

FCC TEST REPORT (15.407)

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MODEL NO.: TPN-Q145
FCC ID: B94TNQ145
RECEIVED: Mar. 17, 2014
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ISSUED: Apr. 07, 2014

APPLICANT: HEWLETT-PACKARD COMPANY

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CALIFORNIA 94304, USA

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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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF140317C23-3	Original release	Apr. 07, 2014



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1. CERTIFICATION

PRODUCT: Laptop

MODEL NO.: TPN-Q145

BRAND: hp; Hewlett-Packard

APPLICANT: HEWLETT-PACKARD COMPANY

TESTED: Mar. 27, 2014 ~ Mar. 31, 2014

TEST SAMPLE: PRODUCTION UNIT

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

ANSI C63.10-2009

The above equipment (model: TPN-Q145) 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 : Evonne Liu , **DATE** : Apr. 07, 2014
Evonne Liu / Specialist

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

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART 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 -7.51dB at 0.68125MHz.
15.407(b/1/2/3)(b)(6)	Spurious Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -8.14dB at 5725MHz.
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	Laptop
MODEL NO.	TPN-Q145
POWER SUPPLY	5.25Vdc (adapter or host equipment) 11.1Vdc (Li-ion battery)
MODULATION TYPE	64QAM, 16QAM, QPSK, BPSK
MODULATION TECHNOLOGY	OFDM
TRANSFER RATE	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to MCS7
OPERATING FREQUENCY	5180 ~ 5240MHz, 5260 ~ 5320MHz & 5500 ~ 5700MHz
NUMBER OF CHANNEL	5180 ~ 5240MHz: 4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz) 5260 ~ 5320MHz: 4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz) 5500 ~ 5700MHz: 8 for 802.11a, 802.11n (20MHz) 3 for 802.11n (40MHz)
OUTPUT POWER	15.06mW for 5180 ~ 5240MHz 17.24mW for 5260 ~ 5320MHz 25.22mW for 5500 ~ 5700MHz
ANTENNA TYPE	PIFA antenna with 1.54dBi gain (5180 ~ 5240MHz) PIFA antenna with 0.18dBi gain (5260 ~ 5320MHz) PIFA antenna with 0.5dBi gain (5500 ~ 5700MHz)
ANTENNA CONNECTOR	NA
DATA CABLE	Refer to Note as below
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Refer to Note as below

NOTE:

1. The EUT contains following accessory devices.

ITEM	BRAND	MODEL	SPECIFICATION
Adapter	ITE	PA-1150-22GO	I/P: 100-240Vac, 50-60Hz, 0.6A O/P: 5.25Vdc, 3A
Battery	Simplo	SQU-1208	11.1Vdc, 2600Ah
WLAN/BT Module	Marvell	8797	--

2. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitters and 2 receivers.

MODULATION MODE	TX FUNCTION
802.11a	1TX
802.11n (20MHz)	1TX 2TX
802.11n (40MHz)	1TX 2TX

3. The antenna information is listed as below.

Antenna Type	Manufacturer	Parts Number	Antenna Gain
PIFA	WNC	Main Antenna: 81EAAR15.G19	2.4GHz: -2.75 5GHz: 0.4
		Aux Antenna: 81EAAR15.G19	2.4GHz: 2.67 5GHz: 1.54
	YAGEO	Main Antenna: ANTA0HQ08952WLAN1	2.4GHz: 1.55 5GHz: 0.5
		Aux Antenna: ANTA0HQ08952WLAN1	2.4GHz: 2.93 5GHz: 0.12

*The antenna gain was the worst for the final test.

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

3.2 DESCRIPTION OF TEST MODES

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

WLAN 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

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		

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	1 Tx
B	√	-	-	√	2 Tx

Where **RE≥1G**: Radiated Emission above 1GHz **RE<1G**: Radiated Emission below 1GHz
PLC: Power Line Conducted Emission **APCM**: Antenna Port Conducted Measurement

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)
A	802.11a	5180-5240	36 to 48	36, 44, 48	OFDM	BPSK	6.0
	802.11n (20MHz)		36 to 48	36, 44, 48	OFDM	BPSK	MCS0
	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	MCS0
	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0
	802.11n (20MHz)		52 to 64	52, 60, 64	OFDM	BPSK	MCS0
	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	MCS0
	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0
	802.11n (20MHz)		100 to 140	100, 116, 140	OFDM	BPSK	MCS0
	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	MCS0
B	802.11n (20MHz)	5180-5240	36 to 48	36, 44, 48	OFDM	BPSK	MCS8
	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	MCS8
	802.11n (20MHz)	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	MCS8
	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	MCS8
	802.11n (20MHz)	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	MCS8
	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	MCS8

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)
A	802.11n (40MHz)	5180-5240	38 to 46	38	OFDM	BPSK	MCS0
	802.11n (40MHz)	5260-5320	54 to 62	62	OFDM	BPSK	MCS0
	802.11n (40MHz)	5500-5700	102 to 134	102	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 (40MHz)	5260-5320	54 to 62	62	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	802.11a	5180-5240	36 to 48	36, 44, 48	OFDM	BPSK	6.0
	802.11n (20MHz)		36 to 48	36, 44, 48	OFDM	BPSK	MCS0
	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	MCS0
	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0
	802.11n (20MHz)		52 to 64	52, 60, 64	OFDM	BPSK	MCS0
	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	MCS0
	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0
	802.11n (20MHz)		100 to 140	100, 116, 140	OFDM	BPSK	MCS0
	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	MCS0
B	802.11n (20MHz)	5180-5240	36 to 48	36, 44, 48	OFDM	BPSK	MCS8
	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	MCS8
	802.11n (20MHz)	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	MCS8
	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	MCS8
	802.11n (20MHz)	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	MCS8
	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	MCS8

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	802.11a	5180-5240	36 to 48	36, 44, 48	OFDM	BPSK	6.0
	802.11n (20MHz)		36 to 48	36, 44, 48	OFDM	BPSK	MCS0
	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	MCS0
	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	6.0
	802.11n (20MHz)		52 to 64	52, 60, 64	OFDM	BPSK	MCS0
	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	MCS0
	802.11a	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	6.0
	802.11n (20MHz)		100 to 140	100, 116, 140	OFDM	BPSK	MCS0
	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	MCS0
B	802.11n (20MHz)	5180-5240	36 to 48	36, 44, 48	OFDM	BPSK	MCS8
	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	MCS8
	802.11n (20MHz)	5260-5320	52 to 64	52, 60, 64	OFDM	BPSK	MCS8
	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	MCS8
	802.11n (20MHz)	5500-5700	100 to 140	100, 116, 140	OFDM	BPSK	MCS8
	802.11n (40MHz)		102 to 134	102, 110, 134	OFDM	BPSK	MCS8

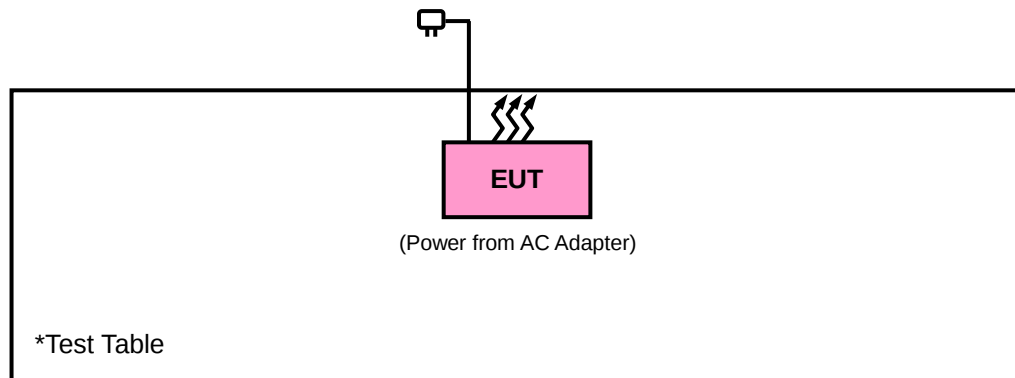
Test CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 65%RH	120Vac, 60Hz	Peter Weng
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Peter Weng
PLC	25deg. C, 65%RH	120Vac, 60Hz	Peter Weng
APCM	25deg. C, 65%RH	120Vac, 60Hz	Howard Kao

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

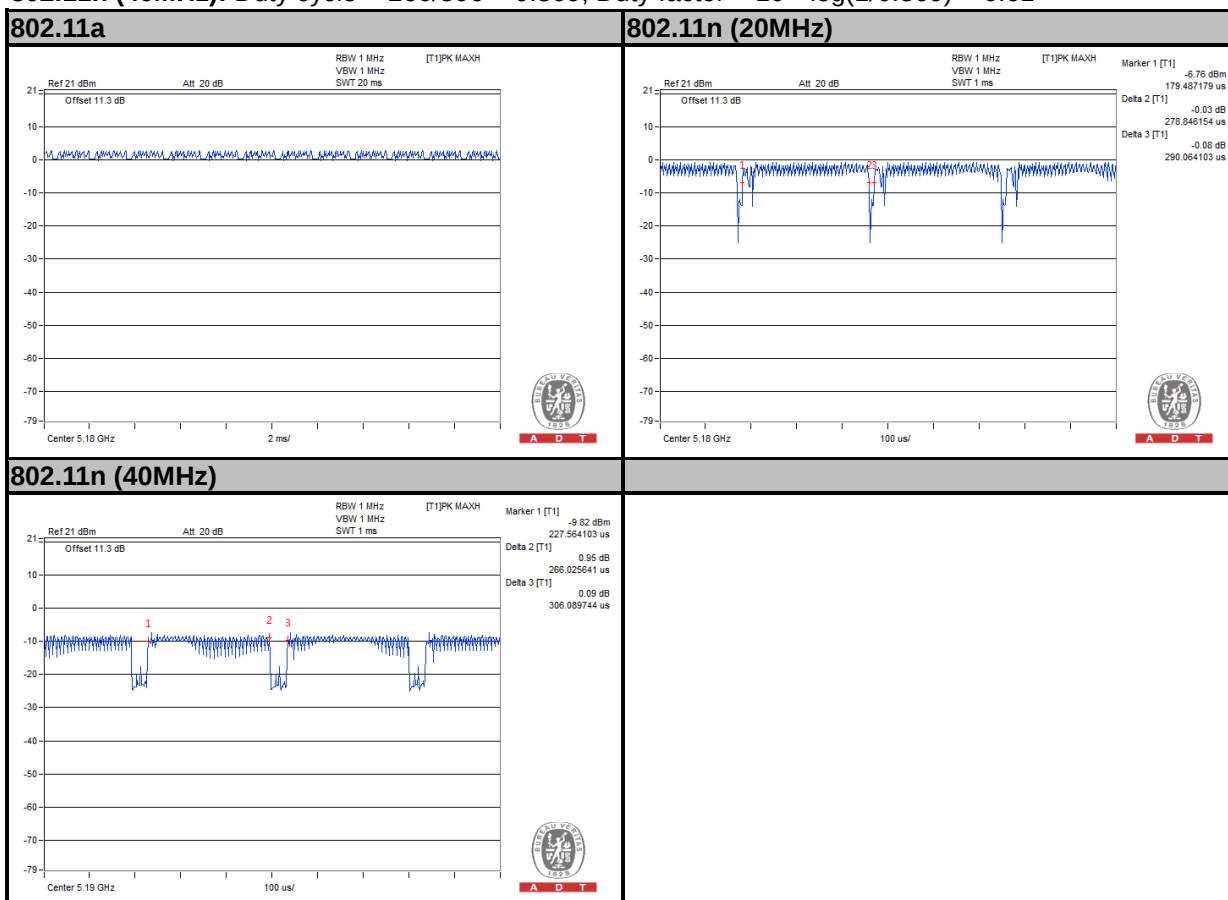
MODULATION TYPE: BPSK

802.11a: Duty cycle of test signal is 100 %, duty factor is not required.

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

802.11n (20MHz): Duty cycle = $279/290 = 0.962$, Duty factor = $10 * \log(1/0.962) = 0.17$

802.11n (40MHz): Duty cycle = $266/306 = 0.869$, Duty factor = $10 * \log(1/0.869) = 0.61$



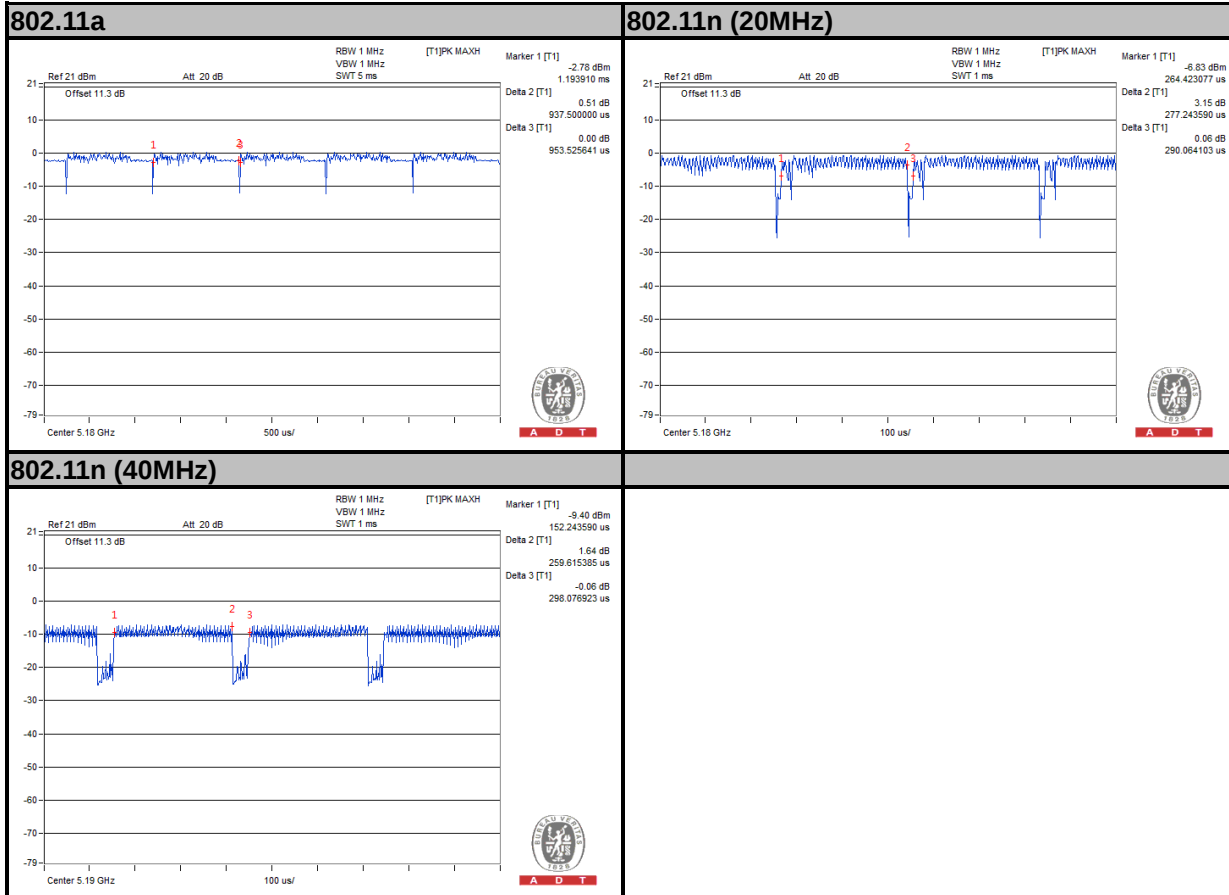
MODULATION TYPE: QPSK

802.11a: Duty cycle of test signal is > 98 %, duty factor is not required.

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

802.11n (20MHz): Duty cycle = $277/290 = 0.955$, Duty factor = $10 * \log(1/0.955) = 0.20$

802.11n (40MHz): Duty cycle = $259/298 = 0.869$, Duty factor = $10 * \log(1/0.869) = 0.60$



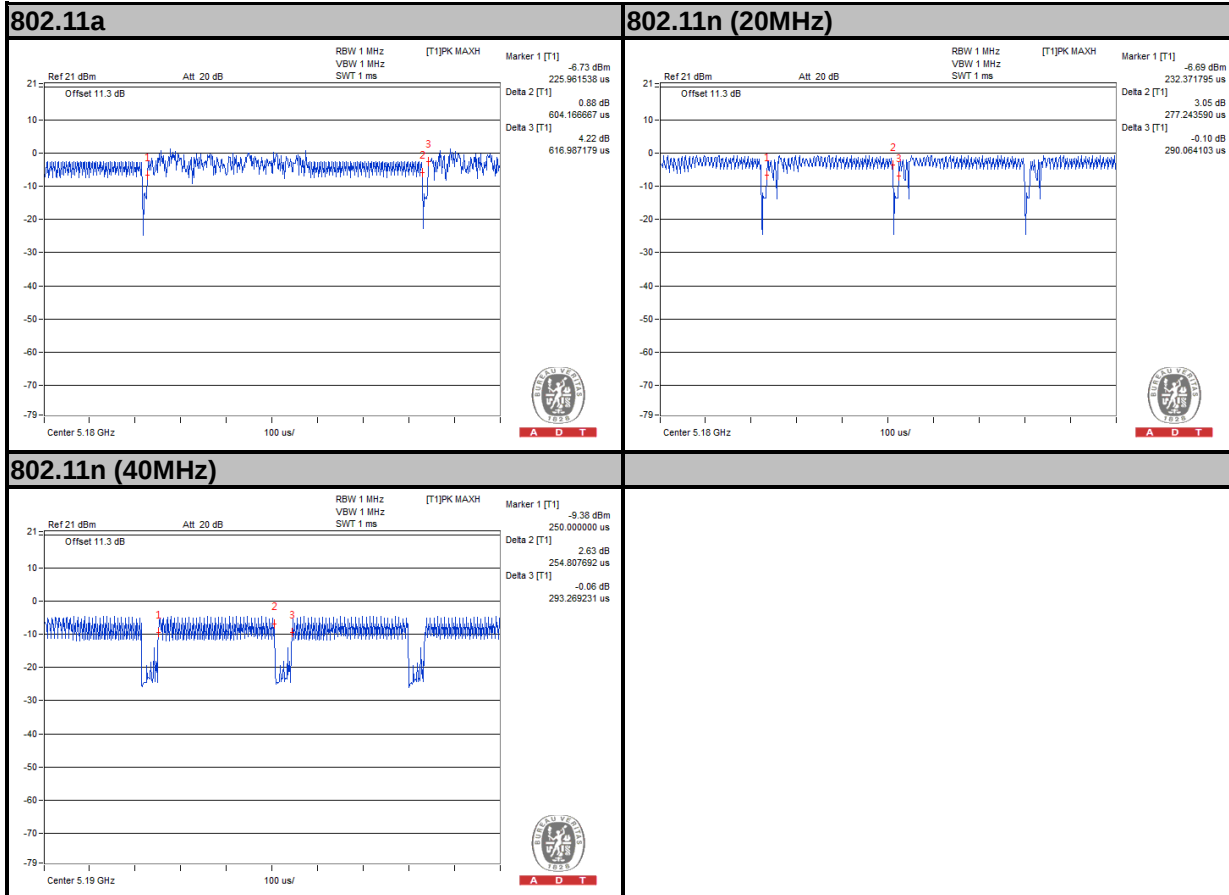
MODULATION TYPE: 16QAM

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

802.11a: Duty cycle = $604/616 = 0.978$, Duty factor = $10 * \log(1/0.978) = 0.09$

802.11n (20MHz): Duty cycle = $277/290 = 0.955$, Duty factor = $10 * \log(1/0.955) = 0.20$

802.11n (40MHz): Duty cycle = $254/293 = 0.867$, Duty factor = $10 * \log(1/0.867) = 0.61$



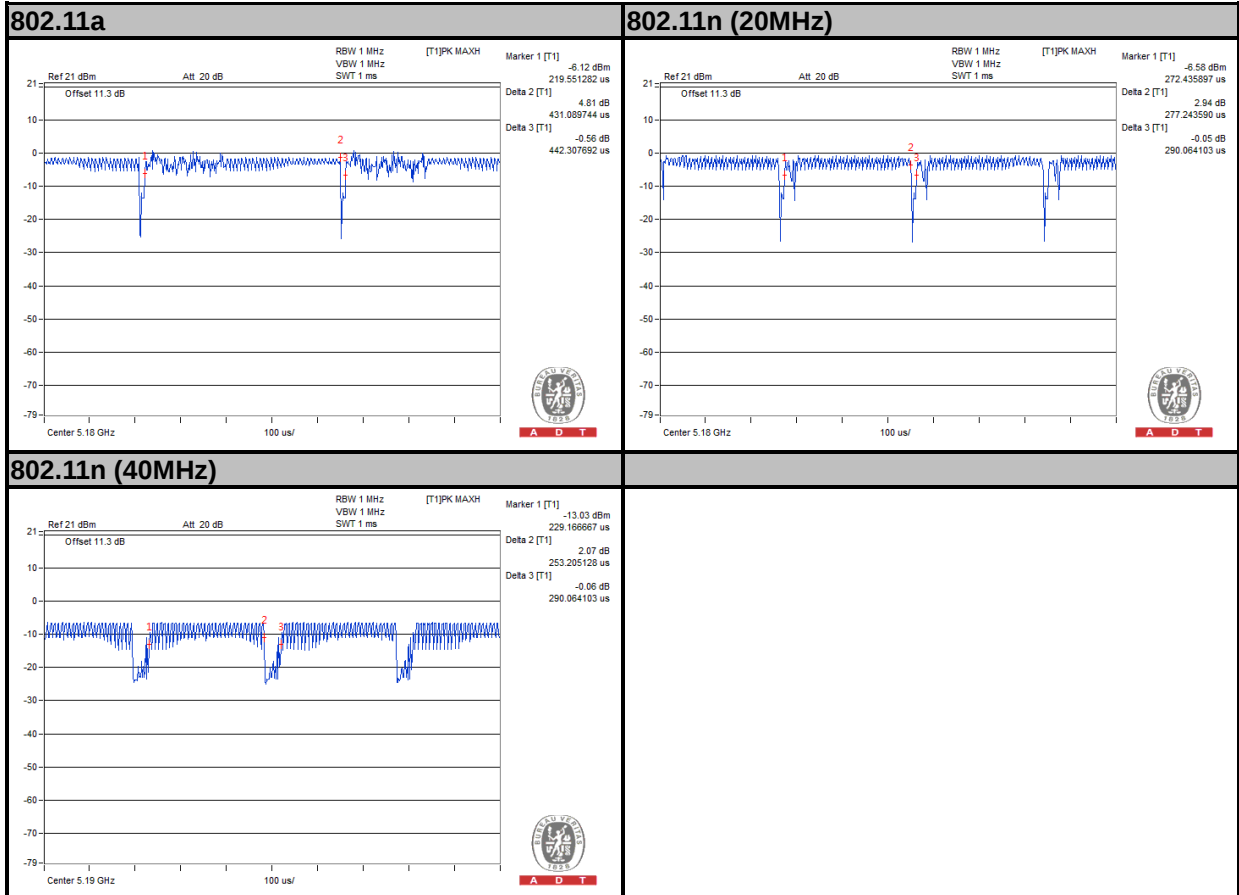
MODULATION TYPE: 64QAM

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

802.11a: Duty cycle = $431/442 = 0.975$, Duty factor = $10 * \log(1/0.975) = 0.11$

802.11n (20MHz): Duty cycle = $277/290 = 0.955$, Duty factor = $10 * \log(1/0.955) = 0.20$

802.11n (40MHz): Duty cycle = $253/290 = 0.872$, Duty factor = $10 * \log(1/0.872) = 0.59$



MODE B

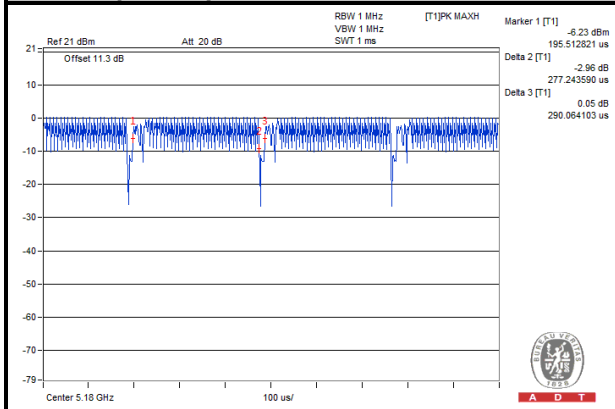
MODULATION TYPE: BPSK

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

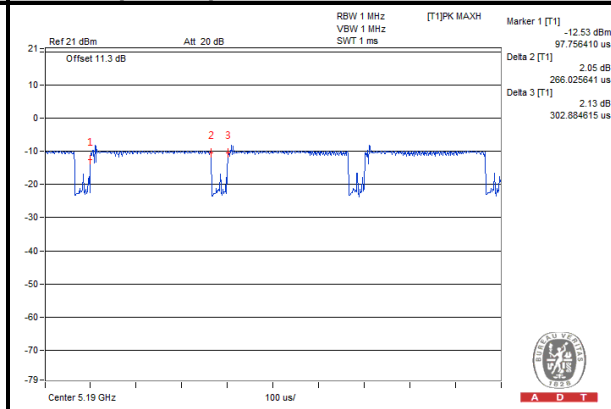
802.11n (20MHz): Duty cycle = $277/290 = 0.955$, Duty factor = $10 * \log(1/0.955) = 0.20$

802.11n (40MHz): Duty cycle = $266/303 = 0.878$, Duty factor = $10 * \log(1/0.869) = 0.56$

802.11n (20MHz)



802.11n (40MHz)



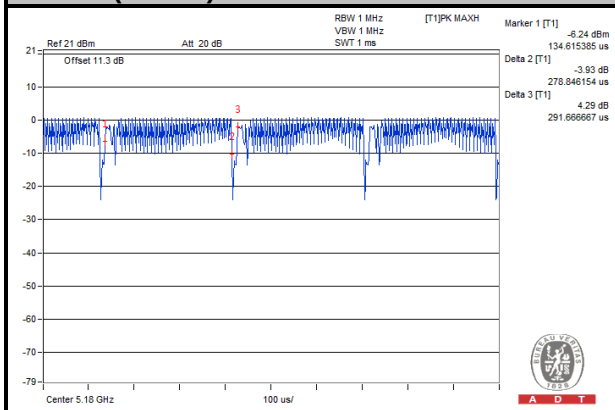
MODULATION TYPE: QPSK

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

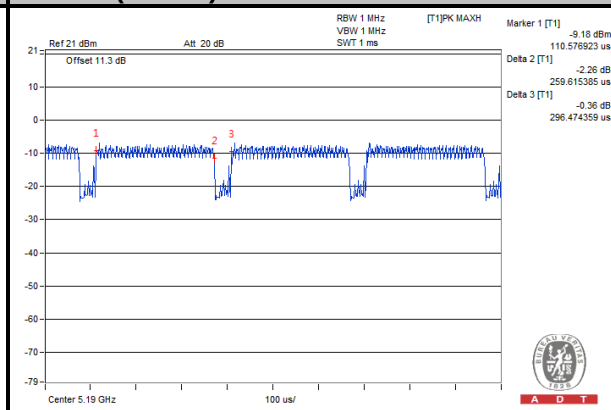
802.11n (20MHz): Duty cycle = $279/292 = 0.955$, Duty factor = $10 * \log(1/0.955) = 0.20$

802.11n (40MHz): Duty cycle = $259/296 = 0.875$, Duty factor = $10 * \log(1/0.875) = 0.58$

802.11n (20MHz)



802.11n (40MHz)



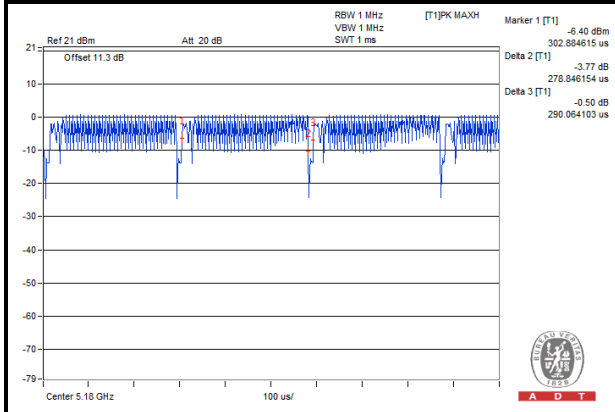
MODULATION TYPE: 16QAM

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

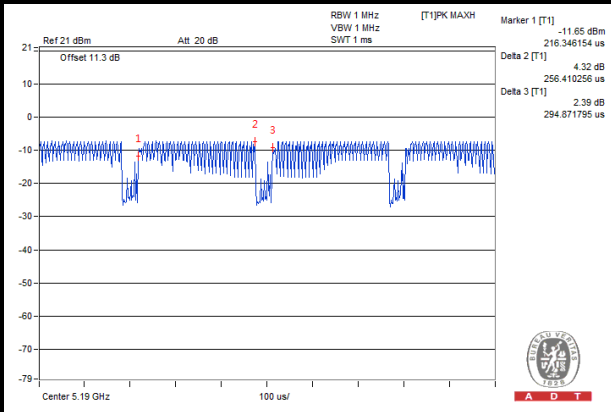
802.11n (20MHz): Duty cycle = 279/290 = 0.962, Duty factor = $10 * \log(1/0.962) = 0.17$

802.11n (40MHz): Duty cycle = 256/295 = 0.867, Duty factor = $10 * \log(1/0.867) = 0.61$

802.11n (20MHz)



802.11n (40MHz)



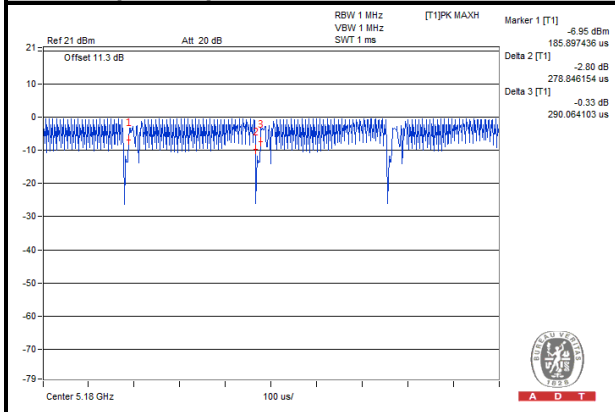
MODULATION TYPE: 64QAM

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

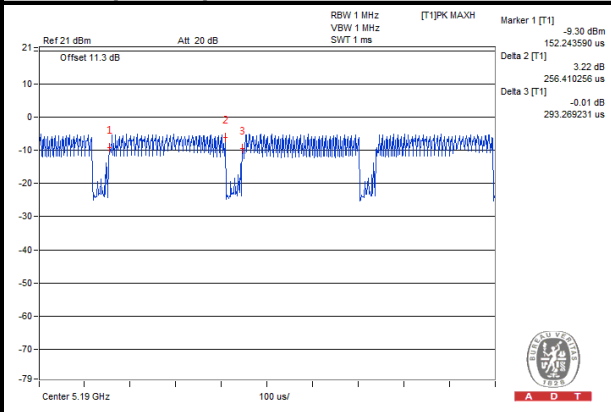
802.11n (20MHz): Duty cycle = 279/290 = 0.962, Duty factor = $10 * \log(1/0.962) = 0.17$

802.11n (40MHz): Duty cycle = 256/293 = 0.873, Duty factor = $10 * \log(1/0.873) = 0.58$

802.11n (20MHz)



802.11n (40MHz)



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 ROHDE & SCHWARZ	ESCI	100744	Apr. 15, 2013	Apr. 14, 2014
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
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.
7. Tested Date: Mar. 28, 2014 ~ Mar. 31, 2014

4.1.4 TEST PROCEDURES

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

NOTE:

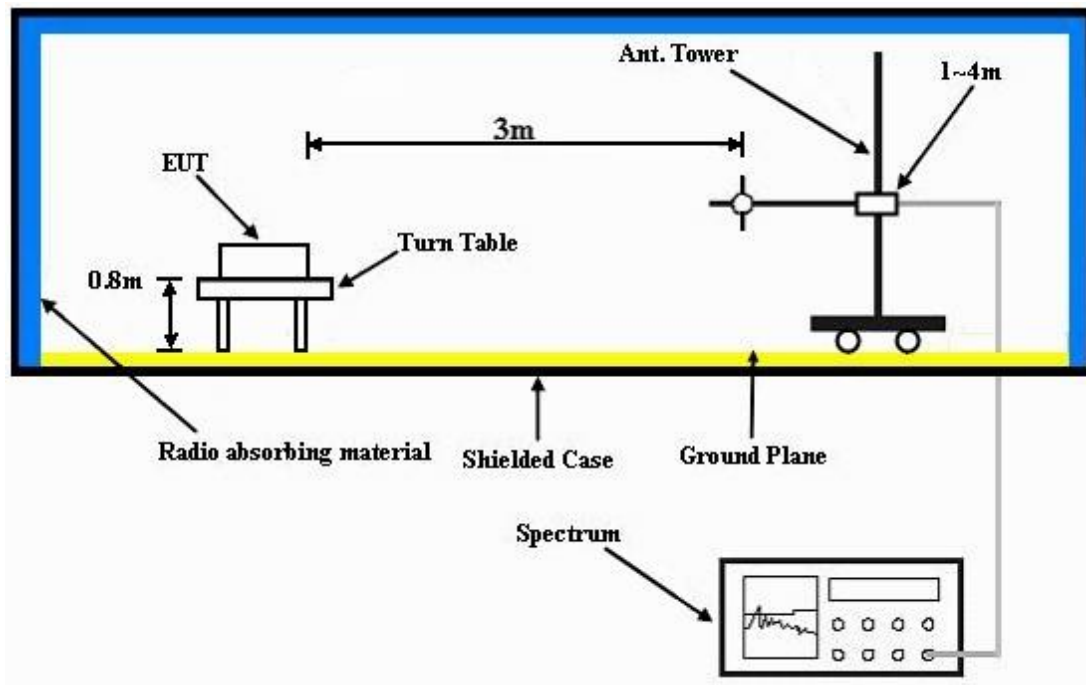
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency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

4.1.5 DEVIATION FROM TEST STANDARD

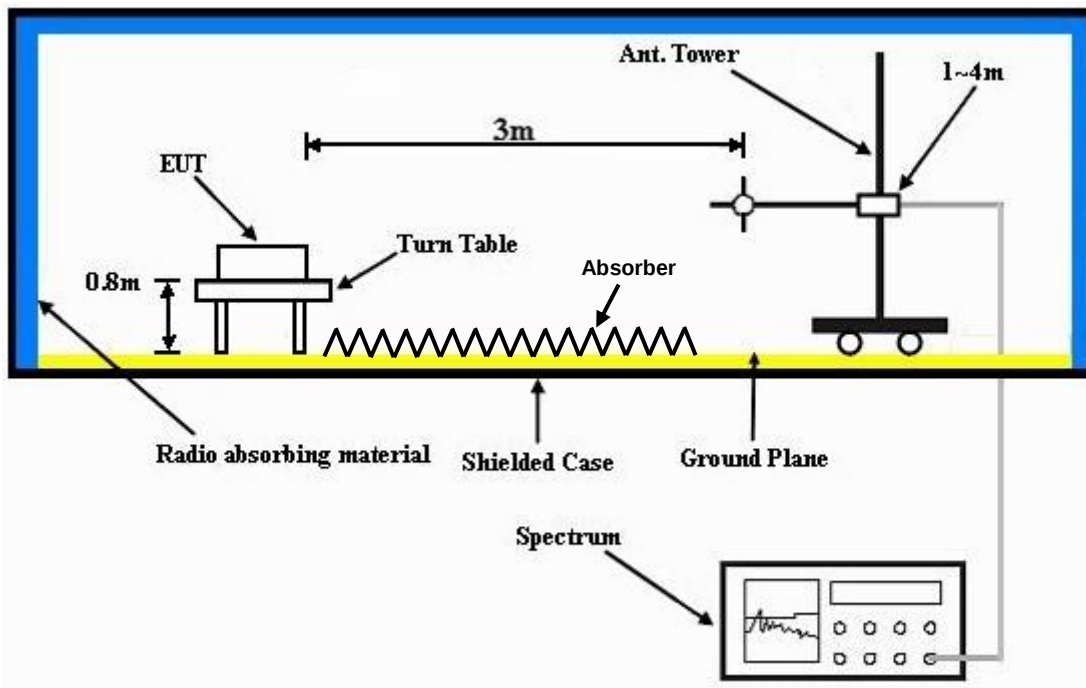
No deviation.

4.1.6 TEST SETUP

Frequency Range 30MHz ~ 1GHz



Frequency Range above 1GHz



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



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4.1.7 EUT OPERATING CONDITIONS

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

4.1.8 TEST RESULTS

MODE A

ABOVE 1GHz WORST-CASE DATA

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	37.1	37.81	54	-16.9	31.32	5.29	37.32	100	202	Average
5150	51.95	52.66	74	-22.05	31.32	5.29	37.32	100	202	Peak
5180	88	88.68			31.35	5.31	37.34	100	202	Average
5180	96.25	96.93			31.35	5.31	37.34	100	202	Peak
5350	37.56	37.87	54	-16.44	31.48	5.39	37.18	100	202	Average
5350	52.03	52.34	74	-21.97	31.48	5.39	37.18	100	202	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	37.92	38.63	54	-16.08	31.32	5.29	37.32	100	52	Average
5150	53.17	53.88	74	-20.83	31.32	5.29	37.32	100	52	Peak
5180	94.77	95.45			31.35	5.31	37.34	100	52	Average
5180	103.2	103.88			31.35	5.31	37.34	100	52	Peak
5350	37.74	38.05	54	-16.26	31.48	5.39	37.18	100	52	Average
5350	52.7	53.01	74	-21.3	31.48	5.39	37.18	100	52	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	37.35	38.06	54	-16.65	31.32	5.29	37.32	100	314	Average
5150	53.32	54.03	74	-20.68	31.32	5.29	37.32	100	314	Peak
5220	86.85	87.51			31.37	5.33	37.36	100	314	Average
5220	95.2	95.86			31.37	5.33	37.36	100	314	Peak
5350	37.66	37.97	54	-16.34	31.48	5.39	37.18	100	314	Average
5350	53.64	53.95	74	-20.36	31.48	5.39	37.18	100	314	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	37.5	38.21	54	-16.5	31.32	5.29	37.32	100	40	Average
5150	54.26	54.97	74	-19.74	31.32	5.29	37.32	100	40	Peak
5220	94.15	94.81			31.37	5.33	37.36	100	40	Average
5220	102.28	102.94			31.37	5.33	37.36	100	40	Peak
5350	37.73	38.04	54	-16.27	31.48	5.39	37.18	100	40	Average
5350	53.75	54.06	74	-20.25	31.48	5.39	37.18	100	40	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	37.39	38.1	54	-16.61	31.32	5.29	37.32	100	322	Average
5150	52.28	52.99	74	-21.72	31.32	5.29	37.32	100	322	Peak
5240	87	87.59			31.39	5.34	37.32	100	322	Average
5240	94.25	94.84			31.39	5.34	37.32	100	322	Peak
5350	37.63	37.94	54	-16.37	31.48	5.39	37.18	100	322	Average
5350	52.83	53.14	74	-21.17	31.48	5.39	37.18	100	322	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	37.57	38.28	54	-16.43	31.32	5.29	37.32	105	60	Average
5150	52.81	53.52	74	-21.19	31.32	5.29	37.32	105	60	Peak
5240	94.41	95			31.39	5.34	37.32	105	60	Average
5240	102.43	103.02			31.39	5.34	37.32	105	60	Peak
5350	37.76	38.07	54	-16.24	31.48	5.39	37.18	105	60	Average
5350	52.01	52.32	74	-21.99	31.48	5.39	37.18	105	60	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	37.48	38.19	54	-16.52	31.32	5.29	37.32	100	314	Average
5150	52.81	53.52	74	-21.19	31.32	5.29	37.32	100	314	Peak
5260	86.41	86.93			31.41	5.34	37.27	100	314	Average
5260	94.54	95.06			31.41	5.34	37.27	100	314	Peak
5350	37.83	38.14	54	-16.17	31.48	5.39	37.18	100	314	Average
5350	53.34	53.65	74	-20.66	31.48	5.39	37.18	100	314	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	37.47	38.18	54	-16.53	31.32	5.29	37.32	100	40	Average
5150	53.12	53.83	74	-20.88	31.32	5.29	37.32	100	40	Peak
5260	93.23	93.75			31.41	5.34	37.27	100	40	Average
5260	101.41	101.93			31.41	5.34	37.27	100	40	Peak
5350	37.66	37.97	54	-16.34	31.48	5.39	37.18	100	40	Average
5350	54.96	55.27	74	-19.04	31.48	5.39	37.18	100	40	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	37.37	38.08	54	-16.63	31.32	5.29	37.32	103	293	Average
5150	52.58	53.29	74	-21.42	31.32	5.29	37.32	103	293	Peak
5300	86.34	86.72			31.44	5.37	37.19	103	293	Average
5300	94.6	94.98			31.44	5.37	37.19	103	293	Peak
5350	37.65	37.96	54	-16.35	31.48	5.39	37.18	103	293	Average
5350	53.77	54.08	74	-20.23	31.48	5.39	37.18	103	293	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	41	Average
5150	53.6	54.31	74	-20.4	31.32	5.29	37.32	100	41	Peak
5300	93.26	93.64			31.44	5.37	37.19	100	41	Average
5300	101.56	101.94			31.44	5.37	37.19	100	41	Peak
5350	37.72	38.03	54	-16.28	31.48	5.39	37.18	100	41	Average
5350	53.19	53.5	74	-20.81	31.48	5.39	37.18	100	41	Peak

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	37.39	38.1	54	-16.61	31.32	5.29	37.32	113	292	Average
5150	53.8	54.51	74	-20.2	31.32	5.29	37.32	113	292	Peak
5320	86.05	86.41			31.45	5.38	37.19	113	292	Average
5320	94.68	95.04			31.45	5.38	37.19	113	292	Peak
5350	37.83	38.14	54	-16.17	31.48	5.39	37.18	113	292	Average
5350	54.5	54.81	74	-19.5	31.48	5.39	37.18	113	292	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	37.5	38.21	54	-16.5	31.32	5.29	37.32	100	35	Average
5150	52.75	53.46	74	-21.25	31.32	5.29	37.32	100	35	Peak
5320	92.87	93.23			31.45	5.38	37.19	100	35	Average
5320	101.63	101.99			31.45	5.38	37.19	100	35	Peak
5350	37.89	38.2	54	-16.11	31.48	5.39	37.18	100	35	Average
5350	53.48	53.79	74	-20.52	31.48	5.39	37.18	100	35	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5460	37.87	37.95	54	-16.13	31.56	5.44	37.08	111	293	Average
5460	54.68	54.76	74	-19.32	31.56	5.44	37.08	111	293	Peak
5470	53.97	54.03	68.3	-14.33	31.57	5.45	37.08	111	293	Peak
5500	92.75	92.72			31.6	5.46	37.03	111	293	Average
5500	101.22	101.19			31.6	5.46	37.03	111	293	Peak
5725	54.61	54.49	68.3	-13.69	31.96	5.59	37.43	111	293	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	39.24	39.32	54	-14.76	31.56	5.44	37.08	111	86	Average
5460	55.06	55.14	74	-18.94	31.56	5.44	37.08	111	86	Peak
5470	54.31	54.37	68.3	-13.99	31.57	5.45	37.08	111	86	Peak
5500	95.53	95.5			31.6	5.46	37.03	111	86	Average
5500	104.46	104.43			31.6	5.46	37.03	111	86	Peak
5725	54.88	54.76	68.3	-13.42	31.96	5.59	37.43	111	86	Peak

REMARKS:

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



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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5460	37.96	38.04	54	-16.04	31.56	5.44	37.08	118	290	Average
5460	54.55	54.63	74	-19.45	31.56	5.44	37.08	118	290	Peak
5470	52.97	53.03	68.3	-15.33	31.57	5.45	37.08	118	290	Peak
5580	92.66	92.61			31.71	5.5	37.16	118	290	Average
5580	101.24	101.19			31.71	5.5	37.16	118	290	Peak
5725	54.66	54.54	68.3	-13.64	31.96	5.59	37.43	118	290	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	37.98	38.06	54	-16.02	31.56	5.44	37.08	108	90	Average
5460	53.43	53.51	74	-20.57	31.56	5.44	37.08	108	90	Peak
5470	54.16	54.22	68.3	-14.14	31.57	5.45	37.08	108	90	Peak
5580	95.24	95.19			31.71	5.5	37.16	108	90	Average
5580	104.47	104.42			31.71	5.5	37.16	108	90	Peak
5725	55.96	55.84	68.3	-12.34	31.96	5.59	37.43	108	90	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5460	37.78	37.86	54	-16.22	31.56	5.44	37.08	118	290	Average
5460	55.1	55.18	74	-18.9	31.56	5.44	37.08	118	290	Peak
5470	52.89	52.95	68.3	-15.41	31.57	5.45	37.08	118	290	Peak
5700	92.74	92.67	54			5.57	37.4	118	290	Average
5700	101.41	101.34	74			5.57	37.4	118	290	Peak
5725	56.5	56.38	68.3	-11.8	31.96	5.59	37.43	118	290	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	37.79	37.87	54	-16.21	31.56	5.44	37.08	105	105	Average
5460	53.81	53.89	74	-20.19	31.56	5.44	37.08	105	105	Peak
5470	54.38	54.44	68.3	-13.92	31.57	5.45	37.08	105	105	Peak
5700	95.46	95.39	54			5.57	37.4	105	105	Average
5700	104.52	104.45	74			5.57	37.4	105	105	Peak
5725	54.98	54.86	68.3	-13.32	31.96	5.59	37.43	105	105	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 (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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	37.71	38.42	54	-16.29	31.32	5.29	37.32	118	291	Average
5150	52.78	53.49	74	-21.22	31.32	5.29	37.32	118	291	Peak
5180	87.03	87.71			31.35	5.31	37.34	118	291	Average
5180	95.28	95.96			31.35	5.31	37.34	118	291	Peak
5350	37.89	38.2	54	-16.11	31.48	5.39	37.18	118	291	Average
5350	53.19	53.5	74	-20.81	31.48	5.39	37.18	118	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
5150	37.84	38.55	54	-16.16	31.32	5.29	37.32	101	43	Average
5150	53.52	54.23	74	-20.48	31.32	5.29	37.32	101	43	Peak
5180	94.23	94.91			31.35	5.31	37.34	101	43	Average
5180	102.31	102.99			31.35	5.31	37.34	101	43	Peak
5350	37.71	38.02	54	-16.29	31.48	5.39	37.18	101	43	Average
5350	53.05	53.36	74	-20.95	31.48	5.39	37.18	101	43	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	37.95	38.66	54	-16.05	31.32	5.29	37.32	116	295	Average
5150	56.95	57.66	74	-17.05	31.32	5.29	37.32	116	295	Peak
5220	86.37	87.03			31.37	5.33	37.36	116	295	Average
5220	95.35	96.01			31.37	5.33	37.36	116	295	Peak
5350	38.73	39.04	54	-15.27	31.48	5.39	37.18	116	295	Average
5350	59.51	59.82	74	-14.49	31.48	5.39	37.18	116	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
5150	37.87	38.58	54	-16.13	31.32	5.29	37.32	100	43	Average
5150	57.33	58.04	74	-16.67	31.32	5.29	37.32	100	43	Peak
5220	93.22	93.88			31.37	5.33	37.36	100	43	Average
5220	102.28	102.94			31.37	5.33	37.36	100	43	Peak
5350	39.04	39.35	54	-14.96	31.48	5.39	37.18	100	43	Average
5350	59.81	60.12	74	-14.19	31.48	5.39	37.18	100	43	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	38.16	38.87	54	-15.84	31.32	5.29	37.32	114	293	Average
5150	57.52	58.23	74	-16.48	31.32	5.29	37.32	114	293	Peak
5240	86.15	86.74			31.39	5.34	37.32	114	293	Average
5240	93.46	94.05			31.39	5.34	37.32	114	293	Peak
5350	38.45	38.76	54	-15.55	31.48	5.39	37.18	114	293	Average
5350	58.72	59.03	74	-15.28	31.48	5.39	37.18	114	293	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	38.25	38.96	54	-15.75	31.32	5.29	37.32	100	49	Average
5150	57.5	58.21	74	-16.5	31.32	5.29	37.32	100	49	Peak
5240	92.91	93.5			31.39	5.34	37.32	100	49	Average
5240	102.56	103.15			31.39	5.34	37.32	100	49	Peak
5350	38.81	39.12	54	-15.19	31.48	5.39	37.18	100	49	Average
5350	58.16	58.47	74	-15.84	31.48	5.39	37.18	100	49	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	37.94	38.65	54	-16.06	31.32	5.29	37.32	116	291	Average
5150	56.99	57.7	74	-17.01	31.32	5.29	37.32	116	291	Peak
5260	85.12	85.64			31.41	5.34	37.27	116	291	Average
5260	93.78	94.3			31.41	5.34	37.27	116	291	Peak
5350	38.51	38.82	54	-15.49	31.48	5.39	37.18	116	291	Average
5350	57.61	57.92	74	-16.39	31.48	5.39	37.18	116	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
5150	38.1	38.81	54	-15.9	31.32	5.29	37.32	100	48	Average
5150	57.47	58.18	74	-16.53	31.32	5.29	37.32	100	48	Peak
5260	92.56	93.08			31.41	5.34	37.27	100	48	Average
5260	100.43	100.95			31.41	5.34	37.27	100	48	Peak
5350	38.88	39.19	54	-15.12	31.48	5.39	37.18	100	48	Average
5350	57.12	57.43	74	-16.88	31.48	5.39	37.18	100	48	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	38.01	38.72	54	-15.99	31.32	5.29	37.32	113	296	Average
5150	57.87	58.58	74	-16.13	31.32	5.29	37.32	113	296	Peak
5300	85.16	85.54			31.44	5.37	37.19	113	296	Average
5300	93.28	93.66			31.44	5.37	37.19	113	296	Peak
5350	38.52	38.83	54	-15.48	31.48	5.39	37.18	113	296	Average
5350	57.42	57.73	74	-16.58	31.48	5.39	37.18	113	296	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	37.94	38.65	54	-16.06	31.32	5.29	37.32	100	48	Average
5150	57.04	57.75	74	-16.96	31.32	5.29	37.32	100	48	Peak
5300	92.32	92.7			31.44	5.37	37.19	100	48	Average
5300	100.57	100.95			31.44	5.37	37.19	100	48	Peak
5350	38.76	39.07	54	-15.24	31.48	5.39	37.18	100	48	Average
5350	56.68	56.99	74	-17.32	31.48	5.39	37.18	100	48	Peak

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	37.84	38.55	54	-16.16	31.32	5.29	37.32	117	291	Average
5150	57.38	58.09	74	-16.62	31.32	5.29	37.32	117	291	Peak
5320	85.33	85.69			31.45	5.38	37.19	117	291	Average
5320	93.56	93.92			31.45	5.38	37.19	117	291	Peak
5350	37.98	38.29	54	-16.02	31.48	5.39	37.18	117	291	Average
5350	58.09	58.4	74	-15.91	31.48	5.39	37.18	117	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
5150	37.84	38.55	54	-16.16	31.32	5.29	37.32	100	35	Average
5150	58.97	59.68	74	-15.03	31.32	5.29	37.32	100	35	Peak
5320	92.54	92.9			31.45	5.38	37.19	100	35	Average
5320	100.32	100.68			31.45	5.38	37.19	100	35	Peak
5350	38.31	38.62	54	-15.69	31.48	5.39	37.18	100	35	Average
5350	57.33	57.64	74	-16.67	31.48	5.39	37.18	100	35	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5460	38.1	38.18	54	-15.9	31.56	5.44	37.08	110	291	Average
5460	58.27	58.35	74	-15.73	31.56	5.44	37.08	110	291	Peak
5470	58.4	58.46	68.3	-9.9	31.57	5.45	37.08	110	291	Peak
5500	91.49	91.46			31.6	5.46	37.03	110	291	Average
5500	100.41	100.38			31.6	5.46	37.03	110	291	Peak
5725	59.13	59.01	68.3	-9.17	31.96	5.59	37.43	110	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
5460	38.67	38.75	54	-15.33	31.56	5.44	37.08	100	86	Average
5460	58.13	58.21	74	-15.87	31.56	5.44	37.08	100	86	Peak
5470	57.38	57.44	68.3	-10.92	31.57	5.45	37.08	100	86	Peak
5500	94.58	94.55			31.6	5.46	37.03	100	86	Average
5500	103.44	103.41			31.6	5.46	37.03	100	86	Peak
5725	58.28	58.16	68.3	-10.02	31.96	5.59	37.43	100	86	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5460	37.95	38.03	54	-16.05	31.56	5.44	37.08	112	291	Average
5460	57.35	57.43	74	-16.65	31.56	5.44	37.08	112	291	Peak
5470	57.55	57.61	68.3	-10.75	31.57	5.45	37.08	112	291	Peak
5580	91.47	91.42			31.71	5.5	37.16	112	291	Average
5580	100.01	99.96			31.71	5.5	37.16	112	291	Peak
5725	59.28	59.16	68.3	-9.02	31.96	5.59	37.43	112	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
5460	38.02	38.1	54	-15.98	31.56	5.44	37.08	100	50	Average
5460	58.36	58.44	74	-15.64	31.56	5.44	37.08	100	50	Peak
5470	58.67	58.73	68.3	-9.63	31.57	5.45	37.08	100	50	Peak
5580	93.92	93.87			31.71	5.5	37.16	100	50	Average
5580	103.18	103.13			31.71	5.5	37.16	100	50	Peak
5725	58.5	58.38	68.3	-9.8	31.96	5.59	37.43	100	50	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5460	38.12	38.2	54	-15.88	31.56	5.44	37.08	110	289	Average
5460	57.36	57.44	74	-16.64	31.56	5.44	37.08	110	289	Peak
5470	58.32	58.38	68.3	-9.98	31.57	5.45	37.08	110	289	Peak
5700	91.67	91.6			31.9	5.57	37.4	110	289	Average
5700	100.77	100.7			31.9	5.57	37.4	110	289	Peak
5725	58.21	58.09	68.3	-10.09	31.96	5.59	37.43	110	289	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	37.98	38.06	54	-16.02	31.56	5.44	37.08	100	52	Average
5460	57.24	57.32	74	-16.76	31.56	5.44	37.08	100	52	Peak
5470	58.24	58.3	68.3	-10.06	31.57	5.45	37.08	100	52	Peak
5700	94.89	94.82			31.9	5.57	37.4	100	52	Average
5700	103.93	103.86			31.9	5.57	37.4	100	52	Peak
5725	57.76	57.64	68.3	-10.54	31.96	5.59	37.43	100	52	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	38.72	39.43	54	-15.28	31.32	5.29	37.32	116	295	Average
5150	53.3	54.01	74	-20.7	31.32	5.29	37.32	116	295	Peak
5190	81.73	82.4			31.35	5.32	37.34	116	295	Average
5190	90.09	90.76			31.35	5.32	37.34	116	295	Peak
5350	38.51	38.82	54	-15.49	31.48	5.39	37.18	116	295	Average
5350	52.85	53.16	74	-21.15	31.48	5.39	37.18	116	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
5150	40.62	41.33	54	-13.38	31.32	5.29	37.32	100	47	Average
5150	54.82	55.53	74	-19.18	31.32	5.29	37.32	100	47	Peak
5190	88.9	89.57			31.35	5.32	37.34	100	47	Average
5190	97.08	97.75			31.35	5.32	37.34	100	47	Peak
5350	39.19	39.5	54	-14.81	31.48	5.39	37.18	100	47	Average
5350	54.28	54.59	74	-19.72	31.48	5.39	37.18	100	47	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	37.84	38.55	54	-16.16	31.32	5.29	37.32	116	296	Average
5150	53.05	53.76	74	-20.95	31.32	5.29	37.32	116	296	Peak
5230	82.42	83.02			31.39	5.33	37.32	116	296	Average
5230	91.12	91.72			31.39	5.33	37.32	116	296	Peak
5350	38.66	38.97	54	-15.34	31.48	5.39	37.18	116	296	Average
5350	53.69	54	74	-20.31	31.48	5.39	37.18	116	296	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	38.39	39.1	54	-15.61	31.32	5.29	37.32	100	49	Average
5150	55.08	55.79	74	-18.92	31.32	5.29	37.32	100	49	Peak
5230	89.51	90.11			31.39	5.33	37.32	100	49	Average
5230	98.05	98.65			31.39	5.33	37.32	100	49	Peak
5350	39.08	39.39	54	-14.92	31.48	5.39	37.18	100	49	Average
5350	53.58	53.89	74	-20.42	31.48	5.39	37.18	100	49	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	38.05	38.76	54	-15.95	31.32	5.29	37.32	114	295	Average
5150	52.83	53.54	74	-21.17	31.32	5.29	37.32	114	295	Peak
5270	81.13	81.64			31.41	5.35	37.27	114	295	Average
5270	90.52	91.03			31.41	5.35	37.27	114	295	Peak
5350	38.67	38.98	54	-15.33	31.48	5.39	37.18	114	295	Average
5350	52.53	52.84	74	-21.47	31.48	5.39	37.18	114	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
5150	37.63	38.34	54	-16.37	31.32	5.29	37.32	100	40	Average
5150	53.3	54.01	74	-20.7	31.32	5.29	37.32	100	40	Peak
5270	88.34	88.85			31.41	5.35	37.27	100	40	Average
5270	97.4	97.91			31.41	5.35	37.27	100	40	Peak
5350	38.03	38.34	54	-15.97	31.48	5.39	37.18	100	40	Average
5350	53.4	53.71	74	-20.6	31.48	5.39	37.18	100	40	Peak

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	37.72	38.43	54	-16.28	31.32	5.29	37.32	115	294	Average
5150	53.97	54.68	74	-20.03	31.32	5.29	37.32	115	294	Peak
5310	80.62	80.99			31.45	5.37	37.19	115	294	Average
5310	90.39	90.76			31.45	5.37	37.19	115	294	Peak
5350	39.97	40.28	54	-14.03	31.48	5.39	37.18	115	294	Average
5350	55.3	55.61	74	-18.7	31.48	5.39	37.18	115	294	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	100	42	Average
5150	53.77	54.48	74	-20.23	31.32	5.29	37.32	100	42	Peak
5310	87.89	88.26			31.45	5.37	37.19	100	42	Average
5310	97.26	97.63			31.45	5.37	37.19	100	42	Peak
5350	41.18	41.49	54	-12.82	31.48	5.39	37.18	100	42	Average
5350	54.93	55.24	74	-19.07	31.48	5.39	37.18	100	42	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5460	40.32	40.4	54	-13.68	31.56	5.44	37.08	118	290	Average
5460	55.63	55.71	74	-18.37	31.56	5.44	37.08	118	290	Peak
5470	57.18	57.24	68.3	-11.12	31.57	5.45	37.08	118	290	Peak
5510	88.05	88.05			31.6	5.46	37.06	118	290	Average
5510	97.6	97.6			31.6	5.46	37.06	118	290	Peak
5725	55.21	55.09	68.3	-13.09	31.96	5.59	37.43	118	290	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	40.92	41	54	-13.08	31.56	5.44	37.08	110	89	Average
5460	57.22	57.3	74	-16.78	31.56	5.44	37.08	110	89	Peak
5470	58.37	58.43	68.3	-9.93	31.57	5.45	37.08	110	89	Peak
5510	90.74	90.74			31.6	5.46	37.06	110	89	Average
5510	100.37	100.37			31.6	5.46	37.06	110	89	Peak
5725	54.91	54.79	68.3	-13.39	31.96	5.59	37.43	110	89	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



A D T

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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5460	37.72	37.8	54	-16.28	31.56	5.44	37.08	108	291	Average
5460	53.09	53.17	74	-20.91	31.56	5.44	37.08	108	291	Peak
5470	54.14	54.2	68.3	-14.16	31.57	5.45	37.08	108	291	Peak
5550	87.97	87.89			31.68	5.49	37.09	108	291	Average
5550	97.08	97			31.68	5.49	37.09	108	291	Peak
5725	54.4	54.28	68.3	-13.9	31.96	5.59	37.43	108	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
5460	37.66	37.74	54	-16.34	31.56	5.44	37.08	109	108	Average
5460	54.38	54.46	74	-19.62	31.56	5.44	37.08	109	108	Peak
5470	53.35	53.41	68.3	-14.95	31.57	5.45	37.08	109	108	Peak
5550	90.82	90.74			31.68	5.49	37.09	109	108	Average
5550	100.39	100.31			31.68	5.49	37.09	109	108	Peak
5725	54.27	54.15	68.3	-14.03	31.96	5.59	37.43	109	108	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5460	37.69	37.77	54	-16.31	31.56	5.44	37.08	110	287	Average
5460	54.14	54.22	74	-19.86	31.56	5.44	37.08	110	287	Peak
5470	54.8	54.86	68.3	-13.5	31.57	5.45	37.08	110	287	Peak
5670	88.1	88			31.88	5.56	37.34	110	287	Average
5670	97.14	97.04			31.88	5.56	37.34	110	287	Peak
5725	54.26	54.14	68.3	-14.04	31.96	5.59	37.43	110	287	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	37.88	37.96	54	-16.12	31.56	5.44	37.08	108	105	Average
5460	54.93	55.01	74	-19.07	31.56	5.44	37.08	108	105	Peak
5470	53.37	53.43	68.3	-14.93	31.57	5.45	37.08	108	105	Peak
5670	91.06	90.96			31.88	5.56	37.34	108	105	Average
5670	100.23	100.13			31.88	5.56	37.34	108	105	Peak
5725	54.93	54.81	68.3	-13.37	31.96	5.59	37.43	108	105	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

BELOW 1GHz WORST-CASE DATA:

802.11n (40MHz)

Band 1

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Quasi-peak (QP)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
64.56	12.71	32.09	40	-27.29	11.35	0.86	31.59	100	106	Peak
144.75	13.83	31.63	43.5	-29.67	12.51	1.32	31.63	100	254	Peak
209.01	17.53	37.73	43.5	-25.97	9.77	1.64	31.61	100	53	Peak
345.5	16.96	32.55	46	-29.04	14.03	2.21	31.83	100	313	Peak
429.5	19.3	32.84	46	-26.7	15.93	2.54	32.01	100	117	Peak
776	25.37	31.22	46	-20.63	21.89	3.64	31.38	100	203	Peak
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
30.16	30.98	49.57	40	-9.02	11.98	0.57	31.14	100	41	QP
107.76	13.87	34.81	43.5	-29.63	9.81	1.11	31.86	100	268	Peak
231.15	20.73	40.18	46	-25.27	10.66	1.74	31.85	100	178	Peak
321	16.3	32.6	46	-29.7	13.45	2.13	31.88	100	228	Peak
407.1	18.78	32.88	46	-27.22	15.48	2.45	32.03	100	230	Peak
720	24.23	31.31	46	-21.77	21.09	3.49	31.66	100	195	Peak

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

Margin value = Emission level – Limit value

802.11n (40MHz)

Band 2

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 62	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Quasi-peak (QP)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
41.61	13.75	30.56	40	-26.25	13.56	0.68	31.05	100	71	Peak
175.53	15.75	34.88	43.5	-27.75	11.19	1.47	31.79	100	256	Peak
269.76	22.39	40.46	46	-23.61	12.05	1.91	32.03	121	169	Peak
374.2	18.76	33.64	46	-27.24	14.73	2.32	31.93	100	202	Peak
568.1	22.54	32.74	46	-23.46	18.88	3	32.08	100	287	Peak
694.8	23.92	31.58	46	-22.08	20.75	3.41	31.82	100	118	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
30.22	30.62	49.21	40	-9.38	11.98	0.57	31.14	100	221	QP
176.07	16.83	36.05	43.5	-26.67	11.1	1.48	31.8	100	10	Peak
260.31	20.09	38.31	46	-25.91	11.77	1.86	31.85	100	185	Peak
360.2	17.18	32.5	46	-28.82	14.38	2.27	31.97	100	110	Peak
573.7	24.4	34.47	46	-21.6	19.01	3.02	32.1	100	227	Peak
840.4	27.48	32.75	46	-18.52	22.74	3.79	31.8	100	235	Peak

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

Margin value = Emission level – Limit value

802.11n (40MHz)

Band 3

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 102	FREQUENCY RANGE	30MHz ~ 1GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Quasi-peak (QP)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH	TESTED BY	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
50.52	19.35	36.92	40	-20.65	12.97	0.77	31.31	100	284	Peak
172.29	20.96	39.79	43.5	-22.54	11.47	1.46	31.76	100	267	Peak
241.41	23.99	42.89	46	-22.01	11.11	1.8	31.81	100	100	Peak
356.7	20.18	35.55	46	-25.82	14.31	2.25	31.93	100	195	Peak
599.6	28.68	38.24	46	-17.32	19.59	3.09	32.24	100	80	Peak
773.9	25.88	31.74	46	-20.12	21.86	3.63	31.35	100	324	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	30.71	49.12	40	-9.29	12.14	0.57	31.12	100	12	QP
51.33	21.25	38.92	40	-18.75	12.87	0.77	31.31	100	116	Peak
216.3	20.66	40.6	46	-25.34	10.05	1.67	31.66	100	75	Peak
330.1	17.8	33.79	46	-28.2	13.66	2.16	31.81	100	252	Peak
544.3	23.46	34.02	46	-22.54	18.33	2.93	31.82	100	108	Peak
784.4	25.33	31.08	46	-20.67	22.01	3.66	31.42	100	53	Peak

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

Margin value = Emission level – Limit value

MODE B

ABOVE 1GHz WORST-CASE DATA

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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	37.48	38.19	54	-16.52	31.32	5.29	37.32	100	197	Average
5150	52.08	52.79	74	-21.92	31.32	5.29	37.32	100	197	Peak
5180	89.86	90.54			31.35	5.31	37.34	100	197	Average
5180	97.99	98.67			31.35	5.31	37.34	100	197	Peak
5350	37.8	38.11	54	-16.2	31.48	5.39	37.18	100	197	Average
5350	54.47	54.78	74	-19.53	31.48	5.39	37.18	100	197	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	37.64	38.35	54	-16.36	31.32	5.29	37.32	100	53	Average
5150	54.54	55.25	74	-19.46	31.32	5.29	37.32	100	53	Peak
5180	92.54	93.22			31.35	5.31	37.34	100	53	Average
5180	101.14	101.82			31.35	5.31	37.34	100	53	Peak
5350	37.82	38.13	54	-16.18	31.48	5.39	37.18	100	53	Average
5350	52.96	53.27	74	-21.04	31.48	5.39	37.18	100	53	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	37.57	38.28	54	-16.43	31.32	5.29	37.32	100	198	Average
5150	53.46	54.17	74	-20.54	31.32	5.29	37.32	100	198	Peak
5220	89.63	90.29			31.37	5.33	37.36	100	198	Average
5220	97.65	98.31			31.37	5.33	37.36	100	198	Peak
5350	37.69	38	54	-16.31	31.48	5.39	37.18	100	198	Average
5350	54.11	54.42	74	-19.89	31.48	5.39	37.18	100	198	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	37.45	38.16	54	-16.55	31.32	5.29	37.32	100	38	Average
5150	52.94	53.65	74	-21.06	31.32	5.29	37.32	100	38	Peak
5220	92.76	93.42			31.37	5.33	37.36	100	38	Average
5220	101.79	102.45			31.37	5.33	37.36	100	38	Peak
5350	37.82	38.13	54	-16.18	31.48	5.39	37.18	100	38	Average
5350	52.96	53.27	74	-21.04	31.48	5.39	37.18	100	38	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	37.47	38.18	54	-16.53	31.32	5.29	37.32	100	198	Average
5150	54.33	55.04	74	-19.67	31.32	5.29	37.32	100	198	Peak
5240	89.52	90.11			31.39	5.34	37.32	100	198	Average
5240	97.62	98.21			31.39	5.34	37.32	100	198	Peak
5350	37.82	38.13	54	-16.18	31.48	5.39	37.18	100	198	Average
5350	55.05	55.36	74	-18.95	31.48	5.39	37.18	100	198	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	39	Average
5150	52.74	53.45	74	-21.26	31.32	5.29	37.32	100	39	Peak
5240	92.69	93.28			31.39	5.34	37.32	100	39	Average
5240	101.21	101.8			31.39	5.34	37.32	100	39	Peak
5350	37.69	38	54	-16.31	31.48	5.39	37.18	100	39	Average
5350	53.79	54.1	74	-20.21	31.48	5.39	37.18	100	39	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	37.55	38.26	54	-16.45	31.32	5.29	37.32	108	192	Average
5150	58.04	58.75	74	-15.96	31.32	5.29	37.32	108	192	Peak
5260	93.11	93.63			31.41	5.34	37.27	108	192	Average
5260	100.73	101.25			31.41	5.34	37.27	108	192	Peak
5350	37.68	37.99	54	-16.32	31.48	5.39	37.18	108	192	Average
5350	57.59	57.9	74	-16.41	31.48	5.39	37.18	108	192	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	37.55	38.26	54	-16.45	31.32	5.29	37.32	100	38	Average
5150	56.54	57.25	74	-17.46	31.32	5.29	37.32	100	38	Peak
5260	96.91	97.43			31.41	5.34	37.27	100	38	Average
5260	104.77	105.29			31.41	5.34	37.27	100	38	Peak
5350	37.83	38.14	54	-16.17	31.48	5.39	37.18	100	38	Average
5350	58.01	58.32	74	-15.99	31.48	5.39	37.18	100	38	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	37.52	38.23	54	-16.48	31.32	5.29	37.32	108	192	Average
5150	57.7	58.41	74	-16.3	31.32	5.29	37.32	108	192	Peak
5300	92.96	93.34			31.44	5.37	37.19	108	192	Average
5300	100.95	101.33			31.44	5.37	37.19	108	192	Peak
5350	37.8	38.11	54	-16.2	31.48	5.39	37.18	108	192	Average
5350	57.9	58.21	74	-16.1	31.48	5.39	37.18	108	192	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	37.48	38.19	54	-16.52	31.32	5.29	37.32	100	32	Average
5150	58.13	58.84	74	-15.87	31.32	5.29	37.32	100	32	Peak
5300	97.03	97.41			31.44	5.37	37.19	100	32	Average
5300	105.04	105.42			31.44	5.37	37.19	100	32	Peak
5350	37.8	38.11	54	-16.2	31.48	5.39	37.18	100	32	Average
5350	57.01	57.32	74	-16.99	31.48	5.39	37.18	100	32	Peak

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	37.47	38.18	54	-16.53	31.32	5.29	37.32	100	183	Average
5150	58.09	58.8	74	-15.91	31.32	5.29	37.32	100	183	Peak
5320	92.89	93.25			31.45	5.38	37.19	100	183	Average
5320	100.9	101.26			31.45	5.38	37.19	100	183	Peak
5350	37.79	38.1	54	-16.21	31.48	5.39	37.18	100	183	Average
5350	57.14	57.45	74	-16.86	31.48	5.39	37.18	100	183	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	37.52	38.23	54	-16.48	31.32	5.29	37.32	100	35	Average
5150	57.03	57.74	74	-16.97	31.32	5.29	37.32	100	35	Peak
5320	97.04	97.4			31.45	5.38	37.19	100	35	Average
5320	104.87	105.23			31.45	5.38	37.19	100	35	Peak
5350	38.07	38.38	54	-15.93	31.48	5.39	37.18	100	35	Average
5350	58.03	58.34	74	-15.97	31.48	5.39	37.18	100	35	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5460	37.96	38.04	54	-16.04	31.56	5.44	37.08	100	292	Average
5460	56.98	57.06	74	-17.02	31.56	5.44	37.08	100	292	Peak
5470	56.94	57	68.3	-11.36	31.57	5.45	37.08	100	292	Peak
5500	94.14	94.11			31.6	5.46	37.03	100	292	Average
5500	102.11	102.08			31.6	5.46	37.03	100	292	Peak
5725	60.16	60.04	68.3	-8.14	31.96	5.59	37.43	100	292	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	37.93	38.01	54	-16.07	31.56	5.44	37.08	100	92	Average
5460	59.83	59.91	74	-14.17	31.56	5.44	37.08	100	92	Peak
5470	59.14	59.2	68.3	-9.16	31.57	5.45	37.08	100	92	Peak
5500	97.65	97.62			31.6	5.46	37.03	100	92	Average
5500	106.15	106.12			31.6	5.46	37.03	100	92	Peak
5725	58.24	58.12	68.3	-10.06	31.96	5.59	37.43	100	92	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5460	37.86	37.94	54	-16.14	31.56	5.44	37.08	100	187	Average
5460	58.48	58.56	74	-15.52	31.56	5.44	37.08	100	187	Peak
5470	57.33	57.39	68.3	-10.97	31.57	5.45	37.08	100	187	Peak
5580	93.57	93.52			31.71	5.5	37.16	100	187	Average
5580	102.39	102.34			31.71	5.5	37.16	100	187	Peak
5725	58.77	58.65	68.3	-9.53	31.96	5.59	37.43	100	187	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	37.95	38.03	54	-16.05	31.56	5.44	37.08	118	90	Average
5460	58.86	58.94	74	-15.14	31.56	5.44	37.08	118	90	Peak
5470	57.54	57.6	68.3	-10.76	31.57	5.45	37.08	118	90	Peak
5580	97.44	97.39			31.71	5.5	37.16	118	90	Average
5580	106.1	106.05			31.71	5.5	37.16	118	90	Peak
5725	58.88	58.76	68.3	-9.42	31.96	5.59	37.43	118	90	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5460	37.93	38.01	54	-16.07	31.56	5.44	37.08	100	187	Average
5460	57.13	57.21	74	-16.87	31.56	5.44	37.08	100	187	Peak
5470	58.48	58.54	68.3	-9.82	31.57	5.45	37.08	100	187	Peak
5700	94	93.93			31.9	5.57	37.4	100	187	Average
5700	102.15	102.08			31.9	5.57	37.4	100	187	Peak
5725	58.62	58.5	68.3	-9.68	31.96	5.59	37.43	100	187	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	37.88	37.96	54	-16.12	31.56	5.44	37.08	100	145	Average
5460	57.09	57.17	74	-16.91	31.56	5.44	37.08	100	145	Peak
5470	58.59	58.65	68.3	-9.71	31.57	5.45	37.08	100	145	Peak
5700	97.51	97.44			31.9	5.57	37.4	100	145	Average
5700	105.69	105.62			31.9	5.57	37.4	100	145	Peak
5725	59.85	59.73	68.3	-8.45	31.96	5.59	37.43	100	145	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	41.23	41.94	54	-12.77	31.32	5.29	37.32	111	196	Average
5150	53.96	54.67	74	-20.04	31.32	5.29	37.32	111	196	Peak
5190	86.59	87.26			31.35	5.32	37.34	111	196	Average
5190	94.49	95.16			31.35	5.32	37.34	111	196	Peak
5350	38.93	39.24	54	-15.07	31.48	5.39	37.18	111	196	Average
5350	54.38	54.69	74	-19.62	31.48	5.39	37.18	111	196	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	41.89	42.6	54	-12.11	31.32	5.29	37.32	100	50	Average
5150	54.43	55.14	74	-19.57	31.32	5.29	37.32	100	50	Peak
5190	89.57	90.24			31.35	5.32	37.34	100	50	Average
5190	97.42	98.09			31.35	5.32	37.34	100	50	Peak
5350	37.8	38.11	54	-16.2	31.48	5.39	37.18	100	50	Average
5350	53.67	53.98	74	-20.33	31.48	5.39	37.18	100	50	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	37.49	38.2	54	-16.51	31.32	5.29	37.32	111	196	Average
5150	51.91	52.62	74	-22.09	31.32	5.29	37.32	111	196	Peak
5230	86.53	87.13			31.39	5.33	37.32	111	196	Average
5230	95.07	95.67			31.39	5.33	37.32	111	196	Peak
5350	37.8	38.11	54	-16.2	31.48	5.39	37.18	111	196	Average
5350	52.75	53.06	74	-21.25	31.48	5.39	37.18	111	196	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	37.46	38.17	54	-16.54	31.32	5.29	37.32	100	31	Average
5150	53.66	54.37	74	-20.34	31.32	5.29	37.32	100	31	Peak
5230	89.56	90.16			31.39	5.33	37.32	100	31	Average
5230	98.01	98.61			31.39	5.33	37.32	100	31	Peak
5350	37.79	38.1	54	-16.21	31.48	5.39	37.18	100	31	Average
5350	52.99	53.3	74	-21.01	31.48	5.39	37.18	100	31	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	37.47	38.18	54	-16.53	31.32	5.29	37.32	100	195	Average
5150	52.97	53.68	74	-21.03	31.32	5.29	37.32	100	195	Peak
5270	86.73	87.24			31.41	5.35	37.27	100	195	Average
5270	95.32	95.83			31.41	5.35	37.27	100	195	Peak
5350	37.79	38.1	54	-16.21	31.48	5.39	37.18	100	195	Average
5350	52.28	52.59	74	-21.72	31.48	5.39	37.18	100	195	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	37.47	38.18	54	-16.53	31.32	5.29	37.32	100	31	Average
5150	53.68	54.39	74	-20.32	31.32	5.29	37.32	100	31	Peak
5270	90.84	91.35			31.41	5.35	37.27	100	31	Average
5270	99.45	99.96			31.41	5.35	37.27	100	31	Peak
5350	37.84	38.15	54	-16.16	31.48	5.39	37.18	100	31	Average
5350	55.06	55.37	74	-18.94	31.48	5.39	37.18	100	31	Peak

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5150	37.47	38.18	54	-16.53	31.32	5.29	37.32	100	166	Average
5150	54.08	54.79	74	-19.92	31.32	5.29	37.32	100	166	Peak
5310	87.96	88.33			31.45	5.37	37.19	100	166	Average
5310	95.49	95.86			31.45	5.37	37.19	100	166	Peak
5350	41.03	41.34	54	-12.97	31.48	5.39	37.18	100	166	Average
5350	55.32	55.63	74	-18.68	31.48	5.39	37.18	100	166	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	37.46	38.17	54	-16.54	31.32	5.29	37.32	100	31	Average
5150	52.48	53.19	74	-21.52	31.32	5.29	37.32	100	31	Peak
5310	91.76	92.13			31.45	5.37	37.19	100	31	Average
5310	99.67	100.04			31.45	5.37	37.19	100	31	Peak
5350	42.19	42.5	54	-11.81	31.48	5.39	37.18	100	31	Average
5350	54.64	54.95	74	-19.36	31.48	5.39	37.18	100	31	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5460	41.21	41.29	54	-12.79	31.56	5.44	37.08	121	351	Average
5460	55.14	55.22	74	-18.86	31.56	5.44	37.08	121	351	Peak
5470	56.84	56.9	68.3	-11.46	31.57	5.45	37.08	121	351	Peak
5510	89.43	89.43			31.6	5.46	37.06	121	351	Average
5510	96.93	96.93			31.6	5.46	37.06	121	351	Peak
5725	53.75	53.63	68.3	-14.55	31.96	5.59	37.43	121	351	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	44.21	44.29	54	-9.79	31.56	5.44	37.08	100	90	Average
5460	56.77	56.85	74	-17.23	31.56	5.44	37.08	100	90	Peak
5470	58.44	58.5	68.3	-9.86	31.57	5.45	37.08	100	90	Peak
5510	93.04	93.04			31.6	5.46	37.06	100	90	Average
5510	101.34	101.34			31.6	5.46	37.06	100	90	Peak
5725	55.2	55.08	68.3	-13.1	31.96	5.59	37.43	100	90	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5460	37.85	37.93	54	-16.15	31.56	5.44	37.08	121	351	Average
5460	52.63	52.71	74	-21.37	31.56	5.44	37.08	121	351	Peak
5470	52.94	53	68.3	-15.36	31.57	5.45	37.08	121	351	Peak
5550	89.37	89.29			31.68	5.49	37.09	121	351	Average
5550	96.86	96.78			31.68	5.49	37.09	121	351	Peak
5725	55.39	55.27	68.3	-12.91	31.96	5.59	37.43	121	351	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	37.96	38.04	54	-16.04	31.56	5.44	37.08	100	90	Average
5460	54.47	54.55	74	-19.53	31.56	5.44	37.08	100	90	Peak
5470	54.59	54.65	68.3	-13.71	31.57	5.45	37.08	100	90	Peak
5550	93.14	93.06			31.68	5.49	37.09	100	90	Average
5550	101.24	101.16			31.68	5.49	37.09	100	90	Peak
5725	54.42	54.3	68.3	-13.88	31.96	5.59	37.43	100	90	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	Peter Weng

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	READ LEVEL (dBuV)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA FACTOR (dB/m)	CABLE LOSS (dB)	PREAMP FACTOR (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	REMARK
5460	37.81	37.89	54	-16.19	31.56	5.44	37.08	121	351	Average
5460	53.57	53.65	74	-20.43	31.56	5.44	37.08	121	351	Peak
5470	52.95	53.01	68.3	-15.35	31.57	5.45	37.08	121	351	Peak
5670	89.32	89.22			31.88	5.56	37.34	121	351	Average
5670	96.75	96.65			31.88	5.56	37.34	121	351	Peak
5725	54.21	54.09	68.3	-14.09	31.96	5.59	37.43	121	351	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	37.85	37.93	54	-16.15	31.56	5.44	37.08	118	105	Average
5460	53.73	53.81	74	-20.27	31.56	5.44	37.08	118	105	Peak
5470	54.24	54.3	68.3	-14.06	31.57	5.45	37.08	118	105	Peak
5670	93.21	93.11			31.88	5.56	37.34	118	105	Average
5670	101.59	101.49			31.88	5.56	37.34	118	105	Peak
5725	54.74	54.62	68.3	-13.56	31.96	5.59	37.43	118	105	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

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	Nov. 17, 2013	Nov. 16, 2014
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. Tested Date: Mar. 28, 2014

4.2.3 TEST PROCEDURES

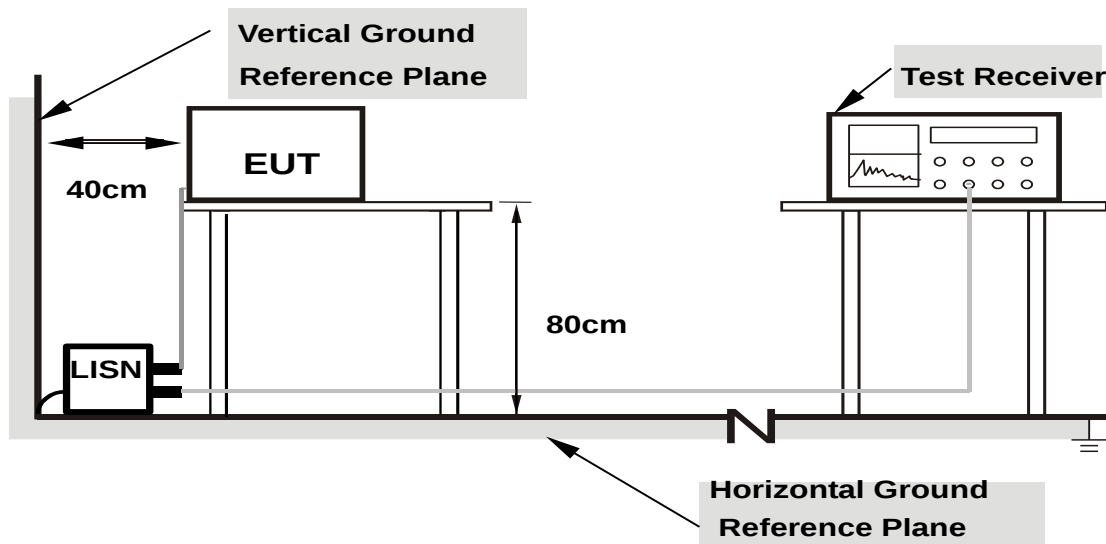
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling 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 4.1.6

4.2.7 TEST RESULTS

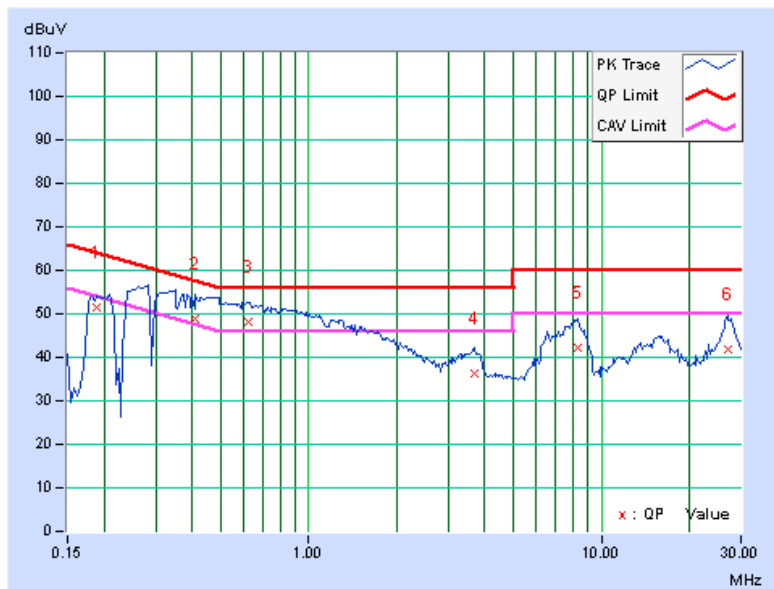
CONDUCTED WORST-CASE DATA :

PHASE	Line 1	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18906	0.28	51.19	36.99	51.47	37.27	64.08	54.08	-12.61	-16.81
2	0.41172	0.30	48.66	30.95	48.96	31.25	57.61	47.61	-8.65	-16.36
3	0.61875	0.31	47.86	31.03	48.17	31.34	56.00	46.00	-7.83	-14.66
4	3.66406	0.42	35.78	25.03	36.20	25.45	56.00	46.00	-19.80	-20.55
5	8.33203	0.48	41.89	31.02	42.37	31.50	60.00	50.00	-17.63	-18.50
6	26.96094	0.50	41.32	31.99	41.82	32.49	60.00	50.00	-18.18	-17.51

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

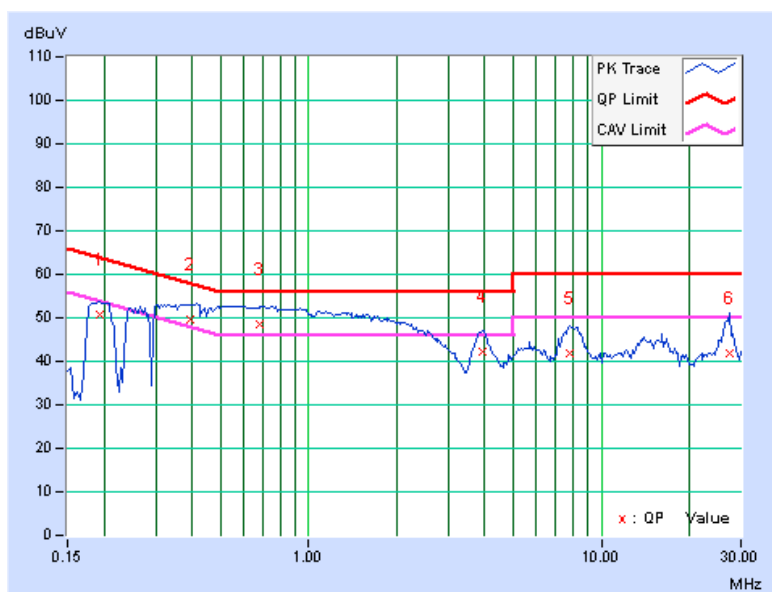


PHASE	Line 2	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.19297	0.28	50.54	34.98	50.82	35.26	63.91	53.91	-13.09	-18.65
2	0.39219	0.30	49.46	30.39	49.76	30.69	58.02	48.02	-8.26	-17.33
3	0.68125	0.32	48.17	31.81	48.49	32.13	56.00	46.00	-7.51	-13.87
4	3.92578	0.44	41.90	34.49	42.34	34.93	56.00	46.00	-13.66	-11.07
5	7.79297	0.49	41.25	32.93	41.74	33.42	60.00	50.00	-18.26	-16.58
6	27.37109	0.51	41.16	32.49	41.67	33.00	60.00	50.00	-18.33	-17.00

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

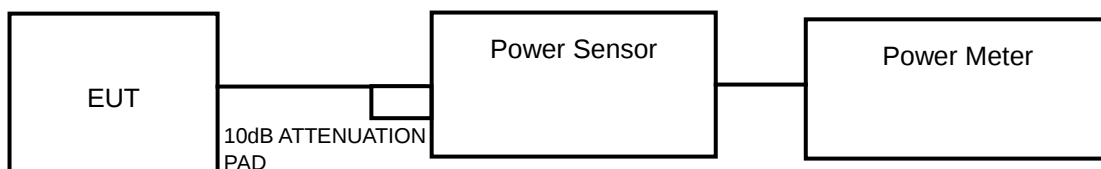
4.3.1 LIMITS OF PEAK TRANSMIT POWER MEASUREMENT

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

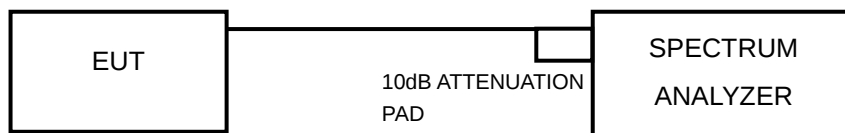
NOTE: Where B is the 26dB emission bandwidth in MHz.

4.3.2 TEST SETUP

FOR POWER OUTPUT MEASUREMENT



FOR 26dB BANDWIDTH



4.3.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

4.3.4 TEST PROCEDURE

FOR AVERAGE POWER MEASUREMENT

<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.

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

MODE A

POWER OUTPUT

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	5.50	7.40	17	PASS
44	5220	7.24	8.60	17	PASS
48	5240	8.36	9.22	17	PASS
52	5260	8.61	9.35	24	PASS
60	5300	8.57	9.33	24	PASS
64	5320	7.78	8.91	24	PASS
100	5500	12.05	10.81	24	PASS
116	5580	10.62	10.26	24	PASS
140	5700	8.53	9.31	24	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	6.19	7.92	17	PASS
44	5220	6.55	8.16	17	PASS
48	5240	7.46	8.73	17	PASS
52	5260	7.67	8.85	24	PASS
60	5300	7.16	8.55	24	PASS
64	5320	7.10	8.51	24	PASS
100	5500	10.50	10.21	24	PASS
116	5580	10.89	10.37	24	PASS
140	5700	7.55	8.78	24	PASS

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (mW)	AVERAGE POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
38	5190	6.52	8.14	17	PASS
46	5230	8.38	9.23	17	PASS
54	5270	9.18	9.63	24	PASS
62	5310	9.40	9.73	24	PASS
102	5510	13.27	11.23	24	PASS
110	5550	11.80	10.72	24	PASS
134	5670	10.50	10.21	24	PASS

MODE B

POWER OUTPUT

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
		CHAIN 0	CHAIN 1				
36	5180	6.68	7.41	10.16	10.07	17	PASS
44	5220	7.58	8.45	12.73	11.05	17	PASS
48	5240	7.46	8.83	13.21	11.21	17	PASS
52	5260	7.70	8.97	13.78	11.39	24	PASS
60	5300	8.08	8.89	14.17	11.51	24	PASS
64	5320	8.52	9.31	15.64	11.94	24	PASS
100	5500	10.53	10.65	22.91	13.60	24	PASS
116	5580	9.91	10.65	21.41	13.31	24	PASS
140	5700	9.19	10.08	18.48	12.67	24	PASS

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	AVERAGE POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
		CHAIN 0	CHAIN 1				
38	5190	7.49	7.60	11.36	10.56	17	PASS
46	5230	8.19	9.28	15.06	11.78	17	PASS
54	5270	8.39	9.64	16.11	12.07	24	PASS
62	5310	8.98	9.70	17.24	12.37	24	PASS
102	5510	10.94	10.87	24.63	13.92	24	PASS
110	5550	11.16	10.85	25.22	14.02	24	PASS
134	5670	9.55	9.97	18.95	12.78	24	PASS

MODE A

26dB BANDWIDTH

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
36	5180	19.94	PASS
44	5220	19.92	PASS
48	5240	19.91	PASS
52	5260	19.94	PASS
60	5300	19.96	PASS
64	5320	19.98	PASS
100	5500	19.93	PASS
116	5580	19.97	PASS
140	5700	19.94	PASS

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
36	5180	21.73	PASS
44	5220	21.68	PASS
48	5240	21.66	PASS
52	5260	21.68	PASS
60	5300	21.74	PASS
64	5320	21.75	PASS
100	5500	21.76	PASS
116	5580	21.73	PASS
140	5700	21.71	PASS

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
38	5190	44.13	PASS
46	5230	44.09	PASS
54	5270	44.42	PASS
62	5310	44.39	PASS
102	5510	45.10	PASS
110	5550	44.98	PASS
134	5670	44.51	PASS

MODE B

26dB BANDWIDTH

802.11n (20MHz)

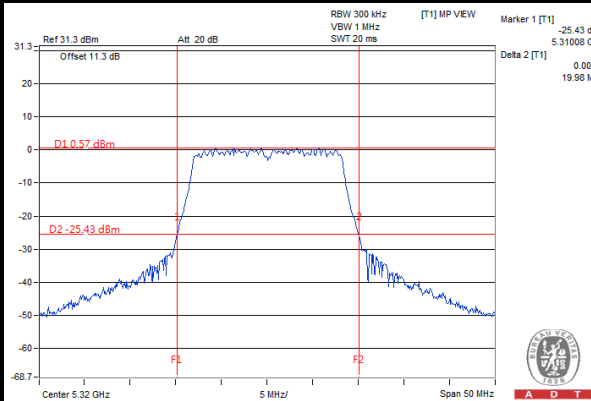
CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
36	5180	22.61	21.11	PASS
44	5220	22.93	22.13	PASS
48	5240	22.82	22.03	PASS
52	5260	22.62	21.36	PASS
60	5300	22.66	22.04	PASS
64	5320	22.67	21.81	PASS
100	5500	22.40	21.57	PASS
116	5580	22.24	21.47	PASS
140	5700	22.79	21.85	PASS

802.11n (40MHz)

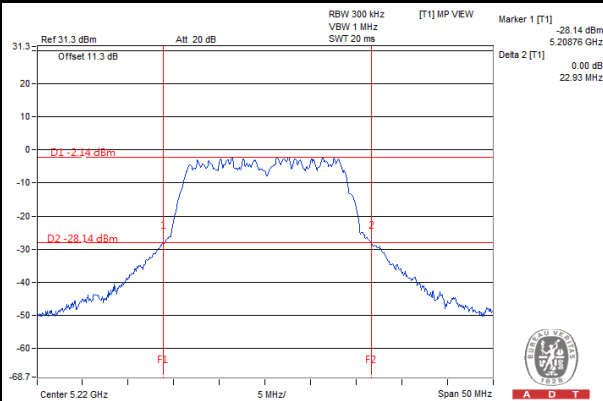
CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
38	5190	43.27	44.69	PASS
46	5230	42.92	44.53	PASS
54	5270	42.84	44.47	PASS
62	5310	42.96	44.83	PASS
102	5510	43.63	44.32	PASS
110	5550	43.23	44.77	PASS
134	5670	43.00	44.59	PASS

SPECTRUM PLOT OF WORST VALUE

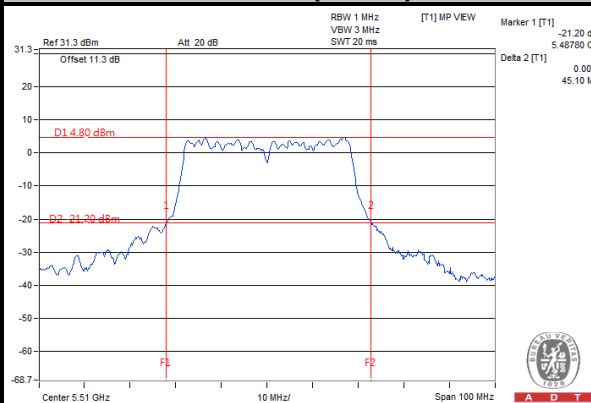
802.11a



802.11n (20MHz)



802.11n (40MHz)

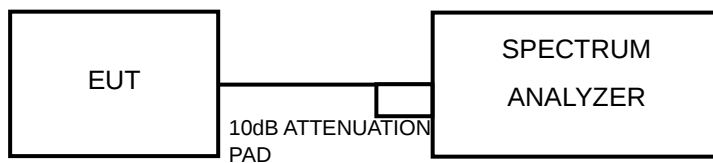


4.4 PEAK POWER SPECTRAL DENSITY MEASUREMENT

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)>

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	-3.23	0	-3.23	4	PASS
44	5220	-3.36	0	-3.36	4	PASS
48	5240	-2.78	0	-2.78	4	PASS
52	5260	-2.38	0	-2.38	11	PASS
60	5300	-2.33	0	-2.33	11	PASS
64	5320	-2.34	0	-2.34	11	PASS
100	5500	-0.26	0	-0.26	11	PASS
116	5580	-0.16	0	-0.16	11	PASS
140	5700	-2.21	0	-2.21	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	-3.93	0.17	-3.76	4	PASS
44	5220	-3.11	0.17	-2.94	4	PASS
48	5240	-2.45	0.17	-2.28	4	PASS
52	5260	-2.28	0.17	-2.11	11	PASS
60	5300	-1.96	0.17	-1.79	11	PASS
64	5320	-2.07	0.17	-1.90	11	PASS
100	5500	-0.13	0.17	0.04	11	PASS
116	5580	-0.05	0.17	0.12	11	PASS
140	5700	-2.04	0.17	-1.87	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	-5.98	0.61	-5.37	4	PASS
46	5230	-5.19	0.61	-4.58	4	PASS
54	5270	-4.33	0.61	-3.72	11	PASS
62	5310	-4.26	0.61	-3.65	11	PASS
102	5510	-2.58	0.61	-1.97	11	PASS
110	5550	-2.85	0.61	-2.24	11	PASS
134	5670	-4.23	0.61	-3.62	11	PASS

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

MODE B

802.11n (20MHz)

CH.	FREQUENCY (MHz)	PSD (dBm)		TOTAL PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	TOTAL PSD WITH DUTY FACTOR (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
		CHAIN 0	CHAIN 1					
36	5180	-5.01	-4.15	-1.55	0.20	-1.35	4	PASS
44	5220	-3.70	-2.55	-0.08	0.20	0.12	4	PASS
48	5240	-3.06	-2.43	0.27	0.20	0.47	4	PASS
52	5260	-2.74	-1.75	0.79	0.20	0.99	11	PASS
60	5300	-2.14	-1.86	1.01	0.20	1.21	11	PASS
64	5320	-2.18	-1.87	0.98	0.20	1.18	11	PASS
100	5500	-1.66	-0.12	2.18	0.20	2.38	11	PASS
116	5580	0.22	0.29	3.26	0.20	3.46	11	PASS
140	5700	-2.11	-1.63	1.14	0.20	1.34	11	PASS

NOTE:

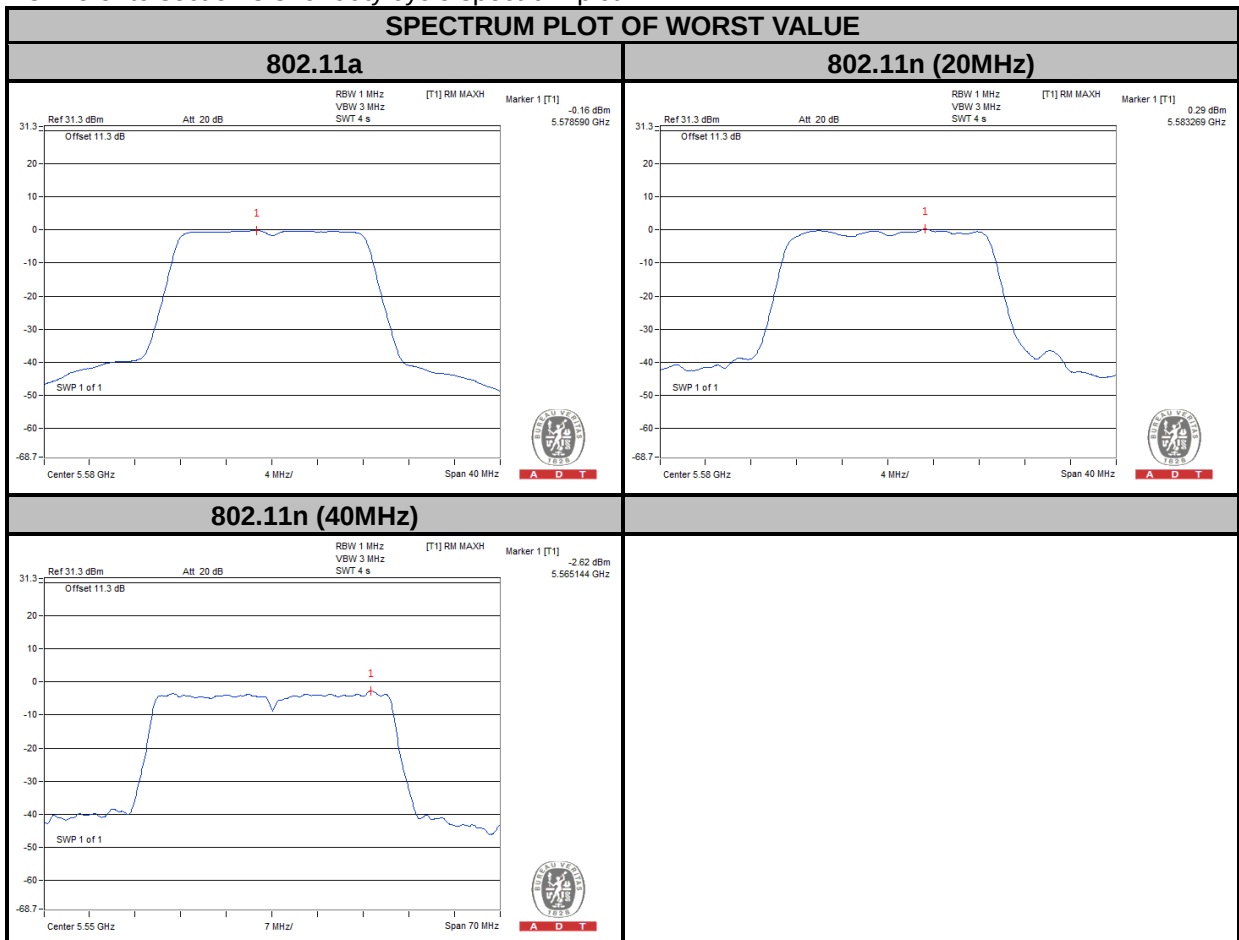
- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- 5180 ~ 5320MHz:
Directional gain = $1.54\text{dBi} + 10\log(2) = 4.55 < 6\text{dBi}$, so the limit no need to reduced.
5500 ~ 5700MHz:
Directional gain = $0.5\text{dBi} + 10\log(2) = 3.51 < 6\text{dBi}$, so the limit no need to reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11n (40MHz)

CH.	FREQUENCY (MHz)	PSD (dBm)		TOTAL PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	TOTAL PSD WITH DUTY FACTOR (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
		CHAIN 0	CHAIN 1					
38	5190	-6.34	-7.14	-3.71	0.56	-3.15	4	PASS
46	5230	-5.46	-5.95	-2.68	0.56	-2.12	4	PASS
54	5270	-4.83	-4.69	-1.75	0.56	-1.19	11	PASS
62	5310	-4.41	-4.61	-1.49	0.56	-0.93	11	PASS
102	5510	-2.78	-3.10	0.08	0.56	0.64	11	PASS
110	5550	-2.62	-2.77	0.32	0.56	0.88	11	PASS
134	5670	-4.99	-3.83	-1.36	0.56	-0.80	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.
- 5190 ~ 5310MHz:
Directional gain = $1.54\text{dBi} + 10\log(2) = 4.55 < 6\text{dBi}$, so the limit no need to reduced.
5510 ~ 5670MHz:
Directional gain = $0.5\text{dBi} + 10\log(2) = 3.51 < 6\text{dBi}$, so the limit no need to reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

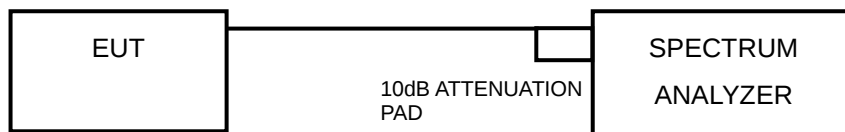


4.5 PEAK POWER EXCURSION MEASUREMENT

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

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	5500	8.17	-0.26	-0.26	8.43	13	PASS
	QPSK		7.47	-0.81	-0.81	8.28	13	PASS
	16QAM		8.69	-0.30	-0.39	8.99	13	PASS
	64QAM		7.64	0.24	0.13	7.40	13	PASS
802.11n (20MHz)	BPSK	5580	7.81	0.05	0.22	7.59	13	PASS
	QPSK		7.34	-0.56	-0.36	7.70	13	PASS
	16QAM		7.80	-0.12	0.08	7.72	13	PASS
	64QAM		7.78	-0.13	0.07	7.71	13	PASS
802.11n (40MHz)	BPSK	5510	4.75	-2.58	-1.97	6.72	13	PASS
	QPSK		3.76	-3.40	-2.80	6.56	13	PASS
	16QAM		4.57	-2.92	-2.31	6.88	13	PASS
	64QAM		5.79	-1.74	-1.15	6.94	13	PASS

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

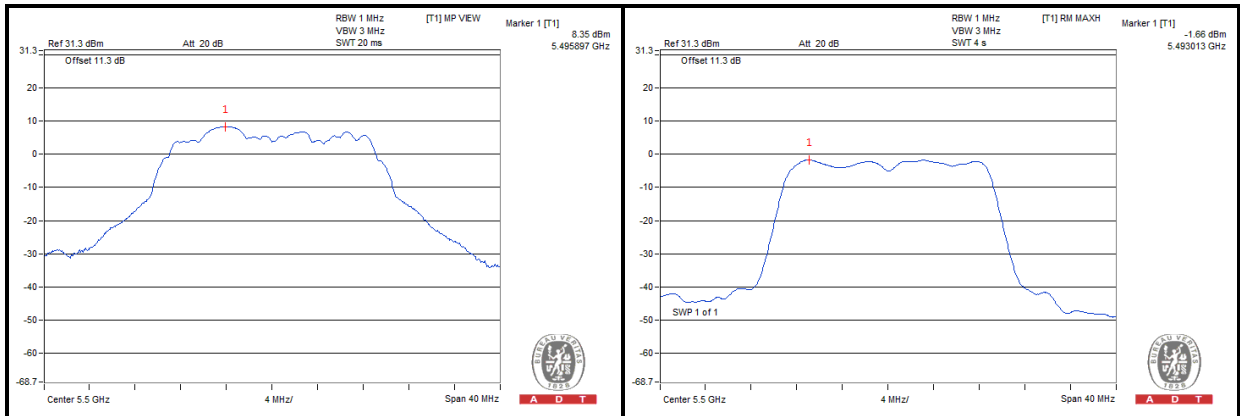
MODE B

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
			CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1		
802.11n (20MHz)	BPSK	5500	8.35	8.32	-1.66	-0.12	-1.46	0.08	9.81	8.24	13	PASS
	QPSK		8.40	8.34	0.58	-0.04	0.78	0.16	7.62	8.18	13	PASS
	16QAM		7.69	8.61	0.23	-0.38	0.40	-0.21	7.29	8.82	13	PASS
	64QAM		8.40	8.20	0.59	0.10	0.76	0.27	7.64	7.93	13	PASS
802.11n (40MHz)	BPSK	5550	4.25	5.62	-2.62	-2.77	-2.06	-2.21	6.31	7.83	13	PASS
	QPSK		4.56	4.61	-2.78	-3.07	-2.20	-2.49	6.76	7.10	13	PASS
	16QAM		5.66	4.38	-1.72	-2.18	-1.11	-1.57	6.77	5.95	13	PASS
	64QAM		5.98	6.55	-0.98	-1.06	-0.40	-0.48	6.38	7.03	13	PASS

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



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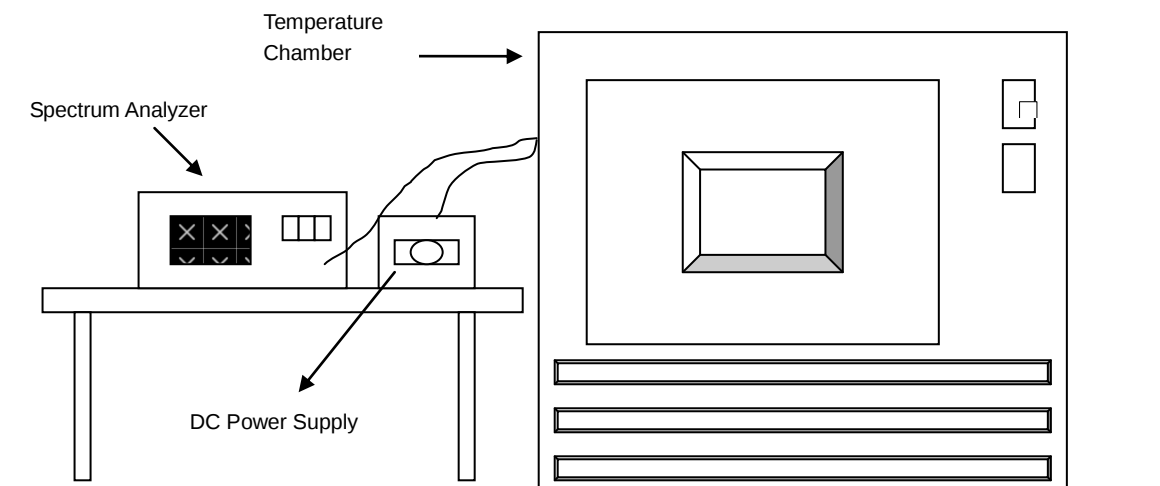


4.6 FREQUENCY STABILITY

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)
50	230.0	5320.039273	7.382	5320.039396	7.405	5320.039077	7.345	5320.039183	7.365
40	230.0	5320.039891	7.498	5320.040361	7.587	5320.039757	7.473	5320.040167	7.550
30	230.0	5320.041352	7.773	5320.041419	7.786	5320.040979	7.703	5320.041345	7.772
20	230.0	5320.041949	7.885	5320.041809	7.859	5320.042303	7.952	5320.042500	7.989
10	230.0	5320.043664	8.208	5320.043667	8.208	5320.043543	8.185	5320.043373	8.153
0	230.0	5320.042292	7.950	5320.041814	7.860	5320.042222	7.936	5320.042232	7.938
-10	230.0	5320.040965	7.700	5320.040329	7.581	5320.040410	7.596	5320.040833	7.675
-20	230.0	5320.040262	7.568	5320.039889	7.498	5320.039944	7.508	5320.040168	7.550
-30	230.0	5320.038831	7.299	5320.039327	7.392	5320.038889	7.310	5320.039321	7.391

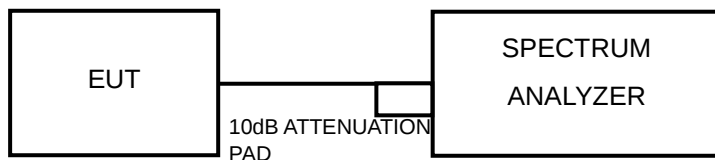
FREQUENCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5320MHz									
TEMP. (°C)	POWER SUPPLY (Vdc)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)	Measured Frequency (MHz)	Frequency Drift (ppm)
20	207.0	5320.041561	7.812	5320.042096	7.913	5320.041419	7.786	5320.041990	7.893
	230.0	5320.041949	7.885	5320.041809	7.859	5320.042303	7.952	5320.042500	7.989
	253.00	5320.043434	8.164	5320.043537	8.184	5320.043792	8.232	5320.043072	8.096

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

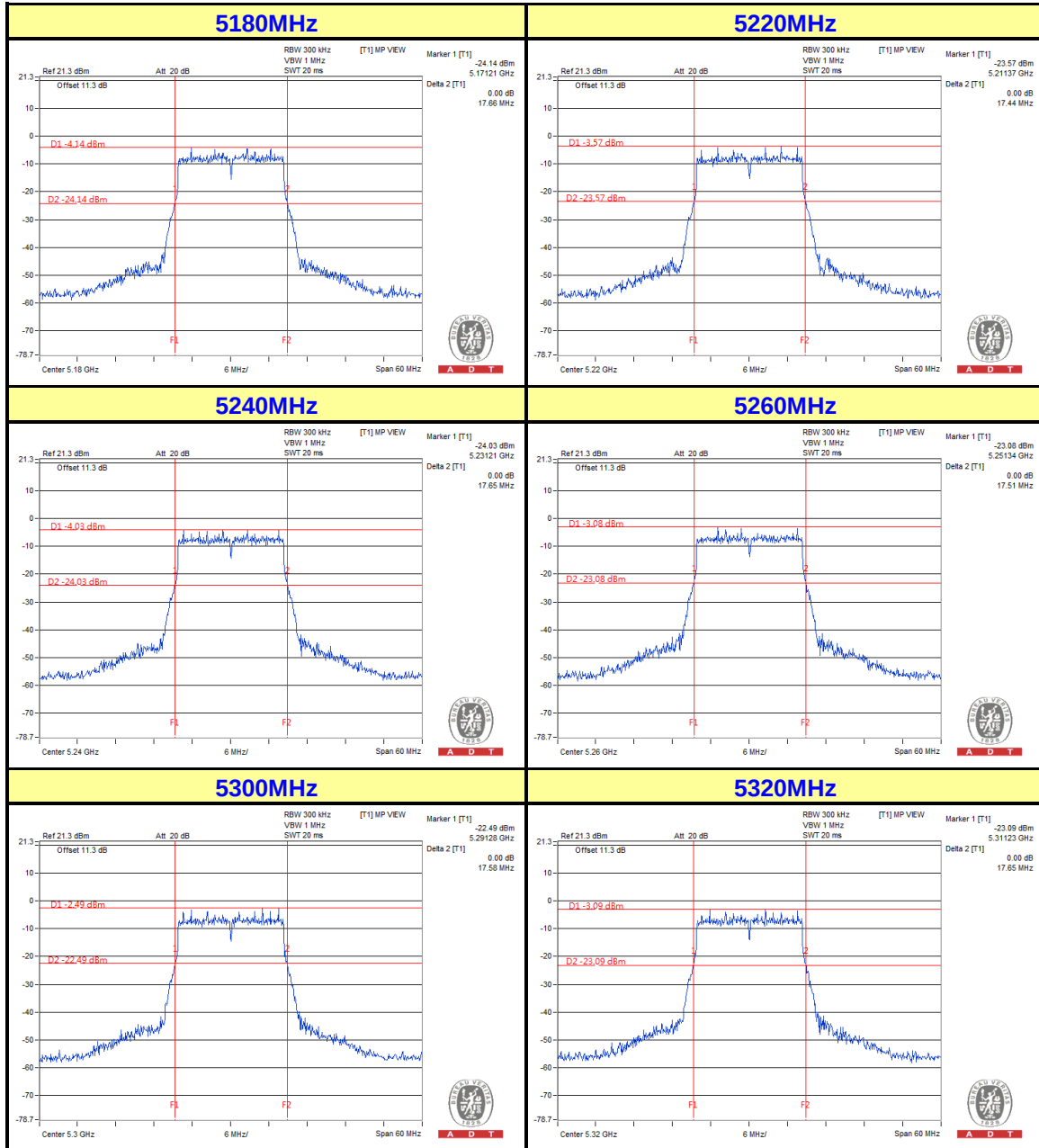
Emission bandwidth

- 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%.

4.7.5 TEST RESULTS

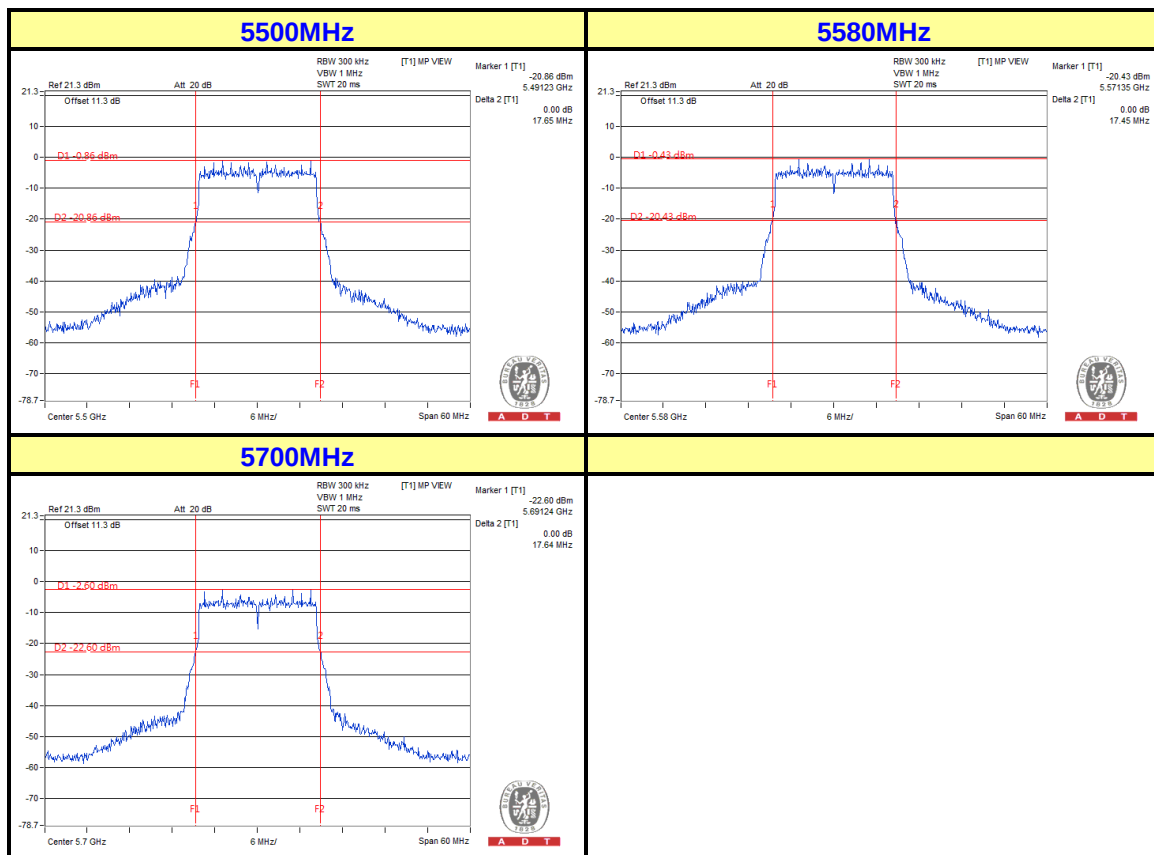
MODE A

802.11a





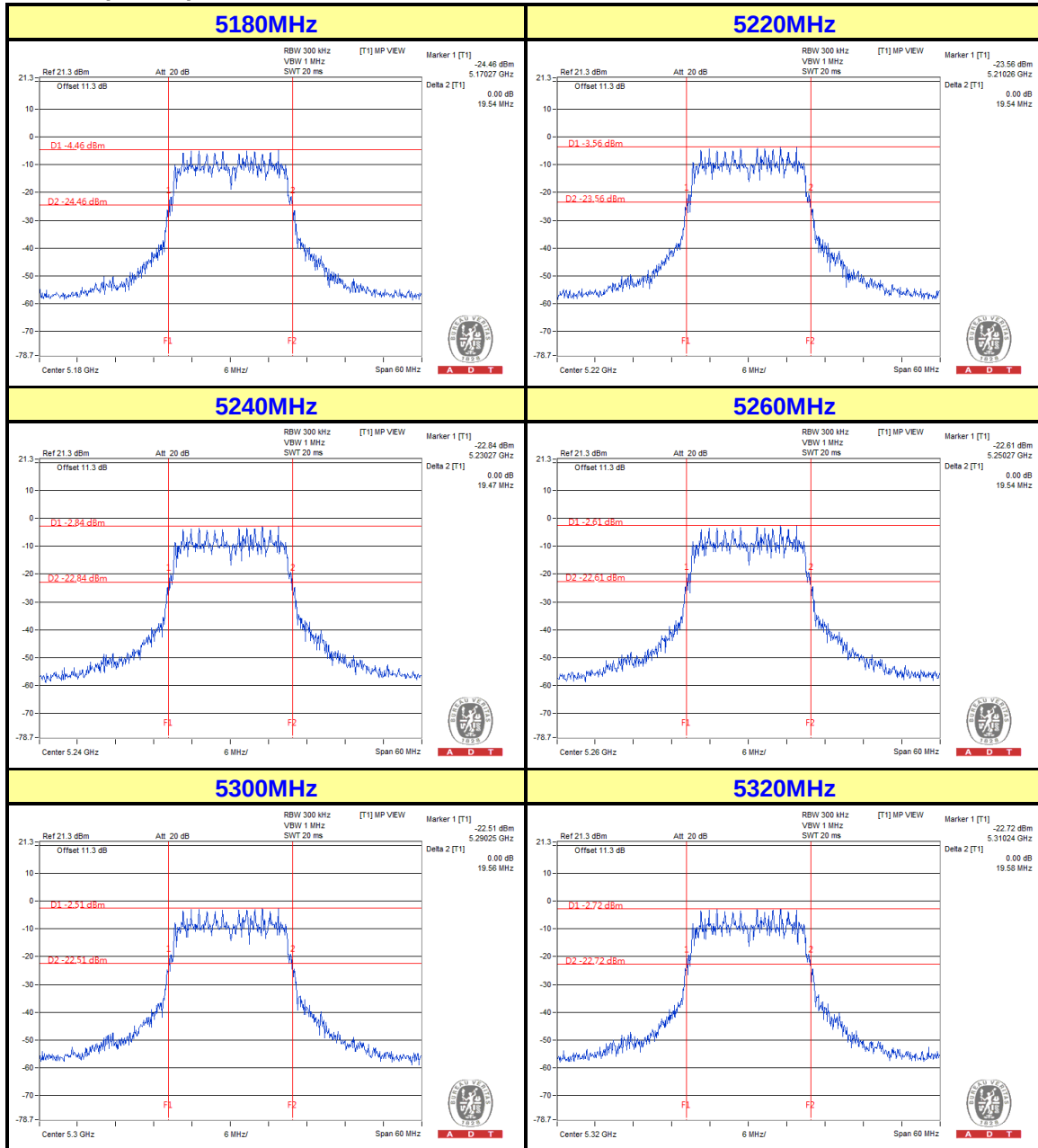
A D T





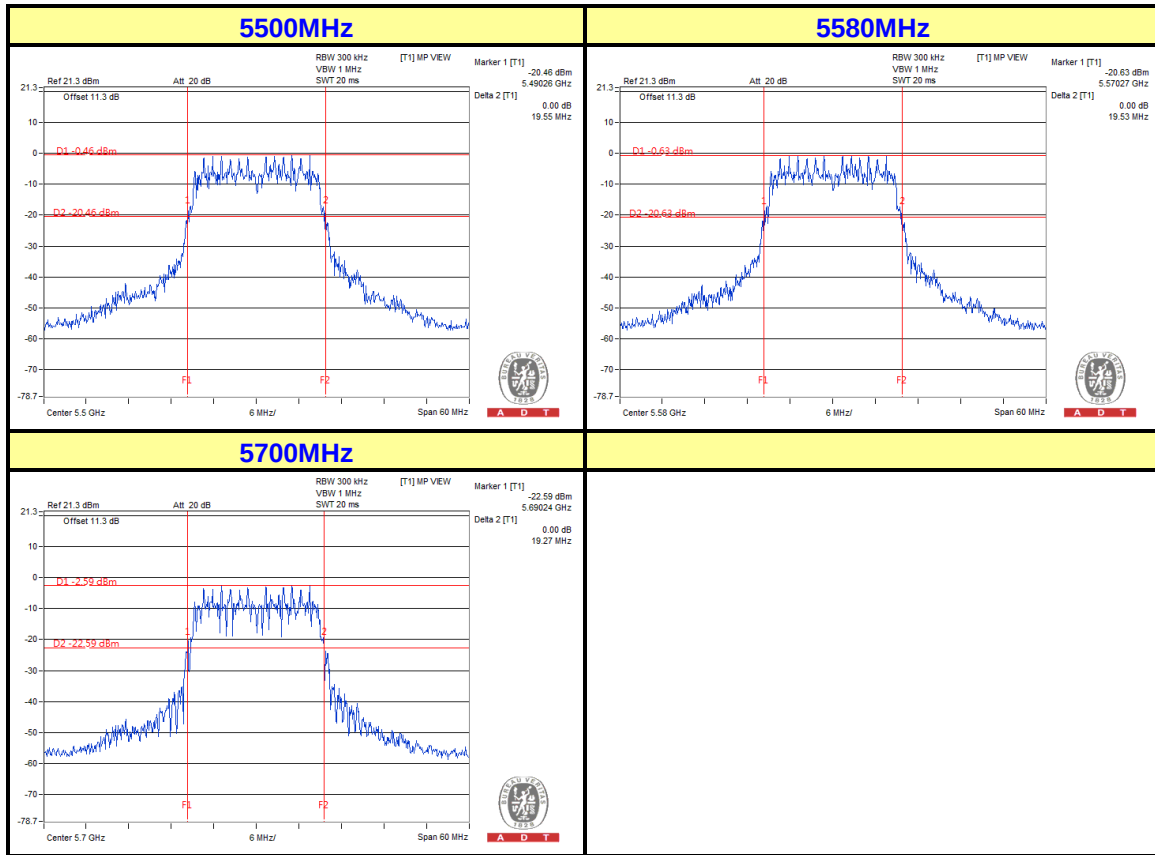
A D T

802.11n (20MHz)





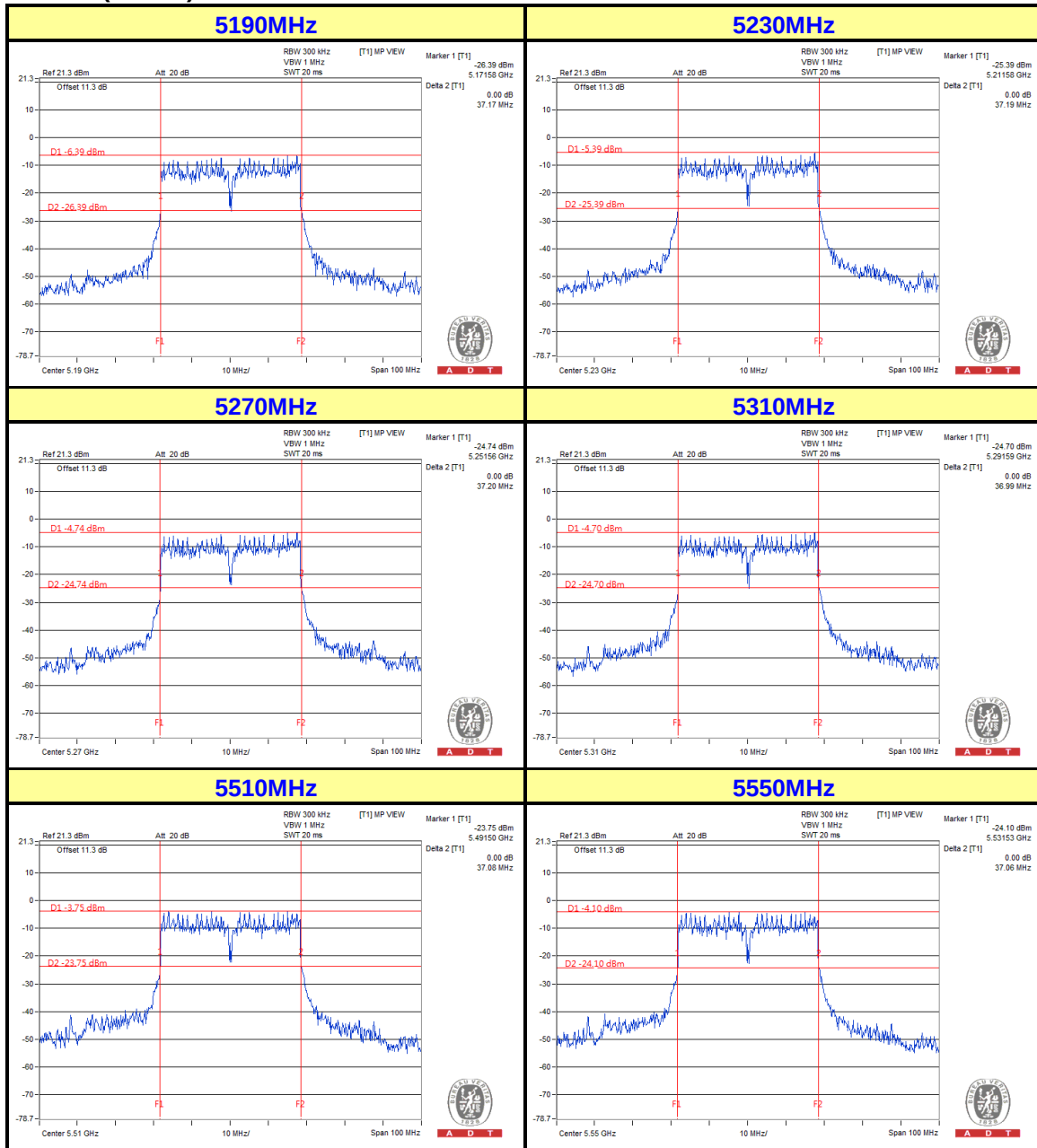
A D T





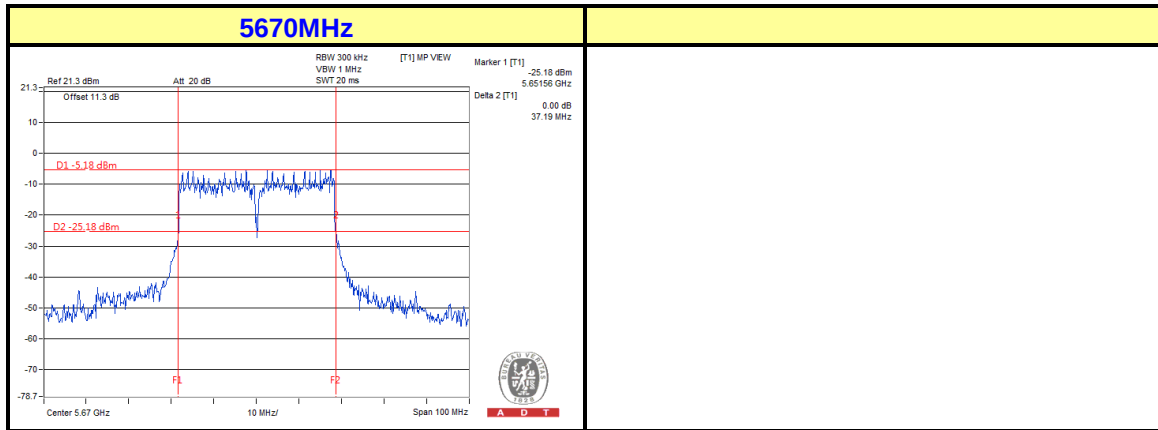
A D T

802.11n (40MHz)





A D T



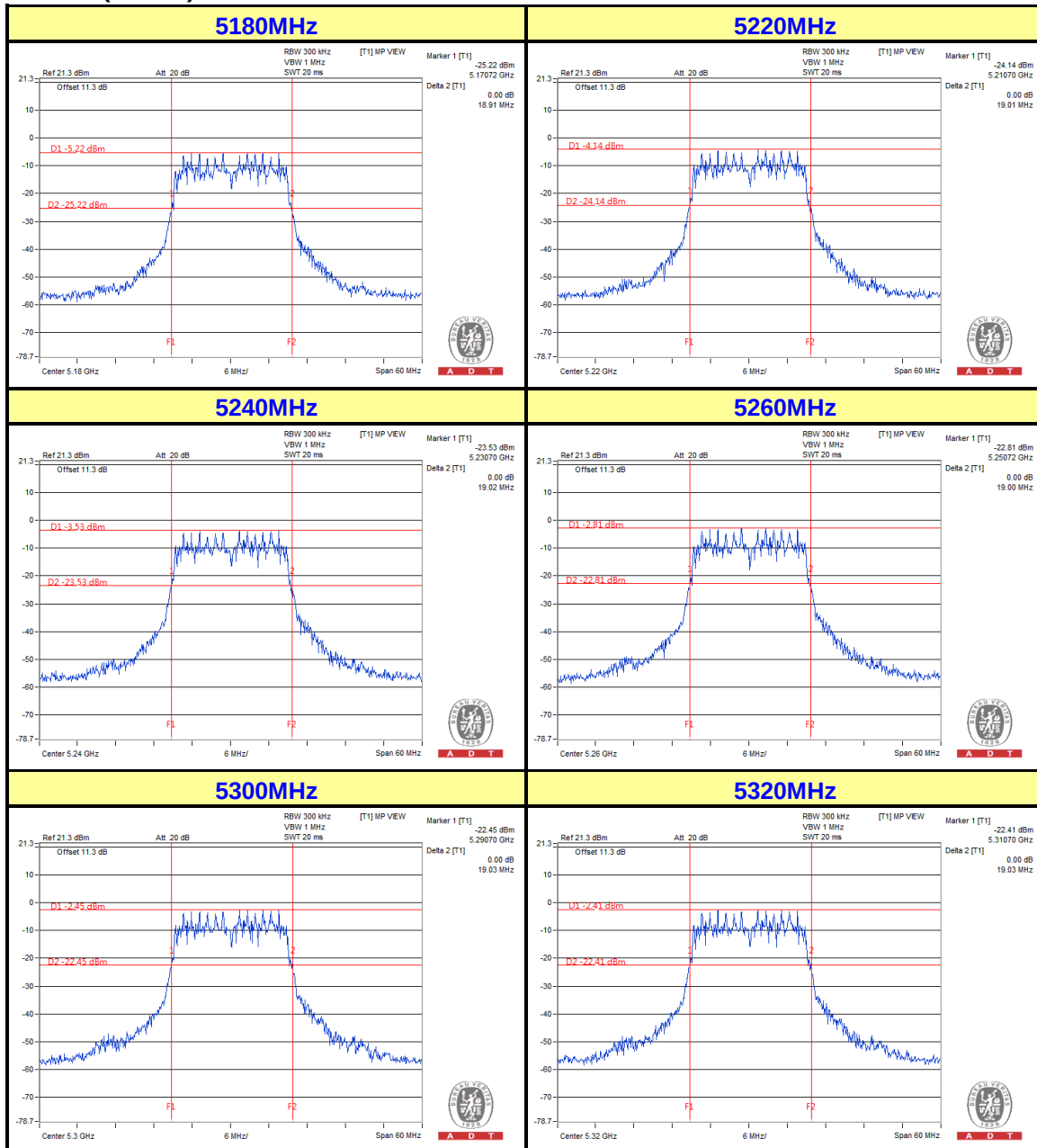


A D T

MODE B

CHAIN 0

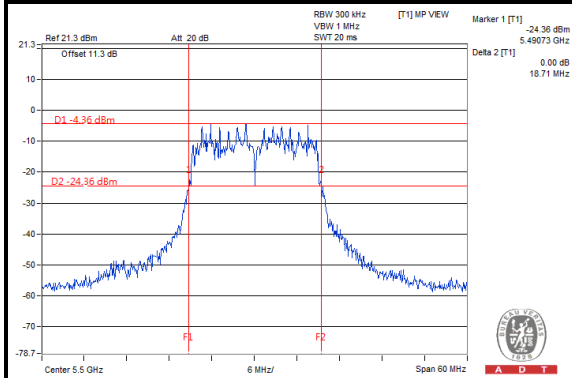
802.11n (20MHz)





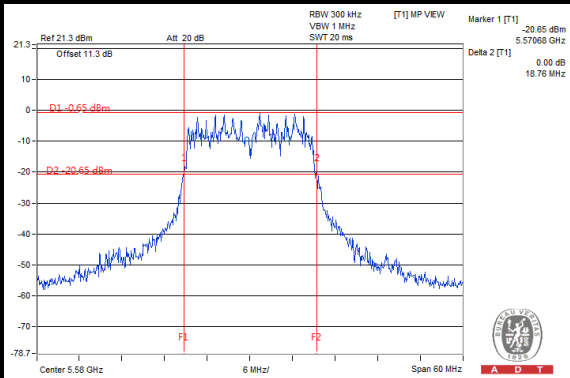
A D T

5500MHz



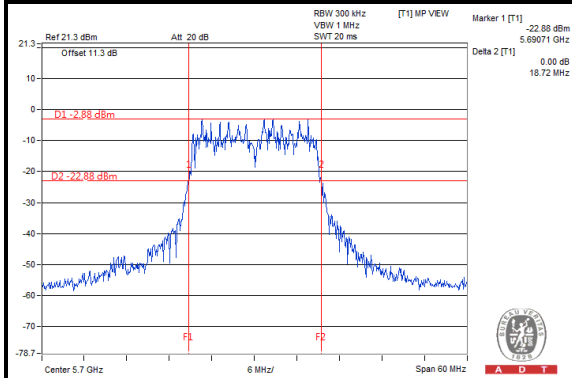
A D T

5580MHz



A D T

5700MHz

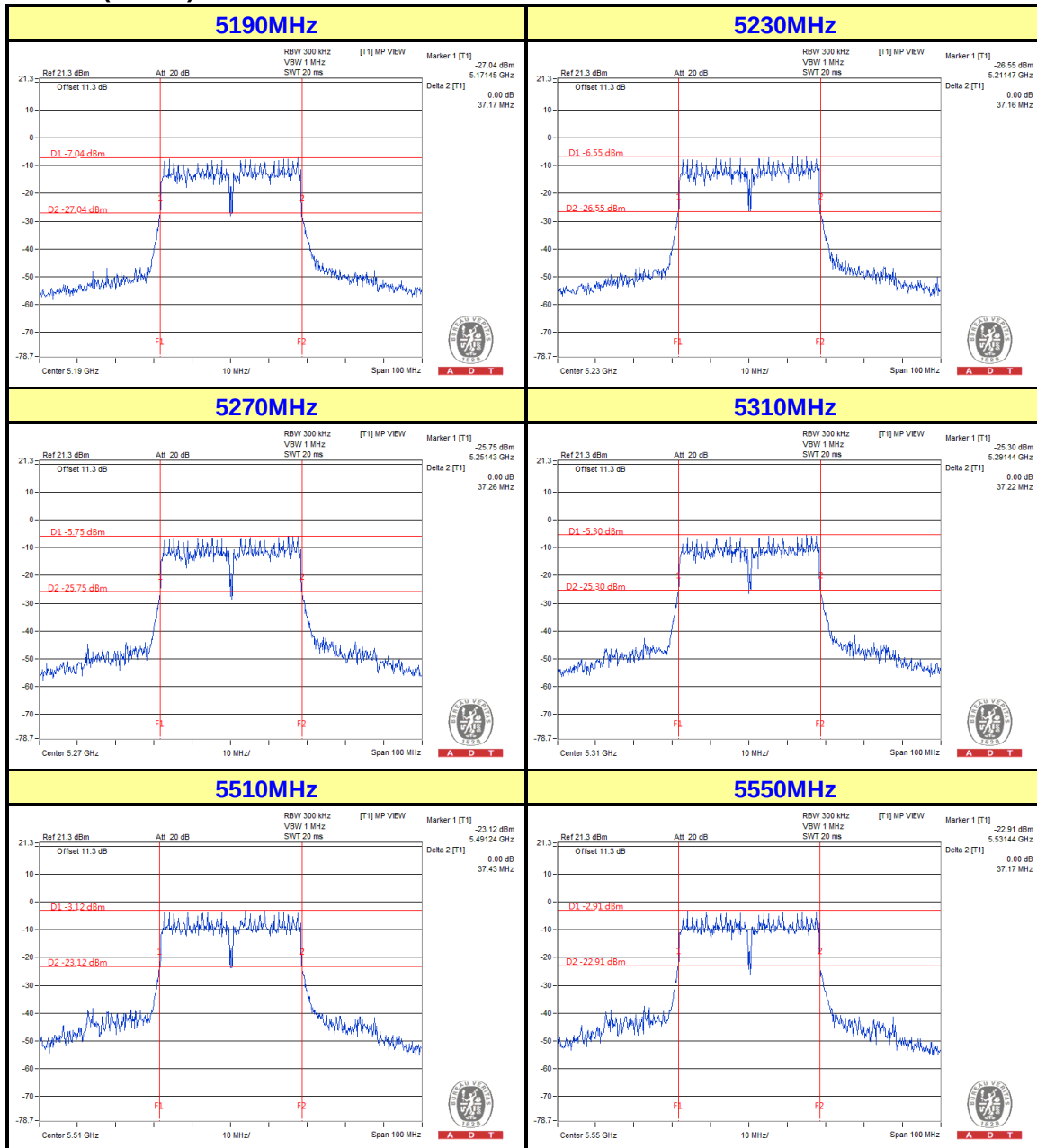


A D T



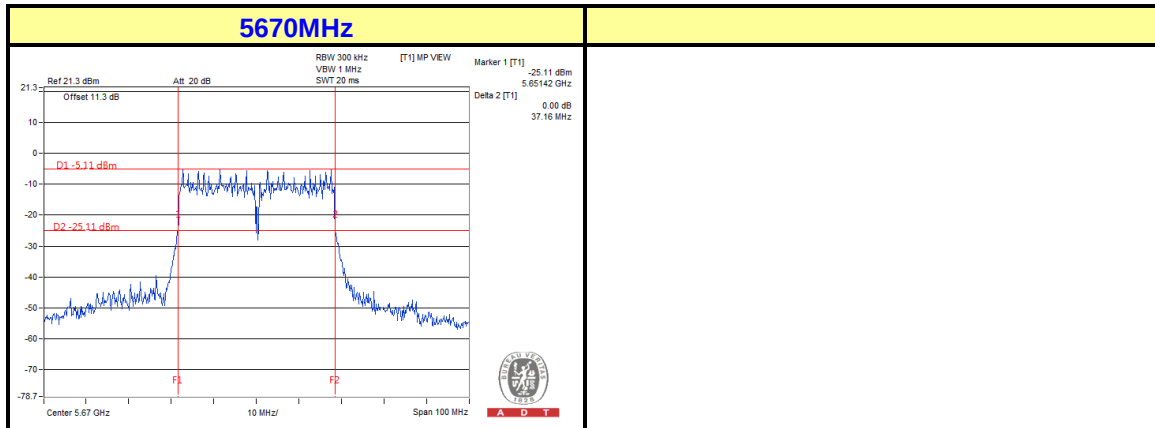
A D T

802.11n (40MHz)





A D T

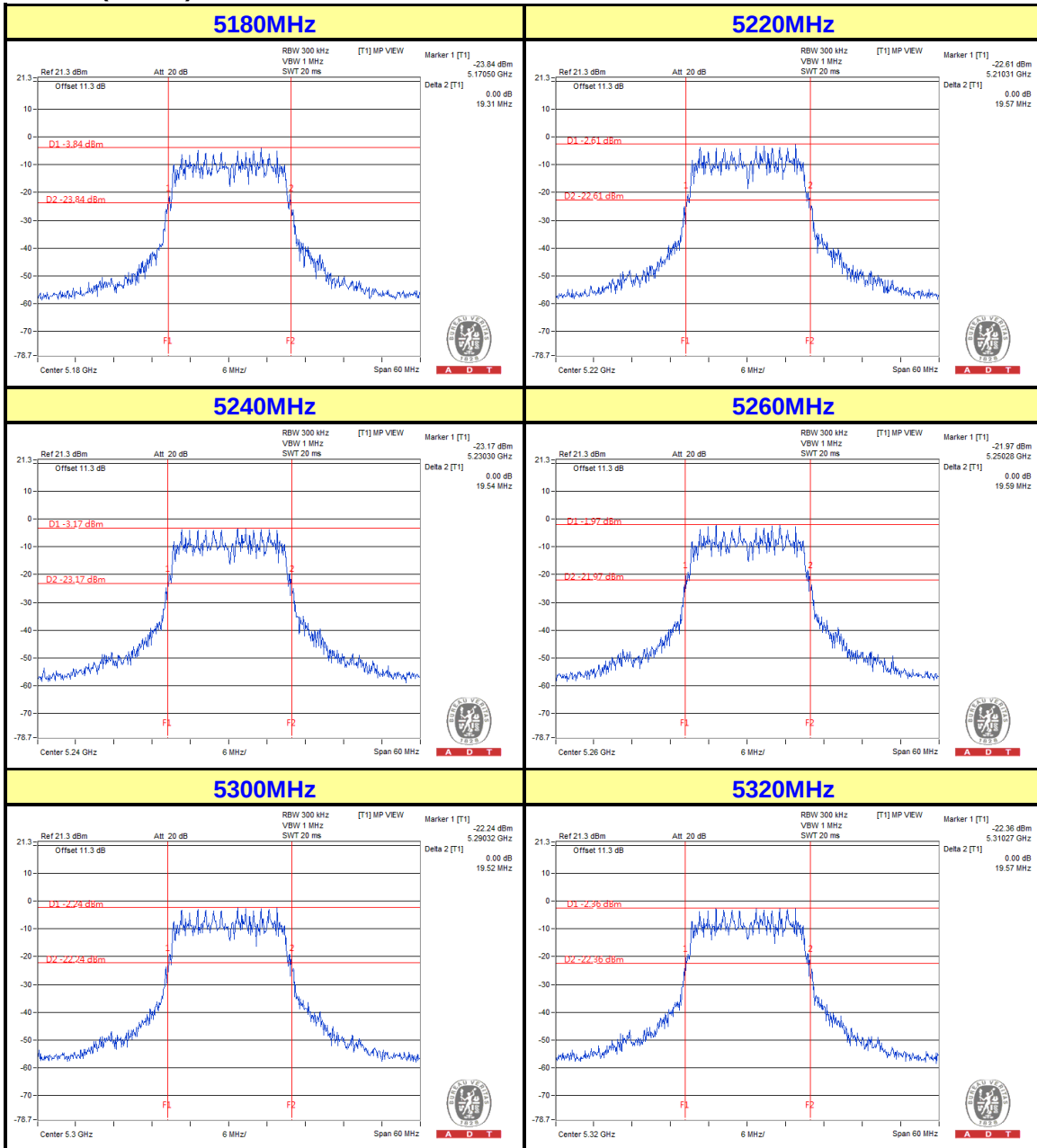




A D T

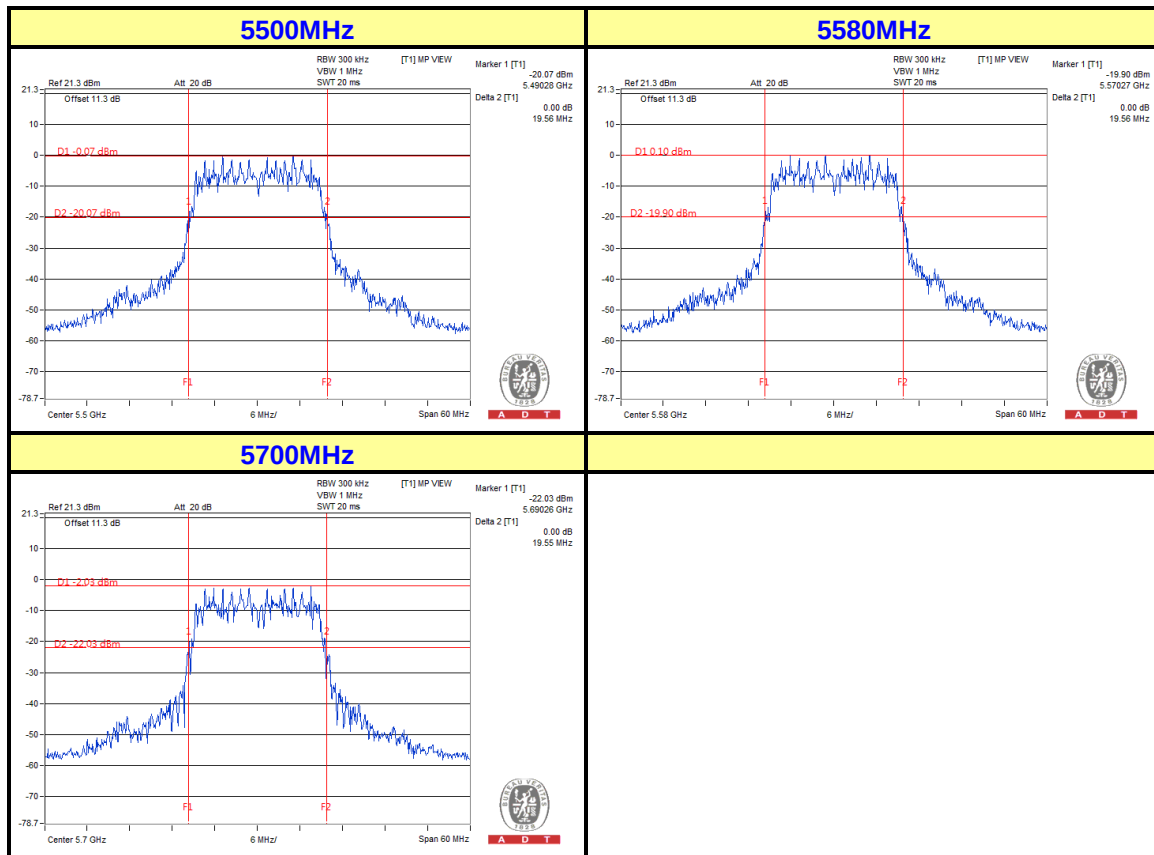
CHAIN 1

802.11n (20MHz)





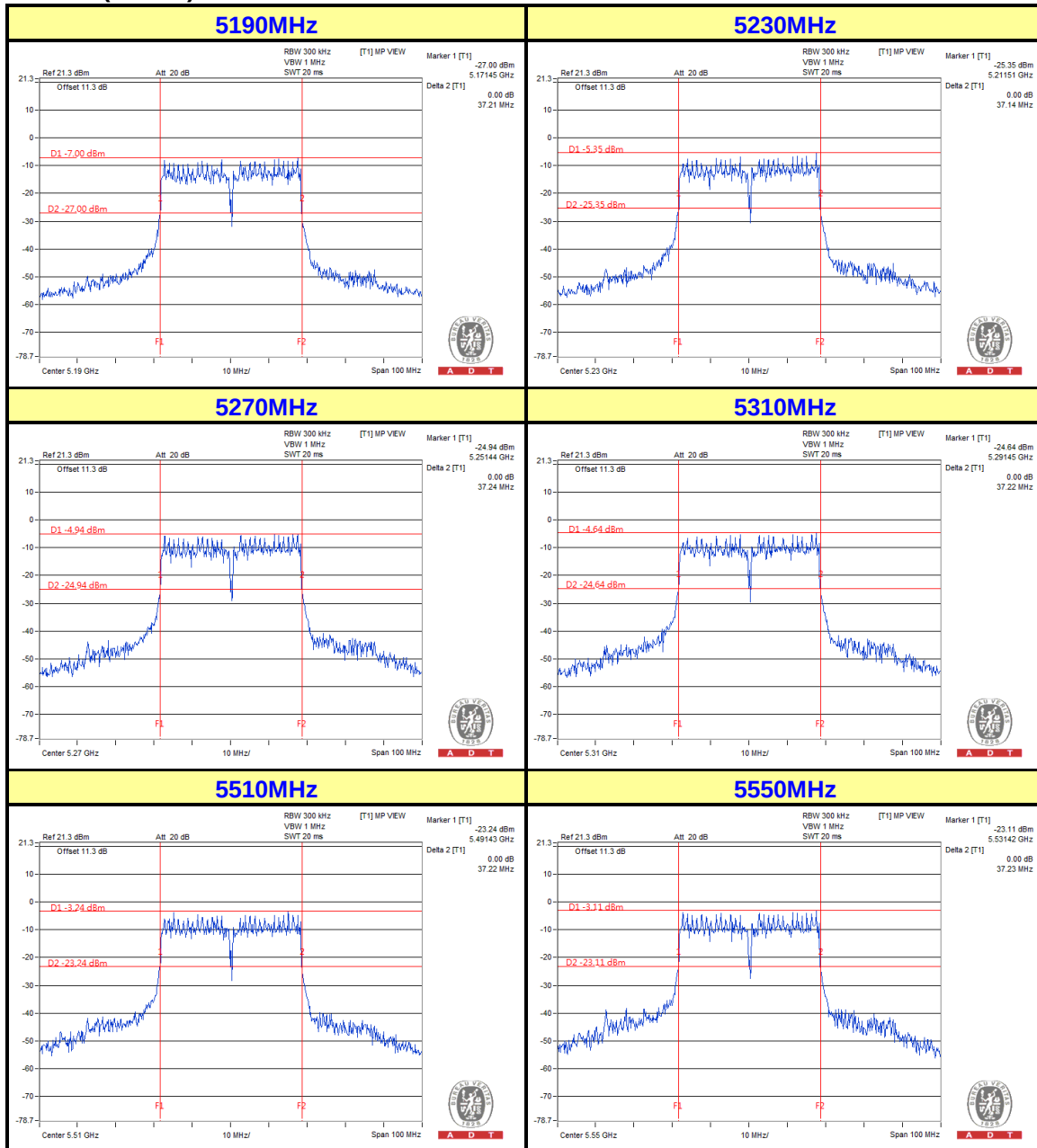
A D T





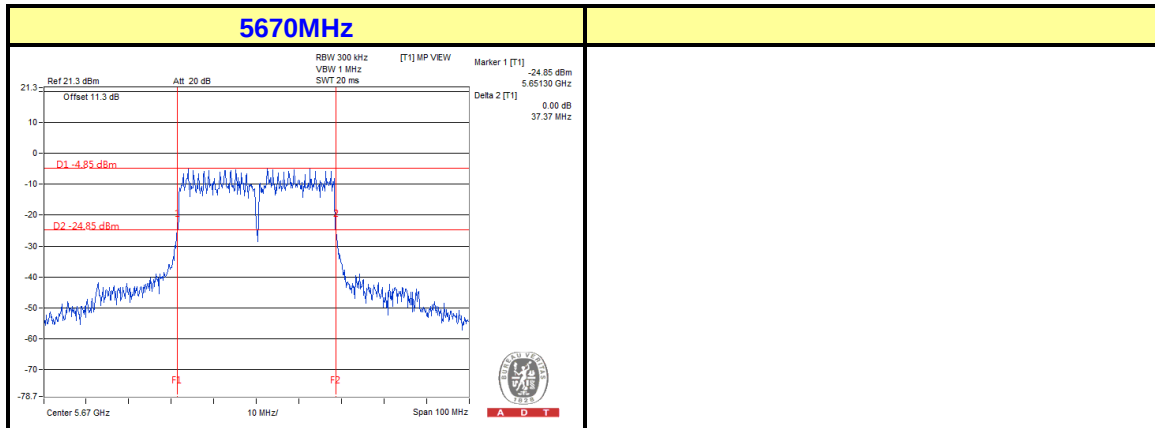
A D T

802.11n (40MHz)





A D T



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:

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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---