

TEST REPORT

Applicant	Faurecia Clarion Electronics (Xiamen) Co., Ltd.
Address	6F, No.40, Guanri Road, Software Park Stage II, Xiamen, China

Manufacturer or Supplier	Faurecia Clarion Electronics Co., Ltd.
Address	7-2 Shintoshin, Chuo-ku, Saitama-shi, Saitama, 330-0081, Japan
Product	CAR AUDIO
Brand Name	CLARION
Model	P2202
Additional Model & Model Difference	N/A
Date of tests	Mar. 15, 2023 ~ Apr. 11, 2023

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 Andy Zhu Supervisor / EMC Department	Approved by Glyn He Assistant Manager / EMC Department
	
	Date: Apr. 23, 2023

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Test Report No.: RF2303WDG0070-2

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF2303WDG0070-2	Original release	Apr. 23, 2023

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)(9)	AC Power Conducted Emissions	N/A	DC supply
15.407(b)(4/6)	Radiated Emissions & Band Edge Measurement	PASS	Meet the requirement of limit.
15.407(a)(3)	Max Average Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(e)	6dB bandwidth	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used

2 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	2.80dB
	30MHz ~ 1GMHz	4.24dB
	1GHz ~ 18GHz	4.76dB
	18GHz ~ 40GHz	4.50dB

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

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT NAME	CAR AUDIO
MODEL NO.	P2202
ADDITIONAL MODEL	N/A
FCC ID	WY2P2202
POWER SUPPLY	DC 13.2V
MODULATION TECHNOLOGY	OFDM
MODULATION TYPE	256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
TRANSFER RATE	Refer to user's manual
OPERATING FREQUENCY	5745 ~ 5825MHz
NUMBER OF CHANNEL	See section 3.2
CONDUCTED OUTPUT POWER	23.878mW for 5745 ~ 5825MHz (Maximum AVG Power)
ANTENNA TYPE	FPC antenna with 4.1dBi gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	Refer to user's manual

NOTES:

- For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
- For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
- The EUT have SISO function, provides 1 completed transmitter and 1 receiver.

MODULATION MODE	FUNCTION
802.11a	1TX/1RX
802.11n (HT20) 802.1ac (VHT20)	1TX/1RX
802.11n (HT40) 802.1ac (VHT40)	1TX/1RX
802.11ac (VHT80)	1TX/1RX

** The modulation and bandwidth are similar for 802.11n mode for HT20 / HT40 and 802.11ac mode for VHT20 / VHT40, therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.2)*

- Please refer to the EUT photo document (Reference No.: 2303WDG0070) for detailed product photo.

3.2 DESCRIPTION OF TEST MODES

FOR 5725 ~ 5850MHz

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

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

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (VHT80):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
155	5775MHz	--	--

3.2.1. TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE $\geq$ 1G	RE<1G	PLC	APCM	
A	√	√	-	√	DC 13.2V

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

NOTE:

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	5725-5850	149 to 165	149, 157, 165	OFDM	BPSK	6.0
	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	BPSK	MCS0
	802.11n (HT40)		151 to 159	151, 159	OFDM	BPSK	MCS0
	802.11ac (VHT80)		155	155	OFDM	BPSK	MCS0

RADIATED EMISSION TEST (BELOW 1GHz):

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	5725-5850	149 to 165	149	OFDM	BPSK	6.0

For the test results, only the worst case was shown in test report.

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	5725-5850	149 to 165	149, 157, 165	OFDM	BPSK	6.0
	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	BPSK	MCS0
	802.11n (HT40)		151 to 159	151, 159	OFDM	BPSK	MCS0
	802.11ac (VHT80)		155	155	OFDM	BPSK	MCS0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	24deg. C, 55%RH	DC 13.2V	Alex
RE≥1G	24deg. C, 55%RH	DC 13.2V	Alex
PLC	N/A	N/A	N/A
APCM	20deg. C, 55%RH	DC 13.2V	Vincent

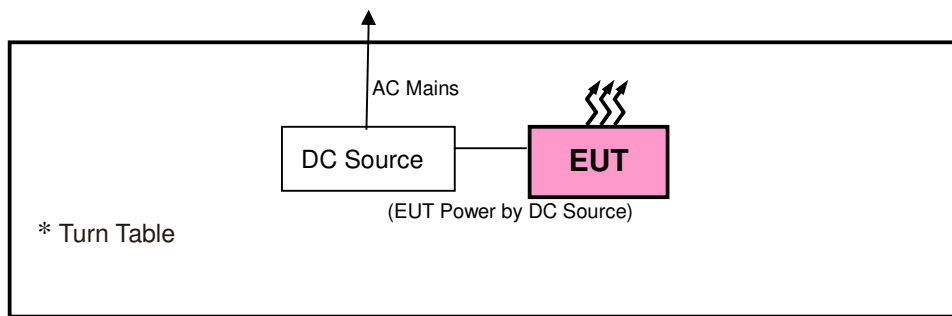
3.3 DESCRIPTION OF SUPPORT UNITS

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	DC Source	Keysight	E3642A	MY56146098	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	AC Line: Unshielded, Detachable 1.5m; DC Line: Unshielded, Detachable 190cm

3.4 Configuration of System under Test



3.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart E (15.407)

KDB 789033 D02 General UNII Test Procedures New Rules v02r01

ANSI C63.10-2013

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

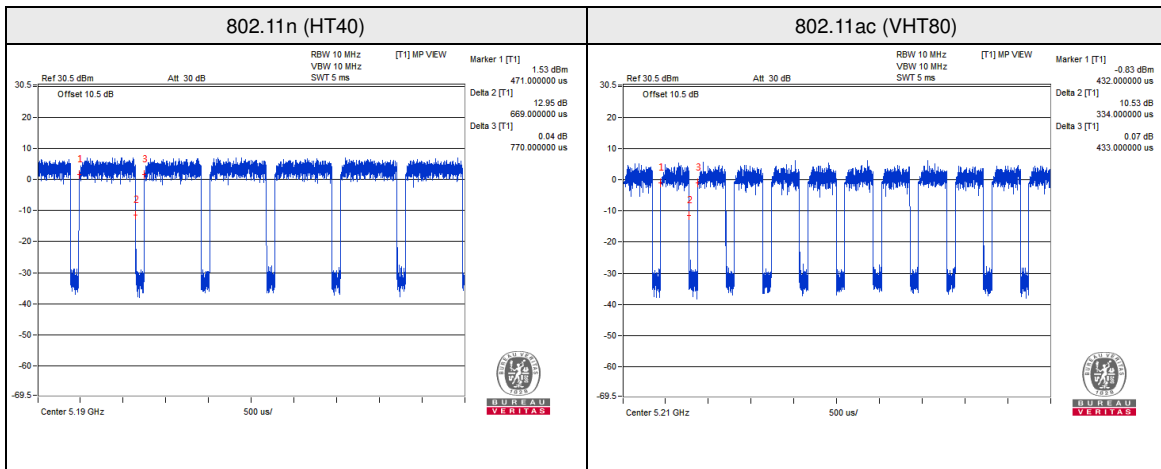


**BUREAU
VERITAS**

Test Report No.: RF2303WDG0070-2

3.6 DUTY CYCLE OF TESET SIGNAL

Mode	On Time (ms)	Period (ms)	Duty Cycle (Linear)	Duty Cycle (%)	1/T Min. VBW (KHz)
802.11a	1.426	1.546	0.922	92.2	0.701
802.11n (HT20)	1.335	1.454	0.918	91.8	0.749
802.11n (HT40)	0.669	0.770	0.869	86.9	1.495
802.11ac (VHT80)	0.334	0.433	0.771	77.1	2.994



4. TEST TYPES AND RESULTS

4.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

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

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

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 20dB under any condition of modulation.

4.1.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

APPLICABLE TO	LIMIT	
789033 D02 General UNII Test Procedures New Rules 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:

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

4.1.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESU40	100449	Jan. 10, 24
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV7	102331	Apr. 05, 24
Active Loop Antenna (9KHz -30MHz)	SCHWARZBECK	FMZB 1519B	1519B-045	Apr. 27, 23
Amplifier (9KHz -1GHz)	Burgeon	BPA-530	100210	Mar. 06, 24
Trilog-Broadband Antenna(20M-2G)	SCHWARZBECK	VULB 9168	01282	Aug. 21, 23
Horn Antenna (1GHz -18GHz)	ETS -Lindgren	3117	00062558	Apr. 27, 23
Horn Antenna (18GHz -40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170147	Apr. 28, 23
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	May 22, 23
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A
Broadband Preamplifier (1GHz~18GHz)	SCHWARZBECK	BBV9718	305	Apr. 26, 23
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Jan. 16, 24

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 above 1GHz if tested.
3. The FCC Site Registration No. is 749762.

4.1.4 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. For below 1GHz was used bilog antenna, and above 1GHz was used horn 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. For below 30MHz, a loop antenna with its vertical plane is place 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1.3m above the ground.
- g. 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:

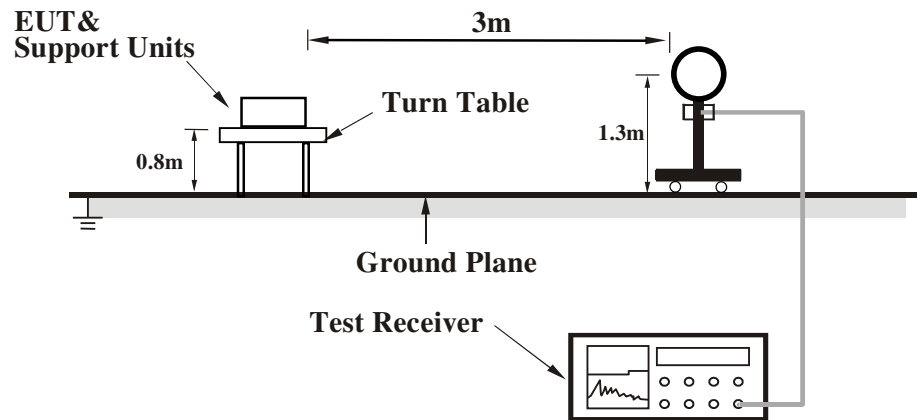
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

4.1.5 DEVIATION FROM TEST STANDARD

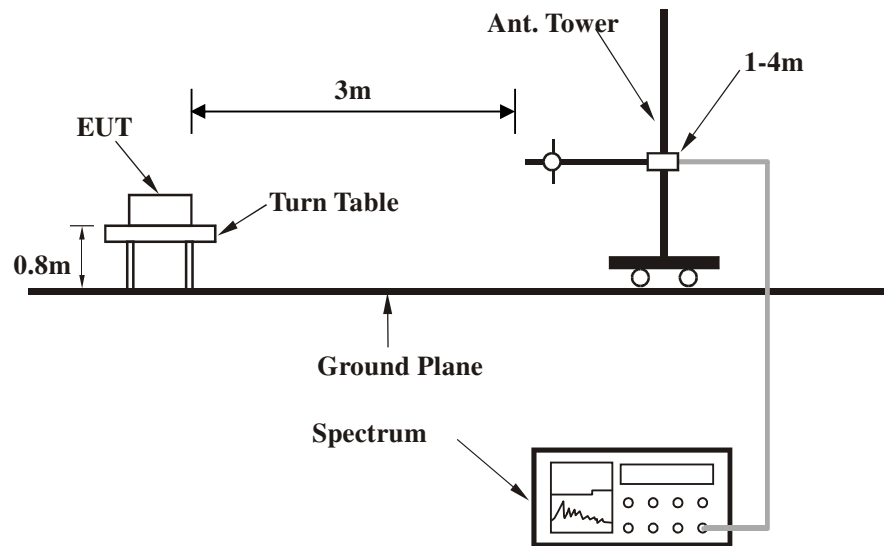
No deviation.

4.1.6 TEST SETUP

Below 30MHz test setup

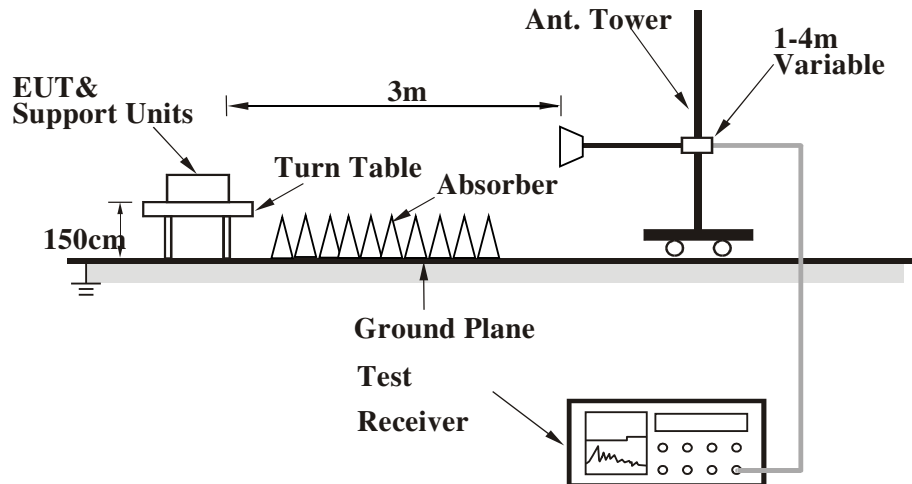


Below 1GHz test setup



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).

4.1.7 EUT OPERATING CONDITION

- Set the EUT under full load condition and placed them on a testing table.
- Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.
- The necessary accessories enable the EUT in full functions.

4.1.8 TEST RESULTS

BELOW 1GHz WORST-CASE DATA:

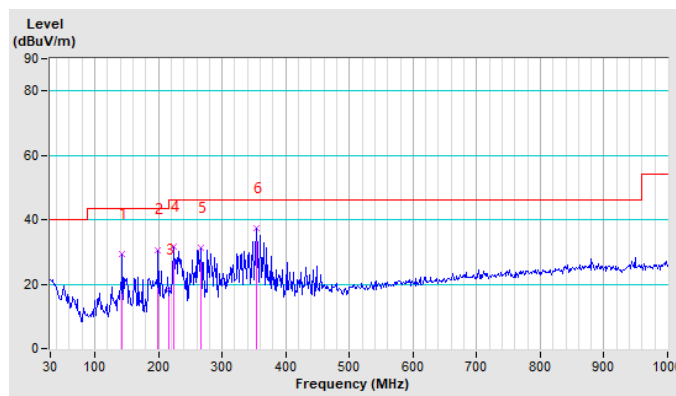
802.11a

CHANNEL	Channel 36	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9KHz ~ 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	143.48	29.42 QP	43.50	-14.08	1.00 H	281	45.41	-15.99
2	199.44	30.68 QP	43.50	-12.82	1.00 H	0	49.11	-18.43
3	216.00	18.44 QP	43.50	-25.06	1.00 H	336	36.33	-17.89
4	224.31	31.64 QP	46.00	-14.36	1.00 H	360	49.25	-17.61
5	266.28	31.16 QP	46.00	-14.84	1.00 H	0	47.21	-16.05
6	354.89	37.49 QP	46.00	-8.51	1.00 H	321	50.63	-13.14

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.

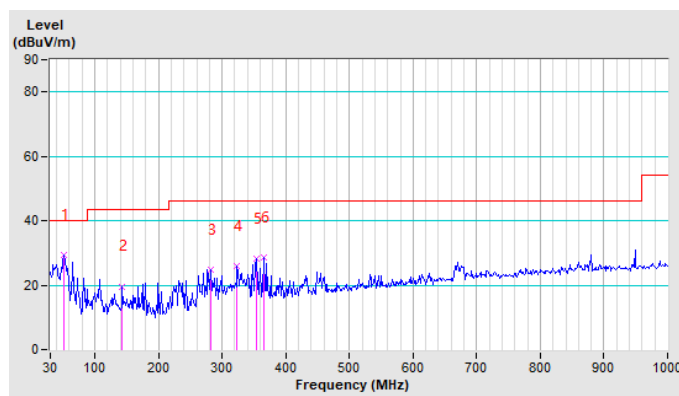


CHANNEL	TX Channel 36	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

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	51.76	29.25 QP	40.00	-10.75	1.00 V	219	45.80	-16.55
2	143.48	19.62 QP	43.50	-23.88	1.00 V	35	35.61	-15.99
3	281.83	24.78 QP	46.00	-21.22	1.00 V	149	40.18	-15.40
4	323.80	25.91 QP	46.00	-20.09	1.00 V	205	39.88	-13.97
5	354.89	28.03 QP	46.00	-17.97	1.00 V	211	41.17	-13.14
6	365.77	28.66 QP	46.00	-17.34	1.00 V	10	41.58	-12.92

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.



Band 4 (5725-5850MHz):

ABOVE 1GHz DATA

802.11a

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

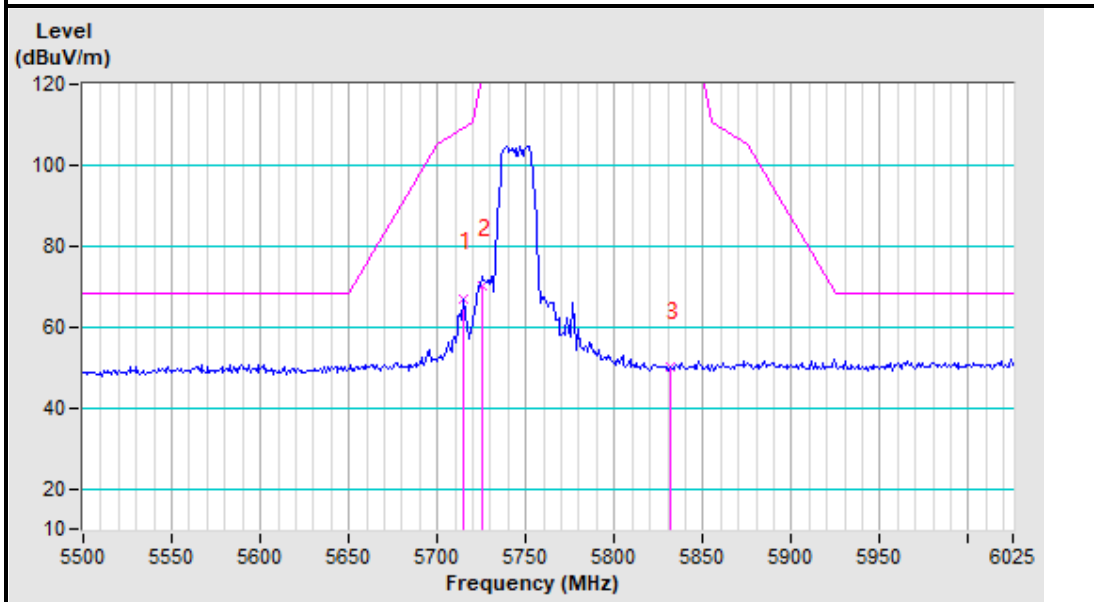
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5714.90	67.06 PK	109.37	-42.31	1.50 H	269	60.75	6.31
2	#5725.00	70.29 PK	122.20	-51.91	1.50 H	206	63.93	6.36
3	*5745.00	105.60 PK			1.10 H	290	99.15	6.45
4	*5745.00	98.32 AV			1.10 H	290	91.87	6.45
5	#5831.73	49.95 PK	152.20	-102.25	1.50 H	0	43.12	6.83
6	11490.00	51.99 PK	74.00	-22.01	1.00 H	23	38.74	13.25
7	11490.00	42.37 AV	54.00	-11.63	1.00 H	23	29.12	13.25
8	#17235.00	51.90 PK	68.20	-16.30	1.02 H	202	28.19	23.71
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	#5723.32	63.68 PK	118.36	-54.68	1.00 V	0	57.32	6.36
2	#5725.00	61.33 PK	122.20	-60.87	1.00 V	0	54.97	6.36
3	*5745.00	99.66 PK			1.05 V	20	93.21	6.45
4	*5745.00	91.35 AV			1.05 V	20	84.90	6.45
5	#5839.30	49.90 PK	152.20	-102.30	1.00 V	0	43.04	6.86
6	11490.00	52.40 PK	74.00	-21.60	1.03 V	251	39.15	13.25
7	11490.00	41.66 AV	54.00	-12.34	1.03 V	251	28.41	13.25
8	#17235.00	52.30 PK	68.20	-15.90	1.09 V	31	28.59	23.71

REMARKS:

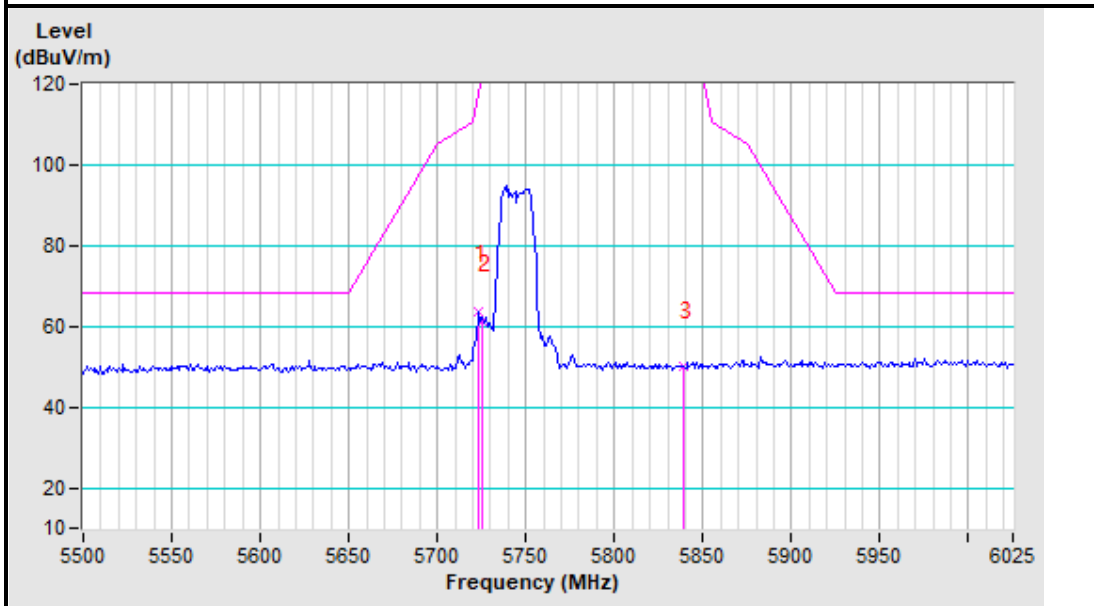
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental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

Band edge Plot

5745MHz Horizontal



5745MHz Vertical



CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

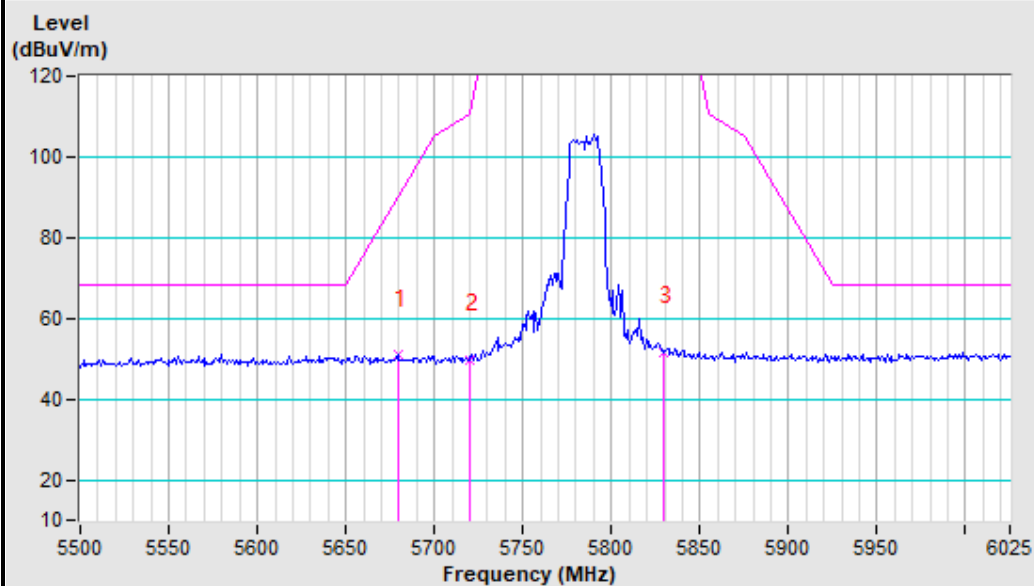
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5679.57	50.91 PK	90.12	-39.21	1.00 H	0	44.75	6.16
2	#5719.95	49.80 PK	110.79	-60.99	1.00 H	0	43.46	6.34
3	*5785.00	106.40 PK			1.04 H	224	99.77	6.63
4	*5785.00	98.20 AV			1.04 H	224	91.57	6.63
5	#5829.21	51.46 PK	152.20	-100.74	1.00 H	0	44.64	6.82
6	11570.00	54.00 PK	74.00	-20.00	1.00 H	29	40.35	13.65
7	11570.00	43.00 AV	54.00	-11.00	1.00 H	29	29.35	13.65
8	#17355.00	58.91 PK	68.20	-9.29	1.20 H	290	35.27	23.64
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	#5698.08	52.31 PK	103.78	-51.47	1.00 V	0	46.06	6.25
2	#5720.79	49.35 PK	112.61	-63.26	1.00 V	0	43.00	6.35
3	*5785.00	102.62 PK			1.22 V	149	95.99	6.63
4	*5785.00	94.60 AV			1.22 V	149	87.97	6.63
5	#5860.18	49.95 PK	109.35	-59.40	1.00 V	0	43.00	6.95
6	11570.00	52.20 PK	74.00	-21.80	1.05 V	201	38.55	13.65
7	11570.00	41.39 AV	54.00	-12.61	1.05 V	201	27.74	13.65
8	#17355.00	57.20 PK	68.20	-11.00	1.00 V	32	33.56	23.64

REMARKS:

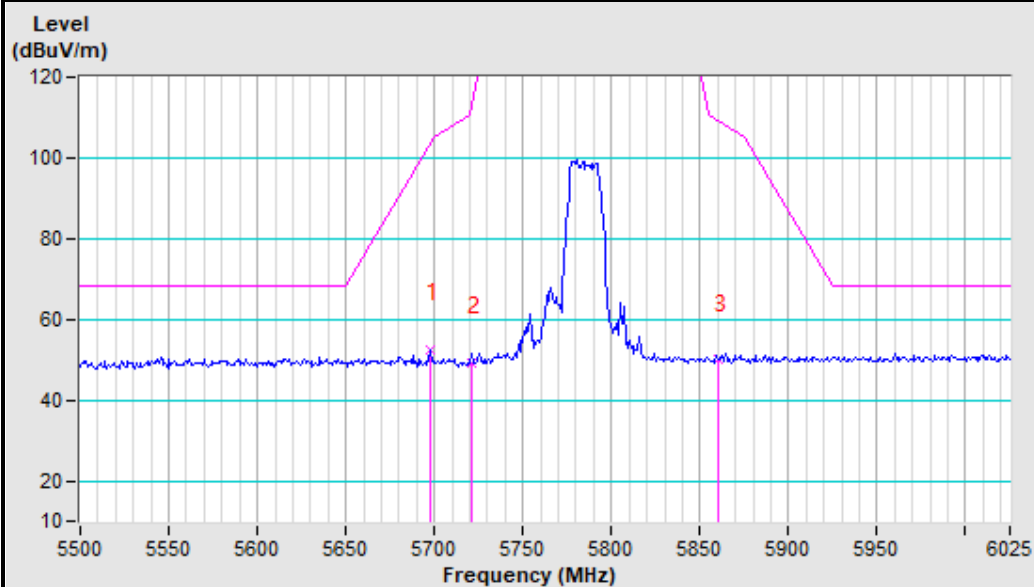
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental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

Band edge Plot

5785MHz Horizontal



5785MHz Vertical



CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

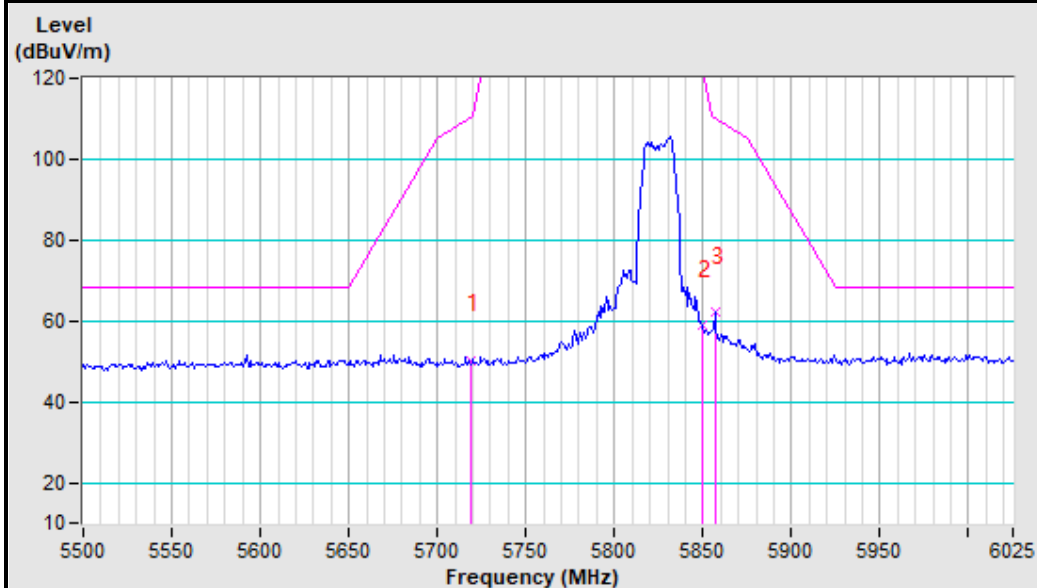
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5719.11	50.00 PK	110.55	-60.55	1.00 H	0	43.66	6.34
2	*5825.00	107.95 PK			1.00 H	322	101.15	6.80
3	*5825.00	100.30 AV			1.00 H	322	93.50	6.80
4	#5850.00	58.77 PK	122.20	-63.43	1.00 H	0	51.86	6.91
5	#5856.73	62.04 PK	110.31	-48.27	1.00 H	0	55.10	6.94
6	11650.00	53.26 PK	74.00	-20.74	1.05 H	22	39.24	14.02
7	11650.00	41.90 AV	54.00	-12.10	1.05 H	22	27.88	14.02
8	#17475.00	58.94 PK	68.20	-9.26	1.02 H	61	35.38	23.55
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	#5672.00	49.80 PK	84.52	-34.72	1.00 V	0	43.68	6.12
2	*5825.00	98.78 PK			1.30 V	32	91.98	6.80
3	*5825.00	90.36 AV			1.30 V	32	83.56	6.80
4	#5850.00	53.94 PK	122.20	-68.26	1.00 V	11	47.03	6.91
5	#5857.57	57.16 PK	110.08	-52.92	1.00 V	0	50.22	6.94
6	11650.00	53.64 PK	74.00	-20.36	1.00 V	30	39.62	14.02
7	11650.00	43.10 AV	54.00	-10.90	1.00 V	30	29.08	14.02
8	#17475.00	59.40 PK	68.20	-8.80	1.00 V	61	35.84	23.55

REMARKS:

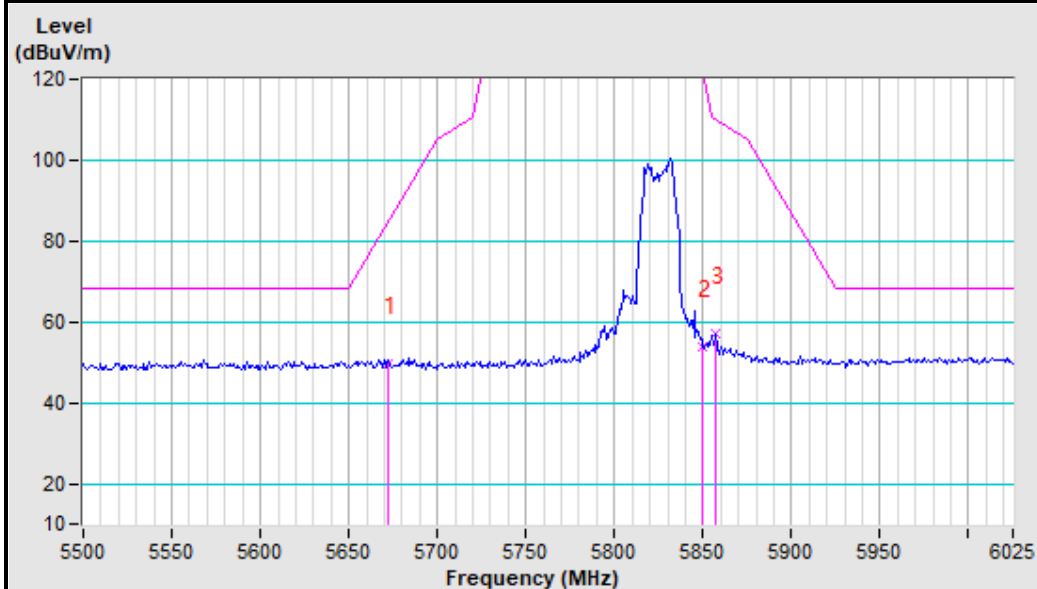
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental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

Band edge Plot

5825MHz Horizontal



5825MHz Vertical



802.11n (20MHz)

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

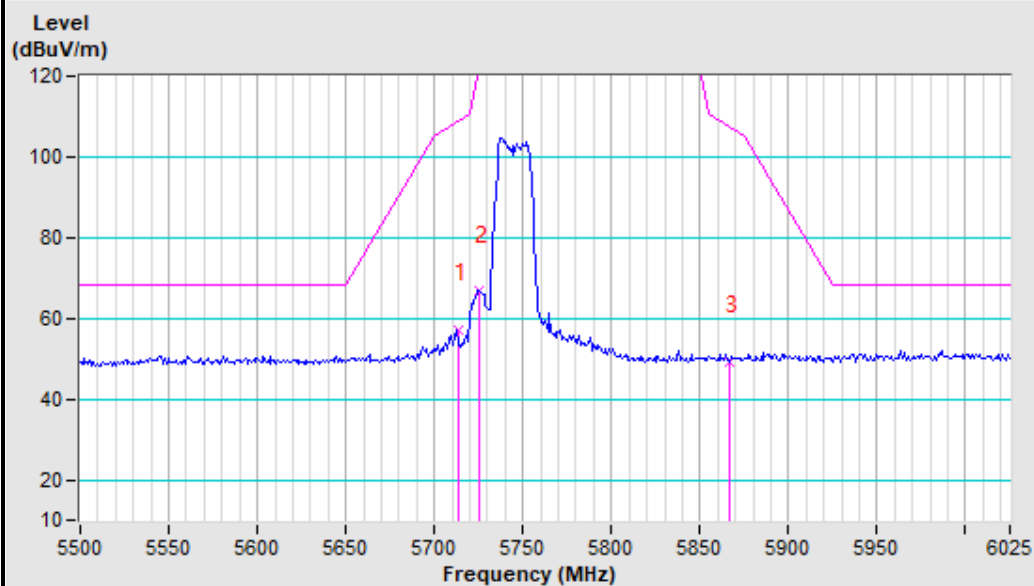
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5713.22	57.08 PK	108.90	-51.82	1.00 H	0	50.77	6.31
2	#5725.00	66.63 PK	122.20	-55.57	1.00 H	0	60.27	6.36
3	*5745.00	104.50 PK			1.11 H	0	98.05	6.45
4	*5745.00	94.60 AV			1.11 H	0	88.15	6.45
5	#5866.83	49.37 PK	107.49	-58.12	1.00 H	0	42.38	6.99
6	11490.00	52.30 PK	74.00	-21.70	1.00 H	154	39.05	13.25
7	11490.00	43.20 AV	54.00	-10.80	1.00 H	154	29.95	13.25
8	#17325.00	57.99 PK	68.20	-10.21	1.45 H	10	34.34	23.66
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	#5718.27	56.58 PK	110.32	-53.74	1.00 V	0	50.25	6.33
2	#5725.00	63.73 PK	122.20	-58.47	1.00 V	0	57.37	6.36
3	*5745.00	105.60 PK			1.02 V	360	99.15	6.45
4	*5745.00	98.50 AV			1.02 V	360	92.05	6.45
5	#5859.25	50.67 PK	109.61	-58.94	1.00 V	0	43.72	6.95
6	11490.00	52.60 PK	74.00	-21.40	1.20 V	20	39.35	13.25
7	11490.00	42.99 AV	54.00	-11.01	1.20 V	20	29.74	13.25
8	#17235.00	58.30 PK	68.20	-9.90	1.00 V	237	34.59	23.71

REMARKS:

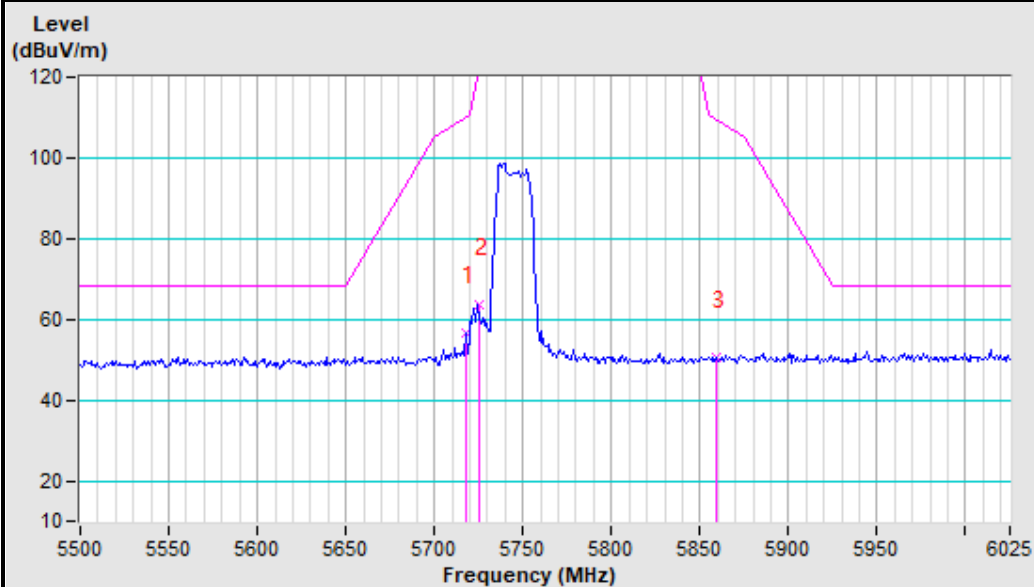
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental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

Band edge Plot

5745MHz Horizontal



5745MHz Vertical



CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

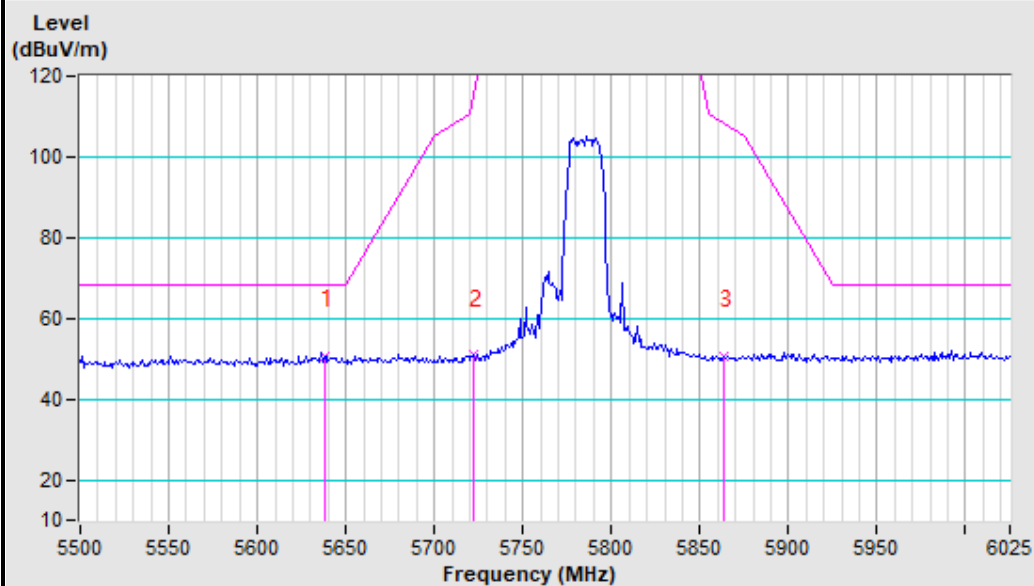
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5638.34	50.61 PK	68.20	-17.59	1.00 H	0	44.63	5.98
2	#5722.48	50.84 PK	116.45	-65.61	1.00 H	0	44.49	6.35
3	*5785.00	107.50 PK			1.00 H	36	100.87	6.63
4	*5785.00	98.25 AV			1.00 H	36	91.62	6.63
5	#5863.46	50.63 PK	108.43	-57.80	1.00 H	0	43.67	6.96
6	11570.00	52.60 PK	74.00	-21.40	1.05 H	290	38.95	13.65
7	11570.00	41.39 AV	54.00	-12.61	1.05 H	290	27.74	13.65
8	#17355.00	58.84 PK	68.20	-9.36	1.00 H	229	35.20	23.64
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	#5668.63	51.31 PK	82.02	-30.71	1.00 V	0	45.20	6.11
2	#5720.79	49.51 PK	112.61	-63.10	1.00 V	0	43.16	6.35
3	*5785.00	98.59 PK			1.32 V	35	91.96	6.63
4	*5785.00	91.26 AV			1.32 V	35	84.63	6.63
5	#5854.21	49.83 PK	112.61	-62.78	1.00 V	0	42.90	6.93
6	11570.00	53.99 PK	74.00	-20.01	1.00 V	165	40.34	13.65
7	11570.00	43.58 AV	54.00	-10.42	1.00 V	165	29.93	13.65
8	#17355.00	59.55 PK	68.20	-8.65	1.00 V	95	35.91	23.64

REMARKS:

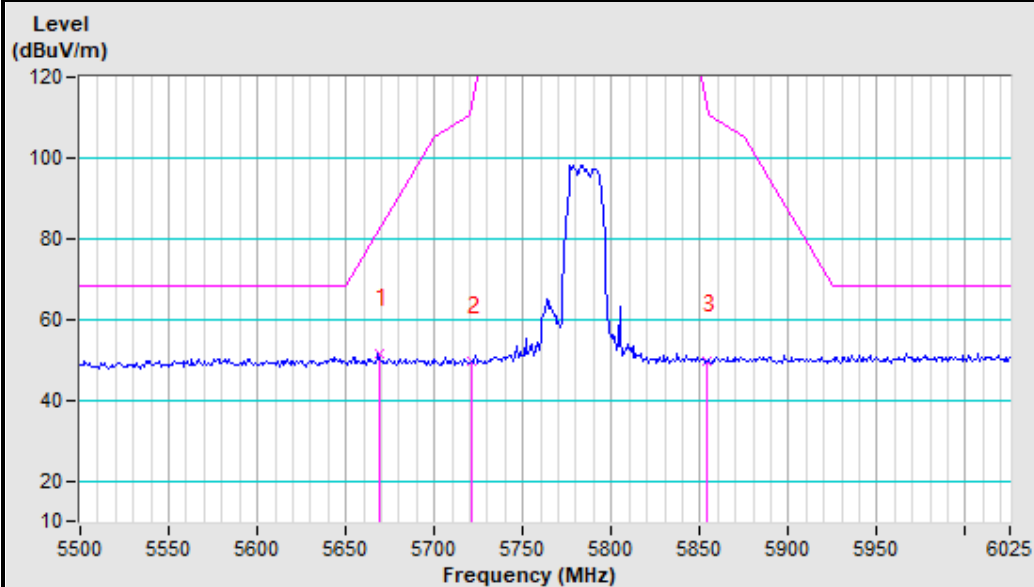
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental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

Band edge Plot

5785MHz Horizontal



5785MHz Vertical



CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

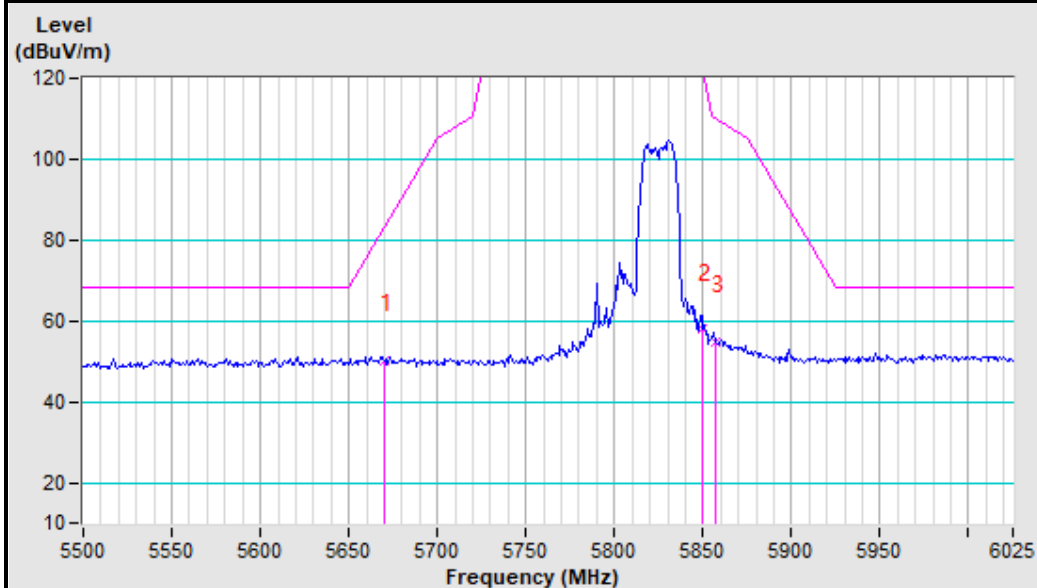
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5670.31	50.03 PK	83.27	-33.24	1.00 H	0	43.91	6.12
2	*5825.00	102.23 PK			1.00 H	33	95.43	6.80
3	*5825.00	94.30 AV			1.00 H	33	87.50	6.80
4	#5850.00	57.89 PK	122.20	-64.31	1.00 H	0	50.98	6.91
5	#5856.73	54.76 PK	110.31	-55.55	1.00 H	0	47.82	6.94
6	11650.00	54.20 PK	74.00	-19.80	1.06 H	212	40.18	14.02
7	11650.00	43.60 AV	54.00	-10.40	1.06 H	212	29.58	14.02
8	#17475.00	60.32 PK	68.20	-7.88	1.00 H	2	36.77	23.55
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	#5660.22	49.50 PK	75.79	-26.29	1.00 V	0	43.42	6.08
2	*5825.00	104.36 PK			1.00 V	20	97.56	6.80
3	*5825.00	96.88 AV			1.00 V	20	90.08	6.80
4	#5850.00	51.40 PK	122.20	-70.80	1.00 V	0	44.49	6.91
5	#5854.21	51.96 PK	112.61	-60.65	1.00 V	0	45.03	6.93
6	11650.00	53.90 PK	74.00	-20.10	1.10 V	322	39.88	14.02
7	11650.00	43.00 AV	54.00	-11.00	1.10 V	322	28.98	14.02
8	#17475.00	59.48 PK	68.20	-8.72	1.00 V	274	35.92	23.55

REMARKS:

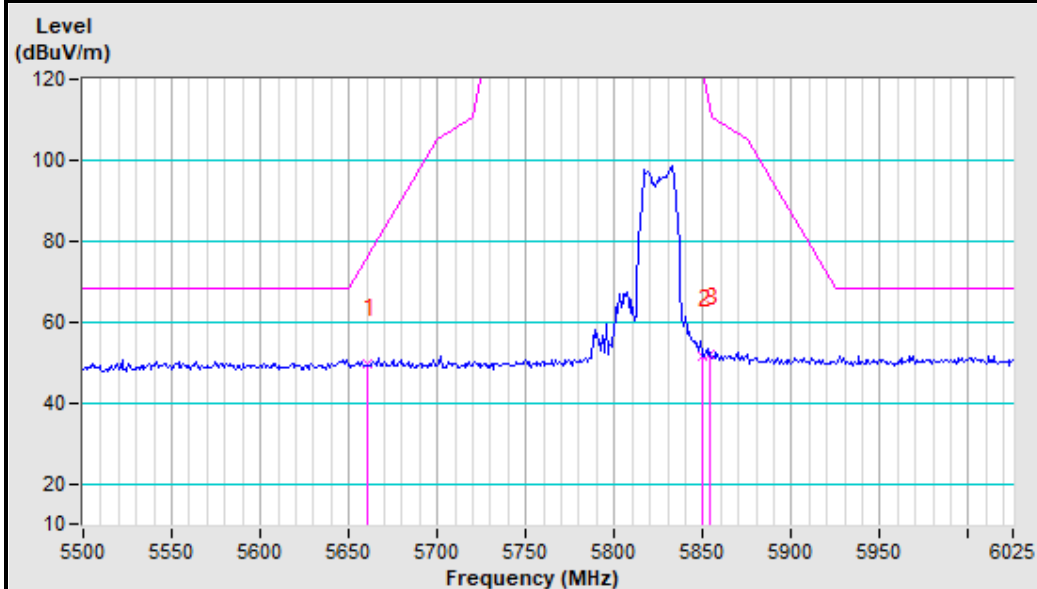
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental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

Band edge Plot

5825MHz Horizontal



5825MHz Vertical



802.11n (40MHz)

CHANNEL	TX Channel 151	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

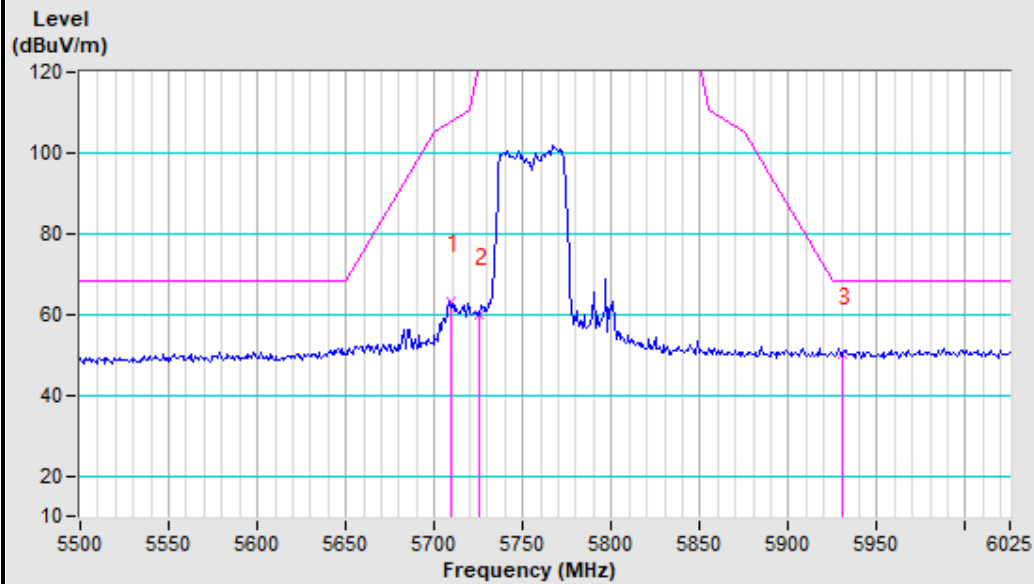
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5709.01	63.13 PK	107.73	-44.60	1.00 H	0	56.84	6.29
2	#5725.00	59.98 PK	122.20	-62.22	1.00 H	0	53.62	6.36
3	*5755.00	101.20 PK			1.00 H	22	94.71	6.49
4	*5755.00	93.26 AV			1.00 H	22	86.77	6.49
5	#5930.77	50.02 PK	68.20	-18.18	1.00 H	0	42.75	7.27
6	11510.00	54.50 PK	74.00	-19.50	1.00 H	232	41.15	13.35
7	11510.00	42.98 AV	54.00	-11.02	1.00 H	232	29.63	13.35
8	#17265.00	59.60 PK	68.20	-8.60	1.00 H	30	35.91	23.69
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	#5709.86	57.69 PK	107.96	-50.27	1.00 V	0	51.40	6.29
2	#5725.00	57.07 PK	122.20	-65.13	1.00 V	0	50.71	6.36
3	*5755.00	102.38 PK			1.00 V	29	95.89	6.49
4	*5755.00	94.06 AV			1.00 V	29	87.57	6.49
5	#5924.04	50.42 PK	68.91	-18.49	1.00 V	0	43.19	7.23
6	11510.00	53.69 PK	74.00	-20.31	1.01 V	201	40.34	13.35
7	11510.00	43.00 AV	54.00	-11.00	1.01 V	201	29.65	13.35
8	#17265.00	58.00 PK	68.20	-10.20	1.02 V	12	34.31	23.69

REMARKS:

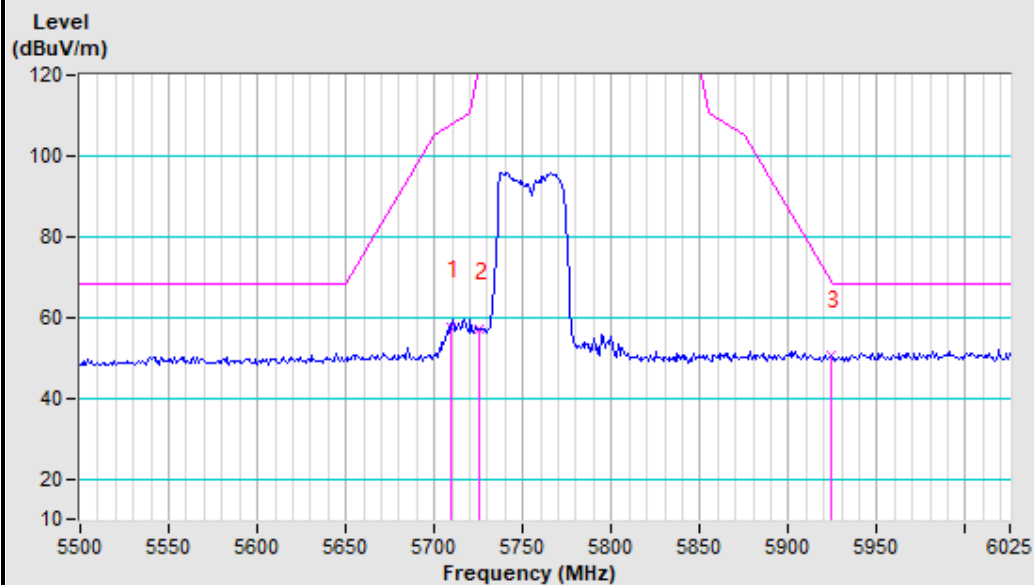
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * " : Fundamental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

Band edge Plot

5755MHz Horizontal



5755MHz Vertical



CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

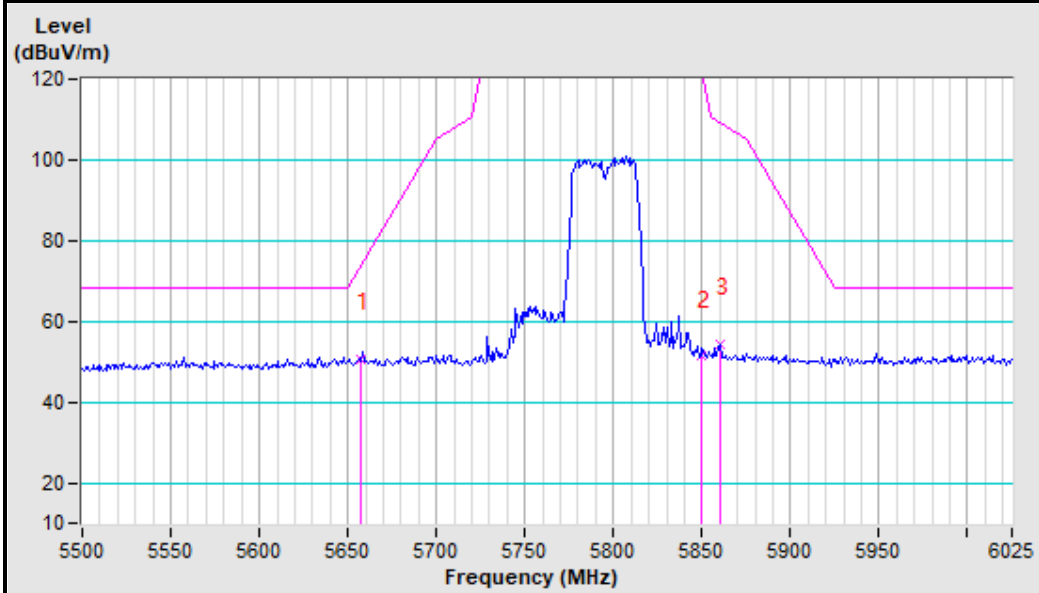
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5656.85	50.59 PK	73.29	-22.70	1.00 H	0	44.53	6.06
2	*5795.00	98.39 PK			1.00 H	125	91.72	6.67
3	*5795.00	89.60 AV			1.00 H	125	82.93	6.67
4	#5850.00	51.32 PK	122.20	-70.88	1.00 H	0	44.41	6.91
5	#5860.10	54.28 PK	109.37	-55.09	1.00 H	0	47.33	6.95
6	11590.00	50.52 PK	74.00	-23.48	1.00 H	53	36.78	13.74
7	11590.00	42.30 AV	54.00	-11.70	1.00 H	53	28.56	13.74
8	#17385.00	61.39 PK	68.20	-6.81	1.00 H	198	37.78	23.61
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	#5703.12	51.76 PK	106.08	-54.32	1.00 V	0	45.49	6.27
2	*5795.00	97.97 PK			1.00 V	25	91.30	6.67
3	*5795.00	89.66 AV			1.00 V	25	82.99	6.67
4	#5850.00	50.59 PK	122.20	-71.61	1.00 V	0	43.68	6.91
5	#5934.13	50.69 PK	68.20	-17.51	1.00 V	0	43.41	7.28
6	11590.00	52.39 PK	74.00	-21.61	1.00 V	39	38.65	13.74
7	11590.00	43.66 AV	54.00	-10.34	1.00 V	39	29.92	13.74
8	#17385.00	61.10 PK	68.20	-7.10	1.00 V	138	37.49	23.61

REMARKS:

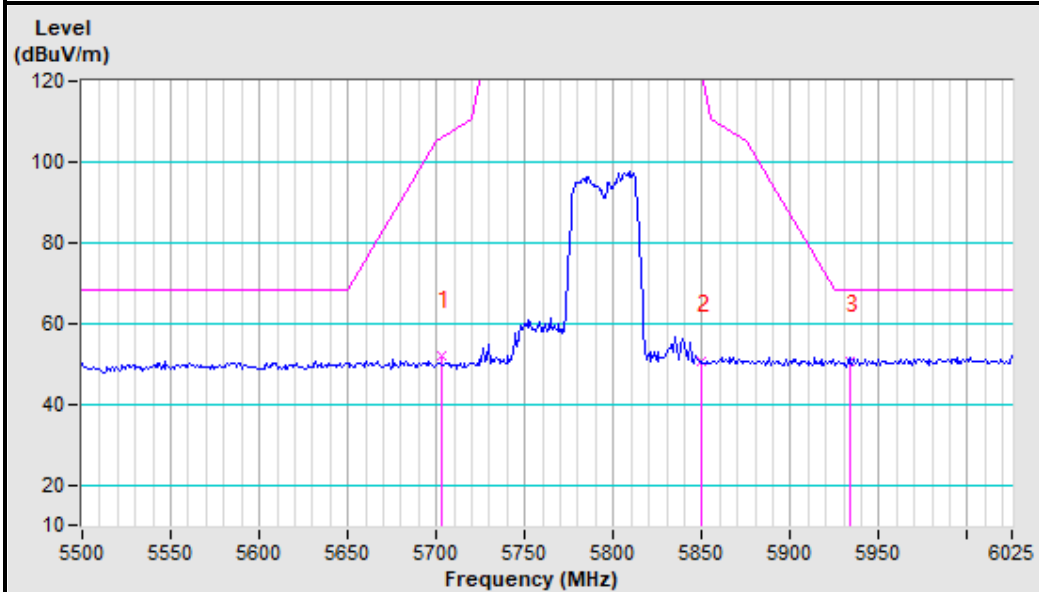
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental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

Band edge Plot

5795MHz Horizontal



5795MHz Vertical



802.11ac 80MHz

CHANNEL	TX Channel 155	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

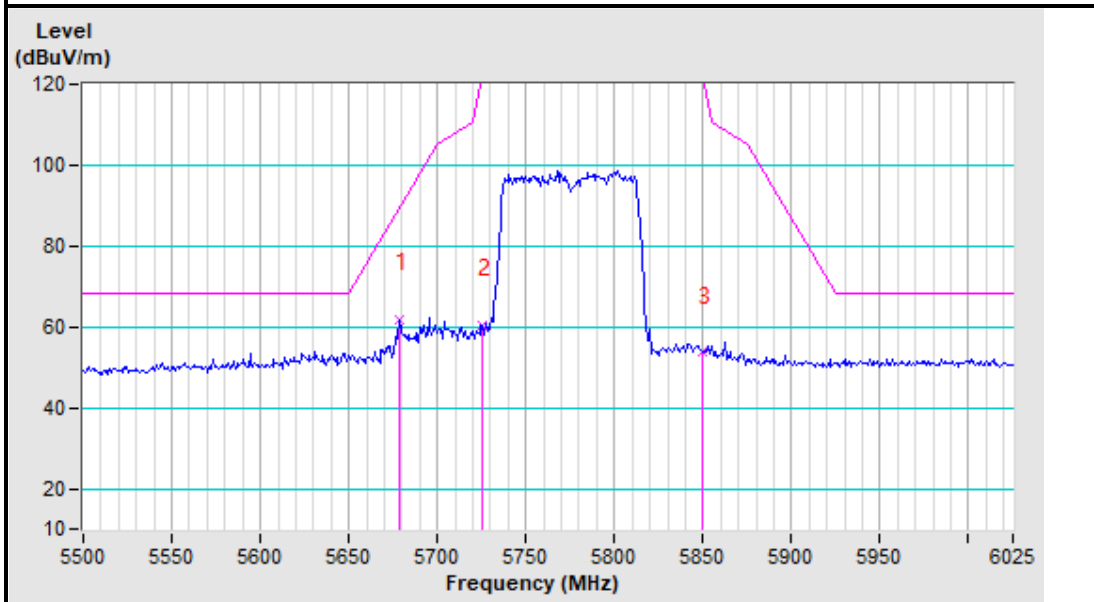
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5678.73	61.83 PK	89.50	-27.67	1.00 H	0	55.67	6.16
2	#5725.00	60.37 PK	122.20	-61.83	1.00 H	0	54.01	6.36
3	*5775.00	97.62 PK			1.00 H	290	91.04	6.58
4	*5775.00	87.92 AV			1.00 H	290	81.34	6.58
5	#5850.00	53.68 PK	122.20	-68.52	1.00 H	0	46.77	6.91
6	11550.00	54.79 PK	74.00	-19.21	1.65 H	52	41.24	13.55
7	11550.00	46.69 AV	54.00	-7.31	1.65 H	52	33.14	13.55
8	#17325.00	61.38 PK	68.20	-6.82	1.00 H	0	37.73	23.66
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	#5678.73	56.29 PK	89.50	-33.21	1.00 V	0	50.13	6.16
2	#5725.00	53.80 PK	122.20	-68.40	1.00 V	0	47.44	6.36
3	*5775.00	93.00 PK			1.00 V	360	86.42	6.58
4	*5775.00	82.65 AV			1.00 V	360	76.07	6.58
5	#5850.00	50.24 PK	122.20	-71.96	1.00 V	0	43.33	6.91
6	11550.00	52.07 PK	74.00	-21.93	1.00 V	290	38.52	13.55
7	11550.00	43.66 AV	54.00	-10.34	1.00 V	290	30.11	13.55
8	#17325.00	60.43 PK	68.20	-7.77	1.00 V	0	36.77	23.66

REMARKS:

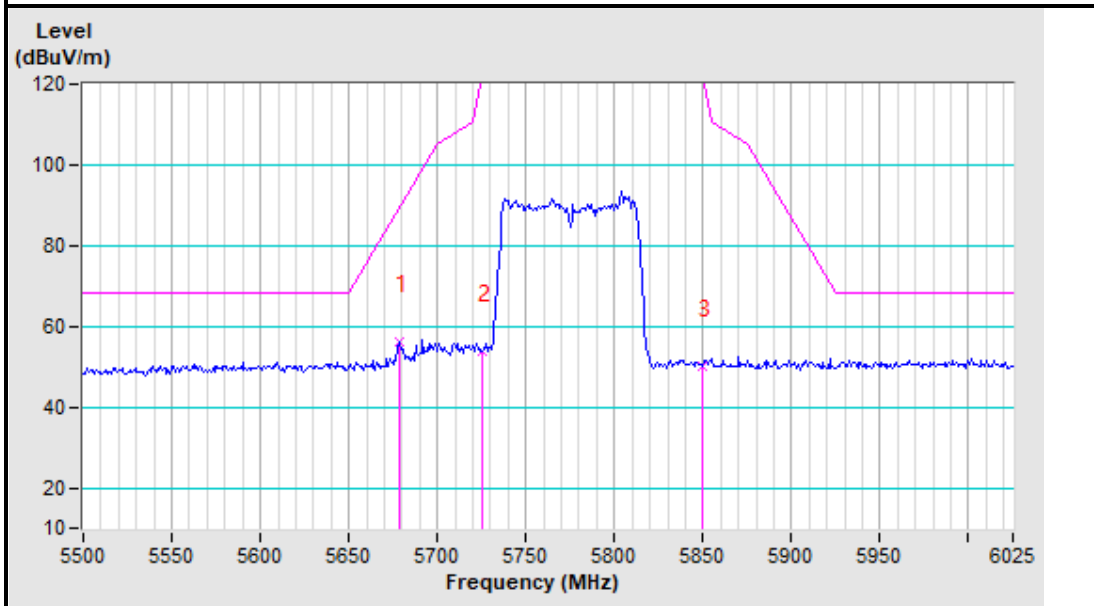
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental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

Band edge Plot

5775MHz Horizontal



5775MHz Vertical



4.2 TRANSMIT POWER MEASUREMENT

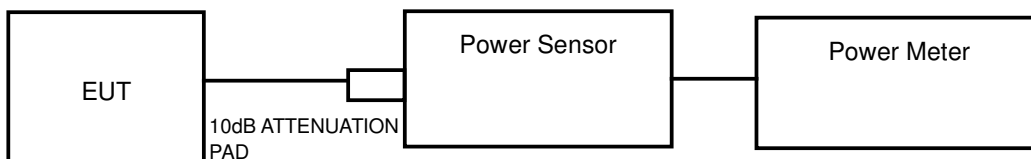
4.2.1 LIMITS OF TRANSMIT POWER MEASUREMENT

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

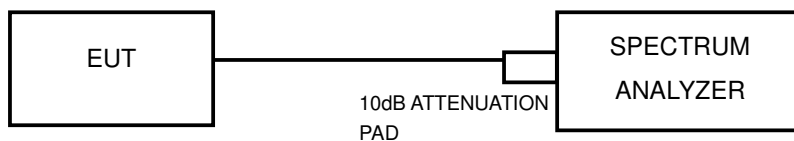
NOTE: 1. Where B is the 26dB emission bandwidth in MHz.

4.2.2 TEST SETUP

FOR POWER OUTPUT MEASUREMENT



FOR 6/26dB BANDWIDTH



4.2.3 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
Power Sensor	Keysight	U2021XA	MY57320002	Jan. 11, 24
Power Meter	Anritsu	ML2495A	1139001	Aug. 22, 23
Power Sensor	Anritsu	MA2411B	1531155	Aug. 22, 23
Digital Multimeter	FLUKE	15B	A1220010DG	N/A
Humid & Temp Programmable Tester	Haida	HD-225T	110807201	Nov. 02, 23
Oscilloscope	Agilent	DSO9254A	MY51260160	Jul. 27, 23
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV40	101094	Jan. 11, 24
Signal Generator	Agilent	N5183A	MY50140980	Jul. 20, 23
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Jul. 20, 23
Attenuator	MINI	BW-S10W2+	S130129FGE2	N/A
DC Source	Keysight	E3642A	MY56146098	N/A
Test software	ADT	ADT_RF Test Software V6.6.5.3	N/A	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.

4.2.4 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%.

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.

4.2.5 DEVIATION FROM TEST STANDARD

No deviation.

4.2.6 EUT OPERATING CONDITIONS

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



4.2.7 TEST RESULTS

OUTPUT POWER:

802.11a

Channel Number	FREQ. (MHz)	AVG. CONDUCTED POWER (dBm)	LIMIT (dBm)	PASS /FAIL
149	5745	13.43	30.00	PASS
157	5785	13.61	30.00	PASS
165	5825	13.78	30.00	PASS

802.11n (20MHz)

Channel Number	FREQ. (MHz)	AVG. CONDUCTED POWER (dBm)	LIMIT (dBm)	PASS /FAIL
149	5745	12.46	30.00	PASS
157	5785	12.71	30.00	PASS
165	5825	12.79	30.00	PASS

802.11n (40MHz)

Channel Number	FREQ. (MHz)	AVG. CONDUCTED POWER (dBm)	LIMIT (dBm)	PASS /FAIL
151	5755	12.71	30.00	PASS
159	5795	13.00	30.00	PASS

802.11ac (80MHz)

Channel Number	FREQ. (MHz)	AVG. CONDUCTED POWER (dBm)	LIMIT (dBm)	PASS /FAIL
155	5775	11.63	30.00	PASS

6dB BANDWIDTH For 5725-5850MHz

802.11a

Channel Number	Freq. (MHz)	6dB DOWN BANDWIDTH (MHz)	PASS /FAIL
149	5745	16.39	PASS
157	5785	16.41	PASS
165	5825	16.41	PASS

802.11n (20M)

Channel Number	Freq. (MHz)	6dB DOWN BANDWIDTH (MHz)	PASS /FAIL
149	5745	17.67	PASS
157	5785	17.67	PASS
165	5825	17.67	PASS

802.11n (40M)

Channel Number	Freq. (MHz)	6dB DOWN BANDWIDTH (MHz)	PASS /FAIL
151	5755	36.47	PASS
159	5795	36.46	PASS

802.11ac (80MHz)

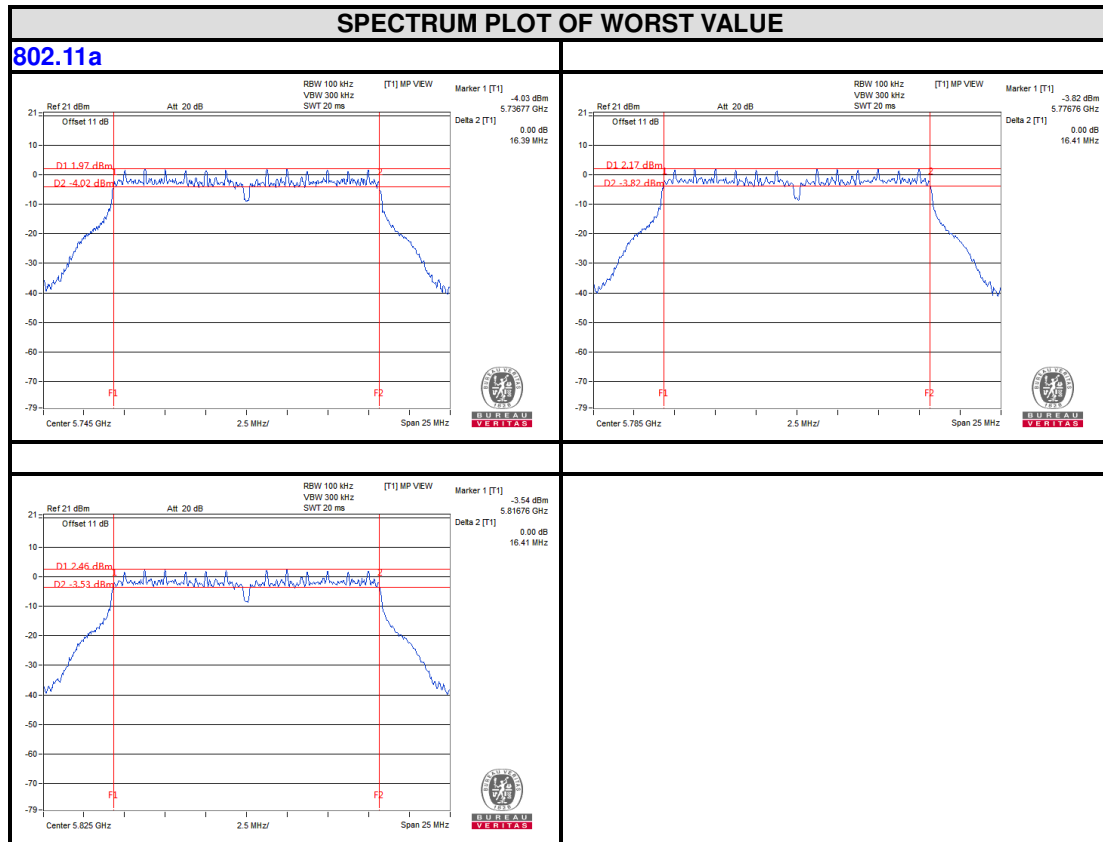
Channel Number	Freq. (MHz)	6dB DOWN BANDWIDTH (MHz)	PASS /FAIL
155	5775	76.19	PASS



BUREAU
VERITAS

Test Report No.: RF2303WDG0070-2

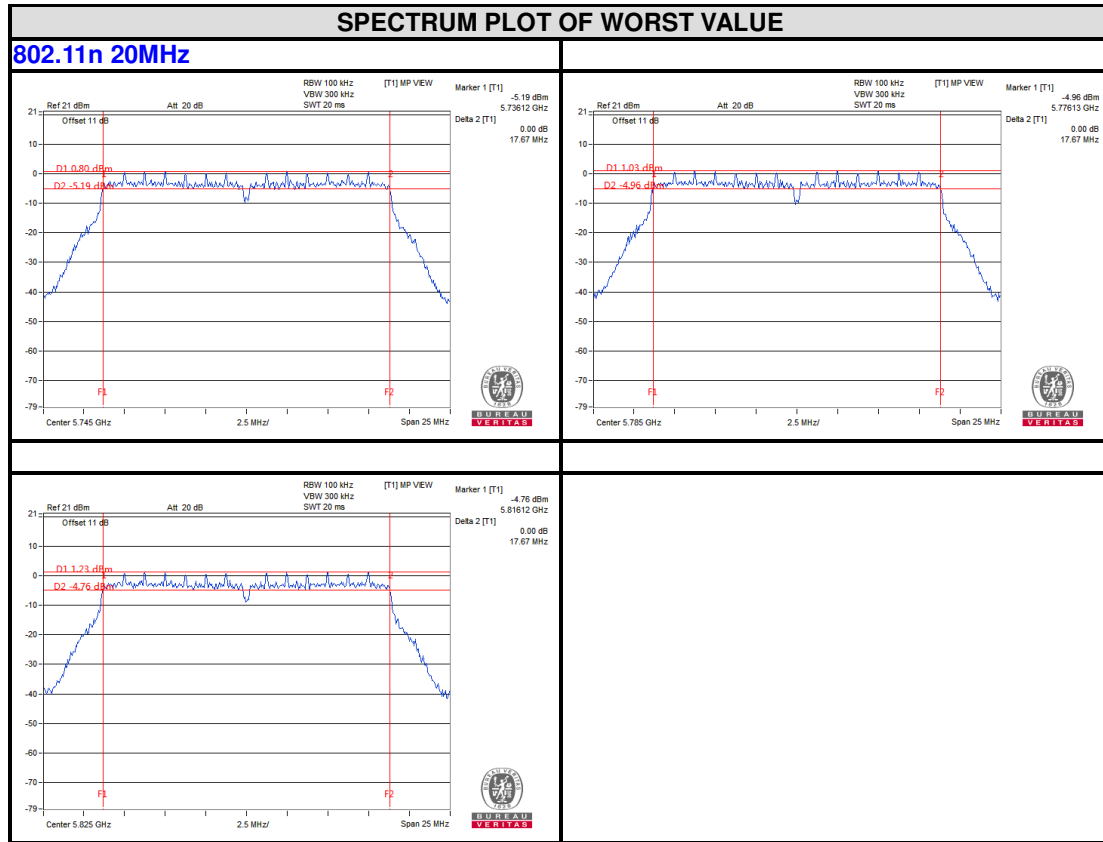
6dB BANDWIDTH For 5725-5850MHz





BUREAU
VERITAS

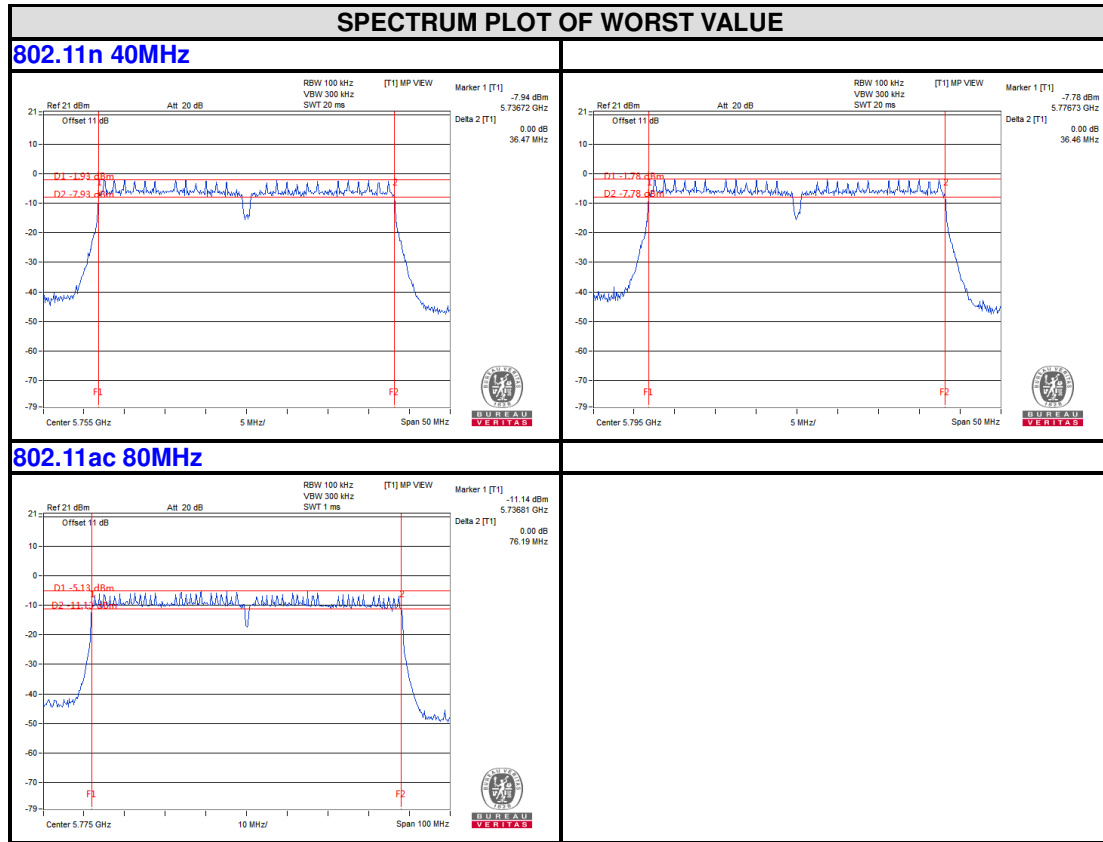
Test Report No.: RF2303WDG0070-2





BUREAU
VERITAS

Test Report No.: RF2303WDG0070-2

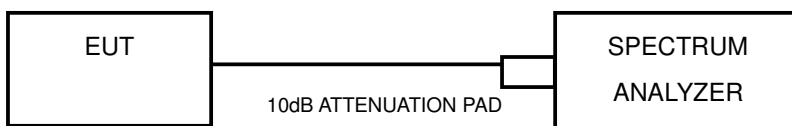


4.3 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.3.1 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

4.3.2 TEST SETUP



4.3.3 TEST INSTRUMENTS

Refer to section 4.3.3 to get information of above instrument.

4.3.4 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)

For U-NII-3 band:

Using method SA-2

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 500 kHz, Set VBW =2 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)

4.3.5 DEVIATION FROM TEST STANDARD

No deviation.

4.3.6 EUT OPERATING CONDITIONS

Same as 4.3.6



4.3.7 TEST RESULTS

For U-NII-3

802.11a

Channel Number	Frequency (MHz)	RF Power Level in 500kHz BW (dBm)	MAX. Limit (dBm/500k)	PASS / FAIL
149	5745	-1.51	30.00	PASS
157	5785	-1.43	30.00	PASS
165	5825	-1.32	30.00	PASS

802.11n (20MHz)

Channel Number	Frequency (MHz)	RF Power Level in 500kHz BW (dBm)	MAX. Limit (dBm/500k)	PASS / FAIL
149	5745	-3.04	30.00	PASS
157	5785	-2.91	30.00	PASS
165	5825	-2.67	30.00	PASS

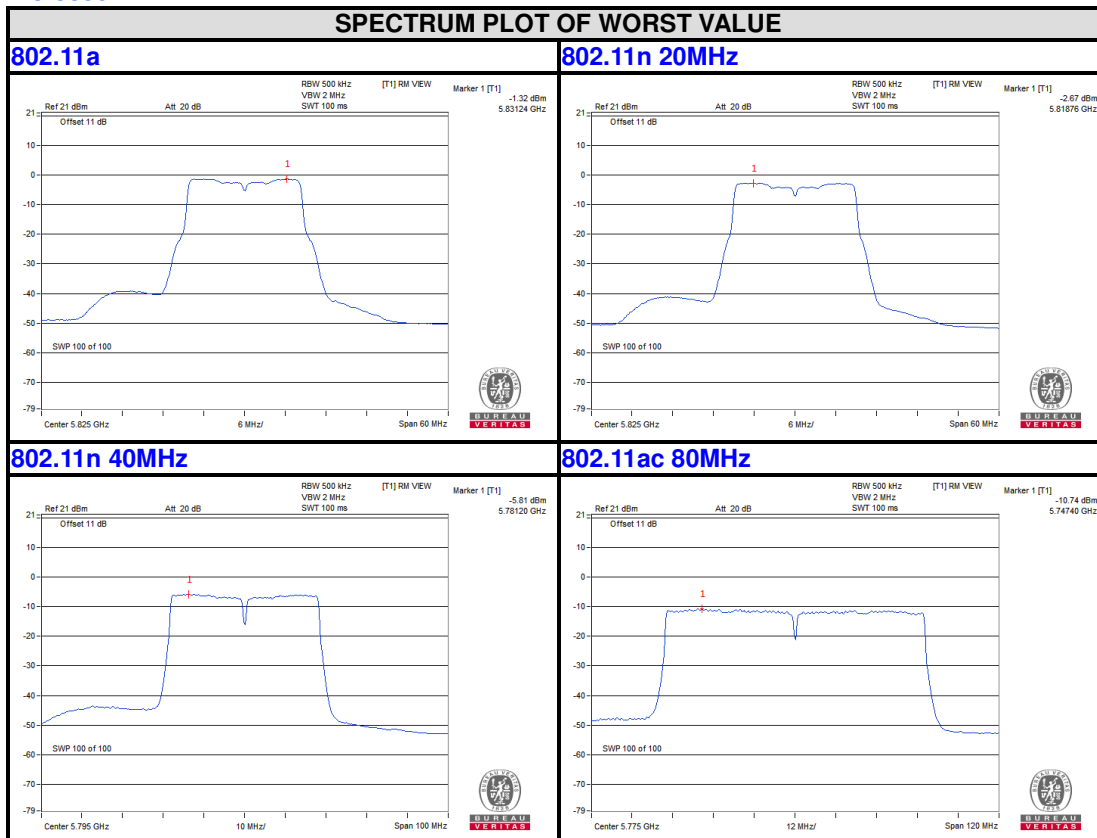
802.11n (40MHz)

Channel Number	Frequency (MHz)	RF Power Level in 500kHz BW (dBm)	MAX. Limit (dBm/500k)	PASS / FAIL
151	5755	-6.00	30.00	PASS
159	5795	-5.81	30.00	PASS

802.11ac (80MHz)

Channel Number	Frequency (MHz)	RF Power Level in 500kHz BW (dBm)	MAX. Limit (dBm/500k)	PASS / FAIL
155	5775	-10.74	30.00	PASS

PSD Test Plot
BAND4
5725-5850MHz

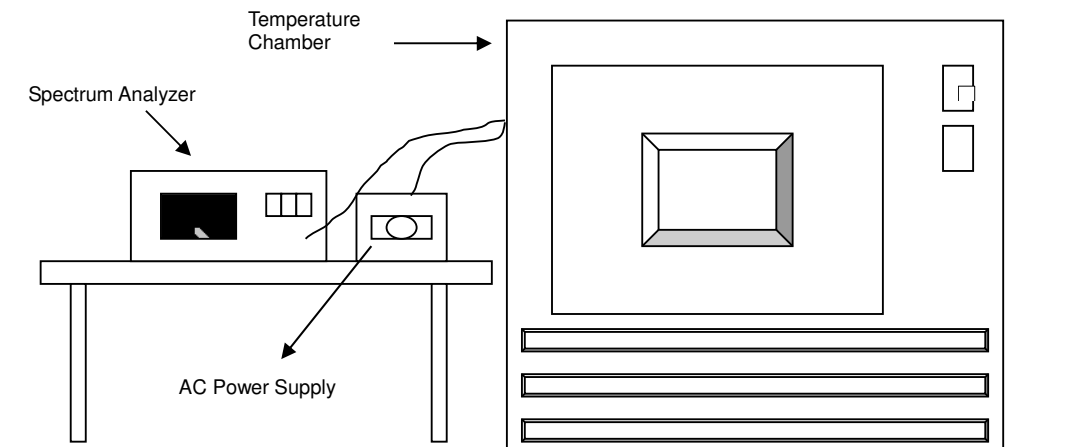


4.4 FREQUENCY STABILITY

4.4.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

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

4.4.2 Test Setup



4.4.3 TEST INSTRUMENTS

Refer to section 4.3.3 to get information of above instrument.

4.4.4 TEST PROCEDURE

- a. The EUT was placed inside the environmental test chamber and powered by nominal DC 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.

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITION

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



4.4.7 TEST RESULTS

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5745MHz									
TEMP. (°C)	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	13.20	5745.0201	0.00035	5745.02	0.00035	5745.0206	0.00036	5745.0221	0.00038
40	13.20	5744.9983	-0.00003	5744.9981	-0.00003	5744.9972	-0.00005	5744.9985	-0.00003
30	13.20	5744.973	-0.00047	5744.9735	-0.00046	5744.9717	-0.00049	5744.9729	-0.00047
20	13.20	5745.0048	0.00008	5745.0005	0.00001	5745.004	0.00007	5745.001	0.00002
10	13.20	5745.0151	0.00026	5745.0108	0.00019	5745.01	0.00017	5745.012	0.00021
0	13.20	5745.0029	0.00005	5745.002	0.00003	5744.9998	0.00000	5744.9979	-0.00004
-10	13.20	5745.0084	0.00015	5745.0047	0.00008	5745.0064	0.00011	5745.0073	0.00013
-20	13.20	5745.0027	0.00005	5745.0029	0.00005	5745.0025	0.00004	5744.9995	-0.00001
-30	13.20	5745.0224	0.00039	5745.0207	0.00036	5745.0233	0.00041	5745.0215	0.00037

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5745MHz									
TEMP. (°C)	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	11.22	5745.0045	0.00008	5744.9997	-0.00001	5745.0035	0.00006	5745.0017	0.00003
	13.20	5745.0048	0.00008	5745.0005	0.00001	5745.004	0.00007	5745.001	0.00002
	15.18	5745.0047	0.00008	5744.9995	-0.00001	5745.0029	0.00005	5745.0003	0.00001



Test Report No.: RF2303WDG0070-2

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

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

6 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---