Test Lab
Cert 2951.01

TEST REPORT

Applicant	Nexxt Solutions.
Address	3505N.W 107 th Ave Suita A, Doral FI., 33178

Manufacturer or Supplier	Nexxt Solutions.
Address	3505N.W 107 th Ave Suita A, Doral FI., 33178
Product	AC750 Wireless Dual Band Gigabit Router
Brand Name	Nexxt Solutions.
Model	ARL02754U1
Additional Model & Model Difference	N/A
Date of tests	Mar. 23, 2016 ~ Apr. 29, 2016

The tests have been carried out according to the requirements of the following standard:

☒ **FCC Part 15, Subpart E, Section 15.407**

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Tested by Harry Li Project Engineer/ EMC Department	Approved by Chris Chen Manager / EMC Department
	 Date: Apr. 29, 2016

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF160323N071-2	Original release	Apr. 29, 2016

1. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART E (SECTION 15.407 UNDER NEW RULE)			
STANDARD SECTION	**TEST TYPE**	**RESULT**	**REMARK**
15.407(b)(6)	AC Power Conducted Emissions	PASS	Meet the requirement of limit.
15.407(b) (1/2/3/4/6)	Radiated Emissions & Band Edge Measurement	PASS	Meet the requirement of limit.
15.407(a)(1/2/3)	Max Average Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(1/2/3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is RSMA not a standard connector.

1.1 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	2.70dB
Radiated emissions	9KHz ~ 30MHz	2.90dB
	30MHz ~ 1GMHz	3.67dB
	1GHz ~ 18GHz	4.84dB
	18GHz ~ 40GHz	4.84dB

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

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

EUT	AC750 Wireless Dual Band Gigabit Router
MODEL NO.	ARL02754U1
FCC ID	X4YACX750
POWER SUPPLY	AC 100-240V 50/60Hz
MODULATION TYPE	CCK, DQPSK, DBPSK, 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 150Mbps 802.11ac: up to 433Mbps
OPERATING FREQUENCY	5180 ~ 5240MHz; 5745 ~ 5825MHz
NUMBER OF CHANNEL	9 for 802.11a, 802.11n (20MHz) 4 for 802.11n (40MHz) 2 for 802.11ac (80MHz)
OUTPUT POWER	18.13dBm for 5180 ~ 5240MHz (Maximum Average Power) 18.02dBm for 5745 ~ 5825MHz (Maximum Average Power)
ANTENNA TYPE	Dipole Antenna; 2.5dBi gain
DATA CABLE	N/A
I/O PORTS	Refer to user's manual

NOTE:

1. The EUT incorporates a SIMO function. Physically, the EUT provides 1 completed transmitter and 1 receiver.

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

2. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
4. Please refer to the EUT photo document (Reference No.: 160323N071) for detailed product photo.

5. The EUT can be powered by adapter as list as following:

ADAPTER	
BRAND:	LEADER ELECTRONICSINC.
MODEL:	MU18A2120150-A1
INPUT:	AC 100-240V, 50/60Hz, 0.5A Max
OUTPUT:	DC 12.0V, 1.5A
DC CABLE:	Unshielded, without core Non-detachable, 1.5m

2.2 DESCRIPTION OF TEST MODES

9 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
149	5745 MHz	157	5785 MHz
153	5765 MHz	161	5805 MHz
165	5825 MHz	--	--

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	46	5230 MHz
151	5755 MHz	159	5795 MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
42	5210MHz	155	5775MHz

2.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
-	√	√	√	√	**Powered by AC 120V with WIFI function**

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

NOTE:
1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.
NOTE: "-"means no effect.

RADIATED EMISSION TEST (ABOVE 1GHz):

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5180-5240 5745-5825	36 to 48 149 to 165	36, 40, 48 149,157,165	OFDM	BPSK	6.0
-	802.11n (20MHz)		36 to 48 149 to 165	36, 40, 48 149,157,165	OFDM	BPSK	6.5
-	802.11n (40MHz)		38 to 46 151 to 159	38, 46 151,159	OFDM	BPSK	13.5
-	802.11ac (80MHz)		42 155	42 155	OFDM	BPSK	29.3

RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5180-5240 5745-5825	36 to 48 149 to 165	36	OFDM	BPSK	6.0

POWER LINE CONDUCTED EMISSION TEST:

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5180-5240 5745-5825	36 to 48 149 to 165	36	OFDM	BPSK	6.0

ANTENNA PORT CONDUCTED MEASUREMENT:

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

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	5180-5240 5745-5825	36 to 48 149 to 165	36, 40, 48 149,157,165	OFDM	BPSK	6.0
-	802.11n (20MHz)		36 to 48 149 to 165	36, 40, 48 149,157,165	OFDM	BPSK	6.5
-	802.11n (40MHz)		38 to 46 151 to 159	38, 46 151,159	OFDM	BPSK	13.5
-	802.11ac (80MHz)		42 155	42 155	OFDM	BPSK	29.3

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	22deg. C, 57%RH	AC 120V 60Hz	Kery He
RE<1G	22deg. C, 57%RH	AC 120V 60Hz	Kery He
PLC	20deg. C, 56%RH	AC 120V 60Hz	Kery He
APCM	20deg. C, 55%RH	AC 120V 60Hz	Harry Li

2.3 DUTY CYCLE OF TEST SIGNAL

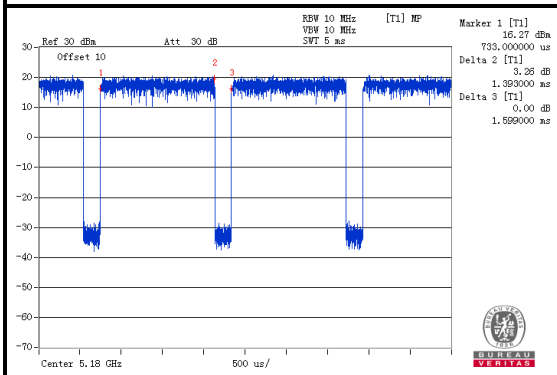
802.11a: Duty cycle = 1.393/1.599 = 0.87, Duty factor = 10 * log(1/0.87) = 0.60

802.11n (20MHz): Duty cycle =1.305/1.512= 0.86, Duty factor = 10 * log(1/0.86) =0.66

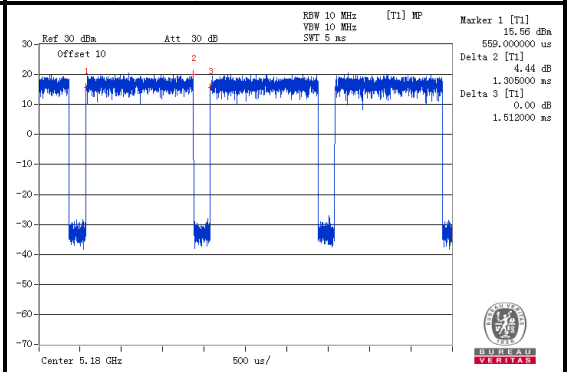
802.11n (40MHz): Duty cycle =0.647/0.851= 0.76, Duty factor = 10 * log(1/0.76) = 1.19

802.11ac (80MHz): Duty cycle = 0.321/0.533 = 0.60, Duty factor =10 * log(1/0.60) = 2.20

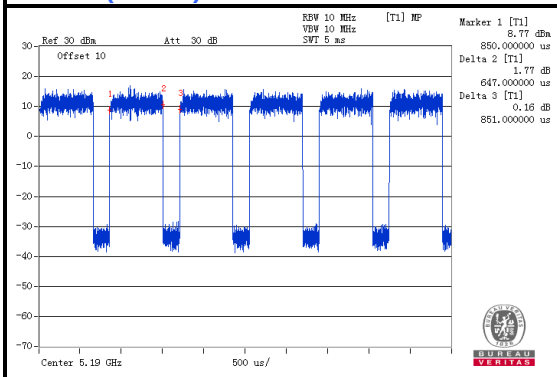
802.11a



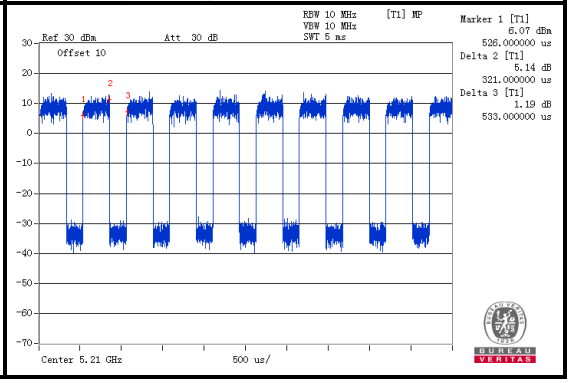
802.11n (20MHz)



802.11n (40MHz)



802.11ac (80MHz)



2.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	N/A	N/A	N/A	N/A	N/A

NO.	DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	N/A

2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specification of the EUT declared by the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart E (15.407)
789033 D02 General UNII Test Procedures New Rules v01
662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10-2013

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.

3. TEST TYPES AND RESULTS

3.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

3.1.1 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 30dB under any condition of modulation.

3.1.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

APPLICABLE TO	LIMIT	
789033 D02 General UNII Test Procedures New Rules v01	FIELD STRENGTH AT 3m	
	PK: 74 (dBµV/m)	AV: 54 (dBµV/m)
APPLICABLE TO	**EIRP LIMIT**	**EQUIVALENT FIELD STRENGTH AT 3m**
15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.3 (dBµV/m)
15.407(b)(2)		
15.407(b)(3)		
15.407(b)(4)	PK: -27 (dBm/MHz) *1 PK: -17 (dBm/MHz) *2	PK: 68.3 (dBµV/m) *1 PK: 78.3 (dBµV/m) *2

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

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

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

3.1.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR7	101494	Apr. 05,16	Apr. 04,17
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV40	101003	Apr. 05,16	Apr. 04,17
Bilog Antenna	Teseq	CBL 6111D	30643	Jul. 16, 15	Jul. 15, 16
Horn Antenna (1GHz -18GHz)	ETS -Lindgren	3117	00062558	May 30, 14	May 29, 16
GPS Generator+ Antenna	TOJOIN	GNSS-5000A	E1-010119	Aug. 08, 14	Aug. 07, 16
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	Mar. 12,16	Mar. 11,18
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170242	Mar. 12,16	Mar. 11,17
Amplifier (9kHz-1GHz)	SONOMA	310D	186955	Mar. 04,16	Mar. 03, 17
Pre-Amplifier(1-18G)	HP	8449B	3008A00409	Mar. 04,16	Mar. 03, 17
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 20,15	Nov. 19,16
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Sep. 01,15	Aug. 31,16

NOTE:

1. The test was performed in 966 Chamber.
2. The calibration interval of the above test instruments is 12 or 24months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 494399.

3.1.4 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 1.5meters above the ground at a 3 meter semi-anechoic camber. 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.

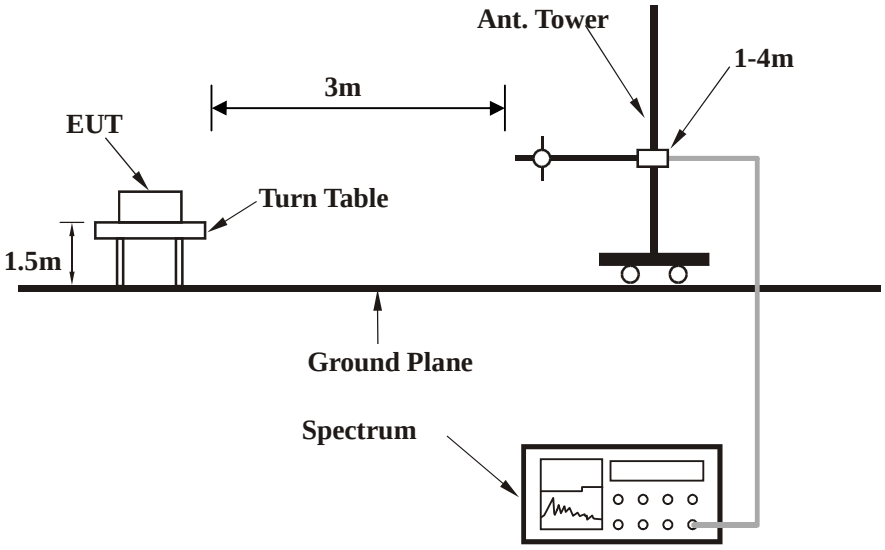
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (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.
5. The testing of the EUT was performed on all 3 orthogonal axes; the worst-case test configuration was reported on the file Test Setup Photo.

3.1.5 DEVIATION FROM TEST STANDARD

No deviation.

3.1.6 TEST SETUP



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

3.1.7 EUT OPERATING CONDITION

a. Placed the EUT on the testing table.
b. Prepared a notebook to act as a communication partner and placed it outside of testing area.
c. The communication partner was connected with the EUT via a RJ45 cable and ran a test program (provided by manufacturer) to enable the EUT under transmission condition continuously at specific channel frequency.

3.1.8 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

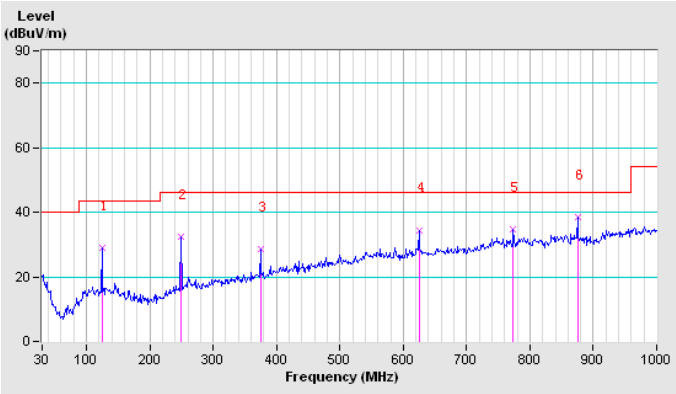
802.11a

CHANNEL	TX Channel 36	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	124.19	28.90	43.50	-14.60	100	0	46.60	-17.70
2	249.30	32.30	46.00	-13.70	100	0	48.20	-15.90
3	374.42	28.60	46.00	-17.40	100	0	40.40	-11.80
4	624.65	34.50	46.00	-11.50	100	0	39.30	-4.80
5	773.67	34.60	46.00	-11.40	100	0	36.20	-1.60
6	874.88	38.50	46.00	-7.50	100	0	39.00	-0.50

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

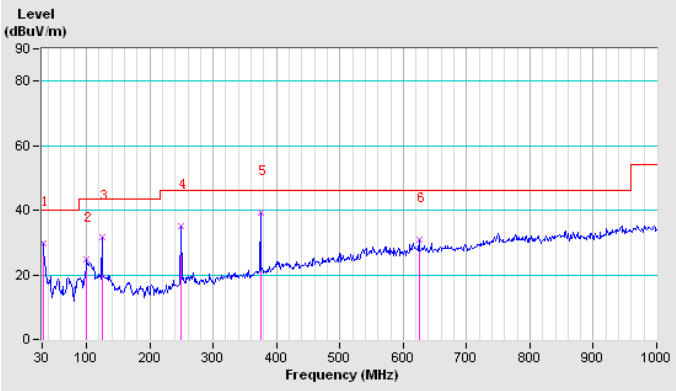


CHANNEL	TX Channel 36	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (cm)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	31.41	29.80	40.00	-10.20	100	0	42.70	-12.90
2	100.29	24.90	43.50	-18.60	100	0	44.50	-19.60
3	124.19	31.60	43.50	-11.90	100	0	49.30	-17.70
4	249.30	35.00	46.00	-11.00	100	0	50.90	-15.90
5	**374.42**	**39.10**	**46.00**	**-6.90**	**100**	**0**	**50.90**	**-11.80**
6	624.65	30.70	46.00	-15.30	100	0	35.50	-4.80

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.



Band 1 (5180-5240MHz):

ABOVE 1GHz DATA

802.11a

CHANNEL	TX Channel 36	**DETECTOR FUNCTION**	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	5150.00	57.6 PK	74.0	-16.4	2.21 H	166	49.30	8.30
2	5150.00	42.8 AV	54.0	-11.2	2.21 H	166	34.50	8.30
3	*5180.00	96.8 PK			2.21 H	166	88.50	8.30
4	*5180.00	86.3 AV			2.21 H	166	78.00	8.30
5	#10360.00	63.2 PK	74.0	-10.8	1.36 H	241	44.00	19.20
6	#10360.00	49.6 AV	54.0	-4.4	1.36 H	241	30.40	19.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	5150.00	71.6 PK	74.0	-2.4	2.12 V	236	63.30	8.30
2	5150.00	53.5 AV	54.0	-0.5	2.12 V	236	45.20	8.30
3	*5180.00	108.7 PK			2.12 V	236	100.40	8.30
4	*5180.00	98.9 AV			2.12 V	236	90.60	8.30
5	#10360.00	63.4 PK	74.0	-10.6	1.51 V	23	44.20	19.20
6	#10360.00	50.2 AV	54.0	-3.8	1.51 V	23	31.00	19.20

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	100.2 PK			2.44 H	324	91.80	8.40
2	*5200.00	89.7 AV			2.44 H	324	81.30	8.40
3	#10400.00	59.8 PK	74.0	-14.2	1.88 H	274	40.50	19.30
4	#10400.00	46.3 AV	54.0	-7.7	1.88 H	274	27.00	19.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	112.7 PK			1.96 V	230	104.30	8.40
2	*5200.00	100.5 AV			1.96 V	230	92.10	8.40
3	#10400.00	62.0 PK	74.0	-12.0	2.04 V	178	42.70	19.30
4	#10400.00	50.1 AV	54.0	-3.9	2.04 V	178	30.80	19.30

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 48	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*5240.00	99.2 PK			1.00 H	333	90.80	8.40
2	*5240.00	90.5 AV			1.00 H	333	82.10	8.40
3	#10480.00	59.1 PK	74.0	-14.9	1.93 H	157	39.60	19.50
4	#10480.00	45.4 AV	54.0	-8.6	1.93 H	157	25.90	19.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*5240.00	114.6 PK			1.00 V	183	106.20	8.40
2	*5240.00	104.6 AV			1.00 V	183	96.20	8.40
3	#10480.00	61.8 PK	74.0	-12.2	1.24 V	314	42.30	19.50
4	#10480.00	49.2 AV	54.0	-4.8	1.24 V	314	29.70	19.50

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11n (20MHz)

CHANNEL	TX Channel 36	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	5150.00	57.3 PK	74.0	-16.7	2.13 H	287	49.00	8.30
2	5150.00	42.7 AV	54.0	-11.3	2.13 H	287	34.40	8.30
3	*5180.00	99.8 PK			2.13 H	287	91.50	8.30
4	*5180.00	89.4 AV			2.13 H	287	81.10	8.30
5	#10360.00	54.7 PK	74.0	-19.3	1.88 H	52	35.50	19.20
6	#10360.00	46.2 AV	54.0	-7.8	1.88 H	52	27.00	19.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	5150.00	68.3 PK	74.0	-5.7	1.00 V	213	60.00	8.30
2	**5150.00**	**53.7 AV**	**54.0**	**-0.3**	**1.00 V**	**213**	**45.40**	**8.30**
3	*5180.00	109.2 PK			1.00 V	213	100.90	8.30
4	*5180.00	98.0 AV			1.00 V	213	89.70	8.30
5	#10360.00	60.3 PK	74.0	-13.7	1.71 V	221	41.10	19.20
6	#10360.00	49.0 AV	54.0	-5.0	1.71 V	221	29.80	19.20

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	105.5 PK			1.00 H	193	97.10	8.40
2	*5200.00	94.6 AV			1.00 H	193	86.20	8.40
3	#10400.00	57.5 PK	74.0	-16.5	1.03 H	226	38.20	19.30
4	#10400.00	46.2 AV	54.0	-7.8	1.03 H	226	26.90	19.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	112.1 PK			2.10 V	234	103.7	8.40
2	*5200.00	100.3 AV			2.10 V	234	91.90	8.40
3	#10400.00	62.0 PK	74.0	-12.0	1.99 V	264	42.70	19.30
4	#10400.00	49.7 AV	54.0	-4.3	1.99 V	264	30.40	19.30

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 48	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*5240.00	100.2 PK			1.01 H	331	91.80	8.40
2	*5240.00	90.3 AV			1.01 H	331	81.90	8.40
3	#10480.00	57.0 PK	74.0	-17.0	2.01 H	334	37.50	19.50
4	#10480.00	46.3 AV	54.0	-7.7	2.01 H	334	26.80	19.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*5240.00	111.8 PK			2.12 V	230	103.40	8.40
2	*5240.00	101.4 AV			2.12 V	230	93.00	8.40
3	#10480.00	62.3 PK	74.0	-11.7	1.43 V	268	42.80	19.50
4	#10480.00	50.2 AV	54.0	-3.8	1.43 V	268	30.70	19.50

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11n (40MHz)

CHANNEL	TX Channel 38	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	5150.00	60.2 PK	74.0	-13.8	1.00 H	152	51.90	8.30
2	5150.00	41.5 AV	54.0	-12.5	1.00 H	152	33.20	8.30
3	*5190.00	89.6 PK			1.00 H	152	81.30	8.30
4	*5190.00	80.3 AV			1.00 H	152	72.00	8.30
5	#10380.00	58.8 PK	74.0	-15.2	1.02 H	281	39.60	19.20
6	#10380.00	46.8 AV	54.0	-7.2	1.02 H	281	27.60	19.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	**5150.00**	**73.7 PK**	**74.0**	**-0.3**	**1.00 V**	**205**	**65.40**	**8.30**
2	5150.00	53.6 AV	54.0	-0.4	1.00 V	205	45.30	8.30
3	*5190.00	109.2 PK			1.00 V	205	100.90	8.30
4	*5190.00	94.1 AV			1.00 V	205	85.80	8.30
5	#10380.00	64.9 PK	74.0	-9.1	2.10 V	340	45.70	19.20
6	#10380.00	51.4 AV	54.0	-2.6	2.10 V	340	32.20	19.20

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 46	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	95.7 PK			1.01 H	281	87.40	8.30
2	*5230.00	83.9 AV			1.01 H	281	75.60	8.30
3	#10460.00	54.9 PK	74.0	-19.1	2.05 H	289	35.50	19.40
4	#10460.00	43.7 AV	54.0	-10.3	2.05 H	289	24.30	19.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	112.0 PK			2.45 V	284	103.70	8.30
2	*5230.00	99.9 AV			2.45 V	284	91.60	8.30
3	#10460.00	57.0 PK	74.0	-17.0	1.84 V	236	37.60	19.40
4	#10460.00	47.0 AV	54.0	-7.0	1.84 V	236	27.60	19.40

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11ac BW80

CHANNEL	TX Channel 42	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	5150.00	55.6 PK	74.0	-18.4	1.00 H	330	47.30	8.30
2	5150.00	41.7 AV	54.0	-12.3	1.00 H	330	33.40	8.30
3	*5210.00	88.5 PK			1.00 H	330	80.10	8.40
4	*5210.00	75.0 AV			1.00 H	330	66.60	8.40
5	#10420.00	55.8 PK	74.0	-18.2	2.21 H	301	36.40	19.40
6	#10420.00	43.7 AV	54.0	-10.3	2.21 H	301	24.30	19.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	5150.00	71.9 PK	74.0	-2.1	2.16 V	249	63.60	8.30
2	5150.00	53.3 AV	54.0	-0.7	2.16 V	249	45.00	8.30
3	*5210.00	103.3 PK			1.00 V	218	94.90	8.40
4	*5210.00	85.8 AV			1.00 V	218	77.40	8.40
5	#10420.00	64.6 PK	74.0	-9.4	1.10 V	329	45.20	19.40
6	#10420.00	50.7 AV	54.0	-3.3	1.10 V	329	31.30	19.40

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

Band 4 (5745-5825MHz):

ABOVE 1GHz DATA

802.11a

CHANNEL	TX Channel 149	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE			

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	#5714.90	59.5 PK	68.3	-8.8	1.22 H	177	49.60	9.90
2	#5725.00	70.9 PK	78.3	-7.4	1.22 H	177	60.90	10.00
3	*5745.00	96.9 PK			1.22 H	177	86.90	10.00
4	*5745.00	86.5 AV			1.22 H	177	76.50	10.00
5	#11490.00	60.5 PK	74.0	-13.5	1.00 H	322	42.30	18.20
6	#11490.00	47.8 AV	54.0	-6.2	1.00 H	322	29.60	18.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	#5714.90	64.8 PK	68.3	-3.5	1.00 V	326	54.90	9.90
2	**#5722.90**	**77.8 PK**	**78.3**	**-0.5**	**2.08 V**	**269**	**67.80**	**10.00**
3	#5725.00	75.3 PK	78.3	-3.0	1.00 V	326	65.30	10.00
4	*5745.00	100.4 PK			1.00 V	326	90.40	10.00
5	*5745.00	93.4 AV			1.00 V	326	83.40	10.00
6	#11490.00	63.1 PK	74.0	-10.9	1.91 V	226	44.90	18.20
7	#11490.00	51.1 AV	54.0	-2.9	1.91 V	226	32.90	18.20

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE			Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	101.5 PK			1.00 H	262	91.30	10.20
2	*5785.00	90.7 AV			1.00 H	262	80.50	10.20
3	#11570.00	63.2 PK	74.0	-10.8	2.32 H	324	45.00	18.20
4	#11570.00	51.4 AV	54.0	-2.6	2.32 H	324	33.20	18.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	107.5 PK			1.93 V	245	97.30	10.20
2	*5785.00	97.6 AV			1.93 V	245	87.40	10.20
3	#11570.00	67.4 PK	74.0	-6.6	1.00 V	301	49.20	18.20
4	**#11570.00**	**51.8 AV**	**54.0**	**-2.2**	**1.00 V**	**301**	**33.60**	**18.20**

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE			

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	98.9 PK			1.00 H	261	88.50	10.40
2	*5825.00	89.2 AV			1.00 H	261	78.80	10.40
3	#5850.00	71.8 PK	78.3	-6.5	1.00 H	261	61.20	10.60
4	#5852.10	72.1 PK	78.3	-6.2	1.00 H	261	61.50	10.60
5	#5860.10	61.1 PK	68.3	-7.2	1.00 H	261	50.50	10.60
6	#11650.00	61.7 PK	74.0	-12.3	1.42 H	285	43.40	18.30
7	#11650.00	49.1 AV	54.0	-4.9	1.42 H	285	30.80	18.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	103.8 PK			1.98 V	244	93.40	10.40
2	*5825.00	95.2 AV			1.98 V	244	84.80	10.40
3	**#5850.00**	**77.7 PK**	**78.3**	**-0.6**	**1.00 V**	**302**	**67.10**	**10.60**
4	#5852.10	77.3 PK	78.3	-1.0	1.00 V	225	66.70	10.60
5	#5860.10	67.4 PK	68.3	-0.9	1.81 V	141	56.80	10.60
6	#11650.00	64.5 PK	74.0	-9.5	1.36 V	245	46.20	18.30
7	#11650.00	52.3 AV	54.0	-1.7	1.36 V	245	34.00	18.30

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11n (20MHz)

CHANNEL	TX Channel 149	**DETECTOR FUNCTION**	Peak (PK)
FREQUENCY RANGE			Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	#5714.90	53.6 PK	68.3	-14.7	1.48 H	22	43.70	9.90
2	#5725.00	62.7 PK	78.3	-15.6	1.81 H	2	52.70	10.00
3	*5745.00	91.7 PK			1.65 H	60	81.70	10.00
4	*5745.00	82.3 AV			1.65 H	60	72.30	10.00
5	#11490.00	54.2 PK	74.0	-19.8	1.10 H	95	36.00	18.20
6	#11490.00	41.9 AV	54.0	-12.1	1.10 H	95	23.70	18.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	#5714.90	60.2 PK	68.3	-8.1	1.42 V	187	50.30	9.90
2	**#5722.90**	**77.6 PK**	**78.3**	**-0.7**	**1.63 V**	**28**	**67.60**	**10.00**
3	#5725.00	76.5 PK	78.3	-1.8	1.17 V	136	66.50	10.00
4	*5745.00	99.4 PK			1.61 V	328	89.40	10.00
5	*5745.00	89.3 AV			1.61 V	328	79.30	10.00
6	#11490.00	56.7 PK	74.0	-17.3	1.75 V	225	38.50	18.20
7	#11490.00	43.5 AV	54.0	-10.5	1.75 V	225	25.30	18.20

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE			Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	90.9 PK			1.56 H	118	80.70	10.20
2	*5785.00	82.1 AV			1.56 H	118	71.90	10.20
3	#11570.00	53.6 PK	74.0	-20.4	1.87 H	305	35.40	18.20
4	#11570.00	44.2 AV	54.0	-9.8	1.87 H	305	26.00	18.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5785.00	101.9 PK			1.26 V	331	91.70	10.20
2	*5785.00	92.9 AV			1.26 V	331	82.70	10.20
3	#11570.00	56.9 PK	74.0	-17.1	1.18 V	28	38.70	18.20
4	**#11570.00**	**45.9 AV**	**54.0**	**-8.1**	**1.18 V**	**28**	**27.70**	**18.20**

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE			

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	92.6 PK			1.69 H	136	82.20	10.40
2	*5825.00	83.7 AV			1.69 H	136	73.30	10.40
3	#5850.00	65.2 PK	78.3	-13.1	1.00 H	172	54.60	10.60
4	#5852.10	64.3 PK	78.3	-14.0	1.55 H	69	53.70	10.60
5	#5860.10	55.6 PK	68.3	-12.7	1.02 H	57	45.00	10.60
6	#11650.00	53.7 PK	74.0	-20.3	1.84 H	200	35.40	18.30
7	#11650.00	45.6 AV	54.0	-8.4	1.84 H	200	27.30	18.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	102.4 PK			1.99 V	323	92.00	10.40
2	*5825.00	93.6 AV			1.99 V	323	83.20	10.40
3	**#5850.00**	**77.5 PK**	**78.3**	**-0.8**	**1.36 V**	**58**	**66.90**	**10.60**
4	#5852.10	75.5 PK	78.3	-2.8	1.50 V	281	64.90	10.60
5	#5860.10	65.0 PK	68.3	-3.3	1.03 V	98	54.40	10.60
6	#11650.00	58.8 PK	74.0	-15.2	1.51 V	73	40.50	18.30
7	#11650.00	48.9 AV	54.0	-5.1	1.51 V	73	30.60	18.30

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11n (40MHz)

CHANNEL	TX Channel 151	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE			

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	#5714.90	63.2 PK	68.3	-5.1	1.44 H	227	53.30	9.90
2	#5725.00	66.4 PK	78.3	-11.9	1.17 H	5	56.40	10.00
3	*5755.00	88.9 PK			2.21 H	128	78.80	10.10
4	*5755.00	77.6 AV			2.21 H	128	67.50	10.10
5	#11510.00	52.3 PK	74.0	-21.7	1.13 H	21	34.10	18.20
6	#11510.00	45.1 AV	54.0	-8.9	1.13 H	21	26.90	18.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	**#5714.90**	**67.7 PK**	**68.3**	**-0.6**	**1.86 V**	**224**	**57.80**	**9.90**
2	#5725.00	73.9 PK	78.3	-4.4	1.18 V	5	63.90	10.00
3	*5755.00	97.6 PK			1.92 V	317	87.50	10.10
4	*5755.00	86.6 AV			1.92 V	317	76.50	10.10
5	#11510.00	56.4 PK	74.0	-17.6	1.63 V	12	38.20	18.20
6	#11510.00	47.3 AV	54.0	-6.7	1.63 V	12	29.10	18.20

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE			Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5795.00	89.6 PK			1.50 H	333	79.20	10.40
2	*5795.00	78.3 AV			1.50 H	333	67.90	10.40
3	#5850.00	60.2 PK	78.3	-18.1	1.54 H	26	49.60	10.60
4	#5852.10	61.8 PK	78.3	-16.5	1.47 H	10	51.20	10.60
5	#5860.10	56.3 PK	68.3	-12.0	1.00 H	84	45.70	10.60
6	#11590.00	54.3 PK	74.0	-19.7	1.82 H	203	36.00	18.30
7	#11590.00	45.9 AV	54.0	-8.1	1.82 H	203	27.60	18.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5795.00	99.7 PK			1.15 V	342	89.30	10.40
2	*5795.00	87.6 AV			1.15 V	342	77.20	10.40
3	#5850.00	76.3 PK	78.3	-2.0	1.17 V	289	65.70	10.60
4	#5852.10	77.7 PK	78.3	-0.6	1.48 V	99	67.10	10.60
5	#5860.10	65.2 PK	68.3	-3.1	1.87 V	117	54.60	10.60
6	#11590.00	56.6 PK	74.0	-17.4	1.18 V	29	38.30	18.30
7	#11590.00	47.6 AV	54.0	-6.4	1.18 V	29	29.30	18.30

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11ac BW80

CHANNEL	TX Channel 155	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE			

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	**#5714.90**	**68.1 PK**	**68.3**	**-0.2**	**2.46 H**	**314**	**58.20**	**9.90**
2	#5725.00	70.1 PK	78.3	-8.2	2.46 H	314	60.10	10.00
3	*5775.00	94.1 PK			2.46 H	314	83.90	10.20
4	*5775.00	77.8 AV			2.46 H	314	67.60	10.20
5	#5850.00	66.5 PK	78.3	-11.8	2.46 H	314	55.90	10.60
6	#5852.10	69.9 PK	78.3	-8.4	2.46 H	314	59.30	10.60
7	#5860.10	67.7 PK	68.3	-0.6	2.46 H	314	57.10	10.60
8	#11550.00	61.9 PK	74.0	-12.1	1.00 H	351	43.70	18.20
9	#11550.00	49.0 AV	54.0	-5.0	1.00 H	351	30.80	18.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	#5714.90	67.3 PK	68.3	-1.0	1.00 V	283	57.40	9.90
2	#5725.00	71.5 PK	78.3	-6.8	1.02 V	251	61.50	10.00
3	*5775.00	98.4 PK			1.02 V	251	88.20	10.20
4	*5775.00	84.2 AV			1.02 V	251	74.00	10.20
5	#5850.00	69.5 PK	78.3	-8.8	1.02 V	251	58.90	10.60
6	#5852.10	72.2 PK	78.3	-6.1	1.02 V	251	61.60	10.60
7	#5860.10	67.2 PK	68.3	-1.1	1.02 V	330	56.60	10.60
8	#11550.00	62.4 PK	74.0	-11.6	2.11 V	234	44.20	18.20
9	#11550.00	49.3 AV	54.0	-4.7	2.11 V	234	31.10	18.20

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

3.2 CONDUCTED EMISSION MEASUREMENT

3.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

NOTE: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

3.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESCS30	100340	May 11,15	May 10,16
Artificial Mains Network	Rohde&Schwarz	ENV216	101173	Mar. 04,16	Mar. 03,17
Artificial Mains Network	Rohde&Schwarz	ESH3-Z5	100317	Apr. 05,16	Apr. 04,17
Voltage probe	SCHWARZBECK	TK 9421	TK 9421-176	Jan. 08,16	Jan. 07,17
Test software	ADT	ADT_Cond_V7.3.7	N/A	N/A	N/A

NOTE:

1. The test was performed in shielded room 553.
2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

3.2.3 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.

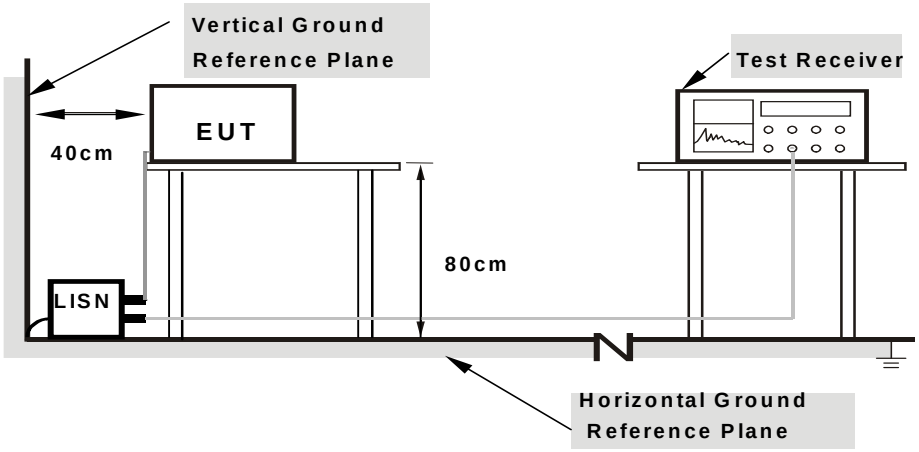
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

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

3.2.4 DEVIATION FROM TEST STANDARD

No deviation.

3.2.5 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).

3.2.6 EUT OPERATING CONDITIONS

Same as 3.1.6

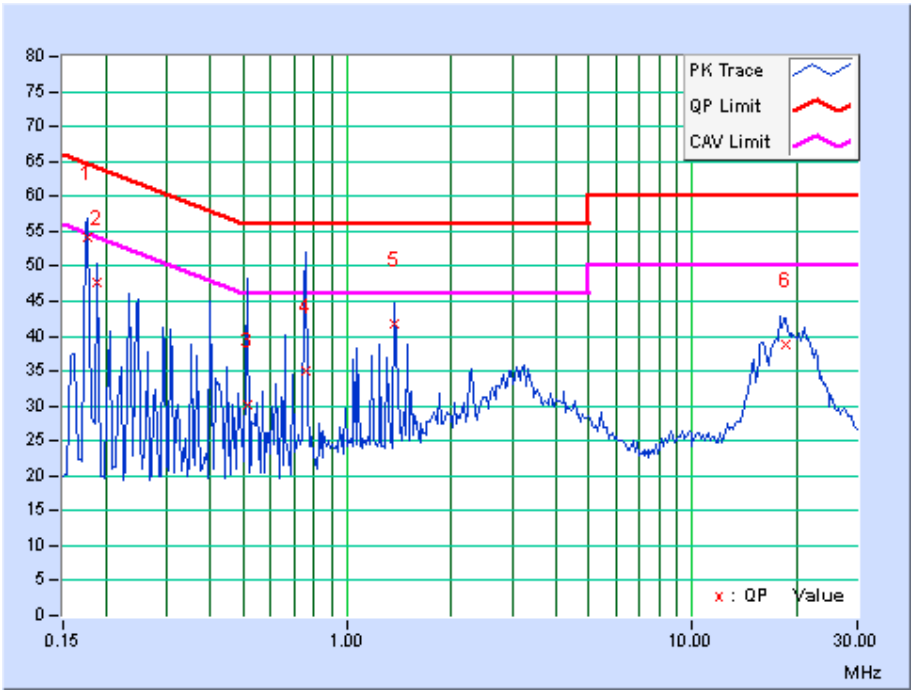
3.2.7 TEST RESULTS

CONDUCTED WORST-CASE DATA: WIFI LINK

PHASE	Line	6dB BANDWIDTH	9kHz

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18	9.73	44.40	28.76	54.13	38.49	64.61	54.61	-10.48	-16.12
2	0.19	9.72	37.94	19.16	47.66	28.88	64.08	54.08	-16.42	-25.20
3	0.51	9.78	20.46	11.08	30.24	20.86	56.00	46.00	-25.76	-25.14
4	0.76	9.76	25.16	18.42	34.92	28.18	56.00	46.00	-21.08	-17.82
5	1.38	9.74	32.12	10.10	41.86	19.84	56.00	46.00	-14.14	-26.16
6	18.65	9.98	28.72	19.66	38.70	29.64	60.00	50.00	-21.30	-20.36

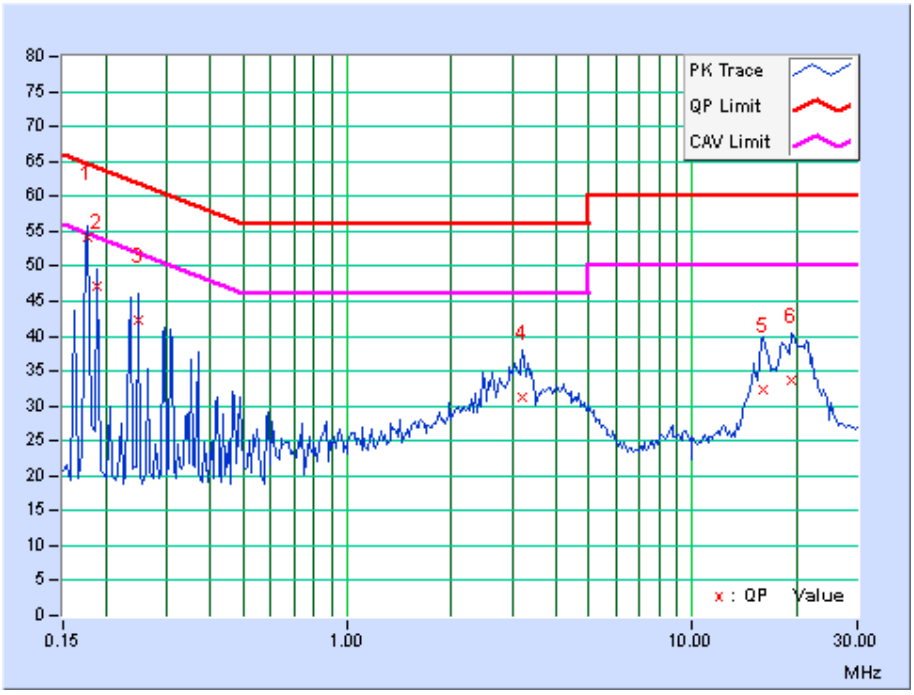
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



PHASE	Neutral	6dB BANDWIDTH	9kHz

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.18**	**9.48**	**44.70**	**30.28**	**54.18**	**39.76**	**64.61**	**54.61**	**-10.43**	**-14.85**
2	0.19	9.48	37.54	18.88	47.02	28.36	64.08	54.08	-17.06	-25.72
3	0.25	9.48	32.88	15.12	42.36	24.60	61.84	51.84	-19.48	-27.24
4	3.22	9.51	21.86	13.48	31.37	22.99	56.00	46.00	-24.63	-23.01
5	16.01	9.63	22.60	10.34	32.23	19.97	60.00	50.00	-27.77	-30.03
6	19.27	9.68	24.12	15.06	33.80	24.74	60.00	50.00	-26.20	-25.26

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



3.3 TRANSMIT POWER MEASUREMENT

3.3.1 LIMITS OF TRANSMIT POWER MEASUREMENT

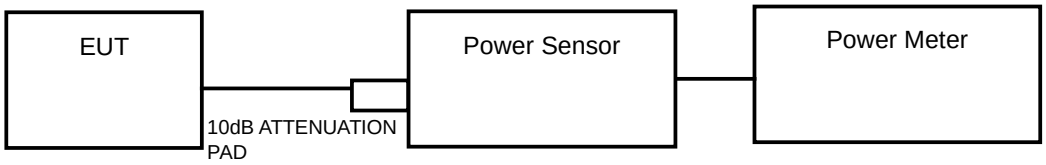
Operation Band	EUT Category		LIMIT
U-NII-1 U-NII-3		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p ≦ 125mW (21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
	√	Indoor Access Point	1 Watt (30 dBm)
		Mobile and Portable client device	250mW (24 dBm)

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

Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT;
Array Gain = 5 log(NANT/NSS) dB or 3 dB, whichever is less for 20-MHz channel widths with NANT ≥ 5.

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

3.3.2 TEST SETUP



3.3.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Power Sensor	Keysight	U2021XA	MY55060016	Feb. 18,16	Feb. 17,17
Power Sensor	Keysight	U2021XA	MY55060018	Feb. 18,16	Feb. 17,17
Digital Multimeter	FLUKE	15B	A1220010DG	Oct. 12, 15	Oct.11, 16
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Sep.07,15	Sep. 06,16
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 28,15	Nov. 27,16
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Nov. 09,15	Nov. 08,16
Signal Generator	Agilent	N5183A	MY50140980	Nov. 09,15	Nov. 08,16
ESG Vector Signal Generator	Agilent	E4438C	MY49072505	Nov. 09,15	Nov. 08,16
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Sep. 01,15	Aug. 31,16

NOTE:

1. The test was performed in RF Oven room.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

3.3.4 TEST PROCEDURE

For 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 added to measured value at the end.

For 802.11ac (80MHz)

1) Set span to encompass the entire 26 dB EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
2) Set sweep trigger to “free run”.
3) Set RBW = 1 MHz.
4) Set VBW ≥ 3 MHz
5) Number of points in sweep ≥ 2 Span / RBW.
6) Sweep time ≤ (number of points in sweep) * T
7) Detector = RMS.
8) Trace mode = max hold.
9) Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.

FOR 26dB BANDWIDTH

1) Set RBW = approximately 1% of the emission bandwidth.
2) Set the VBW > RBW.
3) Detector = RMS.
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%.

FOR 6dB BANDWIDTH

1) Set RBW = 100 kHz.
2) Set the video bandwidth (VBW) ≥ 3 RBW.
3) Detector = Peak.
4) Trace mode = max hold.
5) Sweep = auto couple.
6) Allow the trace to stabilize.
7) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

3.3.5 DEVIATION FROM TEST STANDARD

No deviation.

3.3.6 EUT OPERATING CONDITIONS

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

3.3.7 TEST RESULTS

POWER OUTPUT:

802.11a

Channel Number	FREQ. (MHz)	AVG. CONDUCTED POWER (dBm)	LIMIT (dBm)	PASS /FAIL
36	5180	15.32	30.00	PASS
40	5200	18.13	30.00	PASS
48	5240	18.02	30.00	PASS
149	5745	15.49	30.00	PASS
157	5785	17.29	30.00	PASS
165	5825	15.61	30.00	PASS

802.11n (20MHz)

Channel Number	FREQ. (MHz)	AVG. CONDUCTED POWER (dBm)	LIMIT (dBm)	PASS /FAIL
36	5180	15.50	30.00	PASS
40	5200	17.79	30.00	PASS
48	5240	17.86	30.00	PASS
149	5745	15.21	30.00	PASS
157	5785	17.42	30.00	PASS
165	5825	16.86	30.00	PASS

802.11n (40MHz)

Channel Number	FREQ. (MHz)	AVG. CONDUCTED POWER (dBm)	LIMIT (dBm)	PASS /FAIL
38	5190	14.92	30.00	PASS
46	5230	17.20	30.00	PASS
151	5755	15.33	30.00	PASS
159	5795	16.16	30.00	PASS

802.11ac (80MHz)

Channel Number	FREQ. (MHz)	AVG. CONDUCTED POWER (dBm)	LIMIT (dBm)	PASS /FAIL
42	5210	12.81	30.00	PASS
155	5775	13.05	30.00	PASS

26dB BANDWIDTH & 6dB BANDWIDTH:

Note: 26dB BANDWIDTH For U-NII-1, U-NII-2A, U-NII-2C band
6dB BANDWIDTH U-NII-3C band

802.11a

Channel Number	Freq. (MHz)	26dB DOWN BANDWIDTH (MHz)	LIMIT(MHz)	PASS /FAIL
			Minimum	
36	5180	26.90	0.5	PASS
40	5200	40.46	0.5	PASS
48	5240	39.57	0.5	PASS

Channel Number	Freq. (MHz)	6dB DOWN BANDWIDTH (MHz)	LIMIT(MHz)	PASS /FAIL
			Minimum	
149	5745	16.38	0.5	PASS
157	5785	16.38	0.5	PASS
165	5825	16.38	0.5	PASS

802.11n (20MHz)

Channel Number	Freq. (MHz)	26dB DOWN BANDWIDTH (MHz)	LIMIT(MHz)	PASS /FAIL
			Minimum	
36	5180	26.66	0.5	PASS
40	5200	41.02	0.5	PASS
48	5240	38.86	0.5	PASS

Channel Number	Freq. (MHz)	6dB DOWN BANDWIDTH (MHz)	LIMIT(MHz)	PASS /FAIL
			Minimum	
149	5745	16.99	0.5	PASS
157	5785	17.04	0.5	PASS
165	5825	17.00	0.5	PASS

802.11n (40MHz)

Channel Number	Freq. (MHz)	26dB DOWN BANDWIDTH (MHz)	LIMIT(MHz)	PASS /FAIL
			Minimum	
38	5190	43.85	0.5	PASS
46	5230	75.67	0.5	PASS

Channel Number	Freq. (MHz)	6dB DOWN BANDWIDTH (MHz)	LIMIT(MHz)	PASS /FAIL
			Minimum	
151	5755	36.00	0.5	PASS
159	5795	35.95	0.5	PASS

802.11ac (80MHz)

Channel Number	Freq. (MHz)	26dB DOWN BANDWIDTH (MHz)	LIMIT(MHz)	PASS /FAIL
			Minimum	
42	5210	97.75	0.5	PASS

Channel Number	Freq. (MHz)	6dB DOWN BANDWIDTH (MHz)	LIMIT(MHz)	PASS /FAIL
			Minimum	
155	5775	75.81	0.5	PASS

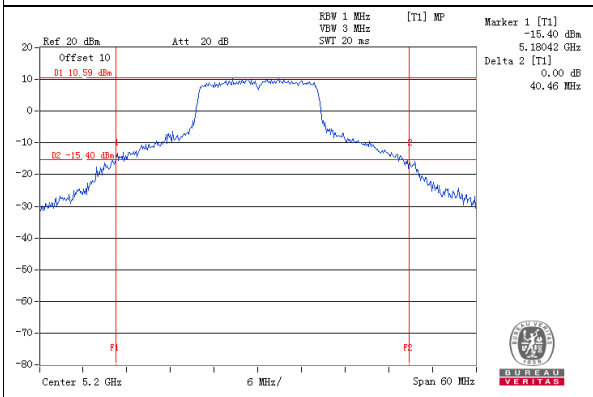
99% bandwidth

Modulation mode	Channel Number	Freq. (MHz)	OCCUPIED BANDWIDTH (MHz)
802.11a	**48**	5240	19.28
802.11n 20MHz	**48**	5240	19.20
802.11n 40MHz	**46**	5230	37.00
802.11ac 80MHz	**42**	5210	75.60

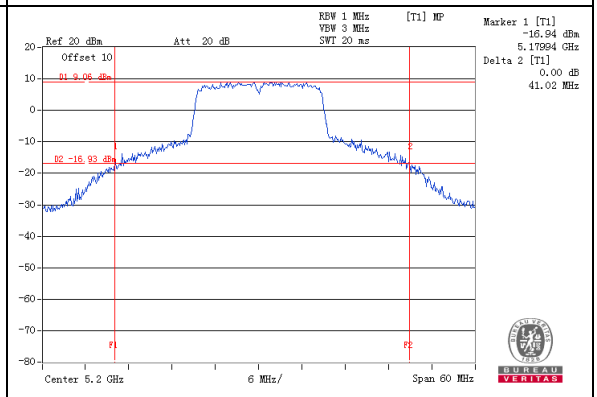
Note: The 99% Occupied bandwidth of Band 1 highest channel without over the band edge of DFS band.

26dB bandwidth Test Plot

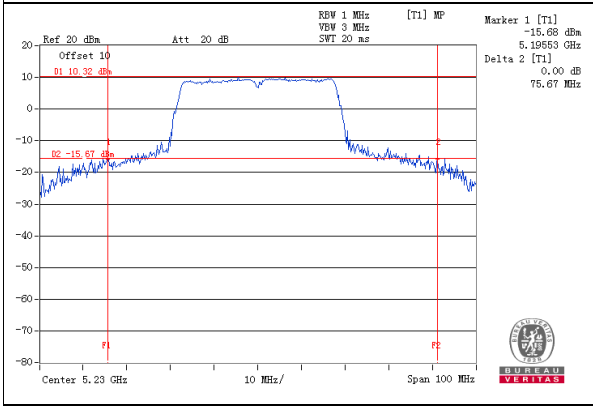
802.11a



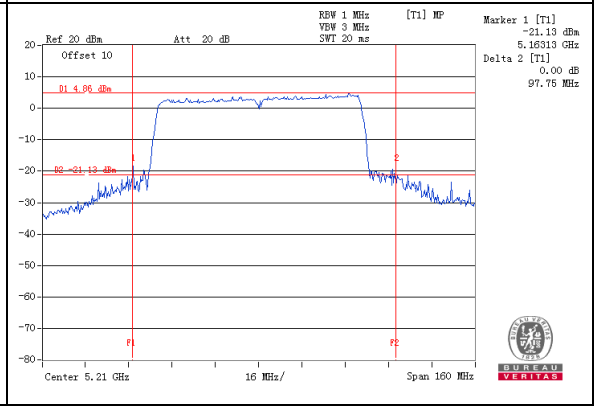
802.11n 20MHz



802.11n 40MHz

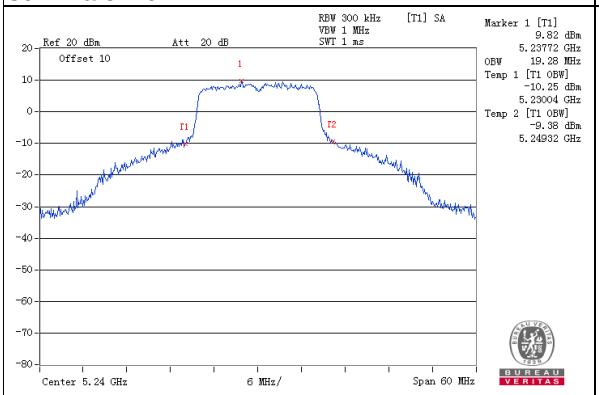


802.11ac 80MHz

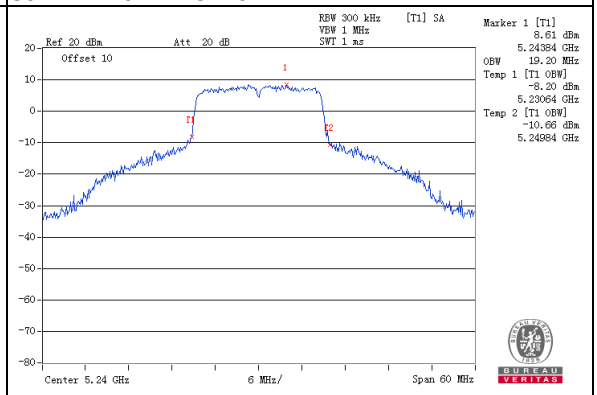


99% bandwidth Test Plot

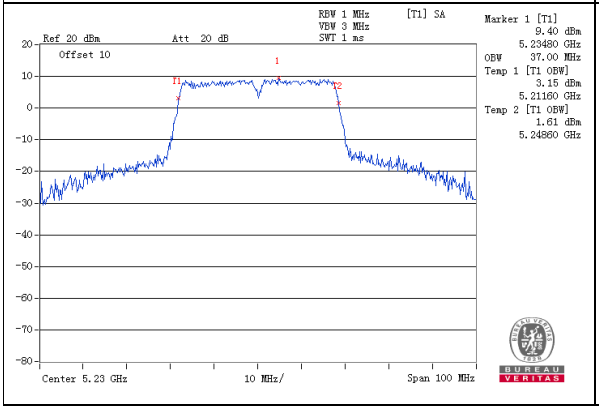
802.11a 5240MHz



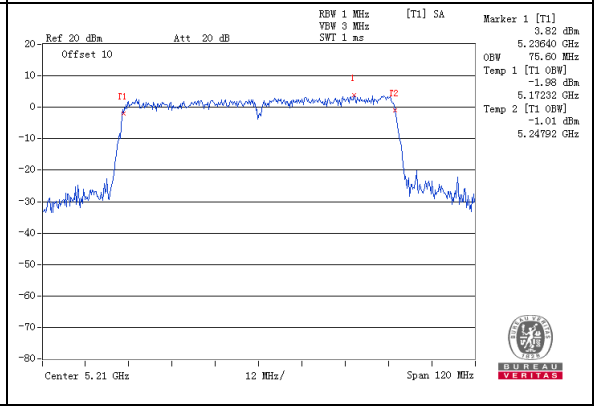
802.11n 20MHz 5240MHz



802.11n 40MHz 5230MHz

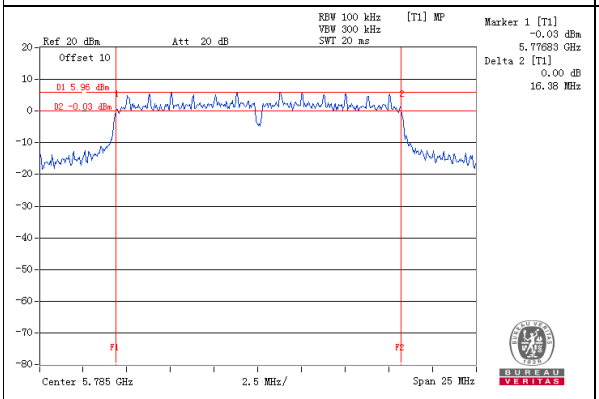


802.11ac 80MHz 5210MHz

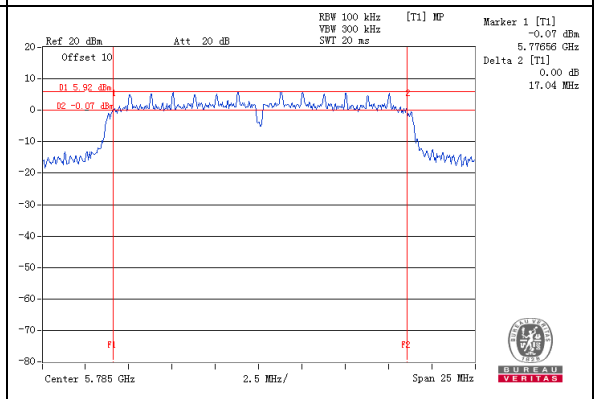


6dB bandwidth Test Plot

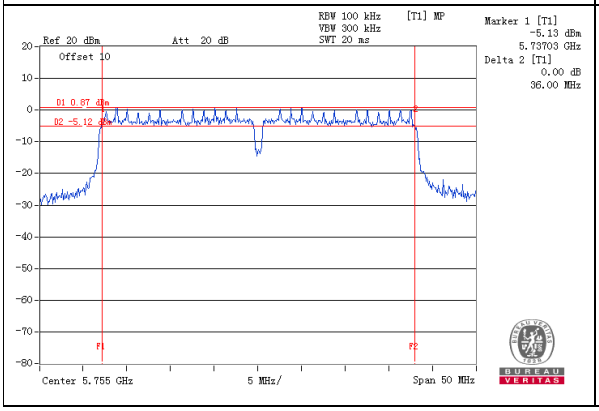
802.11a



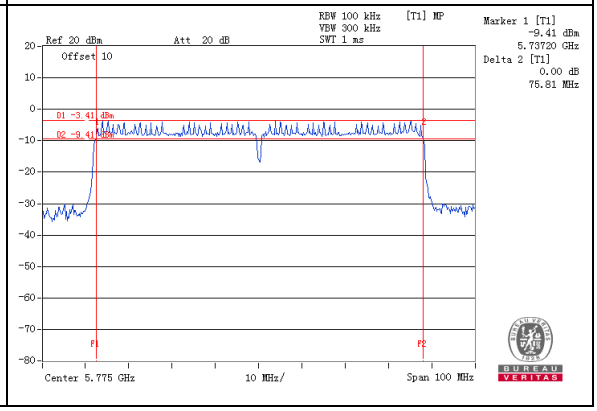
802.11n 20MHz



802.11n 40MHz



802.11ac 80MHz

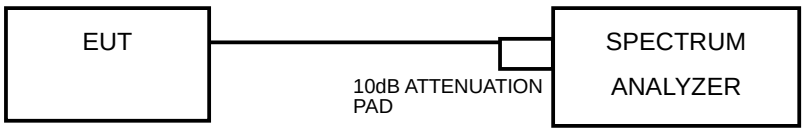


3.4 PEAK POWER SPECTRAL DENSITY MEASUREMENT

3.4.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	17dBm/ MHz
		Fixed point-to-point Access Point	
	√	Indoor Access Point	
		Mobile and Portable client device	11dBm/ MHz
U-NII-3	√	All Category	30dBm/500kHz

3.4.2 TEST SETUP



3.4.3 TEST INSTRUMENTS

Refer to section 3.3.3 to get information of above instrument.

3.4.4 TEST PROCEDURES

For U-NII-1, U-NII-2A, U-NII-2C, U-NII-3 band:

Using method SA-1

1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
2) Set RBW = 1MHz(Band 1) & 300KHz(Band 4), Set VBW = 3MHz(Band 1) & 1MHz(Band 4),, Detector = RMS
3) Set Channel power measure = 1MHz
4) Sweep time = auto, trigger set to “free run”.
5) Trace average at least 100 traces in power averaging mode.
6) Record the max value

Using method SA-2

1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
2) Set RBW = 1MHz(Band 1) & 300KHz(Band 4), Set VBW = 3MHz(Band 1) & 1MHz(Band 4),, Detector = RMS
3) Set Channel power measure = 1MHz
4) Sweep time = auto, trigger set to “free run”.
5) Trace average at least 100 traces in power averaging mode.
6) Record the max value and add 10 log (1/duty cycle)

3.4.5 DEVIATION FROM TEST STANDARD

No deviation.

3.4.6 EUT OPERATING CONDITIONS

Same as 3.3.6

3.4.7 TEST RESULTS

802.11a

U-NII-1 (5180-5240MHz)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm/MHz)	TOTAL POWER DENSITY (dBm/MHz)	MAX. LIMIT (dBm/MHz)	PASS / FAIL
36	5180	2.16	5.26	17.00	PASS
40	5200	5.21	8.31	17.00	PASS
48	5240	5.29	8.39	17.00	PASS

NOTE:

1. 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.
2. **For U-NII-1 Band:**
   Directional gain = 2.5dBi + 10log(0) = 2.5dBi <6dBi , so the power density limit doesn't need to be reduced.
3. according to KDB 789033, total power density need add duty factor 0.6.

802.11a

U-NII-3(5745-5825MHz)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm/MHz)	TOTAL POWER DENSITY (dBm/MHz)	MAX. LIMIT (dBm/MHz)	PASS / FAIL
149	5745	-6.41	-3.31	30.00	PASS
157	5785	-6.02	-2.92	30.00	PASS
165	5825	-5.06	-1.96	30.00	PASS

NOTE:

1. 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.
2. **For U-NII-1 Band:**
   Directional gain = 2.5dBi + 10log(0) = 2.5dBi <6dBi , so the power density limit doesn't need to be reduced.
3. according to KDB 789033, total power density need add duty factor 0.6.

802.11n(20M)

U-NII-1 (5180-5240MHz)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm/MHz)	TOTAL POWER DENSITY (dBm/MHz)	MAX. LIMIT (dBm/MHz)	PASS / FAIL
36	5180	0.96	4.12	17.00	PASS
40	5200	4.40	7.56	17.00	PASS
48	5240	3.68	6.84	17.00	PASS

NOTE:

1. 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.
2. **For U-NII-1 Band:**
   Directional gain = 2.5dBi + 10log(0) = 2.5dBi <6dBi , so the power density limit doesn't need to be reduced.
3. according to KDB 789033, total power density need add duty factor 0.66.

802.11n(20M)

U-NII-3(5745-5825MHz)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm/MHz)	TOTAL POWER DENSITY (dBm/MHz)	MAX. LIMIT (dBm/MHz)	PASS / FAIL
149	5745	-6.96	-3.80	30.00	PASS
157	5785	-5.47	-2.31	30.00	PASS
165	5825	-6.49	-3.33	30.00	PASS

NOTE:

1. 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.
2. **For U-NII-1 Band:**
   Directional gain = 2.5dBi + 10log(0) = 2.5dBi <6dBi , so the power density limit doesn't need to be reduced.
3. according to KDB 789033, total power density need add duty factor 0.66.

802.11n (40MHz)
U-NII-3 (5180-5240MHz)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm/MHz)	TOTAL POWER DENSITY (dBm/MHz)	MAX. LIMIT (dBm/MHz)	PASS / FAIL
38	5190	-5.78	-2.09	17.00	PASS
46	5230	-1.89	1.80	17.00	PASS

NOTE:
1. 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.
2. **For U-NII-1 Band:**
   Directional gain = 2.5dBi + 10log(0) = 2.5dBi <6dBi , so the power density limit doesn't need to be reduced.
3. according to KDB 789033, total power density need add duty factor 1.19.

U-NII-3 (5745-5825MHz)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm/MHz)	TOTAL POWER DENSITY (dBm/MHz)	MAX. LIMIT (dBm/MHz)	PASS / FAIL
151	5755	-10.40	-6.71	30.00	PASS
159	5795	-10.21	-6.52	30.00	PASS

NOTE:
1. 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.
2. **For U-NII-1 Band:**
   Directional gain = 2.5dBi + 10log(0) = 2.5dBi <6dBi , so the power density limit doesn't need to be reduced.
3. according to KDB 789033, total power density need add duty factor 1.19.

802.11ac (80MHz)
U-NII-3 (5180-5240MHz)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm/MHz)	TOTAL POWER DENSITY (dBm/MHz)	MAX. LIMIT (dBm/MHz)	PASS / FAIL
42	5210	-8.31	-3.61	30.00	PASS

NOTE:
1. 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.
2. **For U-NII-1 Band:**
   Directional gain = 2.5dBi + 10log(0) = 2.5dBi <6dBi , so the power density limit doesn't need to be reduced.
3. according to KDB 789033, total power density need add duty factor 2.2.

U-NII-3 (5745-5825MHz)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm/MHz)	TOTAL POWER DENSITY (dBm/MHz)	MAX. LIMIT (dBm/MHz)	PASS / FAIL
155	5775	-16.98	-12.28	30.00	PASS

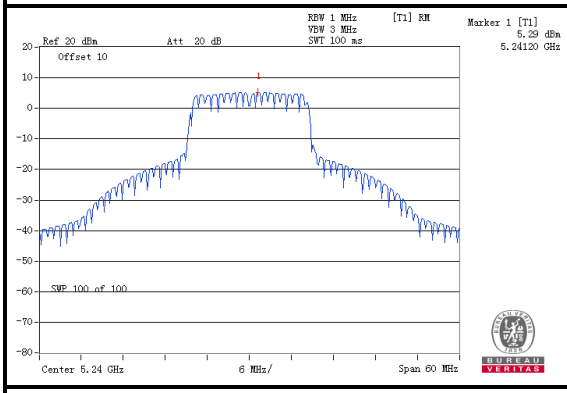
NOTE:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. **For U-NII-1 Band:**
   Directional gain = 2.5dBi + 10log(0) = 2.5dBi <6dBi , so the power density limit doesn't need to be reduced.
3. according to KDB 789033, total power density need add duty factor 2.2.

BAND 1

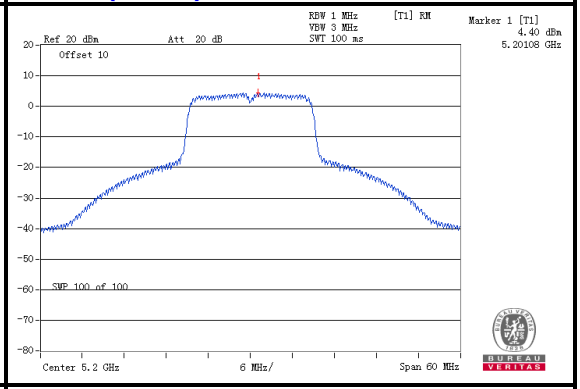
U-NII-1 5180-5240MHz

SPECTRUM PLOT OF WORST VALUE

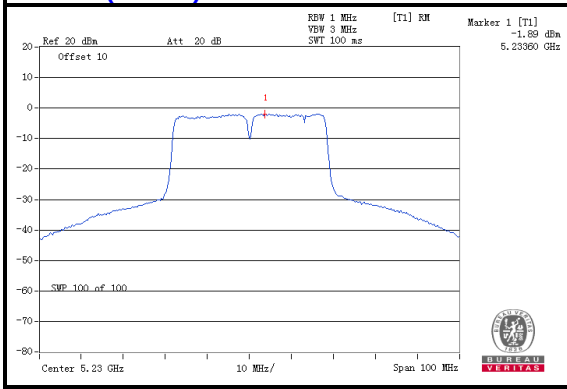
802.11a



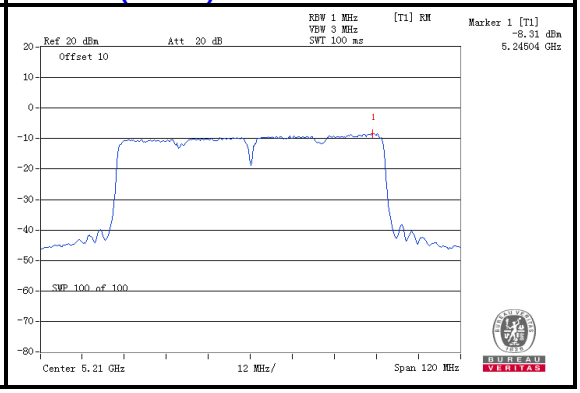
802.11n (20MHz)



802.11n (40MHz)

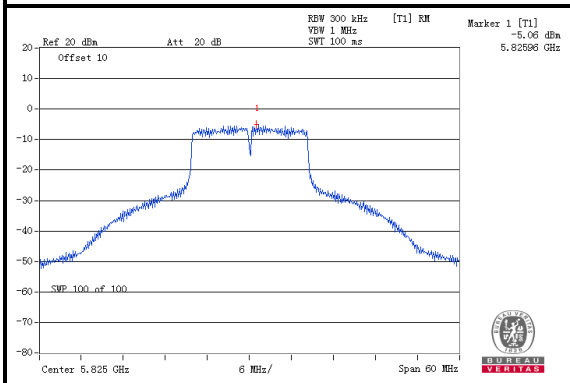
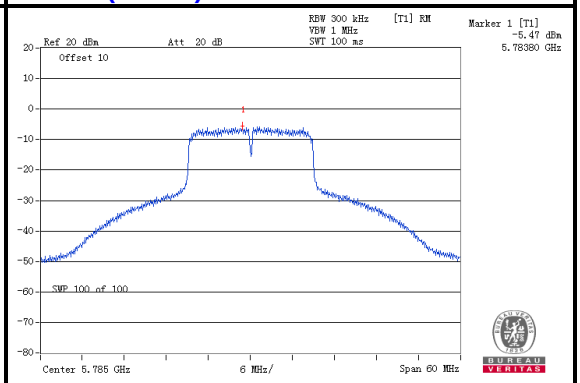
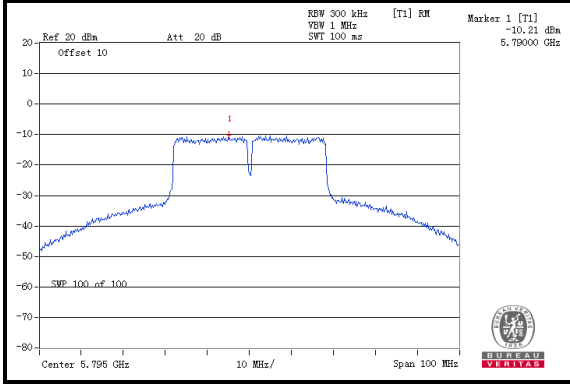
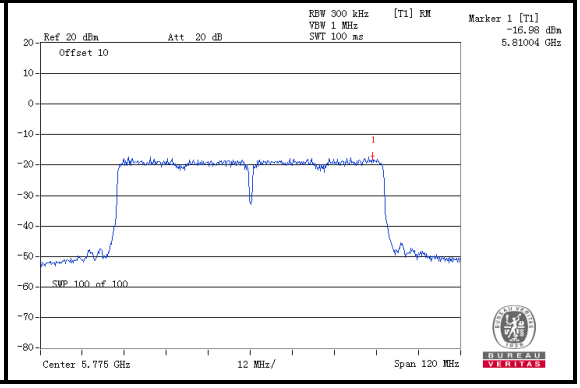


802.11ac (80MHz)



BAND4

U-NII-3 5745-5825MHz

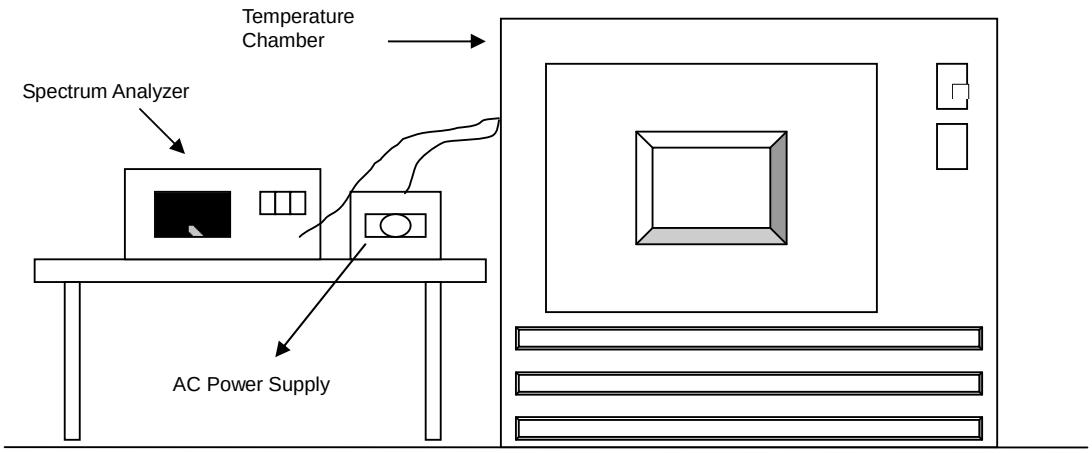
SPECTRUM PLOT OF WORST VALUE	
802.11a	**802.11n (20MHz)**
	
802.11n (40MHz)	**802.11ac (80MHz)**
	

3.5 FREQUENCY STABILITY

3.5.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

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

3.5.2 TEST SETUP



3.5.3 TEST INSTRUMENTS

Refer to section 3.3.3 to get information of above instrument.

3.5.4 TEST PROCEDURE

a. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.

b. Turn the EUT on and couple its output to a spectrum analyzer.

c. Turn the EUT off and set the chamber to the highest temperature specified.

d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.

e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.

f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

3.5.5 DEVIATION FROM TEST STANDARD

No deviation.

3.5.6 EUT OPERATING CONDITION

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

3.5.7 TEST RESULTS

FREQUEMCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5180MHz									
TEMP. (℃)	POWER SUPPLY (Vac)	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	120	5179.9837	-0.00031	5179.9811	-0.00036	5179.9842	-0.00031	5179.9822	-0.00034
40	120	5180.0014	0.00003	5180.0008	0.00002	5180.0003	0.00001	5179.9982	-0.00003
30	120	5180.0099	0.00019	5180.0079	0.00015	5180.0064	0.00012	5180.0088	0.00017
20	120	5180.0079	0.00015	5180.0073	0.00014	5180.0076	0.00015	5180.0085	0.00016
10	120	5179.9892	-0.00021	5179.9907	-0.00018	5179.9897	-0.00020	5179.9913	-0.00017
0	120	5179.9858	-0.00027	5179.9812	-0.00036	5179.9843	-0.00030	5179.9859	-0.00027
-10	120	5180.0143	0.00028	5180.0162	0.00031	5180.0154	0.00030	5180.0143	0.00028
-20	120	5179.9763	-0.00046	5179.9749	-0.00048	5179.976	-0.00046	5179.9744	-0.00049
-30	120	5180.0224	0.00043	5180.0237	0.00046	5180.0228	0.00044	5180.0247	0.00048

FREQUEMCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5180MHz									
TEMP. (℃)	POWER SUPPLY (Vac)	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	138	5180.0087	0.00017	5180.0068	0.00013	5180.0074	0.00014	5180.0092	0.00018
	120	5180.0079	0.00015	5180.0073	0.00014	5180.0076	0.00015	5180.0085	0.00016
	102	5180.0083	0.00016	5180.0071	0.00014	5180.007	0.00014	5180.0082	0.00016

4. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

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

No modifications were made to the EUT by the lab during the test.

---END---