

FCC TEST REPORT (15.407)

REPORT NO.: RF130319C23A-1

MODEL NO.: SBG6782-ACHU DIAGNOSTIC
(Refer to item 3.1 for more details)

FCC ID: W5HSBG6782ACH

RECEIVED: Sep. 24, 2014

TESTED: Dec. 22, 2014 ~ Feb. 10, 2015

ISSUED: Feb. 12, 2015

APPLICANT: ARRIS Taiwan, Ltd.

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ISSUED BY: Bureau Veritas Consumer Products Services
(H.K.) Ltd., Taoyuan Branch

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF130319C23A-1	Original release.	Feb. 12, 2015

1. CERTIFICATION

PRODUCT: Wireless Gateway

MODEL: SBG6782-ACHU DIAGNOSTIC

(Refer to item 3.1 for more details)

BRAND: Arris

APPLICANT: ARRIS Taiwan, Ltd.

TESTED: Dec. 22, 2014 ~ Feb. 10, 2015

TEST SAMPLE: ENGINEERING SAMPLE

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

ANSI C63.10-2009

The above equipment (model: SBG6782-ACHU DIAGNOSTIC) 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 : Celine Chou , **DATE :** Feb. 12, 2015
Celine Chou / Specialist

APPROVED BY : Ken Liu , **DATE :** Feb. 12, 2015
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 -10.42dB at 0.36505MHz.
15.407(b)(1/2/3/4/6)	Radiated Emissions & Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.1dB at 5105.00MHz.
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 are UFL, IPEX and Murata 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	3.59 dB
	200MHz ~1000MHz	3.60 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 Gateway
MODEL NO.	SBG6782-ACHU DIAGNOSTIC (Refer to note for more details)
POWER SUPPLY	100-240Vac
MODULATION TYPE	256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
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 450.0Mbps 802.11ac: up to 1300Mbps
OPERATING FREQUENCY	5180 ~ 5240MHz
NUMBER OF CHANNEL	4 for 802.11a, 802.11n (20MHz), 802.11ac (20MHz) 2 for 802.11n (40MHz), 802.11ac (40MHz) 1 for 802.11ac (80MHz)
OUTPUT POWER	818.287mW
ANTENNA TYPE	Refer to note
ANTENNA CONNECTOR	Refer to note
DATA CABLE	1.5m non-shielded Diagnostic cable w/o core (for SBG6782-ACHU DIAGNOSTIC only) 1.8m non-shielded RJ45 cable w/o core
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	1.5m non-shielded power cable w/o core

NOTE:

1. This report is prepared for FCC class II permissive change. The differences compared with the original design are changing applicant and brand name, software change adding Beamforming mode and updating standard to the FCC new rule for U-NII 1 Band.
2. All models are listed as below.

Brand	Model	Remark
Motorola	SBG6782-ACHU DIAGNOSTIC	with Diagnostic & USB port
	SBG6782-ACH	without Diagnostic & USB port

*After pre-testing, the model: SBG6782-ACHU DIAGNOSTIC was the worst case for the final test and presented in the test report.

3. The following antenna is provided to the EUT.

Antenna type	Band	Antenna Connector	Antenna gain (dBi)
Printed (Ant. 0)	2.4GHz	UFL	4.4
	5GHz	Murata	3.5
Printed (Ant. 1)	2.4GHz	IPEX	4.4
	5GHz	IPEX	3.5
Printed (Ant. 2)	2.4GHz	IPEX	4.4
	5GHz	UFL	3.5

4. The EUT incorporates a MIMO function. Physically, the EUT provides 3 completed transmitters and 3 receivers.

MODULATION MODE		TX FUNCTION
802.11a		1TX
802.11n (20MHz)	CDD Mode	3TX
	STBC Mode	
	Beamforming Mode	
802.11n (40MHz)	CDD Mode	3TX
	STBC Mode	
	Beamforming Mode	
802.11ac (80MHz)	CDD Mode	3TX
	STBC Mode	
	Beamforming Mode	

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

3.2 DESCRIPTION OF TEST MODES

4 channels are provided for 802.11a, 802.11n (20MHz), 802.11ac (20MHz):

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

2 channels are provided for 802.11n (40MHz), 802.11ac (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (80MHz):

CHANNEL	FREQUENCY
42	5210MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE $\geq$ 1G	RE<1G	PLC	APCM	
-	√	√	√	√	Adapter 2

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 Z-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	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6.0
CDD, STBC, Beamforming	802.11n (20MHz)	36 to 48	36, 40, 48	OFDM	BPSK	7.2
	802.11n (40MHz)	38 to 46	38, 46	OFDM	BPSK	15.0
	802.11ac (80MHz)	42	42	OFDM	BPSK	87.8

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	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
CDD, STBC, Beamforming	802.11n (20MHz)	36 to 48	36	OFDM	BPSK	7.2

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	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
CDD, STBC, Beamforming	802.11n (20MHz)	36 to 48	36	OFDM	BPSK	7.2

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	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	36 to 48	36, 40, 48	OFDM	BPSK	6.0
CDD, STBC, Beamforming	802.11n (20MHz)	36 to 48	36, 40, 48	OFDM	BPSK	7.2
	802.11n (40MHz)	38 to 46	38, 46	OFDM	BPSK	15.0
	802.11ac (80MHz)	42	42	OFDM	BPSK	87.8

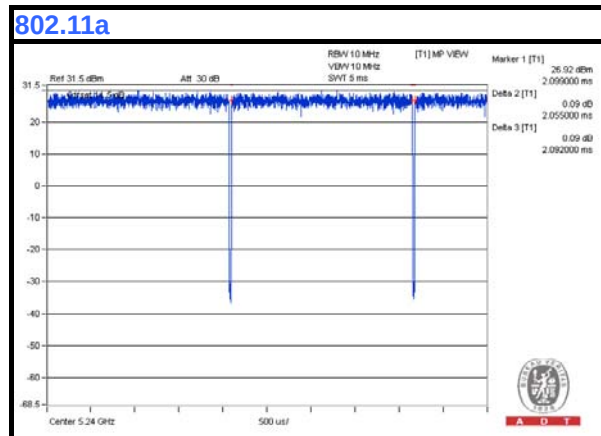
TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE _≥ 1G	22deg. C, 65%RH 25deg. C, 64%RH	120Vac, 60Hz	Alan Wu
RE _{<} 1G	23deg. C, 62%RH	120Vac, 60Hz	Alan Wu
PLC	25deg. C, 65%RH	120Vac, 60Hz	Chris Lin
APCM	25deg. C, 60%RH 24deg. C, 64%RH	120Vac, 60Hz	Match Tsui

3.3 DUTY CYCLE OF TEST SIGNAL

802.11a, 802.11n (20MHz): Duty cycle of test signal is > 98 %, duty factor is not required.

802.11a: Duty cycle = $2.055/2.092 = 0.982$





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CDD MODE:

802.11n (20MHz): Duty cycle of test signal is > 98 %, duty factor is not required.

802.11n (40MHz), 802.11ac (80MHz): Duty cycle of test signal is < 98 %, duty factor shall be considered.

802.11n (20MHz): Duty cycle = $1.911/1.949 = 0.981$

802.11n (40MHz): Duty cycle = $0.938/0.970 = 0.967$, Duty factor = $10 * \log(1/0.967) = 0.15$

802.11ac (80MHz): Duty cycle = $0.452/0.494 = 0.915$, Duty factor = $10 * \log(1/0.915) = 0.39$



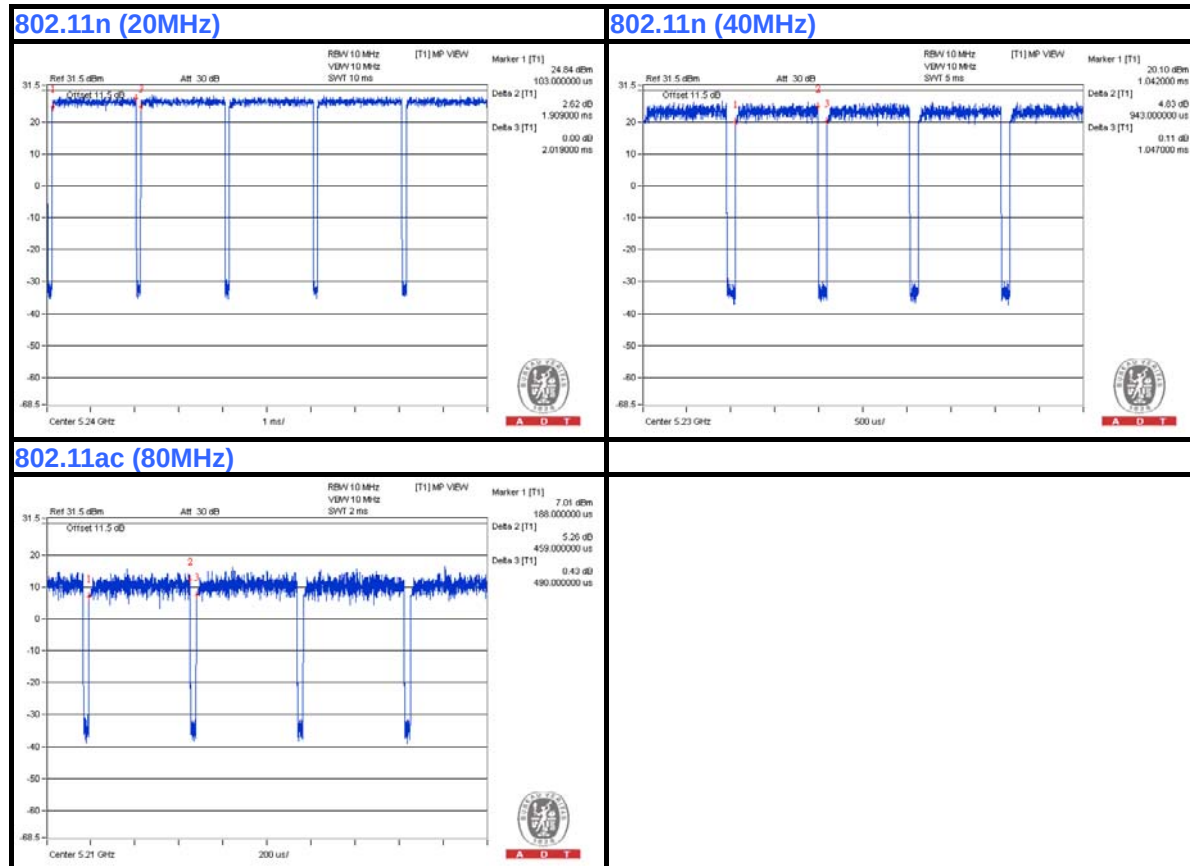
STBC MODE:

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

802.11n (20MHz): Duty cycle = $1.909/2.019 = 0.946$, Duty factor = $10 * \log(1/0.946) = 0.24$

802.11n (40MHz): Duty cycle = $0.943/1.047 = 0.901$, Duty factor = $10 * \log(1/0.901) = 0.45$

802.11ac (80MHz): Duty cycle = $0.459/0.490 = 0.937$, Duty factor = $10 * \log(1/0.937) = 0.28$



BEAMFORMING MODE:

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

802.11n (20MHz): Duty cycle = $1.915/2.023 = 0.947$, Duty factor = $10 * \log(1/0.947) = 0.24$

802.11n (40MHz): Duty cycle = $0.937/0.982 = 0.954$, Duty factor = $10 * \log(1/0.954) = 0.20$

802.11ac (80MHz): Duty cycle = $0.448/0.493 = 0.909$, Duty factor = $10 * \log(1/0.909) = 0.42$



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.

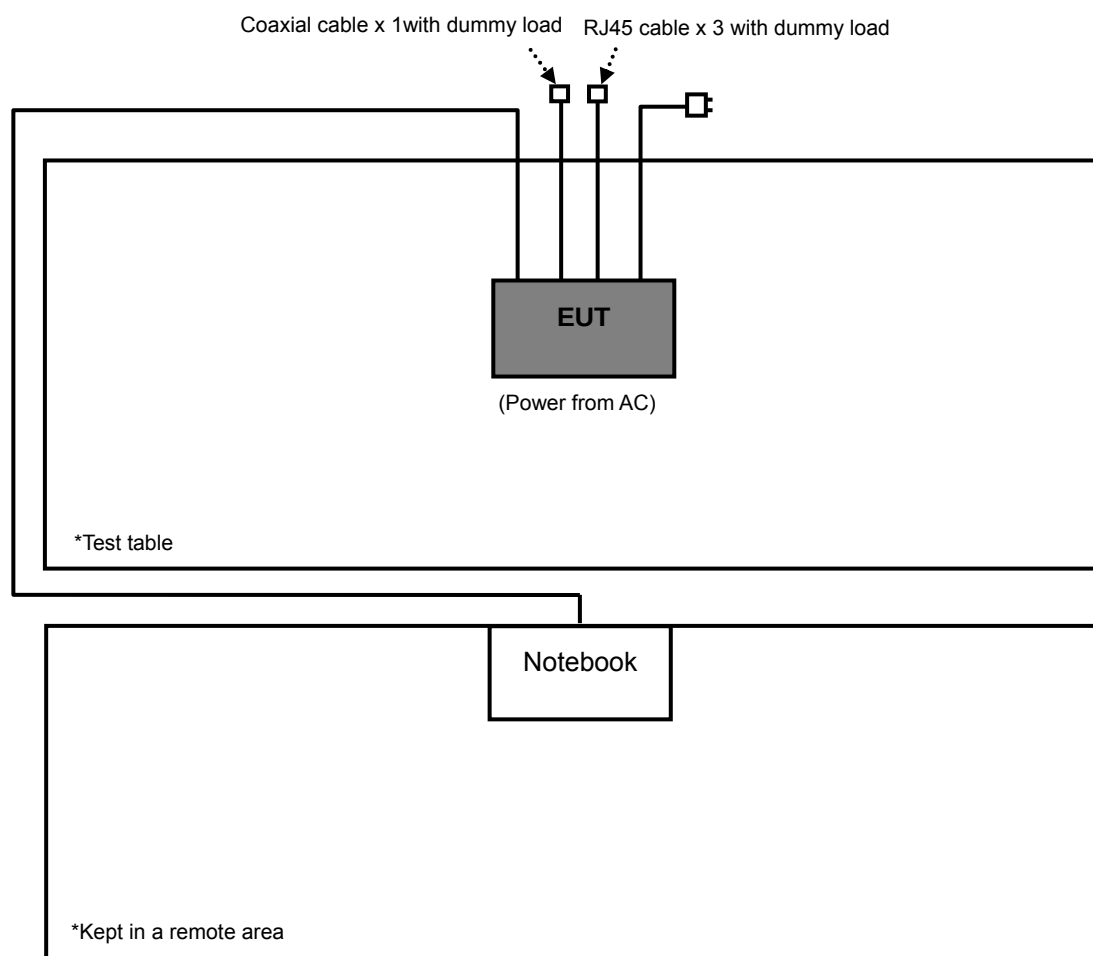
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK	DELL	E5430	2RL3YW1	FCC DoC Approved

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

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: 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.

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	Oct. 06, 2014	Oct. 05, 2015
Spectrum Analyzer ROHDE & SCHWARZ	FSU 43	100115	Dec. 18, 2014	Dec. 17, 2015
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Feb. 06, 2014 Feb. 06, 2015	Feb. 05, 2015 Feb. 05, 2016
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Feb. 05, 2014 Feb. 05, 2015	Feb. 04, 2015 Feb. 04, 2016
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Feb. 09, 2014 Feb. 09, 2015	Feb. 08, 2015 Feb. 08, 2016
Preamplifier Agilent	8449B	3008A01961	Oct. 18, 2014	Oct. 17, 2015
Preamplifier Agilent	8447D	2944A10738	Oct. 18, 2014	Oct. 17, 2015
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	309220/4	Aug. 09, 2014	Aug. 08, 2015
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	250724/4	Aug. 09, 2014	Aug. 08, 2015
RF signal cable HUBER+SUHNNER	SUCOFLEX 104	295012/4	Aug. 09, 2014	Aug. 08, 2015
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, 2014	Oct. 17, 2015
High Speed Peak Power Meter	ML2495A	0824011	Jul. 26, 2014	Jul. 25, 2015
Power Sensor	MA2411B	0738171	Jul. 26, 2014	Jul. 25, 2015

- 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:

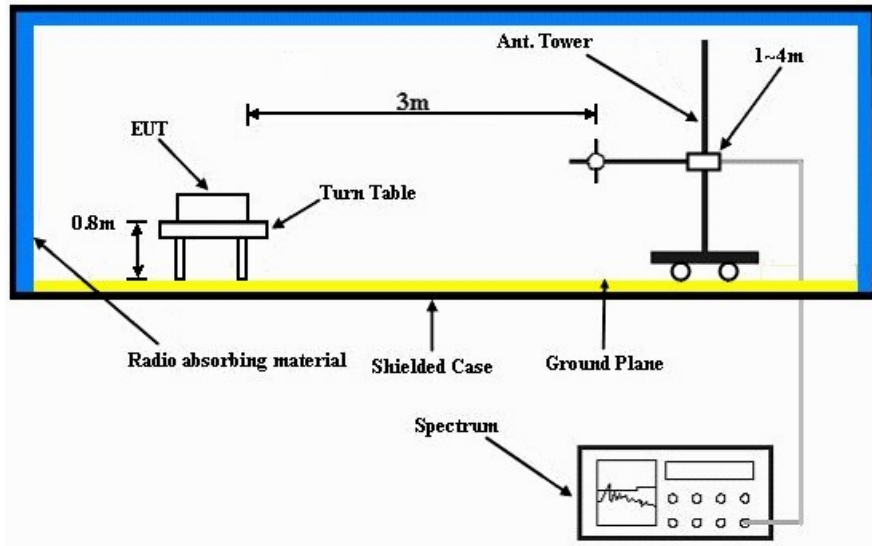
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

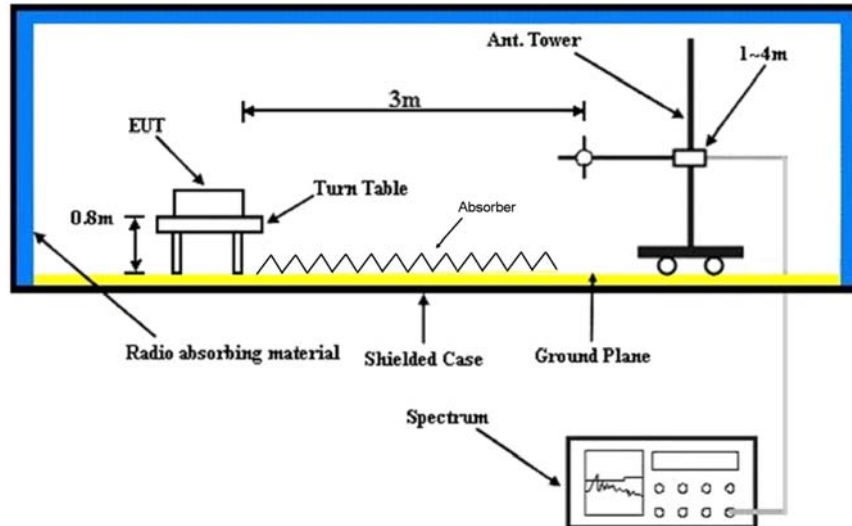
No deviation.

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 a communication partner and placed it outside of testing area.
- c. The communication partner connected with EUT via a RJ45 cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- d. The communication partners sent data to EUT by command "PING".

4.1.8 TEST RESULTS

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	62.8 PK	74.0	-11.2	1.21 H	272	57.30	5.50
2	5100.00	51.2 AV	54.0	-2.8	1.21 H	272	45.70	5.50
3	5150.00	70.5 PK	74.0	-3.5	1.19 H	272	64.80	5.70
4	5150.00	53.6 AV	54.0	-0.4	1.19 H	272	47.90	5.70
5	*5180.00	115.0 PK			1.18 H	270	75.50	39.50
6	*5180.00	104.7 AV			1.18 H	270	65.20	39.50
7	#10360.00	60.9 PK	74.0	-13.1	1.00 H	311	42.40	18.50
8	#10360.00	48.0 AV	54.0	-6.0	1.00 H	311	29.50	18.50
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	5100.00	63.6 PK	74.0	-10.4	1.00 V	71	58.10	5.50
2	5100.00	52.2 AV	54.0	-1.8	1.00 V	71	46.70	5.50
3	5150.00	69.3 PK	74.0	-4.7	1.00 V	62	63.60	5.70
4	5150.00	52.6 AV	54.0	-1.4	1.00 V	62	46.90	5.70
5	*5180.00	113.9 PK			1.00 V	68	74.40	39.50
6	*5180.00	104.0 AV			1.00 V	68	64.50	39.50
7	#10360.00	60.7 PK	74.0	-13.3	1.00 V	330	42.20	18.50
8	#10360.00	47.2 AV	54.0	-6.8	1.00 V	330	28.70	18.50

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)
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	64.0 PK	74.0	-10.0	1.21 H	273	58.50	5.50
2	5120.00	52.6 AV	54.0	-1.4	1.21 H	273	47.10	5.50
3	*5200.00	113.7 PK			1.15 H	263	74.10	39.60
4	*5200.00	103.6 AV			1.15 H	263	64.00	39.60
5	#10400.00	60.1 PK	74.0	-13.9	1.00 H	314	41.80	18.30
6	#10400.00	47.4 AV	54.0	-6.6	1.00 H	314	29.10	18.30
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	5120.00	64.6 PK	74.0	-9.4	1.00 V	65	59.10	5.50
2	5120.00	53.5 AV	54.0	-0.5	1.00 V	65	48.00	5.50
3	*5200.00	113.3 PK			1.00 V	70	73.70	39.60
4	*5200.00	103.3 AV			1.00 V	70	63.70	39.60
5	#10400.00	60.0 PK	74.0	-14.0	1.00 V	336	41.70	18.30
6	#10400.00	46.6 AV	54.0	-7.4	1.00 V	336	28.30	18.30

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)
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	64.6 PK	68.2	-3.6	1.18 H	272	58.90	5.70
2	*5240.00	115.6 PK			1.17 H	267	76.00	39.60
3	*5240.00	105.3 AV			1.17 H	267	65.70	39.60
4	5350.00	58.5 PK	74.0	-15.5	1.16 H	263	52.70	5.80
5	5350.00	45.9 AV	54.0	-8.1	1.16 H	263	40.10	5.80
6	#10480.00	61.2 PK	74.0	-12.8	1.00 H	319	43.50	17.70
7	#10480.00	48.4 AV	54.0	-5.6	1.00 H	319	30.70	17.70
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	#5160.00	64.0 PK	68.2	-4.2	1.00 V	73	58.30	5.70
2	*5240.00	114.5 PK			1.00 V	50	74.90	39.60
3	*5240.00	104.8 AV			1.00 V	50	65.20	39.60
4	5350.00	57.7 PK	74.0	-16.3	1.00 V	51	51.90	5.80
5	5350.00	44.9 AV	54.0	-9.1	1.00 V	51	39.10	5.80
6	#10480.00	60.9 PK	74.0	-13.1	1.00 V	338	43.20	17.70
7	#10480.00	47.8 AV	54.0	-6.2	1.00 V	338	30.10	17.70

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)
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.

CDD MODE:

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	61.9 PK	74.0	-12.1	1.09 H	256	56.40	5.50
2	5100.00	50.8 AV	54.0	-3.2	1.09 H	256	45.30	5.50
3	5150.00	73.0 PK	74.0	-1.0	1.08 H	266	67.30	5.70
4	5150.00	53.3 AV	54.0	-0.7	1.08 H	266	47.60	5.70
5	*5180.00	115.5 PK			1.08 H	255	76.00	39.50
6	*5180.00	105.6 AV			1.08 H	255	66.10	39.50
7	#10360.00	60.6 PK	74.0	-13.4	1.00 H	313	42.10	18.50
8	#10360.00	47.7 AV	54.0	-6.3	1.00 H	313	29.20	18.50
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	5100.00	63.0 PK	74.0	-11.0	1.00 V	55	57.50	5.50
2	5100.00	51.6 AV	54.0	-2.4	1.00 V	55	46.10	5.50
3	5150.00	72.4 PK	74.0	-1.6	1.00 V	59	66.70	5.70
4	5150.00	53.1 AV	54.0	-0.9	1.00 V	59	47.40	5.70
5	*5180.00	115.4 PK			1.00 V	58	75.90	39.50
6	*5180.00	105.4 AV			1.00 V	58	65.90	39.50
7	#10360.00	60.1 PK	74.0	-13.9	1.00 V	335	41.60	18.50
8	#10360.00	47.4 AV	54.0	-6.6	1.00 V	335	28.90	18.50

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)
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	63.2 PK	74.0	-10.8	1.00 H	3	57.70	5.50
2	5120.00	52.0 AV	54.0	-2.0	1.00 H	3	46.50	5.50
3	*5200.00	117.4 PK			1.00 H	1	77.80	39.60
4	*5200.00	107.0 AV			1.00 H	1	67.40	39.60
5	#10400.00	60.5 PK	74.0	-13.5	1.00 H	319	42.20	18.30
6	#10400.00	47.5 AV	54.0	-6.5	1.00 H	319	29.20	18.30
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	5120.00	64.3 PK	74.0	-9.7	1.00 V	58	58.80	5.50
2	5120.00	53.8 AV	54.0	-0.2	1.00 V	58	48.30	5.50
3	*5200.00	116.2 PK			1.04 V	48	76.60	39.60
4	*5200.00	106.5 AV			1.04 V	48	66.90	39.60
5	#10400.00	60.2 PK	74.0	-13.8	1.00 V	337	41.90	18.30
6	#10400.00	47.2 AV	54.0	-6.8	1.00 V	337	28.90	18.30

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)
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	65.9 PK	68.2	-2.3	1.08 H	259	60.20	5.70
2	*5240.00	118.3 PK			1.06 H	258	78.70	39.60
3	*5240.00	108.8 AV			1.06 H	258	69.20	39.60
4	5350.00	57.8 PK	74.0	-16.2	1.06 H	257	52.00	5.80
5	5350.00	45.8 AV	54.0	-8.2	1.06 H	257	40.00	5.80
6	#10480.00	61.0 PK	74.0	-13.0	1.00 H	320	43.30	17.70
7	#10480.00	47.9 AV	54.0	-6.1	1.00 H	320	30.20	17.70
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	#5160.00	64.4 PK	68.2	-3.8	1.01 V	59	58.70	5.70
2	*5240.00	117.8 PK			1.03 V	56	78.20	39.60
3	*5240.00	108.1 AV			1.03 V	56	68.50	39.60
4	5350.00	57.3 PK	74.0	-16.7	1.00 V	58	51.50	5.80
5	5350.00	45.1 AV	54.0	-8.9	1.00 V	58	39.30	5.80
6	#10480.00	60.6 PK	74.0	-13.4	1.00 V	330	42.90	17.70
7	#10480.00	47.6 AV	54.0	-6.4	1.00 V	330	29.90	17.70

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)
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	66.8 PK	74.0	-7.2	1.00 H	4	61.10	5.70
2	5150.00	52.5 AV	54.0	-1.5	1.00 H	4	46.80	5.70
3	*5190.00	110.6 PK			1.00 H	2	71.10	39.50
4	*5190.00	99.9 AV			1.00 H	2	60.40	39.50
5	#10380.00	59.5 PK	74.0	-14.5	1.00 H	314	41.10	18.40
6	#10380.00	46.7 AV	54.0	-7.3	1.00 H	314	28.30	18.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	67.5 PK	74.0	-6.5	1.03 V	68	61.80	5.70
2	5150.00	53.4 AV	54.0	-0.6	1.03 V	68	47.70	5.70
3	*5190.00	110.6 PK			1.03 V	69	71.10	39.50
4	*5190.00	100.4 AV			1.03 V	69	60.90	39.50
5	#10380.00	59.6 PK	74.0	-14.4	1.00 V	336	41.20	18.40
6	#10380.00	46.6 AV	54.0	-7.4	1.00 V	336	28.20	18.40

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
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	65.2 PK	74.0	-8.8	1.12 H	1	59.50	5.70
2	5150.00	52.7 AV	54.0	-1.3	1.12 H	1	47.00	5.70
3	*5230.00	116.7 PK			1.21 H	5	77.10	39.60
4	*5230.00	106.1 AV			1.21 H	5	66.50	39.60
5	#10460.00	59.8 PK	74.0	-14.2	1.00 H	317	42.00	17.80
6	#10460.00	47.3 AV	54.0	-6.7	1.00 H	317	29.50	17.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	61.9 PK	74.0	-12.1	1.00 V	64	56.20	5.70
2	5150.00	50.4 AV	54.0	-3.6	1.00 V	64	44.70	5.70
3	*5230.00	114.8 PK			1.00 V	68	75.20	39.60
4	*5230.00	104.9 AV			1.00 V	68	65.30	39.60
5	#10460.00	59.5 PK	74.0	-14.5	1.00 V	333	41.70	17.80
6	#10460.00	47.0 AV	54.0	-7.0	1.00 V	333	29.20	17.80

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
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 (80MHz)

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	68.7 PK	74.0	-5.3	1.13 H	1	63.00	5.70
2	5150.00	52.7 AV	54.0	-1.3	1.13 H	1	47.00	5.70
3	*5210.00	105.6 PK			1.11 H	1	66.00	39.60
4	*5210.00	94.7 AV			1.11 H	1	55.10	39.60
5	#10420.00	59.2 PK	74.0	-14.8	1.00 H	318	41.00	18.20
6	#10420.00	46.0 AV	54.0	-8.0	1.00 H	318	27.80	18.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	69.5 PK	74.0	-4.5	1.03 V	68	63.80	5.70
2	5150.00	53.6 AV	54.0	-0.4	1.03 V	68	47.90	5.70
3	*5210.00	105.9 PK			1.13 V	72	66.30	39.60
4	*5210.00	94.8 AV			1.13 V	72	55.20	39.60
5	#10420.00	58.8 PK	74.0	-15.2	1.00 V	331	40.60	18.20
6	#10420.00	45.2 AV	54.0	-8.8	1.00 V	331	27.00	18.20

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
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.

STBC MODE:

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	62.0 PK	74.0	-12.0	1.01 H	259	56.50	5.50
2	5100.00	51.1 AV	54.0	-2.9	1.01 H	259	45.60	5.50
3	5150.00	73.3 PK	74.0	-0.7	1.02 H	268	67.60	5.70
4	5150.00	53.6 AV	54.0	-0.4	1.02 H	268	47.90	5.70
5	*5180.00	115.6 PK			1.00 H	258	76.10	39.50
6	*5180.00	105.7 AV			1.00 H	258	66.20	39.50
7	#10360.00	60.7 PK	74.0	-13.3	1.00 H	336	42.20	18.50
8	#10360.00	47.9 AV	54.0	-6.1	1.00 H	336	29.40	18.50
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	5100.00	63.2 PK	74.0	-10.8	1.00 V	50	57.70	5.50
2	5100.00	51.7 AV	54.0	-2.3	1.00 V	50	46.20	5.50
3	5150.00	72.3 PK	74.0	-1.7	1.00 V	94	66.60	5.70
4	5150.00	53.4 AV	54.0	-0.6	1.00 V	94	47.70	5.70
5	*5180.00	115.3 PK			1.00 V	83	75.80	39.50
6	*5180.00	105.3 AV			1.00 V	83	65.80	39.50
7	#10360.00	59.7 PK	74.0	-14.3	1.00 V	358	41.20	18.50
8	#10360.00	47.3 AV	54.0	-6.7	1.00 V	358	28.80	18.50

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)
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	63.4 PK	74.0	-10.6	1.00 H	30	57.90	5.50
2	5120.00	52.1 AV	54.0	-1.9	1.00 H	30	46.60	5.50
3	*5200.00	117.5 PK			1.00 H	11	77.90	39.60
4	*5200.00	107.1 AV			1.00 H	11	67.50	39.60
5	#10400.00	60.4 PK	74.0	-13.6	1.00 H	30	42.10	18.30
6	#10400.00	47.2 AV	54.0	-6.8	1.00 H	30	28.90	18.30
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	5120.00	64.1 PK	74.0	-9.9	1.00 V	83	58.60	5.50
2	5120.00	53.1 AV	54.0	-0.9	1.00 V	83	47.60	5.50
3	*5200.00	115.8 PK			1.02 V	84	76.20	39.60
4	*5200.00	106.4 AV			1.02 V	84	66.80	39.60
5	#10400.00	60.1 PK	74.0	-13.9	1.00 V	10	41.80	18.30
6	#10400.00	47.1 AV	54.0	-6.9	1.00 V	10	28.80	18.30

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)
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	66.1 PK	68.2	-2.1	1.04 H	258	60.40	5.70
2	*5240.00	118.1 PK			1.03 H	256	78.50	39.60
3	*5240.00	108.6 AV			1.03 H	256	69.00	39.60
4	5350.00	57.5 PK	74.0	-16.5	1.07 H	276	51.70	5.80
5	5350.00	45.3 AV	54.0	-8.7	1.07 H	276	39.50	5.80
6	#10480.00	61.1 PK	74.0	-12.9	1.00 H	302	43.40	17.70
7	#10480.00	48.1 AV	54.0	-5.9	1.00 H	302	30.40	17.70
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	#5160.00	64.5 PK	68.2	-3.7	1.04 V	91	58.80	5.70
2	*5240.00	118.0 PK			1.01 V	63	78.40	39.60
3	*5240.00	108.3 AV			1.01 V	63	68.70	39.60
4	5350.00	57.0 PK	74.0	-17.0	1.00 V	83	51.20	5.80
5	5350.00	45.2 AV	54.0	-8.8	1.00 V	83	39.40	5.80
6	#10480.00	60.5 PK	74.0	-13.5	1.00 V	306	42.80	17.70
7	#10480.00	47.5 AV	54.0	-6.5	1.00 V	306	29.80	17.70

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)
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	66.9 PK	74.0	-7.1	1.00 H	6	61.20	5.70
2	5150.00	52.4 AV	54.0	-1.6	1.00 H	6	46.70	5.70
3	*5190.00	110.7 PK			1.00 H	24	71.20	39.50
4	*5190.00	99.8 AV			1.00 H	24	60.30	39.50
5	#10380.00	59.4 PK	74.0	-14.6	1.00 H	345	41.00	18.40
6	#10380.00	46.3 AV	54.0	-7.7	1.00 H	345	27.90	18.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	67.3 PK	74.0	-6.7	1.04 V	83	61.60	5.70
2	5150.00	53.4 AV	54.0	-0.6	1.04 V	83	47.70	5.70
3	*5190.00	110.7 PK			1.00 V	95	71.20	39.50
4	*5190.00	100.3 AV			1.00 V	95	60.80	39.50
5	#10380.00	59.5 PK	74.0	-14.5	1.00 V	9	41.10	18.40
6	#10380.00	46.8 AV	54.0	-7.2	1.00 V	9	28.40	18.40

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
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	65.4 PK	74.0	-8.6	1.23 H	10	59.70	5.70
2	5150.00	52.9 AV	54.0	-1.1	1.23 H	10	47.20	5.70
3	*5230.00	116.8 PK			1.13 H	15	77.20	39.60
4	*5230.00	106.6 AV			1.13 H	15	67.00	39.60
5	#10460.00	59.7 PK	74.0	-14.3	1.00 H	18	41.90	17.80
6	#10460.00	47.4 AV	54.0	-6.6	1.00 H	18	29.60	17.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	62.0 PK	74.0	-12.0	1.00 V	40	56.30	5.70
2	5150.00	50.4 AV	54.0	-3.6	1.00 V	40	44.70	5.70
3	*5230.00	114.7 PK			1.00 V	84	75.10	39.60
4	*5230.00	104.8 AV			1.00 V	84	65.20	39.60
5	#10460.00	59.4 PK	74.0	-14.6	1.00 V	336	41.60	17.80
6	#10460.00	47.2 AV	54.0	-6.8	1.00 V	336	29.40	17.80

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
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 (80MHz)

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	68.5 PK	74.0	-5.5	1.11 H	13	62.80	5.70
2	5150.00	52.9 AV	54.0	-1.1	1.11 H	13	47.20	5.70
3	*5210.00	105.1 PK			1.12 H	10	65.50	39.60
4	*5210.00	94.6 AV			1.12 H	10	55.00	39.60
5	#10420.00	59.1 PK	74.0	-14.9	1.00 H	29	40.90	18.20
6	#10420.00	45.8 AV	54.0	-8.2	1.00 H	29	27.60	18.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	69.4 PK	74.0	-4.6	1.04 V	83	63.70	5.70
2	5150.00	53.5 AV	54.0	-0.5	1.04 V	83	47.80	5.70
3	*5210.00	106.2 PK			1.14 V	29	66.60	39.60
4	*5210.00	95.0 AV			1.14 V	29	55.40	39.60
5	#10420.00	58.6 PK	74.0	-15.4	1.00 V	314	40.40	18.20
6	#10420.00	44.7 AV	54.0	-9.3	1.00 V	314	26.50	18.20

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
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.

BEAMFORMING MODE:

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	63.0 PK	74.0	-11.0	1.00 H	302	57.50	5.50
2	5100.00	53.2 AV	54.0	-0.8	1.00 H	302	47.70	5.50
3	5150.00	68.9 PK	74.0	-5.1	1.00 H	138	63.20	5.70
4	5150.00	51.7 AV	54.0	-2.3	1.00 H	138	46.00	5.70
5	*5180.00	116.4 PK			1.00 H	257	76.90	39.50
6	*5180.00	107.4 AV			1.00 H	257	67.90	39.50
7	#10360.00	60.1 PK	74.0	-13.9	1.00 H	329	41.60	18.50
8	#10360.00	47.4 AV	54.0	-6.6	1.00 H	329	28.90	18.50
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	5100.00	63.5 PK	74.0	-10.5	1.00 V	70	58.00	5.50
2	5100.00	52.4 AV	54.0	-1.6	1.00 V	70	46.90	5.50
3	5150.00	64.1 PK	74.0	-9.9	1.00 V	76	58.40	5.70
4	5150.00	48.3 AV	54.0	-5.7	1.00 V	76	42.60	5.70
5	*5180.00	116.3 PK			1.00 V	73	76.80	39.50
6	*5180.00	107.3 AV			1.00 V	73	67.80	39.50
7	#10360.00	59.7 PK	74.0	-14.3	1.00 V	256	41.20	18.50
8	#10360.00	47.1 AV	54.0	-6.9	1.00 V	256	28.60	18.50

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)
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	64.9 PK	74.0	-9.1	1.00 H	255	59.40	5.50
2	5120.00	53.6 AV	54.0	-0.4	1.00 H	255	48.10	5.50
3	*5200.00	116.1 PK			1.00 H	278	76.50	39.60
4	*5200.00	106.7 AV			1.00 H	278	67.10	39.60
5	#10400.00	59.8 PK	74.0	-14.2	1.00 H	322	41.50	18.30
6	#10400.00	47.3 AV	54.0	-6.7	1.00 H	322	29.00	18.30
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	5120.00	61.7 PK	74.0	-12.3	1.00 V	27	56.20	5.50
2	5120.00	50.8 AV	54.0	-3.2	1.00 V	27	45.30	5.50
3	*5200.00	114.3 PK			1.00 V	30	74.70	39.60
4	*5200.00	105.0 AV			1.00 V	30	65.40	39.60
5	#10400.00	59.6 PK	74.0	-14.4	1.00 V	252	41.30	18.30
6	#10400.00	46.8 AV	54.0	-7.2	1.00 V	252	28.50	18.30

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)
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	67.0 PK	68.2	-1.2	1.12 H	284	61.30	5.70
2	*5240.00	119.1 PK			1.10 H	286	79.50	39.60
3	*5240.00	109.2 AV			1.10 H	286	69.60	39.60
4	#10480.00	59.8 PK	74.0	-14.2	1.00 H	352	42.10	17.70
5	#10480.00	47.9 AV	54.0	-6.1	1.00 H	352	30.20	17.70
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	#5160.00	64.1 PK	68.2	-4.1	1.00 V	100	58.40	5.70
2	*5240.00	117.2 PK			1.00 V	110	77.60	39.60
3	*5240.00	108.2 AV			1.00 V	110	68.60	39.60
4	#10480.00	59.4 PK	74.0	-14.6	1.00 V	205	41.70	17.70
5	#10480.00	47.3 AV	54.0	-6.7	1.00 V	205	29.60	17.70

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)
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	66.9 PK	74.0	-7.1	1.00 H	16	61.20	5.70
2	5150.00	53.9 AV	54.0	-0.1	1.00 H	16	48.20	5.70
3	*5190.00	111.7 PK			1.03 H	274	72.20	39.50
4	*5190.00	102.1 AV			1.03 H	274	62.60	39.50
5	#10380.00	59.7 PK	74.0	-14.3	1.00 H	311	41.30	18.40
6	#10380.00	46.4 AV	54.0	-7.6	1.00 H	311	28.00	18.40
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	65.4 PK	74.0	-8.6	1.00 V	56	59.70	5.70
2	5150.00	53.0 AV	54.0	-1.0	1.00 V	56	47.30	5.70
3	*5190.00	110.8 PK			1.00 V	52	71.30	39.50
4	*5190.00	101.1 AV			1.00 V	52	61.60	39.50
5	#10380.00	59.1 PK	74.0	-14.9	1.00 V	253	40.70	18.40
6	#10380.00	46.0 AV	54.0	-8.0	1.00 V	253	27.60	18.40

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
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	67.5 PK	74.0	-6.5	1.00 H	7	61.80	5.70
2	5150.00	53.7 AV	54.0	-0.3	1.00 H	7	48.00	5.70
3	*5230.00	116.2 PK			1.00 H	145	76.60	39.60
4	*5230.00	106.8 AV			1.00 H	145	67.20	39.60
5	#10460.00	59.9 PK	74.0	-14.1	1.00 H	318	42.10	17.80
6	#10460.00	47.2 AV	54.0	-6.8	1.00 H	318	29.40	17.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	64.0 PK	74.0	-10.0	1.00 V	46	58.30	5.70
2	5150.00	53.0 AV	54.0	-1.0	1.00 V	46	47.30	5.70
3	*5230.00	114.6 PK			1.00 V	46	75.00	39.60
4	*5230.00	105.9 AV			1.00 V	46	66.30	39.60
5	#10460.00	59.4 PK	74.0	-14.6	1.00 V	255	41.60	17.80
6	#10460.00	46.8 AV	54.0	-7.2	1.00 V	255	29.00	17.80

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
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 (80MHz)

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	67.5 PK	74.0	-6.5	1.00 H	6	61.80	5.70
2	5150.00	53.3 AV	54.0	-0.7	1.00 H	6	47.60	5.70
3	*5210.00	109.0 PK			1.00 H	7	69.40	39.60
4	*5210.00	97.5 AV			1.00 H	7	57.90	39.60
5	#10420.00	57.9 PK	74.0	-16.1	1.00 H	320	39.70	18.20
6	#10420.00	45.8 AV	54.0	-8.2	1.00 H	320	27.60	18.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	67.2 PK	74.0	-6.8	1.00 V	20	61.50	5.70
2	5150.00	52.7 AV	54.0	-1.3	1.00 V	20	47.00	5.70
3	*5210.00	108.0 PK			1.00 V	24	68.40	39.60
4	*5210.00	96.7 AV			1.00 V	24	57.10	39.60
5	#10420.00	57.6 PK	74.0	-16.4	1.00 V	258	39.40	18.20
6	#10420.00	44.9 AV	54.0	-9.1	1.00 V	258	26.70	18.20

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
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

CDD MODE:

802.11n (20MHz)

CHANNEL	TX Channel 36	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	74.53	29.6 QP	40.0	-10.4	2.00 H	13	46.50	-16.90
2	216.18	36.3 QP	46.0	-9.7	1.00 H	97	52.80	-16.50
3	249.17	34.3 QP	46.0	-11.7	1.24 H	103	48.70	-14.40
4	270.51	38.6 QP	46.0	-7.4	1.00 H	252	51.90	-13.30
5	625.60	40.1 QP	46.0	-5.9	1.24 H	287	46.40	-6.30
6	875.91	41.3 QP	46.0	-4.7	1.49 H	312	43.50	-2.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	35.72	26.2 QP	40.0	-13.8	1.00 V	23	41.30	-15.10
2	64.83	25.7 QP	40.0	-14.3	1.00 V	308	40.90	-15.20
3	270.51	33.2 QP	46.0	-12.8	2.00 V	90	46.50	-13.30
4	600.38	37.3 QP	46.0	-8.7	1.50 V	66	44.00	-6.70
5	625.60	39.8 QP	46.0	-6.2	1.00 V	77	46.10	-6.30
6	875.91	41.2 QP	46.0	-4.8	1.00 V	125	43.40	-2.20

REMARKS:

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

STBC MODE:

802.11n (20MHz)

CHANNEL	TX Channel 36	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	216.18	36.5 QP	46.0	-9.5	1.00 H	87	53.00	-16.50
2	249.17	34.4 QP	46.0	-11.6	1.24 H	109	48.80	-14.40
3	270.51	38.2 QP	46.0	-7.8	1.00 H	249	51.50	-13.30
4	625.60	40.2 QP	46.0	-5.8	1.24 H	288	46.50	-6.30
5	800.24	37.6 QP	46.0	-8.4	3.00 H	302	40.80	-3.20
6	875.91	41.0 QP	46.0	-5.0	1.50 H	316	43.20	-2.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	35.72	29.1 QP	40.0	-10.9	2.00 V	230	44.20	-15.10
2	60.95	27.9 QP	40.0	-12.1	1.00 V	307	42.70	-14.80
3	431.56	35.5 QP	46.0	-10.5	1.25 V	283	45.50	-10.00
4	600.38	37.8 QP	46.0	-8.2	1.00 V	117	44.50	-6.70
5	625.60	39.7 QP	46.0	-6.3	1.00 V	60	46.00	-6.30
6	875.91	40.6 QP	46.0	-5.4	1.00 V	136	42.80	-2.20

REMARKS:

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

BEAMFORMING MODE:

802.11n (20MHz)

CHANNEL	TX Channel 36	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	41.54	27.5 QP	40.0	-12.5	1.49 H	147	42.00	-14.50
2	216.18	36.3 QP	46.0	-9.7	1.00 H	89	52.80	-16.50
3	249.17	34.8 QP	46.0	-11.2	1.00 H	92	49.20	-14.40
4	270.51	38.6 QP	46.0	-7.4	1.00 H	254	51.90	-13.30
5	625.60	41.3 QP	46.0	-4.7	1.24 H	293	47.60	-6.30
6	875.91	41.1 QP	46.0	-4.9	1.49 H	296	43.30	-2.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	35.72	25.6 QP	40.0	-14.4	2.00 V	289	40.70	-15.10
2	66.77	28.3 QP	40.0	-11.7	1.99 V	263	43.90	-15.60
3	499.48	34.2 QP	46.0	-11.8	1.00 V	118	43.10	-8.90
4	600.38	38.0 QP	46.0	-8.0	1.00 V	114	44.70	-6.70
5	625.60	39.4 QP	46.0	-6.6	1.00 V	64	45.70	-6.30
6	875.91	42.0 QP	46.0	-4.0	1.00 V	129	44.20	-2.20

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
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 (dB μ V)	
	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. 26, 2013	Dec. 25, 2014
			Dec. 26, 2014	Dec. 25, 2015
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

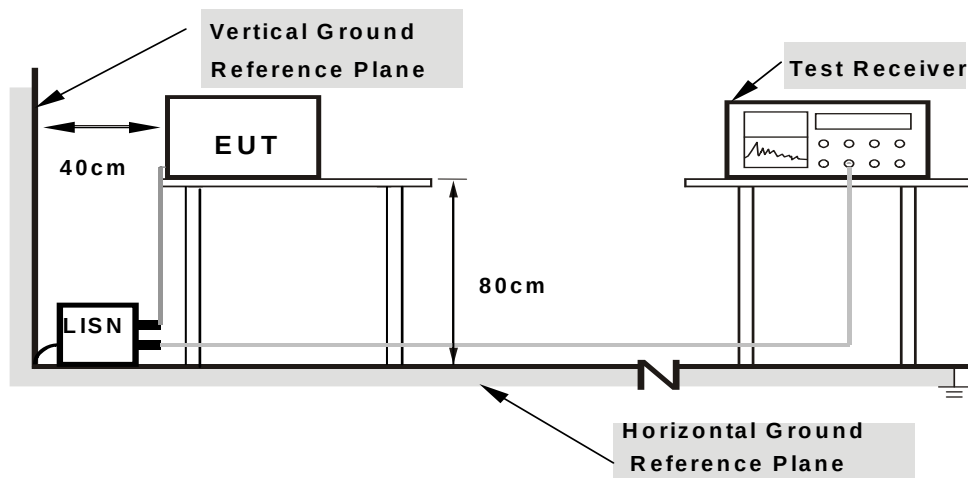
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance 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: 802.11n (20MHz)

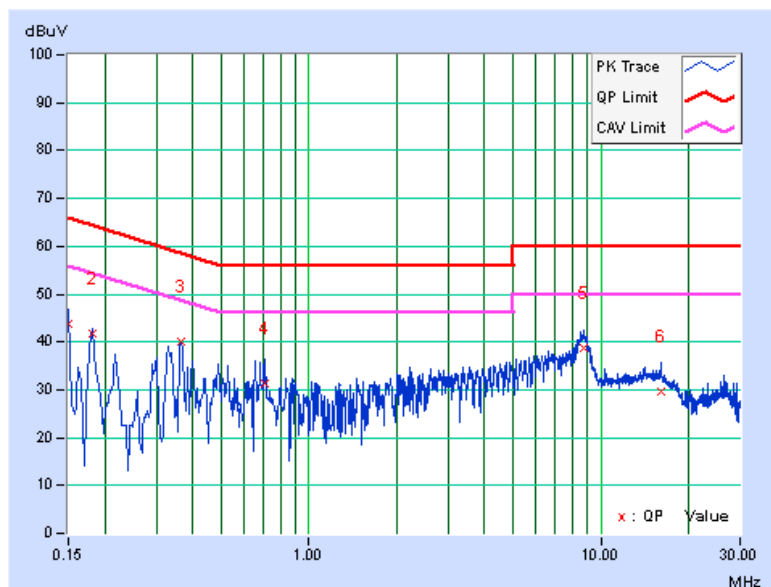
CDD MODE:

PHASE	Line 1	6dB BANDWIDTH	9kHz
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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	0.15000	0.08	43.82	35.83	43.90	35.91	66.00	56.00	-22.10	-20.09
2	0.18128	0.07	41.56	34.15	41.63	34.22	64.43	54.43	-22.79	-20.20
3	0.36505	0.08	40.11	38.11	40.19	38.19	58.61	48.61	-18.42	-10.42
4	0.70913	0.10	31.28	20.27	31.38	20.37	56.00	46.00	-24.62	-25.63
5	8.72854	0.45	38.29	32.73	38.74	33.18	60.00	50.00	-21.26	-16.82
6	16.03242	0.83	28.79	24.02	29.62	24.85	60.00	50.00	-30.38	-25.15

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

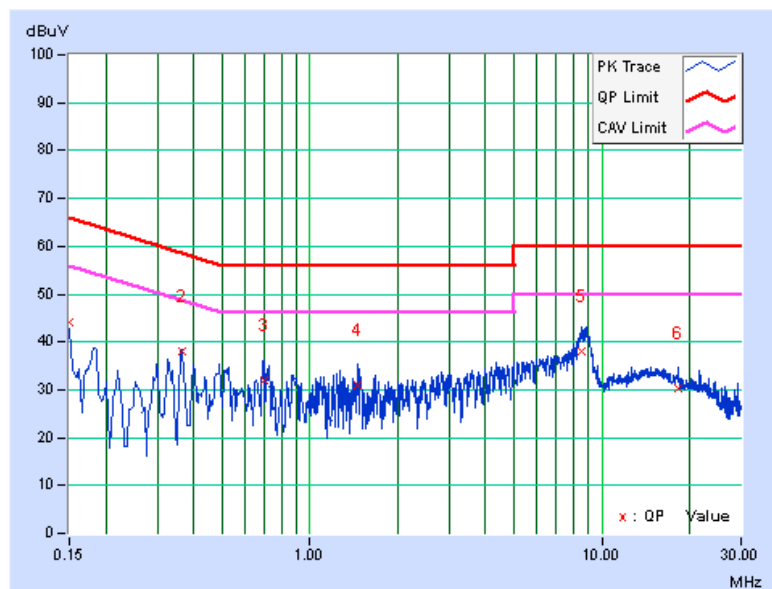


PHASE	Line 2	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	0.05	44.09	35.54	44.14	35.59	66.00	56.00	-21.86	-20.41
2	0.36430	0.07	38.13	35.85	38.20	35.92	58.63	48.63	-20.43	-12.71
3	0.69349	0.08	32.05	28.82	32.13	28.90	56.00	46.00	-23.87	-17.10
4	1.45985	0.11	30.91	27.56	31.02	27.67	56.00	46.00	-24.98	-18.33
5	8.52522	0.38	37.51	31.27	37.89	31.65	60.00	50.00	-22.11	-18.35
6	18.30413	0.83	29.43	24.37	30.26	25.20	60.00	50.00	-29.74	-24.80

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



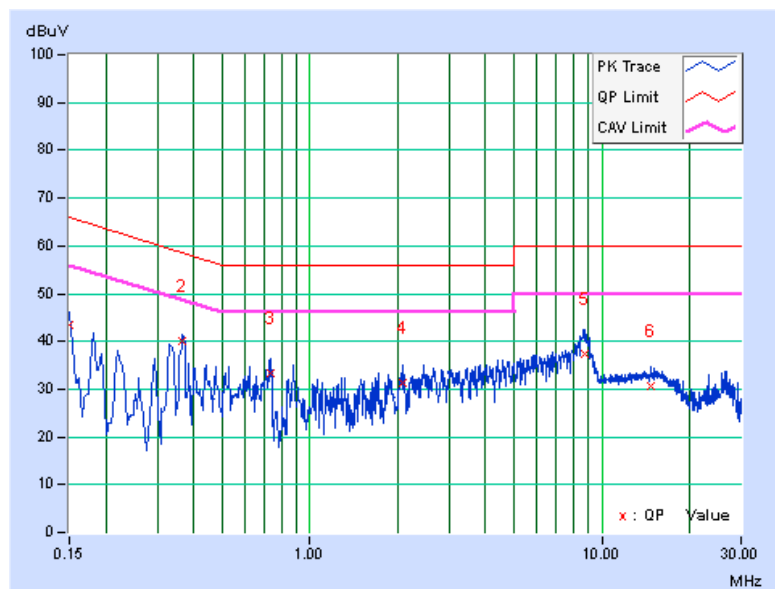
STBC MODE:

PHASE	Line 1	6dB BANDWIDTH	9kHz
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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	0.15000	0.08	43.41	36.31	43.49	36.39	66.00	56.00	-22.51	-19.61
2	0.36547	0.08	40.06	37.86	40.14	37.94	58.60	48.60	-18.46	-10.66
3	0.73662	0.10	33.17	24.23	33.27	24.33	56.00	46.00	-22.73	-21.67
4	2.07784	0.15	31.07	23.75	31.22	23.90	56.00	46.00	-24.78	-22.10
5	8.77207	0.45	37.03	30.87	37.48	31.32	60.00	50.00	-22.52	-18.68
6	14.73447	0.76	29.74	24.47	30.50	25.23	60.00	50.00	-29.50	-24.77

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

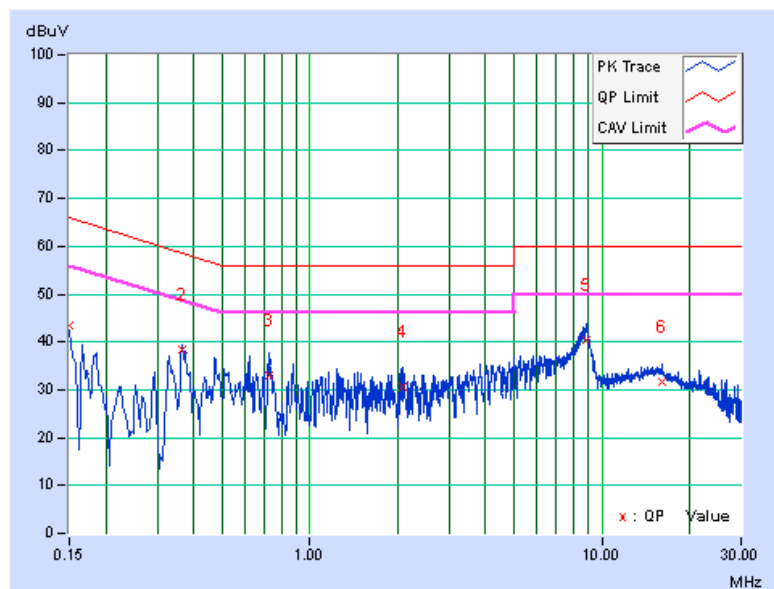


PHASE	Line 2	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	0.05	43.39	34.18	43.44	34.23	66.00	56.00	-22.56	-21.77
2	0.36537	0.07	38.44	36.53	38.51	36.60	58.61	48.61	-20.10	-12.01
3	0.72868	0.08	33.06	27.74	33.14	27.82	56.00	46.00	-22.86	-18.18
4	2.07816	0.14	30.65	25.09	30.79	25.23	56.00	46.00	-25.21	-20.77
5	8.85396	0.40	40.06	33.79	40.46	34.19	60.00	50.00	-19.54	-15.81
6	16.16974	0.73	30.96	25.17	31.69	25.90	60.00	50.00	-28.31	-24.10

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



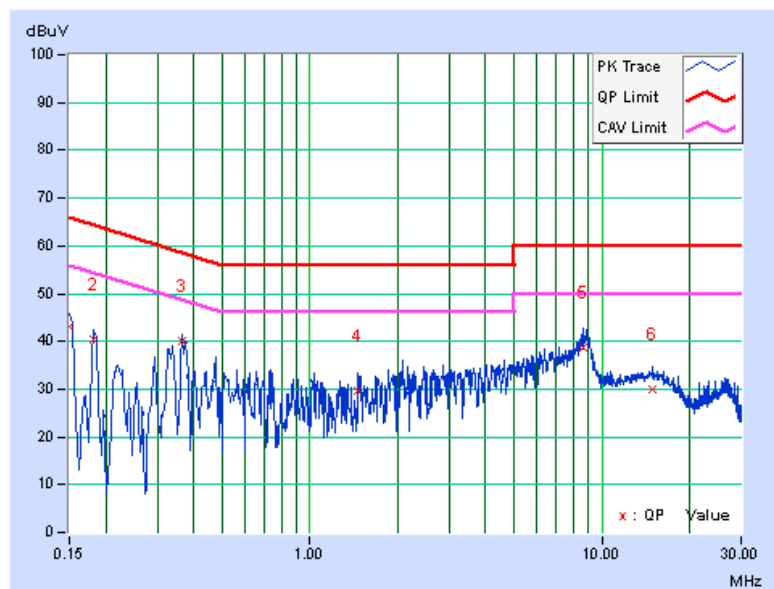
BEAMFORMING MODE:

PHASE	Line 1	6dB BANDWIDTH	9kHz
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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	0.15000	0.08	43.00	36.19	43.08	36.27	66.00	56.00	-22.92	-19.73
2	0.18122	0.07	40.26	32.94	40.33	33.01	64.43	54.43	-24.10	-21.42
3	0.36505	0.08	40.03	37.78	40.11	37.86	58.61	48.61	-18.50	-10.75
4	1.45985	0.13	29.46	22.69	29.59	22.82	56.00	46.00	-26.41	-23.18
5	8.67380	0.45	38.34	32.68	38.79	33.13	60.00	50.00	-21.21	-16.87
6	14.87897	0.77	29.24	24.07	30.01	24.84	60.00	50.00	-29.99	-25.16

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

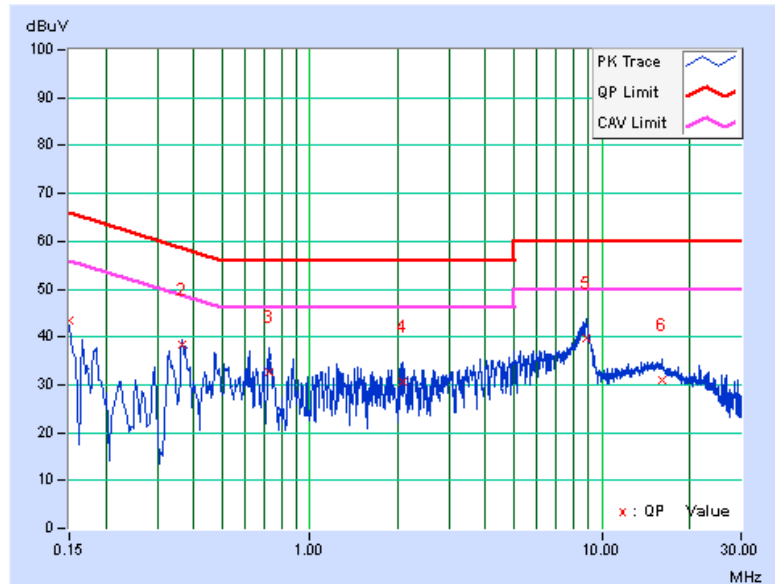


PHASE	Line 2	6dB BANDWIDTH	9kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	0.05	43.24	34.92	43.29	34.97	66.00	56.00	-22.71	-21.03
2	0.36526	0.07	38.44	36.69	38.51	36.76	58.61	48.61	-20.10	-11.85
3	0.72868	0.08	32.64	27.74	32.72	27.82	56.00	46.00	-23.28	-18.18
4	2.07763	0.14	30.65	25.09	30.79	25.23	56.00	46.00	-25.21	-20.77
5	8.85366	0.40	39.40	33.79	39.80	34.19	60.00	50.00	-20.20	-15.81
6	16.16927	0.73	30.40	25.50	31.13	26.23	60.00	50.00	-28.87	-23.77

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,

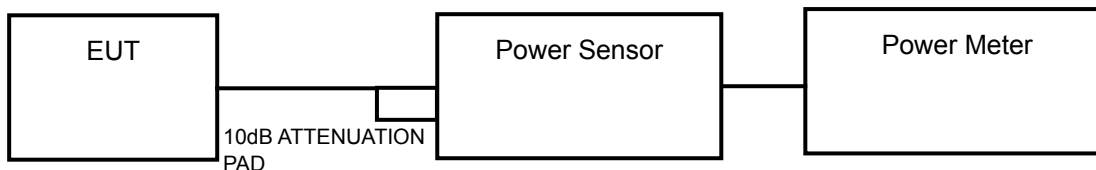
Array Gain = 0 dB (i.e., no array gain) for NANT $\leq$ 4;

Array Gain = 0 dB (i.e., no array gain) for channel widths $\geq$ 40 MHz for any NANT;

Array Gain = 5 log(NANT/NSS) dB or 3 dB, whichever is less for 20-MHz channel widths with NANT $\geq$ 5.

For power measurements on all other devices: Array Gain = 10 log(NANT/NSS) dB.

4.3.2 TEST SETUP



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 (20MHz), 802.11n (40MHz)

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 (80MHz)

- 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.

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:

802.11a

CHAN.	CHAN. FREQ. (MHz)	MAXIMUM CONDUCTED POWER (dBm) (mW)	MAXIMUM CONDUCTED POWER (dBm) (dBm)	POWER LIMIT (dBm)	PASS / FAIL
36	5180	229.087	23.60	30	PASS
40	5200	237.137	23.75	30	PASS
48	5240	314.775	24.98	30	PASS

CDD MODE:

802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	MAXIMUM CONDUCTED POWER (dBm)			TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
36	5180	22.91	22.22	22.38	535.141	27.28	30	PASS
40	5200	22.39	21.74	21.82	474.714	26.76	30	PASS
48	5240	25.02	24.14	23.74	813.697	29.10	30	PASS

802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	MAXIMUM CONDUCTED POWER (dBm)			TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
38	5190	17.31	16.95	17.15	155.252	21.91	30	PASS
46	5230	24.93	23.83	24.03	805.648	29.06	30	PASS

802.11ac (80MHz)

CHAN.	CHAN. FREQ. (MHz)	MAXIMUM CONDUCTED POWER (dBm)			TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
42	5210	16.36	15.69	16.21	122.102	20.87	30	PASS

STBC MODE:

802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	MAXIMUM CONDUCTED POWER (dBm)			TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
36	5180	22.93	22.30	22.40	539.940	27.32	30	PASS
40	5200	22.43	21.65	21.95	477.878	26.79	30	PASS
48	5240	24.89	24.22	23.80	812.443	29.10	30	PASS

802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	MAXIMUM CONDUCTED POWER (dBm)			TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
38	5190	17.32	16.88	17.22	155.427	21.92	30	PASS
46	5230	24.96	23.88	24.16	818.287	29.13	30	PASS

802.11ac (80MHz)

CHAN.	CHAN. FREQ. (MHz)	MAXIMUM CONDUCTED POWER (dBm)			TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
42	5210	16.26	15.72	16.30	122.250	20.87	30	PASS

BEAMFORMING MODE:

802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	MAXIMUM CONDUCTED POWER (dBm)			TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
36	5180	21.23	21.06	21.68	407.614	26.10	27.73	PASS
40	5200	20.75	20.27	20.82	346.045	25.39	27.73	PASS
48	5240	22.33	23.15	23.26	589.376	27.70	27.73	PASS

NOTE: Directional gain = $3.5\text{dBi} + 10\log(3) = 8.27\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30-(8.27-6) = 27.73\text{dBm}$.

802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	MAXIMUM CONDUCTED POWER (dBm)			TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
38	5190	17.81	17.21	17.70	171.881	22.35	27.73	PASS
46	5230	23.02	22.73	23.05	589.783	27.71	27.73	PASS

NOTE: Directional gain = $3.5\text{dBi} + 10\log(3) = 8.27\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30-(8.27-6) = 27.73\text{dBm}$.

802.11ac (80MHz)

CHAN.	CHAN. FREQ. (MHz)	MAXIMUM CONDUCTED POWER (dBm)			TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2				
42	5210	17.50	16.80	16.99	154.100	21.88	27.73	PASS

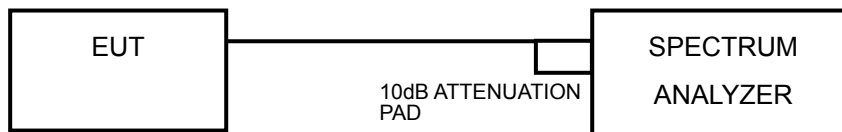
NOTE: Directional gain = $3.5\text{dBi} + 10\log(3) = 8.27\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30-(8.27-6) = 27.73\text{dBm}$.

4.4 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.4.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

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

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

Without duty factor

Using method SA-1

- 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

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 and add $10 \log (1/\text{duty cycle})$

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

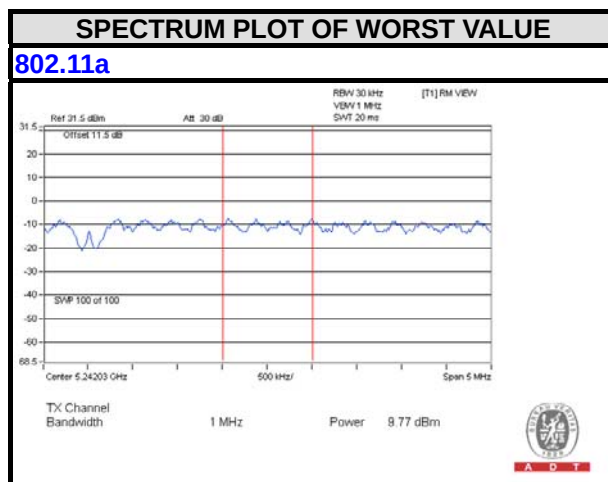
4.4.6 EUT OPERATING CONDITIONS

Same as 4.3.6.

4.4.7 TEST RESULTS

802.11a

CHANNEL	FREQUENCY (MHz)	PSD (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
36	5180	8.49	17	PASS
40	5200	8.45	17	PASS
48	5240	9.77	17	PASS



CDD MODE:

802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)			TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2			
38	5190	6.97	6.47	7.90	11.93	14.73	PASS
46	5230	6.98	6.59	7.56	11.83	14.73	PASS
54	5270	8.82	8.91	8.87	13.64	14.73	PASS

NOTE:

- 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.
- For U-NII-1 Band:**
Directional gain = $3.5\text{dBi} + 10\log(3) = 8.27\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17 - (8.27 - 6) = 14.73\text{dBm}$.

802.11n (40MHz)

CHAN.	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	CHAIN 2					
38	5190	-0.68	-1.72	-0.58	3.80	0.15	3.95	14.73	PASS
46	5230	6.12	5.79	5.73	10.65	0.15	10.80	14.73	PASS

NOTE:

- 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.
- For U-NII-1 Band:**
Directional gain = $3.5\text{dBi} + 10\log(3) = 8.27\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17 - (8.27 - 6) = 14.73\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (80MHz)

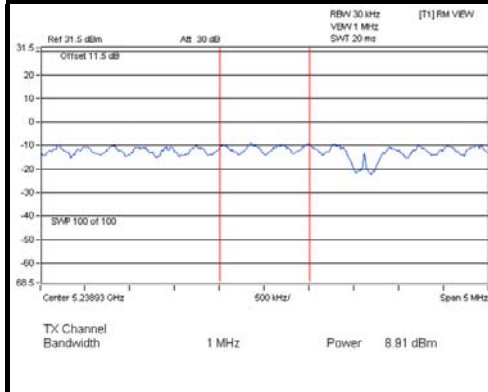
CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)			TOTAL PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	TOTAL PSD WITH DUTY FACTOR (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2					
42	5210	-5.81	-5.73	-5.08	-0.76	0.39	-0.37	14.73	PASS

NOTE:

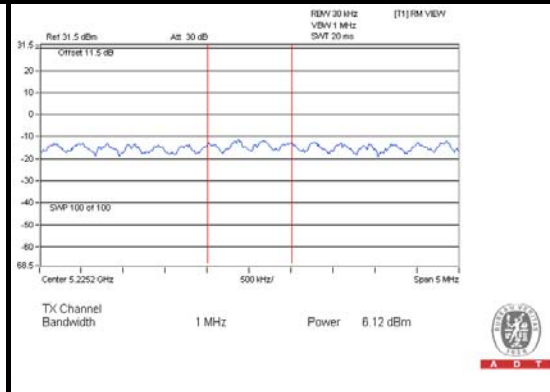
- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- For U-NII-1 Band:**
Directional gain = $3.5\text{dBi} + 10\log(3) = 8.27\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17 - (8.27 - 6) = 14.73\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

SPECTRUM PLOT OF WORST VALUE

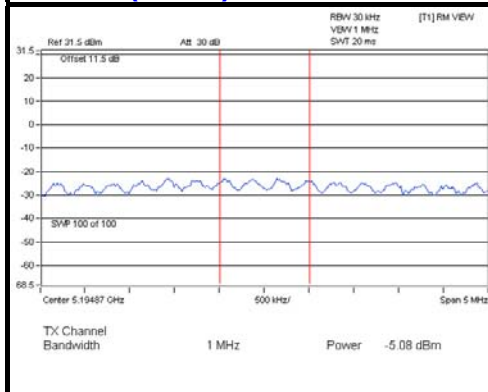
802.11n (20MHz)



802.11n (40MHz)



802.11ac (80MHz)



STBC MODE:

802.11n (20MHz)

CHAN.	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	CHAIN 2					
38	5190	7.91	7.36	7.98	12.53	0.24	12.77	17	PASS
46	5230	7.02	7.02	7.94	12.12	0.24	12.36	17	PASS
54	5270	9.97	9.39	9.01	14.25	0.24	14.49	17	PASS

NOTE: 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.

802.11n (40MHz)

CHAN.	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	CHAIN 2					
38	5190	-0.49	-1.42	-0.76	3.90	0.45	4.35	17	PASS
46	5230	6.49	5.96	5.29	10.71	0.45	11.16	17	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. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (80MHz)

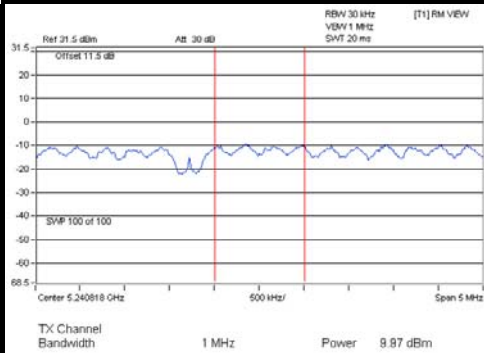
CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)			TOTAL PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	TOTAL PSD WITH DUTY FACTOR (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2					
42	5210	-5.19	-4.91	-4.48	-0.08	0.28	0.20	17	PASS

NOTE:

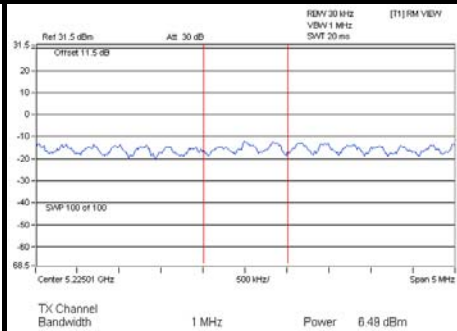
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Refer to section 3.3 for duty cycle spectrum plot.

SPECTRUM PLOT OF WORST VALUE

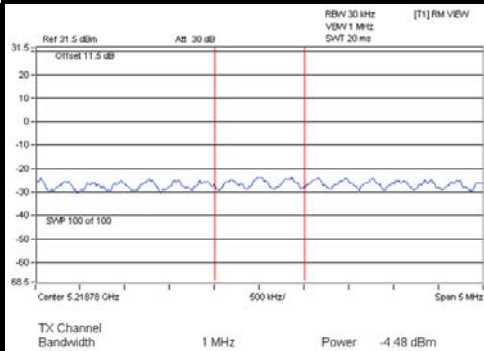
802.11n (20MHz)



802.11n (40MHz)



802.11ac (80MHz)



BEAMFORMING MODE:

802.11n (20MHz)

CHAN.	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	CHAIN 2					
38	5190	6.95	6.23	6.90	11.47	0.24	11.71	14.73	PASS
46	5230	6.45	5.53	5.89	10.74	0.24	10.98	14.73	PASS
54	5270	8.17	8.78	7.93	13.08	0.24	13.32	14.73	PASS

NOTE:

- 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.
- For U-NII-1 Band:**
Directional gain = $3.5\text{dBi} + 10\log(3) = 8.27\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17 - (8.27 - 6) = 14.73\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11n (40MHz)

CHAN.	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	CHAIN 2					
38	5190	1.00	-0.55	-0.22	4.90	0.20	5.10	14.73	PASS
46	5230	5.56	5.04	5.53	10.16	0.20	10.36	14.73	PASS

NOTE:

- 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.
- For U-NII-1 Band:**
Directional gain = $3.5\text{dBi} + 10\log(3) = 8.27\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17 - (8.27 - 6) = 14.73\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (80MHz)

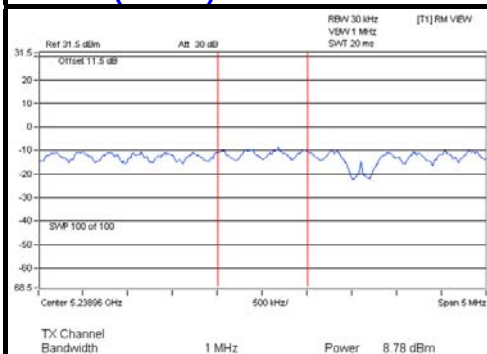
CHAN.	CHAN. FREQ. (MHz)	PSD (dBm)			TOTAL PSD W/O DUTY FACTOR (dBm)	DUTY FACTOR	TOTAL PSD WITH DUTY FACTOR (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2					
42	5210	-3.36	-4.67	-4.09	0.76	0.42	1.18	14.73	PASS

NOTE:

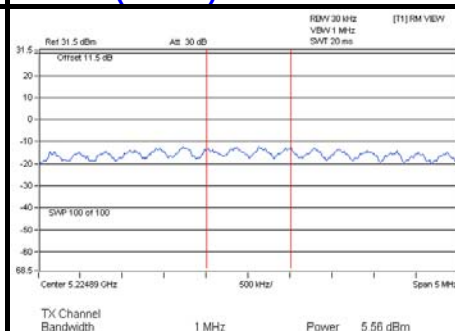
- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- For U-NII-1 Band:**
Directional gain = $3.5\text{dBi} + 10\log(3) = 8.27\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $17 - (8.27 - 6) = 14.73\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

SPECTRUM PLOT OF WORST VALUE

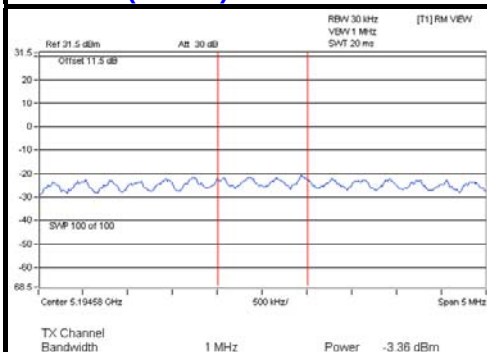
802.11n (20MHz)



802.11n (40MHz)



802.11ac (80MHz)

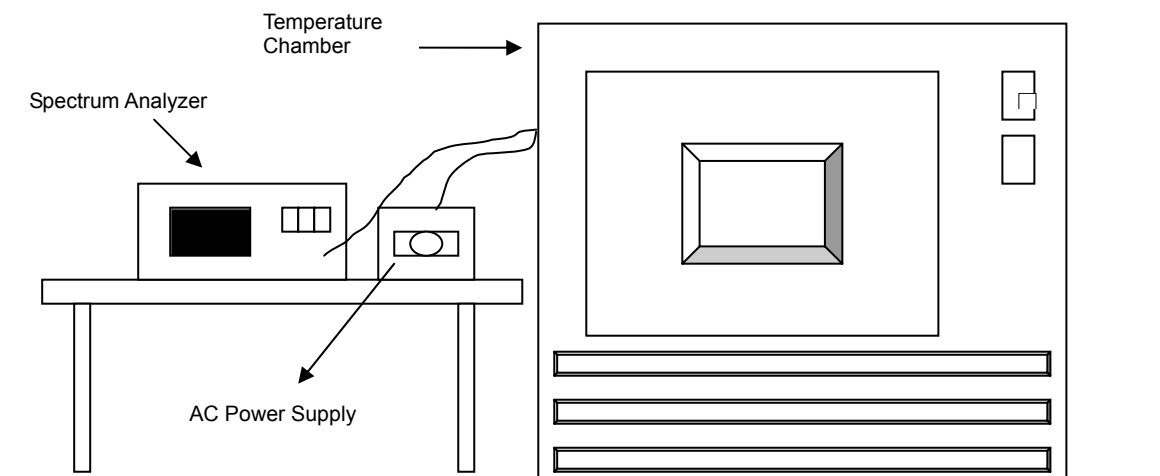


4.5 FREQUENCY STABILITY

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

CDD MODE:

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5240MHz									
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 (%)
50	120	5239.9915	-0.00016	5239.9917	-0.00016	5239.9942	-0.00011	5239.9915	-0.00016
40	120	5239.9836	-0.00031	5239.9838	-0.00031	5239.9835	-0.00031	5239.9832	-0.00032
30	120	5239.9803	-0.00038	5239.9813	-0.00036	5239.9783	-0.00041	5239.9828	-0.00033
20	120	5239.9978	-0.00004	5239.9967	-0.00006	5239.9957	-0.00008	5239.9979	-0.00004
10	120	5239.991	-0.00017	5239.995	-0.00010	5239.994	-0.00011	5239.9931	-0.00013
0	120	5239.9837	-0.00031	5239.9824	-0.00034	5239.9833	-0.00032	5239.9839	-0.00031
-10	120	5240.0055	0.00010	5240.0022	0.00004	5240.0041	0.00008	5240.0028	0.00005
-20	120	5240.0249	0.00048	5240.0239	0.00046	5240.0262	0.00050	5240.0238	0.00045
-30	120	5240.0194	0.00037	5240.0199	0.00038	5240.0189	0.00036	5240.0184	0.00035

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5240MHz									
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	5239.998	-0.00004	5239.9973	-0.00005	5239.9957	-0.00008	5239.997	-0.00006
	120	5239.9978	-0.00004	5239.9967	-0.00006	5239.9957	-0.00008	5239.9979	-0.00004
	102	5239.9972	-0.00005	5239.9965	-0.00007	5239.9957	-0.00008	5239.9976	-0.00005

STBC MODE:

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5240MHz									
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 (%)
50	120	5239.9758	-0.00046	5239.9758	-0.00046	5239.9751	-0.00048	5239.978	-0.00042
40	120	5240.0181	0.00035	5240.0134	0.00026	5240.0135	0.00026	5240.0133	0.00025
30	120	5239.9801	-0.00038	5239.9846	-0.00029	5239.9829	-0.00033	5239.9847	-0.00029
20	120	5239.9842	-0.00030	5239.9875	-0.00024	5239.9854	-0.00028	5239.987	-0.00025
10	120	5240.0252	0.00048	5240.0248	0.00047	5240.028	0.00053	5240.026	0.00050
0	120	5239.9796	-0.00039	5239.9811	-0.00036	5239.98	-0.00038	5239.9827	-0.00033
-10	120	5240.0095	0.00018	5240.0114	0.00022	5240.0092	0.00018	5240.0112	0.00021
-20	120	5240.0007	0.00001	5239.9963	-0.00007	5239.9997	-0.00001	5240.0004	0.00001
-30	120	5240.0241	0.00046	5240.0241	0.00046	5240.026	0.00050	5240.0233	0.00044

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5240MHz									
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	5239.9832	-0.00032	5239.9869	-0.00025	5239.9859	-0.00027	5239.9874	-0.00024
	120	5239.9842	-0.00030	5239.9875	-0.00024	5239.9854	-0.00028	5239.987	-0.00025
	102	5239.9838	-0.00031	5239.9866	-0.00026	5239.9848	-0.00029	5239.9868	-0.00025

BEAMFORMING MODE:

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5240MHz									
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 (%)
50	120	5239.9952	-0.00009	5239.9926	-0.00014	5239.9909	-0.00017	5239.9918	-0.00016
40	120	5239.9782	-0.00042	5239.9746	-0.00048	5239.9768	-0.00044	5239.9748	-0.00048
30	120	5240.0238	0.00045	5240.0256	0.00049	5240.0259	0.00049	5240.0248	0.00047
20	120	5240.0196	0.00037	5240.0194	0.00037	5240.0199	0.00038	5240.0206	0.00039
10	120	5239.9757	-0.00046	5239.9754	-0.00047	5239.9749	-0.00048	5239.9793	-0.00040
0	120	5240.0124	0.00024	5240.0121	0.00023	5240.0117	0.00022	5240.0112	0.00021
-10	120	5239.9771	-0.00044	5239.9771	-0.00044	5239.9745	-0.00049	5239.9752	-0.00047
-20	120	5239.9911	-0.00017	5239.9919	-0.00015	5239.9879	-0.00023	5239.9916	-0.00016
-30	120	5239.9857	-0.00027	5239.9862	-0.00026	5239.9882	-0.00023	5239.9857	-0.00027

FREQUENCY STABILITY VERSUS TEMP.									
OPERATING FREQUENCY: 5240MHz									
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	5240.0205	0.00039	5240.0189	0.00036	5240.0208	0.00040	5240.0209	0.00040
	120	5240.0196	0.00037	5240.0194	0.00037	5240.0199	0.00038	5240.0206	0.00039
	102	5240.0202	0.00039	5240.0193	0.00037	5240.0202	0.00039	5240.0213	0.00041

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:

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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---