

PARTIAL FCC TEST REPORT (15.247)

REPORT NO.: RF140611C22
MODEL NO.: TX201LA-P
FCC ID: ZQ6-AP6234A
RECEIVED: Jun. 11, 2014
TESTED: Jun. 26, 2014 ~ Aug. 06, 2014
ISSUED: Aug. 07, 2014

APPLICANT: ASUSTeK COMPUTER INC.

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ISSUED BY: Bureau Veritas Consumer Products Services
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TEST LOCATION: No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei
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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF140611C22	Original release	Aug. 07, 2014

1. CERTIFICATION

PRODUCT: Tablet

MODEL NO.: TX201LA-P

BRAND: ASUS

APPLICANT: ASUSTeK COMPUTER INC.

TESTED: Jun. 26, 2014 ~ Aug. 06, 2014

TEST SAMPLE: Identical Prototype

STANDARDS: FCC Part 15, Subpart C (Section 15.247)

ANSI C63.10-2009

The above equipment (model: TX201LA-P) 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 : Rona Chen , **DATE** : Aug. 07, 2014
Rona Chen / Specialist

APPROVED BY : Sam chen , **DATE** : Aug. 07, 2014
Sam Chen / Senior Project Engineer

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	TEST TYPE	RESULT	REMARK
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -12.70dB at 0.16953MHz.
15.205 & 15.209	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -7.23dB at 36.75MHz.
15.247(d)	Band Edge Measurement	N/A	Refer to Note
15.247(d)	Antenna Port Emission	N/A	Refer to Note
15.247(a)(2)	6dB 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	PASS	No antenna connector is used.

NOTE: Test items for AC Power Conducted Emission and Radiated Emissions were performed for this report. Other testing data please refer to:

1. International Certification Corp. report no.: FR440102AC, FR440102AN, and FR440102AI for module (Brand: Ampak, Model: AP6234A, FCC ID: ZQ6-AP6234A).

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	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	2.93 dB
	200MHz ~1000MHz	2.95 dB
	1GHz ~ 18GHz	2.26 dB
	18GHz ~ 40GHz	1.94 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Tablet
MODEL NO.	TX201LA-P
POWER SUPPLY	5.0Vdc (adapter or host equipment) 3.85Vdc (Li-ion battery)
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 802.11a: 54.0 / 48.0 / 36.0 / 24.0 / 18.0 / 12.0 / 9.0 / 6.0 Mbps 802.11n: up to MCS7
OPERATING FREQUENCY	2.4GHz: 2412 ~ 2462MHz 5.0GHz: 5745 ~ 5825MHz
NUMBER OF CHANNEL	2.4GHz: 11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz) 5.0GHz: 5 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)
ANTENNA TYPE	2.4GHz: PIFA antenna with -1.87dBi gain 5.0GHz: PIFA antenna with 2.90dBi gain
ANTENNA CONNECTOR	NA
DATA CABLE	Refer to Note as below
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Refer to Note as below

NOTE:

1. The EUT contains following accessory devices.

ITEM	BRAND	MODEL	SPECIFICATION
AC Adapter 1	PI Electronics	AD897320	I/P: 100-240Vac, 50/60Hz, 0.3A O/P: 5.0Vdc, 2A BSMI: R33164
AC Adapter 2	CHICONY	W12-010N3A	I/P: 100-240Vac, 50/60Hz, 0.3A O/P: 5.0Vdc, 2A BSMI: R35737
Battery	SIMPLO TECHNOLOG Y CO LTD (商標: ASUS)	C12N1343	3.85Vdc, 31Wh
USB Cable	DAEC (商標: ASUS)	AA780300	0.9m shielded cable w/o core
CPU	Intel	Z2560	1.6G, 760 Pin
EMMC 1	SANDISK	SDIN7DU2-8G	8G
EMMC 2	HYNIX	H26M41103HPR	8G
EMMC 3	SANDISK	SDIN8DE2-16G	16G
EMMC 4	HYNIX	H26M52103FMR	16G
LCD Panel	YOUNG LIGHT	MW11FHD302	11.6" HD
Front Camera	CHICONY	CNFDH3021003870LH	--
Rear Camera	CHICONY	CJAD53320003872LH	--
WLAN +BT Module	AMPAK	AP6234A	1T1R
MainBoard	ASUS	TX201LAF_PAD MAIN BOARD	--

2. The support unit (TX201LA-B_PC Station) contains following accessory devices.

ITEM	BRAND	MODEL	SPECIFICATION
AC Adapter	PI Electronics	AD883J20	I/P: 100-240Vac, 50/60Hz, 1.0A O/P: 19Vdc, 2.37A BSMI: R33164 2.2m shielded cable w/o ferrite core
Battery	SIMPLO TECHNOLOG Y CO LTD (商標: ASUS)	B21N1344	7.6Vdc, 32Wh
CPU 1	Intel	I7-4510U	2G/4M, 1168 Pin
CPU 2	Intel	I5-4210U	1.7G/3M, 1168 Pin
CPU 3	Intel	I3-4030Y	1.6G/3M, 1168 Pin
HDD 1	TOSHIBA	MQ01ABF050	SATA3 500G 5400R 2.5'
HDD 2	HGST	HTS545050A7E680	SATA3 500G 5400R 2.5'
HDD 3	HGST	HTS541075A7E630	SATA3 750G 5400R 2.5'
HDD 4	WD	WD7500LPCX-80KHS T0	SATA3 750GB 5400R 2.5'
HDD 5	HGST	HTS541010A7E630	SATA3 1TB 5400R 2.5'
HDD 6	WD	WD10SPCX-80KHST 0	SATA3 1TB 5400R 2.5'
SSD HDD 1	KINGSTON	RBU-SC100S37	SATA SSD 256GB 2.5'
SSD HDD 2	SANDISK	SD7SB3Q-256GB	SATA SSD 256GB 2.5'
USB to RJ45	ASUS	USB Ethernet cable	0.18m shielded cable w/o ferrite core Support 10M, 100M
MDP to VGA Cable	ASUS	N/A	0.12m shielded cable w/o ferrite core
MainBoard	ASUS	TX201LAF_MAIN_BO ARD	--
WLAN + BT Module 1	INTEL	7260HMW	2T2R
WLAN + BT Module 2	FOXCONN	T77H469	1T1R Chip factory: Media Tek MT7630E

3. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and one receiver.

MODULATION MODE	TX FUNCTION
802.11b	1TX
802.11g	1TX
802.11a	1TX
802.11n (20MHz)	1TX
802.11n (40MHz)	1TX

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

3.2 DESCRIPTION OF TEST MODES

FOR 2.4GHz:

11 channels are provided for 802.11b, 802.11g and 802.11n (20MHz):

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

7 channels are provided for 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		

FOR 5.0GHz (5745 ~ 5825MHz):

5 channels are provided for 802.11a, 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz		

2 channels are provided for 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (80MHz):

CHANNEL	FREQUENCY
155	5775MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

WLAN 2.4GHz:

EUT CONFIGURE MODE	APPLICABLE TO			DESCRIPTION
	RE \geq 1G	RE<1G	PLC	
A	√	√	√	EUT (tested on AMPAK Module)
B	√	√	-	EUT (tested on AMPAK Module) + PC Station

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

NOTE:

The MODE A had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Y-plane**.
The MODE B had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.

RADIATED EMISSION TEST (ABOVE 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B	802.11b	1 to 11	1	DSSS	DBPSK	1.0

RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B	802.11b	1 to 11	1	DSSS	DBPSK	1.0

POWER LINE CONDUCTED EMISSION TEST:

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1	DSSS	DBPSK	1.0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE \geq 1G	25deg. C, 65%RH	120Vac, 60Hz	Peter Weng Anson Lin
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Peter Weng Anson Lin
PLC	25deg. C, 65%RH	120Vac, 60Hz	Peter Weng Anson Lin

WLAN 5.0GHz (5745 ~ 5825MHz):

EUT CONFIGURE MODE	APPLICABLE TO			DESCRIPTION
	RE \geq 1G	RE<1G	PLC	
A	√	√	√	EUT (tested on AMPAK Module)
B	√	√	√	EUT (tested on AMPAK Module) + PC Station

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

NOTE:

The MODE A had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Y-plane**.
The MODE B had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.

RADIATED EMISSION TEST (ABOVE 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B	802.11n (20MHz)	149 to 165	157	OFDM	BPSK	MCS0

RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B	802.11n (20MHz)	149 to 165	157	OFDM	BPSK	MCS0

POWER LINE CONDUCTED EMISSION TEST:

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B	802.11n (20MHz)	149 to 165	157	OFDM	BPSK	MCS0



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TEST CONDITION:

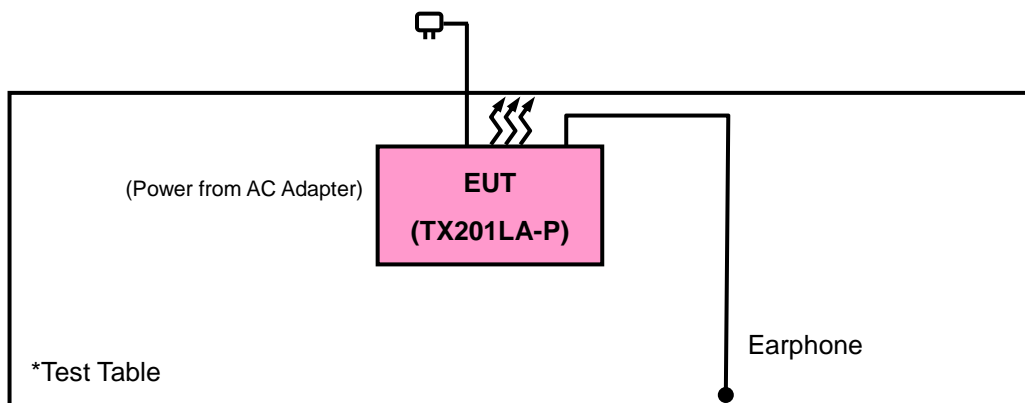
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE \geq 1G	25deg. C, 65%RH	120Vac, 60Hz	Anson Lin
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Anson Lin
PLC	25deg. C, 65%RH	120Vac, 60Hz	Peter Weng Anson Lin

3.3 DESCRIPTION OF SUPPORT UNITS

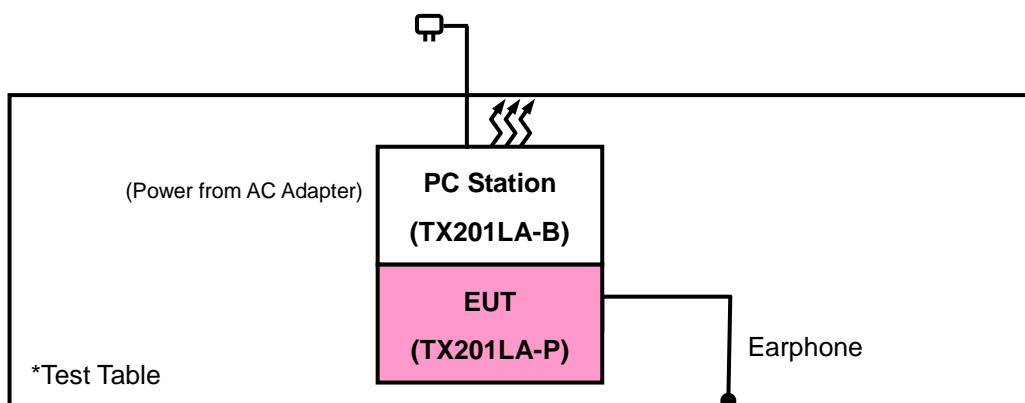
The EUT has been tested as an independent unit together with other necessary accessories or support units.

3.3.1 CONFIGURATION OF SYSTEM UNDER TEST

MODE A



MODE B



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 v03r01

ANSI C63.10-2009

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

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It 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 (FOR 2.4GHz BAND)

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 20dB 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 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100744	Apr. 15, 2014	Apr. 14, 2015
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 21, 2013	Dec. 20, 2014
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Feb. 27, 2014	Feb. 26, 2015
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Feb. 19, 2014	Feb. 18, 2015
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 18, 2013	Dec. 17, 2014
Loop Antenna	HFH2-Z2	100070	Mar. 06, 2014	Mar. 05, 2016
Preamplifier EMCI	EMC 012645	980115	Dec. 26, 2013	Dec. 25, 2014
Preamplifier EMCI	EMC 184045	980116	Jan. 13, 2014	Jan. 12, 2015
Preamplifier EMCI	EMC 330H	980112	Dec. 27, 2013	Dec. 26, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309219/4 2950114	Oct. 18, 2013	Oct. 17, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Oct. 18, 2013	Oct. 17, 2014
RF signal cable Worken	RG-213	NA	Nov. 07, 2013	Nov. 06, 2014
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
Power Meter	ML2495A	1232002	Aug. 23, 2013	Aug. 22, 2014
Power Sensor	MA2411B	1207325	Aug. 23, 2013	Aug. 22, 2014

- 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 calibration interval of the loop antenna is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in HwaYa Chamber 10.
4. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
5. The FCC Site Registration No. is 690701.
6. The IC Site Registration No. is IC 7450F-10.

4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. 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. Height of receiving 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 Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

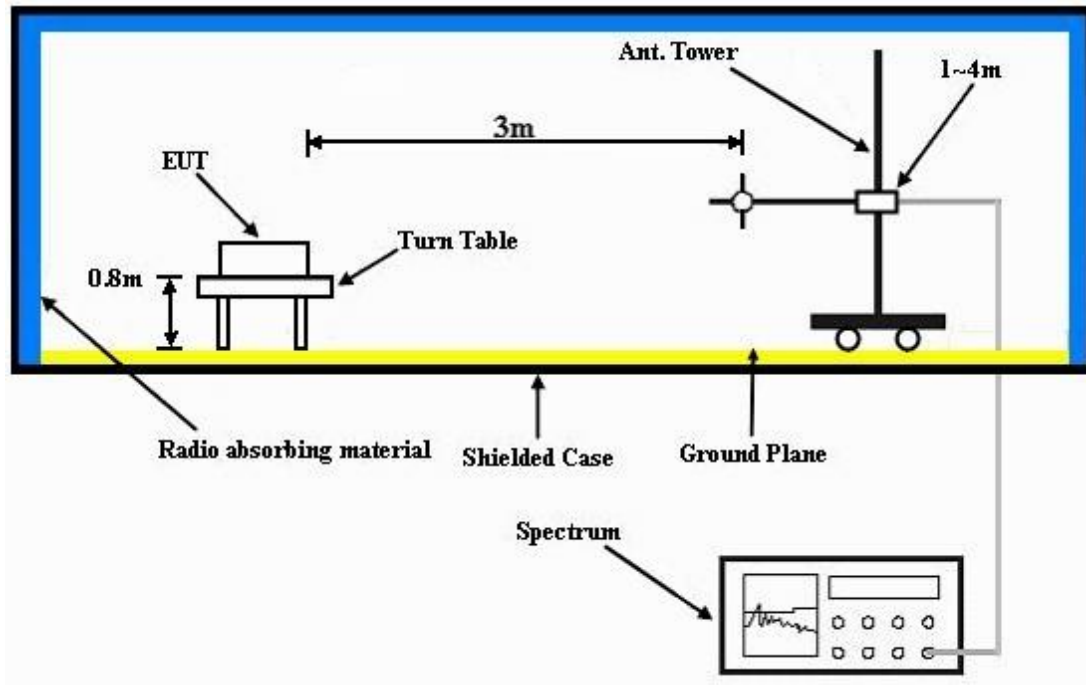
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

4.1.4 DEVIATION FROM TEST STANDARD

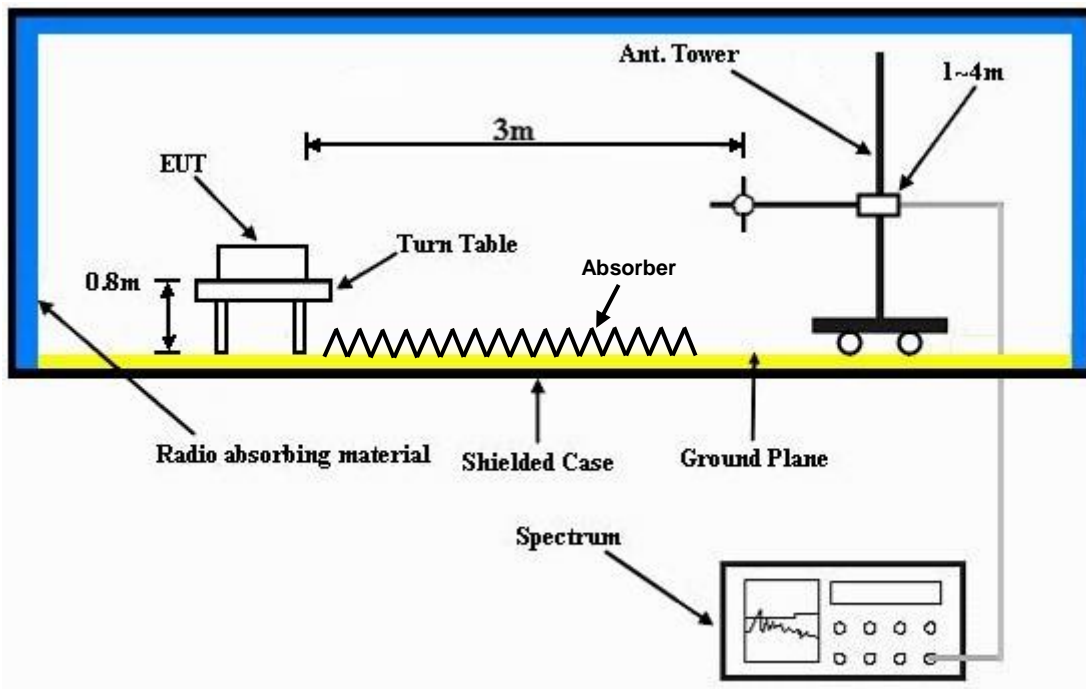
No deviation.

4.1.5 TEST SETUP

Frequency Range 30MHz ~ 1GHz



Frequency Range above 1GHz



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



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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 1GHz WORST-CASE DATA

MODE A

802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (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
2390	45.23	52.3	54	-8.77	26.91	3.54	37.52	104	40	Average
2390	59.5	66.57	74	-14.5	26.91	3.54	37.52	104	40	Peak
2412	98.43	105.45			26.96	3.54	37.52	104	40	Average
2412	103.99	111.01			26.96	3.54	37.52	104	40	Peak
2484	37.9	44.47	54	-16.1	27.15	3.6	37.32	104	40	Average
2484	60.58	67.15	74	-13.42	27.15	3.6	37.32	104	40	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (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
2390	43.9	50.97	54	-10.1	26.91	3.54	37.52	124	7	Average
2390	59.51	66.58	74	-14.49	26.91	3.54	37.52	124	7	Peak
2412	96.86	103.88			26.96	3.54	37.52	124	7	Average
2412	102.42	109.44			26.96	3.54	37.52	124	7	Peak
2484	37.56	44.13	54	-16.44	27.15	3.6	37.32	124	7	Average
2484	59.59	66.16	74	-14.41	27.15	3.6	37.32	124	7	Peak

REMARKS:

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

MODE B

802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1GHz ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (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
2390	46.58	53.65	54	-7.42	26.91	3.54	37.52	129	360	Average
2390	54.38	61.45	74	-19.62	26.91	3.54	37.52	129	360	Peak
2412	99.72	106.74			26.96	3.54	37.52	129	360	Average
2412	103.55	110.57			26.96	3.54	37.52	129	360	Peak
2496	33.95	40.38	54	-20.05	27.2	3.62	37.25	129	360	Average
2496	50.07	56.5	74	-23.93	27.2	3.62	37.25	129	360	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (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	44.79	51.86	54	-9.21	26.91	3.52	37.5	133	320	Average
2386	53.27	60.34	74	-20.73	26.91	3.52	37.5	133	320	Peak
2412	97.75	104.77			26.96	3.54	37.52	133	320	Average
2412	102.39	109.41			26.96	3.54	37.52	133	320	Peak
2486	32.88	39.45	54	-21.12	27.15	3.6	37.32	133	320	Average
2486	48.87	55.44	74	-25.13	27.15	3.6	37.32	133	320	Peak

REMARKS:

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

BELOW 1GHz WORST-CASE DATA:

MODE A

802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (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
55.92	23.71	41.9	40	-16.29	12.35	0.8	31.34	119	110	Peak
99.66	26.33	48.16	43.5	-17.17	9.06	1.07	31.96	114	260	Peak
202.53	24.97	45.6	43.5	-18.53	9.48	1.61	31.72	125	333	Peak
505.8	23.23	34.57	46	-22.77	17.46	2.8	31.6	121	304	Peak
675.9	25.41	33.37	46	-20.59	20.53	3.34	31.83	100	160	Peak
797.7	27.42	32.96	46	-18.58	22.19	3.69	31.42	106	321	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (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
56.46	29.75	47.94	40	-10.25	12.35	0.8	31.34	120	339	Peak
86.43	30.81	53.36	40	-9.19	8.23	1	31.78	121	136	Peak
192	20.1	40.32	43.5	-23.4	9.91	1.56	31.69	106	323	Peak
524.7	24.2	35.09	46	-21.8	17.88	2.86	31.63	100	56	Peak
763.4	26.55	32.64	46	-19.45	21.71	3.61	31.41	188	79	Peak
788.6	27.26	32.93	46	-18.74	22.07	3.67	31.41	139	289	Peak

REMARKS: Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor

Margin value = Emission level – Limit value

MODE B

802.11b

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (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
38.1	17.37	34.52	40	-22.63	13.24	0.63	31.02	142	75	Peak
86.16	30.54	53.09	40	-9.46	8.23	1	31.78	120	91	Peak
192.27	28.29	48.51	43.5	-15.21	9.91	1.56	31.69	126	344	Peak
491.1	22.99	34.86	46	-23.01	17.14	2.75	31.76	110	41	Peak
614.3	24.2	33.42	46	-21.8	19.77	3.13	32.12	133	62	Peak
675.9	25.41	33.37	46	-20.59	20.53	3.34	31.83	100	191	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (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
55.65	28.7	46.78	40	-11.3	12.45	0.8	31.33	107	319	Peak
87.51	29.45	52.01	40	-10.55	8.25	1.01	31.82	132	350	Peak
192	20.1	40.32	43.5	-23.4	9.91	1.56	31.69	108	123	Peak
509.3	22.95	34.2	46	-23.05	17.53	2.81	31.59	126	61	Peak
577.2	24.2	34.21	46	-21.8	19.08	3.02	32.11	135	63	Peak
703.9	25.31	32.77	46	-20.69	20.87	3.44	31.77	127	82	Peak

REMARKS: 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 OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	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 0.50MHz.
 3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Apr. 24, 2014	Apr. 23, 2015
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 27, 2013	Dec. 26, 2014
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Dec. 23, 2013	Dec. 22, 2014
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Jul. 10, 2014	Jul. 09, 2015
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 2.
 3. The VCCI Site Registration No. is C-2047.

4.2.3 TEST PROCEDURES

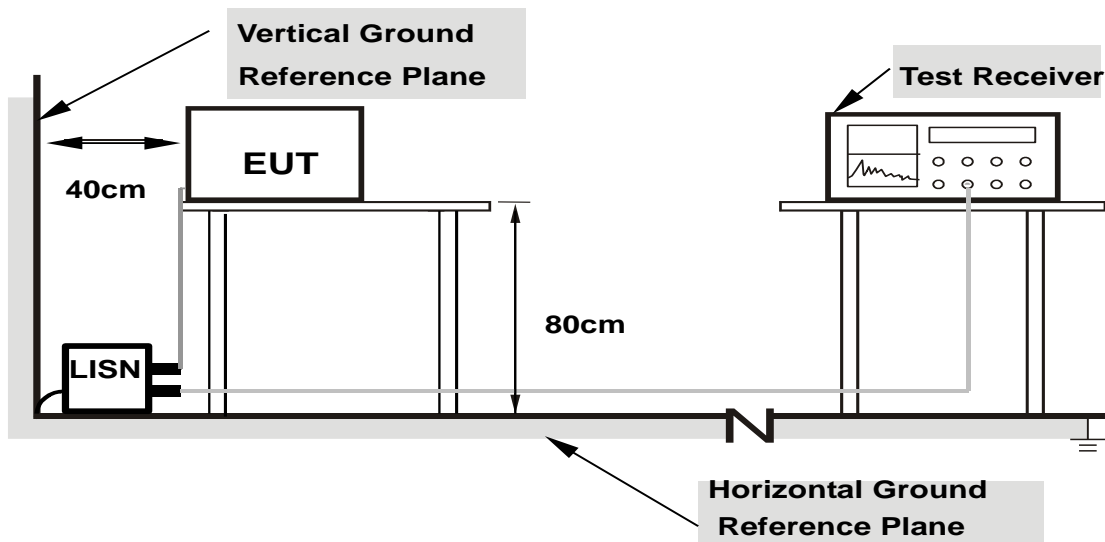
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling 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 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) 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.
 - 2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

4.2.6 EUT OPERATING CONDITIONS

Same as section 4.1.6.

4.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA :

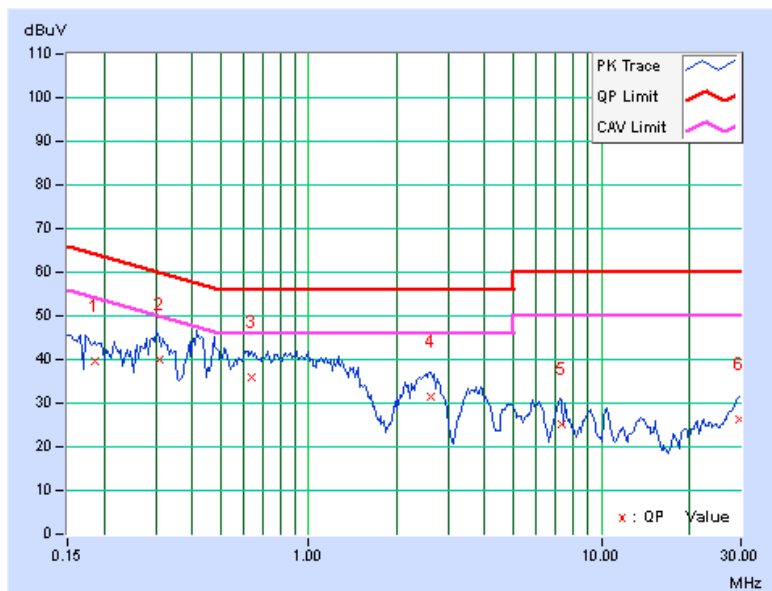
MODE A

PHASE	Line 1	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18516	0.28	39.45	27.47	39.73	27.75	64.25	54.25	-24.53	-26.51
2	0.31016	0.29	39.62	29.09	39.91	29.38	59.97	49.97	-20.06	-20.59
3	0.64219	0.32	35.73	26.35	36.05	26.67	56.00	46.00	-19.95	-19.33
4	2.60938	0.38	30.95	22.16	31.33	22.54	56.00	46.00	-24.67	-23.46
5	7.29297	0.47	24.64	15.18	25.11	15.65	60.00	50.00	-34.89	-34.35
6	29.48828	0.45	25.89	18.15	26.34	18.60	60.00	50.00	-33.66	-31.40

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

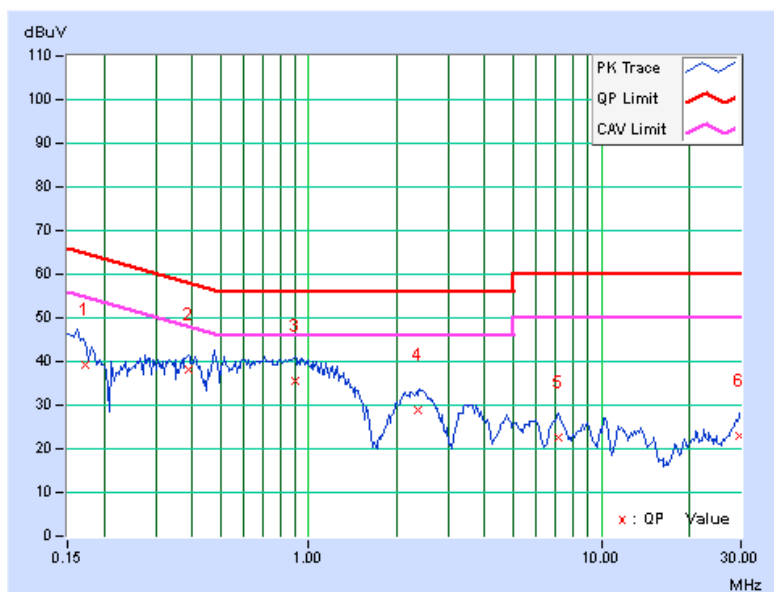


PHASE	Line 2	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17344	0.27	39.09	26.24	39.36	26.51	64.79	54.79	-25.43	-28.28
2	0.38828	0.30	37.79	28.58	38.09	28.88	58.10	48.10	-20.01	-19.22
3	0.89609	0.33	35.31	24.92	35.64	25.25	56.00	46.00	-20.36	-20.75
4	2.35547	0.38	28.51	19.44	28.89	19.82	56.00	46.00	-27.11	-26.18
5	7.13281	0.48	22.10	13.53	22.58	14.01	60.00	50.00	-37.42	-35.99
6	29.76172	0.46	22.49	14.59	22.95	15.05	60.00	50.00	-37.05	-34.95

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. TEST TYPES AND RESULTS (FOR 5.0GHz BAND)

5.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

5.1.1 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 20dB 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 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

5.1.2 TEST INSTRUMENTS

Same as section 4.1.2.

5.1.3 TEST PROCEDURES

Same as section 4.1.3.

5.1.4 DEVIATION FROM TEST STANDARD

No deviation.

5.1.5 TEST SETUP

Same as section 4.1.5.

5.1.6 EUT OPERATING CONDITIONS

Same as section 4.1.6.

5.1.7 EUT OPERATING CONDITIONS

Same as section 4.3.6

5.1.8 TEST RESULTS

ABOVE 1GHz WORST-CASE DATA :

MODE A

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Anson Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (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
5725	45.24	45.12	54	-8.76	31.96	5.59	37.43	100	336	Average
5725	63.93	63.81	74	-10.07	31.96	5.59	37.43	100	336	Peak
5785	96.39	96.27			32.04	5.62	37.54	100	336	Average
5785	106.26	106.14			32.04	5.62	37.54	100	336	Peak
5850	45.89	45.59	54	-8.11	32.15	5.66	37.51	100	336	Average
5850	65.39	65.09	74	-8.61	32.15	5.66	37.51	100	336	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (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
5725	40.49	40.37	54	-13.51	31.96	5.59	37.43	100	289	Average
5725	59.94	59.82	74	-14.06	31.96	5.59	37.43	100	289	Peak
5785	89.35	89.23			32.04	5.62	37.54	100	289	Average
5785	98.39	98.27			32.04	5.62	37.54	100	289	Peak
5850	41.15	40.85	54	-12.85	32.15	5.66	37.51	100	289	Average
5850	59.44	59.14	74	-14.56	32.15	5.66	37.51	100	289	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
2. 5785MHz: Fundamental frequency.
3. 5725MHz & 5850MHz: Out of restricted band

MODE B

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Anson Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (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
5725	45.1	44.98	54	-8.9	31.96	5.59	37.43	100	335	Average
5725	65.81	65.69	74	-8.19	31.96	5.59	37.43	100	335	Peak
5785	96.06	95.94			32.04	5.62	37.54	100	335	Average
5785	105.25	105.13			32.04	5.62	37.54	100	335	Peak
5850	46.1	45.8	54	-7.9	32.15	5.66	37.51	100	335	Average
5850	65.7	65.4	74	-8.3	32.15	5.66	37.51	100	335	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (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
5725	40.78	40.66	54	-13.22	31.96	5.59	37.43	100	324	Average
5725	60.03	59.91	74	-13.97	31.96	5.59	37.43	100	324	Peak
5785	87.39	87.27			32.04	5.62	37.54	100	324	Average
5785	96.99	96.87			32.04	5.62	37.54	100	324	Peak
5850	39.73	39.43	54	-14.27	32.15	5.66	37.51	100	324	Average
5850	59.02	58.72	74	-14.98	32.15	5.66	37.51	100	324	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5785MHz: Fundamental frequency.
- 5725MHz & 5850MHz: Out of restricted band

BELOW 1GHz WORST-CASE DATA :

MODE A

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Anson Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (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
84	30.54	53.04	40	-9.46	8.2	0.99	31.69	106	235	Peak
188.49	27.07	47.04	43.5	-16.43	10.19	1.54	31.7	100	173	Peak
286.23	25.05	42.25	46	-20.95	12.54	1.99	31.73	100	120	Peak
333.6	27	42.89	46	-19	13.75	2.17	31.81	100	218	Peak
624.1	25.14	34.25	46	-20.86	19.89	3.16	32.16	103	67	Peak
703.2	27.18	34.66	46	-18.82	20.86	3.44	31.78	100	238	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (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
77.52	32.16	53.95	40	-7.84	8.85	0.95	31.59	109	18	Peak
187.14	18.37	38.3	43.5	-25.13	10.26	1.53	31.72	100	341	Peak
286.23	22.26	39.46	46	-23.74	12.54	1.99	31.73	100	69	Peak
334.3	25.37	41.23	46	-20.63	13.78	2.17	31.81	100	222	Peak
524.7	27.82	38.71	46	-18.18	17.88	2.86	31.63	100	169	Peak
668.2	33.58	41.68	46	-12.42	20.43	3.31	31.84	100	184	Peak

REMARKS: Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor

Margin value = Emission level – Limit value

MODE B

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Anson Lin

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (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
96.69	26.54	48.62	43.5	-16.96	8.83	1.05	31.96	100	107	Peak
214.68	24.71	44.72	43.5	-18.79	9.97	1.66	31.64	100	296	Peak
262.2	26.32	44.52	46	-19.68	11.82	1.87	31.89	100	137	Peak
334.3	25.21	41.07	46	-20.79	13.78	2.17	31.81	100	171	Peak
405.7	24.45	38.6	46	-21.55	15.45	2.45	32.05	100	88	Peak
668.2	27.55	35.65	46	-18.45	20.43	3.31	31.84	100	116	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (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
36.75	32.77	50.09	40	-7.23	13.09	0.62	31.03	100	52	Peak
70.5	24.11	44.46	40	-15.89	10.53	0.91	31.79	102	260	Peak
214.41	23.58	43.59	43.5	-19.92	9.97	1.66	31.64	100	102	Peak
333.6	27.58	43.47	46	-18.42	13.75	2.17	31.81	100	168	Peak
524.7	27.82	38.71	46	-18.18	17.88	2.86	31.63	100	173	Peak
667.5	30.03	38.15	46	-15.97	20.42	3.31	31.85	100	202	Peak

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

5.2 CONDUCTED EMISSION MEASUREMENT

5.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	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 0.50MHz.
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

5.2.2 TEST INSTRUMENTS

Same as section 4.2.2.

5.2.3 TEST PROCEDURES

Same as section 4.2.3.

5.2.4 DEVIATION FROM TEST STANDARD

No deviation.

5.2.5 TEST SETUP

Same as section 4.2.5.

5.2.6 EUT OPERATING CONDITIONS

Same as section 4.1.6.

5.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA :

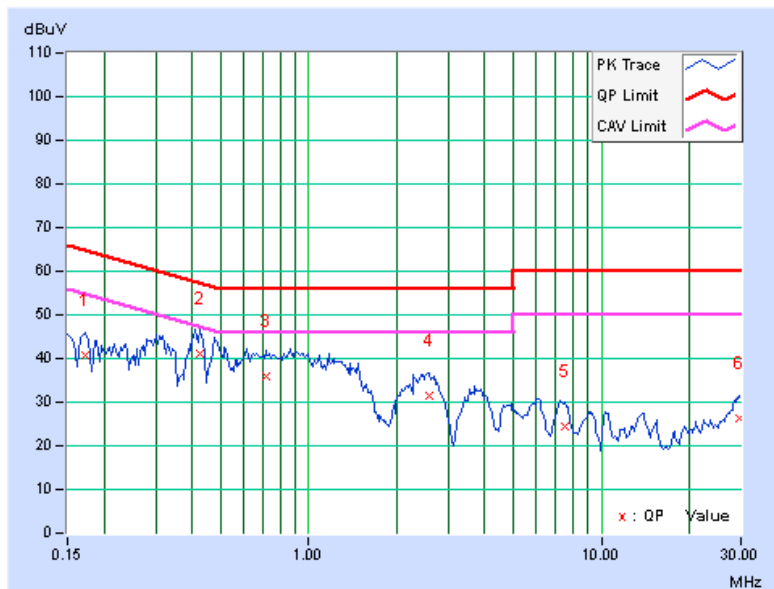
MODE A

PHASE	Line 1	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17344	0.27	40.31	28.56	40.58	28.83	64.79	54.79	-24.21	-25.96
2	0.42344	0.30	40.76	31.97	41.06	32.27	57.38	47.38	-16.32	-15.11
3	0.71250	0.32	35.45	24.65	35.77	24.97	56.00	46.00	-20.23	-21.03
4	2.58594	0.38	30.97	22.18	31.35	22.56	56.00	46.00	-24.65	-23.44
5	7.47656	0.47	24.00	16.38	24.47	16.85	60.00	50.00	-35.53	-33.15
6	29.52734	0.45	25.91	18.15	26.36	18.60	60.00	50.00	-33.64	-31.40

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

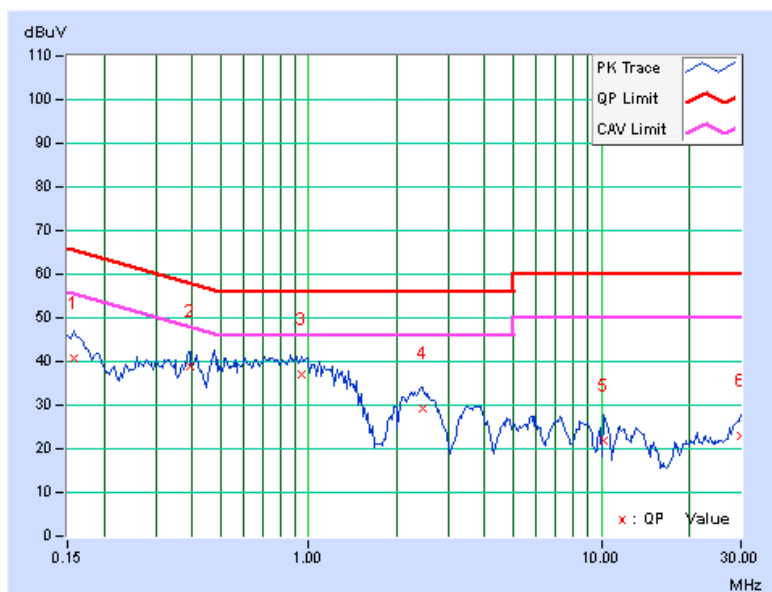


PHASE	Line 2	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	0.27	40.44	27.30	40.71	27.57	65.58	55.58	-24.87	-28.01
2	0.39219	0.30	38.50	29.46	38.80	29.76	58.02	48.02	-19.22	-18.26
3	0.94688	0.34	36.54	26.43	36.88	26.77	56.00	46.00	-19.12	-19.23
4	2.45313	0.39	28.77	19.93	29.16	20.32	56.00	46.00	-26.84	-25.68
5	10.16797	0.52	21.51	12.17	22.03	12.69	60.00	50.00	-37.97	-37.31
6	29.94531	0.45	22.61	14.67	23.06	15.12	60.00	50.00	-36.94	-34.88

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



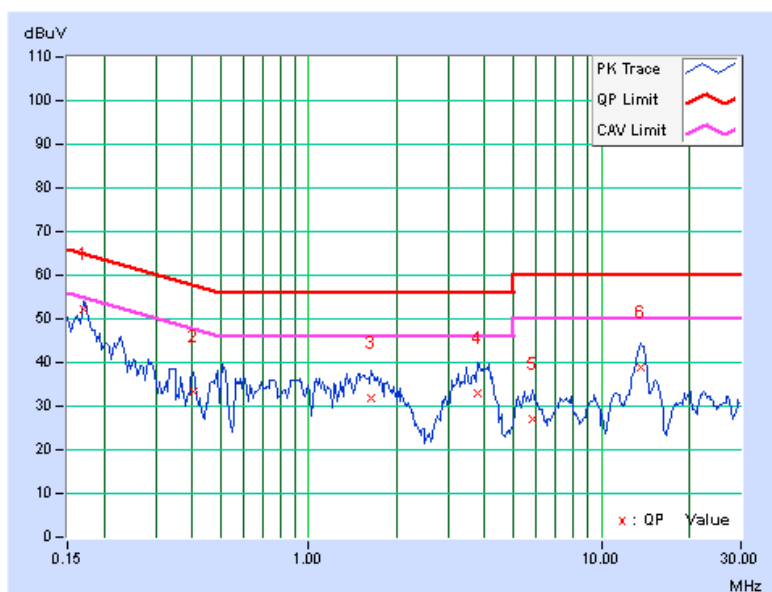
MODE B

PHASE	Line 1	6dB BANDWIDTH	9kHz
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	(dB)	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16953	0.27	52.01	41.76	52.28	42.03	64.98	54.98	-12.70	-12.95
2	0.40391	0.30	32.88	23.84	33.18	24.14	57.77	47.77	-24.59	-23.63
3	1.63281	0.35	31.52	25.98	31.87	26.33	56.00	46.00	-24.13	-19.67
4	3.76172	0.42	32.67	25.59	33.09	26.01	56.00	46.00	-22.91	-19.99
5	5.85547	0.45	26.54	21.65	26.99	22.10	60.00	50.00	-33.01	-27.90
6	13.68359	0.52	38.19	30.46	38.71	30.98	60.00	50.00	-21.29	-19.02

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

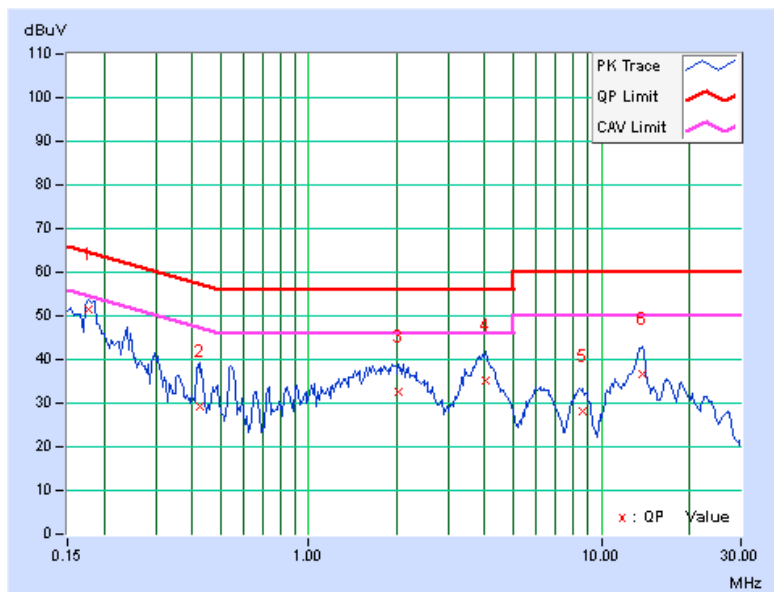


PHASE	Line 2	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17734	0.27	51.21	41.60	51.48	41.87	64.61	54.61	-13.13	-12.74
2	0.42734	0.30	28.88	20.52	29.18	20.82	57.30	47.30	-28.12	-26.48
3	2.03125	0.37	32.34	26.40	32.71	26.77	56.00	46.00	-23.29	-19.23
4	4.04297	0.44	34.76	27.73	35.20	28.17	56.00	46.00	-20.80	-17.83
5	8.63672	0.50	27.79	22.91	28.29	23.41	60.00	50.00	-31.71	-26.59
6	13.73828	0.55	36.17	27.04	36.72	27.59	60.00	50.00	-23.28	-22.41

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





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6. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

7. 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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Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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



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8. APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

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