FCC Test Report

(Co-Located)

Report No.:	RFBHAT-WTW-P21060603-5
FCC ID:	R68E213W
Test Model:	E213F102S
Received Date:	Oct. 14, 2021
Test Date:	Oct. 24, 2022
Issued Date:	Nov. 03, 2022
Applicant:	Lantronix
Address:	7535 Irvine Center Drive, Suite 100, Irvine, CA 92618 USA
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 70, Wenming Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)
FCC Registration / Designation Number:	281270 / TW0032

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
RFBHAT-WTW-P21060603-5	Original release.	Nov. 03, 2022

1 Certificate of Conformity

Product:	E210 Series
Brand:	LANTRONIX
Test Model:	E213F102S
Sample Status:	Identical Prototype
Applicant:	Lantronix
Test Date:	Oct. 24, 2022
Standards:	47 CFR FCC Part 15, Subpart C (Section 15.247) FCC Part 22, Subpart H FCC Part 24, Subpart E FCC Part 27, Subpart C, H, F, L FCC Part 90, Subpart I, S ANSI C63.10-2013 ANSI C63.26-2015

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 : Vera Huang , **Date:** Nov. 03, 2022

Vera Huang / Specialist

: Jeremy Lin , **Date:** Nov. 03, 2022

Jeremy Lin / Project Engineer

2 Summary of Test Results

Applied Standard	47 CFR FCC Part 15, Subpart C (Section 15.247) FCC Part 22, Subpart H FCC Part 24, Subpart E FCC Part 27, Subpart C, H, F, L FCC Part 90, Subpart I, S		
FCC Clause	Test Item	Result	Remarks
15.205 / 15.209 / 15.247(d)	Radiated Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -2.0dB at 36.79MHz and MHz.
2.1053 22.917	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -40.87dB at 45.46MHz.
2.1053 24.238	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -34.86dB at 3700.40MHz.
2.1053 27.53(h)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -33.19dB at 42.65MHz.
2.1053 27.53(c)(f))	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -8.12dB at 1569.00MHz.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	3.04 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 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	E210 Series		
Brand	LANTRONIX		
Test Model	E213F102S		
Status of EUT	Identical Prototype		
Power Supply Rating	12 Vdc (from adapter)		
Modulation Type	WLAN	CCK, DQPSK, DBPSK for DSSS 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM	
	GPRS	GMSK	
	LTE Cat-M1	QPSK, 16QAM	
Operating Frequency	WLAN		2412~2462MHz
	GSM850		824.2 ~ 848.8 MHz
	LTE Cat-M1 Band 5 (Channel Bandwidth: 1.4 MHz)		824.7 ~ 848.3 MHz
	LTE Cat-M1 Band 5 (Channel Bandwidth: 3 MHz)		825.5 ~ 847.5 MHz
	LTE Cat-M1 Band 5 (Channel Bandwidth: 5 MHz)		826.5 ~ 846.5 MHz
	LTE Cat-M1 Band 5 (Channel Bandwidth: 10 MHz)		829 ~ 844 MHz
	LTE Cat-M1 Band 26 (Channel Bandwidth: 1.4 MHz)		824.7 ~ 848.3 MHz
	LTE Cat-M1 Band 26 (Channel Bandwidth: 3 MHz)		825.5 ~ 847.5 MHz
	LTE Cat-M1 Band 26 (Channel Bandwidth: 5 MHz)		826.5 ~ 846.5 MHz
	LTE Cat-M1 Band 26 (Channel Bandwidth: 10 MHz)		829 ~ 844 MHz
	LTE Cat-M1 Band 26 (Channel Bandwidth: 15 MHz)		831.5 ~ 841.5 MHz
	GSM1900		1850.2 ~ 1909.8 MHz
	LTE Cat-M1 Band 2 (Channel Bandwidth: 1.4 MHz)		1850.7 ~ 1909.3 MHz
	LTE Cat-M1 Band 2 (Channel Bandwidth: 3 MHz)		1851.5 ~ 1908.5 MHz
	LTE Cat-M1 Band 2 (Channel Bandwidth: 5 MHz)		1852.5 ~ 1907.5 MHz
	LTE Cat-M1 Band 2 (Channel Bandwidth: 10 MHz)		1855.0 ~ 1905.0 MHz
	LTE Cat-M1 Band 2 (Channel Bandwidth: 15 MHz)		1857.5 ~ 1902.5 MHz
	LTE Cat-M1 Band 2 (Channel Bandwidth: 20 MHz)		1860.0 ~ 1900.0 MHz
	LTE Cat-M1 Band 25 (Channel Bandwidth: 1.4 MHz)		1850.7 ~ 1914.3 MHz
	LTE Cat-M1 Band 25 (Channel Bandwidth: 3 MHz)		1851.5 ~ 1913.5 MHz
	LTE Cat-M1 Band 25 (Channel Bandwidth: 5 MHz)		1852.5 ~ 1912.5 MHz
	LTE Cat-M1 Band 25 (Channel Bandwidth: 10 MHz)		1855.0 ~ 1910.0 MHz
	LTE Cat-M1 Band 25 (Channel Bandwidth: 15 MHz)		1857.5 ~ 1907.5 MHz
	LTE Cat-M1 Band 25 (Channel Bandwidth: 20 MHz)		1860.0 ~ 1905.0 MHz
	LTE Cat-M1 Band 4 (Channel Bandwidth: 1.4 MHz)		1710.7 ~ 1754.3 MHz
	LTE Cat-M1 Band 4 (Channel Bandwidth: 3 MHz)		1711.5 ~ 1753.5 MHz
	LTE Cat-M1 Band 4 (Channel Bandwidth: 5 MHz)		1712.5 ~ 1752.5 MHz
	LTE Cat-M1 Band 4 (Channel Bandwidth: 10 MHz)		1715.0 ~ 1750.0 MHz
	LTE Cat-M1 Band 4 (Channel Bandwidth: 15 MHz)		1717.5 ~ 1747.5 MHz
	LTE Cat-M1 Band 4 (Channel Bandwidth: 20 MHz)		1720.0 ~ 1745.0 MHz

Operating Frequency	LTE Cat-M1 Band 12 (Channel Bandwidth: 1.4 MHz)	699.7 ~ 715.3 MHz
	LTE Cat-M1 Band 12 (Channel Bandwidth: 3 MHz)	700.5 ~ 714.5 MHz
	LTE Cat-M1 Band 12 (Channel Bandwidth: 5 MHz)	701.5 ~ 713.5 MHz
	LTE Cat-M1 Band 12 (Channel Bandwidth: 10 MHz)	704.0 ~ 711.0 MHz
	LTE Cat-M1 Band 13 (Channel Bandwidth: 5 MHz)	779.5 ~ 784.5 MHz
	LTE Cat-M1 Band 13 (Channel Bandwidth: 10 MHz)	782.0 MHz
	LTE Cat-M1 Band 26 (Channel Bandwidth: 1.4 MHz)	814.7 ~ 823.3 MHz
	LTE Cat-M1 Band 26 (Channel Bandwidth: 3 MHz)	815.5 ~ 822.5 MHz
	LTE Cat-M1 Band 26 (Channel Bandwidth: 5 MHz)	816.5 ~ 821.5 MHz
	LTE Cat-M1 Band 26 (Channel Bandwidth: 10 MHz)	819 MHz
Antenna Type	Refer to Note as below	
Antenna Connector	Refer to Note as below	
Accessory Device	N/A	
Cable Supplied	N/A	

Note:

1. The EUT contains certified WWAN module with FCC ID: R68E213.
2. The EUT provides 1 completed transmitter and 1 receiver.

Modulation Mode	Tx Function
802.11b	1TX/1RX
802.11g	1TX/1RX
802.11n (HT20)	1TX/1RX
802.11n (HT40)	1TX/1RX
VHT20	1TX/1RX
VHT40	1TX/1RX

3. The antenna information is listed as below.

WLAN Antenna			
Antenna P/N	Gain (dBi)	Antenna Type	Connector Type
GW.71.5153	3.32	Dipole Antenna	RP-SMA

WWAN Antenna			
Band	Gain (dBi)	Antenna Type	Connector Type
GPRS 850	1	Dipole Antenna	SMA
GPRS 1900	3	Dipole Antenna	SMA
LTE 2	6	Dipole Antenna	SMA
LTE 4	6	Dipole Antenna	SMA
LTE 5	4	Dipole Antenna	SMA
LTE 12	3	Dipole Antenna	SMA
LTE 13	3	Dipole Antenna	SMA
LTE 25	6	Dipole Antenna	SMA
LTE 26	4	Dipole Antenna	SMA

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

3.2 Description of Test Modes

WLAN 2412~2462MHz:

11 channels are provided for 802.11b, 802.11g and 802.11n (HT20):

Channel	Frequency	Channel	Frequency
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

7 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to		Description
	RE≥1G	RE<1G	
-	√	√	-

Where RE≥1G: Radiated Emission above 1GHz & Bandedge Measurement RE<1G: Radiated Emission below 1GHz

Note:

1. The EUT had been pre-tested on the positioned of X-plane & Z-plane. The worst cases were found when positioned on Z-plane.

Radiated Emission Test (Above 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

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

EUT Configure Mode	Mode	Tested Channel	Remark
1	802.11b	1	-
	GSM850	128 (824.2MHz)	-
2	802.11b	1	-
	GSM1900	512 (1850.2MHz)	-
3	802.11b	1	-
	LTE Band 4	20175 (1732.5MHz)	Channel Bandwidth 5MHz
4	802.11b	1	-
	LTE Band 13	23255 (784.5MHz)	Channel Bandwidth 5MHz

*The above test mode was found to be the worst cases test mode and had been chosen for final test.

Radiated Emission Test (Below 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

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

EUT Configure Mode	Mode	Tested Channel	Remark
1	802.11b	1	-
	GSM850	128 (824.2MHz)	-
2	802.11b	1	-
	GSM1900	512 (1850.2MHz)	-
3	802.11b	1	-
	LTE Band 4	20175 (1732.5MHz)	Channel Bandwidth 5MHz
4	802.11b	1	-
	LTE Band 13	23255 (784.5MHz)	Channel Bandwidth 5MHz

*The above test mode was found to be the worst cases test mode and had been chosen for final test.

Test Condition:

Applicable to	Environmental Conditions	Input Power (system)	Tested by
RE≥1G	23 deg. C, 66% RH	120Vac, 60Hz	Titan Hsu
RE<1G	23 deg. C, 66% RH	120Vac, 60Hz	Titan Hsu

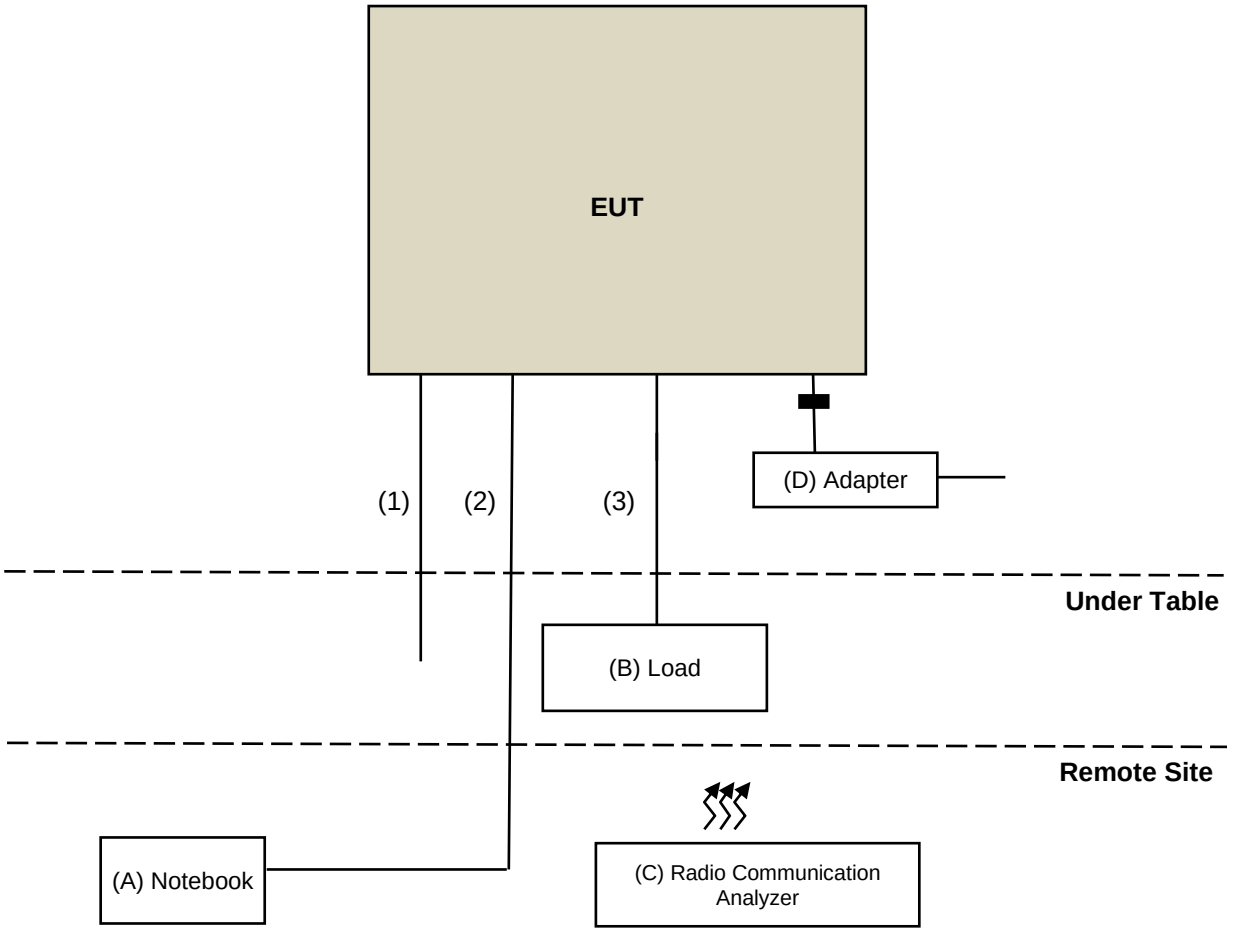
3.3 Description of Support Units

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	Notebook	Lenovo	L440	R9-0GFJKK	N/A	Provided by Lab
B	Load	N/A	N/A	N/A	N/A	Provided by Lab
C	Radio Communication Analyzer	Anritsu	MT8821C	6201462755	NA	Provided by Lab
D	Adapter	YINGHUIYUAN	YHY-12003000	N/A	N/A	Provided by client

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	RS232 TO USB	1	1.8	N	0	Provided by Lab
2	RJ-45 Cable	1	6	N	0	Provided by Lab
3	RJ-45 Cable	1	1.5	N	0	Provided by Lab

3.3.1 Configuration of System under Test



3.4 General Description of Applied Standards

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

FCC Part 15, Subpart C (15.247)
FCC Part 22, Subpart H
FCC Part 24, Subpart E
FCC Part 27, Subpart C, H, F, L
FCC Part 90, Subpart I, S
ANSI C63.10-2013
ANSI C63.26-2015

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.
FCC PART 15.209:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 27, 2022	Apr. 26, 2023
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Sep. 16, 2022	Sep. 15, 2023
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
Loop Antenna TESEQ	HLA 6121	45745	Jul. 27, 2022	Jul. 26, 2023
Preamplifier Agilent (Below 1GHz)	8447D	2944A10638	May 14, 2022	May 13, 2023
Preamplifier Agilent (Above 1GHz)	8449B	3008A02367	Feb. 16, 2022	Feb. 15, 2023
RF signal cable HUBER+SUHNER&EMCI	SUCOFLEX 104 & EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	Jan. 15, 2022	Jan. 14, 2023
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	Jan. 15, 2022	Jan. 14, 2023
RF signal cable Woken	8D-FB	Cable-CH9-01	May 14, 2022	May 13, 2023
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
Pre-amplifier (18GHz-40GHz) EMC	EMC184045B	980175	Sep. 03, 2022	Sep. 02, 2023

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HY - 966 chamber 4.

4.1.3 Test Procedures

WLAN

For Radiated emission below 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode, except for the frequency band (9 kHz to 90 kHz and 110 kHz to 490 kHz) set to average detect function and peak detect function.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 200 Hz at frequency below 150 kHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz or 10 kHz at frequency (150 kHz to 30 MHz).
3. All modes of operation were investigated and the worst-case emissions are reported.

For Radiated emission above 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. 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.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

WWAN

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: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

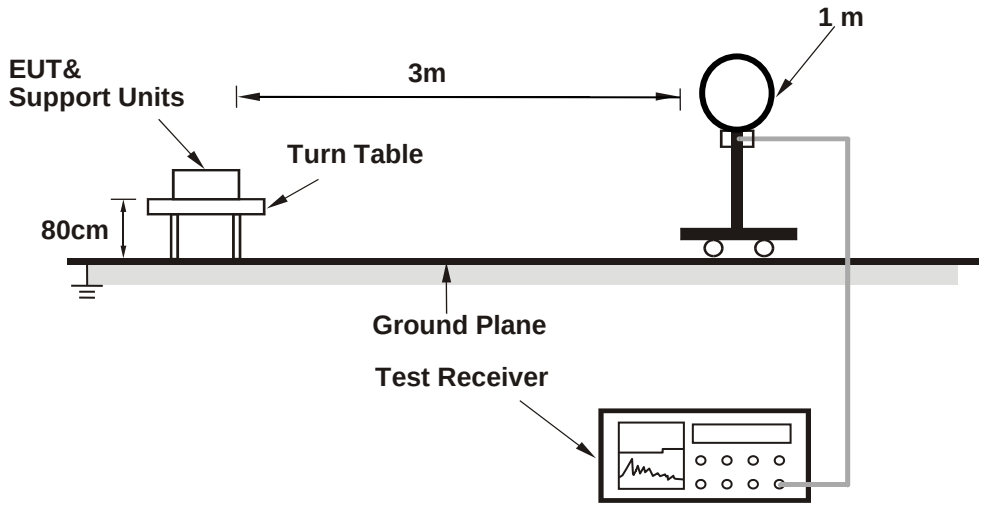
4.1.4 Deviation from Test Standard

No deviation.

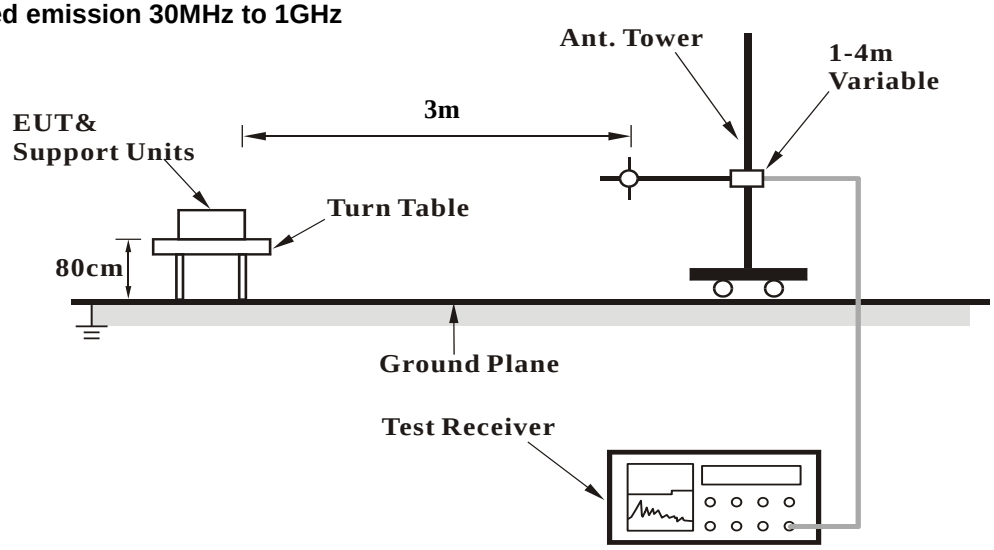
4.1.5 Test Setup

WLAN

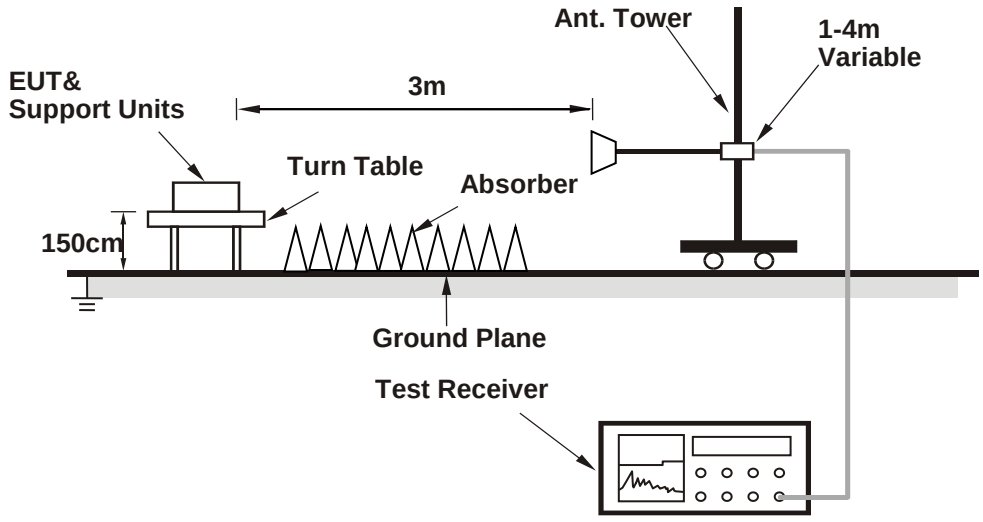
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



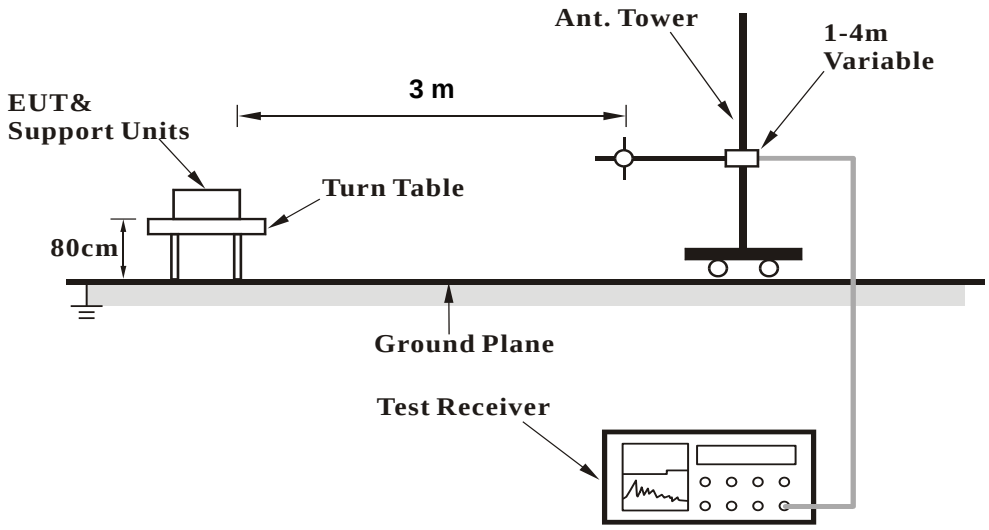
For Radiated emission above 1GHz



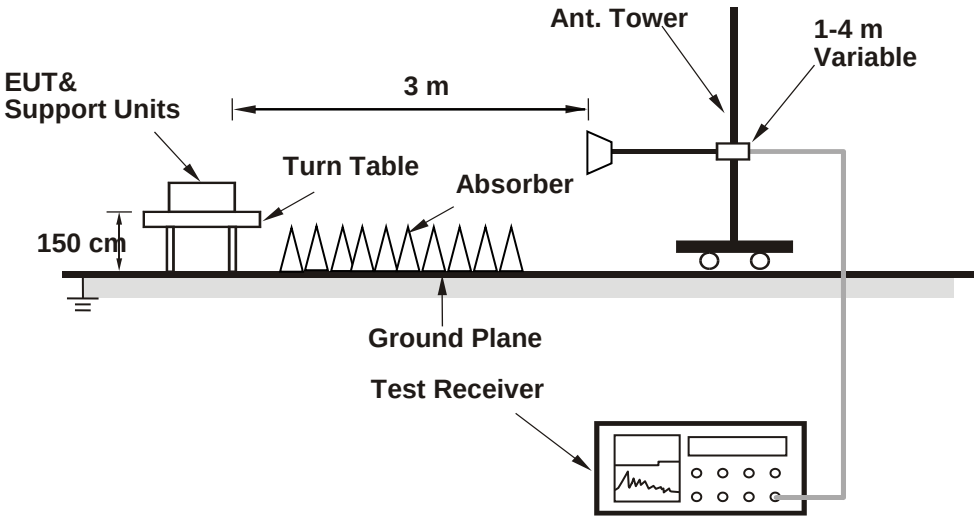
For the actual test configuration, please refer to the attached file (Test Setup Photo).

WWAN

<Radiated Emission below or equal 1 GHz>



<Radiated Emission above 1 GHz>



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

4.1.6 EUT Operating Conditions

a. Set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1GHz data:

Mode 1

802.11b, CH 1 + GSM850, CH 128

Frequency Range	1 GHz ~ 25 GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	58.0 PK	74.0	-16.0	2.95 H	245	23.1	34.9
2	2390.00	46.9 AV	54.0	-7.1	2.95 H	245	12.0	34.9
3	*2412.00	100.5 PK			2.95 H	245	65.6	34.9
4	*2412.00	97.6 AV			2.95 H	245	62.7	34.9
5	4824.00	52.0 PK	74.0	-22.0	1.32 H	122	38.4	13.6
6	4824.00	47.0 AV	54.0	-7.0	1.32 H	122	33.4	13.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	60.0 PK	74.0	-14.0	1.49 V	302	25.1	34.9
2	2390.00	51.5 AV	54.0	-2.5	1.49 V	302	16.6	34.9
3	*2412.00	106.5 PK			1.49 V	302	71.6	34.9
4	*2412.00	104.2 AV			1.49 V	302	69.3	34.9
5	4824.00	54.0 PK	74.0	-20.0	1.66 V	322	40.4	13.6
6	4824.00	50.5 AV	54.0	-3.5	1.66 V	322	36.9	13.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

Frequency Range	1 GHz ~ 20 GHz

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	1648.40	-57.18	-13.00	-44.18	1.65 H	192	42.15	-99.33
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	1648.40	-56.49	-13.00	-43.49	1.45 V	205	42.84	-99.33

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.

Mode 2

802.11b, CH 1 + GSM1900, CH 512

Frequency Range	1 GHz ~ 25 GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	57.8 PK	74.0	-16.2	2.92 H	244	22.9	34.9
2	2390.00	46.8 AV	54.0	-7.2	2.92 H	244	11.9	34.9
3	*2412.00	100.2 PK			2.92 H	244	65.3	34.9
4	*2412.00	97.2 AV			2.92 H	244	62.3	34.9
5	4824.00	38.1 PK	74.0	-35.9	1.35 H	125	24.5	13.6
6	4824.00	33.2 AV	54.0	-20.8	1.35 H	125	19.6	13.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	59.7 PK	74.0	-14.3	1.52 V	305	24.8	34.9
2	2390.00	51.2 AV	54.0	-2.8	1.52 V	305	16.3	34.9
3	*2412.00	106.3 PK			1.52 V	305	71.4	34.9
4	*2412.00	104.0 AV			1.52 V	305	69.1	34.9
5	4824.00	40.2 PK	74.0	-33.8	1.68 V	321	26.6	13.6
6	4824.00	36.7 AV	54.0	-17.3	1.68 V	321	23.1	13.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

Frequency Range	1 GHz ~ 20 GHz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3700.40	-48.79	-13.00	-35.79	1.55 H	185	39.22	-88.01
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3700.40	-47.86	-13.00	-34.86	1.65 V	322	40.15	-88.01

Remarks:

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

Mode 3

802.11b, CH 1 + LTE Band 4 (Channel Bandwidth 5MHz), CH 20175

Frequency Range	1 GHz ~ 25 GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	57.8 PK	74.0	-16.2	2.98 H	244	22.9	34.9
2	2390.00	46.8 AV	54.0	-7.2	2.98 H	244	11.9	34.9
3	*2412.00	100.4 PK			2.98 H	244	65.5	34.9
4	*2412.00	97.4 AV			2.98 H	244	62.5	34.9
5	4824.00	51.9 PK	74.0	-22.1	1.33 H	128	38.3	13.6
6	4824.00	46.8 AV	54.0	-7.2	1.33 H	128	33.2	13.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	59.8 PK	74.0	-14.2	1.47 V	303	24.9	34.9
2	2390.00	51.4 AV	54.0	-2.6	1.47 V	303	16.5	34.9
3	*2412.00	106.4 PK			1.47 V	303	71.5	34.9
4	*2412.00	104.1 AV			1.47 V	303	69.2	34.9
5	4824.00	53.8 PK	74.0	-20.2	1.65 V	326	40.2	13.6
6	4824.00	50.3 AV	54.0	-3.7	1.65 V	326	36.7	13.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

Frequency Range	1 GHz ~ 20 GHz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3465.00	-49.85	-13.00	-36.85	1.38 H	266	39.48	-89.33
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	3465.00	-49.88	-13.00	-36.88	1.38 V	255	39.45	-89.33

Remarks:

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

Mode 4

802.11b, CH 1 + LTE Band 13 (Channel Bandwidth 5MHz), CH 23255

Frequency Range	1 GHz ~ 25 GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	57.7 PK	74.0	-16.3	2.95 H	244	22.8	34.9
2	2390.00	46.5 AV	54.0	-7.5	2.95 H	244	11.6	34.9
3	*2412.00	100.2 PK			2.95 H	244	65.3	34.9
4	*2412.00	97.3 AV			2.95 H	244	62.4	34.9
5	4824.00	38.2 PK	74.0	-35.8	1.35 H	120	24.6	13.6
6	4824.00	33.0 AV	54.0	-21.0	1.35 H	120	19.4	13.6
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	59.7 PK	74.0	-14.3	1.55 V	306	24.8	34.9
2	2390.00	51.2 AV	54.0	-2.8	1.55 V	306	16.3	34.9
3	*2412.00	106.3 PK			1.55 V	306	71.4	34.9
4	*2412.00	103.9 AV			1.55 V	306	69.0	34.9
5	4824.00	53.8 PK	74.0	-20.2	1.67 V	326	40.2	13.6
6	4824.00	50.3 AV	54.0	-3.7	1.67 V	326	36.7	13.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

Frequency Range	1 GHz ~ 20 GHz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1569.00	-48.85	-40.00	-8.85	2.16 H	138	48.35	-97.20
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	1569.00	-48.12	-40.00	-8.12	1.47 V	65	49.08	-97.20

Remarks:

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

Below 1GHz data:

Mode 1

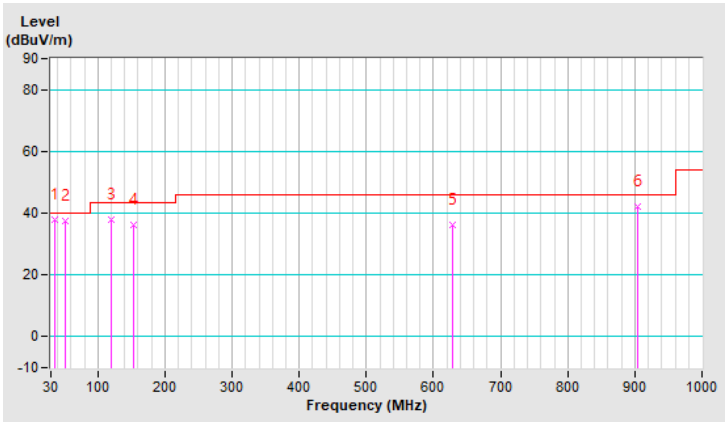
802.11b, CH 1 + GSM850, CH 128

Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	36.79	38.0 QP	40.0	-2.0	1.00 H	55	47.8	-9.8
2	51.34	37.6 QP	40.0	-2.4	1.50 H	58	46.4	-8.8
3	119.24	37.9 QP	43.5	-5.6	2.00 H	140	48.9	-11.0
4	153.19	36.2 QP	43.5	-7.3	2.00 H	151	44.8	-8.6
5	627.52	36.2 QP	46.0	-9.8	1.50 H	63	37.3	-1.1
6	904.94	42.1 QP	46.0	-3.9	1.50 H	17	37.1	5.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

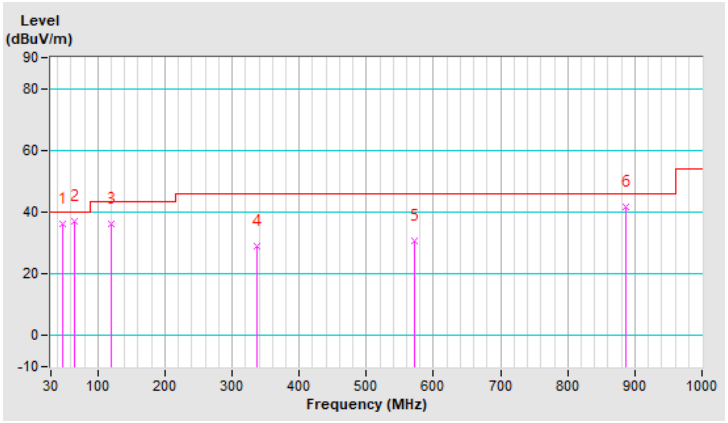


Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	47.46	36.1 QP	40.0	-3.9	1.49 V	136	45.0	-8.9
2	65.89	37.0 QP	40.0	-3.0	1.00 V	119	47.2	-10.2
3	119.24	36.2 QP	43.5	-7.3	1.99 V	6	47.2	-11.0
4	337.49	29.0 QP	46.0	-17.0	1.00 V	188	35.7	-6.7
5	572.23	30.5 QP	46.0	-15.5	1.00 V	6	33.3	-2.8
6	886.51	41.6 QP	46.0	-4.4	1.49 V	350	37.1	4.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

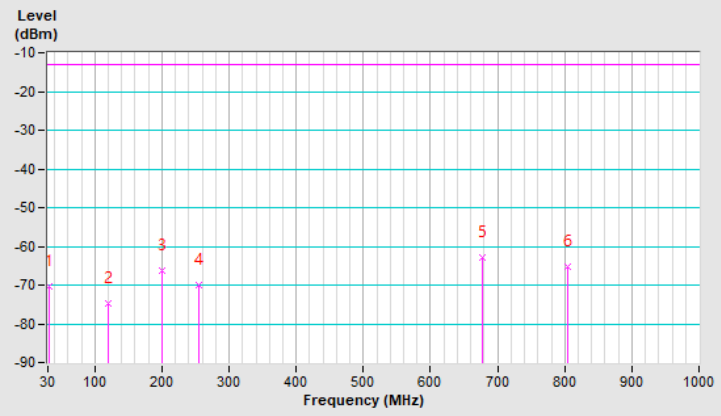


Frequency Range	Below 1000 MHz

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	31.41	-70.49	-13.00	-57.49	1.50 H	154	37.44	-107.93
2	119.97	-74.82	-13.00	-61.82	1.00 H	84	33.49	-108.31
3	200.10	-66.34	-13.00	-53.34	1.00 H	273	42.49	-108.83
4	254.93	-70.13	-13.00	-57.13	1.50 H	258	36.29	-106.42
5	676.67	-62.83	-13.00	-49.83	1.00 H	196	35.04	-97.87
6	804.59	-65.29	-13.00	-52.29	1.00 H	344	29.25	-94.54

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.

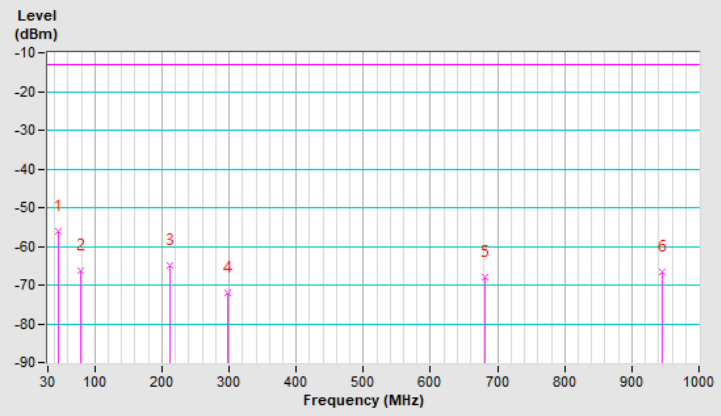


Frequency Range	Below 1000 MHz

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	45.46	-56.02	-13.00	-43.02	1.50 V	131	50.30	-106.32
2	79.20	-66.22	-13.00	-53.22	1.00 V	220	43.92	-110.14
3	211.35	-65.01	-13.00	-52.01	1.00 V	141	43.67	-108.68
4	297.10	-71.95	-13.00	-58.95	1.00 V	129	33.00	-104.95
5	680.88	-67.88	-13.00	-54.88	1.00 V	230	29.95	-97.83
6	945.17	-66.52	-13.00	-53.52	1.50 V	109	24.82	-91.34

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.



Mode 2

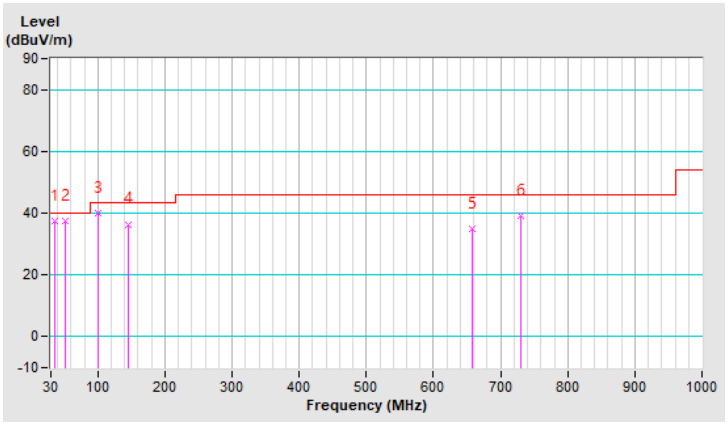
802.11b, CH 1 + GSM1900, CH 512

Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	36.79	37.6 QP	40.0	-2.4	1.50 H	85	47.4	-9.8
2	51.34	37.3 QP	40.0	-2.7	1.50 H	82	46.1	-8.8
3	100.81	40.0 QP	43.5	-3.5	1.50 H	112	53.1	-13.1
4	144.46	36.4 QP	43.5	-7.1	2.00 H	175	45.2	-8.8
5	657.59	35.0 QP	46.0	-11.0	1.00 H	199	35.8	-0.8
6	730.34	39.3 QP	46.0	-6.7	1.00 H	14	38.3	1.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

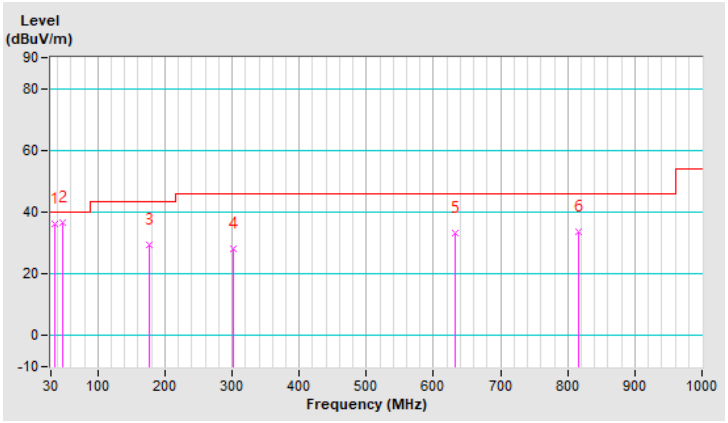


Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	35.82	36.2 QP	40.0	-3.8	1.50 V	25	46.2	-10.0
2	47.46	36.5 QP	40.0	-3.5	1.00 V	132	45.4	-8.9
3	177.44	29.6 QP	43.5	-13.9	1.00 V	267	39.2	-9.6
4	302.57	28.0 QP	46.0	-18.0	1.00 V	199	35.3	-7.3
5	632.37	33.1 QP	46.0	-12.9	1.00 V	342	34.2	-1.1
6	815.70	33.8 QP	46.0	-12.2	1.99 V	57	30.6	3.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

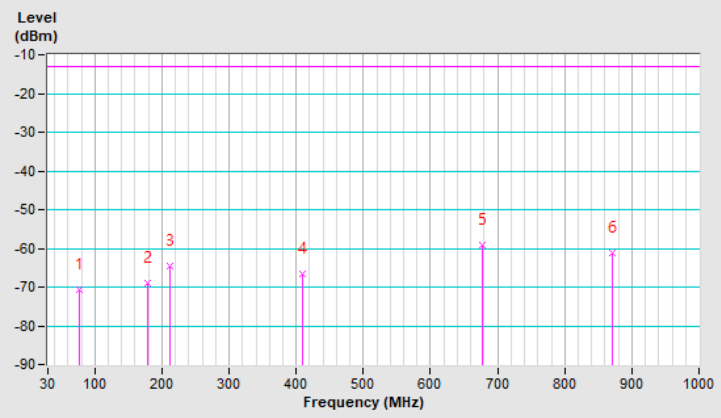


Frequency Range	Below 1000 MHz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	76.39	-70.76	-13.00	-57.76	1.00 H	334	36.49	-107.25
2	179.01	-69.07	-13.00	-56.07	1.00 H	76	35.96	-105.03
3	212.75	-64.43	-13.00	-51.43	1.00 H	106	42.05	-106.48
4	409.57	-66.54	-13.00	-53.54	1.00 H	326	34.49	-101.03
5	678.07	-59.28	-13.00	-46.28	1.00 H	182	36.42	-95.70
6	870.67	-61.28	-13.00	-48.28	1.00 H	210	29.73	-91.01

Remarks:

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

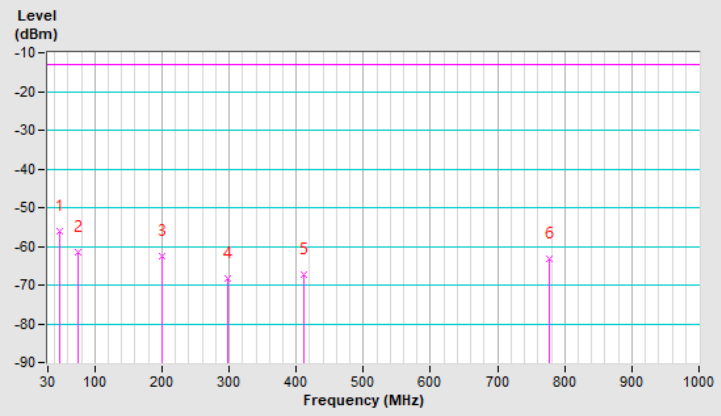


Frequency Range	Below 1000 MHz

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	48.28	-56.09	-13.00	-43.09	1.49 V	313	47.98	-104.07
2	74.99	-61.50	-13.00	-48.50	1.00 V	165	45.21	-106.71
3	200.10	-62.51	-13.00	-49.51	1.49 V	168	44.17	-106.68
4	297.10	-68.27	-13.00	-55.27	1.00 V	99	34.53	-102.80
5	410.97	-67.20	-13.00	-54.20	1.00 V	181	33.80	-101.00
6	777.88	-63.13	-13.00	-50.13	1.00 V	309	29.72	-92.85

Remarks:

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



Mode 3

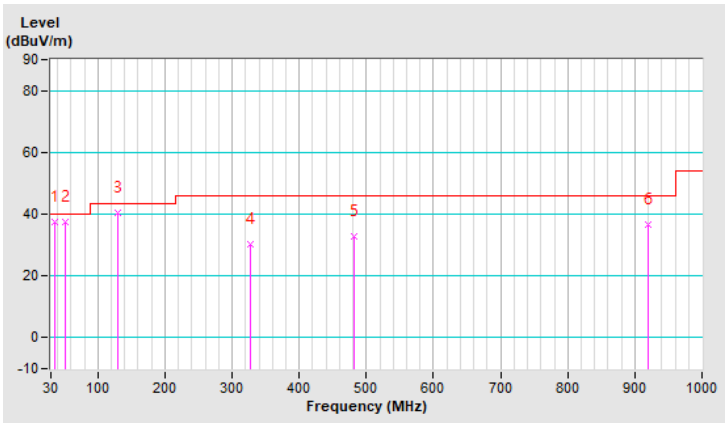
802.11b, CH 1 + LTE Band 4 (Channel Bandwidth 5MHz), CH 20175

Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	36.79	37.5 QP	40.0	-2.5	1.00 H	95	47.3	-9.8
2	51.34	37.5 QP	40.0	-2.5	1.00 H	75	46.3	-8.8
3	128.94	40.6 QP	43.5	-2.9	1.00 H	55	50.6	-10.0
4	327.79	30.3 QP	46.0	-15.7	1.00 H	113	37.1	-6.8
5	482.02	32.9 QP	46.0	-13.1	1.50 H	120	37.5	-4.6
6	920.46	36.8 QP	46.0	-9.2	1.00 H	14	31.2	5.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

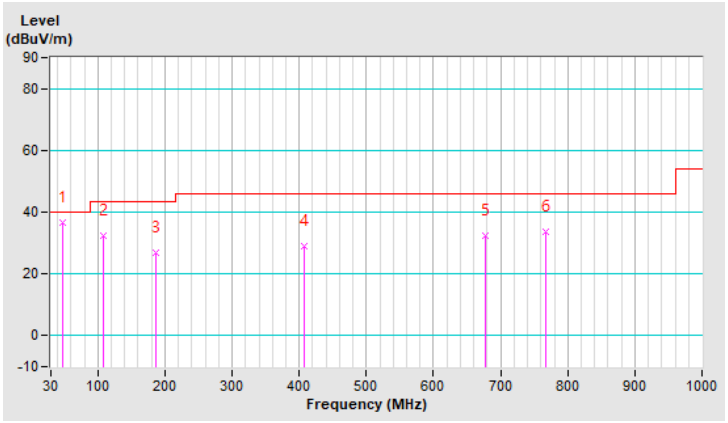


Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	47.46	36.5 QP	40.0	-3.5	1.00 V	102	45.4	-8.9
2	108.57	32.3 QP	43.5	-11.2	1.00 V	119	44.1	-11.8
3	187.14	26.8 QP	43.5	-16.7	1.00 V	205	37.5	-10.7
4	407.33	28.8 QP	46.0	-17.2	1.00 V	162	34.6	-5.8
5	677.96	32.2 QP	46.0	-13.8	1.00 V	6	32.7	-0.5
6	768.17	33.6 QP	46.0	-12.4	1.99 V	183	31.4	2.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

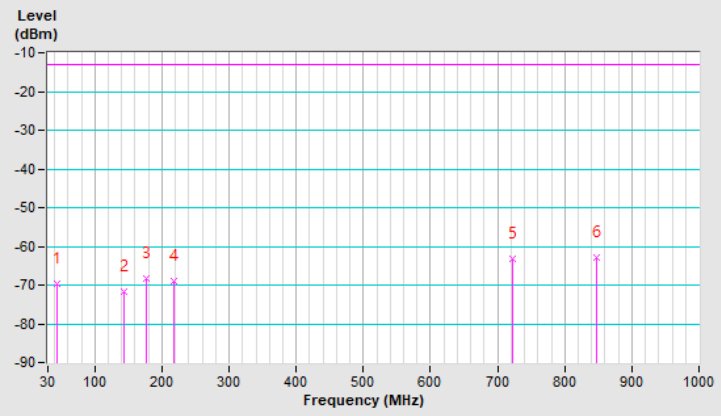


Frequency Range	Below 1000 MHz

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	44.06	-69.64	-13.00	-56.64	1.50 H	8	34.71	-104.35
2	142.46	-71.85	-13.00	-58.85	1.00 H	253	32.27	-104.12
3	176.20	-68.20	-13.00	-55.20	1.00 H	256	36.55	-104.75
4	218.38	-68.85	-13.00	-55.85	1.00 H	122	37.55	-106.40
5	723.06	-63.29	-13.00	-50.29	1.50 H	200	31.32	-94.61
6	848.17	-63.03	-13.00	-50.03	1.00 H	16	28.43	-91.46

Remarks:

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

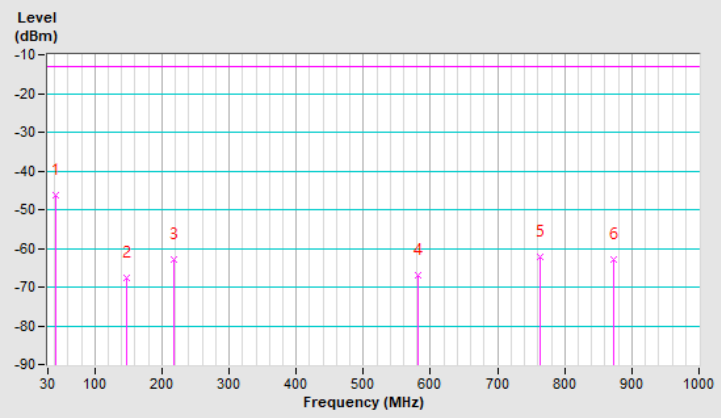


Frequency Range	Below 1000 MHz

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	42.65	-46.19	-13.00	-33.19	1.50 V	28	58.22	-104.41
2	146.68	-67.74	-13.00	-54.74	1.00 V	18	36.08	-103.82
3	216.97	-62.97	-13.00	-49.97	1.00 V	322	43.44	-106.41
4	581.07	-66.89	-13.00	-53.89	1.00 V	244	30.86	-97.75
5	763.83	-62.20	-13.00	-49.20	1.00 V	155	30.93	-93.13
6	873.48	-62.85	-13.00	-49.85	2.00 V	130	28.14	-90.99

Remarks:

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



Mode 4

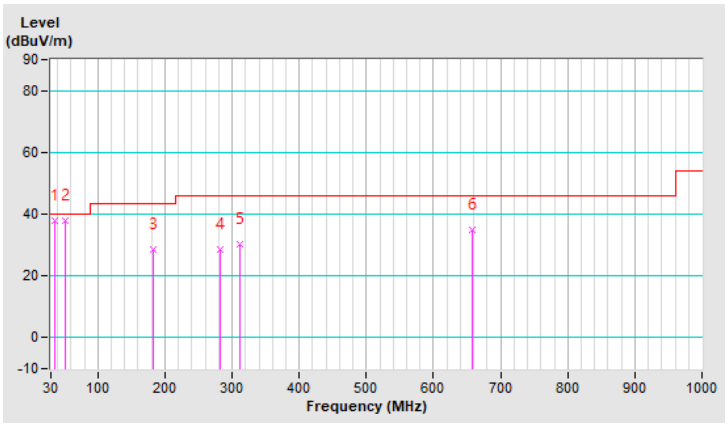
802.11b, CH 1 + LTE Band 13 (Channel Bandwidth 5MHz), CH 23255

Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	36.79	37.8 QP	40.0	-2.2	1.00 H	85	47.6	-9.8
2	51.34	38.0 QP	40.0	-2.0	1.50 H	102	46.8	-8.8
3	182.29	28.7 QP	43.5	-14.8	1.50 H	275	39.0	-10.3
4	282.20	28.6 QP	46.0	-17.4	1.00 H	212	36.4	-7.8
5	312.27	30.2 QP	46.0	-15.8	1.00 H	210	37.2	-7.0
6	657.59	35.0 QP	46.0	-11.0	1.00 H	199	35.8	-0.8

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

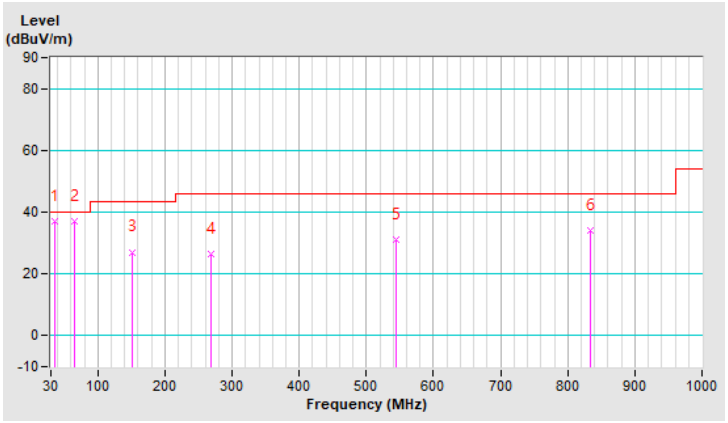


Frequency Range	9kHz ~ 1GHz	Detector Function	Quasi-Peak (QP)

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	35.82	36.9 QP	40.0	-3.1	1.00 V	16	46.9	-10.0
2	65.89	37.0 QP	40.0	-3.0	1.50 V	122	47.2	-10.2
3	151.25	27.1 QP	43.5	-16.4	1.00 V	27	35.7	-8.6
4	267.65	26.5 QP	46.0	-19.5	1.99 V	132	34.9	-8.4
5	544.10	30.9 QP	46.0	-15.1	1.49 V	14	34.4	-3.5
6	833.16	33.9 QP	46.0	-12.1	1.99 V	6	30.3	3.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

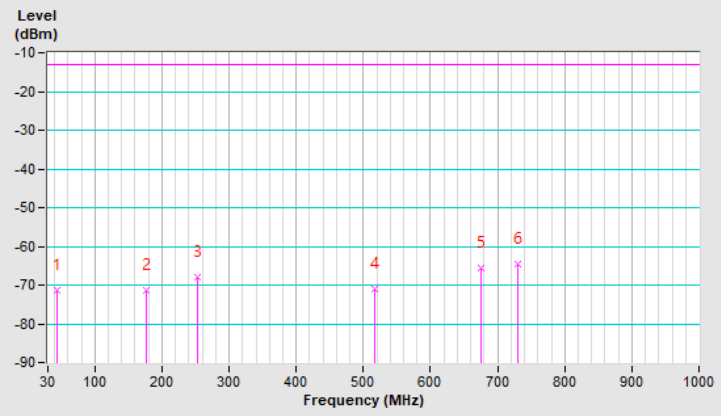


Frequency Range	Below 1000 MHz

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	44.06	-71.33	-13.00	-58.33	1.00 H	94	35.17	-106.50
2	177.61	-71.39	-13.00	-58.39	1.00 H	57	35.69	-107.08
3	252.12	-68.06	-13.00	-55.06	1.50 H	247	38.41	-106.47
4	517.81	-71.02	-13.00	-58.02	1.00 H	228	30.31	-101.33
5	675.26	-65.46	-13.00	-52.46	1.50 H	177	32.42	-97.88
6	730.09	-64.65	-13.00	-51.65	1.00 H	186	31.76	-96.41

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

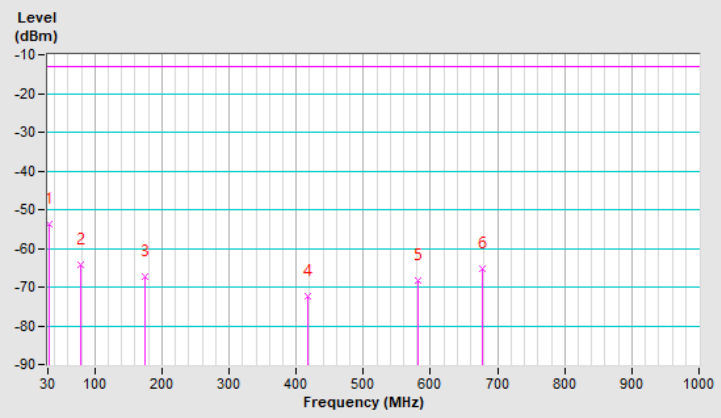


Frequency Range	Below 1000 MHz

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	31.41	-53.56	-13.00	-40.56	2.00 V	343	54.37	-107.93
2	79.20	-64.19	-13.00	-51.19	1.00 V	341	45.95	-110.14
3	174.80	-67.21	-13.00	-54.21	1.00 V	93	39.56	-106.77
4	416.59	-72.40	-13.00	-59.40	1.50 V	188	30.57	-102.97
5	581.07	-68.43	-13.00	-55.43	1.00 V	259	31.47	-99.90
6	678.07	-65.29	-13.00	-52.29	1.50 V	32	32.56	-97.85

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.



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:

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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.

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