Partial FCC Test Report
(Part 22)

Report No.:	RFBBGM-WTW-P21120093
FCC ID:	WIYSLM500QA
Test Model:	SLM500
Received Date:	Dec. 24, 2021
Test Date:	Jan. 13 ~ Mar. 02, 2022
Issued Date:	Mar. 17, 2022
Applicant:	CASTLES TECHNOLOGY CO., LTD.
Address:	6F, NO. 207-5, SEC. 3, BEIXIN RD., XINDIAN DISTRICT, NEW TAIPEI CITY 23143, TAIWAN (R. O. C.)
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan
FCC Registration / Designation Number:	788550 / TW0003

Testing Laboratory
2021

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
RFBBGM-WTW-P21120093	Original release	Mar. 17, 2022

1 Certificate of Conformity

Product:	Smart module
Brand:	CASTLES TECHNOLOGY
Test Model:	SLM500
Sample Status:	Identical Prototype
Applicant:	CASTLES TECHNOLOGY CO., LTD.
Test Date:	Jan. 13 ~ Mar. 02, 2022
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 : Pettie Chen , **Date:** Mar. 17, 2022

Pettie Chen / Senior Specialist

Approved by : Jeremy Lin , **Date:** Mar. 17, 2022

Jeremy Lin / 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
22.913 (d)	Peak to Average Ratio	N/A	Refer to Note
2.1055 22.355	Frequency Stability	N/A	Refer to Note
2.1049	Occupied Bandwidth	N/A	Refer to Note
22.917	Band Edge Measurements	N/A	Refer to Note
2.1051 22.917	Conducted Spurious Emissions	N/A	Refer to Note
2.1053 22.917	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -21.63dB at 52.31MHz.

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 SGS report no.: SZCR210300003005 & SZCR210300003006 & SZCR210300003007 (Smart module, Brand: Meig Link, Model: SLM500, FCC ID: 2APJ4-SLM500).
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.00 dB
	30MHz ~ 200MHz	3.59 dB
	200MHz ~1000MHz	3.60 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 KEYSIGHT	N9038A	MY55420137	Apr. 09, 2021	Apr. 08, 2022
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jun. 10, 2021	Jun. 09, 2022
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Oct. 28, 2021	Oct. 27, 2022
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Nov. 14, 2021	Nov. 13, 2022
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Oct. 26, 2021	Oct. 25, 2022
Preamplifier Agilent (Below 1GHz)	8447D	2944A10638	Jun. 05, 2021	Jun. 04, 2022
Preamplifier Agilent (Above 1GHz)	8449B	3008A01963	Jul. 24, 2021	Jul. 23, 2022
RF signal cable HUBER+SUHNER&EMCI	SUCOFLEX 104 & EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	Jan. 16, 2021	Jan. 15, 2022
			Jan. 15, 2022	Jan. 14, 2023
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	Jan. 16, 2021	Jan. 15, 2022
			Jan. 15, 2022	Jan. 14, 2023
RF signal cable Woken	8D-FB	Cable-CH9-01	Jun. 05, 2021	Jun. 04, 2022
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
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY55190004/MY55190007/MY55210005	Jul. 12, 2021	Jul. 11, 2022
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 01, 2021	May 31, 2022
JFW 20dB attenuation	50HF-020-SMA	NA	NA	NA
True RMS Clamp Meter Fluke	325	31130711WS	Jun. 02, 2021	Jun. 01, 2022

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	Smart module		
Brand	CASTLES TECHNOLOGY		
Test Model	SLM500		
Sample Status	Identical Prototype		
Power Supply Rating	5.0 Vdc (host equipment) 3.65 or 3.7 Vdc		
Modulation Type	GSM, GPRS: GMSK EDGE: 8PSK WCDMA: BPSK, QPSK HSDPA: BPSK HSUPA: QPSK LTE: QPSK, 16QAM		
Operating Frequency	GSM/GPRS/EDGE	824.2~848.8MHz	
	WCDMA Band 5	826.4~846.6MHz	
	LTE Band 5 (Channel Bandwidth 1.4MHz)	824.7~848.3MHz	
	LTE Band 5 (Channel Bandwidth 3MHz)	825.5~847.5MHz	
	LTE Band 5 (Channel Bandwidth 5MHz)	826.5~846.5MHz	
	LTE Band 5 (Channel Bandwidth 10MHz)	829.0~844.0MHz	
	LTE Band 26 (Channel Bandwidth 1.4MHz)	824.7~848.3MHz	
	LTE Band 26 (Channel Bandwidth 3MHz)	825.5~847.5MHz	
	LTE Band 26 (Channel Bandwidth 5MHz)	826.5~846.5MHz	
	LTE Band 26 (Channel Bandwidth 10MHz)	829.0~844.0MHz	
	LTE Band 26 (Channel Bandwidth 15MHz)	831.5~841.5MHz	
Max. ERP Power	GSM	698.232mW (28.44dBm)	
	WCDMA Band 5	76.736mW (18.85dBm)	
		QPSK	16QAM
	LTE Band 5 (Channel Bandwidth 1.4MHz)	73.621mW (18.67dBm)	57.677mW (17.61dBm)
	LTE Band 5 (Channel Bandwidth 3MHz)	73.621mW (18.67dBm)	54.200mW (17.34dBm)
	LTE Band 5 (Channel Bandwidth 5MHz)	72.946mW (18.63dBm)	54.075mW (17.33dBm)
	LTE Band 5 (Channel Bandwidth 10MHz)	74.131mW (18.70dBm)	54.828mW (17.39dBm)
	LTE Band 26 (Channel Bandwidth 1.4MHz)	72.778mW (18.62dBm)	56.885mW (17.55dBm)
	LTE Band 26 (Channel Bandwidth 3MHz)	71.450mW (18.54dBm)	56.234mW (17.50dBm)
	LTE Band 26 (Channel Bandwidth 5MHz)	72.778mW (18.62dBm)	56.234mW (17.50dBm)
	LTE Band 26 (Channel Bandwidth 10MHz)	73.114mW (18.64dBm)	57.016mW (17.56dBm)
	LTE Band 26 (Channel Bandwidth 15MHz)	75.162mW (18.76dBm)	57.544mW (17.60dBm)

Antenna Type	Refer to Note
Accessory Device	NA
Cable Supplied	NA

Note:

1. This report is prepared for FCC class II permissive change. This report is issued as a supplementary report of SGS report no.: SZCR210300003005, SZCR210300003006, SZCR210300003007. The differences from the original report are adding an End-product (POS Terminal (Brand: CASTLES TECHNOLOGY, Model: SATURN1000)). Only Effective Radiated Power and Radiated Spurious Emissions tests were verified and recorded in this report. Other testing data please refer to the original SGS report no.: SZCR210300003005, SZCR210300003006, SZCR210300003007.
2. The EUT was installed in POS Terminal (Brand: CASTLES TECHNOLOGY, Model: SATURN1000).
3. The antenna information of POS Terminal is listed as below.

Antenna 1			
Antenna Type	Dipole	Brand	ARISTOTLE
Antenna Connector	ipex(MHF)	Model	RFA-LTE-JP169-70-130
Antenna Gain (dBi)	GSM 850	-1.19	
	WCDMA Band 5	-1.19	
	LTE Band 5	-1.19	
	LTE Band 26	-1.19	

Antenna 2 (RX only)			
Antenna Type	PIFA	Brand	INPAQ
Antenna Connector	NA	Model	WAG-F-LTE12-00-062
Antenna Gain (dBi)	GSM 850	2.69	
	WCDMA Band 5	2.69	
	LTE Band 5	2.69	
	LTE Band 26	2.7	

*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.

4. The battery and adapter information of POS Terminal is listed as below.

Battery 1 (Support unit)	
Brand	CASTLES TECHNOLOGY
Model	SATURN1000
Rating	3.65Vdc, 5840mAh

Battery 2 (Support unit)	
Brand	CASTLES TECHNOLOGY
Model	SATURN1000
Rating	3.7Vdc, 5840mAh

*Battery 2 was the worst for the final tests.

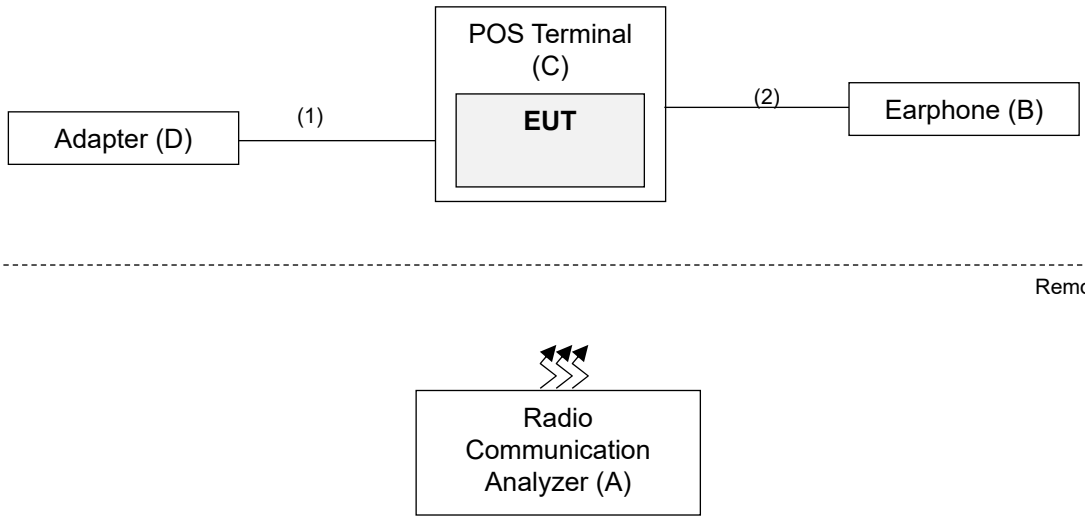
Adapter 1 (Support unit)	
Brand	LUCENT TRANS
Model	1A52-UB52A
Input Power	100-240 Vac; 50/60 Hz; 0.3 A
Output Power	5Vdc; 2A

Adapter 2 (Support unit)	
Brand	LUCENT TRANS
Model	1A52-SR52A
Input Power	100-240 Vac; 50/60 Hz; 0.3 A
Output Power	5Vdc; 2A
Power Cord	1.5m

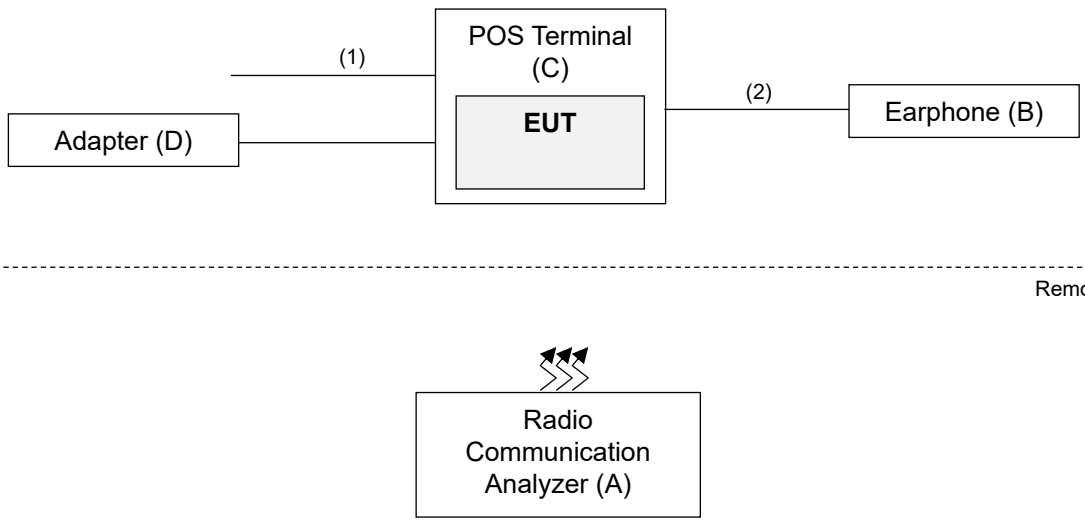
5. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Configuration of System under Test

Test Mode A



Test Mode B



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	MT8821C	6261806803	NA	-
B.	Earphone	APPLE	MB77PFEB	NA	NA	-
C.	POS Terminal	CASTLES TECHNOLOGY	SATURN1000	NA	NA	-
D.	Adapter	LUCENT TRANS	1A52-UB52A	NA	NA	For Test Mode A
			1A52-SR52A	NA	NA	For Test Mode B

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.

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	USB cable	1	0.95	Y	0	Provided by client
2.	Audio cable	1	1.5	Y	0	-

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

Test results are presented in the report as below.

Test Mode	Test Condition
A	EUT with adapter 1
B	EUT with adapter 2

GSM Mode

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
A	ERP	128 to 251	128 (824.2MHz), 189 (836.4MHz), 251 (848.8MHz)	GSM, GPRS, EDGE
A, B	Radiated Emission Below 1GHz	128 to 251	251 (848.8MHz)	GSM
A	Radiated Emission Above 1GHz	128 to 251	128 (824.2MHz), 189 (836.4MHz), 251 (848.8MHz)	GSM

Note: For radiated emission below 1GHz, select the worst radiated emission channel (above 1GHz) for final testing.

WCDMA Band 5

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Mode
A	ERP	4132 to 4233	4132 (826.4MHz), 4182 (836.4MHz), 4233 (846.6MHz)	WCDMA, HSDPA, HSUPA
A, B	Radiated Emission Below 1GHz	4132 to 4233	4233 (846.6MHz)	WCDMA
A	Radiated Emission Above 1GHz	4132 to 4233	4233 (846.6MHz)	WCDMA

LTE Band 5

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
A	ERP	20407 to 20643	20407(824.7MHz), 20525(836.5MHz), 20643(848.3MHz)	1.4MHz	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(825.5MHz), 20525(836.5MHz), 20635(847.5MHz)	3MHz	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(826.5MHz), 20525(836.5MHz), 20625(846.5MHz)	5MHz	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(829.0MHz), 20525(836.5MHz), 20600(844.0MHz)	10MHz	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

LTE Band 26

EUT Configure Mode	Test item	Available channel	Tested channel	Channel Bandwidth	Modulation	Mode
A	ERP	26797 to 27033	26797 (824.7MHz), 26915 (836.5MHz), 27033 (848.3MHz)	1.4MHz	QPSK / 16QAM / 64QAM / 256QAM	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 (825.5MHz), 26915 (836.5MHz), 27025 (847.5MHz)	3MHz	QPSK / 16QAM / 64QAM / 256QAM	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 (826.5MHz), 26915 (836.5MHz), 27015 (846.5MHz)	5MHz	QPSK / 16QAM / 64QAM / 256QAM	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 (829.0MHz), 26915 (836.5MHz), 26990 (844.0MHz)	10MHz	QPSK / 16QAM / 64QAM / 256QAM	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 (831.5MHz), 26915 (836.5MHz), 26965 (841.5MHz)	15MHz	QPSK / 16QAM / 64QAM / 256QAM	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
A, B	Radiated Emission Below 1GHz	26840 to 26990	26990 (844.0MHz)	10MHz	QPSK	1 RB / 25 RB Offset
A	Radiated Emission Above 1GHz	26840 to 26990	26990 (844.0MHz)	10MHz	QPSK	1 RB / 25 RB Offset

Test Condition:

Test Item	Environmental Conditions	Input Power (system)	Tested By
ERP	21deg. C, 67%RH	120Vac, 60Hz	Rex Wang
Radiated Emission	21deg. C, 67%RH	120Vac, 60Hz	Rex Wang, 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 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/TIA/EIA-603-E 2016

ANSI 63.26-2015

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

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

Conducted Power Measurement:

The EUT was set up for the maximum power with GSM, WCDMA, 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.

EIRP / ERP Measurement:

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

$EIRP = P_{Meas} + G_T$

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

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)

4.1.3 Test Setup

Conducted Power Measurement:

4.1.4 Test Results

Conducted Output Power (dBm)

Band	GSM850		
Channel	128	189	251
Frequency	824.2	836.4	848.8
GSM	30.22	30.50	30.54
GPRS 1Tx Slot	30.02	30.33	30.45
GPRS 2Tx Slot	31.23	31.64	31.78
GPRS 3Tx Slot	31.41	31.43	31.63
GPRS 4Tx Slot	31.01	31.33	31.51
EDGE 1Tx Slot (MCS9)	24.78	24.48	24.63
EDGE 2Tx Slot (MCS9)	25.21	25.81	25.85
EDGE 3Tx Slot (MCS9)	24.81	25.61	25.55
EDGE 4Tx Slot (MCS9)	24.61	25.55	25.46

Band	WCDMA Band 5		
Channel	4132	4182	4233
Frequency (MHz)	826.4	836.4	846.6
RMC 12.2K	22.19	22.16	22.11
HSDPA Subtest-1	21.83	21.69	21.74
HSDPA Subtest-2	21.81	21.79	21.73
HSDPA Subtest-3	21.29	21.28	21.24
HSDPA Subtest-4	21.27	21.28	21.23
DC-HSDPA Subtest-1	21.75	21.60	21.66
DC-HSDPA Subtest-2	21.74	21.69	21.65
DC-HSDPA Subtest-3	21.22	21.19	21.26
DC-HSDPA Subtest-4	21.20	21.19	21.15
HSUPA Subtest-1	21.84	21.24	21.03
HSUPA Subtest-2	19.49	19.45	19.46
HSUPA Subtest-3	20.83	20.61	20.71
HSUPA Subtest-4	19.49	19.43	19.42
HSUPA Subtest-5	21.80	21.70	21.70

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20450	20525	20600
		Frequency (MHz)		829	836.5	844
10M	QPSK	1	0	21.88	21.92	22.04
		1	24	21.87	21.90	21.97
		1	49	21.74	21.79	21.83
		25	0	20.97	20.95	21.04
		25	12	20.91	20.87	20.93
		25	25	20.85	20.88	20.94
		50	0	21.01	21.06	21.07
10M	16QAM	1	0	20.54	20.57	20.68
		1	24	20.68	20.72	20.73
		1	49	20.53	20.58	20.61
		25	0	19.90	19.94	19.95
		25	12	19.82	19.77	19.86
		25	25	19.83	19.86	19.89
		50	0	19.93	19.90	19.98

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20425	20525	20625
		Frequency (MHz)		826.5	836.5	846.5
5M	QPSK	1	0	21.80	21.85	21.97
		1	12	21.79	21.82	21.95
		1	24	21.72	21.77	21.76
		12	0	20.95	20.86	20.98
		12	6	20.86	20.86	20.89
		12	13	20.78	20.86	20.89
		25	0	21.01	20.98	20.98
5M	16QAM	1	0	20.52	20.54	20.58
		1	12	20.67	20.67	20.63
		1	24	20.51	20.57	20.56
		12	0	19.81	19.93	19.92
		12	6	19.73	19.75	19.80
		12	13	19.79	19.84	19.86
		25	0	19.87	19.85	19.90

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20415	20525	20635
		Frequency (MHz)		825.5	836.5	847.5
3M	QPSK	1	0	21.82	21.86	22.01
		1	7	21.80	21.83	21.95
		1	14	21.74	21.69	21.79
		8	0	20.93	20.85	21.04
		8	3	20.82	20.77	20.84
		8	7	20.75	20.85	20.87
		15	0	20.92	21.04	21.01
3M	16QAM	1	0	20.52	20.56	20.67
		1	7	20.59	20.68	20.64
		1	14	20.52	20.56	20.59
		8	0	19.86	19.87	19.88
		8	3	19.79	19.70	19.84
		8	7	19.73	19.86	19.80
		15	0	19.93	19.83	19.91

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20407	20525	20643
		Frequency (MHz)		824.7	836.5	848.3
1.4M	QPSK	1	0	21.81	21.69	22.01
		1	2	21.72	21.71	21.84
		1	5	21.68	21.70	21.68
		3	0	21.84	21.83	21.88
		3	1	21.67	21.83	21.86
		3	3	21.78	21.81	21.85
		6	0	20.93	21.03	21.04
1.4M	16QAM	1	0	20.52	20.53	20.66
		1	2	20.56	20.62	20.62
		1	5	20.51	20.52	20.56
		3	0	20.79	20.79	20.95
		3	1	20.73	20.66	20.70
		3	3	20.69	20.74	20.74
		6	0	19.77	19.84	19.92

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26865	26915	26965
		Frequency (MHz)		831.5	836.5	841.5
15M	QPSK	1	0	22.10	22.09	21.74
		1	37	21.97	21.91	21.93
		1	74	21.93	21.87	21.88
		36	0	21.05	21.04	21.04
		36	19	21.00	20.95	20.98
		36	39	20.96	20.87	20.86
		75	0	20.99	20.98	20.97
15M	16QAM	1	0	20.73	20.71	20.66
		1	37	20.94	20.93	20.88
		1	74	20.34	20.28	20.34
		36	0	19.98	19.91	19.96
		36	19	19.93	19.87	19.85
		36	39	19.85	19.79	19.76
		75	0	19.99	19.92	19.99

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26840	26915	26990
		Frequency (MHz)		829	836.5	844
10M	QPSK	1	0	21.97	21.98	21.72
		1	24	21.83	21.83	21.85
		1	49	21.85	21.77	21.85
		25	0	20.96	21.03	20.94
		25	12	20.94	20.93	20.96
		25	25	20.96	20.83	20.86
		50	0	20.84	20.83	20.93
10M	16QAM	1	0	20.61	20.69	20.63
		1	24	20.90	20.86	20.78
		1	49	20.26	20.20	20.34
		25	0	19.97	19.80	19.88
		25	12	19.92	19.84	19.83
		25	25	19.75	19.64	19.73
		50	0	19.91	19.90	19.94

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26815	26915	27015
		Frequency (MHz)		826.5	836.5	846.5
5M	QPSK	1	0	21.88	21.96	21.66
		1	12	21.74	21.68	21.90
		1	24	21.70	21.71	21.78
		12	0	20.95	20.90	21.02
		12	6	20.83	20.88	20.90
		12	13	20.89	20.76	20.79
		25	0	20.79	20.68	20.96
5M	16QAM	1	0	20.53	20.64	20.59
		1	12	20.75	20.84	20.80
		1	24	20.21	20.06	20.26
		12	0	19.90	19.71	19.89
		12	6	19.92	19.73	19.85
		12	13	19.67	19.56	19.68
		25	0	19.78	19.90	19.95

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26805	26915	27025
		Frequency (MHz)		825.5	836.5	847.5
3M	QPSK	1	0	21.88	21.72	21.64
		1	7	21.69	21.84	21.86
		1	14	21.68	21.78	21.86
		8	0	21.03	20.94	20.98
		8	3	20.82	20.88	20.97
		8	7	20.76	20.83	20.82
		15	0	20.82	20.82	20.96
3M	16QAM	1	0	20.56	20.52	20.61
		1	7	20.72	20.64	20.84
		1	14	20.14	20.31	20.31
		8	0	19.75	19.74	19.87
		8	3	19.70	19.73	19.78
		8	7	19.57	19.69	19.73
		15	0	19.87	19.90	19.97

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26797	26915	27033
		Frequency (MHz)		824.7	836.5	848.3
1.4M	QPSK	1	0	21.90	21.70	21.68
		1	2	21.68	21.75	21.87
		1	5	21.62	21.80	21.76
		3	0	21.96	21.80	21.92
		3	1	21.86	21.92	21.84
		3	3	21.78	21.75	21.76
		6	0	20.77	20.93	20.86
1.4M	16QAM	1	0	20.69	20.49	20.49
		1	2	20.75	20.71	20.76
		1	5	20.18	20.34	20.22
		3	0	20.72	20.81	20.89
		3	1	20.69	20.77	20.72
		3	3	20.52	20.60	20.71
		6	0	19.75	19.81	19.84

ERP Power (dBm)

Band	GSM850		
Channel	128	189	251
Frequency	824.2	836.4	848.8
GSM	26.88	27.16	27.2
GPRS 1Tx Slot	26.68	26.99	27.11
GPRS 2Tx Slot	27.89	28.3	28.44
GPRS 3Tx Slot	28.07	28.09	28.29
GPRS 4Tx Slot	27.67	27.99	28.17
EDGE 1Tx Slot (MCS9)	21.44	21.14	21.29
EDGE 2Tx Slot (MCS9)	21.87	22.47	22.51
EDGE 3Tx Slot (MCS9)	21.47	22.27	22.21
EDGE 4Tx Slot (MCS9)	21.27	22.21	22.12

*ERP = Conducted + antenna gain (-1.19dBi)-2.15

Band	WCDMA Band 5		
Channel	4132	4182	4233
Frequency (MHz)	826.4	836.4	846.6
RMC 12.2K	18.85	18.82	18.77
HSDPA Subtest-1	18.49	18.35	18.4
HSDPA Subtest-2	18.47	18.45	18.39
HSDPA Subtest-3	17.95	17.94	17.9
HSDPA Subtest-4	17.93	17.94	17.89
DC-HSDPA Subtest-1	18.41	18.26	18.32
DC-HSDPA Subtest-2	18.4	18.35	18.31
DC-HSDPA Subtest-3	17.88	17.85	17.92
DC-HSDPA Subtest-4	17.86	17.85	17.81
HSUPA Subtest-1	18.5	17.9	17.69
HSUPA Subtest-2	16.15	16.11	16.115
HSUPA Subtest-3	17.49	17.27	17.37
HSUPA Subtest-4	16.15	16.09	16.08
HSUPA Subtest-5	18.46	18.36	18.36

*ERP = Conducted + antenna gain (-1.19dBi)-2.15

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20450	20525	20600
		Frequency (MHz)		829	836.5	844
10M	QPSK	1	0	18.54	18.58	18.7
		1	24	18.53	18.56	18.63
		1	49	18.4	18.45	18.49
		25	0	17.63	17.61	17.7
		25	12	17.57	17.53	17.59
		25	25	17.51	17.54	17.6
		50	0	17.67	17.72	17.73
10M	16QAM	1	0	17.2	17.23	17.34
		1	24	17.34	17.38	17.39
		1	49	17.19	17.24	17.27
		25	0	16.56	16.6	16.61
		25	12	16.48	16.43	16.52
		25	25	16.49	16.52	16.55
		50	0	16.59	16.56	16.64

*ERP = Conducted + antenna gain (-1.19dBi)-2.15

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20425	20525	20625
		Frequency (MHz)		826.5	836.5	846.5
5M	QPSK	1	0	18.46	18.51	18.63
		1	12	18.45	18.48	18.61
		1	24	18.38	18.43	18.42
		12	0	17.61	17.52	17.64
		12	6	17.52	17.52	17.55
		12	13	17.44	17.52	17.55
		25	0	17.67	17.64	17.64
5M	16QAM	1	0	17.18	17.2	17.24
		1	12	17.33	17.33	17.29
		1	24	17.17	17.23	17.22
		12	0	16.47	16.59	16.58
		12	6	16.39	16.41	16.46
		12	13	16.45	16.5	16.52
		25	0	16.53	16.51	16.56

*ERP = Conducted + antenna gain (-1.19dBi)-2.15

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20415	20525	20635
		Frequency (MHz)		825.5	836.5	847.5
3M	QPSK	1	0	18.48	18.52	18.67
		1	7	18.46	18.49	18.61
		1	14	18.4	18.35	18.45
		8	0	17.59	17.51	17.7
		8	3	17.48	17.43	17.5
		8	7	17.41	17.51	17.53
		15	0	17.58	17.7	17.67
3M	16QAM	1	0	17.18	17.22	17.33
		1	7	17.25	17.34	17.3
		1	14	17.18	17.22	17.25
		8	0	16.52	16.53	16.54
		8	3	16.45	16.36	16.5
		8	7	16.39	16.52	16.46
		15	0	16.59	16.49	16.57

*ERP = Conducted + antenna gain (-1.19dBi)-2.15

LTE Band 5						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		20407	20525	20643
		Frequency (MHz)		824.7	836.5	848.3
1.4M	QPSK	1	0	18.47	18.35	18.67
		1	2	18.38	18.37	18.5
		1	5	18.34	18.36	18.34
		3	0	18.5	18.49	18.54
		3	1	18.33	18.49	18.52
		3	3	18.44	18.47	18.51
		6	0	17.59	17.69	17.7
1.4M	16QAM	1	0	17.18	17.19	17.32
		1	2	17.22	17.28	17.28
		1	5	17.17	17.18	17.22
		3	0	17.45	17.45	17.61
		3	1	17.39	17.32	17.36
		3	3	17.35	17.4	17.4
		6	0	16.43	16.5	16.58

*ERP = Conducted + antenna gain (-1.19dBi)-2.15

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26865	26915	26965
		Frequency (MHz)		831.5	836.5	841.5
15M	QPSK	1	0	18.76	18.75	18.4
		1	37	18.63	18.57	18.59
		1	74	18.59	18.53	18.54
		36	0	17.71	17.7	17.7
		36	19	17.66	17.61	17.64
		36	39	17.62	17.53	17.52
		75	0	17.65	17.64	17.63
15M	16QAM	1	0	17.39	17.37	17.32
		1	37	17.6	17.59	17.54
		1	74	17	16.94	17
		36	0	16.64	16.57	16.62
		36	19	16.59	16.53	16.51
		36	39	16.51	16.45	16.42
		75	0	16.65	16.58	16.65

*ERP = Conducted + antenna gain (-1.19dBi)-2.15

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26840	26915	26990
		Frequency (MHz)		829	836.5	844
10M	QPSK	1	0	18.63	18.64	18.38
		1	24	18.49	18.49	18.51
		1	49	18.51	18.43	18.51
		25	0	17.62	17.69	17.6
		25	12	17.6	17.59	17.62
		25	25	17.62	17.49	17.52
		50	0	17.5	17.49	17.59
10M	16QAM	1	0	17.27	17.35	17.29
		1	24	17.56	17.52	17.44
		1	49	16.92	16.86	17
		25	0	16.63	16.46	16.54
		25	12	16.58	16.5	16.49
		25	25	16.41	16.3	16.39
		50	0	16.57	16.56	16.6

*ERP = Conducted + antenna gain (-1.19dBi)-2.15

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26815	26915	27015
		Frequency (MHz)		826.5	836.5	846.5
5M	QPSK	1	0	18.54	18.62	18.32
		1	12	18.4	18.34	18.56
		1	24	18.36	18.37	18.44
		12	0	17.61	17.56	17.68
		12	6	17.49	17.54	17.56
		12	13	17.55	17.42	17.45
		25	0	17.45	17.34	17.62
5M	16QAM	1	0	17.19	17.3	17.25
		1	12	17.41	17.5	17.46
		1	24	16.87	16.72	16.92
		12	0	16.56	16.37	16.55
		12	6	16.58	16.39	16.51
		12	13	16.33	16.22	16.34
		25	0	16.44	16.56	16.61

*ERP = Conducted + antenna gain (-1.19dBi)-2.15

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26805	26915	27025
		Frequency (MHz)		825.5	836.5	847.5
3M	QPSK	1	0	18.54	18.38	18.3
		1	7	18.35	18.5	18.52
		1	14	18.34	18.44	18.52
		8	0	17.69	17.6	17.64
		8	3	17.48	17.54	17.63
		8	7	17.42	17.49	17.48
		15	0	17.48	17.48	17.62
3M	16QAM	1	0	17.22	17.18	17.27
		1	7	17.38	17.3	17.5
		1	14	16.8	16.97	16.97
		8	0	16.41	16.4	16.53
		8	3	16.36	16.39	16.44
		8	7	16.23	16.35	16.39
		15	0	16.53	16.56	16.63

*ERP = Conducted + antenna gain (-1.19dBi)-2.15

LTE Band 26						
BW	MCS Index	RB Size	RB Offset	Low	Mid	High
		Channel		26797	26915	27033
		Frequency (MHz)		824.7	836.5	848.3
1.4M	QPSK	1	0	18.56	18.36	18.34
		1	2	18.34	18.41	18.53
		1	5	18.28	18.46	18.42
		3	0	18.62	18.46	18.58
		3	1	18.52	18.58	18.5
		3	3	18.44	18.41	18.42
		6	0	17.43	17.59	17.52
1.4M	16QAM	1	0	17.35	17.15	17.15
		1	2	17.41	17.37	17.42
		1	5	16.84	17	16.88
		3	0	17.38	17.47	17.55
		3	1	17.35	17.43	17.38
		3	3	17.18	17.26	17.37
		6	0	16.41	16.47	16.5

*ERP = Conducted + antenna gain (-1.19dBi)-2.15

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. In the semi-anechoic chamber, EUT placed on the 0.8m(below or equal 1GHz) and/or 1.5m(above 1GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.

b. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

c. Perform a field strength measurement and record the worse read value, is the field strength value via a spectrum reading obtained corrected for antenna factor, cable loss and pre-amplifier factor and then mathematically convert the measured field strength level to EIRP/ERP level.

d. Following C63.26 section 5.5 and 5.2.7.

EIRP (dBm) = E (dBμV/m) + 20log(D) - 104.8; where D is the measurement distance (in the far field region) in m.

ERP (dBm) = E (dBμV/m) + 20log(D) - 104.8 - 2.15; where D is the measurement distance (in the far field region) in m.

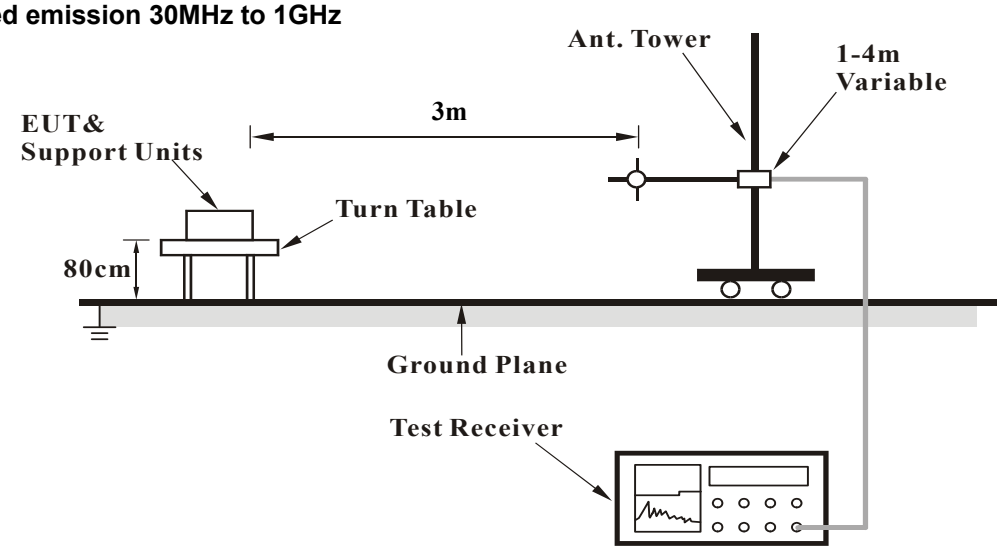
Note:
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.
2. The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:
   The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

4.2.3 Deviation from Test Standard

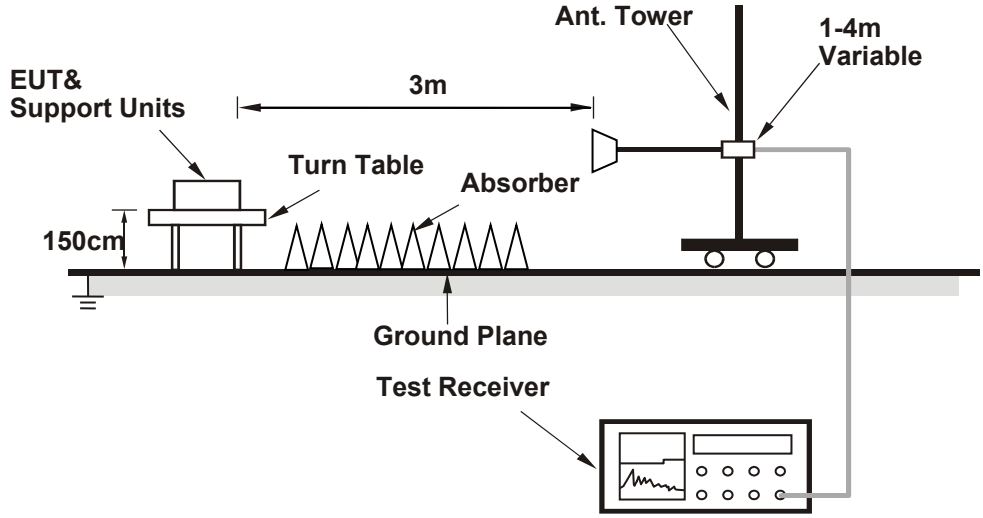
No deviation.

4.2.4 Test Setup

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

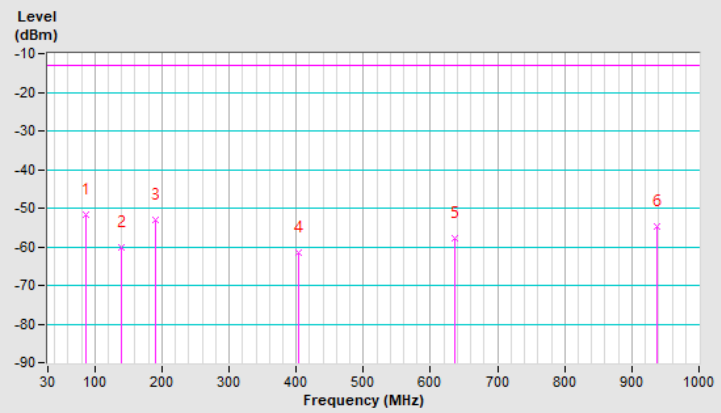
Below 1GHz
GSM 850

Mode	TX channel 251 (846.6MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	21deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Rex Wang	Test Mode	A

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	87.23	-51.78	-13.00	-38.78	1.00 H	16	60.28	-112.06
2	138.64	-60.20	-13.00	-47.20	1.50 H	84	46.61	-106.81
3	190.05	-53.13	-13.00	-40.13	1.50 H	359	55.62	-108.75
4	404.42	-61.38	-13.00	-48.38	1.25 H	67	40.90	-102.28
5	635.28	-57.77	-13.00	-44.77	1.00 H	274	39.44	-97.21
6	936.95	-54.85	-13.00	-41.85	1.00 H	125	36.38	-91.23

Remarks:

1. ERP(dBm) = Raw Value(dBuV/m) + 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.

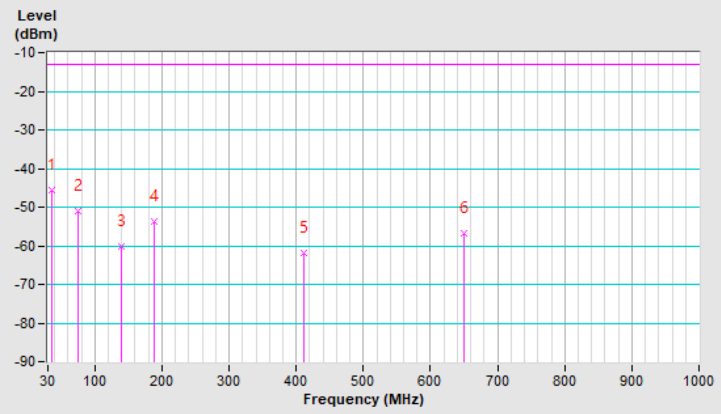


Mode	TX channel 251 (846.6MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	21deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Rex Wang	Test Mode	A

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	35.82	-45.61	-13.00	-32.61	1.00 V	108	62.00	-107.61
2	75.59	-50.99	-13.00	-37.99	1.50 V	354	58.87	-109.86
3	138.64	-60.25	-13.00	-47.25	1.50 V	93	46.56	-106.81
4	189.08	-53.71	-13.00	-40.71	1.00 V	214	54.90	-108.61
5	411.21	-61.82	-13.00	-48.82	1.25 V	66	40.35	-102.17
6	649.83	-56.67	-13.00	-43.67	1.00 V	305	40.48	-97.15

Remarks:

1. ERP(dBm) = Raw Value(dBuV/m) + 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.

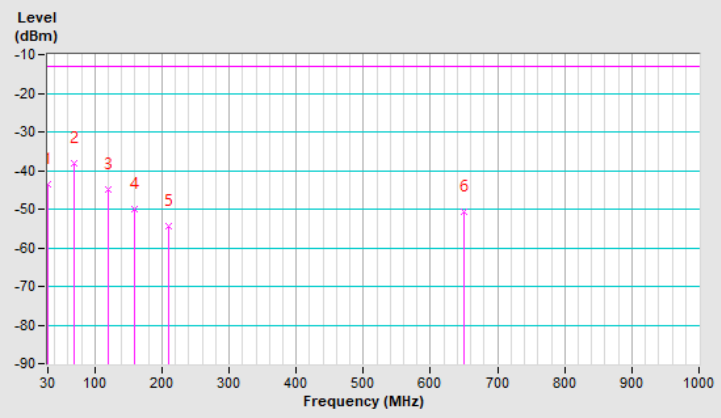


Mode	TX channel 251 (846.6MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	21deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin	Test Mode	B

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	30.00	-43.63	-13.00	-30.63	1.50 H	40	63.95	-107.58
2	69.77	-37.99	-13.00	-24.99	1.25 H	40	70.44	-108.43
3	120.21	-44.84	-13.00	-31.84	1.00 H	51	63.78	-108.62
4	159.98	-49.96	-13.00	-36.96	1.25 H	147	56.03	-105.99
5	209.45	-54.26	-13.00	-41.26	1.00 H	34	54.54	-108.80
6	649.83	-50.68	-13.00	-37.68	1.00 H	18	46.47	-97.15

Remarks:

1. ERP(dBm) = Raw Value(dBuV/m) + 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.

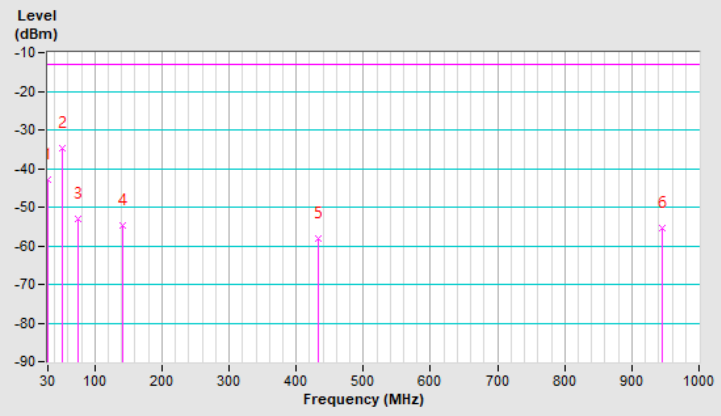


Mode	TX channel 251 (846.6MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	21deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin	Test Mode	B

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	30.00	-42.76	-13.00	-29.76	1.25 V	169	64.82	-107.58
2	**52.31**	**-34.63**	**-13.00**	**-21.63**	**1.00 V**	**28**	**71.77**	**-106.40**
3	75.59	-53.14	-13.00	-40.14	1.50 V	144	56.72	-109.86
4	140.58	-54.60	-13.00	-41.60	1.00 V	188	52.15	-106.75
5	432.55	-58.00	-13.00	-45.00	1.00 V	0	43.26	-101.26
6	944.71	-55.32	-13.00	-42.32	1.25 V	173	35.96	-91.28

Remarks:

1. ERP(dBm) = Raw Value(dBuV/m) + 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.



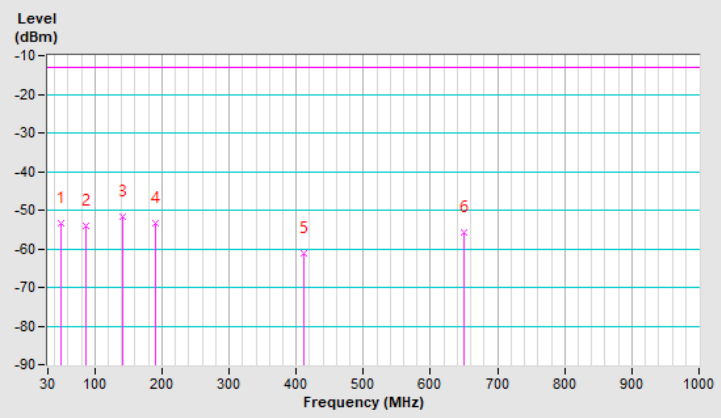
WCDMA Band 5

Mode	TX channel 4233 (846.6MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	21deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Rex Wang	Test Mode	A

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	49.40	-53.54	-13.00	-40.54	1.00 H	247	52.86	-106.40
2	87.23	-54.16	-13.00	-41.16	1.50 H	80	57.90	-112.06
3	140.58	-51.68	-13.00	-38.68	2.00 H	284	55.07	-106.75
4	190.05	-53.53	-13.00	-40.53	1.25 H	52	55.22	-108.75
5	411.21	-61.15	-13.00	-48.15	1.00 H	69	41.02	-102.17
6	649.83	-55.77	-13.00	-42.77	1.00 H	240	41.38	-97.15

Remarks:

1. ERP(dBm) = Raw Value(dBuV/m) + 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.

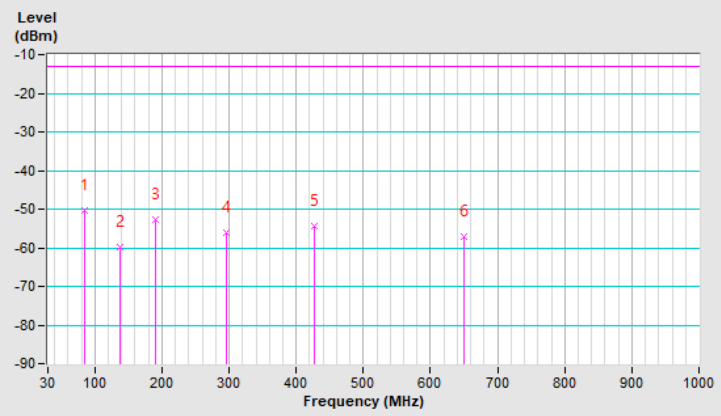


Mode	TX channel 4233 (846.6MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	21deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Rex Wang	Test Mode	A

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	84.32	-50.30	-13.00	-37.30	1.00 V	12	61.44	-111.74
2	137.67	-59.84	-13.00	-46.84	1.25 V	106	47.07	-106.91
3	190.05	-52.72	-13.00	-39.72	1.00 V	58	56.03	-108.75
4	296.75	-56.16	-13.00	-43.16	1.25 V	102	48.29	-104.45
5	426.73	-54.48	-13.00	-41.48	1.00 V	91	46.97	-101.45
6	649.83	-57.01	-13.00	-44.01	1.50 V	5	40.14	-97.15

Remarks:

1. ERP(dBm) = Raw Value(dBuV/m) + 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.

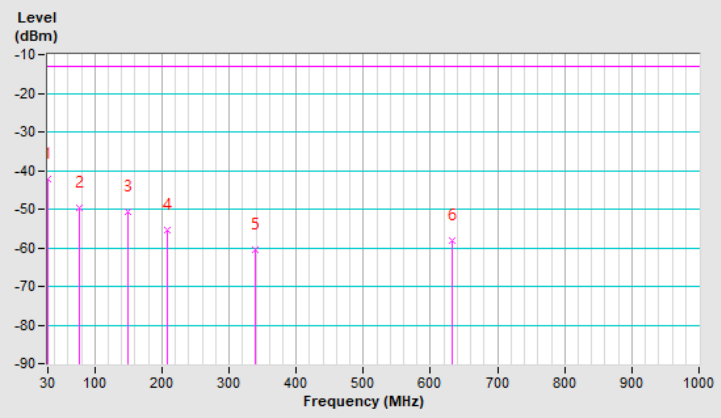


Mode	TX channel 4233 (846.6MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	21deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin	Test Mode	B

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	30.00	-42.34	-13.00	-29.34	1.25 H	282	65.24	-107.58
2	76.56	-49.58	-13.00	-36.58	1.00 H	174	60.58	-110.16
3	149.31	-50.81	-13.00	-37.81	1.00 H	117	55.46	-106.27
4	207.51	-55.45	-13.00	-42.45	1.50 H	33	53.41	-108.86
5	339.43	-60.61	-13.00	-47.61	1.00 H	167	42.87	-103.48
6	632.37	-58.22	-13.00	-45.22	1.00 H	240	39.04	-97.26

Remarks:

1. ERP(dBm) = Raw Value(dBuV/m) + 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.

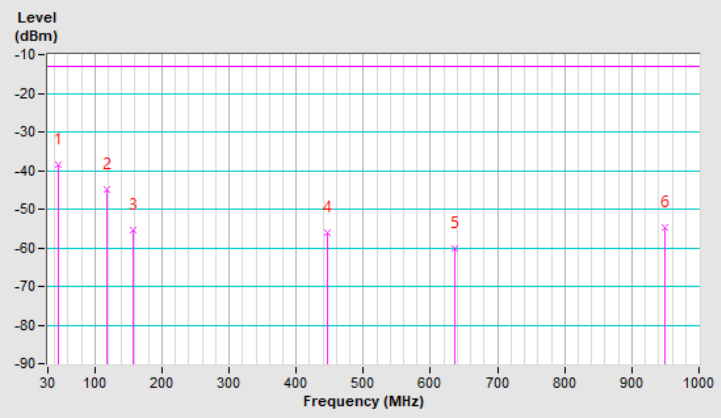


Mode	TX channel 4233 (846.6MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	21deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin	Test Mode	B

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	46.49	-38.58	-13.00	-25.58	1.00 V	54	67.92	-106.50
2	118.27	-44.98	-13.00	-31.98	1.25 V	54	63.84	-108.82
3	157.07	-55.28	-13.00	-42.28	1.50 V	54	50.83	-106.11
4	447.10	-56.19	-13.00	-43.19	1.00 V	18	44.80	-100.99
5	637.22	-60.06	-13.00	-47.06	1.00 V	192	37.13	-97.19
6	949.56	-54.91	-13.00	-41.91	1.25 V	18	36.39	-91.30

Remarks:

1. ERP(dBm) = Raw Value(dBuV/m) + 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.



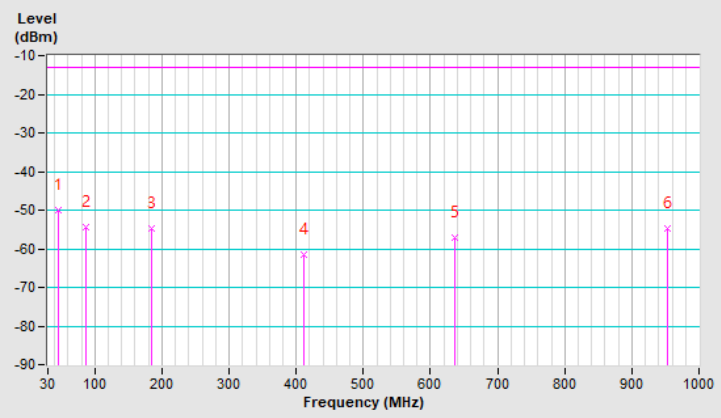
LTE Band 26, Channel Bandwidth: 10MHz

Mode	TX channel 26990 (844.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	21deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Rex Wang	Test Mode	A

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	46.49	-50.11	-13.00	-37.11	1.00 H	343	56.39	-106.50
2	86.26	-54.50	-13.00	-41.50	1.50 H	134	57.51	-112.01
3	184.23	-54.70	-13.00	-41.70	1.50 H	129	53.40	-108.10
4	411.21	-61.56	-13.00	-48.56	2.00 H	67	40.61	-102.17
5	636.25	-57.26	-13.00	-44.26	1.00 H	270	39.93	-97.19
6	952.47	-54.71	-13.00	-41.71	1.00 H	215	36.55	-91.26

Remarks:

1. ERP(dBm) = Raw Value(dBuV/m) + 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.

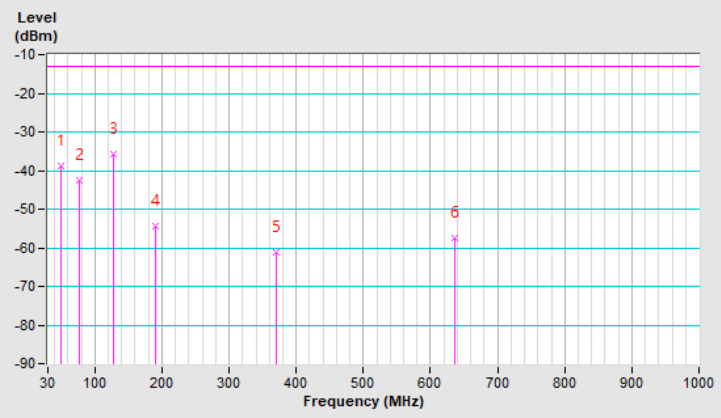


Mode	TX channel 26990 (844.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	21deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Rex Wang	Test Mode	A

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	49.40	-38.74	-13.00	-25.74	1.00 V	48	67.66	-106.40
2	76.56	-42.69	-13.00	-29.69	1.00 V	150	67.47	-110.16
3	127.97	-35.92	-13.00	-22.92	1.00 V	48	71.91	-107.83
4	190.05	-54.36	-13.00	-41.36	1.50 V	93	54.39	-108.75
5	369.50	-61.26	-13.00	-48.26	1.50 V	150	41.75	-103.01
6	636.25	-57.58	-13.00	-44.58	1.00 V	195	39.61	-97.19

Remarks:

1. ERP(dBm) = Raw Value(dBuV/m) + 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.

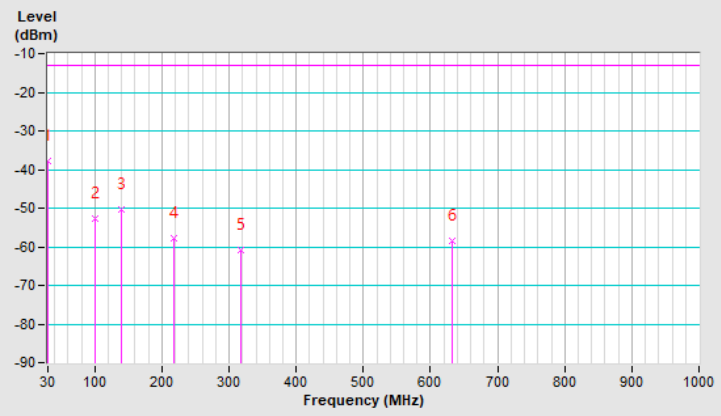


Mode	TX channel 26990 (844.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	21deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin	Test Mode	B

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	30.00	-37.80	-13.00	-24.80	1.00 H	124	69.78	-107.58
2	99.84	-52.69	-13.00	-39.69	1.25 H	8	58.39	-111.08
3	138.64	-50.49	-13.00	-37.49	1.00 H	67	56.32	-106.81
4	218.18	-57.69	-13.00	-44.69	1.25 H	67	50.83	-108.52
5	317.12	-60.75	-13.00	-47.75	1.00 H	335	43.09	-103.84
6	632.37	-58.57	-13.00	-45.57	1.50 H	46	38.69	-97.26

Remarks:

1. ERP(dBm) = Raw Value(dBuV/m) + 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.

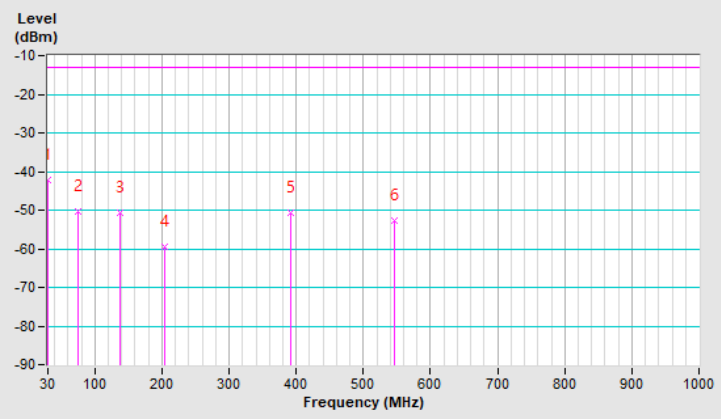


Mode	TX channel 26990 (844.0MHz)	Frequency Range	Below 1000 MHz
Environmental Conditions	21deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin	Test Mode	B

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	30.00	-42.30	-13.00	-29.30	1.50 V	83	65.28	-107.58
2	75.59	-50.34	-13.00	-37.34	1.25 V	126	59.52	-109.86
3	136.70	-50.62	-13.00	-37.62	1.00 V	161	56.38	-107.00
4	204.60	-59.64	-13.00	-46.64	1.25 V	54	49.31	-108.95
5	390.84	-50.57	-13.00	-37.57	1.00 V	108	51.96	-102.53
6	546.04	-52.87	-13.00	-39.87	1.00 V	157	46.23	-99.10

Remarks:

1. ERP(dBm) = Raw Value(dBuV/m) + 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
GSM 850

Mode	TX channel 251 (846.6MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	23deg. C, 68%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

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	1697.60	-48.07	-13.00	-35.07	1.82 H	173	53.94	-102.01
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	1697.60	-41.10	-13.00	-28.10	1.66 V	173	60.91	-102.01

Remarks:

1. ERP(dBm) = Raw Value(dBuV/m) + 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.

WCDMA Band 5

Mode	TX channel 4233 (846.6MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	21deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

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	-54.39	-13.00	-41.39	2.03 H	233	47.62	-102.01
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	1693.20	-52.73	-13.00	-39.73	1.42 V	205	49.28	-102.01

Remarks:

1. ERP(dBm) = Raw Value(dBuV/m) + 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.

LTE Band 5, Channel Bandwidth: 10MHz

Mode	TX channel 26990 (844.0MHz)	Frequency Range	1GHz ~ 18GHz
Environmental Conditions	21deg. C, 67%RH	Input Power	120Vac, 60Hz
Tested By	Greg Lin		

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	-52.05	-13.00	-39.05	3.68 H	184	49.97	-102.02
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	1688.00	-48.21	-13.00	-35.21	1.00 V	184	53.81	-102.02

Remarks:

1. ERP(dBm) = Raw Value(dBuV/m) + 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.

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.

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

Lin Kou EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab
Tel: 886-3-3183232
Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

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

--- END ---