

FCC Test Report

Report No.: RF170518C04A-1

FCC ID: CPODASH-T3PW

Test Model: DASH10EB

Received Date: May 18, 2017

Test Date: Jun. 01 ~ Jun. 15, 2017 (Mode A test)
May 17, 2018 (Mode B test)

Issued Date: May 24, 2018

Applicant: Pioneer POS Solution Inc.

Address: 238 Benton Ct, City of Industry, CA 91789 USA

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)

Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)

FCC Registration / Designation Number: 788550 / TW0003



This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification. The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

Table of Contents

Release Control Record	4
1 Certificate of Conformity	5
2 Summary of Test Results	6
2.1 Measurement Uncertainty	6
2.2 Modification Record	6
3 General Information	7
3.1 General Description of EUT	7
3.2 Description of Test Modes	9
3.2.1 Test Mode Applicability and Tested Channel Detail.....	11
3.3 Duty Cycle of Test Signal	13
3.4 Description of Support Units	14
3.4.1 Configuration of System under Test	14
3.5 General Description of Applied Standards	15
4 Test Types and Results	16
4.1 Radiated Emission and Bandedge Measurement.....	16
4.1.1 Limits of Radiated Emission and Bandedge Measurement	16
4.1.2 Test Instruments	17
4.1.3 Test Procedures.....	19
4.1.4 Deviation from Test Standard	20
4.1.5 Test Setup.....	20
4.1.6 EUT Operating Conditions.....	21
4.1.7 Test Results	22
4.2 Conducted Emission Measurement	64
4.2.1 Limits of Conducted Emission Measurement	64
4.2.2 Test Instruments	64
4.2.3 Test Procedures.....	65
4.2.4 Deviation from Test Standard	65
4.2.5 Test Setup.....	65
4.2.6 EUT Operating Conditions.....	65
4.2.7 Test Results	66
4.3 Transmit Power Measurement	70
4.3.1 Limits of Transmit Power Measurement	70
4.3.2 Test Setup.....	70
4.3.3 Test Instruments	71
4.3.4 Test Procedure	71
4.3.5 Deviation from Test Standard	71
4.3.6 EUT Operating Conditions.....	71
4.3.7 Test Result.....	72
4.4 Occupied Bandwidth Measurement	79
4.4.1 Test Setup.....	79
4.4.2 Test Instruments	79
4.4.3 Test Procedure	79
4.4.4 Test Result.....	80
4.5 Peak Power Spectral Density Measurement	83
4.5.1 Limits of Peak Power Spectral Density Measurement	83
4.5.2 Test Setup.....	83
4.5.3 Test Instruments	83
4.5.4 Test Procedures.....	84
4.5.5 Deviation from Test Standard	84
4.5.6 EUT Operating Conditions.....	84
4.5.7 Test Results	85
4.6 Frequency Stability.....	90
4.6.1 Limits of Frequency Stability Measurement	90

4.6.2 Test Setup.....	90
4.6.3 Test Instruments	90
4.6.4 Test Procedure	90
4.6.5 Deviation from Test Standard	90
4.6.6 EUT Operating Condition	91
4.6.7 Test Results	92
4.7 6dB Bandwidth Measurement.....	93
4.7.1 Limits of 6dB Bandwidth Measurement.....	93
4.7.2 Test Setup.....	93
4.7.3 Test Instruments	93
4.7.4 Test Procedure	93
4.7.5 Deviation from Test Standard	93
4.7.6 EUT Operating Condition	93
4.7.7 Test Results	94
5 Pictures of Test Arrangements.....	96
Annex A- Radiated Out of Band Emission (OOBE) Measurement (For U-NII-3 band).....	97
Appendix – Information on the Testing Laboratories	100

Release Control Record

Issue No.	Description	Date Issued
RF170518C04A-1	Original release.	May 24, 2018

1 Certificate of Conformity

Product: 10.1" mPOS

Brand: 

Test Model: DASH10EB

Sample Status: Engineering sample

Applicant: Pioneer POS Solution Inc.

Test Date: Jun. 01 ~ Jun. 15, 2017 (Mode A test)
May 17, 2018 (Mode B test)

Standards: 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 24, 2018
Polly Chien / Specialist

Approved by :  , **Date:** May 24, 2018
Bruce Chen / Project Engineer

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 -8.22dB at 0.16967MHz.
15.407(b)(1/2/3/4(i/ii)/6)	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -2.1dB at 5460.00MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	-	Reference only.
15.407(a)(1/2/3)	Peak Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6dB bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is IPEX IV not a standard connector.

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

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (\pm)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.94 dB
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	3.63 dB
	200MHz ~ 1000MHz	3.64 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	10.1" mPOS
Brand	PioneerINC
Test Model	DASH10EB
Sample Status	Engineering sample
Power Supply Rating	5Vdc (adapter or Cradle) 3.7Vdc (battery)
Modulation Type	256QAM, 64QAM, 16QAM, QPSK, BPSK
Modulation Technology	OFDM
Transfer Rate	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11a: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 270Mbps 802.11ac: up to 780Mbps
Operating Frequency	5180~5240MHz, 5260~5320MHz, 5500~5700MHz, 5745~5825MHz
Number of Channel	5180~5240MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11n (HT40): 2 802.11ac (VHT80): 1 5260~5320MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 4 802.11n (HT40), 802.11n (HT40): 2 802.11ac (VHT80): 1 5500~5700MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 11 802.11n (HT40), 802.11n (HT40): 5 802.11ac (VHT80): 2 5745~5825MHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 5 802.11n (HT40), 802.11n (HT40): 2 802.11ac (VHT80): 1
Output Power	5180~5240MHz: 18.707mW 5260~5320MHz: 18.750mW 5500~5700MHz: 15.382mW 5745~5825MHz: 17.947mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter, Battery, Cradle
Cable Supplied	NA

Note:

1. The EUT provides 1 completed transmitter and 1 receiver.

Modulation Mode	TX Function
802.11a	1TX
802.11n (HT20)	1TX
802.11n (HT40)	1TX
802.11ac (VHT20)	1TX
802.11ac (VHT40)	1TX
802.11ac (VHT80)	1TX

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

2. The EUT uses following antennas.

Type	PIFA								
Connecter	IPEX IV								
Gain (dBi)									
Frequency (MHz)	2400	2450	2500	4900	5000	5200	5500	5800	5900
Ant. 0, 1	-3.4	-3.4	-3.4	-5.2	-5.2	-4.9	-5.2	-5.2	-5.2

*There is diversity on WLAN mode. Ant. 0 was chosen to be the final test mode because it was the worst case chain.

3. The EUT consumes power from the following adapter and battery.

Component	Vendor	Model	Specification
Adapter	WEIHAI POWER	HAS035053	I/P: 100-240Vac, 50/60Hz, 1.6A. O/P: 5Vdc, 7A Power Line: 0.66m DC cable with 1 core attached on adapter 1.76m AC cable without core
Battery	TCL	PR-2770E2N	3.7Vdc, 7000mAH

4. WLAN, BT EDR and BT LE technologies cannot transmit at same time.

3.2 Description of Test Modes

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), 802.11n (HT40):

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
42	5210MHz

5260~5320MHz:

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

Channel	Frequency	Channel	Frequency
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

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

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
58	5290MHz

5500~5700MHz:

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

Channel	Frequency	Channel	Frequency
100	5500 MHz	124	5620 MHz
104	5520 MHz	128	5640 MHz
108	5540 MHz	132	5660 MHz
112	5560 MHz	136	5680 MHz
116	5580 MHz	140	5700 MHz
120	5600 MHz		

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

Channel	Frequency	Channel	Frequency
102	5510 MHz	126	5630 MHz
110	5550 MHz	134	5670 MHz
118	5590 MHz		

2 channels are provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
106	5530MHz	122	5610 MHz

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), 802.11n (HT40):

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
155	5775MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Description
	RE \geq 1G	RE $<$ 1G	PLC	APCM	
A	√	√	√	√	EUT + Adapter
B	-	√	√	-	EUT + cradle + Adapter

Where RE \geq 1G: Radiated Emission above 1GHz & Bandedge Measurement 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 3 axis. The worst case was found when positioned on Z-plane.
- "-" means no effect.

Radiated Emission Test (Above 1GHz):

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

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	6.5
	802.11n (HT40)		38 to 46	38, 46	OFDM	13.5
	802.11ac (VHT80)		42	42	OFDM	29.3
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	6.5
	802.11n (HT40)		54 to 62	54, 62	OFDM	13.5
	802.11ac (VHT80)		58	58	OFDM	29.3
A	802.11a	5500-5700	100 to 144	100, 116, 140	OFDM	6.0
	802.11n (HT20)		100 to 144	100, 116, 140	OFDM	6.5
	802.11n (HT40)		102 to 142	102, 110, 134	OFDM	13.5
	802.11ac (VHT80)		106 to 138	106, 122	OFDM	29.3
A	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	6.5
	802.11n (HT40)		151 to 159	151, 159	OFDM	13.5
	802.11ac (VHT80)		155 to 122	155	OFDM	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.

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A, B	802.11n (HT20)	5180-5240	36 to 48	149	OFDM	6.5
		5260-5320	52 to 64		OFDM	6.5
		5500-5700	100 to 140		OFDM	6.5
		5745-5825	149 to 165		OFDM	6.5

Power Line Conducted Emission Test:

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

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A, B	802.11n (HT20)	5180-5240	36 to 48	149	OFDM	6.5
		5260-5320	52 to 64		OFDM	6.5
		5500-5700	100 to 140		OFDM	6.5
		5745-5825	149 to 165		OFDM	6.5

Antenna Port Conducted Measurement:

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

EUT Configure Mode	Mode	Frequency Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Data Rate (Mbps)
A	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	6.0
	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	6.5
	802.11n (HT40)		38 to 46	38, 46	OFDM	13.5
	802.11ac (VHT80)		42	42	OFDM	29.3
A	802.11a	5260-5320	52 to 64	52, 60, 64	OFDM	6.0
	802.11n (HT20)		52 to 64	52, 60, 64	OFDM	6.5
	802.11n (HT40)		54 to 62	54, 62	OFDM	13.5
	802.11ac (VHT80)		58	58	OFDM	29.3
A	802.11a	5500-5700	100 to 144	100, 116, 140	OFDM	6.0
	802.11n (HT20)		100 to 144	100, 116, 140	OFDM	6.5
	802.11n (HT40)		102 to 142	102, 110, 134	OFDM	13.5
	802.11ac (VHT80)		106 to 138	106, 122	OFDM	29.3
A	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	6.0
	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	6.5
	802.11n (HT40)		151 to 159	151, 159	OFDM	13.5
	802.11ac (VHT80)		155 to 122	155	OFDM	29.3

Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE \geq 1G	25 deg. C, 70% RH	120Vac, 60Hz	Matthew Yang, Chris Lin
RE<1G	25 deg. C, 70% RH	120Vac, 60Hz	Luis Lee
PLC	25 deg. C, 70% RH	120Vac, 60Hz	Matthew Yang
	25 deg. C, 75% RH	120Vac, 60Hz	Luis Lee
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Cedric Wu

3.3 Duty Cycle of Test Signal

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

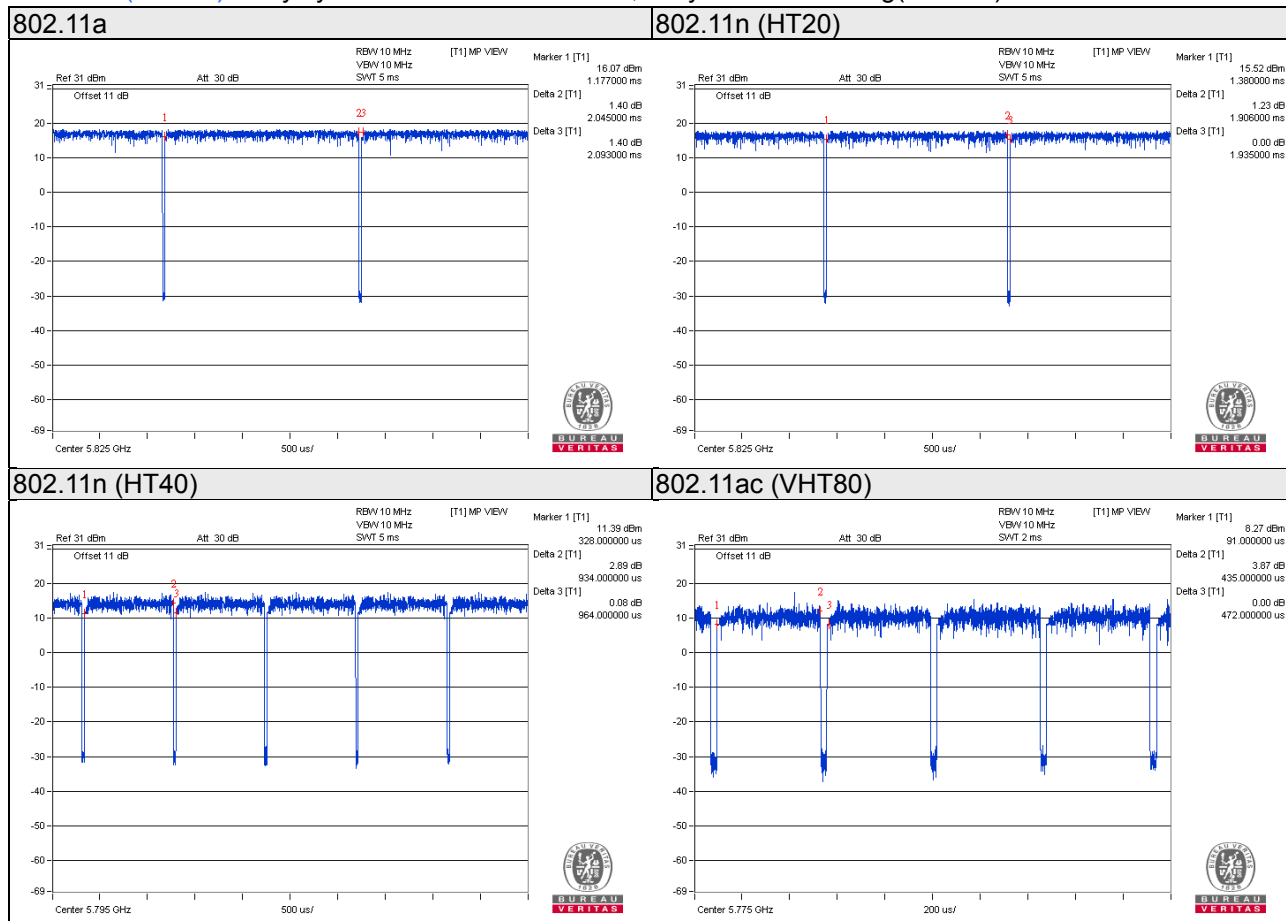
Duty cycle of test signal is $< 98\%$, duty factor shall be considered.

802.11a: Duty cycle = $2.045/2.093 = 0.977$, Duty factor = $10 * \log(1/0.977) = 0.10$

802.11n (HT20): Duty cycle = $1.906/1.935 = 0.985$

802.11n (HT40): Duty cycle = $0.934/0.964 = 0.969$, Duty factor = $10 * \log(1/0.969) = 0.14$

802.11ac (VHT80): Duty cycle = $0.435/0.472 = 0.922$, Duty factor = $10 * \log(1/0.922) = 0.35$



3.4 Description of Support Units

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

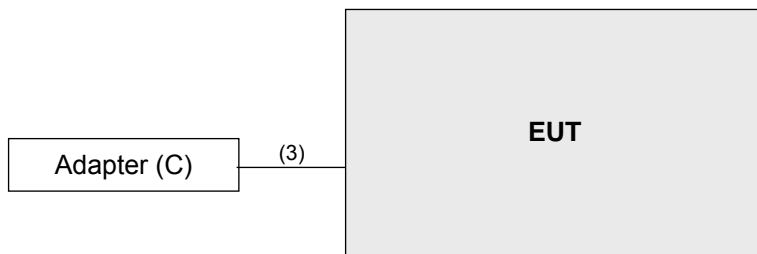
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Keyboard	DELL	KB4021	CN-05V23T-71581-1A K-01RU-A01	FCC DoC Approved	-
B.	Mouse	DELL	MS111-P	CN-011D3V-71581-1C J-092T	FCC DoC Approved	-
C.	Adapter	Asian Power Devices Inc.	WA-15I05R	NA	NA	Provided by client. I/P: 100-240Vac, 50-60Hz, 0.5A Max. O/P: 5Vdc, 3A

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

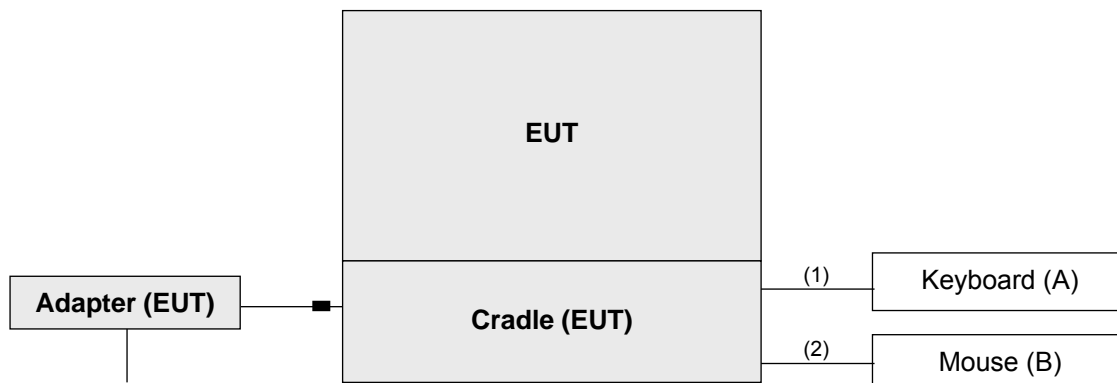
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	USB cable	1	1.8	Y	0	-
2.	USB cable	1	1.8	Y	0	-
3.	Power cable	1	1.5	-	0	Provided by client.

3.4.1 Configuration of System under Test

Mode A



Mode B



3.5 General Description of Applied Standards

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 v02r01

ANSI C63.10:2013

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

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 v02r01		Field Strength at 3m	
		PK: 74 (dBµV/m)	AV: 54 (dBµV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3m
5150~5250 MHz	15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2(dBµV/m)
5250~5350 MHz	15.407(b)(2)		
5470~5725 MHz	15.407(b)(3)		
5725~5850 MHz	<input checked="" type="checkbox"/> 15.407(b)(4)(i)	PK: -27 (dBm/MHz) ^{*1} PK: 10 (dBm/MHz) ^{*2} PK: 15.6 (dBm/MHz) ^{*3} PK: 27 (dBm/MHz) ^{*4}	PK: 68.2(dBµV/m) ^{*1} PK: 105.2 (dBµV/m) ^{*2} PK: 110.8(dBµV/m) ^{*3} PK: 122.2 (dBµV/m) ^{*4}
	<input type="checkbox"/> 15.407(b)(4)(ii)	Emission limits in section 15.247(d)	
^{*1} beyond 75 MHz or more above of the band edge. ^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.		^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above. ^{*4} from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.	

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

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

4.1.2 Test Instruments

Tested date: Jun. 01 ~ Jun. 15, 2017

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Oct. 24, 2016	Oct. 23, 2017
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Aug. 16, 2016	Aug. 15, 2017
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Dec. 28, 2016	Dec. 27, 2017
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Dec. 15, 2016	Dec. 14, 2017
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Dec. 14, 2016	Dec. 13, 2017
Loop Antenna	EM-6879	269	Aug. 11, 2016	Aug. 10, 2017
Preamplifier Agilent	8449B	3008A01960	Aug. 09, 2016	Aug. 08, 2017
Preamplifier Agilent	8447D	2944A10631	Aug. 09, 2016	Aug. 08, 2017
RF signal cable HUBER+SUHNER	SUCOFLEX 104	MY 13380+295012/04	Aug. 09, 2016	Aug. 08, 2017
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03 (250724)	Aug. 09, 2016	Aug. 08, 2017
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021703	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100	SC93021703	NA	NA
High Speed Peak Power Meter	ML2495A	0824012	Aug. 11, 2016	Aug. 10, 2017
Power Sensor	MA2411B	0738171	Aug. 11, 2016	Aug. 10, 2017
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 17, 2016	Oct. 16, 2017

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Chamber 4.
 3. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
 4. The IC Site Registration No. is IC 7450F-4.

Tested date: May 17, 2018

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Oct. 17, 2017	Oct. 16, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Aug. 18, 2017	Aug. 17, 2018
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Dec. 11, 2017	Dec. 10, 2018
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Dec. 13, 2017	Dec. 12, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Dec. 01, 2017	Nov. 30, 2018
Loop Antenna EMCI	EM-6879	269	Aug. 11, 2017	Aug. 10, 2018
Preamplifier Agilent (Below 1GHz)	8447D	2944A10631	Aug. 08, 2017	Aug. 07, 2018
Preamplifier Agilent (Above 1GHz)	8449B	3008A01922	Sep. 15, 2017	Sep. 14, 2018
RF signal cable HUBER+SUHNER	SUCOFLEX 104	MY 13380+295012/04	Aug. 08, 2017	Aug. 07, 2018
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03 (250724)	Aug. 08, 2017	Aug. 07, 2018
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021703	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100	SC93021703	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	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 test was performed in HwaYa Chamber 4.
 3. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
 4. The IC Site Registration No. is IC 7450F-4.

4.1.3 Test Procedures

For Radiated emission below 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

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

For Radiated emission above 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

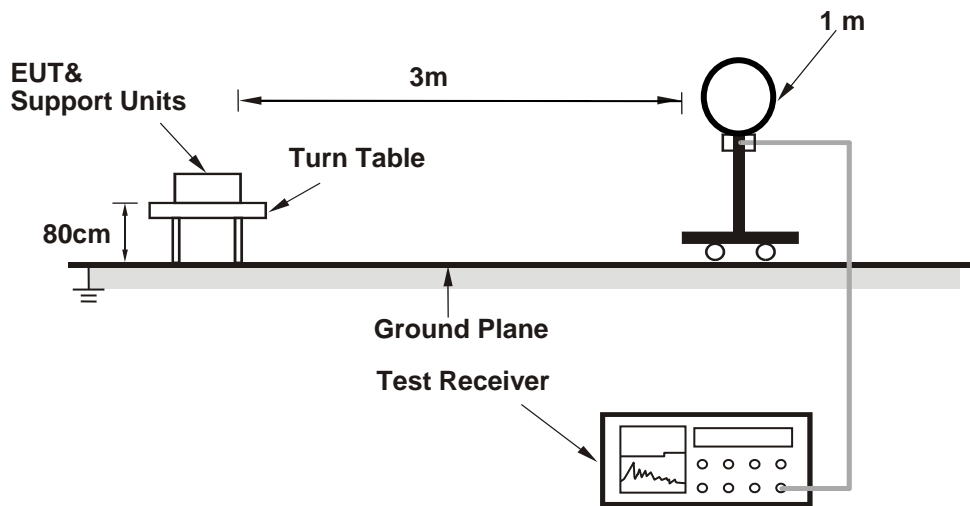
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.1.4 Deviation from Test Standard

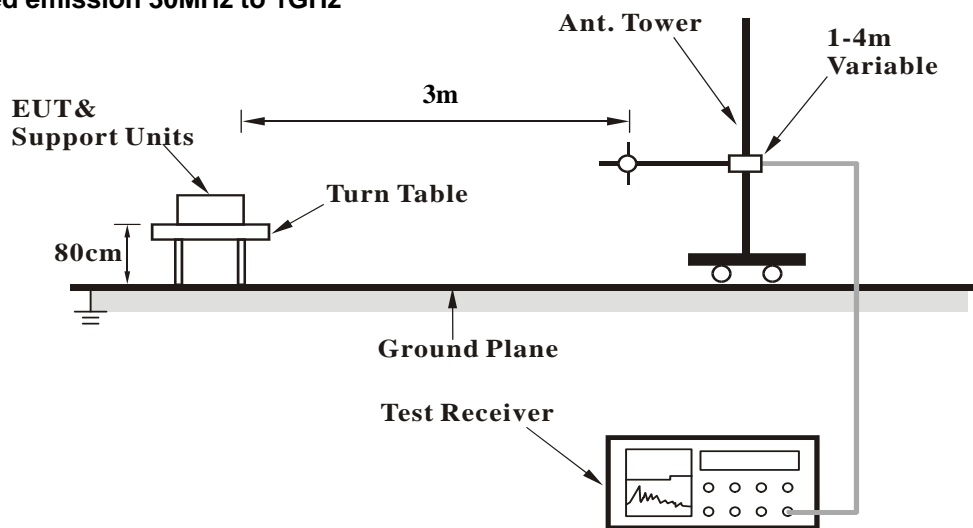
No deviation.

4.1.5 Test Setup

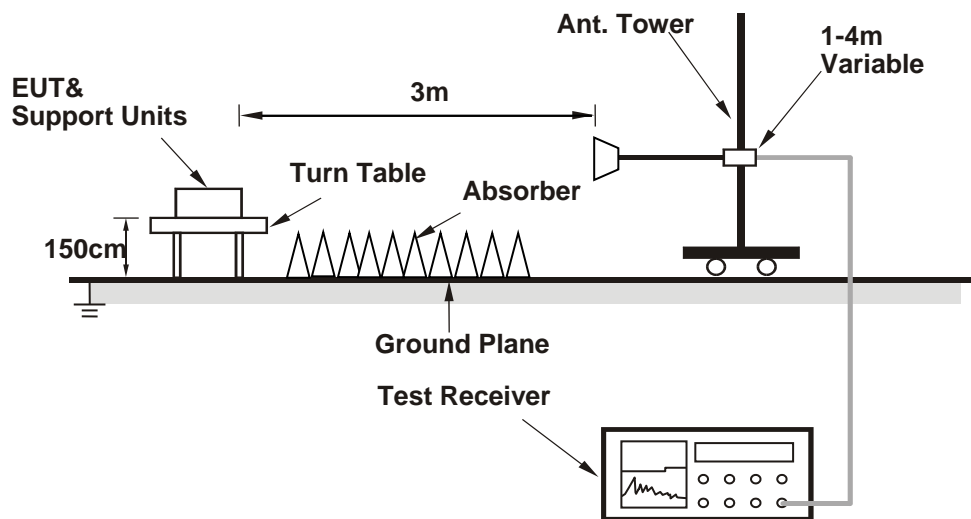
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

- a. Set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1GHz data:

802.11a

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	57.9 PK	74.0	-16.1	1.10 H	160	51.80	6.10
2	5150.00	45.0 AV	54.0	-9.0	1.10 H	160	38.90	6.10
3	*5180.00	102.7 PK			1.08 H	156	62.50	40.20
4	*5180.00	92.4 AV			1.08 H	156	52.20	40.20
5	#10360.00	60.1 PK	74.0	-13.9	1.91 H	217	42.20	17.90
6	#10360.00	47.6 AV	54.0	-6.4	1.91 H	217	29.70	17.90

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	57.5 PK	74.0	-16.5	1.27 V	210	51.40	6.10
2	5150.00	44.5 AV	54.0	-9.5	1.27 V	210	38.40	6.10
3	*5180.00	100.7 PK			1.23 V	208	60.50	40.20
4	*5180.00	90.9 AV			1.23 V	208	50.70	40.20
5	#10360.00	59.7 PK	74.0	-14.3	1.22 V	249	41.80	17.90
6	#10360.00	47.4 AV	54.0	-6.6	1.22 V	249	29.50	17.90

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	103.2 PK			1.06 H	120	63.00	40.20
2	*5200.00	93.2 AV			1.06 H	120	53.00	40.20
3	#10400.00	59.0 PK	74.0	-15.0	1.92 H	121	40.80	18.20
4	#10400.00	46.1 AV	54.0	-7.9	1.92 H	121	27.90	18.20

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	101.7 PK			1.60 V	283	61.50	40.20
2	*5200.00	91.8 AV			1.60 V	283	51.60	40.20
3	#10400.00	58.7 PK	74.0	-15.3	1.65 V	285	40.50	18.20
4	#10400.00	45.4 AV	54.0	-8.6	1.65 V	285	27.20	18.20

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	104.6 PK			1.00 H	153	64.20	40.40
2	*5240.00	94.9 AV			1.00 H	153	54.50	40.40
3	5350.00	58.5 PK	74.0	-15.5	1.07 H	150	52.00	6.50
4	5350.00	45.8 AV	54.0	-8.2	1.07 H	150	39.30	6.50
5	#10480.00	59.3 PK	74.0	-14.7	1.37 H	310	40.90	18.40
6	#10480.00	46.9 AV	54.0	-7.1	1.37 H	310	28.50	18.40
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	102.8 PK			1.09 V	219	62.40	40.40
2	*5240.00	93.0 AV			1.09 V	219	52.60	40.40
3	5350.00	58.6 PK	74.0	-15.4	1.12 V	215	52.10	6.50
4	5350.00	45.1 AV	54.0	-8.9	1.12 V	215	38.60	6.50
5	#10480.00	58.6 PK	74.0	-15.4	1.55 V	99	40.20	18.40
6	#10480.00	46.5 AV	54.0	-7.5	1.55 V	99	28.10	18.40

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	58.6 PK	74.0	-15.4	1.10 H	151	52.50	6.10
2	5150.00	44.7 AV	54.0	-9.3	1.10 H	151	38.60	6.10
3	*5260.00	104.7 PK			1.08 H	150	64.30	40.40
4	*5260.00	94.9 AV			1.08 H	150	54.50	40.40
5	#10520.00	59.2 PK	74.0	-14.8	1.36 H	354	40.80	18.40
6	#10520.00	46.4 AV	54.0	-7.6	1.36 H	354	28.00	18.40

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	59.1 PK	74.0	-14.9	1.12 V	215	53.00	6.10
2	5150.00	44.6 AV	54.0	-9.4	1.12 V	215	38.50	6.10
3	*5260.00	103.9 PK			1.08 V	220	63.50	40.40
4	*5260.00	93.8 AV			1.08 V	220	53.40	40.40
5	#10520.00	59.1 PK	74.0	-14.9	1.40 V	323	40.70	18.40
6	#10520.00	46.3 AV	54.0	-7.7	1.40 V	323	27.90	18.40

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	104.8 PK			1.00 H	151	64.30	40.50
2	*5300.00	94.6 AV			1.00 H	151	54.10	40.50
3	10600.00	60.3 PK	74.0	-13.7	1.33 H	197	41.50	18.80
4	10600.00	47.3 AV	54.0	-6.7	1.33 H	197	28.50	18.80

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	*5300.00	103.3 PK			1.15 V	219	62.80	40.50
2	*5300.00	93.6 AV			1.15 V	219	53.10	40.50
3	10600.00	59.2 PK	74.0	-14.8	2.28 V	146	40.40	18.80
4	10600.00	47.2 AV	54.0	-6.8	2.28 V	146	28.40	18.80

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	101.4 PK			1.00 H	150	60.90	40.50
2	*5320.00	91.1 AV			1.00 H	150	50.60	40.50
3	5350.00	58.4 PK	74.0	-15.6	1.04 H	151	51.90	6.50
4	5350.00	45.5 AV	54.0	-8.5	1.04 H	151	39.00	6.50
5	10640.00	59.6 PK	74.0	-14.4	1.99 H	297	40.60	19.00
6	10640.00	46.7 AV	54.0	-7.3	1.99 H	297	27.70	19.00

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	*5320.00	100.7 PK			1.00 V	211	60.20	40.50
2	*5320.00	90.4 AV			1.00 V	211	49.90	40.50
3	5350.00	58.1 PK	74.0	-15.9	1.06 V	209	51.60	6.50
4	5350.00	45.4 AV	54.0	-8.6	1.06 V	209	38.90	6.50
5	10640.00	59.4 PK	74.0	-14.6	2.37 V	164	40.40	19.00
6	10640.00	46.6 AV	54.0	-7.4	2.37 V	164	27.60	19.00

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	58.2 PK	74.0	-15.8	1.85 H	175	51.50	6.70
2	5460.00	45.5 AV	54.0	-8.5	1.85 H	175	38.80	6.70
3	#5470.00	59.4 PK	74.0	-14.6	1.84 H	175	52.70	6.70
4	#5470.00	46.3 AV	54.0	-7.7	1.84 H	175	39.60	6.70
5	*5500.00	101.9 PK			1.76 H	170	61.00	40.90
6	*5500.00	92.0 AV			1.76 H	170	51.10	40.90
7	11000.00	59.9 PK	74.0	-14.1	1.30 H	85	40.60	19.30
8	11000.00	47.4 AV	54.0	-6.6	1.30 H	85	28.10	19.30

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	5460.00	57.5 PK	74.0	-16.5	1.08 V	211	50.80	6.70
2	5460.00	46.2 AV	54.0	-7.8	1.08 V	211	39.50	6.70
3	#5470.00	58.7 PK	74.0	-15.3	1.10 V	210	52.00	6.70
4	#5470.00	46.3 AV	54.0	-7.7	1.10 V	210	39.60	6.70
5	*5500.00	103.2 PK			1.04 V	207	62.30	40.90
6	*5500.00	93.7 AV			1.04 V	207	52.80	40.90
7	11000.00	59.6 PK	74.0	-14.4	1.25 V	87	40.30	19.30
8	11000.00	48.0 AV	54.0	-6.0	1.25 V	87	28.70	19.30

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	103.7 PK			1.99 H	220	62.70	41.00
2	*5580.00	93.3 AV			1.99 H	220	52.30	41.00
3	11160.00	61.0 PK	74.0	-13.0	1.13 H	65	41.20	19.80
4	11160.00	49.4 AV	54.0	-4.6	1.13 H	65	29.60	19.80

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	*5580.00	105.1 PK			1.02 V	287	64.10	41.00
2	*5580.00	95.8 AV			1.02 V	287	54.80	41.00
3	11160.00	59.8 PK	74.0	-14.2	1.11 V	290	40.00	19.80
4	11160.00	48.2 AV	54.0	-5.8	1.11 V	290	28.40	19.80

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	101.1 PK			1.80 H	72	59.60	41.50
2	*5700.00	90.3 AV			1.80 H	72	48.80	41.50
3	#5725.00	58.9 PK	74.0	-15.1	1.75 H	75	51.60	7.30
4	#5725.00	48.3 AV	54.0	-5.7	1.75 H	75	41.00	7.30
5	11400.00	61.0 PK	74.0	-13.0	1.45 H	56	40.60	20.40
6	11400.00	49.0 AV	54.0	-5.0	1.45 H	56	28.60	20.40
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	*5700.00	98.0 PK			1.02 V	221	56.50	41.50
2	*5700.00	91.6 AV			1.02 V	221	50.10	41.50
3	#5725.00	58.2 PK	74.0	-15.8	1.05 V	225	50.90	7.30
4	#5725.00	46.8 AV	54.0	-7.2	1.05 V	225	39.50	7.30
5	11400.00	60.9 PK	74.0	-13.1	1.05 V	66	40.50	20.40
6	11400.00	48.8 AV	54.0	-5.2	1.05 V	66	28.40	20.40

Remarks:

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

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5605.60	59.8 PK	68.2	-8.4	1.99 H	120	52.90	6.90
2	*5745.00	104.4 PK			1.99 H	120	62.80	41.60
3	*5745.00	94.5 AV			1.99 H	120	52.90	41.60
4	#5981.60	61.4 PK	68.2	-6.8	1.99 H	120	53.50	7.90
5	11490.00	61.5 PK	74.0	-12.5	1.30 H	58	41.20	20.30
6	11490.00	49.9 AV	54.0	-4.1	1.30 H	58	29.60	20.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5633.60	60.0 PK	68.2	-8.2	1.00 V	220	53.00	7.00
2	*5745.00	102.9 PK			1.00 V	220	61.30	41.60
3	*5745.00	93.5 AV			1.00 V	220	51.90	41.60
4	#5943.20	59.8 PK	68.2	-8.4	1.00 V	220	52.00	7.80
5	11490.00	60.5 PK	74.0	-13.5	1.26 V	38	40.20	20.30
6	11490.00	48.7 AV	54.0	-5.3	1.26 V	38	28.40	20.30

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5618.40	59.3 PK	68.2	-8.9	1.85 H	111	52.40	6.90
2	*5785.00	104.6 PK			1.85 H	111	63.00	41.60
3	*5785.00	93.9 AV			1.85 H	111	52.30	41.60
4	#5982.40	60.3 PK	68.2	-7.9	1.85 H	111	52.40	7.90
5	11570.00	61.3 PK	74.0	-12.7	1.33 H	25	41.20	20.10
6	11570.00	49.7 AV	54.0	-4.3	1.33 H	25	29.60	20.10

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	#5622.40	58.6 PK	68.2	-9.6	1.00 V	207	51.70	6.90
2	*5785.00	102.3 PK			1.00 V	207	60.70	41.60
3	*5785.00	93.4 AV			1.00 V	207	51.80	41.60
4	#5981.60	60.1 PK	68.2	-8.1	1.00 V	207	52.20	7.90
5	11570.00	60.7 PK	74.0	-13.3	1.26 V	39	40.60	20.10
6	11570.00	48.8 AV	54.0	-5.2	1.26 V	39	28.70	20.10

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5608.80	59.3 PK	68.2	-8.9	2.15 H	214	52.40	6.90
2	*5825.00	103.7 PK			2.15 H	214	61.90	41.80
3	*5825.00	94.1 AV			2.15 H	214	52.30	41.80
4	#5980.80	59.9 PK	68.2	-8.3	2.15 H	214	52.00	7.90
5	11650.00	61.0 PK	74.0	-13.0	1.15 H	87	41.20	19.80
6	11650.00	49.4 AV	54.0	-4.6	1.15 H	87	29.60	19.80
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	#5615.20	48.9 PK	68.2	-19.3	1.00 V	220	42.00	6.90
2	*5825.00	103.3 PK			1.00 V	220	61.50	41.80
3	*5825.00	93.6 AV			1.00 V	220	51.80	41.80
4	#5939.20	49.7 PK	68.2	-18.5	1.00 V	220	41.90	7.80
5	11650.00	59.8 PK	74.0	-14.2	1.32 V	65	40.00	19.80
6	11650.00	48.2 AV	54.0	-5.8	1.32 V	65	28.40	19.80

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.

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	57.4 PK	74.0	-16.6	1.92 H	190	51.30	6.10
2	5150.00	45.0 AV	54.0	-9.0	1.92 H	190	38.90	6.10
3	*5180.00	102.0 PK			1.89 H	185	61.80	40.20
4	*5180.00	92.2 AV			1.89 H	185	52.00	40.20
5	#10360.00	59.6 PK	74.0	-14.4	1.45 H	247	41.70	17.90
6	#10360.00	46.7 AV	54.0	-7.3	1.45 H	247	28.80	17.90

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	57.6 PK	74.0	-16.4	1.20 V	281	51.50	6.10
2	5150.00	44.9 AV	54.0	-9.1	1.20 V	281	38.80	6.10
3	*5180.00	100.3 PK			1.11 V	289	60.10	40.20
4	*5180.00	90.4 AV			1.11 V	289	50.20	40.20
5	#10360.00	59.4 PK	74.0	-14.6	2.39 V	100	41.50	17.90
6	#10360.00	46.4 AV	54.0	-7.6	2.39 V	100	28.50	17.90

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	103.2 PK			1.02 H	122	63.00	40.20
2	*5200.00	93.2 AV			1.02 H	122	53.00	40.20
3	#10400.00	60.3 PK	74.0	-13.7	1.69 H	110	42.10	18.20
4	#10400.00	46.8 AV	54.0	-7.2	1.69 H	110	28.60	18.20

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	101.5 PK			1.01 V	280	61.30	40.20
2	*5200.00	92.0 AV			1.01 V	280	51.80	40.20
3	#10400.00	60.0 PK	74.0	-14.0	1.99 V	214	41.80	18.20
4	#10400.00	46.6 AV	54.0	-7.4	1.99 V	214	28.40	18.20

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	103.8 PK			1.01 H	152	63.40	40.40
2	*5240.00	94.0 AV			1.01 H	152	53.60	40.40
3	5350.00	59.2 PK	74.0	-14.8	1.09 H	160	52.70	6.50
4	5350.00	45.8 AV	54.0	-8.2	1.09 H	160	39.30	6.50
5	#10480.00	59.2 PK	74.0	-14.8	3.19 H	54	40.80	18.40
6	#10480.00	46.8 AV	54.0	-7.2	3.19 H	54	28.40	18.40

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	102.3 PK			1.00 V	218	61.90	40.40
2	*5240.00	92.8 AV			1.00 V	218	52.40	40.40
3	5350.00	58.8 PK	74.0	-15.2	1.09 V	221	52.30	6.50
4	5350.00	46.0 AV	54.0	-8.0	1.09 V	221	39.50	6.50
5	#10480.00	59.0 PK	74.0	-15.0	1.77 V	134	40.60	18.40
6	#10480.00	46.4 AV	54.0	-7.6	1.77 V	134	28.00	18.40

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	57.6 PK	74.0	-16.4	1.05 H	220	51.50	6.10
2	5150.00	46.7 AV	54.0	-7.3	1.05 H	220	40.60	6.10
3	*5260.00	103.7 PK			1.01 H	218	63.30	40.40
4	*5260.00	94.6 AV			1.01 H	218	54.20	40.40
5	#10520.00	60.0 PK	74.0	-14.0	1.05 H	220	41.60	18.40
6	#10520.00	48.0 AV	54.0	-6.0	1.05 H	220	29.60	18.40
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	56.3 PK	74.0	-17.7	1.50 V	120	50.20	6.10
2	5150.00	45.2 AV	54.0	-8.8	1.50 V	120	39.10	6.10
3	*5260.00	104.4 PK			1.45 V	117	64.00	40.40
4	*5260.00	94.8 AV			1.45 V	117	54.40	40.40
5	#10520.00	58.9 PK	74.0	-15.1	1.23 V	65	40.50	18.40
6	#10520.00	47.1 AV	54.0	-6.9	1.23 V	65	28.70	18.40

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	103.9 PK			1.03 H	151	63.40	40.50
2	*5300.00	94.2 AV			1.03 H	151	53.70	40.50
3	10600.00	60.0 PK	74.0	-14.0	1.32 H	58	41.20	18.80
4	10600.00	48.4 AV	54.0	-5.6	1.32 H	58	29.60	18.80

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	*5300.00	103.3 PK			1.02 V	219	62.80	40.50
2	*5300.00	93.5 AV			1.02 V	219	53.00	40.50
3	10600.00	58.8 PK	74.0	-15.2	1.12 V	54	40.00	18.80
4	10600.00	47.3 AV	54.0	-6.7	1.12 V	54	28.50	18.80

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	100.7 PK			1.00 H	151	60.20	40.50
2	*5320.00	91.1 AV			1.00 H	151	50.60	40.50
3	5350.00	57.7 PK	74.0	-16.3	1.05 H	159	51.20	6.50
4	5350.00	46.6 AV	54.0	-7.4	1.05 H	159	40.10	6.50
5	10640.00	60.2 PK	74.0	-13.8	1.28 H	54	41.20	19.00
6	10640.00	48.6 AV	54.0	-5.4	1.28 H	54	29.60	19.00
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	*5320.00	100.9 PK			1.00 V	218	60.40	40.50
2	*5320.00	91.5 AV			1.00 V	218	51.00	40.50
3	5350.00	56.8 PK	74.0	-17.2	1.05 V	221	50.30	6.50
4	5350.00	46.0 AV	54.0	-8.0	1.05 V	221	39.50	6.50
5	#10460.00	58.5 PK	74.0	-15.5	1.15 V	26	40.30	18.20
6	#10460.00	46.6 AV	54.0	-7.4	1.15 V	26	28.40	18.20

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	58.2 PK	74.0	-15.8	2.08 H	172	51.50	6.70
2	5460.00	46.8 AV	54.0	-7.2	2.08 H	172	40.10	6.70
3	#5470.00	59.3 PK	74.0	-14.7	2.05 H	170	52.60	6.70
4	#5470.00	47.3 AV	54.0	-6.7	2.05 H	170	40.60	6.70
5	*5500.00	99.3 PK			1.99 H	166	58.40	40.90
6	*5500.00	89.6 AV			1.99 H	166	48.70	40.90
7	11000.00	60.8 PK	74.0	-13.2	1.32 H	65	41.50	19.30
8	11000.00	48.4 AV	54.0	-5.6	1.32 H	65	29.10	19.30

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	5460.00	57.9 PK	74.0	-16.1	1.05 V	280	51.20	6.70
2	5460.00	46.3 AV	54.0	-7.7	1.05 V	280	39.60	6.70
3	#5470.00	57.9 PK	74.0	-16.1	1.02 V	279	51.20	6.70
4	#5470.00	47.2 AV	54.0	-6.8	1.02 V	279	40.50	6.70
5	*5500.00	101.9 PK			1.00 V	276	61.00	40.90
6	*5500.00	92.6 AV			1.00 V	276	51.70	40.90
7	11000.00	59.8 PK	74.0	-14.2	1.32 V	69	40.50	19.30
8	11000.00	47.9 AV	54.0	-6.1	1.32 V	69	28.60	19.30

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	103.2 PK			2.03 H	220	62.20	41.00
2	*5580.00	93.2 AV			2.03 H	220	52.20	41.00
3	11160.00	61.3 PK	74.0	-12.7	1.32 H	58	41.50	19.80
4	11160.00	49.4 AV	54.0	-4.6	1.32 H	58	29.60	19.80

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	*5580.00	104.5 PK			1.00 V	206	63.50	41.00
2	*5580.00	95.3 AV			1.00 V	206	54.30	41.00
3	11160.00	60.0 PK	74.0	-14.0	1.20 V	58	40.20	19.80
4	11160.00	48.2 AV	54.0	-5.8	1.20 V	58	28.40	19.80

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	102.2 PK			1.96 H	149	60.70	41.50
2	*5700.00	92.2 AV			1.96 H	149	50.70	41.50
3	#5725.00	58.9 PK	74.0	-15.1	2.00 H	156	51.60	7.30
4	#5725.00	47.6 AV	54.0	-6.4	2.00 H	156	40.30	7.30
5	11400.00	61.6 PK	74.0	-12.4	1.32 H	58	41.20	20.40
6	11400.00	48.8 AV	54.0	-5.2	1.32 H	58	28.40	20.40
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	*5700.00	100.5 PK			1.00 V	301	59.00	41.50
2	*5700.00	91.3 AV			1.00 V	301	49.80	41.50
3	#5725.00	58.5 PK	74.0	-15.5	1.05 V	310	51.20	7.30
4	#5725.00	47.1 AV	54.0	-6.9	1.05 V	310	39.80	7.30
5	11400.00	60.4 PK	74.0	-13.6	1.25 V	96	40.00	20.40
6	11400.00	48.8 AV	54.0	-5.2	1.25 V	96	28.40	20.40

Remarks:

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

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5622.40	60.4 PK	68.2	-7.8	1.80 H	151	53.50	6.90
2	*5745.00	107.0 PK			1.80 H	151	65.40	41.60
3	*5745.00	97.2 AV			1.80 H	151	55.60	41.60
4	#5980.80	61.0 PK	68.2	-7.2	1.80 H	151	53.10	7.90
5	11490.00	62.0 PK	74.0	-12.0	1.29 H	199	41.70	20.30
6	11490.00	49.3 AV	54.0	-4.7	1.29 H	199	29.00	20.30

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	#5606.40	60.0 PK	68.2	-8.2	1.00 V	226	53.10	6.90
2	*5745.00	104.2 PK			1.00 V	226	62.60	41.60
3	*5745.00	94.1 AV			1.00 V	226	52.50	41.60
4	#5959.20	60.5 PK	68.2	-7.7	1.00 V	226	52.60	7.90
5	11490.00	61.8 PK	74.0	-12.2	2.66 V	71	41.50	20.30
6	11490.00	49.2 AV	54.0	-4.8	2.66 V	71	28.90	20.30

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5647.20	59.7 PK	68.2	-8.5	2.16 H	216	52.60	7.10
2	*5785.00	104.7 PK			2.16 H	216	63.10	41.60
3	*5785.00	94.7 AV			2.16 H	216	53.10	41.60
4	#5973.60	60.4 PK	68.2	-7.8	2.16 H	216	52.50	7.90
5	11570.00	61.6 PK	74.0	-12.4	1.64 H	38	41.50	20.10
6	11570.00	48.8 AV	54.0	-5.2	1.64 H	38	28.70	20.10
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	#5635.20	60.0 PK	68.2	-8.2	1.00 V	225	53.00	7.00
2	*5785.00	104.1 PK			1.00 V	225	62.50	41.60
3	*5785.00	93.9 AV			1.00 V	225	52.30	41.60
4	#5944.80	60.7 PK	68.2	-7.5	1.00 V	225	52.90	7.80
5	11570.00	61.4 PK	74.0	-12.6	2.23 V	167	41.30	20.10
6	11570.00	48.6 AV	54.0	-5.4	2.23 V	167	28.50	20.10

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5645.60	59.5 PK	68.2	-8.7	1.77 H	151	52.40	7.10
2	*5825.00	106.1 PK			1.77 H	151	64.30	41.80
3	*5825.00	95.6 AV			1.77 H	151	53.80	41.80
4	#5954.40	60.5 PK	68.2	-7.7	1.77 H	151	52.60	7.90
5	11650.00	61.2 PK	74.0	-12.8	2.67 H	124	41.40	19.80
6	11650.00	47.8 AV	54.0	-6.2	2.67 H	124	28.00	19.80

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	#5640.00	59.7 PK	68.2	-8.5	2.59 V	257	52.70	7.00
2	*5825.00	105.0 PK			2.59 V	257	63.20	41.80
3	*5825.00	94.4 AV			2.59 V	257	52.60	41.80
4	#5956.80	60.1 PK	68.2	-8.1	2.59 V	257	52.20	7.90
5	11650.00	61.0 PK	74.0	-13.0	1.38 V	285	41.20	19.80
6	11650.00	47.7 AV	54.0	-6.3	1.38 V	285	27.90	19.80

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.

802.11n (HT40)

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	57.7 PK	74.0	-16.3	1.07 H	155	51.60	6.10
2	5150.00	45.2 AV	54.0	-8.8	1.07 H	155	39.10	6.10
3	*5190.00	96.3 PK			1.00 H	150	56.10	40.20
4	*5190.00	87.0 AV			1.00 H	150	46.80	40.20
5	#10380.00	59.3 PK	74.0	-14.7	2.07 H	114	41.30	18.00
6	#10380.00	46.6 AV	54.0	-7.4	2.07 H	114	28.60	18.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	57.2 PK	74.0	-16.8	1.02 V	277	51.10	6.10
2	5150.00	45.0 AV	54.0	-9.0	1.02 V	277	38.90	6.10
3	*5190.00	94.8 PK			1.00 V	280	54.60	40.20
4	*5190.00	85.3 AV			1.00 V	280	45.10	40.20
5	#10380.00	58.8 PK	74.0	-15.2	1.64 V	221	40.80	18.00
6	#10380.00	46.2 AV	54.0	-7.8	1.64 V	221	28.20	18.00

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	101.5 PK			1.02 H	152	61.10	40.40
2	*5230.00	91.8 AV			1.02 H	152	51.40	40.40
3	5350.00	58.0 PK	74.0	-16.0	1.10 H	157	51.50	6.50
4	5350.00	45.6 AV	54.0	-8.4	1.10 H	157	39.10	6.50
5	#10460.00	59.1 PK	74.0	-14.9	3.19 H	105	40.90	18.20
6	#10460.00	46.9 AV	54.0	-7.1	3.19 H	105	28.70	18.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5230.00	99.2 PK			1.00 V	280	58.80	40.40
2	*5230.00	90.2 AV			1.00 V	280	49.80	40.40
3	5350.00	57.9 PK	74.0	-16.1	1.05 V	288	51.40	6.50
4	5350.00	45.5 AV	54.0	-8.5	1.05 V	288	39.00	6.50
5	#10460.00	58.7 PK	74.0	-15.3	2.91 V	122	40.50	18.20
6	#10460.00	46.7 AV	54.0	-7.3	2.91 V	122	28.50	18.20

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	59.7 PK	74.0	-14.3	1.06 H	160	53.60	6.10
2	5150.00	46.8 AV	54.0	-7.2	1.06 H	160	40.70	6.10
3	*5270.00	105.0 PK			1.00 H	153	64.60	40.40
4	*5270.00	94.4 AV			1.00 H	153	54.00	40.40
5	#10540.00	61.6 PK	74.0	-12.4	2.25 H	134	43.00	18.60
6	#10540.00	48.5 AV	54.0	-5.5	2.25 H	134	29.90	18.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	59.8 PK	74.0	-14.2	1.59 V	192	53.70	6.10
2	5150.00	46.8 AV	54.0	-7.2	1.59 V	192	40.70	6.10
3	*5270.00	103.9 PK			1.51 V	278	63.50	40.40
4	*5270.00	93.4 AV			1.51 V	278	53.00	40.40
5	#10540.00	61.5 PK	74.0	-12.5	1.91 V	80	42.90	18.60
6	#10540.00	48.4 AV	54.0	-5.6	1.91 V	80	29.80	18.60

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	101.4 PK			1.00 H	155	60.90	40.50
2	*5310.00	90.8 AV			1.00 H	155	50.30	40.50
3	5350.00	61.6 PK	74.0	-12.4	1.02 H	151	55.10	6.50
4	5350.00	49.5 AV	54.0	-4.5	1.02 H	151	43.00	6.50
5	10620.00	61.3 PK	74.0	-12.7	2.33 H	156	42.40	18.90
6	10620.00	48.9 AV	54.0	-5.1	2.33 H	156	30.00	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	*5310.00	100.6 PK			1.13 V	237	60.10	40.50
2	*5310.00	89.7 AV			1.13 V	237	49.20	40.50
3	5350.00	61.2 PK	74.0	-12.8	1.17 V	240	54.70	6.50
4	5350.00	49.1 AV	54.0	-4.9	1.17 V	240	42.60	6.50
5	10620.00	61.0 PK	74.0	-13.0	2.21 V	42	42.10	18.90
6	10620.00	48.8 AV	54.0	-5.2	2.21 V	42	29.90	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 102	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	59.8 PK	74.0	-14.2	1.81 H	77	53.10	6.70
2	5460.00	45.8 AV	54.0	-8.2	1.81 H	77	39.10	6.70
3	#5470.00	60.1 PK	74.0	-13.9	1.80 H	74	53.40	6.70
4	#5470.00	46.3 AV	54.0	-7.7	1.80 H	74	39.60	6.70
5	*5510.00	99.6 PK			1.78 H	75	58.70	40.90
6	*5510.00	89.5 AV			1.78 H	75	48.60	40.90
7	11020.00	60.3 PK	74.0	-13.7	2.28 H	132	41.00	19.30
8	11020.00	47.4 AV	54.0	-6.6	2.28 H	132	28.10	19.30

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	5460.00	59.6 PK	74.0	-14.4	1.12 V	235	52.90	6.70
2	5460.00	45.7 AV	54.0	-8.3	1.12 V	235	39.00	6.70
3	#5470.00	59.8 PK	74.0	-14.2	1.15 V	230	53.10	6.70
4	#5470.00	46.2 AV	54.0	-7.8	1.15 V	230	39.50	6.70
5	*5510.00	98.3 PK			1.10 V	232	57.40	40.90
6	*5510.00	88.5 AV			1.10 V	232	47.60	40.90
7	11020.00	60.1 PK	74.0	-13.9	3.18 V	198	40.80	19.30
8	11020.00	47.4 AV	54.0	-6.6	3.18 V	198	28.10	19.30

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	102.9 PK			1.85 H	152	61.90	41.00
2	*5550.00	93.0 AV			1.85 H	152	52.00	41.00
3	11100.00	61.1 PK	74.0	-12.9	1.92 H	211	41.30	19.80
4	11100.00	48.0 AV	54.0	-6.0	1.92 H	211	28.20	19.80

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	101.9 PK			1.00 V	209	60.90	41.00
2	*5550.00	91.4 AV			1.00 V	209	50.40	41.00
3	11100.00	60.9 PK	74.0	-13.1	1.28 V	167	41.10	19.80
4	11100.00	47.9 AV	54.0	-6.1	1.28 V	167	28.10	19.80

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	102.4 PK			2.03 H	196	61.10	41.30
2	*5670.00	92.3 AV			2.03 H	196	51.00	41.30
3	#5725.00	59.2 PK	74.0	-14.8	2.05 H	190	51.90	7.30
4	#5725.00	46.0 AV	54.0	-8.0	2.05 H	190	38.70	7.30
5	11340.00	62.3 PK	74.0	-11.7	2.55 H	132	42.10	20.20
6	11340.00	49.0 AV	54.0	-5.0	2.55 H	132	28.80	20.20
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	*5670.00	101.2 PK			1.00 V	227	59.90	41.30
2	*5670.00	90.8 AV			1.00 V	227	49.50	41.30
3	#5725.00	58.8 PK	74.0	-15.2	1.06 V	230	51.50	7.30
4	#5725.00	45.7 AV	54.0	-8.3	1.06 V	230	38.40	7.30
5	11340.00	62.0 PK	74.0	-12.0	2.13 V	257	41.80	20.20
6	11340.00	48.7 AV	54.0	-5.3	2.13 V	257	28.50	20.20

Remarks:

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

CHANNEL	TX Channel 151	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 40GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5609.60	60.1 PK	68.2	-8.1	1.91 H	153	53.20	6.90
2	*5755.00	103.9 PK			1.91 H	153	62.30	41.60
3	*5755.00	94.0 AV			1.91 H	153	52.40	41.60
4	#5941.60	60.2 PK	68.2	-8.0	1.91 H	153	52.40	7.80
5	11510.00	61.2 PK	74.0	-12.8	2.68 H	121	41.00	20.20
6	11510.00	49.1 AV	54.0	-4.9	2.68 H	121	28.90	20.20
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	#5625.60	59.6 PK	68.2	-8.6	3.00 V	225	52.60	7.00
2	*5755.00	102.1 PK			3.00 V	225	60.50	41.60
3	*5755.00	91.8 AV			3.00 V	225	50.20	41.60
4	#5982.40	61.4 PK	68.2	-6.8	3.00 V	225	53.50	7.90
5	11510.00	61.0 PK	74.0	-13.0	1.95 V	210	40.80	20.20
6	11510.00	49.0 AV	54.0	-5.0	1.95 V	210	28.80	20.20

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5605.60	59.9 PK	68.2	-8.3	1.64 H	151	53.00	6.90
2	*5795.00	103.4 PK			1.64 H	151	61.70	41.70
3	*5795.00	93.1 AV			1.64 H	151	51.40	41.70
4	#5990.40	61.3 PK	68.2	-6.9	1.64 H	151	53.40	7.90
5	11590.00	61.6 PK	74.0	-12.4	3.19 H	155	41.50	20.10
6	11590.00	48.7 AV	54.0	-5.3	3.19 H	155	28.60	20.10
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	#5628.80	60.1 PK	68.2	-8.1	3.10 V	274	53.10	7.00
2	*5795.00	102.0 PK			3.10 V	274	60.30	41.70
3	*5795.00	92.2 AV			3.10 V	274	50.50	41.70
4	#5954.40	60.4 PK	68.2	-7.8	3.10 V	274	52.50	7.90
5	11590.00	61.3 PK	74.0	-12.7	1.28 V	144	41.20	20.10
6	11590.00	48.7 AV	54.0	-5.3	1.28 V	144	28.60	20.10

Remarks:

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

802.11ac (VHT80)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	65.0 PK	74.0	-9.0	1.04 H	150	58.90	6.10
2	5150.00	50.6 AV	54.0	-3.4	1.04 H	150	44.50	6.10
3	*5210.00	97.6 PK			1.00 H	152	57.30	40.30
4	*5210.00	87.3 AV			1.00 H	152	47.00	40.30
5	5350.00	58.2 PK	74.0	-15.8	1.05 H	151	51.70	6.50
6	5350.00	45.4 AV	54.0	-8.6	1.05 H	151	38.90	6.50
7	#10420.00	60.1 PK	74.0	-13.9	1.56 H	214	42.00	18.10
8	#10420.00	46.7 AV	54.0	-7.3	1.56 H	214	28.60	18.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	63.8 PK	74.0	-10.2	1.03 V	280	57.70	6.10
2	5150.00	50.7 AV	54.0	-3.3	1.03 V	280	44.60	6.10
3	*5210.00	95.9 PK			1.00 V	279	55.60	40.30
4	*5210.00	85.7 AV			1.00 V	279	45.40	40.30
5	5350.00	58.2 PK	74.0	-15.8	1.01 V	277	51.70	6.50
6	5350.00	45.4 AV	54.0	-8.6	1.01 V	277	38.90	6.50
7	#10420.00	59.9 PK	74.0	-14.1	1.66 V	221	41.80	18.10
8	#10420.00	46.6 AV	54.0	-7.4	1.66 V	221	28.50	18.10

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	57.3 PK	74.0	-16.7	1.02 H	150	51.20	6.10
2	5150.00	44.7 AV	54.0	-9.3	1.02 H	150	38.60	6.10
3	*5290.00	97.3 PK			1.00 H	155	56.90	40.40
4	*5290.00	86.7 AV			1.00 H	155	46.30	40.40
5	5350.00	66.5 PK	74.0	-7.5	1.01 H	156	60.00	6.50
6	5350.00	50.6 AV	54.0	-3.4	1.01 H	156	44.10	6.50
7	#10580.00	59.4 PK	74.0	-14.6	1.16 H	248	40.70	18.70
8	#10580.00	47.0 AV	54.0	-7.0	1.16 H	248	28.30	18.70

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	57.9 PK	74.0	-16.1	1.22 V	237	51.80	6.10
2	5150.00	44.6 AV	54.0	-9.4	1.22 V	237	38.50	6.10
3	*5290.00	95.8 PK			1.20 V	235	55.40	40.40
4	*5290.00	85.6 AV			1.20 V	235	45.20	40.40
5	5350.00	65.1 PK	74.0	-8.9	1.21 V	230	58.60	6.50
6	5350.00	50.2 AV	54.0	-3.8	1.21 V	230	43.70	6.50
7	#10580.00	59.2 PK	74.0	-14.8	2.97 V	124	40.50	18.70
8	#10580.00	47.1 AV	54.0	-6.9	2.97 V	124	28.40	18.70

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	67.4 PK	74.0	-6.6	1.80 H	122	60.70	6.70
2	5460.00	51.9 AV	54.0	-2.1	1.80 H	122	45.20	6.70
3	#5470.00	68.4 PK	74.0	-5.6	1.83 H	117	61.70	6.70
4	#5470.00	50.4 AV	54.0	-3.6	1.83 H	117	43.70	6.70
5	*5530.00	98.1 PK			1.79 H	120	57.20	40.90
6	*5530.00	87.7 AV			1.79 H	120	46.80	40.90
7	#5725.00	58.0 PK	74.0	-16.0	1.81 H	125	50.70	7.30
8	#5725.00	45.9 AV	54.0	-8.1	1.81 H	125	38.60	7.30
9	11060.00	61.4 PK	74.0	-12.6	2.97 H	128	41.80	19.60
10	11060.00	47.6 AV	54.0	-6.4	2.97 H	128	28.00	19.60

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	5460.00	66.9 PK	74.0	-7.1	1.18 V	227	60.20	6.70
2	5460.00	51.5 AV	54.0	-2.5	1.18 V	227	44.80	6.70
3	#5470.00	67.5 PK	74.0	-6.5	1.10 V	224	60.80	6.70
4	#5470.00	49.9 AV	54.0	-4.1	1.10 V	224	43.20	6.70
5	*5530.00	97.3 PK			1.12 V	223	56.40	40.90
6	*5530.00	86.7 AV			1.12 V	223	45.80	40.90
7	#5725.00	57.5 PK	74.0	-16.5	1.07 V	115	50.20	7.30
8	#5725.00	45.3 AV	54.0	-8.7	1.07 V	115	38.00	7.30
9	11060.00	61.1 PK	74.0	-12.9	1.39 V	228	41.50	19.60
10	11060.00	47.4 AV	54.0	-6.6	1.39 V	228	27.80	19.60

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	58.0 PK	74.0	-16.0	1.95 H	180	51.30	6.70
2	5460.00	45.4 AV	54.0	-8.6	1.95 H	180	38.70	6.70
3	#5470.00	59.2 PK	74.0	-14.8	1.94 H	170	52.50	6.70
4	#5470.00	46.0 AV	54.0	-8.0	1.94 H	170	39.30	6.70
5	*5610.00	100.1 PK			1.99 H	172	59.00	41.10
6	*5610.00	89.9 AV			1.99 H	172	48.80	41.10
7	#5725.00	61.7 PK	74.0	-12.3	1.96 H	175	54.40	7.30
8	#5725.00	48.8 AV	54.0	-5.2	1.96 H	175	41.50	7.30
9	11220.00	59.9 PK	74.0	-14.1	1.94 H	223	40.00	19.90
10	11220.00	47.3 AV	54.0	-6.7	1.94 H	223	27.40	19.90

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	5460.00	57.5 PK	74.0	-16.5	1.40 V	227	50.80	6.70
2	5460.00	44.8 AV	54.0	-9.2	1.40 V	227	38.10	6.70
3	#5470.00	58.0 PK	74.0	-16.0	1.35 V	223	51.30	6.70
4	#5470.00	45.4 AV	54.0	-8.6	1.35 V	223	38.70	6.70
5	*5610.00	99.5 PK			1.39 V	226	58.40	41.10
6	*5610.00	88.9 AV			1.39 V	226	47.80	41.10
7	#5725.00	61.2 PK	74.0	-12.8	1.42 V	230	53.90	7.30
8	#5725.00	48.3 AV	54.0	-5.7	1.42 V	230	41.00	7.30
9	11220.00	59.9 PK	74.0	-14.1	2.75 V	110	40.00	19.90
10	11220.00	47.3 AV	54.0	-6.7	2.75 V	110	27.40	19.90

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	#5638.40	61.8 PK	68.2	-6.4	1.91 H	153	54.80	7.00
2	*5775.00	100.7 PK			1.91 H	153	59.10	41.60
3	*5775.00	90.6 AV			1.91 H	153	49.00	41.60
4	#5932.00	60.4 PK	68.2	-7.8	1.91 H	153	52.60	7.80
5	11550.00	61.7 PK	74.0	-12.3	1.99 H	71	41.50	20.20
6	11550.00	49.0 AV	54.0	-5.0	1.99 H	71	28.80	20.20

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	#5642.40	60.4 PK	68.2	-7.8	2.98 V	226	53.30	7.10
2	*5775.00	98.4 PK			2.98 V	226	56.80	41.60
3	*5775.00	88.4 AV			2.98 V	226	46.80	41.60
4	#5925.60	59.8 PK	68.2	-8.4	2.98 V	226	52.00	7.80
5	11550.00	61.6 PK	74.0	-12.4	2.49 V	177	41.40	20.20
6	11550.00	48.9 AV	54.0	-5.1	2.49 V	177	28.70	20.20

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.

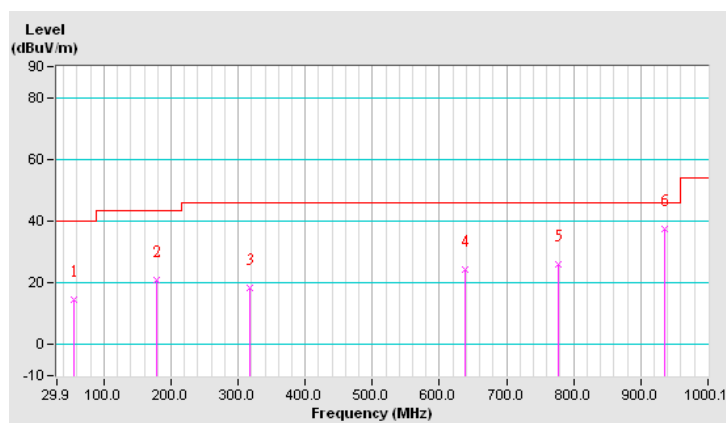
Below 1GHz Worst-Case Data: 802.11n (HT20)

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	A

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	55.13	14.4 QP	40.0	-25.6	1.50 H	7	28.70	-14.30
2	179.31	20.9 QP	43.5	-22.6	1.00 H	271	35.80	-14.90
3	317.08	18.2 QP	46.0	-27.8	1.50 H	138	29.90	-11.70
4	639.19	24.3 QP	46.0	-21.7	1.00 H	121	29.70	-5.40
5	776.95	26.2 QP	46.0	-19.8	1.00 H	96	28.70	-2.50
6	936.07	37.5 QP	46.0	-8.5	1.99 H	7	37.80	-0.30

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. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



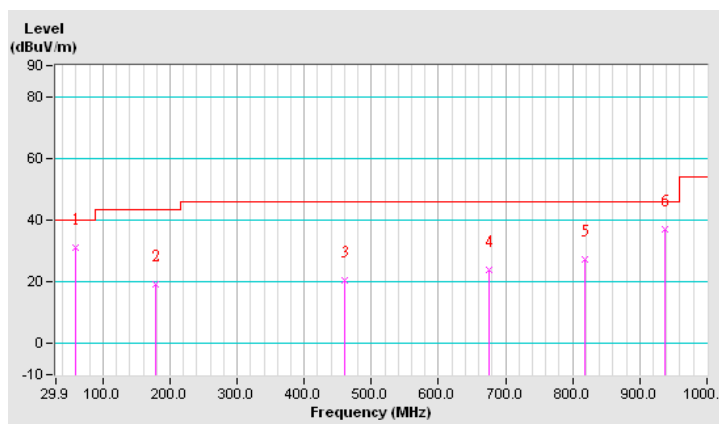
CHANNEL	TX Channel 149	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	A

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	59.01	31.1 QP	40.0	-8.9	1.99 V	14	45.70	-14.60
2	179.31	19.2 QP	43.5	-24.3	1.00 V	33	34.10	-14.90
3	460.67	20.7 QP	46.0	-25.3	1.50 V	183	30.00	-9.30
4	676.05	23.9 QP	46.0	-22.1	1.00 V	13	28.80	-4.90
5	817.70	27.1 QP	46.0	-18.9	1.24 V	13	29.10	-2.00
6	938.01	37.1 QP	46.0	-8.9	1.50 V	243	37.30	-0.20

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. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

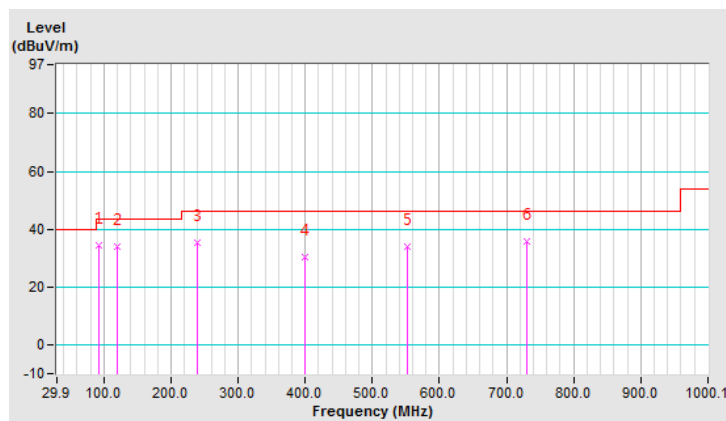


CHANNEL	TX Channel 149	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	B

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	91.99	34.4 QP	43.5	-9.1	1.99 H	100	53.80	-19.40
2	119.16	34.0 QP	43.5	-9.5	1.49 H	101	50.10	-16.10
3	239.46	35.2 QP	46.0	-10.8	1.49 H	329	49.90	-14.70
4	400.52	30.5 QP	46.0	-15.5	1.00 H	172	40.90	-10.40
5	551.87	34.2 QP	46.0	-11.8	1.49 H	151	41.70	-7.50
6	730.38	36.0 QP	46.0	-10.0	1.99 H	7	39.20	-3.20

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. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



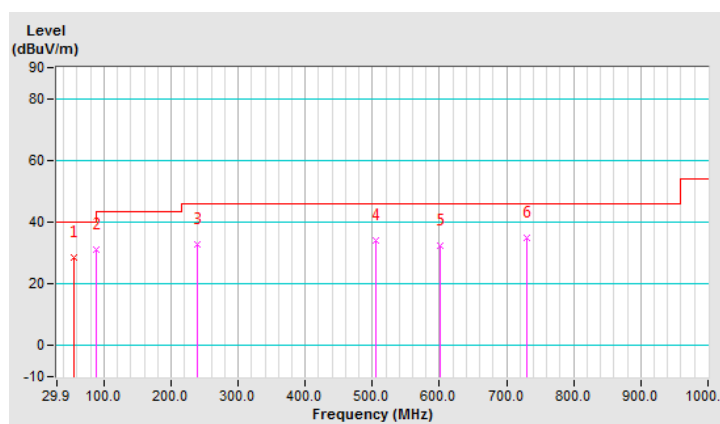
CHANNEL	TX Channel 149	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	B

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	55.04	28.7 QP	40.0	-11.3	1.38 V	51	42.80	-14.10
2	88.11	31.2 QP	43.5	-12.3	1.00 V	6	50.50	-19.30
3	239.46	33.0 QP	46.0	-13.0	2.00 V	64	47.70	-14.70
4	505.30	34.0 QP	46.0	-12.0	1.00 V	167	42.20	-8.20
5	600.38	32.5 QP	46.0	-13.5	1.00 V	106	38.50	-6.00
6	730.38	34.8 QP	46.0	-11.2	1.00 V	238	38.00	-3.20

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. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



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

Tested date: Jun. 19, 2017

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 21, 2016	Nov. 20, 2017
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Dec. 22, 2016	Dec. 21, 2017
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 10, 2017	Mar. 09, 2018
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 28, 2016	Jul. 27, 2017
Software ADT	BV ADT_Cond_ V7.3.7.3	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 test was performed in HwaYa Shielded Room 1.

3. The VCCI Site Registration No. is C-2040.

Tested date: May 17, 2018

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 23, 2017	Nov. 22, 2018
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Sep. 05, 2017	Sep. 04, 2018
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 06, 2018	Mar. 05, 2019
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 15, 2017	Aug. 14, 2018
Software ADT	BV ADT_Cond_ V7.3.7.3	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 test was performed in HwaYa Shielded Room 1.

3. The VCCI Site Registration No. is C-2040.

4.2.3 Test Procedures

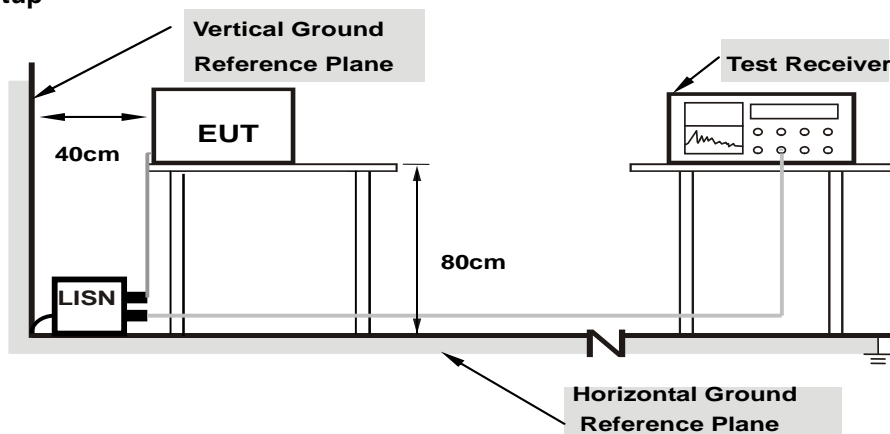
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

NOTE: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

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 Conditions

Same as 4.1.6.

4.2.7 Test Results

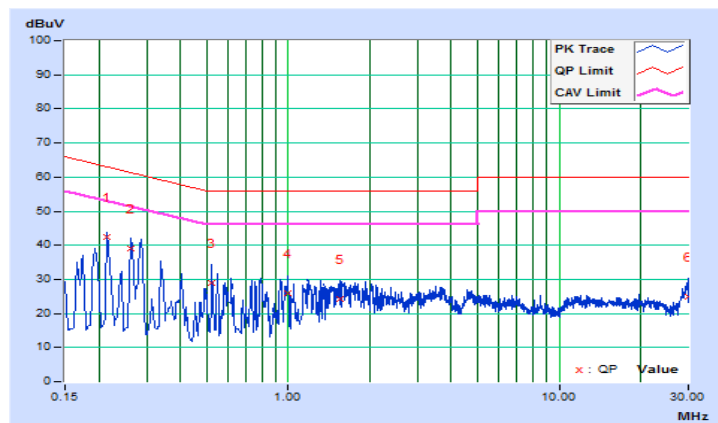
Worst-case data: 802.11n (HT20)

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

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.21400	10.44	32.00	16.28	42.44	26.72	63.05	53.05	-20.61	-26.33
2	0.26200	10.45	28.59	12.91	39.04	23.36	61.37	51.37	-22.33	-28.01
3	0.52200	10.50	18.40	4.76	28.90	15.26	56.00	46.00	-27.10	-30.74
4	1.00200	10.46	15.42	7.59	25.88	18.05	56.00	46.00	-30.12	-27.95
5	1.55228	10.49	13.61	6.70	24.10	17.19	56.00	46.00	-31.90	-28.81
6	29.97800	11.78	13.15	7.01	24.93	18.79	60.00	50.00	-35.07	-31.21

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.

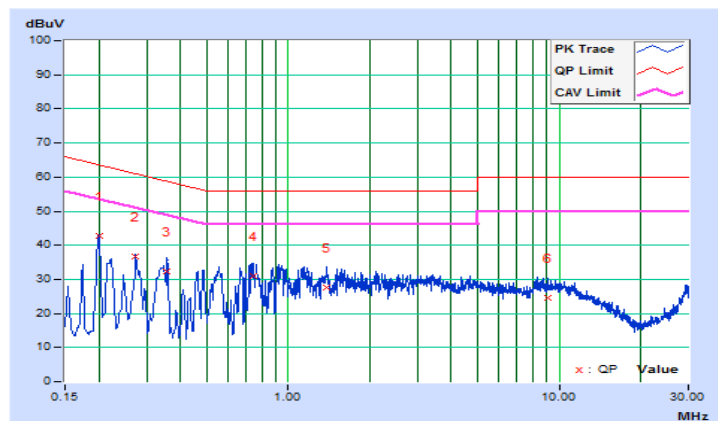


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.19989	10.20	32.50	18.37	42.70	28.57	63.62
2	0.27400	10.21	26.42	15.69	36.63	25.90	61.00	51.00	-24.37	-25.10
3	0.35800	10.22	21.99	11.48	32.21	21.70	58.77	48.77	-26.56	-27.07
4	0.74200	10.24	20.90	10.49	31.14	20.73	56.00	46.00	-24.86	-25.27
5	1.39400	10.27	17.48	9.98	27.75	20.25	56.00	46.00	-28.25	-25.75
6	9.06200	10.61	14.02	9.00	24.63	19.61	60.00	50.00	-35.37	-30.39

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.

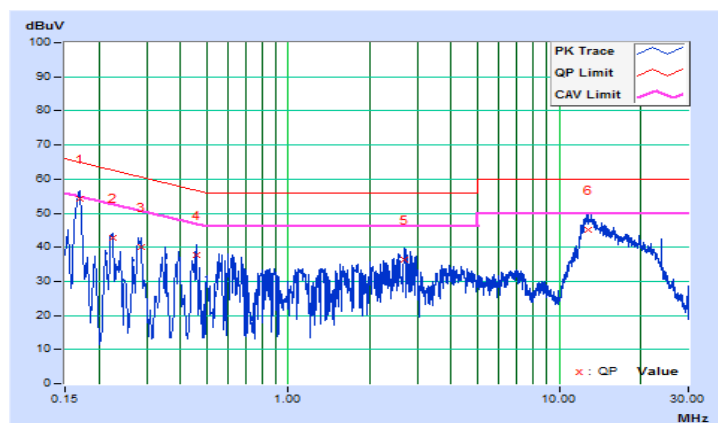


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.16967	10.10	44.24	36.66	54.34	46.76	64.98
2	0.22434	10.11	32.76	20.63	42.87	30.74	62.66	52.66	-19.79	-21.92
3	0.28513	10.11	30.02	20.71	40.13	30.82	60.67	50.67	-20.54	-19.85
4	0.45695	10.12	27.50	14.78	37.62	24.90	56.75	46.75	-19.13	-21.85
5	2.66804	10.22	25.98	10.65	36.20	20.87	56.00	46.00	-19.80	-25.13
6	12.75584	10.78	34.48	28.32	45.26	39.10	60.00	50.00	-14.74	-10.90

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.

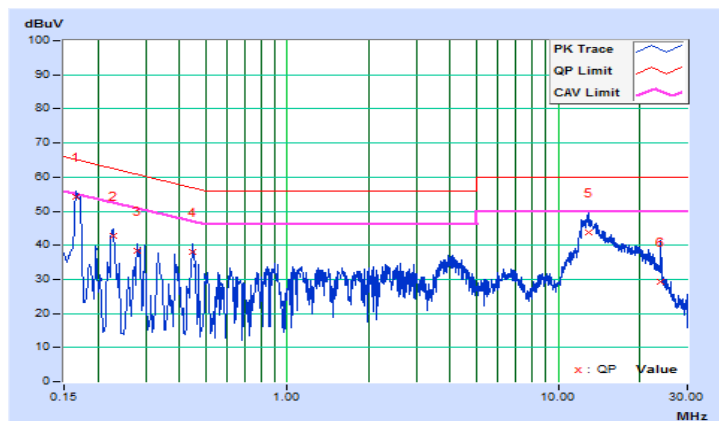


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.16526	10.10	44.13	35.01	54.23	45.11	65.20
2	0.22672	10.11	32.55	19.12	42.66	29.23	62.57	52.57	-19.91	-23.34
3	0.27844	10.11	28.19	20.73	38.30	30.84	60.86	50.86	-22.56	-20.02
4	0.44507	10.12	27.93	19.22	38.05	29.34	56.97	46.97	-18.92	-17.63
5	12.94230	10.64	33.21	27.38	43.85	38.02	60.00	50.00	-16.15	-11.98
6	23.76249	10.99	18.14	12.05	29.13	23.04	60.00	50.00	-30.87	-26.96

REMARKS:

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



4.3 Transmit Power Measurement

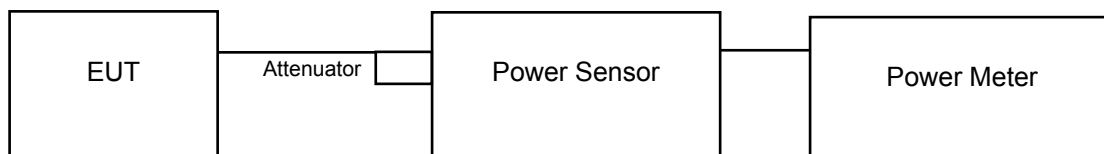
4.3.1 Limits of Transmit Power Measurement

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

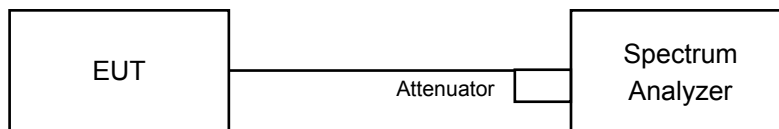
*B is the 26 dB emission bandwidth in megahertz

4.3.2 Test Setup

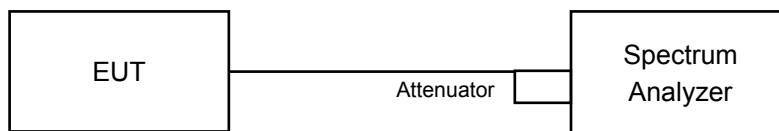
For Power Output
 802.11a, 802.11n (HT20), 802.11n (HT40)



802.11ac (VHT80)



For Bandwidth



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

For Average Power Measurement

For 802.11a, 802.11n (HT20), 802.11n (HT40)

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.

For 802.11ac (VHT80)

- 1) Set span to encompass the entire 26 dB EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
- 2) Set sweep trigger to "free run".
- 3) Set RBW = 1 MHz.
- 4) Set VBW \geq 3 MHz.
- 5) Number of points in sweep \geq 2 Span / RBW.
- 6) Sweep time \leq (number of points in sweep) * T
- 7) Using emission bandwidth to determine the frequency span for integration the channel bandwidth.
- 8) Detector = RMS.
- 9) Trace mode = max hold.
- 10) Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.
- 11) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the spectrum.

For 26dB Bandwidth

- 1) Set RBW = approximately 1% of the emission bandwidth.
- 2) Set the VBW > RBW.
- 3) Detector = Peak.
- 4) Trace mode = max hold.
- 5) Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

802.11a

Chan.	Freq. (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	18.707	12.72	24	Pass
40	5200	17.258	12.37	24	Pass
48	5240	16.520	12.18	24	Pass
52	5260	18.621	12.70	24	Pass
60	5300	17.378	12.40	24	Pass
64	5320	14.757	11.69	24	Pass
100	5500	14.723	11.68	24	Pass
116	5580	14.355	11.57	24	Pass
140	5700	13.274	11.23	24	Pass
149	5745	16.558	12.19	30	Pass
157	5785	17.140	12.34	30	Pass
165	5825	16.482	12.17	30	Pass

Note:

For U-NII-2A, U-NII-2C Band:

1. $11\text{dBm} + 10\log (23.96) = 24.79 > 24\text{dBm}$
2. $11\text{dBm} + 10\log (24.18) = 24.83 > 24\text{dBm}$
3. $11\text{dBm} + 10\log (23.26) = 24.67 > 24\text{dBm}$
4. $11\text{dBm} + 10\log (24.39) = 24.87 > 24\text{dBm}$
5. $11\text{dBm} + 10\log (24.20) = 24.84 > 24\text{dBm}$
6. $11\text{dBm} + 10\log (23.89) = 24.78 > 24\text{dBm}$

802.11n (HT20)

Chan.	Freq. (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
36	5180	16.943	12.29	24	Pass
40	5200	17.100	12.33	24	Pass
48	5240	16.520	12.18	24	Pass
52	5260	18.493	12.67	24	Pass
60	5300	17.100	12.33	24	Pass
64	5320	15.885	12.01	24	Pass
100	5500	14.256	11.54	24	Pass
116	5580	14.622	11.65	24	Pass
140	5700	14.825	11.71	24	Pass
149	5745	16.255	12.11	30	Pass
157	5785	16.749	12.24	30	Pass
165	5825	16.181	12.09	30	Pass

Note:

For U-NII-2A, U-NII-2C Band:

1. $11\text{dBm} + 10\log (23.68) = 24.74 > 24\text{dBm}$
2. $11\text{dBm} + 10\log (24.81) = 24.95 > 24\text{dBm}$
3. $11\text{dBm} + 10\log (24.61) = 24.91 > 24\text{dBm}$
4. $11\text{dBm} + 10\log (24.23) = 24.84 > 24\text{dBm}$
5. $11\text{dBm} + 10\log (24.63) = 24.91 > 24\text{dBm}$
6. $11\text{dBm} + 10\log (24.77) = 24.94 > 24\text{dBm}$

802.11n (HT40)

Chan.	Freq. (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
38	5190	10.814	10.34	24	Pass
46	5230	17.179	12.35	24	Pass
54	5270	18.750	12.73	24	Pass
62	5310	15.171	11.81	24	Pass
102	5510	14.521	11.62	24	Pass
110	5550	14.028	11.47	24	Pass
134	5670	14.223	11.53	24	Pass
151	5755	15.668	11.95	30	Pass
159	5795	16.520	12.18	30	Pass

Note:

For U-NII-2A, U-NII-2C Band:

1. $11\text{dBm} + 10\log (44.02) = 27.44 > 24\text{dBm}$
2. $11\text{dBm} + 10\log (44.34) = 27.47 > 24\text{dBm}$
3. $11\text{dBm} + 10\log (44.38) = 27.47 > 24\text{dBm}$
4. $11\text{dBm} + 10\log (45.20) = 27.55 > 24\text{dBm}$
5. $11\text{dBm} + 10\log (45.69) = 27.60 > 24\text{dBm}$

802.11ac (VHT80)

Chan.	Freq. (MHz)	Maximum Conducted Power (mW)	Maximum Conducted Power (dBm)	Power Limit (dBm)	Pass / Fail
42	5210	18.155	12.59	24	Pass
58	5290	16.520	12.18	24	Pass
106	5530	14.588	11.64	24	Pass
122	5610	15.382	11.87	24	Pass
155	5775	17.947	12.54	30	Pass

Note:

For U-NII-2A, U-NII-2C Band:

1. $11\text{dBm} + 10\log (82.34) = 30.16 > 24\text{dBm}$
2. $11\text{dBm} + 10\log (82.69) = 30.17 > 24\text{dBm}$
3. $11\text{dBm} + 10\log 164.10 = 33.15 > 24\text{dBm}$

26dB Bandwidth:

802.11a

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)
36	5180	23.65
40	5200	23.47
48	5240	24.30
52	5260	23.96
60	5300	24.18
64	5320	23.26
100	5500	24.39
116	5580	24.20
140	5700	23.89

802.11n (HT20)

Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)
36	5180	24.50
40	5200	23.82
48	5240	24.84
52	5260	23.68
60	5300	24.81
64	5320	24.61
100	5500	24.23
116	5580	24.63
140	5700	24.77

802.11n (HT40)

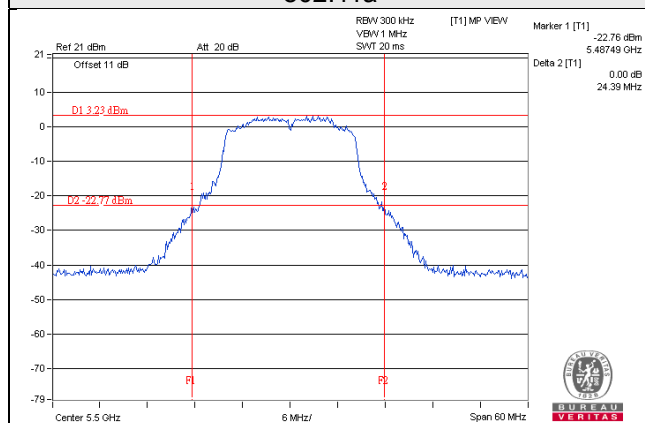
Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)
38	5190	44.24
46	5230	44.29
54	5270	44.02
62	5310	44.34
102	5510	44.38
110	5550	45.20
134	5670	45.69

802.11ac (VHT80)

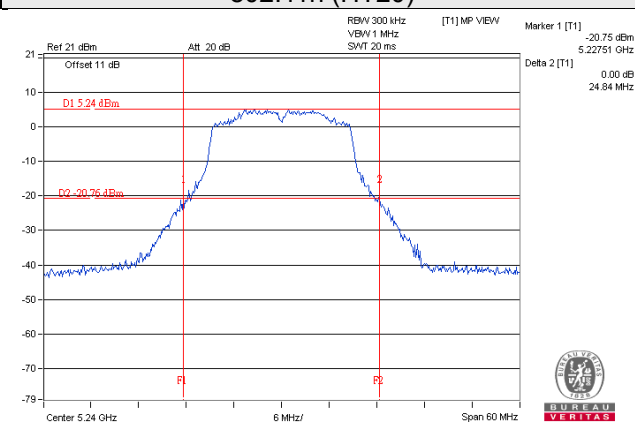
Chan.	Freq. (MHz)	26dBc Bandwidth (MHz)
42	5210	82.53
58	5290	82.34
106	5530	82.69
122	5610	164.10

Spectrum Plot of Worst Value

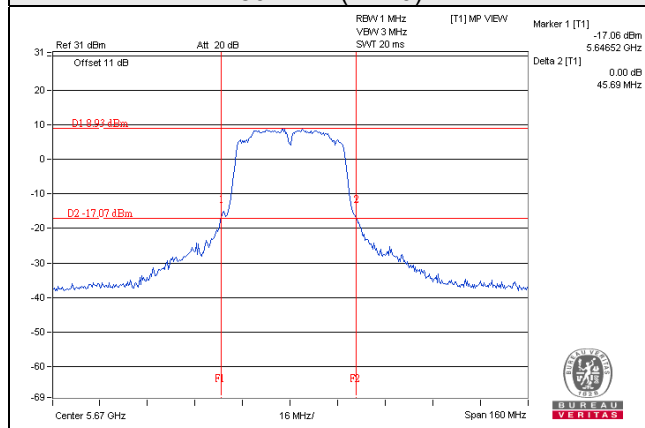
802.11a



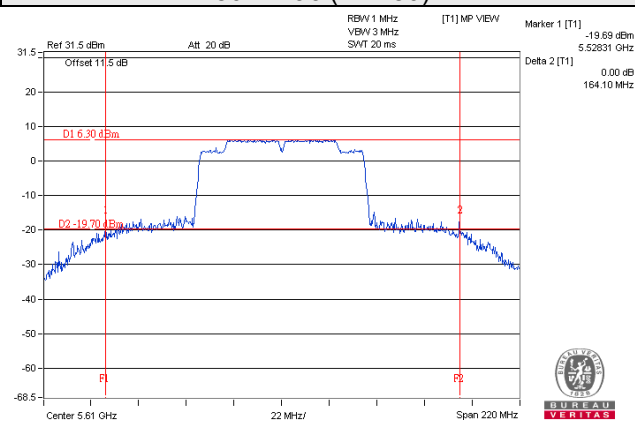
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



EUT Maximum Conducted Power

802.11a

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	18.621	12.70
5470~5725	14.757	11.69

802.11n (HT20)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	18.493	12.67
5470~5725	14.825	11.71

802.11n (HT40)

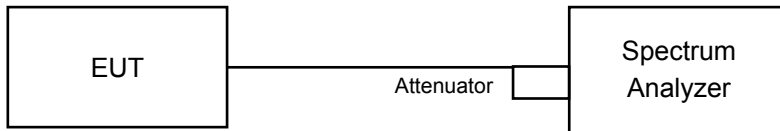
Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	18.750	12.73
5470~5725	14.521	11.62

802.11ac (VHT80)

Frequency Band (MHz)	Max. Power	
	Output Power (mW)	Output Power (dBm)
5250~5350	16.520	12.18
5470~5725	15.382	11.87

4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

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

4.4.4 Test Result

802.11a

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	16.68
40	5200	16.68
48	5240	16.68
52	5260	16.68
60	5300	16.68
64	5320	16.68
100	5500	16.68
116	5580	16.68
140	5700	16.68
149	5745	16.69
157	5785	16.80
165	5825	16.68

802.11n (HT20)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
36	5180	17.76
40	5200	17.88
48	5240	17.88
52	5260	17.88
60	5300	17.88
64	5320	17.88
100	5500	17.88
116	5580	17.88
140	5700	17.88
149	5745	17.88
157	5785	17.88
165	5825	17.76

802.11n (HT40)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
38	5190	36.36
46	5230	36.24
54	5270	36.24
62	5310	36.36
102	5510	36.36
110	5550	36.36
134	5670	36.36
151	5755	36.36
159	5795	36.36

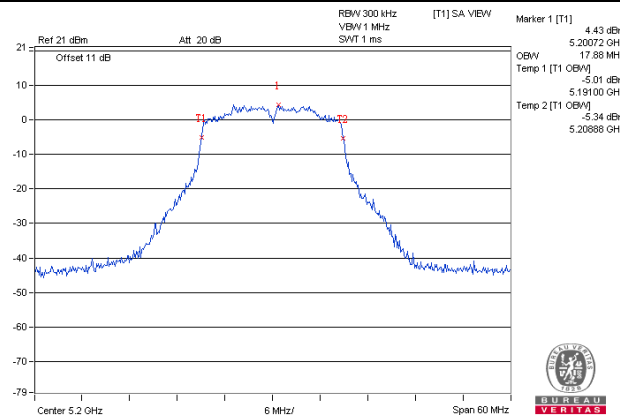
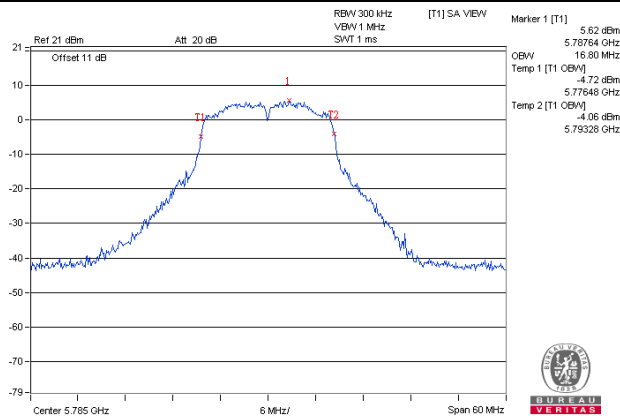
802.11ac (VHT80)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)
42	5210	75.36
58	5290	75.36
106	5530	75.36
122	5610	76.08
155	5775	75.60

Spectrum Plot of Worst Value

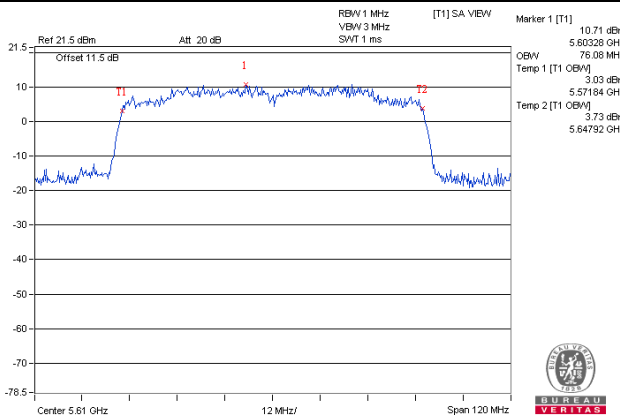
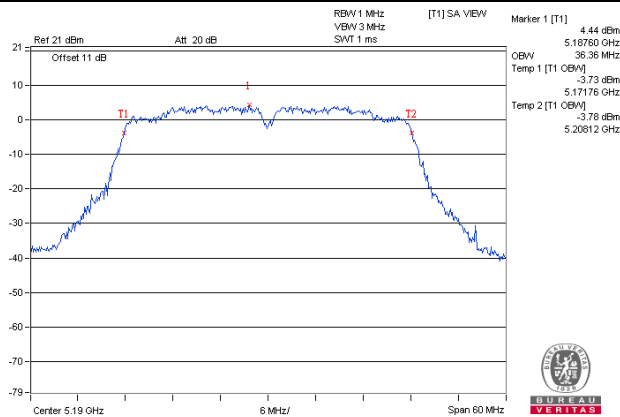
802.11a

802.11n (HT20)



802.11n (HT40)

802.11ac (VHT80)

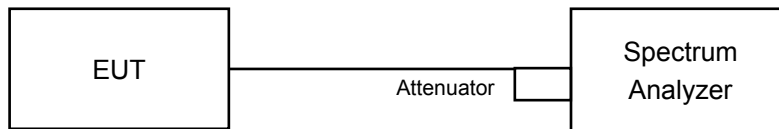


4.5 Peak Power Spectral Density Measurement

4.5.1 Limits of Peak Power Spectral Density Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedures

For U-NII-1, U-NII-2A, U-NII-2C band:

Duty cycle of test signal is < 98%

Using method SA-2

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

For U-NII-3 band:

Duty cycle of test signal is < 98%

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

Same as 4.3.6.

4.5.7 Test Results

For U-NII-1 band:

802.11a

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
36	5180	-0.84	0.10	-0.74	11	Pass
40	5200	-0.76	0.10	-0.66	11	Pass
48	5240	-0.68	0.10	-0.58	11	Pass
52	5260	0.14	0.10	0.24	11	Pass
60	5300	0.51	0.10	0.61	11	Pass
64	5320	-1.56	0.10	-1.46	11	Pass
100	5500	-2.31	0.10	-2.21	11	Pass
116	5580	0.42	0.10	0.52	11	Pass
140	5700	-2.72	0.10	-2.62	11	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Chan.	Freq. (MHz)	PSD (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
36	5180	-1.94	11	Pass
40	5200	-0.94	11	Pass
48	5240	-0.72	11	Pass
52	5260	0.94	11	Pass
60	5300	-0.17	11	Pass
64	5320	-1.53	11	Pass
100	5500	-1.27	11	Pass
116	5580	0.31	11	Pass
140	5700	-2.37	11	Pass

802.11n (HT40)

Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
38	5190	-6.31	0.14	-6.17	11	Pass
46	5230	-1.76	0.14	-1.62	11	Pass
54	5270	-2.63	0.14	-2.49	11	Pass
62	5310	-4.65	0.14	-4.51	11	Pass
102	5510	-4.72	0.14	-4.58	11	Pass
110	5550	-2.25	0.14	-2.11	11	Pass
134	5670	-2.95	0.14	-2.81	11	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

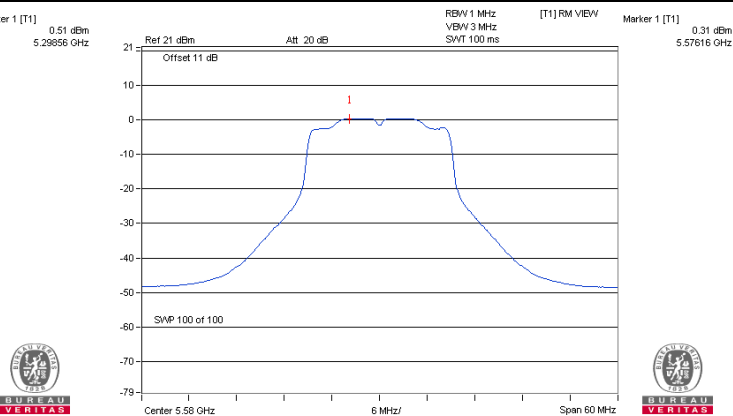
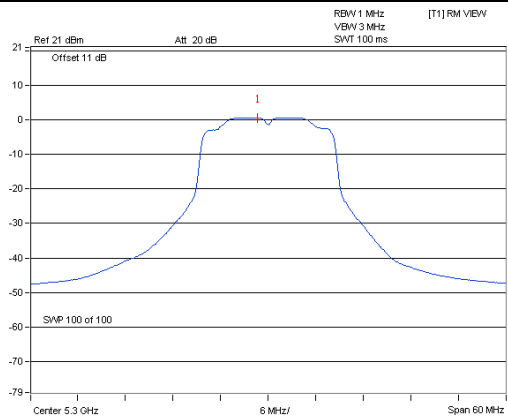
Chan.	Freq. (MHz)	PSD w/o Duty Factor (dBm/MHz)	Duty Factor (dB)	PSD With Duty Factor (dBm/MHz)	MAX. Limit (dBm/MHz)	Pass / Fail
42	5210	-7.26	0.35	-6.91	11	Pass
58	5290	-8.84	0.35	-8.49	11	Pass
106	5530	-8.90	0.35	-8.55	11	Pass
122	5610	-4.31	0.35	-3.96	11	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

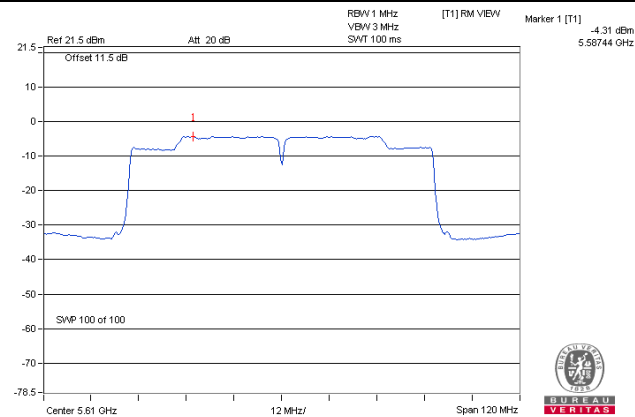
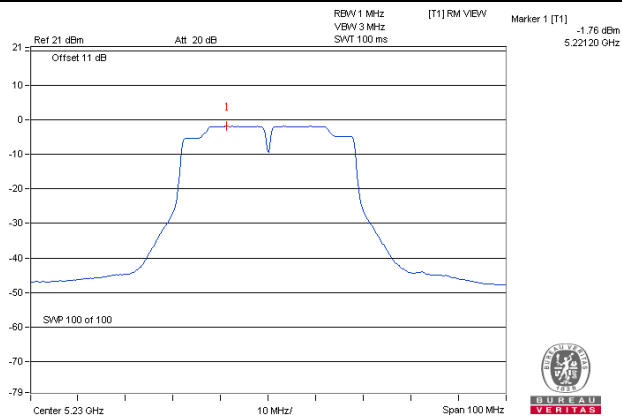
802.11a / CH 60

802.11n (HT20) / CH 116



802.11n (HT40) / CH 46

802.11ac (VHT80) / CH 122



For U-NII-3 band:

802.11a

Chan.	Freq. (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	PSD with Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
		(dBm/300kHz)	(dBm/500kHz)				
149	5745	-7.85	-5.63	0.10	-5.53	30	Pass
157	5785	-7.62	-5.40	0.10	-5.30	30	Pass
165	5825	-7.10	-4.88	0.10	-4.78	30	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

Chan.	Freq. (MHz)	PSD		PSD (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
		(dBm/300kHz)	(dBm/500kHz)			
149	5745	-8.05	-5.83	-5.83	30	Pass
157	5785	-7.60	-5.38	-5.38	30	Pass
165	5825	-7.71	-5.49	-5.49	30	Pass

802.11n (HT40)

Chan.	Freq. (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	PSD with Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
		(dBm/300kHz)	(dBm/500kHz)				
151	5755	-10.61	-8.39	0.14	-8.25	30	Pass
159	5795	-11.12	-8.90	0.14	-8.76	30	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

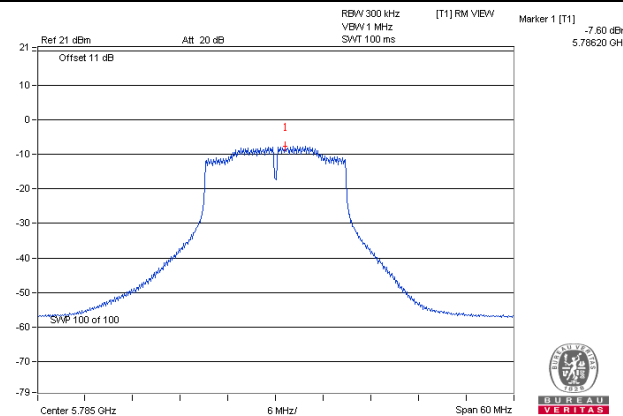
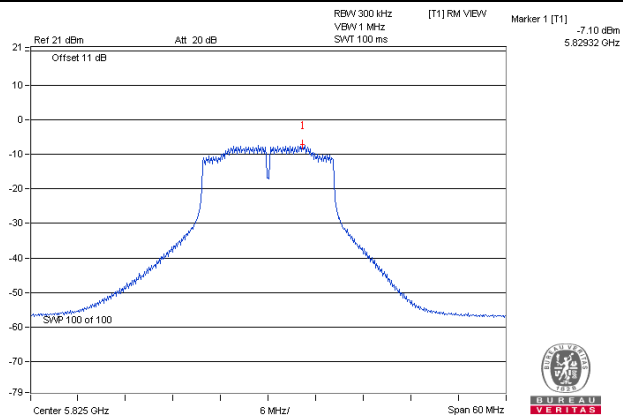
Chan.	Freq. (MHz)	PSD w/o Duty Factor		Duty Factor (dB)	PSD with Duty Factor (dBm/500kHz)	Limit (dBm/500kHz)	Pass / Fail
		(dBm/300kHz)	(dBm/500kHz)				
155	5775	-13.76	-11.54	0.35	-11.19	30	Pass

Note: Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

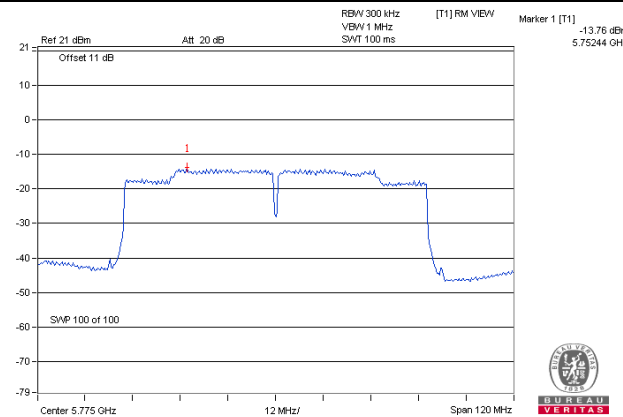
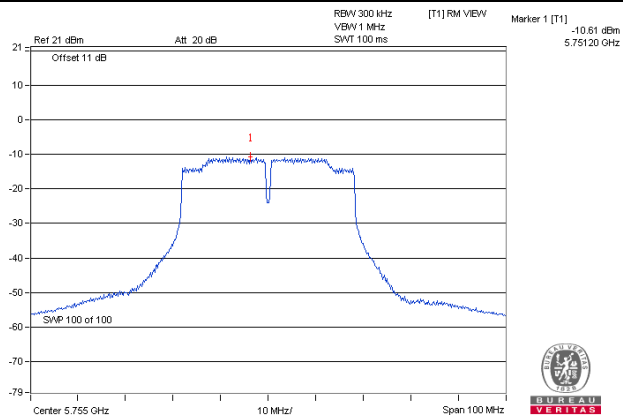
802.11a

802.11n (HT20)



802.11n (HT40)

802.11ac (VHT80)

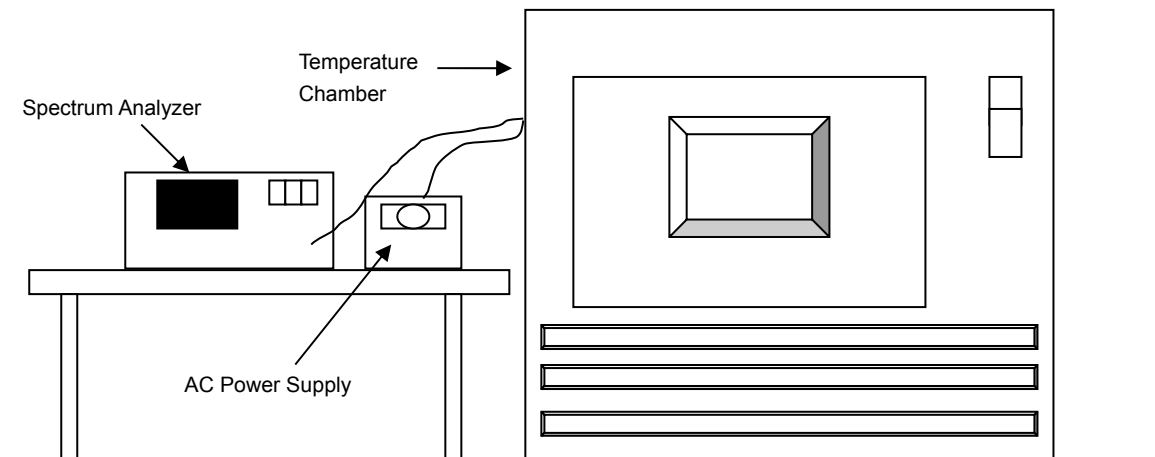


4.6 Frequency Stability

4.6.1 Limits of Frequency Stability Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Tested date: Jun. 15, 2017

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Aug. 16, 2016	Aug. 15, 2017
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 07, 2017	Jun. 06, 2018
Digital Multimeter Fluke	87-III	70360742	Jul. 01, 2016	Jun. 30, 2017
AC Power Supply Exttech	CFW-105	E000603	NA	NA

4.6.4 Test Procedure

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

Frequency Stability Versus Temp.									
Operating Frequency: 5180MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Drift (%)	Measured Frequency (MHz)	Drift (%)	Measured Frequency (MHz)	Drift (%)	Measured Frequency (MHz)	Drift (%)
50	120	5180.0038	0.00007	5180.0058	0.00011	5180.0034	0.00007	5180.0044	0.00008
40	120	5180.0129	0.00025	5180.0138	0.00027	5180.0117	0.00023	5180.0124	0.00024
30	120	5180.0252	0.00049	5180.0271	0.00052	5180.0236	0.00046	5180.0249	0.00048
20	120	5180.0057	0.00011	5180.0061	0.00012	5180.005	0.00010	5180.0061	0.00012
10	120	5180.0022	0.00004	5180.0014	0.00003	5179.999	-0.00002	5179.9991	-0.00002
0	120	5179.9987	-0.00003	5179.9982	-0.00003	5180.0012	0.00002	5179.9988	-0.00002
-10	120	5179.9939	-0.00012	5179.9912	-0.00017	5179.9912	-0.00017	5179.992	-0.00015
-20	120	5179.9841	-0.00031	5179.9835	-0.00032	5179.9836	-0.00032	5179.9868	-0.00025
-30	120	5180.0077	0.00015	5180.0121	0.00023	5180.0078	0.00015	5180.0092	0.00018

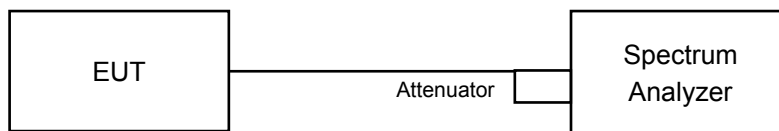
Frequency Stability Versus Voltage									
Operating Frequency: 5180MHz									
Temp. (°C)	Power Supply (Vac)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Drift (%)	Measured Frequency (MHz)	Drift (%)	Measured Frequency (MHz)	Drift (%)	Measured Frequency (MHz)	Drift (%)
20	138	5180.0055	0.00011	5180.0069	0.00013	5180.0049	0.00009	5180.0068	0.00013
	120	5180.0057	0.00011	5180.0061	0.00012	5180.005	0.00010	5180.0061	0.00012
	102	5180.0051	0.00010	5180.0058	0.00011	5180.0042	0.00008	5180.0066	0.00013

4.7 6dB Bandwidth Measurement

4.7.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 Test Procedure

Measurement Procedure REF

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

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

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

4.7.7 Test Results

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	15.17	0.5	Pass
157	5785	15.18	0.5	Pass
165	5825	15.18	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
149	5745	15.18	0.5	Pass
157	5785	15.42	0.5	Pass
165	5825	15.52	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
151	5755	35.20	0.5	Pass
159	5795	35.22	0.5	Pass

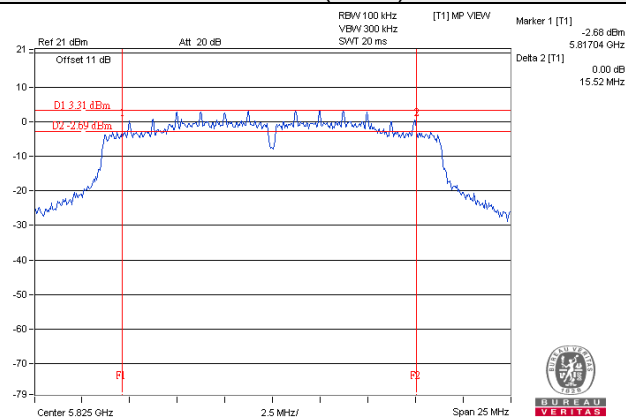
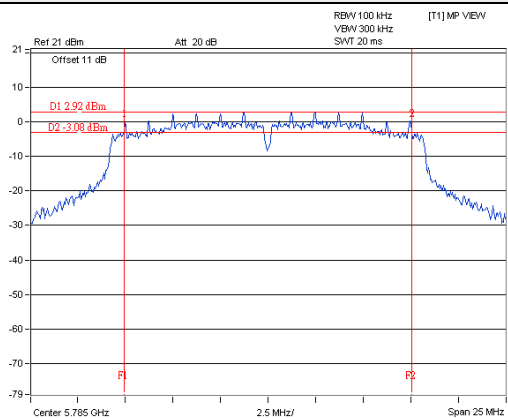
802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
151	5755	75.45	0.5	Pass

Spectrum Plot of Worst Value

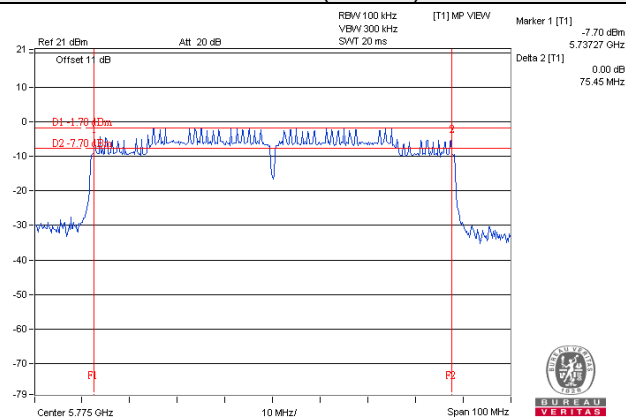
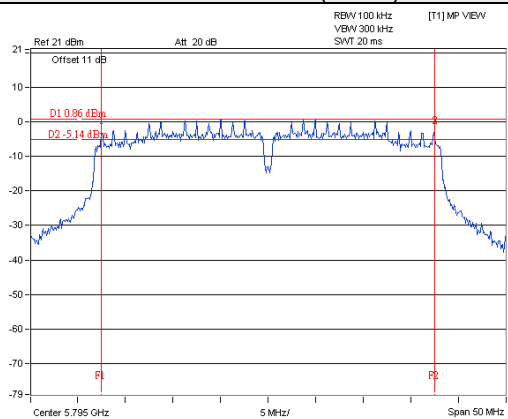
802.11a

802.11n (HT20)



802.11n (HT40)

802.11ac (VHT80)

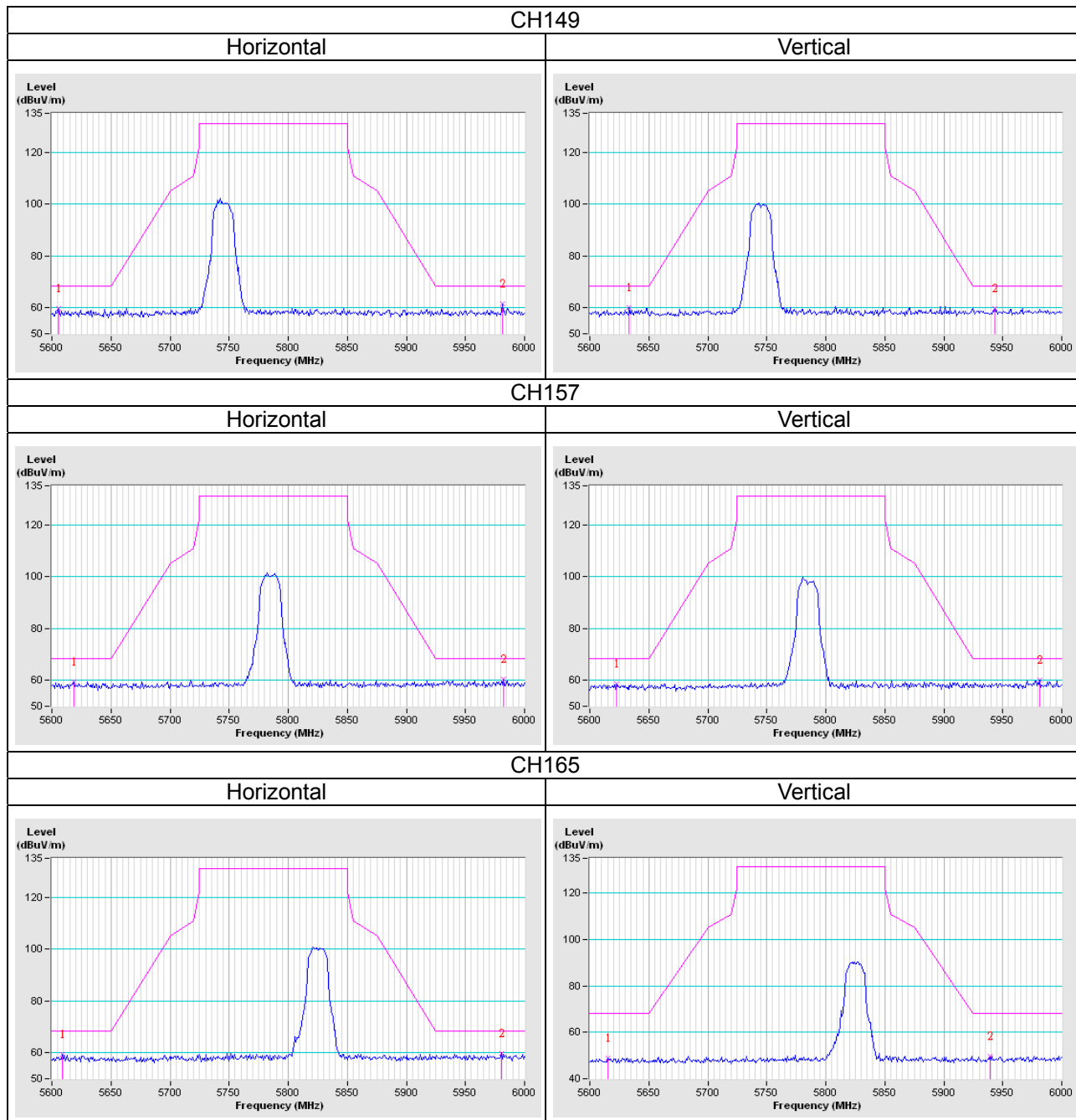


5 Pictures of Test Arrangements

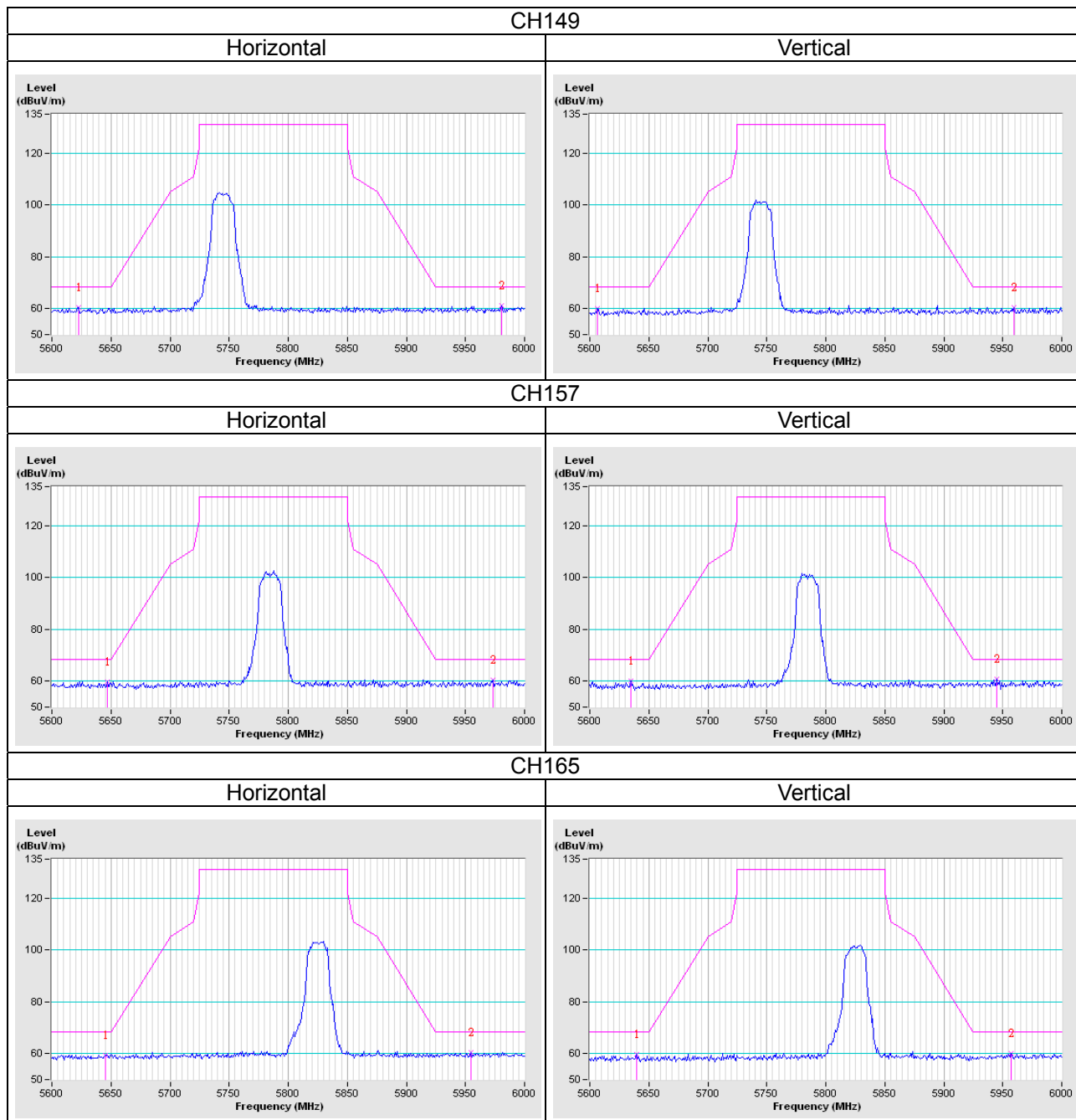
Please refer to the attached file (Test Setup Photo).

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

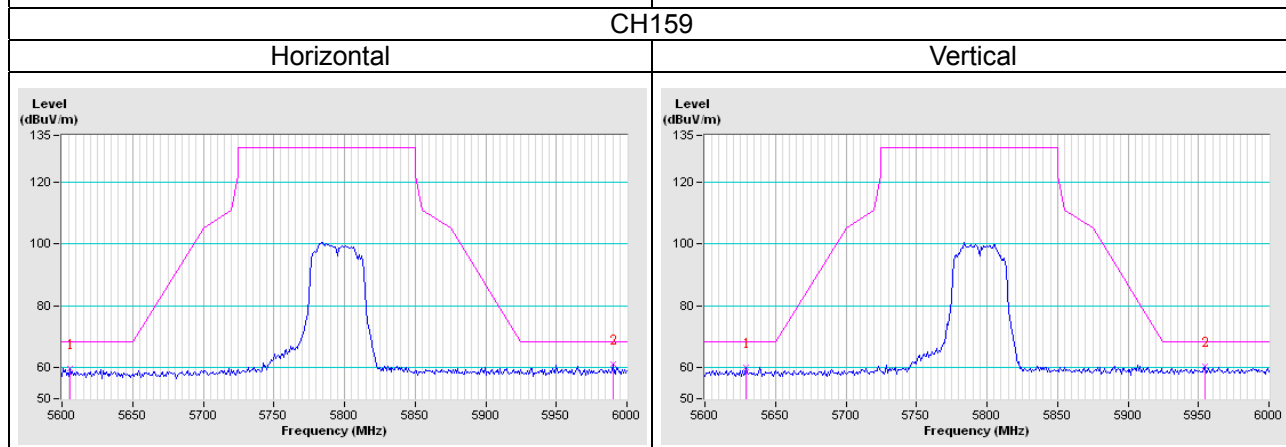
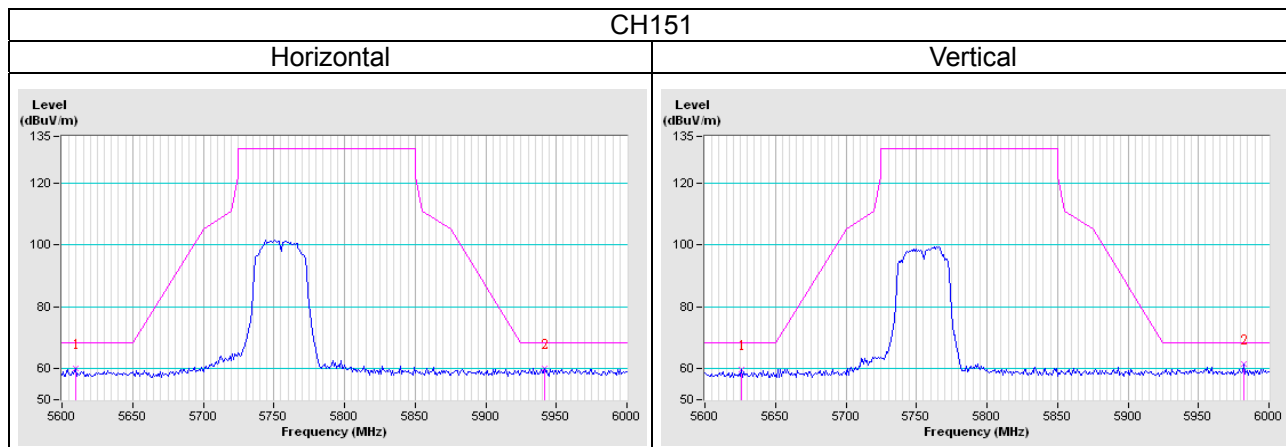
802.11a



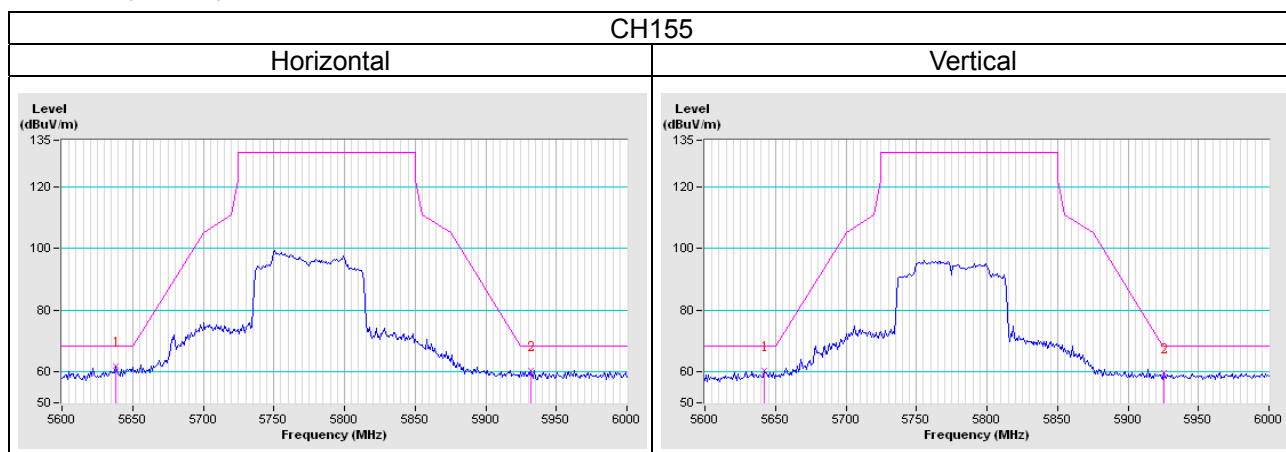
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



Appendix – Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited 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/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety

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.

--- END ---