

FCC TEST REPORT (15.407)

REPORT NO.: RF140922C14-1

MODEL NO.: MX64W-HW

FCC ID: UDX-60032015

RECEIVED: Sep. 22, 2014

TESTED: Oct. 01 ~ Oct. 31, 2014

ISSUED: Dec. 04, 2014

APPLICANT: Cisco Systems, Inc.

ADDRESS: 170 West Tasman Drive, San Jose, CA 95134

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 Tsuen, Kwei
Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

This report should not be used by the client to claim
product certification, approval, or endorsement by
TAF or any government agencies.



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 unless 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.

TABLE OF CONTENTS

RELEASE CONTROL RECORD	4
1. CERTIFICATION.....	5
2. SUMMARY OF TEST RESULTS	6
2.1 MEASUREMENT UNCERTAINTY	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.....	10
3.3 DUTY CYCLE OF TEST SIGNAL.....	12
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 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS	16
4.1.3 TEST INSTRUMENTS.....	17
4.1.4 TEST PROCEDURES	18
4.1.5 DEVIATION FROM TEST STANDARD	18
4.1.6 TEST SETUP.....	19
4.1.7 EUT OPERATING CONDITION	20
4.1.8 TEST RESULTS	21
4.2 CONDUCTED EMISSION MEASUREMENT	58
4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT	58
4.2.2 TEST INSTRUMENTS.....	58
4.2.3 TEST PROCEDURES	59
4.2.4 DEVIATION FROM TEST STANDARD	59
4.2.5 TEST SETUP.....	59
4.2.6 EUT OPERATING CONDITIONS.....	59
4.2.7 TEST RESULTS	60
4.3 TRANSMIT POWER MEASUREMENT.....	62
4.3.1 LIMITS OF TRANSMIT POWER MEASUREMENT	62
4.3.2 TEST SETUP.....	63
4.3.3 TEST INSTRUMENTS.....	63
4.3.4 TEST PROCEDURE.....	64
4.3.5 DEVIATION FROM TEST STANDARD	64
4.3.6 EUT OPERATING CONDITIONS.....	64
4.3.7 TEST RESULTS	65
4.4 PEAK POWER SPECTRAL DENSITY MEASUREMENT.....	76
4.4.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT	76
4.4.2 TEST SETUP.....	76
4.4.3 TEST INSTRUMENTS.....	76
4.4.4 TEST PROCEDURES	77
4.4.5 DEVIATION FROM TEST STANDARD	78
4.4.6 EUT OPERATING CONDITIONS.....	78
4.4.7 TEST RESULTS	79
4.5 FREQUENCY STABILITY	87
4.5.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT.....	87
4.5.2 TEST SETUP.....	87
4.5.3 TEST INSTRUMENTS.....	87
4.5.4 TEST PROCEDURE.....	88
4.5.5 DEVIATION FROM TEST STANDARD	88
4.5.6 EUT OPERATING CONDITION	88
4.5.7 TEST RESULTS	89
4.6 6dB BANDWIDTH MEASUREMENT	91



A D T

4.6.1	LIMITS OF 6dB BANDWIDTH MEASUREMENT	91
4.6.2	TEST SETUP	91
4.6.3	TEST INSTRUMENTS	91
4.6.4	TEST PROCEDURE	91
4.6.5	DEVIATION FROM TEST STANDARD	91
4.6.6	EUT OPERATING CONDITIONS	91
4.6.7	TEST RESULTS	92
5.	PHOTOGRAPHS OF THE TEST CONFIGURATION	96
6.	INFORMATION ON THE TESTING LABORATORIES	97
7.	APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB	98



A D T

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF140922C14-1	Original release.	Dec. 04, 2014

1. CERTIFICATION

PRODUCT: Wireless 802.11abgn/ac Router

MODEL: MX64W-HW

BRAND: Cisco


APPLICANT: Cisco Systems, Inc.

TESTED: Oct. 01 ~ Oct. 31, 2014

TEST SAMPLE: ENGINEERING SAMPLE

STANDARDS: FCC Part 15, Subpart E (Section 15.407)

The above equipment (model: MX64W-HW) 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 :** Dec. 04, 2014
Pettie Chen / Senior Specialist

APPROVED BY :  , **DATE :** Dec. 04, 2014
Ken Liu / Senior Manager

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART E (SECTION 15.407 Under New Rule)			
STANDARD SECTION	TEST TYPE	RESULT	REMARK
15.407(b)(6)	AC Power Conducted Emissions	PASS	Meet the requirement of limit. Minimum passing margin is -11.10dB at 4.48619MHz.
15.407(b)(1/2/3/4/6)	Radiated Emissions & Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.7dB at 5120.00MHz.
15.407(a)(1/2/3)	Max Average Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(1/2/3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(e)	6dB bandwidth	PASS	Meet the requirement of limit. (U-NII-3 Band only)
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is RSMA not a standard connector.

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	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.44 dB
Radiated emissions	30MHz ~ 200MHz	3.63 dB
	200MHz ~ 1000MHz	3.64 dB
	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

EUT	Wireless 802.11abgn/ac Router
MODEL NO.	MX64W-HW
POWER SUPPLY	12Vdc (adapter)
MODULATION TYPE	256QAM, 64QAM, 16QAM, QPSK, BPSK
MODULATION TECHNOLOGY	OFDM
TRANSFER RATE	802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300.0Mbps 802.11ac: up to 866.6Mbps
OPERATING FREQUENCY	5180 ~ 5240MHz & 5745 ~ 5825MHz
NUMBER OF CHANNEL	5180 ~ 5240MHz: 4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80) 5745 ~ 5825MHz: 5 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) 2 for 802.11n (HT40), 802.11ac (VHT40) 1 for 802.11ac (VHT80)
OUTPUT POWER	1TX: 5180 ~ 5240MHz: 297.167mW 5745 ~ 5825MHz: 202.302mW 2TX: 5180 ~ 5240MHz: 416.645mW 5745 ~ 5825MHz: 189.220mW
ANTENNA TYPE	Refer to note
ANTENNA CONNECTOR	Refer to note
DATA CABLE	NA
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Adapter

NOTE:

1. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers.

MODULATION MODE	TX FUNCTION
802.11a	1TX/2TX
802.11b	1TX/2TX
802.11g	1TX/2TX
802.11n (20MHz)	1TX/2TX
802.11n (40MHz) (For 5.0GHz Band only)	1TX/2TX
802.11ac (20MHz)	1TX/2TX
802.11ac (40MHz)	1TX/2TX
802.11ac (80MHz)	1TX/2TX

* 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 consumes power from the following adapters.

Adapter 1	
Brand	DELTA Electronics, INC.
Model	EADP-30HB B
Input Power	100-240Vac, 1A, 50-60Hz
Output Power	12Vdc, 2.5A
Power Line	1.8m DC cable with 1 core

Adapter 2	
Brand	Powertron Electronics Corp.
Model	PA1024-120T1A200 PA10247-2T1
Input Power	100-240Vac, 50-60Hz, 0.6A
Output Power	12Vdc, 2.0A, 24W Max
Power Line	1.55m DC cable with 1 core

*Adapter 1 was the worst for the final report.

3. The following antennas were provided to the EUT.

Antenna Type		Dipole antenna									
Antenna Connector		RSMA									
Ant.	Frequency (MHz)										
	2.4GHz Band	4900	5050	5150	5250	5350	5450	5550	5650	5750	5875
Gain(dBi)	3.36	3.51	3.61	3.60	3.36	3.44	3.64	3.03	3.76	3.33	3.07

4. The above EUT information is declared by manufacturer and for more detailed feature description, please refer to the manufacturer's specifications or user's manual.

3.2 DESCRIPTION OF TEST MODES

FOR 5180 ~ 5240MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (VHT80):

CHANNEL	FREQUENCY
42	5210MHz

FOR 5745 ~ 5825MHz:

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz		

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

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (VHT80):

CHANNEL	FREQUENCY
155	5775MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE \geq 1G	RE $<$ 1G	PLC	APCM	
-	√	√	√	√	-

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

NOTE:

The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Y-plane**.

RADIATED EMISSION TEST (ABOVE 1GHz):

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

EUT CONFIGURE MODE	MODE	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.0	1TX/2TX
-	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	BPSK	7.2	1TX/2TX
-	802.11n (HT40)		38 to 46	38, 46	OFDM	BPSK	15.0	1TX/2TX
-	802.11ac (VHT80)		42	42	OFDM	BPSK	32.5	1TX
-	802.11ac (VHT80)		42	42	OFDM	BPSK	65.0	2TX
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.0	1TX/2TX
-	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	BPSK	7.2	1TX/2TX
-	802.11n (HT40)		151 to 159	151, 159	OFDM	BPSK	15.0	1TX/2TX
-	802.11ac (VHT80)		155	155	OFDM	BPSK	32.5	1TX
-	802.11ac (VHT80)		155	155	OFDM	BPSK	65.0	2TX

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	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
-	802.11a	5180-5320, 5745-5825	36 to 64, 149 to 165	48	OFDM	BPSK	6.0	2TX

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	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
-	802.11a	5180-5320, 5745-5825	36 to 64, 149 to 165	48	OFDM	BPSK	6.0	2TX

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	FREQ. BAND (MHz)	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	TX FUNCTION
-	802.11a	5180-5240	36 to 48	36, 40, 48	OFDM	BPSK	6.0	1TX/2TX
-	802.11n (HT20)		36 to 48	36, 40, 48	OFDM	BPSK	7.2	1TX/2TX
-	802.11n (HT40)		38 to 46	38, 46	OFDM	BPSK	15.0	1TX/2TX
-	802.11ac (VHT80)		42	42	OFDM	BPSK	32.5	1TX
-	802.11ac (VHT80)		42	42	OFDM	BPSK	65.0	2TX
-	802.11a	5745-5825	149 to 165	149, 157, 165	OFDM	BPSK	6.0	1TX/2TX
-	802.11n (HT20)		149 to 165	149, 157, 165	OFDM	BPSK	7.2	1TX/2TX
-	802.11n (HT40)		151 to 159	151, 159	OFDM	BPSK	15.0	1TX/2TX
-	802.11ac (VHT80)		155	155	OFDM	BPSK	32.5	1TX
-	802.11ac (VHT80)		155	155	OFDM	BPSK	65.0	2TX

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE \geq 1G	25deg. C, 65%RH	120Vac, 60Hz	Ted Chang
RE $<$ 1G	25deg. C, 65%RH	120Vac, 60Hz	Tank Wu
PLC	25deg. C, 65%RH	120Vac, 60Hz	Chris Lin
APCM	24deg. C, 64%RH	120Vac, 60Hz	Match Tsui

3.3 DUTY CYCLE OF TEST SIGNAL

1TX:

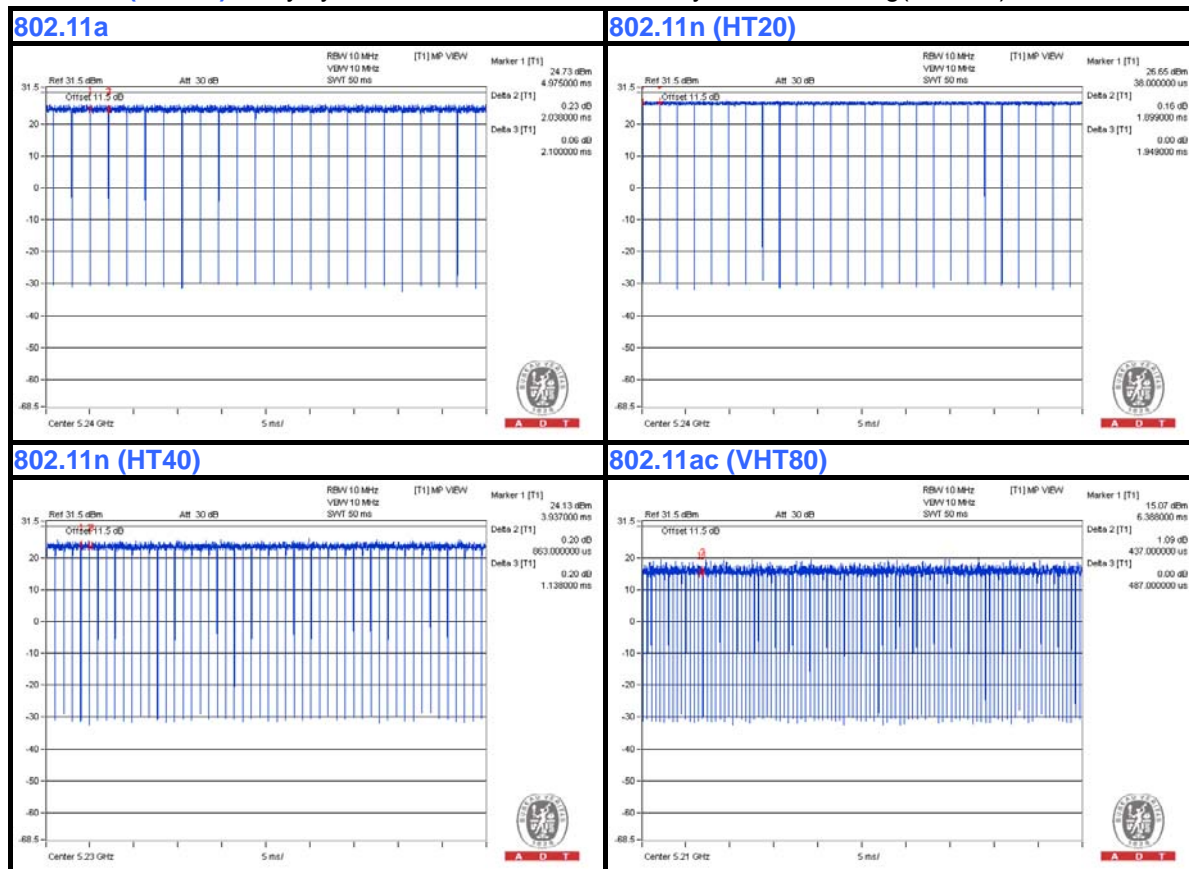
Duty cycle of test signal is < 98 %, duty factor is required.

802.11a: Duty cycle = $2.038/2.1 = 0.97$, Duty factor = $10 * \log(1/0.97) = 0.13$

802.11n (HT20): Duty cycle = $1.899/1.949 = 0.974$, Duty factor = $10 * \log(1/0.974) = 0.11$

802.11n (HT40): Duty cycle = $0.863/1.138 = 0.758$, Duty factor = $10 * \log(1/0.758) = 1.20$

802.11ac (VHT80): Duty cycle = $0.437/0.487 = 0.897$, Duty factor = $10 * \log(1/0.897) = 0.47$



2TX:

802.11n (HT20): Duty cycle is > 98%, duty factor shall be considered.

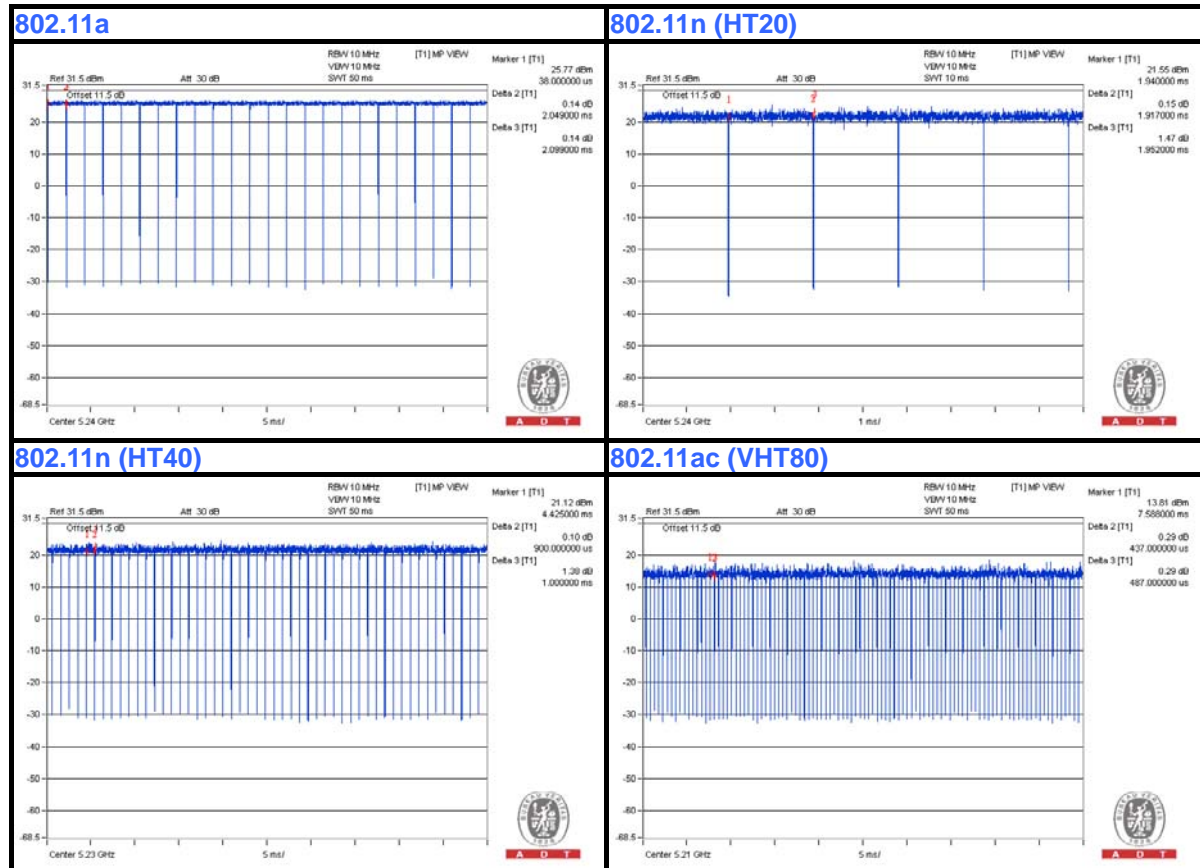
$$\text{Duty cycle} = 1.917/1.952 = 0.982$$

Duty cycle of test signal is < 98 %, duty factor is required.

802.11a: Duty cycle = 2.049/2.099 = 0.976, Duty factor = $10 * \log(1/0.976) = 0.10$

802.11n (HT40): Duty cycle = 0.90/1 = 0.90, Duty factor = $10 * \log(1/0.90) = 0.46$

802.11ac (VHT80): Duty cycle = 0.437/0.487 = 0.897, Duty factor = $10 * \log(1/0.897) = 0.47$



3.4 DESCRIPTION OF SUPPORT UNITS

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

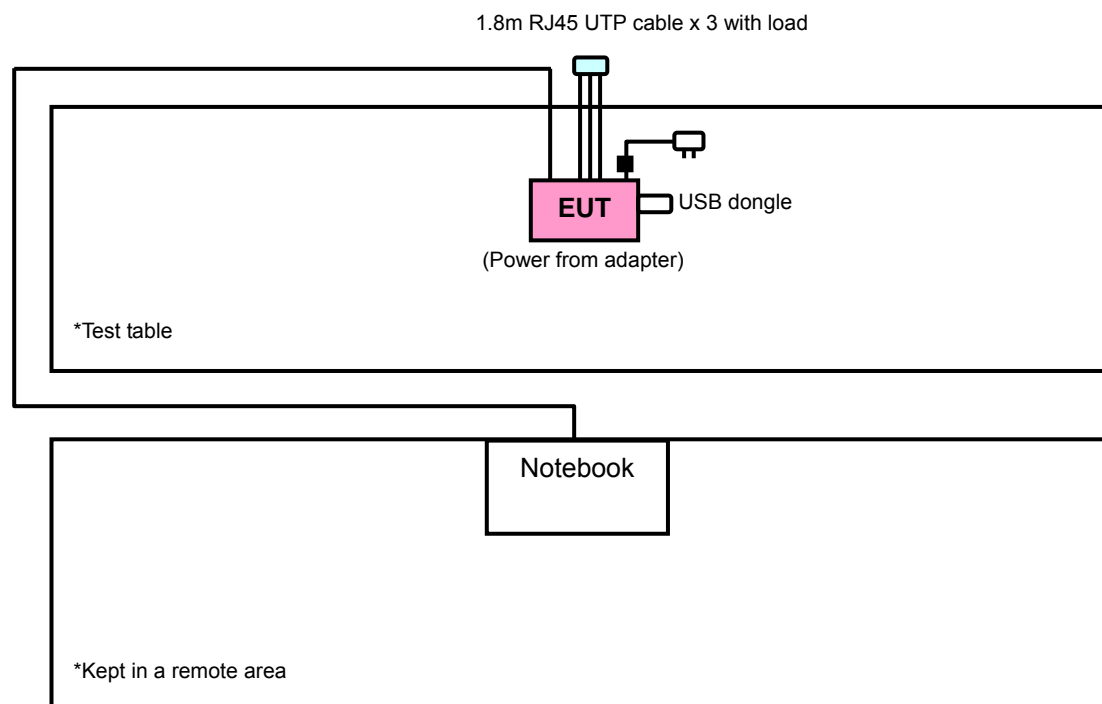
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Notebook	DELL	D531	CN-0XM006-48643-8 1U-2973	QDS-BRCM1020
2	USB Dongle	SANDISK	SDCZ6-1024	NA	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	10m RJ45 UTP cable
2	NA

NOTE:

1. All power cords of the above support units are non-shielded (1.8m).
2. Item 1 acted as a communication partner to transfer data.

3.4.1 CONFIGURATION OF SYSTEM UNDER TEST



3.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specification of the EUT declared by the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart E (15.407)

789033 D02 General UNII Test Procedures New Rules v01

662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10-2009

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

NOTE:

1. The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.
2. The EUT operation is restricted to operation in 5150-5250MHz and so is not subject to DFS requirement of KDB 905462 D02 v01r01.

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.

4.1.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

APPLICABLE TO	LIMIT	
789033 D02 General UNII Test Procedures New Rules v01	FIELD STRENGTH AT 3m	
	PK: 74 (dBuV/m)	AV: 54 (dBuV/m)
APPLICABLE TO	EIRP LIMIT	EQUIVALENT FIELD STRENGTH AT 3m
15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2 (dBuV/m)
15.407(b)(2)		
15.407(b)(3)		
15.407(b)(4)	PK: -27 (dBm/MHz) ^{*1} PK: -17 (dBm/MHz) ^{*2}	PK: 68.2 (dBuV/m) ^{*1} PK: 78.2 (dBuV/m) ^{*2}

NOTE: ^{*1} beyond 10MHz of the band edge ^{*2} within 10 MHz of band edge

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

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

4.1.3 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Sep. 09, 2013	Sep. 08, 2014
Spectrum Analyzer ROHDE & SCHWARZ	FSU 43	100115	Dec. 18, 2013	Dec. 17, 2014
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Feb. 26, 2014	Feb. 25, 2015
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-404	Jan. 05, 2014	Jan. 04, 2015
HORN Antenna SCHWARZBECK	BBHA 9170	148	Jul. 15, 2013	Jul. 14, 2014
Preamplifier Agilent	8449B	3008A01961	Oct. 28, 2013	Oct. 27, 2014
Preamplifier Agilent	8447D	2944A10738	Oct. 18, 2013	Oct. 17, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309220/4	Aug. 26, 2013	Aug. 25, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250724/4	Aug. 26, 2013	Aug. 25, 2014
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295012/4	Aug. 26, 2013	Aug. 25, 2014
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 inn-co GmbH	CO2000	019303	NA	NA
Turn Table BV ADT	TT100.	TT93021704	NA	NA
Turn Table Controller BV ADT	SC100.	SC93021704	NA	NA
26GHz ~ 40GHz Amplifier	EM26400	815221	Oct. 18, 2013	Oct. 17, 2014
WIT Standard Temperature And Humidity Chamber	TH-4S-C	W981030	Jun. 10, 2013	Jun. 09, 2014

- 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 horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The FCC Site Registration No. is 460141.
 5. The IC Site Registration No. is IC7450F-4.

4.1.4 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. 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 antenna is a broadband antenna, and its height 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 Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

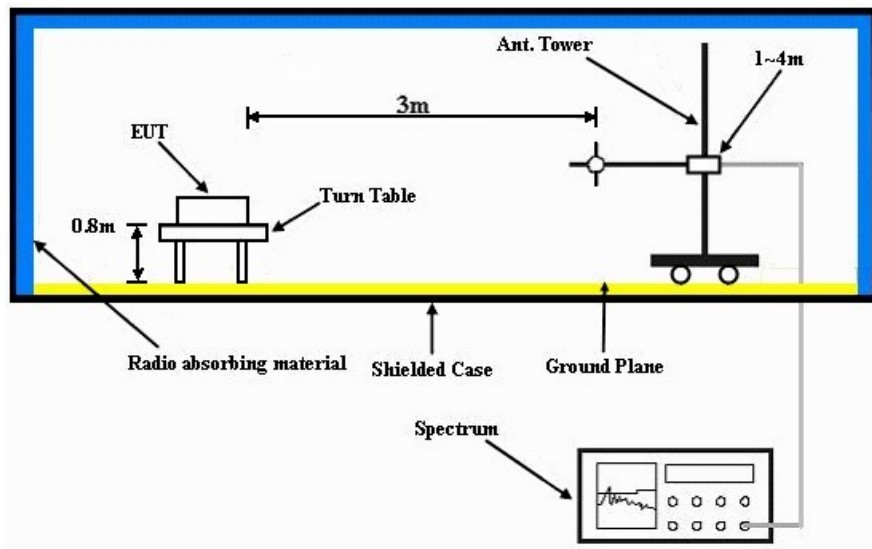
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

4.1.5 DEVIATION FROM TEST STANDARD

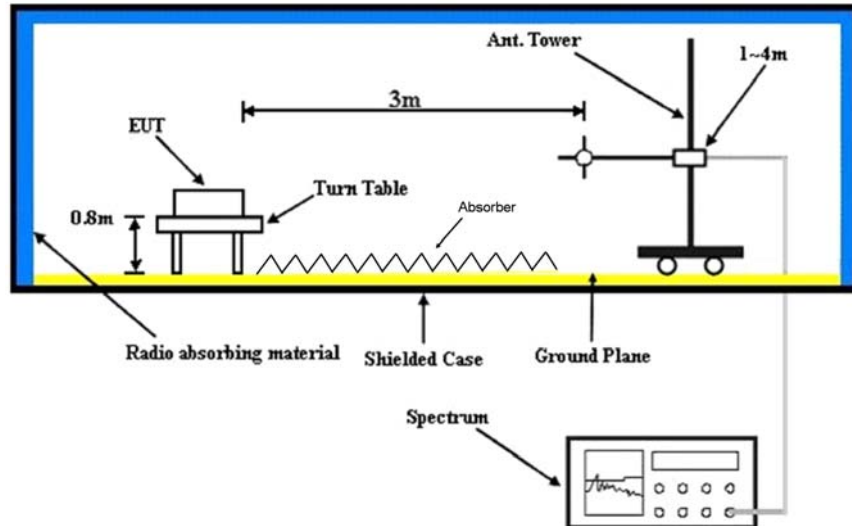
No deviation.

4.1.6 TEST SETUP

Frequency range 30MHz~1GHz



Frequency range above 1GHz



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

4.1.7 EUT OPERATING CONDITION

- a. Placed the EUT on the testing table.
- b. Prepared a notebook to act as communication partner and placed it outside of testing area.
- c. The communication partner connected with EUT via a RJ45 cable and run a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- d. The communication partner sent data to EUT by command "PING".
- e. The necessary accessories enable the system in full functions.

4.1.8 TEST RESULTS

ABOVE 1GHz DATA

1TX:

802.11a

CHANNEL	TX Channel 36	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	5100.00	64.1 PK	74.0	-9.9	1.00 H	349	62.20	1.90
2	5100.00	52.9 AV	54.0	-1.1	1.00 H	349	51.00	1.90
3	5150.00	70.8 PK	74.0	-3.2	1.00 H	349	68.80	2.00
4	5150.00	51.7 AV	54.0	-2.3	1.00 H	349	49.70	2.00
5	*5180.00	113.1 PK			1.00 H	345	73.10	40.00
6	*5180.00	102.9 AV			1.00 H	345	62.90	40.00
7	#5258.00	64.4 PK	74.0	-9.6	1.00 H	342	62.40	2.00
8	#5258.00	53.0 AV	54.0	-1.0	1.00 H	342	51.00	2.00
9	#10360.00	61.1 PK	74.0	-12.9	1.00 H	0	46.50	14.60
10	#10360.00	47.0 AV	54.0	-7.0	1.00 H	0	32.40	14.60
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	5100.00	58.1 PK	74.0	-15.9	1.00 V	254	56.20	1.90
2	5100.00	45.8 AV	54.0	-8.2	1.00 V	254	43.90	1.90
3	5150.00	63.6 PK	74.0	-10.4	1.00 V	254	61.60	2.00
4	5150.00	46.5 AV	54.0	-7.5	1.00 V	254	44.50	2.00
5	*5180.00	104.2 PK			1.00 V	254	64.20	40.00
6	*5180.00	94.1 AV			1.00 V	254	54.10	40.00
7	#5258.00	59.4 PK	74.0	-14.6	1.00 V	255	57.40	2.00
8	#5258.00	47.2 AV	54.0	-6.8	1.00 V	255	45.20	2.00
9	#10360.00	61.1 PK	74.0	-12.9	1.00 V	62	46.50	14.60
10	#10360.00	47.8 AV	54.0	-6.2	1.00 V	62	33.20	14.60

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5120.00	64.7 PK	74.0	-9.3	1.00 H	344	62.80	1.90
2	5120.00	53.0 AV	54.0	-1.0	1.00 H	344	51.10	1.90
3	*5200.00	114.7 PK			1.00 H	348	74.60	40.10
4	*5200.00	104.4 AV			1.00 H	348	64.30	40.10
5	#5280.00	65.0 PK	68.2	-3.2	1.00 H	343	63.00	2.00
6	#10400.00	61.2 PK	74.0	-12.8	1.00 H	98	46.50	14.70
7	#10400.00	47.9 AV	54.0	-6.1	1.00 H	98	33.20	14.70
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	5120.00	59.3 PK	74.0	-14.7	1.57 V	260	57.40	1.90
2	5120.00	47.1 AV	54.0	-6.9	1.57 V	260	45.20	1.90
3	*5200.00	104.9 PK			1.00 V	254	64.80	40.10
4	*5200.00	94.8 AV			1.00 V	254	54.70	40.10
5	#5280.00	59.7 PK	68.2	-8.5	1.64 V	254	57.70	2.00
6	#10400.00	61.6 PK	74.0	-12.4	1.00 V	122	46.90	14.70
7	#10400.00	47.5 AV	54.0	-6.5	1.00 V	122	32.80	14.70

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 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	#5160.00	65.8 PK	68.2	-2.4	1.00 H	351	63.80	2.00
2	*5240.00	114.0 PK			1.00 H	343	73.90	40.10
3	*5240.00	103.6 AV			1.00 H	343	63.50	40.10
4	#5320.00	66.3 PK	68.2	-1.9	1.00 H	334	64.20	2.10
5	5350.00	59.3 PK	74.0	-14.7	1.00 H	342	57.30	2.00
6	5350.00	46.7 AV	54.0	-7.3	1.00 H	342	44.70	2.00
7	#10480.00	62.4 PK	74.0	-11.6	1.00 H	193	46.80	15.60
8	#10480.00	49.4 AV	54.0	-4.6	1.00 H	193	33.80	15.60
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	#5160.00	61.2 PK	68.2	-7.0	1.55 V	265	59.20	2.00
2	*5240.00	105.4 PK			1.52 V	255	65.30	40.10
3	*5240.00	95.1 AV			1.52 V	255	55.00	40.10
4	#5320.00	61.0 PK	68.2	-7.2	1.00 V	256	58.90	2.10
5	5350.00	58.0 PK	74.0	-16.0	1.52 V	255	56.00	2.00
6	5350.00	44.5 AV	54.0	-9.5	1.52 V	255	42.50	2.00
7	#10480.00	62.5 PK	74.0	-11.5	1.00 V	219	46.90	15.60
8	#10480.00	49.3 AV	54.0	-4.7	1.00 V	219	33.70	15.60

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.

802.11n (20MHz)

CHANNEL	TX Channel 36	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	5100.00	64.6 PK	74.0	-9.4	1.00 H	2	62.70	1.90
2	5100.00	52.9 AV	54.0	-1.1	1.00 H	2	51.00	1.90
3	5150.00	72.7 PK	74.0	-1.3	1.00 H	358	70.70	2.00
4	5150.00	52.5 AV	54.0	-1.5	1.00 H	358	50.50	2.00
5	*5180.00	112.5 PK			1.00 H	354	72.50	40.00
6	*5180.00	101.9 AV			1.00 H	354	61.90	40.00
7	#5258.00	65.1 PK	74.0	-8.9	1.21 H	358	63.10	2.00
8	#5258.00	52.7 AV	54.0	-1.3	1.21 H	358	50.70	2.00
9	#10360.00	61.0 PK	74.0	-13.0	1.00 H	10	46.40	14.60
10	#10360.00	47.5 AV	54.0	-6.5	1.00 H	10	32.90	14.60
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	5100.00	56.8 PK	74.0	-17.2	1.39 V	72	54.90	1.90
2	5100.00	44.4 AV	54.0	-9.6	1.39 V	72	42.50	1.90
3	5150.00	58.9 PK	74.0	-15.1	1.32 V	72	56.90	2.00
4	5150.00	43.8 AV	54.0	-10.2	1.32 V	72	41.80	2.00
5	*5180.00	111.8 PK			1.00 V	103	71.80	40.00
6	*5180.00	101.2 AV			1.00 V	103	61.20	40.00
7	#5258.00	58.4 PK	74.0	-15.6	1.00 V	180	56.40	2.00
8	#5258.00	45.1 AV	54.0	-8.9	1.00 V	180	43.10	2.00
9	#10360.00	61.1 PK	74.0	-12.9	1.00 V	296	46.50	14.60
10	#10360.00	47.8 AV	54.0	-6.2	1.00 V	296	33.20	14.60

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5120.00	65.1 PK	74.0	-8.9	1.00 H	353	63.20	1.90
2	5120.00	52.8 AV	54.0	-1.2	1.00 H	353	50.90	1.90
3	*5200.00	114.7 PK			1.00 H	329	74.60	40.10
4	*5200.00	104.0 AV			1.00 H	329	63.90	40.10
5	#5280.00	66.0 PK	68.2	-2.2	1.18 H	2	64.00	2.00
6	#10400.00	61.3 PK	74.0	-12.7	1.00 H	0	46.60	14.70
7	#10400.00	47.7 AV	54.0	-6.3	1.00 H	0	33.00	14.70
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	5120.00	57.6 PK	74.0	-16.4	1.00 V	351	55.70	1.90
2	5120.00	44.3 AV	54.0	-9.7	1.00 V	351	42.40	1.90
3	*5200.00	101.0 PK			1.00 V	88	60.90	40.10
4	*5200.00	90.5 AV			1.00 V	88	50.40	40.10
5	#5280.00	58.1 PK	68.2	-10.1	1.01 V	141	56.10	2.00
6	#10400.00	61.5 PK	74.0	-12.5	1.00 V	198	46.80	14.70
7	#10400.00	47.9 AV	54.0	-6.1	1.00 V	198	33.20	14.70

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 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	116.4 PK			1.00 H	4	76.30	40.10
2	*5240.00	105.9 AV			1.00 H	4	65.80	40.10
3	5360.00	62.7 PK	74.0	-11.3	1.02 H	203	60.70	2.00
4	5360.00	49.7 AV	54.0	-4.3	1.02 H	203	47.70	2.00
5	#5480.00	63.2 PK	74.0	-10.8	1.02 H	203	61.00	2.20
6	#5480.00	51.0 AV	54.0	-3.0	1.02 H	11	48.80	2.20
7	#10480.00	62.1 PK	74.0	-11.9	1.00 H	96	46.50	15.60
8	#10480.00	49.1 AV	54.0	-4.9	1.00 H	96	33.50	15.60
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	*5240.00	103.5 PK			1.02 V	119	63.40	40.10
2	*5240.00	92.3 AV			1.02 V	119	52.20	40.10
3	5360.00	57.6 PK	74.0	-16.4	1.01 V	119	55.60	2.00
4	5360.00	44.4 AV	54.0	-9.6	1.01 V	119	42.40	2.00
5	#5480.00	58.8 PK	74.0	-15.2	1.02 V	51	56.60	2.20
6	#5480.00	45.9 AV	54.0	-8.1	1.02 V	51	43.70	2.20
7	#10480.00	60.2 PK	74.0	-13.8	1.54 V	63	44.60	15.60
8	#10480.00	46.8 AV	54.0	-7.2	1.54 V	63	31.20	15.60

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.

802.11n (40MHz)

CHANNEL	TX Channel 38	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	72.6 PK	74.0	-1.4	1.00 H	208	70.60	2.00
2	5150.00	52.6 AV	54.0	-1.4	1.00 H	208	50.60	2.00
3	*5190.00	106.6 PK			1.00 H	208	66.60	40.00
4	*5190.00	95.5 AV			1.00 H	208	55.50	40.00
5	#10380.00	60.3 PK	74.0	-13.7	1.02 H	34	45.70	14.60
6	#10380.00	47.1 AV	54.0	-6.9	1.02 H	34	32.50	14.60
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	57.8 PK	74.0	-16.2	1.00 V	93	55.80	2.00
2	5150.00	43.3 AV	54.0	-10.7	1.00 V	93	41.30	2.00
3	*5190.00	94.8 PK			1.00 V	93	54.80	40.00
4	*5190.00	84.2 AV			1.00 V	93	44.20	40.00
5	#10380.00	60.1 PK	74.0	-13.9	1.51 V	48	45.50	14.60
6	#10380.00	45.7 AV	54.0	-8.3	1.51 V	48	31.10	14.60

REMARKS:

- Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
– Pre-Amplifier Factor(dB)
- The other emission levels were very low against the limit.
- Margin value = Emission Level – Limit value
- " * ": Fundamental frequency.
- " # ": 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	5150.00	64.5 PK	74.0	-9.5	1.22 H	2	62.50	2.00
2	5150.00	52.4 AV	54.0	-1.6	1.22 H	2	50.40	2.00
3	*5230.00	110.1 PK			1.22 H	2	70.00	40.10
4	*5230.00	98.9 AV			1.22 H	2	58.80	40.10
5	5350.00	58.7 PK	74.0	-15.3	1.18 H	353	56.70	2.00
6	5350.00	45.8 AV	54.0	-8.2	1.18 H	353	43.80	2.00
7	#10460.00	62.2 PK	74.0	-11.8	1.45 H	96	46.90	15.30
8	#10460.00	48.5 AV	54.0	-5.5	1.45 H	96	33.20	15.30
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	5150.00	56.3 PK	74.0	-17.7	1.13 V	89	54.30	2.00
2	5150.00	43.5 AV	54.0	-10.5	1.13 V	89	41.50	2.00
3	*5230.00	99.3 PK			1.13 V	89	59.20	40.10
4	*5230.00	88.4 AV			1.13 V	89	48.30	40.10
5	5350.00	56.3 PK	74.0	-17.7	1.13 V	88	54.30	2.00
6	5350.00	43.2 AV	54.0	-10.8	1.13 V	88	41.20	2.00
7	#10460.00	60.5 PK	74.0	-13.5	1.19 V	360	45.20	15.30
8	#10460.00	46.5 AV	54.0	-7.5	1.19 V	360	31.20	15.30

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.

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	71.8 PK	74.0	-2.2	1.00 H	208	69.80	2.00
2	5150.00	52.8 AV	54.0	-1.2	1.00 H	208	50.80	2.00
3	*5210.00	102.0 PK			1.00 H	208	61.90	40.10
4	*5210.00	90.8 AV			1.00 H	208	50.70	40.10
5	#10420.00	60.4 PK	74.0	-13.6	1.00 H	208	45.50	14.90
6	#10420.00	47.6 AV	54.0	-6.4	1.00 H	208	32.70	14.90
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	1.00 V	92	55.50	2.00
2	5150.00	44.1 AV	54.0	-9.9	1.00 V	92	42.10	2.00
3	*5210.00	91.2 PK			1.00 V	92	51.10	40.10
4	*5210.00	80.4 AV			1.00 V	92	40.30	40.10
5	#10420.00	60.1 PK	74.0	-13.9	1.52 V	63	45.20	14.90
6	#10420.00	46.1 AV	54.0	-7.9	1.52 V	63	31.20	14.90

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.

802.11a

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	#5714.90	67.1 PK	74.0	-6.9	1.00 H	177	64.50	2.60
2	#5714.90	48.9 AV	54.0	-5.1	1.00 H	177	46.30	2.60
3	#5722.90	76.8 PK	78.2	-1.4	1.00 H	170	74.20	2.60
4	#5725.00	63.3 PK	78.2	-14.9	1.00 H	171	60.70	2.60
5	*5745.00	109.2 PK			1.07 H	171	68.20	41.00
6	*5745.00	99.0 AV			1.07 H	171	58.00	41.00
7	11490.00	61.7 PK	74.0	-12.3	1.00 H	143	44.70	17.00
8	11490.00	49.4 AV	54.0	-4.6	1.00 H	143	32.40	17.00
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	#5714.90	58.7 PK	74.0	-15.3	1.24 V	298	56.10	2.60
2	#5714.90	44.9 AV	54.0	-9.1	1.24 V	298	42.30	2.60
3	#5722.90	66.8 PK	78.2	-11.4	1.25 V	300	64.20	2.60
4	#5725.00	49.1 PK	78.2	-29.1	1.23 V	300	46.50	2.60
5	*5745.00	100.1 PK			1.23 V	299	59.10	41.00
6	*5745.00	89.9 AV			1.23 V	299	48.90	41.00
7	11490.00	61.9 PK	74.0	-12.1	1.00 V	168	44.90	17.00
8	11490.00	50.5 AV	54.0	-3.5	1.00 V	168	33.50	17.00

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 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	#5705.00	66.6 PK	68.2	-1.6	1.00 H	12	64.00	2.60
2	*5785.00	111.7 PK			1.00 H	360	70.60	41.10
3	*5785.00	100.8 AV			1.00 H	360	59.70	41.10
4	#5863.00	67.0 PK	68.2	-1.2	1.00 H	8	64.00	3.00
5	11570.00	62.5 PK	74.0	-11.5	1.00 H	120	45.80	16.70
6	11570.00	49.3 AV	54.0	-4.7	1.00 H	120	32.60	16.70
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	#5705.00	59.4 PK	68.2	-8.8	1.00 V	249	56.80	2.60
2	*5785.00	104.1 PK			1.00 V	248	63.00	41.10
3	*5785.00	93.8 AV			1.00 V	248	52.70	41.10
4	#5863.00	58.4 PK	68.2	-9.8	1.00 V	105	55.40	3.00
5	11570.00	62.3 PK	74.0	-11.7	1.00 V	326	45.60	16.70
6	11570.00	48.4 AV	54.0	-5.6	1.00 V	326	31.70	16.70

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	110.2 PK			1.00 H	13	69.10	41.10
2	*5825.00	100.2 AV			1.00 H	13	59.10	41.10
3	#5850.00	58.1 PK	78.2	-20.1	1.00 H	3	55.10	3.00
4	#5852.10	76.4 PK	78.2	-1.8	1.00 H	4	73.40	3.00
5	#5860.10	65.2 PK	74.0	-8.8	1.00 H	7	62.20	3.00
6	#5860.10	50.2 AV	54.0	-3.8	1.00 H	7	47.20	3.00
7	#5915.00	64.0 PK	74.0	-10.0	1.00 H	2	60.90	3.10
8	#5915.00	52.9 AV	54.0	-1.1	1.00 H	2	49.80	3.10
9	#11650.00	61.5 PK	74.0	-12.5	1.00 H	208	45.00	16.50
10	#11650.00	47.5 AV	54.0	-6.5	1.00 H	208	31.00	16.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	98.9 PK			1.00 V	239	57.80	41.10
2	*5825.00	89.3 AV			1.00 V	239	48.20	41.10
3	#5850.00	48.4 PK	78.2	-29.8	1.11 V	240	45.40	3.00
4	#5852.10	63.5 PK	78.2	-14.7	1.00 V	248	60.50	3.00
5	#5860.10	56.3 PK	74.0	-17.7	1.00 V	105	53.30	3.00
6	#5860.10	43.3 AV	54.0	-10.7	1.00 V	105	40.30	3.00
7	#5915.00	58.2 PK	74.0	-15.8	1.00 V	102	55.10	3.10
8	#5915.00	45.6 AV	54.0	-8.4	1.00 V	102	42.50	3.10
9	#11650.00	61.7 PK	74.0	-12.3	1.00 V	101	45.20	16.50
10	#11650.00	47.8 AV	54.0	-6.2	1.00 V	101	31.30	16.50

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 (20MHz)

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	#5665.00	60.8 PK	74.0	-13.2	1.18 H	183	58.40	2.40
2	#5665.00	48.1 AV	54.0	-5.9	1.18 H	183	45.70	2.40
3	#5714.90	61.9 PK	74.0	-12.1	1.17 H	13	59.30	2.60
4	#5714.90	45.8 AV	54.0	-8.2	1.17 H	13	43.20	2.60
5	#5722.90	77.0 PK	78.2	-1.2	1.08 H	16	74.40	2.60
6	#5725.00	61.5 PK	78.2	-16.7	1.01 H	53	58.90	2.60
7	*5745.00	107.1 PK			1.05 H	8	66.10	41.00
8	*5745.00	96.4 AV			1.05 H	8	55.40	41.00
9	#5905.00	64.1 PK	74.0	-9.9	1.10 H	196	61.00	3.10
10	#5905.00	52.2 AV	54.0	-1.8	1.10 H	196	49.10	3.10
11	11490.00	62.6 PK	74.0	-11.4	1.00 H	63	45.60	17.00
12	11490.00	49.5 AV	54.0	-4.5	1.00 H	63	32.50	17.00
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	#5665.00	57.3 PK	74.0	-16.7	1.00 V	28	54.90	2.40
2	#5665.00	44.0 AV	54.0	-10.0	1.00 V	28	41.60	2.40
3	#5714.90	57.8 PK	74.0	-16.2	1.03 V	25	55.20	2.60
4	#5714.90	44.8 AV	54.0	-9.2	1.03 V	25	42.20	2.60
5	#5722.90	68.8 PK	78.2	-9.4	1.11 V	169	66.20	2.60
6	#5725.00	56.1 PK	78.2	-22.1	1.01 V	63	53.50	2.60
7	*5745.00	97.9 PK			1.00 V	118	56.90	41.00
8	*5745.00	86.9 AV			1.00 V	118	45.90	41.00
9	#5905.00	57.7 PK	74.0	-16.3	1.00 V	166	54.60	3.10
10	#5905.00	44.8 AV	54.0	-9.2	1.00 V	166	41.70	3.10
11	11490.00	61.0 PK	74.0	-13.0	1.06 V	34	44.00	17.00
12	11490.00	48.2 AV	54.0	-5.8	1.06 V	34	31.20	17.00

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 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	#5714.90	67.1 PK	68.2	-1.1	1.00 H	8	64.50	2.60
2	*5785.00	114.5 PK			1.00 H	13	73.40	41.10
3	*5785.00	103.5 AV			1.00 H	13	62.40	41.10
4	#5860.10	66.2 PK	68.2	-2.0	1.06 H	15	63.20	3.00
5	11570.00	62.4 PK	74.0	-11.6	1.01 H	137	45.70	16.70
6	11570.00	49.1 AV	54.0	-4.9	1.01 H	137	32.40	16.70
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	#5714.90	58.3 PK	68.2	-9.9	1.00 V	121	55.70	2.60
2	*5785.00	100.8 PK			1.00 V	121	59.70	41.10
3	*5785.00	89.2 AV			1.00 V	121	48.10	41.10
4	#5860.10	57.4 PK	68.2	-10.8	1.00 V	121	54.40	3.00
5	11570.00	62.0 PK	74.0	-12.0	1.23 V	302	45.30	16.70
6	11570.00	47.9 AV	54.0	-6.1	1.23 V	302	31.20	16.70

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	111.0 PK			1.00 H	14	69.90	41.10
2	*5825.00	99.9 AV			1.00 H	14	58.80	41.10
3	#5850.00	59.0 PK	78.2	-19.2	1.05 H	10	56.00	3.00
4	#5852.10	77.1 PK	78.2	-1.1	1.05 H	9	74.10	3.00
5	#5860.10	66.8 PK	74.0	-7.2	1.05 H	10	63.80	3.00
6	#5860.10	49.3 AV	54.0	-4.7	1.05 H	10	46.30	3.00
7	#5905.00	65.0 PK	68.2	-3.2	1.02 H	199	61.90	3.10
8	11650.00	61.8 PK	74.0	-12.2	1.52 H	32	45.30	16.50
9	11650.00	48.7 AV	54.0	-5.3	1.52 H	32	32.20	16.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	99.2 PK			1.28 V	104	58.10	41.10
2	*5825.00	88.3 AV			1.28 V	104	47.20	41.10
3	#5850.00	53.2 PK	78.2	-25.0	1.28 V	104	50.20	3.00
4	#5852.10	65.8 PK	78.2	-12.4	1.28 V	104	62.80	3.00
5	#5860.10	56.5 PK	74.0	-17.5	1.28 V	103	53.50	3.00
6	#5860.10	44.2 AV	54.0	-9.8	1.28 V	103	41.20	3.00
7	#5905.00	57.6 PK	68.2	-10.6	1.28 V	104	54.50	3.10
8	11650.00	61.5 PK	74.0	-12.5	1.26 V	64	45.00	16.50
9	11650.00	47.7 AV	54.0	-6.3	1.26 V	64	31.20	16.50

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 (40MHz)

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	#5714.90	72.4 PK	74.0	-1.6	1.00 H	5	69.80	2.60
2	#5714.90	51.9 AV	54.0	-2.1	1.00 H	5	49.30	2.60
3	#5722.90	76.0 PK	78.2	-2.2	1.00 H	5	73.40	2.60
4	#5725.00	57.8 PK	78.2	-20.4	1.00 H	5	55.20	2.60
5	*5755.00	103.2 PK			1.00 H	5	62.20	41.00
6	*5755.00	92.5 AV			1.00 H	5	51.50	41.00
7	11510.00	62.5 PK	74.0	-11.5	1.00 H	332	45.60	16.90
8	11510.00	49.5 AV	54.0	-4.5	1.00 H	332	32.60	16.90
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	#5714.90	60.5 PK	74.0	-13.5	1.28 V	98	57.90	2.60
2	#5714.90	45.0 AV	54.0	-9.0	1.28 V	98	42.40	2.60
3	#5722.90	65.1 PK	78.2	-13.1	1.28 V	98	62.50	2.60
4	#5725.00	48.1 PK	78.2	-30.1	1.28 V	98	45.50	2.60
5	*5755.00	93.0 PK			1.27 V	97	52.00	41.00
6	*5755.00	82.7 AV			1.27 V	97	41.70	41.00
7	11510.00	61.1 PK	74.0	-12.9	1.01 V	47	44.20	16.90
8	11510.00	48.1 AV	54.0	-5.9	1.01 V	47	31.20	16.90

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 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	*5795.00	108.0 PK			1.00 H	6	66.90	41.10
2	*5795.00	97.4 AV			1.00 H	6	56.30	41.10
3	#5850.00	53.0 PK	78.2	-25.2	1.00 H	6	50.00	3.00
4	#5852.10	74.8 PK	78.2	-3.4	1.04 H	10	71.80	3.00
5	#5860.10	71.3 PK	74.0	-2.7	1.02 H	196	68.30	3.00
6	#5860.10	52.8 AV	54.0	-1.2	1.02 H	196	49.80	3.00
7	11590.00	63.2 PK	74.0	-10.8	1.47 H	85	46.50	16.70
8	11590.00	49.3 AV	54.0	-4.7	1.47 H	85	32.60	16.70
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	*5795.00	96.3 PK			1.00 V	83	55.20	41.10
2	*5795.00	85.6 AV			1.00 V	83	44.50	41.10
3	#5850.00	45.7 PK	78.2	-32.5	1.00 V	84	42.70	3.00
4	#5852.10	60.6 PK	78.2	-17.6	1.00 V	83	57.60	3.00
5	#5860.10	58.5 PK	74.0	-15.5	1.00 V	83	55.50	3.00
6	#5860.10	44.1 AV	54.0	-9.9	1.00 V	83	41.10	3.00
7	11590.00	60.9 PK	74.0	-13.1	1.10 V	115	44.20	16.70
8	11590.00	47.9 AV	54.0	-6.1	1.10 V	115	31.20	16.70

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.

802.11ac (VHT80)

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	#5714.90	72.9 PK	74.0	-1.1	1.00 H	13	70.30	2.60
2	#5714.90	52.7 AV	54.0	-1.3	1.00 H	13	50.10	2.60
3	#5722.90	74.0 PK	78.2	-4.2	1.00 H	13	71.40	2.60
4	#5725.00	57.0 PK	78.2	-21.2	1.00 H	13	54.40	2.60
5	*5775.00	101.3 PK			1.00 H	13	60.30	41.00
6	*5775.00	90.2 AV			1.00 H	13	49.20	41.00
7	#5850.00	54.0 PK	78.2	-24.2	1.05 H	5	51.00	3.00
8	#5852.10	69.5 PK	78.2	-8.7	1.05 H	5	66.50	3.00
9	#5860.10	66.1 PK	74.0	-7.9	1.05 H	5	63.10	3.00
10	#5860.10	49.6 AV	54.0	-4.4	1.05 H	5	46.60	3.00
11	11550.00	62.7 PK	74.0	-11.3	1.45 H	84	46.00	16.70
12	11550.00	47.9 AV	54.0	-6.1	1.45 H	84	31.20	16.70
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	#5714.90	58.1 PK	74.0	-15.9	1.21 V	83	55.50	2.60
2	#5714.90	44.9 AV	54.0	-9.1	1.21 V	83	42.30	2.60
3	#5722.90	61.4 PK	78.2	-16.8	1.20 V	83	58.80	2.60
4	#5725.00	56.2 PK	78.2	-22.0	1.05 V	66	53.60	2.60
5	*5775.00	89.3 PK			1.21 V	83	48.30	41.00
6	*5775.00	78.7 AV			1.21 V	83	37.70	41.00
7	#5850.00	54.5 PK	78.2	-23.7	1.20 V	83	51.50	3.00
8	#5852.10	59.7 PK	78.2	-18.5	1.20 V	82	56.70	3.00
9	#5860.10	55.6 PK	74.0	-18.4	1.20 V	83	52.60	3.00
10	#5860.10	43.0 AV	54.0	-11.0	1.20 V	83	40.00	3.00
11	11550.00	60.9 PK	74.0	-13.1	1.03 V	32	44.20	16.70
12	11550.00	48.0 AV	54.0	-6.0	1.03 V	32	31.30	16.70

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.

2TX:

ABOVE 1GHz DATA

802.11a

CHANNEL	TX Channel 36	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	5100.00	69.9 PK	74.0	-4.1	1.00 H	355	68.00	1.90
2	5100.00	52.9 AV	54.0	-1.1	1.00 H	355	51.00	1.90
3	*5180.00	115.4 PK			1.08 H	354	75.40	40.00
4	*5180.00	105.4 AV			1.08 H	354	65.40	40.00
5	#5340.00	65.5 PK	68.2	-2.7	1.02 H	195	63.40	2.10
6	5420.00	61.1 PK	74.0	-12.9	1.00 H	195	59.00	2.10
7	5420.00	50.0 AV	54.0	-4.0	1.00 H	195	47.90	2.10
8	#6906.00	56.4 PK	74.0	-17.6	1.00 H	213	48.20	8.20
9	#6906.00	50.8 AV	54.0	-3.2	1.00 H	213	42.60	8.20
10	#10360.00	60.5 PK	74.0	-13.5	1.00 H	324	45.90	14.60
11	#10360.00	46.8 AV	54.0	-7.2	1.00 H	324	32.20	14.60
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	5100.00	59.9 PK	74.0	-14.1	1.00 V	259	58.00	1.90
2	5100.00	45.3 AV	54.0	-8.7	1.00 V	259	43.40	1.90
3	*5180.00	105.4 PK			1.31 V	258	65.40	40.00
4	*5180.00	95.6 AV			1.31 V	258	55.60	40.00
5	#5340.00	62.9 PK	68.2	-5.3	1.00 V	207	60.80	2.10
6	5420.00	57.5 PK	74.0	-16.5	1.00 V	34	55.40	2.10
7	5420.00	44.7 AV	54.0	-9.3	1.00 V	34	42.60	2.10
8	#6906.00	56.4 PK	74.0	-17.6	1.66 V	275	48.20	8.20
9	#6906.00	50.9 AV	54.0	-3.1	1.66 V	275	42.70	8.20
10	#10360.00	60.0 PK	74.0	-14.0	1.00 V	39	45.40	14.60
11	#10360.00	47.3 AV	54.0	-6.7	1.00 V	39	32.70	14.60

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5120.00	63.8 PK	74.0	-10.2	1.00 H	1	61.90	1.90
2	5120.00	53.0 AV	54.0	-1.0	1.00 H	1	51.10	1.90
3	*5200.00	115.8 PK			1.19 H	358	75.70	40.10
4	*5200.00	105.9 AV			1.19 H	358	65.80	40.10
5	5350.00	65.0 PK	74.0	-9.0	1.01 H	198	63.00	2.00
6	5350.00	51.9 AV	54.0	-2.1	1.01 H	198	49.90	2.00
7	#6933.00	56.9 PK	74.0	-17.1	1.10 H	166	48.70	8.20
8	#6933.00	51.8 AV	54.0	-2.2	1.10 H	166	43.60	8.20
9	#10400.00	60.6 PK	74.0	-13.4	1.00 H	302	45.90	14.70
10	#10400.00	47.0 AV	54.0	-7.0	1.00 H	302	32.30	14.70
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	5120.00	57.6 PK	74.0	-16.4	1.00 V	248	55.70	1.90
2	5120.00	44.9 AV	54.0	-9.1	1.00 V	248	43.00	1.90
3	*5200.00	106.3 PK			1.67 V	305	66.20	40.10
4	*5200.00	96.2 AV			1.67 V	305	56.10	40.10
5	5350.00	57.5 PK	74.0	-16.5	1.00 V	112	55.50	2.00
6	5350.00	44.8 AV	54.0	-9.2	1.00 V	112	42.80	2.00
7	#6933.00	56.5 PK	74.0	-17.5	1.68 V	275	48.30	8.20
8	#6933.00	50.7 AV	54.0	-3.3	1.68 V	275	42.50	8.20
9	#10400.00	60.5 PK	74.0	-13.5	1.00 V	25	45.80	14.70
10	#10400.00	47.5 AV	54.0	-6.5	1.00 V	25	32.80	14.70

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 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	5080.00	60.7 PK	74.0	-13.3	1.00 H	344	58.90	1.80
2	5080.00	50.1 AV	54.0	-3.9	1.00 H	344	48.30	1.80
3	#5160.00	66.4 PK	68.2	-1.8	1.16 H	192	64.40	2.00
4	*5240.00	115.8 PK			1.00 H	350	75.70	40.10
5	*5240.00	106.1 AV			1.00 H	350	66.00	40.10
6	#5320.00	67.2 PK	68.2	-1.0	1.02 H	202	65.10	2.10
7	5400.00	63.7 PK	74.0	-10.3	1.01 H	199	61.60	2.10
8	5400.00	52.9 AV	54.0	-1.1	1.01 H	199	50.80	2.10
9	#6986.00	54.8 PK	74.0	-19.2	1.00 H	28	46.40	8.40
10	#6986.00	47.9 AV	54.0	-6.1	1.00 H	28	39.50	8.40
11	#10480.00	61.0 PK	74.0	-13.0	1.54 H	6	45.40	15.60
12	#10480.00	48.8 AV	54.0	-5.2	1.54 H	6	33.20	15.60
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	5080.00	59.6 PK	74.0	-14.4	1.00 V	301	57.80	1.80
2	5080.00	48.6 AV	54.0	-5.4	1.00 V	301	46.80	1.80
3	#5160.00	65.2 PK	68.2	-3.0	1.00 V	144	63.20	2.00
4	*5240.00	103.4 PK			1.00 V	254	63.30	40.10
5	*5240.00	94.2 AV			1.00 V	254	54.10	40.10
6	#5320.00	62.5 PK	68.2	-5.7	1.04 V	209	60.40	2.10
7	5400.00	58.1 PK	74.0	-15.9	1.22 V	206	56.00	2.10
8	5400.00	44.8 AV	54.0	-9.2	1.22 V	206	42.70	2.10
9	#6986.00	53.9 PK	74.0	-20.1	1.58 V	270	45.50	8.40
10	#6986.00	45.0 AV	54.0	-9.0	1.58 V	270	36.60	8.40
11	#10480.00	60.2 PK	74.0	-13.8	1.14 V	52	44.60	15.60
12	#10480.00	46.8 AV	54.0	-7.2	1.14 V	52	31.20	15.60

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.

802.11n (20MHz)

CHANNEL	TX Channel 36	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	72.6 PK	74.0	-1.4	1.00 H	349	70.60	2.00
2	5150.00	51.6 AV	54.0	-2.4	1.00 H	349	49.60	2.00
3	*5180.00	114.4 PK			1.00 H	4	74.40	40.00
4	*5180.00	104.4 AV			1.00 H	4	64.40	40.00
5	5420.00	62.1 PK	74.0	-11.9	1.00 H	194	60.00	2.10
6	5420.00	50.6 AV	54.0	-3.4	1.00 H	194	48.50	2.10
7	#6906.00	56.5 PK	74.0	-17.5	1.00 H	215	48.30	8.20
8	#6906.00	51.4 AV	54.0	-2.6	1.00 H	215	43.20	8.20
9	#10360.00	60.2 PK	74.0	-13.8	1.00 H	195	45.60	14.60
10	#10360.00	47.4 AV	54.0	-6.6	1.00 H	195	32.80	14.60
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	52.1 PK	74.0	-21.9	1.11 V	297	50.10	2.00
2	5150.00	47.5 AV	54.0	-6.5	1.11 V	297	45.50	2.00
3	*5180.00	105.6 PK			1.21 V	257	65.60	40.00
4	*5180.00	95.1 AV			1.21 V	257	55.10	40.00
5	5420.00	57.5 PK	74.0	-16.5	1.00 V	32	55.40	2.10
6	5420.00	44.5 AV	54.0	-9.5	1.00 V	32	42.40	2.10
7	#6906.00	56.3 PK	74.0	-17.7	1.69 V	279	48.10	8.20
8	#6906.00	50.8 AV	54.0	-3.2	1.69 V	279	42.60	8.20
9	#10360.00	60.4 PK	74.0	-13.6	1.00 V	21	45.80	14.60
10	#10360.00	47.5 AV	54.0	-6.5	1.00 V	21	32.90	14.60

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5120.00	65.4 PK	74.0	-8.6	1.00 H	349	63.50	1.90
2	5120.00	53.3 AV	54.0	-0.7	1.00 H	349	51.40	1.90
3	*5200.00	114.6 PK			1.08 H	349	74.50	40.10
4	*5200.00	104.9 AV			1.08 H	349	64.80	40.10
5	5350.00	63.9 PK	74.0	-10.1	1.02 H	199	61.90	2.00
6	5350.00	51.9 AV	54.0	-2.1	1.02 H	199	49.90	2.00
7	#6933.00	56.8 PK	74.0	-17.2	1.00 H	164	48.60	8.20
8	#6933.00	51.2 AV	54.0	-2.8	1.00 H	164	43.00	8.20
9	#10400.00	61.8 PK	74.0	-12.2	1.00 H	299	47.10	14.70
10	#10400.00	47.5 AV	54.0	-6.5	1.00 H	299	32.80	14.70
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	5120.00	57.2 PK	74.0	-16.8	1.00 V	244	55.30	1.90
2	5120.00	44.7 AV	54.0	-9.3	1.00 V	244	42.80	1.90
3	*5200.00	106.4 PK			1.23 V	270	66.30	40.10
4	*5200.00	95.1 AV			1.23 V	270	55.00	40.10
5	5350.00	57.4 PK	74.0	-16.6	1.00 V	130	55.40	2.00
6	5350.00	44.7 AV	54.0	-9.3	1.00 V	130	42.70	2.00
7	#6933.00	56.7 PK	74.0	-17.3	1.67 V	277	48.50	8.20
8	#6933.00	50.8 AV	54.0	-3.2	1.67 V	277	42.60	8.20
9	#10400.00	60.4 PK	74.0	-13.6	1.00 V	30	45.70	14.70
10	#10400.00	47.2 AV	54.0	-6.8	1.00 V	30	32.50	14.70

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 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	5080.00	58.6 PK	74.0	-15.4	1.00 H	346	56.80	1.80
2	5080.00	46.8 AV	54.0	-7.2	1.00 H	346	45.00	1.80
3	#5160.00	65.3 PK	68.2	-2.9	1.16 H	200	63.30	2.00
4	*5240.00	116.5 PK			1.06 H	348	76.40	40.10
5	*5240.00	106.4 AV			1.06 H	348	66.30	40.10
6	#5320.00	67.4 PK	68.2	-0.8	1.02 H	196	65.30	2.10
7	5400.00	63.6 PK	74.0	-10.4	1.01 H	193	61.50	2.10
8	5400.00	52.0 AV	54.0	-2.0	1.01 H	193	49.90	2.10
9	#6986.00	55.6 PK	74.0	-18.4	1.00 H	165	47.20	8.40
10	#6986.00	48.9 AV	54.0	-5.1	1.00 H	165	40.50	8.40
11	#10480.00	62.2 PK	74.0	-11.8	1.00 H	286	46.60	15.60
12	#10480.00	49.1 AV	54.0	-4.9	1.00 H	286	33.50	15.60
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	5080.00	58.2 PK	74.0	-15.8	1.00 V	312	56.40	1.80
2	5080.00	46.3 AV	54.0	-7.7	1.00 V	312	44.50	1.80
3	#5160.00	62.9 PK	68.2	-5.3	1.00 V	302	60.90	2.00
4	*5240.00	106.4 PK			1.20 V	254	66.30	40.10
5	*5240.00	96.0 AV			1.20 V	254	55.90	40.10
6	#5320.00	61.4 PK	68.2	-6.8	1.00 V	158	59.30	2.10
7	5400.00	59.4 PK	74.0	-14.6	1.00 V	86	57.30	2.10
8	5400.00	45.9 AV	54.0	-8.1	1.00 V	86	43.80	2.10
9	#6986.00	53.0 PK	74.0	-21.0	1.00 V	221	44.60	8.40
10	#6986.00	43.2 AV	54.0	-10.8	1.00 V	221	34.80	8.40
11	#10480.00	62.4 PK	74.0	-11.6	1.00 V	103	46.80	15.60
12	#10480.00	49.1 AV	54.0	-4.9	1.00 V	103	33.50	15.60

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.

802.11n (40MHz)

CHANNEL	TX Channel 38	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	5100.00	60.5 PK	74.0	-13.5	1.00 H	185	58.60	1.90
2	5100.00	47.9 AV	54.0	-6.1	1.00 H	185	46.00	1.90
3	5150.00	69.6 PK	74.0	-4.4	1.00 H	342	67.60	2.00
4	5150.00	52.7 AV	54.0	-1.3	1.00 H	342	50.70	2.00
5	*5190.00	107.5 PK			1.00 H	182	67.50	40.00
6	*5190.00	97.6 AV			1.00 H	182	57.60	40.00
7	#5260.00	62.1 PK	74.0	-11.9	1.00 H	183	60.10	2.00
8	#5260.00	49.6 AV	54.0	-4.4	1.00 H	183	47.60	2.00
9	5350.00	59.7 PK	74.0	-14.3	1.18 H	176	57.70	2.00
10	5350.00	46.7 AV	54.0	-7.3	1.18 H	176	44.70	2.00
11	#10380.00	60.1 PK	74.0	-13.9	1.00 H	123	45.50	14.60
12	#10380.00	46.9 AV	54.0	-7.1	1.00 H	123	32.30	14.60
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	5100.00	56.3 PK	74.0	-17.7	1.00 V	272	54.40	1.90
2	5100.00	43.5 AV	54.0	-10.5	1.00 V	272	41.60	1.90
3	5150.00	60.5 PK	74.0	-13.5	1.00 V	268	58.50	2.00
4	5150.00	46.3 AV	54.0	-7.7	1.00 V	268	44.30	2.00
5	*5190.00	97.9 PK			1.00 V	247	57.90	40.00
6	*5190.00	88.0 AV			1.00 V	247	48.00	40.00
7	#5260.00	59.5 PK	74.0	-14.5	1.00 V	215	57.50	2.00
8	#5260.00	43.9 AV	54.0	-10.1	1.00 V	215	41.90	2.00
9	5350.00	57.6 PK	74.0	-16.4	1.00 V	268	55.60	2.00
10	5350.00	44.6 AV	54.0	-9.4	1.00 V	268	42.60	2.00
11	#10380.00	60.5 PK	74.0	-13.5	1.00 V	298	45.90	14.60
12	#10380.00	47.8 AV	54.0	-6.2	1.00 V	298	33.20	14.60

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 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	5150.00	64.9 PK	74.0	-9.1	1.00 H	2	62.90	2.00
2	5150.00	52.8 AV	54.0	-1.2	1.00 H	2	50.80	2.00
3	*5230.00	111.4 PK			1.18 H	0	71.30	40.10
4	*5230.00	101.0 AV			1.18 H	0	60.90	40.10
5	5460.00	61.8 PK	74.0	-12.2	1.00 H	198	59.70	2.10
6	5460.00	49.5 AV	54.0	-4.5	1.00 H	198	47.40	2.10
7	#5474.00	61.6 PK	74.0	-12.4	1.01 H	197	59.40	2.20
8	#5474.00	50.1 AV	54.0	-3.9	1.01 H	197	47.90	2.20
9	#10460.00	62.9 PK	74.0	-11.1	1.00 H	125	47.60	15.30
10	#10460.00	49.7 AV	54.0	-4.3	1.00 H	125	34.40	15.30
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	5150.00	58.5 PK	74.0	-15.5	1.00 V	258	56.50	2.00
2	5150.00	46.6 AV	54.0	-7.4	1.00 V	258	44.60	2.00
3	*5230.00	103.1 PK			1.66 V	253	63.00	40.10
4	*5230.00	92.7 AV			1.66 V	253	52.60	40.10
5	5460.00	57.9 PK	74.0	-16.1	1.00 V	139	55.80	2.10
6	5460.00	45.2 AV	54.0	-8.8	1.00 V	139	43.10	2.10
7	#5474.00	59.0 PK	74.0	-15.0	1.00 V	289	56.80	2.20
8	#5474.00	46.0 AV	54.0	-8.0	1.00 V	289	43.80	2.20
9	#10460.00	62.8 PK	74.0	-11.2	1.00 V	265	47.50	15.30
10	#10460.00	49.8 AV	54.0	-4.2	1.00 V	265	34.50	15.30

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.

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	68.0 PK	74.0	-6.0	1.11 H	355	66.00	2.00
2	5150.00	53.0 AV	54.0	-1.0	1.11 H	355	51.00	2.00
3	*5210.00	103.7 PK			1.09 H	0	63.60	40.10
4	*5210.00	93.4 AV			1.09 H	0	53.30	40.10
5	5350.00	59.0 PK	74.0	-15.0	1.13 H	8	57.00	2.00
6	5350.00	45.8 AV	54.0	-8.2	1.13 H	8	43.80	2.00
7	#10420.00	61.5 PK	74.0	-12.5	1.00 H	202	46.60	14.90
8	#10420.00	48.0 AV	54.0	-6.0	1.00 H	202	33.10	14.90
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	59.5 PK	74.0	-14.5	1.00 V	258	57.50	2.00
2	5150.00	46.5 AV	54.0	-7.5	1.00 V	258	44.50	2.00
3	*5210.00	96.3 PK			1.68 V	259	56.20	40.10
4	*5210.00	85.6 AV			1.68 V	259	45.50	40.10
5	5350.00	57.7 PK	74.0	-16.3	1.00 V	15	55.70	2.00
6	5350.00	44.8 AV	54.0	-9.2	1.00 V	15	42.80	2.00
7	#10420.00	61.7 PK	74.0	-12.3	1.00 V	102	46.80	14.90
8	#10420.00	48.4 AV	54.0	-5.6	1.00 V	102	33.50	14.90

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.

802.11a

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	#5665.00	63.9 PK	74.0	-10.1	1.00 H	186	61.50	2.40
2	#5665.00	52.7 AV	54.0	-1.3	1.00 H	186	50.30	2.40
3	#5714.90	64.9 PK	74.0	-9.1	1.00 H	187	62.30	2.60
4	#5714.90	45.7 AV	54.0	-8.3	1.00 H	187	43.10	2.60
5	#5722.90	77.1 PK	78.2	-1.1	1.00 H	353	74.50	2.60
6	#5725.00	55.6 PK	78.2	-22.6	1.00 H	350	53.00	2.60
7	*5745.00	112.6 PK			1.00 H	180	71.60	41.00
8	*5745.00	103.0 AV			1.00 H	180	62.00	41.00
9	#6224.00	55.5 PK	74.0	-18.5	1.00 H	7	49.20	6.30
10	#6224.00	45.1 AV	54.0	-8.9	1.00 H	7	38.80	6.30
11	11490.00	63.2 PK	74.0	-10.8	1.00 H	96	46.20	17.00
12	11490.00	49.6 AV	54.0	-4.4	1.00 H	96	32.60	17.00
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	#5665.00	58.3 PK	74.0	-15.7	1.00 V	16	55.90	2.40
2	#5665.00	44.8 AV	54.0	-9.2	1.00 V	16	42.40	2.40
3	#5714.90	57.3 PK	74.0	-16.7	1.00 V	3	54.70	2.60
4	#5714.90	43.5 AV	54.0	-10.5	1.00 V	3	40.90	2.60
5	#5722.90	65.6 PK	78.2	-12.6	1.53 V	71	63.00	2.60
6	#5725.00	46.1 PK	78.2	-32.1	1.00 V	188	43.50	2.60
7	*5745.00	100.6 PK			1.00 V	9	59.60	41.00
8	*5745.00	91.0 AV			1.00 V	9	50.00	41.00
9	#6224.00	52.2 PK	74.0	-21.8	1.00 V	307	45.90	6.30
10	#6224.00	39.0 AV	54.0	-15.0	1.00 V	307	32.70	6.30
11	11490.00	63.2 PK	74.0	-10.8	1.00 V	22	46.20	17.00
12	11490.00	49.5 AV	54.0	-4.5	1.00 V	22	32.50	17.00

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 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	#5705.00	65.3 PK	68.2	-2.9	1.00 H	262	62.70	2.60
2	*5785.00	114.5 PK			1.00 H	178	73.40	41.10
3	*5785.00	104.5 AV			1.00 H	178	63.40	41.10
4	#5867.00	67.2 PK	68.2	-1.0	1.07 H	178	64.20	3.00
5	11570.00	61.6 PK	74.0	-12.4	1.00 H	62	44.90	16.70
6	11570.00	48.9 AV	54.0	-5.1	1.00 H	62	32.20	16.70
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	#5705.00	54.8 PK	68.2	-13.4	1.00 V	20	52.20	2.60
2	*5785.00	100.9 PK			1.00 V	243	59.80	41.10
3	*5785.00	91.3 AV			1.00 V	243	50.20	41.10
4	#5867.00	61.7 PK	68.2	-6.5	1.76 V	77	58.70	3.00
5	11570.00	61.5 PK	74.0	-12.5	1.00 V	152	44.80	16.70
6	11570.00	49.2 AV	54.0	-4.8	1.00 V	152	32.50	16.70

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	113.4 PK			1.08 H	178	72.30	41.10
2	*5825.00	103.4 AV			1.08 H	178	62.30	41.10
3	#5850.00	61.4 PK	78.2	-16.8	1.08 H	348	58.40	3.00
4	#5852.10	76.8 PK	78.2	-1.4	1.08 H	177	73.80	3.00
5	#5860.10	68.6 PK	74.0	-5.4	1.08 H	177	65.60	3.00
6	#5860.10	52.3 AV	54.0	-1.7	1.08 H	177	49.30	3.00
7	#5907.00	67.0 PK	68.2	-1.2	1.05 H	178	63.90	3.10
8	11650.00	62.4 PK	74.0	-11.6	1.00 H	301	45.90	16.50
9	11650.00	48.7 AV	54.0	-5.3	1.00 H	301	32.20	16.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	100.2 PK			1.00 V	2	59.10	41.10
2	*5825.00	90.8 AV			1.00 V	2	49.70	41.10
3	#5850.00	53.8 PK	78.2	-24.4	1.77 V	72	50.80	3.00
4	#5852.10	63.1 PK	78.2	-15.1	1.00 V	171	60.10	3.00
5	#5860.10	57.9 PK	74.0	-16.1	1.00 V	360	54.90	3.00
6	#5860.10	43.6 AV	54.0	-10.4	1.00 V	360	40.60	3.00
7	#5907.00	59.2 PK	68.2	-9.0	1.00 V	290	56.10	3.10
8	11650.00	62.7 PK	74.0	-11.3	1.00 V	159	46.20	16.50
9	11650.00	49.0 AV	54.0	-5.0	1.00 V	159	32.50	16.50

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 (20MHz)

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	#5665.00	62.6 PK	74.0	-11.4	1.00 H	3	60.20	2.40
2	#5665.00	51.4 AV	54.0	-2.6	1.00 H	3	49.00	2.40
3	#5714.90	64.3 PK	74.0	-9.7	1.00 H	2	61.70	2.60
4	#5714.90	45.2 AV	54.0	-8.8	1.00 H	2	42.60	2.60
5	#5722.90	77.2 PK	78.2	-1.0	1.07 H	6	74.60	2.60
6	#5725.00	58.5 PK	78.2	-19.7	1.05 H	5	55.90	2.60
7	*5745.00	109.0 PK			1.00 H	9	68.00	41.00
8	*5745.00	99.0 AV			1.00 H	9	58.00	41.00
9	11490.00	62.7 PK	74.0	-11.3	1.02 H	173	45.70	17.00
10	11490.00	49.5 AV	54.0	-4.5	1.02 H	173	32.50	17.00
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	#5665.00	60.4 PK	74.0	-13.6	1.02 V	63	58.00	2.40
2	#5665.00	46.9 AV	54.0	-7.1	1.02 V	63	44.50	2.40
3	#5714.90	61.3 PK	74.0	-12.7	1.02 V	94	58.70	2.60
4	#5714.90	44.1 AV	54.0	-9.9	1.02 V	94	41.50	2.60
5	#5722.90	71.6 PK	78.2	-6.6	1.01 V	84	69.00	2.60
6	#5725.00	56.2 PK	78.2	-22.0	1.04 V	99	53.60	2.60
7	*5745.00	100.1 PK			1.00 V	168	59.10	41.00
8	*5745.00	90.0 AV			1.00 V	168	49.00	41.00
9	11490.00	61.6 PK	74.0	-12.4	1.01 V	31	44.60	17.00
10	11490.00	48.2 AV	54.0	-5.8	1.01 V	31	31.20	17.00

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 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	#5705.00	66.4 PK	68.2	-1.8	1.00 H	6	63.80	2.60
2	*5785.00	114.1 PK			1.00 H	2	73.00	41.10
3	*5785.00	103.4 AV			1.00 H	2	62.30	41.10
4	#5867.00	67.2 PK	68.2	-1.0	1.17 H	7	64.20	3.00
5	11570.00	61.5 PK	74.0	-12.5	1.00 H	19	44.80	16.70
6	11570.00	48.4 AV	54.0	-5.6	1.00 H	19	31.70	16.70
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	#5705.00	58.3 PK	68.2	-9.9	1.00 V	305	55.70	2.60
2	*5785.00	104.4 PK			1.75 V	307	63.30	41.10
3	*5785.00	93.4 AV			1.75 V	307	52.30	41.10
4	#5867.00	58.9 PK	68.2	-9.3	1.00 V	90	55.90	3.00
5	11570.00	61.8 PK	74.0	-12.2	1.00 V	123	45.10	16.70
6	11570.00	48.9 AV	54.0	-5.1	1.00 V	123	32.20	16.70

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	111.9 PK			1.00 H	6	70.80	41.10
2	*5825.00	101.6 AV			1.00 H	6	60.50	41.10
3	#5850.00	59.2 PK	78.2	-19.0	1.17 H	358	56.20	3.00
4	#5852.10	77.0 PK	78.2	-1.2	1.16 H	359	74.00	3.00
5	#5860.10	69.6 PK	74.0	-4.4	1.18 H	348	66.60	3.00
6	#5860.10	50.2 AV	54.0	-3.8	1.18 H	348	47.20	3.00
7	#5907.00	66.8 PK	68.2	-1.4	1.06 H	2	63.70	3.10
8	11650.00	62.3 PK	74.0	-11.7	1.00 H	309	45.80	16.50
9	11650.00	48.0 AV	54.0	-6.0	1.00 H	309	31.50	16.50
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5825.00	103.0 PK			1.00 V	232	61.90	41.10
2	*5825.00	91.9 AV			1.00 V	232	50.80	41.10
3	#5850.00	49.5 PK	78.2	-28.7	1.00 V	308	46.50	3.00
4	#5852.10	63.7 PK	78.2	-14.5	1.00 V	311	60.70	3.00
5	#5860.10	59.1 PK	74.0	-14.9	1.00 V	95	56.10	3.00
6	#5860.10	43.9 AV	54.0	-10.1	1.00 V	95	40.90	3.00
7	#5907.00	60.3 PK	68.2	-7.9	1.00 V	158	57.20	3.10
8	11650.00	62.7 PK	74.0	-11.3	1.00 V	259	46.20	16.50
9	11650.00	48.6 AV	54.0	-5.4	1.00 V	259	32.10	16.50

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 (40MHz)

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	#5714.90	72.4 PK	74.0	-1.6	1.00 H	5	69.80	2.60
2	#5714.90	52.7 AV	54.0	-1.3	1.00 H	5	50.10	2.60
3	#5722.90	76.3 PK	78.2	-1.9	1.00 H	7	73.70	2.60
4	#5725.00	59.3 PK	78.2	-18.9	1.00 H	9	56.70	2.60
5	*5755.00	107.2 PK			1.00 H	15	66.20	41.00
6	*5755.00	97.1 AV			1.00 H	15	56.10	41.00
7	11510.00	62.5 PK	74.0	-11.5	1.00 H	10	45.60	16.90
8	11510.00	49.2 AV	54.0	-4.8	1.00 H	10	32.30	16.90
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	#5714.90	58.7 PK	74.0	-15.3	1.00 V	305	56.10	2.60
2	#5714.90	43.8 AV	54.0	-10.2	1.00 V	305	41.20	2.60
3	#5722.90	61.6 PK	78.2	-16.6	1.00 V	308	59.00	2.60
4	#5725.00	48.5 PK	78.2	-29.7	1.00 V	306	45.90	2.60
5	*5755.00	94.4 PK			1.02 V	84	53.40	41.00
6	*5755.00	84.4 AV			1.02 V	84	43.40	41.00
7	11510.00	63.1 PK	74.0	-10.9	1.00 V	159	46.20	16.90
8	11510.00	49.7 AV	54.0	-4.3	1.00 V	159	32.80	16.90

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 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	*5795.00	111.8 PK			1.00 H	11	70.70	41.10
2	*5795.00	101.7 AV			1.00 H	11	60.60	41.10
3	#5850.00	54.8 PK	78.2	-23.4	1.00 H	9	51.80	3.00
4	#5852.10	74.2 PK	78.2	-4.0	1.06 H	10	71.20	3.00
5	#5860.10	68.2 PK	74.0	-5.8	1.17 H	13	65.20	3.00
6	#5860.10	53.0 AV	54.0	-1.0	1.17 H	13	50.00	3.00
7	11590.00	61.8 PK	74.0	-12.2	1.00 H	332	45.10	16.70
8	11590.00	48.9 AV	54.0	-5.1	1.00 H	332	32.20	16.70
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	*5795.00	99.4 PK			1.47 V	308	58.30	41.10
2	*5795.00	89.4 AV			1.47 V	308	48.30	41.10
3	#5850.00	48.3 PK	78.2	-29.9	1.45 V	236	45.30	3.00
4	#5852.10	59.1 PK	78.2	-19.1	1.42 V	250	56.10	3.00
5	#5860.10	59.1 PK	74.0	-14.9	1.45 V	288	56.10	3.00
6	#5860.10	45.5 AV	54.0	-8.5	1.45 V	288	42.50	3.00
7	11590.00	62.5 PK	74.0	-11.5	1.00 V	115	45.80	16.70
8	11590.00	49.3 AV	54.0	-4.7	1.00 V	115	32.60	16.70

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.

802.11ac (VHT80)

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	#5714.90	70.2 PK	74.0	-3.8	1.00 H	3	67.60	2.60
2	#5714.90	52.9 AV	54.0	-1.1	1.00 H	3	50.30	2.60
3	#5722.90	71.4 PK	78.2	-6.8	1.00 H	7	68.80	2.60
4	#5725.00	55.0 PK	78.2	-23.2	1.00 H	9	52.40	2.60
5	*5775.00	102.5 PK			1.00 H	7	61.50	41.00
6	*5775.00	92.3 AV			1.00 H	7	51.30	41.00
7	#5850.00	48.9 PK	78.2	-29.3	1.05 H	11	45.90	3.00
8	#5852.10	65.4 PK	78.2	-12.8	1.04 H	11	62.40	3.00
9	#5860.10	62.0 PK	74.0	-12.0	1.05 H	12	59.00	3.00
10	#5860.10	47.0 AV	54.0	-7.0	1.05 H	12	44.00	3.00
11	11550.00	62.6 PK	74.0	-11.4	1.00 H	153	45.90	16.70
12	11550.00	49.1 AV	54.0	-4.9	1.00 H	153	32.40	16.70
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	#5714.90	57.1 PK	74.0	-16.9	1.00 V	55	54.50	2.60
2	#5714.90	43.8 AV	54.0	-10.2	1.00 V	55	41.20	2.60
3	#5722.90	58.0 PK	78.2	-20.2	1.00 V	35	55.40	2.60
4	#5725.00	44.9 PK	78.2	-33.3	1.00 V	309	42.30	2.60
5	*5775.00	91.3 PK			1.85 V	317	50.30	41.00
6	*5775.00	81.0 AV			1.85 V	317	40.00	41.00
7	#5850.00	42.9 PK	78.2	-35.3	1.11 V	15	39.90	3.00
8	#5852.10	56.3 PK	78.2	-21.9	1.00 V	301	53.30	3.00
9	#5860.10	56.2 PK	74.0	-17.8	1.00 V	100	53.20	3.00
10	#5860.10	43.2 AV	54.0	-10.8	1.00 V	100	40.20	3.00
11	11550.00	62.9 PK	74.0	-11.1	1.00 V	296	46.20	16.70
12	11550.00	49.2 AV	54.0	-4.8	1.00 V	296	32.50	16.70

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.

BELOW 1GHz WORST-CASE DATA

802.11a

CHANNEL	TX Channel 48	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	42.40	24.4 QP	40.0	-15.6	1.99 H	67	39.10	-14.70
2	89.10	30.6 QP	43.5	-12.9	1.99 H	310	50.40	-19.80
3	162.10	31.9 QP	43.5	-11.6	1.99 H	91	45.90	-14.00
4	280.30	31.7 QP	46.0	-14.3	1.00 H	135	44.70	-13.00
5	322.20	33.8 QP	46.0	-12.2	1.00 H	193	45.70	-11.90
6	833.70	43.2 QP	46.0	-2.8	1.99 H	8	45.50	-2.30
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	37.10	34.7 QP	40.0	-5.3	1.00 V	211	50.10	-15.40
2	64.90	37.7 QP	40.0	-2.3	1.00 V	192	53.20	-15.50
3	101.50	34.2 QP	43.5	-9.3	1.00 V	212	52.60	-18.40
4	173.00	30.4 QP	43.5	-13.1	1.00 V	304	45.00	-14.60
5	288.00	29.5 QP	46.0	-16.5	1.99 V	190	42.20	-12.70
6	833.70	37.6 QP	46.0	-8.4	1.99 V	6	39.90	-2.30

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

4.2 CONDUCTED EMISSION MEASUREMENT

4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	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.
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
Test Receiver ROHDE & SCHWARZ	ESCI	100612	Sep. 30, 2014	Sep. 29, 2015
RF signal cable Woken	5D-FB	Cable-HYC01-01	Dec. 27, 2013	Dec. 26, 2014
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Feb. 13, 2014	Feb. 12, 2015
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 21, 2014	Jul. 20, 2015
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

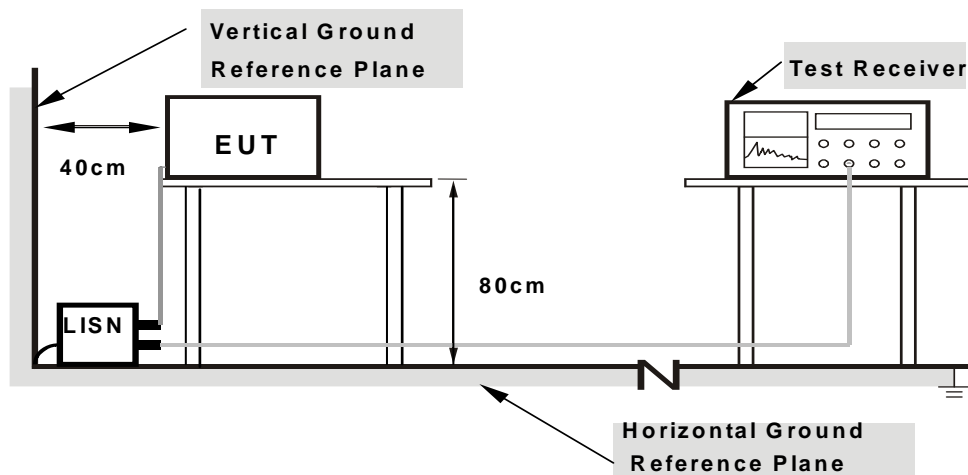
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance 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) were not recorded.

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

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

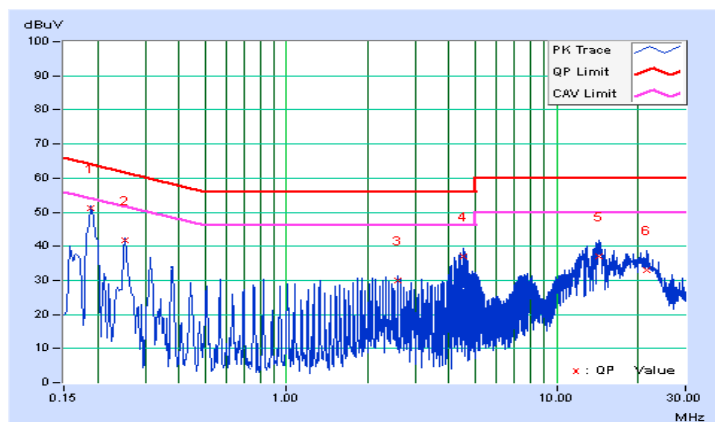
CONDUCTED WORST-CASE DATA: 802.11a

PHASE	Line 1	6dB BANDWIDTH	9kHz
-------	--------	---------------	------

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	0.18903	0.07	51.14	41.11	51.21	41.18	64.08	54.08	-12.87	-12.90
2	0.25166	0.07	41.63	31.66	41.70	31.73	61.70	51.70	-20.00	-19.97
3	2.58984	0.17	29.85	27.78	30.02	27.95	56.00	46.00	-25.98	-18.05
4	4.54484	0.26	36.63	29.48	36.89	29.74	56.00	46.00	-19.11	-16.26
5	14.26901	0.74	36.37	28.46	37.11	29.20	60.00	50.00	-22.89	-20.80
6	21.52597	1.09	31.85	27.03	32.94	28.12	60.00	50.00	-27.06	-21.88

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

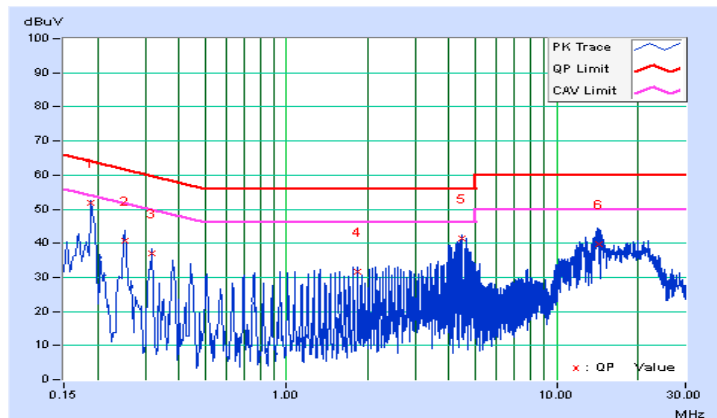


PHASE	Line 2	6dB BANDWIDTH	9kHz
-------	--------	---------------	------

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	0.18910	0.05	51.75	42.30	51.80	42.35	64.08	54.08	-12.28	-11.73
2	0.25166	0.06	40.79	30.97	40.85	31.03	61.70	51.70	-20.86	-20.68
3	0.31813	0.06	36.97	32.60	37.03	32.66	59.76	49.76	-22.72	-17.09
4	1.83130	0.13	31.37	31.31	31.50	31.44	56.00	46.00	-24.50	-14.56
5	4.48619	0.23	41.32	34.67	41.55	34.90	56.00	46.00	-14.45	-11.10
6	14.33939	0.64	39.01	31.14	39.65	31.78	60.00	50.00	-20.35	-18.22

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

Per KDB 662911 D01 Multiple Transmitter Output v02r01 Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

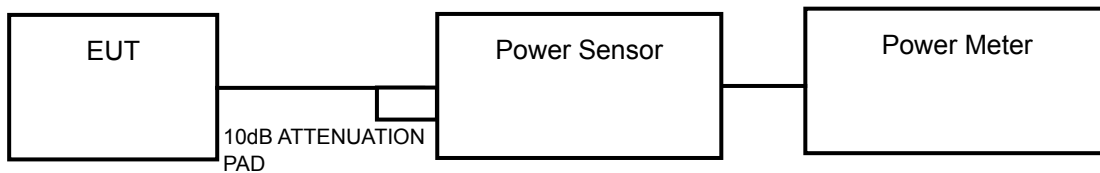
Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

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

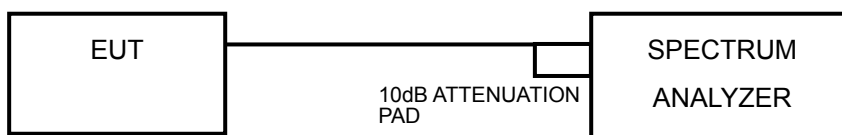
4.3.2 TEST SETUP

FOR AVERAGE POWER MEASUREMENT

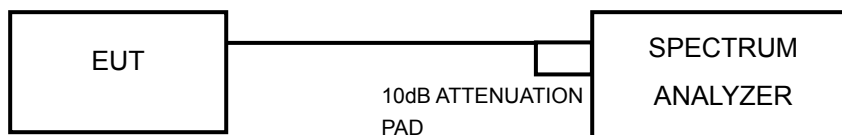
For 802.11a, 802.11n (HT20), 802.11n (HT40)



For 802.11ac (VHT80)



FOR OCCUPIED BANDWIDTH



4.3.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

4.3.4 TEST PROCEDURE

FOR AVERAGE POWER MEASUREMENT

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

789033 D02 General UNII Test Procedures New Rules v01 / E / 3 / b)

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

For 802.11ac (VHT80)

789033 D02 General UNII Test Procedures New Rules v01 / E / 2 / f)

- 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) Detector = RMS.
- 8) Trace mode = max hold.
- 9) Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.

FOR OCCUPIED BANDWIDTH

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 300 kHz RBW and 1MHz VBW. 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.

4.3.5 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 specific channel frequencies individually.

4.3.7 TEST RESULTS

POWER OUTPUT:

1TX:

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	MAXIMUM CONDUCTED POWER (mW)	MAXIMUM CONDUCTED POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	205.589	23.13	30	PASS
40	5200	194.536	22.89	30	PASS
48	5240	285.759	24.56	30	PASS
149	5745	97.275	19.88	30	PASS
157	5785	199.986	23.01	30	PASS
165	5825	125.314	20.98	30	PASS

802.11n (HT20)

CHANNEL	CHANNEL FREQUENCY (MHz)	MAXIMUM CONDUCTED POWER (mW)	MAXIMUM CONDUCTED POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
36	5180	162.930	22.12	30	PASS
40	5200	192.309	22.84	30	PASS
48	5240	297.167	24.73	30	PASS
149	5745	48.417	16.85	30	PASS
157	5785	202.302	23.06	30	PASS
165	5825	93.756	19.72	30	PASS

802.11n (HT40)

CHANNEL	CHANNEL FREQUENCY (MHz)	MAXIMUM CONDUCTED POWER (mW)	MAXIMUM CONDUCTED POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
38	5190	75.858	18.80	30	PASS
46	5230	200.447	23.02	30	PASS
151	5755	45.920	16.62	30	PASS
159	5795	114.288	20.58	30	PASS

802.11ac (VHT80)

CHANNEL	CHANNEL FREQUENCY (MHz)	MAXIMUM CONDUCTED POWER (mW)	MAXIMUM CONDUCTED POWER (dBm)	POWER LIMIT (dBm)	PASS/FAIL
42	5210	66.988	18.26	30	PASS
155	5775	46.774	16.70	30	PASS



A D T

2TX:
802.11a

CHAN.	FREQ. (MHz)	MAXIMUM CONDUCTED POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	20.26	19.31	191.480	22.82	30	PASS
40	5200	20.27	19.64	198.459	22.98	30	PASS
48	5240	23.91	22.32	416.645	26.20	30	PASS
149	5745	16.50	16.60	90.377	19.56	30	PASS
157	5785	19.95	19.56	189.220	22.77	30	PASS
165	5825	19.65	19.66	184.727	22.67	30	PASS

802.11n (HT20)

CHAN.	FREQ. (MHz)	MAXIMUM CONDUCTED POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
36	5180	20.04	19.35	187.024	22.72	30	PASS
40	5200	19.58	18.88	168.050	22.25	30	PASS
48	5240	21.60	20.15	248.058	23.95	30	PASS
149	5745	15.86	15.67	75.446	18.78	30	PASS
157	5785	19.40	19.14	169.131	22.28	30	PASS
165	5825	18.30	18.80	143.466	21.57	30	PASS

802.11n (HT40)

CHAN.	FREQ. (MHz)	MAXIMUM CONDUCTED POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
38	5190	17.39	16.83	103.023	20.13	30	PASS
46	5230	20.55	19.68	206.398	23.15	30	PASS
151	5755	15.01	14.29	58.549	17.68	30	PASS
159	5795	18.68	18.54	145.240	21.62	30	PASS



A D T

802.11ac (VHT80)

CHAN.	CHAN. FREQ. (MHz)	MAXIMUM CONDUCTED POWER (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1				
42	5210	16.34	15.32	77.094	18.87	30	PASS
155	5775	13.85	13.19	45.111	16.54	30	PASS

26dB BANDWIDTH:

1TX:

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
36	5180	33.21	PASS
40	5200	33.36	PASS
48	5240	23.04	PASS

802.11n (HT20)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
36	5180	34.24	PASS
40	5200	39.63	PASS
48	5240	44.47	PASS

802.11n (HT40)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
38	5190	48.66	PASS
46	5230	94.06	PASS

802.11n (VHT80)

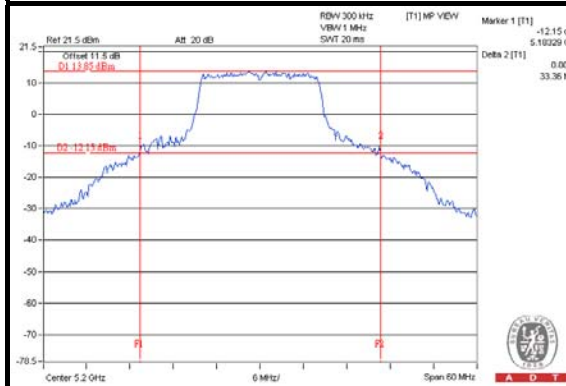
CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)	PASS / FAIL
42	5210	83.25	PASS



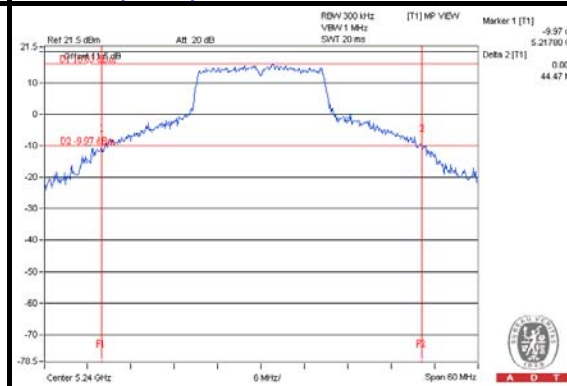
A D T

SPECTRUM PLOT OF WORST VALUE

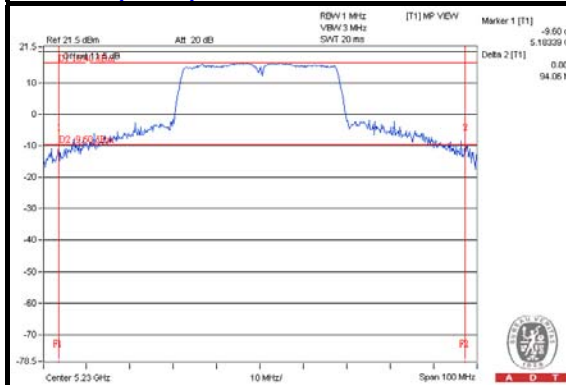
802.11a



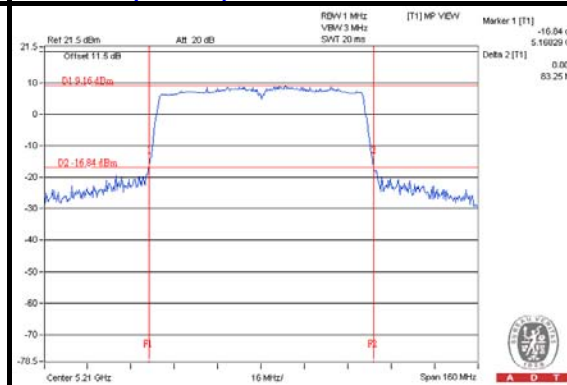
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



2TX:

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
36	5180	21.83	30.10	PASS
40	5200	21.80	32.66	PASS
48	5240	34.10	35.22	PASS

802.11n (HT20)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
36	5180	27.64	33.08	PASS
40	5200	28.32	29.71	PASS
48	5240	36.53	42.28	PASS

802.11n (HT40)

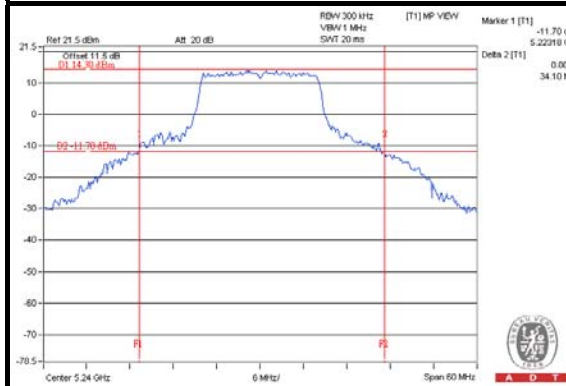
CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
38	5190	41.13	40.76	PASS
46	5230	67.22	60.45	PASS

802.11ac (VHT80)

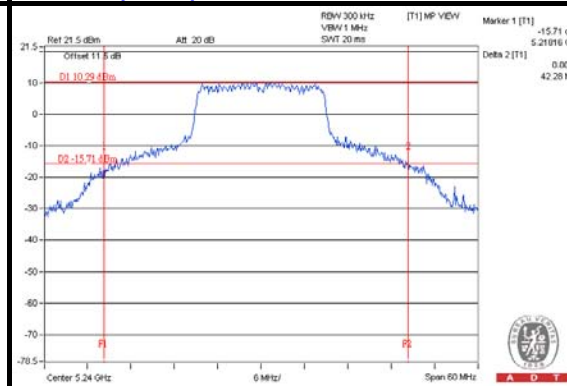
CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
42	5210	83.27	82.44	PASS

SPECTRUM PLOT OF WORST VALUE

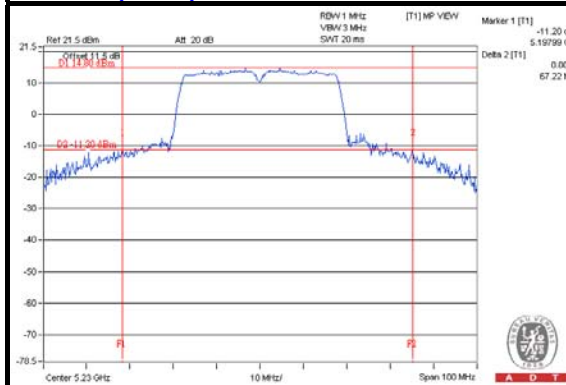
802.11a



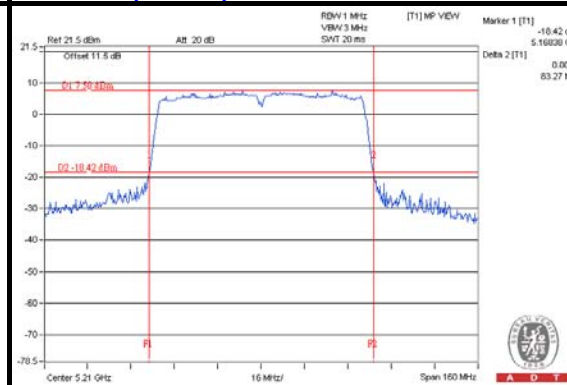
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



OCCUPIED BANDWIDTH:

1TX:

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	OCCUPIED BANDWIDTH (MHz)	PASS / FAIL
36	5180	18.17	PASS
40	5200	17.88	PASS
48	5240	17.16	PASS
149	5745	17.91	PASS
157	5785	33.60	PASS
165	5825	20.88	PASS

802.11n (HT20)

CHANNEL	CHANNEL FREQUENCY (MHz)	OCCUPIED BANDWIDTH (MHz)	PASS / FAIL
36	5180	18.24	PASS
40	5200	18.60	PASS
48	5240	19.84	PASS
149	5745	18.00	PASS
157	5785	25.08	PASS
165	5825	18.48	PASS

802.11n (HT40)

CHANNEL	CHANNEL FREQUENCY (MHz)	OCCUPIED BANDWIDTH (MHz)	PASS / FAIL
38	5190	36.80	PASS
46	5230	38.00	PASS
151	5755	37.00	PASS
159	5795	42.80	PASS

802.11n (VHT80)

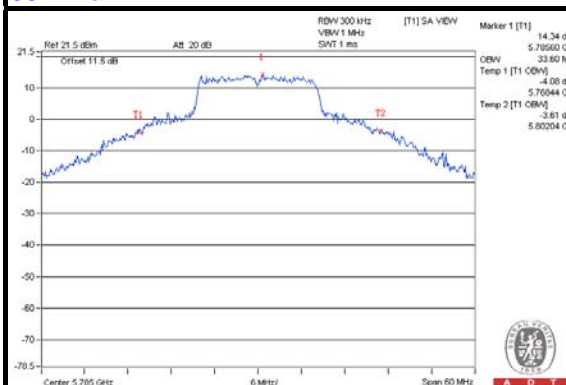
CHANNEL	CHANNEL FREQUENCY (MHz)	OCCUPIED BANDWIDTH (MHz)	PASS / FAIL
42	5210	75.84	PASS
155	5775	75.84	PASS



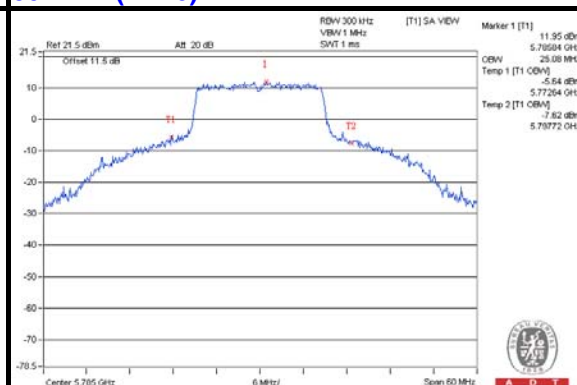
A D T

SPECTRUM PLOT OF WORST VALUE

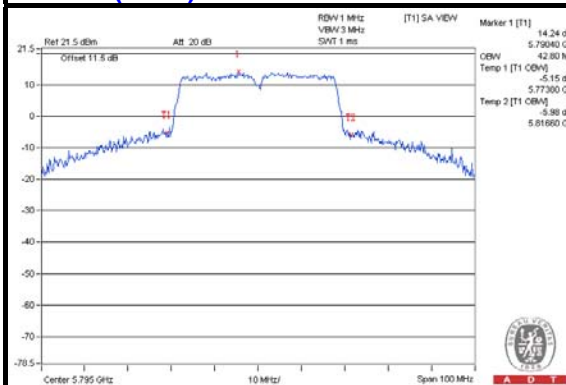
802.11a



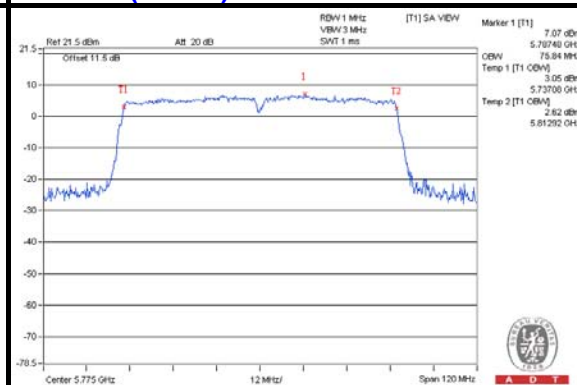
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



2TX:

802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	OCCUPIED BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
36	5180	16.92	17.16	PASS
40	5200	17.04	17.16	PASS
48	5240	18.60	18.60	PASS
149	5745	16.87	16.78	PASS
157	5785	19.56	17.04	PASS
165	5825	18.96	16.92	PASS

802.11n (HT20)

CHANNEL	CHANNEL FREQUENCY (MHz)	OCCUPIED BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
36	5180	18.00	18.00	PASS
40	5200	18.00	18.00	PASS
48	5240	18.24	20.16	PASS
149	5745	18.00	17.76	PASS
157	5785	18.84	18.00	PASS
165	5825	18.24	17.88	PASS

802.11n (HT40)

CHANNEL	CHANNEL FREQUENCY (MHz)	OCCUPIED BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
38	5190	36.80	36.60	PASS
46	5230	37.00	36.60	PASS
151	5755	36.80	36.60	PASS
159	5795	37.80	37.00	PASS

802.11ac (VHT80)

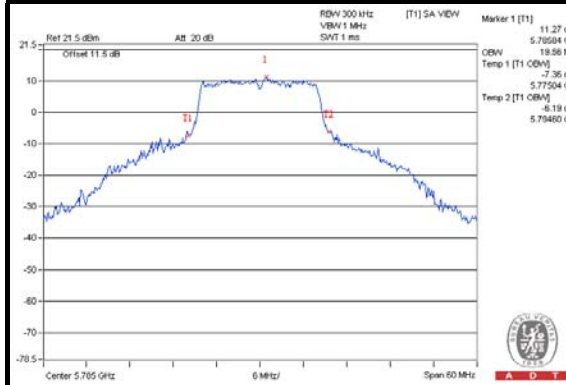
CHANNEL	CHANNEL FREQUENCY (MHz)	OCCUPIED BANDWIDTH (MHz)		PASS / FAIL
		CHAIN 0	CHAIN 1	
42	5210	75.84	75.84	PASS
155	5775	76.08	75.84	PASS



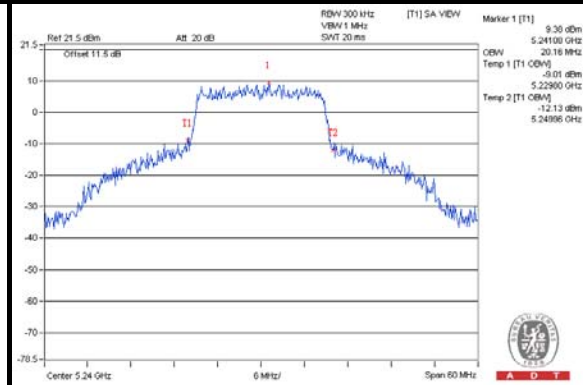
A D T

SPECTRUM PLOT OF WORST VALUE

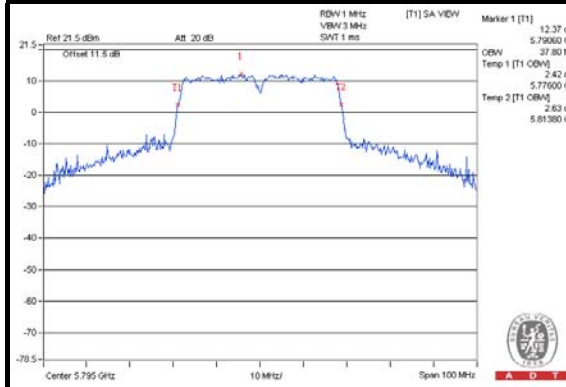
802.11a



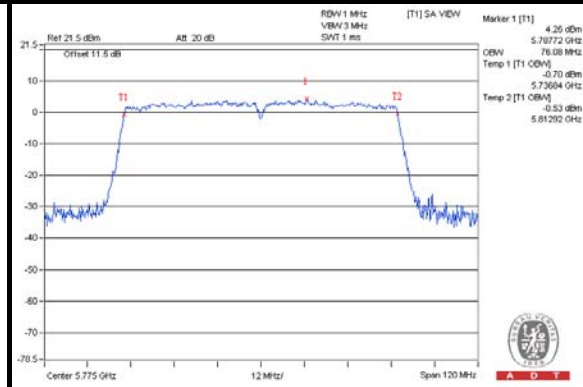
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



4.4 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.4.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

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

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

4.4.4 TEST PROCEDURES

For U-NII-1 band:

Without duty factor:

Using method SA-2

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 30 kHz, Set VBW \geq 1 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

With duty factor:

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 30 kHz, Set VBW \geq 1 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:

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 500 kHz, Set VBW \geq 3 RBW, Detector = RMS
- 3) Sweep time = auto, trigger set to “free run”.
- 4) Trace average at least 100 traces in power averaging mode.
- 5) Record the max value and add $10 \log (1/\text{duty cycle})$
- 6) 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 $\text{BWCF} = 10\log(500 \text{ kHz}/300\text{kHz})$

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITIONS

Same as 4.3.6.

4.4.7 TEST RESULTS

For U-NII-1 Band

1TX:
802.11a

CHANNEL	FREQUENCY (MHz)	PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	PSD WITH DUTY FACTOR (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	10.24	0.13	10.37	17	PASS
40	5200	10.13	0.13	10.26	17	PASS
48	5240	8.19	0.13	8.32	17	PASS

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

802.11n (HT20)

CHANNEL	FREQUENCY (MHz)	PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	PSD WITH DUTY FACTOR (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	9.21	0.11	9.32	17	PASS
40	5200	9.95	0.11	10.06	17	PASS
48	5240	11.69	0.11	11.80	17	PASS

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

802.11n (HT40)

CHANNEL	FREQUENCY (MHz)	PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	PSD WITH DUTY FACTOR (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
38	5190	2.91	1.20	4.11	17	PASS
46	5230	6.76	1.20	7.96	17	PASS

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

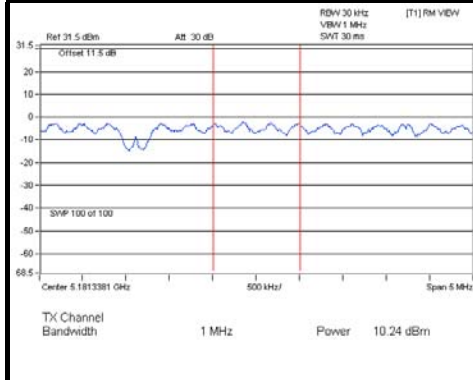
802.11n (VHT80)

CHANNEL	FREQUENCY (MHz)	PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	PSD WITH DUTY FACTOR (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
42	5210	-1.16	0.47	-0.69	17	PASS

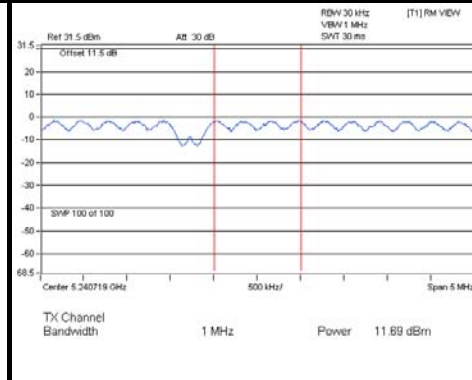
NOTE: Refer to section 3.3 for duty cycle spectrum plot.

SPECTRUM PLOT OF WORST VALUE

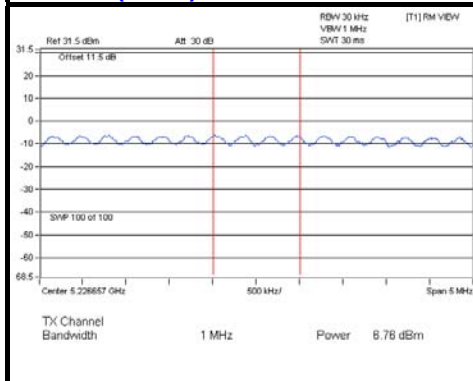
802.11a



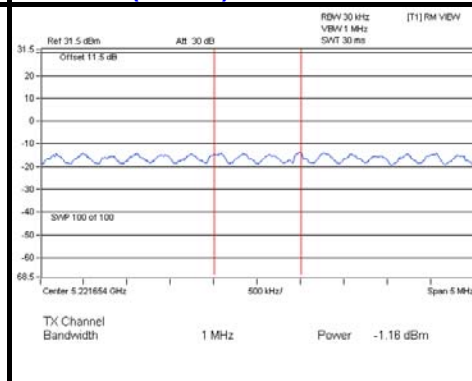
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



2TX: 802.11a

CHAN.	FREQ. (MHz)	PSD (dBm)		TOTAL PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	TOTAL PSD WITH DUTY FACTOR (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1					
36	5180	8.69	7.36	11.09	0.10	11.19	16.39	PASS
40	5200	8.04	7.68	10.88	0.10	10.98	16.39	PASS
48	5240	10.53	9.73	13.16	0.10	13.26	16.39	PASS

NOTE:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $3.6\text{dBi} + 10\log(2) = 6.61\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17 - (6.61 - 6) = 16.39\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1			
36	5180	8.07	7.06	10.60	16.39	PASS
40	5200	8.03	7.58	10.82	16.39	PASS
48	5240	8.99	7.41	11.28	16.39	PASS

NOTE:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $3.6\text{dBi} + 10\log(2) = 6.61\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17 - (6.61 - 6) = 16.39\text{dBm}$.

802.11n (HT40)

CHAN.	FREQ. (MHz)	PSD (dBm)		TOTAL PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	TOTAL PSD WITH DUTY FACTOR (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1					
38	5190	1.44	1.03	4.25	0.46	4.71	16.39	PASS
46	5230	4.49	3.63	7.09	0.46	7.55	16.39	PASS

NOTE:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $3.6\text{dBi} + 10\log(2) = 6.61\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17 - (6.61 - 6) = 16.39\text{dBm}$.
3. Refer to section 3.3 for duty cycle spectrum plot.



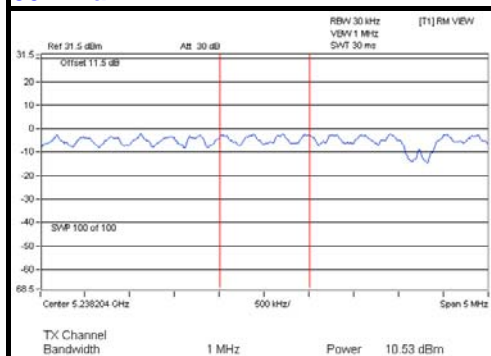
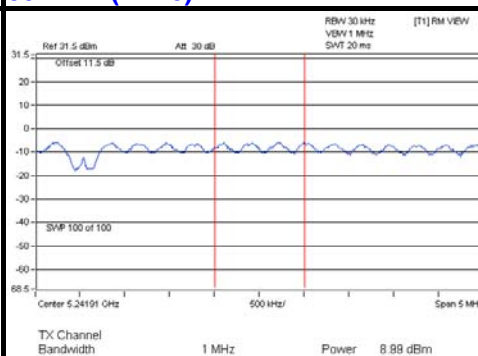
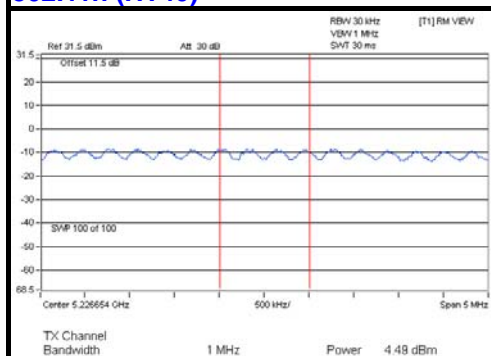
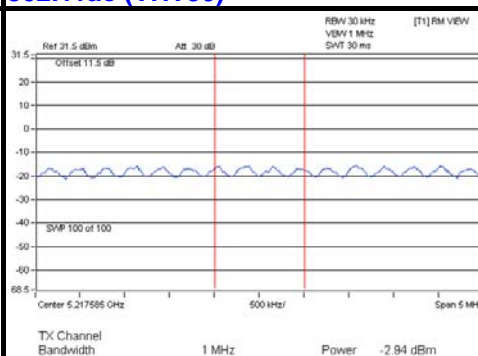
A D T

802.11ac (VHT80)

CHAN.	FREQ. (MHz)	PSD (dBm)		TOTAL PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	TOTAL PSD WITH DUTY FACTOR (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1					
42	5210	-2.94	-4.07	-0.46	0.47	0.01	16.39	PASS

NOTE:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = $3.6\text{dBi} + 10\log(2) = 6.61\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17 - (6.61 - 6) = 16.39\text{dBm}$.
3. 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)**

For U-NII-3 Band

1TX:

802.11a

Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	Duty Factor	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	PASS /FAIL
149	5745	2.70	4.92	0.13	5.05	30	PASS
157	5785	6.29	8.51	0.13	8.64	30	PASS
165	5825	3.93	6.15	0.13	6.28	30	PASS

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

802.11n (HT20)

Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	Duty Factor	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	PASS /FAIL
149	5745	-0.58	1.64	0.11	1.75	30	PASS
157	5785	4.07	6.29	0.11	6.40	30	PASS
165	5825	2.50	4.72	0.11	4.83	30	PASS

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

802.11n (HT40)

Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	Duty Factor	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	PASS /FAIL
151	5755	-3.46	-1.24	1.20	-0.04	30	PASS
159	5795	0.45	2.67	1.20	3.87	30	PASS

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

802.11ac (VHT80)

Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	Duty Factor	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	PASS /FAIL
155	5775	-6.95	-4.73	0.47	-4.26	30	PASS

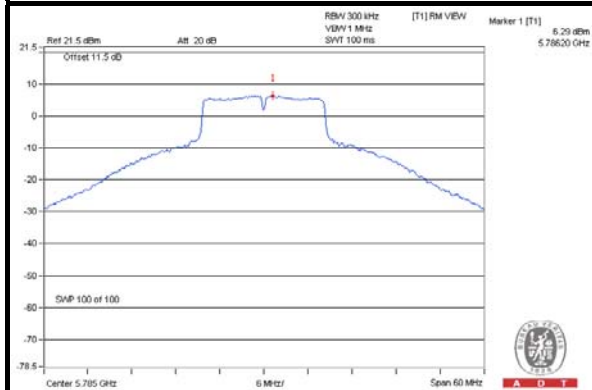
NOTE: Refer to section 3.3 for duty cycle spectrum plot.



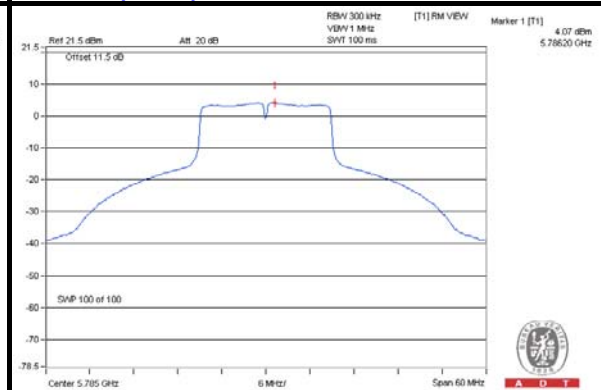
A D T

SPECTRUM PLOT OF WORST VALUE

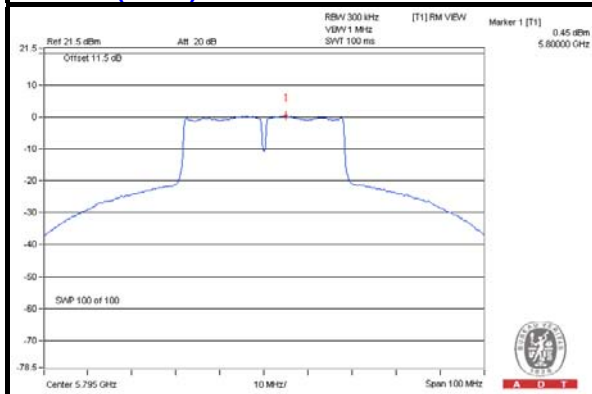
802.11a



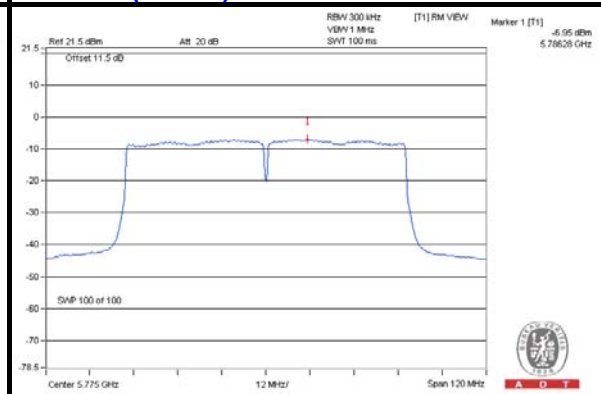
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



2TX:

802.11a

TX chain	Chan.	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=2) dB	Duty Factor	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	PASS /FAIL
0	149	5745	0.35	2.57	3.01	0.1	5.68	29.66	PASS
	157	5785	3.80	6.02	3.01	0.1	9.13	29.66	PASS
	165	5825	3.14	5.36	3.01	0.1	8.47	29.66	PASS
1	149	5745	-0.04	2.18	3.01	0.1	5.29	29.66	PASS
	157	5785	2.81	5.03	3.01	0.1	8.14	29.66	PASS
	165	5825	2.83	5.05	3.01	0.1	8.16	29.66	PASS

NOTE:

1. Directional gain = $3.33\text{dBi} + 10\log(2) = 6.34\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $30-(6.34-6) = 29.66\text{dBm}$.
2. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Channel	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=2) dB	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	PASS /FAIL
0	149	5745	-1.08	1.14	3.01	4.15	29.66	PASS
	157	5785	2.82	5.04	3.01	8.05	29.66	PASS
	165	5825	1.66	3.88	3.01	6.89	29.66	PASS
1	149	5745	-1.99	0.23	3.01	3.24	29.66	PASS
	157	5785	2.16	4.38	3.01	7.39	29.66	PASS
	165	5825	1.59	3.81	3.01	6.82	29.66	PASS

NOTE: Directional gain = $3.33\text{dBi} + 10\log(2) = 6.34\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $30-(6.34-6) = 29.66\text{dBm}$.

802.11n (HT40)

TX chain	Chan.	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=2) dB	Duty Factor	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	PASS /FAIL
0	151	5755	-4.34	-2.12	3.01	0.46	1.35	29.66	PASS
	159	5795	-1.10	1.12	3.01	0.46	4.59	29.66	PASS
1	151	5755	-5.67	-3.45	3.01	0.46	0.02	29.66	PASS
	159	5795	-1.34	0.88	3.01	0.46	4.35	29.66	PASS

NOTE:

1. Directional gain = $3.33\text{dBi} + 10\log(2) = 6.34\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $30-(6.34-6) = 29.66\text{dBm}$.
2. Refer to section 3.3 for duty cycle spectrum plot.



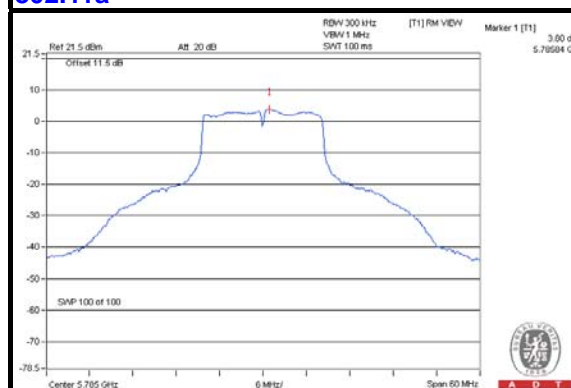
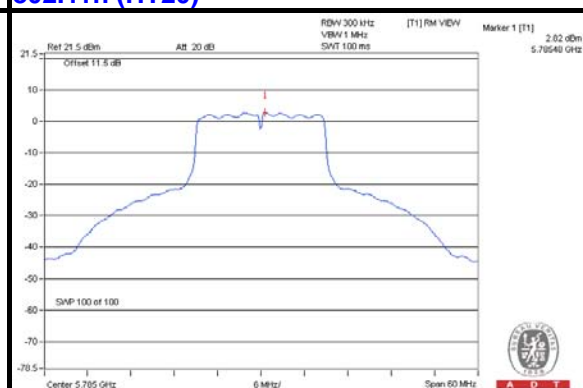
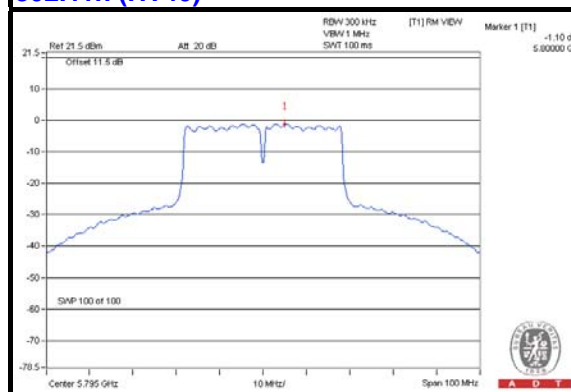
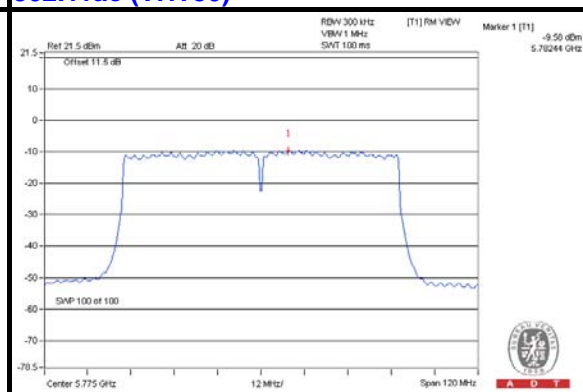
A D T

802.11ac (VHT80)

TX chain	Chan.	Freq. (MHz)	PSD (dBm/300kHz)	PSD (dBm/500kHz)	10 log (N=2) dB	Duty Factor	Total PSD (dBm/500kHz)	Limit (dBm/500kHz)	PASS /FAIL
0	155	5775	-9.58	-7.36	3.01	0.47	-3.88	29.66	PASS
1	155	5775	-10.43	-8.21	3.01	0.47	-4.73	29.66	PASS

NOTE:

1. Directional gain = $3.33\text{dBi} + 10\log(2) = 6.34\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $30 - (6.34 - 6) = 29.66\text{dBm}$.
2. Refer to section 3.3 for duty cycle spectrum plot.

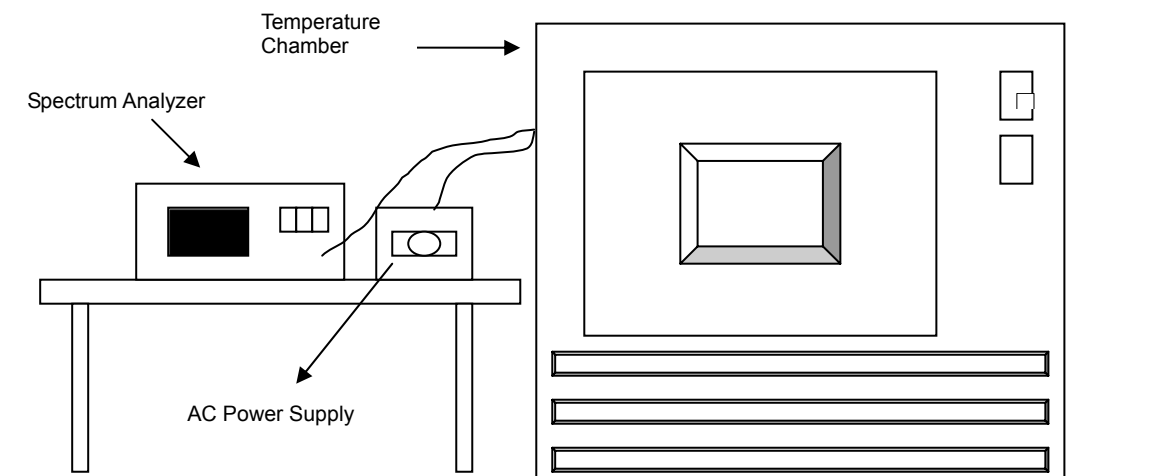
SPECTRUM PLOT OF WORST VALUE**802.11a****802.11n (HT20)****802.11n (HT40)****802.11ac (VHT80)**

4.5 FREQUENCY STABILITY

4.5.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

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

4.5.2 TEST SETUP



4.5.3 TEST INSTRUMENTS

Refer to section 4.1.3 to get information of above instrument.

4.5.4 TEST PROCEDURE

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

4.5.5 DEVIATION FROM TEST STANDARD

No deviation.

4.5.6 EUT OPERATING CONDITION

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

4.5.7 TEST RESULTS

1TX:

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5200MHz									
TEMP. (°C)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
55	120	5199.9892	-0.00021	5199.9874	-0.00024	5199.9916	-0.00016	5199.9920	-0.00015
50	120	5199.9778	-0.00043	5199.9744	-0.00049	5199.9777	-0.00043	5199.9779	-0.00043
40	120	5199.9751	-0.00048	5199.9751	-0.00048	5199.9758	-0.00047	5199.9776	-0.00043
30	120	5199.9754	-0.00047	5199.9731	-0.00052	5199.9738	-0.00050	5199.9768	-0.00045
20	120	5200.0127	0.00024	5200.0140	0.00027	5200.0169	0.00032	5200.0126	0.00024
10	120	5200.0248	0.00048	5200.0237	0.00046	5200.0224	0.00043	5200.0248	0.00048
0	120	5199.9836	-0.00032	5199.9873	-0.00024	5199.9842	-0.00030	5199.9858	-0.00027

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5200MHz									
TEMP. (°C)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	138	5199.9750	-0.00048	5199.9726	-0.00053	5199.9739	-0.00050	5199.9772	-0.00044
	120	5199.9754	-0.00047	5199.9731	-0.00052	5199.9738	-0.00050	5199.9768	-0.00045
	102	5199.9745	-0.00049	5199.9735	-0.00051	5199.9745	-0.00049	5199.9772	-0.00044

2TX:

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5200MHz									
TEMP. (°C)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
55	120	5199.9827	-0.00033	5199.9791	-0.00040	5199.9827	-0.00033	5199.9819	-0.00035
50	120	5199.9919	-0.00016	5199.9929	-0.00014	5199.9901	-0.00019	5199.9923	-0.00015
40	120	5199.9878	-0.00023	5199.9831	-0.00032	5199.9869	-0.00025	5199.9865	-0.00026
30	120	5199.9751	-0.00048	5199.9760	-0.00046	5199.9741	-0.00050	5199.9738	-0.00050
20	120	5200.0043	0.00008	5200.0075	0.00014	5200.0090	0.00017	5200.0058	0.00011
10	120	5199.9936	-0.00012	5199.9907	-0.00018	5199.9913	-0.00017	5199.9926	-0.00014
0	120	5199.9864	-0.00026	5199.9862	-0.00027	5199.9839	-0.00031	5199.9847	-0.00029

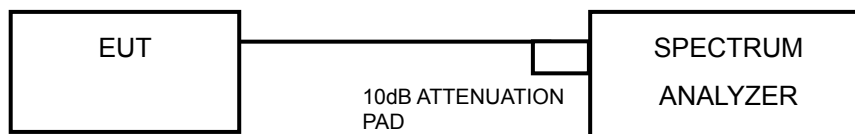
FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5200MHz									
TEMP. (°C)	POWER SUPPLY (Vac)	0 MINUTE		2 MINUTE		5 MINUTE		10 MINUTE	
		Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)	Measured Frequency (MHz)	Frequency Drift (%)
20	138	5199.9761	-0.00046	5199.9766	-0.00045	5199.9735	-0.00051	5199.9745	-0.00049
	120	5199.9751	-0.00048	5199.976	-0.00046	5199.9741	-0.00050	5199.9738	-0.00050
	102	5199.9757	-0.00047	5199.9751	-0.00048	5199.9734	-0.00051	5199.9742	-0.00050

4.6 6dB BANDWIDTH MEASUREMENT

4.6.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

4.6.2 TEST SETUP



4.6.3 TEST INSTRUMENTS

Refer to section 4.1.2 to get information of above instrument.

4.6.4 TEST PROCEDURE

- 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

4.6.5 DEVIATION FROM TEST STANDARD

No deviation.

4.6.6 EUT OPERATING CONDITIONS

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

4.6.7 TEST RESULTS

1TX:

802.11a

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	16.37	0.5	PASS
157	5785	16.41	0.5	PASS
165	5825	16.39	0.5	PASS

802.11n (HT20)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	17.65	0.5	PASS
157	5785	17.62	0.5	PASS
165	5825	17.64	0.5	PASS

802.11n (HT40)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
151	5755	36.36	0.5	PASS
159	5795	36.42	0.5	PASS

802.11ac (VHT80)

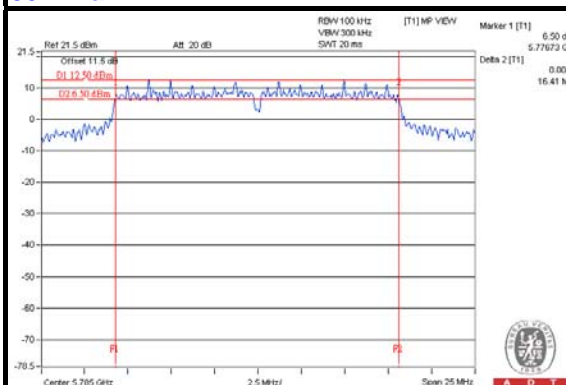
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
155	5775	75.92	0.5	PASS



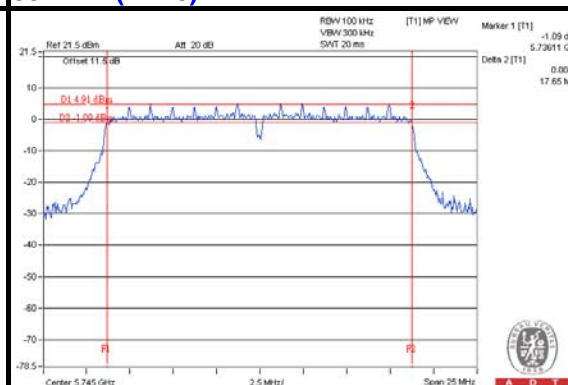
A D T

SPECTRUM PLOT OF WORST VALUE

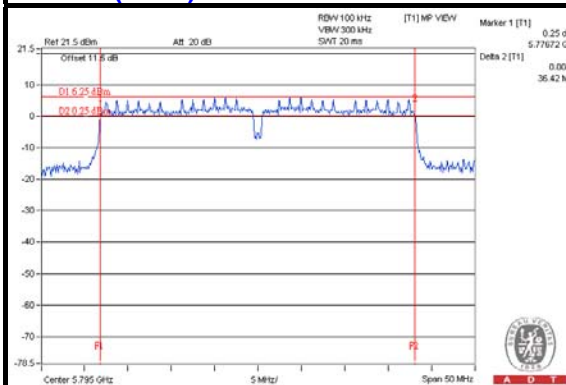
802.11a



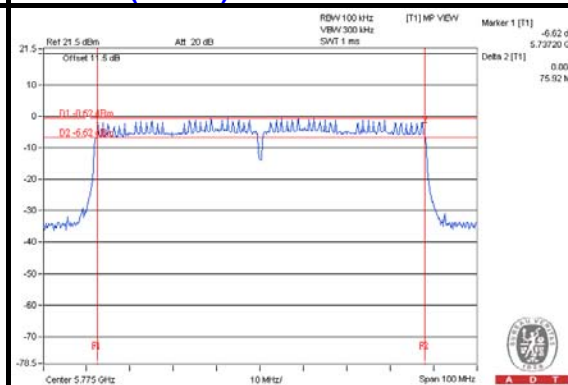
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



2TX:

802.11a

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
149	5745	16.34	16.42	0.5	PASS
157	5785	16.14	16.41	0.5	PASS
165	5825	16.33	16.42	0.5	PASS

802.11n (HT20)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
149	5745	17.36	17.68	0.5	PASS
157	5785	17.31	17.65	0.5	PASS
165	5825	17.59	17.66	0.5	PASS

802.11n (HT40)

CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
151	5755	36.43	36.47	0.5	PASS
159	5795	36.21	36.44	0.5	PASS

802.11ac (VHT80)

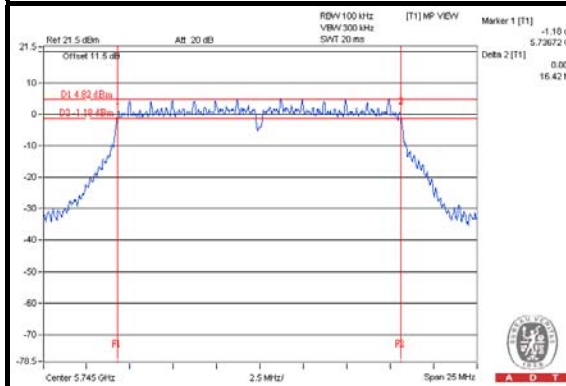
CHANNEL	FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN 0	CHAIN 1		
155	5775	76.23	76.42	0.5	PASS



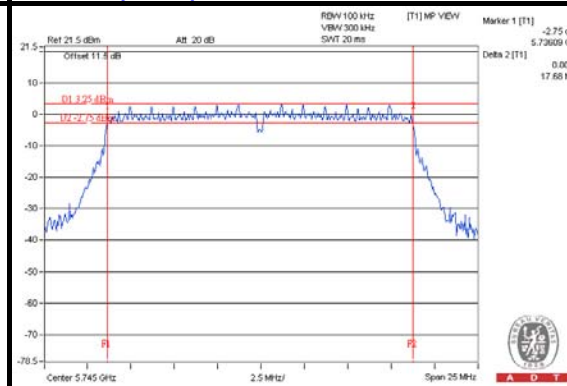
A D T

SPECTRUM PLOT OF WORST VALUE

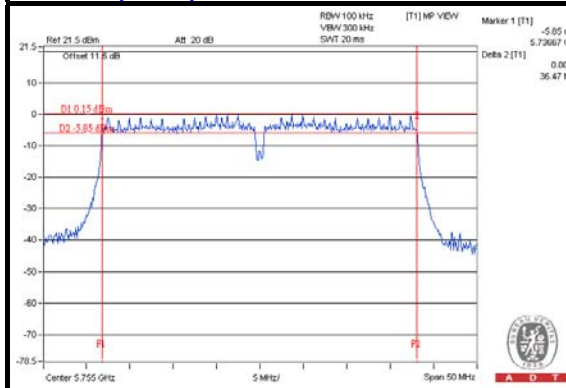
802.11a



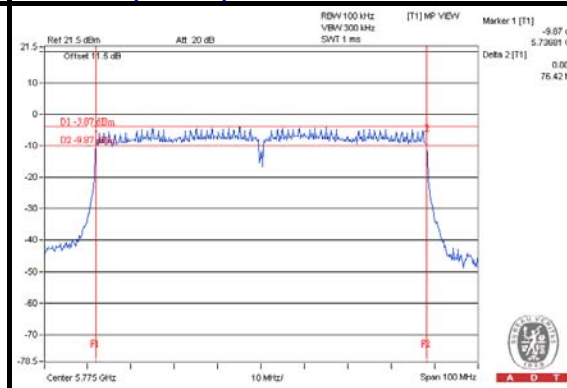
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



5. PHOTOGRAPHS OF THE TEST CONFIGURATION

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

6. INFORMATION ON THE TESTING LABORATORIES

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

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

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Lab:

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

7. APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No modifications were made to the EUT by the lab during the test.

---END---