

FCC Test Report

Report No.: RF160219C14

FCC ID: TVE-28166011

Test Model: FAP-421E, FAP-423E

Series Model: FortiAP 421Exxxxxx, FAP-421Exxxxxx, FORTIAP-421Exxxxxx, FortiAP 423Exxxxxx, FAP-423Exxxxxx, FORTIAP-423Exxxxxx (where "x" can be used as "A-Z", or "0-9", or "-", or blank for software changes or marketing purposes only) (refer to item 3.1 for more details)

Received Date: Feb. 19, 2016

Test Date: Feb. 19 ~ May 03, 2016

Issued Date: Sep. 06, 2016

Applicant: Fortinet Inc.

Address: 899 Kifer Road Sunnyvale, CA 94086 USA

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

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)

Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)



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Release Control Record

Issue No.	Description	Date Issued
RF160219C14	Original release.	Sep. 06, 2016

1 Certificate of Conformity

Product: Secured Wireless Access Point

Brand: Fortinet Inc.

Test Model: FAP-421E, FAP-423E

Series Model: FortiAP 421Exxxxxx, FAP-421Exxxxxx, FORTIAP-421Exxxxxx,
FortiAP 423Exxxxxx, FAP-423Exxxxxx, FORTIAP-423Exxxxxx (where "x" can be
used as "A-Z", or "0-9", or "-", or blank for software changes or marketing purposes
only) (refer to item 3.1 for more details)

Sample Status: Engineering sample

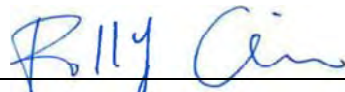
Applicant: Fortinet Inc.

Test Date: Feb. 19 ~ May 03, 2016

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


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

Prepared by :


Polly Chien / Specialist

Date: Sep. 06, 2016

Approved by :


Ken Liu / Senior Manager

Date: Sep. 06, 2016

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -4.17dB at 0.53536MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 2390.00MHz, 2483.50MHz, 2487.00MHz.
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is IPEX or RPSMA not a standard connector.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.44 dB
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	3.86 dB
	200MHz ~ 1000MHz	3.87 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Secured Wireless Access Point
Brand	Fortinet Inc.
Test Model	FAP-421E, FAP-423E
Series Model	FortiAP 421Exxxxxx, FAP-421Exxxxxx, FORTIAP-421Exxxxxx, FortiAP 423Exxxxxx, FAP-423Exxxxxx, FORTIAP-423Exxxxxx (where "x" can be used as "A-Z" or "0-9" or "-" or blank for software changes or marketing purposes only)
Model Difference	Refer to note 1 for more details
Sample Status	Engineering sample
Power Supply Rating	12Vdc (adapter) 54Vdc (POE)
Modulation Type	CCK, DQPSK, DBPSK for DSSS 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 600Mbps
Operating Frequency	2412 ~ 2462MHz
Number of Channel	11 for 802.11b, 802.11g, 802.11n (HT20, VHT20) 7 for 802.11n (HT40, VHT40)
Output Power	CDD Mode: 490.853mW Beamforming Mode: 226.849mW
Antenna Type	Refer to Note 3
Antenna Connector	Refer to Note 3
Accessory Device	Adapter (optional)
Cable Supplied	NA

Note:

1. All models are listed as below. Model: FAP-421E and FAP-423E were chosen for final test.

Brand	Model	Difference
Fortinet Inc.	FortiAP 421Exxxxxx	With Internal Antenna
	FAP-421Exxxxxx	
	FORTIAP-421Exxxxxx	
	FortiAP 423Exxxxxx	With External Antenna
	FAP-423Exxxxxx	
	FORTIAP-423Exxxxxx	

"x" can be used as "A-Z", or "0-9", or "-", or blank for software changes or marketing purposes only

2. The EUT incorporates a MIMO function. Physically, the EUT provides 4 completed transmitters and 4 receivers.

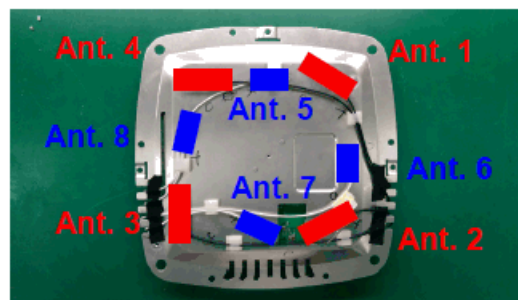
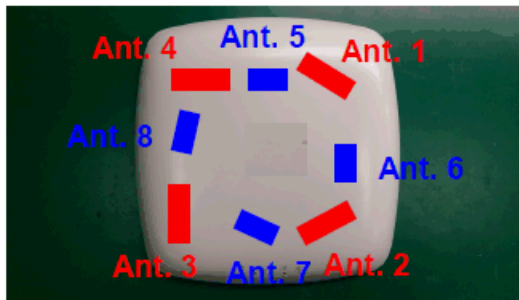
Band	Modulation Mode	CDD Mode	Beamforming Mode	TX Function
2.4GHz	802.11b	Support	Not Support	4TX
	802.11g	Support	Not Support	4TX
	802.11n (HT20, VHT20)	Support	Support	4TX
	802.11n (HT40, VHT40)	Support	Support	4TX

* CDD Mode: The modulation and bandwidth are similar for 802.11n mode for HT20/HT40 and VHT20/VHT40, therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

* For 802.11n, CDD mode is the worst case for final radiated emission up to 1 GHz and power line conducted emission tests after pretesting.

3. The following antennas were provided to the EUT.

Internal Antenna Type	Printed		
Antenna Connector	IPEX		
Gain (dBi)			
Item	2400-2500 MHz	Item	5150-5850 MHz
Ant. 1	3.81	Ant. 5	5.65
Ant. 2	3.98	Ant. 6	5.50
Ant. 3	3.47	Ant. 7	5.84
Ant. 4	3.75	Ant. 8	5.84



Antenna Type	Dipole	Antenna Connector	RPSMA
Gain (dBi)	Frequency (MHz)		
	2400~2500	5150~5850	
WLAN External Ant.	4.42		3.18

4. WLAN 2.4GHz and WLAN 5GHz technologies can transmit at same time.

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

6. The EUT consumes power from the following adapter and POE (POE as support units only).

Adapter (optional)	
Brand	Asian Power Devices Inc.
Model	WA-36A12R
Input Power	100-240Vac, 50-60Hz, 0.9A Max.
Output Power	12Vdc, 3A
Power Line	1.75m power cable without core attached on adapter

POE	
Brand	EnGenius
Model	EPA5006GAT
Input Power	100-240Vac, 50-60Hz 0.8A
Output Power	54Vdc, 0.6A
Power Line	0.5m power cable without core

3.2 Description of Test Modes

11 channels are provided for 802.11b, 802.11g and 802.11n (HT20, VHT20):

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

7 channels are provided for 802.11n (HT40, VHT40):

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Description
	RE \geq 1G	RE $<$ 1G	PLC	APCM	
A	-	√	√	-	Internal antenna, Power from adapter
B	√	√	√	-	Internal antenna, Power from POE
C	-	√	√	-	External antenna, Power from adapter
D	√	√	√	√	External antenna, Power from POE

Where RE \geq 1G: Radiated Emission above 1GHz & RE $<$ 1G: Radiated Emission below 1GHz
 Bandedge Measurement
 PLC: Power Line Conducted Emission & APCM: Antenna Port Conducted Measurement

Note:

- The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Y-plane** (test mode A & B) and **X-plane** (test mode C & D).
- “-” means no effect.

Radiated Emission Test (Above 1GHz):

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Date Rate (Mbps)
CDD Mode						
B, D	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
B, D	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
B, D	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
B, D	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	15.0
Beamforming Mode						
B, D	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
B, D	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	15.0

Radiated Emission Test (Below 1GHz):

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Date Rate (Mbps)
CDD Mode						
A, B, C, D	802.11g	1 to 11	6	OFDM	BPSK	6.0

Power Line Conducted Emission Test:

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Date Rate (Mbps)
CDD Mode						
A, B, C, D	802.11g	1 to 11	6	OFDM	BPSK	6.0

Antenna Port Conducted Measurement:

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

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

Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE \geq 1G	18 deg. C, 70% RH	120Vac, 60Hz	Jones Chang
RE<1G	19 deg. C, 70% RH	120Vac, 60Hz 54Vdc (POE)	Jones Chang
PLC	16 deg. C, 70% RH	120Vac, 60Hz 54Vdc (POE)	Nick Hsu
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Leo Tsai

3.3 Duty Cycle of Test Signal

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

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

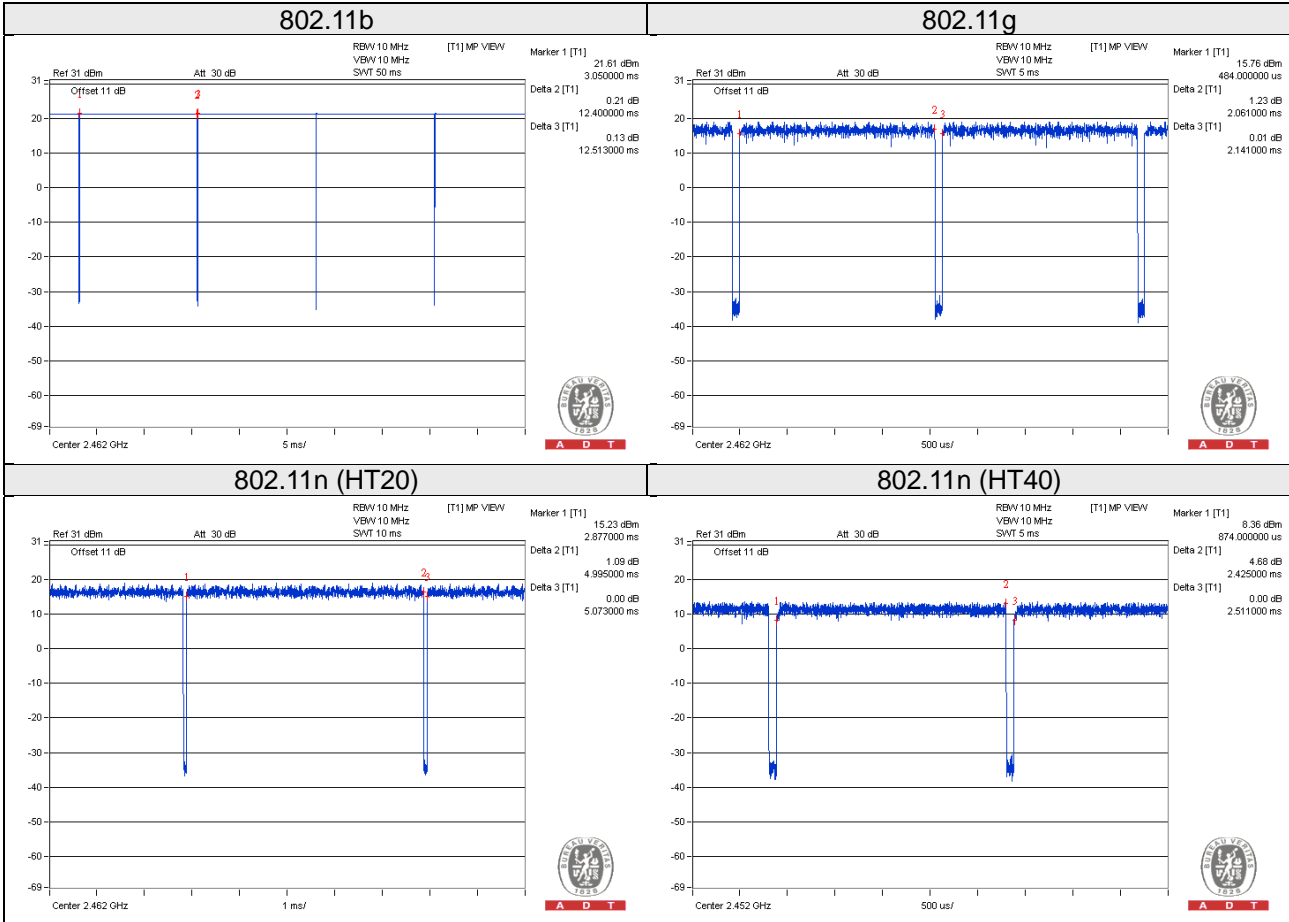
CDD Mode

802.11b: Duty cycle = $12.400/12.513 = 0.991$

802.11g: Duty cycle = $2.061/2.141 = 0.963$, Duty factor = $10 * \log(1/0.963) = 0.17$

802.11n (HT20): Duty cycle = $4.995/5.073 = 0.985$

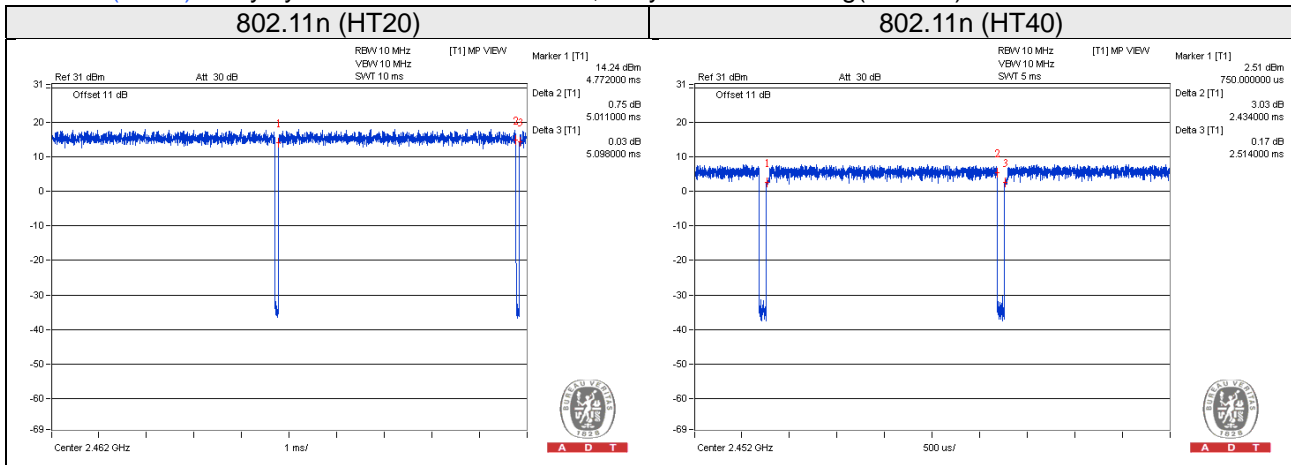
802.11n (HT40): Duty cycle = $2.425/2.511 = 0.966$, Duty factor = $10 * \log(1/0.966) = 0.15$



Beamforming Mode

802.11n (HT20): Duty cycle = $5.011/5.098 = 0.983$

802.11n (HT40): Duty cycle = $2.434/2.514 = 0.968$, Duty factor = $10 * \log(1/0.968) = 0.14$



3.4 Description of Support Units

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

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved	-
B.	Load	NA	NA	NA	NA	-
C.	Flash	HP	v250W	01	NA	-
D.	Adapter	Asian Power Devices Inc.	WA-36A12R	NA	NA	Optional
E.	POE	EnGenius	EPA5006GAT	NA	NA	Provided by manufacturer

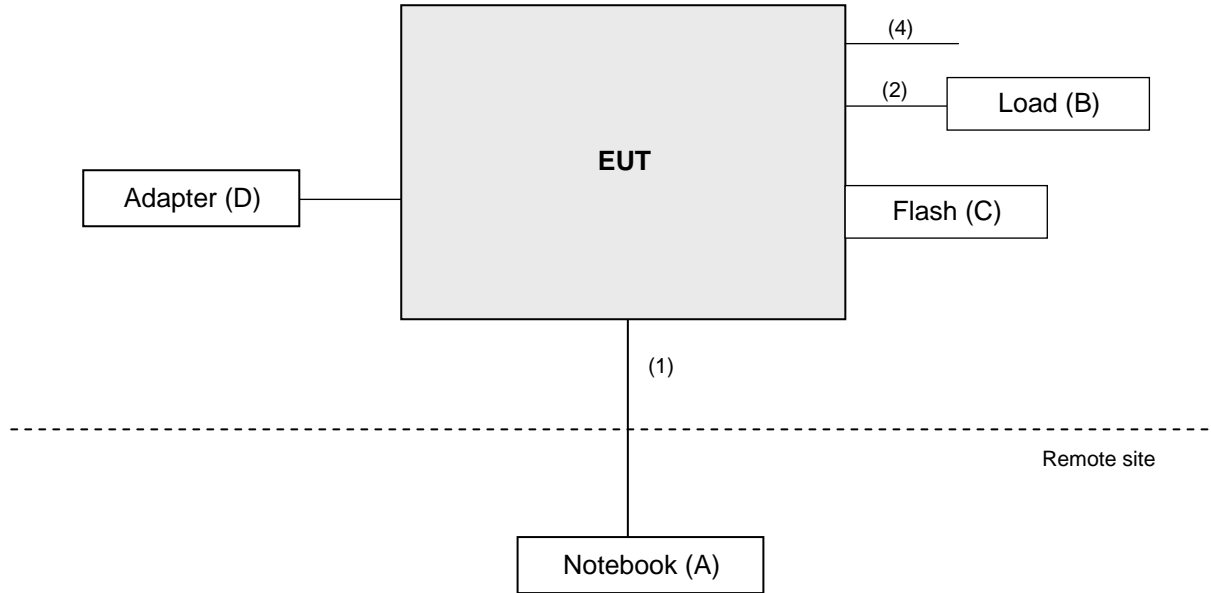
Note:

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

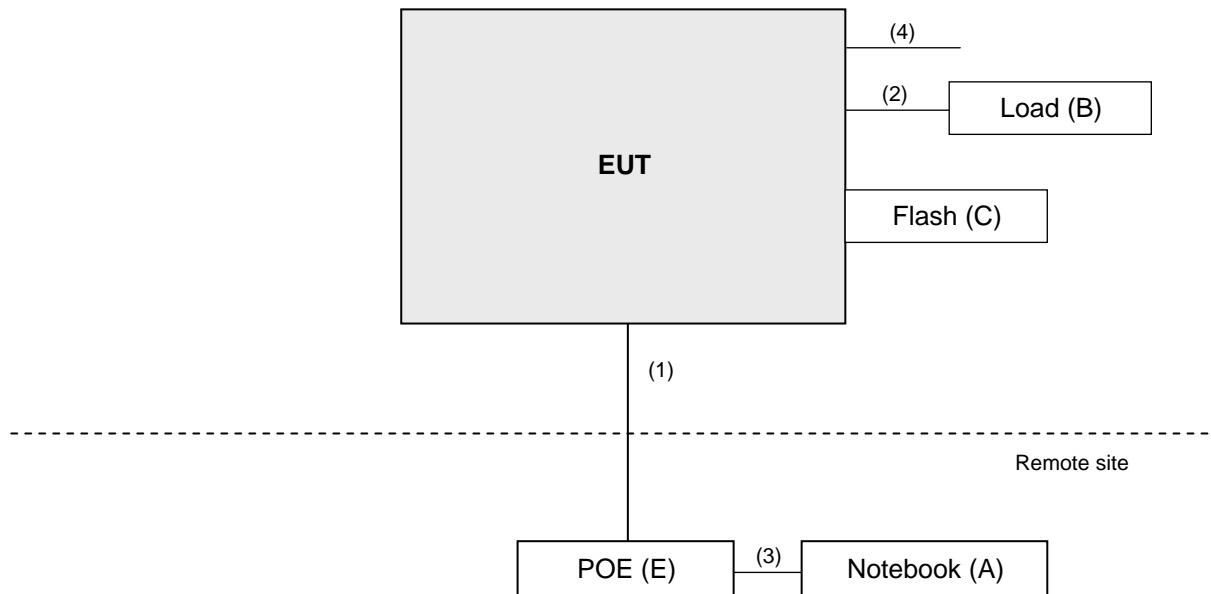
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45	1	5	N	0	-
2.	RJ45	1	1.8	N	0	-
3.	RJ45	1	1.8	N	0	-
4.	RS232	1	1.8	N	0	-

3.4.1 Configuration of System under Test

Mode A, C



Mode B, D



3.5 General Description of Applied Standards

The EUT is a RF Product. According to the specification of the EUT declared by the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C (15.247)

558074 D01 DTS Meas Guidance v03r05

662911 D01 Multiple Transmitter Output v02r01

ANSI C63.10-2013

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

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 30dB under any condition of modulation.

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESIB7	100187	Apr. 10, 2015	Apr. 09, 2016
			Apr. 18, 2016	Apr. 17, 2017
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100041	Sep. 02, 2015	Sep. 01, 2016
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Jan. 07, 2016	Jan. 06, 2017
HORN Antenna SCHWARZBECK	9120D	209	Jan. 20, 2016	Jan. 19, 2017
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Jan. 18, 2016	Jan. 17, 2017
Preamplifier Agilent	8447D	2944A10738	Oct.18, 2015	Oct. 17, 2016
Preamplifier Agilent	8449B	3008A01964	Aug. 22, 2015	Aug. 21, 2016
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (214378)	Aug. 22, 2015	Aug. 21, 2016
RF signal cable HUBER+SUHNER	SUCOFLEX 106	Cable-CH3-03 (309224+12738)	Aug. 22, 2015	Aug. 21, 2016
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower inn-co GmbH	MA 4000	013303	NA	NA
Antenna Tower Controller BV ADT	AT100	AT93021702	NA	NA
Turn Table BV ADT	TT100	TT93021702	NA	NA
Turn Table Controller BV ADT	SC100	SC93021702	NA	NA
High Speed Peak Power Meter	ML2495A	0824011	Jul. 09, 2015	Jul. 08, 2016
Power Sensor	MA2411B	0738171	Jul. 09, 2015	Jul. 08, 2016

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Chamber 3.
 3. The horn antenna and preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 4. The FCC Site Registration No. is 988962.
 5. The IC Site Registration No. is IC 7450F-3.

4.1.3 Test Procedures

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

Note:

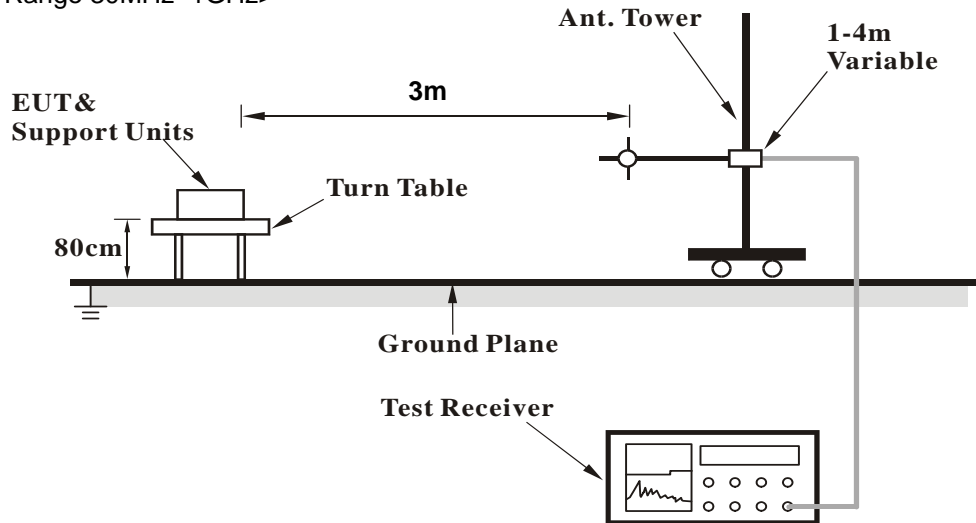
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor ($10 \log(1/\text{duty cycle})$).
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.

4.1.4 Deviation from Test Standard

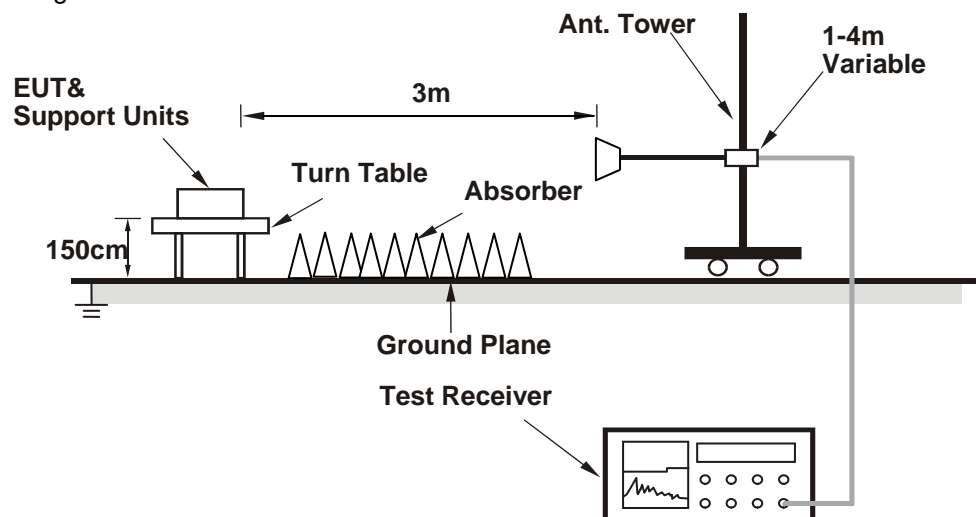
No deviation.

4.1.5 Test Set Up

<Frequency Range 30MHz~1GHz>



<Frequency Range above 1GHz>



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

4.1.6 EUT Operating Conditions

- Placed the EUT on the testing table.
- Prepared a notebook to act as a communication partner and placed it outside of testing area.
- The communication partner connected with EUT via a RJ45 cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- The communication partner sent data to EUT by command "PING".
- The necessary accessories enable the system in full functions.

4.1.7 Test Results

Above 1GHz Worst-Case Data :

CDD Mode: Mode B

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	2386.00	60.9 PK	74.0	-13.1	1.38 H	306	28.10	32.80
2	2386.00	52.6 AV	54.0	-1.4	1.38 H	306	19.80	32.80
3	*2412.00	118.8 PK			2.05 H	43	85.90	32.90
4	*2412.00	114.9 AV			2.05 H	43	82.00	32.90
5	2493.00	60.3 PK	74.0	-13.7	1.90 H	304	27.30	33.00
6	2493.00	52.2 AV	54.0	-1.8	1.90 H	304	19.20	33.00
7	4824.00	51.5 PK	74.0	-22.5	1.79 H	345	45.60	5.90
8	4824.00	46.2 AV	54.0	-7.8	1.79 H	345	40.30	5.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2386.00	59.8 PK	74.0	-14.2	1.81 V	22	27.00	32.80
2	2386.00	49.1 AV	54.0	-4.9	1.81 V	22	16.30	32.80
3	*2412.00	113.2 PK			2.53 V	3	80.30	32.90
4	*2412.00	109.2 AV			2.53 V	3	76.30	32.90
5	2493.00	57.4 PK	74.0	-16.6	2.36 V	0	24.40	33.00
6	2493.00	47.8 AV	54.0	-6.2	2.36 V	0	14.80	33.00
7	4824.00	48.5 PK	74.0	-25.5	1.69 V	282	42.60	5.90
8	4824.00	36.6 AV	54.0	-17.4	1.69 V	282	30.70	5.90

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.5 PK	74.0	-15.5	1.40 H	41	25.70	32.80
2	2390.00	48.7 AV	54.0	-5.3	1.40 H	41	15.90	32.80
3	*2437.00	119.5 PK			1.30 H	49	86.60	32.90
4	*2437.00	115.9 AV			1.30 H	49	83.00	32.90
5	2486.00	60.5 PK	74.0	-13.5	1.54 H	42	27.50	33.00
6	2486.00	52.5 AV	54.0	-1.5	1.54 H	42	19.50	33.00
7	4874.00	52.2 PK	74.0	-21.8	2.31 H	319	46.20	6.00
8	4874.00	47.2 AV	54.0	-6.8	2.31 H	319	41.20	6.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.4 PK	74.0	-16.6	2.18 V	0	24.60	32.80
2	2390.00	49.5 AV	54.0	-4.5	2.18 V	0	16.70	32.80
3	*2437.00	119.3 PK			2.19 V	340	86.40	32.90
4	*2437.00	115.5 AV			2.19 V	340	82.60	32.90
5	2486.00	59.3 PK	74.0	-14.7	1.86 V	356	26.30	33.00
6	2486.00	50.0 AV	54.0	-4.0	1.86 V	356	17.00	33.00
7	4874.00	48.7 PK	74.0	-25.3	3.08 V	340	42.70	6.00
8	4874.00	41.0 AV	54.0	-13.0	3.08 V	340	35.00	6.00

REMARKS:

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

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Peak (PK)
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	2380.00	59.4 PK	74.0	-14.6	1.40 H	58	26.60	32.80
2	2380.00	49.3 AV	54.0	-4.7	1.40 H	58	16.50	32.80
3	*2462.00	117.9 PK			2.44 H	40	85.00	32.90
4	*2462.00	114.7 AV			2.44 H	40	81.80	32.90
5	2487.00	60.2 PK	74.0	-13.8	1.69 H	308	27.20	33.00
6	2487.00	52.8 AV	54.0	-1.2	1.69 H	308	19.80	33.00
7	4924.00	51.2 PK	74.0	-22.8	2.01 H	317	45.20	6.00
8	4924.00	44.2 AV	54.0	-9.8	2.01 H	317	38.20	6.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2380.00	59.1 PK	74.0	-14.9	2.10 V	291	26.30	32.80
2	2380.00	49.1 AV	54.0	-4.9	2.10 V	291	16.30	32.80
3	*2462.00	113.5 PK			2.41 V	323	80.60	32.90
4	*2462.00	109.7 AV			2.41 V	323	76.80	32.90
5	2486.00	61.1 PK	74.0	-12.9	2.57 V	10	28.10	33.00
6	2486.00	52.6 AV	54.0	-1.4	2.57 V	10	19.60	33.00
7	4924.00	49.3 PK	74.0	-24.7	1.60 V	268	43.30	6.00
8	4924.00	39.2 AV	54.0	-14.8	1.60 V	268	33.20	6.00

REMARKS:

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

802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.4 PK	74.0	-7.6	1.94 H	39	33.60	32.80
2	2390.00	52.8 AV	54.0	-1.2	2.49 H	39	20.00	32.80
3	*2412.00	115.3 PK			2.47 H	311	82.40	32.90
4	*2412.00	105.4 AV			2.47 H	311	72.50	32.90
5	4824.00	56.0 PK	74.0	-18.0	1.50 H	43	50.10	5.90
6	4824.00	41.8 AV	54.0	-12.2	1.50 H	43	35.90	5.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.9 PK	74.0	-13.1	2.19 V	0	28.10	32.80
2	2390.00	50.6 AV	54.0	-3.4	2.19 V	0	17.80	32.80
3	*2412.00	113.6 PK			2.54 V	354	80.70	32.90
4	*2412.00	103.8 AV			2.54 V	354	70.90	32.90
5	4824.00	46.8 PK	74.0	-27.2	1.94 V	301	40.90	5.90
6	4824.00	34.7 AV	54.0	-19.3	1.94 V	301	28.80	5.90

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.3 PK	74.0	-14.7	2.31 H	43	26.50	32.80
2	2390.00	49.2 AV	54.0	-4.8	2.31 H	43	16.40	32.80
3	*2437.00	120.7 PK			1.91 H	38	87.80	32.90
4	*2437.00	110.7 AV			1.91 H	38	77.80	32.90
5	2483.50	61.3 PK	74.0	-12.7	2.23 H	292	28.30	33.00
6	2483.50	50.2 AV	54.0	-3.8	2.23 H	292	17.20	33.00
7	4874.00	53.6 PK	74.0	-20.4	2.04 H	345	47.60	6.00
8	4874.00	42.5 AV	54.0	-11.5	2.04 H	345	36.50	6.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.9 PK	74.0	-16.1	1.86 V	44	25.10	32.80
2	2390.00	47.4 AV	54.0	-6.6	1.86 V	44	14.60	32.80
3	*2437.00	118.0 PK			2.55 V	19	85.10	32.90
4	*2437.00	108.7 AV			2.55 V	19	75.80	32.90
5	2483.50	60.2 PK	74.0	-13.8	2.57 V	10	27.20	33.00
6	2483.50	49.1 AV	54.0	-4.9	2.57 V	10	16.10	33.00
7	4874.00	47.1 PK	74.0	-26.9	2.07 V	203	41.10	6.00
8	4874.00	35.3 AV	54.0	-18.7	2.07 V	203	29.30	6.00

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	114.0 PK			2.46 H	298	81.10	32.90
2	*2462.00	104.5 AV			2.46 H	298	71.60	32.90
3	2483.50	66.0 PK	74.0	-8.0	1.53 H	355	33.00	33.00
4	2483.50	52.7 AV	54.0	-1.3	1.53 H	355	19.70	33.00
5	4924.00	57.0 PK	74.0	-17.0	2.04 H	333	51.00	6.00
6	4924.00	41.7 AV	54.0	-12.3	2.04 H	333	35.70	6.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	113.1 PK			2.96 V	359	80.20	32.90
2	*2462.00	103.4 AV			2.96 V	359	70.50	32.90
3	2483.50	64.5 PK	74.0	-9.5	2.41 V	321	31.50	33.00
4	2483.50	51.5 AV	54.0	-2.5	2.41 V	321	18.50	33.00
5	4924.00	47.9 PK	74.0	-26.1	2.00 V	53	41.90	6.00
6	4924.00	35.1 AV	54.0	-18.9	2.00 V	53	29.10	6.00

REMARKS:

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

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.0 PK	74.0	-7.0	1.85 H	311	34.20	32.80
2	2390.00	53.0 AV	54.0	-1.0	1.85 H	311	20.20	32.80
3	*2412.00	114.4 PK			2.46 H	303	81.50	32.90
4	*2412.00	103.6 AV			2.46 H	303	70.70	32.90
5	4824.00	46.8 PK	74.0	-27.2	2.22 H	26	40.90	5.90
6	4824.00	34.0 AV	54.0	-20.0	2.22 H	26	28.10	5.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.4 PK	74.0	-16.6	2.33 V	314	24.60	32.80
2	2390.00	47.6 AV	54.0	-6.4	2.33 V	314	14.80	32.80
3	*2412.00	113.1 PK			2.78 V	0	80.20	32.90
4	*2412.00	102.8 AV			2.78 V	0	69.90	32.90
5	4824.00	46.9 PK	74.0	-27.1	1.99 V	282	41.00	5.90
6	4824.00	34.0 AV	54.0	-20.0	1.99 V	282	28.10	5.90

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.4 PK	74.0	-12.6	1.99 H	356	28.60	32.80
2	2390.00	50.2 AV	54.0	-3.8	1.99 H	356	17.40	32.80
3	*2437.00	119.0 PK			2.22 H	319	86.10	32.90
4	*2437.00	109.1 AV			2.22 H	319	76.20	32.90
5	2483.50	62.7 PK	74.0	-11.3	1.59 H	19	29.70	33.00
6	2483.50	50.8 AV	54.0	-3.2	1.59 H	19	17.80	33.00
7	4874.00	50.2 PK	74.0	-23.8	1.89 H	25	44.20	6.00
8	4874.00	40.9 AV	54.0	-13.1	1.89 H	25	34.90	6.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.8 PK	74.0	-16.2	2.11 V	46	25.00	32.80
2	2390.00	48.3 AV	54.0	-5.7	2.11 V	46	15.50	32.80
3	*2437.00	116.5 PK			2.44 V	346	83.60	32.90
4	*2437.00	109.3 AV			2.44 V	346	76.40	32.90
5	2483.50	60.1 PK	74.0	-13.9	2.00 V	311	27.10	33.00
6	2483.50	49.7 AV	54.0	-4.3	2.00 V	311	16.70	33.00
7	4874.00	50.0 PK	74.0	-24.0	1.79 V	298	44.00	6.00
8	4874.00	40.3 AV	54.0	-13.7	1.79 V	298	34.30	6.00

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	114.0 PK			2.46 H	311	81.10	32.90
2	*2462.00	103.3 AV			2.46 H	311	70.40	32.90
3	2483.50	66.0 PK	74.0	-8.0	1.58 H	357	33.00	33.00
4	2483.50	52.5 AV	54.0	-1.5	1.58 H	357	19.50	33.00
5	4924.00	47.5 PK	74.0	-26.5	2.16 H	50	41.50	6.00
6	4924.00	34.7 AV	54.0	-19.3	2.16 H	50	28.70	6.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	112.6 PK			2.39 V	13	79.70	32.90
2	*2462.00	101.9 AV			2.39 V	13	69.00	32.90
3	2483.50	63.7 PK	74.0	-10.3	2.54 V	26	30.70	33.00
4	2483.50	51.3 AV	54.0	-2.7	2.54 V	26	18.30	33.00
5	4924.00	47.4 PK	74.0	-26.6	1.96 V	49	41.40	6.00
6	4924.00	34.3 AV	54.0	-19.7	1.96 V	49	28.30	6.00

REMARKS:

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

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.1 PK	74.0	-1.9	1.00 H	296	39.30	32.80
2	2390.00	52.7 AV	54.0	-1.3	1.00 H	296	19.90	32.80
3	*2422.00	110.6 PK			1.51 H	31	77.70	32.90
4	*2422.00	100.6 AV			1.51 H	31	67.70	32.90
5	#3229.00	61.8 PK	80.6	-15.8	1.10 H	42	60.00	1.80
6	#3229.00	45.3 AV	70.6	-25.3	1.10 H	42	43.50	1.80
7	4844.00	48.9 PK	74.0	-25.1	1.46 H	0	43.10	5.80
8	4844.00	37.8 AV	54.0	-16.2	1.46 H	0	32.00	5.80

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.7 PK	74.0	-5.3	3.40 V	336	35.90	32.80
2	2390.00	51.8 AV	54.0	-2.2	3.40 V	336	19.00	32.80
3	*2422.00	109.4 PK			3.39 V	358	76.50	32.90
4	*2422.00	99.8 AV			3.39 V	358	66.90	32.90
5	#3229.00	43.9 PK	79.4	-35.5	2.86 V	343	42.10	1.80
6	#3229.00	42.4 AV	69.8	-27.4	2.86 V	343	40.60	1.80
7	4844.00	47.7 PK	74.0	-26.3	2.20 V	46	41.90	5.80
8	4844.00	34.8 AV	54.0	-19.2	2.20 V	46	29.00	5.80

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.3 PK	74.0	-6.7	2.27 H	289	34.50	32.80
2	2390.00	48.3 AV	54.0	-5.7	2.27 H	289	15.50	32.80
3	*2437.00	111.1 PK			1.51 H	21	78.20	32.90
4	*2437.00	101.7 AV			1.51 H	21	68.80	32.90
5	2483.50	68.5 PK	74.0	-5.5	2.45 H	19	35.50	33.00
6	2483.50	52.7 AV	54.0	-1.3	2.45 H	19	19.70	33.00
7	#3249.00	45.9 PK	81.1	-35.2	1.00 H	318	44.00	1.90
8	#3249.00	44.2 AV	71.7	-27.5	1.00 H	318	42.30	1.90
9	4874.00	49.1 PK	74.0	-24.9	1.45 H	322	43.10	6.00
10	4874.00	36.0 AV	54.0	-18.0	1.45 H	322	30.00	6.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.6 PK	74.0	-8.4	3.00 V	330	32.80	32.80
2	2390.00	46.9 AV	54.0	-7.1	3.00 V	330	14.10	32.80
3	*2437.00	110.3 PK			3.28 V	341	77.40	32.90
4	*2437.00	101.1 AV			3.28 V	341	68.20	32.90
5	2483.50	64.7 PK	74.0	-9.3	3.10 V	346	31.70	33.00
6	2483.50	49.8 AV	54.0	-4.2	3.10 V	346	16.80	33.00
7	#3249.00	49.0 PK	80.3	-31.3	2.96 V	331	47.10	1.90
8	#3249.00	42.2 AV	71.1	-28.9	2.96 V	331	40.30	1.90
9	4874.00	48.5 PK	74.0	-25.5	1.86 V	300	42.50	6.00
10	4874.00	35.5 AV	54.0	-18.5	1.86 V	300	29.50	6.00

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	109.2 PK			1.55 H	29	76.20	33.00
2	*2452.00	100.0 AV			1.55 H	29	67.00	33.00
3	2487.00	73.0 PK	74.0	-1.0	1.00 H	19	40.00	33.00
4	2487.00	52.4 AV	54.0	-1.6	1.00 H	34	19.40	33.00
5	#3269.00	48.3 PK	79.2	-30.9	1.01 H	301	46.50	1.80
6	#3269.00	46.8 AV	70.0	-23.2	1.01 H	301	45.00	1.80
7	4904.00	48.6 PK	74.0	-25.4	1.33 H	177	42.70	5.90
8	4904.00	35.6 AV	54.0	-18.4	1.33 H	177	29.70	5.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	106.9 PK			3.28 V	357	73.90	33.00
2	*2452.00	97.6 AV			3.28 V	357	64.60	33.00
3	2483.50	65.6 PK	74.0	-8.4	2.96 V	344	32.60	33.00
4	2483.50	48.3 AV	54.0	-5.7	2.96 V	344	15.30	33.00
5	#3269.00	47.8 PK	76.9	-29.1	2.94 V	342	46.00	1.80
6	#3269.00	40.5 AV	67.6	-27.1	2.94 V	342	38.70	1.80
7	4904.00	47.0 PK	74.0	-27.0	1.99 V	284	41.10	5.90
8	4904.00	34.1 AV	54.0	-19.9	1.99 V	284	28.20	5.90

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.5 PK	74.0	-16.5	1.03 H	50	24.70	32.80
2	2390.00	46.6 AV	54.0	-7.4	1.03 H	50	13.80	32.80
3	*2412.00	110.6 PK			1.03 H	47	77.70	32.90
4	*2412.00	106.9 AV			1.03 H	47	74.00	32.90
5	#3216.00	43.4 PK	80.6	-37.2	2.03 H	67	41.60	1.80
6	#3216.00	39.3 AV	76.9	-37.6	2.03 H	67	37.50	1.80
7	4824.00	49.0 PK	74.0	-25.0	1.52 H	232	43.10	5.90
8	4824.00	35.8 AV	54.0	-18.2	1.52 H	232	29.90	5.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2387.00	67.7 PK	74.0	-6.3	1.22 V	14	34.90	32.80
2	2387.00	52.2 AV	54.0	-1.8	1.22 V	14	19.40	32.80
3	*2412.00	120.9 PK			1.58 V	328	88.00	32.90
4	*2412.00	117.0 AV			1.58 V	328	84.10	32.90
5	#3216.00	55.3 PK	90.9	-35.6	2.29 V	167	53.50	1.80
6	#3216.00	52.9 AV	87.0	-34.1	2.29 V	167	51.10	1.80
7	4824.00	50.8 PK	74.0	-23.2	1.42 V	171	44.90	5.90
8	4824.00	43.8 AV	54.0	-10.2	1.42 V	171	37.90	5.90

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.2 PK	74.0	-17.8	1.00 H	29	23.40	32.80
2	2390.00	45.3 AV	54.0	-8.7	1.00 H	29	12.50	32.80
3	*2437.00	112.2 PK			1.05 H	36	79.30	32.90
4	*2437.00	108.2 AV			1.05 H	36	75.30	32.90
5	2483.50	57.6 PK	74.0	-16.4	1.02 H	40	24.60	33.00
6	2483.50	46.6 AV	54.0	-7.4	1.02 H	40	13.60	33.00
7	#3249.00	41.2 PK	82.2	-41.0	1.89 H	256	39.30	1.90
8	#3249.00	37.5 AV	78.2	-40.7	1.89 H	256	35.60	1.90
9	4874.00	53.1 PK	74.0	-20.9	1.50 H	322	47.10	6.00
10	4874.00	37.4 AV	54.0	-16.6	1.50 H	322	31.40	6.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.5 PK	74.0	-14.5	1.14 V	23	26.70	32.80
2	2390.00	50.3 AV	54.0	-3.7	1.14 V	23	17.50	32.80
3	*2437.00	122.2 PK			1.55 V	327	89.30	32.90
4	*2437.00	117.9 AV			1.55 V	327	85.00	32.90
5	2486.00	61.5 PK	74.0	-12.5	1.33 V	347	28.50	33.00
6	2486.00	52.1 AV	54.0	-1.9	1.33 V	347	19.10	33.00
7	#3249.00	51.8 PK	92.2	-40.4	2.67 V	300	49.90	1.90
8	#3249.00	48.5 AV	87.9	-39.4	2.67 V	300	46.60	1.90
9	4874.00	54.0 PK	74.0	-20.0	1.50 V	189	48.00	6.00
10	4874.00	46.1 AV	54.0	-7.9	1.50 V	189	40.10	6.00

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.6 PK			1.03 H	1	76.70	32.90
2	*2462.00	105.8 AV			1.03 H	1	72.90	32.90
3	2483.50	57.1 PK	74.0	-16.9	1.03 H	1	24.10	33.00
4	2483.50	45.9 AV	54.0	-8.1	1.03 H	1	12.90	33.00
5	#3282.00	41.0 PK	79.6	-38.6	1.62 H	236	39.20	1.80
6	#3282.00	37.3 AV	75.8	-38.5	1.62 H	236	35.50	1.80
7	4924.00	49.7 PK	74.0	-24.3	1.52 H	341	43.70	6.00
8	4924.00	36.9 AV	54.0	-17.1	1.52 H	341	30.90	6.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	119.5 PK			1.36 V	340	86.60	32.90
2	*2462.00	117.2 AV			1.36 V	340	84.30	32.90
3	2483.50	59.4 PK	74.0	-14.6	1.50 V	199	26.40	33.00
4	2483.50	52.4 AV	54.0	-1.6	1.50 V	199	19.40	33.00
5	#3282.00	50.0 PK	89.5	-39.5	2.29 V	220	48.20	1.80
6	#3282.00	45.5 AV	87.2	-41.7	2.29 V	220	43.70	1.80
7	4924.00	49.0 PK	74.0	-25.0	1.55 V	346	43.00	6.00
8	4924.00	35.8 AV	54.0	-18.2	1.55 V	346	29.80	6.00

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.5 QP	74.0	-16.5	1.39 H	270	24.70	32.80
2	2390.00	47.1 QP	54.0	-6.9	1.39 H	270	14.30	32.80
3	*2412.00	106.8 QP			1.39 H	270	73.90	32.90
4	*2412.00	96.4 QP			1.39 H	270	63.50	32.90
5	3216.00	38.7 QP	74.0	-35.3	2.40 H	180	36.90	1.80
6	3216.00	36.1 QP	54.0	-17.9	2.40 H	180	34.30	1.80
7	4824.00	48.0 QP	74.0	-26.0	2.10 H	357	42.10	5.90
8	4824.00	35.1 QP	54.0	-18.9	2.10 H	357	29.20	5.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.7 QP	74.0	-9.3	1.12 V	323	31.90	32.80
2	2390.00	52.8 QP	54.0	-1.2	1.12 V	323	20.00	32.80
3	*2412.00	117.4 QP			1.52 V	119	84.50	32.90
4	*2412.00	107.3 QP			1.52 V	119	74.40	32.90
5	3216.00	49.5 QP	74.0	-24.5	2.20 V	167	47.70	1.80
6	3216.00	48.3 QP	54.0	-5.7	2.20 V	167	46.50	1.80
7	4824.00	48.9 QP	74.0	-25.1	1.44 V	311	43.00	5.90
8	4824.00	35.9 QP	54.0	-18.1	1.44 V	311	30.00	5.90

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.3 PK	74.0	-16.7	1.33 H	35	24.50	32.80
2	2390.00	46.3 AV	54.0	-7.7	1.33 H	35	13.50	32.80
3	*2437.00	116.0 PK			1.28 H	32	83.10	32.90
4	*2437.00	105.5 AV			1.28 H	32	72.60	32.90
5	2483.50	58.1 PK	74.0	-15.9	1.28 H	30	25.10	33.00
6	2483.50	47.7 AV	54.0	-6.3	1.28 H	30	14.70	33.00
7	#3249.00	42.1 PK	86.0	-43.9	2.00 H	311	40.20	1.90
8	#3249.00	36.9 AV	75.5	-38.6	2.00 H	311	35.00	1.90
9	4874.00	51.6 PK	74.0	-22.4	2.44 H	346	45.60	6.00
10	4874.00	38.6 AV	54.0	-15.4	2.44 H	346	32.60	6.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.3 PK	74.0	-11.7	1.39 V	338	29.50	32.80
2	2390.00	51.3 AV	54.0	-2.7	1.39 V	338	18.50	32.80
3	*2437.00	123.2 PK			1.32 V	114	90.30	32.90
4	*2437.00	112.9 AV			1.32 V	114	80.00	32.90
5	2483.50	66.5 PK	74.0	-7.5	1.29 V	111	33.50	33.00
6	2483.50	52.5 AV	54.0	-1.5	1.29 V	111	19.50	33.00
7	#3249.00	49.4 PK	93.2	-43.8	2.64 V	320	47.50	1.90
8	#3249.00	46.9 AV	82.9	-36.0	2.64 V	320	45.00	1.90
9	4874.00	52.9 PK	74.0	-21.1	2.08 V	208	46.90	6.00
10	4874.00	39.8 AV	54.0	-14.2	2.08 V	208	33.80	6.00

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.6 PK			1.16 H	35	76.70	32.90
2	*2462.00	99.1 AV			1.16 H	35	66.20	32.90
3	2483.50	58.0 PK	74.0	-16.0	1.16 H	35	25.00	33.00
4	2483.50	48.1 AV	54.0	-5.9	1.16 H	35	15.10	33.00
5	#3282.00	38.5 PK	79.6	-41.1	1.99 H	286	36.70	1.80
6	#3282.00	35.4 AV	69.1	-33.7	1.99 H	286	33.60	1.80
7	4924.00	48.3 PK	74.0	-25.7	2.02 H	359	42.30	6.00
8	4924.00	35.3 AV	54.0	-18.7	2.02 H	359	29.30	6.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	116.5 PK			1.58 V	342	83.60	32.90
2	*2462.00	106.6 AV			1.58 V	342	73.70	32.90
3	2483.50	67.5 PK	74.0	-6.5	1.14 V	263	34.50	33.00
4	2483.50	53.0 AV	54.0	-1.0	1.14 V	263	20.00	33.00
5	#3282.00	48.8 PK	86.5	-37.7	2.70 V	310	47.00	1.80
6	#3282.00	46.7 AV	76.6	-29.9	2.70 V	310	44.90	1.80
7	4924.00	48.4 PK	74.0	-25.6	1.40 V	339	42.40	6.00
8	4924.00	35.5 AV	54.0	-18.5	1.40 V	339	29.50	6.00

REMARKS:

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

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.9 PK	74.0	-16.1	1.50 H	34	25.10	32.80
2	2390.00	47.5 AV	54.0	-6.5	1.50 H	34	14.70	32.80
3	*2412.00	106.0 PK			1.50 H	34	73.10	32.90
4	*2412.00	96.1 AV			1.50 H	34	63.20	32.90
5	#3216.00	38.6 PK	76.0	-37.4	1.77 H	221	36.80	1.80
6	#3216.00	36.3 AV	66.1	-29.8	1.77 H	221	34.50	1.80
7	4824.00	47.8 PK	74.0	-26.2	1.44 H	333	41.90	5.90
8	4824.00	34.7 AV	54.0	-19.3	1.44 H	333	28.80	5.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.1 PK	74.0	-6.9	1.15 V	322	34.30	32.80
2	2390.00	52.8 AV	54.0	-1.2	1.15 V	322	20.00	32.80
3	*2412.00	116.8 PK			1.60 V	316	83.90	32.90
4	*2412.00	106.4 AV			1.60 V	316	73.50	32.90
5	#3216.00	47.4 PK	86.8	-39.4	2.12 V	170	45.60	1.80
6	#3216.00	44.7 AV	76.4	-31.7	2.12 V	170	42.90	1.80
7	4824.00	48.5 PK	74.0	-25.5	1.50 V	310	42.60	5.90
8	4824.00	35.7 AV	54.0	-18.3	1.50 V	310	29.80	5.90

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.5 PK	74.0	-17.5	1.25 H	63	23.70	32.80
2	2390.00	47.6 AV	54.0	-6.4	1.25 H	63	14.80	32.80
3	*2437.00	112.5 PK			1.25 H	63	79.60	32.90
4	*2437.00	102.4 AV			1.25 H	63	69.50	32.90
5	2483.50	59.9 PK	74.0	-14.1	1.29 H	77	26.90	33.00
6	2483.50	49.0 AV	54.0	-5.0	1.29 H	77	16.00	33.00
7	#3249.00	40.9 PK	82.5	-41.6	1.74 H	256	39.00	1.90
8	#3249.00	37.6 AV	72.4	-34.8	1.74 H	256	35.70	1.90
9	4874.00	50.4 PK	74.0	-23.6	1.99 H	286	44.40	6.00
10	4874.00	37.7 AV	54.0	-16.3	1.99 H	286	31.70	6.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	63.8 PK	74.0	-10.2	1.00 V	338	31.00	32.80
2	2390.00	51.3 AV	54.0	-2.7	1.00 V	338	18.50	32.80
3	*2437.00	124.1 PK			1.44 V	344	91.20	32.90
4	*2437.00	113.7 AV			1.44 V	344	80.80	32.90
5	2483.50	67.4 PK	74.0	-6.6	1.19 V	112	34.40	33.00
6	2483.50	52.8 AV	54.0	-1.2	1.19 V	112	19.80	33.00
7	#3249.00	45.0 PK	94.1	-49.1	2.66 V	323	43.10	1.90
8	#3249.00	42.5 AV	83.7	-41.2	2.66 V	323	40.60	1.90
9	4874.00	53.3 PK	74.0	-20.7	2.11 V	222	47.30	6.00
10	4874.00	39.4 AV	54.0	-14.6	2.11 V	222	33.40	6.00

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	107.7 PK			1.22 H	33	74.80	32.90
2	*2462.00	98.1 AV			1.22 H	33	65.20	32.90
3	2483.50	58.5 PK	74.0	-15.5	1.22 H	44	25.50	33.00
4	2483.50	47.6 AV	54.0	-6.4	1.22 H	44	14.60	33.00
5	#3282.00	39.2 PK	77.7	-38.5	1.50 H	236	37.40	1.80
6	#3282.00	37.5 AV	68.1	-30.6	1.50 H	236	35.70	1.80
7	4924.00	47.6 PK	74.0	-26.4	1.69 H	312	41.60	6.00
8	4924.00	34.6 AV	54.0	-19.4	1.69 H	312	28.60	6.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	116.7 PK			1.62 V	346	83.80	32.90
2	*2462.00	106.0 AV			1.62 V	346	73.10	32.90
3	2483.50	66.5 PK	74.0	-7.5	1.18 V	98	33.50	33.00
4	2483.50	52.4 AV	54.0	-1.6	1.18 V	98	19.40	33.00
5	#3282.00	48.1 PK	86.7	-38.6	2.70 V	311	46.30	1.80
6	#3282.00	45.5 AV	76.0	-30.5	2.70 V	311	43.70	1.80
7	4924.00	48.2 PK	74.0	-25.8	1.56 V	322	42.20	6.00
8	4924.00	35.1 AV	54.0	-18.9	1.56 V	322	29.10	6.00

REMARKS:

- Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB)
– Pre-Amplifier Factor(dB)
- The other emission levels were very low against the limit.
- Margin value = Emission Level – Limit value
- " * ": Fundamental frequency.
- " # ": The radiated frequency is out of the restricted band.

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.8 PK	74.0	-17.2	1.38 H	30	24.00	32.80
2	2390.00	46.7 AV	54.0	-7.3	1.38 H	30	13.90	32.80
3	*2422.00	101.6 PK			1.41 H	33	68.70	32.90
4	*2422.00	92.0 AV			1.41 H	33	59.10	32.90
5	4844.00	46.5 PK	74.0	-27.5	1.68 H	324	40.70	5.80
6	4844.00	33.7 AV	54.0	-20.3	1.68 H	324	27.90	5.80

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.6 PK	74.0	-8.4	1.15 V	19	32.80	32.80
2	2390.00	52.5 AV	54.0	-1.5	1.15 V	19	19.70	32.80
3	*2422.00	110.9 PK			1.50 V	319	78.00	32.90
4	*2422.00	101.3 AV			1.50 V	319	68.40	32.90
5	4844.00	47.3 PK	74.0	-26.7	1.44 V	233	41.50	5.80
6	4844.00	34.2 AV	54.0	-19.8	1.44 V	233	28.40	5.80

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	55.7 PK	74.0	-18.3	1.41 H	33	22.90	32.80
2	2390.00	45.7 AV	54.0	-8.3	1.41 H	33	12.90	32.80
3	*2437.00	105.6 PK			1.35 H	36	72.70	32.90
4	*2437.00	95.8 AV			1.35 H	36	62.90	32.90
5	2483.50	56.9 PK	74.0	-17.1	1.35 H	40	23.90	33.00
6	2483.50	46.1 AV	54.0	-7.9	1.35 H	40	13.10	33.00
7	4874.00	47.0 PK	74.0	-27.0	1.51 H	20	41.00	6.00
8	4874.00	34.1 AV	54.0	-19.9	1.51 H	20	28.10	6.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.6 PK	74.0	-11.4	1.19 V	67	29.80	32.80
2	2390.00	49.9 AV	54.0	-4.1	1.19 V	67	17.10	32.80
3	*2437.00	113.5 PK			1.48 V	3	80.60	32.90
4	*2437.00	103.4 AV			1.48 V	3	70.50	32.90
5	2483.50	66.6 PK	74.0	-7.4	1.16 V	112	33.60	33.00
6	2483.50	52.2 AV	54.0	-1.8	1.16 V	112	19.20	33.00
7	4874.00	47.9 PK	74.0	-26.1	1.70 V	277	41.90	6.00
8	4874.00	35.2 AV	54.0	-18.8	1.70 V	277	29.20	6.00

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	102.6 PK			1.26 H	36	69.60	33.00
2	*2452.00	92.9 AV			1.26 H	36	59.90	33.00
3	2483.50	60.0 PK	74.0	-14.0	1.30 H	39	27.00	33.00
4	2483.50	48.5 AV	54.0	-5.5	1.30 H	39	15.50	33.00
5	4904.00	46.8 PK	74.0	-27.2	1.70 H	326	40.90	5.90
6	4904.00	33.7 AV	54.0	-20.3	1.70 H	326	27.80	5.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	110.5 PK			1.50 V	33	77.50	33.00
2	*2452.00	100.6 AV			1.50 V	33	67.60	33.00
3	2487.00	67.4 PK	74.0	-6.6	1.15 V	199	34.40	33.00
4	2487.00	52.7 AV	54.0	-1.3	1.15 V	199	19.70	33.00
5	4904.00	47.4 PK	74.0	-26.6	1.66 V	212	41.50	5.90
6	4904.00	34.3 AV	54.0	-19.7	1.66 V	212	28.40	5.90

REMARKS:

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

Beamforming Mode

Mode B

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.2 PK	74.0	-11.8	1.69 H	29	29.40	32.80
2	2390.00	52.7 AV	54.0	-1.3	1.69 H	29	19.90	32.80
3	*2412.00	115.8 PK			2.11 H	300	82.90	32.90
4	*2412.00	108.9 AV			2.11 H	300	76.00	32.90
5	4824.00	49.3 PK	74.0	-24.7	2.40 H	323	43.40	5.90
6	4824.00	41.1 AV	54.0	-12.9	2.40 H	323	35.20	5.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.6 PK	74.0	-14.4	1.65 V	315	26.80	32.80
2	2390.00	48.6 AV	54.0	-5.4	1.65 V	315	15.80	32.80
3	*2412.00	113.1 PK			3.09 V	359	80.20	32.90
4	*2412.00	106.8 AV			3.09 V	359	73.90	32.90
5	4824.00	47.9 PK	74.0	-26.1	1.41 V	225	42.00	5.90
6	4824.00	35.1 AV	54.0	-18.9	1.41 V	225	29.20	5.90

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	116.9 PK			1.02 H	320	84.00	32.90
2	*2437.00	110.6 AV			1.02 H	320	77.70	32.90
3	4874.00	49.1 PK	74.0	-24.9	1.69 H	304	43.10	6.00
4	4874.00	39.3 AV	54.0	-14.7	1.69 H	304	33.30	6.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	115.7 PK			2.32 V	325	82.80	32.90
2	*2437.00	111.8 AV			2.32 V	325	78.90	32.90
3	4874.00	48.6 PK	74.0	-25.4	1.34 V	83	42.60	6.00
4	4874.00	36.4 AV	54.0	-17.6	1.34 V	83	30.40	6.00

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	115.0 PK			1.96 H	60	82.10	32.90
2	*2462.00	107.9 AV			1.96 H	60	75.00	32.90
3	2483.50	62.0 PK	74.0	-12.0	1.00 H	21	29.00	33.00
4	2483.50	52.2 AV	54.0	-1.8	1.00 H	21	19.20	33.00
5	4924.00	48.2 PK	74.0	-25.8	1.72 H	7	42.20	6.00
6	4924.00	39.0 AV	54.0	-15.0	1.72 H	7	33.00	6.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	114.1 PK			2.37 V	343	81.20	32.90
2	*2462.00	108.0 AV			2.37 V	343	75.10	32.90
3	2483.50	69.4 PK	74.0	-4.6	2.72 V	333	36.40	33.00
4	2483.50	49.0 AV	54.0	-5.0	2.72 V	333	16.00	33.00
5	4924.00	47.4 PK	74.0	-26.6	1.52 V	252	41.40	6.00
6	4924.00	35.3 AV	54.0	-18.7	1.52 V	252	29.30	6.00

REMARKS:

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

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.4 PK	74.0	-1.6	1.00 H	285	39.60	32.80
2	2390.00	50.1 AV	54.0	-3.9	1.00 H	285	17.30	32.80
3	*2422.00	108.4 PK			1.69 H	58	75.50	32.90
4	*2422.00	102.2 AV			1.69 H	58	69.30	32.90
5	4844.00	47.6 PK	74.0	-26.4	1.63 H	108	41.80	5.80
6	4844.00	37.0 AV	54.0	-17.0	1.63 H	108	31.20	5.80

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.5 PK	74.0	-9.5	1.28 V	264	31.70	32.80
2	2390.00	48.4 AV	54.0	-5.6	1.28 V	264	15.60	32.80
3	*2422.00	106.7 PK			2.45 V	343	73.80	32.90
4	*2422.00	100.2 AV			2.45 V	343	67.30	32.90
5	4844.00	45.1 PK	74.0	-28.9	1.82 V	253	39.30	5.80
6	4844.00	34.2 AV	54.0	-19.8	1.82 V	253	28.40	5.80

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.6 PK	74.0	-1.4	1.32 H	35	39.80	32.80
2	2390.00	48.2 AV	54.0	-5.8	1.32 H	35	15.40	32.80
3	*2437.00	115.0 PK			1.64 H	49	82.10	32.90
4	*2437.00	107.7 AV			1.64 H	49	74.80	32.90
5	2483.50	71.5 PK	74.0	-2.5	1.33 H	43	38.50	33.00
6	2483.50	48.6 AV	54.0	-5.4	1.33 H	43	15.60	33.00
7	4874.00	48.5 PK	74.0	-25.5	1.54 H	256	42.50	6.00
8	4874.00	36.5 AV	54.0	-17.5	1.54 H	256	30.50	6.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.3 PK	74.0	-5.7	2.09 V	298	35.50	32.80
2	2390.00	47.2 AV	54.0	-6.8	2.09 V	298	14.40	32.80
3	*2437.00	112.8 PK			2.46 V	341	79.90	32.90
4	*2437.00	105.2 AV			2.46 V	341	72.30	32.90
5	2483.50	69.9 PK	74.0	-4.1	2.48 V	323	36.90	33.00
6	2483.50	47.7 AV	54.0	-6.3	2.48 V	323	14.70	33.00
7	4874.00	48.3 PK	74.0	-25.7	1.82 V	224	42.30	6.00
8	4874.00	35.2 AV	54.0	-18.8	1.82 V	224	29.20	6.00

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	109.3 PK			1.68 H	311	76.30	33.00
2	*2452.00	99.7 AV			1.68 H	311	66.70	33.00
3	2483.50	72.2 PK	74.0	-1.8	1.00 H	2	39.20	33.00
4	2483.50	48.6 AV	54.0	-5.4	1.00 H	2	15.60	33.00
5	4904.00	48.0 PK	74.0	-26.0	1.53 H	202	42.10	5.90
6	4904.00	35.3 AV	54.0	-18.7	1.53 H	202	29.40	5.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	106.8 PK			1.00 V	0	73.80	33.00
2	*2452.00	95.9 AV			1.00 V	0	62.90	33.00
3	2483.50	67.7 PK	74.0	-6.3	1.36 V	321	34.70	33.00
4	2483.50	49.5 AV	54.0	-4.5	1.36 V	321	16.50	33.00
5	4904.00	48.4 PK	74.0	-25.6	1.23 V	66	42.50	5.90
6	4904.00	35.5 AV	54.0	-18.5	1.23 V	66	29.60	5.90

REMARKS:

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

Mode D

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.0 PK	74.0	-16.0	1.51 H	30	25.20	32.80
2	2390.00	46.7 AV	54.0	-7.3	1.51 H	30	13.90	32.80
3	*2412.00	109.3 PK			1.51 H	26	76.40	32.90
4	*2412.00	96.1 AV			1.51 H	26	63.20	32.90
5	4924.00	47.7 PK	74.0	-26.3	1.99 H	150	41.70	6.00
6	4924.00	34.6 AV	54.0	-19.4	1.99 H	150	28.60	6.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.1 PK	74.0	-7.9	1.00 V	11	33.30	32.80
2	2390.00	52.2 AV	54.0	-1.8	1.00 V	11	19.40	32.80
3	*2412.00	118.5 PK			1.02 V	340	85.60	32.90
4	*2412.00	109.2 AV			1.02 V	340	76.30	32.90
5	#3216.00	58.4 PK	98.5	-40.1	2.87 V	105	56.60	1.80
6	#3216.00	55.7 AV	89.2	-33.5	2.87 V	105	53.90	1.80
7	4824.00	48.2 PK	74.0	-25.8	1.30 V	148	42.30	5.90
8	4824.00	35.1 AV	54.0	-18.9	1.30 V	148	29.20	5.90

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.4 PK	74.0	-17.6	1.49 H	22	23.60	32.80
2	2390.00	45.4 AV	54.0	-8.6	1.49 H	22	12.60	32.80
3	*2437.00	110.4 PK			1.46 H	29	77.50	32.90
4	*2437.00	101.1 AV			1.46 H	29	68.20	32.90
5	2483.50	58.1 PK	74.0	-15.9	1.50 H	33	25.10	33.00
6	2483.50	47.0 AV	54.0	-7.0	1.50 H	33	14.00	33.00
7	4874.00	49.6 PK	74.0	-24.4	2.00 H	190	43.60	6.00
8	4874.00	36.3 AV	54.0	-17.7	2.00 H	190	30.30	6.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.1 PK	74.0	-13.9	1.26 V	18	27.30	32.80
2	2390.00	49.5 AV	54.0	-4.5	1.26 V	18	16.70	32.80
3	*2437.00	121.4 PK			1.73 V	327	88.50	32.90
4	*2437.00	113.4 AV			1.73 V	327	80.50	32.90
5	2483.50	61.0 PK	74.0	-13.0	1.21 V	335	28.00	33.00
6	2483.50	50.4 AV	54.0	-3.6	1.21 V	335	17.40	33.00
7	4874.00	50.4 PK	74.0	-23.6	1.40 V	160	44.40	6.00
8	4874.00	37.1 AV	54.0	-16.9	1.40 V	160	31.10	6.00

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	110.4 PK			1.95 H	31	77.50	32.90
2	*2462.00	99.2 AV			1.95 H	31	66.30	32.90
3	2483.50	57.8 PK	74.0	-16.2	1.68 H	330	24.80	33.00
4	2483.50	48.3 AV	54.0	-5.7	1.68 H	330	15.30	33.00
5	4924.00	47.9 PK	74.0	-26.1	2.23 H	88	41.90	6.00
6	4924.00	34.8 AV	54.0	-19.2	2.23 H	88	28.80	6.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	119.4 PK			1.30 V	344	86.50	32.90
2	*2462.00	109.7 AV			1.30 V	344	76.80	32.90
3	2483.50	67.5 PK	74.0	-6.5	1.38 V	24	34.50	33.00
4	2483.50	52.9 AV	54.0	-1.1	1.38 V	24	19.90	33.00
5	4924.00	48.0 PK	74.0	-26.0	1.50 V	145	42.00	6.00
6	4924.00	35.1 AV	54.0	-18.9	1.50 V	145	29.10	6.00

REMARKS:

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

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.8 PK	74.0	-9.2	1.54 H	31	32.00	32.80
2	2390.00	47.7 AV	54.0	-6.3	1.54 H	31	14.90	32.80
3	*2422.00	102.7 PK			1.54 H	31	69.80	32.90
4	*2422.00	93.6 AV			1.54 H	31	60.70	32.90
5	4844.00	46.5 PK	74.0	-27.5	1.90 H	144	40.70	5.80
6	4844.00	33.5 AV	54.0	-20.5	1.90 H	144	27.70	5.80

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	73.0 PK	74.0	-1.0	1.00 V	11	40.20	32.80
2	2390.00	49.3 AV	54.0	-4.7	1.00 V	11	16.50	32.80
3	*2422.00	111.6 PK			1.28 V	48	78.70	32.90
4	*2422.00	97.7 AV			1.28 V	48	64.80	32.90
5	4844.00	47.3 PK	74.0	-26.7	1.48 V	170	41.50	5.80
6	4844.00	34.3 AV	54.0	-19.7	1.48 V	170	28.50	5.80

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.2 PK	74.0	-15.8	1.48 H	31	25.40	32.80
2	2390.00	47.2 AV	54.0	-6.8	1.48 H	31	14.40	32.80
3	*2437.00	107.8 PK			1.48 H	31	74.90	32.90
4	*2437.00	97.9 AV			1.48 H	31	65.00	32.90
5	2483.50	66.7 PK	74.0	-7.3	1.50 H	60	33.70	33.00
6	2483.50	48.8 AV	54.0	-5.2	1.50 H	60	15.80	33.00
7	4874.00	47.6 PK	74.0	-26.4	1.69 H	131	41.60	6.00
8	4874.00	34.4 AV	54.0	-19.6	1.69 H	131	28.40	6.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.6 PK	74.0	-8.4	1.36 V	15	32.80	32.80
2	2390.00	51.8 AV	54.0	-2.2	1.36 V	15	19.00	32.80
3	*2437.00	115.5 PK			1.19 V	108	82.60	32.90
4	*2437.00	105.6 AV			1.19 V	108	72.70	32.90
5	2483.50	73.0 PK	74.0	-1.0	1.38 V	19	40.00	33.00
6	2483.50	50.2 AV	54.0	-3.8	1.38 V	19	17.20	33.00
7	4874.00	48.3 PK	74.0	-25.7	1.53 V	222	42.30	6.00
8	4874.00	35.4 AV	54.0	-18.6	1.53 V	222	29.40	6.00

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	103.3 PK			1.68 H	63	70.30	33.00
2	*2452.00	94.4 AV			1.68 H	63	61.40	33.00
3	2483.50	64.1 PK	74.0	-9.9	1.49 H	349	31.10	33.00
4	2483.50	48.7 AV	54.0	-5.3	1.49 H	349	15.70	33.00
5	4904.00	46.8 PK	74.0	-27.2	1.89 H	212	40.90	5.90
6	4904.00	33.9 AV	54.0	-20.1	1.89 H	212	28.00	5.90

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	110.6 PK			1.20 V	52	77.60	33.00
2	*2452.00	102.4 AV			1.20 V	52	69.40	33.00
3	2483.50	73.0 PK	74.0	-1.0	1.19 V	108	40.00	33.00
4	2483.50	50.0 AV	54.0	-4.0	1.19 V	108	17.00	33.00
5	4904.00	47.3 PK	74.0	-26.7	1.36 V	192	41.40	5.90
6	4904.00	34.2 AV	54.0	-19.8	1.36 V	192	28.30	5.90

REMARKS:

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

Below 1GHz Worst-Case Data: 802.11g

Mode A

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	57.12	31.7 QP	40.0	-8.3	2.00 H	60	46.30	-14.60
2	125.17	32.4 QP	43.5	-11.1	1.51 H	77	48.30	-15.90
3	249.60	33.8 QP	46.0	-12.2	1.01 H	136	48.00	-14.20
4	374.04	40.7 QP	46.0	-5.3	1.01 H	125	51.30	-10.60
5	533.47	37.2 QP	46.0	-8.8	1.51 H	317	44.70	-7.50
6	875.67	36.5 QP	46.0	-9.5	1.51 H	138	37.20	-0.70
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	37.68	36.9 QP	40.0	-3.1	1.00 V	284	52.30	-15.40
2	57.12	36.2 QP	40.0	-3.8	1.50 V	15	50.80	-14.60
3	374.04	38.4 QP	46.0	-7.6	1.50 V	1	49.00	-10.60
4	500.42	32.6 QP	46.0	-13.4	1.00 V	255	40.70	-8.10
5	747.34	36.1 QP	46.0	-9.9	1.00 V	297	38.90	-2.80
6	875.67	36.6 QP	46.0	-9.4	1.50 V	342	37.30	-0.70

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

Mode B

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	57.12	31.2 QP	40.0	-8.8	1.99 H	257	45.80	-14.60
2	125.17	36.0 QP	43.5	-7.5	1.49 H	265	51.90	-15.90
3	247.66	35.5 QP	46.0	-10.5	1.00 H	132	49.80	-14.30
4	374.04	39.1 QP	46.0	-6.9	1.00 H	125	49.70	-10.60
5	533.47	34.4 QP	46.0	-11.6	1.49 H	119	41.90	-7.50
6	875.67	35.9 QP	46.0	-10.1	1.49 H	130	36.60	-0.70

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	43.51	35.9 QP	40.0	-4.1	1.50 V	7	50.70	-14.80
2	70.73	34.1 QP	40.0	-5.9	1.00 V	4	50.40	-16.30
3	125.17	33.8 QP	43.5	-9.7	1.00 V	9	49.70	-15.90
4	374.04	38.3 QP	46.0	-7.7	1.00 V	177	48.90	-10.60
5	533.47	35.8 QP	46.0	-10.2	1.00 V	299	43.30	-7.50
6	875.67	35.5 QP	46.0	-10.5	1.50 V	352	36.20	-0.70

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

Mode C

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	57.12	31.0 QP	40.0	-9.0	2.00 H	6	45.60	-14.60
2	259.15	43.0 QP	46.0	-3.0	1.00 H	127	56.90	-13.90
3	375.98	39.3 QP	46.0	-6.7	1.00 H	14	49.90	-10.60
4	533.47	35.7 QP	46.0	-10.3	1.50 H	134	43.20	-7.50
5	624.85	34.6 QP	46.0	-11.4	1.50 H	16	39.70	-5.10
6	875.67	37.3 QP	46.0	-8.7	1.50 H	92	38.00	-0.70

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	53.23	37.0 QP	40.0	-3.0	1.00 V	243	51.20	-14.20
2	255.44	42.8 QP	46.0	-3.2	1.00 V	319	56.90	-14.10
3	375.98	37.4 QP	46.0	-8.6	1.50 V	186	48.00	-10.60
4	624.85	33.7 QP	46.0	-12.3	1.00 V	262	38.80	-5.10
5	875.67	35.2 QP	46.0	-10.8	1.50 V	16	35.90	-0.70
6	1000.00	36.0 QP	54.0	-18.0	1.00 V	126	35.00	1.00

REMARKS:

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

Mode D

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	57.12	31.6 QP	40.0	-8.4	1.98 H	74	46.20	-14.60
2	257.38	42.7 QP	46.0	-3.3	1.00 H	133	56.70	-14.00
3	375.98	41.4 QP	46.0	-4.6	1.00 H	226	52.00	-10.60
4	533.47	35.3 QP	46.0	-10.7	1.51 H	123	42.80	-7.50
5	624.85	32.7 QP	46.0	-13.3	1.51 H	158	37.80	-5.10
6	875.67	37.1 QP	46.0	-8.9	1.00 H	126	37.80	-0.70

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	39.62	36.5 QP	40.0	-3.5	1.00 V	8	51.80	-15.30
2	49.27	36.7 QP	40.0	-3.3	1.49 V	48	51.20	-14.50
3	257.38	40.6 QP	46.0	-5.4	1.99 V	182	54.60	-14.00
4	375.98	38.9 QP	46.0	-7.1	1.49 V	288	49.50	-10.60
5	533.47	37.6 QP	46.0	-8.4	1.00 V	69	45.10	-7.50
6	747.34	42.8 QP	46.0	-3.2	1.99 V	299	45.60	-2.80
7	875.67	35.1 QP	46.0	-10.9	1.00 V	41	35.80	-0.70

REMARKS:

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

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

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

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

4.2.2 Test Instruments

Tested date: Mar. 09, 2016

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Dec. 23, 2015	Dec. 22, 2016
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond2-01	Dec. 26, 2015	Dec. 25, 2016
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Jan. 11, 2016	Jan. 10, 2017
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Jul. 21, 2015	Jul. 20, 2016
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

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

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

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

4.2.3 Test Procedures

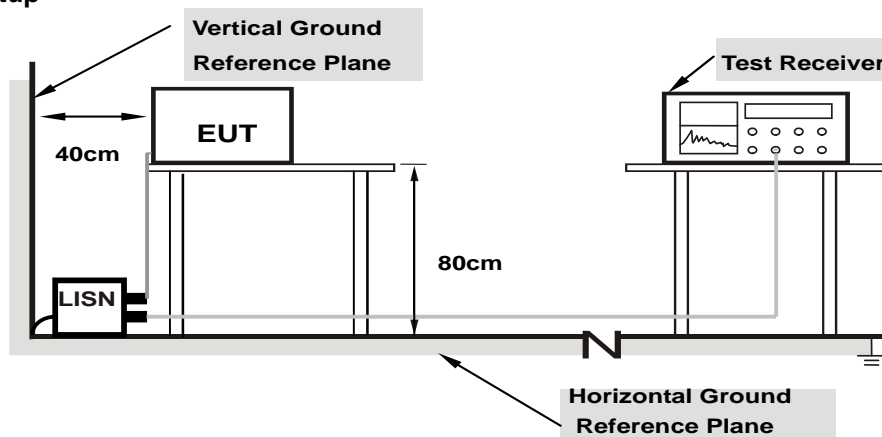
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

NOTE: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

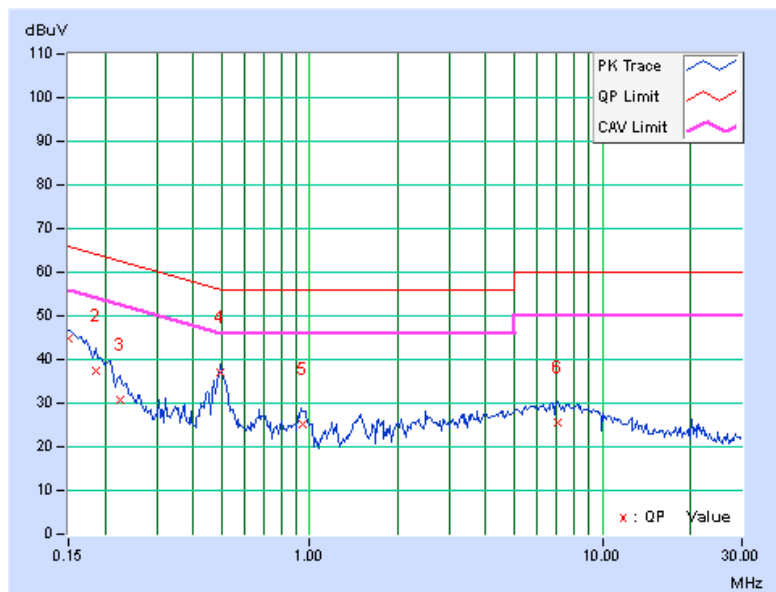
4.2.7 Test Results

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

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.77	35.07	19.96	44.84	29.73	66.00	56.00	-21.16	-26.27
2	0.18516	9.75	27.58	14.90	37.33	24.65	64.25	54.25	-26.92	-29.60
3	0.22422	9.75	20.99	5.89	30.74	15.64	62.66	52.66	-31.92	-37.02
4	0.49766	9.75	27.16	26.38	36.91	36.13	56.04	46.04	-19.13	-9.91
5	0.94435	9.79	15.49	12.67	25.28	22.46	56.00	46.00	-30.72	-23.54
6	7.02734	9.88	15.64	10.21	25.52	20.09	60.00	50.00	-34.48	-29.91

REMARKS:

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

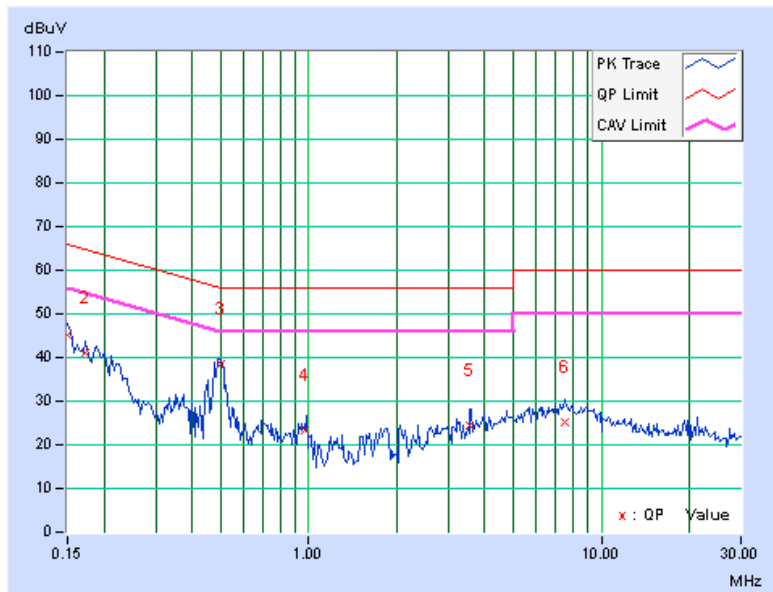


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15000	9.85	35.49	21.45	45.34	31.30	66.00
2	0.17344	9.82	31.12	19.13	40.94	28.95	64.79	54.79	-23.85	-25.84
3	0.49894	9.88	28.74	28.19	38.62	38.07	56.02	46.02	-17.40	-7.95
4	0.97557	9.84	13.33	9.52	23.17	19.36	56.00	46.00	-32.83	-26.64
5	3.57031	9.99	14.57	5.78	24.56	15.77	56.00	46.00	-31.44	-30.23
6	7.51563	10.01	15.29	9.66	25.30	19.67	60.00	50.00	-34.70	-30.33

REMARKS:

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

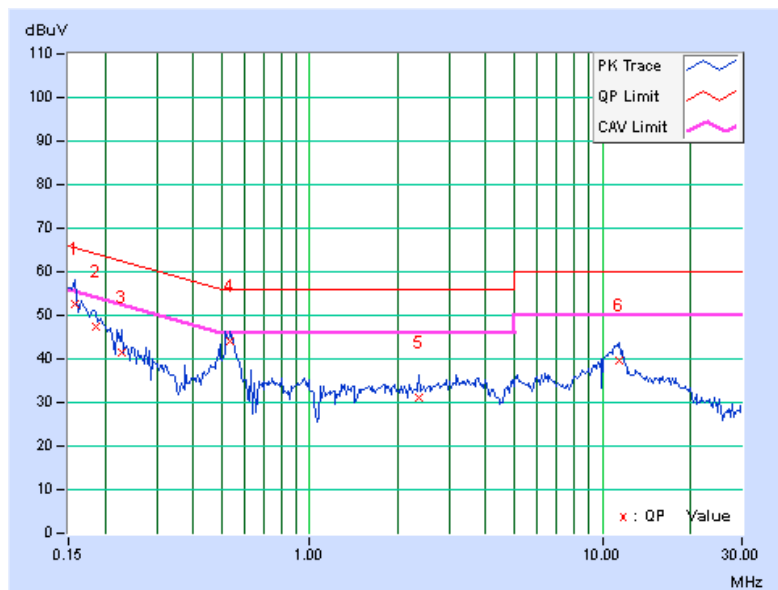


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15781	9.76	42.87	28.19	52.63	37.95	65.58
2	0.18516	9.75	37.84	23.06	47.59	32.81	64.25	54.25	-16.66	-21.44
3	0.22812	9.75	31.60	19.18	41.35	28.93	62.52	52.52	-21.17	-23.59
4	0.53672	9.75	34.23	30.09	43.98	39.84	56.00	46.00	-12.02	-6.16
5	2.36719	9.83	21.37	16.77	31.20	26.60	56.00	46.00	-24.80	-19.40
6	11.42578	9.94	29.60	25.22	39.54	35.16	60.00	50.00	-20.46	-14.84

REMARKS:

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

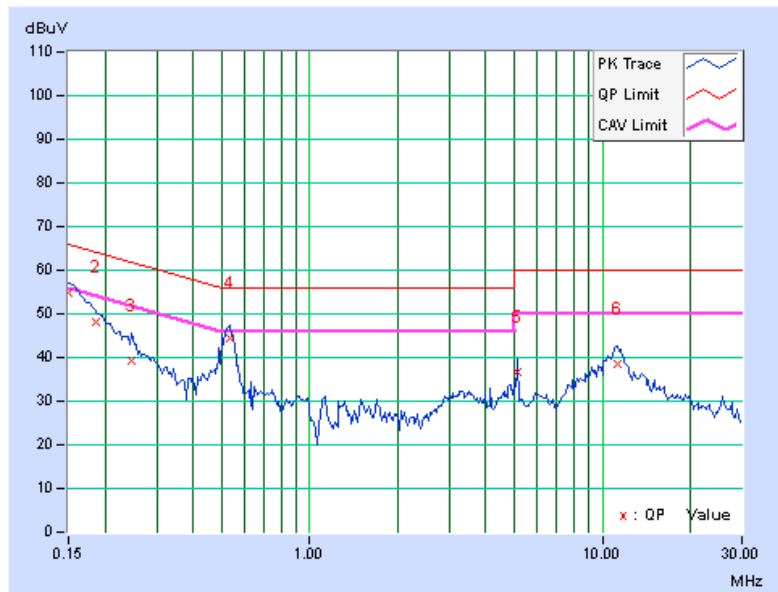


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15000	9.85	44.80	30.51	54.65	40.36	66.00
2	0.18516	9.81	38.31	23.80	48.12	33.61	64.25	54.25	-16.13	-20.64
3	0.24766	9.82	29.40	17.48	39.22	27.30	61.84	51.84	-22.61	-24.53
4	0.53281	9.88	34.74	30.59	44.62	40.47	56.00	46.00	-11.38	-5.53
5	5.15625	10.01	26.51	19.89	36.52	29.90	60.00	50.00	-23.48	-20.10
6	11.24219	10.02	28.33	23.56	38.35	33.58	60.00	50.00	-21.65	-16.42

REMARKS:

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

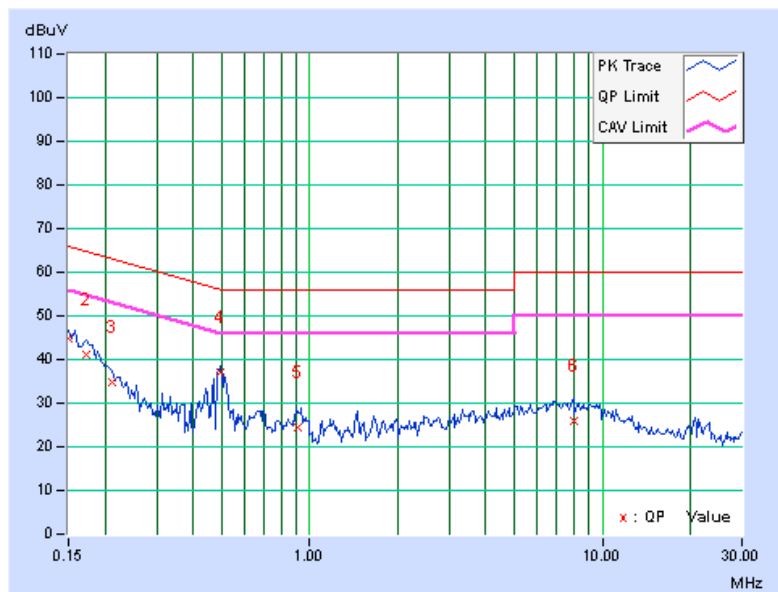


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	C		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15000	9.77	34.94	20.44	44.71	30.21	66.00
2	0.17344	9.76	31.39	16.49	41.15	26.25	64.79	54.79	-23.65	-28.55
3	0.21250	9.75	25.13	12.75	34.88	22.50	63.11	53.11	-28.23	-30.61
4	0.49375	9.75	27.32	26.46	37.07	36.21	56.10	46.10	-19.04	-9.90
5	0.91535	9.78	14.59	12.57	24.37	22.35	56.00	46.00	-31.63	-23.65
6	7.97266	9.90	16.04	10.49	25.94	20.39	60.00	50.00	-34.06	-29.61

REMARKS:

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

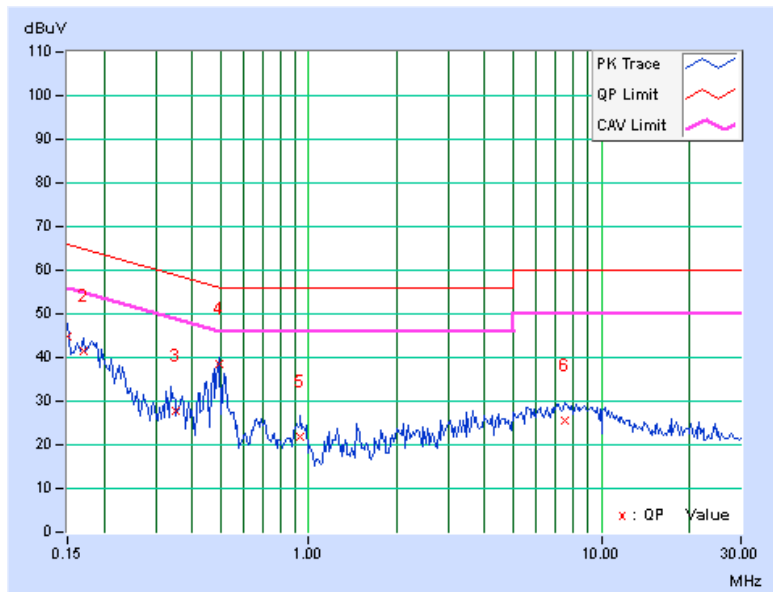


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	C		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15000	9.85	34.86	21.29	44.71	31.14	66.00
2	0.16953	9.83	31.60	20.49	41.43	30.32	64.98	54.98	-23.56	-24.67
3	0.35112	9.87	17.94	15.20	27.81	25.07	58.94	48.94	-31.13	-23.87
4	0.49375	9.88	28.59	27.41	38.47	37.29	56.10	46.10	-17.63	-8.81
5	0.93906	9.85	11.95	8.28	21.80	18.13	56.00	46.00	-34.20	-27.87
6	7.48438	10.01	15.43	9.88	25.44	19.89	60.00	50.00	-34.56	-30.11

REMARKS:

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

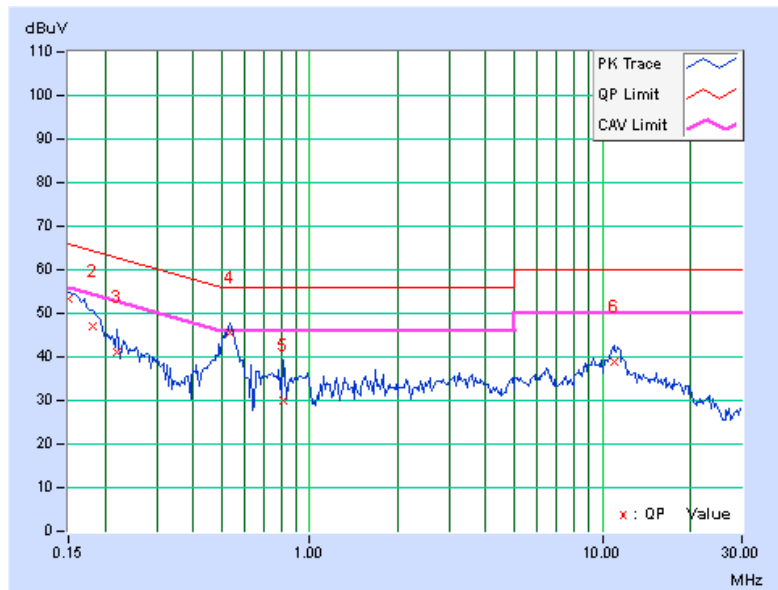


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	D		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15000	9.77	43.46	29.49	53.23	39.26	66.00
2	0.18125	9.76	37.41	22.66	47.17	32.42	64.43	54.43	-17.26	-22.01
3	0.22031	9.75	31.32	17.33	41.07	27.08	62.81	52.81	-21.74	-25.73
4	0.53536	9.75	35.93	31.63	45.68	41.38	56.00	46.00	-10.32	-4.62
5	0.81016	9.77	20.20	14.28	29.97	24.05	56.00	46.00	-26.03	-21.95
6	11.06250	9.94	28.87	24.49	38.81	34.43	60.00	50.00	-21.19	-15.57

REMARKS:

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

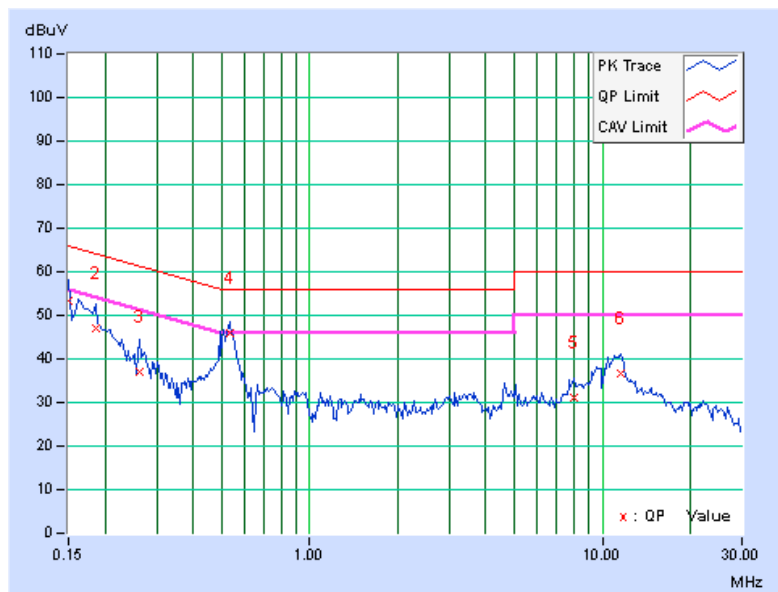


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	D		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15000	9.85	43.66	29.47	53.51	39.32	66.00
2	0.18516	9.81	37.29	22.88	47.10	32.69	64.25	54.25	-17.15	-21.56
3	0.26328	9.83	27.21	15.66	37.04	25.49	61.33	51.33	-24.29	-25.84
4	0.53536	9.88	36.05	31.95	45.93	41.83	56.00	46.00	-10.07	-4.17
5	8.00000	10.01	21.06	15.95	31.07	25.96	60.00	50.00	-28.93	-24.04
6	11.59766	10.02	26.55	21.95	36.57	31.97	60.00	50.00	-23.43	-18.03

REMARKS:

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

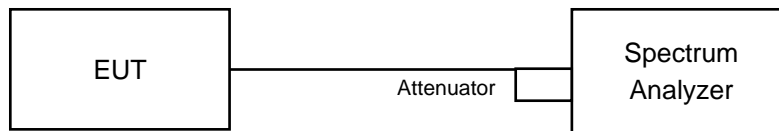


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

- Set resolution bandwidth (RBW) = 100kHz
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

CDD Mode

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	8.11	8.11	6.62	8.11	0.5	Pass
6	2437	8.13	8.12	8.10	8.13	0.5	Pass
11	2462	8.11	8.08	7.13	8.12	0.5	Pass

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	16.33	16.07	16.34	15.75	0.5	Pass
6	2437	15.81	16.06	16.37	15.77	0.5	Pass
11	2462	16.09	15.78	16.34	15.75	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	16.93	16.60	16.59	15.77	0.5	Pass
6	2437	17.56	16.97	17.19	15.99	0.5	Pass
11	2462	16.90	16.94	16.58	15.42	0.5	Pass

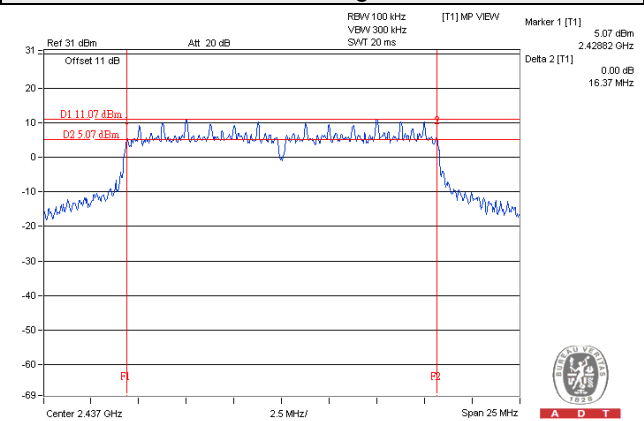
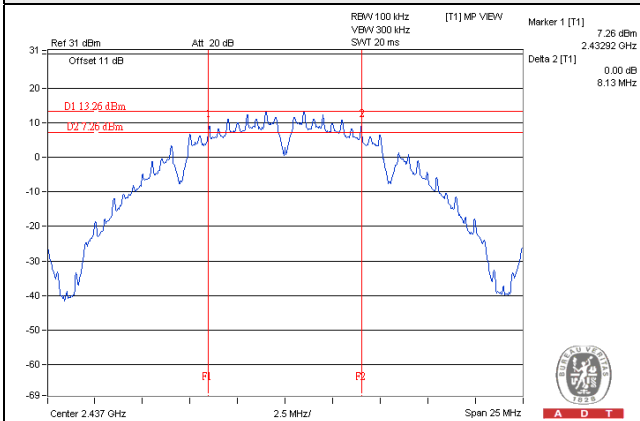
802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
3	2422	35.20	33.88	35.09	35.88	0.5	Pass
6	2437	35.16	35.21	35.14	35.22	0.5	Pass
9	2452	35.20	33.88	35.18	35.20	0.5	Pass

Spectrum Plot of Worst Value

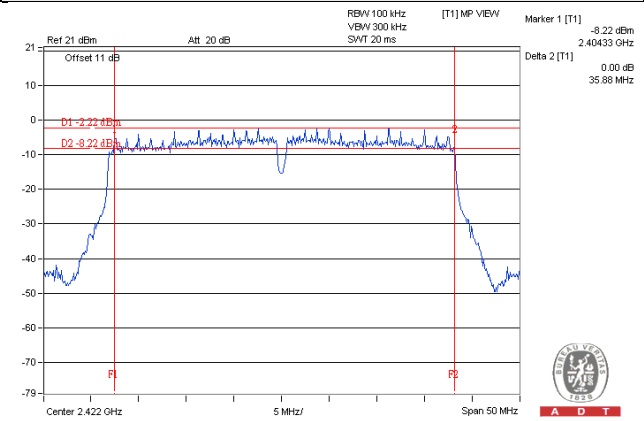
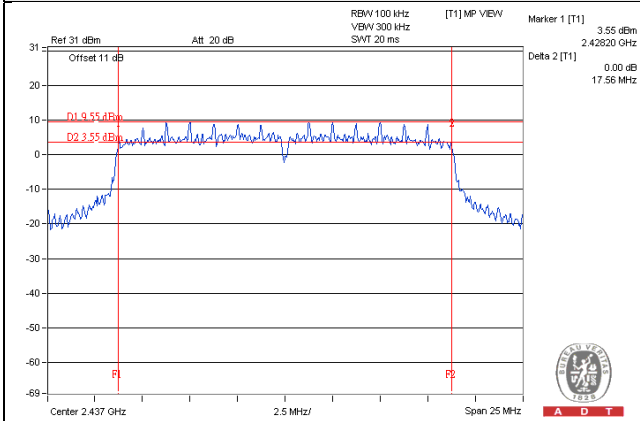
802.11b

802.11g



802.11n (HT20)

802.11n (HT40)



Beamforming Mode

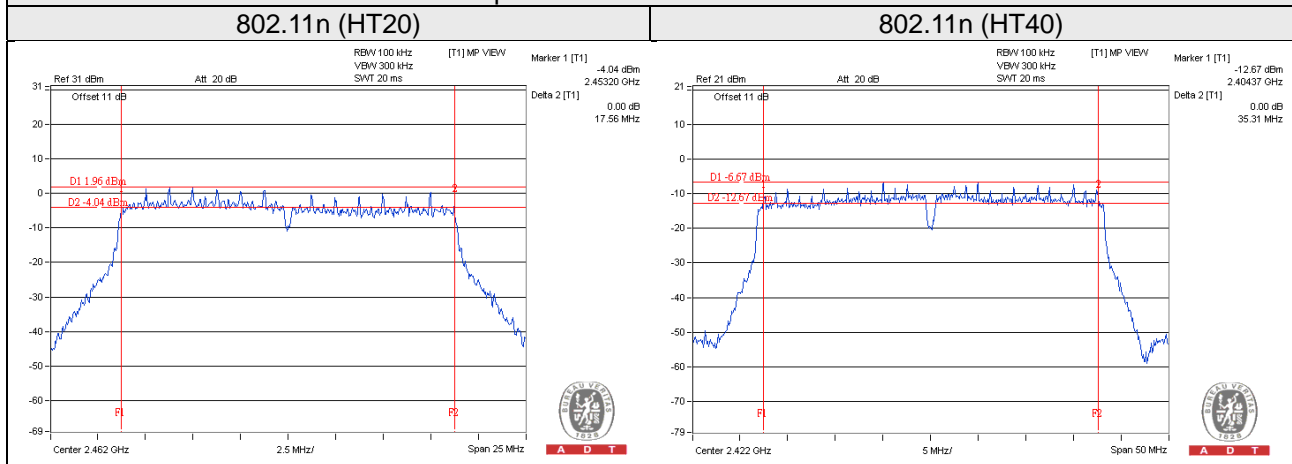
802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	17.19	17.18	15.75	16.31	0.5	Pass
6	2437	16.59	16.58	15.73	15.15	0.5	Pass
11	2462	16.82	17.56	15.74	16.32	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
3	2422	35.26	33.93	35.26	35.31	0.5	Pass
6	2437	35.20	33.91	35.20	35.25	0.5	Pass
9	2452	35.21	31.39	35.17	35.23	0.5	Pass

Spectrum Plot of Worst Value



4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

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

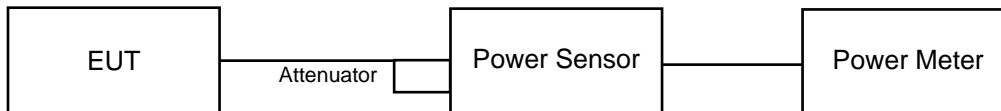
Array Gain = 0 dB (i.e., no array gain) for $NANT \leq 4$;

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

Array Gain = $5 \log(NANT/NSS)$ dB or 3 dB, whichever is less for 20-MHz channel widths with $NANT \geq 5$.

For power measurements on all other devices: Array Gain = $10 \log(NANT/NSS)$ dB.

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

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

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as item 4.3.6.

4.4.7 Test Results

CDD Mode

802.11b

Channel	Frequency (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	19.18	19.03	19.29	19.92	345.870	25.39	30	Pass
6	2437	21.09	19.98	20.60	20.80	463.111	26.66	30	Pass
11	2462	19.35	19.75	18.67	20.04	355.051	25.50	30	Pass

802.11g

Channel	Frequency (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	15.53	15.06	14.80	15.46	133.146	21.24	30	Pass
6	2437	20.98	20.53	20.84	21.18	490.853	26.91	30	Pass
11	2462	15.10	14.39	14.05	15.14	117.907	20.72	30	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	14.21	14.15	14.31	14.09	104.987	20.21	30	Pass
6	2437	19.84	19.48	19.58	19.94	374.509	25.73	30	Pass
11	2462	14.13	13.65	13.58	14.89	102.691	20.12	30	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	12.29	12.14	12.15	12.29	66.660	18.24	30	Pass
6	2437	15.06	14.96	15.12	14.91	126.879	21.03	30	Pass
9	2452	11.79	11.80	11.64	11.93	60.421	17.81	30	Pass

Beamforming Mode

802.11n (HT20)

Channel	Frequency (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	12.42	12.07	12.18	12.37	67.342	18.28	25.56	Pass
6	2437	17.71	17.37	17.49	17.57	226.849	23.56	25.56	Pass
11	2462	12.37	11.83	11.78	12.59	65.720	18.18	25.56	Pass

Note: Internal antenna Directional gain = $3.98\text{dBi} + 10\log(4) = 10.00\text{dBi}$

External antenna Directional gain = $4.42\text{dBi} + 10\log(4) = 10.44\text{dBi}$ (which is the highest value to calculation) $> 6\text{dBi}$, so the limit shall be reduced to $30 - (10.44 - 6) = 25.56\text{dBm}$

802.11n (HT40)

Channel	Frequency (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	7.02	7.05	6.83	7.35	20.357	13.09	25.56	Pass
6	2437	11.75	11.57	11.64	11.65	58.527	17.67	25.56	Pass
9	2452	7.31	6.75	6.96	7.56	20.783	13.18	25.56	Pass

Note: Internal antenna Directional gain = $3.98\text{dBi} + 10\log(4) = 10.00\text{dBi}$

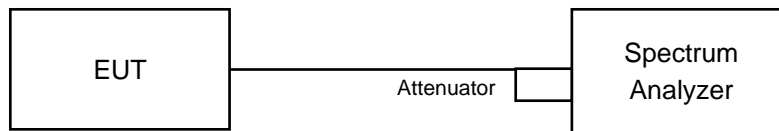
External antenna Directional gain = $4.42\text{dBi} + 10\log(4) = 10.44\text{dBi}$ (which is the highest value to calculation) $> 6\text{dBi}$, so the limit shall be reduced to $30 - (10.44 - 6) = 25.56\text{dBm}$

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

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

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

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

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as item 4.3.6

4.5.7 Test Results

CDD Mode: 802.11b

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=4) dB	Total PSD (dBm)	Limit (dBm)	Pass/Fail
0	1	2412	-7.80	6.02	-1.78	3.56	Pass
	6	2437	-6.68	6.02	-0.66	3.56	Pass
	11	2462	-8.58	6.02	-2.56	3.56	Pass
1	1	2412	-8.47	6.02	-2.45	3.56	Pass
	6	2437	-8.56	6.02	-2.54	3.56	Pass
	11	2462	-8.70	6.02	-2.68	3.56	Pass
2	1	2412	-8.36	6.02	-2.34	3.56	Pass
	6	2437	-7.90	6.02	-1.88	3.56	Pass
	11	2462	-7.94	6.02	-1.92	3.56	Pass
3	1	2412	-7.65	6.02	-1.63	3.56	Pass
	6	2437	-6.50	6.02	-0.48	3.56	Pass
	11	2462	-8.13	6.02	-2.11	3.56	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Internal antenna Directional gain = $3.98\text{dBi} + 10\log(4) = 10.00\text{dBi}$
External antenna Directional gain = $4.42\text{dBi} + 10\log(4) = 10.44\text{dBi}$ (which is the highest value to calculation) $> 6\text{dBi}$, so the limit shall be reduced to $8 - (10.44 - 6) = 3.56\text{dBm}$

802.11g

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=4) dB	Duty Factor	Total PSD with Duty Factor (dBm)	Limit (dBm)	Pass/Fail
0	1	2412	-15.65	6.02	0.17	-9.46	3.56	Pass
	6	2437	-10.02	6.02	0.17	-3.83	3.56	Pass
	11	2462	-15.83	6.02	0.17	-9.64	3.56	Pass
1	1	2412	-15.57	6.02	0.17	-9.38	3.56	Pass
	6	2437	-9.31	6.02	0.17	-3.12	3.56	Pass
	11	2462	-15.72	6.02	0.17	-9.53	3.56	Pass
2	1	2412	-15.27	6.02	0.17	-9.08	3.56	Pass
	6	2437	-9.61	6.02	0.17	-3.42	3.56	Pass
	11	2462	-16.20	6.02	0.17	-10.01	3.56	Pass
3	1	2412	-15.51	6.02	0.17	-9.32	3.56	Pass
	6	2437	-9.06	6.02	0.17	-2.87	3.56	Pass
	11	2462	-15.23	6.02	0.17	-9.04	3.56	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Internal antenna Directional gain = $3.98\text{dBi} + 10\log(4) = 10.00\text{dBi}$
External antenna Directional gain = $4.42\text{dBi} + 10\log(4) = 10.44\text{dBi}$ (which is the highest value to calculation) $> 6\text{dBi}$, so the limit shall be reduced to $8 - (10.44 - 6) = 3.56\text{dBm}$
- Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=4) dB	Total PSD (dBm)	Limit (dBm)	Pass/Fail
0	1	2412	-15.51	6.02	-9.49	3.56	Pass
	6	2437	-9.77	6.02	-3.75	3.56	Pass
	11	2462	-16.48	6.02	-10.46	3.56	Pass
1	1	2412	-14.91	6.02	-8.89	3.56	Pass
	6	2437	-9.70	6.02	-3.68	3.56	Pass
	11	2462	-16.54	6.02	-10.52	3.56	Pass
2	1	2412	-14.80	6.02	-8.78	3.56	Pass
	6	2437	-9.87	6.02	-3.85	3.56	Pass
	11	2462	-16.61	6.02	-10.59	3.56	Pass
3	1	2412	-15.25	6.02	-9.23	3.56	Pass
	6	2437	-9.26	6.02	-3.24	3.56	Pass
	11	2462	-15.88	6.02	-9.86	3.56	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Internal antenna Directional gain = $3.98\text{dBi} + 10\log(4) = 10.00\text{dBi}$
External antenna Directional gain = $4.42\text{dBi} + 10\log(4) = 10.44\text{dBi}$ (which is the highest value to calculation) $> 6\text{dBi}$, so the limit shall be reduced to $8 - (10.44 - 6) = 3.56\text{dBm}$

802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD (dBm)	10 log (N=4) dB	Duty Factor	Total PSD with Duty Factor (dBm)	Limit (dBm)	Pass/Fail
0	3	2422	-21.37	6.02	0.15	-15.20	3.56	Pass
	6	2437	-17.86	6.02	0.15	-11.69	3.56	Pass
	9	2452	-20.89	6.02	0.15	-14.72	3.56	Pass
1	3	2422	-21.09	6.02	0.15	-14.92	3.56	Pass
	6	2437	-16.88	6.02	0.15	-10.71	3.56	Pass
	9	2452	-20.63	6.02	0.15	-14.46	3.56	Pass
2	3	2422	-20.73	6.02	0.15	-14.56	3.56	Pass
	6	2437	-17.30	6.02	0.15	-11.13	3.56	Pass
	9	2452	-20.77	6.02	0.15	-14.60	3.56	Pass
3	3	2422	-21.37	6.02	0.15	-15.20	3.56	Pass
	6	2437	-17.32	6.02	0.15	-11.15	3.56	Pass
	9	2452	-20.46	6.02	0.15	-14.29	3.56	Pass

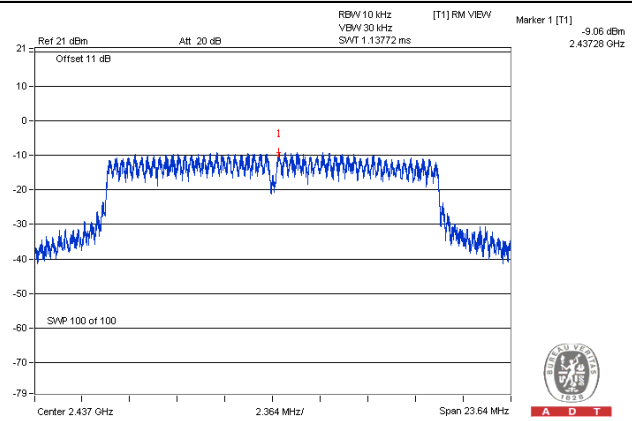
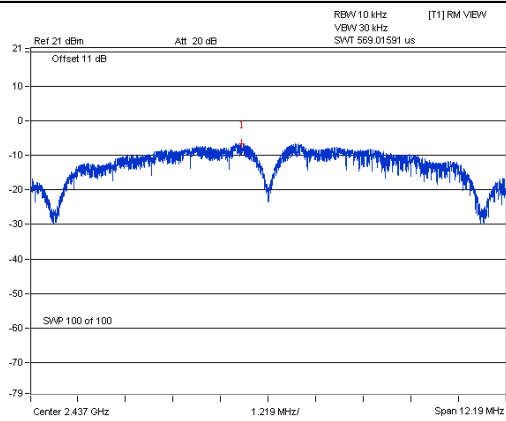
Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Internal antenna Directional gain = $3.98\text{dBi} + 10\log(4) = 10.00\text{dBi}$
External antenna Directional gain = $4.42\text{dBi} + 10\log(4) = 10.44\text{dBi}$ (which is the highest value to calculation) $> 6\text{dBi}$, so the limit shall be reduced to $8 - (10.44 - 6) = 3.56\text{dBm}$
- Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

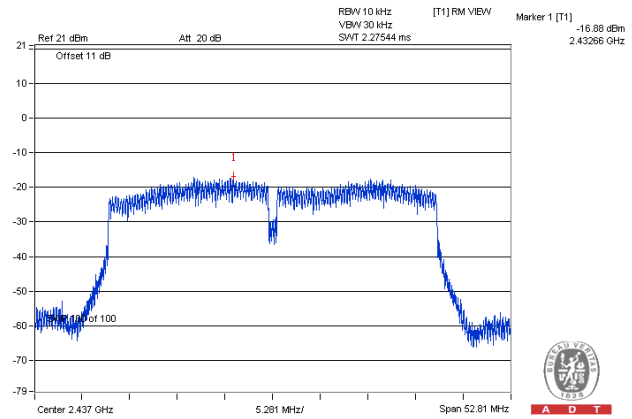
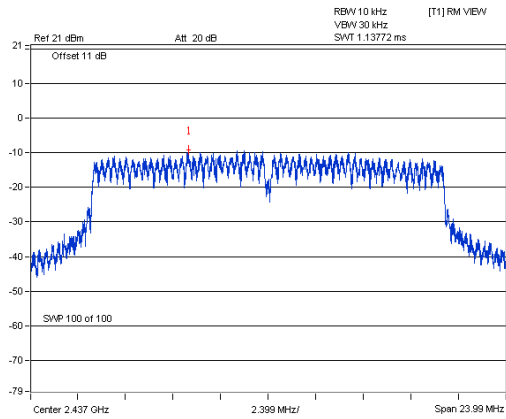
802.11b

802.11g



802.11n (HT20)

802.11n (HT40)



Beamforming Mode

802.11n (HT20)

TX chain	Chan.	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=4) dB	Total PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-17.37	6.02	-11.35	3.56	Pass
	6	2437	-11.18	6.02	-5.16	3.56	Pass
	11	2462	-17.17	6.02	-11.15	3.56	Pass
1	1	2412	-18.13	6.02	-12.11	3.56	Pass
	6	2437	-10.99	6.02	-4.97	3.56	Pass
	11	2462	-17.55	6.02	-11.53	3.56	Pass
2	1	2412	-17.01	6.02	-10.99	3.56	Pass
	6	2437	-11.34	6.02	-5.32	3.56	Pass
	11	2462	-17.64	6.02	-11.62	3.56	Pass
3	1	2412	-17.17	6.02	-11.15	3.56	Pass
	6	2437	-11.26	6.02	-5.24	3.56	Pass
	11	2462	-17.39	6.02	-11.37	3.56	Pass

Note:

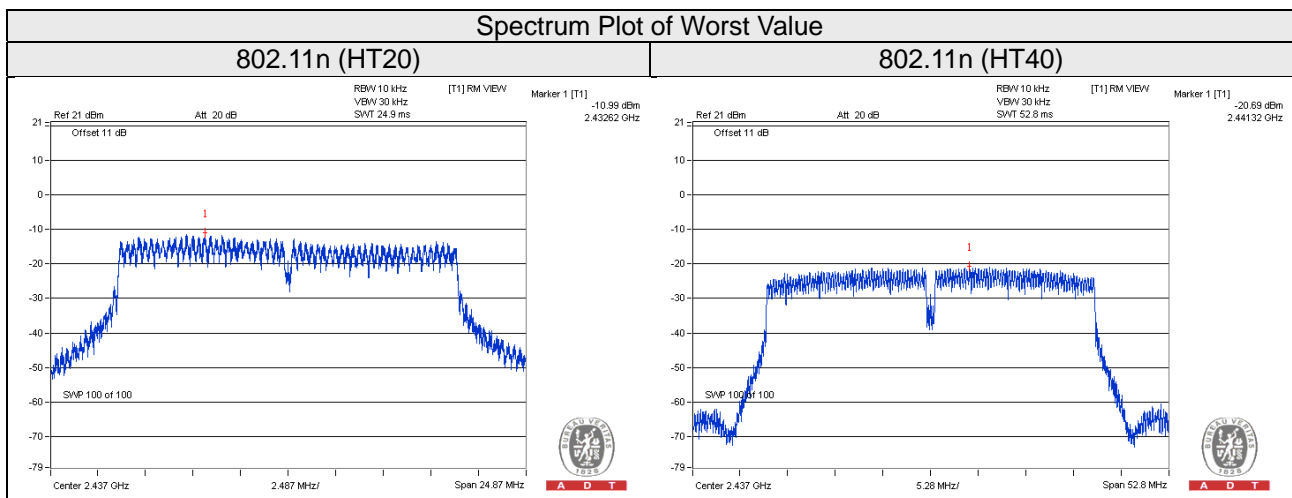
- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Internal antenna Directional gain = $3.98\text{dBi} + 10\log(4) = 10.00\text{dBi}$
 External antenna Directional gain = $4.42\text{dBi} + 10\log(4) = 10.44\text{dBi}$ (which is the highest value to calculation) $> 6\text{dBi}$, so the limit shall be reduced to $8 - (10.44 - 6) = 3.56\text{dBm}$

802.11n (HT40)

TX chain	Chan.	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=4) dB	Duty Factor	Total PSD with Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	3	2422	-25.77	6.02	0.14	-19.61	3.56	Pass
	6	2437	-20.69	6.02	0.14	-14.53	3.56	Pass
	9	2452	-26.75	6.02	0.14	-20.59	3.56	Pass
1	3	2422	-26.05	6.02	0.14	-19.89	3.56	Pass
	6	2437	-21.40	6.02	0.14	-15.24	3.56	Pass
	9	2452	-27.14	6.02	0.14	-20.98	3.56	Pass
2	3	2422	-25.59	6.02	0.14	-19.43	3.56	Pass
	6	2437	-21.06	6.02	0.14	-14.90	3.56	Pass
	9	2452	-27.22	6.02	0.14	-21.06	3.56	Pass
3	3	2422	-26.27	6.02	0.14	-20.11	3.56	Pass
	6	2437	-20.88	6.02	0.14	-14.72	3.56	Pass
	9	2452	-27.07	6.02	0.14	-20.91	3.56	Pass

Note:

- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
- Internal antenna Directional gain = $3.98\text{dBi} + 10\log(4) = 10.00\text{dBi}$
 External antenna Directional gain = $4.42\text{dBi} + 10\log(4) = 10.44\text{dBi}$ (which is the highest value to calculation) $> 6\text{dBi}$, so the limit shall be reduced to $8 - (10.44 - 6) = 3.56\text{dBm}$
- Refer to section 3.3 for duty cycle spectrum plot.

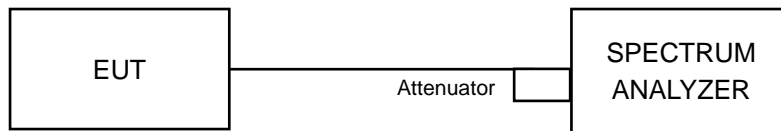


4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOB

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

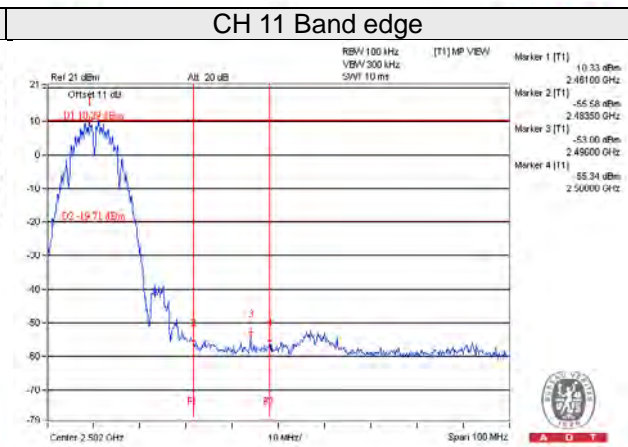
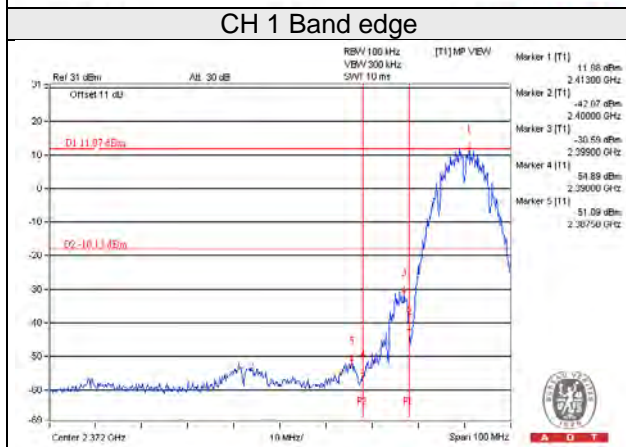
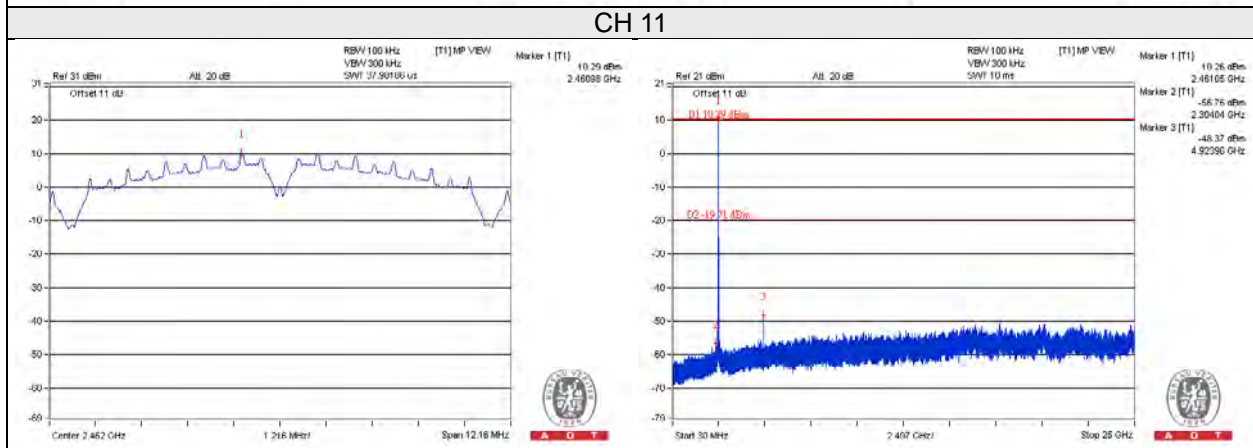
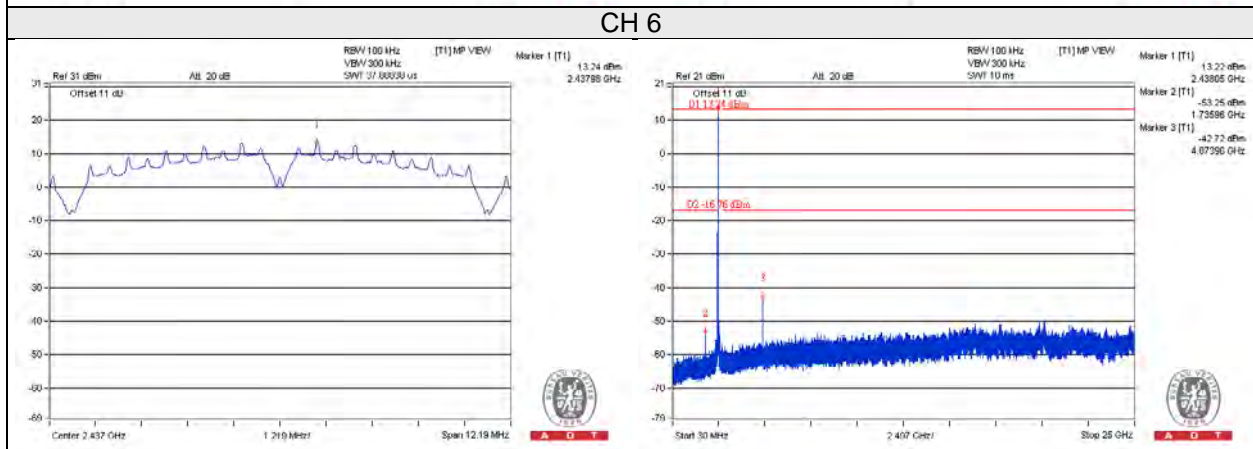
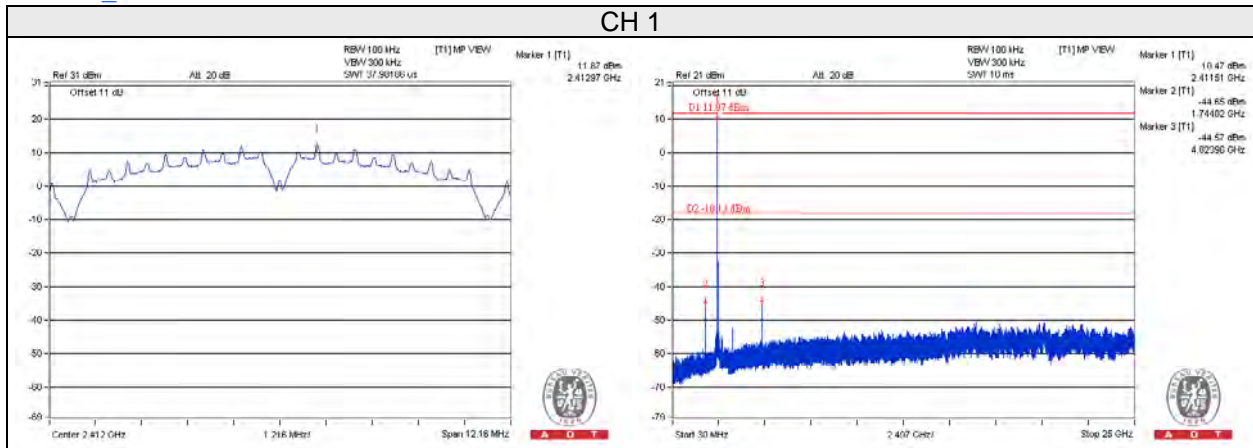
Same as item 4.3.6

4.6.7 Test Results

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

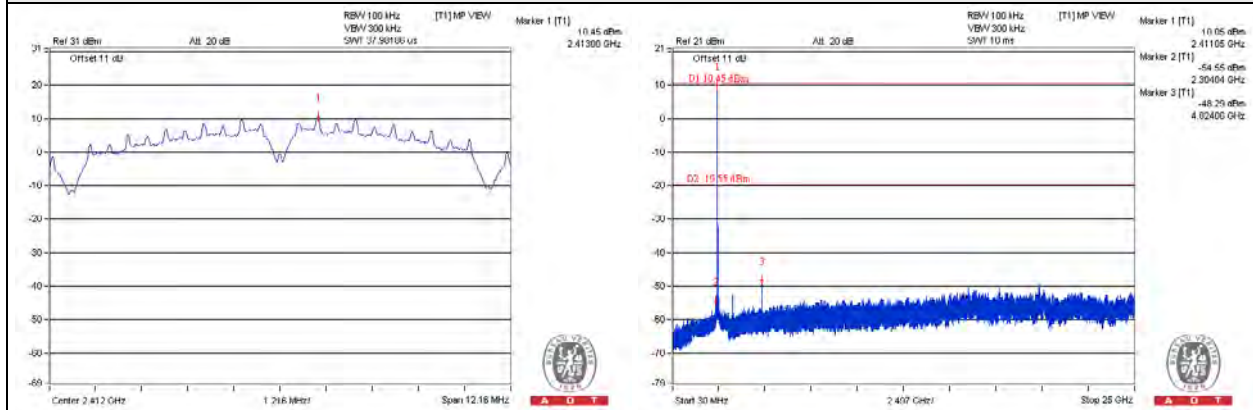
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows compliance with the requirement.

CDD Mode
802.11b_Chain 0

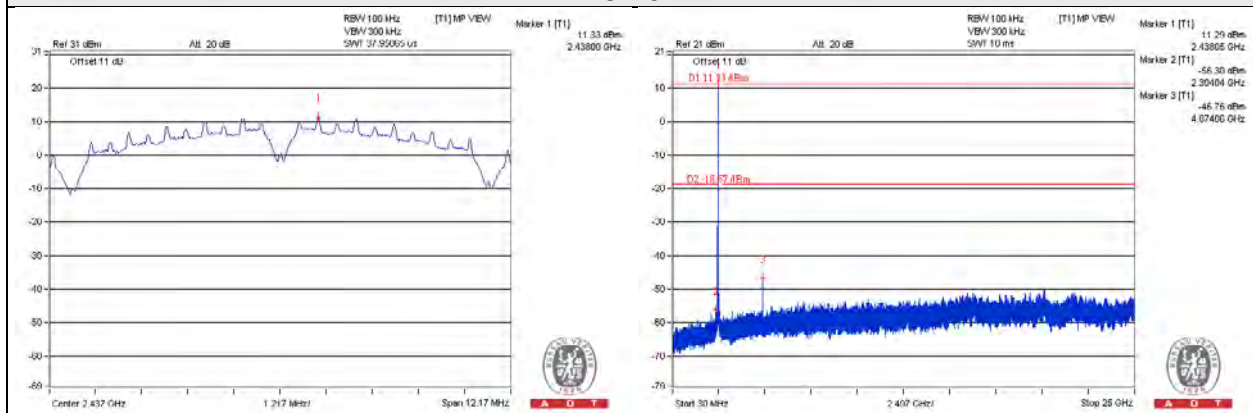


802.11b_Chain 1

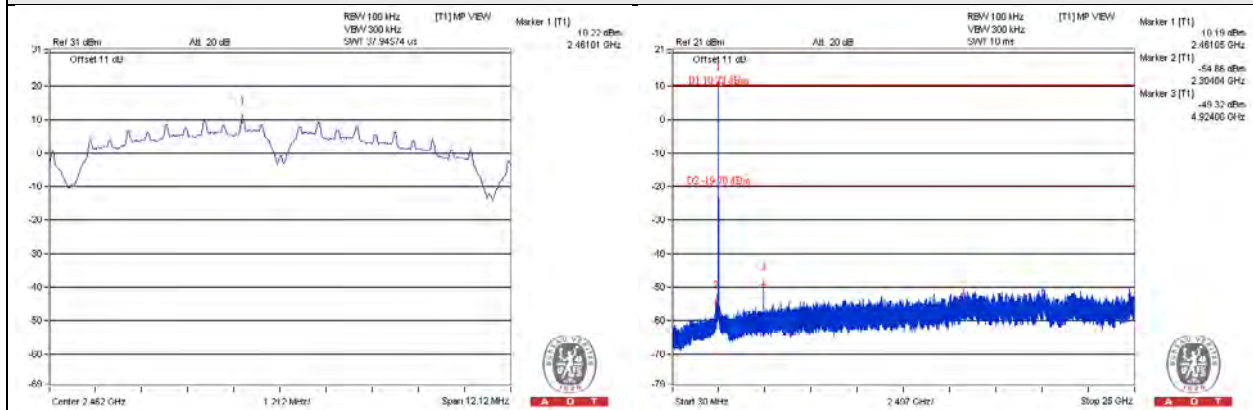
CH 1



CH 6

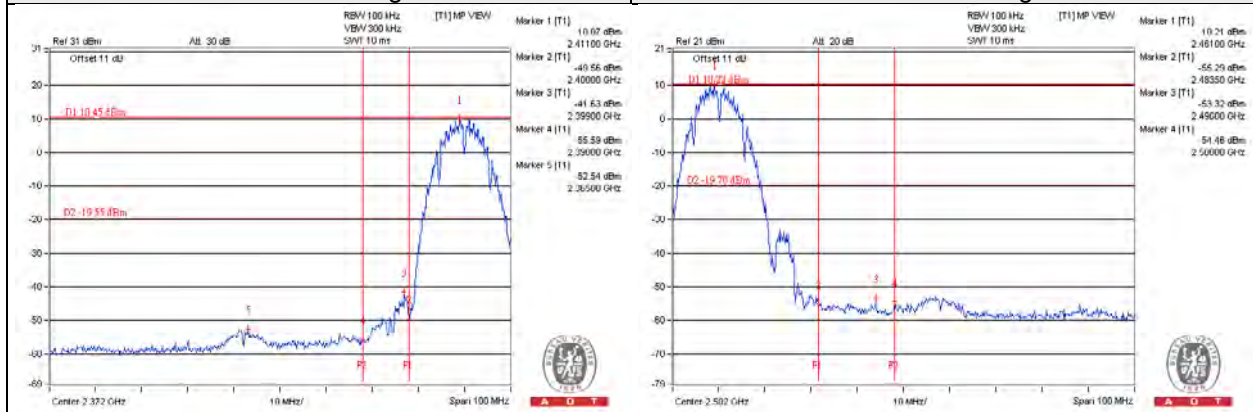


CH 11



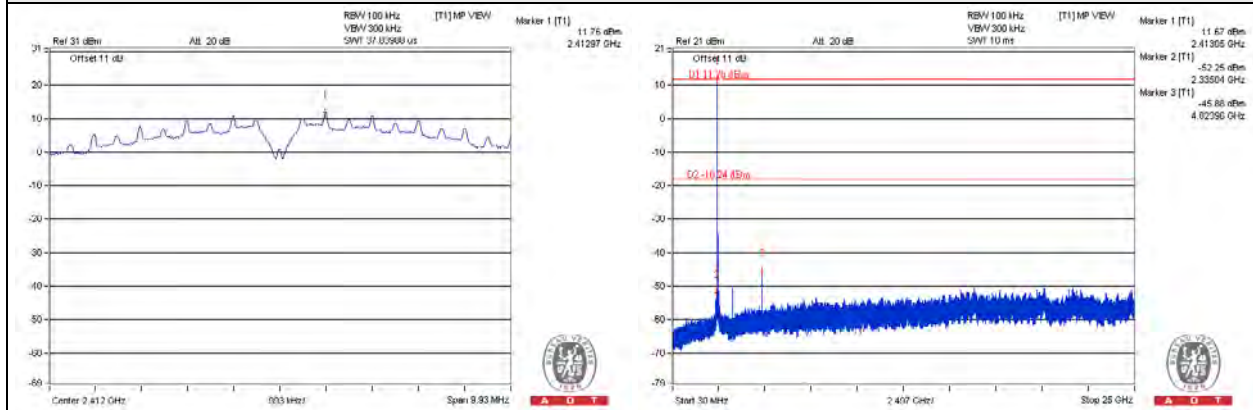
CH 1 Band edge

CH 11 Band edge

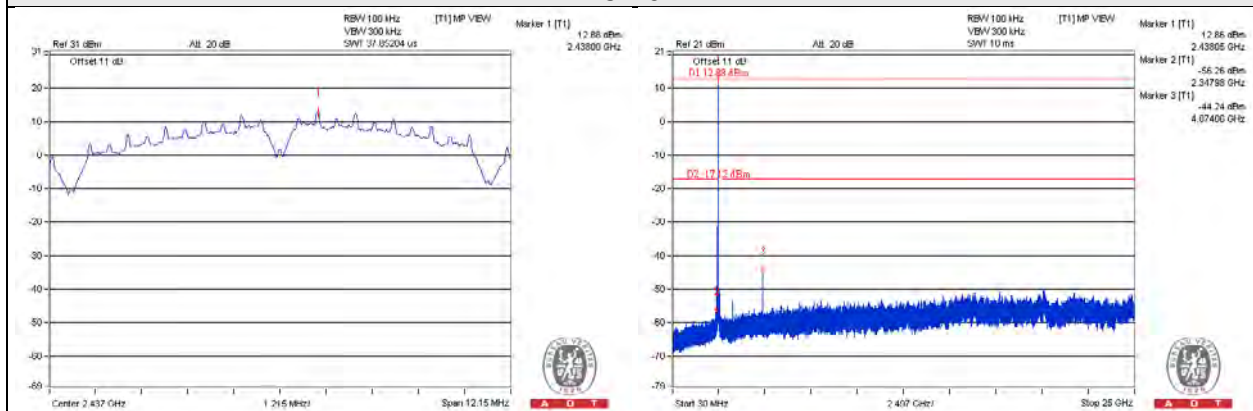


802.11b_Chain 2

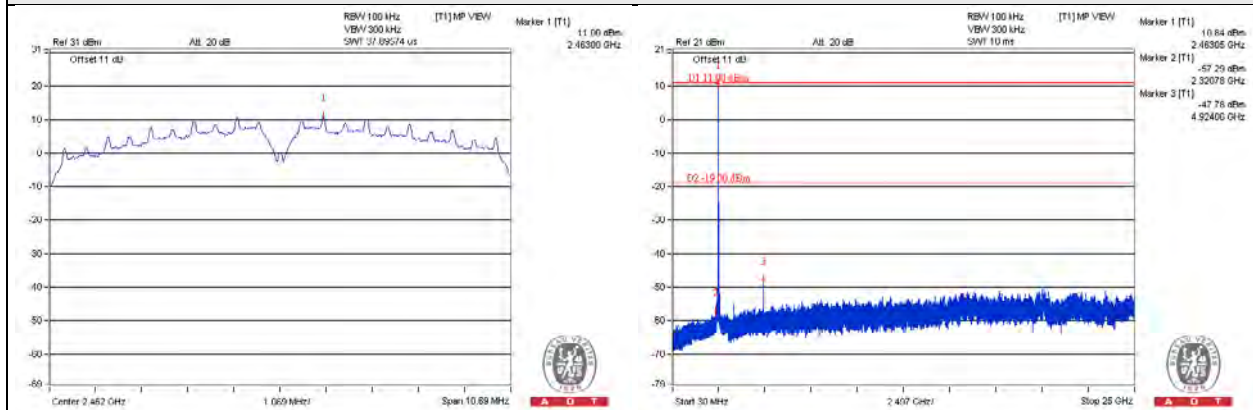
CH 1



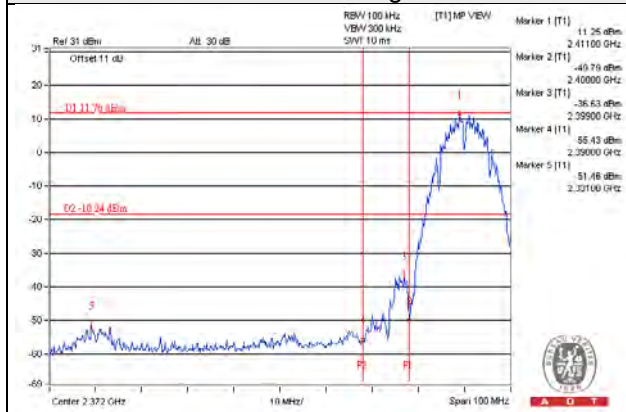
CH 6



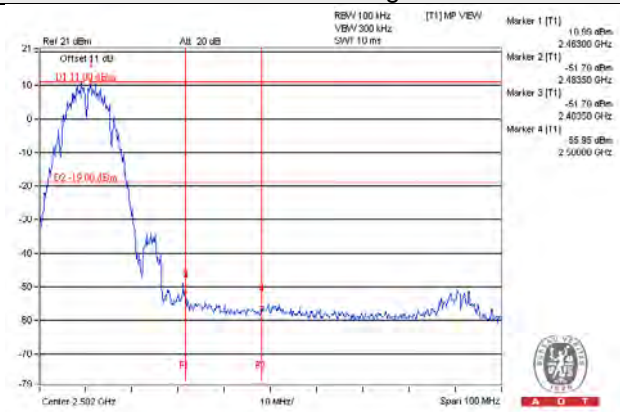
CH 11



CH 1 Band edge

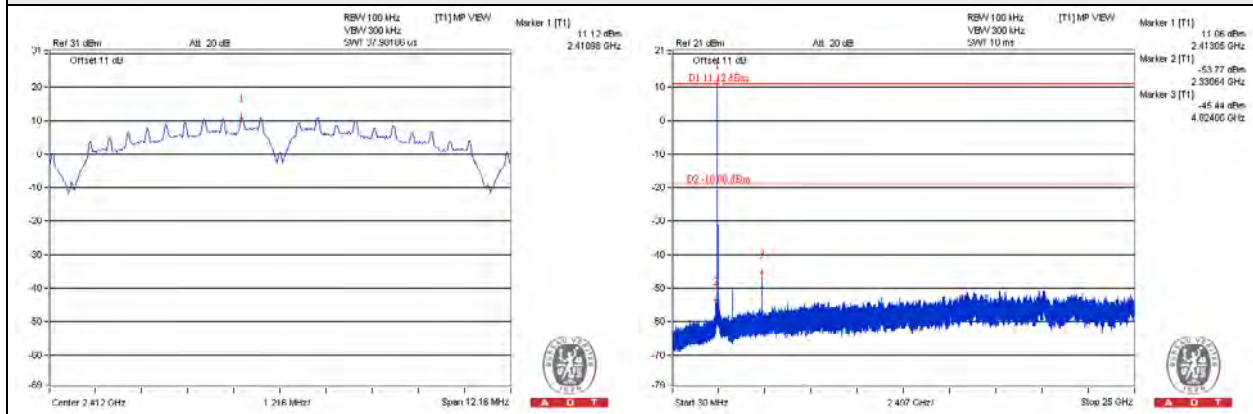


CH 11 Band edge

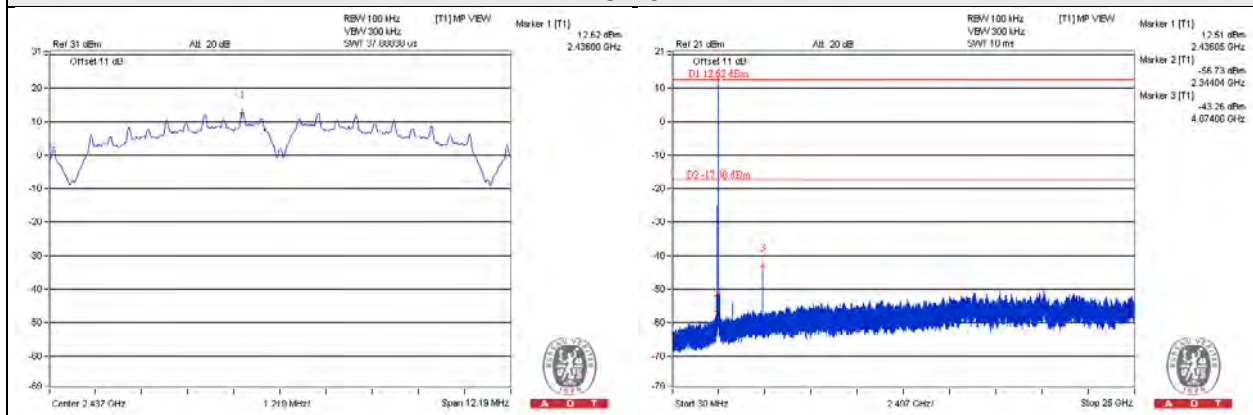


802.11b_Chain 3

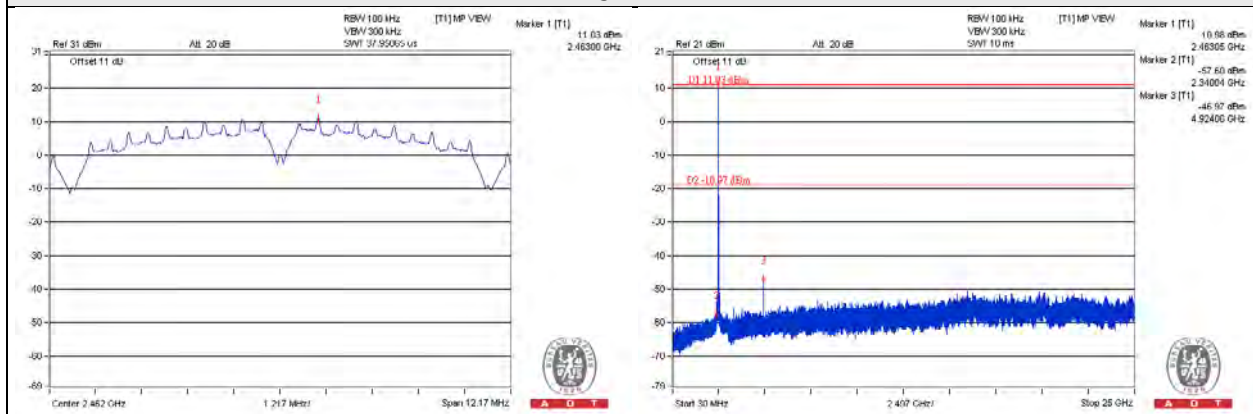
CH 1



CH 6

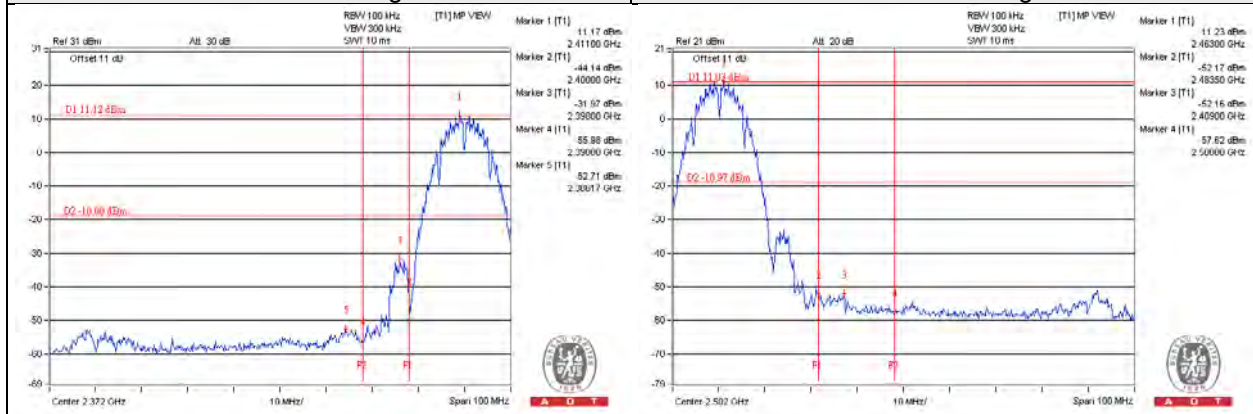


CH 11



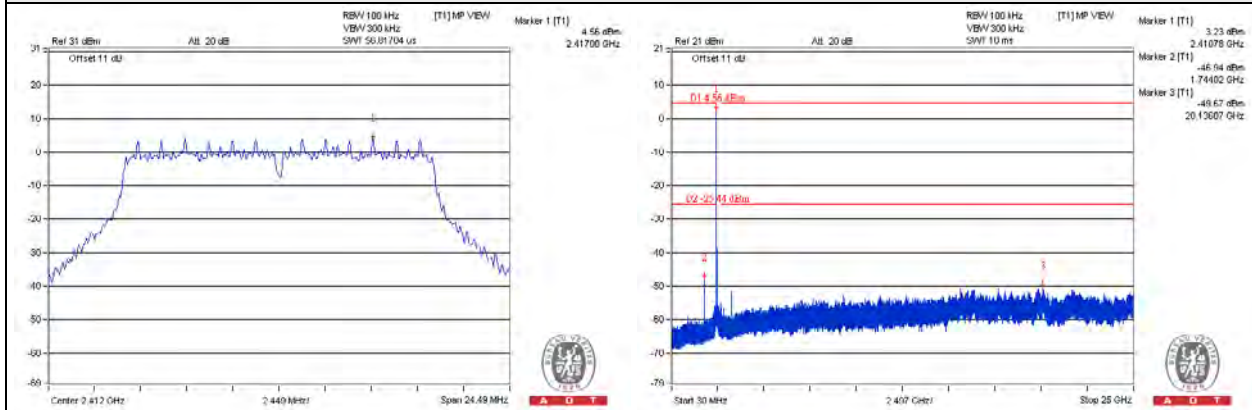
CH 1 Band edge

CH 11 Band edge

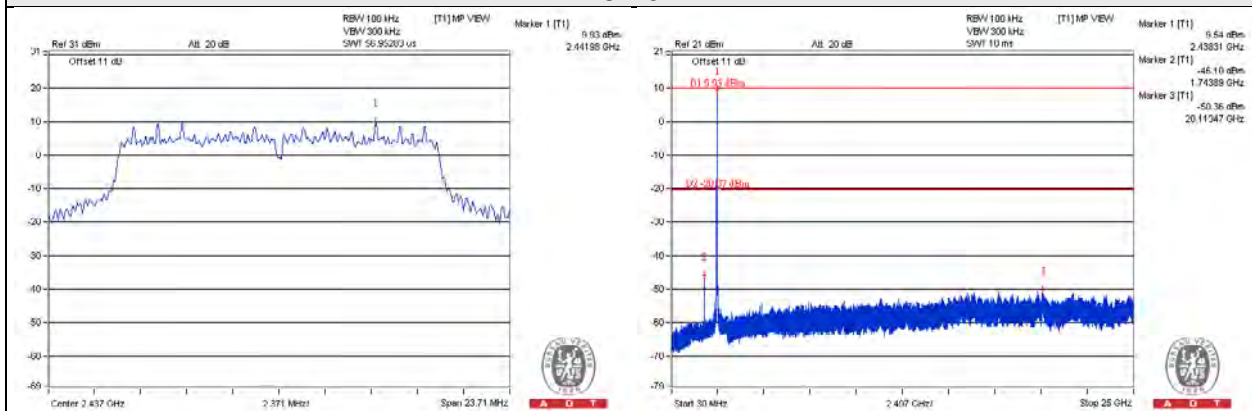


802.11g_Chain 0

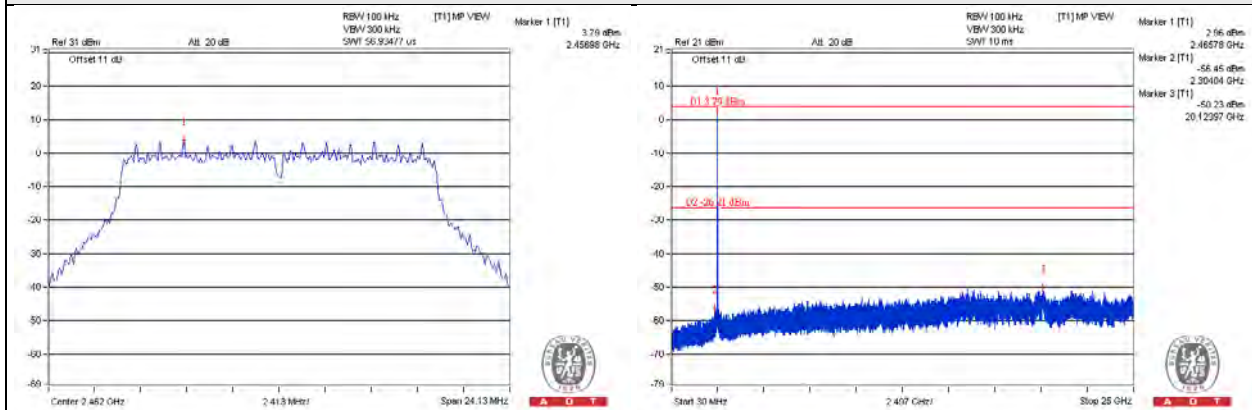
CH 1



CH 6

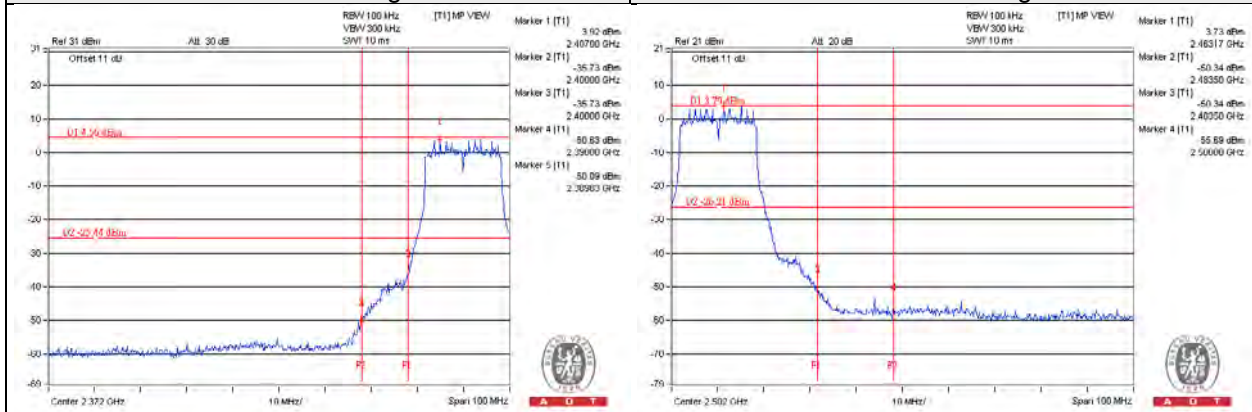


CH 11



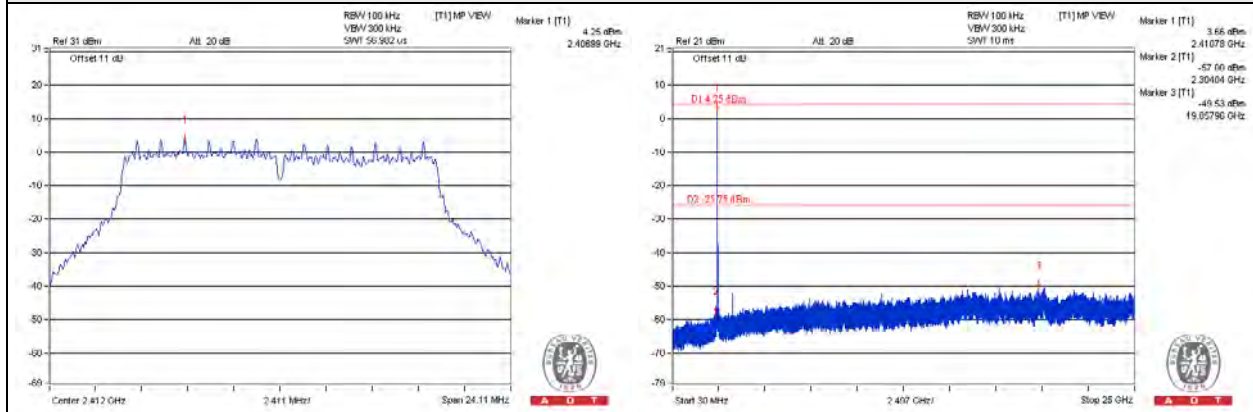
CH 1 Band edge

CH 11 Band edge

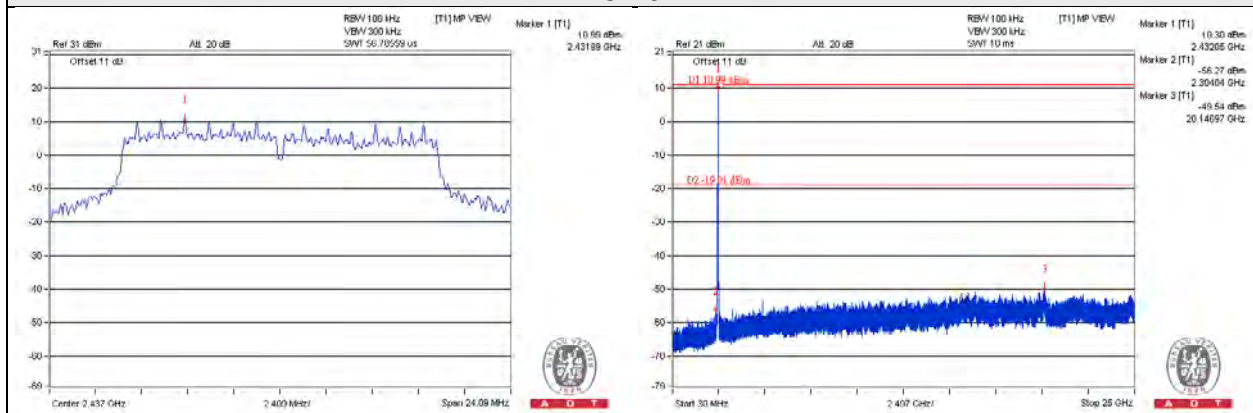


802.11g_Chain 1

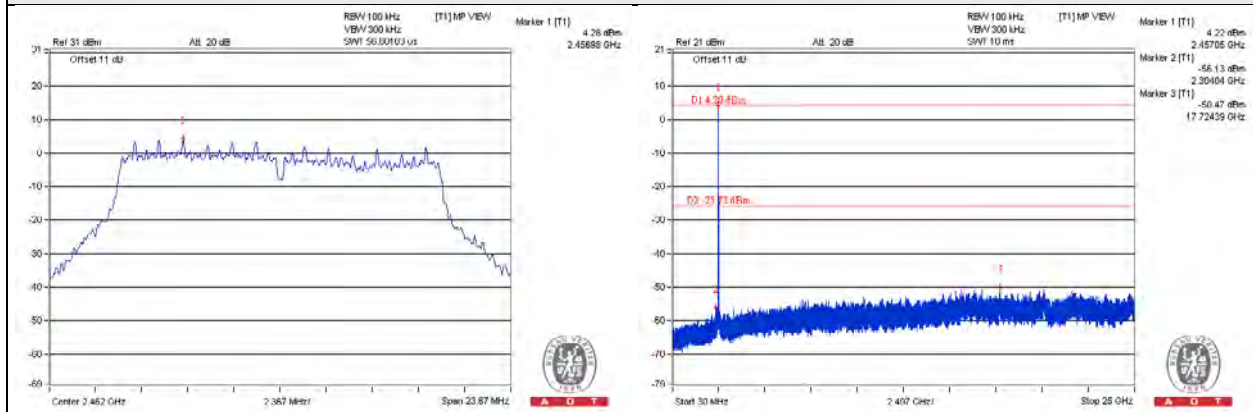
CH 1



CH 6

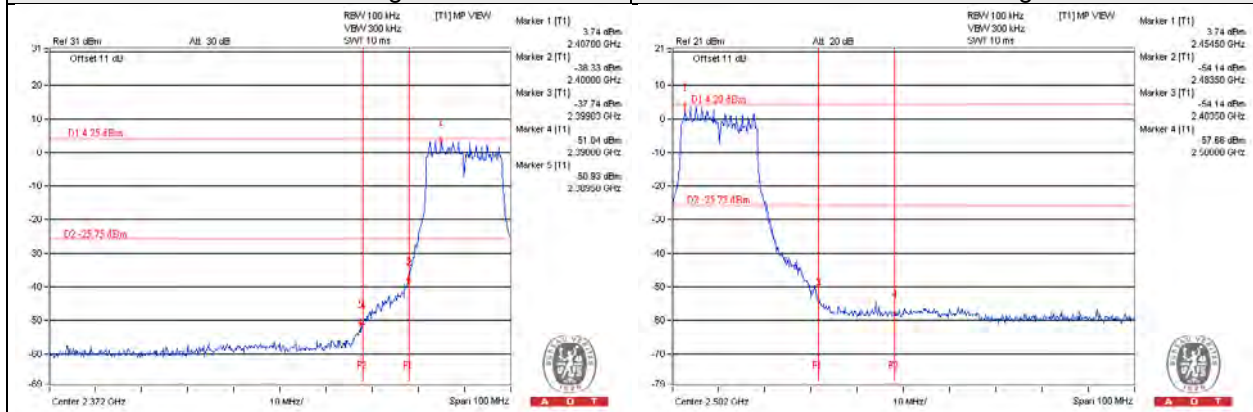


CH 11

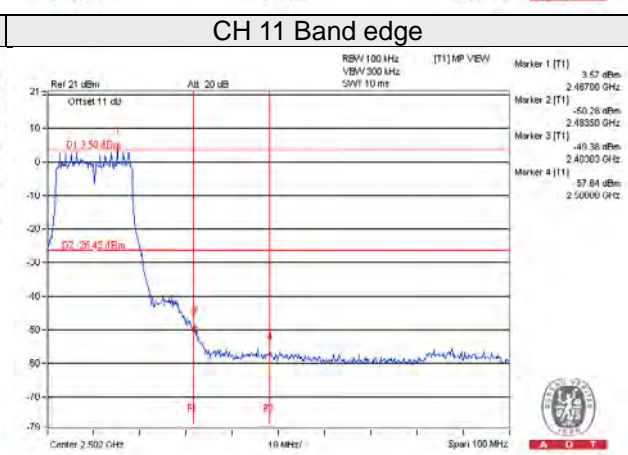
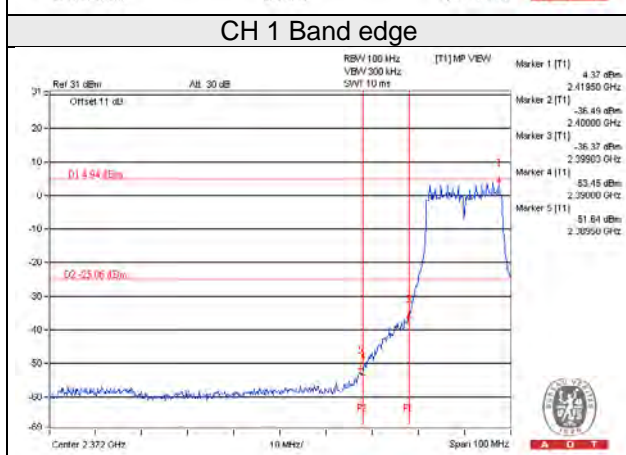
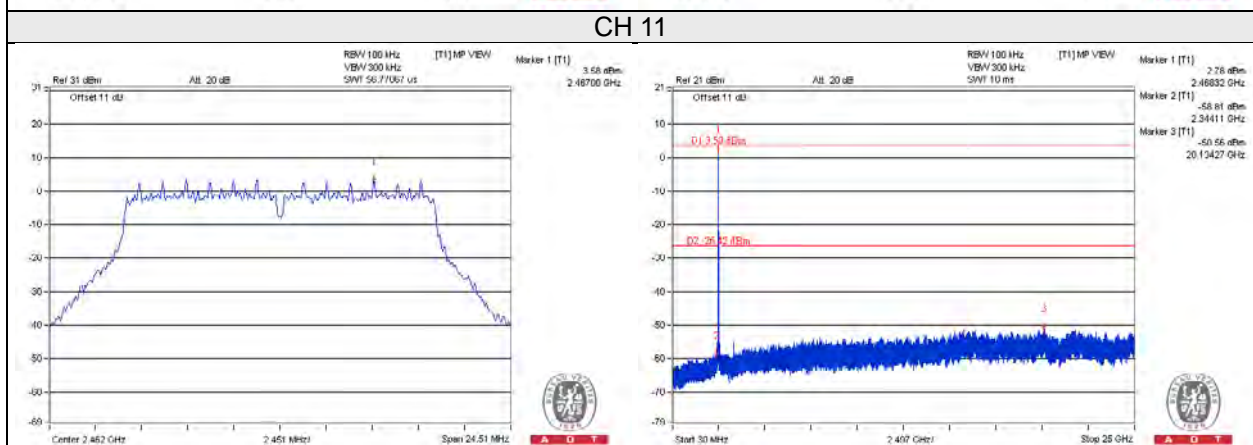
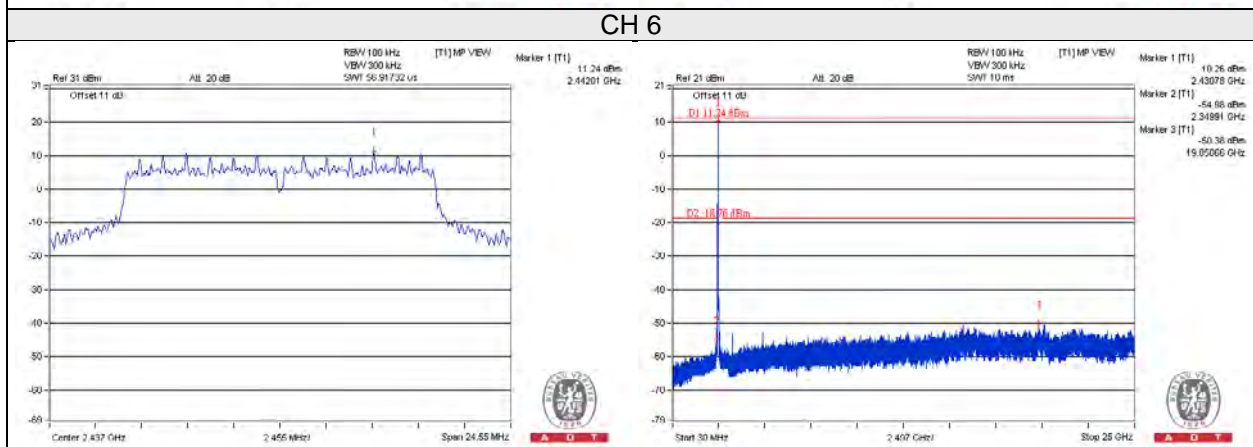
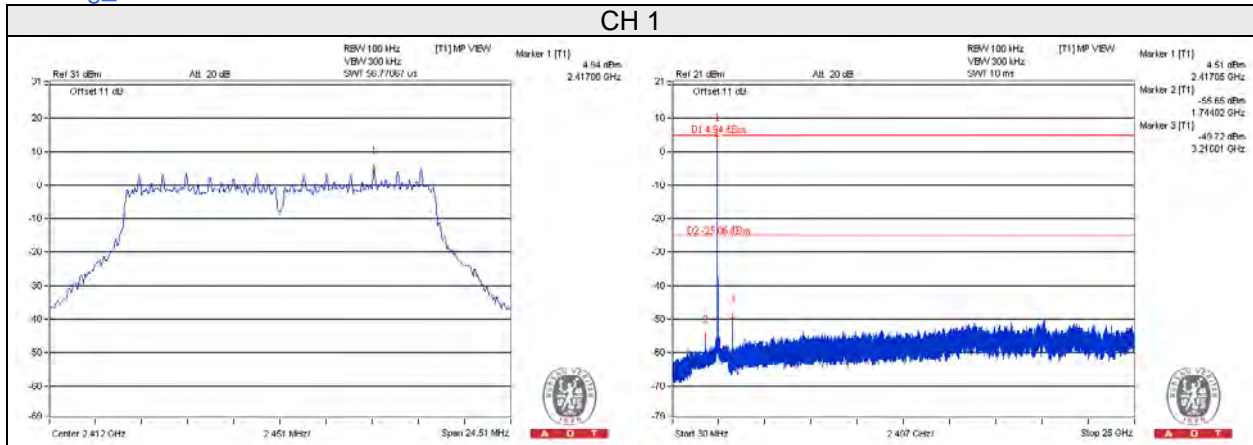


CH 1 Band edge

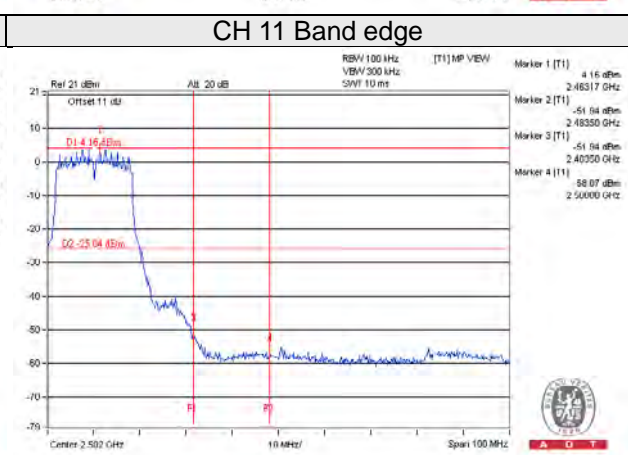
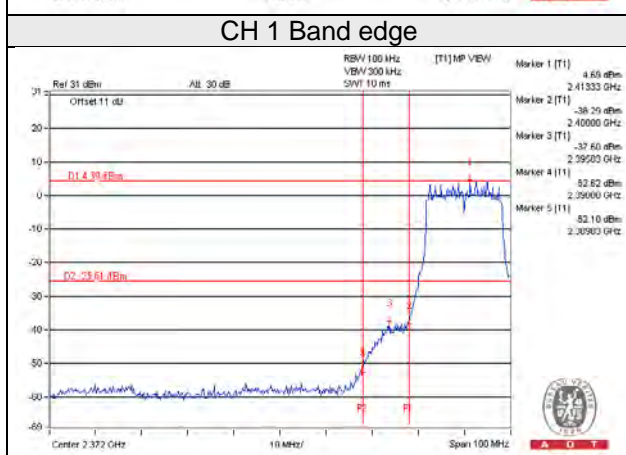
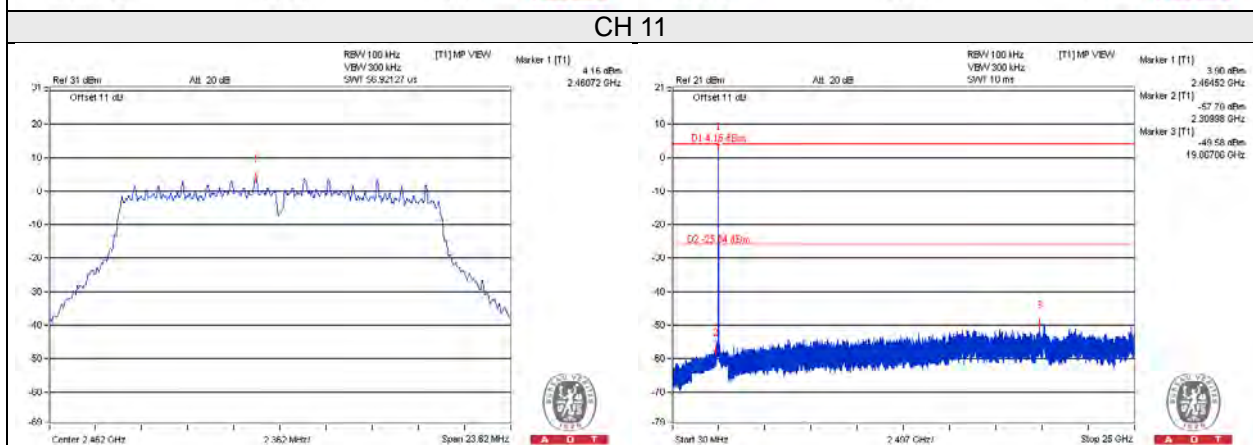
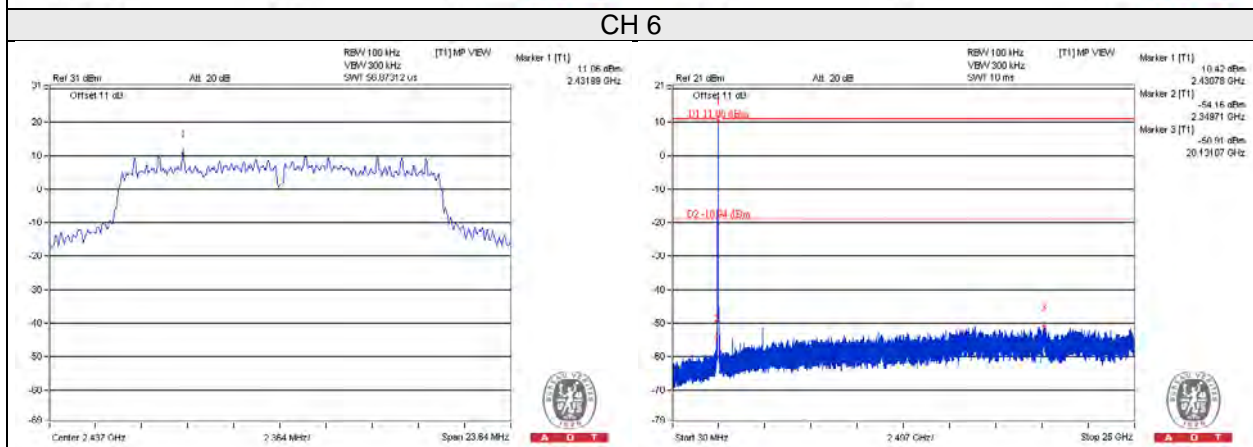
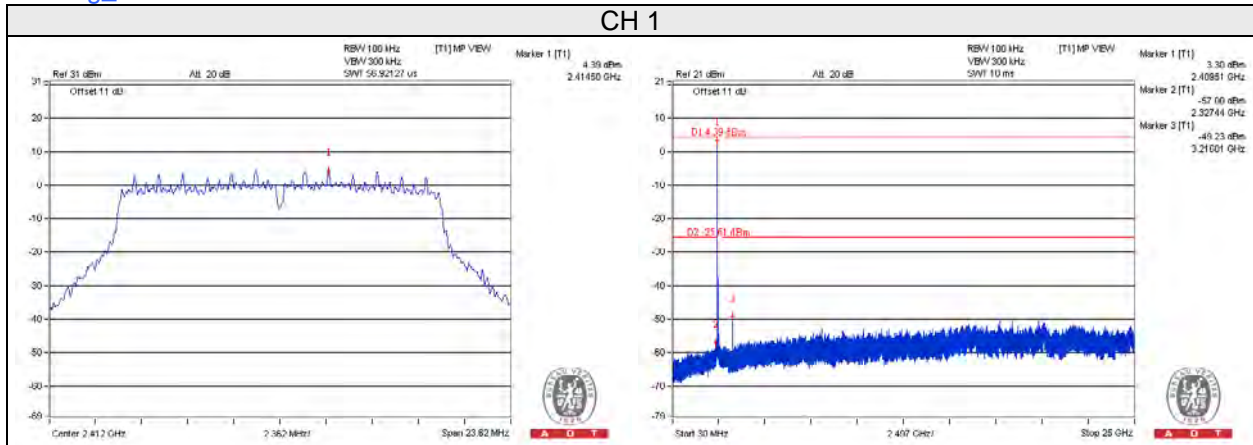
CH 11 Band edge



802.11g_Chain 2

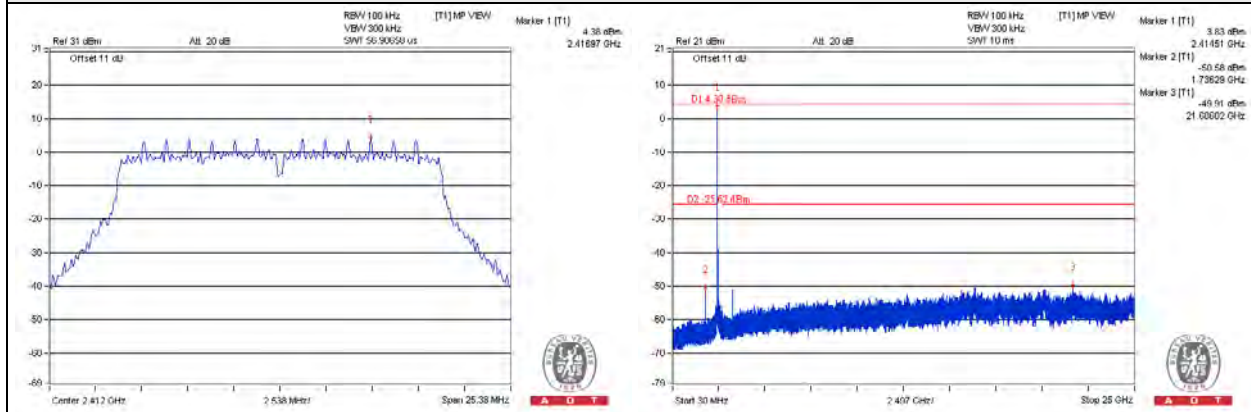


802.11g_Chain 3

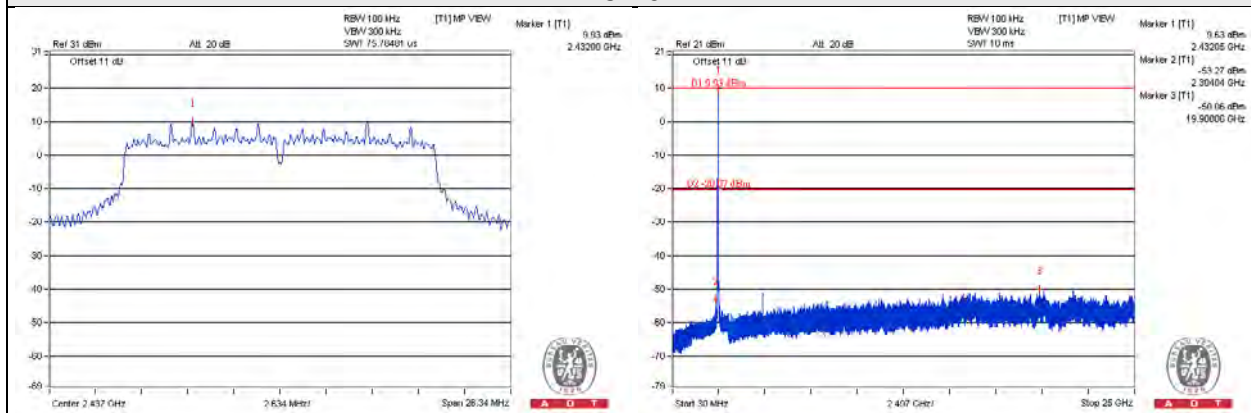


802.11n (HT20)_Chain 0

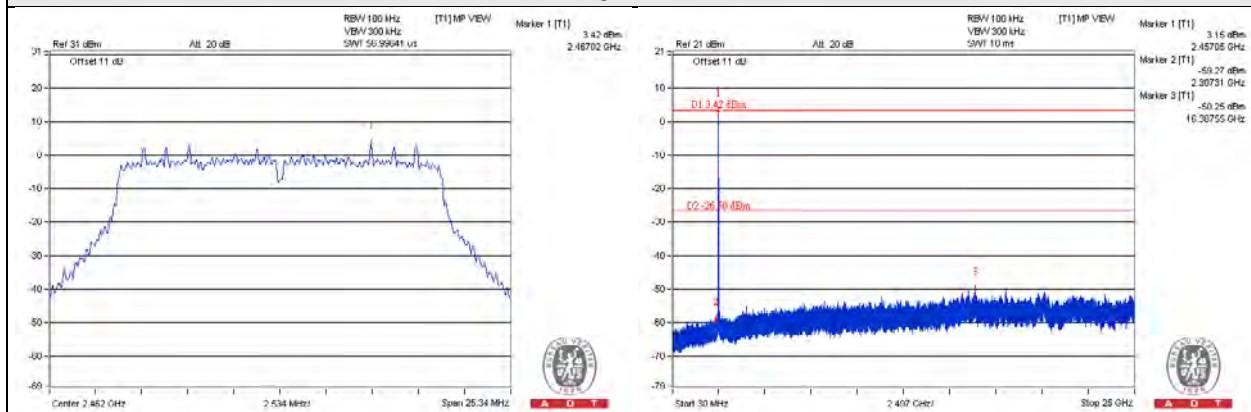
CH 1



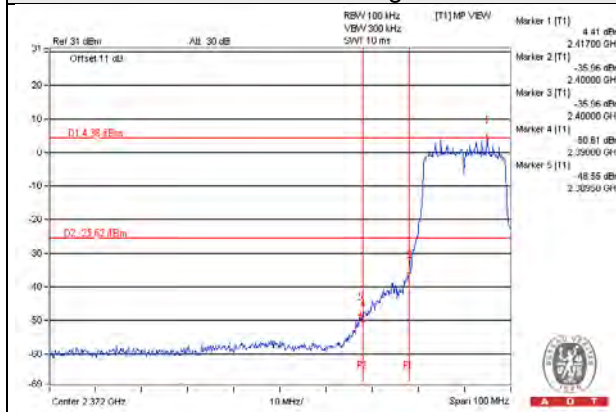
CH 6



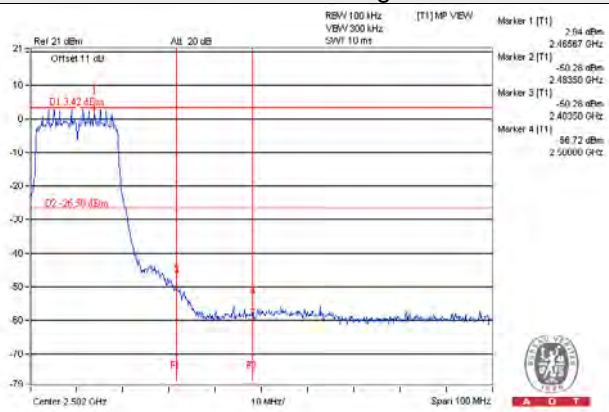
CH 11



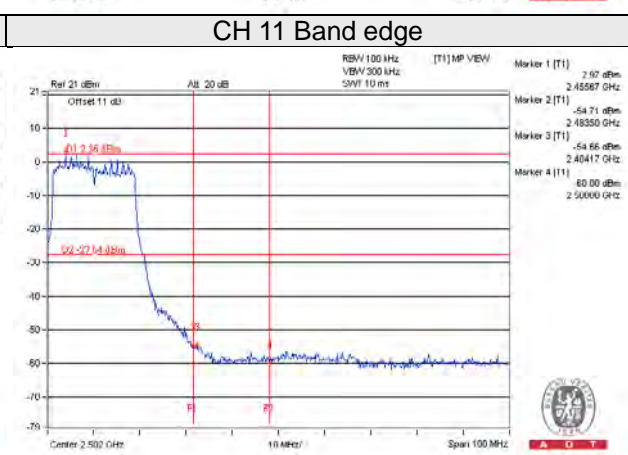
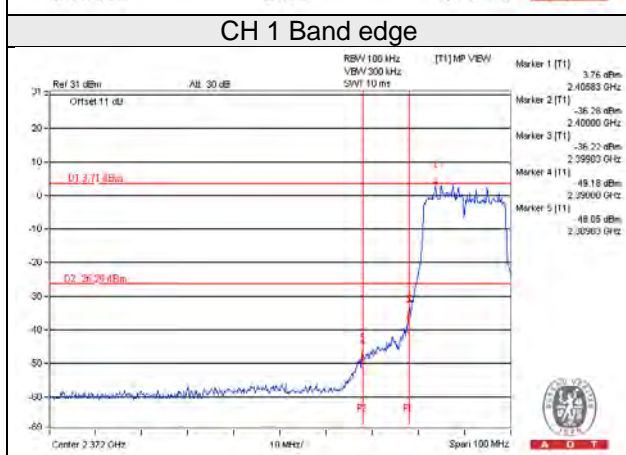
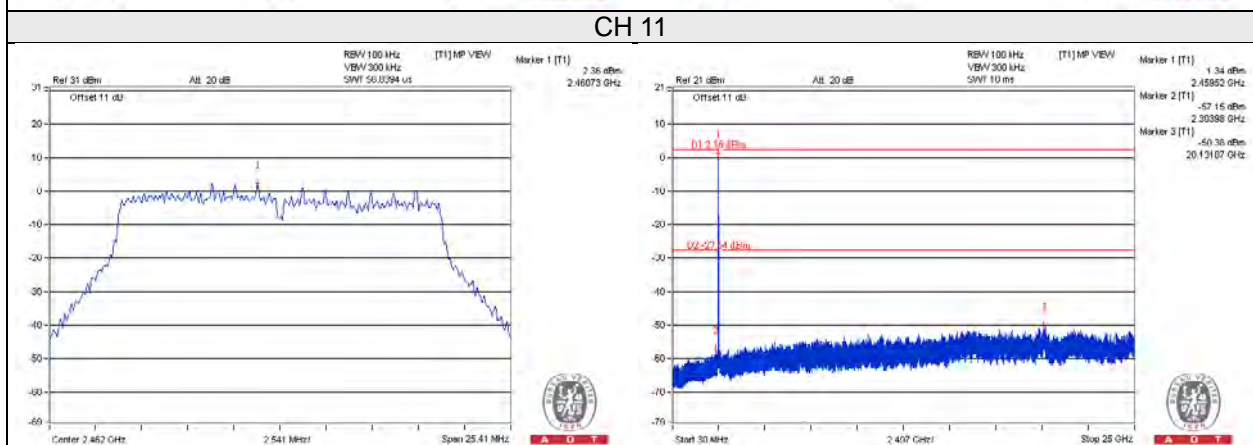
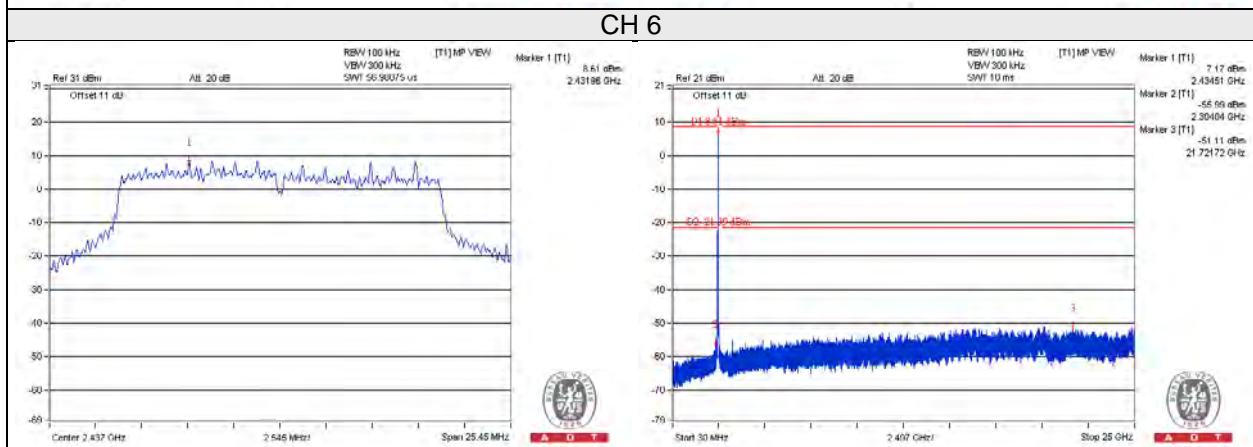
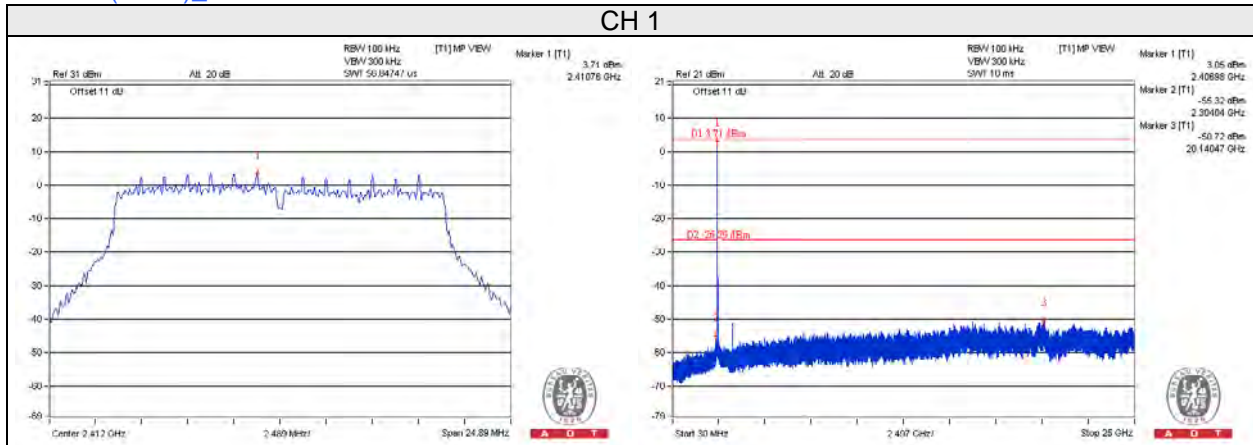
CH 1 Band edge



CH 11 Band edge

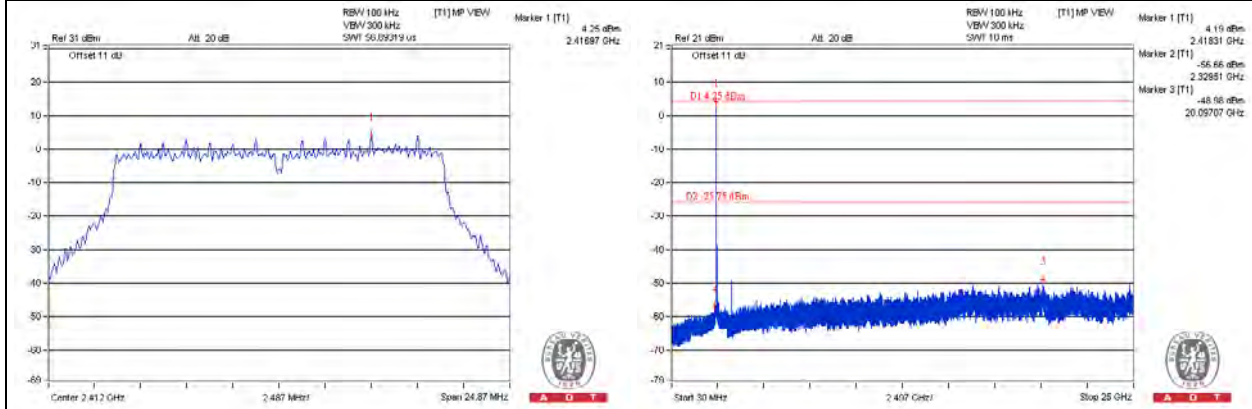


802.11n (HT20)_Chain 1

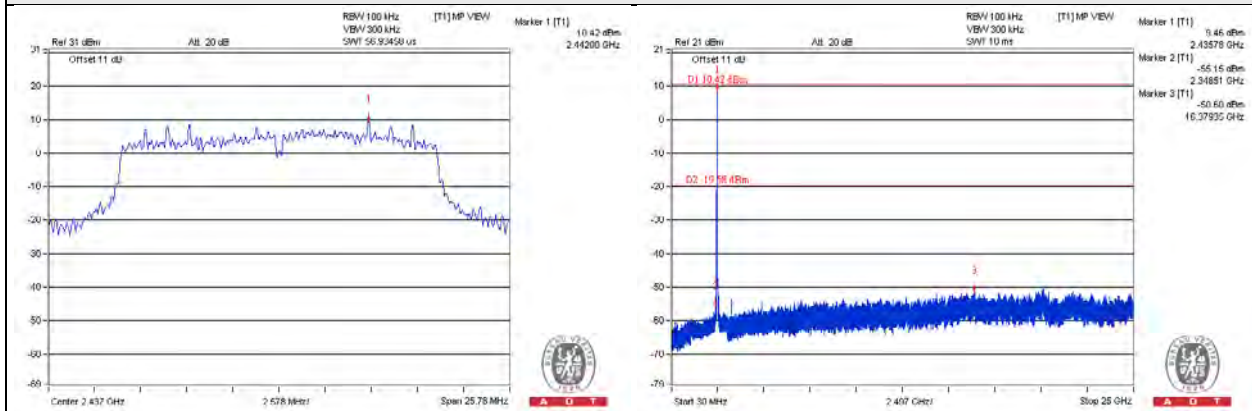


802.11n (HT20)_Chain 2

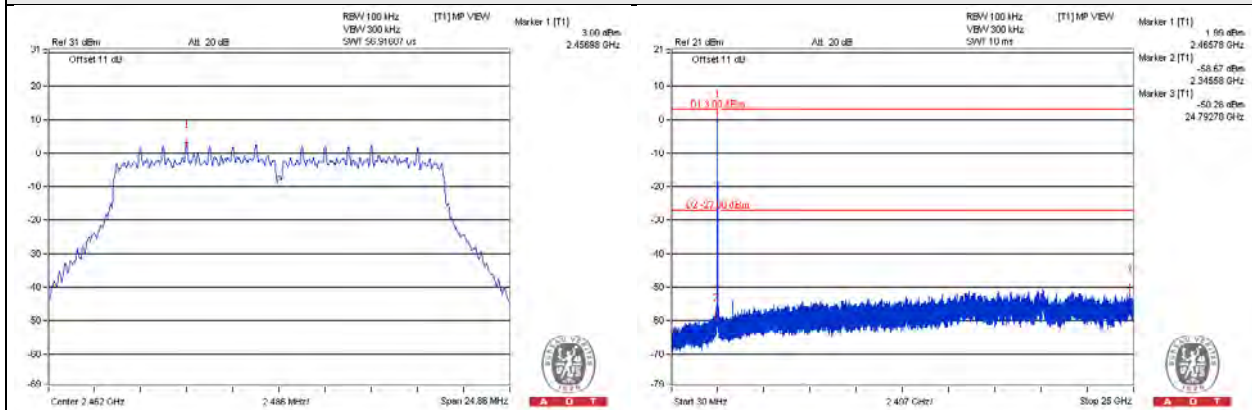
CH 1



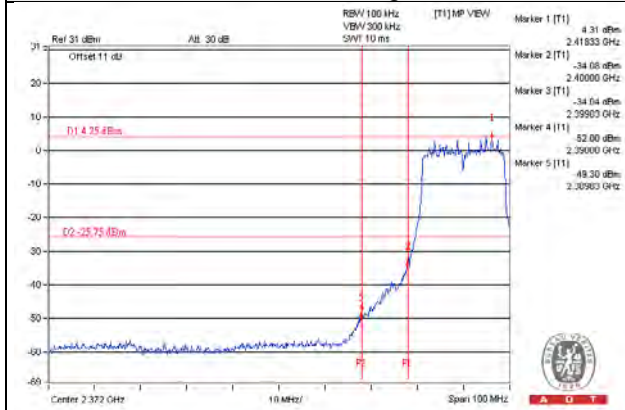
CH 6



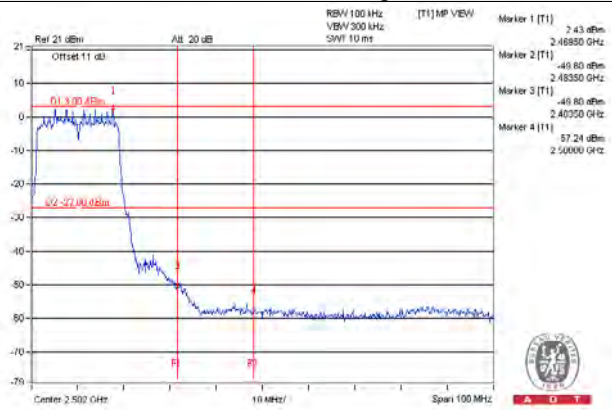
CH 11



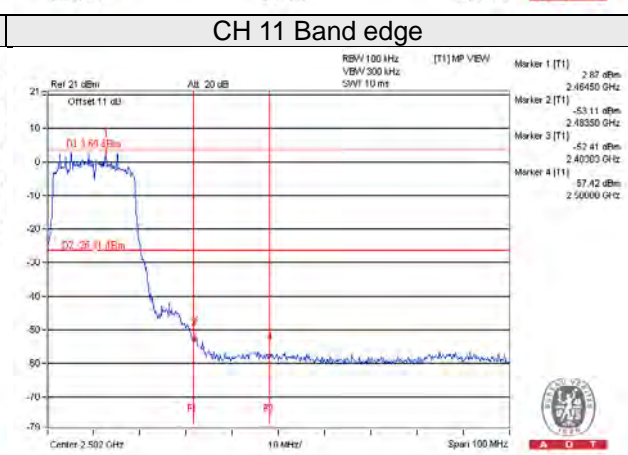
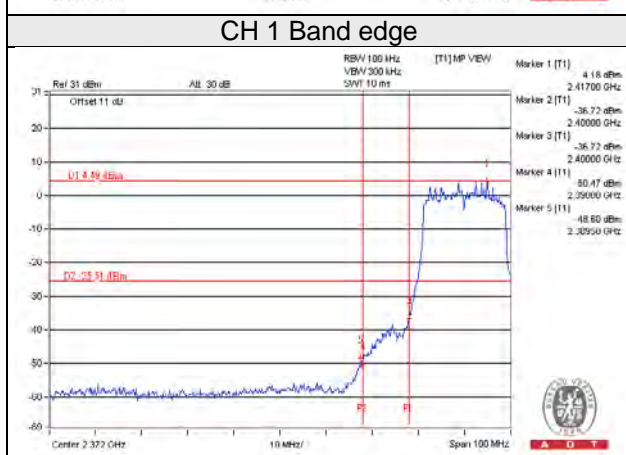
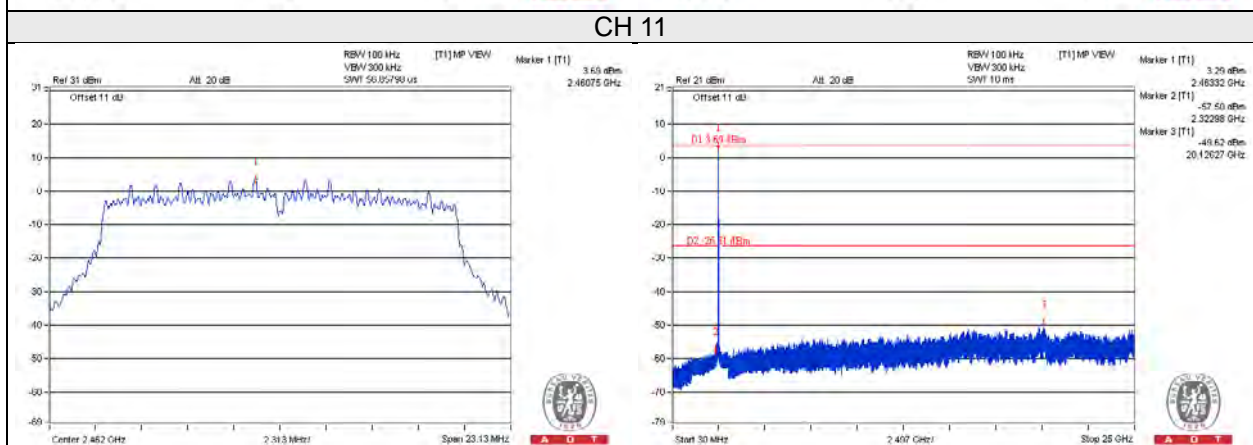
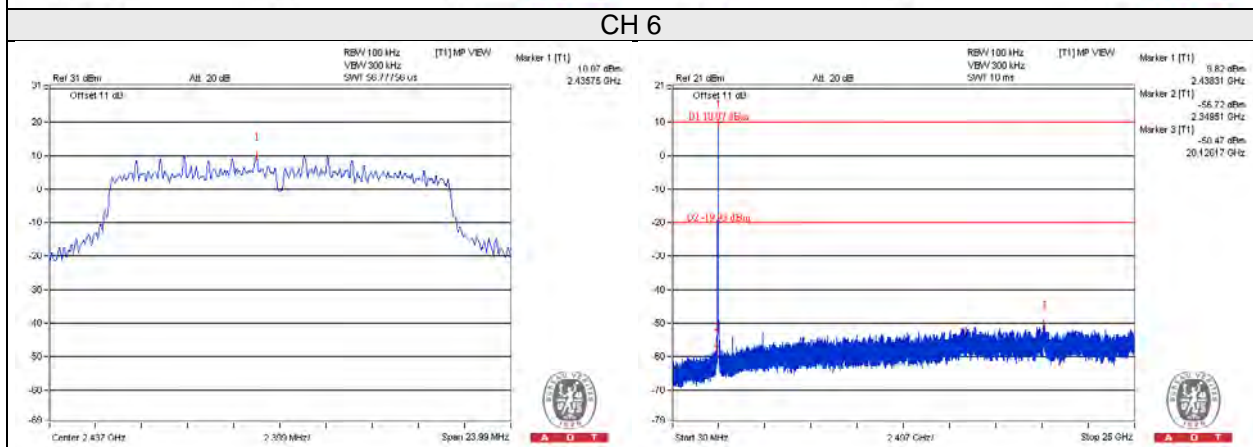
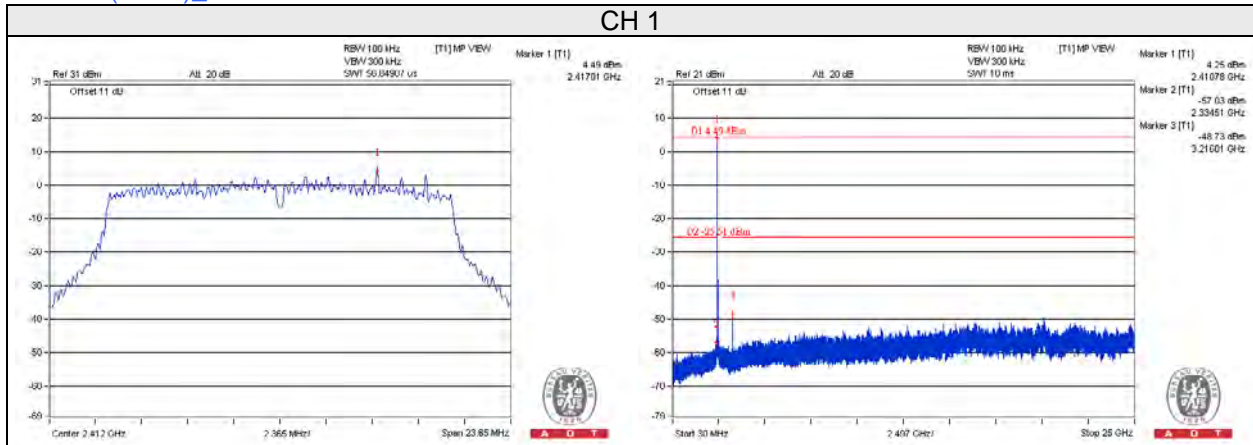
CH 1 Band edge



CH 11 Band edge

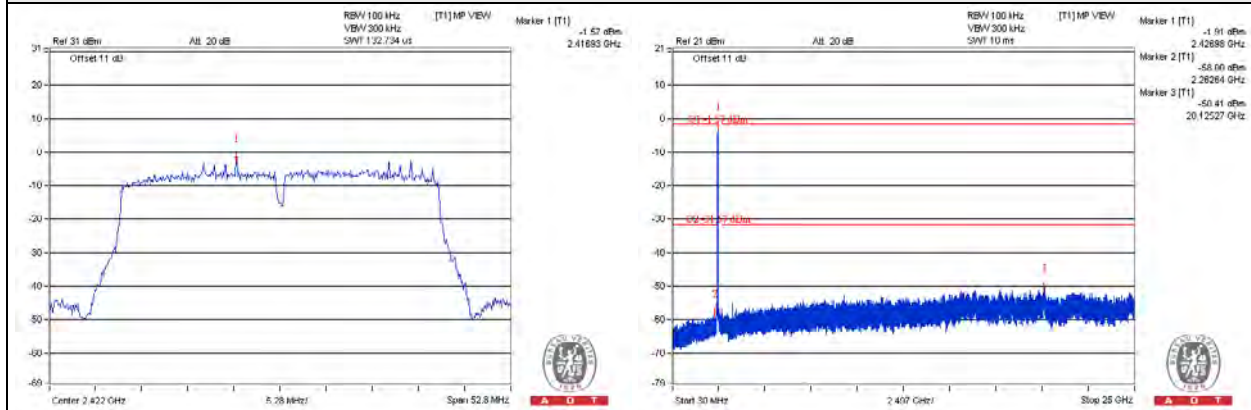


802.11n (HT20)_Chain 3

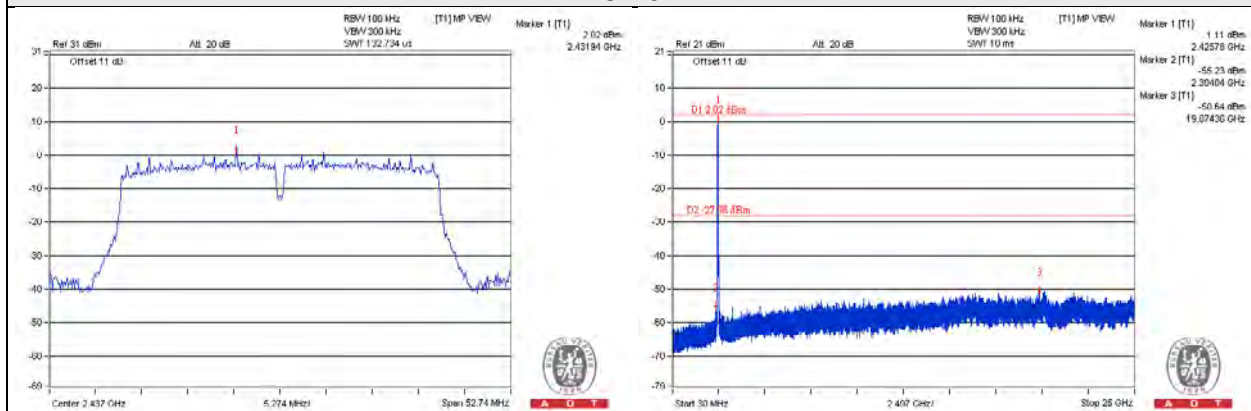


802.11n (HT40)_Chain 0

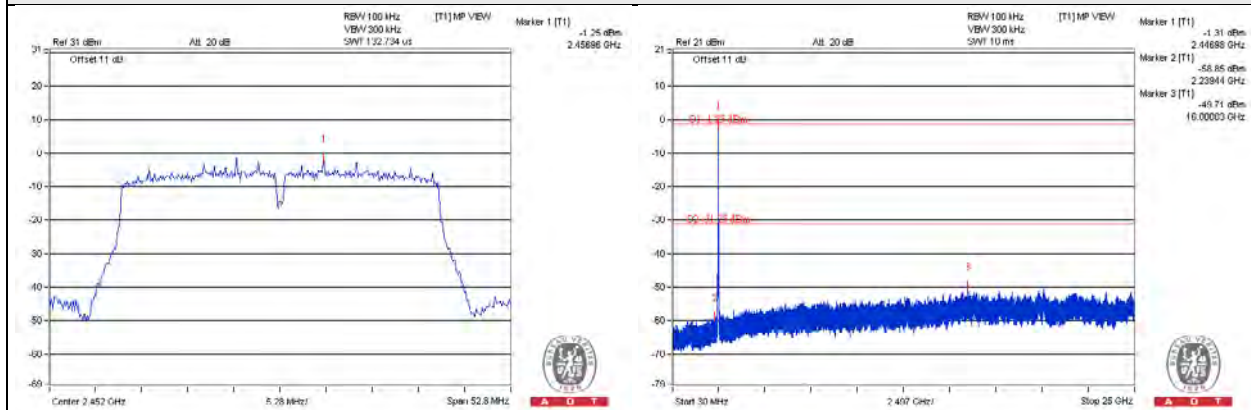
CH 3



CH 6

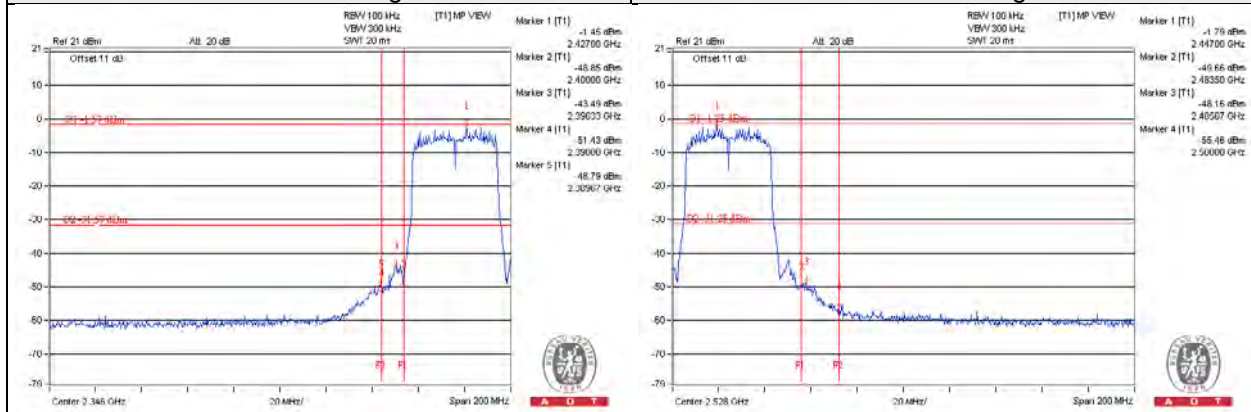


CH 9



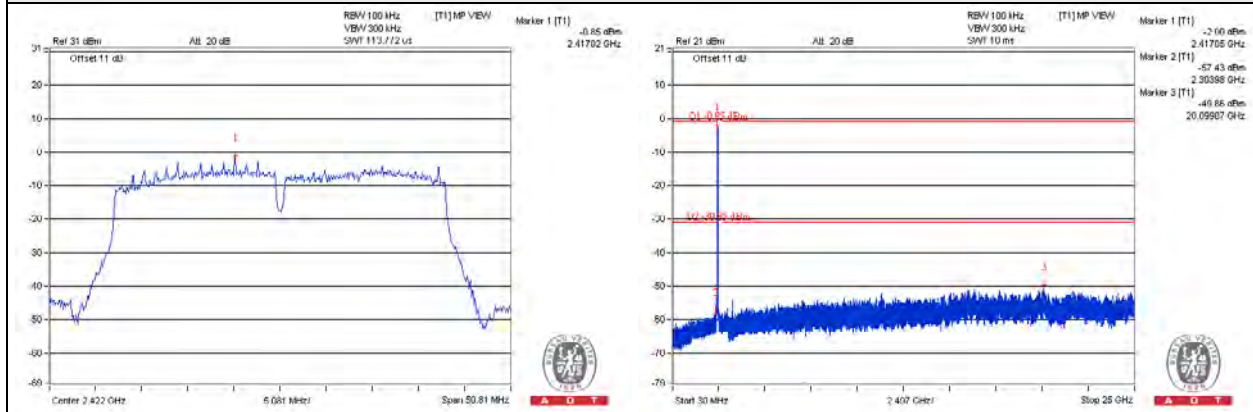
CH 3 Band edge

CH 9 Band edge

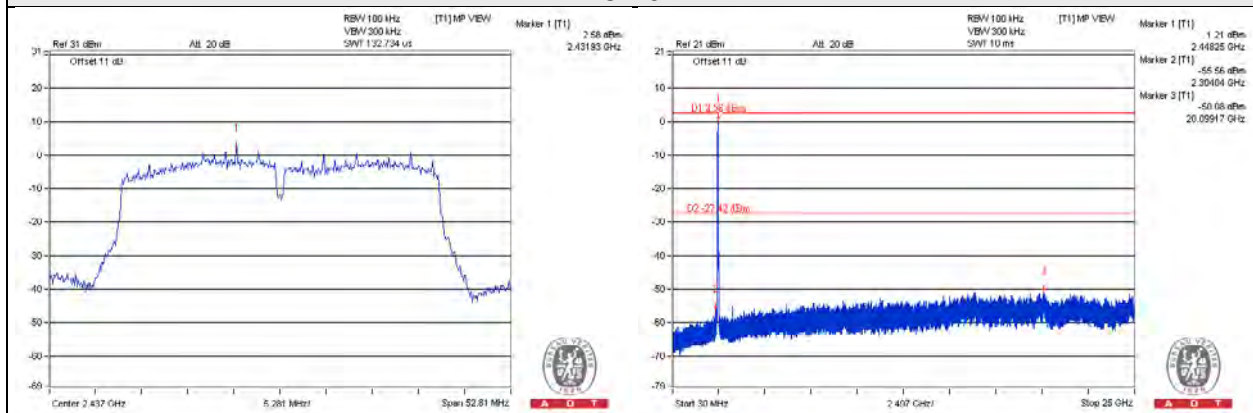


802.11n (HT40)_Chain 1

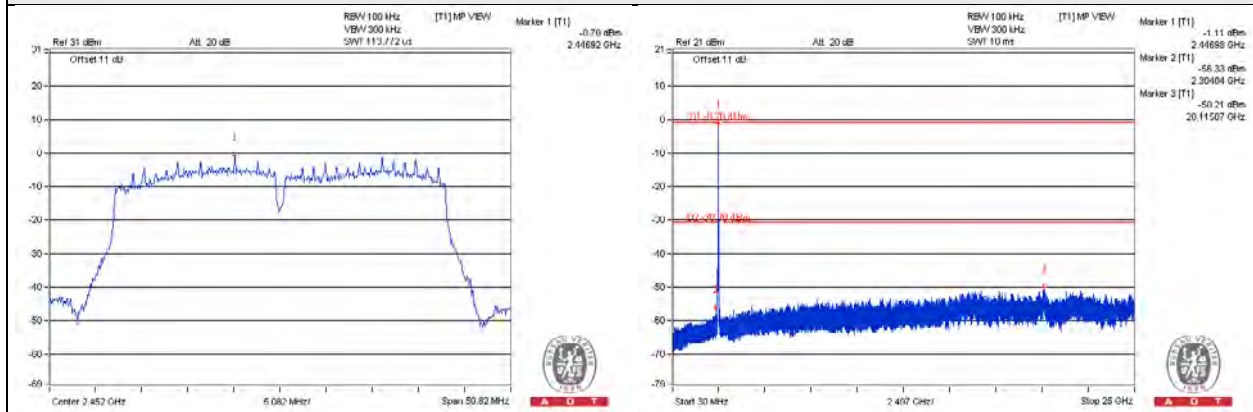
CH 3



CH 6

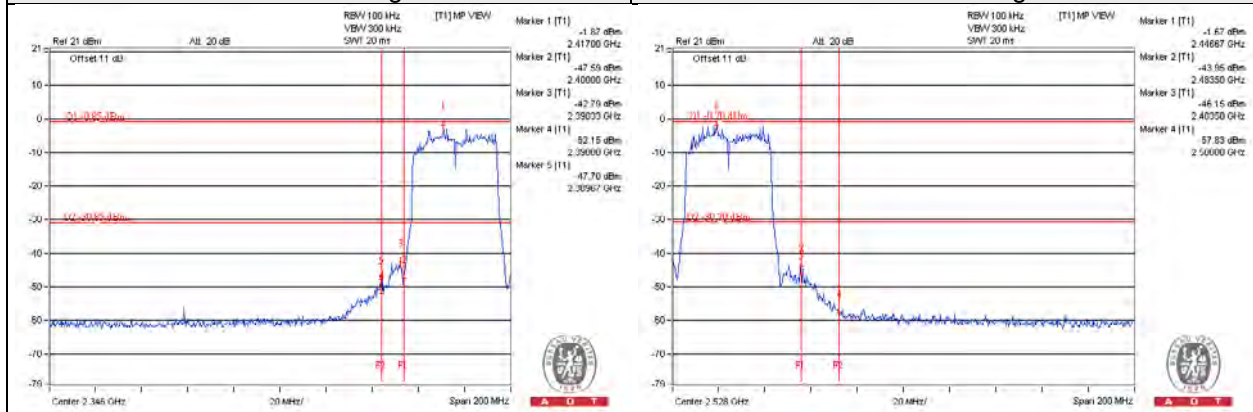


CH 9



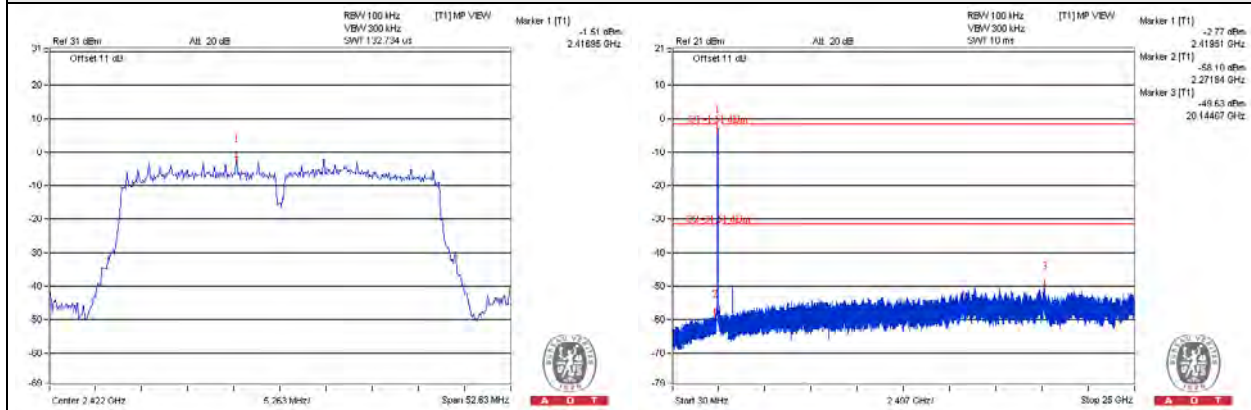
CH 3 Band edge

CH 9 Band edge

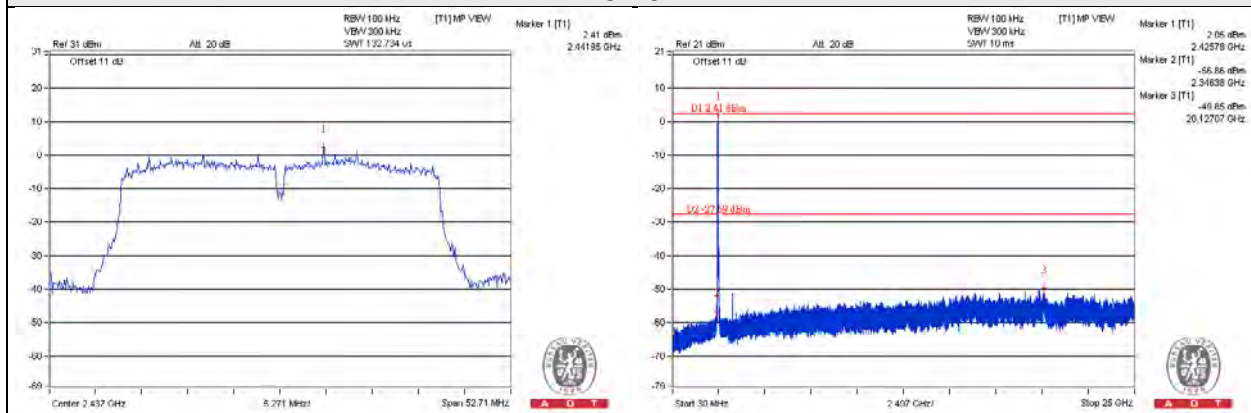


802.11n (HT40)_Chain 2

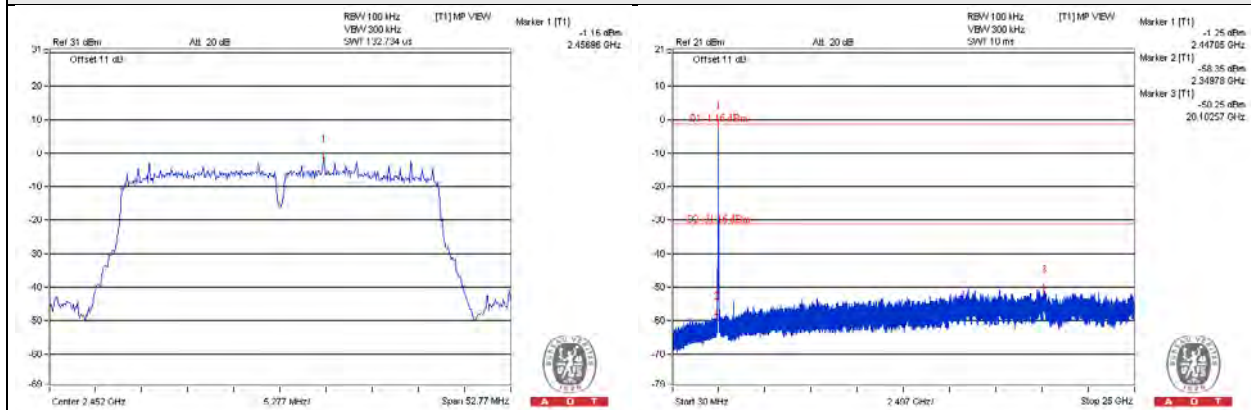
CH 3



CH 6

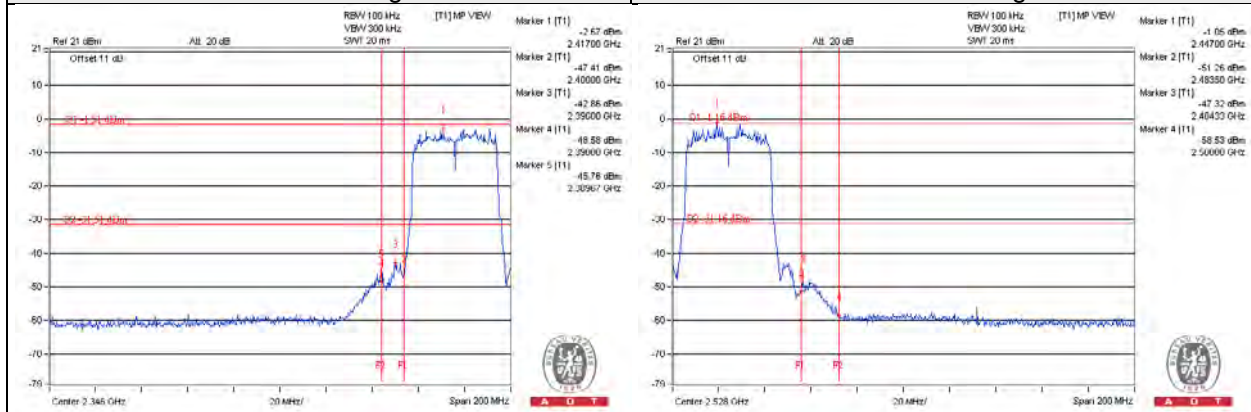


CH 9



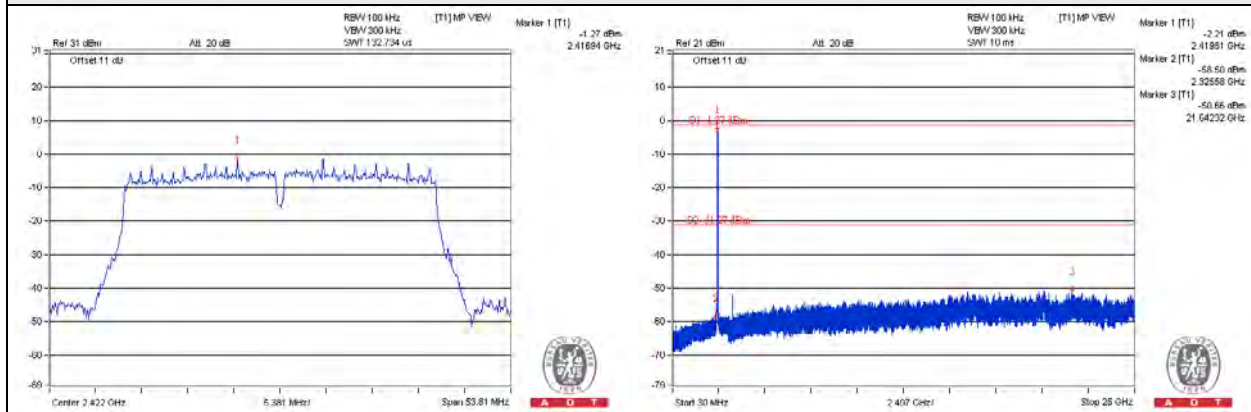
CH 3 Band edge

CH 9 Band edge

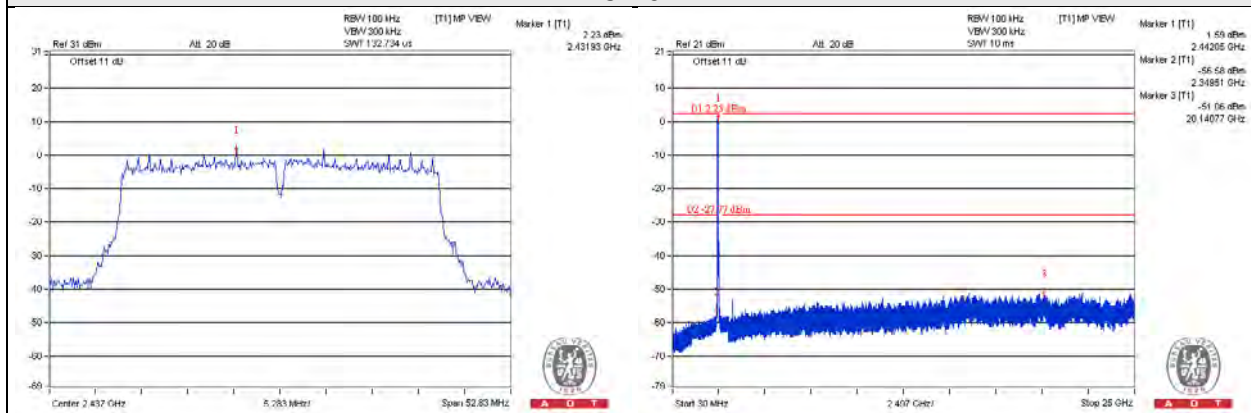


802.11n (HT40)_Chain 3

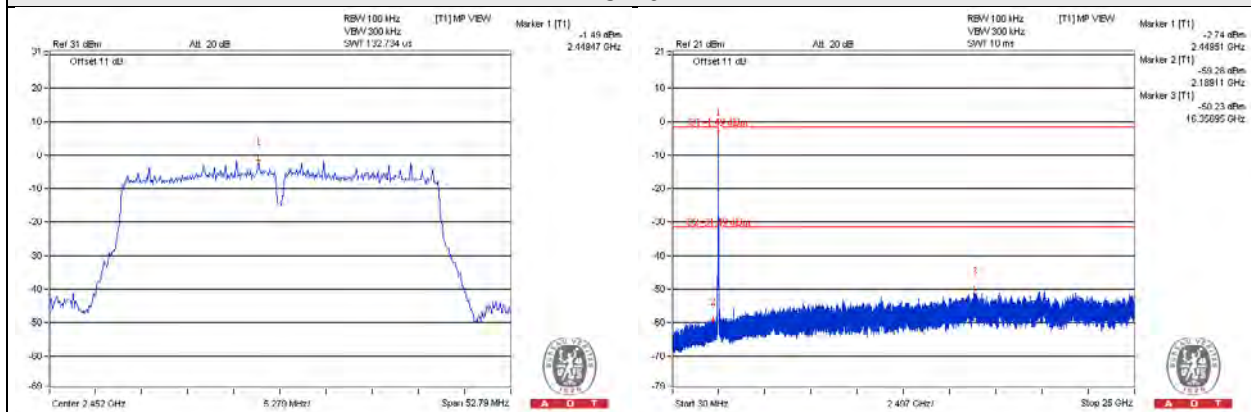
CH 3



CH 6

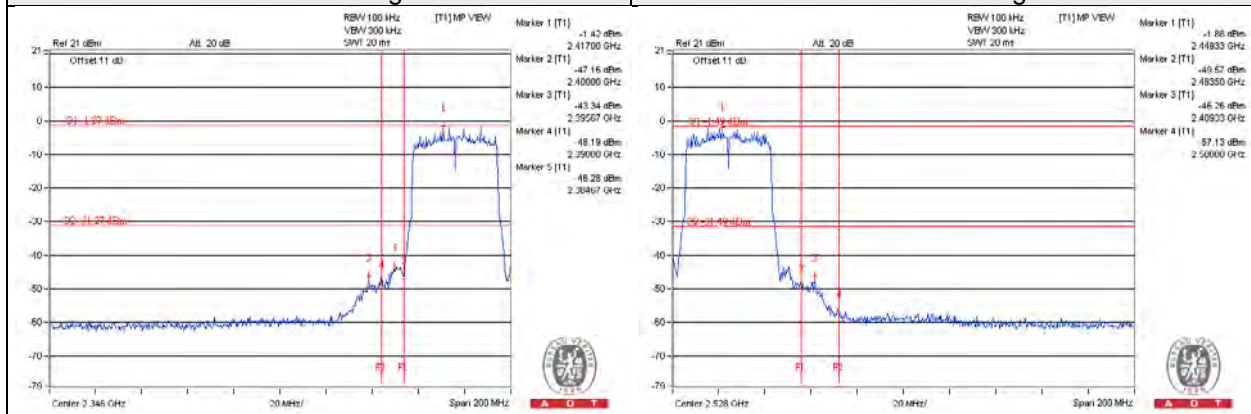


CH 9

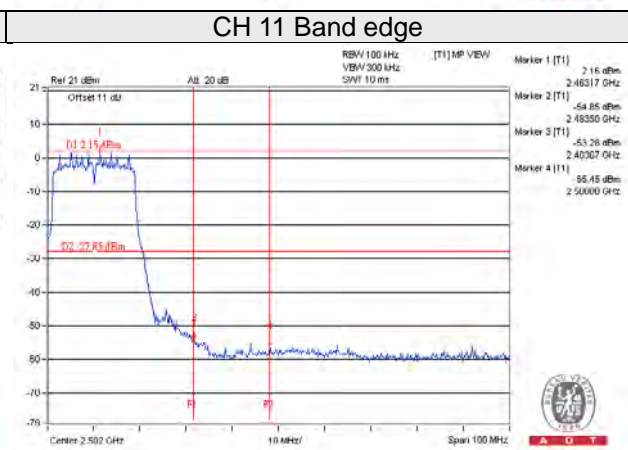
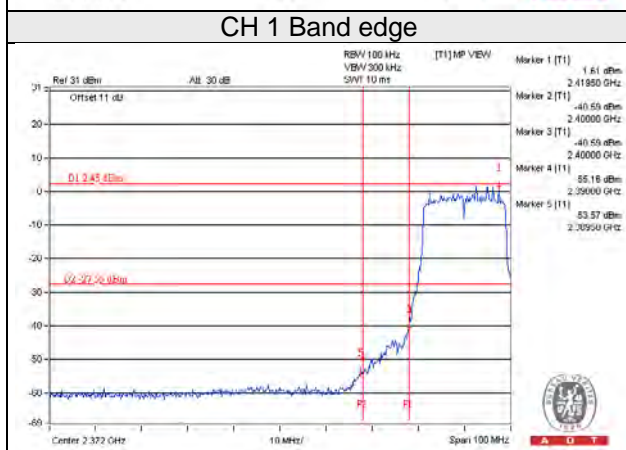
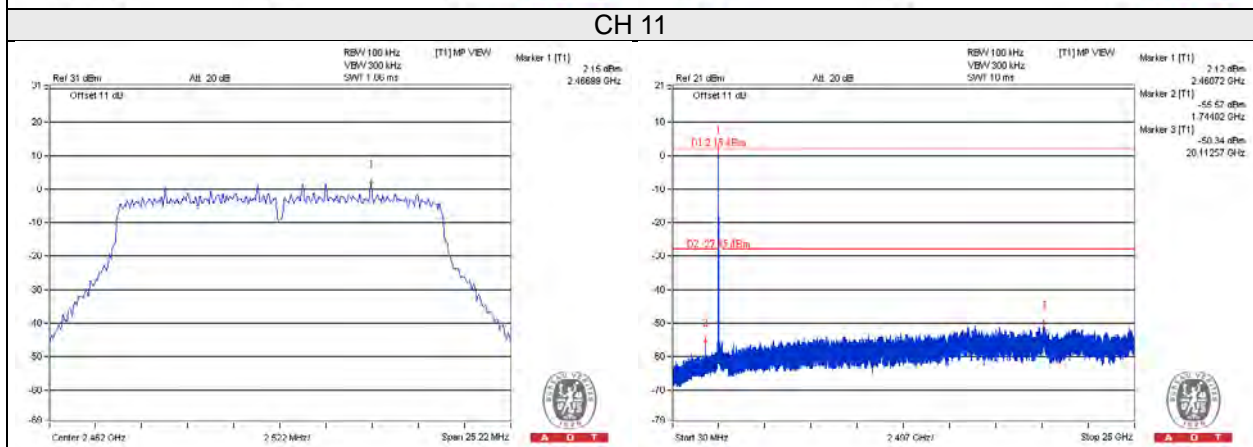
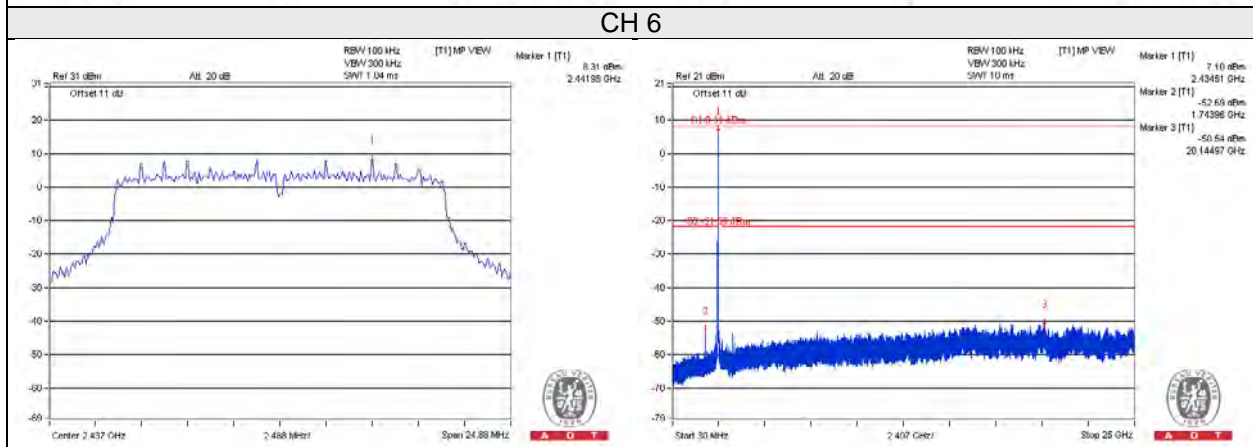
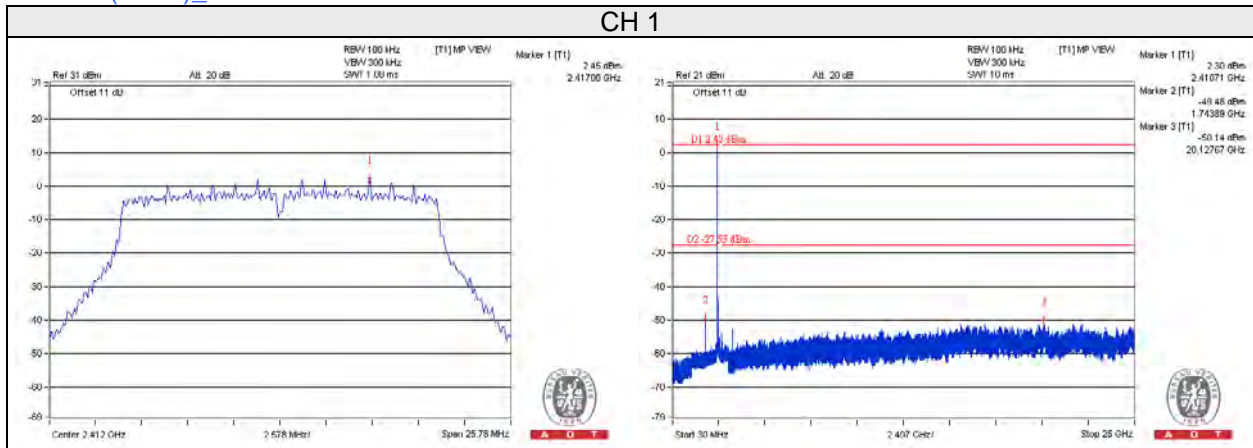


CH 3 Band edge

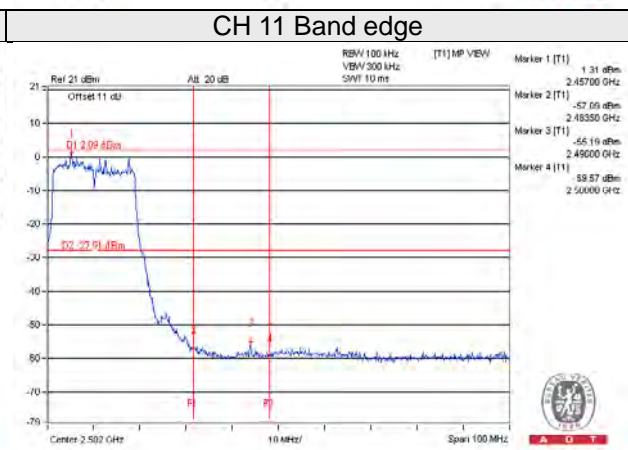
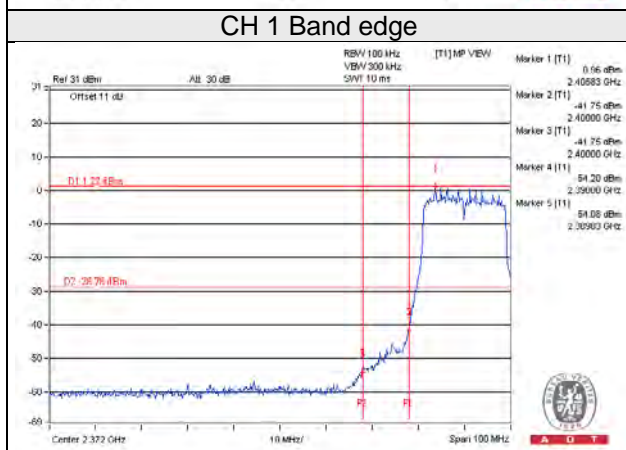
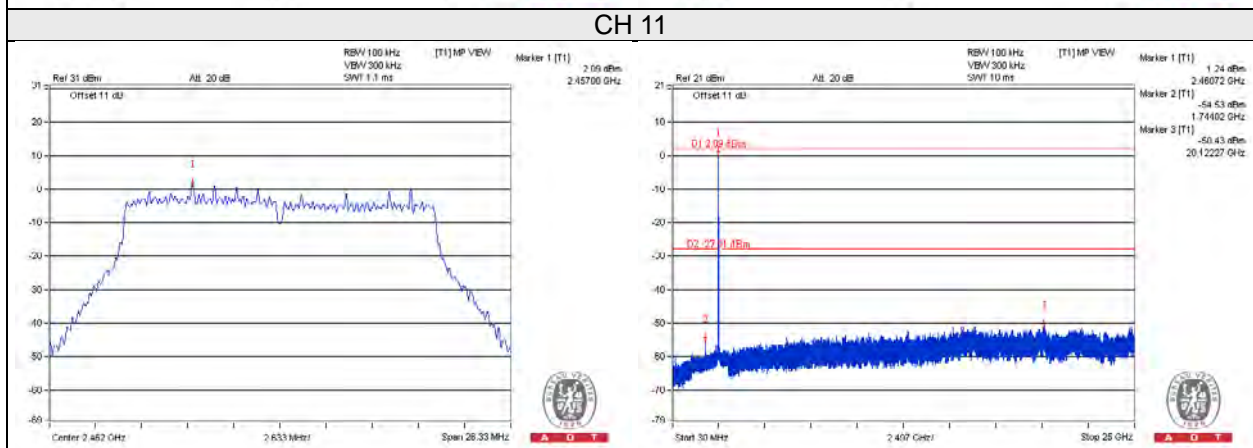
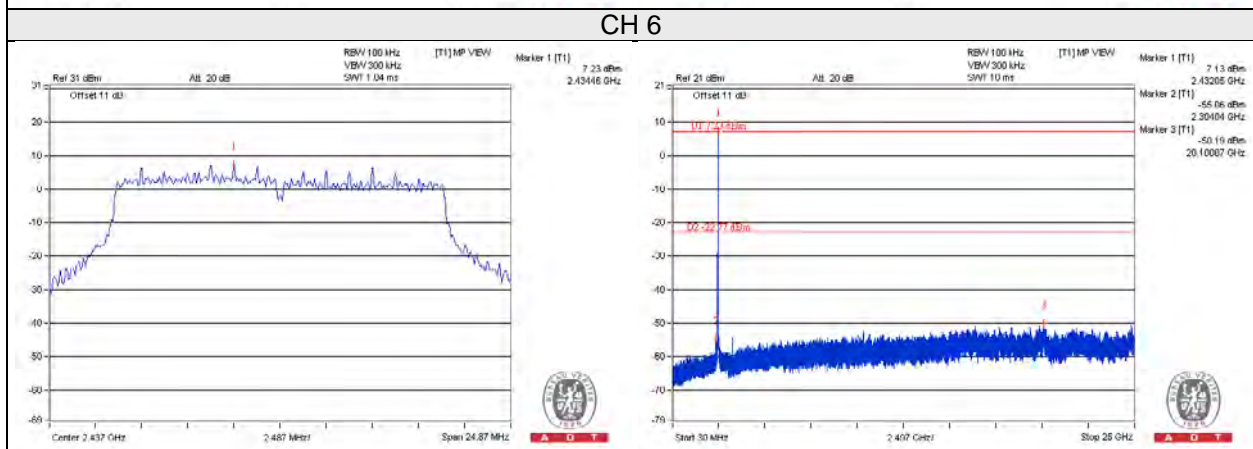
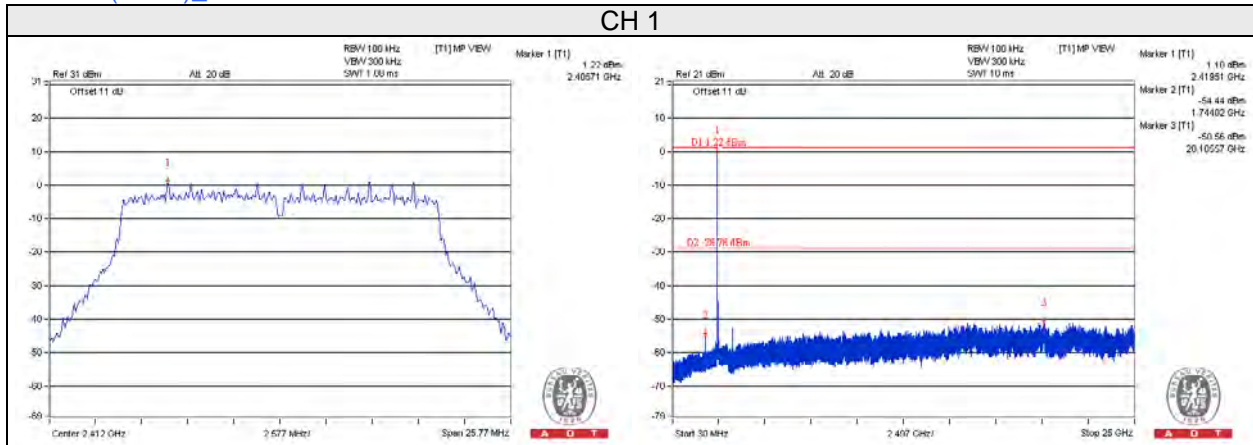
CH 9 Band edge



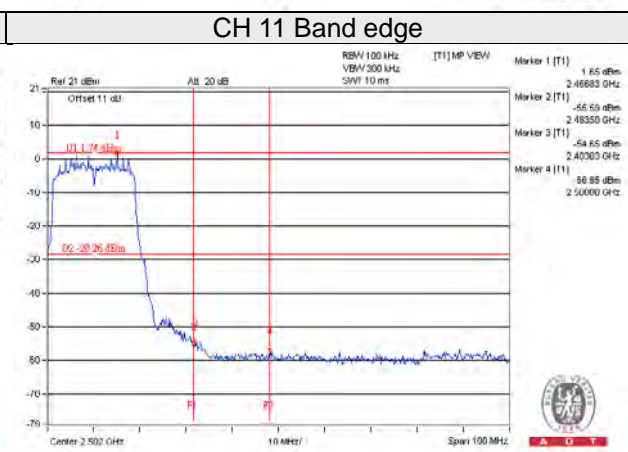
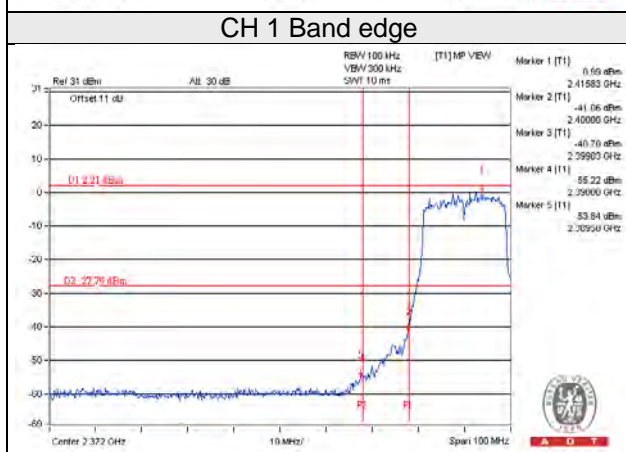
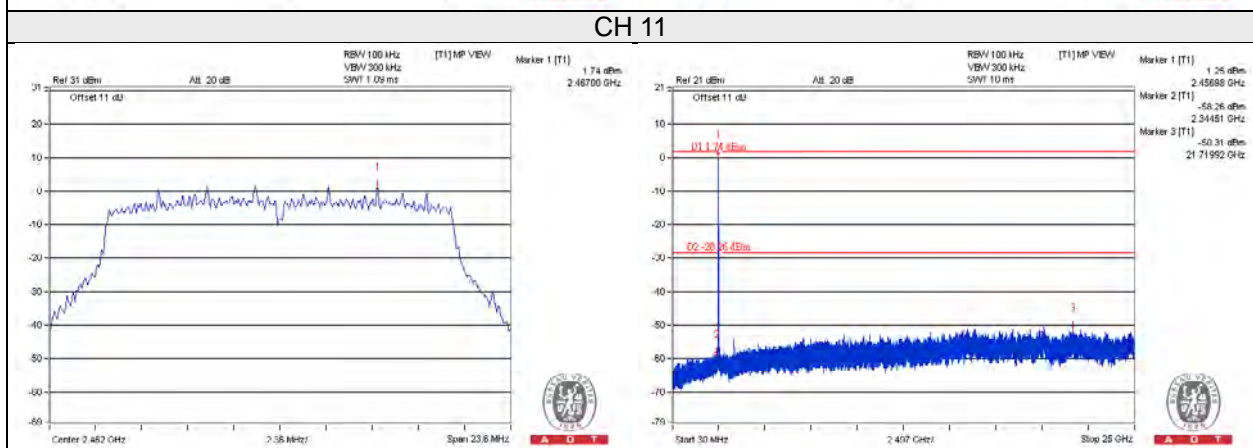
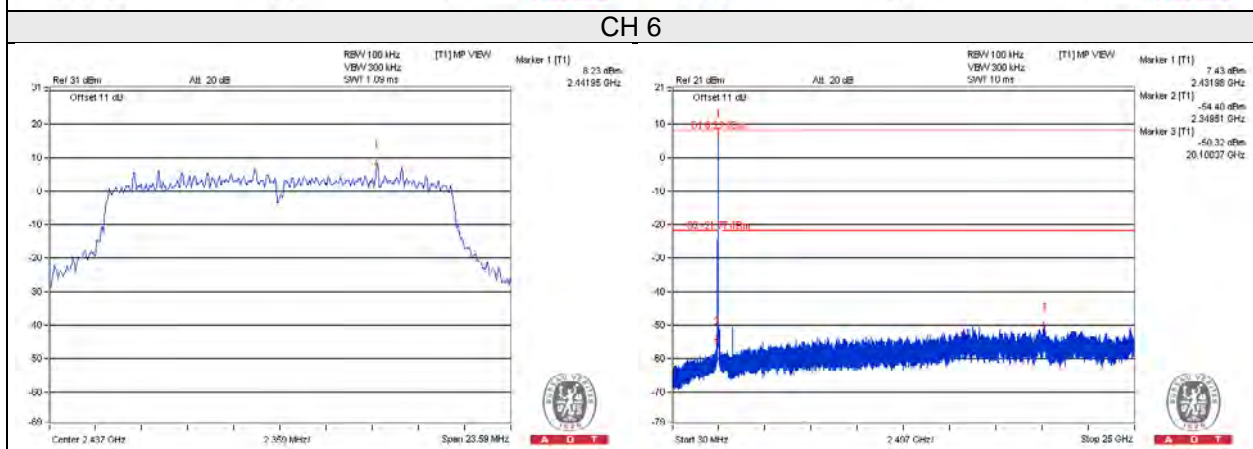
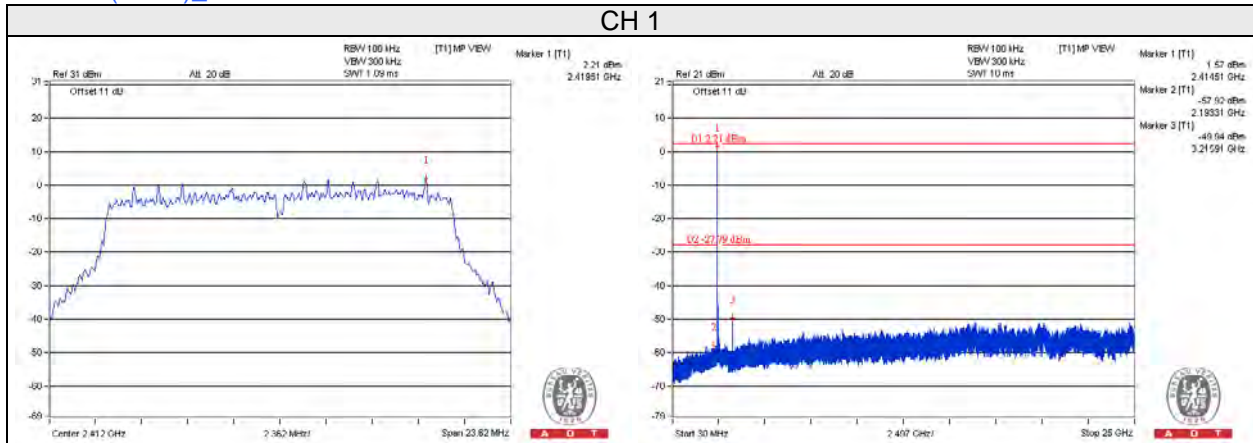
Beamforming Mode
802.11n (HT20)_Chain 0



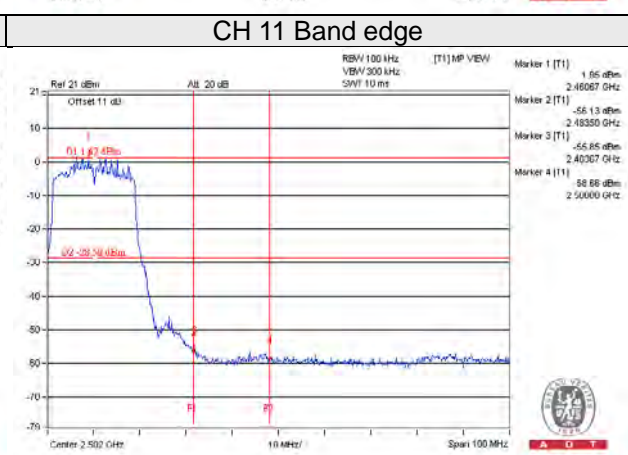
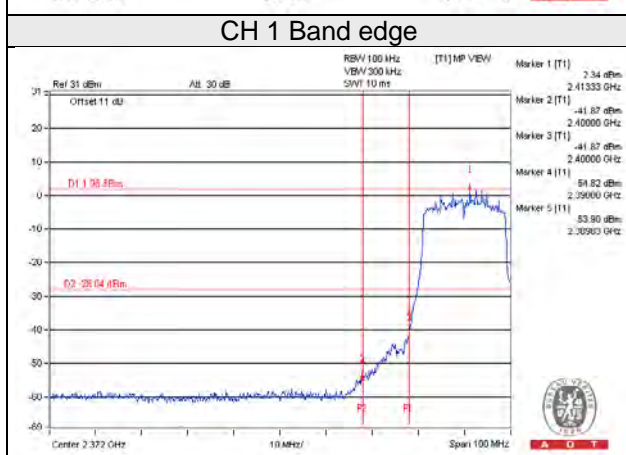
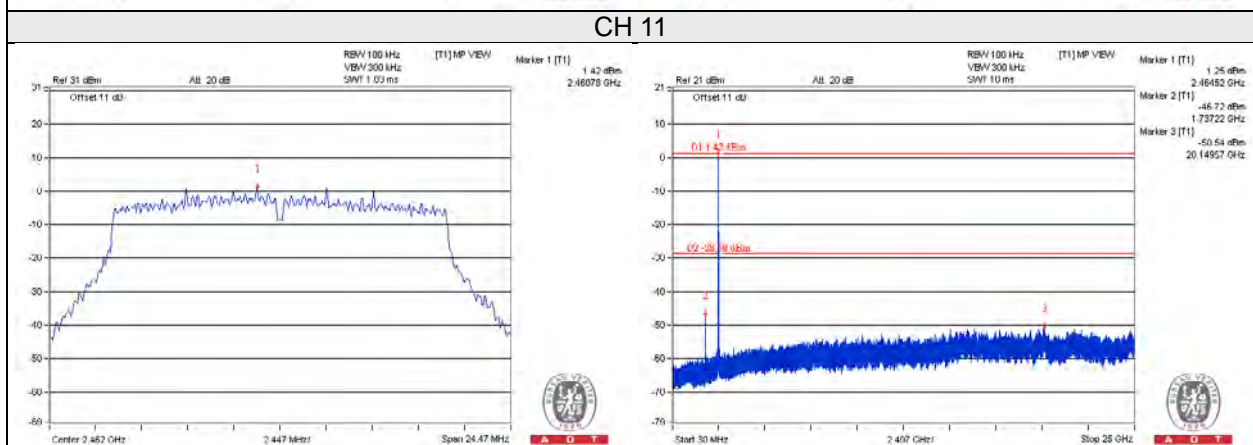
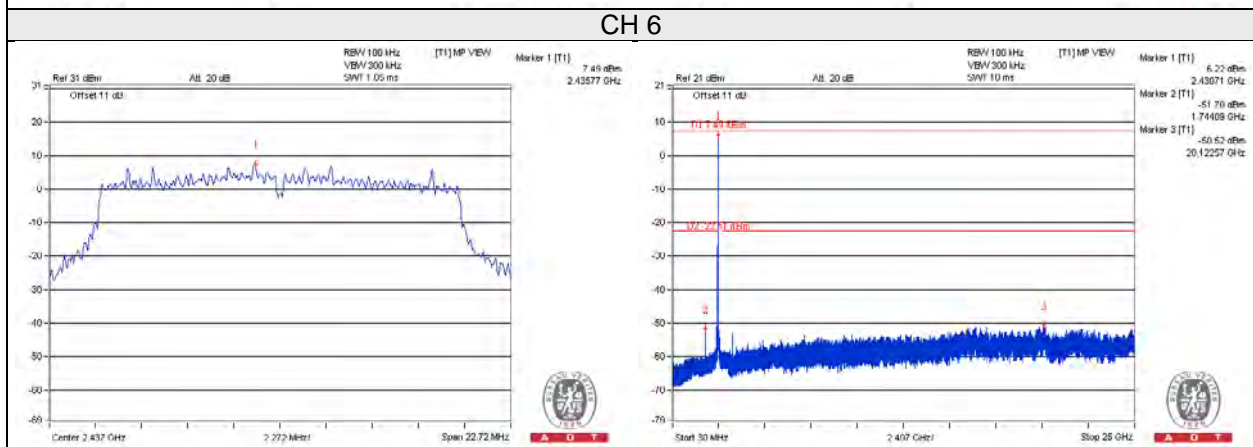
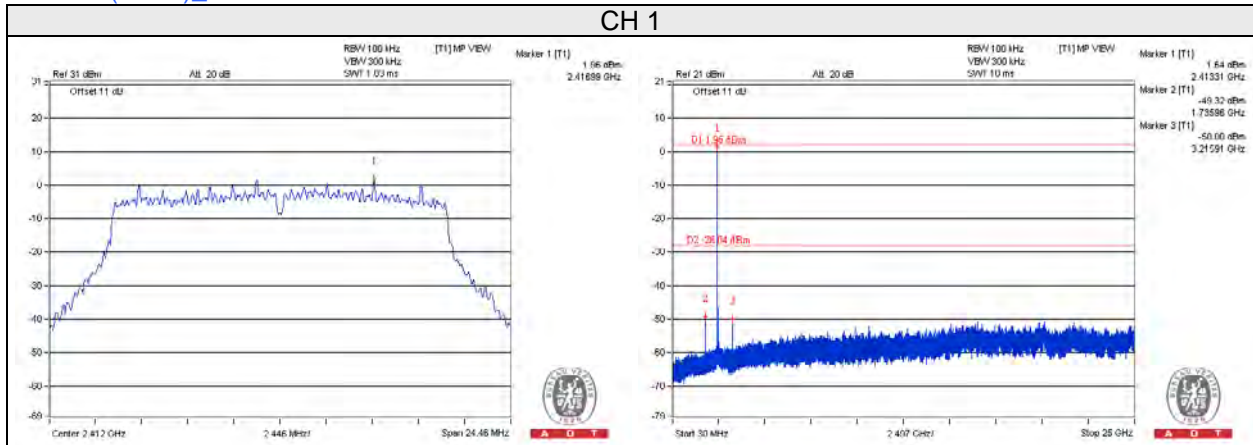
802.11n (HT20)_Chain 1



802.11n (HT20)_Chain 2

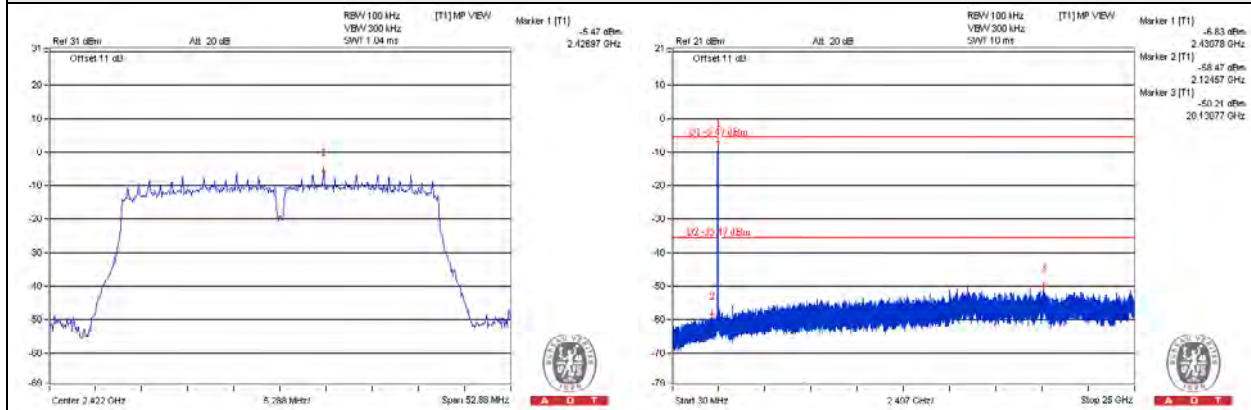


802.11n (HT20)_Chain 3

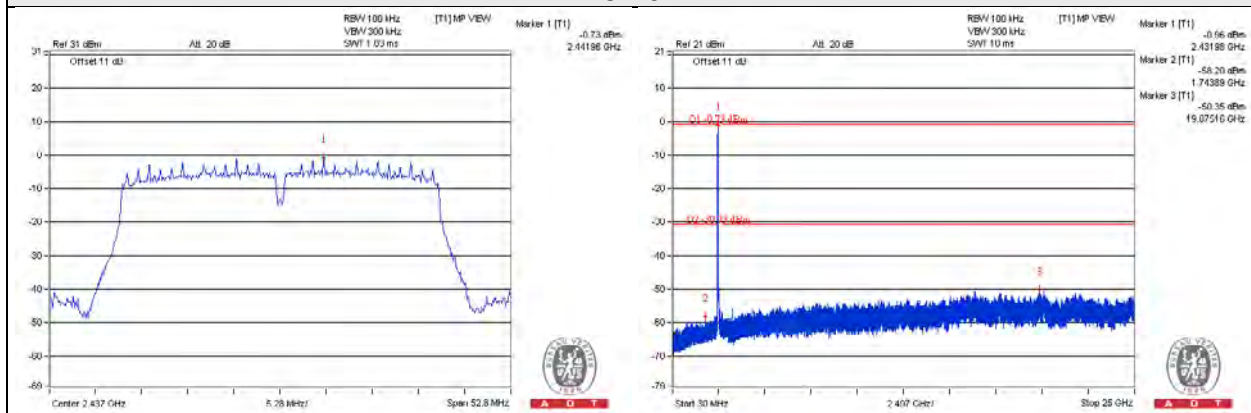


802.11n (HT40)_Chain 0

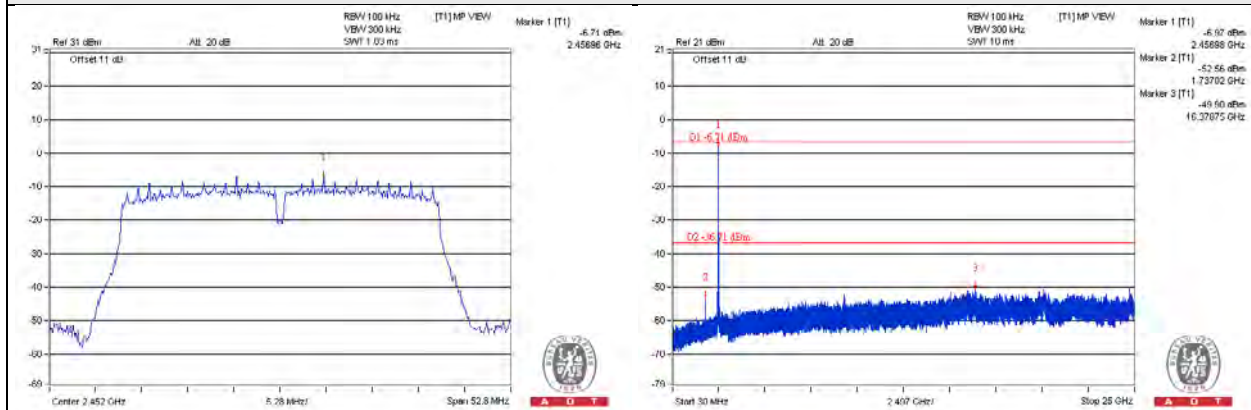
CH 3



CH 6

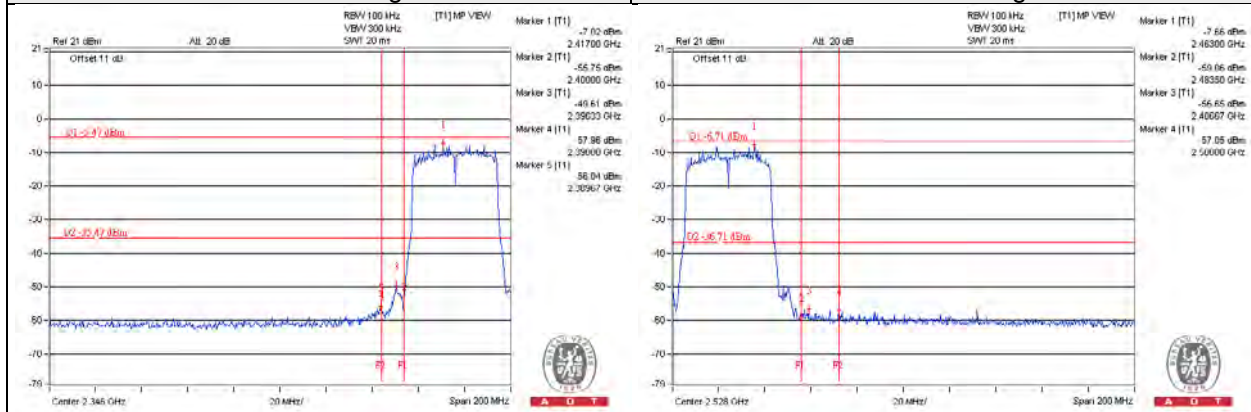


CH 9



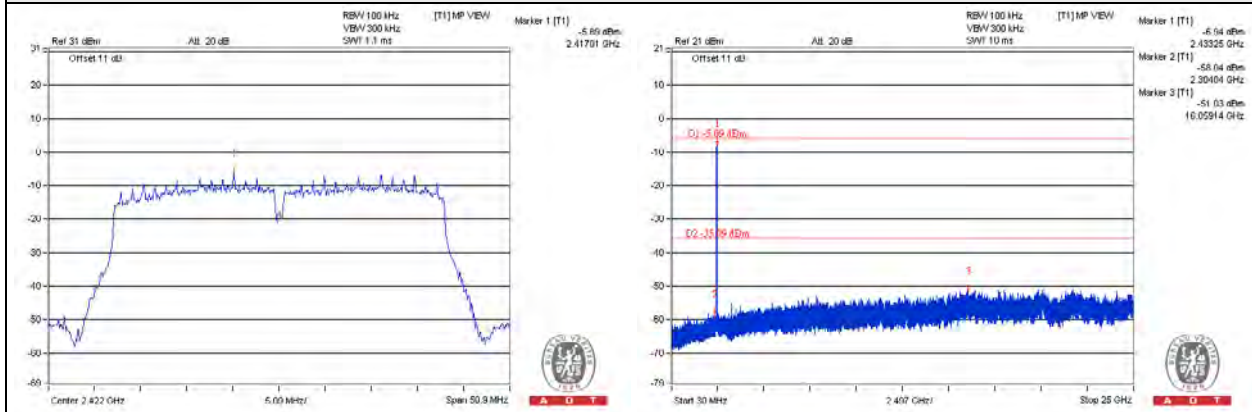
CH 3 Band edge

CH 9 Band edge

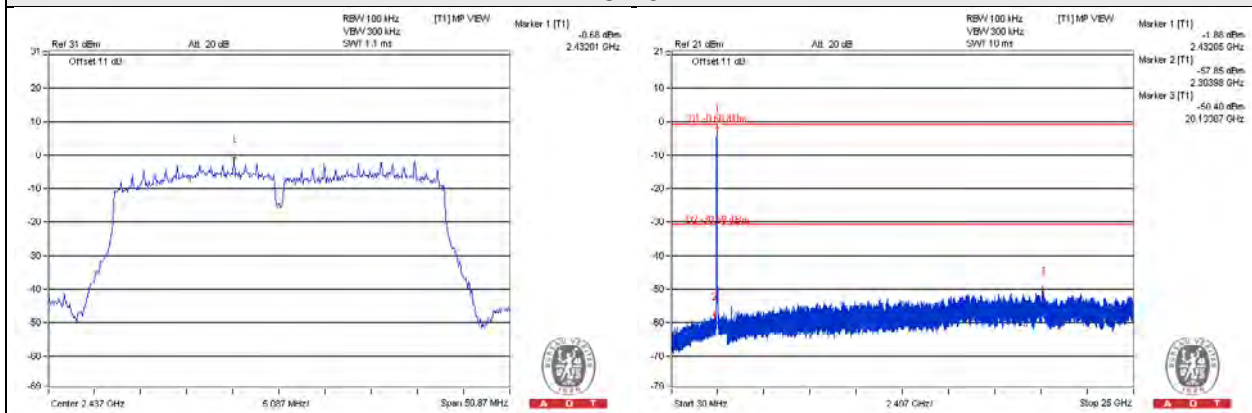


802.11n (HT40)_Chain 1

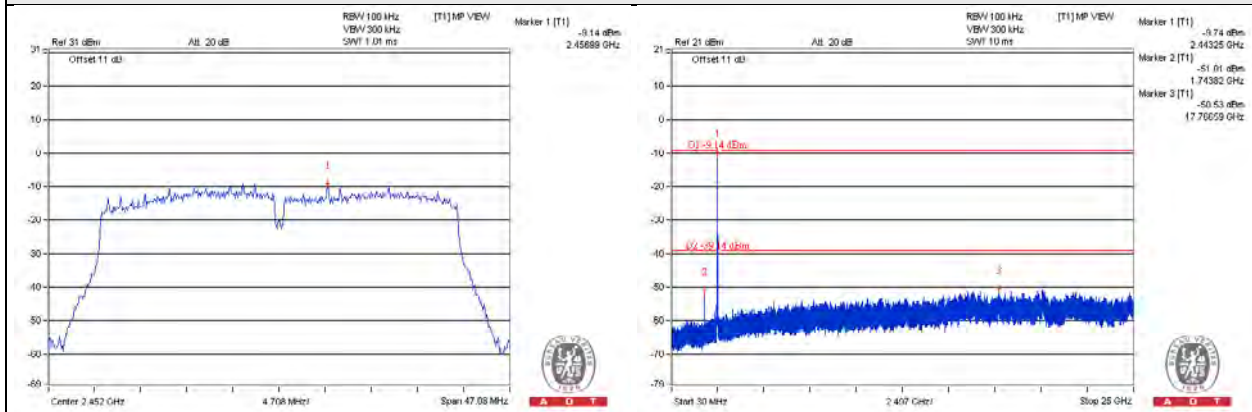
CH 3



CH 6

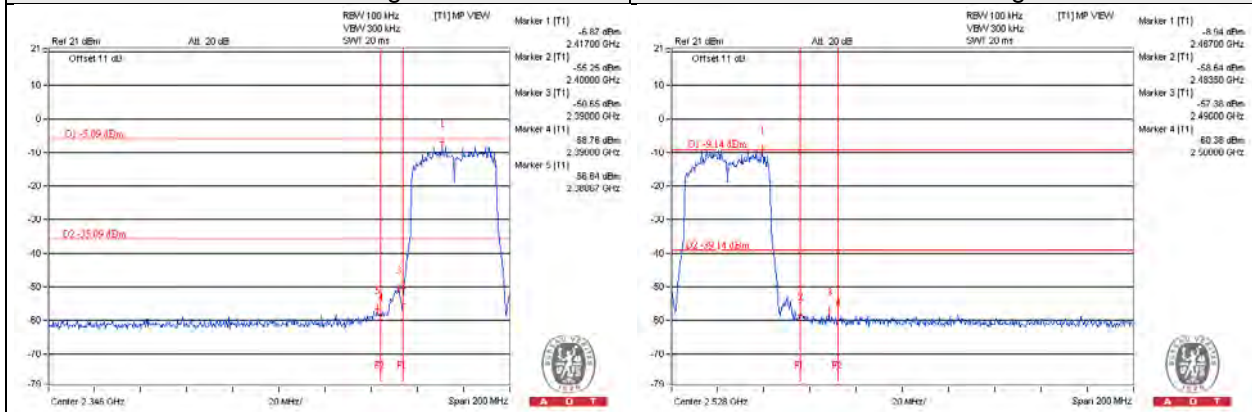


CH 9



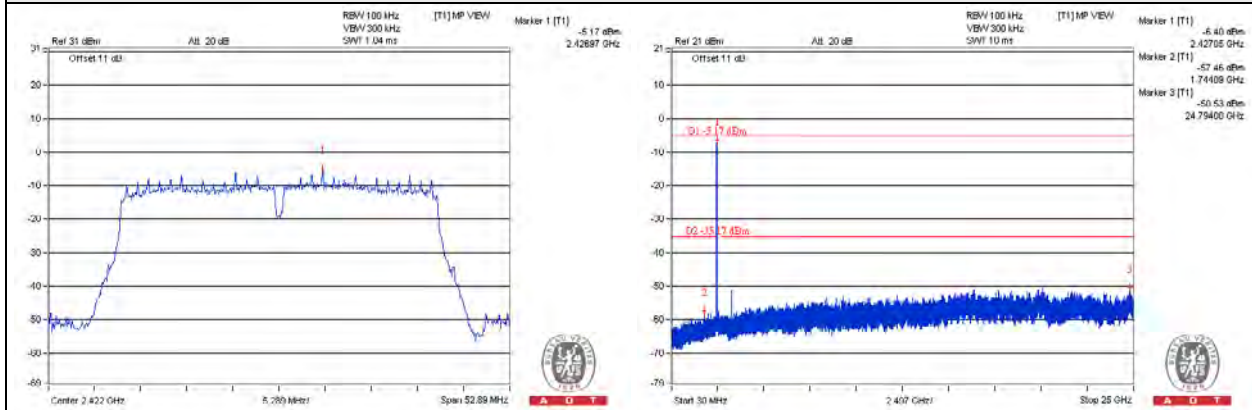
CH 3 Band edge

CH 9 Band edge

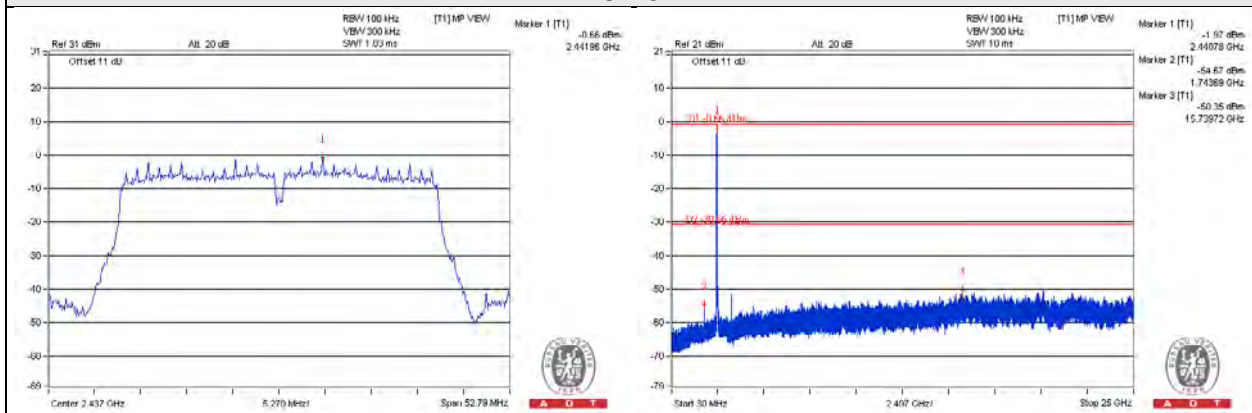


802.11n (HT40)_Chain 2

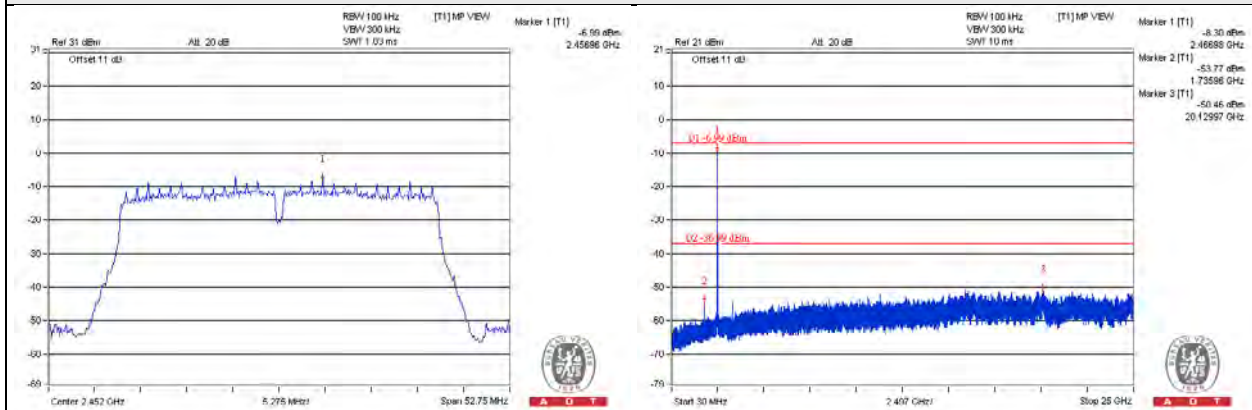
CH 3



CH 6

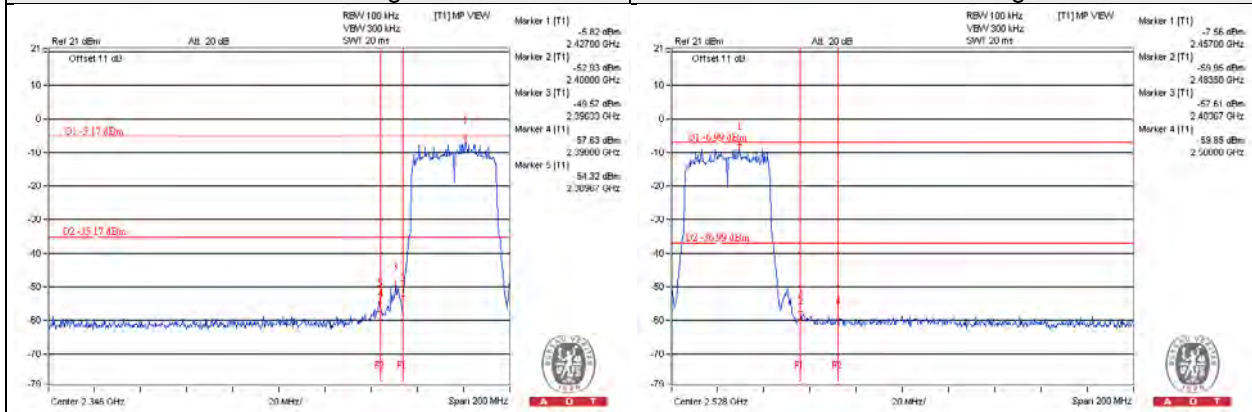


CH 9



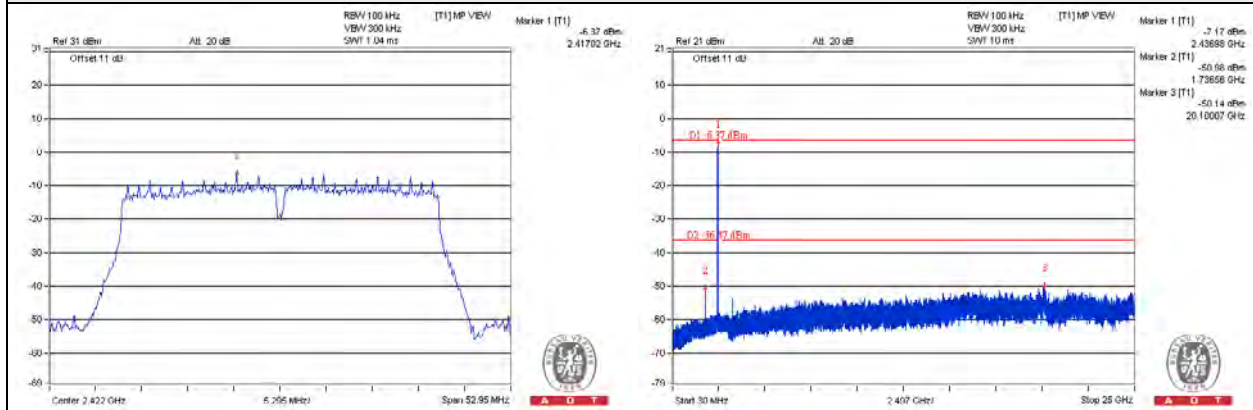
CH 3 Band edge

CH 9 Band edge

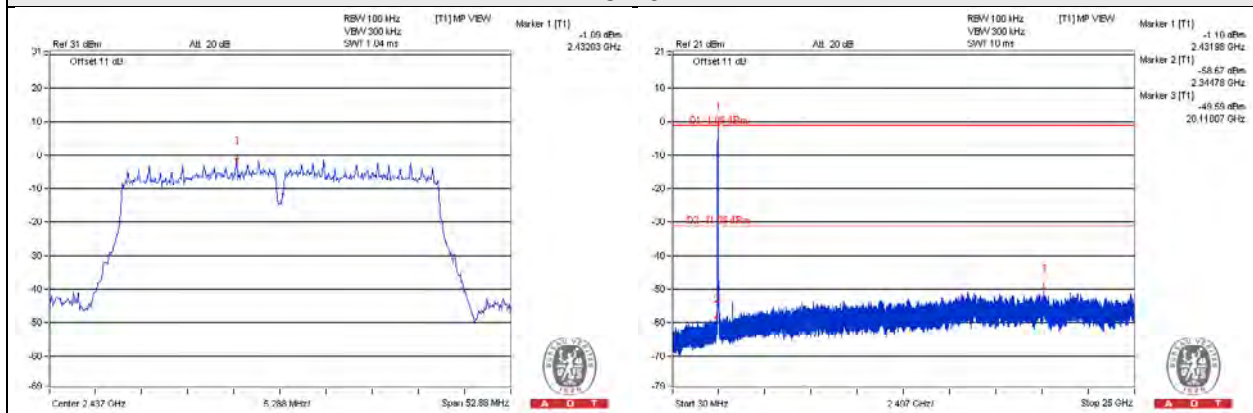


802.11n (HT40)_Chain 3

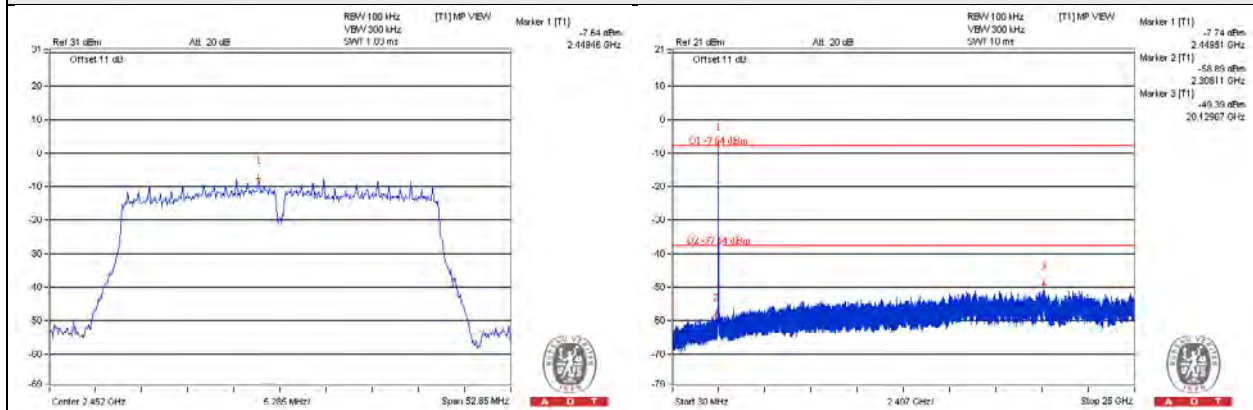
CH 3



CH 6

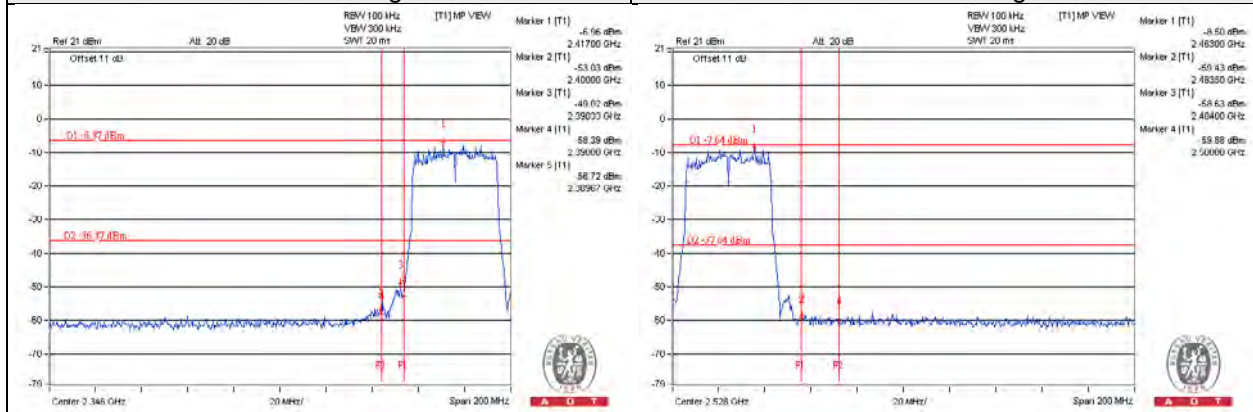


CH 9



CH 3 Band edge

CH 9 Band edge



5 Pictures of Test Arrangements

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

Appendix – Information on the Testing Laboratories

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

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

Linko EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

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