Partial FCC Test Report

Report No.:	RF170223C01
FCC ID:	MSQ7265NG
Test Model:	C213S, C213N
Received Date:	Feb. 23, 2017
Test Date:	Mar. 02, 2017 ~ Mar. 04, 2017
Issued Date:	Mar. 28, 2017
Applicant:	ASUSTek COMPUTER INC.
Address:	4F, No. 150, LI-TE Rd., PEITOU, TAIPEI 112, TAIWAN
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C)
Test Location:	No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan, R.O.C.

Testing Laboratory
2021

Table of Contents

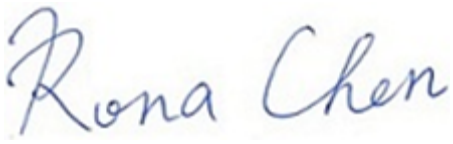
Release Control Record

Issue No.	Description	Date Issued
RF170223C01	Original Release	Mar. 28, 2017

1 Certificate of Conformity

Product:	Notebook PC
Brand:	ASUS
Test Model:	C213S, C213N
Sample Status:	Identical Prototype
Applicant:	ASUSTek COMPUTER INC.
Test Date:	Mar. 02, 2017 ~ Mar. 04, 2017
Standards:	47 CFR FCC Part 15, Subpart C (Section 15.247) 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 EMC characteristics under the conditions specified in this report.

Prepared by :  , **Date:** Mar. 28, 2017

Rona Chen / Specialist

Approved by :  , **Date:** Mar. 28, 2017

David Huang / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	**Test Item**	**Result**	**Remarks**
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -14.92 dB at 0.15802 MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -4.38 dB at 2483.52 MHz.
15.247(d)	Antenna Port Emission	N/A	Refer to Note
15.247(a)(2)	6 dB Bandwidth	N/A	Refer to Note
15.247(b)	Conducted power	N/A	Refer to Note
15.247(e)	Power Spectral Density	N/A	Refer to Note
15.203	Antenna Requirement	N/A	Refer to Note

Note: Only AC Power Conducted Emission test and Radiated Emissions test were re-tested and performed in this report. For other test data, please refer to AT4 wireless Report No.: 41273RRF.002 for module (Brand: INTEL, Model: 7265NGW).

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT:
The listed uncertainties are the worst case uncertainty for the entire range of measurement. Please note that the uncertainty values are provided for informational purposes only and are not used in determining the PASS/FAIL results.

Measurement	**Frequency**	**Expended Uncertainty (k=2) (±)**
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.44 dB
Radiated Emissions up to 1 GHz	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	Notebook PC
Brand	ASUS
Test Model	C213S, C213N
Status of EUT	Identical Prototype
Power Supply Rating	7.7 Vdc (Li-ion Battery) 5 Vdc or 9 Vdc or 15 Vdc or 20 Vdc (Adapter)
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: 11.0 / 5.5 / 2.0 / 1.0 Mbps 802.11g: 54.0 / 48.0 / 36.0 / 24.0 / 18.0 / 12.0 / 9.0 / 6.0 Mbps 802.11n: up to MCS7
Operating Frequency	2412 ~ 2462 MHz
Number of Channel	11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40)
Antenna Type	Refer to Note as below
Antenna Connector	N/A
Accessory Device	Refer to Note as below
Data Cable Supplied	Refer to Note as below

Note:

1. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers.

Modulation Mode	TX Function
802.11b	1TX
802.11g	1TX
802.11n (HT20)	2TX
802.11n (HT40)	2TX

2. The WLAN module (Brand: INTEL, Model: 7265NGW) is collocated in this EUT.
3. All models are listed as below.

Brand	Model	Difference
ASUS	C213S	All models are electrically identical, different model names are for marketing purpose.
	C213N	

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

Brand	Ant.Type	Part No.	Gain (dBi)
WNC	PIFA	Main: DQ6415GBA00 Aux.: DQ6415GBA00	Main: 0.01 Aux.: 0.3
TONGDA		Main: T-543-9011135-A Aux.: T-543-9011135-A	Main: -1.15 Aux.: 0.09

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

3.2 Description of Test Modes

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

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

7 channels are provided for 802.11n (HT40):

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To			Description
	RE≥1G	RE<1G	PLC	
A	√	√	-	SISO
B	√	√	√	MIMO

Where **RE≥1G:** Radiated Emission above 1 GHz **RE<1G:** Radiated Emission below 1 GHz
PLC: Power Line Conducted Emission

Note:
1. The EUT had been pre-tested on the positioned of each 3 axis and Notebook Mode. The worst case was found when positioned on **Notebook Mode**.

Radiated Emission Test (Above 1 GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
B	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	MCS0
	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	MCS0

Radiated Emission Test (Below 1 GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
B	802.11n (HT40)	1 to 11	06	OFDM	BPSK	MCS0

Power Line Conducted 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 (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
B	802.11n (HT40)	1 to 11	06	OFDM	BPSK	MCS0

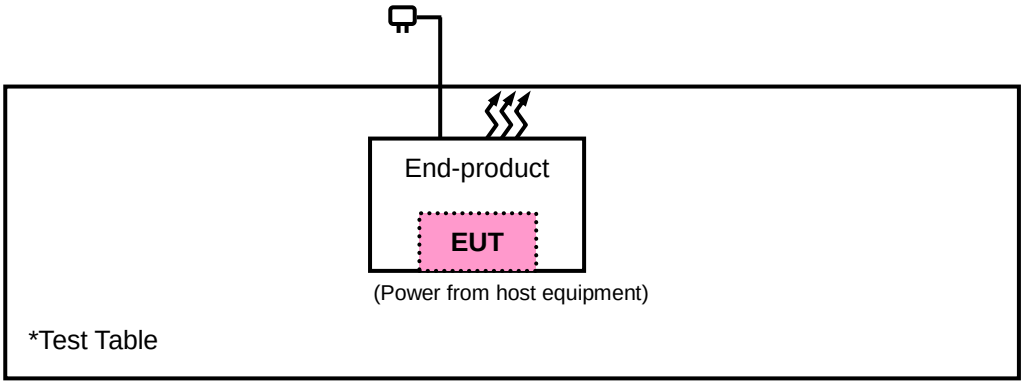
Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Toby Tian
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Toby Tian
PLC	25 deg. C, 65 % RH	120 Vac, 60 Hz	Getaz Yang

3.3 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units.

3.3.1 Configuration of System under Test



3.4 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)
558074 D01 DTS Meas Guidance v03r05
662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10-2013

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

NOTE: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20 dB below the highest level of the desired power:

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.

4.1.2 Test Instruments

Description & Manaufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent	N9038A	MY51210203	Feb. 17, 2017	Feb. 16, 2018
Spectrum Analyzer Agilent	N9010A	MY52220314	Dec. 16, 2016	Dec. 15, 2017
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 13, 2016	Dec. 12, 2017
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Dec. 26, 2016	Dec. 27, 2017
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Dec. 12, 2016	Dec. 13, 2017
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 14, 2016	Dec. 13, 2017
Fixed Attenuator Mini-Circuits	BW-N10W5+	NA	Jul. 08, 2016	Jul. 07, 2017
Loop Antenna	EM-6879	269	Aug. 11, 2016	Aug. 10, 2017
Bluetooth Tester	CBT	100980	Apr. 27, 2015	Apr. 26, 2017
Preamplifier EMCI	EMC 012645	980115	Oct. 21, 2016	Oct. 20, 2017
Preamplifier EMCI	EMC 184045	980116	Oct. 21, 2016	Oct. 20, 2017
Preamplifier EMCI	EMC 330H	980112	Oct. 21, 2016	Oct. 20, 2017
Power Meter Anritsu	ML2495A	1232002	Sep. 08, 2016	Sep. 07, 2017
Power Sensor Anritsu	MA2411B	1207325	Sep. 08, 2016	Sep. 07, 2017
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309219/4 2950114	Oct. 21, 2016	Oct. 20, 2017
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Oct. 21, 2016	Oct. 20, 2017
RF Coaxial Cable Worken	8D-FB	Cable-Ch10-01	Oct. 21, 2016	Oct. 20, 2017
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower &Turn Table Controller MF	MF-7802	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 / 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 10.
3. The horn antenna and preamplifier (model: EMC 184045) are used only for the measurement of emission frequency above 1 GHz if tested.
4. The FCC Site Registration No. is 690701.
5. The IC Site Registration No. is IC7450F-10.

4.1.3 Test Procedures

a. The EUT was placed on the top of a rotating table 0.8 meters (for below 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:

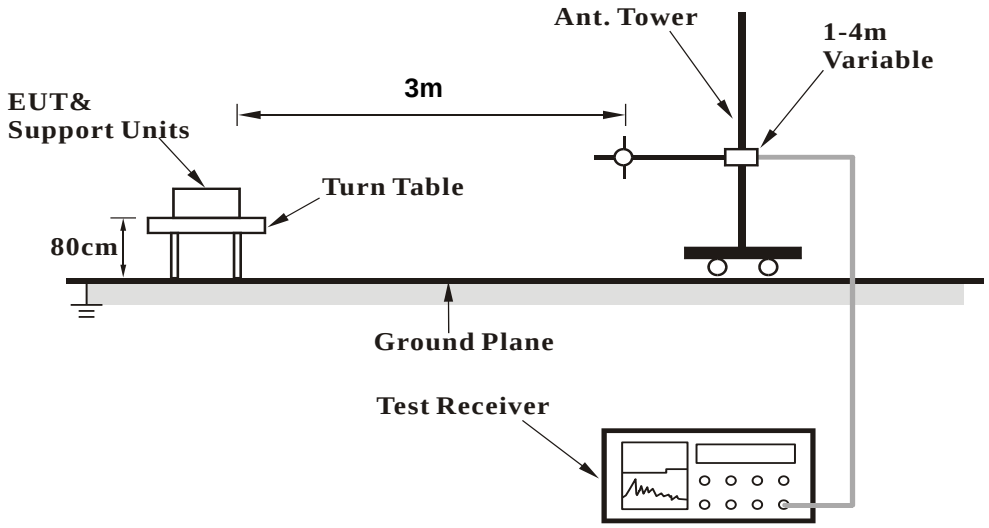
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz & 360 KHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1/T for RMS Average (Duty cycle < 98 %) for Peak detection at frequency above 1 GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz (Duty cycle ≥ 98 %) for Average detection (AV) at frequency above 1 GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

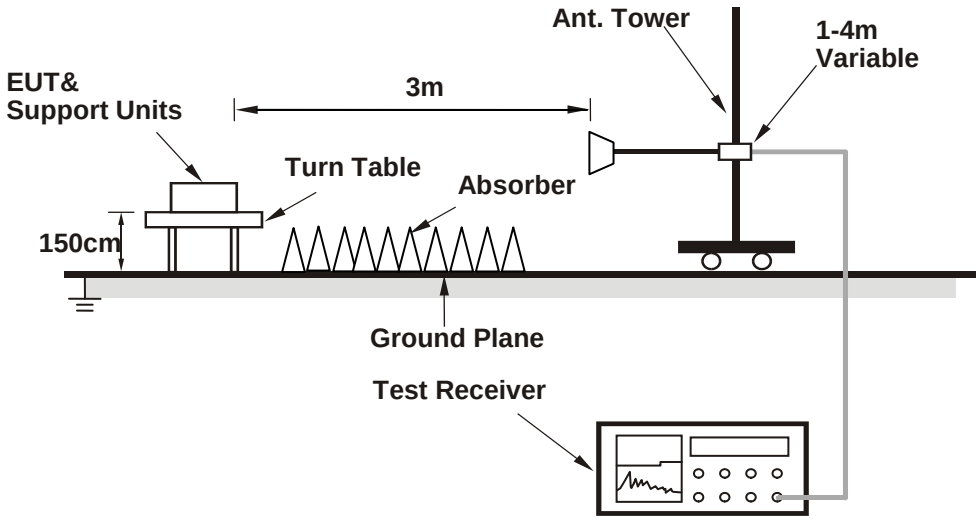
No deviation.

4.1.5 Test Set Up

<Frequency Range below 1 GHz>



<Frequency Range 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

Above 1 GHz Data：

Mode A: SISO

802.11b

EUT Test Condition		Measurement Detail	
Channel	Channel 1	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Toby Tian

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2382.9	50.2	56.76	74	-23.8	26.86	4.08	37.5	171	224	Peak
2383.89	42.11	48.67	54	-11.89	26.86	4.08	37.5	171	224	Average
2412	96.88	103.35			26.96	4.09	37.52	171	224	Average
2412	100.04	106.51			26.96	4.09	37.52	171	224	Peak
4824	43.69	58.99	54	-10.31	30.99	6.79	53.08	175	210	Average
4824	46.71	62.01	74	-27.29	30.99	6.79	53.08	175	210	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2383.89	43.41	49.97	54	-10.59	26.86	4.08	37.5	214	259	Average
2384.16	50.27	56.83	74	-23.73	26.86	4.08	37.5	214	259	Peak
2412	98.01	104.48			26.96	4.09	37.52	214	259	Average
2412	101.14	107.61			26.96	4.09	37.52	214	259	Peak
4824	44.51	59.81	54	-9.49	30.99	6.79	53.08	101	290	Average
4824	47.26	62.56	74	-26.74	30.99	6.79	53.08	101	290	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2412 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 6	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Toby Tian

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2388.57	49.36	55.87	74	-24.64	26.91	4.08	37.5	168	225	Peak
2389.65	39.23	45.74	54	-14.77	26.91	4.08	37.5	168	225	Average
2437	98.59	104.87			27.06	4.12	37.46	168	225	Average
2437	101.57	107.85			27.06	4.12	37.46	168	225	Peak
2491	39.75	45.71	54	-14.25	27.2	4.16	37.32	168	225	Average
2491.16	49.77	55.73	74	-24.23	27.2	4.16	37.32	168	225	Peak
4874	44.36	59.5	54	-9.64	31.06	6.85	53.05	174	209	Average
4874	47.33	62.47	74	-26.67	31.06	6.85	53.05	174	209	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.11	48.82	55.33	74	-25.18	26.91	4.08	37.5	214	276	Peak
2389.83	39.81	46.34	54	-14.19	26.91	4.08	37.52	214	276	Average
2437	99.11	105.39			27.06	4.12	37.46	214	276	Average
2437	102.09	108.37			27.06	4.12	37.46	214	276	Peak
2484.2	39.26	45.28	54	-14.74	27.15	4.15	37.32	214	276	Average
2484.48	49.05	55.07	74	-24.95	27.15	4.15	37.32	214	276	Peak
4874	44.37	59.51	54	-9.63	31.06	6.85	53.05	100	290	Average
4874	47.6	62.74	74	-26.4	31.06	6.85	53.05	100	290	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2437 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 11	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Toby Tian

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2462	97.3	103.46			27.1	4.13	37.39	165	223	Average
2462	100.08	106.24			27.1	4.13	37.39	165	223	Peak
2485.04	51.21	57.23	74	-22.79	27.15	4.15	37.32	165	223	Peak
2486.76	44.1	50.12	54	-9.9	27.15	4.15	37.32	165	223	Average
4924	42.74	57.77	54	-11.26	31.12	6.88	53.03	178	211	Average
4924	46.68	61.71	74	-27.32	31.12	6.88	53.03	178	211	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2462	98.44	104.6			27.1	4.13	37.39	210	258	Average
2462	101.65	107.81			27.1	4.13	37.39	210	258	Peak
2483.52	44.92	50.94	54	-9.08	27.15	4.15	37.32	210	258	Average
2484.12	51.47	57.49	74	-22.53	27.15	4.15	37.32	210	258	Peak
4924	40.33	55.36	54	-13.67	31.12	6.88	53.03	106	290	Average
4924	45.05	60.08	74	-28.95	31.12	6.88	53.03	106	290	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2462 MHz: Fundamental frequency.

802.11g

EUT Test Condition		Measurement Detail	
Channel	Channel 1	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Toby Tian

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2383.71	55.66	62.22	74	-18.34	26.86	4.08	37.5	182	346	Peak
2389.2	42.28	48.79	54	-11.72	26.91	4.08	37.5	182	346	Average
2412	95.39	101.86			26.96	4.09	37.52	182	346	Average
2412	102.93	109.4			26.96	4.09	37.52	182	346	Peak
4824	36.16	51.46	54	-17.84	30.99	6.79	53.08	174	199	Average
4824	43.82	59.12	74	-30.18	30.99	6.79	53.08	174	199	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2382	55.38	61.94	74	-18.62	26.86	4.08	37.5	216	267	Peak
2389.83	42.51	49.04	54	-11.49	26.91	4.08	37.52	216	267	Average
2412	96.26	102.73			26.96	4.09	37.52	216	267	Average
2412	103.85	110.32			26.96	4.09	37.52	216	267	Peak
4824	36.5	51.8	54	-17.5	30.99	6.79	53.08	108	290	Average
4824	44.44	59.74	74	-29.56	30.99	6.79	53.08	108	290	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2412 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 6	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Toby Tian

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.11	41.73	48.24	54	-12.27	26.91	4.08	37.5	181	344	Average
2389.92	56.66	63.19	74	-17.34	26.91	4.08	37.52	181	344	Peak
2437	98.08	104.36			27.06	4.12	37.46	181	344	Average
2437	105.59	111.87			27.06	4.12	37.46	181	344	Peak
2483.6	42.67	48.69	54	-11.33	27.15	4.15	37.32	181	344	Average
2484.16	55.77	61.79	74	-18.23	27.15	4.15	37.32	181	344	Peak
4874	36.9	52.04	54	-17.1	31.06	6.85	53.05	169	197	Average
4874	45.2	60.34	74	-28.8	31.06	6.85	53.05	169	197	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.56	54.87	61.38	74	-19.13	26.91	4.08	37.5	213	271	Peak
2389.92	43	49.53	54	-11	26.91	4.08	37.52	213	271	Average
2437	99.07	105.35			27.06	4.12	37.46	213	271	Average
2437	106.87	113.15			27.06	4.12	37.46	213	271	Peak
2483.52	56.74	62.76	74	-17.26	27.15	4.15	37.32	213	271	Peak
2484.12	43.01	49.03	54	-10.99	27.15	4.15	37.32	213	271	Average
4874	38.02	53.16	54	-15.98	31.06	6.85	53.05	100	288	Average
4874	45.11	60.25	74	-28.89	31.06	6.85	53.05	100	288	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2437 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 11	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Toby Tian

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2462	94.98	101.14			27.1	4.13	37.39	178	345	Average
2462	102.87	109.03			27.1	4.13	37.39	178	345	Peak
2483.52	47.14	53.16	54	-6.86	27.15	4.15	37.32	178	345	Average
2483.96	63.15	69.17	74	-10.85	27.15	4.15	37.32	178	345	Peak
4924	36.33	51.36	54	-17.67	31.12	6.88	53.03	168	227	Average
4924	42.66	57.69	74	-31.34	31.12	6.88	53.03	168	227	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2462	96.49	102.65			27.1	4.13	37.39	209	273	Average
2462	103.9	110.06			27.1	4.13	37.39	209	273	Peak
2483.56	49.11	55.13	54	-4.89	27.15	4.15	37.32	209	273	Average
2484.12	62.36	68.38	74	-11.64	27.15	4.15	37.32	209	273	Peak
4924	35.61	50.64	54	-18.39	31.12	6.88	53.03	100	292	Average
4924	42.2	57.23	74	-31.8	31.12	6.88	53.03	100	292	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2462 MHz: Fundamental frequency.

Mode B: MIMO

802.11n (HT20)

EUT Test Condition		Measurement Detail	
Channel	Channel 1	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Toby Tian

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2383.62	56.87	63.43	74	-17.13	26.86	4.08	37.5	182	237	Peak
2389.74	44	50.51	54	-10	26.91	4.08	37.5	182	237	Average
2412	97.68	104.15			26.96	4.09	37.52	182	237	Average
2412	105.42	111.89			26.96	4.09	37.52	182	237	Peak
4824	34.97	50.27	54	-19.03	30.99	6.79	53.08	169	214	Average
4824	43.5	58.8	74	-30.5	30.99	6.79	53.08	169	214	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2378.22	57.84	64.41	74	-16.16	26.86	4.07	37.5	218	272	Peak
2389.92	45.26	51.79	54	-8.74	26.91	4.08	37.52	218	272	Average
2412	100.22	106.69			26.96	4.09	37.52	218	272	Average
2412	107.78	114.25			26.96	4.09	37.52	218	272	Peak
4824	35.41	50.71	54	-18.59	30.99	6.79	53.08	100	284	Average
4824	43.75	59.05	74	-30.25	30.99	6.79	53.08	100	284	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2412 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 6	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Toby Tian

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.38	63.51	70.02	74	-10.49	26.91	4.08	37.5	182	232	Peak
2389.83	47.63	54.16	54	-6.37	26.91	4.08	37.52	182	232	Average
2437	102.31	108.59			27.06	4.12	37.46	182	232	Average
2437	110.49	116.77			27.06	4.12	37.46	182	232	Peak
2483.64	47.35	53.37	54	-6.65	27.15	4.15	37.32	182	232	Average
2483.8	60.86	66.88	74	-13.14	27.15	4.15	37.32	182	232	Peak
4874	38.08	53.22	54	-15.92	31.06	6.85	53.05	181	212	Average
4874	45.34	60.48	74	-28.66	31.06	6.85	53.05	181	212	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2384.7	61.44	68	74	-12.56	26.86	4.08	37.5	217	270	Peak
2389.83	49.16	55.69	54	-4.84	26.91	4.08	37.52	217	270	Average
2437	104.71	110.99			27.06	4.12	37.46	217	270	Average
2437	112.22	118.5			27.06	4.12	37.46	217	270	Peak
2483.56	49.58	71.41	54	-4.42	27.15	4.63	53.61	217	270	Average
2485.08	65.91	71.93	74	-8.09	27.15	4.15	37.32	217	270	Peak
4874	38.43	53.57	54	-15.57	31.06	6.85	53.05	100	287	Average
4874	45.59	60.73	74	-28.41	31.06	6.85	53.05	100	287	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2437 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 11	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Toby Tian

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2462	91.69	97.85			27.1	4.13	37.39	181	240	Average
2462	102.3	108.46			27.1	4.13	37.39	181	240	Peak
2483.56	49.02	55.04	54	-4.98	27.15	4.15	37.32	181	240	Average
2483.6	63.66	69.68	74	-10.34	27.15	4.15	37.32	181	240	Peak
4924	34.95	49.98	54	-19.05	31.12	6.88	53.03	129	141	Average
4924	45.44	60.47	74	-28.56	31.12	6.88	53.03	129	141	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2462	92.19	98.35			27.1	4.13	37.39	206	264	Average
2462	103.7	109.86			27.1	4.13	37.39	206	264	Peak
2483.52	49.53	55.55	54	-4.47	27.15	4.15	37.32	206	264	Average
2486.2	65.23	71.25	74	-8.77	27.15	4.15	37.32	206	264	Peak
4924	35.27	50.3	54	-18.73	31.12	6.88	53.03	113	58	Average
4924	45.52	60.55	74	-28.48	31.12	6.88	53.03	113	58	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2462 MHz: Fundamental frequency.

802.11n (HT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 3	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Toby Tian

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2389.83	45.89	52.42	54	-8.11	26.91	4.08	37.52	168	238	Average
2389.92	53.91	60.44	74	-20.09	26.91	4.08	37.52	168	238	Peak
2422	92.02	98.36			27.01	4.11	37.46	168	238	Average
2422	99.78	106.12			27.01	4.11	37.46	168	238	Peak
2483.52	51.34	57.36	74	-22.66	27.15	4.15	37.32	168	238	Peak
2483.88	41.5	47.52	54	-12.5	27.15	4.15	37.32	168	238	Average
4844	36.09	51.32	54	-17.91	31.01	6.82	53.06	172	186	Average
4844	43.61	58.84	74	-30.39	31.01	6.82	53.06	172	186	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2388.48	55.89	62.4	74	-18.11	26.91	4.08	37.5	213	264	Peak
2389.83	46.49	53.02	54	-7.51	26.91	4.08	37.52	213	264	Average
2422	92.77	99.11			27.01	4.11	37.46	213	264	Average
2422	100.74	107.08			27.01	4.11	37.46	213	264	Peak
2483.64	42.11	48.13	54	-11.89	27.15	4.15	37.32	213	264	Average
2484.52	51.16	57.18	74	-22.84	27.15	4.15	37.32	213	264	Peak
4844	36.06	51.29	54	-17.94	31.01	6.82	53.06	111	300	Average
4844	42.85	58.08	74	-31.15	31.01	6.82	53.06	111	300	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2422 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 6	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Toby Tian

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2388.93	55.15	61.66	74	-18.85	26.91	4.08	37.5	171	238	Peak
2389.65	43.47	49.98	54	-10.53	26.91	4.08	37.5	171	238	Average
2437	92.4	98.68			27.06	4.12	37.46	171	238	Average
2437	102.2	108.48			27.06	4.12	37.46	171	238	Peak
2483.52	**49.62**	**55.64**	**54**	**-4.38**	**27.15**	**4.15**	**37.32**	**171**	**238**	**Average**
2483.88	60.97	66.99	74	-13.03	27.15	4.15	37.32	171	238	Peak
4874	36.27	51.41	54	-17.73	31.06	6.85	53.05	172	202	Average
4874	44.11	59.25	74	-29.89	31.06	6.85	53.05	172	202	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2387.76	56.79	63.3	74	-17.21	26.91	4.08	37.5	217	270	Peak
2389.83	44.09	50.62	54	-9.91	26.91	4.08	37.52	217	270	Average
2437	93.93	100.21			27.06	4.12	37.46	217	270	Average
2437	104.12	110.4			27.06	4.12	37.46	217	270	Peak
2483.76	49.57	55.59	54	-4.43	27.15	4.15	37.32	217	270	Average
2484.16	61.94	67.96	74	-12.06	27.15	4.15	37.32	217	270	Peak
4874	36.22	51.36	54	-17.78	31.06	6.85	53.05	100	287	Average
4874	44.26	59.4	74	-29.74	31.06	6.85	53.05	100	287	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2437 MHz: Fundamental frequency.

EUT Test Condition		Measurement Detail	
Channel	Channel 9	**Frequency Range**	1 GHz ~ 25 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Average (AV)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Toby Tian

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2378.94	48.09	54.66	74	-25.91	26.86	4.07	37.5	180	234	Peak
2389.92	36.12	42.65	54	-17.88	26.91	4.08	37.52	180	234	Average
2452	88.45	94.65			27.06	4.13	37.39	180	234	Average
2452	97.83	104.03			27.06	4.13	37.39	180	234	Peak
2483.6	48.38	54.4	54	-5.62	27.15	4.15	37.32	180	234	Average
2484.2	61.85	67.87	74	-12.15	27.15	4.15	37.32	180	234	Peak
4904	34.16	49.21	54	-19.84	31.1	6.88	53.03	124	149	Average
4904	45.75	60.8	74	-28.25	31.1	6.88	53.03	124	149	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
2378.13	48.99	55.56	74	-25.01	26.86	4.07	37.5	202	262	Peak
2389.2	36.78	43.29	54	-17.22	26.91	4.08	37.5	202	262	Average
2452	88.69	94.89			27.06	4.13	37.39	202	262	Average
2452	98.15	104.35			27.06	4.13	37.39	202	262	Peak
2483.76	49.24	55.26	54	-4.76	27.15	4.15	37.32	202	262	Average
2484.4	62.54	68.56	74	-11.46	27.15	4.15	37.32	202	262	Peak
4904	34.97	50.02	54	-19.03	31.1	6.88	53.03	115	62	Average
4904	45.16	60.21	74	-28.84	31.1	6.88	53.03	115	62	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value
2. 2452 MHz: Fundamental frequency.

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.

30 MHz ~ 1 GHz WORST-CASE DATA:

802.11n (HT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 06	**Frequency Range**	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	**Detector Function**	Peak (PK) Quasi-peak (QP)
Environmental Conditions	25 deg. C, 65 % RH	**Tested By**	Toby Tian

Antennal Polarity & Test Distance: Horizontal at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
43.58	21.26	38.11	40	-18.74	13.59	0.67	31.11	104	244	Peak
127	23.27	42.54	43.5	-20.23	11.48	1.14	31.89	111	264	Peak
205.57	29.76	50.51	43.5	-13.74	9.6	1.32	31.67	114	266	Peak
262.8	27.14	45.66	46	-18.86	11.85	1.53	31.9	132	117	Peak
500.45	25.52	37.72	46	-20.48	17.33	2.09	31.62	111	354	Peak
636.25	24.08	33.82	46	-21.92	20.04	2.33	32.11	115	34	Peak
Antennal Polarity & Test Distance: Vertical at 3 m										
Frequency (MHz)	**Emission Level (dBuV/m)**	**Read Level (dBuV)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Factor (dB/m)**	**Cable Loss (dB)**	**Preamp Factor (dB)**	**Antenna Height (cm)**	**Table Angle (Degree)**	**Remark**
30	27.18	45.76	40	-12.82	11.98	0.58	31.14	118	12	Peak
127.97	22.23	41.42	43.5	-21.27	11.55	1.14	31.88	122	326	Peak
201.69	26.11	47.11	43.5	-17.39	9.44	1.3	31.74	125	75	Peak
268.62	23.72	42.16	46	-22.28	12.02	1.55	32.01	112	31	Peak
498.51	26.55	38.82	46	-19.45	17.29	2.09	31.65	105	158	Peak
665.35	24.45	33.53	46	-21.55	20.4	2.39	31.87	121	5	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
   Margin value = Emission level – Limit value

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1.The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

4.2.2 Test Instruments

Description & Manaufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 21, 2016	Nov. 20, 2017
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Dec. 22, 2016	Dec. 21, 2017
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Jan. 17, 2017	Jan. 16, 2018
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 28, 2016	Jul. 27, 2017
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

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 Shielded Room 1.
3. The VCCI Site Registration No. is C-2040.

4.2.3 Test Procedures

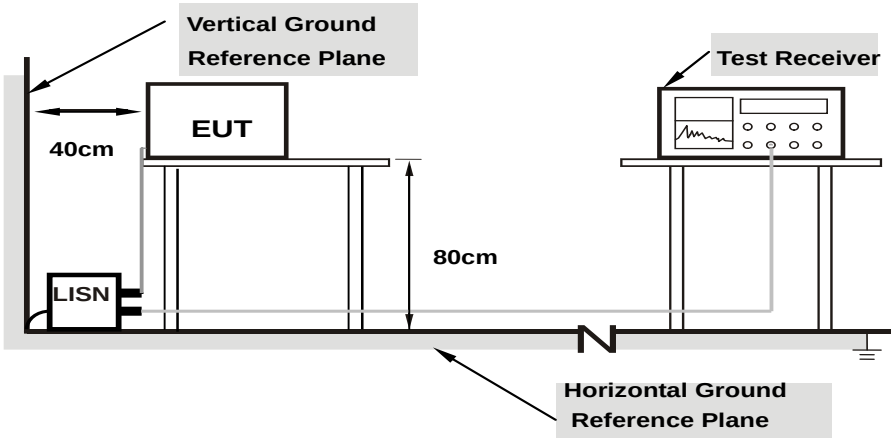
a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50 uH of coupling impedance for the measuring instrument.
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

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

4.2.6 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.

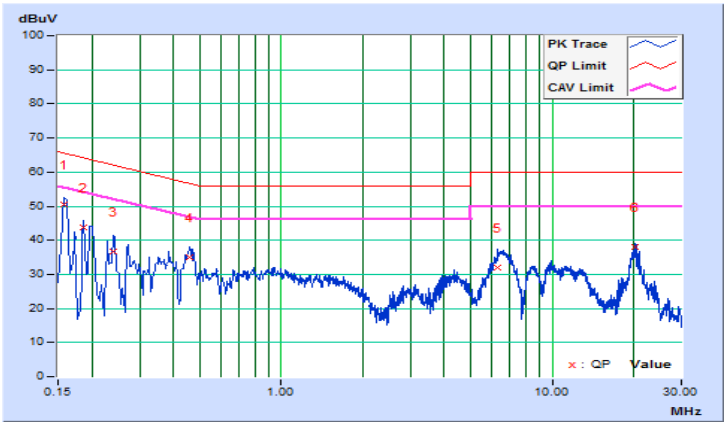
4.2.7 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 65%RH
Tested by	Getaz Yang	Test Date	2017/3/4

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.15802**	**10.12**	**40.53**	**28.68**	**50.65**	**38.80**	**65.57**	**55.57**	**-14.92**	**-16.77**
2	0.18519	10.13	33.73	18.03	43.86	28.16	64.25	54.25	-20.39	-26.09
3	0.24025	10.15	26.44	13.49	36.59	23.64	62.09	52.09	-25.50	-28.45
4	0.45889	10.17	25.00	16.20	35.17	26.37	56.71	46.71	-21.54	-20.34
5	6.28479	10.50	21.55	16.77	32.05	27.27	60.00	50.00	-27.95	-22.73
6	20.31778	11.47	26.63	22.60	38.10	34.07	60.00	50.00	-21.90	-15.93

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

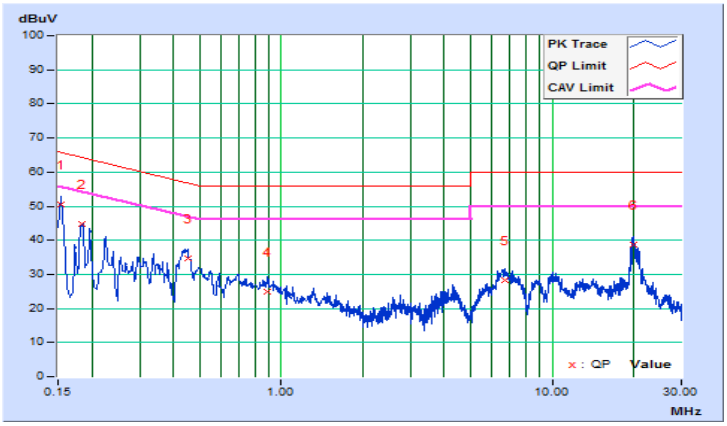


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 65%RH
Tested by	Getaz Yang	Test Date	2017/3/4

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	10.13	40.37	26.97	50.50	37.10	65.79	55.79	-15.29	-18.69
2	0.18460	10.14	34.53	21.72	44.67	31.86	64.28	54.28	-19.61	-22.42
3	0.45097	10.18	24.57	16.49	34.75	26.67	56.86	46.86	-22.11	-20.19
4	0.89233	10.19	14.82	9.07	25.01	19.26	56.00	46.00	-30.99	-26.74
5	6.67579	10.56	17.70	12.85	28.26	23.41	60.00	50.00	-31.74	-26.59
6	19.93460	11.56	27.06	22.65	38.62	34.21	60.00	50.00	-21.38	-15.79

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



5 Pictures of Test Arrangements

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

Appendix – Information on 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 accredited and approved according to ISO/IEC 17025.

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

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

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