

FCC Test Report (Part 24)

(Spot Check)

Report No.: RF190507C02-6

FCC ID: MSQI01WDX

Original FCC ID: MSQI01WD

Test Model: ASUS_I01WDX

Received Date: May 07, 2019

Test Date: May 11 ~ May 20, 2019

Issued Date: May 29, 2019

Applicant: ASUSTek COMPUTER INC.

Address: 4F, No. 150, LI-TE Rd., PEITOU, TAIPEI 112, TAIWAN

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

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

Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)

FCC Registration / 788550 / TW0003

Designation Number:



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Release Control Record

Issue No.	Description	Date Issued
RF190507C02-6	Original release	May 29, 2019

1 Certificate of Conformity

Product: ASUS Phone

Brand: ASUS

Test Model: ASUS_I01WDX

Sample Status: Identical Prototype

Applicant: ASUSTek COMPUTER INC.

Test Date: May 11 ~ May 20, 2019

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 : Pettie Chen , **Date:** May 29, 2019
Pettie Chen / Senior Specialist

Approved by : Bruce Chen , **Date:** May 29, 2019
Bruce Chen / Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 24 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1053 24.238	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -37.42dB at 30.00MHz.

Note: 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) (\pm)
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.04 dB
	30MHz ~ 200MHz	3.63 dB
	200MHz ~ 1000MHz	3.64 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Jan. 03, 2019	Jan. 02, 2020
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 25, 2018	Sep. 24, 2019
MXG Vector signal generator Agilent	N5182B	MY53050162	Jan. 16, 2019	Jan. 15, 2020
HORN Antenna SCHWARZBECK	9120D	9120D-1169	Nov. 25, 2018	Nov. 24, 2019
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Nov. 21, 2018	Nov. 20, 2019
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Nov. 25, 2018	Nov. 24, 2019
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 25, 2018	Nov. 24, 2019
Loop Antenna TESEQ	HLA 6121	45745	Jun. 14, 2018	Jun. 13, 2019
Preamplifier Agilent (Below 1GHz)	8447D	2944A10631	Aug. 08, 2018	Aug. 07, 2019
Preamplifier KEYSIGHT (Above 1GHz)	83017A	MY53270295	Jul. 02, 2018	Jul. 01, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	MY 13380+295012/04	Aug. 08, 2018	Aug. 07, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03 (250724)	Aug. 08, 2018	Aug. 07, 2019
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021703	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100	SC93021703	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 04, 2018	Jun. 03, 2019
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
True RMS Clamp Meter Fluke	325	31130711WS	May 22, 2018	May 21, 2019

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 HwaYa Chamber 4.

3 General Information

3.1 General Description of EUT

Product	ASUS Phone			
Brand	ASUS			
Test Model	ASUS_I01WDX			
Sample Status	Identical Prototype			
Power Supply Rating	3.85 Vdc (Battery) 5 or 9 Vdc (Adapter) 5 Vdc (Host equipment)			
Modulation Type	GSM, GPRS: GMSK EDGE: 8PSK WCDMA: BPSK, QPSK HSDPA: BPSK HSUPA: QPSK LTE: QPSK, 16QAM, 64QAM			
Operating Frequency	GSM/GPRS/EDGE	1850.2~1909.8MHz		
	WCDMA Band 2	1852.4~1907.6MHz		
	LTE Band 2 (Channel Bandwidth 1.4MHz)	1850.7~1909.3MHz		
	LTE Band 2 (Channel Bandwidth 3MHz)	1851.5~1908.5MHz		
	LTE Band 2 (Channel Bandwidth 5MHz)	1852.5~1907.5MHz		
	LTE Band 2 (Channel Bandwidth 10MHz)	1855.0~1905.0MHz		
	LTE Band 2 (Channel Bandwidth 15MHz)	1857.5~1902.5MHz		
	LTE Band 2 (Channel Bandwidth 20MHz)	1860.0~1900.0MHz		
Max. EIRP Power	GSM	144.544mW (21.60dBm)		
	WCDMA Band 2	194.984mW (22.90dBm)		
		QPSK	16QAM	64QAM
	LTE Band 2 (Channel Bandwidth 1.4MHz)	114.815mW (20.60dBm)	93.325mW (19.70dBm)	81.283mW (19.10dBm)
	LTE Band 2 (Channel Bandwidth 3MHz)	117.490mW (20.70dBm)	97.724mW (19.90dBm)	85.114mW (19.30dBm)
	LTE Band 2 (Channel Bandwidth 5MHz)	123.027mW (20.90dBm)	102.329mW (20.10dBm)	85.114mW (19.30dBm)
	LTE Band 2 (Channel Bandwidth 10MHz)	104.713mW (20.20dBm)	91.201mW (19.60dBm)	74.131mW (18.70dBm)
	LTE Band 2 (Channel Bandwidth 15MHz)	114.815mW (20.60dBm)	120.226mW (20.80dBm)	102.329mW (20.10dBm)
	LTE Band 2 (Channel Bandwidth 20MHz)	117.490mW (20.70dBm)	100.000mW (20.00dBm)	83.176mW (19.20dBm)

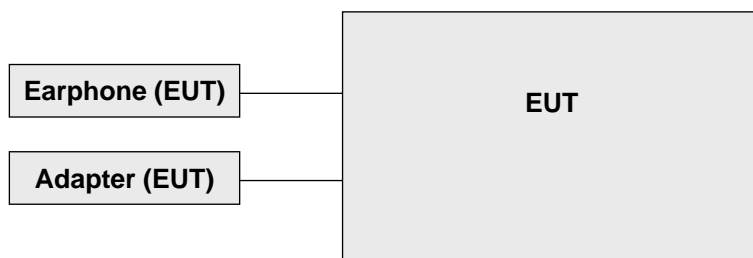
Emission Designator	GSM/GPRS	240KGXW		
	EDGE	240KG7W		
	WCDMA Band 2	4M15F9W		
		QPSK	16QAM	64QAM
	LTE Band 2 (Channel Bandwidth 1.4MHz)	1M09G7D	1M09D7W	1M09D7W
	LTE Band 2 (Channel Bandwidth 3MHz)	2M70G7D	2M70D7W	2M70D7W
	LTE Band 2 (Channel Bandwidth 5MHz)	4M50G7D	4M49D7W	4M50D7W
	LTE Band 2 (Channel Bandwidth 10MHz)	8M98G7D	8M98D7W	8M98D7W
	LTE Band 2 (Channel Bandwidth 15MHz)	13M5G7D	13M5D7W	13M5D7W
	LTE Band 2 (Channel Bandwidth 20MHz)	18M0G7D	18M0D7W	18M0D7W
Antenna Type	Refer to Note as below			
Antenna Connector	Refer to Note as below			
Accessory Device	Refer to Note as below			
Cable Supplied	Refer to Note as below			

Note:

1. This report is a supplementary report to the original BV CPS report no.: RF190114C07-7. Exhibit prepared for FCC Spot Check Verification report, the format, test items and amount of spot-check test data are decided by applicant's engineering judgment, for more details please refer to declaration letter exhibit. Radiated emission and output power (GSM, WCDMA) verification worst test refer to original report.
2. The EUT accessories list refers to EUT Photo.pdf.
3. The following antennas were provided to the EUT.

Ant. No.	Type	Connector	Gain (dBi)											
			GSM 850	GSM 1900	WCDMA B2	WCDMA B4	WCDMA B5	LTE B2	LTE B4	LTE B5	LTE B7	LTE B26	LTE B38	LTE B41
WWAN Antenna-0	PIFA	NA	-4.5	-2.6	-2.6	-1.9	-4.5	-2.5	-1.9	-4.5	-1.3	-4.4	-1.0	-1.0
WWAN Antenna-1	PIFA	NA	-3.4	-3.2	-3.2	-5.3	-3.4	-3.2	-5.3	-3.3	-4.7	-3.3	-5.7	-5.7

3.2 Configuration of System under Test



Remote site



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.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Radio Communication Analyzer	Anritsu	MT8860C	1702001	NA	-

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item A acted as a communication partner to transfer data.

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 on Z-plane. Following channel(s) was (were) selected for the final test as listed below.

GSM Mode

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	Conducted Output Power	512 to 810	512(1850.2MHz), 661(1880.0MHz), 810(1909.8MHz)	GSM

WCDMA Band 2

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	Conducted Output Power	9262 to 9538	9262 (1852.4MHz), 9400 (1880.0MHz), 9538 (1907.6MHz)	WCDMA
-	Radiated Emission Below 1GHz	9262 to 9538	9538 (1907.6MHz)	WCDMA
-	Radiated Emission Above 1GHz	9262 to 9538	9538 (1907.6MHz)	WCDMA

LTE Band 2

EUT Configure Mode	Test item	Available channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	Conducted Output Power	18607 to 19193	18607 (1850.70MHz), 18900 (1880.00MHz), 19193 (1909.30MHz)	1.4MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset
		18615 to 19185	18615 (1851.50MHz), 18900 (1880.00MHz), 19185 (1908.50MHz)	3MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset
		18625 to 19175	18625 (1852.50MHz), 18900 (1880.00MHz), 19175 (1907.50MHz)	5MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset
		18650 to 19150	18650 (1855.00MHz), 18900 (1880.00MHz), 19150 (1905.00MHz)	10MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset
		18675 to 19125	18675 (1857.50MHz), 18900 (1880.00MHz), 19125 (1902.50MHz)	15MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset
		18700 to 19100	18700 (1860.00MHz), 18900 (1880.00MHz), 19100 (1900.00MHz)	20MHz	QPSK / 16QAM / 64QAM	1 RB / 0 RB Offset

Test Condition:

Test Item	Environmental Conditions	Input Power (system)	Tested By
Conducted Output Power	25deg. C, 70%RH	120Vac, 60Hz	Han Wu
Radiated Emission Below 1GHz	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui
Radiated Emission Above 1GHz	24deg. C, 66%RH	120Vac, 60Hz	Greg Lin

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

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

FCC 47 CFR Part 2

FCC 47 CFR Part 24

KDB 971168 D01 Power Meas License Digital Systems v03r01

ANSI/TIA/EIA-603-E 2016

ANSI 63.26-2015

ANSI 63.2 -1996

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

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

Mobile / Portable station are limited to 2 watts e.i.r.p.

4.1.2 Test Procedures

EIRP / ERP Measurement:

- a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 1MHz for GSM/GPRS/EDGE, 5MHz for WCDMA mode and 10MHz for LTE mode.
- b. Substitution method is used for E.I.R.P measurement. 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.
- c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step b. Record the power level of S.G
- d. $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, $E.R.P \text{ power} = E.I.R.P \text{ power} - 2.15\text{dBi}$.

Where:

$$ERP/EIRP = P_{Meas} + G_T - L_C$$

P_{Meas} : Measure transmitter output power.

G_T : Gain of the transmitting antenna.

L_C : signal attenuation in the connecting cable between the transmitter and antenna.

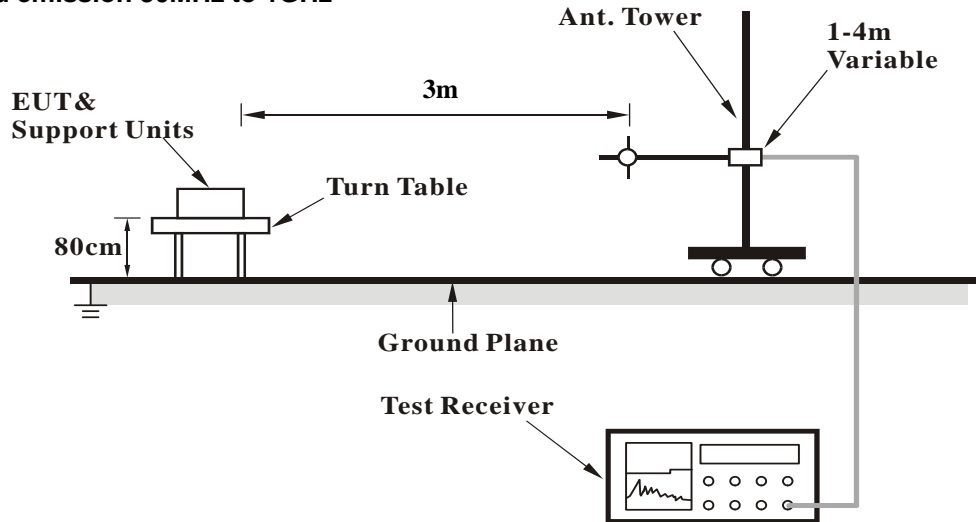
Conducted Power Measurement:

The EUT was set up for the maximum power with GSM, WCDMA and LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

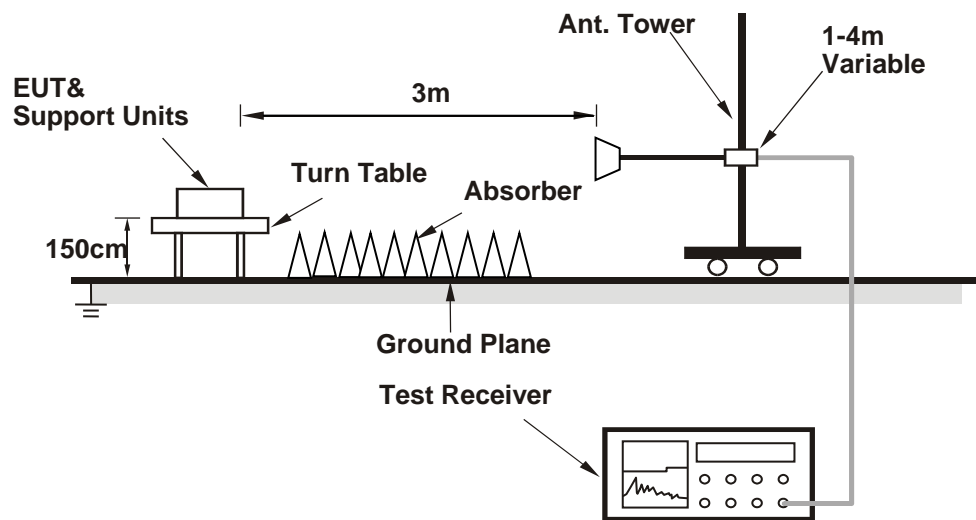
4.1.3 Test Setup

EIRP / ERP Measurement:

For radiated emission 30MHz to 1GHz



For radiated emission above 1GHz



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

Conducted Power Measurement:



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

4.1.4 Test Results

Conducted Output Power (dBm)

Band	GSM1900		
Channel	512	661	810
Frequency	1850.2	1880	1909.8
GSM	29.30	29.33	29.68

Band	WCDMA II		
TX Channel	9262	9400	9538
Rx Channel	9662	9800	9938
Frequency	1852.4	1880	1907.6
RMC 12.2K	22.00	22.79	22.56

LTE Band 2							
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		18607	18900	19193	
		Frequency (MHz)		1850.7	1880	1909.3	
1.4M	QPSK	1	0	22.03	22.11	21.92	0
		1	2	22.03	22.06	21.85	0
		1	5	22.02	21.92	21.82	0
		3	0	22.10	22.03	22.02	0
		3	1	22.03	22.01	22.05	0
		3	3	22.16	22.15	21.99	0
		6	0	21.13	21.13	21.01	1
	16QAM	1	0	20.99	20.95	20.91	1
		1	2	20.88	20.82	20.71	1
		1	5	21.03	21.01	20.95	1
		3	0	20.92	21.00	20.91	1
		3	1	21.21	21.20	20.99	1
		3	3	21.00	21.03	20.94	1
		6	0	20.01	19.92	19.89	2
	64QAM	1	0	19.82	19.96	19.91	2
		1	2	19.91	19.85	19.88	2
		1	5	20.03	19.92	19.99	2
		3	0	20.11	20.06	19.93	2
		3	1	20.03	20.10	19.99	2
		3	3	20.11	20.03	19.92	2
		6	0	19.13	19.15	18.95	3

LTE Band 2							
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		18615	18900	19185	
		Frequency (MHz)		1851.5	1880	1908.5	
3M	QPSK	1	0	22.05	22.13	21.99	0
		1	7	22.05	22.03	21.92	0
		1	14	22.02	22.04	21.88	0
		8	0	21.18	21.14	21.01	1
		8	3	21.10	21.11	21.03	1
		8	7	21.14	21.18	20.99	1
		15	0	21.11	21.02	20.95	1
	16QAM	1	0	21.02	21.07	20.95	1
		1	7	20.99	20.91	20.78	1
		1	14	20.87	21.01	20.77	1
		8	0	19.92	20.08	19.99	2
		8	3	20.06	20.05	20.01	2
		8	7	20.17	20.14	20.03	2
		15	0	20.08	20.16	19.97	2
	64QAM	1	0	20.03	20.05	19.92	2
		1	7	19.93	19.92	19.81	2
		1	14	19.92	19.90	19.71	2
		8	0	19.07	19.02	18.99	3
		8	3	19.11	19.15	18.92	3
		8	7	19.23	19.11	18.86	3
		15	0	19.02	19.06	18.97	3

LTE Band 2							
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		18625	18900	19175	
		Frequency (MHz)		1852.5	1880	1907.5	
5M	QPSK	1	0	22.15	22.18	21.92	0
		1	12	22.03	21.94	21.88	0
		1	24	22.07	22.02	21.71	0
		12	0	21.19	21.05	20.92	1
		12	6	21.11	21.03	20.98	1
		12	13	21.05	21.11	21.03	1
		25	0	21.19	21.22	20.99	1
	16QAM	1	0	21.03	21.05	20.88	1
		1	12	20.93	20.94	20.78	1
		1	24	20.87	20.95	20.79	1
		12	0	20.14	20.11	20.01	2
		12	6	19.95	19.96	19.78	2
		12	13	20.11	20.04	19.93	2
		25	0	20.06	20.07	20.03	2
	64QAM	1	0	19.92	19.99	19.87	2
		1	12	19.91	19.84	19.66	2
		1	24	20.04	20.00	19.71	2
		12	0	19.02	19.13	18.83	3
		12	6	19.03	19.11	19.03	3
		12	13	19.01	18.97	18.92	3
		25	0	19.01	19.05	19.01	3

LTE Band 2							
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		18650	18900	19150	
		Frequency (MHz)		1855	1880	1905	
10M	QPSK	1	0	22.01	22.07	21.96	0
		1	24	22.03	21.97	21.74	0
		1	49	22.05	21.99	21.92	0
		25	0	21.18	21.06	20.90	1
		25	12	21.17	21.11	20.92	1
		25	25	21.02	21.13	20.95	1
		50	0	21.11	21.14	20.99	1
	16QAM	1	0	20.97	21.05	20.88	1
		1	24	20.82	20.94	20.67	1
		1	49	21.01	21.09	20.77	1
		25	0	20.10	19.99	19.90	2
		25	12	20.04	20.08	19.85	2
		25	25	20.08	20.09	20.04	2
		50	0	20.04	20.00	19.97	2
	64QAM	1	0	19.92	20.01	19.77	2
		1	24	20.07	20.03	19.65	2
		1	49	20.06	20.05	19.92	2
		25	0	18.99	18.96	18.85	3
		25	12	19.05	19.11	19.04	3
		25	25	19.22	19.18	18.82	3
		50	0	19.11	19.04	19.06	3

LTE Band 2							
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		18675	18900	19125	
		Frequency (MHz)		1857.5	1880	1902.5	
15M	QPSK	1	0	22.13	22.23	22.07	0
		1	37	22.03	22.07	21.92	0
		1	74	22.06	22.10	22.03	0
		36	0	21.27	21.22	21.05	1
		36	19	21.16	21.24	21.13	1
		36	39	21.20	21.23	21.11	1
		75	0	21.11	21.14	21.08	1
	16QAM	1	0	21.06	21.02	20.97	1
		1	37	21.10	20.94	20.88	1
		1	74	21.04	21.03	20.86	1
		36	0	20.17	20.06	20.05	2
		36	19	20.13	20.11	20.05	2
		36	39	20.15	20.08	20.03	2
		75	0	20.16	20.14	20.01	2
	64QAM	1	0	20.03	20.10	20.06	2
		1	37	20.03	19.95	19.88	2
		1	74	20.10	20.03	19.95	2
		36	0	19.23	19.11	19.06	3
		36	19	19.17	19.20	19.05	3
		36	39	19.13	19.15	19.06	3
		75	0	19.25	19.06	19.05	3

LTE Band 2							
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		18700	18900	19100	
		Frequency (MHz)		1860	1880	1900	
20M	QPSK	1	0	22.25	22.16	22.06	0
		1	50	22.06	22.06	21.99	0
		1	99	22.18	22.15	22.06	0
		50	0	21.30	21.25	21.11	1
		50	25	21.26	21.21	21.02	1
		50	50	21.29	21.24	21.11	1
		100	0	21.22	21.26	21.05	1
	16QAM	1	0	21.15	21.17	21.06	1
		1	50	21.03	21.06	20.88	1
		1	99	21.14	21.05	20.99	1
		50	0	20.18	20.11	20.03	2
		50	25	20.22	20.21	20.05	2
		50	50	20.27	20.22	20.03	2
		100	0	20.21	20.23	19.95	2
	64QAM	1	0	20.16	20.10	20.00	2
		1	50	20.04	19.95	19.90	2
		1	99	20.03	20.16	19.99	2
		50	0	19.17	19.15	19.06	3
		50	25	19.21	19.22	19.02	3
		50	50	19.20	19.11	19.01	3
		100	0	19.16	19.11	19.06	3

4.2 Radiated Emission Measurement

4.2.1 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 equal to -13dBm .

4.2.2 Test Procedure

- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m 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 substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step a. Record the power level of S.G
- c. $\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn}$.
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, $\text{E.R.P power} = \text{E.I.R.P power} - 2.15\text{dBi}$.

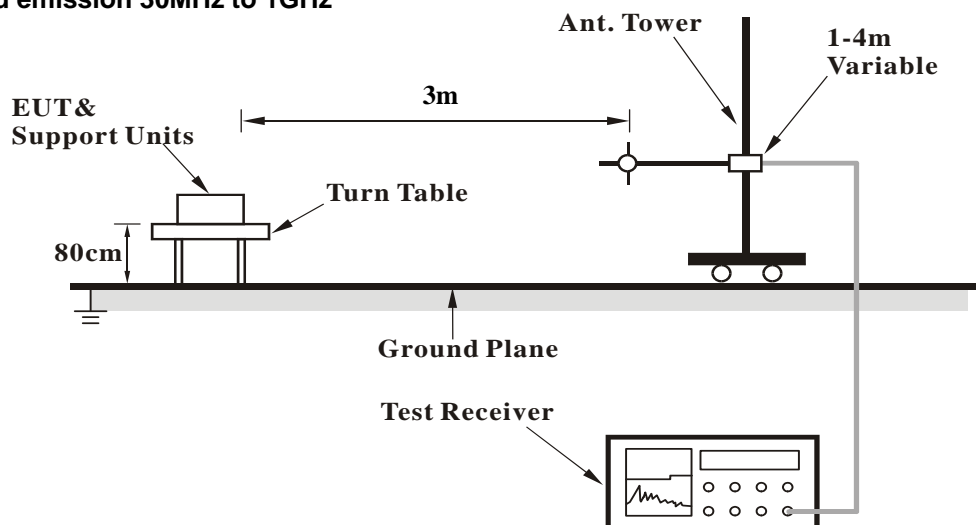
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

4.2.3 Deviation from Test Standard

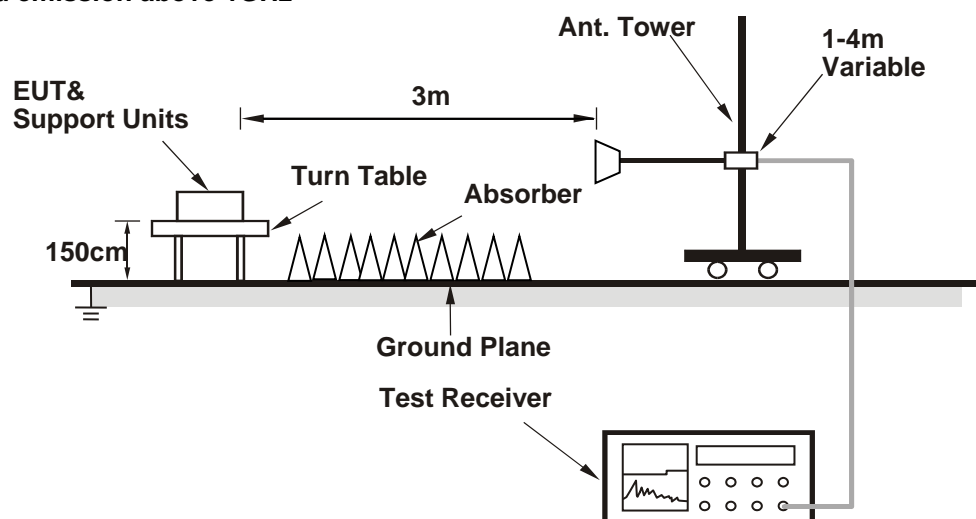
No deviation.

4.2.4 Test Setup

For radiated emission 30MHz to 1GHz



For radiated emission above 1GHz



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

4.2.5 Test Results

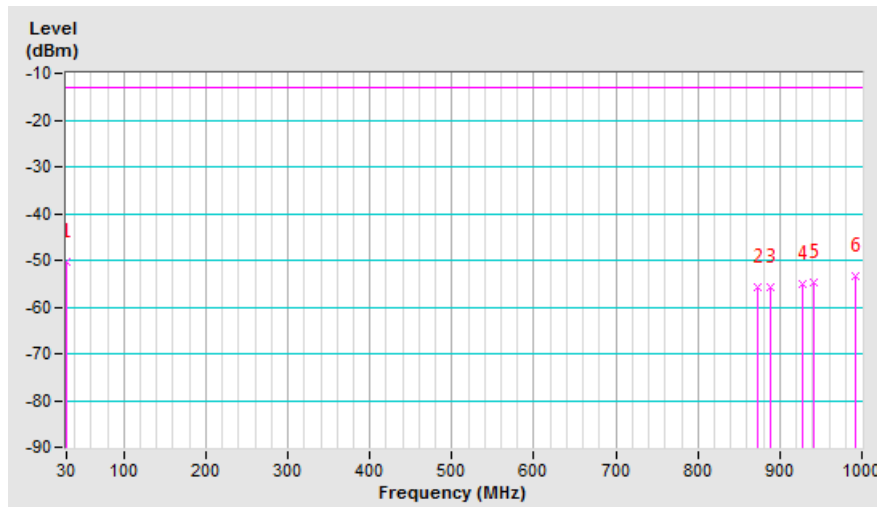
Below 1GHz
WCDMA Band 2

Mode	TX channel 9538 (1907.6MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	24deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	30.00	-54.40	-49.60	-0.82	-50.42	-13.00	-37.42
2	871.96	-63.20	-52.21	-3.60	-55.81	-13.00	-42.81
3	889.42	-63.01	-52.00	-3.69	-55.69	-13.00	-42.69
4	928.22	-63.21	-51.33	-3.71	-55.04	-13.00	-42.04
5	941.80	-63.06	-50.96	-3.71	-54.67	-13.00	-41.67
6	991.27	-62.37	-49.54	-3.97	-53.51	-13.00	-40.51

Remarks:

1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

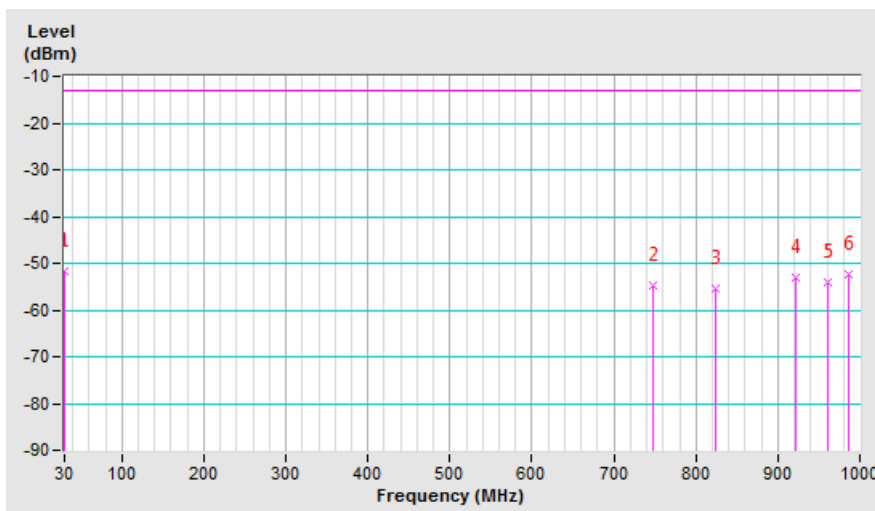


Mode	TX channel 9538 (1907.6MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	24deg. C, 66%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	30.00	-39.45	-50.65	-0.82	-51.47	-13.00	-38.47
2	740.04	-60.55	-52.49	-3.40	-55.89	-13.00	-42.89
3	889.42	-60.80	-51.07	-3.69	-54.76	-13.00	-41.76
4	933.07	-59.85	-49.45	-3.70	-53.15	-13.00	-40.15
5	961.20	-60.12	-49.30	-3.77	-53.07	-13.00	-40.07
6	1000.00	-61.04	-49.07	-4.01	-53.08	-13.00	-40.08

Remarks:

1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



Above 1GHz
WCDMA Band 2

Mode	TX channel 9538 (1907.6MHz)	Frequency Range	1GHz ~ 20GHz
Environmental Conditions	24deg. C, 64%RH	Input Power	120Vac, 60Hz
Tested By	Match Tsui		

Antenna Polarity & Test Distance: Horizontal at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3704.80	-60.50	-52.00	1.40	-50.60	-13.00	-37.60
Antenna Polarity & Test Distance: Vertical at 3 M							
No.	Freq. (MHz)	Reading (dBm)	S.G Power Value (dBm)	Correction Factor (dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1	3704.80	-62.90	-54.70	1.40	-53.30	-13.00	-40.30

Remarks:

1. EIRP (dBm) = S.G Value (dBm) + Correction Factor (dB).
2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).

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 and approved according to ISO/IEC 17025.

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

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