FCC Test Report

Report No.:	RF170925E04-1
FCC ID:	Q87-CG6350
Test Model:	CG6350
Received Date:	Sep. 25, 2017
Test Date:	Oct. 23 to Nov. 02, 2017
Issued Date:	Nov. 21, 2017
Applicant:	Linksys LLC
Address:	121 Theory Drive Irvine California 92617 United States
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:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.

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Release Control Record

Issue No.	Description	Date Issued
RF170925E04-1	Original release.	Nov. 21, 2017

1 Certificate of Conformity

Product:	D3 WiFi Gateway
Brand:	Linksys
Test Model:	CG6350
Sample Status:	ENGINEERING SAMPLE
Applicant:	Linksys LLC
Test Date:	Oct. 23 to Nov. 02, 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 : Mary Ko , **Date:** Nov. 21, 2017

Mary Ko / Specialist

Approved by : , **Date:** Nov. 21, 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 -5.62dB at 0.54844MHz.
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, 10400.00MHz, 10460.00MHz, 10480.00MHz, 11490.00MHz, 11510.00MHz, 11550.00MHz, 11590.00MHz.
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(U.FL) 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	5.32 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.14 dB
	6GHz ~ 18GHz	5.04 dB
	18GHz ~ 40GHz	5.25 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	D3 WiFi Gateway
Brand	Linksys
Test Model	CG6350
Status of EUT	ENGINEERING SAMPLE
Driver version	1.0.00.005
Power Supply Rating	12Vdc from power adapter
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode only
Modulation Technology	DSSS,OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n: up to 300Mbps 802.11ac: up to 866.7Mbps
Operating Frequency	**2.4GHz:** 2.412 ~ 2.462GHz **5GHz:** 5.18 ~ 5.24GHz, 5.745 ~ 5.825GHz
Number of Channel	**2.4GHz:** 802.11b/g, 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:** 564.108mW **5.18 ~ 5.24GHz:** 939.469mW **5.745 ~ 5.825GHz:** 156.806mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x 1
Data Cable Supplied	NA

Note:

1. 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.		

2. The EUT has two SKU, which are identical to each other in all aspects except for the following:

SKU	Brand (2.4GHz PA)	Model (2.4GHz PA)	Difference
SKU 1	RichWave	RTC7649	Main source
SKU 2	rfmd	RFFM8209	Second Source
From the above models, **SKU 1** was selected as representative model for the test and its data was recorded in this report.			

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

Ant Set.	Brand	Model	Antenna Net Gain (dBi)	Frequency rang (GHz)	Antenna type	Connector type	*Cable Length
1	Airgain	N5X20B5-T-PK1-G1XST85BU	2.8	5.15~5.35	PCB	I-PEX(U.FL)	85
			4.1	5.47~5.725			
			5.0	5.725~5.85			
		N5X20SD-T-PK1-G1XST85BU	3.48	5.15~5.35	PCB	I-PEX(U.FL)	85
			3.48	5.47~5.725			
			3.48	5.725~5.85			
2	Airgain	N2420GS-T-PK1-B1XST210BU	1.6	2.4~2.49	PCB	I-PEX(U.FL)	210
		N2420GS-T-PK1-B1XST245BU	1.6	2.4~2.49	PCB	I-PEX(U.FL)	245

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

No.	Brand	Model No.	Spec.
1	LINKSYS	ADS0306-W120250	Input: 100-240V, 1.0A, 50/60Hz Output: 12V, 2.5A DC output cable (Unshielded, 1.5 m)
2	LINKSYS	MU30AY120250-A1	Input: 100-240V, 0.8A, 50/60Hz Output: 12V, 2.5A DC output cable (Unshielded, 1.5 m)
Note: From the above adapters, the worse emission was found in Adapter 2. Therefore only the test data of the mode was recorded in this report.			

5. The EUT incorporates a MIMO function.

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

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.

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.

Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11a	5180-5240 5745-5825	36 to 48 149 to 165	40	OFDM	BPSK	6

Power Line Conducted Emission Test:

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

Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
802.11a	5180-5240 5745-5825	36 to 48 149 to 165	40	OFDM	BPSK	6

Antenna Port Conducted Measurement:

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

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

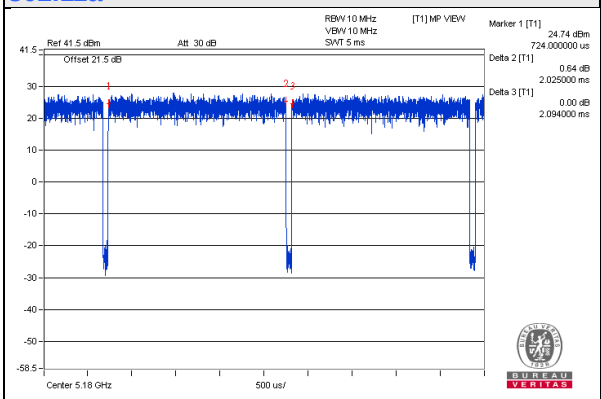
Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested By
RE≥1G	23deg. C, 67%RH	120Vac, 60Hz	Eason Tseng
RE<1G	23deg. C, 68%RH	120Vac, 60Hz	Rey Chen
PLC	24deg. C, 76%RH	120Vac, 60Hz	Andy Ho
APCM	25deg. C, 60%RH	120Vac, 60Hz	Robert Cheng

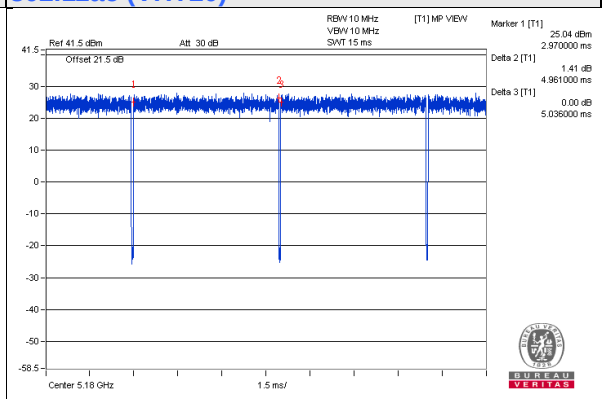
3.3 Duty Cycle of Test Signal

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 = 2.025/2.094 = 0.967, Duty factor = 10 * log(1/0.967) = 0.15
802.11ac (VHT20): Duty cycle = 4.961/5.036 = 0.985
802.11ac (VHT40): Duty cycle = 2.411/2.484 = 0.971, Duty factor = 10 * log(1/0.971) = 0.13
802.11ac (VHT80): Duty cycle = 1.136/1.198 = 0.948, Duty factor = 10 * log(1/0.948) = 0.23

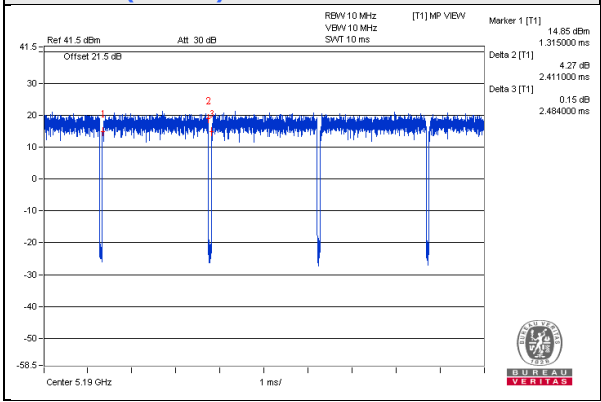
802.11a



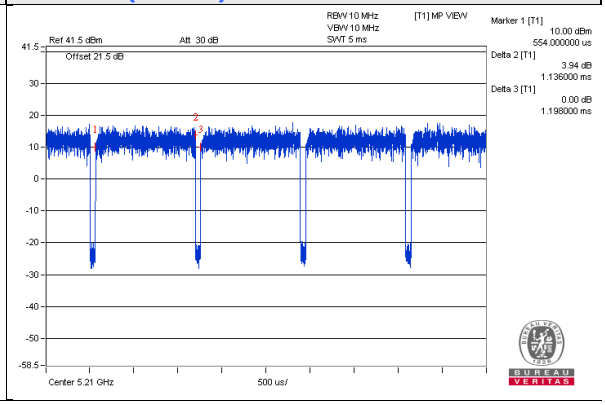
802.11ac (VHT20)



802.11ac (VHT40)



802.11ac (VHT80)



3.4 Description of Support Units

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

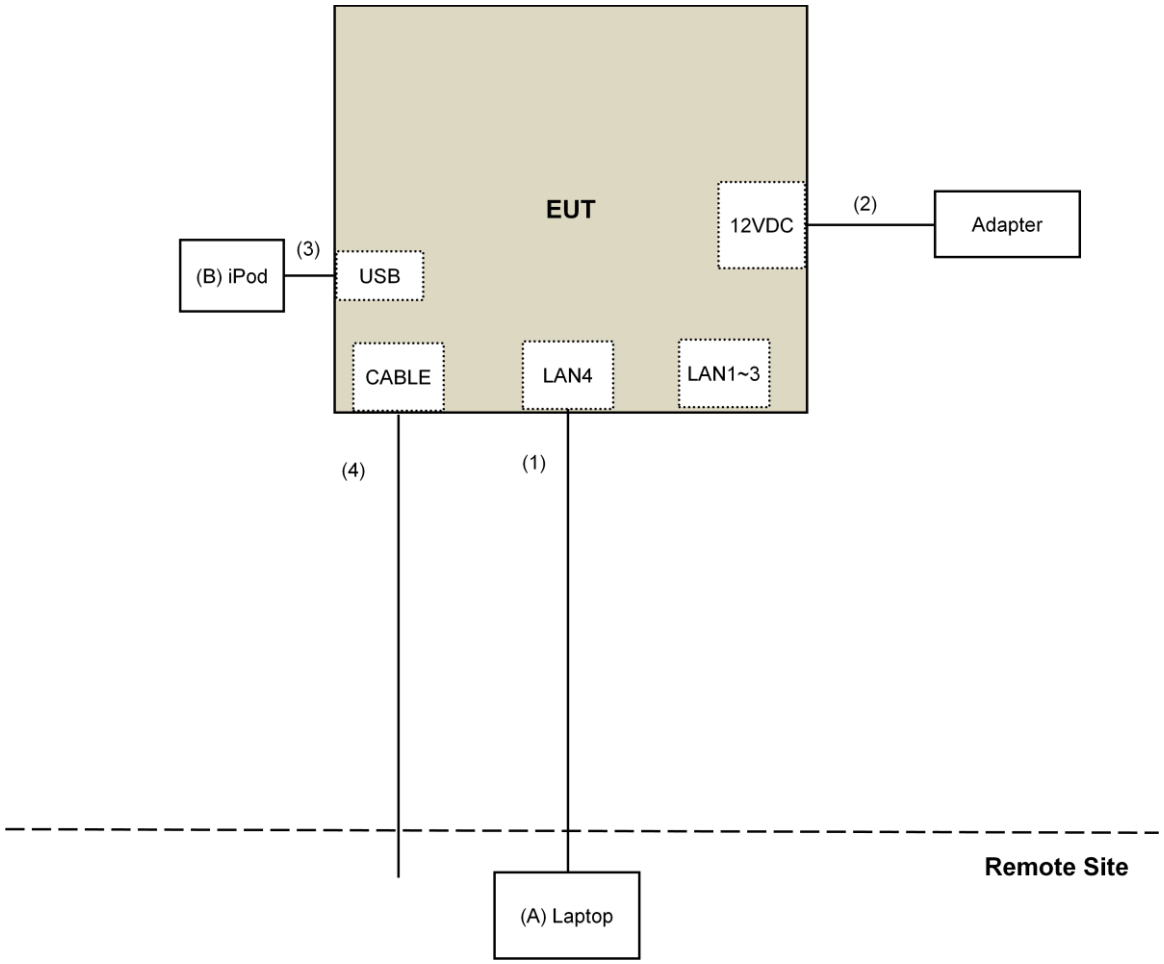
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	DELL	E6420	482T3R1	FCC DoC	Provided by Lab
B.	iPod	Apple	MD778TA/A	CC4JMFL0F4T1	NA	Provided by Lab

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.	RJ-45 Cable	1	10	No	0	Provided by Lab
2.	DC Cable	1	1.5	No	0	Supplied by client
3.	USB Cable	1	0.1	Yes	0	Provided by Lab
4.	Coaxial Cable	1	10	No	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 v01r04
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 v01r04</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 Agilent	N9038A	MY50010156	July 12, 2017	July 11, 2018
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-05	May 06, 2017	May 05, 2018
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Dec. 29, 2016	Dec. 28, 2017
RF Cable	8D	966-3-1 966-3-2 966-3-3	Apr. 01, 2017	Mar. 31, 2018
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	Oct. 03, 2017	Oct. 02, 2018
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Dec. 28, 2016	Dec. 27, 2017
Pre-Amplifier EMCI	EMC12630SE	980384	Feb. 02, 2017	Feb. 01, 2018
RF Cable	EMC104-SM-SM-1200 EMC104-SM-SM-2000 EMC104-SM-SM-5000	160922 150317 150322	Feb. 02, 2017 Mar. 29, 2017 Mar. 29, 2017	Feb. 01, 2018 Mar. 28, 2018 Mar. 28, 2018
Spectrum Analyzer Keysight	N9030A	MY54490679	July 25, 2017	July 24, 2018
Pre-Amplifier EMCI	EMC184045SE	980386	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	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Spectrum Analyzer R&S	FSV40	100964	July 1, 2017	June 30, 2018
Power meter Anritsu	ML2495A	1014008	May 11, 2017	May 10, 2018
Power sensor Anritsu	MA2411B	0917122	May 11, 2017	May 10, 2018
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. 3.
4. The FCC Designation Number is TW2022.
5 Loop antenna was used for all emissions below 30 MHz.
6. The CANADA Site Registration No. is 20331-1
7. Tested Date: Nov. 01 to 02, 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 detects 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:

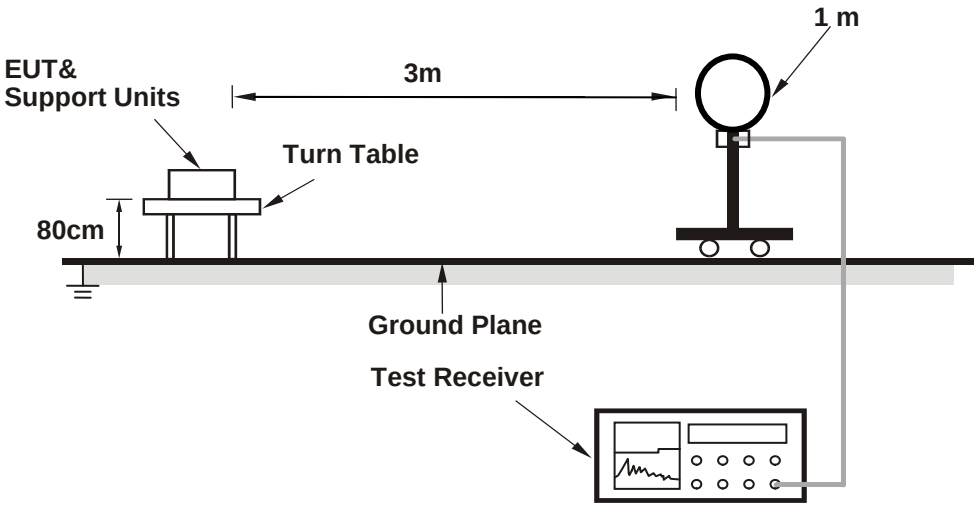
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

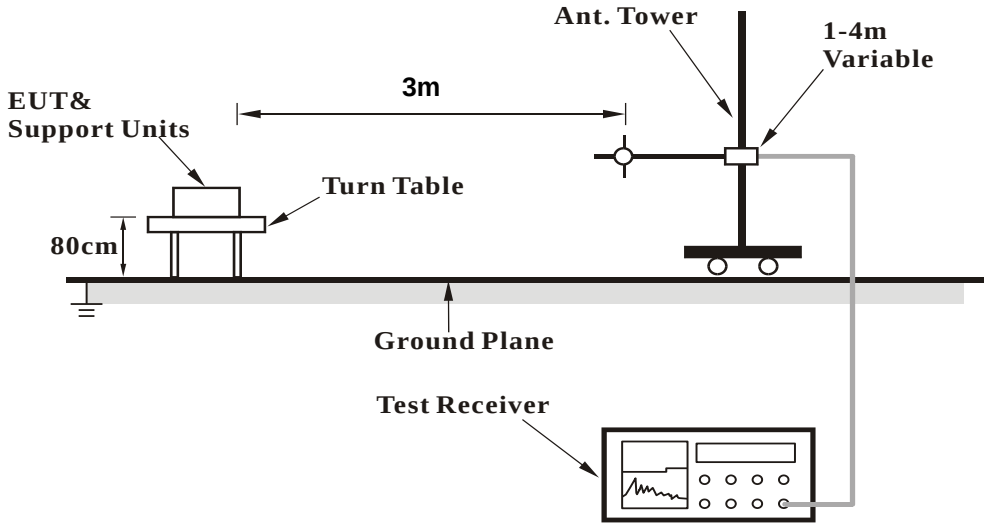
No deviation.

4.1.5 Test Setup

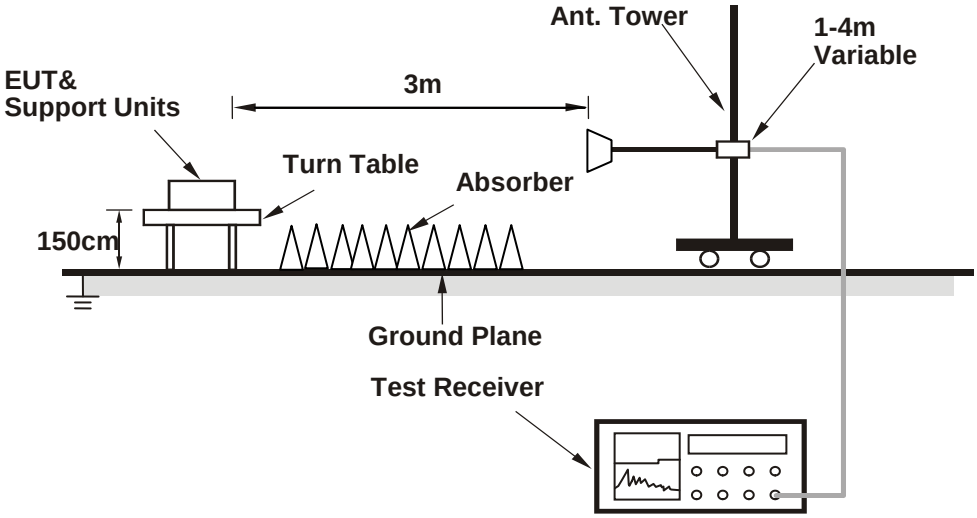
For Radiated emission below 30MHz



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. Controlling software (QCARCT 3.0.210.0) 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	65.8 PK	74.0	-8.2	1.50 H	261	62.1	3.7
2	5150.00	53.8 AV	54.0	-0.2	1.50 H	261	50.1	3.7
3	*5180.00	120.6 PK			1.50 H	261	116.9	3.7
4	*5180.00	109.7 AV			1.50 H	261	106.0	3.7
5	#10360.00	57.2 PK	74.0	-16.8	1.82 H	15	44.2	13.0
6	#10360.00	44.1 AV	54.0	-9.9	1.82 H	15	31.1	13.0
7	15540.00	61.6 PK	74.0	-12.4	2.28 H	137	48.5	13.1
8	15540.00	47.4 AV	54.0	-6.6	2.28 H	137	34.3	13.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	61.9 PK	74.0	-12.1	1.64 V	245	58.2	3.7
2	5150.00	51.7 AV	54.0	-2.3	1.64 V	245	48.0	3.7
3	*5180.00	116.1 PK			1.64 V	245	112.4	3.7
4	*5180.00	105.4 AV			1.64 V	245	101.7	3.7
5	#10360.00	55.6 PK	74.0	-18.4	1.69 V	26	42.6	13.0
6	#10360.00	43.3 AV	54.0	-10.7	1.69 V	26	30.3	13.0
7	15540.00	59.8 PK	74.0	-14.2	2.59 V	134	46.7	13.1
8	15540.00	48.5 AV	54.0	-5.5	2.59 V	134	35.4	13.1

REMARKS:

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

CHANNEL	TX Channel 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	5150.00	62.9 PK	74.0	-11.1	1.64 H	258	59.2	3.7
2	5150.00	51.1 AV	54.0	-2.9	1.64 H	258	47.4	3.7
3	*5200.00	122.4 PK			1.64 H	258	118.7	3.7
4	*5200.00	112.9 AV			1.64 H	258	109.2	3.7
5	5350.00	55.1 PK	74.0	-18.9	1.64 H	258	51.0	4.1
6	5350.00	43.6 AV	54.0	-10.4	1.64 H	258	39.5	4.1
7	#10400.00	58.3 PK	74.0	-15.7	1.74 H	38	45.3	13.0
8	#10400.00	45.4 AV	54.0	-8.6	1.74 H	38	32.4	13.0
9	15600.00	62.4 PK	74.0	-11.6	2.29 H	129	49.1	13.3
10	15600.00	48.3 AV	54.0	-5.7	2.29 H	129	35.0	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	59.8 PK	74.0	-14.2	1.67 V	238	56.1	3.7
2	5150.00	49.0 AV	54.0	-5.0	1.67 V	238	45.3	3.7
3	*5200.00	117.9 PK			1.67 V	238	114.2	3.7
4	*5200.00	108.6 AV			1.67 V	238	104.9	3.7
5	5350.00	52.5 PK	74.0	-21.5	1.67 V	238	48.4	4.1
6	5350.00	41.0 AV	54.0	-13.0	1.67 V	238	36.9	4.1
7	#10400.00	61.6 PK	74.0	-12.4	1.75 V	26	48.6	13.0
8	#10400.00	47.6 AV	54.0	-6.4	1.75 V	26	34.6	13.0
9	15600.00	65.8 PK	74.0	-8.2	2.60 V	133	52.5	13.3
10	15600.00	53.8 AV	54.0	-0.2	2.60 V	133	40.5	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 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	120.4 PK			1.45 H	257	116.6	3.8
2	*5240.00	110.6 AV			1.45 H	257	106.8	3.8
3	5350.00	57.5 PK	74.0	-16.5	1.45 H	257	53.4	4.1
4	5350.00	45.2 AV	54.0	-8.8	1.45 H	257	41.1	4.1
5	#10480.00	58.3 PK	74.0	-15.7	1.80 H	27	45.1	13.2
6	#10480.00	45.4 AV	54.0	-8.6	1.80 H	27	32.2	13.2
7	15720.00	62.7 PK	74.0	-11.3	2.24 H	128	49.1	13.6
8	15720.00	48.6 AV	54.0	-5.4	2.24 H	128	35.0	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	*5240.00	115.9 PK			1.67 V	234	112.1	3.8
2	*5240.00	106.3 AV			1.67 V	234	102.5	3.8
3	5350.00	54.9 PK	74.0	-19.1	1.67 V	234	50.8	4.1
4	5350.00	42.6 AV	54.0	-11.4	1.67 V	234	38.5	4.1
5	#10480.00	60.1 PK	74.0	-13.9	1.58 V	139	46.9	13.2
6	#10480.00	47.0 AV	54.0	-7.0	1.58 V	139	33.8	13.2
7	15720.00	61.8 PK	74.0	-12.2	1.57 V	71	48.2	13.6
8	15720.00	50.6 AV	54.0	-3.4	1.57 V	71	37.0	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 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	*5745.00	114.3 PK			1.53 H	258	109.9	4.4
2	*5745.00	104.0 AV			1.53 H	258	99.6	4.4
3	11490.00	65.9 PK	74.0	-8.1	1.46 H	131	52.4	13.5
4	11490.00	52.3 AV	54.0	-1.7	1.46 H	131	38.8	13.5
5	#17235.00	50.2 PK	74.0	-23.8	2.29 H	141	32.9	17.3
6	#17235.00	39.2 AV	54.0	-14.8	2.29 H	141	21.9	17.3
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	*5745.00	112.7 PK			1.72 V	349	108.3	4.4
2	*5745.00	102.1 AV			1.72 V	349	97.7	4.4
3	11490.00	66.9 PK	74.0	-7.1	1.71 V	108	53.4	13.5
4	**11490.00**	**53.9 AV**	**54.0**	**-0.1**	**1.71 V**	**108**	**40.4**	**13.5**
5	#17235.00	51.3 PK	74.0	-22.7	1.61 V	26	34.0	17.3
6	#17235.00	40.5 AV	54.0	-13.5	1.61 V	26	23.2	17.3

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	*5785.00	112.7 PK			1.40 H	256	108.3	4.4
2	*5785.00	103.3 AV			1.40 H	256	98.9	4.4
3	11570.00	63.0 PK	74.0	-11.0	1.40 H	179	49.5	13.5
4	11570.00	51.0 AV	54.0	-3.0	1.40 H	179	37.5	13.5
5	#17355.00	52.8 PK	74.0	-21.2	1.83 H	119	34.8	18.0
6	#17355.00	40.3 AV	54.0	-13.7	1.83 H	119	22.3	18.0
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	*5785.00	111.8 PK			1.72 V	352	107.4	4.4
2	*5785.00	100.2 AV			1.72 V	352	95.8	4.4
3	11570.00	67.4 PK	74.0	-6.6	1.73 V	116	53.9	13.5
4	11570.00	53.8 AV	54.0	-0.2	1.73 V	116	40.3	13.5
5	#17355.00	49.4 PK	74.0	-24.6	1.64 V	37	31.4	18.0
6	#17355.00	38.1 AV	54.0	-15.9	1.64 V	37	20.1	18.0

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 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	*5825.00	110.3 PK			1.45 H	257	105.9	4.4
2	*5825.00	102.4 AV			1.45 H	257	98.0	4.4
3	11650.00	63.4 PK	74.0	-10.6	1.41 H	160	49.7	13.7
4	11650.00	51.2 AV	54.0	-2.8	1.41 H	160	37.5	13.7
5	#17475.00	52.5 PK	74.0	-21.5	1.84 H	133	33.9	18.6
6	#17475.00	40.3 AV	54.0	-13.7	1.84 H	133	21.7	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	*5825.00	111.1 PK			1.69 V	355	106.7	4.4
2	*5825.00	99.8 AV			1.69 V	355	95.4	4.4
3	11650.00	66.6 PK	74.0	-7.4	1.68 V	123	52.9	13.7
4	11650.00	53.8 AV	54.0	-0.2	1.68 V	123	40.1	13.7
5	#17475.00	48.5 PK	74.0	-25.5	1.71 V	42	29.9	18.6
6	#17475.00	37.4 AV	54.0	-16.6	1.71 V	42	18.8	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.

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	63.9 PK	74.0	-10.1	1.39 H	257	60.2	3.7
2	5150.00	53.8 AV	54.0	-0.2	1.39 H	257	50.1	3.7
3	*5180.00	117.3 PK			1.39 H	257	113.6	3.7
4	*5180.00	107.1 AV			1.39 H	257	103.4	3.7
5	#10360.00	62.9 PK	74.0	-11.1	1.50 H	180	49.9	13.0
6	#10360.00	50.8 AV	54.0	-3.2	1.50 H	180	37.8	13.0
7	15540.00	53.0 PK	74.0	-21.0	1.87 H	127	39.9	13.1
8	15540.00	40.7 AV	54.0	-13.3	1.87 H	127	27.6	13.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	60.8 PK	74.0	-13.2	3.96 V	342	57.1	3.7
2	5150.00	51.7 AV	54.0	-2.3	3.96 V	342	48.0	3.7
3	*5180.00	115.3 PK			3.96 V	342	111.6	3.7
4	*5180.00	104.6 AV			3.96 V	342	100.9	3.7
5	#10360.00	64.9 PK	74.0	-9.1	1.84 V	143	51.9	13.0
6	#10360.00	53.6 AV	54.0	-0.4	1.84 V	143	40.6	13.0
7	15540.00	57.3 PK	74.0	-16.7	1.69 V	143	44.2	13.1
8	15540.00	46.2 AV	54.0	-7.8	1.69 V	143	33.1	13.1

REMARKS:

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

CHANNEL	TX Channel 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	62.2 PK	74.0	-11.8	1.67 H	258	58.5	3.7
2	5150.00	50.4 AV	54.0	-3.6	1.67 H	258	46.7	3.7
3	*5200.00	122.2 PK			1.66 H	258	118.5	3.7
4	*5200.00	111.6 AV			1.66 H	258	107.9	3.7
5	5350.00	57.3 PK	74.0	-16.7	1.67 H	258	53.2	4.1
6	5350.00	46.3 AV	54.0	-7.7	1.67 H	258	42.2	4.1
7	#10400.00	63.4 PK	74.0	-10.6	1.47 H	190	50.4	13.0
8	#10400.00	50.9 AV	54.0	-3.1	1.47 H	190	37.9	13.0
9	15600.00	53.0 PK	74.0	-21.0	1.80 H	132	39.7	13.3
10	15600.00	40.5 AV	54.0	-13.5	1.80 H	132	27.2	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	59.1 PK	74.0	-14.9	3.96 V	343	55.4	3.7
2	5150.00	48.3 AV	54.0	-5.7	3.96 V	343	44.6	3.7
3	*5200.00	122.4 PK			3.96 V	343	118.7	3.7
4	*5200.00	109.1 AV			3.96 V	343	105.4	3.7
5	5350.00	54.7 PK	74.0	-19.3	3.96 V	343	50.6	4.1
6	5350.00	43.7 AV	54.0	-10.3	3.96 V	343	39.6	4.1
7	#10400.00	65.7 PK	74.0	-8.3	1.95 V	126	52.7	13.0
8	**#10400.00**	**53.9 AV**	**54.0**	**-0.1**	**1.95 V**	**126**	**40.9**	**13.0**
9	15600.00	63.2 PK	74.0	-10.8	2.47 V	100	49.9	13.3
10	15600.00	50.4 AV	54.0	-3.6	2.47 V	100	37.1	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 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	120.6 PK			1.67 H	254	116.8	3.8
2	*5240.00	110.2 AV			1.67 H	254	106.4	3.8
3	5350.00	57.3 PK	74.0	-16.7	1.67 H	254	53.2	4.1
4	5350.00	46.7 AV	54.0	-7.3	1.67 H	254	42.6	4.1
5	#10480.00	63.1 PK	74.0	-10.9	1.53 H	180	49.9	13.2
6	#10480.00	50.5 AV	54.0	-3.5	1.53 H	180	37.3	13.2
7	15720.00	53.1 PK	74.0	-20.9	1.77 H	132	39.5	13.6
8	15720.00	40.3 AV	54.0	-13.7	1.77 H	132	26.7	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	*5240.00	118.6 PK			3.94 V	344	114.8	3.8
2	*5240.00	107.7 AV			3.94 V	344	103.9	3.8
3	5350.00	54.7 PK	74.0	-19.3	3.94 V	344	50.6	4.1
4	5350.00	44.1 AV	54.0	-9.9	3.94 V	344	40.0	4.1
5	#10480.00	67.2 PK	74.0	-6.8	1.49 V	146	54.0	13.2
6	**#10480.00**	**53.9 AV**	**54.0**	**-0.1**	**1.49 V**	**146**	**40.7**	**13.2**
7	15720.00	62.3 PK	74.0	-11.7	2.52 V	58	48.7	13.6
8	15720.00	48.2 AV	54.0	-5.8	2.52 V	58	34.6	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 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	*5745.00	114.4 PK			1.53 H	259	110.0	4.4
2	*5745.00	105.5 AV			1.53 H	259	101.1	4.4
3	11490.00	63.4 PK	74.0	-10.6	1.44 H	175	49.9	13.5
4	11490.00	51.1 AV	54.0	-2.9	1.44 H	175	37.6	13.5
5	#17235.00	52.9 PK	74.0	-21.1	1.83 H	133	35.6	17.3
6	#17235.00	40.6 AV	54.0	-13.4	1.83 H	133	23.3	17.3
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	*5745.00	112.6 PK			1.77 V	3	108.2	4.4
2	*5745.00	102.4 AV			1.77 V	3	98.0	4.4
3	11490.00	68.5 PK	74.0	-5.5	1.60 V	109	55.0	13.5
4	**11490.00**	**53.9 AV**	**54.0**	**-0.1**	**1.60 V**	**109**	**40.4**	**13.5**
5	#17235.00	58.4 PK	74.0	-15.6	1.45 V	71	41.1	17.3
6	#17235.00	43.4 AV	54.0	-10.6	1.45 V	71	26.1	17.3

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	*5785.00	113.6 PK			1.49 H	253	109.2	4.4
2	*5785.00	103.8 AV			1.49 H	253	99.4	4.4
3	11570.00	63.2 PK	74.0	-10.8	1.49 H	189	49.7	13.5
4	11570.00	50.7 AV	54.0	-3.3	1.49 H	189	37.2	13.5
5	#17355.00	52.8 PK	74.0	-21.2	1.81 H	137	34.8	18.0
6	#17355.00	40.6 AV	54.0	-13.4	1.81 H	137	22.6	18.0
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	*5785.00	111.4 PK			1.75 V	11	107.0	4.4
2	*5785.00	101.2 AV			1.75 V	11	96.8	4.4
3	11570.00	67.5 PK	74.0	-6.5	1.56 V	123	54.0	13.5
4	11570.00	53.8 AV	54.0	-0.2	1.56 V	123	40.3	13.5
5	#17355.00	56.7 PK	74.0	-17.3	1.33 V	98	38.7	18.0
6	#17355.00	42.1 AV	54.0	-11.9	1.33 V	98	24.1	18.0

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 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	*5825.00	109.9 PK			1.54 H	259	105.5	4.4
2	*5825.00	99.3 AV			1.54 H	259	94.9	4.4
3	11650.00	63.7 PK	74.0	-10.3	1.47 H	191	50.0	13.7
4	11650.00	51.3 AV	54.0	-2.7	1.47 H	191	37.6	13.7
5	#17475.00	52.6 PK	74.0	-21.4	1.80 H	136	34.0	18.6
6	#17475.00	40.3 AV	54.0	-13.7	1.80 H	136	21.7	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	*5825.00	108.2 PK			1.77 V	5	103.8	4.4
2	*5825.00	98.4 AV			1.77 V	5	94.0	4.4
3	11650.00	66.2 PK	74.0	-7.8	1.66 V	125	52.5	13.7
4	11650.00	53.8 AV	54.0	-0.2	1.66 V	125	40.1	13.7
5	#17475.00	53.3 PK	74.0	-20.7	1.24 V	104	34.7	18.6
6	#17475.00	39.3 AV	54.0	-14.7	1.24 V	104	20.7	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.

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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	65.9 PK	74.0	-8.1	1.71 H	258	62.2	3.7
2	5150.00	53.8 AV	54.0	-0.2	1.71 H	258	50.1	3.7
3	*5190.00	112.0 PK			1.71 H	258	108.3	3.7
4	*5190.00	102.3 AV			1.71 H	258	98.6	3.7
5	5350.00	51.1 PK	74.0	-22.9	1.71 H	258	47.0	4.1
6	5350.00	45.1 AV	54.0	-8.9	1.71 H	258	41.0	4.1
7	#10380.00	63.5 PK	74.0	-10.5	1.41 H	183	50.4	13.1
8	#10380.00	51.0 AV	54.0	-3.0	1.41 H	183	37.9	13.1
9	15570.00	53.6 PK	74.0	-20.4	1.87 H	120	40.3	13.3
10	15570.00	41.0 AV	54.0	-13.0	1.87 H	120	27.7	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	63.3 PK	74.0	-10.7	1.51 V	23	59.6	3.7
2	5150.00	51.2 AV	54.0	-2.8	1.51 V	23	47.5	3.7
3	*5190.00	109.5 PK			1.51 V	23	105.8	3.7
4	*5190.00	100.8 AV			1.51 V	23	97.1	3.7
5	5350.00	48.5 PK	74.0	-25.5	1.51 V	23	44.4	4.1
6	5350.00	42.5 AV	54.0	-11.5	1.51 V	23	38.4	4.1
7	#10380.00	59.1 PK	74.0	-14.9	1.57 V	144	46.0	13.1
8	#10380.00	47.4 AV	54.0	-6.6	1.57 V	144	34.3	13.1
9	15570.00	52.2 PK	74.0	-21.8	1.49 V	124	38.9	13.3
10	15570.00	40.1 AV	54.0	-13.9	1.49 V	124	26.8	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	*5230.00	118.7 PK			1.70 H	256	114.9	3.8
2	*5230.00	108.9 AV			1.70 H	256	105.1	3.8
3	5350.00	59.5 PK	74.0	-14.5	1.70 H	256	55.4	4.1
4	5350.00	47.7 AV	54.0	-6.3	1.70 H	256	43.6	4.1
5	#10460.00	63.1 PK	74.0	-10.9	3.81 H	185	50.0	13.1
6	#10460.00	51.7 AV	54.0	-2.3	3.81 H	185	38.6	13.1
7	15690.00	60.6 PK	74.0	-13.4	1.84 H	136	46.8	13.8
8	15690.00	49.6 AV	54.0	-4.4	1.84 H	136	35.8	13.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	116.2 PK			1.49 V	15	112.4	3.8
2	*5230.00	107.4 AV			1.49 V	15	103.6	3.8
3	5350.00	56.9 PK	74.0	-17.1	1.49 V	15	52.8	4.1
4	5350.00	45.1 AV	54.0	-8.9	1.49 V	15	41.0	4.1
5	#10460.00	66.8 PK	74.0	-7.2	1.72 V	145	53.7	13.1
6	**#10460.00**	**53.9 AV**	**54.0**	**-0.1**	**1.72 V**	**145**	**40.8**	**13.1**
7	15690.00	62.7 PK	74.0	-11.3	1.56 V	68	48.9	13.8
8	15690.00	51.2 AV	54.0	-2.8	1.56 V	68	37.4	13.8

REMARKS:

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

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	*5755.00	111.4 PK			1.57 H	255	107.0	4.4
2	*5755.00	101.2 AV			1.57 H	255	96.8	4.4
3	11510.00	63.6 PK	74.0	-10.4	1.50 H	188	50.0	13.6
4	11510.00	51.4 AV	54.0	-2.6	1.50 H	188	37.8	13.6
5	#17265.00	53.0 PK	74.0	-21.0	1.89 H	135	35.4	17.6
6	#17265.00	40.6 AV	54.0	-13.4	1.89 H	135	23.0	17.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5755.00	108.9 PK			1.57 V	1	104.5	4.4
2	*5755.00	99.7 AV			1.57 V	1	95.3	4.4
3	11510.00	64.9 PK	74.0	-9.1	1.65 V	124	51.3	13.6
4	**11510.00**	**53.9 AV**	**54.0**	**-0.1**	**1.65 V**	**124**	**40.3**	**13.6**
5	#17265.00	51.5 PK	74.0	-22.5	1.48 V	110	33.9	17.6
6	#17265.00	40.1 AV	54.0	-13.9	1.48 V	110	22.5	17.6

REMARKS:

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

CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK) 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	*5795.00	110.4 PK			1.56 H	254	106.0	4.4
2	*5795.00	100.9 AV			1.56 H	254	96.5	4.4
3	11590.00	63.3 PK	74.0	-10.7	1.46 H	161	49.8	13.5
4	11590.00	51.1 AV	54.0	-2.9	1.46 H	161	37.6	13.5
5	#17385.00	53.0 PK	74.0	-21.0	1.80 H	141	34.7	18.3
6	#17385.00	40.9 AV	54.0	-13.1	1.80 H	141	22.6	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	*5795.00	108.4 PK			1.56 V	4	104.0	4.4
2	*5795.00	99.5 AV			1.56 V	4	95.1	4.4
3	11590.00	64.7 PK	74.0	-9.3	1.68 V	126	51.2	13.5
4	**11590.00**	**53.9 AV**	**54.0**	**-0.1**	**1.68 V**	**126**	**40.4**	**13.5**
5	#17385.00	51.4 PK	74.0	-22.6	1.37 V	108	33.1	18.3
6	#17385.00	39.9 AV	54.0	-14.1	1.37 V	108	21.6	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.

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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	65.4 PK	74.0	-8.6	1.58 H	256	61.7	3.7
2	**5150.00**	**53.9 AV**	**54.0**	**-0.1**	**1.58 H**	**256**	**50.2**	**3.7**
3	*5210.00	108.5 PK			1.58 H	256	104.8	3.7
4	*5210.00	98.4 AV			1.58 H	256	94.7	3.7
5	5350.00	59.5 PK	74.0	-14.5	1.58 H	256	55.4	4.1
6	5350.00	48.1 AV	54.0	-5.9	1.58 H	256	44.0	4.1
7	#10420.00	52.1 PK	74.0	-21.9	1.72 H	203	39.0	13.1
8	#10420.00	41.8 AV	54.0	-12.2	1.72 H	203	28.7	13.1
9	15630.00	46.1 PK	74.0	-27.9	1.31 H	103	32.5	13.6
10	15630.00	34.5 AV	54.0	-19.5	1.31 H	103	20.9	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	64.2 PK	74.0	-9.8	1.82 V	3	60.5	3.7
2	5150.00	51.9 AV	54.0	-2.1	1.82 V	3	48.2	3.7
3	*5210.00	107.0 PK			1.82 V	3	103.3	3.7
4	*5210.00	96.9 AV			1.82 V	3	93.2	3.7
5	5350.00	57.8 PK	74.0	-16.2	1.82 V	3	53.7	4.1
6	5350.00	45.2 AV	54.0	-8.8	1.82 V	3	41.1	4.1
7	#10420.00	53.4 PK	74.0	-20.6	1.60 V	90	40.3	13.1
8	#10420.00	42.7 AV	54.0	-11.3	1.60 V	90	29.6	13.1
9	15630.00	46.9 PK	74.0	-27.1	1.41 V	122	33.3	13.6
10	15630.00	35.7 AV	54.0	-18.3	1.41 V	122	22.1	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	*5775.00	108.7 PK			1.56 H	261	104.3	4.4
2	*5775.00	98.8 AV			1.56 H	261	94.4	4.4
3	11550.00	52.6 PK	74.0	-21.4	1.77 H	193	39.1	13.5
4	11550.00	41.7 AV	54.0	-12.3	1.77 H	193	28.2	13.5
5	#17325.00	46.2 PK	74.0	-27.8	1.29 H	112	28.4	17.8
6	#17325.00	34.5 AV	54.0	-19.5	1.29 H	112	16.7	17.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5775.00	107.1 PK			1.70 V	2	102.7	4.4
2	*5775.00	97.2 AV			1.70 V	2	92.8	4.4
3	11550.00	64.8 PK	74.0	-9.2	1.64 V	121	51.3	13.5
4	**11550.00**	**53.9 AV**	**54.0**	**-0.1**	**1.64 V**	**121**	**40.4**	**13.5**
5	#17325.00	46.9 PK	74.0	-27.1	1.43 V	130	29.1	17.8
6	#17325.00	35.8 AV	54.0	-18.2	1.43 V	130	18.0	17.8

REMARKS:

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

Below 1GHz Data:

802.11a

CHANNEL	TX Channel 40	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	44.96	24.4 QP	40.0	-15.6	1.00 H	206	32.6	-8.2
2	125.01	32.4 QP	43.5	-11.1	2.00 H	144	42.1	-9.7
3	337.54	30.1 QP	46.0	-15.9	1.50 H	121	36.6	-6.5
4	375.00	34.8 QP	46.0	-11.2	1.00 H	213	40.7	-5.9
5	625.02	33.4 QP	46.0	-12.6	3.00 H	255	34.0	-0.6
6	875.31	37.5 QP	46.0	-8.5	1.50 H	149	34.9	2.6
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	62.45	33.7 QP	40.0	-6.3	1.50 V	263	43.0	-9.3
2	125.08	37.7 QP	43.5	-5.8	1.00 V	233	47.4	-9.7
3	337.48	34.5 QP	46.0	-11.5	1.00 V	214	41.0	-6.5
4	375.20	31.2 QP	46.0	-14.8	2.50 V	144	37.1	-5.9
5	625.12	33.7 QP	46.0	-12.3	1.50 V	272	34.3	-0.6
6	944.69	30.1 QP	46.0	-15.9	1.00 V	171	26.3	3.8

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz.

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

Note: 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	847124/029	Oct. 24, 2016	Oct. 23, 2017
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Oct. 26, 2016	Oct. 25, 2017
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV216	100072	June 03, 2017	June 02, 2018
50 ohms Terminator	N/A	EMC-02	Sep. 22, 2017	Sep. 21, 2018
RF Cable	5D-FB	COCCAB-001	Sep. 29, 2017	Sep. 28, 2018
10 dB PAD Mini-Circuits	HAT-10+	CONATT-004	June 18, 2017	June 17, 2018
Software BVADT	BVADT_Cond_ V7.3.7.4	NA	NA	NA

Note:
1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. 1.
3 Tested Date: Oct. 23, 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.

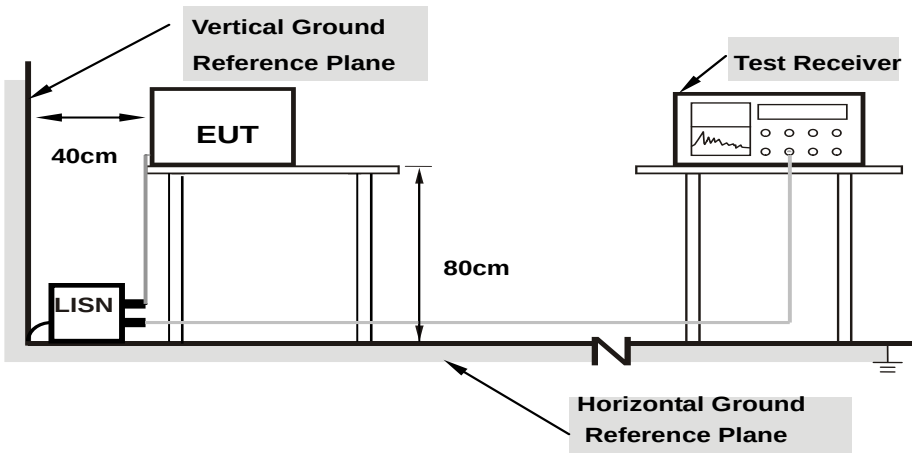
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

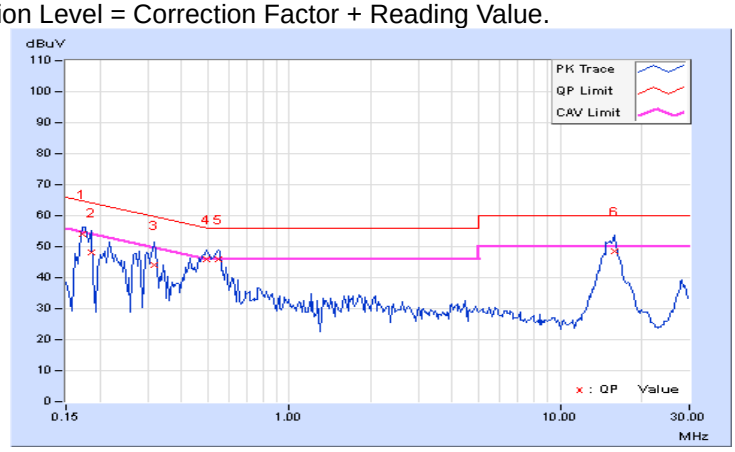
4.2.7 Test Results (Mode 1)

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	0.17344	9.71	44.35	33.67	54.06	43.38	64.79	54.79	-10.73	-11.41
2	0.18516	9.73	38.59	23.58	48.32	33.31	64.25	54.25	-15.93	-20.94
3	0.31797	9.74	34.50	22.26	44.24	32.00	59.76	49.76	-15.52	-17.76
4	0.49375	9.74	36.21	27.09	45.95	36.83	56.10	46.10	-10.15	-9.27
5	**0.54844**	**9.73**	**36.38**	**30.65**	**46.11**	**40.38**	**56.00**	**46.00**	**-9.89**	**-5.62**
6	15.87891	9.92	38.72	33.05	48.64	42.97	60.00	50.00	-11.36	-7.03

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.

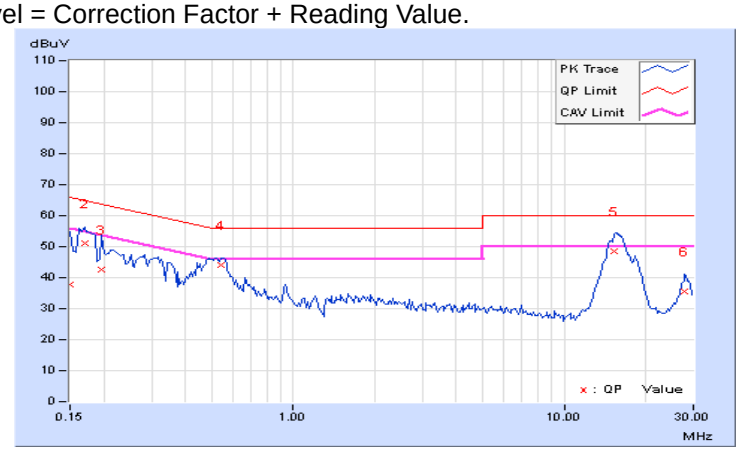


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

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	0.15000	9.70	28.22	6.59	37.92	16.29	66.00	56.00	-28.08	-39.71
2	0.16953	9.72	41.47	32.75	51.19	42.47	64.98	54.98	-13.79	-12.51
3	0.19687	9.74	32.94	22.32	42.68	32.06	63.74	53.74	-21.06	-21.68
4	0.54063	9.71	34.25	26.81	43.96	36.52	56.00	46.00	-12.04	-9.48
5	15.26172	10.09	38.61	32.98	48.70	43.07	60.00	50.00	-11.30	-6.93
6	27.91797	10.32	25.40	18.92	35.72	29.24	60.00	50.00	-24.28	-20.76

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.



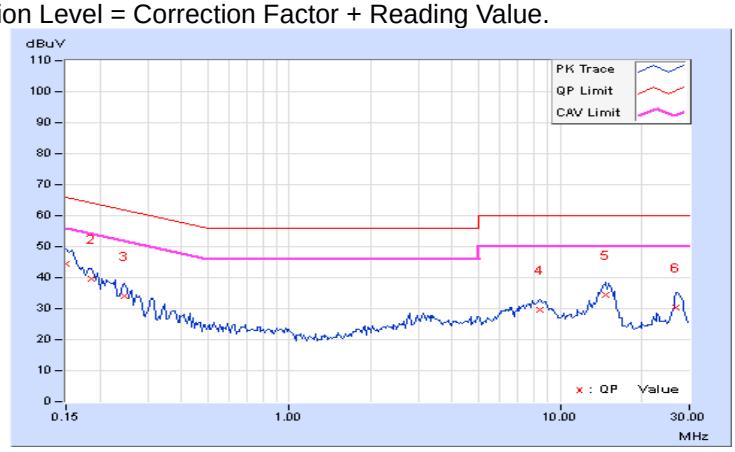
4.2.8 Test Results (Mode 2)

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	0.15000	9.67	34.91	22.66	44.58	32.33	66.00	56.00	-21.42	-23.67
2	0.18516	9.73	29.97	18.48	39.70	28.21	64.25	54.25	-24.55	-26.04
3	0.24766	9.75	24.49	14.96	34.24	24.71	61.84	51.84	-27.60	-27.13
4	8.39453	9.87	19.62	14.30	29.49	24.17	60.00	50.00	-30.51	-25.83
5	14.69922	9.91	24.71	18.64	34.62	28.55	60.00	50.00	-25.38	-21.45
6	26.81641	10.01	20.28	12.62	30.29	22.63	60.00	50.00	-29.71	-27.37

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.

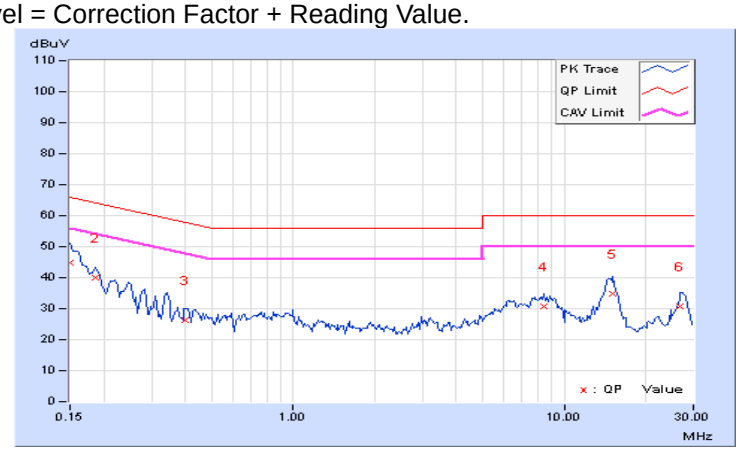


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

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	0.15000	9.70	35.17	22.52	44.87	32.22	66.00	56.00	-21.13	-23.78
2	0.18516	9.73	30.11	18.30	39.84	28.03	64.25	54.25	-24.41	-26.22
3	0.40000	9.70	16.69	9.44	26.39	19.14	57.85	47.85	-31.46	-28.71
4	8.43750	9.93	20.73	15.69	30.66	25.62	60.00	50.00	-29.34	-24.38
5	15.14844	10.09	24.86	19.15	34.95	29.24	60.00	50.00	-25.05	-20.76
6	26.87500	10.30	20.31	12.34	30.61	22.64	60.00	50.00	-29.39	-27.36

REMARKS:

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



4.3 Transmit Power Measurement

4.3.1 Limits of Transmit Power Measurement

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p ≦ 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)
		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

Power Output:

802.11a

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	23.16	22.87	400.656	26.03	30.00	Pass
40	5200	26.89	26.54	939.469	29.73	30.00	Pass
48	5240	26.05	26.04	804.508	29.06	30.00	Pass
149	5745	18.37	18.01	131.948	21.20	30.00	Pass
157	5785	16.44	15.33	78.174	18.93	30.00	Pass
165	5825	15.19	14.69	62.481	17.96	30.00	Pass

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	22.78	22.39	363.051	25.60	30.00	Pass
40	5200	25.81	25.55	739.988	28.69	30.00	Pass
48	5240	24.73	24.82	600.556	27.79	30.00	Pass
149	5745	19.11	18.77	156.806	21.95	30.00	Pass
157	5785	18.29	17.21	120.055	20.79	30.00	Pass
165	5825	14.67	14.13	55.191	17.42	30.00	Pass

802.11ac (VHT40)

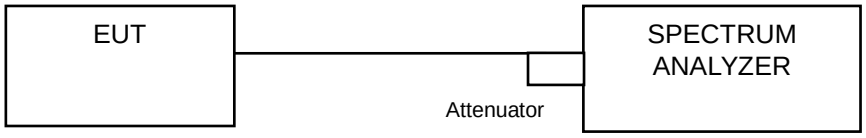
Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	18.81	18.46	146.179	21.65	30.00	Pass
46	5230	25.64	25.59	728.681	28.63	30.00	Pass
151	5755	17.85	17.39	115.782	20.64	30.00	Pass
159	5795	17.86	17.05	111.793	20.48	30.00	Pass

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	17.84	17.63	118.757	20.75	30.00	Pass
155	5775	18.53	17.98	134.091	21.27	30.00	Pass

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
36	5180	16.68	16.44
40	5200	16.80	17.52
48	5240	16.68	16.68
149	5745	16.44	16.44
157	5785	16.44	16.44
165	5825	16.44	16.44

802.11ac (VHT20)

Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
36	5180	17.64	17.64
40	5200	17.76	17.88
48	5240	17.76	17.76
149	5745	17.64	17.76
157	5785	17.76	17.64
165	5825	17.76	17.76

802.11ac (VHT40)

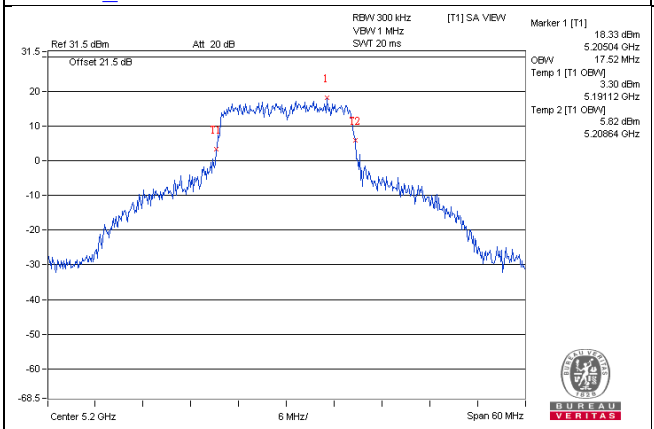
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
38	5190	36.48	36.24
46	5230	36.24	36.48
151	5755	36.24	36.00
159	5795	36.48	36.48

802.11ac (VHT80)

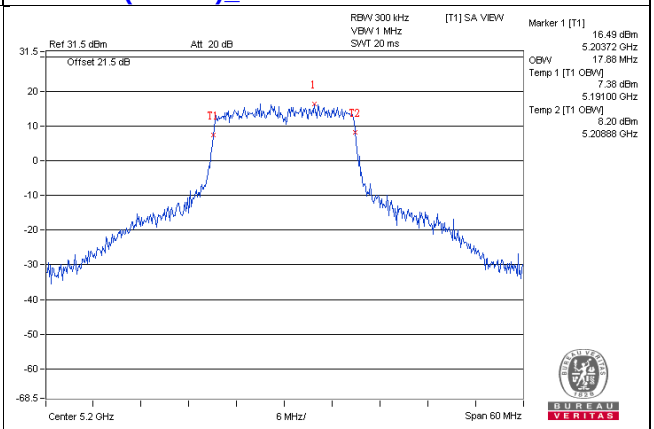
Channel	Channel Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
42	5210	76.32	75.84
155	5775	75.84	75.84

Spectrum Plot of Worst Value

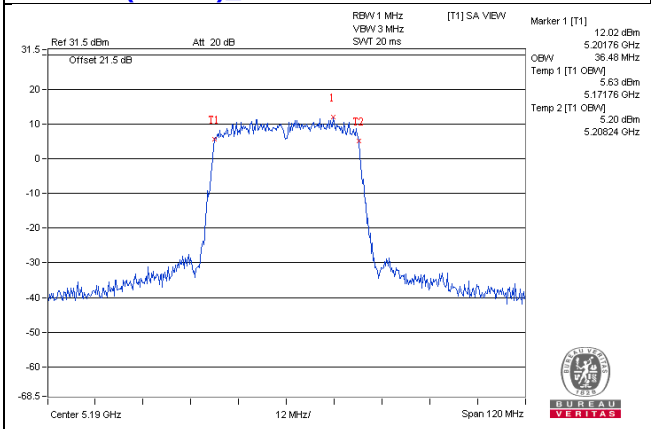
802.11a_Chain 1 / CH40



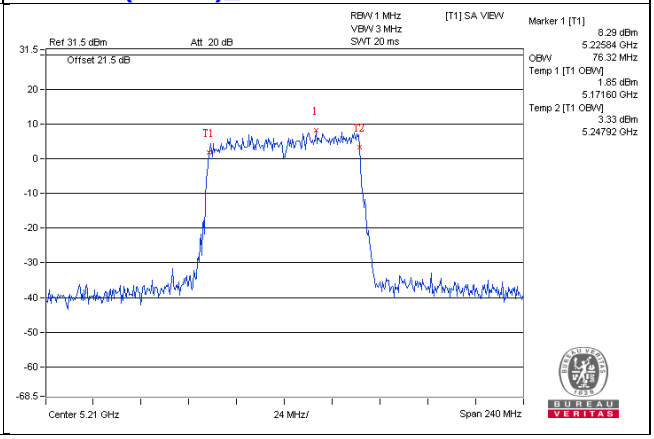
802.11ac (VHT20)_Chain 1 / CH40



802.11ac (VHT40)_Chain 0 / CH38

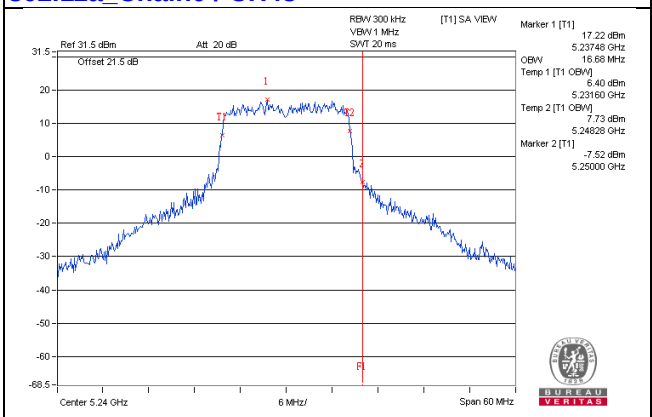


802.11ac (VHT80)_Chain 0 / CH42

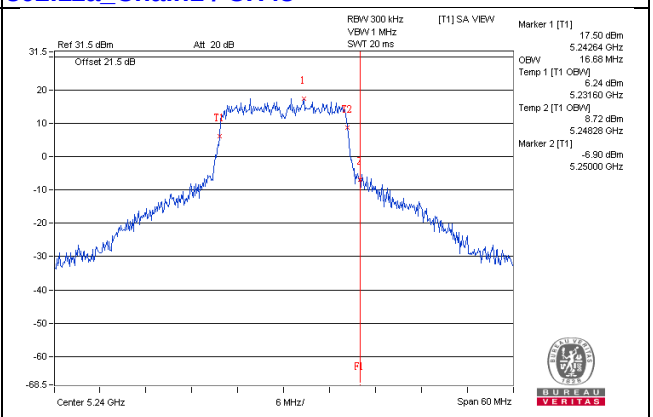


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2A band)

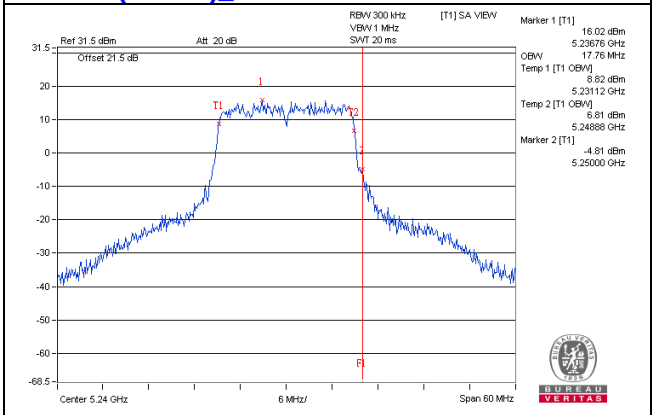
802.11a_Chain0 / CH48



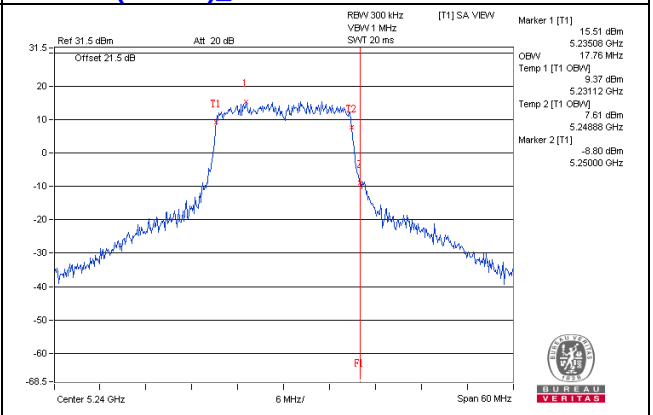
802.11a_Chain1 / CH48



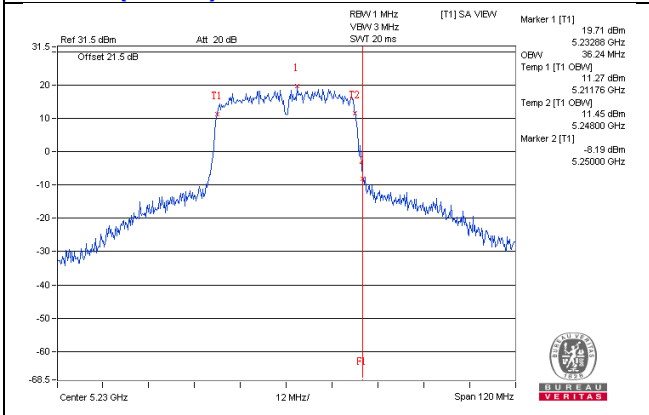
802.11ac(VHT20)_Chain0 / CH48



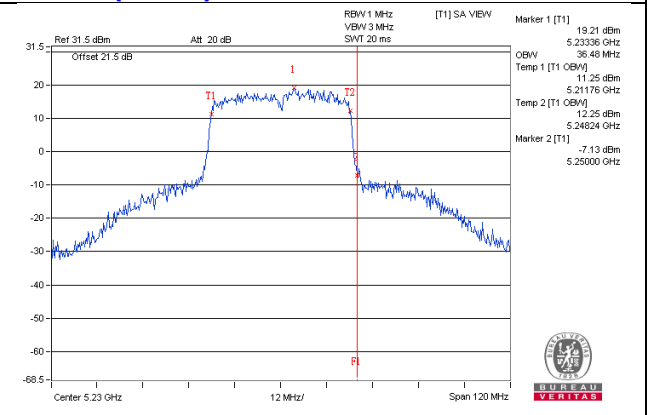
802.11ac(VHT20)_Chain1 / CH48



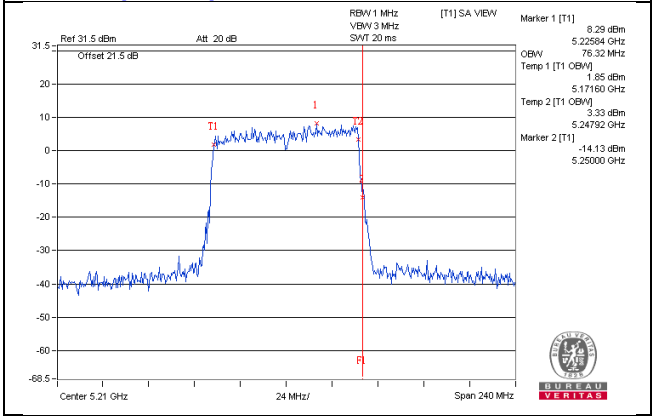
802.11ac(VHT40)_Chain0 / CH46



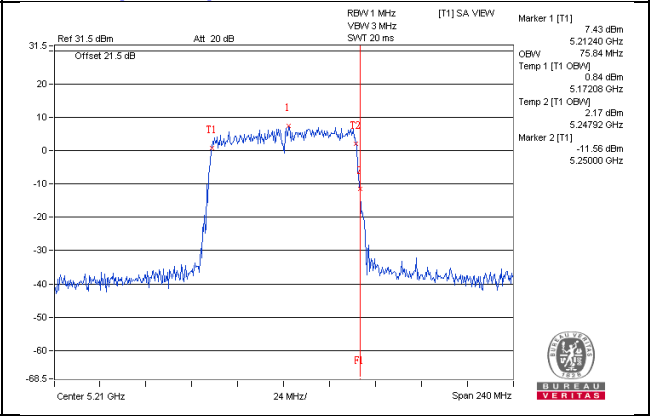
802.11ac(VHT40)_Chain1 / CH46



802.11ac(VHT80)_Chain0 / CH42

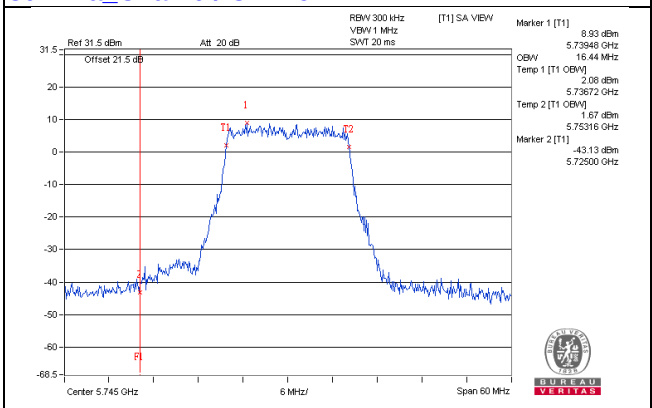


802.11ac(VHT80)_Chain1 / CH42

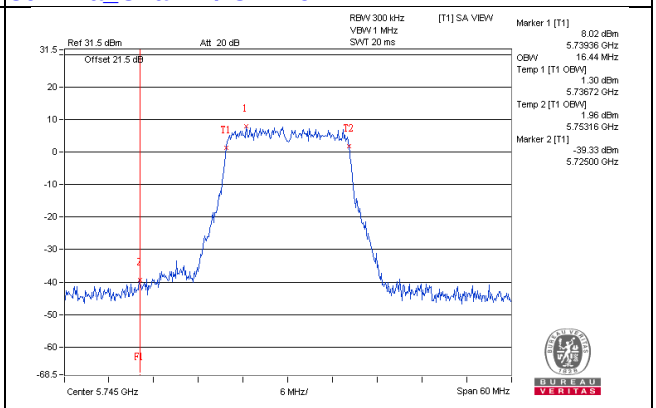


Spectrum Plot for near by DFS band
(DFS is required, if 99% OCP straddle into U-NII-2C band)

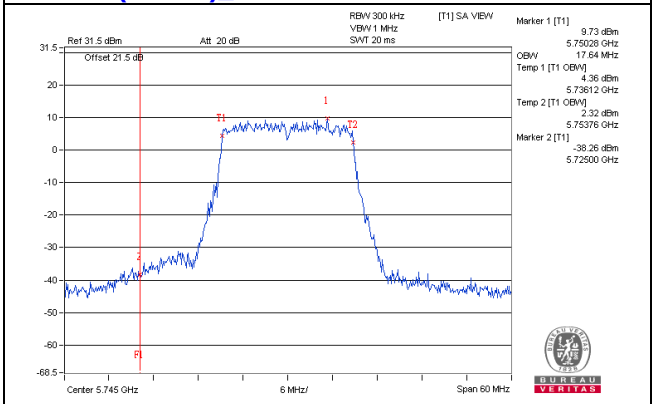
802.11a_Chain0 / CH149



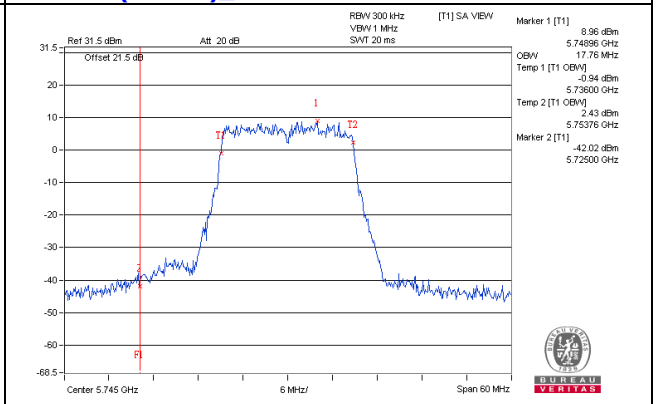
802.11a_Chain1 / CH149



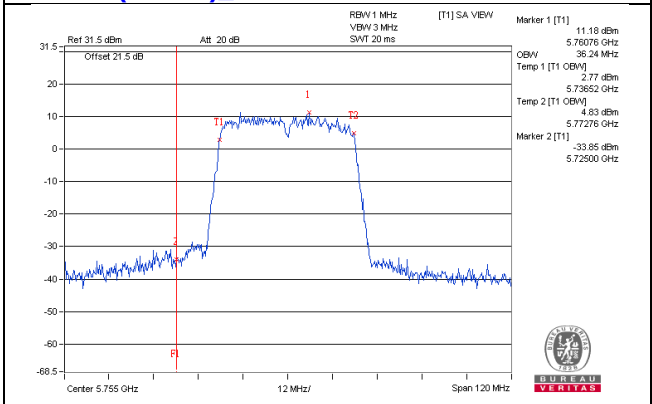
802.11ac(VHT20)_Chain0 / CH149



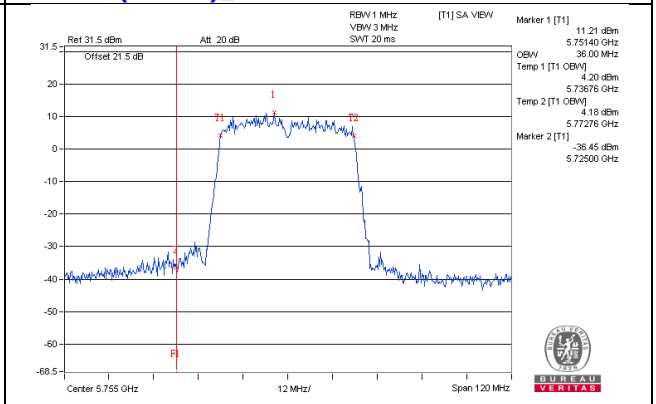
802.11ac(VHT20)_Chain1 / CH149



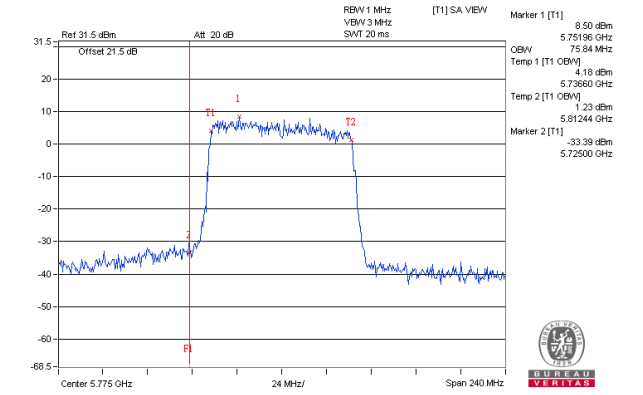
802.11ac(VHT40)_Chain0 / CH151



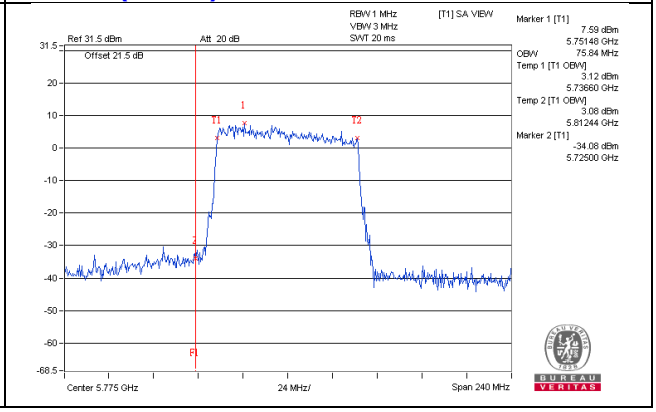
802.11ac(VHT40)_Chain1 / CH151



802.11ac(VHT80)_Chain0 / CH155



802.11ac(VHT80)_Chain1 / CH155

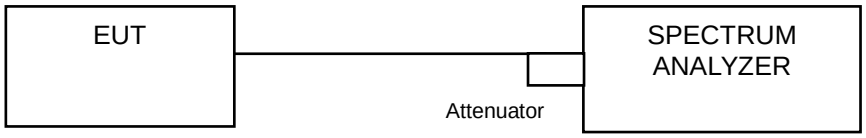


4.5 Peak Power Spectral Density Measurement

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	
		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 (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)

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6.

4.5.7 Test Results

For U-NII-1:

802.11a

Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor (dBm/MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1				
36	5180	9.00	8.91	0.15	12.11	16.84	Pass
40	5200	13.08	13.22	0.15	16.31	16.84	Pass
48	5240	12.43	12.39	0.15	15.57	16.84	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[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.16dBi > 6dBi , so the power density limit shall be reduced to 17-(6.16-6) = 16.84dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT20)

Chan.	Chan. Freq. (MHz)	PSD (dBm/MHz)		Total Power Density (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
		Chain 0	Chain 1			
36	5180	8.59	8.69	11.65	16.84	Pass
40	5200	11.93	11.83	14.89	16.84	Pass
48	5240	11.08	11.13	14.12	16.84	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[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.16dBi > 6dBi , so the power density limit shall be reduced to 17-(6.16-6) = 16.84dBm.

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				
38	5190	2.06	1.95	0.13	5.15	16.84	Pass
46	5230	9.14	9.14	0.13	12.28	16.84	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[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 6.16dBi > 6dBi , so the power density limit shall be reduced to 17-(6.16-6) = 16.84dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

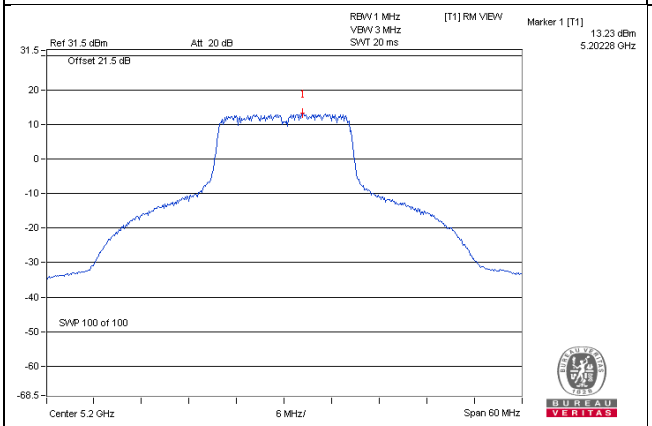
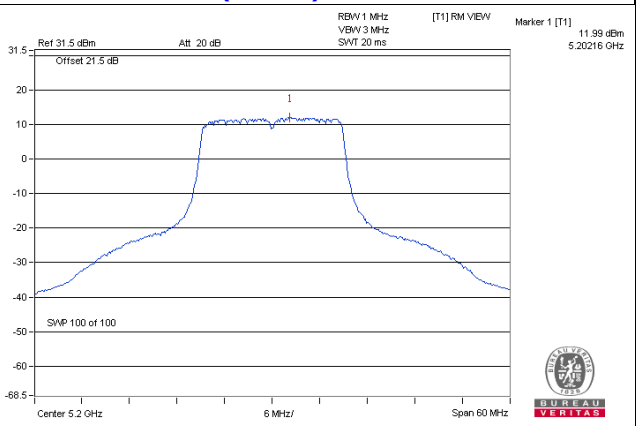
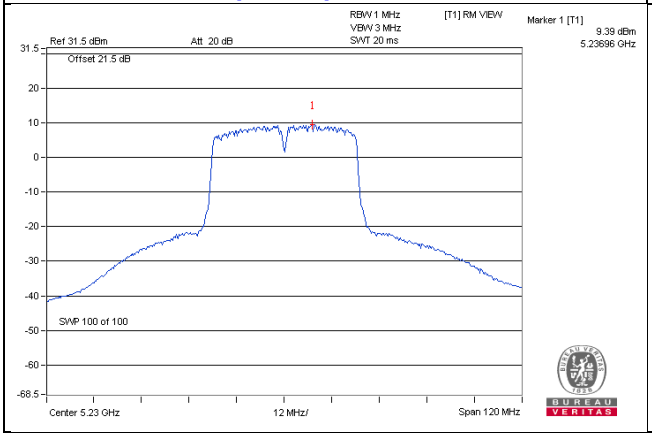
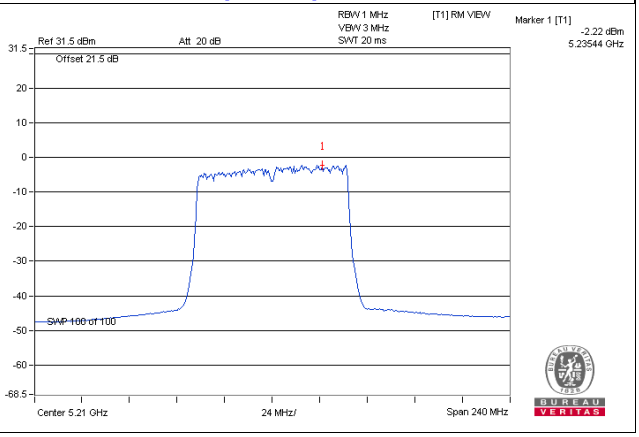
802.11ac (VHT80)

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				
42	5210	-2.23	-2.22	0.23	1.02	16.84	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[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 6.16dBi > 6dBi , so the power density limit shall be reduced to 17-(6.16-6) = 16.84dBm.

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

Spectrum Plot of Worst Value	
802.11a_Chain 1 / CH40	**802.11ac (VHT20)_Chain 0 / CH40**
	
802.11ac (VHT40)_Chain 0 / CH46	**802.11ac (VHT80)_Chain 1 / CH42**
	

For U-NII-3:

802.11a

TX chain	Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	149	5745	-3.86	-1.64	3.01	0.15	1.52	28.72	Pass
	157	5785	-5.62	-3.40	3.01	0.15	-0.24	28.72	Pass
	165	5825	-6.72	-4.50	3.01	0.15	-1.34	28.72	Pass
1	149	5745	-4.42	-2.20	3.01	0.15	0.96	28.72	Pass
	157	5785	-7.04	-4.82	3.01	0.15	-1.66	28.72	Pass
	165	5825	-7.65	-5.43	3.01	0.15	-2.27	28.72	Pass

Note: 1. Directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 7.28dBi > 6dBi, so the power density limit shall be reduced to 30-(7.28-6) = 28.72dBm.

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

802.11ac (VHT20)

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=2) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
0	149	5745	-2.98	-0.76	3.01	2.25	28.72	Pass
	157	5785	-3.99	-1.77	3.01	1.24	28.72	Pass
	165	5825	-7.76	-5.54	3.01	-2.53	28.72	Pass
1	149	5745	-3.69	-1.47	3.01	1.54	28.72	Pass
	157	5785	-5.32	-3.10	3.01	-0.09	28.72	Pass
	165	5825	-8.20	-5.98	3.01	-2.97	28.72	Pass

Note: 1. Directional gain = 10 log[($10^{G0/20}$ + $10^{G1/20}$)^2 / 2] = 7.28dBi > 6dBi, so the power density limit shall be reduced to 30-(7.28-6) = 28.72dBm.

802.11ac (VHT40)

TX chain	Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	151	5755	-7.30	-5.08	3.01	0.13	-1.94	28.72	Pass
	159	5795	-7.80	-5.58	3.01	0.13	-2.44	28.72	Pass
1	151	5755	-7.89	-5.67	3.01	0.13	-2.53	28.72	Pass
	159	5795	-8.74	-6.52	3.01	0.13	-3.38	28.72	Pass

Note: 1. Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 7.28dBi > 6dBi, so the power density limit shall be reduced to 30-(7.28-6) = 28.72dBm.

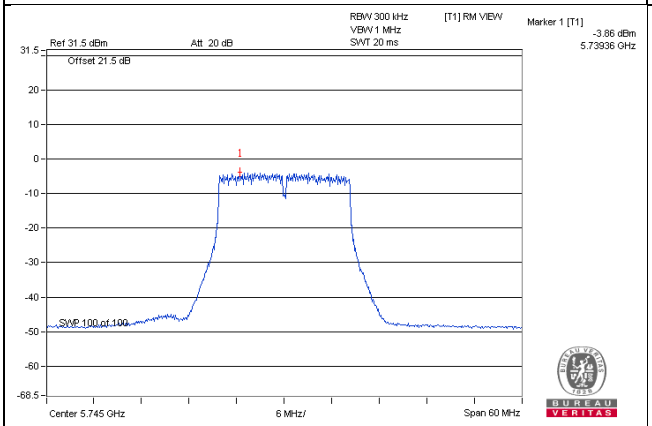
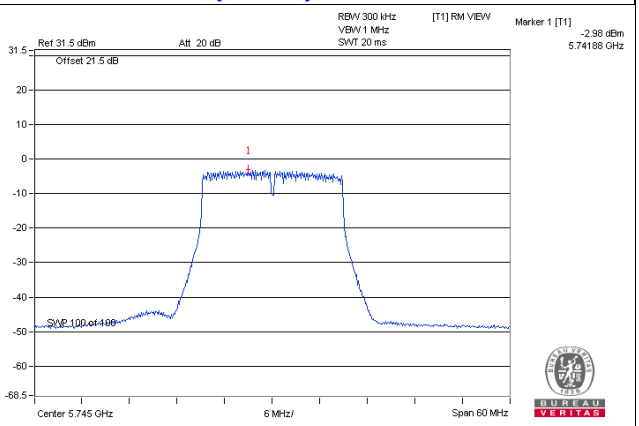
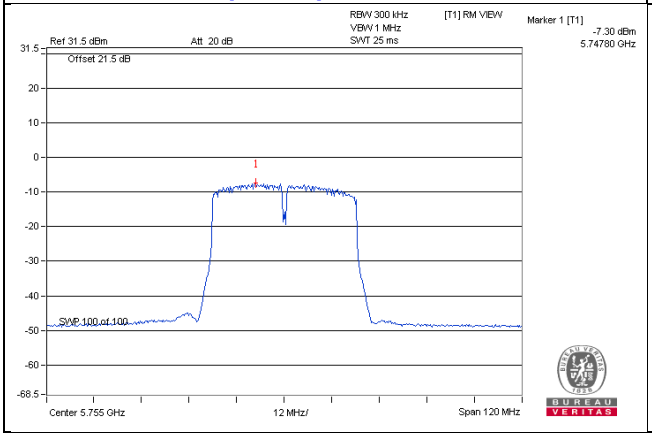
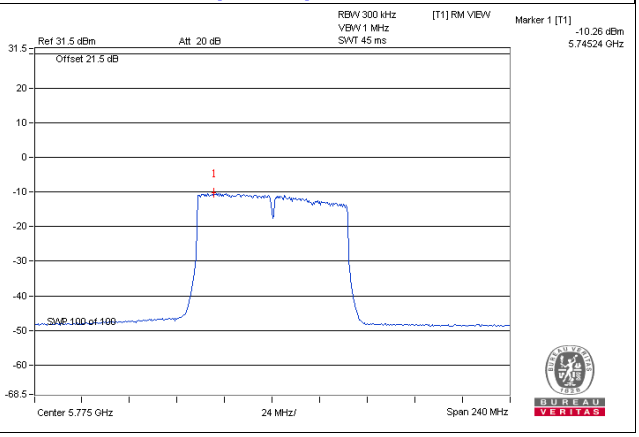
2. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

TX chain	Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor		10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	155	5775	-10.26	-8.04	3.01	0.23	-4.80	28.72	Pass
1	155	5775	-10.85	-8.63	3.01	0.23	-5.39	28.72	Pass

Note: 1. Directional gain = 10 log[$(10^{G0/20} + 10^{G1/20})^2$ / 2] = 7.28dBi > 6dBi, so the power density limit shall be reduced to 30-(7.28-6) = 28.72dBm.

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

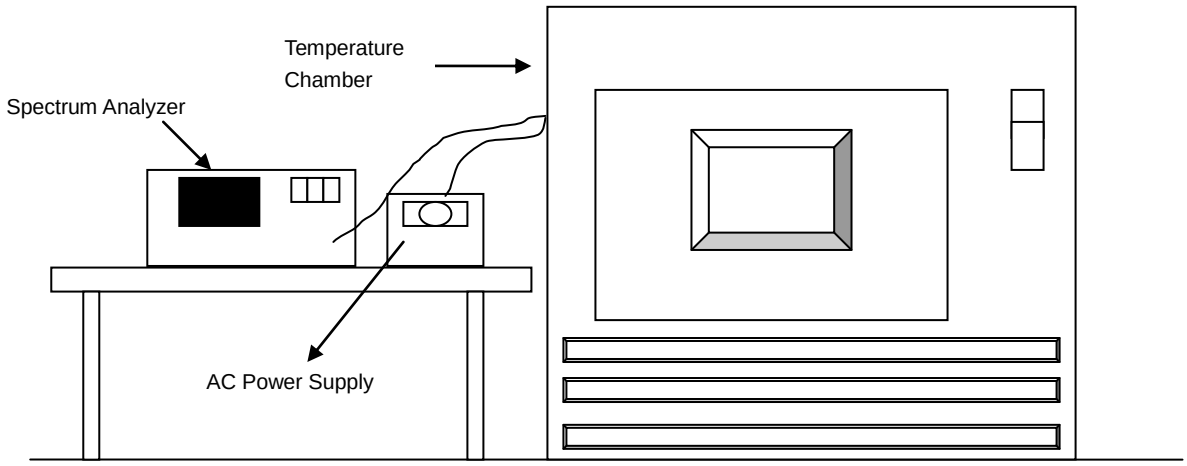
Spectrum Plot of Worst Value	
802.11a_Chain 0 / CH149	**802.11ac (VHT20)_Chain 0 / CH149**
	
802.11ac (VHT40)_Chain 0 / CH151	**802.11ac (VHT80)_Chain 0 / CH155**
	

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 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
50	120	5180.0151	PASS	5180.0126	PASS	5180.0113	PASS	5180.0142	PASS
40	120	5179.9986	PASS	5179.9952	PASS	5179.9949	PASS	5179.9958	PASS
30	120	5179.9802	PASS	5179.979	PASS	5179.9783	PASS	5179.9781	PASS
20	120	5179.9989	PASS	5179.9948	PASS	5179.9949	PASS	5179.9973	PASS
10	120	5179.996	PASS	5179.9943	PASS	5179.9934	PASS	5179.9919	PASS
0	120	5179.9933	PASS	5179.9925	PASS	5179.9917	PASS	5179.9932	PASS
-10	120	5179.9983	PASS	5179.9944	PASS	5179.9941	PASS	5179.9965	PASS
-20	120	5180.004	PASS	5180.0053	PASS	5180.0028	PASS	5180.0028	PASS
-30	120	5179.9875	PASS	5179.9866	PASS	5179.9881	PASS	5179.9851	PASS

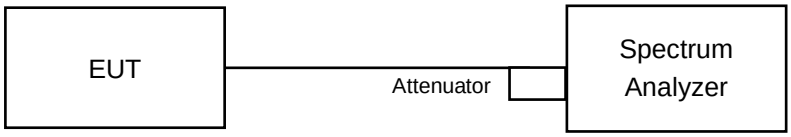
Frequency Stability Versus Voltage									
Operating Frequency: 5180 MHz									
TEMP. (℃)	Power Supply (Vac)	0 Minute		2 Minutes		5 Minutes		10 Minutes	
		Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail	Measured Frequency (MHz)	Pass/Fail
20	138	5179.9998	PASS	5179.9957	PASS	5179.9939	PASS	5179.997	PASS
	120	5179.9989	PASS	5179.9948	PASS	5179.9949	PASS	5179.9973	PASS
	102	5179.9979	PASS	5179.9947	PASS	5179.9959	PASS	5179.9965	PASS

4.7 6dB Bandwidth Measurement

4.7.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 Test Procedure

MEASUREMENT PROCEDURE REF

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		
149	5745	16.38	16.38	0.5	PASS
157	5785	16.39	16.38	0.5	PASS
165	5825	16.39	16.40	0.5	PASS

802.11ac (VHT20)

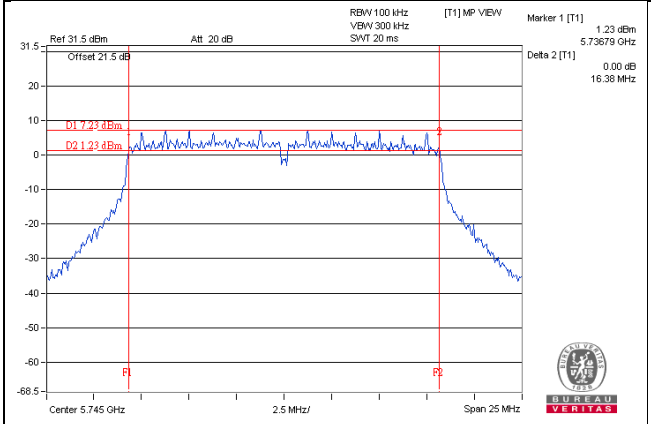
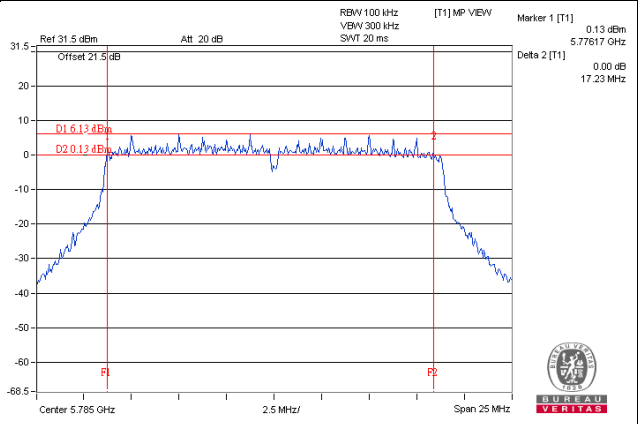
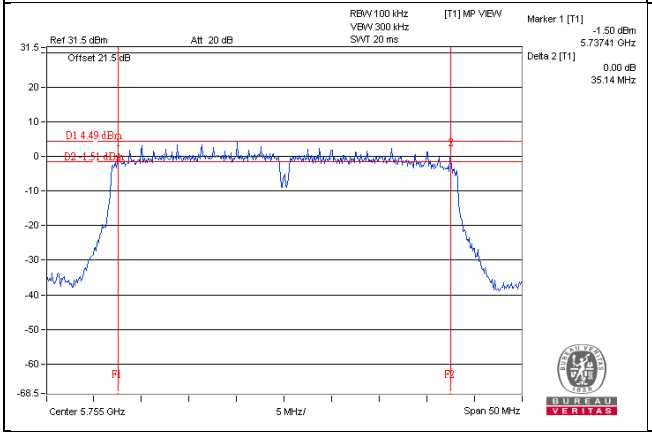
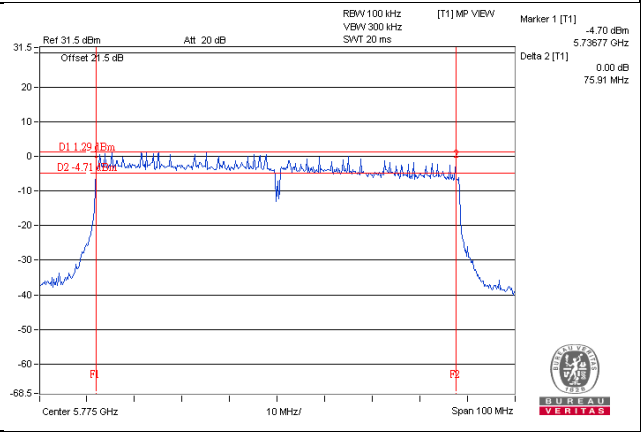
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	17.58	17.59	0.5	PASS
157	5785	17.58	17.23	0.5	PASS
165	5825	17.58	17.32	0.5	PASS

802.11ac (VHT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
151	5755	35.14	35.24	0.5	PASS
159	5795	35.17	35.16	0.5	PASS

802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
155	5775	75.91	75.96	0.5	PASS

Spectrum Plot of Worst Value	
802.11a_Chain 0 / CH149	**802.11ac (VHT20)_Chain 1 / CH157**
	
802.11ac (VHT40)_Chain 0 / CH151	**802.11ac (VHT80)_Chain 0 / CH155**
	

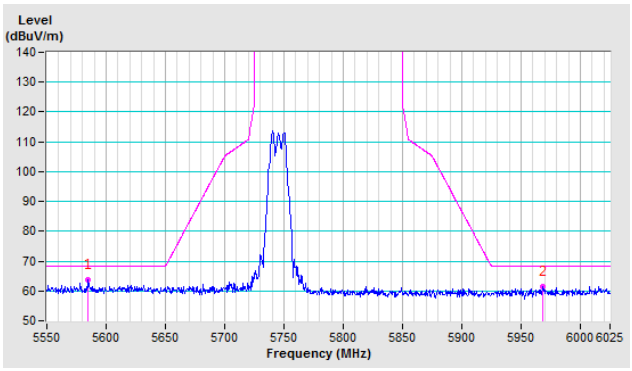
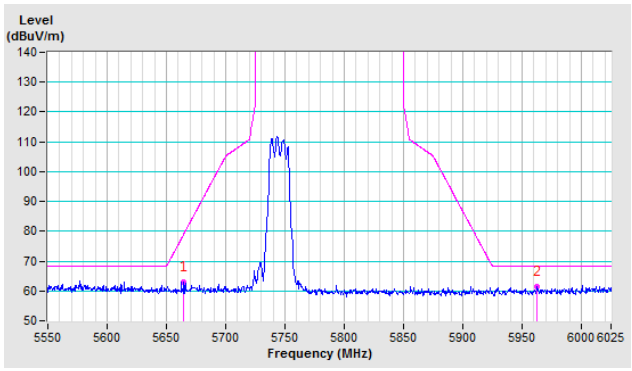
5 Pictures of Test Arrangements

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

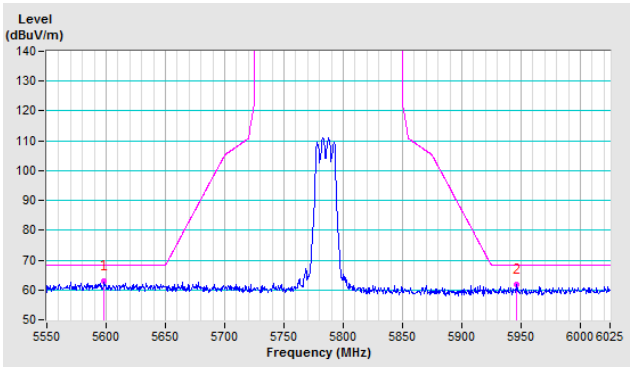
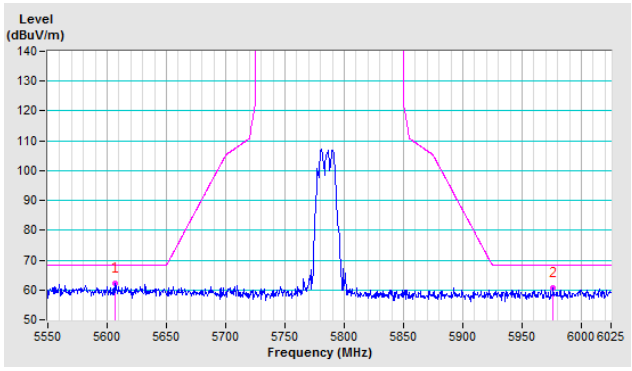
Annex A- Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band)

802.11a

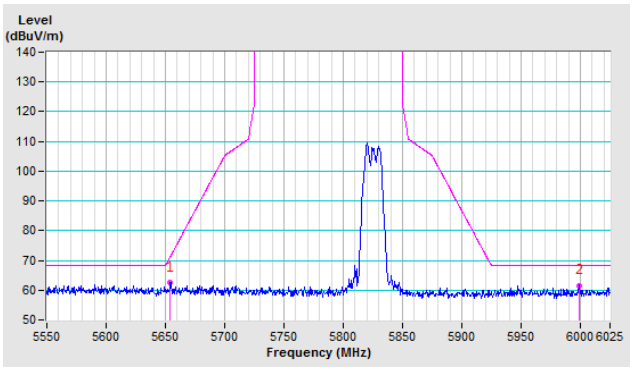
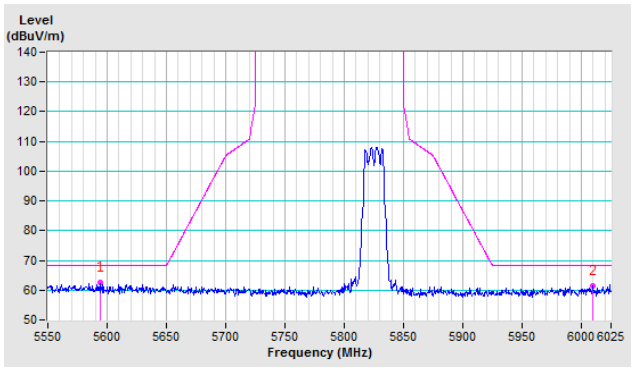
CH 149 5745 MHz

Horizontal	Vertical
	

CH 157 5785 MHz

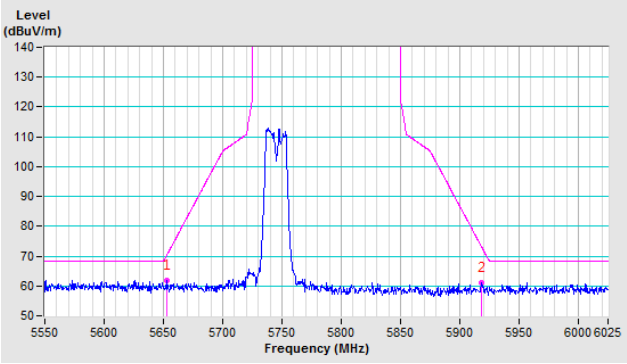
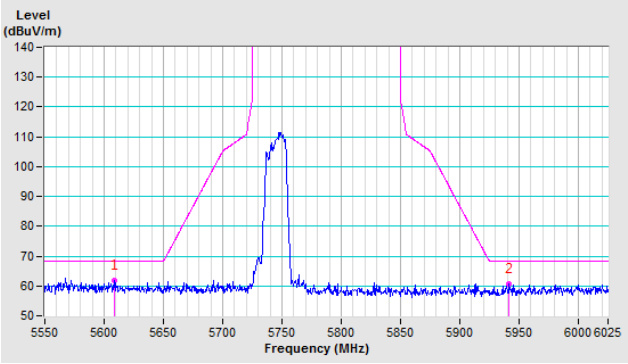
Horizontal	Vertical
	

CH 165 5825 MHz

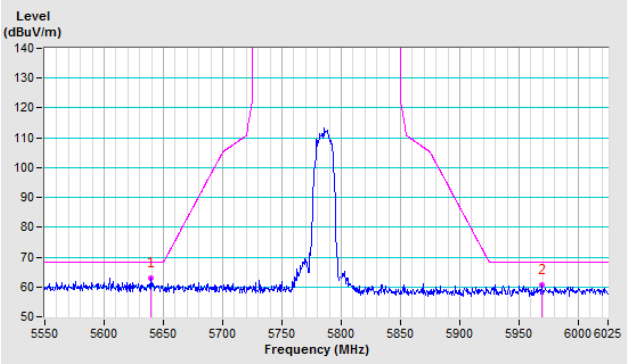
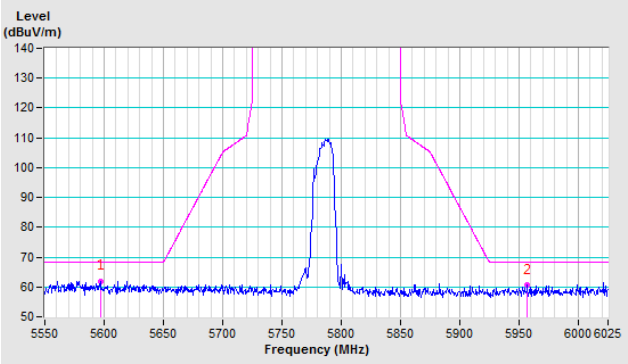
Horizontal	Vertical
	

802.11ac (VHT20)

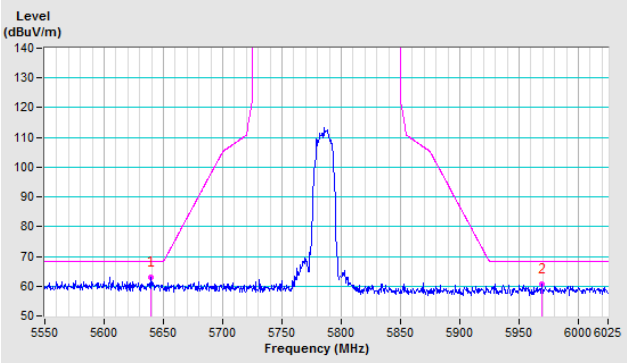
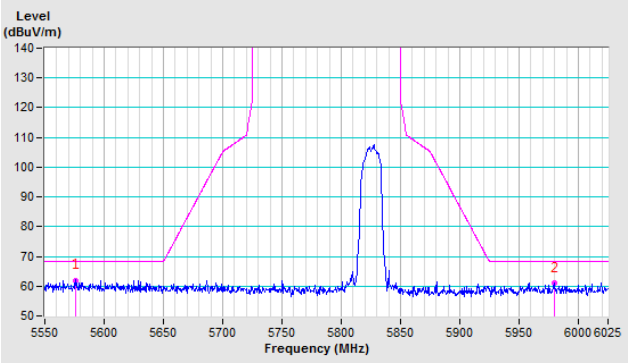
CH 149 5745 MHz

Horizontal	Vertical
	

CH 157 5785 MHz

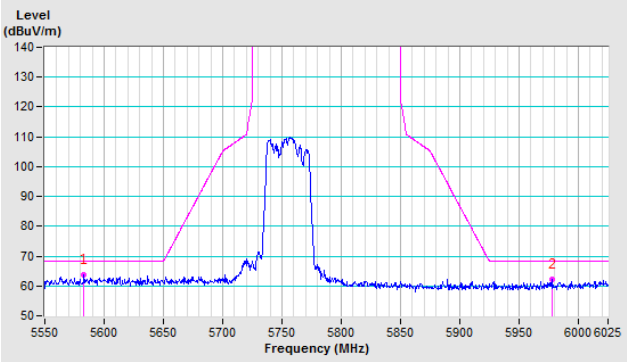
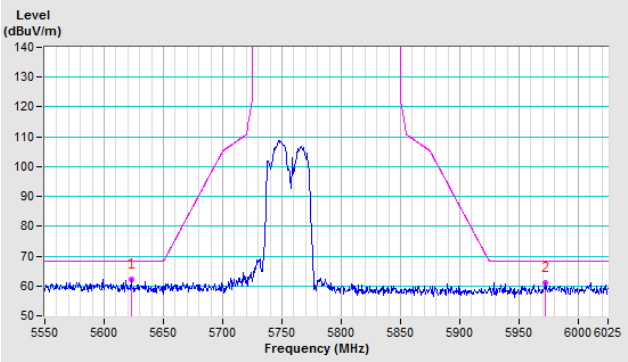
Horizontal	Vertical
	

CH 165 5825 MHz

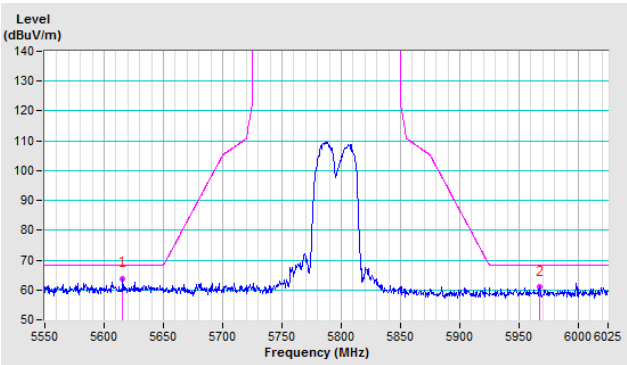
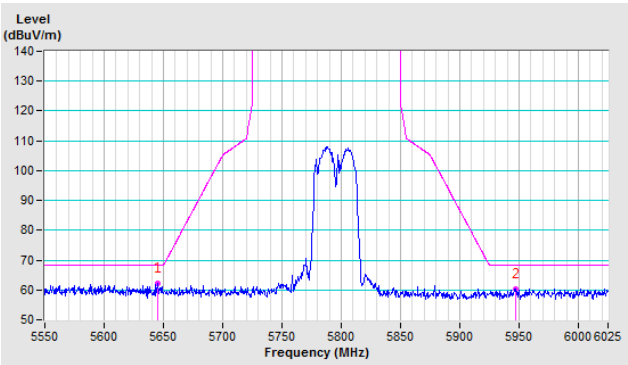
Horizontal	Vertical
	

802.11ac (VHT40)

CH 151 5755 MHz

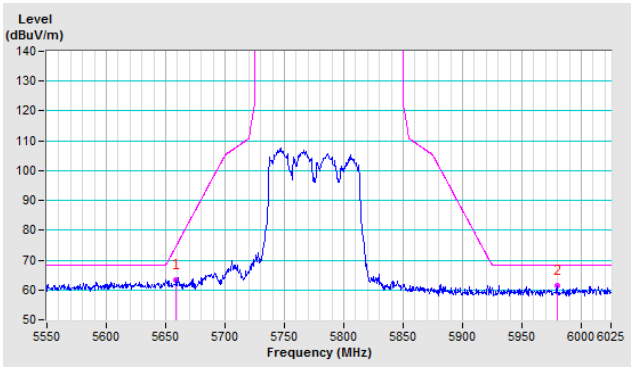
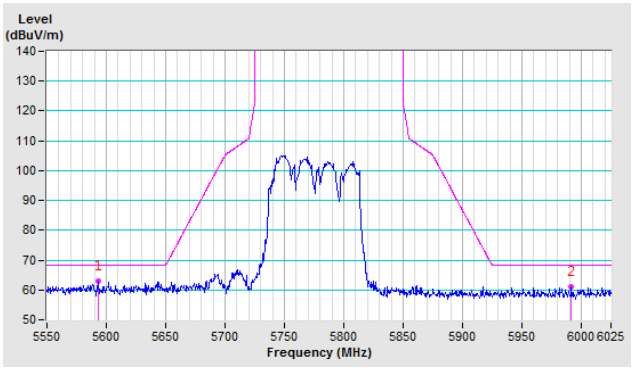
Horizontal	Vertical
	

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 FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

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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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