FCC Test Report

Report No.:	RF170320E01-1
FCC ID:	H8NTCG310
Test Model:	TCG310
Series Model:	TCG310XXXXXX (X=0~9,A-Z,a-z,” -” ,” .” or blank for marketing)
Received Date:	Mar. 20, 2017
Test Date:	Apr. 06 to 18, 2017
Issued Date:	Apr. 27, 2017
Applicant:	ASKEY COMPUTER CORP.
Address:	10F, NO.119, JIANKANG RD., ZHONGHE DIST., NEW TAIPEI CITY 23585, TAIWAN, R.O.C.
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
Test Location (1):	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
Test Location (2):	No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan R.O.C.

Testing Laboratory
2022

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Release Control Record

Issue No.	Description	Date Issued
RF170320E01-1	Original release.	Apr. 27, 2017

1 Certificate of Conformity

Product:	Access Point
Brand:	ASKEY
Test Model:	TCG310
Series Model:	TCG310XXXXXX (X=0~9,A-Z,a-z,"-",","or blank for marketing)
Sample Status:	ENGINEERING SAMPLE
Applicant:	ASKEY COMPUTER CORP.
Test Date:	Apr. 06 to 18, 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 : Wendy Wu , **Date:** Apr. 27, 2017

Wendy Wu / Specialist

Approved by : , **Date:** Apr. 27, 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 -3.53dB at 0.36875MHz.
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 5150.00MHz, 11650.00MHz.
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 OOBE 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	5.30 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	4.78 dB
	6GHz ~ 18GHz	4.52 dB
	18GHz ~ 40GHz	5.08 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Access Point
Brand	ASKEY
Test Model	TCG310
Series Model	TCG310XXXXXX (X=0~9,A-Z,a-z,” -” ,” .” or blank for marketing)
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	DC 12V 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:** 5.18GHz ~ 5.24GHz, 5.745GHz ~ 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:** **CDD Mode:** 208.93mW **Beamforming Mode:** 176.796mW **5.18 ~ 5.24GHz:** **CDD Mode:** 545.676mW **Beamforming Mode:** 375.409mW **5.745 ~ 5.825GHz:** **CDD Mode:** 550.995mW **Beamforming Mode:** 350.489mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x 1
Data Cable Supplied	NA

Note:

1. The EUT has below model names, which are identical to each other in all aspects except for the following:

Brand	Model No.	Different
ASKEY	TCG310	For Maketing request
	TCG310XXXXXX (X=0~9,A-Z,a-z,” -” ,” .” or blank for marketing)	

From the above models, model: **TCG310** was selected as representative model for the test and its data was recorded in this report.

2. Simultaneously transmission condition.

Condition	Technology	
1	WLAN 2.4GHz	WLAN 5GHz
Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.		

3. The EUT must be supplied with a power adapter and following different models could be chosen as following table:

No	Brand Name	Model No.	Spec.
1	LEI	MU42-3120350-A1	Input: 100-240Vac, 50/60Hz, 1.5A Output: 12Vdc, 3.5A DC output cable: 1.5m, unshielded
2	Sunny	SYS1570-4212-W2	Input: 100-240Vac, 50/60Hz, 1.5A Output: 12Vdc, 3.5A DC output cable: 1.5m, unshielded
Note: From the above adapters, the worst radiated test was found in **Adapter 1**. Therefore only the test data of the modes were recorded in this report.			

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

Antenna No.	PCB Chain No.	Ant. Gain(dBi)	Frequency range (GHz)	Antenna Type	Connecter Type	Cable Length (mm)
1	5G-chain 0 2.4G-chain 2	3.52	2.4~2.4835	PCB	none	-
		3.11	5.15~5.35			
		3.24	5.47~5.725			
		3.56	5.725~5.85			
2	5G-chain 1	3.89	5.15~5.35	PCB	i-pex(MHF)	300
		4.16	5.47~5.725			
		4.04	5.725~5.85			
3	5G-chain 2 2.4G-chain 1	2.8	2.4~2.4835	PCB	i-pex(MHF)	75
		5.44	5.15~5.35			
		5.8	5.47~5.725			
		5.71	5.725~5.85			
4	5G-chain 3 2.4G-chain 0	3.26	2.4~2.4835	PCB	i-pex(MHF)	90
		3.9	5.15~5.35			
		3.92	5.47~5.725			
		4.49	5.725~5.85			

5. The EUT incorporates a MIMO function.

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

Note:
1. All of modulation mode support beamforming function except 802.11a/b/g modulation mode.
2. 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.
3. 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)

6. 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≥1G	RE<1G	PLC	APCM	
1	√	√	√	√	With Adapter 1
2	-	-	√	-	With Adapter 2

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

NOTE: "-"means no effect.

Radiated Emission Test (Above 1GHz):

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

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

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

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)
802.11ac (VHT40)	5180-5240 5745-5825	38 to 46 151 to 159	159	OFDM	BPSK	13.5

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)**
802.11ac (VHT40)	5180-5240 5745-5825	38 to 46 151 to 159	159	OFDM	BPSK	13.5

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

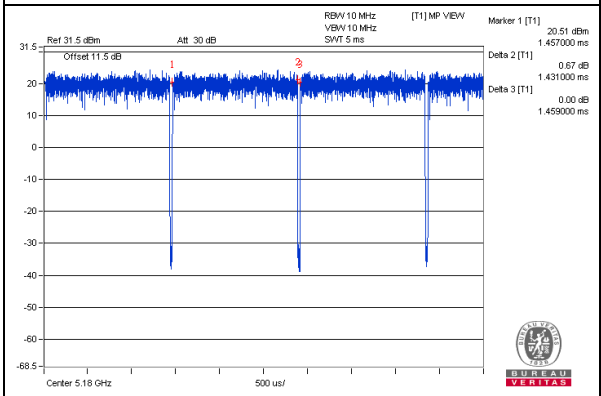
Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested By
RE≥1G	22deg. C, 64%RH	120Vac, 60Hz	Jyunchun Lin
RE<1G	23deg. C, 66%RH	120Vac, 60Hz	Terry Huang
PLC	22deg. C, 62%RH	120Vac, 60Hz	Bear Lee
APCM	23deg. C, 66%RH	120Vac, 60Hz	Robert Cheng

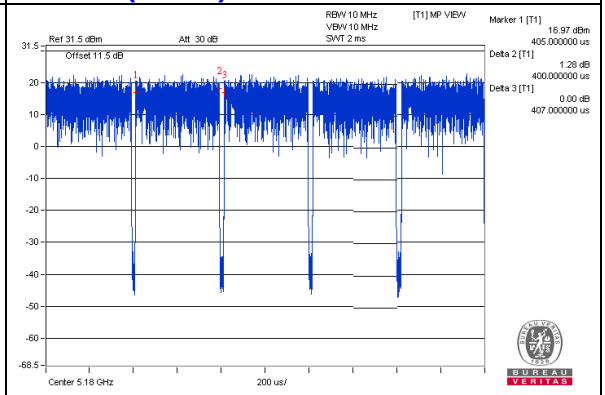
3.3 Duty Cycle of Test Signal

If duty cycle of test signal is ≥ 98 %, duty factor is not required.
If duty cycle of test signal is < 98%, duty factor shall be considered.
802.11a: Duty cycle = 1.431 ms/1.459 ms = 0.981
802.11ac (VHT20): Duty cycle = 0.4 ms/0.407 ms = 0.983
802.11ac (VHT40): Duty cycle = 0.218 ms/0.227 ms = 0.96, Duty factor = 10 * log(1/0.96) = 0.18
802.11ac (VHT80): Duty cycle = 0.332 ms/0.362 ms = 0.917, Duty factor = 10 * log(1/0.917) = 0.38

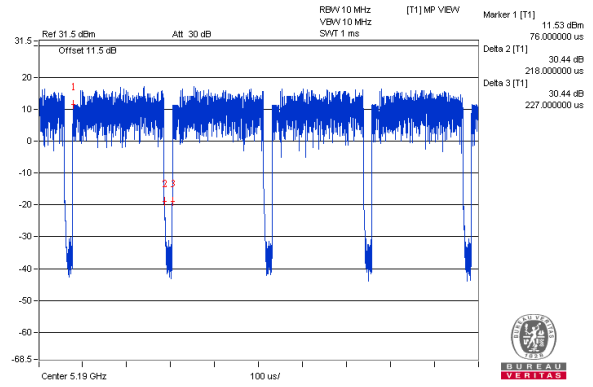
802.11a



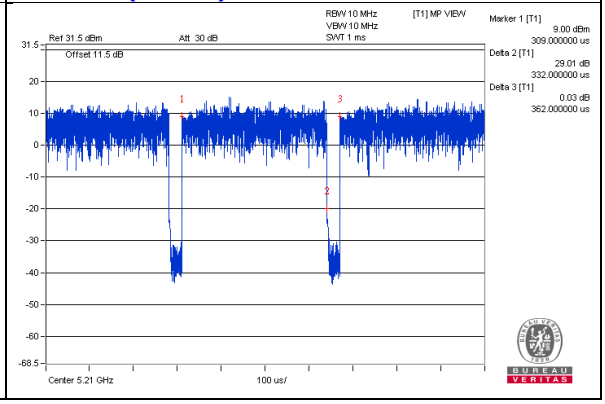
802.11ac (VHT20)



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.

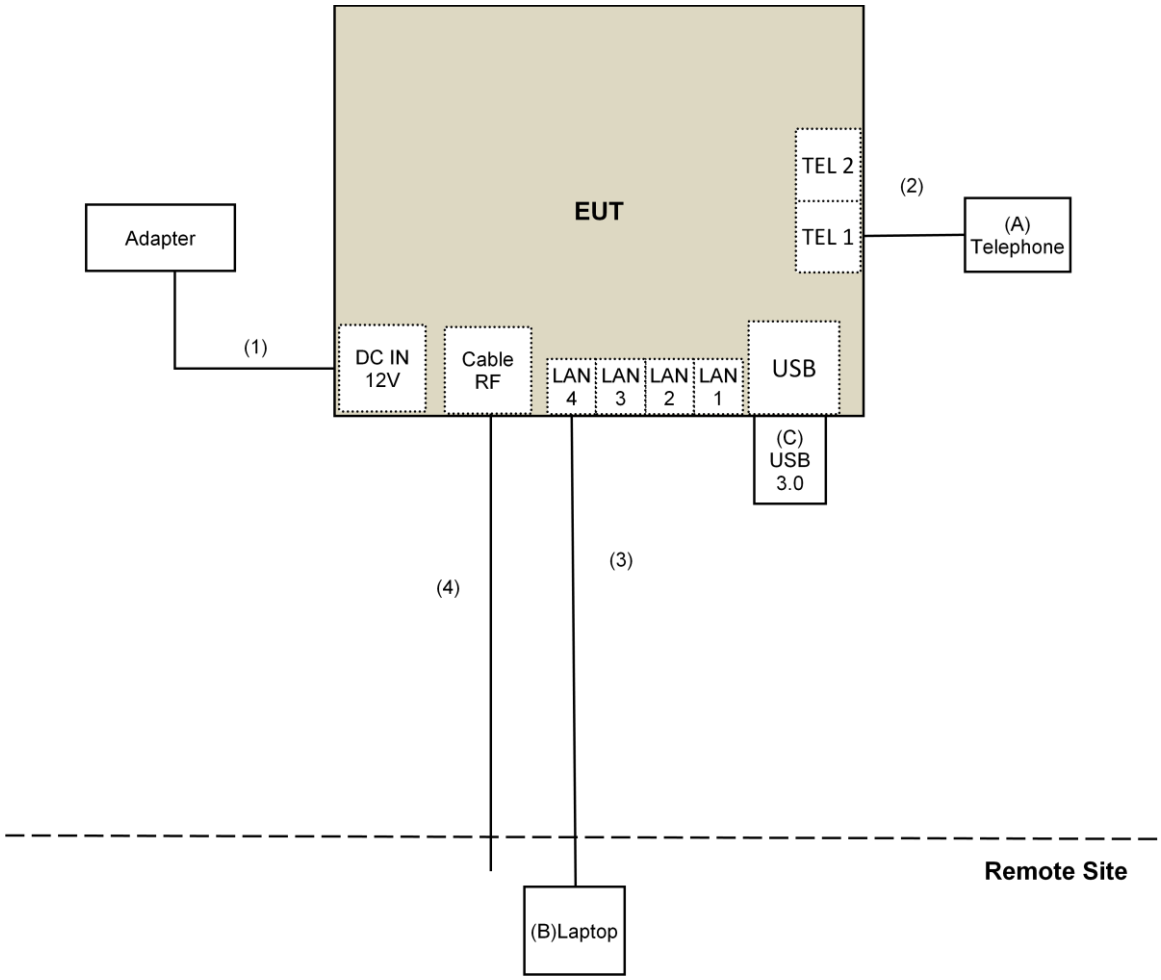
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Telephone	WONDER	WD-303	7C17KA 04011	NA	Provided by Lab
B.	Laptop	HP	Pavilion 14-ab023TU	5CD5340WXZ	NA	Provided by Lab
C.	USB 3.0 Disk	Transcend	NA	NA	NA	Provided by Lab

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	1.5	No	0	Supplied by client
2.	RJ-11 Cable	1	1.8	No	0	Provided by Lab
3.	RJ-45 Cable	1	10	No	0	Provided by Lab
4.	Coaxial Cable	1	10	Yes	0	Provided by Lab

3.4.1 Configuration of System under Test



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:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

Limits of unwanted emission out of the restricted bands

<table>
<tr><td colspan="2">Applicable To</td><td colspan="2">Limit</td></tr>
<tr><td colspan="2" rowspan="2">789033 D02 General UNII Test Procedure New Rules v01r03</td><td colspan="2">Field Strength at 3m</td></tr>
<tr><td>PK:74 (dBμV/m)</td><td>AV:54 (dBμV/m)</td></tr>
<tr><td>Frequency Band</td><td colspan="2">Applicable To</td><td>EIRP Limit</td><td>Equivalent Field Strength at 3m</td></tr>
<tr><td>5150~5250 MHz</td><td colspan="2">15.407(b)(1)</td><td rowspan="3">PK:-27 (dBm/MHz)</td><td rowspan="3">PK:68.2(dBμV/m)</td></tr>
<tr><td>5250~5350 MHz</td><td colspan="2">15.407(b)(2)</td></tr>
<tr><td>5470~5725 MHz</td><td colspan="2">15.407(b)(3)</td></tr>
<tr><td rowspan="2">5725~5850 MHz</td><td>☒</td><td>15.407(b)(4)(i)</td><td>PK:-27 (dBm/MHz) *1
PK:10 (dBm/MHz) *2
PK:15.6 (dBm/MHz) *3
PK:27 (dBm/MHz) *4</td><td>PK: 68.2(dBμV/m) *1
PK:105.2 (dBμV/m) *2
PK: 110.8(dBμV/m) *3
PK:122.2 (dBμV/m) *4</td></tr>
<tr><td>☐</td><td>15.407(b)(4)(ii)</td><td colspan="2">Emission limits in section 15.247(d)</td></tr>
<tr><td colspan="4">*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.</td></tr>
</table>

Note:

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

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

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-1200 EMC104-SM-SM-2000 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 5, 2016	May 4, 2017
Power sensor Anritsu	MA2411B	0917122	May 5, 2016	May 4, 2017
AC Power Source Extech Electronics	6205	1440452	NA	NA
Temperature & Humidity Chamber Giant Force	GTH-150-40-SP-AR	MAA0812-008	Jan. 11, 2017	Jan. 10, 2018
Digital Multimeter FLUKE	87III	73680266	Nov. 10, 2016	Nov. 09, 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. 08 to 18, 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:

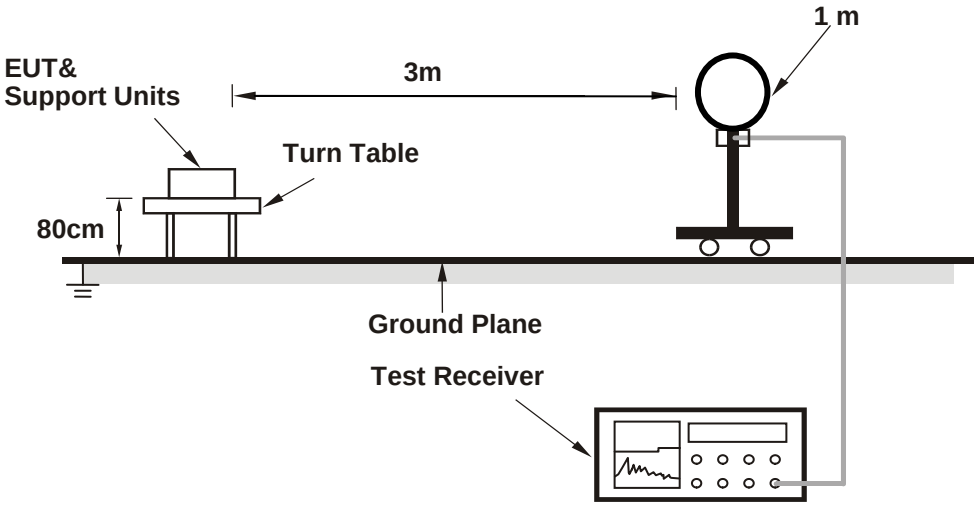
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.1.4 Deviation from Test Standard

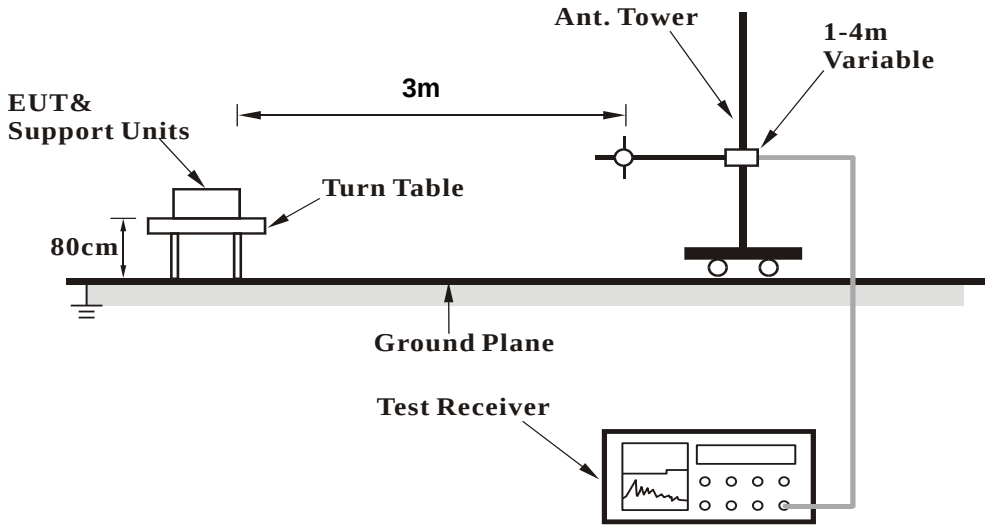
No deviation.

4.1.5 Test Setup

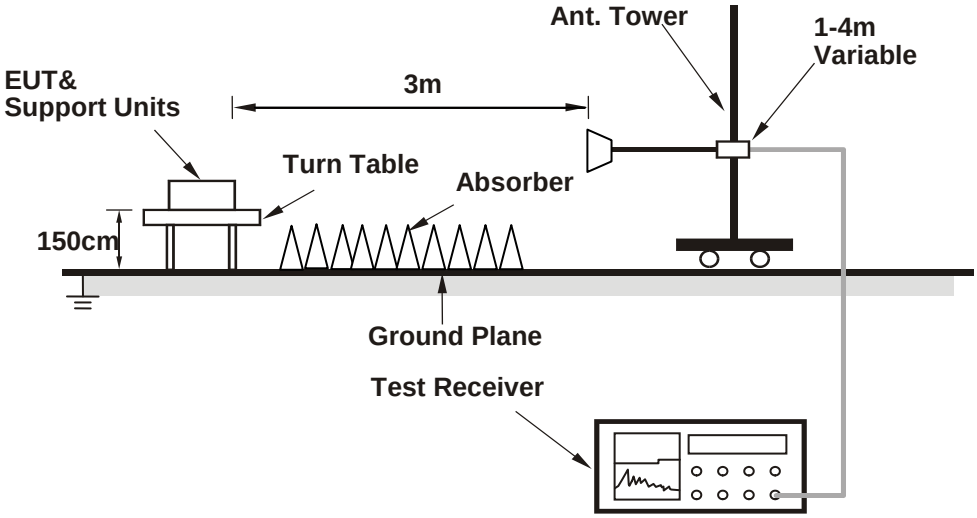
For Radiated emission below 30MHz



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

a. Connected the EUT with the Laptop which is placed on remote site.
b. Contorlling software (Telnet paste "4366_2.4G & 5G_wl command") has been activated to set the EUT on specific status.

4.1.7 Test Results

Above 1GHz Data:

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	5150.00	67.3 PK	74.0	-6.7	1.48 H	173	63.3	4.0
2	5150.00	52.4 AV	54.0	-1.6	1.48 H	173	48.4	4.0
3	*5180.00	115.5 PK			1.48 H	173	111.5	4.0
4	*5180.00	105.3 AV			1.48 H	173	101.3	4.0
5	#10360.00	46.5 PK	74.0	-27.5	1.05 H	360	32.9	13.6
6	#10360.00	40.2 AV	54.0	-13.8	1.05 H	360	26.6	13.6
7	15540.00	54.2 PK	74.0	-19.8	1.31 H	39	41.0	13.2
8	15540.00	39.1 AV	54.0	-14.9	1.31 H	39	25.9	13.2
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	62.8 PK	74.0	-11.2	1.52 V	222	58.8	4.0
2	5150.00	48.2 AV	54.0	-5.8	1.52 V	222	44.2	4.0
3	*5180.00	110.3 PK			1.52 V	222	106.3	4.0
4	*5180.00	100.7 AV			1.52 V	222	96.7	4.0
5	#10360.00	58.8 PK	74.0	-15.2	1.61 V	288	45.2	13.6
6	#10360.00	44.8 AV	54.0	-9.2	1.61 V	288	31.2	13.6
7	15540.00	52.7 PK	74.0	-21.3	1.36 V	232	39.5	13.2
8	15540.00	37.4 AV	54.0	-16.6	1.36 V	232	24.2	13.2

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5038.00	57.0 PK	74.0	-17.0	1.45 H	184	53.1	3.9
2	5038.00	43.4 AV	54.0	-10.6	1.45 H	184	39.5	3.9
3	*5200.00	115.6 PK			1.45 H	184	111.6	4.0
4	*5200.00	105.2 AV			1.45 H	184	101.2	4.0
5	5350.00	55.0 PK	74.0	-19.0	1.45 H	184	50.6	4.4
6	5350.00	45.3 AV	54.0	-8.7	1.45 H	184	40.9	4.4
7	#10400.00	46.9 PK	74.0	-27.1	1.00 H	360	33.3	13.6
8	#10400.00	40.5 AV	54.0	-13.5	1.00 H	360	26.9	13.6
9	15600.00	54.0 PK	74.0	-20.0	1.27 H	55	40.6	13.4
10	15600.00	38.9 AV	54.0	-15.1	1.27 H	55	25.5	13.4
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	5038.00	52.8 PK	74.0	-21.2	1.53 V	219	48.9	3.9
2	5038.00	39.6 AV	54.0	-14.4	1.53 V	219	35.7	3.9
3	*5200.00	110.2 PK			1.53 V	219	106.2	4.0
4	*5200.00	99.6 AV			1.53 V	219	95.6	4.0
5	5350.00	51.0 PK	74.0	-23.0	1.53 V	219	46.6	4.4
6	5350.00	41.1 AV	54.0	-12.9	1.53 V	219	36.7	4.4
7	#10400.00	58.7 PK	74.0	-15.3	1.60 V	285	45.1	13.6
8	#10400.00	44.9 AV	54.0	-9.1	1.60 V	285	31.3	13.6
9	15600.00	52.9 PK	74.0	-21.1	1.40 V	223	39.5	13.4
10	15600.00	37.4 AV	54.0	-16.6	1.40 V	223	24.0	13.4

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 48	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	116.3 PK			1.53 H	179	112.1	4.2
2	*5240.00	106.0 AV			1.53 H	179	101.8	4.2
3	5399.00	57.3 PK	74.0	-16.7	1.53 H	179	52.9	4.4
4	5399.00	47.3 AV	54.0	-6.7	1.53 H	179	42.9	4.4
5	#10480.00	46.4 PK	74.0	-27.6	1.00 H	360	32.7	13.7
6	#10480.00	40.2 AV	54.0	-13.8	1.00 H	360	26.5	13.7
7	15720.00	54.4 PK	74.0	-19.6	1.30 H	62	40.4	14.0
8	15720.00	39.3 AV	54.0	-14.7	1.30 H	62	25.3	14.0
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	110.8 PK			1.55 V	224	106.6	4.2
2	*5240.00	100.2 AV			1.55 V	224	96.0	4.2
3	5399.00	53.1 PK	74.0	-20.9	1.55 V	224	48.7	4.4
4	5399.00	43.1 AV	54.0	-10.9	1.55 V	224	38.7	4.4
5	#10480.00	59.0 PK	74.0	-15.0	1.66 V	284	45.3	13.7
6	#10480.00	44.8 AV	54.0	-9.2	1.66 V	284	31.1	13.7
7	15720.00	52.7 PK	74.0	-21.3	1.35 V	235	38.7	14.0
8	15720.00	37.1 AV	54.0	-16.9	1.35 V	235	23.1	14.0

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5637.04	57.5 PK	68.2	-10.7	1.55 H	343	53.8	3.7
2	*5745.00	116.0 PK			1.55 H	343	111.0	5.0
3	*5745.00	105.8 AV			1.55 H	343	100.8	5.0
4	#5988.92	58.5 PK	68.2	-9.7	1.55 H	343	54.1	4.4
5	11490.00	58.6 PK	74.0	-15.4	1.38 H	307	44.5	14.1
6	11490.00	45.3 AV	54.0	-8.7	1.38 H	307	31.2	14.1
7	#17235.00	58.4 PK	74.0	-15.6	1.43 H	267	40.1	18.3
8	#17235.00	43.2 AV	54.0	-10.8	1.43 H	267	24.9	18.3
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	#5584.01	56.8 PK	68.2	-11.4	3.94 V	230	53.2	3.6
2	*5745.00	111.2 PK			3.94 V	230	106.2	5.0
3	*5745.00	101.6 AV			3.94 V	230	96.6	5.0
4	#5977.52	57.1 PK	68.2	-11.1	3.94 V	230	52.7	4.4
5	11490.00	66.5 PK	74.0	-7.5	1.56 V	306	52.4	14.1
6	11490.00	53.8 AV	54.0	-0.2	1.56 V	306	39.7	14.1
7	#17235.00	50.1 PK	74.0	-23.9	4.00 V	261	31.8	18.3
8	#17235.00	40.0 AV	54.0	-14.0	4.00 V	261	21.7	18.3

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5551.02	59.7 PK	68.2	-8.5	1.52 H	338	56.3	3.4
2	*5785.00	115.4 PK			1.52 H	338	110.4	5.0
3	*5785.00	105.1 AV			1.52 H	338	100.1	5.0
4	#5940.44	59.4 PK	68.2	-8.8	1.52 H	338	55.1	4.3
5	11570.00	59.0 PK	74.0	-15.0	1.35 H	315	45.0	14.0
6	11570.00	45.5 AV	54.0	-8.5	1.35 H	315	31.5	14.0
7	#17355.00	58.9 PK	74.0	-15.1	1.41 H	281	40.0	18.9
8	#17355.00	43.5 AV	54.0	-10.5	1.41 H	281	24.6	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	#5550.20	56.1 PK	68.2	-12.1	3.91 V	232	52.7	3.4
2	*5785.00	110.8 PK			3.91 V	232	105.8	5.0
3	*5785.00	101.1 AV			3.91 V	232	96.1	5.0
4	#5938.38	56.2 PK	68.2	-12.0	3.91 V	232	51.9	4.3
5	11570.00	66.8 PK	74.0	-7.2	1.49 V	307	52.8	14.0
6	11570.00	53.7 AV	54.0	-0.3	1.49 V	307	39.7	14.0
7	#17355.00	50.7 PK	74.0	-23.3	3.97 V	264	31.8	18.9
8	#17355.00	40.3 AV	54.0	-13.7	3.97 V	264	21.4	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.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5638.22	56.6 PK	68.2	-11.6	1.50 H	346	52.9	3.7
2	*5825.00	115.8 PK			1.50 H	346	110.6	5.2
3	*5825.00	105.5 AV			1.50 H	346	100.3	5.2
4	#5980.17	60.1 PK	68.2	-8.1	1.50 H	346	55.7	4.4
5	11650.00	59.0 PK	74.0	-15.0	1.35 H	309	44.9	14.1
6	11650.00	45.7 AV	54.0	-8.3	1.35 H	309	31.6	14.1
7	#17475.00	58.3 PK	74.0	-15.7	1.46 H	281	38.6	19.7
8	#17475.00	43.1 AV	54.0	-10.9	1.46 H	281	23.4	19.7
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	#5589.15	56.7 PK	68.2	-11.5	3.89 V	235	53.1	3.6
2	*5825.00	111.1 PK			3.89 V	235	105.9	5.2
3	*5825.00	101.3 AV			3.89 V	235	96.1	5.2
4	#5979.87	58.7 PK	68.2	-9.5	3.89 V	235	54.3	4.4
5	11650.00	65.3 PK	74.0	-8.7	1.51 V	303	51.2	14.1
6	**11650.00**	**53.9 AV**	**54.0**	**-0.1**	**1.51 V**	**303**	**39.8**	**14.1**
7	#17475.00	49.9 PK	74.0	-24.1	4.00 V	270	30.2	19.7
8	#17475.00	40.0 AV	54.0	-14.0	4.00 V	270	20.3	19.7

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	70.6 PK	74.0	-3.4	1.48 H	181	66.6	4.0
2	**5150.00**	**53.9 AV**	**54.0**	**-0.1**	**1.48 H**	**181**	**49.9**	**4.0**
3	*5180.00	116.4 PK			1.48 H	181	112.4	4.0
4	*5180.00	105.1 AV			1.48 H	181	101.1	4.0
5	#10360.00	47.8 PK	74.0	-26.2	1.00 H	19	34.2	13.6
6	#10360.00	40.9 AV	54.0	-13.1	1.00 H	19	27.3	13.6
7	15540.00	54.7 PK	74.0	-19.3	1.29 H	54	41.5	13.2
8	15540.00	39.3 AV	54.0	-14.7	1.29 H	54	26.1	13.2
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	66.3 PK	74.0	-7.7	1.54 V	229	62.3	4.0
2	5150.00	49.6 AV	54.0	-4.4	1.54 V	229	45.6	4.0
3	*5180.00	110.2 PK			1.54 V	229	106.2	4.0
4	*5180.00	99.6 AV			1.54 V	229	95.6	4.0
5	#10360.00	58.8 PK	74.0	-15.2	1.62 V	300	45.2	13.6
6	#10360.00	44.7 AV	54.0	-9.3	1.62 V	300	31.1	13.6
7	15540.00	52.8 PK	74.0	-21.2	1.37 V	225	39.6	13.2
8	15540.00	37.5 AV	54.0	-16.5	1.37 V	225	24.3	13.2

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	5150.00	56.7 PK	74.0	-17.3	1.47 H	183	52.7	4.0
2	5150.00	43.3 AV	54.0	-10.7	1.47 H	183	39.3	4.0
3	*5200.00	115.7 PK			1.43 H	185	111.7	4.0
4	*5200.00	105.5 AV			1.43 H	185	101.5	4.0
5	5365.00	55.2 PK	74.0	-18.8	1.47 H	186	50.8	4.4
6	5365.00	45.6 AV	54.0	-8.4	1.47 H	186	41.2	4.4
7	#10400.00	47.4 PK	74.0	-26.6	1.04 H	19	33.8	13.6
8	#10400.00	40.7 AV	54.0	-13.3	1.04 H	19	27.1	13.6
9	15600.00	54.7 PK	74.0	-19.3	1.28 H	52	41.3	13.4
10	15600.00	39.4 AV	54.0	-14.6	1.28 H	52	26.0	13.4
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	51.9 PK	74.0	-22.1	1.49 V	207	47.9	4.0
2	5150.00	39.2 AV	54.0	-14.8	1.49 V	207	35.2	4.0
3	*5200.00	110.9 PK			1.50 V	203	106.9	4.0
4	*5200.00	100.2 AV			1.50 V	203	96.2	4.0
5	5365.00	51.3 PK	74.0	-22.7	1.56 V	216	46.9	4.4
6	5365.00	41.6 AV	54.0	-12.4	1.56 V	216	37.2	4.4
7	#10400.00	58.7 PK	74.0	-15.3	1.65 V	287	45.1	13.6
8	#10400.00	44.8 AV	54.0	-9.2	1.65 V	287	31.2	13.6
9	15600.00	52.9 PK	74.0	-21.1	1.42 V	239	39.5	13.4
10	15600.00	37.6 AV	54.0	-16.4	1.42 V	239	24.2	13.4

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 48	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	116.5 PK			1.52 H	168	112.3	4.2
2	*5240.00	106.0 AV			1.52 H	168	101.8	4.2
3	5395.00	56.8 PK	74.0	-17.2	1.52 H	178	52.4	4.4
4	5395.00	47.0 AV	54.0	-7.0	1.52 H	178	42.6	4.4
5	#10480.00	45.7 PK	74.0	-28.3	1.02 H	27	32.0	13.7
6	#10480.00	39.7 AV	54.0	-14.3	1.02 H	27	26.0	13.7
7	15720.00	54.2 PK	74.0	-19.8	1.25 H	66	40.2	14.0
8	15720.00	39.2 AV	54.0	-14.8	1.25 H	66	25.2	14.0
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	111.2 PK			1.51 V	221	107.0	4.2
2	*5240.00	101.0 AV			1.51 V	221	96.8	4.2
3	5395.00	52.5 PK	74.0	-21.5	1.51 V	221	48.1	4.4
4	5395.00	43.8 AV	54.0	-10.2	1.51 V	221	39.4	4.4
5	#10480.00	59.0 PK	74.0	-15.0	1.57 V	286	45.3	13.7
6	#10480.00	45.8 AV	54.0	-8.2	1.57 V	286	32.1	13.7
7	15720.00	53.6 PK	74.0	-20.4	1.38 V	239	39.6	14.0
8	15720.00	41.0 AV	54.0	-13.0	1.38 V	239	27.0	14.0

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5585.52	61.8 PK	68.2	-6.4	1.08 H	185	58.2	3.6
2	*5745.00	118.4 PK			1.08 H	185	113.4	5.0
3	*5745.00	106.9 AV			1.08 H	185	101.9	5.0
4	#5992.52	62.7 PK	68.2	-5.5	1.08 H	185	58.3	4.4
5	11490.00	60.4 PK	74.0	-13.6	1.18 H	309	46.3	14.1
6	11490.00	47.9 AV	54.0	-6.1	1.18 H	309	33.8	14.1
7	#17235.00	59.6 PK	74.0	-14.4	1.46 H	271	41.3	18.3
8	#17235.00	46.3 AV	54.0	-7.7	1.46 H	271	28.0	18.3
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	#5588.39	58.3 PK	68.2	-9.9	2.83 V	22	54.7	3.6
2	*5745.00	112.0 PK			3.83 V	22	107.0	5.0
3	*5745.00	101.6 AV			3.83 V	22	96.6	5.0
4	#5989.17	57.2 PK	68.2	-11.0	3.83 V	22	52.8	4.4
5	11490.00	67.7 PK	74.0	-6.3	1.36 V	306	53.6	14.1
6	11490.00	53.7 AV	54.0	-0.3	1.36 V	306	39.6	14.1
7	#17235.00	54.5 PK	74.0	-19.5	4.00 V	265	36.2	18.3
8	#17235.00	43.3 AV	54.0	-10.7	4.00 V	265	25.0	18.3

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5552.51	62.1 PK	68.2	-6.1	1.15 H	182	58.7	3.4
2	*5785.00	118.8 PK			1.15 H	182	113.8	5.0
3	*5785.00	107.0 AV			1.15 H	182	102.0	5.0
4	#6019.72	61.2 PK	68.2	-7.0	1.15 H	182	56.7	4.5
5	11570.00	60.4 PK	74.0	-13.6	1.19 H	309	46.4	14.0
6	11570.00	48.0 AV	54.0	-6.0	1.19 H	309	34.0	14.0
7	#17355.00	60.0 PK	74.0	-14.0	1.45 H	276	41.1	18.9
8	#17355.00	46.6 AV	54.0	-7.4	1.45 H	276	27.7	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	#5552.58	58.6 PK	68.2	-9.6	3.54 V	45	55.2	3.4
2	*5785.00	113.0 PK			3.54 V	45	108.0	5.0
3	*5785.00	101.4 AV			3.54 V	45	96.4	5.0
4	#5988.64	56.8 PK	68.2	-11.4	3.54 V	45	52.4	4.4
5	11570.00	67.0 PK	74.0	-7.0	1.40 V	308	53.0	14.0
6	11570.00	53.7 AV	54.0	-0.3	1.40 V	308	39.7	14.0
7	#17355.00	55.0 PK	74.0	-19.0	3.99 V	254	36.1	18.9
8	#17355.00	43.7 AV	54.0	-10.3	3.99 V	254	24.8	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.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5587.96	61.6 PK	68.2	-6.6	1.06 H	188	58.0	3.6
2	*5825.00	118.0 PK			1.06 H	188	112.8	5.2
3	*5825.00	106.3 AV			1.06 H	188	101.1	5.2
4	#5982.00	62.0 PK	68.2	-6.2	1.06 H	188	57.6	4.4
5	11650.00	61.0 PK	74.0	-13.0	1.24 H	302	46.9	14.1
6	11650.00	48.3 AV	54.0	-5.7	1.24 H	302	34.2	14.1
7	#17475.00	59.3 PK	74.0	-14.7	1.52 H	279	39.6	19.7
8	#17475.00	46.0 AV	54.0	-8.0	1.52 H	279	26.3	19.7
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	#5585.60	57.5 PK	68.2	-10.7	3.53 V	28	53.9	3.6
2	*5825.00	112.8 PK			3.53 V	28	107.6	5.2
3	*5825.00	101.7 AV			3.53 V	28	96.5	5.2
4	#5976.66	57.6 PK	68.2	-10.6	3.53 V	28	53.2	4.4
5	11650.00	67.9 PK	74.0	-6.1	1.33 V	312	53.8	14.1
6	**11650.00**	**53.9 AV**	**54.0**	**-0.1**	**1.33 V**	**312**	**39.8**	**14.1**
7	#17475.00	54.9 PK	74.0	-19.1	3.97 V	263	35.2	19.7
8	#17475.00	43.6 AV	54.0	-10.4	3.97 V	263	23.9	19.7

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	71.7 PK	74.0	-2.3	1.42 H	353	67.7	4.0
2	5150.00	53.6 AV	54.0	-0.4	1.42 H	353	49.6	4.0
3	*5190.00	110.8 PK			1.42 H	353	106.8	4.0
4	*5190.00	98.9 AV			1.42 H	353	94.9	4.0
5	5350.00	61.9 PK	74.0	-12.1	1.42 H	353	57.5	4.4
6	5350.00	49.1 AV	54.0	-4.9	1.42 H	353	44.7	4.4
7	#10380.00	46.3 PK	74.0	-27.7	1.00 H	36	32.7	13.6
8	#10380.00	34.7 AV	54.0	-19.3	1.00 H	36	21.1	13.6
9	15570.00	45.8 PK	74.0	-28.2	1.29 H	18	32.5	13.3
10	15570.00	33.4 AV	54.0	-20.6	1.29 H	18	20.1	13.3
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	67.5 PK	74.0	-6.5	3.58 V	16	63.5	4.0
2	5150.00	49.3 AV	54.0	-4.7	3.58 V	16	45.3	4.0
3	*5190.00	105.6 PK			3.58 V	16	101.6	4.0
4	*5190.00	94.3 AV			3.58 V	16	90.3	4.0
5	5350.00	57.9 PK	74.0	-16.1	3.58 V	16	53.5	4.4
6	5350.00	44.8 AV	54.0	-9.2	3.58 V	16	40.4	4.4
7	#10380.00	44.6 PK	74.0	-29.4	1.58 V	265	31.0	13.6
8	#10380.00	33.4 AV	54.0	-20.6	1.58 V	265	19.8	13.6
9	15570.00	44.3 PK	74.0	-29.7	1.25 V	214	31.0	13.3
10	15570.00	32.4 AV	54.0	-21.6	1.25 V	214	19.1	13.3

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	66.2 PK	74.0	-7.8	1.36 H	352	62.2	4.0
2	5150.00	53.8 AV	54.0	-0.2	1.36 H	352	49.8	4.0
3	*5230.00	116.7 PK			1.36 H	352	112.5	4.2
4	*5230.00	104.1 AV			1.36 H	352	99.9	4.2
5	5397.00	63.4 PK	74.0	-10.6	1.36 H	352	59.0	4.4
6	5397.00	53.5 AV	54.0	-0.5	1.36 H	352	49.1	4.4
7	#10460.00	46.0 PK	74.0	-28.0	1.02 H	27	32.3	13.7
8	#10460.00	39.9 AV	54.0	-14.1	1.02 H	27	26.2	13.7
9	15690.00	54.2 PK	74.0	-19.8	1.23 H	72	40.2	14.0
10	15690.00	39.5 AV	54.0	-14.5	1.23 H	72	25.5	14.0
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	62.1 PK	74.0	-11.9	3.55 V	18	58.1	4.0
2	5150.00	49.9 AV	54.0	-4.1	3.55 V	18	45.9	4.0
3	*5230.00	111.4 PK			3.55 V	18	107.2	4.2
4	*5230.00	99.5 AV			3.55 V	18	95.3	4.2
5	5397.00	59.2 PK	74.0	-14.8	3.55 V	18	54.8	4.4
6	5397.00	49.6 AV	54.0	-4.4	3.55 V	18	45.2	4.4
7	#10460.00	59.0 PK	74.0	-15.0	1.54 V	302	45.3	13.7
8	#10460.00	45.8 AV	54.0	-8.2	1.54 V	302	32.1	13.7
9	15690.00	53.7 PK	74.0	-20.3	1.39 V	227	39.7	14.0
10	15690.00	41.1 AV	54.0	-12.9	1.39 V	227	27.1	14.0

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) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5639.73	65.8 PK	68.2	-2.4	1.70 H	349	62.1	3.7
2	*5755.00	115.0 PK			1.70 H	349	110.0	5.0
3	*5755.00	103.6 AV			1.70 H	349	98.6	5.0
4	#5937.58	54.0 PK	68.2	-14.2	1.70 H	349	49.7	4.3
5	11510.00	61.2 PK	74.0	-12.8	1.21 H	317	47.2	14.0
6	11510.00	48.4 AV	54.0	-5.6	1.21 H	317	34.4	14.0
7	#17265.00	59.9 PK	74.0	-14.1	1.48 H	287	41.4	18.5
8	#17265.00	46.4 AV	54.0	-7.6	1.48 H	287	27.9	18.5
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	#5626.80	55.2 PK	68.2	-13.0	1.52 V	297	51.5	3.7
2	*5755.00	108.2 PK			1.52 V	297	103.2	5.0
3	*5755.00	98.2 AV			1.52 V	297	93.2	5.0
4	#5932.11	51.1 PK	68.2	-17.1	1.52 V	297	46.8	4.3
5	11510.00	63.1 PK	74.0	-10.9	1.39 V	309	49.1	14.0
6	11510.00	50.6 AV	54.0	-3.4	1.39 V	309	36.6	14.0
7	#17265.00	54.8 PK	74.0	-19.2	3.91 V	273	36.3	18.5
8	#17265.00	43.2 AV	54.0	-10.8	3.91 V	273	24.7	18.5

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5649.99	58.2 PK	68.2	-10.0	1.02 H	344	54.5	3.7
2	*5795.00	115.2 PK			1.02 H	344	110.1	5.1
3	*5795.00	102.6 AV			1.02 H	344	97.5	5.1
4	#5940.66	57.8 PK	68.2	-10.4	1.02 H	344	53.5	4.3
5	11590.00	61.2 PK	74.0	-12.8	1.22 H	308	47.2	14.0
6	11590.00	48.4 AV	54.0	-5.6	1.22 H	308	34.4	14.0
7	#17385.00	58.7 PK	74.0	-15.3	1.55 H	285	39.6	19.1
8	#17385.00	45.6 AV	54.0	-8.4	1.55 H	285	26.5	19.1
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	#5647.23	54.7 PK	68.2	-13.5	1.54 V	294	51.0	3.7
2	*5795.00	108.3 PK			1.54 V	294	103.2	5.1
3	*5795.00	97.8 AV			1.54 V	294	92.7	5.1
4	#5940.31	53.9 PK	68.2	-14.3	1.54 V	294	49.6	4.3
5	11590.00	62.7 PK	74.0	-11.3	1.33 V	300	48.7	14.0
6	11590.00	50.3 AV	54.0	-3.7	1.33 V	300	36.3	14.0
7	#17385.00	54.8 PK	74.0	-19.2	3.89 V	277	35.7	19.1
8	#17385.00	42.9 AV	54.0	-11.1	3.89 V	277	23.8	19.1

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.

802.11ac (VHT80)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	62.5 PK	74.0	-11.5	1.44 H	354	58.5	4.0
2	5150.00	53.7 AV	54.0	-0.3	1.44 H	354	49.7	4.0
3	*5210.00	106.5 PK			1.44 H	354	102.4	4.1
4	*5210.00	97.7 AV			1.44 H	354	93.6	4.1
5	5350.00	58.2 PK	74.0	-15.8	1.44 H	354	53.8	4.4
6	5350.00	48.3 AV	54.0	-5.7	1.44 H	354	43.9	4.4
7	#10420.00	45.8 PK	74.0	-28.2	1.02 H	31	32.2	13.6
8	#10420.00	34.2 AV	54.0	-19.8	1.02 H	31	20.6	13.6
9	15630.00	46.1 PK	74.0	-27.9	1.25 H	19	32.5	13.6
10	15630.00	33.7 AV	54.0	-20.3	1.25 H	19	20.1	13.6
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	5150.00	58.2 PK	74.0	-15.8	1.55 V	300	54.2	4.0
2	5150.00	49.3 AV	54.0	-4.7	1.55 V	300	45.3	4.0
3	*5210.00	99.6 PK			1.55 V	300	95.5	4.1
4	*5210.00	92.9 AV			1.55 V	300	88.8	4.1
5	5350.00	54.5 PK	74.0	-19.5	1.55 V	300	50.1	4.4
6	5350.00	44.1 AV	54.0	-9.9	1.55 V	300	39.7	4.4
7	#10420.00	45.6 PK	74.0	-28.4	1.53 V	273	32.0	13.6
8	#10420.00	34.3 AV	54.0	-19.7	1.53 V	273	20.7	13.6
9	15630.00	44.2 PK	74.0	-29.8	1.33 V	210	30.6	13.6
10	15630.00	32.4 AV	54.0	-21.6	1.33 V	210	18.8	13.6

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5645.76	68.0 PK	68.2	-0.2	1.38 H	351	64.3	3.7
2	*5775.00	109.9 PK			1.38 H	351	104.9	5.0
3	*5775.00	100.9 AV			1.38 H	351	95.9	5.0
4	#5933.05	61.7 PK	68.2	-6.5	1.38 H	351	57.4	4.3
5	11550.00	59.9 PK	74.0	-14.1	1.28 H	314	45.9	14.0
6	11550.00	47.0 AV	54.0	-7.0	1.28 H	314	33.0	14.0
7	#17325.00	58.7 PK	74.0	-15.3	1.58 H	272	40.1	18.6
8	#17325.00	45.5 AV	54.0	-8.5	1.58 H	272	26.9	18.6
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	#5636.50	60.1 PK	68.2	-8.1	1.53 V	297	56.4	3.7
2	*5775.00	102.8 PK			1.53 V	297	97.8	5.0
3	*5775.00	95.3 AV			1.53 V	297	90.3	5.0
4	#5930.70	55.2 PK	68.2	-13.0	1.53 V	297	50.9	4.3
5	11550.00	62.2 PK	74.0	-11.8	1.30 V	296	48.2	14.0
6	11550.00	49.5 AV	54.0	-4.5	1.30 V	296	35.5	14.0
7	#17325.00	55.1 PK	74.0	-18.9	3.93 V	283	36.5	18.6
8	#17325.00	43.1 AV	54.0	-10.9	3.93 V	283	24.5	18.6

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.

Below 1GHz Data:

802.11ac (VHT40)

CHANNEL	TX Channel 159	**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	109.42	31.4 QP	43.5	-12.1	1.50 H	94	42.5	-11.1
2	145.11	32.9 QP	43.5	-10.6	2.00 H	74	41.1	-8.2
3	163.57	31.4 QP	43.5	-12.1	1.50 H	86	39.3	-7.9
4	206.10	39.1 QP	43.5	-4.4	1.50 H	70	50.5	-11.4
5	477.41	35.2 QP	46.0	-10.8	1.50 H	0	38.3	-3.1
6	545.39	34.1 QP	46.0	-11.9	1.50 H	35	36.2	-2.1
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	58.69	34.2 QP	40.0	-5.8	1.50 V	340	42.5	-8.3
2	109.73	33.0 QP	43.5	-10.5	1.50 V	14	44.1	-11.1
3	204.82	32.6 QP	43.5	-10.9	1.00 V	198	44.0	-11.4
4	462.84	39.9 QP	46.0	-6.1	1.00 V	285	43.3	-3.4
5	517.89	40.3 QP	46.0	-5.7	1.00 V	284	42.6	-2.3
6	537.77	40.4 QP	46.0	-5.6	1.00 V	71	42.6	-2.2

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

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) SCHWARZBECK	NSLK-8127	8127-523	Oct. 11, 2016	Oct. 10, 2017
Line-Impedance Stabilization Network (for Peripheral) R&S	ESH3-Z5	848773/004	Oct. 26, 2016	Oct. 25, 2017
RF Cable	5D-FB	COACAB-001	May 24, 2016	May 23, 2017
10 dB PAD Mini-Circuits	HAT-10+	CONATT-001	Sep. 13, 2016	Sep. 12, 2017
50 ohms Terminator	50	3	Oct. 26, 2016	Oct. 25, 2017
50 ohms Terminator	N/A	EMC-04	Nov. 02, 2016	Nov. 01, 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. D.
3. The VCCI Con D Registration No. is C-20005.
4. Tested Date: Apr. 06, 2017

4.2.3 Test Procedure

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

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

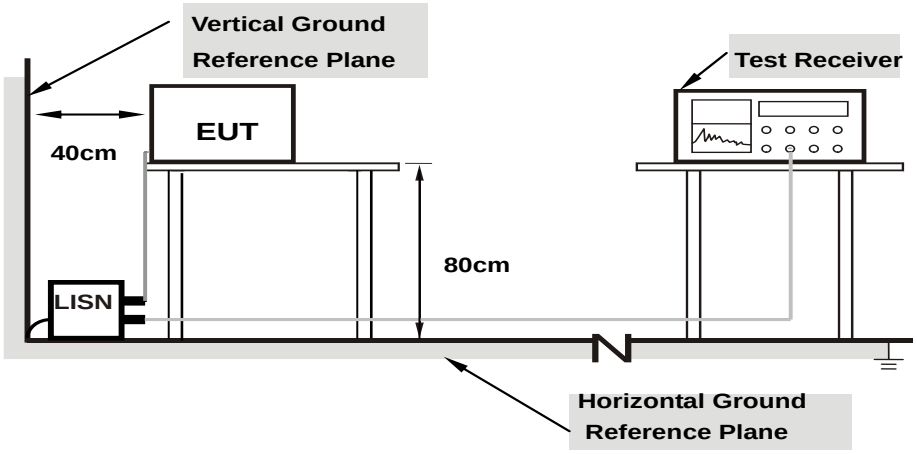
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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.

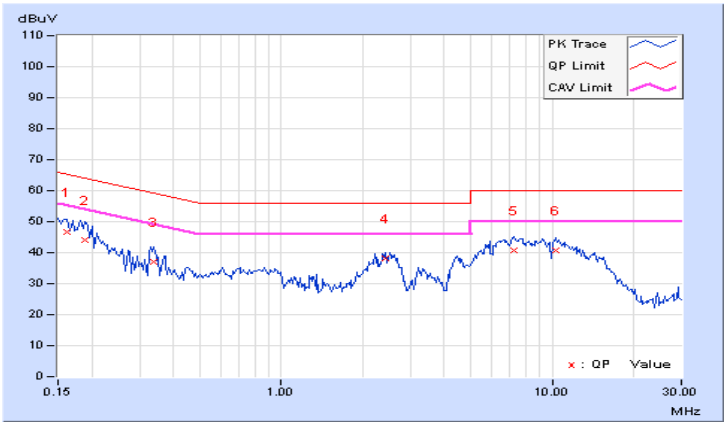
4.2.7 Test Results (Mode 1)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16172	10.39	36.37	22.45	46.76	32.84	65.38	55.38	-18.62	-22.54
2	0.18906	10.39	33.73	21.78	44.12	32.17	64.08	54.08	-19.96	-21.91
3	0.33750	10.45	26.73	14.70	37.18	25.15	59.26	49.26	-22.08	-24.11
4	2.43750	10.59	27.47	18.78	38.06	29.37	56.00	46.00	-17.94	-16.63
5	7.26172	10.86	29.89	25.31	40.75	36.17	60.00	50.00	-19.25	-13.83
6	10.32031	11.01	29.57	24.88	40.58	35.89	60.00	50.00	-19.42	-14.11

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.

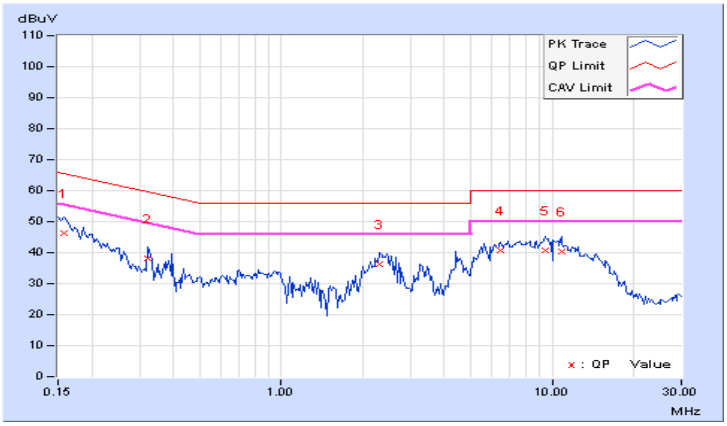


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	10.42	35.81	23.36	46.23	33.78	65.58	55.58	-19.35	-21.80
2	0.32188	10.50	27.57	19.77	38.07	30.27	59.66	49.66	-21.59	-19.39
3	2.29688	10.76	25.52	18.65	36.28	29.41	56.00	46.00	-19.72	-16.59
4	6.45703	10.90	29.68	24.43	40.58	35.33	60.00	50.00	-19.42	-14.67
5	9.43750	10.98	29.64	-6.99	40.62	3.99	60.00	50.00	-19.38	-46.01
6	10.79297	11.04	29.21	24.63	40.25	35.67	60.00	50.00	-19.75	-14.33

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.



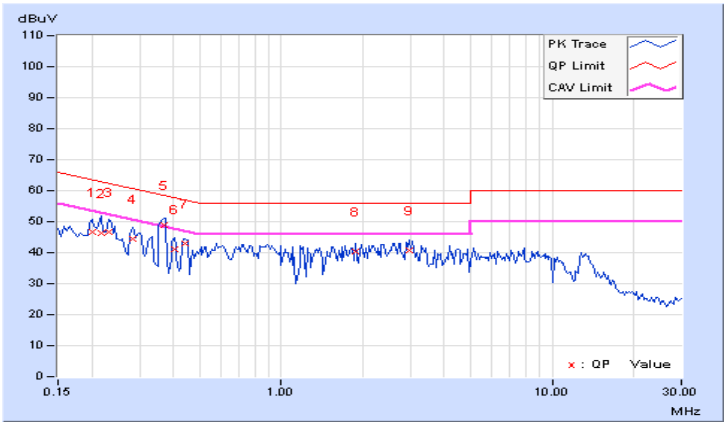
4.2.8 Test Results (Mode 2)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.20078	10.39	36.17	29.86	46.56	40.25	63.58	53.58	-17.02	-13.33
2	0.21641	10.40	35.81	28.61	46.21	39.01	62.96	52.96	-16.75	-13.95
3	0.23203	10.40	36.27	29.15	46.67	39.55	62.38	52.38	-15.71	-12.83
4	0.28281	10.42	34.03	26.88	44.45	37.30	60.73	50.73	-16.28	-13.43
5	**0.36875**	**10.46**	**38.60**	**34.54**	**49.06**	**45.00**	**58.53**	**48.53**	**-9.47**	**-3.53**
6	0.40391	10.47	30.61	25.49	41.08	35.96	57.77	47.77	-16.69	-11.81
7	0.43906	10.48	32.32	27.80	42.80	38.28	57.08	47.08	-14.28	-8.80
8	1.87109	10.57	29.62	20.30	40.19	30.87	56.00	46.00	-15.81	-15.13
9	2.98047	10.63	30.06	20.54	40.69	31.17	56.00	46.00	-15.31	-14.83

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.

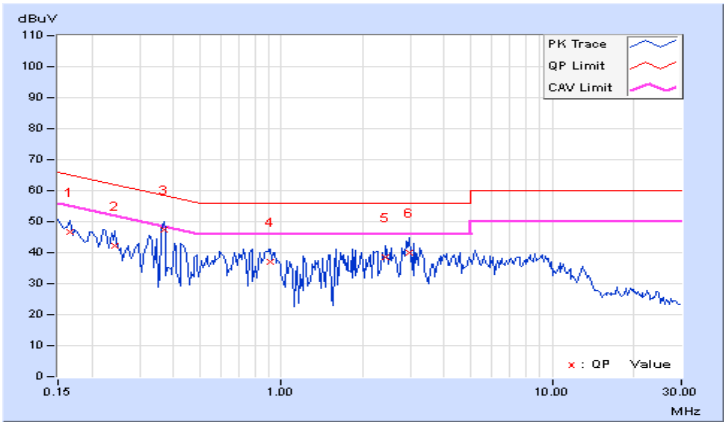


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16562	10.43	36.25	26.90	46.68	37.33	65.18	55.18	-18.50	-17.85
2	0.24375	10.46	31.71	22.98	42.17	33.44	61.97	51.97	-19.80	-18.53
3	0.36875	10.52	36.99	33.87	47.51	44.39	58.53	48.53	-11.02	-4.14
4	0.91172	10.68	26.21	18.99	36.89	29.67	56.00	46.00	-19.11	-16.33
5	2.42969	10.77	27.74	19.10	38.51	29.87	56.00	46.00	-17.49	-16.13
6	2.97266	10.79	29.25	18.98	40.04	29.77	56.00	46.00	-15.96	-16.23

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 Measurment

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 ≦ 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	18.52	20.06	19.85	19.45	357.222	25.53	30.00	Pass
40	5200	18.55	19.89	19.93	19.39	354.41	25.50	30.00	Pass
48	5240	18.39	20.09	19.88	19.67	361.076	25.58	30.00	Pass
149	5745	17.96	19.06	18.63	19.23	299.754	24.77	30.00	Pass
157	5785	17.83	19.02	18.71	19.41	302.072	24.80	30.00	Pass
165	5825	17.95	19.09	18.81	19.64	311.547	24.94	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	18.40	19.93	19.55	19.37	344.238	25.37	30.00	Pass
40	5200	18.42	20.21	19.86	19.66	363.754	25.61	30.00	Pass
48	5240	18.44	20.10	19.53	19.62	353.517	25.48	30.00	Pass
149	5745	20.15	21.23	20.56	21.36	486.789	26.87	30.00	Pass
157	5785	20.19	21.05	20.66	21.29	482.821	26.84	30.00	Pass
165	5825	20.17	20.93	20.70	21.31	480.569	26.82	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	16.13	17.41	17.17	17.31	202.047	23.05	30.00	Pass
46	5230	20.47	21.92	21.49	21.39	545.676	27.37	30.00	Pass
151	5755	20.62	21.46	21.24	21.69	535.92	27.29	30.00	Pass
159	5795	20.64	21.53	21.10	22.15	550.995	27.41	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	14.27	15.54	15.35	15.34	131.015	21.17	30.00	Pass
155	5775	19.18	20.09	19.87	20.70	399.429	26.01	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	18.40	19.93	19.55	19.17	340.345	25.32	25.85	Pass
40	5200	18.42	20.21	19.86	19.66	363.754	25.61	25.85	Pass
48	5240	18.44	20.10	19.53	19.62	353.517	25.48	25.85	Pass
149	5745	18.18	19.42	19.24	19.72	330.966	25.20	25.49	Pass
157	5785	18.23	19.45	19.38	19.68	334.225	25.24	25.49	Pass
165	5825	18.19	19.46	19.33	19.77	334.771	25.25	25.49	Pass

Note: 1. UNII-1: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2$ / 4] = 10.15dBi > 6dBi , so the power limit shall be reduced to 30-(10.15-6) = 25.85dBm.
2. UNII-3: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2$ / 4] = 10.51dBi > 6dBi, so the power limit shall be reduced to 30-(10.51-6) = 25.49dBm.

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	16.13	17.41	17.17	17.31	202.047	23.05	25.85	Pass
46	5230	18.90	20.24	19.84	19.81	375.409	25.75	25.85	Pass
151	5755	18.60	19.13	19.09	20.24	341.068	25.33	25.49	Pass
159	5795	18.62	19.69	19.14	20.11	350.489	25.45	25.49	Pass

Note: 1. UNII-1: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2$ / 4] = 10.15dBi > 6dBi , so the power limit shall be reduced to 30-(10.15-6) = 25.85dBm.
2. UNII-3: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2$ / 4] = 10.51dBi > 6dBi, so the power limit shall be reduced to 30-(10.51-6) = 25.49dBm.

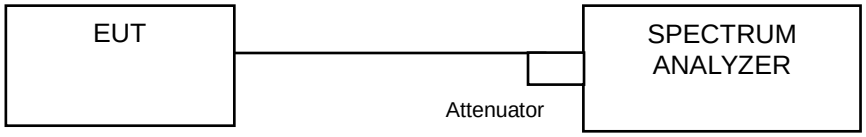
802.11ac (VHT80)

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	14.27	15.54	15.35	15.34	131.015	21.17	25.85	Pass
155	5775	18.51	19.39	18.89	19.73	329.272	25.18	25.49	Pass

Note: 1. UNII-1: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2$ / 4] = 10.15dBi > 6dBi , so the power limit shall be reduced to 30-(10.15-6) = 25.85dBm.
2. UNII-3: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2$ / 4] = 10.51dBi > 6dBi, so the power limit shall be reduced to 30-(10.51-6) = 25.49dBm.

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	17.16	17.16	17.16	17.16
40	5200	17.28	17.16	17.16	17.04
48	5240	16.92	17.04	17.04	17.04
149	5745	17.40	17.04	17.16	17.04
157	5785	17.40	17.40	17.28	17.16
165	5825	17.40	17.40	17.52	17.28

802.11ac (VHT20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)			
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3
36	5180	18.24	18.24	18.24	18.24
40	5200	18.12	18.12	18.12	18.24
48	5240	18.12	18.12	18.24	18.24
149	5745	20.40	19.32	18.84	18.96
157	5785	20.28	19.80	19.44	19.56
165	5825	20.16	21.36	18.72	20.16

802.11ac (VHT40)

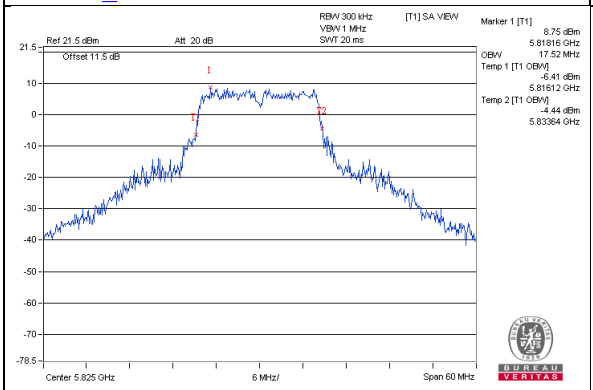
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)			
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3
38	5190	36.96	36.96	36.72	36.96
46	5230	37.44	38.16	37.68	37.92
151	5755	51.60	40.32	44.16	42.96
159	5795	49.68	49.44	46.08	50.64

802.11ac (VHT80)

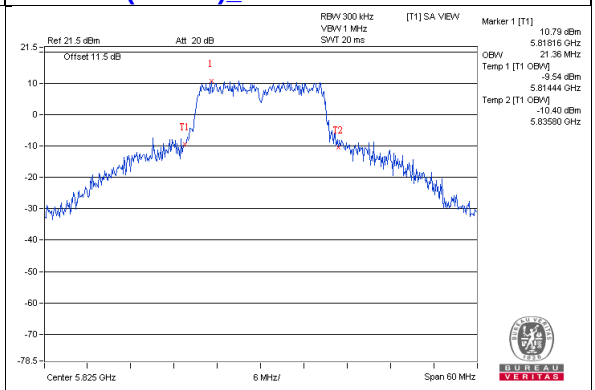
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)			
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3
42	5210	75.36	74.88	74.88	74.88
155	5775	77.28	76.32	76.32	76.80

Spectrum Plot of Worst Value

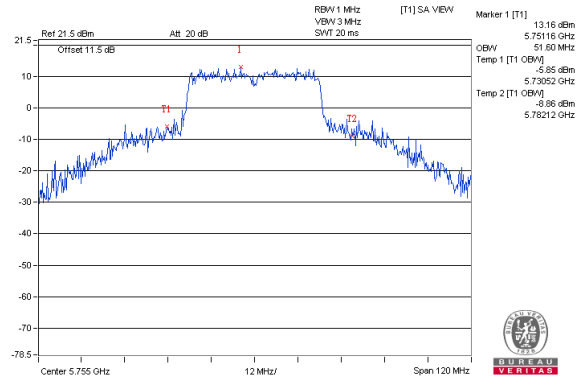
802.11a_Chain2 / CH165



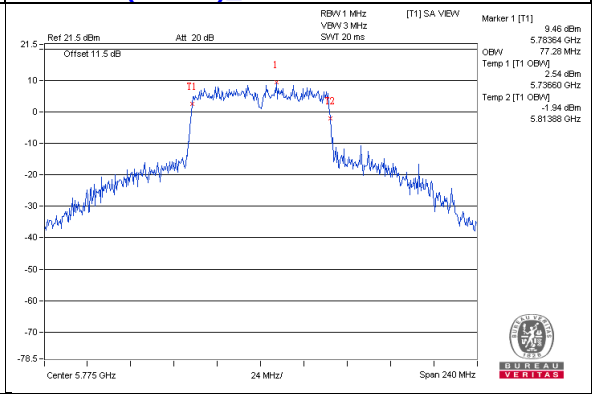
802.11ac (VHT20)_Chain1 / CH165



802.11ac (VHT40)_Chain0 / CH151

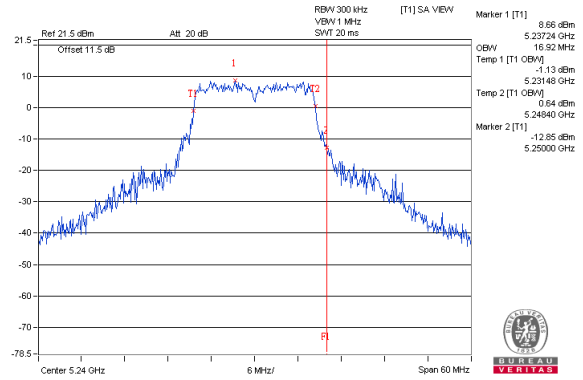


802.11ac (VHT80)_Chain0 / CH155

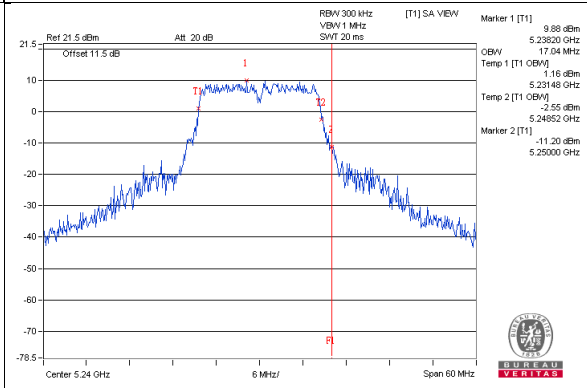


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2A band)

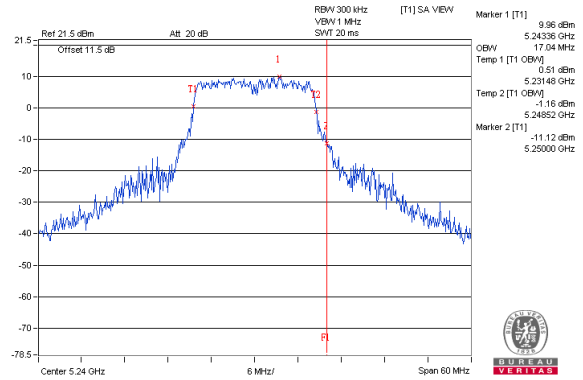
802.11a_Chain0 / CH48



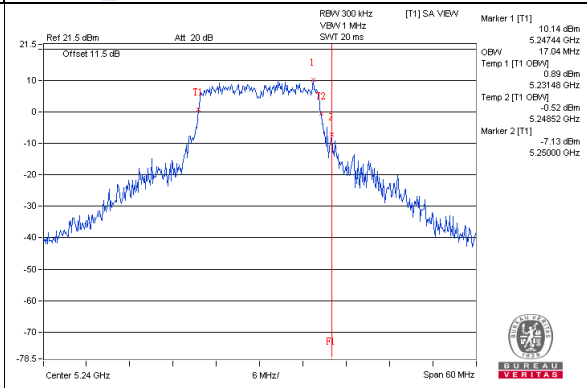
802.11a_Chain1 / CH48



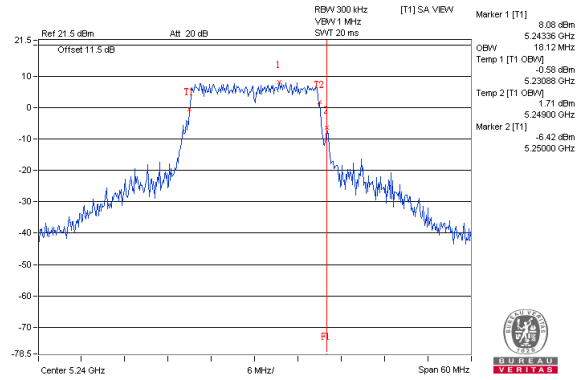
802.11a_Chain2 / CH48



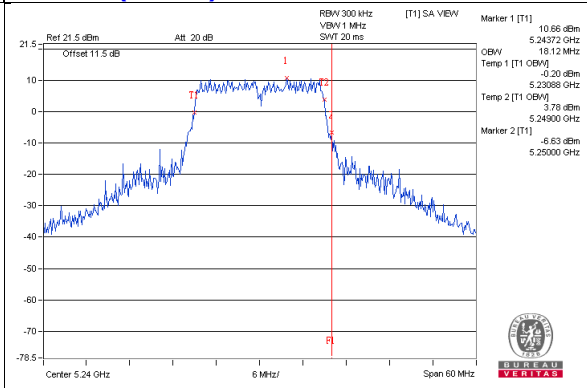
802.11a_Chain3 / CH48



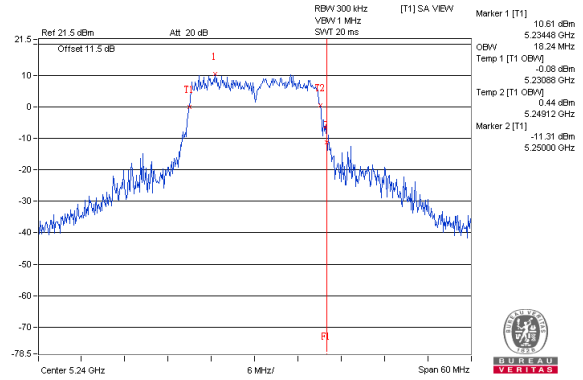
802.11ac(VHT20)_Chain0 / CH48



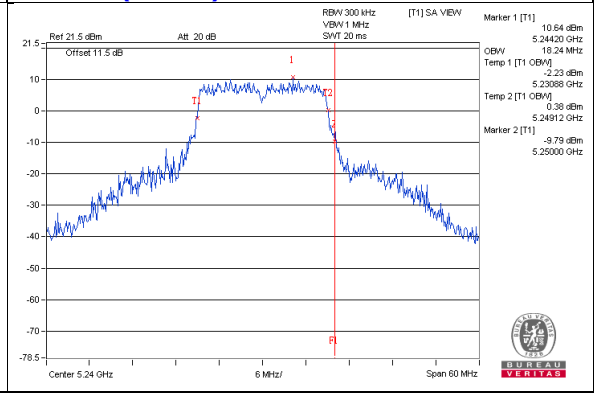
802.11ac(VHT20)_Chain1 / CH48



802.11ac(VHT20)_Chain2 / CH48

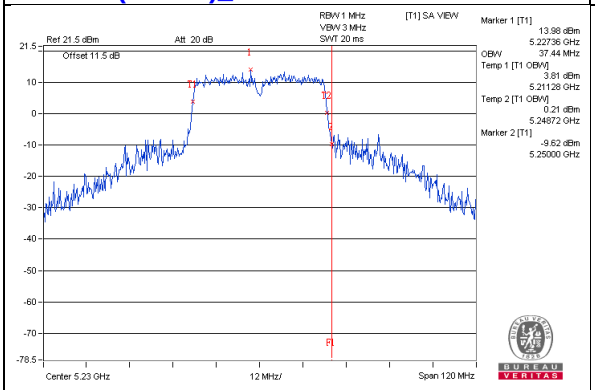


802.11ac(VHT20)_Chain3 / CH48

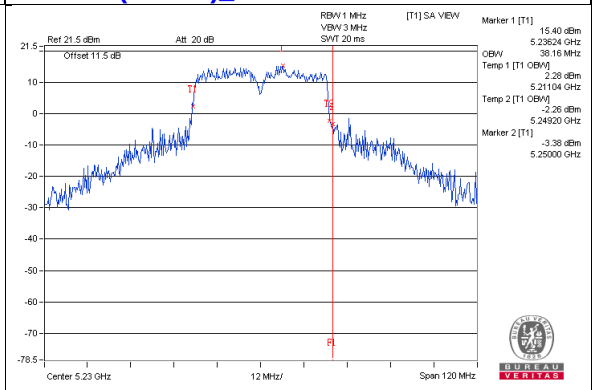


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2A band)

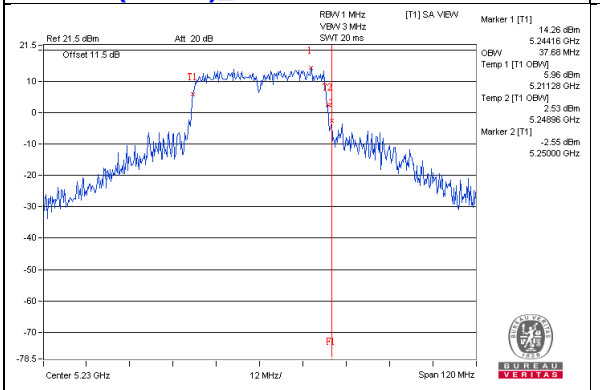
802.11ac(VHT40)_Chain0 / CH46



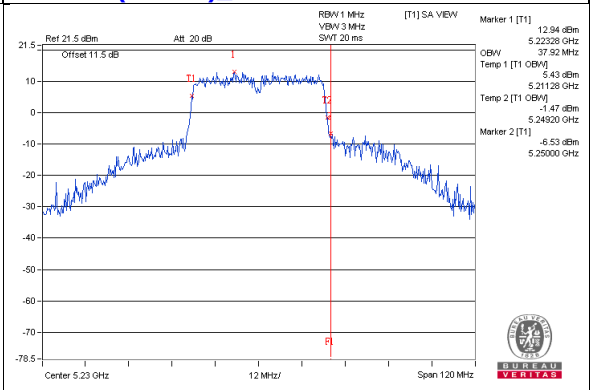
802.11ac(VHT40)_Chain1 / CH46



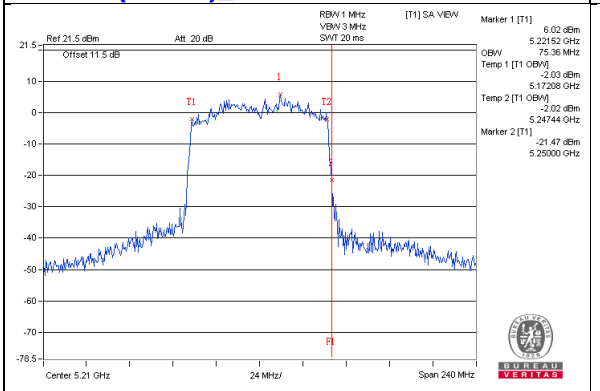
802.11ac(VHT40)_Chain2 / CH46



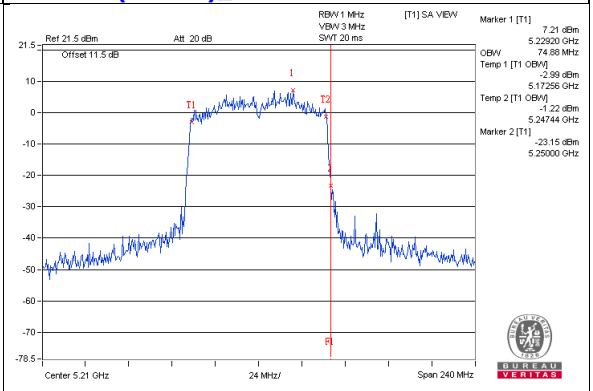
802.11ac(VHT40)_Chain3 / CH46



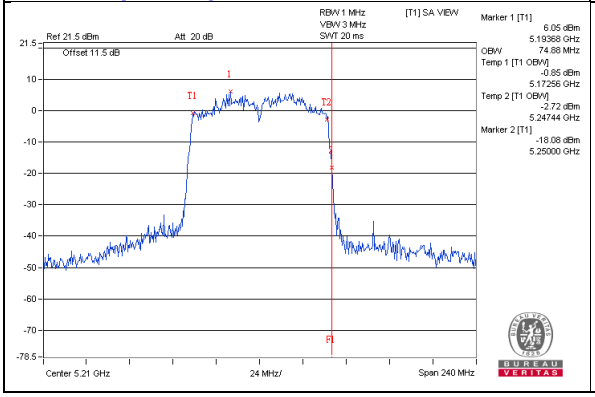
802.11ac(VHT80)_Chain0 / CH42



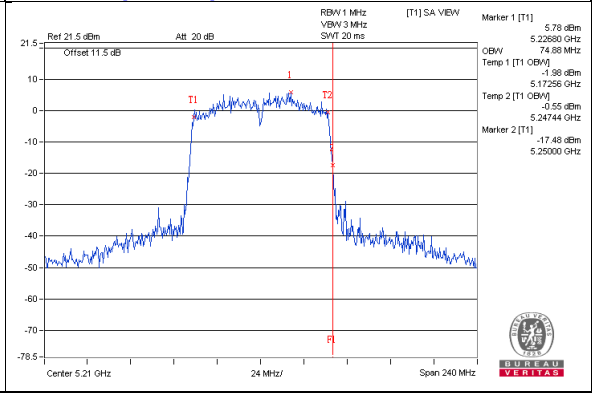
802.11ac(VHT80)_Chain1 / CH42



802.11ac(VHT80)_Chain2 / CH42

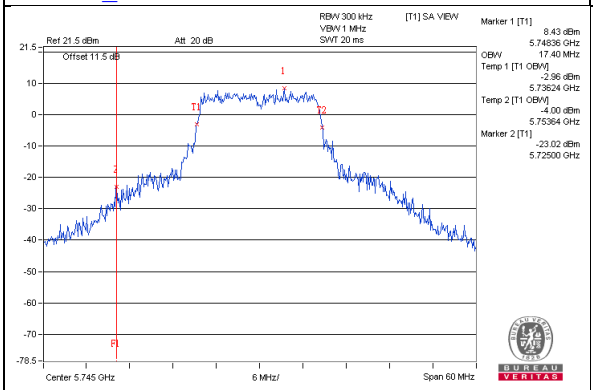


802.11ac(VHT80)_Chain3 / CH42

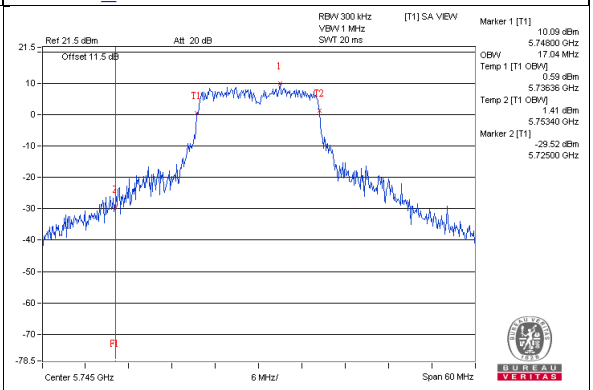


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2C band)

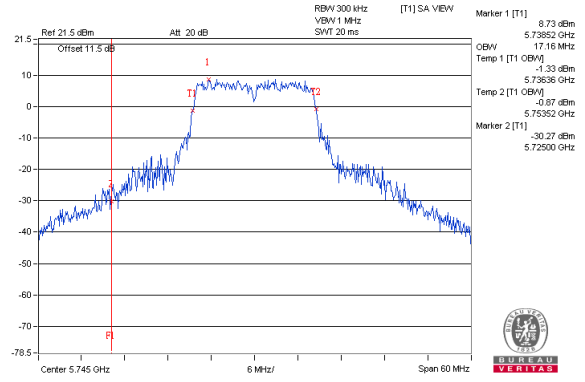
802.11a_Chain0 / CH149



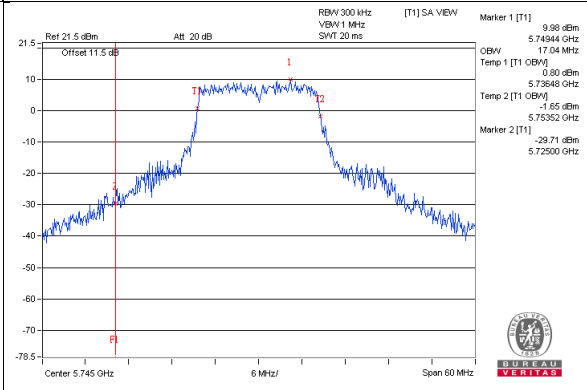
802.11a_Chain1 / CH149



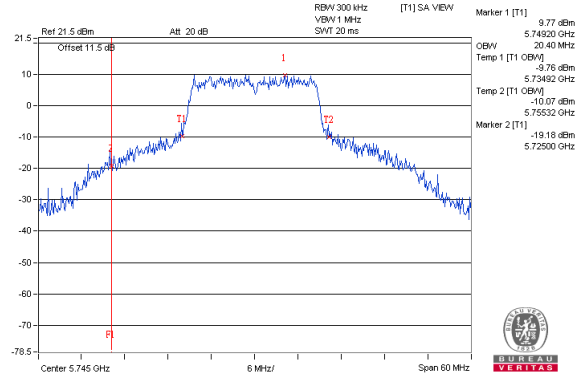
802.11a_Chain2 / CH149



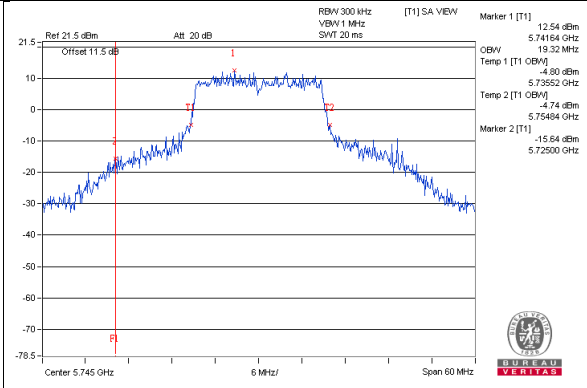
802.11a_Chain3 / CH149



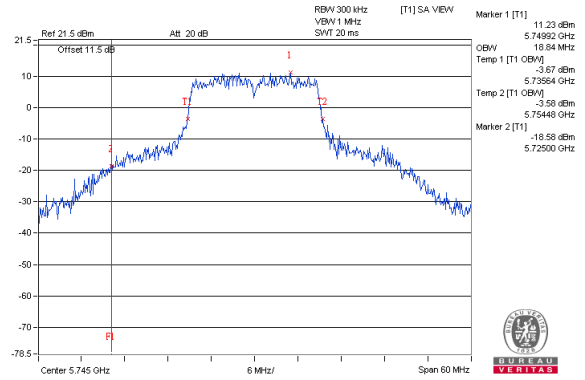
802.11ac(VHT20)_Chain0 / CH149



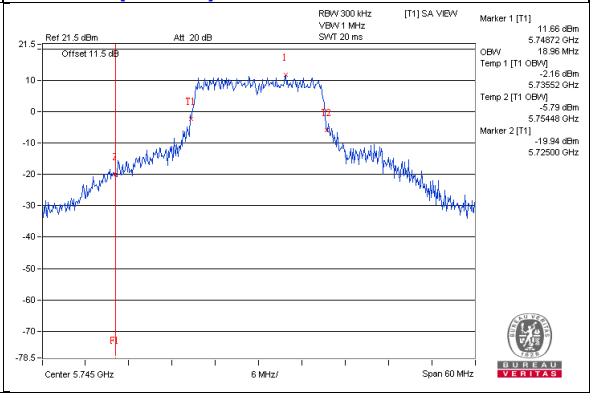
802.11ac(VHT20)_Chain1 / CH149



802.11ac(VHT20)_Chain2 / CH149

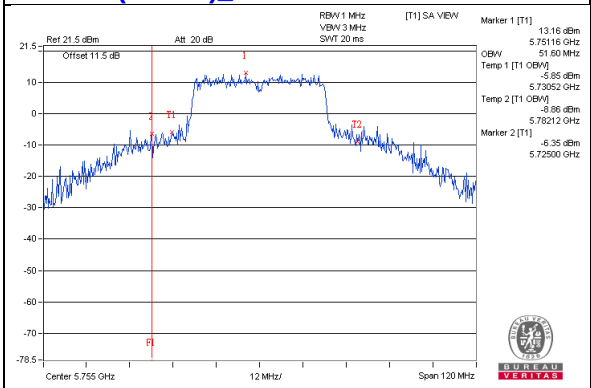


802.11ac(VHT20)_Chain3 / CH149

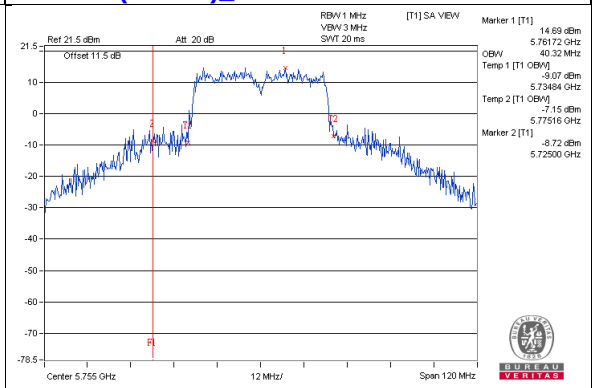


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2C band)

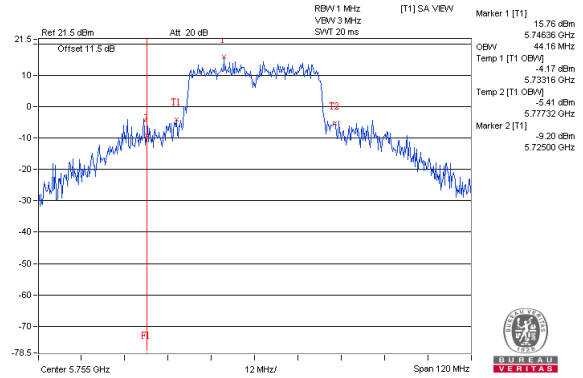
802.11ac(VHT40)_Chain0 / CH151



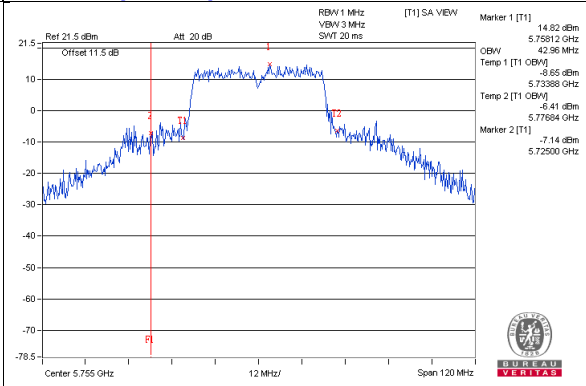
802.11ac(VHT40)_Chain1 / CH151



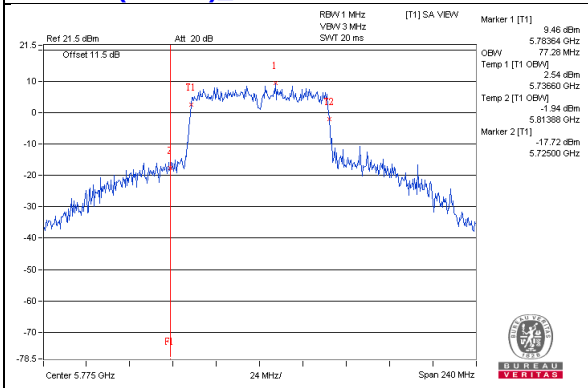
802.11ac(VHT40)_Chain2 / CH151



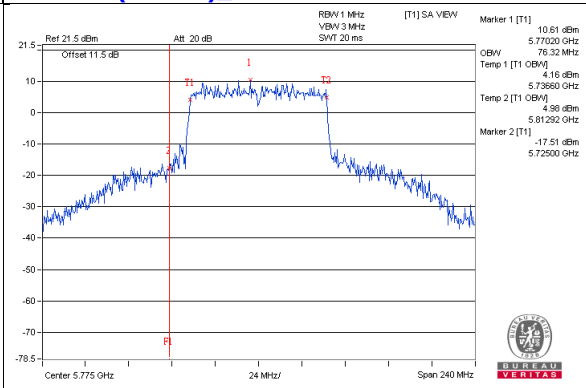
802.11ac(VHT40)_Chain3 / CH151



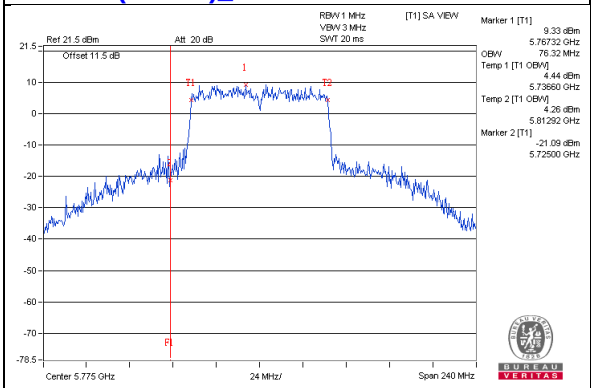
802.11ac(VHT80)_Chain0 / CH155



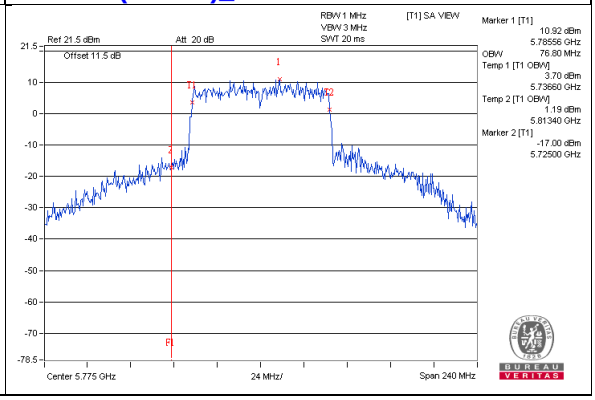
802.11ac(VHT80)_Chain1 / CH155



802.11ac(VHT80)_Chain2 / CH155



802.11ac(VHT80)_Chain3 / CH155

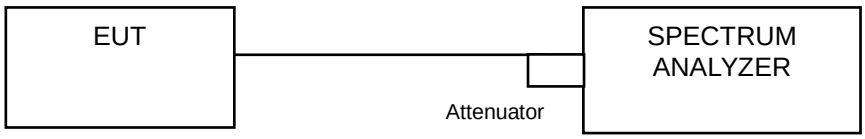


4.5 Peak Power Spectral Density Measurement

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

802.11a, 802.11ac (VHT20)

For U-NII-1:

Using method SA-1

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW ≥ 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 ≥ 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 = 10log(500 kHz/300kHz)
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

802.11ac (VHT40), 802.11ac (VHT80)

For U-NII-1:

Using method SA-2

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW ≥ 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/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 ≥ 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 = 10log(500 kHz/300kHz)
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/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

802.11a

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	4.01	5.96	5.81	5.16	11.32	12.85	Pass
40	5200	4.14	6.00	6.02	5.32	11.45	12.85	Pass
48	5240	4.28	6.00	5.87	5.45	11.47	12.85	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] = 10.15dBi > 6dBi , so the power density limit shall be reduced to 17-(10.15-6) = 12.85dBm.

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	3.86	5.76	5.30	4.73	10.99	12.85	Pass
40	5200	3.99	5.76	5.28	5.46	11.19	12.85	Pass
48	5240	4.08	5.97	5.32	5.18	11.21	12.85	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] = 10.15dBi > 6dBi , so the power density limit shall be reduced to 17-(10.15-6) = 12.85dBm.

802.11ac (VHT40)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
38	5190	-1.09	0.49	-0.34	-0.19	0.18	5.95	12.85	Pass
46	5230	3.06	4.62	4.18	4.07	0.18	10.22	12.85	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] = 10.15dBi > 6dBi , so the power density limit shall be reduced to 17-(10.15-6) = 12.85dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

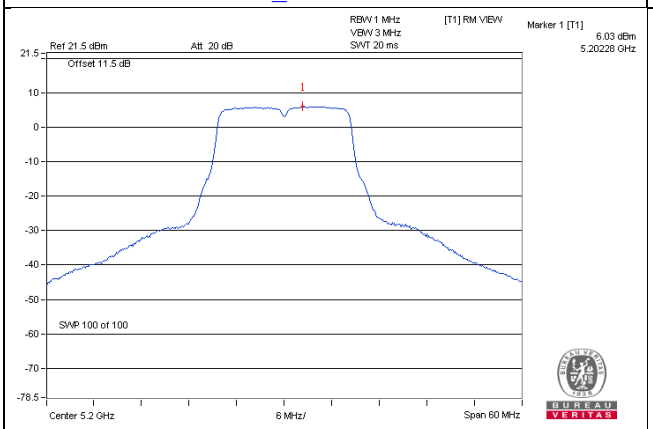
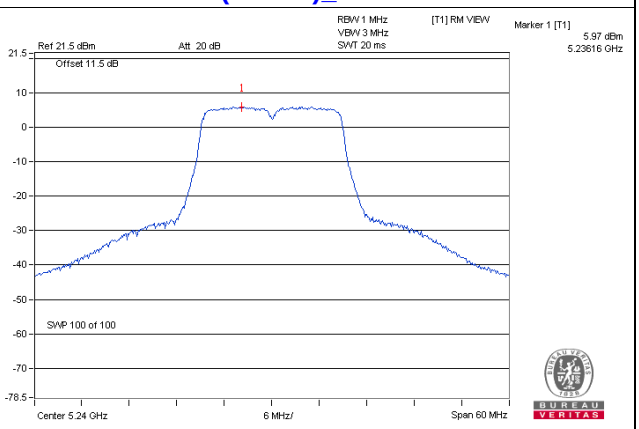
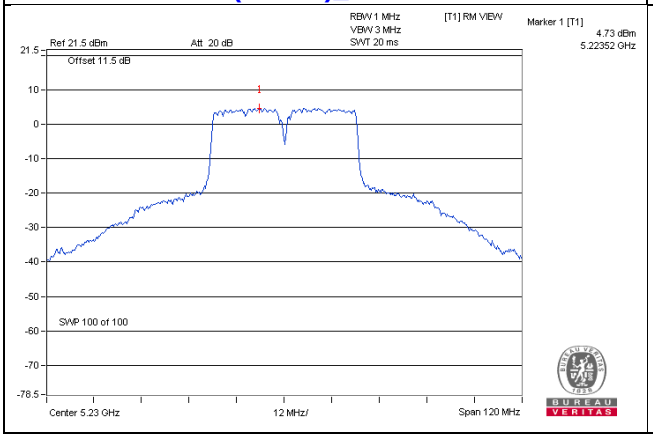
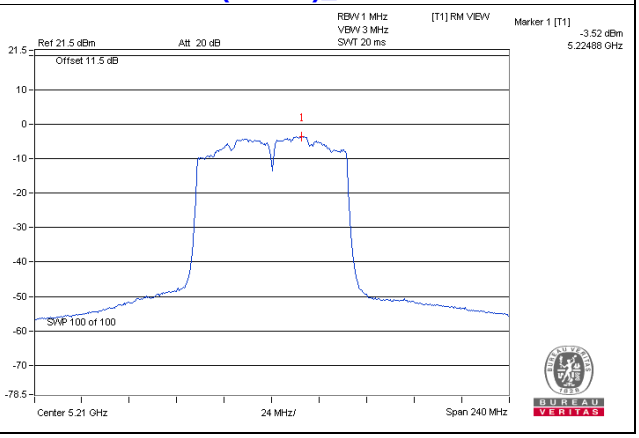
802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)				Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
42	5210	-4.57	-3.52	-3.69	-3.65	0.38	2.56	12.85	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] = 10.15dBi > 6dBi , so the power density limit shall be reduced to 17-(10.15-6) = 12.85dBm.

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

Spectrum Plot of Worst Value	
802.11a_Chain 2 / CH40	**802.11ac (VHT20)_Chain 1 / CH48**
	
802.11ac (VHT40)_Chain 1 / CH46	**802.11ac (VHT80)_Chain 1 / CH42**
	

For U-NII-3:

802.11a

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	-3.80	-1.58	6.02	4.44	25.49	Pass
	157	5785	-4.45	-2.23	6.02	3.79	25.49	Pass
	165	5825	-4.18	-1.96	6.02	4.06	25.49	Pass
1	149	5745	-2.57	-0.35	6.02	5.67	25.49	Pass
	157	5785	-2.51	-0.29	6.02	5.73	25.49	Pass
	165	5825	-2.85	-0.63	6.02	5.39	25.49	Pass
2	149	5745	-3.01	-0.79	6.02	5.23	25.49	Pass
	157	5785	-3.12	-0.90	6.02	5.12	25.49	Pass
	165	5825	-2.85	-0.63	6.02	5.39	25.49	Pass
3	149	5745	-2.30	-0.08	6.02	5.94	25.49	Pass
	157	5785	-2.33	-0.11	6.02	5.91	25.49	Pass
	165	5825	-2.47	-0.25	6.02	5.77	25.49	Pass

Note: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2$ / 4] = 10.51dBi > 6dBi, so the power density limit shall be reduced to 30-(10.51-6) = 25.49dBm.

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	-2.32	-0.10	6.02	5.92	25.49	Pass
	157	5785	-2.36	-0.14	6.02	5.88	25.49	Pass
	165	5825	-2.34	-0.12	6.02	5.90	25.49	Pass
1	149	5745	-0.37	1.85	6.02	7.87	25.49	Pass
	157	5785	-1.17	1.05	6.02	7.07	25.49	Pass
	165	5825	-1.19	1.03	6.02	7.05	25.49	Pass
2	149	5745	-1.36	0.86	6.02	6.88	25.49	Pass
	157	5785	-1.40	0.82	6.02	6.84	25.49	Pass
	165	5825	-1.39	0.83	6.02	6.85	25.49	Pass
3	149	5745	-1.03	1.19	6.02	7.21	25.49	Pass
	157	5785	-0.73	1.49	6.02	7.51	25.49	Pass
	165	5825	-0.75	1.47	6.02	7.49	25.49	Pass

Note: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2$ / 4] = 10.51dBi > 6dBi, so the power density limit shall be reduced to 30-(10.51-6) = 25.49dBm.

802.11ac (VHT40)

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	151	5755	-4.95	-2.73	6.02	0.18	3.47	25.49	Pass
	159	5795	-5.10	-2.88	6.02	0.18	3.32	25.49	Pass
1	151	5755	-3.59	-1.37	6.02	0.18	4.83	25.49	Pass
	159	5795	-3.73	-1.51	6.02	0.18	4.69	25.49	Pass
2	151	5755	-4.18	-1.96	6.02	0.18	4.24	25.49	Pass
	159	5795	-4.21	-1.99	6.02	0.18	4.21	25.49	Pass
3	151	5755	-3.67	-1.45	6.02	0.18	4.75	25.49	Pass
	159	5795	-3.44	-1.22	6.02	0.18	4.98	25.49	Pass

Note: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2$ / 4] = 10.51dBi > 6dBi, so the power density limit shall be reduced to 30-(10.51-6) = 25.49dBm.

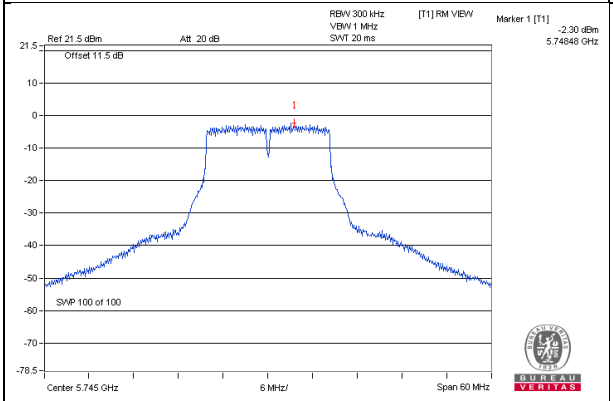
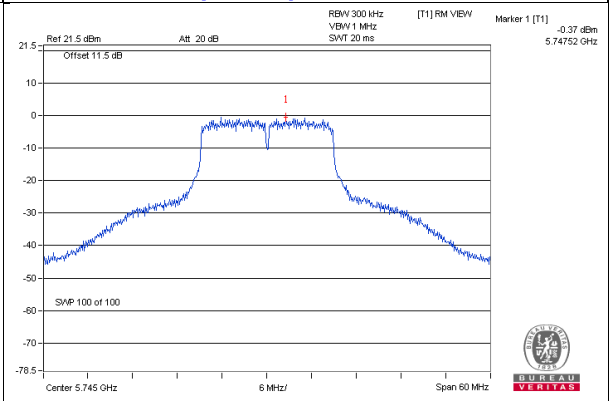
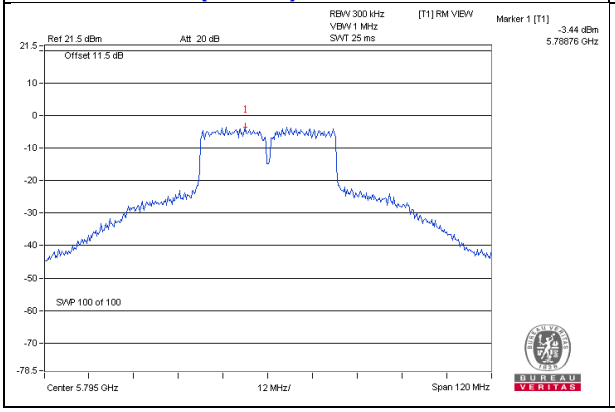
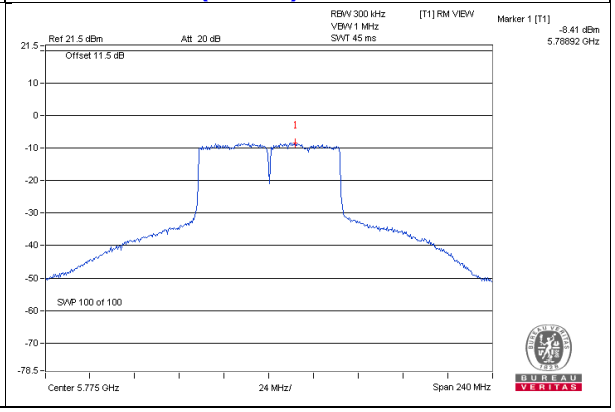
2. Refer to section 3.3 for duty cycle spectrum plot.

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	-10.09	-7.87	6.02	0.38	-1.47	25.49	Pass
1	155	5775	-8.58	-6.36	6.02	0.38	0.04	25.49	Pass
2	155	5775	-9.33	-7.11	6.02	0.38	-0.71	25.49	Pass
3	155	5775	-8.41	-6.19	6.02	0.38	0.21	25.49	Pass

Note: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + 10^{G3/20} + 10^{G4/20})^2$ / 4] = 10.51dBi > 6dBi, so the power density limit shall be reduced to 30-(10.51-6) = 25.49dBm.

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

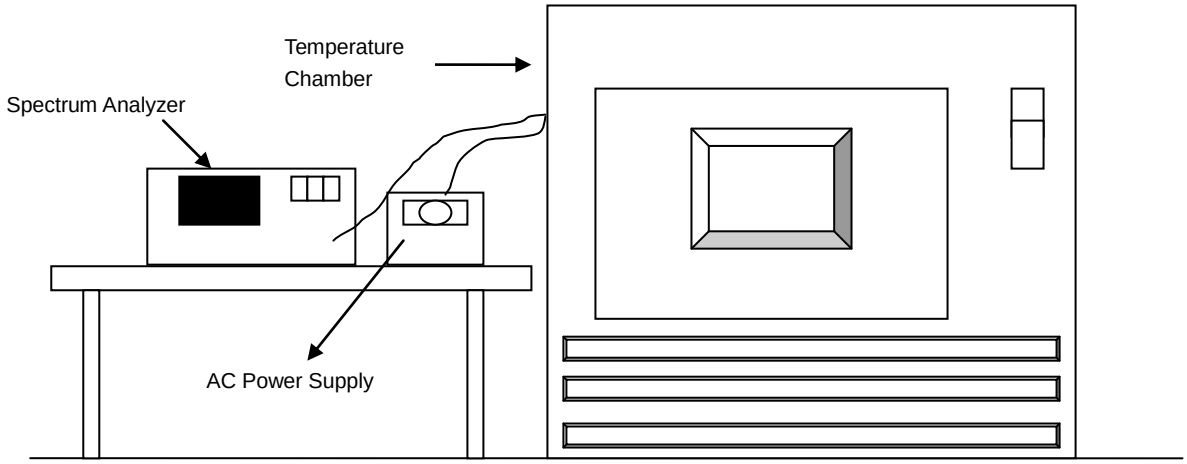
Spectrum Plot of Worst Value	
802.11a – Chain 3: CH 149	**802.11ac (VHT20) – Chain 1: CH 149**
	
802.11ac (VHT40) – Chain 3: CH 159	**802.11ac (VHT80) – Chain 3: CH 155**
	

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

a. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
b. Turn the EUT on and couple its output to a spectrum analyzer.
c. Turn the EUT off and set the chamber to the highest temperature specified.
d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 Minutes.
e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 Minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.
.

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. (℃)	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	5180.0009	PASS	5180.0009	PASS	5180.0012	PASS	5179.998	PASS
40	120	5179.9819	PASS	5179.9827	PASS	5179.9788	PASS	5179.979	PASS
30	120	5180.0233	PASS	5180.0219	PASS	5180.0208	PASS	5180.0206	PASS
20	120	5179.9768	PASS	5179.9798	PASS	5179.9778	PASS	5179.9749	PASS
10	120	5180.0032	PASS	5180.0058	PASS	5180.0062	PASS	5180.0048	PASS
0	120	5180.007	PASS	5180.0085	PASS	5180.0047	PASS	5180.0086	PASS
-10	120	5179.9817	PASS	5179.983	PASS	5179.9811	PASS	5179.982	PASS
-20	120	5180.0245	PASS	5180.0225	PASS	5180.0235	PASS	5180.0218	PASS
-30	120	5180.0218	PASS	5180.023	PASS	5180.0224	PASS	5180.019	PASS

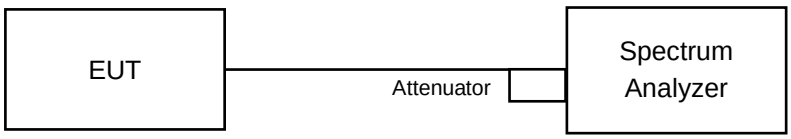
Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
TEMP. (℃)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
20	138	5179.9777	PASS	5179.9791	PASS	5179.9779	PASS	5179.9759	PASS
	120	5179.9768	PASS	5179.9798	PASS	5179.9778	PASS	5179.9749	PASS
	102	5179.9774	PASS	5179.9808	PASS	5179.9774	PASS	5179.975	PASS

4.7 6dB Bandwidth Measurment

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

a. Set resolution bandwidth (RBW) = 100kHz
b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.
c. Trace mode = max hold.
d. Sweep = auto couple.
e. 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	16.41	16.40	16.40	16.40	0.5	PASS
157	5785	16.42	16.42	16.40	16.42	0.5	PASS
165	5825	16.41	16.41	16.42	16.42	0.5	PASS

802.11ac (VHT20)

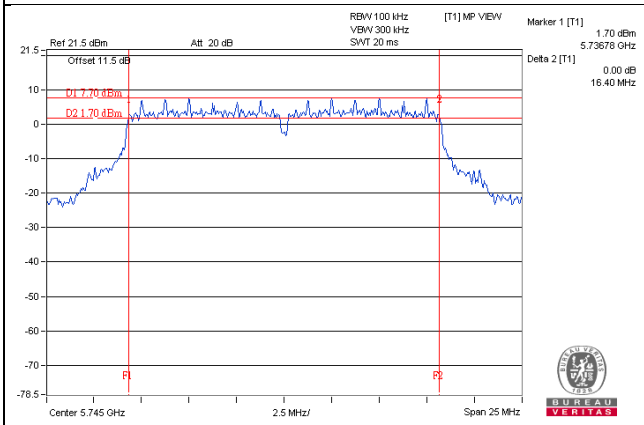
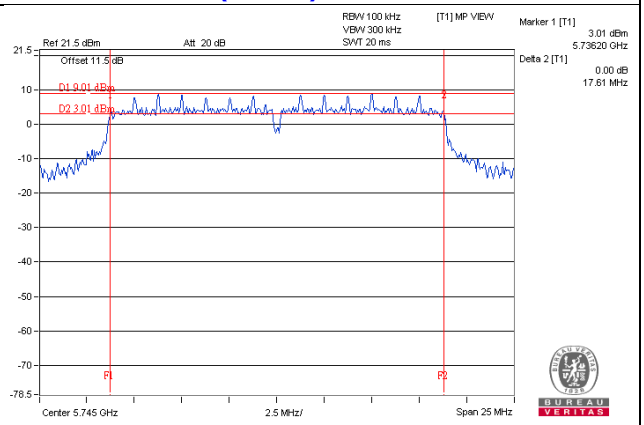
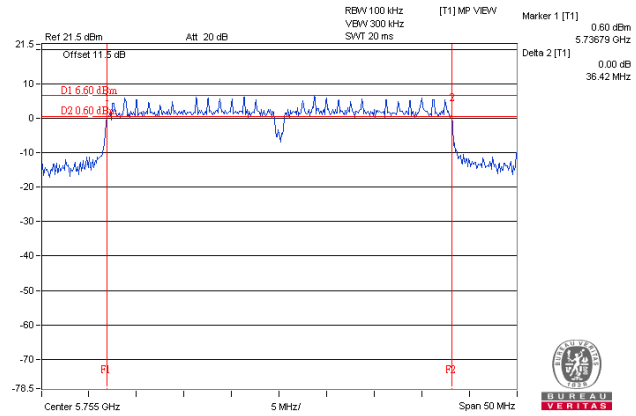
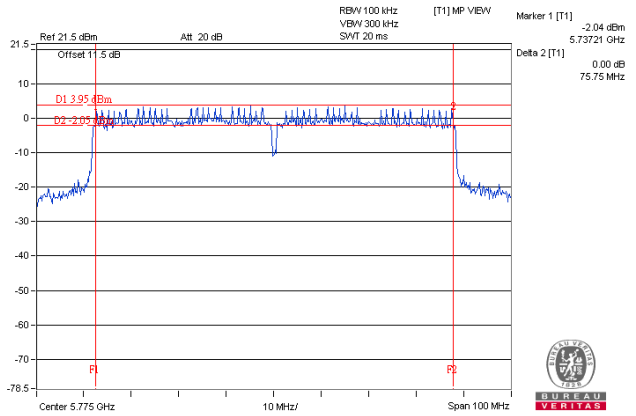
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
149	5745	17.61	17.65	17.63	17.65	0.5	PASS
157	5785	17.62	17.65	17.64	17.65	0.5	PASS
165	5825	17.62	17.64	17.63	17.63	0.5	PASS

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	36.51	36.46	36.42	0.5	PASS
159	5795	36.43	36.52	36.47	36.44	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	75.78	76.41	76.16	75.75	0.5	PASS

Spectrum Plot of Worst Value	
802.11a_Chain 1 / CH149	**802.11ac (VHT20)_Chain 0 / CH149**
	
802.11ac (VHT40)_Chain 0 / CH151	**802.11ac (VHT80)_Chain 3 / CH155**
	

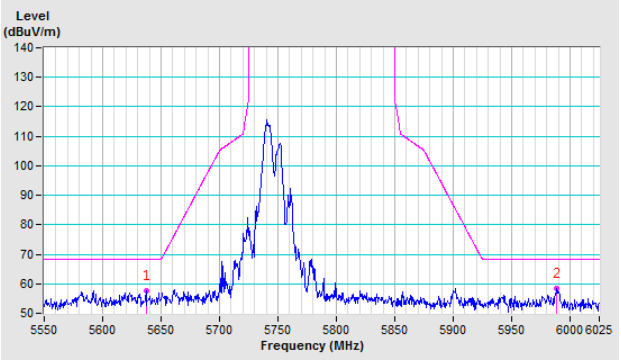
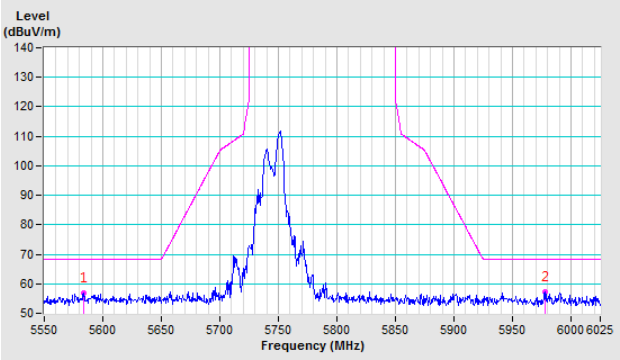
5 Pictures of Test Arrangements

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

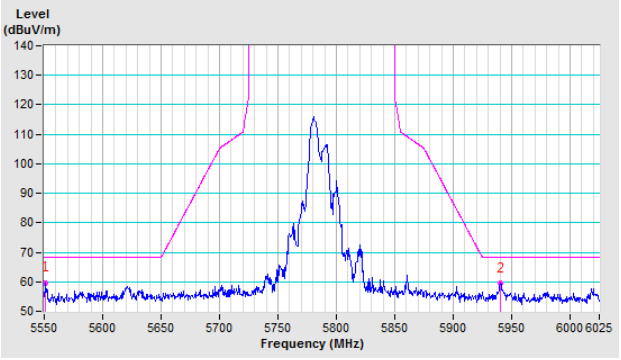
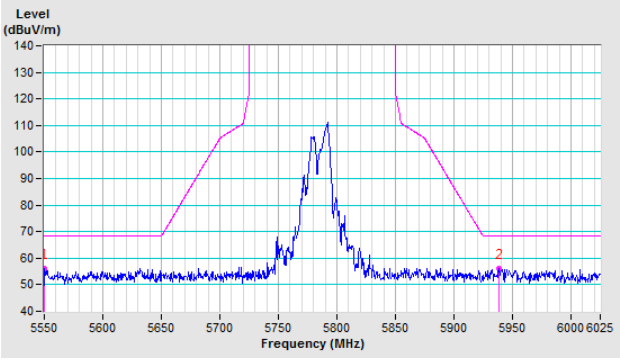
Annex A- Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band)

802.11a

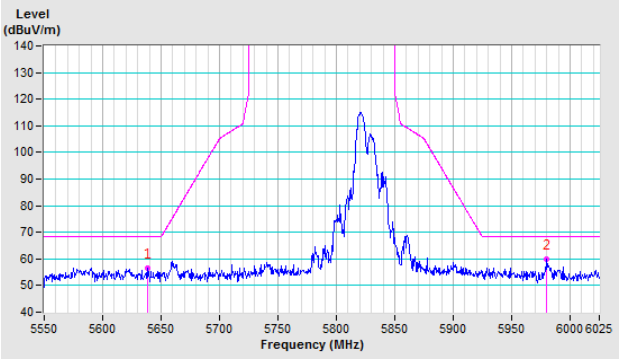
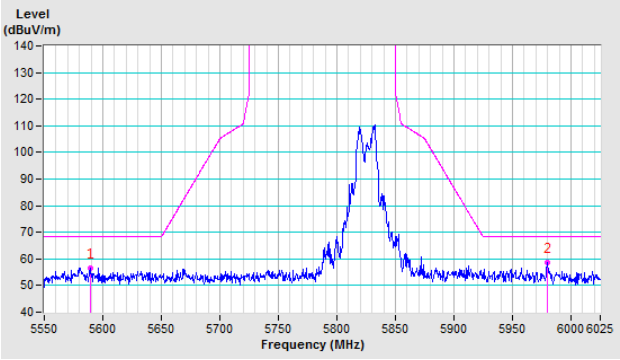
CH 149 5745 MHz

Horizontal	Vertical
	

CH 157 5785 MHz

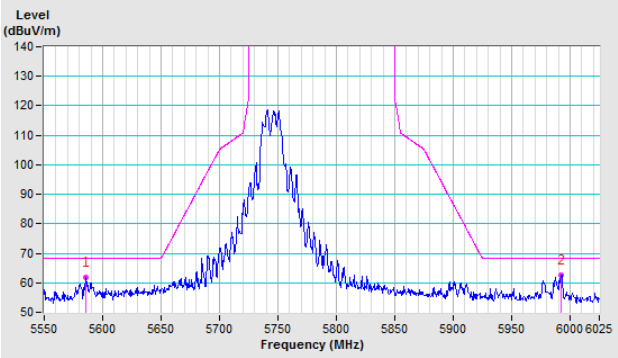
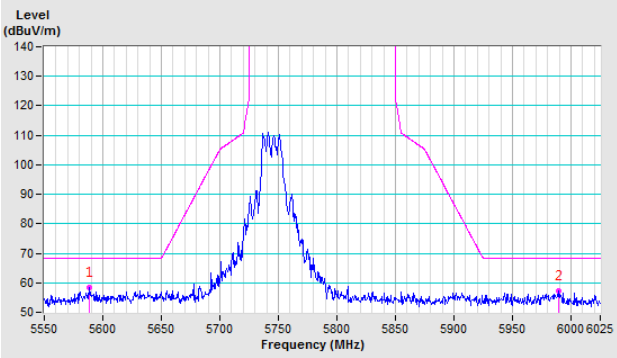
Horizontal	Vertical
	

CH 165 5825 MHz

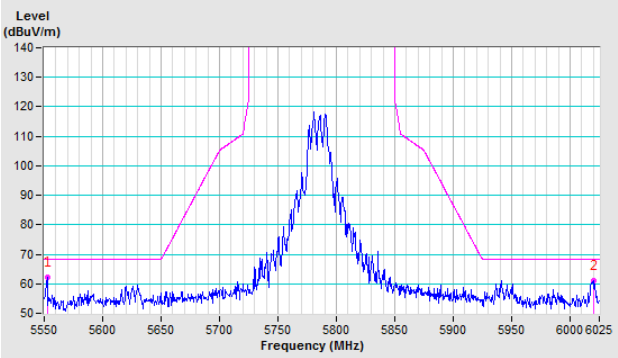
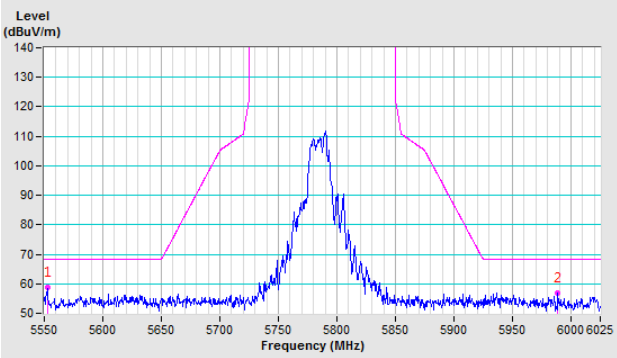
Horizontal	Vertical
	

802.11ac (VHT20)

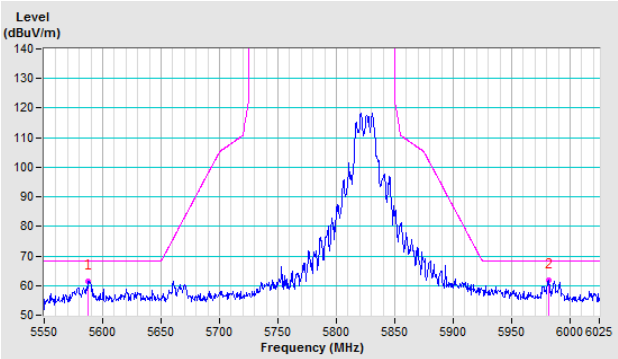
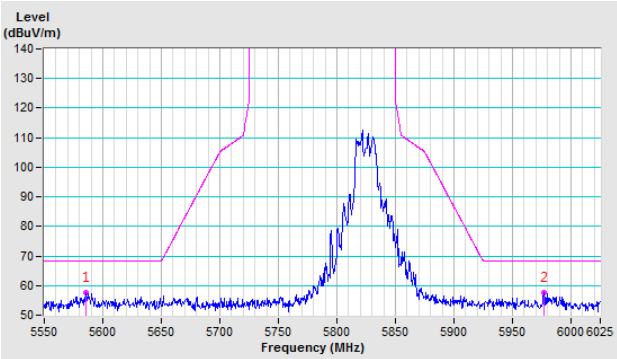
CH 149 5745 MHz

Horizontal	Vertical
	

CH 157 5785 MHz

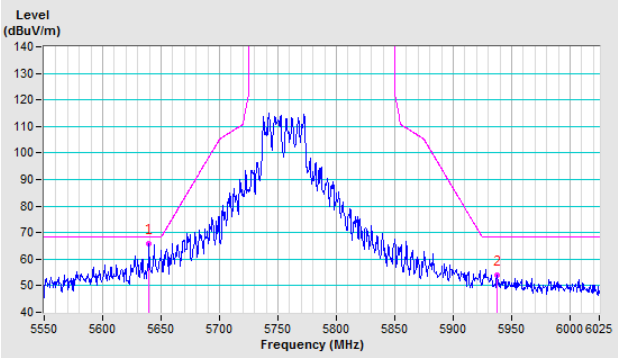
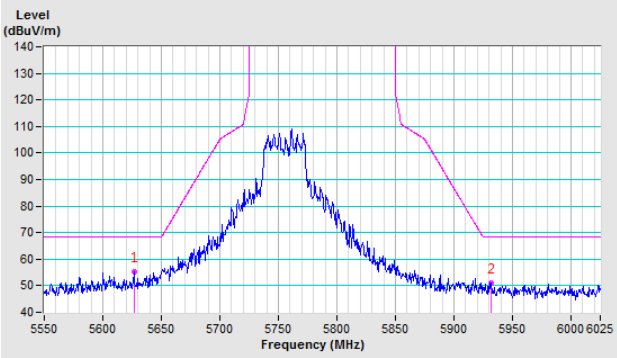
Horizontal	Vertical
	

CH 165 5825 MHz

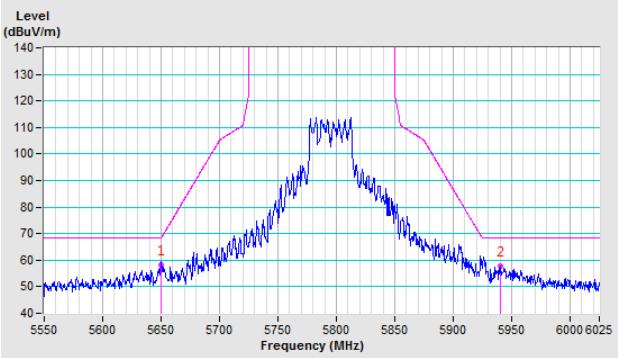
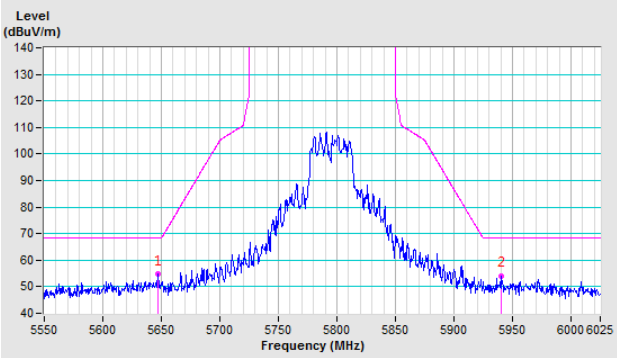
Horizontal	Vertical
	

802.11ac (VHT40)

CH 151 5755 MHz

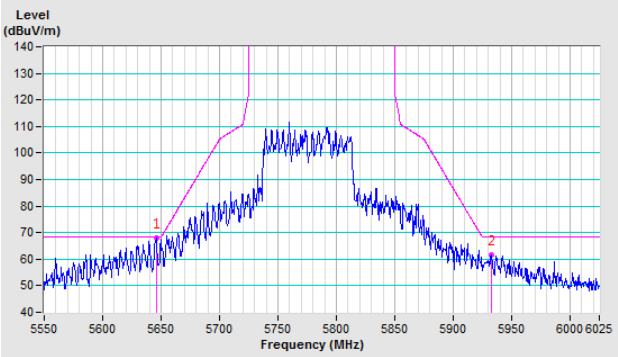
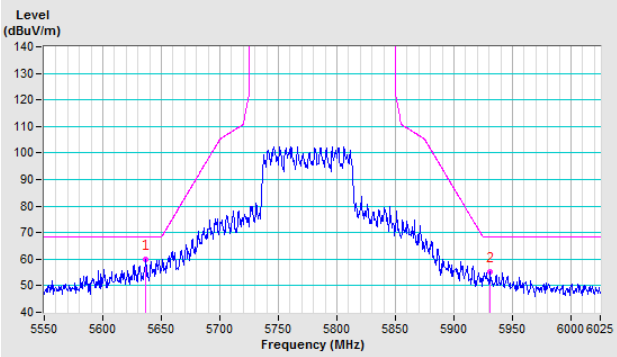
Horizontal	Vertical
	

CH 159 5795 MHz

Horizontal	Vertical
	

802.11ac (VHT80)

CH 155 5775 MHz

Horizontal	Vertical
	

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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