

FCC Test Report (WLAN)

Report No.: RF170323C01-1

FCC ID: VUICGM4231

Test Model: CGM4231

Series Model: CGM4231XXXXX (X = 0-1, A-Z, a-z, "-" or blank, for marketing purpose)

Received Date: Mar. 23, 2017

Test Date: Apr. 05 to 10, 2017

Issued Date: May 15, 2017

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Release Control Record

Issue No.	Description	Date Issued
RF170323C01-1	Original release.	May 15, 2017

1 Certificate of Conformity

Product: DOCSIS3.1 Wireless Residential Gateway with Embedded Digital Voice Adapter

Brand: Technicolor

Test Model: CGM4231

Series Model: CGM4231XXXXX (X = 0-1, A-Z, a-z, "-" or blank, for marketing purpose)


Sample Status: ENGINEERING SAMPLE


Applicant: Pegatron Corp.

Test Date: Apr. 05 to 10, 2017

Standard: 47 CFR FCC Part 15, Subpart E (Section 15.407)
ANSI C63.10: 2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by :  , **Date:** May 15, 2017
Claire Kuan / Specialist

Approved by :  , **Date:** May 15, 2017
May Chen / Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
FCC Clause	Test Item	Result	Remarks
15.407(b)(6)	AC Power Conducted Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -14.95dB at 0.29453MHz.
15.407(b) (1/2/3/4(i/ii)/6)	Radiated Emissions & Band Edge Measurement*	Pass	Meet the requirement of limit. Minimum passing margin is -0.1dB at 5630.25MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6dB bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is i-pex(MHF) not a standard connector.

*For U-NII-3 band compliance with rule part 15.407(b)(4)(i), the OOB test plots were recorded in Annex A.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.84 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.34 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	3.41 dB
	6GHz ~ 18GHz	3.49 dB
	18GHz ~ 40GHz	3.30 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	DOCSIS3.1 Wireless Residential Gateway with Embedded Digital Voice Adapter
Brand	Technicolor
Test Model	CGM4231
Series Model:	CGM4231XXXXX (X = 0-1, A-Z, a-z, "-" or blank, for marketing purpose)
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	12Vdc from power adapter
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode only
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n: up to 600Mbps 802.11ac: up to 1733.3Mbps
Operating Frequency	2.4GHz: 2.412 ~ 2.462GHz 5GHz: 5.18 ~ 5.24GHz, 5.745 ~ 5.825GHz
Number of Channel	2.4GHz: 802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7 5GHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 9 802.11n (HT40), 802.11ac (VHT40): 4 802.11ac (VHT80): 2
Output Power	2.4GHz: 992mW CDD Mode: 5.18 ~ 5.24GHz: 789.993mW 5.745 ~ 5.825GHz: 873.597mW Beamforming Mode: 5.18 ~ 5.24GHz: 372.926mW 5.745 ~ 5.825GHz: 322.358mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x 1
Data Cable Supplied	USB to Mini USB cable (Shielded, 1.1m) RJ45 cable (Unshielded, 1.1m)

Note:

1. 2.4GHz and 5GHz technology cannot transmit at same time.
2. The EUT must be supplied with a power adapter as following table:

Brand	Model No.	Spec.
Acbel	ADG009	Input: 100-240Vac, 50/60Hz, MAX 1.5A AC output cable(Unshielded, 1.7m) Output: 12V, 4.5A DC output cable(Unshielded, 1m)

3. The antennas provided to the EUT, please refer to the following table:

Transmitter Circuit	Antenna Net Gain(dBi)	Frequency range (MHz)	Antenna Type	Connector Type	Cable Length
Chain 0	4.32	2400 ~ 2483.5	PCB	NA	NA
	4.11	5150 ~ 5250			
	4.32	5250 ~ 5350			
	4.90	5470 ~ 5725			
	4.97	5725 ~ 5850			
Chain 1	4.71	2400 ~ 2483.5	PCB	NA	NA
	5.12	5150 ~ 5250			
	4.75	5250 ~ 5350			
	4.45	5470 ~ 5725			
	3.90	5725 ~ 5850			
Chain 2	3.44	2400 ~ 2483.5	PCB	i-pex(MHF)	100mm
	4.39	5150 ~ 5250			
	4.59	5250 ~ 5350			
	4.99	5470 ~ 5725			
	5.19	5725 ~ 5850			
Chain 3	2.85	5150 ~ 5250	PCB	NA	NA
	2.92	5250 ~ 5350			
	3.81	5470 ~ 5725			
	4.06	5725 ~ 5850			

4. The EUT incorporates a MIMO function.

2.4GHz Band			
MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11b	1 ~ 11Mbps	3TX/2TX/1TX diversity	3RX
802.11g	6 ~ 54Mbps	3TX/2TX/1TX diversity	3RX
802.11n (HT20)	MCS 0~7	3TX/2TX/1TX diversity	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
802.11n (HT40)	MCS 0~7	3TX/2TX/1TX diversity	3RX
	MCS 8~15	3TX	3RX
	MCS 16~23	3TX	3RX
5GHz Band			
MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11a	6 ~ 54Mbps	4TX	4RX
802.11n (HT20)	MCS 0~7	4TX	4RX
	MCS 8~15	4TX	4RX
	MCS 16~23	4TX	4RX
	MCS 24~31	4TX	4RX
	MCS 0~7	4TX	4RX
802.11n (HT40)	MCS 8~15	4TX	4RX
	MCS 16~23	4TX	4RX
	MCS 24~31	4TX	4RX
	MCS 0~7	4TX	4RX
802.11ac (VHT20)	MCS0~8 Nss=1	4TX	4RX
	MCS0~8 Nss=2	4TX	4RX
	MCS0~9 Nss=3	4TX	4RX
	MCS0~8 Nss=4	4TX	4RX
802.11ac (VHT40)	MCS0~9 Nss=1	4TX	4RX
	MCS0~9 Nss=2	4TX	4RX
	MCS0~9 Nss=3	4TX	4RX
	MCS0~9 Nss=4	4TX	4RX
802.11ac (VHT80)	MCS0~9 Nss=1	4TX	4RX
	MCS0~9 Nss=2	4TX	4RX
	MCS0~9 Nss=3	4TX	4RX
	MCS0~9 Nss=4	4TX	4RX

Note: 1. The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz) and 802.11ac mode for 20MHz (40MHz), therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

2. All of modulation mode support beamforming function except 2.4GHz and 5GHz (802.11a) modulation mode.

3. The EUT support Beamforming and CDD mode, therefore both mode were investigated and the worst case scenario was identified. The worst case data were presented in test report (except Radiated emission & Output power test items).

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

3.2 Description of Test Modes

FOR 5180 ~ 5240MHz

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

Channel	Frequency	Channel	Frequency
36	5180MHz	44	5220MHz
40	5200MHz	48	5240MHz

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

Channel	Frequency	Channel	Frequency
38	5190MHz	46	5230MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
42	5210MHz

FOR 5745 ~ 5825MHz:

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

Channel	Frequency	Channel	Frequency
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz		

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
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	
-	√	√	√	√	-

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

Radiated Emission Test (Above 1GHz):

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

CDD Mode						
Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6
802.11ac (VHT20)		36 to 48	36, 40, 48	OFDM	BPSK	6.5
802.11ac (VHT40)		38 to 46	38, 46	OFDM	BPSK	13.5
802.11ac (VHT80)		42	42	OFDM	BPSK	29.3
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6
802.11ac (VHT20)		149 to 165	149, 157, 165	OFDM	BPSK	6.5
802.11ac (VHT40)		151 to 159	151, 159	OFDM	BPSK	13.5
802.11ac (VHT80)		155	155	OFDM	BPSK	29.3
Beamforming Mode						
Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11ac (VHT20)	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.5
802.11ac (VHT40)		38 to 46	38, 46	OFDM	BPSK	13.5
802.11ac (VHT80)		42	42	OFDM	BPSK	29.3
802.11ac (VHT20)	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.5
802.11ac (VHT40)		151 to 159	151, 159	OFDM	BPSK	13.5
802.11ac (VHT80)		155	155	OFDM	BPSK	29.3

Radiated Emission Test (Below 1GHz):

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

CDD Mode						
Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11a	5180-5240 5745-5825	36 to 48 149 to 165	157	OFDM	BPSK	6

Power Line Conducted Emission Test:

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

CDD Mode						
Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11a	5180-5240 5745-5825	36 to 48 149 to 165	157	OFDM	BPSK	6

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.

CDD Mode						
Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6
802.11ac (VHT20)		36 to 48	36, 40, 48	OFDM	BPSK	6.5
802.11ac (VHT40)		38 to 46	38, 46	OFDM	BPSK	13.5
802.11ac (VHT80)		42	42	OFDM	BPSK	29.3
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6
802.11ac (VHT20)		149 to 165	149, 157, 165	OFDM	BPSK	6.5
802.11ac (VHT40)		151 to 159	151, 159	OFDM	BPSK	13.5
802.11ac (VHT80)		155	155	OFDM	BPSK	29.3
Beamforming Mode (Output power only)						
Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11ac (VHT20)	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.5
802.11ac (VHT40)		38 to 46	38, 46	OFDM	BPSK	13.5
802.11ac (VHT80)		42	42	OFDM	BPSK	29.3
802.11ac (VHT20)	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.5
802.11ac (VHT40)		151 to 159	151, 159	OFDM	BPSK	13.5
802.11ac (VHT80)		155	155	OFDM	BPSK	29.3

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested By
RE \geq 1G	20deg. C, 63%RH	120Vac, 60Hz	Weiwei Lo
RE<1G	25deg. C, 60%RH	120Vac, 60Hz	JyunChun Lin
PLC	25deg. C, 75%RH	120Vac, 60Hz	Andy Ho
APCM	23deg. C, 66%RH	120Vac, 60Hz	Robert Cheng

3.3 Duty Cycle of Test Signal

If duty cycle of test signal is $\geq 98\%$, duty factor is not required.

If duty cycle of test signal is $< 98\%$, duty factor shall be considered.

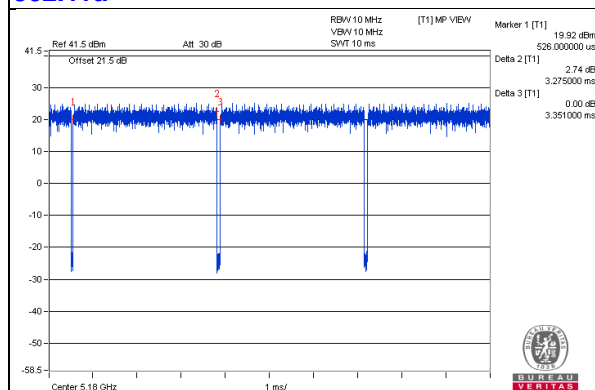
802.11a: Duty cycle = $3.275/3.351 = 0.977$, Duty factor = $10 * \log(1/0.977) = 0.10$

802.11ac (VHT20): Duty cycle = $12.394/12.469 = 0.994$

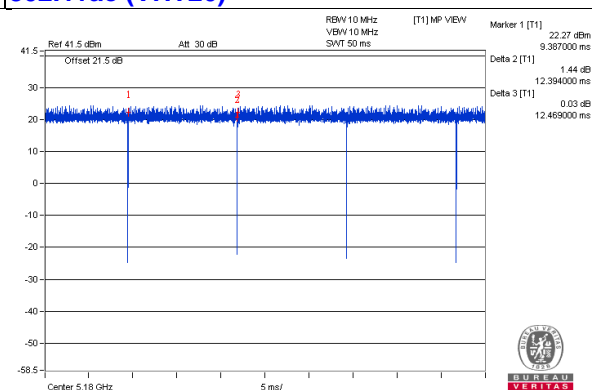
802.11ac (VHT40): Duty cycle = $5.965/6.035 = 0.988$

802.11ac (VHT80): Duty cycle = $2.769/2.83 = 0.978$, Duty factor = $10 * \log(1/0.978) = 0.09$

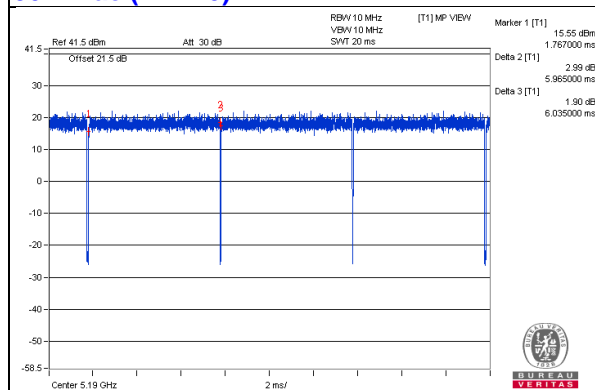
802.11a



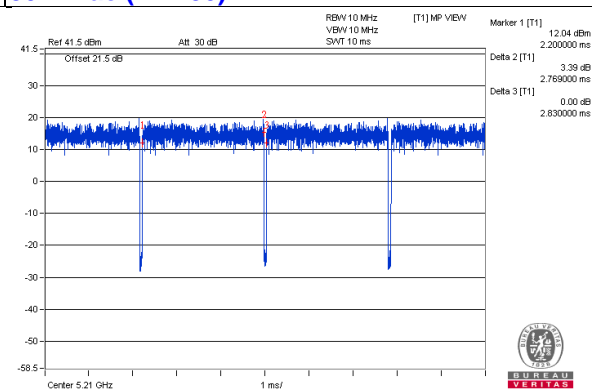
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



3.4 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.

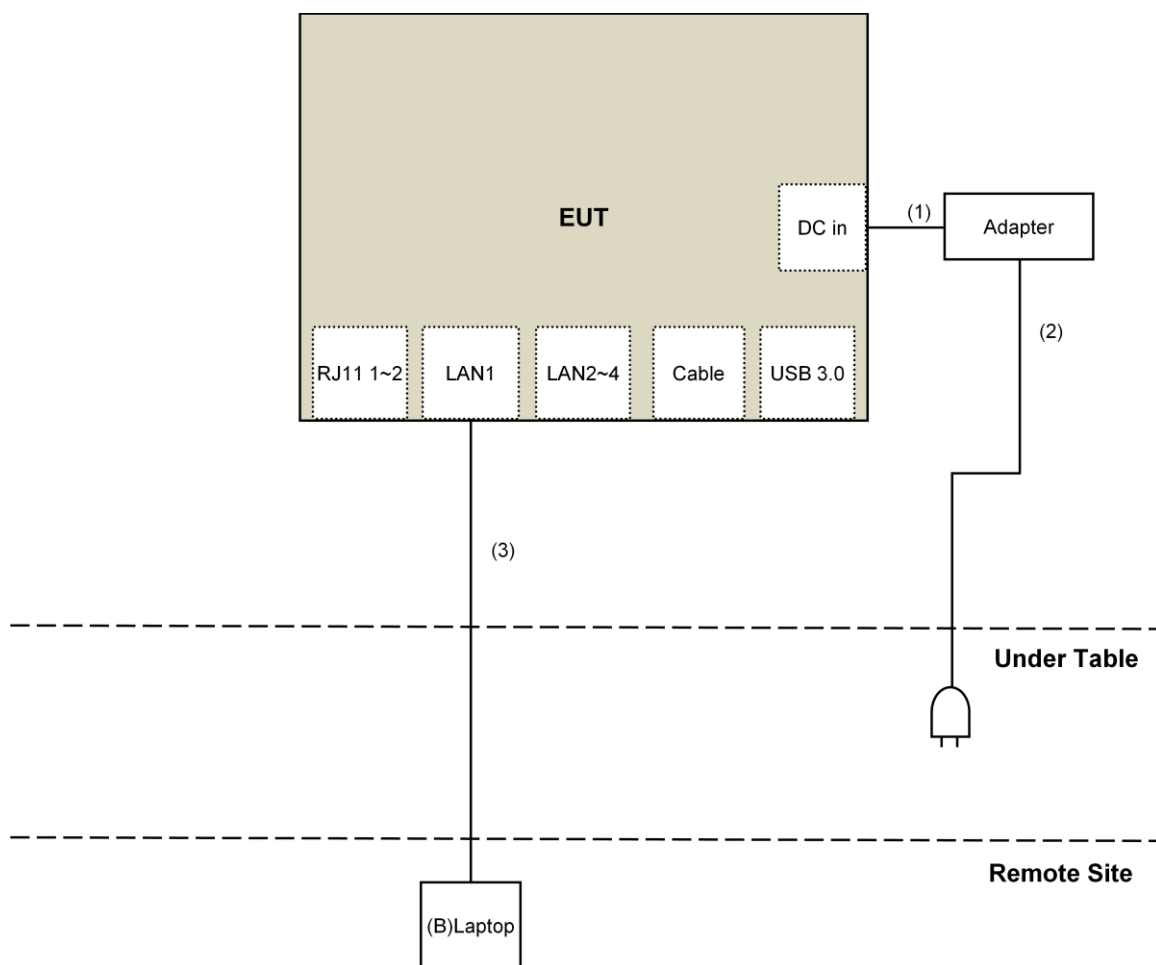
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	DELL	E5430	HYV4VY1	FCC DoC	Provided by Lab

Note:

1. All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC Cable	1	1	No	0	Supplied by client
2.	AC Cable	1	1.7	No	0	Supplied by client
3.	RJ-45 Cable	1	10	No	0	Provided by Lab

3.4.1 Configuration of System under Test



NOTE: The test configuration was defined by the applicant requirement.

3.5 General Description of Applied Standard

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 Procedure New Rules v01r03

KDB 662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10-2013

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

NOTE: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

- The lower limit shall apply at the transition frequencies.
- Emission level (dBuV/m) = 20 log Emission level (uV/m).
- 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.

Limits of unwanted emission out of the restricted bands

Applicable To		Limit	
789033 D02 General UNII Test Procedure New Rules v01r03		Field Strength at 3m	
		PK:74 (dBuV/m)	AV:54 (dBuV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3m
5150~5250 MHz	15.407(b)(1)	PK:-27 (dBm/MHz)	PK:68.2(dBuV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
5725~5850 MHz	<input checked="" type="checkbox"/> 15.407(b)(4)(i)	PK:-27 (dBm/MHz) ^{*1} PK:10 (dBm/MHz) ^{*2} PK:15.6 (dBm/MHz) ^{*3} PK:27 (dBm/MHz) ^{*4}	PK: 68.2(dBuV/m) ^{*1} PK:105.2 (dBuV/m) ^{*2} PK: 110.8(dBuV/m) ^{*3} PK:122.2 (dBuV/m) ^{*4}
	<input type="checkbox"/> 15.407(b)(4)(ii)	Emission limits in section 15.247(d)	
^{*1} beyond 75 MHz or more above of the band edge.		^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.	
^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.		^{*4} from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.	

Note:

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

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

4.1.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 20, 2016	July 19, 2017
Pre-Amplifier ^(*) EMCI	EMC001340	980142	Jan. 20, 2016	Jan. 19, 2018
Loop Antenna ^(*) Electro-Metrics	EM-6879	264	Dec. 16, 2016	Dec. 15, 2018
RF Cable	NA	LOOPCAB-001 LOOPCAB-002	Jan. 17, 2017	Jan. 16, 2018
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-01	Nov. 10, 2016	Nov. 09, 2017
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Dec. 13, 2016	Dec. 12, 2017
RF Cable	8D	966-4-1 966-4-2 966-4-3	Apr. 01, 2017	Mar. 31, 2018
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-4-01	Oct. 05, 2016	Oct. 04, 2017
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-783	Dec. 27, 2016	Dec. 26, 2017
Pre-Amplifier EMCI	EMC12630SE	980385	Feb. 02, 2017	Feb. 01, 2018
RF Cable	EMC104-SM-SM-2000 EMC104-SM-SM-5000 EMC104-SM-SM-5000	160923 150318 150323	Feb. 02, 2017 Mar. 29, 2017 Mar. 29, 2017	Feb. 01, 2018 Mar. 28, 2018 Mar. 28, 2018
Pre-Amplifier EMCI	EMC184045SE	980387	Feb. 02, 2017	Feb. 01, 2018
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Dec. 15, 2016	Dec. 14, 2017
RF Cable	SUCOFLEX 102	36432/2 36433/2	Jan. 15, 2017	Jan. 14, 2018
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208410	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP02	NA	NA
Spectrum Analyzer R&S	FSV40	100964	June 28, 2016	June 27, 2017
Power meter Anritsu	ML2495A	1014008	May 05, 2016	May 04, 2017
Power sensor Anritsu	MA2411B	0917122	May 05, 2016	May 04, 2017

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. *The calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in 966 Chamber No. 4.
4. The FCC Site Registration No. is 292998
5. The CANADA Site Registration No. is 20331-2
6. Loop antenna was used for all emissions below 30 MHz.
7. Tested Date: Apr. 05 to 10, 2017

4.1.3 Test Procedure

For Radiated emission below 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. 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. Both X and Y axes of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case 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 Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. 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 height of antenna 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 quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

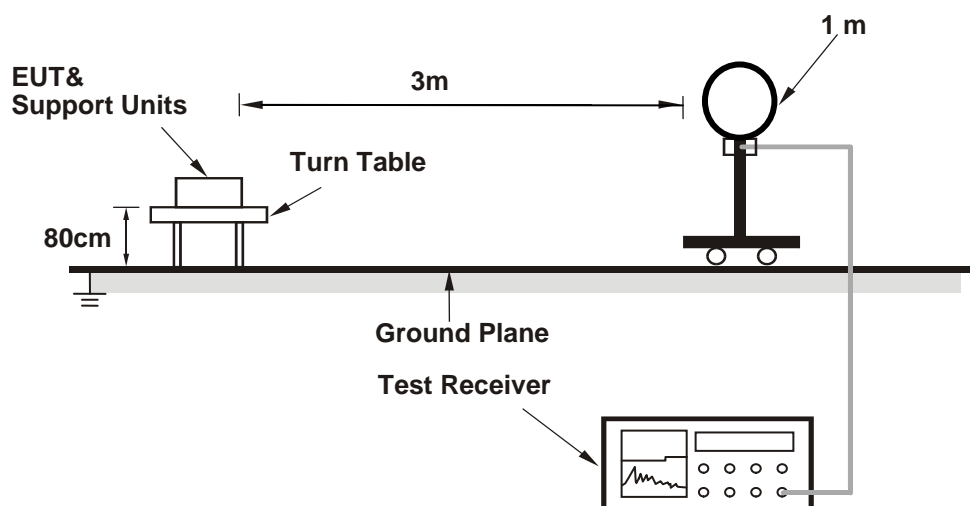
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.1.4 Deviation from Test Standard

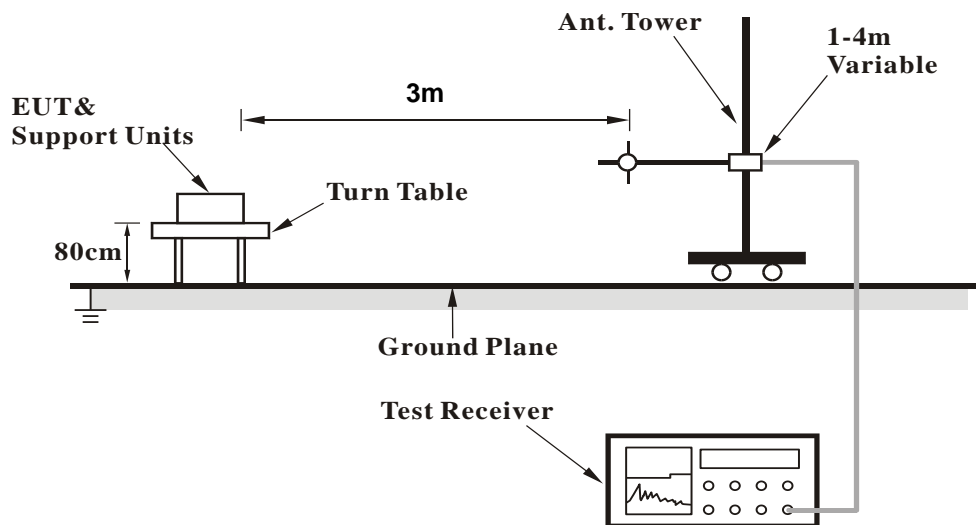
No deviation.

4.1.5 Test Setup

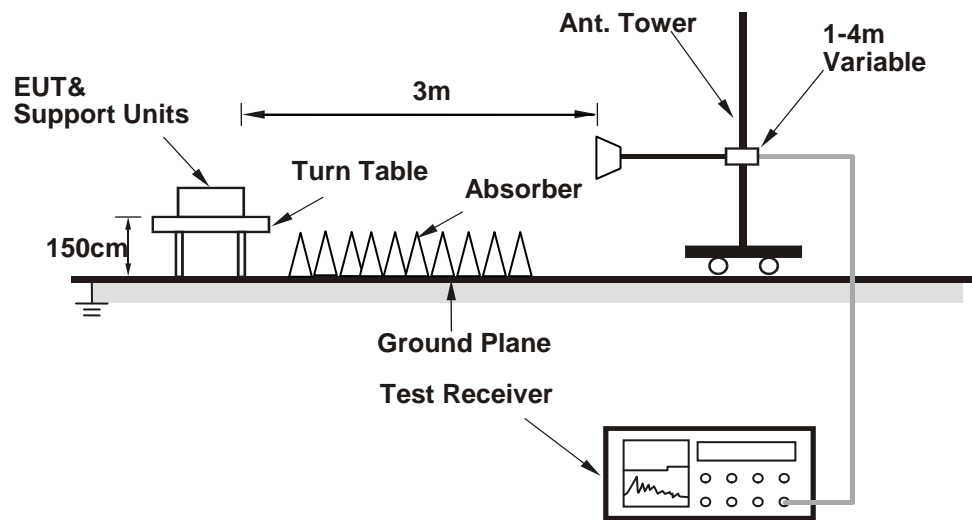
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Condition

- Connected the EUT with the Laptop which is placed on remote site.
- Controlling software (QTN Command) has been activated to set the EUT on specific status.

4.1.7 Test Results

CDD Mode

Above 1GHz Data:

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	60.2 PK	74.0	-13.8	3.13 H	279	57.3	2.9
2	5150.00	50.3 AV	54.0	-3.7	3.13 H	279	47.4	2.9
3	*5180.00	114.9 PK			3.13 H	279	111.9	3.0
4	*5180.00	104.4 AV			3.13 H	279	101.4	3.0
5	#10360.00	52.4 PK	74.0	-21.6	2.73 H	220	40.5	11.9
6	#10360.00	40.2 AV	54.0	-13.8	2.73 H	220	28.3	11.9
7	15540.00	54.8 PK	74.0	-19.2	1.50 H	268	42.6	12.2
8	15540.00	39.8 AV	54.0	-14.2	1.50 H	268	27.6	12.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	66.2 PK	74.0	-7.8	2.59 V	155	63.3	2.9
2	5150.00	53.6 AV	54.0	-0.4	2.59 V	155	50.7	2.9
3	*5180.00	117.9 PK			2.59 V	155	114.9	3.0
4	*5180.00	109.4 AV			2.59 V	155	106.4	3.0
5	#10360.00	52.1 PK	74.0	-21.9	1.54 V	333	40.2	11.9
6	#10360.00	40.1 AV	54.0	-13.9	1.54 V	333	28.2	11.9
7	15540.00	54.2 PK	74.0	-19.8	1.36 V	302	42.0	12.2
8	15540.00	39.7 AV	54.0	-14.3	1.36 V	302	27.5	12.2

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK)
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	*5200.00	115.8 PK			3.18 H	268	112.8	3.0
2	*5200.00	105.1 AV			3.18 H	268	102.1	3.0
3	#10400.00	52.7 PK	74.0	-21.3	2.73 H	213	40.8	11.9
4	#10400.00	40.0 AV	54.0	-14.0	2.73 H	213	28.1	11.9
5	15600.00	55.1 PK	74.0	-18.9	1.49 H	276	42.8	12.3
6	15600.00	40.4 AV	54.0	-13.6	1.49 H	276	28.1	12.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	118.8 PK			2.98 V	162	115.8	3.0
2	*5200.00	110.2 AV			2.98 V	162	107.2	3.0
3	#10400.00	53.5 PK	74.0	-20.5	1.60 V	328	41.6	11.9
4	#10400.00	41.4 AV	54.0	-12.6	1.60 V	328	29.5	11.9
5	15600.00	55.8 PK	74.0	-18.2	1.42 V	308	43.5	12.3
6	15600.00	40.7 AV	54.0	-13.3	1.42 V	308	28.4	12.3

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK)
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	*5240.00	116.1 PK			4.00 H	271	113.0	3.1
2	*5240.00	105.4 AV			4.00 H	271	102.3	3.1
3	5350.00	53.0 PK	74.0	-21.0	4.00 H	271	49.6	3.4
4	5350.00	42.0 AV	54.0	-12.0	4.00 H	271	38.6	3.4
5	#10480.00	53.0 PK	74.0	-21.0	2.73 H	213	41.1	11.9
6	#10480.00	40.0 AV	54.0	-14.0	2.73 H	213	28.1	11.9
7	15720.00	54.1 PK	74.0	-19.9	1.50 H	284	41.1	13.0
8	15720.00	39.4 AV	54.0	-14.6	1.50 H	284	26.4	13.0

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	119.3 PK			2.95 V	147	116.2	3.1
2	*5240.00	110.6 AV			2.95 V	147	107.5	3.1
3	5350.00	60.1 PK	74.0	-13.9	3.60 V	163	56.7	3.4
4	5350.00	48.2 AV	54.0	-5.8	3.60 V	163	44.8	3.4
5	#10480.00	54.0 PK	74.0	-20.0	1.58 V	329	42.1	11.9
6	#10480.00	41.7 AV	54.0	-12.3	1.58 V	329	29.8	11.9
7	15720.00	56.1 PK	74.0	-17.9	1.36 V	313	43.1	13.0
8	15720.00	40.7 AV	54.0	-13.3	1.36 V	313	27.7	13.0

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 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	#5627.75	62.0 PK	68.2	-6.2	3.93 H	251	58.2	3.8
2	*5745.00	116.5 PK			3.93 H	251	112.5	4.0
3	*5745.00	108.4 AV			3.93 H	251	104.4	4.0
4	#5986.96	59.7 PK	68.2	-8.5	3.93 H	251	55.2	4.5
5	11490.00	60.8 PK	74.0	-13.2	2.80 H	253	48.0	12.8
6	11490.00	47.8 AV	54.0	-6.2	2.80 H	253	35.0	12.8
7	#17235.00	55.4 PK	74.0	-18.6	1.55 H	250	38.0	17.4
8	#17235.00	45.1 AV	54.0	-8.9	1.55 H	250	27.7	17.4
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	#5632.65	60.8 PK	68.2	-7.4	2.34 V	208	57.0	3.8
2	*5745.00	122.3 PK			2.34 V	208	118.3	4.0
3	*5745.00	114.1 AV			2.34 V	208	110.1	4.0
4	#5961.35	57.7 PK	68.2	-10.5	2.34 V	208	53.3	4.4
5	11490.00	61.7 PK	74.0	-12.3	2.55 V	281	48.9	12.8
6	11490.00	49.2 AV	54.0	-4.8	2.55 V	281	36.4	12.8
7	#17235.00	56.0 PK	74.0	-18.0	1.65 V	317	38.6	17.4
8	#17235.00	43.4 AV	54.0	-10.6	1.65 V	317	26.0	17.4

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	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	#5596.31	61.8 PK	68.2	-6.4	3.41 H	252	58.2	3.6
2	*5785.00	116.2 PK			3.41 H	252	112.2	4.0
3	*5785.00	107.4 AV			3.41 H	252	103.4	4.0
4	#5974.14	59.2 PK	68.2	-9.0	3.41 H	252	54.7	4.5
5	11570.00	59.7 PK	74.0	-14.3	1.82 H	247	47.1	12.6
6	11570.00	48.0 AV	54.0	-6.0	1.82 H	247	35.4	12.6
7	#17355.00	53.1 PK	74.0	-20.9	1.67 H	258	35.0	18.1
8	#17355.00	44.2 AV	54.0	-9.8	1.67 H	258	26.1	18.1
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	#5643.57	62.3 PK	68.2	-5.9	2.28 V	211	58.5	3.8
2	*5785.00	122.6 PK			2.28 V	211	118.6	4.0
3	*5785.00	114.5 AV			2.28 V	211	110.5	4.0
4	#5945.20	59.1 PK	68.2	-9.1	2.28 V	211	54.8	4.3
5	11570.00	61.6 PK	74.0	-12.4	2.57 V	277	49.0	12.6
6	11570.00	49.1 AV	54.0	-4.9	2.57 V	277	36.5	12.6
7	#17355.00	55.5 PK	74.0	-18.5	1.66 V	326	37.4	18.1
8	#17355.00	43.1 AV	54.0	-10.9	1.66 V	326	25.0	18.1

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
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	#5611.70	59.6 PK	68.2	-8.6	3.67 H	249	55.9	3.7
2	*5825.00	114.0 PK			3.67 H	249	109.9	4.1
3	*5825.00	106.4 AV			3.67 H	249	102.3	4.1
4	#5990.16	59.0 PK	68.2	-9.2	3.67 H	249	54.5	4.5
5	11650.00	59.4 PK	74.0	-14.6	1.82 H	234	46.7	12.7
6	11650.00	47.7 AV	54.0	-6.3	1.82 H	234	35.0	12.7
7	#17475.00	53.1 PK	74.0	-20.9	1.68 H	244	34.2	18.9
8	#17475.00	44.3 AV	54.0	-9.7	1.68 H	244	25.4	18.9
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	#5650.70	63.2 PK	68.7	-5.5	2.29 V	213	59.5	3.7
2	*5825.00	122.2 PK			2.29 V	213	118.1	4.1
3	*5825.00	114.5 AV			2.29 V	213	110.4	4.1
4	#5934.75	58.2 PK	68.2	-10.0	2.29 V	213	53.9	4.3
5	11650.00	62.1 PK	74.0	-11.9	2.55 V	295	49.4	12.7
6	11650.00	50.1 AV	54.0	-3.9	2.55 V	295	37.4	12.7
7	#17475.00	55.7 PK	74.0	-18.3	1.67 V	325	36.8	18.9
8	#17475.00	43.1 AV	54.0	-10.9	1.67 V	325	24.2	18.9

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11ac (VHT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	64.2 PK	74.0	-9.8	3.15 H	277	61.3	2.9
2	5150.00	49.9 AV	54.0	-4.1	3.15 H	277	47.0	2.9
3	*5180.00	115.1 PK			3.15 H	277	112.1	3.0
4	*5180.00	104.5 AV			3.15 H	277	101.5	3.0
5	#10360.00	52.8 PK	74.0	-21.2	2.75 H	191	40.9	11.9
6	#10360.00	40.0 AV	54.0	-14.0	2.75 H	191	28.1	11.9
7	15540.00	55.0 PK	74.0	-19.0	1.52 H	281	42.8	12.2
8	15540.00	39.9 AV	54.0	-14.1	1.52 H	281	27.7	12.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	67.1 PK	74.0	-6.9	2.86 V	157	64.2	2.9
2	5150.00	53.7 AV	54.0	-0.3	2.86 V	157	50.8	2.9
3	*5180.00	118.2 PK			2.86 V	157	115.2	3.0
4	*5180.00	108.5 AV			2.86 V	157	105.5	3.0
5	#10360.00	51.7 PK	74.0	-22.3	1.55 V	341	39.8	11.9
6	#10360.00	39.8 AV	54.0	-14.2	1.55 V	341	27.9	11.9
7	15540.00	54.3 PK	74.0	-19.7	1.33 V	313	42.1	12.2
8	15540.00	39.9 AV	54.0	-14.1	1.33 V	313	27.7	12.2

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 40	DETECTOR FUNCTION	Peak (PK)
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	*5200.00	115.7 PK			2.22 H	267	112.7	3.0
2	*5200.00	105.1 AV			2.22 H	267	102.1	3.0
3	#10400.00	53.4 PK	74.0	-20.6	2.70 H	214	41.5	11.9
4	#10400.00	40.6 AV	54.0	-13.4	2.70 H	214	28.7	11.9
5	15600.00	55.5 PK	74.0	-18.5	1.51 H	263	43.2	12.3
6	15600.00	40.1 AV	54.0	-13.9	1.51 H	263	27.8	12.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	119.3 PK			2.76 V	157	116.3	3.0
2	*5200.00	109.3 AV			2.76 V	157	106.3	3.0
3	#10400.00	52.3 PK	74.0	-21.7	1.58 V	323	40.4	11.9
4	#10400.00	40.2 AV	54.0	-13.8	1.58 V	323	28.3	11.9
5	15600.00	54.6 PK	74.0	-19.4	1.38 V	311	42.3	12.3
6	15600.00	40.2 AV	54.0	-13.8	1.38 V	311	27.9	12.3

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK)
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	*5240.00	115.7 PK			2.22 H	288	112.6	3.1
2	*5240.00	105.4 AV			2.22 H	288	102.3	3.1
3	5350.00	55.2 PK	74.0	-18.8	2.22 H	288	51.8	3.4
4	5350.00	44.4 AV	54.0	-9.6	2.22 H	288	41.0	3.4
5	#10480.00	53.2 PK	74.0	-20.8	2.73 H	188	41.3	11.9
6	#10480.00	40.1 AV	54.0	-13.9	2.73 H	188	28.2	11.9
7	15720.00	55.0 PK	74.0	-19.0	1.50 H	260	42.0	13.0
8	15720.00	39.8 AV	54.0	-14.2	1.50 H	260	26.8	13.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	119.5 PK			2.73 V	158	116.4	3.1
2	*5240.00	109.3 AV			2.73 V	158	106.2	3.1
3	5350.00	59.2 PK	74.0	-14.8	2.73 V	158	55.8	3.4
4	5350.00	50.1 AV	54.0	-3.9	2.73 V	158	46.7	3.4
5	#10480.00	62.3 PK	74.0	-11.7	2.56 V	291	50.4	11.9
6	#10480.00	49.9 AV	54.0	-4.1	2.56 V	291	38.0	11.9
7	15720.00	55.7 PK	74.0	-18.3	1.65 V	330	42.7	13.0
8	15720.00	43.5 AV	54.0	-10.5	1.65 V	330	30.5	13.0

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 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	#5590.85	62.1 PK	68.2	-6.1	2.13 H	293	58.5	3.6
2	*5745.00	117.1 PK			2.13 H	293	113.1	4.0
3	*5745.00	107.1 AV			2.13 H	293	103.1	4.0
4	#5948.52	59.6 PK	68.2	-8.6	2.13 H	293	55.3	4.3
5	11490.00	58.9 PK	74.0	-15.1	1.83 H	219	46.1	12.8
6	11490.00	47.2 AV	54.0	-6.8	1.83 H	219	34.4	12.8
7	#17235.00	53.3 PK	74.0	-20.7	1.66 H	231	35.9	17.4
8	#17235.00	44.8 AV	54.0	-9.2	1.66 H	231	27.4	17.4
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	#5633.60	61.3 PK	68.2	-6.9	2.51 V	203	57.5	3.8
2	*5745.00	122.5 PK			2.51 V	203	118.5	4.0
3	*5745.00	113.2 AV			2.51 V	203	109.2	4.0
4	#5969.90	58.4 PK	68.2	-9.8	2.51 V	203	53.9	4.5
5	11490.00	61.9 PK	74.0	-12.1	2.59 V	290	49.1	12.8
6	11490.00	49.6 AV	54.0	-4.4	2.59 V	290	36.8	12.8
7	#17235.00	55.7 PK	74.0	-18.3	1.68 V	317	38.3	17.4
8	#17235.00	43.3 AV	54.0	-10.7	1.68 V	317	25.9	17.4

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	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	#5591.32	60.6 PK	68.2	-7.6	2.11 H	291	57.0	3.6
2	*5785.00	116.9 PK			2.11 H	291	112.9	4.0
3	*5785.00	107.2 AV			2.11 H	291	103.2	4.0
4	#5984.15	57.6 PK	68.2	-10.6	2.11 H	291	53.1	4.5
5	11570.00	59.1 PK	74.0	-14.9	1.85 H	228	46.5	12.6
6	11570.00	47.6 AV	54.0	-6.4	1.85 H	228	35.0	12.6
7	#17355.00	53.7 PK	74.0	-20.3	1.66 H	229	35.6	18.1
8	#17355.00	44.6 AV	54.0	-9.4	1.66 H	229	26.5	18.1
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	#5621.73	62.8 PK	68.2	-5.4	2.57 V	207	59.0	3.8
2	*5785.00	122.7 PK			2.57 V	207	118.7	4.0
3	*5785.00	112.6 AV			2.57 V	207	108.6	4.0
4	#5971.32	58.6 PK	68.2	-9.6	2.57 V	207	54.1	4.5
5	11570.00	61.6 PK	74.0	-12.4	2.57 V	305	49.0	12.6
6	11570.00	49.2 AV	54.0	-4.8	2.57 V	305	36.6	12.6
7	#17355.00	55.6 PK	74.0	-18.4	1.71 V	322	37.5	18.1
8	#17355.00	43.4 AV	54.0	-10.6	1.71 V	322	25.3	18.1

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
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	#5649.75	61.4 PK	68.2	-6.8	2.18 H	294	57.6	3.8
2	*5825.00	117.5 PK			2.18 H	294	113.4	4.1
3	*5825.00	107.2 AV			2.18 H	294	103.1	4.1
4	#5997.93	60.3 PK	68.2	-7.9	2.18 H	294	55.8	4.5
5	11650.00	59.8 PK	74.0	-14.2	2.78 H	210	47.1	12.7
6	11650.00	48.0 AV	54.0	-6.0	2.78 H	210	35.3	12.7
7	#17475.00	53.9 PK	74.0	-20.1	1.45 H	270	35.0	18.9
8	#17475.00	44.8 AV	54.0	-9.2	1.45 H	270	25.9	18.9
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	#5626.00	60.8 PK	68.2	-7.4	2.67 V	207	57.0	3.8
2	*5825.00	122.8 PK			2.67 V	207	118.7	4.1
3	*5825.00	112.7 AV			2.67 V	207	108.6	4.1
4	#5991.75	59.2 PK	68.2	-9.0	2.67 V	207	54.7	4.5
5	11650.00	62.0 PK	74.0	-12.0	2.54 V	299	49.3	12.7
6	11650.00	49.6 AV	54.0	-4.4	2.54 V	299	36.9	12.7
7	#17475.00	56.1 PK	74.0	-17.9	1.66 V	326	37.2	18.9
8	#17475.00	43.8 AV	54.0	-10.2	1.66 V	326	24.9	18.9

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11ac (VHT40)

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	5150.00	67.7 PK	74.0	-6.3	1.74 H	267	64.8	2.9
2	5150.00	53.7 AV	54.0	-0.3	1.74 H	267	50.8	2.9
3	*5190.00	112.4 PK			1.74 H	267	109.4	3.0
4	*5190.00	101.4 AV			1.74 H	267	98.4	3.0
5	#10380.00	52.5 PK	74.0	-21.5	2.73 H	209	40.5	12.0
6	#10380.00	39.8 AV	54.0	-14.2	2.73 H	209	27.8	12.0
7	15570.00	54.7 PK	74.0	-19.3	1.50 H	261	42.4	12.3
8	15570.00	39.4 AV	54.0	-14.6	1.50 H	261	27.1	12.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	66.5 PK	74.0	-7.5	1.93 V	230	63.6	2.9
2	5150.00	52.3 AV	54.0	-1.7	1.93 V	230	49.4	2.9
3	*5190.00	113.6 PK			1.93 V	230	110.6	3.0
4	*5190.00	103.8 AV			1.93 V	230	100.8	3.0
5	#10380.00	52.7 PK	74.0	-21.3	1.61 V	319	40.7	12.0
6	#10380.00	39.9 AV	54.0	-14.1	1.61 V	319	27.9	12.0
7	15570.00	55.0 PK	74.0	-19.0	1.42 V	295	42.7	12.3
8	15570.00	40.1 AV	54.0	-13.9	1.42 V	295	27.8	12.3

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	61.5 PK	74.0	-12.5	1.74 H	267	58.6	2.9
2	5150.00	50.4 AV	54.0	-3.6	1.74 H	267	47.5	2.9
3	*5230.00	115.6 PK			1.74 H	267	112.5	3.1
4	*5230.00	104.9 AV			1.74 H	267	101.8	3.1
5	5350.00	56.8 PK	74.0	-17.2	1.74 H	267	53.4	3.4
6	5350.00	46.1 AV	54.0	-7.9	1.74 H	267	42.7	3.4
7	#10460.00	51.7 PK	74.0	-22.3	2.74 H	205	39.7	12.0
8	#10460.00	39.3 AV	54.0	-14.7	2.74 H	205	27.3	12.0
9	15690.00	54.4 PK	74.0	-19.6	1.54 H	271	41.4	13.0
10	15690.00	39.2 AV	54.0	-14.8	1.54 H	271	26.2	13.0

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	63.3 PK	74.0	-10.7	2.04 V	171	60.4	2.9
2	5150.00	52.5 AV	54.0	-1.5	2.04 V	171	49.6	2.9
3	*5230.00	117.9 PK			2.04 V	171	114.8	3.1
4	*5230.00	108.5 AV			2.04 V	171	105.4	3.1
5	5350.00	62.0 PK	74.0	-12.0	2.04 V	171	58.6	3.4
6	5350.00	49.8 AV	54.0	-4.2	2.04 V	171	46.4	3.4
7	#10460.00	51.9 PK	74.0	-22.1	1.62 V	301	39.9	12.0
8	#10460.00	39.5 AV	54.0	-14.5	1.62 V	301	27.5	12.0
9	15690.00	55.0 PK	74.0	-19.0	1.46 V	298	42.0	13.0
10	15690.00	39.8 AV	54.0	-14.2	1.46 V	298	26.8	13.0

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 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	#5610.04	60.8 PK	68.2	-7.4	1.71 H	273	57.1	3.7
2	*5755.00	115.3 PK			1.71 H	273	111.3	4.0
3	*5755.00	105.8 AV			1.71 H	273	101.8	4.0
4	#5951.91	55.2 PK	68.2	-13.0	1.71 H	273	50.9	4.3
5	11510.00	59.4 PK	74.0	-14.6	1.81 H	228	46.7	12.7
6	11510.00	47.9 AV	54.0	-6.1	1.81 H	228	35.2	12.7
7	#17265.00	53.3 PK	74.0	-20.7	1.70 H	245	35.7	17.6
8	#17265.00	44.7 AV	54.0	-9.3	1.70 H	245	27.1	17.6
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	#5616.11	62.1 PK	68.2	-6.1	1.70 V	132	58.4	3.7
2	*5755.00	117.2 PK			1.70 V	132	113.2	4.0
3	*5755.00	108.2 AV			1.70 V	132	104.2	4.0
4	#5990.02	55.4 PK	68.2	-12.8	1.70 V	132	50.9	4.5
5	11510.00	61.9 PK	74.0	-12.1	2.53 V	299	49.2	12.7
6	11510.00	49.4 AV	54.0	-4.6	2.53 V	299	36.7	12.7
7	#17265.00	56.3 PK	74.0	-17.7	1.63 V	320	38.7	17.6
8	#17265.00	43.7 AV	54.0	-10.3	1.63 V	320	26.1	17.6

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	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	#5630.04	60.6 PK	68.2	-7.6	1.72 H	273	56.8	3.8
2	*5795.00	114.7 PK			1.72 H	273	110.7	4.0
3	*5795.00	105.1 AV			1.72 H	273	101.1	4.0
4	#5971.09	55.2 PK	68.2	-13.0	1.72 H	273	50.7	4.5
5	11590.00	59.3 PK	74.0	-14.7	1.85 H	230	46.7	12.6
6	11590.00	47.8 AV	54.0	-6.2	1.85 H	230	35.2	12.6
7	#17385.00	52.9 PK	74.0	-21.1	1.66 H	249	34.5	18.4
8	#17385.00	43.9 AV	54.0	-10.1	1.66 H	249	25.5	18.4
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	#5639.30	63.0 PK	68.2	-5.2	1.59 V	134	59.2	3.8
2	*5795.00	116.7 PK			1.59 V	134	112.7	4.0
3	*5795.00	107.4 AV			1.59 V	134	103.4	4.0
4	#5944.42	56.4 PK	68.2	-11.8	1.59 V	134	52.1	4.3
5	11590.00	62.0 PK	74.0	-12.0	2.58 V	305	49.4	12.6
6	11590.00	49.8 AV	54.0	-4.2	2.58 V	305	37.2	12.6
7	#17385.00	56.2 PK	74.0	-17.8	1.66 V	314	37.8	18.4
8	#17385.00	43.9 AV	54.0	-10.1	1.66 V	314	25.5	18.4

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11ac (VHT80)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	63.7 PK	74.0	-10.3	1.75 H	267	60.8	2.9
2	5150.00	52.9 AV	54.0	-1.1	1.75 H	267	50.0	2.9
3	*5210.00	107.9 PK			1.75 H	267	104.9	3.0
4	*5210.00	99.2 AV			1.75 H	267	96.2	3.0
5	5350.00	57.3 PK	74.0	-16.7	1.75 H	267	53.9	3.4
6	5350.00	44.5 AV	54.0	-9.5	1.75 H	267	41.1	3.4
7	#10420.00	52.8 PK	74.0	-21.2	2.75 H	224	40.9	11.9
8	#10420.00	39.9 AV	54.0	-14.1	2.75 H	224	28.0	11.9
9	15630.00	54.8 PK	74.0	-19.2	1.54 H	269	42.3	12.5
10	15630.00	39.6 AV	54.0	-14.4	1.54 H	269	27.1	12.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	68.3 PK	74.0	-5.7	3.26 V	215	65.4	2.9
2	5150.00	53.8 AV	54.0	-0.2	3.26 V	215	50.9	2.9
3	*5210.00	110.9 PK			3.26 V	215	107.9	3.0
4	*5210.00	101.7 AV			3.26 V	215	98.7	3.0
5	5350.00	58.7 PK	74.0	-15.3	3.26 V	215	55.3	3.4
6	5350.00	47.2 AV	54.0	-6.8	3.26 V	215	43.8	3.4
7	#10420.00	51.9 PK	74.0	-22.1	1.62 V	307	40.0	11.9
8	#10420.00	39.1 AV	54.0	-14.9	1.62 V	307	27.2	11.9
9	15630.00	55.5 PK	74.0	-18.5	1.51 V	304	43.0	12.5
10	15630.00	40.2 AV	54.0	-13.8	1.51 V	304	27.7	12.5

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 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	#5634.84	65.5 PK	68.2	-2.7	1.62 H	270	61.7	3.8
2	*5775.00	110.7 PK			1.62 H	270	106.7	4.0
3	*5775.00	102.1 AV			1.62 H	270	98.1	4.0
4	#5931.69	60.5 PK	68.2	-7.7	1.62 H	270	56.2	4.3
5	11550.00	58.5 PK	74.0	-15.5	1.83 H	220	45.9	12.6
6	11550.00	47.3 AV	54.0	-6.7	1.83 H	220	34.7	12.6
7	#17325.00	51.9 PK	74.0	-22.1	1.76 H	229	34.1	17.8
8	#17325.00	43.2 AV	54.0	-10.8	1.76 H	229	25.4	17.8
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	#5630.25	68.1 PK	68.2	-0.1	3.30 V	216	64.3	3.8
2	*5775.00	114.1 PK			3.30 V	216	110.1	4.0
3	*5775.00	104.5 AV			3.30 V	216	100.5	4.0
4	#5929.94	66.2 PK	68.2	-2.0	3.30 V	216	61.9	4.3
5	11550.00	61.5 PK	74.0	-12.5	2.56 V	304	48.9	12.6
6	11550.00	48.9 AV	54.0	-5.1	2.56 V	304	36.3	12.6
7	#17325.00	54.7 PK	74.0	-19.3	1.61 V	318	36.9	17.8
8	#17325.00	42.3 AV	54.0	-11.7	1.61 V	318	24.5	17.8

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

Below 1GHz Data:

802.11a

CHANNEL	TX Channel 157	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	31.60	30.3 QP	40.0	-9.7	1.00 H	304	40.3	-10.0
2	167.04	27.3 QP	43.5	-16.2	2.00 H	91	36.1	-8.8
3	312.00	29.0 QP	46.0	-17.0	1.00 H	117	36.3	-7.3
4	500.01	36.1 QP	46.0	-9.9	1.50 H	266	38.8	-2.7
5	535.54	34.7 QP	46.0	-11.3	2.50 H	93	36.9	-2.2
6	700.03	31.2 QP	46.0	-14.8	1.00 H	149	30.4	0.8
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	68.95	33.1 QP	40.0	-6.9	1.50 V	321	43.1	-10.0
2	161.29	28.7 QP	43.5	-14.8	1.00 V	70	37.1	-8.4
3	500.01	39.1 QP	46.0	-6.9	1.00 V	46	41.8	-2.7
4	535.13	36.5 QP	46.0	-9.5	1.50 V	200	38.7	-2.2
5	749.98	30.1 QP	46.0	-15.9	1.50 V	140	28.3	1.8
6	800.01	31.0 QP	46.0	-15.0	1.50 V	360	28.6	2.4

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

Beamforming Mode

Above 1GHz Data:

802.11ac (VHT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	65.4 PK	74.0	-8.6	1.68 H	306	62.5	2.9
2	5150.00	50.2 AV	54.0	-3.8	1.68 H	306	47.3	2.9
3	*5180.00	115.5 PK			1.68 H	306	112.5	3.0
4	*5180.00	105.3 AV			1.68 H	306	102.3	3.0
5	#10360.00	51.8 PK	74.0	-22.2	2.58 H	16	39.7	12.1
6	#10360.00	40.0 AV	54.0	-14.0	2.58 H	16	27.9	12.1
7	15540.00	52.7 PK	74.0	-21.3	1.49 H	205	40.8	11.9
8	15540.00	39.7 AV	54.0	-14.3	1.49 H	205	27.8	11.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	68.4 PK	74.0	-5.6	1.71 V	154	65.5	2.9
2	5150.00	53.7 AV	54.0	-0.3	1.71 V	154	50.8	2.9
3	*5180.00	118.0 PK			1.71 V	154	115.0	3.0
4	*5180.00	107.5 AV			1.71 V	154	104.5	3.0
5	#10360.00	58.7 PK	74.0	-15.3	1.32 V	66	46.6	12.1
6	#10360.00	46.2 AV	54.0	-7.8	1.32 V	66	34.1	12.1
7	15540.00	47.1 PK	74.0	-26.9	2.89 V	300	35.2	11.9
8	15540.00	35.4 AV	54.0	-18.6	2.89 V	300	23.5	11.9

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	54.8 PK	74.0	-19.2	1.68 H	312	51.9	2.9
2	5150.00	45.2 AV	54.0	-8.8	1.68 H	312	42.3	2.9
3	*5200.00	115.6 PK			1.68 H	312	112.6	3.0
4	*5200.00	104.7 AV			1.68 H	312	101.7	3.0
5	5350.00	56.3 PK	74.0	-17.7	1.68 H	312	52.9	3.4
6	5350.00	43.6 AV	54.0	-10.4	1.68 H	312	40.2	3.4
7	#10400.00	51.7 PK	74.0	-22.3	2.62 H	18	39.7	12.0
8	#10400.00	39.9 AV	54.0	-14.1	2.62 H	18	27.9	12.0
9	15600.00	52.2 PK	74.0	-21.8	1.48 H	205	40.1	12.1
10	15600.00	39.2 AV	54.0	-14.8	1.48 H	205	27.1	12.1

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	57.8 PK	74.0	-16.2	1.90 V	153	54.9	2.9
2	5150.00	48.6 AV	54.0	-5.4	1.90 V	153	45.7	2.9
3	*5200.00	118.1 PK			1.90 V	153	115.1	3.0
4	*5200.00	107.2 AV			1.90 V	153	104.2	3.0
5	5350.00	58.7 PK	74.0	-15.3	1.90 V	153	55.3	3.4
6	5350.00	47.5 AV	54.0	-6.5	1.90 V	153	44.1	3.4
7	#10400.00	58.6 PK	74.0	-15.4	1.30 V	62	46.6	12.0
8	#10400.00	46.3 AV	54.0	-7.7	1.30 V	62	34.3	12.0
9	15600.00	46.8 PK	74.0	-27.2	2.95 V	290	34.7	12.1
10	15600.00	35.1 AV	54.0	-18.9	2.95 V	290	23.0	12.1

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Peak (PK)
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	*5240.00	115.7 PK			1.62 H	314	112.5	3.2
2	*5240.00	104.5 AV			1.62 H	314	101.3	3.2
3	5350.00	58.4 PK	74.0	-15.6	1.62 H	314	55.0	3.4
4	5350.00	43.2 AV	54.0	-10.8	1.62 H	314	39.8	3.4
5	#10480.00	52.2 PK	74.0	-21.8	2.56 H	19	40.0	12.2
6	#10480.00	40.1 AV	54.0	-13.9	2.56 H	19	27.9	12.2
7	15720.00	52.4 PK	74.0	-21.6	1.53 H	217	39.5	12.9
8	15720.00	39.5 AV	54.0	-14.5	1.53 H	217	26.6	12.9

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	118.7 PK			1.88 V	155	115.5	3.2
2	*5240.00	108.2 AV			1.88 V	155	105.0	3.2
3	5350.00	60.1 PK	74.0	-13.9	1.88 V	155	56.7	3.4
4	5350.00	47.0 AV	54.0	-7.0	1.88 V	155	43.6	3.4
5	#10480.00	59.0 PK	74.0	-15.0	1.33 V	71	46.8	12.2
6	#10480.00	46.5 AV	54.0	-7.5	1.33 V	71	34.3	12.2
7	15720.00	47.0 PK	74.0	-27.0	2.92 V	302	34.1	12.9
8	15720.00	35.3 AV	54.0	-18.7	2.92 V	302	22.4	12.9

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 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	#5561.87	58.0 PK	68.2	-10.2	2.17 H	267	54.4	3.6
2	*5745.00	114.5 PK			2.17 H	267	110.5	4.0
3	*5745.00	105.6 AV			2.17 H	267	101.6	4.0
4	#5957.55	57.1 PK	68.2	-11.1	2.17 H	267	52.7	4.4
5	11490.00	51.9 PK	74.0	-22.1	1.55 H	360	39.1	12.8
6	11490.00	40.1 AV	54.0	-13.9	1.55 H	360	27.3	12.8
7	#17235.00	52.0 PK	74.0	-22.0	1.17 H	356	34.6	17.4
8	#17235.00	39.4 AV	54.0	-14.6	1.17 H	356	22.0	17.4
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	#5611.75	58.5 PK	68.2	-9.7	1.63 V	222	54.8	3.7
2	*5745.00	117.4 PK			1.62 V	222	113.4	4.0
3	*5745.00	106.1 AV			1.62 V	222	102.1	4.0
4	#5979.40	56.7 PK	68.2	-11.5	1.63 V	222	52.2	4.5
5	11490.00	55.0 PK	74.0	-19.0	2.47 V	300	42.2	12.8
6	11490.00	41.6 AV	54.0	-12.4	2.47 V	300	28.8	12.8
7	#17235.00	54.4 PK	74.0	-19.6	1.94 V	233	37.0	17.4
8	#17235.00	41.1 AV	54.0	-12.9	1.94 V	233	23.7	17.4

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	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	#5623.15	57.7 PK	68.2	-10.5	2.17 H	270	53.9	3.8
2	*5785.00	114.2 PK			2.17 H	270	110.2	4.0
3	*5785.00	105.8 AV			2.17 H	270	101.8	4.0
4	#5952.80	56.4 PK	68.2	-11.8	2.17 H	270	52.1	4.3
5	11570.00	51.8 PK	74.0	-22.2	1.59 H	360	39.2	12.6
6	11570.00	40.3 AV	54.0	-13.7	1.59 H	360	27.7	12.6
7	#17355.00	52.3 PK	74.0	-21.7	1.22 H	341	34.2	18.1
8	#17355.00	39.5 AV	54.0	-14.5	1.22 H	341	21.4	18.1

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	#5590.85	59.2 PK	68.2	-9.0	1.68 V	219	55.6	3.6
2	*5785.00	117.2 PK			1.68 V	219	113.2	4.0
3	*5785.00	106.2 AV			1.68 V	219	102.2	4.0
4	#5984.15	57.2 PK	68.2	-11.0	1.68 V	219	52.7	4.5
5	11570.00	54.4 PK	74.0	-19.6	2.49 V	295	41.8	12.6
6	11570.00	41.1 AV	54.0	-12.9	2.49 V	295	28.5	12.6
7	#17355.00	54.8 PK	74.0	-19.2	1.89 V	248	36.7	18.1
8	#17355.00	41.3 AV	54.0	-12.7	1.89 V	248	23.2	18.1

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK)
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	#5613.18	55.4 PK	68.2	-12.8	2.18 H	271	51.7	3.7
2	*5825.00	114.4 PK			2.18 H	271	110.3	4.1
3	*5825.00	105.6 AV			2.18 H	271	101.5	4.1
4	#5950.90	53.5 PK	68.2	-14.7	2.18 H	271	49.2	4.3
5	11650.00	52.1 PK	74.0	-21.9	1.53 H	359	39.3	12.8
6	11650.00	40.7 AV	54.0	-13.3	1.53 H	359	27.9	12.8
7	#17475.00	52.0 PK	74.0	-22.0	1.24 H	351	33.2	18.8
8	#17475.00	39.4 AV	54.0	-14.6	1.24 H	351	20.6	18.8

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	#5623.62	59.0 PK	68.2	-9.2	1.65 V	220	55.2	3.8
2	*5825.00	116.8 PK			1.65 V	220	112.7	4.1
3	*5825.00	105.7 AV			1.65 V	220	101.6	4.1
4	#5958.02	56.6 PK	68.2	-11.6	1.65 V	220	52.2	4.4
5	11650.00	54.1 PK	74.0	-19.9	2.45 V	284	41.3	12.8
6	11650.00	40.8 AV	54.0	-13.2	2.45 V	284	28.0	12.8
7	#17475.00	55.1 PK	74.0	-18.9	1.90 V	233	36.3	18.8
8	#17475.00	41.4 AV	54.0	-12.6	1.90 V	233	22.6	18.8

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11ac (VHT40)

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	5150.00	59.7 PK	74.0	-14.3	2.39 H	307	56.8	2.9
2	5150.00	48.6 AV	54.0	-5.4	2.39 H	307	45.7	2.9
3	*5190.00	108.3 PK			2.39 H	307	105.3	3.0
4	*5190.00	99.5 AV			2.39 H	307	96.5	3.0
5	5350.00	53.9 PK	74.0	-20.1	2.39 H	307	50.5	3.4
6	5350.00	41.1 AV	54.0	-12.9	2.39 H	307	37.7	3.4
7	#10380.00	50.7 PK	74.0	-23.3	1.50 H	231	38.6	12.1
8	#10380.00	38.4 AV	54.0	-15.6	1.50 H	231	26.3	12.1
9	15570.00	45.4 PK	74.0	-28.6	1.59 H	318	33.3	12.1
10	15570.00	33.6 AV	54.0	-20.4	1.59 H	318	21.5	12.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	66.5 PK	74.0	-7.5	1.93 V	162	63.6	2.9
2	5150.00	53.7 AV	54.0	-0.3	1.93 V	162	50.8	2.9
3	*5190.00	114.0 PK			1.93 V	162	111.0	3.0
4	*5190.00	104.6 AV			1.93 V	162	101.6	3.0
5	5350.00	54.2 PK	74.0	-19.8	1.93 V	162	50.8	3.4
6	5350.00	42.9 AV	54.0	-11.1	1.93 V	162	39.5	3.4
7	#10380.00	51.2 PK	74.0	-22.8	1.88 V	234	39.1	12.1
8	#10380.00	39.4 AV	54.0	-14.6	1.88 V	234	27.3	12.1
9	15570.00	45.6 PK	74.0	-28.4	1.52 V	360	33.5	12.1
10	15570.00	34.0 AV	54.0	-20.0	1.52 V	360	21.9	12.1

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 46	DETECTOR FUNCTION	Peak (PK)
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	*5230.00	111.2 PK			2.34 H	317	108.1	3.1
2	*5230.00	100.1 AV			2.34 H	317	97.0	3.1
3	5350.00	54.5 PK	74.0	-19.5	2.34 H	317	51.1	3.4
4	5350.00	45.4 AV	54.0	-8.6	2.34 H	317	42.0	3.4
5	#10460.00	50.4 PK	74.0	-23.6	1.54 H	246	38.2	12.2
6	#10460.00	38.1 AV	54.0	-15.9	1.54 H	246	25.9	12.2
7	15690.00	45.6 PK	74.0	-28.4	1.64 H	327	32.7	12.9
8	15690.00	33.6 AV	54.0	-20.4	1.64 H	327	20.7	12.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	116.9 PK			1.89 V	164	113.8	3.1
2	*5230.00	105.2 AV			1.89 V	164	102.1	3.1
3	5350.00	61.3 PK	74.0	-12.7	1.89 V	164	57.9	3.4
4	5350.00	50.5 AV	54.0	-3.5	1.89 V	164	47.1	3.4
5	#10460.00	51.8 PK	74.0	-22.2	1.82 V	233	39.6	12.2
6	#10460.00	39.8 AV	54.0	-14.2	1.82 V	233	27.6	12.2
7	15690.00	45.5 PK	74.0	-28.5	1.48 V	360	32.6	12.9
8	15690.00	33.6 AV	54.0	-20.4	1.48 V	360	20.7	12.9

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 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	#5586.10	58.8 PK	68.2	-9.4	2.16 H	267	55.2	3.6
2	*5755.00	112.2 PK			2.16 H	267	108.2	4.0
3	*5755.00	103.9 AV			2.16 H	267	99.9	4.0
4	#5941.40	56.0 PK	68.2	-12.2	2.16 H	267	51.7	4.3
5	11510.00	51.6 PK	74.0	-22.4	1.57 H	360	38.8	12.8
6	11510.00	40.6 AV	54.0	-13.4	1.57 H	360	27.8	12.8
7	#17265.00	51.8 PK	74.0	-22.2	1.34 H	347	34.2	17.6
8	#17265.00	39.3 AV	54.0	-14.7	1.34 H	347	21.7	17.6

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	#5648.80	57.0 PK	68.2	-11.2	1.62 V	209	53.2	3.8
2	*5755.00	115.7 PK			1.62 V	209	111.7	4.0
3	*5755.00	104.8 AV			1.62 V	209	100.8	4.0
4	#5970.85	55.8 PK	68.2	-12.4	1.63 V	209	51.3	4.5
5	11510.00	53.4 PK	74.0	-20.6	3.88 V	284	40.6	12.8
6	11510.00	42.1 AV	54.0	-11.9	3.88 V	284	29.3	12.8
7	#17265.00	52.4 PK	74.0	-21.6	1.27 V	279	34.8	17.6
8	#17265.00	43.2 AV	54.0	-10.8	1.27 V	279	25.6	17.6

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	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	#5596.07	59.7 PK	68.2	-8.5	2.18 H	274	56.1	3.6
2	*5795.00	112.1 PK			2.18 H	274	108.0	4.1
3	*5795.00	103.4 AV			2.18 H	274	99.3	4.1
4	#5944.73	56.6 PK	68.2	-11.6	2.18 H	274	52.3	4.3
5	11590.00	51.8 PK	74.0	-22.2	1.54 H	360	39.2	12.6
6	11590.00	40.7 AV	54.0	-13.3	1.54 H	360	28.1	12.6
7	#17385.00	52.2 PK	74.0	-21.8	1.27 H	350	33.8	18.4
8	#17385.00	39.6 AV	54.0	-14.4	1.27 H	350	21.2	18.4

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	#5599.40	57.8 PK	68.2	-10.4	1.67 V	203	54.2	3.6
2	*5795.00	114.6 PK			1.67 V	203	110.5	4.1
3	*5795.00	104.0 AV			1.67 V	203	99.9	4.1
4	#5964.68	55.8 PK	68.2	-12.4	1.67 V	203	51.3	4.5
5	11590.00	52.6 PK	74.0	-21.4	3.92 V	272	40.0	12.6
6	11590.00	41.3 AV	54.0	-12.7	3.92 V	272	28.7	12.6
7	#17385.00	51.5 PK	74.0	-22.5	1.28 V	274	33.1	18.4
8	#17385.00	42.3 AV	54.0	-11.7	1.28 V	274	23.9	18.4

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

802.11ac (VHT80)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	59.6 PK	74.0	-14.4	2.29 H	319	56.7	2.9
2	5150.00	48.4 AV	54.0	-5.6	2.29 H	319	45.5	2.9
3	*5210.00	107.6 PK			2.29 H	319	104.6	3.0
4	*5210.00	98.0 AV			2.29 H	319	95.0	3.0
5	5350.00	54.2 PK	74.0	-19.8	2.29 H	319	50.8	3.4
6	5350.00	41.4 AV	54.0	-12.6	2.29 H	319	38.0	3.4
7	#10420.00	51.1 PK	74.0	-22.9	1.51 H	233	39.1	12.0
8	#10420.00	38.6 AV	54.0	-15.4	1.51 H	233	26.6	12.0
9	15630.00	44.8 PK	74.0	-29.2	1.53 H	328	32.4	12.4
10	15630.00	33.2 AV	54.0	-20.8	1.53 H	328	20.8	12.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	67.8 PK	74.0	-6.2	1.92 V	146	64.9	2.9
2	5150.00	53.7 AV	54.0	-0.3	1.92 V	146	50.8	2.9
3	*5210.00	112.8 PK			1.92 V	146	109.8	3.0
4	*5210.00	102.6 AV			1.92 V	146	99.6	3.0
5	5350.00	54.9 PK	74.0	-19.1	1.92 V	146	51.5	3.4
6	5350.00	44.1 AV	54.0	-9.9	1.92 V	146	40.7	3.4
7	#10420.00	50.8 PK	74.0	-23.2	1.90 V	249	38.8	12.0
8	#10420.00	39.1 AV	54.0	-14.9	1.90 V	249	27.1	12.0
9	15630.00	45.0 PK	74.0	-29.0	1.52 V	358	32.6	12.4
10	15630.00	33.6 AV	54.0	-20.4	1.52 V	358	21.2	12.4

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

CHANNEL	TX Channel 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	#5580.40	58.0 PK	68.2	-10.2	2.03 H	274	54.4	3.6
2	*5775.00	110.6 PK			2.03 H	274	106.6	4.0
3	*5775.00	100.0 AV			2.03 H	274	96.0	4.0
4	#5942.82	56.7 PK	68.2	-11.5	2.03 H	274	52.4	4.3
5	11550.00	51.6 PK	74.0	-22.4	1.54 H	360	38.9	12.7
6	11550.00	40.4 AV	54.0	-13.6	1.54 H	360	27.7	12.7
7	#17325.00	51.8 PK	74.0	-22.2	1.28 H	360	34.0	17.8
8	#17325.00	39.1 AV	54.0	-14.9	1.28 H	360	21.3	17.8

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	#5637.40	59.7 PK	68.2	-8.5	1.71 V	215	55.9	3.8
2	*5775.00	113.0 PK			1.71 V	215	109.0	4.0
3	*5775.00	103.1 AV			1.71 V	215	99.1	4.0
4	#5941.87	57.2 PK	68.2	-11.0	1.71 V	215	52.9	4.3
5	11550.00	49.3 PK	74.0	-24.7	1.63 V	172	36.6	12.7
6	11550.00	40.6 AV	54.0	-13.4	1.63 V	172	27.9	12.7
7	#17325.00	51.2 PK	74.0	-22.8	1.55 V	328	33.4	17.8
8	#17325.00	43.1 AV	54.0	-10.9	1.55 V	328	25.3	17.8

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) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

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

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

4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	847124/029	Oct. 24, 2016	Oct. 23, 2017
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Oct. 26, 2016	Oct. 25, 2017
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV216	100072	June 13, 2016	June 12, 2017
50 ohms Terminator	N/A	EMC-02	Sep. 29, 2016	Sep. 28, 2017
RF Cable	5D-FB	COCCAB-001	Sep. 30, 2016	Sep. 29, 2017
10 dB PAD Mini-Circuits	HAT-10+	CONATT-004	June 20, 2016	June 19, 2017
Software BVADT	BVADT_Cond_ V7.3.7.4	NA	NA	NA

Note:

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. 1.
3. Tested Date: Apr. 06, 2017

4.2.3 Test Procedure

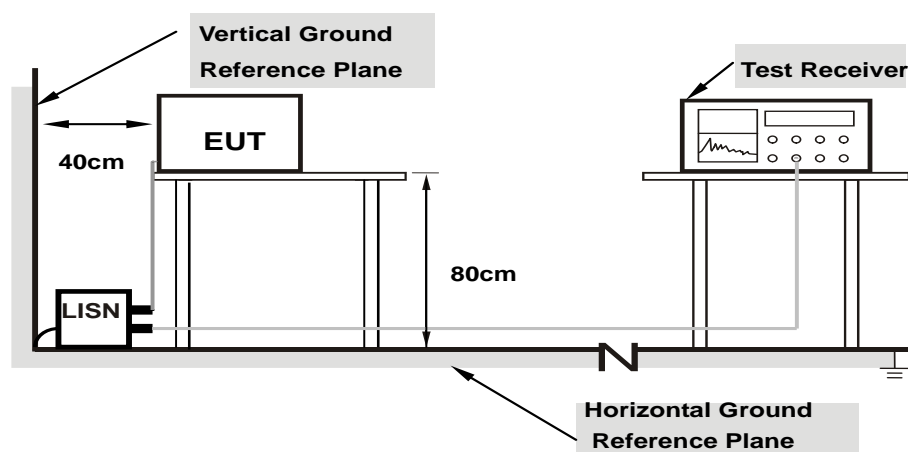
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

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

4.2.6 EUT Operating Condition

Same as 4.1.6.

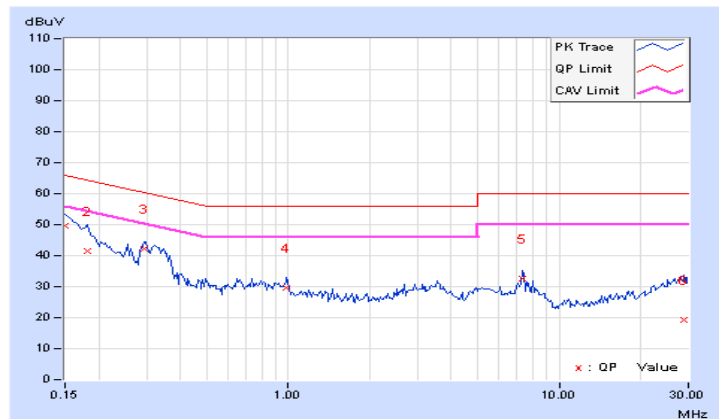
4.2.7 Test Results

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.19	39.51	25.30	49.70	35.49	66.00	56.00	-16.30	-20.51
2	0.18125	10.19	31.44	20.46	41.63	30.65	64.43	54.43	-22.80	-23.78
3	0.29453	10.20	31.85	25.25	42.05	35.45	60.40	50.40	-18.35	-14.95
4	0.98594	10.26	19.26	8.01	29.52	18.27	56.00	46.00	-26.48	-27.73
5	7.31641	10.41	22.00	18.57	32.41	28.98	60.00	50.00	-27.59	-21.02
6	29.05859	11.46	7.78	-1.19	19.24	10.27	60.00	50.00	-40.76	-39.73

REMARKS:

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

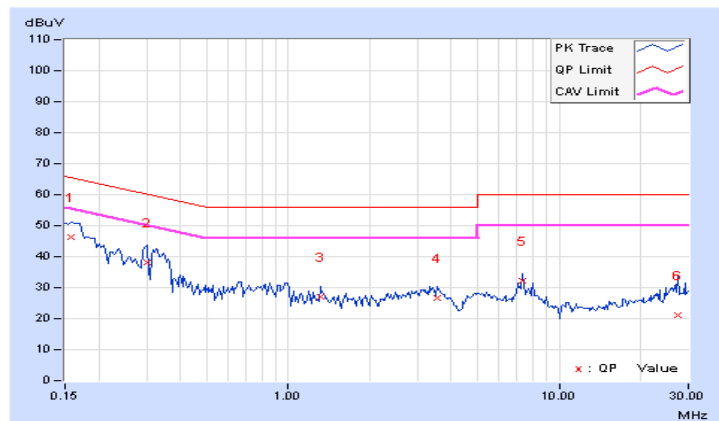


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	10.18	36.14	23.61	46.32	33.79	65.58	55.58	-19.26	-21.79
2	0.30234	10.19	27.83	13.95	38.02	24.14	60.18	50.18	-22.16	-26.04
3	1.31250	10.25	16.71	6.52	26.96	16.77	56.00	46.00	-29.04	-29.23
4	3.54297	10.19	16.37	9.56	26.56	19.75	56.00	46.00	-29.44	-26.25
5	7.28125	10.34	22.02	20.06	32.36	30.40	60.00	50.00	-27.64	-19.60
6	27.37109	11.06	10.10	1.21	21.16	12.27	60.00	50.00	-38.84	-37.73

REMARKS:

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



4.3 Transmit Power Measurement

4.3.1 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 (24 dBm) or 11 dBm+10 log B*
U-NII-2C			250mW (24 dBm) or 11 dBm+10 log B*
U-NII-3		√	1 Watt (30 dBm)

*B is the 26 dB emission bandwidth in megahertz

Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

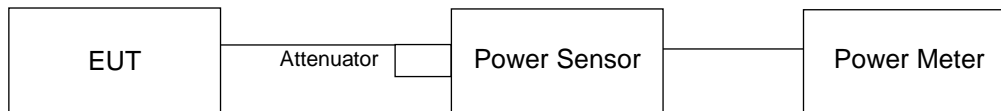
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

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

Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

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.

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Condition

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 Test Result

CDD Mode

802.11a

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	18.82	18.62	18.64	19.32	307.607	24.88	30.00	Pass
40	5200	19.81	19.61	19.72	20.65	397.031	25.99	30.00	Pass
48	5240	19.66	19.66	19.56	20.45	386.222	25.87	30.00	Pass
149	5745	22.81	23.18	23.02	24.31	869.176	29.39	30.00	Pass
157	5785	23.30	22.92	22.99	24.23	873.597	29.41	30.00	Pass
165	5825	22.90	22.82	23.06	24.19	851.134	29.30	30.00	Pass

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	18.05	18.02	18.76	19.52	291.911	24.65	30.00	Pass
40	5200	19.64	19.23	19.43	21.74	412.777	26.16	30.00	Pass
48	5240	19.70	19.18	19.22	21.63	405.225	26.08	30.00	Pass
149	5745	22.80	23.27	22.96	23.64	831.773	29.20	30.00	Pass
157	5785	22.93	23.17	23.06	23.62	836.273	29.22	30.00	Pass
165	5825	22.90	23.05	22.84	23.72	824.635	29.16	30.00	Pass

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	18.72	18.97	18.69	20.53	340.3	25.32	30.00	Pass
46	5230	22.36	22.71	22.51	24.03	789.993	28.98	30.00	Pass
151	5755	22.80	23.50	22.23	23.03	782.436	28.93	30.00	Pass
159	5795	22.91	23.87	22.41	23.22	823.29	29.16	30.00	Pass

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	18.76	18.57	18.38	19.53	305.715	24.85	30.00	Pass
155	5775	21.28	22.19	20.71	23.13	623.203	27.95	30.00	Pass

Beamforming Mode

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	18.24	17.72	18.39	19.51	284.192	24.54	25.82	Pass
40	5200	18.40	18.02	18.30	20.37	309.071	24.90	25.82	Pass
48	5240	18.31	18.26	18.33	20.29	309.734	24.91	25.82	Pass
149	5745	18.63	18.97	18.75	19.65	319.078	25.04	25.43	Pass
157	5785	18.99	18.84	18.69	19.62	321.393	25.07	25.43	Pass
165	5825	18.79	18.96	18.73	19.70	322.358	25.08	25.43	Pass

Note: 1. For UNII-1: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 10.18\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (10.18 - 6) = 25.82\text{dBm}$.
 2. For UNII-3: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 10.57\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (10.57 - 6) = 25.43\text{dBm}$.

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	18.53	18.79	18.37	20.20	320.388	25.06	25.82	Pass
46	5230	18.94	19.39	19.32	20.87	372.926	25.72	25.82	Pass
151	5755	19.12	19.35	18.06	19.07	312.454	24.95	25.43	Pass
159	5795	18.52	20.07	18.52	18.69	317.828	25.02	25.43	Pass

Note: 1. For UNII-1: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 10.18\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (10.18 - 6) = 25.82\text{dBm}$.
 2. For UNII-3: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 10.57\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (10.57 - 6) = 25.43\text{dBm}$.

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Maximum Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	18.91	18.39	18.50	19.51	306.954	24.87	25.82	Pass
155	5775	17.90	19.15	17.53	19.90	298.232	24.75	25.43	Pass

Note: 1. For UNII-1: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 10.18\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (10.18 - 6) = 25.82\text{dBm}$.
 2. For UNII-3: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 10.57\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (10.57 - 6) = 25.43\text{dBm}$.

4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth and set the detector to SAMPLE. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.

4.4.4 Test Results

802.11a

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)			
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3
36	5180	16.80	16.92	16.80	17.04
40	5200	16.80	16.80	16.80	17.04
48	5240	16.80	17.04	16.92	16.92
149	5745	16.92	17.16	16.92	16.92
157	5785	16.92	17.16	17.04	17.04
165	5825	16.92	17.04	17.04	17.04

802.11ac (VHT20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)			
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3
36	5180	18.12	18.00	18.00	18.12
40	5200	18.12	18.12	18.00	18.12
48	5240	18.00	18.00	18.12	18.12
149	5745	18.12	18.12	18.24	18.12
157	5785	18.12	18.00	18.24	18.24
165	5825	18.36	18.24	18.12	18.24

802.11ac (VHT40)

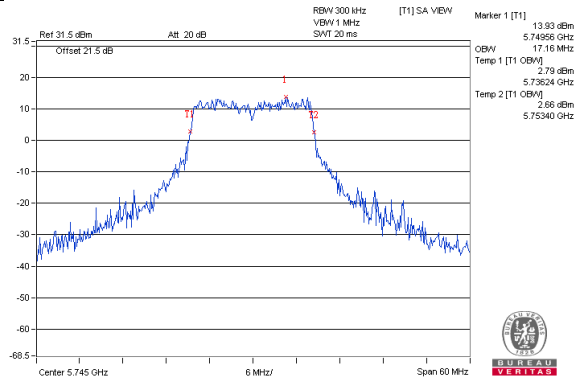
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)			
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3
38	5190	36.96	36.96	37.20	36.72
46	5230	36.96	37.20	37.20	36.72
151	5755	36.96	36.72	36.96	36.96
159	5795	36.96	36.72	36.72	36.96

802.11ac (VHT80)

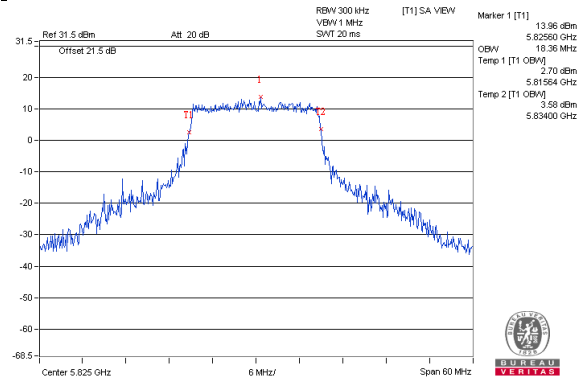
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)			
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3
42	5210	75.84	75.36	75.36	75.36
155	5775	75.36	75.84	75.36	75.84

Spectrum Plot of Worst Value

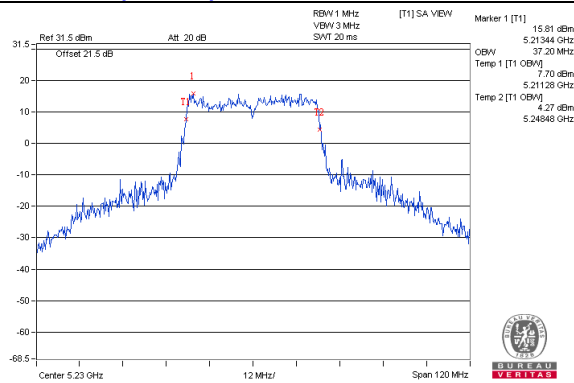
802.11a_Chain1 / CH149



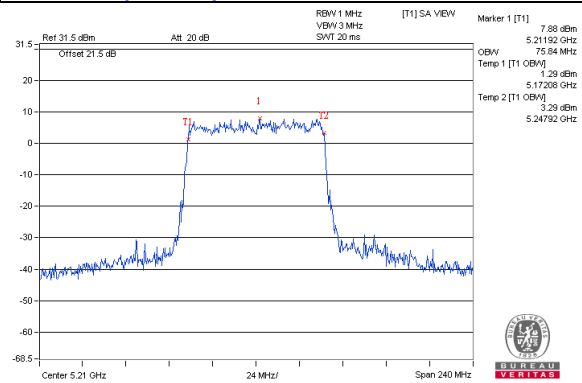
802.11ac (VHT20)_Chain0 / CH165



802.11ac (VHT40)_Chain1 / CH46

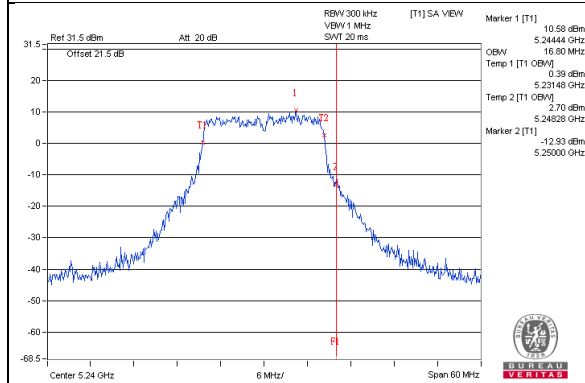


802.11ac (VHT80)_Chain0 / CH42

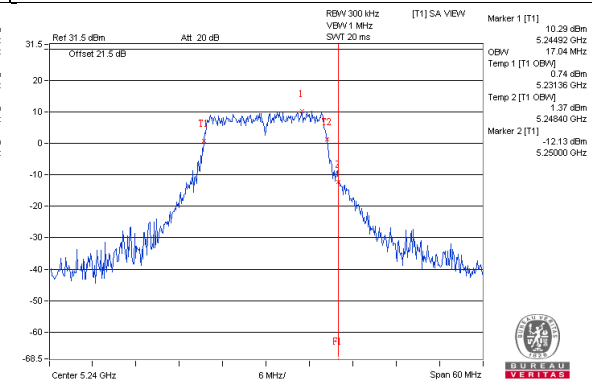


Spectrum Plot for near by DFS band (DFS is required, if 99% OCP straddle into U-NII-2A band)

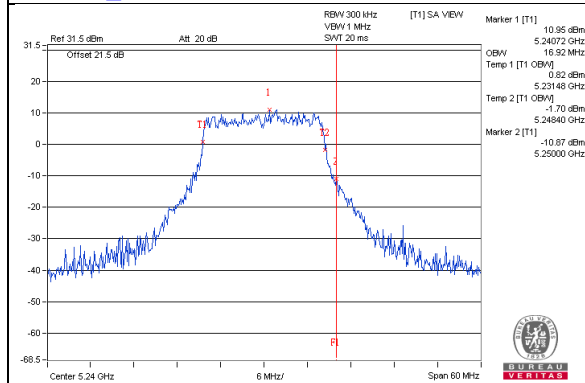
802.11a_Chain0 / CH48



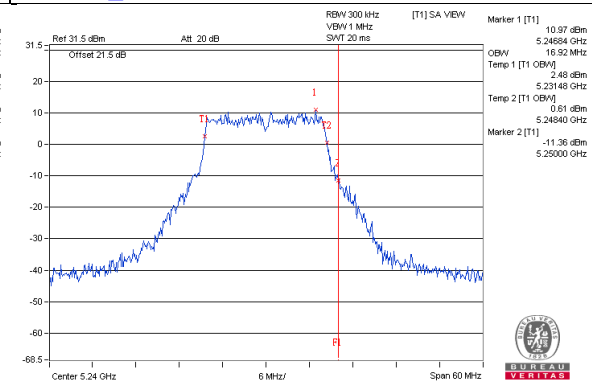
802.11a_Chain1 / CH48



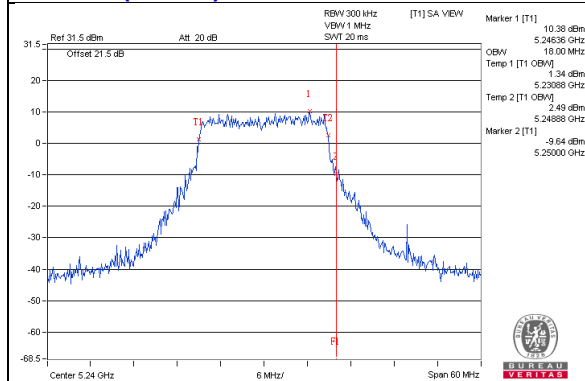
802.11a_Chain2 / CH48



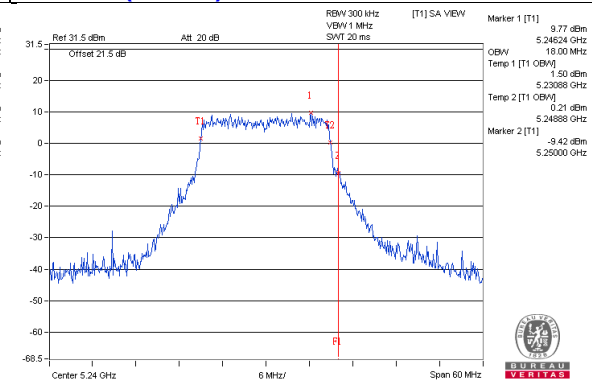
802.11a_Chain3 / CH48



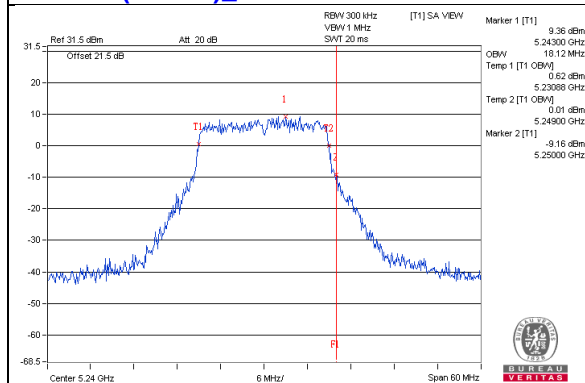
802.11ac(VHT20)_Chain0 / CH48



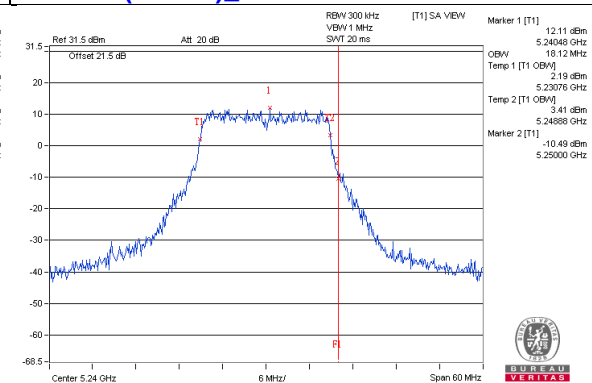
802.11ac(VHT20)_Chain1 / CH48



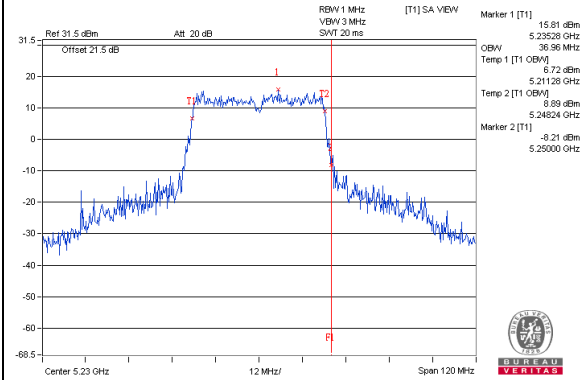
802.11ac(VHT20)_Chain2 / CH48



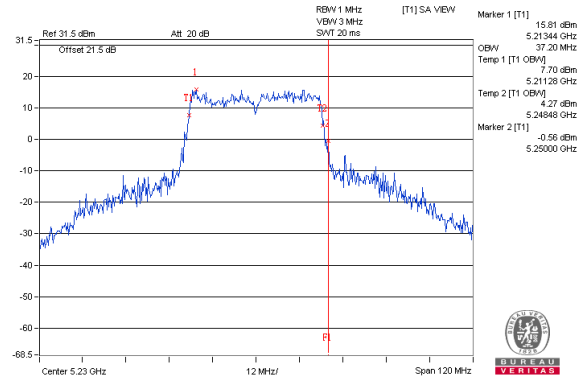
802.11ac(VHT20)_Chain3 / CH48



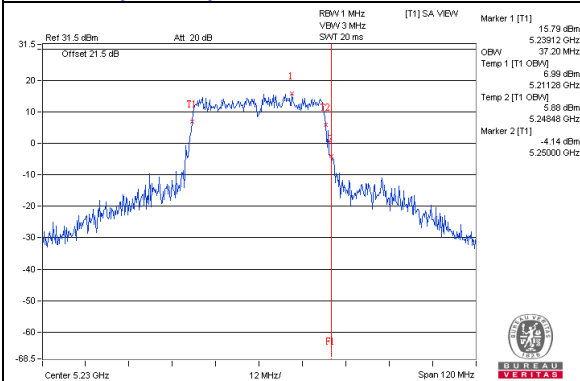
802.11ac(VHT40)_Chain0 / CH46



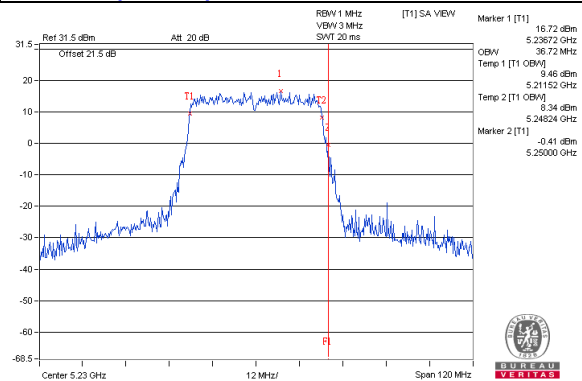
802.11ac(VHT40)_Chain1 / CH46



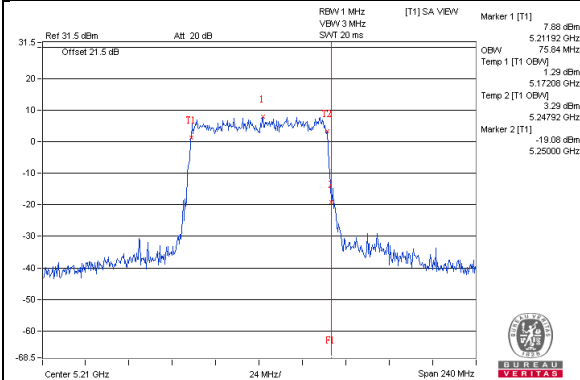
802.11ac(VHT40)_Chain2 / CH46



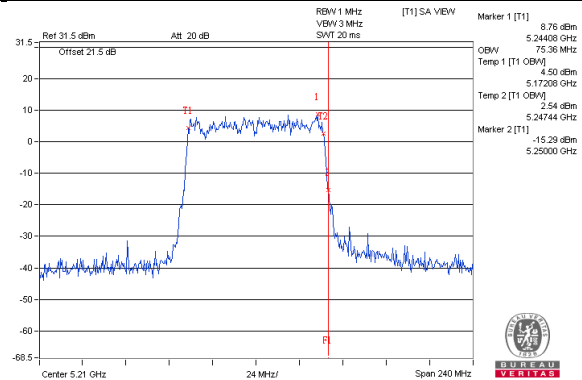
802.11ac(VHT40)_Chain3 / CH46



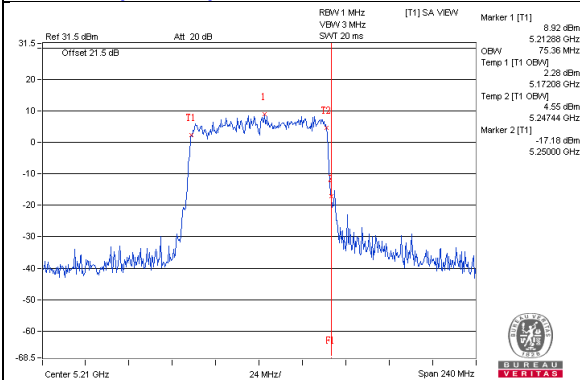
802.11ac(VHT80)_Chain0 / CH42



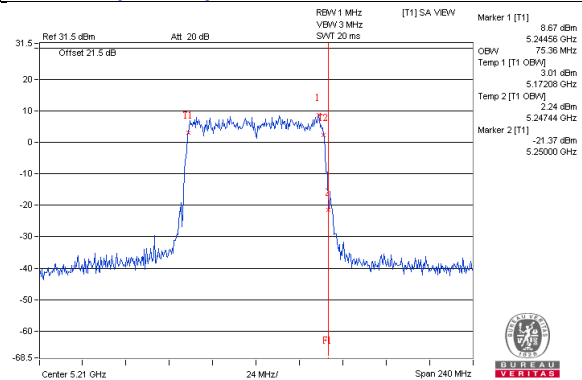
802.11ac(VHT80)_Chain1 / CH42



802.11ac(VHT80)_Chain2 / CH42

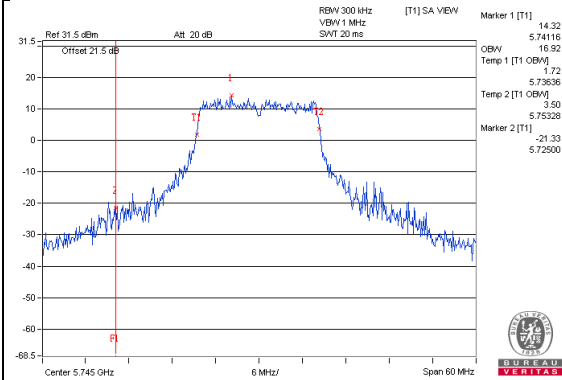


802.11ac(VHT80)_Chain3 / CH42

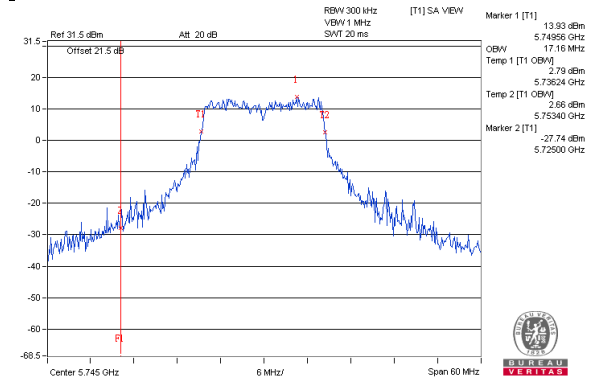


Spectrum Plot for near by DFS band (DFS is required, if 99% OCP straddle into U-NII-2C band)

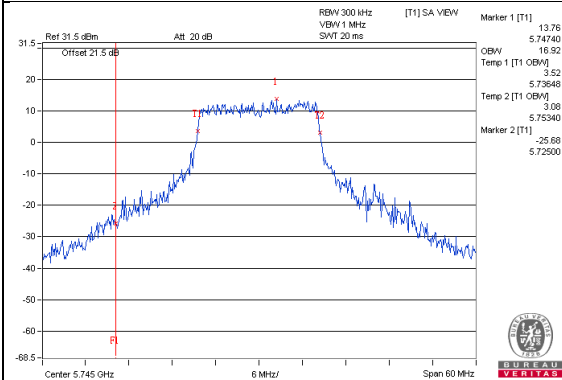
802.11a_Chain0 / CH149



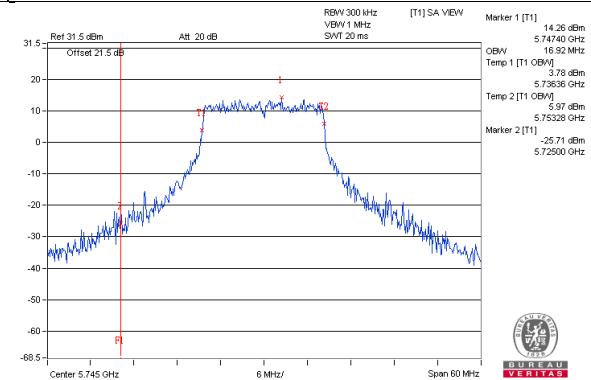
802.11a_Chain1 / CH149



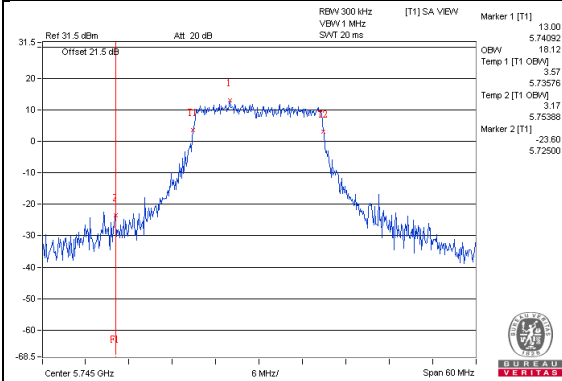
802.11a_Chain2 / CH149



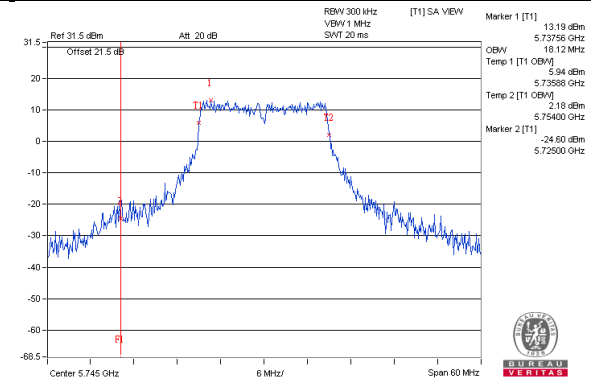
802.11a_Chain3 / CH149



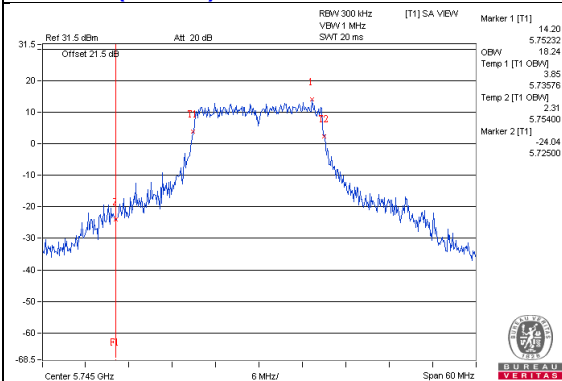
802.11ac(VHT20)_Chain0 / CH149



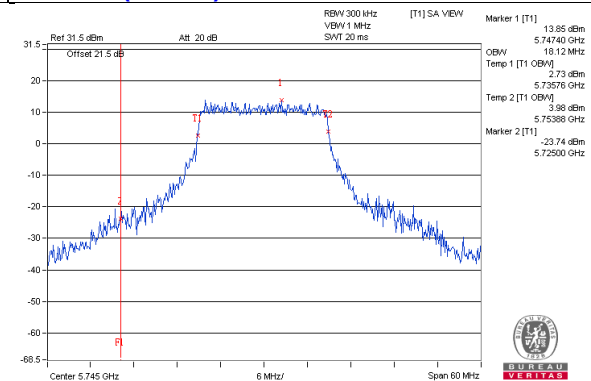
802.11ac(VHT20)_Chain1 / CH149



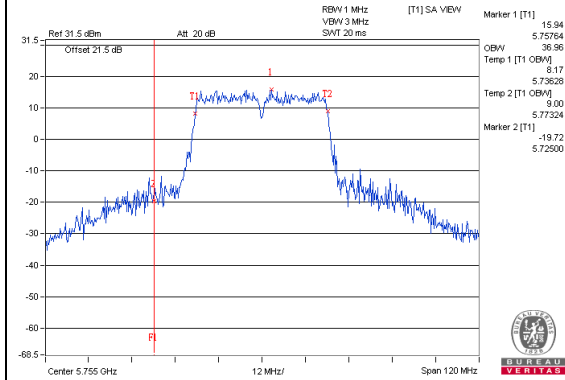
802.11ac(VHT20)_Chain2 / CH149



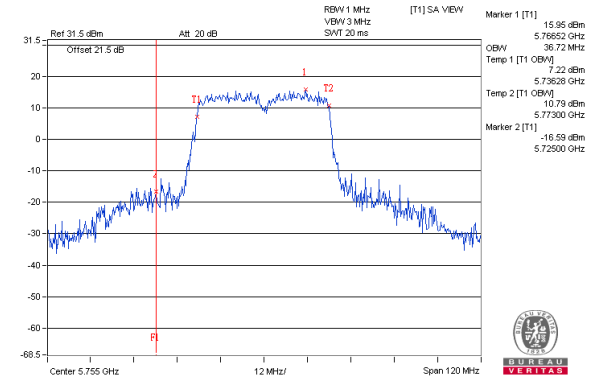
802.11ac(VHT20)_Chain3 / CH149



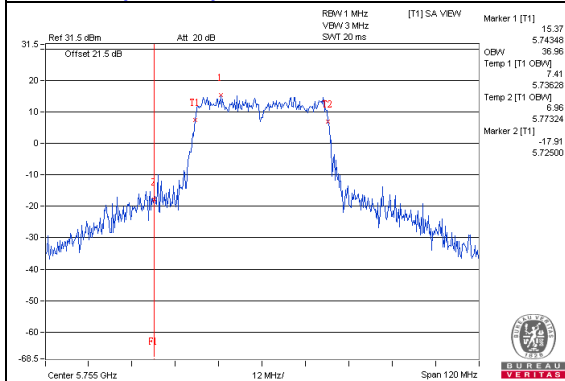
802.11ac(VHT40)_Chain0 / CH151



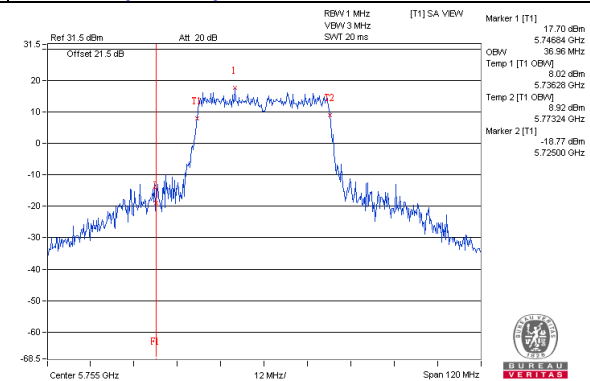
802.11ac(VHT40)_Chain1 / CH151



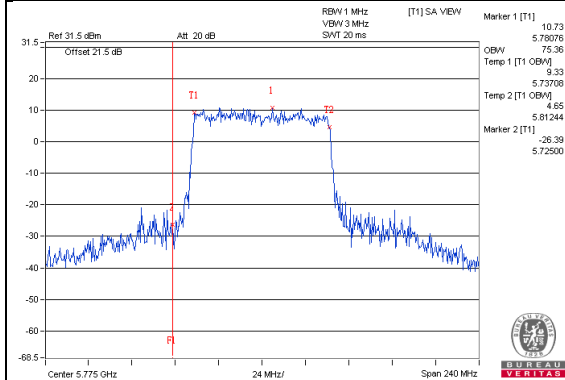
802.11ac(VHT40)_Chain2 / CH151



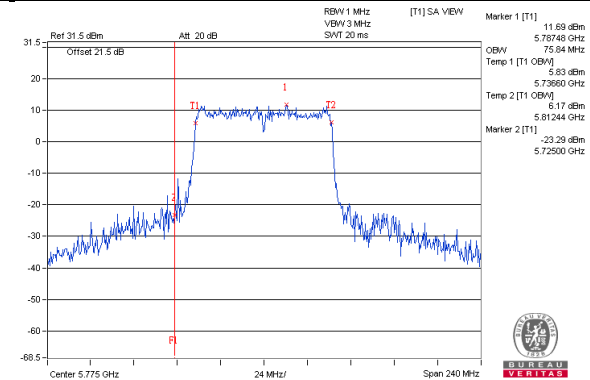
802.11ac(VHT40)_Chain3 / CH151



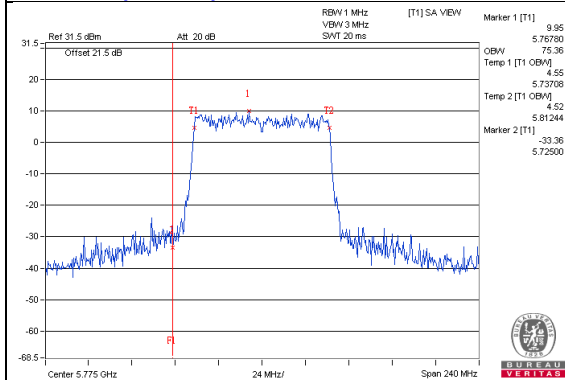
802.11ac(VHT80)_Chain0 / CH155



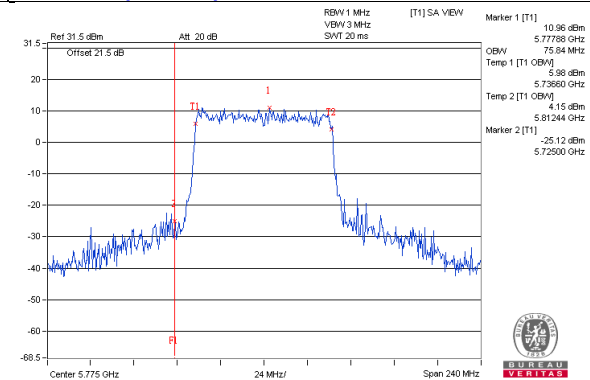
802.11ac(VHT80)_Chain1 / CH155



802.11ac(VHT80)_Chain2 / CH155



802.11ac(VHT80)_Chain3 / CH155

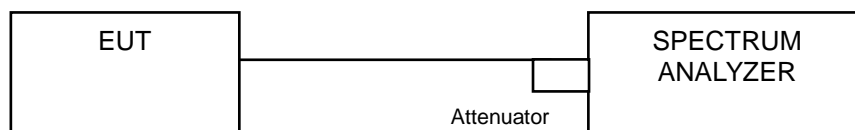


4.5 Peak Power Spectral Density Measurement

4.5.1 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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

802.11ac (VHT20), 802.11ac (VHT40)

For U-NII-1 band:

Using method SA-1

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW \geq 3 MHz, Detector = RMS
3. Sweep time = auto, trigger set to "free run".
4. Trace average at least 100 traces in power averaging mode.
5. Record the max value

For U-NII-3:

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 300 kHz, Set VBW \geq 1 MHz, Detector = RMS
3. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(500 \text{ kHz}/300\text{kHz})$
5. Sweep time = auto, trigger set to "free run".
6. Trace average at least 100 traces in power averaging mode.
7. Record the max value

802.11a, 802.11ac (VHT80)

For U-NII-1 band:

Using method SA-2

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW \geq 3 MHz, Detector = RMS
3. Sweep time = auto, trigger set to "free run".
4. Trace average at least 100 traces in power averaging mode.
5. Record the max value and add $10 \log (1/\text{duty cycle})$

For U-NII-3:

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 300 kHz, Set VBW \geq 1 MHz, Detector = RMS
3. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10\log(500 \text{ kHz}/300\text{kHz})$
5. Sweep time = auto, trigger set to "free run".
6. Trace average at least 100 traces in power averaging mode.
7. Record the max value and add $10 \log (1/\text{duty cycle})$

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6.

4.5.7 Test Results

For U-NII-1:

802.11a

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	MAX. EIRP Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
36	5180	4.30	5.05	4.60	5.21	0.1	10.93	12.82	Pass
40	5200	5.33	6.44	4.05	5.67	0.1	11.58	12.82	Pass
48	5240	5.22	6.24	6.47	5.87	0.1	12.10	12.82	Pass

- Note:** 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 10.18\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17 - (10.18 - 6) = 12.82\text{dBm}$
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)				Total Power Density (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3			
36	5180	4.16	2.81	5.53	5.43	10.64	12.82	Pass
40	5200	5.58	2.67	6.19	7.55	11.85	12.82	Pass
48	5240	5.32	5.30	5.28	7.25	11.90	12.82	Pass

- Note:** 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 10.18\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17 - (10.18 - 6) = 12.82\text{dBm}$

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)				Total Power Density (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3			
38	5190	2.21	2.29	1.91	4.35	8.83	12.82	Pass
46	5230	5.58	6.17	6.10	6.14	12.02	12.82	Pass

- Note:** 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 10.18\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17 - (10.18 - 6) = 12.82\text{dBm}$

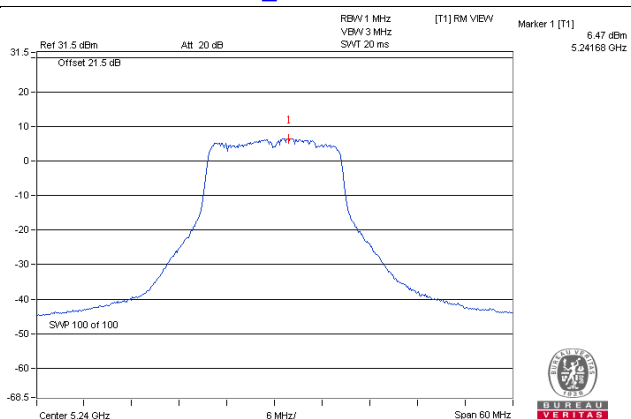
802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	MAX. EIRP Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain	Chain 3				
42	5210	-0.82	-0.94	-1.62	-0.35	0.09	5.21	12.82	Pass

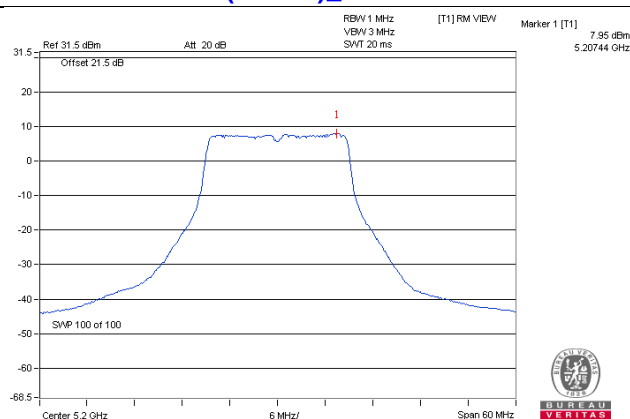
- Note:** 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 10.18\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17 - (10.18 - 6) = 12.82\text{dBm}$
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

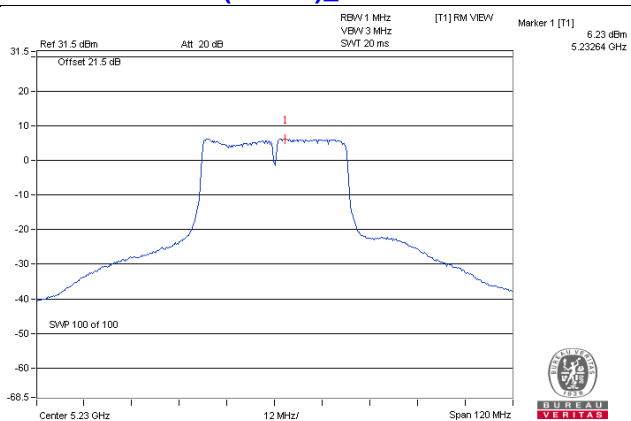
802.11a_Chain 2 / CH48



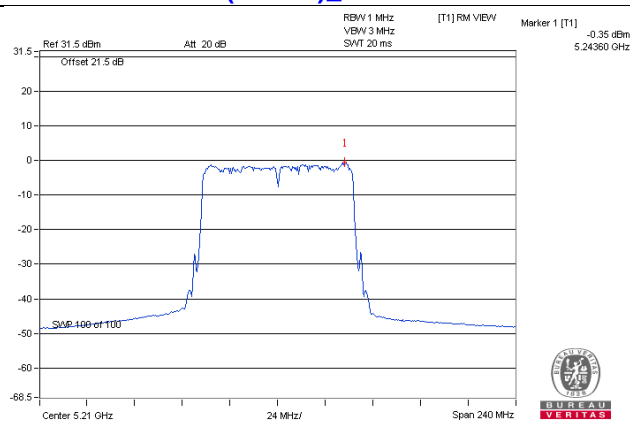
802.11ac (VHT20)_Chain 3 / CH40



802.11ac (VHT40)_Chain 1 / CH46



802.11ac (VHT80)_Chain 3 / CH42



For U-NII-3:

802.11a

TX chain	Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor		10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	149	5745	0.57	2.79	6.02	0.10	8.91	25.43	Pass
	157	5785	1.38	3.60	6.02	0.10	9.72	25.43	Pass
	165	5825	1.67	3.89	6.02	0.10	10.01	25.43	Pass
1	149	5745	1.74	3.96	6.02	0.10	10.08	25.43	Pass
	157	5785	1.31	3.53	6.02	0.10	9.65	25.43	Pass
	165	5825	1.37	3.59	6.02	0.10	9.71	25.43	Pass
2	149	5745	1.91	4.13	6.02	0.10	10.25	25.43	Pass
	157	5785	1.63	3.85	6.02	0.10	9.97	25.43	Pass
	165	5825	1.60	3.82	6.02	0.10	9.94	25.43	Pass
3	149	5745	1.91	4.13	6.02	0.10	10.25	25.43	Pass
	157	5785	1.99	4.21	6.02	0.10	10.33	25.43	Pass
	165	5825	2.11	4.33	6.02	0.10	10.45	25.43	Pass

Note: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 10.57\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $30 - (10.57 - 6) = 25.43\text{dBm}$

2. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT20)

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=4) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
0	149	5745	0.76	2.98	6.02	9.00	25.43	Pass
	157	5785	1.05	3.27	6.02	9.29	25.43	Pass
	165	5825	1.55	3.77	6.02	9.79	25.43	Pass
1	149	5745	1.51	3.73	6.02	9.75	25.43	Pass
	157	5785	1.07	3.29	6.02	9.31	25.43	Pass
	165	5825	1.54	3.76	6.02	9.78	25.43	Pass
2	149	5745	1.45	3.67	6.02	9.69	25.43	Pass
	157	5785	1.38	3.60	6.02	9.62	25.43	Pass
	165	5825	1.73	3.95	6.02	9.97	25.43	Pass
3	149	5745	1.63	3.85	6.02	9.87	25.43	Pass
	157	5785	1.71	3.93	6.02	9.95	25.43	Pass
	165	5825	1.70	3.92	6.02	9.94	25.43	Pass

Note: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 10.57\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $30 - (10.57 - 6) = 25.43\text{dBm}$

802.11ac (VHT40)

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=4) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
0	151	5755	-2.15	0.07	6.02	6.09	25.43	Pass
	159	5795	-1.93	0.29	6.02	6.31	25.43	Pass
1	151	5755	-1.76	0.46	6.02	6.48	25.43	Pass
	159	5795	-1.89	0.33	6.02	6.35	25.43	Pass
2	151	5755	-2.30	-0.08	6.02	5.94	25.43	Pass
	159	5795	-2.83	-0.61	6.02	5.41	25.43	Pass
3	151	5755	-1.57	0.65	6.02	6.67	25.43	Pass
	159	5795	-1.56	0.66	6.02	6.68	25.43	Pass

Note: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 10.57\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $30 - (10.57 - 6) = 25.43\text{dBm}$

802.11ac (VHT80)

TX chain	Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor		10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	155	5775	-6.39	-4.17	6.02	0.09	1.94	25.43	Pass
1	155	5775	-5.54	-3.32	6.02	0.09	2.79	25.43	Pass
2	155	5775	-6.92	-4.70	6.02	0.09	1.41	25.43	Pass
3	155	5775	-6.11	-3.89	6.02	0.09	2.22	25.43	Pass

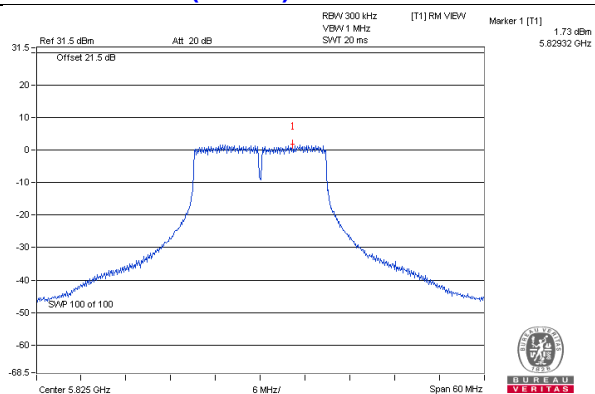
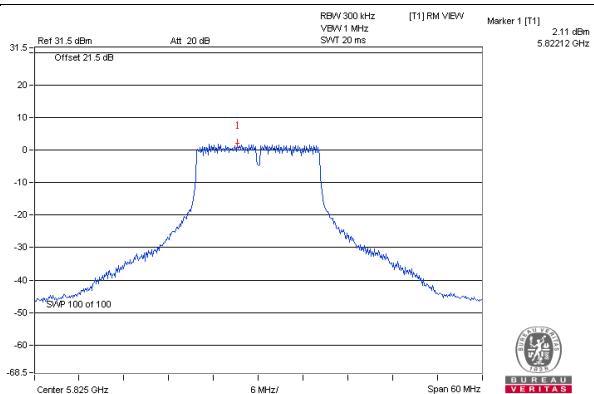
Note: 1. Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2 / 4] = 10.57\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $30 - (10.57 - 6) = 25.43\text{dBm}$

2. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

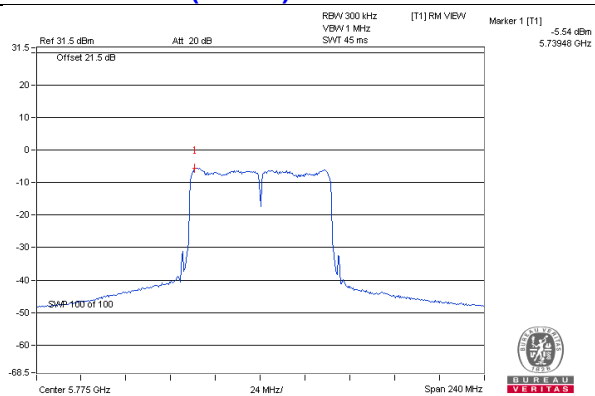
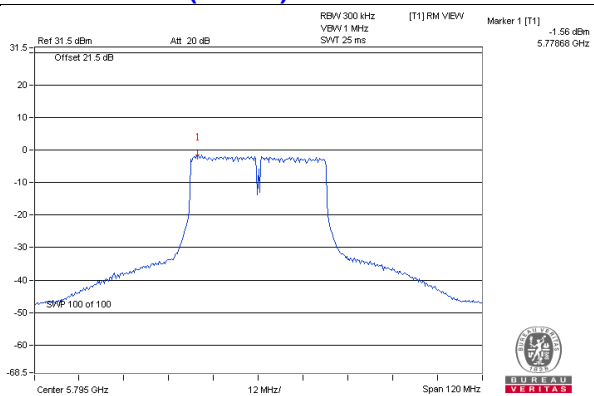
802.11a – Chain 3: CH 165

802.11ac (VHT20) – Chain 2: CH 165



802.11ac (VHT40) – Chain 3: CH 159

802.11ac (VHT80) – Chain 1: CH 155

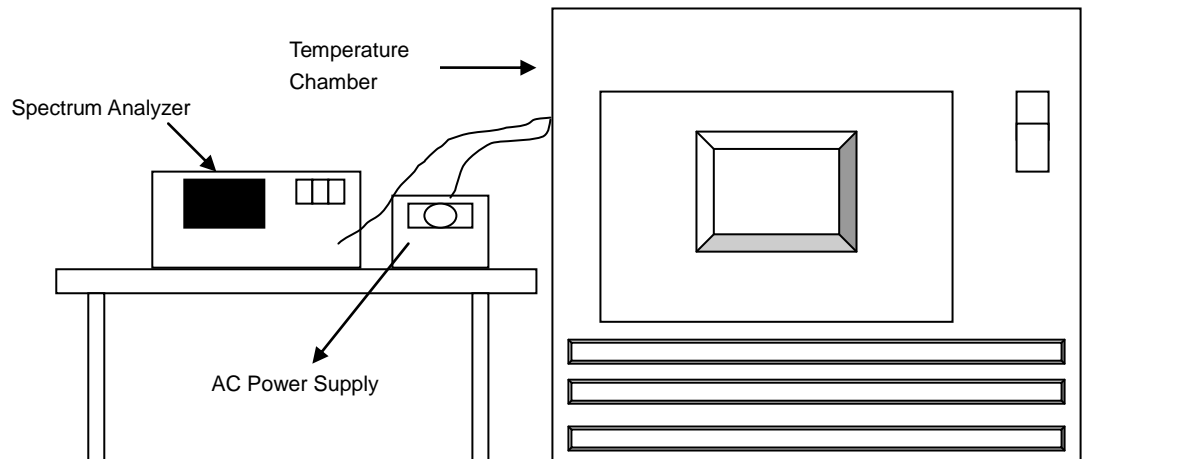


4.6 Frequency Stability Measurement

4.6.1 Limits of Frequency Stability Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

- The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
- Turn the EUT on and couple its output to a spectrum analyzer.
- Turn the EUT off and set the chamber to the highest temperature specified.
- 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.
- Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
- 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.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5180 MHz									
TEMP. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
50	120	5180.0008	PASS	5180.0019	PASS	5180.002	PASS	5180.0002	PASS
40	120	5179.9933	PASS	5179.9923	PASS	5179.9947	PASS	5179.9947	PASS
30	120	5180.0207	PASS	5180.0171	PASS	5180.0205	PASS	5180.0178	PASS
20	120	5180.0206	PASS	5180.024	PASS	5180.0216	PASS	5180.0231	PASS
10	120	5180.0095	PASS	5180.0069	PASS	5180.0107	PASS	5180.0099	PASS
0	120	5180.0155	PASS	5180.0171	PASS	5180.0189	PASS	5180.0194	PASS
-10	120	5179.9814	PASS	5179.9826	PASS	5179.979	PASS	5179.9805	PASS
-20	120	5179.9912	PASS	5179.9932	PASS	5179.9932	PASS	5179.9926	PASS
-30	120	5180.0199	PASS	5180.0192	PASS	5180.017	PASS	5180.0192	PASS

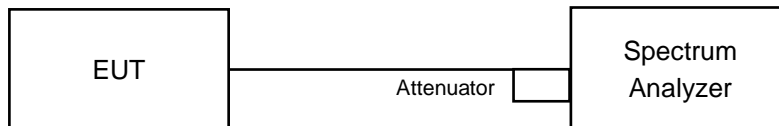
Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
TEMP. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
20	138	5180.0212	PASS	5180.0237	PASS	5180.0208	PASS	5180.0233	PASS
	120	5180.0206	PASS	5180.024	PASS	5180.0216	PASS	5180.0231	PASS
	102	5180.0212	PASS	5180.0245	PASS	5180.022	PASS	5180.0234	PASS

4.7 6dB Bandwidth Measurement

4.7.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 Test Procedure

MEASUREMENT PROCEDURE REF

- Set resolution bandwidth (RBW) = 100kHz
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.7.7 Test Results

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
149	5745	16.45	16.48	16.45	16.47	0.5	PASS
157	5785	16.44	16.45	16.42	16.45	0.5	PASS
165	5825	16.42	16.45	16.45	16.45	0.5	PASS

802.11ac (VHT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
149	5745	17.72	17.87	17.88	17.70	0.5	PASS
157	5785	17.71	17.74	17.67	17.84	0.5	PASS
165	5825	17.78	17.82	17.70	17.72	0.5	PASS

802.11ac (VHT40)

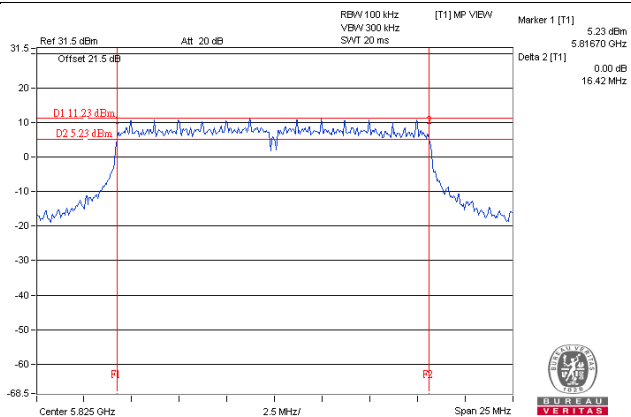
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
151	5755	36.42	36.47	36.54	36.58	0.5	PASS
159	5795	36.49	36.42	36.55	36.52	0.5	PASS

802.11ac (VHT80)

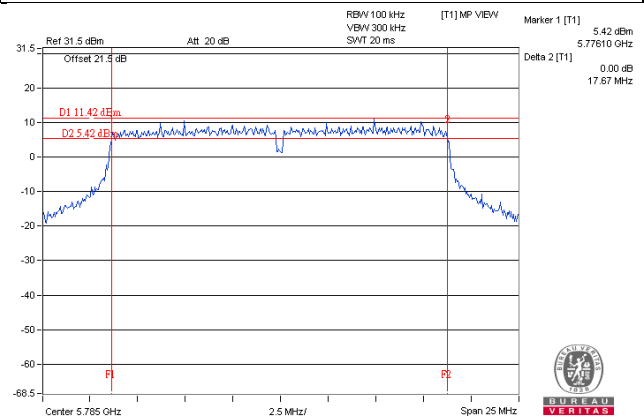
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
155	5775	75.20	75.55	76.02	75.77	0.5	PASS

Spectrum Plot of Worst Value

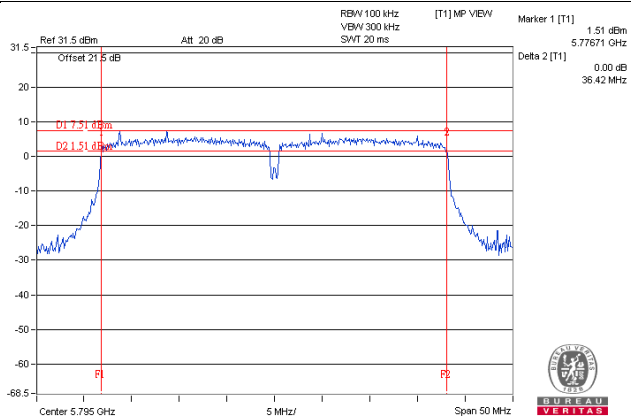
802.11a_Chain 0 / CH165



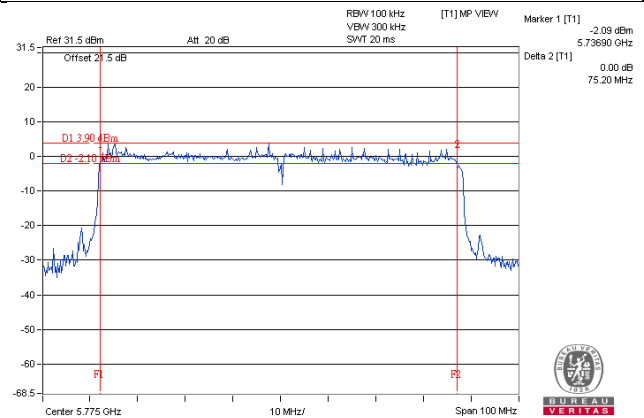
802.11ac (VHT20)_Chain 2 / CH157



802.11ac (VHT40)_Chain 1 / CH159



802.11ac (VHT80)_Chain 0 / CH155



5 Pictures of Test Arrangements

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

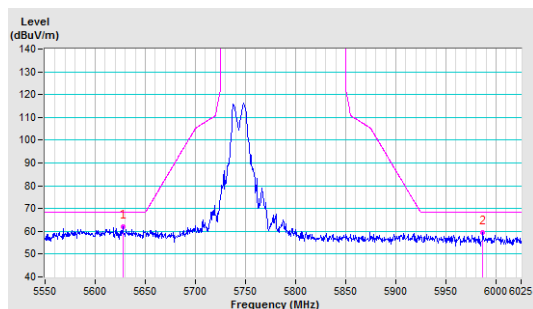
Annex A- Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band)

CDD Mode

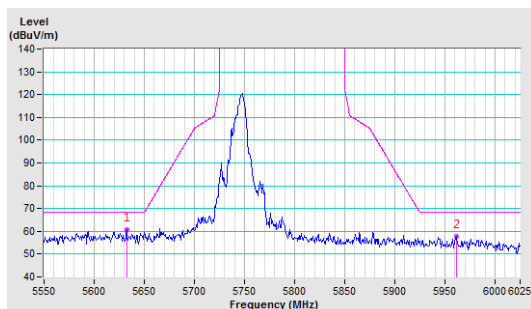
802.11a

CH 149 5745 MHz

Horizontal

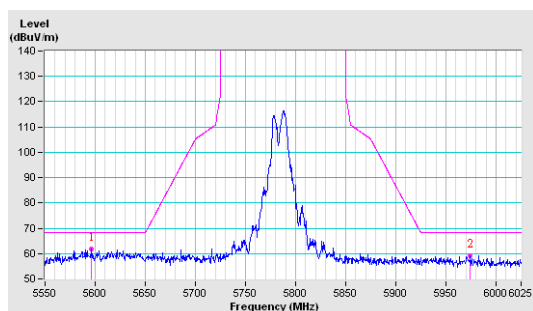


Vertical

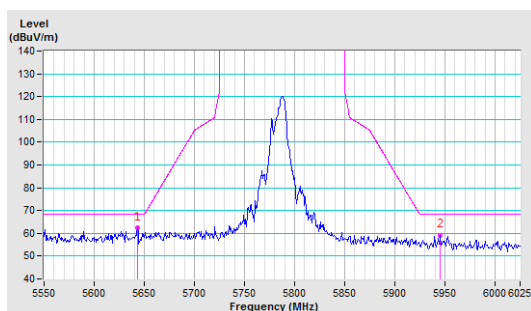


CH 157 5785 MHz

Horizontal

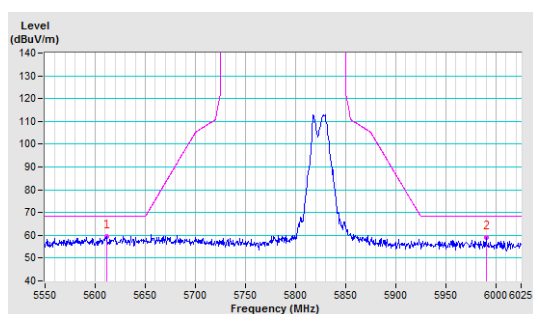


Vertical

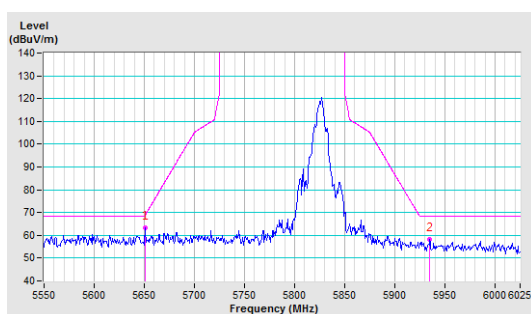


CH 165 5825 MHz

Horizontal



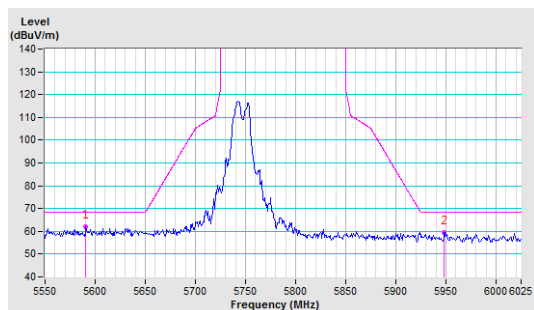
Vertical



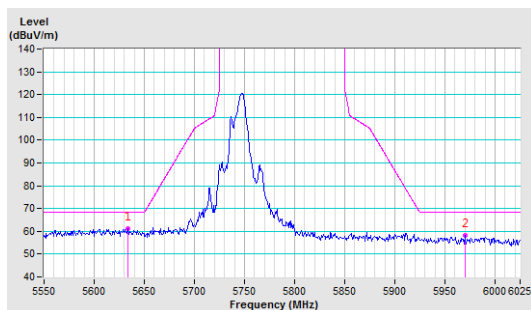
802.11ac (VHT20)

CH 149 5745 MHz

Horizontal

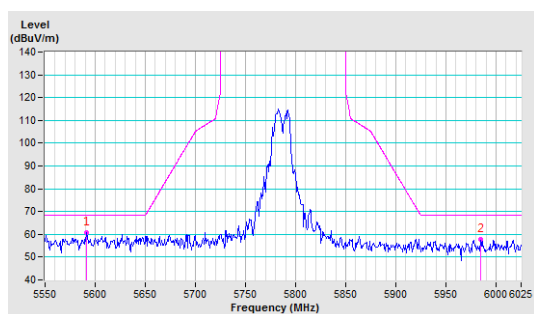


Vertical

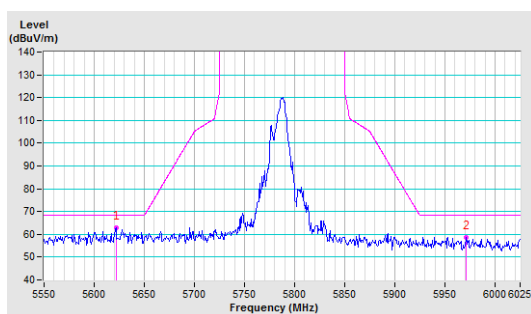


CH 157 5785 MHz

Horizontal

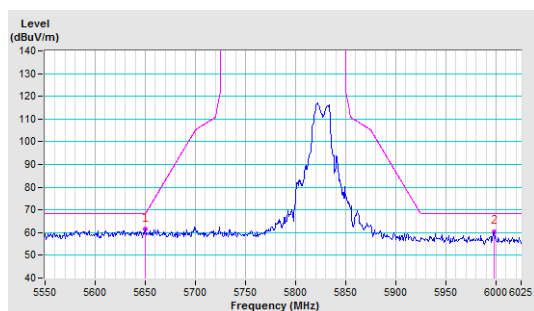


Vertical

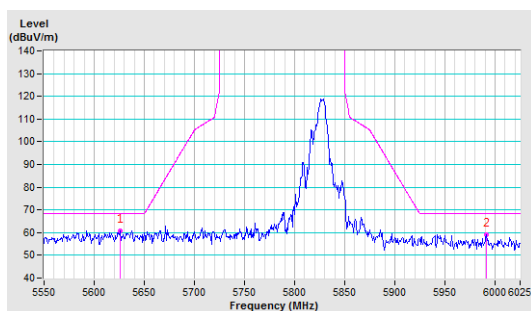


CH 165 5825 MHz

Horizontal



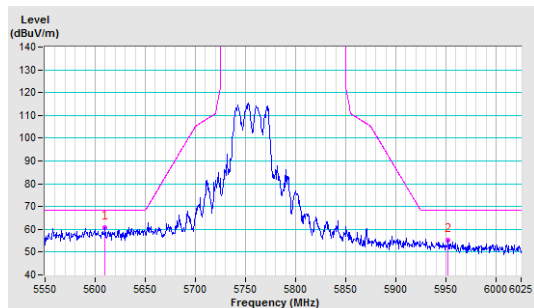
Vertical



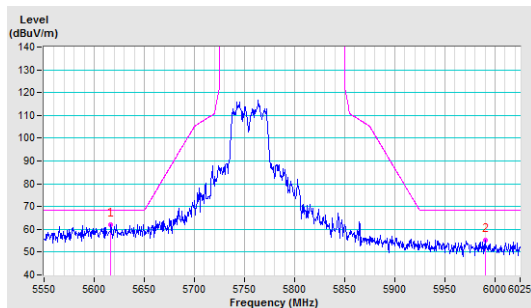
802.11ac (VHT40)

CH 151 5755 MHz

Horizontal

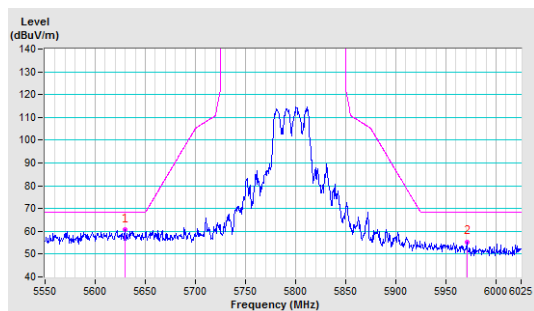


Vertical

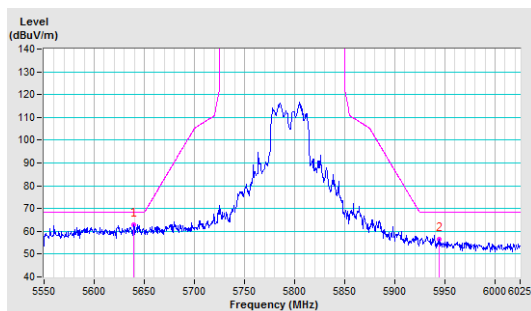


CH 159 5795 MHz

Horizontal



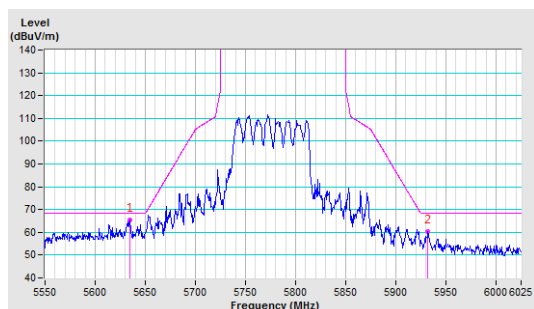
Vertical



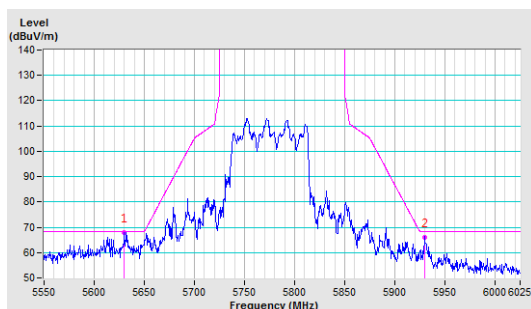
802.11ac (VHT80)

CH 155 5775 MHz

Horizontal



Vertical

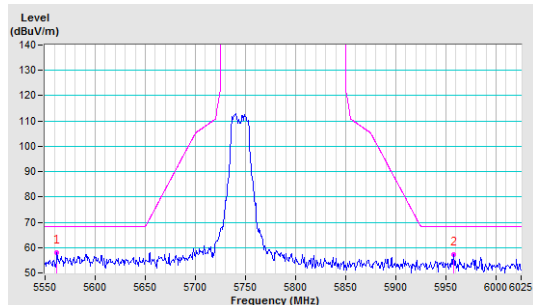


Beamforming Mode

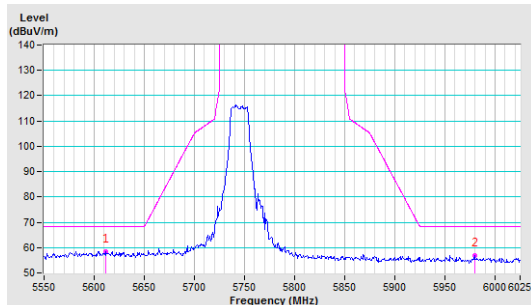
802.11ac (VHT20)

CH 149 5745 MHz

Horizontal

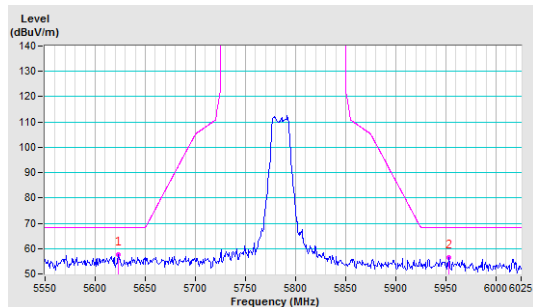


Vertical

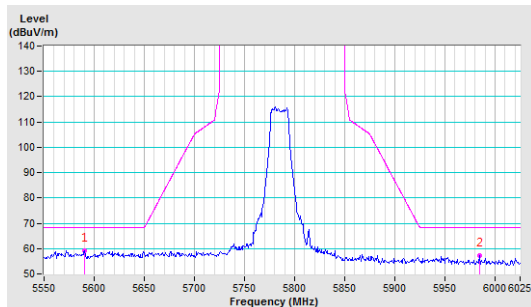


CH 157 5785 MHz

Horizontal

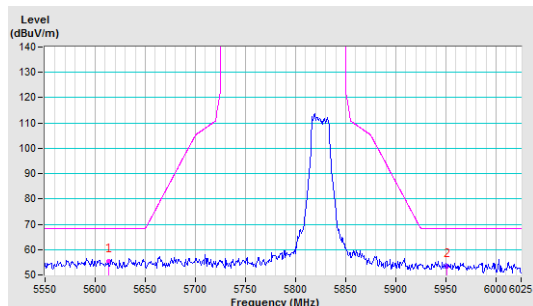


Vertical

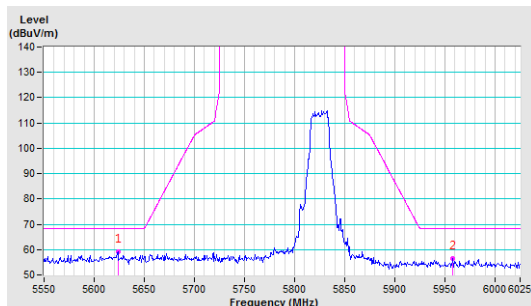


CH 165 5825 MHz

Horizontal



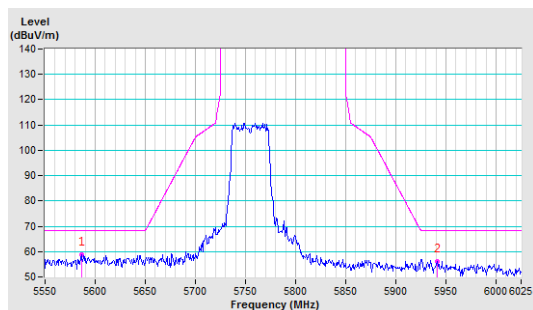
Vertical



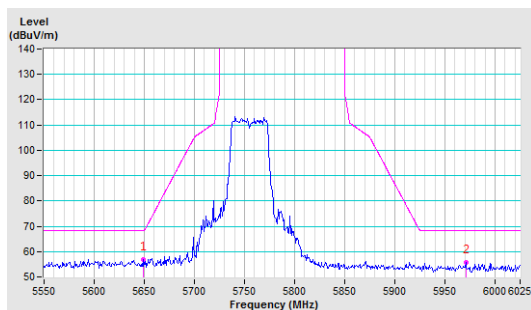
802.11ac (VHT40)

CH 151 5755 MHz

Horizontal

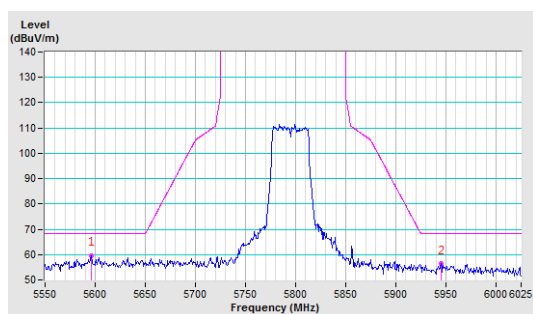


Vertical

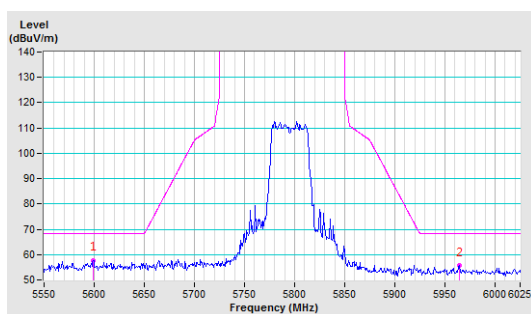


CH 159 5795 MHz

Horizontal



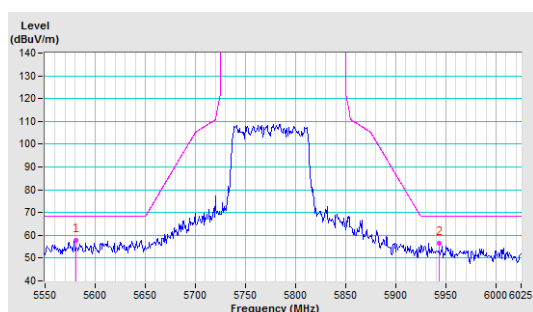
Vertical



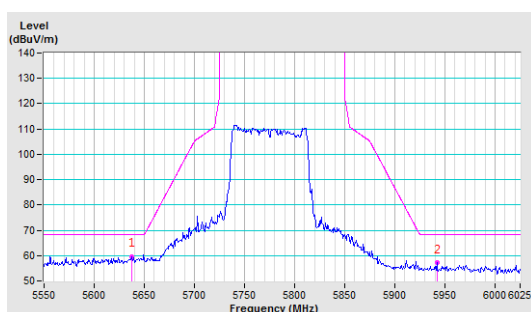
802.11ac (VHT80)

CH 155 5775 MHz

Horizontal



Vertical



Appendix – Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

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