FCC Test Report

Report No.:	RF160419C10
FCC ID:	2AA5WKMP7R2BB
Test Model:	PA-MR05LN
Received Date:	Apr. 19, 2016
Test Date:	Apr. 28 ~ Jul. 16, 2016
Issued Date:	Jun. 18, 2016
Applicant:	NEC Platforms Ltd.
Address:	2-3, tsukasa-machi, kanda, chiyoda-ku, Tokyo 101-8532 Japan
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)

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Release Control Record

Issue No.	Description	Date Issued
RF160419C10	Original release.	Jun. 18, 2016

1 Certificate of Conformity

Product:	Aterm MR05LN
Brand:	NEC
Test Model:	PA-MR05LN
Sample Status:	Engineering sample
Applicant:	NEC Platforms Ltd.
Test Date:	Apr. 28 ~ Jul. 16, 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:** Jun. 18, 2016

Suntee Liu / Specialist

Approved by : _____ , **Date:** Jun. 18, 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 -4.58 dB at 1.07000 MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -1.1dB at 4824.00 MHz.
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 UFL 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	3.86 dB
	200MHz ~1000MHz	3.87 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	Aterm MR05LN
Brand	NEC
Test Model	PA-MR05LN
Sample Status	Engineering sample
Power Supply Rating	5Vdc (adapter) 5Vdc (host equipment) 3.8Vdc (battery)
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	1TX: 92.897mW 2TX: 176.457mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
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
802.11b	1TX/2TX
802.11g	1TX/2TX
802.11n (HT20)	1TX/2TX
802.11n (HT40)	1TX/2TX

* 2TX function is used for Radiated Emission final test.

2. The EUT uses following support units.

Adapter	
Brand	HOSIDEN
Model	AL1-004001-001
Input Power	100-240Vac, 50/60Hz, 0.14A
Output Power	5.0Vdc, 1.0A

Lithium-Ion Battery	
Model	1UF575559S-B009A
Rating	3.8Vdc, 2500mAh

3. The EUT uses following antennas.

Antenna Type	Inverted (Omni-directional)	Antenna Connector	UFL
Antenna No.	Support Band		Gain (dBi)
Ant. 1	WCDMA band 1 (TX/RX)		2.5
	WCDMA band 5 (TX/RX)		0
	WCDMA band 8 (TX/RX)		0
	LTE band 3 (TX/RX)		1
Ant. 2	WCDMA band 1 (RX)		-
	WCDMA band 5 (RX)		-
	WCDMA band 8 (RX)		-
	LTE band 3 (RX)		-
Ant. 3	WLAN 2.4G		1
Ant. 4	WLAN 2.4G		0

* Ant. 3 is used for 1TX final test.

4. WLAN 2.4GHz and WCDMA technologies can transmit at same time.
5. Spurious emission of the simultaneous operation (WLAN 2.4GHz and WCDMA) has been evaluated and no non-compliance was found.

3.2 Description of Test Modes

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

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

7 channels are provided for 802.11n (HT40):

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Description
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	Power from adapter
B	-	-	√	-	Power from host

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)	TX Function
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	2TX
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	2TX
A	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	2TX
A	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	15.0	2TX

Radiated Emission Test (Below 1GHz):

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

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Date Rate (Mbps)	TX Function
A	802.11b	1 to 11	1	DSSS	DBPSK	1.0	2TX

Power Line Conducted Emission Test:

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

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Date Rate (Mbps)	TX Function
A, B	802.11b	1 to 11	1	DSSS	DBPSK	1.0	2TX

Antenna Port Conducted Measurement:

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Date Rate (Mbps)	TX Function
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	1TX/2TX
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	1TX/2TX
A	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	1TX/2TX
A	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	15.0	1TX/2TX

Test Condition:

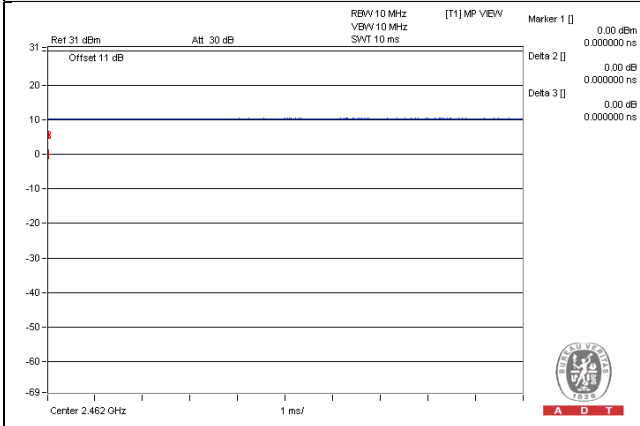
Applicable to	Environmental Conditions	Input Power	Tested by
RE≥1G	20 deg. C, 64% RH	120Vac, 60Hz	Jones Chang
RE<1G	20 deg. C, 64% RH	120Vac, 60Hz	Jones Chang
PLC	20 deg. C, 70% RH	120Vac, 60Hz	Jones Chang
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Antony Lee

3.3 Duty Cycle of Test Signal

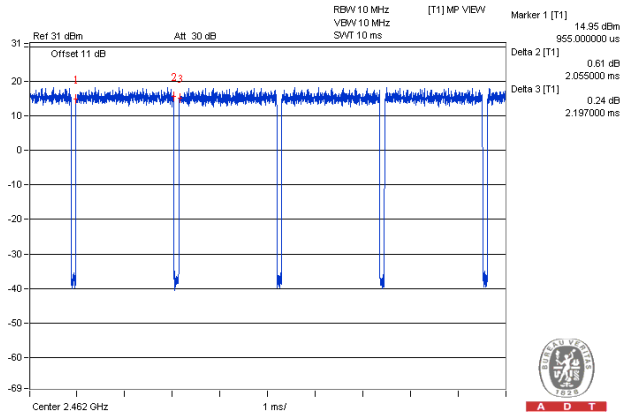
802.11b: Duty cycle of test signal is ≥ 98%.
802.11g, 802.11n (HT20), 802.11n (HT40): Duty cycle of test signal is < 98%.

802.11b: Duty cycle = 100%
802.11g: Duty cycle = 2.055/2.197 = 0.935, Duty factor = 10 * log(1/0.935) = 0.28
802.11n (HT20): Duty cycle = 1.918/2.025 = 0.947, Duty factor = 10 * log(1/0.947) = 0.24
802.11n (HT40): Duty cycle = 0.940/1.055 = 0.891, Duty factor = 10 * log(1/0.891) = 0.50

802.11b

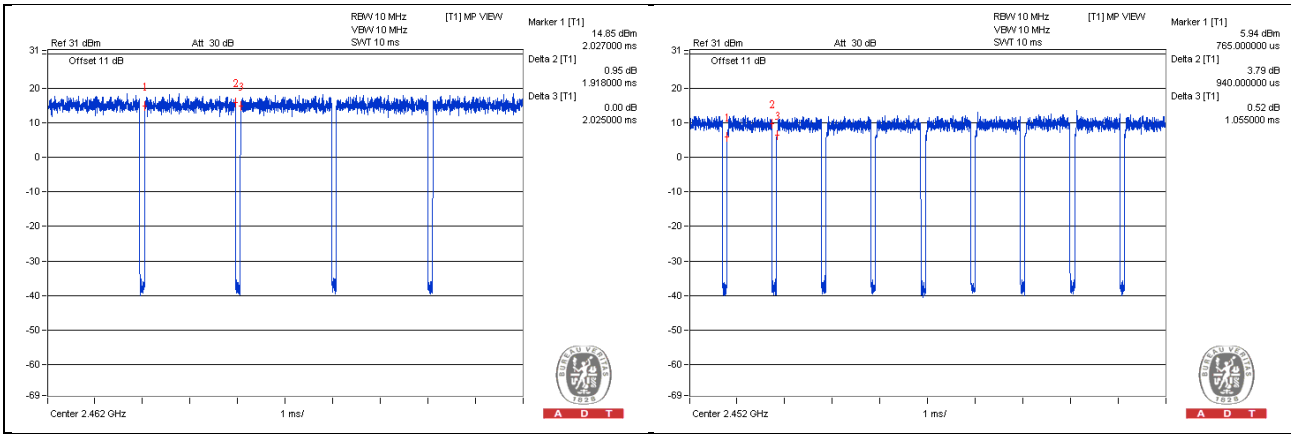


802.11g



802.11n (HT20)

802.11n (HT40)


RBW 10 MHz
VBW 10 MHz
SWT 10 ms
[T1] MP VIEW
Ref 31 dBm
Att 30 dB
Offset 11 dB
Marker 1 [T1]
14.85 dBm
2.027000 ms
Delta 2 [T1]
0.95 dB
1.918000 ms
Delta 3 [T1]
0.00 dB
2.025000 ms
Center 2.462 GHz
1 ms/
RBW 10 MHz
VBW 10 MHz
SWT 10 ms
[T1] MP VIEW
Ref 31 dBm
Att 30 dB
Offset 11 dB
Marker 1 [T1]
5.94 dBm
765.000000 us
Delta 2 [T1]
3.79 dB
940.000000 us
Delta 3 [T1]
0.52 dB
1.055000 ms
Center 2.452 GHz
1 ms/

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.	Adapter	HOSIDEN	AL1-004001-001	NA	NA	Provided by manufacturer
B.	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved	-

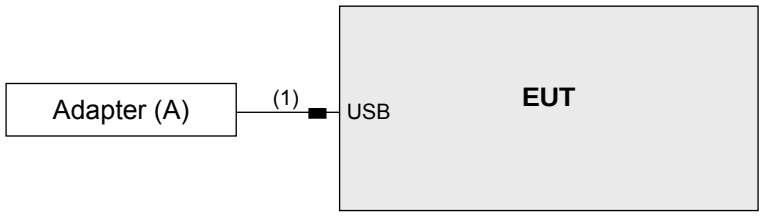
Note: All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	USB	1	0.95	Y	1	Provided by manufacturer

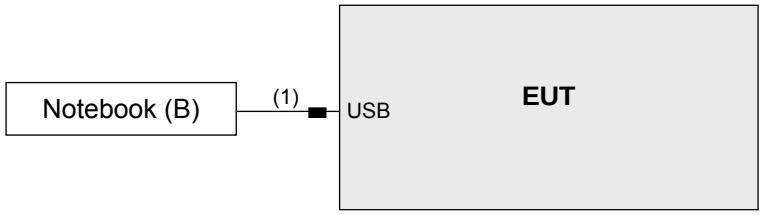
Note: The core(s) is(are) originally attached to the cable(s).

3.4.1 Configuration of System under Test

Mode A:



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)
558074 D01 DTS Meas Guidance v03r05
662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10:2013

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

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 20dB 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 20dB under any condition of modulation.

4.1.2 Test Instruments

Test date: Apr. 28 ~ May 24, 2016

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESIB7	100187	Apr. 18, 2016	Apr. 17, 2017
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Sep. 02, 2015	Sep. 01, 2016
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Jan. 07, 2016	Jan. 06, 2017
HORN Antenna SCHWARZBECK	9120D	209	Jan. 20, 2016	Jan. 19, 2017
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Jan. 18, 2016	Jan. 17, 2017
Preamplifier Agilent	8447D	2944A10738	Oct.18, 2015	Oct. 17, 2016
Preamplifier Agilent	8449B	3008A01964	Aug. 22, 2015	Aug. 21, 2016
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (214378)	Aug. 22, 2015	Aug. 21, 2016
RF signal cable HUBER+SUHNER	SUCOFLEX 106	Cable-CH3-03 (309224+12738)	Aug. 22, 2015	Aug. 21, 2016
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Turn Table Controller BV ADT	SC100	SC93021702	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 3.
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 988962.
5. The IC Site Registration No. is IC 7450F-3.

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:

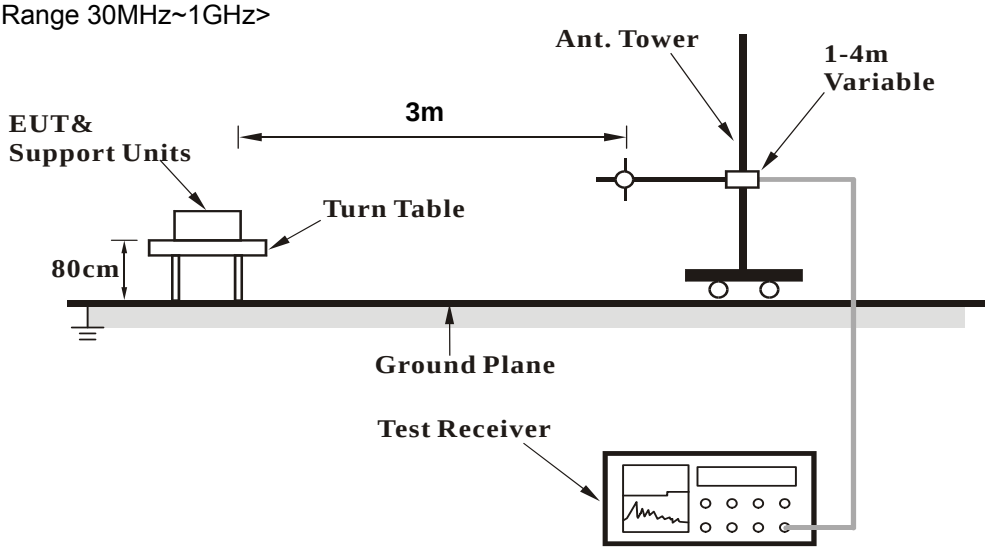
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

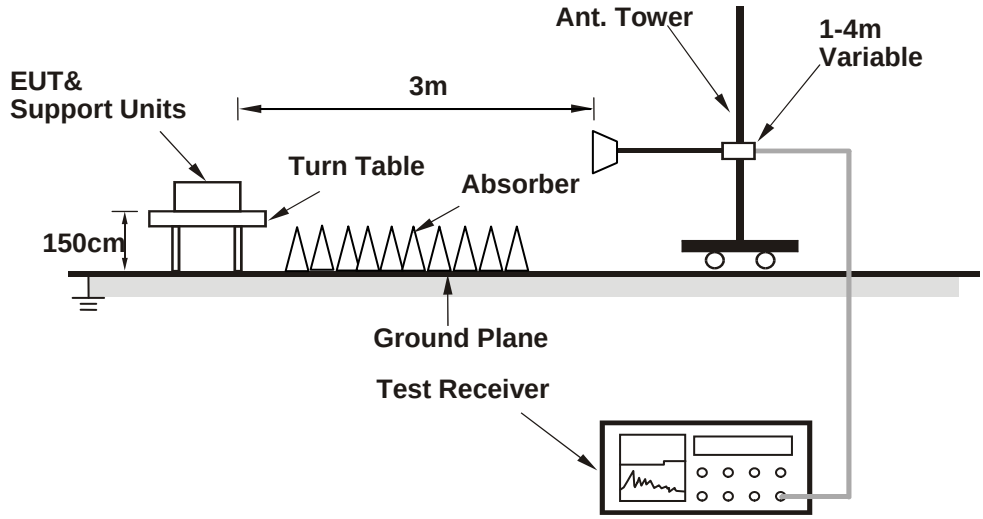
No deviation.

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. Set the EUT under transmission condition continuously at specific channel frequency.

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	57.6 PK	74.0	-16.4	1.67 H	54	24.80	32.80
2	2390.00	46.2 AV	54.0	-7.8	1.67 H	54	13.40	32.80
3	*2412.00	98.5 PK			1.65 H	32	65.60	32.90
4	*2412.00	96.3 AV			1.65 H	32	63.40	32.90
5	4824.00	64.8 PK	74.0	-9.2	2.85 H	232	58.90	5.90
6	**4824.00**	**52.9 AV**	**54.0**	**-1.1**	**2.85 H**	**232**	**47.00**	**5.90**
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.5 PK	74.0	-17.5	2.28 V	169	23.70	32.80
2	2390.00	46.3 AV	54.0	-7.7	2.28 V	169	13.50	32.80
3	*2412.00	95.6 PK			2.28 V	169	62.70	32.90
4	*2412.00	92.5 AV			2.28 V	169	59.60	32.90
5	4824.00	54.4 PK	74.0	-19.6	3.05 V	352	48.50	5.90
6	4824.00	51.3 AV	54.0	-2.7	3.05 V	352	45.40	5.90

REMARKS:

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

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) 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	99.2 PK			1.70 H	23	66.30	32.90
2	*2437.00	97.1 AV			1.70 H	23	64.20	32.90
3	4874.00	55.6 PK	74.0	-18.4	2.80 H	246	49.60	6.00
4	4874.00	52.5 AV	54.0	-1.5	2.80 H	246	46.50	6.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	96.2 PK			2.22 V	171	63.30	32.90
2	*2437.00	94.1 AV			2.22 V	171	61.20	32.90
3	4874.00	53.6 PK	74.0	-20.4	2.89 V	356	47.60	6.00
4	4874.00	50.5 AV	54.0	-3.5	2.89 V	356	44.50	6.00

REMARKS:

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

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) 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	100.4 PK			1.58 H	32	67.50	32.90
2	*2462.00	97.7 AV			1.58 H	32	64.80	32.90
3	2483.50	57.2 PK	74.0	-16.8	1.58 H	32	24.20	33.00
4	2483.50	46.8 AV	54.0	-7.2	1.58 H	32	13.80	33.00
5	4924.00	54.4 PK	74.0	-19.6	2.73 H	245	48.40	6.00
6	4924.00	52.3 AV	54.0	-1.7	2.73 H	245	46.30	6.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	97.3 PK			2.32 V	181	64.40	32.90
2	*2462.00	94.7 AV			2.32 V	181	61.80	32.90
3	2483.50	56.5 PK	74.0	-17.5	2.30 V	179	23.50	33.00
4	2483.50	45.6 AV	54.0	-8.4	2.30 V	179	12.60	33.00
5	4924.00	51.0 PK	74.0	-23.0	2.99 V	359	45.00	6.00
6	4924.00	49.3 AV	54.0	-4.7	2.99 V	359	43.30	6.00

REMARKS:

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

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	59.7 PK	74.0	-14.3	1.20 H	295	26.90	32.80
2	2390.00	47.6 AV	54.0	-6.4	1.20 H	295	14.80	32.80
3	*2412.00	105.8 PK			1.19 H	297	72.90	32.90
4	*2412.00	96.4 AV			1.19 H	297	63.50	32.90
5	4824.00	65.4 PK	74.0	-8.6	2.45 H	235	59.50	5.90
6	4824.00	52.3 AV	54.0	-1.7	2.45 H	235	46.40	5.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.4 PK	74.0	-16.6	2.26 V	276	24.60	32.80
2	2390.00	46.4 AV	54.0	-7.6	2.26 V	276	13.60	32.80
3	*2412.00	100.9 PK			2.26 V	276	68.00	32.90
4	*2412.00	91.0 AV			2.26 V	276	58.10	32.90
5	4824.00	61.2 PK	74.0	-12.8	2.36 V	190	55.30	5.90
6	4824.00	48.1 AV	54.0	-5.9	2.36 V	190	42.20	5.90

REMARKS:

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

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) 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	106.9 PK			1.25 H	32	74.00	32.90
2	*2437.00	98.6 AV			1.25 H	32	65.70	32.90
3	4874.00	63.1 PK	74.0	-10.9	1.16 H	205	57.10	6.00
4	4874.00	50.0 AV	54.0	-4.0	1.16 H	205	44.00	6.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	104.8 PK			4.00 V	132	71.90	32.90
2	*2437.00	95.7 AV			4.00 V	132	62.80	32.90
3	4874.00	62.4 PK	74.0	-11.6	2.44 V	190	56.40	6.00
4	4874.00	48.6 AV	54.0	-5.4	2.44 V	190	42.60	6.00

REMARKS:

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

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) 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	107.8 PK			1.97 H	36	74.90	32.90
2	*2462.00	97.6 AV			1.97 H	36	64.70	32.90
3	2483.50	59.3 PK	74.0	-14.7	2.16 H	32	26.30	33.00
4	2483.50	48.6 AV	54.0	-5.4	2.16 H	32	15.60	33.00
5	4924.00	62.4 PK	74.0	-11.6	1.13 H	198	56.40	6.00
6	4924.00	48.5 AV	54.0	-5.5	1.13 H	198	42.50	6.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.9 PK			4.00 V	134	73.00	32.90
2	*2462.00	96.7 AV			4.00 V	134	63.80	32.90
3	2483.50	57.3 PK	74.0	-16.7	1.82 V	131	24.30	33.00
4	2483.50	45.9 AV	54.0	-8.1	1.82 V	131	12.90	33.00
5	4924.00	60.3 PK	74.0	-13.7	2.58 V	168	54.30	6.00
6	4924.00	46.9 AV	54.0	-7.1	2.58 V	168	40.90	6.00

REMARKS:

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

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	61.4 PK	74.0	-12.6	1.48 H	39	28.60	32.80
2	2390.00	50.2 AV	54.0	-3.8	1.48 H	39	17.40	32.80
3	*2412.00	106.8 PK			1.22 H	22	73.90	32.90
4	*2412.00	96.7 AV			1.22 H	22	63.80	32.90
5	4824.00	65.3 PK	74.0	-8.7	1.22 H	275	59.40	5.90
6	4824.00	50.2 AV	54.0	-3.8	1.22 H	275	44.30	5.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.6 PK	74.0	-17.4	1.84 V	200	23.80	32.80
2	2390.00	46.0 AV	54.0	-8.0	1.84 V	200	13.20	32.80
3	*2412.00	103.6 PK			3.14 V	345	70.70	32.90
4	*2412.00	95.7 AV			3.14 V	345	62.80	32.90
5	4824.00	63.5 PK	74.0	-10.5	2.31 V	172	57.60	5.90
6	4824.00	48.4 AV	54.0	-5.6	2.31 V	172	42.50	5.90

REMARKS:

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

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK) 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	106.9 PK			1.13 H	32	74.00	32.90
2	*2437.00	96.7 AV			1.13 H	32	63.80	32.90
3	4874.00	64.3 PK	74.0	-9.7	1.39 H	277	58.30	6.00
4	4874.00	48.5 AV	54.0	-5.5	1.39 H	277	42.50	6.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	103.9 PK			3.95 V	133	71.00	32.90
2	*2437.00	94.2 AV			3.95 V	133	61.30	32.90
3	4874.00	63.0 PK	74.0	-11.0	2.29 V	175	57.00	6.00
4	4874.00	47.4 AV	54.0	-6.6	2.29 V	175	41.40	6.00

REMARKS:

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

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK) 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	107.1 PK			1.26 H	29	74.20	32.90
2	*2462.00	95.7 AV			1.26 H	29	62.80	32.90
3	2483.50	58.0 PK	74.0	-16.0	1.49 H	284	25.00	33.00
4	2483.50	47.8 AV	54.0	-6.2	1.49 H	284	14.80	33.00
5	4924.00	61.2 PK	74.0	-12.8	1.78 H	203	55.20	6.00
6	4924.00	46.7 AV	54.0	-7.3	1.78 H	203	40.70	6.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	103.2 PK			3.42 V	152	70.30	32.90
2	*2462.00	94.9 AV			3.42 V	152	62.00	32.90
3	2483.50	56.9 PK	74.0	-17.1	2.19 V	150	23.90	33.00
4	2483.50	46.9 AV	54.0	-7.1	2.19 V	150	13.90	33.00
5	4924.00	60.5 PK	74.0	-13.5	3.11 V	176	54.50	6.00
6	4924.00	45.2 AV	54.0	-8.8	3.11 V	176	39.20	6.00

REMARKS:

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

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	65.2 PK	74.0	-8.8	1.80 H	313	32.40	32.80
2	2390.00	52.7 AV	54.0	-1.3	1.80 H	313	19.90	32.80
3	*2422.00	104.4 PK			1.11 H	37	71.50	32.90
4	*2422.00	95.6 AV			1.11 H	37	62.70	32.90
5	4844.00	58.7 PK	74.0	-15.3	1.52 H	159	52.90	5.80
6	4844.00	47.6 AV	54.0	-6.4	1.52 H	159	41.80	5.80
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	2390.00	57.6 PK	74.0	-16.4	1.83 V	302	24.80	32.80
2	2390.00	48.1 AV	54.0	-5.9	1.83 V	302	15.30	32.80
3	*2422.00	103.3 PK			4.00 V	127	70.40	32.90
4	*2422.00	94.7 AV			4.00 V	127	61.80	32.90
5	4844.00	57.8 PK	74.0	-16.2	2.54 V	174	52.00	5.80
6	4844.00	46.9 AV	54.0	-7.1	2.54 V	174	41.10	5.80

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – 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	103.5 PK			1.36 H	29	70.60	32.90
2	*2437.00	94.5 AV			1.36 H	29	61.60	32.90
3	4874.00	58.3 PK	74.0	-15.7	1.48 H	278	52.30	6.00
4	4874.00	48.6 AV	54.0	-5.4	1.48 H	278	42.60	6.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	102.1 PK			4.00 V	129	69.20	32.90
2	*2437.00	94.0 AV			4.00 V	129	61.10	32.90
3	4874.00	59.6 PK	74.0	-14.4	2.85 V	174	53.60	6.00
4	4874.00	48.1 AV	54.0	-5.9	2.85 V	174	42.10	6.00

REMARKS:

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

CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK) 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	101.3 PK			1.08 H	36	68.30	33.00
2	*2452.00	93.3 AV			1.08 H	36	60.30	33.00
3	2483.50	64.1 PK	74.0	-9.9	1.10 H	31	31.10	33.00
4	2483.50	52.2 AV	54.0	-1.8	1.10 H	31	19.20	33.00
5	4904.00	55.5 PK	74.0	-18.5	1.24 H	283	49.60	5.90
6	4904.00	44.5 AV	54.0	-9.5	1.24 H	283	38.60	5.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	98.8 PK			3.40 V	150	65.80	33.00
2	*2452.00	90.4 AV			3.40 V	150	57.40	33.00
3	2483.50	65.7 PK	74.0	-8.3	2.95 V	162	32.70	33.00
4	2483.50	52.3 AV	54.0	-1.7	2.95 V	162	19.30	33.00
5	4904.00	54.0 PK	74.0	-20.0	3.31 V	158	48.10	5.90
6	4904.00	43.1 AV	54.0	-10.9	3.31 V	158	37.20	5.90

REMARKS:

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

Below 1GHz Worst-Case Data: 802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	57.12	15.3 QP	40.0	-24.7	2.00 H	164	29.90	-14.60
2	140.72	12.5 QP	43.5	-31.0	1.51 H	63	27.00	-14.50
3	156.28	13.5 QP	43.5	-30.0	1.00 H	7	27.30	-13.80
4	300.16	15.5 QP	46.0	-30.5	1.51 H	319	27.70	-12.20
5	331.26	16.1 QP	46.0	-29.9	1.00 H	16	27.50	-11.40
6	401.26	18.3 QP	46.0	-27.7	1.00 H	228	28.50	-10.20
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	78.51	27.5 QP	40.0	-12.5	1.49 V	207	45.90	-18.40
2	103.78	11.3 QP	43.5	-32.2	1.49 V	114	29.50	-18.20
3	164.06	12.9 QP	43.5	-30.6	2.00 V	303	26.70	-13.80
4	185.44	16.0 QP	43.5	-27.5	1.00 V	210	31.80	-15.80
5	300.16	15.0 QP	46.0	-31.0	1.49 V	177	27.20	-12.20
6	368.21	17.8 QP	46.0	-28.2	1.00 V	194	28.70	-10.90

REMARKS:

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

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. 24, 2015	Jul. 23, 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 1.
3. The VCCI Site Registration No. is C-2040.

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.

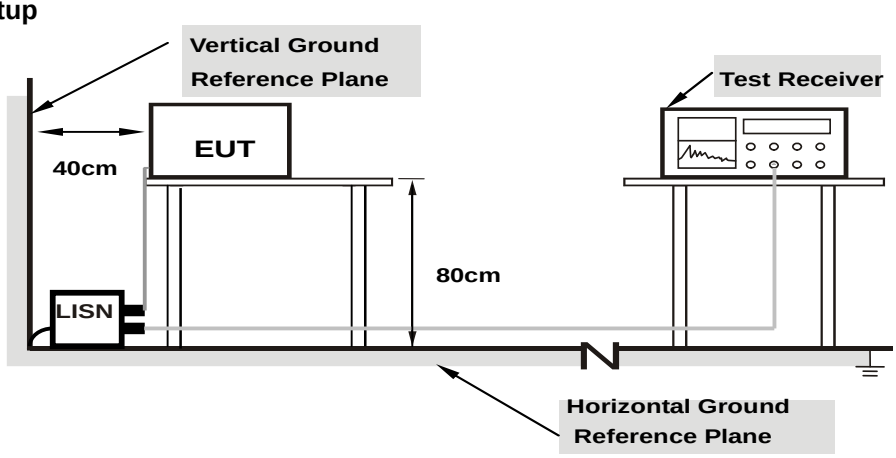
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit – 20dB) were not recorded.

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.

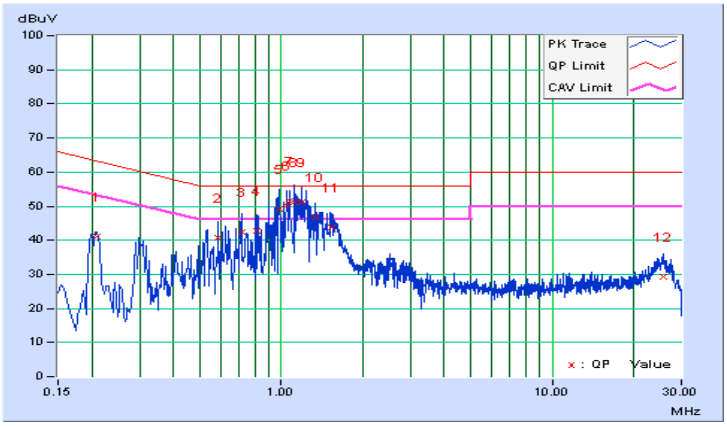
4.2.7 Test Results

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.20740	10.08	30.90	20.39	40.98	30.47	63.31	53.31	-22.33	-22.84
2	0.58600	10.21	30.68	13.21	40.89	23.42	56.00	46.00	-15.11	-22.58
3	0.71400	10.23	32.18	12.09	42.41	22.32	56.00	46.00	-13.59	-23.68
4	0.80976	10.25	32.65	10.56	42.90	20.81	56.00	46.00	-13.10	-25.19
5	0.98600	10.29	38.78	18.03	49.07	28.32	56.00	46.00	-6.93	-17.68
6	1.04279	10.29	40.03	18.51	50.32	28.80	56.00	46.00	-5.68	-17.20
7	**1.07000**	**10.30**	**41.12**	**19.57**	**51.42**	**29.87**	**56.00**	**46.00**	**-4.58**	**-16.13**
8	1.11400	10.30	40.81	20.35	51.11	30.65	56.00	46.00	-4.89	-15.35
9	1.18600	10.30	41.03	19.88	51.33	30.18	56.00	46.00	-4.67	-15.82
10	1.33400	10.32	36.42	18.10	46.74	28.42	56.00	46.00	-9.26	-17.58
11	1.53000	10.33	33.46	19.02	43.79	29.35	56.00	46.00	-12.21	-16.65
12	25.89800	11.80	17.50	8.37	29.30	20.17	60.00	50.00	-30.70	-29.83

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.

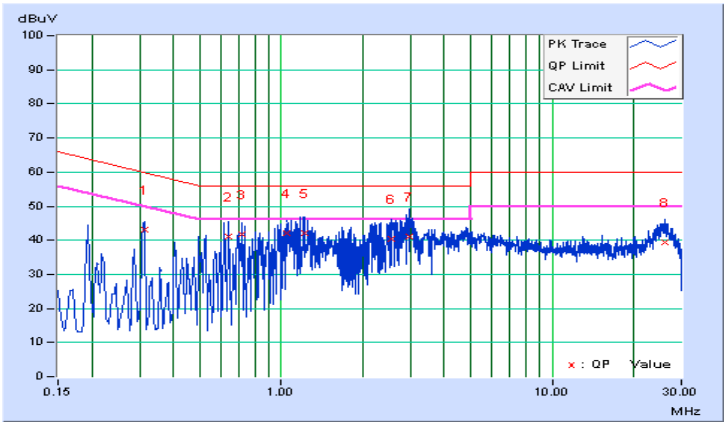


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

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	0.31365	10.17	33.09	16.96	43.26	27.13	59.87	49.87	-16.61	-22.74
2	0.64200	10.26	30.90	11.31	41.16	21.57	56.00	46.00	-14.84	-24.43
3	0.71400	10.27	31.43	11.71	41.70	21.98	56.00	46.00	-14.30	-24.02
4	1.05400	10.30	31.64	14.75	41.94	25.05	56.00	46.00	-14.06	-20.95
5	1.22200	10.31	31.84	16.40	42.15	26.71	56.00	46.00	-13.85	-19.29
6	2.55800	10.45	29.95	14.13	40.40	24.58	56.00	46.00	-15.60	-21.42
7	2.98200	10.49	30.68	14.84	41.17	25.33	56.00	46.00	-14.83	-20.67
8	26.18200	12.01	27.34	16.30	39.35	28.31	60.00	50.00	-20.65	-21.69

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.

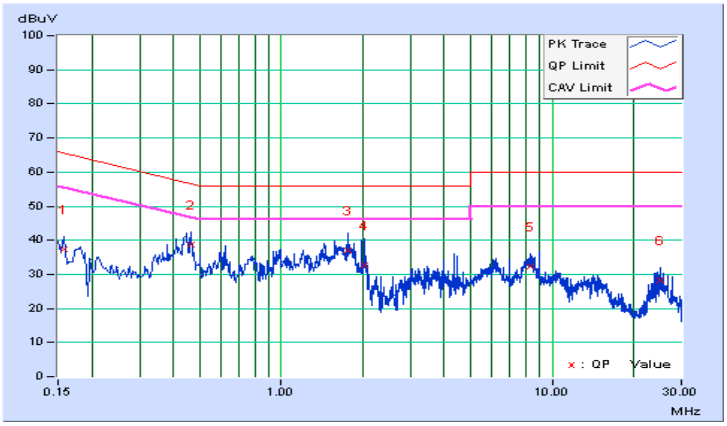


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

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	0.15760	10.08	27.16	20.98	37.24	31.06	65.59	55.59	-28.35	-24.53
2	0.46280	10.18	28.64	19.73	38.82	29.91	56.64	46.64	-17.82	-16.73
3	1.76092	10.35	26.78	19.98	37.13	30.33	56.00	46.00	-18.87	-15.67
4	2.03853	10.37	22.42	16.31	32.79	26.68	56.00	46.00	-23.21	-19.32
5	8.34536	10.69	21.77	16.54	32.46	27.23	60.00	50.00	-27.54	-22.77
6	25.05670	11.74	16.65	6.78	28.39	18.52	60.00	50.00	-31.61	-31.48

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.

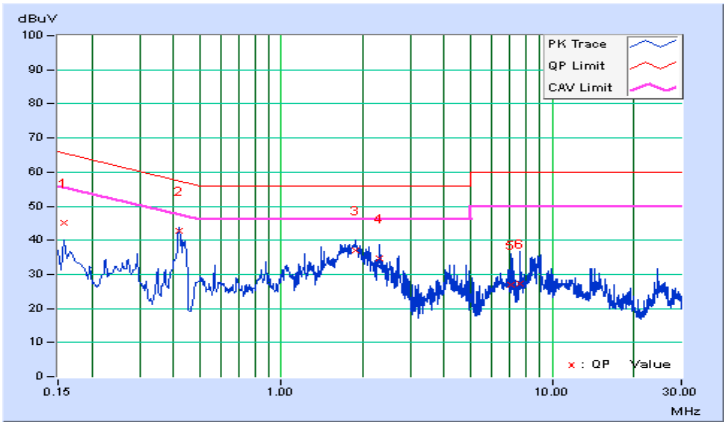


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

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	0.15782	10.08	35.09	19.48	45.17	29.56	65.58	55.58	-20.41	-26.02
2	0.41979	10.24	32.55	30.09	42.79	40.33	57.45	47.45	-14.66	-7.12
3	1.88604	10.38	26.52	21.40	36.90	31.78	56.00	46.00	-19.10	-14.22
4	2.31223	10.42	24.42	17.13	34.84	27.55	56.00	46.00	-21.16	-18.45
5	7.04724	10.72	16.23	8.98	26.95	19.70	60.00	50.00	-33.05	-30.30
6	7.61028	10.75	16.40	6.80	27.15	17.55	60.00	50.00	-32.85	-32.45

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.

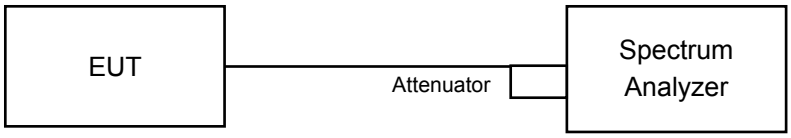


4.3 6dB Bandwidth Measurement

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

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

1TX

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	7.69	0.5	Pass
6	2437	8.11	0.5	Pass
11	2462	8.09	0.5	Pass

802.11g

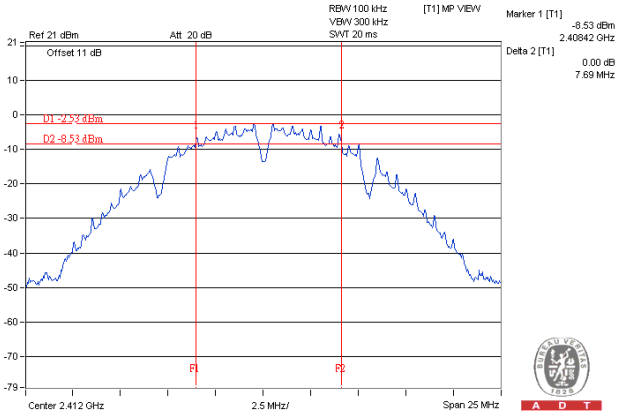
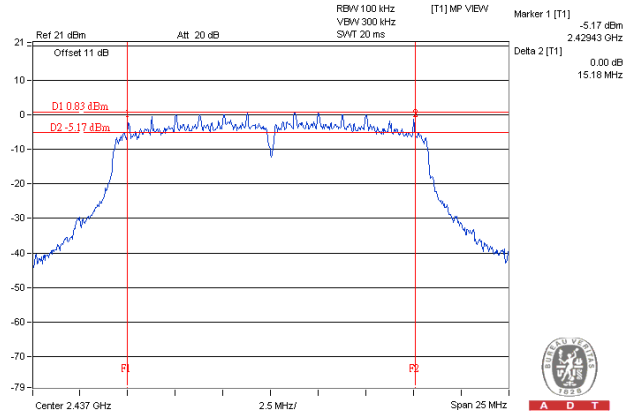
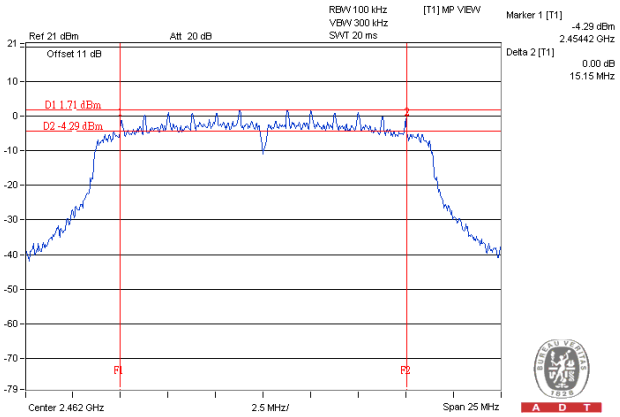
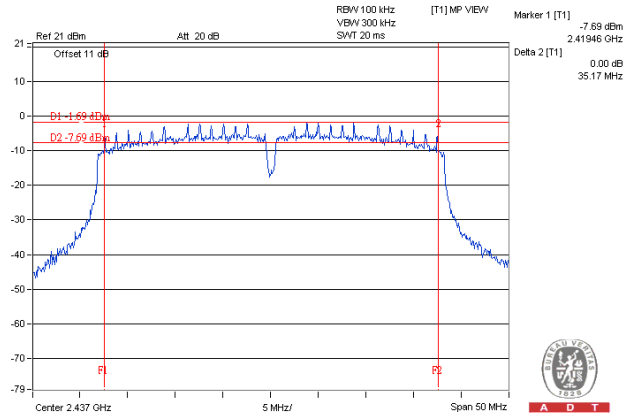
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	15.39	0.5	Pass
6	2437	15.18	0.5	Pass
11	2462	15.56	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	15.20	0.5	Pass
6	2437	15.19	0.5	Pass
11	2462	15.15	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
3	2422	35.22	0.5	Pass
6	2437	35.17	0.5	Pass
9	2452	35.17	0.5	Pass

Spectrum Plot of Worst Value	
802.11b	802.11g
	
802.11n (HT20)	802.11n (HT40)
	

2TX

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	7.69	8.13	0.5	Pass
6	2437	8.11	8.08	0.5	Pass
11	2462	8.09	8.10	0.5	Pass

802.11g

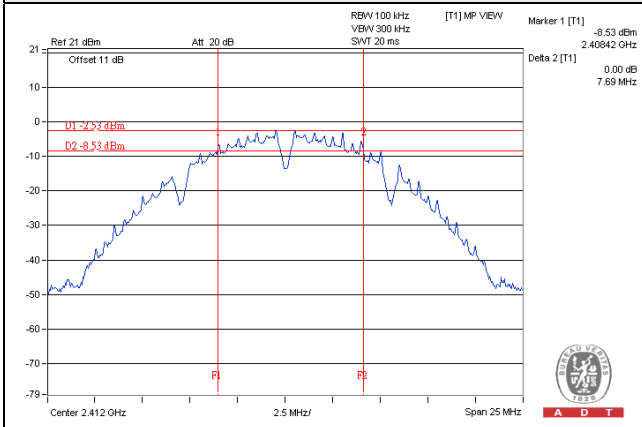
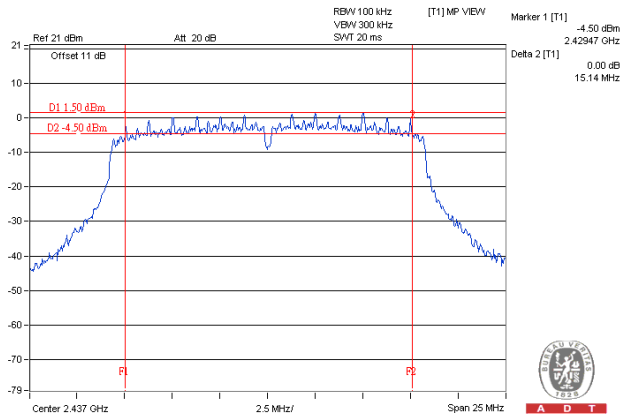
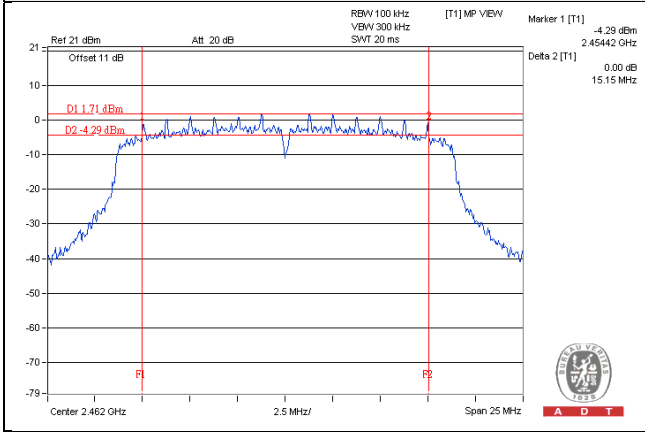
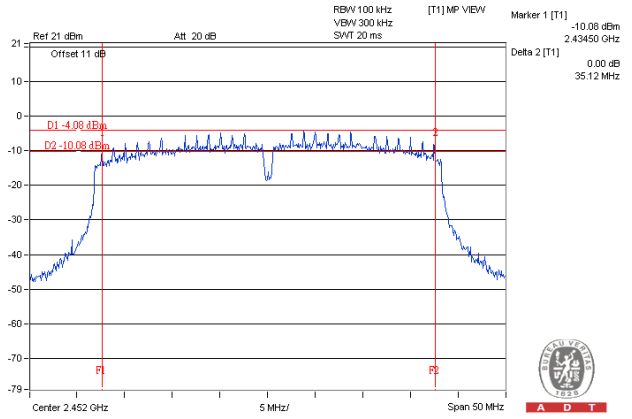
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.39	15.16	0.5	Pass
6	2437	15.18	15.14	0.5	Pass
11	2462	15.56	15.18	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.20	15.20	0.5	Pass
6	2437	15.19	15.18	0.5	Pass
11	2462	15.15	15.18	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.22	35.22	0.5	Pass
6	2437	35.17	35.16	0.5	Pass
9	2452	35.17	35.12	0.5	Pass

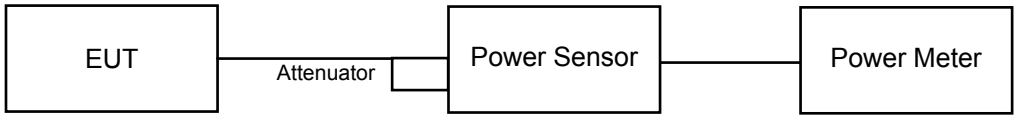
Spectrum Plot of Worst Value	
802.11b	802.11g
	
802.11n (HT20)	802.11n (HT40)
	

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)

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

A peak / average power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak / 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

1TX

For Peak Power

802.11b

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	9.683	9.86	30	Pass
6	2437	20.654	13.15	30	Pass
11	2462	26.792	14.28	30	Pass

802.11g

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	71.285	18.53	30	Pass
6	2437	68.234	18.34	30	Pass
11	2462	74.473	18.72	30	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	71.614	18.55	30	Pass
6	2437	68.391	18.35	30	Pass
11	2462	73.114	18.64	30	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
3	2422	77.804	18.91	30	Pass
6	2437	**92.897**	19.68	30	Pass
9	2452	55.335	17.43	30	Pass

For Average Power

802.11b

Channel	Frequency (MHz)	Average Power (mW)	Average Power(dBm)
1	2412	5.395	7.32
6	2437	5.284	7.23
11	2462	7.161	8.55

802.11g

Channel	Frequency (MHz)	Average Power (mW)	Average Power(dBm)
1	2412	18.578	12.69
6	2437	18.664	12.71
11	2462	19.011	12.79

802.11n (HT20)

Channel	Frequency (MHz)	Average Power (mW)	Average Power(dBm)
1	2412	17.539	12.44
6	2437	17.906	12.53
11	2462	17.865	12.52

802.11n (HT40)

Channel	Frequency (MHz)	Average Power (mW)	Average Power(dBm)
3	2422	18.967	12.78
6	2437	18.923	12.77
9	2452	13.274	11.23

2TX

For Peak Power

802.11b

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass/Fail
		Chain 0	Chain 1				
1	2412	9.86	9.79	19.211	12.84	30	Pass
6	2437	13.15	12.94	40.333	16.06	30	Pass
11	2462	14.28	14.92	57.838	17.62	30	Pass

802.11g

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass/Fail
		Chain 0	Chain 1				
1	2412	18.53	19.44	159.187	22.02	30	Pass
6	2437	18.34	18.92	146.217	21.65	30	Pass
11	2462	18.72	19.08	155.383	21.91	30	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass/Fail
		Chain 0	Chain 1				
1	2412	18.55	18.64	144.728	21.61	30	Pass
6	2437	18.35	18.84	144.951	21.61	30	Pass
11	2462	18.64	19.17	155.718	21.92	30	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass/Fail
		Chain 0	Chain 1				
3	2422	18.91	18.86	154.717	21.90	30	Pass
6	2437	19.68	19.22	**176.457**	22.47	30	Pass
9	2452	17.43	18.06	119.308	20.77	30	Pass

For Average Power

802.11b

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	7.32	7.30	10.765	10.32
6	2437	7.23	7.07	10.377	10.16
11	2462	8.55	8.14	13.677	11.36

802.11g

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	12.69	12.78	37.545	15.75
6	2437	12.71	13.05	38.848	15.89
11	2462	12.79	13.15	39.665	15.98

802.11n (HT20)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	12.44	12.66	35.989	15.56
6	2437	12.53	12.89	37.360	15.72
11	2462	12.52	13.01	37.864	15.78

802.11n (HT40)

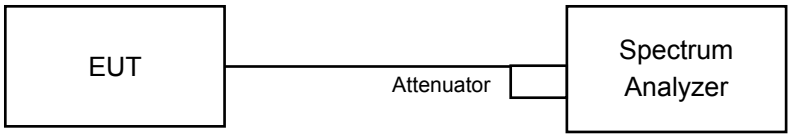
Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
3	2422	12.78	12.47	36.627	15.64
6	2437	12.77	13.28	40.204	16.04
9	2452	11.23	10.89	25.548	14.07

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

a. Set analyzer center frequency to DTS channel center frequency.
b. Set the span to 1.5 times the DTS bandwidth.
c. Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d. Set the VBW ≥ 3 × RBW.
e. Detector = peak.
f. Sweep time = auto couple.
g. Trace mode = max hold.
h. Allow trace to fully stabilize.
i. Use the peak marker function to determine the maximum amplitude level within the RBW.

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

1TX

802.11b

Channel	Freq. (MHz)	PSD (dBm)	Limit (dBm)	Pass / Fail
1	2412	-12.74	8	Pass
6	2437	-13.14	8	Pass
11	2462	-11.60	8	Pass

802.11g

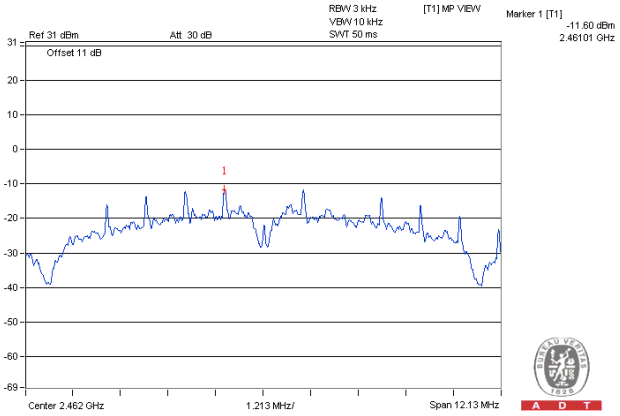
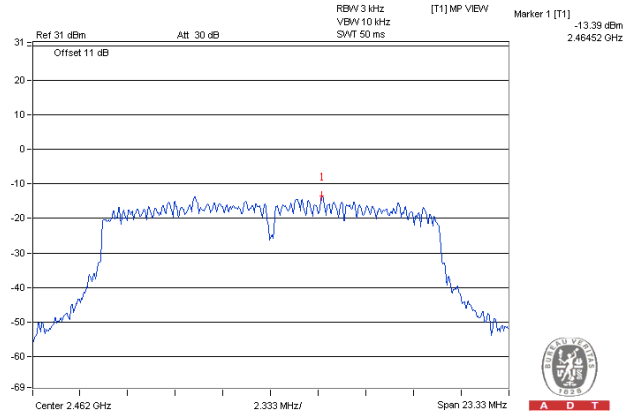
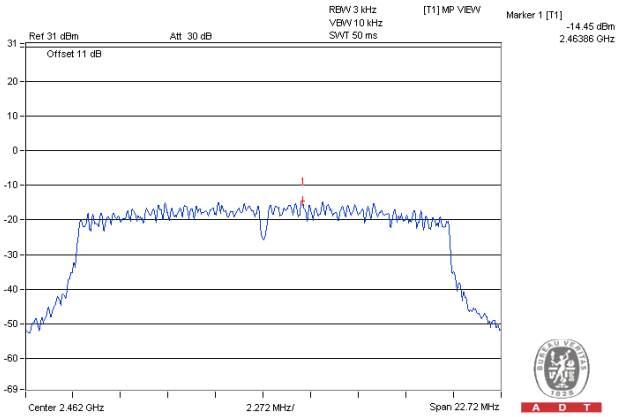
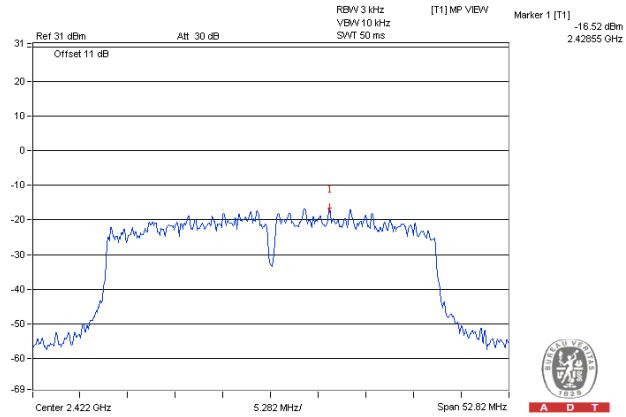
Channel	Freq. (MHz)	PSD (dBm)	Limit (dBm)	Pass / Fail
1	2412	-13.56	8	Pass
6	2437	-13.99	8	Pass
11	2462	-13.39	8	Pass

802.11n (HT20)

Channel	Freq. (MHz)	PSD (dBm)	Limit (dBm)	Pass / Fail
1	2412	-15.13	8	Pass
6	2437	-16.06	8	Pass
11	2462	-14.45	8	Pass

802.11n (HT40)

Channel	Freq. (MHz)	PSD (dBm)	Limit (dBm)	Pass / Fail
3	2422	-16.52	8	Pass
6	2437	-17.16	8	Pass
9	2452	-19.04	8	Pass

Spectrum Plot of Worst Value	
802.11b	802.11g
	
802.11n (HT20)	802.11n (HT40)
	

2TX

802.11b

TX Chain	Chan.	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass / Fail
0	1	2412	-12.74	3.01	-9.73	8	Pass
	6	2437	-13.14	3.01	-10.13	8	Pass
	11	2462	-11.60	3.01	-8.59	8	Pass
1	1	2412	-13.17	3.01	-10.16	8	Pass
	6	2437	-11.32	3.01	-8.31	8	Pass
	11	2462	-11.26	3.01	-8.25	8	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[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/N$] = 3.52dBi < 6dBi, so the limit no need to reduced.

802.11g

TX Chain	Chan.	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass / Fail
0	1	2412	-13.56	3.01	-10.55	8	Pass
	6	2437	-13.99	3.01	-10.98	8	Pass
	11	2462	-13.39	3.01	-10.38	8	Pass
1	1	2412	-15.17	3.01	-12.16	8	Pass
	6	2437	-13.61	3.01	-10.60	8	Pass
	11	2462	-12.98	3.01	-9.97	8	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[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/N$] = 3.52dBi < 6dBi, so the limit no need to reduced.

802.11n (HT20)

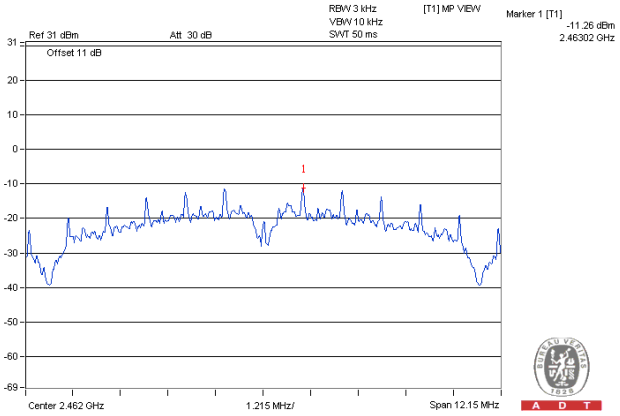
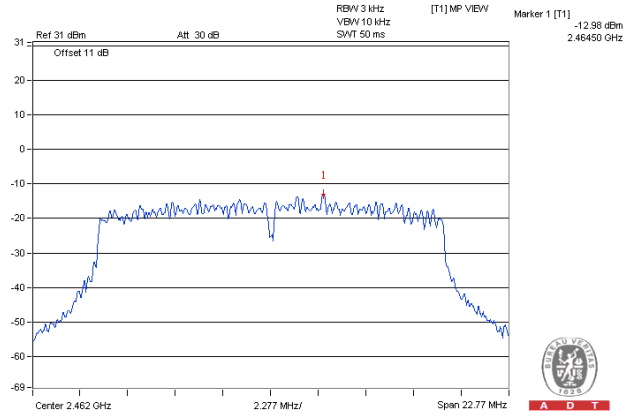
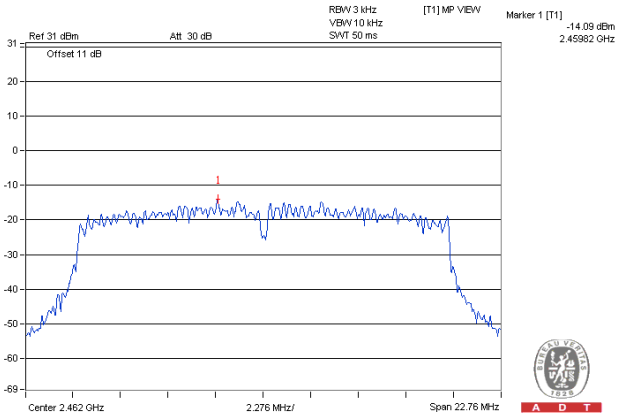
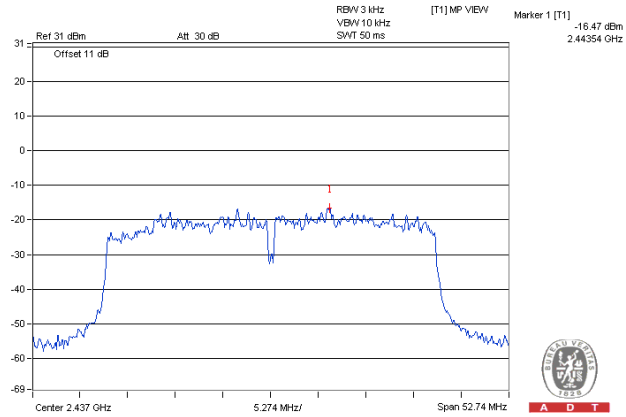
TX Chain	Chan.	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass / Fail
0	1	2412	-15.13	3.01	-12.12	8	Pass
	6	2437	-16.06	3.01	-13.05	8	Pass
	11	2462	-14.45	3.01	-11.44	8	Pass
1	1	2412	-16.09	3.01	-13.08	8	Pass
	6	2437	-14.95	3.01	-11.94	8	Pass
	11	2462	-14.09	3.01	-11.08	8	Pass

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[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2$/N] = 3.52dBi < 6dBi, so the limit no need to reduced.

802.11n (HT40)

TX Chain	Chan.	Freq. (MHz)	PSD (dBm)	10 log (N=2) dB	Total PSD (dBm)	Limit (dBm)	Pass / Fail
0	3	2422	-16.52	3.01	-13.51	8	Pass
	6	2437	-17.16	3.01	-14.15	8	Pass
	9	2452	-19.04	3.01	-16.03	8	Pass
1	3	2422	-18.24	3.01	-15.23	8	Pass
	6	2437	-16.47	3.01	-13.46	8	Pass
	9	2452	-19.54	3.01	-16.53	8	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[$(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2$/N] = 3.52dBi < 6dBi, so the limit no need to reduced.

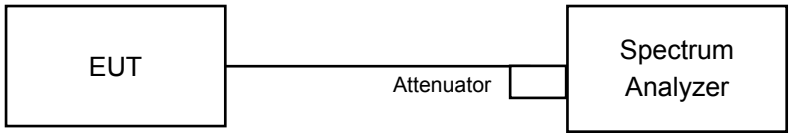
Spectrum Plot of Worst Value	
802.11b	802.11g
	
802.11n (HT20)	802.11n (HT40)
	

4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

Below 20dB 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 ≥ 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 ≥ 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.

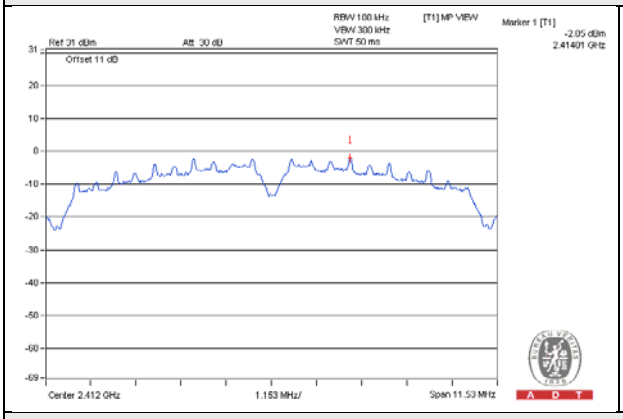
4.6.7 Test Results

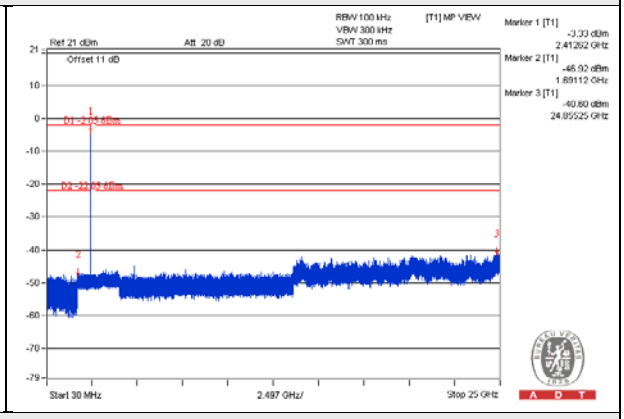
The conducted emission test is performed on each TX port of operating mode without summing or adding 10log (N) since the limit is relative emission limit.
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

1TX

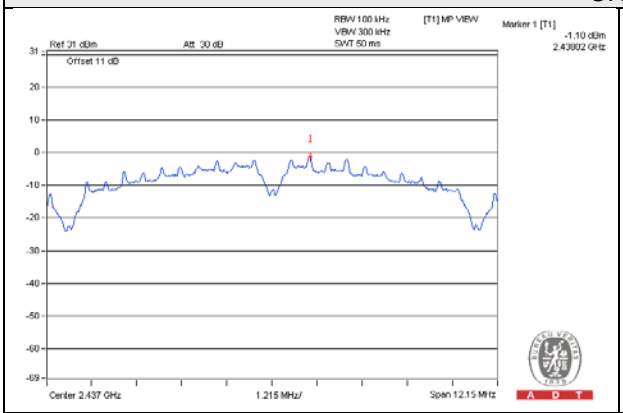
802.11b_Chain 0

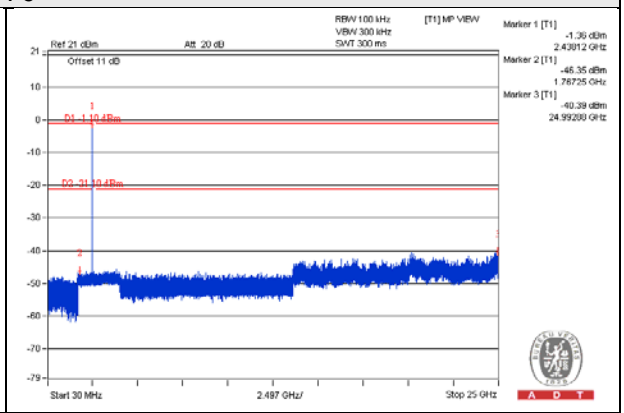
CH 1



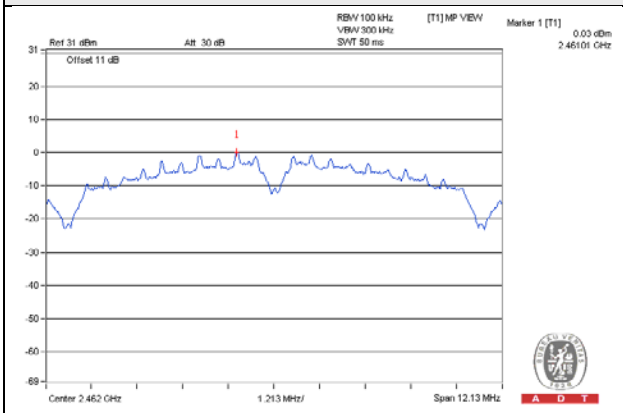


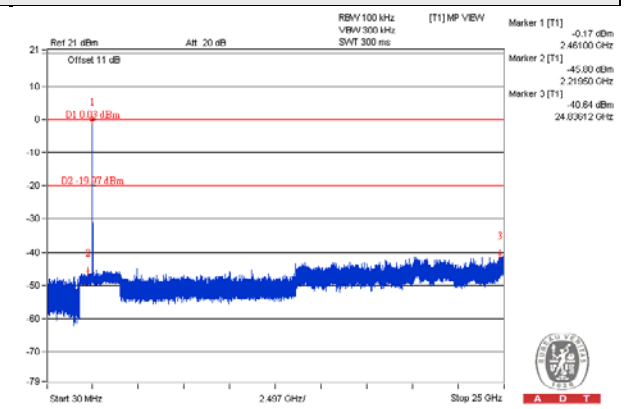
CH 6



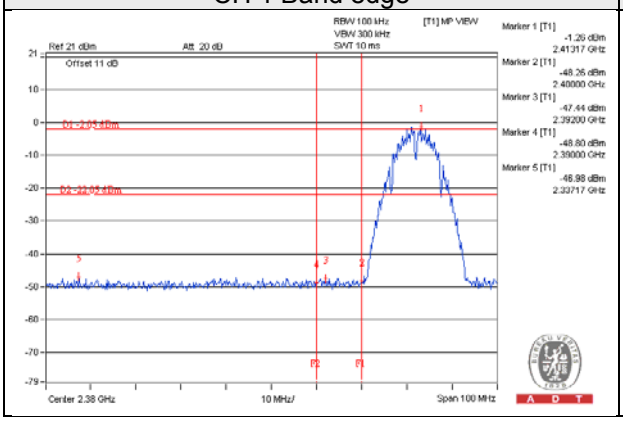


CH 11

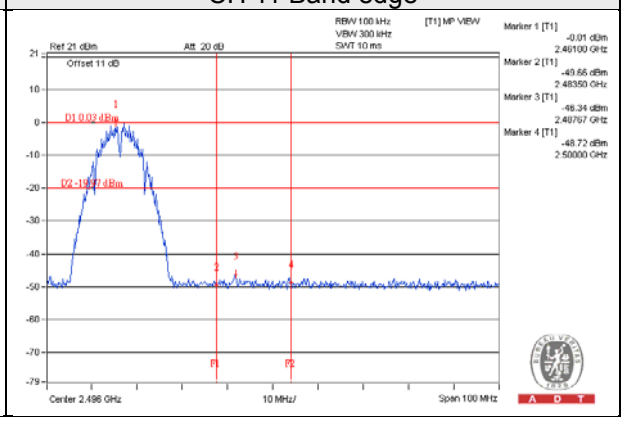




CH 1 Band edge

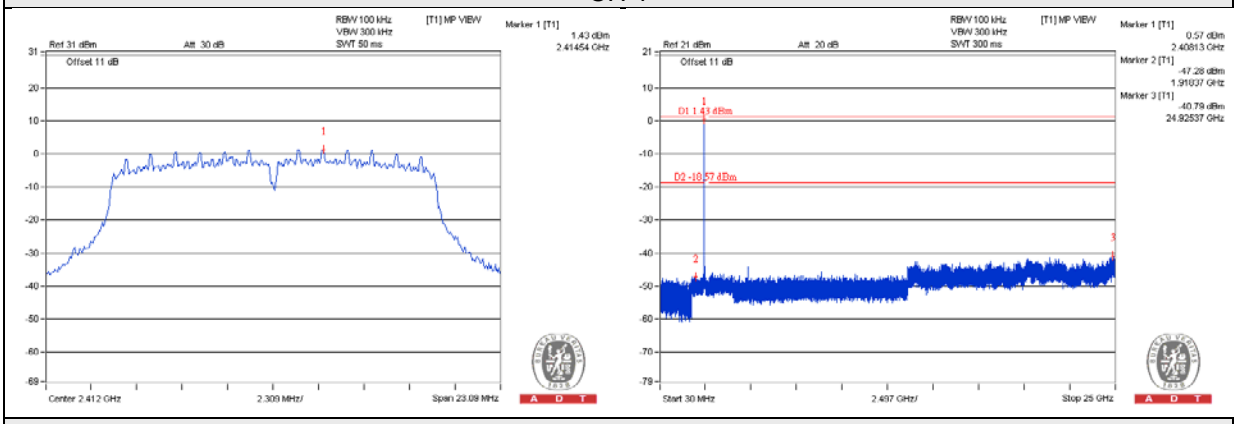


CH 11 Band edge

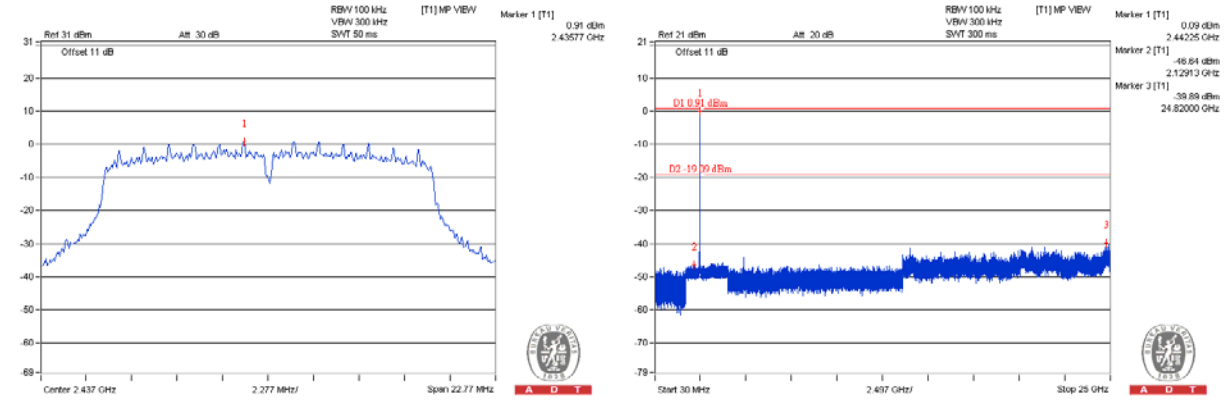


802.11g_Chain 0

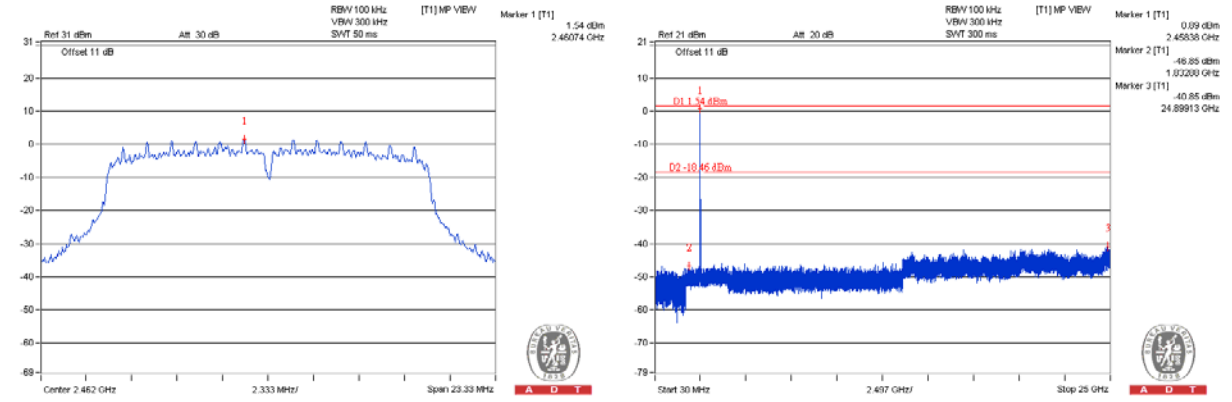
CH 1



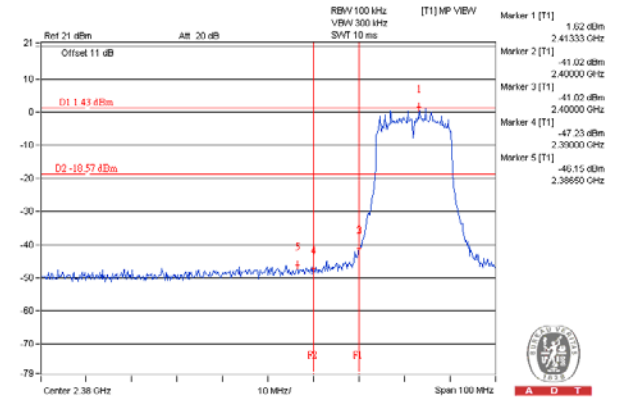
CH 6



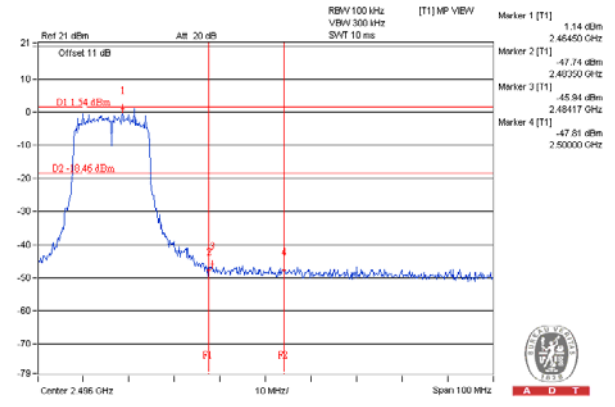
CH 11



CH 1 Band edge

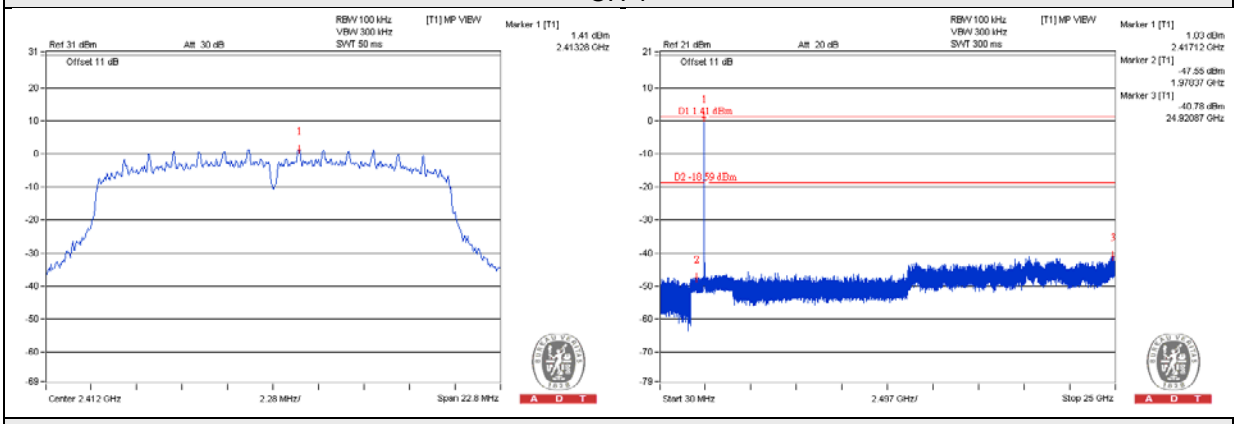


CH 11 Band edge

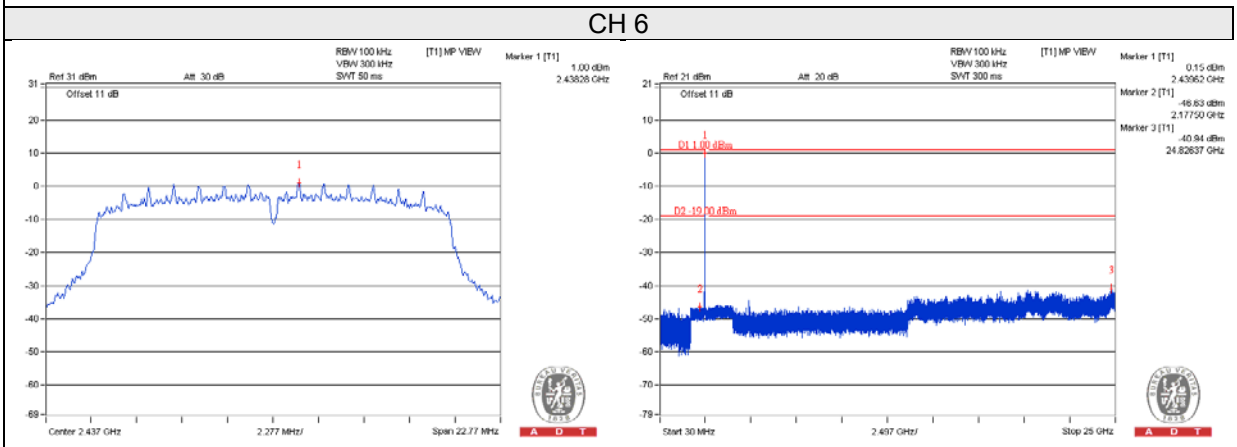


802.11n (HT20)_Chain 0

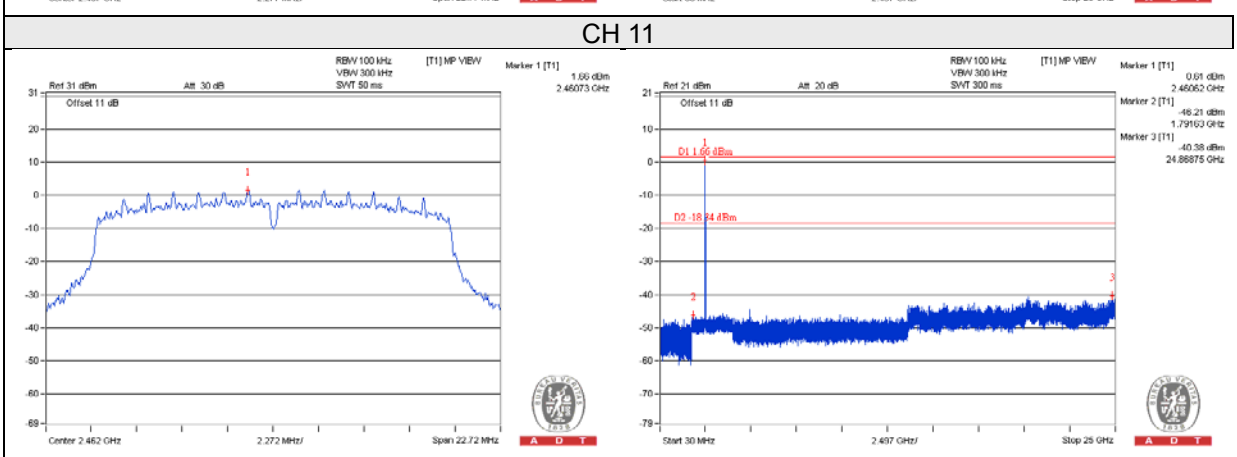
CH 1



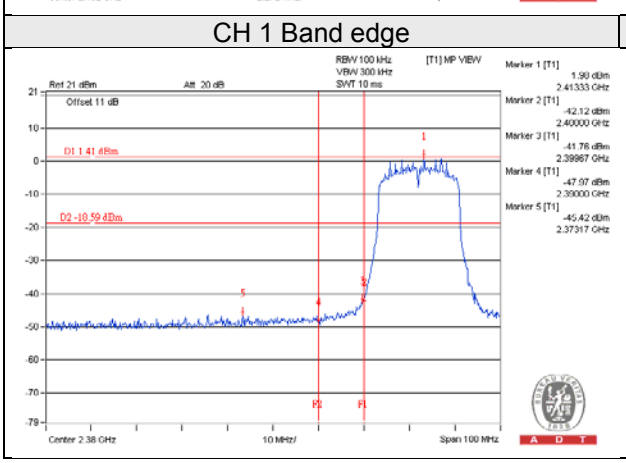
CH 6



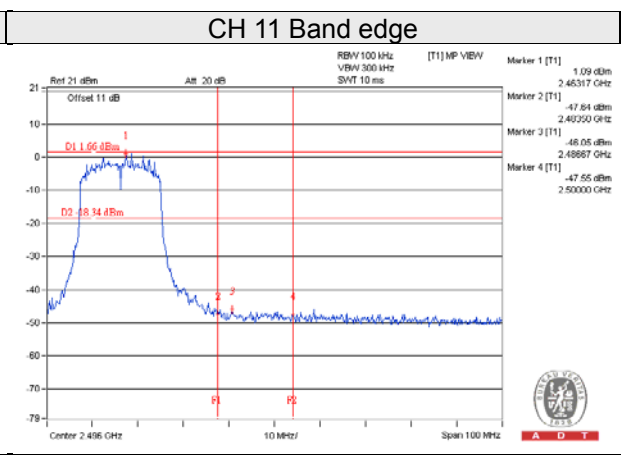
CH 11



CH 1 Band edge

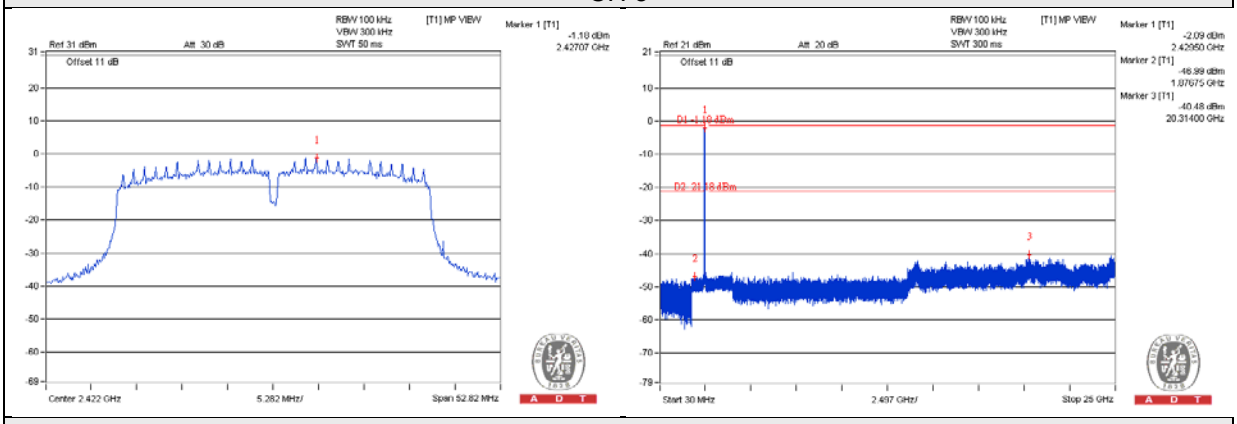


CH 11 Band edge

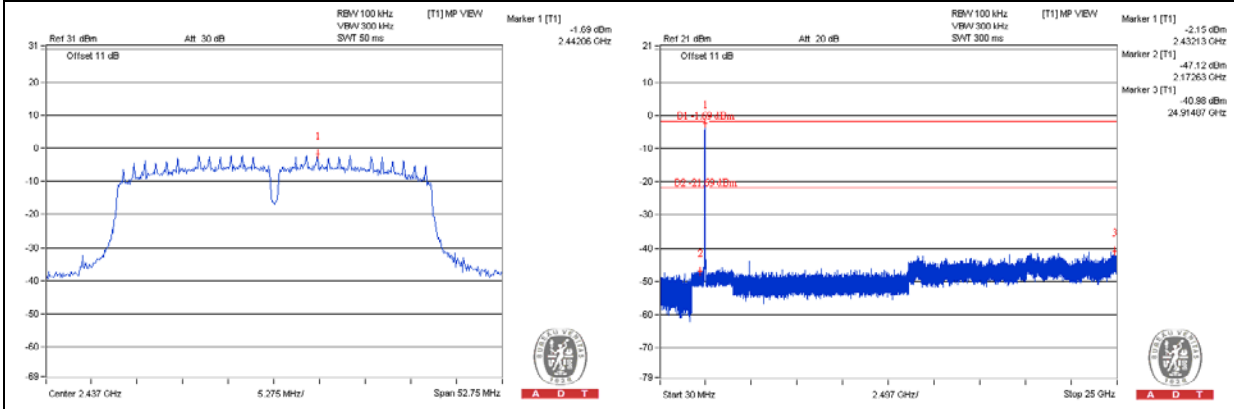


802.11n (HT40)_Chain 0

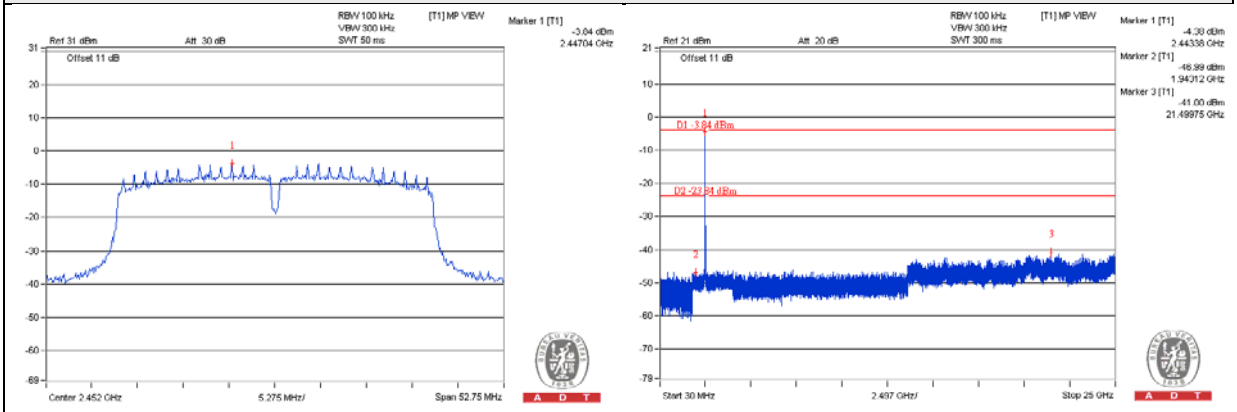
CH 3



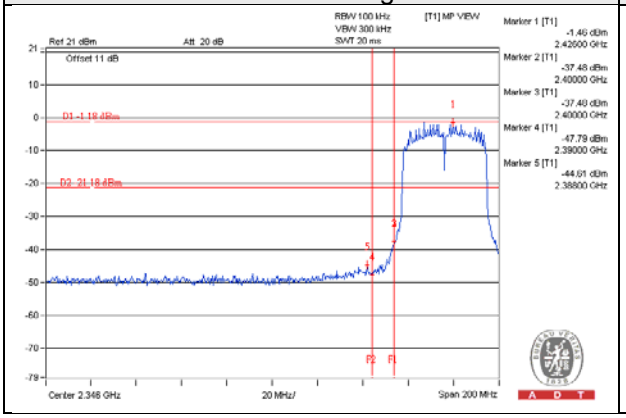
CH 6



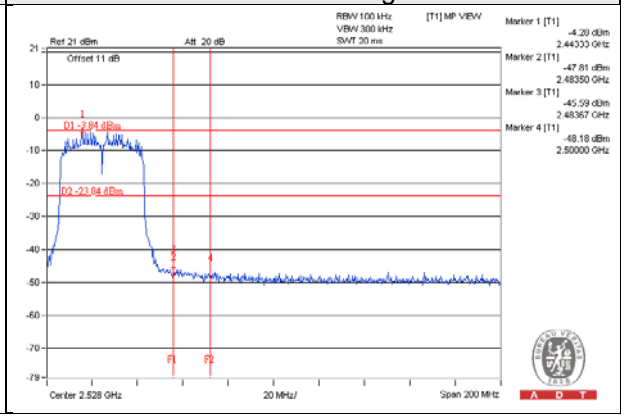
CH 9



CH 3 Band edge



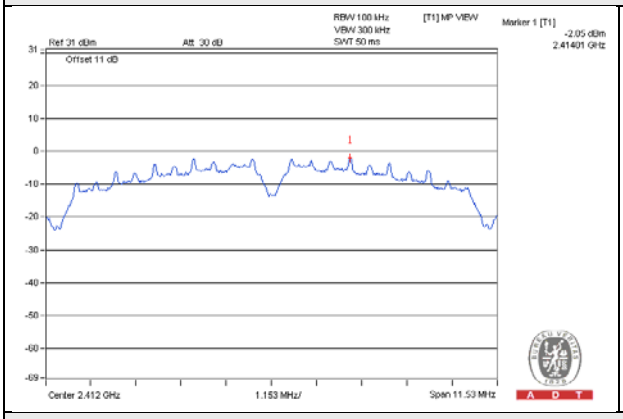
CH 9 Band edge

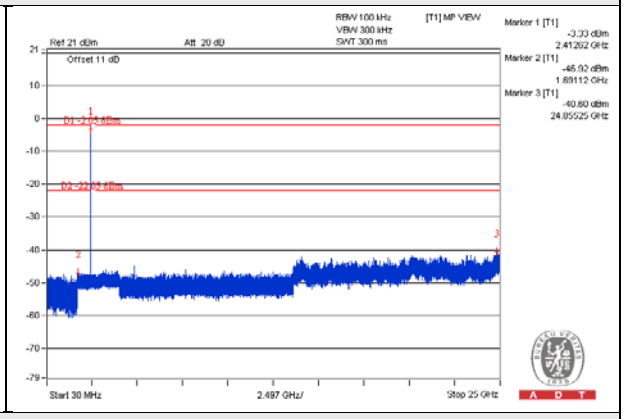


2TX

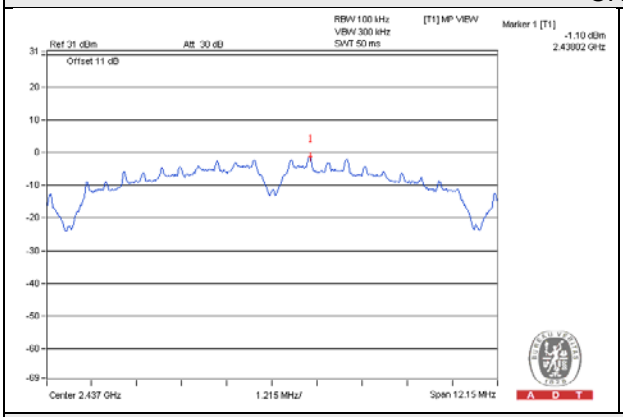
802.11b_Chain 0

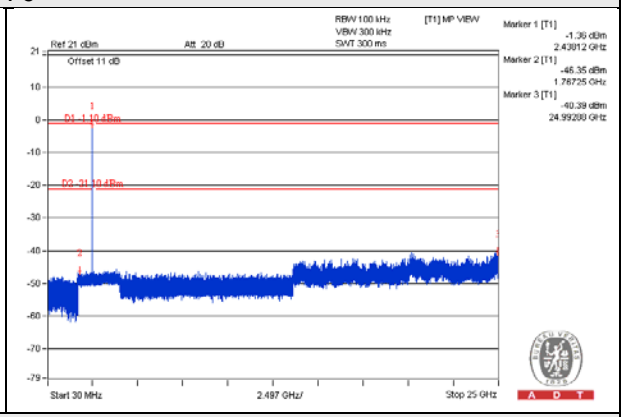
CH 1



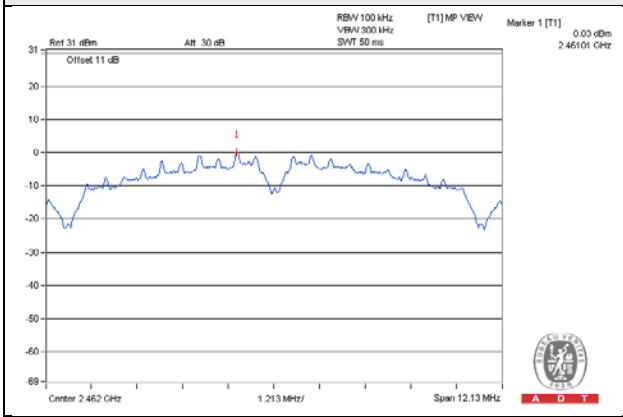


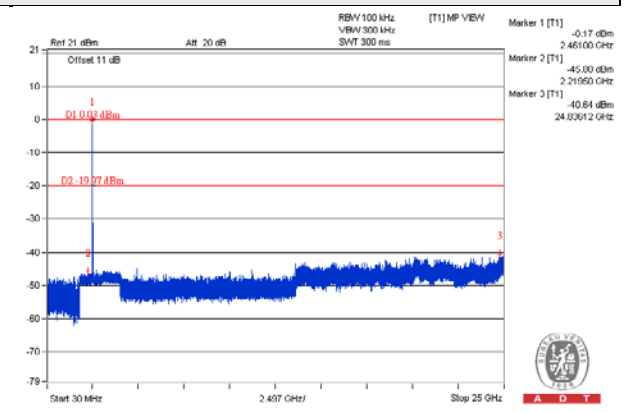
CH 6



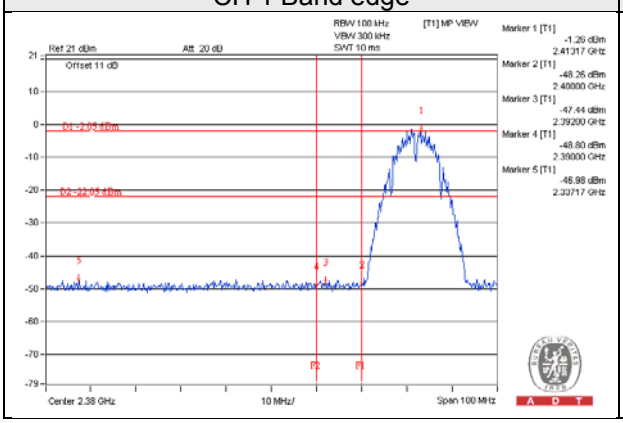


CH 11

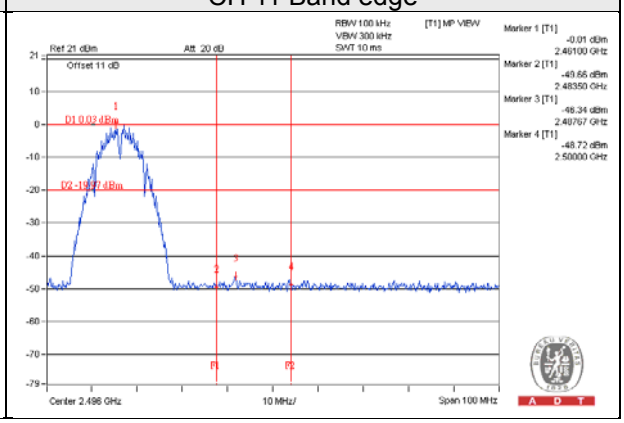




CH 1 Band edge

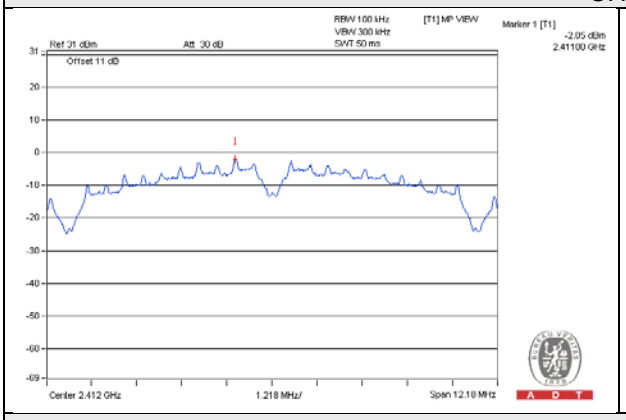


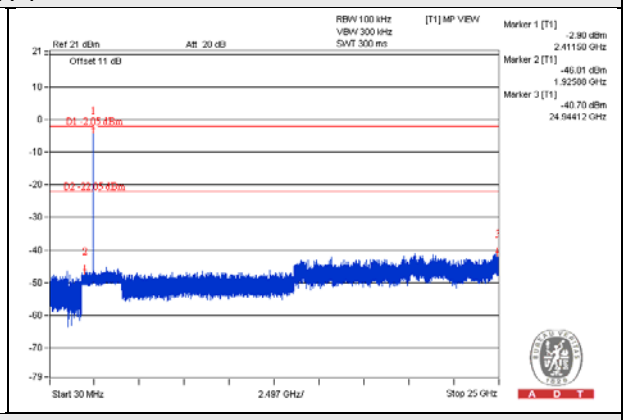
CH 11 Band edge



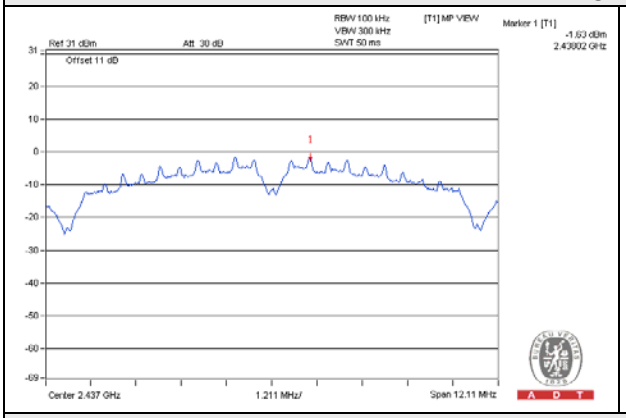
802.11b_Chain 1

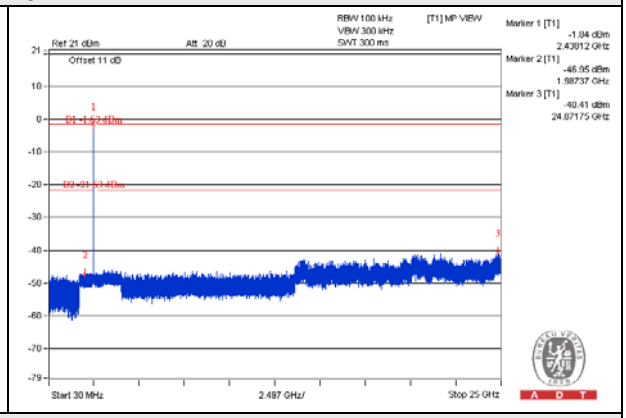
CH 1



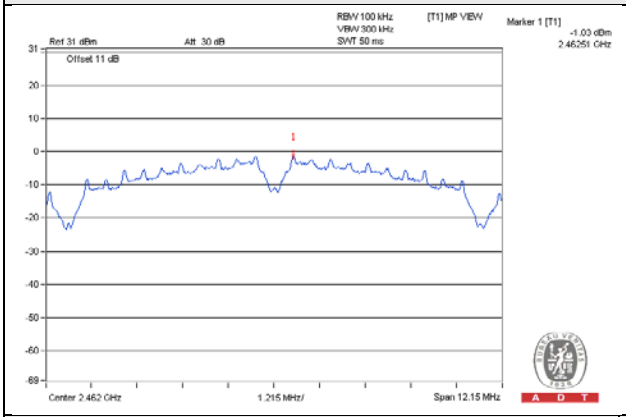


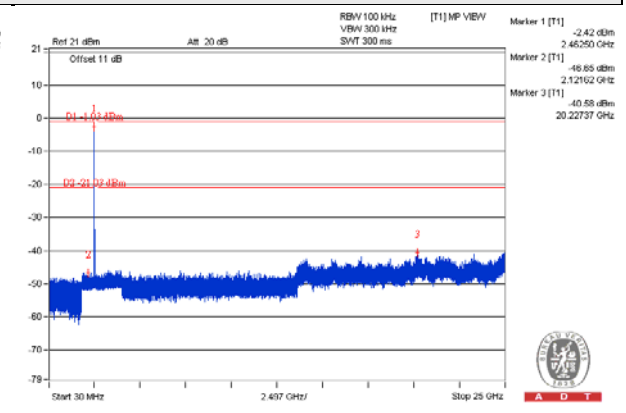
CH 6



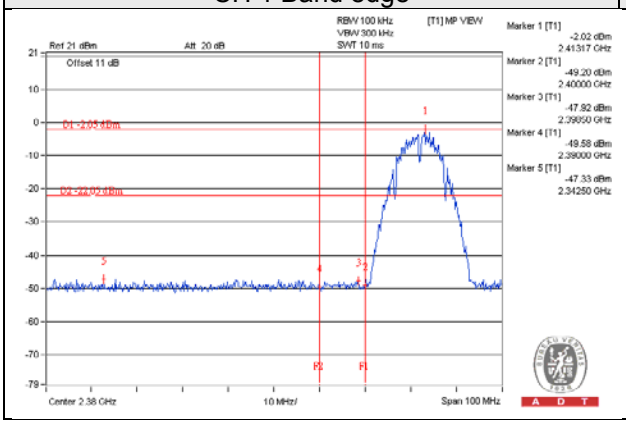


CH 11

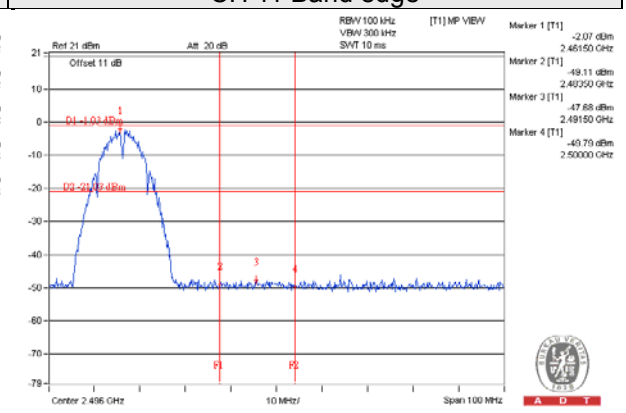




CH 1 Band edge

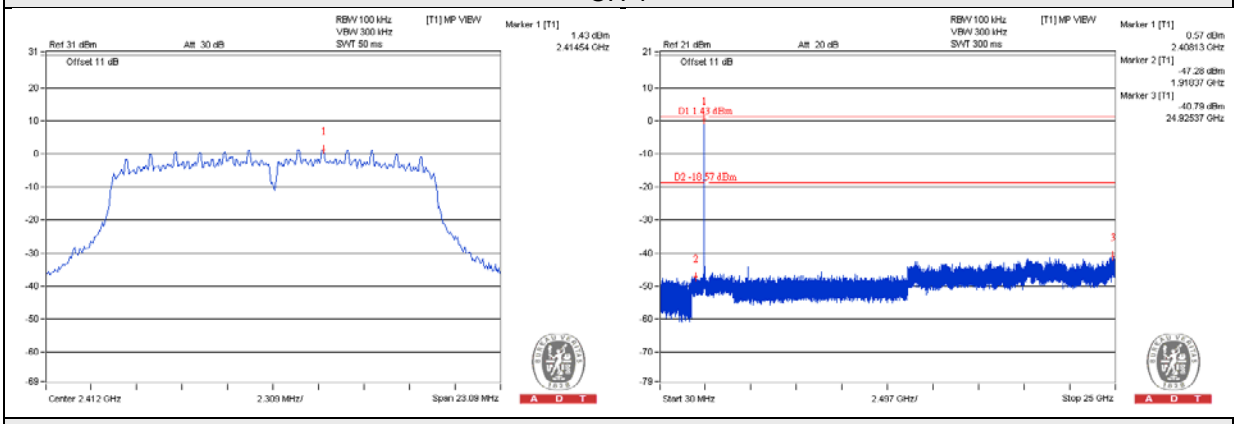


CH 11 Band edge

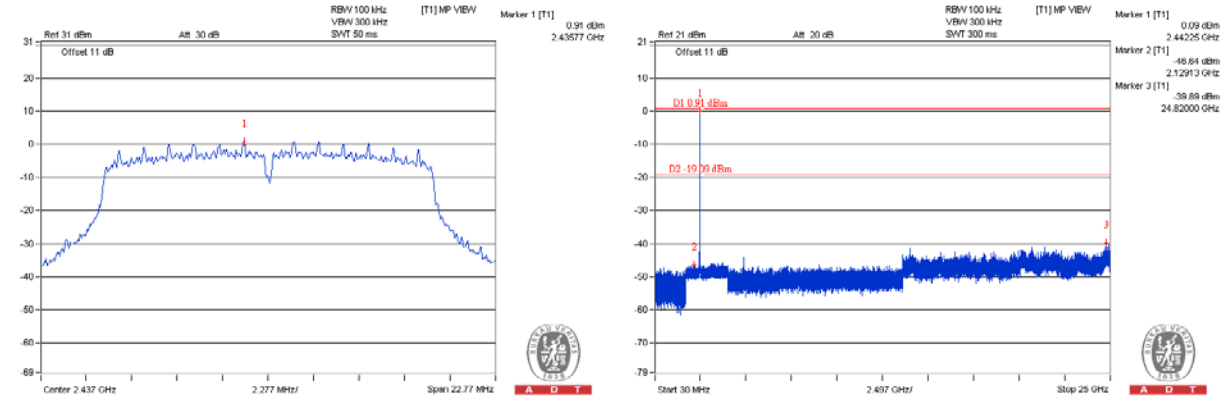


802.11g_Chain 0

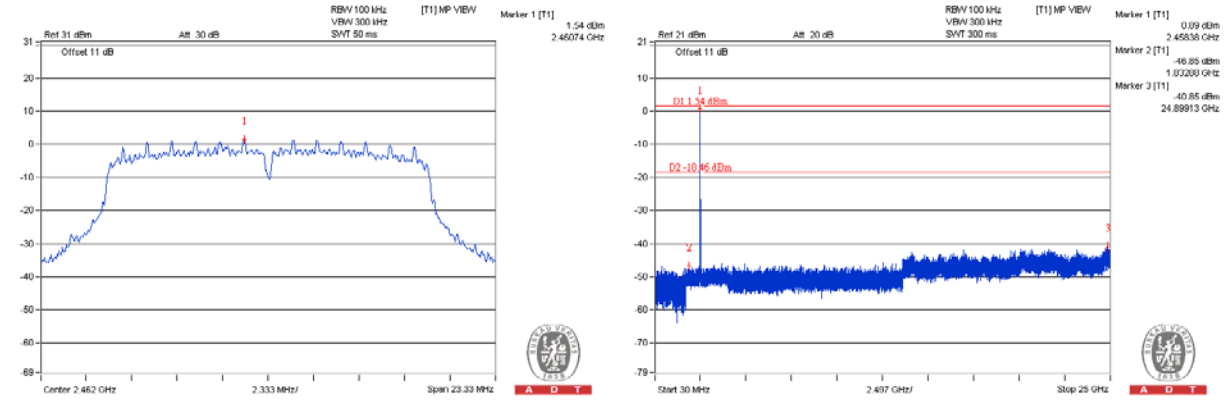
CH 1



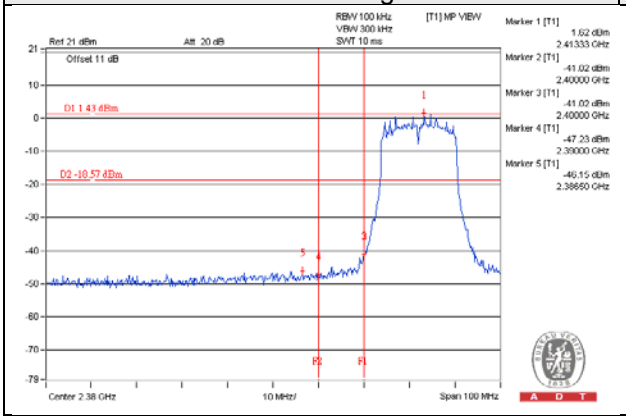
CH 6



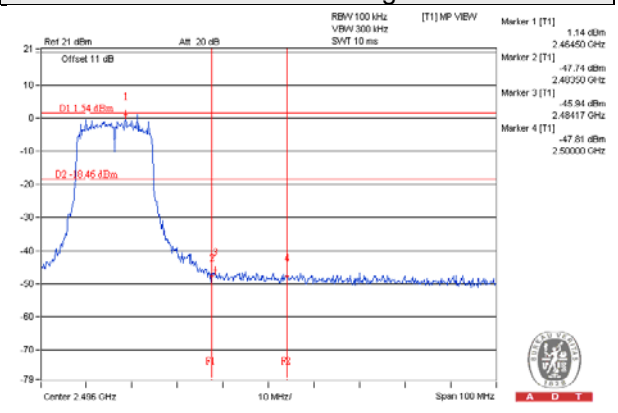
CH 11



CH 1 Band edge

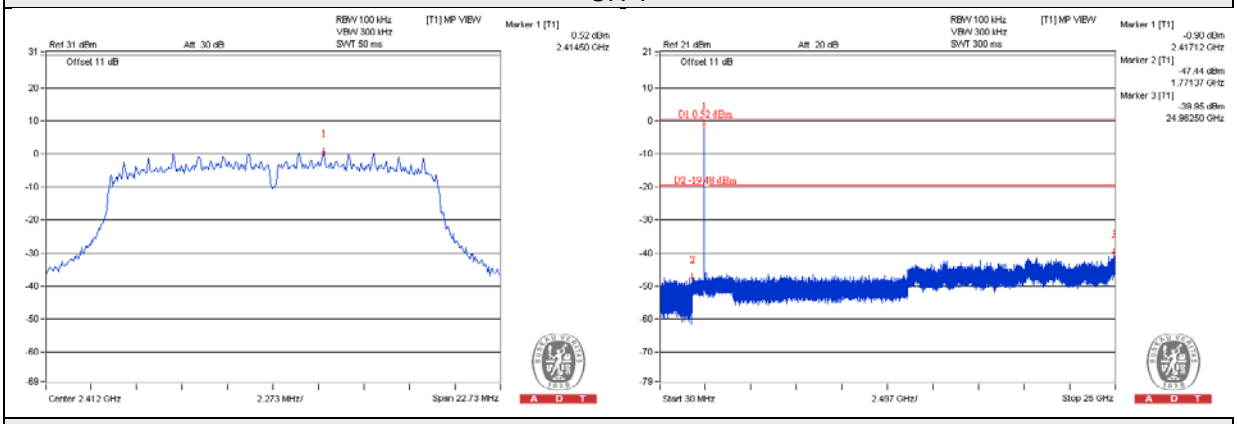


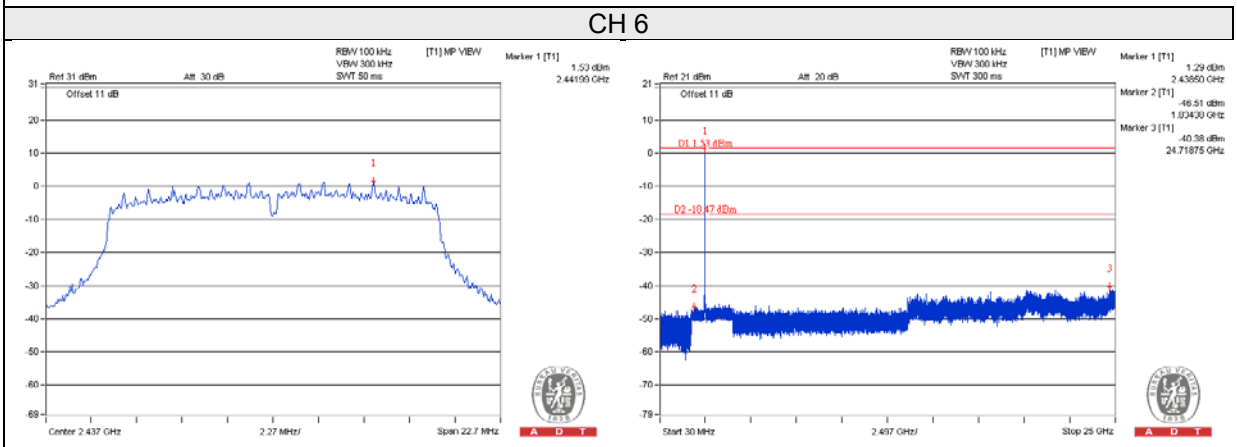
CH 11 Band edge



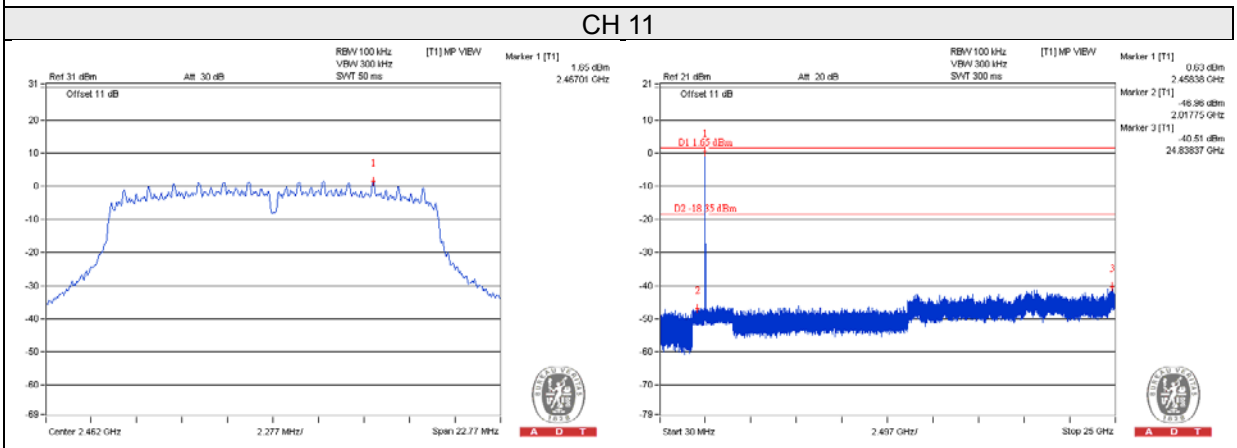
802.11g_Chain 1

CH 1

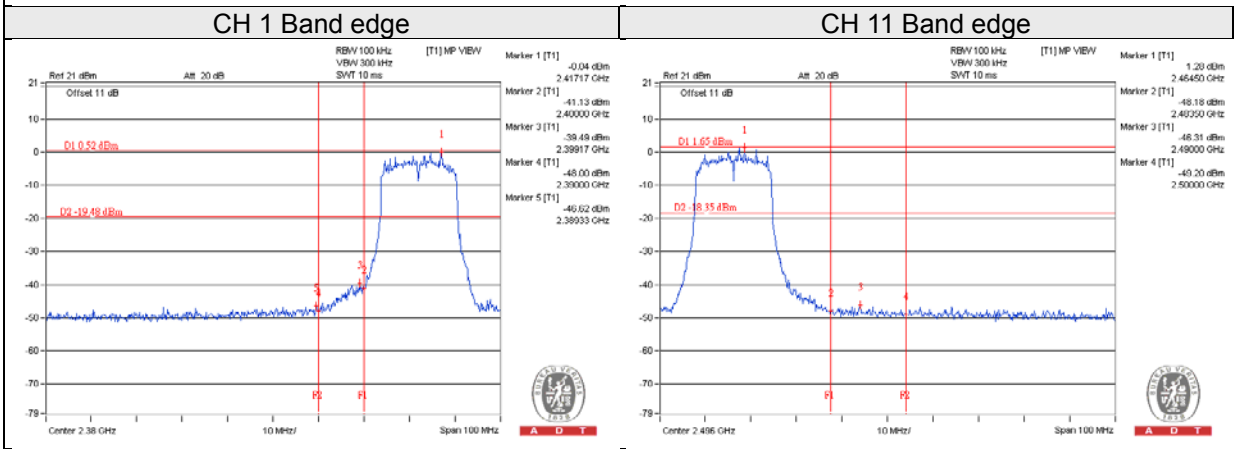




CH 6



CH 11

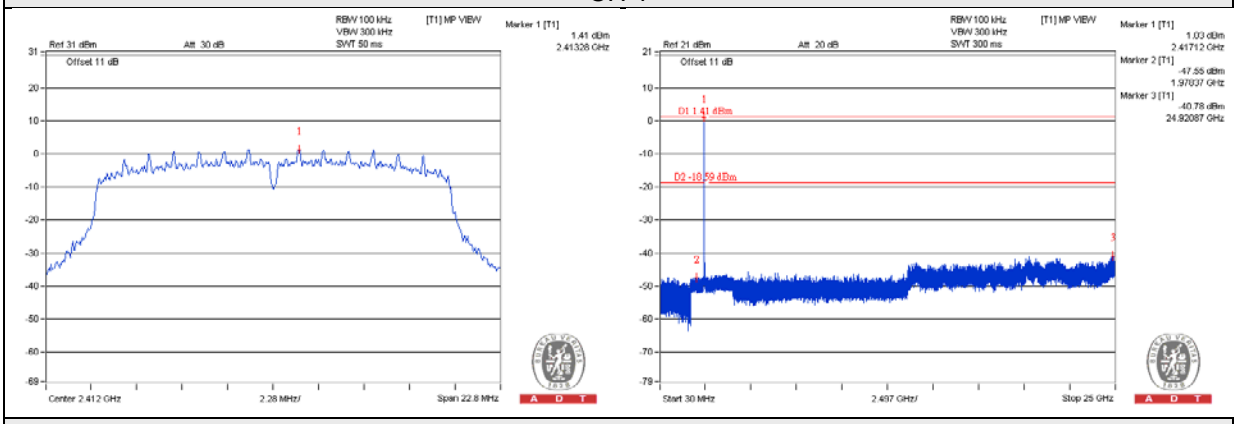


CH 1 Band edge

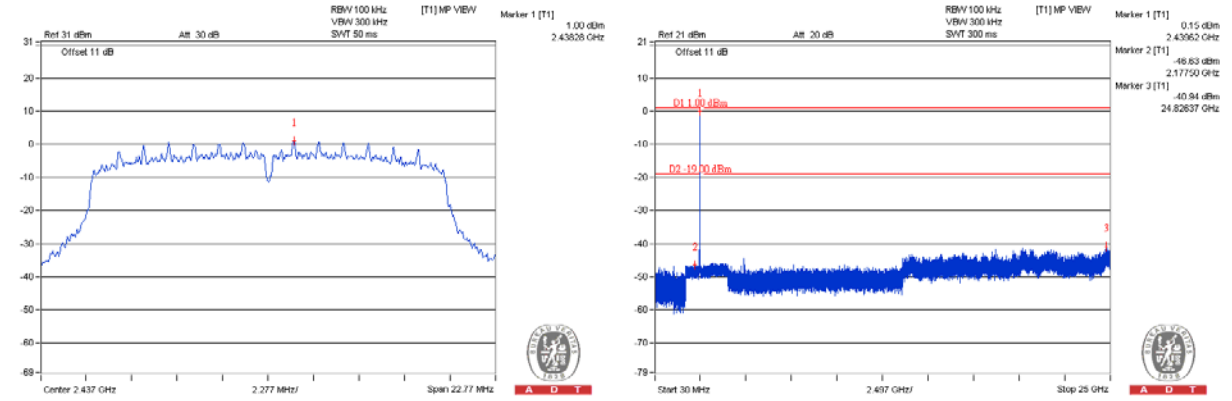
CH 11 Band edge

802.11n (HT20)_Chain 0

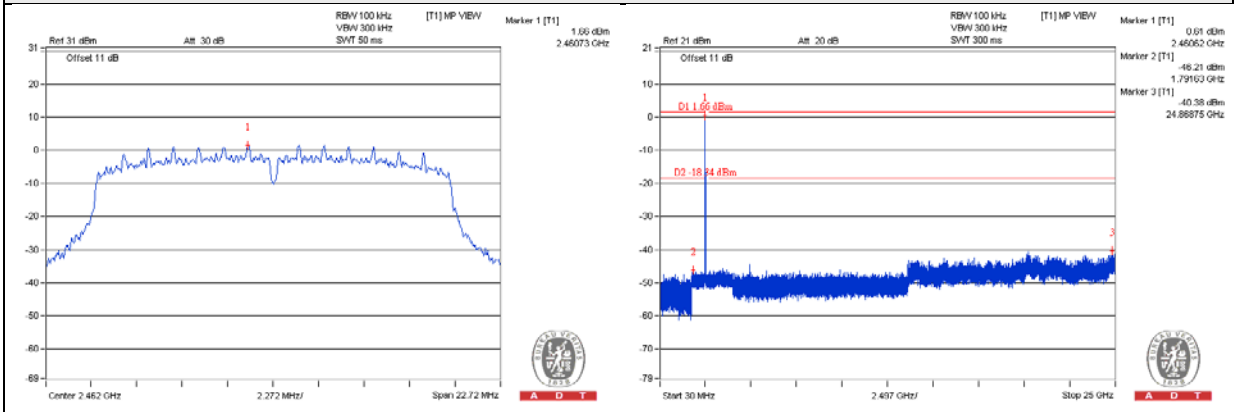
CH 1



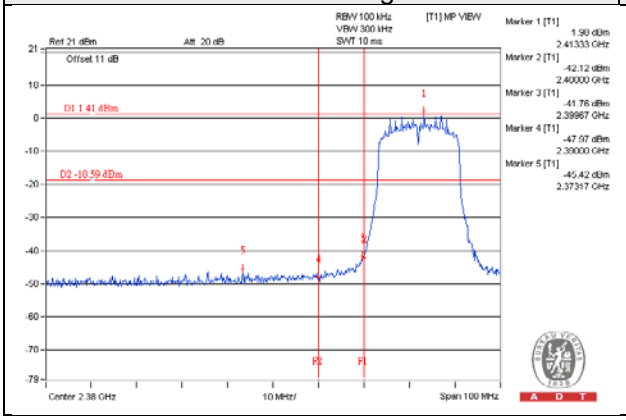
CH 6



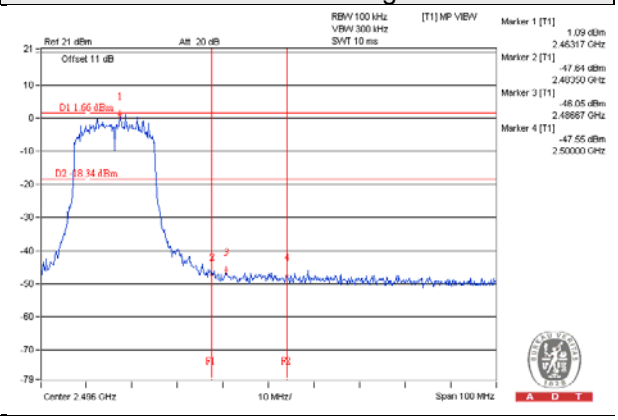
CH 11



CH 1 Band edge

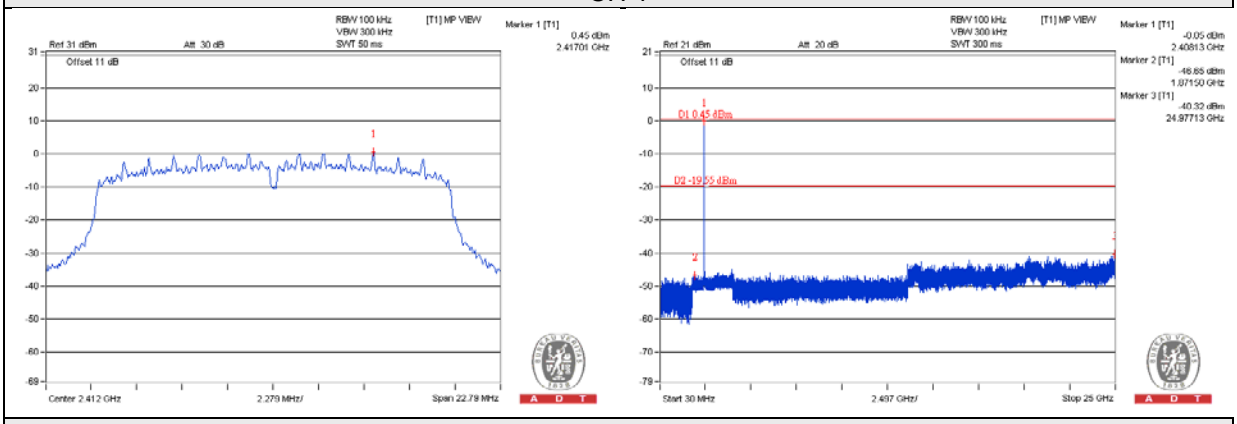


CH 11 Band edge

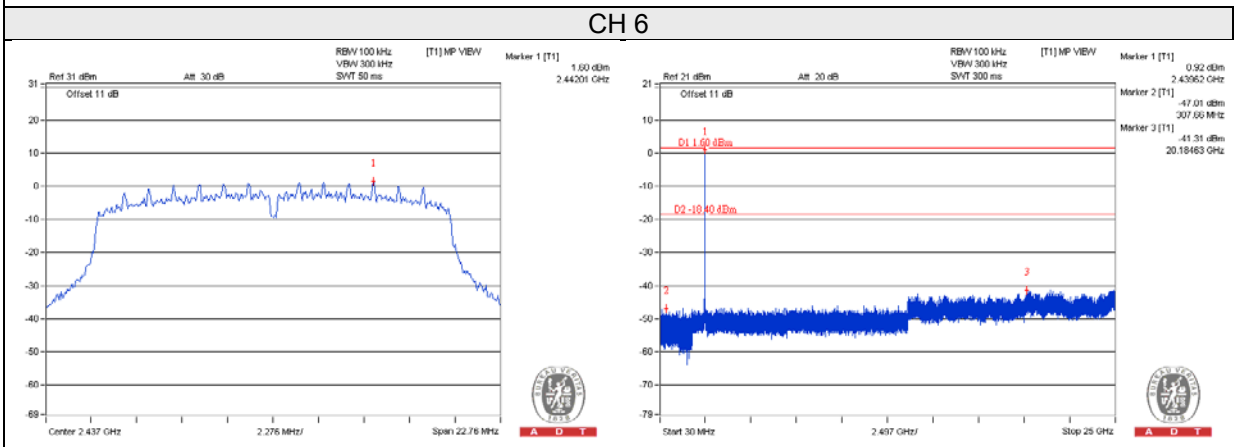


802.11n (HT20)_Chain 1

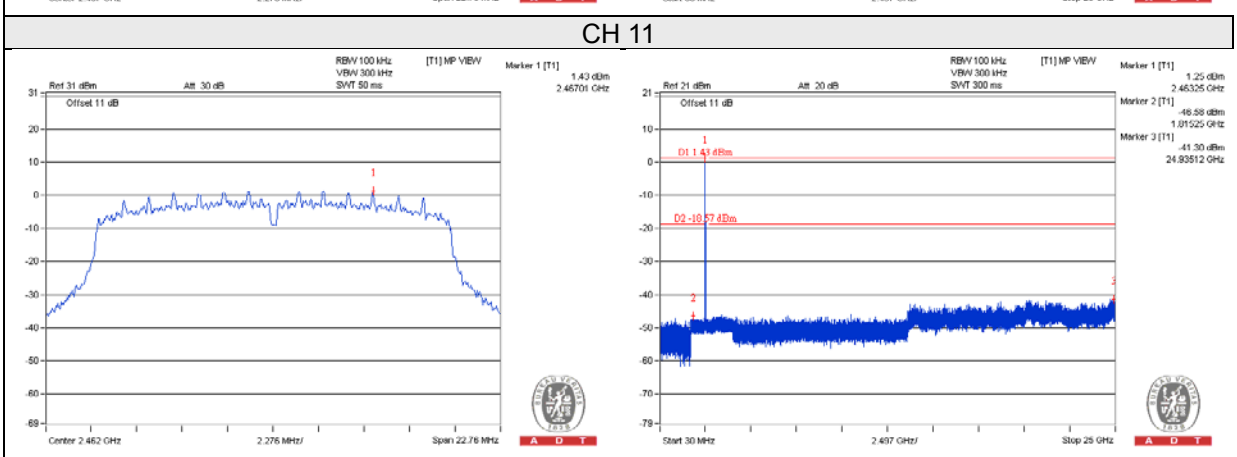
CH 1



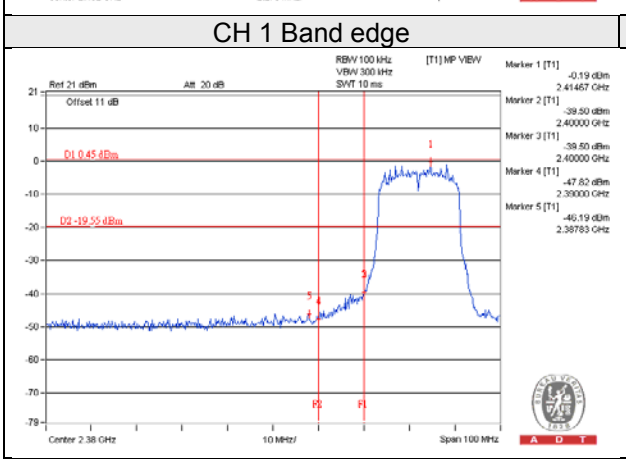
CH 6



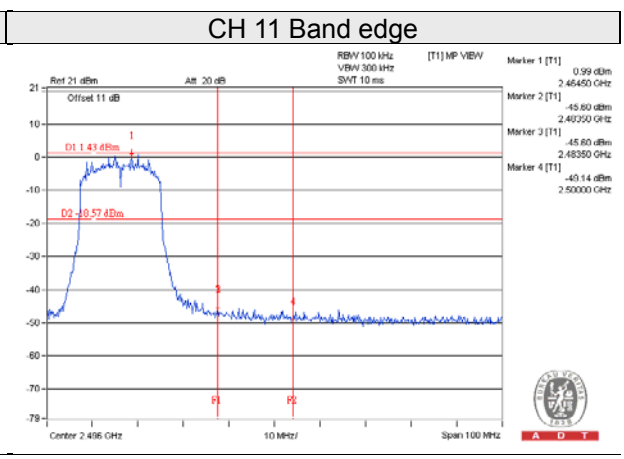
CH 11



CH 1 Band edge

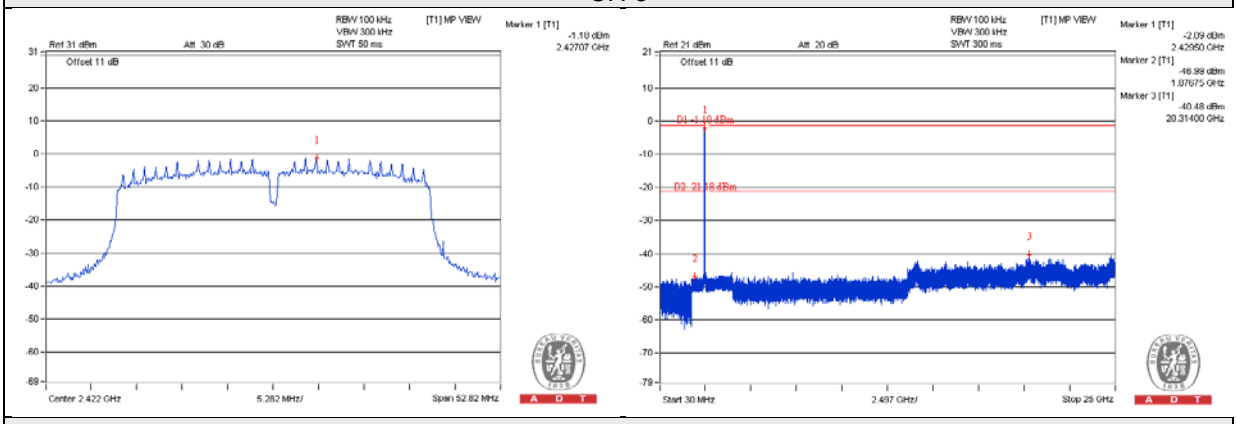


CH 11 Band edge

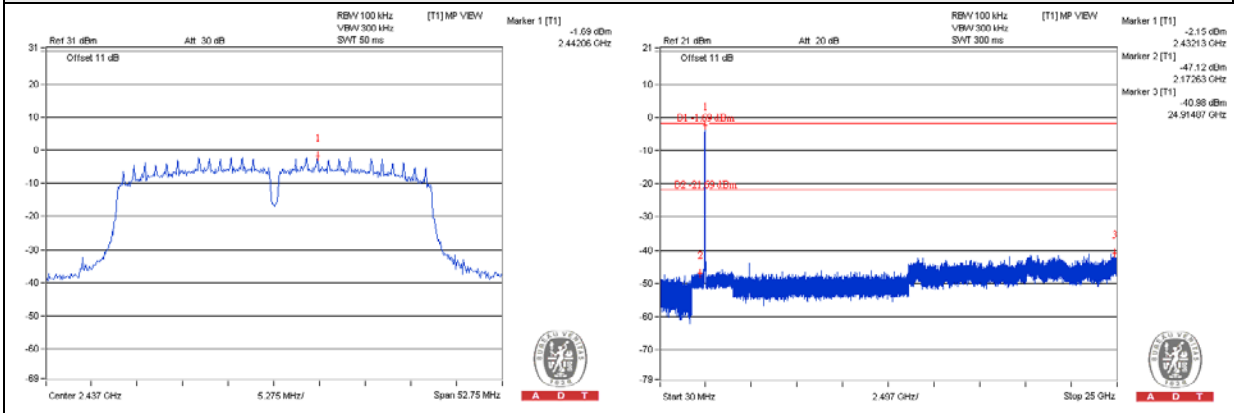


802.11n (HT40)_Chain 0

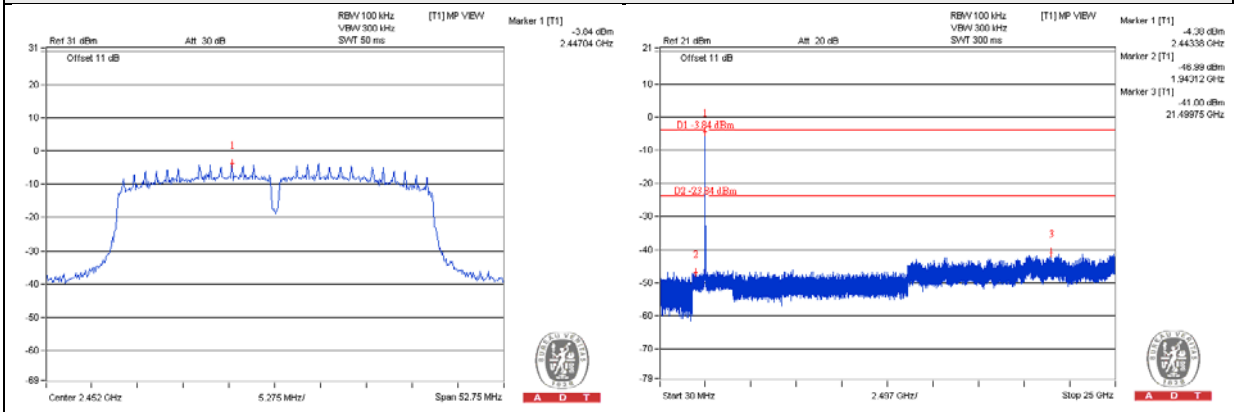
CH 3



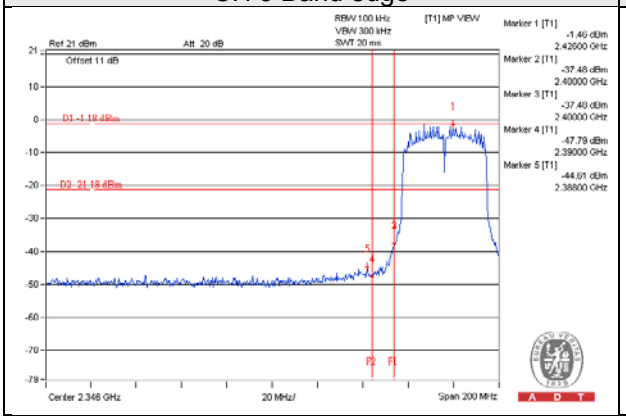
CH 6



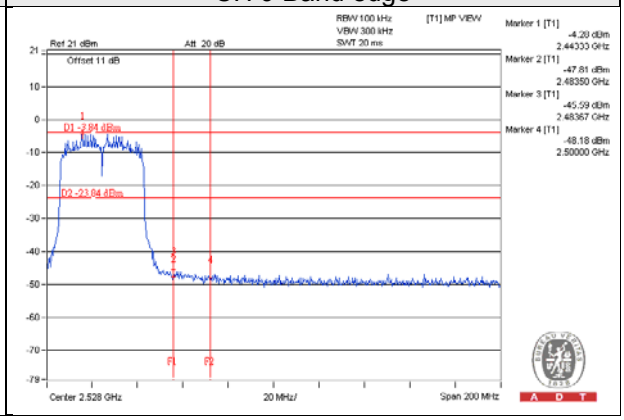
CH 9



CH 3 Band edge

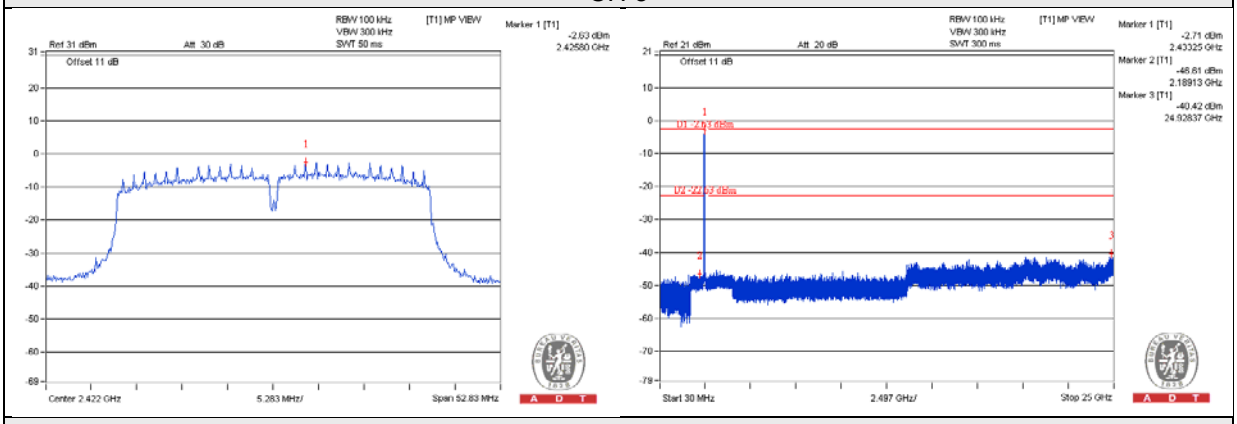


CH 9 Band edge

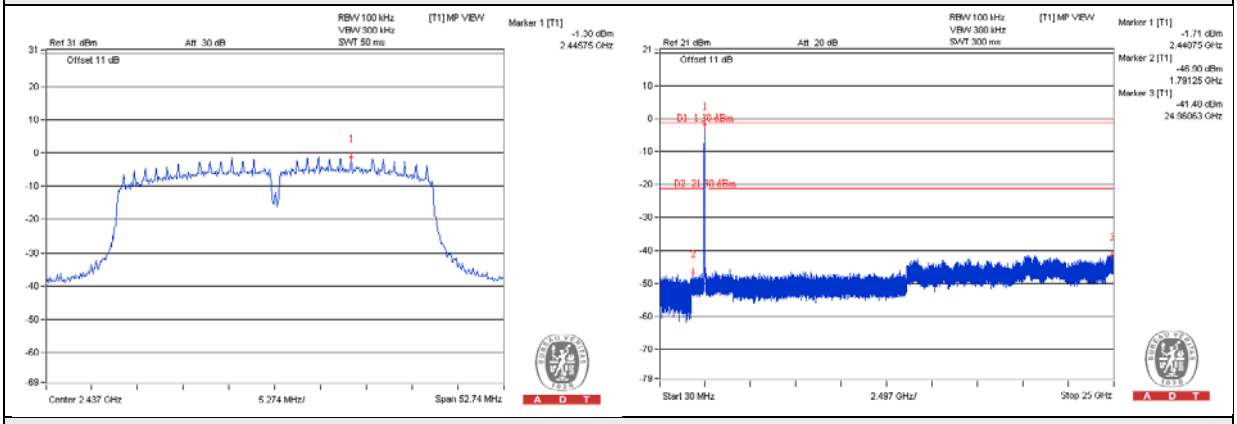


802.11n (HT40)_Chain 1

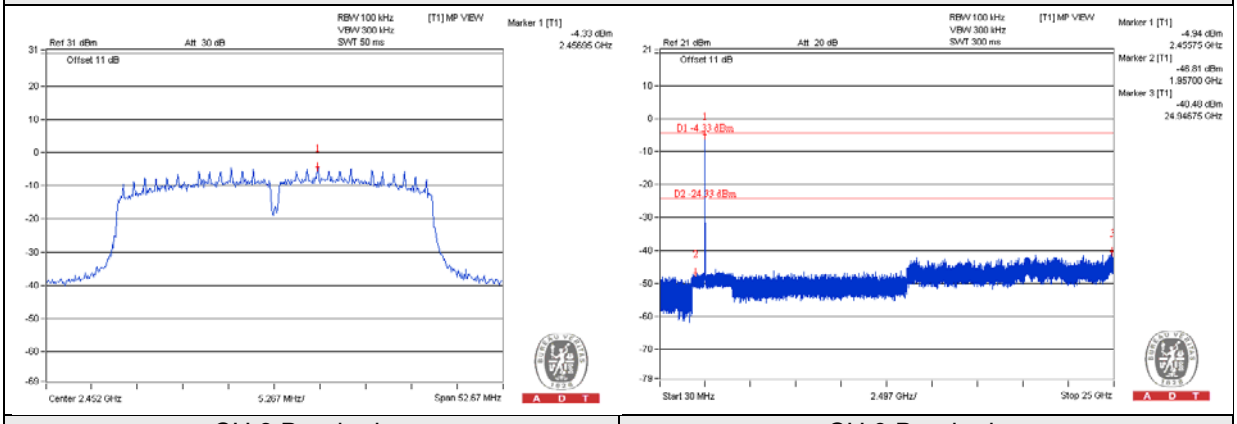
CH 3



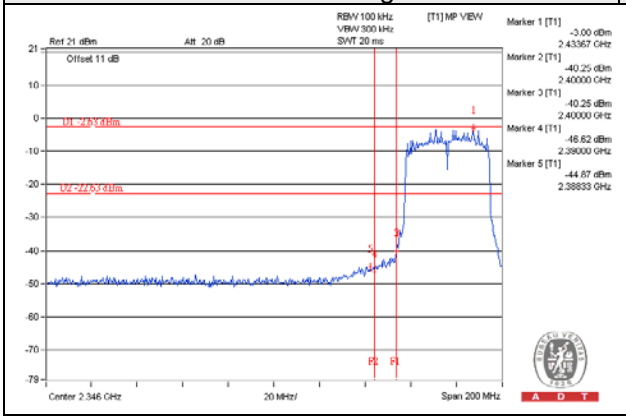
CH 6



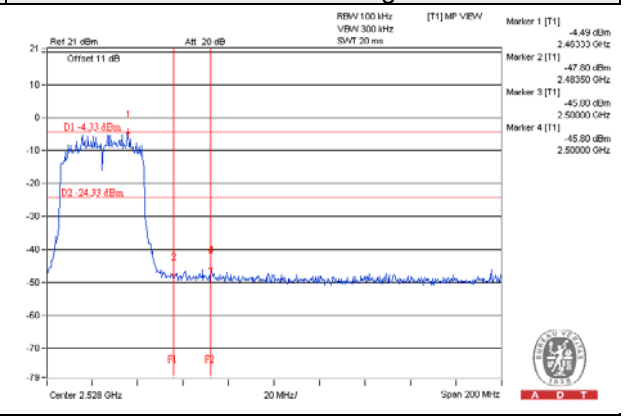
CH 9



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:

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

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

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