



FCC TEST REPORT (15.407)

REPORT NO.: RF140827C15-3
MODEL NO.: OPG1100
FCC ID: NM80PG1100
RECEIVED: Aug. 27, 2014
TESTED: Aug. 29, 2014 ~ Sep. 16, 2014
ISSUED: Sep. 24, 2014

APPLICANT: HTC Corporation

ADDRESS: 1F, 6-3 Baoqiang Road, Xindian District, New Taipei City 231, Taiwan

ISSUED BY: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

LAB ADDRESS: No. 47, 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 Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF140827C15-3	Original release	Sep. 24, 2014



1. CERTIFICATION

PRODUCT: companion camera
MODEL NO.: OPG1100
BRAND: RE
APPLICANT: HTC Corporation
TESTED: Aug. 29, 2014 ~ Sep. 16, 2014
TEST SAMPLE: DVT
STANDARDS: **FCC Part 15, Subpart E (Section 15.407)**
ANSI C63.10-2009

The above equipment (model: OPG1100) 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** : Sep. 24, 2014
Rona Chen / Specialist

APPROVED BY : Sam chen , **DATE** : Sep. 24, 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 E (SECTION 15.407)			
STANDARD SECTION	TEST TYPE	RESULT	REMARK
15.407(b)(6)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -10.62dB at 0.52544MHz.
15.407(b/1/2/3) (b)(6)	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -4.2dB at 5714MHz.
15.407(a/1/2/3)	Max Average Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(6)	Peak Power Excursion	PASS	Meet the requirement of limit.
15.407(a/1/2/3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(e)	6dB bandwidth	PASS	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used.

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	companion camera
MODEL NO.	0PG1100
POWER SUPPLY	5.0Vdc (adapter) 3.8Vdc (battery)
MODULATION TYPE	64QAM, 16QAM, QPSK, BPSK
MODULATION TECHNOLOGY	OFDM
TRANSFER RATE	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to MCS7
OPERATING FREQUENCY	5180 ~ 5240MHz, 5260 ~ 5320MHz, 5500 ~ 5700MHz 5745 ~ 5805MHz
NUMBER OF CHANNEL	5180 ~ 5240MHz: 4 for 802.11a, 802.11n (20MHz) 5260 ~ 5320MHz: 4 for 802.11a, 802.11n (20MHz) 5500 ~ 5700MHz: 8 for 802.11a, 802.11n (20MHz) 5745 ~ 5805MHz: 4 for 802.11a, 802.11n (20MHz)
OUTPUT POWER	6.61mW for 5180 ~ 5240MHz 4.52mW for 5260 ~ 5320MHz 3.73mW for 5500 ~ 5700MHz 6.79mW for 5745 ~ 5805MHz
ANTENNA TYPE	Flexible PCB antenna with 0.14dBi 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 provides 1 completed transmitter and 1 receiver.

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

2. The EUT accessory list refers to EUT Photo.pdf.
3. 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

WLAN 5180 ~ 5240MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

FOR 5260 ~ 5320MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

WLAN 5500 ~ 5700MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
100	5500MHz	116	5580MHz
104	5520MHz	132	5660MHz
108	5540MHz	136	5680MHz
112	5560MHz	140	5700MHz

FOR 5.0GHz (5745 ~ 5805MHz):

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

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



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3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE \geq 1G	RE $<$ 1G	PLC	APCM	
-	√	√	√	√	-

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

RE $<$ 1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

NOTE: The EUT had been pre-tested on the positioned of each 3 axis. The worst case of Band I, II, IV was found when positioned on **X-plane**. And, the worst case of Band III was found when positioned on **Y-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	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5180-5240	36 to 48	36, 44, 48	OFDM	BPSK	6.0
	802.11n (20MHz)		36 to 48	36, 44, 48	OFDM	BPSK	MCS0
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0
	802.11n (20MHz)		52 to 64	52, 60, 64	OFDM	BPSK	MCS0
-	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0
	802.11n (20MHz)		100 to 140	100, 116, 140	OFDM	BPSK	MCS0
-	802.11a	5745-5805	149 to 161	149, 157, 161	OFDM	BPSK	6.0
	802.11n (20MHz)		149 to 161	149, 157, 161	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	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5180-5240	36 to 48	48	OFDM	BPSK	6.0
-	802.11n (20MHz)	5260-5320	52 to 64	64	OFDM	BPSK	MCS0
-	802.11n (20MHz)	5500-5700	100 to 140	100	OFDM	BPSK	MCS0
-	802.11n (20MHz)	5745-5805	149 to 161	149	OFDM	BPSK	MCS0

**POWER LINE CONDUCTED EMISSION TEST:**

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11n (20MHz)	5745-5805	149 to 161	149	OFDM	BPSK	MCS0

BANDEDGE MEASUREMENT:

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	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5180-5240	36 to 48	36, 44, 48	OFDM	BPSK	6.0
	802.11n (20MHz)		36 to 48	36, 44, 48	OFDM	BPSK	MCS0
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0
	802.11n (20MHz)		52 to 64	52, 60, 64	OFDM	BPSK	MCS0
-	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0
	802.11n (20MHz)		100 to 140	100, 116, 140	OFDM	BPSK	MCS0
-	802.11a	5745-5805	149 to 161	149, 157, 161	OFDM	BPSK	6.0
	802.11n (20MHz)		149 to 161	149, 157, 161	OFDM	BPSK	MCS0

ANTENNA PORT CONDUCTED MEASUREMENT:

This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

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	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5180-5240	36 to 48	36, 44, 48	OFDM	BPSK	6.0
	802.11n (20MHz)		36 to 48	36, 44, 48	OFDM	BPSK	MCS0
-	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0
	802.11n (20MHz)		52 to 64	52, 60, 64	OFDM	BPSK	MCS0
-	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0
	802.11n (20MHz)		100 to 140	100, 116, 140	OFDM	BPSK	MCS0
-	802.11a	5745-5805	149 to 161	149, 157, 161	OFDM	BPSK	6.0
	802.11n (20MHz)		149 to 161	149, 157, 161	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	Gavin Wu
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Gavin Wu
PLC	25deg. C, 65%RH	120Vac, 60Hz	David Huang
APCM	25deg. C, 65%RH	120Vac, 60Hz	Gavin Wu



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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.

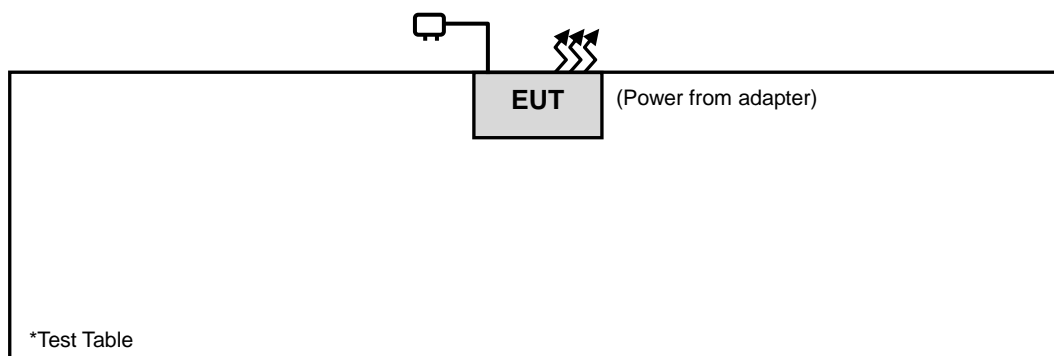
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Adapter	HTC	TC U250	N/A	N/A

NOTE: 1. Item 1 was provided by client.

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	1m non-shielded cable w/o core

NOTE: 1. Item 1 was provided by client.

3.3.1 CONFIGURATION OF SYSTEM UNDER TEST

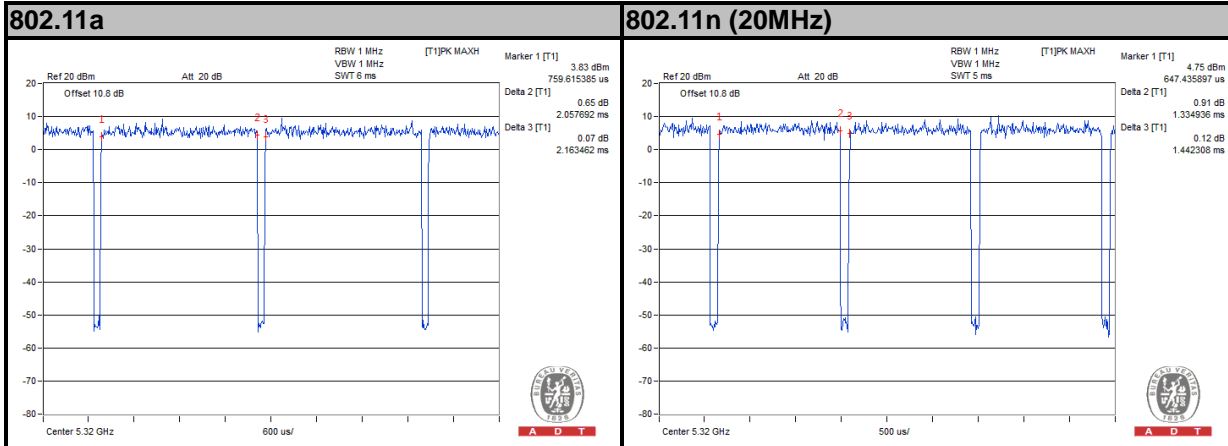


3.4 DUTY CYCLE TEST SIGNAL

MODULATION TYPE: BPSK

802.11a: Duty cycle = $2.058/2.164 = 0.951$, Duty factor = $10 \cdot \log(1/0.951) = 0.22$

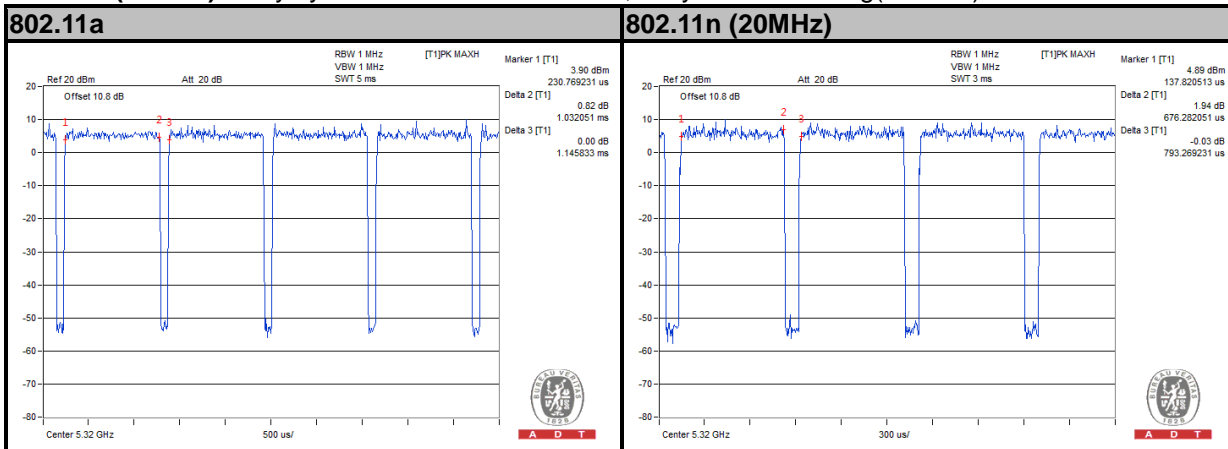
802.11n (20MHz): Duty cycle = $1.335/1.442 = 0.926$, Duty factor = $10 \cdot \log(1/0.926) = 0.34$



MODULATION TYPE: QPSK

802.11a: Duty cycle = $1.032/1.146 = 0.901$, Duty factor = $10 \cdot \log(1/0.901) = 0.45$

802.11n (20MHz): Duty cycle = $0.676/0.793 = 0.853$, Duty factor = $10 \cdot \log(1/0.853) = 0.69$





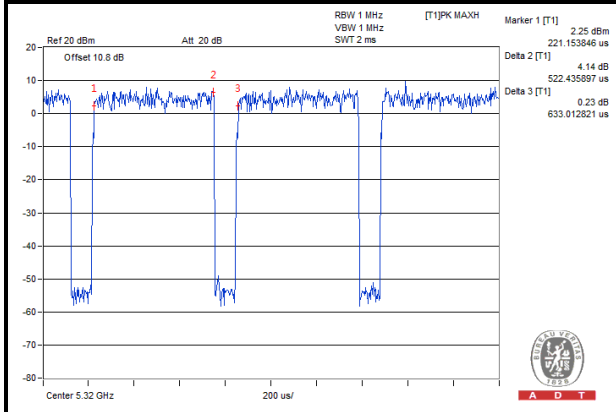
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MODULATION TYPE: 16QAM

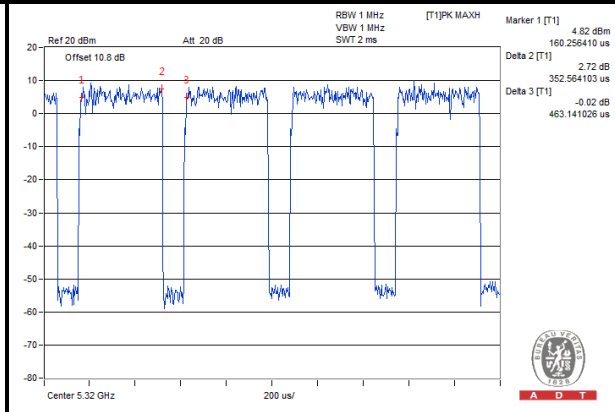
802.11a: Duty cycle = $0.522/0.633 = 0.825$, Duty factor = $10 \cdot \log(1/0.825) = 0.83$

802.11n (20MHz): Duty cycle = $0.353/0.463 = 0.761$, Duty factor = $10 \cdot \log(1/0.761) = 1.19$

802.11a



802.11n (20MHz)

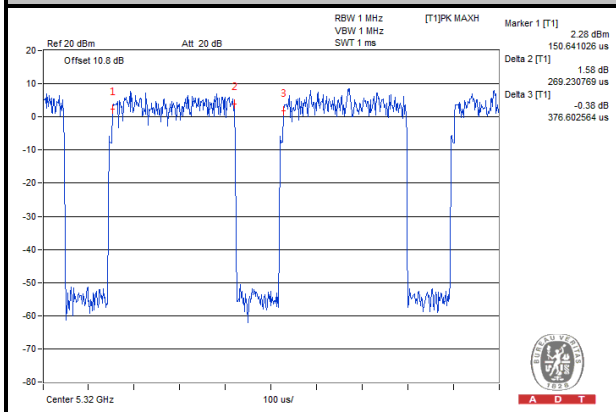


MODULATION TYPE: 64QAM

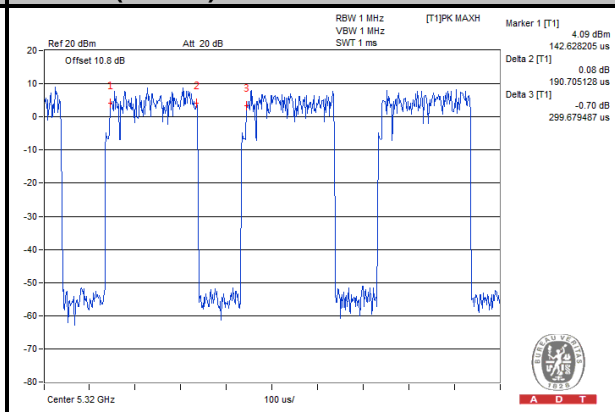
802.11a: Duty cycle = $0.269/0.377 = 0.715$, Duty factor = $10 \cdot \log(1/0.715) = 1.46$

802.11n (20MHz): Duty cycle = $0.191/0.299 = 0.636$, Duty factor = $10 \cdot \log(1/0.636) = 1.96$

802.11a



802.11n (20MHz)





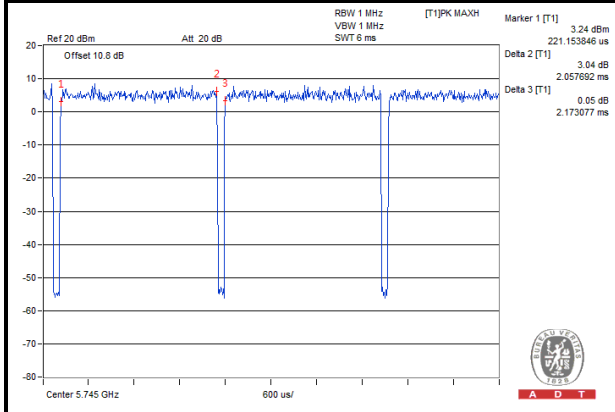
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U-NII-3

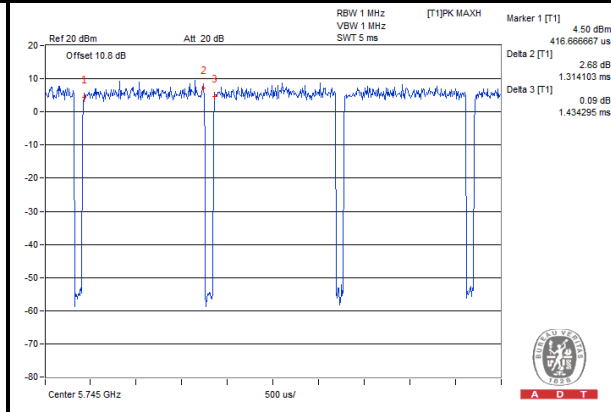
802.11a: Duty cycle = $2.058/2.173 = 0.947$, Duty factor = $10 \cdot \log(1/0.947) = 0.24$

802.11n (20MHz): Duty cycle = $1.314/1.434 = 0.916$, Duty factor = $10 \cdot \log(1/0.916) = 0.38$

802.11a



802.11n (20MHz)





3.5 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 E (15.407)

789033 D02 General UNII Test Procedures New Rules v01

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

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:

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 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

APPLICABLE TO	LIMIT	
789033 D02 General UNII Test Procedures New Rules v01	FIELD STRENGTH AT 3m	
	PK: 74 (dBµV/m)	AV: 54 (dBµV/m)
APPLICABLE TO	EIRP LIMIT	EQUIVALENT FIELD STRENGTH AT 3m
15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2 (dBµV/m)
15.407(b)(2)		
15.407(b)(3)		
15.407(b)(4)	PK: -27 (dBm/MHz) ^{*1} PK: -17 (dBm/MHz) ^{*2}	PK: 68.2 (dBµV/m) ^{*1} PK: 78.2 (dBµV/m) ^{*2}

NOTE: ^{*1} beyond 10MHz of the band edge ^{*2} within 10 MHz of band edge

The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m, where P is the eirp (Watts).}$$



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4.1.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver AGILENT	N9038A	MY51210203	Jan. 17, 2014	Jan. 16, 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	1012010	Aug. 22, 2014	Aug. 21, 2015
Power Sensor	MA2411B	1315050	Aug. 22, 2014	Aug. 21, 2015

- 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.

4.1.4 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. The antenna is a broadband antenna, and its height 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 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

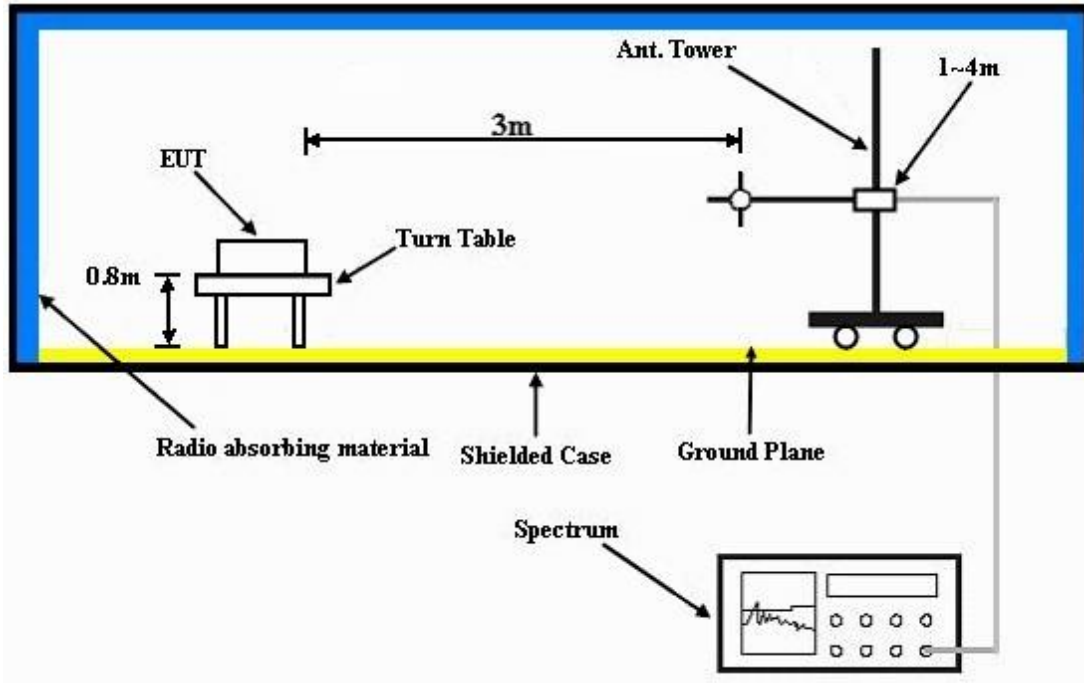
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency 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.

4.1.5 DEVIATION FROM TEST STANDARD

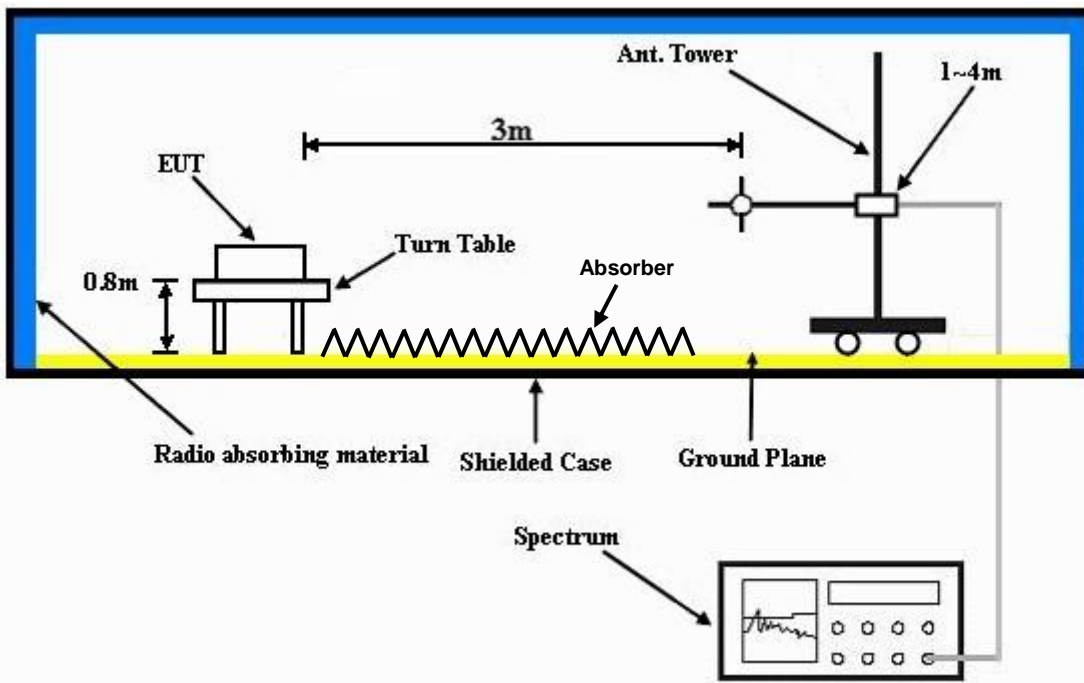
No deviation.

4.1.6 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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4.1.7 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.



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4.1.8 TEST RESULTS

ABOVE 1GHz WORST-CASE DATA

802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Galvin Wu

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
5042	39.35	40.11	54	-14.65	31.24	5.25	37.25	110	341	Average
5042	59.36	60.12	74	-14.64	31.24	5.25	37.25	110	341	Peak
5180	86.95	87.63			31.35	5.31	37.34	110	341	Average
5180	96.04	96.72			31.35	5.31	37.34	110	341	Peak
5424	37.59	37.82	54	-16.41	31.53	5.42	37.18	110	341	Average
5424	59.5	59.73	74	-14.5	31.53	5.42	37.18	110	341	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
5060	40.14	40.89	54	-13.86	31.25	5.25	37.25	100	54	Average
5060	59.74	60.49	74	-14.26	31.25	5.25	37.25	100	54	Peak
5180	88.07	88.75			31.35	5.31	37.34	100	54	Average
5180	97.21	97.89			31.35	5.31	37.34	100	54	Peak
5410	37.45	37.7	54	-16.55	31.52	5.41	37.18	100	54	Average
5410	59.86	60.11	74	-14.14	31.52	5.41	37.18	100	54	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5180MHz: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 44	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu

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
5128	38.78	39.49	54	-15.22	31.31	5.28	37.3	157	170	Average
5128	59.61	60.32	74	-14.39	31.31	5.28	37.3	157	170	Peak
5220	87.93	88.55			31.37	5.33	37.32	157	170	Average
5220	96.56	97.18			31.37	5.33	37.32	157	170	Peak
5374	37.56	37.85	54	-16.44	31.49	5.4	37.18	157	170	Average
5374	59.86	60.15	74	-14.14	31.49	5.4	37.18	157	170	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
5080	39.34	40.08	54	-14.66	31.27	5.26	37.27	100	6	Average
5080	59.53	60.27	74	-14.47	31.27	5.26	37.27	100	6	Peak
5220	88.05	88.71			31.37	5.33	37.36	100	6	Average
5220	97.13	97.79			31.37	5.33	37.36	100	6	Peak
5382	37.84	38.11	54	-16.16	31.51	5.4	37.18	100	6	Average
5382	60.34	60.61	74	-13.66	31.51	5.4	37.18	100	6	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5220MHz: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu

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
5018	37.8	38.59	54	-16.2	31.21	5.24	37.24	160	165	Average
5018	60.68	61.47	74	-13.32	31.21	5.24	37.24	160	165	Peak
5240	87.58	88.17			31.39	5.34	37.32	160	165	Average
5240	96.1	96.69			31.39	5.34	37.32	160	165	Peak
5458	37.67	37.75	54	-16.33	31.56	5.44	37.08	160	165	Average
5458	58.86	58.94	74	-15.14	31.56	5.44	37.08	160	165	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
5060	38.39	39.14	54	-15.61	31.25	5.25	37.25	100	6	Average
5060	58.62	59.37	74	-15.38	31.25	5.25	37.25	100	6	Peak
5240	87.26	87.85			31.39	5.34	37.32	100	6	Average
5240	97.6	98.19			31.39	5.34	37.32	100	6	Peak
5400	38.4	38.65	54	-15.6	31.52	5.41	37.18	100	6	Average
5400	59.91	60.16	74	-14.09	31.52	5.41	37.18	100	6	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5240MHz: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu

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
5024	35.37	36.14	54	-18.63	31.23	5.24	37.24	138	230	Average
5024	56.14	56.91	74	-17.86	31.23	5.24	37.24	138	230	Peak
5260	86.08	86.6			31.41	5.34	37.27	138	230	Average
5260	95.68	96.2			31.41	5.34	37.27	138	230	Peak
5460	35.93	36.01	54	-18.07	31.56	5.44	37.08	138	230	Average
5460	57.67	57.75	74	-16.33	31.56	5.44	37.08	138	230	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
5108	36.8	37.52	54	-17.2	31.29	5.27	37.28	100	10	Average
5108	56.72	57.44	74	-17.28	31.29	5.27	37.28	100	10	Peak
5260	89.35	89.87			31.41	5.34	37.27	100	10	Average
5260	98.34	98.86			31.41	5.34	37.27	100	10	Peak
5420	36.8	37.03	54	-17.2	31.53	5.42	37.18	100	10	Average
5420	57.06	57.29	74	-16.94	31.53	5.42	37.18	100	10	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5260MHz: Fundamental frequency.



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

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
5010	36.24	37.04	54	-17.76	31.21	5.22	37.23	137	229	Average
5010	58.16	58.96	74	-15.84	31.21	5.22	37.23	137	229	Peak
5300	86.67	87.05			31.44	5.37	37.19	137	229	Average
5300	95.14	95.52			31.44	5.37	37.19	137	229	Peak
5432	39.59	39.75	54	-14.41	31.55	5.42	37.13	137	229	Average
5432	57.95	58.11	74	-16.05	31.55	5.42	37.13	137	229	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
5062	38.57	39.32	54	-15.43	31.25	5.25	37.25	100	17	Average
5062	59.38	60.13	74	-14.62	31.25	5.25	37.25	100	17	Peak
5300	89.6	89.98			31.44	5.37	37.19	100	17	Average
5300	98.73	99.11			31.44	5.37	37.19	100	17	Peak
5360	40.51	40.82	54	-13.49	31.48	5.39	37.18	100	17	Average
5360	60	60.31	74	-14	31.48	5.39	37.18	100	17	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5300MHz: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu

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
5112	37.3	38.02	54	-16.7	31.29	5.27	37.28	102	63	Average
5112	59.82	60.54	74	-14.18	31.29	5.27	37.28	102	63	Peak
5320	85.63	85.99			31.45	5.38	37.19	102	63	Average
5320	95.12	95.48			31.45	5.38	37.19	102	63	Peak
5356	39.2	39.51	54	-14.8	31.48	5.39	37.18	102	63	Average
5356	60.63	60.94	74	-13.37	31.48	5.39	37.18	102	63	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
5062	37.22	37.97	54	-16.78	31.25	5.25	37.25	100	19	Average
5062	59.25	60	74	-14.75	31.25	5.25	37.25	100	19	Peak
5320	89.74	90.1			31.45	5.38	37.19	100	19	Average
5320	98.87	99.23			31.45	5.38	37.19	100	19	Peak
5370	40.94	41.23	54	-13.06	31.49	5.4	37.18	100	19	Average
5370	59.32	59.61	74	-14.68	31.49	5.4	37.18	100	19	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5320MHz: Fundamental frequency.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu

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
5358	39.82	40.13	54	-14.18	31.48	5.39	37.18	100	353	Average
5358	58.88	59.19	74	-15.12	31.48	5.39	37.18	100	353	Peak
5470	57.09	57.15	68.2	-11.11	31.57	5.45	37.08	100	353	Peak
5500	87.08	87.05			31.6	5.46	37.03	100	353	Average
5500	97.06	97.03			31.6	5.46	37.03	100	353	Peak
5725	57.84	57.72	68.2	-10.36	31.96	5.59	37.43	100	353	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
5350	38.42	38.73	54	-15.58	31.48	5.39	37.18	110	306	Average
5350	59.57	59.88	74	-14.43	31.48	5.39	37.18	110	306	Peak
5470	57.57	57.63	68.2	-10.63	31.57	5.45	37.08	110	306	Peak
5500	84.74	84.71			31.6	5.46	37.03	110	306	Average
5500	94.98	94.95			31.6	5.46	37.03	110	306	Peak
5725	58.18	58.06	68.2	-10.02	31.96	5.59	37.43	110	306	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5500MHz: Fundamental frequency.
- 5470MHz & 5725MHz: Out of restricted band



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu

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
5370	37.22	37.51	54	-16.78	31.49	5.4	37.18	100	356	Average
5370	59.73	60.02	74	-14.27	31.49	5.4	37.18	100	356	Peak
5470	58.64	58.7	68.2	-9.56	31.57	5.45	37.08	100	356	Peak
5580	87.77	87.72			31.71	5.5	37.16	100	356	Average
5580	97.77	97.72			31.71	5.5	37.16	100	356	Peak
5725	58.59	58.47	68.2	-9.61	31.96	5.59	37.43	100	356	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
5386	37.22	37.49	54	-16.78	31.51	5.4	37.18	135	53	Average
5386	59.19	59.46	74	-14.81	31.51	5.4	37.18	135	53	Peak
5470	55.47	55.53	68.2	-12.73	31.57	5.45	37.08	135	53	Peak
5580	86.27	86.22			31.71	5.5	37.16	135	53	Average
5580	95.05	95			31.71	5.5	37.16	135	53	Peak
5725	57.18	57.06	68.2	-11.02	31.96	5.59	37.43	135	53	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5580MHz: Fundamental frequency.
- 5470MHz & 5725MHz: Out of restricted band



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu

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
5400	37.39	37.64	54	-16.61	31.52	5.41	37.18	152	235	Average
5400	59.47	59.72	74	-14.53	31.52	5.41	37.18	152	235	Peak
5470	57.13	57.19	68.2	-11.07	31.57	5.45	37.08	152	235	Peak
5700	88.55	88.48			31.9	5.57	37.4	152	235	Average
5700	98.72	98.65			31.9	5.57	37.4	152	235	Peak
5725	57.98	57.86	68.2	-10.22	31.96	5.59	37.43	152	235	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
5436	37.31	37.47	54	-16.69	31.55	5.42	37.13	100	171	Average
5436	59.26	59.42	74	-14.74	31.55	5.42	37.13	100	171	Peak
5470	57.1	57.16	68.2	-11.1	31.57	5.45	37.08	100	171	Peak
5700	85.47	85.4			31.9	5.57	37.4	100	171	Average
5700	94.8	94.73			31.9	5.57	37.4	100	171	Peak
5725	57.5	57.38	68.2	-10.7	31.96	5.59	37.43	100	171	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5700MHz: Fundamental frequency.
- 5470MHz & 5725MHz: Out of restricted band



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu

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
5714	59.1	59.01	68.2	-9.1	31.93	5.59	37.43	102	84	Peak
5725	59.61	59.49	78.2	-18.59	31.96	5.59	37.43	102	84	Peak
5745	87.18	87.06			31.99	5.6	37.47	102	84	Average
5745	97.68	97.56			31.99	5.6	37.47	102	84	Peak
5850	58.11	57.81	78.2	-20.09	32.15	5.66	37.51	102	84	Peak
5861	58.98	58.64	68.2	-9.22	32.18	5.66	37.5	102	84	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
5714	58.54	58.45	68.2	-9.66	31.93	5.59	37.43	100	23	Peak
5725	58.65	58.53	78.2	-19.55	31.96	5.59	37.43	100	23	Peak
5745	91.28	91.16			31.99	5.6	37.47	100	23	Average
5745	99.64	99.52			31.99	5.6	37.47	100	23	Peak
5850	57.63	57.33	78.2	-20.57	32.15	5.66	37.51	100	23	Peak
5861	58.72	58.38	68.2	-9.48	32.18	5.66	37.5	100	23	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5745MHz: Fundamental frequency.
- 5725MHz & 5850MHz: Out of restricted band



A D T

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	Gavin Wu

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
5714	56.32	56.23	68.2	-11.88	31.93	5.59	37.43	156	85	Peak
5725	57.63	57.51	78.2	-20.57	31.96	5.59	37.43	156	85	Peak
5785	87.71	87.59			32.04	5.62	37.54	156	85	Average
5785	96.95	96.83			32.04	5.62	37.54	156	85	Peak
5850	58.82	58.52	78.2	-19.38	32.15	5.66	37.51	156	85	Peak
5861	57.45	57.11	68.2	-10.75	32.18	5.66	37.5	156	85	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
5714	56.75	56.66	68.2	-11.45	31.93	5.59	37.43	102	12	Peak
5725	57.65	57.53	78.2	-20.55	31.96	5.59	37.43	102	12	Peak
5785	91.39	91.27			32.04	5.62	37.54	102	12	Average
5785	99.82	99.7			32.04	5.62	37.54	102	12	Peak
5850	57.2	56.9	78.2	-21	32.15	5.66	37.51	102	12	Peak
5861	56.81	56.47	68.2	-11.39	32.18	5.66	37.5	102	12	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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 161	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu

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
5714	56.47	56.38	68.2	-11.73	31.93	5.59	37.43	103	84	Peak
5725	57.31	57.19	78.2	-20.89	31.96	5.59	37.43	103	84	Peak
5805	87.7	87.51			32.1	5.63	37.54	103	84	Average
5805	97.18	96.99			32.1	5.63	37.54	103	84	Peak
5850	58.51	58.21	78.2	-19.69	32.15	5.66	37.51	103	84	Peak
5861	56.27	55.93	68.2	-11.93	32.18	5.66	37.5	103	84	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
5714	59.67	59.58	68.2	-8.53	31.93	5.59	37.43	100	23	Peak
5725	59.64	59.52	78.2	-18.56	31.96	5.59	37.43	100	23	Peak
5805	89.59	89.4			32.1	5.63	37.54	100	23	Average
5805	99.46	99.27			32.1	5.63	37.54	100	23	Peak
5850	60.23	59.93	78.2	-17.97	32.15	5.66	37.51	100	23	Peak
5861	60.66	60.32	68.2	-7.54	32.18	5.66	37.5	100	23	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5805MHz: Fundamental frequency.
- 5725MHz & 5850MHz: Out of restricted band



A D T

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu

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
5076	38.98	39.72	54	-15.02	31.27	5.26	37.27	108	341	Average
5076	59.82	60.56	74	-14.18	31.27	5.26	37.27	108	341	Peak
5180	86.13	86.81			31.35	5.31	37.34	108	341	Average
5180	95.46	96.14			31.35	5.31	37.34	108	341	Peak
5396	37.45	37.7	54	-16.55	31.52	5.41	37.18	108	341	Average
5396	59.73	59.98	74	-14.27	31.52	5.41	37.18	108	341	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
5112	39.7	40.42	54	-14.3	31.29	5.27	37.28	100	55	Average
5112	59.51	60.23	74	-14.49	31.29	5.27	37.28	100	55	Peak
5180	87.37	88.05			31.35	5.31	37.34	100	55	Average
5180	96.88	97.56			31.35	5.31	37.34	100	55	Peak
5430	37.42	37.58	54	-16.58	31.55	5.42	37.13	100	55	Average
5430	59.54	59.7	74	-14.46	31.55	5.42	37.13	100	55	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5180MHz: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 44	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu

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
5018	40.17	40.96	54	-13.83	31.21	5.24	37.24	156	170	Average
5018	60.08	60.87	74	-13.92	31.21	5.24	37.24	156	170	Peak
5220	86.56	87.22			31.37	5.33	37.36	156	170	Average
5220	96.64	97.3			31.37	5.33	37.36	156	170	Peak
5406	39.62	39.87	54	-14.38	31.52	5.41	37.18	156	170	Average
5406	60.08	60.33	74	-13.92	31.52	5.41	37.18	156	170	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
5122	37.56	38.29	54	-16.44	31.29	5.28	37.3	100	8	Average
5122	57.27	58	74	-16.73	31.29	5.28	37.3	100	8	Peak
5220	87.79	88.45			31.37	5.33	37.36	100	8	Average
5220	97.71	98.37			31.37	5.33	37.36	100	8	Peak
5416	35.82	36.05	54	-18.18	31.53	5.42	37.18	100	8	Average
5416	57.52	57.75	74	-16.48	31.53	5.42	37.18	100	8	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5220MHz: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu

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
5144	37.97	38.68	54	-16.03	31.32	5.29	37.32	154	170	Average
5144	60.27	60.98	74	-13.73	31.32	5.29	37.32	154	170	Peak
5240	87.68	88.27			31.39	5.34	37.32	154	170	Average
5240	96.49	97.08			31.39	5.34	37.32	154	170	Peak
5388	37.79	38.05	54	-16.21	31.51	5.41	37.18	154	170	Average
5388	59.22	59.48	74	-14.78	31.51	5.41	37.18	154	170	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
5048	36.71	37.47	54	-17.29	31.24	5.25	37.25	100	8	Average
5048	57.13	57.89	74	-16.87	31.24	5.25	37.25	100	8	Peak
5240	88.6	89.19			31.39	5.34	37.32	100	8	Average
5240	97.4	97.99			31.39	5.34	37.32	100	8	Peak
5350	36.39	36.7	54	-17.61	31.48	5.39	37.18	100	8	Average
5350	56.76	57.07	74	-17.24	31.48	5.39	37.18	100	8	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5240MHz: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu

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
5084	36.49	37.23	54	-17.51	31.27	5.26	37.27	138	234	Average
5084	57.6	58.34	74	-16.4	31.27	5.26	37.27	138	234	Peak
5260	86.46	86.98			31.41	5.34	37.27	138	234	Average
5260	95.99	96.51			31.41	5.34	37.27	138	234	Peak
5354	35.78	36.09	54	-18.22	31.48	5.39	37.18	138	234	Average
5354	58.52	58.83	74	-15.48	31.48	5.39	37.18	138	234	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
5040	37.53	38.28	54	-16.47	31.24	5.25	37.24	100	16	Average
5040	58.13	58.88	74	-15.87	31.24	5.25	37.24	100	16	Peak
5260	89.36	89.88			31.41	5.34	37.27	100	16	Average
5260	98.76	99.28			31.41	5.34	37.27	100	16	Peak
5348	38.55	38.86	54	-15.45	31.48	5.39	37.18	100	16	Average
5348	59.44	59.75	74	-14.56	31.48	5.39	37.18	100	16	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5260MHz: Fundamental frequency.



A D T

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

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
5070	37.29	38.05	54	-16.71	31.25	5.26	37.27	135	230	Average
5070	59.18	59.94	74	-14.82	31.25	5.26	37.27	135	230	Peak
5300	87.06	87.44			31.44	5.37	37.19	135	230	Average
5300	95.91	96.29			31.44	5.37	37.19	135	230	Peak
5418	39.52	39.75	54	-14.48	31.53	5.42	37.18	135	230	Average
5418	57.58	57.81	74	-16.42	31.53	5.42	37.18	135	230	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
5096	37.56	38.29	54	-16.44	31.28	5.27	37.28	100	19	Average
5096	59.45	60.18	74	-14.55	31.28	5.27	37.28	100	19	Peak
5300	89.53	89.91			31.44	5.37	37.19	100	19	Average
5300	98.23	98.61			31.44	5.37	37.19	100	19	Peak
5356	40.59	40.9	54	-13.41	31.48	5.39	37.18	100	19	Average
5356	59.45	59.76	74	-14.55	31.48	5.39	37.18	100	19	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5300MHz: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu

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
5072	37.24	37.98	54	-16.76	31.27	5.26	37.27	136	229	Average
5072	60.41	61.15	74	-13.59	31.27	5.26	37.27	136	229	Peak
5320	85.89	86.25			31.45	5.38	37.19	136	229	Average
5320	95.08	95.44			31.45	5.38	37.19	136	229	Peak
5352	39.18	39.49	54	-14.82	31.48	5.39	37.18	136	229	Average
5352	61.02	61.33	74	-12.98	31.48	5.39	37.18	136	229	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
5122	37.32	38.05	54	-16.68	31.29	5.28	37.3	100	20	Average
5122	58.54	59.27	74	-15.46	31.29	5.28	37.3	100	20	Peak
5320	89.19	89.55			31.45	5.38	37.19	100	20	Average
5320	98.07	98.43			31.45	5.38	37.19	100	20	Peak
5348	44.56	44.87	54	-9.44	31.48	5.39	37.18	100	20	Average
5348	61.85	62.16	74	-12.15	31.48	5.39	37.18	100	20	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5320MHz: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu

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
5448	44.28	44.41	54	-9.72	31.56	5.44	37.13	100	2	Average
5448	59.37	59.5	74	-14.63	31.56	5.44	37.13	100	2	Peak
5470	62.16	62.22	68.2	-6.04	31.57	5.45	37.08	100	2	Peak
5500	88.4	88.37			31.6	5.46	37.03	100	2	Average
5500	97.81	97.78			31.6	5.46	37.03	100	2	Peak
5725	57.48	57.36	68.2	-10.72	31.96	5.59	37.43	100	2	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
5360	42.28	42.59	54	-11.72	31.48	5.39	37.18	102	168	Average
5360	58.96	59.27	74	-15.04	31.48	5.39	37.18	102	168	Peak
5470	58.93	58.99	68.2	-9.27	31.57	5.45	37.08	102	168	Peak
5500	85.1	85.07			31.6	5.46	37.03	102	168	Average
5500	94.24	94.21			31.6	5.46	37.03	102	168	Peak
5725	55.25	55.13	68.2	-12.95	31.96	5.59	37.43	102	168	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5500MHz: Fundamental frequency.
- 5470MHz & 5725MHz: Out of restricted band



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu

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
5458	39.39	39.47	54	-14.61	31.56	5.44	37.08	100	4	Average
5458	60.26	60.34	74	-13.74	31.56	5.44	37.08	100	4	Peak
5470	58.62	58.68	68.2	-9.58	31.57	5.45	37.08	100	4	Peak
5580	87.2	87.15			31.71	5.5	37.16	100	4	Average
5580	97.93	97.88			31.71	5.5	37.16	100	4	Peak
5725	59.26	59.14	68.2	-8.94	31.96	5.59	37.43	100	4	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
5354	35.04	35.35	54	-18.96	31.48	5.39	37.18	100	156	Average
5354	57.38	57.69	74	-16.62	31.48	5.39	37.18	100	156	Peak
5470	56.1	56.16	68.2	-12.1	31.57	5.45	37.08	100	156	Peak
5580	84.64	84.59			31.71	5.5	37.16	100	156	Average
5580	94.08	94.03			31.71	5.5	37.16	100	156	Peak
5725	56.67	56.55	68.2	-11.53	31.96	5.59	37.43	100	156	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5580MHz: Fundamental frequency.
- 5470MHz & 5725MHz: Out of restricted band



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu

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
5354	37.02	37.33	54	-16.98	31.48	5.39	37.18	125	242	Average
5354	59.89	60.2	74	-14.11	31.48	5.39	37.18	125	242	Peak
5470	56.03	56.09	68.2	-12.17	31.57	5.45	37.08	125	242	Peak
5700	88.04	87.97			31.9	5.57	37.4	125	242	Average
5700	97.91	97.84			31.9	5.57	37.4	125	242	Peak
5725	63.49	63.37	68.2	-4.71	31.96	5.59	37.43	125	242	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
5428	35.87	36.05	54	-18.13	31.53	5.42	37.13	130	53	Average
5428	58.37	58.55	74	-15.63	31.53	5.42	37.13	130	53	Peak
5470	54.29	54.35	68.2	-13.91	31.57	5.45	37.08	130	53	Peak
5700	84.98	84.91			31.9	5.57	37.4	130	53	Average
5700	94.15	94.08			31.9	5.57	37.4	130	53	Peak
5725	59.73	59.61	68.2	-8.47	31.96	5.59	37.43	130	53	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5700MHz: Fundamental frequency.
- 5470MHz & 5725MHz: Out of restricted band



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu

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
5714	58.89	58.8	68.2	-9.31	31.93	5.59	37.43	155	83	Peak
5725	67.11	66.99	78.2	-11.09	31.96	5.59	37.43	155	83	Peak
5745	88.84	88.72			31.99	5.6	37.47	155	83	Average
5745	97.83	97.71			31.99	5.6	37.47	155	83	Peak
5850	58.9	58.6	78.2	-19.3	32.15	5.66	37.51	155	83	Peak
5861	56.5	56.16	68.2	-11.7	32.18	5.66	37.5	155	83	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
5714	64	63.91	68.2	-4.2	31.93	5.59	37.43	104	12	Peak
5725	71.64	71.52	78.2	-6.56	31.96	5.59	37.43	104	12	Peak
5745	90.69	90.57			31.99	5.6	37.47	104	12	Average
5745	99.5	99.38			31.99	5.6	37.47	104	12	Peak
5850	59.64	59.34	78.2	-18.56	32.15	5.66	37.51	104	12	Peak
5861	57.43	57.09	68.2	-10.77	32.18	5.66	37.5	104	12	Peak

REMARKS:

1. Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
2. 5745MHz: Fundamental frequency.
3. 5725MHz & 5850MHz: Out of restricted band



A D T

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	Gavin Wu

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
5714	55.51	55.42	68.2	-12.69	31.93	5.59	37.43	155	83	Peak
5725	55.29	55.17	78.2	-22.91	31.96	5.59	37.43	155	83	Peak
5785	88.89	88.77			32.04	5.62	37.54	155	83	Average
5785	97.23	97.11			32.04	5.62	37.54	155	83	Peak
5850	58	57.7	78.2	-20.2	32.15	5.66	37.51	155	83	Peak
5861	55.55	55.21	68.2	-12.65	32.18	5.66	37.5	155	83	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
5714	56.96	56.87	68.2	-11.24	31.93	5.59	37.43	101	16	Peak
5725	59.09	58.97	78.2	-19.11	31.96	5.59	37.43	101	16	Peak
5785	91.27	91.15			32.04	5.62	37.54	101	16	Average
5785	99.86	99.74			32.04	5.62	37.54	101	16	Peak
5850	58.47	58.17	78.2	-19.73	32.15	5.66	37.51	101	16	Peak
5861	59.09	58.75	68.2	-9.11	32.18	5.66	37.5	101	16	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



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 161	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu

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
5714	55.98	55.89	68.2	-12.22	31.93	5.59	37.43	150	89	Peak
5725	56.28	56.16	78.2	-21.92	31.96	5.59	37.43	150	89	Peak
5805	88.23	88.04			32.1	5.63	37.54	150	89	Average
5805	97.03	96.84			32.1	5.63	37.54	150	89	Peak
5850	57.48	57.18	78.2	-20.72	32.15	5.66	37.51	150	89	Peak
5861	56.19	55.85	68.2	-12.01	32.18	5.66	37.5	150	89	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
5714	58.27	58.18	68.2	-9.93	31.93	5.59	37.43	102	358	Peak
5725	57.47	57.35	78.2	-20.73	31.96	5.59	37.43	102	358	Peak
5805	90.38	90.19			32.1	5.63	37.54	102	358	Average
5805	99.57	99.38			32.1	5.63	37.54	102	358	Peak
5850	59.65	59.35	78.2	-18.55	32.15	5.66	37.51	102	358	Peak
5861	58.76	58.42	68.2	-9.44	32.18	5.66	37.5	102	358	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5805MHz: Fundamental frequency.
- 5725MHz & 5850MHz: Out of restricted band



A D T

BELOW 1GHz WORST-CASE DATA:

802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu

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
39.72	19.42	36.22	40	-20.58	13.54	0.65	30.99	105	258	Peak
96.15	17.89	40.04	43.5	-25.61	8.76	1.05	31.96	100	114	Peak
208.74	22.17	42.43	43.5	-21.33	9.73	1.63	31.62	103	56	Peak
535.9	20.44	31.11	46	-25.56	18.15	2.9	31.72	104	269	Peak
619.9	21.87	31.05	46	-24.13	19.84	3.15	32.17	100	55	Peak
718.6	25.03	32.13	46	-20.97	21.08	3.49	31.67	100	119	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
31.89	28.05	46.28	40	-11.95	12.3	0.58	31.11	102	36	Peak
36.21	30.07	47.57	40	-9.93	12.94	0.61	31.05	105	25	Peak
38.91	35.04	52.01	40	-4.96	13.39	0.64	31	150	58	Peak
548.5	20.39	30.94	46	-25.61	18.44	2.94	31.93	103	169	Peak
676.6	23.14	31.09	46	-22.86	20.54	3.34	31.83	130	247	Peak
766.9	25.15	31.12	46	-20.85	21.76	3.61	31.34	120	225	Peak

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

Margin value = Emission level – Limit value



A D T

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu

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
38.91	24.15	41.12	40	-15.85	13.39	0.64	31	114	214	Peak
98.58	21.93	43.85	43.5	-21.57	8.98	1.06	31.96	121	82	Peak
146.64	18.77	36.48	43.5	-24.73	12.58	1.33	31.62	106	333	Peak
351.8	18.71	34.16	46	-27.29	14.19	2.23	31.87	125	27	Peak
464.5	20	32.66	46	-26	16.62	2.66	31.94	129	45	Peak
563.2	23.42	33.73	46	-22.58	18.77	2.99	32.07	113	17	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
38.91	35.16	52.13	40	-4.84	13.39	0.64	31	130	70	Peak
66.18	23.1	42.63	40	-16.9	11.24	0.87	31.64	129	343	Peak
111	16.37	36.9	43.5	-27.13	10.18	1.14	31.85	140	144	Peak
381.2	18.49	33.21	46	-27.51	14.89	2.35	31.96	130	59	Peak
500.9	21.73	33.24	46	-24.27	17.33	2.78	31.62	103	197	Peak
587	24.02	33.8	46	-21.98	19.3	3.05	32.13	125	48	Peak

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



A D T

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu

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
39.18	23.53	40.5	40	-16.47	13.39	0.64	31	118	346	Peak
98.85	22.24	44.16	43.5	-21.26	8.98	1.06	31.96	101	225	Peak
139.35	19.4	37.41	43.5	-24.1	12.34	1.29	31.64	101	155	Peak
356	20.19	35.57	46	-25.81	14.29	2.25	31.92	108	292	Peak
457.5	20.86	33.73	46	-25.14	16.48	2.64	31.99	135	0	Peak
589.1	23.28	33.02	46	-22.72	19.34	3.06	32.14	135	79	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
37.56	35.79	52.94	40	-4.21	13.24	0.63	31.02	132	121	Peak
84	20.95	43.45	40	-19.05	8.2	0.99	31.69	118	206	Peak
111.54	16.59	37.12	43.5	-26.91	10.18	1.14	31.85	105	296	Peak
384.7	18.1	32.75	46	-27.9	14.98	2.37	32	126	221	Peak
489	20.77	32.71	46	-25.23	17.1	2.74	31.78	105	333	Peak
586.3	23.02	32.8	46	-22.98	19.3	3.05	32.13	132	152	Peak

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



A D T

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Gavin Wu

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
38.91	23.61	40.58	40	-16.39	13.39	0.64	31	126	232	Peak
65.64	16.15	35.68	40	-23.85	11.24	0.87	31.64	127	11	Peak
99.12	21.54	43.46	43.5	-21.96	8.98	1.06	31.96	140	75	Peak
348.3	19.52	35.04	46	-26.48	14.1	2.22	31.84	130	48	Peak
465.2	20.69	33.32	46	-25.31	16.64	2.67	31.94	116	278	Peak
577.9	23.56	33.54	46	-22.44	19.1	3.03	32.11	114	313	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
37.83	35.32	52.47	40	-4.68	13.24	0.63	31.02	103	155	Peak
65.64	24.61	44.14	40	-15.39	11.24	0.87	31.64	135	228	Peak
98.04	22.74	44.73	43.5	-20.76	8.91	1.06	31.96	139	330	Peak
395.9	19.01	33.45	46	-26.99	15.24	2.41	32.09	140	228	Peak
421.1	20.25	34.04	46	-25.75	15.75	2.51	32.05	120	284	Peak
598.2	23.52	33.1	46	-22.48	19.57	3.08	32.23	101	159	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

Test Date: 2014/09/16

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.



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4.2.3 TEST PROCEDURES

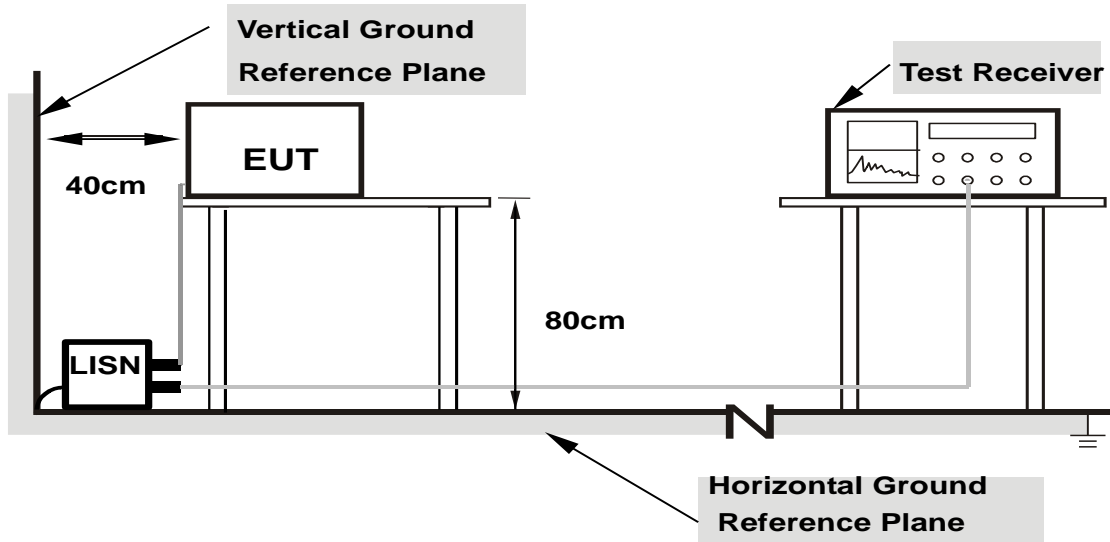
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling 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

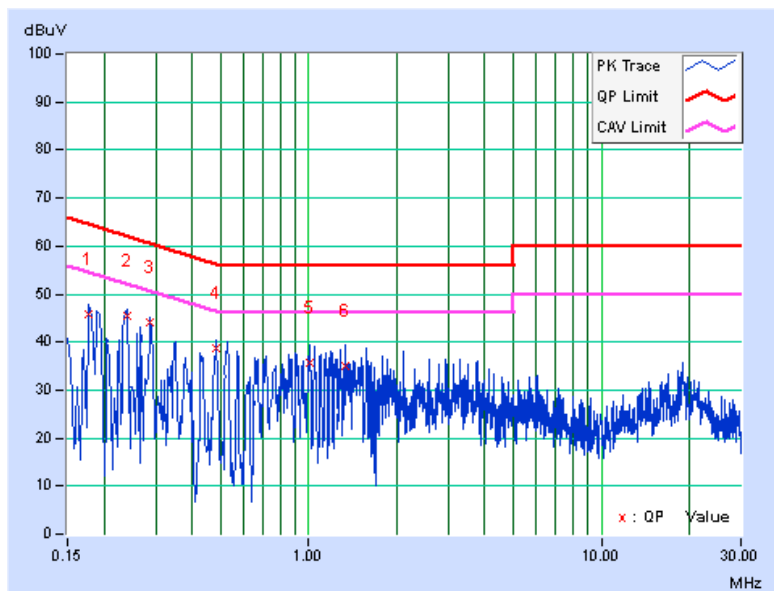
CONDUCTED WORST-CASE DATA :

PHASE	Line 1	6dB BANDWIDTH	9kHz
-------	--------	---------------	------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17744	0.07	45.56	24.79	45.63	24.86	64.60	54.60	-18.97	-29.74
2	0.23961	0.07	45.47	31.58	45.54	31.65	62.11	52.11	-16.57	-20.46
3	0.28685	0.07	44.08	30.03	44.15	30.10	60.62	50.62	-16.46	-20.51
4	0.48235	0.08	38.49	26.65	38.57	26.73	56.30	46.30	-17.72	-19.56
5	1.00629	0.11	35.61	26.18	35.72	26.29	56.00	46.00	-20.28	-19.71
6	1.34255	0.12	34.96	23.04	35.08	23.16	56.00	46.00	-20.92	-22.84

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

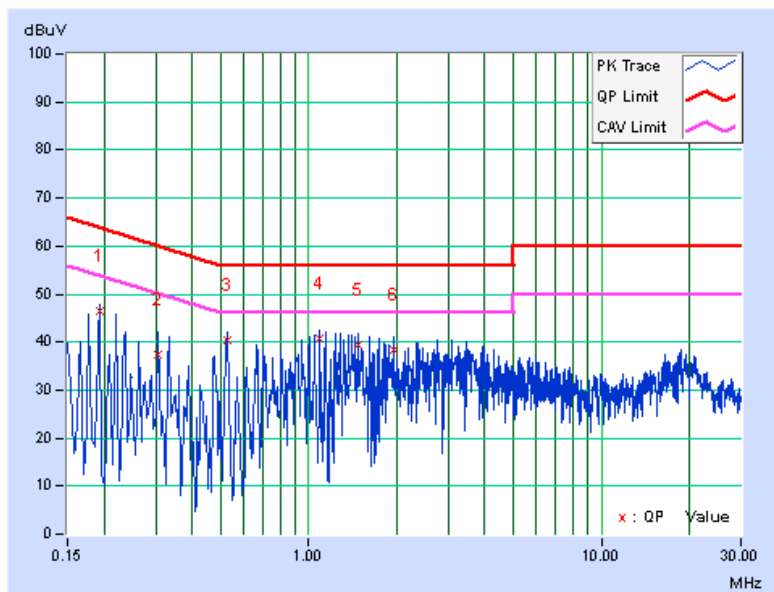


PHASE	Line 2	6dB BANDWIDTH	9kHz
-------	--------	---------------	------

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	0.19301	0.05	46.31	33.46	46.36	33.51	63.91
2	0.30640	0.06	37.32	19.45	37.38	19.51	60.07	50.07	-22.69	-30.56
3	0.52544	0.07	40.25	35.31	40.32	35.38	56.00	46.00	-15.68	-10.62
4	1.08840	0.09	40.76	30.29	40.85	30.38	56.00	46.00	-15.15	-15.62
5	1.47158	0.11	39.42	29.05	39.53	29.16	56.00	46.00	-16.47	-16.84
6	1.94469	0.14	38.24	26.67	38.38	26.81	56.00	46.00	-17.62	-19.19

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



4.3 TRANSMIT POWER MEASUREMENT

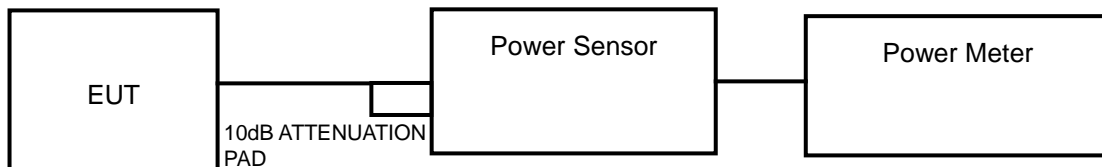
4.3.1 LIMITS OF TRANSMIT POWER MEASUREMENT

OPERATION BAND	EUT CATEGORY		LIMIT
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p \leq 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
		Indoor Access Point	1 Watt (30 dBm)
	√	Mobile and Portable client device	250mW (24 dBm)
U-NII-2A	√	---	250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	√	---	250mW (24 dBm) or 11 dBm+10 log B*
U-NII-3	√	---	1 Watt (30 dBm)

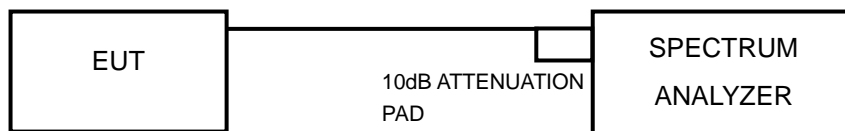
NOTE: Where B is the 26dB emission bandwidth in MHz.

4.3.2 TEST SETUP

FOR POWER OUTPUT MEASUREMENT



FOR 26dB BANDWIDTH



4.3.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

4.3.4 TEST PROCEDURE

FOR AVERAGE POWER MEASUREMENT

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

FOR 26dB BANDWIDTH

- 1) Set RBW = approximately 1% of the emission bandwidth.
- 2) Set the VBW > RBW.
- 3) Detector = Peak.
- 4) Trace mode = max hold.
- 5) Measure the maximum width of the emission that is 26 dB down from the peak of the emission.
Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

4.3.5 DEVIATION FROM TEST STANDARD

No deviation.

4.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.



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4.3.7 TEST RESULTS

POWER OUTPUT

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	MAX. CONDUCTED POWER (mW)	MAX. CONDUCTED POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	6.61	8.20	24	PASS
44	5220	6.46	8.10	24	PASS
48	5240	6.00	7.78	24	PASS
52	5260	4.10	6.13	23.84	PASS
60	5300	4.15	6.18	23.81	PASS
64	5320	3.85	5.85	23.83	PASS
100	5500	2.96	4.72	23.82	PASS
116	5580	2.70	4.31	23.82	PASS
140	5700	3.49	5.43	23.85	PASS
149	5745	5.60	7.48	30	PASS
157	5785	5.87	7.69	30	PASS
161	5805	6.31	8.00	30	PASS

NOTE:

For U-NII-2A, U-NII-2C Band:

1. $11\text{dBm} + 10\log(19.21) = 23.84\text{ dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(19.11) = 23.81\text{ dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(19.17) = 23.83\text{ dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(19.15) = 23.82\text{ dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(19.15) = 23.82\text{ dBm} > 24\text{dBm}$.
6. $11\text{dBm} + 10\log(19.28) = 23.85\text{ dBm} > 24\text{dBm}$.



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802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	MAX. CONDUCTED POWER (mW)	MAX. CONDUCTED POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	6.61	8.20	24	PASS
44	5220	5.77	7.61	24	PASS
48	5240	5.92	7.72	24	PASS
52	5260	4.52	6.55	23.89	PASS
60	5300	4.17	6.20	23.91	PASS
64	5320	3.87	5.88	23.90	PASS
100	5500	2.86	4.56	23.88	PASS
116	5580	2.85	4.55	23.89	PASS
140	5700	3.73	5.72	23.92	PASS
149	5745	6.00	7.78	30	PASS
157	5785	6.38	8.05	30	PASS
161	5805	6.79	8.32	30	PASS

NOTE:

For U-NII-2A, U-NII-2C Band:

1. $11\text{dBm} + 10\log(19.47) = 23.89\text{ dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(19.53) = 23.91\text{ dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(19.49) = 23.90\text{ dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(19.43) = 23.88\text{ dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(19.47) = 23.89\text{ dBm} > 24\text{dBm}$.
6. $11\text{dBm} + 10\log(19.58) = 23.92\text{ dBm} > 24\text{dBm}$.



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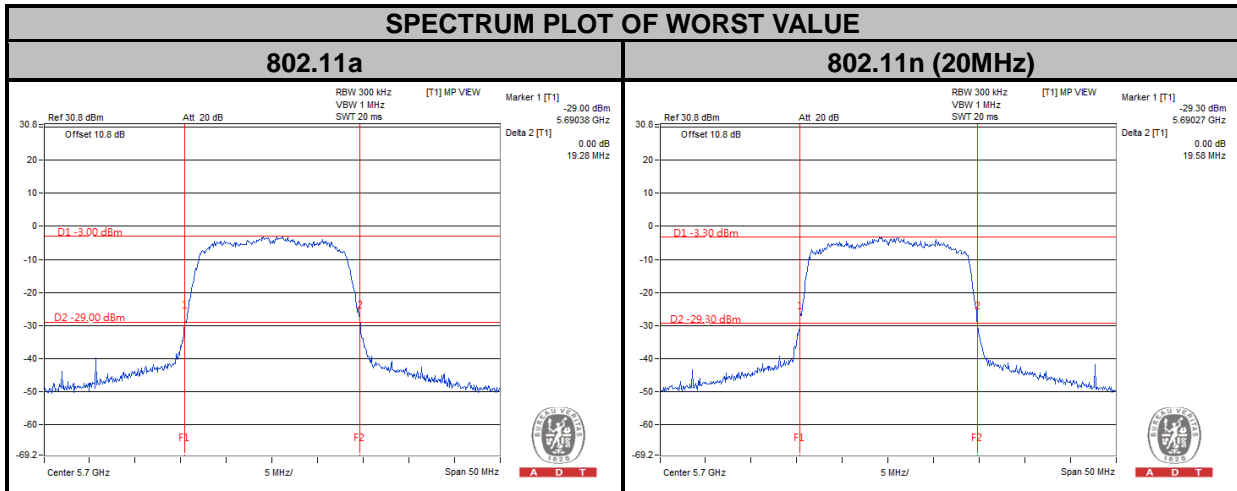
26dB BANDWIDTH

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
52	5260	19.21	PASS
60	5300	19.11	PASS
64	5320	19.17	PASS
100	5500	19.15	PASS
116	5580	19.15	PASS
140	5700	19.28	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
52	5260	19.47	PASS
60	5300	19.53	PASS
64	5320	19.49	PASS
100	5500	19.43	PASS
116	5580	19.47	PASS
140	5700	19.58	PASS

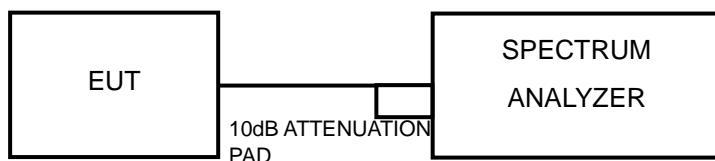


4.4 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.4.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	17dBm/ MHz
		Fixed point-to-point Access Point	
		Indoor Access Point	
	√	Mobile and Portable client device	11dBm/ MHz
U-NII-2A	√	---	11dBm/ MHz
U-NII-2C	√	---	11dBm/ MHz
U-NII-3	√	---	30dBm/ MHz

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

4.4.4 TEST PROCEDURES

For U-NII-1, U-NII-2A, U-NII-2C band:

<802.11a, 802.11n (20MHz) >

Using method SA-2 alternative

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 1 MHz, Set VBW ≥ 3 MHz, Detector = RMS
- 3) Sweep time = 4second.
- 4) Perform a single sweep.
- 5) Record the max value and add 10 log (1/duty cycle)



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For U-NII-3 band:

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 500 kHz, Set VBW \geq 3 RBW, Detector = RMS
- 3) Sweep time = auto, trigger set to "free run".
- 4) Trace average at least 100 traces in power averaging mode.
- 5) Record the max value and add 10 log (1/duty cycle)

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6.



4.4.7 TEST RESULTS

For U-NII-1, U-NII-2A, U-NII-2C Band

802.11a

CHANNEL	FREQUENCY (MHz)	PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	PSD WITH DUTY FACTOR (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	-3.90	0.22	-3.68	11	PASS
44	5220	-4.14	0.22	-3.92	11	PASS
48	5240	-4.25	0.22	-4.03	11	PASS
52	5260	-5.40	0.22	-5.18	11	PASS
60	5300	-5.41	0.22	-5.19	11	PASS
64	5320	-5.47	0.22	-5.25	11	PASS
100	5500	-6.10	0.22	-5.88	11	PASS
116	5580	-6.50	0.22	-6.28	11	PASS
140	5700	-6.17	0.22	-5.95	11	PASS

NOTE: Refer to section 3.3 for duty cycle spectrum plot.

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	PSD WITH DUTY FACTOR (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	-4.26	0.34	-3.92	11	PASS
44	5220	-4.64	0.34	-4.30	11	PASS
48	5240	-4.55	0.34	-4.21	11	PASS
52	5260	-5.76	0.34	-5.42	11	PASS
60	5300	-5.86	0.34	-5.52	11	PASS
64	5320	-5.78	0.34	-5.44	11	PASS
100	5500	-6.45	0.34	-6.11	11	PASS
116	5580	-6.83	0.34	-6.49	11	PASS
140	5700	-6.50	0.34	-6.16	11	PASS

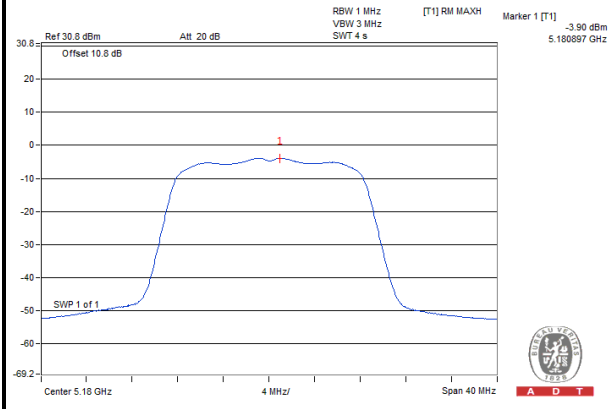
NOTE: Refer to section 3.3 for duty cycle spectrum plot.



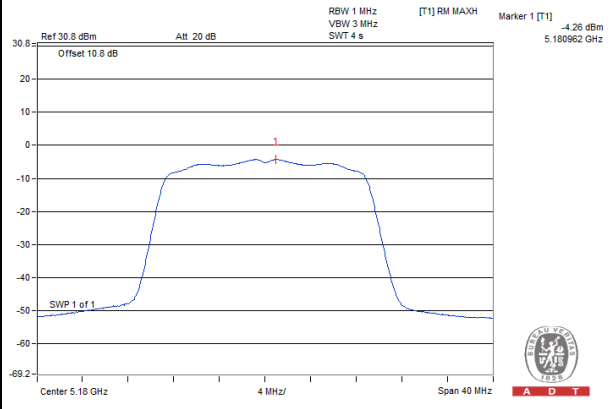
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SPECTRUM PLOT OF WORST VALUE

802.11a



802.11n (20MHz)





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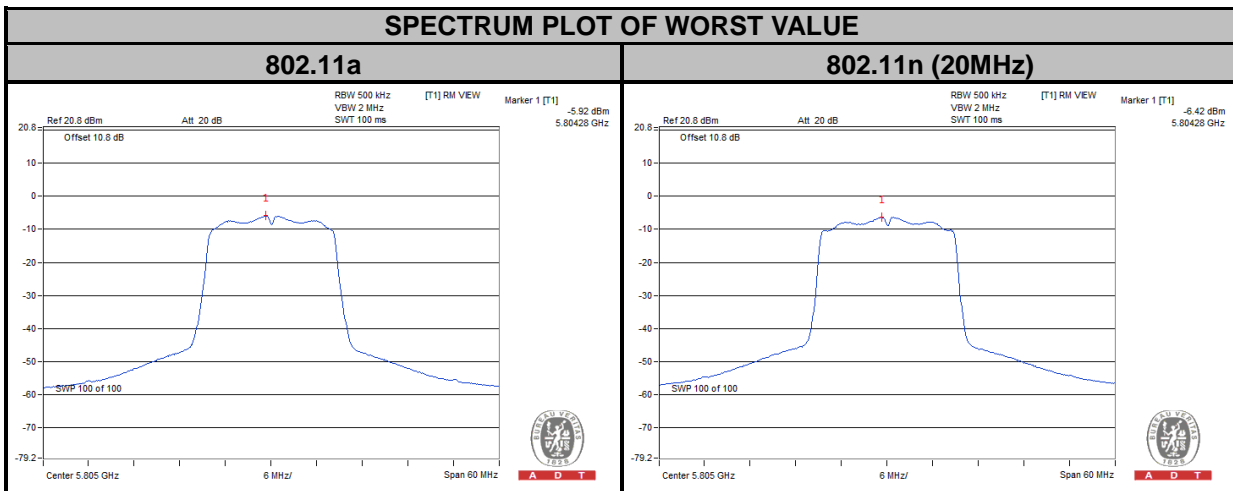
For U-NII-3 Band

802.11a

CHANNEL	FREQUENCY (MHz)	PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	PSD WITH DUTY FACTOR (dBm)	LIMIT (dBm/500kHz)	PASS/FAIL
149	5745	-6.86	0.24	-6.62	30	PASS
157	5785	-6.38	0.24	-6.14	30	PASS
161	5805	-5.92	0.24	-5.68	30	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	PSD WITH DUTY FACTOR (dBm)	LIMIT (dBm/500kHz)	PASS/FAIL
149	5745	-7.31	0.38	-6.93	30	PASS
157	5785	-6.77	0.38	-6.39	30	PASS
161	5805	-6.42	0.38	-6.04	30	PASS

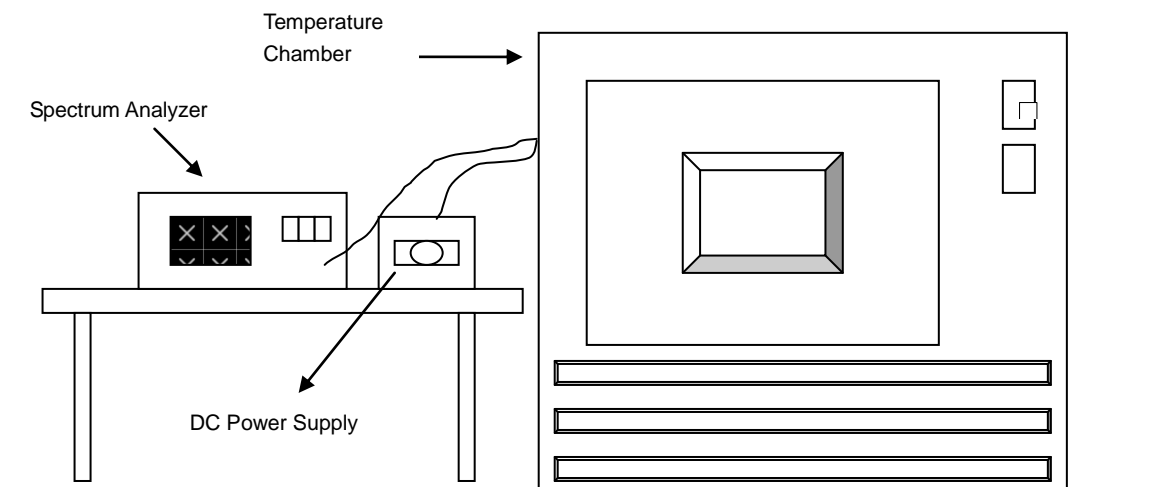


4.5 FREQUENCY STABILITY

4.5.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency of the carrier signal shall be maintained within band of operation.

4.5.2 TEST SETUP



4.5.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

4.5.4 TEST PROCEDURE

- a. To ensure emission at the band edge is maintained within the authorized band, those values shall be measured by radiation emissions at upper and lower frequency points, and finally compensated by frequency deviation as procedures below.
- b. The EUT was operated at the maximum output power, and connected to the spectrum analyzer, which is set to maximum hold function and peak detector. The peak value of the power envelope was measured and noted. The upper and lower frequency points were respectively measured relatively 10dB lower than the measured peak value.
- c. The frequency deviation was calculated by adding the upper frequency point and the lower frequency point divided by two. Those detailed values of frequency deviation are provided in table below.

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

4.5.6 EUT OPERATING CONDITION

Set the EUT transmit at un-modulation mode to test frequency stability.



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4.5.7 TEST RESULTS

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5320MHz									
TEMP. (°C)	POWER SUPPLY (Vdc)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
50	3.8	5320.037817	7.108	5320.037729	7.092	5320.037448	7.039	5320.038258	7.191
40	3.8	5320.038128	7.167	5320.037595	7.067	5320.038044	7.151	5320.037866	7.118
30	3.8	5320.038997	7.330	5320.039234	7.375	5320.039171	7.363	5320.039356	7.398
20	3.8	5320.036294	6.822	5320.036217	6.808	5320.036344	6.832	5320.036146	6.794
10	3.8	5320.041742	7.846	5320.041763	7.850	5320.041568	7.814	5320.041418	7.785
0	3.8	5320.040305	7.576	5320.039933	7.506	5320.039748	7.471	5320.040220	7.560
-10	3.8	5320.038718	7.278	5320.038876	7.308	5320.038494	7.236	5320.038909	7.314
-20	3.8	5320.037770	7.100	5320.037835	7.112	5320.037811	7.107	5320.037607	7.069

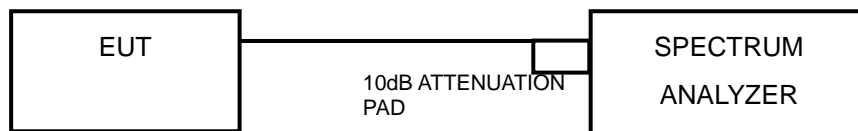
FREQUENCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5320MHz									
TEMP. (°C)	POWER SUPPLY (Vdc)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
20	3.4	5320.035604	6.692	5320.035908	6.750	5320.035788	6.727	5320.035733	6.717
	3.8	5320.036294	6.822	5320.036217	6.808	5320.036344	6.832	5320.036146	6.794
	4.25	5320.037582	7.064	5320.037538	7.056	5320.037665	7.080	5320.037128	6.979

4.6 6dB BANDWIDTH MEASUREMENT

4.6.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.6.2 TEST SETUP



4.6.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

4.6.4 TEST PROCEDURE

- Set resolution bandwidth (RBW) = 100kHz
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

4.6.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



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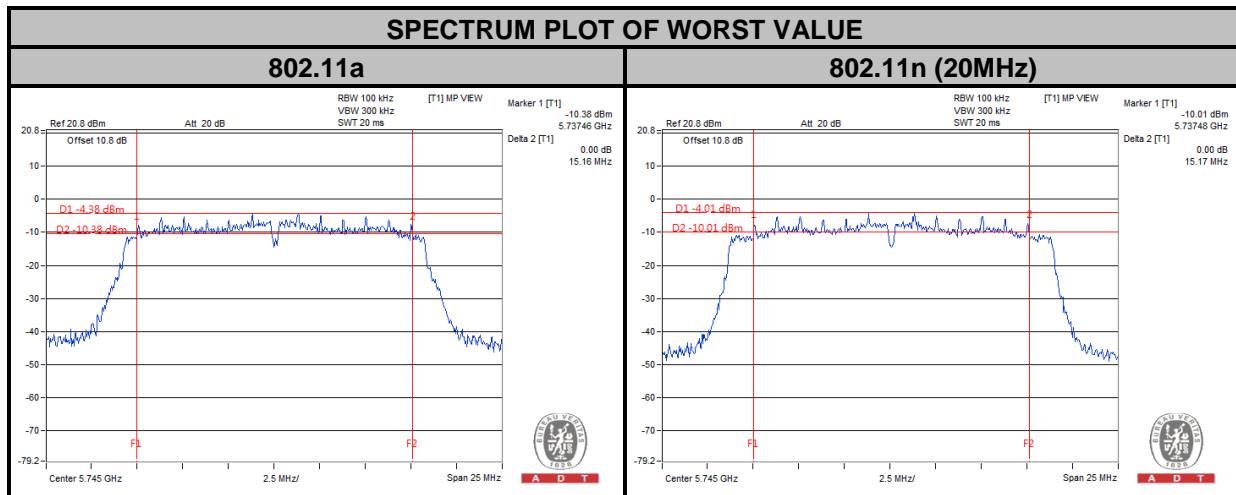
4.6.7 TEST RESULTS

802.11a

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	15.16	0.5	PASS
157	5785	15.10	0.5	PASS
165	5825	15.11	0.5	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	15.17	0.5	PASS
157	5785	15.15	0.5	PASS
165	5825	15.15	0.5	PASS





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5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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



6. 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:

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Lab:

Tel: 886-3-3183232

Fax: 886-3-3270892

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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7. 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.

---END---