

FCC TEST REPORT (15.407)

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MODEL NO.: 0P82100
FCC ID: NM80P82100
RECEIVED: Apr. 16, 2014
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APPLICANT: HTC Corporation

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

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TEST LOCATION: No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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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	24
4. TEST TYPES AND RESULTS	25
4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT	25
4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT	25
4.1.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS	25
4.1.3 TEST INSTRUMENTS	26
4.1.4 TEST PROCEDURES	27
4.1.5 DEVIATION FROM TEST STANDARD	27
4.1.6 TEST SETUP	28
4.1.7 EUT OPERATING CONDITIONS	29
4.1.8 TEST RESULTS	30
4.2 CONDUCTED EMISSION MEASUREMENT	86
4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT	86
4.2.2 TEST INSTRUMENTS	86
4.2.3 TEST PROCEDURES	87
4.2.4 DEVIATION FROM TEST STANDARD	87
4.2.5 TEST SETUP	88
4.2.6 EUT OPERATING CONDITIONS	88
4.2.7 TEST RESULTS	89
4.3 PEAK TRANSMIT POWER MEASUREMENT	91
4.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT	91
4.3.2 TEST SETUP	91
4.3.3 TEST INSTRUMENTS	91
4.3.4 TEST PROCEDURE	92
4.3.5 DEVIATION FROM TEST STANDARD	92
4.3.6 EUT OPERATING CONDITIONS	92
4.3.7 TEST RESULTS	93
4.4 PEAK POWER SPECTRAL DENSITY MEASUREMENT	103
4.4.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT	103
4.4.2 TEST SETUP	103
4.4.3 TEST INSTRUMENTS	103
4.4.4 TEST PROCEDURES	103
4.4.5 DEVIATION FROM TEST STANDARD	103
4.4.6 EUT OPERATING CONDITIONS	103
4.4.7 TEST RESULTS	104
4.5 PEAK POWER EXCURSION MEASUREMENT	109
4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT	109
4.5.2 TEST SETUP	109
4.5.3 TEST INSTRUMENTS	109
4.5.4 TEST PROCEDURE	109



A D T

4.5.5	DEVIATION FROM TEST STANDARD	109
4.5.6	EUT OPERATING CONDITION.....	109
4.5.7	TEST RESULTS.....	110
4.6	FREQUENCY STABILITY	112
4.6.1	LIMITS OF FREQUENCY STABILITY MEASUREMENT	112
4.6.2	TEST SETUP	112
4.6.3	TEST INSTRUMENTS	112
4.6.4	TEST PROCEDURE	113
4.6.5	DEVIATION FROM TEST STANDARD	113
4.6.6	EUT OPERATING CONDITION.....	113
4.6.7	TEST RESULTS.....	114
5.	PHOTOGRAPHS OF THE TEST CONFIGURATION.....	133
6.	INFORMATION ON THE TESTING LABORATORIES	134
7.	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	135



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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF140416C17A-1	Original release	Jun. 18, 2014

1. CERTIFICATION

PRODUCT: Tablet

MODEL NO.: 0P82100

BRAND: HTC

APPLICANT: HTC Corporation

TESTED: May 02, 2014 ~ Jun. 16, 2014

TEST SAMPLE: Identical Prototype

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

ANSI C63.10-2009

The above equipment (model: 0P82100) 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 : Ivonne Wu , **DATE** : Jun. 18, 2014

Ivonne Wu / Supervisor

APPROVED BY : Sam Chen , **DATE** : Jun. 18, 2014

Sam Chen / Senior Project Engineer

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART E (SECTION 15.407)			
STANDARD SECTION	TEST TYPE	RESULT	REMARK
15.407(b)(6)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -4.16dB at 13.56250MHz.
15.407(b)(1/2/3)(b)(6)	Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -3.31dB at 5725.00MHz.
15.407(a)(1/2)	Peak Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(6)	Peak Power Excursion	PASS	Meet the requirement of limit.
15.407(a)(1/2)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
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	Tablet
MODEL NO.	0P82100
POWER SUPPLY	5.0Vdc (adapter or host equipment) 3.8Vdc (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
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) 3 for 802.11n (40MHz) 1 for 802.11ac (80MHz)
OUTPUT POWER	41.74mW for 5180 ~ 5240MHz 44.58mW for 5260 ~ 5320MHz 44.40mW for 5500 ~ 5700MHz
ANTENNA TYPE	Refer to Note as below
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's accessories list refers to Ext. Pho.
2. There're 2 configurations for the EUT listed as below.
Main sample (A): Battery 1 + eMMC 16G
2nd sample (B): Battery 2 + eMMC 32G
✧ Only the worst test data was presented in the report.

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

MODULATION MODE	TX FUNCTION
802.11b	1TX
802.11g	1TX
802.11a	1TX
802.11n (20MHz)	1TX / 2TX
802.11n (40MHz)	1TX / 2TX
802.11ac (80MHz)	1TX / 2TX

4. The antenna information is listed as below.

	Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
WLAN	2412~2462	PCB	Ant-1: -3.25 Ant-2: -4.65
	5180~5240		Ant-1: -5.35 Ant-2: -5.11
	5260~5320		Ant-1: -5.65 Ant-2: -5.42
	5500~5700		Ant-1: -8.9 Ant-2: -4.7
	5745~5825		Ant-1: -11.8 Ant-2: -4.21
Bluetooth EDR	2402~2480	PCB	-3.25
Bluetooth LE 4.0	2402~2480	PCB	-3.25

5. 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

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

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

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

CHANNEL	FREQUENCY
106	5530MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	Main sample with chain 0
B	√	-	-	√	Main sample with chain 1
C	√	√	-	√	Main sample with chain 0+1
D	√	√	-	-	2 nd sample with chain 0
E	√	√	-	-	2 nd sample with chain 1
F	√	√	-	-	2 nd sample with chain 0+1

Where **RE≥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** (5180-5240MHz mode A / B / C / E & 5260-5320MHz mode C / E / F & 5500-5700MHz mode A / D), **X-plane** (5260-5320MHz mode A), and **Y-plane** (5500-5700MHz mode C).

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)
B	802.11a	5180-5240	36 to 48	36, 44, 48	OFDM	BPSK	6.0
A, C	802.11n (20MHz)		36 to 48	36, 44, 48	OFDM	BPSK	MCS0
A, C	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	MCS0
B, C	802.11ac (80MHz)		42	42	OFDM	BPSK	V0
E	802.11a		36 to 48	36	OFDM	BPSK	6.0
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0
A, C	802.11n (20MHz)		52 to 64	52, 60, 64	OFDM	BPSK	MCS0
A, C	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	MCS0
A, C	802.11ac (80MHz)		58	58	OFDM	BPSK	V0
F	802.11n (20MHz)		52 to 64	64	OFDM	BPSK	MCS0
A	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0
A, C	802.11n (20MHz)		100 to 140	100, 116, 140	OFDM	BPSK	MCS0
A, C	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	MCS0
A, C	802.11ac (80MHz)		106	106	OFDM	BPSK	V0
D	802.11n (20MHz)		100 to 140	140	OFDM	BPSK	MCS0

RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
B, E	802.11a	5180-5240	36 to 48	36	OFDM	BPSK	6.0
C, F	802.11n (20MHz)	5260-5320	52 to 64	64	OFDM	BPSK	MCS0
A, D	802.11n (20MHz)	5500-5700	100 to 140	140	OFDM	BPSK	MCS0

POWER LINE CONDUCTED EMISSION TEST:

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11n (20MHz)	5500-5700	100 to 140	140	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)
A, C	802.11a	5180-5240	36 to 48	36, 48	OFDM	BPSK	6.0
A, C	802.11n (20MHz)		36 to 48	36, 48	OFDM	BPSK	MCS0
A, C	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	MCS0
B, C	802.11ac (80MHz)		42	42	OFDM	BPSK	V0
A, C	802.11a	5260-5320	52 to 64	52, 64	OFDM	BPSK	6.0
A, C	802.11n (20MHz)		52 to 64	52, 64	OFDM	BPSK	MCS0
A, C	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	MCS0
B, C	802.11ac (80MHz)		58	58	OFDM	BPSK	V0
A, C	802.11a	5500-5700	100 to 140	100, 140	OFDM	BPSK	6.0
A, C	802.11n (20MHz)		100 to 140	100, 140	OFDM	BPSK	MCS0
A, C	802.11n (40MHz)		102 to 134	102, 134	OFDM	BPSK	MCS0
B, C	802.11ac (80MHz)		106	106	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)
A, C	802.11a	5180-5240	36 to 48	36, 44, 48	OFDM	BPSK	6.0
A, C	802.11n (20MHz)		36 to 48	36, 44, 48	OFDM	BPSK	MCS0
A, C	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	MCS0
B, C	802.11ac (80MHz)		42	42	OFDM	BPSK	V0
A, C	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0
A, C	802.11n (20MHz)		52 to 64	52, 60, 64	OFDM	BPSK	MCS0
A, C	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	MCS0
B, C	802.11ac (80MHz)		58	58	OFDM	BPSK	V0
A, C	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0
A, C	802.11n (20MHz)		100 to 140	100, 116, 140	OFDM	BPSK	MCS0
A, C	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	MCS0
B, C	802.11ac (80MHz)		106	106	OFDM	BPSK	V0

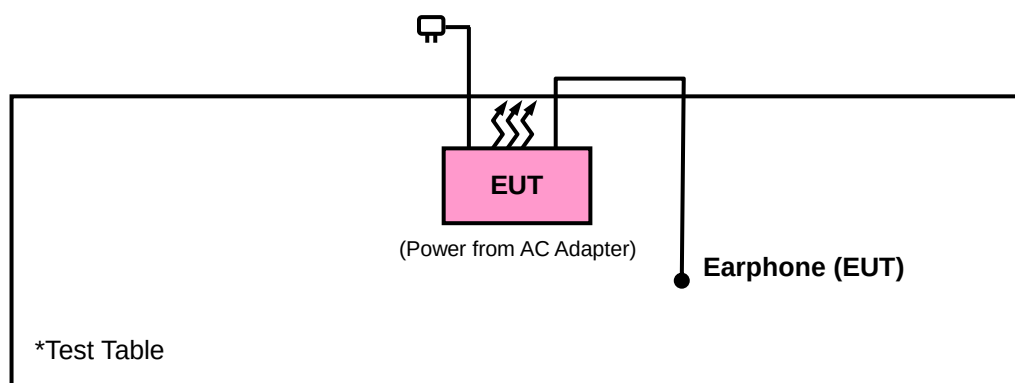
Test CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE $\geq$ 1G	25deg. C, 65%RH	120Vac, 60Hz	Johnson Liao
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Johnson Liao
PLC	25deg. C, 65%RH	120Vac, 60Hz	Peter Weng
APCM	25deg. C, 65%RH	120Vac, 60Hz	David Ko

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

MODE A / B

MODULATION TYPE: BPSK

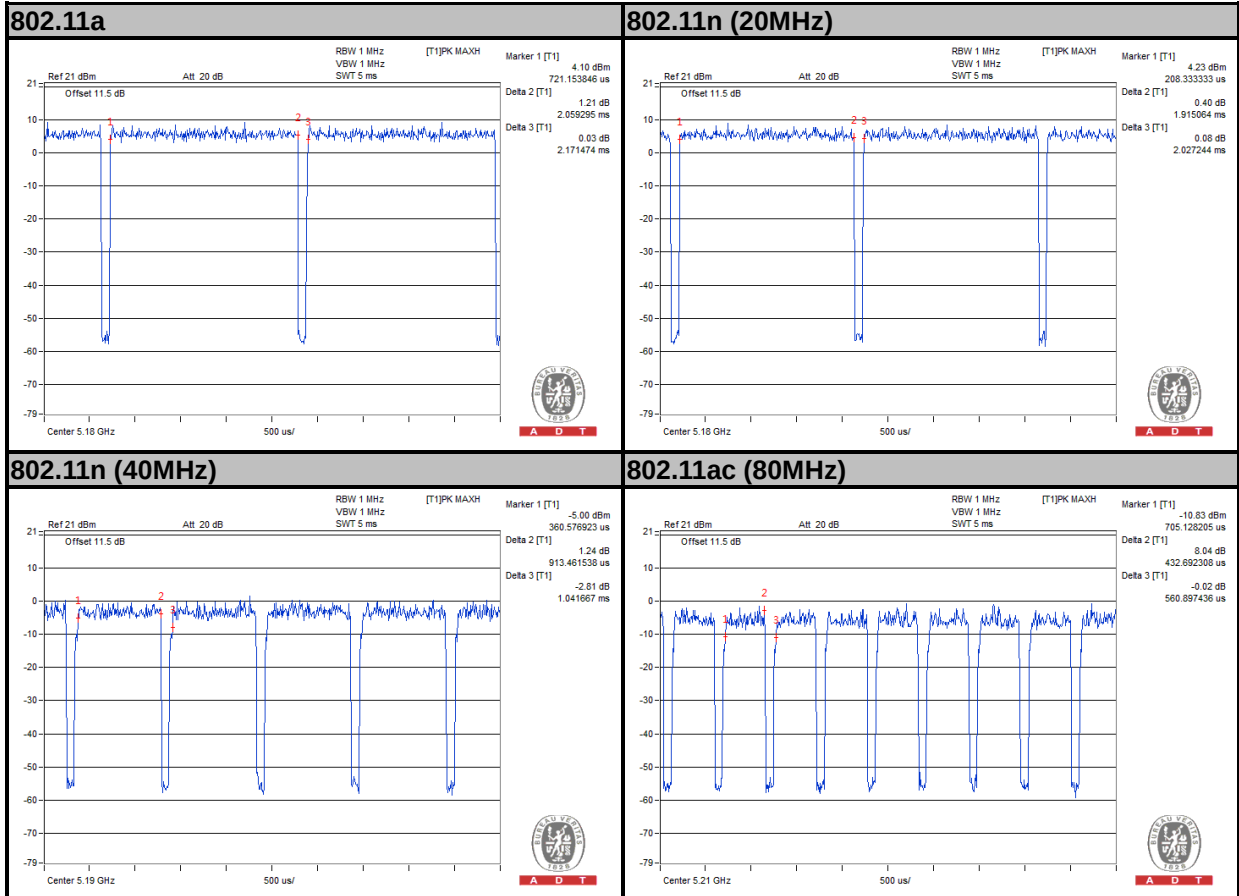
If duty cycle is < 98%, duty factor shall be considered.

802.11a: Duty cycle = $2.059/2.171 = 0.948$, Duty factor = $10 * \log(1/0.948) = 0.23$

802.11n (20MHz): Duty cycle = $1.915/2.027 = 0.945$, Duty factor = $10 * \log(1/0.945) = 0.25$

802.11n (40MHz): Duty cycle = $913.46/1041.67 = 0.877$, Duty factor = $10 * \log(1/0.877) = 0.57$

802.11ac (80MHz): Duty cycle = $432.69/560.90 = 0.771$, Duty factor = $10 * \log(1/0.771) = 1.13$



MODULATION TYPE: QPSK

If duty cycle is < 98%, duty factor shall be considered.

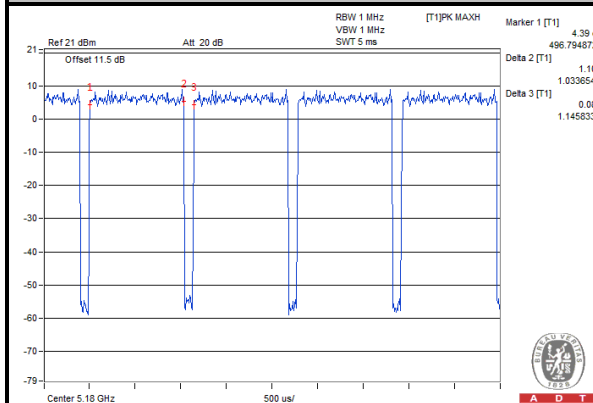
802.11a: Duty cycle = $1.034/1.146 = 0.902$, Duty factor = $10 * \log(1/0.902) = 0.45$

802.11n (20MHz): Duty cycle = $969.55/1081.73 = 0.896$, Duty factor = $10 * \log(1/0.896) = 0.48$

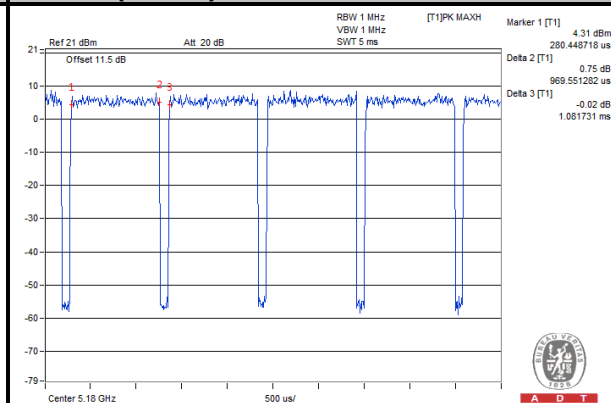
802.11n (40MHz): Duty cycle = $440.70/592.95 = 0.743$, Duty factor = $10 * \log(1/0.743) = 1.29$

802.11ac (80MHz): Duty cycle = $208.33/352.56 = 0.591$, Duty factor = $10 * \log(1/0.591) = 2.28$

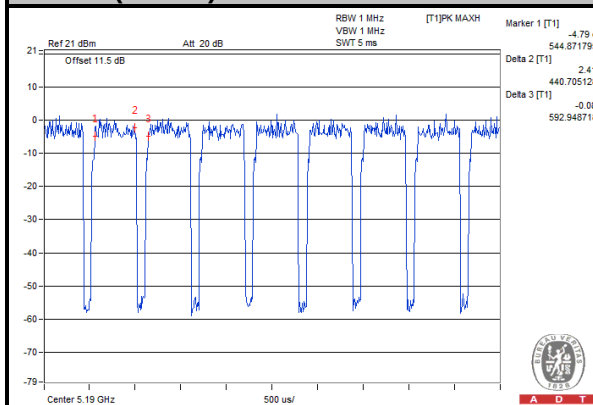
802.11a



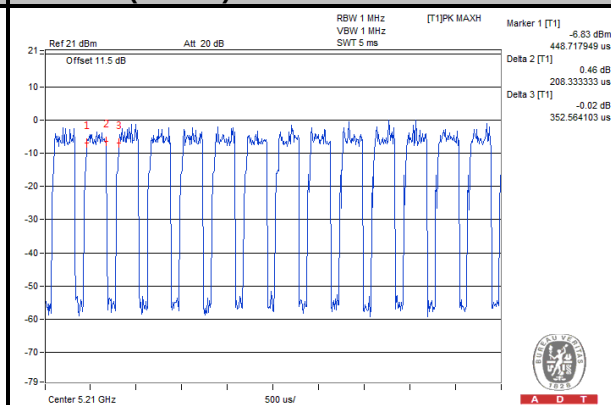
802.11n (20MHz)



802.11n (40MHz)



802.11ac (80MHz)



MODULATION TYPE: 16QAM

If duty cycle is < 98%, duty factor shall be considered.

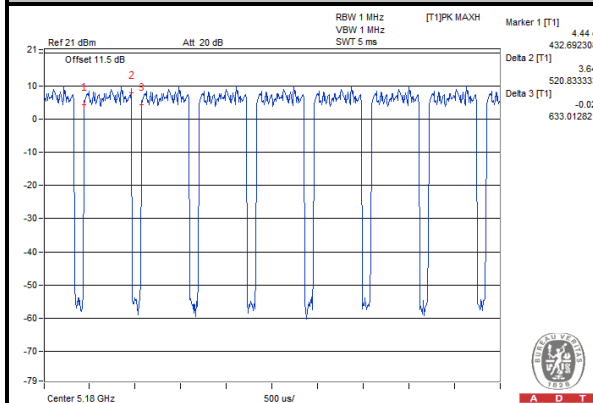
802.11a: Duty cycle = $520.83/633.01 = 0.823$, Duty factor = $10 * \log(1/0.823) = 0.85$

802.11n (20MHz): Duty cycle = $504.81/608.97 = 0.829$, Duty factor = $10 * \log(1/0.829) = 0.81$

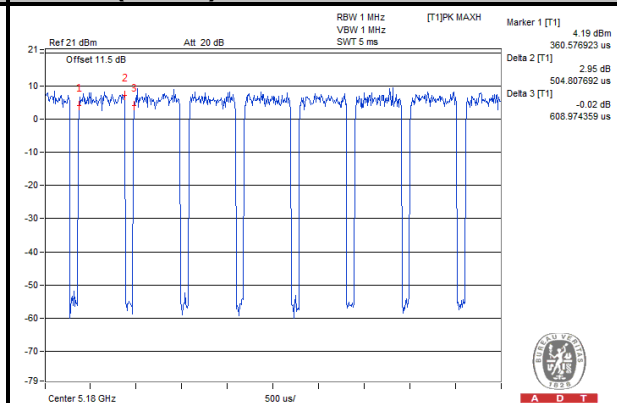
802.11n (40MHz): Duty cycle = $224.36/400.64 = 0.560$, Duty factor = $10 * \log(1/0.560) = 2.52$

802.11ac (80MHz): Duty cycle = $102.56/241.99 = 0.424$, Duty factor = $10 * \log(1/0.424) = 3.73$

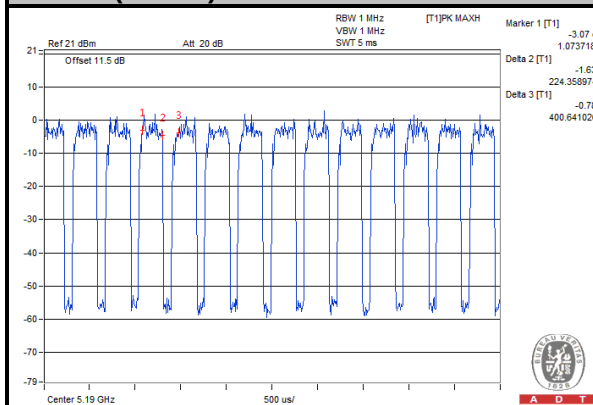
802.11a



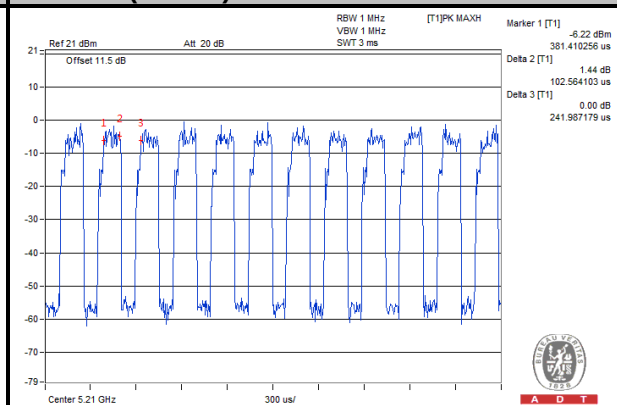
802.11n (20MHz)



802.11n (40MHz)



802.11ac (80MHz)



MODULATION TYPE: 64QAM

If duty cycle is < 98%, duty factor shall be considered.

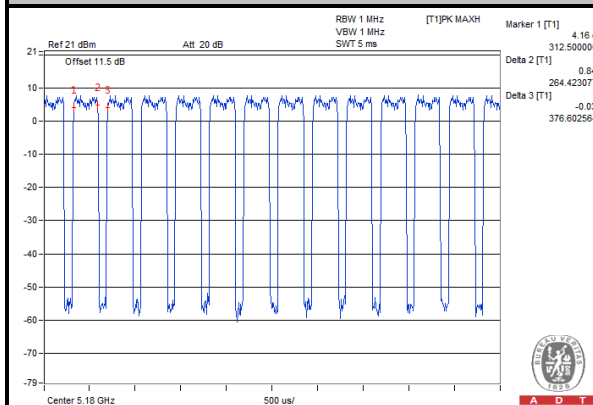
802.11a: Duty cycle = $264.42/376.60 = 0.702$, Duty factor = $10 * \log(1/0.702) = 1.54$

802.11n (20MHz): Duty cycle = $256.41/368.59 = 0.695$, Duty factor = $10 * \log(1/0.695) = 1.58$

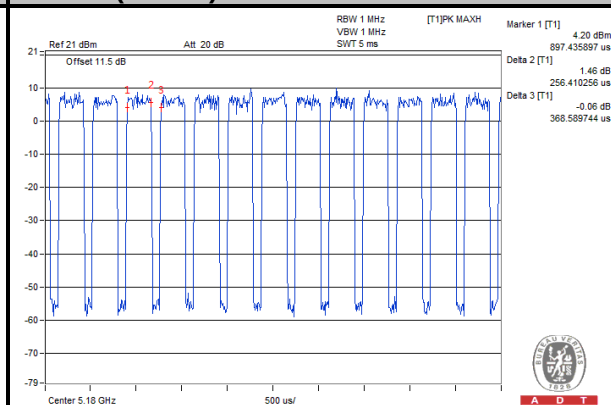
802.11n (40MHz): Duty cycle = $113.78/246.79 = 0.461$, Duty factor = $10 * \log(1/0.461) = 3.36$

802.11ac (80MHz): Duty cycle = $60.90/197.11 = 0.309$, Duty factor = $10 * \log(1/0.309) = 5.10$

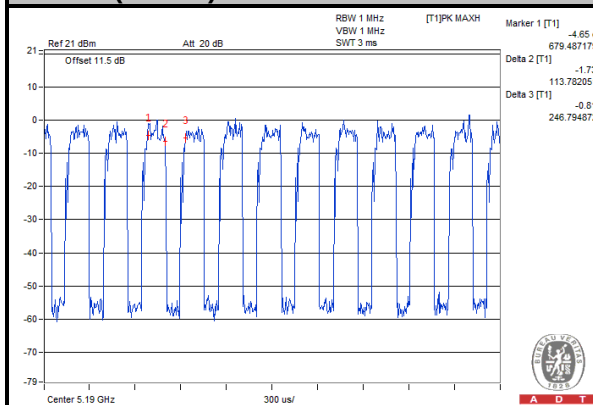
802.11a



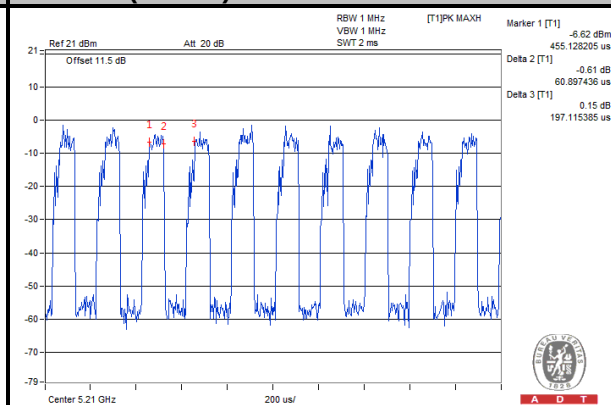
802.11n (20MHz)



802.11n (40MHz)



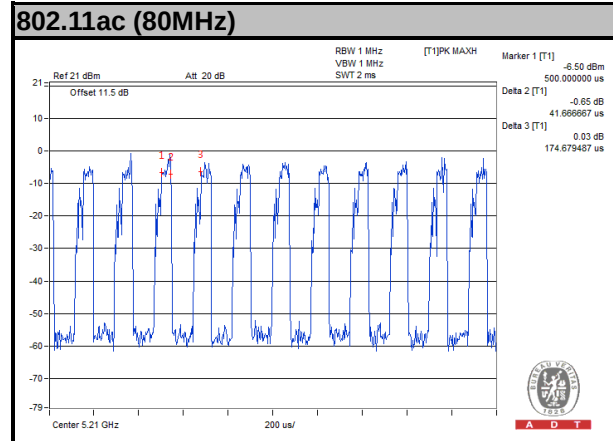
802.11ac (80MHz)



MODULATION TYPE: 256QAM

If duty cycle is < 98%, duty factor shall be considered.

802.11ac (80MHz): Duty cycle = $41.67/174.68 = 0.238$, Duty factor = $10 * \log(1/0.238) = 6.23$



MODE C

MODULATION TYPE: BPSK

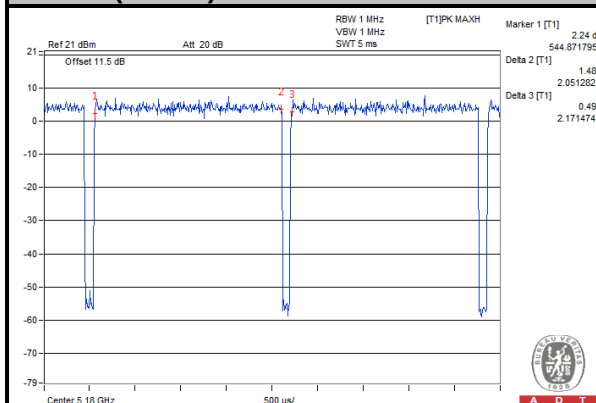
If duty cycle is < 98%, duty factor shall be considered.

802.11n (20MHz): Duty cycle = $2.051/2.171 = 0.945$, Duty factor = $10 * \log(1/0.945) = 0.25$

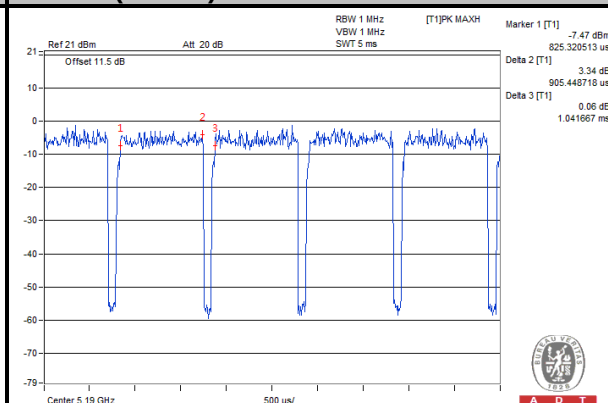
802.11n (40MHz): Duty cycle = $905.45/1041.67 = 0.869$, Duty factor = $10 * \log(1/0.869) = 0.61$

802.11ac (80MHz): Duty cycle = $427.88/564.10 = 0.758$, Duty factor = $10 * \log(1/0.758) = 1.20$

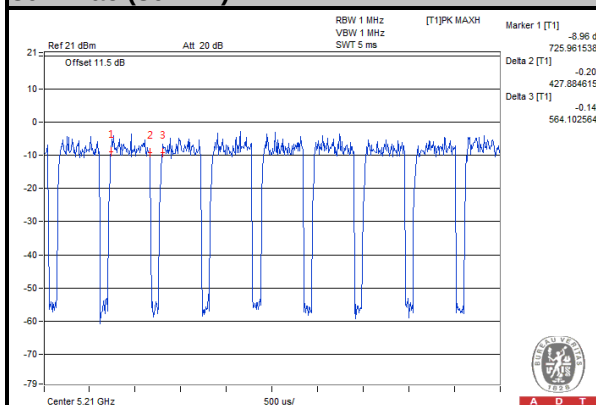
802.11n (20MHz)



802.11n (40MHz)



802.11ac (80MHz)



MODULATION TYPE: QPSK

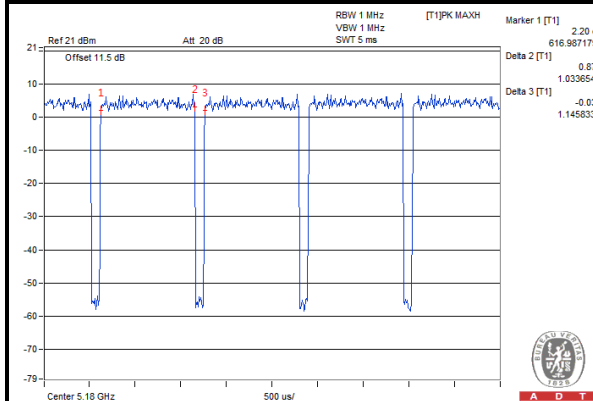
If duty cycle is < 98%, duty factor shall be considered.

802.11n (20MHz): Duty cycle = $1.034/1.146 = 0.902$, Duty factor = $10 * \log(1/0.902) = 0.45$

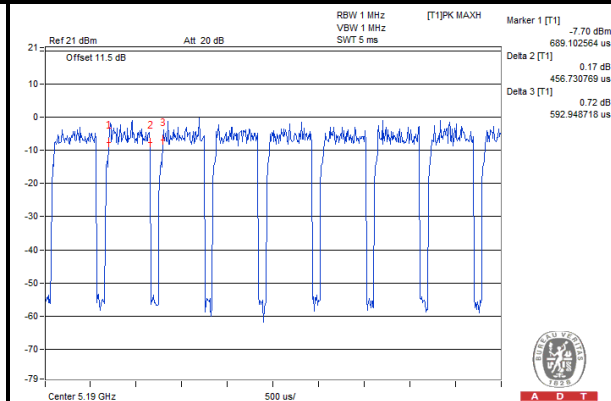
802.11n (40MHz): Duty cycle = $456.73/592.95 = 0.770$, Duty factor = $10 * \log(1/0.770) = 1.13$

802.11ac (80MHz): Duty cycle = $219.55/355.77 = 0.617$, Duty factor = $10 * \log(1/0.617) = 2.10$

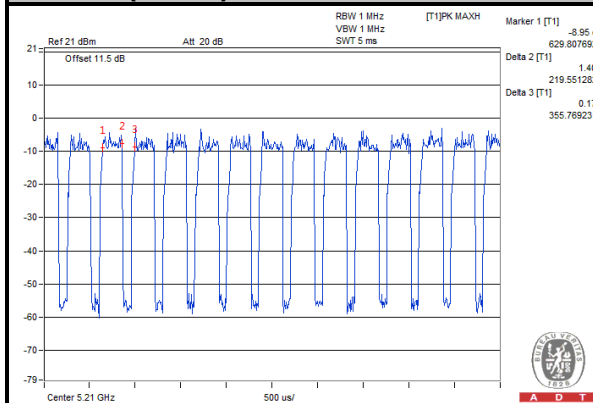
802.11n (20MHz)



802.11n (40MHz)



802.11ac (80MHz)





A D T

MODULATION TYPE: 16QAM

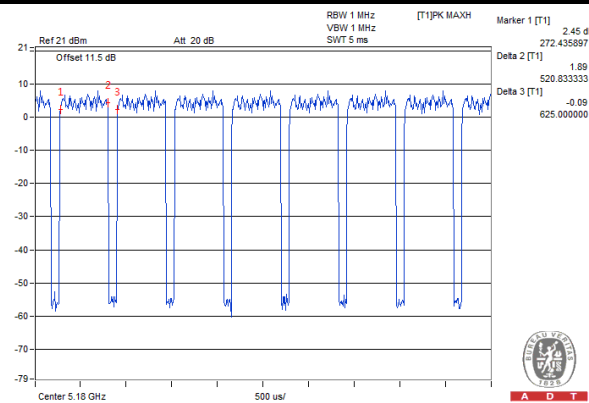
If duty cycle is < 98%, duty factor shall be considered.

802.11n (20MHz): Duty cycle = $520.83/625.00 = 0.833$, Duty factor = $10 * \log(1/0.833) = 0.79$

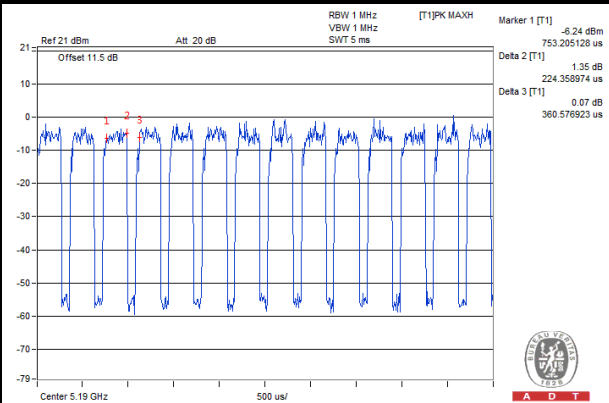
802.11n (40MHz): Duty cycle = $224.36/360.58 = 0.622$, Duty factor = $10 * \log(1/0.622) = 2.06$

802.11ac (80MHz): Duty cycle = $104.17/250.00 = 0.417$, Duty factor = $10 * \log(1/0.417) = 3.80$

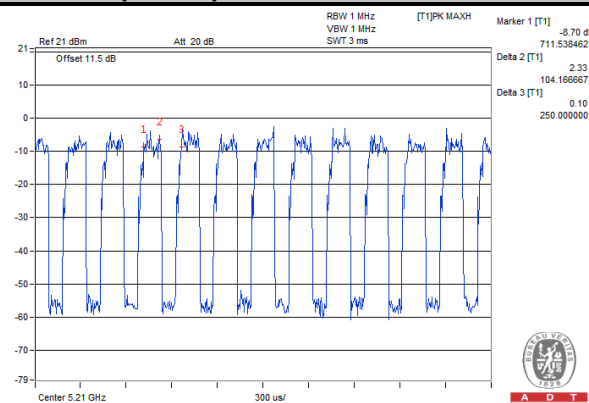
802.11n (20MHz)



802.11n (40MHz)



802.11ac (80MHz)



MODULATION TYPE: 64QAM

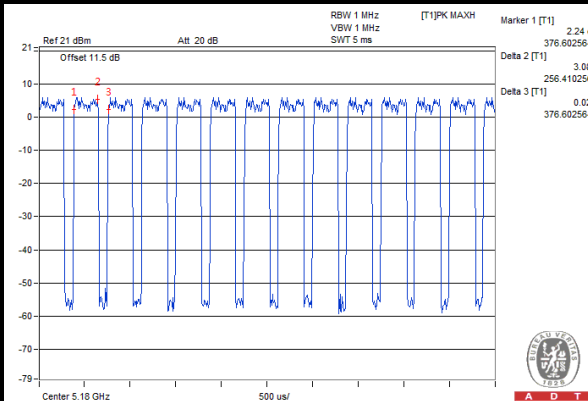
If duty cycle is < 98%, duty factor shall be considered.

802.11n (20MHz): Duty cycle = 256.41/376.60 = 0.681, Duty factor = $10 * \log(1/0.681) = 1.67$

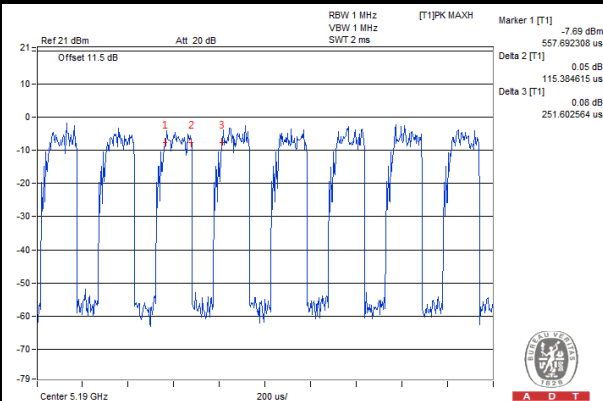
802.11n (40MHz): Duty cycle = 115.38/251.60 = 0.458, Duty factor = $10 * \log(1/0.458) = 3.39$

802.11ac (80MHz): Duty cycle = 62.50/198.72 = 0.315, Duty factor = $10 * \log(1/0.315) = 5.02$

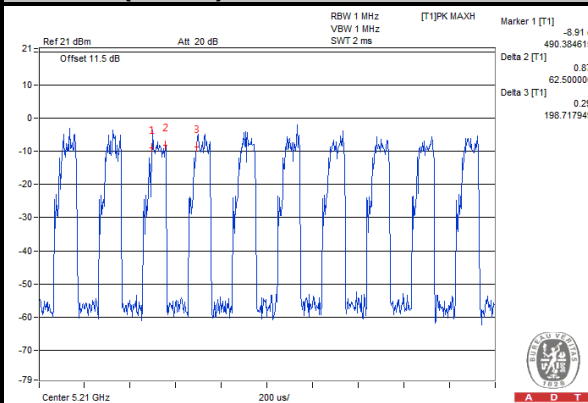
802.11n (20MHz)



802.11n (40MHz)



802.11ac (80MHz)

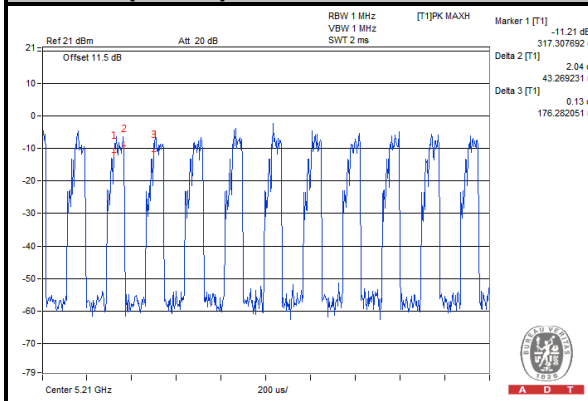


MODULATION TYPE: 256QAM

If duty cycle is < 98%, duty factor shall be considered.

802.11ac (80MHz): Duty cycle = 43.27/176.28 = 0.246, Duty factor = $10 * \log(1/0.246) = 6.10$

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)

KDB 789033 D01 General UNII Test Procedures v01r03

662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10-2009

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

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

4. TEST TYPES AND RESULTS

4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

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

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.1.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

APPLICABLE TO	LIMIT	
	FIELD STRENGTH AT 3m (dBμV/m)	
	PK	AV
	74	54
√	EIRP LIMIT (dBm)	EQUIVALENT FIELD STRENGTH AT 3m (dBμV/m)
	PK	PK
	-27	68.3

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

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

4.1.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver AGILENT	N9038A	MY51210203	Jan. 17, 2014	Jan. 16, 2015
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	101261	Dec. 21, 2013	Dec. 20, 2014
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Feb. 27, 2014	Feb. 26, 2015
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Feb. 19, 2014	Feb. 18, 2015
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 18, 2013	Dec. 17, 2014
Loop Antenna	HFH2-Z2	100070	Mar. 06, 2014	Mar. 05, 2016
Preamplifier EMCI	EMC 012645	980115	Dec. 26, 2013	Dec. 25, 2014
Preamplifier EMCI	EMC 184045	980116	Jan. 13, 2014	Jan. 12, 2015
Preamplifier EMCI	EMC 330H	980112	Dec. 27, 2013	Dec. 26, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309219/4 2950114	Oct. 18, 2013	Oct. 17, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250130/4	Oct. 18, 2013	Oct. 17, 2014
RF signal cable Worken	RG-213	NA	Nov. 07, 2013	Nov. 06, 2014
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower & Turn Table Controller MF	MF-7802	NA	NA	NA
Power Meter	ML2495A	1232002	Aug. 23, 2013	Aug. 22, 2014
Power Sensor	MA2411B	1207325	Aug. 23, 2013	Aug. 22, 2014

- NOTE:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The calibration interval of the loop antenna is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in HwaYa Chamber 10.
4. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
5. The FCC Site Registration No. is 690701.
6. The IC Site Registration No. is IC 7450F-10.

4.1.4 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

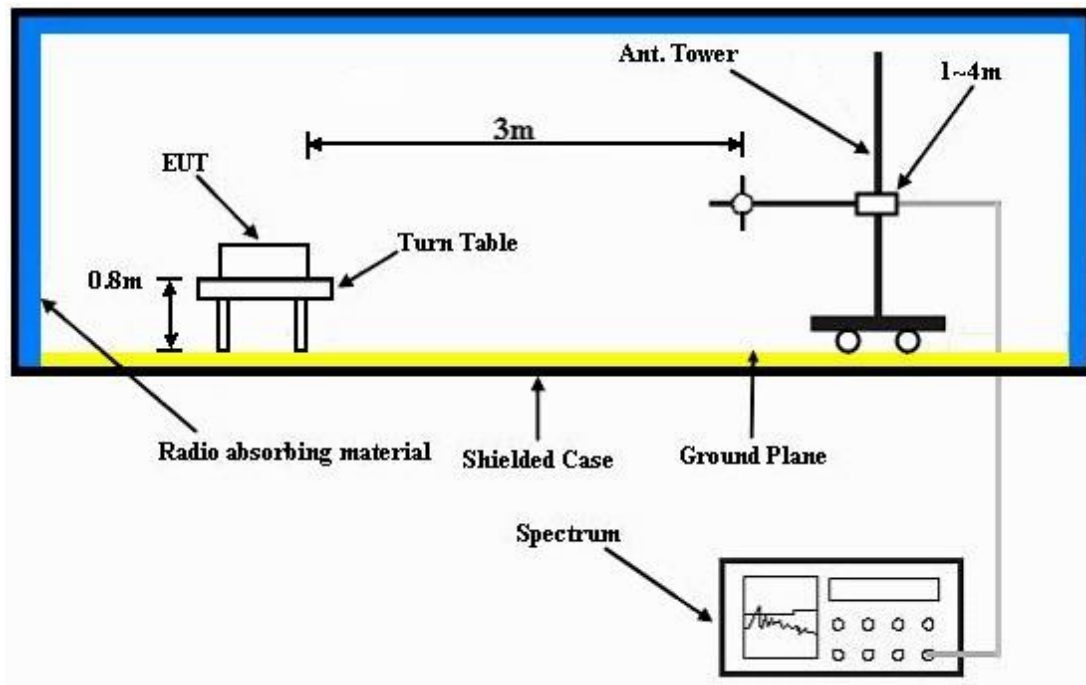
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency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

4.1.5 DEVIATION FROM TEST STANDARD

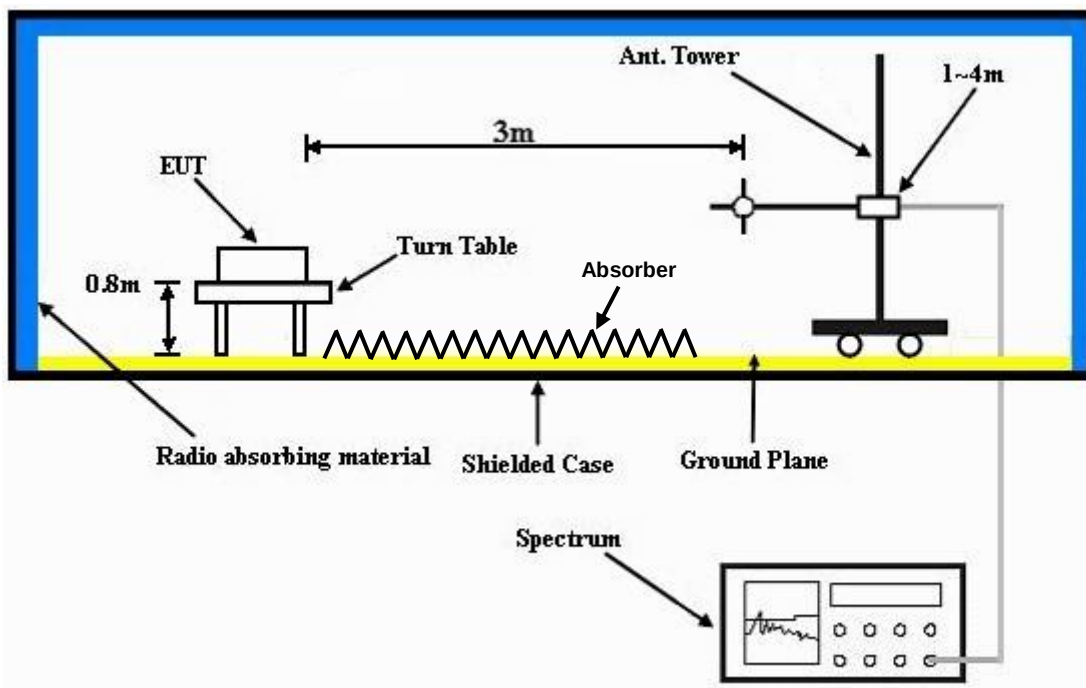
No deviation.

4.1.6 TEST SETUP

Frequency Range 30MHz ~ 1GHz



Frequency Range above 1GHz



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

4.1.7 EUT OPERATING CONDITIONS

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

4.1.8 TEST RESULTS

ABOVE 1GHz WORST-CASE DATA

1TX

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	Johnson Liao
MODE	B		

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
5150	44.55	45.26	54	-9.45	31.32	5.29	37.32	100	45	Average
5150	62.12	62.83	74	-11.88	31.32	5.29	37.32	100	45	Peak
5180	94.66	95.34			31.35	5.31	37.34	100	45	Average
5180	104.39	105.07			31.35	5.31	37.34	100	45	Peak
5428	38.17	38.35	54	-15.83	31.53	5.42	37.13	100	45	Average
5428	59.01	59.19	74	-14.99	31.53	5.42	37.13	100	45	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	46.45	47.16	54	-7.55	31.32	5.29	37.32	104	211	Average
5150	63.16	63.87	74	-10.84	31.32	5.29	37.32	104	211	Peak
5180	96.35	97.03			31.35	5.31	37.34	104	211	Average
5180	105.96	106.64			31.35	5.31	37.34	104	211	Peak
5356	37.93	38.24	54	-16.07	31.48	5.39	37.18	104	211	Average
5356	60.52	60.83	74	-13.48	31.48	5.39	37.18	104	211	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	Johnson Liao
MODE	B		

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
5104	38.57	39.3	54	-15.43	31.28	5.27	37.28	106	55	Average
5104	59.23	59.96	74	-14.77	31.28	5.27	37.28	106	55	Peak
5220	95.04	95.7			31.37	5.33	37.36	106	55	Average
5220	105.08	105.74			31.37	5.33	37.36	106	55	Peak
5382	38.08	38.35	54	-15.92	31.51	5.4	37.18	106	55	Average
5382	60.12	60.39	74	-13.88	31.51	5.4	37.18	106	55	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
5110	39.04	39.76	54	-14.96	31.29	5.27	37.28	102	212	Average
5110	60.11	60.83	74	-13.89	31.29	5.27	37.28	102	212	Peak
5220	96.2	96.86			31.37	5.33	37.36	102	212	Average
5220	105.71	106.37			31.37	5.33	37.36	102	212	Peak
5448	38.03	38.16	54	-15.97	31.56	5.44	37.13	102	212	Average
5448	60.48	60.61	74	-13.52	31.56	5.44	37.13	102	212	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	Johnson Liao
MODE	B		

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	37.69	38.4	54	-16.31	31.31	5.28	37.3	106	46	Average
5128	59.49	60.2	74	-14.51	31.31	5.28	37.3	106	46	Peak
5240	95.65	96.24			31.39	5.34	37.32	106	46	Average
5240	105.33	105.92			31.39	5.34	37.32	106	46	Peak
5428	38.11	38.29	54	-15.89	31.53	5.42	37.13	106	46	Average
5428	59.33	59.51	74	-14.67	31.53	5.42	37.13	106	46	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
5086	38.07	38.81	54	-15.93	31.27	5.26	37.27	102	208	Average
5086	59.31	60.05	74	-14.69	31.27	5.26	37.27	102	208	Peak
5240	96.49	97.08			31.39	5.34	37.32	102	208	Average
5240	105.93	106.52			31.39	5.34	37.32	102	208	Peak
5450	38.08	38.16	54	-15.92	31.56	5.44	37.08	102	208	Average
5450	59.64	59.72	74	-14.36	31.56	5.44	37.08	102	208	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	Johnson Liao
MODE	A		

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
5150	37.46	38.17	54	-16.54	31.32	5.29	37.32	101	126	Average
5150	57.16	57.87	74	-16.84	31.32	5.29	37.32	101	126	Peak
5260	88.79	89.31			31.41	5.34	37.27	101	126	Average
5260	98.07	98.59			31.41	5.34	37.27	101	126	Peak
5350	37.62	37.93	54	-16.38	31.48	5.39	37.18	101	126	Average
5350	57.36	57.67	74	-16.64	31.48	5.39	37.18	101	126	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	37.73	38.44	54	-16.27	31.32	5.29	37.32	102	81	Average
5150	56.72	57.43	74	-17.28	31.32	5.29	37.32	102	81	Peak
5260	92.46	92.98			31.41	5.34	37.27	102	81	Average
5260	102.28	102.8			31.41	5.34	37.27	102	81	Peak
5350	37.71	38.02	54	-16.29	31.48	5.39	37.18	102	81	Average
5350	56.43	56.74	74	-17.57	31.48	5.39	37.18	102	81	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	Johnson Liao
MODE	A		

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
5150	37.44	38.15	54	-16.56	31.32	5.29	37.32	100	124	Average
5150	56.94	57.65	74	-17.06	31.32	5.29	37.32	100	124	Peak
5300	89.31	89.69			31.44	5.37	37.19	100	124	Average
5300	98.89	99.27			31.44	5.37	37.19	100	124	Peak
5350	38.1	38.41	54	-15.9	31.48	5.39	37.18	100	124	Average
5350	58.57	58.88	74	-15.43	31.48	5.39	37.18	100	124	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	37.54	38.25	54	-16.46	31.32	5.29	37.32	100	82	Average
5150	57.05	57.76	74	-16.95	31.32	5.29	37.32	100	82	Peak
5300	92.16	92.54			31.44	5.37	37.19	100	82	Average
5300	102.08	102.46			31.44	5.37	37.19	100	82	Peak
5350	38.71	39.02	54	-15.29	31.48	5.39	37.18	100	82	Average
5350	57.86	58.17	74	-16.14	31.48	5.39	37.18	100	82	Peak

REMARKS:

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



A D T

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

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
5150	37.5	38.21	54	-16.5	31.32	5.29	37.32	100	134	Average
5150	56.4	57.11	74	-17.6	31.32	5.29	37.32	100	134	Peak
5320	89.69	90.05			31.45	5.38	37.19	100	134	Average
5320	98.93	99.29			31.45	5.38	37.19	100	134	Peak
5458	39.47	39.55	54	-14.53	31.56	5.44	37.08	100	134	Average
5458	59.67	59.75	74	-14.33	31.56	5.44	37.08	100	134	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	37.58	38.29	54	-16.42	31.32	5.29	37.32	100	82	Average
5150	57.74	58.45	74	-16.26	31.32	5.29	37.32	100	82	Peak
5320	92.86	93.22			31.45	5.38	37.19	100	82	Average
5320	102.48	102.84			31.45	5.38	37.19	100	82	Peak
5350	40.66	40.97	54	-13.34	31.48	5.39	37.18	100	82	Average
5350	58.36	58.67	74	-15.64	31.48	5.39	37.18	100	82	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	Johnson Liao
MODE	A		

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
5378	42.03	42.3	54	-11.97	31.51	5.4	37.18	130	125	Average
5378	59.46	59.73	74	-14.54	31.51	5.4	37.18	130	125	Peak
5470	58.03	58.09	68.3	-10.27	31.57	5.45	37.08	130	125	Peak
5500	94.26	94.23			31.6	5.46	37.03	130	125	Average
5500	103.86	103.83			31.6	5.46	37.03	130	125	Peak
5725	58.27	58.15	68.3	-10.03	31.96	5.59	37.43	130	125	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	43.44	43.52	54	-10.56	31.56	5.44	37.08	117	212	Average
5458	60.06	60.14	74	-13.94	31.56	5.44	37.08	117	212	Peak
5470	59.92	59.98	68.3	-8.38	31.57	5.45	37.08	117	212	Peak
5500	96.52	96.49			31.6	5.46	37.03	117	212	Average
5500	106.69	106.66			31.6	5.46	37.03	117	212	Peak
5725	58.24	58.12	68.3	-10.06	31.96	5.59	37.43	117	212	Peak

REMARKS:

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



A D T

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

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
5356	37.7	38.01	54	-16.3	31.48	5.39	37.18	100	120	Average
5356	59.63	59.94	74	-14.37	31.48	5.39	37.18	100	120	Peak
5470	58.15	58.21	68.3	-10.15	31.57	5.45	37.08	100	120	Peak
5580	94.2	94.15			31.71	5.5	37.16	100	120	Average
5580	103.94	103.89			31.71	5.5	37.16	100	120	Peak
5725	59.18	59.06	68.3	-9.12	31.96	5.59	37.43	100	120	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
5388	37.6	37.86	54	-16.4	31.51	5.41	37.18	110	274	Average
5388	60.58	60.84	74	-13.42	31.51	5.41	37.18	110	274	Peak
5470	58.09	58.15	68.3	-10.21	31.57	5.45	37.08	110	274	Peak
5580	96.29	96.24			31.71	5.5	37.16	110	274	Average
5580	106.15	106.1			31.71	5.5	37.16	110	274	Peak
5725	58.98	58.86	68.3	-9.32	31.96	5.59	37.43	110	274	Peak

REMARKS:

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



A D T

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

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
5456	37.61	37.69	54	-16.39	31.56	5.44	37.08	108	40	Average
5456	59.54	59.62	74	-14.46	31.56	5.44	37.08	108	40	Peak
5470	58.03	58.09	68.3	-10.27	31.57	5.45	37.08	108	40	Peak
5700	93.61	93.54			31.9	5.57	37.4	108	40	Average
5700	103.58	103.51			31.9	5.57	37.4	108	40	Peak
5725	61.26	61.14	68.3	-7.04	31.96	5.59	37.43	108	40	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5416	37.58	37.81	54	-16.42	31.53	5.42	37.18	102	326	Average
5416	59.95	60.18	74	-14.05	31.53	5.42	37.18	102	326	Peak
5470	57.02	57.08	68.3	-11.28	31.57	5.45	37.08	102	326	Peak
5700	96.44	96.37			31.9	5.57	37.4	102	326	Average
5700	106.16	106.09			31.9	5.57	37.4	102	326	Peak
5725	63.94	63.82	68.3	-4.36	31.96	5.59	37.43	102	326	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 36	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Johnson Liao
MODE	E		

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
5150	43.11	43.82	54	-10.89	31.32	5.29	37.32	100	91	Average
5150	60.93	61.64	74	-13.07	31.32	5.29	37.32	100	91	Peak
5180	93.15	93.83			31.35	5.31	37.34	100	91	Average
5180	103.75	104.43			31.35	5.31	37.34	100	91	Peak
5350	37.41	37.72	54	-16.59	31.48	5.39	37.18	100	91	Average
5350	57.57	57.88	74	-16.43	31.48	5.39	37.18	100	91	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	45.93	46.64	54	-8.07	31.32	5.29	37.32	110	189	Average
5150	64.05	64.76	74	-9.95	31.32	5.29	37.32	110	189	Peak
5180	94.88	95.56			31.35	5.31	37.34	110	189	Average
5180	104.41	105.09			31.35	5.31	37.34	110	189	Peak
5350	36.51	36.82	54	-17.49	31.48	5.39	37.18	110	189	Average
5350	58.34	58.65	74	-15.66	31.48	5.39	37.18	110	189	Peak

REMARKS:

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

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	Johnson Liao
MODE	A		

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
5150	43.94	44.65	54	-10.06	31.32	5.29	37.32	110	53	Average
5150	59.72	60.43	74	-14.28	31.32	5.29	37.32	110	53	Peak
5180	95.02	95.7			31.35	5.31	37.34	110	53	Average
5180	104.4	105.08			31.35	5.31	37.34	110	53	Peak
5376	38.38	38.67	54	-15.62	31.49	5.4	37.18	110	53	Average
5376	59.47	59.76	74	-14.53	31.49	5.4	37.18	110	53	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
5146	45.31	46.02	54	-8.69	31.32	5.29	37.32	103	206	Average
5146	61.57	62.28	74	-12.43	31.32	5.29	37.32	103	206	Peak
5180	96.25	96.93			31.35	5.31	37.34	103	206	Average
5180	106.4	107.08			31.35	5.31	37.34	103	206	Peak
5382	37.88	38.15	54	-16.12	31.51	5.4	37.18	103	206	Average
5382	59.7	59.97	74	-14.3	31.51	5.4	37.18	103	206	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	Johnson Liao
MODE	A		

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
5044	38.34	39.1	54	-15.66	31.24	5.25	37.25	108	53	Average
5044	59.15	59.91	74	-14.85	31.24	5.25	37.25	108	53	Peak
5220	94.94	95.6			31.37	5.33	37.36	108	53	Average
5220	104.27	104.93			31.37	5.33	37.36	108	53	Peak
5432	38.16	38.32	54	-15.84	31.55	5.42	37.13	108	53	Average
5432	59.14	59.3	74	-14.86	31.55	5.42	37.13	108	53	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
5014	39	39.78	54	-15	31.21	5.24	37.23	103	210	Average
5014	59.69	60.47	74	-14.31	31.21	5.24	37.23	103	210	Peak
5220	96.1	96.76			31.37	5.33	37.36	103	210	Average
5220	105.43	106.09			31.37	5.33	37.36	103	210	Peak
5448	38.01	38.14	54	-15.99	31.56	5.44	37.13	103	210	Average
5448	59.27	59.4	74	-14.73	31.56	5.44	37.13	103	210	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	Johnson Liao
MODE	A		

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	37.89	38.65	54	-16.11	31.24	5.25	37.25	108	53	Average
5042	58.67	59.43	74	-15.33	31.24	5.25	37.25	108	53	Peak
5240	95.27	95.86			31.39	5.34	37.32	108	53	Average
5240	104.51	105.1			31.39	5.34	37.32	108	53	Peak
5372	37.94	38.23	54	-16.06	31.49	5.4	37.18	108	53	Average
5372	59.53	59.82	74	-14.47	31.49	5.4	37.18	108	53	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
5120	38.01	38.74	54	-15.99	31.29	5.28	37.3	102	209	Average
5120	59.43	60.16	74	-14.57	31.29	5.28	37.3	102	209	Peak
5240	96.2	96.79			31.39	5.34	37.32	102	209	Average
5240	105.54	106.13			31.39	5.34	37.32	102	209	Peak
5460	38	38.08	54	-16	31.56	5.44	37.08	102	209	Average
5460	59.67	59.75	74	-14.33	31.56	5.44	37.08	102	209	Peak

REMARKS:

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



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

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
5150	37.38	38.09	54	-16.62	31.32	5.29	37.32	124	126	Average
5150	58.05	58.76	74	-15.95	31.32	5.29	37.32	124	126	Peak
5260	88.77	89.29			31.41	5.34	37.27	124	126	Average
5260	98.82	99.34			31.41	5.34	37.27	124	126	Peak
5412	37.63	37.87	54	-16.37	31.53	5.41	37.18	124	126	Average
5412	59.02	59.26	74	-14.98	31.53	5.41	37.18	124	126	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	37.66	38.37	54	-16.34	31.32	5.29	37.32	102	81	Average
5150	56.84	57.55	74	-17.16	31.32	5.29	37.32	102	81	Peak
5260	92.19	92.71			31.41	5.34	37.27	102	81	Average
5260	101.74	102.26			31.41	5.34	37.27	102	81	Peak
5412	37.83	38.07	54	-16.17	31.53	5.41	37.18	102	81	Average
5412	59.41	59.65	74	-14.59	31.53	5.41	37.18	102	81	Peak

REMARKS:

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



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

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
5014	37.34	38.12	54	-16.66	31.21	5.24	37.23	100	124	Average
5014	59.58	60.36	74	-14.42	31.21	5.24	37.23	100	124	Peak
5300	88.93	89.31			31.44	5.37	37.19	100	124	Average
5300	98.41	98.79			31.44	5.37	37.19	100	124	Peak
5350	37.99	38.3	54	-16.01	31.48	5.39	37.18	100	124	Average
5350	58.18	58.49	74	-15.82	31.48	5.39	37.18	100	124	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
5024	37.44	38.21	54	-16.56	31.23	5.24	37.24	102	81	Average
5024	59	59.77	74	-15	31.23	5.24	37.24	102	81	Peak
5300	92.42	92.8			31.44	5.37	37.19	102	81	Average
5300	101.92	102.3			31.44	5.37	37.19	102	81	Peak
5350	38.51	38.82	54	-15.49	31.48	5.39	37.18	102	81	Average
5350	58.36	58.67	74	-15.64	31.48	5.39	37.18	102	81	Peak

REMARKS:

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



A D T

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

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
5080	37.41	38.15	54	-16.59	31.27	5.26	37.27	102	133	Average
5080	60.06	60.8	74	-13.94	31.27	5.26	37.27	102	133	Peak
5320	89.46	89.82			31.45	5.38	37.19	102	133	Average
5320	98.67	99.03			31.45	5.38	37.19	102	133	Peak
5350	39.19	39.5	54	-14.81	31.48	5.39	37.18	102	133	Average
5350	58.3	58.61	74	-15.7	31.48	5.39	37.18	102	133	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	37.49	38.2	54	-16.51	31.32	5.29	37.32	101	82	Average
5150	57.3	58.01	74	-16.7	31.32	5.29	37.32	101	82	Peak
5320	92.77	93.13			31.45	5.38	37.19	101	82	Average
5320	101.69	102.05			31.45	5.38	37.19	101	82	Peak
5376	40.82	41.11	54	-13.18	31.49	5.4	37.18	101	82	Average
5376	60.04	60.33	74	-13.96	31.49	5.4	37.18	101	82	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	Johnson Liao
MODE	A		

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	41	41.08	54	-13	31.56	5.44	37.08	100	44	Average
5460	60.04	60.12	74	-13.96	31.56	5.44	37.08	100	44	Peak
5470	61.12	61.18	68.3	-7.18	31.57	5.45	37.08	100	44	Peak
5500	94.64	94.61			31.6	5.46	37.03	100	44	Average
5500	104.76	104.73			31.6	5.46	37.03	100	44	Peak
5725	59.32	59.2	68.3	-8.98	31.96	5.59	37.43	100	44	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
5430	43.47	43.63	54	-10.53	31.55	5.42	37.13	103	233	Average
5430	59.2	59.36	74	-14.8	31.55	5.42	37.13	103	233	Peak
5470	60.83	60.89	68.3	-7.47	31.57	5.45	37.08	103	233	Peak
5500	96.14	96.11			31.6	5.46	37.03	103	223	Average
5500	106.26	106.23			31.6	5.46	37.03	103	223	Peak
5725	59.43	59.31	68.3	-8.87	31.96	5.59	37.43	103	233	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	Johnson Liao
MODE	A		

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	38.43	38.51	54	-15.57	31.56	5.44	37.08	100	59	Average
5460	58.21	58.29	74	-15.79	31.56	5.44	37.08	100	59	Peak
5470	58.49	58.55	68.3	-9.81	31.57	5.45	37.08	100	59	Peak
5580	94.37	94.32			31.71	5.5	37.16	100	59	Average
5580	104.81	104.76			31.71	5.5	37.16	100	59	Peak
5725	58.81	58.69	68.3	-9.49	31.96	5.59	37.43	100	59	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
5410	37.74	37.99	54	-16.26	31.52	5.41	37.18	104	255	Average
5410	58.64	58.89	74	-15.36	31.52	5.41	37.18	104	255	Peak
5470	57.63	57.69	68.3	-10.67	31.57	5.45	37.08	104	255	Peak
5580	95.9	95.85			31.71	5.5	37.16	104	255	Average
5580	106.48	106.43			31.71	5.5	37.16	104	255	Peak
5725	58.54	58.42	68.3	-9.76	31.96	5.59	37.43	104	255	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	Johnson Liao
MODE	A		

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	37.84	37.92	54	-16.16	31.56	5.44	37.08	100	291	Average
5460	58.2	58.28	74	-15.8	31.56	5.44	37.08	100	291	Peak
5470	57.42	57.48	68.3	-10.88	31.57	5.45	37.08	100	291	Peak
5700	94.06	93.99			31.9	5.57	37.4	100	291	Average
5700	104.19	104.12			31.9	5.57	37.4	100	291	Peak
5725	64.31	64.19	68.3	-3.99	31.96	5.59	37.43	100	291	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	37.24	37.49	54	-16.76	31.52	5.41	37.18	104	211	Average
5408	60.08	60.33	74	-13.92	31.52	5.41	37.18	104	211	Peak
5470	58.19	58.25	68.3	-10.11	31.57	5.45	37.08	104	211	Peak
5700	95.34	95.27			31.9	5.57	37.4	104	211	Average
5700	105.76	105.69			31.9	5.57	37.4	104	211	Peak
5725	64.99	64.87	68.3	-3.31	31.96	5.59	37.43	104	211	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 64	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Johnson Liao
MODE	F		

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
5150	36.81	37.52	54	-17.19	31.32	5.29	37.32	105	80	Average
5150	57.45	58.16	74	-16.55	31.32	5.29	37.32	105	80	Peak
5320	94.15	94.51			31.45	5.38	37.19	105	80	Average
5320	103.75	104.11			31.45	5.38	37.19	105	80	Peak
5350	46.13	46.44	54	-7.87	31.48	5.39	37.18	104	58	Average
5350	60.87	61.18	74	-13.13	31.48	5.39	37.18	104	58	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	38.44	39.15	54	-15.56	31.32	5.29	37.32	106	74	Average
5150	58.11	58.82	74	-15.89	31.32	5.29	37.32	106	74	Peak
5320	91.82	92.18			31.45	5.38	37.19	106	74	Average
5320	100.94	101.3			31.45	5.38	37.19	106	74	Peak
5350	41.15	41.46	54	-12.85	31.48	5.39	37.18	100	202	Average
5350	58.03	58.34	74	-15.97	31.48	5.39	37.18	100	202	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 140	FREQUENCY RANGE	1GHz ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Johnson Liao
MODE	D		

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	38.16	38.24	54	-15.84	31.56	5.44	37.08	105	347	Average
5460	58.69	58.77	74	-15.31	31.56	5.44	37.08	105	347	Peak
5470	57.57	57.63	68.3	-10.73	31.57	5.45	37.08	105	347	Peak
5700	93.97	93.9			31.9	5.57	37.4	105	347	Average
5700	104.21	104.14			31.9	5.57	37.4	105	347	Peak
5725	63.3	63.18	68.3	-5	31.96	5.59	37.43	105	347	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	38.91	38.99	54	-15.09	31.56	5.44	37.08	100	188	Average
5460	58.11	58.19	74	-15.89	31.56	5.44	37.08	100	188	Peak
5470	58.49	58.55	68.3	-9.81	31.57	5.45	37.08	100	188	Peak
5700	95.12	95.05			31.9	5.57	37.4	100	188	Average
5700	106.05	105.98			31.9	5.57	37.4	100	188	Peak
5725	63.42	63.3	68.3	-4.88	31.96	5.59	37.43	100	188	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

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	Johnson Liao
MODE	A		

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
5150	45.24	45.95	54	-8.76	31.32	5.29	37.32	108	54	Average
5150	61.31	62.02	74	-12.69	31.32	5.29	37.32	108	54	Peak
5190	90.08	90.75			31.35	5.32	37.34	108	54	Average
5190	99.45	100.12			31.35	5.32	37.34	108	54	Peak
5392	38.23	38.49	54	-15.77	31.51	5.41	37.18	108	54	Average
5392	60.06	60.32	74	-13.94	31.51	5.41	37.18	108	54	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
5144	46.08	46.79	54	-7.92	31.32	5.29	37.32	102	212	Average
5144	59.98	60.69	74	-14.02	31.32	5.29	37.32	102	212	Peak
5190	90.76	91.43			31.35	5.32	37.34	102	212	Average
5190	100.39	101.06			31.35	5.32	37.34	102	212	Peak
5452	38.16	38.24	54	-15.84	31.56	5.44	37.08	102	212	Average
5452	59.22	59.3	74	-14.78	31.56	5.44	37.08	102	212	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	Johnson Liao
MODE	A		

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
5118	38.64	39.35	54	-15.36	31.29	5.28	37.28	107	54	Average
5118	59.13	59.84	74	-14.87	31.29	5.28	37.28	107	54	Peak
5230	90.28	90.88			31.39	5.33	37.32	107	54	Average
5230	99.36	99.96			31.39	5.33	37.32	107	54	Peak
5366	38.24	38.53	54	-15.76	31.49	5.4	37.18	107	54	Average
5366	59.66	59.95	74	-14.34	31.49	5.4	37.18	107	54	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
5046	38.86	39.62	54	-15.14	31.24	5.25	37.25	102	208	Average
5046	59.43	60.19	74	-14.57	31.24	5.25	37.25	102	208	Peak
5230	91.05	91.65			31.39	5.33	37.32	102	208	Average
5230	100.12	100.72			31.39	5.33	37.32	102	208	Peak
5446	38.35	38.48	54	-15.65	31.56	5.44	37.13	102	208	Average
5446	59.42	59.55	74	-14.58	31.56	5.44	37.13	102	208	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	Johnson Liao
MODE	A		

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
5052	37.3	38.06	54	-16.7	31.24	5.25	37.25	101	125	Average
5052	59.82	60.58	74	-14.18	31.24	5.25	37.25	101	125	Peak
5270	83.41	83.92			31.41	5.35	37.27	101	125	Average
5270	93.64	94.15			31.41	5.35	37.27	101	125	Peak
5398	37.71	37.96	54	-16.29	31.52	5.41	37.18	101	125	Average
5398	60.52	60.77	74	-13.48	31.52	5.41	37.18	101	125	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
5018	37.73	38.52	54	-16.27	31.21	5.24	37.24	101	81	Average
5018	60.62	61.41	74	-13.38	31.21	5.24	37.24	101	81	Peak
5270	87.89	88.4			31.41	5.35	37.27	101	81	Average
5270	97	97.51			31.41	5.35	37.27	101	81	Peak
5440	38.38	38.52	54	-15.62	31.55	5.44	37.13	101	81	Average
5440	60.01	60.15	74	-13.99	31.55	5.44	37.13	101	81	Peak

REMARKS:

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



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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	Johnson Liao
MODE	A		

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
5150	37.83	38.54	54	-16.17	31.32	5.29	37.32	100	133	Average
5150	57.27	57.98	74	-16.73	31.32	5.29	37.32	100	133	Peak
5310	84.12	84.49			31.45	5.37	37.19	100	133	Average
5310	93.07	93.44			31.45	5.37	37.19	100	133	Peak
5350	40.93	41.24	54	-13.07	31.48	5.39	37.18	100	133	Average
5350	59.98	60.29	74	-14.02	31.48	5.39	37.18	100	133	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	37.78	38.49	54	-16.22	31.32	5.29	37.32	101	82	Average
5150	57.44	58.15	74	-16.56	31.32	5.29	37.32	101	82	Peak
5310	87.98	88.35			31.45	5.37	37.19	101	82	Average
5310	97.55	97.92			31.45	5.37	37.19	101	82	Peak
5350	42.85	43.16	54	-11.15	31.48	5.39	37.18	101	82	Average
5350	58.37	58.68	74	-15.63	31.48	5.39	37.18	101	82	Peak

REMARKS:

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



A D T

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	Johnson Liao
MODE	A		

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	45.4	45.48	54	-8.6	31.56	5.44	37.08	100	44	Average
5460	60.22	60.3	74	-13.78	31.56	5.44	37.08	100	44	Peak
5470	62.74	62.8	68.3	-5.56	31.57	5.45	37.08	100	44	Peak
5510	86.74	86.74			31.6	5.46	37.06	100	44	Average
5510	97.12	97.12			31.6	5.46	37.06	100	44	Peak
5725	58.94	58.82	68.3	-9.36	31.96	5.59	37.43	100	44	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	44.69	44.77	54	-9.31	31.56	5.44	37.08	102	278	Average
5460	60.24	60.32	74	-13.76	31.56	5.44	37.08	102	278	Peak
5470	61.79	61.85	68.3	-6.51	31.57	5.45	37.08	102	278	Peak
5510	89.89	89.89			31.6	5.46	37.06	102	278	Average
5510	100.74	100.74			31.6	5.46	37.06	102	278	Peak
5725	59.38	59.26	68.3	-8.92	31.96	5.59	37.43	102	278	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	Johnson Liao
MODE	A		

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
5386	38.54	38.81	54	-15.46	31.51	5.4	37.18	100	119	Average
5386	61	61.27	74	-13	31.51	5.4	37.18	100	119	Peak
5470	58.42	58.48	68.3	-9.88	31.57	5.45	37.08	100	119	Peak
5550	86.4	86.32			31.68	5.49	37.09	100	119	Average
5550	96.63	96.55			31.68	5.49	37.09	100	119	Peak
5725	59.85	59.73	68.3	-8.45	31.96	5.59	37.43	100	119	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5450	38.98	39.06	54	-15.02	31.56	5.44	37.08	120	281	Average
5450	60.7	60.78	74	-13.3	31.56	5.44	37.08	120	281	Peak
5470	59.13	59.19	68.3	-9.17	31.57	5.45	37.08	120	281	Peak
5550	89.23	89.15			31.68	5.49	37.09	120	281	Average
5550	100.06	99.98			31.68	5.49	37.09	120	281	Peak
5725	59.36	59.24	68.3	-8.94	31.96	5.59	37.43	120	281	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



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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	Johnson Liao
MODE	A		

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	38.16	38.29	54	-15.84	31.56	5.44	37.13	111	10	Average
5448	60.22	60.35	74	-13.78	31.56	5.44	37.13	111	10	Peak
5470	58.11	58.17	68.3	-10.19	31.57	5.45	37.08	111	10	Peak
5670	86.71	86.61			31.88	5.56	37.34	111	10	Average
5670	96.9	96.8			31.88	5.56	37.34	111	10	Peak
5725	58.51	58.39	68.3	-9.79	31.96	5.59	37.43	111	10	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
5434	38.25	38.41	54	-15.75	31.55	5.42	37.13	122	212	Average
5434	59.66	59.82	74	-14.34	31.55	5.42	37.13	122	212	Peak
5470	58.11	58.17	68.3	-10.19	31.57	5.45	37.08	122	212	Peak
5670	90.62	90.52			31.88	5.56	37.34	122	212	Average
5670	100.66	100.56			31.88	5.56	37.34	122	212	Peak
5725	60.94	60.82	68.3	-7.36	31.96	5.59	37.43	122	212	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

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	Johnson Liao
MODE	B		

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
5146	43.85	44.56	54	-10.15	31.32	5.29	37.32	108	54	Average
5146	60.36	61.07	74	-13.64	31.32	5.29	37.32	108	54	Peak
5210	88.18	88.85			31.37	5.32	37.36	108	54	Average
5210	97.02	97.69			31.37	5.32	37.36	108	54	Peak
5450	38.85	38.93	54	-15.15	31.56	5.44	37.08	108	54	Average
5450	59.59	59.67	74	-14.41	31.56	5.44	37.08	108	54	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	45.78	46.49	54	-8.22	31.31	5.28	37.3	103	209	Average
5128	61.11	61.82	74	-12.89	31.31	5.28	37.3	103	209	Peak
5210	89.24	89.91			31.37	5.32	37.36	103	209	Average
5210	98.16	98.83			31.37	5.32	37.36	103	209	Peak
5456	38.87	38.95	54	-15.13	31.56	5.44	37.08	103	209	Average
5456	60.52	60.6	74	-13.48	31.56	5.44	37.08	103	209	Peak

REMARKS:

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



A D T

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	Johnson Liao
MODE	A		

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
5130	38.88	39.59	54	-15.12	31.31	5.28	37.3	100	125	Average
5130	59.55	60.26	74	-14.45	31.31	5.28	37.3	100	125	Peak
5290	81.08	81.51			31.43	5.37	37.23	100	125	Average
5290	90.13	90.56			31.43	5.37	37.23	100	125	Peak
5366	39.88	40.17	54	-14.12	31.49	5.4	37.18	100	125	Average
5366	59.98	60.27	74	-14.02	31.49	5.4	37.18	100	125	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
5144	39.45	40.16	54	-14.55	31.32	5.29	37.32	102	82	Average
5144	59.43	60.14	74	-14.57	31.32	5.29	37.32	102	82	Peak
5290	85.32	85.75			31.43	5.37	37.23	102	82	Average
5290	94.92	95.35			31.43	5.37	37.23	102	82	Peak
5350	41.67	41.98	54	-12.33	31.48	5.39	37.18	102	82	Average
5350	58.59	58.9	74	-15.41	31.48	5.39	37.18	102	82	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	Johnson Liao
MODE	A		

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	48.57	48.7	54	-5.43	31.56	5.44	37.13	104	130	Average
5448	61.09	61.22	74	-12.91	31.56	5.44	37.13	104	130	Peak
5470	60.6	60.66	68.3	-7.7	31.57	5.45	37.08	104	130	Peak
5530	87.01	87			31.63	5.47	37.09	104	130	Average
5530	96.22	96.21			31.63	5.47	37.09	104	130	Peak
5725	58.46	58.34	68.3	-9.84	31.96	5.59	37.43	104	130	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
5450	46.41	46.49	54	-7.59	31.56	5.44	37.08	111	286	Average
5450	59.66	59.74	74	-14.34	31.56	5.44	37.08	111	286	Peak
5470	60.02	60.08	68.3	-8.28	31.57	5.45	37.08	111	286	Peak
5530	85.14	85.13			31.63	5.47	37.09	111	286	Average
5530	94.4	94.39			31.63	5.47	37.09	111	286	Peak
5725	57.32	57.2	68.3	-10.98	31.96	5.59	37.43	111	286	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

2TX

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	Johnson Liao
MODE	C		

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
5150	45.94	46.65	54	-8.06	31.32	5.29	37.32	100	60	Average
5150	63.95	64.66	74	-10.05	31.32	5.29	37.32	100	60	Peak
5180	95.71	96.39			31.35	5.31	37.34	100	60	Average
5180	104.52	105.2			31.35	5.31	37.34	100	60	Peak
5370	38.65	38.94	54	-15.35	31.49	5.4	37.18	100	60	Average
5370	59.38	59.67	74	-14.62	31.49	5.4	37.18	100	60	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	43.48	44.19	54	-10.52	31.32	5.29	37.32	102	209	Average
5150	57.85	58.56	74	-16.15	31.32	5.29	37.32	102	209	Peak
5180	93.86	94.54			31.35	5.31	37.34	102	209	Average
5180	102.73	103.41			31.35	5.31	37.34	102	209	Peak
5350	37.92	38.23	54	-16.08	31.48	5.39	37.18	102	209	Average
5350	57.09	57.4	74	-16.91	31.48	5.39	37.18	102	209	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	Johnson Liao
MODE	C		

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
5150	38.78	39.49	54	-15.22	31.32	5.29	37.32	100	59	Average
5150	57.48	58.19	74	-16.52	31.32	5.29	37.32	100	59	Peak
5220	95.66	96.32			31.37	5.33	37.36	100	59	Average
5220	105.2	105.86			31.37	5.33	37.36	100	59	Peak
5424	38.75	38.98	54	-15.25	31.53	5.42	37.18	100	59	Average
5424	59.43	59.66	74	-14.57	31.53	5.42	37.18	100	59	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	38.34	39.05	54	-15.66	31.32	5.29	37.32	100	210	Average
5150	57.1	57.81	74	-16.9	31.32	5.29	37.32	100	210	Peak
5220	93.89	94.55			31.37	5.33	37.36	100	210	Average
5220	103.2	103.86			31.37	5.33	37.36	100	210	Peak
5420	38.12	38.35	54	-15.88	31.53	5.42	37.18	100	210	Average
5420	60.38	60.61	74	-13.62	31.53	5.42	37.18	100	210	Peak

REMARKS:

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



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

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
5150	38.18	38.89	54	-15.82	31.32	5.29	37.32	100	60	Average
5150	59.08	59.79	74	-14.92	31.32	5.29	37.32	100	60	Peak
5240	95.75	96.34			31.39	5.34	37.32	100	60	Average
5240	104.96	105.55			31.39	5.34	37.32	100	60	Peak
5350	38.33	38.64	54	-15.67	31.48	5.39	37.18	100	60	Average
5350	58.21	58.52	74	-15.79	31.48	5.39	37.18	100	60	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	37.98	38.69	54	-16.02	31.32	5.29	37.32	100	210	Average
5150	57.28	57.99	74	-16.72	31.32	5.29	37.32	100	210	Peak
5240	93.77	94.36			31.39	5.34	37.32	100	210	Average
5240	102.85	103.44			31.39	5.34	37.32	100	210	Peak
5350	38.01	38.32	54	-15.99	31.48	5.39	37.18	100	210	Average
5350	57.14	57.45	74	-16.86	31.48	5.39	37.18	100	210	Peak

REMARKS:

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



A D T

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

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	37.57	38.3	54	-16.43	31.28	5.27	37.28	104	60	Average
5098	59.08	59.81	74	-14.92	31.28	5.27	37.28	104	60	Peak
5260	94.02	94.54			31.41	5.34	37.27	104	60	Average
5260	103.01	103.53			31.41	5.34	37.27	104	60	Peak
5446	38.17	38.3	54	-15.83	31.56	5.44	37.13	104	60	Average
5446	59.85	59.98	74	-14.15	31.56	5.44	37.13	104	60	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
5104	37.33	38.06	54	-16.67	31.28	5.27	37.28	121	179	Average
5104	58.89	59.62	74	-15.11	31.28	5.27	37.28	121	179	Peak
5260	91.68	92.2			31.41	5.34	37.27	121	179	Average
5260	100.43	100.95			31.41	5.34	37.27	121	179	Peak
5392	37.91	38.17	54	-16.09	31.51	5.41	37.18	121	179	Average
5392	59.07	59.33	74	-14.93	31.51	5.41	37.18	121	179	Peak

REMARKS:

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



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

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
5068	37.25	38.01	54	-16.75	31.25	5.26	37.27	102	65	Average
5068	59.27	60.03	74	-14.73	31.25	5.26	37.27	102	65	Peak
5300	94.08	94.46			31.44	5.37	37.19	102	65	Average
5300	103.08	103.46			31.44	5.37	37.19	102	65	Peak
5352	39.64	39.95	54	-14.36	31.48	5.39	37.18	102	65	Average
5352	60.3	60.61	74	-13.7	31.48	5.39	37.18	102	65	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5112	37.46	38.18	54	-16.54	31.29	5.27	37.28	132	180	Average
5112	59.22	59.94	74	-14.78	31.29	5.27	37.28	132	180	Peak
5300	91.78	92.16			31.44	5.37	37.19	132	180	Average
5300	101.47	101.85			31.44	5.37	37.19	132	180	Peak
5444	38.38	38.52	54	-15.62	31.55	5.44	37.13	132	180	Average
5444	59.47	59.61	74	-14.53	31.55	5.44	37.13	132	180	Peak

REMARKS:

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



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

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	37.44	38.17	54	-16.56	31.28	5.27	37.28	102	64	Average
5094	58.91	59.64	74	-15.09	31.28	5.27	37.28	102	64	Peak
5320	94.86	95.22			31.45	5.38	37.19	102	64	Average
5320	104.16	104.52			31.45	5.38	37.19	102	64	Peak
5350	48.56	48.87	54	-5.44	31.48	5.39	37.18	102	64	Average
5350	63.01	63.32	74	-10.99	31.48	5.39	37.18	102	64	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
5004	37.23	38.03	54	-16.77	31.21	5.22	37.23	110	177	Average
5004	58.93	59.73	74	-15.07	31.21	5.22	37.23	110	177	Peak
5320	92.23	92.59			31.45	5.38	37.19	110	177	Average
5320	101.43	101.79			31.45	5.38	37.19	110	177	Peak
5350	42.77	43.08	54	-11.23	31.48	5.39	37.18	110	177	Average
5350	59.54	59.85	74	-14.46	31.48	5.39	37.18	110	177	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	Johnson Liao
MODE	C		

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	40.12	40.26	54	-13.88	31.55	5.44	37.13	100	208	Average
5444	59.82	59.96	74	-14.18	31.55	5.44	37.13	100	208	Peak
5470	59.58	59.64	74	-14.42	31.57	5.45	37.08	100	208	Peak
5500	92.43	92.4			31.6	5.46	37.03	100	208	Average
5500	102.7	102.67			31.6	5.46	37.03	100	208	Peak
5725	59.28	59.16	74	-14.72	31.96	5.59	37.43	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
5460	40.86	40.94	54	-13.14	31.56	5.44	37.08	100	208	Average
5460	58.24	58.32	74	-15.76	31.56	5.44	37.08	100	208	Peak
5470	58.49	58.55	74	-15.51	31.57	5.45	37.08	100	208	Peak
5500	91.24	91.21			31.6	5.46	37.03	100	208	Average
5500	101.27	101.24			31.6	5.46	37.03	100	208	Peak
5725	59.21	59.09	74	-14.79	31.96	5.59	37.43	100	208	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	Johnson Liao
MODE	C		

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
5416	37.99	38.22	54	-16.01	31.53	5.42	37.18	128	211	Average
5416	59.25	59.48	74	-14.75	31.53	5.42	37.18	128	211	Peak
5470	58.76	58.82	74	-15.24	31.57	5.45	37.08	128	211	Peak
5580	92.55	92.5			31.71	5.5	37.16	128	211	Average
5580	102.2	102.15			31.71	5.5	37.16	128	211	Peak
5725	58.84	58.72	74	-15.16	31.96	5.59	37.43	128	211	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
5442	37.94	38.08	54	-16.06	31.55	5.44	37.13	101	17	Average
5442	60.42	60.56	74	-13.58	31.55	5.44	37.13	101	17	Peak
5470	58.18	58.24	74	-15.82	31.57	5.45	37.08	101	17	Peak
5580	91.03	90.98			31.71	5.5	37.16	101	17	Average
5580	100.94	100.89			31.71	5.5	37.16	101	17	Peak
5725	58.85	58.73	74	-15.15	31.96	5.59	37.43	101	17	Peak

REMARKS:

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



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

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
5436	37.68	37.84	54	-16.32	31.55	5.42	37.13	100	66	Average
5436	59.45	59.61	74	-14.55	31.55	5.42	37.13	100	66	Peak
5470	58.34	58.4	74	-15.66	31.57	5.45	37.08	100	66	Peak
5700	91.54	91.47			31.9	5.57	37.4	100	66	Average
5700	101.66	101.59			31.9	5.57	37.4	100	66	Peak
5725	60.02	59.9	74	-13.98	31.96	5.59	37.43	100	66	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5436	37.76	37.92	54	-16.24	31.55	5.42	37.13	121	20	Average
5436	60.08	60.24	74	-13.92	31.55	5.42	37.13	121	20	Peak
5470	59.03	59.09	74	-14.97	31.57	5.45	37.08	121	20	Peak
5700	90.46	90.39			31.9	5.57	37.4	121	20	Average
5700	100.86	100.79			31.9	5.57	37.4	121	20	Peak
5725	60.21	60.09	74	-13.79	31.96	5.59	37.43	121	20	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

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	Johnson Liao
MODE	C		

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
5150	44.05	44.76	54	-9.95	31.32	5.29	37.32	100	61	Average
5150	60.72	61.43	74	-13.28	31.32	5.29	37.32	100	61	Peak
5190	89.92	90.59			31.35	5.32	37.34	100	61	Average
5190	98.35	99.02			31.35	5.32	37.34	100	61	Peak
5350	38.25	38.56	54	-15.75	31.48	5.39	37.18	100	61	Average
5350	57.01	57.32	74	-16.99	31.48	5.39	37.18	100	61	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	42.18	42.89	54	-11.82	31.32	5.29	37.32	100	208	Average
5150	57.87	58.58	74	-16.13	31.32	5.29	37.32	100	208	Peak
5190	87.68	88.35			31.35	5.32	37.34	100	208	Average
5190	96.5	97.17			31.35	5.32	37.34	100	208	Peak
5350	37.96	38.27	54	-16.04	31.48	5.39	37.18	100	208	Average
5350	56.81	57.12	74	-17.19	31.48	5.39	37.18	100	208	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	Johnson Liao
MODE	C		

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
5150	37.83	38.54	54	-16.17	31.32	5.29	37.32	120	28	Average
5150	59.37	60.08	74	-14.63	31.32	5.29	37.32	120	28	Peak
5230	89.89	90.49			31.39	5.33	37.32	120	28	Average
5230	98.22	98.82			31.39	5.33	37.32	120	28	Peak
5350	38.18	38.49	54	-15.82	31.48	5.39	37.18	120	28	Average
5350	58.09	58.4	74	-15.91	31.48	5.39	37.18	120	28	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	37.79	38.5	54	-16.21	31.32	5.29	37.32	100	219	Average
5150	58.42	59.13	74	-15.58	31.32	5.29	37.32	100	219	Peak
5230	87.72	88.32			31.39	5.33	37.32	100	219	Average
5230	96.15	96.75			31.39	5.33	37.32	100	219	Peak
5350	38.04	38.35	54	-15.96	31.48	5.39	37.18	100	219	Average
5350	57.13	57.44	74	-16.87	31.48	5.39	37.18	100	219	Peak

REMARKS:

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



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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	Johnson Liao
MODE	C		

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	37.77	38.5	54	-16.23	31.28	5.27	37.28	104	63	Average
5098	59.36	60.09	74	-14.64	31.28	5.27	37.28	104	63	Peak
5270	88.23	88.74			31.41	5.35	37.27	104	63	Average
5270	97.17	97.68			31.41	5.35	37.27	104	63	Peak
5368	38.22	38.51	54	-15.78	31.49	5.4	37.18	104	63	Average
5368	59.84	60.13	74	-14.16	31.49	5.4	37.18	104	63	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5124	37.82	38.53	54	-16.18	31.31	5.28	37.3	131	177	Average
5124	59.34	60.05	74	-14.66	31.31	5.28	37.3	131	177	Peak
5270	85.81	86.32			31.41	5.35	37.27	131	177	Average
5270	94.82	95.33			31.41	5.35	37.27	131	177	Peak
5350	38.25	38.56	54	-15.75	31.48	5.39	37.18	131	177	Average
5350	57.49	57.8	74	-16.51	31.48	5.39	37.18	131	177	Peak

REMARKS:

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



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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	Johnson Liao
MODE	C		

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
5048	37.82	38.58	54	-16.18	31.24	5.25	37.25	100	64	Average
5048	58.89	59.65	74	-15.11	31.24	5.25	37.25	100	64	Peak
5310	88.04	88.41			31.45	5.37	37.19	100	64	Average
5310	97.23	97.6			31.45	5.37	37.19	100	64	Peak
5356	43.4	43.71	54	-10.6	31.48	5.39	37.18	100	64	Average
5356	59.05	59.36	74	-14.95	31.48	5.39	37.18	100	64	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
5088	37.67	38.4	54	-16.33	31.27	5.27	37.27	154	176	Average
5088	59.25	59.98	74	-14.75	31.27	5.27	37.27	154	176	Peak
5310	85.8	86.17			31.45	5.37	37.19	154	176	Average
5310	94.11	94.48			31.45	5.37	37.19	154	176	Peak
5350	41.19	41.5	54	-12.81	31.48	5.39	37.18	154	176	Average
5350	57.94	58.25	74	-16.06	31.48	5.39	37.18	154	176	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	Johnson Liao
MODE	C		

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	43.38	43.46	54	-10.62	31.56	5.44	37.08	111	207	Average
5460	59.21	59.29	74	-14.79	31.56	5.44	37.08	111	207	Peak
5470	62.28	62.34	74	-11.72	31.57	5.45	37.08	111	207	Peak
5510	87.18	87.18			31.6	5.46	37.06	111	207	Average
5510	96.43	96.43			31.6	5.46	37.06	111	207	Peak
5725	59.56	59.44	74	-14.44	31.96	5.59	37.43	111	207	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	42.65	42.73	54	-11.35	31.56	5.44	37.08	123	35	Average
5460	58.32	58.4	74	-15.68	31.56	5.44	37.08	123	35	Peak
5470	61.81	61.87	74	-12.19	31.57	5.45	37.08	123	35	Peak
5510	85.89	85.89			31.6	5.46	37.06	123	35	Average
5510	94.88	94.88			31.6	5.46	37.06	123	35	Peak
5725	58.52	58.4	74	-15.48	31.96	5.59	37.43	123	35	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



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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	Johnson Liao
MODE	C		

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
5408	38.32	38.57	54	-15.68	31.52	5.41	37.18	119	207	Average
5408	60.44	60.69	74	-13.56	31.52	5.41	37.18	119	207	Peak
5470	57.79	57.85	74	-16.21	31.57	5.45	37.08	119	207	Peak
5550	86.63	86.55			31.68	5.49	37.09	119	207	Average
5550	96.3	96.22			31.68	5.49	37.09	119	207	Peak
5725	58.27	58.15	74	-15.73	31.96	5.59	37.43	119	207	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
5440	38.23	38.37	54	-15.77	31.55	5.44	37.13	123	18	Average
5440	60.41	60.55	74	-13.59	31.55	5.44	37.13	123	18	Peak
5470	58.52	58.58	74	-15.48	31.57	5.45	37.08	123	18	Peak
5550	85.36	85.28			31.68	5.49	37.09	123	18	Average
5550	95.01	94.93			31.68	5.49	37.09	123	18	Peak
5725	58.48	58.36	74	-15.52	31.96	5.59	37.43	123	18	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	Johnson Liao
MODE	C		

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	38.28	38.36	54	-15.72	31.56	5.44	37.08	101	66	Average
5460	58.88	58.96	74	-15.12	31.56	5.44	37.08	101	66	Peak
5470	57.37	57.43	74	-16.63	31.57	5.45	37.08	101	66	Peak
5670	85.84	85.74			31.88	5.56	37.34	101	66	Average
5670	95.31	95.21			31.88	5.56	37.34	101	66	Peak
5725	59.6	59.48	74	-14.4	31.96	5.59	37.43	101	66	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
5410	38.02	38.27	54	-15.98	31.52	5.41	37.18	100	18	Average
5410	59.09	59.34	74	-14.91	31.52	5.41	37.18	100	18	Peak
5470	58	58.06	74	-16	31.57	5.45	37.08	100	18	Peak
5670	84.15	84.05			31.88	5.56	37.34	100	18	Average
5670	93.93	93.83			31.88	5.56	37.34	100	18	Peak
5725	59.2	59.08	74	-14.8	31.96	5.59	37.43	100	18	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

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	Johnson Liao
MODE	C		

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
5150	44.19	44.9	54	-9.81	31.32	5.29	37.32	109	178	Average
5150	59.08	59.79	74	-14.92	31.32	5.29	37.32	109	178	Peak
5210	86.81	87.48			31.37	5.32	37.36	109	178	Average
5210	96.34	97.01			31.37	5.32	37.36	109	178	Peak
5350	38.97	39.28	54	-15.03	31.48	5.39	37.18	109	178	Average
5350	58.9	59.21	74	-15.1	31.48	5.39	37.18	109	178	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	41.66	42.37	54	-12.34	31.32	5.29	37.32	100	225	Average
5150	57.83	58.54	74	-16.17	31.32	5.29	37.32	100	225	Peak
5210	84.08	84.75			31.37	5.32	37.36	100	225	Average
5210	93.71	94.38			31.37	5.32	37.36	100	225	Peak
5350	38.46	38.77	54	-15.54	31.48	5.39	37.18	100	225	Average
5350	57.76	58.07	74	-16.24	31.48	5.39	37.18	100	225	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	Johnson Liao
MODE	C		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5144	39.06	39.77	54	-14.94	31.32	5.29	37.32	102	65	Average
5144	59.09	59.8	74	-14.91	31.32	5.29	37.32	102	65	Peak
5290	86.71	87.14			31.43	5.37	37.23	102	65	Average
5290	96.47	96.9			31.43	5.37	37.23	102	65	Peak
5350	48.52	48.83	54	-5.48	31.48	5.39	37.18	102	65	Average
5350	61.09	61.4	74	-12.91	31.48	5.39	37.18	102	65	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
5016	38.34	39.12	54	-15.66	31.21	5.24	37.23	132	176	Average
5016	59.13	59.91	74	-14.87	31.21	5.24	37.23	132	176	Peak
5290	84.38	84.81			31.43	5.37	37.23	132	176	Average
5290	93.16	93.59			31.43	5.37	37.23	132	176	Peak
5350	46.74	47.05	54	-7.26	31.48	5.39	37.18	132	176	Average
5350	59.27	59.58	74	-14.73	31.48	5.39	37.18	132	176	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	Johnson Liao
MODE	C		

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
5416	44.79	45.02	54	-9.21	31.53	5.42	37.18	102	37	Average
5416	58.86	59.09	74	-15.14	31.53	5.42	37.18	102	37	Peak
5470	58.9	58.96	74	-15.1	31.57	5.45	37.08	102	37	Peak
5530	84.2	84.19			31.63	5.47	37.09	102	37	Average
5530	93.02	93.01			31.63	5.47	37.09	102	37	Peak
5725	58.49	58.37	74	-15.51	31.96	5.59	37.43	102	37	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	46.68	46.76	54	-7.32	31.56	5.44	37.08	100	191	Average
5460	59.69	59.77	74	-14.31	31.56	5.44	37.08	100	191	Peak
5470	58.84	58.9	74	-15.16	31.57	5.45	37.08	100	191	Peak
5530	82.99	82.98			31.63	5.47	37.09	100	191	Average
5530	91.97	91.96			31.63	5.47	37.09	100	191	Peak
5725	57.44	57.32	74	-16.56	31.96	5.59	37.43	100	191	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

BELOW 1GHz WORST-CASE DATA:
802.11a

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Johnson Liao
MODE	B		

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
42.15	23.85	40.65	40	-16.15	13.58	0.7	31.08	100	53	Peak
146.91	24.55	42.23	43.5	-18.95	12.61	1.33	31.62	100	161	Peak
188.49	27.91	47.88	43.5	-15.59	10.19	1.54	31.7	100	54	Peak
454	19.4	32.34	46	-26.6	16.41	2.63	31.98	100	68	Peak
666.1	24.34	32.49	46	-21.66	20.41	3.3	31.86	100	61	Peak
825.7	27.68	33.04	46	-18.32	22.55	3.76	31.67	100	182	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
38.64	24.73	41.7	40	-15.27	13.39	0.64	31	100	247	Peak
93.99	16.39	38.71	43.5	-27.11	8.6	1.04	31.96	100	266	Peak
164.46	16.26	34.4	43.5	-27.24	12.25	1.42	31.81	100	43	Peak
421.1	19.68	33.47	46	-26.32	15.75	2.51	32.05	100	175	Peak
605.2	23.14	32.54	46	-22.86	19.67	3.1	32.17	100	117	Peak
759.9	26.14	32.32	46	-19.86	21.66	3.6	31.44	100	209	Peak

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

Margin value = Emission level – Limit value



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Johnson Liao
MODE	E		

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
56.73	27.93	46.22	40	-12.07	12.25	0.81	31.35	119	249	Peak
146.91	29.79	47.47	43.5	-13.71	12.61	1.33	31.62	106	318	Peak
193.62	35.9	56.28	43.5	-7.6	9.77	1.56	31.71	100	215	Peak
302.1	20.52	37.32	46	-25.48	13.01	2.06	31.87	122	171	Peak
495.3	21.67	33.37	46	-24.33	17.23	2.76	31.69	105	42	Peak
676.6	25.53	33.48	46	-20.47	20.54	3.34	31.83	110	175	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
381.2	18.74	33.46	46	-27.26	14.89	2.35	31.96	101	315	Peak
423.2	21.08	34.82	46	-24.92	15.79	2.51	32.04	102	20	Peak
525.4	21.77	32.63	46	-24.23	17.91	2.87	31.64	126	1	Peak
547.1	22.45	33	46	-23.55	18.39	2.94	31.88	138	85	Peak
677.3	24.16	32.11	46	-21.84	20.54	3.34	31.83	122	9	Peak
687.1	24.92	32.72	46	-21.08	20.66	3.38	31.84	100	237	Peak

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

Margin value = Emission level – Limit value

802.11n (20MHz)

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

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
50.52	18.51	36.08	40	-21.49	12.97	0.77	31.31	100	221	Peak
153.93	26.91	44.55	43.5	-16.59	12.72	1.36	31.72	100	213	Peak
256.53	19.65	38	46	-26.35	11.68	1.85	31.88	100	172	Peak
498.1	20.59	32.18	46	-25.41	17.29	2.77	31.65	100	140	Peak
704.6	24.96	32.42	46	-21.04	20.87	3.44	31.77	100	276	Peak
884.5	27.19	31.94	46	-18.81	23.31	3.92	31.98	100	295	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
43.23	27.06	43.87	40	-12.94	13.59	0.71	31.11	100	137	Peak
63.48	24.25	43.46	40	-15.75	11.47	0.86	31.54	100	146	Peak
144.48	16.93	34.73	43.5	-26.57	12.51	1.32	31.63	100	101	Peak
463.1	19.55	32.27	46	-26.45	16.58	2.66	31.96	100	251	Peak
692	24.15	31.87	46	-21.85	20.71	3.4	31.83	100	86	Peak
928.6	28.31	32.6	46	-17.69	23.67	4.03	31.99	100	106	Peak

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

Margin value = Emission level – Limit value



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

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
56.19	27.78	45.97	40	-12.22	12.35	0.8	31.34	133	172	Peak
153.66	29.92	47.53	43.5	-13.58	12.72	1.36	31.69	139	358	Peak
194.43	36.15	56.6	43.5	-7.35	9.7	1.57	31.72	120	220	Peak
300.7	20.94	37.78	46	-25.06	12.96	2.05	31.85	130	272	Peak
416.2	20.31	34.19	46	-25.69	15.66	2.49	32.03	119	317	Peak
708.8	25.64	32.98	46	-20.36	20.94	3.46	31.74	119	205	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
30.54	35.81	54.22	40	-4.19	12.14	0.57	31.12	106	22	Peak
63.75	33.98	53.19	40	-6.02	11.47	0.86	31.54	103	78	Peak
186.6	31.23	51.11	43.5	-12.27	10.33	1.53	31.74	116	231	Peak
366.5	17.78	32.89	46	-28.22	14.54	2.29	31.94	117	350	Peak
566.7	22.44	32.68	46	-23.56	18.84	2.99	32.07	111	0	Peak
723.5	25.02	32	46	-20.98	21.15	3.5	31.63	105	186	Peak

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

Margin value = Emission level – Limit value

802.11n (20MHz)

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Johnson Liao
MODE	A		

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
51.06	18.81	36.48	40	-21.19	12.87	0.77	31.31	100	108	Peak
138.54	21.34	39.44	43.5	-22.16	12.27	1.29	31.66	100	190	Peak
187.41	26.74	46.67	43.5	-16.76	10.26	1.53	31.72	100	129	Peak
524	21.53	32.43	46	-24.47	17.86	2.86	31.62	100	88	Peak
704.6	24.66	32.12	46	-21.34	20.87	3.44	31.77	100	208	Peak
827.8	26.79	32.14	46	-19.21	22.58	3.76	31.69	100	130	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
43.23	27.18	43.99	40	-12.82	13.59	0.71	31.11	100	285	Peak
69.96	23.12	43.27	40	-16.88	10.77	0.9	31.82	100	198	Peak
147.72	17.29	34.97	43.5	-26.21	12.61	1.33	31.62	100	263	Peak
435.8	18.97	32.37	46	-27.03	16.04	2.56	32	100	160	Peak
703.2	24.69	32.17	46	-21.31	20.86	3.44	31.78	100	182	Peak
853.7	27.31	32.45	46	-18.69	22.91	3.83	31.88	100	184	Peak

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

Margin value = Emission level – Limit value



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Johnson Liao
MODE	D		

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
56.19	28.09	46.28	40	-11.91	12.35	0.8	31.34	108	124	Peak
148.26	29.9	47.55	43.5	-13.6	12.64	1.33	31.62	107	286	Peak
187.41	36.08	56.01	43.5	-7.42	10.26	1.53	31.72	128	50	Peak
303.5	20.68	37.47	46	-25.32	13.03	2.06	31.88	132	233	Peak
412.7	20.05	33.98	46	-25.95	15.6	2.48	32.01	121	151	Peak
714.4	25.41	32.61	46	-20.59	21.03	3.47	31.7	127	219	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
31.08	35.64	54.05	40	-4.36	12.14	0.57	31.12	114	235	Peak
64.02	34.19	53.4	40	-5.81	11.47	0.86	31.54	111	104	Peak
186.87	31.38	51.31	43.5	-12.12	10.26	1.53	31.72	134	172	Peak
336.4	18.17	33.99	46	-27.83	13.82	2.18	31.82	130	261	Peak
507.9	21.58	32.86	46	-24.42	17.51	2.81	31.6	112	351	Peak
746.6	26.01	32.32	46	-19.99	21.48	3.56	31.35	100	334	Peak

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

Margin value = Emission level – Limit value

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCS30	100288	Apr. 24, 2014	Apr. 23, 2015
RF signal cable Woken	5D-FB	Cable-HYCO2-01	Dec. 27, 2013	Dec. 26, 2014
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Dec. 23, 2013	Dec. 22, 2014
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Jul. 08, 2013	Jul. 07, 2014
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

- NOTE:**
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Shielded Room 2.
 3. The VCCI Site Registration No. is C-2047.

4.2.3 TEST PROCEDURES

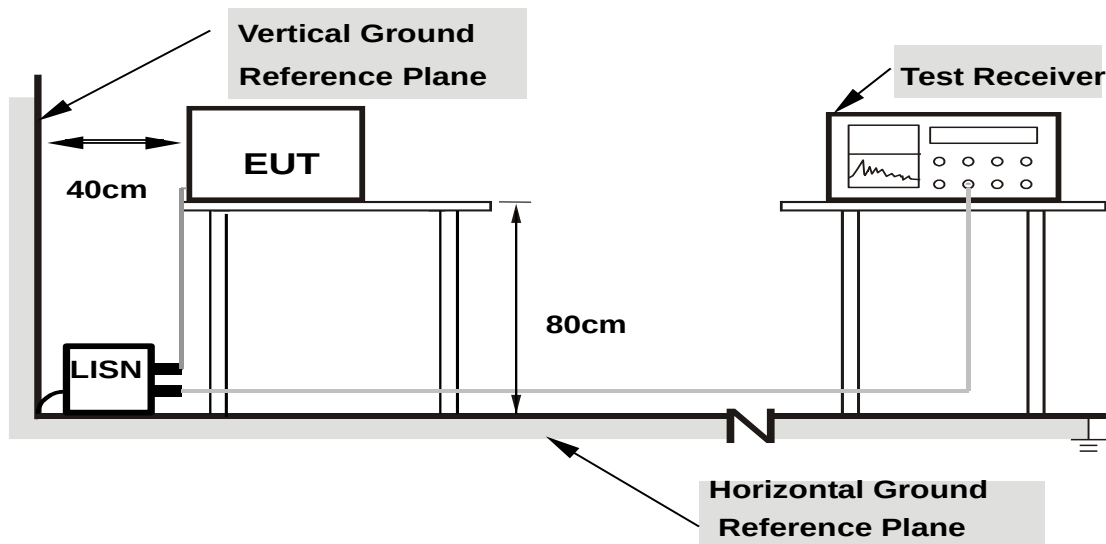
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling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

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



- Note:** 1.Support units were connected to second LISN.
 2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

4.2.6 EUT OPERATING CONDITIONS

Same as section 4.1.6.

4.2.7 TEST RESULTS

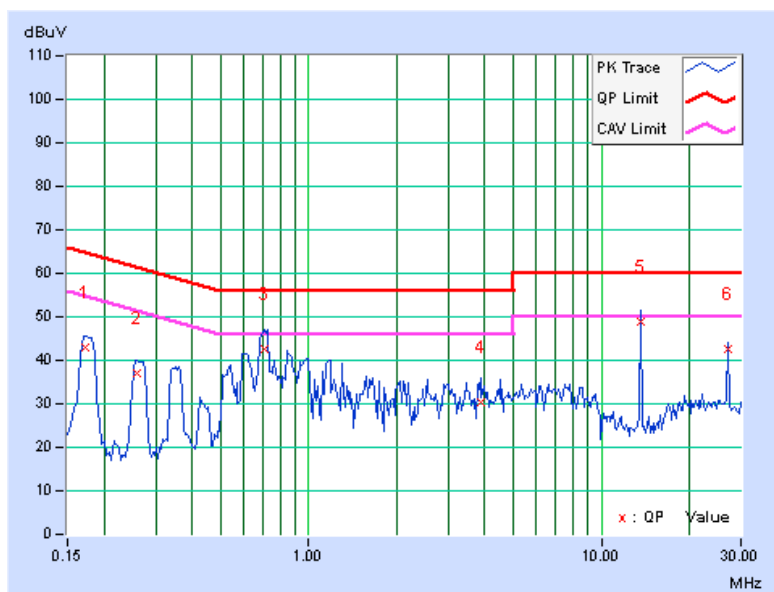
CONDUCTED WORST-CASE DATA :

PHASE	Line 1	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17344	0.27	42.52	33.12	42.79	33.39	64.79	54.79	-22.00	-21.40
2	0.25938	0.29	36.80	27.43	37.09	27.72	61.45	51.45	-24.37	-23.74
3	0.70469	0.32	42.14	30.93	42.46	31.25	56.00	46.00	-13.54	-14.75
4	3.89453	0.43	29.78	17.38	30.21	17.81	56.00	46.00	-25.79	-28.19
5	13.56250	0.52	48.55	45.32	49.07	45.84	60.00	50.00	-10.93	-4.16
6	27.12109	0.49	42.07	39.96	42.56	40.45	60.00	50.00	-17.44	-9.55

REMARKS:

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

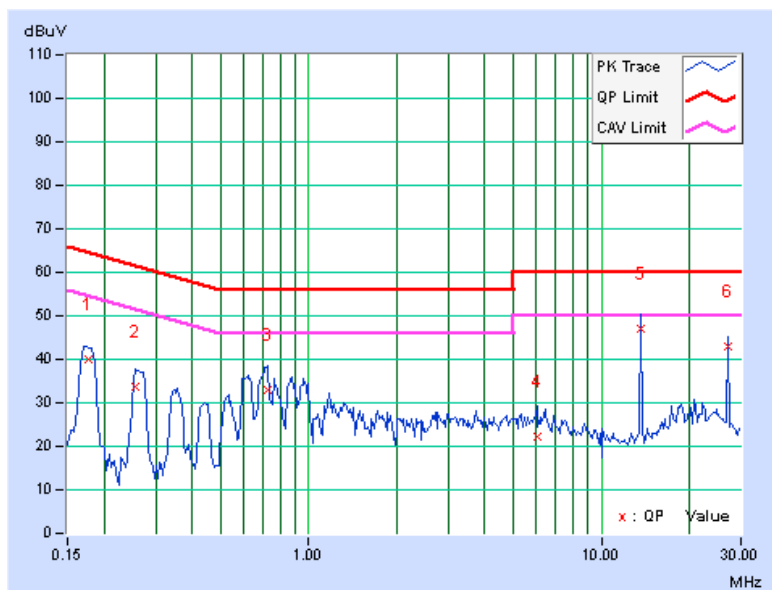


PHASE	Line 2	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17734	0.27	39.88	30.69	40.15	30.96	64.61	54.61	-24.46	-23.65
2	0.25547	0.29	33.43	19.23	33.72	19.52	61.58	51.58	-27.86	-32.06
3	0.72813	0.32	32.57	18.23	32.89	18.55	56.00	46.00	-23.11	-27.45
4	6.02344	0.47	21.63	12.49	22.10	12.96	60.00	50.00	-37.90	-37.04
5	13.56250	0.55	46.52	42.37	47.07	42.92	60.00	50.00	-12.93	-7.08
6	27.12109	0.52	42.45	39.57	42.97	40.09	60.00	50.00	-17.03	-9.91

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 PEAK TRANSMIT POWER MEASUREMENT

4.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT

FREQUENCY BAND	LIMIT
5.150 ~ 5.250GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.250 ~ 5.350GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.470 ~ 5.725GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB

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

Per KDB 662911 D01 Multiple Transmitter Output v02r01 Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4;

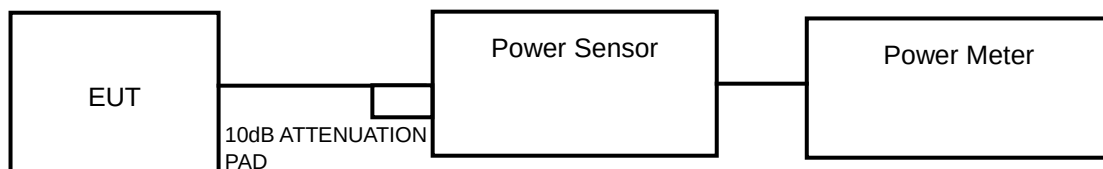
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT;

Array Gain = 5 log(NANT/NSS) dB or 3 dB, whichever is less for 20-MHz channel widths with NANT ≥ 5.

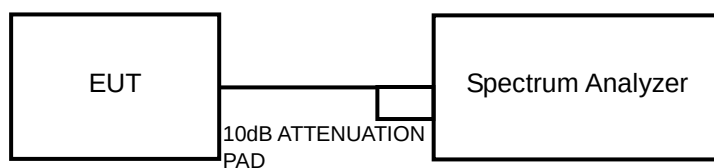
For power measurements on all other devices: Array Gain = 10 log(NANT/NSS) dB.

4.3.2 TEST SETUP

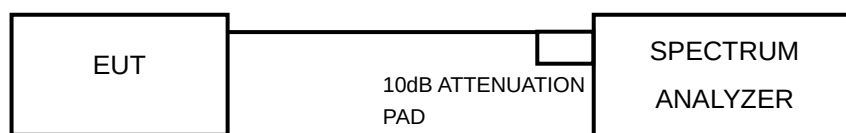
FOR POWER OUTPUT MEASUREMENT



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

MODE A

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	36.98	15.68	17	PASS
44	5220	37.15	15.70	17	PASS
48	5240	37.67	15.76	17	PASS
52	5260	38.64	15.87	24	PASS
60	5300	38.99	15.91	24	PASS
64	5320	42.07	16.24	24	PASS
100	5500	41.30	16.16	24	PASS
116	5580	42.66	16.30	24	PASS
140	5700	43.45	16.38	24	PASS

NOTE:

For 5180~5240MHz:

1. $4\text{dBm} + 10\log(28.09) = 18.48\text{dBm} > 17\text{dBm}$.
2. $4\text{dBm} + 10\log(21.80) = 17.38\text{dBm} > 17\text{dBm}$.
3. $4\text{dBm} + 10\log(21.86) = 17.40\text{dBm} > 17\text{dBm}$.

For 5260~5700MHz:

1. $11\text{dBm} + 10\log(21.86) = 24.40\text{dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(21.86) = 24.40\text{dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(21.80) = 24.38\text{dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(21.76) = 24.38\text{dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(21.89) = 24.40\text{dBm} > 24\text{dBm}$.
6. $11\text{dBm} + 10\log(21.84) = 24.39\text{dBm} > 24\text{dBm}$.

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	37.76	15.77	17	PASS
44	5220	37.24	15.71	17	PASS
48	5240	36.98	15.68	17	PASS
52	5260	38.90	15.90	24	PASS
60	5300	37.50	15.74	24	PASS
64	5320	39.90	16.01	24	PASS
100	5500	42.36	16.27	24	PASS
116	5580	42.07	16.24	24	PASS
140	5700	43.25	16.36	24	PASS

NOTE:

For 5180~5240MHz:

1. $4\text{dBm} + 10\log(22.11) = 17.44\text{dBm} > 17\text{dBm}$.
2. $4\text{dBm} + 10\log(21.99) = 17.42\text{dBm} > 17\text{dBm}$.
3. $4\text{dBm} + 10\log(21.94) = 17.41\text{dBm} > 17\text{dBm}$.

For 5260~5700MHz:

1. $11\text{dBm} + 10\log(22.21) = 24.46\text{dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(22.06) = 24.44\text{dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(22.17) = 24.46\text{dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(22.20) = 24.46\text{dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(22.04) = 24.43\text{dBm} > 24\text{dBm}$.
6. $11\text{dBm} + 10\log(22.06) = 24.44\text{dBm} > 24\text{dBm}$.

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
38	5190	20.99	13.22	17	PASS
46	5230	20.70	13.16	17	PASS
54	5270	21.88	13.40	24	PASS
62	5310	22.28	13.48	24	PASS
102	5510	18.84	12.75	24	PASS
110	5550	19.23	12.84	24	PASS
134	5670	21.13	13.25	24	PASS

NOTE:

For 5180~5240MHz:

1. $4\text{dBm} + 10\log(41.59) = 20.19\text{dBm} > 17\text{dBm}$.
2. $4\text{dBm} + 10\log(41.55) = 20.18\text{dBm} > 17\text{dBm}$.

For 5260~5700MHz:

1. $11\text{dBm} + 10\log(41.46) = 27.18\text{dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(41.53) = 27.18\text{dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(41.55) = 27.18\text{dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(41.60) = 27.19\text{dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(41.90) = 27.22\text{dBm} > 24\text{dBm}$.

MODE B

802.11ac (80MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
42	5210	23.39	13.69	17	PASS
58	5290	21.68	13.36	24	PASS
106	5530	19.82	12.97	24	PASS

NOTE:

For 5180~5240MHz:

1. $4\text{dBm} + 10\log(96.82) = 23.86\text{dBm} > 17\text{dBm}$.

For 5260~5700MHz:

1. $11\text{dBm} + 10\log(93.89) = 30.73\text{dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(81.36) = 30.10\text{dBm} > 24\text{dBm}$.

MODE C

802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	13.54	12.82	41.74	16.21	17	PASS
40	5200	13.65	12.46	40.79	16.11	17	PASS
48	5240	13.73	12.47	41.27	16.16	17	PASS
52	5260	13.96	11.65	39.51	15.97	24	PASS
60	5300	13.80	11.24	37.29	15.72	24	PASS
64	5320	14.60	11.97	44.58	16.49	24	PASS
100	5500	14.12	11.90	41.31	16.16	24	PASS
116	5580	14.17	12.10	42.34	16.27	24	PASS
140	5700	14.38	12.30	44.40	16.47	24	PASS

NOTE:

For 5180~5240MHz:

CHAIN 0

1. $4\text{dBm} + 10\log(22.32) = 17.49\text{dBm} > 17\text{dBm}$.
2. $4\text{dBm} + 10\log(22.05) = 17.43\text{dBm} > 17\text{dBm}$.
3. $4\text{dBm} + 10\log(22.07) = 17.44\text{dBm} > 17\text{dBm}$.

CHAIN 1

1. $4\text{dBm} + 10\log(22.04) = 17.43\text{dBm} > 17\text{dBm}$.
2. $4\text{dBm} + 10\log(21.88) = 17.40\text{dBm} > 17\text{dBm}$.
3. $4\text{dBm} + 10\log(21.97) = 17.42\text{dBm} > 17\text{dBm}$.

For 5260~5700MHz:

CHAIN 0

1. $11\text{dBm} + 10\log(22.11) = 24.45\text{dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(22.20) = 24.46\text{dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(22.08) = 25.44\text{dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(22.14) = 24.45\text{dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(22.19) = 24.46\text{dBm} > 24\text{dBm}$.
6. $11\text{dBm} + 10\log(22.10) = 24.44\text{dBm} > 24\text{dBm}$.

CHAIN 1

1. $11\text{dBm} + 10\log(22.15) = 24.45\text{dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(22.00) = 24.42\text{dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(22.18) = 24.46\text{dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(22.02) = 24.43\text{dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(21.79) = 24.38\text{dBm} > 24\text{dBm}$.
6. $11\text{dBm} + 10\log(22.02) = 24.43\text{dBm} > 24\text{dBm}$.

802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
38	5190	10.61	8.43	18.47	12.67	17	PASS
46	5230	10.60	8.34	18.30	12.63	17	PASS
54	5270	10.93	8.65	19.72	12.95	24	PASS
62	5310	10.57	8.53	18.53	12.68	24	PASS
102	5510	10.81	9.10	20.18	13.05	24	PASS
110	5550	10.96	9.15	20.70	13.16	24	PASS
134	5670	11.11	9.60	22.03	13.43	24	PASS

NOTE:

For 5180~5240MHz:

CHAIN 0

1. $4\text{dBm} + 10\log(41.67) = 20.20\text{dBm} > 17\text{dBm}$.
2. $4\text{dBm} + 10\log(41.75) = 20.21\text{dBm} > 17\text{dBm}$.

CHAIN 1

1. $4\text{dBm} + 10\log(41.40) = 20.17\text{dBm} > 17\text{dBm}$.
2. $4\text{dBm} + 10\log(21.35) = 20.16\text{dBm} > 17\text{dBm}$.

For 5260~5700MHz:

CHAIN 0

1. $11\text{dBm} + 10\log(41.40) = 27.17\text{dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(41.91) = 27.22\text{dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(41.55) = 27.19\text{dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(41.53) = 27.18\text{dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(41.85) = 27.22\text{dBm} > 24\text{dBm}$.

CHAIN 1

1. $11\text{dBm} + 10\log(41.32) = 27.16\text{dBm} > 24\text{dBm}$.
2. $11\text{dBm} + 10\log(41.26) = 27.16\text{dBm} > 24\text{dBm}$.
3. $11\text{dBm} + 10\log(41.39) = 27.17\text{dBm} > 24\text{dBm}$.
4. $11\text{dBm} + 10\log(41.44) = 27.17\text{dBm} > 24\text{dBm}$.
5. $11\text{dBm} + 10\log(41.48) = 27.18\text{dBm} > 24\text{dBm}$.

802.11ac (80MHz)

CHAN.	CHAN. FREQ. (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
42	5210	11.39	9.36	22.40	13.50	17	PASS
58	5290	11.63	9.33	23.12	13.64	24	PASS
106	5530	11.35	9.42	22.40	13.50	24	PASS

NOTE:

For 5180~5240MHz:

CHAIN 0

1. $4\text{dBm} + 10\log(82.00) = 23.14\text{dBm} > 17\text{dBm}$.

CHAIN 1

1. $4\text{dBm} + 10\log(81.39) = 23.11\text{dBm} > 17\text{dBm}$.

For 5260~5700MHz:

CHAIN 0

1. $11\text{dBm} + 10\log(81.66) = 30.12\text{dBm} > 24\text{dBm}$.

2. $11\text{dBm} + 10\log(81.92) = 30.13\text{dBm} > 24\text{dBm}$.

CHAIN 1

1. $11\text{dBm} + 10\log(81.27) = 30.10\text{dBm} > 24\text{dBm}$.

2. $11\text{dBm} + 10\log(81.48) = 30.11\text{dBm} > 24\text{dBm}$.

26dB BANDWIDTH

MODE A

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
36	5180	28.09	PASS
44	5220	21.80	PASS
48	5240	21.86	PASS
52	5260	21.86	PASS
60	5300	21.86	PASS
64	5320	21.80	PASS
100	5500	21.76	PASS
116	5580	21.89	PASS
140	5700	21.84	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
36	5180	22.11	PASS
44	5220	21.99	PASS
48	5240	21.94	PASS
52	5260	22.21	PASS
60	5300	22.06	PASS
64	5320	22.17	PASS
100	5500	22.20	PASS
116	5580	22.04	PASS
140	5700	22.06	PASS



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802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
38	5190	41.59	PASS
46	5230	41.55	PASS
54	5270	41.46	PASS
62	5310	41.53	PASS
102	5510	41.55	PASS
110	5550	41.60	PASS
134	5670	41.90	PASS

MODE B

802.11ac (80MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
42	5210	96.82	PASS
58	5290	93.89	PASS
106	5530	81.36	PASS

MODE C

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
36	5180	22.32	22.04	PASS
40	5200	22.05	21.88	PASS
48	5240	22.07	21.97	PASS
52	5260	22.11	22.15	PASS
60	5300	22.20	22.00	PASS
64	5320	22.08	22.18	PASS
100	5500	22.14	22.02	PASS
116	5580	22.19	21.79	PASS
140	5700	22.10	22.02	PASS

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
38	5190	41.67	41.40	PASS
46	5230	41.75	41.35	PASS
54	5270	41.40	41.32	PASS
62	5310	41.91	41.26	PASS
102	5510	41.55	41.39	PASS
110	5550	41.53	41.44	PASS
134	5670	41.85	41.48	PASS

802.11ac (80MHz)

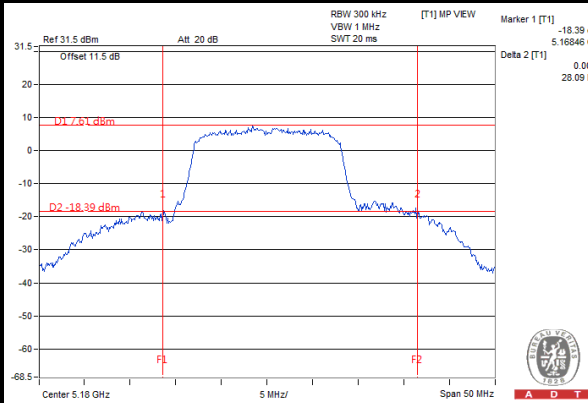
CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
42	5210	82.00	81.39	PASS
58	5290	81.66	81.27	PASS
106	5530	81.92	81.48	PASS



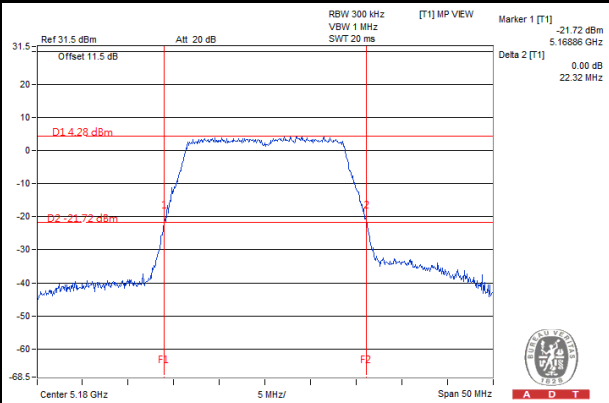
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SPECTRUM PLOT OF WORST VALUE

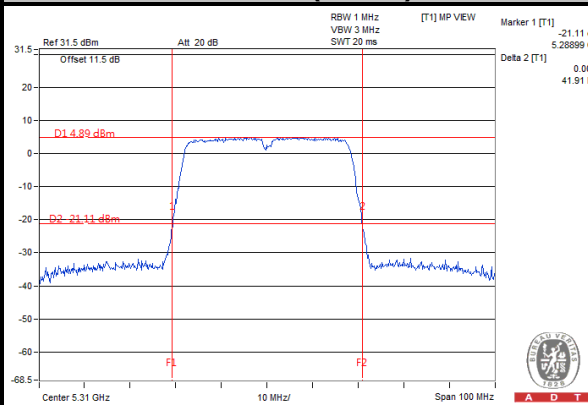
802.11a



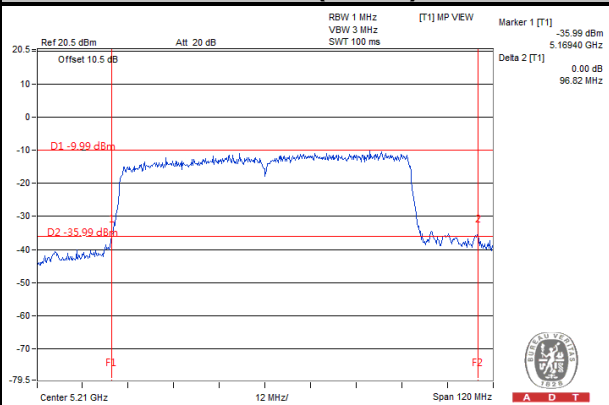
802.11n (20MHz)



802.11n (40MHz)



802.11ac (80MHz)

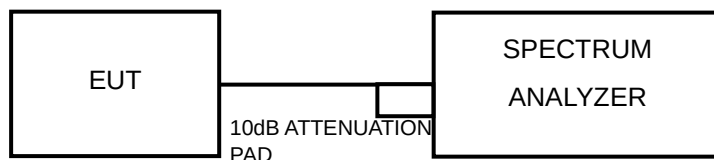


4.4 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.4.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

FREQUENCY BAND	LIMIT
5.150 ~ 5.250GHz	4dBm
5.250 ~ 5.350GHz	11dBm
5.470 ~ 5.725GHz	11dBm

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

<802.11a, 802.11n (20MHz), 802.11n (40MHz), 802.11ac (80MHz)>

Using method SA-2 alternative

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

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

MODE A

802.11a

CHANNEL	FREQUENCY (MHz)	PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	PSD WITH DUTY FACTOR (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	3.29	0.23	3.52	4	PASS
44	5220	3.12	0.23	3.35	4	PASS
48	5240	3.26	0.23	3.49	4	PASS
52	5260	3.46	0.23	3.69	11	PASS
60	5300	3.74	0.23	3.97	11	PASS
64	5320	3.84	0.23	4.07	11	PASS
100	5500	4.52	0.23	4.75	11	PASS
116	5580	4.50	0.23	4.73	11	PASS
140	5700	4.18	0.23	4.41	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	2.60	0.25	2.85	4	PASS
44	5220	2.80	0.25	3.05	4	PASS
48	5240	2.98	0.25	3.23	4	PASS
52	5260	3.26	0.25	3.51	11	PASS
60	5300	3.42	0.25	3.67	11	PASS
64	5320	3.56	0.25	3.81	11	PASS
100	5500	4.27	0.25	4.52	11	PASS
116	5580	4.00	0.25	4.25	11	PASS
140	5700	3.57	0.25	3.82	11	PASS

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

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	-2.80	0.57	-2.23	4	PASS
46	5230	-2.60	0.57	-2.03	4	PASS
54	5270	-2.18	0.57	-1.61	11	PASS
62	5310	-1.69	0.57	-1.12	11	PASS
102	5510	-2.08	0.57	-1.51	11	PASS
110	5550	-2.21	0.57	-1.64	11	PASS
134	5670	-2.43	0.57	-1.86	11	PASS

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

MODE B

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	-20.05	1.13	-18.92	4	PASS
58	5290	-18.97	1.13	-17.84	11	PASS
106	5530	-11.19	1.13	-10.06	11	PASS

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



A D T

MODE C

802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)		TOTAL PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	TOTAL PSD WITH DUTY FACTOR (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1					
36	5180	0.66	0.11	3.40	0.25	3.65	4	PASS
40	5200	0.79	0.37	3.40	0.25	3.84	4	PASS
48	5240	0.75	0.24	2.97	0.25	3.76	4	PASS
52	5260	1.28	-0.46	2.09	0.25	3.75	11	PASS
60	5300	1.42	-0.14	3.97	0.25	3.97	11	PASS
64	5320	1.64	-0.40	4.00	0.25	4.00	11	PASS
100	5500	2.26	0.19	4.35	0.25	4.60	11	PASS
116	5580	2.12	-0.11	4.15	0.25	4.40	11	PASS
140	5700	1.75	-1.08	3.57	0.25	3.82	11	PASS

NOTE:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- For 5180~5240MHz:**
Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = -2.22 < 6\text{dBi}$, so the limit no need to be reduced.
For 5260~5700MHz:
Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = -2.15 < 6\text{dBi}$, so the limit no need to be reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)		TOTAL PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	TOTAL PSD WITH DUTY FACTOR (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1					
38	5190	-5.34	-6.92	-3.05	0.61	-2.44	4	PASS
46	5230	-5.11	-7.11	-2.99	0.61	-2.38	4	PASS
54	5270	-5.01	-6.31	-2.60	0.61	-1.99	11	PASS
62	5310	-4.48	-6.27	-2.27	0.61	-1.66	11	PASS
102	5510	-4.06	-5.83	-1.85	0.61	-1.24	11	PASS
110	5550	-4.13	-5.97	-1.94	0.61	-1.33	11	PASS
134	5670	-4.41	-6.85	-2.45	0.61	-1.84	11	PASS

NOTE:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- For 5180~5240MHz:**

$$\text{Directional gain} = 10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = -2.22 < 6\text{dBi}$$
, so the limit no need to be reduced.
For 5260~5700MHz:

$$\text{Directional gain} = 10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = -2.15 < 6\text{dBi}$$
, so the limit no need to be reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (80MHz)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)		TOTAL PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	TOTAL PSD WITH DUTY FACTOR (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1					
42	5210	-7.84	-9.09	-5.41	1.20	-4.21	4	PASS
58	5290	-7.18	-8.78	-4.9	1.20	-3.70	11	PASS
106	5530	-7.47	-9.54	-5.37	1.20	-4.17	11	PASS

NOTE:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- For 5180~5240MHz:**

$$\text{Directional gain} = 10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = -2.22 < 6\text{dBi}$$
, so the limit no need to be reduced.
For 5260~5700MHz:

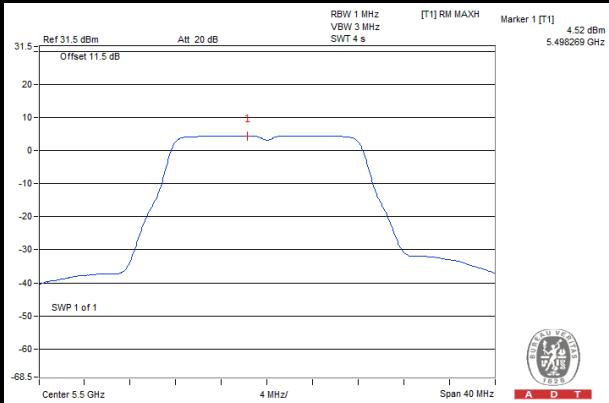
$$\text{Directional gain} = 10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = -2.15 < 6\text{dBi}$$
, so the limit no need to be reduced.
- Refer to section 3.3 for duty cycle spectrum plot.



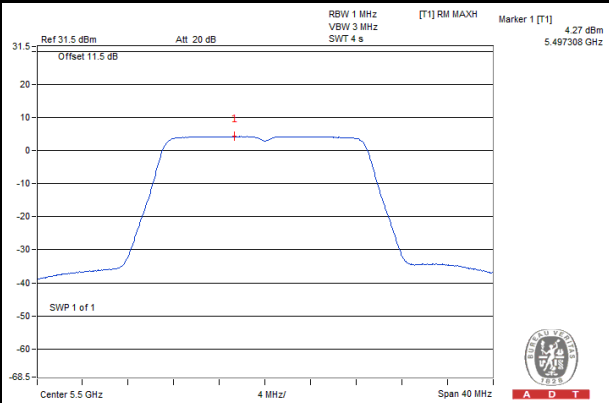
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SPECTRUM PLOT OF WORST VALUE

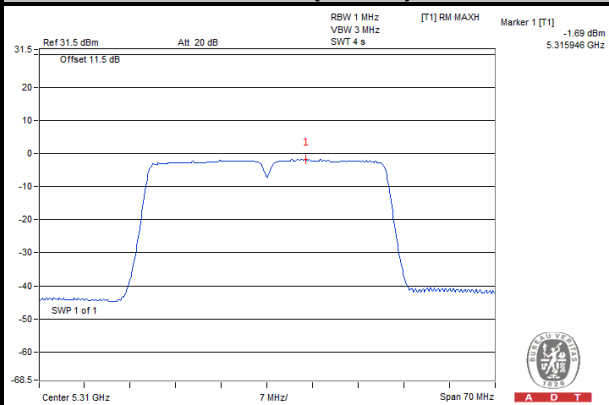
802.11a



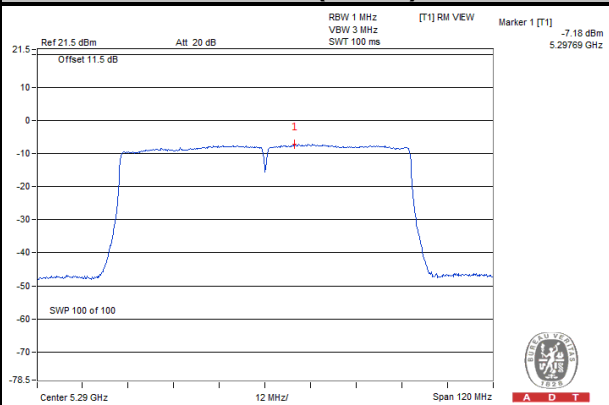
802.11n (20MHz)



802.11n (40MHz)



802.11ac (80MHz)

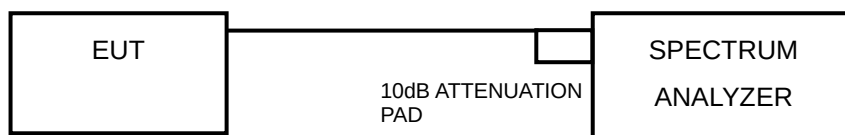


4.5 PEAK POWER EXCURSION MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

Shall not exceed 13 dB.

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

- Set the RBW = 1 kHz, VBW $\geq$ 3 MHz, Detector = peak.
 - Trace mode = max-hold. Allow the sweeps to continue until the trace stabilizes.
 - Use the peak search function to find the peak of the spectrum.
 - Measure the PPSD.
 - Compute the ratio of the maximum of the peak-max-hold spectrum to the PPSD.
- Find the worst channel and modulation mode as above test procedure, and follow KDB 789033 D01 General UNII Test Procedures v01r03 and repeat step 1 to 5 for final testing of each modulation mode on a single channel (all modulation types) in a single operating band to compliance with the peak excursion requirement.

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6.

4.5.7 TEST RESULTS

MODE A / B

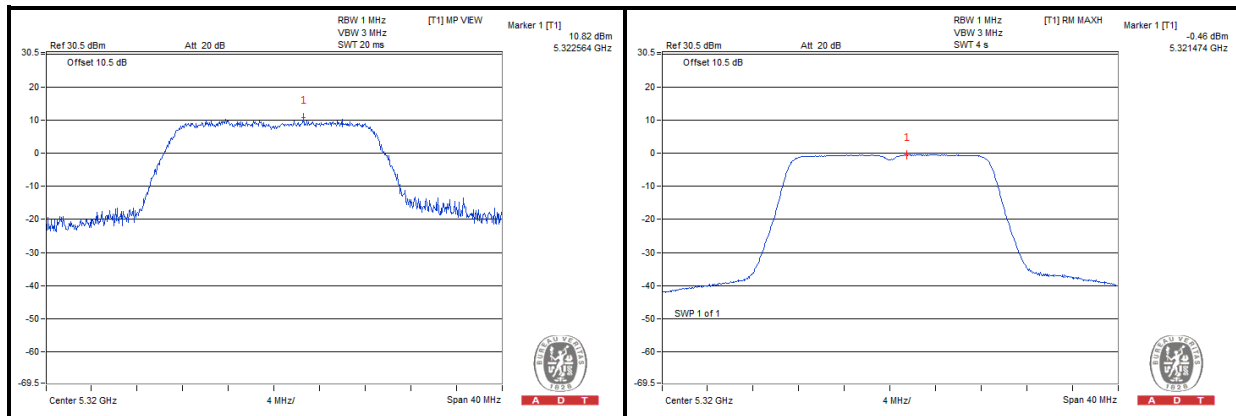
MODULATION MODE	MODULATION TYPE	CHAN. FREQ. (MHz)	PEAK VALUE (dBm)	PPSD WITHOUT DUTY FACTOR (dBm)	PPSD WITH DUTY FACTOR (dBm)	PEAK EXCURSION (dB)	LIMIT (dB)	PASS/FAIL
802.11a	BPSK	5700	13.22	4.18	4.41	8.81	13	PASS
	QPSK		13.47	3.98	4.43	9.04	13	PASS
	16QAM		13.45	3.74	4.59	8.86	13	PASS
	64QAM		13.30	3.27	4.81	8.49	13	PASS
802.11n (20MHz)	BPSK	5700	12.86	3.57	3.82	9.04	13	PASS
	QPSK		13.60	3.43	3.91	9.69	13	PASS
	16QAM		14.34	3.52	4.33	10.01	13	PASS
	64QAM		13.47	3.02	4.60	8.87	13	PASS
802.11n (40MHz)	BPSK	5310	8.07	-1.69	-1.12	9.19	13	PASS
	QPSK		8.20	-2.08	-0.79	8.99	13	PASS
	16QAM		8.80	-2.50	0.02	8.78	13	PASS
	64QAM		8.82	-3.18	0.18	8.64	13	PASS
802.11ac (80MHz)	BPSK	5210	-9.96	-20.05	-18.92	8.96	13	PASS
	QPSK		-10.97	-20.17	-17.89	6.92	13	PASS
	16QAM		-10.12	-19.85	-16.12	6.00	13	PASS
	64QAM		-10.59	-20.36	-16.63	6.04	13	PASS
	256QAM		-9.89	-20.64	-15.54	5.65	13	PASS

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

MODE C

MODULATION MODE	MODULATION TYPE	CHAN. FREQ. (MHz)	PEAK VALUE (dBm)		PPSD WITHOUT DUTY FACTOR (dBm)		PPSD WITH DUTY FACTOR (dBm)		PEAK EXCURSION (dB)		LIMIT (dB)	PASS/FAIL
			CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1		
802.11n (20MHz)	BPSK	5320	11.49	10.06	1.64	-0.40	1.89	-0.15	9.60	10.21	13	PASS
	QPSK		12.07	10.35	1.62	-0.54	2.07	-0.09	10.00	10.44	13	PASS
	16QAM		12.72	10.82	1.63	-0.46	2.42	0.33	10.30	10.49	13	PASS
	64QAM		12.31	10.51	1.06	-1.04	2.73	0.63	9.58	9.88	13	PASS
802.11n (40MHz)	BPSK	5670	5.73	3.75	-4.41	-6.85	-3.80	-6.24	9.53	9.99	13	PASS
	QPSK		6.23	3.04	-4.73	-7.19	-3.60	-6.06	9.83	9.10	13	PASS
	16QAM		6.08	3.79	-5.13	-7.50	-3.07	-5.44	9.15	9.23	13	PASS
	64QAM		6.66	3.75	-5.68	-8.15	-2.29	-4.76	8.95	8.51	13	PASS
802.11ac (80MHz)	BPSK	5290	1.31	0.89	-7.18	-8.78	-5.98	-7.58	7.29	8.47	13	PASS
	QPSK		1.87	0.25	-7.20	-8.77	-5.10	-6.67	6.97	6.92	13	PASS
	16QAM		3.04	1.22	-6.34	-8.28	-2.54	-4.48	5.58	5.70	13	PASS
	64QAM		2.76	0.93	-7.62	-9.14	-2.60	-5.34	5.36	6.27	13	PASS
	256QAM		2.69	1.47	-8.25	-9.84	-2.15	-3.74	4.84	5.21	13	PASS

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

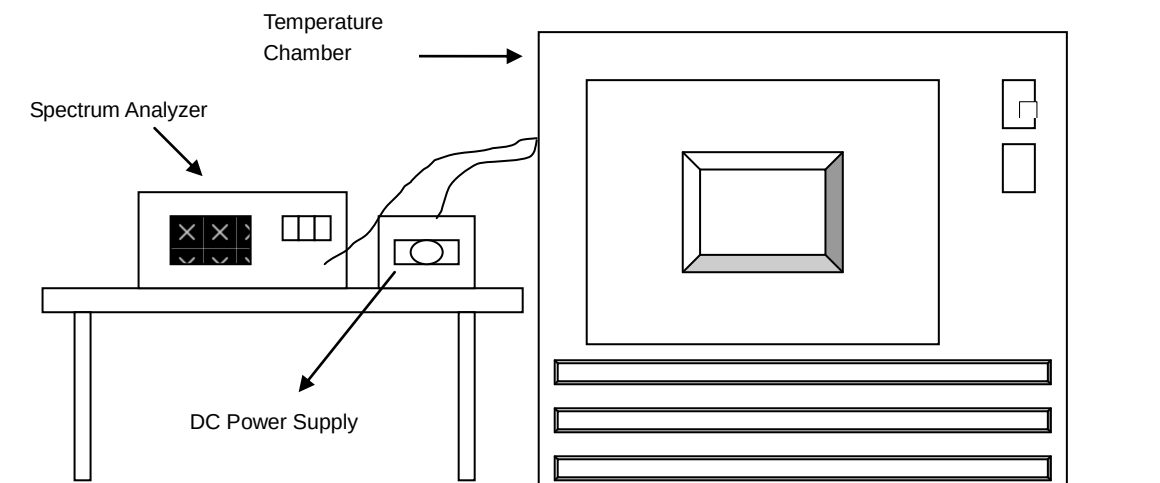


4.6 FREQUENCY STABILITY

4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

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

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

- 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.

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

4.6.6 EUT OPERATING CONDITION

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

4.6.7 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)
55	3.8	5320.037080	6.970	5320.037581	7.064	5320.037607	7.069	5320.037443	7.038
50	3.8	5320.038208	7.182	5320.037796	7.105	5320.037808	7.107	5320.037907	7.125
40	3.8	5320.037575	7.063	5320.037449	7.039	5320.037959	7.135	5320.037879	7.120
30	3.8	5320.038887	7.310	5320.039366	7.400	5320.039286	7.385	5320.039325	7.392
20	3.8	5320.040328	7.580	5320.040370	7.588	5320.039930	7.506	5320.040356	7.586
10	3.8	5320.041779	7.853	5320.041393	7.781	5320.041603	7.820	5320.041313	7.766
0	3.8	5320.040128	7.543	5320.040171	7.551	5320.040160	7.549	5320.040422	7.598
-10	3.8	5320.038588	7.253	5320.038792	7.292	5320.038728	7.280	5320.038539	7.244
-20	3.8	5320.037959	7.135	5320.038277	7.195	5320.038058	7.154	5320.037933	7.130

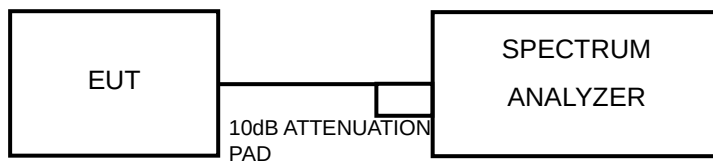
FREQUENCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5320MHz									
TEMP. (°C)	POWER SUPPLY (Vdc)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
20	3.6	5320.039578	7.439	5320.039845	7.490	5320.039636	7.450	5320.039826	7.486
	3.8	5320.040328	7.580	5320.040370	7.588	5320.039930	7.506	5320.040356	7.586
	4.35	5320.041281	7.760	5320.041510	7.803	5320.041763	7.850	5320.041591	7.818

4.7 20dBc BANDWIDTH MEASUREMENT

4.7.1 LIMITS OF 20dBc BANDWIDTH MEASUREMENT

20dBc point shall not overlap in 5150~5700MHz.

4.7.2 TEST SETUP



4.7.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

4.7.4 TEST PROCEDURES

789033 D01 General UNII Test Procedures v01r03

Emission bandwidth

- 1) Set RBW = approximately 1% of the emission bandwidth.
- 2) Set the VBW > RBW.
- 3) Detector = Peak
- 4) Trace mode = max hold.
- 5) Measurement the maximum width of the emission that is 20dB down from the peak of the emission. Compare this with RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

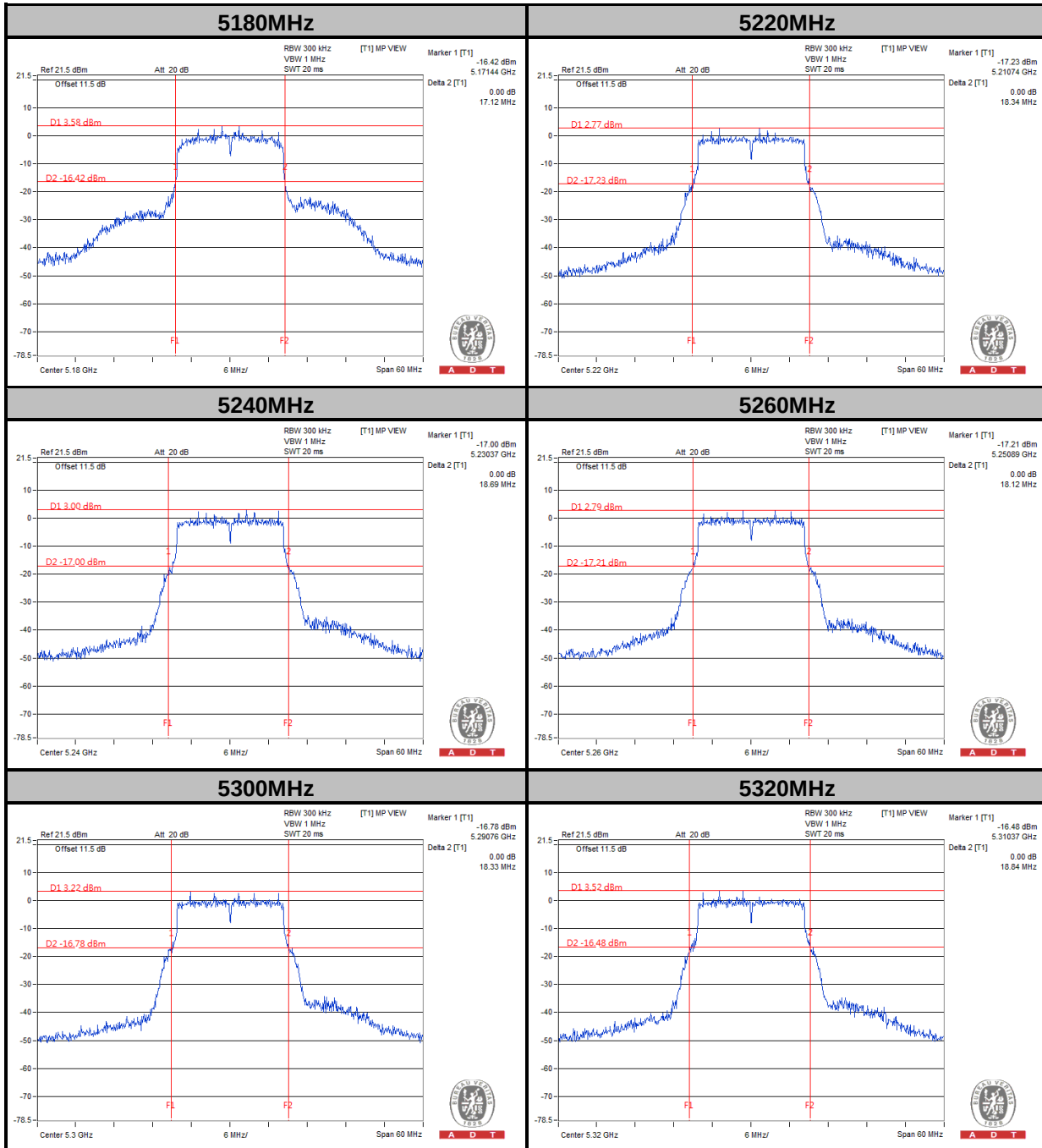


A D T

4.7.5 TEST RESULTS

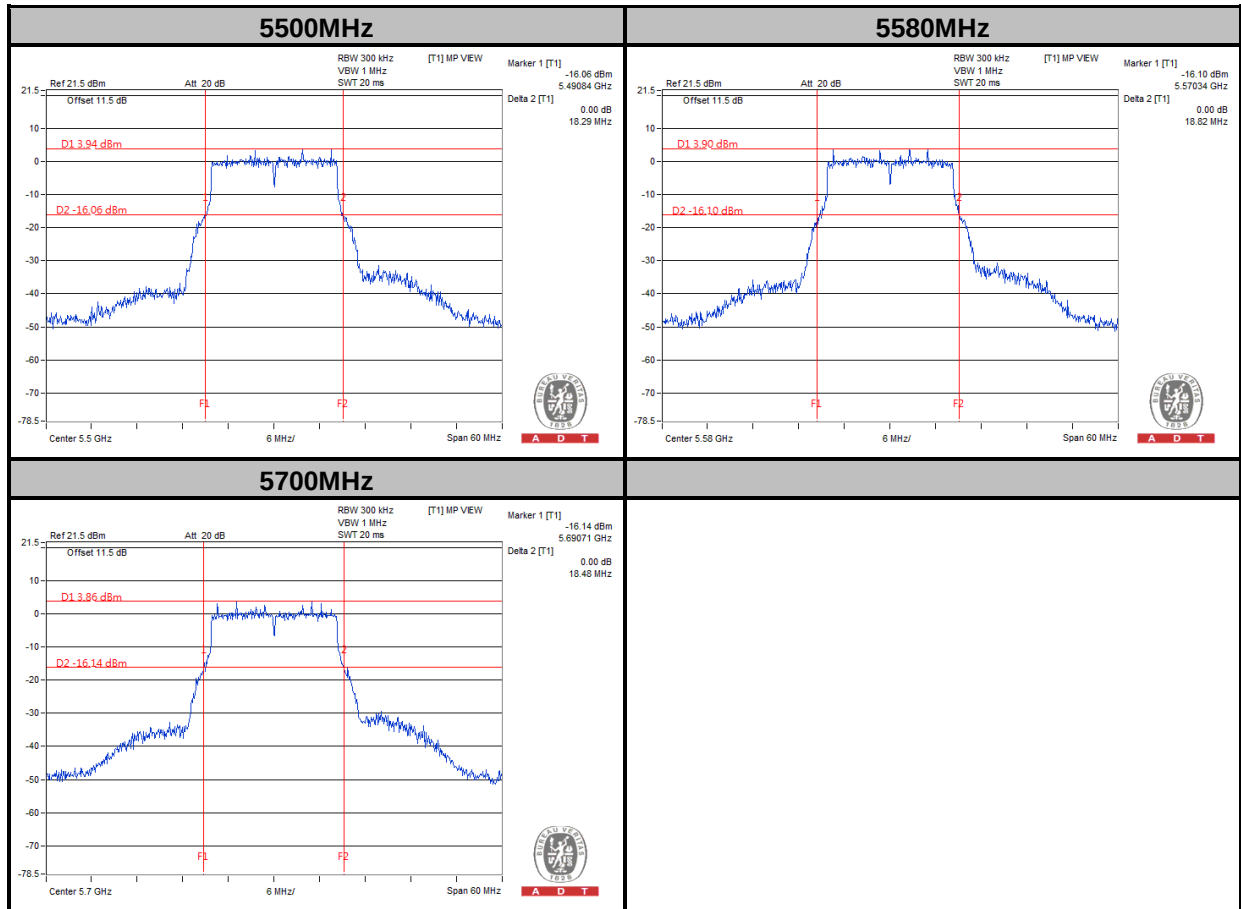
MODE A

802.11a





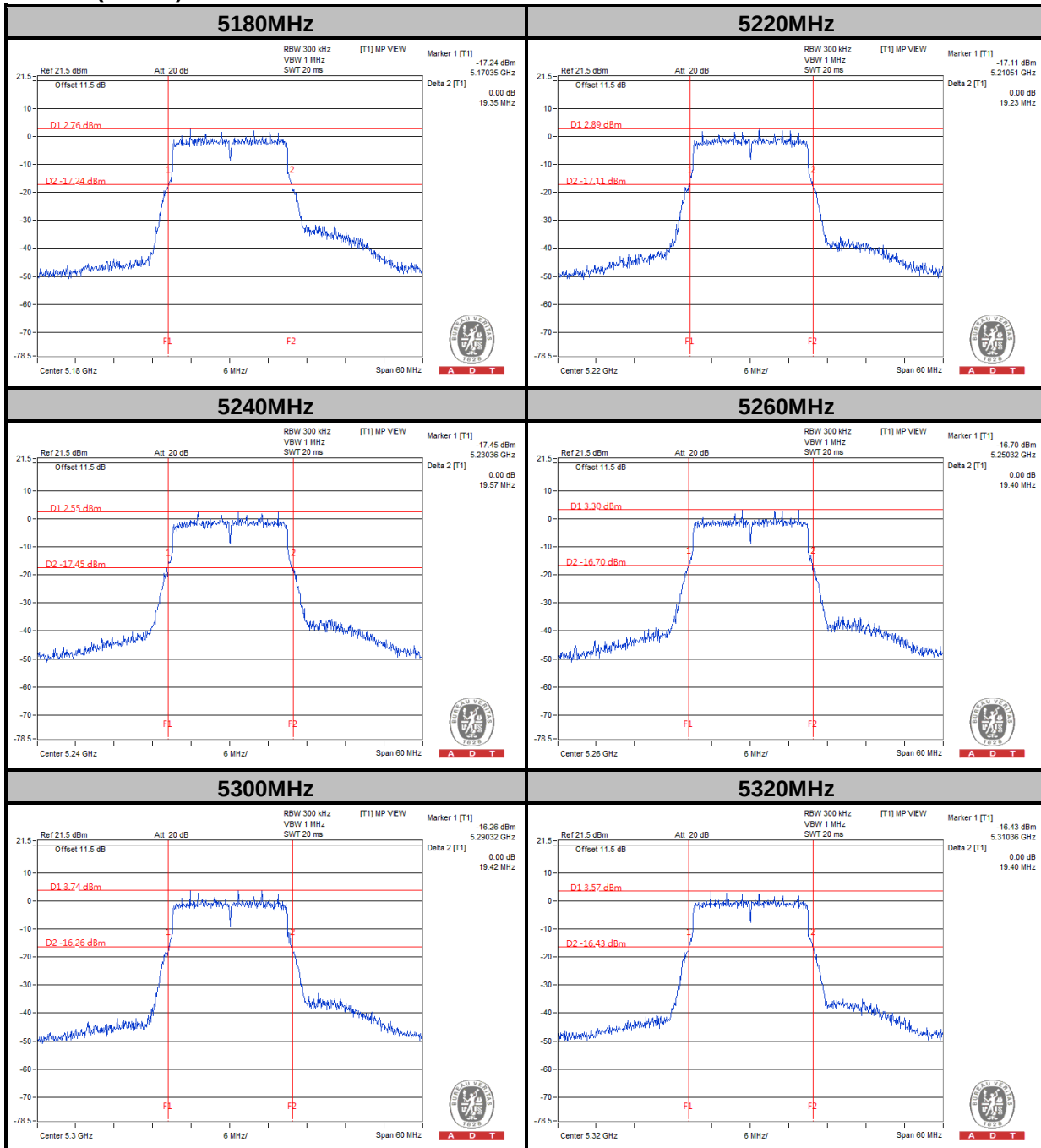
A D T





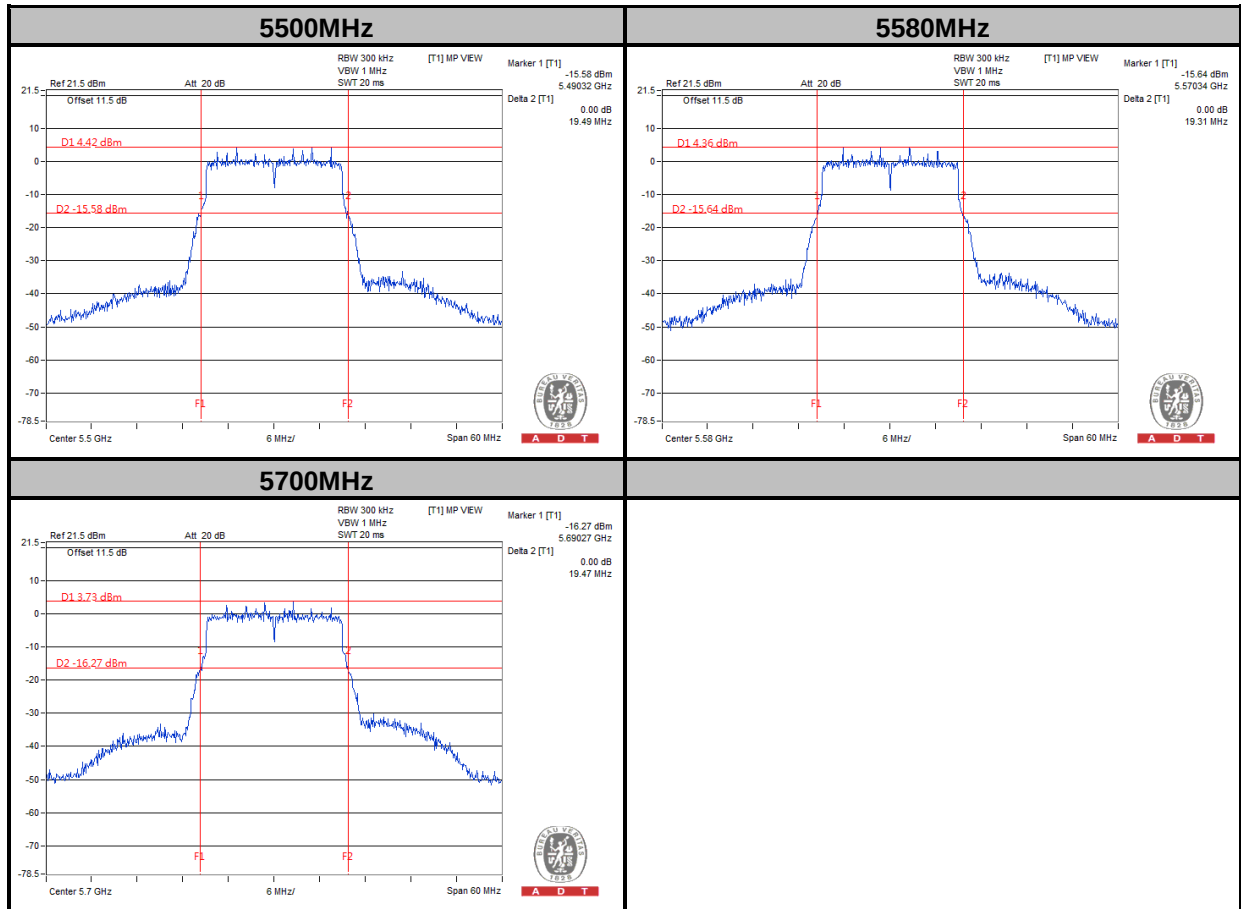
A D T

802.11n (20MHz)





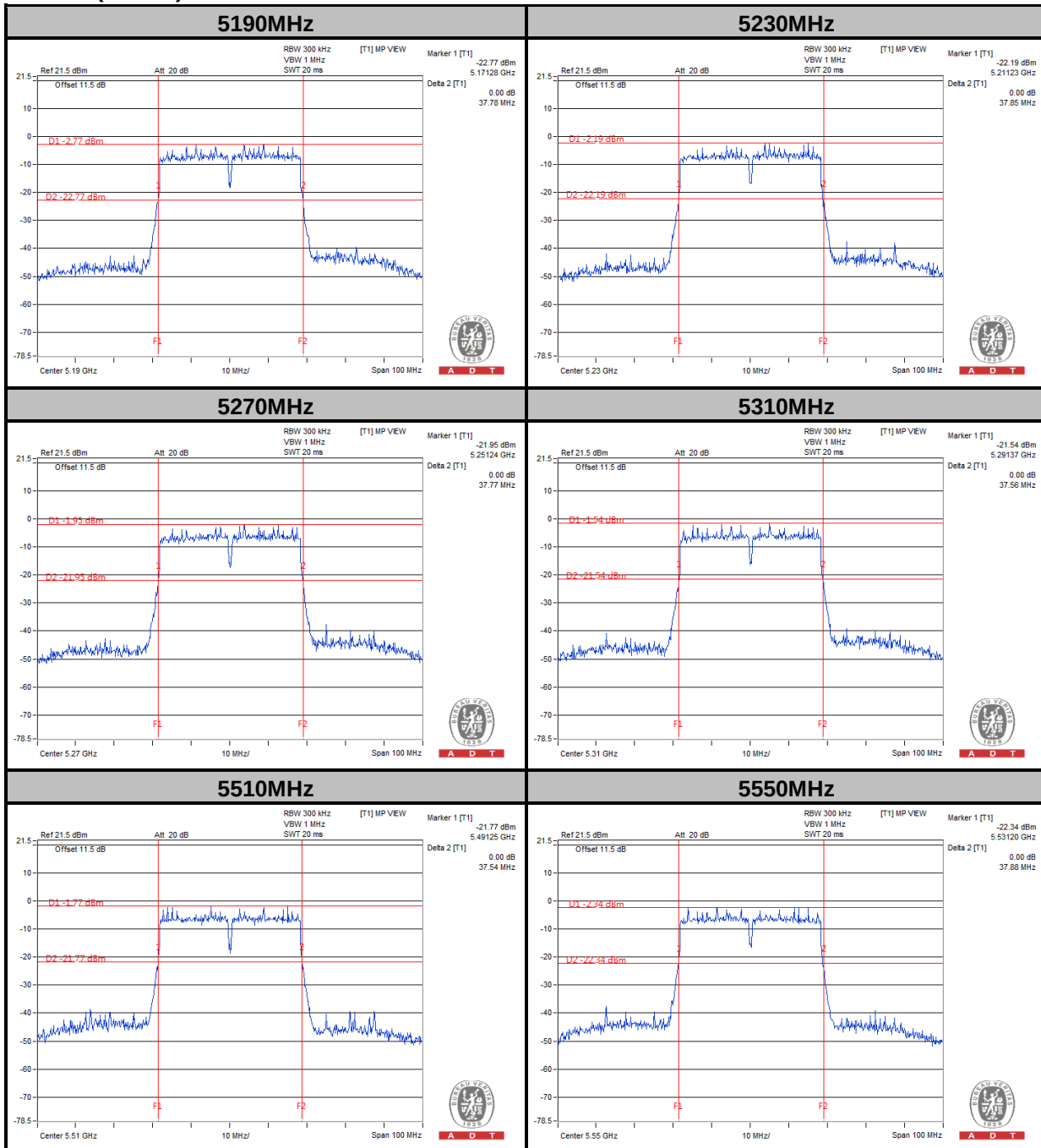
A D T





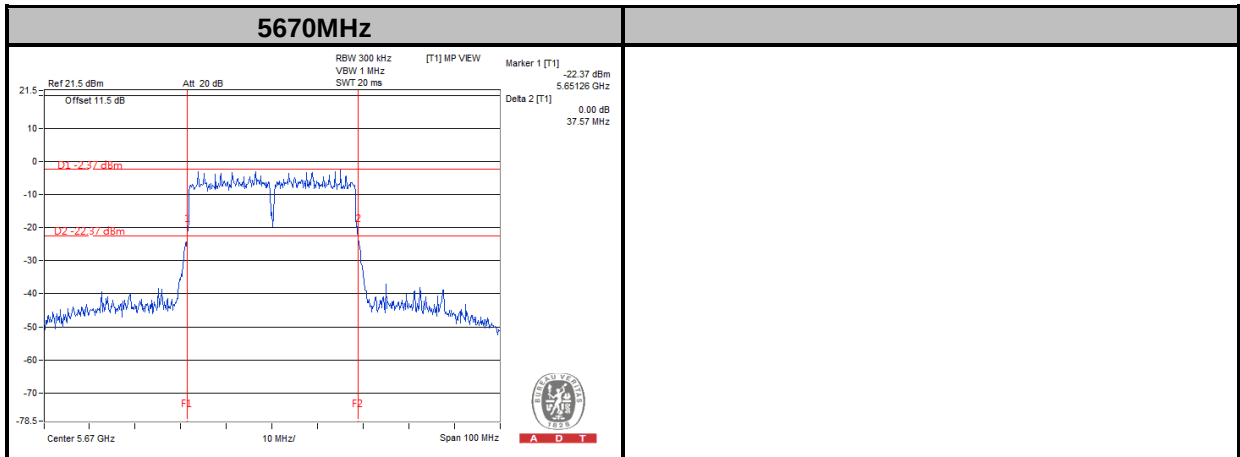
A D T

802.11n (40MHz)





A D T

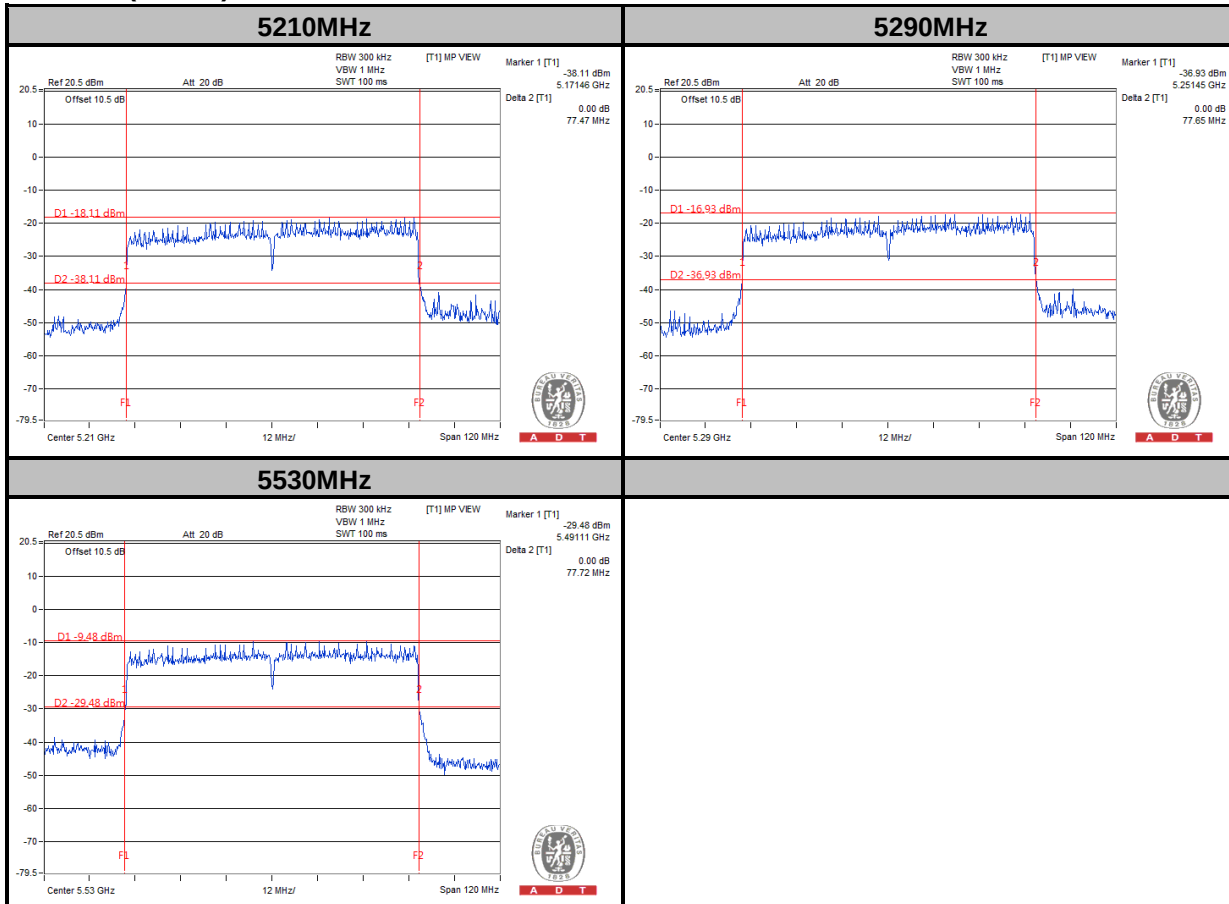




A D T

MODE B

802.11ac (80MHz)



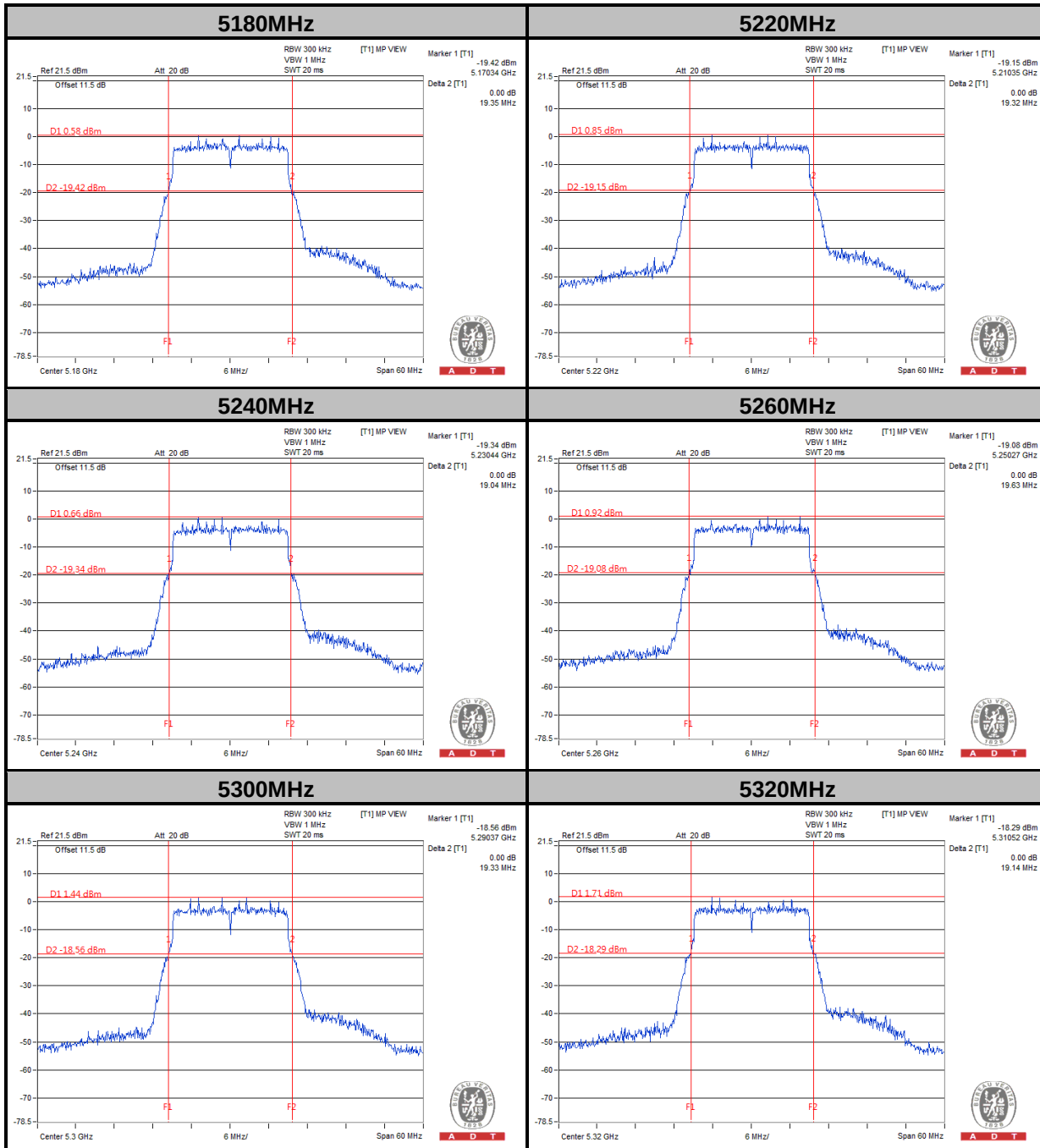


A D T

MODE C

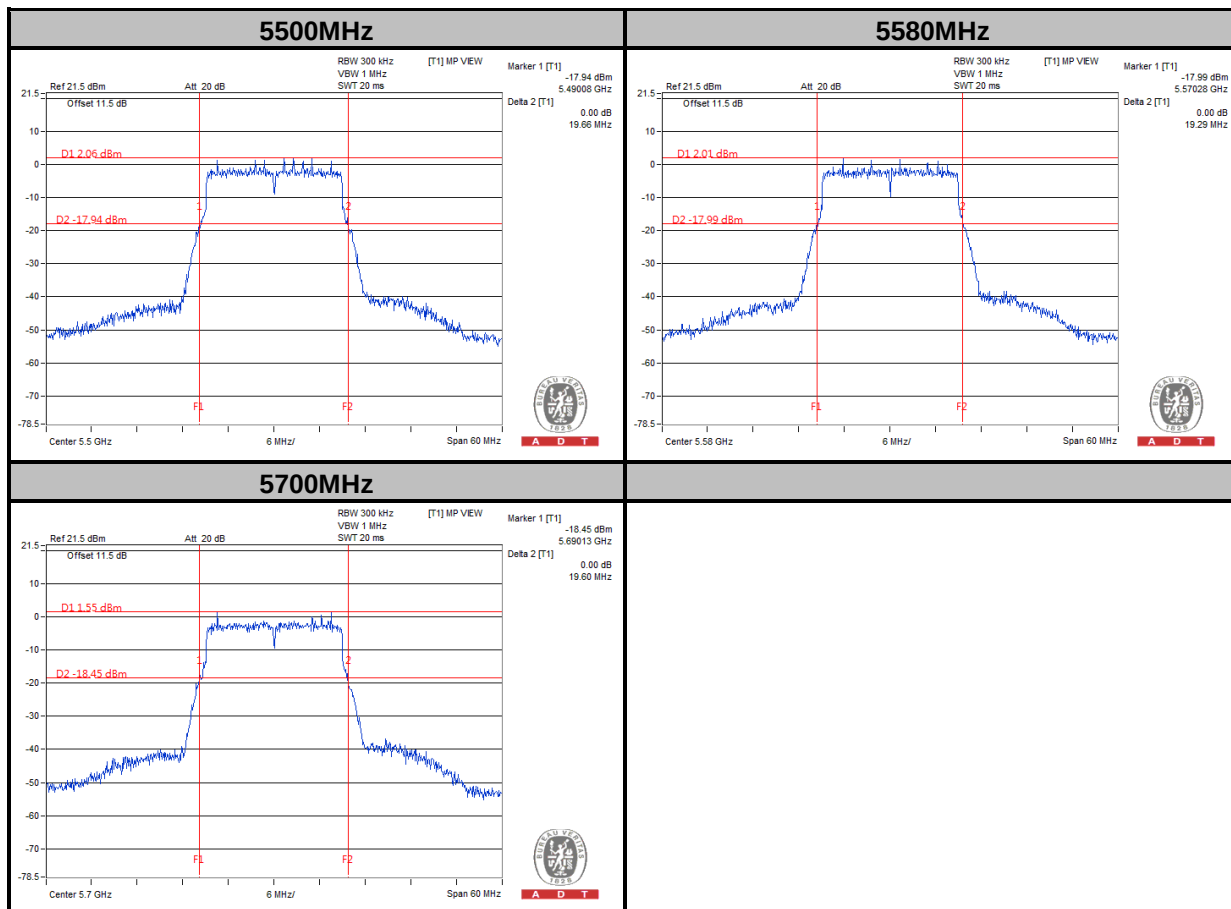
802.11n (20MHz)

CHAIN 0





A D T

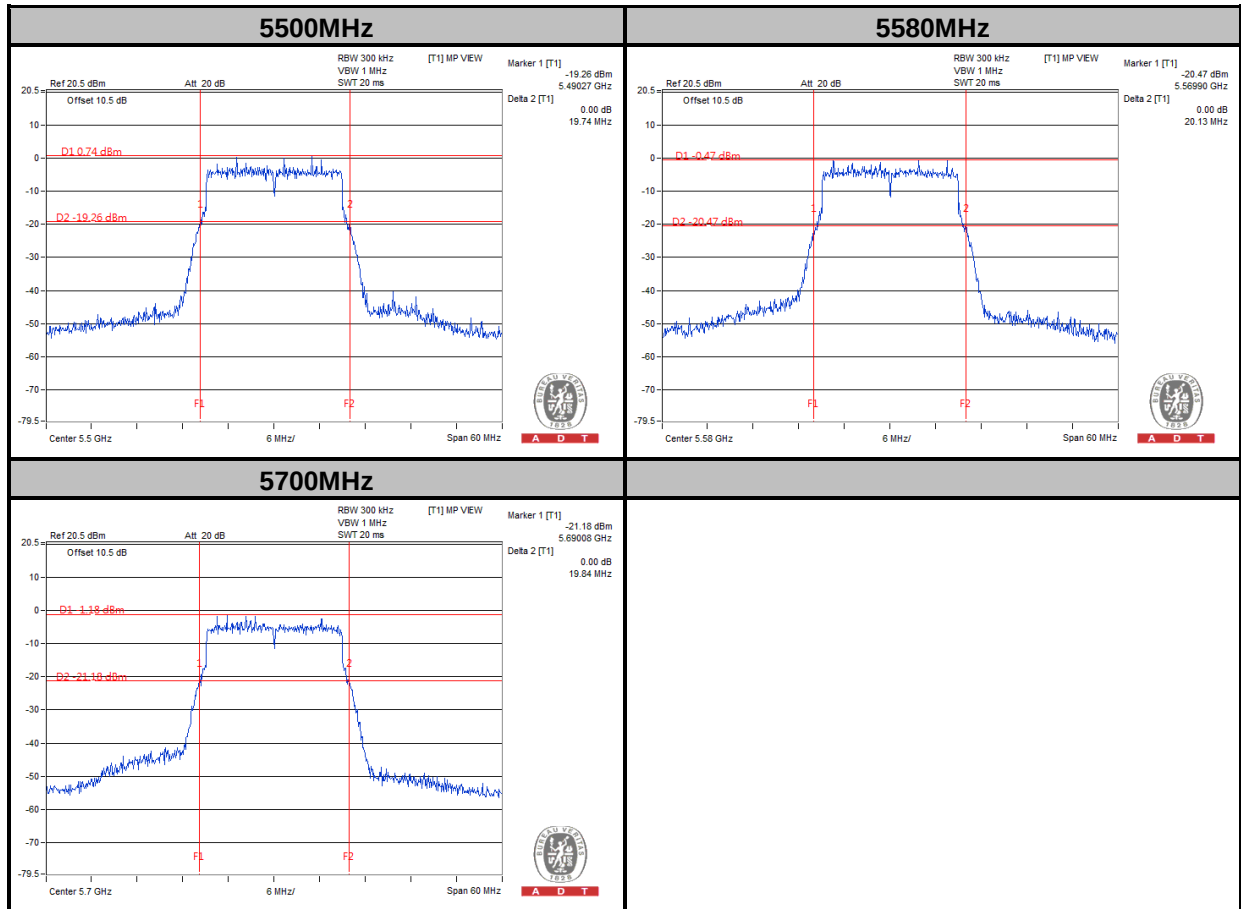


5180MHz





A D T

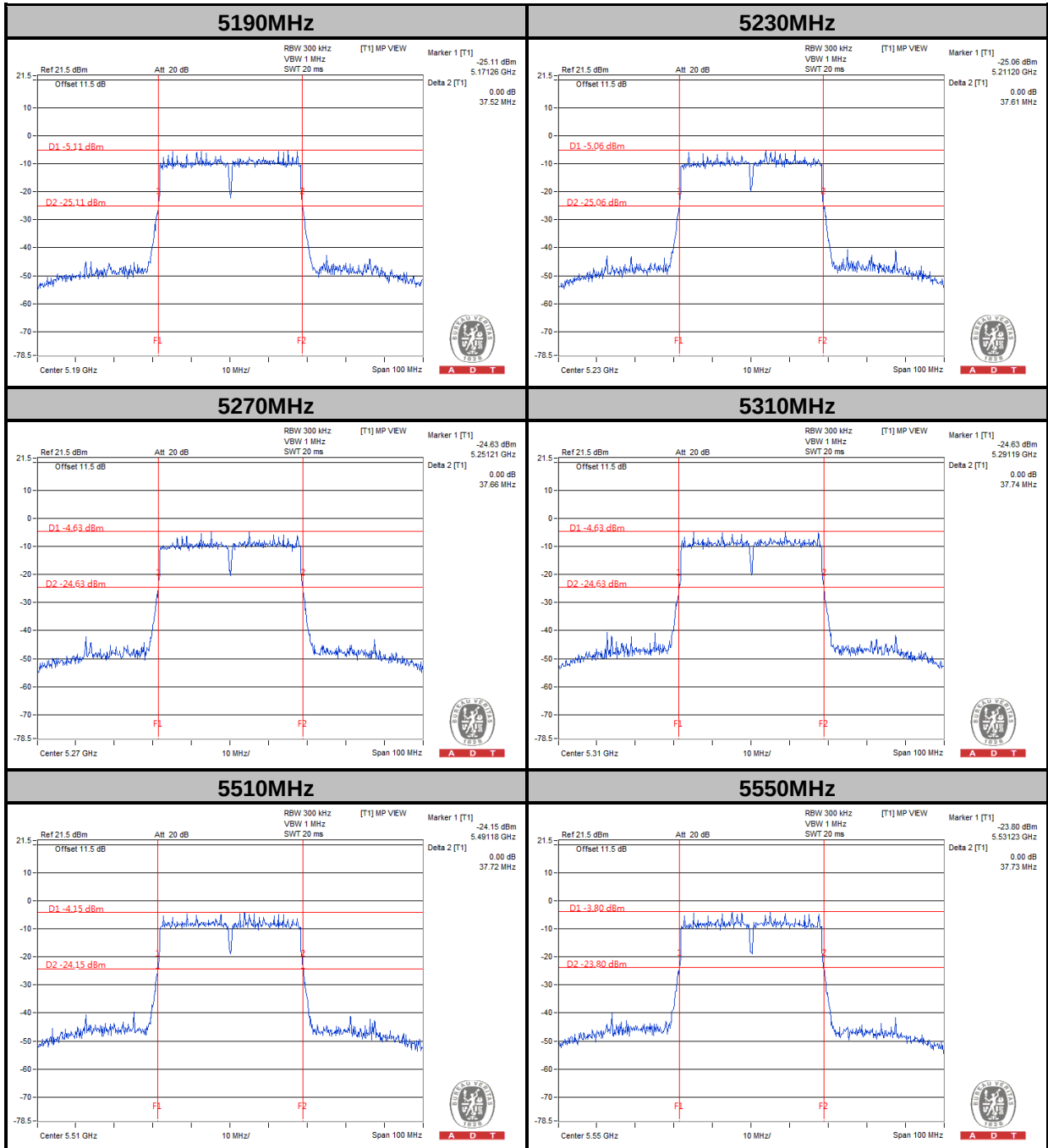




A D T

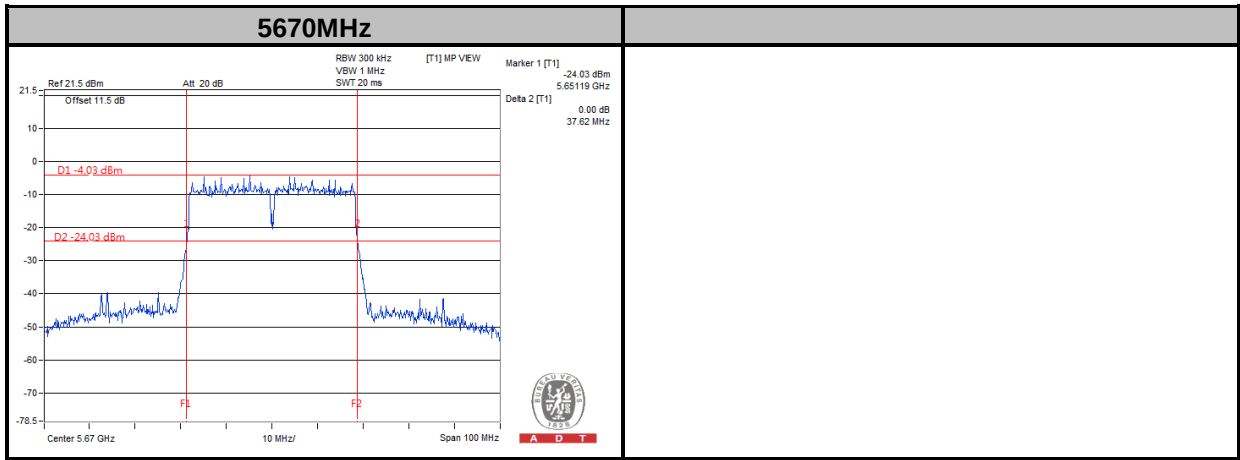
802.11n (40MHz)

CHAIN 0





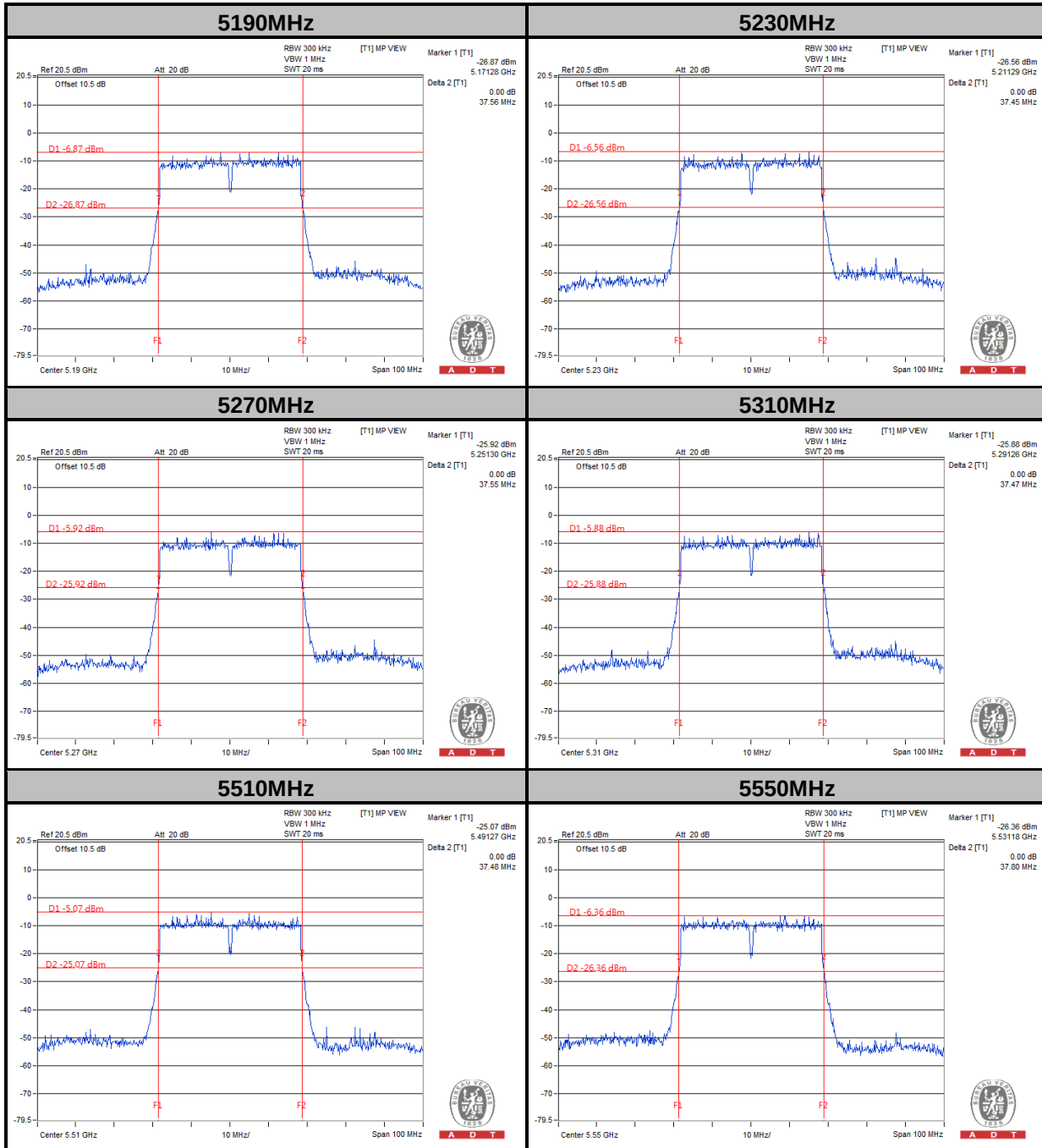
A D T





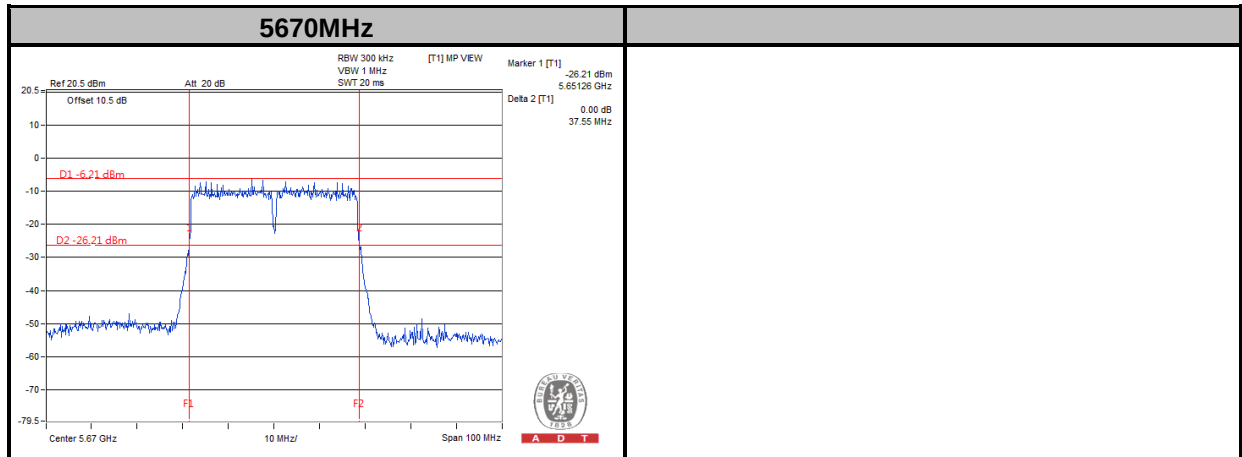
A D T

CHAIN 1





A D T

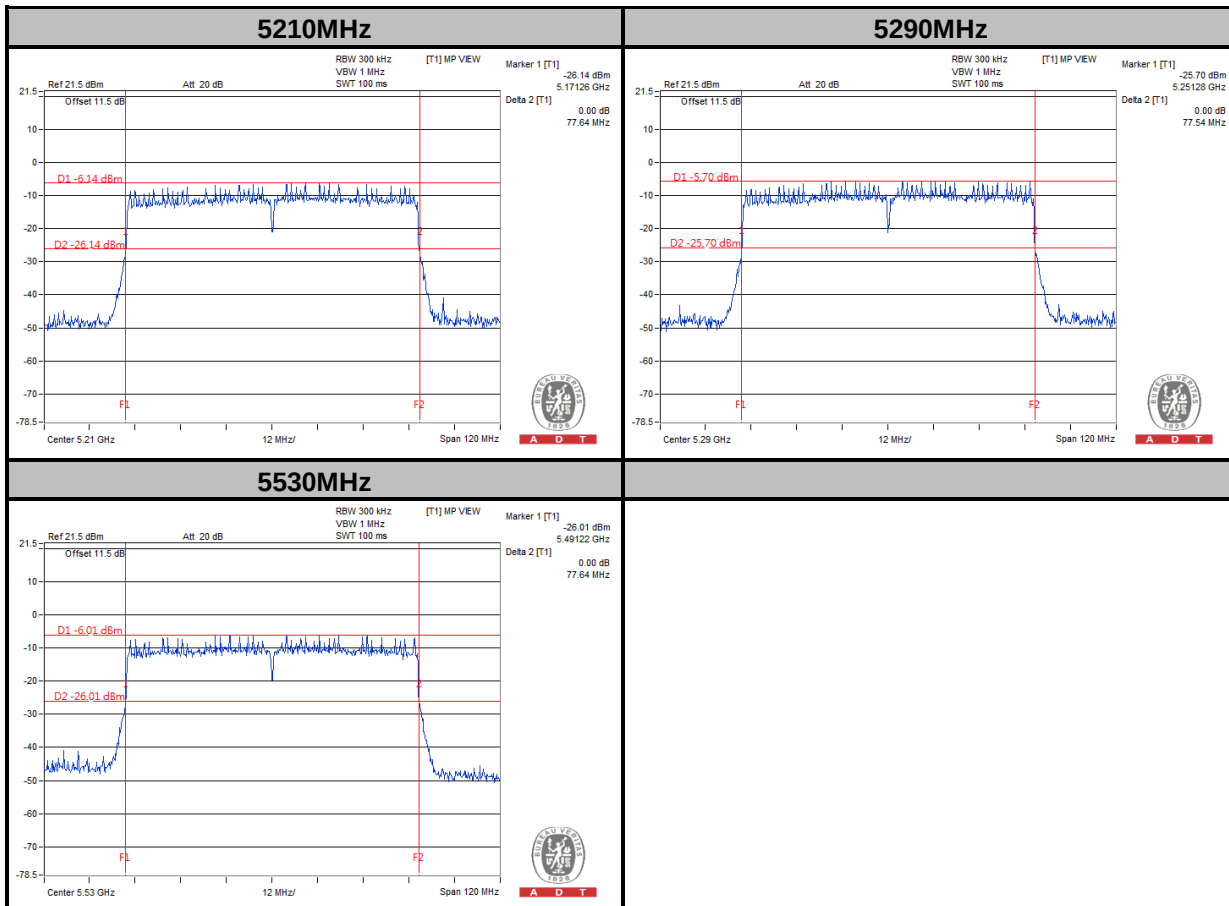




A D T

802.11ac (80MHz)

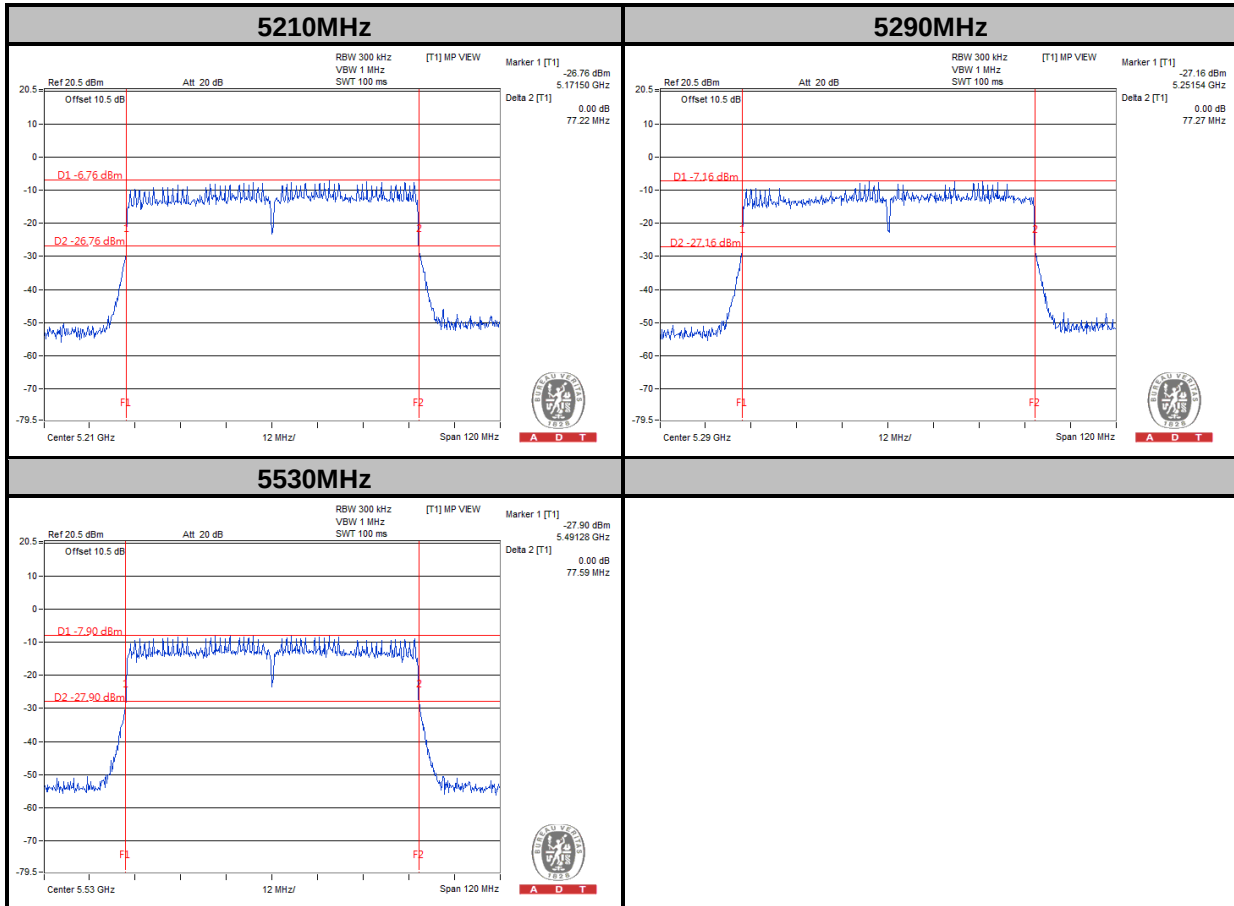
CHAIN 0





A D T

CHAIN 1



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:

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Fax: 886-2-26051924

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Web Site: www.bureauveritas-adt.com

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



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---