FCC Test Report

Report No.: RF150716C18

FCC ID: TE7WR841NXV11

Test Model: TL-WR841N, TL-WR841ND (refer to item 3.1 for more details)

Received Date: Jul. 16, 2015

Test Date: Jul. 24 ~ Oct. 16, 2015

Issued Date: Oct. 28, 2015

Applicant: TP-LINK TECHNOLOGIES CO., LTD.

Address: Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central Science and Technology Park, Shennan Rd, Nanshan, Shenzhen, China

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.)

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

Table of Contents

Release Control Record **4**

1 Certificate of Conformity **5**

2 Summary of Test Results **6**

2.1 Measurement Uncertainty 6
2.2 Modification Record 6

3 General Information **7**

3.1 General Description of EUT 7
3.2 Description of Test Modes 8
3.2.1 Test Mode Applicability and Tested Channel Detail 9
3.3 Duty Cycle of Test Signal 11
3.4 Description of Support Units 12
3.4.1 Configuration of System under Test 12
3.5 General Description of Applied Standards 13

4 Test Types and Results **14**

4.1 Radiated Emission and Bandedge Measurement 14
4.1.1 Limits of Radiated Emission and Bandedge Measurement 14
4.1.2 Test Instruments 15
4.1.3 Test Procedures 16
4.1.4 Deviation from Test Standard 16
4.1.5 Test Set Up 17
4.1.6 EUT Operating Conditions 17
4.1.7 Test Results 18
4.2 Conducted Emission Measurement 32
4.2.1 Limits of Conducted Emission Measurement 32
4.2.2 Test Instruments 32
4.2.3 Test Procedures 33
4.2.4 Deviation from Test Standard 33
4.2.5 Test Setup 33
4.2.6 EUT Operating Conditions 33
4.2.7 Test Results 34
4.3 6dB Bandwidth Measurement 38
4.3.1 Limits of 6dB Bandwidth Measurement 38
4.3.2 Test Setup 38
4.3.3 Test Instruments 38
4.3.4 Test Procedure 38
4.3.5 Deviation from Test Standard 38
4.3.6 EUT Operating Conditions 38
4.3.7 Test Result 39
4.4 Conducted Output Power Measurement 41
4.4.1 Limits of Conducted Output Power Measurement 41
4.4.2 Test Setup 41
4.4.3 Test Instruments 41
4.4.4 Test Procedures 41
4.4.5 Deviation from Test Standard 41
4.4.6 EUT Operating Conditions 41
4.4.7 Test Results 42
4.5 Power Spectral Density Measurement 43
4.5.1 Limits of Power Spectral Density Measurement 43
4.5.2 Test Setup 43
4.5.3 Test Instruments 43
4.5.4 Test Procedure 43
4.5.5 Deviation from Test Standard 44
4.5.6 EUT Operating Condition 44

4.5.7 Test Results 45
4.6 Conducted Out of Band Emission Measurement 48
4.6.1 Limits of Conducted Out of Band Emission Measurement 48
4.6.2 Test Setup 48
4.6.3 Test Instruments 48
4.6.4 Test Procedure 48
4.6.5 Deviation from Test Standard 49
4.6.6 EUT Operating Condition 49
4.6.7 Test Results 49

5 Pictures of Test Arrangements 58

Appendix – Information on the Testing Laboratories 59

Release Control Record

Issue No.	Description	Date Issued
RF150716C18	Original release.	Oct. 28, 2015

1 Certificate of Conformity

Product: 300Mbps Wireless N Router

Brand: TP-LINK

Test Model: TL-WR841N, TL-WR841ND (refer to item 3.1 for more details)

Sample Status: Prototype

Applicant: TP-LINK TECHNOLOGIES CO., LTD.

Test Date: Jul. 24 ~ Oct. 16, 2015

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:** Oct. 28, 2015
Suntee Liu / Specialist

Approved by : _____ , **Date:** Oct. 28, 2015
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 -16.53dB at 0.15391MHz
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 2390.00MHz.
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 R-SMA 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	Expended Uncertainty (k=2) (±)
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	300Mbps Wireless N Router
Brand	TP-LINK
Test Model	TL-WR841N, TL-WR841ND
Model Difference	Refer to Note
Status of EUT	Prototype
Power Supply Rating	9Vdc (Adapter)
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 300Mbps
Operating Frequency	2412~2462MHz
Number of Channel	802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7
Output Power	417.948mW
Antenna Type	Omni-directional antenna with 4dBi gain
Antenna Connector	R-SMA
Accessory Device	Adapter
Data Cable Supplied	NA

Note:

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

Modulation Mode	TX Function	Mode
802.11b	2TX	CDD
802.11g	2TX	CDD
802.11n (HT20)	2TX	CDD
802.11n (HT40)	2TX	CDD

1. All models are listed as below.

Brand	Model	Difference
TP-LINK	TL-WR841N	Non-detachable antenna
	TL-WR841ND	Detachable antenna

2. EUT uses following adapter.

Brand	TP-LINK TECHNOLOGIES CO., LTD.
Model	T090060-2B1
Input Power	100-240Vac, 50/60Hz, 0.3A
Output Power	9Vdc, 0.6A
Power Line	1.5m cable without core attached on adapter

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≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	TL-WR841N
B	-	√	√	-	TL-WR841ND

Where RE≥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 of each 3 axis. The worst case was found when positioned on **X-plane**.
2. "-" means no effect.

Radiated Emission Test (Above 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	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	7.2
A	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)
A, B	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)
A, B	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)
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	7.2
A	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	15.0

Test Condition:

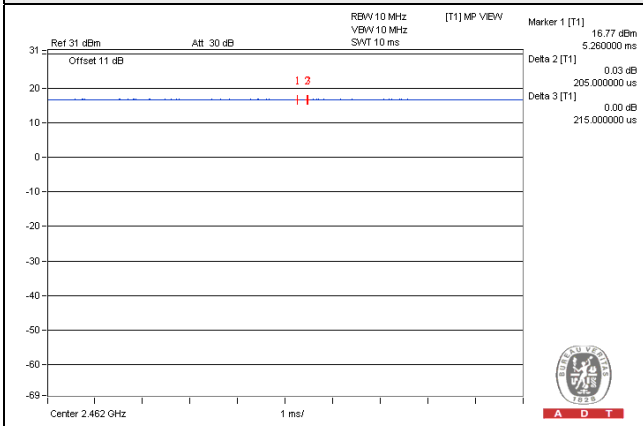
Applicable to	Environmental Conditions	Input Power	Tested by
RE≥1G	27 deg. C, 64% RH	120Vac, 60Hz	Chris Lin Alan Wu
RE<1G	17 deg. C, 70% RH 25 deg. C, 61% RH	120Vac, 60Hz	Nick Hsu Alan Wu
PLC	18 deg. C, 70% RH	120Vac, 60Hz	Nick Hsu
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Antony Lee

3.3 Duty Cycle of Test Signal

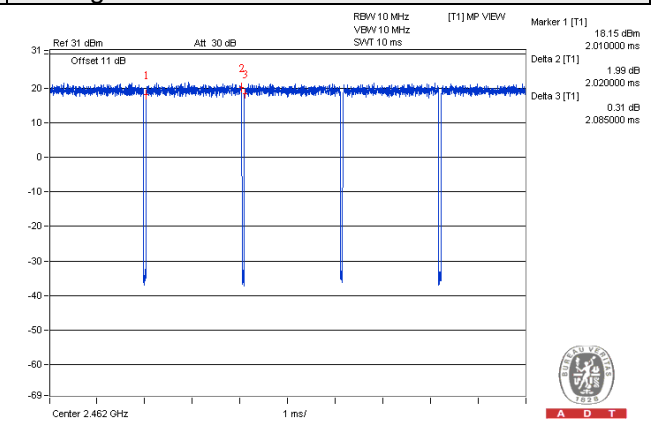
Duty cycle of test signal is < 98%, duty factor shall be considered.

802.11b: Duty cycle = 0.205/0.215 = 0.953, Duty factor = 10 * log(1/0.953) = 0.21
802.11g: Duty cycle = 2.02/2.085 = 0.969, Duty factor = 10 * log(1/0.969) = 0.14
802.11n (HT20): Duty cycle = 1.882/1.942 = 0.969, Duty factor = 10 * log(1/0.969) = 0.14
802.11n (HT40): Duty cycle = 0.927/0.97 = 0.956, Duty factor = 10 * log(1/0.956) = 0.20

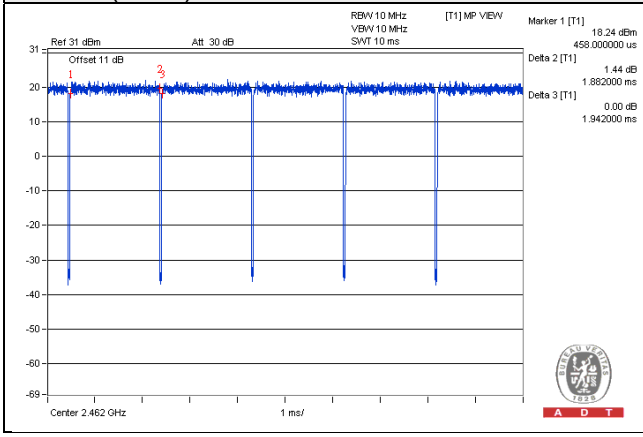
802.11b



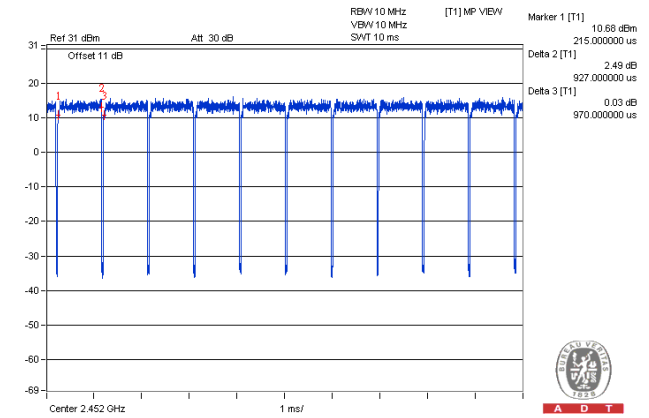
802.11g



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.

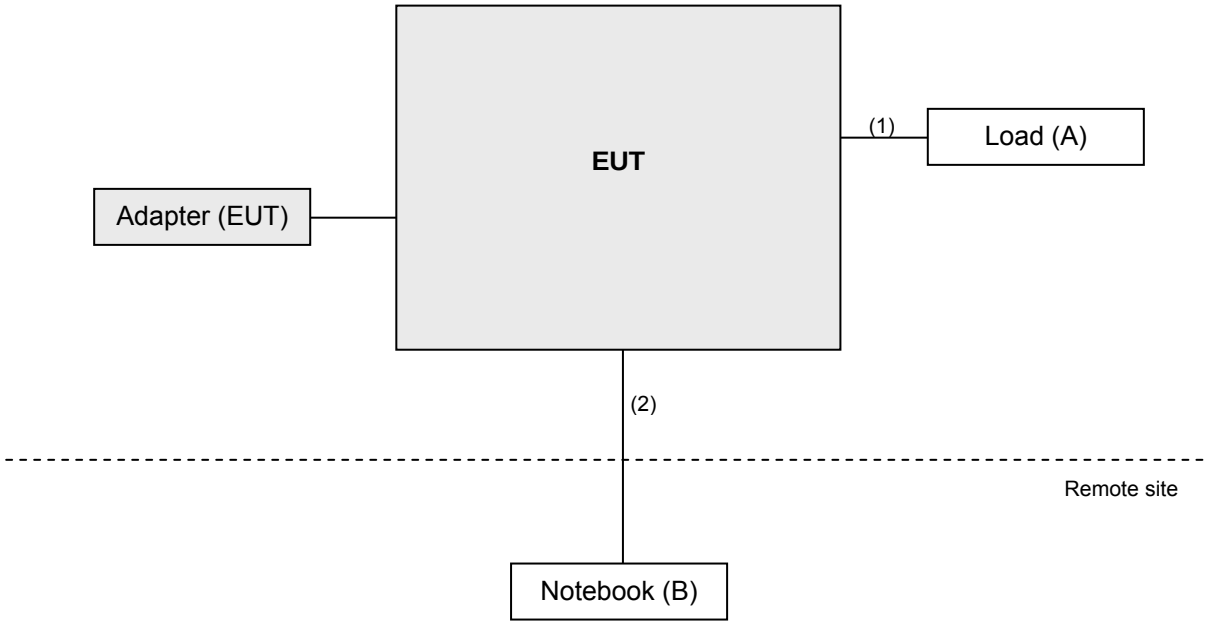
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Load	NA	NA	NA	NA	-
B.	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved	-

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45	4	1.8	N	0	-
2.	RJ45	1	5	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)
558074 D01 DTS Meas Guidance v03r03
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	ESCI	100424	Oct. 12, 2014	Oct. 11, 2015
			Oct. 12, 2015	Oct. 11, 2016
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100040	Jul. 08, 2015	Jul. 07, 2016
BILOG Antenna SCHWARZBECK	VULB9168	9168-155	Feb. 06, 2015	Feb. 05, 2016
HORN Antenna SCHWARZBECK	BBHA 9120D	9120D-1170	Feb. 05, 2015	Feb. 04, 2016
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Feb. 09, 2015	Feb. 08, 2016
Preamplifier Agilent	8449B	3008A01960	Aug. 09, 2015	Aug. 08, 2016
Preamplifier Agilent	8447D	2944A10631	Aug. 09, 2015	Aug. 08, 2016
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-02(295012+ 309220)	Aug. 09, 2015	Aug. 08, 2016
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH4-03(250724)	Aug. 09, 2015	Aug. 08, 2016
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	0824011	Jul. 09, 2015	Jul. 08, 2016
Power Sensor	MA2411B	0738171	Jul. 09, 2015	Jul. 08, 2016

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

a. The EUT was placed on the top of a rotating table 0.8 meters (for below 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:

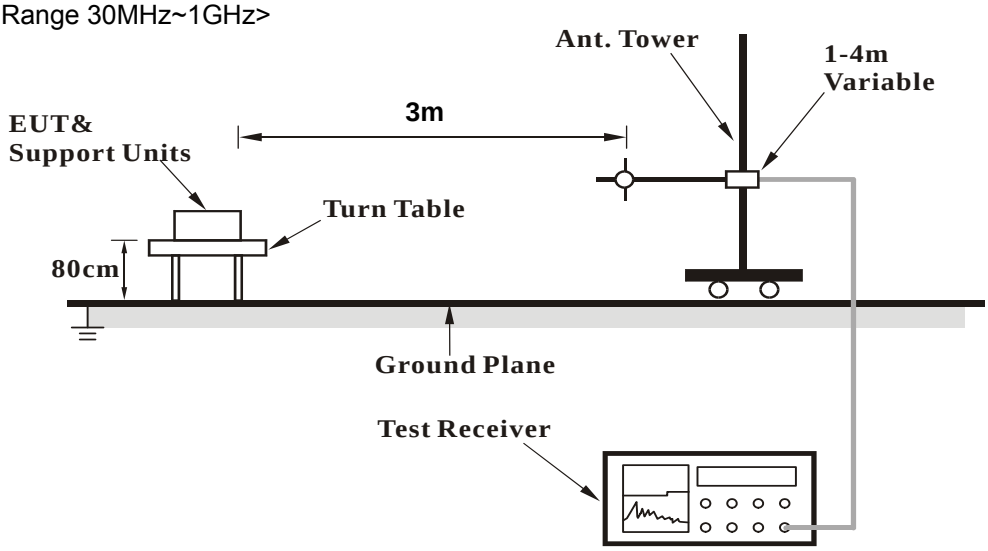
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (10 log(1/duty cycle)).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

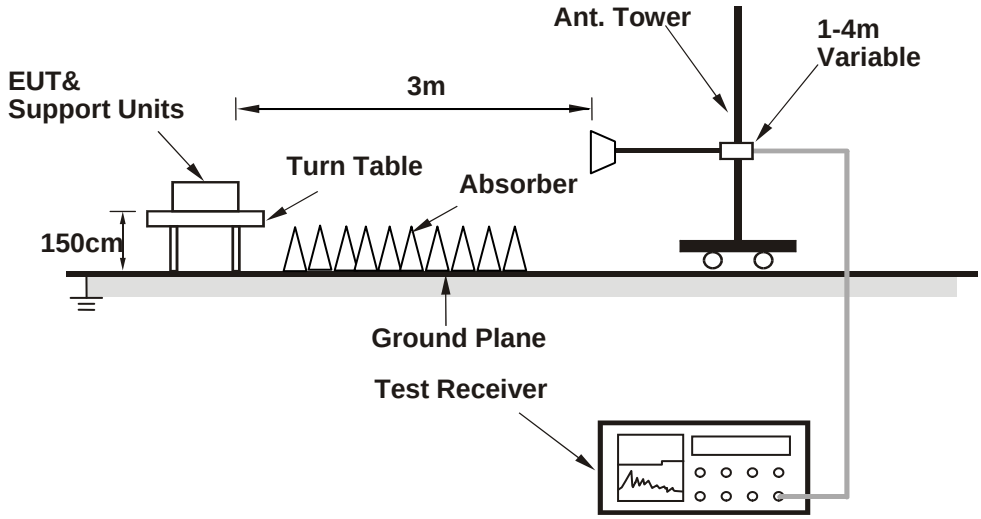
No deviation.

4.1.5 Test Set Up

<Frequency Range 30MHz~1GHz>



<Frequency Range above 1GHz>



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

4.1.6 EUT Operating Conditions

a. Placed the EUT on the testing table.
b. Prepared a notebook to act as a communication partner and placed it outside of testing area.
c. The communication partner connected with EUT via a RJ45 cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
d. The communication partner sent data to EUT by command "PING".
e. 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) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	56.3 PK	74.0	-17.7	1.12 H	304	24.20	32.10
2	2390.00	44.7 AV	54.0	-9.3	1.12 H	304	12.60	32.10
3	*2412.00	93.9 PK			1.00 H	285	61.70	32.20
4	*2412.00	90.5 AV			1.00 H	285	58.30	32.20
5	4824.00	53.4 PK	74.0	-20.6	2.04 H	57	48.20	5.20
6	4824.00	50.1 AV	54.0	-3.9	2.04 H	57	44.90	5.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.5 PK	74.0	-16.5	1.57 V	19	25.40	32.10
2	2390.00	46.8 AV	54.0	-7.2	1.57 V	19	14.70	32.10
3	*2412.00	111.0 PK			1.56 V	211	78.80	32.20
4	*2412.00	107.1 AV			1.56 V	211	74.90	32.20
5	4824.00	56.2 PK	74.0	-17.8	1.00 V	7	51.00	5.20
6	4824.00	53.8 AV	54.0	-0.2	1.00 V	7	48.60	5.20

REMARKS:

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

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	94.7 PK			1.00 H	92	62.50	32.20
2	*2437.00	91.7 AV			1.00 H	92	59.50	32.20
3	4874.00	52.0 PK	74.0	-22.0	1.00 H	102	46.80	5.20
4	4874.00	50.1 AV	54.0	-3.9	1.00 H	102	44.90	5.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	111.9 PK			1.31 V	323	79.70	32.20
2	*2437.00	108.4 AV			1.31 V	323	76.20	32.20
3	4874.00	56.4 PK	74.0	-17.6	1.14 V	5	51.20	5.20
4	4874.00	53.7 AV	54.0	-0.3	1.14 V	5	48.50	5.20

REMARKS:

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

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	96.3 PK			1.00 H	111	64.00	32.30
2	*2462.00	92.9 AV			1.00 H	111	60.60	32.30
3	2483.50	56.2 PK	74.0	-17.8	1.10 H	132	23.90	32.30
4	2483.50	45.2 AV	54.0	-8.8	1.10 H	132	12.90	32.30
5	4924.00	52.7 PK	74.0	-21.3	1.82 H	76	47.40	5.30
6	4924.00	47.3 AV	54.0	-6.7	1.82 H	76	42.00	5.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	110.5 PK			1.12 V	291	78.20	32.30
2	*2462.00	107.2 AV			1.12 V	291	74.90	32.30
3	2483.50	59.3 PK	74.0	-14.7	1.26 V	304	27.00	32.30
4	2483.50	49.0 AV	54.0	-5.0	1.26 V	304	16.70	32.30
5	4924.00	56.8 PK	74.0	-17.2	1.53 V	5	51.50	5.30
6	4924.00	53.8 AV	54.0	-0.2	1.53 V	5	48.50	5.30

REMARKS:

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

802.11g

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	56.1 PK	74.0	-17.9	1.05 H	123	24.00	32.10
2	2390.00	45.1 AV	54.0	-8.9	1.05 H	123	13.00	32.10
3	*2412.00	95.7 PK			1.00 H	97	63.50	32.20
4	*2412.00	86.8 AV			1.00 H	97	54.60	32.20
5	4824.00	53.3 PK	74.0	-20.7	2.04 H	53	48.10	5.20
6	4824.00	41.0 AV	54.0	-13.0	2.04 H	53	35.80	5.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.3 PK	74.0	-9.7	1.60 V	21	32.20	32.10
2	2390.00	53.5 AV	54.0	-0.5	1.60 V	21	21.40	32.10
3	*2412.00	112.0 PK			1.81 V	217	79.80	32.20
4	*2412.00	101.8 AV			1.81 V	217	69.60	32.20
5	4824.00	58.1 PK	74.0	-15.9	2.15 V	3	52.90	5.20
6	4824.00	45.0 AV	54.0	-9.0	2.15 V	3	39.80	5.20

REMARKS:

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

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	56.7 PK	74.0	-17.3	1.10 H	123	24.60	32.10
2	2390.00	45.1 AV	54.0	-8.9	1.10 H	123	13.00	32.10
3	*2437.00	104.0 PK			1.02 H	113	71.80	32.20
4	*2437.00	92.8 AV			1.02 H	113	60.60	32.20
5	4874.00	60.1 PK	74.0	-13.9	1.74 H	296	54.90	5.20
6	4874.00	46.1 AV	54.0	-7.9	1.74 H	296	40.90	5.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.4 PK	74.0	-6.6	1.01 V	304	35.30	32.10
2	2390.00	53.5 AV	54.0	-0.5	1.01 V	304	21.40	32.10
3	*2437.00	119.2 PK			1.83 V	329	87.00	32.20
4	*2437.00	109.6 AV			1.83 V	329	77.40	32.20
5	4874.00	64.4 PK	74.0	-9.6	2.11 V	0	59.20	5.20
6	4874.00	52.0 AV	54.0	-2.0	2.11 V	0	46.80	5.20

REMARKS:

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

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	97.9 PK			1.01 H	114	65.60	32.30
2	*2462.00	87.8 AV			1.01 H	114	55.50	32.30
3	2483.50	56.3 PK	74.0	-17.7	1.10 H	123	24.00	32.30
4	2483.50	45.3 AV	54.0	-8.7	1.10 H	123	13.00	32.30
5	4924.00	50.0 PK	74.0	-24.0	1.78 H	294	44.70	5.30
6	4924.00	37.5 AV	54.0	-16.5	1.78 H	294	32.20	5.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	112.2 PK			1.59 V	248	79.90	32.30
2	*2462.00	102.2 AV			1.59 V	248	69.90	32.30
3	2483.50	66.0 PK	74.0	-8.0	2.06 V	158	33.70	32.30
4	2483.50	53.5 AV	54.0	-0.5	2.06 V	158	21.20	32.30
5	4924.00	54.0 PK	74.0	-20.0	1.97 V	0	48.70	5.30
6	4924.00	41.2 AV	54.0	-12.8	1.97 V	0	35.90	5.30

REMARKS:

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

802.11n (HT20)

CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	56.1 PK	74.0	-17.9	1.10 H	178	24.00	32.10
2	2390.00	44.7 AV	54.0	-9.3	1.10 H	178	12.60	32.10
3	*2412.00	95.4 PK			1.04 H	164	63.20	32.20
4	*2412.00	85.5 AV			1.04 H	164	53.30	32.20
5	4824.00	51.8 PK	74.0	-22.2	1.73 H	58	46.60	5.20
6	4824.00	38.2 AV	54.0	-15.8	1.73 H	58	33.00	5.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.0 PK	74.0	-7.0	1.72 V	334	34.90	32.10
2	**2390.00**	**53.9 AV**	**54.0**	**-0.1**	**1.72 V**	**334**	**21.80**	**32.10**
3	*2412.00	112.0 PK			1.76 V	159	79.80	32.20
4	*2412.00	101.6 AV			1.76 V	159	69.40	32.20
5	4824.00	56.2 PK	74.0	-17.8	2.23 V	5	51.00	5.20
6	4824.00	42.8 AV	54.0	-11.2	2.23 V	5	37.60	5.20

REMARKS:

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

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	103.7 PK			1.49 H	113	71.50	32.20
2	*2437.00	93.1 AV			1.49 H	113	60.90	32.20
3	2483.50	56.3 PK	74.0	-17.7	1.55 H	123	24.00	32.30
4	2483.50	45.3 AV	54.0	-8.7	1.55 H	123	13.00	32.30
5	4874.00	59.5 PK	74.0	-14.5	1.82 H	294	54.30	5.20
6	4874.00	45.8 AV	54.0	-8.2	1.82 H	294	40.60	5.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	120.0 PK			1.87 V	325	87.80	32.20
2	*2437.00	109.8 AV			1.87 V	325	77.60	32.20
3	2483.50	69.9 PK	74.0	-4.1	1.79 V	356	37.60	32.30
4	**2483.50**	**53.9 AV**	**54.0**	**-0.1**	**1.79 V**	**356**	**21.60**	**32.30**
5	4874.00	64.6 PK	74.0	-9.4	2.11 V	0	59.40	5.20
6	4874.00	51.5 AV	54.0	-2.5	2.11 V	0	46.30	5.20

REMARKS:

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

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	98.2 PK			1.00 H	117	65.90	32.30
2	*2462.00	87.9 AV			1.00 H	117	55.60	32.30
3	2483.50	56.3 PK	74.0	-17.7	1.10 H	126	24.00	32.30
4	2483.50	45.3 AV	54.0	-8.7	1.10 H	126	13.00	32.30
5	4924.00	49.3 PK	74.0	-24.7	1.55 H	64	44.00	5.30
6	4924.00	37.0 AV	54.0	-17.0	1.55 H	64	31.70	5.30
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	110.8 PK			1.00 V	248	78.50	32.30
2	*2462.00	101.2 AV			1.00 V	248	68.90	32.30
3	2483.50	66.7 PK	74.0	-7.3	1.36 V	350	34.40	32.30
4	**2483.50**	**53.9 AV**	**54.0**	**-0.1**	**1.36 V**	**350**	**21.60**	**32.30**
5	4924.00	53.7 PK	74.0	-20.3	2.32 V	6	48.40	5.30
6	4924.00	40.1 AV	54.0	-13.9	2.32 V	6	34.80	5.30

REMARKS:

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

802.11n (HT40)

CHANNEL	TX Channel 3	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	56.1 PK	74.0	-17.9	1.15 H	126	24.00	32.10
2	2390.00	44.8 AV	54.0	-9.2	1.15 H	126	12.70	32.10
3	*2422.00	90.3 PK			1.00 H	113	58.10	32.20
4	*2422.00	80.8 AV			1.00 H	113	48.60	32.20
5	4844.00	46.7 PK	74.0	-27.3	1.28 H	74	41.50	5.20
6	4844.00	33.9 AV	54.0	-20.1	1.28 H	74	28.70	5.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.1 PK	74.0	-8.9	1.00 V	301	33.00	32.10
2	2390.00	53.5 AV	54.0	-0.5	1.00 V	301	21.40	32.10
3	*2422.00	107.3 PK			1.46 V	214	75.10	32.20
4	*2422.00	97.2 AV			1.46 V	214	65.00	32.20
5	4844.00	48.2 PK	74.0	-25.8	1.26 V	97	43.00	5.20
6	4844.00	36.1 AV	54.0	-17.9	1.26 V	97	30.90	5.20

REMARKS:

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

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	57.0 PK	74.0	-17.0	1.10 H	126	24.90	32.10
2	2390.00	45.1 AV	54.0	-8.9	1.10 H	126	13.00	32.10
3	*2437.00	95.2 PK			1.01 H	112	63.00	32.20
4	*2437.00	84.9 AV			1.01 H	112	52.70	32.20
5	4874.00	46.2 PK	74.0	-27.8	1.47 H	74	41.00	5.20
6	4874.00	33.9 AV	54.0	-20.1	1.47 H	74	28.70	5.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.8 PK	74.0	-8.2	1.29 V	202	33.70	32.10
2	2390.00	53.5 AV	54.0	-0.5	1.29 V	202	21.40	32.10
3	*2437.00	109.9 PK			1.76 V	170	77.70	32.20
4	*2437.00	99.7 AV			1.76 V	170	67.50	32.20
5	4874.00	47.2 PK	74.0	-26.8	1.23 V	69	42.00	5.20
6	4874.00	35.3 AV	54.0	-18.7	1.23 V	69	30.10	5.20

REMARKS:

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

CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

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	92.0 PK			1.18 H	114	59.80	32.20
2	*2452.00	81.5 AV			1.18 H	114	49.30	32.20
3	2483.50	56.2 PK	74.0	-17.8	1.21 H	126	23.90	32.30
4	2483.50	45.0 AV	54.0	-9.0	1.21 H	126	12.70	32.30
5	4904.00	46.3 PK	74.0	-27.7	1.07 H	44	41.10	5.20
6	4904.00	33.9 AV	54.0	-20.1	1.07 H	44	28.70	5.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	104.3 PK			1.58 V	108	72.10	32.20
2	*2452.00	94.3 AV			1.58 V	108	62.10	32.20
3	2483.50	65.6 PK	74.0	-8.4	1.74 V	352	33.30	32.30
4	2483.50	53.6 AV	54.0	-0.4	1.74 V	352	21.30	32.30
5	4904.00	47.8 PK	74.0	-26.2	1.23 V	98	42.60	5.20
6	4904.00	35.2 AV	54.0	-18.8	1.23 V	98	30.00	5.20

REMARKS:

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

Below 1GHz Worst-Case Data: 802.11g

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE A	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	80.45	31.0 QP	40.0	-9.0	1.50 H	285	49.80	-18.80
2	195.16	36.7 QP	43.5	-6.8	1.01 H	249	53.20	-16.50
3	374.04	35.9 QP	46.0	-10.1	1.01 H	223	46.90	-11.00
4	589.86	37.6 QP	46.0	-8.4	1.50 H	330	43.90	-6.30
5	782.34	40.3 QP	46.0	-5.7	1.01 H	18	42.70	-2.40
6	821.23	38.0 QP	46.0	-8.0	2.00 H	15	39.80	-1.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.63	36.9 QP	40.0	-3.1	1.00 V	198	53.00	-16.10
2	60.22	37.8 QP	40.0	-2.2	1.52 V	11	52.70	-14.90
3	101.84	34.4 QP	43.5	-9.1	1.00 V	98	53.30	-18.90
4	173.78	29.8 QP	43.5	-13.7	1.00 V	83	44.40	-14.60
5	391.54	39.5 QP	46.0	-6.5	1.50 V	151	50.10	-10.60
6	589.86	40.3 QP	46.0	-5.7	1.00 V	150	46.60	-6.30

REMARKS:

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

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz	TEST MODE A	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	66.77	32.6 QP	40.0	-7.4	1.00 H	298	47.90	-15.30
2	97.81	35.0 QP	43.5	-8.5	1.99 H	114	54.00	-19.00
3	144.38	35.4 QP	43.5	-8.1	1.99 H	117	49.30	-13.90
4	392.75	35.8 QP	46.0	-10.2	1.00 H	172	47.00	-11.20
5	782.78	40.4 QP	46.0	-5.6	1.00 H	10	43.50	-3.10
6	873.97	39.9 QP	46.0	-6.1	1.49 H	307	42.00	-2.10
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	59.01	33.7 QP	40.0	-6.3	2.00 V	6	47.90	-14.20
2	103.64	39.2 QP	43.5	-4.3	1.24 V	225	56.90	-17.70
3	392.75	37.1 QP	46.0	-8.9	1.00 V	67	48.30	-11.20
4	499.48	31.7 QP	46.0	-14.3	1.00 V	257	41.00	-9.30
5	808.00	40.3 QP	46.0	-5.7	1.24 V	18	43.20	-2.90
6	873.97	42.3 QP	46.0	-3.7	1.00 V	267	44.40	-2.10

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

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	ESCS 30	100288	Apr. 27, 2015	Apr. 26, 2016
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond2-01	Dec. 26, 2014	Dec. 25, 2015
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Dec. 30, 2014	Dec. 29, 2015
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Jul. 21, 2015	Jul. 20, 2016
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 2.
3. The VCCI Site Registration No. is C-2047.

4.2.3 Test Procedures

a. 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.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

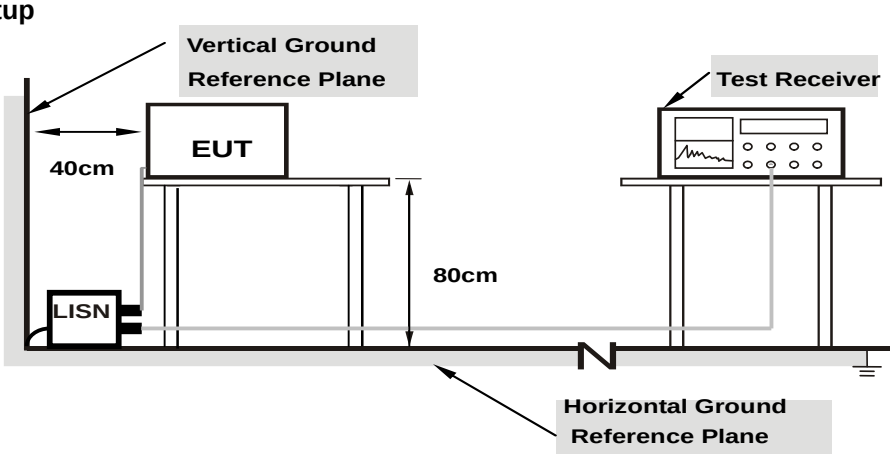
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

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 item 4.1.6.

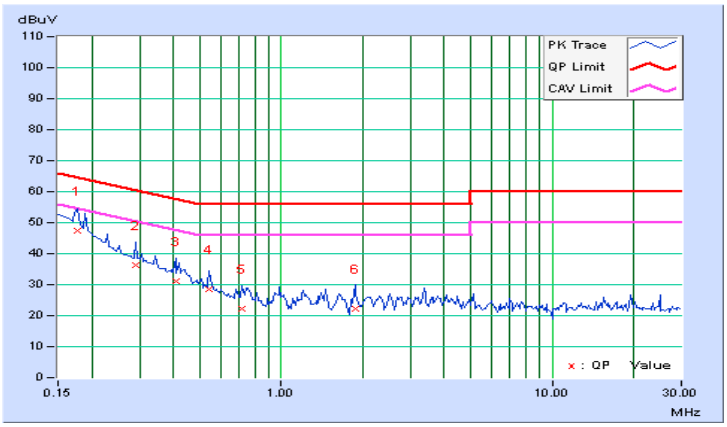
4.2.7 Test Results

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

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17734	9.94	37.34	24.75	47.28	34.69	64.61	54.61	-17.33	-19.92
2	0.29063	9.95	26.22	15.32	36.17	25.27	60.51	50.51	-24.34	-25.24
3	0.40781	9.95	21.09	14.46	31.04	24.41	57.69	47.69	-26.65	-23.28
4	0.54453	9.98	18.68	7.71	28.66	17.69	56.00	46.00	-27.34	-28.31
5	0.71641	10.01	12.13	5.55	22.14	15.56	56.00	46.00	-33.86	-30.44
6	1.87891	10.14	11.98	4.64	22.12	14.78	56.00	46.00	-33.88	-31.22

REMARKS:

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

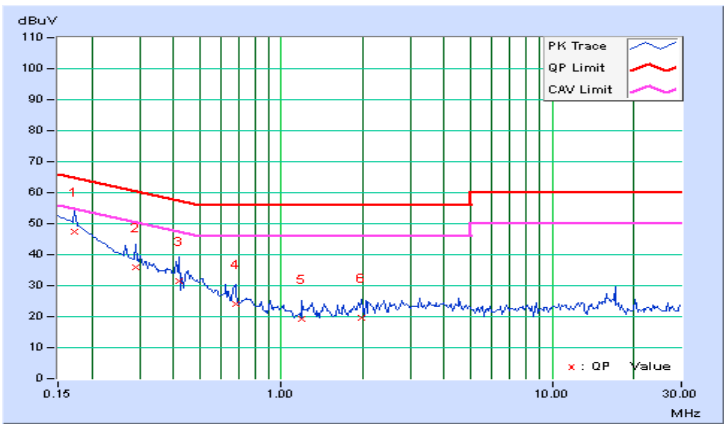


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17344	9.96	37.55	24.73	47.51	34.69	64.79	54.79	-17.29	-20.11
2	0.29063	9.98	25.91	13.92	35.89	23.90	60.51	50.51	-24.61	-26.60
3	0.41953	10.00	21.34	11.20	31.34	21.20	57.46	47.46	-26.11	-26.25
4	0.67734	10.04	14.20	4.57	24.24	14.61	56.00	46.00	-31.76	-31.39
5	1.19141	10.10	9.12	2.12	19.22	12.22	56.00	46.00	-36.78	-33.78
6	1.98438	10.19	9.45	2.02	19.64	12.21	56.00	46.00	-36.36	-33.79

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.

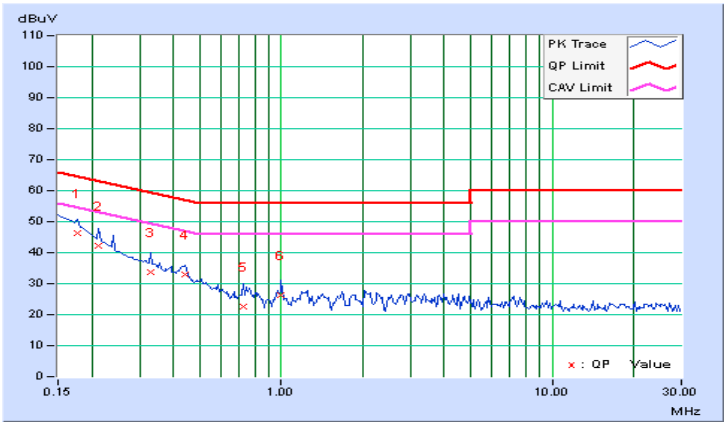


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17734	9.94	36.53	24.07	46.47	34.01	64.61	54.61	-18.14	-20.60
2	0.21250	9.95	32.16	19.24	42.11	29.19	63.11	53.11	-21.00	-23.92
3	0.32969	9.95	23.63	13.78	33.58	23.73	59.46	49.46	-25.88	-25.73
4	0.43906	9.96	22.84	15.01	32.80	24.97	57.08	47.08	-24.28	-22.11
5	0.72422	10.01	12.47	6.19	22.48	16.20	56.00	46.00	-33.52	-29.80
6	1.00000	10.07	16.14	7.24	26.21	17.31	56.00	46.00	-29.79	-28.69

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.

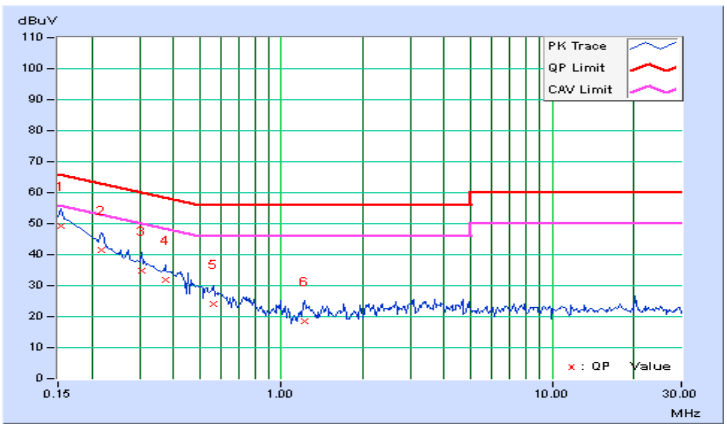


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.15391**	**9.95**	**39.31**	**26.41**	**49.26**	**36.36**	**65.79**	**55.79**	**-16.53**	**-19.43**
2	0.21641	9.97	31.69	18.74	41.66	28.71	62.96	52.96	-21.30	-24.25
3	0.30625	9.98	24.85	12.94	34.83	22.92	60.07	50.07	-25.24	-27.15
4	0.37266	10.00	21.70	10.00	31.70	20.00	58.44	48.44	-26.75	-28.45
5	0.56406	10.02	13.98	4.18	24.00	14.20	56.00	46.00	-32.00	-31.80
6	1.22656	10.10	8.53	2.97	18.63	13.07	56.00	46.00	-37.37	-32.93

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.

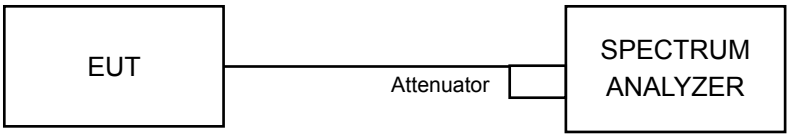


4.3 6dB Bandwidth Measurement

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

558074 D01 DTS Meas Guidance v03r03 section 8.1

a. Set resolution bandwidth (RBW) = 100kHz

b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = Peak.

c. Trace mode = max hold.

d. Sweep = auto couple.

e. 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	8.58	9.07	0.5	Pass
6	2437	9.09	9.55	0.5	Pass
11	2462	10.08	9.62	0.5	Pass

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		CHAIN 0	CHAIN 1		
1	2412	13.82	13.91	0.5	Pass
6	2437	15.05	15.08	0.5	Pass
11	2462	15.17	15.17	0.5	Pass

802.11n (HT20)

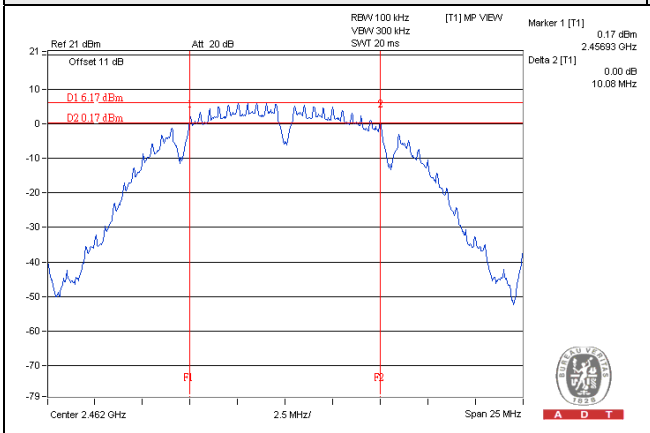
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		CHAIN 0	CHAIN 1		
1	2412	15.10	15.12	0.5	Pass
6	2437	15.15	15.37	0.5	Pass
11	2462	15.10	15.15	0.5	Pass

802.11n (HT40)

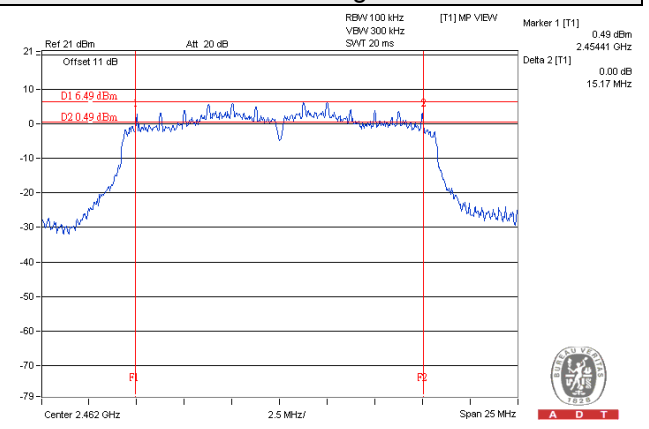
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		CHAIN 0	CHAIN 1		
3	2422	31.50	33.93	0.5	Pass
6	2437	34.05	31.47	0.5	Pass
9	2452	35.05	35.12	0.5	Pass

Spectrum Plot of Worst Value

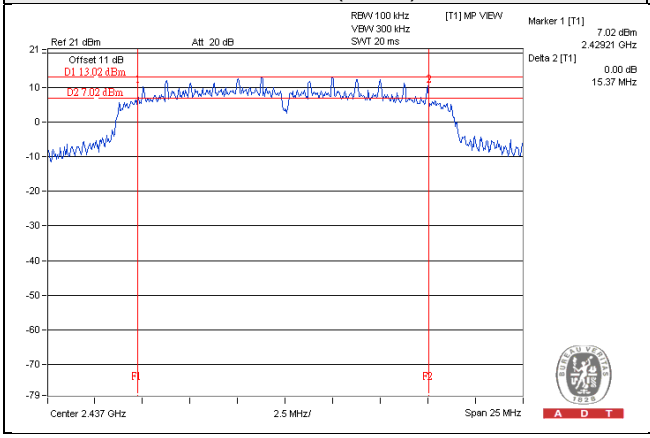
802.11b



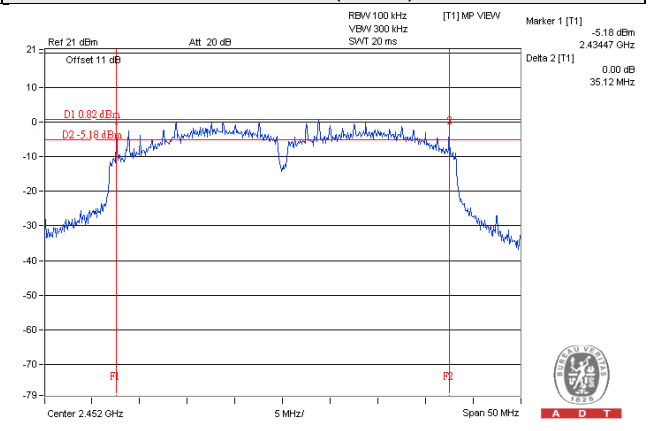
802.11g



802.11n (HT20)



802.11n (HT40)



4.4 Conducted Output Power Measurement

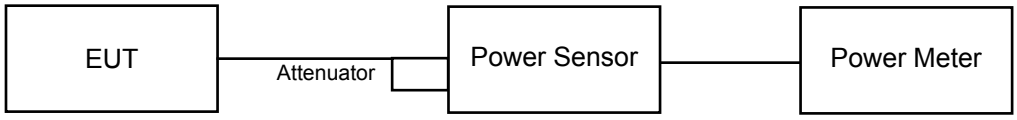
4.4.1 Limits of Conducted Output Power Measurement

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 NANT ≤ 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 ≥ 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

558074 D01 DTS Meas Guidance v03r03 section 9.2.3.2
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

802.11b

Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	13.68	13.67	46.616	16.69	30	Pass
6	2437	15.78	15.76	75.514	18.78	30	Pass
11	2462	15.47	15.36	69.593	18.43	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	15.55	15.49	71.292	18.53	30	Pass
6	2437	22.70	23.65	**417.948**	26.21	30	Pass
11	2462	16.25	15.76	79.84	19.02	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	14.85	14.65	59.723	17.76	30	Pass
6	2437	22.75	22.25	356.245	25.52	30	Pass
11	2462	16.31	15.46	77.912	18.92	30	Pass

802.11n (HT40)

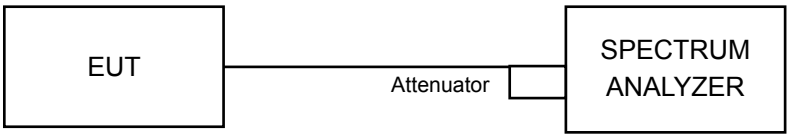
Chan.	Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	12.60	12.21	34.831	15.42	30	Pass
6	2437	17.04	17.12	102.105	20.09	30	Pass
9	2452	12.16	12.31	33.466	15.25	30	Pass

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

558074 D01 DTS Meas Guidance v03r03 section 10.3

For AVG. power (duty cycle ≥ 98%)

a) Set instrument center frequency to DTS channel center frequency.
b) Set span to at least 1.5 times the OBW.
c) Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d) Set VBW ≥3 x RBW.
e) Detector = power averaging (RMS) or sample detector (when RMS not available).
f) Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.
g) Sweep time = auto couple.
h) Employ trace averaging (RMS) mode over a minimum of 100 traces.
i) Use the peak marker function to determine the maximum amplitude level.

For AVG. power (duty cycle < 98%)

a) Measure the duty cycle (x).
b) Set instrument center frequency to DTS channel center frequency.
c) Set span to at least 1.5 times the OBW.
d) Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
e) Set VBW ≥3 x RBW.
f) Detector = power averaging (RMS) or sample detector (when RMS not available).
g) Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.
h) Sweep time = auto couple.
i) Do not use sweep triggering. Allow sweep to “free run”.
j) Employ trace averaging (RMS) mode over a minimum of 100 traces.
k) Use the peak marker function to determine the maximum amplitude level.
l) 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 w/o Duty factor (dBm/10kHz)	10 log (N=2) dB	Duty Factor	PSD with Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass/Fail
0	1	2412	-15.64	3.01	0.21	-12.42	6.99	Pass
	6	2437	-12.21	3.01	0.21	-8.99	6.99	Pass
	11	2462	-13.00	3.01	0.21	-9.78	6.99	Pass
1	1	2412	-14.03	3.01	0.21	-10.81	6.99	Pass
	6	2437	-11.64	3.01	0.21	-8.42	6.99	Pass
	11	2462	-13.51	3.01	0.21	-10.29	6.99	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 = 4dBi + 10log(2) = 7.01dBi > 6dBi, so the limit shall be reduced to 8-(7.01-6) = 6.99dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11g

TX chain	Channel	Freq. (MHz)	PSD w/o Duty factor (dBm/10kHz)	10 log (N=2) dB	Duty Factor	PSD with Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass/Fail
0	1	2412	-14.16	3.01	0.14	-11.01	6.99	Pass
	6	2437	-7.00	3.01	0.14	-3.85	6.99	Pass
	11	2462	-13.10	3.01	0.14	-9.95	6.99	Pass
1	1	2412	-13.17	3.01	0.14	-10.02	6.99	Pass
	6	2437	-6.42	3.01	0.14	-3.27	6.99	Pass
	11	2462	-12.81	3.01	0.14	-9.66	6.99	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 = 4dBi + 10log(2) = 7.01dBi > 6dBi, so the limit shall be reduced to 8-(7.01-6) = 6.99dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Channel	Freq. (MHz)	PSD w/o Duty factor (dBm/10kHz)	10 log (N=2) dB	Duty Factor	PSD with Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass/Fail
0	1	2412	-15.17	3.01	0.14	-12.02	6.99	Pass
	6	2437	-8.19	3.01	0.14	-5.04	6.99	Pass
	11	2462	-13.92	3.01	0.14	-10.77	6.99	Pass
1	1	2412	-14.20	3.01	0.14	-11.05	6.99	Pass
	6	2437	-7.86	3.01	0.14	-4.71	6.99	Pass
	11	2462	-14.26	3.01	0.14	-11.11	6.99	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 = 4dBi + 10log(2) = 7.01dBi > 6dBi, so the limit shall be reduced to 8-(7.01-6) = 6.99dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

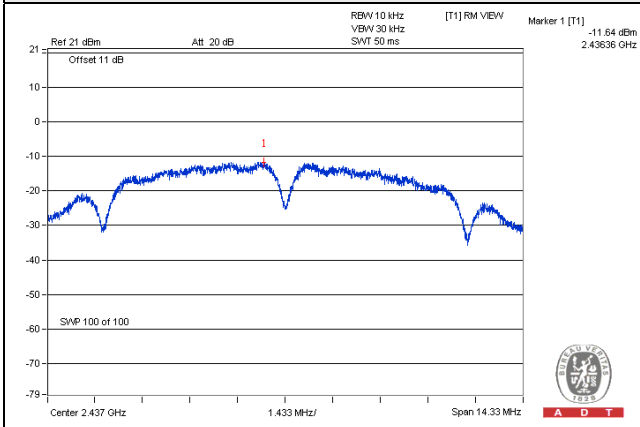
TX chain	Channel	Freq. (MHz)	PSD w/o Duty factor (dBm/10kHz)	10 log (N=2) dB	Duty Factor	PSD with Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass/Fail
0	3	2422	-19.59	3.01	0.20	-16.38	6.99	Pass
	6	2437	-14.81	3.01	0.20	-11.60	6.99	Pass
	9	2452	-19.39	3.01	0.20	-16.18	6.99	Pass
1	3	2422	-19.15	3.01	0.20	-15.94	6.99	Pass
	6	2437	-15.12	3.01	0.20	-11.91	6.99	Pass
	9	2452	-18.21	3.01	0.20	-15.00	6.99	Pass

Note:

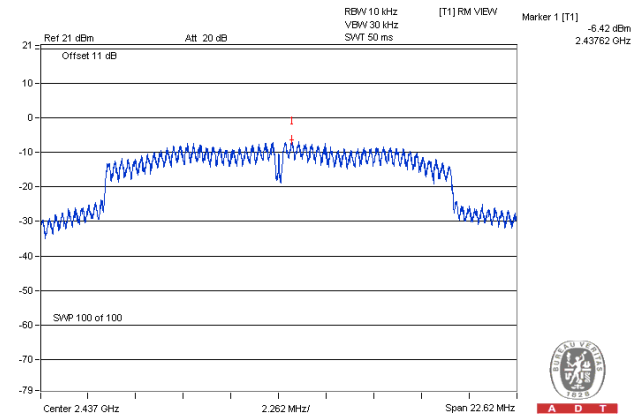
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 4dBi + 10log(2) = 7.01dBi > 6dBi, so the limit shall be reduced to 8-(7.01-6) = 6.99dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

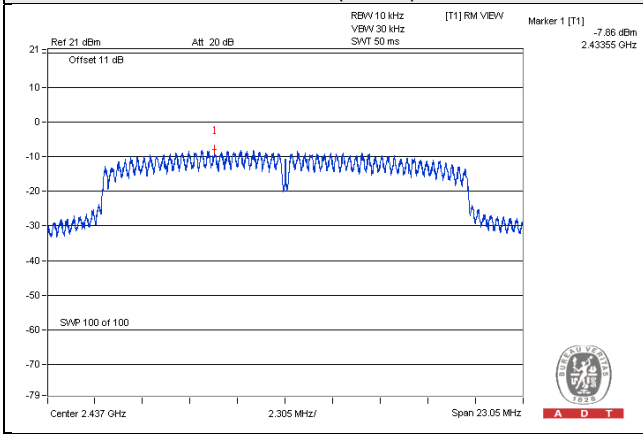
802.11b



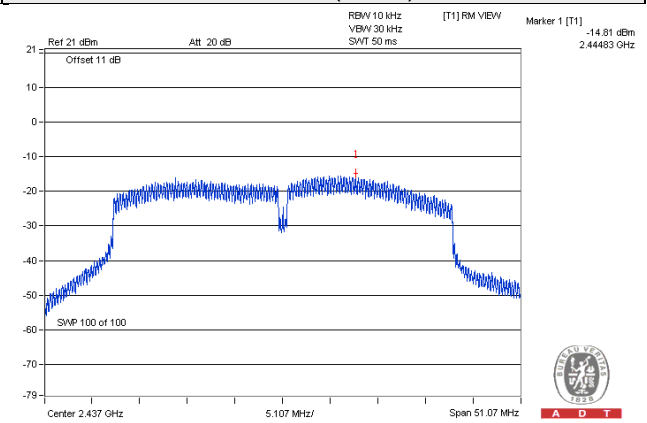
802.11g



802.11n (HT20)



802.11n (HT40)

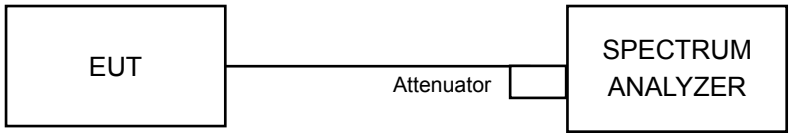


4.6 Conducted Out of Band Emission Measurement

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

558074 D01 DTS Meas Guidance v03r03 section 11.2

1. Set the RBW = 100 kHz.
2. Set the VBW ≥ 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 OOBE

558074 D01 DTS Meas Guidance v03r03 section 11.3

1. Set RBW = 100 kHz.
2. Set VBW ≥ 300 kHz.
3. Ensure that the number of measurement points ≥ span/RBW
4. According to measurement points to set differ measurement span.
5. Detector = peak.
6. Trace Mode = max hold.
7. Sweep = auto couple.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

Same as item 4.3.6.

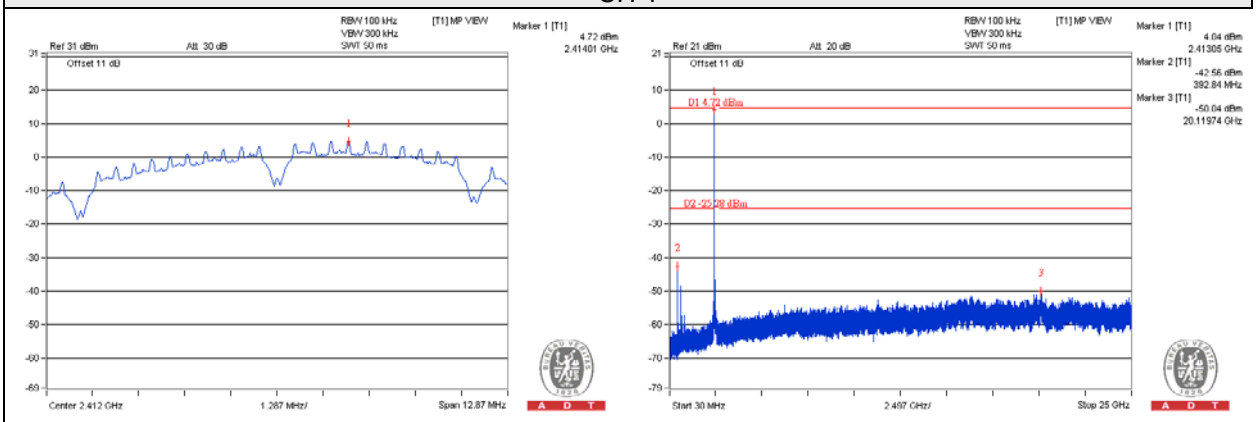
4.6.7 Test Results

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.

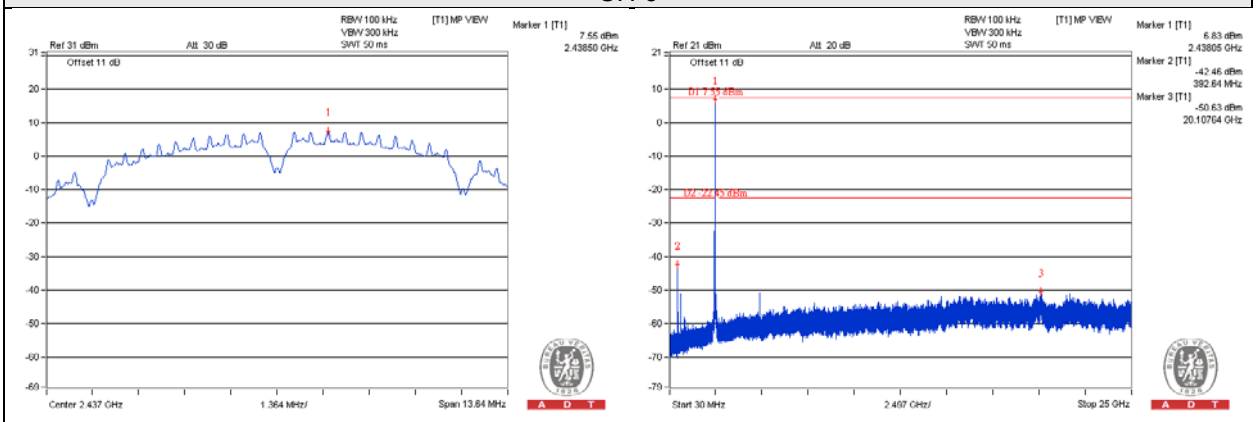
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows compliance with the requirement.

802.11b_CHAIN 0

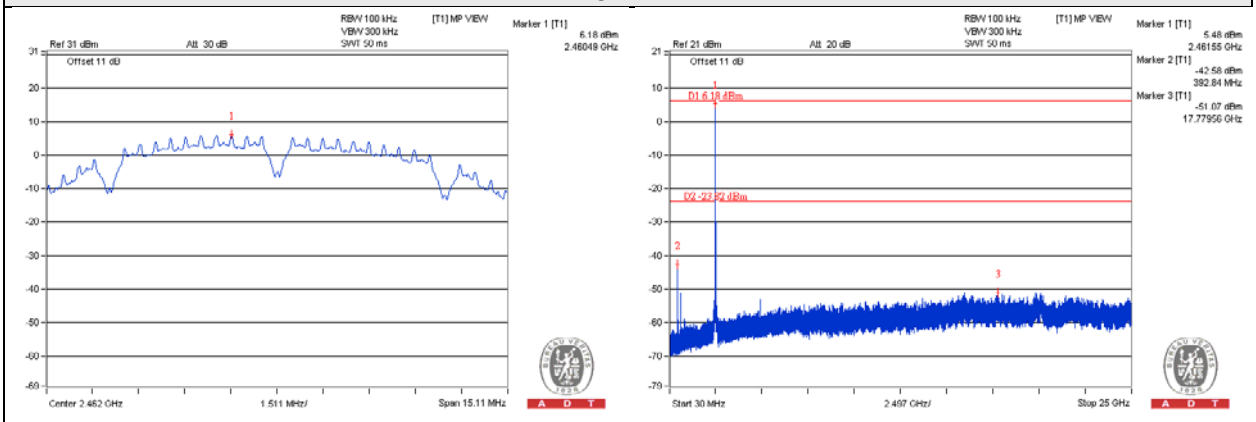
CH 1



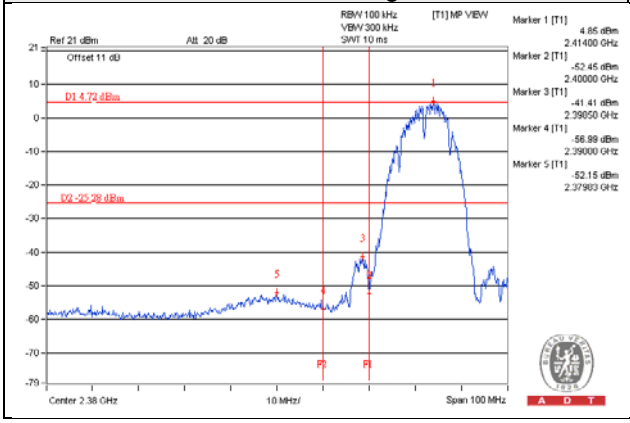
CH 6



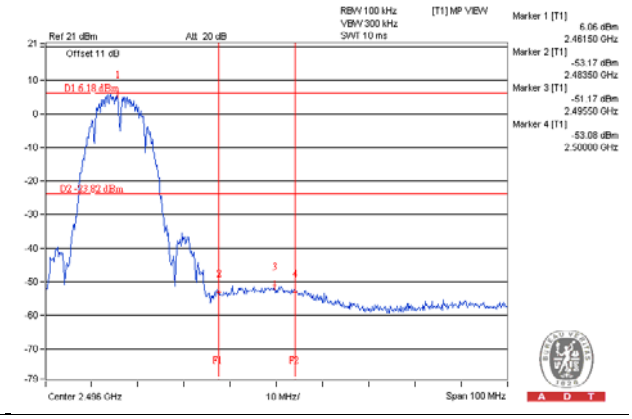
CH 11



CH 1 Band edge

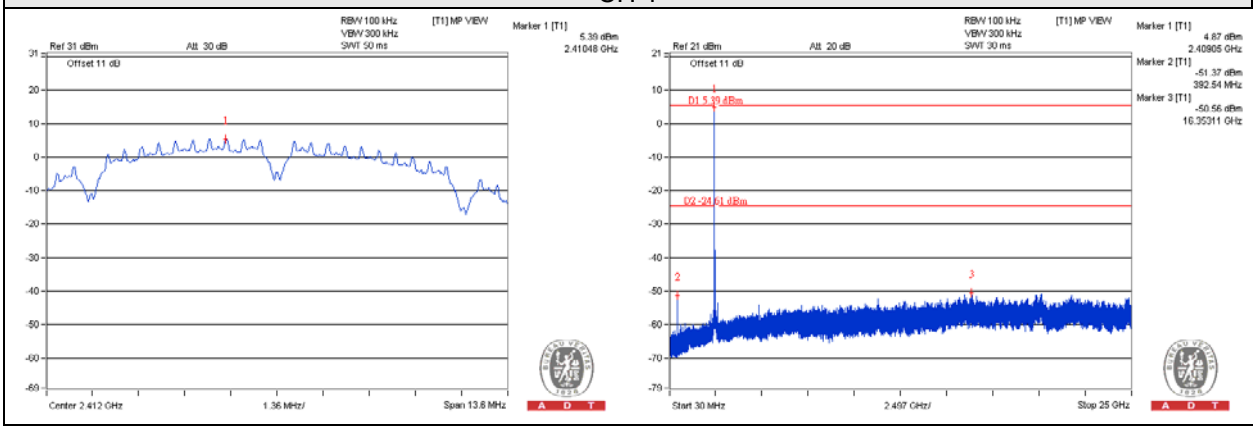


CH 11 Band edge

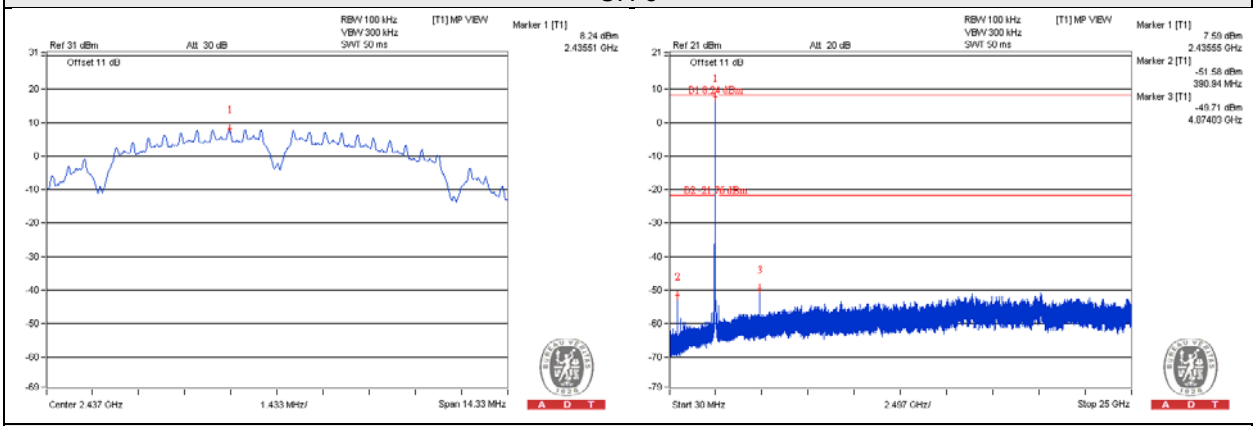


802.11b_CHAIN 1

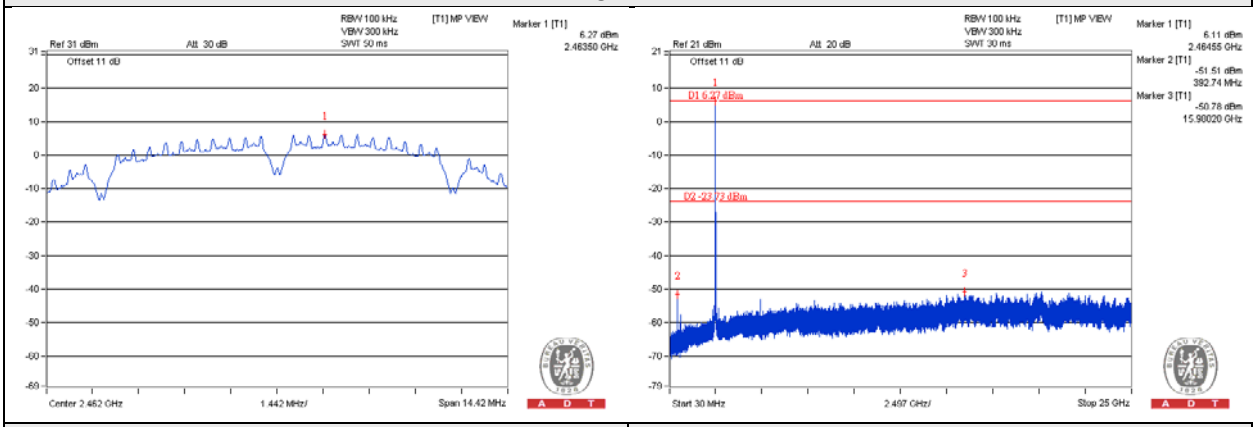
CH 1



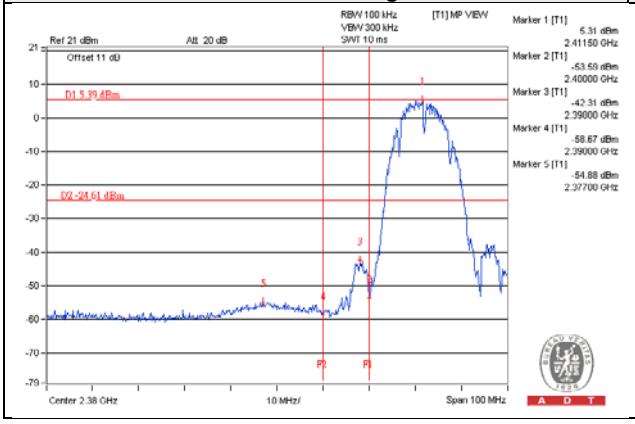
CH 6



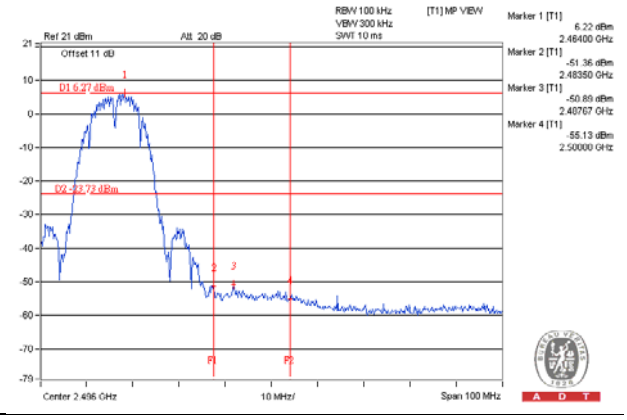
CH 11



CH 1 Band edge

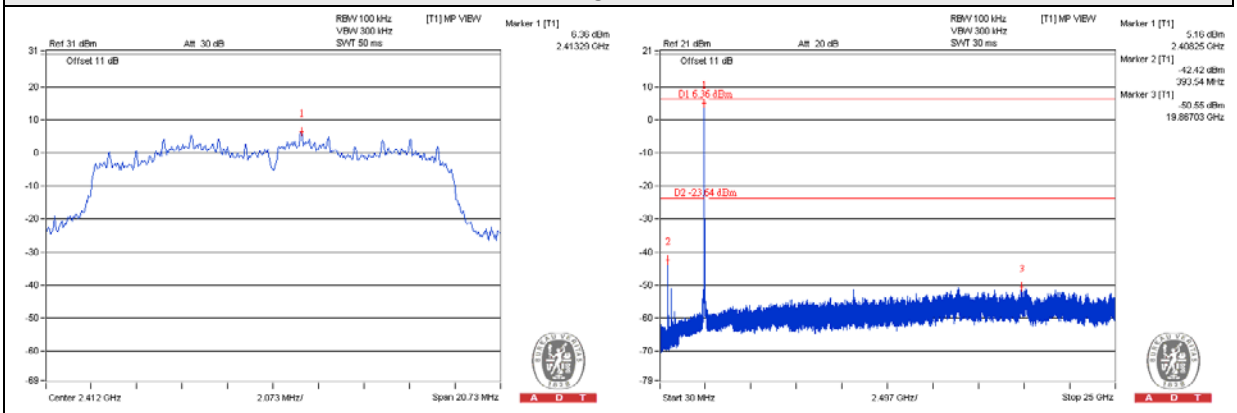


CH 11 Band edge

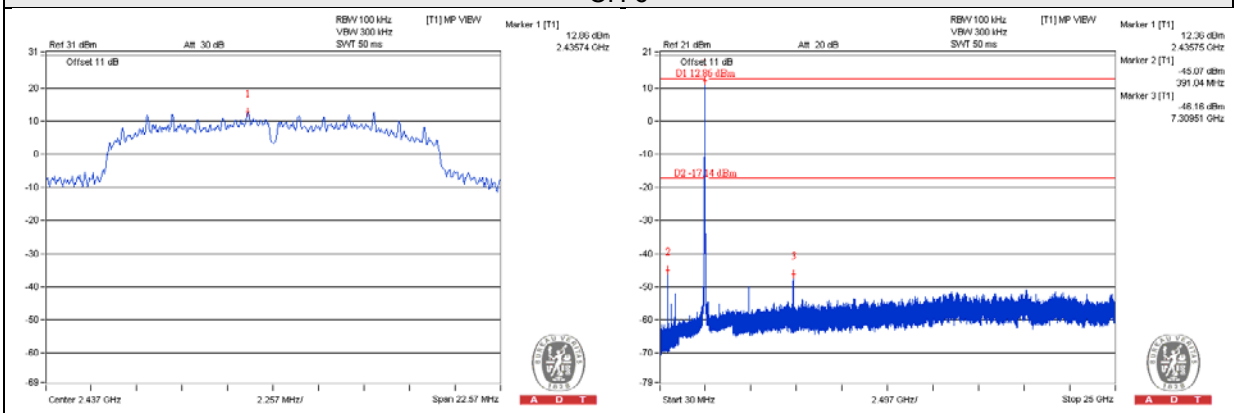


802.11g_CHAIN 0

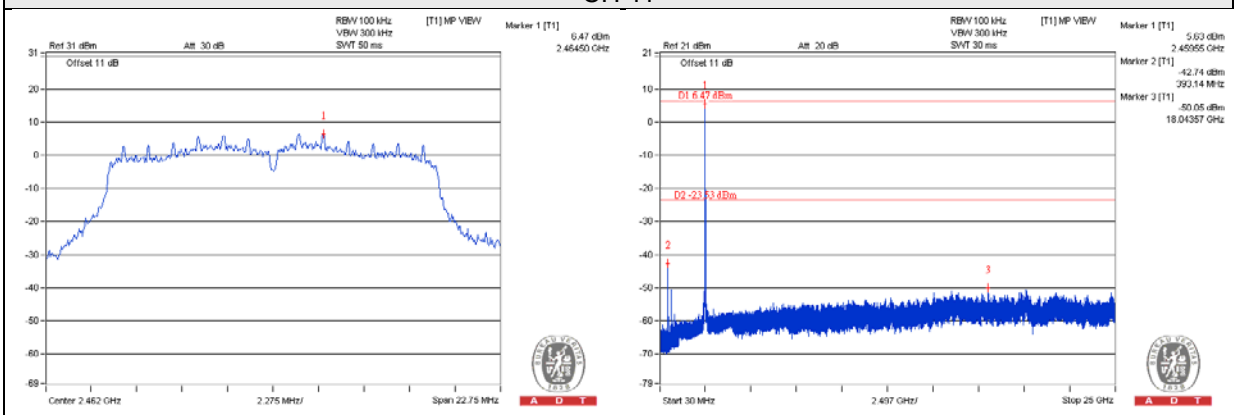
CH 1



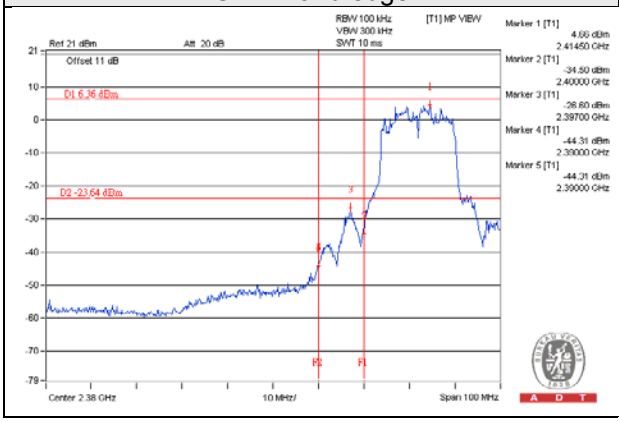
CH 6



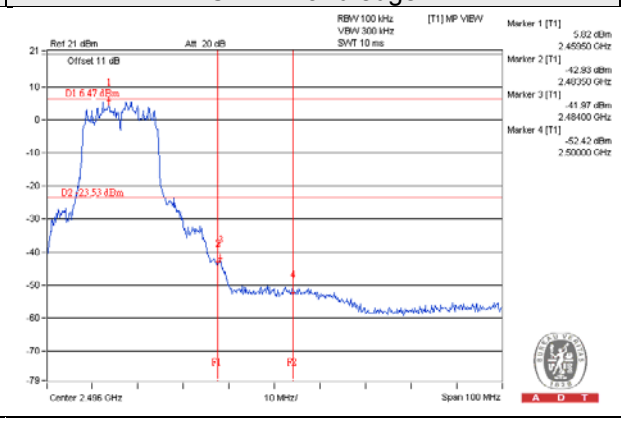
CH 11



CH 1 Band edge

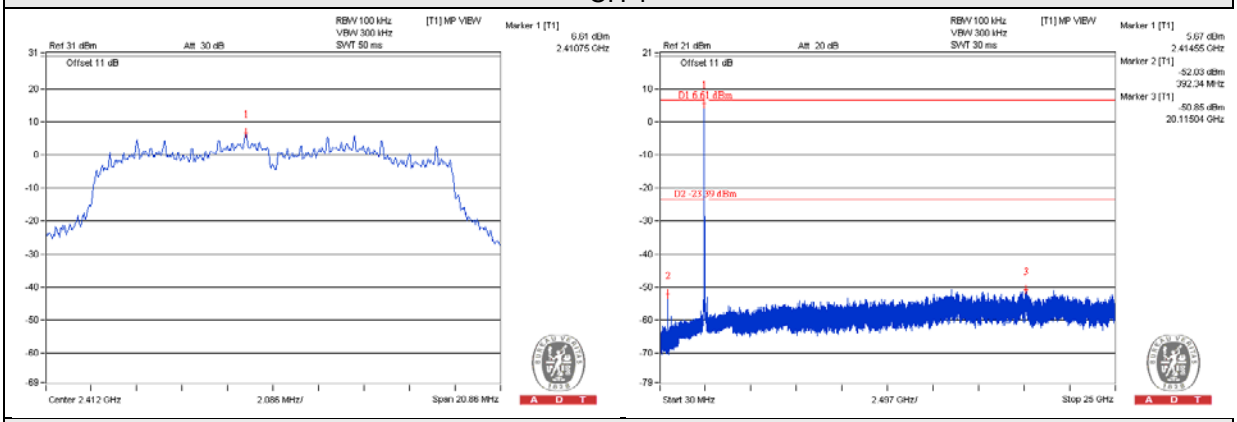


CH 11 Band edge

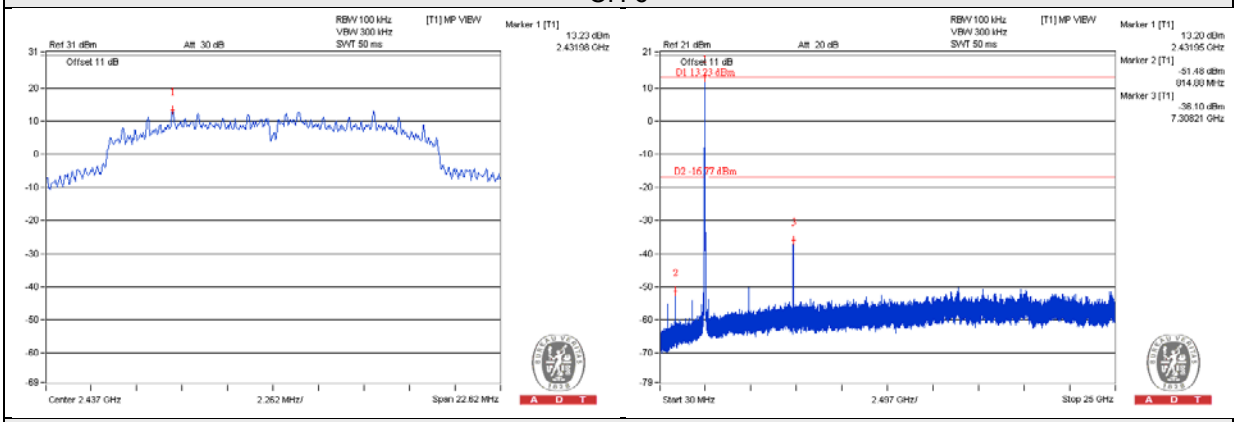


802.11g_CHAIN 1

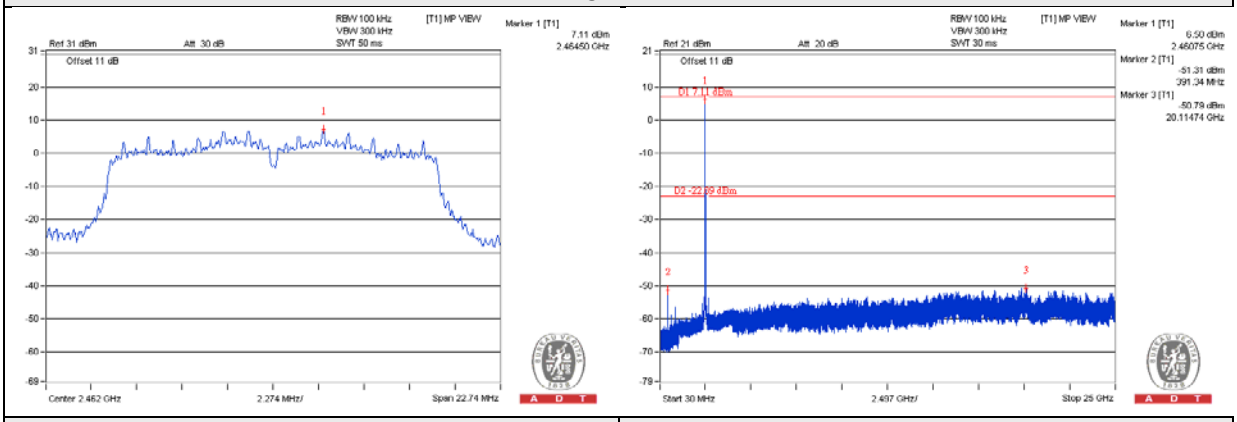
CH 1



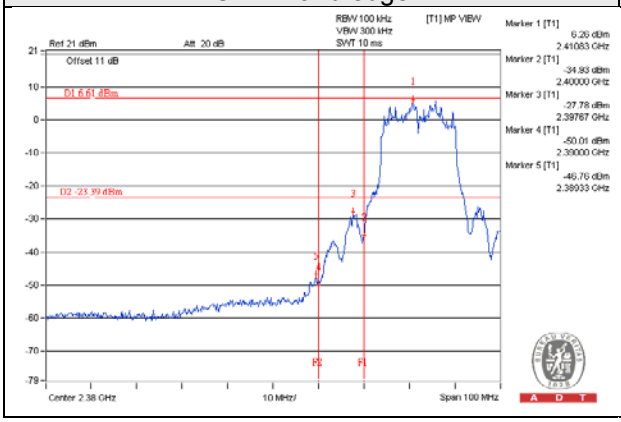
CH 6



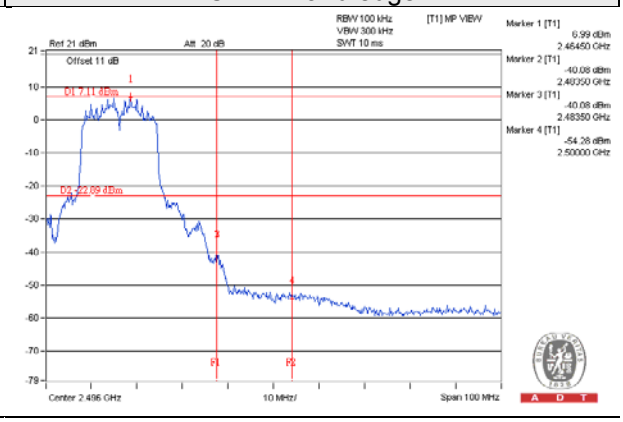
CH 11



CH 1 Band edge

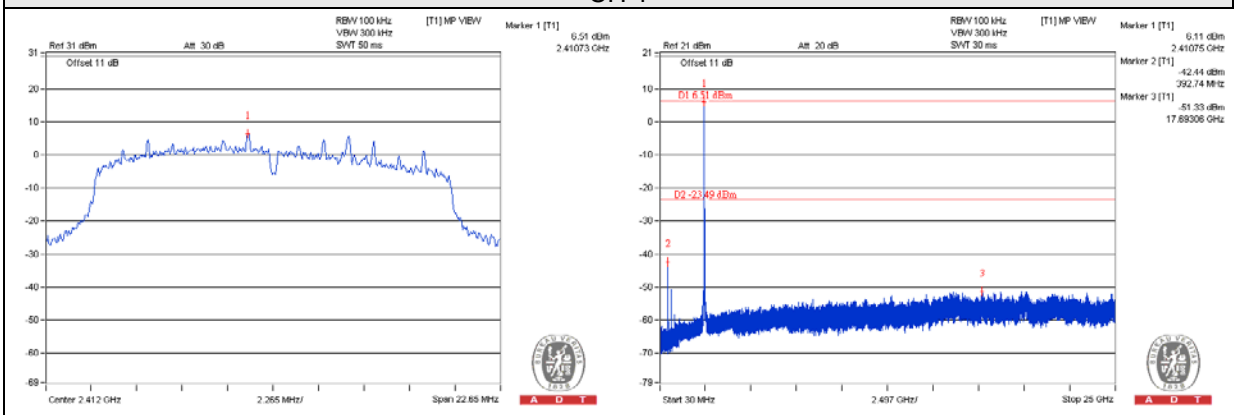


CH 11 Band edge

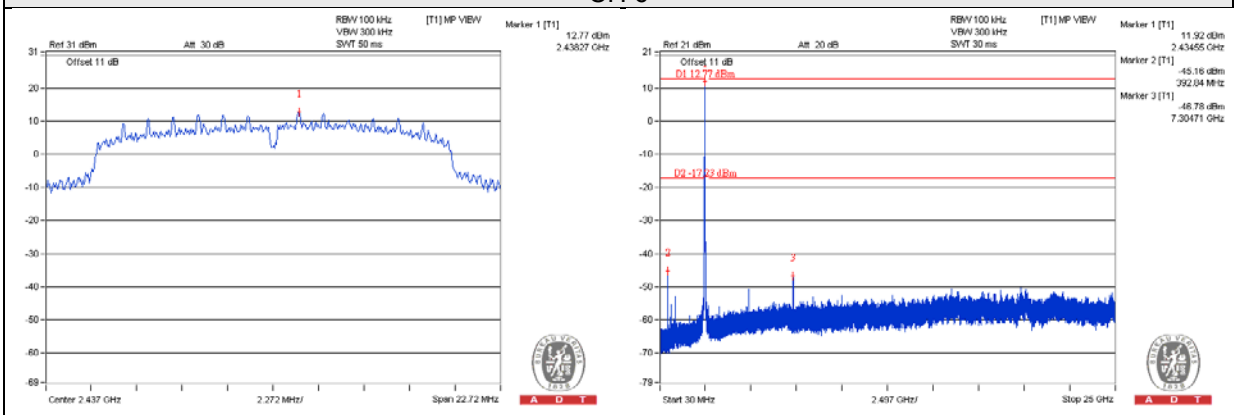


802.11n (HT20)_CHAIN 0

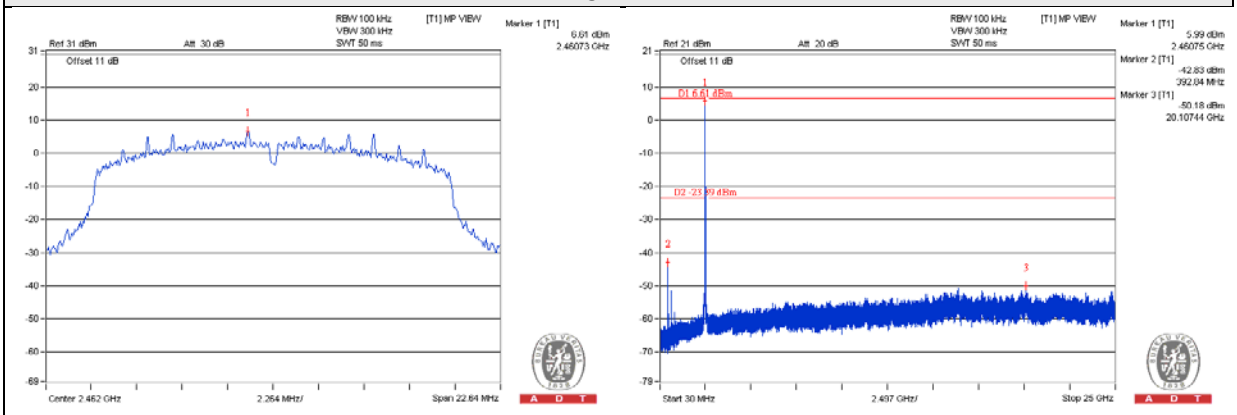
CH 1



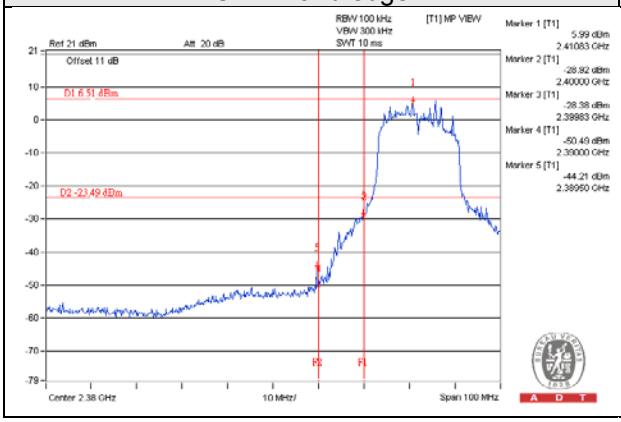
CH 6



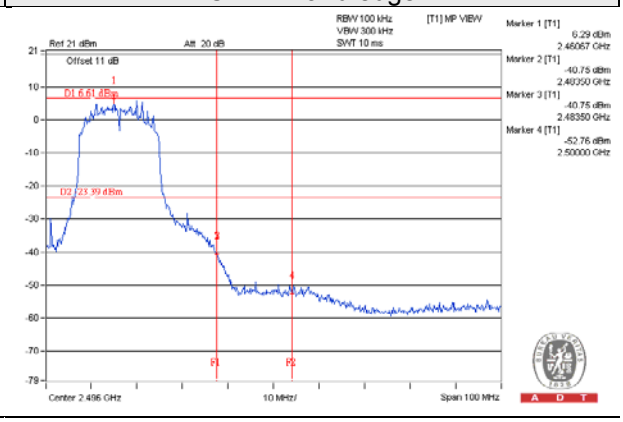
CH 11



CH 1 Band edge

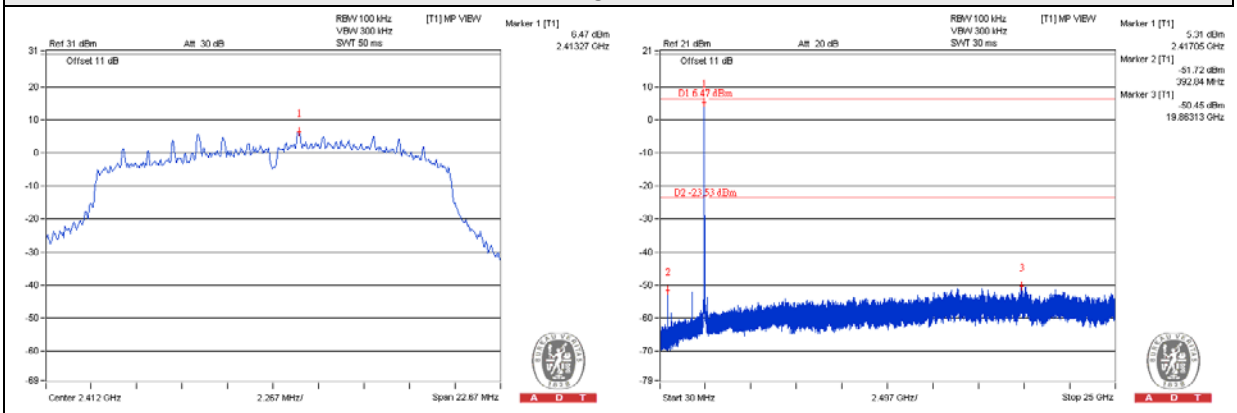


CH 11 Band edge

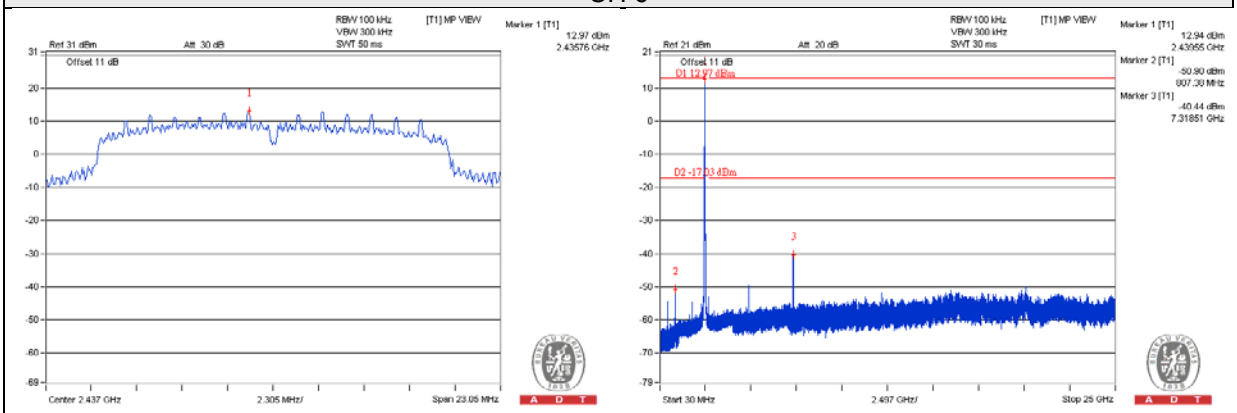


802.11n (HT20)_CHAIN 1

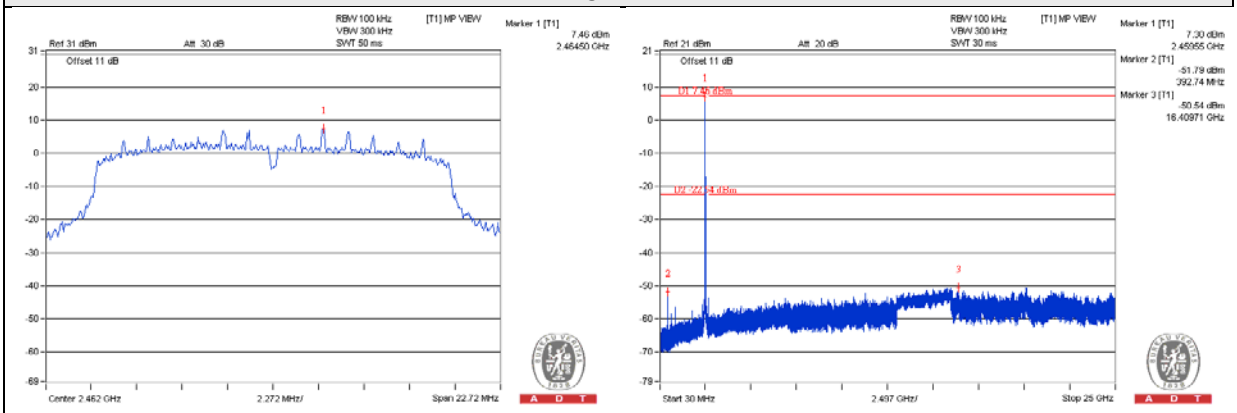
CH 1



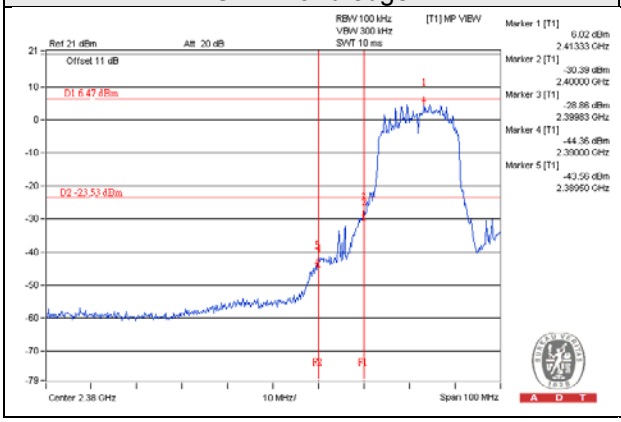
CH 6



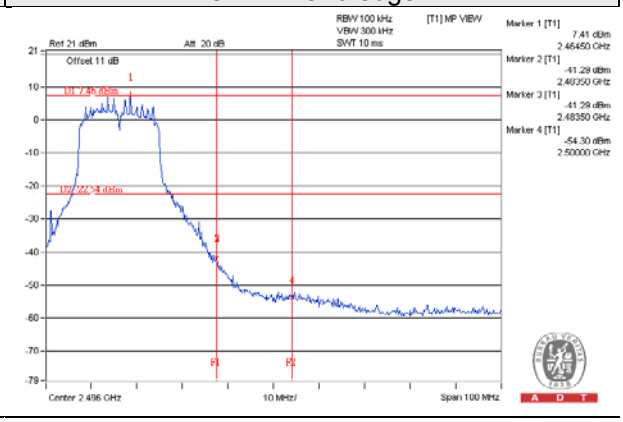
CH 11



CH 1 Band edge

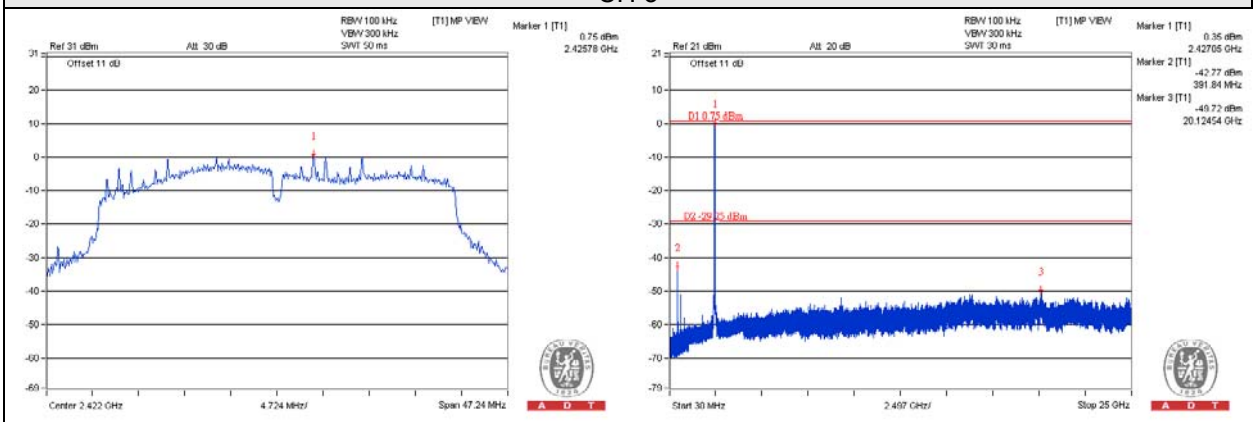


CH 11 Band edge

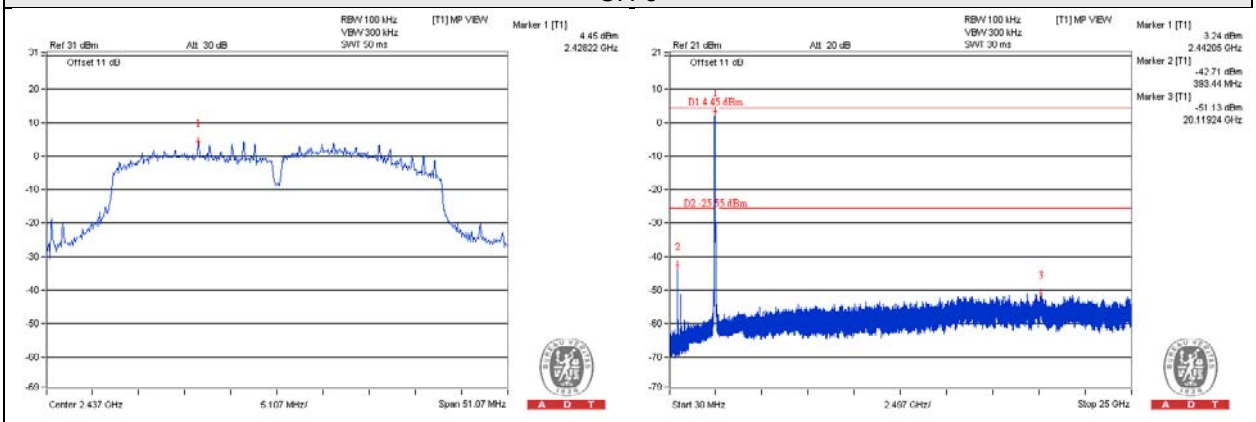


802.11n (HT40)_CHAIN 0

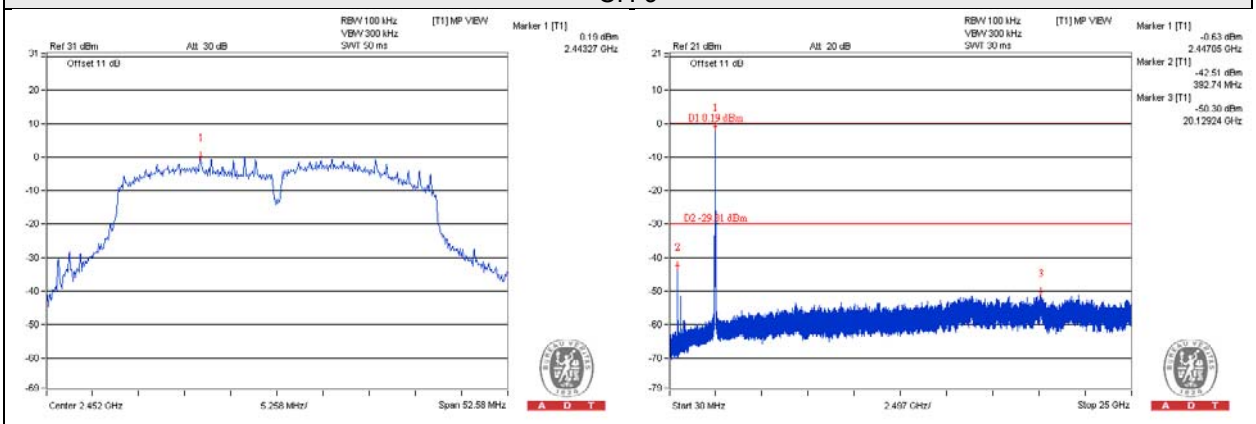
CH 3



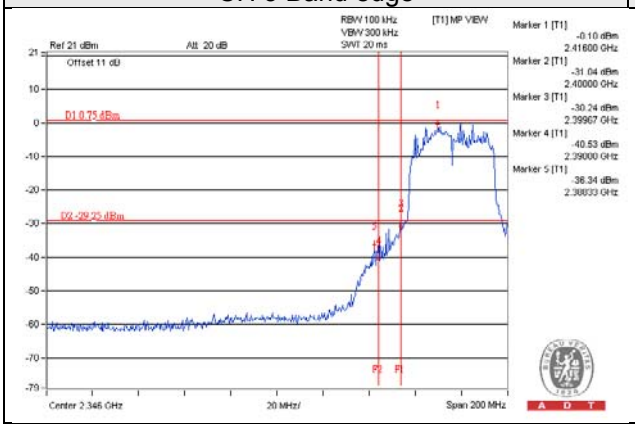
CH 6



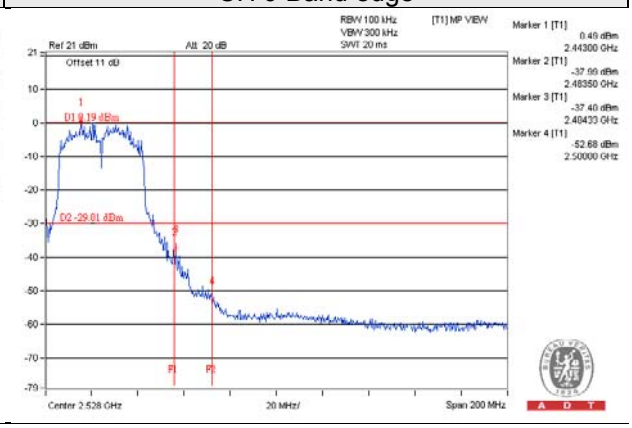
CH 9



CH 3 Band edge

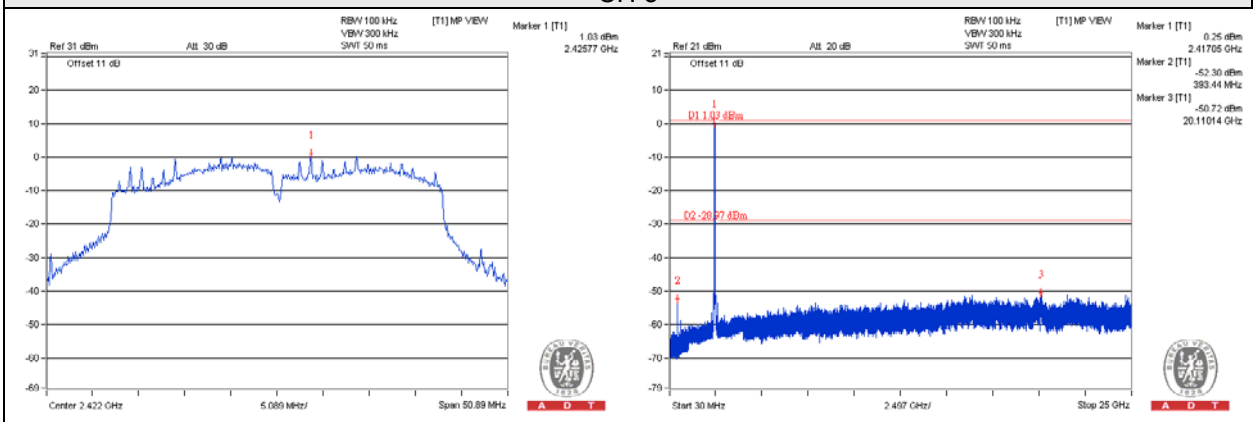


CH 9 Band edge

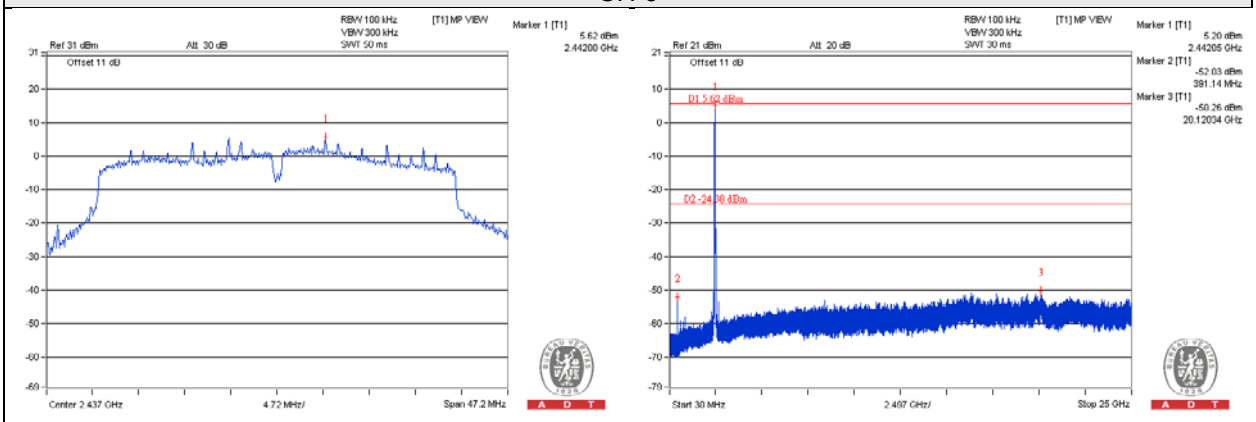


802.11n (HT40)_CHAIN 1

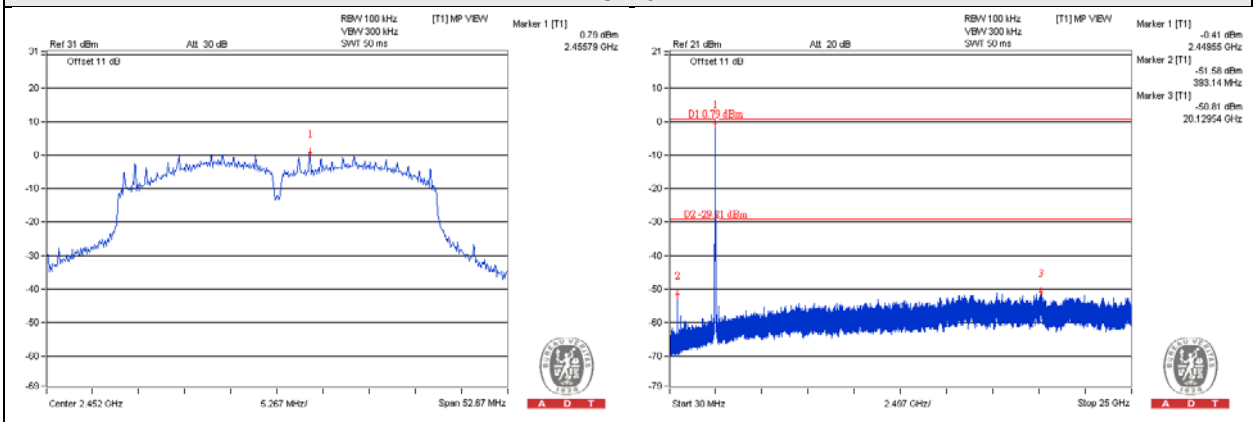
CH 3



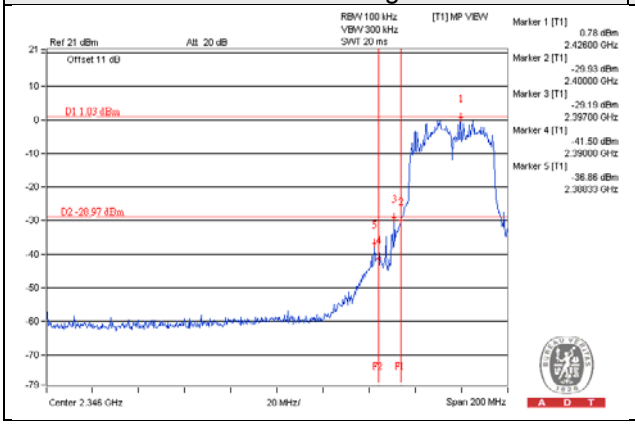
CH 6



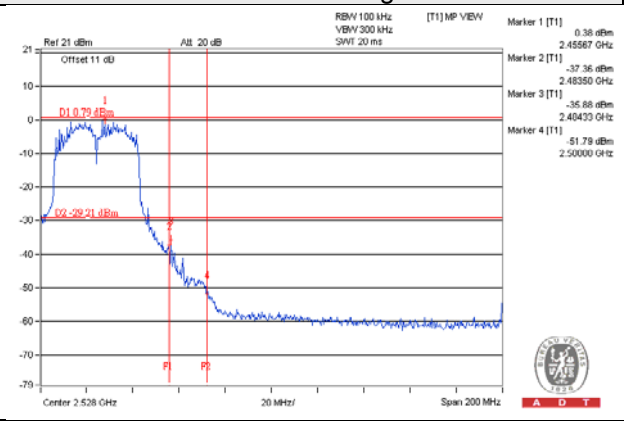
CH 9



CH 3 Band edge



CH 9 Band edge



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: 886-3-5935343
Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Lab
Tel: 886-3-3183232
Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

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

--- END ---