

FCC TEST REPORT (15.407)

REPORT NO.: RF150617C06-8
MODEL NO.: E6790
FCC ID: V65E6790
RECEIVED: Jun. 17, 2015
TESTED: Jun. 24, 2015 ~ Jul. 06, 2015
ISSUED: Jul. 14, 2015

APPLICANT: Kyocera Corporation c/o Kyocera Communications, Inc.

ADDRESS: 9520 Town Center Drive, Suite #200, San Diego, CA 92121

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

LAB ADDRESS: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C)

TEST LOCATION: No. 19, Hwa Ya 2nd Rd, Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 333, Taiwan, R.O.C.

This report should not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.



This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification.



TABLE OF CONTENTS

RELEASE CONTROL RECORD	4
1. CERTIFICATION	5
2. SUMMARY OF TEST RESULTS	6
2.1 MEASUREMENT UNCERTAINTY	6
3. GENERAL INFORMATION	7
3.1 GENERAL DESCRIPTION OF EUT	7
3.2 DESCRIPTION OF TEST MODES	9
3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL	11
3.3 DESCRIPTION OF SUPPORT UNITS	14
3.3.1 CONFIGURATION OF SYSTEM UNDER TEST	14
3.4 DUTY CYCLE TEST SIGNAL	15
3.5 GENERAL DESCRIPTION OF APPLIED STANDARDS	19
4. TEST TYPES AND RESULTS	20
4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT	20
4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT	20
4.1.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS	20
4.1.3 TEST INSTRUMENTS	21
4.1.4 TEST PROCEDURES	22
4.1.5 DEVIATION FROM TEST STANDARD	22
4.1.6 TEST SETUP	23
4.1.7 EUT OPERATING CONDITIONS	23
4.1.8 TEST RESULTS	24
4.2 CONDUCTED EMISSION MEASUREMENT	65
4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT	65
4.2.2 TEST INSTRUMENTS	65
4.2.3 TEST PROCEDURES	66
4.2.4 DEVIATION FROM TEST STANDARD	66
4.2.5 TEST SETUP	67
4.2.6 EUT OPERATING CONDITIONS	67
4.2.7 TEST RESULTS	68
4.3 TRANSMIT POWER MEASUREMENT	70
4.3.1 LIMITS OF TRANSMIT POWER MEASUREMENT	70
4.3.2 TEST SETUP	70
4.3.3 TEST INSTRUMENTS	71
4.3.4 TEST PROCEDURE	71
4.3.5 DEVIATION FROM TEST STANDARD	71
4.3.6 EUT OPERATING CONDITIONS	71
4.3.7 TEST RESULTS	72
4.4 PEAK POWER SPECTRAL DENSITY MEASUREMENT	78
4.4.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT	78
4.4.2 TEST SETUP	78
4.4.3 TEST INSTRUMENTS	78
4.4.4 TEST PROCEDURES	78
4.4.5 DEVIATION FROM TEST STANDARD	79
4.4.6 EUT OPERATING CONDITIONS	79
4.4.7 TEST RESULTS	80
4.5 FREQUENCY STABILITY	85
4.5.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT	85
4.5.2 TEST SETUP	85
4.5.3 TEST INSTRUMENTS	85
4.5.4 TEST PROCEDURE	86
4.5.5 DEVIATION FROM TEST STANDARD	86



A D T

4.5.6	EUT OPERATING CONDITION.....	86
4.5.7	TEST RESULTS.....	87
4.6	6dB BANDWIDTH MEASUREMENT	88
4.6.1	LIMITS OF 6dB BANDWIDTH MEASUREMENT	88
4.6.2	TEST SETUP	88
4.6.3	TEST INSTRUMENTS	88
4.6.4	TEST PROCEDURE	88
4.6.5	DEVIATION FROM TEST STANDARD	88
4.6.6	EUT OPERATING CONDITIONS	88
4.6.7	TEST RESULTS.....	89
5.	PHOTOGRAPHS OF THE TEST CONFIGURATION.....	91
6.	INFORMATION ON THE TESTING LABORATORIES	92
7.	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	93



A D T

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF150617C06-8	Original release	Jul. 14, 2015



A D T

1. CERTIFICATION

PRODUCT: PDA Phone

MODEL NO.: E6790

BRAND: Kyocera

APPLICANT: Kyocera Corporation c/o Kyocera Communications, Inc.

TESTED: Jun. 24, 2015 ~ Jul. 06, 2015

TEST SAMPLE: Identical Prototype

STANDARDS: FCC Part 15, Subpart E (Section 15.407)

ANSI C63.10-2009

The above equipment (model: E6790) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY :  , **DATE** : Jul. 14, 2015

Ivonne Wu / Supervisor

APPROVED BY :  , **DATE** : Jul. 14, 2015

Kay Wu / Supervisor

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 -15.72dB at 0.75188MHz.
15.407(b/1/2/3)(b)(6)	Radiated Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -3.31dB at 53.76MHz.
15.407(a/1/2/3)	Max Average Transmit Power	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	PDA Phone
MODEL NO.	E6790
POWER SUPPLY	5.0Vdc (adapter or host equipment) 3.55Vdc (Li-ion battery)
MODULATION TYPE	256QAM, 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 802.11ac: up to V9
OPERATING FREQUENCY	5180 ~ 5240MHz, 5260 ~ 5320MHz, 5500 ~ 5700MHz, 5745 ~ 5825MHz
NUMBER OF CHANNEL	5180 ~ 5240MHz: 4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz) 1 for 802.11ac (80MHz) 5260 ~ 5320MHz: 4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz) 1 for 802.11ac (80MHz) 5500 ~ 5700MHz: 8 for 802.11a, 802.11n (20MHz) 4 for 802.11n (40MHz) 1 for 802.11ac (80MHz) 5745 ~ 5825MHz: 5 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz) 1 for 802.11ac (80MHz)
OUTPUT POWER	38.90mW for 5180 ~ 5240MHz 39.54mW for 5260 ~ 5320MHz 37.93mW for 5500 ~ 5700MHz 38.82mW for 5745 ~ 5825MHz
ANTENNA TYPE	Mono Pole antenna with -1.0dBi gain (5180 ~ 5240MHz) Mono Pole antenna with -1.0dBi gain (5260 ~ 5320MHz) Mono Pole antenna with -1.0dBi gain (5500 ~ 5700MHz) Mono Pole antenna with -1.0dBi gain (5745 ~ 5825MHz)
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.

Product	Brand	Model	Description
Adapter	KYOCERA	SCP-46ADT	I/P: 100-240Vac, 50/60Hz, 0.2A O/P: 5Vdc, 1.5A
Battery	KYOCERA	SCP-65LBPS	3.55Vdc, 3700mAh
Earphone	GALIEN	HF-HB05D	1.3m non-shielded cable w/o core
USB Cable	KYOCERA	SCP-17SDC	1.0m shielded cable w/o core

2. 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

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	46	5230 MHz

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

CHANNEL	FREQUENCY
42	5210 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

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
54	5270 MHz	62	5310 MHz

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

CHANNEL	FREQUENCY
58	5290MHz

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

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
102	5510MHz	118	5590MHz
110	5550MHz	134	5670MHz

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

CHANNEL	FREQUENCY
106	5530MHz

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

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 was found when positioned on **Z-plane** for 5180-5240MHz & 5500-5700MHz, **X-plane** for 5260-5320MHz, and **Y-plane** for 5745-5825MHz.

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
	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	MCS0
	802.11ac (80MHz)		42	42	OFDM	BPSK	V0
-	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
	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	MCS0
	802.11ac (80MHz)		58	58	OFDM	BPSK	V0
-	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
	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	MCS0
	802.11ac (80MHz)		106 to 122	106	OFDM	BPSK	V0
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.0
	802.11n (20MHz)		149 to 165	149, 157, 165	OFDM	BPSK	MCS0
	802.11n (40MHz)		151 to 159	151, 159	OFDM	BPSK	MCS0
	802.11ac (80MHz)		155	155	OFDM	BPSK	V0

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)
-	802.11ac (80MHz)	5180-5240	42	42	OFDM	BPSK	V0
-	802.11ac (80MHz)	5260-5320	58	58	OFDM	BPSK	V0
-	802.11n (40MHz)	5500-5700	102 to 134	110	OFDM	BPSK	MCS0
-	802.11ac (80MHz)	5745-5825	155	155	OFDM	BPSK	V0

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 (40MHz)	5500-5700	102 to 134	110	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
	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	MCS0
	802.11ac (80MHz)		42	42	OFDM	BPSK	V0
-	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
	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	MCS0
	802.11ac (80MHz)		58	58	OFDM	BPSK	V0
-	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
	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	MCS0
	802.11ac (80MHz)		106 to 122	106	OFDM	BPSK	V0
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.0
	802.11n (20MHz)		149 to 165	149, 157, 165	OFDM	BPSK	MCS0
	802.11n (40MHz)		151 to 159	151, 159	OFDM	BPSK	MCS0
	802.11ac (80MHz)		155	155	OFDM	BPSK	V0

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
	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	MCS0
	802.11ac (80MHz)		42	42	OFDM	BPSK	V0
-	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
	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	MCS0
	802.11ac (80MHz)		58	58	OFDM	BPSK	V0
-	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
	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	MCS0
	802.11ac (80MHz)		106 to 122	106	OFDM	BPSK	V0
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.0
	802.11n (20MHz)		149 to 165	149, 157, 165	OFDM	BPSK	MCS0
	802.11n (40MHz)		151 to 159	151, 159	OFDM	BPSK	MCS0
	802.11ac (80MHz)		155	155	OFDM	BPSK	V0

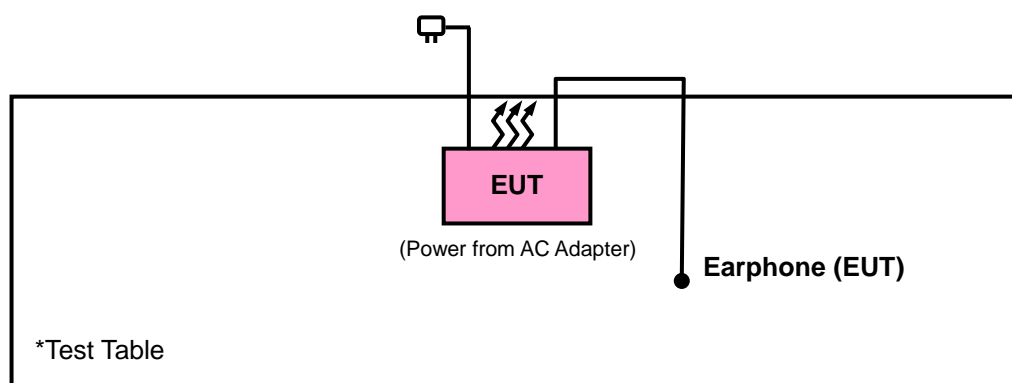
TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE \geq 1G	25deg. C, 65%RH	120Vac, 60Hz	Charles Hsiao
RE $<$ 1G	25deg. C, 65%RH	120Vac, 60Hz	Charles Hsiao
PLC	25deg. C, 65%RH	120Vac, 60Hz	Toby Tian
APCM	25deg. C, 65%RH	3.55Vdc	Taylor Liu

3.3 DESCRIPTION OF SUPPORT UNITS

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

3.3.1 CONFIGURATION OF SYSTEM UNDER TEST



3.4 DUTY CYCLE TEST SIGNAL

MODULATION TYPE: BPSK

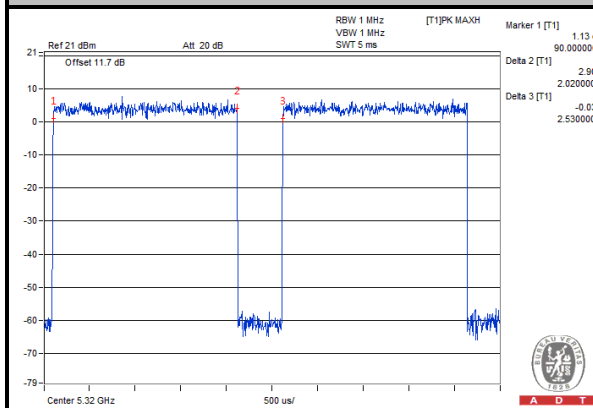
802.11a: Duty cycle = $2.020/2.530 = 0.798$, Duty factor = $10 * \log(1/0.798) = 0.98$

802.11n (20MHz): Duty cycle = $1.885/2.390 = 0.789$, Duty factor = $10 * \log(1/0.789) = 1.03$

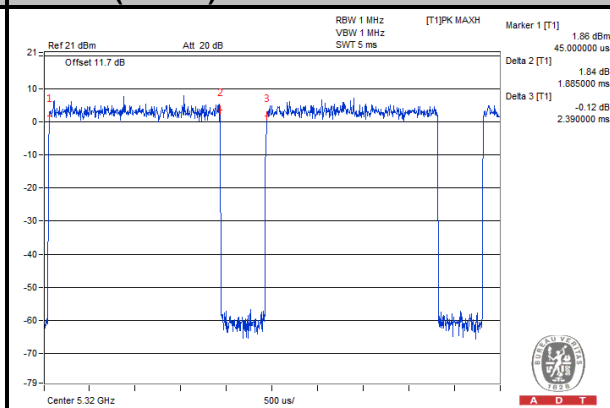
802.11n (40MHz): Duty cycle = $0.890/1.430 = 0.622$, Duty factor = $10 * \log(1/0.622) = 2.06$

802.11ac (80MHz): Duty cycle = $215/750 = 0.287$, Duty factor = $10 * \log(1/0.287) = 5.43$

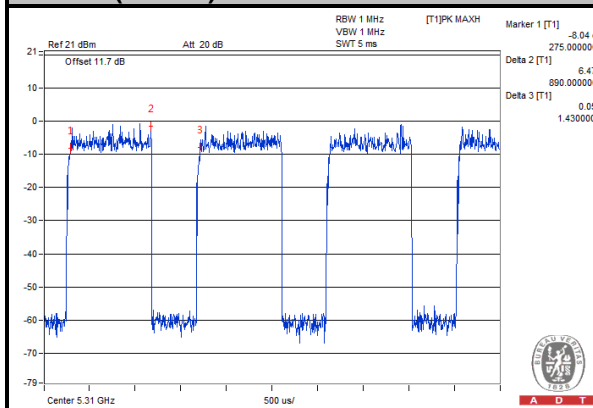
802.11a



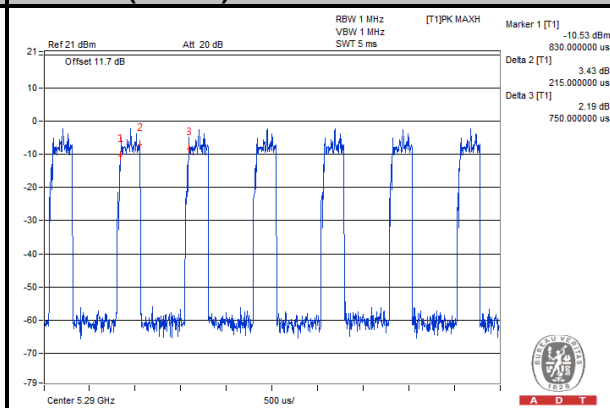
802.11n (20MHz)



802.11n (40MHz)



802.11ac (80MHz)



MODULATION TYPE: QPSK

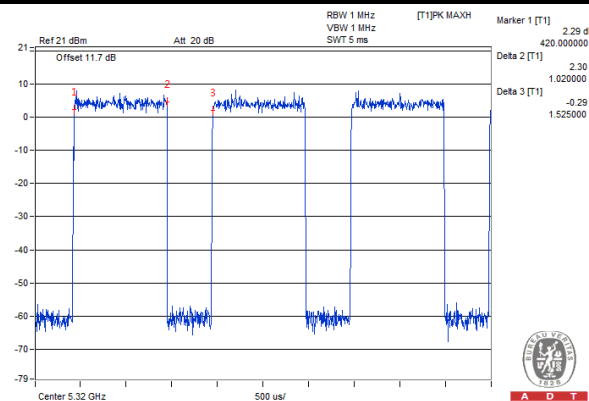
802.11a: Duty cycle = $1.020/1.525 = 0.669$, Duty factor = $10 * \log(1/0.669) = 1.75$

802.11n (20MHz): Duty cycle = $0.955/1.465 = 0.652$, Duty factor = $10 * \log(1/0.652) = 1.86$

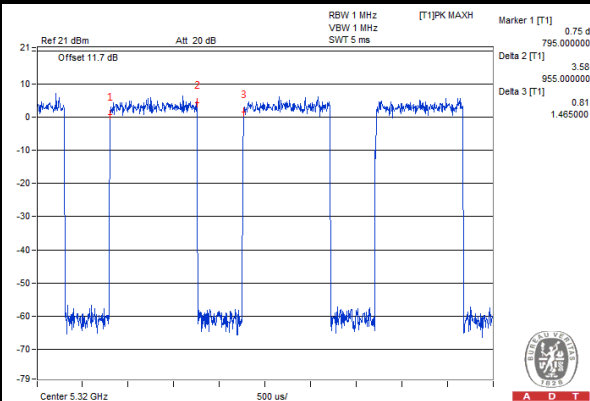
802.11n (40MHz): Duty cycle = $450/980 = 0.459$, Duty factor = $10 * \log(1/0.459) = 3.38$

802.11ac (80MHz): Duty cycle = $111/646 = 0.172$, Duty factor = $10 * \log(1/0.172) = 7.65$

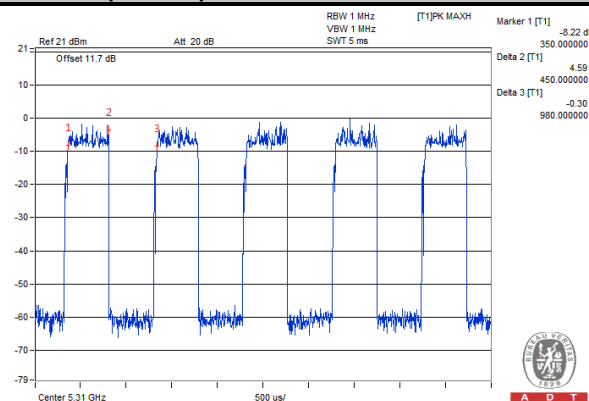
802.11a



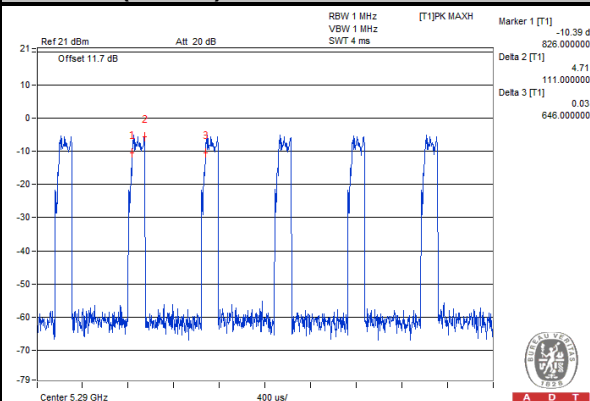
802.11n (20MHz)



802.11n (40MHz)



802.11ac (80MHz)



MODULATION TYPE: 16QAM

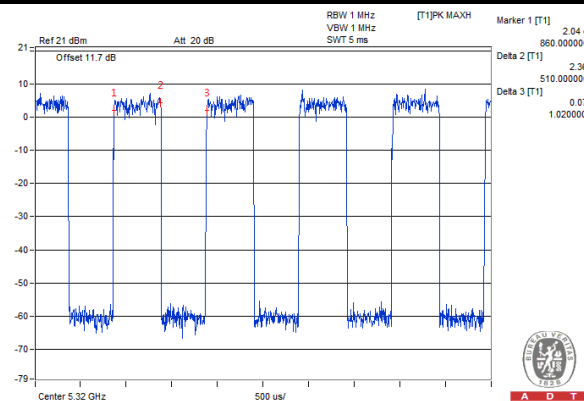
802.11a: Duty cycle = $0.510/1.020 = 0.50$, Duty factor = $10 * \log(1/0.50) = 3.01$

802.11n (20MHz): Duty cycle = $485/995 = 0.487$, Duty factor = $10 * \log(1/0.487) = 3.12$

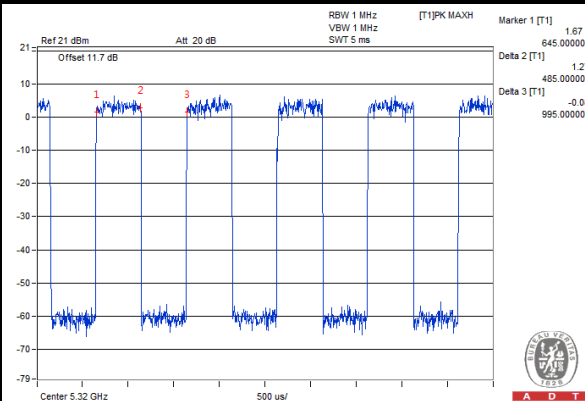
802.11n (40MHz): Duty cycle = $225/760 = 0.296$, Duty factor = $10 * \log(1/0.296) = 5.29$

802.11ac (80MHz): Duty cycle = $69/568 = 0.121$, Duty factor = $10 * \log(1/0.121) = 9.16$

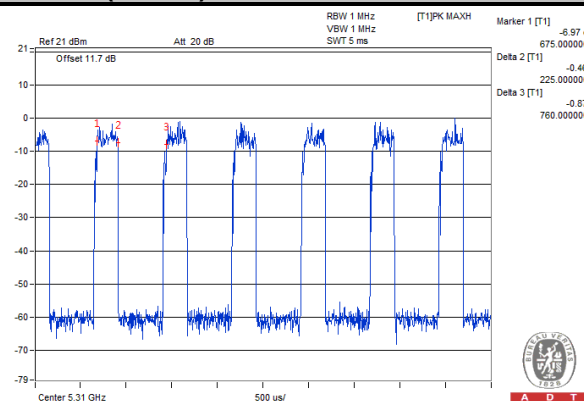
802.11a



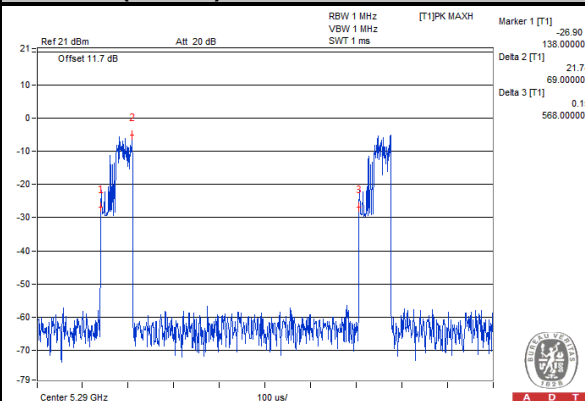
802.11n (20MHz)



802.11n (40MHz)



802.11ac (80MHz)



MODULATION TYPE: 64QAM

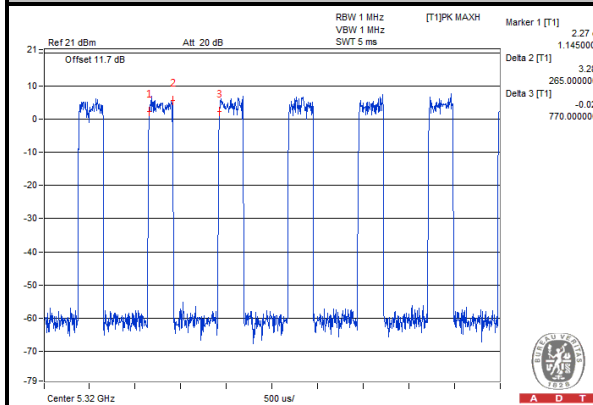
802.11a: Duty cycle = $265/770 = 0.344$, Duty factor = $10 * \log(1/0.344) = 4.63$

802.11n (20MHz): Duty cycle = $255/765 = 0.333$, Duty factor = $10 * \log(1/0.333) = 4.77$

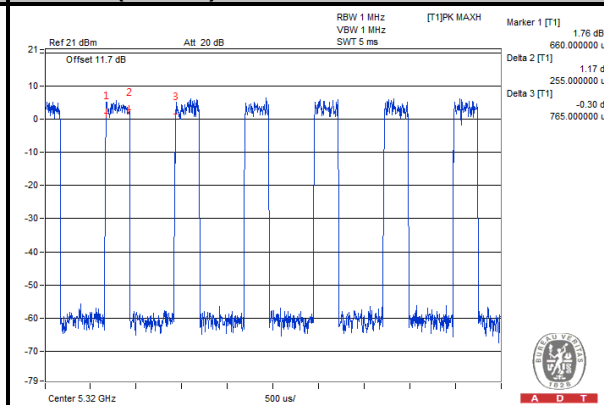
802.11n (40MHz): Duty cycle = $115/650 = 0.177$, Duty factor = $10 * \log(1/0.177) = 7.52$

802.11ac (80MHz): Duty cycle = $61/560 = 0.109$, Duty factor = $10 * \log(1/0.109) = 9.63$

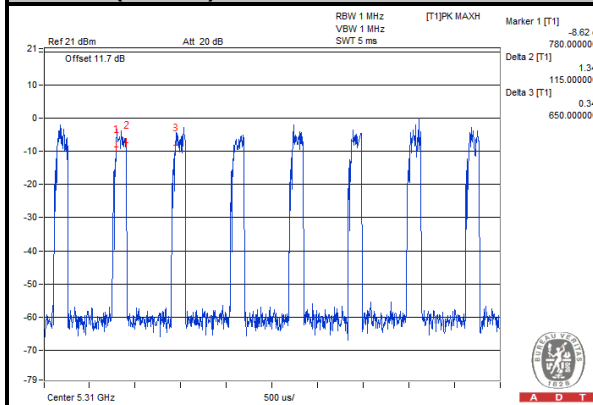
802.11a



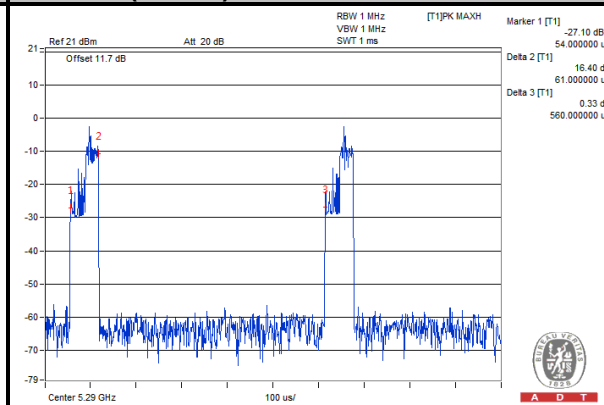
802.11n (20MHz)



802.11n (40MHz)



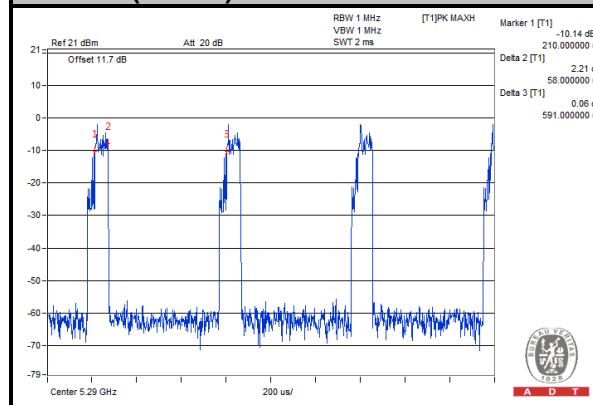
802.11ac (80MHz)



MODULATION TYPE: 256QAM

802.11ac (80MHz): Duty cycle = $58/591 = 0.098$, Duty factor = $10 * \log(1/0.098) = 10.08$

802.11ac (80MHz)





A D T

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

644545 D01 Guidance for IEEE 802 11ac v01r02

ANSI C63.10-2009

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

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

4. TEST TYPES AND RESULTS

4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

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

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 (dBuV/m)	AV: 54 (dBuV/m)
APPLICABLE TO	EIRP LIMIT	EQUIVALENT FIELD STRENGTH AT 3m
15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2 (dBuV/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 (dBuV/m) ^{*1} PK: 78.2 (dBuV/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:

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

4.1.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver Agilent	N9038A	MY51210203	Jan. 21, 2015	Jan. 21, 2016
Spectrum Analyzer Agilent	N9010A	MY52220314	Sep. 03, 2014	Sep. 02, 2015
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 10, 2014	Dec. 09, 2015
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Feb. 04, 2015	Feb. 04, 2016
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Feb. 09, 2015	Feb. 09, 2016
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Feb. 04, 2015	Feb. 04, 2016
Loop Antenna	EM-6879	269	Aug. 13, 2014	Aug. 12, 2015
Preamplifier EMCI	EMC 012645	980115	Dec. 12, 2014	Dec. 11, 2015
Preamplifier EMCI	EMC 184045	980116	Jan. 09, 2015	Jan. 08, 2016
Preamplifier EMCI	EMC 330H	980112	Dec. 27, 2014	Dec. 26, 2015
Power Meter Anritsu	ML2495A	1232002	Sep. 17, 2014	Sep. 16, 2015
Power Sensor Anritsu	MA2411B	1207325	Sep. 17, 2014	Sep. 16, 2015
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309219/4 2950114	Oct. 18, 2014	Oct. 17, 2015
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Oct. 18, 2014	Oct. 17, 2015
RF Coaxial Cable Worken	8D-FB	Cable-Ch10-01	Nov. 07, 2014	Nov. 06, 2015
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 10.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 690701.
5. 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 (for below 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The 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:

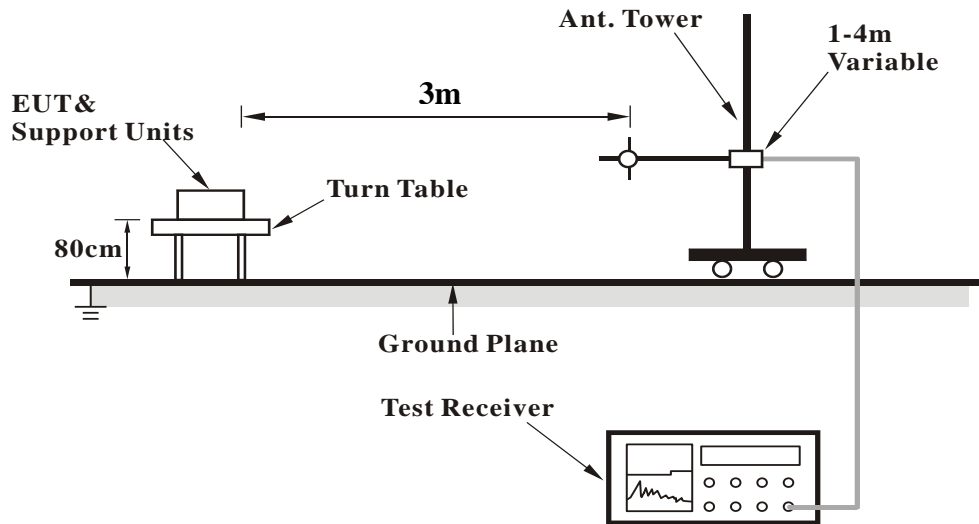
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency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

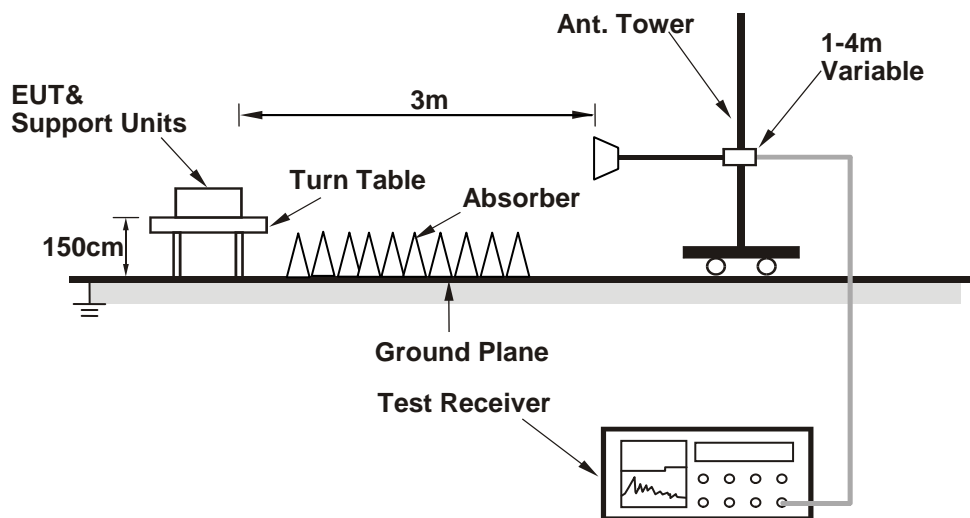
No deviation.

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).

4.1.7 EUT OPERATING CONDITIONS

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

4.1.8 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	Charles Hsiao

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	44.99	36.2	54	-9.01	34.09	8.69	33.99	100	208	Average
5112	58.69	49.9	74	-15.31	34.09	8.69	33.99	100	208	Peak
5180	98.22	89.3			34.15	8.77	34	100	208	Average
5180	106.84	97.92			34.15	8.77	34	100	208	Peak
5454	43.32	33.95	54	-10.68	34.36	9.06	34.05	100	208	Average
5454	58.12	48.75	74	-15.88	34.36	9.06	34.05	100	208	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
5150	46.52	37.65	54	-7.48	34.12	8.75	34	100	116	Average
5150	59.33	50.46	74	-14.67	34.12	8.75	34	100	116	Peak
5180	101.3	92.38			34.15	8.77	34	100	116	Average
5180	109.34	100.42			34.15	8.77	34	100	116	Peak
5430	43.08	33.74	54	-10.92	34.35	9.03	34.04	100	116	Average
5430	58.03	48.69	74	-15.97	34.35	9.03	34.04	100	116	Peak

REMARKS:

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

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	Charles Hsiao

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
5116	42.91	34.09	54	-11.09	34.09	8.72	33.99	105	208	Average
5116	56.78	47.96	74	-17.22	34.09	8.72	33.99	105	208	Peak
5220	99.1	90.11			34.17	8.82	34	105	208	Average
5220	107.6	98.61			34.17	8.82	34	105	208	Peak
5430	43.18	33.84	54	-10.82	34.35	9.03	34.04	105	208	Average
5430	57.78	48.44	74	-16.22	34.35	9.03	34.04	105	208	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
5128	43.33	34.49	54	-10.67	34.11	8.72	33.99	105	116	Average
5128	57.88	49.04	74	-16.12	34.11	8.72	33.99	105	116	Peak
5220	102.74	93.75			34.17	8.82	34	105	116	Average
5220	110.27	101.28			34.17	8.82	34	105	116	Peak
5456	43.32	33.95	54	-10.68	34.36	9.06	34.05	105	116	Average
5456	58.74	49.37	74	-15.26	34.36	9.06	34.05	105	116	Peak

REMARKS:

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

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	Charles Hsiao

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
5066	42.82	34.08	54	-11.18	34.05	8.67	33.98	112	203	Average
5066	57.48	48.74	74	-16.52	34.05	8.67	33.98	112	203	Peak
5240	99.74	90.71			34.19	8.85	34.01	112	203	Average
5240	107.65	98.62			34.19	8.85	34.01	112	203	Peak
5454	43.22	33.85	54	-10.78	34.36	9.06	34.05	112	203	Average
5454	57.86	48.49	74	-16.14	34.36	9.06	34.05	112	203	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
5118	43.11	34.29	54	-10.89	34.09	8.72	33.99	105	82	Average
5118	57.63	48.81	74	-16.37	34.09	8.72	33.99	105	82	Peak
5240	102.14	93.11			34.19	8.85	34.01	105	82	Average
5240	110.45	101.42			34.19	8.85	34.01	105	82	Peak
5440	43.3	33.93	54	-10.7	34.35	9.06	34.04	105	82	Average
5440	57.18	47.81	74	-16.82	34.35	9.06	34.04	105	82	Peak

REMARKS:

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

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	Charles Hsiao

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
5126	42.93	34.09	54	-11.07	34.11	8.72	33.99	101	109	Average
5126	56.53	47.69	74	-17.47	34.11	8.72	33.99	101	109	Peak
5260	101.76	92.71			34.21	8.85	34.01	101	109	Average
5260	109.38	100.33			34.21	8.85	34.01	101	109	Peak
5460	43.32	33.95	54	-10.68	34.36	9.06	34.05	101	109	Average
5460	57.67	48.3	74	-16.33	34.36	9.06	34.05	101	109	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
5134	43.03	34.19	54	-10.97	34.11	8.72	33.99	100	321	Average
5134	57.13	48.29	74	-16.87	34.11	8.72	33.99	100	321	Peak
5260	98.2	89.15			34.21	8.85	34.01	100	321	Average
5260	106.39	97.34			34.21	8.85	34.01	100	321	Peak
5416	43.27	33.95	54	-10.73	34.33	9.03	34.04	100	321	Average
5416	57.03	47.71	74	-16.97	34.33	9.03	34.04	100	321	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	Charles Hsiao

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
5034	42.84	34.16	54	-11.16	34.03	8.62	33.97	100	110	Average
5034	57.06	48.38	74	-16.94	34.03	8.62	33.97	100	110	Peak
5300	101.14	92.02			34.24	8.9	34.02	100	110	Average
5300	109.72	100.6			34.24	8.9	34.02	100	110	Peak
5450	45.42	36.05	54	-8.58	34.36	9.06	34.05	100	110	Average
5450	57.81	48.44	74	-16.19	34.36	9.06	34.05	100	110	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
5140	43.12	34.24	54	-10.88	34.12	8.75	33.99	105	303	Average
5140	57.25	48.37	74	-16.75	34.12	8.75	33.99	105	303	Peak
5300	98.24	89.12			34.24	8.9	34.02	105	303	Average
5300	106.39	97.27			34.24	8.9	34.02	105	303	Peak
5424	45.17	35.85	54	-8.83	34.33	9.03	34.04	105	303	Average
5424	58.24	48.92	74	-15.76	34.33	9.03	34.04	105	303	Peak

REMARKS:

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

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	Charles Hsiao

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
5094	43.07	34.29	54	-10.93	34.08	8.69	33.99	100	110	Average
5094	57.02	48.24	74	-16.98	34.08	8.69	33.99	100	110	Peak
5320	101.18	92.02			34.25	8.93	34.02	100	110	Average
5320	109.74	100.58			34.25	8.93	34.02	100	110	Peak
5350	44.63	35.43	54	-9.37	34.28	8.95	34.03	100	110	Average
5350	58.38	49.18	74	-15.62	34.28	8.95	34.03	100	110	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
5054	42.68	33.98	54	-11.32	34.04	8.64	33.98	105	303	Average
5054	56.44	47.74	74	-17.56	34.04	8.64	33.98	105	303	Peak
5320	98.18	89.02			34.25	8.93	34.02	105	303	Average
5320	106.16	97			34.25	8.93	34.02	105	303	Peak
5460	44.02	34.65	54	-9.98	34.36	9.06	34.05	105	303	Average
5460	57.95	48.58	74	-16.05	34.36	9.06	34.05	105	303	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	Charles Hsiao

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	44.89	36.17	54	-9.11	34.32	8.44	34.04	220	236	Average
5400	56.59	47.87	74	-17.41	34.32	8.44	34.04	220	236	Peak
5470	55.84	47.01	68.2	-12.36	34.37	8.51	34.05	220	236	Peak
5500	98.21	89.29			34.4	8.57	34.05	220	236	Average
5500	106.48	97.56			34.4	8.57	34.05	220	236	Peak
5725	56.75	47.59	68.2	-11.45	34.62	8.65	34.11	220	236	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
5460	45.19	36.37	54	-8.81	34.36	8.51	34.05	107	152	Average
5460	57.05	48.23	74	-16.95	34.36	8.51	34.05	107	152	Peak
5470	56.22	47.39	68.2	-11.98	34.37	8.51	34.05	107	152	Peak
5500	101.21	92.29			34.4	8.57	34.05	107	152	Average
5500	109.37	100.45			34.4	8.57	34.05	107	152	Peak
5725	56.01	46.85	68.2	-12.19	34.62	8.65	34.11	107	152	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

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	Charles Hsiao

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
5422	44.04	35.27	54	-9.96	34.33	8.48	34.04	220	236	Average
5422	57.11	48.34	74	-16.89	34.33	8.48	34.04	220	236	Peak
5470	54.72	45.89	68.2	-13.48	34.37	8.51	34.05	220	236	Peak
5580	98.3	89.31			34.47	8.6	34.08	220	236	Average
5580	106.28	97.29			34.47	8.6	34.08	220	236	Peak
5725	55.83	46.67	68.2	-12.37	34.62	8.65	34.11	220	236	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
5398	43.62	34.9	54	-10.38	34.32	8.44	34.04	117	164	Average
5398	56.78	48.06	74	-17.22	34.32	8.44	34.04	117	164	Peak
5470	54.84	46.01	68.2	-13.36	34.37	8.51	34.05	117	164	Peak
5580	101.3	92.31			34.47	8.6	34.08	117	164	Average
5580	109.22	100.23			34.47	8.6	34.08	117	164	Peak
5725	55.46	46.3	68.2	-12.74	34.62	8.65	34.11	117	164	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

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	Charles Hsiao

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	43.1	34.27	54	-10.9	34.36	8.51	34.04	243	235	Average
5448	57.14	48.31	74	-16.86	34.36	8.51	34.04	243	235	Peak
5470	54.86	46.03	68.2	-13.34	34.37	8.51	34.05	243	235	Peak
5700	97.68	88.55			34.59	8.64	34.1	243	235	Average
5700	105.41	96.28			34.59	8.64	34.1	243	235	Peak
5725	55.87	46.71	68.2	-12.33	34.62	8.65	34.11	243	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
5454	43.62	34.8	54	-10.38	34.36	8.51	34.05	114	116	Average
5454	57.15	48.33	74	-16.85	34.36	8.51	34.05	114	116	Peak
5470	55.39	46.56	68.2	-12.81	34.37	8.51	34.05	114	116	Peak
5700	100.35	91.22			34.59	8.64	34.1	114	116	Average
5700	108.44	99.31			34.59	8.64	34.1	114	116	Peak
5725	56.46	47.3	68.2	-11.74	34.62	8.65	34.11	114	116	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

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	Charles Hsiao

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
*5708	57.3	47.56	68.2	-10.9	34.61	9.24	34.11	100	176	Peak
*5724	58.65	48.88	78.2	-19.55	34.62	9.26	34.11	100	176	Peak
5745	98.18	88.38			34.64	9.27	34.11	100	176	Average
5745	106.6	96.8			34.64	9.27	34.11	100	176	Peak
*5856	57.81	47.85	78.2	-20.39	34.76	9.34	34.14	100	176	Peak
*5866	56.7	46.72	68.2	-11.5	34.76	9.36	34.14	100	176	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
*5712	58	48.26	68.2	-10.2	34.61	9.24	34.11	130	161	Peak
*5724	58.27	48.5	78.2	-19.93	34.62	9.26	34.11	130	161	Peak
5745	96.31	86.51			34.64	9.27	34.11	130	161	Average
5745	103.94	94.14			34.64	9.27	34.11	130	161	Peak
*5852	56.8	46.86	78.2	-21.4	34.74	9.34	34.14	130	161	Peak
*5862	57.38	47.42	68.2	-10.82	34.76	9.34	34.14	130	161	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5745MHz: Fundamental frequency.
- *: 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	Charles Hsiao

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	59.3	49.54	68.2	-8.9	34.61	9.26	34.11	119	179	Peak
*5716	58.41	48.65	78.2	-19.79	34.61	9.26	34.11	119	179	Peak
5785	102.09	92.25			34.68	9.29	34.13	119	179	Average
5785	110.74	100.9			34.68	9.29	34.13	119	179	Peak
*5852	58.3	48.36	78.2	-19.9	34.74	9.34	34.14	119	179	Peak
*5868	58.17	48.19	68.2	-10.03	34.76	9.36	34.14	119	179	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
*5708	58.69	48.95	68.2	-9.51	34.61	9.24	34.11	136	170	Peak
*5716	57.56	47.8	78.2	-20.64	34.61	9.26	34.11	136	170	Peak
5785	99.15	89.31			34.68	9.29	34.13	136	170	Average
5785	107.21	97.37			34.68	9.29	34.13	136	170	Peak
*5854	57.23	47.27	78.2	-20.97	34.76	9.34	34.14	136	170	Peak
*5870	57.99	48.01	68.2	-10.21	34.76	9.36	34.14	136	170	Peak

REMARKS:

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Charles Hsiao

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
*5708	57.91	48.17	68.2	-10.29	34.61	9.24	34.11	119	179	Peak
*5720	57.49	47.72	78.2	-20.71	34.62	9.26	34.11	119	179	Peak
5825	102.42	92.5			34.73	9.32	34.13	119	179	Average
5825	110.98	101.06			34.73	9.32	34.13	119	179	Peak
*5850	66.41	56.47	78.2	-11.79	34.74	9.34	34.14	119	179	Peak
*5866	58.59	48.61	68.2	-9.61	34.76	9.36	34.14	119	179	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
*5712	58.06	48.32	68.2	-10.14	34.61	9.24	34.11	108	168	Peak
*5716	57.44	47.68	78.2	-20.76	34.61	9.26	34.11	108	168	Peak
5825	99.48	89.56			34.73	9.32	34.13	108	168	Average
5825	107.38	97.46			34.73	9.32	34.13	108	168	Peak
*5854	58.91	48.95	78.2	-19.29	34.76	9.34	34.14	108	168	Peak
*5868	57.45	47.47	68.2	-10.75	34.76	9.36	34.14	108	168	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5825MHz: Fundamental frequency.
- *: Out of restricted band

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	Charles Hsiao

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	45.03	36.19	54	-8.97	34.11	8.72	33.99	100	208	Average
5128	57.67	48.83	74	-16.33	34.11	8.72	33.99	100	208	Peak
5180	98.01	89.09			34.15	8.77	34	100	208	Average
5180	105.18	96.26			34.15	8.77	34	100	208	Peak
5442	43.2	33.83	54	-10.8	34.35	9.06	34.04	100	208	Average
5442	57.57	48.2	74	-16.43	34.35	9.06	34.04	100	208	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
5148	46.47	37.6	54	-7.53	34.12	8.75	34	100	116	Average
5148	58.31	49.44	74	-15.69	34.12	8.75	34	100	116	Peak
5180	100.22	91.3			34.15	8.77	34	100	116	Average
5180	108.25	99.33			34.15	8.77	34	100	116	Peak
5460	43.32	33.95	54	-10.68	34.36	9.06	34.05	100	116	Average
5460	57.87	48.5	74	-16.13	34.36	9.06	34.05	100	116	Peak

REMARKS:

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

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	Charles Hsiao

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
5092	42.97	34.18	54	-11.03	34.08	8.69	33.98	105	208	Average
5092	57.09	48.3	74	-16.91	34.08	8.69	33.98	105	208	Peak
5220	98.3	89.31			34.17	8.82	34	105	208	Average
5220	106.8	97.81			34.17	8.82	34	105	208	Peak
5450	43.32	33.95	54	-10.68	34.36	9.06	34.05	105	208	Average
5450	57.53	48.16	74	-16.47	34.36	9.06	34.05	105	208	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
5094	43.07	34.29	54	-10.93	34.08	8.69	33.99	105	116	Average
5094	57.24	48.46	74	-16.76	34.08	8.69	33.99	105	116	Peak
5220	101.6	92.61			34.17	8.82	34	105	116	Average
5220	109.71	100.72			34.17	8.82	34	105	116	Peak
5440	43.2	33.83	54	-10.8	34.35	9.06	34.04	105	116	Average
5440	57.22	47.85	74	-16.78	34.35	9.06	34.04	105	116	Peak

REMARKS:

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

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	Charles Hsiao

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
5136	43.03	34.19	54	-10.97	34.11	8.72	33.99	112	203	Average
5136	57.06	48.22	74	-16.94	34.11	8.72	33.99	112	203	Peak
5240	97.74	88.71			34.19	8.85	34.01	112	203	Average
5240	105.09	96.06			34.19	8.85	34.01	112	203	Peak
5460	43.32	33.95	54	-10.68	34.36	9.06	34.05	112	203	Average
5460	58.97	49.6	74	-15.03	34.36	9.06	34.05	112	203	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	43.03	34.27	54	-10.97	34.07	8.67	33.98	105	82	Average
5080	57.21	48.45	74	-16.79	34.07	8.67	33.98	105	82	Peak
5240	100.84	91.81			34.19	8.85	34.01	105	82	Average
5240	108.05	99.02			34.19	8.85	34.01	105	82	Peak
5460	43.32	33.95	54	-10.68	34.36	9.06	34.05	105	82	Average
5460	57.97	48.6	74	-16.03	34.36	9.06	34.05	105	82	Peak

REMARKS:

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

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	Charles Hsiao

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
5102	42.87	34.09	54	-11.13	34.08	8.69	33.99	101	109	Average
5102	56.88	48.1	74	-17.12	34.08	8.69	33.99	101	109	Peak
5260	100.56	91.51			34.21	8.85	34.01	101	109	Average
5260	108.3	99.25			34.21	8.85	34.01	101	109	Peak
5444	43.3	33.93	54	-10.7	34.35	9.06	34.04	101	109	Average
5444	57.91	48.54	74	-16.09	34.35	9.06	34.04	101	109	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
5124	43.13	34.29	54	-10.87	34.11	8.72	33.99	105	303	Average
5124	56.84	48	74	-17.16	34.11	8.72	33.99	105	303	Peak
5260	98.06	89.01			34.21	8.85	34.01	105	303	Average
5260	105.24	96.19			34.21	8.85	34.01	105	303	Peak
5358	43.13	33.93	54	-10.87	34.28	8.95	34.03	105	303	Average
5358	57.82	48.62	74	-16.18	34.28	8.95	34.03	105	303	Peak

REMARKS:

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

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	Charles Hsiao

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
5032	42.74	34.06	54	-11.26	34.03	8.62	33.97	100	110	Average
5032	56.89	48.21	74	-17.11	34.03	8.62	33.97	100	110	Peak
5300	101.04	91.92			34.24	8.9	34.02	100	110	Average
5300	109.28	100.16			34.24	8.9	34.02	100	110	Peak
5444	45.7	36.33	54	-8.3	34.35	9.06	34.04	100	110	Average
5444	57.61	48.24	74	-16.39	34.35	9.06	34.04	100	110	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
5100	42.87	34.09	54	-11.13	34.08	8.69	33.99	105	303	Average
5100	57.21	48.43	74	-16.79	34.08	8.69	33.99	105	303	Peak
5300	98.94	89.82			34.24	8.9	34.02	105	303	Average
5300	106.64	97.52			34.24	8.9	34.02	105	303	Peak
5456	45.42	36.05	54	-8.58	34.36	9.06	34.05	105	303	Average
5456	57.63	48.26	74	-16.37	34.36	9.06	34.05	105	303	Peak

REMARKS:

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

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	Charles Hsiao

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
5100	43.01	34.23	54	-10.99	34.08	8.69	33.99	100	110	Average
5100	57.12	48.34	74	-16.88	34.08	8.69	33.99	100	110	Peak
5320	99.38	90.22			34.25	8.93	34.02	100	110	Average
5320	107.48	98.32			34.25	8.93	34.02	100	110	Peak
5438	44.9	35.53	54	-9.1	34.35	9.06	34.04	100	110	Average
5438	57.31	47.94	74	-16.69	34.35	9.06	34.04	100	110	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
5102	43.02	34.24	54	-10.98	34.08	8.69	33.99	105	303	Average
5102	57.89	49.11	74	-16.11	34.08	8.69	33.99	105	303	Peak
5320	96.58	87.42			34.25	8.93	34.02	105	303	Average
5320	104.12	94.96			34.25	8.93	34.02	105	303	Peak
5436	44.08	34.74	54	-9.92	34.35	9.03	34.04	105	303	Average
5436	58.61	49.27	74	-15.39	34.35	9.03	34.04	105	303	Peak

REMARKS:

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

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	Charles Hsiao

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
5444	43.68	34.89	54	-10.32	34.35	8.48	34.04	198	96	Average
5444	57.05	48.26	74	-16.95	34.35	8.48	34.04	198	96	Peak
5470	55.02	46.19	68.2	-13.18	34.37	8.51	34.05	198	96	Peak
5500	97.5	88.58			34.4	8.57	34.05	198	96	Average
5500	105.43	96.51			34.4	8.57	34.05	198	96	Peak
5725	54.76	45.6	68.2	-13.44	34.62	8.65	34.11	198	96	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
5424	43.67	34.9	54	-10.33	34.33	8.48	34.04	171	98	Average
5424	57.93	49.16	74	-16.07	34.33	8.48	34.04	171	98	Peak
5470	55.69	46.86	68.2	-12.51	34.37	8.51	34.05	171	98	Peak
5500	100.5	91.58			34.4	8.57	34.05	171	98	Average
5500	108.98	100.06			34.4	8.57	34.05	171	98	Peak
5725	56.24	47.08	68.2	-11.96	34.62	8.65	34.11	171	98	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

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	Charles Hsiao

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
5450	43.73	34.91	54	-10.27	34.36	8.51	34.05	158	236	Average
5450	57.06	48.24	74	-16.94	34.36	8.51	34.05	158	236	Peak
5470	54.99	46.16	68.2	-13.21	34.37	8.51	34.05	158	236	Peak
5580	98.59	89.6			34.47	8.6	34.08	158	236	Average
5580	106.09	97.1			34.47	8.6	34.08	158	236	Peak
5725	55.35	46.19	68.2	-12.85	34.62	8.65	34.11	158	236	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
5458	43.72	34.9	54	-10.28	34.36	8.51	34.05	164	72	Average
5458	56.63	47.81	74	-17.37	34.36	8.51	34.05	164	72	Peak
5470	56.28	47.45	68.2	-11.92	34.37	8.51	34.05	164	72	Peak
5580	101.19	92.2			34.47	8.6	34.08	164	72	Average
5580	109.46	100.47			34.47	8.6	34.08	164	72	Peak
5725	55.02	45.86	68.2	-13.18	34.62	8.65	34.11	164	72	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

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	Charles Hsiao

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
5428	43.66	34.89	54	-10.34	34.33	8.48	34.04	153	236	Average
5428	56.3	47.53	74	-17.7	34.33	8.48	34.04	153	236	Peak
5470	56.54	47.71	68.2	-11.66	34.37	8.51	34.05	153	236	Peak
5700	96.46	87.33			34.59	8.64	34.1	153	236	Average
5700	104.38	95.25			34.59	8.64	34.1	153	236	Peak
5725	55.24	46.08	68.2	-12.96	34.62	8.65	34.11	153	236	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
5454	43.73	34.91	54	-10.27	34.36	8.51	34.05	102	92	Average
5454	57.52	48.7	74	-16.48	34.36	8.51	34.05	102	92	Peak
5470	55.79	46.96	68.2	-12.41	34.37	8.51	34.05	102	92	Peak
5700	99.35	90.22			34.59	8.64	34.1	102	92	Average
5700	107.39	98.26			34.59	8.64	34.1	102	92	Peak
5725	55.23	46.07	68.2	-12.97	34.62	8.65	34.11	102	92	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	Charles Hsiao

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
*5712	57.33	47.59	68.2	-10.87	34.61	9.24	34.11	100	176	Peak
*5724	64.26	54.49	78.2	-13.94	34.62	9.26	34.11	100	176	Peak
5745	97.23	87.43			34.64	9.27	34.11	100	176	Average
5745	105.19	95.39			34.64	9.27	34.11	100	176	Peak
*5856	57.4	47.44	78.2	-20.8	34.76	9.34	34.14	100	176	Peak
*5868	57.59	47.61	68.2	-10.61	34.76	9.36	34.14	100	176	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
*5706	56.78	47.04	68.2	-11.42	34.61	9.24	34.11	130	161	Peak
*5724	57.81	48.04	78.2	-20.39	34.62	9.26	34.11	130	161	Peak
5745	94.45	84.65			34.64	9.27	34.11	130	161	Average
5745	102.19	92.39			34.64	9.27	34.11	130	161	Peak
*5856	57.92	47.96	78.2	-20.28	34.76	9.34	34.14	130	161	Peak
*5862	56.72	46.76	68.2	-11.48	34.76	9.34	34.14	130	161	Peak

REMARKS:

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

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	Charles Hsiao

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
*5706	56.81	47.07	68.2	-11.39	34.61	9.24	34.11	119	179	Peak
*5724	56.36	46.59	78.2	-21.84	34.62	9.26	34.11	119	179	Peak
5785	101.17	91.33			34.68	9.29	34.13	119	179	Average
5785	109.75	99.91			34.68	9.29	34.13	119	179	Peak
*5852	57.2	47.26	78.2	-21	34.74	9.34	34.14	119	179	Peak
*5866	56.37	46.39	68.2	-11.83	34.76	9.36	34.14	119	179	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
*5712	56.92	47.18	68.2	-11.28	34.61	9.24	34.11	136	170	Peak
*5718	57.32	47.55	78.2	-20.88	34.62	9.26	34.11	136	170	Peak
5785	98.12	88.28			34.68	9.29	34.13	136	170	Average
5785	106.74	96.9			34.68	9.29	34.13	136	170	Peak
*5856	56.43	46.47	78.2	-21.77	34.76	9.34	34.14	136	170	Peak
*5866	57.15	47.17	68.2	-11.05	34.76	9.36	34.14	136	170	Peak

REMARKS:

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Charles Hsiao

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
*5710	57.78	48.04	68.2	-10.42	34.61	9.24	34.11	119	179	Peak
*5724	56.88	47.11	78.2	-21.32	34.62	9.26	34.11	119	179	Peak
5825	101.41	91.49			34.73	9.32	34.13	119	179	Average
5825	109.08	99.16			34.73	9.32	34.13	119	179	Peak
*5852	63.28	53.34	78.2	-14.92	34.74	9.34	34.14	119	179	Peak
*5862	58.48	48.52	68.2	-9.72	34.76	9.34	34.14	119	179	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	57.18	47.42	68.2	-11.02	34.61	9.26	34.11	108	168	Peak
*5718	57.06	47.29	78.2	-21.14	34.62	9.26	34.11	108	168	Peak
5825	98.59	88.67			34.73	9.32	34.13	108	168	Average
5825	106.2	96.28			34.73	9.32	34.13	108	168	Peak
*5854	58.64	48.68	78.2	-19.56	34.76	9.34	34.14	108	168	Peak
*5864	57.15	47.17	68.2	-11.05	34.76	9.36	34.14	108	168	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamplifier Factor
Margin value = Emission level – Limit value
- 5825MHz: Fundamental frequency.
- *: Out of restricted band

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Charles Hsiao

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	43.23	34.47	54	-10.77	34.07	8.67	33.98	100	210	Average
5076	57.27	48.51	74	-16.73	34.07	8.67	33.98	100	210	Peak
5190	95.04	86.09			34.15	8.8	34	100	210	Average
5190	103.75	94.8			34.15	8.8	34	100	210	Peak
5382	43.49	34.24	54	-10.51	34.31	8.98	34.04	100	210	Average
5382	58.81	49.56	74	-15.19	34.31	8.98	34.04	100	210	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	43.61	34.79	54	-10.39	34.09	8.72	33.99	100	104	Average
5122	57.2	48.38	74	-16.8	34.09	8.72	33.99	100	104	Peak
5190	98.24	89.29			34.15	8.8	34	100	104	Average
5190	106.32	97.37			34.15	8.8	34	100	104	Peak
5426	43.57	34.25	54	-10.43	34.33	9.03	34.04	100	104	Average
5426	57.9	48.58	74	-16.1	34.33	9.03	34.04	100	104	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5190MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Charles Hsiao

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
5148	43.57	34.7	54	-10.43	34.12	8.75	34	105	204	Average
5148	57.55	48.68	74	-16.45	34.12	8.75	34	105	204	Peak
5230	95.21	86.21			34.19	8.82	34.01	105	204	Average
5230	103.67	94.67			34.19	8.82	34.01	105	204	Peak
5440	43.6	34.23	54	-10.4	34.35	9.06	34.04	105	204	Average
5440	58	48.63	74	-16	34.35	9.06	34.04	105	204	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
5066	43.82	35.08	54	-10.18	34.05	8.67	33.98	100	83	Average
5066	57.3	48.56	74	-16.7	34.05	8.67	33.98	100	83	Peak
5230	98.11	89.11			34.19	8.82	34.01	100	83	Average
5230	106.38	97.38			34.19	8.82	34.01	100	83	Peak
5446	43.62	34.24	54	-10.38	34.36	9.06	34.04	100	83	Average
5446	57.57	48.19	74	-16.43	34.36	9.06	34.04	100	83	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5230MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 54	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Charles Hsiao

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
5040	43.41	34.7	54	-10.59	34.04	8.64	33.97	101	80	Average
5040	57.01	48.3	74	-16.99	34.04	8.64	33.97	101	80	Peak
5270	97.39	88.31			34.21	8.88	34.01	101	80	Average
5270	105.95	96.87			34.21	8.88	34.01	101	80	Peak
5374	43.57	34.34	54	-10.43	34.29	8.98	34.04	101	80	Average
5374	57.75	48.52	74	-16.25	34.29	8.98	34.04	101	80	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
5068	43.22	34.48	54	-10.78	34.05	8.67	33.98	100	330	Average
5068	57.77	49.03	74	-16.23	34.05	8.67	33.98	100	330	Peak
5270	95.59	86.51			34.21	8.88	34.01	100	330	Average
5270	103.56	94.48			34.21	8.88	34.01	100	330	Peak
5416	43.67	34.35	54	-10.33	34.33	9.03	34.04	100	330	Average
5416	57.83	48.51	74	-16.17	34.33	9.03	34.04	100	330	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5270MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 62	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Charles Hsiao

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	43.28	34.58	54	-10.72	34.04	8.64	33.98	107	80	Average
5042	56.99	48.29	74	-17.01	34.04	8.64	33.98	107	80	Peak
5310	97.56	88.43			34.25	8.9	34.02	107	80	Average
5310	105.29	96.16			34.25	8.9	34.02	107	80	Peak
5382	43.69	34.44	54	-10.31	34.31	8.98	34.04	107	80	Average
5382	57.18	47.93	74	-16.82	34.31	8.98	34.04	107	80	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	43.37	34.59	54	-10.63	34.08	8.69	33.99	106	303	Average
5096	56.71	47.93	74	-17.29	34.08	8.69	33.99	106	303	Peak
5310	94.16	85.03			34.25	8.9	34.02	106	303	Average
5310	102.12	92.99			34.25	8.9	34.02	106	303	Peak
5444	43.54	34.17	54	-10.46	34.35	9.06	34.04	106	303	Average
5444	57.95	48.58	74	-16.05	34.35	9.06	34.04	106	303	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5310MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 102	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Charles Hsiao

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
5420	43.67	34.9	54	-10.33	34.33	8.48	34.04	167	276	Average
5420	56.78	48.01	74	-17.22	34.33	8.48	34.04	167	276	Peak
5470	56.17	47.34	68.2	-12.03	34.37	8.51	34.05	167	276	Peak
5510	94.5	85.59			34.4	8.57	34.06	167	276	Average
5510	102.95	94.04			34.4	8.57	34.06	167	276	Peak
5725	55.27	46.11	68.2	-12.93	34.62	8.65	34.11	167	276	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
5408	43.99	35.27	54	-10.01	34.32	8.44	34.04	168	236	Average
5408	56.7	47.98	74	-17.3	34.32	8.44	34.04	168	236	Peak
5470	55.92	47.09	68.2	-12.28	34.37	8.51	34.05	168	236	Peak
5510	97.54	88.63			34.4	8.57	34.06	168	236	Average
5510	105.78	96.87			34.4	8.57	34.06	168	236	Peak
5725	54.59	45.43	68.2	-13.61	34.62	8.65	34.11	168	236	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5510MHz: Fundamental frequency.
- 5470MHz & 5725MHz: Out of restricted band

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 110	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Charles Hsiao

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
5372	45.27	36.6	54	-8.73	34.29	8.41	34.03	167	276	Average
5372	56.65	47.98	74	-17.35	34.29	8.41	34.03	167	276	Peak
5470	56.79	47.96	68.2	-11.41	34.37	8.51	34.05	167	276	Peak
5550	95.9	86.93			34.45	8.59	34.07	167	276	Average
5550	103.84	94.87			34.45	8.59	34.07	167	276	Peak
5725	55.35	46.19	68.2	-12.85	34.62	8.65	34.11	167	276	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
5382	43.58	34.9	54	-10.42	34.31	8.41	34.04	168	236	Average
5382	56.75	48.07	74	-17.25	34.31	8.41	34.04	168	236	Peak
5470	55.26	46.43	68.2	-12.94	34.37	8.51	34.05	168	236	Peak
5550	98.57	89.6			34.45	8.59	34.07	168	236	Average
5550	106.76	97.79			34.45	8.59	34.07	168	236	Peak
5725	55.33	46.17	68.2	-12.87	34.62	8.65	34.11	168	236	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5550MHz: Fundamental frequency.
- 5470MHz & 5725MHz: Out of restricted band

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 134	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Charles Hsiao

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
5460	43.76	34.94	54	-10.24	34.36	8.51	34.05	167	276	Average
5460	57.06	48.24	74	-16.94	34.36	8.51	34.05	167	276	Peak
5470	54.69	45.86	68.2	-13.51	34.37	8.51	34.05	167	276	Peak
5670	94.76	85.66			34.57	8.63	34.1	167	276	Average
5670	102.45	93.35			34.57	8.63	34.1	167	276	Peak
5725	54.5	45.34	68.2	-13.7	34.62	8.65	34.11	167	276	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
5378	43.49	34.81	54	-10.51	34.31	8.41	34.04	168	236	Average
5378	56.71	48.03	74	-17.29	34.31	8.41	34.04	168	236	Peak
5470	55.14	46.31	68.2	-13.06	34.37	8.51	34.05	168	236	Peak
5670	97.77	88.67			34.57	8.63	34.1	168	236	Average
5670	105.29	96.19			34.57	8.63	34.1	168	236	Peak
5725	54.96	45.8	68.2	-13.24	34.62	8.65	34.11	168	236	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5670MHz: Fundamental frequency.
- 5470MHz & 5725MHz: Out of restricted band



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Charles Hsiao

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
*5712	58.92	49.18	68.2	-9.28	34.61	9.24	34.11	100	176	Peak
*5724	66.39	56.62	78.2	-11.81	34.62	9.26	34.11	100	176	Peak
5755	98.51	88.69			34.66	9.27	34.11	100	176	Average
5755	106.05	96.23			34.66	9.27	34.11	100	176	Peak
*5856	58.64	48.68	78.2	-19.56	34.76	9.34	34.14	100	176	Peak
*5868	57.51	47.53	68.2	-10.69	34.76	9.36	34.14	100	176	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	57.3	47.54	68.2	-10.9	34.61	9.26	34.11	130	161	Peak
*5722	59.7	49.93	78.2	-18.5	34.62	9.26	34.11	130	161	Peak
5755	95.25	85.43			34.66	9.27	34.11	130	161	Average
5755	103.36	93.54			34.66	9.27	34.11	130	161	Peak
*5856	56.97	47.01	78.2	-21.23	34.76	9.34	34.14	130	161	Peak
*5868	56.99	47.01	68.2	-11.21	34.76	9.36	34.14	130	161	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5755MHz: Fundamental frequency.
- *: Out of restricted band

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Charles Hsiao

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
*5712	57.54	47.8	68.2	-10.66	34.61	9.24	34.11	119	179	Peak
*5716	55.85	46.09	78.2	-22.35	34.61	9.26	34.11	119	179	Peak
5795	98.59	88.72			34.69	9.31	34.13	119	179	Average
5795	106.15	96.28			34.69	9.31	34.13	119	179	Peak
*5860	57.43	47.47	78.2	-20.77	34.76	9.34	34.14	119	179	Peak
*5866	56.9	46.92	68.2	-11.3	34.76	9.36	34.14	119	179	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	57.96	48.2	68.2	-10.24	34.61	9.26	34.11	108	168	Peak
*5722	56.83	47.06	78.2	-21.37	34.62	9.26	34.11	108	168	Peak
5795	95.36	85.49			34.69	9.31	34.13	108	168	Average
5795	103.03	93.16			34.69	9.31	34.13	108	168	Peak
*5860	58.16	48.2	78.2	-20.04	34.76	9.34	34.14	108	168	Peak
*5870	57.73	47.75	68.2	-10.47	34.76	9.36	34.14	108	168	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5795MHz: Fundamental frequency.
- *: Out of restricted band

802.11ac (80MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 42	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Charles Hsiao

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
5098	46.07	37.29	54	-7.93	34.08	8.69	33.99	100	209	Average
5098	57.35	48.57	74	-16.65	34.08	8.69	33.99	100	209	Peak
5210	93.17	84.2			34.17	8.8	34	100	209	Average
5210	101.39	92.42			34.17	8.8	34	100	209	Peak
5426	44.27	34.95	54	-9.73	34.33	9.03	34.04	100	209	Average
5426	57.21	47.89	74	-16.79	34.33	9.03	34.04	100	209	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
5150	47.77	38.9	54	-6.23	34.12	8.75	34	100	87	Average
5150	60.26	51.39	74	-13.74	34.12	8.75	34	100	87	Peak
5210	96.17	87.2			34.17	8.8	34	100	87	Average
5210	104.93	95.96			34.17	8.8	34	100	87	Peak
5460	44.22	34.85	54	-9.78	34.36	9.06	34.05	100	87	Average
5460	57.94	48.57	74	-16.06	34.36	9.06	34.05	100	87	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5210MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 58	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Charles Hsiao

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
5120	43.81	34.99	54	-10.19	34.09	8.72	33.99	100	80	Average
5120	58.45	49.63	74	-15.55	34.09	8.72	33.99	100	80	Peak
5290	95.43	86.32			34.23	8.9	34.02	100	80	Average
5290	103.76	94.65			34.23	8.9	34.02	100	80	Peak
5384	46.49	37.24	54	-7.51	34.31	8.98	34.04	100	80	Average
5384	58	48.75	74	-16	34.31	8.98	34.04	100	80	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
5068	43.92	35.18	54	-10.08	34.05	8.67	33.98	106	299	Average
5068	56.14	47.4	74	-17.86	34.05	8.67	33.98	106	299	Peak
5290	92.93	83.82			34.23	8.9	34.02	106	299	Average
5290	100.69	91.58			34.23	8.9	34.02	106	299	Peak
5406	45.43	36.14	54	-8.57	34.32	9.01	34.04	106	299	Average
5406	57.93	48.64	74	-16.07	34.32	9.01	34.04	106	299	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5290MHz: Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 106	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Charles Hsiao

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
5426	44.33	35.56	54	-9.67	34.33	8.48	34.04	167	276	Average
5426	57.24	48.47	74	-16.76	34.33	8.48	34.04	167	276	Peak
5470	54.64	45.81	68.2	-13.56	34.37	8.51	34.05	167	276	Peak
5530	92.23	83.3			34.42	8.58	34.07	167	276	Average
5530	100.08	91.15			34.42	8.58	34.07	167	276	Peak
5725	55.86	46.7	68.2	-12.34	34.62	8.65	34.11	167	276	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
5368	43.56	34.89	54	-10.44	34.29	8.41	34.03	168	236	Average
5368	56.42	47.75	74	-17.58	34.29	8.41	34.03	168	236	Peak
5470	55.05	46.22	68.2	-13.15	34.37	8.51	34.05	168	236	Peak
5530	95.52	86.59			34.42	8.58	34.07	168	236	Average
5530	103.31	94.38			34.42	8.58	34.07	168	236	Peak
5725	56.45	47.29	68.2	-11.75	34.62	8.65	34.11	168	236	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5530MHz: Fundamental frequency.
- 5470MHz & 5725MHz: Out of restricted band



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 155	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Charles Hsiao

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	63.27	53.51	68.2	-4.93	34.61	9.26	34.11	100	176	Peak
*5718	66.76	56.99	78.2	-11.44	34.62	9.26	34.11	100	176	Peak
5775	96.84	86.99			34.68	9.29	34.12	100	176	Average
5775	104.65	94.8			34.68	9.29	34.12	100	176	Peak
*5856	58.66	48.7	78.2	-19.54	34.76	9.34	34.14	100	176	Peak
*5866	58.79	48.81	68.2	-9.41	34.76	9.36	34.14	100	176	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
*5706	58.52	48.78	68.2	-9.68	34.61	9.24	34.11	130	161	Peak
*5718	63.15	53.38	78.2	-15.05	34.62	9.26	34.11	130	161	Peak
5775	93.93	84.08			34.68	9.29	34.12	130	161	Average
5775	101.71	91.86			34.68	9.29	34.12	130	161	Peak
*5856	57.96	48	78.2	-20.24	34.76	9.34	34.14	130	161	Peak
*5870	58.48	48.5	68.2	-9.72	34.76	9.36	34.14	130	161	Peak

REMARKS:

- Emission Level = Read Level + Antenna Factor + Cable Loss - Preamp Factor
Margin value = Emission level – Limit value
- 5775MHz: Fundamental frequency.
- *: Out of restricted band

BELOW 1GHz WORST-CASE DATA:

802.11ac (80MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 42	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Quasi-peak (QP)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Charles Hsiao

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
93.18	23.64	43.25	43.5	-19.86	11.16	1.11	31.88	142	312	Peak
164.73	19.65	41.47	43.5	-23.85	8.92	1.52	32.26	104	304	Peak
230.61	17.7	36.23	46	-28.3	11.79	1.85	32.17	109	178	Peak
357.4	22.46	37.97	46	-23.54	14.32	2.26	32.09	145	123	Peak
479.2	21.35	34.86	46	-24.65	16.05	2.56	32.12	109	196	Peak
962.2	25.29	30.68	54	-28.71	21.85	3.67	30.91	157	282	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
45.12	32.29	49.2	40	-7.71	14.41	0.9	32.22	154	198	Peak
87.78	24.68	45.43	40	-15.32	9.95	1.11	31.81	198	339	Peak
180.12	22.41	43.3	43.5	-21.09	9.74	1.61	32.24	192	162	Peak
518.4	26.35	39.19	46	-19.65	16.59	2.7	32.13	188	163	Peak
771.1	21.32	30.12	46	-24.68	20.04	3.27	32.11	163	247	Peak
958	23.75	29.24	46	-22.25	21.81	3.67	30.97	143	153	Peak

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

Margin value = Emission level – Limit value

802.11ac (80MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 58	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Quasi-peak (QP)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Charles Hsiao

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
93.45	23.69	43.3	43.5	-19.81	11.16	1.11	31.88	121	292	Peak
145.83	20.58	43.1	43.5	-22.92	8.37	1.38	32.27	113	277	Peak
237.9	22.53	40.81	46	-23.47	12.02	1.85	32.15	174	224	Peak
357.4	22.34	37.85	46	-23.66	14.32	2.26	32.09	134	212	Peak
502.3	25.21	38.3	46	-20.79	16.38	2.63	32.1	191	198	Peak
934.2	24	29.97	46	-22	21.64	3.62	31.23	136	275	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
42.96	31.39	48.89	40	-8.61	13.98	0.74	32.22	119	139	Peak
87.24	24.42	45.47	40	-15.58	9.7	1.11	31.86	133	293	Peak
145.83	21.05	43.57	43.5	-22.45	8.37	1.38	32.27	196	176	Peak
489	22.06	35.35	46	-23.94	16.19	2.63	32.11	139	241	Peak
695.5	20.09	29.9	46	-25.91	19.17	3.11	32.09	147	124	Peak
962.2	24.94	30.33	54	-29.06	21.85	3.67	30.91	115	194	Peak

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

802.11n (40MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 110	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Quasi-peak (QP)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Charles Hsiao

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
97.5	26	44.85	43.5	-17.5	12.02	1.28	32.15	134	154	Peak
145.83	21.87	44.39	43.5	-21.63	8.37	1.38	32.27	155	319	Peak
288.39	20.4	37.66	46	-25.6	12.84	2.03	32.13	136	195	Peak
360.2	22.5	37.99	46	-23.5	14.35	2.26	32.1	161	359	Peak
492.5	25.54	38.76	46	-20.46	16.25	2.63	32.1	164	166	Peak
968.5	24.25	29.47	54	-29.75	21.9	3.67	30.79	193	122	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
53.76	36.69	53.72	40	-3.31	14.3	0.9	32.23	171	135	Peak
82.38	25.72	48.11	40	-14.28	8.61	1.11	32.11	134	194	Peak
128.28	20.93	42.58	43.5	-22.57	9.2	1.38	32.23	109	349	Peak
520.5	20.99	33.82	46	-25.01	16.61	2.7	32.14	164	113	Peak
737.5	21.01	30.3	46	-24.99	19.68	3.16	32.13	178	332	Peak
970.6	25.05	30.22	54	-28.95	21.92	3.67	30.76	123	34	Peak

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

802.11ac (80MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 155	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Quasi-peak (QP)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Charles Hsiao

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
80.22	25.29	48.17	40	-14.71	8.22	1.11	32.21	152	352	Peak
110.73	30.64	49.7	43.5	-12.86	11.91	1.28	32.25	169	291	Peak
241.14	20.71	38.87	46	-25.29	12.12	1.85	32.13	151	243	Peak
363.7	22.25	37.7	46	-23.75	14.4	2.26	32.11	168	134	Peak
476.4	21.66	35.22	46	-24.34	16	2.56	32.12	112	225	Peak
919.5	23.66	29.91	46	-22.34	21.56	3.53	31.34	133	76	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
46.47	36.46	53.32	40	-3.54	14.46	0.9	32.22	161	246	Peak
86.43	25.37	46.73	40	-14.63	9.44	1.11	31.91	176	257	Peak
135.3	19.41	41.63	43.5	-24.09	8.65	1.38	32.25	111	311	Peak
489	21.29	34.58	46	-24.71	16.19	2.63	32.11	118	302	Peak
718.6	20.74	30.19	46	-25.26	19.5	3.16	32.11	157	305	Peak
931.4	24.47	30.48	46	-21.53	21.62	3.62	31.25	111	183	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	ESCI	100613	Nov. 11, 2014	Nov. 10, 2015
RF signal cable Woken	5D-FB	Cable-HYC01-01	Dec. 26, 2014	Dec. 25, 2015
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Feb. 26, 2015	Feb. 25, 2016
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 21, 2014	Jul. 20, 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 1.
 3. The VCCI Site Registration No. is C-2040.

4.2.3 TEST PROCEDURES

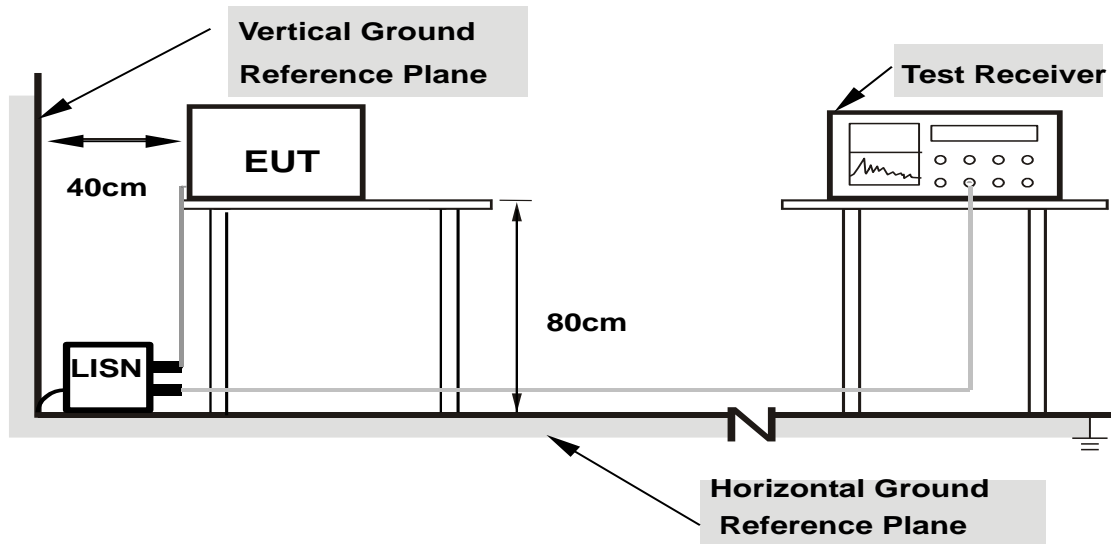
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

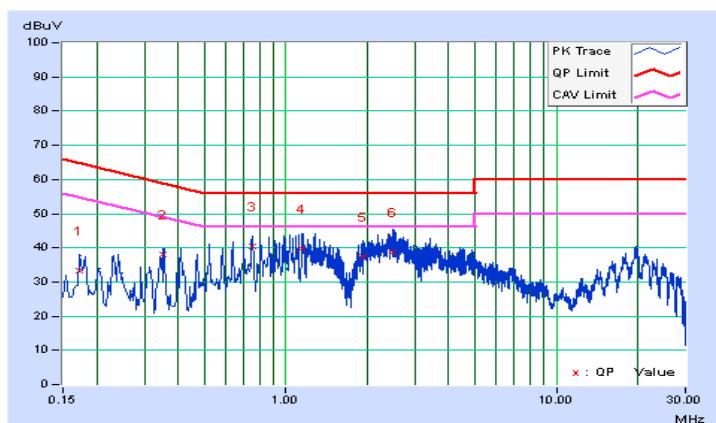
CONDUCTED WORST-CASE DATA :

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Toby Tian	Test Date	2015/6/24

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17346	0.05	33.25	23.64	33.30	23.69	64.79	54.79	-31.49	-31.10
2	0.35332	0.06	37.92	24.60	37.98	24.66	58.88	48.88	-20.90	-24.22
3	0.75188	0.07	40.21	24.25	40.28	24.32	56.00	46.00	-15.72	-21.68
4	1.14705	0.09	39.79	27.00	39.88	27.09	56.00	46.00	-16.12	-18.91
5	1.91732	0.12	37.28	26.71	37.40	26.83	56.00	46.00	-18.60	-19.17
6	2.48036	0.14	38.46	29.55	38.60	29.69	56.00	46.00	-17.40	-16.31

Remarks:

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

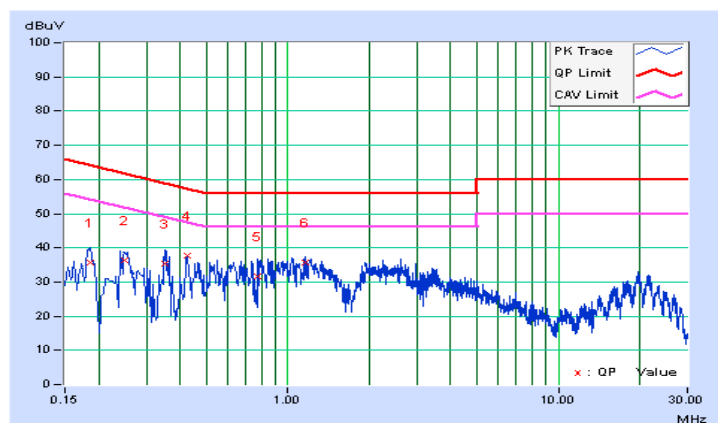


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25°C, 65%RH
Tested by	Toby Tian	Test Date	2015/6/24

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18508	0.05	35.51	21.29	35.56	21.34	64.25	54.25	-28.69	-32.91
2	0.24796	0.05	36.27	25.53	36.32	25.58	61.83	51.83	-25.50	-26.24
3	0.34941	0.06	35.45	22.17	35.51	22.23	58.98	48.98	-23.47	-26.75
4	0.42370	0.06	37.59	26.96	37.65	27.02	57.38	47.38	-19.72	-20.35
5	0.77169	0.07	31.57	16.60	31.64	16.67	56.00	46.00	-24.36	-29.33
6	1.15878	0.08	35.47	25.73	35.55	25.81	56.00	46.00	-20.45	-20.19

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

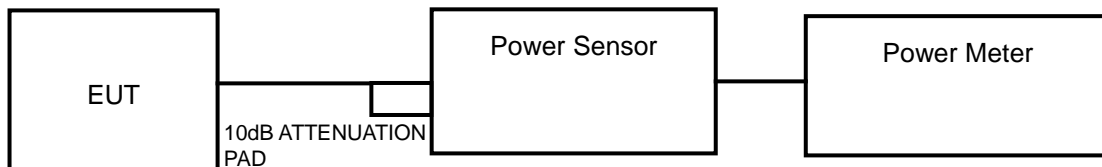
4.3.1 LIMITS OF TRANSMIT POWER MEASUREMENT

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)

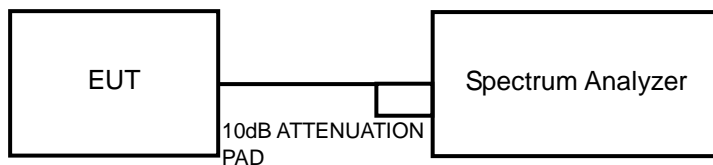
NOTE: Where B is the 26dB emission bandwidth in MHz.

4.3.2 TEST SETUP

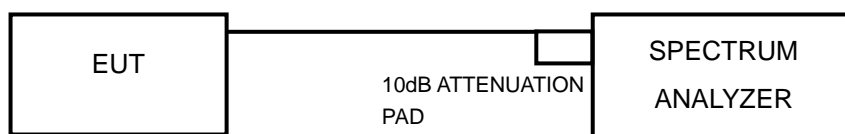
FOR POWER OUTPUT MEASUREMENT



or



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

<802.11a, 802.11n (20MHz), 802.11n (40MHz)>

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.

<802.11ac (80MHz)>

Method SA-1 is used to perform output power measurement, trigger and gating function of spectrum analyzer 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.

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	30.27	14.81	24	PASS
44	5220	38.02	15.80	24	PASS
48	5240	38.90	15.90	24	PASS
52	5260	39.54	15.97	24	PASS
60	5300	38.19	15.82	24	PASS
64	5320	31.12	14.93	24	PASS
100	5500	29.85	14.75	24	PASS
116	5580	37.93	15.79	24	PASS
140	5700	20.94	13.21	24	PASS
149	5745	17.18	12.35	30	PASS
157	5785	38.82	15.89	30	PASS
165	5825	32.28	15.09	30	PASS

NOTE:

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

1. $11\text{dBm} + 10\log(23.74) = 24.75\text{ dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(23.60) = 24.73\text{ dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(22.66) = 24.55\text{ dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(22.31) = 24.48\text{ dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(23.96) = 24.79\text{ dBm} > 24\text{dBm}$.
6. $11\text{dBm} + 10\log(22.37) = 24.50\text{ dBm} > 24\text{dBm}$.

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	MAX. CONDUCTED POWER (mW)	MAX. CONDUCTED POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	27.80	14.44	24	PASS
44	5220	34.67	15.40	24	PASS
48	5240	35.73	15.53	24	PASS
52	5260	34.20	15.34	24	PASS
60	5300	35.40	15.49	24	PASS
64	5320	27.61	14.41	24	PASS
100	5500	27.35	14.37	24	PASS
116	5580	33.19	15.21	24	PASS
140	5700	18.07	12.57	24	PASS
149	5745	15.03	11.77	30	PASS
157	5785	33.50	15.25	30	PASS
165	5825	29.51	14.7	30	PASS

NOTE:

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

1. $11\text{dBm} + 10\log(24.46) = 24.88\text{ dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(23.28) = 24.67\text{ dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(23.45) = 24.70\text{ dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(22.60) = 24.54\text{ dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(23.69) = 24.75\text{ dBm} > 24\text{dBm}$.
6. $11\text{dBm} + 10\log(24.40) = 24.87\text{ dBm} > 24\text{dBm}$.



A D T

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	MAX. CONDUCTED POWER (mW)	MAX. CONDUCTED POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
38	5190	11.40	10.57	24	PASS
46	5230	18.07	12.57	24	PASS
54	5270	17.62	12.46	24	PASS
62	5310	13.74	11.38	24	PASS
102	5510	13.58	11.33	24	PASS
110	5550	17.91	12.53	24	PASS
134	5670	18.11	12.58	24	PASS
151	5755	17.74	12.49	30	PASS
159	5795	17.82	12.51	30	PASS

NOTE:

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

1. $11\text{dBm} + 10\log(46.02) = 27.63\text{ dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(45.70) = 27.60\text{ dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(46.27) = 27.65\text{ dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(46.25) = 27.65\text{ dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(46.74) = 27.70\text{ dBm} > 24\text{dBm}$.

802.11ac (80MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	MAX. CONDUCTED POWER (mW)	MAX. CONDUCTED POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
42	5210	10.28	10.12	24	PASS
58	5290	9.51	9.78	24	PASS
106	5530	9.27	9.67	24	PASS
155	5775	10.86	10.36	30	PASS

NOTE:

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

1. $11\text{dBm} + 10\log(83.70) = 30.23\text{ dBm} > 24\text{dBm}.$
2. $11\text{dBm} + 10\log(84.62) = 30.27\text{ dBm} > 24\text{dBm}.$
3. $11\text{dBm} + 10\log(84.60) = 30.27\text{ dBm} > 24\text{dBm}.$

26dB BANDWIDTH

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
52	5260	23.74	PASS
60	5300	23.60	PASS
64	5320	22.66	PASS
100	5500	22.31	PASS
116	5580	23.96	PASS
140	5700	22.37	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
52	5260	24.46	PASS
60	5300	23.28	PASS
64	5320	23.45	PASS
100	5500	22.60	PASS
116	5580	23.69	PASS
140	5700	24.40	PASS

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
54	5270	46.02	PASS
62	5310	45.70	PASS
102	5510	46.27	PASS
110	5550	46.25	PASS
134	5670	46.74	PASS

802.11ac (80MHz)

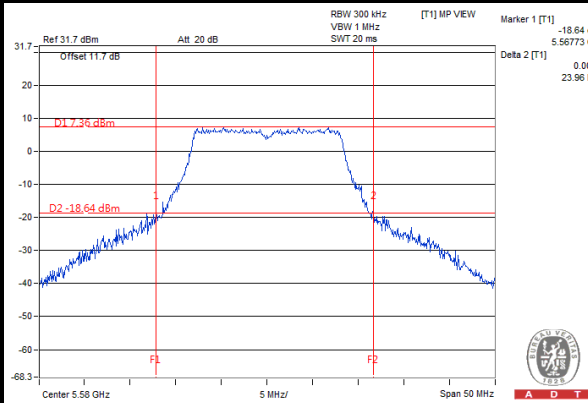
CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
58	5290	83.70	PASS
106	5530	84.62	PASS



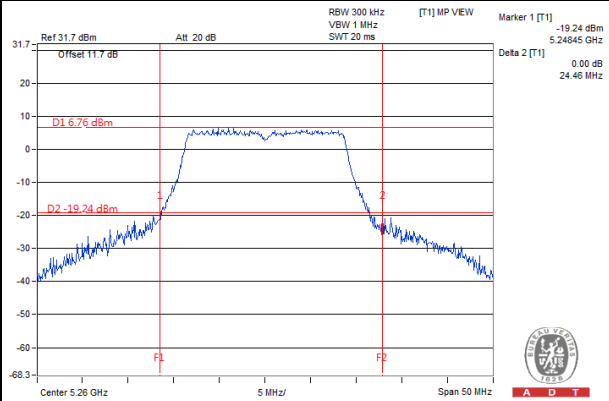
A D T

SPECTRUM PLOT OF WORST VALUE

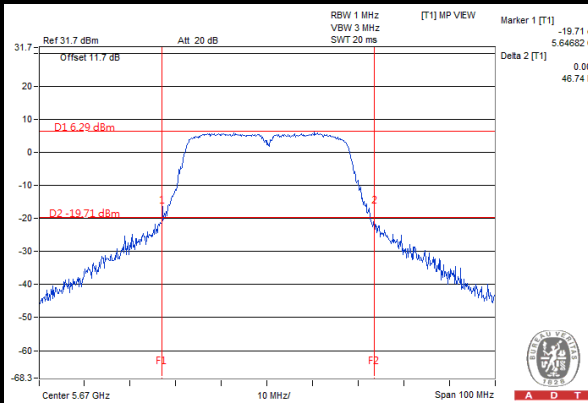
802.11a



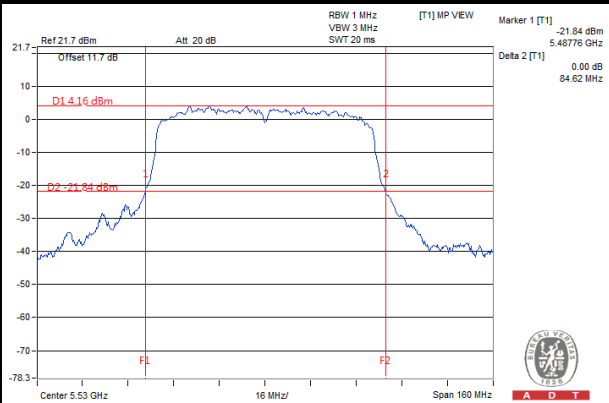
802.11n (20MHz)



802.11n (40MHz)



802.11ac (80MHz)

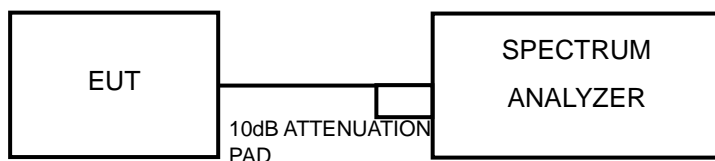


4.4 PEAK POWER SPECTRAL DENSITY MEASUREMENT

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/ 500kHz

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:

Using method SA-2 alternative

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 30 kHz, Set VBW \geq 1 MHz, Detector = RMS
- 3) Set Channel power measure = 1MHz
- 4) Sweep time = 4 second.
- 5) Perform a single sweep.
- 6) Record the max value and add 10 log (1/duty cycle)

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)



A D T

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	1.49	0.98	2.47	11	PASS
44	5220	2.78	0.98	3.76	11	PASS
48	5240	2.74	0.98	3.72	11	PASS
52	5260	2.84	0.98	3.82	11	PASS
60	5300	3.25	0.98	4.23	11	PASS
64	5320	2.24	0.98	3.22	11	PASS
100	5500	2.66	0.98	3.64	11	PASS
116	5580	3.34	0.98	4.32	11	PASS
140	5700	0.06	0.98	1.04	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	0.59	1.03	1.62	11	PASS
44	5220	1.74	1.03	2.77	11	PASS
48	5240	1.94	1.03	2.97	11	PASS
52	5260	2.12	1.03	3.15	11	PASS
60	5300	2.33	1.03	3.36	11	PASS
64	5320	1.41	1.03	2.44	11	PASS
100	5500	1.87	1.03	2.90	11	PASS
116	5580	2.52	1.03	3.55	11	PASS
140	5700	-1.02	1.03	0.01	11	PASS

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



A D T

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	PSD WITH DUTY FACTOR (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
38	5190	-7.04	2.06	-4.98	11	PASS
46	5230	-4.74	2.06	-2.68	11	PASS
54	5270	-4.18	2.06	-2.12	11	PASS
62	5310	-5.09	2.06	-3.03	11	PASS
102	5510	-4.66	2.06	-2.60	11	PASS
110	5550	-3.93	2.06	-1.87	11	PASS
134	5670	-4.47	2.06	-2.41	11	PASS

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

802.11ac (80MHz)

CHANNEL	FREQUENCY (MHz)	PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	PSD WITH DUTY FACTOR (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
42	5210	-7.49	5.43	-2.06	11	PASS
58	5290	-6.76	5.43	-1.33	11	PASS
106	5530	-6.74	5.43	-1.31	11	PASS

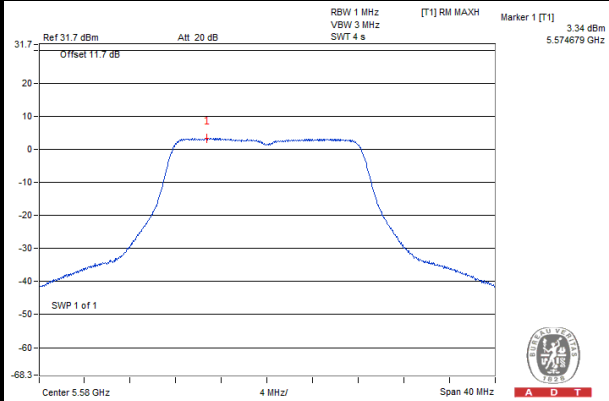
NOTE: Refer to section 3.3 for duty cycle spectrum plot.



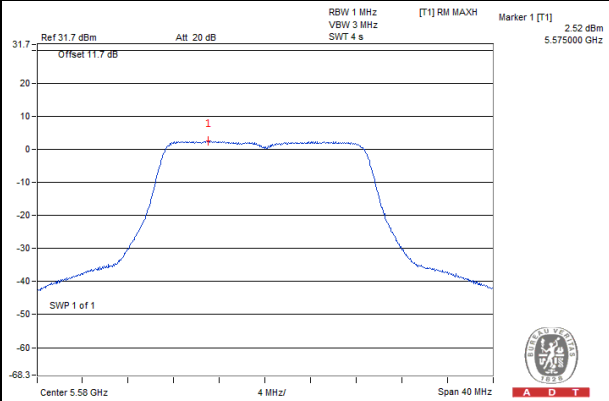
A D T

SPECTRUM PLOT OF WORST VALUE

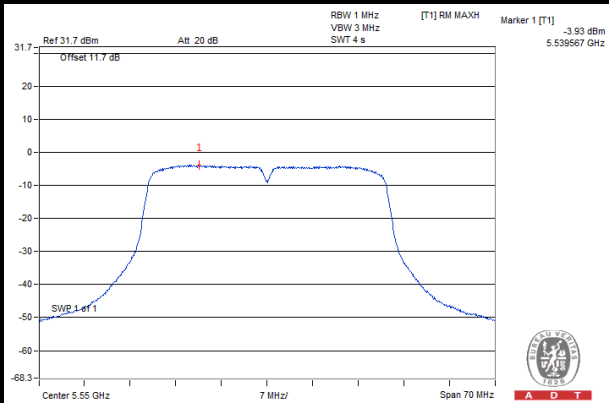
802.11a



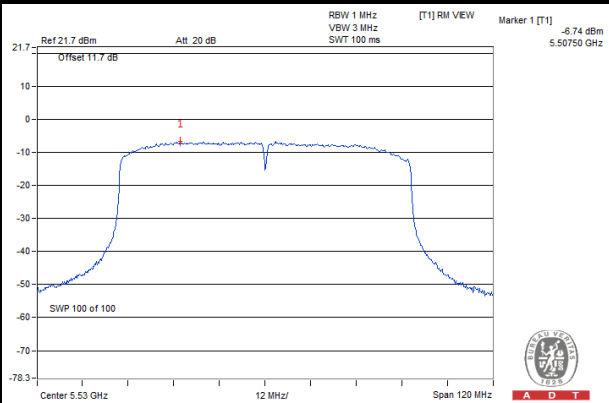
802.11n (20MHz)



802.11n (40MHz)



802.11ac (80MHz)



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	-3.03	0.98	-2.05	30	PASS
157	5785	0.77	0.98	1.75	30	PASS
165	5825	0.39	0.98	1.37	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	-3.74	1.03	-2.71	30	PASS
157	5785	0.05	1.03	1.08	30	PASS
165	5825	-0.30	1.03	0.73	30	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	PSD WITH DUTY FACTOR (dBm)	LIMIT (dBm/500kHz)	PASS/FAIL
151	5755	-5.79	2.06	-3.73	30	PASS
159	5795	-5.36	2.06	-3.30	30	PASS

802.11ac (80MHz)

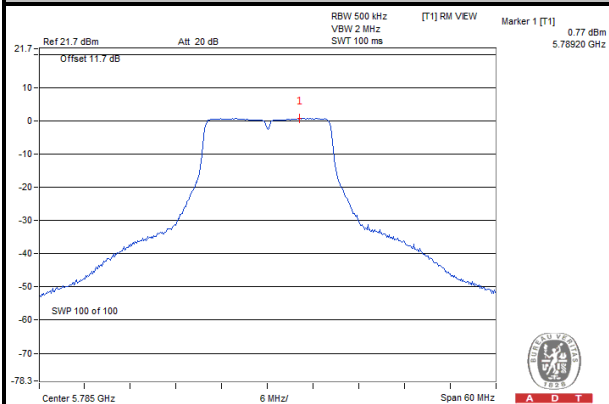
CHANNEL	FREQUENCY (MHz)	PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	PSD WITH DUTY FACTOR (dBm)	LIMIT (dBm/500kHz)	PASS/FAIL
155	5775	-8.17	5.43	-2.74	30	PASS



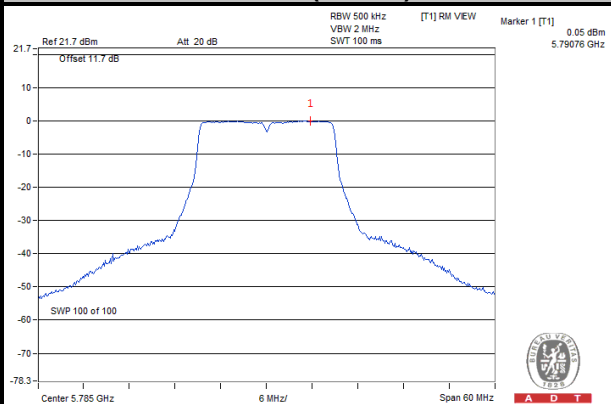
A D T

SPECTRUM PLOT OF WORST VALUE

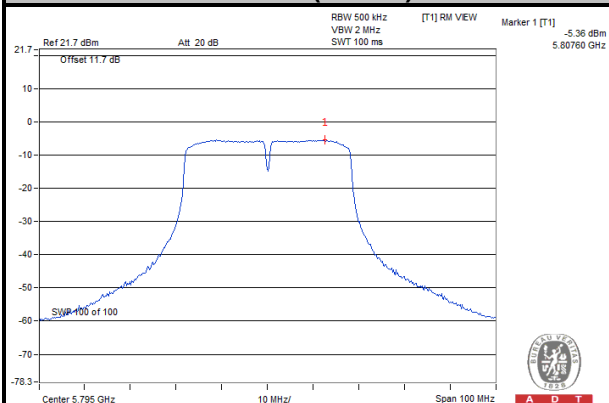
802.11a



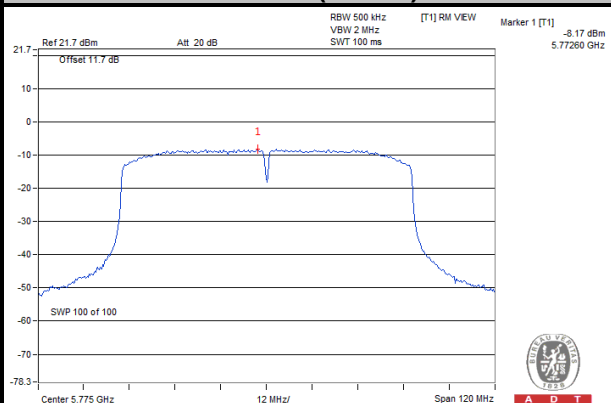
802.11n (20MHz)



802.11n (40MHz)



802.11ac (80MHz)

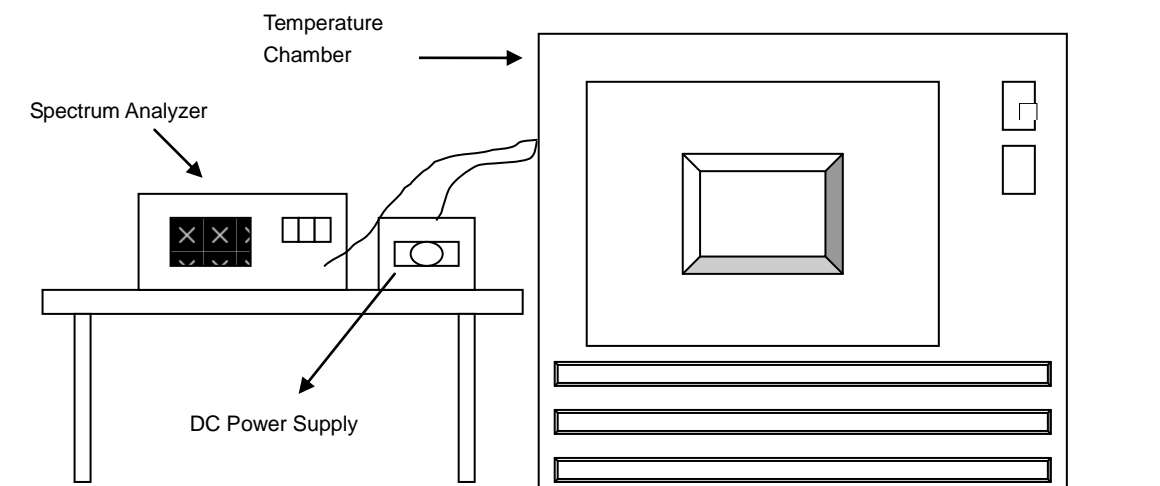


4.5 FREQUENCY STABILITY

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.

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	3.55	5320.036932	6.942	5320.036590	6.878	5320.037202	6.993	5320.036708	6.900
40	3.55	5320.036807	6.919	5320.036799	6.917	5320.036594	6.879	5320.036643	6.888
30	3.55	5320.038489	7.235	5320.038414	7.221	5320.038274	7.194	5320.038181	7.177
20	3.55	5320.039237	7.375	5320.039034	7.337	5320.038675	7.270	5320.038789	7.291
10	3.55	5320.040589	7.630	5320.040680	7.647	5320.040391	7.592	5320.040169	7.551
0	3.55	5320.039005	7.332	5320.038935	7.319	5320.039317	7.390	5320.039269	7.381
-10	3.55	5320.038038	7.150	5320.037649	7.077	5320.037324	7.016	5320.037273	7.006
-20	3.55	5320.037034	6.961	5320.036946	6.945	5320.037212	6.995	5320.037047	6.964
-30	3.55	5320.036027	6.772	5320.035965	6.760	5320.036265	6.817	5320.035993	6.766

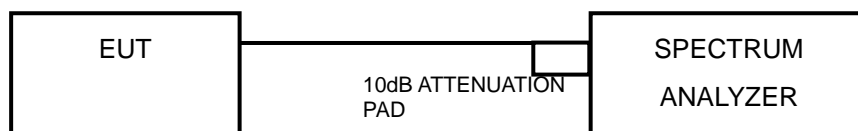
FREQUENCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5320MHz									
TEMP. (°C)	POWER SUPPLY (Vdc)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
20	3.0	5320.038423	7.222	5320.038793	7.292	5320.038824	7.298	5320.038809	7.295
	3.55	5320.039237	7.375	5320.039034	7.337	5320.038675	7.270	5320.038789	7.291
	4.00	5320.040395	7.593	5320.040035	7.525	5320.040633	7.638	5320.040367	7.588

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.

4.6.7 TEST RESULTS

802.11a

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	16.42	0.5	PASS
157	5785	16.40	0.5	PASS
165	5825	16.41	0.5	PASS

802.11n (20MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	17.64	0.5	PASS
157	5785	17.62	0.5	PASS
165	5825	17.63	0.5	PASS

802.11n (40MHz)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
151	5755	35.24	0.5	PASS
159	5795	35.28	0.5	PASS

802.11ac (80MHz)

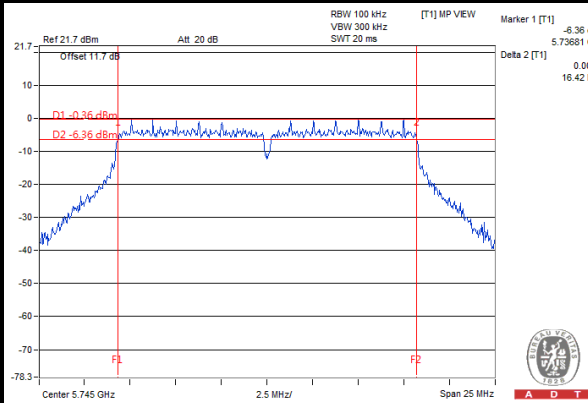
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
155	5775	75.33	0.5	PASS



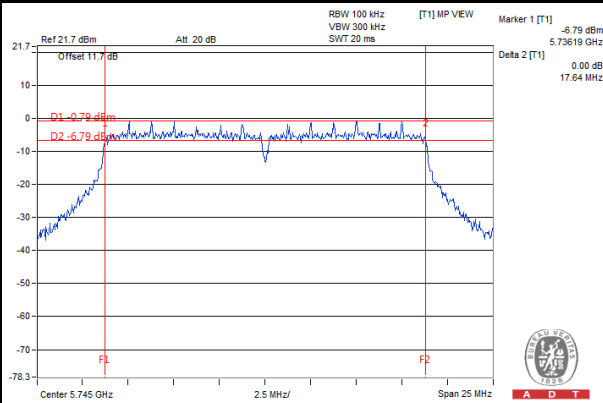
A D T

SPECTRUM PLOT OF WORST VALUE

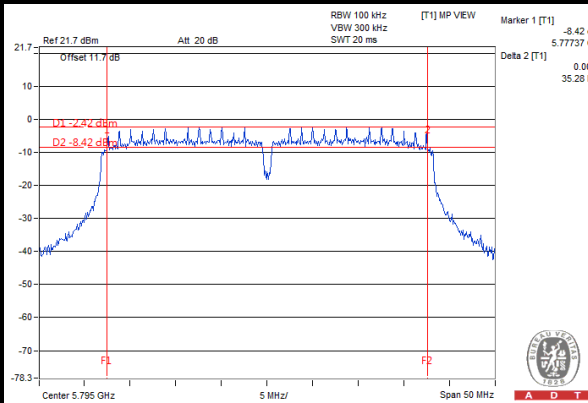
802.11a



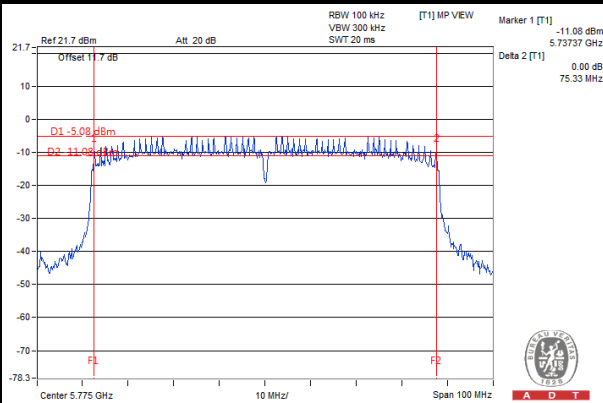
802.11n (20MHz)



802.11n (40MHz)



802.11ac (80MHz)



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.



A D T

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---