

Partial FCC Test Report

(PART 22)

Report No.: RFBEDW-WTW-P21031095

FCC ID: GKR-LN300EG3L

Test Model: Lenovo 300e Chromebook Gen 3*****(*=0~9, A~Z, a~z, "-" or blank, for marketing use only, with no impact on RF compliance of the product)

Received Date: Mar. 31, 2021

Test Date: Apr. 29 ~ May 03, 2021

Issued Date: May 28, 2021

Applicant: Compal Electronics Inc

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



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Release Control Record

Issue No.	Description	Date Issued
RFBEDW-WTW-P21031095	Original Release	May 28, 2021

1 Certificate of Conformity

Product: Notebook Computer

Brand: Lenovo

Test Model: Lenovo 300e Chromebook Gen 3*****(*=0~9, A~Z, a~z, "-" or blank, for marketing use only, with no impact on RF compliance of the product)

Sample Status: Engineering Sample

Applicant: Compal Electronics Inc

Test Date: Apr. 29 ~ May 03, 2021

Standards: FCC Part 22, Subpart H

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 : Gina Liu, **Date:** May 28, 2021
Gina Liu / Specialist

Approved by : Dylan Chiou, **Date:** May 28, 2021
Dylan Chiou / Senior Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 22 & Part 2			
FCC Clause	Test Item	Result	Remarks
2.1046 22.913 (a)	Effective Radiated Power	Pass	Meet the requirement of limit.
2.1047	Modulation Characteristics	N/A	Refer to Note 1
22.913 (d)	Peak to Average Ratio	N/A	Refer to Note 1
2.1055 22.355	Frequency Stability	N/A	Refer to Note 1
2.1049	Occupied Bandwidth	N/A	Refer to Note 1
22.917	Band Edge Measurements	N/A	Refer to Note 1
2.1051 22.917	Conducted Spurious Emissions	N/A	Refer to Note 1
2.1053 22.917	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -26.64 dB at 125.06 MHz.

Note:

1. This report is a partial report. Therefore, only test item of Effective Radiated Power and Radiated Spurious Emissions tests were performed for this report. Other testing data please refer to BV CPS report no.: RF180704C01 for module (Brand: Fibocom, Model: L850-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	9 kHz ~ 30 MHz	3.04 dB
	30 MHz ~ 200 MHz	3.59 dB
	200 MHz ~ 1000 MHz	3.60 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.29 dB
	18 GHz ~ 40 GHz	2.29 dB

2.2 Test Site and Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 09, 2021	Apr. 08, 2022
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jun. 12, 2020	Jun. 11, 2021
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Nov. 06, 2020	Nov. 05, 2021
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Nov. 22, 2020	Nov. 21, 2021
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 22, 2020	Nov. 21, 2021
Loop Antenna EMCI	EM-6879	269	Sep. 17, 2020	Sep. 16, 2021
Preamplifier Agilent (Below 1GHz)	8447D	2944A10638	Jun. 08, 2020	Jun. 07, 2021
Preamplifier Agilent (Above 1GHz)	8449B	3008A02367	Feb. 17, 2021	Feb. 16, 2022
RF signal cable HUBER+SUHNER&EMCI	SUCOFLEX 104 & EMC104-SM-SM800 0	CABLE-CH9-02 (248780+171006)	Jan. 16, 2021	Jan. 15, 2022
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(2507 95/4)	Jan. 16, 2021	Jan. 15, 2022
RF signal cable Woken	8D-FB	Cable-CH9-01	Jun. 08, 2020	Jun. 07, 2021
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower & Turn BV ADT	AT100	AT93021705	NA	NA
Turn Table BV ADT	TT100	TT93021705	NA	NA
Turn Table Controller BV ADT	SC100	SC93021705	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 01, 2020	May 31, 2021
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
True RMS Clamp Meter Fluke	325	31130711WS	Jun. 06, 2020	Jun. 05, 2021

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 9.

3 General Information

3.1 General Description of EUT

Product	Notebook Computer	
Brand	Lenovo	
Test Model	Lenovo 300e Chromebook Gen 3*****(*=0~9, A~Z, a~z, "-" or blank, for marketing use only, with no impact on RF compliance of the product)	
Status of EUT	Engineering Sample	
Power Supply Rating	20.0 Vdc from adapter 11.52 Vdc from battery	
Modulation Type	WCDMA	QPSK
	LTE	QPSK, 16QAM
Frequency Range	WCDMA	826.4 ~ 846.6 MHz
	LTE 5 (Channel Bandwidth: 1.4 MHz)	824.7 ~ 848.3 MHz
	LTE 5 (Channel Bandwidth: 3 MHz)	825.5 ~ 847.5 MHz
	LTE 5 (Channel Bandwidth: 5 MHz)	826.5 ~ 846.5 MHz
	LTE 5 (Channel Bandwidth: 10 MHz)	829 ~ 844 MHz
	LTE 26 (Channel Bandwidth: 1.4 MHz)	824.7 ~ 848.3 MHz
	LTE 26 (Channel Bandwidth: 3 MHz)	825.5 ~ 847.5 MHz
	LTE 26 (Channel Bandwidth: 5 MHz)	826.5 ~ 846.5 MHz
	LTE 26 (Channel Bandwidth: 10 MHz)	829 ~ 844 MHz
	LTE 26 (Channel Bandwidth: 15 MHz)	831.5 ~ 841.5 MHz
Max. ERP Power	WCDMA	138.038 mW (21.40dBm)
	LTE 5 (Channel Bandwidth: 1.4 MHz)	111.686 mW (20.48dBm)
	LTE 5 (Channel Bandwidth: 3 MHz)	111.173 mW (20.46dBm)
	LTE 5 (Channel Bandwidth: 5 MHz)	111.173 mW (20.46dBm)
	LTE 5 (Channel Bandwidth: 10 MHz)	112.460 mW (20.51dBm)
	LTE 26 (Channel Bandwidth: 1.4 MHz)	112.980 mW (20.53dBm)
	LTE 26 (Channel Bandwidth: 3 MHz)	112.720 mW (20.52dBm)
	LTE 26 (Channel Bandwidth: 5 MHz)	112.460 mW (20.51dBm)
	LTE 26 (Channel Bandwidth: 10 MHz)	112.980 mW (20.53dBm)
LTE 26 (Channel Bandwidth: 15 MHz)	113.240 mW (20.54dBm)	
Antenna Type	Refer to Note as below	
Accessory Device	Refer to Note as below	
Data Cable Supplied	Refer to Note as below	

Note:

1. The EUT contains following accessory devices.

Product	Brand	Model	Description
Adapter 1	Lenovo	ADLX45YLC2D	I/P: 100-240Vac, 50-60Hz, 1.8A O/P: 20.0V===2.25A, 45.0W 1.75M / Ocore
Adapter 2	Lenovo	ADLX65YCC3D	I/P: 100-240Vac, 50-60Hz, 1.8A O/P: 20.0V===3.25A, 65.0W 1.77M / Ocore
Adapter 3	Lenovo	ADLX65NLC3A	I/P: 100-240Vac, 50-60Hz, 1.8A O/P: 20.0V ===3.25A 1.55M / Ocore
Battery	Lenovo	L20M3PG0	11.52 Vdc, 3994 mAh, 46Wh
LTE module	Fibocom	L850-GL	-

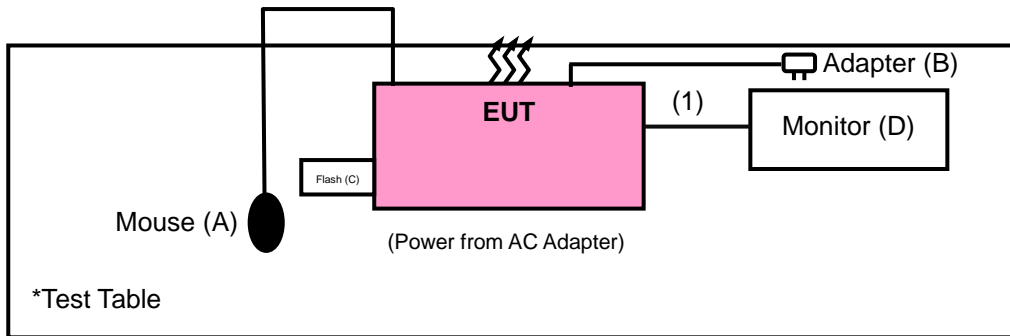
2. The antenna information is listed as below.

Ant. Type	Brand	Ant.	Model	Antenna Peak Gain (dBi)			Connector
				WCDMA V	LTE 5	LTE 26	
PIFA	Pulse	Main	SZ18665 (DC33002JN20)	-0.03	-0.03	-0.03	IPEX 20565 or compatible.
		Aux.	SZ1868E (DC33002JN30)				
	South Star	Main	N19-0814-R0A (DC33002J020)	-3.67	-3.67	-3.67	Kangshuo MHF-B13-N-01
		Aux.	N19-0815-R0A (DC33002J030)				

* The Max antenna gain was chosen for final test.

- The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.
- 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 Configuration of System under Test



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	Mouse	Microsoft	1113	9170515897028	FCC DOC Approved	-
B	Adapter	Lenovo	ADLX45YLC2D	NA	NA	Provided by client
C	Flash	HP	v250W	09	NA	-
D	Monitor	DELL	U2410	CN-0J257M-728 72-0A6-02YL	Doc	-

No.	Signal Cable Description Of The Above Support Units
1.	HDMI Cable: 1m

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item C acted as communication partners 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 & NB Mode, and antenna ports.

The worst case was found when positioned on NB mode for radiated emission. Following channel(s) was (were) selected for the final test as listed below:

WCDMA

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
-	ERP	4132 to 4233	4132, 4182, 4233	WCDMA
-	Radiated Emission	4132 to 4233	4132, 4182, 4233	WCDMA

LTE Band 5

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	ERP	20407 to 20643	20407, 20525, 20643	1.4 MHz	QPSK, 16QAM	1 RB / 0 RB Offset 1 RB / 2 RB Offset 1 RB / 5 RB Offset 3 RB / 0 RB Offset 3 RB / 1 RB Offset 3 RB / 3 RB Offset 6 RB / 0 RB Offset
		20415 to 20635	20415, 20525, 20635	3 MHz	QPSK, 16QAM	1 RB / 0 RB Offset 1 RB / 7 RB Offset 1 RB / 14 RB Offset 8 RB / 0 RB Offset 8 RB / 3 RB Offset 8 RB / 7 RB Offset 15 RB / 0 RB Offset
		20425 to 20625	20425, 20525, 20625	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset 1 RB / 12 RB Offset 1 RB / 24 RB Offset 12 RB / 0 RB Offset 12 RB / 6 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		20450 to 20600	20450, 20525, 20600	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
-	Radiated Emission	20407 to 20643	20407, 20525, 20643	1.4 MHz	QPSK	1 RB / 0 RB Offset
		20425 to 20625	20425, 20525, 20625	5 MHz	QPSK	1 RB / 0 RB Offset
		20450 to 20600	20450, 20525, 20600	10 MHz	QPSK	1 RB / 0 RB Offset

Note:

1. This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.
2. For radiated emission above 1 GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5 MHz & highest channel bandwidth for final test.
3. For radiated emissions below 1 GHz, select the worst radiated emission channel for final testing.

LTE Band 26

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	ERP	26797 to 27033	26797, 26915, 27033	1.4 MHz	QPSK, 16QAM	1 RB / 0 RB Offset 1 RB / 2 RB Offset 1 RB / 5 RB Offset 3 RB / 0 RB Offset 3 RB / 1 RB Offset 3 RB / 3 RB Offset 6 RB / 0 RB Offset
		26805 to 27025	26805, 26915, 27025	3 MHz	QPSK, 16QAM	1 RB / 0 RB Offset 1 RB / 7 RB Offset 1 RB / 14 RB Offset 8 RB / 0 RB Offset 8 RB / 3 RB Offset 8 RB / 7 RB Offset 15 RB / 0 RB Offset
		26815 to 27015	26815, 26915, 27015	5 MHz	QPSK, 16QAM	1 RB / 0 RB Offset 1 RB / 12 RB Offset 1 RB / 24 RB Offset 12 RB / 0 RB Offset 12 RB / 6 RB Offset 12 RB / 13 RB Offset 25 RB / 0 RB Offset
		26840 to 26990	26840, 26915, 26990	10 MHz	QPSK, 16QAM	1 RB / 0 RB Offset 1 RB / 24 RB Offset 1 RB / 49 RB Offset 25 RB / 0 RB Offset 25 RB / 12 RB Offset 25 RB / 25 RB Offset 50 RB / 0 RB Offset
		26865 to 26965	26865, 26915, 26965	15 MHz	QPSK, 16QAM	1 RB / 0 RB Offset 1 RB / 37 RB Offset 1 RB / 74 RB Offset 36 RB / 0 RB Offset 36 RB / 19 RB Offset 36 RB / 39 RB Offset 75 RB / 0 RB Offset
-	Radiated Emission	26797 to 27033	26797, 26915, 27033	1.4 MHz	QPSK	1 RB / 0 RB Offset
		26815 to 27015	26815, 26915, 27015	5 MHz	QPSK	1 RB / 0 RB Offset
		26865 to 26965	26865, 26915, 26965	15 MHz	QPSK	1 RB / 0 RB Offset

Note:

1. This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.
2. For radiated emission above 1 GHz, according to 3GPP 36.521 Section 6.6.3.1.4, choose the lowest, 5 MHz & highest channel bandwidth for final test.
3. For radiated emissions below 1 GHz, select the worst radiated emission channel for final testing.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
ERP	25 deg. C, 60 % RH	120 Vac, 60 Hz	Jones Chang
Radiated Emission	22 deg. C, 66 % RH	120 Vac, 60 Hz	Rex Wang

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 22

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 Output Power Measurement

4.1.1 Limits of Output Power Measurement

Mobile / Portable station are limited to 7 watts e.r.p.

4.1.2 Test Procedures

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)

Conducted Power Measurement:

The EUT was set up for the maximum power with 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

Conducted Power Measurement:

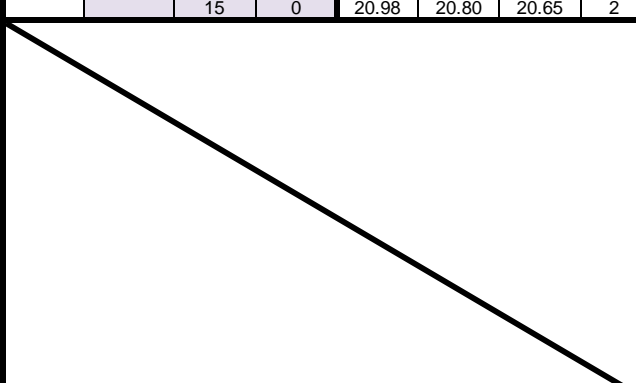


4.1.4 Test Results

Conducted Output Power (dBm)

Band	WCDMA V		
Channel	4132	4182	4233
Frequency (MHz)	826.4	836.4	846.6
RMC 12.2K	23.55	23.49	23.58
HSDPA Subtest-1	23.48	23.46	23.49
HSDPA Subtest-2	22.55	23.00	22.54
HSDPA Subtest-3	22.09	22.50	22.07
HSDPA Subtest-4	21.82	22.26	21.84
HSUPA Subtest-1	22.41	22.85	22.35
HSUPA Subtest-2	20.26	20.66	20.18
HSUPA Subtest-3	20.97	21.39	20.91
HSUPA Subtest-4	20.48	20.98	20.44
HSUPA Subtest-5	22.40	22.90	22.50

LTE Band 5															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
				20450	20525	20600						20425	20525	20625	
				Channel Frequency (MHz)	829.0	836.5						844.0	Channel Frequency (MHz)	826.5	
10M	QPSK	1	0	22.00	22.27	22.11	0	5M	QPSK	1	0	22.11	22.30	22.27	0
		1	24	22.16	22.15	22.24	0			1	12	22.23	22.23	22.33	0
		1	49	22.25	22.11	22.36	0			1	24	22.35	22.19	22.41	0
		25	0	22.18	22.22	22.22	1			12	0	22.14	22.25	22.27	1
		25	12	22.22	22.18	22.30	1			12	6	22.19	22.23	22.30	1
		25	25	22.22	22.09	22.39	1			12	13	22.19	22.14	22.35	1
		50	0	22.24	22.20	22.42	1			25	0	22.23	22.24	22.35	1
	16QAM	1	0	22.35	22.61	22.45	1		16QAM	1	0	22.44	22.59	22.45	1
		1	24	22.47	22.50	22.51	1			1	12	22.48	22.54	22.54	1
		1	49	22.56	22.46	22.69	1			1	24	22.58	22.46	22.64	1
		25	0	22.29	22.32	22.30	2			12	0	22.22	22.28	22.32	2
		25	12	22.37	22.29	22.38	2			12	6	22.27	22.27	22.34	2
		25	25	22.41	22.21	22.49	2			12	13	22.28	22.19	22.39	2
		50	0	22.36	22.29	22.45	2			25	0	22.26	22.28	22.39	2
3M	QPSK	1	0	22.07	22.20	22.30	0	1.4M	QPSK	1	0	22.14	22.24	22.38	0
		1	7	22.14	22.20	22.36	0			1	2	22.09	22.20	22.35	0
		1	14	22.18	22.11	22.34	0			1	5	22.17	22.23	22.38	0
		8	0	22.06	22.19	22.30	1			3	0	22.08	22.22	22.34	0
		8	3	22.11	22.17	22.31	1			3	1	22.06	22.20	22.33	0
		8	7	22.12	22.10	22.33	1			3	3	22.07	22.21	22.34	0
		15	0	22.10	22.18	22.30	1			6	0	22.05	22.21	22.33	1
	16QAM	1	0	22.34	22.51	22.49	1		16QAM	1	0	22.46	22.56	22.64	1
		1	7	22.38	22.49	22.64	1			1	2	22.42	22.54	22.65	1
		1	14	22.41	22.43	22.63	1			1	5	22.49	22.54	22.66	1
		8	0	22.10	22.29	22.31	2			3	0	22.19	22.38	22.50	1
		8	3	22.15	22.27	22.34	2			3	1	22.17	22.36	22.49	1
		8	7	22.16	22.20	22.36	2			3	3	22.20	22.34	22.49	1
		15	0	22.11	22.22	22.33	2			6	0	22.11	22.31	22.39	2

LTE Band 26																	
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)		
				Channel	26865	26915						26965	Channel	26840		26915	26990
				Frequency (MHz)	831.5	836.5						841.5	Frequency (MHz)	829.0		836.5	844.0
15M	QPSK	1	0	22.60	22.67	22.72	0	10M	QPSK	1	0	22.71	22.53	22.62	0		
		1	37	22.63	22.64	22.67	0			1	24	22.62	22.57	22.54	0		
		1	74	22.58	22.57	22.62	0			1	49	22.65	22.40	22.48	0		
		36	0	21.70	21.63	21.68	1			25	0	21.65	21.54	21.50	1		
		36	19	21.65	21.56	21.71	1			25	12	21.84	21.44	21.69	1		
		36	39	21.67	21.58	21.76	1			25	25	21.99	21.52	21.60	1		
		75	0	21.73	21.82	21.74	1			50	0	21.86	21.54	21.59	1		
	16QAM	1	0	22.14	22.08	22.06	1		16QAM	1	0	22.05	21.88	21.93	1		
		1	37	21.98	21.94	22.17	1			1	24	22.46	21.75	22.08	1		
		1	74	21.67	21.72	22.31	1			1	49	22.30	21.38	22.21	1		
		36	0	20.85	20.83	20.78	2			25	0	21.03	20.84	20.65	2		
		36	19	20.73	20.66	20.83	2			25	12	20.87	20.53	20.74	2		
		36	39	20.89	20.92	20.85	2			25	25	20.99	20.83	20.72	2		
		75	0	20.91	20.93	20.74	2			50	0	21.08	20.79	20.68	2		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)		
				Channel	26815	26915						27015	Channel	26805		26915	27025
				Frequency (MHz)	826.5	836.5						846.5	Frequency (MHz)	825.5		836.5	847.5
5M	QPSK	1	0	22.69	22.49	22.62	0	3M	QPSK	1	0	22.70	22.53	22.70	1		
		1	12	22.66	22.54	22.61	0			1	7	22.60	22.48	22.52	1		
		1	24	22.68	22.49	22.44	0			1	14	22.69	22.47	22.49	1		
		12	0	21.82	21.65	21.48	1			8	0	21.74	21.53	21.63	3		
		12	6	21.80	21.52	21.69	1			8	3	21.98	21.65	21.71	3		
		12	13	21.85	21.45	21.65	1			8	7	21.94	21.49	21.72	3		
		25	0	21.89	21.56	21.65	1			15	0	21.82	21.56	21.69	6		
	16QAM	1	0	22.16	22.09	21.98	1		16QAM	1	0	21.94	21.90	21.95	1		
		1	12	22.36	21.82	22.04	1			1	7	22.37	21.89	22.07	1		
		1	24	22.28	21.50	22.14	1			1	14	22.45	21.52	22.25	1		
		12	0	20.92	20.66	20.70	2			8	0	20.82	20.64	20.63	2		
		12	6	20.91	20.65	20.63	2			8	3	20.86	20.68	20.64	2		
		12	13	20.85	20.73	20.79	2			8	7	20.93	20.78	20.85	2		
		25	0	21.01	20.84	20.65	2			15	0	20.98	20.80	20.65	2		
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)										
				Channel	26797	26915										27033	
				Frequency (MHz)	824.7	836.5										848.3	
1.4M	QPSK	1	0	22.68	22.41	22.69	0										
		1	2	22.62	22.54	22.50	0										
		1	5	22.67	22.32	22.59	0										
		3	0	22.69	22.38	22.60	0										
		3	1	22.65	22.41	22.62	0										
		3	3	22.71	22.36	22.50	0										
		6	0	21.85	21.68	21.71	1										
	16QAM	1	0	22.18	21.87	21.89	1										
		1	2	22.26	21.79	22.05	1										
		1	5	22.38	21.65	22.25	1										
		3	0	22.16	22.11	21.95	1										
		3	1	22.41	21.83	22.05	1										
		3	3	22.42	21.63	22.12	1										
		6	0	21.02	20.66	20.64	2										

ERP Power (dBm)

Band	WCDMA V		
Channel	4132	4182	4233
Frequency (MHz)	826.4	836.4	846.6
RMC 12.2K	21.37	21.31	21.40
HSDPA Subtest-1	21.30	21.28	21.31
HSDPA Subtest-2	20.37	20.82	20.36
HSDPA Subtest-3	19.91	20.32	19.89
HSDPA Subtest-4	19.64	20.08	19.66
HSUPA Subtest-1	20.23	20.67	20.17
HSUPA Subtest-2	18.08	18.48	18.00
HSUPA Subtest-3	18.79	19.21	18.73
HSUPA Subtest-4	18.30	18.80	18.26
HSUPA Subtest-5	20.22	20.72	20.32

LTE Band 5															
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
				20450	20525	20600						20425	20525	20625	
				Channel Frequency (MHz)	829.0	836.5						844.0	Channel Frequency (MHz)	826.5	
10M	QPSK	1	0	19.82	20.09	19.93	0	5M	QPSK	1	0	19.93	20.12	20.09	0
		1	24	19.98	19.97	20.06	0			1	12	20.05	20.05	20.15	0
		1	49	20.07	19.93	20.18	0			1	24	20.17	20.01	20.23	0
		25	0	20.00	20.04	20.04	1			12	0	19.96	20.07	20.09	1
		25	12	20.04	20.00	20.12	1			12	6	20.01	20.05	20.12	1
		25	25	20.04	19.91	20.21	1			12	13	20.01	19.96	20.17	1
		50	0	20.06	20.02	20.24	1			25	0	20.05	20.06	20.17	1
	16QAM	1	0	20.17	20.43	20.27	1		16QAM	1	0	20.26	20.41	20.27	1
		1	24	20.29	20.32	20.33	1			1	12	20.30	20.36	20.36	1
		1	49	20.38	20.28	20.51	1			1	24	20.40	20.28	20.46	1
		25	0	20.11	20.14	20.12	2			12	0	20.04	20.10	20.14	2
		25	12	20.19	20.11	20.20	2			12	6	20.09	20.09	20.16	2
		25	25	20.23	20.03	20.31	2			12	13	20.10	20.01	20.21	2
		50	0	20.18	20.11	20.27	2			25	0	20.08	20.10	20.21	2
3M	QPSK	1	0	19.89	20.02	20.12	0	1.4M	QPSK	1	0	19.96	20.06	20.20	0
		1	7	19.96	20.02	20.18	0			1	2	19.91	20.02	20.17	0
		1	14	20.00	19.93	20.16	0			1	5	19.99	20.05	20.20	0
		8	0	19.88	20.01	20.12	1			3	0	19.90	20.04	20.16	0
		8	3	19.93	19.99	20.13	1			3	1	19.88	20.02	20.15	0
		8	7	19.94	19.92	20.15	1			3	3	19.89	20.03	20.16	0
		15	0	19.92	20.00	20.12	1			6	0	19.87	20.03	20.15	1
		16QAM	1	0	20.16	20.33	20.31			1	16QAM	1	0	20.28	20.38
	1		7	20.20	20.31	20.46	1		1	2		20.24	20.36	20.47	1
	1		14	20.23	20.25	20.45	1		1	5		20.31	20.36	20.48	1
	8		0	19.92	20.11	20.13	2		3	0		20.01	20.20	20.32	1
	8		3	19.97	20.09	20.16	2		3	1		19.99	20.18	20.31	1
	8		7	19.98	20.02	20.18	2		3	3		20.02	20.16	20.31	1
	15		0	19.93	20.04	20.15	2		6	0		19.93	20.13	20.21	2

LTE Band 26																			
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)				
				Channel	26865	26915						26965	Channel	26840		26915	26990		
				Frequency (MHz)	831.5	836.5						841.5	Frequency (MHz)	829.0		836.5	844.0		
15M	QPSK	1	0	20.42	20.49	20.54	0	10M	QPSK	1	0	20.53	20.35	20.44	0				
		1	37	20.45	20.46	20.49	0			1	24	20.44	20.39	20.36	0				
		1	74	20.40	20.39	20.44	0			1	49	20.47	20.22	20.30	0				
		36	0	19.52	19.45	19.50	1			25	0	19.47	19.36	19.32	1				
		36	19	19.47	19.38	19.53	1			25	12	19.66	19.26	19.51	1				
		36	39	19.49	19.40	19.58	1			25	25	19.81	19.34	19.42	1				
		75	0	19.55	19.64	19.56	1			50	0	19.68	19.36	19.41	1				
	16QAM	1	0	19.96	19.90	19.88	1		16QAM	1	0	19.87	19.70	19.75	1				
		1	37	19.80	19.76	19.99	1			1	24	20.28	19.57	19.90	1				
		1	74	19.49	19.54	20.13	1			1	49	20.12	19.20	20.03	1				
		36	0	18.67	18.65	18.60	2			25	0	18.85	18.66	18.47	2				
		36	19	18.55	18.48	18.65	2			25	12	18.69	18.35	18.56	2				
		36	39	18.71	18.74	18.67	2			25	25	18.81	18.65	18.54	2				
		75	0	18.73	18.75	18.56	2			50	0	18.90	18.61	18.50	2				
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)				
				Channel	26815	26915	27015					Channel	26805	26915	27025				
				Frequency (MHz)	826.5	836.5	846.5					Frequency (MHz)	825.5	836.5	847.5				
5M	QPSK	1	0	20.51	20.31	20.44	0	3M	QPSK	1	0	20.52	20.35	20.52	1				
		1	12	20.48	20.36	20.43	0			1	7	20.42	20.30	20.34	1				
		1	24	20.50	20.31	20.26	0			1	14	20.51	20.29	20.31	1				
		12	0	19.64	19.47	19.30	1			8	0	19.56	19.35	19.45	3				
		12	6	19.62	19.34	19.51	1			8	3	19.80	19.47	19.53	3				
		12	13	19.67	19.27	19.47	1			8	7	19.76	19.31	19.54	3				
		25	0	19.71	19.38	19.47	1			15	0	19.64	19.38	19.51	6				
	16QAM	1	0	19.98	19.91	19.80	1		16QAM	1	0	19.76	19.72	19.77	1				
		1	12	20.18	19.64	19.86	1			1	7	20.19	19.71	19.89	1				
		1	24	20.10	19.32	19.96	1			1	14	20.27	19.34	20.07	1				
		12	0	18.74	18.48	18.52	2			8	0	18.64	18.46	18.45	2				
		12	6	18.73	18.47	18.45	2			8	3	18.68	18.50	18.46	2				
		12	13	18.67	18.55	18.61	2			8	7	18.75	18.60	18.67	2				
		25	0	18.83	18.66	18.47	2			15	0	18.80	18.62	18.47	2				
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)												
				Channel	26797	26915	27033												
				Frequency (MHz)	824.7	836.5	848.3												
1.4M	QPSK	1	0	20.50	20.23	20.51	0												
		1	2	20.44	20.36	20.32	0												
		1	5	20.49	20.14	20.41	0												
		3	0	20.51	20.20	20.42	0												
		3	1	20.47	20.23	20.44	0												
		3	3	20.53	20.18	20.32	0												
		6	0	19.67	19.50	19.53	1												
	16QAM	1	0	20.00	19.69	19.71	1												
		1	2	20.08	19.61	19.87	1												
		1	5	20.20	19.47	20.07	1												
		3	0	19.98	19.93	19.77	1												
		3	1	20.23	19.65	19.87	1												
		3	3	20.24	19.45	19.94	1												
		6	0	18.84	18.48	18.46	2												

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 is equal to -13 dBm.

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 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 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.
- b. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
- c. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15 dB.

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:

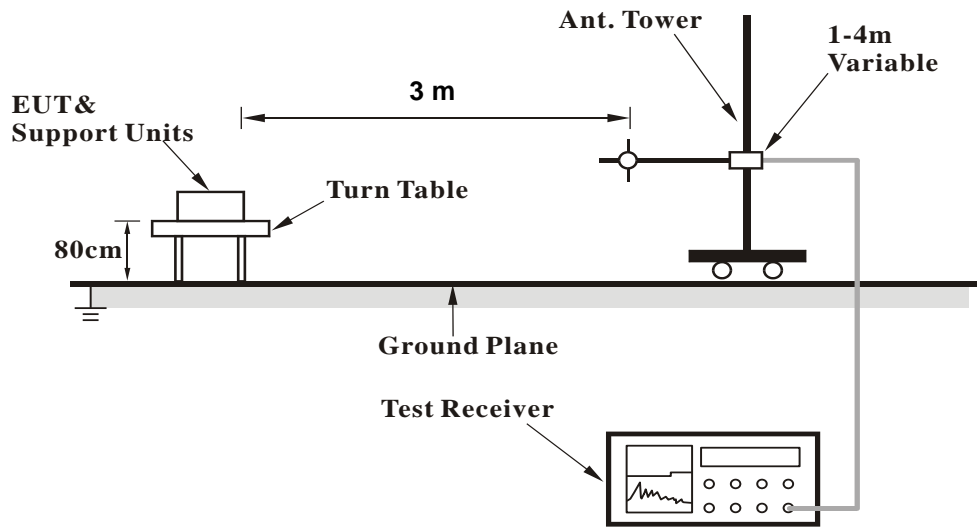
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

4.2.3 Deviation from Test Standard

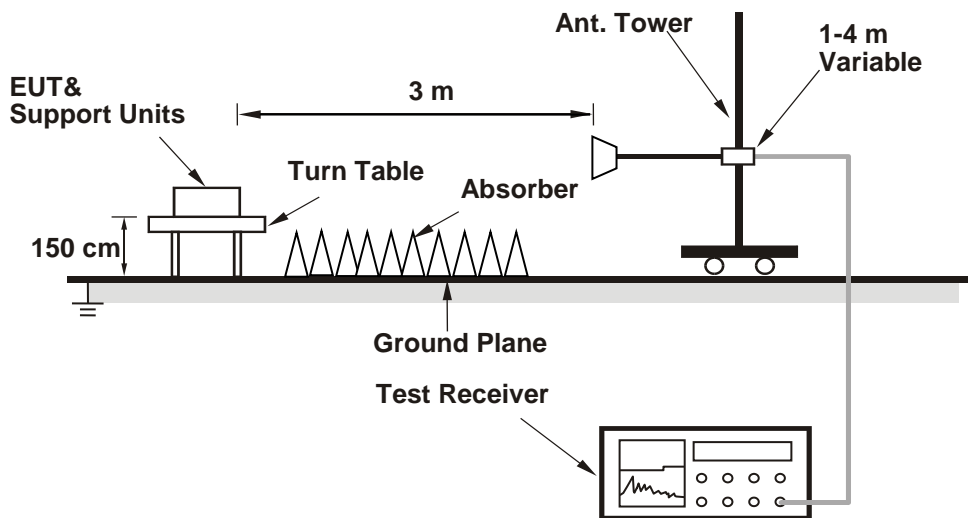
No deviation.

4.2.4 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).

4.2.5 Test Results

BELOW 1GHz

RF Mode	TX WCDMA Band V	Channel	CH 4132 : 826.4 MHz
Frequency Range	30MHz ~ 1GHz		

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	80.44	-51.00	-13.00	-38.00	1.50 H	175	59.80	-110.80
2	128.94	-50.00	-13.00	-37.00	1.50 H	70	57.30	-107.30
3	167.74	-62.30	-13.00	-49.30	1.00 H	222	43.60	-105.90
4	294.81	-54.20	-13.00	-41.20	1.00 H	123	50.20	-104.50
5	477.17	-61.40	-13.00	-48.40	1.25 H	228	39.10	-100.50
6	635.28	-59.50	-13.00	-46.50	2.00 H	277	37.80	-97.20

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	81.41	-52.00	-13.00	-39.00	1.25 V	189	59.10	-111.10
2	105.66	-53.70	-13.00	-40.70	1.00 V	249	55.90	-109.60
3	159.98	-59.00	-13.00	-46.00	1.50 V	283	46.60	-105.60
4	293.84	-57.90	-13.00	-44.90	2.00 V	354	46.60	-104.50
5	506.27	-61.70	-13.00	-48.70	1.00 V	161	38.30	-100.00
6	880.69	-55.60	-13.00	-42.60	1.00 V	291	37.40	-93.00

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.

RF Mode	TX LTE Band V-10MHz	Channel	CH 20600 : 844 MHz
Frequency Range	30MHz ~ 1GHz		

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	53.28	-40.25	-13.00	-27.25	1.00 H	189	66.13	-106.38
2	128.94	-49.98	-13.00	-36.98	1.25 H	70	57.36	-107.34
3	159.01	-55.36	-13.00	-42.36	1.00 H	126	50.14	-105.50
4	254.07	-43.40	-13.00	-30.40	1.00 H	157	62.53	-105.93
5	449.04	-62.45	-13.00	-49.45	2.00 H	186	38.48	-100.93
6	576.11	-60.05	-13.00	-47.05	1.50 H	73	38.57	-98.62

Antenna Polarity & Test Distance : Vertical at 3m

No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.00	-48.42	-13.00	-35.42	1.50 V	178	59.31	-107.73
2	55.22	-43.02	-13.00	-30.02	1.00 V	164	63.43	-106.45
3	125.06	-39.64	-13.00	-26.64	1.25 V	18	68.07	-107.71
4	268.62	-55.86	-13.00	-42.86	2.00 V	18	49.28	-105.14
5	459.71	-59.19	-13.00	-46.19	1.00 V	263	41.43	-100.62
6	580.96	-59.93	-13.00	-46.93	1.00 V	214	38.55	-98.48

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) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

RF Mode	TX LTE Band XXVI-15MHz	Channel	CH 26915 : 836.5 MHz
Frequency Range	30MHz ~ 1GHz		

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	53.28	-44.74	-13.00	-31.74	1.00 H	31	61.64	-106.38
2	87.23	-47.12	-13.00	-34.12	1.50 H	34	64.63	-111.75
3	159.01	-54.85	-13.00	-41.85	1.25 H	128	50.65	-105.50
4	294.81	-54.08	-13.00	-41.08	1.00 H	104	50.25	-104.33
5	502.39	-61.61	-13.00	-48.61	2.00 H	172	38.38	-99.99
6	892.33	-53.15	-13.00	-40.15	1.50 H	138	39.54	-92.69

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	30.00	-50.51	-13.00	-37.51	1.25 V	262	57.22	-107.73
2	92.08	-55.71	-13.00	-42.71	1.00 V	183	55.80	-111.51
3	174.53	-49.82	-13.00	-36.82	1.50 V	69	56.64	-106.46
4	270.56	-54.32	-13.00	-41.32	1.00 V	350	50.71	-105.03
5	431.58	-60.60	-13.00	-47.60	2.00 V	274	40.71	-101.31
6	677.96	-57.25	-13.00	-44.25	1.00 V	132	39.44	-96.69

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) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

ABOVE 1GHz

RF Mode	TX WCDMA Band V	Channel	CH 4132 : 826.4 MHz
Frequency Range	1GMHz ~ 18GHz		

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	-59.43	-13.00	-46.43	2.92 H	355	44.06	-103.49
Antenna Polarity & Test Distance : Vertical at 3m								
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	-59.70	-13.00	-46.70	1.94 V	5	43.79	-103.49

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) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

RF Mode	TX WCDMA Band V	Channel	CH 4183 : 836.6 MHz
Frequency Range	1GMHz ~ 18GHz		

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	1672.80	-59.45	-13.00	-46.45	2.93 H	354	44.00	-103.45
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1672.80	-59.60	-13.00	-46.60	1.96 V	6	43.85	-103.45

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) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

RF Mode	TX WCDMA Band V	Channel	CH 4233 : 846.6 MHz
Frequency Range	1GMHz ~ 18GHz		

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	1693.20	-59.45	-13.00	-46.45	2.95 H	351	43.96	-103.41
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1693.20	-59.74	-13.00	-46.74	1.89 V	7	43.67	-103.41

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.

RF Mode	TX LTE Band V-1.4MHz	Channel	CH 20407 : 824.7 MHz
Frequency Range	1GMHz ~ 18GHz		

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	1649.40	-56.80	-13.00	-43.80	1.02 H	300	46.69	-103.49

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1649.40	-56.32	-13.00	-43.32	3.88 V	25	47.17	-103.49

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) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

RF Mode	TX LTE Band V-1.4MHz	Channel	CH 20525 : 836.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	1673.00	-56.58	-13.00	-43.58	1.00 H	304	46.87	-103.45

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1673.00	-56.23	-13.00	-43.23	3.81 V	28	47.22	-103.45

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) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

RF Mode	TX LTE Band V-1.4MHz	Channel	CH 20643 : 848.3 MHz
Frequency Range	1GMHz ~ 18GHz		

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	1696.60	-56.52	-13.00	-43.52	1.04 H	306	46.88	-103.40
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBUV)	Correction Factor (dB/m)
1	1696.60	-56.27	-13.00	-43.27	3.85 V	24	47.13	-103.40

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.

RF Mode	TX LTE Band V-5MHz	Channel	CH 20425 : 826.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	1653.00	-56.59	-13.00	-43.59	1.04 H	303	46.90	-103.49
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1653.00	-56.52	-13.00	-43.52	3.81 V	26	46.97	-103.49

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) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

RF Mode	TX LTE Band V-5MHz	Channel	CH 20525 : 836.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	1673.00	-56.58	-13.00	-43.58	1.00 H	305	46.87	-103.45
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1673.00	-56.30	-13.00	-43.30	3.85 V	27	47.15	-103.45

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) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

RF Mode	TX LTE Band V-5MHz	Channel	CH 20625 : 846.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	1693.00	-56.57	-13.00	-43.57	1.01 H	305	46.84	-103.41
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBUV)	Correction Factor (dB/m)
1	1693.00	-56.31	-13.00	-43.31	3.84 V	30	47.10	-103.41

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.

RF Mode	TX LTE Band V-10MHz	Channel	CH 20450 : 829 MHz
Frequency Range	1GMHz ~ 18GHz		

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	1658.00	-56.71	-13.00	-43.71	1.02 H	308	46.77	-103.48

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1658.00	-56.15	-13.00	-43.15	3.84 V	27	47.33	-103.48

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) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

RF Mode	TX LTE Band V-10MHz	Channel	CH 20525 : 836.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	1673.00	-56.79	-13.00	-43.79	1.05 H	305	46.66	-103.45

Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1673.00	-56.17	-13.00	-43.17	3.82 V	29	47.28	-103.45

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) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

RF Mode	TX LTE Band V-10MHz	Channel	CH 20600 : 844 MHz
Frequency Range	1GMHz ~ 18GHz		

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	1688.00	-56.82	-13.00	-43.82	1.03 H	306	46.59	-103.41
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBUV)	Correction Factor (dB/m)
1	1688.00	-56.10	-13.00	-43.10	3.83 V	23	47.31	-103.41

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.

RF Mode	TX LTE Band XXVI-1.4MHz	Channel	CH 26797 : 824.7 MHz
Frequency Range	1GMHz ~ 18GHz		

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	1649.40	-47.96	-13.00	-34.96	1.73 H	324	55.53	-103.49
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1649.40	-47.38	-13.00	-34.38	3.45 V	3	56.11	-103.49

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) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

RF Mode	TX LTE Band XXVI-1.4MHz	Channel	CH 26915 : 836.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	1673.00	-47.95	-13.00	-34.95	1.69 H	326	55.50	-103.45
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1673.00	-47.45	-13.00	-34.45	3.44 V	2	56.00	-103.45

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) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

RF Mode	TX LTE Band XXVI-1.4MHz	Channel	CH 27033 : 848.3 MHz
Frequency Range	1GMHz ~ 18GHz		

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	1696.60	-47.91	-13.00	-34.91	1.66 H	323	55.49	-103.40
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1696.60	-47.43	-13.00	-34.43	3.45 V	1	55.97	-103.40

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) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

RF Mode	TX LTE Band XXVI-5MHz	Channel	CH 26815 : 826.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	1653.00	-48.04	-13.00	-35.04	3.43 H	2	55.45	-103.49
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1653.00	-47.44	-13.00	-34.44	3.43 V	2	56.05	-103.49

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) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

RF Mode	TX LTE Band XXVI-5MHz	Channel	CH 26915 : 836.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	1673.00	-48.05	-13.00	-35.05	3.48 H	4	55.40	-103.45
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1673.00	-47.53	-13.00	-34.53	3.48 V	4	55.92	-103.45

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) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

RF Mode	TX LTE Band XXVI-5MHz	Channel	CH 27015 : 846.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	1693.00	-47.94	-13.00	-34.94	1.71 H	345	55.47	-103.41
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1693.00	-47.47	-13.00	-34.47	3.40 V	5	55.94	-103.41

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.

RF Mode	TX LTE Band XXVI-15MHz	Channel	CH 26865 : 831.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	1663.00	-48.05	-13.00	-35.05	1.69 H	328	55.41	-103.46
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1663.00	-47.36	-13.00	-34.36	3.39 V	6	56.10	-103.46

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) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

RF Mode	TX LTE Band XXVI-15MHz	Channel	CH 26915 : 836.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	1673.00	-47.93	-13.00	-34.93	1.71 H	325	55.52	-103.45
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1673.00	-47.31	-13.00	-34.31	3.40 V	5	56.14	-103.45

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) + 20log(D) – 104.8 - 2.15
3. Margin value = ERP – Limit value
4. The other ERP levels were very low against the limit.

RF Mode	TX LTE Band XXVI-15MHz	Channel	CH 26965 : 841.5 MHz
Frequency Range	1GMHz ~ 18GHz		

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	1683.00	-47.99	-13.00	-34.99	1.77 H	331	55.44	-103.43
Antenna Polarity & Test Distance : Vertical at 3m								
No	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1683.00	-47.44	-13.00	-34.44	3.41 V	3	55.99	-103.43

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.

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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Web Site: www.bureauveritas-adt.com

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

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