

Partial FCC Test Report

Report No.: RF180817C04-2

FCC ID: NKS-DUO-WIFI

Test Model: Trimble Duo

Received Date: Aug. 17, 2018

Test Date: Aug. 30, 2018 ~ Sep. 06, 2018

Issued Date: Sep. 11, 2018

Applicant: PeopleNet Communications Corporation

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

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(R.O.C)

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

**FCC Registration /
Designation Number:** 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
RF180817C04-2	Original Release	Sep. 11, 2018

1 Certificate of Conformity

Product: Tablet

Brand: Trimble

Test Model: Trimble Duo

Sample Status: Mass product

Applicant: PeopleNet Communications Corporation

Test Date: Aug. 30, 2018 ~ Sep. 06, 2018

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 RF characteristics under the conditions specified in this report.

Prepared by : Rona Chen, **Date:** Sep. 11, 2018
Rona Chen / Specialist

Approved by : Dylan Chiou, **Date:** Sep. 11, 2018
Dylan Chiou / 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 -11.83 dB at 0.16955 MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -6.9 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
---	Occupied Bandwidth Measurement	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	Pass	Antenna connector is Ipex I. Not a standard connector.

Note:

This report is a partial report. Therefore, only test item of AC Power Conducted Emission and Radiated Emissions tests were performed for this report. Other testing data please refer to 7Layers report no.: MDE_UBLOX_1551_FCCc_Rev1 for module (Brand: u-blox, Model: EMMY-W161)

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	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	Tablet
Brand	Trimble
Test Model	Trimble Duo
Status of EUT	Mass product
Power Supply Rating	12.0 Vdc (DC Power Supply)
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 150.0 Mbps
Operating Frequency	2412 ~ 2462 MHz
Number of Channel	11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40)
Antenna Type	PIFA antenna with 2.54 dBi gain
Antenna Connector	Ipxex I
Accessory Device	N/A
Data Cable Supplied	N/A

Note:

1. The EUT provides 1 completed transmitter and 1 receiver.

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

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

3.2 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 $\geq$ 1G	RE<1G	PLC	
-	√	√	√	-

Where **RE $\geq$ 1G**: Radiated Emission above 1 GHz **RE<1G**: Radiated Emission below 1 GHz

PLC: Power Line Conducted Emission

NOTE: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Y-plane**.

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)
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
-	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
-	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

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)
-	802.11n (HT40)	3 to 9	9	OFDM	BPSK	13.5

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)
-	802.11n (HT40)	3 to 9	9	OFDM	BPSK	13.5

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE$\geq$1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Thomas Wei
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Thomas Wei
PLC	25 deg. C, 65 % RH	120 Vac, 60 Hz	Jisong Wang

3.3 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

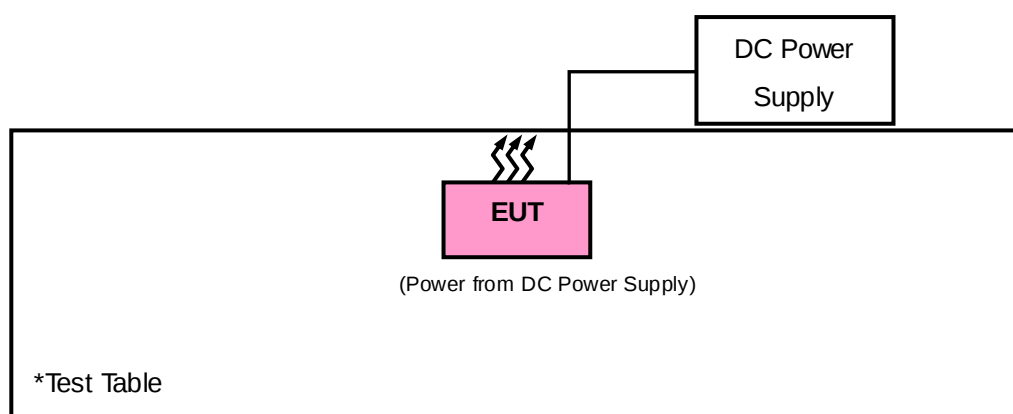
No.	Product	Brand	Model No.	Serial No.	FCC ID
1.	DC Power Supply	Topward	33010D	807748	N/A

No.	Signal Cable Description Of The Above Support Units
1.	N/A

Note:

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

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)

KDB 558074 D01 15.247 Meas Guidance v05

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 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 & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent	N9038A	MY51210203	Mar. 16, 2018	Mar. 15, 2019
Spectrum Analyzer Agilent	N9010A	MY52220314	Nov. 24, 2017	Nov. 23, 2018
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-969	Nov. 12, 2017	Nov. 11, 2018
BILOG Antenna SCHWARZBECK	VULB 9168	9168-472	Dec. 06, 2017	Dec. 05, 2018
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 16, 2018	Apr. 15, 2019
Loop Antenna TESEQ	HLA 6121	45745	Jun. 14, 2018	Jun. 13, 2019
Preamplifier EMCI	EMC001340	980201	Jan. 23, 2018	Jan. 22, 2019
Preamplifier EMCI	EMC 012645	980115	Oct. 20, 2017	Oct. 19, 2018
Preamplifier EMCI	EMC 184045	980116	Oct. 20, 2017	Oct. 19, 2018
Preamplifier EMCI	EMC 330H	980112	Oct. 13, 2017	Oct. 12, 2018
RF Coaxial Cable HUBER+SUHNNER	EMC104-SM-SM-8 000&3000	140811+170717	Oct. 20, 2017	Oct. 19, 2018
RF Coaxial Cable HUBER+SUHNNER	SUCOFLEX 104	EMC104-SM-SM-1 000(140807)	Oct. 20, 2017	Oct. 19, 2018
RF Coaxial Cable Worken	8D-FB	Cable-Ch10-01	Oct. 20, 2017	Oct. 19, 2018
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 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 IC Site Registration No. is IC7450F-10.

4.1.3 Test Procedures

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:

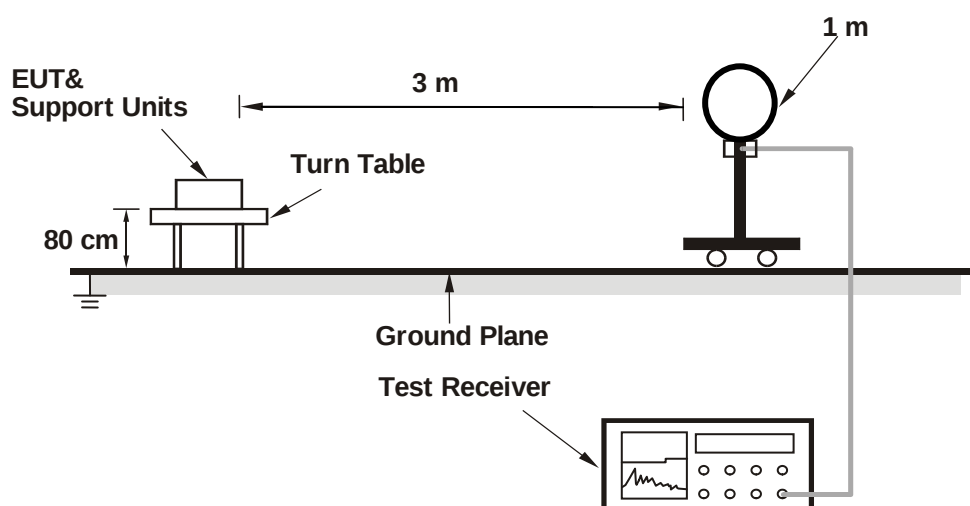
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98 %) or 10 Hz (Duty cycle ≥ 98 %) for Average detection (AV) at frequency above 1 GHz.
(11b: RBW = 1 MHz, VBW = 10 Hz ; 11g: RBW = 1 MHz, VBW = 10 Hz ;
11n (HT20): RBW = 1 MHz, VBW = 10 Hz ; 11n (HT40): RBW = 1 MHz, VBW = 10 Hz)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

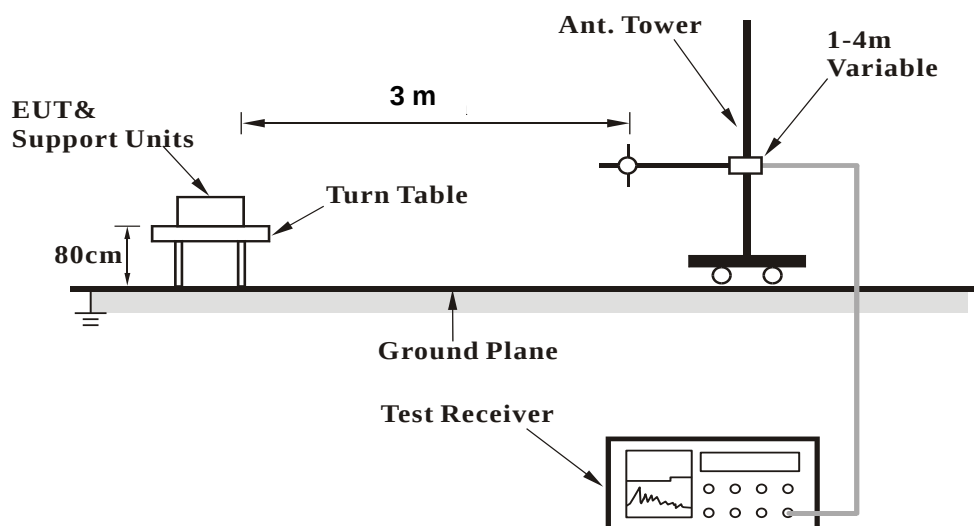
No deviation.

4.1.5 Test Set Up

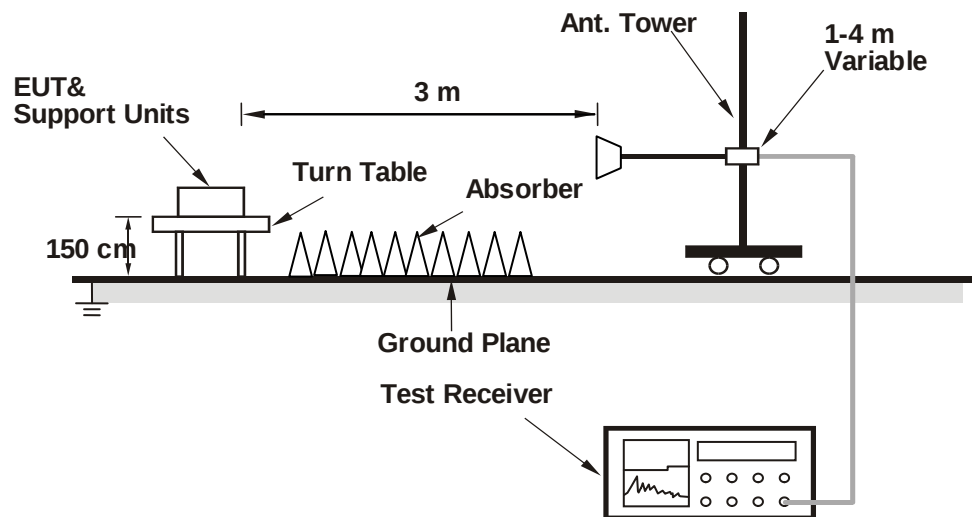
<Radiated Emission below 30 MHz>



<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

- Placed the EUT on a testing table.
- Use the software to control the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1 GHz Data :
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	Thomas Wei

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
2389.94	34.2	40.2	54	-19.8	27.16	4.36	37.52	100	42	Average
2389.94	47.6	53.6	74	-26.4	27.16	4.36	37.52	100	42	Peak
2412	95.72	101.63			27.23	4.38	37.52	100	42	Average
2412	103.97	109.88			27.23	4.38	37.52	100	42	Peak
4824	33.88	48.79	54	-20.12	31.17	6.81	52.89	136	159	Average
4824	45.92	60.83	74	-28.08	31.17	6.81	52.89	136	159	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
2386.02	34.9	40.89	54	-19.1	27.16	4.35	37.5	114	16	Average
2386.02	51.72	57.71	74	-22.28	27.16	4.35	37.5	114	16	Peak
2412	93.21	99.12			27.23	4.38	37.52	114	16	Average
2412	101.42	107.33			27.23	4.38	37.52	114	16	Peak
4824	33.65	48.56	54	-20.35	31.17	6.81	52.89	115	161	Average
4824	44.8	59.71	74	-29.2	31.17	6.81	52.89	115	161	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2412 MHz: Fundamental frequency.
- The emission levels of other frequencies were very low against the limit.

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	Thomas Wei

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	33.85	39.83	54	-20.15	27.16	4.36	37.5	126	10	Average
2389.38	47.63	53.61	74	-26.37	27.16	4.36	37.5	126	10	Peak
2437	95.93	101.61			27.38	4.4	37.46	126	10	Average
2437	104.13	109.81			27.38	4.4	37.46	126	10	Peak
2483.56	34.72	40.08	54	-19.28	27.53	4.43	37.32	126	10	Average
2483.56	48.09	53.45	74	-25.91	27.53	4.43	37.32	126	10	Peak
4874	34.8	49.55	54	-19.2	31.25	6.86	52.86	148	206	Average
4874	45.58	60.33	74	-28.42	31.25	6.86	52.86	148	206	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
2389.94	34.54	40.54	54	-19.46	27.16	4.36	37.52	114	16	Average
2389.94	48.67	54.67	74	-25.33	27.16	4.36	37.52	114	16	Peak
2437	92.92	98.6			27.38	4.4	37.46	114	16	Average
2437	101.04	106.72			27.38	4.4	37.46	114	16	Peak
2491.04	35.09	40.37	54	-18.91	27.61	4.43	37.32	114	16	Average
2491.04	49.4	54.68	74	-24.6	27.61	4.43	37.32	114	16	Peak
4874	33.92	48.67	54	-20.08	31.25	6.86	52.86	169	170	Average
4874	44.89	59.64	74	-29.11	31.25	6.86	52.86	169	170	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2437 MHz: Fundamental frequency.
- The emission levels of other frequencies were very low against the limit.

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	Thomas Wei

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	97.93	103.45			27.46	4.41	37.39	124	11	Average
2462	106.05	111.57			27.46	4.41	37.39	124	11	Peak
2483.52	35.61	40.97	54	-18.39	27.53	4.43	37.32	124	11	Average
2483.52	48.76	54.12	74	-25.24	27.53	4.43	37.32	124	11	Peak
4924	35.22	49.88	54	-18.78	31.34	6.89	52.89	149	187	Average
4924	42.57	57.23	74	-31.43	31.34	6.89	52.89	149	187	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	94.41	99.93			27.46	4.41	37.39	125	344	Average
2462	102.65	108.17			27.46	4.41	37.39	125	344	Peak
2484.12	35.06	40.42	54	-18.94	27.53	4.43	37.32	125	344	Average
2484.12	50.72	56.08	74	-23.28	27.53	4.43	37.32	125	344	Peak
4924	34.09	48.75	54	-19.91	31.34	6.89	52.89	164	251	Average
4924	42.8	57.46	74	-31.2	31.34	6.89	52.89	164	251	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
2. 2462 MHz: Fundamental frequency.
3. The emission levels of other frequencies were very low against the limit.

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	Thomas Wei

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
2389.94	41.92	47.92	54	-12.08	27.16	4.36	37.52	100	42	Average
2389.94	61.65	67.65	74	-12.35	27.16	4.36	37.52	100	42	Peak
2412	94.92	100.83			27.23	4.38	37.52	100	42	Average
2412	104.74	110.65			27.23	4.38	37.52	100	42	Peak
4824	35.42	50.33	54	-18.58	31.17	6.81	52.89	182	255	Average
4824	46.73	61.64	74	-27.27	31.17	6.81	52.89	182	255	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
2389.94	39.68	45.68	54	-14.32	27.16	4.36	37.52	113	16	Average
2389.94	57.75	63.75	74	-16.25	27.16	4.36	37.52	113	16	Peak
2412	92.73	98.64			27.23	4.38	37.52	113	16	Average
2412	104.04	109.95			27.23	4.38	37.52	113	16	Peak
4824	35.5	50.41	54	-18.5	31.17	6.81	52.89	172	203	Average
4824	47.7	62.61	74	-26.3	31.17	6.81	52.89	172	203	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2412 MHz: Fundamental frequency.
- The emission levels of other frequencies were very low against the limit.

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	Thomas Wei

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)	Preamplifier Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.94	34.98	40.98	54	-19.02	27.16	4.36	37.52	125	40	Average
2389.94	47.25	53.25	74	-26.75	27.16	4.36	37.52	125	40	Peak
2437	98.91	104.59			27.38	4.4	37.46	125	40	Average
2437	109.38	115.06			27.38	4.4	37.46	125	40	Peak
2483.52	35.69	41.05	54	-18.31	27.53	4.43	37.32	125	40	Average
2483.52	49.12	54.48	74	-24.88	27.53	4.43	37.32	125	40	Peak
4874	36.75	51.5	54	-17.25	31.25	6.86	52.86	201	274	Average
4874	47.1	61.85	74	-26.9	31.25	6.86	52.86	201	274	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)	Preamplifier Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.94	35.13	41.13	54	-18.87	27.16	4.36	37.52	100	20	Average
2389.94	50.17	56.17	74	-23.83	27.16	4.36	37.52	100	20	Peak
2437	96.63	102.31			27.38	4.4	37.46	100	20	Average
2437	107.69	113.37			27.38	4.4	37.46	100	20	Peak
2483.52	36.01	41.37	54	-17.99	27.53	4.43	37.32	100	20	Average
2483.52	51.2	56.56	74	-22.8	27.53	4.43	37.32	100	20	Peak
4874	36.95	51.7	54	-17.05	31.25	6.86	52.86	188	260	Average
4874	49.77	64.52	74	-24.23	31.25	6.86	52.86	188	260	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamplifier Factor
Margin value = Emission level – Limit value
- 2437 MHz: Fundamental frequency.
- The emission levels of other frequencies were very low against the limit.

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	Thomas Wei

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	93.89	99.41			27.46	4.41	37.39	201	203	Average
2462	104.37	109.89			27.46	4.41	37.39	201	203	Peak
2483.52	47.1	52.46	54	-6.9	27.53	4.43	37.32	201	203	Average
2483.52	64.64	70	74	-9.36	27.53	4.43	37.32	201	203	Peak
4924	36	50.66	54	-18	31.34	6.89	52.89	192	263	Average
4924	47.02	61.68	74	-26.98	31.34	6.89	52.89	192	263	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	93.67	99.19			27.46	4.41	37.39	100	17	Average
2462	105.07	110.59			27.46	4.41	37.39	100	17	Peak
2483.52	45.96	51.32	54	-8.04	27.53	4.43	37.32	100	17	Average
2483.52	63.6	68.96	74	-10.4	27.53	4.43	37.32	100	17	Peak
4924	36.28	50.94	54	-17.72	31.34	6.89	52.89	184	188	Average
4924	48.35	63.01	74	-25.65	31.34	6.89	52.89	184	188	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2462 MHz: Fundamental frequency.
- The emission levels of other frequencies were very low against the limit.

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	Thomas Wei

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
2389.94	45.37	51.37	54	-8.63	27.16	4.36	37.52	178	39	Average
2389.94	64.34	70.34	74	-9.66	27.16	4.36	37.52	178	39	Peak
2412	95.28	101.19			27.23	4.38	37.52	178	39	Average
2412	105.78	111.69			27.23	4.38	37.52	178	39	Peak
4824	34.4	49.31	54	-19.6	31.17	6.81	52.89	166	219	Average
4824	42.71	57.62	74	-31.29	31.17	6.81	52.89	166	219	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
2389.94	42.88	48.88	54	-11.12	27.16	4.36	37.52	100	22	Average
2389.94	62.41	68.41	74	-11.59	27.16	4.36	37.52	100	22	Peak
2412	93.23	99.14			27.23	4.38	37.52	100	22	Average
2412	103.54	109.45			27.23	4.38	37.52	100	22	Peak
4824	34.9	49.81	54	-19.1	31.17	6.81	52.89	189	268	Average
4824	42.65	57.56	74	-31.35	31.17	6.81	52.89	189	268	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2412 MHz: Fundamental frequency.
- The emission levels of other frequencies were very low against the limit.

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	Thomas Wei

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)	Preamplifier Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.94	35.49	41.49	54	-18.51	27.16	4.36	37.52	112	50	Average
2389.94	55.3	61.3	74	-18.7	27.16	4.36	37.52	112	50	Peak
2437	99.68	105.36			27.38	4.4	37.46	112	50	Average
2437	110.41	116.09			27.38	4.4	37.46	112	50	Peak
2483.52	36.16	41.52	54	-17.84	27.53	4.43	37.32	112	50	Average
2483.52	51.96	57.32	74	-22.04	27.53	4.43	37.32	112	50	Peak
4874	37.85	52.6	54	-16.15	31.25	6.86	52.86	199	5	Average
4874	49.68	64.43	74	-24.32	31.25	6.86	52.86	199	5	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)	Preamplifier Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.94	35.78	41.78	54	-18.22	27.16	4.36	37.52	100	21	Average
2389.94	53.53	59.53	74	-20.47	27.16	4.36	37.52	100	21	Peak
2437	98.33	104.01			27.38	4.4	37.46	100	21	Average
2437	109.8	115.48			27.38	4.4	37.46	100	21	Peak
2483.6	36.58	41.94	54	-17.42	27.53	4.43	37.32	100	21	Average
2483.6	51.42	56.78	74	-22.58	27.53	4.43	37.32	100	21	Peak
4874	37.85	52.6	54	-16.15	31.25	6.86	52.86	185	262	Average
4874	50.29	65.04	74	-23.71	31.25	6.86	52.86	185	262	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamplifier Factor
Margin value = Emission level – Limit value
2. 2437 MHz: Fundamental frequency.
3. The emission levels of other frequencies were very low against the limit.

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	Thomas Wei

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	92.04	97.56			27.46	4.41	37.39	202	50	Average
2462	104.38	109.9			27.46	4.41	37.39	202	50	Peak
2483.52	45.91	51.27	54	-8.09	27.53	4.43	37.32	202	50	Average
2483.52	63.28	68.64	74	-10.72	27.53	4.43	37.32	202	50	Peak
4924	34.03	48.69	54	-19.97	31.34	6.89	52.89	129	233	Average
4924	43.81	58.47	74	-30.19	31.34	6.89	52.89	129	233	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	93.1	98.62			27.46	4.41	37.39	100	18	Average
2462	103.43	108.95			27.46	4.41	37.39	100	18	Peak
2483.52	46.12	51.48	54	-7.88	27.53	4.43	37.32	100	18	Average
2483.52	62.75	68.11	74	-11.25	27.53	4.43	37.32	100	18	Peak
4924	34.52	49.18	54	-19.48	31.34	6.89	52.89	157	214	Average
4924	44.87	59.53	74	-29.13	31.34	6.89	52.89	157	214	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2462 MHz: Fundamental frequency.
- The emission levels of other frequencies were very low against the limit.

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	Thomas Wei

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
2389.94	42.94	48.94	54	-11.06	27.16	4.36	37.52	196	38	Average
2389.94	57.29	63.29	74	-16.71	27.16	4.36	37.52	196	38	Peak
2422	90.97	96.73			27.31	4.39	37.46	196	38	Average
2422	102.04	107.8			27.31	4.39	37.46	196	38	Peak
2483.6	36.08	41.44	54	-17.92	27.53	4.43	37.32	196	38	Average
2483.6	48.9	54.26	74	-25.1	27.53	4.43	37.32	196	38	Peak
4844	33.47	48.32	54	-20.53	31.2	6.83	52.88	179	164	Average
4844	43.48	58.33	74	-30.52	31.2	6.83	52.88	179	164	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
2389.94	41.23	47.23	54	-12.77	27.16	4.36	37.52	100	22	Average
2389.94	55.76	61.76	74	-18.24	27.16	4.36	37.52	100	22	Peak
2422	88.99	94.75			27.31	4.39	37.46	100	22	Average
2422	99.28	105.04			27.31	4.39	37.46	100	22	Peak
2483.56	36.51	41.87	54	-17.49	27.53	4.43	37.32	100	22	Average
2483.56	50.8	56.16	74	-23.2	27.53	4.43	37.32	100	22	Peak
4844	33.42	48.27	54	-20.58	31.2	6.83	52.88	157	266	Average
4844	43.6	58.45	74	-30.4	31.2	6.83	52.88	157	266	Peak

Remarks:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 2422 MHz: Fundamental frequency.
- The emission levels of other frequencies were very low against the limit.

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	Thomas Wei

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)	Preamplifier Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.94	37.42	43.42	54	-16.58	27.16	4.36	37.52	111	50	Average
2389.94	52.69	58.69	74	-21.31	27.16	4.36	37.52	111	50	Peak
2437	92.83	98.51			27.38	4.4	37.46	111	50	Average
2437	103.31	108.99			27.38	4.4	37.46	111	50	Peak
2483.6	40.23	45.59	54	-13.77	27.53	4.43	37.32	111	50	Average
2483.6	57.95	63.31	74	-16.05	27.53	4.43	37.32	111	50	Peak
4874	33.77	48.52	54	-20.23	31.25	6.86	52.86	177	263	Average
4874	44.13	58.88	74	-29.87	31.25	6.86	52.86	177	263	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)	Preamplifier Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.94	38.13	44.13	54	-15.87	27.16	4.36	37.52	100	21	Average
2389.94	52.67	58.67	74	-21.33	27.16	4.36	37.52	100	21	Peak
2437	91.88	97.56			27.38	4.4	37.46	100	21	Average
2437	102.65	108.33			27.38	4.4	37.46	100	21	Peak
2483.52	40.17	45.53	54	-13.83	27.53	4.43	37.32	100	21	Average
2483.52	57.17	62.53	74	-16.83	27.53	4.43	37.32	100	21	Peak
4874	33.62	48.37	54	-20.38	31.25	6.86	52.86	214	281	Average
4874	45.7	60.45	74	-28.3	31.25	6.86	52.86	214	281	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamplifier Factor
Margin value = Emission level – Limit value
2. 2437 MHz: Fundamental frequency.
3. The emission levels of other frequencies were very low against the limit.

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	Thomas Wei

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)	Preamplifier Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.94	35.61	41.61	54	-18.39	27.16	4.36	37.52	220	49	Average
2389.94	48.1	54.1	74	-25.9	27.16	4.36	37.52	220	49	Peak
2452	86.13	91.73			27.38	4.41	37.39	220	49	Average
2452	96.55	102.15			27.38	4.41	37.39	220	49	Peak
2483.52	47.1	52.46	54	-6.9	27.53	4.43	37.32	220	49	Average
2483.52	60.5	65.86	74	-13.5	27.53	4.43	37.32	220	49	Peak
4904	33.83	48.49	54	-20.17	31.31	6.88	52.85	167	274	Average
4904	46.93	61.59	74	-27.07	31.31	6.88	52.85	167	274	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)	Preamplifier Factor (dB)	Antenna Height (cm)	Table Angle (Degree)	Remark
2389.94	35.98	41.98	54	-18.02	27.16	4.36	37.52	101	18	Average
2389.94	50.99	56.99	74	-23.01	27.16	4.36	37.52	101	18	Peak
2452	86.84	92.44			27.38	4.41	37.39	101	18	Average
2452	97.81	103.41			27.38	4.41	37.39	101	18	Peak
2483.52	46.77	52.13	54	-7.23	27.53	4.43	37.32	101	18	Average
2483.52	59.12	64.48	74	-14.88	27.53	4.43	37.32	101	18	Peak
4904	33.34	48	54	-20.66	31.31	6.88	52.85	166	272	Average
4904	43.89	58.55	74	-30.11	31.31	6.88	52.85	166	272	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamplifier Factor
Margin value = Emission level – Limit value
2. 2452 MHz: Fundamental frequency.
3. The emission levels of other frequencies were very low against the limit.

9 kHz ~ 30 MHz Data:

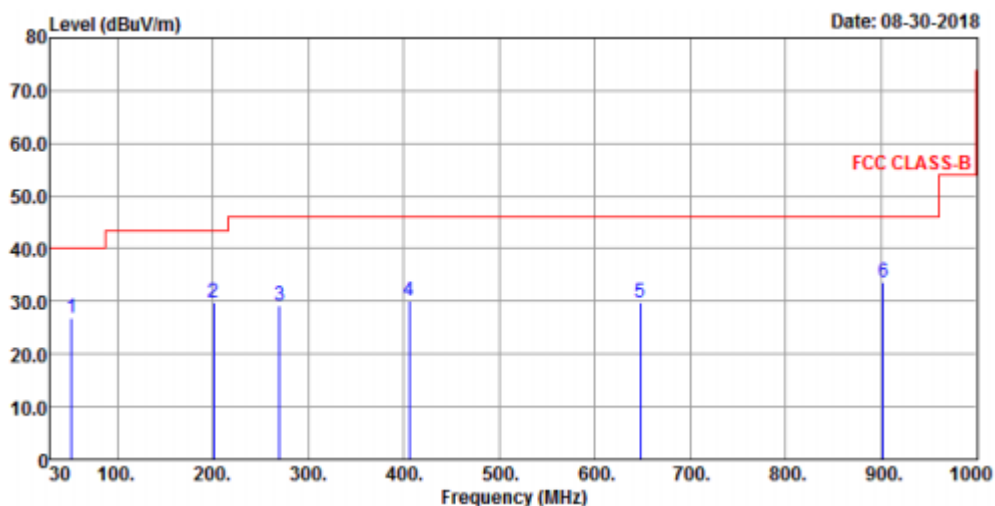
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

30 MHz ~ 1 GHz Worst-Case Data:

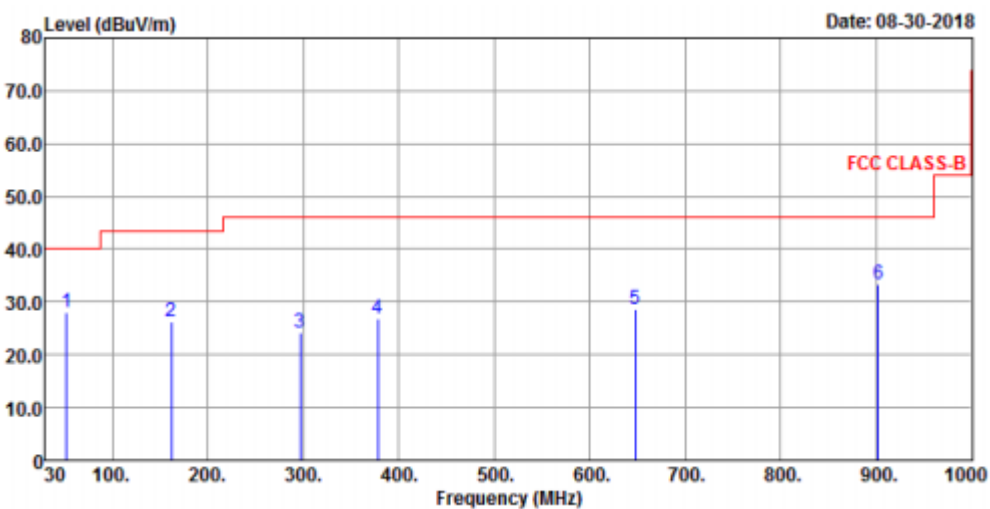
802.11n (HT40)

EUT Test Condition		Measurement Detail	
Channel	Channel 9	Frequency Range	30 MHz ~ 1 GHz
Input Power	120 Vac, 60 Hz	Detector Function	Peak (PK)
Environmental Conditions	25 deg. C, 65 % RH	Tested By	Thomas Wei

Horizontal



Vertical



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
52.31	27	45.02	40	-13	12.76	0.54	31.32	152	231	Peak
200.72	29.76	50.88	43.5	-13.74	9.4	1.23	31.75	165	285	Peak
269.59	29.2	47.65	46	-16.8	12.05	1.53	32.03	147	152	Peak
405.39	30.22	44.71	46	-15.78	15.45	2.11	32.05	236	252	Peak
647.89	29.83	38.57	46	-16.17	20.19	3.1	32.03	195	285	Peak
902.03	33.65	38.1	46	-12.35	23.52	4.05	32.02	111	147	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
52.31	28.1	46.12	40	-11.9	12.76	0.54	31.32	165	231	Peak
161.92	26.41	44.69	43.5	-17.09	12.54	1.03	31.85	111	147	Peak
296.75	24.21	41.51	46	-21.79	12.85	1.64	31.79	195	265	Peak
378.23	26.93	42.05	46	-19.07	14.82	2	31.94	152	236	Peak
647.89	28.54	37.28	46	-17.46	20.19	3.1	32.03	111	147	Peak
902.03	33.23	37.68	46	-12.77	23.52	4.05	32.02	152	236	Peak

Remarks:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value.
2. The emission levels of other frequencies were very low against the limit.

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 & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 23, 2017	Nov. 22, 2018
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Sep. 05, 2018	Sep. 04, 2019
LISN/AMN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 26, 2018	Feb. 25, 2019
LISN/AMN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 19, 2018	Aug. 18, 2019
Software ADT	BV ADT_Cond_ V7.3.7.4	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

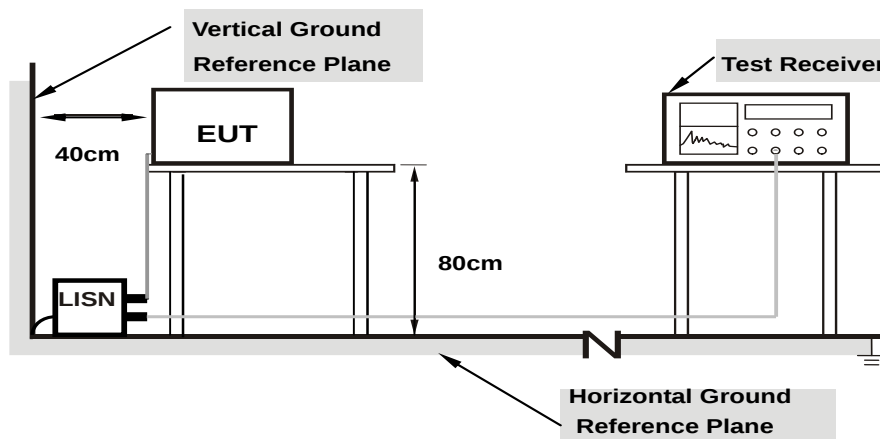
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50 uH of coupling impedance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

Note: The resolution bandwidth and video bandwidth of test receiver is 9 kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15 MHz – 30 MHz.

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

- Placed the EUT on a testing table.
- Use the software to control the EUT under transmission condition continuously at specific channel frequency.

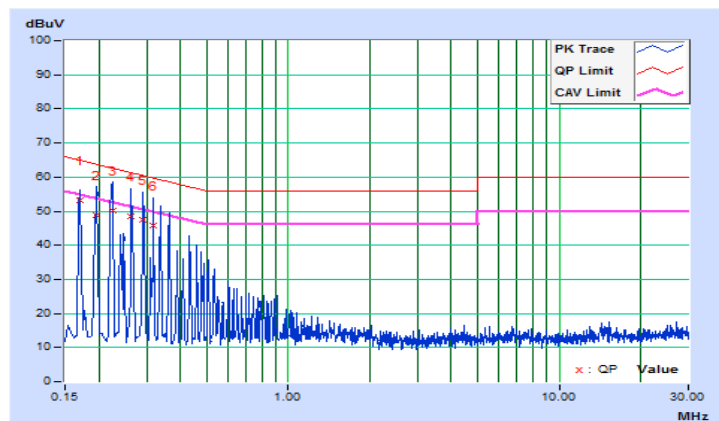
4.2.7 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Jisyong Wang	Test Date	2018/9/6

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	0.16955	9.67	43.48	13.04	53.15	22.71	64.98	54.98	-11.83	-32.27
2	0.19692	9.67	39.27	8.37	48.94	18.04	63.74	53.74	-14.80	-35.70
3	0.22429	9.67	40.66	10.27	50.33	19.94	62.66	52.66	-12.33	-32.72
4	0.26346	9.67	38.87	8.13	48.54	17.80	61.32	51.32	-12.78	-33.52
5	0.29120	9.67	37.76	7.48	47.43	17.15	60.49	50.49	-13.06	-33.34
6	0.31813	9.66	35.97	6.83	45.63	16.49	59.76	49.76	-14.13	-33.27

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

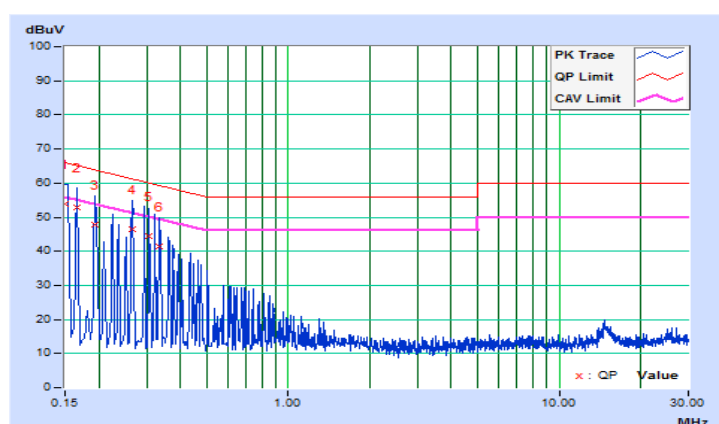


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Jisyong Wang	Test Date	2018/9/6

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	0.15000	9.68	44.13	13.70	53.81	23.38	66.00	56.00	-12.19	-32.62
2	0.16564	9.68	43.20	12.87	52.88	22.55	65.18	55.18	-12.30	-32.63
3	0.19305	9.67	38.30	8.06	47.97	17.73	63.90	53.90	-15.93	-36.17
4	0.26730	9.67	36.83	7.47	46.50	17.14	61.20	51.20	-14.70	-34.06
5	0.30640	9.67	34.62	5.84	44.29	15.51	60.07	50.07	-15.78	-34.56
6	0.33377	9.67	31.87	3.99	41.54	13.66	59.36	49.36	-17.82	-35.70

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 FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

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

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Web Site: www.bureauveritas-adt.com

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

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