FCC Test Report

Report No.:	RF151005E12-1
FCC ID:	MCQ-50M1899
Test Model:	50001899-03
Series Model:	50001899-XX (X=0~9)
Received Date:	Oct. 05, 2015
Test Date:	Oct. 21, 2015 to Jan. 07, 2016
Issued Date:	May 16, 2016
Applicant:	Digi International Inc.
Address:	11001 Bren Road East, Minnetonka, MN 55343
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
RF151005E12-1	Original release.	May 16, 2016

1 Certificate of Conformity

Product:	TransPort LR54
Brand:	Digi International
Test Model:	50001899-03
Series Model:	50001899-XX (X=0~9)
Sample Status:	ENGINEERING SAMPLE
Applicant:	Digi International Inc.
Test Date:	Oct. 21, 2015 to Jan. 07, 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:** May 16, 2016

Claire Kuan / Specialist

Approved by : _____ , **Date:** May 16, 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)(6)	AC Power Conducted Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -8.46dB at 0.50938MHz.
15.407(b) (1/2/3/4/6)	Radiated Emissions & Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.1dB at 5725.00MHz.
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 R-SMA not a standard connector.

NOTE: The EUT was operating in 2400 ~ 2483.5MHz, 5150~5250MHz and 5725~5850MHz frequencies band. This report was recorded the RF parameters including 5150~5250MHz and 5725~5850MHz. For the 2400 ~ 2483.5MHz RF parameters was recorded in another test report.

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	TransPort LR54
Brand	Digi International
Test Model	50001899-03
Series Model	50001899-XX (X=0~9)
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 300Mbps 802.11ac: up to 866.7Mbps
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	**5GHz:** **5GHz (5.18 ~ 5.24GHz):** 802.11a: 139.959mW **5GHz (5.745 ~ 5.825GHz):** 802.11a: 174.985mW **CDD Mode:** **5GHz (5.18 ~ 5.24GHz):** 802.11ac (VHT20): 307.971mW 802.11ac (VHT40): 139.274mW 802.11ac (VHT80): 44.268mW **5GHz (5.745 ~ 5.825GHz):** 802.11ac (VHT20): 351.295mW 802.11ac (VHT40): 173.657mW 802.11ac (VHT80): 46.281mW **Beamforming Mode:** **5GHz (5.18 ~ 5.24GHz):** 802.11ac (VHT20): 307.971mW 802.11ac (VHT40): 139.274mW 802.11ac (VHT80): 44.268mW **5GHz (5.745 ~ 5.825GHz):** 802.11ac (VHT20): 351.295mW 802.11ac (VHT40): 173.657mW 802.11ac (VHT80): 46.281mW
	2.4GHz: 802.11b: 229.087mW 802.11g: 295.121mW **CDD Mode:** 802.11n(HT20): 651.784mW 802.11n(HT40): 449.869mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x 1
Data Cable Supplied	NA

Note:

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

Brand Name	Model No.	Description
Digi International	50001899-03	For marketing requirement
	50001899-XX (X=0~9)	
From the above models, model: 50001899-03 was selected as representative model for the test and its data was recorded in this report.		

2. There are WLAN(2.4GHz/5GHz), WWAN(3G) and LTE(4G) technology used for the EUT.
3. The emission of the simultaneous operation (WLAN, WWAN(3G) and LTE(4G)) has been evaluated and no non-compliance was found.
4. The EUT could be supplied with a power adapter as the following table:

Brand	Model No.	Spec.
MASS POWER	NBS30D120200M2	AC I/P: 100-240V, 50/60Hz, 0.8A AC input cable (Unshielded, 1.4m) DC O/P: 12V, 2A DC output cable (Unshielded, 1.5m)

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

WLAN Antenna Spec.				
Transmitter Circuit	Antenna Type	Antenna Connecter	Gain(dBi) including cable loss	Frequency (MHz to MHz)
Chain (0)	Dipole	R-SMA	4.6	2400~2483.5
			6.3	5150~5850
Chain (1)	Dipole	R-SMA	5	2400~2483.5
			7.4	5150~5850
WWAN Antenna Spec.				
Transmitter Circuit	Antenna Type	Antenna Connecter	Gain(dBi) including cable loss	Frequency (MHz to MHz)
Chain (0)	Dipole	SMA	4.18	1850 to 1915
			2.59	824 to 849
			5.12	1710 to 1785
			3.33	816 to 824
			2.22	777 to 787
			1.97	699 to 716
			1.0	2300 to 2325
			4.11	2496 to 2690
Chain (1)	Dipole	SMA	3.6	1850 to 1915
			2.47	824 to 849
			5.14	1710 to 1785
			3.2	816 to 824
			1.6	777 to 787
			1.6	699 to 716
			1.0	2300 to 2325
			3.56	2496 to 2690
Note: From the above antenna sets, the Chain (1) was selected as representative antenna for the 802.11a/b/g test and its data was recorded in this report.				

6. The EUT incorporates a MIMO function with beamforming.

2.4GHz			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11b	1 ~ 11Mbps	1TX diversity	1RX
802.11g	6 ~ 54Mbps	1TX diversity	1RX
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			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11a	6 ~ 54Mbps	1TX diversity	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
Note: 1. The modulation and bandwidth are similar for 802.11n mode for 20MHz / 40MHz and 802.11ac mode for 20MHz / 40MHz, therefore investigated worst case to representative mode in test report. 2. All of modulation mode support beamforming function except 2.4GHz & 802.11a modulation mode.			

7. 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	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

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

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

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	
-	√	√	√	√	-

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

NOTE: The EUT had been pre-tested on the positioned of each 2 axis. The worst case was found when positioned on **X-plane**.

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
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6
CDD MODE						
MODE	**Freq. BAND (MHz)**	**AVAILABLE CHANNEL**	**TESTED CHANNEL**	**MODULATION TECHNOLOGY**	**MODULATION TYPE**	**DATA RATE (Mbps)**
802.11ac (VHT20)	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.5
802.11ac (VHT40)		38 to 46	38, 46	OFDM	BPSK	13.5
802.11ac (VHT80)		42	42	OFDM	BPSK	29.3
802.11ac (VHT20)	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.5
802.11ac (VHT40)		151 to 159	151, 159	OFDM	BPSK	13.5
802.11ac (VHT80)		155	155	OFDM	BPSK	29.3

Radiated Emission Test (Below 1GHz):

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

CDD MODE						
MODE	**Freq. BAND (MHz)**	**AVAILABLE CHANNEL**	**TESTED CHANNEL**	**MODULATION TECHNOLOGY**	**MODULATION TYPE**	**DATA RATE (Mbps)**
802.11ac (VHT20)	5180-5240	36 to 48	157	OFDM	BPSK	6.5
	5745-5825	149 to 165				

Power Line Conducted Emission Test:

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

CDD MODE						
MODE	Freq. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11ac (VHT20)	5180-5240	36 to 48	157	OFDM	BPSK	6.5
	5745-5825	149 to 165				

Transmit Power Measurment:

☒ 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.

Master Mode						
MODE	Freq. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6
CDD MODE						
MODE	Freq. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11ac (VHT20)	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.5
802.11ac (VHT40)		38 to 46	38, 46	OFDM	BPSK	13.5
802.11ac (VHT80)		42	42	OFDM	BPSK	29.3
802.11ac (VHT20)	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.5
802.11ac (VHT40)		151 to 159	151, 159	OFDM	BPSK	13.5
802.11ac (VHT80)		155	155	OFDM	BPSK	29.3
Beamforming MODE						
MODE	Freq. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11ac (VHT20)	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.5
802.11ac (VHT40)		38 to 46	38, 46	OFDM	BPSK	13.5
802.11ac (VHT80)		42	42	OFDM	BPSK	29.3
802.11ac (VHT20)	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.5
802.11ac (VHT40)		151 to 159	151, 159	OFDM	BPSK	13.5
802.11ac (VHT80)		155	155	OFDM	BPSK	29.3

Client Mode						
MODE	Freq. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6
CDD MODE						
MODE	Freq. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11ac (VHT20)	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.5
802.11ac (VHT40)		38 to 46	38, 46	OFDM	BPSK	13.5
802.11ac (VHT80)		42	42	OFDM	BPSK	29.3
Beamforming MODE						
MODE	Freq. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11ac (VHT20)	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.5
802.11ac (VHT40)		38 to 46	38, 46	OFDM	BPSK	13.5
802.11ac (VHT80)		42	42	OFDM	BPSK	29.3

Peak Power Spectral Density 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.

Master Mode						
MODE	Freq. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6
CDD MODE						
MODE	Freq. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11ac (VHT20)	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.5
802.11ac (VHT40)		38 to 46	38, 46	OFDM	BPSK	13.5
802.11ac (VHT80)		42	42	OFDM	BPSK	29.3
802.11ac (VHT20)	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.5
802.11ac (VHT40)		151 to 159	151, 159	OFDM	BPSK	13.5
802.11ac (VHT80)		155	155	OFDM	BPSK	29.3

Client Mode						
MODE	Freq. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6
CDD MODE						
MODE	Freq. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11ac (VHT20)	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.5
802.11ac (VHT40)		38 to 46	38, 46	OFDM	BPSK	13.5
802.11ac (VHT80)		42	42	OFDM	BPSK	29.3

Frequency Stability Measurement, 6dB Bandwidth Measurment:

☒ 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
802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6
CDD MODE						
MODE	Freq. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11ac (VHT20)	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.5
802.11ac (VHT40)		38 to 46	38, 46	OFDM	BPSK	13.5
802.11ac (VHT80)		42	42	OFDM	BPSK	29.3
802.11ac (VHT20)	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.5
802.11ac (VHT40)		151 to 159	151, 159	OFDM	BPSK	13.5
802.11ac (VHT80)		155	155	OFDM	BPSK	29.3
Beamforming MODE						
MODE	Freq. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11ac (VHT20)	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.5
802.11ac (VHT40)		38 to 46	38, 46	OFDM	BPSK	13.5
802.11ac (VHT80)		42	42	OFDM	BPSK	29.3
802.11ac (VHT20)	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.5
802.11ac (VHT40)		151 to 159	151, 159	OFDM	BPSK	13.5
802.11ac (VHT80)		155	155	OFDM	BPSK	29.3

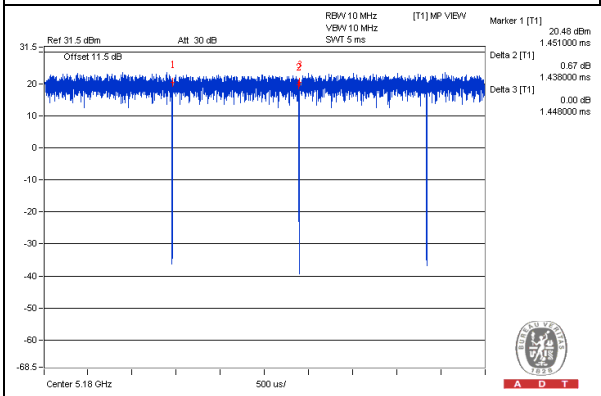
Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	23deg. C, 63%RH	120Vac, 60Hz	Jyunchun Lin
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Nelson Teng
PLC	25deg. C, 54%RH	120Vac, 60Hz	Jason Huang
APCM	25deg. C, 60%RH	120Vac, 60Hz	Anderson Chen

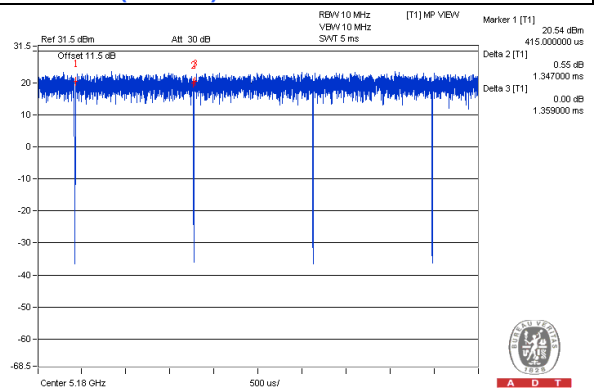
3.3 Duty Cycle of Test Signal

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 = 1.438 ms/1.448 ms = 0.993
802.11ac (VHT20): Duty cycle = 1.347 ms/1.359 ms = 0.991
802.11ac (VHT40): Duty cycle = 0.665 ms/0.676 ms = 0.984
802.11ac (VHT80): Duty cycle = 0.335 ms/0.352 ms = 0.952, Duty factor = 10 * log(1/0.952) = 0.21

802.11a



802.11ac (VHT20)



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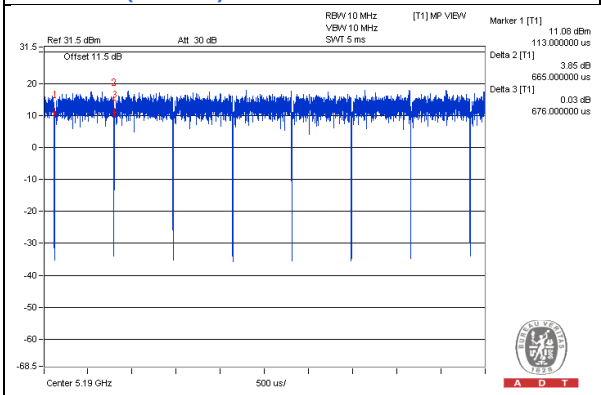
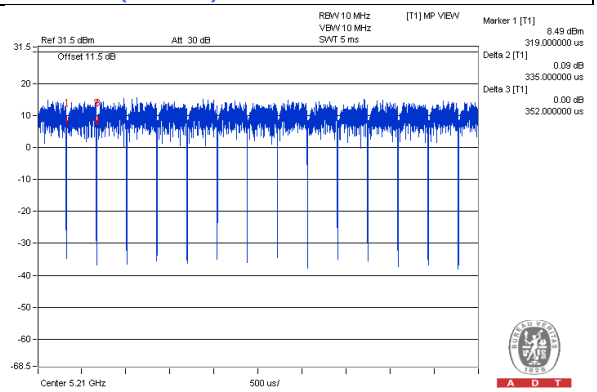


802.11ac (VHT80)



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.

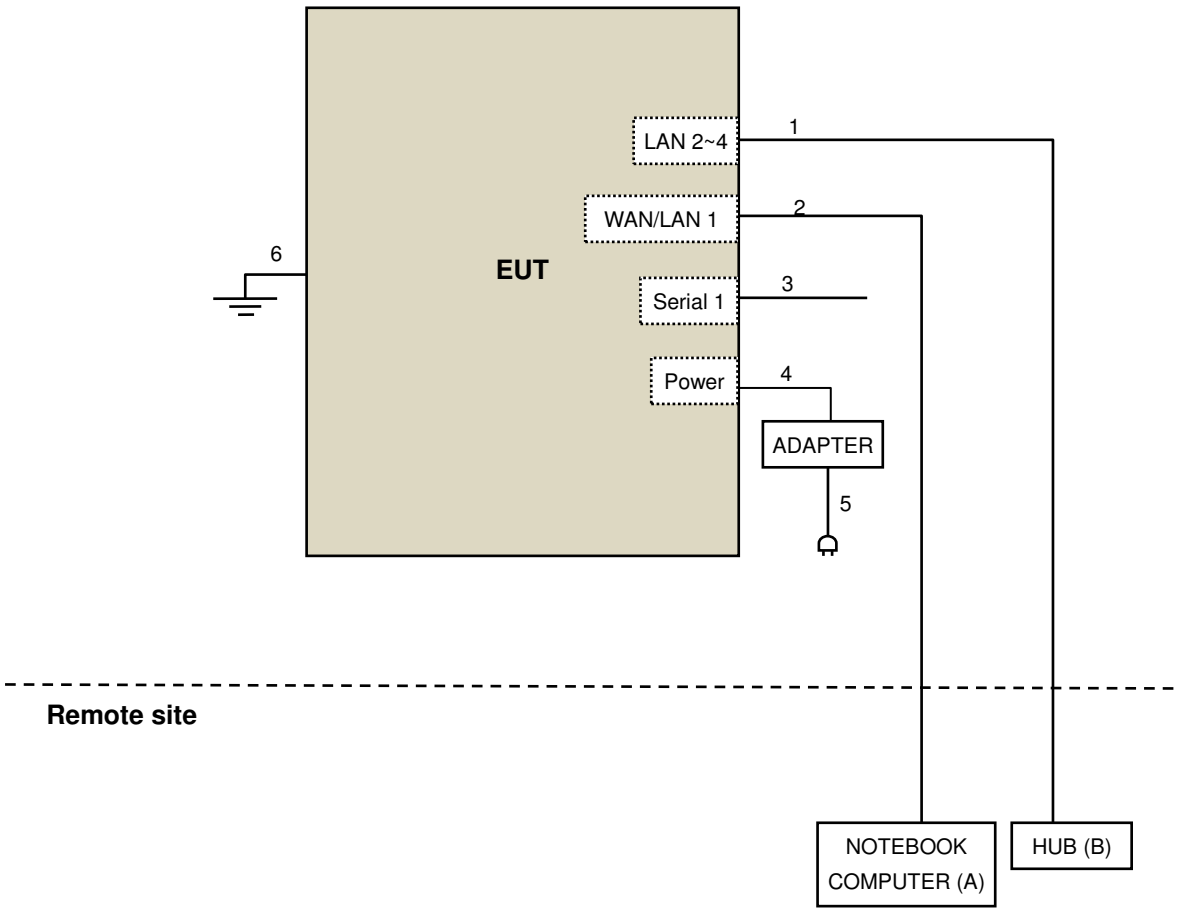
No.	Product	Brand	Model No.	Serial No.	FCC ID	Remark
A	NOTEBOOK COMPUTER	DELL	E5430	HYV4VY1	FCC DoC	Provided by Lab
B	HUB	ZyXEL	ES-116P	S060H02000215	FCC DoC	Provided by Lab

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	3	10	No	0	Provided by Lab
2	RJ45	1	10	No	0	Provided by Lab
3	CONSOLE	1	1.8	No	0	Provided by Lab
4	AC	1	1.4	No	0	Supplied by Client
5	DC	1	1.5	No	0	Supplied by Client
6	GROUND	1	3	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 v01r02
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 v01r02	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

Below 1GHz test

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-1000VH2 B	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: Oct. 21, 2015

Above 1GHz test

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. 16, 2015	Jan. 15, 2016
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Feb. 05, 2015	Feb. 04, 2016
RF Cable	SUCOFLEX 102	36432/2 36441/2	Jan. 17, 2015	Jan. 16, 2016
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: Dec. 30, 2015 to Jan. 06, 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:

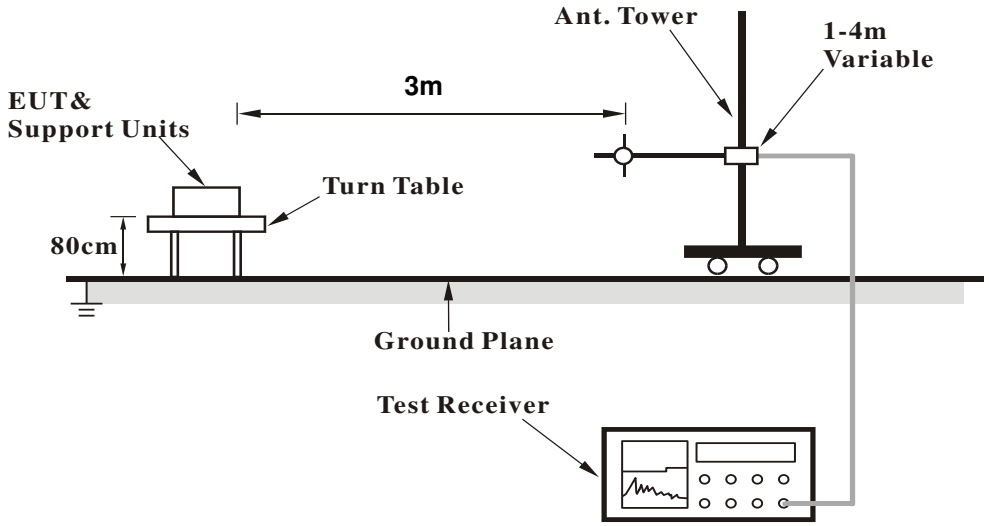
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

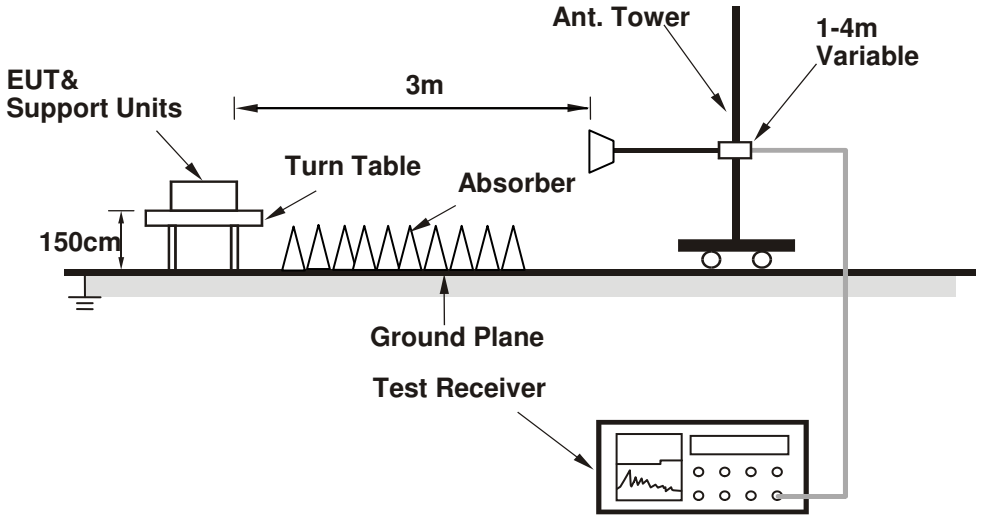
No deviation.

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 support unit A (Notebook Computer) which is placed on remote site.
2. Controlling software (MT76xxE_AP.exe_V1.0.3.4) 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	53.9 PK	74.0	-20.1	2.70 H	300	45.57	8.33
2	5150.00	42.8 AV	54.0	-11.2	2.70 H	300	34.47	8.33
3	*5180.00	105.5 PK			2.70 H	300	97.03	8.47
4	*5180.00	97.8 AV			2.70 H	300	89.33	8.47
5	#10360.00	47.7 PK	74.0	-26.3	1.26 H	174	33.20	14.50
6	#10360.00	36.1 AV	54.0	-17.9	1.26 H	174	21.60	14.50
7	15540.00	56.2 PK	74.0	-17.8	2.08 H	192	37.52	18.68
8	15540.00	44.2 AV	54.0	-9.8	2.08 H	192	25.52	18.68
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	69.3 PK	74.0	-4.7	1.78 V	93	60.97	8.33
2	5150.00	53.2 AV	54.0	-0.8	1.78 V	93	44.87	8.33
3	*5180.00	115.1 PK			1.78 V	93	106.63	8.47
4	*5180.00	105.1 AV			1.78 V	93	96.63	8.47
5	#10360.00	48.2 PK	74.0	-25.8	1.16 V	169	33.70	14.50
6	#10360.00	36.8 AV	54.0	-17.2	1.16 V	169	22.30	14.50
7	15540.00	59.1 PK	74.0	-14.9	1.84 V	72	40.42	18.68
8	15540.00	48.3 AV	54.0	-5.7	1.84 V	72	29.62	18.68

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	52.2 PK	74.0	-21.8	2.76 H	272	43.87	8.33
2	5150.00	40.9 AV	54.0	-13.1	2.76 H	272	32.57	8.33
3	*5200.00	106.3 PK			2.76 H	272	97.76	8.54
4	*5200.00	98.2 AV			2.76 H	272	89.66	8.54
5	#10400.00	48.3 PK	74.0	-25.7	1.20 H	157	33.70	14.60
6	#10400.00	36.7 AV	54.0	-17.3	1.20 H	157	22.10	14.60
7	15600.00	56.1 PK	74.0	-17.9	2.09 H	201	37.20	18.90
8	15600.00	43.8 AV	54.0	-10.2	2.09 H	201	24.90	18.90
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	72.0 PK	74.0	-2.0	1.75 V	93	63.67	8.33
2	5150.00	53.2 AV	54.0	-0.8	1.75 V	93	44.87	8.33
3	*5200.00	118.0 PK			1.75 V	93	109.46	8.54
4	*5200.00	108.3 AV			1.75 V	93	99.76	8.54
5	#10400.00	48.3 PK	74.0	-25.7	1.19 V	162	33.70	14.60
6	#10400.00	36.9 AV	54.0	-17.1	1.19 V	162	22.30	14.60
7	15600.00	60.0 PK	74.0	-14.0	1.86 V	80	41.10	18.90
8	15600.00	49.0 AV	54.0	-5.0	1.86 V	80	30.10	18.90

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	105.1 PK			2.71 H	310	96.50	8.60
2	*5240.00	97.6 AV			2.71 H	310	89.00	8.60
3	5350.00	51.9 PK	74.0	-22.1	2.71 H	310	43.10	8.80
4	5350.00	40.8 AV	54.0	-13.2	2.71 H	310	32.00	8.80
5	#10480.00	48.0 PK	74.0	-26.0	1.20 H	164	33.53	14.47
6	#10480.00	36.4 AV	54.0	-17.6	1.20 H	164	21.93	14.47
7	15720.00	56.4 PK	74.0	-17.6	2.05 H	203	37.36	19.04
8	15720.00	44.3 AV	54.0	-9.7	2.05 H	203	25.26	19.04
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	118.4 PK			1.63 V	90	109.80	8.60
2	*5240.00	108.1 AV			1.63 V	90	99.50	8.60
3	5350.00	56.8 PK	74.0	-17.2	1.63 V	90	48.00	8.80
4	5350.00	44.3 AV	54.0	-9.7	1.63 V	90	35.50	8.80
5	#10480.00	48.3 PK	74.0	-25.7	1.21 V	161	33.83	14.47
6	#10480.00	36.8 AV	54.0	-17.2	1.21 V	161	22.33	14.47
7	15720.00	59.7 PK	74.0	-14.3	1.85 V	86	40.66	19.04
8	15720.00	48.6 AV	54.0	-5.4	1.85 V	86	29.56	19.04

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	#5715.00	52.9 PK	74.0	-21.1	2.84 H	290	43.22	9.68
2	#5715.00	42.8 AV	54.0	-11.2	2.84 H	290	33.12	9.68
3	#5725.00	63.7 PK	78.2	-14.5	2.84 H	290	54.00	9.70
4	*5745.00	99.6 PK			2.84 H	290	89.84	9.76
5	*5745.00	92.5 AV			2.84 H	290	82.74	9.76
6	11490.00	47.7 PK	74.0	-26.3	1.16 H	173	32.84	14.86
7	11490.00	36.3 AV	54.0	-17.7	1.16 H	173	21.44	14.86
8	#17235.00	56.5 PK	74.0	-17.5	2.01 H	202	33.27	23.23
9	#17235.00	44.1 AV	54.0	-9.9	2.01 H	202	20.87	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	#5715.00	63.3 PK	74.0	-10.7	2.30 V	58	53.62	9.68
2	#5715.00	47.0 AV	54.0	-7.0	2.30 V	58	37.32	9.68
3	#5725.00	77.7 PK	78.2	-0.5	2.30 V	58	68.00	9.70
4	*5745.00	111.6 PK			2.30 V	58	101.84	9.76
5	*5745.00	102.3 AV			2.30 V	58	92.54	9.76
6	11490.00	48.1 PK	74.0	-25.9	1.13 V	176	33.24	14.86
7	11490.00	36.4 AV	54.0	-17.6	1.13 V	176	21.54	14.86
8	#17235.00	59.9 PK	74.0	-14.1	1.82 V	62	36.67	23.23
9	#17235.00	48.8 AV	54.0	-5.2	1.82 V	62	25.57	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) 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	61.6 PK	74.0	-12.4	1.99 H	38	51.92	9.68
2	#5715.00	41.5 AV	54.0	-12.5	1.99 H	38	31.82	9.68
3	#5725.00	55.6 PK	78.2	-22.6	1.99 H	38	45.90	9.70
4	*5785.00	104.7 PK			1.99 H	38	94.85	9.85
5	*5785.00	96.5 AV			1.99 H	38	86.65	9.85
6	#5850.00	54.2 PK	78.2	-24.0	1.99 H	38	44.28	9.92
7	#5860.00	52.2 PK	74.0	-21.8	1.99 H	38	42.27	9.93
8	#5860.00	41.2 AV	54.0	-12.8	1.99 H	38	31.27	9.93
9	11570.00	47.8 PK	74.0	-26.2	1.14 H	157	32.60	15.20
10	11570.00	36.4 AV	54.0	-17.6	1.14 H	157	21.20	15.20
11	#17355.00	56.7 PK	74.0	-17.3	2.00 H	219	33.14	23.56
12	#17355.00	44.7 AV	54.0	-9.3	2.00 H	219	21.14	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	#5715.00	66.1 PK	74.0	-7.9	2.25 V	58	56.42	9.68
2	#5715.00	45.7 AV	54.0	-8.3	2.25 V	58	36.02	9.68
3	#5725.00	68.7 PK	78.2	-9.5	2.25 V	58	59.00	9.70
4	*5785.00	117.3 PK			2.25 V	58	107.45	9.85
5	*5785.00	106.9 AV			2.25 V	58	97.05	9.85
6	#5850.00	62.5 PK	78.2	-15.7	2.25 V	58	52.58	9.92
7	#5860.00	60.1 PK	74.0	-13.9	2.25 V	58	50.17	9.93
8	#5860.00	44.5 AV	54.0	-9.5	2.25 V	58	34.57	9.93
9	11570.00	48.2 PK	74.0	-25.8	1.16 V	189	33.00	15.20
10	11570.00	36.7 AV	54.0	-17.3	1.16 V	189	21.50	15.20
11	#17355.00	59.9 PK	74.0	-14.1	1.90 V	76	36.34	23.56
12	#17355.00	48.7 AV	54.0	-5.3	1.90 V	76	25.14	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	102.3 PK			2.89 H	289	92.39	9.91
2	*5825.00	95.1 AV			2.89 H	289	85.19	9.91
3	#5850.00	62.7 PK	78.2	-15.5	2.83 H	289	52.78	9.92
4	#5860.00	54.5 PK	74.0	-19.5	2.83 H	289	44.57	9.93
5	#5860.00	43.3 AV	54.0	-10.7	2.83 H	289	33.37	9.93
6	11650.00	48.3 PK	74.0	-25.7	1.20 H	179	32.90	15.40
7	11650.00	36.9 AV	54.0	-17.1	1.20 H	179	21.50	15.40
8	#17475.00	55.9 PK	74.0	-18.1	2.04 H	188	31.81	24.09
9	#17475.00	44.1 AV	54.0	-9.9	2.04 H	188	20.01	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	114.1 PK			2.49 V	56	104.19	9.91
2	*5825.00	104.5 AV			2.49 V	56	94.59	9.91
3	#5850.00	77.4 PK	78.2	-0.8	2.49 V	56	67.48	9.92
4	#5860.00	62.7 PK	74.0	-11.3	2.49 V	56	52.77	9.93
5	#5860.00	50.3 AV	54.0	-3.7	2.49 V	56	40.37	9.93
6	11650.00	47.8 PK	74.0	-26.2	1.22 V	159	32.40	15.40
7	11650.00	36.3 AV	54.0	-17.7	1.22 V	159	20.90	15.40
8	#17475.00	60.4 PK	74.0	-13.6	1.80 V	75	36.31	24.09
9	#17475.00	49.0 AV	54.0	-5.0	1.80 V	75	24.91	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 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	62.1 PK	74.0	-11.9	2.58 H	206	53.77	8.33
2	5150.00	43.3 AV	54.0	-10.7	2.58 H	206	34.97	8.33
3	*5180.00	98.6 PK			2.58 H	206	90.13	8.47
4	*5180.00	90.9 AV			2.58 H	206	82.43	8.47
5	#10360.00	46.6 PK	74.0	-27.4	1.69 H	360	32.10	14.50
6	#10360.00	36.1 AV	54.0	-17.9	1.69 H	360	21.60	14.50
7	15540.00	52.4 PK	74.0	-21.6	1.28 H	284	33.72	18.68
8	15540.00	41.6 AV	54.0	-12.4	1.28 H	284	22.92	18.68
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	73.6 PK	74.0	-0.4	1.74 V	276	65.27	8.33
2	5150.00	53.4 AV	54.0	-0.6	1.74 V	276	45.07	8.33
3	*5180.00	114.5 PK			1.74 V	276	106.03	8.47
4	*5180.00	103.9 AV			1.74 V	276	95.43	8.47
5	#10360.00	45.4 PK	74.0	-28.6	1.26 V	288	30.90	14.50
6	#10360.00	34.9 AV	54.0	-19.1	1.26 V	288	20.40	14.50
7	15540.00	52.3 PK	74.0	-21.7	1.74 V	350	33.62	18.68
8	15540.00	41.5 AV	54.0	-12.5	1.74 V	350	22.82	18.68

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	59.7 PK	74.0	-14.3	2.60 H	221	51.37	8.33
2	5150.00	43.1 AV	54.0	-10.9	2.60 H	221	34.77	8.33
3	*5200.00	107.3 PK			2.60 H	221	98.76	8.54
4	*5200.00	98.4 AV			2.60 H	221	89.86	8.54
5	#10400.00	45.8 PK	74.0	-28.2	1.74 H	360	31.20	14.60
6	#10400.00	35.3 AV	54.0	-18.7	1.74 H	360	20.70	14.60
7	15600.00	51.8 PK	74.0	-22.2	1.27 H	282	32.90	18.90
8	15600.00	41.3 AV	54.0	-12.7	1.27 H	282	22.40	18.90
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	70.3 PK	74.0	-3.7	1.55 V	272	61.97	8.33
2	5150.00	53.2 AV	54.0	-0.8	1.55 V	272	44.87	8.33
3	*5200.00	117.9 PK			1.55 V	272	109.36	8.54
4	*5200.00	108.9 AV			1.55 V	272	100.36	8.54
5	#10400.00	45.4 PK	74.0	-28.6	1.28 V	275	30.80	14.60
6	#10400.00	34.8 AV	54.0	-19.2	1.28 V	275	20.20	14.60
7	15600.00	51.6 PK	74.0	-22.4	1.78 V	360	32.70	18.90
8	15600.00	40.8 AV	54.0	-13.2	1.78 V	360	21.90	18.90

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	105.5 PK			2.55 H	226	96.90	8.60
2	*5240.00	96.8 AV			2.55 H	226	88.20	8.60
3	5350.00	52.9 PK	74.0	-21.1	2.55 H	226	44.10	8.80
4	5350.00	38.7 AV	54.0	-15.3	2.55 H	226	29.90	8.80
5	#10480.00	46.0 PK	74.0	-28.0	1.67 H	360	31.53	14.47
6	#10480.00	35.7 AV	54.0	-18.3	1.67 H	360	21.23	14.47
7	15720.00	52.5 PK	74.0	-21.5	1.29 H	280	33.46	19.04
8	15720.00	41.7 AV	54.0	-12.3	1.29 H	280	22.66	19.04
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	117.2 PK			1.92 V	274	108.60	8.60
2	*5240.00	106.3 AV			1.92 V	274	97.70	8.60
3	5350.00	52.8 PK	74.0	-21.2	1.92 V	274	44.00	8.80
4	5350.00	38.7 AV	54.0	-15.3	1.92 V	274	29.90	8.80
5	#10480.00	45.3 PK	74.0	-28.7	1.34 V	264	30.83	14.47
6	#10480.00	34.9 AV	54.0	-19.1	1.34 V	264	20.43	14.47
7	15720.00	52.2 PK	74.0	-21.8	1.71 V	360	33.16	19.04
8	15720.00	41.4 AV	54.0	-12.6	1.71 V	360	22.36	19.04

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	#5715.00	53.6 PK	74.0	-20.4	2.69 H	250	43.92	9.68
2	#5715.00	43.2 AV	54.0	-10.8	2.69 H	250	33.52	9.68
3	#5725.00	63.5 PK	78.2	-14.7	2.69 H	250	53.80	9.70
4	*5745.00	100.7 PK			2.69 H	250	90.94	9.76
5	*5745.00	90.2 AV			2.69 H	250	80.44	9.76
6	11490.00	45.7 PK	74.0	-28.3	1.78 H	357	30.84	14.86
7	11490.00	35.2 AV	54.0	-18.8	1.78 H	357	20.34	14.86
8	#17235.00	52.5 PK	74.0	-21.5	1.35 H	274	29.27	23.23
9	#17235.00	41.6 AV	54.0	-12.4	1.35 H	274	18.37	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	63.3 PK	74.0	-10.7	2.10 V	236	53.62	9.68
2	#5715.00	42.9 AV	54.0	-11.1	2.10 V	236	33.22	9.68
3	**#5725.00**	**78.1 PK**	**78.2**	**-0.1**	**2.10 V**	**236**	**68.40**	**9.70**
4	*5745.00	108.3 PK			2.10 V	236	98.54	9.76
5	*5745.00	97.7 AV			2.10 V	236	87.94	9.76
6	11490.00	45.5 PK	74.0	-28.5	1.34 V	292	30.64	14.86
7	11490.00	35.2 AV	54.0	-18.8	1.34 V	292	20.34	14.86
8	#17235.00	51.6 PK	74.0	-22.4	1.72 V	358	28.37	23.23
9	#17235.00	40.6 AV	54.0	-13.4	1.72 V	358	17.37	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) 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	#5725.00	53.1 PK	78.2	-25.1	2.74 H	238	43.40	9.70
2	*5785.00	104.8 PK			2.74 H	238	94.95	9.85
3	*5785.00	94.5 AV			2.74 H	238	84.65	9.85
4	#5850.00	53.7 PK	78.2	-24.5	2.74 H	238	43.78	9.92
5	11570.00	46.4 PK	74.0	-27.6	1.68 H	356	31.20	15.20
6	11570.00	35.7 AV	54.0	-18.3	1.68 H	356	20.50	15.20
7	#17355.00	52.5 PK	74.0	-21.5	1.29 H	271	28.94	23.56
8	#17355.00	41.7 AV	54.0	-12.3	1.29 H	271	18.14	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	#5725.00	67.0 PK	78.2	-11.2	2.09 V	269	57.30	9.70
2	*5785.00	113.9 PK			2.09 V	269	104.05	9.85
3	*5785.00	102.6 AV			2.09 V	269	92.75	9.85
4	#5850.00	65.2 PK	78.2	-13.0	2.09 V	269	55.28	9.92
5	11570.00	45.8 PK	74.0	-28.2	1.25 V	287	30.60	15.20
6	11570.00	35.4 AV	54.0	-18.6	1.25 V	287	20.20	15.20
7	#17355.00	51.7 PK	74.0	-22.3	1.67 V	360	28.14	23.56
8	#17355.00	41.1 AV	54.0	-12.9	1.67 V	360	17.54	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	106.2 PK			2.72 H	239	96.29	9.91
2	*5825.00	96.1 AV			2.72 H	239	86.19	9.91
3	#5850.00	63.3 PK	78.2	-14.9	2.72 H	239	53.38	9.92
4	#5860.00	53.9 PK	74.0	-20.1	2.72 H	239	43.97	9.93
5	#5860.00	42.8 AV	54.0	-11.2	2.72 H	239	32.87	9.93
6	11650.00	46.0 PK	74.0	-28.0	1.69 H	360	30.60	15.40
7	11650.00	35.4 AV	54.0	-18.6	1.69 H	360	20.00	15.40
8	#17475.00	52.0 PK	74.0	-22.0	1.26 H	287	27.91	24.09
9	#17475.00	41.6 AV	54.0	-12.4	1.26 H	287	17.51	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	110.6 PK			2.07 V	267	100.69	9.91
2	*5825.00	100.0 AV			2.07 V	267	90.09	9.91
3	#5850.00	77.9 PK	78.2	-0.3	2.07 V	267	67.98	9.92
4	#5860.00	65.1 PK	74.0	-8.9	2.07 V	267	55.17	9.93
5	#5860.00	47.8 AV	54.0	-6.2	2.07 V	267	37.87	9.93
6	11650.00	44.7 PK	74.0	-29.3	1.32 V	275	29.30	15.40
7	11650.00	34.6 AV	54.0	-19.4	1.32 V	275	19.20	15.40
8	#17475.00	51.6 PK	74.0	-22.4	1.73 V	350	27.51	24.09
9	#17475.00	40.6 AV	54.0	-13.4	1.73 V	350	16.51	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 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	53.1 PK	74.0	-20.9	1.96 H	44	44.77	8.33
2	5150.00	39.8 AV	54.0	-14.2	1.96 H	44	31.47	8.33
3	*5190.00	87.7 PK			1.96 H	44	79.20	8.50
4	*5190.00	78.1 AV			1.96 H	44	69.60	8.50
5	5350.00	51.9 PK	74.0	-22.1	1.96 H	44	43.10	8.80
6	5350.00	18.3 AV	54.0	-35.7	1.96 H	44	9.50	8.80
7	#10380.00	46.3 PK	74.0	-27.7	1.71 H	360	31.75	14.55
8	#10380.00	35.8 AV	54.0	-18.2	1.71 H	360	21.25	14.55
9	15570.00	51.6 PK	74.0	-22.4	1.31 H	264	32.81	18.79
10	15570.00	41.3 AV	54.0	-12.7	1.31 H	264	22.51	18.79
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	72.3 PK	74.0	-1.7	1.86 V	272	63.97	8.33
2	5150.00	53.5 AV	54.0	-0.5	1.86 V	272	45.17	8.33
3	*5190.00	106.3 PK			1.86 V	272	97.80	8.50
4	*5190.00	96.4 AV			1.86 V	272	87.90	8.50
5	5350.00	53.3 PK	74.0	-20.7	1.86 V	272	44.50	8.80
6	5350.00	37.7 AV	54.0	-16.3	1.86 V	272	28.90	8.80
7	#10380.00	45.4 PK	74.0	-28.6	1.28 V	285	30.85	14.55
8	#10380.00	35.1 AV	54.0	-18.9	1.28 V	285	20.55	14.55
9	15570.00	51.6 PK	74.0	-22.4	1.74 V	360	32.81	18.79
10	15570.00	41.0 AV	54.0	-13.0	1.74 V	360	22.21	18.79

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	52.7 PK	74.0	-21.3	1.98 H	45	44.37	8.33
2	5150.00	41.1 AV	54.0	-12.9	1.98 H	45	32.77	8.33
3	*5230.00	94.2 PK			1.98 H	45	85.61	8.59
4	*5230.00	84.1 AV			1.98 H	45	75.51	8.59
5	5350.00	52.5 PK	74.0	-21.5	1.98 H	45	43.70	8.80
6	5350.00	40.5 AV	54.0	-13.5	1.98 H	45	31.70	8.80
7	#10460.00	46.2 PK	74.0	-27.8	1.67 H	360	31.69	14.51
8	#10460.00	35.6 AV	54.0	-18.4	1.67 H	360	21.09	14.51
9	15690.00	52.3 PK	74.0	-21.7	1.29 H	282	33.33	18.97
10	15690.00	41.5 AV	54.0	-12.5	1.29 H	282	22.53	18.97
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	73.2 PK	74.0	-0.8	1.89 V	274	64.87	8.33
2	5150.00	48.9 AV	54.0	-5.1	1.89 V	274	40.57	8.33
3	*5230.00	112.8 PK			1.89 V	274	104.21	8.59
4	*5230.00	102.4 AV			1.89 V	274	93.81	8.59
5	5350.00	56.7 PK	74.0	-17.3	1.89 V	274	47.90	8.80
6	5350.00	41.2 AV	54.0	-12.8	1.89 V	274	32.40	8.80
7	#10460.00	45.4 PK	74.0	-28.6	1.30 V	264	30.89	14.51
8	#10460.00	35.1 AV	54.0	-18.9	1.30 V	264	20.59	14.51
9	15690.00	51.6 PK	74.0	-22.4	1.66 V	360	32.63	18.97
10	15690.00	41.1 AV	54.0	-12.9	1.66 V	360	22.13	18.97

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	#5715.00	53.6 PK	74.0	-20.4	2.00 H	50	43.92	9.68
2	#5715.00	41.8 AV	54.0	-12.2	2.00 H	50	32.12	9.68
3	#5725.00	56.4 PK	78.2	-21.8	2.00 H	50	46.70	9.70
4	*5755.00	85.9 PK			2.00 H	50	76.13	9.77
5	*5755.00	75.4 AV			2.00 H	50	65.63	9.77
6	11510.00	46.2 PK	74.0	-27.8	1.76 H	360	31.35	14.85
7	11510.00	35.9 AV	54.0	-18.1	1.76 H	360	21.05	14.85
8	#17265.00	51.7 PK	74.0	-22.3	1.25 H	265	28.47	23.23
9	#17265.00	41.1 AV	54.0	-12.9	1.25 H	265	17.87	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	#5715.00	72.7 PK	74.0	-1.3	2.14 V	267	63.02	9.68
2	#5715.00	53.3 AV	54.0	-0.7	2.14 V	267	43.62	9.68
3	#5725.00	76.4 PK	78.2	-1.8	2.14 V	267	66.70	9.70
4	*5755.00	104.5 PK			2.14 V	267	94.73	9.77
5	*5755.00	93.7 AV			2.14 V	267	83.93	9.77
6	11510.00	45.5 PK	74.0	-28.5	1.34 V	283	30.65	14.85
7	11510.00	34.8 AV	54.0	-19.2	1.34 V	283	19.95	14.85
8	#17265.00	51.6 PK	74.0	-22.4	1.70 V	360	28.37	23.23
9	#17265.00	40.9 AV	54.0	-13.1	1.70 V	360	17.67	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	89.6 PK			2.01 H	47	79.72	9.88
2	*5795.00	79.4 AV			2.01 H	47	69.52	9.88
3	#5850.00	56.1 PK	78.2	-22.1	2.01 H	47	46.18	9.92
4	#5860.00	53.3 PK	74.0	-20.7	2.01 H	47	43.37	9.93
5	#5860.00	41.1 AV	54.0	-12.9	2.01 H	47	31.17	9.93
6	11590.00	46.4 PK	74.0	-27.6	1.66 H	360	31.09	15.31
7	11590.00	35.6 AV	54.0	-18.4	1.66 H	360	20.29	15.31
8	#17385.00	51.3 PK	74.0	-22.7	1.26 H	281	27.54	23.76
9	#17385.00	40.9 AV	54.0	-13.1	1.26 H	281	17.14	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	108.2 PK			2.08 V	271	98.32	9.88
2	*5795.00	97.8 AV			2.08 V	271	87.92	9.88
3	#5850.00	76.2 PK	78.2	-2.0	2.08 V	271	66.28	9.92
4	#5860.00	69.4 PK	74.0	-4.6	2.08 V	271	59.47	9.93
5	#5860.00	53.7 AV	54.0	-0.3	2.08 V	271	43.77	9.93
6	11590.00	44.9 PK	74.0	-29.1	1.27 V	289	29.59	15.31
7	11590.00	34.7 AV	54.0	-19.3	1.27 V	289	19.39	15.31
8	#17385.00	52.1 PK	74.0	-21.9	1.75 V	360	28.34	23.76
9	#17385.00	41.1 AV	54.0	-12.9	1.75 V	360	17.34	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 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	53.4 PK	74.0	-20.6	1.97 H	50	45.07	8.33
2	5150.00	41.2 AV	54.0	-12.8	1.97 H	50	32.87	8.33
3	*5210.00	86.3 PK			1.97 H	50	77.75	8.55
4	*5210.00	75.7 AV			1.97 H	50	67.15	8.55
5	5350.00	52.5 PK	74.0	-21.5	1.97 H	50	43.70	8.80
6	5350.00	39.5 AV	54.0	-14.5	1.97 H	50	30.70	8.80
7	#10420.00	46.1 PK	74.0	-27.9	1.70 H	360	31.53	14.57
8	#10420.00	35.3 AV	54.0	-18.7	1.70 H	360	20.73	14.57
9	15630.00	52.6 PK	74.0	-21.4	1.26 H	275	33.67	18.93
10	15630.00	41.7 AV	54.0	-12.3	1.26 H	275	22.77	18.93
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	71.2 PK	74.0	-2.8	1.88 V	60	62.87	8.33
2	5150.00	53.6 AV	54.0	-0.4	1.88 V	60	45.27	8.33
3	*5210.00	104.9 PK			1.88 V	60	96.35	8.55
4	*5210.00	94.1 AV			1.88 V	60	85.55	8.55
5	5350.00	53.3 PK	74.0	-20.7	1.88 V	60	44.50	8.80
6	5350.00	39.9 AV	54.0	-14.1	1.88 V	60	31.10	8.80
7	#10420.00	45.2 PK	74.0	-28.8	1.27 V	291	30.63	14.57
8	#10420.00	34.8 AV	54.0	-19.2	1.27 V	291	20.23	14.57
9	15630.00	52.1 PK	74.0	-21.9	1.72 V	360	33.17	18.93
10	15630.00	41.4 AV	54.0	-12.6	1.72 V	360	22.47	18.93

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	#5715.00	52.0 PK	74.0	-22.0	1.91 H	60	42.32	9.68
2	#5715.00	42.4 AV	54.0	-11.6	1.91 H	60	32.72	9.68
3	#5725.00	57.3 PK	78.2	-20.9	1.91 H	60	47.60	9.70
4	*5775.00	80.9 PK			1.91 H	60	71.07	9.83
5	*5775.00	70.0 AV			1.91 H	60	60.17	9.83
6	#5850.00	52.6 PK	78.2	-25.6	1.91 H	60	42.68	9.92
7	#5860.00	51.6 PK	74.0	-22.4	1.91 H	60	41.67	9.93
8	#5860.00	42.0 AV	54.0	-12.0	1.91 H	60	32.07	9.93
9	11550.00	46.2 PK	74.0	-27.8	1.74 H	358	31.11	15.09
10	11550.00	35.4 AV	54.0	-18.6	1.74 H	358	20.31	15.09
11	#17325.00	51.6 PK	74.0	-22.4	1.30 H	282	28.22	23.38
12	#17325.00	41.3 AV	54.0	-12.7	1.30 H	282	17.92	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	70.1 PK	74.0	-3.9	2.09 V	239	60.42	9.68
2	#5715.00	53.3 AV	54.0	-0.7	2.09 V	239	43.62	9.68
3	#5725.00	76.9 PK	78.2	-1.3	2.09 V	239	67.20	9.70
4	*5775.00	99.5 PK			2.09 V	239	89.67	9.83
5	*5775.00	88.2 AV			2.09 V	239	78.37	9.83
6	#5850.00	59.7 PK	78.2	-18.5	2.09 V	239	49.78	9.92
7	#5860.00	58.5 PK	74.0	-15.5	2.09 V	239	48.57	9.93
8	#5860.00	43.1 AV	54.0	-10.9	2.09 V	239	33.17	9.93
9	11550.00	46.2 PK	74.0	-27.8	1.27 V	293	31.11	15.09
10	11550.00	35.5 AV	54.0	-18.5	1.27 V	293	20.41	15.09
11	#17325.00	51.1 PK	74.0	-22.9	1.73 V	360	27.72	23.38
12	#17325.00	40.6 AV	54.0	-13.4	1.73 V	360	17.22	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:

802.11ac VHT20

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	38.68	28.4 QP	40.0	-11.6	1.00 H	64	42.42	-13.98
2	62.66	29.3 QP	40.0	-10.8	1.25 H	154	43.43	-14.18
3	208.19	29.8 QP	43.5	-13.7	1.25 H	264	46.32	-16.56
4	324.30	36.2 QP	46.0	-9.9	1.00 H	39	47.72	-11.57
5	500.01	34.2 QP	46.0	-11.8	1.75 H	356	42.01	-7.77
6	637.05	30.8 QP	46.0	-15.2	1.25 H	64	35.39	-4.59
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	41.88	30.1 QP	40.0	-9.9	1.00 V	26	43.71	-13.65
2	62.88	29.5 QP	40.0	-10.5	1.25 V	310	43.67	-14.16
3	196.31	27.0 QP	43.5	-16.5	1.00 V	307	43.41	-16.42
4	327.62	35.1 QP	46.0	-11.0	1.50 V	14	46.64	-11.59
5	500.01	34.5 QP	46.0	-11.5	1.00 V	68	42.24	-7.77
6	644.33	29.4 QP	46.0	-16.6	1.50 V	360	33.78	-4.36

REMARKS:

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

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

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

4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	100375	May 06, 2015	May 05, 2016
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK-8127	8127-522	Sep. 01, 2015	Aug. 31, 2016
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV216	100072	June 11, 2015	June 10, 2016
RF Cable	5D-FB	COCCAB-001	Mar. 09, 2015	Mar. 08, 2016
50 ohms Terminator	N/A	EMC-03	Sep. 23, 2015	Sep. 22, 2016
50 ohms Terminator	N/A	EMC-02	Oct. 01, 2015	Sep. 30, 2016
Software BVADT	BVADT_Cond_ V7.3.7.3	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. C.
3. The VCCI Con C Registration No. is C-3611.
4. Tested Date: Jan. 07, 2016

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.

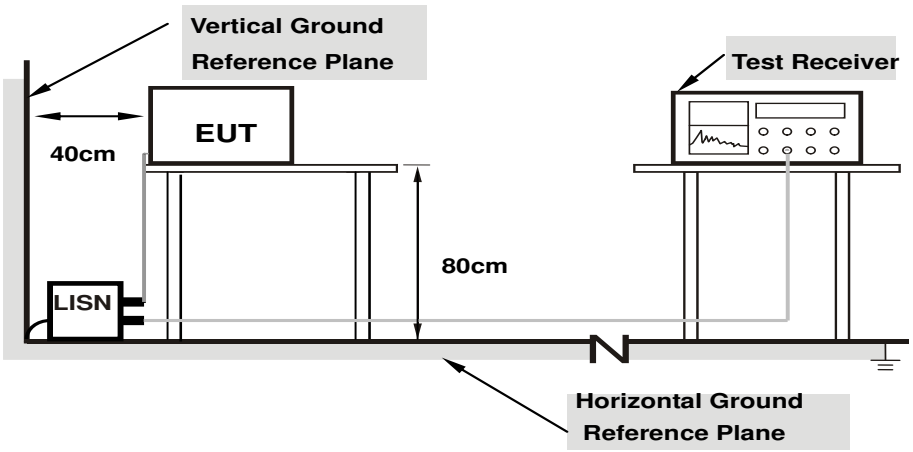
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

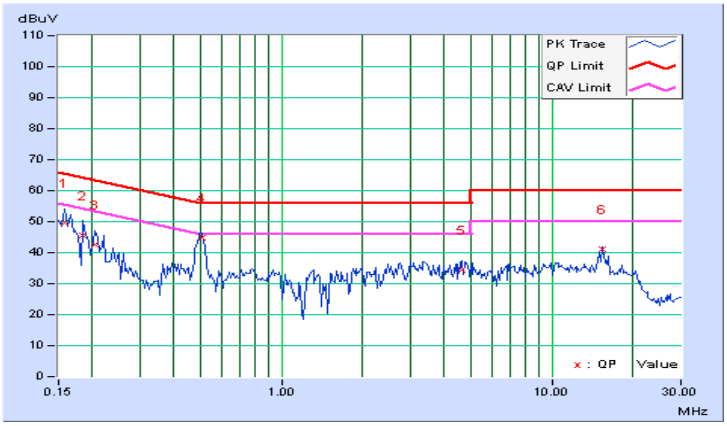
4.2.7 Test Results

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

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	10.25	39.49	27.44	49.74	37.69	65.58	55.58	-15.83	-17.88
2	0.18516	10.23	35.22	25.00	45.45	35.23	64.25	54.25	-18.80	-19.02
3	0.20469	10.22	32.48	21.90	42.70	32.12	63.42	53.42	-20.72	-21.30
4	**0.50938**	**10.23**	**34.74**	**27.31**	**44.97**	**37.54**	**56.00**	**46.00**	**-11.03**	**-8.46**
5	4.64063	10.39	23.96	13.82	34.35	24.21	56.00	46.00	-21.65	-21.79
6	15.44141	10.78	30.44	22.14	41.22	32.92	60.00	50.00	-18.78	-17.08

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

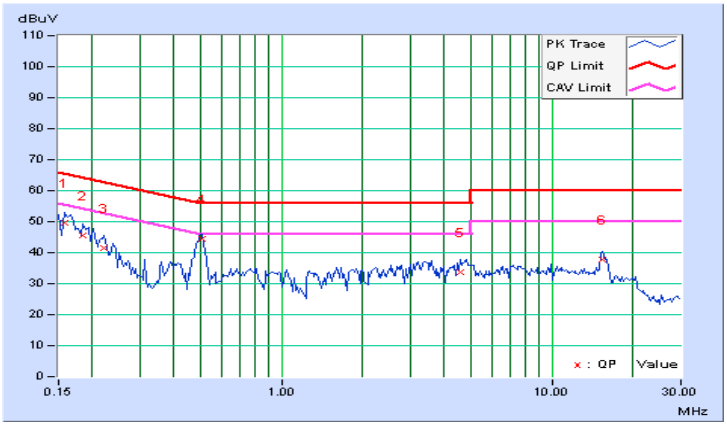


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	10.23	39.56	27.26	49.79	37.49	65.58	55.58	-15.78	-18.08
2	0.18516	10.21	35.42	24.92	45.63	35.13	64.25	54.25	-18.62	-19.12
3	0.22031	10.20	31.27	21.29	41.47	31.49	62.81	52.81	-21.34	-21.32
4	0.50938	10.21	34.40	26.92	44.61	37.13	56.00	46.00	-11.39	-8.87
5	4.58984	10.40	23.42	14.27	33.82	24.67	56.00	46.00	-22.18	-21.33
6	15.44531	10.80	26.95	20.72	37.75	31.52	60.00	50.00	-22.25	-18.48

Remarks:

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



4.3 Transmit Power Measurment

4.3.1 Limits of Transmit Power Measurement

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

*B is the 26 dB emission bandwidth in megahertz

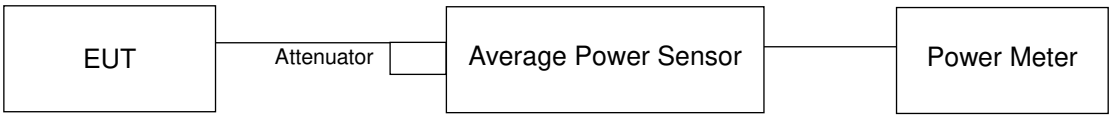
Note: This device can support different category application which switched by access point mode and client mode by software.

Per KDB 662911 D01 Multiple Transmitter Output v02r01 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 and set the detector to AVERAGE. 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

Master Mode

POWER OUTPUT

802.11a

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
36	5180	69.183	18.40	28.60	Pass
40	5200	139.959	21.46	28.60	Pass
48	5240	103.753	20.16	28.60	Pass
149	5745	40.551	16.08	28.60	Pass
157	5785	174.985	22.43	28.60	Pass
165	5825	71.779	18.56	28.60	Pass

Note: The antenna gain is 7.40dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to 30-(7.40-6) = 28.60dBm.

CDD Mode

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	17.73	19.04	139.461	21.44	28.60	Pass
40	5200	21.44	22.27	307.971	24.89	28.60	Pass
48	5240	18.29	17.43	122.788	20.89	28.60	Pass
149	5745	17.25	16.68	99.647	19.98	28.60	Pass
157	5785	22.12	22.75	351.295	25.46	28.60	Pass
165	5825	19.11	18.83	157.854	21.98	28.60	Pass

Note: The antenna gain is 7.40dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to 30-(7.40-6) = 28.60dBm.

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	14.43	14.95	58.994	17.71	28.60	Pass
46	5230	18.81	18.01	139.274	21.44	28.60	Pass
151	5755	16.47	15.91	83.355	19.21	28.60	Pass
159	5795	19.62	19.14	173.657	22.40	28.60	Pass

Note: The antenna gain is 7.40dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to 30-(7.40-6) = 28.60dBm.

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	13.38	13.52	44.268	16.46	28.60	Pass
155	5775	13.82	13.46	46.281	16.65	28.60	Pass

Note: The antenna gain is 7.40dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to 30-(7.40-6) = 28.60dBm.

Beamforming Mode

802.11ac (VHT20)

POWER OUTPUT

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	17.73	19.04	139.461	21.44	26.12	Pass
40	5200	21.44	22.27	307.971	24.89	26.12	Pass
48	5240	18.29	17.43	122.788	20.89	26.12	Pass
149	5745	17.25	16.68	99.647	19.98	26.12	Pass
157	5785	22.12	22.75	351.295	25.46	26.12	Pass
165	5825	19.11	18.83	157.854	21.98	26.12	Pass

Note: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 9.88dBi > 6dBi , so the power limit shall be reduced to 30-(9.88-6) = 26.12dBm.

802.11ac (VHT40)

POWER OUTPUT

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	14.43	14.95	58.994	17.71	26.12	Pass
46	5230	18.81	18.01	139.274	21.44	26.12	Pass
151	5755	16.47	15.91	83.355	19.21	26.12	Pass
159	5795	19.62	19.14	173.657	22.40	26.12	Pass

Note: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 9.88dBi > 6dBi , so the power limit shall be reduced to 30-(9.88-6) = 26.12dBm.

802.11ac (VHT80)

POWER OUTPUT

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	13.38	13.52	44.268	16.46	26.12	Pass
155	5775	13.82	13.46	46.281	16.65	26.12	Pass

Note: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 9.88dBi > 6dBi , so the power limit shall be reduced to 30-(9.88-6) = 26.12dBm.

Client Mode

POWER OUTPUT

802.11a

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
36	5180	69.183	18.40	22.60	Pass
40	5200	139.959	21.46	22.60	Pass
48	5240	103.753	20.16	22.60	Pass

Note: The antenna gain is 7.40dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to 24-(7.40-6) = 22.60dBm.

CDD Mode

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	17.28	16.87	102.097	20.09	22.60	Pass
40	5200	17.33	16.86	102.604	20.11	22.60	Pass
48	5240	17.26	16.90	102.189	20.09	22.60	Pass

Note: The antenna gain is 7.40dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to 24-(7.40-6) = 22.60dBm.

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	14.43	14.95	58.994	17.71	22.60	Pass
46	5230	18.81	18.01	139.274	21.44	22.60	Pass

Note: The antenna gain is 7.40dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to 24-(7.40-6) = 22.60dBm.

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	13.38	13.52	44.268	16.46	22.60	Pass

Note: The antenna gain is 7.40dBi > 6dBi, therefore the limit needs to reduce, so the power limit shall be reduced to 24-(7.40-6) = 22.60dBm.

Beamforming Mode

802.11ac (VHT20)

POWER OUTPUT

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
36	5180	17.28	16.87	102.097	20.09	20.12	Pass
40	5200	17.33	16.86	102.604	20.11	20.12	Pass
48	5240	17.26	16.90	102.189	20.09	20.12	Pass

Note: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 9.88dBi > 6dBi , so the power limit shall be reduced to 24-(9.88-6) = 20.12dBm.

802.11ac (VHT40)

POWER OUTPUT

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
38	5190	14.43	14.95	58.994	17.71	20.12	Pass
46	5230	17.20	17.00	102.6	20.11	20.12	Pass

Note: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 9.88dBi > 6dBi , so the power limit shall be reduced to 24-(9.88-6) = 20.12dBm.

802.11ac (VHT80)

POWER OUTPUT

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
42	5210	13.38	13.52	44.268	16.46	20.12	Pass

Note: Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 9.88dBi > 6dBi , so the power limit shall be reduced to 24-(9.88-6) = 20.12dBm.

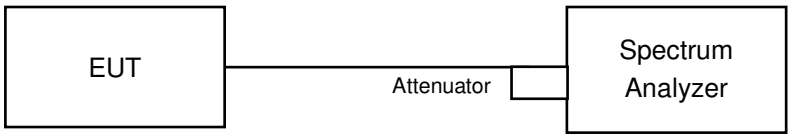
4.4 Peak Power Spectral Density Measurement

4.4.1 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

Note: This device can support different category application which switched by access point mode and client mode by software.

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

802.11a, 802.11ac (VH20) & 802.11ac (VHT40)

For U-NII-1 band:

Using method SA-1

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW ≥ 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 band:

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

802.11ac (VHT80)

For U-NII-1 band:

Using method SA-2

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW ≥ 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 band:

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)

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Condition

Same as Item 4.3.6.

4.4.7 Test Results

Master Mode

For U-NII-1 Band

802.11a

Channel	Frequency (MHz)	Power Density (dBm/ MHz)	MAX. Limit (dBm/ MHz)	Pass / Fail
36	5180	5.73	15.60	Pass
40	5200	8.92	15.60	Pass
48	5240	7.77	15.60	Pass

Note: 1. The directional gain is 7.40dBi > 6dBi, therefore the limit needs to reduce, so the power density limit shall be reduced to 17-(7.4-6) = 15.60dBm.

CDD Mode

802.11ac (VHT20)

Channel	Frequency (MHz)	PSD (dBm/ MHz)		Total Power Density (dBm/ MHz)	MAX. Limit (dBm/ MHz)	Pass / Fail
		Chain 0	Chain 1			
36	5180	5.42	6.14	8.81	13.12	PASS
40	5200	8.78	8.70	11.75	13.12	PASS
48	5240	6.49	6.07	9.30	13.12	PASS

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 9.88dBi > 6dBi , so the power density limit shall be reduced to 17-(9.88-6) = 13.12dBm.

802.11ac (VHT40)

Channel	Frequency (MHz)	PSD (dBm/ MHz)		Total Power Density (dBm/ MHz)	MAX. Limit (dBm/ MHz)	Pass / Fail
		Chain 0	Chain 1			
38	5190	-1.39	-0.77	1.94	13.12	PASS
46	5230	2.48	3.03	5.77	13.12	PASS

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 9.88dBi > 6dBi , so the power density limit shall be reduced to 17-(9.88-6) = 13.12dBm.

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/ MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/ MHz)	MAX. EIRP Limit (dBm/ MHz)	Pass / Fail
		Chain 0	Chain 1				
42	5210	-5.15	-4.62	0.21	-1.65	13.12	Pass

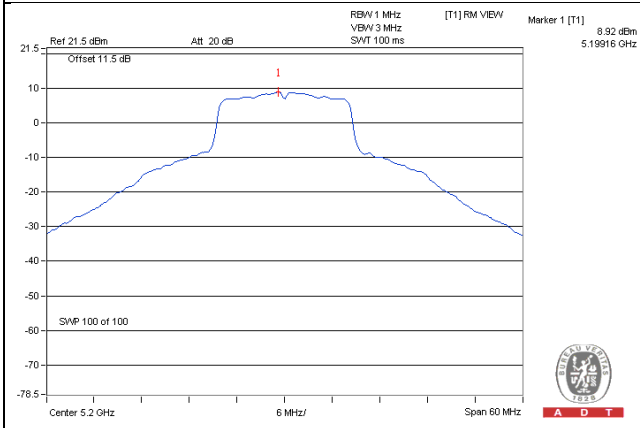
Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2. Directional gain = 10 log[($10^{G1/20}$ + $10^{G2/20}$)^2 / 2] = 9.88dBi > 6dBi , so the power density limit shall be reduced to 17-(9.88-6) = 13.12dBm.

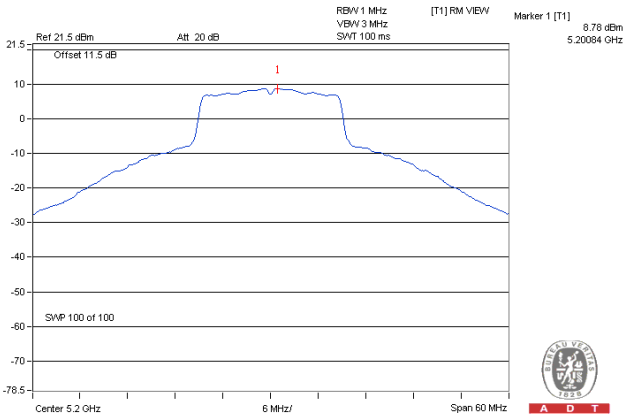
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

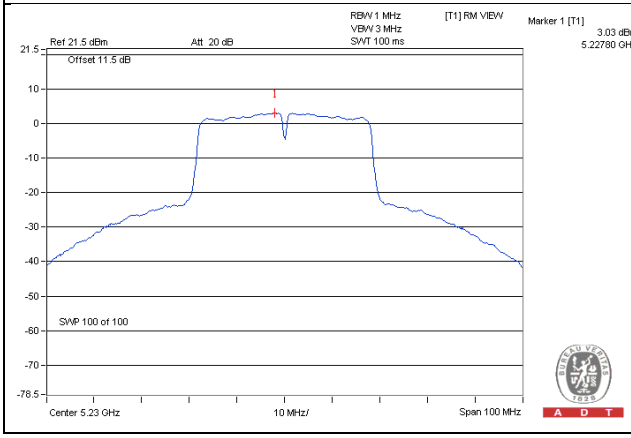
802.11a / CH40



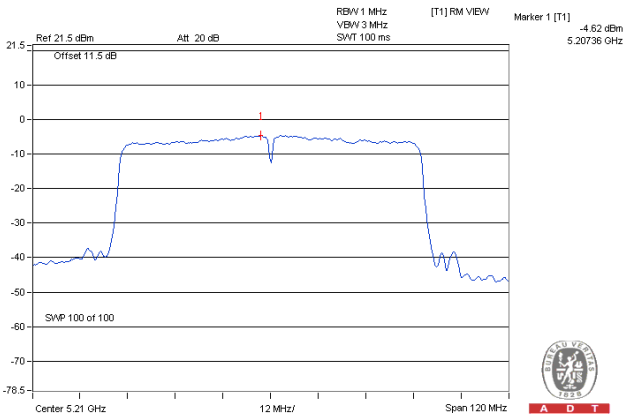
802.11ac (VHT20) / Chain 0_CH40



802.11ac (VHT40) / Chain 1: CH46



802.11ac (VHT80) / Chain 1: CH42



For U-NII-3 Band

802.11a

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	-3.72	-1.50	0.00	-1.50	28.60	Pass
	157	5785	1.71	3.93	0.00	3.93	28.60	Pass
	165	5825	-0.82	1.40	0.00	1.40	28.60	Pass

Note: 1. The directional gain is 7.40dBi > 6dBi, therefore the limit needs to reduce, so the power density limit shall be reduced to 30-(7.4-6) = 28.60dBm.

CDD Mode

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	-3.88	-1.66	3.01	1.35	26.12	Pass
	157	5785	1.28	3.50	3.01	6.51	26.12	Pass
	165	5825	-2.13	0.09	3.01	3.10	26.12	Pass
1	149	5745	-3.71	-1.49	3.01	1.52	26.12	Pass
	157	5785	1.24	3.46	3.01	6.47	26.12	Pass
	165	5825	-1.93	0.29	3.01	3.30	26.12	Pass

Note: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 9.88dBi > 6dBi , so the power density limit shall be reduced to 30-(9.88-6) = 26.12dBm.

802.11ac (VHT40)

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	151	5755	-6.00	-3.78	3.01	-0.77	26.12	Pass
	159	5795	-4.44	-2.22	3.01	0.79	26.12	Pass
1	151	5755	-7.68	-5.46	3.01	-2.45	26.12	Pass
	159	5795	-4.85	-2.63	3.01	0.38	26.12	Pass

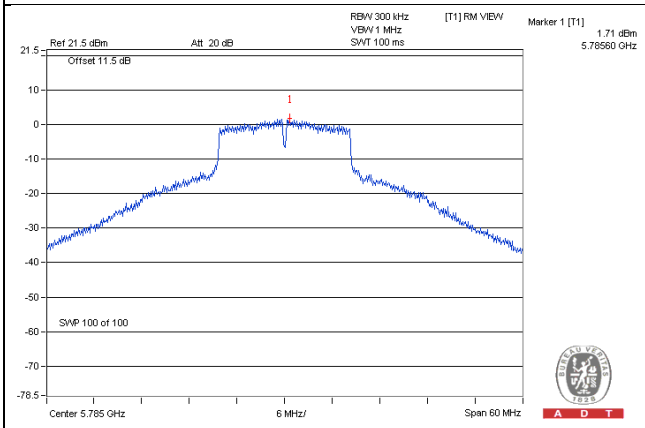
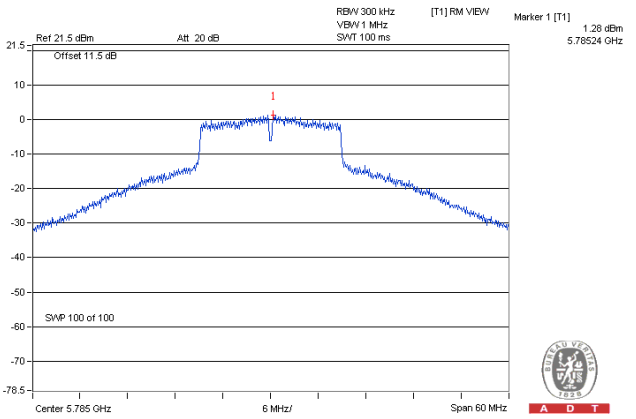
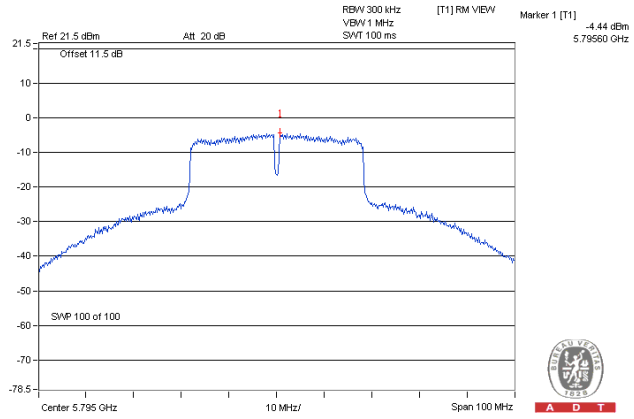
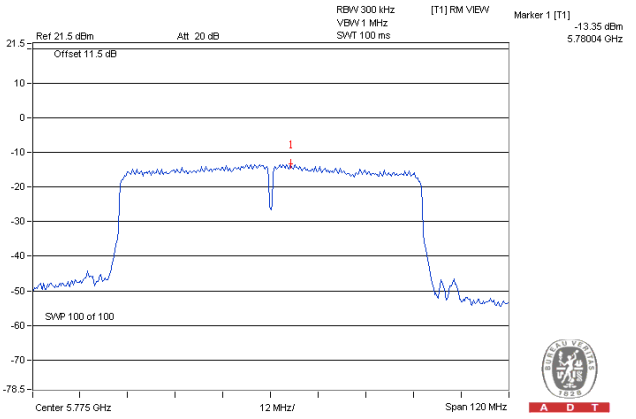
Note: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 9.88dBi > 6dBi , so the power density limit shall be reduced to 30-(9.88-6) = 26.12dBm.

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	-13.83	-11.61	3.01	0.21	-8.39	26.12	Pass
1	155	5775	-13.35	-11.13	3.01	0.21	-7.91	26.12	Pass

Note: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 9.88dBi > 6dBi , so the power density limit shall be reduced to 30-(9.88-6) = 26.12dBm.

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

Spectrum Plot of Worst Value	
802.11a / CH157	**802.11ac (VHT20) / Chain 0: CH157**
	
802.11ac (VHT40) / Chain 0: CH159	**802.11ac (VHT80) / Chain 1: CH155**
	

Client Mode

For U-NII-1 Band

802.11a

Channel	Frequency (MHz)	Power Density (dBm/ MHz)	MAX. Limit (dBm/ MHz)	Pass / Fail
36	5180	5.73	9.60	Pass
40	5200	8.92	9.60	Pass
48	5240	7.77	9.60	Pass

Note: 1. The directional gain is 7.40dBi > 6dBi, therefore the limit needs to reduce, so the power density limit shall be reduced to 11-(7.4-6) = 9.60dBm.

CDD Mode

802.11ac (VHT20)

Channel	Frequency (MHz)	PSD (dBm/ MHz)		Total Power Density (dBm/ MHz)	MAX. Limit (dBm/ MHz)	Pass / Fail
		Chain 0	Chain 1			
36	5180	3.65	3.25	6.46	7.12	PASS
40	5200	3.70	3.73	6.73	7.12	PASS
48	5240	3.87	3.57	6.73	7.12	PASS

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 9.88dBi > 6dBi , so the power density limit shall be reduced to 11-(9.88-6) = 7.12dBm.

802.11ac (VHT40)

Channel	Frequency (MHz)	PSD (dBm/ MHz)		Total Power Density (dBm/ MHz)	MAX. Limit (dBm/ MHz)	Pass / Fail
		Chain 0	Chain 1			
38	5190	-1.39	-0.77	1.94	7.12	PASS
46	5230	2.48	3.03	5.77	7.12	PASS

Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 9.88dBi > 6dBi , so the power density limit shall be reduced to 11-(9.88-6) = 7.12dBm.

802.11ac (VHT80)

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/ MHz)		Duty Factor (dB)	Total PSD With Duty Factor (dBm/ MHz)	MAX. EIRP Limit (dBm/ MHz)	Pass / Fail
		Chain 0	Chain 1				
42	5210	-5.15	-4.62	0.21	-1.65	7.12	Pass

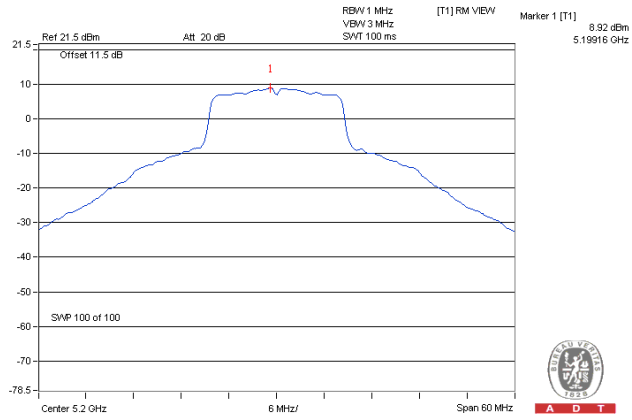
Note: 1. Method a) of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.

2. Directional gain = 10 log[($10^{G1/20}$ + $10^{G2/20}$)^2 / 2] = 9.88dBi > 6dBi , so the power density limit shall be reduced to 11-(9.88-6) = 7.12dBm.

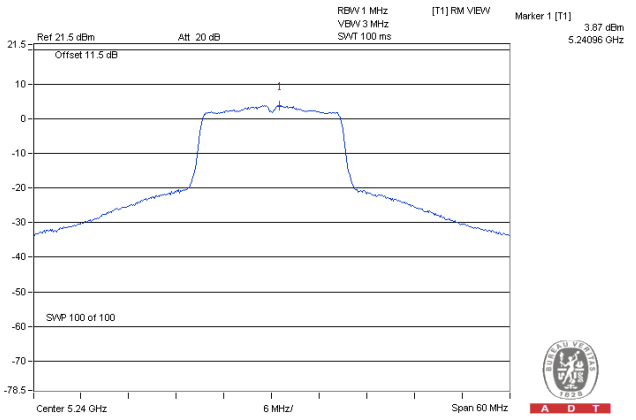
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

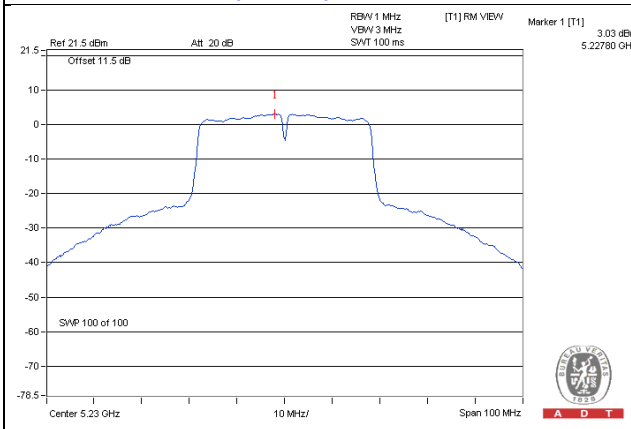
802.11a / CH40



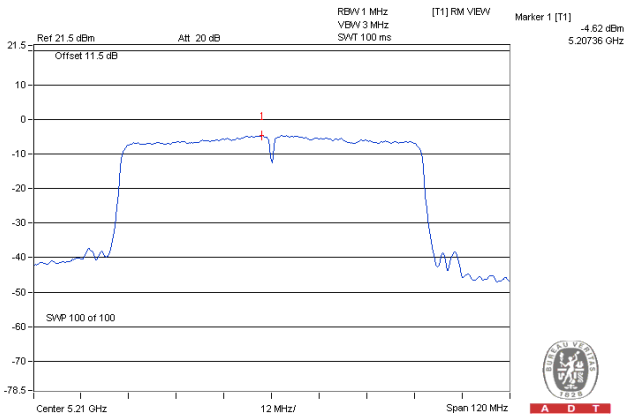
802.11ac (VHT20) / Chain 0_CH48



802.11ac (VHT40) / Chain 1: CH46



802.11ac (VHT80) / Chain 1: CH42

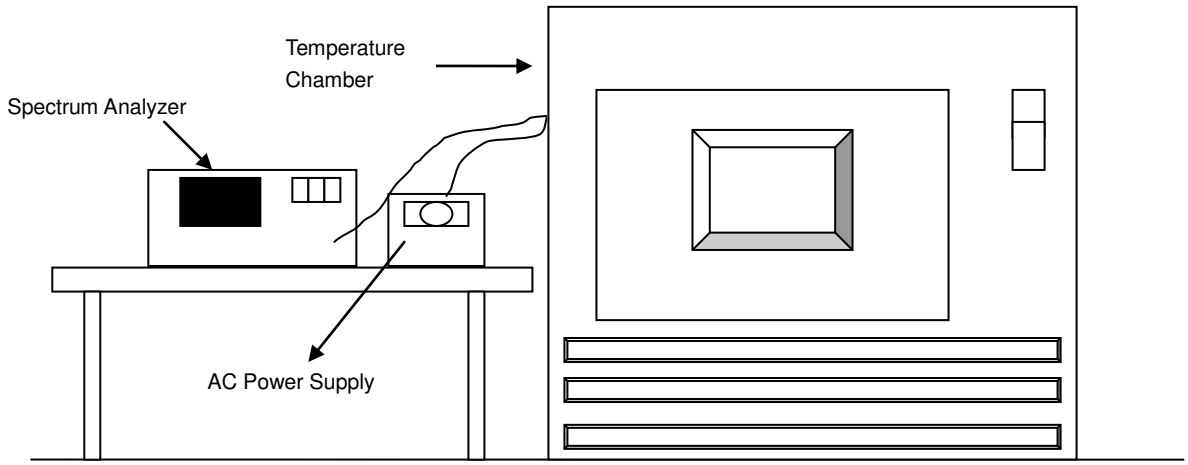


4.5 Frequency Stability Measurement

4.5.1 Limits of Frequency Stability Measurement

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

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

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.
.

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

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

4.5.7 Test Results

FREQUEMCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5180MHz									
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	5180.0251	0.00048	5180.0244	0.00047	5180.025	0.00048	5180.0259	0.00050
40	120	5180.0056	0.00011	5180.0088	0.00017	5180.0077	0.00015	5180.0056	0.00011
30	120	5180.0162	0.00031	5180.0159	0.00031	5180.0175	0.00034	5180.0166	0.00032
20	120	5180.0264	0.00051	5180.0269	0.00052	5180.0246	0.00047	5180.0262	0.00051
10	120	5180.0104	0.00020	5180.007	0.00014	5180.0085	0.00016	5180.0085	0.00016
0	120	5180.0094	0.00018	5180.0054	0.00010	5180.0074	0.00014	5180.0052	0.00010
-10	120	5179.9877	-0.00024	5179.9923	-0.00015	5179.9916	-0.00016	5179.9912	-0.00017
-20	120	5180.0202	0.00039	5180.0202	0.00039	5180.0229	0.00044	5180.0198	0.00038
-30	120	5180.006	0.00012	5180.0094	0.00018	5180.0057	0.00011	5180.0062	0.00012

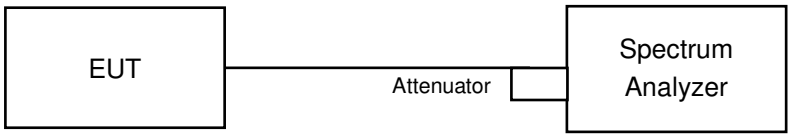
FREQUEMCY STABILITY VERSUS VOLTAGE									
OPERATING FREQUENCY: 5180MHz									
TEMP. (℃)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	138	5180.0256	0.00049	5180.0266	0.00051	5180.0254	0.00049	5180.0261	0.00050
	120	5180.0264	0.00051	5180.0269	0.00052	5180.0246	0.00047	5180.0262	0.00051
	102	5180.027	0.00052	5180.0272	0.00053	5180.0256	0.00049	5180.0264	0.00051

4.6 6dB Bandwidth Measurment

4.6.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

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

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	16.13	0.5	PASS
157	5785	16.38	0.5	PASS
165	5825	16.06	0.5	PASS

CDD Mode

802.11ac (VHT20)

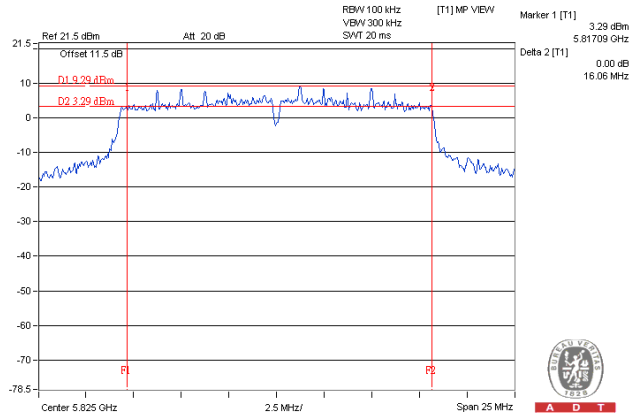
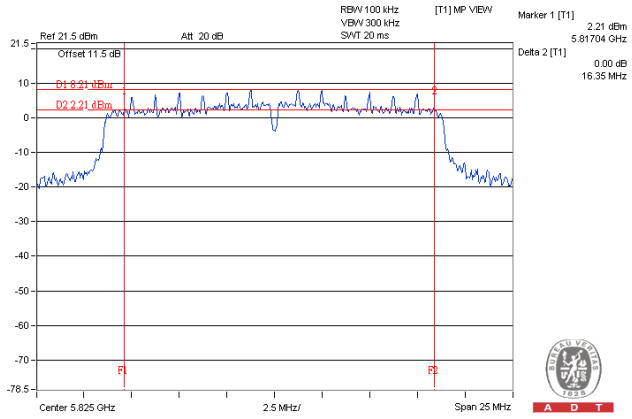
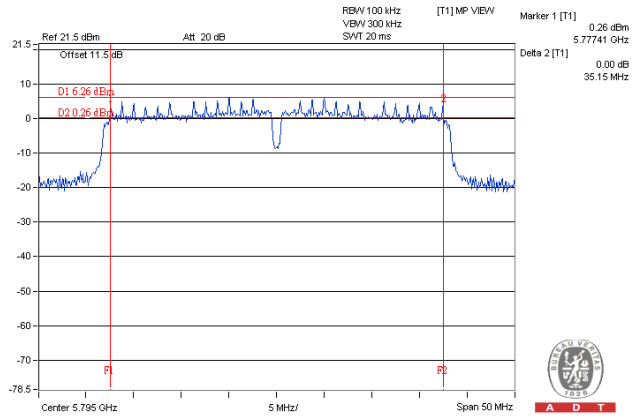
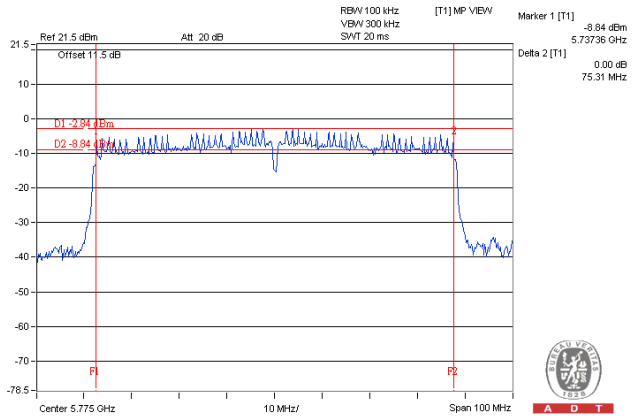
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	16.47	16.78	0.5	Pass
157	5785	17.63	17.58	0.5	Pass
165	5825	16.35	16.37	0.5	Pass

802.11ac (VHT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
151	5755	35.34	35.32	0.5	Pass
159	5795	35.28	35.15	0.5	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
155	5775	75.31	75.33	0.5	Pass

Spectrum Plot of Worst Value	
802.11a / CH165	**802.11ac (VHT20) / Chain 0_CH165**
	
802.11ac (VHT40) / Chain 1_CH159	**802.11ac (VHT80) / Chain 0_CH155**
	

5 Pictures of Test Arrangements

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

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:

Linko EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF Lab/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab
Tel: 886-3-3183232
Fax: 886-3-3270892

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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