FCC Test Report

Report No.:	RF150422E07B-1
FCC ID:	KA2IR868LC1
Test Model:	DIR-868L
Series Model:	DAP-1750
Received Date:	Jan. 11, 2016
Test Date:	Jan. 11 to 19, 2016
Issued Date:	Feb. 15, 2016
Applicant:	D-Link Corporation
Address:	No.289, Sinhu 3rd Rd., Neihu District, Taipei City 114, Taiwan, R.O.C.
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
Test Location (1):	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
Test Location (2):	No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan R.O.C.

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Release Control Record

Issue No.	Description	Date Issued
RF150422E07B-1	Original release.	Feb. 15, 2016

1 Certificate of Conformity

Product:	Wireless AC1750 Dual Band Gigabit Cloud Router USB 3.0
Brand:	D-Link
Test Model:	DIR-868L
Series Model:	DAP-1750
Sample Status:	ENGINEERING SAMPLE
Applicant:	D-Link Corporation
Test Date:	Jan. 11 to 19, 2016
Standard:	47 CFR FCC Part 15, Subpart E (Section 15.407) ANSI C63.10: 2013

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

Prepared by : _____ , **Date:** Feb. 15, 2016
Midoli Peng / Specialist

Approved by : _____ , **Date:** Feb. 15, 2016
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) (1/2/3/4/6)	Radiated Emissions & Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.3dB at 5725.00MHz & 5715.00MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(1/2/3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(e)	6dB bandwidth	PASS	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is i-pex(MHF) not a standard connector.

Note: This report is prepared for FCC Class II change. (Upgrade the standard to section 15.407 under new rule for U-NII-3 band.)

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	Expended Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.86 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.31 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	3.40 dB
	6GHz ~ 18GHz	3.73 dB
	18GHz ~ 40GHz	4.11 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Wireless AC1750 Dual Band Gigabit Cloud Router USB 3.0
Brand	D-Link
Test Model	DIR-868L
Series Model	DAP-1750
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	12Vdc from power adapter
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n: up to 450Mbps 802.11ac: up to 1300Mbps
Operating Frequency	**For 15.407** 5.18 ~ 5.24GHz, 5.745 ~ 5.825GHz
	For 15.247 2.412 ~ 2.462GHz
Number of Channel	**For 15.407** 9 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 4 for 802.11n (HT40), 802.11ac (VHT40) 2 for 802.11ac (VHT80)
	For 15.247 11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40)
Output Power	**For 15.407** **For U-NII-1 band** 802.11a: 295.88mW 802.11ac (VHT20): 414.695mW 802.11ac (VHT40): 279.009mW 802.11ac (VHT80): 76.884mW **For U-NII-3 band** 802.11a: 498.037mW 802.11ac (VHT20): 509.95mW 802.11ac (VHT40): 289.228mW 802.11ac (VHT80): 95.923mW
	For 15.247 802.11b: 260.338mW 802.11g: 223.301mW 802.11n (HT20): 252.52mW 802.11n (HT40): 129.897mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x 1
Data Cable Supplied	NA

Note:

1. This report is prepared for FCC Class II change. The difference compared with the Report No.: RF150422E07-1 design is as the following:
   - ◆ Upgrade the standard to section 15.407 under new rule for U-NII-3 band.
2. According to above conditions, all test items of U-NII-3 band test item need to be performed, except for AC power conducted emission test item. And all data was verified to meet the requirements.
3. The EUT has below Model names, which are identical to each other in all aspects except for the following information:

Model Name	Difference
DIR-868L	RJ45 port x 5, with WAN port and transformer
DAP-1750	RJ45 port x 4, without WAN port and transformer

4. 2.4GHz and 5GHz technology can transmit at same time.
5. The antennas provided to the EUT, please refer to the following table:

Antenna No.	Transmitter Circuit	Brand	Model	Ant. Gain(dBi) <Including cable loss>	Frequency range (GHz to GHz)	Antenna Type	Connecter Type	Cable Length (mm)
1	Chain (0)	Alpha	WRGAC35-ANT 1	2.5	2.4~2.4835	PCB	Ipex(MHF)	60
				2.5	5.15~5.85			
2	Chain (1)		WRGAC35-ANT 2	2.5	2.4~2.4835			120
				2.5	5.15~5.85			
3	Chain (2)		WRGAC35-ANT 3	2.5	2.4~2.4835			110
				2.5	5.15~5.85			

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

No	Brand Name	Model No.	Spec.
1	D-LINK	AMS115-1202000FU	Input: 100-240V, 0.8A, 50/60Hz Output: 12V, 2A DC output cable: 1.2m, unshielded
2	D-LINK	WA-24Q12R	Input: 100-240V, 0.7A, 50/60Hz Output: 12V, 2A DC output cable: 1.2m, unshielded
For Radiated Emission test, the EUT was pre-tested with adapter 1 & 2, the worst case was found in adapter 2. Therefore only the test data of the adapter 2 was recorded in this report.			

7. The EUT incorporates a MIMO function.

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

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

8. 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 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	√	√	-	√	Model: DIR-868L, 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:
1. The test mode was reference to the worst case in the original test report.
2. "-" 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	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	149 to 165	157	OFDM	BPSK	6	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	149 to 165	157	OFDM	BPSK	6	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	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

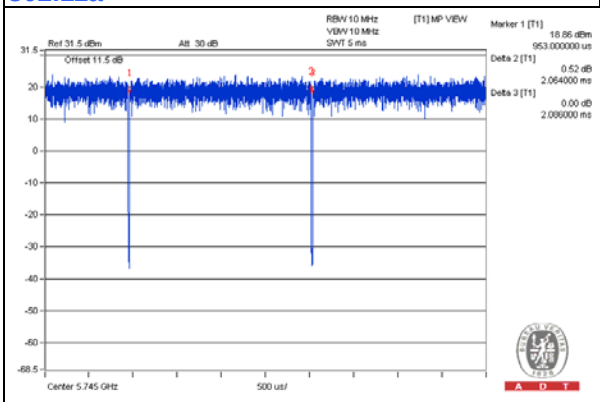
Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	26deg. C, 70%RH	120Vac, 60Hz	Gary Cheng
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Tim Ho
APCM	15deg. C, 69%RH	120Vac, 60Hz	Anderson Chen

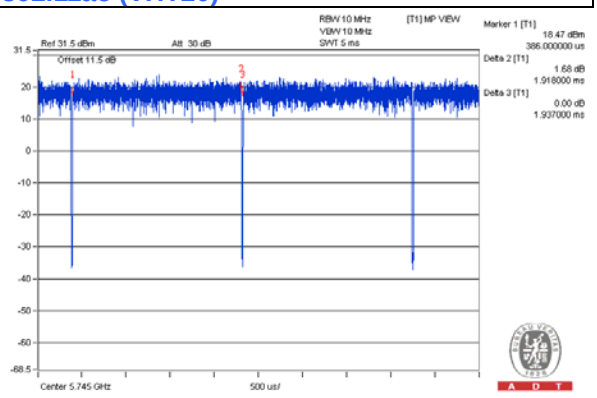
3.3 Duty Cycle of Test Signal

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 = 2.064 ms/2.086 ms = 0.989
802.11ac (VHT20): Duty cycle = 1.918 ms/1.937 ms = 0.99
802.11ac (VHT40): Duty cycle = 0.962 ms/0.981 ms = 0.981
802.11ac (VHT80): Duty cycle = 0.459 ms/0.478 ms = 0.96, Duty factor = 10 * log(1/0.96) = 0.18

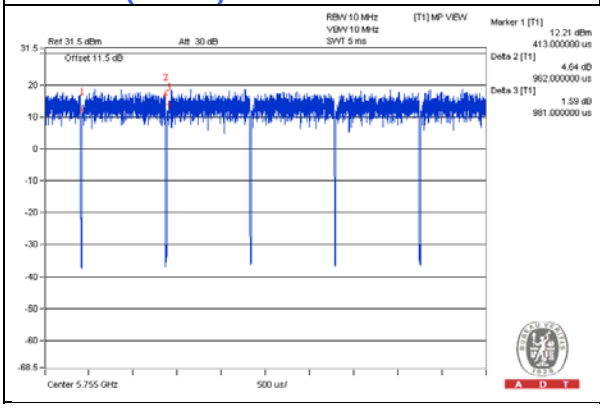
802.11a



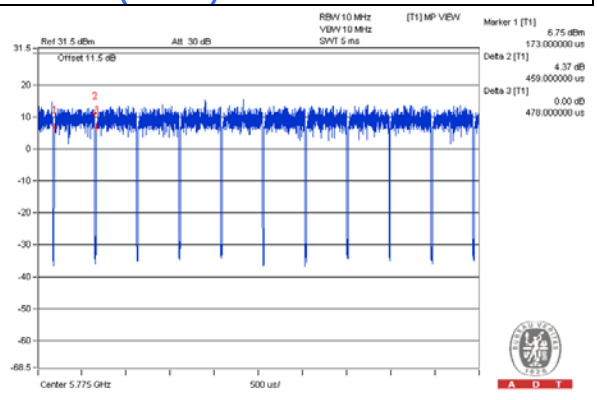
802.11ac (VHT20)



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.

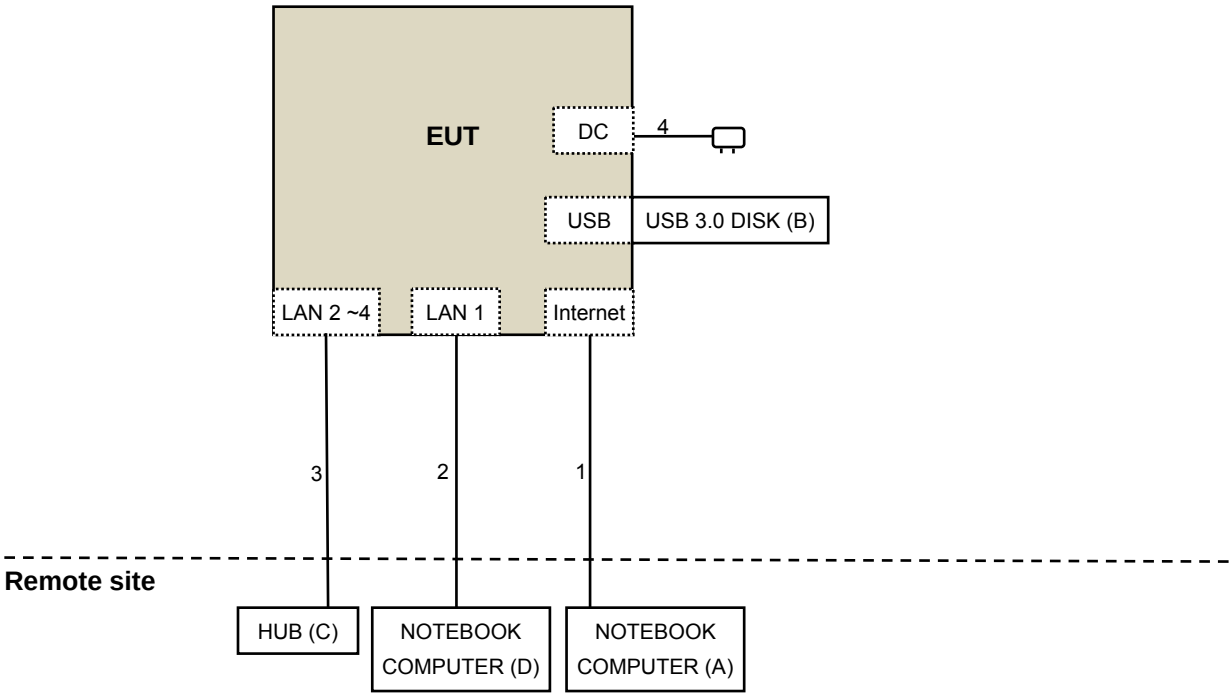
No.	Product	Brand	Model No.	Serial No.	FCC ID	Remark
A	NOTEBOOK COMOPUTER	DELL	E5430	HYV4VY1	FCC DoC	Provided by Lab
B	USB 3.0 DISK	NA	NA	NA	NA	Provided by Lab
C	HUB	ZyXEL	ES-116P	S060H02000215	FCC DoC	Provided by Lab
D	NOTEBOOK COMOPUTER	DELL	E5430	GM1SKV1	FCC DoC	Provided by Lab

NOTE:

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

No.	Cable	Qty.	Length (m)	Shielded (Yes/ No)	Cores (Number)	Remark
1	RJ45	1	10	No	0	Provided by Lab
2	RJ45	1	10	No	0	Provided by Lab
3	RJ45	3	10	No	0	Provided by Lab
4	DC	1	1.2	No	0	Supplied by Client

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 v01r01
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

APPLICABLE TO	**LIMIT**	
789033 D02 General UNII Test Procedure New Rules v01r01	FIELD STRENGTH AT 3m	
	PK:74 (dBμV/m)	AV:54 (dBμV/m)
APPLICABLE TO	**EIRP LIMIT**	**EQUIVALENT FIELD STRENGTH AT 3m**
15.407(b)(1)	PK:-27 (dBm/MHz)	PK:68.2(dBμV/m)
15.407(b)(2)		
15.407(b)(3)		
15.407(b)(4)	PK:-27 (dBm/MHz) [*1] PK:-17 (dBm/MHz) [*2]	PK: 68.2(dBμV/m) [*1] PK:78.2 (dBμV/m) [*2]

NOTE: [*1] beyond 10MHz of the band edge [*2] within 10 MHz of band edge

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

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

4.1.2 Test Instruments

For below 1GHz:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010156	Aug. 12, 2015	Aug. 11, 2016
Pre-Amplifier(*) EMCI	EMC001340	980142	Jan. 13, 2014	Jan. 12, 2016
Loop Antenna(*) Electro-Metrics	EM-6879	264	Dec. 16, 2014	Dec. 15, 2016
RF Cable	NA	LOOPCAB-001 LOOPCAB-002	Jan. 18, 2015	Jan. 17, 2016
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-07	May 08, 2015	May 07, 2016
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	138	Feb. 03, 2015	Feb. 02, 2016
RF Cable	8D	966-3-1 966-3-2 966-3-3	Apr. 03, 2015	Apr. 02, 2016
Software	ADT_Radiated_V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA

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 Loop antenna was used for all emissions below 30 MHz.
4. The test was performed in 966 Chamber No. 3.
5. The FCC Site Registration No. is 147459
6. The CANADA Site Registration No. is 20331-1
7. Tested Date: Jan. 11, 2016

For above 1GHz:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010156	Aug. 12, 2015	Aug. 11, 2016
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Feb. 05, 2015	Feb. 04, 2016
Pre-Amplifier Agilent	8449B	3008A02465	Apr. 06, 2015	Apr. 05, 2016
RF Cable	EMC104-SM-SM-2000 EMC104-SM-SM-5000 EMC104-SM-SM-5000	150317 150321 150322	Mar. 31, 2015	Mar. 30, 2016
Spectrum Analyzer Keysight	N9030A	MY54490520	July 26, 2015	July 25, 2016
Pre-Amplifier EMCI	EMC184045	980143	Jan. 15, 2016	Jan. 14, 2017
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Feb. 05, 2015	Feb. 04, 2016
RF Cable	SUCOFLEX 102	36432/2 36441/2	Jan. 16, 2016	Jan. 15, 2017
Software	ADT_Radiated _V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	NA	NA	NA
Power Meter Anritsu	ML2495A	1014008	Apr. 28, 2015	Apr. 27, 2016
Power Sensor Anritsu	MA2411B	0917122	Apr. 28, 2015	Apr. 27, 2016
Spectrum Analyzer R&S	FSP40	100060	May 08, 2015	May 07, 2016

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 test was performed in 966 Chamber No. 3.
3. The FCC Site Registration No. is 147459
4. The CANADA Site Registration No. is 20331-1
5. Tested Date: Jan. 19, 2016

4.1.3 Test Procedure

a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

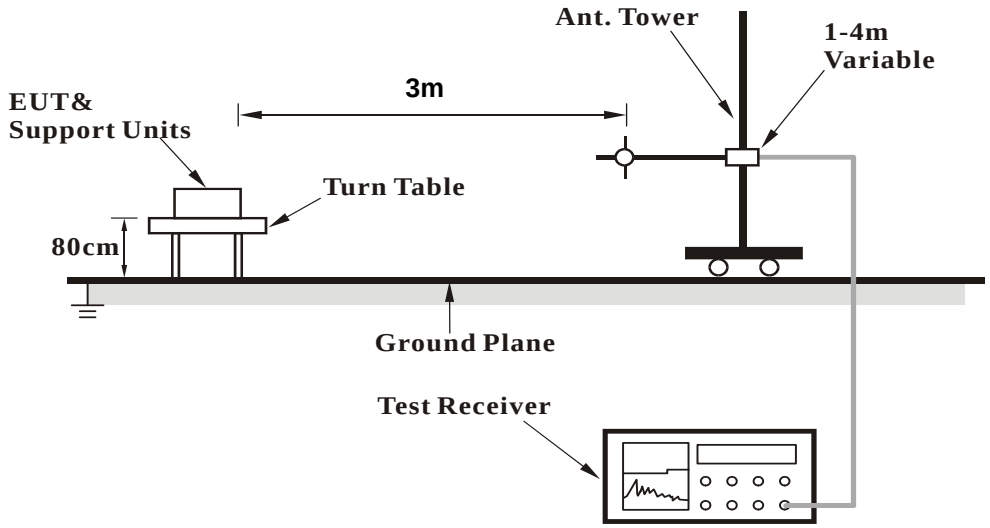
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (10 log(1/duty cycle)).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

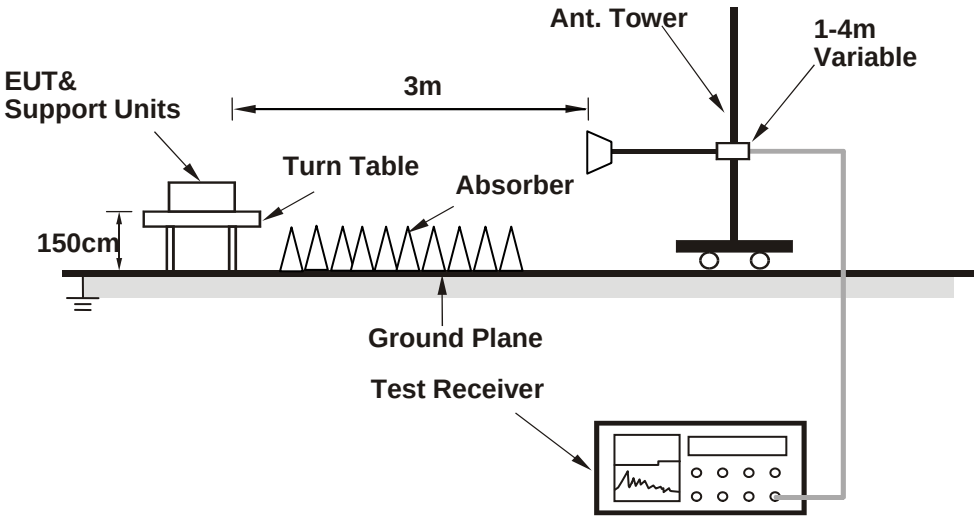
No deviation.

4.1.5 Test Setup

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



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

4.1.6 EUT Operating Condition

1. Connect the EUT with the supports units A & D (NOTEBOOK COMPUTER) which is placed on remote site.
2. Controlling software (MTool 2.0.1.0.msi) has been activated to set the EUT on specific status.

4.1.7 Test Results

Above 1GHz Data

802.11a

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	#5583.90	64.5 PK	68.2	-3.7	2.77 H	313	55.14	9.36
2	#5715.00	65.6 PK	74.0	-8.4	2.68 H	320	55.92	9.68
3	#5715.00	45.6 AV	54.0	-8.4	2.68 H	320	35.92	9.68
4	**#5725.00**	**77.9 PK**	**78.2**	**-0.3**	**2.68 H**	**320**	**68.20**	**9.70**
5	*5745.00	115.0 PK			2.68 H	320	105.24	9.76
6	*5745.00	104.6 AV			2.68 H	320	94.84	9.76
7	11490.00	54.9 PK	74.0	-19.1	1.00 H	256	40.04	14.86
8	11490.00	45.0 AV	54.0	-9.0	1.00 H	256	30.14	14.86
9	#17235.00	61.9 PK	74.0	-12.1	1.08 H	255	38.67	23.23
10	#17235.00	49.7 AV	54.0	-4.3	1.08 H	255	26.47	23.23
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	#5583.90	60.9 PK	68.2	-7.3	3.26 V	194	51.54	9.36
2	#5715.00	57.1 PK	74.0	-16.9	2.36 V	205	47.42	9.68
3	#5715.00	43.9 AV	54.0	-10.1	2.36 V	205	34.22	9.68
4	#5725.00	76.6 PK	78.2	-1.6	2.36 V	205	66.90	9.70
5	*5745.00	111.7 PK			2.36 V	205	101.94	9.76
6	*5745.00	102.2 AV			2.36 V	205	92.44	9.76
7	11490.00	58.0 PK	74.0	-16.0	1.00 V	202	43.14	14.86
8	11490.00	46.0 AV	54.0	-8.0	1.00 V	202	31.14	14.86
9	#17235.00	62.6 PK	74.0	-11.4	1.12 V	162	39.37	23.23
10	#17235.00	50.3 AV	54.0	-3.7	1.12 V	162	27.07	23.23

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5624.10	57.3 PK	74.0	-16.7	2.91 H	324	47.87	9.43
2	#5624.10	46.9 AV	54.0	-7.1	2.91 H	324	37.47	9.43
3	#5704.10	66.4 PK	68.2	-1.8	2.90 H	329	56.75	9.65
4	#5725.00	59.7 PK	78.2	-18.5	2.66 H	317	50.00	9.70
5	*5785.00	118.9 PK			2.66 H	317	109.05	9.85
6	*5785.00	108.8 AV			2.66 H	317	98.95	9.85
7	#5850.00	61.1 PK	78.2	-17.1	2.66 H	317	51.18	9.92
8	#5860.00	67.8 PK	68.2	-0.4	2.16 H	322	57.87	9.93
9	#5942.10	60.3 PK	74.0	-13.7	2.16 H	320	50.16	10.14
10	#5942.10	50.4 AV	54.0	-3.6	2.16 H	320	40.26	10.14
11	11570.00	54.9 PK	74.0	-19.1	1.00 H	267	39.70	15.20
12	11570.00	45.2 AV	54.0	-8.8	1.00 H	267	30.00	15.20
13	#17355.00	61.6 PK	74.0	-12.4	1.05 H	268	38.04	23.56
14	#17355.00	49.5 AV	54.0	-4.5	1.05 H	268	25.94	23.56
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	#5624.10	55.4 PK	74.0	-18.6	2.31 V	180	45.97	9.43
2	#5624.10	44.2 AV	54.0	-9.8	2.31 V	180	34.77	9.43
3	#5704.10	64.3 PK	68.2	-3.9	2.31 V	177	54.65	9.65
4	#5725.00	58.2 PK	78.2	-20.0	2.34 V	198	48.50	9.70
5	*5785.00	116.1 PK			2.34 V	198	106.25	9.85
6	*5785.00	106.3 AV			2.34 V	198	96.45	9.85
7	#5850.00	59.6 PK	78.2	-18.6	2.34 V	198	49.68	9.92
8	#5860.00	65.2 PK	68.2	-3.0	2.34 V	198	55.27	9.93
9	#5942.10	57.3 PK	74.0	-16.7	2.30 V	184	47.16	10.14
10	#5942.10	48.6 AV	54.0	-5.4	2.30 V	184	38.46	10.14
11	11570.00	57.9 PK	74.0	-16.1	1.02 V	187	42.70	15.20
12	11570.00	46.0 AV	54.0	-8.0	1.02 V	187	30.80	15.20
13	#17355.00	62.3 PK	74.0	-11.7	1.16 V	163	38.74	23.56
14	#17355.00	50.2 AV	54.0	-3.8	1.16 V	163	26.64	23.56

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	118.4 PK			2.11 H	320	108.49	9.91
2	*5825.00	107.1 AV			2.11 H	320	97.19	9.91
3	#5850.00	77.4 PK	78.2	-0.8	2.11 H	320	67.48	9.92
4	#5860.00	70.4 PK	74.0	-3.6	2.11 H	320	60.47	9.93
5	#5860.00	51.1 AV	54.0	-2.9	2.11 H	320	41.17	9.93
6	#5903.90	67.7 PK	68.2	-0.5	2.08 H	321	57.72	9.98
7	#5983.50	60.2 PK	74.0	-13.8	2.11 H	321	49.87	10.33
8	#5983.50	50.1 AV	54.0	-3.9	2.11 H	321	39.77	10.33
9	11650.00	54.7 PK	74.0	-19.3	1.04 H	255	39.30	15.40
10	11650.00	44.5 AV	54.0	-9.5	1.04 H	255	29.10	15.40
11	#17475.00	62.1 PK	74.0	-11.9	1.07 H	244	38.01	24.09
12	#17475.00	49.7 AV	54.0	-4.3	1.07 H	244	25.61	24.09
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	116.3 PK			2.35 V	199	106.39	9.91
2	*5825.00	105.1 AV			2.35 V	199	95.19	9.91
3	#5850.00	76.4 PK	78.2	-1.8	2.35 V	199	66.48	9.92
4	#5860.00	67.7 PK	74.0	-6.3	2.35 V	199	57.77	9.93
5	#5860.00	49.2 AV	54.0	-4.8	2.35 V	199	39.27	9.93
6	#5903.90	65.4 PK	68.2	-2.8	2.30 V	186	55.42	9.98
7	#5983.50	58.3 PK	74.0	-15.7	2.35 V	190	47.97	10.33
8	#5983.50	48.1 AV	54.0	-5.9	2.35 V	190	37.77	10.33
9	11650.00	57.7 PK	74.0	-16.3	1.00 V	203	42.30	15.40
10	11650.00	45.6 AV	54.0	-8.4	1.00 V	203	30.20	15.40
11	#17475.00	62.7 PK	74.0	-11.3	1.07 V	164	38.61	24.09
12	#17475.00	50.4 AV	54.0	-3.6	1.07 V	164	26.31	24.09

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 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	#5586.20	62.4 PK	74.0	-11.6	2.70 H	310	53.04	9.36
2	#5586.20	52.6 AV	54.0	-1.4	2.70 H	310	43.24	9.36
3	**#5725.00**	**77.9 PK**	**78.2**	**-0.3**	**2.83 H**	**333**	**68.20**	**9.70**
4	*5745.00	112.1 PK			2.83 H	333	102.34	9.76
5	*5745.00	102.4 AV			2.83 H	333	92.64	9.76
6	11490.00	55.2 PK	74.0	-18.8	1.05 H	256	40.34	14.86
7	11490.00	45.4 AV	54.0	-8.6	1.05 H	256	30.54	14.86
8	#17235.00	62.0 PK	74.0	-12.0	1.05 H	241	38.77	23.23
9	#17235.00	50.1 AV	54.0	-3.9	1.05 H	241	26.87	23.23
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	#5586.20	60.2 PK	74.0	-13.8	2.30 V	190	50.84	9.36
2	#5586.20	50.4 AV	54.0	-3.6	2.30 V	190	41.04	9.36
3	#5725.00	76.5 PK	78.2	-1.7	2.36 V	194	66.80	9.70
4	*5745.00	110.3 PK			2.36 V	194	100.54	9.76
5	*5745.00	100.1 AV			2.36 V	194	90.34	9.76
6	11490.00	57.7 PK	74.0	-16.3	1.00 V	186	42.84	14.86
7	11490.00	45.5 AV	54.0	-8.5	1.00 V	186	30.64	14.86
8	#17235.00	62.9 PK	74.0	-11.1	1.09 V	148	39.67	23.23
9	#17235.00	50.7 AV	54.0	-3.3	1.09 V	148	27.47	23.23

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5624.10	57.6 PK	74.0	-16.4	2.91 H	324	48.17	9.43
2	#5624.10	47.1 AV	54.0	-6.9	2.91 H	324	37.67	9.43
3	#5704.10	65.5 PK	68.2	-2.7	2.89 H	326	55.85	9.65
4	#5725.00	66.1 PK	78.2	-12.1	2.83 H	327	56.40	9.70
5	*5785.00	118.3 PK			2.83 H	327	108.45	9.85
6	*5785.00	107.1 AV			2.83 H	327	97.25	9.85
7	#5850.00	66.3 PK	78.2	-11.9	2.83 H	327	56.38	9.92
8	#5860.00	67.7 PK	68.2	-0.5	2.05 H	326	57.77	9.93
9	#5942.10	59.6 PK	74.0	-14.4	2.06 H	326	49.46	10.14
10	#5942.10	49.1 AV	54.0	-4.9	2.06 H	326	38.96	10.14
11	11570.00	54.8 PK	74.0	-19.2	1.04 H	249	39.60	15.20
12	11570.00	44.9 AV	54.0	-9.1	1.04 H	249	29.70	15.20
13	#17355.00	61.5 PK	74.0	-12.5	1.04 H	266	37.94	23.56
14	#17355.00	49.6 AV	54.0	-4.4	1.04 H	266	26.04	23.56
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	#5624.10	55.4 PK	74.0	-18.6	2.43 V	186	45.97	9.43
2	#5624.10	45.4 AV	54.0	-8.6	2.43 V	186	35.97	9.43
3	#5704.10	63.3 PK	68.2	-4.9	2.52 V	190	53.65	9.65
4	#5725.00	65.2 PK	78.2	-13.0	2.40 V	189	55.50	9.70
5	*5785.00	115.6 PK			2.40 V	189	105.75	9.85
6	*5785.00	105.9 AV			2.40 V	189	96.05	9.85
7	#5850.00	65.4 PK	78.2	-12.8	2.40 V	189	55.48	9.92
8	#5860.00	65.4 PK	68.2	-2.8	2.40 V	189	55.47	9.93
9	#5942.10	57.5 PK	74.0	-16.5	2.42 V	180	47.36	10.14
10	#5942.10	47.6 AV	54.0	-6.4	2.42 V	180	37.46	10.14
11	11570.00	58.5 PK	74.0	-15.5	1.03 V	210	43.30	15.20
12	11570.00	46.3 AV	54.0	-7.7	1.03 V	210	31.10	15.20
13	#17355.00	62.3 PK	74.0	-11.7	1.10 V	151	38.74	23.56
14	#17355.00	50.2 AV	54.0	-3.8	1.10 V	151	26.64	23.56

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	116.6 PK			2.16 H	335	106.69	9.91
2	*5825.00	105.8 AV			2.16 H	335	95.89	9.91
3	#5850.00	76.2 PK	78.2	-2.0	2.16 H	335	66.28	9.92
4	#5860.00	70.5 PK	74.0	-3.5	2.16 H	335	60.57	9.93
5	#5860.00	53.5 AV	54.0	-0.5	2.16 H	335	43.57	9.93
6	#5903.90	64.4 PK	68.2	-3.8	2.16 H	333	54.42	9.98
7	#5983.50	58.4 PK	74.0	-15.6	2.15 H	333	48.07	10.33
8	#5983.50	48.9 AV	54.0	-5.1	2.15 H	333	38.57	10.33
9	11650.00	54.5 PK	74.0	-19.5	1.05 H	249	39.10	15.40
10	11650.00	44.8 AV	54.0	-9.2	1.05 H	249	29.40	15.40
11	#17475.00	61.9 PK	74.0	-12.1	1.09 H	265	37.81	24.09
12	#17475.00	49.9 AV	54.0	-4.1	1.09 H	265	25.81	24.09
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	112.9 PK			2.18 V	302	102.99	9.91
2	*5825.00	103.1 AV			2.18 V	302	93.19	9.91
3	#5850.00	75.4 PK	78.2	-2.8	2.18 V	302	65.48	9.92
4	#5860.00	65.8 PK	74.0	-8.2	2.18 V	302	55.87	9.93
5	#5860.00	50.0 AV	54.0	-4.0	2.18 V	302	40.07	9.93
6	#5903.90	62.1 PK	68.2	-6.1	2.20 V	315	52.12	9.98
7	#5983.50	56.3 PK	74.0	-17.7	2.12 V	298	45.97	10.33
8	#5983.50	46.5 AV	54.0	-7.5	2.12 V	298	36.17	10.33
9	11650.00	58.4 PK	74.0	-15.6	1.00 V	188	43.00	15.40
10	11650.00	46.3 AV	54.0	-7.7	1.00 V	188	30.90	15.40
11	#17475.00	62.6 PK	74.0	-11.4	1.13 V	155	38.51	24.09
12	#17475.00	50.5 AV	54.0	-3.5	1.13 V	155	26.41	24.09

REMARKS:

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

802.11ac (VHT40)

CHANNEL	TX Channel 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	#5715.00	70.1 PK	74.0	-3.9	2.20 H	329	60.42	9.68
2	**#5715.00**	**53.7 AV**	**54.0**	**-0.3**	**2.20 H**	**329**	**44.02**	**9.68**
3	#5725.00	75.1 PK	78.2	-3.1	2.20 H	329	65.40	9.70
4	*5755.00	109.4 PK			2.20 H	329	99.63	9.77
5	*5755.00	98.1 AV			2.20 H	329	88.33	9.77
6	11510.00	54.4 PK	74.0	-19.6	1.02 H	241	39.55	14.85
7	11510.00	44.7 AV	54.0	-9.3	1.02 H	241	29.85	14.85
8	#17265.00	61.7 PK	74.0	-12.3	1.13 H	250	38.47	23.23
9	#17265.00	49.3 AV	54.0	-4.7	1.13 H	250	26.07	23.23
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	#5715.00	68.3 PK	74.0	-5.7	2.14 V	294	58.62	9.68
2	#5715.00	51.4 AV	54.0	-2.6	2.14 V	294	41.72	9.68
3	#5725.00	74.6 PK	78.2	-3.6	2.14 V	294	64.90	9.70
4	*5755.00	107.3 PK			2.14 V	294	97.53	9.77
5	*5755.00	95.9 AV			2.14 V	294	86.13	9.77
6	11510.00	58.5 PK	74.0	-15.5	1.01 V	215	43.65	14.85
7	11510.00	46.3 AV	54.0	-7.7	1.01 V	215	31.45	14.85
8	#17265.00	62.2 PK	74.0	-11.8	1.13 V	174	38.97	23.23
9	#17265.00	50.1 AV	54.0	-3.9	1.13 V	174	26.87	23.23

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	114.2 PK			2.17 H	327	104.32	9.88
2	*5795.00	101.7 AV			2.17 H	327	91.82	9.88
3	#5850.00	71.7 PK	78.2	-6.5	2.17 H	327	61.78	9.92
4	#5860.00	66.1 PK	74.0	-7.9	2.17 H	327	56.17	9.93
5	#5860.00	53.6 AV	54.0	-0.4	2.17 H	327	43.67	9.93
6	11590.00	54.2 PK	74.0	-19.8	1.01 H	257	38.89	15.31
7	11590.00	44.5 AV	54.0	-9.5	1.01 H	257	29.19	15.31
8	#17385.00	61.5 PK	74.0	-12.5	1.03 H	267	37.74	23.76
9	#17385.00	49.5 AV	54.0	-4.5	1.03 H	267	25.74	23.76
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	112.2 PK			2.00 V	284	102.32	9.88
2	*5795.00	99.6 AV			2.00 V	284	89.72	9.88
3	#5850.00	70.3 PK	78.2	-7.9	2.00 V	284	60.38	9.92
4	#5860.00	64.3 PK	74.0	-9.7	2.00 V	284	54.37	9.93
5	#5860.00	51.4 AV	54.0	-2.6	2.00 V	284	41.47	9.93
6	11590.00	58.2 PK	74.0	-15.8	1.04 V	187	42.89	15.31
7	11590.00	46.2 AV	54.0	-7.8	1.04 V	187	30.89	15.31
8	#17385.00	61.8 PK	74.0	-12.2	1.17 V	163	38.04	23.76
9	#17385.00	49.8 AV	54.0	-4.2	1.17 V	163	26.04	23.76

REMARKS:

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

802.11ac (VHT80)

CHANNEL	TX Channel 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	#5715.00	68.6 PK	74.0	-5.4	2.18 H	326	58.92	9.68
2	#5715.00	53.4 AV	54.0	-0.6	2.18 H	326	43.72	9.68
3	#5725.00	71.8 PK	78.2	-6.4	2.18 H	326	62.10	9.70
4	*5775.00	105.3 PK			2.18 H	326	95.47	9.83
5	*5775.00	92.8 AV			2.18 H	326	82.97	9.83
6	#5850.00	64.1 PK	78.2	-14.1	2.18 H	326	54.18	9.92
7	#5860.00	59.7 PK	74.0	-14.3	2.18 H	326	49.77	9.93
8	#5860.00	46.5 AV	54.0	-7.5	2.18 H	326	36.57	9.93
9	11550.00	52.6 PK	74.0	-21.4	1.01 H	245	37.51	15.09
10	11550.00	42.4 AV	54.0	-11.6	1.01 H	245	27.31	15.09
11	#17325.00	60.5 PK	74.0	-13.5	1.09 H	240	37.12	23.38
12	#17325.00	48.3 AV	54.0	-5.7	1.09 H	240	24.92	23.38
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	#5715.00	66.5 PK	74.0	-7.5	2.10 V	288	56.82	9.68
2	#5715.00	51.4 AV	54.0	-2.6	2.10 V	288	41.72	9.68
3	#5725.00	70.3 PK	78.2	-7.9	2.10 V	288	60.60	9.70
4	*5775.00	102.2 PK			2.10 V	288	92.37	9.83
5	*5775.00	90.3 AV			2.10 V	288	80.47	9.83
6	#5850.00	63.1 PK	78.2	-15.1	2.10 V	288	53.18	9.92
7	#5860.00	57.6 PK	74.0	-16.4	2.10 V	288	47.67	9.93
8	#5860.00	44.2 AV	54.0	-9.8	2.10 V	288	34.27	9.93
9	11550.00	55.4 PK	74.0	-18.6	1.01 V	208	40.31	15.09
10	11550.00	43.2 AV	54.0	-10.8	1.01 V	208	28.11	15.09
11	#17325.00	60.4 PK	74.0	-13.6	1.06 V	162	37.02	23.38
12	#17325.00	48.6 AV	54.0	-5.4	1.06 V	162	25.22	23.38

REMARKS:

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

Below 1GHz Data

802.11a

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	Below 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	35.16	33.5 QP	40.0	-6.5	1.01 H	191	43.00	-9.48
2	42.39	34.4 QP	40.0	-5.6	1.00 H	217	42.95	-8.58
3	98.38	35.3 QP	43.5	-8.2	1.00 H	335	48.65	-13.37
4	196.49	37.3 QP	43.5	-6.2	1.00 H	78	48.71	-11.38
5	282.37	33.4 QP	46.0	-12.6	1.00 H	121	41.38	-7.97
6	807.19	30.3 QP	46.0	-15.7	2.00 H	111	27.11	3.16
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	34.63	36.5 QP	40.0	-3.5	1.01 V	327	45.94	-9.47
2	86.17	32.5 QP	40.0	-7.5	1.50 V	117	46.43	-13.93
3	167.23	34.2 QP	43.5	-9.4	1.00 V	113	42.27	-8.12
4	272.28	33.3 QP	46.0	-12.8	1.50 V	342	41.56	-8.31
5	420.27	28.8 QP	46.0	-17.2	1.50 V	114	33.11	-4.30
6	644.22	30.3 QP	46.0	-15.7	1.00 V	114	29.57	0.73

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

4.2 Transmit Power Measurment

4.2.1 Limits of Transmit Power Measurement

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

*B is the 26 dB emission bandwidth in megahertz

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

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

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

4.2.2 Test Setup

4.2.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.2.4 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.

4.2.5 Deviation from Test Standard

No deviation.

4.2.6 EUT Operating Condition

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

4.2.7 Test Result

802.11a

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
149	5745	17.30	17.51	18.04	173.747	22.40	30	Pass
157	5785	22.36	21.58	22.60	498.037	26.97	30	Pass
165	5825	20.80	20.55	21.26	367.387	25.65	30	Pass

802.11ac (VHT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
149	5745	17.23	17.49	17.94	171.18	22.33	30	Pass
157	5785	22.57	21.58	22.68	509.95	27.08	30	Pass
165	5825	20.29	20.12	20.72	327.739	25.16	30	Pass

802.11ac (VHT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
151	5755	15.75	16.25	16.54	124.836	20.96	30	Pass
159	5795	19.52	19.64	20.32	289.228	24.61	30	Pass

802.11ac (VHT80)

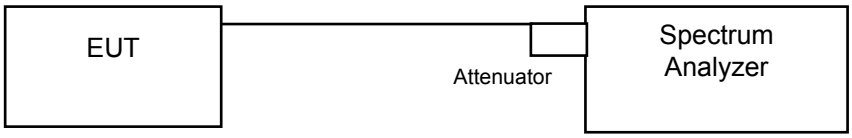
Chan.	Freq. (MHz)	Maximum Conducted Power (dBm)			Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2				
155	5775	14.40	15.61	15.05	95.923	19.82	30	Pass

4.3 Peak Power Spectral Density Measurement

4.3.1 Limits of Peak Power Spectral Density Measurement

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

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

Without duty cycle

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

With duty cycle

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

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Condition

Same as Item 4.2.6.

4.3.7 Test Results

802.11a

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=3) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
0	149	5745	-3.05	-0.83	4.77	3.94	28.73	Pass
	157	5785	1.47	3.69	4.77	8.46	28.73	Pass
	165	5825	0.65	2.87	4.77	7.64	28.73	Pass
1	149	5745	-2.64	-0.42	4.77	4.35	28.73	Pass
	157	5785	1.64	3.86	4.77	8.63	28.73	Pass
	165	5825	0.74	2.96	4.77	7.73	28.73	Pass
2	149	5745	-2.71	-0.49	4.77	4.28	28.73	Pass
	157	5785	1.80	4.02	4.77	8.79	28.73	Pass
	165	5825	0.92	3.14	4.77	7.91	28.73	Pass

Note: 1. Directional gain = 2.5dBi + 10log(3) = 7.27dBi > 6dBi , so the power density limit shall be reduced to 30-(7.27-6) = 28.73dBm.

802.11ac (VHT20)

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=3) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
0	149	5745	-3.82	-1.60	4.77	3.17	28.73	Pass
	157	5785	1.56	3.78	4.77	8.55	28.73	Pass
	165	5825	-0.31	1.91	4.77	6.68	28.73	Pass
1	149	5745	-3.58	-1.36	4.77	3.41	28.73	Pass
	157	5785	1.60	3.82	4.77	8.59	28.73	Pass
	165	5825	-0.21	2.01	4.77	6.78	28.73	Pass
2	149	5745	-3.58	-1.36	4.77	3.41	28.73	Pass
	157	5785	1.86	4.08	4.77	8.85	28.73	Pass
	165	5825	0.11	2.33	4.77	7.10	28.73	Pass

Note: 1. Directional gain = 2.5dBi + 10log(3) = 7.27dBi > 6dBi , so the power density limit shall be reduced to 30-(7.27-6) = 28.73dBm.

802.11ac (VHT40)

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=3) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
0	151	5755	-8.26	-6.04	4.77	-1.27	28.73	Pass
	159	5795	-4.43	-2.21	4.77	2.56	28.73	Pass
1	151	5755	-8.28	-6.06	4.77	-1.29	28.73	Pass
	159	5795	-4.35	-2.13	4.77	2.64	28.73	Pass
2	151	5755	-7.80	-5.58	4.77	-0.81	28.73	Pass
	159	5795	-3.98	-1.76	4.77	3.01	28.73	Pass

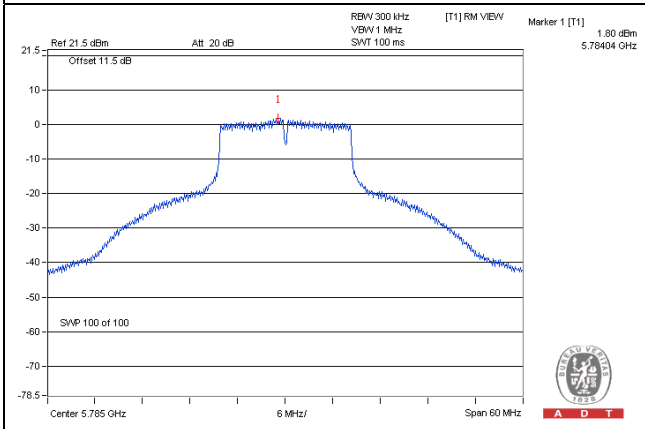
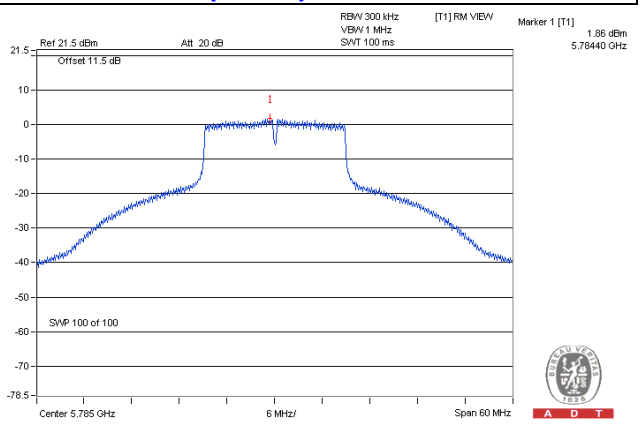
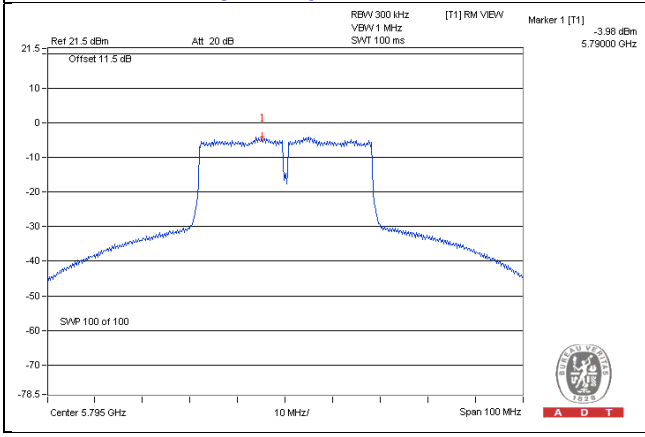
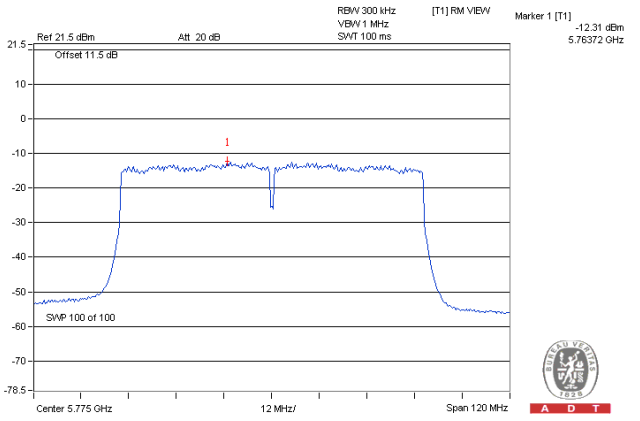
Note: 1. Directional gain = 2.5dBi + 10log(3) = 7.27dBi > 6dBi , so the power density limit shall be reduced to 30-(7.27-6) = 28.73dBm.

802.11ac (VHT80)

TX chain	Chan.	Chan. Freq. (MHz)	PSD W/O Duty Factor		10 log (N=3) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass /Fail
			(dBm/300kHz)	(dBm/500kHz)					
0	155	5775	-12.96	-10.74	4.77	0.18	-5.79	28.73	Pass
1	155	5775	-12.79	-10.57	4.77	0.18	-5.62	28.73	Pass
2	155	5775	-12.31	-10.09	4.77	0.18	-5.14	28.73	Pass

Note: 1. Directional gain = 2.5dBi + 10log(3) = 7.27dBi > 6dBi , so the power density limit shall be reduced to 30-(7.27-6) = 28.73dBm.

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

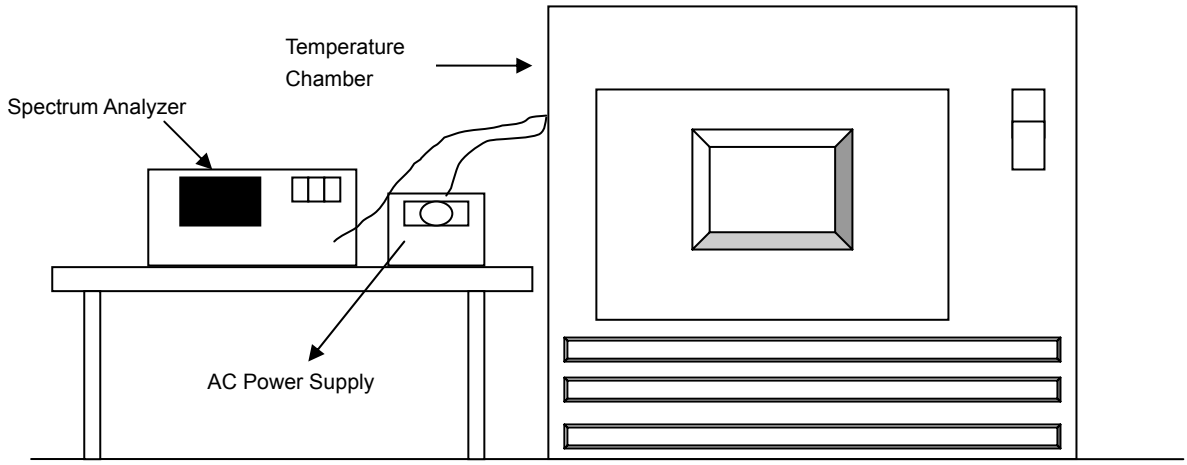
Spectrum Plot of Worst Value	
802.11a – Chain 2: CH 157	**802.11ac (VHT20) – Chain 2: CH 157**
	
802.11ac (VHT40) – Chain 2: CH 159	**802.11ac (VHT80) – Chain 2: CH 155**
	

4.4 Frequency Stability Measurement

4.4.1 Limits of Frequency Stability Measurement

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

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedure

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

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Condition

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

4.4.7 Test Results

FREQUEMCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5745MHz									
TEMP. (℃)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
50	120	5744.9871	-0.00022	5744.9869	-0.00023	5744.9852	-0.00026	5744.984	-0.00028
40	120	5744.9753	-0.00043	5744.9754	-0.00043	5744.9754	-0.00043	5744.9743	-0.00045
30	120	5745.0227	0.00040	5745.0227	0.00040	5745.0228	0.00040	5745.023	0.00040
20	120	5744.9763	-0.00041	5744.9772	-0.00040	5744.9756	-0.00042	5744.9736	-0.00046
10	120	5744.989	-0.00019	5744.9916	-0.00015	5744.9904	-0.00017	5744.9896	-0.00018
0	120	5745.0196	0.00034	5745.0167	0.00029	5745.0165	0.00029	5745.0206	0.00036
-10	120	5745.0271	0.00047	5745.0265	0.00046	5745.0249	0.00043	5745.0231	0.00040
-20	120	5745.0244	0.00042	5745.0239	0.00042	5745.0245	0.00043	5745.0218	0.00038
-30	120	5745.0226	0.00039	5745.0256	0.00045	5745.023	0.00040	5745.0213	0.00037

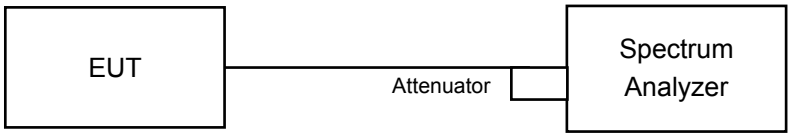
FREQUEMCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5745MHz									
TEMP. (℃)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	138	5744.9752	-0.00043	5744.9781	-0.00038	5744.9756	-0.00042	5744.973	-0.00047
	120	5744.9763	-0.00041	5744.9772	-0.00040	5744.9756	-0.00042	5744.9736	-0.00046
	102	5744.9771	-0.00040	5744.9762	-0.00041	5744.9755	-0.00043	5744.9743	-0.00045

4.5 6dB Bandwidth Measurment

4.5.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

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

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

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

4.5.7 Test Results

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
149	5745	16.41	16.41	16.41	0.5	Pass
157	5785	16.38	16.38	16.40	0.5	Pass
165	5825	16.38	16.38	16.38	0.5	Pass

802.11ac (VHT20)

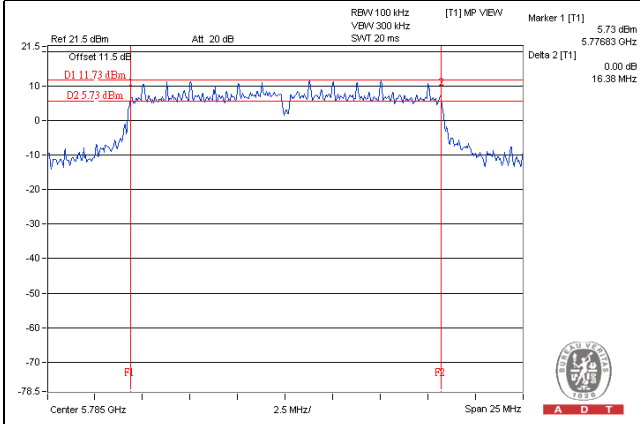
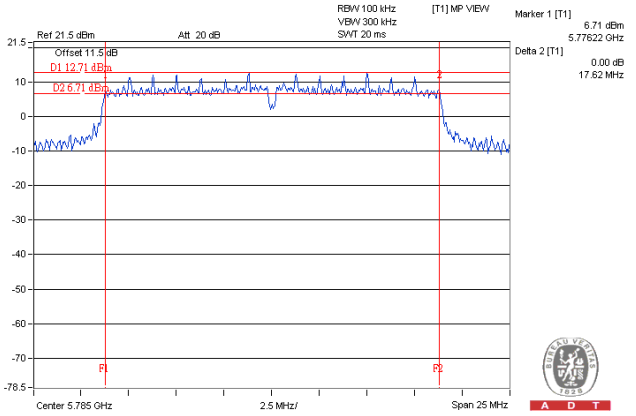
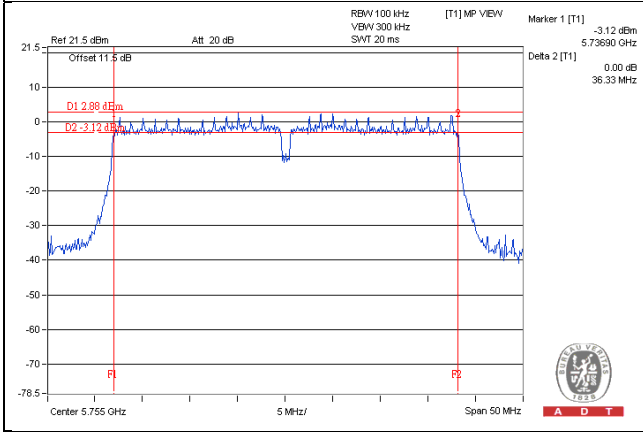
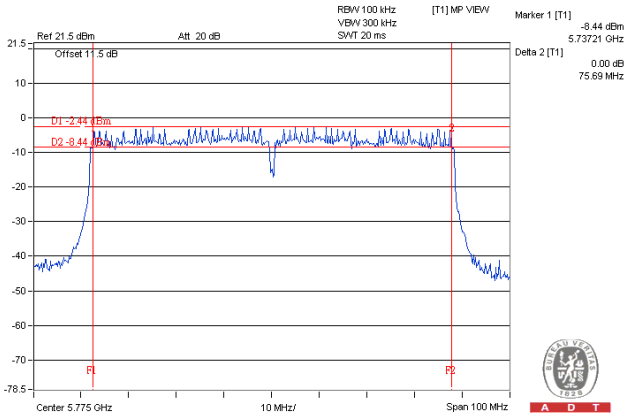
Channel	Frequency (MHz)	6dB Bandwidth (MHz)			6dB Bandwidth (MHz)	6dB Bandwidth (MHz)
		Chain 0	Chain 1	Chain 2		
149	5745	17.66	17.68	17.67	0.5	Pass
157	5785	17.64	17.63	17.62	0.5	Pass
165	5825	17.65	17.66	17.63	0.5	Pass

802.11ac (VHT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			6dB Bandwidth (MHz)	6dB Bandwidth (MHz)
		Chain 0	Chain 1	Chain 2		
151	5755	36.38	36.36	36.33	0.5	Pass
159	5795	36.43	36.44	36.43	0.5	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)			Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2		
155	5775	75.69	75.75	76.41	0.5	Pass

Spectrum Plot of Worst Value	
802.11a – Chain 0: CH 157	**802.11ac (VHT20) – Chain 2: CH 157**
	
802.11ac (VHT40) – Chain 2: CH 151	**802.11ac (VHT80) – Chain 0: CH 155**
	

5 Pictures of Test Arrangements

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

Appendix – Information on the Testing Laboratories

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

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

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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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