

FCC Test Report (WLAN)

Report No.: RF150706E06

FCC ID: PPD-QCASP241

Test Model: QCASP241

Received Date: July 06, 2015

Test Date: July 24 to Dec. 10, 2015

Issued Date: Dec. 17, 2015

Applicant: Qualcomm Atheros, Inc.

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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A D T

Release Control Record

Issue No.	Description	Date Issued
RF150706E06	Original release.	Dec. 17, 2015



A D T

1 Certificate of Conformity

Product: Low-Energy WiFi Single-Band 802.11b/g/n

Brand: Qualcomm Atheros

Test Model: QCASP241

Sample Status: R&D SAMPLE

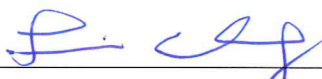
Applicant: Qualcomm Atheros, Inc.

Test Date: July 24 to Dec. 10, 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.

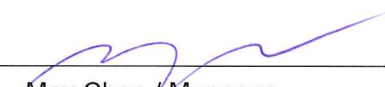
Prepared by :


Lori Chung / Specialist

Date:

Dec. 17, 2015

Approved by :


May Chen / Manager

Date:

Dec. 17, 2015

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (SECTION 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -9.94dB at 0.20031MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit.
15.247(d)	Antenna Port Emission	Pass	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	Pass	Meet the requirement of limit.
15.247(b)	Conducted power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is IPEX not a standard connector.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expended Uncertainty (k=2) ($\pm$)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.86 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.37 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz - Chamber G	3.65 dB
	1GHz ~ 6GHz - Chamber 3	3.40 dB
	6GHz ~ 18GHz - Chamber G	3.88 dB
	6GHz ~ 18GHz - Chamber 3	3.73 dB
	18GHz ~ 40GHz	4.11 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Low-Energy WiFi Single-Band 802.11b/g/n
Brand	Qualcomm Atheros
Test Model	QCASP241
Status of EUT	R&D SAMPLE
Power Supply Rating	3.3Vdc from host equipment
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11g: up to 54Mbps 802.11n : up to 150Mbps
Operating Frequency	2.412 ~ 2.472GHz
Number of Channel	13 for 802.11b/g, 802.11n (HT20) 9 for 802.11n (HT40)
Output Power	802.11b: 117.49mW 802.11g: 231.739mW 802.11n (HT20): 209.894mW 802.11n (HT40): 126.183mW
Antenna Type	See item 3.2
Antenna Connector	See item 3.2
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. The modular has two variant designs as following table:

Variant No.	Difference	TX & RX Configuration
SKU #1	External antenna version	1TX/1RX (RX support diversity function)
SKU #2	On board PCB antenna version	1TX/1RX (TX/RX fix Main)

2. The EUT incorporates a 1T1R function.

MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11b	1 ~ 11Mbps	1TX	1RX
802.11g	6 ~ 54Mbps	1TX	1RX
802.11n (HT20)	MCS 0~7	1TX	1RX
802.11n (HT40)	MCS 0~7	1TX	1RX

3. The EUT was pre-tested under the following modes:

Test Mode	Data rate
Mode A	400ns GI
Mode B	800ns GI

From the above modes, the worst case was found in **Mode B**. Therefore only the test data of the mode was recorded in this report.

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

3.2 Description of Antenna

The antenna gain was declared by client; please refer to the following table:

Set No.	Transmitter Circuit	Brand	Model	Ant. Type	2.4GHz Gain with cable loss (dBi)	2.4GHz Cable Loss (dB)	Connector Type	Cable Length (mm)
1	Chain (0)	WNC	81-EBJ15.005	PIFA	3.00	1.15	IPEX	300
	Chain (1)	WNC	81-EBJ15.005	PIFA	3.62	1.15	IPEX	300
Set No.	Transmitter Circuit	Brand		Model		Ant. Type		2.4GHz Gain with cable loss (dBi)
2	Chain (0)	QCA		QCASP241-Ant		PCB		0.85

Note: 1. Above antenna gains of antenna No. 1 is Total (H+V).

Following antenna combination(s) was (were) selected as representative mode for test or evaluate in this report as listed.

Set No.	Transmitter Circuit	Brand	Model	Ant. Type	2.4GHz Gain with cable loss (dBi)	2.4GHz Cable Loss (dB)	Connector Type	Cable Length (mm)
1	Chain (0)+(1)	WNC	81-EBJ15.005	PIFA	3.62	1.15	IPEX	300

For QCASP241 SKU#1, the main or aux antenna port all equip the same antenna of highest gain for each frequency band.

3.3 Description of Test Modes

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

Channel	Frequency	Channel	Frequency
1	2412MHz	8	2447MHz
2	2417MHz	9	2452MHz
3	2422MHz	10	2457MHz
4	2427MHz	11	2462MHz
5	2432MHz	12	2467MHz
6	2437MHz	13	2472MHz
7	2442MHz		

9 channels are provided for 802.11n (HT40):

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

3.3.1 Test Mode Applicability and Tested Channel Detail

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

Where **UE $\geq$ 1G:** Unwanted Emission above 1GHz **UE < 1G:** Unwanted Emission below 1GHz
PLC: Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

Unwanted 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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11b	1 to 13	1, 6, 11, 12, 13	DSSS	1
802.11g	1 to 13	1, 6, 11, 12, 13	OFDM	6
802.11n (HT20)	1 to 13	1, 6, 11, 12, 13	OFDM	6.5
802.11n (HT40)	3 to 11	3, 6, 9, 10, 11	OFDM	13.5

Unwanted 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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11g	1 to 13	6	OFDM	6

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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11g	1 to 13	6	OFDM	6

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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	DATA RATE (Mbps)
802.11b	1 to 13	1, 6, 11, 12, 13	DSSS	1
802.11g	1 to 13	1, 6, 11, 12, 13	OFDM	6
802.11n (HT20)	1 to 13	1, 6, 11, 12, 13	OFDM	6.5
802.11n (HT40)	3 to 11	3, 6, 9, 10, 11	OFDM	13.5

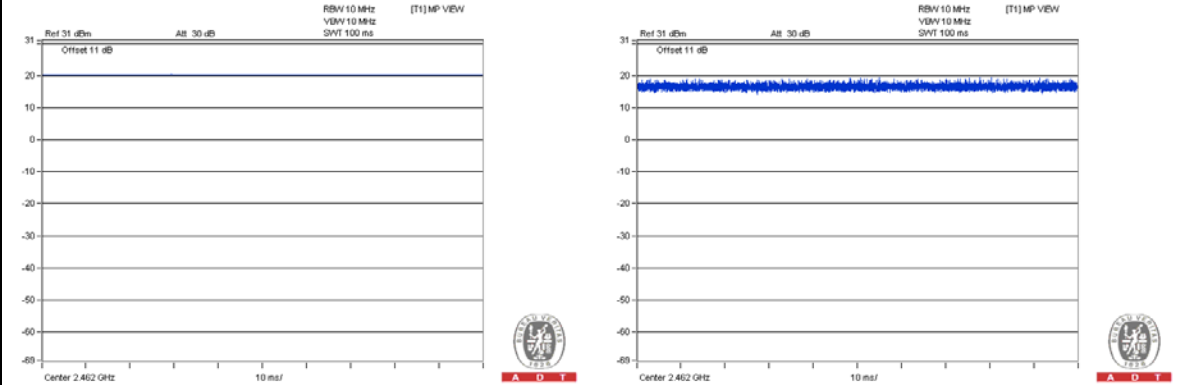
Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
UE $\geq$ 1G	20deg. C, 67%RH 22deg. C, 68%RH	120Vac, 60Hz	Andy Ho
UE<1G	18deg. C, 65%RH	120Vac, 60Hz	Andy Ho
PLC	23deg. C, 65%RH	120Vac, 60Hz	Wythe Lin
APCM	25deg. C, 60%RH	120Vac, 60Hz	Anderson Chen

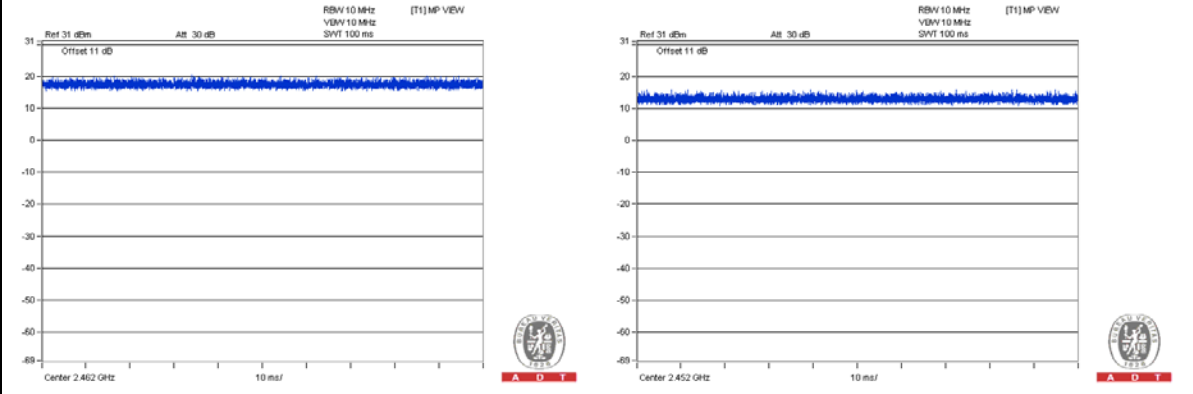
3.4 Duty Cycle of Test Signal

Duty cycle of test signal is 100 %, duty factor is not required.

802.11b 802.11g



802.11n (HT20) 802.11n (HT40)



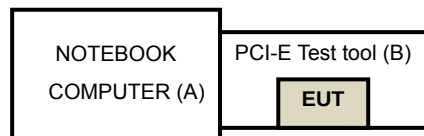
3.5 Description of Support Units

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

No.	Product	Brand	Model No.	Serial No.	FCC ID	Remark
A	NOTEBOOK COMPUTER	Lenovo	0769	NA	NA	Supplied by Client
B	PCI-E Test tool	Qualcomm Atheros	NA	NA	NA	Supplied by Client

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

3.5.1 Configuration of System under Test



3.6 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of 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
ANSI C63.10- 2013

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

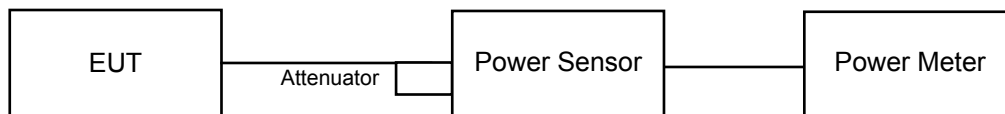
4 Test Types and Results

4.1 Conducted Output Power Measurement

4.1.1 Limits of Conducted Output Power Measurement

For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

4.1.2 Test Setup



4.1.3 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Power Meter Anritsu	ML2495A	1014008	Apr. 28, 2015	Apr. 27, 2016
Power Sensor Anritsu	MA2411B	0917122	Apr. 28, 2015	Apr. 27, 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. Tested date : July 31, 2015

4.1.4 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.

4.1.5 Deviation from Test Standard

No deviation.

4.1.6 EUT Operating Conditions

The software (QCART Version: 3.0.33.0) provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.1.7 Test Results

FOR PEAK POWER

802.11b

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	112.46	20.51	30	Pass
6	2437	117.49	20.70	30	Pass
11	2462	110.917	20.45	30	Pass
12	2467	37.154	15.70	30	Pass
13	2472	24.099	13.82	30	Pass

802.11g

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	229.615	23.61	30	Pass
6	2437	231.739	23.65	30	Pass
11	2462	142.561	21.54	30	Pass
12	2467	76.56	18.84	30	Pass
13	2472	10.257	10.11	30	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
1	2412	198.153	22.97	30	Pass
6	2437	209.894	23.22	30	Pass
11	2462	114.025	20.57	30	Pass
12	2467	74.473	18.72	30	Pass
13	2472	6.471	8.11	30	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass/Fail
3	2422	79.799	19.02	30	Pass
6	2437	126.183	21.01	30	Pass
9	2452	67.143	18.27	30	Pass
10	2457	26.303	14.20	30	Pass
11	2462	4.677	6.70	30	Pass

FOR AVERAGE POWER

802.11b

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	64.417	18.09
6	2437	69.502	18.42
11	2462	65.917	18.19
12	2467	22.131	13.45
13	2472	14.256	11.54

802.11g

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	59.566	17.75
6	2437	69.343	18.41
11	2462	36.475	15.62
12	2467	18.880	12.76
13	2472	2.754	4.40

802.11n (HT20)

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
1	2412	44.566	16.49
6	2437	65.464	18.16
11	2462	27.040	14.32
12	2467	18.072	12.57
13	2472	1.683	2.26

802.11n (HT40)

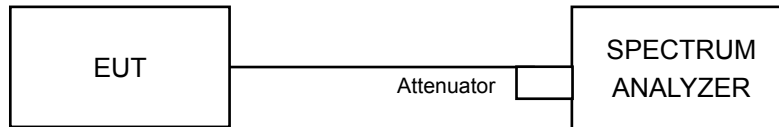
Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)
3	2422	25.119	14.00
6	2437	39.174	15.93
9	2452	21.086	13.24
10	2457	8.790	9.44
11	2462	1.574	1.97

4.2 Power Spectral Density Measurement

4.2.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm.

4.2.2 Test Setup



4.2.3 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER R&S	FSP 40	100060	May 08, 2015	May 07, 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. Tested date : July 31, 2015

4.2.4 Test Procedures

- 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: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- d. Set the VBW $\geq 3 \times \text{RBW}$.
- 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.

4.2.5 Deviation from Test Standard

No deviation.

4.2.6 EUT Operating Conditions

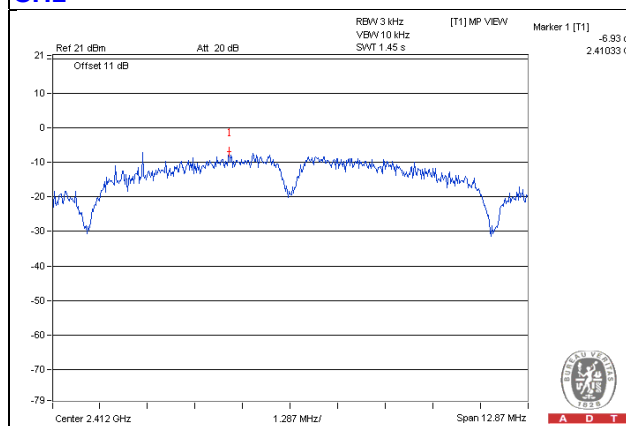
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.2.7 Test Results

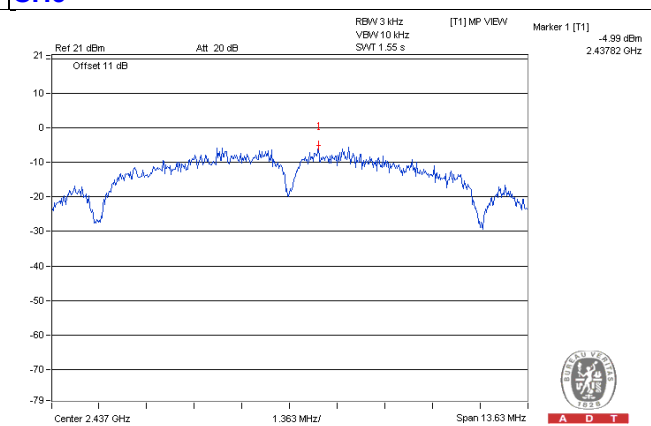
802.11b

Channel	Freq. (MHz)	PSD (dBm)	Limit (dBm)	Pass /Fail
1	2412	-6.93	8	Pass
6	2437	-4.99	8	Pass
11	2462	-5.69	8	Pass
12	2467	-8.72	8	Pass
13	2472	-11.79	8	Pass

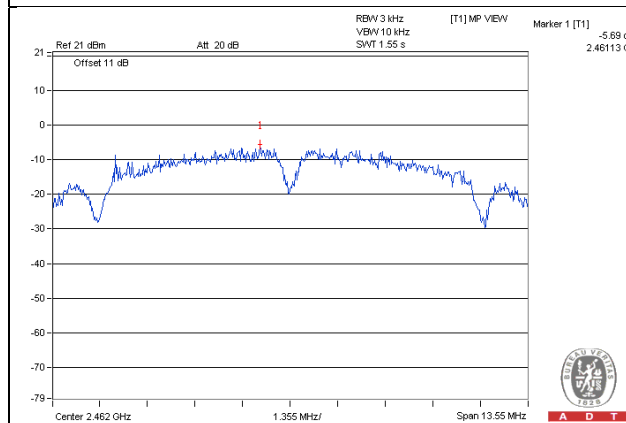
CH1



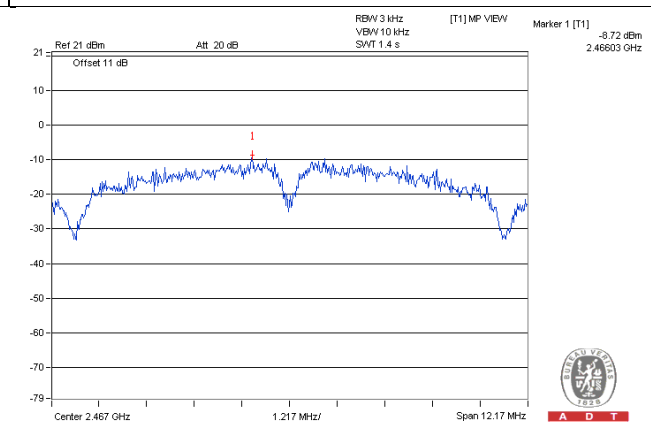
CH6



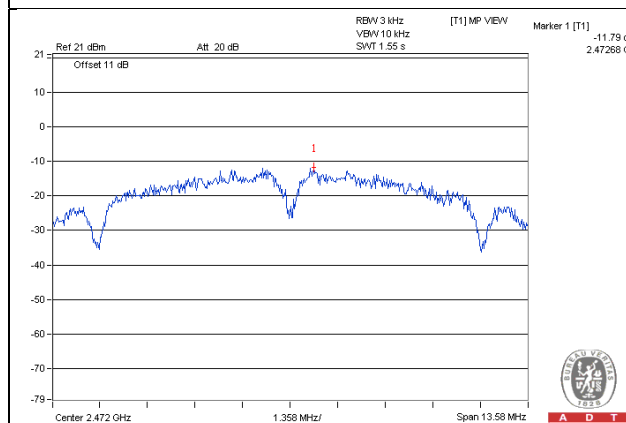
CH11



CH12



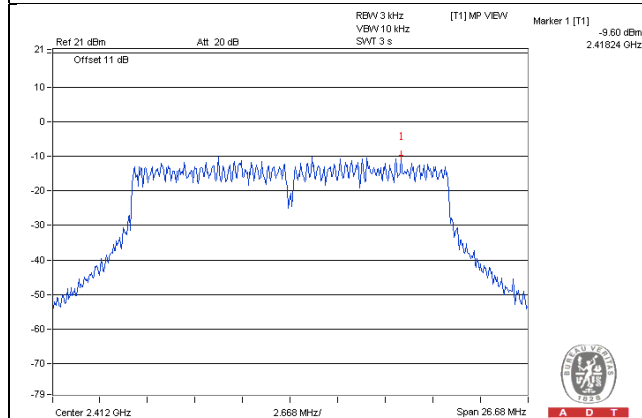
CH13



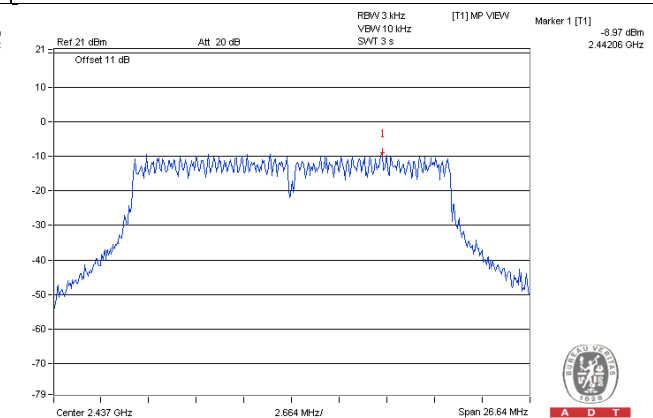
802.11g

Channel	Freq. (MHz)	PSD (dBm)	Limit (dBm)	Pass /Fail
1	2412	-9.60	8	Pass
6	2437	-8.97	8	Pass
11	2462	-11.00	8	Pass
12	2467	-12.29	8	Pass
13	2472	-21.76	8	Pass

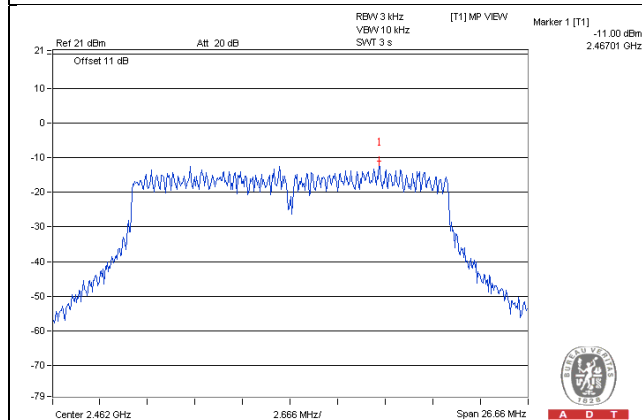
CH1



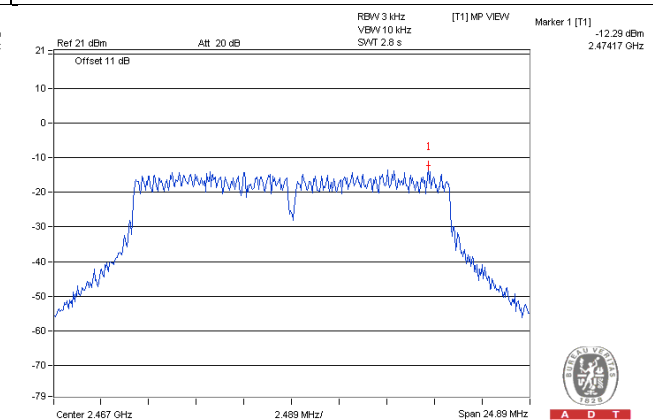
CH6



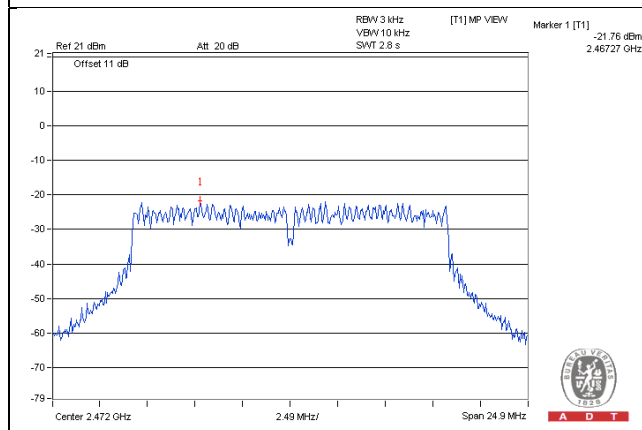
CH11



CH12



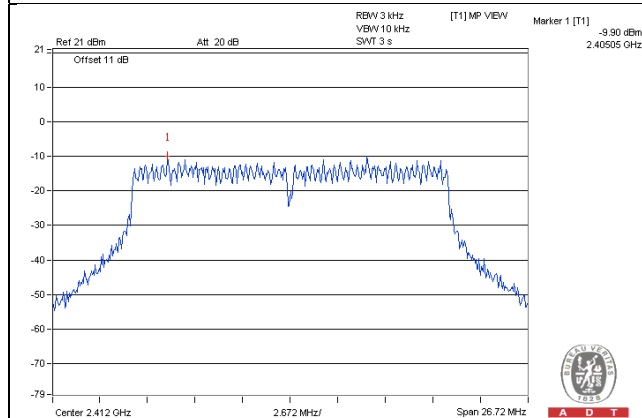
CH13



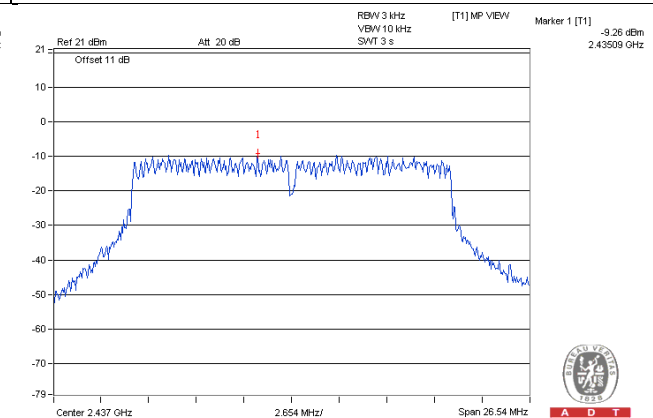
802.11n (HT20)

Channel	Freq. (MHz)	PSD (dBm)	Limit (dBm)	Pass /Fail
1	2412	-9.90	8	Pass
6	2437	-9.26	8	Pass
11	2462	-11.62	8	Pass
12	2467	-13.97	8	Pass
13	2472	-24.08	8	Pass

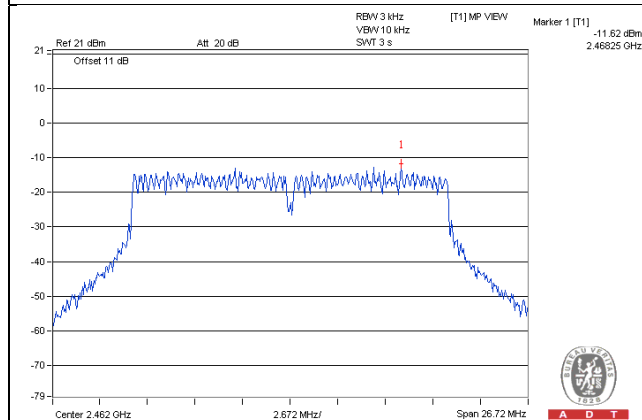
CH1



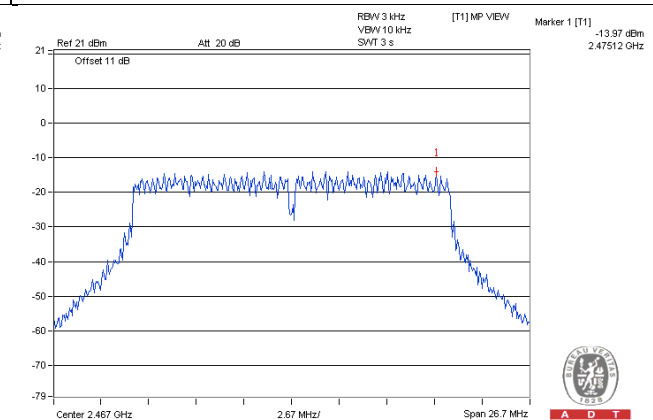
CH6



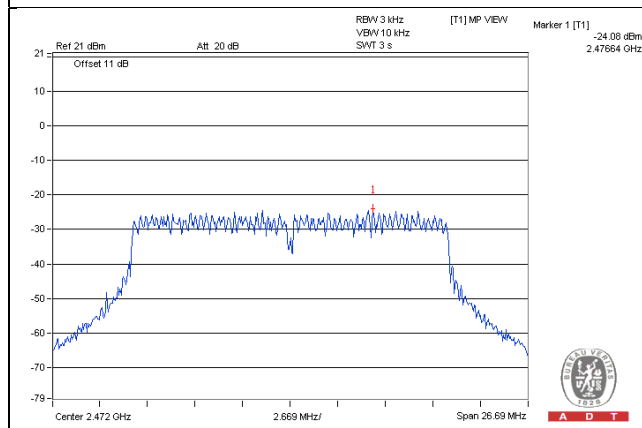
CH11



CH12



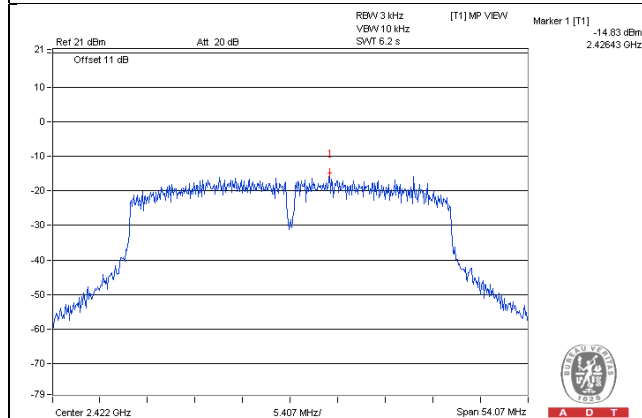
CH13



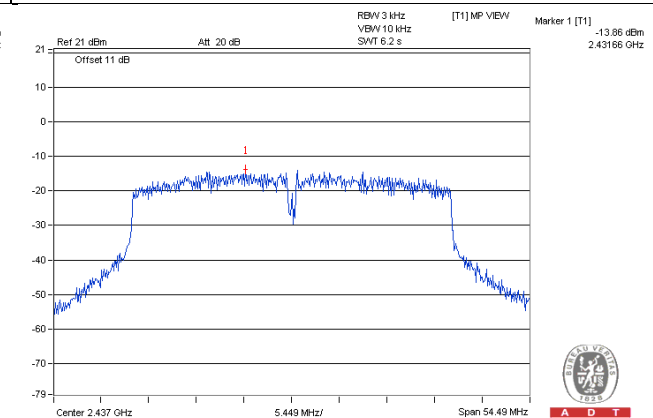
802.11n (HT40)

Channel	Freq. (MHz)	PSD (dBm)	Limit (dBm)	Pass /Fail
3	2422	-14.83	8	Pass
6	2437	-13.86	8	Pass
9	2452	-16.63	8	Pass
10	2457	-19.07	8	Pass
11	2462	-26.50	8	Pass

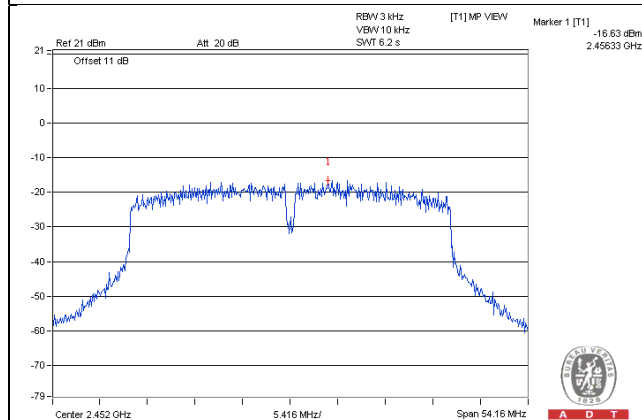
CH3



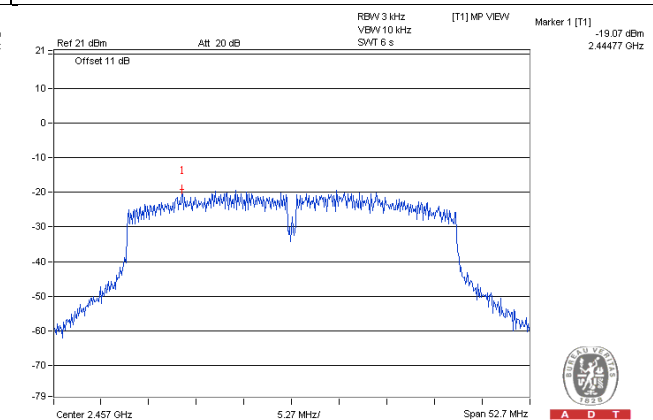
CH6



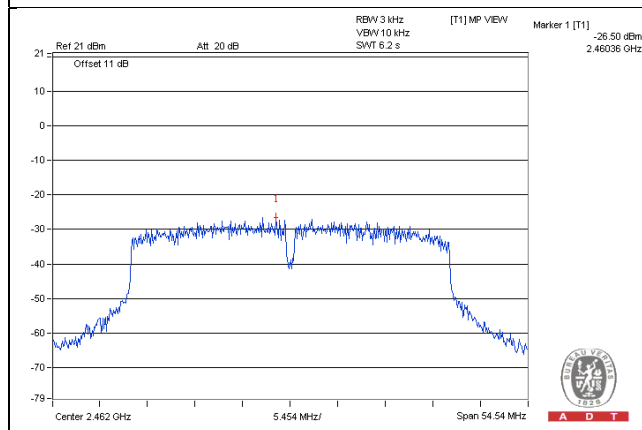
CH9



CH10



CH11

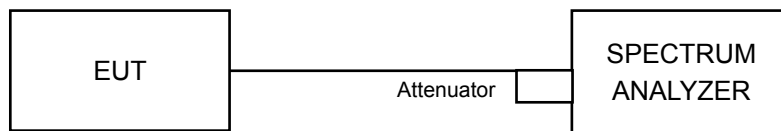


4.3 6dB Bandwidth Measurement

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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER R&S	FSP 40	100060	May 08, 2015	May 07, 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. Tested date : July 31, 2015

4.3.4 Test Procedures

- a. Set resolution bandwidth (RBW) = 100kHz
- b. Set the video bandwidth (VBW) $\geq 3 \times$ 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

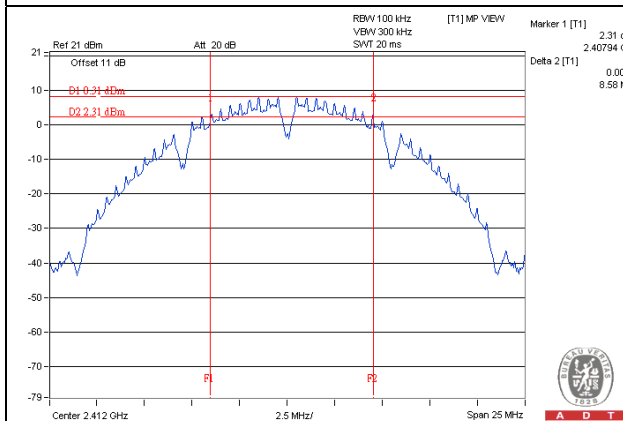
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 Test Results

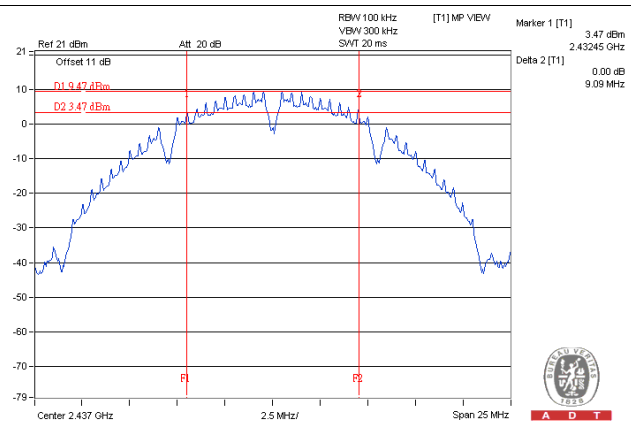
802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	8.58	0.5	Pass
6	2437	9.09	0.5	Pass
11	2462	9.04	0.5	Pass
12	2467	8.12	0.5	Pass
13	2472	9.06	0.5	Pass

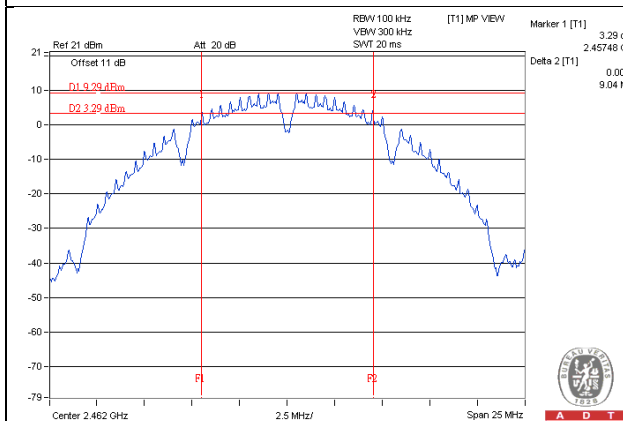
CH1



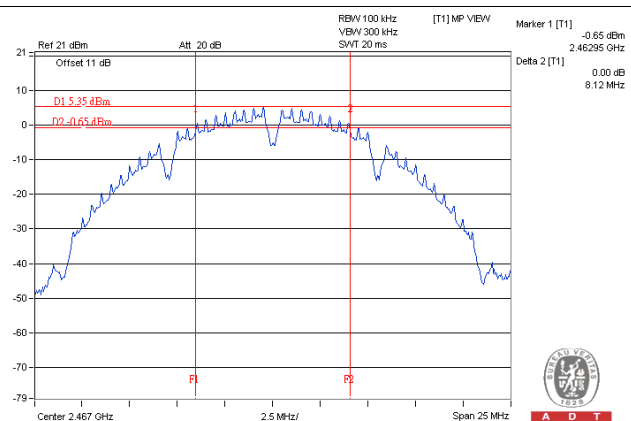
CH6



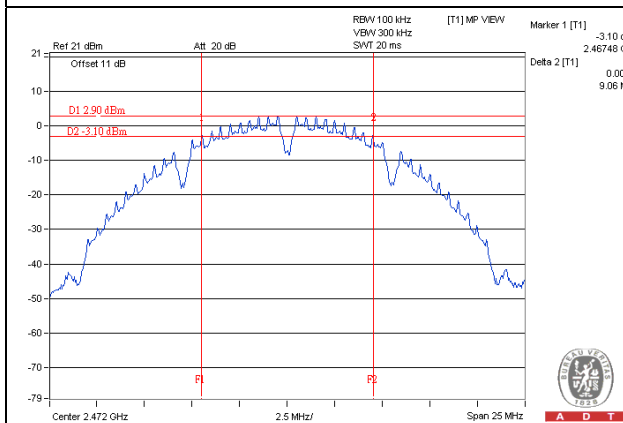
CH11



CH12



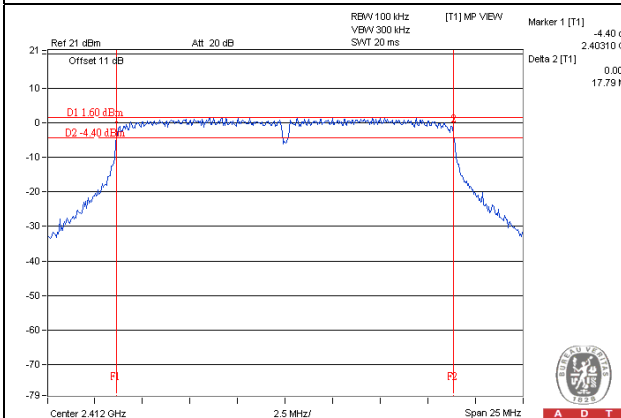
CH13



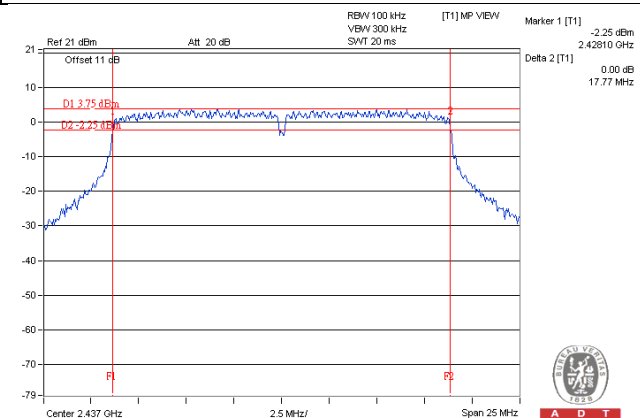
802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	17.79	0.5	Pass
6	2437	17.77	0.5	Pass
11	2462	17.78	0.5	Pass
12	2467	16.59	0.5	Pass
13	2472	16.60	0.5	Pass

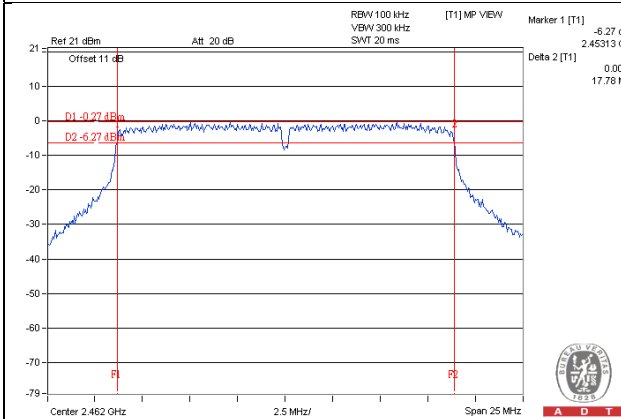
CH1



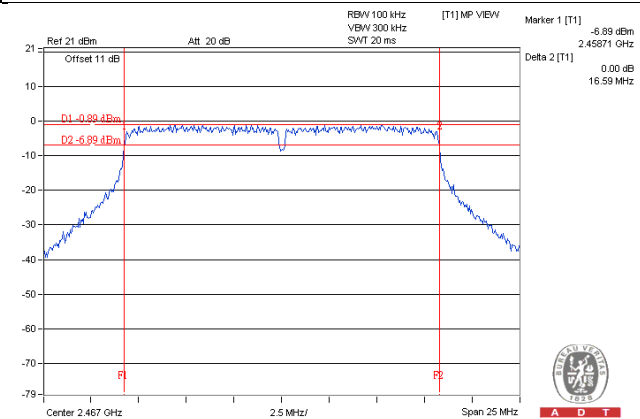
CH6



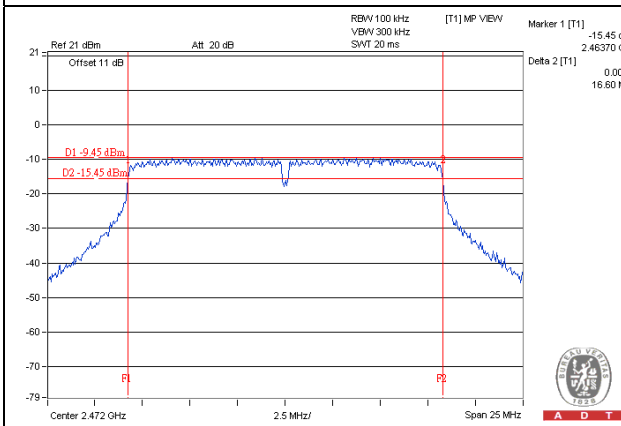
CH11



CH12



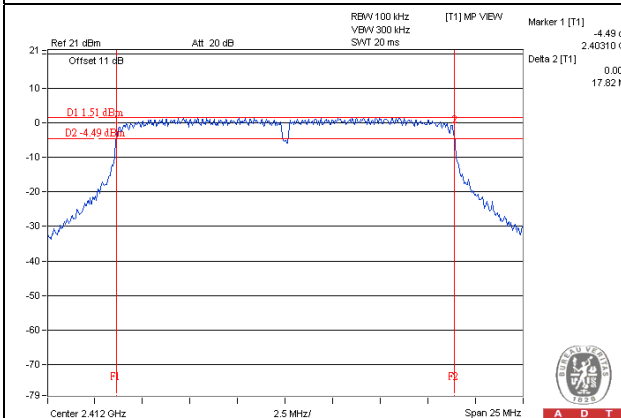
CH13



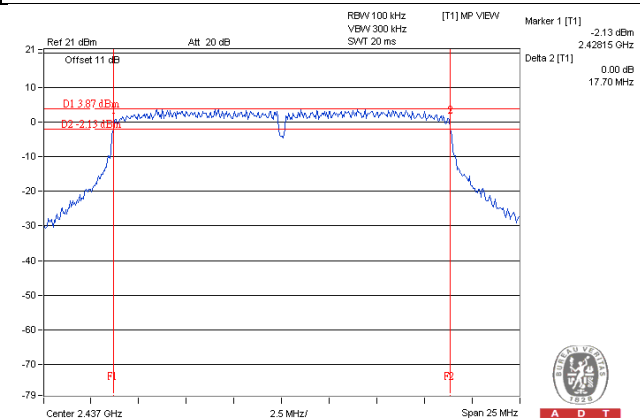
802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	17.82	0.5	Pass
6	2437	17.70	0.5	Pass
11	2462	17.82	0.5	Pass
12	2467	17.80	0.5	Pass
13	2472	17.80	0.5	Pass

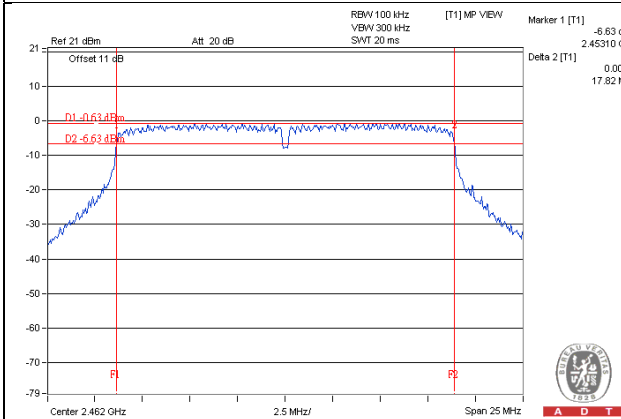
CH1



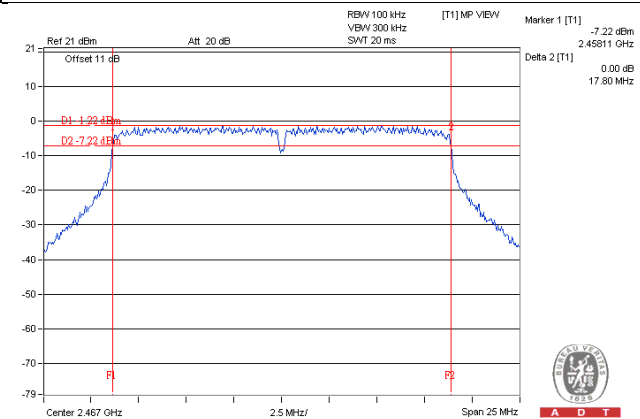
CH6



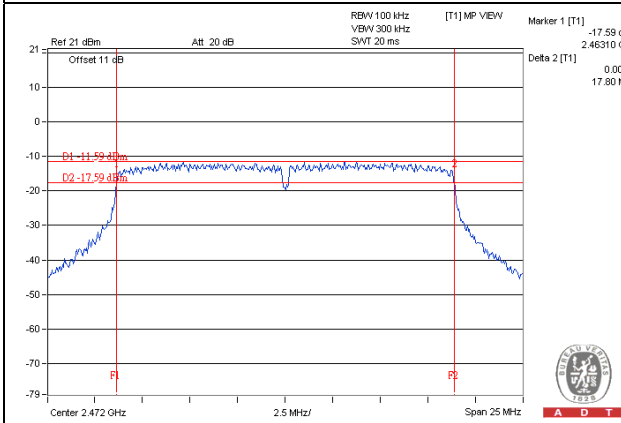
CH11



CH12



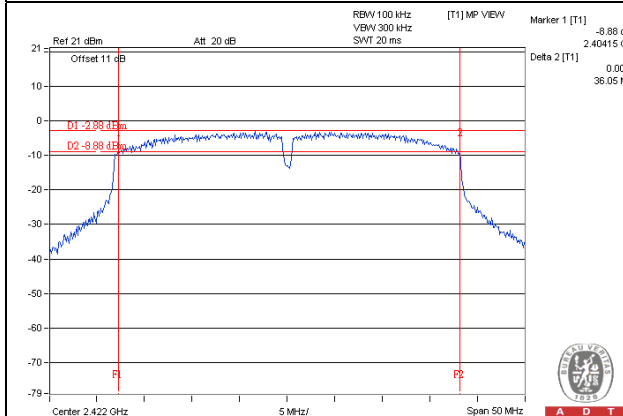
CH13



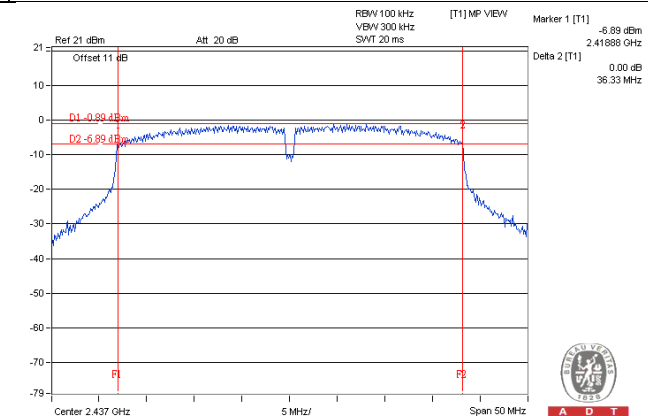
802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
3	2422	36.05	0.5	Pass
6	2437	36.33	0.5	Pass
9	2452	36.11	0.5	Pass
10	2457	35.13	0.5	Pass
11	2462	36.37	0.5	Pass

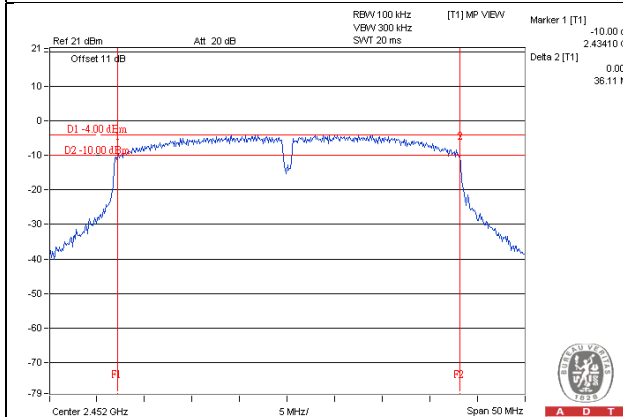
CH3



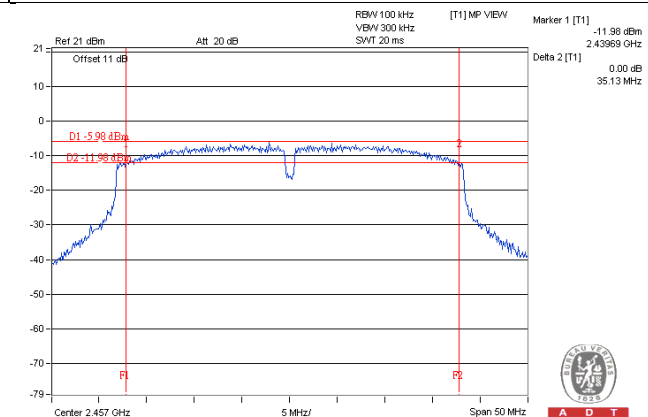
CH6



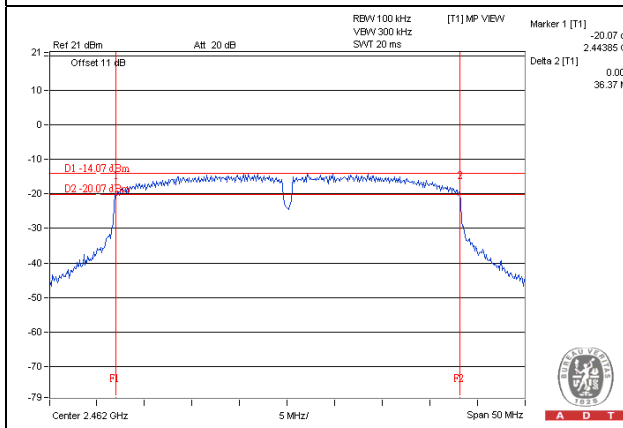
CH9



CH10



CH11

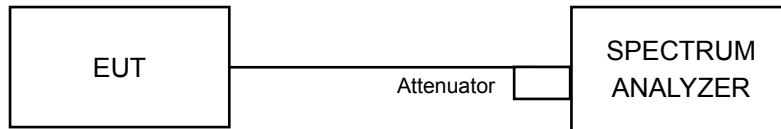


4.4 Conducted Out of Band Emission Measurement

4.4.1 Limits of Conducted Out of Band Emission Measurement

Below 20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.4.2 Test Setup



4.4.3 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
SPECTRUM ANALYZER R&S	FSP 40	100060	May 08, 2015	May 07, 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. Tested date : July 31, 2015

4.4.4 Test Procedures

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOB

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

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

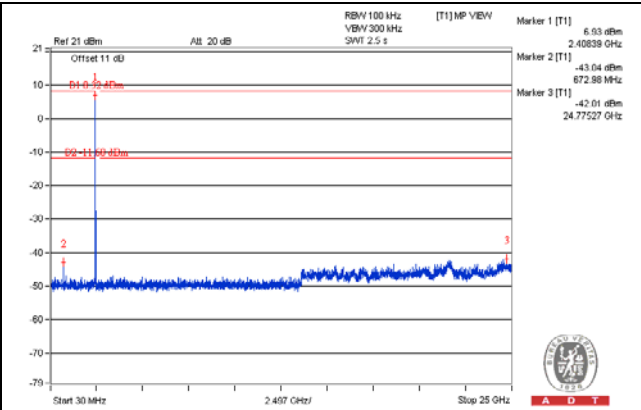
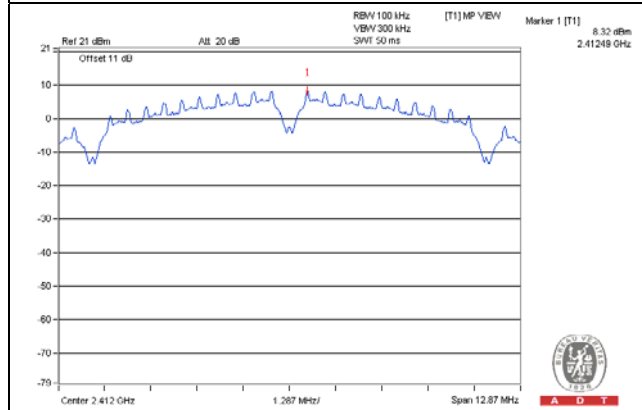
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.4.7 Test Results

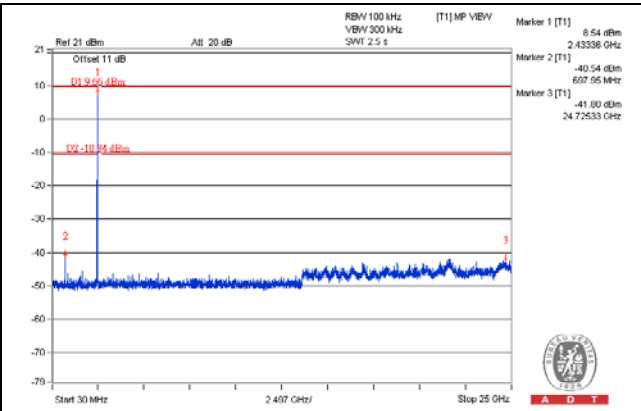
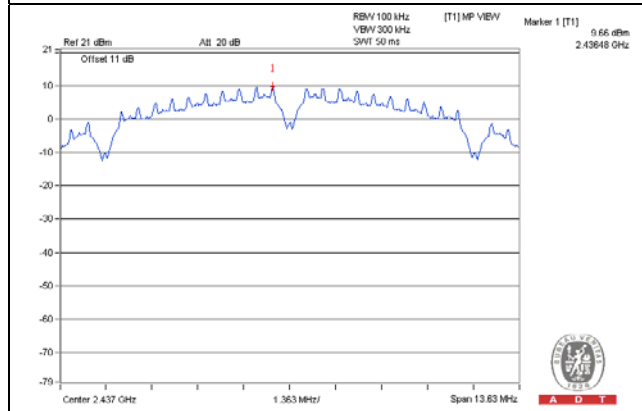
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

802.11b

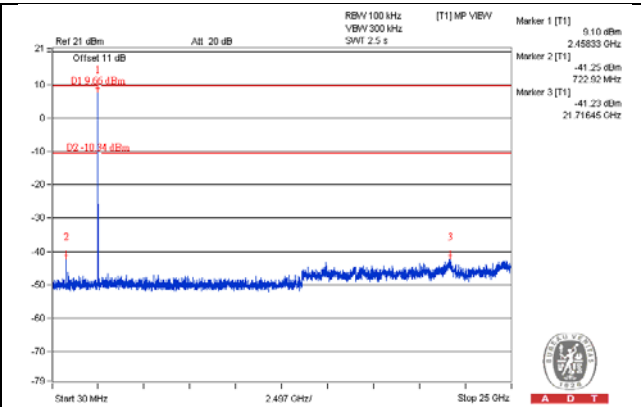
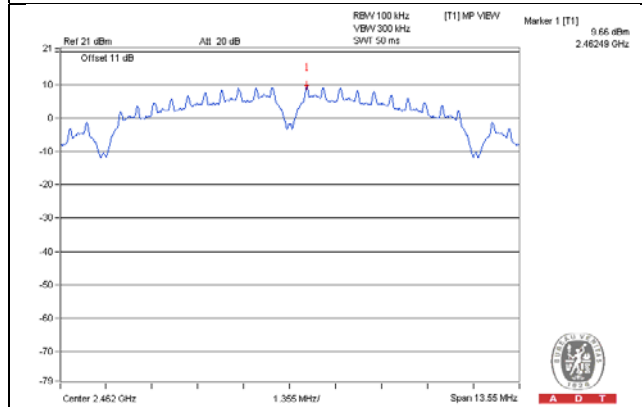
CH 1



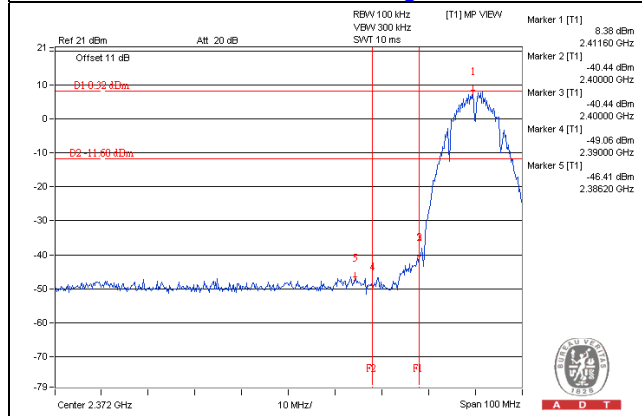
CH 6



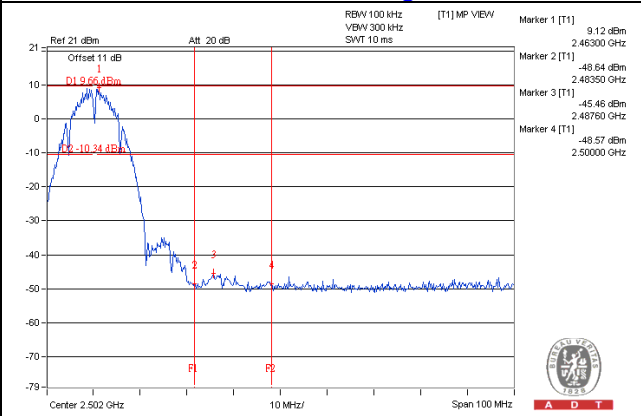
CH 11



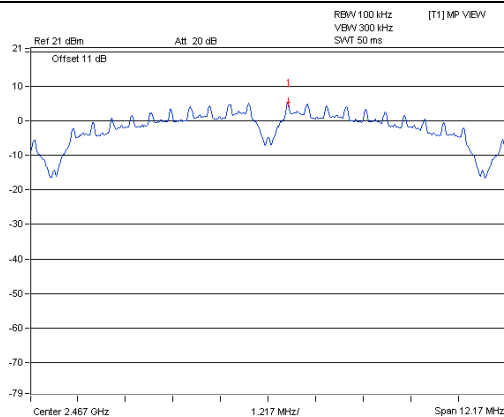
CH 1 Band edge



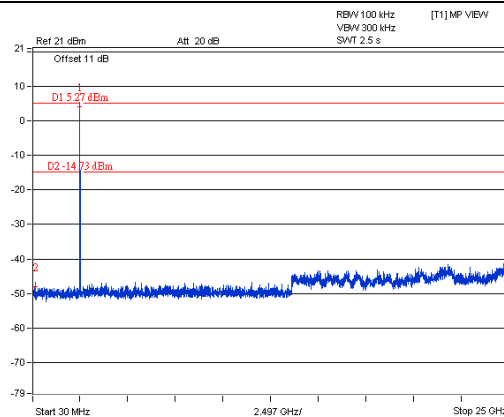
CH 11 Band edge



CH 12

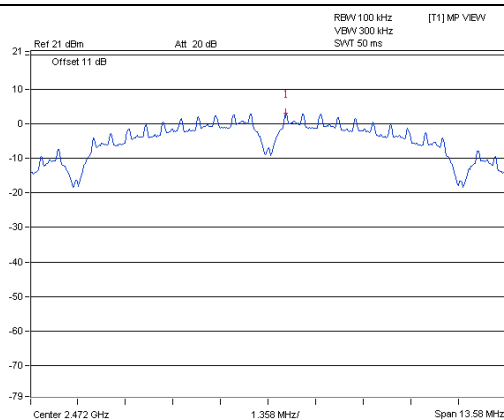


A D T

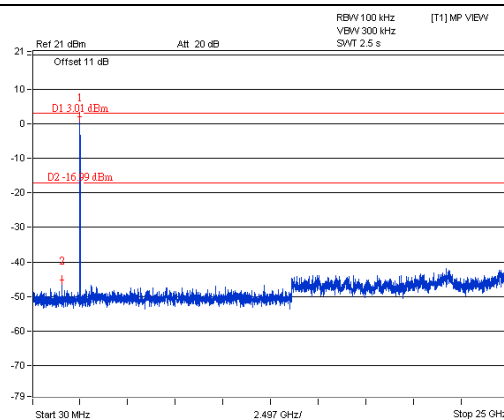


A D T

CH 13

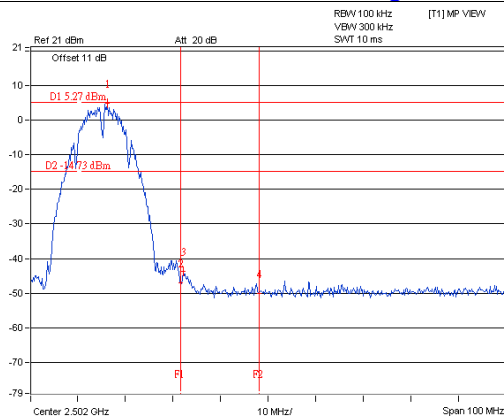


A D T



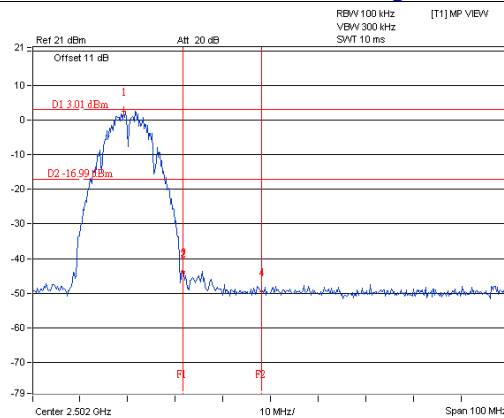
A D T

CH 12 Band edge



A D T

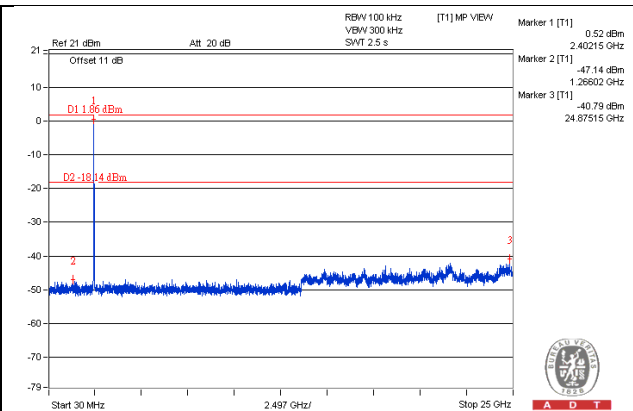
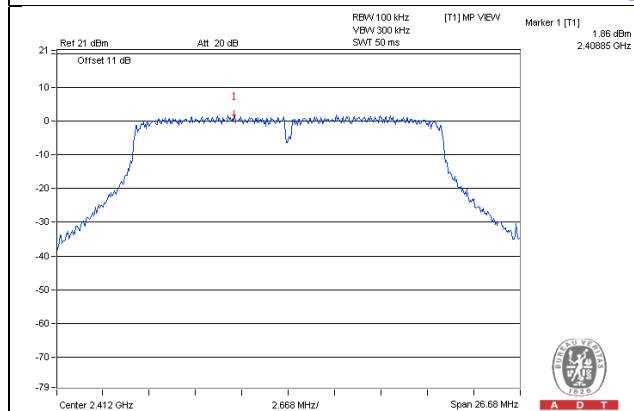
CH 13 Band edge



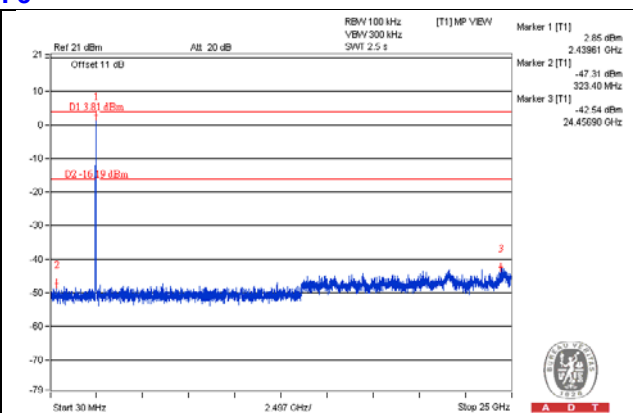
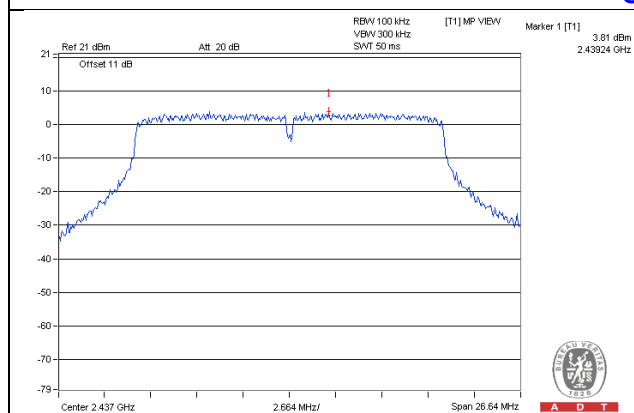
A D T

802.11g

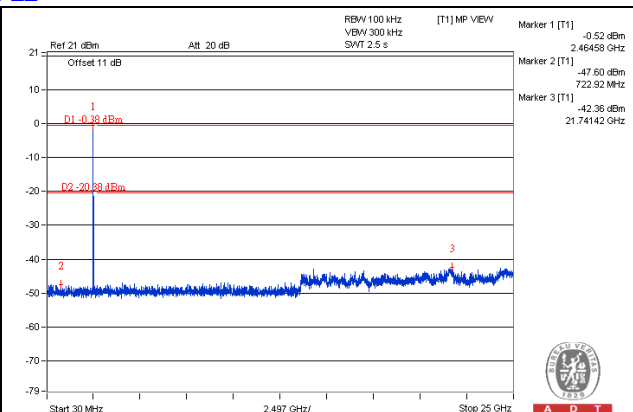
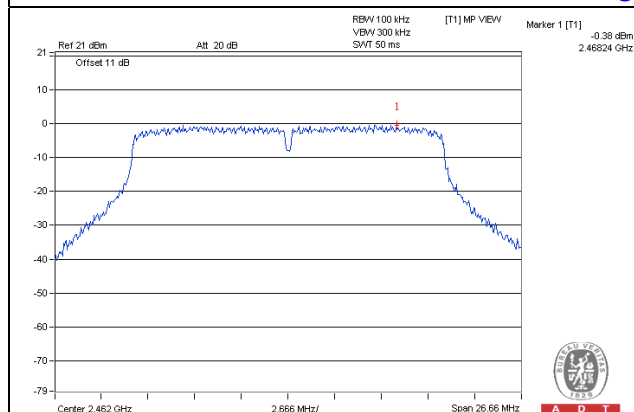
CH 1



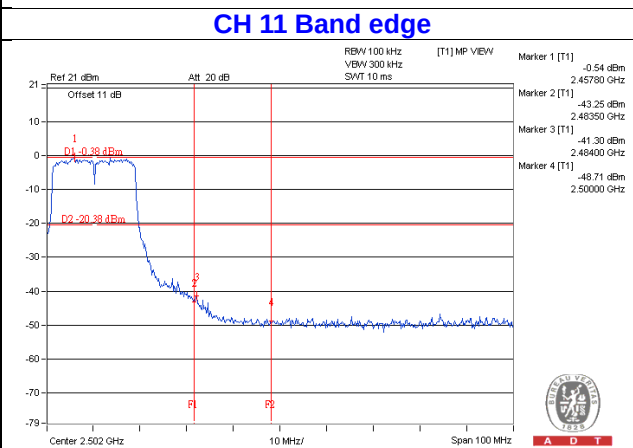
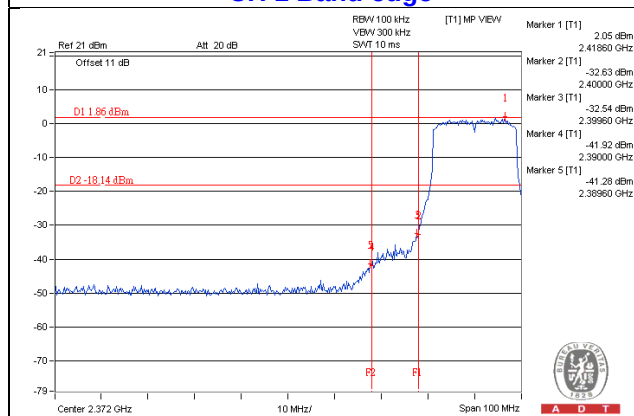
CH 6



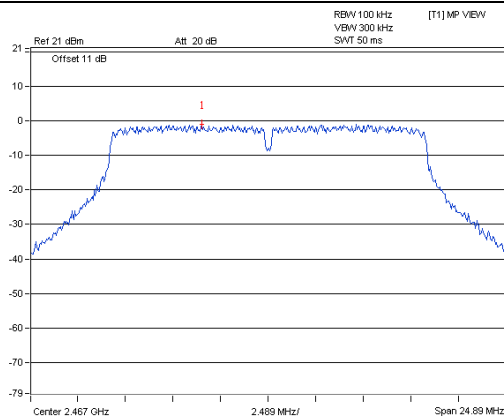
CH 11



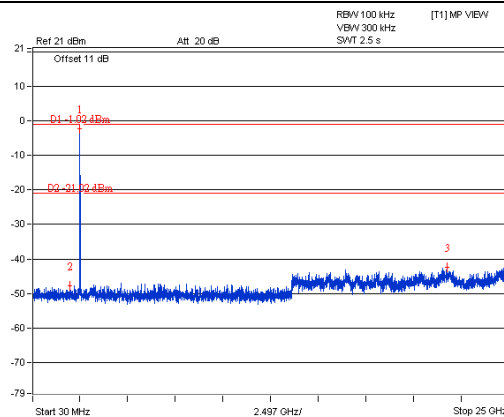
CH 1 Band edge



CH 12

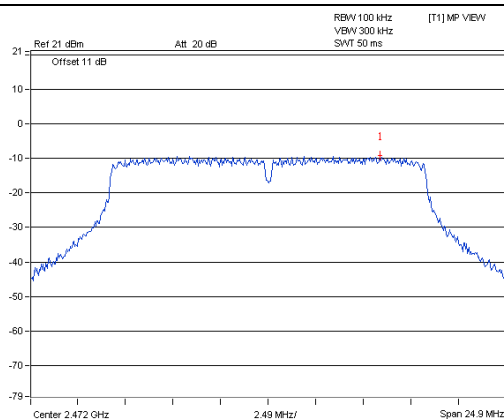


A D T

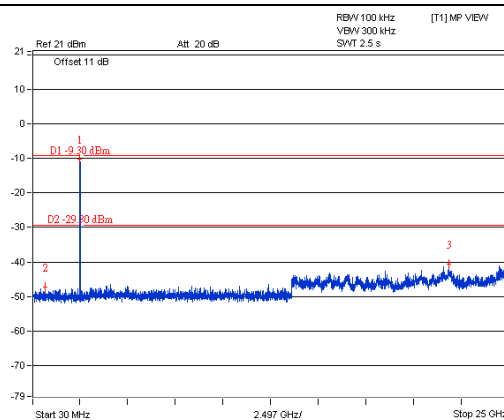


A D T

CH 13

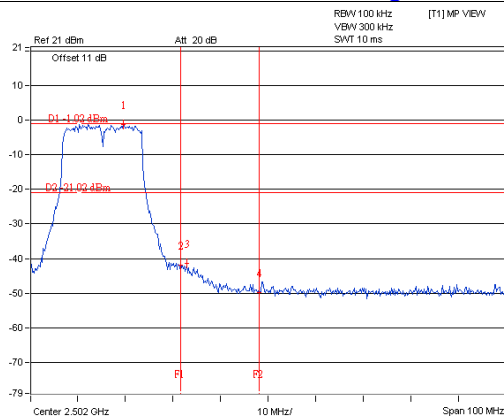


A D T



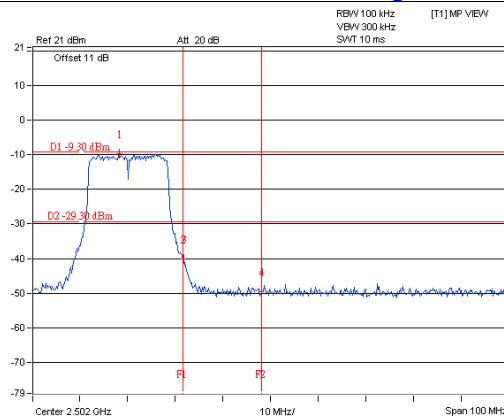
A D T

CH 12 Band edge



A D T

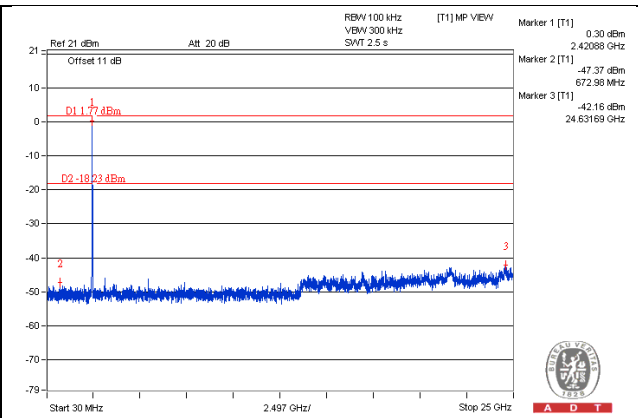
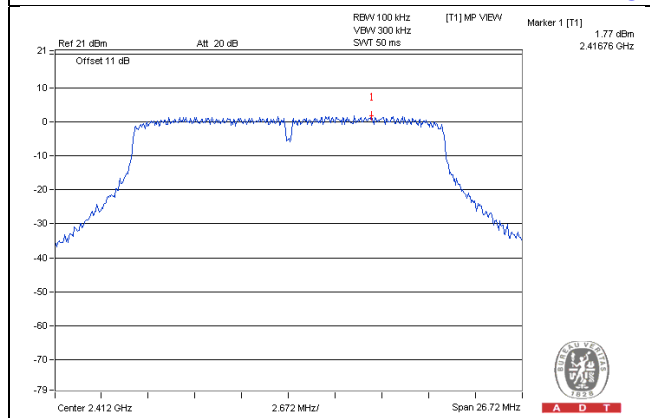
CH 13 Band edge



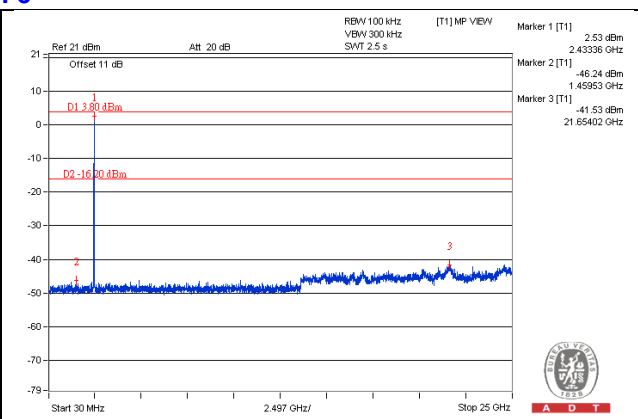
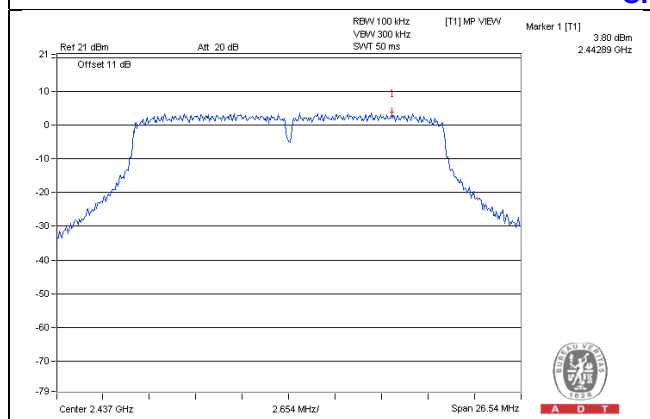
A D T

802.11n (HT20)

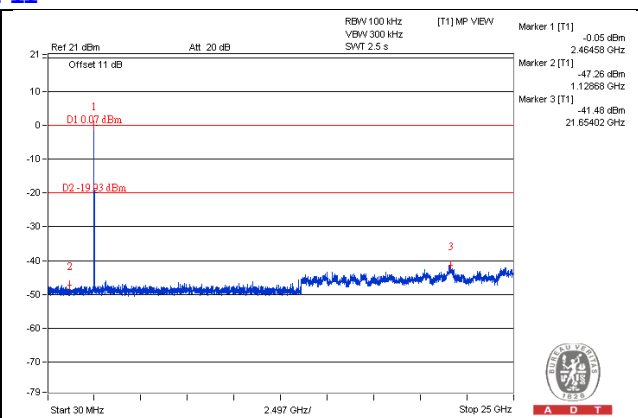
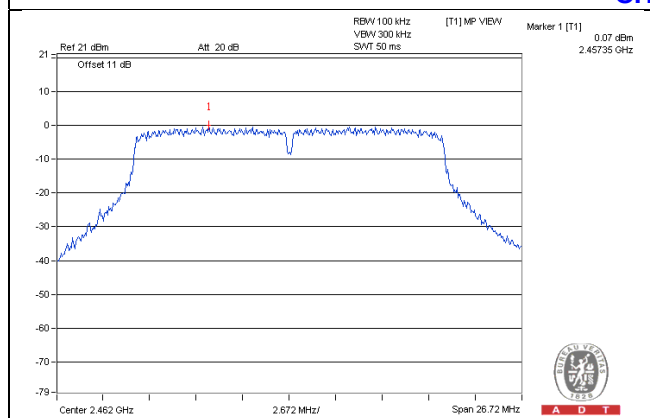
CH 1



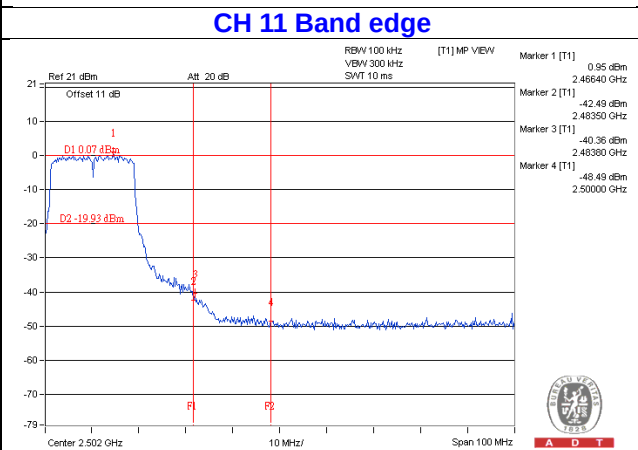
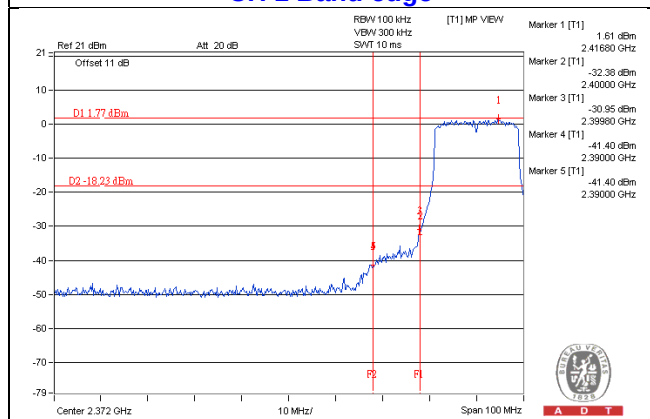
CH 6



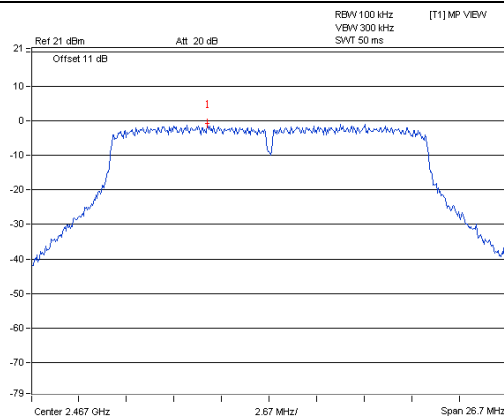
CH 11



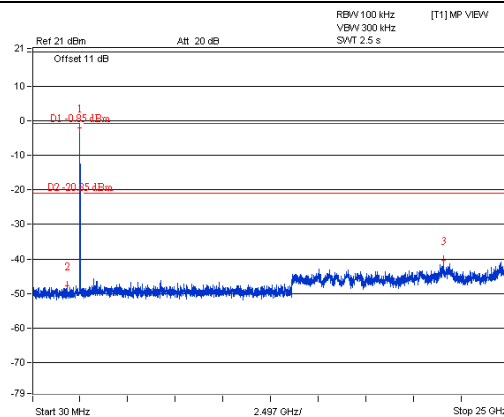
CH 1 Band edge



CH 12

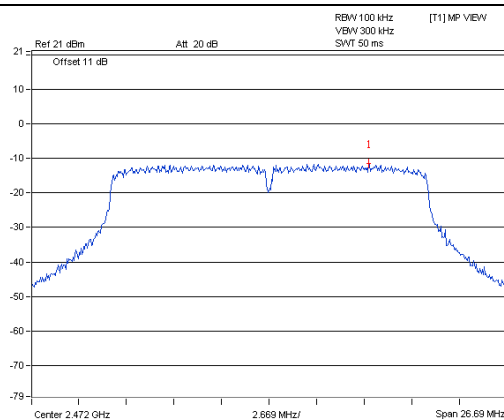


A D T

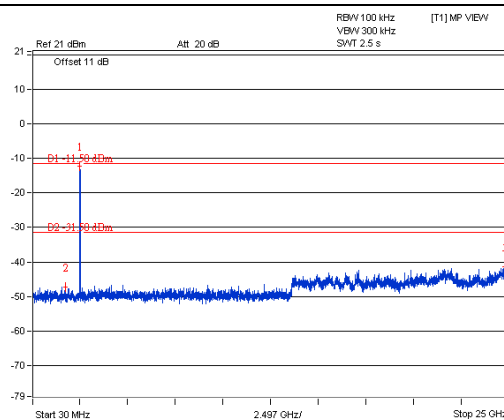


A D T

CH 13

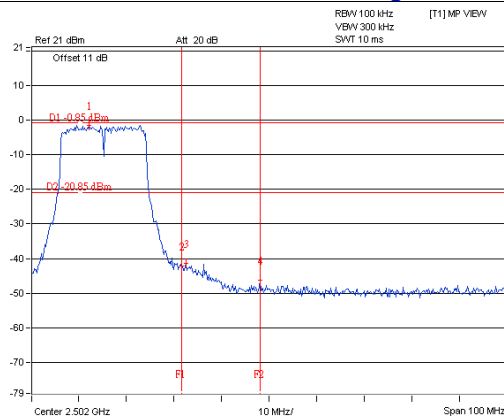


A D T



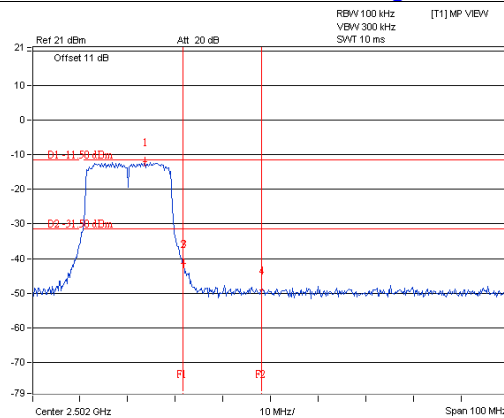
A D T

CH 12 Band edge



A D T

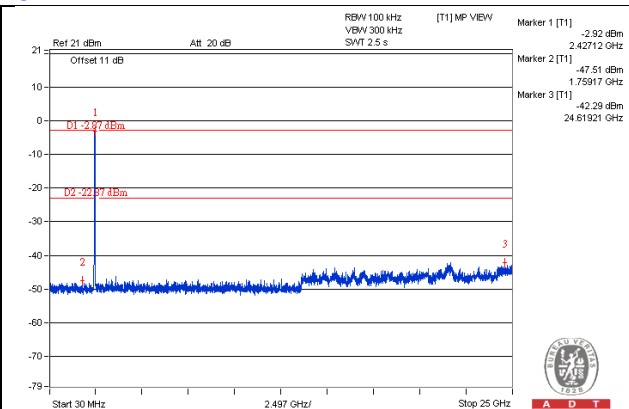
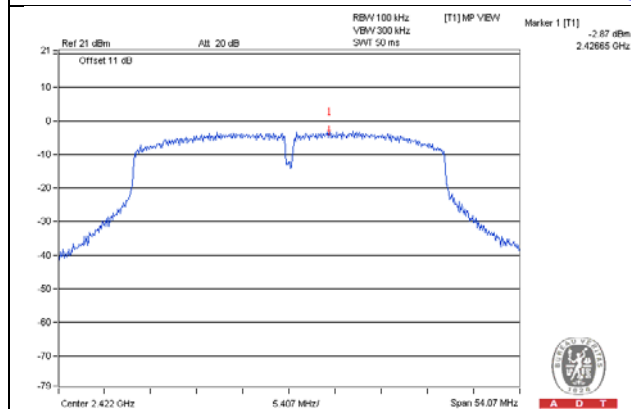
CH 13 Band edge



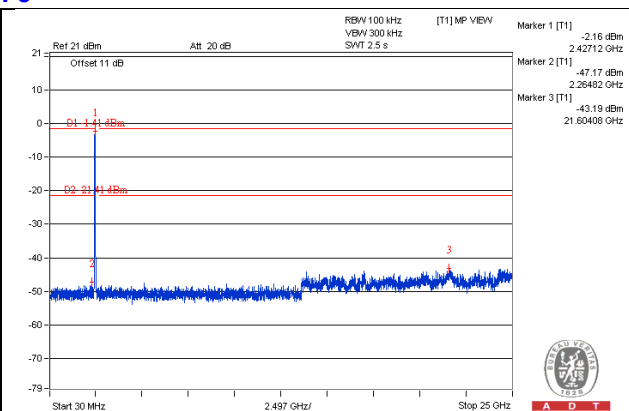
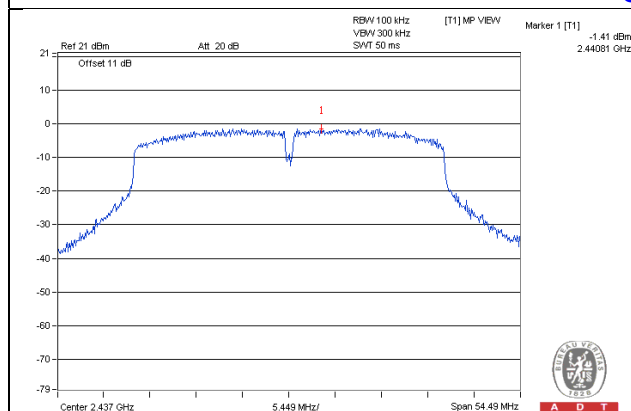
A D T

802.11n (HT40)

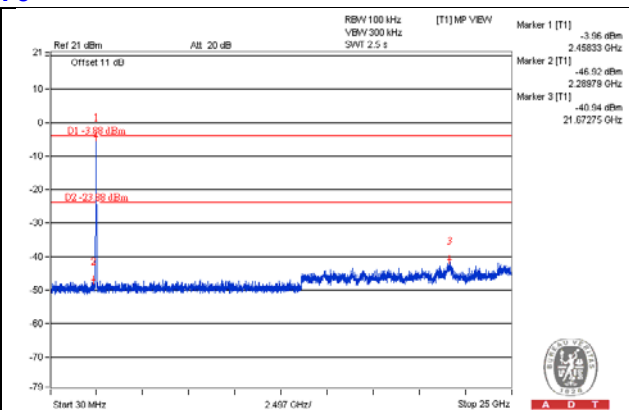
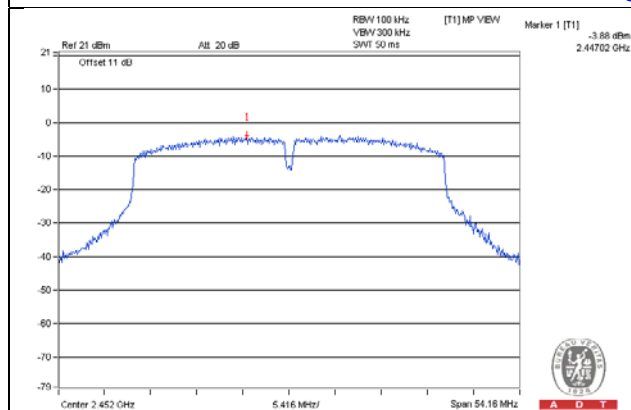
CH 3



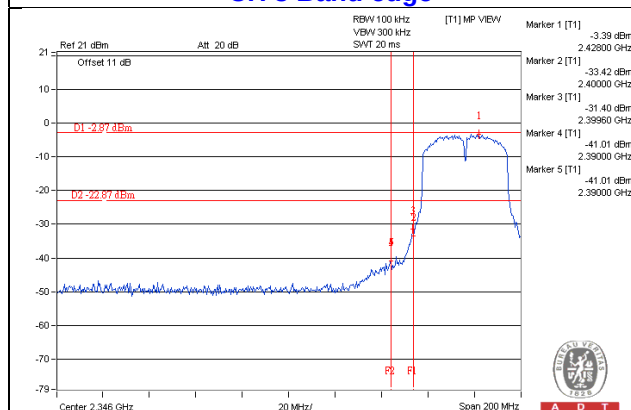
CH 6



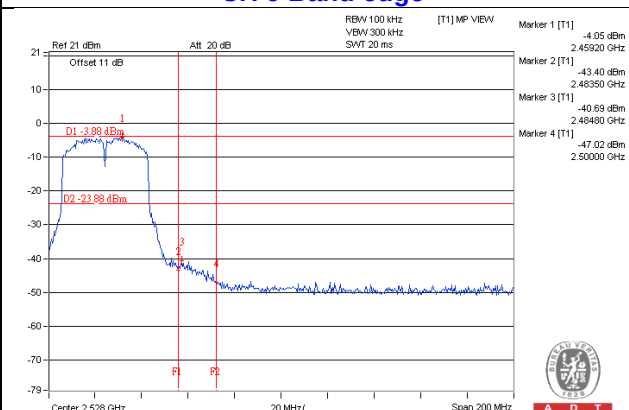
CH 9



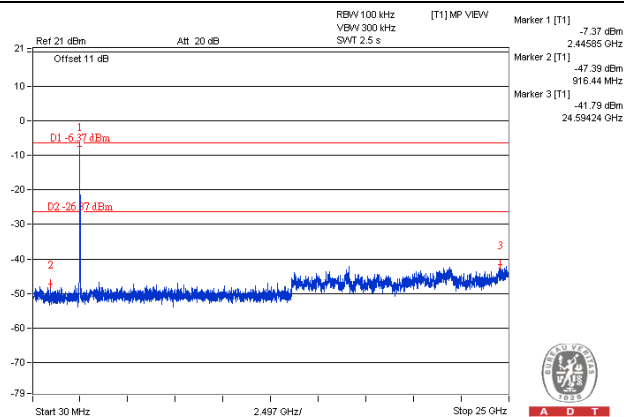
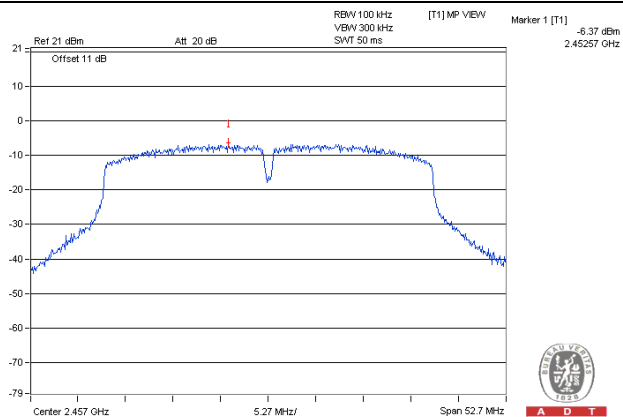
CH 3 Band edge



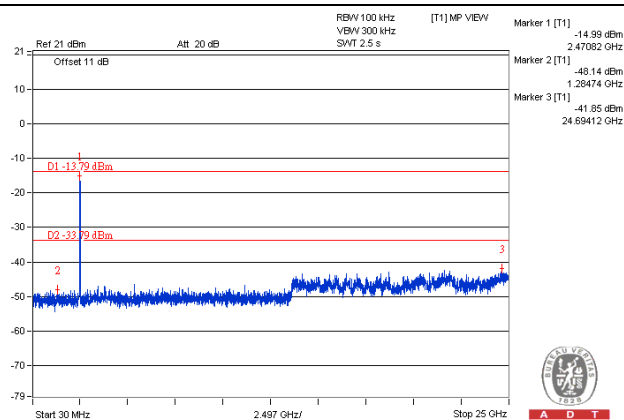
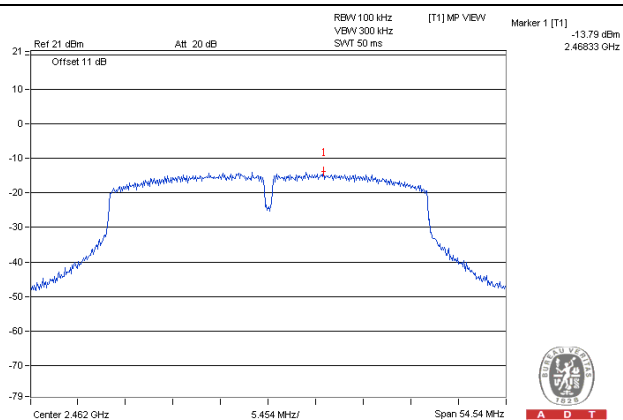
CH 9 Band edge



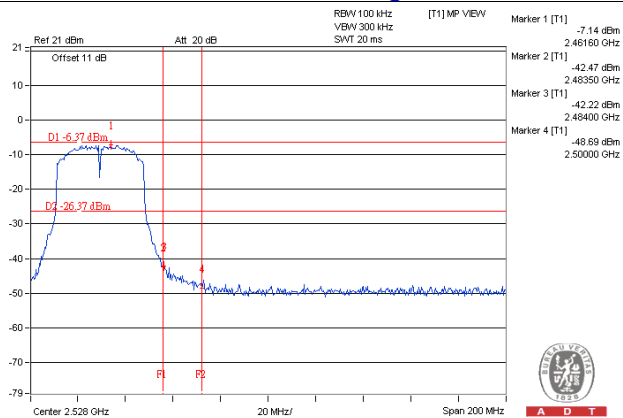
CH 10



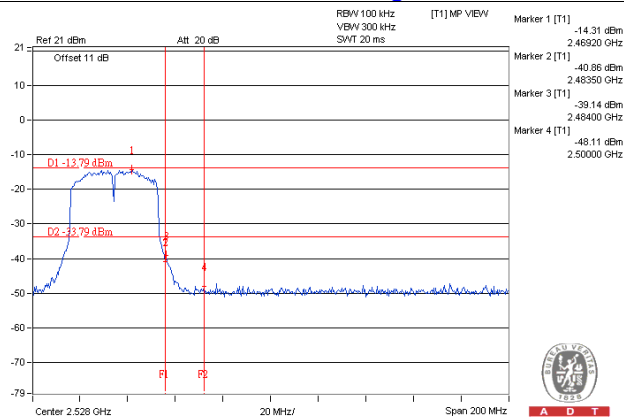
CH 11



CH 10 Band edge



CH 11 Band edge



4.5 Unwanted Emission Measurement (Radiated Versus Conducted)

4.5.1 Limits of Unwanted Emission 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.

4.5.2 Test Instruments

For 802.11b, 802.11g & 802.11n (HT20): Channel: 12 & 13 / 802.11n (HT40): Channel: 10 & 11 test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010156	Aug. 12, 2015	Aug. 11, 2016
Pre-Amplifier(*) EMCI	EMC001340	980142	Jan. 13, 2014	Jan. 12, 2016
Loop Antenna(*) Electro-Metrics	EM-6879	264	Dec. 16, 2014	Dec. 15, 2016
RF Cable	NA	LOOPCAB-00 1 LOOPCAB-00 2	Jan. 18, 2015	Jan. 17, 2016
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Feb. 05, 2015	Feb. 04, 2016
Pre-Amplifier Agilent	8449B	3008A02465	Apr. 06, 2015	Apr. 05, 2016
RF Cable	EMC104-SM- SM-2000 EMC104-SM- SM-5000 EMC104-SM- SM-5000	150317 150321 150322	Mar. 31, 2015	Mar. 30, 2016
Spectrum Analyzer Keysight	N9030A	MY54490520	July 26, 2015	July 25, 2016
Pre-Amplifier EMCI	EMC184045	980143	Jan. 16, 2015	Jan. 15, 2016
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Feb. 05, 2015	Feb. 04, 2016
RF Cable	SUCOFLEX10 4	329751/4 RF104-204	Dec. 11, 2014	Dec. 10, 2015
Software	ADT_Radiated _V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	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 calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. Loop antenna was used for all emissions below 30 MHz.
4. The test was performed in 966 Chamber No. 3.
5. The FCC Site Registration No. is 147459
- 6 The CANADA Site Registration No. is 20331-1
- 7 Tested Date: Dec. 08, 2015

For other channels test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY51210202	Dec. 12, 2014	Dec. 11, 2015
Pre-Amplifier(*) EMCI	EMC001340	980142	Jan. 13, 2014	Jan. 12, 2016
Loop Antenna(*) Electro-Metrics	EM-6879	264	Dec. 16, 2014	Dec. 15, 2016
RF Cable	NA	LOOPCAB-001 LOOPCAB-002	Jan. 18, 2015	Jan. 17, 2016
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-03	Nov. 12, 2014	Nov. 11, 2015
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-360	Feb. 06, 2015	Feb. 05, 2016
RF Cable	8D-FB	CHGCAB-001-1 CHGCAB-001-2	Oct. 04, 2014	Oct. 03, 2015
	RF-141	CHGCAB-004	Oct. 04, 2014	Oct. 03, 2015
Horn_Antenna AISI	AIH.8018	0000320091110	Feb. 09, 2015	Feb. 08, 2016
Pre-Amplifier Agilent	8449B	3008A02578	June 23, 2015	June 22, 2016
RF Cable	NA	131205 131216 131217 SNMY23684/ 4	Jan. 16, 2015	Jan. 15, 2016
Spectrum Analyzer R&S	FSV40	100964	June 26, 2015	June 25, 2016
Pre-Amplifier SPACEK LABS	SLKKa-48-6	9K16	Dec. 12, 2014	Dec. 11, 2015
Horn_Antenna SCHWARZBECK	BBHA 9170	9170-424	Feb. 05, 2015	Feb. 04, 2016
RF Cable	NA	329751/4 RF104-204	Dec. 11, 2014	Dec. 10, 2015
Software	ADT_Radiated_V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	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 calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. Loop antenna was used for all emissions below 30 MHz.
4. The test was performed in 966 Chamber No. G.
5. The FCC Site Registration No. is 966073.
6. The VCCI Site Registration No. is G-137.
- 7 The CANADA Site Registration No. is IC 7450H-2.
- 8 Tested Date: July 24 to 31, 2015

4.5.3 Test Procedures

Following FCC KDB 558074 D01 DTS Meas. Guidance :

Radiated versus Conducted Measurements.

The unwanted emission limits in both the restricted and non-restricted bands are based on antenna-port conducted measurements in conjunction with cabinet emissions tests are permitted to demonstrate compliance.

The following steps was performed:

- a. Cabinet emissions measurements. Radiated measurement was performed to ensure that cabinet emissions are below the emission limits. For the cabinet-emission measurements the antenna was replaced by a termination matching the nominal impedance of the antenna.
- b. Conducted tests was performed using equipment that matches the nominal impedance of the antenna assembly used with the EUT
- c. EIRP calculation. A value representative of an upper bound on out-of-band antenna gain (in dBi) shall be added to the measured antenna-port conducted emission power to compute EIRP within the specified measurement bandwidth. (For emissions in the restricted bands, additional calculations are required to convert EIRP to field strength at the specified distance.) The upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands or 2 dBi, whichever is greater
- d. For all of Radiation emission test
 - d-1. 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 a 3 meters chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
 - d-2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
 - d-3. 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-4. 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.
 - d-5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
 - d-6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (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 ($10 \log(1/\text{duty cycle})$).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

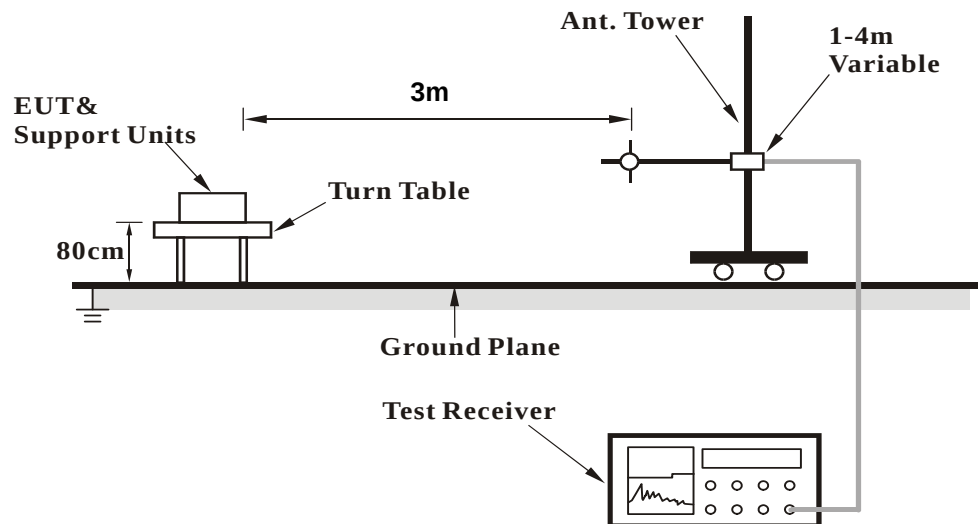
4.5.4 Deviation from Test Standard

No deviation.

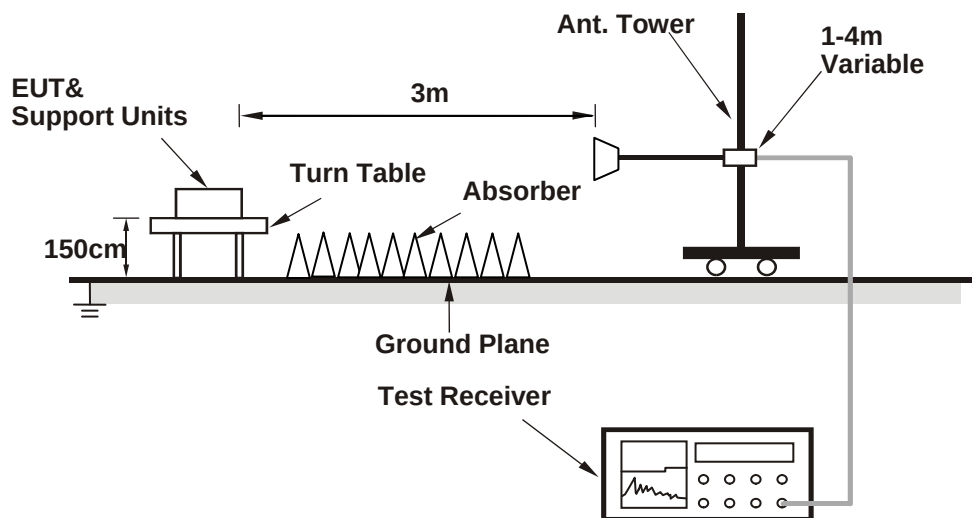
4.5.5 Test Setup

For radiated configuration:

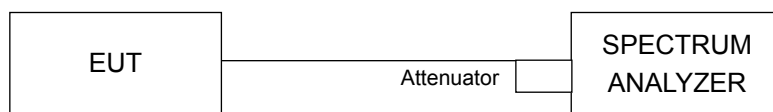
<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



For conducted configuration:



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

4.5.6 EUT Operating Conditions

1. Connect the EUT with the support unit A (Notebook Computer) which is placed on a testing table.
2. The communication partner run test program "QCART Version: 3.0.33.0" to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.5.7 Test Results (Radiated Measurement)

Radiated versus Conducted Measurement	
☐ Conducted measurement	☒ Radiated measurement
<u>For Radiated measurement:</u> The level of unwanted emissions was measured when radiated by the cabinet or structure of the equipment with the antenna connector(s) terminated by a specified load (cabinet radiation)	
<u>For Conducted measurement:</u> The level of unwanted emissions was measured as their power in a specified load (conducted spurious emissions).	

Radiated test was done with 50ohm terminator on antenna port

Above 1GHz Data

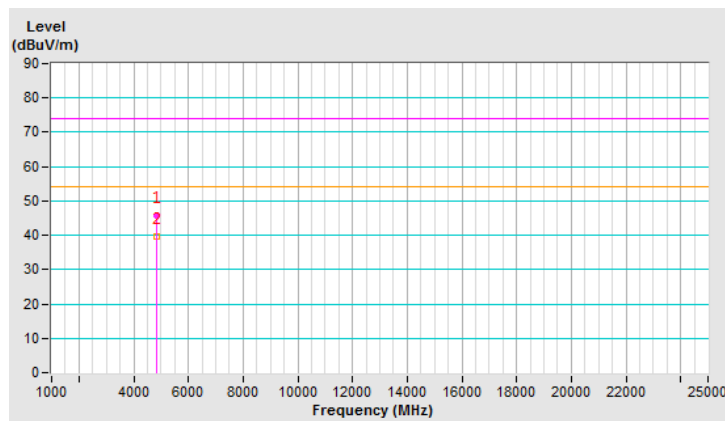
802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4824.00	45.9 PK	74.0	-28.1	1.63 H	71	38.81	7.09
2	4824.00	39.6 AV	54.0	-14.4	1.63 H	71	32.51	7.09

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

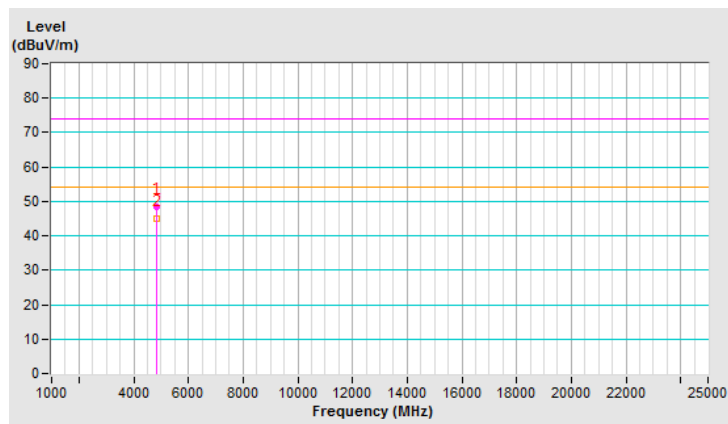


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	4824.00	48.5 PK	74.0	-25.5	1.52 V	203	41.41	7.09
2	4824.00	45.0 AV	54.0	-9.0	1.52 V	203	37.91	7.09

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

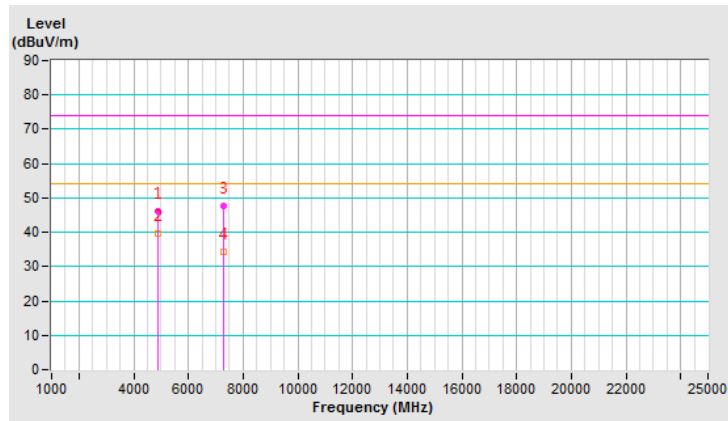


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4874.00	46.1 PK	74.0	-27.9	1.68 H	70	38.85	7.25
2	4874.00	39.8 AV	54.0	-14.2	1.68 H	70	32.55	7.25
3	7311.00	47.5 PK	74.0	-26.5	1.45 H	157	33.05	14.45
4	7311.00	34.4 AV	54.0	-19.6	1.45 H	157	19.95	14.45

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

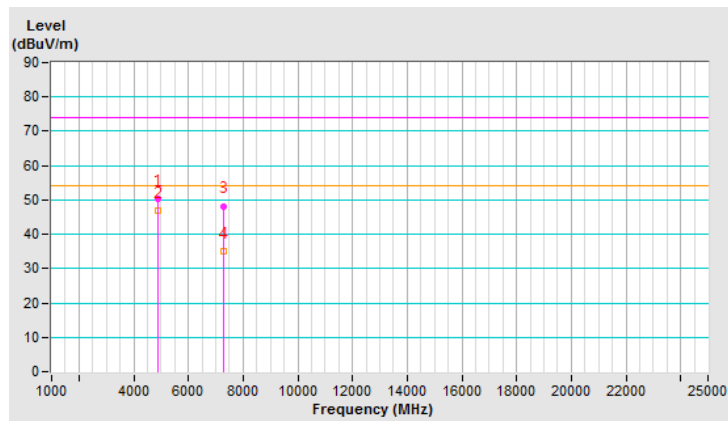


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	4874.00	50.2 PK	74.0	-23.8	1.55 V	192	42.95	7.25
2	4874.00	47.0 AV	54.0	-7.0	1.55 V	192	39.75	7.25
3	7311.00	48.2 PK	74.0	-25.8	1.56 V	6	33.75	14.45
4	7311.00	34.9 AV	54.0	-19.1	1.56 V	6	20.45	14.45

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

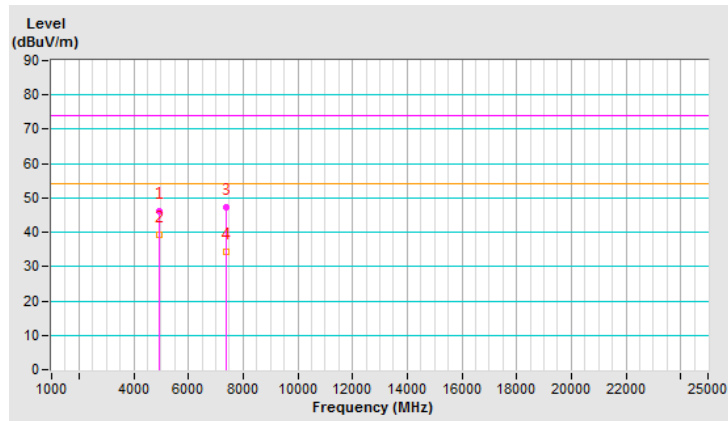


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4924.00	46.0 PK	74.0	-28.0	1.63 H	67	38.55	7.45
2	4924.00	39.4 AV	54.0	-14.6	1.63 H	67	31.95	7.45
3	7386.00	47.4 PK	74.0	-26.6	1.44 H	158	32.88	14.52
4	7386.00	34.2 AV	54.0	-19.8	1.44 H	158	19.68	14.52

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

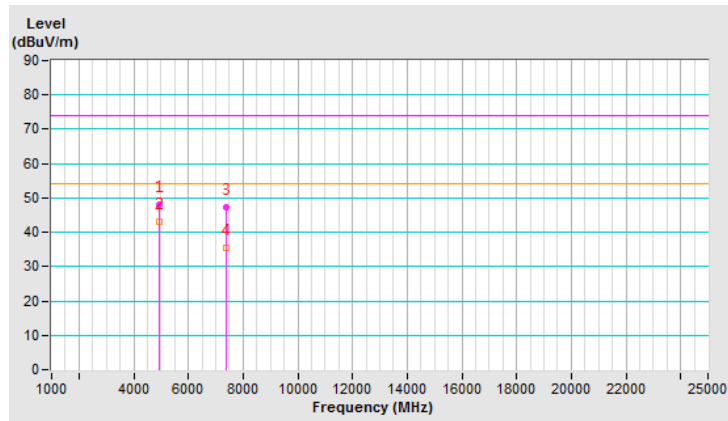


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	4924.00	48.0 PK	74.0	-26.0	1.92 V	195	40.55	7.45
2	4924.00	43.0 AV	54.0	-11.0	1.92 V	195	35.55	7.45
3	7386.00	47.3 PK	74.0	-26.7	1.55 V	58	32.78	14.52
4	7386.00	35.5 AV	54.0	-18.5	1.55 V	58	20.98	14.52

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

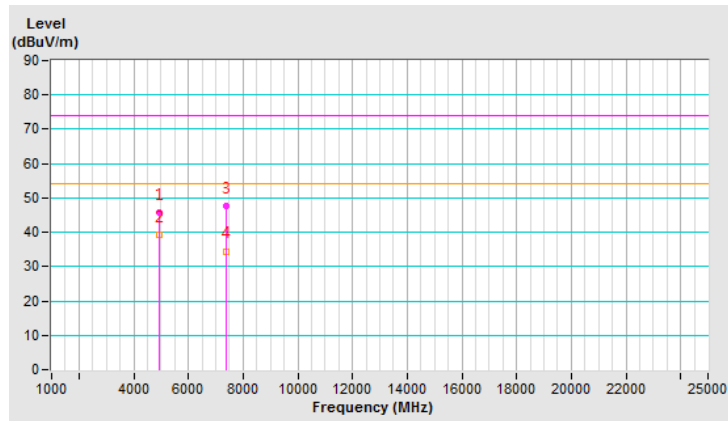


CHANNEL	TX Channel 12	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4934.00	45.8 PK	74.0	-28.2	1.63 H	77	38.29	7.51
2	4934.00	39.1 AV	54.0	-14.9	1.63 H	77	31.59	7.51
3	7401.00	47.6 PK	74.0	-26.4	1.48 H	144	33.07	14.53
4	7401.00	34.5 AV	54.0	-19.5	1.48 H	144	19.97	14.53

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

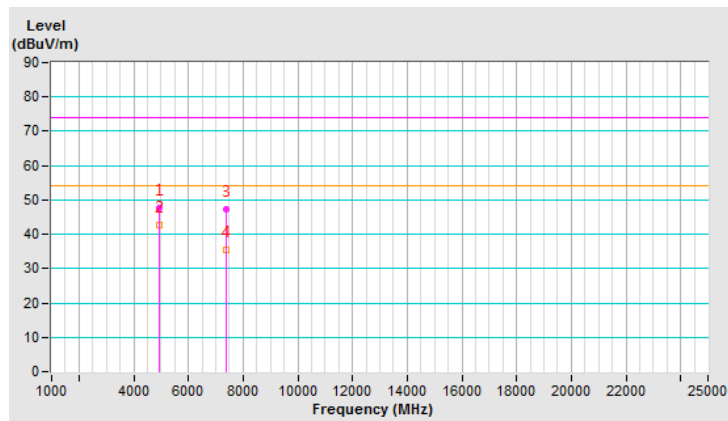


CHANNEL	TX Channel 12	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	4934.00	47.7 PK	74.0	-26.3	1.98 V	200	40.19	7.51
2	4934.00	42.8 AV	54.0	-11.2	1.98 V	200	35.29	7.51
3	7401.00	47.4 PK	74.0	-26.6	1.55 V	73	32.87	14.53
4	7401.00	35.6 AV	54.0	-18.4	1.55 V	73	21.07	14.53

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

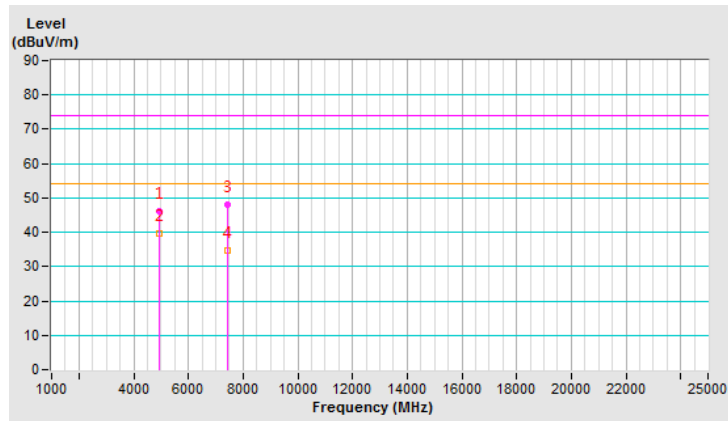


CHANNEL	TX Channel 13	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4944.00	46.1 PK	74.0	-27.9	1.57 H	69	38.54	7.56
2	4944.00	39.8 AV	54.0	-14.2	1.57 H	69	32.24	7.56
3	7416.00	48.0 PK	74.0	-26.0	1.45 H	147	33.48	14.52
4	7416.00	34.6 AV	54.0	-19.4	1.45 H	147	20.08	14.52

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

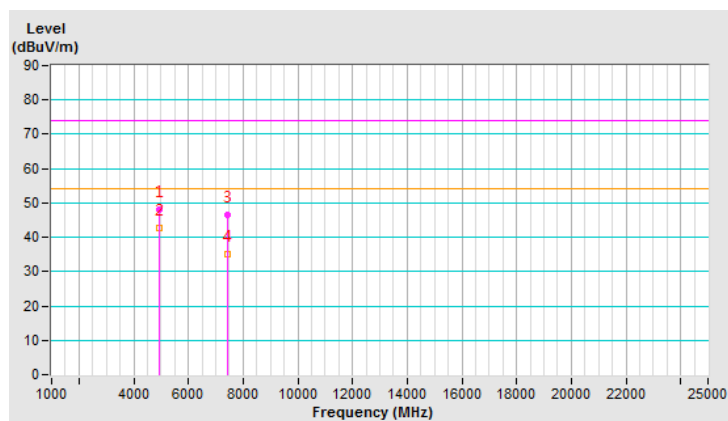


CHANNEL	TX Channel 13	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	4944.00	48.0 PK	74.0	-26.0	1.98 V	201	40.44	7.56
2	4944.00	42.7 AV	54.0	-11.3	1.98 V	201	35.14	7.56
3	7416.00	46.5 PK	74.0	-27.5	1.53 V	63	31.98	14.52
4	7416.00	35.0 AV	54.0	-19.0	1.53 V	63	20.48	14.52

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



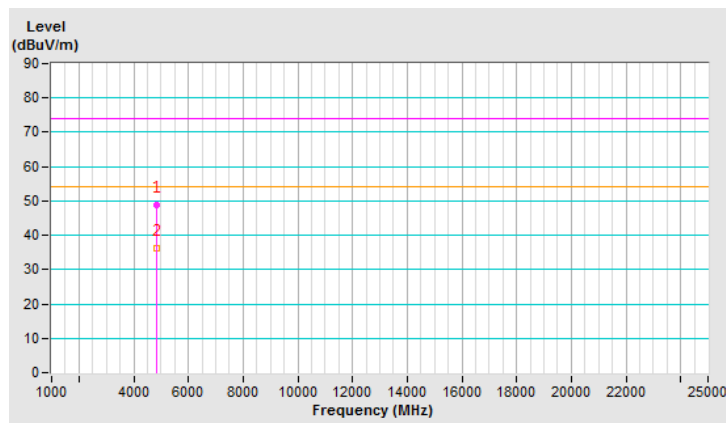
802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4824.00	48.7 PK	74.0	-25.3	1.00 H	162	41.61	7.09
2	4824.00	36.3 AV	54.0	-17.7	1.00 H	162	29.21	7.09

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

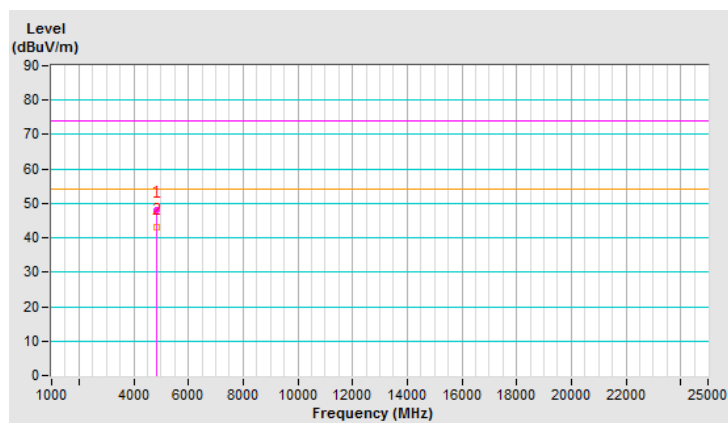


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	4824.00	48.0 PK	74.0	-26.0	1.97 V	188	40.91	7.09
2	4824.00	43.2 AV	54.0	-10.8	1.97 V	188	36.11	7.09

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

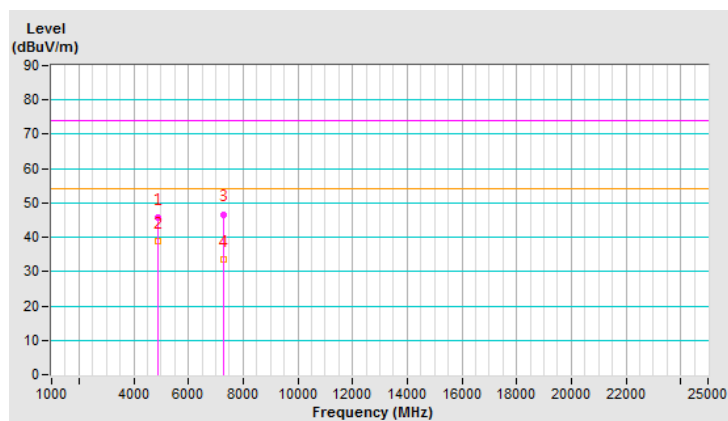


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4874.00	45.6 PK	74.0	-28.4	1.57 H	79	38.35	7.25
2	4874.00	38.9 AV	54.0	-15.1	1.57 H	79	31.65	7.25
3	7311.00	46.7 PK	74.0	-27.3	1.50 H	155	32.25	14.45
4	7311.00	33.7 AV	54.0	-20.3	1.50 H	155	19.25	14.45

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

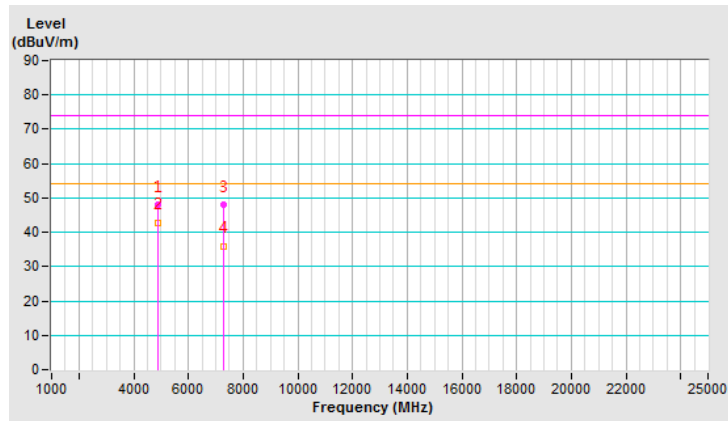


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	4874.00	48.0 PK	74.0	-26.0	1.92 V	200	40.75	7.25
2	4874.00	42.9 AV	54.0	-11.1	1.92 V	200	35.65	7.25
3	7311.00	48.1 PK	74.0	-25.9	1.53 V	55	33.65	14.45
4	7311.00	36.0 AV	54.0	-18.0	1.53 V	55	21.55	14.45

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

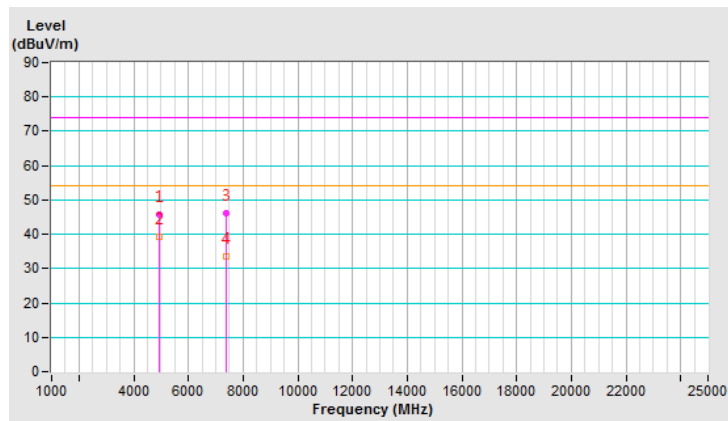


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4924.00	45.9 PK	74.0	-28.1	1.61 H	72	38.45	7.45
2	4924.00	39.4 AV	54.0	-14.6	1.61 H	72	31.95	7.45
3	7386.00	46.2 PK	74.0	-27.8	1.49 H	142	31.68	14.52
4	7386.00	33.4 AV	54.0	-20.6	1.49 H	142	18.88	14.52

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

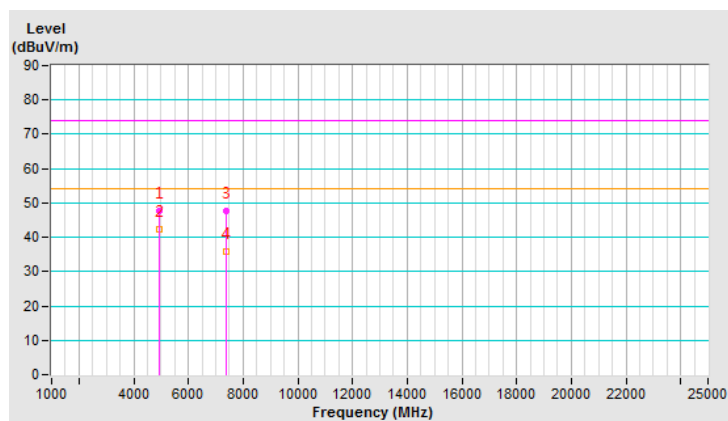


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	4924.00	47.7 PK	74.0	-26.3	1.94 V	197	40.25	7.45
2	4924.00	42.4 AV	54.0	-11.6	1.94 V	197	34.95	7.45
3	7386.00	47.8 PK	74.0	-26.2	1.57 V	66	33.28	14.52
4	7386.00	35.7 AV	54.0	-18.3	1.57 V	66	21.18	14.52

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

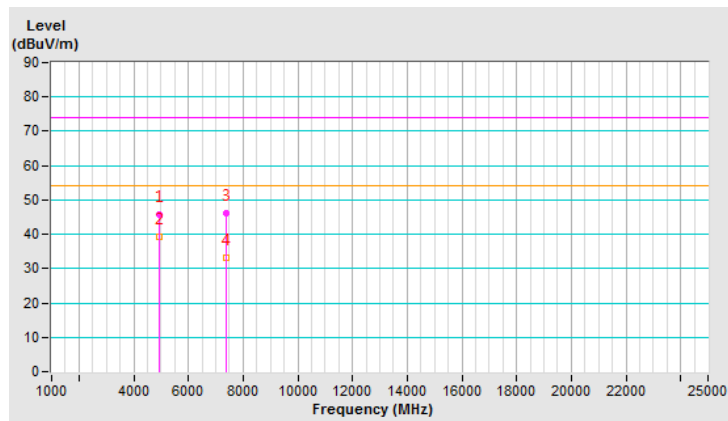


CHANNEL	TX Channel 12	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4934.00	45.6 PK	74.0	-28.4	1.66 H	72	38.09	7.51
2	4934.00	39.2 AV	54.0	-14.8	1.66 H	72	31.69	7.51
3	7401.00	46.1 PK	74.0	-27.9	1.58 H	135	31.57	14.53
4	7401.00	33.2 AV	54.0	-20.8	1.58 H	135	18.67	14.53

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

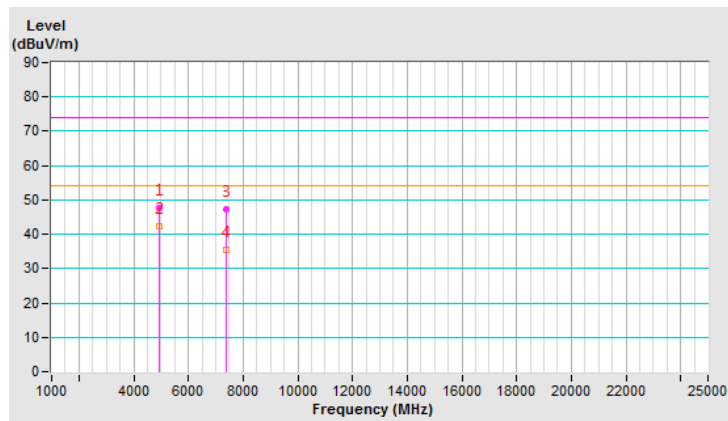


CHANNEL	TX Channel 12	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	4934.00	47.5 PK	74.0	-26.5	1.90 V	194	39.99	7.51
2	4934.00	42.3 AV	54.0	-11.7	1.90 V	194	34.79	7.51
3	7401.00	47.2 PK	74.0	-26.8	1.63 V	76	32.67	14.53
4	7401.00	35.4 AV	54.0	-18.6	1.63 V	76	20.87	14.53

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

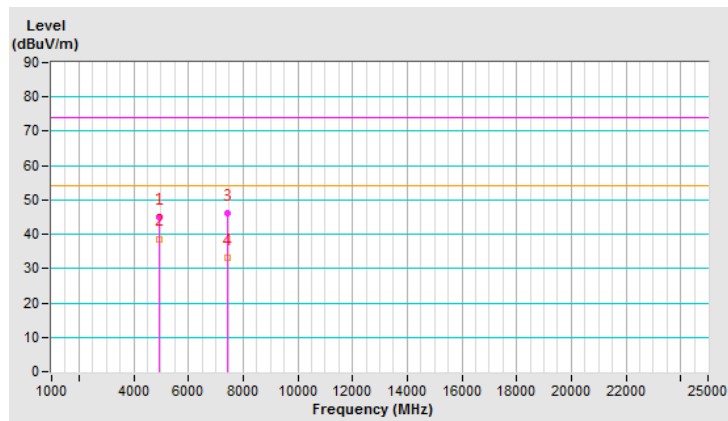


CHANNEL	TX Channel 13	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4944.00	45.1 PK	74.0	-28.9	1.68 H	77	37.54	7.56
2	4944.00	38.7 AV	54.0	-15.3	1.68 H	77	31.14	7.56
3	7416.00	46.1 PK	74.0	-27.9	1.55 H	146	31.58	14.52
4	7416.00	33.1 AV	54.0	-20.9	1.55 H	146	18.58	14.52

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

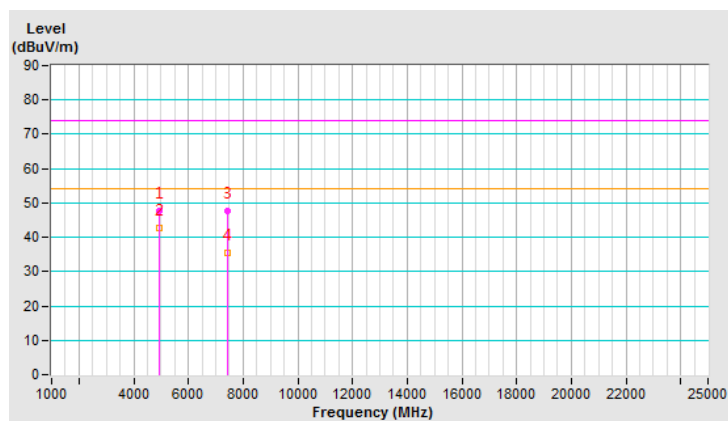


CHANNEL	TX Channel 13	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	4944.00	47.7 PK	74.0	-26.3	1.90 V	188	40.14	7.56
2	4944.00	42.6 AV	54.0	-11.4	1.90 V	188	35.04	7.56
3	7416.00	47.7 PK	74.0	-26.3	1.59 V	88	33.18	14.52
4	7416.00	35.6 AV	54.0	-18.4	1.59 V	88	21.08	14.52

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

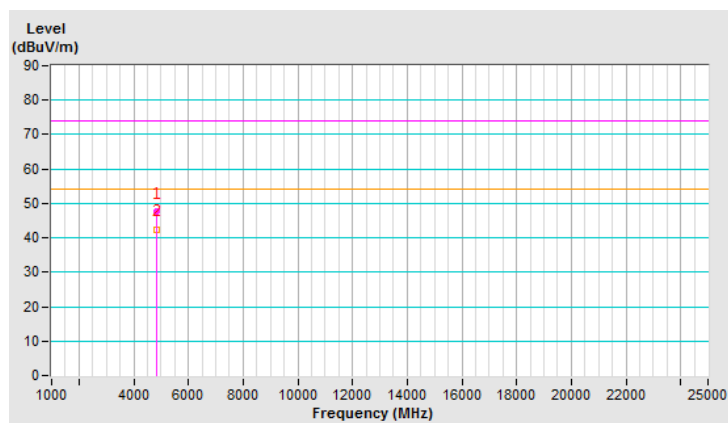


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	4824.00	47.7 PK	74.0	-26.3	1.96 V	187	40.61	7.09
2	4824.00	42.5 AV	54.0	-11.5	1.96 V	187	35.41	7.09

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

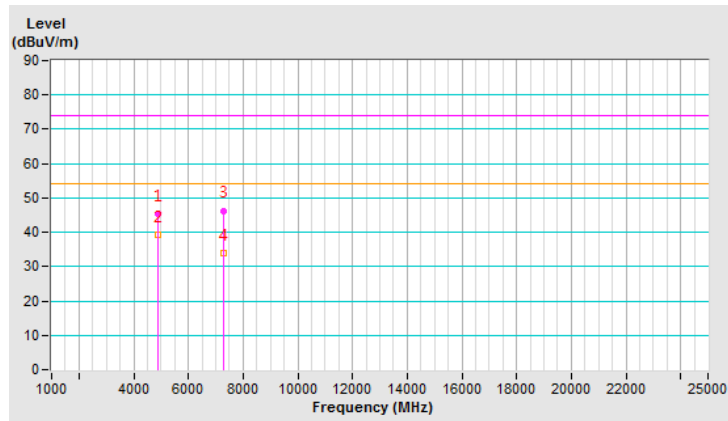


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4874.00	45.5 PK	74.0	-28.5	1.00 H	150	38.25	7.25
2	4874.00	39.2 AV	54.0	-14.8	1.00 H	150	31.95	7.25
3	7311.00	46.3 PK	74.0	-27.7	1.49 H	145	31.85	14.45
4	7311.00	33.8 AV	54.0	-20.2	1.49 H	145	19.35	14.45

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

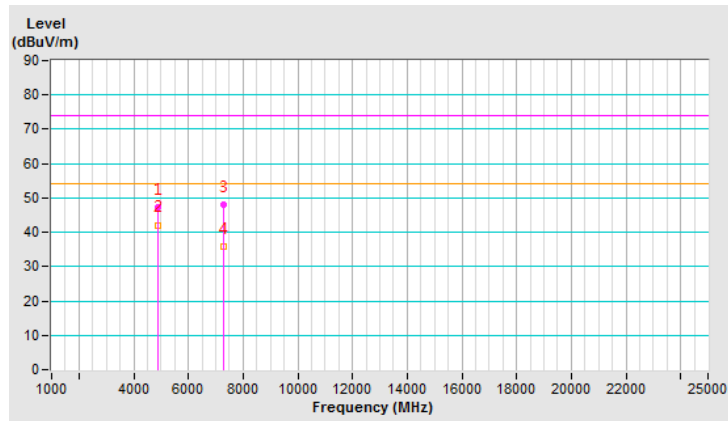


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	4874.00	47.2 PK	74.0	-26.8	1.97 V	182	39.95	7.25
2	4874.00	42.1 AV	54.0	-11.9	1.97 V	182	34.85	7.25
3	7311.00	48.0 PK	74.0	-26.0	1.60 V	57	33.55	14.45
4	7311.00	35.9 AV	54.0	-18.1	1.60 V	57	21.45	14.45

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

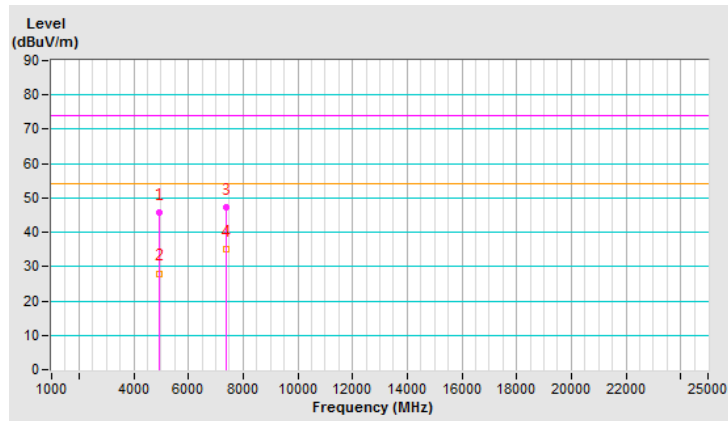


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4924.00	45.8 PK	74.0	-28.2	1.56 H	135	38.35	7.45
2	4924.00	28.0 AV	54.0	-26.0	1.56 H	135	20.55	7.45
3	7386.00	47.4 PK	74.0	-26.6	1.37 H	161	32.88	14.52
4	7386.00	35.0 AV	54.0	-19.0	1.37 H	161	20.48	14.52

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

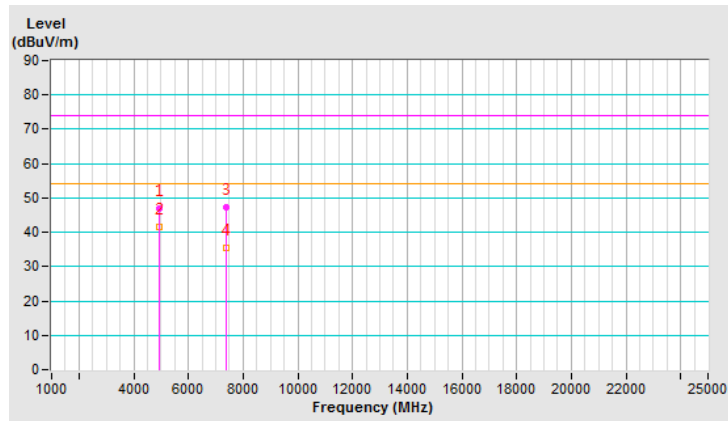


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	4924.00	47.0 PK	74.0	-27.0	1.91 V	195	39.55	7.45
2	4924.00	41.7 AV	54.0	-12.3	1.91 V	195	34.25	7.45
3	7386.00	47.3 PK	74.0	-26.7	1.54 V	49	32.78	14.52
4	7386.00	35.5 AV	54.0	-18.5	1.54 V	49	20.98	14.52

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

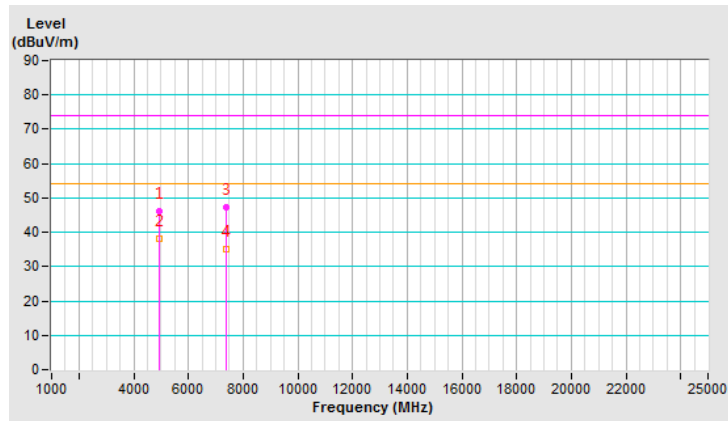


CHANNEL	TX Channel 12	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4934.00	46.1 PK	74.0	-27.9	1.53 H	127	38.59	7.51
2	4934.00	38.2 AV	54.0	-15.8	1.53 H	127	30.69	7.51
3	7401.00	47.3 PK	74.0	-26.7	1.32 H	156	32.77	14.53
4	7401.00	35.0 AV	54.0	-19.0	1.32 H	156	20.47	14.53

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

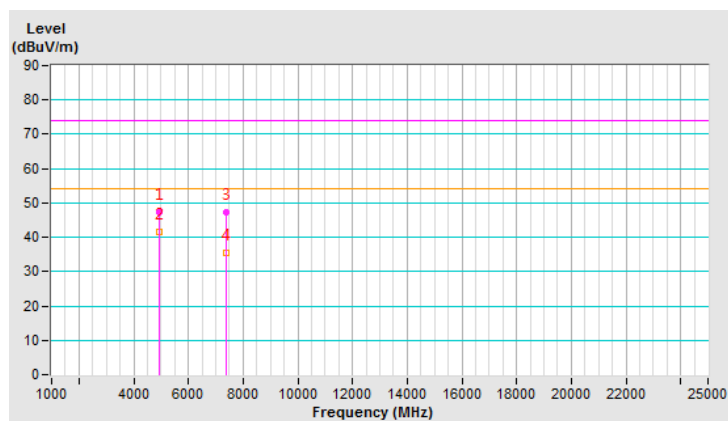


CHANNEL	TX Channel 12	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	4934.00	47.1 PK	74.0	-26.9	1.95 V	210	39.59	7.51
2	4934.00	41.7 AV	54.0	-12.3	1.95 V	210	34.19	7.51
3	7401.00	47.3 PK	74.0	-26.7	1.52 V	62	32.77	14.53
4	7401.00	35.4 AV	54.0	-18.6	1.52 V	62	20.87	14.53

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

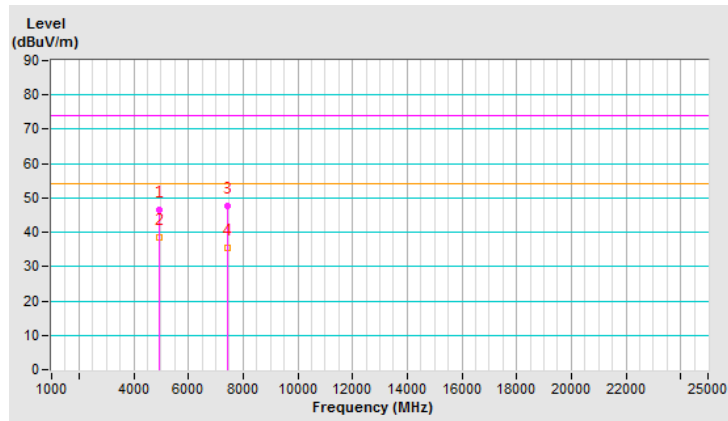


CHANNEL	TX Channel 13	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4944.00	46.5 PK	74.0	-27.5	1.57 H	121	38.94	7.56
2	4944.00	38.5 AV	54.0	-15.5	1.57 H	121	30.94	7.56
3	7416.00	47.5 PK	74.0	-26.5	1.27 H	164	32.98	14.52
4	7416.00	35.3 AV	54.0	-18.7	1.27 H	164	20.78	14.52

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

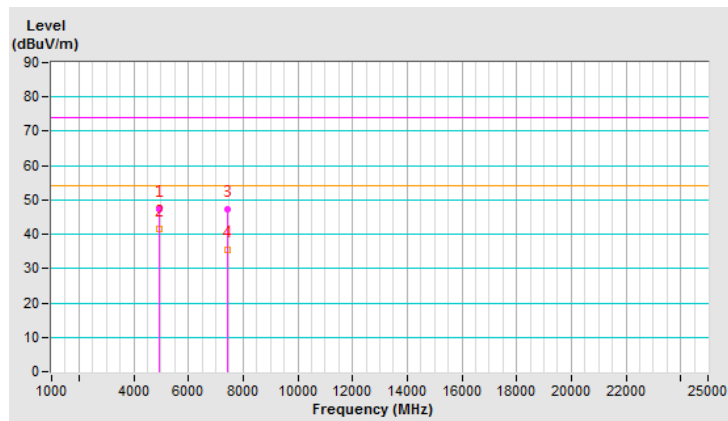


CHANNEL	TX Channel 13	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	4944.00	47.1 PK	74.0	-26.9	1.99 V	218	39.54	7.56
2	4944.00	41.7 AV	54.0	-12.3	1.99 V	218	34.14	7.56
3	7416.00	47.4 PK	74.0	-26.6	1.52 V	76	32.88	14.52
4	7416.00	35.3 AV	54.0	-18.7	1.52 V	76	20.78	14.52

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



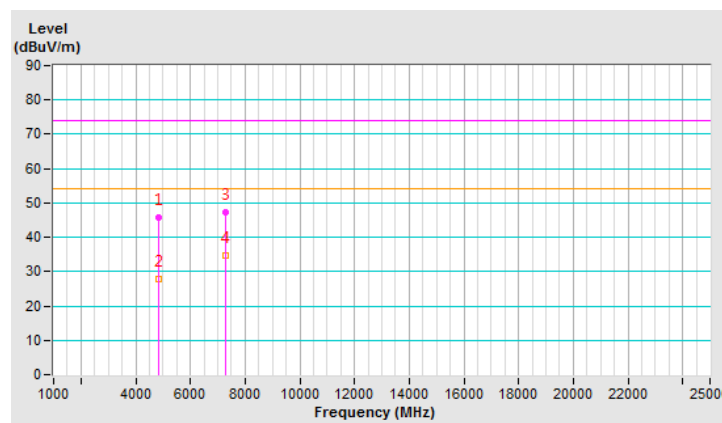
802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4844.00	45.6 PK	74.0	-28.4	1.57 H	151	38.45	7.15
2	4844.00	27.7 AV	54.0	-26.3	1.57 H	151	20.55	7.15
3	7266.00	47.2 PK	74.0	-26.8	1.32 H	155	32.63	14.57
4	7266.00	34.8 AV	54.0	-19.2	1.32 H	155	20.23	14.57

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

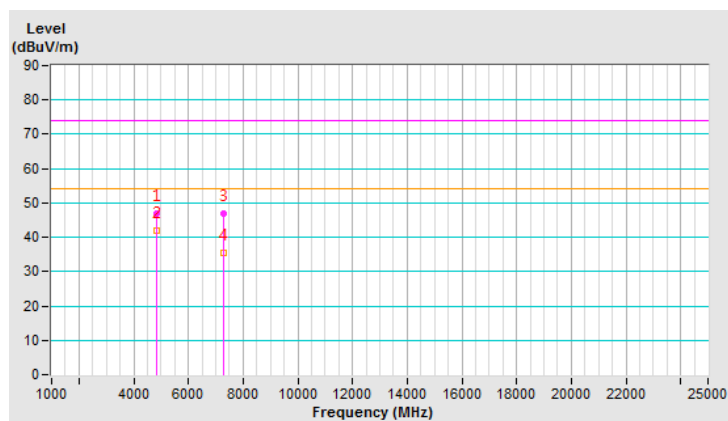


CHANNEL	TX Channel 3	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	4844.00	46.9 PK	74.0	-27.1	1.86 V	210	39.75	7.15
2	4844.00	41.8 AV	54.0	-12.2	1.86 V	210	34.65	7.15
3	7266.00	47.0 PK	74.0	-27.0	1.50 V	36	32.43	14.57
4	7266.00	35.4 AV	54.0	-18.6	1.50 V	36	20.83	14.57

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

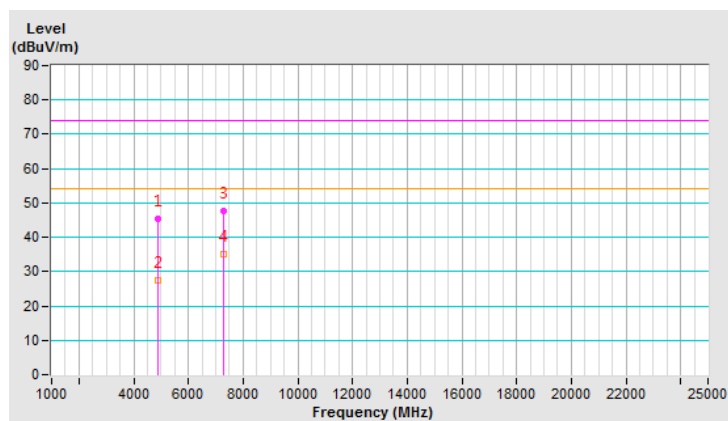


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4874.00	45.3 PK	74.0	-28.7	1.60 H	158	38.05	7.25
2	4874.00	27.6 AV	54.0	-26.4	1.60 H	158	20.35	7.25
3	7311.00	47.8 PK	74.0	-26.2	1.35 H	147	33.35	14.45
4	7311.00	35.2 AV	54.0	-18.8	1.35 H	147	20.75	14.45

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

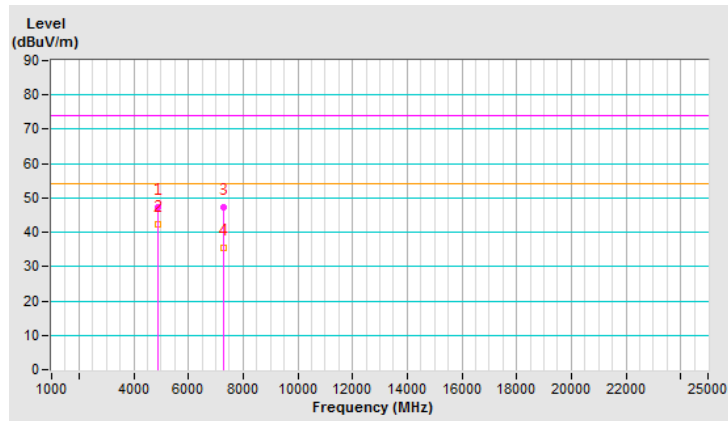


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	4874.00	47.1 PK	74.0	-26.9	1.83 V	212	39.85	7.25
2	4874.00	42.2 AV	54.0	-11.8	1.83 V	212	34.95	7.25
3	7311.00	47.1 PK	74.0	-26.9	1.51 V	33	32.65	14.45
4	7311.00	35.6 AV	54.0	-18.4	1.51 V	33	21.15	14.45

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

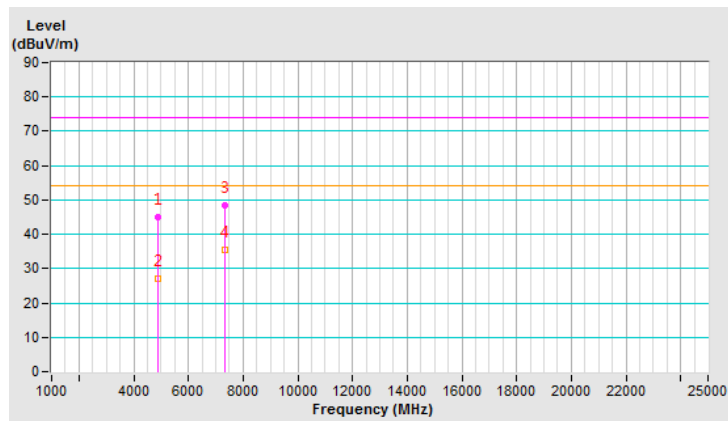


CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4904.00	45.0 PK	74.0	-29.0	1.58 H	161	37.64	7.36
2	4904.00	27.1 AV	54.0	-26.9	1.58 H	161	19.74	7.36
3	7356.00	48.3 PK	74.0	-25.7	1.38 H	148	33.80	14.50
4	7356.00	35.6 AV	54.0	-18.4	1.38 H	148	21.10	14.50

REMARKS:

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

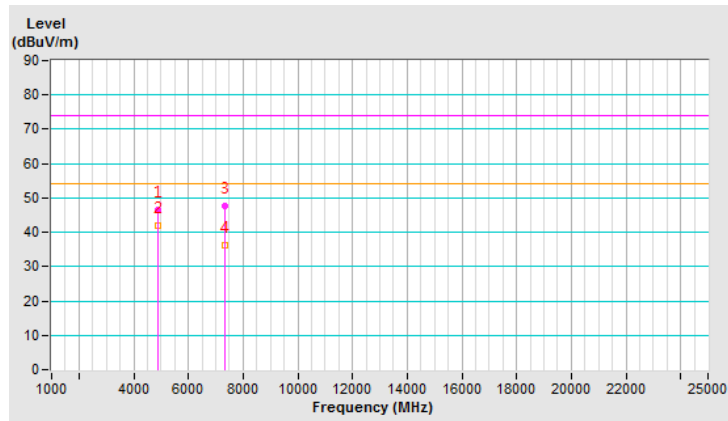


CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	4904.00	46.4 PK	74.0	-27.6	1.84 V	216	39.04	7.36
2	4904.00	41.8 AV	54.0	-12.2	1.84 V	216	34.44	7.36
3	7356.00	47.8 PK	74.0	-26.2	1.56 V	49	33.30	14.50
4	7356.00	36.1 AV	54.0	-17.9	1.56 V	49	21.60	14.50

REMARKS:

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

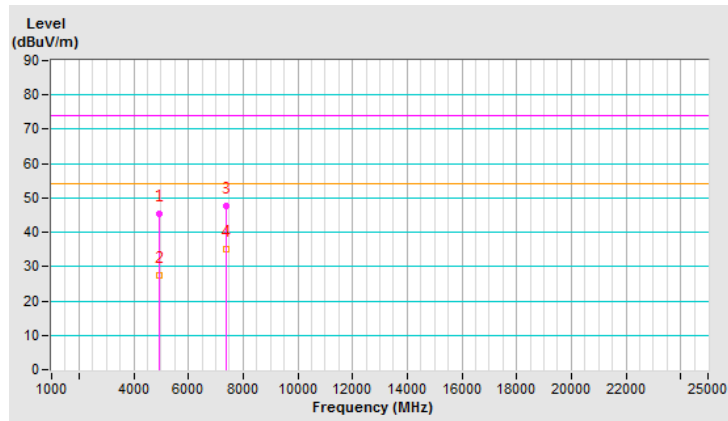


CHANNEL	TX Channel 10	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4914.00	45.4 PK	74.0	-28.6	1.53 H	166	37.99	7.41
2	4914.00	27.3 AV	54.0	-26.7	1.53 H	166	19.89	7.41
3	7371.00	47.7 PK	74.0	-26.3	1.33 H	133	33.19	14.51
4	7371.00	35.2 AV	54.0	-18.8	1.33 H	133	20.69	14.51

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

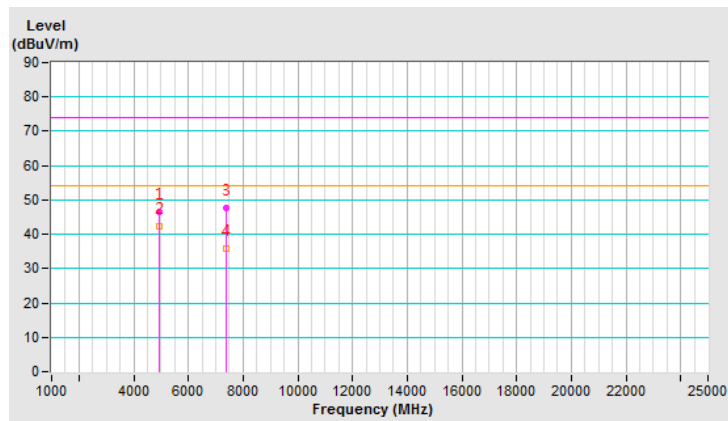


CHANNEL	TX Channel 10	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	4914.00	46.6 PK	74.0	-27.4	1.87 V	222	39.19	7.41
2	4914.00	42.2 AV	54.0	-11.8	1.87 V	222	34.79	7.41
3	7371.00	47.6 PK	74.0	-26.4	1.52 V	61	33.09	14.51
4	7371.00	35.7 AV	54.0	-18.3	1.52 V	61	21.19	14.51

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

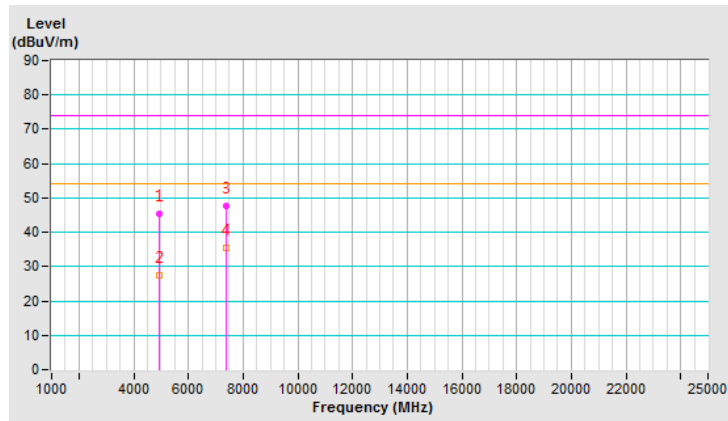


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4924.00	45.4 PK	74.0	-28.6	1.53 H	178	37.95	7.45
2	4924.00	27.4 AV	54.0	-26.6	1.53 H	178	19.95	7.45
3	7386.00	47.7 PK	74.0	-26.3	1.33 H	131	33.18	14.52
4	7386.00	35.5 AV	54.0	-18.5	1.33 H	131	20.98	14.52

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

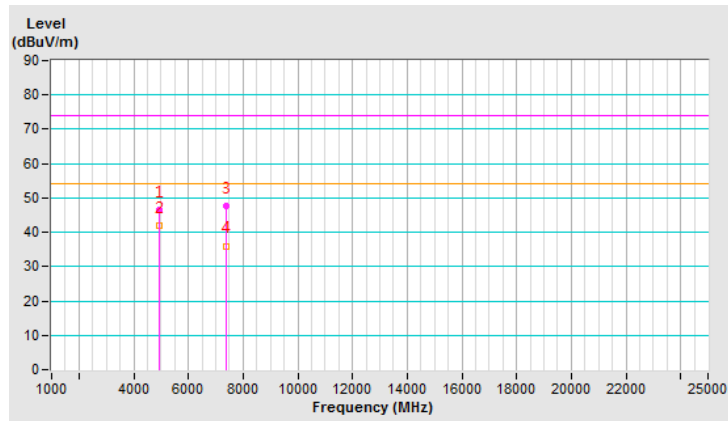


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	4924.00	46.4 PK	74.0	-27.6	1.82 V	236	38.95	7.45
2	4924.00	41.9 AV	54.0	-12.1	1.82 V	236	34.45	7.45
3	7386.00	47.7 PK	74.0	-26.3	1.48 V	57	33.18	14.52
4	7386.00	36.0 AV	54.0	-18.0	1.48 V	57	21.48	14.52

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



Below 1GHz Data:

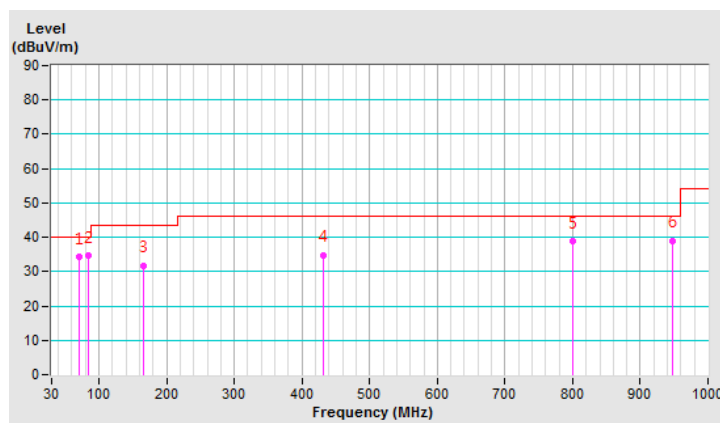
802.11g

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	Below 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	71.03	34.5 QP	40.0	-5.5	2.00 H	178	57.11	-22.65
2	84.22	34.8 QP	40.0	-5.2	2.00 H	204	60.49	-25.69
3	165.90	31.8 QP	43.5	-11.7	2.00 H	44	52.30	-20.47
4	431.34	34.9 QP	46.0	-11.1	1.00 H	326	50.42	-15.56
5	800.03	39.0 QP	46.0	-7.0	2.00 H	227	47.64	-8.65
6	948.01	39.1 QP	46.0	-6.9	1.50 H	18	45.69	-6.62

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

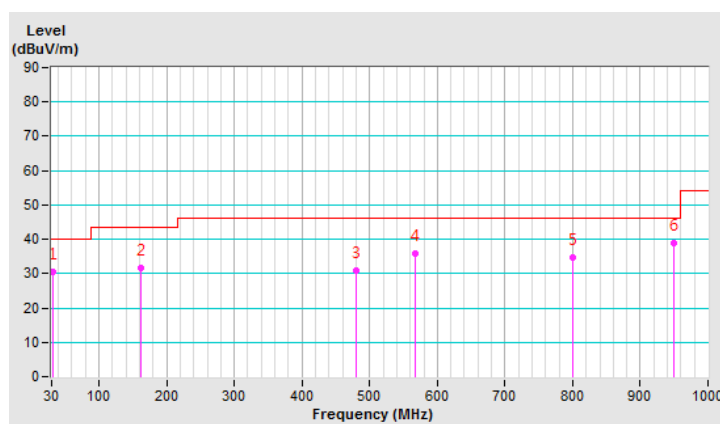


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	Below 1GHz		

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	31.26	30.7 QP	40.0	-9.4	1.00 V	259	52.36	-21.71
2	161.82	31.7 QP	43.5	-11.8	1.00 V	140	51.85	-20.11
3	479.98	30.9 QP	46.0	-15.1	1.50 V	360	45.55	-14.66
4	566.46	35.7 QP	46.0	-10.3	1.50 V	360	48.61	-12.92
5	800.03	34.7 QP	46.0	-11.3	1.50 V	300	43.33	-8.65
6	948.98	38.9 QP	46.0	-7.2	1.50 V	153	45.47	-6.62

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



4.5.8 Test Results (Conducted Measurement)

Radiated versus Conducted Measurement	
☒ Conducted measurement	☐ Radiated measurement
<u>For Radiated measurement:</u> The level of unwanted emissions was measured when radiated by the cabinet or structure of the equipment with the antenna connector(s) terminated by a specified load (cabinet radiation) <u>For Conducted measurement:</u> The level of unwanted emissions was measured as their power in a specified load (conducted spurious emissions).	

Conducted Measurement Factor
a. The max antenna gain were be used for conducted measurement. (Antenna gain= 3.62dBi) b. For the out of band spurious the gain for the specific band may have been used rather than the highest gain across all bands. c. For the band edge the gain for the specific band may have been used. d. In restricted bands below 1000 MHz, add upper bound on ground plane reflection: For f = 30 – 1000 MHz, add 4.7 dB. Note: The conducted emission test was considered some factor to compute test result.

Above 1GHz Data 802.11b - Channel 1

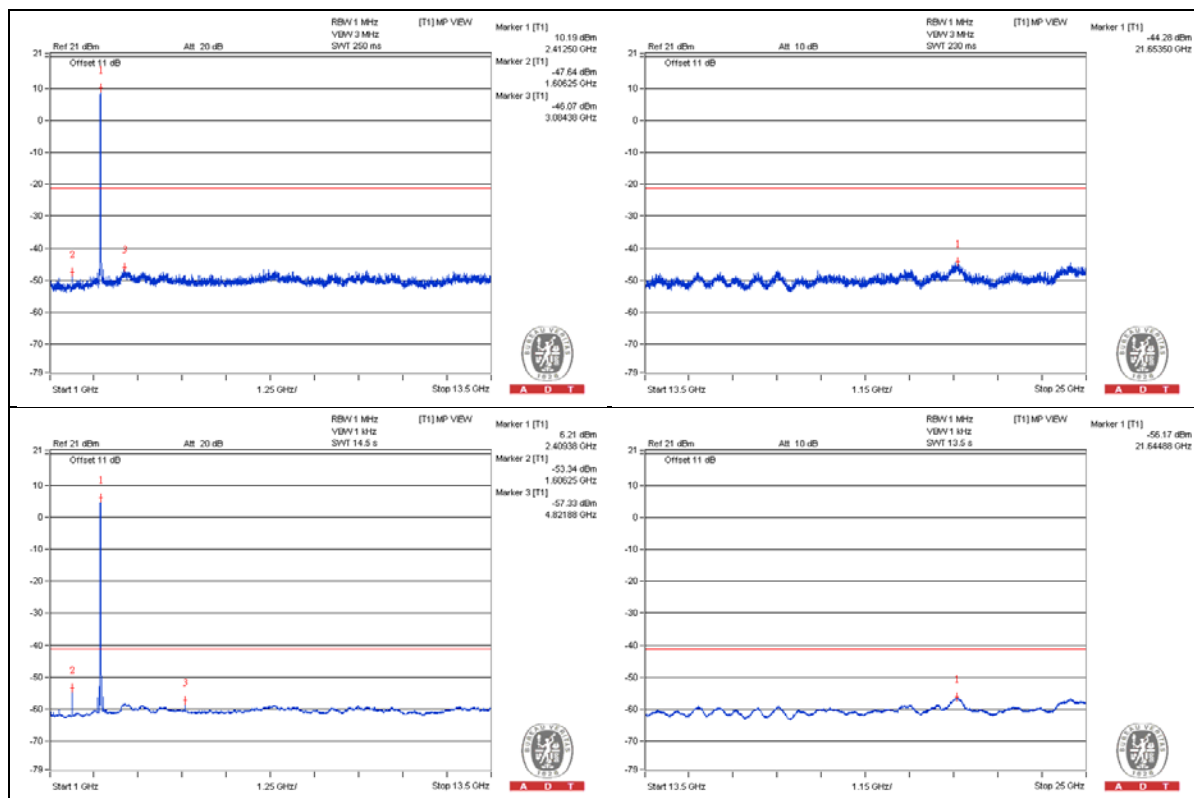
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	1606.25 PK	51.24	74	-22.76	-47.64	3.62	-44.02
2	1606.25 AV	45.54	54	-8.46	-53.34	3.62	-49.72
3	4825 PK	50.32	74	-23.68	-48.56	3.62	-44.94
4	4825 AV	41.37	54	-12.63	-57.51	3.62	-53.89

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



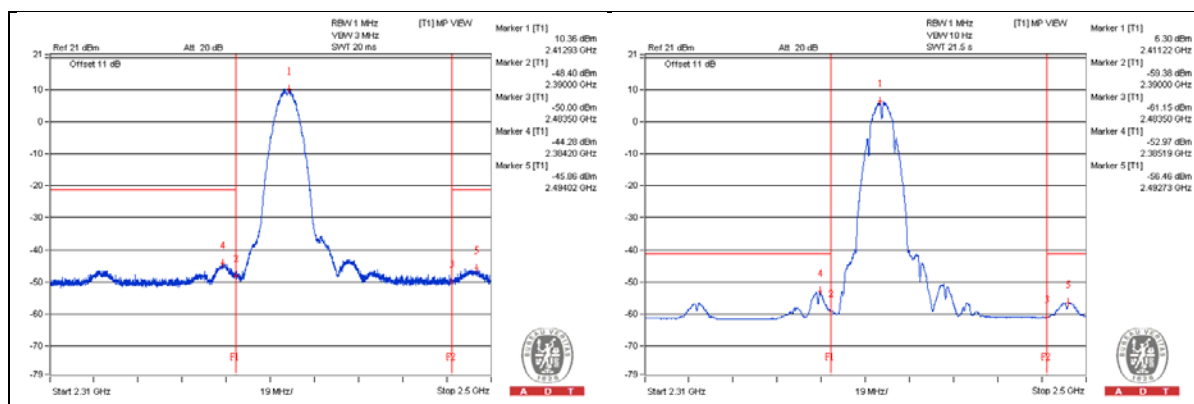
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2384.2 PK	54.6	74	-19.4	-44.28	3.62	-40.66
2	2385.19 AV	45.91	54	-8.09	-52.97	3.62	-49.35
3	2494.01 PK	53.02	74	-20.98	-45.86	3.62	-42.24
4	2492.73 AV	42.42	54	-11.58	-56.46	3.62	-52.84

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11b - Channel 6

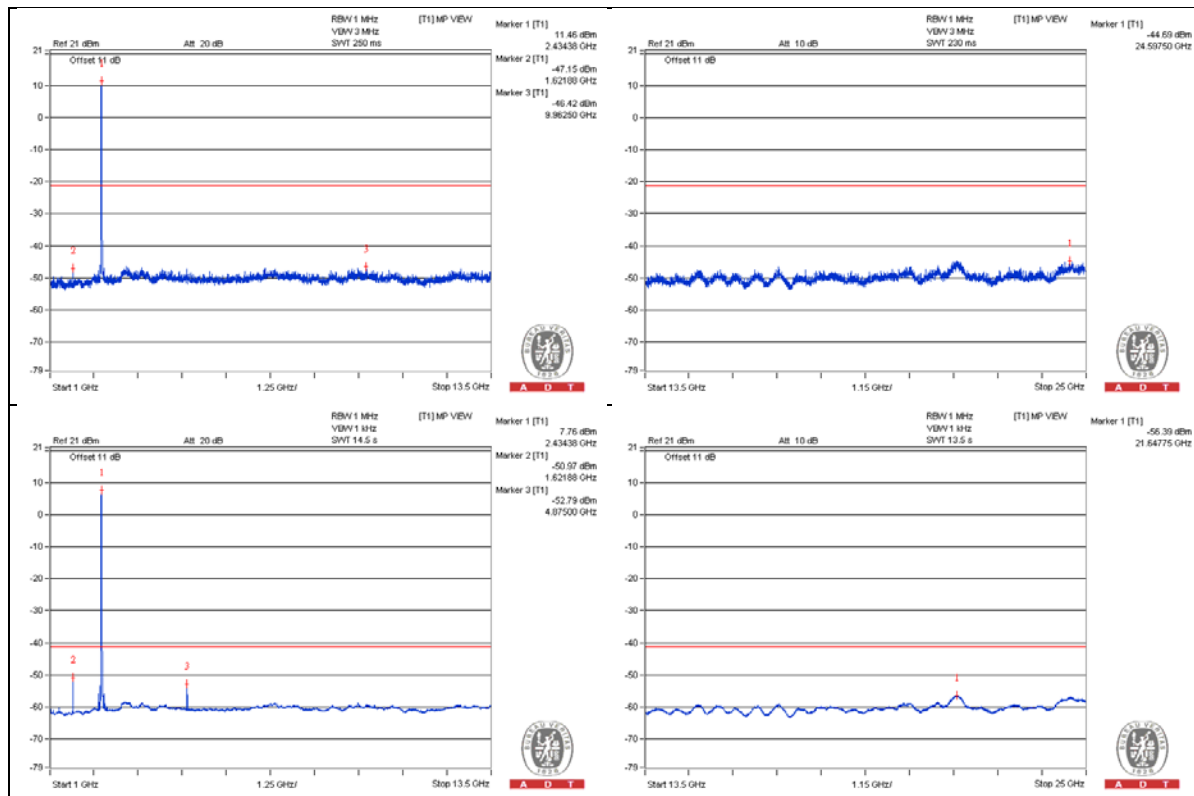
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	1625 PK	51.68	74	-22.32	-47.2	3.62	-43.58
2	1625 AV	47.14	54	-6.86	-51.74	3.62	-48.12
3	4875 PK	51.54	74	-22.46	-47.34	3.62	-43.72
4	4875 AV	46.09	54	-7.91	-52.79	3.62	-49.17
5	7312.5 PK	49.66	74	-24.34	-49.22	3.62	-45.6
6	7312.5 AV	39.7	54	-14.3	-59.18	3.62	-55.56

Note :

Emission Level (dBUV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



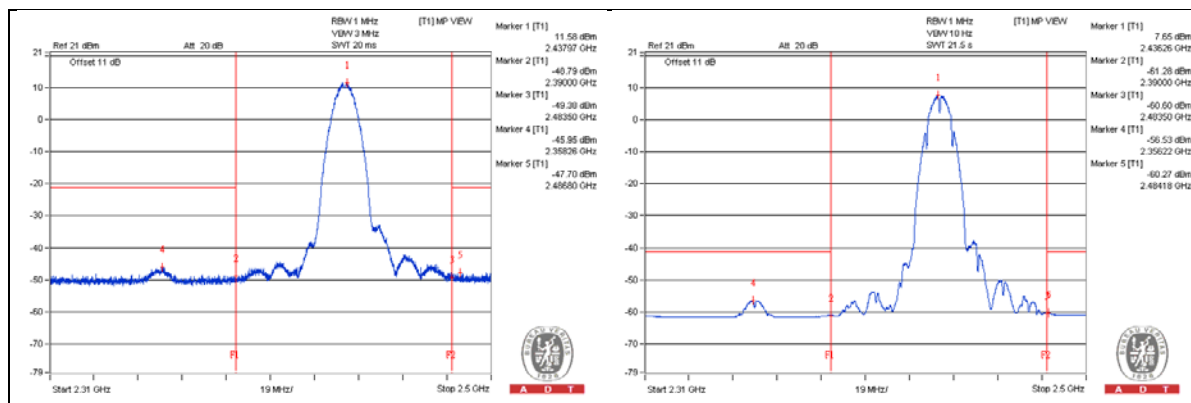
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2358.26 PK	52.93	74	-21.07	-45.95	3.62	-42.33
2	2356.22 AV	42.35	54	-11.65	-56.53	3.62	-52.91
3	2486.8 PK	51.18	74	-22.82	-47.7	3.62	-44.08
4	2484.18 AV	38.61	54	-15.39	-60.27	3.62	-56.65

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11b - Channel 11

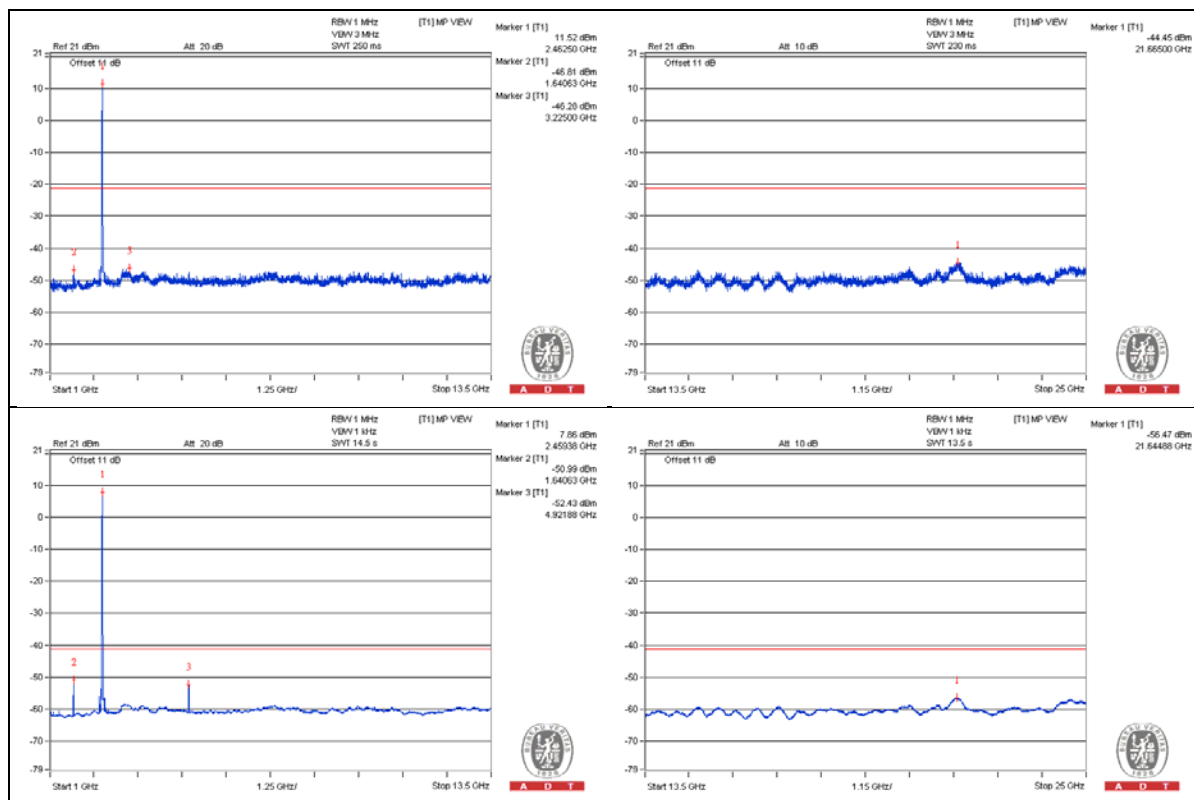
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	4925 PK	51.44	74	-22.56	-47.44	3.62	-43.82
2	4925 AV	46.43	54	-7.57	-52.45	3.62	-48.83
3	7387.5 PK	50.21	74	-23.79	-48.67	3.62	-45.05
4	7387.5 AV	39.55	54	-14.45	-59.33	3.62	-55.71

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



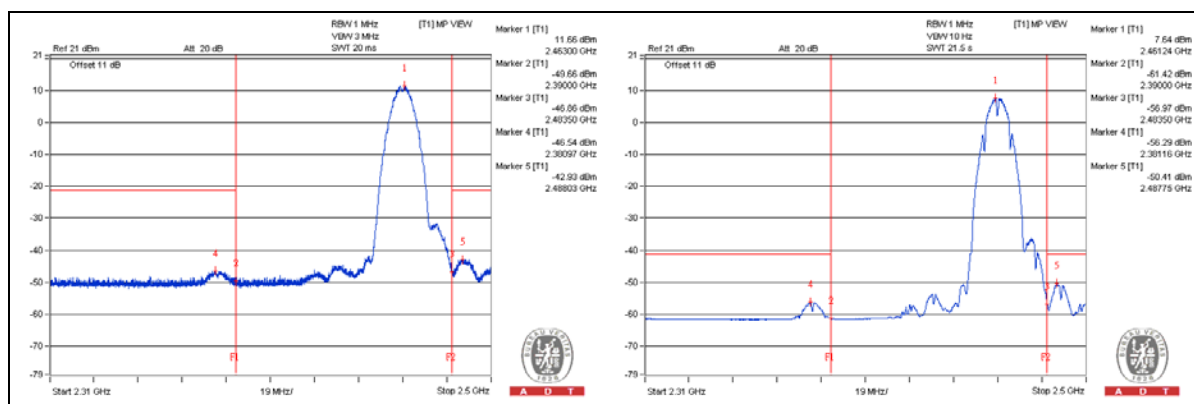
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2380.97 PK	52.34	74	-21.66	-46.54	3.62	-42.92
2	2381.16 AV	42.59	54	-11.41	-56.29	3.62	-52.67
3	2488.03 PK	55.95	74	-18.05	-42.93	3.62	-39.31
4	2487.74 AV	48.47	54	-5.53	-50.41	3.62	-46.79

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11b - Channel 12

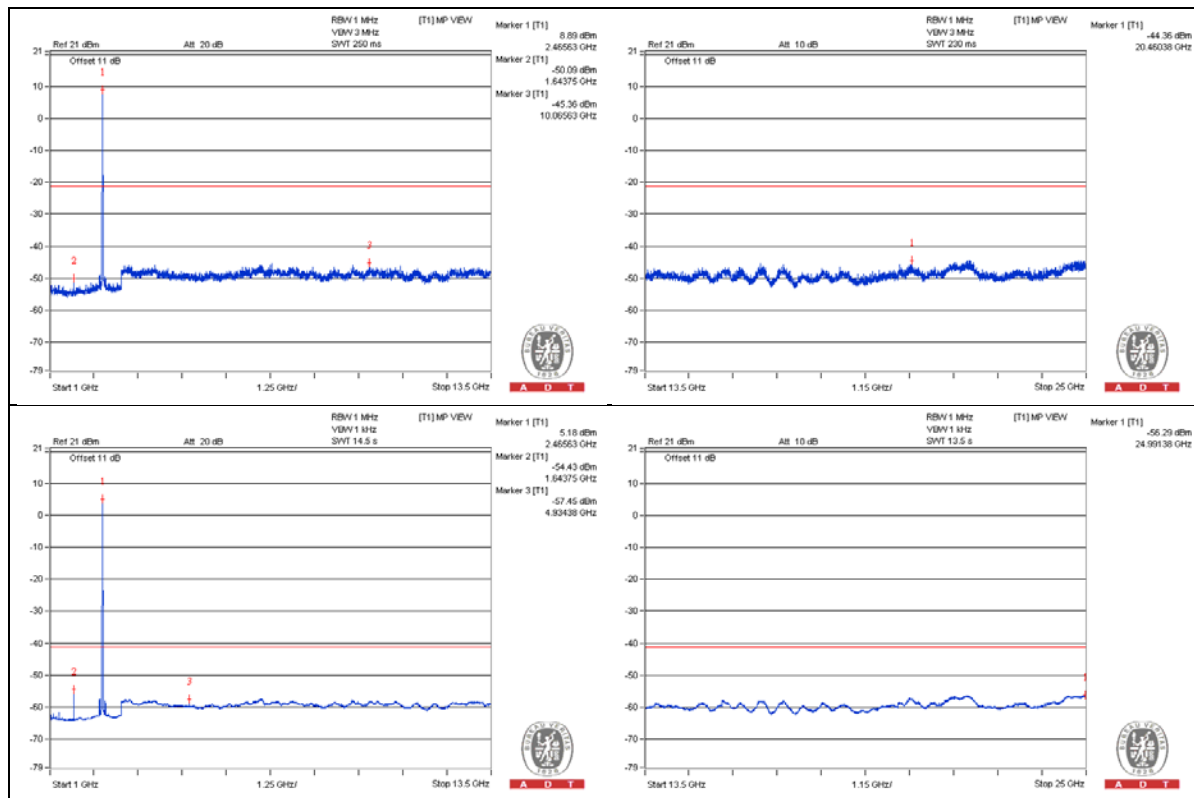
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	4934.375 PK	50.4	74	-23.6	-48.48	3.62	-44.86
2	4934.375 AV	41.43	54	-12.57	-57.45	3.62	-53.83
3	7400 PK	51.06	74	-22.94	-47.82	3.62	-44.2
4	7400 AV	40.36	54	-13.64	-58.52	3.62	-54.9

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



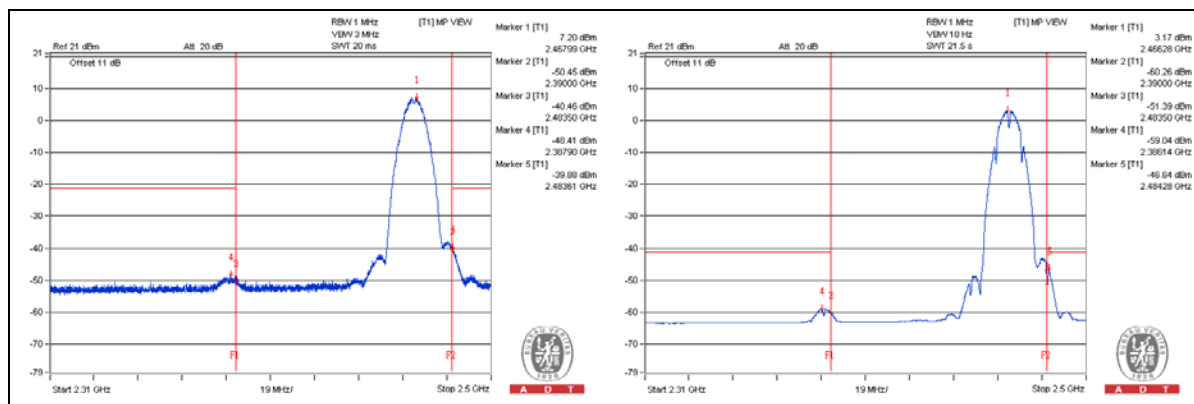
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2387.9 PK	50.47	74	-23.53	-48.41	3.62	-44.79
2	2386.14 AV	39.84	54	-14.16	-59.04	3.62	-55.42
3	2483.61 PK	59	74	-15	-39.88	3.62	-36.26
4	2484.28 AV	52.24	54	-1.76	-46.64	3.62	-43.02

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11b - Channel 13

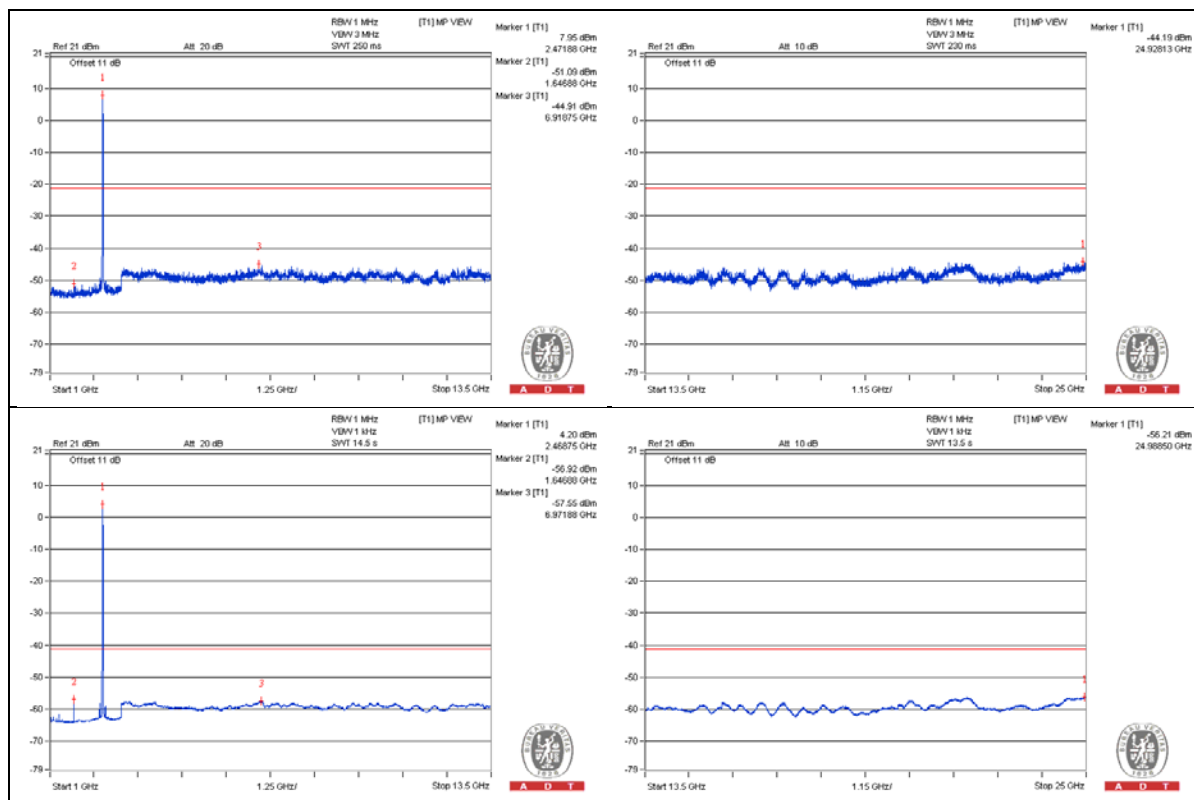
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	4943.75 PK	48.88	74	-25.12	-50	3.62	-46.38
2	4943.75 AV	39.81	54	-14.19	-59.07	3.62	-55.45
3	7415.625 PK	50.5	74	-23.5	-48.38	3.62	-44.76
4	7415.625 AV	40.33	54	-13.67	-58.55	3.62	-54.93

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



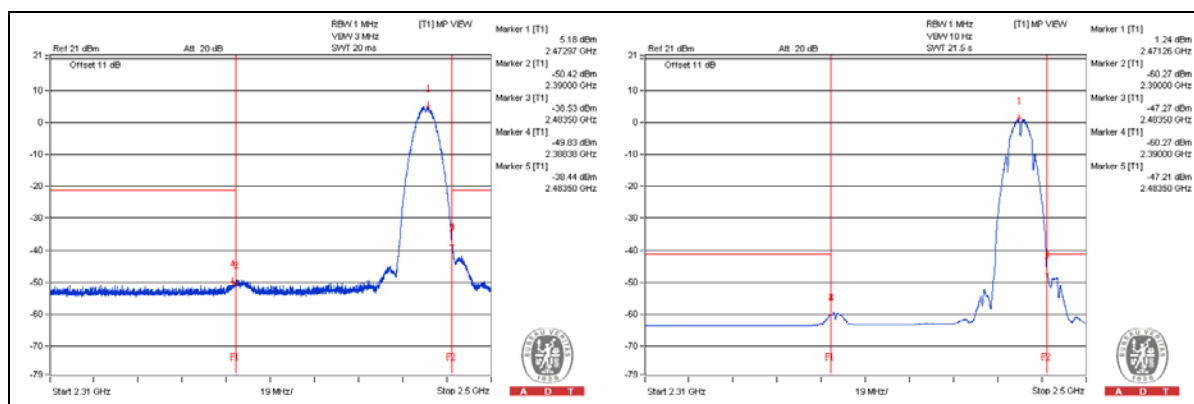
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2388.38 PK	49.05	74	-24.95	-49.83	3.62	-46.21
2	2390 AV	38.61	54	-15.39	-60.27	3.62	-56.65
3	2483.5 PK	60.44	74	-13.56	-38.44	3.62	-34.82
4	2483.5 AV	51.67	54	-2.33	-47.21	3.62	-43.59

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11g - Channel 1

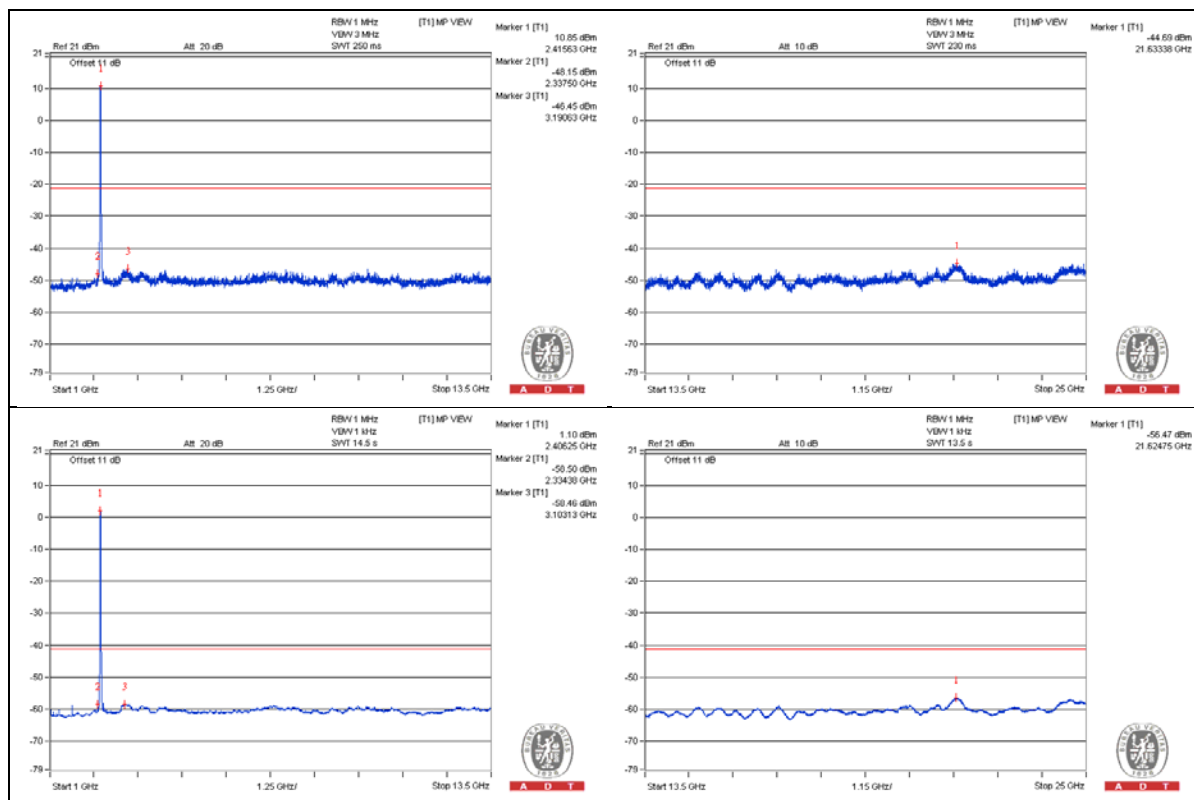
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	1606.25 PK	49.42	74	-24.58	-49.46	3.62	-45.84
2	1606.25 AV	39.97	54	-14.03	-58.91	3.62	-55.29
3	4825 PK	48.87	74	-25.13	-50.01	3.62	-46.39
4	4825 AV	38.75	54	-15.25	-60.13	3.62	-56.51

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



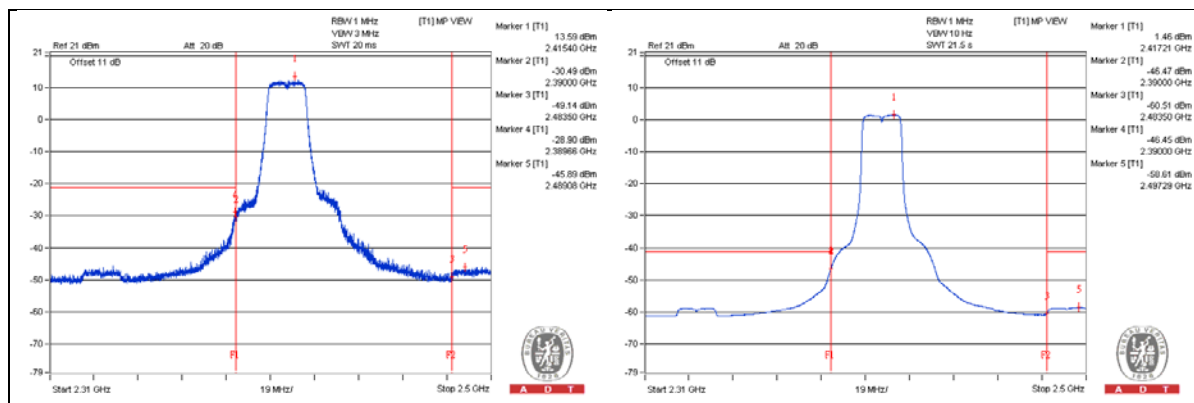
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2389.66 PK	69.98	74	-4.02	-28.9	3.62	-25.28
2	2390 AV	52.43	54	-1.57	-46.45	3.62	-42.83
3	2489.07 PK	52.99	74	-21.01	-45.89	3.62	-42.27
4	2497.29 AV	40.27	54	-13.73	-58.61	3.62	-54.99

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11g - Channel 6

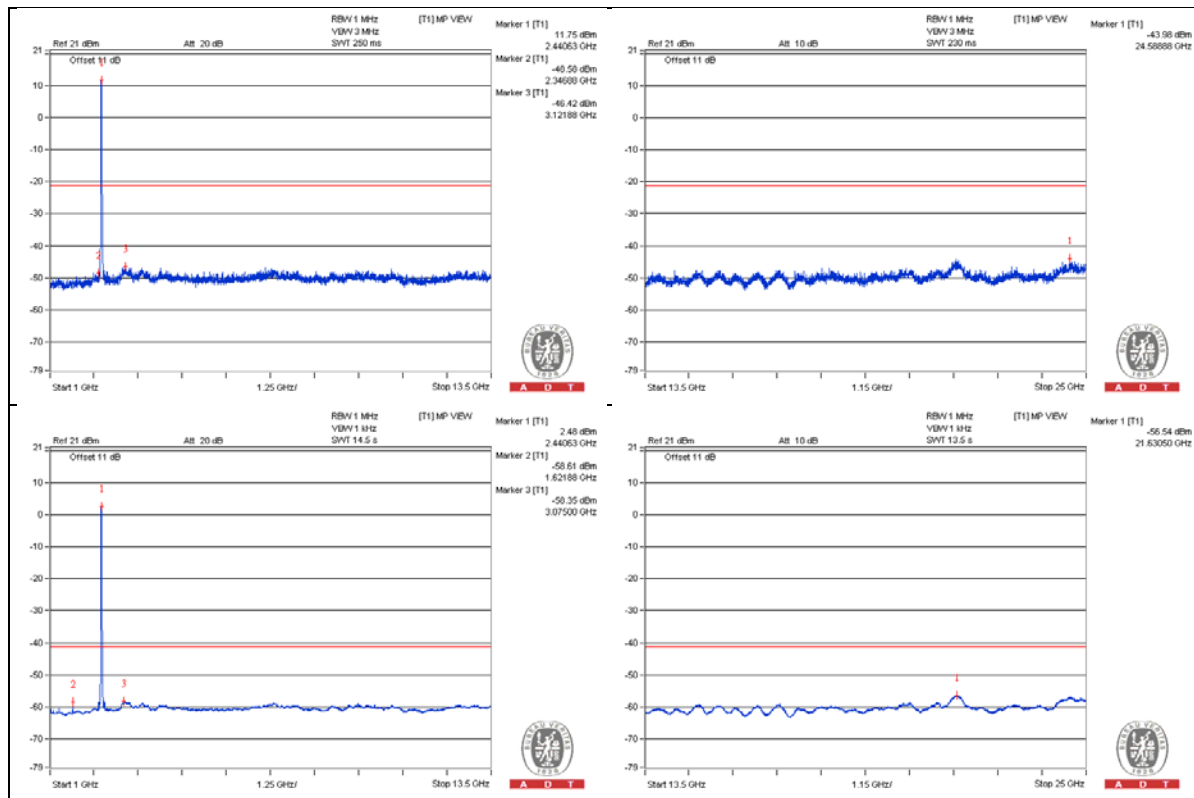
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	1625 PK	48.34	74	-25.66	-50.54	3.62	-46.92
2	1625 AV	39.44	54	-14.56	-59.44	3.62	-55.82
3	4875 PK	49.12	74	-24.88	-49.76	3.62	-46.14
4	4875 AV	38.73	54	-15.27	-60.15	3.62	-56.53
5	7312.5 PK	50.6	74	-23.4	-48.28	3.62	-44.66
6	7312.5 AV	39.47	54	-14.53	-59.41	3.62	-55.79

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



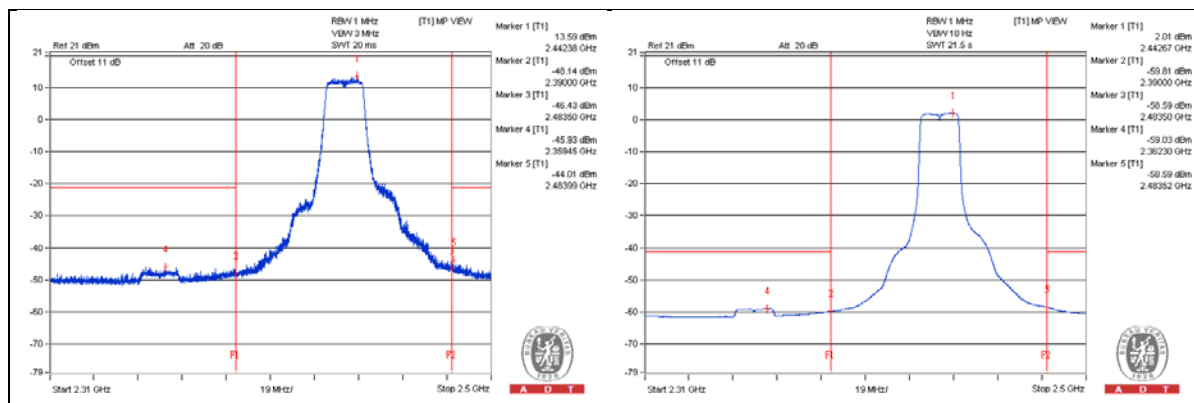
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2359.45 PK	52.95	74	-21.05	-45.93	3.62	-42.31
2	2362.3 AV	39.85	54	-14.15	-59.03	3.62	-55.41
3	2483.99 PK	54.87	74	-19.13	-44.01	3.62	-40.39
4	2483.52 AV	40.29	54	-13.71	-58.59	3.62	-54.97

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11g - Channel 11

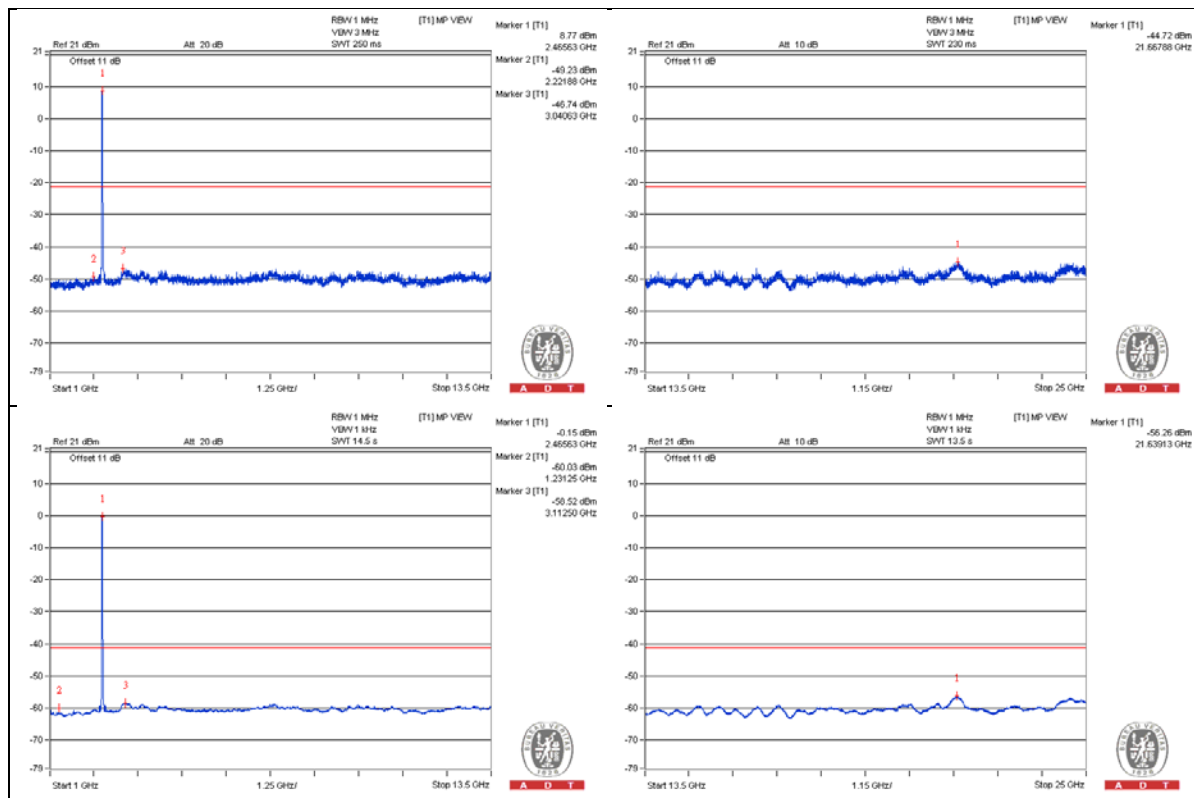
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	4925 PK	49.78	74	-24.22	-49.1	3.62	-45.48
2	4925 AV	37.9	54	-16.1	-60.98	3.62	-57.36
3	7384.375 PK	50.13	74	-23.87	-48.75	3.62	-45.13
4	7384.375 AV	39.74	54	-14.26	-59.14	3.62	-55.52

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



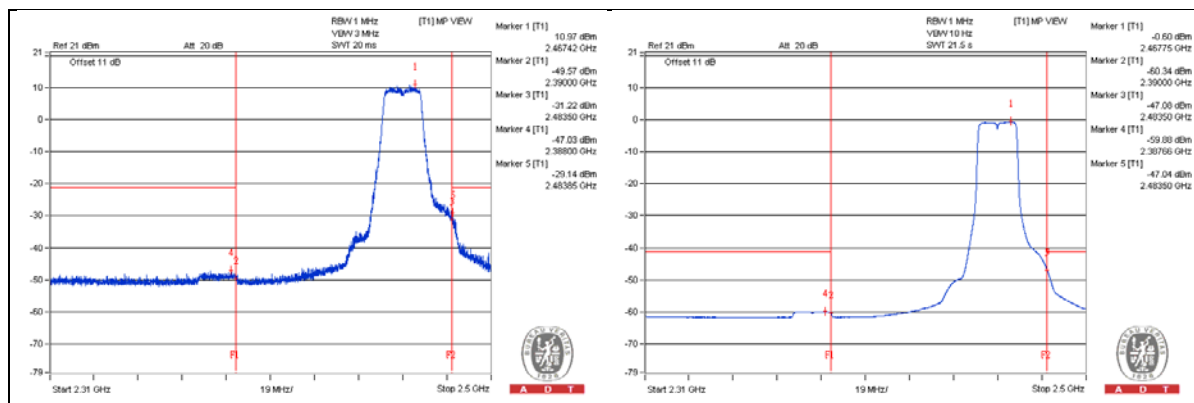
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2387.99 PK	51.85	74	-22.15	-47.03	3.62	-43.41
2	2387.66 AV	39	54	-15	-59.88	3.62	-56.26
3	2483.85 PK	69.74	74	-4.26	-29.14	3.62	-25.52
4	2483.5 AV	51.84	54	-2.16	-47.04	3.62	-43.42

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11g - Channel 12

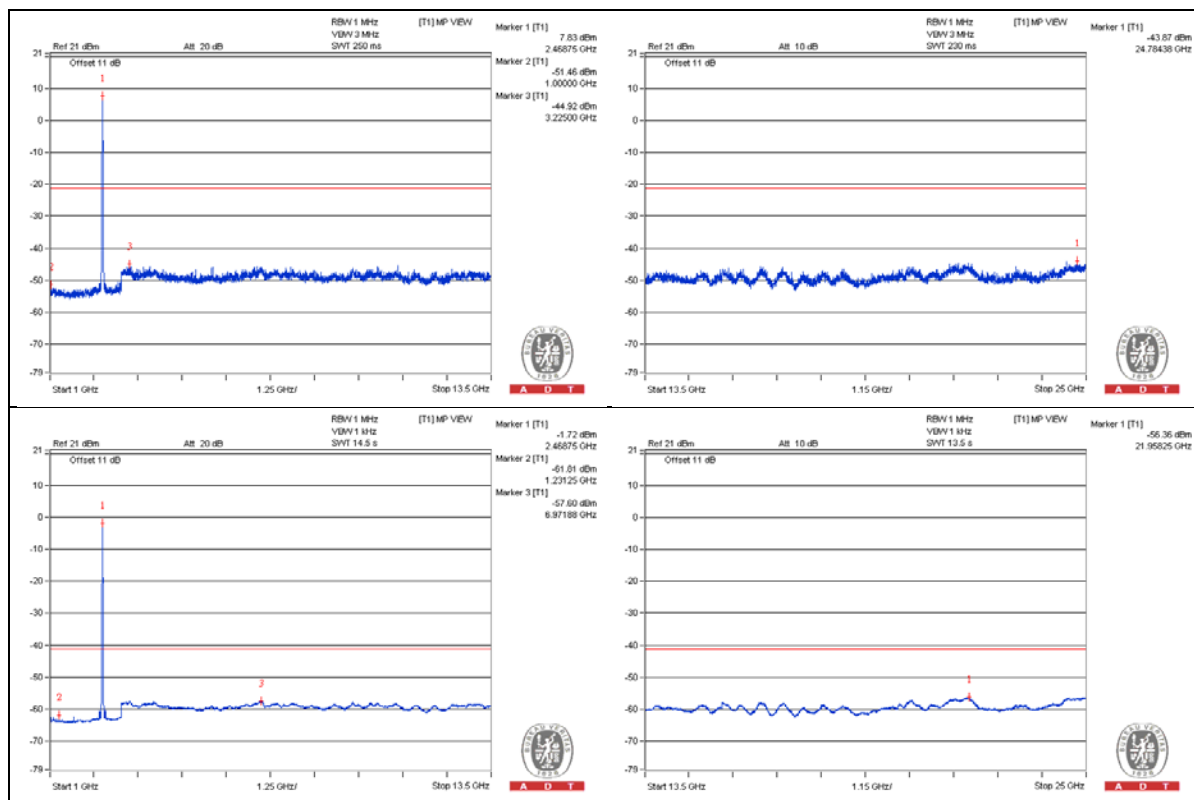
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	4934.375 PK	49.5	74	-24.5	-49.38	3.62	-45.76
2	4934.375 AV	39.01	54	-14.99	-59.87	3.62	-56.25
3	7400 PK	51.18	74	-22.82	-47.7	3.62	-44.08
4	7400 AV	40.39	54	-13.61	-58.49	3.62	-54.87

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



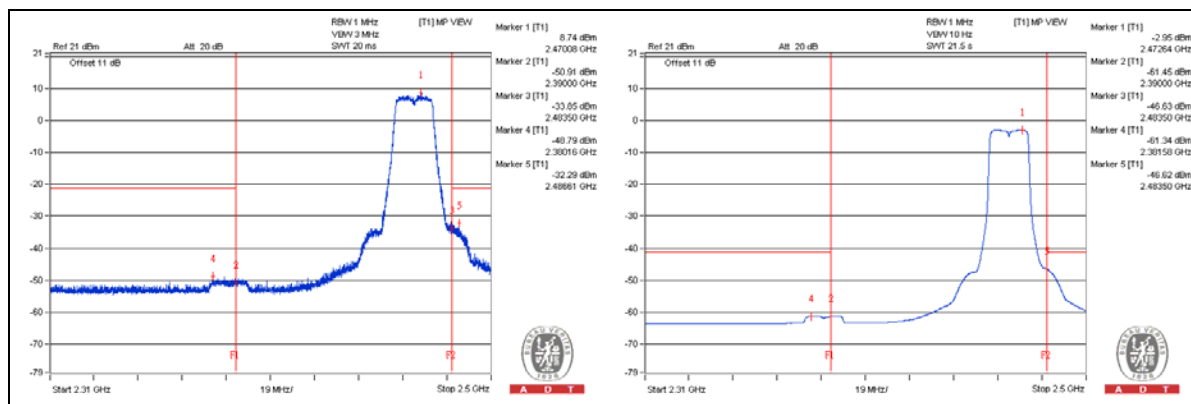
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2380.16 PK	50.09	74	-23.91	-48.79	3.62	-45.17
2	2381.58 AV	37.54	54	-16.46	-61.34	3.62	-57.72
3	2486.61 PK	66.59	74	-7.41	-32.29	3.62	-28.67
4	2483.5 AV	52.26	54	-1.74	-46.62	3.62	-43

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11g - Channel 13

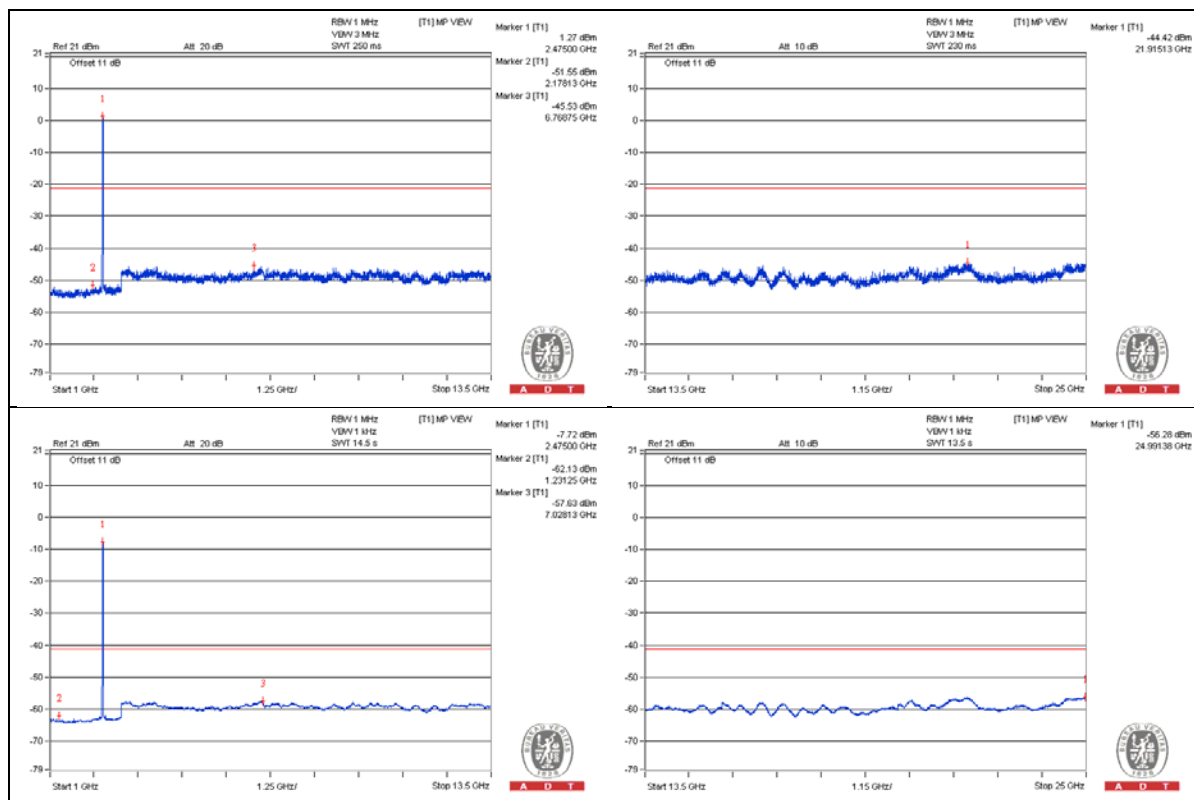
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	4943.75 PK	49.45	74	-24.55	-49.43	3.62	-45.81
2	4943.75 AV	38.93	54	-15.07	-59.95	3.62	-56.33
3	7415.625 PK	50.41	74	-23.59	-48.47	3.62	-44.85
4	7415.625 AV	40.69	54	-13.31	-58.19	3.62	-54.57

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



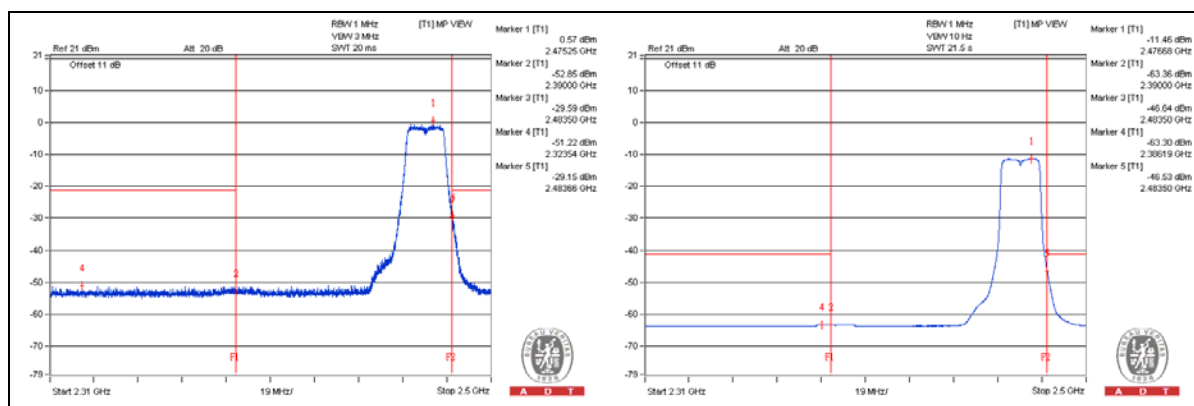
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2323.54 PK	47.66	74	-26.34	-51.22	3.62	-47.6
2	2386.19 AV	35.58	54	-18.42	-63.3	3.62	-59.68
3	2483.66 PK	69.73	74	-4.27	-29.15	3.62	-25.53
4	2483.5 AV	52.35	54	-1.65	-46.53	3.62	-42.91

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11n (HT20) - Channel 1

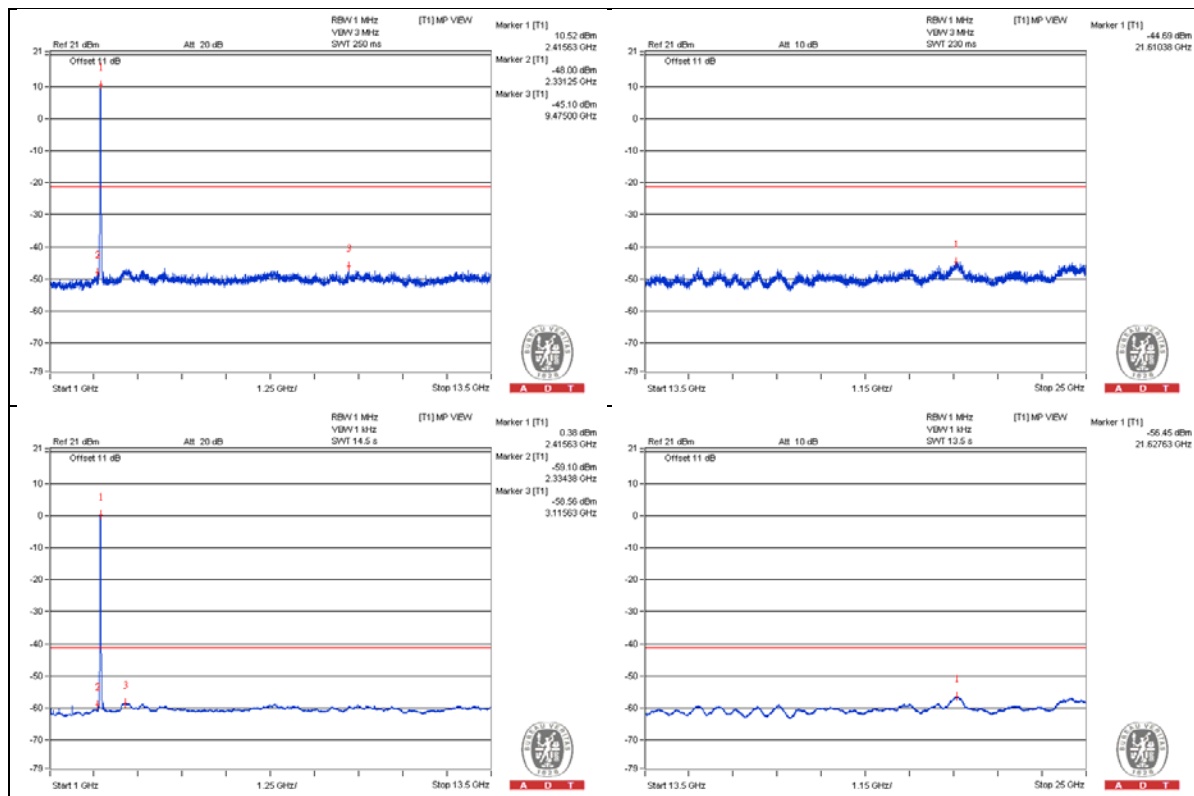
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	1606.25 PK	48.69	74	-25.31	-50.19	3.62	-46.57
2	1606.25 AV	39.59	54	-14.41	-59.29	3.62	-55.67
3	4825 PK	48.7	74	-25.3	-50.18	3.62	-46.56
4	4825 AV	38.25	54	-15.75	-60.63	3.62	-57.01

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



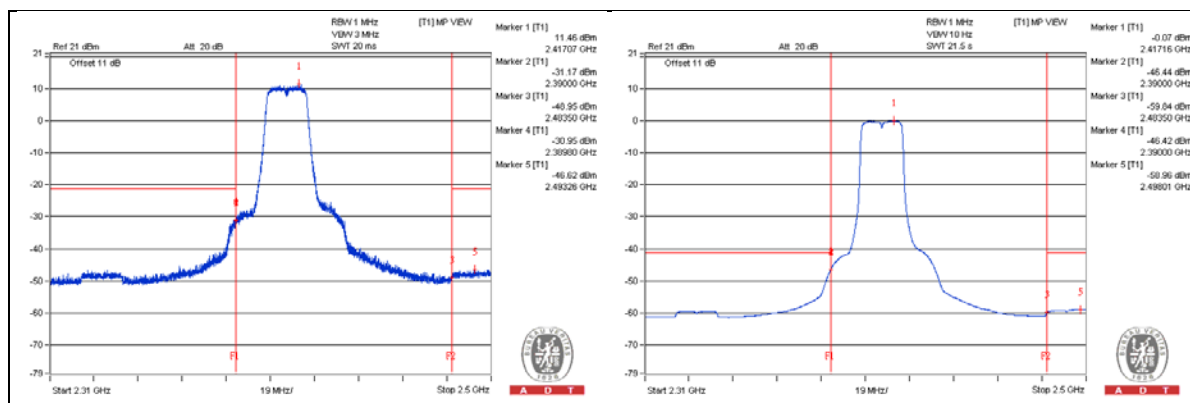
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2389.8 PK	67.93	74	-6.07	-30.95	3.62	-27.33
2	2390 AV	52.46	54	-1.54	-46.42	3.62	-42.8
3	2493.26 PK	52.26	74	-21.74	-46.62	3.62	-43
4	2498.01 AV	39.92	54	-14.08	-58.96	3.62	-55.34

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11n (HT20) - Channel 6

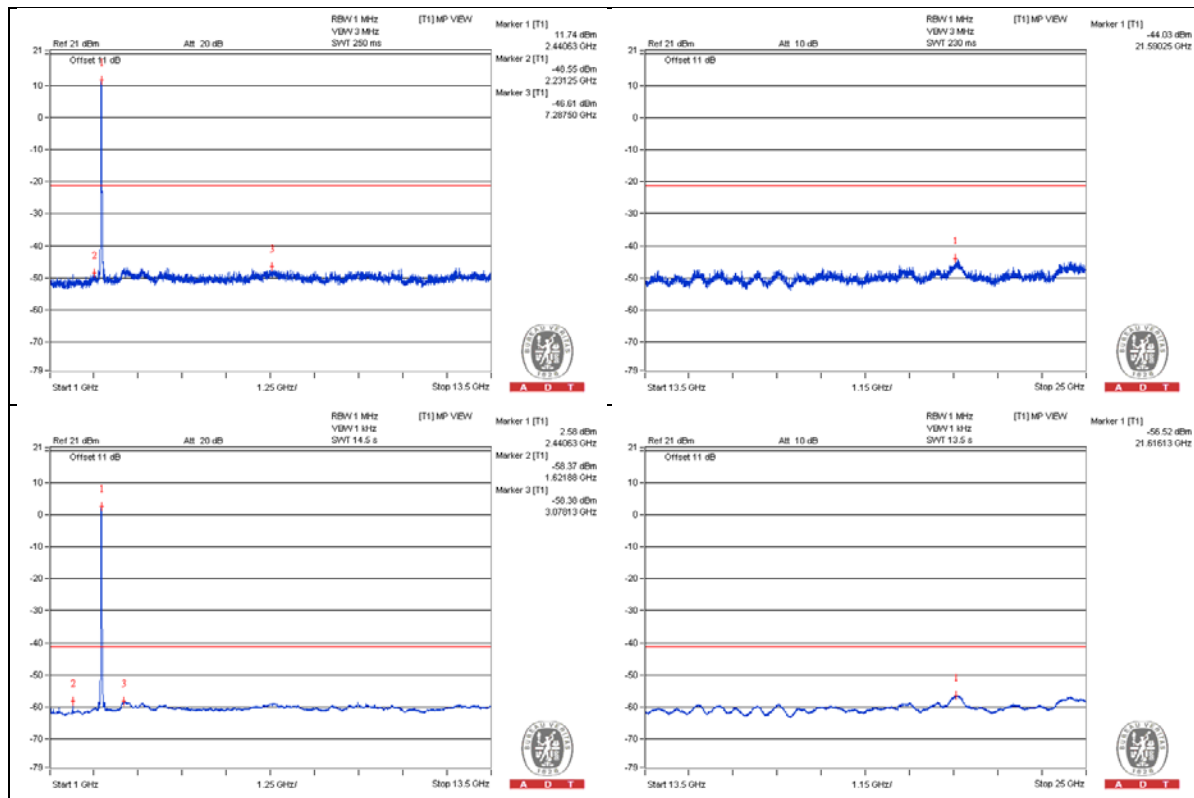
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	1625 PK	48.74	74	-25.26	-50.14	3.62	-46.52
2	1625 AV	40.01	54	-13.99	-58.87	3.62	-55.25
3	4875 PK	49.93	74	-24.07	-48.95	3.62	-45.33
4	4875 AV	38.62	54	-15.38	-60.26	3.62	-56.64
5	7309.375 PK	49.71	74	-24.29	-49.17	3.62	-45.55
6	7312.5 AV	39.9	54	-14.1	-58.98	3.62	-55.36

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



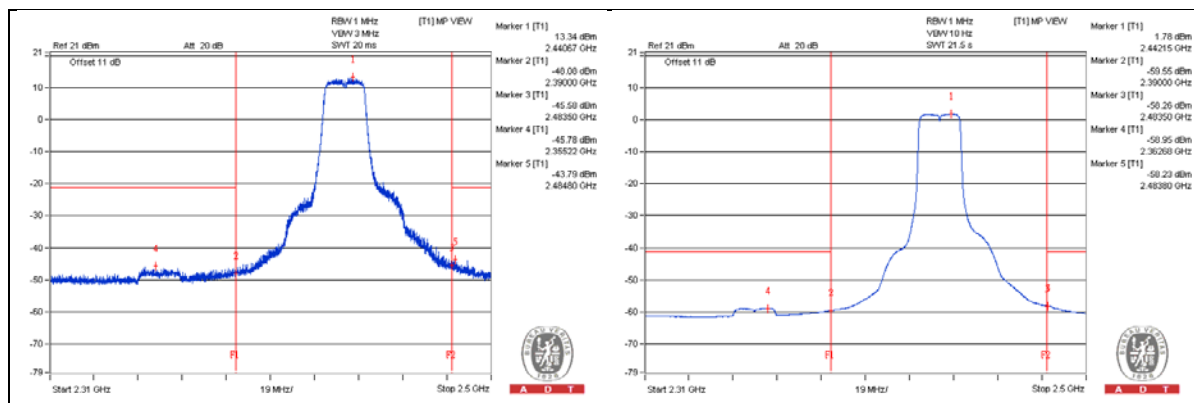
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2355.22 PK	53.1	74	-20.9	-45.78	3.62	-42.16
2	2362.68 AV	39.93	54	-14.07	-58.95	3.62	-55.33
3	2484.8 PK	55.09	74	-18.91	-43.79	3.62	-40.17
4	2483.8 AV	40.65	54	-13.35	-58.23	3.62	-54.61

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11n (HT20) - Channel 11

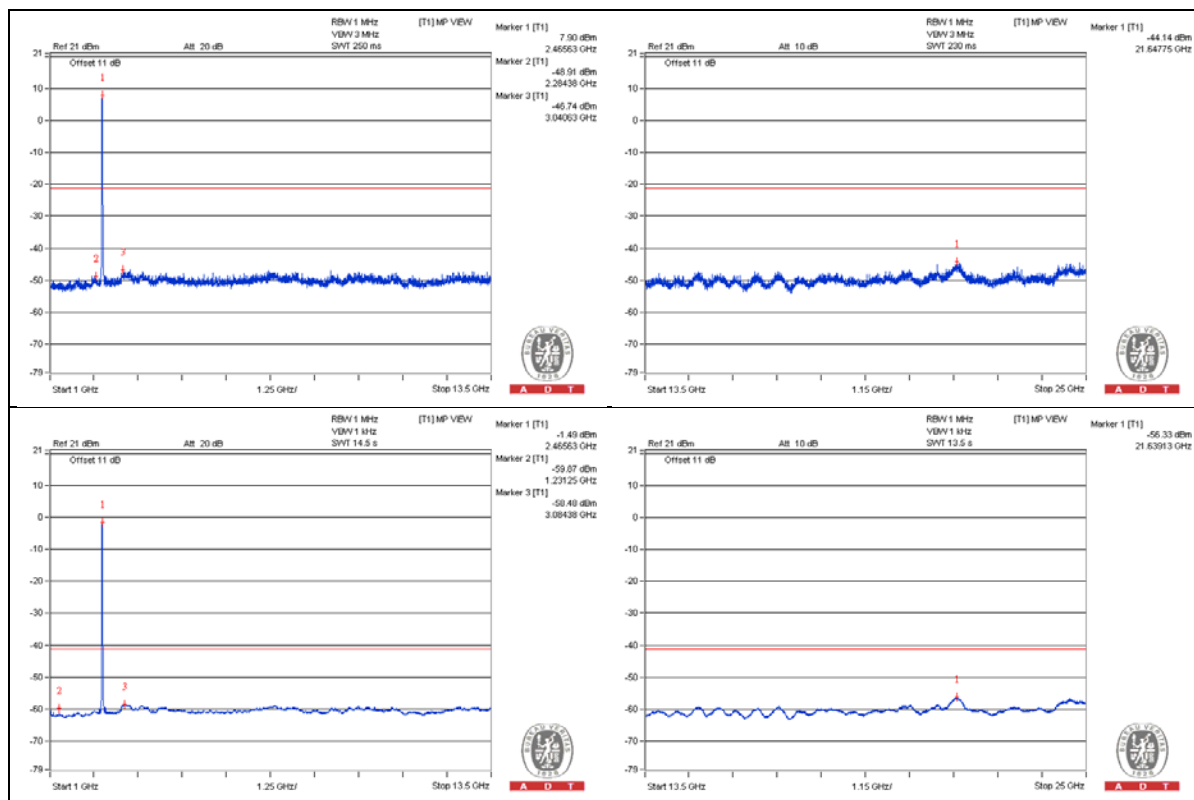
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	4925 PK	47.59	74	-26.41	-51.29	3.62	-47.67
2	4925 AV	37.82	54	-16.18	-61.06	3.62	-57.44
3	7387.5 PK	50.13	74	-23.87	-48.75	3.62	-45.13
4	7384.375 AV	39.55	54	-14.45	-59.33	3.62	-55.71

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



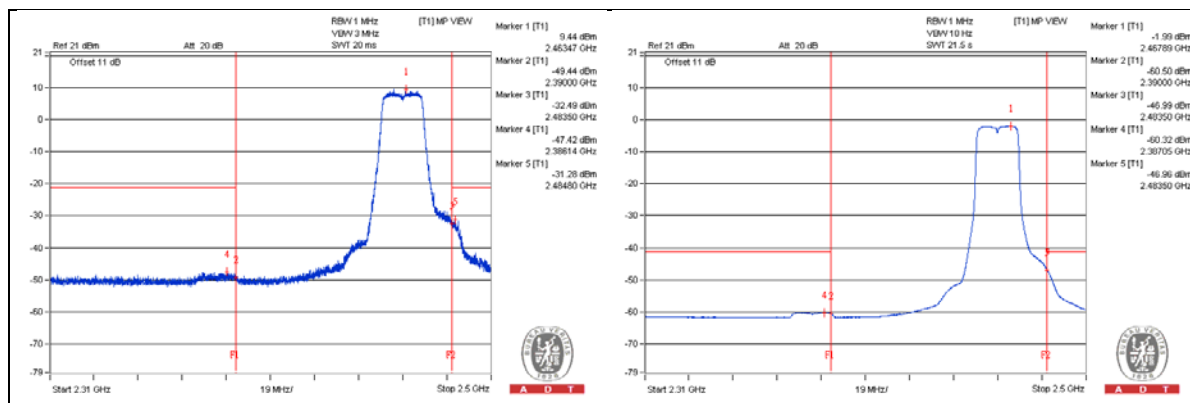
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2386.14 PK	51.46	74	-22.54	-47.42	3.62	-43.8
2	2387.05 AV	38.56	54	-15.44	-60.32	3.62	-56.7
3	2484.8 PK	67.6	74	-6.4	-31.28	3.62	-27.66
4	2483.5 AV	51.92	54	-2.08	-46.96	3.62	-43.34

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11n (HT20) - Channel 12

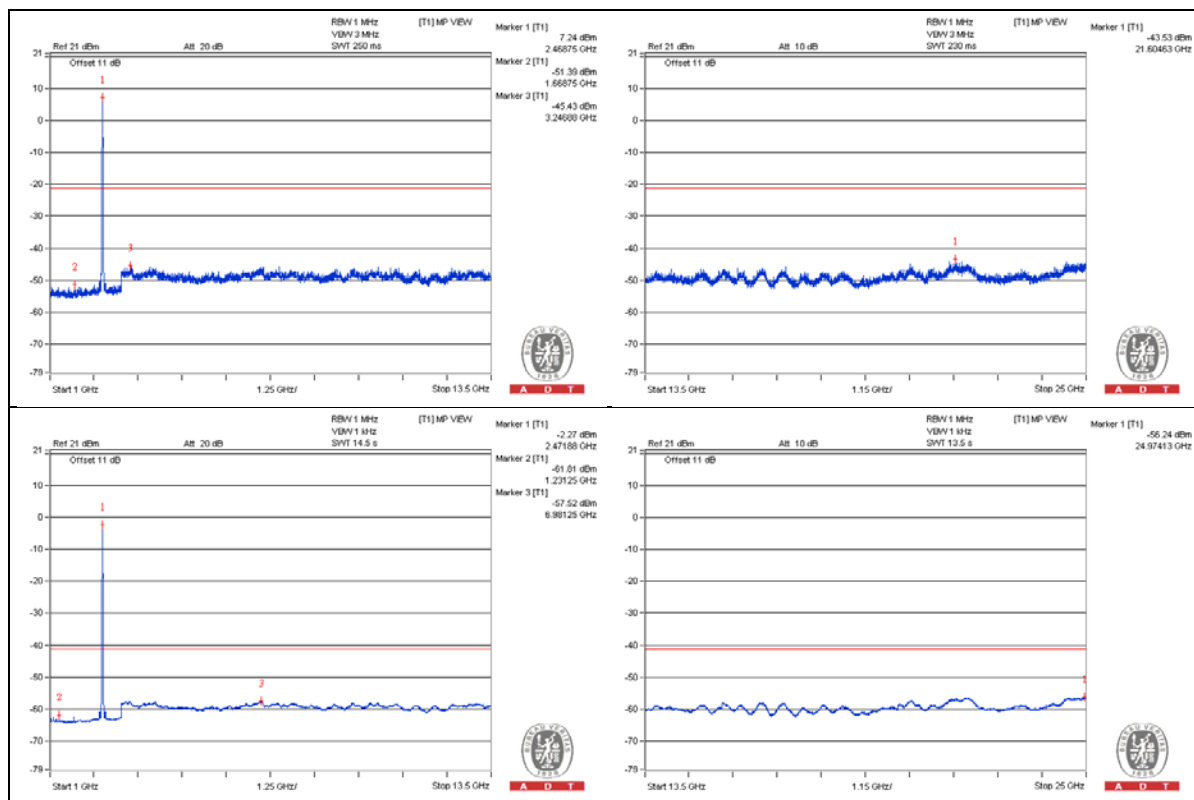
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	4934.375 PK	48.9	74	-25.1	-49.98	3.62	-46.36
2	4934.375 AV	38.88	54	-15.12	-60	3.62	-56.38
3	7400 PK	51.79	74	-22.21	-47.09	3.62	-43.47
4	7400 AV	40.24	54	-13.76	-58.64	3.62	-55.02

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



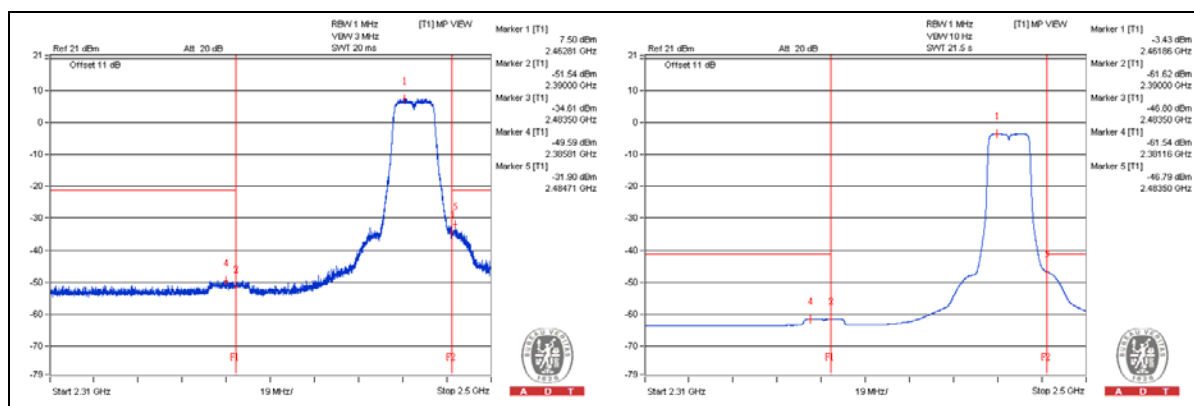
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2385.81 PK	49.29	74	-24.71	-49.59	3.62	-45.97
2	2381.16 AV	37.34	54	-16.66	-61.54	3.62	-57.92
3	2484.71 PK	66.98	74	-7.02	-31.9	3.62	-28.28
4	2483.5 AV	52.09	54	-1.91	-46.79	3.62	-43.17

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11n (HT20) - Channel 13

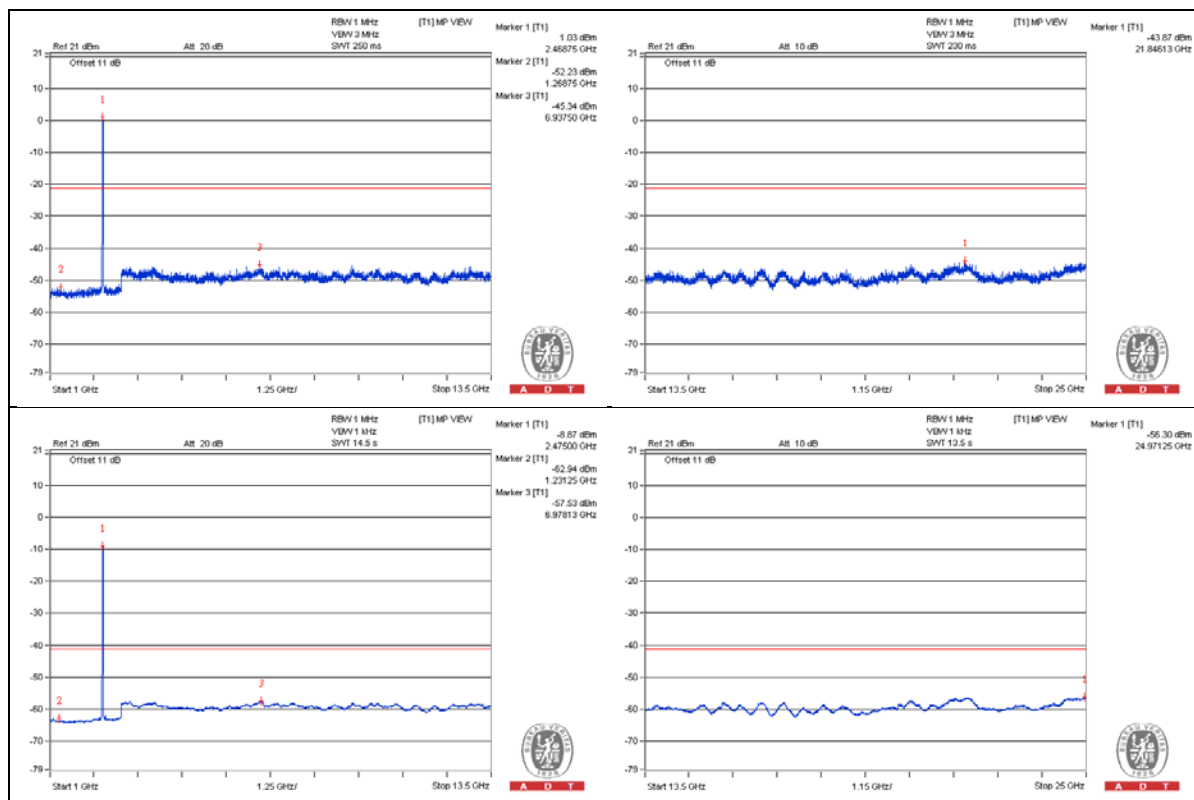
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	4943.75 PK	48.32	74	-25.68	-50.56	3.62	-46.94
2	4943.75 AV	38.78	54	-15.22	-60.1	3.62	-56.48
3	7415.625 PK	49.8	74	-24.2	-49.08	3.62	-45.46
4	7415.625 AV	40.36	54	-13.64	-58.52	3.62	-54.9

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



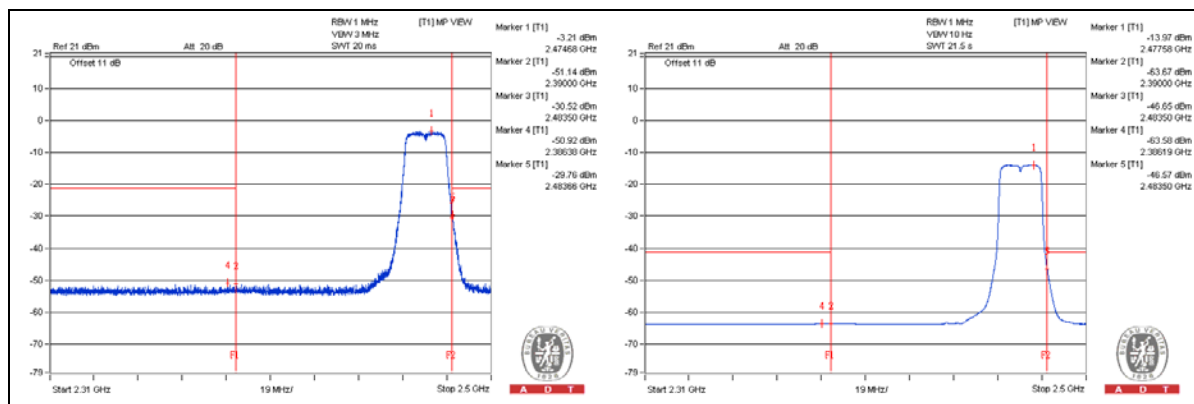
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2386.38 PK	47.96	74	-26.04	-50.92	3.62	-47.3
2	2386.19 AV	35.3	54	-18.7	-63.58	3.62	-59.96
3	2483.66 PK	69.12	74	-4.88	-29.76	3.62	-26.14
4	2483.5 AV	52.31	54	-1.69	-46.57	3.62	-42.95

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11n (HT40) - Channel 3

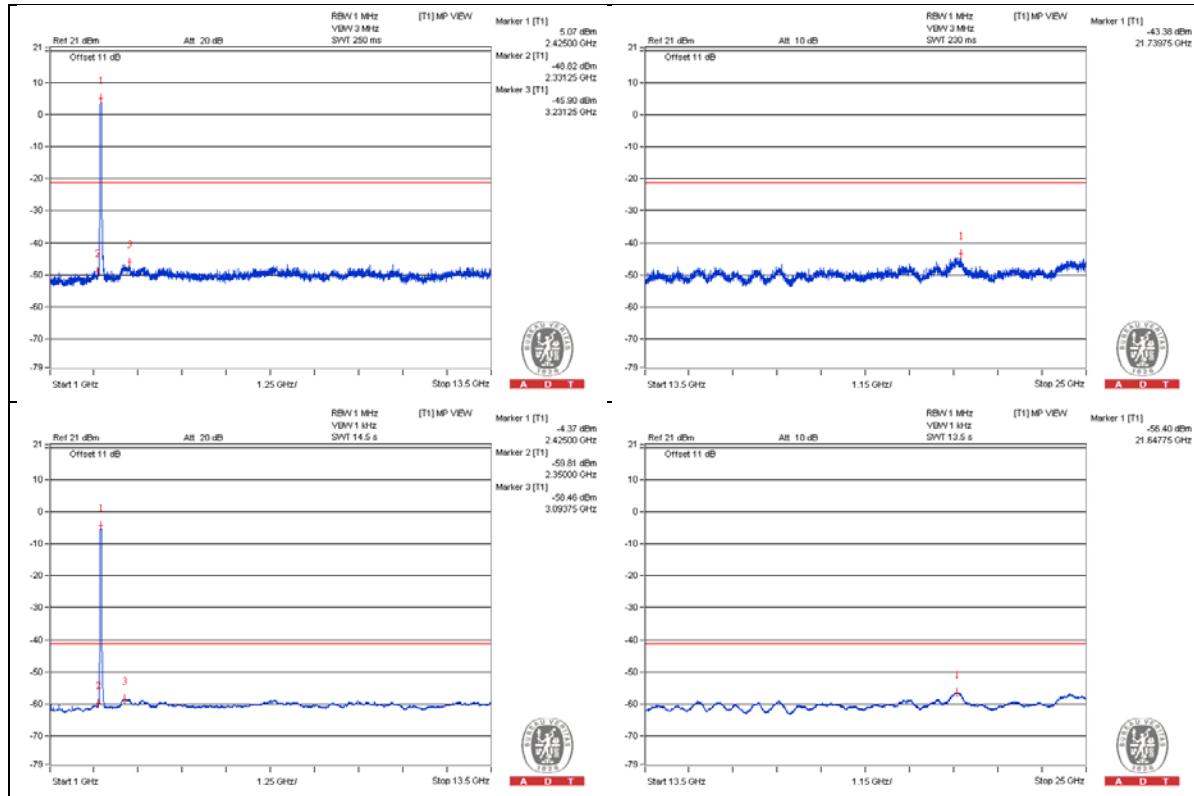
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	1615.625 PK	47.14	74	-26.86	-51.74	3.62	-48.12
2	1615.625 AV	36.81	54	-17.19	-62.07	3.62	-58.45
3	4843.75 PK	48.88	74	-25.12	-50	3.62	-46.38
4	4843.75 AV	37.96	54	-16.04	-60.92	3.62	-57.3
5	7265.625 PK	49.95	74	-24.05	-48.93	3.62	-45.31
6	7265.625 AV	39.6	54	-14.4	-59.28	3.62	-55.66

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



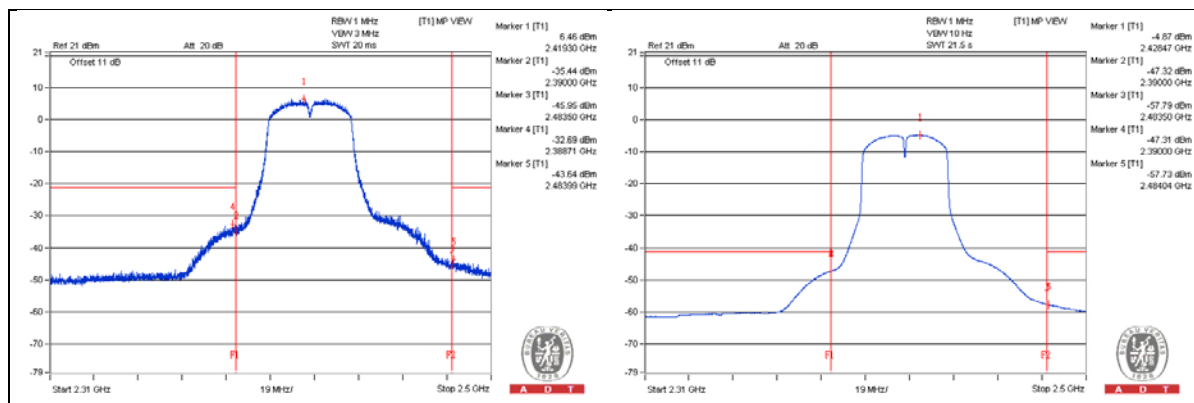
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2388.71 PK	66.19	74	-7.81	-32.69	3.62	-29.07
2	2390 AV	51.57	54	-2.43	-47.31	3.62	-43.69
3	2483.99 PK	55.24	74	-18.76	-43.64	3.62	-40.02
4	2484.04 AV	41.15	54	-12.85	-57.73	3.62	-54.11

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11n (HT40) - Channel 6

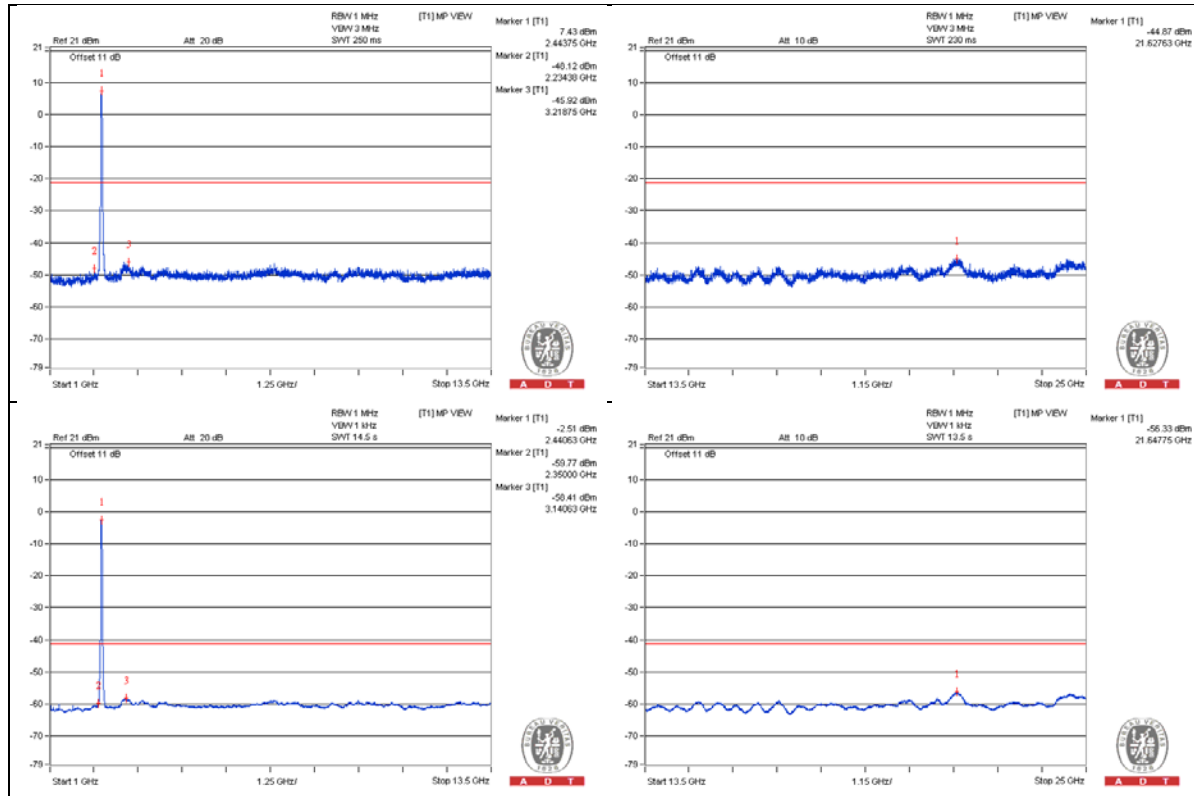
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	1625 PK	47.37	74	-26.63	-51.51	3.62	-47.89
2	1625 AV	37.98	54	-16.02	-60.9	3.62	-57.28
3	4875 PK	48.87	74	-25.13	-50.01	3.62	-46.39
4	4875 AV	38.1	54	-15.9	-60.78	3.62	-57.16
5	7312.5 PK	50.01	74	-23.99	-48.87	3.62	-45.25
6	7309.375 AV	39.49	54	-14.51	-59.39	3.62	-55.77

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



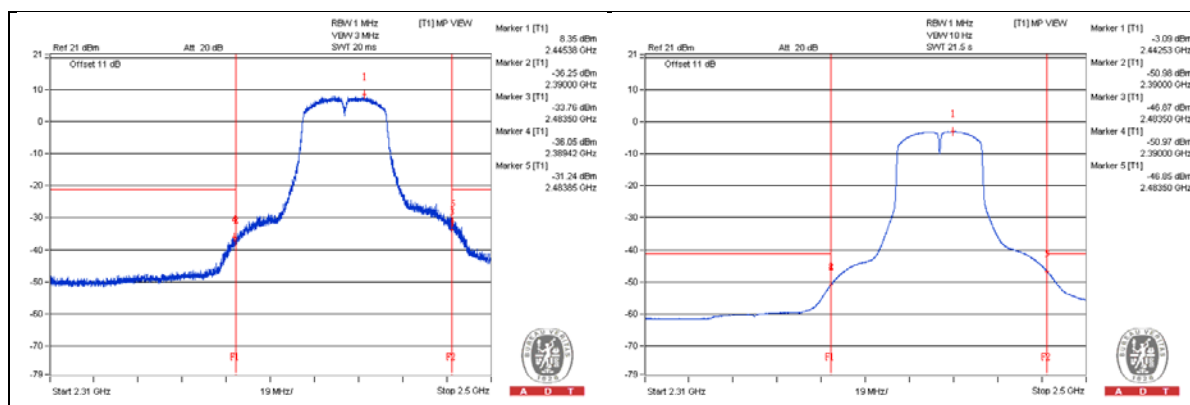
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2389.42 PK	62.83	74	-11.17	-36.05	3.62	-32.43
2	2390 AV	47.91	54	-6.09	-50.97	3.62	-47.35
3	2483.85 PK	67.64	74	-6.36	-31.24	3.62	-27.62
4	2483.5 AV	52.03	54	-1.97	-46.85	3.62	-43.23

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11n (HT40) - Channel 9

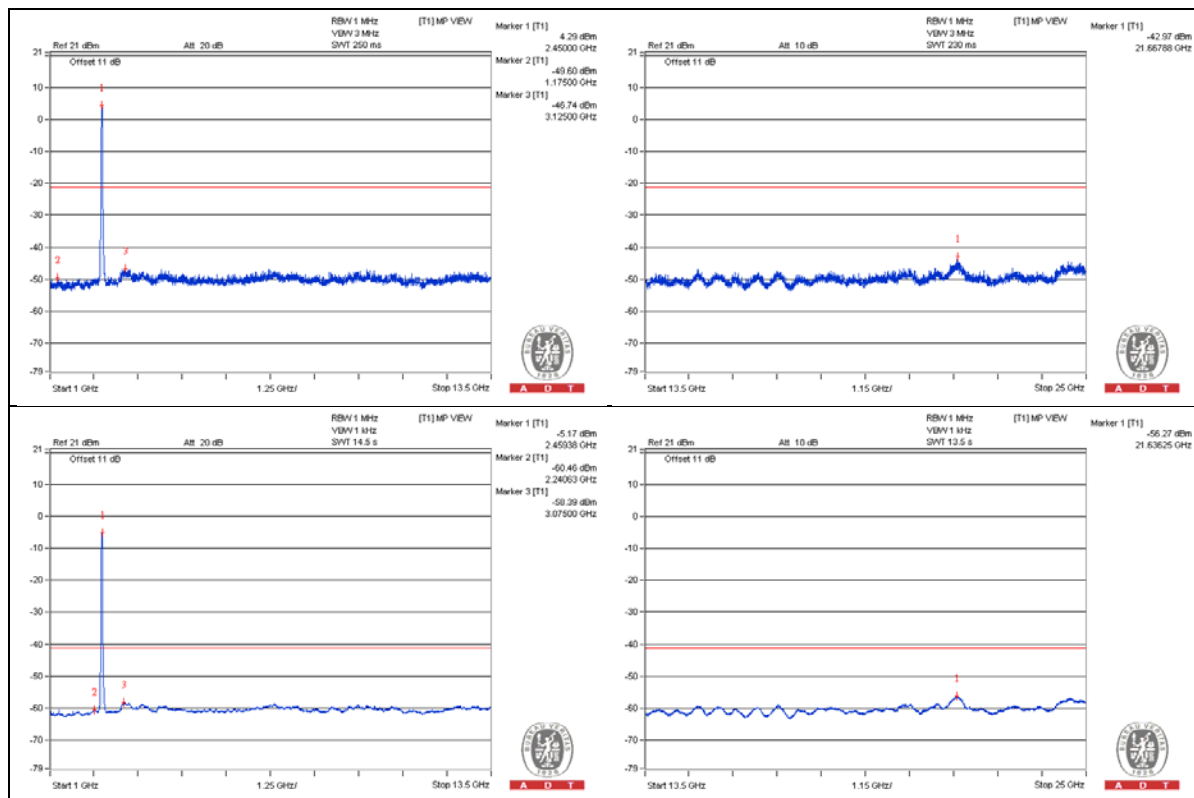
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	4903.125 PK	48.04	74	-25.96	-50.84	3.62	-47.22
2	4903.125 AV	37.83	54	-16.17	-61.05	3.62	-57.43
3	7356.25 PK	49.3	74	-24.7	-49.58	3.62	-45.96
4	7356.25 AV	39.82	54	-14.18	-59.06	3.62	-55.44

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



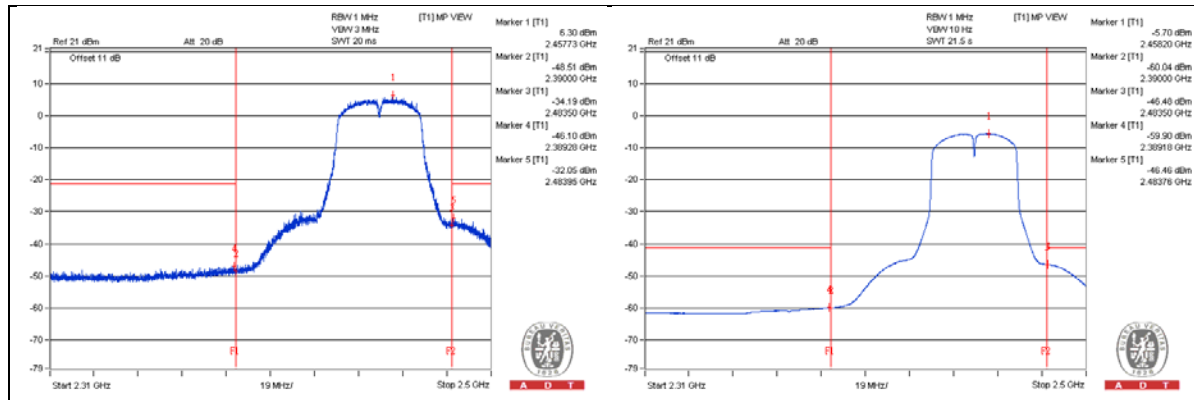
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2389.28 PK	52.78	74	-21.22	-46.1	3.62	-42.48
2	2389.18 AV	38.98	54	-15.02	-59.9	3.62	-56.28
3	2483.95 PK	66.83	74	-7.17	-32.05	3.62	-28.43
4	2483.76 AV	52.42	54	-1.58	-46.46	3.62	-42.84

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11n (HT40) - Channel 10

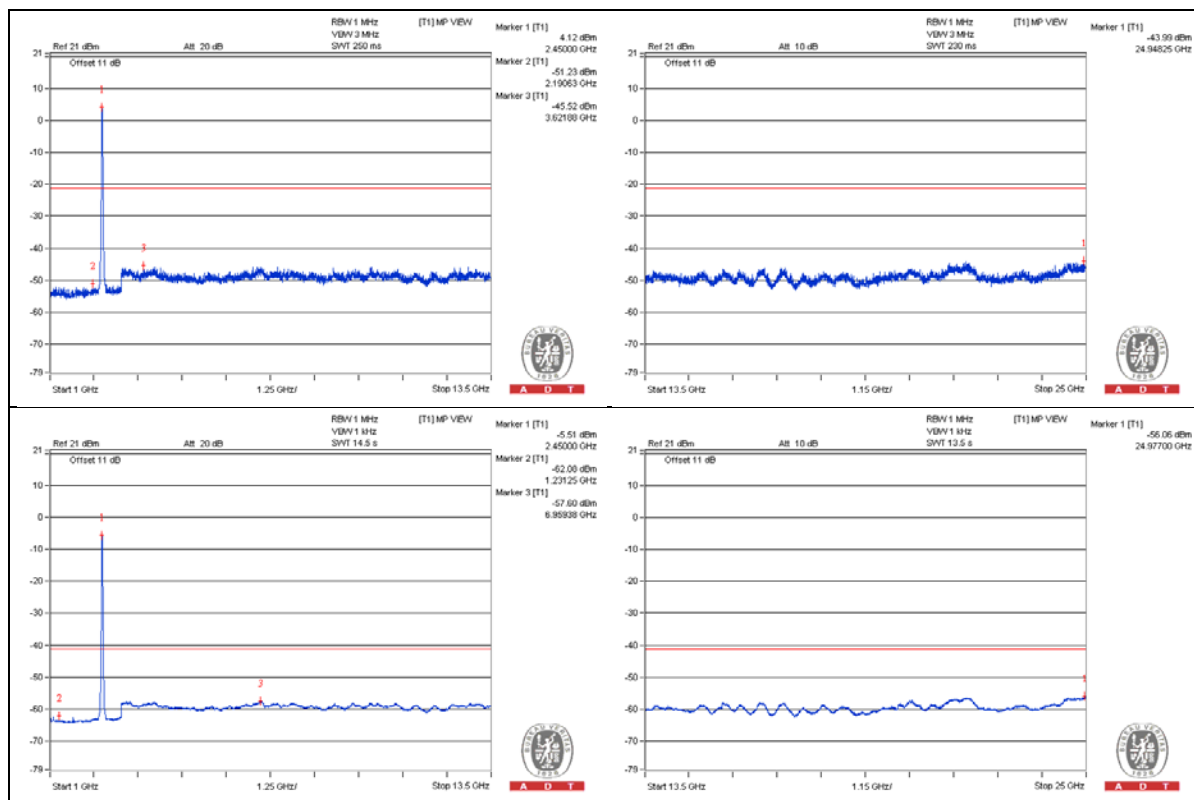
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	4915.625 PK	49.78	74	-24.22	-49.1	3.62	-45.48
2	4912.5 AV	38.95	54	-15.05	-59.93	3.62	-56.31
3	7371.875 PK	51.48	74	-22.52	-47.4	3.62	-43.78
4	7371.875 AV	40.17	54	-13.83	-58.71	3.62	-55.09

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



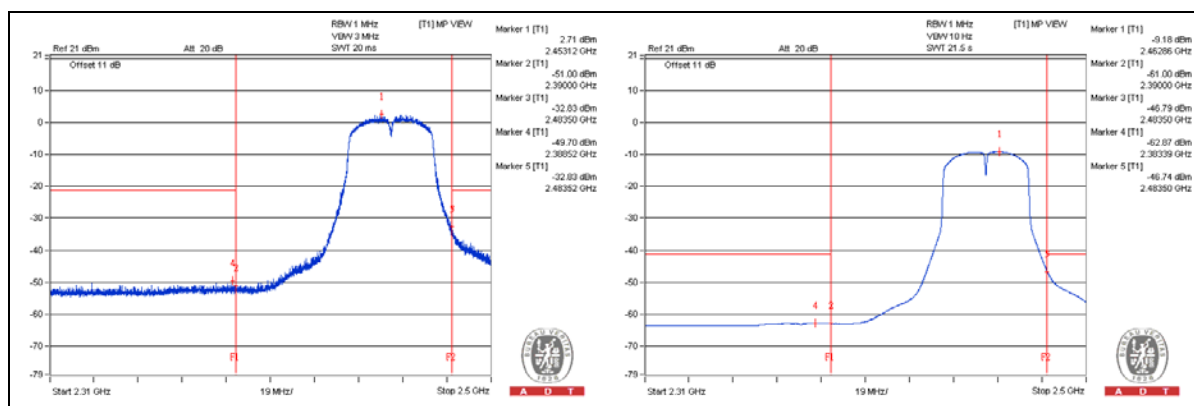
Bandedge table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2388.52 PK	49.18	74	-24.82	-49.7	3.62	-46.08
2	2383.39 AV	36.01	54	-17.99	-62.87	3.62	-59.25
3	2483.52 PK	66.05	74	-7.95	-32.83	3.62	-29.21
4	2483.5 AV	52.14	54	-1.86	-46.74	3.62	-43.12

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



802.11n (HT40) - Channel 11

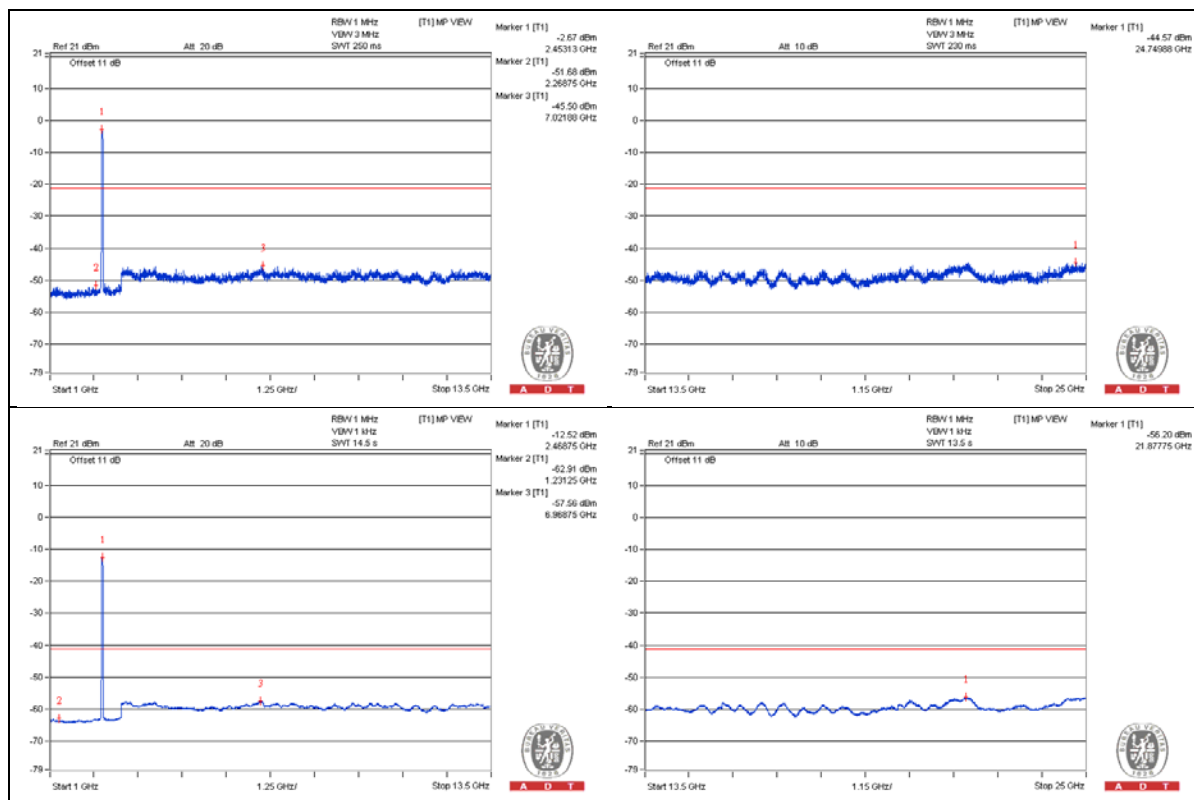
Conducted spurious emission table

No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	4925 PK	49.03	74	-24.97	-49.85	3.62	-46.23
2	4925 AV	38.92	54	-15.08	-59.96	3.62	-56.34
3	7384.375 PK	50.89	74	-23.11	-47.99	3.62	-44.37
4	7387.5 AV	40.41	54	-13.59	-58.47	3.62	-54.85

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.



Bandedge table

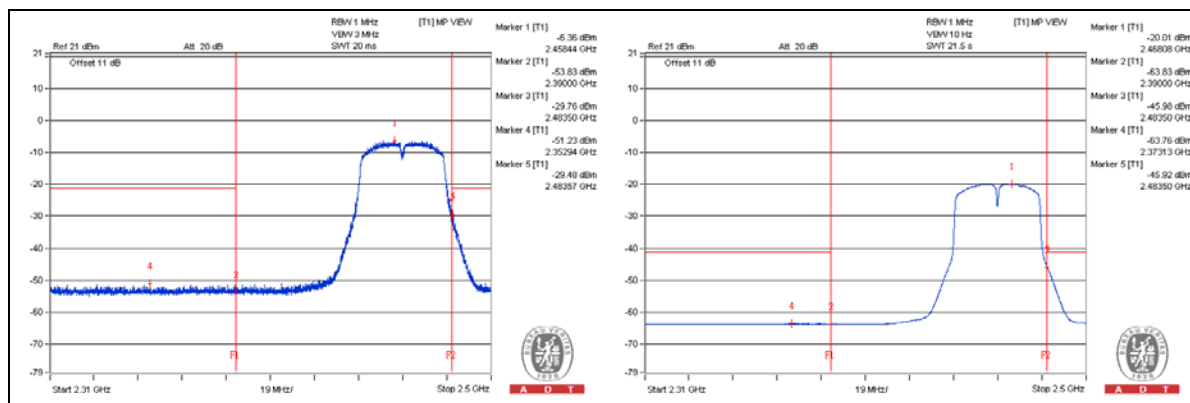
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	2352.94 PK	47.65	74	-26.35	-51.23	3.62	-47.61
2	2373.13 AV	35.12	54	-18.88	-63.76	3.62	-60.14
3	2483.57 PK	69.4	74	-4.6	-29.48	3.62	-25.86
4	2483.5 AV	52.96	54	* -1.04	-45.92	3.62	-42.3

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.

* The unwanted emission was verified and the test result was passed by radiated measurement.
(Please refer APPENDIX A)



Below 1GHz Data

802.11g - Channel 6

Conducted spurious emission table

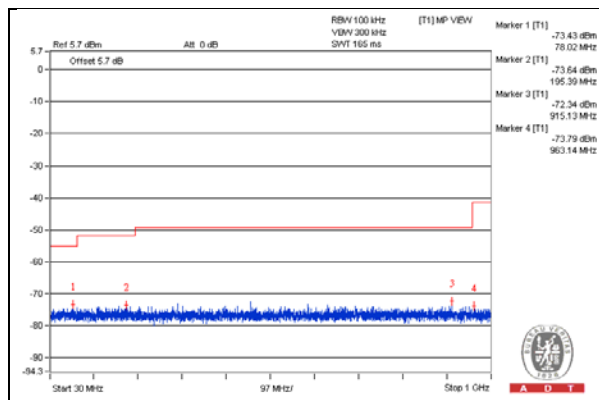
No.	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBm)	Correction Factor (dB)	EIRP Level (dBm)
1	78.015	25.45	40	-14.55	-73.43	3.62	-69.81
2	195.385	25.24	43.5	-18.26	-73.64	3.62	-70.02
3	309.845	25.93	46	-20.07	-72.95	3.62	-69.33
4	470.1375	26.21	46	-19.79	-72.67	3.62	-69.05
5	640.13	25.36	46	-20.64	-73.52	3.62	-69.9
6	915.125	26.54	46	-19.46	-72.34	3.62	-68.72

Note :

Emission Level (dBuV/m) = EIRP Level (dBm) – 20log(d) + 104.8

d = measurement distance in 3 meters.

Emission levels include upper bound on ground plane reflection (4.7dB) for below 1GHz emission.



4.6 Conducted Emission Measurement

4.6.1 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.

4.6.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	100375	May 06, 2015	May 05, 2016
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK-8127	8127-522	Sep. 15, 2014	Sep. 14, 2015
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV216	100072	June 11, 2015	June 10, 2016
RF Cable	5D-FB	COCCAB-001	Mar. 09, 2015	Mar. 08, 2016
50 ohms Terminator	N/A	EMC-03	Sep. 22, 2014	Sep. 21, 2015
50 ohms Terminator	N/A	EMC-02	Sep. 30, 2014	Sep. 29, 2015
Software BVADT	BVADT_Cond_ V7.3.7.3	NA	NA	NA

Note:

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. C.
3. The VCCI Con C Registration No. is C-3611.
4. Tested Date: Aug. 03, 2015

4.6.3 Test Procedures

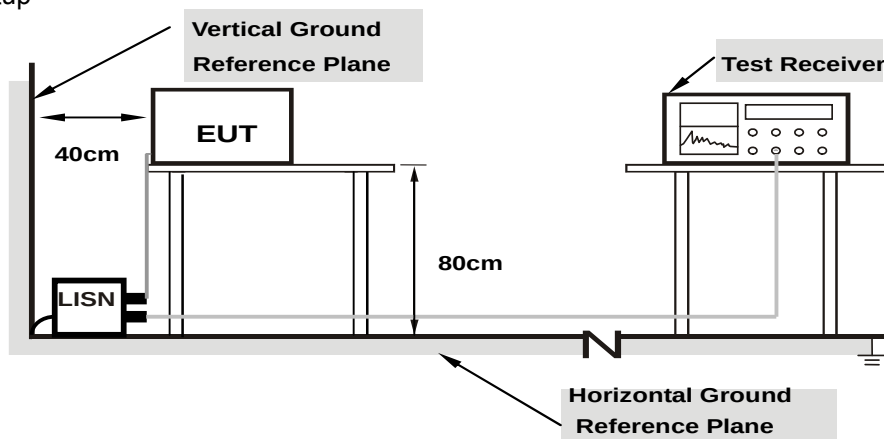
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was 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.

4.6.4 Deviation from Test Standard

No deviation.

4.6.5 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).

4.6.6 EUT Operating Conditions

Same as 4.5.6.

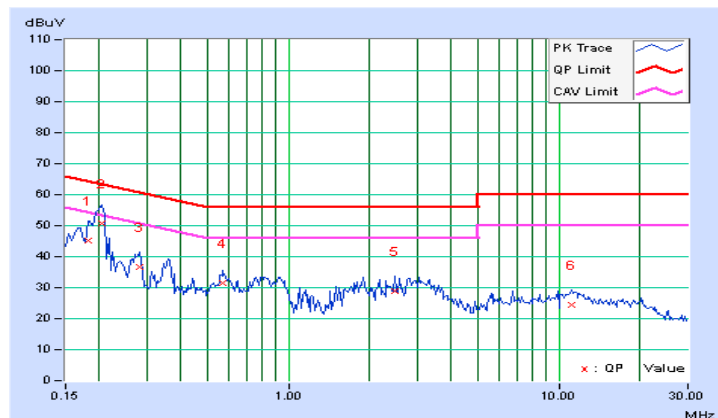
4.6.7 Test Results

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18125	0.09	44.92	26.80	45.01	26.89	64.43	54.43	-19.42	-27.54
2	0.20469	0.09	50.78	39.02	50.87	39.11	63.42	53.42	-12.55	-14.31
3	0.28281	0.09	36.56	24.62	36.65	24.71	60.73	50.73	-24.08	-26.02
4	0.57188	0.11	31.42	21.64	31.53	21.75	56.00	46.00	-24.47	-24.25
5	2.46094	0.18	28.80	21.98	28.98	22.16	56.00	46.00	-27.02	-23.84
6	11.12500	0.48	23.88	17.64	24.36	18.12	60.00	50.00	-35.64	-31.88

REMARKS:

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

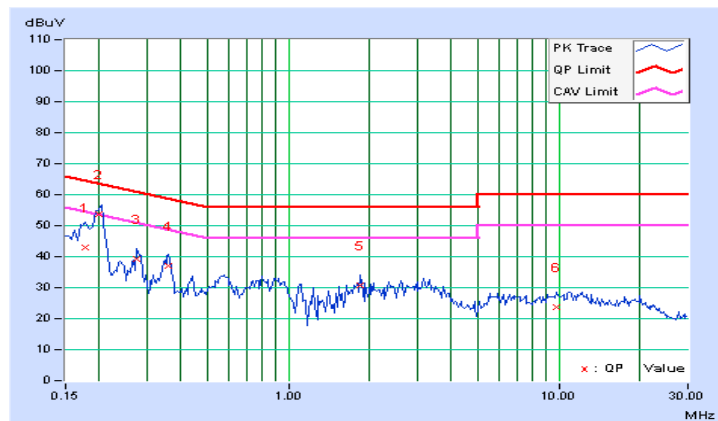


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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No	Freq. [MHz]	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17734	0.08	43.00	25.96	43.08	26.04	64.61	54.61	-21.53	-28.57
2	0.20031	0.08	53.58	43.48	53.66	43.56	63.60	53.60	-9.94	-10.04
3	0.27500	0.09	39.18	25.58	39.27	25.67	60.97	50.97	-21.70	-25.30
4	0.36094	0.10	36.92	26.58	37.02	26.68	58.71	48.71	-21.69	-22.03
5	1.83984	0.16	30.74	22.54	30.90	22.70	56.00	46.00	-25.10	-23.30
6	9.80859	0.45	23.32	17.74	23.77	18.19	60.00	50.00	-36.23	-31.81

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.



5 Pictures of Test Arrangements

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

6 Appendix A – Radiated Emission Measurement

6.1.1 Limits of Radiated Emission 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.

6.1.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010156	Aug. 12, 2015	Aug. 11, 2016
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Feb. 05, 2015	Feb. 04, 2016
Pre-Amplifier Agilent	8449B	3008A02465	Apr. 06, 2015	Apr. 05, 2016
RF Cable	EMC104-SM-SM-2000 EMC104-SM-SM-5000 EMC104-SM-SM-5000	150317 150321 150322	Mar. 31, 2015	Mar. 30, 2016
Spectrum Analyzer Keysight	N9030A	MY54490520	July 26, 2015	July 25, 2016
Pre-Amplifier EMCI	EMC184045	980143	Jan. 16, 2015	Jan. 15, 2016
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Feb. 05, 2015	Feb. 04, 2016
RF Cable	SUCOFLEX10 4	329751/4 RF104-204	Dec. 11, 2014	Dec. 10, 2015
Software	ADT_Radiated _V8.7.07	NA	NA	NA
Antenna Tower & Turn Table CT	NA	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 966 Chamber No. 3.
3. The FCC Site Registration No. is 147459
4. The CANADA Site Registration No. is 20331-1
5. Tested Date: Dec. 10, 2015

6.1.3 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 a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. 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.

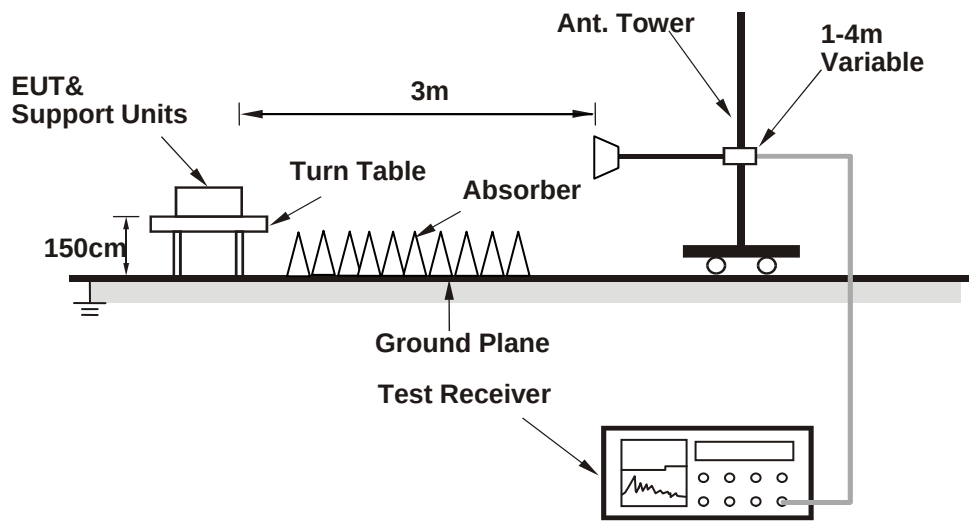
NOTE:

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

6.1.4 Deviation from Test Standard

No deviation

6.1.5 Test Setup



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

6.1.6 EUT Operating Conditions

Same as 4.5.6.

6.1.7 Test Results

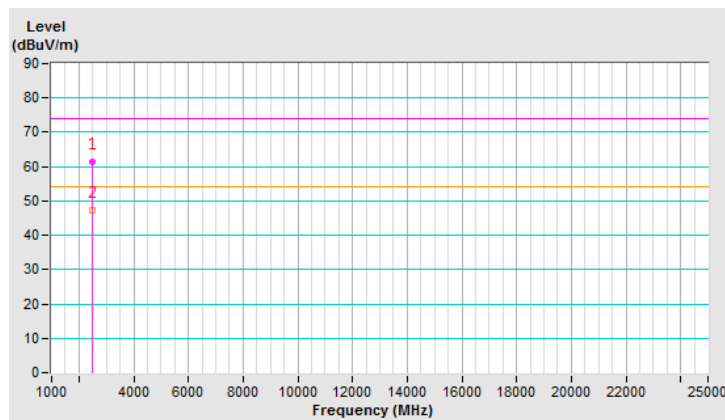
802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2483.50	61.3 PK	74.0	-12.7	1.13 H	315	62.51	-1.21
2	2483.50	47.3 AV	54.0	-6.7	1.13 H	315	48.51	-1.21

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

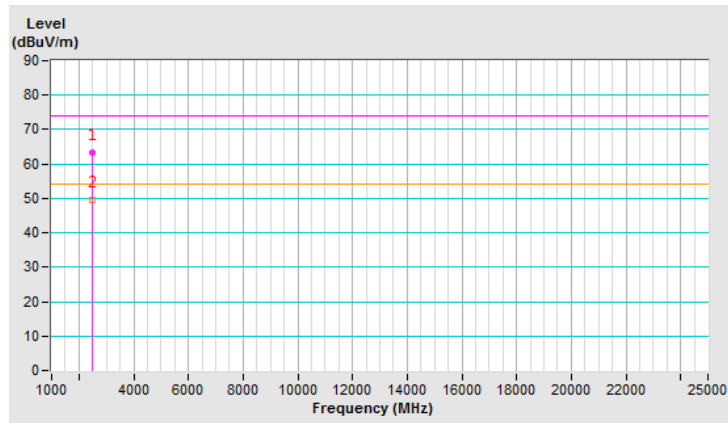


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

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	2483.50	63.4 PK	74.0	-10.6	2.39 V	334	64.61	-1.21
2	2483.50	49.4 AV	54.0	-4.6	2.39 V	334	50.61	-1.21

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



7 Appendix B – 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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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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