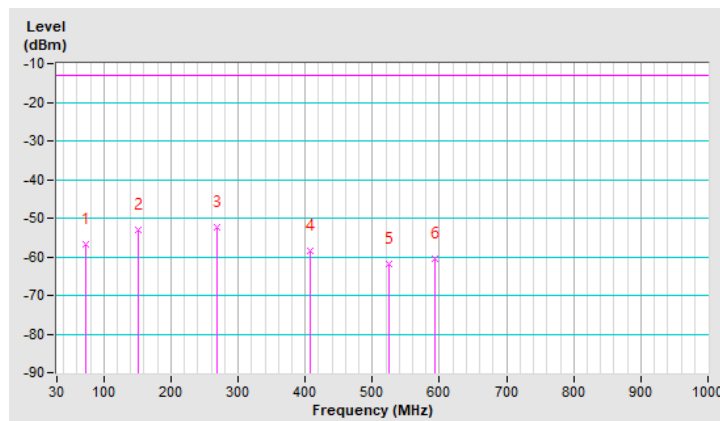
4.1.5 Test Results
Below 1GHz
WCDMA Band 2

RF Mode	TX WCDMA Band II	Channel	CH 9262 : 1852.4 MHz
Frequency Range	30MHz ~ 1GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBUV)	Correction Factor (dB/m)
1	73.65	-56.63	-13.00	-43.63	1.99 H	150	55.22	-111.85
2	151.25	-53.17	-13.00	-40.17	1.51 H	275	55.29	-108.46
3	267.65	-52.23	-13.00	-39.23	1.01 H	165	57.04	-109.27
4	408.30	-58.63	-13.00	-45.63	1.99 H	203	46.91	-105.54
5	525.67	-62.00	-13.00	-49.00	1.51 H	204	40.86	-102.86
6	592.60	-60.51	-13.00	-47.51	1.99 H	45	40.78	-101.29

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

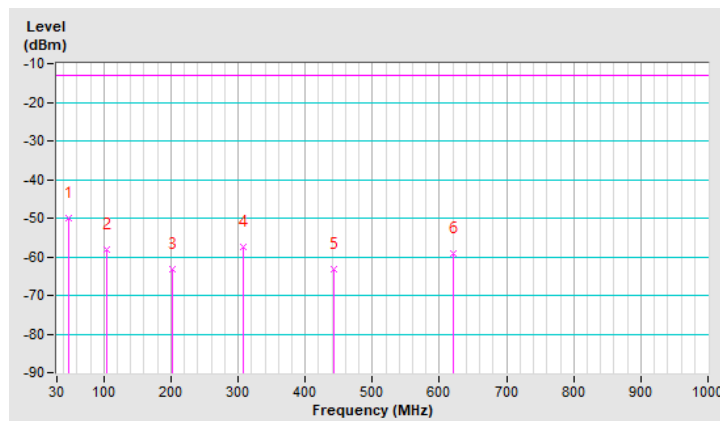


RF Mode	TX WCDMA Band II	Channel	CH 9262 : 1852.4 MHz
Frequency Range	30MHz ~ 1GHz		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	48.43	-49.97	-13.00	-36.97	1.00 V	311	58.48	-108.45
2	103.72	-58.15	-13.00	-45.15	1.00 V	279	54.23	-112.38
3	202.66	-63.11	-13.00	-50.11	1.99 V	3	49.05	-112.16
4	307.42	-57.59	-13.00	-44.59	1.49 V	197	50.51	-108.10
5	443.22	-63.19	-13.00	-50.19	1.99 V	104	41.18	-104.37
6	619.76	-59.25	-13.00	-46.25	1.00 V	293	41.54	-100.79

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.



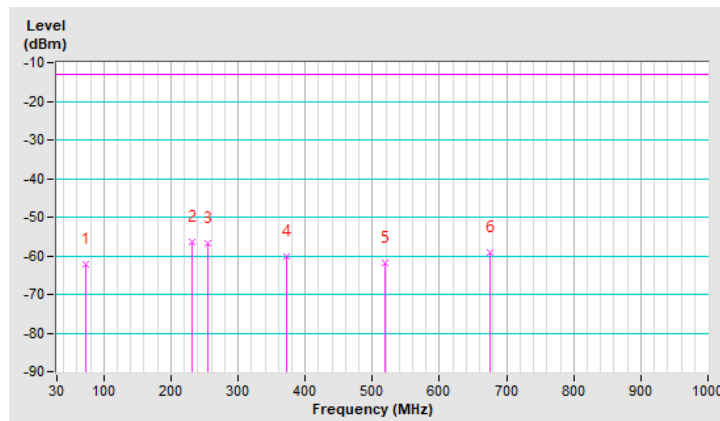
LTE Band 2

RF Mode	TX LTE Band II-20MHz	Channel	CH 18700 : 1860 MHz
Frequency Range	30MHz ~ 1GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	73.65	-62.34	-13.00	-49.34	1.01 H	169	49.51	-111.85
2	231.76	-56.35	-13.00	-43.35	2.00 H	182	54.69	-111.04
3	254.07	-56.89	-13.00	-43.89	1.50 H	172	53.02	-109.91
4	371.44	-60.11	-13.00	-47.11	1.01 H	322	46.25	-106.36
5	519.85	-61.88	-13.00	-48.88	2.00 H	292	41.11	-102.99
6	676.02	-59.30	-13.00	-46.30	1.01 H	17	40.74	-100.04

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

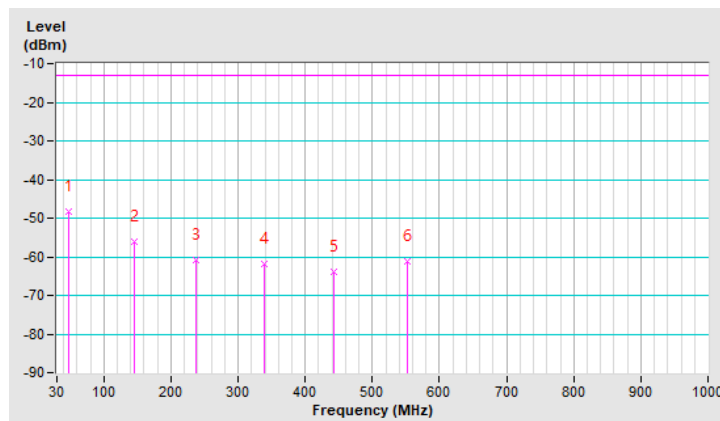


RF Mode	TX LTE Band II-20MHz	Channel	CH 18700 : 1860 MHz
Frequency Range	30MHz ~ 1GHz		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	47.46	-48.21	-13.00	-35.21	1.50 V	268	60.32	-108.53
2	144.46	-56.16	-13.00	-43.16	1.01 V	1	52.43	-108.59
3	237.58	-60.74	-13.00	-47.74	2.00 V	95	49.76	-110.50
4	339.43	-61.76	-13.00	-48.76	1.01 V	229	45.37	-107.13
5	442.25	-63.89	-13.00	-50.89	1.01 V	18	40.50	-104.39
6	552.83	-61.13	-13.00	-48.13	1.01 V	300	41.31	-102.44

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.



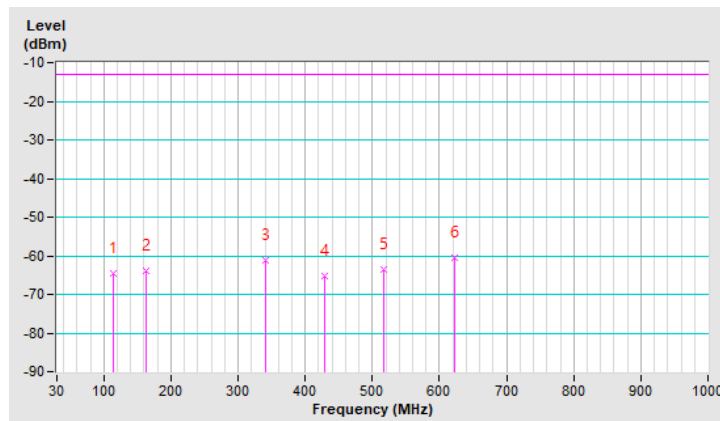
LTE Band 25

RF Mode	TX LTE Band XXV-20MHz	Channel	CH 26365 : 1882.5 MHz
Frequency Range	30MHz ~ 1GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	114.39	-64.55	-13.00	-51.55	2.00 H	65	46.67	-111.22
2	163.86	-63.98	-13.00	-50.98	1.01 H	208	44.76	-108.74
3	340.40	-61.27	-13.00	-48.27	1.01 H	316	45.87	-107.14
4	428.67	-65.22	-13.00	-52.22	1.50 H	156	39.68	-104.90
5	517.91	-63.55	-13.00	-50.55	1.50 H	58	39.48	-103.03
6	622.67	-60.67	-13.00	-47.67	1.01 H	163	40.08	-100.75

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

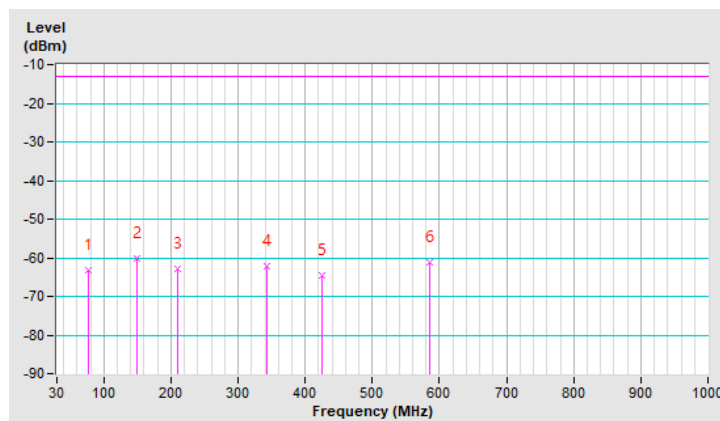


RF Mode	TX LTE Band XXV-20MHz	Channel	CH 26365 : 1882.5 MHz
Frequency Range	30MHz ~ 1GHz		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	77.53	-63.10	-13.00	-50.10	2.00 V	192	49.81	-112.91
2	148.34	-60.09	-13.00	-47.09	1.01 V	23	48.43	-108.52
3	209.45	-63.00	-13.00	-50.00	1.01 V	175	49.23	-112.23
4	343.31	-62.26	-13.00	-49.26	1.50 V	241	44.91	-107.17
5	424.79	-64.54	-13.00	-51.54	1.01 V	215	40.49	-105.03
6	585.81	-61.12	-13.00	-48.12	1.01 V	240	40.40	-101.52

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.



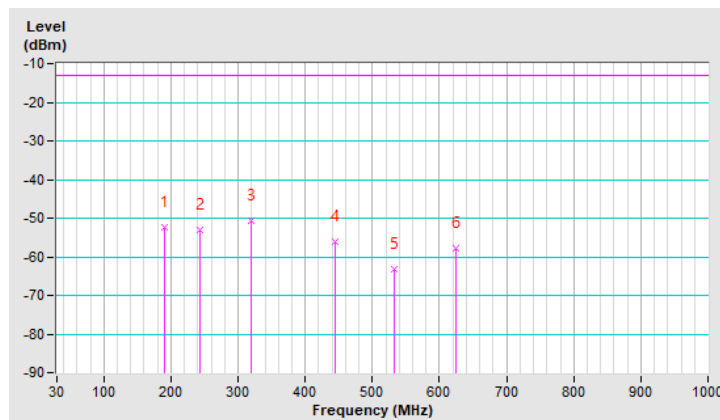
n2

RF Mode	TX 5GNR Band II-20MHz	Channel	CH 376000 : 1880 MHz
Frequency Range	30MHz ~ 1GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	191.02	-52.52	-13.00	-39.52	1.49 H	170	58.74	-111.26
2	243.40	-53.05	-13.00	-40.05	1.99 H	219	57.15	-110.20
3	320.03	-50.69	-13.00	-37.69	1.01 H	140	56.95	-107.64
4	444.19	-56.18	-13.00	-43.18	1.99 H	152	48.17	-104.35
5	533.43	-63.10	-13.00	-50.10	1.99 H	2	39.73	-102.83
6	624.61	-57.76	-13.00	-44.76	1.99 H	304	42.96	-100.72

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

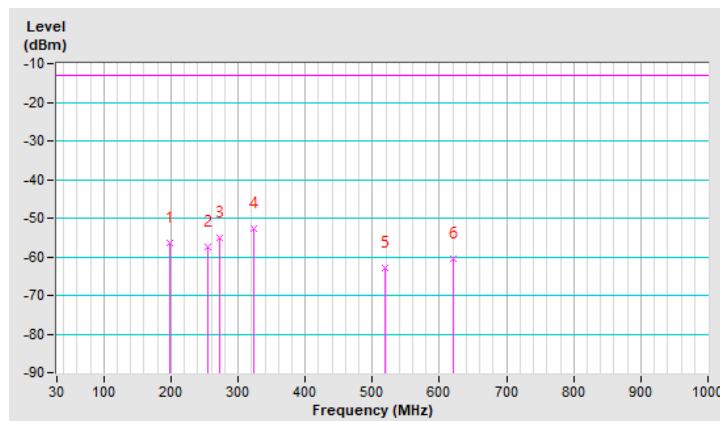


RF Mode	TX 5GNR Band II-20MHz	Channel	CH 376000 : 1880 MHz
Frequency Range	30MHz ~ 1GHz		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	197.81	-56.52	-13.00	-43.52	1.01 V	334	55.49	-112.01
2	254.07	-57.33	-13.00	-44.33	1.01 V	298	52.58	-109.91
3	271.53	-54.93	-13.00	-41.93	1.99 V	164	54.13	-109.06
4	322.94	-52.70	-13.00	-39.70	1.51 V	150	54.82	-107.52
5	518.88	-62.97	-13.00	-49.97	1.99 V	75	40.04	-103.01
6	619.76	-60.37	-13.00	-47.37	1.99 V	208	40.42	-100.79

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.



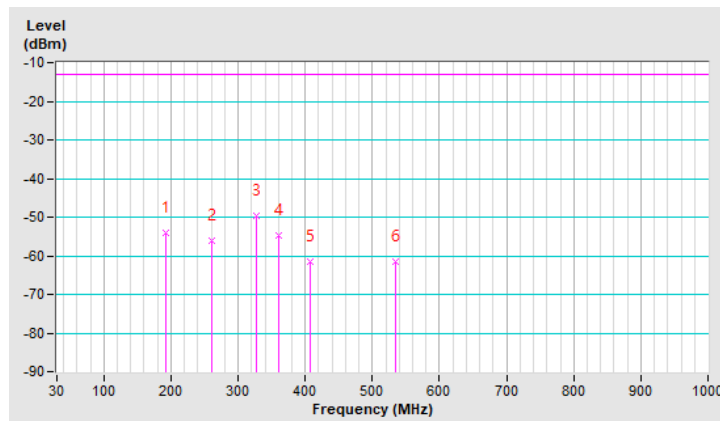
n25

RF Mode	TX 5GNR Band XXV-20MHz	Channel	CH 376500 : 1882.5 MHz
Frequency Range	30MHz ~ 1GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	192.96	-53.96	-13.00	-40.96	1.01 H	174	57.66	-111.62
2	260.86	-56.20	-13.00	-43.20	1.01 H	74	53.47	-109.67
3	327.79	-49.53	-13.00	-36.53	1.01 H	131	57.81	-107.34
4	360.77	-54.82	-13.00	-41.82	2.00 H	134	51.98	-106.80
5	408.30	-61.65	-13.00	-48.65	1.50 H	343	43.89	-105.54
6	534.40	-61.53	-13.00	-48.53	1.50 H	281	41.29	-102.82

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

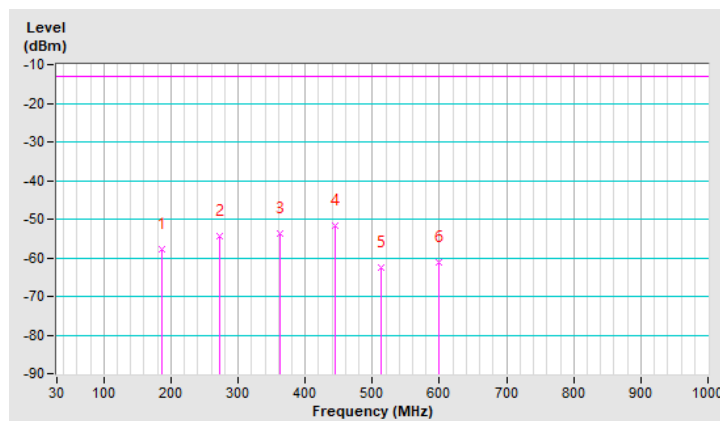


RF Mode	TX 5GNR Band XXV-20MHz	Channel	CH 376500 : 1882.5 MHz
Frequency Range	30MHz ~ 1GHz		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	187.14	-57.73	-13.00	-44.73	1.50 V	322	53.10	-110.83
2	272.50	-54.24	-13.00	-41.24	1.01 V	209	54.76	-109.00
3	362.71	-53.71	-13.00	-40.71	1.01 V	258	53.01	-106.72
4	444.19	-51.58	-13.00	-38.58	1.01 V	169	52.77	-104.35
5	512.09	-62.54	-13.00	-49.54	2.00 V	170	40.61	-103.15
6	599.39	-61.18	-13.00	-48.18	1.50 V	2	39.97	-101.15

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.



Above 1GHz
 WCDMA Band 2

RF Mode	TX WCDMA Band II	Channel	CH 9262 : 1852.4 MHz
Frequency Range	1GHz ~ 20GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3704.80	-52.31	-13.00	-39.31	2.11 H	63	44.82	-97.13
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3701.80	-52.55	-13.00	-39.55	1.69 V	157	44.60	-97.15

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

LTE Band 2

RF Mode	TX LTE Band II-20MHz	Channel	CH 18700 : 1860 MHz
Frequency Range	1GHz ~ 20GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3720.00	-53.03	-13.00	-40.03	1.84 H	106	44.01	-97.04
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3720.00	-53.16	-13.00	-40.16	2.22 V	197	43.88	-97.04

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. Margin value = EIRP – Limit value
4. The other EIRP levels were very low against the limit.

LTE Band 5

RF Mode	TX LTE Band XXV-20MHz	Channel	CH 26365 : 1882.5MHz
Frequency Range	1GHz ~ 20GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3765.00	-51.25	-13.00	-38.25	2.10 H	163	45.50	-96.75
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3765.00	-51.40	-13.00	-38.40	1.48 V	301	45.35	-96.75

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

n2

RF Mode	TX 5GNR Band II-20MHz	Channel	CH 376000 : 1880 MHz
Frequency Range	1GHz ~ 20GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3960.00	-51.60	-13.00	-38.60	2.74 H	359	43.70	-95.30
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3960.00	-52.40	-13.00	-39.40	3.13 V	5	42.90	-95.30

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

n25

RF Mode	TX 5GNR Band XXV-20MHz	Channel	CH 376500 : 1882.5 MHz
Frequency Range	1GHz ~ 20GHz		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3765.00	-49.75	-13.00	-36.75	1.78 H	5	46.00	-95.75
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3765.00	-50.15	-13.00	-37.15	2.03 V	19	45.60	-95.75

Remarks:

1. $EIRP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8$
3. $Margin\ value = EIRP - Limit\ value$
4. The other EIRP levels were very low against the limit.

5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

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Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

--- END ---