Certificate # 2951.01

TEST REPORT

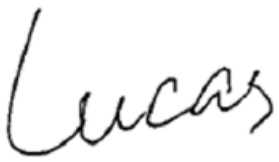
Applicant	Motorola Solutions Inc.
Address	8000 West Sunrise Boulevard, Plantation, FL 33322, United States

Manufacturer or Supplier	Motorola Solutions
Address	16 Forth Street, Edinburgh, EH1 3LH, United Kingdom
Product Name	VB400
Brand Name	Motorola Solutions
Model	VB400
Additional Model & Model Difference	N/A
Date of tests	Sep. 08, 2020 ~ Oct. 19, 2020

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 Lucas Chen Project Engineer / EMC Department	Approved by Glyn He Assistant Manager / EMC Department
	 Date: Dec. 08, 2020

Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch

No. 96, Guantai Road (Houjie Section), Houjie Town, Dongguan City, Guangdong Province. 523942. People's Republic of China.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF2009WDG0079-3	Original release	Dec. 08, 2020

Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch

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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	N/A	Power by Battery
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	No antenna connector is used

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
Radiated emissions	9KHz ~ 30MHz	2.16dB
	30MHz ~ 1GMHz	3.60dB
	1GHz ~ 18GHz	4.82dB
	18GHz ~ 40GHz	5.00dB

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

PRODUCT NAME	VB400
MODEL NO.	VB400
FCC ID	AZ489FT7142
POWER SUPPLY	DC 3.8V Supplied by Li-ion Battery, DC 5V Charged by the Solo Docking Station
MODULATION TYPE	256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	OFDM
TRANSFER RATE	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11ac: up to 200Mbps
OPERATING FREQUENCY	5180 ~ 5240MHz, 5260 ~ 5320MHz
NUMBER OF CHANNEL	5180 ~ 5240MHz: 4 channels for 802.11a, 802.11n(HT20),11ac (VHT20) 2 channels for 802.11n,11ac (40MHz) 5260 ~ 5320MHz: 4 channels for 802.11a, 802.11n(HT20),11ac (VHT20) 2 channels for 802.11n,11ac (40MHz)
CONDUCTED OUTPUT POWER	10.36dBm for 5150 ~ 5250MHz (Maximum AVG Power) 9.64dBm for 5250 ~ 5350MHz (Maximum AVG Power)
ANTENNA TYPE	5180 ~ 5240MHz: PCB antenna with 1.25dBi gain 5260 ~ 5320MHz: PCB antenna with 1.25dBi gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	USB cable : Shielded, detachable, 1.0m

NOTES:

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

MODULATION MODE	FUNCTION
802.11a	1TX
802.11n (HT20) 802.11ac (VHT20)	1TX
802.11n (HT40) 802.11ac (VHT40)	1TX

* The modulation and bandwidth are similar for 802.11n mode for HT20 / HT40 and 802.11ac mode for VHT20 / VHT40, therefore investigated worst case for final test were chosen 802.11n (HT20/HT40) and record in the report.

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.: 2009WDG0079) for detailed product photo.
5. When the EUT charging that wireless function can't working, the charging mode was tested in the FCC SDoc report.(report no.: FS2009WDG0079).
6. The EUT has two RF modules, specific RF functions are as follows:

Module	RF Function
Redpine RS9116	BT_EDR
	WIFI 2.4GHz
	WIFI 5GHz(Band 1,2)
MS50SF3_52832	BTLE

2.2 DESCRIPTION OF TEST MODES

FOR 5150 ~ 5250MHz

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac(VHT20):

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

2 channels are provided for 802.11n (HT40), 802.11ac(VHT40):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	46	5230 MHz

FOR 5250 ~ 5350MHz

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac(VHT20):

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

2 channels are provided for 802.11n (HT40), 802.11ac(VHT40):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
54	5270 MHz	62	5310 MHz

2.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	-	√	**Powered by Battery with wifi(5G) link**

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 **X-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)
A	802.11a	5150-5250	36 to 48	36, 40, 48	OFDM	BPSK	6.0
	802.11n (20MHz)		36 to 48	36, 40, 48	OFDM	BPSK	6.5
	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	13.5
	802.11a	5250-5350	52 to 64	52, 60, 64	OFDM	BPSK	6.0
	802.11n (20MHz)		52 to 64	52, 60, 64	OFDM	BPSK	6.5
	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	13.5

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	802.11a	5150-5250	36 to 48	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)
A	802.11a	5150-5250	36 to 48	36, 40, 48	OFDM	BPSK	6.0
	802.11n (20MHz)		36 to 48	36, 40, 48	OFDM	BPSK	6.5
	802.11n (40MHz)		38 to 46	38, 46	OFDM	BPSK	13.5
	802.11a	5250-5350	52 to 64	52, 60, 64	OFDM	BPSK	6.0
	802.11n (20MHz)		52 to 64	52, 60, 64	OFDM	BPSK	6.5
	802.11n (40MHz)		54 to 62	54, 62	OFDM	BPSK	13.5

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE<1G	24deg. C, 55%RH	DC 3.8V From Full Battery	Vincent
RE≥1G	24deg. C, 55%RH	DC 3.8V From Full Battery	Vincent
PLC	N/A	N/A	N/A
APCM	20deg. C, 55%RH	DC 3.8V From Full Battery	Daniel

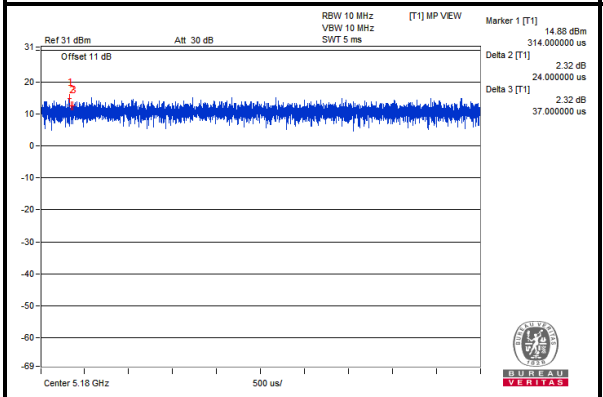
2.3 DUTY CYCLE OF TEST SIGNAL

802.11a: Duty cycle = 100 %

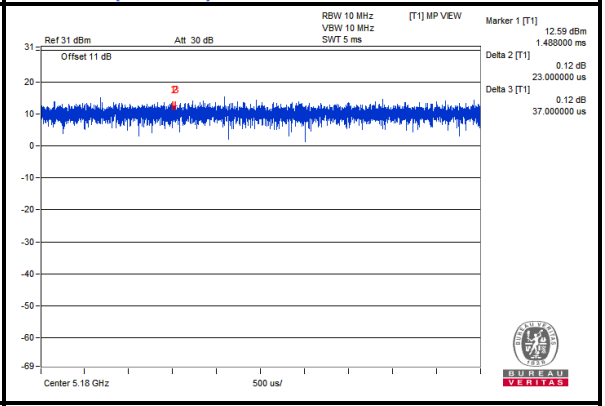
802.11n (20MHz): Duty cycle =100 %

802.11n (40MHz): Duty cycle =100 %

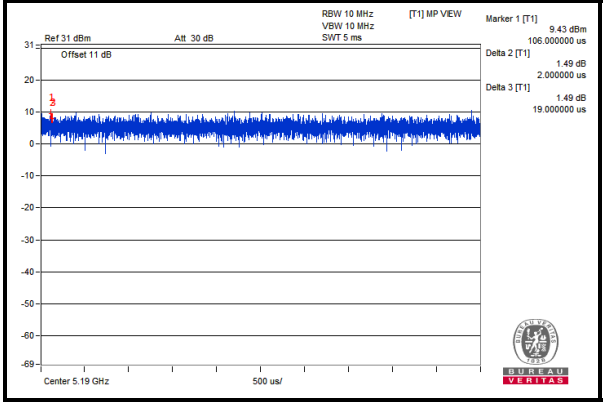
802.11a



802.11n (20MHz)



802.11n (40MHz)



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 v01r03
ANSI C63.10-2013

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

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

NOTES:
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 v01r03	FIELD STRENGTH AT 3m	
	PK: 74 (dBμV/m)	AV: 54 (dBμV/m)
APPLICABLE TO	**EIRP LIMIT**	**EQUIVALENT FIELD STRENGTH AT 3m**
15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)
15.407(b)(2)		
15.407(b)(3)		
15.407(b)(4)	Note	Note

NOTE: For transmitters operating in the 5.725-5.85 GHz band:

Section 15.407(b)(4) specifies the unwanted emissions limit for the U-NII-3 band. A band emissions mask is specified in Section 15.407(b)(4)(i). An alternative to the band emissions mask is specified in Section 15.407(b)(4)(ii). The alternative limits are based on the highest antenna gain specified in the filing. There are also marketing and importation restrictions for the alternative limit.

15.407(b)(4)(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the 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.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESU40	100449	Mar. 11,21
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV7	102331	Aug. 01,21
Active Loop Antenna (9KHz -30MHz)	SCHWARZBECK	FMZB 1519B	1519B-045	May 03,21
Amplifier (9KHz -1GHz)	Burgeon	BPA-530	100210	Apr. 18,21
Bilog Antenna (20MHz -2GHz)	Teseq	CBL 6111D	30643	Aug. 10, 21
Horn Antenna (1GHz -18GHz)	ETS -Lindgren	3117	00062558	Jul. 20, 21
Horn Antenna (18GHz -40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170242	May 04,21
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	Feb. 09,21
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A
Broadband Preamplifier (1GHz~18GHz)	SCHWARZBECK	BBV9718	305	Apr. 18,21
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 08,20
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A

NOTES:

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
2. The horn antenna is used only for the measurement of emission frequency above1GHz if tested.
3. The FCC Site Registration No. is 749762.

3.1.4 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 1.5 meters(above 1GHz) and 0.8 meters(below 1GHz) 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.

NOTES:

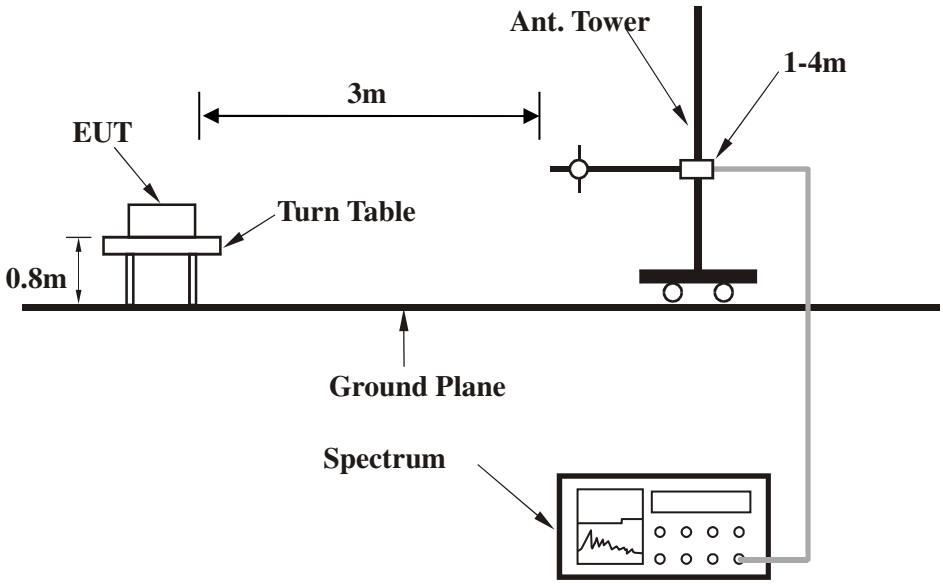
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

3.1.5 DEVIATION FROM TEST STANDARD

No deviation.

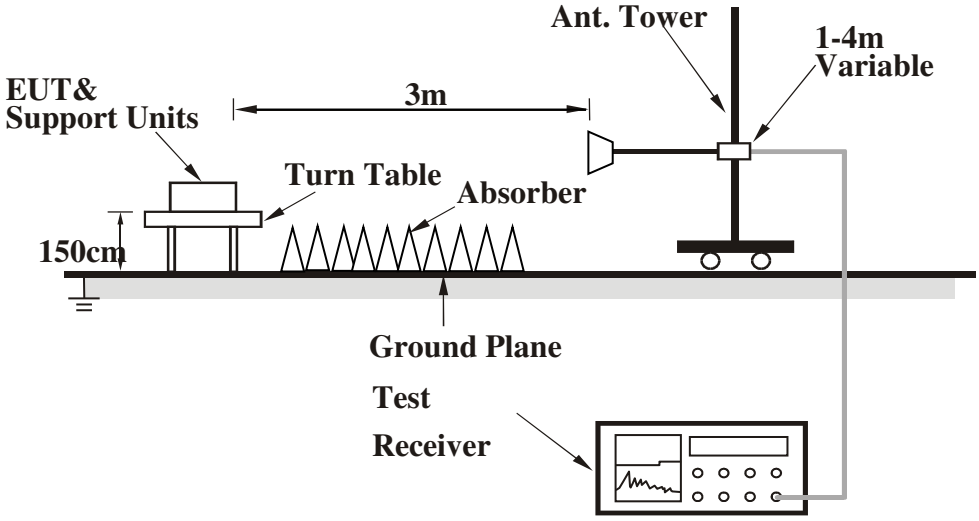
3.1.6 TEST SETUP

Below 1GHz test setup



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

Above 1GHz test setup



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

3.1.7 EUT OPERATING CONDITION

a. Set the EUT under full load condition and placed them on a testing table.

b. Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.

c. The necessary accessories enable the EUT in full functions.

3.1.8 FTEST RESULTS

BELOW 1GHz WORST-CASE DATA

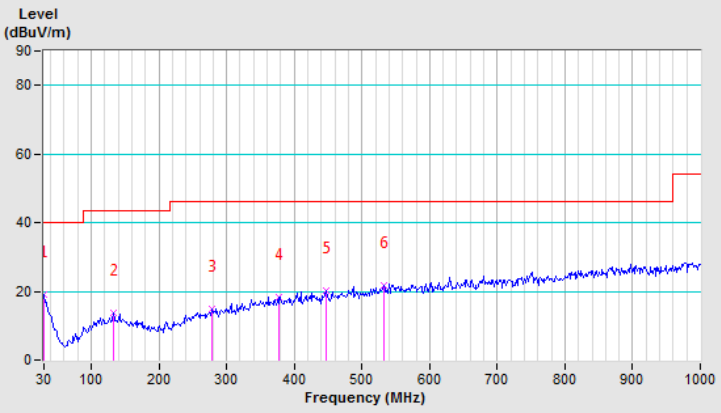
802.11a

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 (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	30.00	19.20 QP	40.00	-20.80	1.00 H	152	29.30	-10.10
2	132.60	13.69 QP	43.50	-29.81	1.00 H	303	29.82	-16.13
3	278.72	14.85 QP	46.00	-31.15	1.00 H	179	28.51	-13.66
4	376.65	18.15 QP	46.00	-27.85	1.00 H	204	28.08	-9.93
5	446.60	20.27 QP	46.00	-25.73	1.00 H	82	28.86	-8.59
6	532.10	21.82 QP	46.00	-24.18	1.00 H	77	28.45	-6.63

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 emission levels of other frequencies were less than 20dB margin against the limit.
4. 9KHz~30MHz have been test and test data more than 20dB margin.
5. Margin value = Emission level – Limit value.

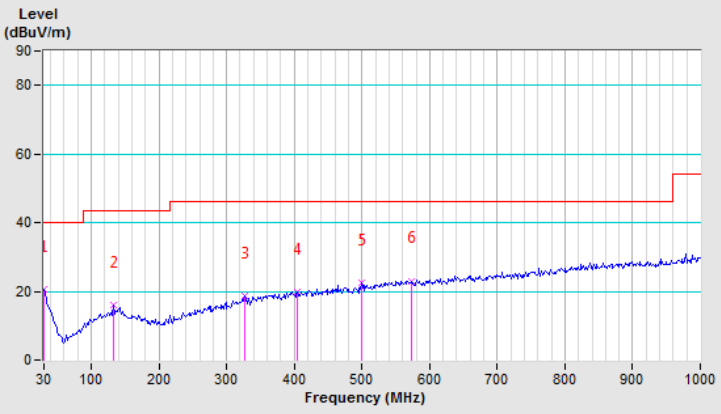


CHANNEL	TX Channel 36	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	**30.00**	**20.71 QP**	**40.00**	**-19.29**	**1.00 V**	**192**	**30.81**	**-10.10**
2	132.60	15.86 QP	43.50	-27.64	1.00 V	47	31.99	-16.13
3	326.91	18.62 QP	46.00	-27.38	1.00 V	122	30.12	-11.50
4	404.63	19.80 QP	46.00	-26.20	1.00 V	208	29.10	-9.30
5	499.46	22.51 QP	46.00	-23.49	1.00 V	242	30.24	-7.73
6	572.52	23.05 QP	46.00	-22.95	1.00 V	301	29.04	-5.99

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 emission levels of other frequencies were less than 20dB margin against the limit.
4. 9KHz~30MHz have been test and test data more than 20dB margin.
5. Margin value = Emission level – Limit value.



Band 1 (5150-5250MHz):

ABOVE 1GHz DATA

802.11a

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

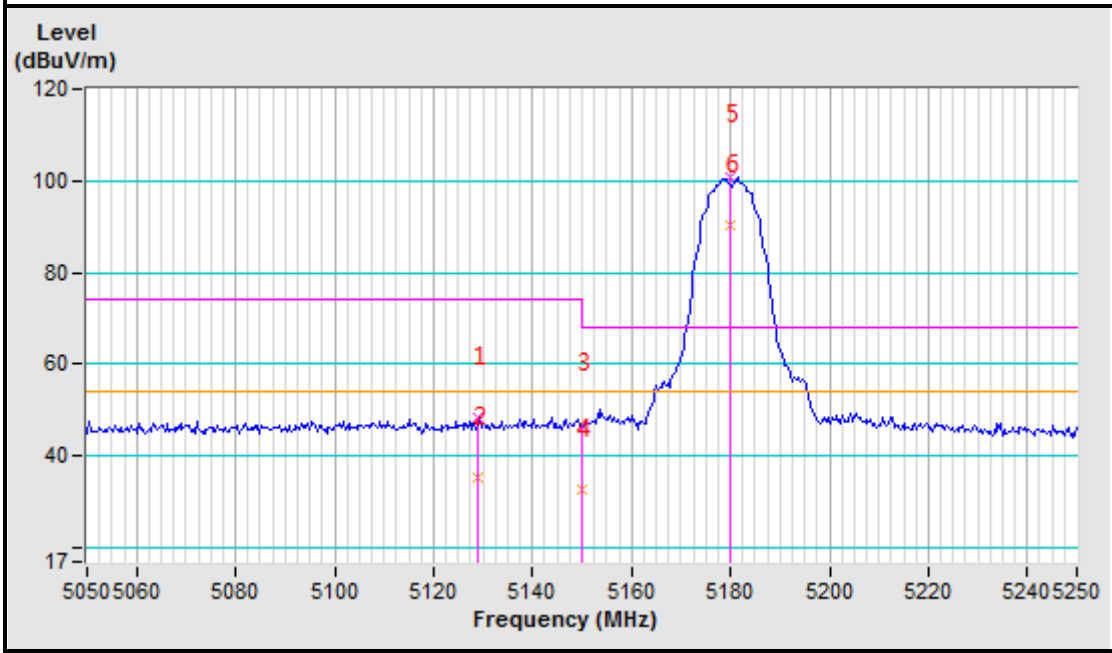
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	5129.00	48.41 PK	74.00	-25.59	1.52 H	130	43.21	5.20
2	5129.00	35.31 AV	54.00	-18.69	1.52 H	130	30.11	5.20
3	5150.00	46.79 PK	74.00	-27.21	1.52 H	130	41.59	5.20
4	5150.00	32.51 AV	54.00	-21.49	1.52 H	130	27.31	5.20
5	*5180.00	100.87 PK			1.52 H	130	95.68	5.19
6	*5180.00	90.24 AV			1.52 H	130	85.05	5.19
7	#10360.00	56.24 PK	68.20	-11.96	1.00 H	0	46.54	9.70
8	15540.00	63.52 PK	74.00	-10.48	1.00 H	0	50.03	13.49
9	15540.00	48.15 AV	54.00	-5.85	1.00 H	0	34.66	13.49
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	5137.00	45.05 PK	74.00	-28.95	1.08 V	110	39.85	5.20
2	5137.00	33.54 AV	54.00	-20.46	1.08 V	110	28.34	5.20
3	5150.00	53.41 PK	74.00	-20.59	1.08 V	110	48.21	5.20
4	5150.00	33.58 AV	54.00	-20.42	1.08 V	110	28.38	5.20
5	*5180.00	94.13 PK			1.08 V	110	88.94	5.19
6	*5180.00	83.48 AV			1.08 V	110	78.29	5.19
7	#10360.00	56.54 PK	68.20	-11.66	1.00 V	0	46.84	9.70
8	15540.00	64.52 PK	74.00	-9.48	1.00 V	0	51.03	13.49
9	15540.00	49.18 AV	54.00	-4.82	1.00 V	0	35.69	13.49

REMARKS:

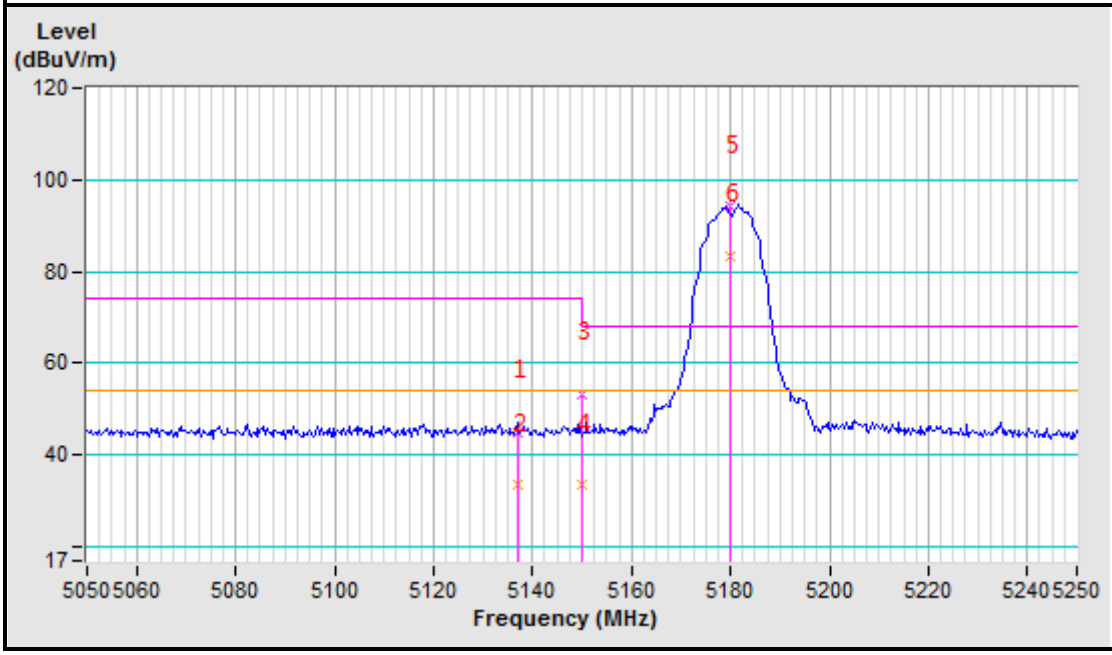
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

Band edge Plot

5180MHz Horizontal



5180MHz Vertical



CHANNEL	TX Channel 40	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	5148.00	44.64 PK	74.00	-29.36	1.00 H	55	39.44	5.20
2	5148.00	34.64 AV	54.00	-19.36	1.00 H	55	29.44	5.20
3	5150.00	45.67 PK	74.00	-28.33	1.00 H	55	40.47	5.20
4	5150.00	34.69 AV	54.00	-19.31	1.00 H	55	29.49	5.20
5	*5200.00	101.58 PK			1.00 H	55	96.39	5.19
6	*5200.00	94.34 AV			1.00 H	55	89.15	5.19
7	#10400.00	56.38 PK	68.20	-11.82	1.00 H	0	46.51	9.87
8	15600.00	64.68 PK	74.00	-9.32	1.00 H	0	51.11	13.57
9	15600.00	49.61 AV	54.00	-4.39	1.00 H	0	36.04	13.57
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	5143.54	45.65 PK	74.00	-28.35	1.07 V	114	40.45	5.20
2	5143.54	32.54 AV	54.00	-21.46	1.07 V	114	27.34	5.20
3	5150.00	45.64 PK	74.00	-28.36	1.07 V	114	40.44	5.20
4	5150.00	32.64 AV	54.00	-21.36	1.07 V	114	27.44	5.20
5	*5200.00	94.28 PK			1.07 V	114	89.09	5.19
6	*5200.00	82.69 AV			1.07 V	114	77.50	5.19
7	#10400.00	55.64 PK	68.20	-12.56	1.00 V	0	45.77	9.87
8	15600.00	65.34 PK	74.00	-8.66	1.00 V	0	51.77	13.57
9	15600.00	49.54 AV	54.00	-4.46	1.00 V	0	35.97	13.57

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 emission levels of other frequencies were less than 20dB margin 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)
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	5135.34	45.64 PK	74.00	-28.36	1.00 H	234	40.44	5.20
2	5135.34	32.60 AV	54.00	-21.40	1.00 H	234	27.40	5.20
3	5150.00	45.65 PK	74.00	-28.35	1.00 H	234	40.45	5.20
4	5150.00	34.36 AV	54.00	-19.64	1.00 H	234	29.16	5.20
5	*5240.00	100.29 PK			1.00 H	234	95.11	5.18
6	*5240.00	88.68 AV			1.00 H	234	83.50	5.18
7	#5274.64	47.64 PK	68.20	-20.56	1.00 H	234	42.47	5.17
8	#5274.64	35.64 AV	54.00	-18.36	1.00 H	234	30.47	5.17
9	5350.00	47.61 PK	74.00	-26.39	1.00 H	234	42.46	5.15
10	5350.00	36.25 AV	54.00	-17.75	1.00 H	234	31.10	5.15
11	#10480.00	55.69 PK	68.20	-12.51	1.00 H	0	45.48	10.21
12	15720.00	65.31 PK	74.00	-8.69	1.00 H	0	51.59	13.72
13	15720.00	49.58 AV	54.00	-4.42	1.00 H	0	35.86	13.72
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	5140.64	44.64 PK	74.00	-29.36	1.00 V	55	39.44	5.20
2	5140.64	32.69 AV	54.00	-21.31	1.00 V	55	27.49	5.20
3	5150.00	44.61 PK	74.00	-29.39	1.00 V	55	39.41	5.20
4	5150.00	33.99 AV	54.00	-20.01	1.00 V	55	28.79	5.20
5	*5240.00	95.26 PK			1.00 V	55	90.08	5.18
6	*5240.00	84.65 AV			1.00 V	55	79.47	5.18
7	5350.00	47.64 PK	74.00	-26.36	1.00 V	55	42.49	5.15
8	5350.00	35.64 AV	54.00	-18.36	1.00 V	55	30.49	5.15
9	5368.00	46.34 PK	74.00	-27.66	1.00 V	55	41.19	5.15
10	5368.00	35.82 AV	54.00	-18.18	1.00 V	55	30.67	5.15
11	#10480.00	56.68 PK	68.20	-11.52	1.00 V	0	46.47	10.21
12	15720.00	65.35 PK	74.00	-8.65	1.00 V	0	51.63	13.72
13	15720.00	49.84 AV	54.00	-4.16	1.00 V	0	36.12	13.72

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 emission levels of other frequencies were less than 20dB margin 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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

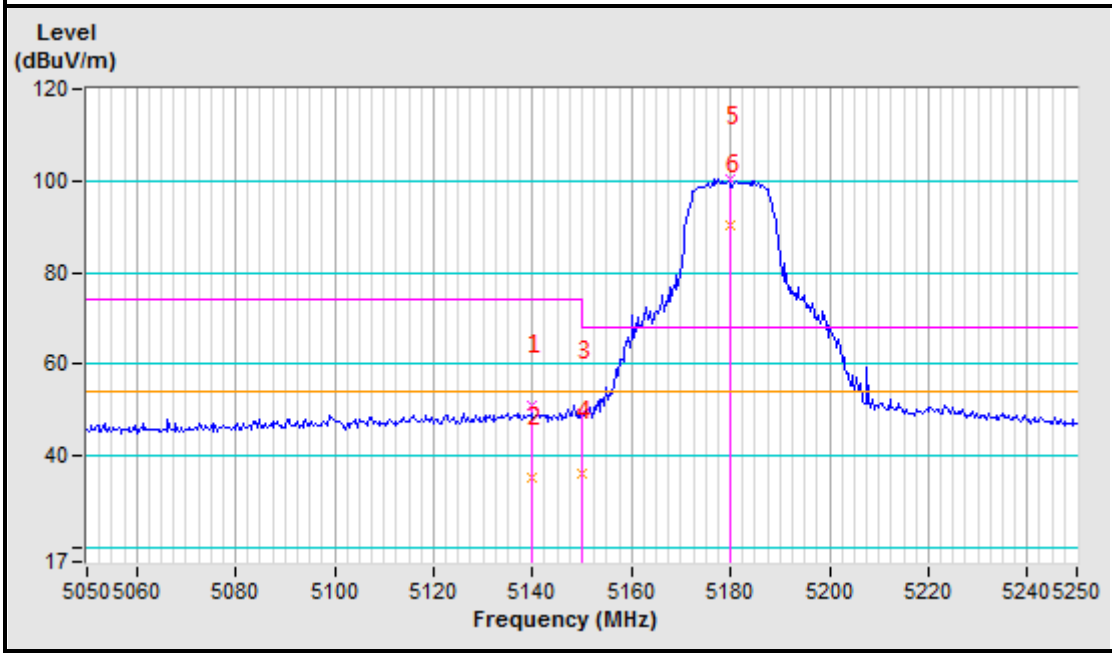
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5139.74	50.98 PK	74.00	-23.02	1.00 H	220	45.78	5.20
2	5139.74	35.34 AV	54.00	-18.66	1.00 H	220	30.14	5.20
3	5150.00	49.49 PK	74.00	-24.51	1.00 H	220	44.29	5.20
4	5150.00	36.34 AV	54.00	-17.66	1.00 H	220	31.14	5.20
5	*5180.00	100.41 PK			1.00 H	220	95.22	5.19
6	*5180.00	90.31 AV			1.00 H	220	85.12	5.19
7	#10360.00	56.84 PK	68.20	-11.36	1.00 H	0	47.14	9.70
8	15540.00	64.72 PK	74.00	-9.28	1.00 H	0	51.23	13.49
9	15540.00	49.71 AV	54.00	-4.29	1.00 H	0	36.22	13.49
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	5115.70	49.07 PK	74.00	-24.93	1.22 V	253	43.86	5.21
2	5115.70	33.64 AV	54.00	-20.36	1.22 V	253	28.43	5.21
3	5150.00	47.63 PK	74.00	-26.37	1.22 V	253	42.43	5.20
4	5150.00	34.37 AV	54.00	-19.63	1.22 V	253	29.17	5.20
5	*5180.00	94.26 PK			1.22 V	253	89.07	5.19
6	*5180.00	83.25 AV			1.22 V	253	78.06	5.19
7	#10360.00	55.67 PK	68.20	-12.53	1.00 V	0	45.97	9.70
8	15540.00	64.00 PK	74.00	-10.00	1.00 V	0	50.51	13.49
9	15540.00	49.33 AV	54.00	-4.67	1.00 V	0	35.84	13.49

REMARKS:

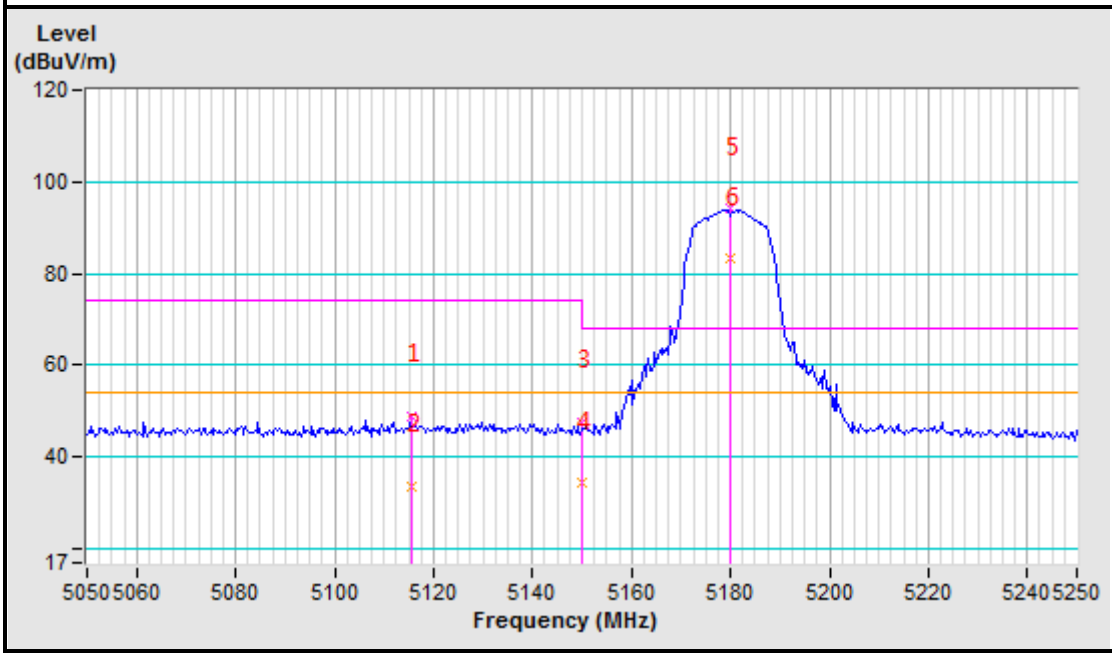
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

Band edge Plot

5180MHz Horizontal



5180MHz Vertical



CHANNEL	TX Channel 40	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	5145.64	46.52 PK	74.00	-27.48	1.07 H	51	41.33	5.19
2	5145.64	34.26 AV	54.00	-19.74	1.07 H	51	29.07	5.19
3	5150.00	47.36 PK	74.00	-26.64	1.07 H	51	42.16	5.20
4	5150.00	34.25 AV	54.00	-19.75	1.07 H	51	29.05	5.20
5	*5200.00	102.34 PK			1.07 H	51	97.15	5.19
6	*5200.00	90.34 AV			1.07 H	51	85.15	5.19
7	#10400.00	56.39 PK	68.20	-11.81	1.00 H	0	46.52	9.87
8	15600.00	65.23 PK	74.00	-8.77	1.00 H	0	51.66	13.57
9	15600.00	49.58 AV	54.00	-4.42	1.00 H	0	36.01	13.57
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	5145.54	45.29 PK	74.00	-28.71	1.00 V	133	40.10	5.19
2	5145.54	32.64 AV	54.00	-21.36	1.00 V	133	27.45	5.19
3	5150.00	45.91 PK	74.00	-28.09	1.00 V	133	40.71	5.20
4	5150.00	34.36 AV	54.00	-19.64	1.00 V	133	29.16	5.20
5	*5200.00	94.26 PK			1.00 V	133	89.07	5.19
6	*5200.00	81.69 AV			1.00 V	133	76.50	5.19
7	**#10400.00**	**64.25 PK**	**68.20**	**-3.95**	**1.00 V**	**0**	**54.38**	**9.87**
8	15600.00	65.36 PK	74.00	-8.64	1.00 V	0	51.79	13.57
9	15600.00	49.37 AV	54.00	-4.63	1.00 V	0	35.80	13.57

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 emission levels of other frequencies were less than 20dB margin 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)
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	5143.25	46.13 PK	74.00	-27.87	1.01 H	131	40.93	5.20
2	5143.25	34.26 AV	54.00	-19.74	1.01 H	131	29.06	5.20
3	5150.00	45.36 PK	74.00	-28.64	1.01 H	131	40.16	5.20
4	5150.00	34.15 AV	54.00	-19.85	1.01 H	131	28.95	5.20
5	*5240.00	100.34 PK			1.01 H	131	95.16	5.18
6	*5240.00	89.00 AV			1.01 H	131	83.82	5.18
7	5350.00	48.64 PK	74.00	-25.36	1.01 H	131	43.49	5.15
8	5350.00	36.14 AV	54.00	-17.86	1.01 H	131	30.99	5.15
9	5372.64	47.45 PK	74.00	-26.55	1.01 H	131	42.30	5.15
10	5372.64	35.33 AV	54.00	-18.67	1.01 H	131	30.18	5.15
11	#10480.00	56.34 PK	68.20	-11.86	1.00 H	0	46.13	10.21
12	15720.00	65.33 PK	74.00	-8.67	1.00 H	0	51.61	13.72
13	15720.00	49.36 AV	54.00	-4.64	1.00 H	0	35.64	13.72
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	5144.25	44.26 PK	74.00	-29.74	1.45 V	135	39.06	5.20
2	5144.25	34.16 AV	54.00	-19.84	1.45 V	135	28.96	5.20
3	5150.00	45.36 PK	74.00	-28.64	1.45 V	135	40.16	5.20
4	5150.00	34.26 AV	54.00	-19.74	1.45 V	135	29.06	5.20
5	*5240.00	93.64 PK			1.45 V	135	88.46	5.18
6	*5240.00	82.31 AV			1.45 V	135	77.13	5.18
7	5350.00	50.34 PK	74.00	-23.66	1.45 V	135	45.19	5.15
8	5350.00	36.15 AV	54.00	-17.85	1.45 V	135	31.00	5.15
9	5359.00	47.66 PK	74.00	-26.34	1.45 V	135	42.51	5.15
10	5359.00	35.21 AV	54.00	-18.79	1.45 V	135	30.06	5.15
11	#10480.00	56.24 PK	68.20	-11.96	1.00 V	0	46.03	10.21
12	15720.00	64.12 PK	74.00	-9.88	1.00 V	0	50.40	13.72
13	15720.00	49.63 AV	54.00	-4.37	1.00 V	0	35.91	13.72

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 emission levels of other frequencies were less than 20dB margin 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)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

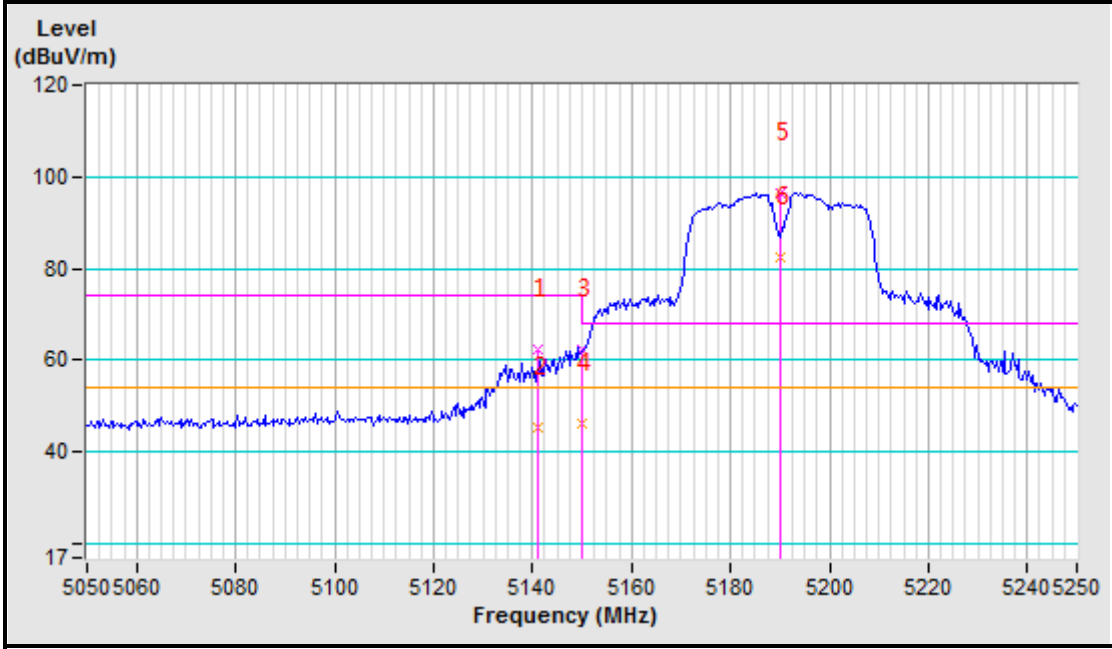
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5141.02	62.23 PK	74.00	-11.77	1.00 H	247	57.03	5.20
2	5141.02	45.34 AV	54.00	-8.66	1.00 H	247	40.14	5.20
3	5150.00	62.28 PK	74.00	-11.72	1.00 H	247	57.08	5.20
4	5150.00	46.25 AV	54.00	-7.75	1.00 H	247	41.05	5.20
5	*5190.00	96.45 PK			1.00 H	247	91.26	5.19
6	*5190.00	82.36 AV			1.00 H	247	77.17	5.19
7	#10380.00	56.34 PK	68.20	-11.86	1.00 H	0	46.55	9.79
8	15570.00	64.96 PK	74.00	-9.04	1.00 H	0	51.43	13.53
9	15570.00	49.23 AV	54.00	-4.77	1.00 H	0	35.70	13.53
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	5138.46	54.97 PK	74.00	-19.03	1.00 V	334	49.77	5.20
2	5138.46	36.24 AV	54.00	-17.76	1.00 V	334	31.04	5.20
3	5150.00	53.99 PK	74.00	-20.01	1.00 V	334	48.79	5.20
4	5150.00	42.21 AV	54.00	-11.79	1.00 V	334	37.01	5.20
5	*5190.00	89.51 PK			1.00 V	334	84.32	5.19
6	*5190.00	78.36 AV			1.00 V	334	73.17	5.19
7	#10380.00	55.84 PK	68.20	-12.36	1.00 V	0	46.05	9.79
8	15570.00	64.26 PK	74.00	-9.74	1.00 V	0	50.73	13.53
9	15570.00	49.35 AV	54.00	-4.65	1.00 V	0	35.82	13.53

REMARKS:

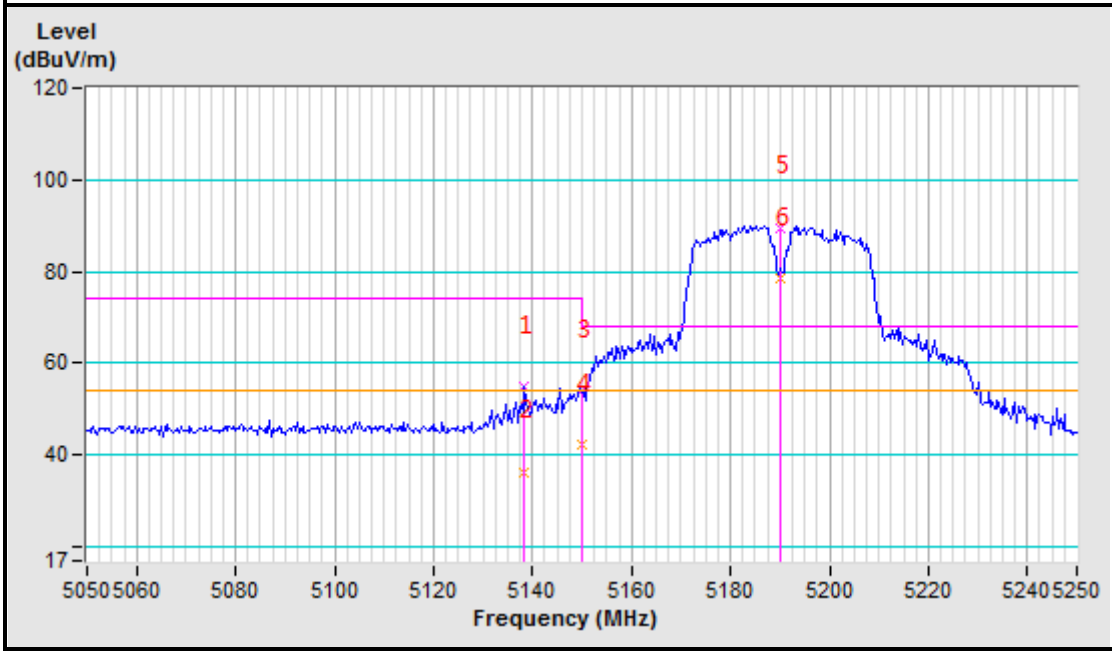
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

Band edge Plot

5190MHz Horizontal



5190MHz Vertical



CHANNEL	TX Channel 46	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	5145.34	46.24 PK	74.00	-27.76	1.00 H	255	41.05	5.19
2	5145.34	34.36 AV	54.00	-19.64	1.00 H	255	29.17	5.19
3	5150.00	46.34 PK	74.00	-27.66	1.00 H	255	41.14	5.20
4	5150.00	35.36 AV	54.00	-18.64	1.00 H	255	30.16	5.20
5	*5230.00	95.94 PK			1.00 H	255	90.76	5.18
6	*5230.00	84.36 AV			1.00 H	255	79.18	5.18
7	#10460.00	56.94 PK	68.20	-11.26	1.00 H	0	46.81	10.13
8	15690.00	65.34 PK	74.00	-8.66	1.00 H	0	51.65	13.69
9	15690.00	49.54 AV	54.00	-4.46	1.00 H	0	35.85	13.69
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	5142.34	45.34 PK	74.00	-28.66	1.05 V	122	40.14	5.20
2	5142.34	34.36 AV	54.00	-19.64	1.05 V	122	29.16	5.20
3	5150.00	45.34 PK	74.00	-28.66	1.05 V	122	40.14	5.20
4	5150.00	32.64 AV	54.00	-21.36	1.05 V	122	27.44	5.20
5	*5230.00	88.64 PK			1.05 V	122	83.46	5.18
6	*5230.00	77.69 AV			1.05 V	122	72.51	5.18
7	#10460.00	56.97 PK	68.20	-11.23	1.00 V	0	46.84	10.13
8	15690.00	64.24 PK	74.00	-9.76	1.00 V	0	50.55	13.69
9	15690.00	49.87 AV	54.00	-4.13	1.00 V	0	36.18	13.69

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 emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

Band 2 (5250-5350MHz):

ABOVE 1GHz DATA

802.11a

CHANNEL	TX Channel 52	**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	5143.24	46.31 PK	74.00	-27.69	1.00 H	305	41.11	5.20
2	5143.24	34.15 AV	54.00	-19.85	1.00 H	305	28.95	5.20
3	*5260.00	96.34 PK			1.00 H	305	91.17	5.17
4	*5260.00	86.25 AV			1.00 H	305	81.08	5.17
5	5350.00	47.64 PK	74.00	-26.36	1.00 H	305	42.49	5.15
6	5350.00	35.36 AV	54.00	-18.64	1.00 H	305	30.21	5.15
7	5356.74	48.63 PK	74.00	-25.37	1.00 H	305	43.48	5.15
8	5356.74	35.66 AV	54.00	-18.34	1.00 H	305	30.51	5.15
9	#10520.00	56.34 PK	68.20	-11.86	1.00 H	0	46.00	10.34
10	15780.00	65.10 PK	74.00	-8.90	1.00 H	0	51.30	13.80
11	15780.00	49.74 AV	54.00	-4.26	1.00 H	0	35.94	13.80
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	5143.64	45.34 PK	74.00	-28.66	1.01 V	206	40.14	5.20
2	5143.64	33.21 AV	54.00	-20.79	1.01 V	206	28.01	5.20
3	*5260.00	92.34 PK			1.01 V	206	87.17	5.17
4	*5260.00	81.36 AV			1.01 V	206	76.19	5.17
5	5350.00	48.63 PK	74.00	-25.37	1.01 V	206	43.48	5.15
6	5350.00	35.26 AV	54.00	-18.74	1.01 V	206	30.11	5.15
7	5359.64	48.34 PK	74.00	-25.66	1.01 V	206	43.19	5.15
8	5359.64	36.24 AV	54.00	-17.76	1.01 V	206	31.09	5.15
9	#10520.00	56.34 PK	68.20	-11.86	1.00 V	0	46.00	10.34
10	15780.00	64.74 PK	74.00	-9.26	1.00 V	0	50.94	13.80
11	15780.00	49.34 AV	54.00	-4.66	1.00 V	0	35.54	13.80

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 emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 60	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	*5300.00	102.41 PK			1.54 H	360	97.25	5.16
2	*5300.00	90.34 AV			1.54 H	360	85.18	5.16
3	5350.00	48.64 PK	74.00	-25.36	1.54 H	360	43.49	5.15
4	5350.00	34.51 AV	54.00	-19.49	1.54 H	360	29.36	5.15
5	5356.34	48.36 PK	74.00	-25.64	1.54 H	360	43.21	5.15
6	5356.34	34.64 AV	54.00	-19.36	1.54 H	360	29.49	5.15
7	10600.00	56.34 PK	74.00	-17.66	1.00 H	0	45.85	10.49
8	10600.00	43.16 AV	54.00	-10.84	1.00 H	0	32.67	10.49
9	15900.00	64.34 PK	74.00	-9.66	1.00 H	0	50.39	13.95
10	15900.00	49.61 AV	54.00	-4.39	1.00 H	0	35.66	13.95
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	*5300.00	93.94 PK			1.45 V	155	88.78	5.16
2	*5300.00	82.69 AV			1.45 V	155	77.53	5.16
3	5350.00	48.64 PK	74.00	-25.36	1.45 V	155	43.49	5.15
4	5350.00	35.44 AV	54.00	-18.56	1.45 V	155	30.29	5.15
5	5361.54	48.64 PK	74.00	-25.36	1.45 V	155	43.49	5.15
6	5361.54	36.51 AV	54.00	-17.49	1.45 V	155	31.36	5.15
7	10600.00	56.34 PK	74.00	-17.66	1.00 V	0	45.85	10.49
8	10600.00	44.34 AV	54.00	-9.66	1.00 V	0	33.85	10.49
9	15900.00	64.34 PK	74.00	-9.66	1.00 V	0	50.39	13.95
10	15900.00	49.51 AV	54.00	-4.49	1.00 V	0	35.56	13.95

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 emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

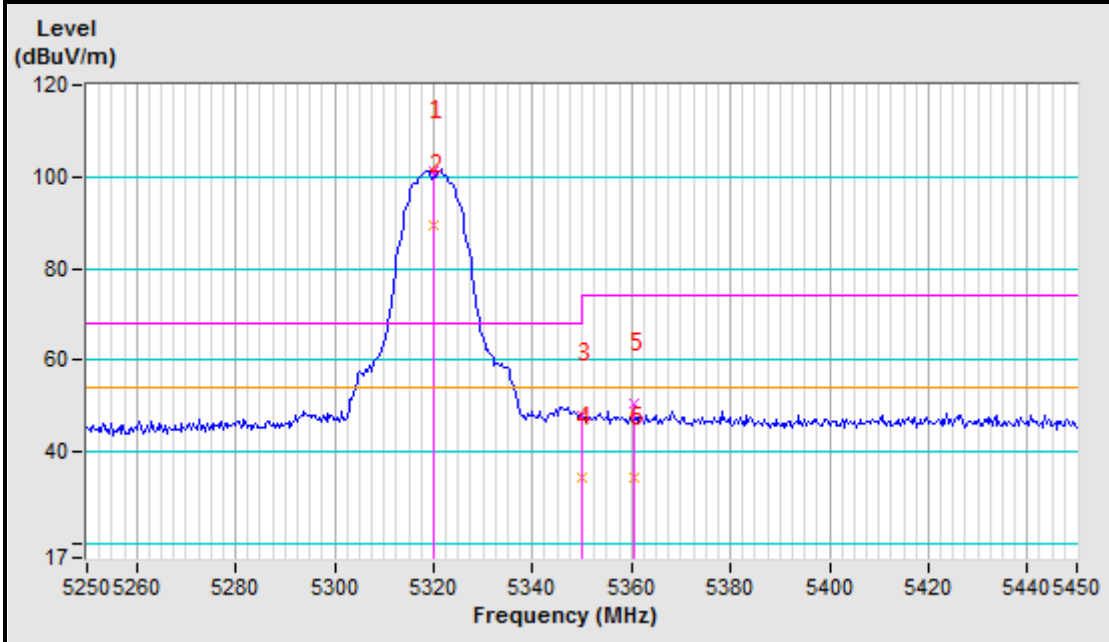
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	101.20 PK			1.06 H	209	96.04	5.16
2	*5320.00	89.34 AV			1.06 H	209	84.18	5.16
3	5350.00	48.04 PK	74.00	-25.96	1.06 H	209	42.89	5.15
4	5350.00	34.26 AV	54.00	-19.74	1.06 H	209	29.11	5.15
5	5360.57	50.62 PK	74.00	-23.38	1.06 H	209	45.47	5.15
6	5360.57	34.34 AV	54.00	-19.66	1.06 H	209	29.19	5.15
7	10640.00	56.41 PK	74.00	-17.59	1.00 H	0	45.84	10.57
8	10640.00	45.66 AV	54.00	-8.34	1.00 H	0	35.09	10.57
9	15960.00	64.64 PK	74.00	-9.37	1.00 H	0	50.60	14.03
10	15960.00	49.36 AV	54.00	-4.64	1.00 H	0	35.33	14.03
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	*5320.00	95.43 PK			1.00 V	278	90.27	5.16
2	*5320.00	84.34 AV			1.00 V	278	79.18	5.16
3	5350.00	47.15 PK	74.00	-26.85	1.00 V	278	42.00	5.15
4	5350.00	35.60 AV	54.00	-18.40	1.00 V	278	30.45	5.15
5	5365.70	48.77 PK	74.00	-25.23	1.00 V	278	43.62	5.15
6	5365.70	35.61 AV	54.00	-18.39	1.00 V	278	30.46	5.15
7	10640.00	56.34 PK	74.00	-17.66	1.00 V	0	45.77	10.57
8	10640.00	45.36 AV	54.00	-8.64	1.00 V	0	34.79	10.57
9	15960.00	65.13 PK	74.00	-8.87	1.00 V	0	51.10	14.03
10	15960.00	49.61 AV	54.00	-4.39	1.00 V	0	35.58	14.03

REMARKS:

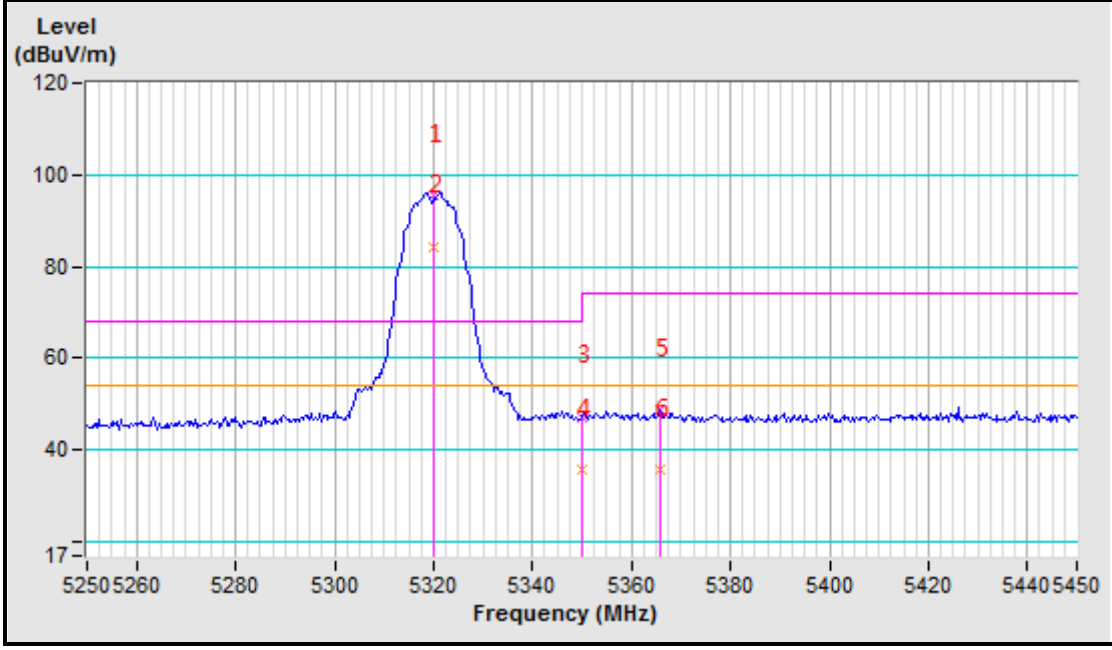
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

Band edge Plot

5320MHz Horizontal



5320MHz Vertical



802.11n (20MHz)

CHANNEL	TX Channel 52	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	5139.45	45.34 PK	74.00	-28.66	1.41 H	18	40.14	5.20
2	5139.45	33.64 AV	54.00	-20.36	1.41 H	18	28.44	5.20
3	5150.00	44.64 PK	74.00	-29.36	1.41 H	18	39.44	5.20
4	5150.00	34.36 AV	54.00	-19.64	1.41 H	18	29.16	5.20
5	*5260.00	99.67 PK			1.41 H	18	94.50	5.17
6	*5260.00	87.64 AV			1.41 H	18	82.47	5.17
7	5350.00	49.64 PK	74.00	-24.36	1.41 H	18	44.49	5.15
8	5350.00	34.64 AV	54.00	-19.36	1.41 H	18	29.49	5.15
9	5368.00	48.34 PK	74.00	-25.66	1.41 H	18	43.19	5.15
10	5368.00	36.35 AV	54.00	-17.65	1.41 H	18	31.20	5.15
11	#10520.00	56.34 PK	68.20	-11.86	1.00 H	0	46.00	10.34
12	15780.00	64.34 PK	74.00	-9.66	1.00 H	0	50.54	13.80
13	15780.00	49.69 AV	54.00	-4.31	1.00 H	0	35.89	13.80
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	5145.41	46.56 PK	74.00	-27.44	1.00 V	55	41.37	5.19
2	5145.41	34.66 AV	54.00	-19.34	1.00 V	55	29.47	5.19
3	5150.00	45.64 PK	74.00	-28.36	1.00 V	55	40.44	5.20
4	5150.00	33.21 AV	54.00	-20.79	1.00 V	55	28.01	5.20
5	*5260.00	93.64 PK			1.00 V	55	88.47	5.17
6	*5260.00	82.34 AV			1.00 V	55	77.17	5.17
7	5350.00	48.34 PK	74.00	-25.66	1.00 V	55	43.19	5.15
8	5375.34	48.36 PK	74.00	-25.64	1.00 V	55	43.21	5.15
9	5375.34	36.35 AV	54.00	-17.65	1.00 V	55	31.20	5.15
10	5375.34	36.35 AV	54.00	-17.65	1.00 V	55	31.20	5.15
11	#10520.00	56.34 PK	68.20	-11.86	1.00 V	0	46.00	10.34
12	15780.00	65.34 PK	74.00	-8.66	1.00 V	0	51.54	13.80
13	15780.00	49.64 AV	54.00	-4.36	1.00 V	0	35.84	13.80

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 emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 60	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	*5300.00	102.34 PK			1.02 H	252	97.18	5.16
2	*5300.00	90.58 AV			1.02 H	252	85.42	5.16
3	5350.00	48.64 PK	74.00	-25.36	1.02 H	252	43.49	5.15
4	5350.00	36.35 AV	54.00	-17.65	1.02 H	252	31.20	5.15
5	5359.64	48.64 PK	74.00	-25.36	1.02 H	252	43.49	5.15
6	5359.64	35.69 AV	54.00	-18.31	1.02 H	252	30.54	5.15
7	10600.00	56.34 PK	74.00	-17.66	1.02 H	252	45.85	10.49
8	10600.00	43.64 AV	54.00	-10.36	1.02 H	252	33.15	10.49
9	15900.00	64.64 PK	74.00	-9.36	1.02 H	252	50.69	13.95
10	15900.00	48.97 AV	54.00	-5.03	1.02 H	252	35.02	13.95
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	*5300.00	95.64 PK			1.00 V	111	90.48	5.16
2	*5300.00	84.64 AV			1.00 V	111	79.48	5.16
3	5350.00	47.64 PK	74.00	-26.36	1.00 V	111	42.49	5.15
4	5350.00	35.64 AV	54.00	-18.36	1.00 V	111	30.49	5.15
5	5364.64	48.64 PK	74.00	-25.36	1.00 V	111	43.49	5.15
6	5364.64	34.31 AV	54.00	-19.69	1.00 V	111	29.16	5.15
7	10600.00	56.34 PK	74.00	-17.66	1.00 V	0	45.85	10.49
8	10600.00	44.36 AV	54.00	-9.64	1.00 V	0	33.87	10.49
9	15900.00	64.36 PK	74.00	-9.64	1.00 V	0	50.41	13.95
10	15900.00	49.67 AV	54.00	-4.33	1.00 V	0	35.72	13.95

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 emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 64	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

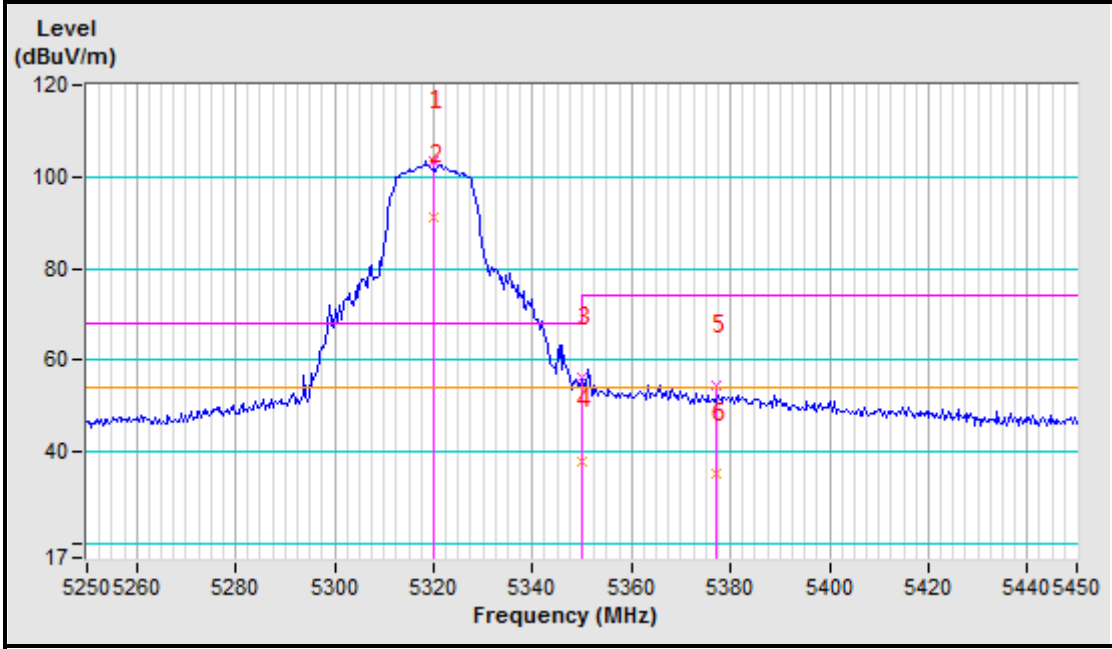
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	103.30 PK			1.33 H	215	98.14	5.16
2	*5320.00	91.25 AV			1.33 H	215	86.09	5.16
3	5350.00	56.29 PK	74.00	-17.71	1.33 H	215	51.14	5.15
4	5350.00	38.12 AV	54.00	-15.88	1.33 H	215	32.97	5.15
5	5377.24	54.40 PK	74.00	-19.60	1.33 H	215	49.26	5.14
6	5377.24	35.34 AV	54.00	-18.66	1.33 H	215	30.20	5.14
7	10640.00	56.15 PK	74.00	-17.85	1.00 H	0	45.58	10.57
8	10640.00	45.33 AV	54.00	-8.67	1.00 H	0	34.76	10.57
9	15960.00	64.26 PK	74.00	-9.74	1.00 H	0	50.23	14.03
10	15960.00	49.37 AV	54.00	-4.63	1.00 H	0	35.34	14.03
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	*5320.00	96.55 PK			1.00 V	272	91.39	5.16
2	*5320.00	84.26 AV			1.00 V	272	79.10	5.16
3	5350.00	47.54 PK	74.00	-26.46	1.00 V	272	42.39	5.15
4	5350.00	35.34 AV	54.00	-18.66	1.00 V	272	30.19	5.15
5	5365.06	49.10 PK	74.00	-24.90	1.00 V	272	43.95	5.15
6	5365.06	36.14 AV	54.00	-17.86	1.00 V	272	30.99	5.15
7	10640.00	56.34 PK	74.00	-17.66	1.00 V	0	45.77	10.57
8	10640.00	45.26 AV	54.00	-8.74	1.00 V	0	34.69	10.57
9	15960.00	65.13 PK	74.00	-8.87	1.00 V	0	51.10	14.03
10	**15960.00**	**49.82 AV**	**54.00**	**-4.18**	**1.00 V**	**0**	**35.79**	**14.03**

REMARKS:

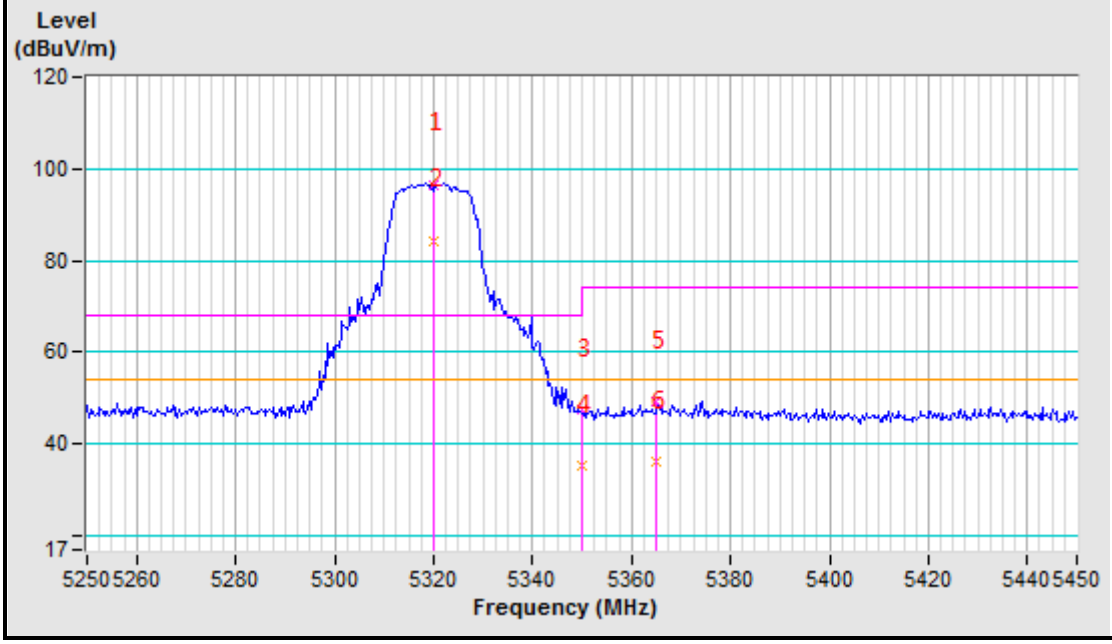
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

Band edge Plot

5320MHz Horizontal



5320MHz Vertical



802.11n (40MHz)

CHANNEL	TX Channel 54	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	*5270.00	95.34 PK			1.21 H	222	90.17	5.17
2	*5270.00	81.36 AV			1.21 H	222	76.19	5.17
3	5350.00	48.34 PK	74.00	-25.66	1.21 H	222	43.19	5.15
4	5350.00	36.31 AV	54.00	-17.69	1.21 H	222	31.16	5.15
5	5361.34	48.22 PK	74.00	-25.78	1.21 H	222	43.07	5.15
6	5361.34	35.15 AV	54.00	-18.85	1.21 H	222	30.00	5.15
7	#10540.00	56.34 PK	68.20	-11.86	1.00 H	0	45.96	10.38
8	15810.00	64.23 PK	74.00	-9.77	1.00 H	0	50.40	13.83
9	15810.00	49.55 AV	54.00	-4.45	1.00 H	0	35.72	13.83
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	*5270.00	87.64 PK			1.23 V	117	82.47	5.17
2	*5270.00	77.64 AV			1.23 V	117	72.47	5.17
3	5350.00	48.37 PK	74.00	-25.63	1.23 V	117	43.22	5.15
4	5350.00	35.25 AV	54.00	-18.75	1.23 V	117	30.10	5.15
5	5368.54	47.61 PK	74.00	-26.39	1.23 V	117	42.46	5.15
6	5368.54	35.61 AV	54.00	-18.39	1.23 V	117	30.46	5.15
7	#10540.00	56.64 PK	68.20	-11.56	1.00 V	0	46.26	10.38
8	15810.00	64.52 PK	74.00	-9.48	1.00 V	0	50.69	13.83
9	15810.00	49.65 AV	54.00	-4.35	1.00 V	0	35.82	13.83

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 emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

CHANNEL	TX Channel 62	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

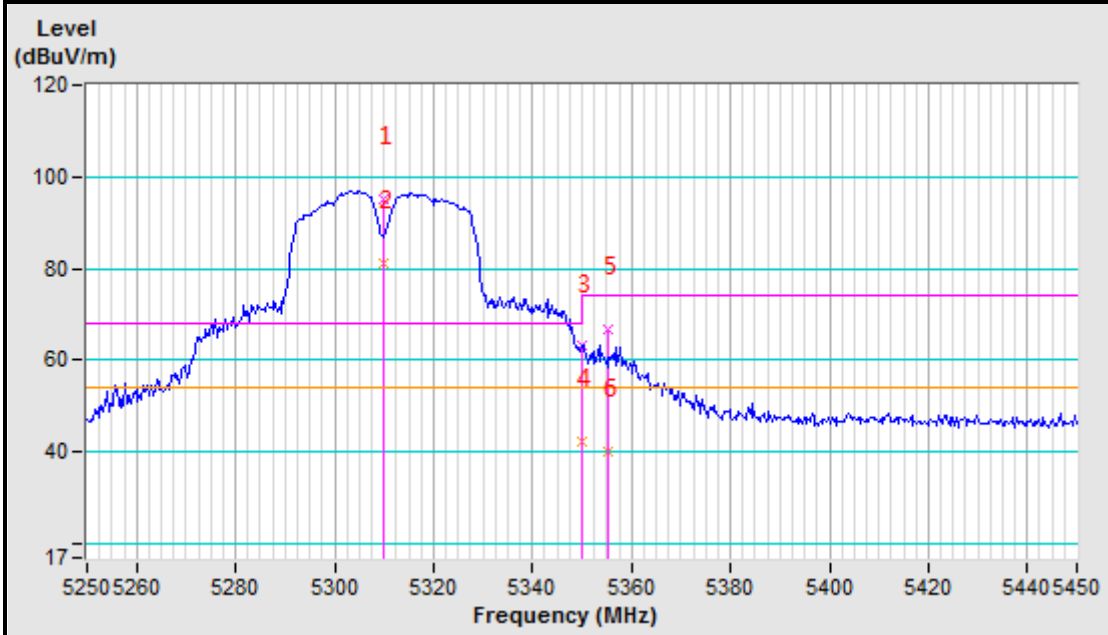
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	95.34 PK			1.00 H	105	90.18	5.16
2	*5310.00	81.34 AV			1.00 H	105	76.18	5.16
3	5350.00	63.15 PK	74.00	-10.85	1.00 H	105	58.00	5.15
4	5350.00	42.34 AV	54.00	-11.66	1.00 H	105	37.19	5.15
5	5355.44	66.86 PK	74.00	-7.14	1.00 H	105	61.70	5.16
6	5355.44	40.34 AV	54.00	-13.66	1.00 H	105	35.18	5.16
7	10620.00	56.64 PK	74.00	-17.36	1.00 H	0	46.11	10.53
8	10620.00	45.15 AV	54.00	-8.85	1.00 H	0	34.62	10.53
9	15930.00	63.82 PK	74.00	-10.18	1.00 H	0	49.83	13.99
10	15930.00	49.36 AV	54.00	-4.64	1.00 H	0	35.37	13.99
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	*5310.00	90.57 PK			1.00 V	137	85.41	5.16
2	*5310.00	77.64 AV			1.00 V	137	72.48	5.16
3	5350.00	54.19 PK	74.00	-19.81	1.00 V	137	49.04	5.15
4	5350.00	41.34 AV	54.00	-12.66	1.00 V	137	36.19	5.15
5	5354.48	56.10 PK	74.00	-17.90	1.00 V	137	50.94	5.16
6	5354.48	34.64 AV	54.00	-19.36	1.00 V	137	29.48	5.16
7	10620.00	56.34 PK	74.00	-17.66	1.00 V	0	45.81	10.53
8	10620.00	44.34 AV	54.00	-9.66	1.00 V	0	33.81	10.53
9	15930.00	64.34 PK	74.00	-9.66	1.00 V	0	50.35	13.99
10	15930.00	47.69 AV	54.00	-6.31	1.00 V	0	33.70	13.99

REMARKS:

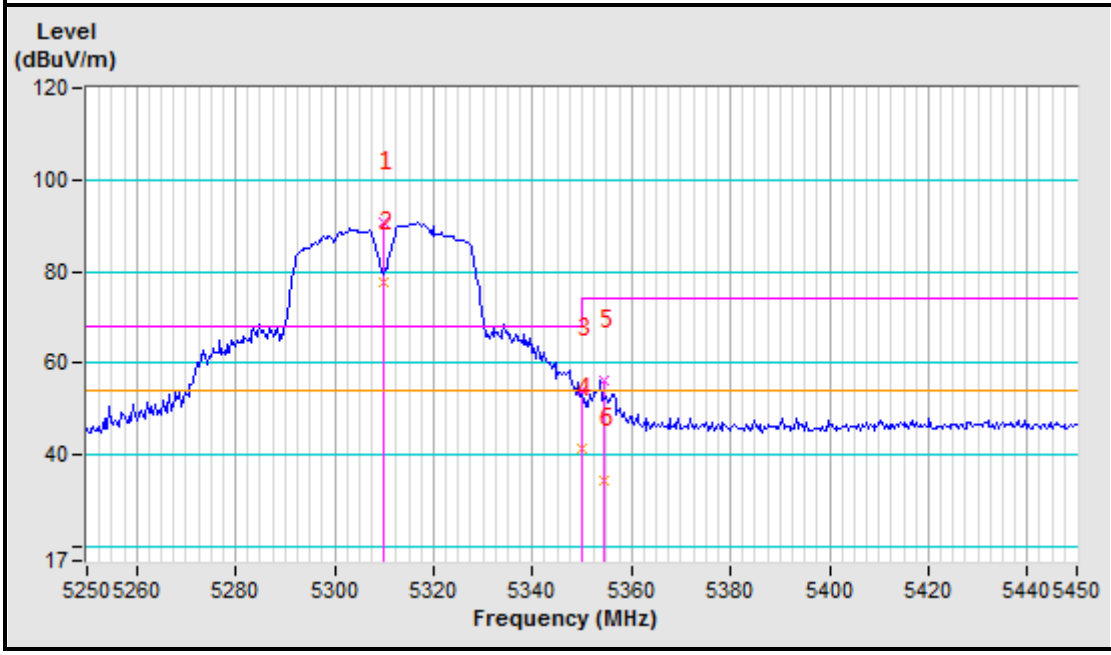
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

Band edge Plot

5310MHz Horizontal



5310MHz Vertical



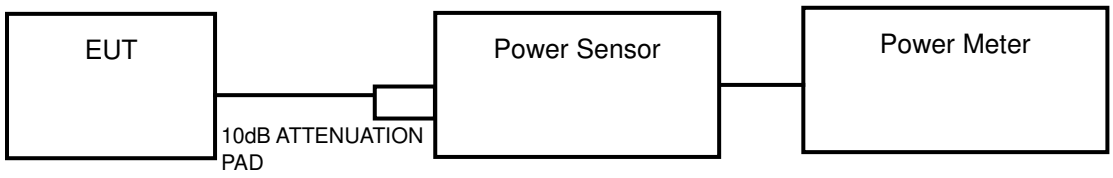
3.2 TRANSMIT POWER MEASUREMENT

3.2.1 LIMITS OF TRANSMIT POWER MEASUREMENT

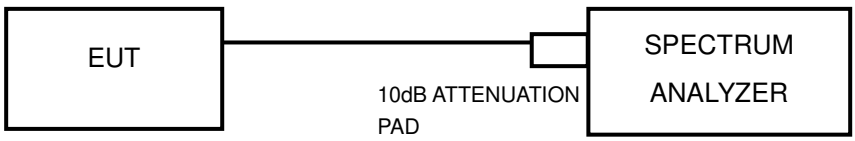
Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p ≦ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
		Indoor Access Point	1 Watt (30 dBm)
	√	Mobile and Portable client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

NOTE: 1. Where B is the 26dB emission bandwidth in MHz.

3.2.2 TEST SETUP



FOR 26dB BANDWIDTH



3.2.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
Power Sensor	Keysight	U2021XA	MY55060016	Jun. 12,21
Power Sensor	Keysight	U2021XA	MY55060018	Jun. 12,21
Power Meter	Anritsu	ML2495A	1139001	Mar. 11,21
Power Sensor	Anritsu	MA2411B	1531155	Mar. 11,21
Digital Multimeter	FLUKE	15B	A1220010DG	Oct.16, 21
Humid & Temp Programmable Tester	Haida	HD-2257	110807201	Nov. 14,20
Oscilloscope	Agilent	DSO9254A	MY51260160	Nov. 08,20
Signal Analyzer	Rohde & Schwarz	FSV7	102331	Aug. 01,21
Signal Generator	Agilent	N5183A	MY50140980	Dec. 06,20
Agile Signal Generator	Agilent	8645A	Agilent	Oct.26, 20
Spectrum Analyzer	Keysight	N9020A	MY55400499	Mar. 11,21
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Dec. 06, 20
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Jul. 05, 21
Attenuator	MINI	BW-S10W2+	S130129FGE2	N/A
DC Source	Keysight	E3642A	MY56146098	N/A

NOTES:

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.

3.2.4 TEST PROCEDURE

FOR AVERAGE POWER MEASUREMENT

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

FOR 26dB BANDWIDTH

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

3.2.5 DEVIATION FROM TEST STANDARD

No deviation.

3.2.6 EUT OPERATING CONDITIONS

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

3.2.7 TEST RESULTS

OUTPUT POWER:

802.11a

CHANNEL NUMBER	FREQ. (MHz)	AVG. CONDUCTED POWER (dBm)	AVG. CONDUCTED POWER (mW)	LIMIT (dBm)	PASS /FAIL
36	5180	9.48	8.872	24.00	PASS
40	5200	10.23	10.544	24.00	PASS
48	5240	10.36	10.864	24.00	PASS
52	5260	9.05	8.035	24.00	PASS
60	5300	9.37	8.650	24.00	PASS
64	5320	9.33	8.570	24.00	PASS

Note:

Max. Gain = 1.25dBi < 6dBi, so the limit no need to be reduced.

For 5260 ~ 5320MHz

1. **11dBm + 10log (26.34) = 25.21dBm > 24dBm**
2. **11dBm + 10log (24.74) = 24.93dBm > 24dBm**
3. **11dBm + 10log (26.80) = 25.28dBm > 24dBm**

802.11n (20MHz)

CHANNEL NUMBER	FREQ. (MHz)	AVG. CONDUCTED POWER (dBm)	AVG. CONDUCTED POWER (mW)	LIMIT (dBm)	PASS /FAIL
36	5180	8.75	7.499	24.00	PASS
40	5200	9.47	8.851	24.00	PASS
48	5240	9.56	9.036	24.00	PASS
52	5260	9.16	8.241	24.00	PASS
60	5300	9.58	9.078	24.00	PASS
64	5320	9.64	9.204	24.00	PASS

Note:

Max. Gain = 1.25dBi < 6dBi, so the limit no need to be reduced.

For 5260 ~ 5320MHz

11dBm + 10log (28.15) = 25.49dBm > 24dBm

11dBm + 10log (26.49) = 25.23dBm > 24dBm

11dBm + 10log (28.80) = 25.59dBm > 24dBm

802.11n (40MHz)

CHANNEL NUMBER	FREQ. (MHz)	AVG. CONDUCTED POWER (dBm)	AVG. CONDUCTED POWER (mW)	LIMIT (dBm)	PASS /FAIL
38	5190	6.40	4.365	24.00	PASS
46	5230	6.63	4.603	24.00	PASS
54	5270	6.35	4.315	24.00	PASS
62	5310	4.90	3.090	24.00	PASS

Note:

Max. Gain = 1.25dBi < 6dBi, so the limit no need to be reduced.

For 5260 ~ 5320MHz

11dBm + 10log (46.03) = 27.63dBm > 24dBm

11dBm + 10log (42.58) = 27.29dBm > 24dBm

26dB BANDWIDTH:

802.11a

Channel Number	Freq. (MHz)	26dB DOWN BANDWIDTH (MHz)	PASS /FAIL
36	5180	28.90	PASS
40	5200	30.29	PASS
48	5240	30.13	PASS
52	5260	26.34	PASS
60	5300	24.74	PASS
64	5320	26.80	PASS

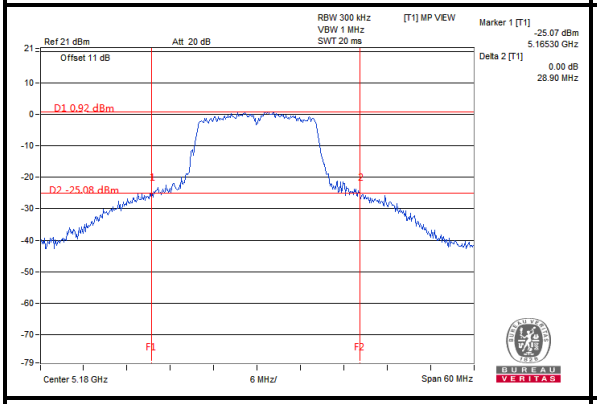
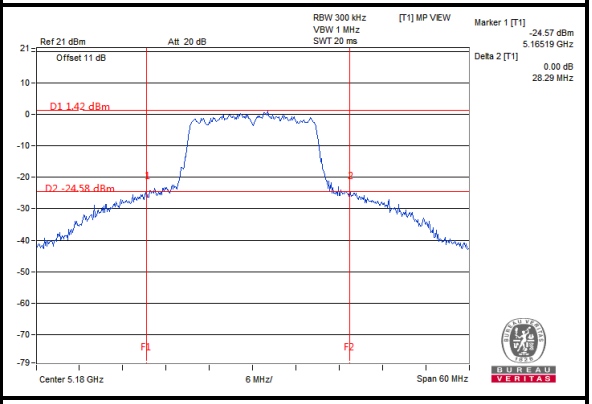
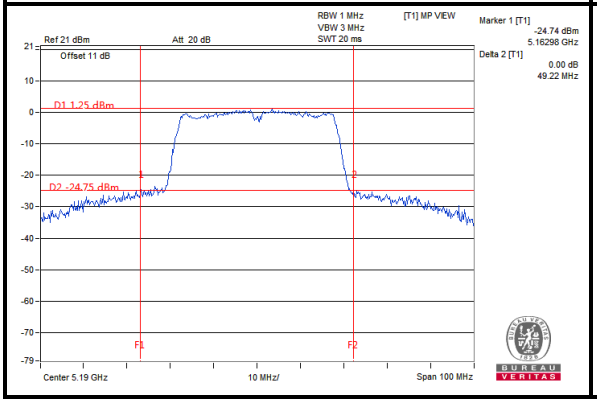
802.11n (20MHz)

Channel Number	Freq. (MHz)	26dB DOWN BANDWIDTH (MHz)	PASS /FAIL
36	5180	28.29	PASS
40	5200	30.76	PASS
48	5240	32.00	PASS
52	5260	28.15	PASS
60	5300	26.49	PASS
64	5320	28.80	PASS

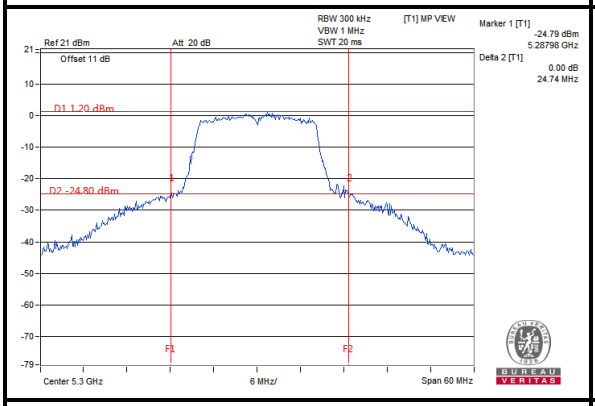
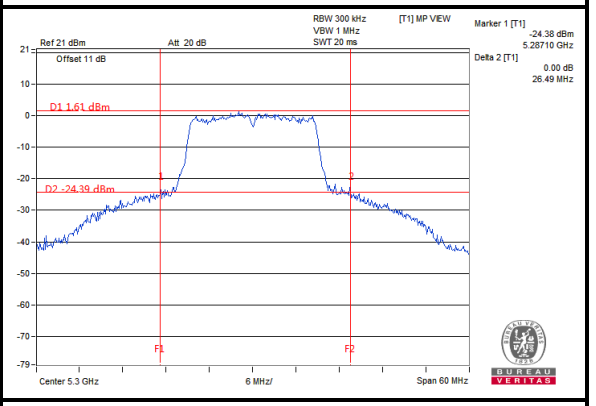
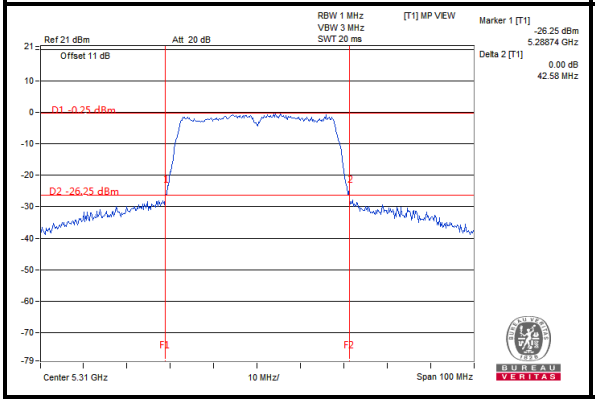
802.11n (40MHz)

Channel Number	Freq. (MHz)	26dB DOWN BANDWIDTH (MHz)	PASS /FAIL
38	5190	49.22	PASS
46	5230	54.38	PASS
54	5270	46.03	PASS
62	5310	42.58	PASS

26dB bandwidth Test Plot
For 5150-5250MHz worst plot

SPECTRUM PLOT OF WORST VALUE	
802.11a	**802.11n 20MHz**
	
802.11n 40MHz	
	

For 5250-5350MHz

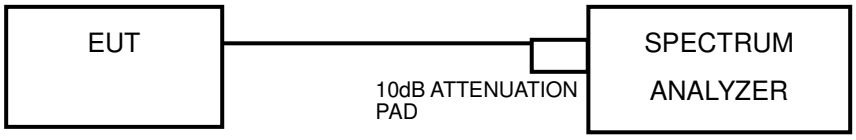
SPECTRUM PLOT OF WORST VALUE	
802.11a	**802.11n 20MHz**
	
802.11n 40MHz	
	

3.3 PEAK POWER SPECTRAL DENSITY MEASUREMENT

3.3.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	17dBm/ MHz
		Fixed point-to-point Access Point	
		Indoor Access Point	
	√	Mobile and Portable client device	11dBm/ MHz
U-NII-2A	√		11dBm/ MHz
U-NII-2C			11dBm/ MHz
U-NII-3			30dBm/ 500kHz

3.3.2 TEST SETUP



3.3.3 TEST INSTRUMENTS

Refer to section 3.3.3 to get information of above instrument.

3.3.4 TEST PROCEDURES

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

Using method SA-2

1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
2) Set RBW = 1MHz, Set VBW =3 MHz, 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)

3.3.5 DEVIATION FROM TEST STANDARD

No deviation.

3.3.6 EUT OPERATING CONDITIONS

Same as 3.3.6

3.3.7 TEST RESULTS

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

802.11a

Channel Number	Frequency (MHz)	RF Power Level in 1MHz BW (dBm)	RF Power Level in 1MHz BW (mW)	MAX. Limit (dBm/MHz)	PASS / FAIL
36	5180	-3.54	0.4426	11.00	PASS
40	5200	-2.62	0.5470	11.00	PASS
48	5240	-2.52	0.5598	11.00	PASS
52	5260	-3.86	0.4111	11.00	PASS
60	5300	-3.42	0.4550	11.00	PASS
64	5320	-3.45	0.4519	11.00	PASS

802.11n (20MHz)

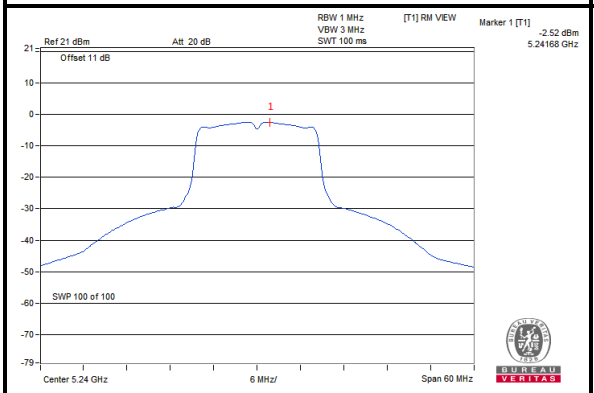
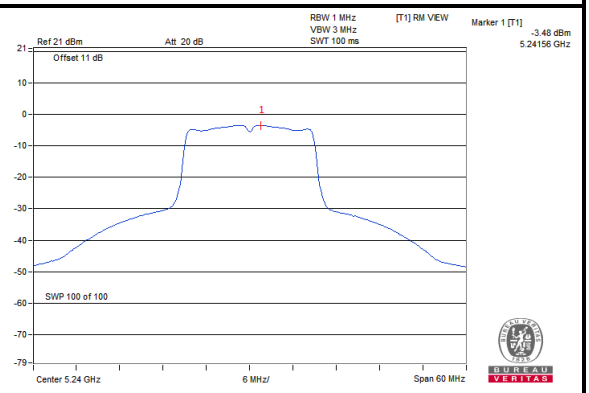
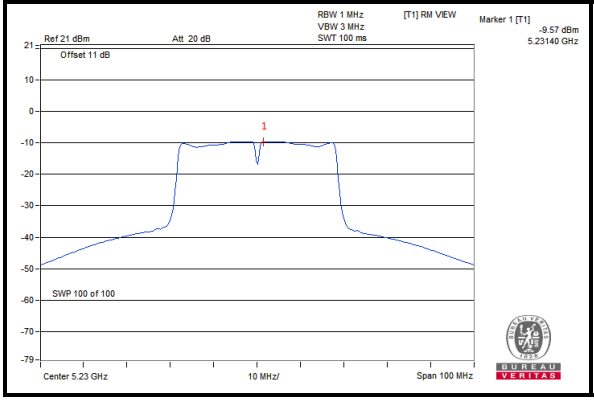
Channel Number	Frequency (MHz)	RF Power Level in 1MHz BW (dBm)	RF Power Level in 1MHz BW (mW)	MAX. Limit (dBm/MHz)	PASS / FAIL
36	5180	-4.18	0.3819	11.00	PASS
40	5200	-3.67	0.4295	11.00	PASS
48	5240	-3.48	0.4487	11.00	PASS
52	5260	-3.87	0.4102	11.00	PASS
60	5300	-3.47	0.4498	11.00	PASS
64	5320	-3.48	0.4487	11.00	PASS

802.11n (40MHz)

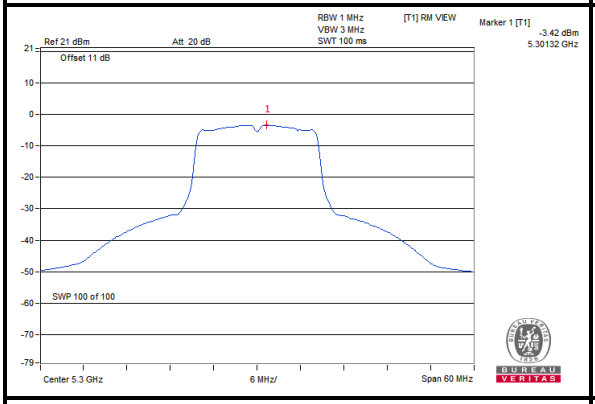
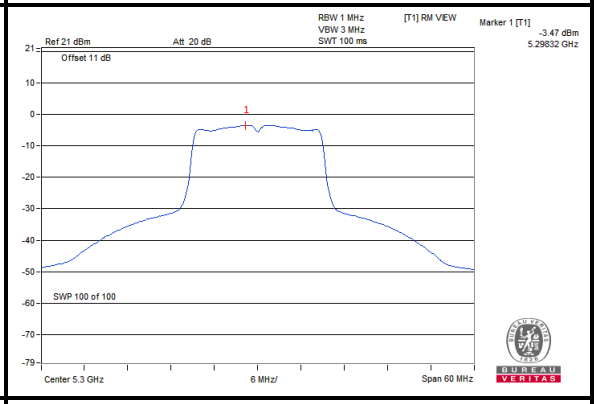
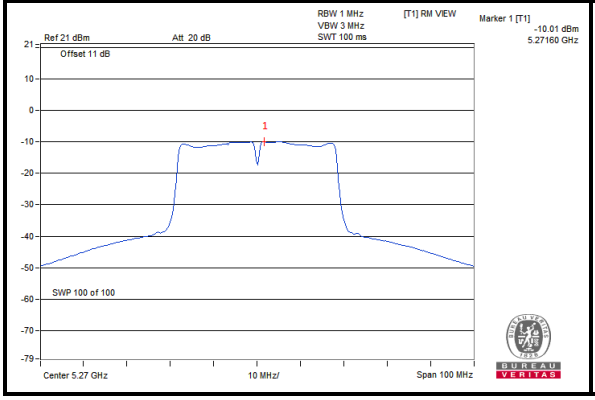
Channel Number	Frequency (MHz)	RF Power Level in 1MHz BW (dBm)	RF Power Level in 1MHz BW (mW)	MAX. Limit (dBm/MHz)	PASS / FAIL
38	5190	-9.92	0.1019	11.00	PASS
46	5230	-9.57	0.1104	11.00	PASS
54	5270	-10.01	0.0998	11.00	PASS
62	5310	-11.32	0.0738	11.00	PASS

PSD Test Plot

BAND 1
5150-5250MHz

SPECTRUM PLOT OF WORST VALUE	
802.11a	**802.11n 20MHz**
	
802.11n 40MHz	
	

BAND 2
5250-5350MHz

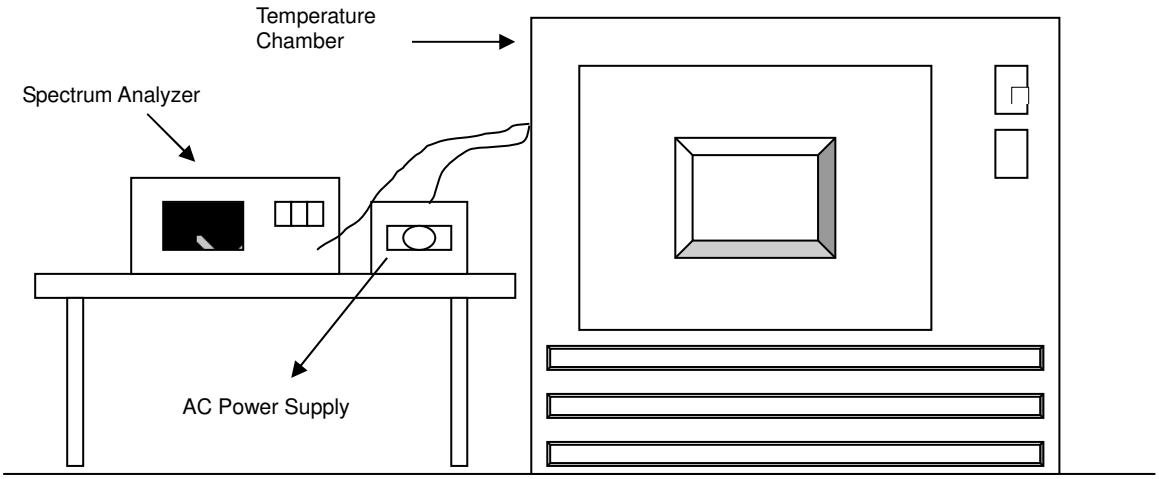
SPECTRUM PLOT OF WORST VALUE	
802.11a	**802.11n 20MHz**
	
802.11n 40MHz	
	

3.4 FREQUENCY STABILITY

3.4.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

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

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 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.

3.4.5 DEVIATION FROM TEST STANDARD

No deviation.

3.4.6 EUT OPERATING CONDITION

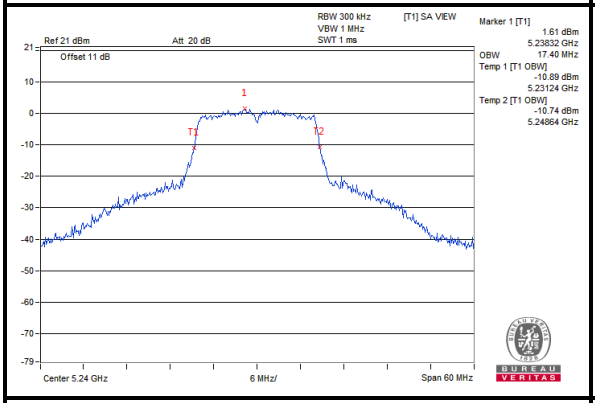
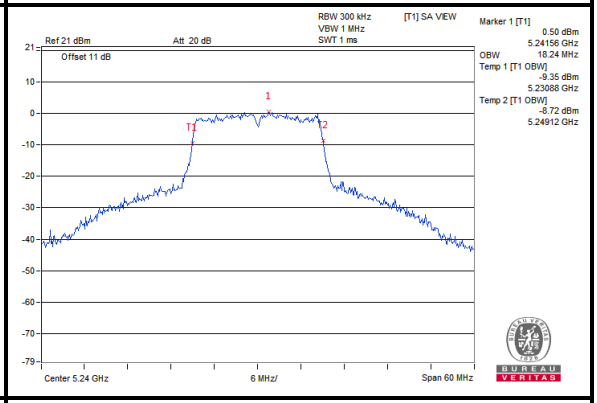
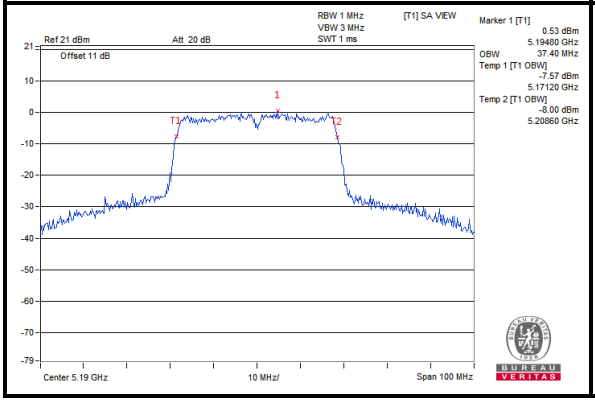
Set the EUT transmit at un-modulation mode to test frequency stability.

3.4.7 TEST RESULTS

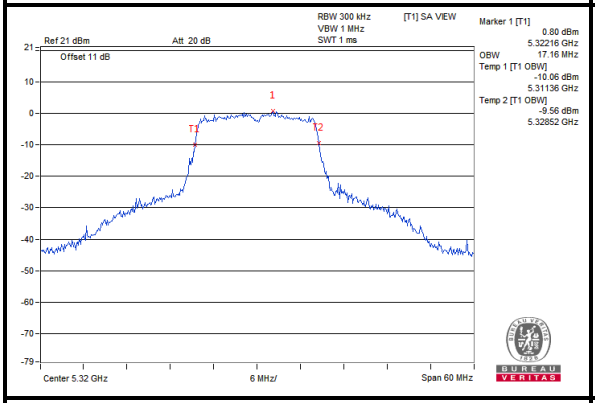
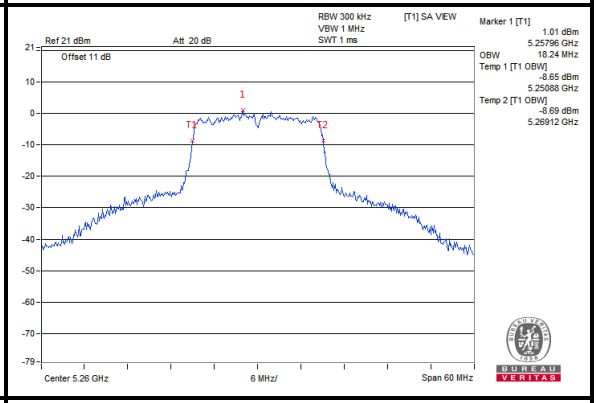
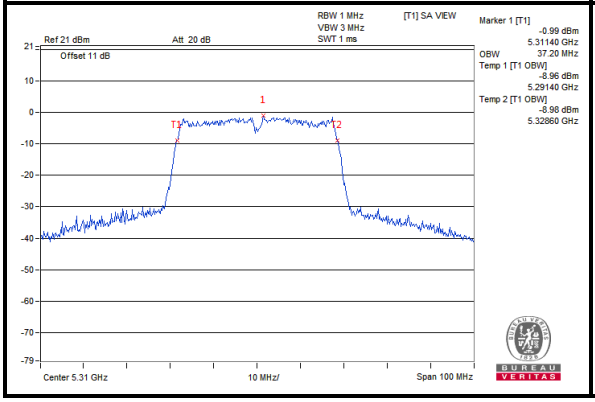
FREQUEMCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5180MHz									
TEMP. (℃)	POWER SUPPLY (Vdc)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift	Measured Frequency (MHz)	Frequency Drift	Measured Frequency (MHz)	Frequency Drift	Measured Frequency (MHz)	Frequency Drift
50	3.8	5179.9992	-0.00002	5180.0003	0.00001	5179.9974	-0.00005	5179.9992	-0.00002
40	3.8	5180.0208	0.00040	5180.0179	0.00035	5180.0188	0.00036	5180.02	0.00039
30	3.8	5179.9822	-0.00034	5179.9833	-0.00032	5179.9808	-0.00037	5179.983	-0.00033
20	3.8	5179.9805	-0.00038	5179.9814	-0.00036	5179.9806	-0.00037	5179.9806	-0.00037
10	3.8	5179.999	-0.00002	5179.9974	-0.00005	5179.9998	0.00000	5179.9993	-0.00001
0	3.8	5179.9829	-0.00033	5179.9825	-0.00034	5179.9822	-0.00034	5179.9836	-0.00032
-10	3.8	5180.0219	0.00042	5180.0203	0.00039	5180.0218	0.00042	5180.0241	0.00047
-20	3.8	5179.9899	-0.00019	5179.9903	-0.00019	5179.9872	-0.00025	5179.9897	-0.00020
-30	3.8	5179.9888	-0.00022	5179.9867	-0.00026	5179.9903	-0.00019	5179.9874	-0.00024

FREQUEMCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5180MHz									
TEMP. (℃)	POWER SUPPLY (Vdc)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift	Measured Frequency (MHz)	Frequency Drift	Measured Frequency (MHz)	Frequency Drift	Measured Frequency (MHz)	Frequency Drift
20	4.18	5179.9806	-0.00037	5179.9808	-0.00037	5179.9803	-0.00038	5179.9799	-0.00039
	3.8	5179.9805	-0.00038	5179.9814	-0.00036	5179.9806	-0.00037	5179.9806	-0.00037
	3.42	5179.9809	-0.00037	5179.9821	-0.00035	5179.9813	-0.00036	5179.9798	-0.00039

Band 1
5150-5250MHz
99% Occupied Bandwidth Without over DFS Band

SPECTRUM PLOT OF WORST VALUE	
802.11a 5240MHz	**802.11n 20MHz 5240MHz**
	
802.11n 40MHz 5230MHz	
	

Band 2
5250-5350MHz
99% Occupied Bandwidth Without over Band 1

SPECTRUM PLOT OF WORST VALUE	
802.11a 5320MHz	**802.11n 20MHz 5260MHz**
	
802.11n 40MHz 5310MHz	
	

4. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

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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---