FCC Test Report

Report No.: RF191025E02-2

FCC ID: UXX-S5A946A

Test Model: S5A947A

Series Model: S5A946A

Received Date: Oct. 25, 2019

Test Date: Nov. 06, 2019 ~ Jan. 14, 2020

Issued Date: Jan. 15, 2020

Applicant: Cradlepoint, Inc

Address: 1111 W. Jefferson Street Suite 400 Boise, ID 83702 USA

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

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Test Location: No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan

FCC Registration / Designation Number: 788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
RF191025E02-2	Original Release	Jan. 15, 2020

1 Certificate of Conformity

Product: Advanced Edge Router

Brand: cradlepoint

Test Model: S5A947A

Series Model: S5A946A

Sample Status: Engineering Sample

Applicant: Cradlepoint, Inc

Test Date: Nov. 06, 2019 ~ Jan. 14, 2020

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)
47 CFR FCC Part 15, Subpart E (Section 15.407)
FCC Part 22, Subpart H
FCC Part 24, Subpart E
FCC Part 27, Subpart L, M, F
FCC Part 90, Subpart S, R
FCC Part 2
ANSI C63.10:2013

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 : Rona Chen , **Date:** Jan. 15, 2020

Rona Chen / Specialist

Approved by : , **Date:** Jan. 15, 2020

Dylan Chiou / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247) 47 CFR FCC Part 15, Subpart E (Section 15.407) FCC Part 22, Subpart H FCC Part 24, Subpart E FCC Part 27, Subpart L, M, F FCC Part 90, Subpart S, R			
FCC Clause	**Test Item**	**Result**	**Remarks**
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.5 dB at 4874.00 MHz.
15.407(b) (1/2/3/4(i/ii)/6)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -3.8 dB at 5365.00 MHz.
2.1053 22.917	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -14.90 dB at 844.00 MHz.
2.1053 24.238	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -7.50 dB at 1880.00 MHz.
2.1053 27.53(c)(2)&(f)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -5.10 dB at 1564.00 MHz.
2.1053 90.543 (e)(f)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -4.10 dB at 1591.00 MHz.

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. This test report shows that colocation requirements are investigated and no emissions were recorded over the appropriate limits.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.04 dB
	30 MHz ~ 200 MHz	2.93 dB
	200 MHz ~ 1000 MHz	2.95 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Advanced Edge Router			
Brand	cradlepoint			
Test Model	S5A947A			
Series Model	S5A946A			
Status of EUT	Engineering Sample			
Power Supply Rating	12.0 Vdc (Adapter)			
Modulation Type	WLAN	CCK, DQPSK, DBPSK for DSSS 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM 1024QAM for OFDMA		
	WCDMA	QPSK		
	LTE	QPSK, 16QAM, 64QAM		
Operating Frequency	WLAN	2412 ~ 2462 MHz 5180 ~ 5240 MHz, 5745 ~ 5825 MHz		
	WCDMA	WCDMA Band II	1852.4 ~ 1907.6 MHz	
		WCDMA Band IV	1712.4 ~ 1752.6 MHz	
		WCDMA Band V	826.4 ~ 846.6 MHz	
	LTE	LTE Band 2	Channel Bandwidth: 1.4 MHz	1850.7 ~ 1909.3 MHz
			Channel Bandwidth: 3 MHz	1851.5 ~ 1908.5 MHz
			Channel Bandwidth: 5 MHz	1852.5 ~ 1907.5 MHz
			Channel Bandwidth: 10 MHz	1855.0 ~ 1905.0 MHz
			Channel Bandwidth: 15 MHz	1857.5 ~ 1902.5 MHz
			Channel Bandwidth: 20 MHz	1860.0 ~ 1900.0 MHz
		LTE Band 4	Channel Bandwidth: 1.4 MHz	1710.7 ~ 1754.3 MHz
			Channel Bandwidth: 3 MHz	1711.5 ~ 1753.5 MHz
			Channel Bandwidth: 5 MHz	1712.5 ~ 1752.5 MHz
			Channel Bandwidth: 10 MHz	1715.0 ~ 1750.0 MHz
			Channel Bandwidth: 15 MHz	1717.5 ~ 1747.5 MHz
			Channel Bandwidth: 20 MHz	1720.0 ~ 1745.0 MHz
		LTE Band 5	Channel Bandwidth: 1.4 MHz	824.7 ~ 848.3 MHz
			Channel Bandwidth: 3 MHz	825.5 ~ 847.5 MHz
			Channel Bandwidth: 5 MHz	826.5 ~ 846.5 MHz
			Channel Bandwidth: 10 MHz	829 ~ 844 MHz
		LTE Band 7	Channel Bandwidth: 5 MHz	2502.5 ~ 2567.5 MHz
			Channel Bandwidth: 10 MHz	2505 ~ 2565 MHz
			Channel Bandwidth: 15 MHz	2507.5 ~ 2562.5 MHz
			Channel Bandwidth: 20 MHz	2510 ~ 2560 MHz
		LTE Band 12	Channel Bandwidth: 1.4 MHz	699.7 ~ 715.3 MHz
			Channel Bandwidth: 3 MHz	700.5 ~ 714.5 MHz
			Channel Bandwidth: 5 MHz	701.5 ~ 713.5 MHz
			Channel Bandwidth: 10 MHz	704.0 ~ 711.0 MHz
		LTE Band 13	Channel Bandwidth: 5 MHz	779.5 ~ 784.5 MHz
			Channel Bandwidth: 10 MHz	782.0 MHz

		LTE Band 14	Channel Bandwidth: 5 MHz	790.5 ~ 795.5 MHz
			Channel Bandwidth: 10 MHz	793 MHz
		LTE Band 17	Channel Bandwidth: 5 MHz	706.5 ~ 713.5 MHz
			Channel Bandwidth: 10 MHz	709.0 ~ 711.0 MHz
		LTE Band 18	Channel Bandwidth: 5 MHz	817.5 ~ 827.5 MHz
			Channel Bandwidth: 10 MHz	820.0 ~ 825.0 MHz
			Channel Bandwidth: 15 MHz	822.5 MHz
		LTE Band 19	Channel Bandwidth: 5 MHz	832.5 ~ 842.5 MHz
			Channel Bandwidth: 10 MHz	835.0 ~ 840.0 MHz
			Channel Bandwidth: 15 MHz	837.5 MHz
		LTE Band 25	Channel Bandwidth: 1.4 MHz	1850.7 ~ 1914.3 MHz
			Channel Bandwidth: 3 MHz	1851.5 ~ 1913.5 MHz
			Channel Bandwidth: 5 MHz	1852.5 ~ 1912.5 MHz
			Channel Bandwidth: 10 MHz	1855.0 ~ 1910.0 MHz
			Channel Bandwidth: 15 MHz	1857.5 ~ 1907.5 MHz
			Channel Bandwidth: 20 MHz	1860.0 ~ 1905.0 MHz
		LTE Band 26	Channel Bandwidth: 1.4 MHz	824.7 ~ 848.3 MHz
			Channel Bandwidth: 3 MHz	825.5 ~ 847.5 MHz
			Channel Bandwidth: 5 MHz	826.5 ~ 846.5 MHz
			Channel Bandwidth: 10 MHz	829 ~ 844 MHz
			Channel Bandwidth: 15 MHz	831.5 ~ 841.5 MHz
		LTE Band 26	Channel Bandwidth: 1.4 MHz	814.7 ~ 823.3 MHz
			Channel Bandwidth: 3 MHz	815.5 ~ 822.5 MHz
			Channel Bandwidth: 5 MHz	816.5 ~ 821.5 MHz
			Channel Bandwidth: 10 MHz	819 MHz
		LTE Band 30	Channel Bandwidth: 5 MHz	2307.5 ~ 2312.5 MHz
			Channel Bandwidth: 10 MHz	2310 MHz
		LTE Band 38	Channel Bandwidth: 5 MHz	2572.5 ~ 2617.5 MHz
			Channel Bandwidth: 10 MHz	2575.0 ~ 2615.0 MHz
			Channel Bandwidth: 15 MHz	2577.5 ~ 2612.5 MHz
			Channel Bandwidth: 20 MHz	2580.0 ~ 2610.0 MHz
		LTE Band 41	Channel Bandwidth: 5 MHz	2498.5 ~ 2687.5 MHz
			Channel Bandwidth: 10 MHz	2501.0 ~ 2685.0 MHz
			Channel Bandwidth: 15 MHz	2503.5 ~ 2682.5 MHz
			Channel Bandwidth: 20 MHz	2506.0 ~ 2680.0 MHz
		LTE Band 66	Channel Bandwidth: 1.4 MHz	1710.7 ~ 1779.3 MHz
			Channel Bandwidth: 3 MHz	1711.5 ~ 1778.5 MHz
			Channel Bandwidth: 5 MHz	1712.5 ~ 1777.5 MHz
			Channel Bandwidth: 10 MHz	1715.0 ~ 1775.0 MHz
			Channel Bandwidth: 15 MHz	1717.5 ~ 1772.5 MHz
			Channel Bandwidth: 20 MHz	1720.0 ~ 1770.0 MHz
		LTE Band 71	Channel Bandwidth: 5 MHz	665.5 ~ 695.5 MHz
			Channel Bandwidth: 10 MHz	668.0 ~ 693.0 MHz
			Channel Bandwidth: 15 MHz	670.5 ~ 690.5 MHz
			Channel Bandwidth: 20 MHz	673.0 ~ 688.0 MHz

Antenna Type	Refer to Note as below
Antenna Connector	Refer to Note as below
Accessory Device	Refer to Note as below
Data Cable Supplied	N/A

Note:

1. All models are listed as below.

Brand	Product Marketing Name (PMN)	Model	Wi-Fi Function	Embedded Radio (WWAN Module)	Number of WWAN Antenna Port
cradlepoint	E300-C18B	S5A946A	Yes	Telit, LM960A18 Contains FCC ID: RI7LM960 Contains IC : 5131A-LM960	4
	E300-C4D	S5A947A	Yes	Quectel, EC25-AF Contains FCC ID: XMR201808EC25AF Contains IC : 10224A-2018EC25AF	2
* The differences compared with different models are embedded WWAN module and number of WWAN antenna port. Above samples had been pre-tested and the worst case was found on model: S5A947A. Therefore, only this S5A947A was as a representative for the final test and recorded in this report.					

2. The supported bands of WWAN module are listed as below.

Item	Brand Name	Model Name	Specification
WWAN module	Telit	LM960A18	WCDMA Band II/IV/V, LTE Band 2/4/5/7/12/13/14/17/18/19/25/26/30/38/41/66/71
	Quectel	EC25-AF	WCDMA Band II/IV/V, LTE Band 2/4/5/12/13/14/66/71

3. The antenna information of EUT is listed as below.

WLAN Antenna							
Antenna No.	RF Chain No.	Brand	Model	Gain (dBi)		Antenna Type	Connecter Type
				2.4G	5G		
Radio 1	WiFi Chain0	Cradlepoint	02102140-06997-1	1.7	3	PCB	i-pex (MHF)
Radio 2	WiFi Chain1		02102140-06997-2	2.5	3.3		

WWAN Antenna							
Antenna No.	RF Chain No.	Brand	Model	Gain (dBi)		Antenna Type	Connecter Type
				WCDMA II/IV, LTE 2/4/7/25/30/38/41/66	WCDMA V, LTE 5/12/13/14/17/18/19/26/71		
Radio 3	LTE MAIN0	Cradlepoint	YWX-UM03SAXX-711	2	1	Dipole	SMA
Radio 4	LTE AUX1		YWX-UM03SAXX-711				
Radio 5	LTE MAIN1		YWX-UM03SAXX-711				
Radio 6	LTE AUX0		YWX-UM03SAXX-711				

4. The EUT contains following accessory devices.

Product	Brand	Model	Description
Adapter 1	APD	WA-36N12R	I/P: 100 – 240 Vac, 0.9 A, 50-60 Hz, O/P: 12 Vdc, 3 A 1.5 m non-shielded cable w/o ferrite core
Adapter 2	APD	WA-36A12R	I/P: 100 – 240 Vac, 0.9 A, 50-60 Hz, O/P: 12 Vdc, 3 A 1.5 m non-shielded cable w/o ferrite core
Adapter 3	Ktec	KSA-36W-120300D5	I/P: 100 – 240 Vac, 1 A, 50/60 Hz, O/P: 12 Vdc, 3 A 1.5 m non-shielded cable w/o ferrite core

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

3.1.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To		Description
	RE≥1G	RE<1G	
A	√	√	EUT + Adapter 1
B	-	√	EUT + Adapter 2
C	-	√	EUT + Adapter 3

Where **RE≥1G:** Radiated Emission above 1 GHz **RE<1G:** Radiated Emission below 1 GHz

Note:
1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane.**
2. "-"means no effect.

Radiated Emission Test

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, and antenna ports. The worst case was found as following channel(s) was (were) selected for the final test as listed below:

Radiated Emission above 1GHz						
EUT Config. Mode	Function	Mode	Frequency (MHz)	Available Channel	Tested Channel	Tested Mode
Part 15C + Part 15E + Part 22						
A	WLAN 2.4GHz	802.11b	2412 ~ 2462	1 to 11	6	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 5 (Ch 20600)
	WLAN 5GHz	802.11ax (HE20)	5180 ~ 5240 5745 ~ 5825	36 to 48 149 to 165	48	
	LTE	LTE Band 5 (BW: 10 MHz)	829 ~ 844	20450 to 20600	20600	
Part 15C + Part 15E + Part 24						
A	WLAN 2.4GHz	802.11b	2412 ~ 2462	1 to 11	6	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 2 (Ch 18900)
	WLAN 5GHz	802.11ax (HE20)	5180 ~ 5240 5745 ~ 5825	36 to 48 149 to 165	48	
	LTE	LTE Band 2 (BW: 10 MHz)	1855 ~ 1905	18650 to 19150	18900	
Part 15C + Part 15E + Part 27						
A	WLAN 2.4GHz	802.11b	2412 ~ 2462	1 to 11	6	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 13 (Ch 23230)
	WLAN 5GHz	802.11ax (HE20)	5180 ~ 5240 5745 ~ 5825	36 to 48 149 to 165	48	
	LTE	LTE Band 13 (BW: 10 MHz)	782	23230	23230	
Part 15C + Part 15E + Part 90						
A	WLAN 2.4GHz	802.11b	2412 ~ 2462	1 to 11	6	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 14 (Ch 23355)
	WLAN 5GHz	802.11ax (HE20)	5180 ~ 5240 5745 ~ 5825	36 to 48 149 to 165	48	
	LTE	LTE Band 14 (BW: 5 MHz)	790.5 ~ 795.5	23305 to 23355	23355	

Radiated Emission below 1GHz						
EUT Config. Mode	**Function**	**Mode**	**Frequency (MHz)**	**Available Channel**	**Tested Channel**	**Tested Mode**
Part 15C + Part 15E + Part 22						
A, B, C	WLAN 2.4GHz	802.11b	2412 ~ 2462	1 to 11	6	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 5 (Ch 20600)
	WLAN 5GHz	802.11ax (HE20)	5180 ~ 5240 5745 ~ 5825	36 to 48 149 to 165	48	
	LTE	LTE Band 5 (BW: 10 MHz)	829 ~ 844	20450 to 20600	20600	
Part 15C + Part 15E + Part 24						
A, B, C	WLAN 2.4GHz	802.11b	2412 ~ 2462	1 to 11	6	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 2 (Ch 18900)
	WLAN 5GHz	802.11ax (HE20)	5180 ~ 5240 5745 ~ 5825	36 to 48 149 to 165	48	
	LTE	LTE Band 2 (BW: 10 MHz)	1855 ~ 1905	18650 to 19150	18900	
Part 15C + Part 15E + Part 27						
A, B, C	WLAN 2.4GHz	802.11b	2412 ~ 2462	1 to 11	6	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 13 (Ch 23230)
	WLAN 5GHz	802.11ax (HE20)	5180 ~ 5240 5745 ~ 5825	36 to 48 149 to 165	48	
	LTE	LTE Band 13 (BW: 10 MHz)	782	23230	23230	
Part 15C + Part 15E + Part 90						
A, B, C	WLAN 2.4GHz	802.11b	2412 ~ 2462	1 to 11	6	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 14 (Ch 23355)
	WLAN 5GHz	802.11ax (HE20)	5180 ~ 5240 5745 ~ 5825	36 to 48 149 to 165	48	
	LTE	LTE Band 14 (BW: 5 MHz)	790.5 ~ 795.5	23305 to 23355	23355	

Note:

1. For LTE, this device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.
2. For Radiated emission test, according to the worst mode of the SPORTON report no.: FR8D0606AC, FR8D0606AN for WLAN module (Brand: SPARKLAN, Model: WPEA-352ACNRB, WPEA-352ACNRBI) and the China Telecommunication Technology Labs. report no.: B15W50341-FCC-RF_Rev1 for WWAN module (Brand: Sierra Wireless Inc., Model: EM7455).

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
Radiated Emission	25 deg. C, 65 % RH	120 Vac, 60 Hz	Adair Peng / Titan Hsu

3.2 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.

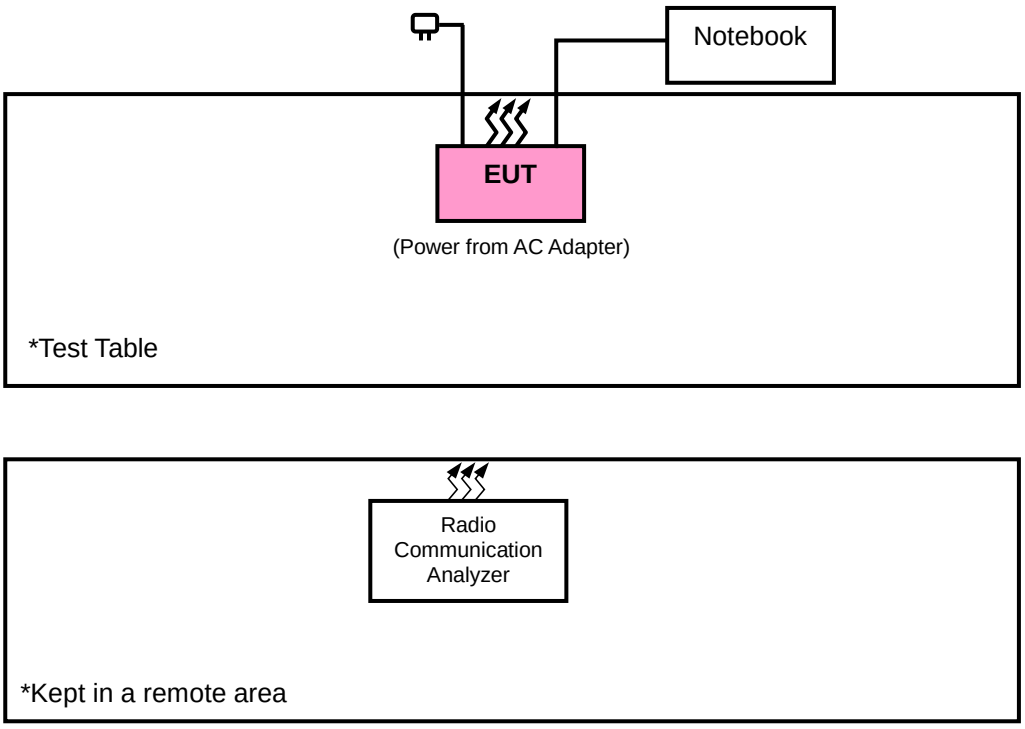
No.	Product	Brand	Model No.	Serial No.	FCC ID
1.	Notebook	DELL	E5410	1HC2XM1	N/A
2.	Adapter 1	APD	WA-36N12R	N/A	N/A
3.	Adapter 2	APD	WA-36A12R	N/A	N/A
4.	Adapter 3	Ktec	KSA-36W-120300D5	N/A	N/A
5.	Radio Communication Analyzer	Anritsu	MT8820C	6201300640	N/A

No.	Signal Cable Description of The Above Support Units
1.	6 m LAN cable
2.	1.5 m non-shielded cable w/o ferrite core
3.	1.5 m non-shielded cable w/o ferrite core
4.	1 m non-shielded cable w/o ferrite core

Note:

1. All power cords of the above support units are non-shielded (1.8m).

3.2.1 Configuration of System under Test



3.3 General Description of Applied Standards

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

FCC Part 15, Subpart C (15.247)
FCC Part 15, Subpart E (15.407)
FCC 47 CFR Part 22
FCC 47 CFR Part 24
FCC 47 CFR Part 27
FCC 47 CFR Part 90
ANSI 63.26-2015
ANSI C63.10-2013

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

4 Test Types and Results

4.1 Radiated Emission Measurement

4.1.1 Limits of Radiated Emission Measurement

For WLAN

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

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 1000 MHz, 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 20 dB under any condition of modulation.

For LTE 2/5/14

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit is equal to -13 dBm.

For LTE 30

a. The power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 +10 log (P) dB. The limit of emission is equal to -13 dBm.
b. For operations in the 775-788 MHz, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz. The limit of emissions is equal to -40 dBm.

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESIB7	100187	May 30, 2019	May 29, 2020
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Nov. 22, 2018	Nov. 21, 2019
			Nov. 11, 2019	Nov. 10, 2020
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-563	Nov. 25, 2018	Nov. 24, 2019
			Nov. 24, 2019	Nov. 23, 2020
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 24, 2019	Nov. 23, 2020
Loop Antenna EMCI	EM-6879	269	Sep. 16, 2019	Sep. 15, 2020
Preamplifier Agilent (Below 1GHz)	8447D	2944A10738	Aug. 20, 2019	Aug. 19, 2020
Preamplifier Agilent (Above 1GHz)	8449B	3008A02465	Mar. 27, 2019	Mar. 26, 2020
RF Coaxial Cable WOKEN With 5dB PAD	8D-FB	Cable-CH3-01	Aug. 20, 2019	Aug. 19, 2020
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 20, 2019	Aug. 19, 2020
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM- SM-8000	Cable-CH3-03 (309224+170907)	Aug. 20, 2019	Aug. 19, 2020
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Turn Table Controller BV ADT	SC100	SC93021702	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Pre-amplifier (18GHz-40GHz) EMC	EMC184045B	980175	Sep. 05, 2019	Sep. 04, 2020
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY55 190004/MY551900 07/MY55210005	Jul. 15, 2019	Jul. 14, 2020
Radio Communication Analyzer Anritsu	MT8820C	6201300640	Aug. 19, 2019	Aug. 18, 2020

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 3.

4.1.3 Test Procedures

For WLAN

For Radiated Emission below 30 MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. 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.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz at frequency below 30 MHz.

For Radiated Emission above 30 MHz

a. The EUT was placed on the top of a rotating table 0.8 meters (for 30 MHz ~ 1 GHz) / 1.5 meters (for above 1 GHz) 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.
f. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98 %) or 10 Hz (Duty cycle ≥ 98 %) for Average detection (AV) at frequency above 1 GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

For LTE

a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to "Read Value" of step a. Record the power level of S.G.
c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15 dB.

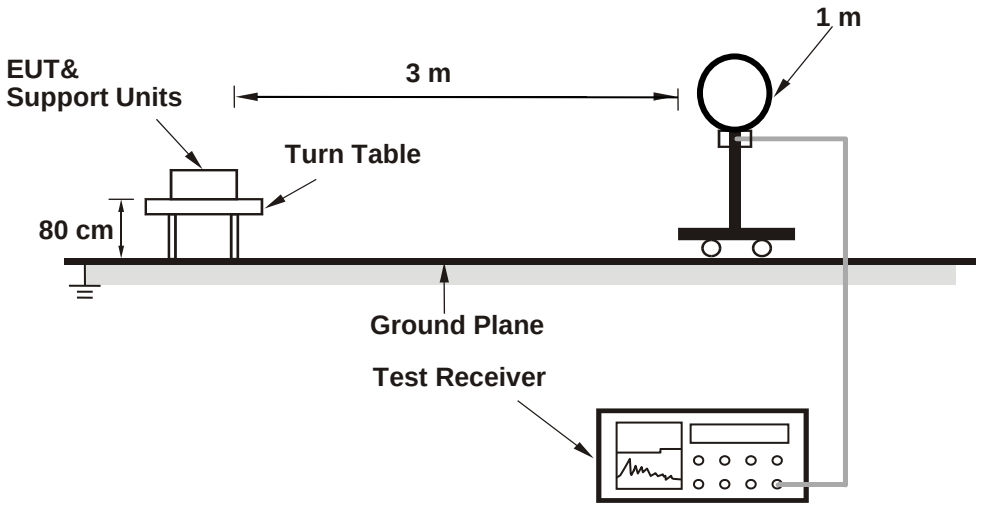
Note: The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

4.1.4 Deviation from Test Standard

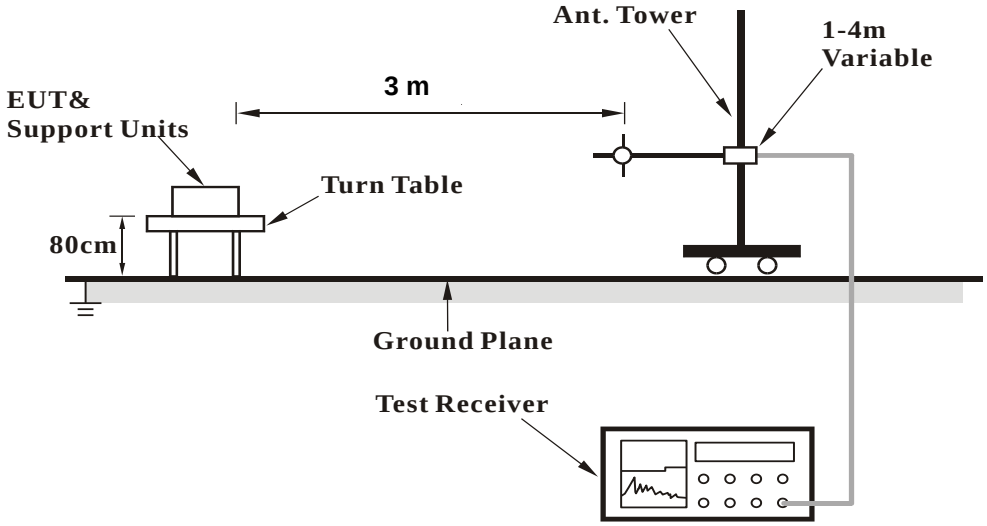
No deviation.

4.1.5 Test Set Up

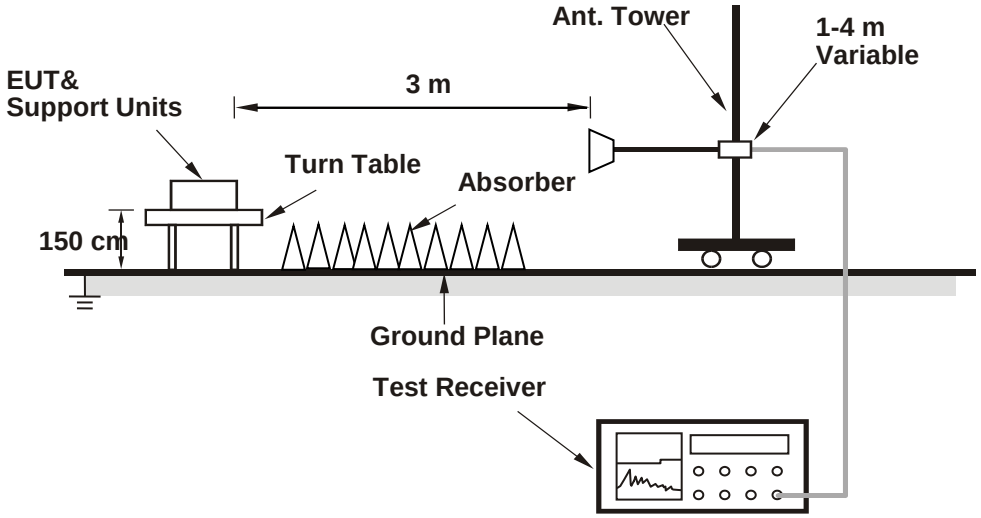
<Radiated Emission below 30 MHz>



<Radiated Emission 30 MHz to 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. Placed the EUT on a testing table.
b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

9 kHz ~ 30 MHz Data:

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

Above 1GHz Data

Mode A

802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 5 (Ch 20600)

FREQUENCY RANGE	1GHz ~ 25GHz	DETECTOR FUNCTION	Peak (PK) Average (AV)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 5 (Ch 20600)		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC 15.247)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	113.2 PK			3.25 H	46	80.8	32.4
2	*2437.00	109.7 AV			3.25 H	46	77.3	32.4
3	4874.00	54.6 PK	74.0	-19.4	2.85 H	63	50.9	3.7
4	4874.00	51.1 AV	54.0	-2.9	2.85 H	63	47.4	3.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC 15.247)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	120.2 PK			2.54 V	13	87.8	32.4
2	*2437.00	116.8 AV			2.54 V	13	84.4	32.4
3	4874.00	56.7 PK	74.0	-17.3	1.61 V	88	53.0	3.7
4	**4874.00**	**53.5 AV**	**54.0**	**-0.5**	**1.61 V**	**88**	**49.8**	**3.7**

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.

FREQUENCY RANGE	1GHz ~ 40GHz	DETECTOR FUNCTION	Peak (PK) Average (AV)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 5 (Ch 20600)		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	124.0 PK			3.12 H	122	84.9	39.1
2	*5240.00	106.8 AV			3.12 H	122	67.7	39.1
3	5365.00	57.9 PK	74.0	-16.1	2.84 H	115	53.7	4.2
4	5365.00	45.7 AV	54.0	-8.3	2.84 H	115	41.5	4.2
5	#10480.00	60.8 PK	68.2	-7.4	3.72 H	329	42.4	18.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	124.1 PK			1.49 V	109	85.0	39.1
2	*5240.00	109.8 AV			1.49 V	109	70.7	39.1
3	5365.00	60.2 PK	74.0	-13.8	1.22 V	120	56.0	4.2
4	5365.00	50.0 AV	54.0	-4.0	1.22 V	120	45.8	4.2
5	#10480.00	63.4 PK	68.2	-4.8	3.66 V	290	45.0	18.4

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.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 5 (Ch 20600)						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC Part 22)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	ERP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	**844.00**	**-7.60**	**19.90**	**3.70**	**23.60**	**38.50**	**-14.90**
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC Part 22)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	ERP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	844.00	-13.20	15.20	3.70	18.90	38.50	-19.60

CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 5 (Ch 20600)						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC Part 22)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	ERP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	1688.00	-58.60	-50.90	0.70	-50.20	-13.00	-37.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC Part 22)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	ERP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	1688.00	-63.10	-55.80	0.70	-55.10	-13.00	-42.10

REMARKS:

1. ERP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)

802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 2 (Ch 18900)

FREQUENCY RANGE	1GHz ~ 25GHz	DETECTOR FUNCTION	Peak (PK) Average (AV)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 2 (Ch 18900)		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC 15.247)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	113.4 PK			3.33 H	51	81.0	32.4
2	*2437.00	109.9 AV			3.33 H	51	77.5	32.4
3	4874.00	54.6 PK	74.0	-19.4	2.77 H	66	50.9	3.7
4	4874.00	51.2 AV	54.0	-2.8	2.77 H	66	47.5	3.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC 15.247)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	120.3 PK			2.49 V	19	87.9	32.4
2	*2437.00	116.7 AV			2.49 V	19	84.3	32.4
3	4874.00	57.0 PK	74.0	-17.0	1.76 V	99	53.3	3.7
4	4874.00	53.4 AV	54.0	-0.6	1.76 V	99	49.7	3.7

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.

FREQUENCY RANGE	1GHz ~ 40GHz	DETECTOR FUNCTION	Peak (PK) Average (AV)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 2 (Ch 18900)		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	124.1 PK			3.00 H	100	85.0	39.1
2	*5240.00	106.9 AV			3.00 H	100	67.8	39.1
3	5365.00	58.0 PK	74.0	-16.0	2.89 H	110	53.8	4.2
4	5365.00	45.8 AV	54.0	-8.2	2.89 H	110	41.6	4.2
5	#10480.00	60.9 PK	68.2	-7.3	3.70 H	333	42.5	18.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	124.3 PK			1.53 V	119	85.2	39.1
2	*5240.00	110.0 AV			1.53 V	119	70.9	39.1
3	5365.00	60.3 PK	74.0	-13.7	1.29 V	129	56.1	4.2
4	5365.00	50.1 AV	54.0	-3.9	1.29 V	129	45.9	4.2
5	#10480.00	63.6 PK	68.2	-4.6	3.55 V	299	45.2	18.4

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.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 2 (Ch 18900)						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC Part 24)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	**1880.00**	**-9.10**	**22.30**	**3.20**	**25.50**	**33.00**	**-7.50**
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC Part 24)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	1880.00	-15.40	17.40	3.20	20.60	33.00	-12.40

CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 2 (Ch 18900)						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC Part 24)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	3760.00	-58.40	-49.90	1.30	-48.60	-13.00	-35.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC Part 24)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	3760.00	-60.10	-51.80	1.30	-50.50	-13.00	-37.50

REMARKS:

1. EIRP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)

802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 13 (Ch 23230)

FREQUENCY RANGE	1GHz ~ 25GHz	DETECTOR FUNCTION	Peak (PK) Average (AV)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 13 (Ch 23230)		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC 15.247)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	113.5 PK			3.34 H	53	81.1	32.4
2	*2437.00	110.0 AV			3.34 H	54	77.6	32.4
3	4874.00	54.7 PK	74.0	-19.3	2.72 H	69	51.0	3.7
4	4874.00	51.3 AV	54.0	-2.7	2.72 H	69	47.6	3.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC 15.247)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	120.4 PK			2.50 V	23	88.0	32.4
2	*2437.00	116.7 AV			2.50 V	23	84.3	32.4
3	4874.00	57.1 PK	74.0	-16.9	1.83 V	76	53.4	3.7
4	4874.00	53.4 AV	54.0	-0.6	1.83 V	76	49.7	3.7

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.

FREQUENCY RANGE	1GHz ~ 40GHz	DETECTOR FUNCTION	Peak (PK) Average (AV)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 13 (Ch 23230)		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	124.1 PK			2.98 H	123	85.0	39.1
2	*5240.00	107.0 AV			2.98 H	123	67.9	39.1
3	5365.00	58.1 PK	74.0	-15.9	2.90 H	119	53.9	4.2
4	5365.00	45.9 AV	54.0	-8.1	2.90 H	119	41.7	4.2
5	#10480.00	60.9 PK	68.2	-7.3	3.60 H	350	42.5	18.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	124.4 PK			1.59 V	99	85.3	39.1
2	*5240.00	110.1 AV			1.59 V	99	71.0	39.1
3	5365.00	60.3 PK	74.0	-13.7	1.30 V	140	56.1	4.2
4	5365.00	50.1 AV	54.0	-3.9	1.30 V	140	45.9	4.2
5	#10480.00	63.8 PK	68.2	-4.4	3.45 V	313	45.4	18.4

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.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 13 (Ch 23230)						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC Part 27)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	ERP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	782.00	-4.10	21.90	4.00	25.90	34.80	-8.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC Part 27)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	ERP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	782.00	-11.70	16.20	4.00	20.20	34.80	-14.60

REMARKS:

1. ERP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)

CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 13 (Ch 23230)						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC Part 27)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	ERP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	**1564.00**	**-54.10**	**-46.30**	**1.20**	**-45.10**	**-40.00**	**-5.10**
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC Part 27)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	ERP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	1564.00	-61.10	-54.20	1.20	-53.00	-40.00	-13.00

802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 14 (Ch 23355)

FREQUENCY RANGE	1GHz ~ 25GHz	DETECTOR FUNCTION	Peak (PK) Average (AV)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 14 (Ch 23355)		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC 15.247)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	113.6 PK			3.28 H	49	81.2	32.4
2	*2437.00	110.0 AV			3.28 H	49	77.6	32.4
3	4874.00	54.8 PK	74.0	-19.2	2.68 H	70	51.1	3.7
4	4874.00	51.3 AV	54.0	-2.7	2.68 H	70	47.6	3.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC 15.247)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	120.4 PK			2.41 V	0	88.0	32.4
2	*2437.00	116.5 AV			2.41 V	0	84.1	32.4
3	4874.00	56.7 PK	74.0	-17.3	1.92 V	83	53.0	3.7
4	**4874.00**	**53.5 AV**	**54.0**	**-0.5**	**1.92 V**	**83**	**49.8**	**3.7**

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.

FREQUENCY RANGE	1GHz ~ 40GHz	DETECTOR FUNCTION	Peak (PK) Average (AV)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 14 (Ch 23355)		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	124.1 PK			2.86 H	134	85.0	39.1
2	*5240.00	107.1 AV			2.86 H	134	68.0	39.1
3	5365.00	58.1 PK	74.0	-15.9	2.70 H	126	53.9	4.2
4	5365.00	45.9 AV	54.0	-8.1	2.70 H	126	41.7	4.2
5	#10480.00	61.0 PK	68.2	-7.2	3.63 H	358	42.6	18.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	124.4 PK			1.62 V	290	85.3	39.1
2	*5240.00	110.2 AV			1.62 V	290	71.1	39.1
3	5365.00	60.4 PK	74.0	-13.6	1.44 V	140	56.2	4.2
4	**5365.00**	**50.2 AV**	**54.0**	**-3.8**	**1.40 V**	**140**	**46.0**	**4.2**
5	#10480.00	63.8 PK	68.2	-4.4	3.36 V	319	45.4	18.4

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.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 14 (Ch 23355)						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC Part 90)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	ERP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	795.50	-6.90	19.50	4.00	23.50	34.80	-11.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC Part 90)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	ERP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	795.50	-12.30	15.30	4.00	19.30	34.80	-15.50

CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 14 (Ch 23355)						
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC Part 90)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	ERP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	**1591.00**	**-53.10**	**-45.20**	**1.10**	**-44.10**	**-40.00**	**-4.10**
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC Part 90)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	ERP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	1591.00	-59.40	-52.20	1.10	-51.10	-40.00	-11.10

REMARKS:

1. ERP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)

Below 1GHz Data

Mode A

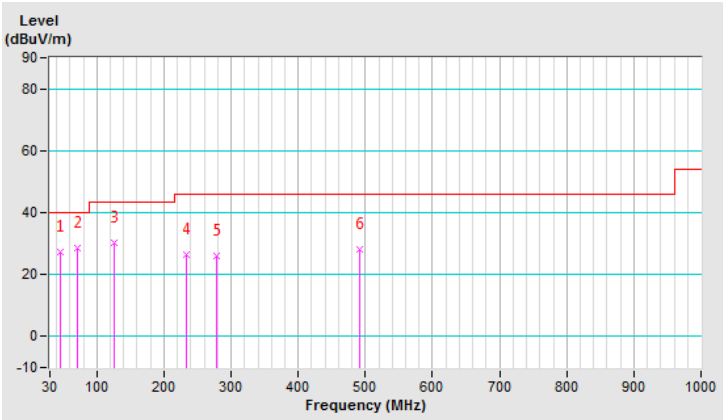
802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 5 (Ch 20600)

FREQUENCY RANGE	30MHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 5 (Ch 20600)		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC 15.247 / 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	45.46	27.4 QP	40.0	-12.6	1.99 H	55	36.3	-8.9
2	70.77	28.6 QP	40.0	-11.4	1.99 H	278	39.5	-10.9
3	125.59	30.3 QP	43.5	-13.2	1.99 H	66	40.7	-10.4
4	233.84	26.3 QP	46.0	-19.7	1.00 H	240	36.9	-10.6
5	277.42	26.1 QP	46.0	-19.9	1.00 H	211	34.2	-8.1
6	492.51	28.2 QP	46.0	-17.8	1.50 H	346	29.8	-1.6

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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

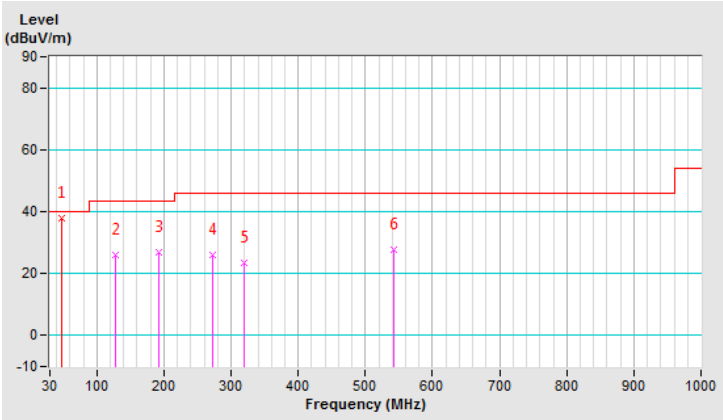


FREQUENCY RANGE	30MHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 5 (Ch 20600)		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC 15.247 / 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	46.90	38.0 QP	40.0	-2.0	1.00 V	4	46.9	-8.9
2	127.00	26.2 QP	43.5	-17.3	1.00 V	198	36.6	-10.4
3	191.67	27.0 QP	43.5	-16.5	1.00 V	62	38.3	-11.3
4	273.20	26.1 QP	46.0	-19.9	1.49 V	155	34.3	-8.2
5	319.59	23.4 QP	46.0	-22.6	1.49 V	169	30.2	-6.8
6	541.71	27.6 QP	46.0	-18.4	1.99 V	286	28.3	-0.7

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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

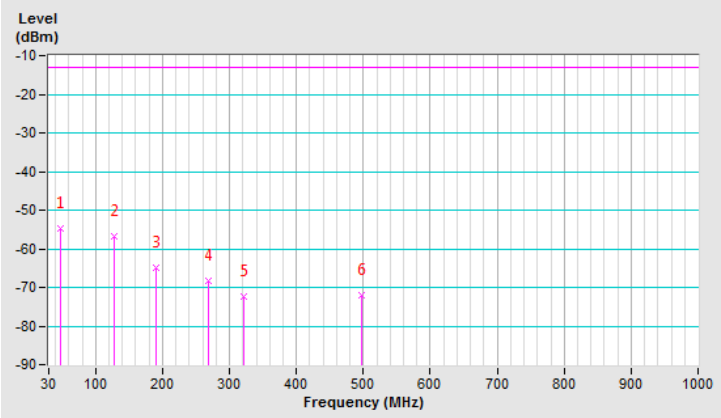


FREQUENCY RANGE	30MHz ~ 1GHz	CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 5 (Ch 20600)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC Part 22)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	ERP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	46.87	-54.00	-45.10	-9.70	-54.80	-13.00	-41.80
2	127.00	-47.40	-56.80	0.00	-56.80	-13.00	-43.80
3	190.26	-54.40	-69.20	4.20	-65.00	-13.00	-52.00
4	268.99	-62.20	-73.70	5.30	-68.40	-13.00	-55.40
5	321.00	-66.30	-77.50	5.20	-72.30	-13.00	-59.30
6	498.13	-69.90	-77.00	4.90	-72.10	-13.00	-59.10

REMARKS:

1. ERP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)

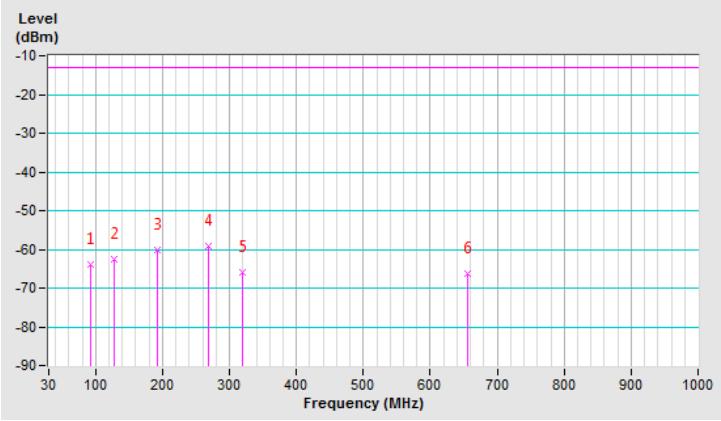


FREQUENCY RANGE	30MHz ~ 1GHz	CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 5 (Ch 20600)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC Part 22)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	ERP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	91.86	-55.20	-65.00	1.10	-63.90	-13.00	-50.90
2	127.00	-54.70	-62.70	0.00	-62.70	-13.00	-49.70
3	193.07	-55.40	-64.80	4.60	-60.20	-13.00	-47.20
4	268.99	-58.90	-64.50	5.30	-59.20	-13.00	-46.20
5	319.59	-64.00	-71.20	5.20	-66.00	-13.00	-53.00
6	655.58	-70.20	-71.10	4.90	-66.20	-13.00	-53.20

REMARKS:

1. ERP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)



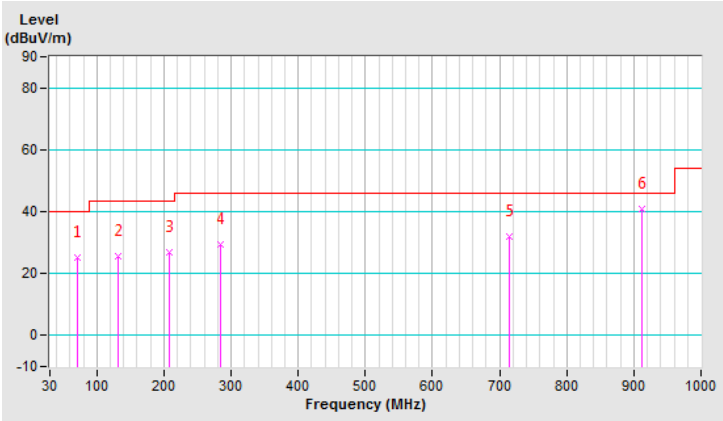
802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 2 (Ch 18900)

FREQUENCY RANGE	30MHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 2 (Ch 18900)		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC 15.247 / 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	70.77	25.3 QP	40.0	-14.7	1.50 H	238	36.2	-10.9
2	131.22	25.5 QP	43.5	-18.0	1.00 H	63	35.4	-9.9
3	208.54	26.7 QP	43.5	-16.8	1.00 H	233	38.2	-11.5
4	284.45	29.3 QP	46.0	-16.7	1.00 H	202	37.2	-7.9
5	714.62	32.0 QP	46.0	-14.0	2.00 H	111	29.8	2.2
6	911.43	41.0 QP	46.0	-5.0	1.00 H	173	36.2	4.8

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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

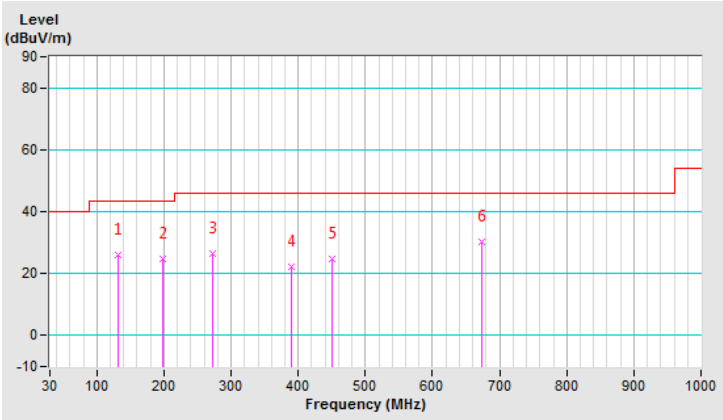


FREQUENCY RANGE	30MHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 2 (Ch 18900)		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC 15.247 / 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	131.22	26.1 QP	43.5	-17.4	1.50 V	235	36.0	-9.9
2	197.29	24.7 QP	43.5	-18.8	1.50 V	14	36.3	-11.6
3	271.80	26.5 QP	46.0	-19.5	1.50 V	2	34.8	-8.3
4	389.88	22.4 QP	46.0	-23.6	1.50 V	226	27.1	-4.7
5	450.33	24.9 QP	46.0	-21.1	1.50 V	131	27.5	-2.6
6	672.45	30.1 QP	46.0	-15.9	1.50 V	352	28.4	1.7

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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

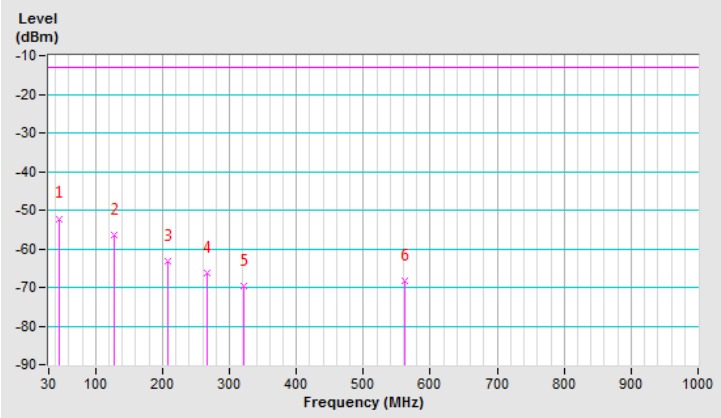


FREQUENCY RANGE	30MHz ~ 1GHz	CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 2 (Ch 18900)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC Part 24)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	45.46	-54.00	-42.20	-10.00	-52.20	-13.00	-39.20
2	127.00	-49.30	-56.50	0.00	-56.50	-13.00	-43.50
3	207.13	-54.90	-68.60	5.40	-63.20	-13.00	-50.20
4	266.17	-61.80	-71.60	5.30	-66.30	-13.00	-53.30
5	321.00	-65.90	-74.90	5.20	-69.70	-13.00	-56.70
6	561.39	-69.30	-72.90	4.60	-68.30	-13.00	-55.30

REMARKS:

1. EIRP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)

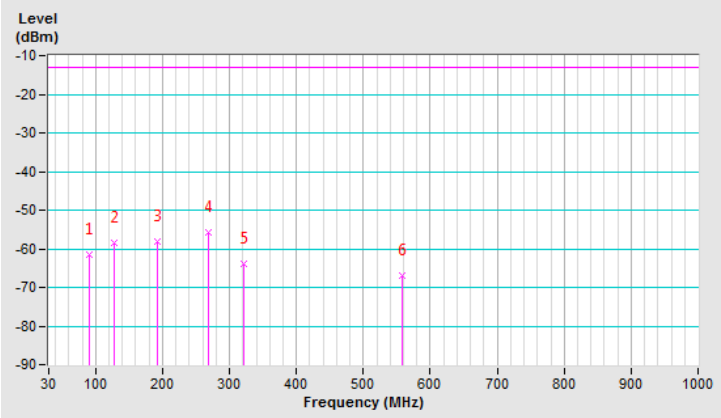


FREQUENCY RANGE	30MHz ~ 1GHz	CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 2 (Ch 18900)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC Part 24)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	90.45	-55.30	-62.60	1.10	-61.50	-13.00	-48.50
2	128.41	-52.80	-58.30	-0.10	-58.40	-13.00	-45.40
3	191.67	-55.70	-62.70	4.40	-58.30	-13.00	-45.30
4	268.99	-57.70	-61.20	5.30	-55.90	-13.00	-42.90
5	321.00	-64.10	-69.20	5.20	-64.00	-13.00	-51.00
6	557.17	-69.00	-71.70	4.70	-67.00	-13.00	-54.00

REMARKS:

1. EIRP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)



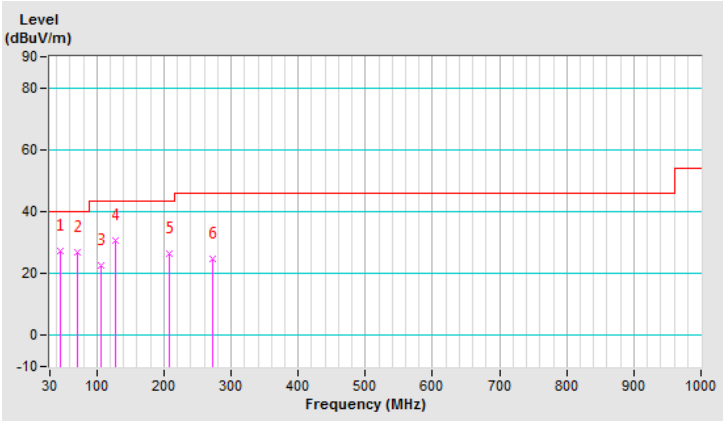
802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 13 (Ch 23230)

FREQUENCY RANGE	30MHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 13 (Ch 23230)		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC 15.247 / 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	45.46	27.1 QP	40.0	-12.9	1.00 H	38	36.0	-8.9
2	70.77	27.0 QP	40.0	-13.0	1.50 H	72	37.9	-10.9
3	105.91	22.6 QP	43.5	-20.9	1.50 H	255	34.9	-12.3
4	127.00	30.5 QP	43.5	-13.0	2.00 H	227	40.9	-10.4
5	207.13	26.5 QP	43.5	-17.0	1.50 H	216	38.1	-11.6
6	271.80	24.8 QP	46.0	-21.2	1.50 H	241	33.1	-8.3

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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

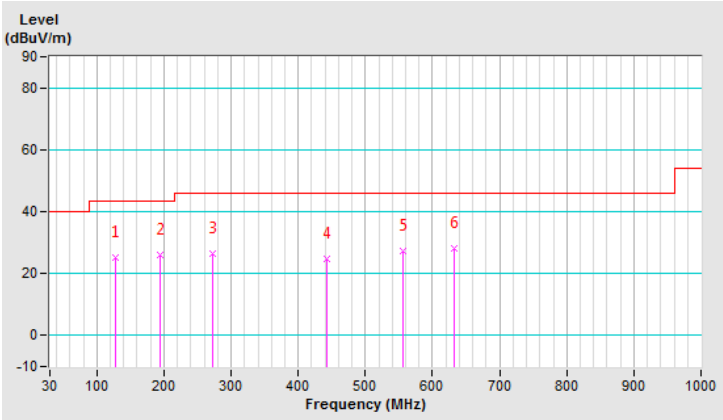


FREQUENCY RANGE	30MHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 13 (Ch 23230)		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC 15.247 / 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	127.00	25.1 QP	43.5	-18.4	1.00 V	91	35.5	-10.4
2	194.48	26.1 QP	43.5	-17.4	1.50 V	56	37.6	-11.5
3	273.20	26.5 QP	46.0	-19.5	1.50 V	5	34.7	-8.2
4	441.90	24.9 QP	46.0	-21.1	1.50 V	339	27.7	-2.8
5	555.77	27.4 QP	46.0	-18.6	1.50 V	5	27.8	-0.4
6	633.09	28.1 QP	46.0	-17.9	2.00 V	201	26.5	1.6

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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

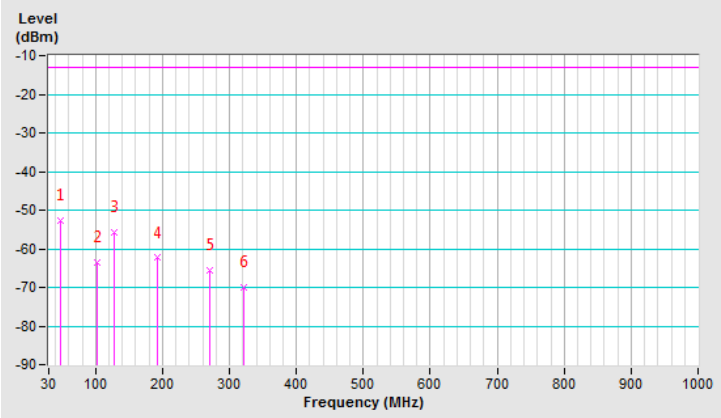


FREQUENCY RANGE	30MHz ~ 1GHz	CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 13 (Ch 23230)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC Part 27)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	46.87	-54.20	-43.10	-9.70	-52.80	-13.00	-39.80
2	101.70	-54.90	-64.50	0.80	-63.70	-13.00	-50.70
3	127.00	-48.50	-55.70	0.00	-55.70	-13.00	-42.70
4	191.67	-54.10	-66.80	4.40	-62.40	-13.00	-49.40
5	270.39	-61.50	-70.80	5.30	-65.50	-13.00	-52.50
6	321.00	-66.20	-75.20	5.20	-70.00	-13.00	-57.00

REMARKS:

1. EIRP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)

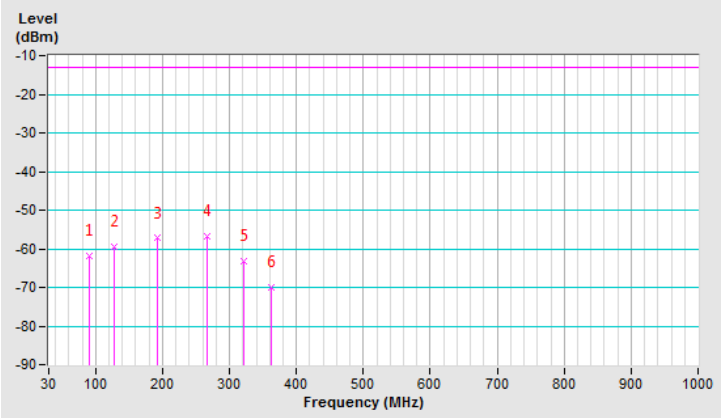


FREQUENCY RANGE	30MHz ~ 1GHz	CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 13 (Ch 23230)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC Part 27)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	90.45	-55.70	-63.00	1.10	-61.90	-13.00	-48.90
2	127.00	-53.60	-59.50	0.00	-59.50	-13.00	-46.50
3	191.67	-54.70	-61.70	4.40	-57.30	-13.00	-44.30
4	267.58	-58.50	-62.00	5.30	-56.70	-13.00	-43.70
5	321.00	-63.30	-68.40	5.20	-63.20	-13.00	-50.20
6	363.17	-69.50	-75.20	5.20	-70.00	-13.00	-57.00

REMARKS:

1. EIRP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)



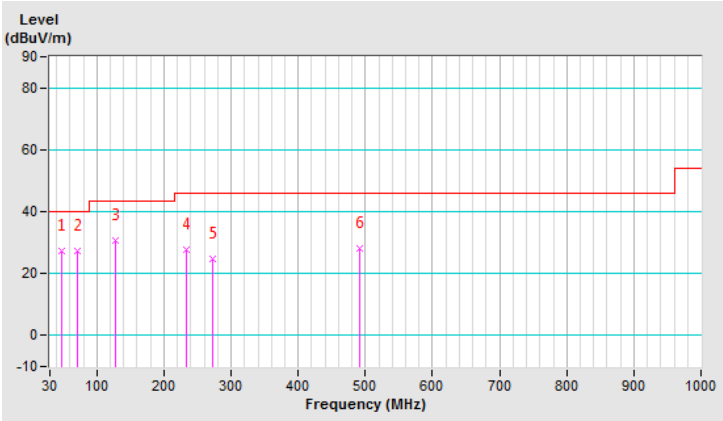
802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 14 (Ch 23355)

FREQUENCY RANGE	30MHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 14 (Ch 23355)		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC 15.247 / 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	46.87	27.4 QP	40.0	-12.6	2.00 H	91	36.3	-8.9
2	70.77	27.5 QP	40.0	-12.5	1.50 H	15	38.4	-10.9
3	127.00	30.5 QP	43.5	-13.0	1.50 H	250	40.9	-10.4
4	233.84	27.8 QP	46.0	-18.2	1.50 H	217	38.4	-10.6
5	273.20	24.9 QP	46.0	-21.1	1.00 H	227	33.1	-8.2
6	492.51	28.2 QP	46.0	-17.8	1.50 H	348	29.8	-1.6

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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

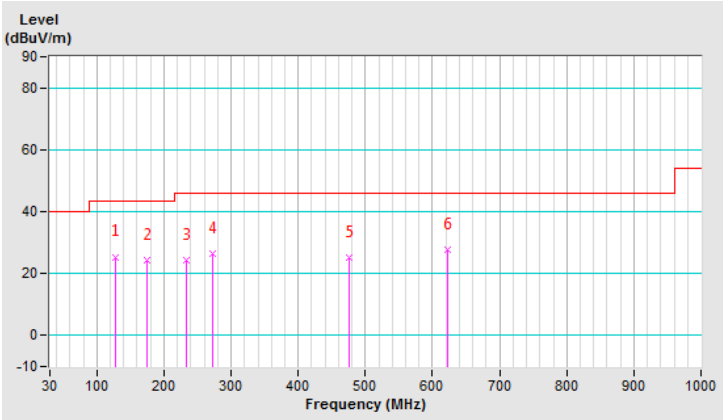


FREQUENCY RANGE	30MHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 14 (Ch 23355)		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC 15.247 / 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	127.00	25.4 QP	43.5	-18.1	1.50 V	71	35.8	-10.4
2	174.80	24.5 QP	43.5	-19.0	1.00 V	72	33.7	-9.2
3	233.84	24.4 QP	46.0	-21.6	1.50 V	226	35.0	-10.6
4	273.20	26.5 QP	46.0	-19.5	1.50 V	22	34.7	-8.2
5	475.64	25.2 QP	46.0	-20.8	2.00 V	280	27.2	-2.0
6	621.84	27.6 QP	46.0	-18.4	1.50 V	7	26.2	1.4

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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

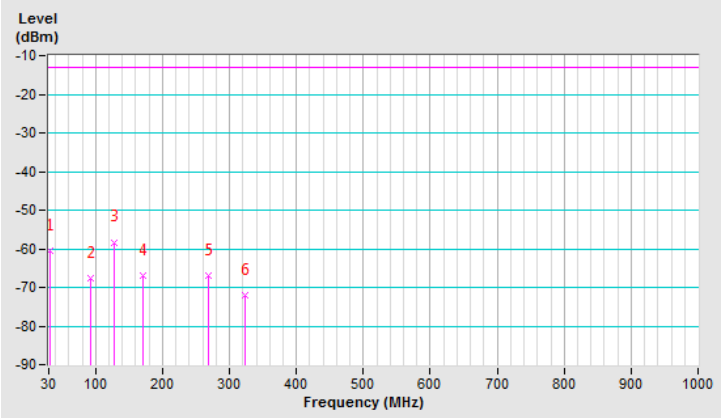


FREQUENCY RANGE	30MHz ~ 1GHz	CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 14 (Ch 23355)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC Part 90)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	ERP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	31.41	-61.00	-48.50	-12.00	-60.50	-13.00	-47.50
2	91.86	-56.80	-68.80	1.10	-67.70	-13.00	-54.70
3	127.00	-48.90	-58.30	0.00	-58.30	-13.00	-45.30
4	170.58	-57.90	-68.80	1.70	-67.10	-13.00	-54.10
5	268.99	-60.80	-72.40	5.30	-67.10	-13.00	-54.10
6	322.41	-66.10	-77.30	5.20	-72.10	-13.00	-59.10

REMARKS:

1. ERP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)

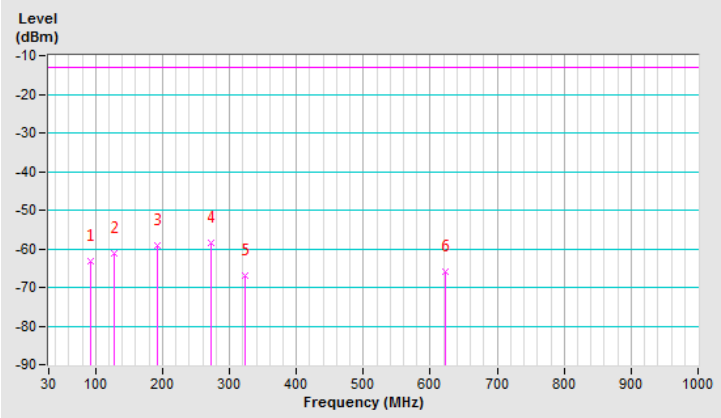


FREQUENCY RANGE	30MHz ~ 1GHz	CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 14 (Ch 23355)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC Part 90)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	ERP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	91.86	-54.60	-64.40	1.10	-63.30	-13.00	-50.30
2	128.41	-53.50	-61.20	-0.10	-61.30	-13.00	-48.30
3	191.67	-54.20	-63.40	4.40	-59.00	-13.00	-46.00
4	271.80	-58.20	-63.90	5.30	-58.60	-13.00	-45.60
5	323.81	-65.00	-72.30	5.20	-67.10	-13.00	-54.10
6	623.25	-69.00	-70.70	4.70	-66.00	-13.00	-53.00

REMARKS:

1. ERP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)



Mode B

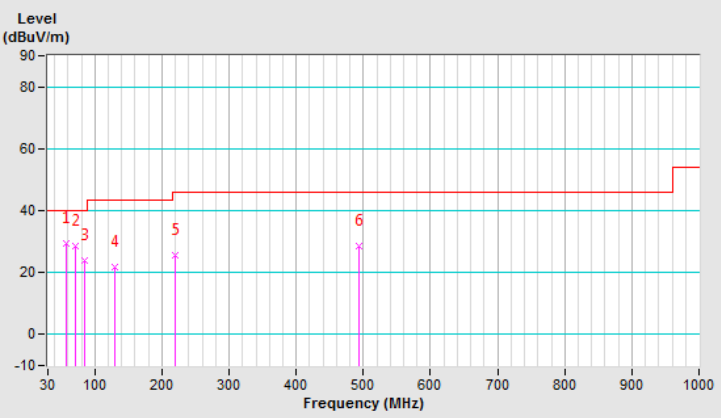
802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 5 (Ch 20600)

FREQUENCY RANGE	30MHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 5 (Ch 20600)		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC 15.247 / 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	58.12	29.6 QP	40.0	-10.4	1.99 H	222	38.7	-9.1
2	70.77	28.6 QP	40.0	-11.4	1.99 H	55	39.5	-10.9
3	84.83	23.9 QP	40.0	-16.1	1.99 H	224	37.8	-13.9
4	129.81	21.8 QP	43.5	-21.7	1.99 H	217	31.8	-10.0
5	219.78	25.5 QP	46.0	-20.5	1.51 H	63	36.8	-11.3
6	493.91	28.6 QP	46.0	-17.4	1.51 H	14	30.2	-1.6

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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

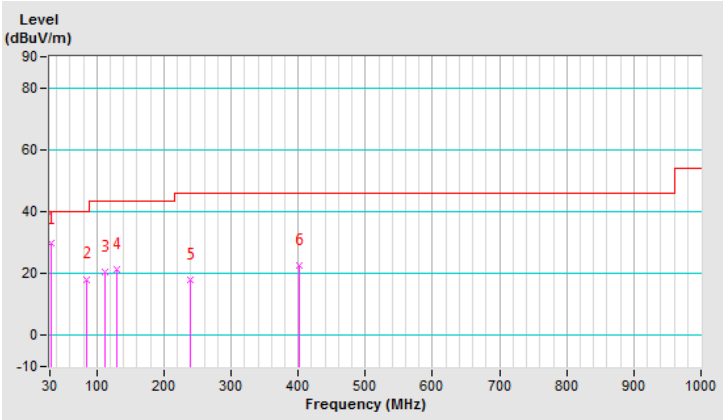


FREQUENCY RANGE	30MHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 5 (Ch 20600)		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC 15.247 / 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	31.41	29.6 QP	40.0	-10.4	1.00 V	261	40.3	-10.7
2	84.83	18.2 QP	40.0	-21.8	1.49 V	16	32.1	-13.9
3	111.54	20.3 QP	43.5	-23.2	1.00 V	70	32.1	-11.8
4	129.81	21.3 QP	43.5	-22.2	1.49 V	16	31.3	-10.0
5	239.46	17.9 QP	46.0	-28.1	1.99 V	219	27.8	-9.9
6	402.54	22.6 QP	46.0	-23.4	1.49 V	16	27.0	-4.4

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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

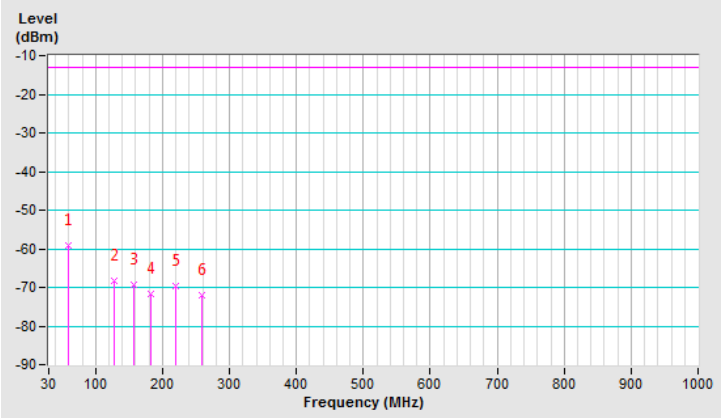


FREQUENCY RANGE	30MHz ~ 1GHz	CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 5 (Ch 20600)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC Part 22)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	ERP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	59.52	-52.40	-51.30	-7.70	-59.00	-13.00	-46.00
2	127.00	-58.90	-68.20	0.00	-68.20	-13.00	-55.20
3	156.52	-62.00	-69.40	0.20	-69.20	-13.00	-56.20
4	181.83	-61.10	-74.90	3.10	-71.80	-13.00	-58.80
5	219.78	-59.10	-75.20	5.40	-69.80	-13.00	-56.80
6	259.14	-64.90	-77.50	5.30	-72.20	-13.00	-59.20

REMARKS:

1. ERP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)

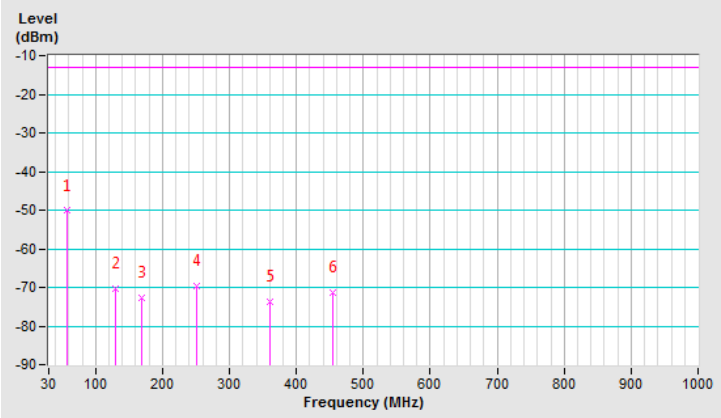


FREQUENCY RANGE	30MHz ~ 1GHz	CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 5 (Ch 20600)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC Part 22)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	ERP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	58.12	-41.10	-42.20	-8.00	-50.20	-13.00	-37.20
2	129.81	-62.70	-70.30	-0.10	-70.40	-13.00	-57.40
3	169.17	-68.20	-74.20	1.50	-72.70	-13.00	-59.70
4	250.71	-68.80	-75.00	5.40	-69.60	-13.00	-56.60
5	360.36	-71.00	-78.90	5.20	-73.70	-13.00	-60.70
6	454.55	-69.70	-76.50	5.00	-71.50	-13.00	-58.50

REMARKS:

1. ERP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)



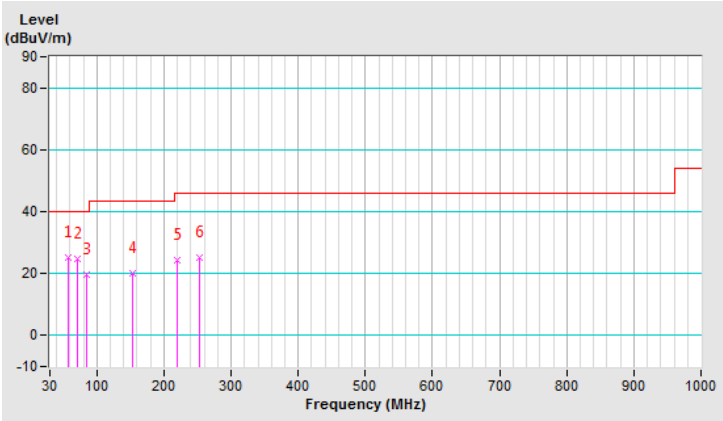
802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 2 (Ch 18900)

FREQUENCY RANGE	30MHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 2 (Ch 18900)		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC 15.247 / 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	58.12	25.2 QP	40.0	-14.8	1.00 H	123	34.3	-9.1
2	70.77	24.6 QP	40.0	-15.4	1.00 H	150	35.5	-10.9
3	84.83	19.7 QP	40.0	-20.3	1.00 H	263	33.6	-13.9
4	153.71	20.1 QP	43.5	-23.4	1.00 H	243	28.7	-8.6
5	219.78	24.3 QP	46.0	-21.7	1.00 H	97	35.6	-11.3
6	252.12	25.1 QP	46.0	-20.9	1.00 H	28	34.5	-9.4

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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

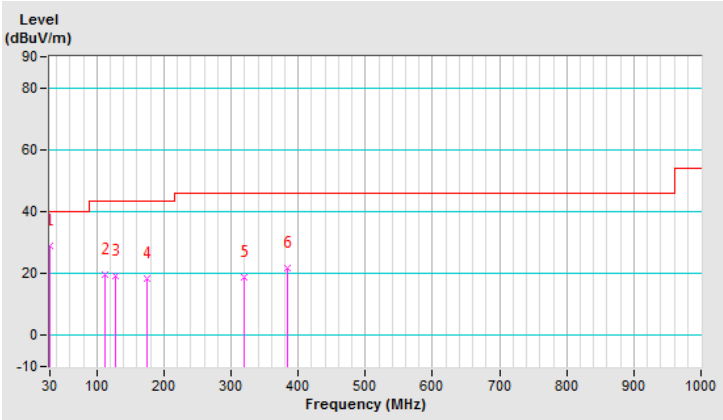


FREQUENCY RANGE	30MHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 2 (Ch 18900)		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC 15.247 / 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.00	29.1 QP	40.0	-10.9	1.50 V	189	39.5	-10.4
2	111.54	19.6 QP	43.5	-23.9	1.00 V	262	31.4	-11.8
3	127.00	19.2 QP	43.5	-24.3	1.00 V	305	29.6	-10.4
4	174.80	18.2 QP	43.5	-25.3	1.00 V	124	27.4	-9.2
5	319.59	18.9 QP	46.0	-27.1	1.50 V	268	25.7	-6.8
6	384.26	21.6 QP	46.0	-24.4	1.00 V	107	26.5	-4.9

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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

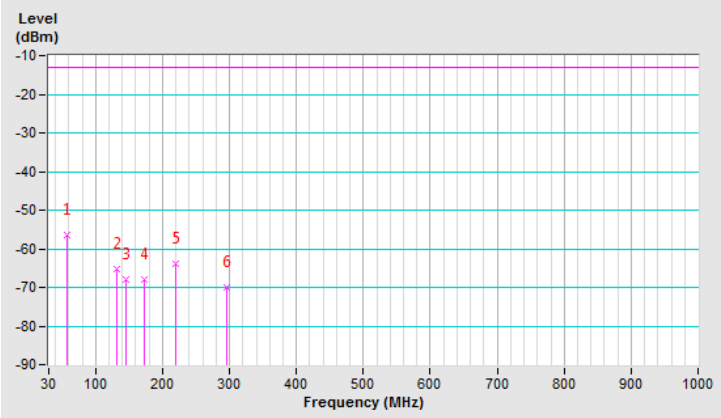


FREQUENCY RANGE	30MHz ~ 1GHz	CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 2 (Ch 18900)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC Part 24)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	56.71	-53.50	-48.20	-8.30	-56.50	-13.00	-43.50
2	131.22	-58.50	-65.00	-0.10	-65.10	-13.00	-52.10
3	145.28	-63.20	-67.90	-0.20	-68.10	-13.00	-55.10
4	173.39	-60.60	-70.00	2.00	-68.00	-13.00	-55.00
5	219.78	-55.30	-69.20	5.40	-63.80	-13.00	-50.80
6	295.70	-67.60	-75.20	5.10	-70.10	-13.00	-57.10

REMARKS:

1. EIRP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)

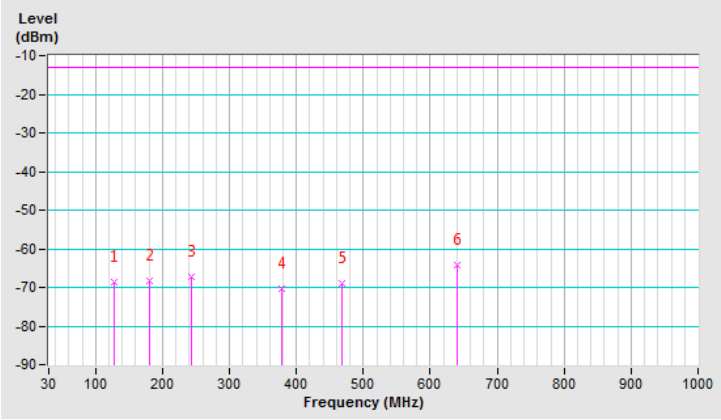


FREQUENCY RANGE	30MHz ~ 1GHz	CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 2 (Ch 18900)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC Part 24)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	128.41	-62.90	-68.40	-0.10	-68.50	-13.00	-55.50
2	180.42	-65.10	-71.40	3.00	-68.40	-13.00	-55.40
3	243.68	-67.00	-72.70	5.50	-67.20	-13.00	-54.20
4	377.23	-70.40	-75.70	5.30	-70.40	-13.00	-57.40
5	467.20	-69.20	-73.90	5.00	-68.90	-13.00	-55.90
6	640.12	-70.60	-69.00	4.70	-64.30	-13.00	-51.30

REMARKS:

1. EIRP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)



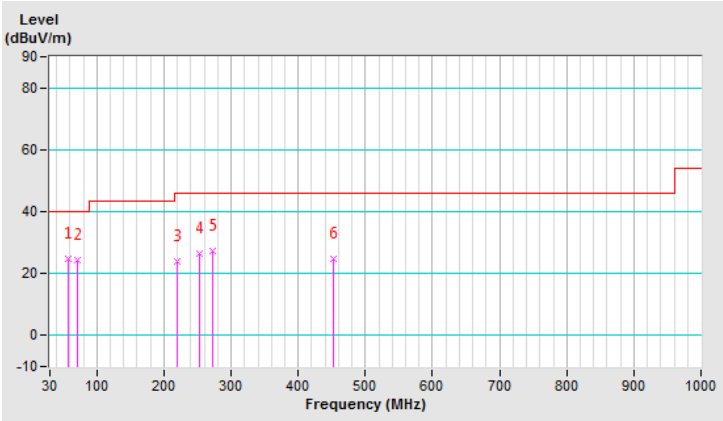
802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 13 (Ch 23230)

FREQUENCY RANGE	30MHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 13 (Ch 23230)		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC 15.247 / 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	58.12	24.8 QP	40.0	-15.2	1.00 H	258	33.9	-9.1
2	70.77	24.4 QP	40.0	-15.6	1.00 H	273	35.3	-10.9
3	219.78	24.1 QP	46.0	-21.9	1.00 H	67	35.4	-11.3
4	252.12	26.5 QP	46.0	-19.5	1.00 H	16	35.9	-9.4
5	271.80	27.4 QP	46.0	-18.6	1.00 H	16	35.7	-8.3
6	453.14	24.6 QP	46.0	-21.4	1.00 H	160	27.1	-2.5

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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

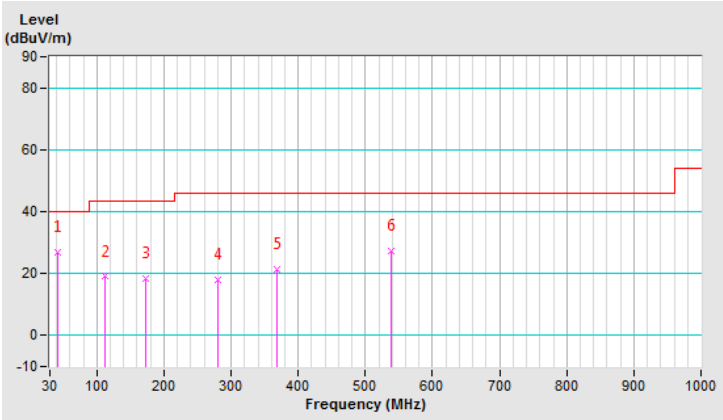


FREQUENCY RANGE	30MHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 13 (Ch 23230)		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC 15.247 / 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	41.25	26.9 QP	40.0	-13.1	1.50 V	246	36.1	-9.2
2	111.54	19.0 QP	43.5	-24.5	1.00 V	85	30.8	-11.8
3	171.99	18.2 QP	43.5	-25.3	2.00 V	321	27.3	-9.1
4	280.23	17.9 QP	46.0	-28.1	1.00 V	246	25.9	-8.0
5	367.39	21.3 QP	46.0	-24.7	1.50 V	282	26.7	-5.4
6	537.49	27.3 QP	46.0	-18.7	1.00 V	100	28.1	-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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

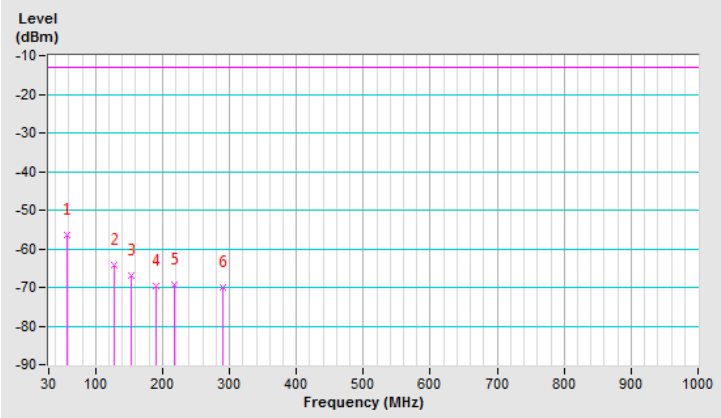


FREQUENCY RANGE	30MHz ~ 1GHz	CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 13 (Ch 23230)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC Part 27)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	58.12	-52.60	-48.40	-8.00	-56.40	-13.00	-43.40
2	128.41	-57.30	-64.20	-0.10	-64.30	-13.00	-51.30
3	152.30	-62.20	-66.80	0.00	-66.80	-13.00	-53.80
4	190.26	-61.20	-73.90	4.20	-69.70	-13.00	-56.70
5	216.97	-60.60	-74.70	5.40	-69.30	-13.00	-56.30
6	290.07	-66.80	-75.10	5.10	-70.00	-13.00	-57.00

REMARKS:

1. EIRP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)

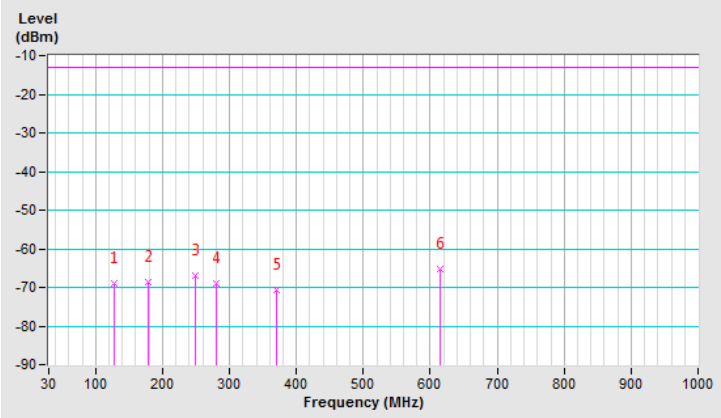


FREQUENCY RANGE	30MHz ~ 1GHz	CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 13 (Ch 23230)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC Part 27)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	128.41	-63.40	-68.90	-0.10	-69.00	-13.00	-56.00
2	179.01	-65.30	-71.30	2.80	-68.50	-13.00	-55.50
3	249.30	-67.80	-72.20	5.40	-66.80	-13.00	-53.80
4	280.23	-70.50	-74.20	5.30	-68.90	-13.00	-55.90
5	370.20	-70.50	-76.00	5.20	-70.80	-13.00	-57.80
6	614.81	-70.20	-70.00	4.60	-65.40	-13.00	-52.40

REMARKS:

1. EIRP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)



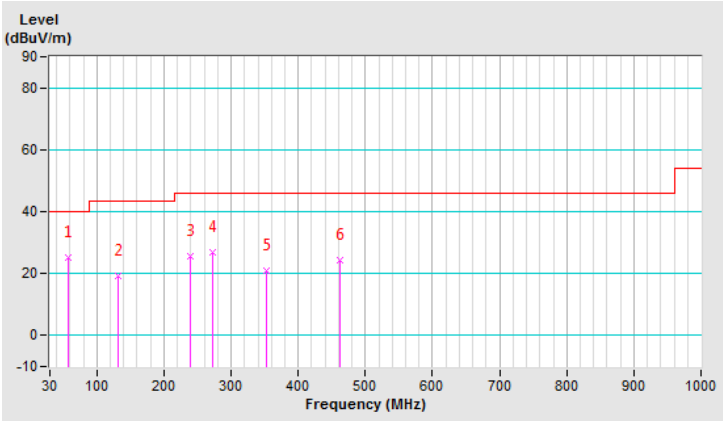
802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 14 (Ch 23355)

FREQUENCY RANGE	30MHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 14 (Ch 23355)		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC 15.247 / 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	58.12	25.0 QP	40.0	-15.0	1.50 H	79	34.1	-9.1
2	131.22	19.4 QP	43.5	-24.1	1.00 H	12	29.3	-9.9
3	239.46	25.6 QP	46.0	-20.4	1.00 H	35	35.5	-9.9
4	271.80	26.8 QP	46.0	-19.2	1.00 H	21	35.1	-8.3
5	351.93	20.8 QP	46.0	-25.2	2.00 H	12	27.0	-6.2
6	461.58	24.3 QP	46.0	-21.7	1.00 H	12	26.7	-2.4

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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

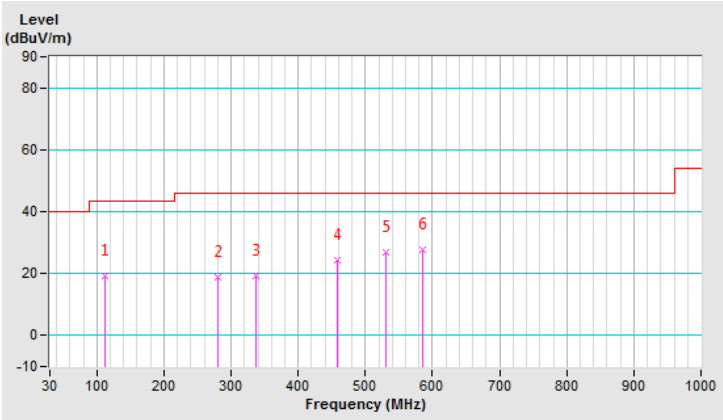


FREQUENCY RANGE	30MHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 14 (Ch 23355)		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC 15.247 / 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	111.54	19.1 QP	43.5	-24.4	2.00 V	336	30.9	-11.8
2	280.23	18.7 QP	46.0	-27.3	1.00 V	207	26.7	-8.0
3	337.87	19.4 QP	46.0	-26.6	1.00 V	47	25.7	-6.3
4	458.77	24.4 QP	46.0	-21.6	1.50 V	142	26.9	-2.5
5	530.46	26.7 QP	46.0	-19.3	1.00 V	78	27.5	-0.8
6	585.29	27.7 QP	46.0	-18.3	1.50 V	58	27.1	0.6

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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

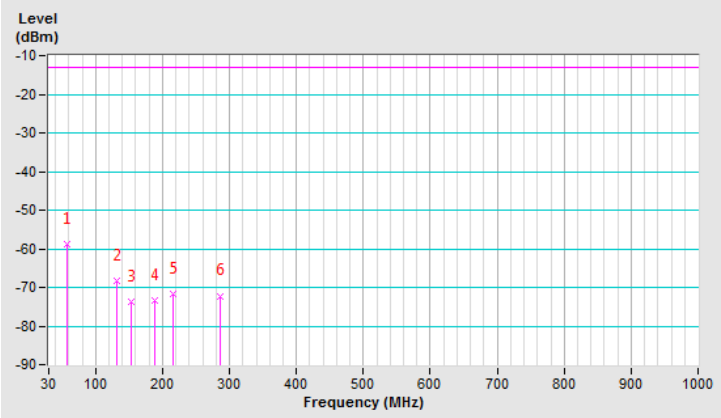


FREQUENCY RANGE	30MHz ~ 1GHz	CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 14 (Ch 23355)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC Part 90)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	ERP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	56.71	-53.80	-50.60	-8.30	-58.90	-13.00	-45.90
2	132.62	-59.70	-68.10	-0.10	-68.20	-13.00	-55.20
3	152.30	-66.80	-73.60	0.00	-73.60	-13.00	-60.60
4	188.86	-62.90	-77.60	4.10	-73.50	-13.00	-60.50
5	215.57	-60.80	-77.00	5.40	-71.60	-13.00	-58.60
6	285.86	-66.50	-77.40	5.20	-72.20	-13.00	-59.20

REMARKS:

1. ERP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)

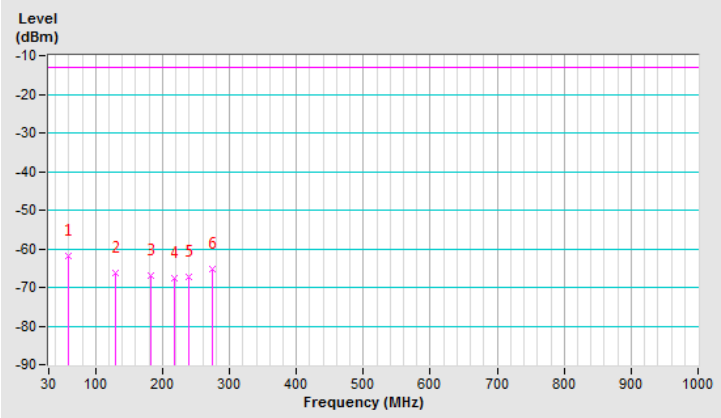


FREQUENCY RANGE	30MHz ~ 1GHz	CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 14 (Ch 23355)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC Part 90)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	ERP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	59.52	-52.80	-54.20	-7.70	-61.90	-13.00	-48.90
2	129.81	-58.50	-66.20	-0.10	-66.30	-13.00	-53.30
3	183.23	-61.50	-70.30	3.30	-67.00	-13.00	-54.00
4	218.38	-62.90	-73.10	5.40	-67.70	-13.00	-54.70
5	239.46	-64.00	-72.70	5.40	-67.30	-13.00	-54.30
6	274.61	-64.80	-70.50	5.30	-65.20	-13.00	-52.20

REMARKS:

1. ERP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)



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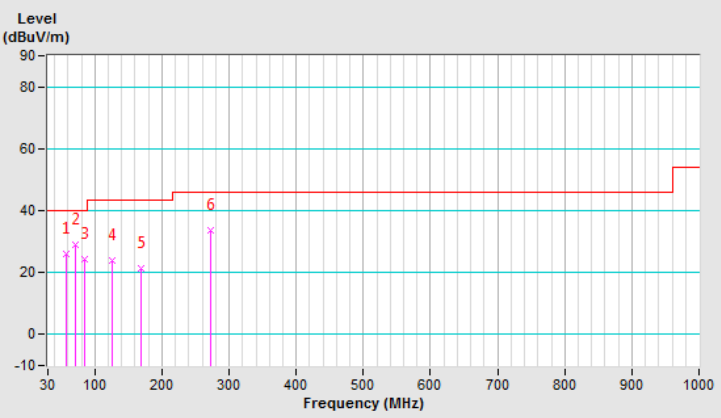
802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 5 (Ch 20600)

FREQUENCY RANGE	30MHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 5 (Ch 20600)		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC 15.247 / 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	56.71	25.9 QP	40.0	-14.1	2.00 H	72	35.0	-9.1
2	70.77	28.8 QP	40.0	-11.2	2.00 H	277	39.7	-10.9
3	84.83	24.4 QP	40.0	-15.6	2.00 H	17	38.3	-13.9
4	125.59	24.0 QP	43.5	-19.5	2.00 H	60	34.4	-10.4
5	169.17	21.4 QP	43.5	-22.1	2.00 H	217	30.3	-8.9
6	271.80	33.5 QP	46.0	-12.5	1.01 H	15	41.8	-8.3

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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

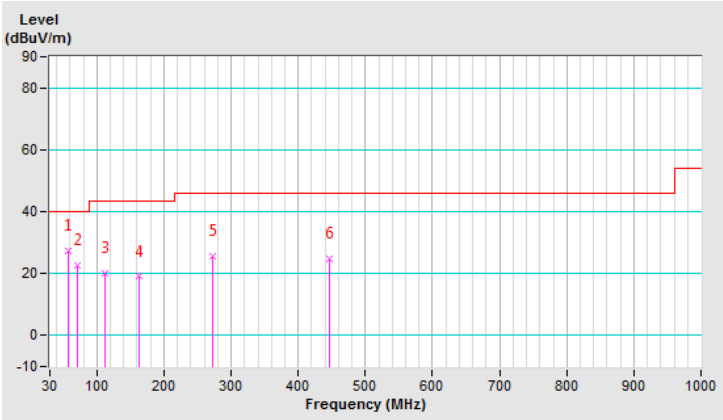


FREQUENCY RANGE	30MHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 5 (Ch 20600)		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC 15.247 / 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	56.71	27.5 QP	40.0	-12.5	1.00 V	322	36.6	-9.1
2	70.77	22.8 QP	40.0	-17.2	1.49 V	16	33.7	-10.9
3	111.54	20.2 QP	43.5	-23.3	1.00 V	59	32.0	-11.8
4	163.55	19.0 QP	43.5	-24.5	1.99 V	272	27.7	-8.7
5	271.80	25.8 QP	46.0	-20.2	1.49 V	269	34.1	-8.3
6	447.52	24.7 QP	46.0	-21.3	1.49 V	16	27.3	-2.6

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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

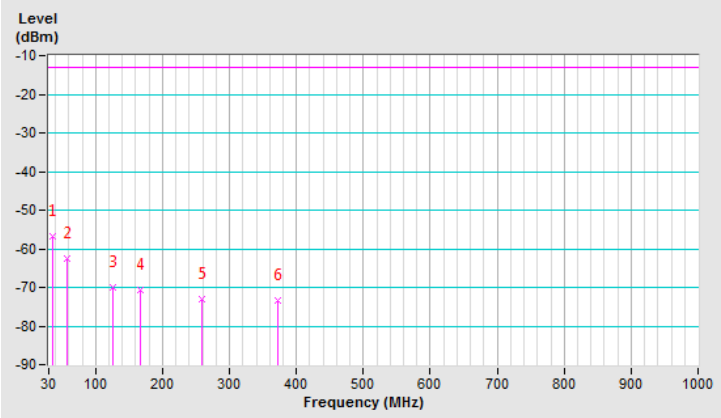


FREQUENCY RANGE	30MHz ~ 1GHz	CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 5 (Ch 20600)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC Part 22)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	ERP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	35.62	-57.00	-45.40	-11.50	-56.90	-13.00	-43.90
2	56.71	-57.20	-54.10	-8.30	-62.40	-13.00	-49.40
3	125.59	-60.50	-70.00	0.00	-70.00	-13.00	-57.00
4	167.77	-61.90	-72.00	1.30	-70.70	-13.00	-57.70
5	259.14	-65.80	-78.40	5.30	-73.10	-13.00	-60.10
6	371.61	-69.20	-78.60	5.20	-73.40	-13.00	-60.40

REMARKS:

1. ERP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)

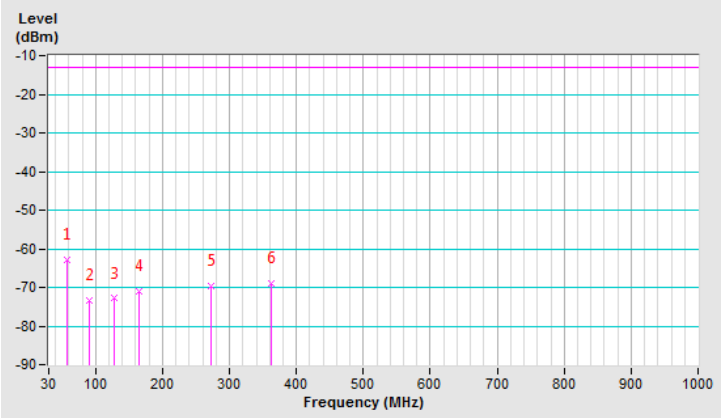


FREQUENCY RANGE	30MHz ~ 1GHz	CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 5 (Ch 20600)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC Part 22)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	ERP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	56.71	-54.00	-54.70	-8.30	-63.00	-13.00	-50.00
2	90.45	-65.10	-74.50	1.10	-73.40	-13.00	-60.40
3	128.41	-65.20	-72.80	-0.10	-72.90	-13.00	-59.90
4	164.96	-66.60	-72.00	1.10	-70.90	-13.00	-57.90
5	273.20	-69.30	-75.10	5.30	-69.80	-13.00	-56.80
6	363.17	-66.40	-74.30	5.20	-69.10	-13.00	-56.10

REMARKS:

1. ERP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)



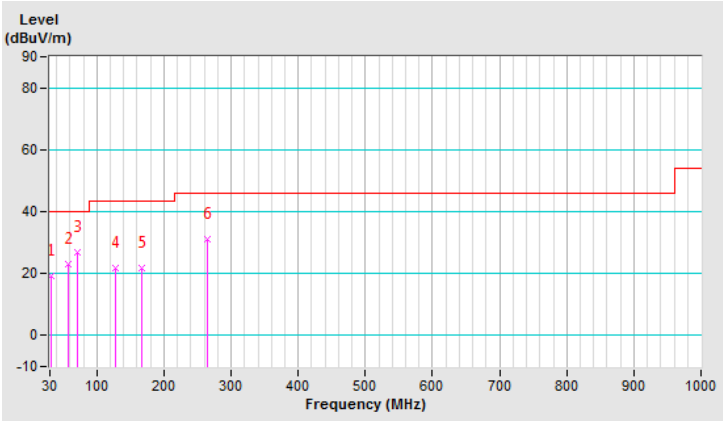
802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 2 (Ch 18900)

FREQUENCY RANGE	30MHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 2 (Ch 18900)		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC 15.247 / 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	32.81	19.3 QP	40.0	-20.7	1.00 H	191	29.8	-10.5
2	56.71	23.1 QP	40.0	-16.9	1.50 H	72	32.2	-9.1
3	70.77	26.8 QP	40.0	-13.2	1.50 H	309	37.7	-10.9
4	128.41	21.6 QP	43.5	-21.9	2.00 H	119	31.8	-10.2
5	167.77	21.7 QP	43.5	-21.8	1.50 H	219	30.4	-8.7
6	264.77	31.2 QP	46.0	-14.8	1.50 H	358	40.0	-8.8

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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

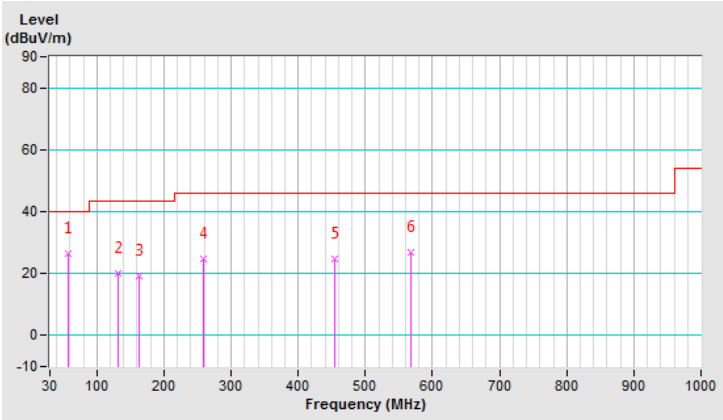


FREQUENCY RANGE	30MHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 2 (Ch 18900)		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC 15.247 / 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	56.71	26.6 QP	40.0	-13.4	1.50 V	281	35.7	-9.1
2	131.22	19.9 QP	43.5	-23.6	1.00 V	15	29.8	-9.9
3	163.55	19.3 QP	43.5	-24.2	1.50 V	258	28.0	-8.7
4	259.14	24.9 QP	46.0	-21.1	1.50 V	291	34.0	-9.1
5	454.55	24.9 QP	46.0	-21.1	1.00 V	117	27.4	-2.5
6	567.01	27.0 QP	46.0	-19.0	1.50 V	100	26.9	0.1

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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

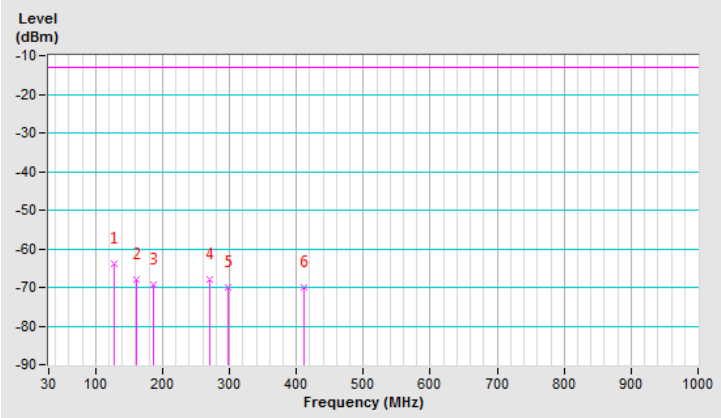


FREQUENCY RANGE	30MHz ~ 1GHz	CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 2 (Ch 18900)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC Part 24)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	127.00	-56.60	-63.80	0.00	-63.80	-13.00	-50.80
2	160.74	-62.30	-68.60	0.50	-68.10	-13.00	-55.10
3	186.04	-61.10	-73.10	3.70	-69.40	-13.00	-56.40
4	270.39	-63.90	-73.20	5.30	-67.90	-13.00	-54.90
5	298.51	-67.80	-75.20	5.10	-70.10	-13.00	-57.10
6	410.97	-69.70	-75.10	5.20	-69.90	-13.00	-56.90

REMARKS:

1. EIRP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)

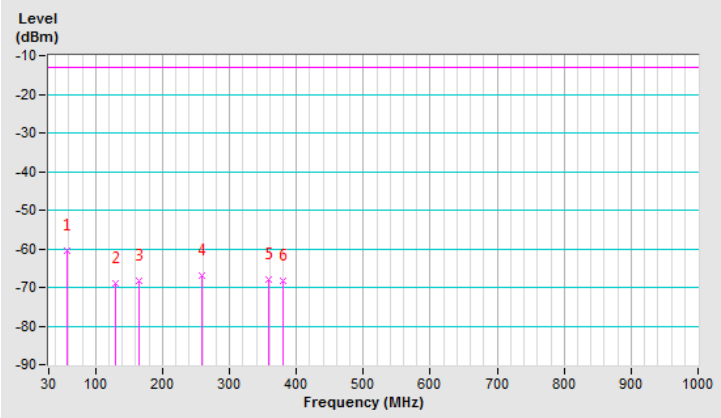


FREQUENCY RANGE	30MHz ~ 1GHz	CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 2 (Ch 18900)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC Part 24)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	56.71	-53.60	-52.20	-8.30	-60.50	-13.00	-47.50
2	129.81	-63.40	-68.90	-0.10	-69.00	-13.00	-56.00
3	164.96	-66.00	-69.30	1.10	-68.20	-13.00	-55.20
4	259.14	-68.50	-72.30	5.30	-67.00	-13.00	-54.00
5	358.96	-67.50	-73.20	5.20	-68.00	-13.00	-55.00
6	380.04	-68.40	-73.60	5.30	-68.30	-13.00	-55.30

REMARKS:

1. EIRP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)



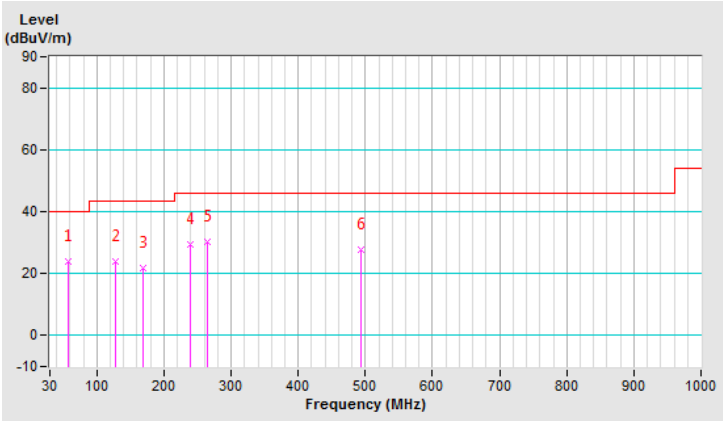
802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 13 (Ch 23230)

FREQUENCY RANGE	30MHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 13 (Ch 23230)		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC 15.247 / 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	56.71	23.8 QP	40.0	-16.2	1.00 H	59	32.9	-9.1
2	128.41	23.8 QP	43.5	-19.7	1.50 H	268	34.0	-10.2
3	169.17	21.7 QP	43.5	-21.8	1.50 H	215	30.6	-8.9
4	239.46	29.4 QP	46.0	-16.6	2.00 H	194	39.3	-9.9
5	264.77	30.2 QP	46.0	-15.8	1.50 H	47	39.0	-8.8
6	493.91	27.8 QP	46.0	-18.2	1.00 H	42	29.4	-1.6

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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

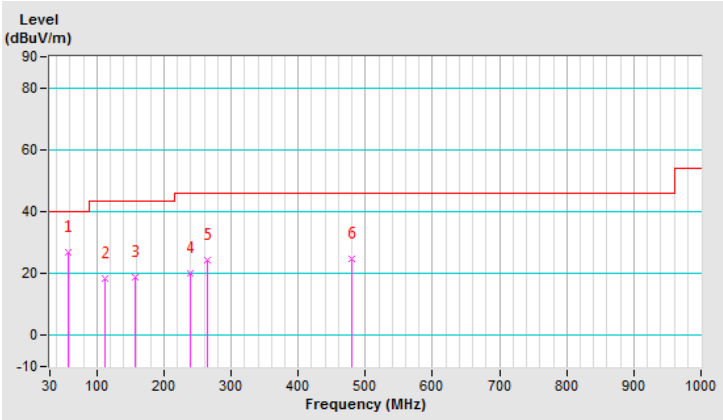


FREQUENCY RANGE	30MHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 13 (Ch 23230)		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC 15.247 / 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	56.71	26.8 QP	40.0	-13.2	2.00 V	13	35.9	-9.1
2	111.54	18.2 QP	43.5	-25.3	1.50 V	246	30.0	-11.8
3	157.93	19.0 QP	43.5	-24.5	1.50 V	217	27.5	-8.5
4	239.46	20.1 QP	46.0	-25.9	1.50 V	155	30.0	-9.9
5	264.77	24.3 QP	46.0	-21.7	2.00 V	256	33.1	-8.8
6	479.86	24.8 QP	46.0	-21.2	1.50 V	4	26.8	-2.0

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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

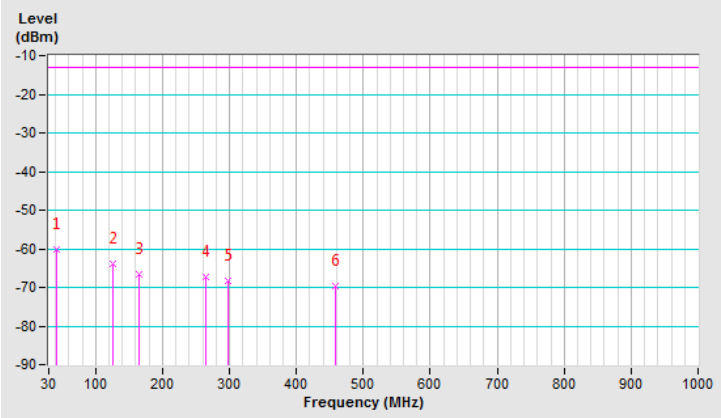


FREQUENCY RANGE	30MHz ~ 1GHz	CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 13 (Ch 23230)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC Part 27)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	41.25	-63.20	-49.30	-10.70	-60.00	-13.00	-47.00
2	125.59	-56.60	-64.00	0.00	-64.00	-13.00	-51.00
3	164.96	-60.10	-67.60	1.10	-66.50	-13.00	-53.50
4	264.77	-62.80	-72.70	5.30	-67.40	-13.00	-54.40
5	297.10	-66.00	-73.50	5.10	-68.40	-13.00	-55.40
6	458.77	-69.80	-74.70	5.00	-69.70	-13.00	-56.70

REMARKS:

1. EIRP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)

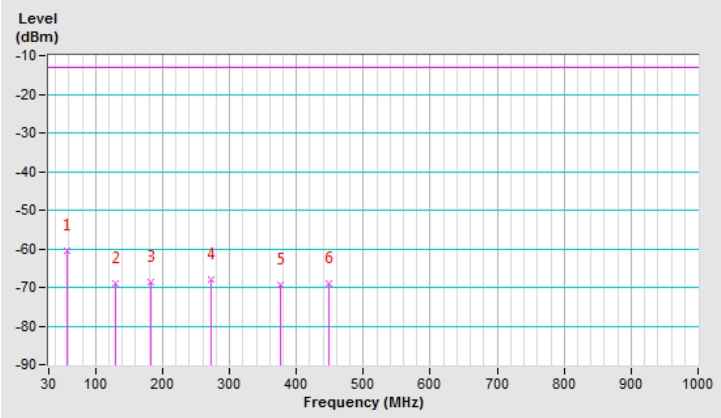


FREQUENCY RANGE	30MHz ~ 1GHz	CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 13 (Ch 23230)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC Part 27)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	EIRP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	56.71	-53.50	-52.10	-8.30	-60.40	-13.00	-47.40
2	129.81	-63.40	-68.90	-0.10	-69.00	-13.00	-56.00
3	181.83	-65.40	-71.90	3.10	-68.80	-13.00	-55.80
4	271.80	-69.80	-73.30	5.30	-68.00	-13.00	-55.00
5	375.83	-69.10	-74.50	5.30	-69.20	-13.00	-56.20
6	448.93	-69.50	-74.10	5.00	-69.10	-13.00	-56.10

REMARKS:

1. EIRP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)



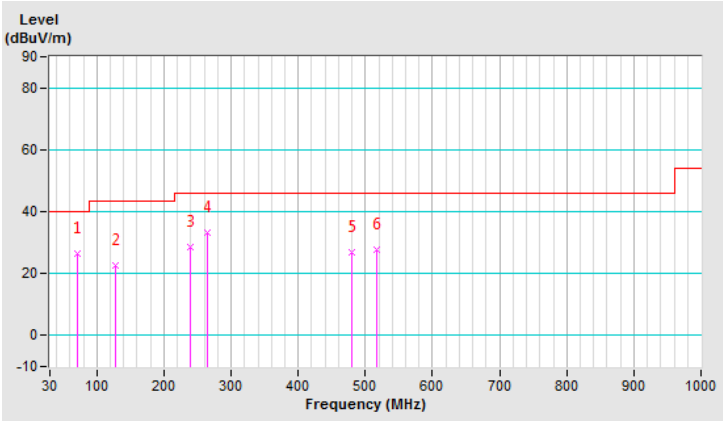
802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 14 (Ch 23355)

FREQUENCY RANGE	30MHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 14 (Ch 23355)		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC 15.247 / 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	70.77	26.6 QP	40.0	-13.4	1.00 H	251	37.5	-10.9
2	127.00	22.8 QP	43.5	-20.7	1.50 H	227	33.2	-10.4
3	239.46	28.7 QP	46.0	-17.3	1.50 H	2	38.6	-9.9
4	264.77	33.1 QP	46.0	-12.9	1.50 H	21	41.9	-8.8
5	479.86	26.8 QP	46.0	-19.2	2.00 H	21	28.8	-2.0
6	517.81	27.6 QP	46.0	-18.4	1.50 H	145	28.5	-0.9

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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

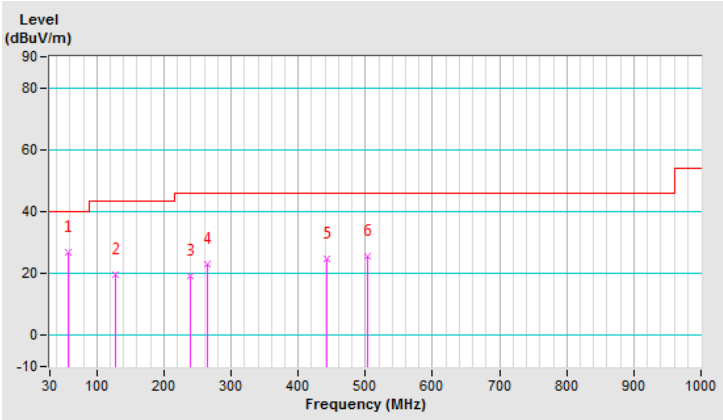


FREQUENCY RANGE	30MHz ~ 1GHz	DETECTOR FUNCTION	Quasi-Peak (QP)
CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 14 (Ch 23355)		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC 15.247 / 15.407)								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	56.71	27.0 QP	40.0	-13.0	2.00 V	306	36.1	-9.1
2	127.00	19.8 QP	43.5	-23.7	1.50 V	142	30.2	-10.4
3	239.46	19.2 QP	46.0	-26.8	1.50 V	128	29.1	-9.9
4	264.77	23.2 QP	46.0	-22.8	1.50 V	292	32.0	-8.8
5	441.90	24.8 QP	46.0	-21.2	1.00 V	333	27.6	-2.8
6	502.35	25.7 QP	46.0	-20.3	1.50 V	253	27.1	-1.4

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 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

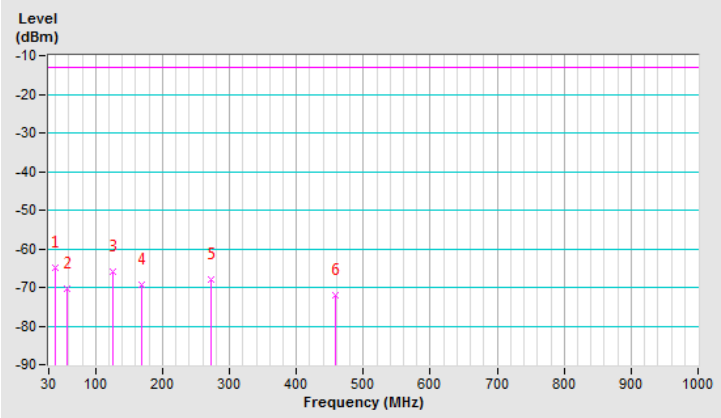


FREQUENCY RANGE	30MHz ~ 1GHz	CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 14 (Ch 23355)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (For FCC Part 90)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	ERP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	39.84	-64.50	-53.90	-10.90	-64.80	-13.00	-51.80
2	56.71	-65.10	-62.00	-8.30	-70.30	-13.00	-57.30
3	125.59	-56.20	-65.80	0.00	-65.80	-13.00	-52.80
4	169.17	-60.50	-70.90	1.50	-69.40	-13.00	-56.40
5	271.80	-61.90	-73.40	5.30	-68.10	-13.00	-55.10
6	458.77	-70.00	-77.00	5.00	-72.00	-13.00	-59.00

REMARKS:

1. ERP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)

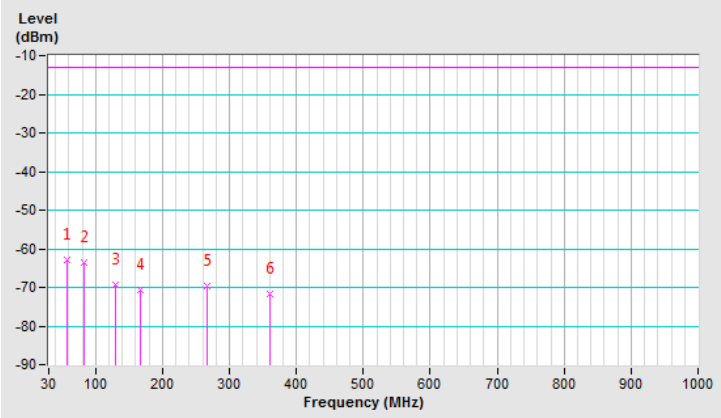


FREQUENCY RANGE	30MHz ~ 1GHz	CHANNEL	802.11b (Ch 6) + 802.11ax (HE20) (Ch 48) + LTE Band 14 (Ch 23355)

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (For FCC Part 90)							
NO.	FREQ. (MHz)	READING (dBm)	S.G POWER VALUE (dBm)	CORRECTION FACTOR (dB)	ERP (dBm)	LIMIT (dBm)	MARGIN (dB)
1	56.71	-53.80	-54.50	-8.30	-62.80	-13.00	-49.80
2	82.01	-56.50	-62.50	-1.10	-63.60	-13.00	-50.60
3	129.81	-61.70	-69.30	-0.10	-69.40	-13.00	-56.40
4	167.77	-66.10	-71.90	1.30	-70.60	-13.00	-57.60
5	266.17	-69.20	-75.00	5.30	-69.70	-13.00	-56.70
6	360.36	-68.90	-76.80	5.20	-71.60	-13.00	-58.60

REMARKS:

1. ERP(dBm) = S.G Power Value(dBm) + Correction Factor(dB)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)



5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

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

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

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