

FCC Test Report

Report No.: RF160621C27M

FCC ID: PY316200341

Test Model: RBR50

Series Mode/Code Name: RBS50, Beehive 3, Beehive 4 (refer to item 3.1 for more details)

Received Date: Jun. 20, 2016

Test Date: Jul. 04 ~ Dec. 15, 2016

Issued Date: Jul. 20, 2017

Applicant: NETGEAR, INC.

Address: 350 East Plumeria 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 Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)



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Release Control Record

Issue No.	Description	Date Issued
RF160621C27M	Original release.	Jul. 20, 2017

1 Certificate of Conformity

Product: Orbi Router (refer to item 3.1 for more details)

Brand: NETGEAR

Test Model: RBR50

Series Mode/Code Name: RBS50, Beehive 3, Beehive 4 (refer to item 3.1 for more details)

Sample Status: Engineering sample

Applicant: NETGEAR, INC.

Test Date: Jul. 04 ~ Dec. 15, 2016

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10:2013

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

Prepared by : Polly Chien , **Date:** Jul. 20, 2017
Polly Chien / Specialist

Approved by : Ken Liu , **Date:** Jul. 20, 2017
Ken Liu / Senior Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -9.86dB at 0.35703MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -2.4dB at 2390.00MHz.
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is I-PEX 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	Expanded Uncertainty (k=2) ($\pm$)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.44 dB
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	3.59 dB
	200MHz ~ 1000MHz	3.60 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Orbi Router (Refer to note for more details)
Brand	NETGEAR
Test Model	RBR50
Series Model/Code Name	RBS50, Beehive 3, Beehive 4
Model Difference	Refer to note for more details
Sample Status	Engineering sample
Power Supply Rating	12Vdc from adapter
Modulation Type	CCK, DQPSK, DBPSK for DSSS 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 400Mbps
Operating Frequency	2412 ~ 2462MHz
Number of Channel	11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40)
Output Power	CDD Mode: 907.156mW Beamforming NSS1 Mode: 891.322mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter
Cable Supplied	1.95m RJ45 non-shielded cable w/o core

Note:

1. This report is prepared for FCC class II permissive change. This report is issued as a supplementary report of BV ADT report no.: RF160621C27. The differences compared with the original design are adding 2nd source of filter component, adding code names, code product names and modifying EUT specification. Therefore, AC Power Conducted Emission and Radiated Emissions tests were retested in this report and original data was kept.

2. All models are electrically identical except the firmware. Model: RBR50 is the representative for final test. (New names are marked in boldface)

Brand	Model/ Code Name	Product Name/ Code Product	RF Module	Difference
NETGEAR	RBR50, Beehive 3	Orbi Router, Armball3	Module 1	software firmware: RBR50_V1.1.0.16Master mode only The housings Beehive 3 is different with RBR50, and Beehive 3 has no USB port.
			Module 2	The housings of Beehive 3 is different with RBS50, and Beehive 3 has no USB port.
	RBS50, Beehive 4	Orbi Satellite' Armball4	Module 1	software firmware: RBS50_V1.1.0.16Master mode and Client mode for 5.50 ~ 5.70GHz band The housings of Beehive 4 is different with RBR50, and Beehive 4 has no USB port.
			Module 2	The housings of Beehive 4 is different with RBS50, and Beehive 4 has no USB port.

Note:

All of the RF specifications (include antenna type and location) are identical except the differences stated. RF Module 1 support WLAN 2.4GHz band, 5.18 ~ 5.24GHz and 5.26 ~ 5.32GHz band functionally. RF Module 2 WLAN 5.50 ~ 5.70GHz and 5.745 ~ 5.825GHz band functionally.

3. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitters and 2 receivers.

Band	Modulation Mode	Beamforming Mode	TX Function
2.4GHz	802.11b	Not Support	2TX
	802.11g	Not Support	2TX
	802.11n (HT20)	Support (CDD / NSS1)	2TX
	802.11n (HT40)	Support (CDD / NSS1)	2TX

* For 802.11n, CDD mode is the worst case for final radiated emission and power line conducted emission tests after pretesting CDD mode and beamforming mode.

4. The module 2 card has type C, type D and different gaskets on the following modes. Mode C was the worst case for final test.

Mode	Description
A	Type C on chain 1, 2, 3, and 4. Triangular gaskets on chain 1, 2, 3, and 4.
B	Type C on chain 1, 2, 3, and 4. Triangular gaskets on chain 1, 2, and 3. No gasket on chain 4.
C	Type C on chain 1, 2, 3, and 4. Rectangular gaskets on chain 1, 2, 3, and 4.
D	Type C on chain 1, 2, 3, and 4. Rectangular gaskets on chain 1, 2, and 3. No gasket on chain 4.
E	Type C on chain 1, 2, and 3. Type D on chain 4. Triangular gaskets on chain 1, 2, and 3. No gasket on chain 4.

5. The following filters are provided to this EUT.

RF Module Brand / Model	Filter	Position	Gasket	Remark
Module 1	1st (Filter 1)	TFL1 ,TFL2	With TFL1, TFL2 gasket	passive filter (pin to pin & Same design)
	2nd (Filter 2)	TFL1 ,TFL2	Without TFL1, TFL2 gasket	passive filter (pin to pin & Same design)
Module 2	1st (Filter 3)	BHPF1 ,BHPF2 BHPF3 ,BHPF4	With BHPF1, BHPF2, BHPF3, BHPF4 gasket	passive filter (pin to pin & Same design)
	2nd (Filter 4)	BHPF1 ,BHPF2 BHPF3 ,BHPF4	Without BHPF1, BHPF2, BHPF3, BHPF4 gasket	passive filter (pin to pin & Same design)

6. The following antennas were provided to the EUT.

3. The following antennas were provided to the EOI:				
Ant. Type		Dipole		
Connector Type		I-PEX		
Directional Antenna Gain (dBi)				
Item	2.4G	5G Band 1	5G Band 4	
			Nss1	Nss2
-	2.61	4.18	7.43	4.86

7. The EUT uses following adapters.

Adapter 1	
Brand	NETGEAR
Model	AD2080F20
PN	332-10883-01
Input Power	100-240Vdc, 50/60Hz 1.0A
Output Power	12Vdc, 3.5A
Power Line	1.8m power cable without core attached on adapter

Adapter 2	
Brand	NETGEAR
Model	2ABN042F NA
PN	332-10888-01
Input Power	100-240Vdc, 50/60Hz 1.3A
Output Power	12Vdc, 3.5A
Power Line	1.85m power cable without core attached on adapter

*After pre-testing, adapter 2 is the worst case for the final tests.

8. Spurious emission of the simultaneous operation (2.4GHz and 5GHz) has been evaluated and no non-compliance was found.

3.2 Description of Test Modes

11 channels are provided for 802.11b, 802.11g and 802.11n (HT20):

Channel	Frequency	Channel	Frequency
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz		

7 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		

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 & Bandedge Measurement
 RE<1G: Radiated Emission below 1GHz
 PLC: Power Line Conducted Emission
 APCM: Antenna Port Conducted Measurement

Note:

1. The EUT was positioned on the Z-plane during testing.

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	Date Rate (Mbps)
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
-	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
-	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	15.0

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	Date Rate (Mbps)
-	802.11g	1 to 11	6	OFDM	BPSK	6.0

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	Date Rate (Mbps)
-	802.11g	1 to 11	6	OFDM	BPSK	6.0

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	Date Rate (Mbps)
-	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
-	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
-	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	15.0

Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE $\geq$ 1G	25 deg. C, 65% RH	120Vac, 60Hz	Matthew Yang
	25 deg. C, 65% RH	120Vac, 60Hz	Chris Lin
RE<1G	25 deg. C, 65% RH	120Vac, 60Hz	Chris Lin
PLC	24 deg. C, 64% RH	120Vac, 60Hz	Match Tsui
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Leo Tsai

3.3 Duty Cycle of Test Signal

CDD Mode

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

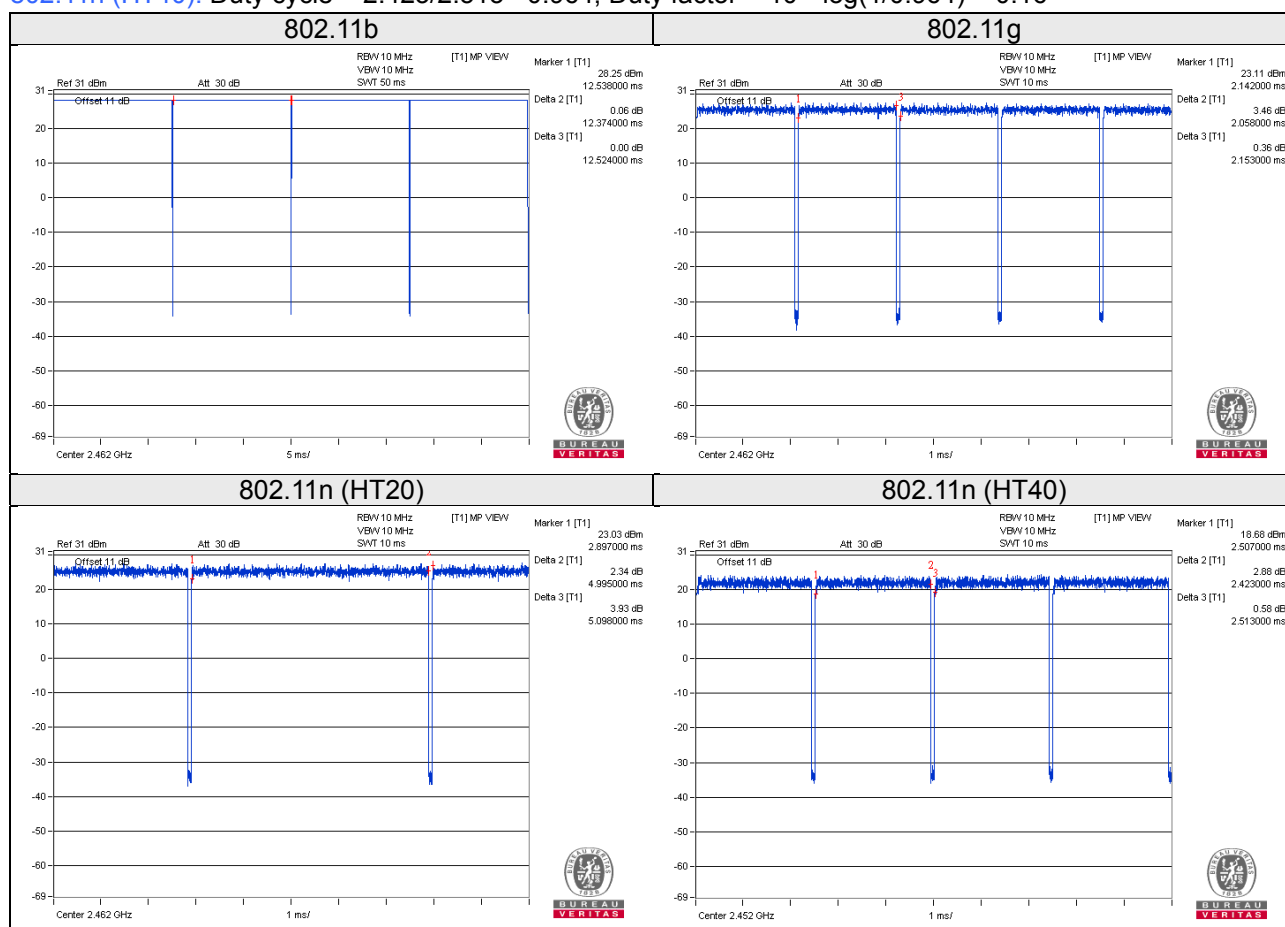
Duty cycle of test signal is $< 98\%$, duty factor shall be considered.

802.11b: Duty cycle = $12.374/12.524 = 0.988$

802.11g: Duty cycle = $2.058/2.153 = 0.956$, Duty factor = $10 * \log(1/0.956) = 0.20$

802.11n (HT20): Duty cycle = $4.995/5.098 = 0.980$

802.11n (HT40): Duty cycle = $2.423/2.513 = 0.964$, Duty factor = $10 * \log(1/0.964) = 0.16$



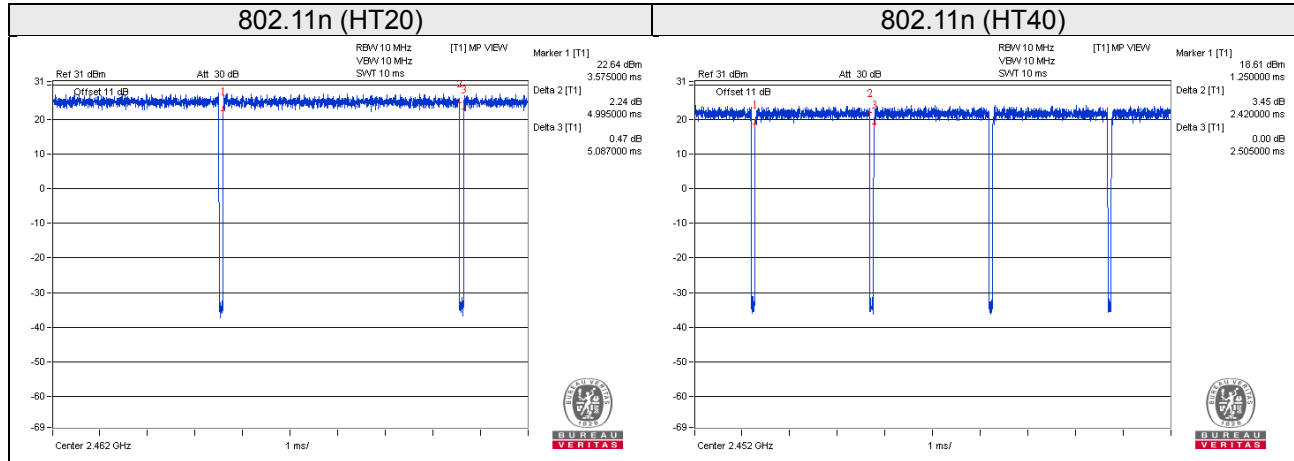
Beamforming NSS1 Mode

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

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

802.11n (HT20): Duty cycle = $4.995/5.087 = 0.982$

802.11n (HT40): Duty cycle = $2.420/2.505 = 0.966$, Duty factor = $10 * \log(1/0.966) = 0.15$



3.4 Description of Support Units

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

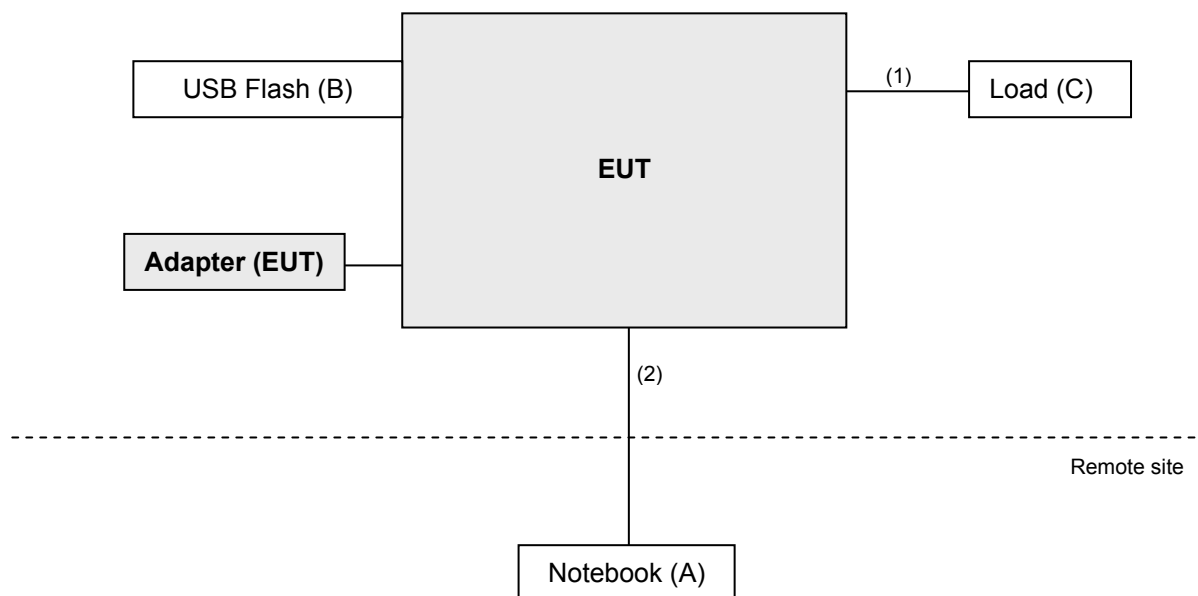
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	6RP2YM1	FCC DoC Approved	-
B.	USB 3.0 Flash	HP	v250W	01	FCC DoC Approved	-
C.	Load	N/A	N/A	N/A	N/A	-

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45	3	1.8	N	0	-
2.	RJ45	1	10	N	0	-

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 C (15.247)

KDB 558074 D01 DTS Meas Guidance v04

KDB 662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10-2013

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

Note: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC).
The test report has been issued separately.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 30dB below the highest level of the desired power:

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 30dB under any condition of modulation.

4.1.2 Test Instruments

Tested date: Jul. 04 ~ Dec. 08, 2016

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100424	Oct. 12, 2015	Oct. 11, 2016
			Oct. 24, 2016	Oct. 23, 2017
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Sep. 02, 2015	Sep. 01, 2016
			Aug. 16, 2016	Aug. 15, 2017
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Jan. 07, 2016	Jan. 06, 2017
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Jan. 08, 2016	Jan. 07, 2017
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Jan. 18, 2016	Jan. 17, 2017
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Jan. 18, 2016	Jan. 17, 2017
Loop Antenna	EM-6879	269	Aug. 12, 2015	Aug. 11, 2016
			Aug. 11, 2016	Aug. 10, 2017
Preamplifier Agilent	8449B	3008A01960	Aug. 09, 2015	Aug. 08, 2016
			Aug. 09, 2016	Aug. 08, 2017
Preamplifier Agilent	8447D	2944A10631	Aug. 09, 2015	Aug. 08, 2016
			Aug. 09, 2016	Aug. 08, 2017
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-02(295012+309220)	Aug. 09, 2015	Aug. 08, 2016
			Aug. 09, 2016	Aug. 08, 2017
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03(250724)	Aug. 09, 2015	Aug. 08, 2016
			Aug. 09, 2016	Aug. 08, 2017
Software BV ADT	ADT_Radiated_V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021703	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100.	SC93021703	NA	NA
High Speed Peak Power Meter	ML2495A	1232003	Oct. 07, 2015	Oct. 06, 2016
			Aug. 11, 2016	Aug. 10, 2017
Power Sensor	MA2411B	1207333	Oct. 07, 2015	Oct. 06, 2016
			Aug. 11, 2016	Aug. 10, 2017

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 4.
3. The horn antenna and preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The IC Site Registration No. is IC7450F-4.

4.1.3 Test Procedures

For Radiated emission below 30MHz

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

Note:

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

For Radiated emission above 30MHz

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

Note:

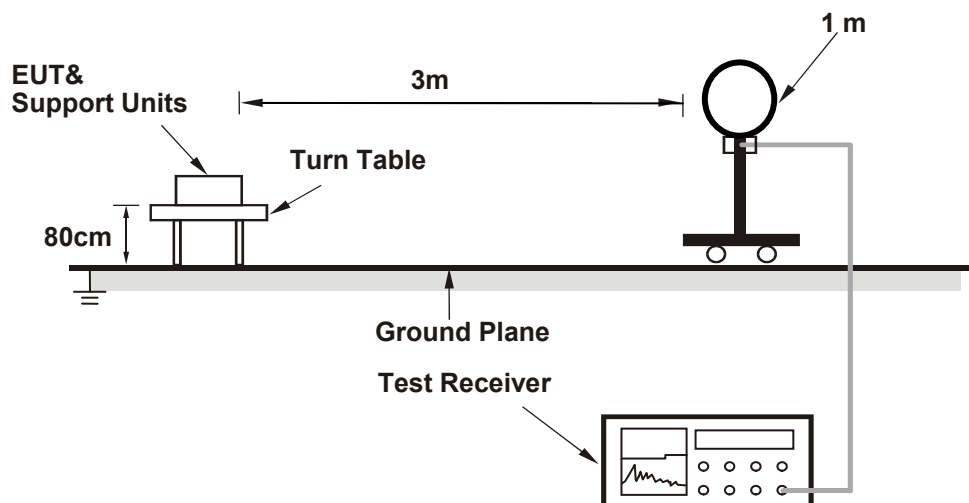
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.1.4 Deviation from Test Standard

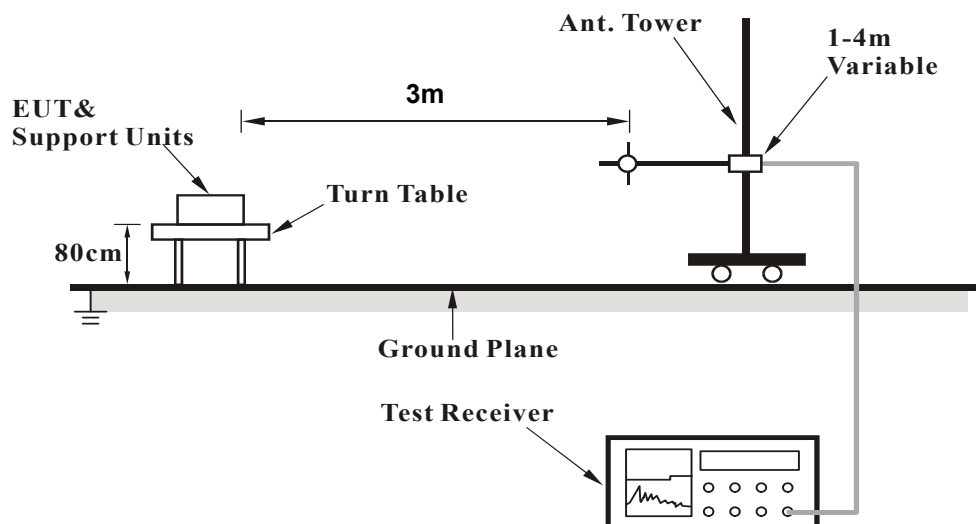
No deviation.

4.1.5 Test Setup

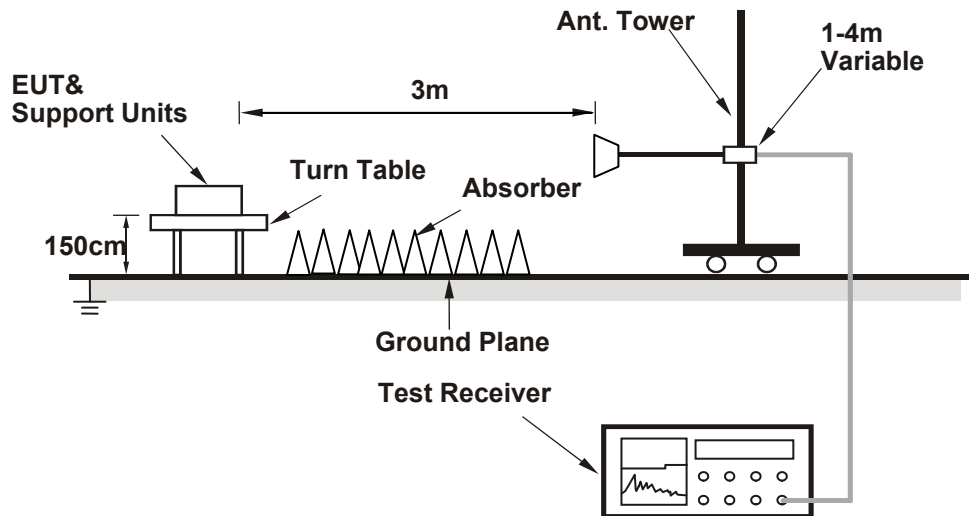
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

- Placed the EUT on the testing table.
- Prepared a notebook to act as a communication partner and placed it outside of testing area.
- 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.
- The communication partner sent data to EUT by command "PING".
- The necessary accessories enable the system in full functions.

4.1.7 Test Results

Above 1GHz Worst-Case Data :

802.11b

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	2390.00	56.0 PK	74.0	-18.0	1.14 H	53	23.30	32.70
2	2390.00	45.2 AV	54.0	-8.8	1.14 H	53	12.50	32.70
3	*2412.00	107.2 PK			1.14 H	53	74.40	32.80
4	*2412.00	103.4 AV			1.14 H	53	70.60	32.80
5	4824.00	51.8 PK	74.0	-22.2	1.00 H	142	44.90	6.90
6	4824.00	46.0 AV	54.0	-8.0	1.00 H	142	39.10	6.90
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	2390.00	57.8 PK	74.0	-16.2	2.23 V	213	25.10	32.70
2	2390.00	46.6 AV	54.0	-7.4	2.23 V	213	13.90	32.70
3	*2412.00	117.1 PK			2.23 V	213	84.30	32.80
4	*2412.00	113.3 AV			2.23 V	213	80.50	32.80
5	4824.00	54.6 PK	74.0	-19.4	1.07 V	204	47.70	6.90
6	4824.00	50.3 AV	54.0	-3.7	1.07 V	204	43.40	6.90

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.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	*2437.00	107.8 PK			1.18 H	54	74.80	33.00
2	*2437.00	104.2 AV			1.18 H	54	71.20	33.00
3	4874.00	52.2 PK	74.0	-21.8	1.00 H	143	45.20	7.00
4	4874.00	46.9 AV	54.0	-7.1	1.00 H	143	39.90	7.00
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	*2437.00	119.6 PK			1.05 V	153	86.60	33.00
2	*2437.00	115.8 AV			1.05 V	153	82.80	33.00
3	4874.00	52.9 PK	74.0	-21.1	1.00 V	327	45.90	7.00
4	4874.00	47.8 AV	54.0	-6.2	1.00 V	327	40.80	7.00

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.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	*2462.00	108.7 PK			1.38 H	74	75.60	33.10
2	*2462.00	104.9 AV			1.38 H	74	71.80	33.10
3	2483.50	57.0 PK	74.0	-17.0	1.38 H	74	23.80	33.20
4	2483.50	46.5 AV	54.0	-7.5	1.38 H	74	13.30	33.20
5	4924.00	51.8 PK	74.0	-22.2	1.00 H	66	44.70	7.10
6	4924.00	44.2 AV	54.0	-9.8	1.00 H	66	37.10	7.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	118.8 PK			2.74 V	185	85.70	33.10
2	*2462.00	115.0 AV			2.74 V	185	81.90	33.10
3	2483.50	58.5 PK	74.0	-15.5	2.74 V	185	25.30	33.20
4	2483.50	48.2 AV	54.0	-5.8	2.74 V	185	15.00	33.20
5	4924.00	52.9 PK	74.0	-21.1	1.45 V	170	45.80	7.10
6	4924.00	47.4 AV	54.0	-6.6	1.45 V	170	40.30	7.10

REMARKS:

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

802.11g

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	2390.00	60.3 PK	74.0	-13.7	3.49 H	153	27.60	32.70
2	2390.00	47.4 AV	54.0	-6.6	3.49 H	153	14.70	32.70
3	*2412.00	108.1 PK			3.49 H	153	75.30	32.80
4	*2412.00	97.8 AV			3.49 H	153	65.00	32.80
5	4824.00	47.2 PK	74.0	-26.8	1.57 H	84	40.30	6.90
6	4824.00	34.9 AV	54.0	-19.1	1.57 H	84	28.00	6.90
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	2390.00	64.2 PK	74.0	-9.8	2.94 V	178	31.50	32.70
2	2390.00	49.9 AV	54.0	-4.1	2.94 V	178	17.20	32.70
3	*2412.00	114.7 PK			2.94 V	178	81.90	32.80
4	*2412.00	105.0 AV			2.94 V	178	72.20	32.80
5	4824.00	47.9 PK	74.0	-26.1	1.82 V	235	41.00	6.90
6	4824.00	35.6 AV	54.0	-18.4	1.82 V	235	28.70	6.90

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.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	*2437.00	112.1 PK			3.35 H	154	79.10	33.00
2	*2437.00	101.9 AV			3.35 H	154	68.90	33.00
3	4874.00	50.2 PK	74.0	-23.8	1.49 H	79	43.20	7.00
4	4874.00	36.2 AV	54.0	-17.8	1.49 H	79	29.20	7.00
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	*2437.00	119.3 PK			1.49 V	153	86.30	33.00
2	*2437.00	109.8 AV			1.49 V	153	76.80	33.00
3	4874.00	52.9 PK	74.0	-21.1	1.00 V	326	45.90	7.00
4	4874.00	40.1 AV	54.0	-13.9	1.00 V	326	33.10	7.00

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.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	*2462.00	107.4 PK			3.71 H	156	74.30	33.10
2	*2462.00	97.8 AV			3.71 H	156	64.70	33.10
3	2483.50	62.9 PK	74.0	-11.1	3.71 H	156	29.70	33.20
4	2483.50	47.7 AV	54.0	-6.3	3.71 H	156	14.50	33.20
5	4924.00	47.9 PK	74.0	-26.1	1.68 H	72	40.80	7.10
6	4924.00	35.3 AV	54.0	-18.7	1.68 H	72	28.20	7.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	115.1 PK			2.77 V	175	82.00	33.10
2	*2462.00	105.5 AV			2.77 V	175	72.40	33.10
3	2483.50	64.7 PK	74.0	-9.3	2.77 V	175	31.50	33.20
4	2483.50	49.4 AV	54.0	-4.6	2.77 V	175	16.20	33.20
5	4924.00	47.5 PK	74.0	-26.5	1.55 V	233	40.40	7.10
6	4924.00	35.0 AV	54.0	-19.0	1.55 V	233	27.90	7.10

REMARKS:

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

802.11n (HT20)

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	2390.00	59.4 PK	74.0	-14.6	3.95 H	156	26.70	32.70
2	2390.00	47.7 AV	54.0	-6.3	3.95 H	156	15.00	32.70
3	*2412.00	108.2 PK			3.95 H	156	75.40	32.80
4	*2412.00	98.2 AV			3.95 H	156	65.40	32.80
5	4824.00	48.0 PK	74.0	-26.0	1.62 H	59	41.10	6.90
6	4824.00	35.2 AV	54.0	-18.8	1.62 H	59	28.30	6.90
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	2390.00	64.7 PK	74.0	-9.3	2.65 V	173	32.00	32.70
2	2390.00	51.6 AV	54.0	-2.4	2.65 V	173	18.90	32.70
3	*2412.00	115.6 PK			2.65 V	173	82.80	32.80
4	*2412.00	104.6 AV			2.65 V	173	71.80	32.80
5	4824.00	47.5 PK	74.0	-26.5	1.49 V	250	40.60	6.90
6	4824.00	35.5 AV	54.0	-18.5	1.49 V	250	28.60	6.90

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.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	*2437.00	113.0 PK			3.99 H	158	80.00	33.00
2	*2437.00	103.1 AV			3.99 H	158	70.10	33.00
3	4874.00	50.3 PK	74.0	-23.7	1.60 H	91	43.30	7.00
4	4874.00	36.5 AV	54.0	-17.5	1.60 H	91	29.50	7.00
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	*2437.00	119.1 PK			1.86 V	156	86.10	33.00
2	*2437.00	109.7 AV			1.86 V	156	76.70	33.00
3	4874.00	53.7 PK	74.0	-20.3	1.06 V	327	46.70	7.00
4	4874.00	39.2 AV	54.0	-14.8	1.06 V	327	32.20	7.00

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.

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	*2462.00	107.8 PK			3.79 H	155	74.70	33.10
2	*2462.00	97.5 AV			3.79 H	155	64.40	33.10
3	2483.50	58.9 PK	74.0	-15.1	3.79 H	155	25.70	33.20
4	2483.50	47.1 AV	54.0	-6.9	3.79 H	155	13.90	33.20
5	4924.00	47.7 PK	74.0	-26.3	1.77 H	96	40.60	7.10
6	4924.00	35.2 AV	54.0	-18.8	1.77 H	96	28.10	7.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	116.2 PK			2.75 V	175	83.10	33.10
2	*2462.00	105.1 AV			2.75 V	175	72.00	33.10
3	2483.50	64.8 PK	74.0	-9.2	2.75 V	175	31.60	33.20
4	2483.50	49.8 AV	54.0	-4.2	2.75 V	175	16.60	33.20
5	4924.00	47.4 PK	74.0	-26.6	1.58 V	262	40.30	7.10
6	4924.00	35.0 AV	54.0	-19.0	1.58 V	262	27.90	7.10

REMARKS:

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

802.11n (HT40)

CHANNEL	TX Channel 3	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	2390.00	57.3 PK	74.0	-16.7	3.98 H	157	24.60	32.70
2	2390.00	45.8 AV	54.0	-8.2	3.98 H	157	13.10	32.70
3	*2422.00	101.9 PK			3.98 H	157	69.00	32.90
4	*2422.00	93.0 AV			3.98 H	157	60.10	32.90
5	4844.00	48.8 PK	74.0	-25.2	1.46 H	35	41.80	7.00
6	4844.00	35.1 AV	54.0	-18.9	1.46 H	35	28.10	7.00
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	2390.00	62.8 PK	74.0	-11.2	1.11 V	273	30.10	32.70
2	2390.00	50.8 AV	54.0	-3.2	1.11 V	273	18.10	32.70
3	*2422.00	107.8 PK			1.11 V	273	74.90	32.90
4	*2422.00	98.7 AV			1.11 V	273	65.80	32.90
5	4844.00	48.5 PK	74.0	-25.5	1.00 V	155	41.50	7.00
6	4844.00	35.6 AV	54.0	-18.4	1.00 V	155	28.60	7.00

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.

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	*2437.00	104.9 PK			4.00 H	154	71.90	33.00
2	*2437.00	95.9 AV			4.00 H	154	62.90	33.00
3	4874.00	49.3 PK	74.0	-24.7	1.44 H	30	42.30	7.00
4	4874.00	36.1 AV	54.0	-17.9	1.44 H	30	29.10	7.00
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	*2437.00	112.3 PK			1.49 V	152	79.30	33.00
2	*2437.00	103.6 AV			1.49 V	152	70.60	33.00
3	4874.00	50.0 PK	74.0	-24.0	1.18 V	56	43.00	7.00
4	4874.00	37.4 AV	54.0	-16.6	1.18 V	56	30.40	7.00

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.

CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		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	*2452.00	103.6 PK			3.46 H	152	70.50	33.10
2	*2452.00	94.4 AV			3.46 H	152	61.30	33.10
3	2483.50	59.6 PK	74.0	-14.4	3.46 H	152	26.40	33.20
4	2483.50	46.9 AV	54.0	-7.1	3.46 H	152	13.70	33.20
5	4904.00	49.1 PK	74.0	-24.9	1.92 H	101	42.00	7.10
6	4904.00	35.7 AV	54.0	-18.3	1.92 H	101	28.60	7.10
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	111.2 PK			2.83 V	173	78.10	33.10
2	*2452.00	102.2 AV			2.83 V	173	69.10	33.10
3	2483.50	64.4 PK	74.0	-9.6	2.83 V	173	31.20	33.20
4	2483.50	49.7 AV	54.0	-4.3	2.83 V	173	16.50	33.20
5	4904.00	48.9 PK	74.0	-25.1	1.72 V	234	41.80	7.10
6	4904.00	36.0 AV	54.0	-18.0	1.72 V	234	28.90	7.10

REMARKS:

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

Below 1GHz Worst-Case Data: 802.11g

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 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	125.17	34.5 QP	43.5	-9.0	2.00 H	282	50.20	-15.70
2	249.60	33.9 QP	46.0	-12.1	1.00 H	166	48.10	-14.20
3	449.87	33.4 QP	46.0	-12.6	2.00 H	7	42.70	-9.30
4	624.85	27.6 QP	46.0	-18.4	1.24 H	7	33.20	-5.60
5	735.68	31.4 QP	46.0	-14.6	1.00 H	155	34.70	-3.30
6	961.21	39.2 QP	54.0	-14.8	1.24 H	160	38.70	0.50
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	45.45	37.1 QP	40.0	-2.9	1.26 V	13	51.50	-14.40
2	249.60	31.5 QP	46.0	-14.5	1.01 V	184	45.70	-14.20
3	436.26	37.5 QP	46.0	-8.5	1.26 V	104	47.10	-9.60
4	576.25	29.3 QP	46.0	-16.7	1.51 V	163	36.40	-7.10
5	749.29	31.1 QP	46.0	-14.9	1.01 V	313	34.10	-3.00
6	961.21	39.8 QP	54.0	-14.2	1.01 V	285	39.30	0.50

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

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

Note: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

Tested date: Dec. 15, 2016

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCS 30	100288	Aug. 18, 2016	Aug. 17, 2017
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond2-01	Dec. 26, 2015	Dec. 25, 2016
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Jan. 11, 2016	Jan. 10, 2017
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Jul. 26, 2016	Jul. 25, 2017
Software ADT	BV ADT_Conc_ 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 2.

3. The VCCI Site Registration No. is C-2047.

4.2.3 Test Procedures

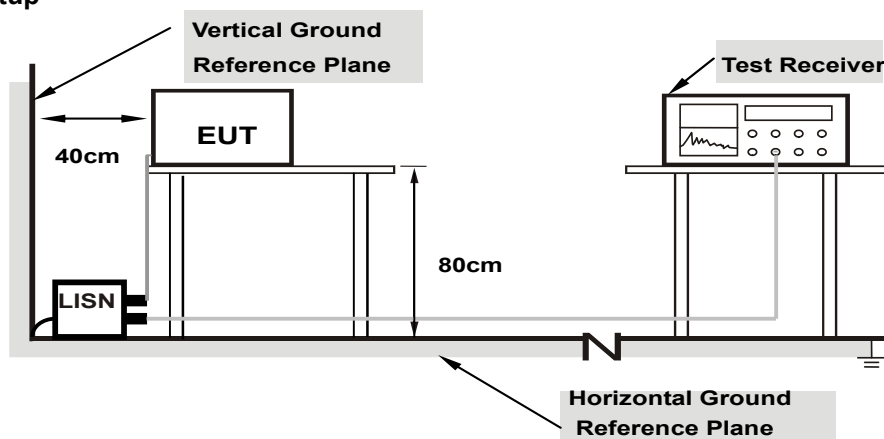
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance 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: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

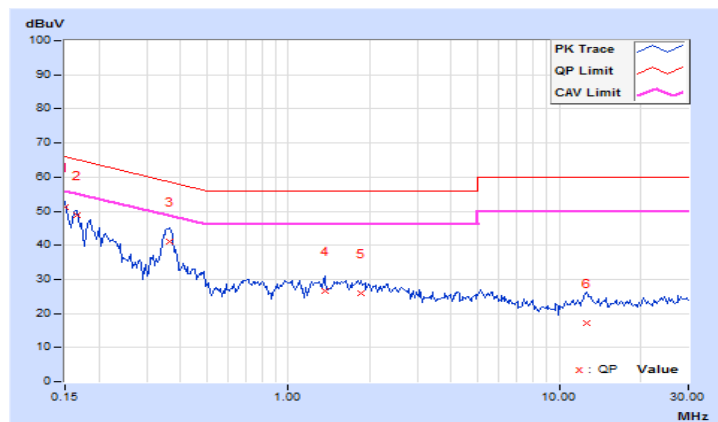
4.2.7 Test Results

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.18	41.02	26.05	51.20	36.23	66.00	56.00	-14.80	-19.77
2	0.16562	10.19	38.48	23.83	48.67	34.02	65.18	55.18	-16.51	-21.16
3	0.36484	10.23	30.72	20.70	40.95	30.93	58.62	48.62	-17.67	-17.69
4	1.36719	10.34	16.35	8.46	26.69	18.80	56.00	46.00	-29.31	-27.20
5	1.85156	10.37	15.43	7.43	25.80	17.80	56.00	46.00	-30.20	-28.20
6	12.67578	10.56	6.68	-0.27	17.24	10.29	60.00	50.00	-42.76	-39.71

REMARKS:

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

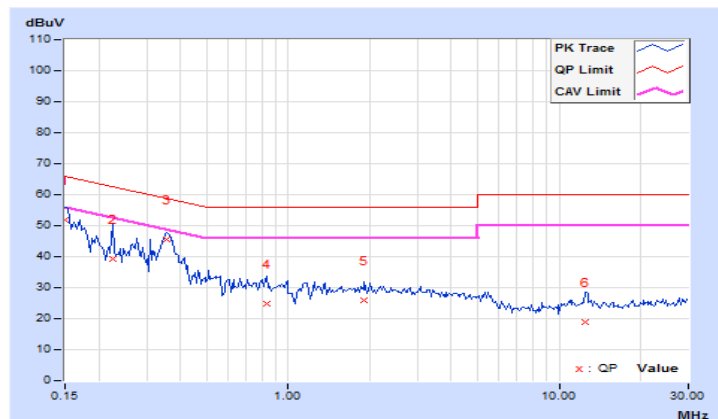


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.19	41.53	29.07	51.72	39.26	66.00	56.00	-14.28	-16.74
2	0.22422	10.21	29.20	15.33	39.41	25.54	62.66	52.66	-23.25	-27.12
3	0.35703	10.28	35.23	28.66	45.51	38.94	58.80	48.80	-13.29	-9.86
4	0.83359	10.29	14.68	4.53	24.97	14.82	56.00	46.00	-31.03	-31.18
5	1.91016	10.40	15.49	8.00	25.89	18.40	56.00	46.00	-30.11	-27.60
6	12.53125	10.67	8.13	1.64	18.80	12.31	60.00	50.00	-41.20	-37.69

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.

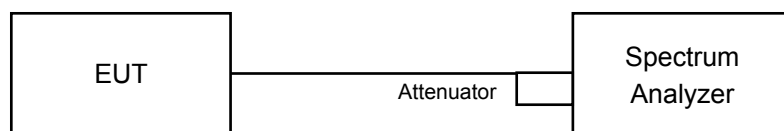


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

- 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

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

CDD Mode

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	8.11	8.12	0.5	Pass
6	2437	9.07	9.07	0.5	Pass
11	2462	9.10	8.07	0.5	Pass

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.42	16.40	0.5	Pass
6	2437	16.35	16.34	0.5	Pass
11	2462	16.39	16.37	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.62	17.62	0.5	Pass
6	2437	17.60	17.61	0.5	Pass
11	2462	17.60	17.60	0.5	Pass

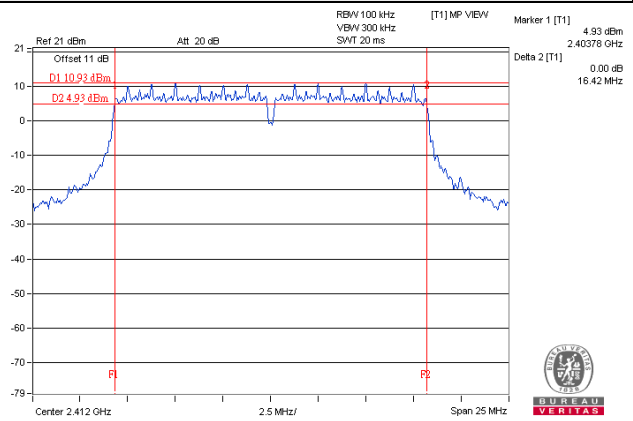
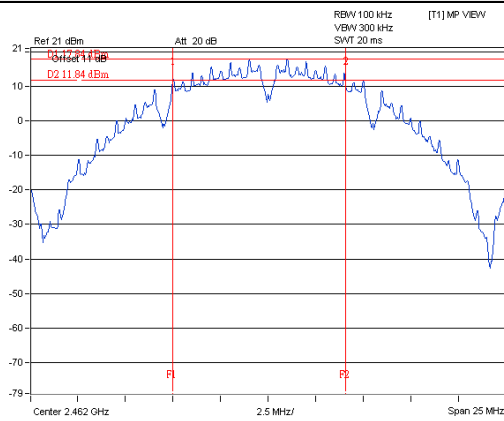
802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.22	35.23	0.5	Pass
6	2437	35.26	35.23	0.5	Pass
9	2452	35.23	35.25	0.5	Pass

Spectrum Plot of Worst Value

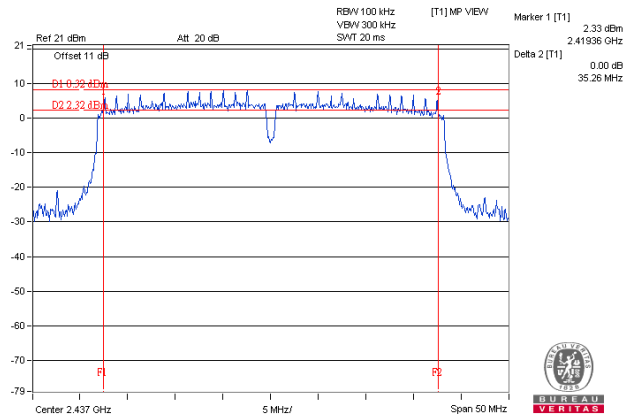
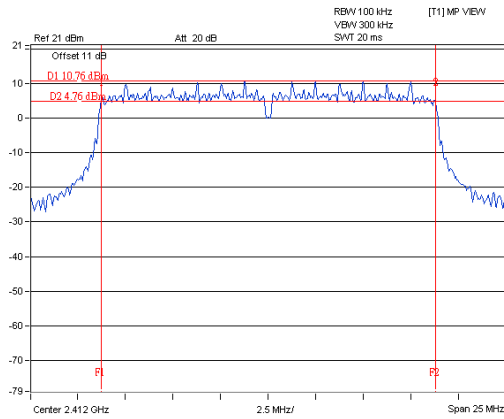
802.11b

802.11g



802.11n (HT20)

802.11n (HT40)



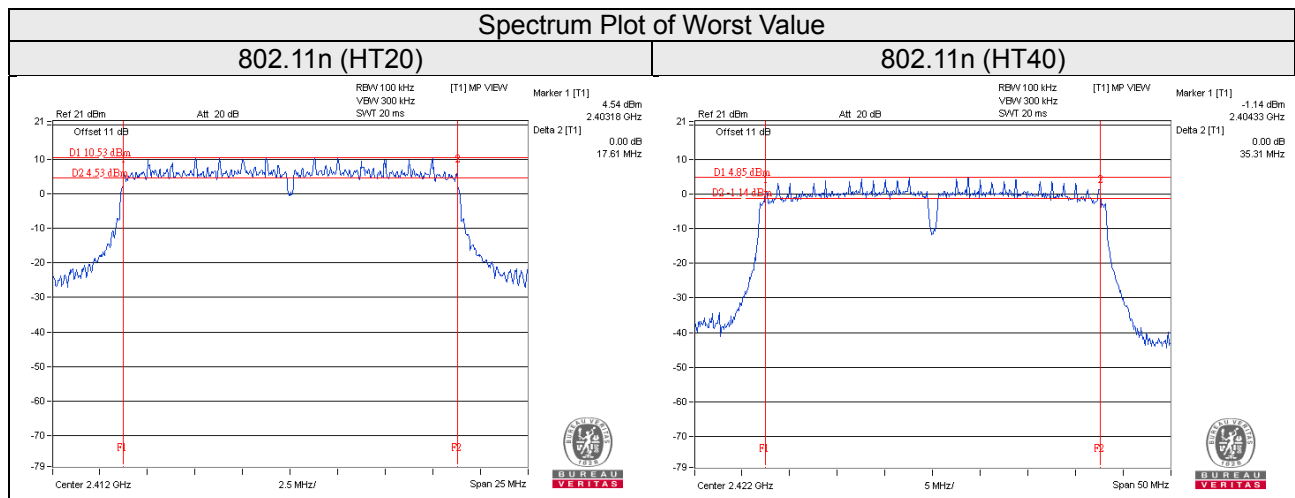
Beamforming NSS1 Mode

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.59	17.61	0.5	Pass
6	2437	17.59	17.57	0.5	Pass
11	2462	17.59	17.59	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.31	35.30	0.5	Pass
6	2437	35.26	35.20	0.5	Pass
9	2452	35.21	35.26	0.5	Pass



4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)
Per KDB 662911 D01 Multiple Transmitter Output Method of conducted output power measurement on IEEE 802.11 devices,

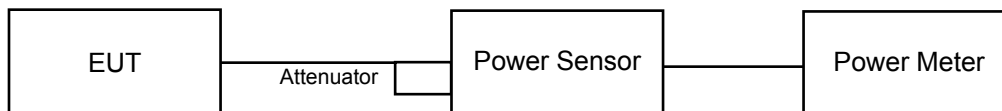
Array Gain = 0 dB (i.e., no array gain) for $NANT \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 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.

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

An average power sensor was used on the output port of the EUT. A power meter was used to read the response of the average power sensor. Record the power level.

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as item 4.3.6.

4.4.7 Test Results

CDD Mode

802.11b

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	25.43	25.28	686.427	28.37	30	Pass
6	2437	26.33	26.18	844.490	29.27	30	Pass
11	2462	26.11	25.97	803.686	29.05	30	Pass

802.11g

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	21.63	21.38	282.950	24.52	30	Pass
6	2437	26.68	26.45	907.156	29.58	30	Pass
11	2462	21.57	21.38	280.953	24.49	30	Pass

802.11n (HT20)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	21.60	21.36	281.317	24.49	30	Pass
6	2437	26.62	26.34	889.725	29.49	30	Pass
11	2462	21.65	21.37	283.306	24.52	30	Pass

802.11n (HT40)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	18.89	18.76	152.608	21.84	30	Pass
6	2437	22.08	21.72	310.030	24.91	30	Pass
9	2452	21.36	21.19	268.295	24.29	30	Pass

Beamforming NSS1 Mode

802.11n (HT20)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	21.54	21.66	289.116	24.61	30	Pass
6	2437	26.51	26.47	891.322	29.50	30	Pass
11	2462	21.58	21.44	283.196	24.52	30	Pass

Note: Directional gain = 2.61dBi < 6dBi, so the power limit is not reduced.

802.11n (HT40)

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	18.74	18.93	152.980	21.85	30	Pass
6	2437	22.14	21.62	308.893	24.90	30	Pass
9	2452	21.74	21.26	282.939	24.52	30	Pass

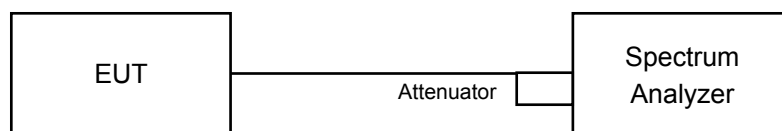
Note: Directional gain = 2.61dBi < 6dBi, so the power limit is not reduced.

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

For AVG. power (duty cycle $\geq 98\%$)

- Set instrument center frequency to DTS channel center frequency.
- Set span to at least 1.5 times the OBW.
- Set RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- Set VBW $\geq 3 \times \text{RBW}$.
- Detector = power averaging (RMS) or sample detector (when RMS not available).
- Ensure that the number of measurement points in the sweep $\geq 2 \times \text{span/RBW}$.
- Sweep time = auto couple.
- Employ trace averaging (RMS) mode over a minimum of 100 traces.
- Use the peak marker function to determine the maximum amplitude level.

For AVG. power (duty cycle $< 98\%$)

- Measure the duty cycle (x).
- Set instrument center frequency to DTS channel center frequency.
- Set span to at least 1.5 times the OBW.
- Set RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- Set VBW $\geq 3 \times \text{RBW}$.
- Detector = power averaging (RMS) or sample detector (when RMS not available).
- Ensure that the number of measurement points in the sweep $\geq 2 \times \text{span/RBW}$.
- Sweep time = auto couple.
- Do not use sweep triggering. Allow sweep to "free run".
- Employ trace averaging (RMS) mode over a minimum of 100 traces.
- Use the peak marker function to determine the maximum amplitude level.
- Add $10 \log (1/x)$, where x is the duty cycle measured in step (a), to the measured PSD to compute the average PSD during the actual transmission time.

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as item 4.3.6

4.5.7 Test Results

CDD Mode

802.11b

TX chain	Channel	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Total PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass/Fail
0	1	2412	-1.24	3.01	1.77	8.00	Pass
	6	2437	-1.23	3.01	1.78	8.00	Pass
	11	2462	-1.06	3.01	1.95	8.00	Pass
1	1	2412	-1.41	3.01	1.60	8.00	Pass
	6	2437	-0.86	3.01	2.15	8.00	Pass
	11	2462	-0.69	3.01	2.32	8.00	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 = 2.61dBi < 6dBi, so the limit no need to reduced.

802.11g

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/10kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass/Fail
0	1	2412	-8.03	3.01	0.20	-4.82	8.00	Pass
	6	2437	-4.35	3.01	0.20	-1.14	8.00	Pass
	11	2462	-8.44	3.01	0.20	-5.23	8.00	Pass
1	1	2412	-8.27	3.01	0.20	-5.06	8.00	Pass
	6	2437	-4.52	3.01	0.20	-1.31	8.00	Pass
	11	2462	-8.46	3.01	0.20	-5.25	8.00	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 = 2.61dBi < 6dBi, so the limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Channel	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Total PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass/Fail
0	1	2412	-7.86	3.01	-4.85	8.00	Pass
	6	2437	-4.14	3.01	-1.13	8.00	Pass
	11	2462	-7.87	3.01	-4.86	8.00	Pass
1	1	2412	-7.75	3.01	-4.74	8.00	Pass
	6	2437	-3.83	3.01	-0.82	8.00	Pass
	11	2462	-7.44	3.01	-4.43	8.00	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.
- Directional gain = 2.61dBi < 6dBi, so the limit no need to reduced.

802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/10kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass/Fail
0	3	2422	-14.29	3.01	0.16	-11.12	8.00	Pass
	6	2437	-10.76	3.01	0.16	-7.59	8.00	Pass
	9	2452	-11.69	3.01	0.16	-8.52	8.00	Pass
1	3	2422	-14.07	3.01	0.16	-10.90	8.00	Pass
	6	2437	-11.33	3.01	0.16	-8.16	8.00	Pass
	9	2452	-11.66	3.01	0.16	-8.49	8.00	Pass

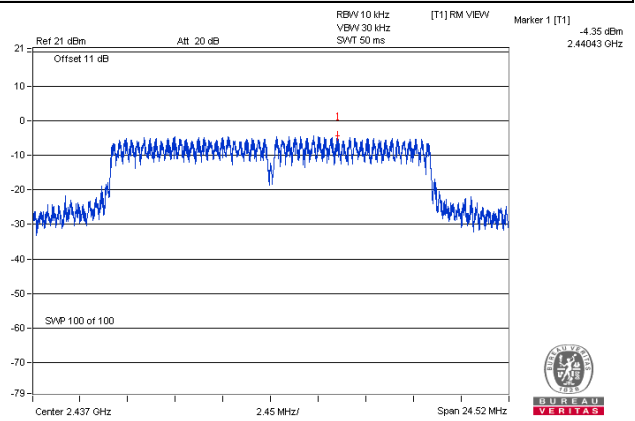
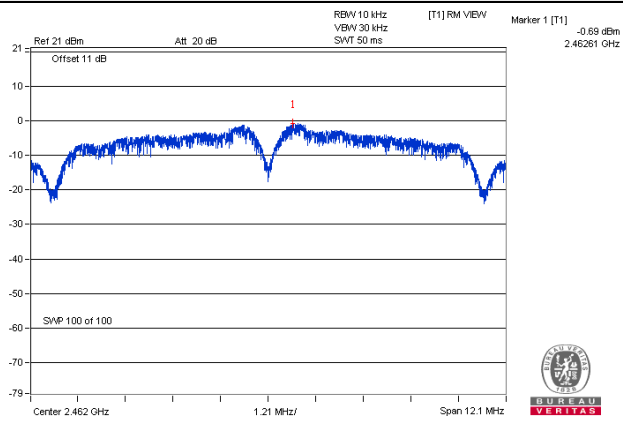
Note:

- 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.
- Directional gain = 2.61dBi < 6dBi, so the limit no need to reduced.
- Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

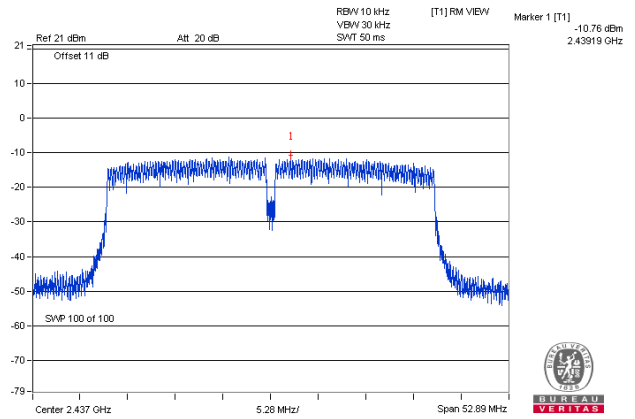
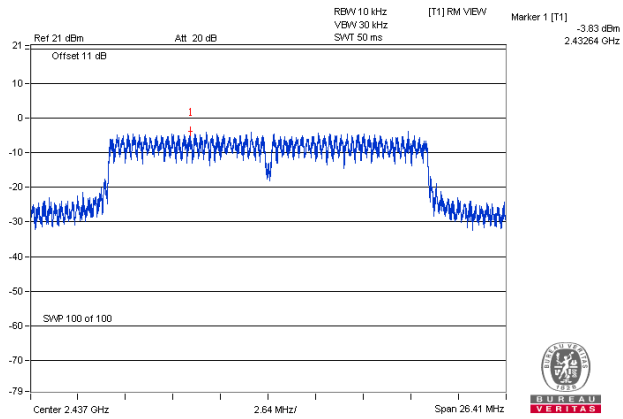
802.11b

802.11g



802.11n (HT20)

802.11n (HT40)



Beamforming NSS1 Mode

802.11n (HT20)

TX chain	Channel	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Total PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass/Fail
0	1	2412	-7.92	3.01	-4.91	8.00	Pass
	6	2437	-4.12	3.01	-1.11	8.00	Pass
	11	2462	-8.06	3.01	-5.05	8.00	Pass
1	1	2412	-8.10	3.01	-5.09	8.00	Pass
	6	2437	-4.04	3.01	-1.03	8.00	Pass
	11	2462	-7.61	3.01	-4.60	8.00	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 = 2.61dBi < 6dBi, so the limit no need to reduced.

802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/10kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass/Fail
0	3	2422	-14.21	3.01	0.15	-11.05	8.00	Pass
	6	2437	-11.51	3.01	0.15	-8.35	8.00	Pass
	9	2452	-12.40	3.01	0.15	-9.24	8.00	Pass
1	3	2422	-14.73	3.01	0.15	-11.57	8.00	Pass
	6	2437	-11.36	3.01	0.15	-8.20	8.00	Pass
	9	2452	-11.46	3.01	0.15	-8.30	8.00	Pass

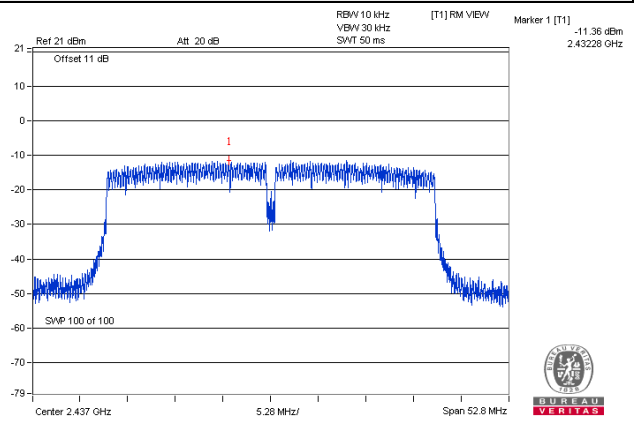
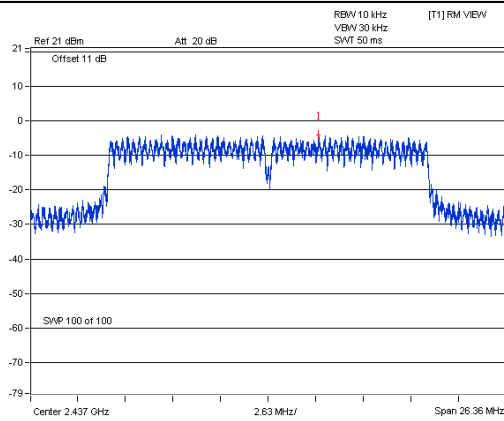
Note:

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 = 2.61dBi < 6dBi, so the limit no need to reduced.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

802.11n (HT20)

802.11n (HT40)

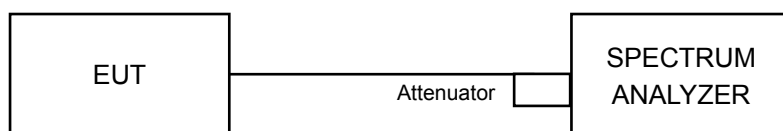


4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

Below 30dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW $\geq$ 300 kHz.
3. Detector = average.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOB

1. Set RBW = 100 kHz.
2. Set VBW $\geq$ 300 kHz.
3. Detector = peak.
4. Sweep = auto couple.
5. Trace Mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

Same as item 4.3.6

4.6.7 Test Results

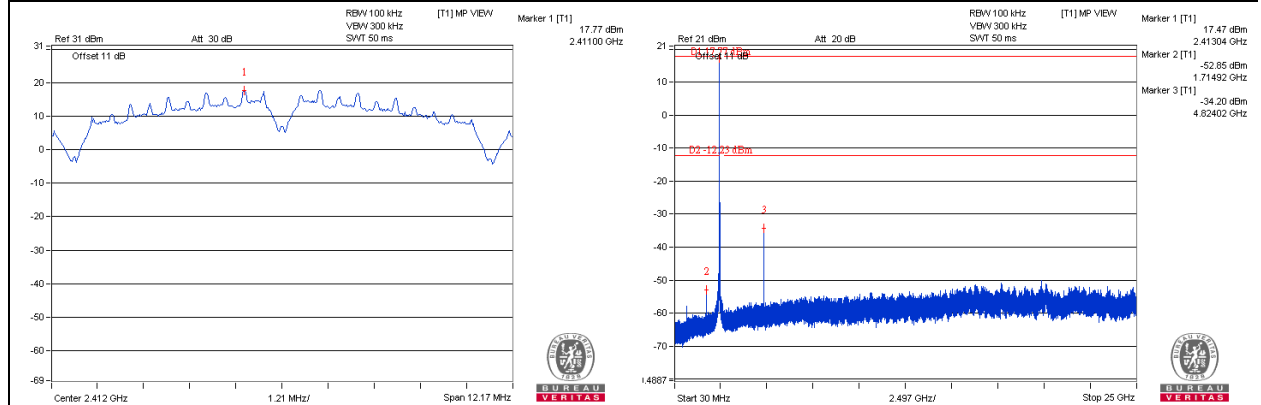
The conducted emission test is performed on each TX port of operating mode without summing or adding $10\log(N)$ since the limit is relative emission limit.

The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows compliance with the requirement.

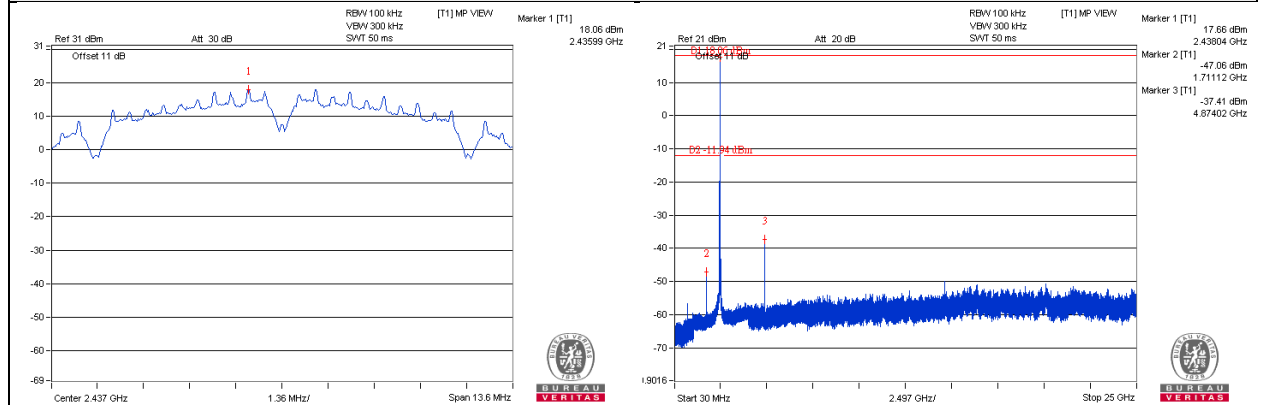
CDD Mode

802.11b_Chain 0

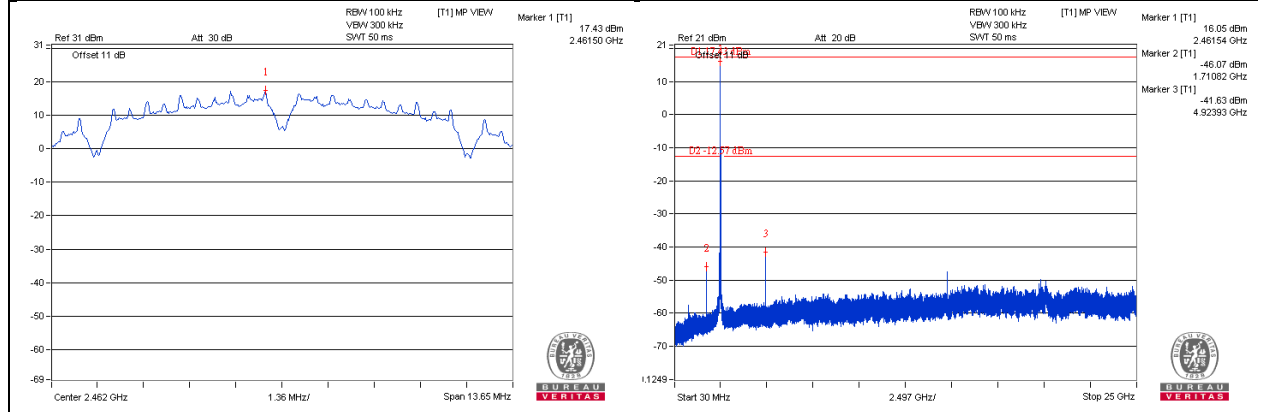
CH 1



CH 6

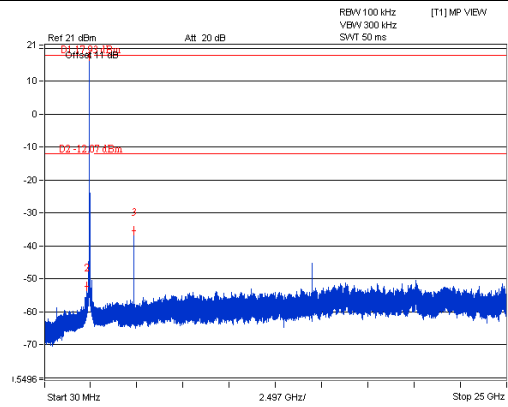
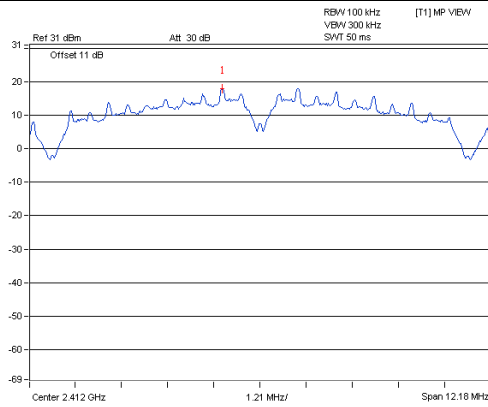


CH 11

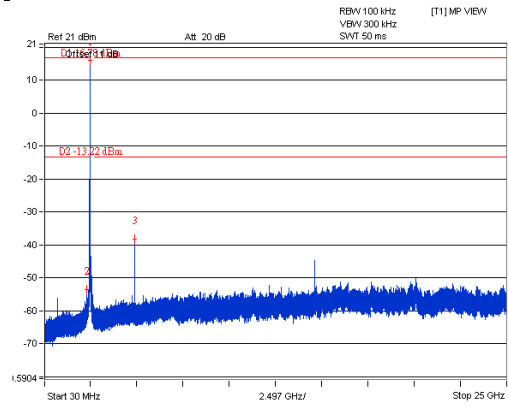
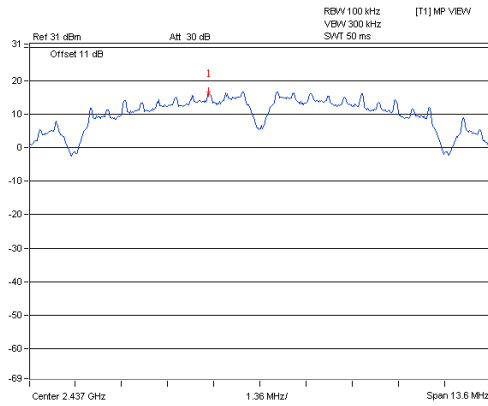


802.11b_Chain 1

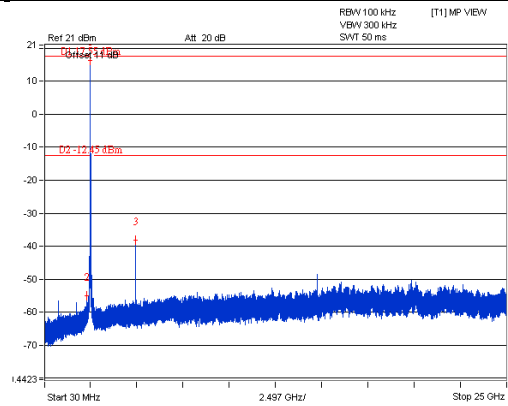
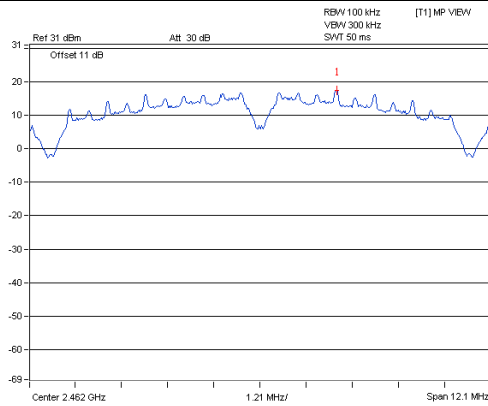
CH 1



CH 6

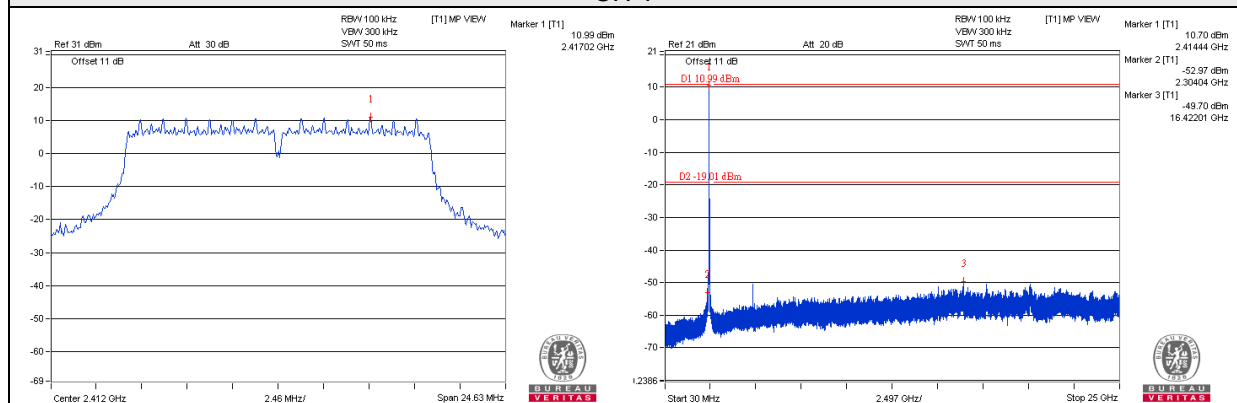


CH 11

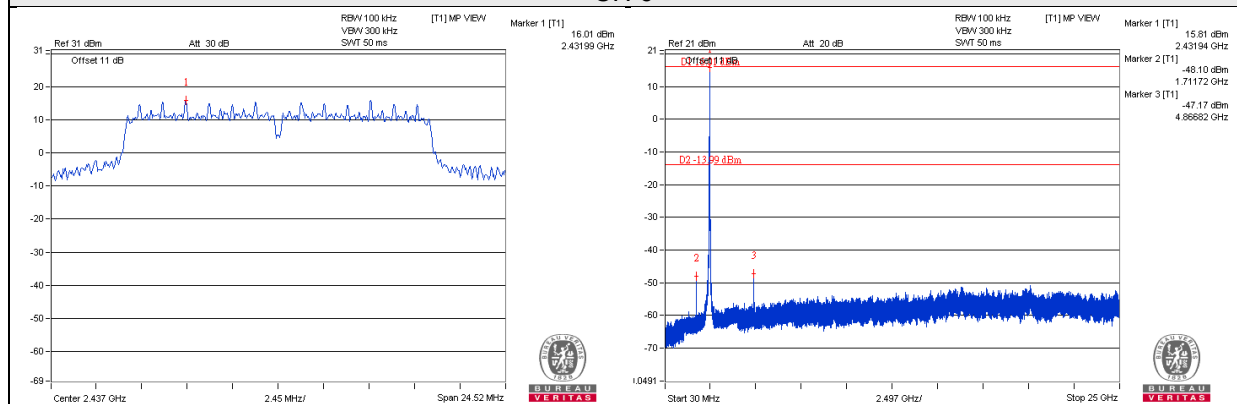


802.11g_Chain 0

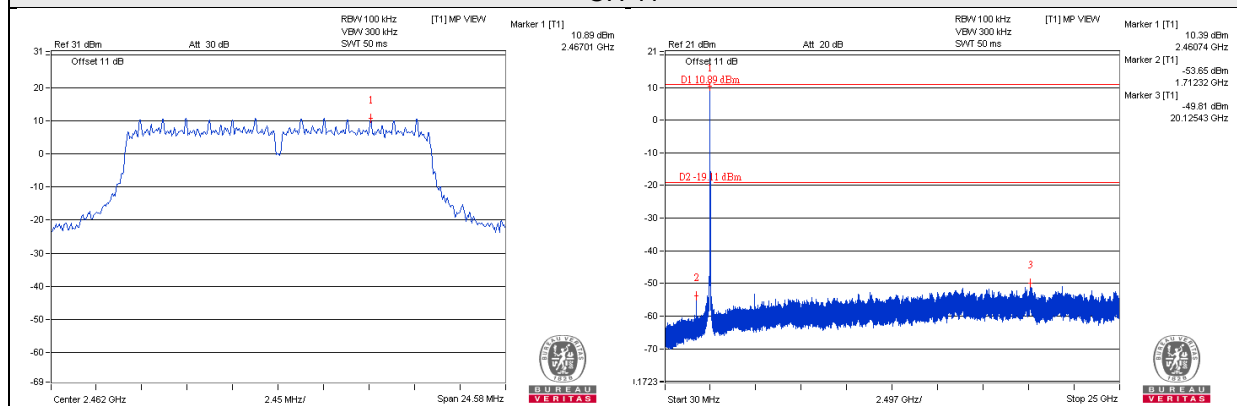
CH 1



CH 6

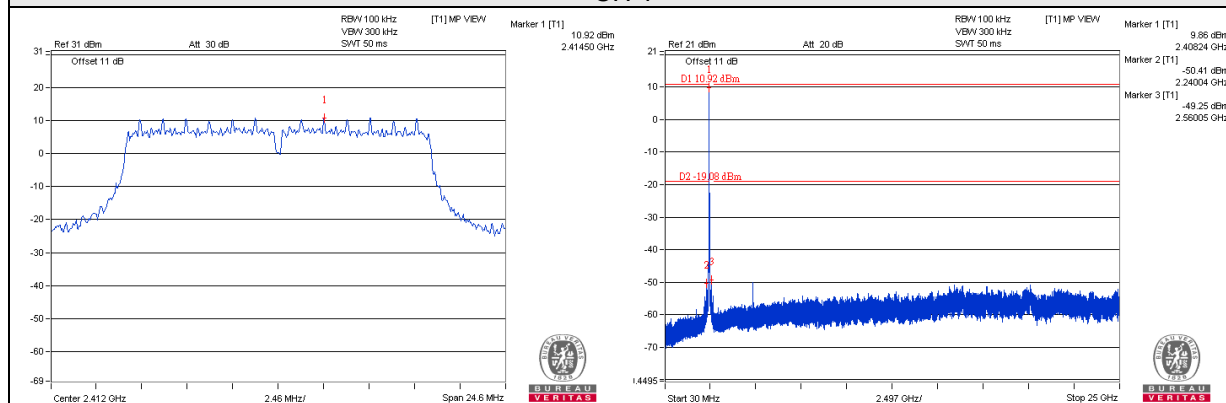


CH 11

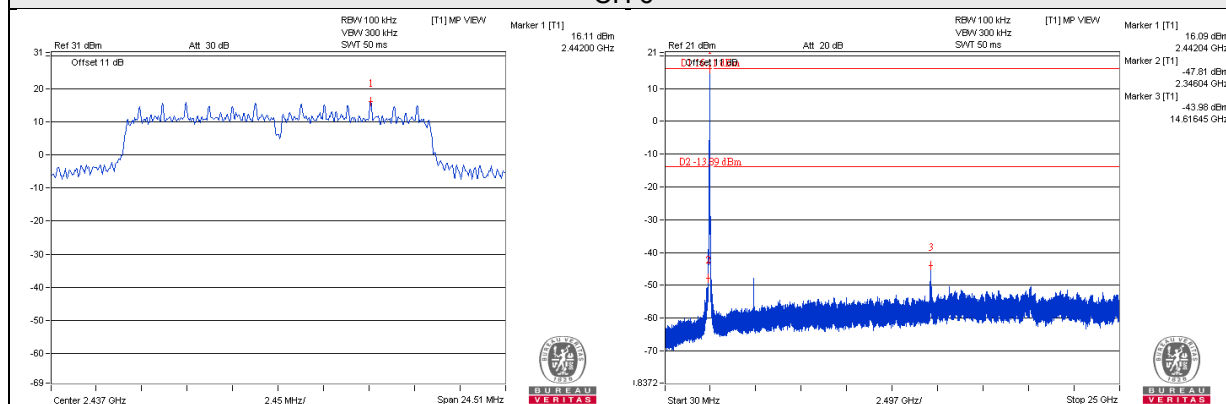


802.11g_Chain 1

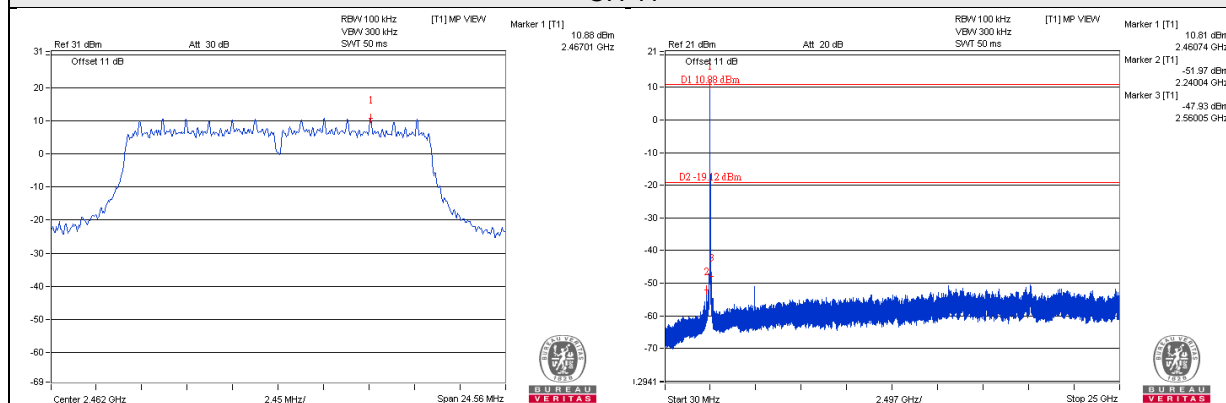
CH 1



CH 6

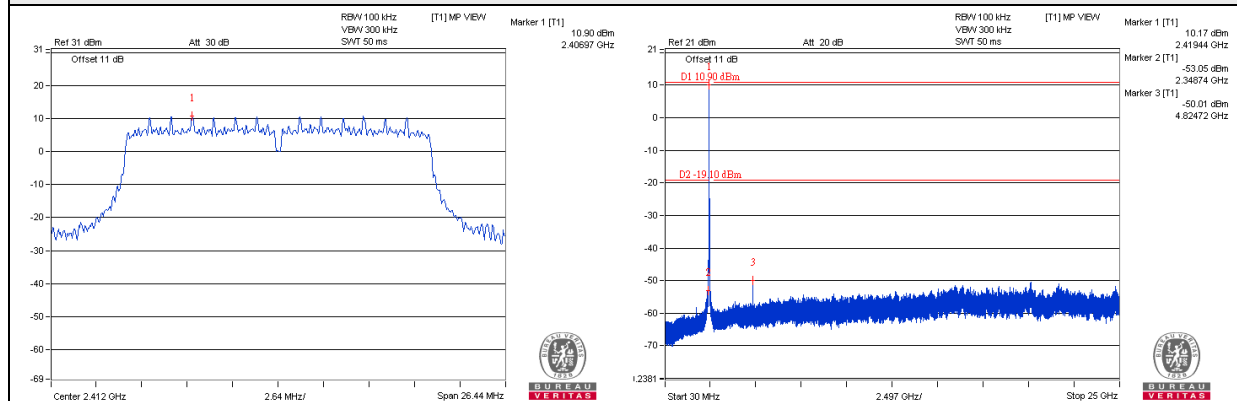


CH 11

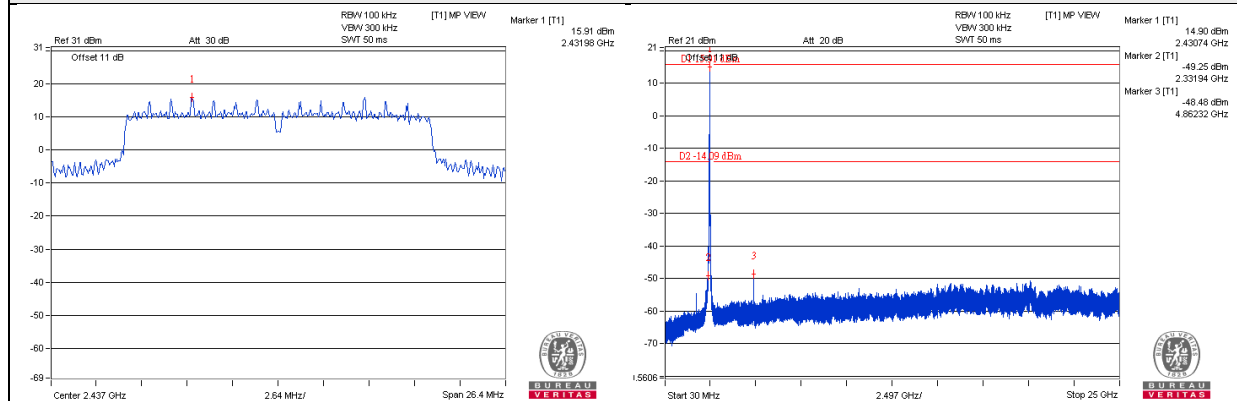


802.11n (HT20)_Chain 0

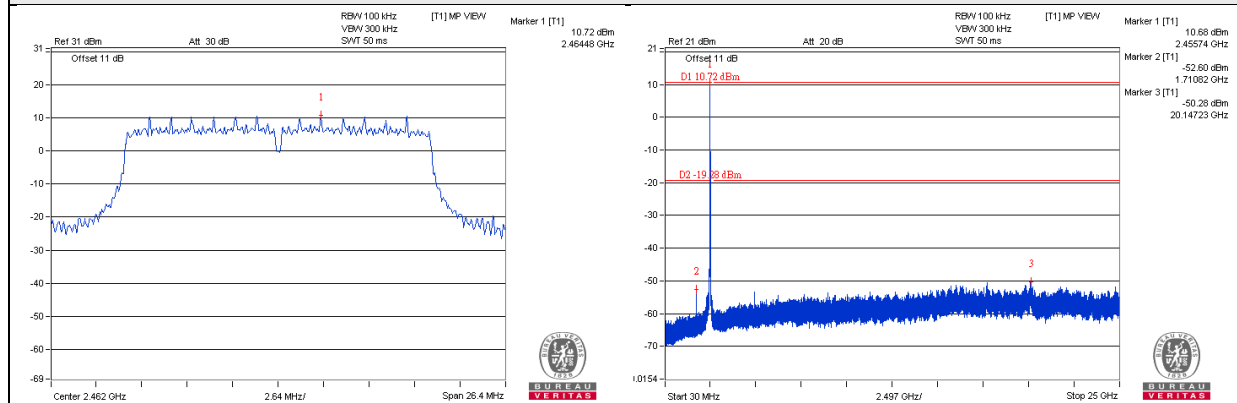
CH 1



CH 6

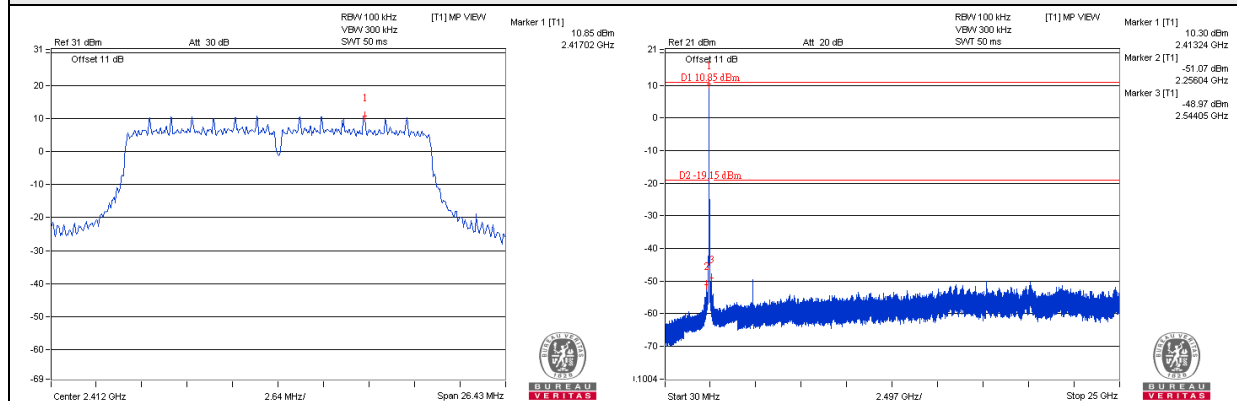


CH 11

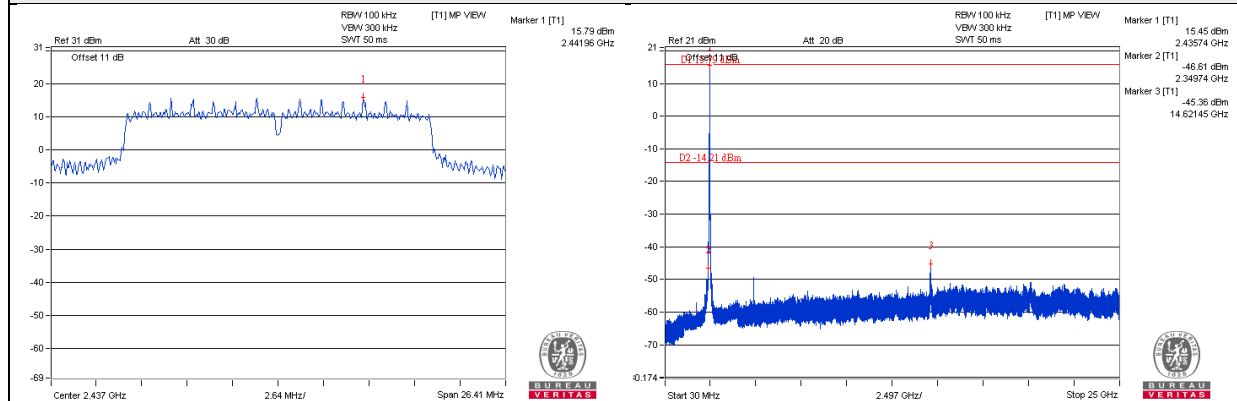


802.11n (HT20)_Chain 1

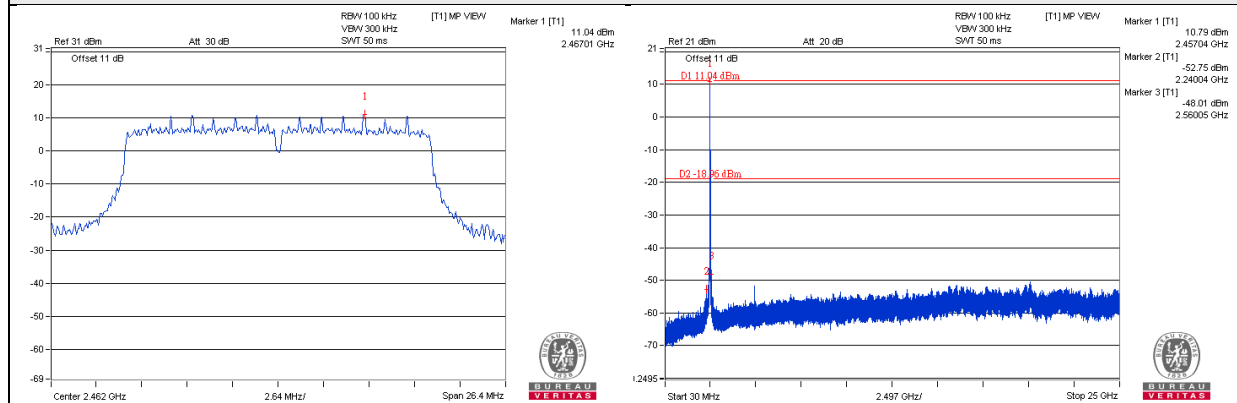
CH 1



CH 6

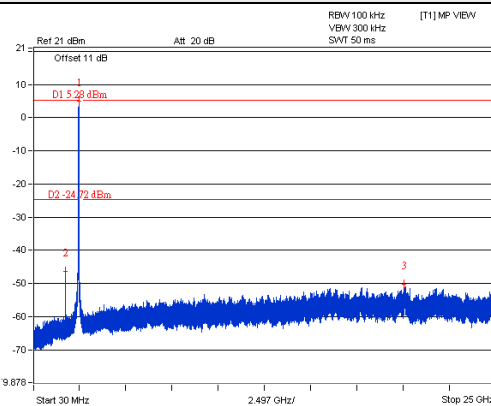
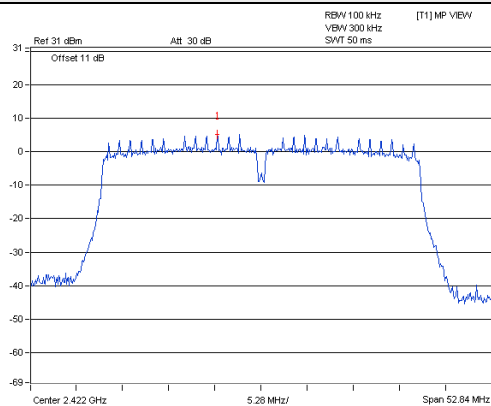


CH 11

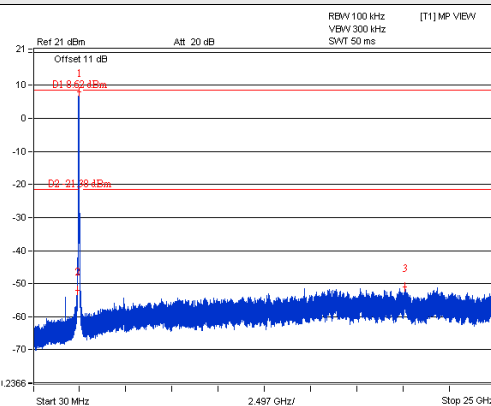
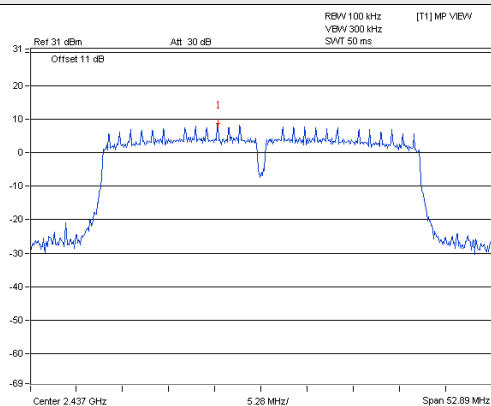


802.11n (HT40)_Chain 0

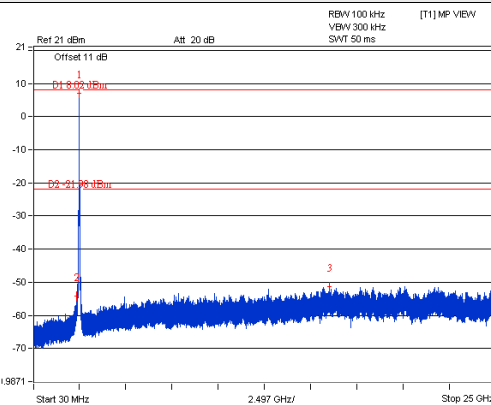
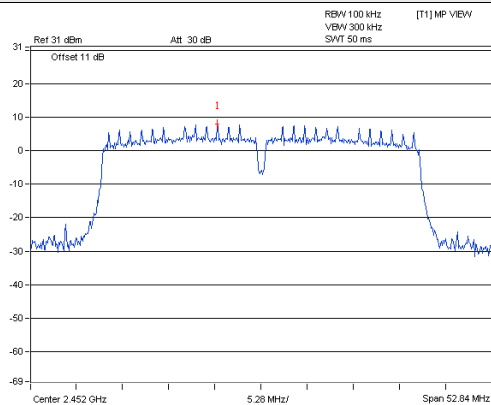
CH 3



CH 6

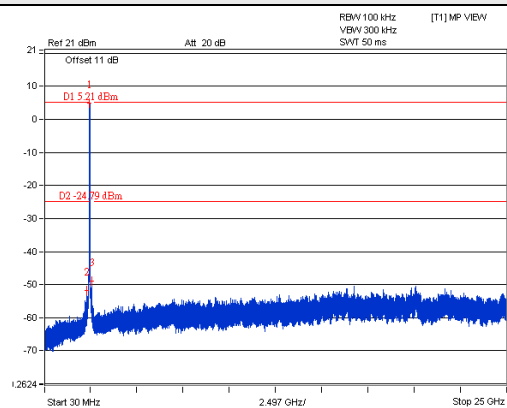
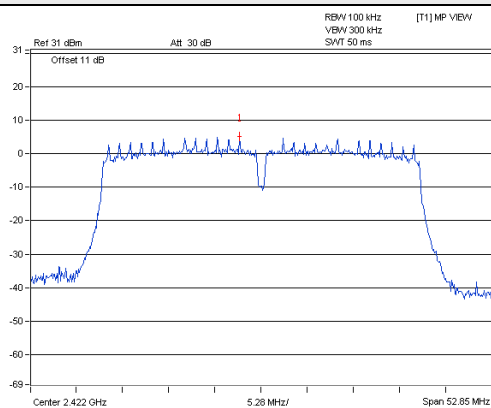


CH 9

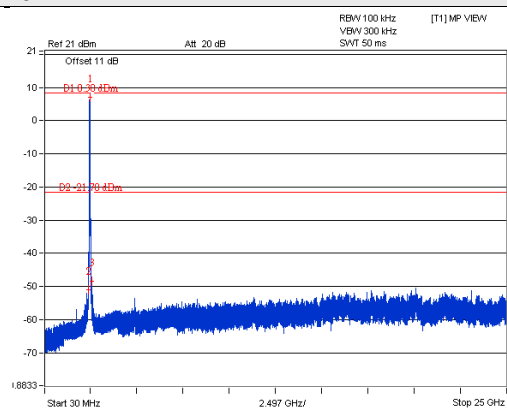
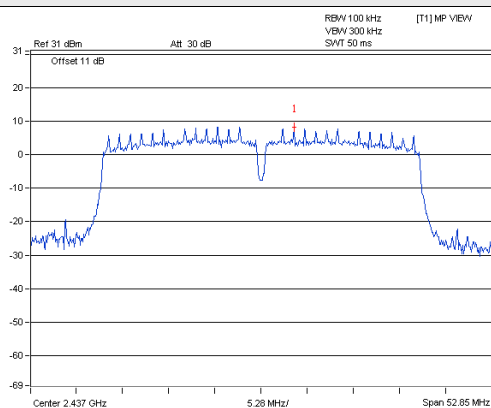


802.11n (HT40)_Chain 1

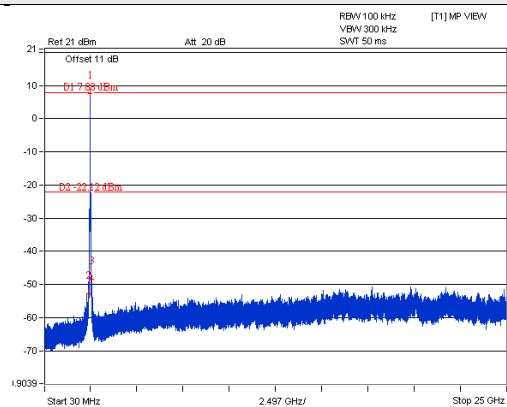
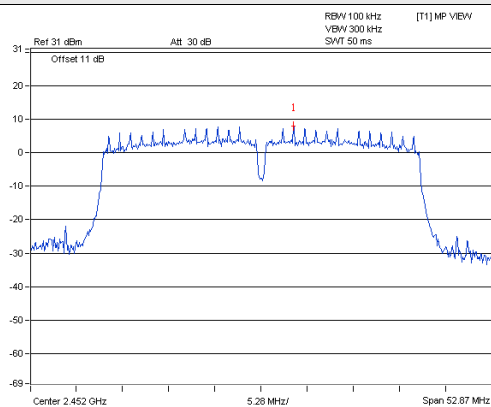
CH 3



CH 6

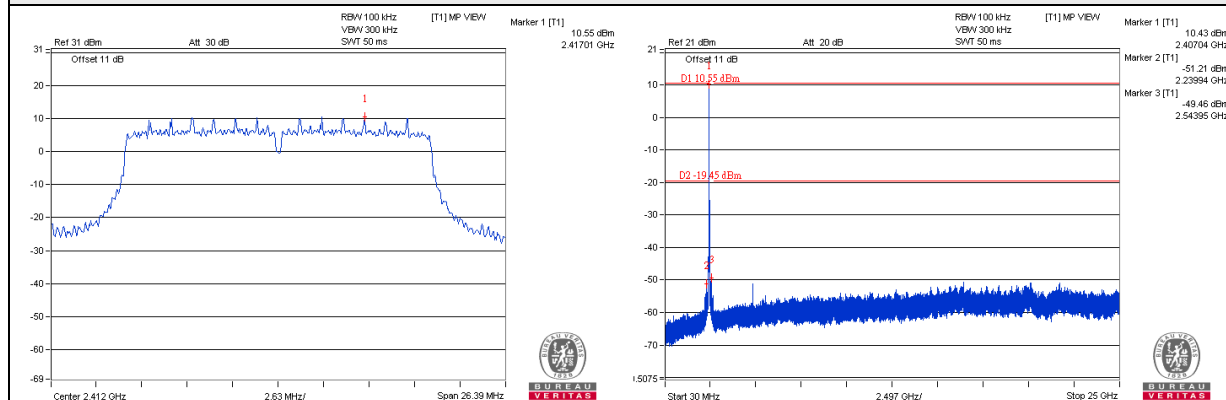


CH 9

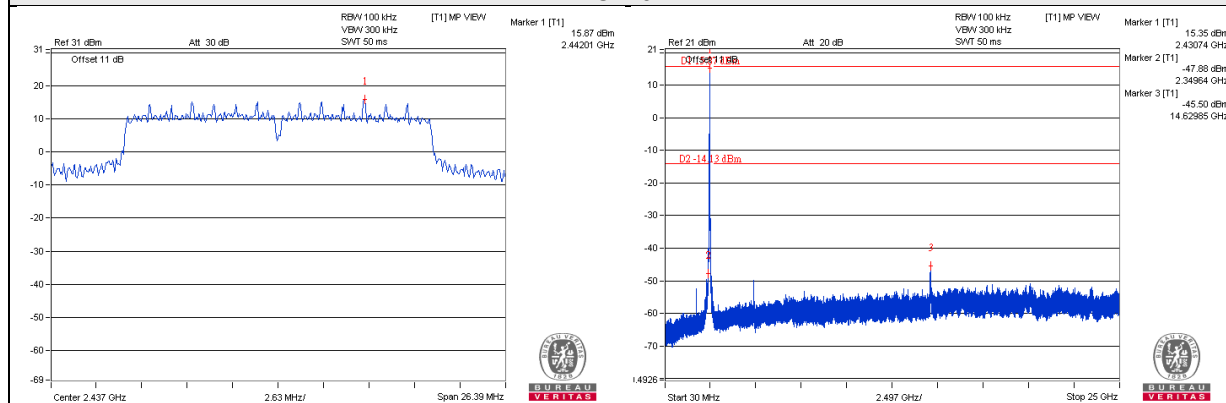


Beamforming NSS1 Mode 802.11n (HT20)_Chain 0

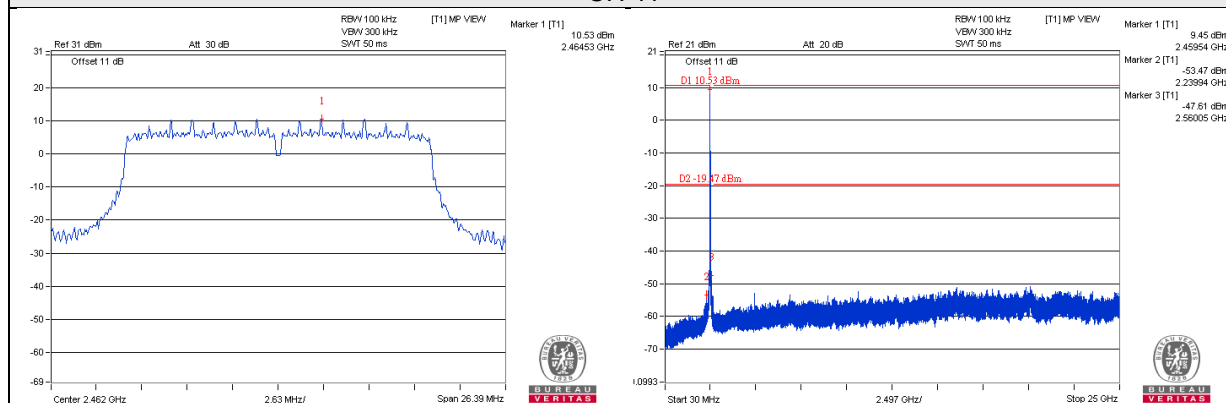
CH 1



CH 6

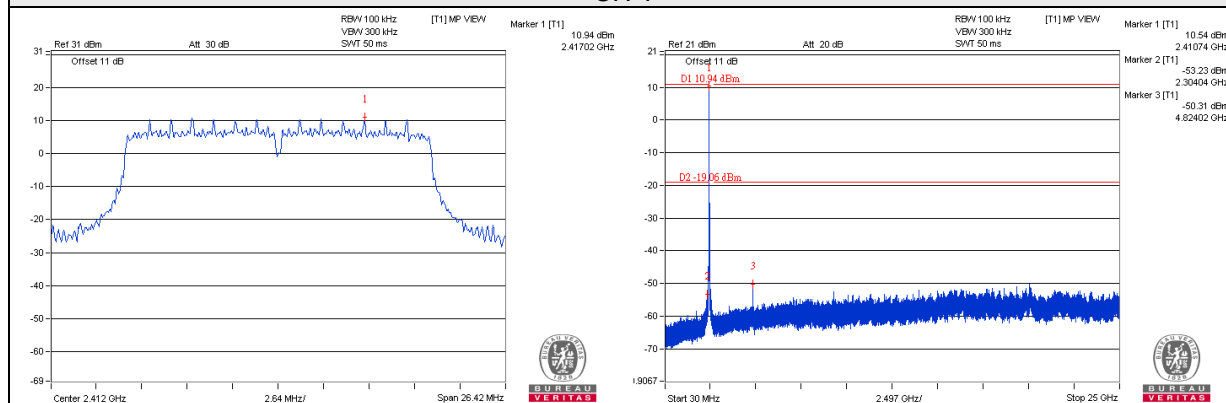


CH 11

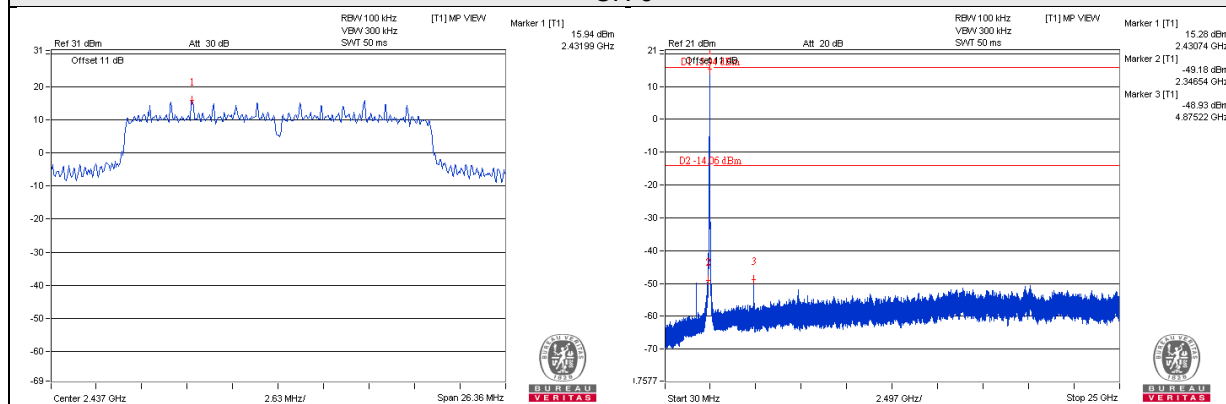


802.11n (HT20)_Chain 1

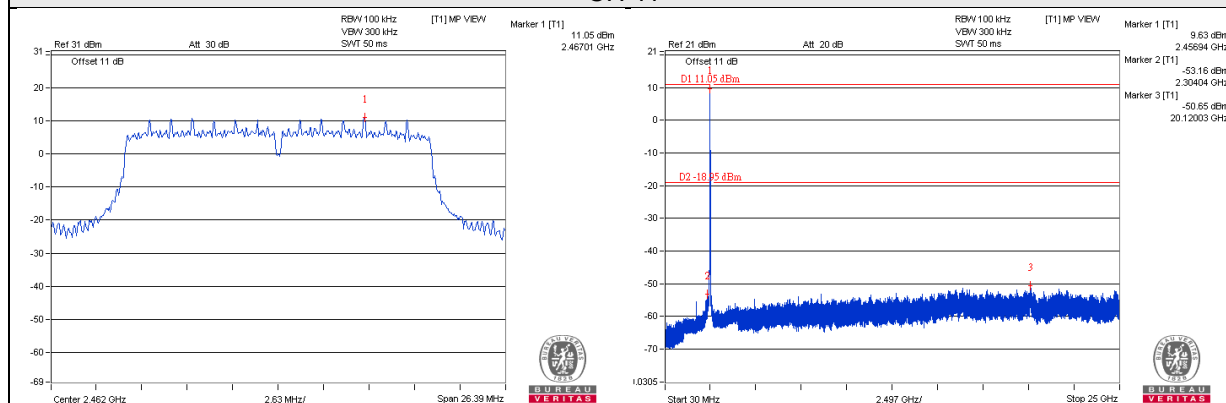
CH 1



CH 6

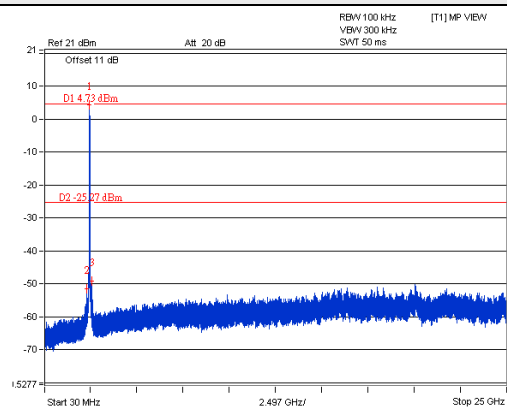
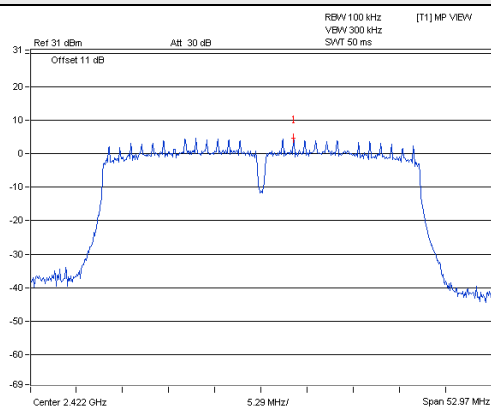


CH 11

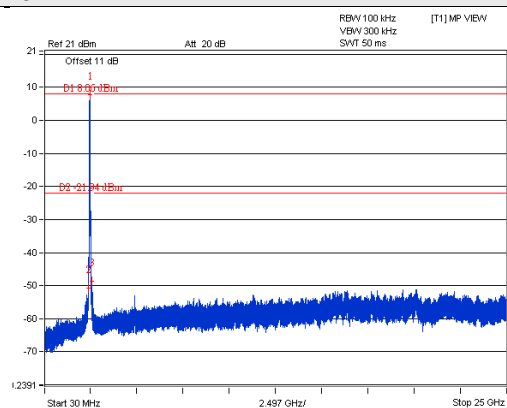
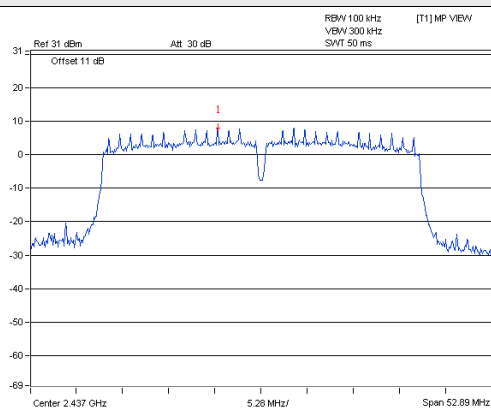


802.11n (HT40)_Chain 0

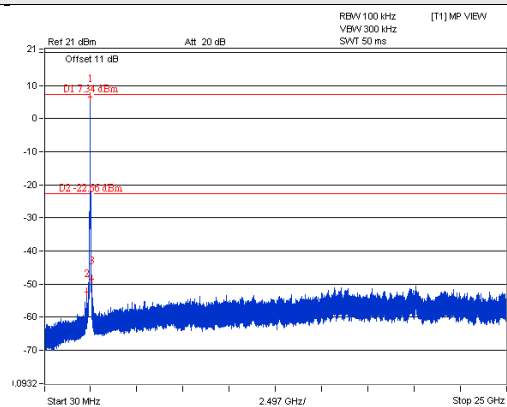
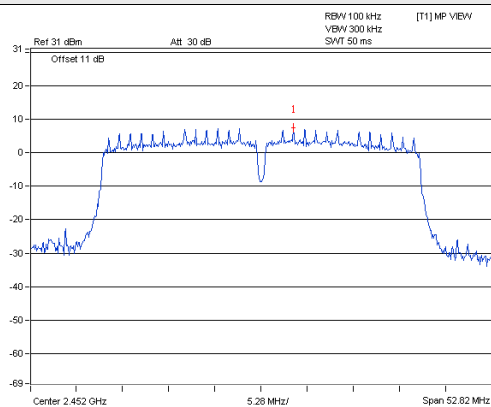
CH 3



CH 6

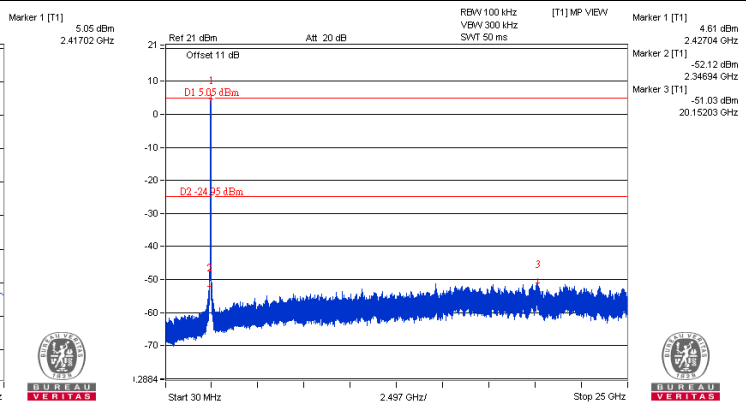
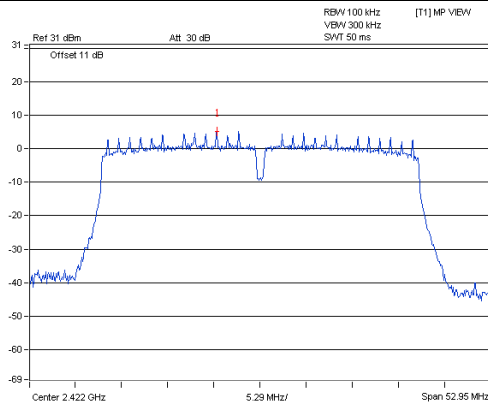


CH 9

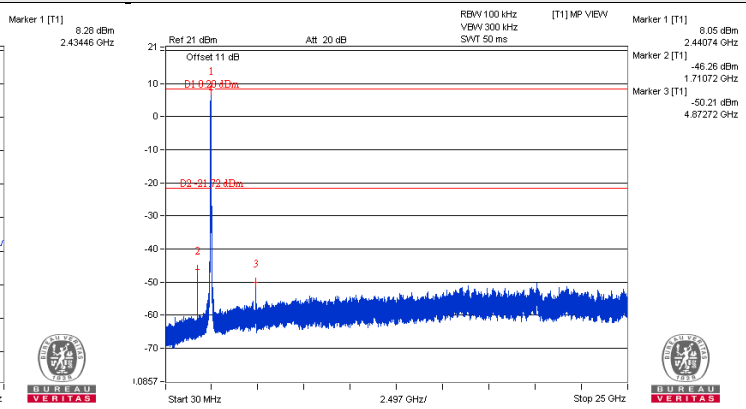
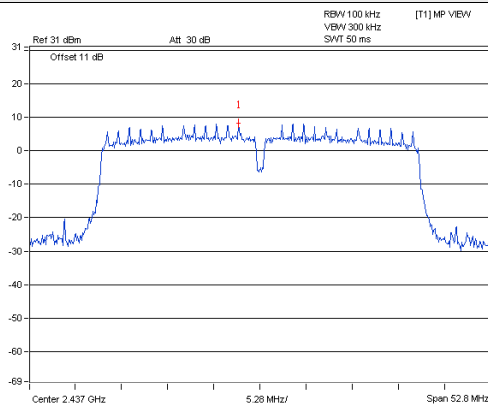


802.11n (HT40)_Chain 1

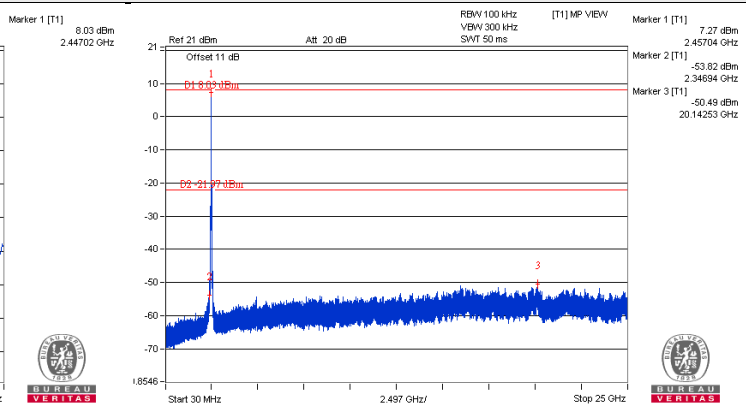
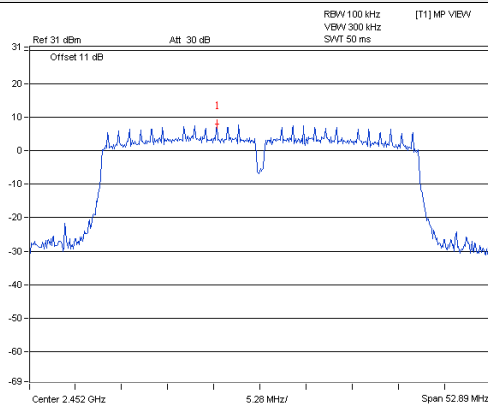
CH 3



CH 6



CH 9



5 Pictures of Test Arrangements

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

Appendix – Information on the Testing Laboratories

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

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

Linko EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

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Hwa Ya EMC/RF/Safety Lab

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Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

--- END ---