

TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: 47 CFR FCC Part 22
47 CFR FCC Part 24
47 CFR FCC Part 27
47 CFR FCC Part 2

Report No.: RFCDVB-WTW-P24010025-1

FCC ID: QYLFN990S5

Product: 5G NR Module

Brand: Getac

Model No.: FN990A28

Received Date: 2024/1/20

Test Date: 2024/3/7 ~ 2024/5/16

Issued Date: 2024/5/31

Applicant: Getac Technology Corporation.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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FCC Registration / 788550 / TW0003

Designation Number:

Approved by:

Jeremy Lin

Date:

2024/5/31

Jeremy Lin / Project Engineer

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Prepared by : Vera Huang / Specialist



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Release Control Record

Issue No.	Description	Date Issued
RFCDVB-WTW-P24010025-1	Original Release	2024/5/31

1 Certificate

Product: 5G NR Module

Brand: Getac

Test Model: FN990A28

Sample Status: Engineering sample

Applicant: Getac Technology Corporation.

Test Date: 2024/3/7 ~ 2024/5/16

Standard: 47 CFR FCC Part 22
47 CFR FCC Part 24
47 CFR FCC Part 27
47 CFR FCC Part 2

Measurement ANSI/TIA/EIA-603-E 2016

procedure: ANSI C63.26-2015

KDB 971168 D01 Power Meas License Digital Systems v03r01

KDB 971168 D02 Misc Rev Approv License Devices v02r02

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.

2 Summary of Test Results

Standard / Clause	Test Item	Result	Remark
Part 2.1046 Part 22.913 (a) Part 24.232 (c) Part 27.50 (d)	Effective Radiated Power and Equivalent Isotropically Radiated Power	Pass	Meet the requirement of limit.
Part 2.1047	Modulation Characteristics	N/A	Refer to Note
Part 2.1046 Part 22.913 (d) Part 24.232 (d) Part 27.50 (d)	Peak to Average Ratio	N/A	Refer to Note
Part 2.1049	Bandwidth	N/A	Refer to Note
Part 2.1051 Part 22.917 Part 24.238 Part 27.53 (h)	Conducted Spurious Emissions	N/A	Refer to Note
Part 2.1053 Part 22.917 Part 24.238 Part 27.53 (h)	Radiated Spurious Emissions below 1GHz	Pass	Minimum passing margin is -39.38 dB at 193.07 MHz
Part 2.1053 Part 22.917 Part 24.238 Part 27.53 (h)	Radiated Spurious Emissions above 1GHz	Pass	Minimum passing margin is -35.05 dB at 3704.80 MHz
Part 2.1055 Part 22.355 Part 24.235 Part 27.54	Frequency Stability	N/A	Refer to Note

Note:

- Only test item of Effective Radiated Power and Equivalent Isotropically Radiated Power and Radiated Spurious Emissions were performed for this report. Other testing data please refer to SPORTON lab report no.: 270608-1 for module (Brand: Telit, Model: FN990A28).
- 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:

Parameter	Specification	Uncertainty (±)
Radiated Spurious Emissions below 1GHz	9 kHz ~ 30 MHz	3.59 dB
	30 MHz ~ 1 GHz	3.64 dB
Radiated Spurious Emissions above 1GHz	1 GHz ~ 18 GHz	2.29 dB
	18 GHz ~ 40 GHz	2.29 dB

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

2.2 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	5G NR Module
Brand	Getac
Test Model	FN990A28
Status of EUT	Engineering sample
Power Supply Rating	Refer to note

Note:

1. This report is prepared for FCC class II permissive change application. The EUT is authorized for use in specific End-product. Please refer to below for more details.

Product	Brand	Model	Difference
Notebook	Getac	S510	marketing purpose
		S510Y (Y= 10 characters, Y can be 0 to 9, A to Z, a to z, "/", "\", "-", "_" or blank for marketing purpose)	

2. The End-product uses following accessories.

Battery		
Brand	Model	Specification
Getac	BP3S2P3450P-04	Power Rating : Rating: 10.8Vdc , 6600mAh, 72Wh Typical Capacity: 6900mAh, 75Wh
AC Adapter 1		
Brand	Model	Specification
FSP	FSP065-RBBN3	AC Input : 100-240 Vac ; 50-60 Hz ; 1.5 A DC Output : 19.0Vdc ; 3.42A, 65.0W DC Output Cable : 1.45M / 1core AC Power Cord : 1.75M
AC Adapter 2		
Brand	Model	Specification
FSP	FSP090-ABBN3	AC Input : 100-240 Vac ; 50-60 Hz ; 1.2 A DC Output : 19.0Vdc ; 4.74A, 90.0W DC Output Cable : 1.2M / 1 core AC Power Cord : 1.75M
Touch Pen		
Brand	Model	
Getac	340GA8900001	

* After pretesting, Adapter 2 was the worst case and chosen for final test.

3. EUT Overview

Band / Bandwidth	TX Frequency Range (MHz)	Max. EIRP Power
WCDMA Band 2	1852.4-1907.6	255.270mW(24.07dBm)
WCDMA Band 4	1712.4-1752.6	310.456mW(24.92dBm)

Band / Bandwidth	TX Frequency Range (MHz)	Max. ERP Power
WCDMA Band 5	826.4-846.6	136.773mW(21.36dBm)

4. 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.

3.2 Antenna Description of EUT

1. The antenna information is listed as below.

Antenna Type	Antenna Connector	Band	Peak Gain (dBi)			
			Main (Ant. 0)	Aux. (Ant. 2)	MIMO1 (Ant. 1)	MIMO2 (Ant. 3)
PIFA	MHF-4	WCDMA 2	1.3	-	-	-
		WCDMA 4	2.3	-	-	-
		WCDMA 5	0.5	-	-	-

* Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

3.3 Test Mode Applicability and Tested Channel Detail

The EUT is designed to be positioned on the NB Mode only.

For WCDMA Band 2

Test Item	Tested Channel	Mode
EIRP	9262 (1852.40 MHz)	WCDMA
	9400 (1880.00 MHz)	HSDPA
	9538 (1907.60 MHz)	HSUPA
RE Below 1GHz	9262 (1852.40 MHz)	WCDMA
RE Above 1GHz	9262 (1852.40 MHz)	WCDMA

For WCDMA Band 4

Test Item	Tested Channel	Mode
EIRP	1312 (1712.40 MHz)	WCDMA
	1413 (1732.60 MHz)	HSDPA
	1513 (1752.60 MHz)	HSUPA
RE Below 1GHz	1413 (1732.60 MHz)	WCDMA
RE Above 1GHz	1413 (1732.60 MHz)	WCDMA

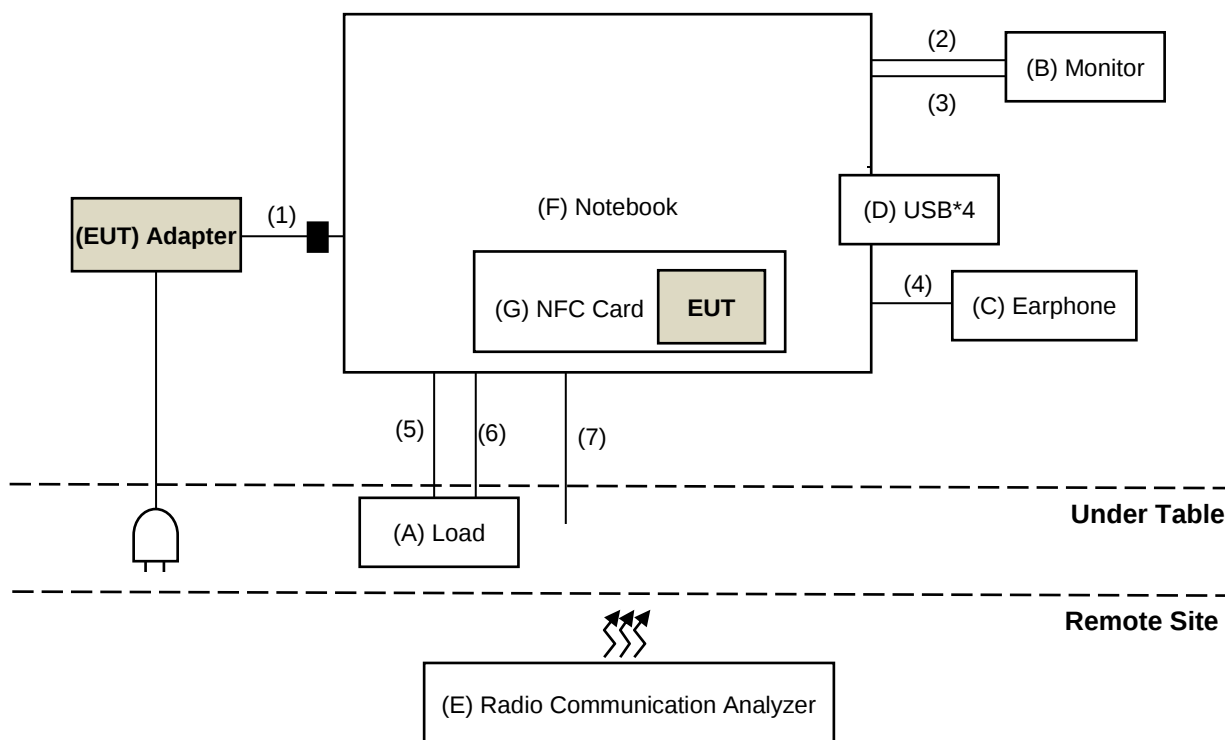
For WCDMA Band 5

Test Item	Tested Channel	Mode
ERP	4132 (826.40 MHz)	WCDMA
	4182 (836.40 MHz)	HSDPA
	4233 (846.60 MHz)	HSUPA
RE Below 1GHz	4132 (826.40 MHz)	WCDMA
RE Above 1GHz	4132 (826.40 MHz)	WCDMA

3.4 Test Program Used and Operation Descriptions

There is no need to controlling software during the test, and the EUT can be paired with the Radio Communication Analyzer to test the connection when it is powered on.

3.5 Connection Diagram of EUT and Peripheral Devices



3.6 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Load	N/A	N/A	N/A	N/A	Provided by Lab
B	Monitor	ENVISON	TFT22W90PS1	ECRE4JA000764	N/A	Provided by Lab
C	Earphone	APPLE	MB77PFEB	N/A	N/A	Provided by Lab
D	USB*4	SanDisk	SDDDC3-032G	N/A	N/A	Provided by Lab
E	Radio Communication Analyzer	Anritsu	MT8821C	6201462755	N/A	Provided by Lab
F	Notebook	Getac	S510	N/A	N/A	Supplied by applicant
G	NFC Card	TYPE-B	N/A	N/A	N/A	Provided by Lab

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	ADAPTER	1	1.2	Y	1	Accessory of EUT
2	HDMI	1	1.8	Y	0	Provided by Lab
3	D-SUB	1	1.8	Y	2	Provided by Lab
4	AUDIO	1	1.2	N	0	Provided by Lab
5	LAN	1	1.5	N	0	Provided by Lab
6	LAN	1	1.5	N	0	Provided by Lab
7	RS232	1	1.5	N	0	Provided by Lab

4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.1 Effective Radiated Power and Equivalent Isotropically Radiated Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
N9030B - PXA Signal Analyzer KEYSIGHT	N9030B	MY57140488	2024/3/6	2025/3/5
Radio Communication Analyzer Anritsu	MT8821C	6201462755	2024/3/13	2025/3/12
Software BV	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2024/5/16

4.2 Radiated Spurious Emissions below 1GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower inn-co GmbH	MA 4000	010303	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-155	2023/10/13	2024/10/12
EMI Test Receiver R&S	ESR3	102782	2023/12/7	2024/12/6
Loop Antenna Electro-Metrics	EM-6879	269	2023/9/23	2024/9/22
Loop Antenna TESEQ	HLA 6121	45745	2023/8/8	2024/8/7
Preamplifier Agilent	8447D	2944A10631	2023/5/7	2024/5/6
Preamplifier EMCI	EMC001340	980201	2023/9/27	2024/9/26
RF Coaxial Cable Woken	8D-FB	Cable-CH4-01	2023/7/8	2024/7/7
Signal & Spectrum Analyzer R&S	FSW43	101582	2023/4/13	2024/4/12
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table BV ADT	TT100	TT93021705	N/A	N/A
Turn Table Controller BV ADT	SC100	SC93021705	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 3.
2. Tested Date: 2024/3/9

4.3 Radiated Spurious Emissions above 1GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower inn-co GmbH	MA 4000	010303	N/A	N/A
Boresight antenna tower fixture BV	BAF-02	5	N/A	N/A
EMI Test Receiver R&S	ESR3	102782	2023/12/7	2024/12/6
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-408	2023/11/12	2024/11/11
	BBHA 9170	9170-480	2023/11/12	2024/11/11
		BBHA9170241	2023/10/16	2024/10/15
		BBHA9170243	2023/11/12	2024/11/11
Preamplifier EMCI	EMC 184045	980116	2023/9/27	2024/9/26
Preamplifier Keysight	83017A	MY53270295	2023/5/7	2024/5/6
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	2023/7/8	2024/7/7
	EMC102-KM-KM-3000	150929	2023/7/8	2024/7/7
RF Coaxial Cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03(250724)	2023/5/7	2024/5/6
	Sucoflex 104	MY 13380+295012/04	2023/5/7	2024/5/6
Signal & Spectrum Analyzer R&S	FSW43	101582	2023/4/13	2024/4/12
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table BV ADT	TT100	TT93021705	N/A	N/A
Turn Table Controller BV ADT	SC100	SC93021705	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 3.
2. Tested Date: 2024/3/7

5 Limits of Test Items

5.1 Effective Radiated Power and Equivalent Isotropically Radiated Power

For WCDMA Band 2:

Mobile and portable stations are limited to 2 watts EIRP.

For WCDMA Band 4:

Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

For WCDMA Band 5:

The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

5.2 Radiated Spurious Emissions below 1GHz

For WCDMA Band 2, WCDMA Band 5:

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 -13 dBm.

For WCDMA Band 4:

According to FCC 47 CFR part 27.53(h), for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log(P)$ dB. The limit of emission is equal to -13 dBm.

5.3 Radiated Spurious Emissions above 1GHz

For WCDMA Band 2, WCDMA Band 5:

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 -13 dBm.

For WCDMA Band 4:

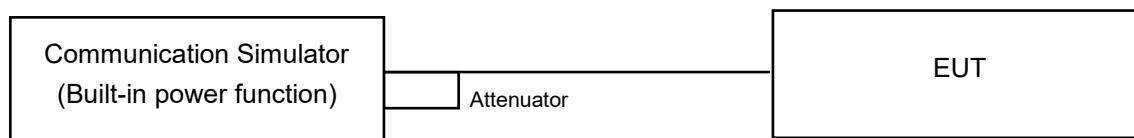
According to FCC 47 CFR part 27.53(h), for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log(P)$ dB. The limit of emission is equal to -13 dBm.

6 Test Arrangements

6.1 Effective Radiated Power and Equivalent Isotropically Radiated Power

6.1.1 Test Setup

Conducted Power Measurement:



6.1.2 Test Procedure

Conducted Power Measurement:

The EUT is configured by emulator to set data modulation and maximum power using WWAN technology. The power measurement was performed on emulator and power value was measured from power function on emulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

Maximum EIRP / ERP

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation as follows:

$$\text{EIRP} = P_{\text{Meas}} + G_T$$

$$\text{ERP} = P_{\text{Meas}} + G_T - 2.15$$

where

ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively

(expressed in the same units as P_{Meas} , e.g., dBm or dBW)

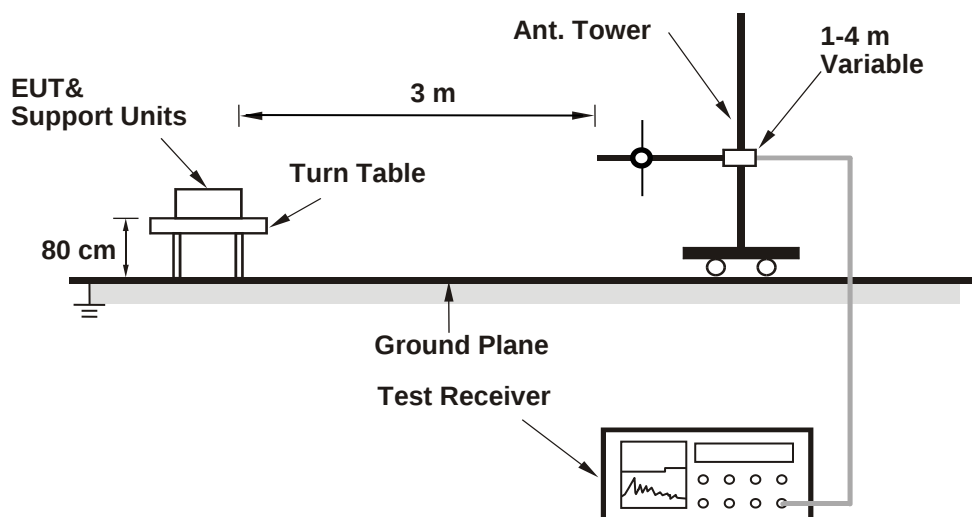
P_{Meas} measured transmitter output power or PSD, in dBm or dBW

G_T gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

6.2 Radiated Spurious Emissions below 1GHz

6.2.1 Test Setup

For radiated emission 30 MHz to 1 GHz



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

6.2.2 Test Procedure

The EUT is configured by test software or key-in commands to set data modulation and maximum power using WWAN technology.

- In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) 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 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- 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.
- 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.
- Following ANSI C63.26 section 5.5 and 5.2.7
- $EIRP\ (dBm) = E\ (dB\mu V/m) + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m.
- $ERP\ (dBm) = E\ (dB\mu V/m) + 20\log(D) - 104.8 - 2.15$; where D is the measurement distance (in the far field region) in m.

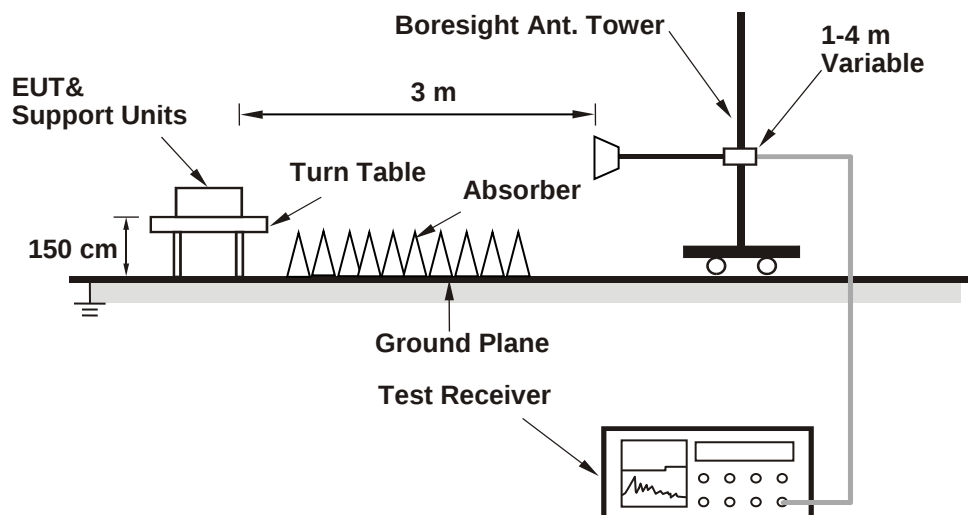
Note:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz. Set detector = average.

6.3 Radiated Spurious Emissions above 1GHz

6.3.1 Test Setup

For radiated emission above 1 GHz



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

6.3.2 Test Procedure

The EUT is configured by test software or key-in commands to set data modulation and maximum power using WWAN technology.

- In the semi-anechoic chamber, EUT placed on the 1.5 m 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 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- 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.
- 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.
- Following ANSI C63.26 section 5.5 and 5.2.7
- $EIRP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m.
- $ERP (dBm) = E (dB\mu V/m) + 20\log(D) - 104.8 - 2.15$; where D is the measurement distance (in the far field region) in m.

Note:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz. Set detector = average.

7 Test Results of Test Item

7.1 Effective Radiated Power and Equivalent Isotropically Radiated Power

Input Power:	120 Vac, 60 Hz	Environmental Conditions:	22°C, 65% RH	Tested By:	Willy Cheng
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7.1.1 WCDMA Band II

Conducted Output Power (dBm)

Band	WCDMA II		
TX Channel	9262	9400	9538
Rx Channel	9662	9800	9938
Frequency	1852.4	1880	1907.6
RMC 12.2K	22.77	22.53	22.51
HSDPA Subtest-1	21.79	21.56	21.67
HSDPA Subtest-2	21.78	21.55	21.66
HSDPA Subtest-3	21.26	21.05	21.18
HSDPA Subtest-4	21.24	21.03	21.15
DC-HSDPA Subtest-1	21.64	21.56	21.52
DC-HSDPA Subtest-2	21.63	21.53	21.51
DC-HSDPA Subtest-3	21.11	21.03	21.03
DC-HSDPA Subtest-4	21.09	21.05	21.03
HSUPA Subtest-1	21.66	21.56	21.56
HSUPA Subtest-2	19.70	19.56	19.56
HSUPA Subtest-3	20.66	20.58	20.51
HSUPA Subtest-4	19.68	19.57	19.56
HSUPA Subtest-5	21.70	21.59	21.51

EIRP Power (dBm)

Maximum Output Power			
Modulation	Cond. Power (dBm)	EIRP (dBm)	EIRP Limit (dBm)
RMC 12.2K	22.77	24.07	33.01
HSDPA	21.79	23.09	33.01
HSUPA	21.70	23.00	33.01

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

7.1.2 WCDMA Band IV

Conducted Output Power (dBm)

Band	WCDMA IV		
TX Channel	1312	1413	1513
Rx Channel	1537	1638	1738
Frequency	1712.4	1732.6	1752.6
RMC 12.2K	22.60	22.62	22.59
HSDPA Subtest-1	21.66	21.62	21.60
HSDPA Subtest-2	21.63	21.64	21.63
HSDPA Subtest-3	21.14	21.11	21.14
HSDPA Subtest-4	21.13	21.11	21.12
DC-HSDPA Subtest-1	21.51	21.61	21.58
DC-HSDPA Subtest-2	21.53	21.56	21.63
DC-HSDPA Subtest-3	21.18	21.15	21.11
DC-HSDPA Subtest-4	21.06	21.09	21.07
HSUPA Subtest-1	21.63	21.61	21.58
HSUPA Subtest-2	19.63	19.60	19.62
HSUPA Subtest-3	20.63	20.58	20.60
HSUPA Subtest-4	19.63	19.63	19.56
HSUPA Subtest-5	21.61	21.61	21.61

EIRP Power (dBm)

Maximum Output Power			
Modulation	Cond. Power (dBm)	EIRP (dBm)	EIRP Limit (dBm)
RMC 12.2K	22.62	24.92	30
HSDPA	21.66	23.96	30
HSUPA	21.63	23.93	30

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

7.1.3 WCDMA Band V

Conducted Output Power (dBm)

Band	WCDMA V		
TX Channel	4132	4182	4233
Rx Channel	4357	4407	4458
Frequency	826.4	836.4	846.6
RMC 12.2K	23.01	22.82	22.59
HSDPA Subtest-1	22.02	21.83	21.56
HSDPA Subtest-2	22.02	21.80	21.56
HSDPA Subtest-3	21.54	21.33	21.09
HSDPA Subtest-4	21.50	21.36	21.06
DC-HSDPA Subtest-1	21.87	21.68	21.51
DC-HSDPA Subtest-2	21.87	21.65	21.51
DC-HSDPA Subtest-3	21.39	21.18	21.01
DC-HSDPA Subtest-4	21.35	21.21	21.03
HSUPA Subtest-1	21.98	21.80	21.51
HSUPA Subtest-2	19.93	19.76	19.53
HSUPA Subtest-3	20.95	20.75	20.51
HSUPA Subtest-4	19.96	19.74	19.51
HSUPA Subtest-5	21.90	21.80	21.51

ERP Power (dBm)

Maximum Output Power			
Modulation	Cond. Power (dBm)	ERP (dBm)	ERP Limit (dBm)
RMC 12.2K	23.01	21.36	38.5
HSDPA	22.02	20.37	38.5
HSUPA	21.98	20.33	38.5

Note: EIRP (dBm) = Cond. Power (dBm) + Antenna Gain (dBi) + Array Gain (if applicable)

ERP (dBm) = EIRP (dBm) - 2.15

7.2 Radiated Spurious Emissions below 1GHz

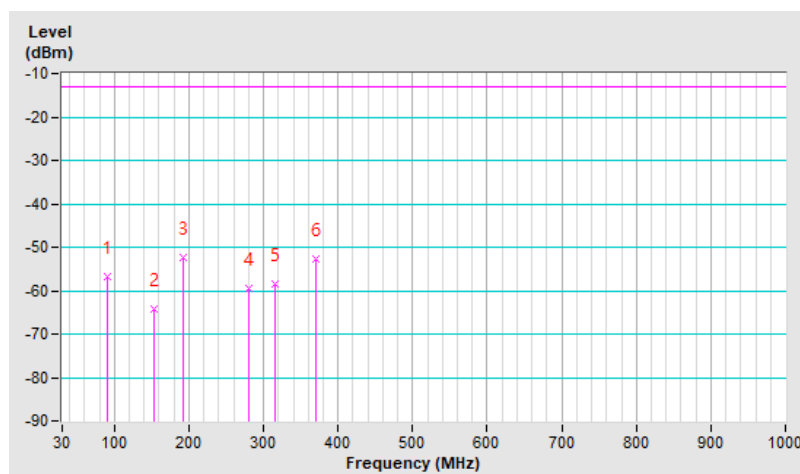
7.2.1 WCDMA Band II

RF Mode	WCDMA Band II	Channel	CH 9262 : 1852.4 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67% RH
Tested By	Luis Lee		

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	90.45	-56.94	-13.00	-43.94	1.50 H	289	52.68	-109.62
2	153.71	-64.08	-13.00	-51.08	1.00 H	185	39.66	-103.74
3	193.07	-52.38	-13.00	-39.38	1.00 H	197	54.27	-106.65
4	280.23	-59.50	-13.00	-46.50	1.50 H	345	43.65	-103.15
5	315.38	-58.38	-13.00	-45.38	1.50 H	19	43.93	-102.31
6	370.20	-52.73	-13.00	-39.73	1.50 H	19	48.63	-101.36

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 of frequency range 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.

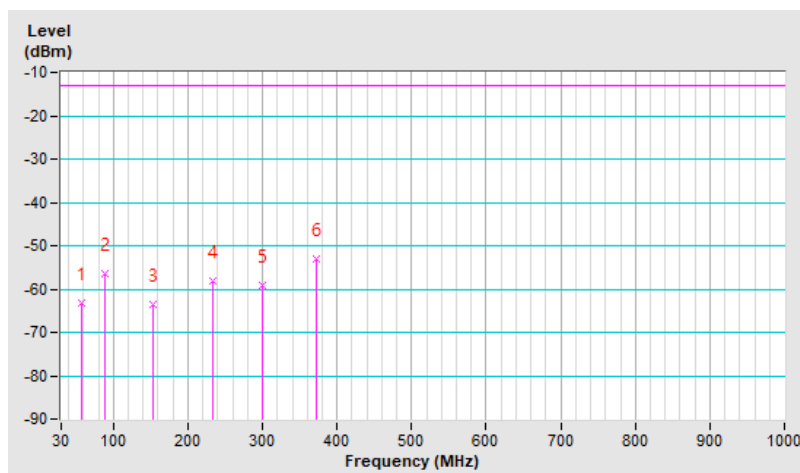


RF Mode	WCDMA Band II	Channel	CH 9262 : 1852.4 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67% RH
Tested By	Luis Lee		

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	56.71	-63.09	-13.00	-50.09	1.01 V	166	41.13	-104.22
2	89.04	-56.39	-13.00	-43.39	1.01 V	259	53.16	-109.55
3	152.30	-63.68	-13.00	-50.68	1.01 V	252	40.15	-103.83
4	232.43	-58.29	-13.00	-45.29	1.01 V	13	47.61	-105.90
5	299.91	-59.15	-13.00	-46.15	1.50 V	6	43.59	-102.74
6	371.61	-53.09	-13.00	-40.09	1.50 V	339	48.26	-101.35

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 of frequency range 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.



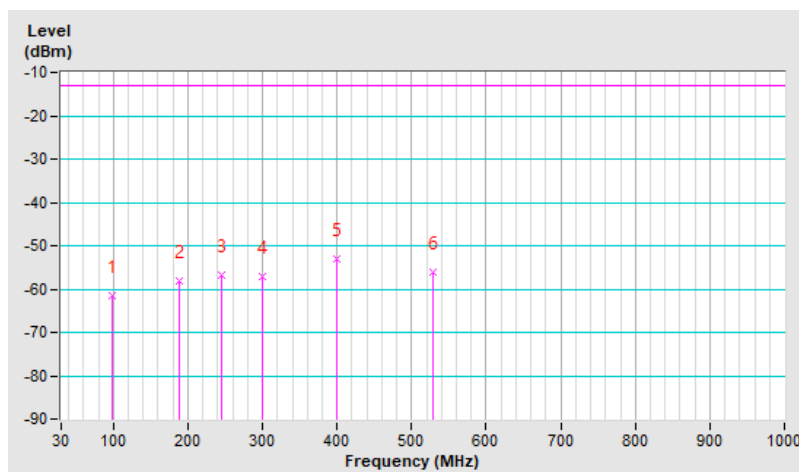
7.2.2 WCDMA Band IV

RF Mode	WCDMA Band IV	Channel	CH 1413 : 1732.6 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67% RH
Tested By	Luis Lee		

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	97.48	-61.59	-13.00	-48.59	1.01 H	268	47.35	-108.94
2	188.86	-58.25	-13.00	-45.25	1.50 H	92	48.12	-106.37
3	245.09	-56.85	-13.00	-43.85	1.50 H	14	47.86	-104.71
4	299.91	-57.22	-13.00	-44.22	1.50 H	185	45.52	-102.74
5	399.72	-53.20	-13.00	-40.20	1.01 H	4	47.88	-101.08
6	529.06	-56.16	-13.00	-43.16	1.01 H	334	42.47	-98.63

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 of frequency range 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.

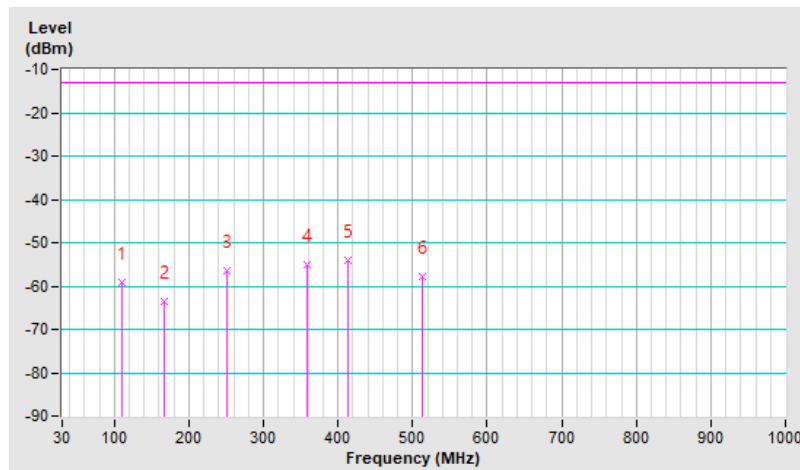


RF Mode	WCDMA Band IV	Channel	CH 1413 : 1732.6 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67% RH
Tested By	Luis Lee		

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	110.13	-59.26	-13.00	-46.26	1.00 V	325	47.79	-107.05
2	167.77	-63.65	-13.00	-50.65	1.00 V	301	40.44	-104.09
3	250.71	-56.42	-13.00	-43.42	1.49 V	11	48.08	-104.50
4	358.96	-55.08	-13.00	-42.08	1.49 V	18	46.65	-101.73
5	413.78	-53.99	-13.00	-40.99	1.49 V	18	46.90	-100.89
6	512.19	-57.69	-13.00	-44.69	1.00 V	314	41.19	-98.88

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 of frequency range 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.



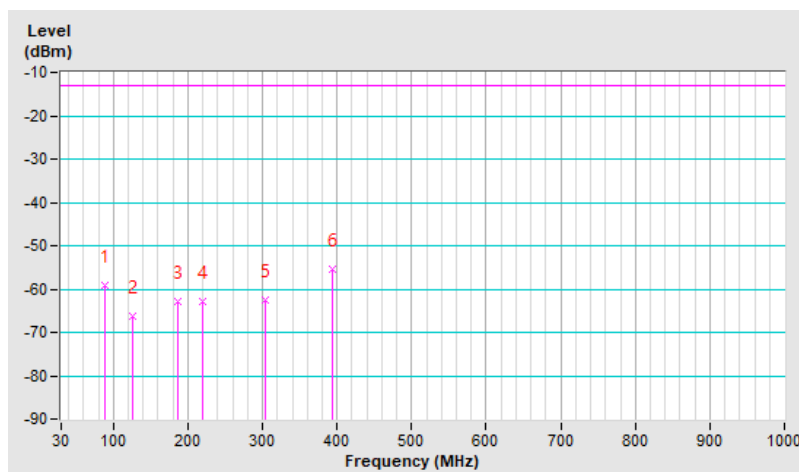
7.2.3 WCDMA Band V

RF Mode	WCDMA Band V	Channel	CH 4132 : 826.4 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67% RH
Tested By	Luis Lee		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	89.04	-59.19	-13.00	-46.19	1.00 H	231	52.51	-111.70
2	125.59	-66.29	-13.00	-53.29	1.00 H	232	41.49	-107.78
3	186.04	-63.04	-13.00	-50.04	1.00 H	202	45.11	-108.15
4	219.78	-62.80	-13.00	-49.80	1.49 H	18	45.83	-108.63
5	304.13	-62.42	-13.00	-49.42	1.49 H	34	42.35	-104.77
6	394.10	-55.58	-13.00	-42.58	1.00 H	6	47.68	-103.26

Remarks:

1. $ERP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8 - 2.15$
3. $Margin\ value = ERP - Limit\ value$
4. The other ERP levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.

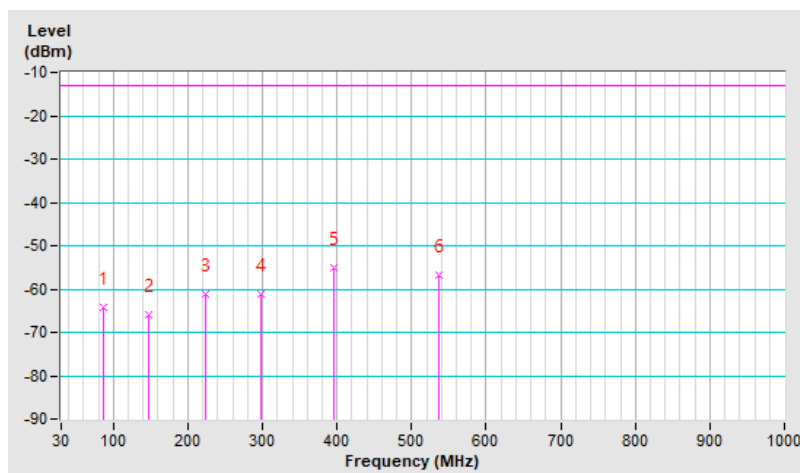


RF Mode	WCDMA Band V	Channel	CH 4132 : 826.4 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67% RH
Tested By	Luis Lee		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	86.23	-64.08	-13.00	-51.08	1.01 V	241	47.57	-111.65
2	146.68	-66.09	-13.00	-53.09	1.01 V	348	39.97	-106.06
3	224.00	-61.25	-13.00	-48.25	1.50 V	7	47.46	-108.71
4	297.10	-61.35	-13.00	-48.35	1.01 V	19	43.64	-104.99
5	395.51	-55.23	-13.00	-42.23	1.01 V	5	48.01	-103.24
6	536.09	-56.70	-13.00	-43.70	1.01 V	321	44.00	-100.70

Remarks:

1. $ERP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8 - 2.15$
3. $Margin\ value = ERP - Limit\ value$
4. The other ERP levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.



7.3 Radiated Spurious Emissions above 1GHz

7.3.1 WCDMA Band II

RF Mode	WCDMA Band II	Channel	CH 9262 : 1852.4 MHz
Frequency Range	1 GHz ~ 20 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67% RH
Tested By	Luis Lee		

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	-48.05	-13.00	-35.05	1.98 H	12	40.71	-88.76
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	3704.80	-48.83	-13.00	-35.83	1.62 V	231	39.93	-88.76

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.

7.3.2 WCDMA Band IV

RF Mode	WCDMA Band IV	Channel	CH 1413 : 1732.6 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67% RH
Tested By	Luis Lee		

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	3465.20	-50.24	-13.00	-37.24	1.43 H	25	40.14	-90.38
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	3465.20	-50.70	-13.00	-37.70	1.99 V	261	39.68	-90.38

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.

7.3.3 WCDMA Band V

RF Mode	WCDMA Band V	Channel	CH 4132 : 826.4 MHz
Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	1 MHz/3 MHz (RMS)
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67% RH
Tested By	Luis Lee		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1652.80	-57.56	-13.00	-44.56	1.92 H	33	42.54	-100.10
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1652.80	-58.22	-13.00	-45.22	1.87 V	230	41.88	-100.10

Remarks:

1. $ERP(dBm) = Raw\ Value(dBuV) + Correction\ Factor(dB/m)$
2. $Correction\ Factor(dB/m) = Antenna\ Factor(dB/m) + Cable\ Factor(dB) - Pre-Amplifier\ Factor(dB) + 20\log(D) - 104.8 - 2.15$
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

8 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo)

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

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