

FCC Test Report

Report No.: RF160930C19

FCC ID: PY316200355

Test Model: WAC510

Received Date: Sep. 23, 2016

Test Date: Sep. 23 ~ Nov. 04, 2016

Issued Date: Nov. 08, 2016

Applicant: NETGEAR, INC.

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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.	Description	Date Issued
RF160930C19	Original release.	Nov. 08, 2016

1 Certificate of Conformity

Product: ProSAFE Dual Band Wireless AC Access Point
Brand: NETGEAR
Test Model: WAC510
Sample Status: Engineering sample
Applicant: NETGEAR, INC.
Test Date: Sep. 23 ~ Nov. 04, 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 : , **Date:** Nov. 08, 2016
Pettie Chen / Senior Specialist

Approved by : , **Date:** Nov. 08, 2016
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 -10.56dB at 0.32204MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.1dB at 2390.00 & 2483.50MHz.
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 IPEX 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	ProSAFE Dual Band Wireless AC Access Point
Brand	NETGEAR
Test Model	WAC510
Sample Status	Engineering sample
Power Supply Rating	12Vdc (Adapter) 48Vdc (PoE)
Modulation Type	CCK, DQPSK, DBPSK for DSSS 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: 466.780mW Beamforming Mode: 463.374mW
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	NA
Cable Supplied	NA

Note:

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

Modulation Mode	Beamforming Mode	TX Function
802.11b	Not Support	2TX
802.11g	Not Support	2TX
802.11n (HT20)	Support	2TX
802.11n (HT40)	Support	2TX

2. The EUT uses the following adapters and PoE.

Adapter 1	
Brand	NETGEAR
Model	ADS-40FPA-12 12030GPCU/GPC-L
P/N	332-10757-01
Input Power	100-120Vac~60Hz Max. 1.0A
Output Power	12Vdc/ 2.5A
Power Line	1.8m cable without core attached on adapter

Adapter 2	
Brand	NETGEAR
Model	2ABL030F 1 NA
P/N	332-10758-01
Input Power	100-120Vac~60Hz Max. 1.0A
Output Power	12Vdc/ 2.5A
Power Line	1.8m cable without core attached on adapter

*After pretesting, adapter 2 was the worst for the final test.

PoE (Support unit only)	
Brand	YAMAHA
Model	YPS-PoE-AT
Series No.	Z4U00327 VZ
Input Power	100-240Vac, 50/60Hz 0.6A
Output Power	48Vdc, 0.3A
Power Line	1.75m non-shielded cable without core

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

4. The following antenna was provided to the EUT.

Brand	Model	Antenna Gain(dBi)	Frequency range	Antenna Type	Connector Type
Ethertronics	1002295	2.91	2.4~2.4835GHz	PIFA	i-pex(MHF)
Ethertronics	1002295	2.56	2.4~2.4835GHz	PIFA	i-pex(MHF)
Ethertronics	1002298	4.83	5180 ~ 5240MHz	PIFA	i-pex(MHF)
Ethertronics	1002298	4.51	5180 ~ 5240MHz	PIFA	i-pex(MHF)
Ethertronics	1002298	4.55	5745 ~ 5825MHz	PIFA	i-pex(MHF)
Ethertronics	1002298	5.48	5745 ~ 5825MHz	PIFA	i-pex(MHF)

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

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	
A	√	√	√	√	Power from adapter 2
B	-	√	√	-	Power from PoE

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 had been pre-tested on the positioned on Lying & Wall Mount. The worst case was found when positioned on Lying.

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)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
A	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

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)
A, B	802.11b	1 to 13	1	DSSS	DBPSK	1

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)
A, B	802.11b	1 to 13	1	DSSS	DBPSK	1

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)
CDD Mode						
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
A	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5
Beamforming Mode						
A	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
A	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE \geq 1G	25 deg. C, 66% RH	120Vac, 60Hz	Chris Lin Matthew Yang
RE $<$ 1G	25 deg. C, 66% RH	120Vac, 60Hz 48Vdc	Chris Lin
PLC	25 deg. C, 60% RH	120Vac, 60Hz 48Vdc	Chris Lin
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Frank Liu

3.3 Duty Cycle of Test Signal

Duty cycle of test signal is > 98%, duty factor is not required

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

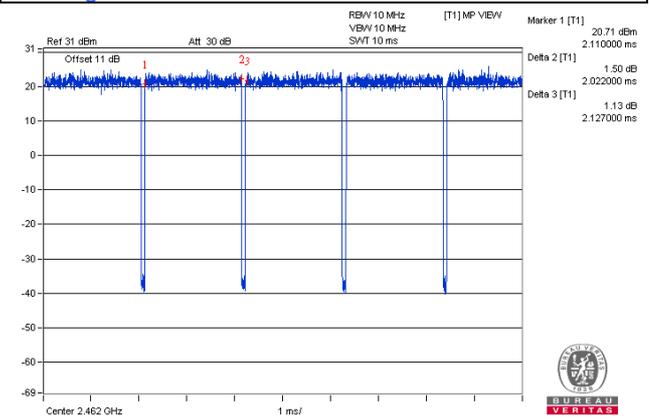
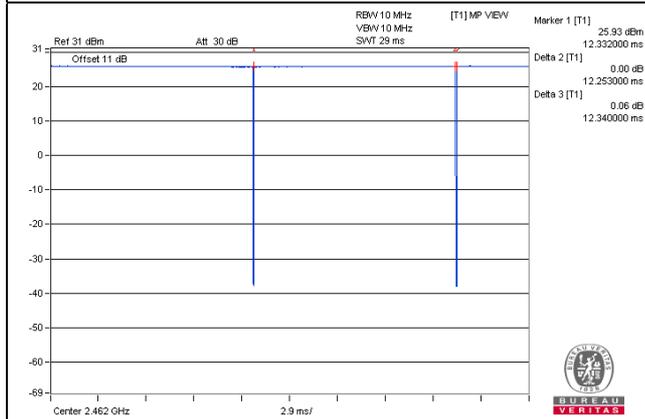
802.11b: Duty cycle = $12.253/12.34 = 0.993$

802.11g: Duty cycle = $2.022/2.127 = 0.951$, Duty factor = $10 * \log(1/0.951) = 0.22$

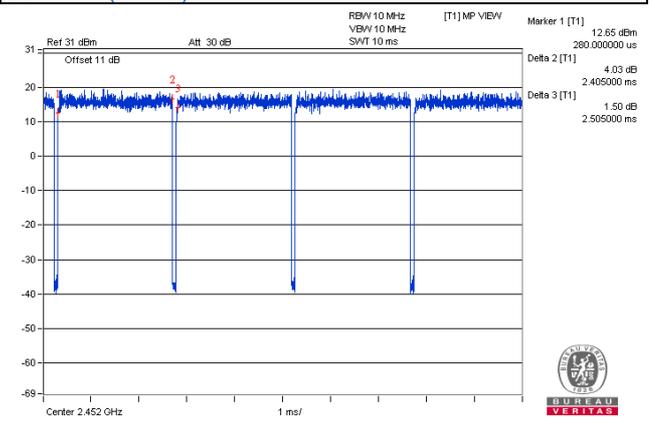
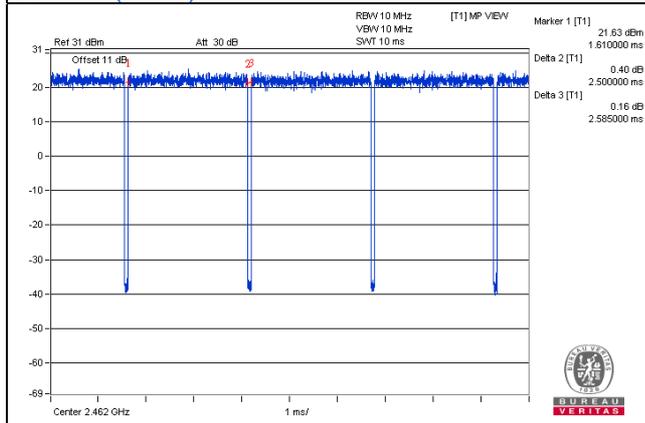
802.11n (HT20): Duty cycle = $2.500/2.585 = 0.967$, Duty factor = $10 * \log(1/0.967) = 0.15$

802.11n (HT40): Duty cycle = $2.405/2.505 = 0.960$, Duty factor = $10 * \log(1/0.960) = 0.18$

802.11b 802.11g



802.11n (HT20) 802.11n (HT40)



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.	Load	NA	NA	NA	NA	-
C.	PoE	YAMAHA	YPS-PoE-AT	Z4U00327 VZ	NA	Provided by client

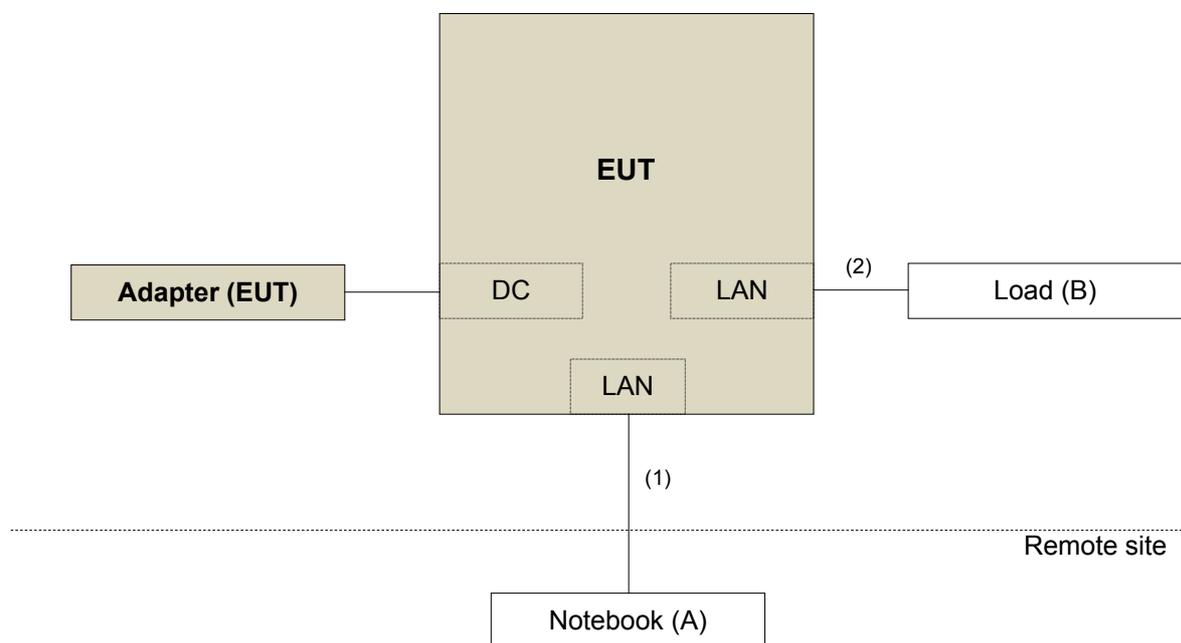
Note:

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.

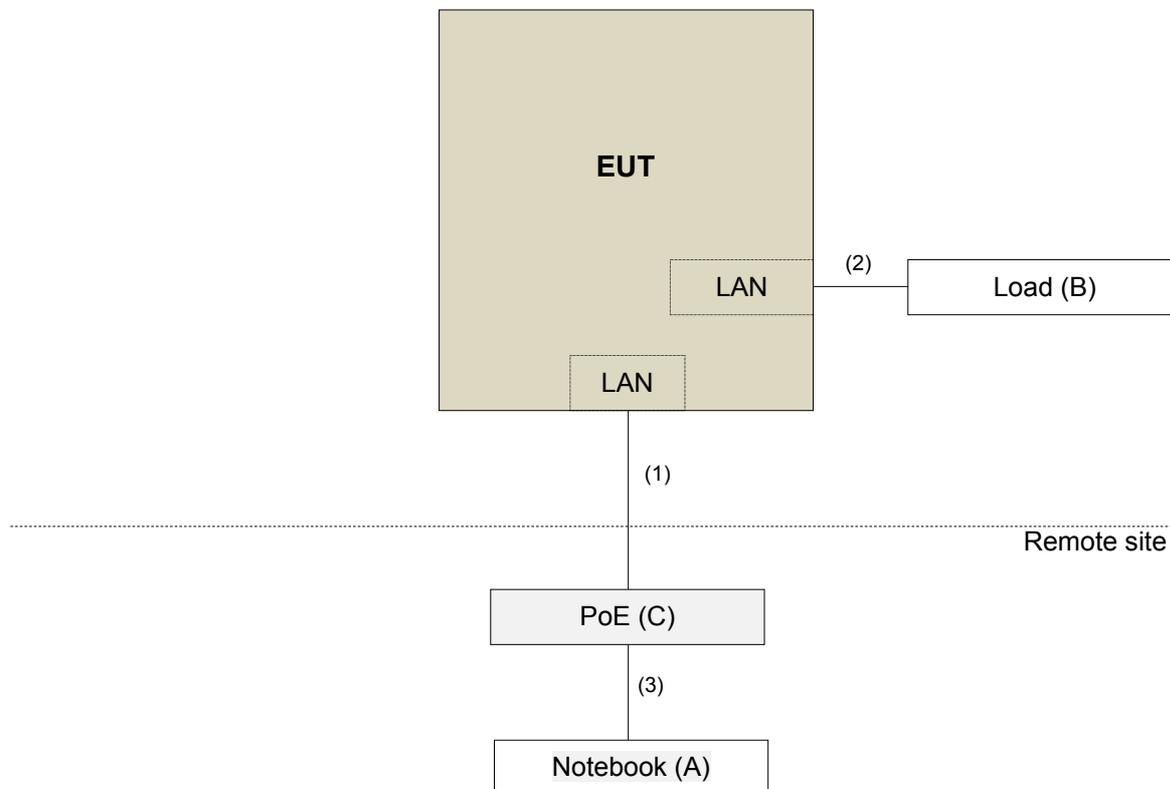
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45	1	10	N	0	-
2.	RJ45	1	1.8	N	0	-
3.	RJ45	1	1.8	N	0	-

3.4.1 Configuration of System under Test

Test Mode A



Test Mode B



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 v03r05
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

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Dec. 23, 2015	Dec. 22, 2016
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	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
Loop Antenna	EM-6879	269	Aug. 11, 2016	Aug. 10, 2017
Preamplifier Agilent	8449B	3008A01960	Aug. 09, 2016	Aug. 08, 2017
Preamplifier Agilent	8447D	2944A10631	Aug. 09, 2016	Aug. 08, 2017
RF signal cable HUBER+SUHNER	SUCOFLEX 104	MY 13380+295012/04	Aug. 09, 2016	Aug. 08, 2017
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03 (250724)	Aug. 09, 2016	Aug. 08, 2017
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	010303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021703	NA	NA
Turn Table BV ADT	TT100	TT93021703	NA	NA
Turn Table Controller BV ADT	SC100	SC93021703	NA	NA
High Speed Peak Power Meter	ML2495A	0824012	Aug. 11, 2016	Aug. 10, 2017
Power Sensor	MA2411B	0738171	Aug. 11, 2016	Aug. 10, 2017

- 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 FCC Site Registration No. is 460141.
 5. 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:

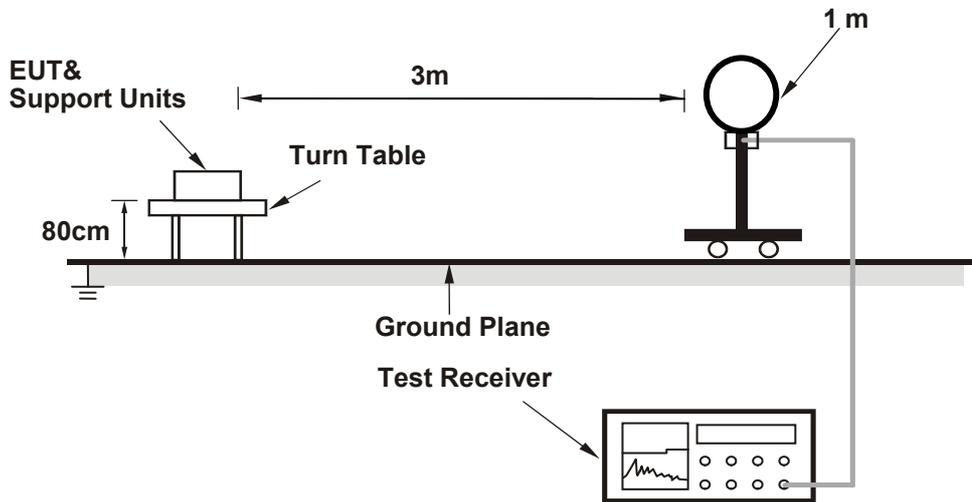
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

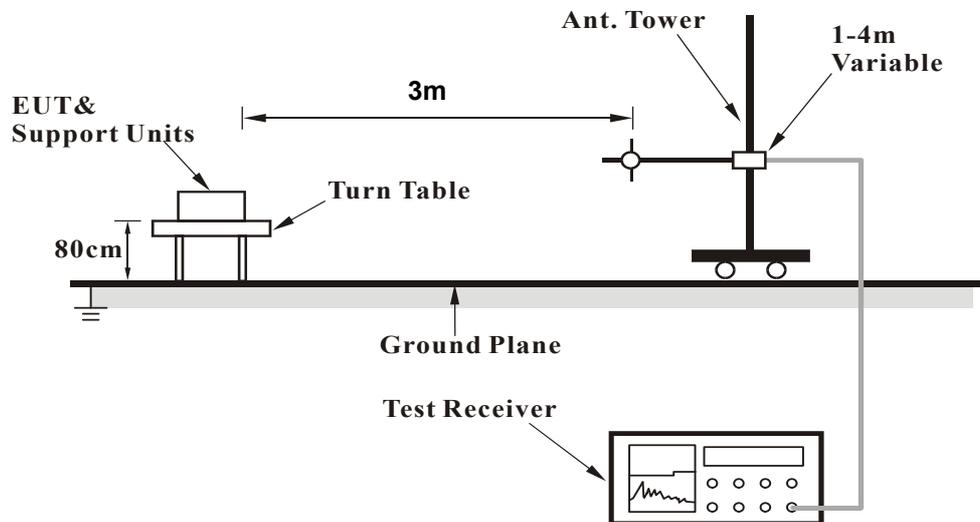
No deviation.

4.1.5 Test Setup

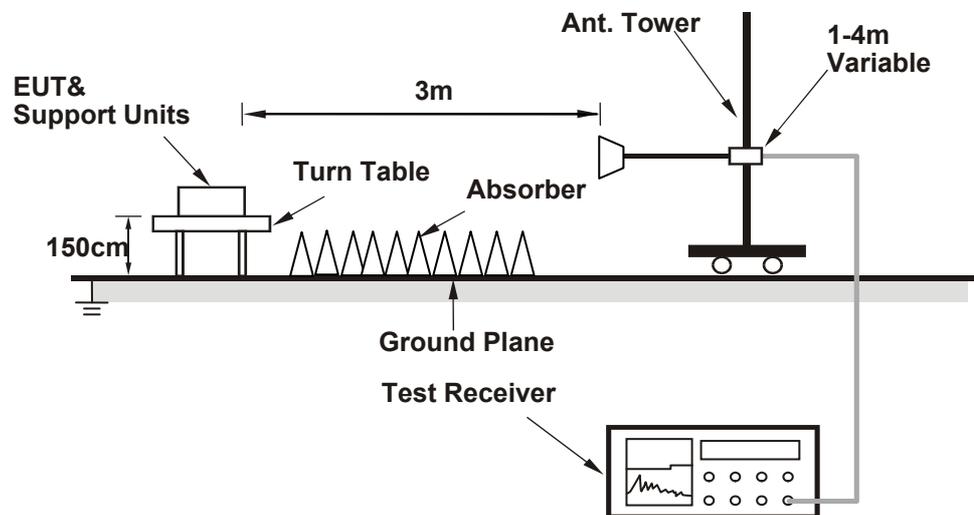
For Radiated emission below 30MHz



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 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	2383.00	60.7 PK	74.0	-13.3	1.23 H	49	28.0	32.7
2	2383.00	53.7 AV	54.0	-0.3	1.23 H	49	21.0	32.7
3	*2412.00	119.3 PK			1.23 H	49	86.5	32.8
4	*2412.00	115.3 AV			1.23 H	49	82.5	32.8
5	4824.00	52.8 PK	74.0	-21.2	1.80 H	192	45.9	6.9
6	4824.00	47.7 AV	54.0	-6.3	1.80 H	192	40.8	6.9

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	58.8 PK	74.0	-15.2	1.29 V	240	26.1	32.7
2	2390.00	50.4 AV	54.0	-3.6	1.29 V	240	17.7	32.7
3	*2412.00	114.5 PK			1.29 V	240	81.7	32.8
4	*2412.00	110.6 AV			1.29 V	240	77.8	32.8
5	4824.00	53.0 PK	74.0	-21.0	1.43 V	318	46.1	6.9
6	4824.00	47.9 AV	54.0	-6.1	1.43 V	318	41.0	6.9

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.

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	118.2 PK			1.20 H	50	85.2	33.0
2	*2437.00	115.6 AV			1.20 H	50	82.6	33.0
3	4874.00	54.2 PK	74.0	-19.8	1.85 H	191	47.2	7.0
4	4874.00	51.3 AV	54.0	-2.7	1.85 H	191	44.3	7.0

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	115.2 PK			1.46 V	238	82.2	33.0
2	*2437.00	110.9 AV			1.46 V	238	77.9	33.0
3	4874.00	54.6 PK	74.0	-19.4	1.24 V	313	47.6	7.0
4	4874.00	52.6 AV	54.0	-1.4	1.24 V	313	45.6	7.0

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.

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	117.9 PK			1.54 H	44	84.8	33.1
2	*2462.00	114.1 AV			1.54 H	44	81.0	33.1
3	2483.50	62.0 PK	74.0	-12.0	1.54 H	44	28.8	33.2
4	2483.50	53.7 AV	54.0	-0.3	1.54 H	44	20.5	33.2
5	4924.00	52.9 PK	74.0	-21.1	1.56 H	190	45.8	7.1
6	4924.00	47.4 AV	54.0	-6.6	1.56 H	190	40.3	7.1

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	113.7 PK			2.20 V	9	80.6	33.1
2	*2462.00	109.8 AV			2.20 V	9	76.7	33.1
3	2483.50	59.8 PK	74.0	-14.2	2.20 V	9	26.6	33.2
4	2483.50	51.1 AV	54.0	-2.9	2.20 V	9	17.9	33.2
5	4924.00	54.0 PK	74.0	-20.0	1.22 V	304	46.9	7.1
6	4924.00	49.3 AV	54.0	-4.7	1.22 V	304	42.2	7.1

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.

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	68.7 PK	74.0	-5.3	1.54 H	65	36.0	32.7
2	2390.00	53.7 AV	54.0	-0.3	1.54 H	65	21.0	32.7
3	*2412.00	114.1 PK			1.54 H	65	81.3	32.8
4	*2412.00	103.6 AV			1.54 H	65	70.8	32.8
5	4824.00	47.8 PK	74.0	-26.2	1.00 H	125	40.9	6.9
6	4824.00	35.0 AV	54.0	-19.0	1.00 H	125	28.1	6.9

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	67.3 PK	74.0	-6.7	2.31 V	356	34.6	32.7
2	2390.00	52.7 AV	54.0	-1.3	2.31 V	356	20.0	32.7
3	*2412.00	110.6 PK			2.31 V	356	77.8	32.8
4	*2412.00	100.8 AV			2.31 V	356	68.0	32.8
5	4824.00	49.9 PK	74.0	-24.1	1.30 V	5	43.0	6.9
6	4824.00	35.9 AV	54.0	-18.1	1.30 V	5	29.0	6.9

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.

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	118.9 PK			1.05 H	57	85.9	33.0
2	*2437.00	109.1 AV			1.05 H	57	76.1	33.0
3	4874.00	48.8 PK	74.0	-25.2	1.00 H	305	41.8	7.0
4	4874.00	37.2 AV	54.0	-16.8	1.00 H	305	30.2	7.0

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	117.2 PK			3.11 V	136	84.2	33.0
2	*2437.00	107.1 AV			3.11 V	136	74.1	33.0
3	4874.00	51.9 PK	74.0	-22.1	1.72 V	311	44.9	7.0
4	4874.00	40.4 AV	54.0	-13.6	1.72 V	311	33.4	7.0

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.

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	114.2 PK			1.20 H	59	81.1	33.1
2	*2462.00	104.0 AV			1.20 H	59	70.9	33.1
3	2483.50	69.6 PK	74.0	-4.4	1.20 H	59	36.4	33.2
4	2483.50	53.6 AV	54.0	-0.4	1.20 H	59	20.4	33.2
5	4924.00	48.0 PK	74.0	-26.0	1.00 H	223	40.9	7.1
6	4924.00	35.6 AV	54.0	-18.4	1.00 H	223	28.5	7.1

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	111.7 PK			2.20 V	356	78.6	33.1
2	*2462.00	101.7 AV			2.20 V	356	68.6	33.1
3	2483.50	66.1 PK	74.0	-7.9	2.20 V	356	32.9	33.2
4	2483.50	53.0 AV	54.0	-1.0	2.20 V	356	19.8	33.2
5	4924.00	50.1 PK	74.0	-23.9	1.15 V	320	43.0	7.1
6	4924.00	38.7 AV	54.0	-15.3	1.15 V	320	31.6	7.1

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.

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	68.0 PK	74.0	-6.0	1.73 H	60	35.3	32.7
2	2390.00	53.9 AV	54.0	-0.1	1.73 H	60	21.2	32.7
3	*2412.00	114.0 PK			1.73 H	60	81.2	32.8
4	*2412.00	103.8 AV			1.73 H	60	71.0	32.8
5	4824.00	47.9 PK	74.0	-26.1	1.00 H	212	41.0	6.9
6	4824.00	35.3 AV	54.0	-18.7	1.00 H	212	28.4	6.9

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	65.3 PK	74.0	-8.7	2.71 V	3	32.6	32.7
2	2390.00	51.0 AV	54.0	-3.0	2.71 V	3	18.3	32.7
3	*2412.00	111.4 PK			2.71 V	3	78.6	32.8
4	*2412.00	101.1 AV			2.71 V	3	68.3	32.8
5	4824.00	48.9 PK	74.0	-25.1	1.45 V	78	42.0	6.9
6	4824.00	37.6 AV	54.0	-16.4	1.45 V	78	30.7	6.9

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.

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	119.1 PK			1.04 H	56	86.1	33.0
2	*2437.00	109.0 AV			1.04 H	56	76.0	33.0
3	4874.00	48.6 PK	74.0	-25.4	1.00 H	289	41.6	7.0
4	4874.00	36.8 AV	54.0	-17.2	1.00 H	289	29.8	7.0

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	117.2 PK			2.69 V	137	84.2	33.0
2	*2437.00	107.1 AV			2.69 V	137	74.1	33.0
3	4874.00	52.9 PK	74.0	-21.1	1.47 V	85	45.9	7.0
4	4874.00	40.0 AV	54.0	-14.0	1.47 V	85	33.0	7.0

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.

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	115.4 PK			1.06 H	57	82.3	33.1
2	*2462.00	105.4 AV			1.06 H	57	72.3	33.1
3	2483.50	69.0 PK	74.0	-5.0	1.06 H	57	35.8	33.2
4	2483.50	53.9 AV	54.0	-0.1	1.06 H	57	20.7	33.2
5	4924.00	49.6 PK	74.0	-24.4	1.00 H	234	42.5	7.1
6	4924.00	36.1 AV	54.0	-17.9	1.00 H	234	29.0	7.1

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	111.4 PK			1.94 V	179	78.3	33.1
2	*2462.00	101.8 AV			1.94 V	179	68.7	33.1
3	2483.50	62.5 PK	74.0	-11.5	1.94 V	179	29.3	33.2
4	2483.50	48.4 AV	54.0	-5.6	1.94 V	179	15.2	33.2
5	4924.00	49.8 PK	74.0	-24.2	1.55 V	224	42.7	7.1
6	4924.00	37.2 AV	54.0	-16.8	1.55 V	224	30.1	7.1

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.

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	2386.00	72.1 PK	74.0	-1.9	1.37 H	52	39.4	32.7
2	2386.00	53.5 AV	54.0	-0.5	1.37 H	52	20.8	32.7
3	*2422.00	110.1 PK			1.37 H	52	77.2	32.9
4	*2422.00	100.9 AV			1.37 H	52	68.0	32.9
5	4844.00	48.8 PK	74.0	-25.2	1.00 H	251	41.8	7.0
6	4844.00	36.8 AV	54.0	-17.2	1.00 H	251	29.8	7.0

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	70.2 PK	74.0	-3.8	2.76 V	49	37.5	32.7
2	2390.00	53.4 AV	54.0	-0.6	2.76 V	49	20.7	32.7
3	*2422.00	107.8 PK			2.76 V	49	74.9	32.9
4	*2422.00	97.9 AV			2.76 V	49	65.0	32.9
5	4844.00	49.6 PK	74.0	-24.4	1.44 V	78	42.6	7.0
6	4844.00	38.5 AV	54.0	-15.5	1.44 V	78	31.5	7.0

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.

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	2390.00	66.3 PK	74.0	-7.7	1.06 H	55	33.6	32.7
2	2390.00	53.7 AV	54.0	-0.3	1.06 H	55	21.0	32.7
3	*2437.00	112.7 PK			1.06 H	55	79.7	33.0
4	*2437.00	103.2 AV			1.06 H	55	70.2	33.0
5	4874.00	49.2 PK	74.0	-24.8	1.00 H	269	42.2	7.0
6	4874.00	37.2 AV	54.0	-16.8	1.00 H	269	30.2	7.0

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	62.6 PK	74.0	-11.4	2.70 V	139	29.9	32.7
2	2390.00	50.6 AV	54.0	-3.4	2.70 V	139	17.9	32.7
3	*2437.00	109.4 PK			2.70 V	139	76.4	33.0
4	*2437.00	100.4 AV			2.70 V	139	67.4	33.0
5	4874.00	50.6 PK	74.0	-23.4	1.47 V	54	43.6	7.0
6	4874.00	38.6 AV	54.0	-15.4	1.47 V	54	31.6	7.0

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.

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	109.8 PK			1.36 H	64	76.7	33.1
2	*2452.00	100.5 AV			1.36 H	64	67.4	33.1
3	2483.50	68.6 PK	74.0	-5.4	1.36 H	64	35.4	33.2
4	2483.50	53.9 AV	54.0	-0.1	1.36 H	64	20.7	33.2
5	4924.00	50.8 PK	74.0	-23.2	1.00 H	255	43.7	7.1
6	4924.00	37.0 AV	54.0	-17.0	1.00 H	255	29.9	7.1

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	106.8 PK			2.07 V	141	73.7	33.1
2	*2452.00	97.6 AV			2.07 V	141	64.5	33.1
3	2483.50	64.0 PK	74.0	-10.0	2.07 V	141	30.8	33.2
4	2483.50	50.2 AV	54.0	-3.8	2.07 V	141	17.0	33.2
5	4904.00	50.1 PK	74.0	-23.9	1.55 V	221	43.0	7.1
6	4904.00	38.7 AV	54.0	-15.3	1.55 V	221	31.6	7.1

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.

Below 1GHz Worst-Case Data: 802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	93.93	22.9 QP	43.5	-20.6	1.51 H	272	42.1	-19.2
2	247.22	17.9 QP	46.0	-28.1	1.51 H	226	32.2	-14.3
3	435.44	23.3 QP	46.0	-22.7	1.00 H	125	32.9	-9.6
4	633.36	31.4 QP	46.0	-14.6	1.26 H	152	36.8	-5.4
5	788.60	27.0 QP	46.0	-19.0	1.26 H	7	29.4	-2.4
6	934.13	33.0 QP	46.0	-13.0	1.00 H	145	33.0	0.0

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	64.83	26.5 QP	40.0	-13.5	1.00 V	251	41.5	-15.0
2	245.28	17.6 QP	46.0	-28.4	1.24 V	12	31.9	-14.3
3	441.26	25.5 QP	46.0	-20.5	1.00 V	311	35.0	-9.5
4	633.36	38.5 QP	46.0	-7.5	1.00 V	150	43.9	-5.4
5	837.11	32.3 QP	46.0	-13.7	2.00 V	212	34.1	-1.8
6	936.07	32.4 QP	46.0	-13.6	1.00 V	315	32.5	-0.1

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	107.52	36.9 QP	43.5	-6.6	1.01 H	273	54.3	-17.4
2	144.38	35.8 QP	43.5	-7.7	1.01 H	268	49.8	-14.0
3	499.48	30.1 QP	46.0	-15.9	1.51 H	223	38.6	-8.5
4	625.60	30.6 QP	46.0	-15.4	1.26 H	124	36.2	-5.6
5	798.30	27.7 QP	46.0	-18.3	2.00 H	7	29.9	-2.2
6	936.07	34.5 QP	46.0	-11.5	1.26 H	150	34.6	-0.1

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	53.18	33.5 QP	40.0	-6.5	1.24 V	73	47.4	-13.9
2	144.38	28.5 QP	43.5	-15.0	2.00 V	13	42.5	-14.0
3	499.48	28.4 QP	46.0	-17.6	1.00 V	141	36.9	-8.5
4	623.66	34.7 QP	46.0	-11.3	1.00 V	137	40.3	-5.6
5	794.42	29.3 QP	46.0	-16.7	1.24 V	339	31.6	-2.3
6	936.07	33.7 QP	46.0	-12.3	1.24 V	180	33.8	-0.1

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

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

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

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 16, 2015	Nov. 15, 2016
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Dec. 26, 2015	Dec. 25, 2016
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Feb. 26, 2016	Feb. 25, 2017
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Jul. 28, 2016	Jul. 27, 2017
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Shielded Room 1.

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

4.2.3 Test Procedures

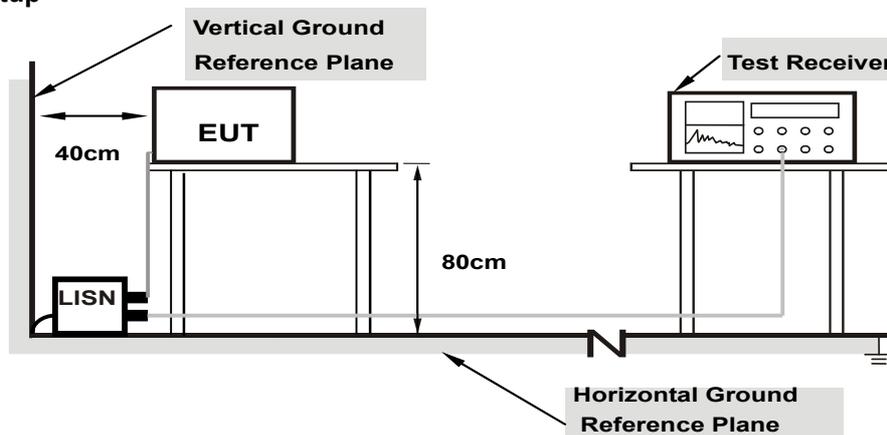
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

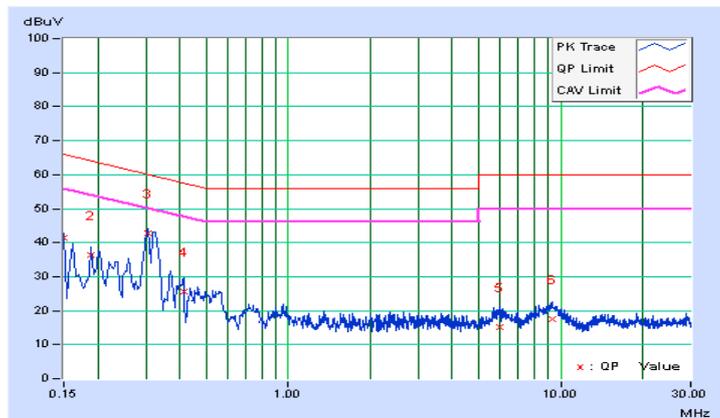
4.2.7 Test Results

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

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.07	31.51	16.81	41.58	26.88	66.00	56.00	-24.42	-29.12
2	0.18903	10.08	26.45	15.38	36.53	25.46	64.08	54.08	-27.55	-28.62
3	0.30615	10.13	32.72	26.92	42.85	37.05	60.07	50.07	-17.22	-13.02
4	0.41197	10.17	15.30	6.69	25.47	16.86	57.61	47.61	-32.14	-30.75
5	5.95635	10.57	4.63	-1.12	15.20	9.45	60.00	50.00	-44.80	-40.55
6	9.27594	10.73	6.81	2.37	17.54	13.10	60.00	50.00	-42.46	-36.90

REMARKS:

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

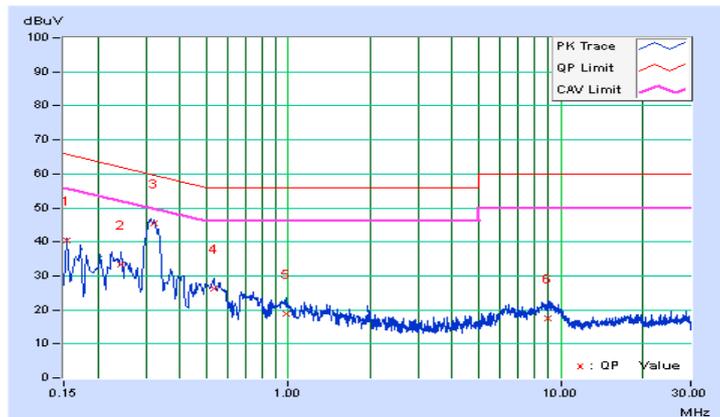


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15391	10.08	30.32	14.29	40.40	24.37	65.79
2	0.24384	10.12	23.16	13.14	33.28	23.26	61.96	51.96	-28.68	-28.70
3	0.32204	10.18	35.42	28.91	45.60	39.09	59.65	49.65	-14.05	-10.56
4	0.53318	10.25	15.89	10.81	26.14	21.06	56.00	46.00	-29.86	-24.94
5	0.97854	10.29	8.67	4.91	18.96	15.20	56.00	46.00	-37.04	-30.80
6	8.99833	10.81	6.59	1.93	17.40	12.74	60.00	50.00	-42.60	-37.26

REMARKS:

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

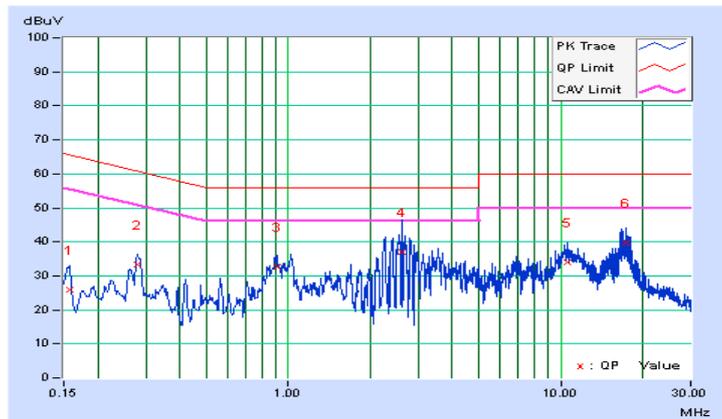


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15760	10.08	15.91	6.51	25.99	16.59	65.59
2	0.27918	10.12	23.28	18.79	33.40	28.91	60.84	50.84	-27.44	-21.93
3	0.91245	10.27	22.39	16.57	32.66	26.84	56.00	46.00	-23.34	-19.16
4	2.61721	10.40	26.66	13.37	37.06	23.77	56.00	46.00	-18.94	-22.23
5	10.53496	10.80	23.10	17.49	33.90	28.29	60.00	50.00	-26.10	-21.71
6	17.44393	11.24	28.34	21.93	39.58	33.17	60.00	50.00	-20.42	-16.83

REMARKS:

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

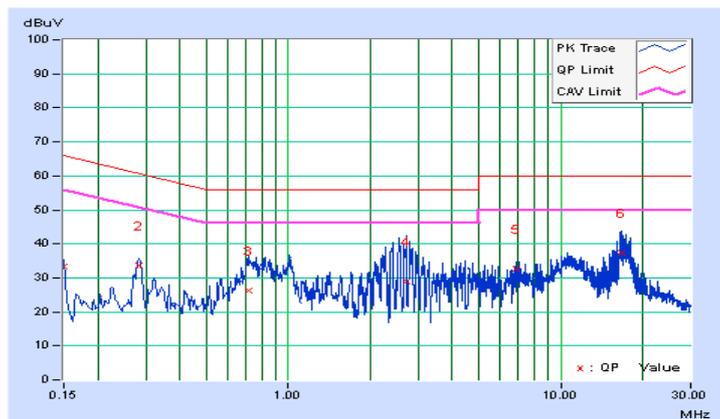


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15000	10.08	23.38	9.82	33.46	19.90	66.00
2	0.28288	10.15	23.53	21.51	33.68	31.66	60.73	50.73	-27.05	-19.07
3	0.71304	10.27	15.90	11.32	26.17	21.59	56.00	46.00	-29.83	-24.41
4	2.72278	10.46	18.60	3.28	29.06	13.74	56.00	46.00	-26.94	-32.26
5	6.91039	10.72	21.92	18.78	32.64	29.50	60.00	50.00	-27.36	-20.50
6	16.77141	11.32	26.12	20.52	37.44	31.84	60.00	50.00	-22.56	-18.16

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.

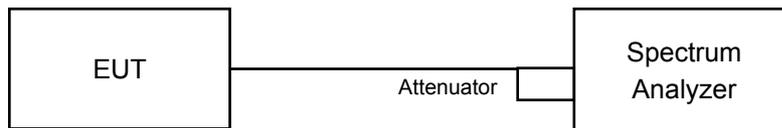


4.3 6dB Bandwidth Measurement

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

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	9.06	8.62	0.5	Pass
6	2437	9.57	9.05	0.5	Pass
11	2462	9.10	8.09	0.5	Pass

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.40	16.41	0.5	Pass
6	2437	16.36	16.36	0.5	Pass
11	2462	16.37	16.39	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.65	17.62	0.5	Pass
6	2437	17.62	17.34	0.5	Pass
11	2462	17.62	17.61	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.32	35.25	0.5	Pass
6	2437	35.22	35.27	0.5	Pass
9	2452	35.22	35.24	0.5	Pass

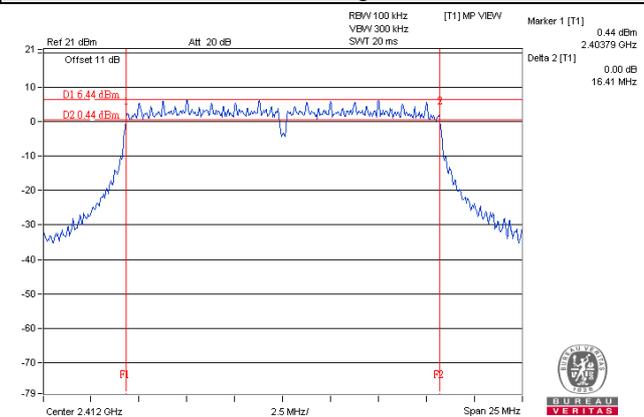
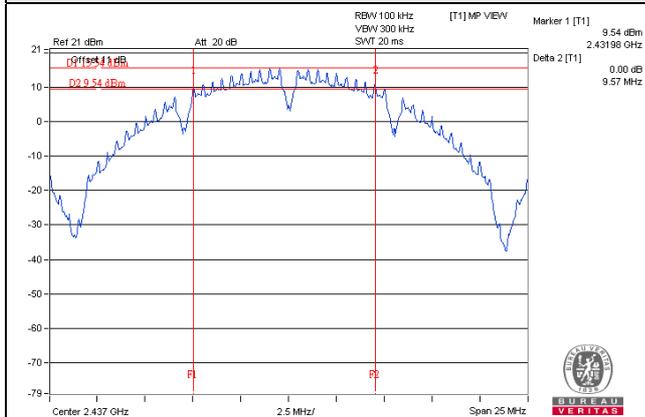


BUREAU
VERITAS

Spectrum Plot of Worst Value

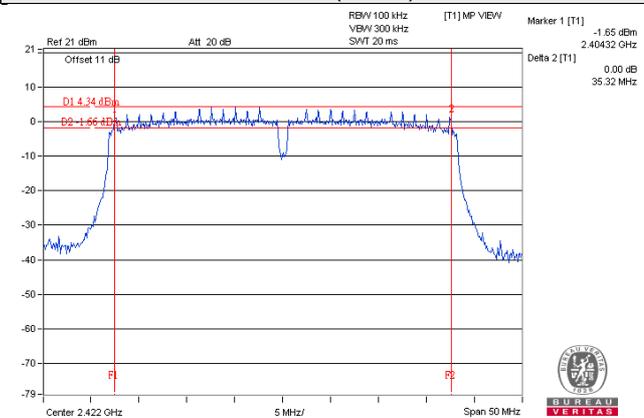
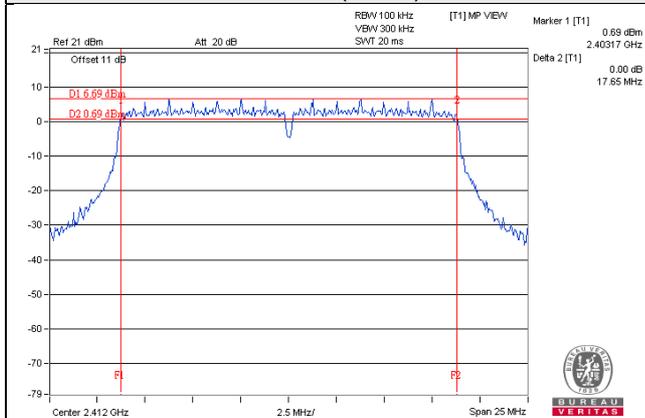
802.11b

802.11g



802.11n (HT20)

802.11n (HT40)



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,

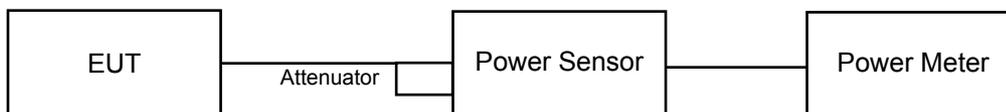
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

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

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

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

4.4.2 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

For Average Power

CDD Mode:

802.11b

Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	22.19	21.63	311.123	24.93	30	Pass
6	2437	23.85	23.42	462.447	26.65	30	Pass
11	2462	22.39	23.29	386.684	25.87	30	Pass

802.11g

Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	18.75	18.18	140.755	21.48	30	Pass
6	2437	23.90	23.45	466.780	26.69	30	Pass
11	2462	18.07	17.64	122.197	20.87	30	Pass

802.11n (HT20)

Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	18.65	18.23	139.809	21.46	30	Pass
6	2437	23.92	23.36	463.374	26.66	30	Pass
11	2462	19.53	19.04	169.911	22.30	30	Pass

802.11n (HT40)

Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	17.87	17.44	116.698	20.67	30	Pass
6	2437	19.19	19.70	176.310	22.46	30	Pass
9	2452	16.32	16.98	92.743	19.67	30	Pass



Beamforming Mode:

802.11n (HT20)

Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	18.65	18.23	139.809	21.46	30	Pass
6	2437	23.92	23.36	463.374	26.66	30	Pass
11	2462	19.53	19.04	169.911	22.30	30	Pass

802.11n (HT40)

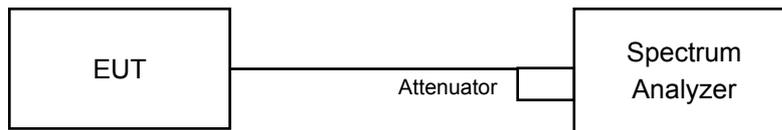
Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	17.87	17.44	116.698	20.67	30	Pass
6	2437	19.19	19.70	176.310	22.46	30	Pass
9	2452	16.32	16.98	92.743	19.67	30	Pass

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 $\geq 2 \times \text{span}/\text{RBW}$.
- 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 $\geq 2 \times \text{span}/\text{RBW}$.
- 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

802.11b

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass /Fail
0	1	2412	-5.74	3.01	-2.73	8.00	Pass
	6	2437	-4.56	3.01	-1.55	8.00	Pass
	11	2462	-4.89	3.01	-1.88	8.00	Pass
1	1	2412	-6.40	3.01	-3.39	8.00	Pass
	6	2437	-4.82	3.01	-1.81	8.00	Pass
	11	2462	-6.14	3.01	-3.13	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 = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N]$ = 5.75dBi < 6dBi, therefore the limit no need to reduce.

802.11g

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Duty Factor	Total PSD with Duty Factor (dBm)	Limit (dBm)	Pass /Fail
0	1	2412	-13.31	3.01	0.22	-10.08	8.00	Pass
	6	2437	-7.45	3.01	0.22	-4.22	8.00	Pass
	11	2462	-12.30	3.01	0.22	-9.07	8.00	Pass
1	1	2412	-13.61	3.01	0.22	-10.38	8.00	Pass
	6	2437	-8.39	3.01	0.22	-5.16	8.00	Pass
	11	2462	-13.77	3.01	0.22	-10.54	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 = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N]$ = 5.75dBi < 6dBi, therefore the limit no need to reduce.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Duty Factor	Total PSD with Duty Factor (dBm)	Limit (dBm)	Pass /Fail
0	1	2412	-13.19	3.01	0.15	-10.03	8.00	Pass
	6	2437	-7.99	3.01	0.15	-4.83	8.00	Pass
	11	2462	-11.92	3.01	0.15	-8.76	8.00	Pass
1	1	2412	-13.97	3.01	0.15	-10.81	8.00	Pass
	6	2437	-9.14	3.01	0.15	-5.98	8.00	Pass
	11	2462	-14.05	3.01	0.15	-10.89	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 = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N]$ = 5.75dBi < 6dBi, therefore the limit no need to reduce.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Duty Factor	Total PSD with Duty Factor (dBm)	Limit (dBm)	Pass /Fail
0	3	2422	-16.48	3.01	0.18	-13.29	8.00	Pass
	6	2437	-15.78	3.01	0.18	-12.59	8.00	Pass
	9	2452	-18.17	3.01	0.18	-14.98	8.00	Pass
1	3	2422	-16.68	3.01	0.18	-13.49	8.00	Pass
	6	2437	-16.80	3.01	0.18	-13.61	8.00	Pass
	9	2452	-18.27	3.01	0.18	-15.08	8.00	Pass

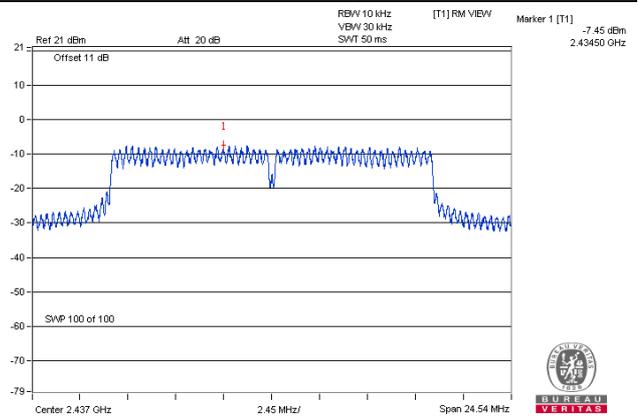
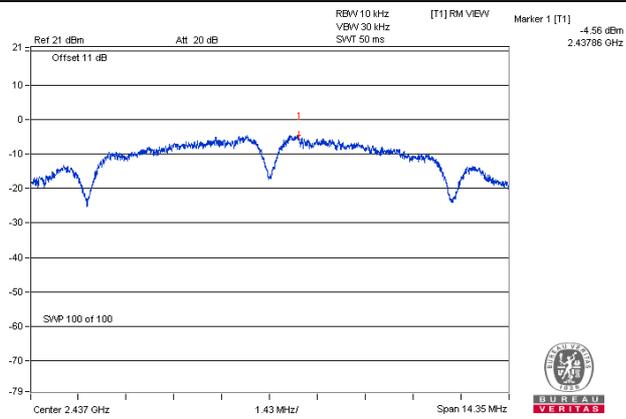
Note:

- 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 = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N]$ = 5.75dBi < 6dBi, therefore the limit no need to reduce.
- Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

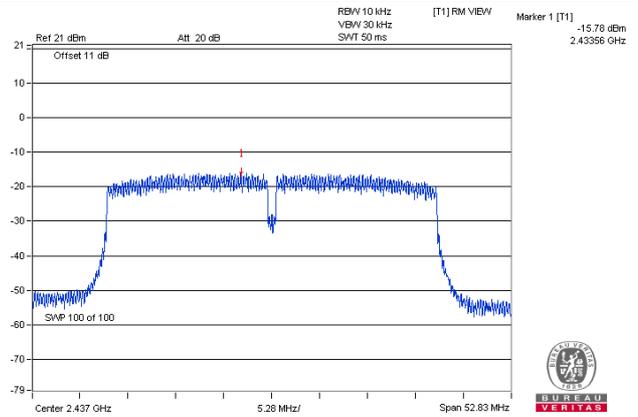
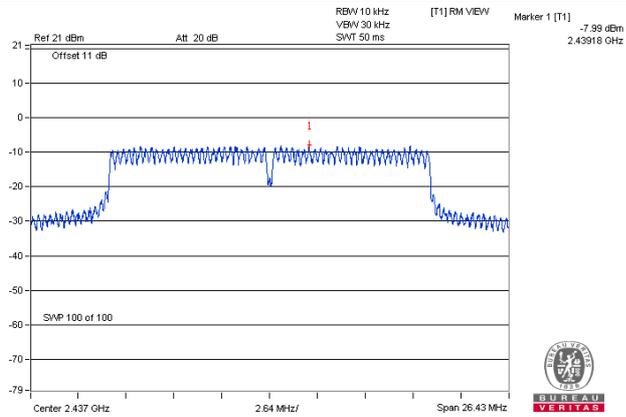
802.11b

802.11g



802.11n (HT20)

802.11n (HT40)

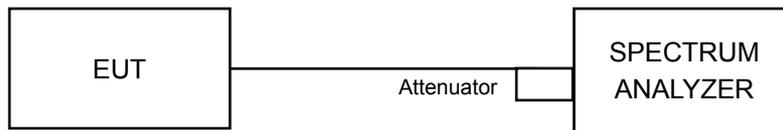


4.6 Conducted Out of Band Emission Measurement

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 = peak.
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 OOBE

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 10log (N) since the limit is relative emission limit.

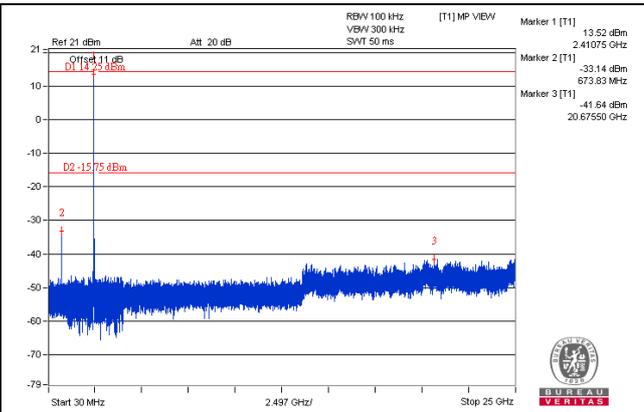
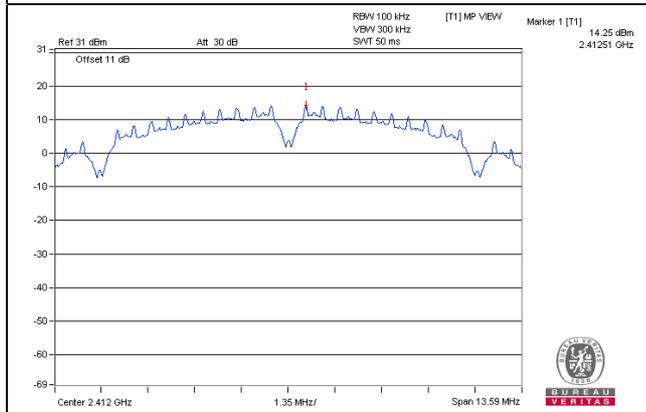
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows compliance with the requirement.



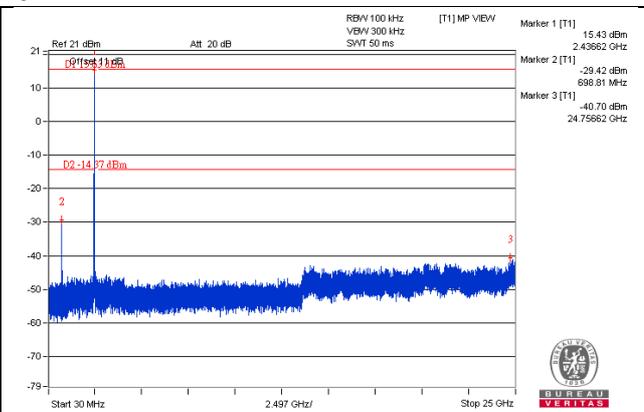
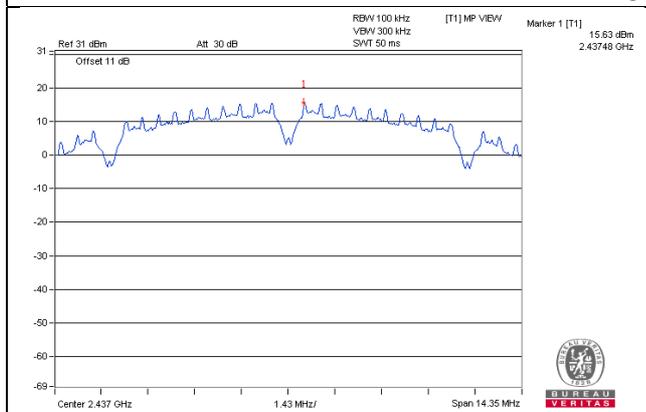
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802.11b_CHAIN 0

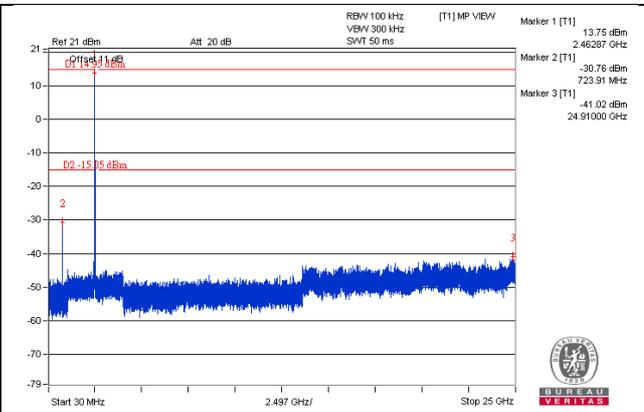
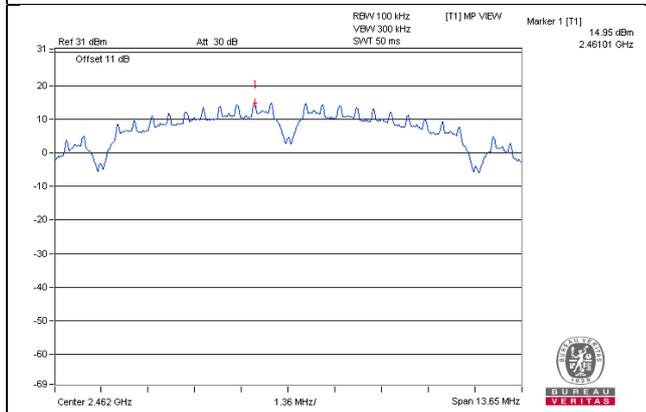
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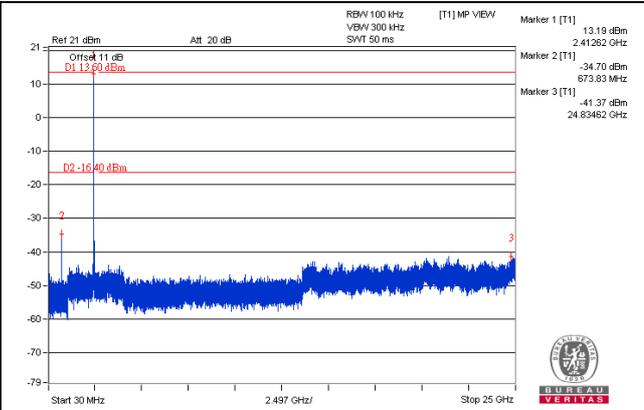
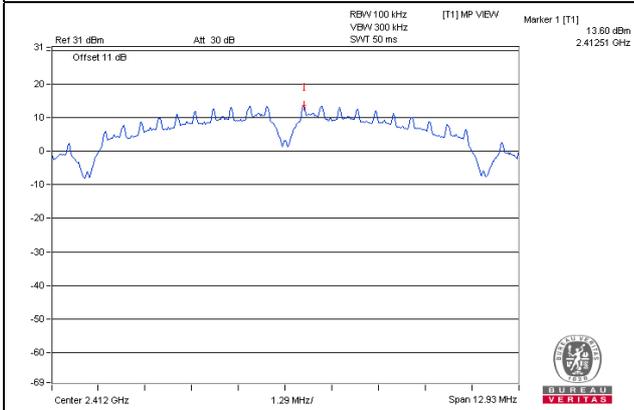




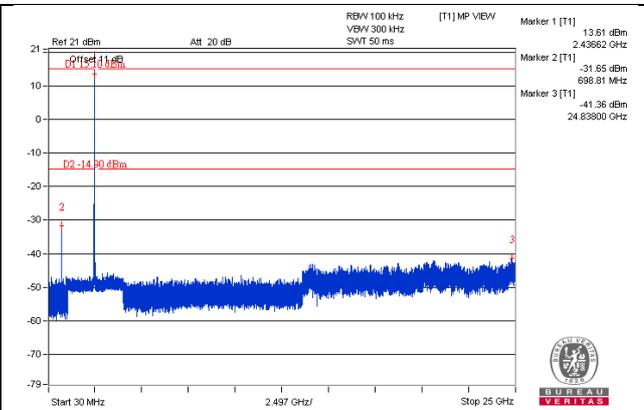
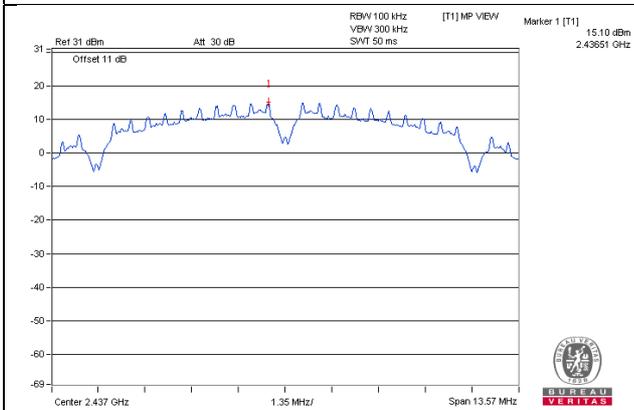
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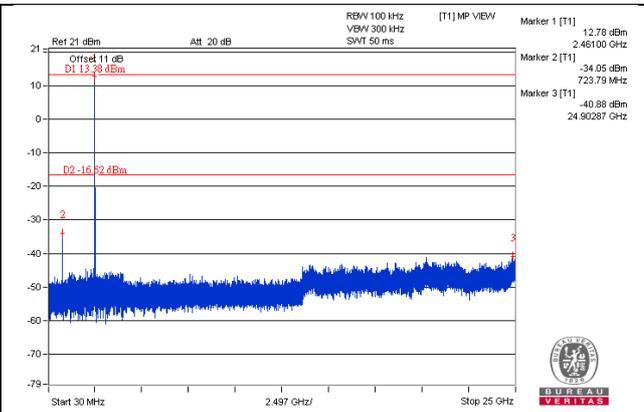
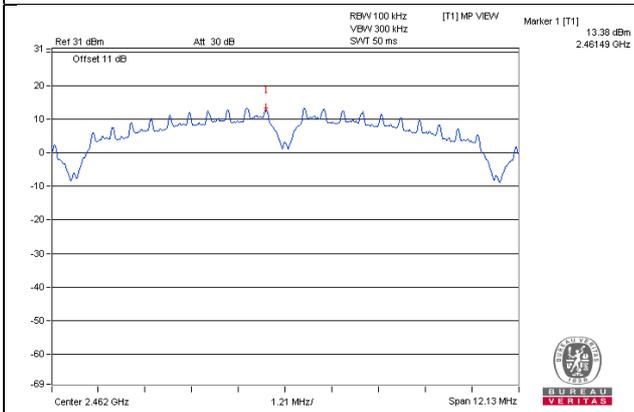
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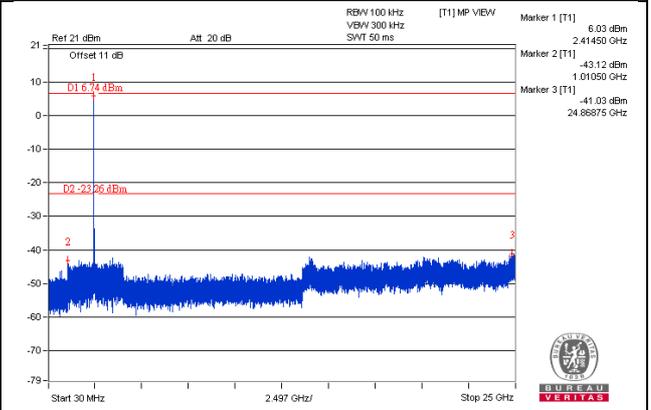
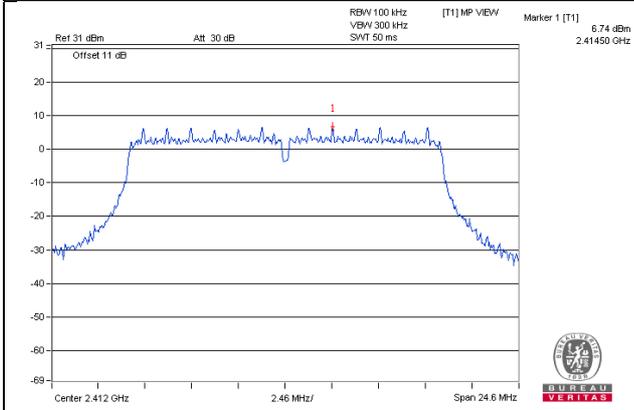
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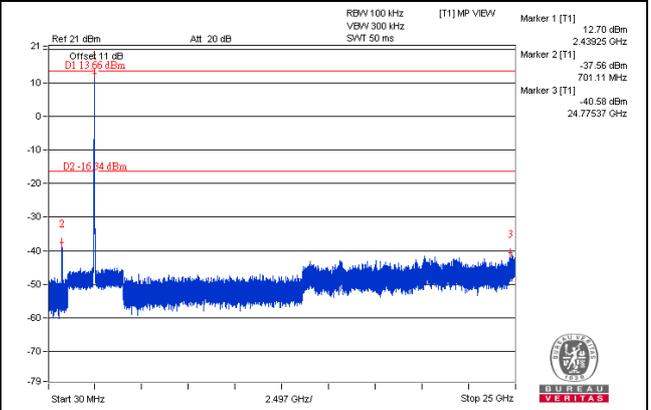
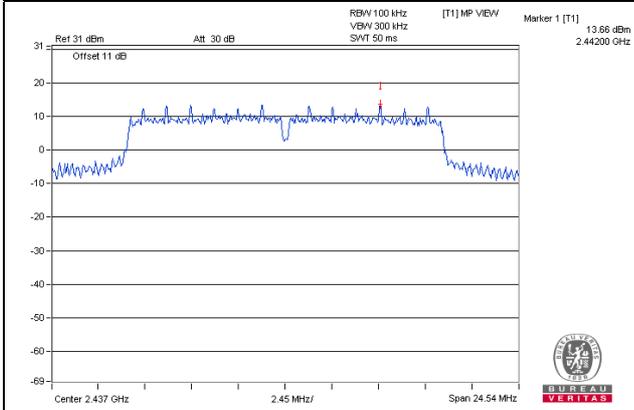


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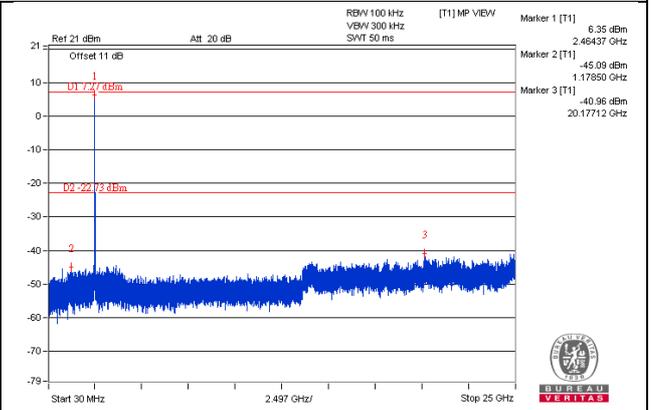
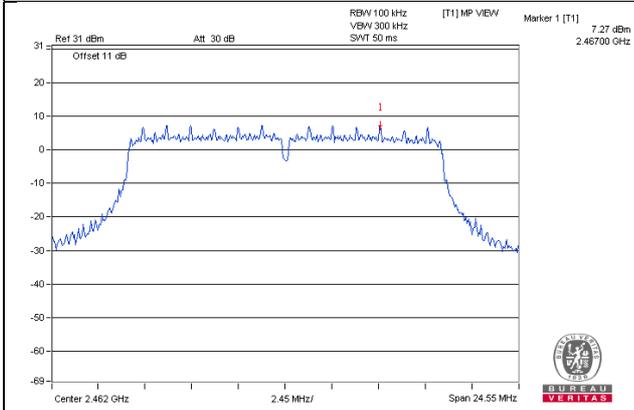
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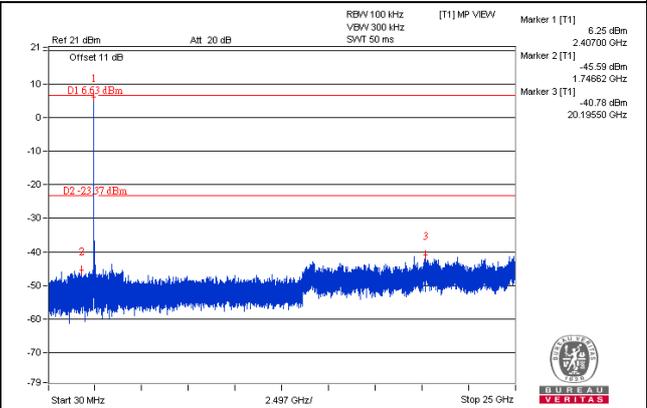
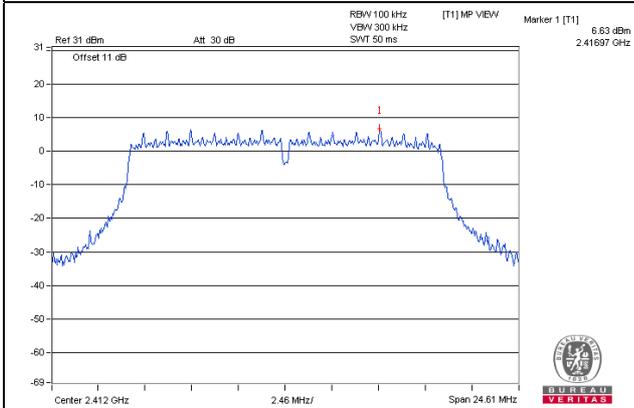
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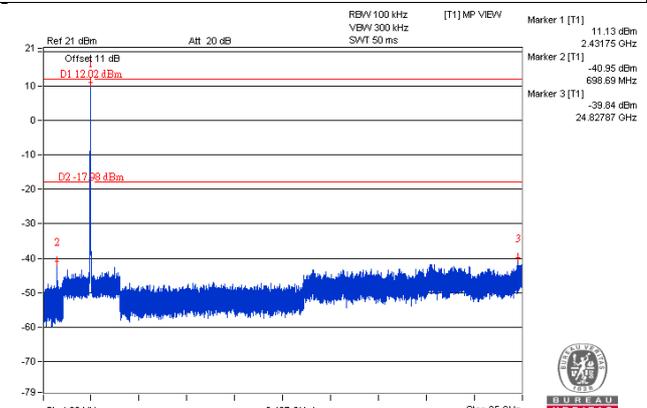
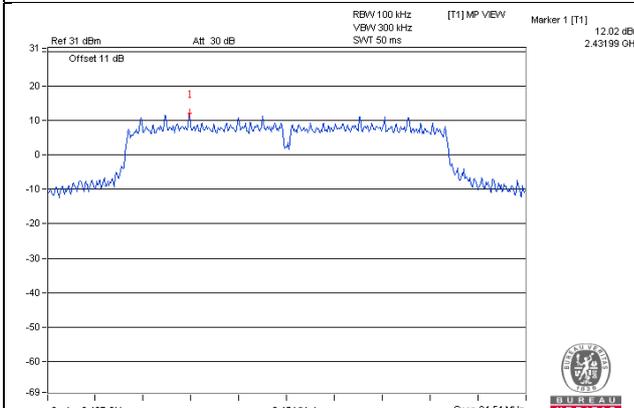


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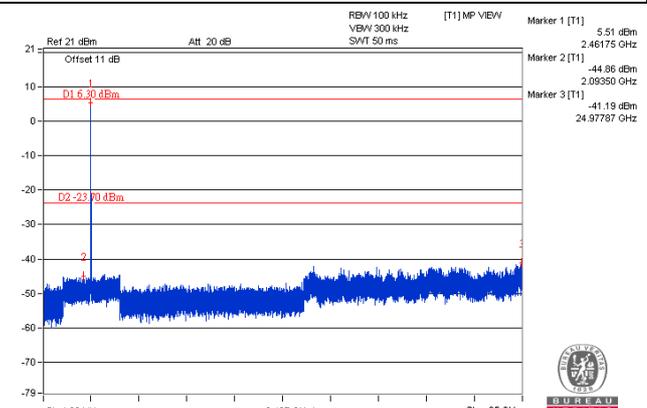
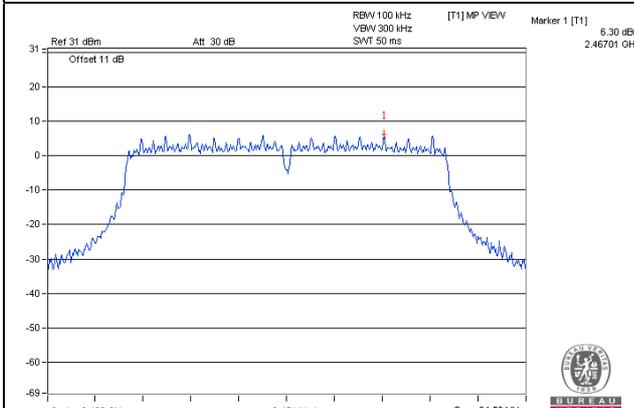
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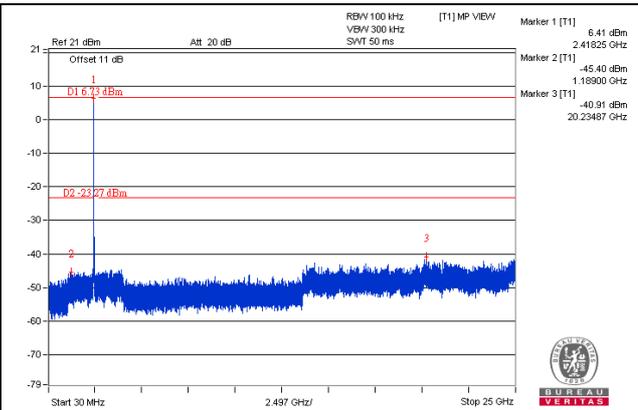
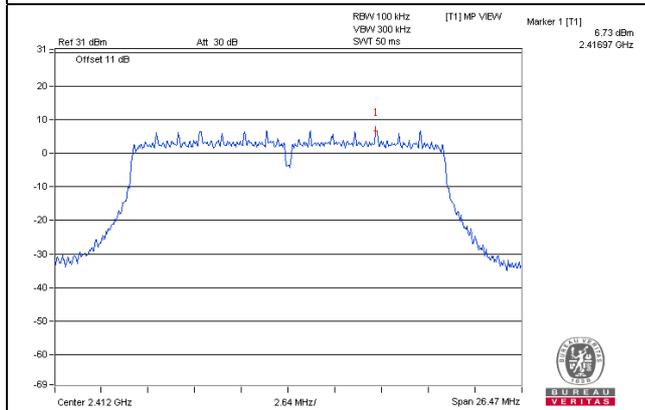




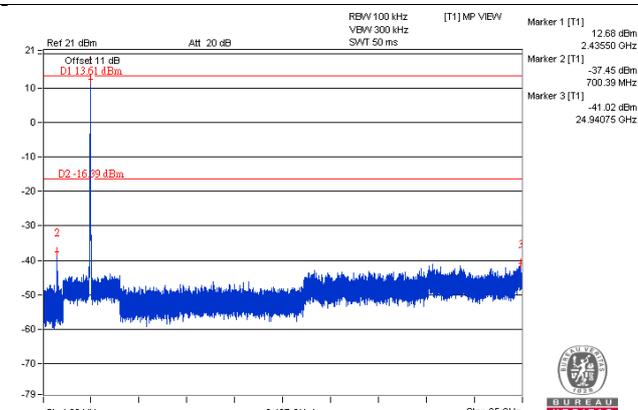
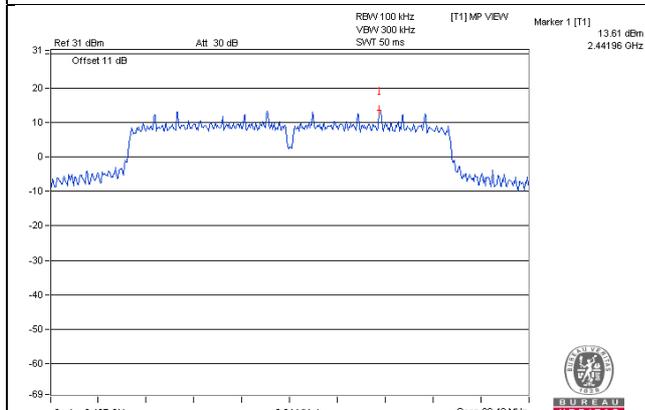
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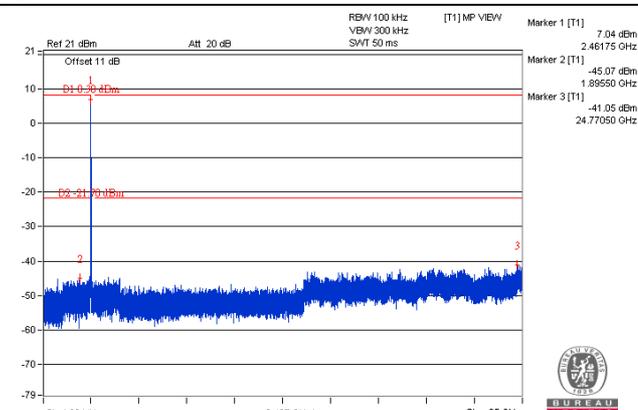
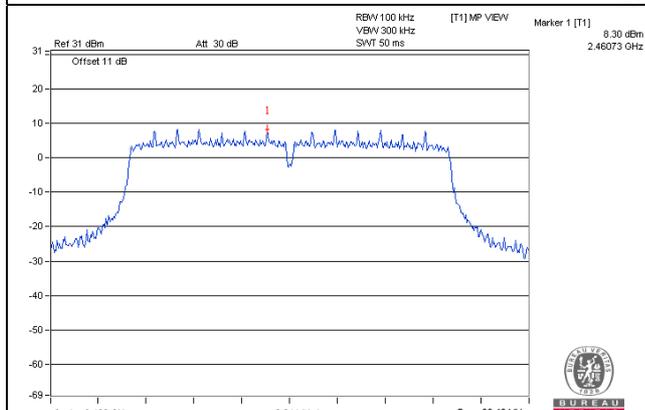
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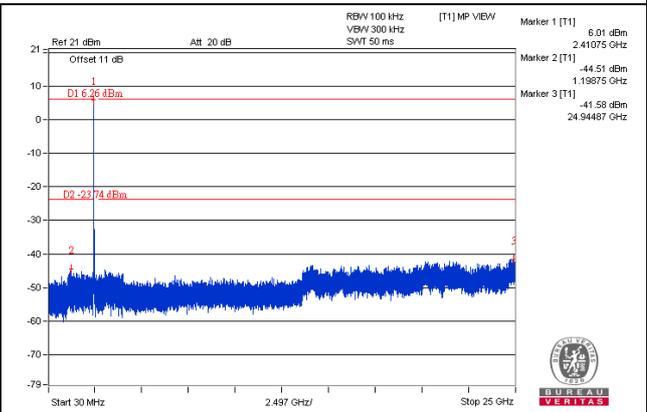
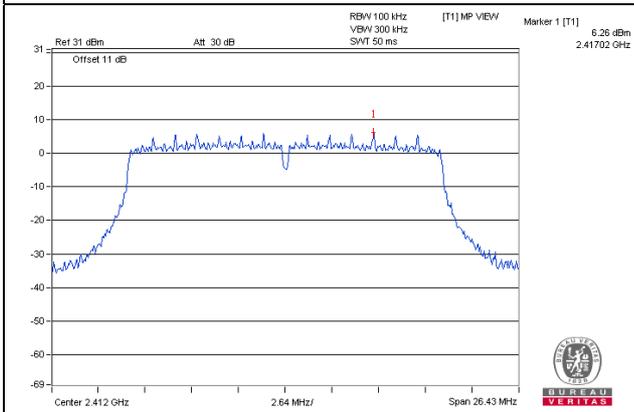
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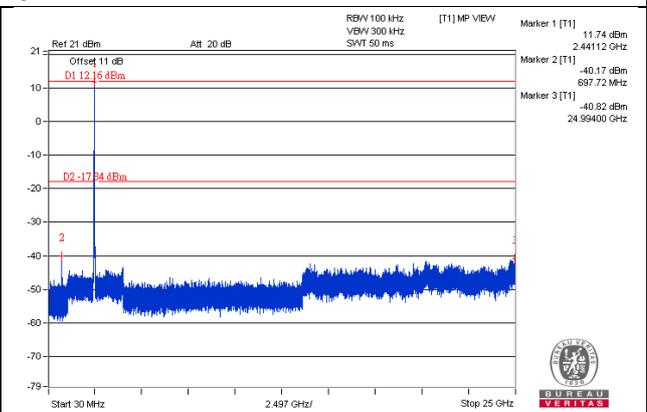
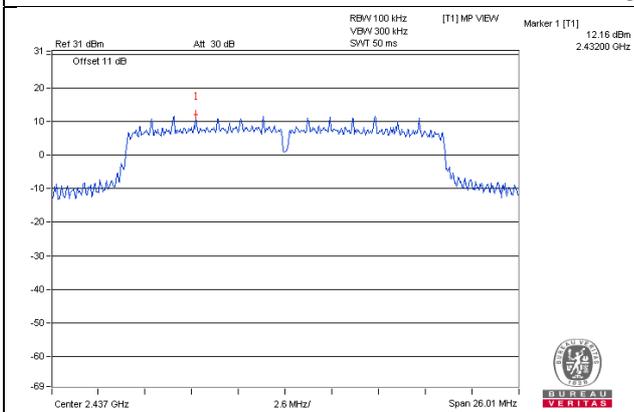


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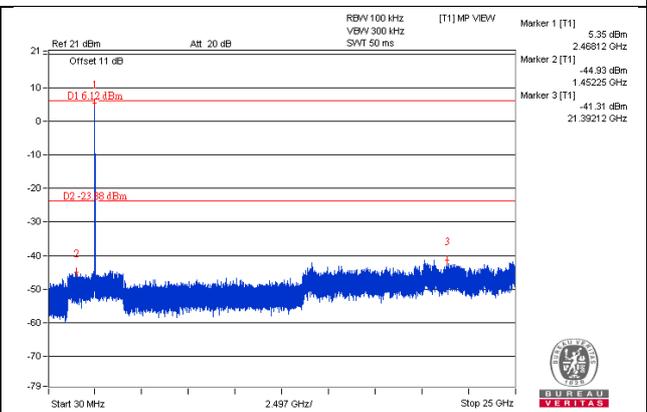
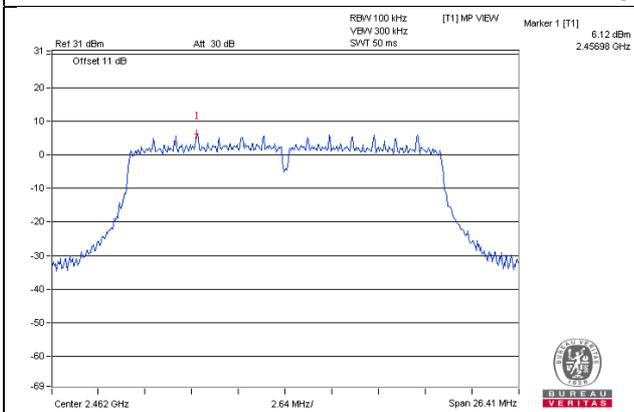
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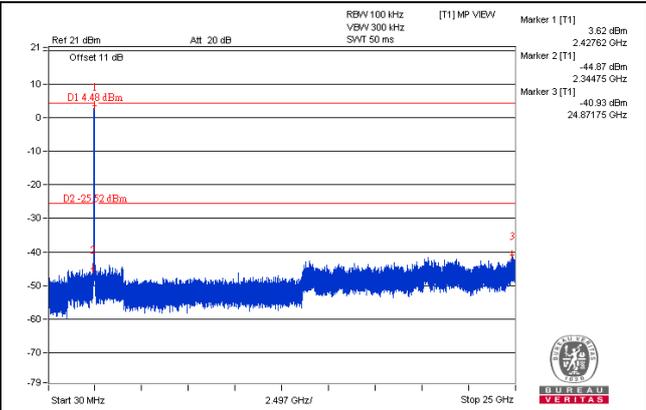
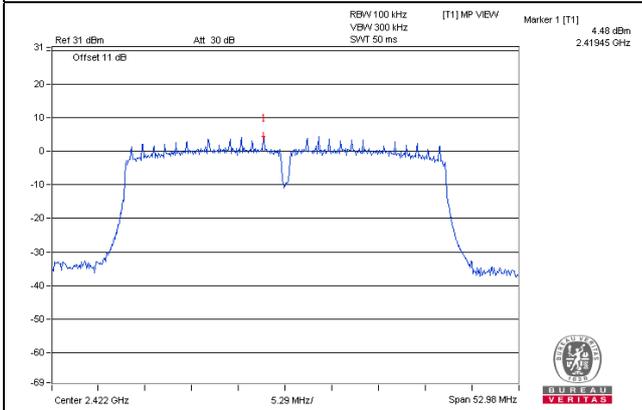
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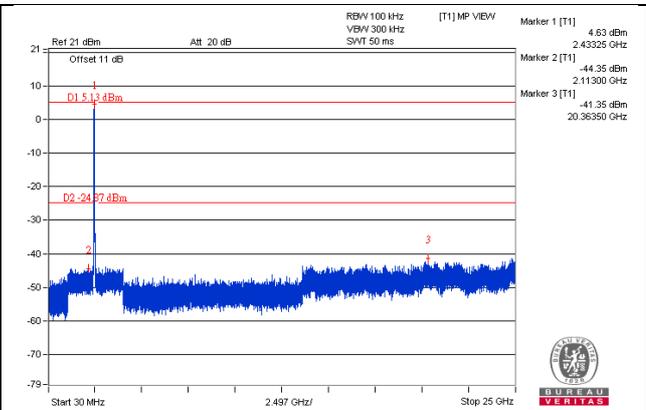
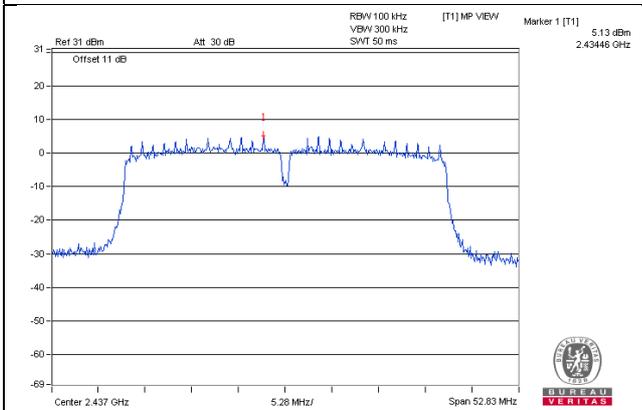


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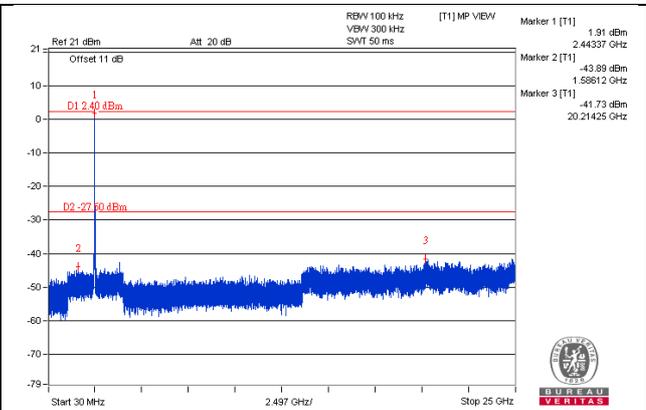
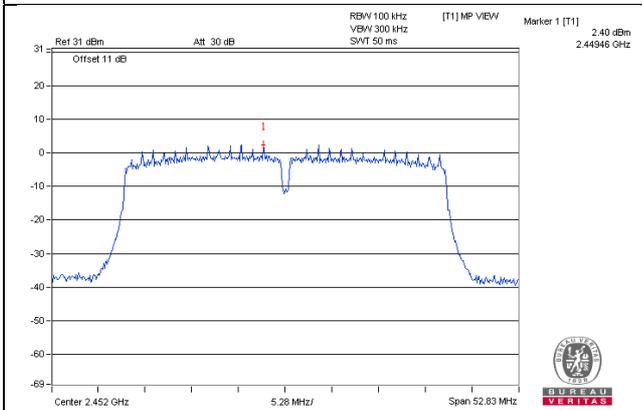
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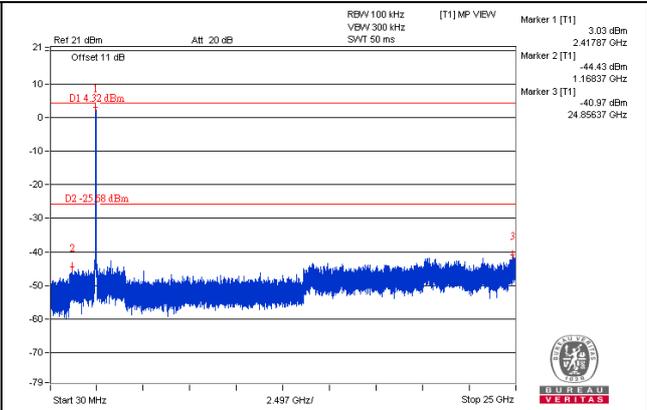
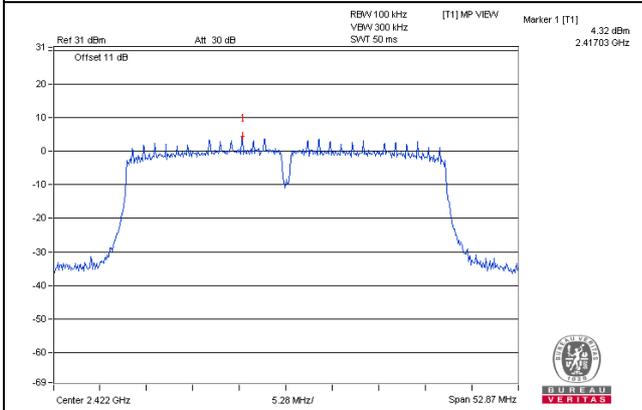




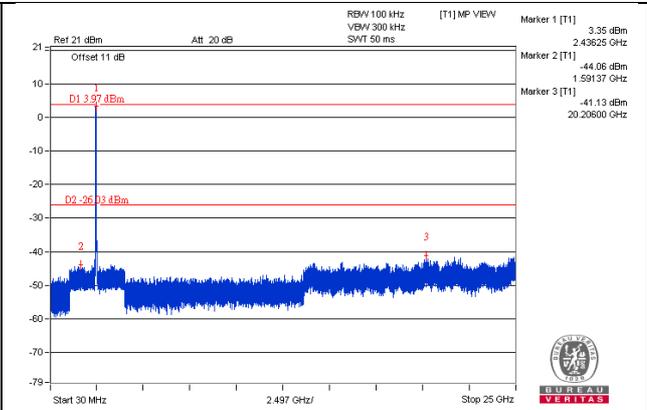
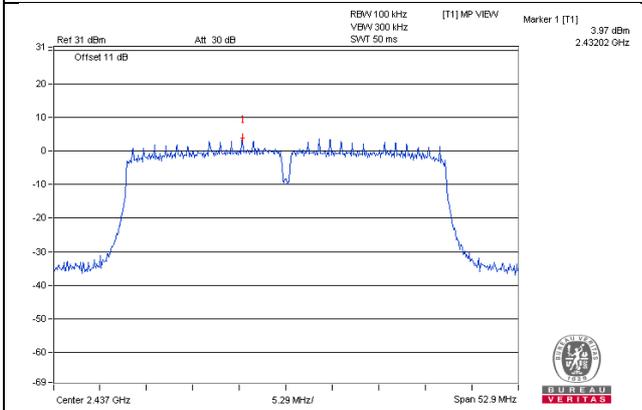
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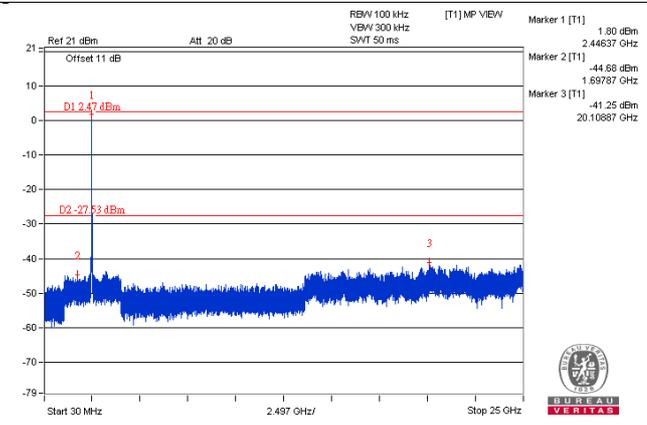
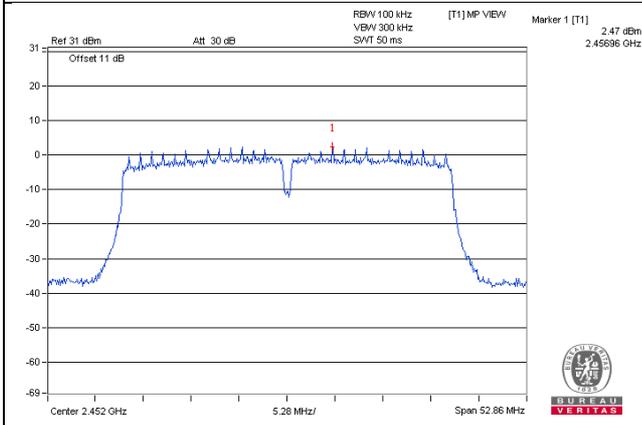
CH 3



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

Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

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