FCC Test Report

Report No.:	RF190624C08
FCC ID:	TVE-37176T0464
Test Model:	FAP-231E
Series Model:	FortiAP 231Exxxxxx, FAP-231E xxxxxx, FORTIAP-231E xxxxxx (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:	Jun. 24, 2019
Test Date:	Jul. 02 ~ Aug. 03, 2019
Issued Date:	Aug. 08, 2019
Applicant:	Fortinet Inc.
Address:	899 Kifer Road Sunnyvale, CA 94086 USA
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
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.)
FCC Registration / Designation Number:	788550 / TW0003

Testing Laboratory
2021

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
RF190624C08	Original release.	Aug. 08, 2019

1 Certificate of Conformity

Product:	Wireless Access Point
Brand:	Fortinet
Test Model:	FAP-231E
Series Model:	FortiAP 231Exxxxxx, FAP-231E xxxxxx, FORTIAP-231E xxxxxx (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:	Jul. 02 ~ Aug. 03, 2019
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 RF characteristics under the conditions specified in this report.

Prepared by : _____ , **Date:** Aug. 08, 2019
Polly Chien / Specialist

Approved by : _____ , **Date:** Aug. 08, 2019
Bruce Chen / Senior Project Engineer

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 -5.38dB at 0.48235MHz.
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 4924.00MHz.
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 not a standard connector.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

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	2.94 dB
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.04 dB
	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	Wireless Access Point
Brand	Fortinet
Test Model	FAP-231E
Series Model	FortiAP 231Exxxxxx, FAP-231E xxxxxx, FORTIAP-231E xxxxxx (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
Sample Status	Engineering sample
Power Supply rating	12Vdc from Adapter 54Vdc from PoE
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b:11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11n: up to 300Mbps
Operating Frequency	2412~2462MHz
Number of Channel	802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7
Output Power	Radio 1: CDD Mode: 289.095mW Beamforming Mode: 144.557mW Radio 3: CDD Mode: 259.749mW Beamforming Mode: 127.806mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Cable Supplied	NA

Note:

1. The following models are provided to this EUT. The model FAP-231E was chosen for final test.

Brand	Model	Description
Fortinet	FAP-231E	where “x” can be used as “A-Z”, or “-0-9”, or “-“, or blank for software changes or marketing purposes only
	FortiAP 231Exxxxxx	
	FAP-231E xxxxxx	
	FORTIAP-231E xxxxxx	

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

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

* For 802.11n, CDD mode and Beamforming mode are presented in power output test item. For other test items, CDD mode is the worst case for final tests after pretesting.

3. Operation mode and channels.

Mode	Radio 1	Radio 2	Radio 3
1	2.4GHz Band (Service) Ch 1 to 13	5.0GHz full Band (Service) Ch 36 to 165	2.4GHz/5.0GHz Dual Band Scanning (RX only)
2	5.0GHz High Band (Service) Ch 100 to 165	5.0GHz Low Band (Service) Ch 36 to 64	2.4GHz Band (Service) Ch 1 to 13 (TX)
3	5.0GHz High Band (Service) Ch 100 to 165	5.0GHz Low Band (Service) Ch 36 to 64	2.4GHz/5.0GHz Dual Band Scanning (RX only)

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

Adapter	
Brand	Asian Power Devices Inc.
Model	WA-30J12R
Input Power	100-240Vac, 50/60Hz, 0.9A MAX
Output Power	12Vdc, 2.5A
Power Line	1.46m cable without core attached on adapter

POE	
Brand	EnGenius
Model	EPA5006GR
Input Power	100-240Vac, 50-60Hz, 0.8A
Output Power	54Vdc, 0.6A

5. The EUT uses following antennas.

Type	PIFA				Connector		IPEX		
Radio	2		1		1		3		BLE
Antenna No.	1	2	3	4	5	6	7	8	
Frequency (MHz)	5150~5850				2400~2500		2400~2500/ 5150~5850		2400~2500
Gain (dBi)	5.5	5.4	5.4	5.5	4.7	4.3	4.5/5.6	5.1/5.6	5.1

* The maximum antenna gains of Radio 1, 2, 3 are chosen for final test.

6. Radio 1 & Radio 2 & Radio 3 technologies can transmit at same time.

3.2 Description of Test Modes

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

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

7 channels are provided for 802.11n (HT40):

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Description	
	RE≥1G	RE<1G	PLC	APCM		
A1	-	√	√	-	Radio 1	Power from adapter
A2	√	√	√	√		Power from PoE
B1	-	√	√	-	Radio 3	Power from adapter
B2	√	√	√	√		Power from PoE

Where RE≥1G: Radiated Emission above 1GHz & Bandedge Measurement RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission APCM: Antenna Port Conducted Measurement

Note:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on Y-plane.
2. "-"means no effect.
3. Radiated emission (below 1GHz) and power line conducted emission test items chosen the worst maximum power.

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	Data Rate (Mbps)	Remark
A2	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	Radio 1
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	
	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	
	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5	
B2	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	Radio 3
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	
	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	
	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5	

Radiated Emission Test (Below 1GHz):

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

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)	Remark
A1, A2	802.11n (HT20)	1 to 11	6	OFDM	BPSK	6.5	Radio 1
B1, B2	802.11g	1 to 11	6	OFDM	BPSK	6.0	Radio 3

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	Data Rate (Mbps)	Remark
A1, A2	802.11n (HT20)	1 to 11	6	OFDM	BPSK	6.5	Radio 1
B1, B2	802.11g	1 to 11	6	OFDM	BPSK	6.0	Radio 3

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	Data Rate (Mbps)	Remark
A2	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	Radio 1
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	
	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	
	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5	
B2	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	Radio 3
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	
	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	
	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5	

Test Condition:

Applicable to	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 68% RH	120Vac, 60Hz	Willy Cheng
RE<1G	24 deg. C, 69% RH	120Vac, 60Hz 54Vdc	Willy Cheng
PLC	23 deg. C, 66% RH	120Vac, 60Hz 54Vdc	Willy Cheng
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Chris Lin

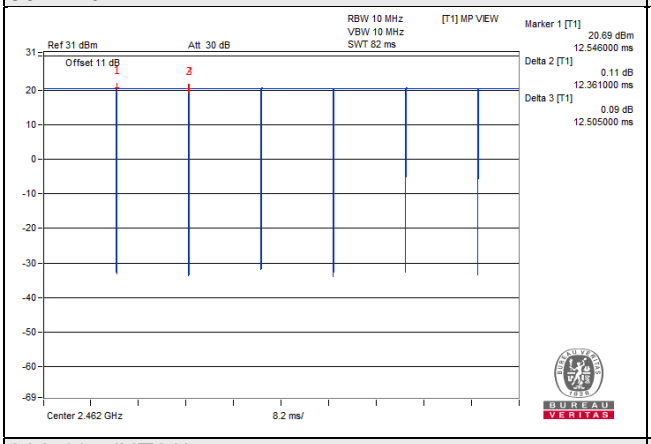
3.3 Duty Cycle of Test Signal

Duty cycle of test signal is ≥ 98%, duty factor is not required.
Duty cycle of test signal is < 98%, duty factor is required.

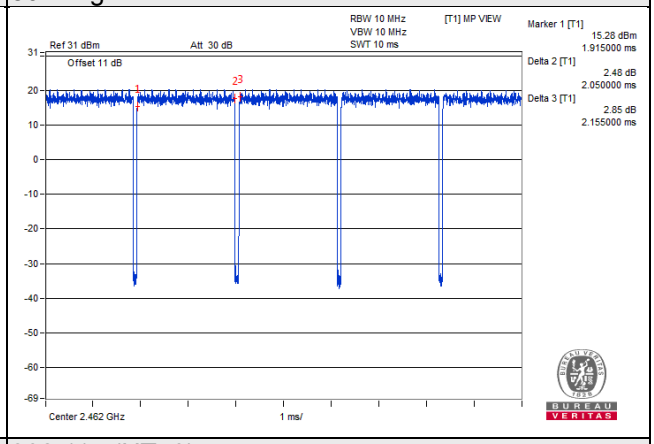
Radio 1

802.11b: Duty cycle = 12.361/12.505 = 0.988
802.11g: Duty cycle = 2.050/2.155 = 0.951, Duty factor = 10 * log(1/0.951) = 0.22
802.11n (HT20): Duty cycle = 4.968/5.092 = 0.976, Duty factor = 10 * log(1/0.976) = 0.11
802.11n (HT40): Duty cycle = 2.425/2.522 = 0.962, Duty factor = 10 * log(1/0.962) = 0.17

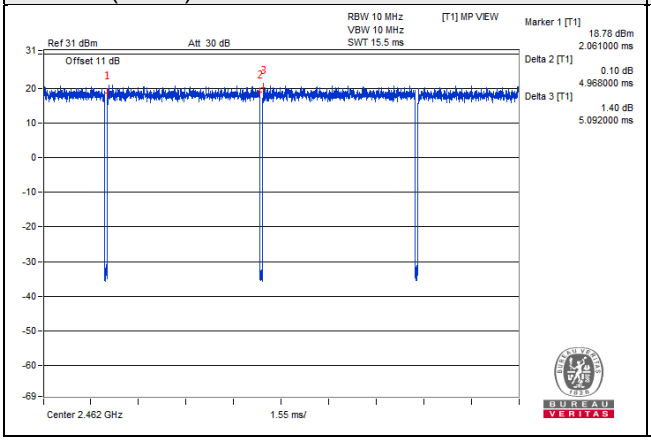
802.11b



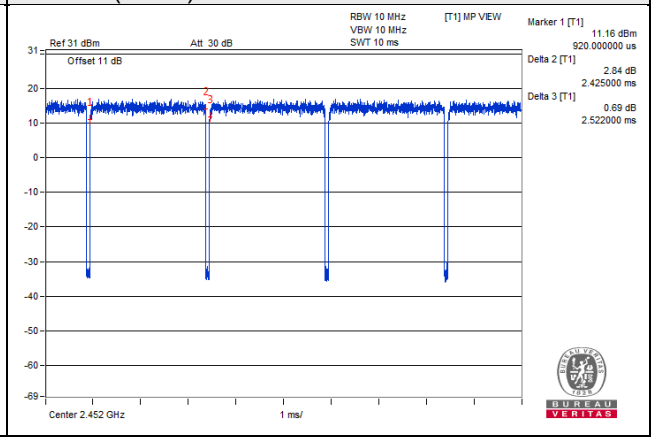
802.11g



802.11n (HT20)



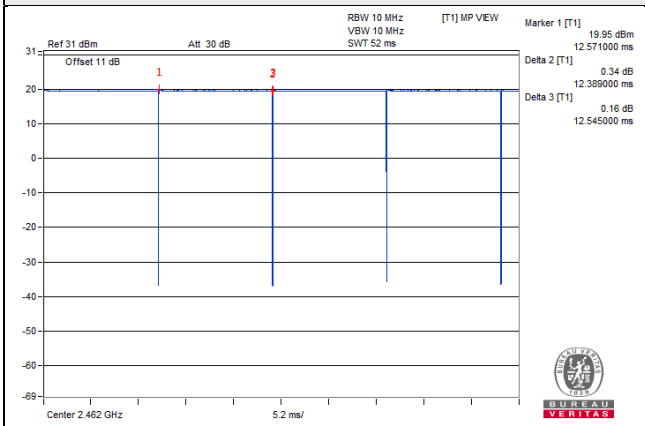
802.11n (HT40)



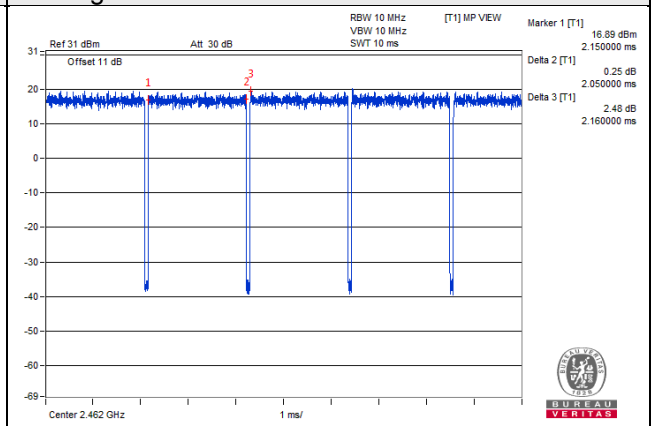
Radio 3

802.11b: Duty cycle = 12.389/12.545 = 0.988
802.11g: Duty cycle = 2.050/2.160 = 0.949, Duty factor = 10 * log(1/0.949) = 0.23
802.11n (HT20): Duty cycle = 1.917/2.020 = 0.949, Duty factor = 10 * log(1/0.949) = 0.23
802.11n (HT40): Duty cycle = 0.947/1.020 = 0.928, Duty factor = 10 * log(1/0.928) = 0.32

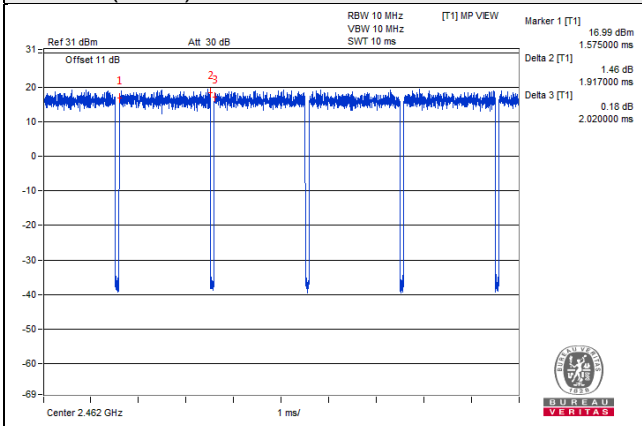
802.11b



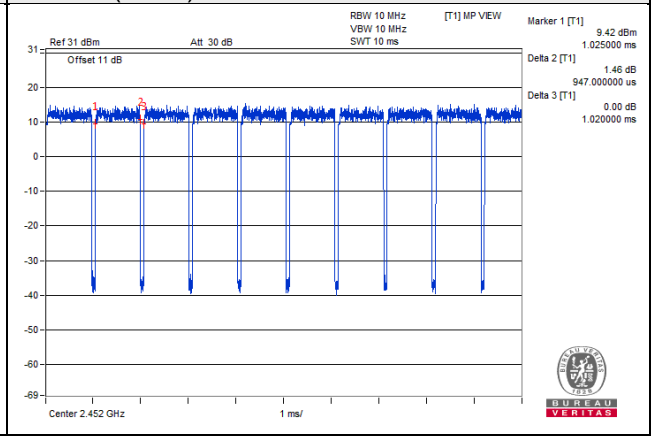
802.11g



802.11n (HT20)



802.11n (HT40)



3.4 Description of Support Units

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

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved	-
B.	Load	NA	NA	NA	NA	-
C.	Adapter	Asian Power Devices Inc.	WA-30J12R	N/A	N/A	Provided by client
D.	POE	EnGenius	EPA5006GR	N/A	N/A	Provided by client

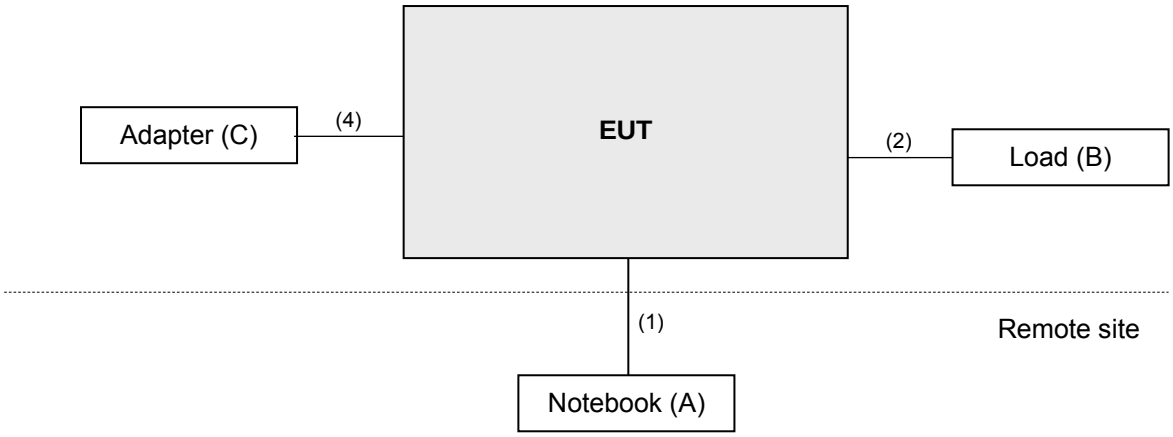
Note:

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

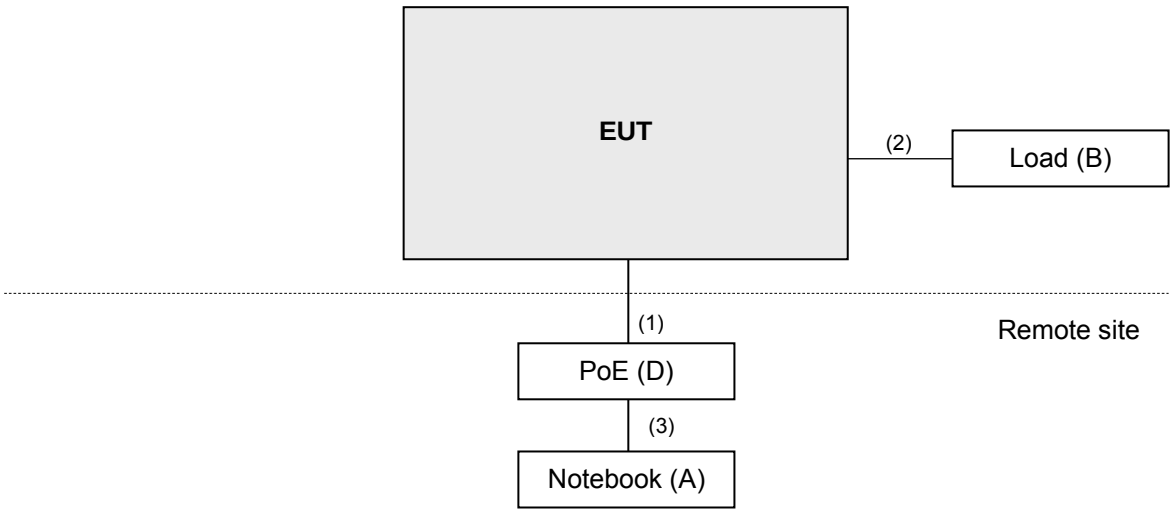
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ45, Cat5e	1	5	N	0	-
2.	RJ45, Cat5e	2	1.5	N	0	-
3.	RJ45, Cat5e	1	1.5	N	0	-
4.	Power cable	1	1.46	-	0	Provided by client

3.4.1 Configuration of System under Test

Adapter Mode



PoE Mode



3.5 General Description of Applied Standards

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

FCC Part 15, Subpart C (15.247)
KDB 558074 D01 15.247 Meas Guidance v05r02
KDB 662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10-2013

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 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 20dB 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	May 30, 2019	May 29, 2020
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Nov. 22, 2018	Nov. 21, 2019
HORN Antenna SCHWARZBECK	9120D	209	Nov. 25, 2018	Nov. 24, 2019
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 25, 2018	Nov. 24, 2019
Loop Antenna TESEQ	HLA 6121	45745	Jul. 01, 2019	Jun. 30, 2020
Preamplifier Agilent (Below 1GHz)	8447D	2944A10738	Aug. 21, 2018	Aug. 20, 2019
Preamplifier Agilent (Above 1GHz)	8449B	3008A02465	Mar. 27, 2019	Mar. 26, 2020
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 21, 2018	Aug. 20, 2019
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM-SM-8 000	Cable-CH3-03 (309224+170907)	Aug. 21, 2018	Aug. 20, 2019
RF signal cable WOKEN	8D-FB	Cable-CH3-01	Aug. 21, 2018	Aug. 20, 2019
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	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
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY5519 0004/MY55190007/MY 55210005	Jul. 17, 2018	Jul. 16, 2019
			Jul. 15, 2019	Jul. 14, 2020

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.

4.1.3 Test Procedures

For Radiated emission below 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

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

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

3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.

   For Radia 1 (11b: RBW = 1 MHz, VBW =10 Hz ; 11g: RBW = 1 MHz, VBW = 1 kHz ; 11n (HT20): RBW = 1 MHz, VBW = 300 Hz ; 11n (HT40): RBW = 1 MHz, VBW = 1 kHz)

   For Radia 3 (11b: RBW = 1 MHz, VBW =10 Hz ; 11g: RBW = 1 MHz, VBW = 1 kHz ; 11n (HT20): RBW = 1 MHz, VBW = 1 kHz ; 11n (HT40): RBW = 1 MHz, VBW = 3 kHz)

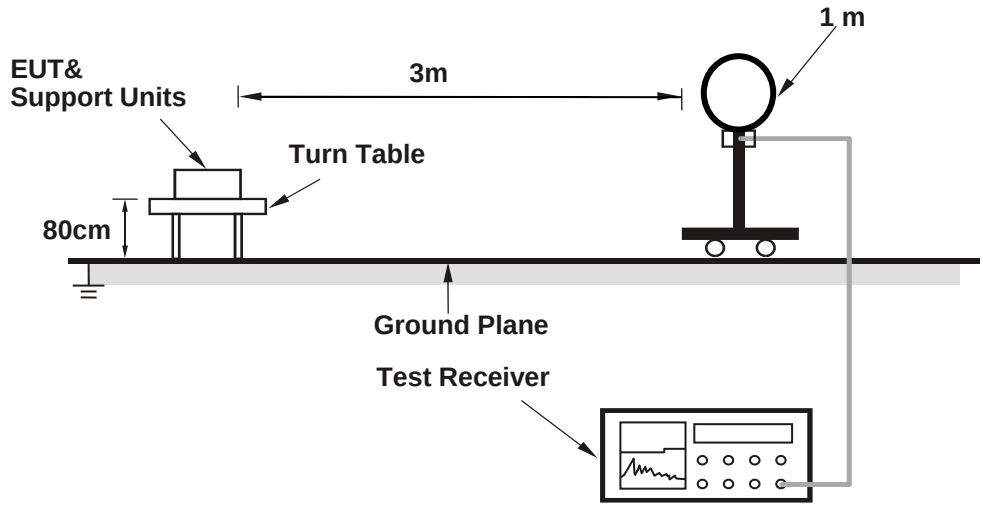
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

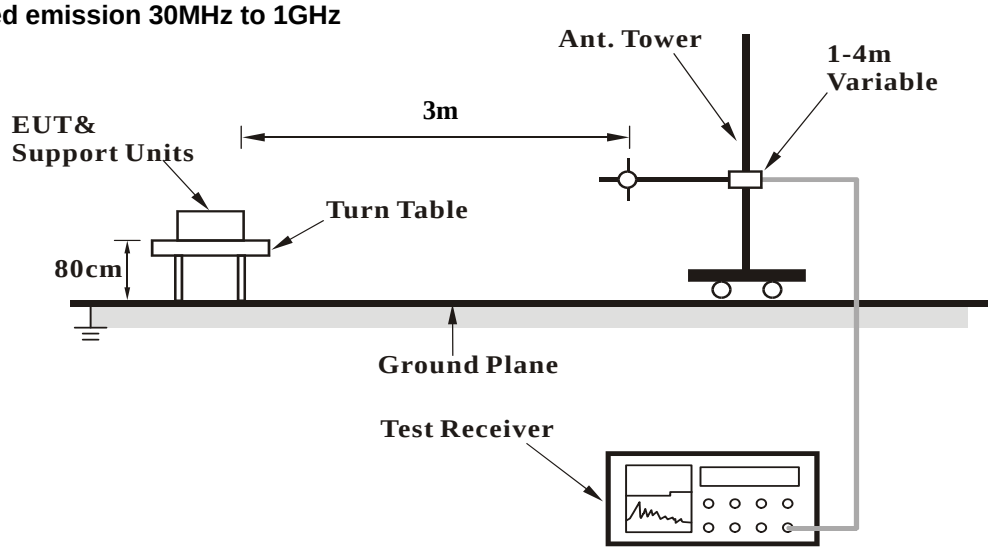
No deviation.

4.1.5 Test Setup

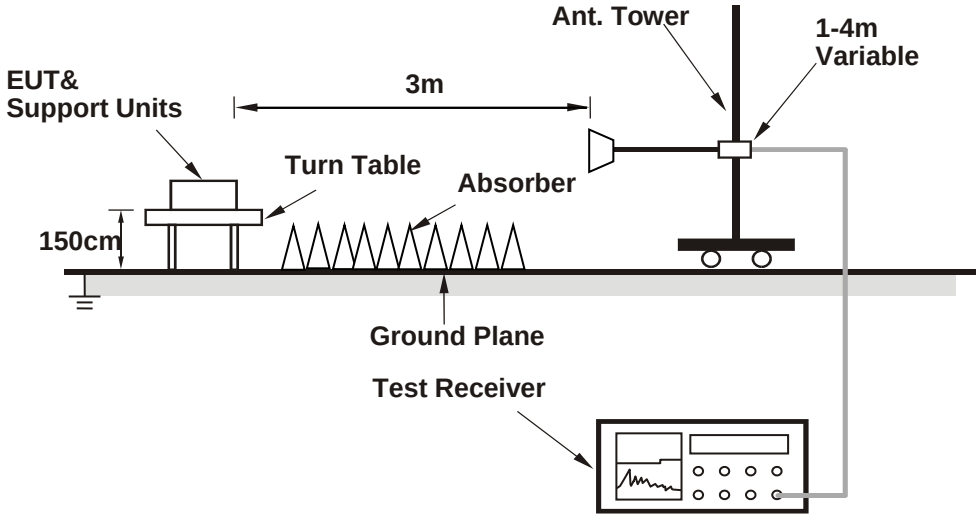
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

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

4.1.7 Test Results

Mode A2: Radio 1

Above 1GHz worst-Case data:

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.5 PK	74.0	-14.5	1.35 H	342	26.6	32.9
2	2390.00	47.3 AV	54.0	-6.7	1.35 H	342	14.4	32.9
3	*2412.00	109.5 PK			1.11 H	321	76.6	32.9
4	*2412.00	105.8 AV			1.11 H	321	72.9	32.9
5	4824.00	50.5 PK	74.0	-23.5	1.76 H	114	46.8	3.7
6	4824.00	45.2 AV	54.0	-8.8	1.76 H	114	41.5	3.7
7	14472.00	64.1 PK	74.0	-9.9	1.64 H	145	41.4	22.7
8	14472.00	52.9 AV	54.0	-1.1	1.64 H	145	30.2	22.7
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	60.7 PK	74.0	-13.3	1.45 V	302	27.8	32.9
2	2390.00	47.3 AV	54.0	-6.7	1.45 V	302	14.4	32.9
3	*2412.00	109.1 PK			1.42 V	329	76.2	32.9
4	*2412.00	105.4 AV			1.42 V	329	72.5	32.9
5	4824.00	51.5 PK	74.0	-22.5	1.22 V	358	47.8	3.7
6	4824.00	46.1 AV	54.0	-7.9	1.22 V	358	42.4	3.7
7	14472.00	63.7 PK	74.0	-10.3	1.77 V	172	41.0	22.7
8	14472.00	52.7 AV	54.0	-1.3	1.77 V	172	30.0	22.7

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	112.4 PK			2.20 H	54	79.5	32.9
2	*2437.00	108.8 AV			2.20 H	54	75.9	32.9
3	4874.00	55.5 PK	74.0	-18.5	1.74 H	116	51.5	4.0
4	4874.00	52.5 AV	54.0	-1.5	1.74 H	116	48.5	4.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	112.7 PK			1.94 V	344	79.8	32.9
2	*2437.00	109.1 AV			1.94 V	344	76.2	32.9
3	4874.00	54.9 PK	74.0	-19.1	1.26 V	29	50.9	4.0
4	4874.00	51.4 AV	54.0	-2.6	1.26 V	29	47.4	4.0

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.9 PK			1.08 H	39	77.0	32.9
2	*2462.00	106.3 AV			1.08 H	39	73.4	32.9
3	2483.50	61.2 PK	74.0	-12.8	1.52 H	39	28.2	33.0
4	2483.50	50.6 AV	54.0	-3.4	1.52 H	39	17.6	33.0
5	4924.00	56.2 PK	74.0	-17.8	1.88 H	174	52.2	4.0
6	**4924.00**	**53.0 AV**	**54.0**	**-1.0**	**1.88 H**	**174**	**49.0**	**4.0**
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	111.1 PK			1.89 V	347	78.2	32.9
2	*2462.00	107.5 AV			1.89 V	347	74.6	32.9
3	2483.50	59.9 PK	74.0	-14.1	1.75 V	326	26.9	33.0
4	2483.50	48.7 AV	54.0	-5.3	1.75 V	326	15.7	33.0
5	4924.00	53.7 PK	74.0	-20.3	1.46 V	186	49.7	4.0
6	4924.00	49.5 AV	54.0	-4.5	1.46 V	186	45.5	4.0

Remarks:

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

802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.5 PK	74.0	-6.5	2.32 H	283	34.6	32.9
2	2390.00	52.0 AV	54.0	-2.0	2.32 H	283	19.1	32.9
3	*2412.00	109.1 PK			2.59 H	279	76.2	32.9
4	*2412.00	98.1 AV			2.59 H	279	65.2	32.9
5	4824.00	47.4 PK	74.0	-26.6	2.52 H	193	43.7	3.7
6	4824.00	36.4 AV	54.0	-17.6	2.52 H	193	32.7	3.7
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	2.03 V	350	34.2	32.9
2	2390.00	52.4 AV	54.0	-1.6	2.03 V	350	19.5	32.9
3	*2412.00	110.2 PK			1.51 V	343	77.3	32.9
4	*2412.00	99.8 AV			1.51 V	343	66.9	32.9
5	4824.00	48.4 PK	74.0	-25.6	2.36 V	13	44.7	3.7
6	4824.00	40.7 AV	54.0	-13.3	2.36 V	13	37.0	3.7

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	115.3 PK			1.70 H	51	82.4	32.9
2	*2437.00	105.0 AV			1.70 H	51	72.1	32.9
3	2483.50	63.2 PK	74.0	-10.8	1.89 H	65	30.2	33.0
4	2483.50	50.0 AV	54.0	-4.0	1.89 H	65	17.0	33.0
5	4874.00	60.2 PK	74.0	-13.8	1.62 H	120	56.2	4.0
6	4874.00	46.7 AV	54.0	-7.3	1.62 H	120	42.7	4.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	116.2 PK			1.91 V	345	83.3	32.9
2	*2437.00	105.7 AV			1.91 V	345	72.8	32.9
3	2483.50	64.4 PK	74.0	-9.6	1.65 V	342	31.4	33.0
4	2483.50	50.8 AV	54.0	-3.2	1.65 V	342	17.8	33.0
5	4874.00	58.2 PK	74.0	-15.8	2.08 V	4	54.2	4.0
6	4874.00	44.7 AV	54.0	-9.3	2.08 V	4	40.7	4.0

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.5 PK			1.91 H	51	75.6	32.9
2	*2462.00	98.0 AV			1.91 H	51	65.1	32.9
3	2483.50	65.6 PK	74.0	-8.4	1.50 H	55	32.6	33.0
4	2483.50	51.5 AV	54.0	-2.5	1.50 H	55	18.5	33.0
5	4924.00	49.8 PK	74.0	-24.2	2.31 H	355	45.8	4.0
6	4924.00	36.6 AV	54.0	-17.4	2.31 H	355	32.6	4.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.6 PK			1.87 V	349	75.7	32.9
2	*2462.00	98.4 AV			1.87 V	349	65.5	32.9
3	2483.50	67.6 PK	74.0	-6.4	1.64 V	346	34.6	33.0
4	2483.50	52.3 AV	54.0	-1.7	1.64 V	346	19.3	33.0
5	4924.00	50.6 PK	74.0	-23.4	1.82 V	352	46.6	4.0
6	4924.00	42.7 AV	54.0	-11.3	1.82 V	352	38.7	4.0

Remarks:

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

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.7 PK	74.0	-7.3	1.24 H	21	33.8	32.9
2	2390.00	52.4 AV	54.0	-1.6	1.24 H	21	19.5	32.9
3	*2412.00	110.7 PK			1.47 H	66	77.8	32.9
4	*2412.00	99.2 AV			1.47 H	66	66.3	32.9
5	4824.00	47.9 PK	74.0	-26.1	2.55 H	183	44.2	3.7
6	4824.00	36.5 AV	54.0	-17.5	2.55 H	183	32.8	3.7
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	68.9 PK	74.0	-5.1	1.50 V	322	36.0	32.9
2	2390.00	52.0 AV	54.0	-2.0	1.50 V	322	19.1	32.9
3	*2412.00	110.8 PK			1.72 V	345	77.9	32.9
4	*2412.00	99.9 AV			1.72 V	345	67.0	32.9
5	4824.00	48.9 PK	74.0	-25.1	2.30 V	16	45.2	3.7
6	4824.00	40.8 AV	54.0	-13.2	2.30 V	16	37.1	3.7

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	113.7 PK			1.98 H	46	80.8	32.9
2	*2437.00	103.7 AV			1.98 H	46	70.8	32.9
3	4874.00	58.0 PK	74.0	-16.0	1.94 H	172	54.0	4.0
4	4874.00	44.4 AV	54.0	-9.6	1.94 H	172	40.4	4.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	114.8 PK			1.68 V	344	81.9	32.9
2	*2437.00	103.9 AV			1.68 V	344	71.0	32.9
3	4874.00	56.7 PK	74.0	-17.3	1.57 V	343	52.7	4.0
4	4874.00	43.4 AV	54.0	-10.6	1.57 V	343	39.4	4.0

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.6 PK			1.00 H	310	76.7	32.9
2	*2462.00	98.0 AV			1.00 H	310	65.1	32.9
3	2483.50	65.4 PK	74.0	-8.6	1.29 H	333	32.4	33.0
4	2483.50	51.2 AV	54.0	-2.8	1.29 H	333	18.2	33.0
5	4924.00	48.5 PK	74.0	-25.5	1.78 H	356	44.5	4.0
6	4924.00	37.3 AV	54.0	-16.7	1.78 H	356	33.3	4.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.7 PK			1.44 V	339	75.8	32.9
2	*2462.00	97.9 AV			1.44 V	339	65.0	32.9
3	2483.50	66.8 PK	74.0	-7.2	1.42 V	338	33.8	33.0
4	2483.50	52.4 AV	54.0	-1.6	1.42 V	338	19.4	33.0
5	4924.00	50.3 PK	74.0	-23.7	1.34 V	19	46.3	4.0
6	4924.00	42.5 AV	54.0	-11.5	1.34 V	19	38.5	4.0

Remarks:

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

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.8 PK	74.0	-9.2	2.28 H	69	31.9	32.9
2	2390.00	50.2 AV	54.0	-3.8	2.28 H	69	17.3	32.9
3	*2422.00	105.0 PK			1.72 H	46	72.2	32.8
4	*2422.00	94.8 AV			1.72 H	46	62.0	32.8
5	4844.00	48.9 PK	74.0	-25.1	1.77 H	318	45.0	3.9
6	4844.00	39.2 AV	54.0	-14.8	1.77 H	318	35.3	3.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.1 PK	74.0	-6.9	1.96 V	340	34.2	32.9
2	2390.00	52.9 AV	54.0	-1.1	1.96 V	340	20.0	32.9
3	*2422.00	107.7 PK			1.93 V	335	74.9	32.8
4	*2422.00	96.6 AV			1.93 V	335	63.8	32.8
5	4844.00	48.8 PK	74.0	-25.2	1.56 V	15	44.9	3.9
6	4844.00	41.3 AV	54.0	-12.7	1.56 V	15	37.4	3.9

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	63.7 PK	74.0	-10.3	2.36 H	274	30.8	32.9
2	2390.00	50.5 AV	54.0	-3.5	2.36 H	274	17.6	32.9
3	*2437.00	107.2 PK			1.99 H	69	74.3	32.9
4	*2437.00	97.1 AV			1.99 H	69	64.2	32.9
5	2483.50	67.6 PK	74.0	-6.4	1.50 H	50	34.6	33.0
6	2483.50	51.4 AV	54.0	-2.6	1.50 H	50	18.4	33.0
7	4874.00	48.1 PK	74.0	-25.9	2.20 H	292	44.1	4.0
8	4874.00	36.8 AV	54.0	-17.2	2.20 H	292	32.8	4.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.3 PK	74.0	-8.7	2.25 V	348	32.4	32.9
2	2390.00	51.1 AV	54.0	-2.9	2.25 V	348	18.2	32.9
3	*2437.00	108.6 PK			2.17 V	335	75.7	32.9
4	*2437.00	98.3 AV			2.17 V	335	65.4	32.9
5	2483.50	71.7 PK	74.0	-2.3	1.86 V	331	38.7	33.0
6	2483.50	52.9 AV	54.0	-1.1	1.86 V	331	19.9	33.0
7	4874.00	49.0 PK	74.0	-25.0	3.03 V	331	45.0	4.0
8	4874.00	41.2 AV	54.0	-12.8	3.03 V	331	37.2	4.0

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	103.9 PK			1.31 H	70	71.0	32.9
2	*2452.00	94.0 AV			1.31 H	70	61.1	32.9
3	2483.50	66.9 PK	74.0	-7.1	2.51 H	265	33.9	33.0
4	2483.50	51.7 AV	54.0	-2.3	2.51 H	265	18.7	33.0
5	4904.00	48.2 PK	74.0	-25.8	1.48 H	359	44.2	4.0
6	4904.00	36.2 AV	54.0	-17.8	1.48 H	359	32.2	4.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	105.3 PK			2.13 V	331	72.4	32.9
2	*2452.00	95.8 AV			2.13 V	331	62.9	32.9
3	2483.50	69.4 PK	74.0	-4.6	2.35 V	335	36.4	33.0
4	2483.50	52.9 AV	54.0	-1.1	2.35 V	335	19.9	33.0
5	4904.00	48.9 PK	74.0	-25.1	1.92 V	344	44.9	4.0
6	4904.00	41.8 AV	54.0	-12.2	1.92 V	344	37.8	4.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – 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:

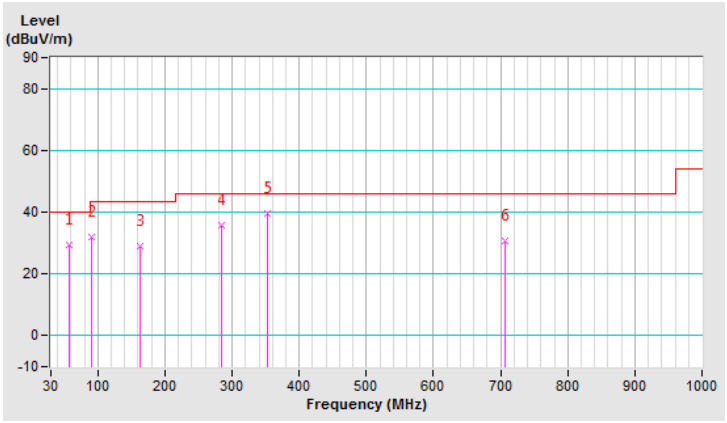
802.11n (HT20)

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	A1

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	57.21	29.5 QP	40.0	-10.5	1.99 H	36	39.6	-10.1
2	90.26	31.8 QP	43.5	-11.7	1.99 H	223	46.4	-14.6
3	162.18	29.1 QP	43.5	-14.4	1.49 H	227	38.1	-9.0
4	284.65	35.8 QP	46.0	-10.2	1.00 H	164	43.5	-7.7
5	352.69	39.7 QP	46.0	-6.3	1.00 H	180	46.3	-6.6
6	706.47	30.7 QP	46.0	-15.3	1.00 H	6	30.3	0.4

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. Margin value = Emission Level – Limit value
4. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

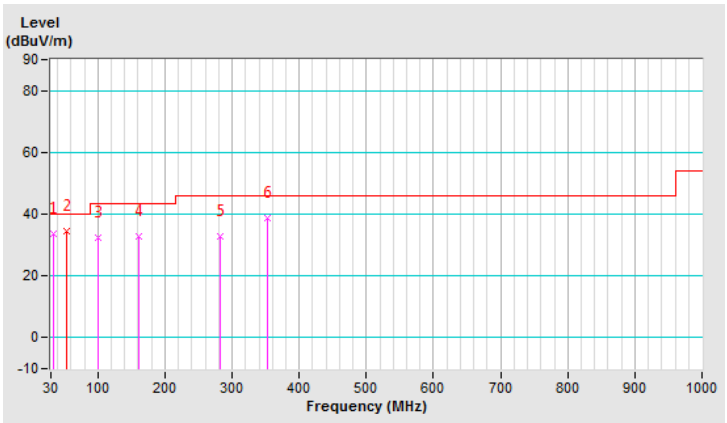


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	A1

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	33.89	33.6 QP	40.0	-6.4	1.49 V	15	44.7	-11.1
2	53.02	34.4 QP	40.0	-5.6	1.00 V	0	44.1	-9.7
3	99.98	32.2 QP	43.5	-11.3	1.49 V	15	45.8	-13.6
4	160.24	33.0 QP	43.5	-10.5	1.00 V	140	42.0	-9.0
5	282.71	32.7 QP	46.0	-13.3	1.49 V	163	40.5	-7.8
6	352.69	38.7 QP	46.0	-7.3	1.00 V	159	45.3	-6.6

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. Margin value = Emission Level – Limit value
4. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

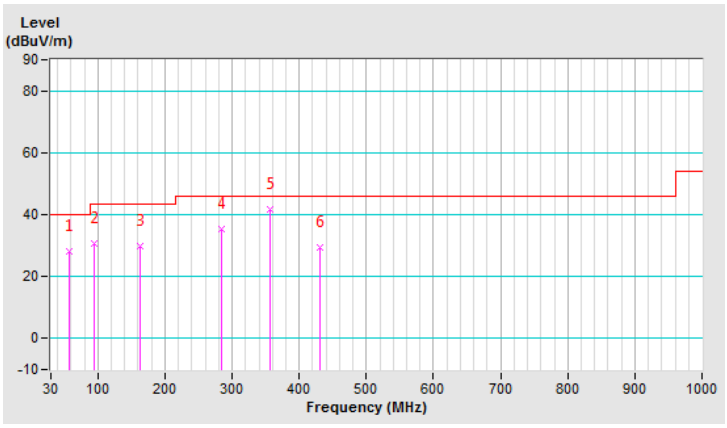


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	A2

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	57.21	28.2 QP	40.0	-11.8	2.00 H	8	38.3	-10.1
2	94.15	30.7 QP	43.5	-12.8	2.00 H	204	45.0	-14.3
3	162.18	29.7 QP	43.5	-13.8	2.00 H	237	38.7	-9.0
4	284.65	35.4 QP	46.0	-10.6	1.01 H	167	43.1	-7.7
5	356.57	41.7 QP	46.0	-4.3	1.01 H	185	48.2	-6.5
6	430.44	29.3 QP	46.0	-16.7	2.00 H	173	33.9	-4.6

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. Margin value = Emission Level – Limit value
4. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

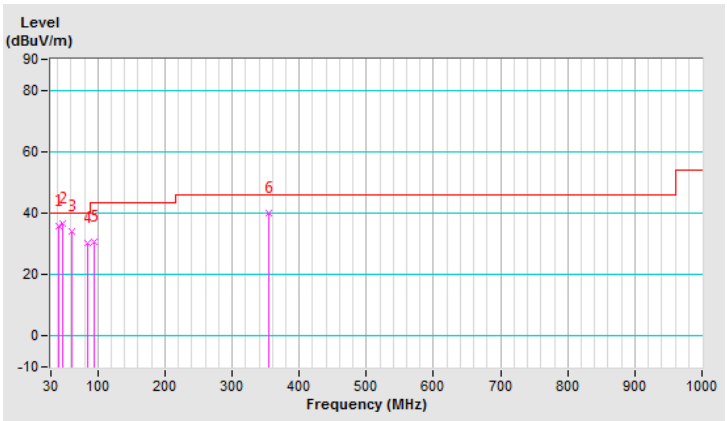


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	A2

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	41.66	35.6 QP	40.0	-4.4	1.00 V	18	45.7	-10.1
2	47.49	36.6 QP	40.0	-3.4	1.00 V	18	46.3	-9.7
3	61.10	34.2 QP	40.0	-5.8	1.00 V	32	44.7	-10.5
4	84.43	30.2 QP	40.0	-9.8	1.00 V	55	44.7	-14.5
5	94.15	30.8 QP	43.5	-12.7	1.00 V	38	45.1	-14.3
6	354.63	40.1 QP	46.0	-5.9	1.00 V	157	46.7	-6.6

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. Margin value = Emission Level – Limit value
4. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.



Mode B2: Radio 3

Above 1GHz worst-Case data:

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.7 PK	74.0	-12.3	1.20 H	43	28.8	32.9
2	2390.00	51.8 AV	54.0	-2.2	1.20 H	43	18.9	32.9
3	*2412.00	112.8 PK			1.10 H	45	79.9	32.9
4	*2412.00	109.1 AV			1.10 H	45	76.2	32.9
5	4824.00	54.0 PK	74.0	-20.0	1.82 H	345	50.3	3.7
6	4824.00	52.3 AV	54.0	-1.7	1.82 H	345	48.6	3.7
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	59.7 PK	74.0	-14.3	3.55 V	13	26.8	32.9
2	2390.00	48.7 AV	54.0	-5.3	3.55 V	13	15.8	32.9
3	*2412.00	111.5 PK			3.50 V	1	78.6	32.9
4	*2412.00	107.6 AV			3.50 V	1	74.7	32.9
5	4824.00	52.7 PK	74.0	-21.3	1.47 V	177	49.0	3.7
6	4824.00	49.1 AV	54.0	-4.9	1.47 V	177	45.4	3.7

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	112.2 PK			2.16 H	42	79.3	32.9
2	*2437.00	108.3 AV			2.16 H	42	75.4	32.9
3	4874.00	56.1 PK	74.0	-17.9	1.83 H	341	52.1	4.0
4	**4874.00**	**53.0 AV**	**54.0**	**-1.0**	**1.83 H**	**341**	**49.0**	**4.0**
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	110.3 PK			3.67 V	9	77.4	32.9
2	*2437.00	106.8 AV			3.67 V	9	73.9	32.9
3	4874.00	53.8 PK	74.0	-20.2	3.37 V	152	49.8	4.0
4	4874.00	49.5 AV	54.0	-4.5	3.37 V	152	45.5	4.0

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	112.0 PK			1.69 H	41	79.1	32.9
2	*2462.00	108.3 AV			1.69 H	41	75.4	32.9
3	2483.50	60.3 PK	74.0	-13.7	1.89 H	313	27.3	33.0
4	2483.50	49.5 AV	54.0	-4.5	1.89 H	313	16.5	33.0
5	4924.00	55.6 PK	74.0	-18.4	1.95 H	338	51.6	4.0
6	4924.00	52.5 AV	54.0	-1.5	1.95 H	338	48.5	4.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.9 PK			3.53 V	19	77.0	32.9
2	*2462.00	106.5 AV			3.53 V	19	73.6	32.9
3	2483.50	59.6 PK	74.0	-14.4	2.94 V	16	26.6	33.0
4	2483.50	48.4 AV	54.0	-5.6	2.94 V	16	15.4	33.0
5	4924.00	54.0 PK	74.0	-20.0	3.02 V	154	50.0	4.0
6	4924.00	49.7 AV	54.0	-4.3	3.02 V	154	45.7	4.0

Remarks:

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

802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.4 PK	74.0	-8.6	2.23 H	294	32.5	32.9
2	2390.00	52.4 AV	54.0	-1.6	2.23 H	294	19.5	32.9
3	*2412.00	111.5 PK			1.56 H	36	78.6	32.9
4	*2412.00	102.0 AV			1.56 H	36	69.1	32.9
5	4824.00	54.7 PK	74.0	-19.3	2.27 H	25	51.0	3.7
6	4824.00	40.9 AV	54.0	-13.1	2.27 H	25	37.2	3.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.8 PK	74.0	-8.2	3.85 V	11	32.9	32.9
2	2390.00	52.1 AV	54.0	-1.9	3.85 V	11	19.2	32.9
3	*2412.00	111.1 PK			3.80 V	8	78.2	32.9
4	*2412.00	100.9 AV			3.80 V	8	68.0	32.9
5	4824.00	49.4 PK	74.0	-24.6	3.84 V	15	45.7	3.7
6	4824.00	36.6 AV	54.0	-17.4	3.84 V	15	32.9	3.7

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	116.5 PK			1.95 H	35	83.6	32.9
2	*2437.00	106.7 AV			1.95 H	35	73.8	32.9
3	4874.00	57.8 PK	74.0	-16.2	1.90 H	339	53.8	4.0
4	4874.00	45.3 AV	54.0	-8.7	1.90 H	339	41.3	4.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	115.0 PK			3.73 V	6	82.1	32.9
2	*2437.00	104.6 AV			3.73 V	6	71.7	32.9
3	4874.00	58.9 PK	74.0	-15.1	1.16 V	169	54.9	4.0
4	4874.00	46.4 AV	54.0	-7.6	1.16 V	169	42.4	4.0

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	110.9 PK			1.97 H	35	78.0	32.9
2	*2462.00	101.0 AV			1.97 H	35	68.1	32.9
3	2483.50	68.5 PK	74.0	-5.5	1.88 H	12	35.5	33.0
4	2483.50	52.4 AV	54.0	-1.6	1.88 H	12	19.4	33.0
5	4924.00	51.7 PK	74.0	-22.3	2.26 H	333	47.7	4.0
6	4924.00	38.5 AV	54.0	-15.5	2.26 H	333	34.5	4.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.6 PK			3.32 V	358	76.7	32.9
2	*2462.00	99.3 AV			3.32 V	358	66.4	32.9
3	2483.50	66.0 PK	74.0	-8.0	2.94 V	357	33.0	33.0
4	2483.50	51.5 AV	54.0	-2.5	2.94 V	357	18.5	33.0
5	4924.00	53.5 PK	74.0	-20.5	1.28 V	180	49.5	4.0
6	4924.00	40.1 AV	54.0	-13.9	1.28 V	180	36.1	4.0

Remarks:

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

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.8 PK	74.0	-8.2	1.21 H	27	32.9	32.9
2	2390.00	52.5 AV	54.0	-1.5	1.21 H	27	19.6	32.9
3	*2412.00	110.7 PK			3.33 H	287	77.8	32.9
4	*2412.00	100.7 AV			3.33 H	287	67.8	32.9
5	4824.00	54.9 PK	74.0	-19.1	1.72 H	337	51.2	3.7
6	4824.00	40.4 AV	54.0	-13.6	1.72 H	337	36.7	3.7
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	63.5 PK	74.0	-10.5	3.24 V	359	30.6	32.9
2	2390.00	50.6 AV	54.0	-3.4	3.24 V	359	17.7	32.9
3	*2412.00	109.8 PK			3.81 V	7	76.9	32.9
4	*2412.00	99.8 AV			3.81 V	7	66.9	32.9
5	4824.00	49.2 PK	74.0	-24.8	2.20 V	232	45.5	3.7
6	4824.00	36.5 AV	54.0	-17.5	2.20 V	232	32.8	3.7

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	116.5 PK			1.56 H	32	83.6	32.9
2	*2437.00	106.2 AV			1.56 H	32	73.3	32.9
3	4874.00	58.7 PK	74.0	-15.3	1.48 H	228	54.7	4.0
4	4874.00	45.6 AV	54.0	-8.4	1.48 H	228	41.6	4.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	115.7 PK			3.74 V	5	82.8	32.9
2	*2437.00	104.8 AV			3.74 V	5	71.9	32.9
3	4874.00	56.3 PK	74.0	-17.7	3.52 V	306	52.3	4.0
4	4874.00	42.7 AV	54.0	-11.3	3.52 V	306	38.7	4.0

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	110.8 PK			1.70 H	32	77.9	32.9
2	*2462.00	100.6 AV			1.70 H	32	67.7	32.9
3	2483.50	66.4 PK	74.0	-7.6	1.46 H	35	33.4	33.0
4	2483.50	52.2 AV	54.0	-1.8	1.46 H	35	19.2	33.0
5	4924.00	52.8 PK	74.0	-21.2	1.32 H	134	48.8	4.0
6	4924.00	38.5 AV	54.0	-15.5	1.32 H	134	34.5	4.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.8 PK			3.32 V	4	75.9	32.9
2	*2462.00	98.5 AV			3.32 V	4	65.6	32.9
3	2483.50	63.2 PK	74.0	-10.8	3.46 V	19	30.2	33.0
4	2483.50	49.9 AV	54.0	-4.1	3.46 V	19	16.9	33.0
5	4924.00	54.1 PK	74.0	-19.9	1.76 V	154	50.1	4.0
6	4924.00	40.1 AV	54.0	-13.9	1.76 V	154	36.1	4.0

Remarks:

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

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.1 PK	74.0	-7.9	2.00 H	5	33.2	32.9
2	2390.00	52.4 AV	54.0	-1.6	2.00 H	5	19.5	32.9
3	*2422.00	106.5 PK			1.54 H	36	73.7	32.8
4	*2422.00	96.6 AV			1.54 H	36	63.8	32.8
5	4844.00	49.5 PK	74.0	-24.5	2.08 H	336	45.6	3.9
6	4844.00	35.5 AV	54.0	-18.5	2.08 H	336	31.6	3.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.3 PK	74.0	-11.7	3.30 V	21	29.4	32.9
2	2390.00	49.7 AV	54.0	-4.3	3.30 V	21	16.8	32.9
3	*2422.00	104.4 PK			3.72 V	6	71.6	32.8
4	*2422.00	94.4 AV			3.72 V	6	61.6	32.8
5	4844.00	49.5 PK	74.0	-24.5	1.99 V	150	45.6	3.9
6	4844.00	35.6 AV	54.0	-18.4	1.99 V	150	31.7	3.9

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	63.1 PK	74.0	-10.9	1.58 H	24	30.2	32.9
2	2390.00	50.8 AV	54.0	-3.2	1.58 H	24	17.9	32.9
3	*2437.00	108.9 PK			1.74 H	35	76.0	32.9
4	*2437.00	99.1 AV			1.74 H	35	66.2	32.9
5	2483.50	66.0 PK	74.0	-8.0	2.12 H	43	33.0	33.0
6	2483.50	52.7 AV	54.0	-1.3	2.12 H	43	19.7	33.0
7	4874.00	51.5 PK	74.0	-22.5	1.50 H	230	47.5	4.0
8	4874.00	37.7 AV	54.0	-16.3	1.50 H	230	33.7	4.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	63.4 PK	74.0	-10.6	3.25 V	15	30.5	32.9
2	2390.00	50.2 AV	54.0	-3.8	3.25 V	15	17.3	32.9
3	*2437.00	106.7 PK			3.34 V	330	73.8	32.9
4	*2437.00	96.7 AV			3.34 V	330	63.8	32.9
5	2483.50	62.3 PK	74.0	-11.7	2.69 V	17	29.3	33.0
6	2483.50	49.8 AV	54.0	-4.2	2.69 V	17	16.8	33.0
7	4874.00	50.3 PK	74.0	-23.7	1.60 V	194	46.3	4.0
8	4874.00	37.1 AV	54.0	-16.9	1.60 V	194	33.1	4.0

Remarks:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	107.9 PK			1.69 H	32	75.0	32.9
2	*2452.00	97.5 AV			1.69 H	32	64.6	32.9
3	2483.50	67.9 PK	74.0	-6.1	1.48 H	33	34.9	33.0
4	2483.50	52.9 AV	54.0	-1.1	1.48 H	33	19.9	33.0
5	4904.00	47.5 PK	74.0	-26.5	1.89 H	300	43.5	4.0
6	4904.00	34.7 AV	54.0	-19.3	1.89 H	300	30.7	4.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	105.3 PK			3.72 V	4	72.4	32.9
2	*2452.00	95.4 AV			3.72 V	4	62.5	32.9
3	2483.50	66.1 PK	74.0	-7.9	3.11 V	317	33.1	33.0
4	2483.50	51.4 AV	54.0	-2.6	3.11 V	317	18.4	33.0
5	4904.00	48.0 PK	74.0	-26.0	2.72 V	225	44.0	4.0
6	4904.00	34.8 AV	54.0	-19.2	2.72 V	225	30.8	4.0

Remarks:

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

Below 1GHz worst-case data:

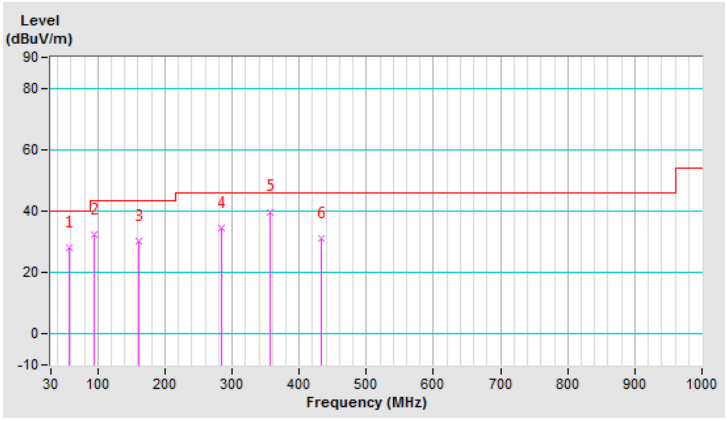
802.11g

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	B1

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	57.21	28.2 QP	40.0	-11.8	1.99 H	63	38.3	-10.1
2	94.15	32.3 QP	43.5	-11.2	1.99 H	232	46.6	-14.3
3	160.24	30.2 QP	43.5	-13.3	1.49 H	228	39.2	-9.0
4	284.65	34.6 QP	46.0	-11.4	1.00 H	6	42.3	-7.7
5	356.57	39.8 QP	46.0	-6.2	1.00 H	186	46.3	-6.5
6	432.38	30.9 QP	46.0	-15.1	1.99 H	287	35.4	-4.5

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. Margin value = Emission Level – Limit value
4. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

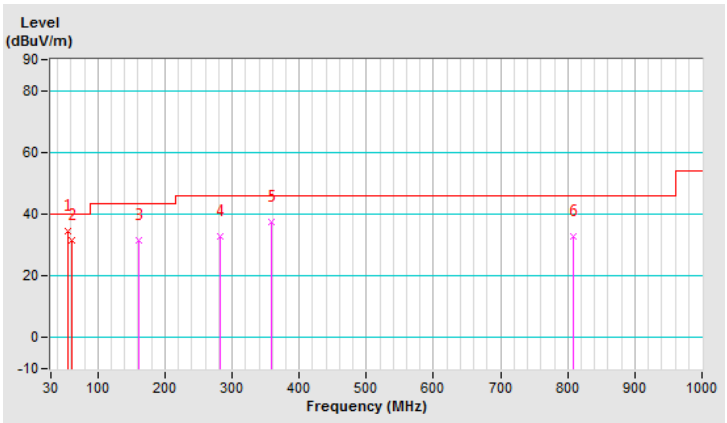


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	B1

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	54.56	34.6 QP	40.0	-5.4	1.00 V	6	44.5	-9.9
2	61.81	31.6 QP	40.0	-8.4	1.00 V	27	42.1	-10.5
3	160.24	31.6 QP	43.5	-11.9	1.00 V	304	40.6	-9.0
4	282.71	32.6 QP	46.0	-13.4	1.99 V	121	40.4	-7.8
5	358.52	37.4 QP	46.0	-8.6	1.00 V	150	43.8	-6.4
6	807.56	32.6 QP	46.0	-13.4	1.00 V	182	30.0	2.6

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. Margin value = Emission Level – Limit value
4. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

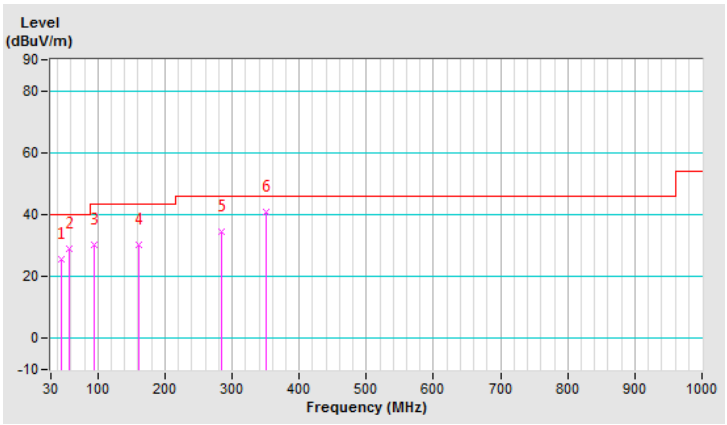


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	B2

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	45.55	25.8 QP	40.0	-14.2	2.00 H	22	35.6	-9.8
2	57.21	29.0 QP	40.0	-11.0	2.00 H	151	39.1	-10.1
3	94.15	30.4 QP	43.5	-13.1	2.00 H	211	44.7	-14.3
4	160.24	30.2 QP	43.5	-13.3	2.00 H	216	39.2	-9.0
5	284.65	34.6 QP	46.0	-11.4	1.51 H	9	42.3	-7.7
6	350.74	40.8 QP	46.0	-5.2	2.00 H	149	47.4	-6.6

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. Margin value = Emission Level – Limit value
4. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.

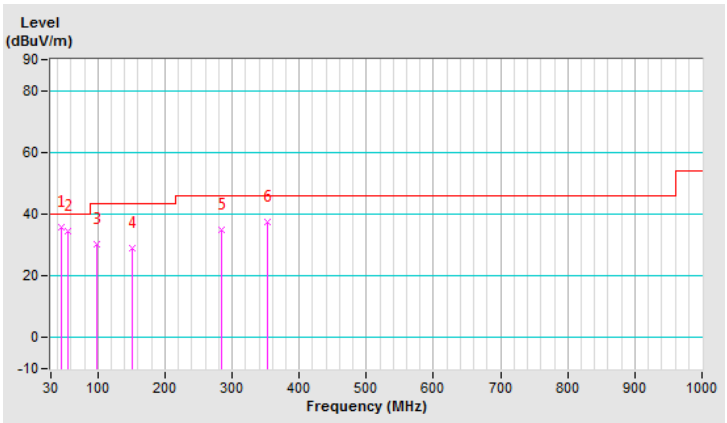


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz	TEST MODE	B2

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	45.55	35.7 QP	40.0	-4.3	1.50 V	12	45.5	-9.8
2	55.27	34.5 QP	40.0	-5.5	1.01 V	245	44.3	-9.8
3	98.04	30.3 QP	43.5	-13.2	1.01 V	106	44.3	-14.0
4	150.52	28.8 QP	43.5	-14.7	1.01 V	316	37.9	-9.1
5	284.65	35.0 QP	46.0	-11.0	1.50 V	141	42.7	-7.7
6	352.69	37.3 QP	46.0	-8.7	1.01 V	129	43.9	-6.6

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. Margin value = Emission Level – Limit value
4. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20dB below the permissible value to be report.



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: Aug. 03, 2019

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Dec. 10, 2018	Dec. 09, 2019
RF signal cable Woken	5D-FB	Cable-cond1-01	Sep. 05, 2018	Sep. 04, 2019
LISN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 21, 2019	Feb. 20, 2020
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 19, 2018	Aug. 18, 2019
Software ADT	BV ADT_Cond_ V7.3.7.4	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 1.
3. The VCCI Site Registration No. is C-12040.

4.2.3 Test Procedures

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

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

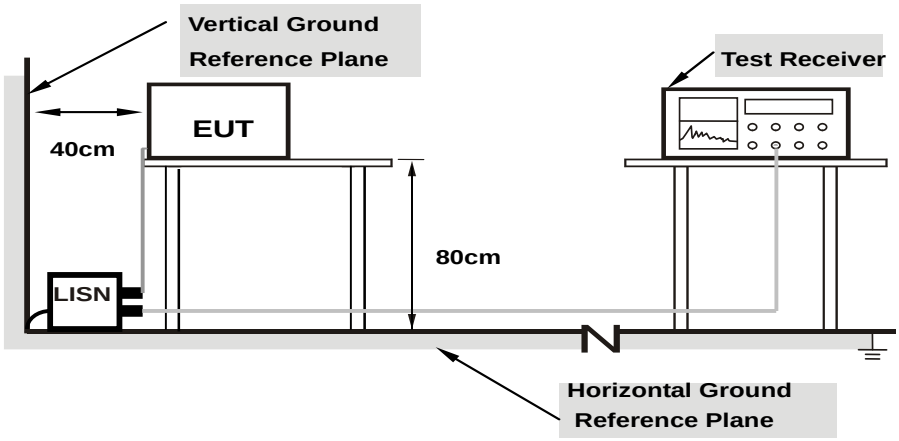
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 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

Radio 1

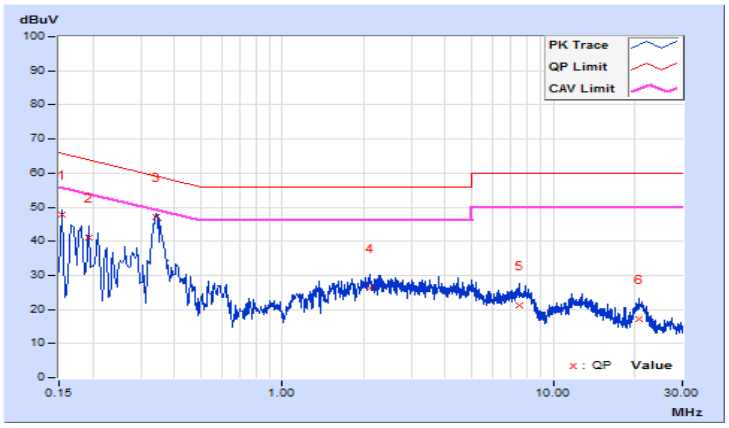
Worst-case data: 802.11n (HT20)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A1		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.84	37.99	23.16	47.83	33.00	65.79	55.79	-17.96	-22.79
2	0.19305	9.85	31.30	16.62	41.15	26.47	63.90	53.90	-22.75	-27.43
3	0.34198	9.87	37.39	30.38	47.26	40.25	59.16	49.16	-11.90	-8.91
4	2.11282	9.95	16.26	11.12	26.21	21.07	56.00	46.00	-29.79	-24.93
5	7.47734	10.10	11.13	6.03	21.23	16.13	60.00	50.00	-38.77	-33.87
6	20.64231	10.25	6.83	0.10	17.08	10.35	60.00	50.00	-42.92	-39.65

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.

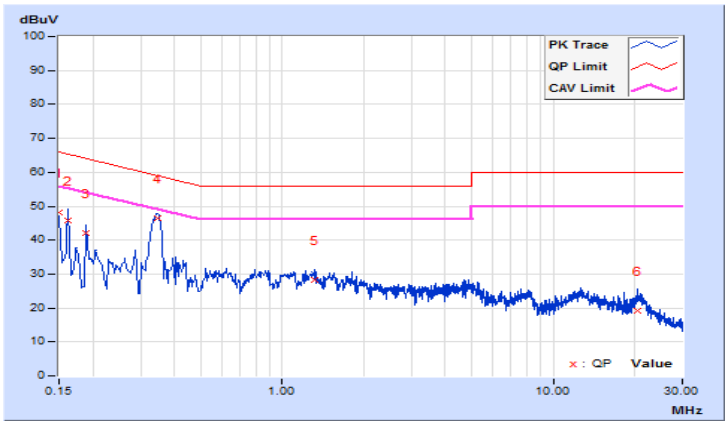


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A1		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.82	38.17	24.43	47.99	34.25	66.00	56.00	-18.01	-21.75
2	0.16173	9.82	36.07	19.28	45.89	29.10	65.37	55.37	-19.48	-26.27
3	0.18910	9.84	32.30	18.27	42.14	28.11	64.08	54.08	-21.94	-25.97
4	0.34560	9.86	36.45	29.57	46.31	39.43	59.07	49.07	-12.76	-9.64
5	1.32300	9.90	18.30	13.53	28.20	23.43	56.00	46.00	-27.80	-22.57
6	20.46245	10.31	8.72	2.86	19.03	13.17	60.00	50.00	-40.97	-36.83

Remarks:

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

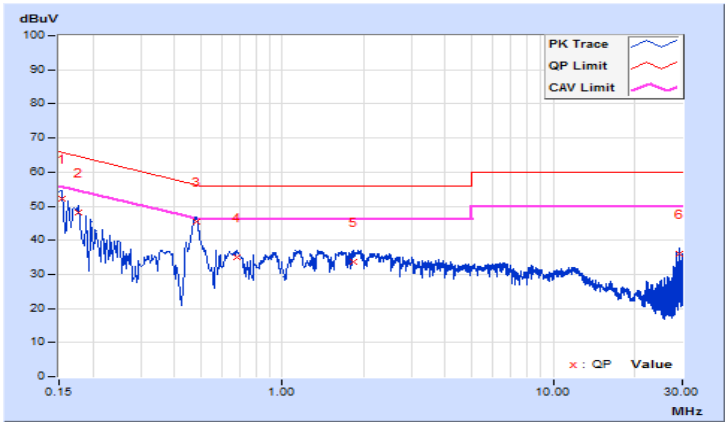


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A2		

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.69	42.57	28.87	52.26	38.56	65.79	55.79	-13.53	-17.23
2	0.17737	9.68	38.40	24.50	48.08	34.18	64.61	54.61	-16.53	-20.43
3	**0.48235**	**9.68**	**35.80**	**31.24**	**45.48**	**40.92**	**56.30**	**46.30**	**-10.82**	**-5.38**
4	0.67785	9.68	25.21	20.13	34.89	29.81	56.00	46.00	-21.11	-16.19
5	1.82719	9.69	24.03	18.83	33.72	28.52	56.00	46.00	-22.28	-17.48
6	29.33033	9.95	26.21	22.31	36.16	32.26	60.00	50.00	-23.84	-17.74

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.

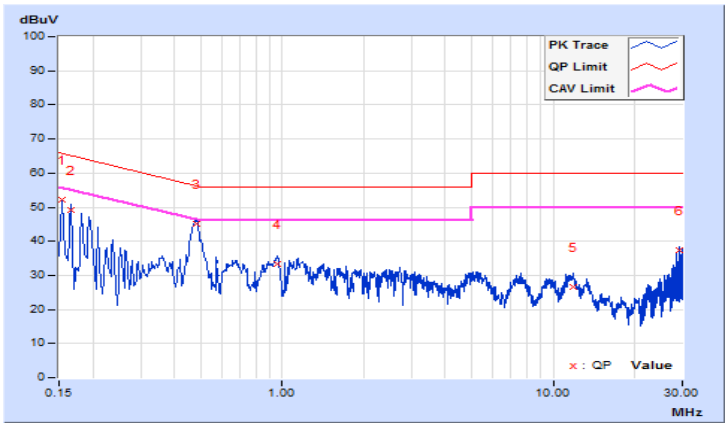


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A2		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.66	42.51	28.53	52.17	38.19	65.79	55.79	-13.62	-17.60
2	0.16564	9.66	39.64	25.06	49.30	34.72	65.18	55.18	-15.88	-20.46
3	0.48041	9.65	35.63	30.95	45.28	40.60	56.33	46.33	-11.05	-5.73
4	0.95561	9.64	23.62	19.83	33.26	29.47	56.00	46.00	-22.74	-16.53
5	11.80180	9.88	16.79	11.68	26.67	21.56	60.00	50.00	-33.33	-28.44
6	29.33424	10.04	27.17	25.49	37.21	35.53	60.00	50.00	-22.79	-14.47

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.



Radio 3

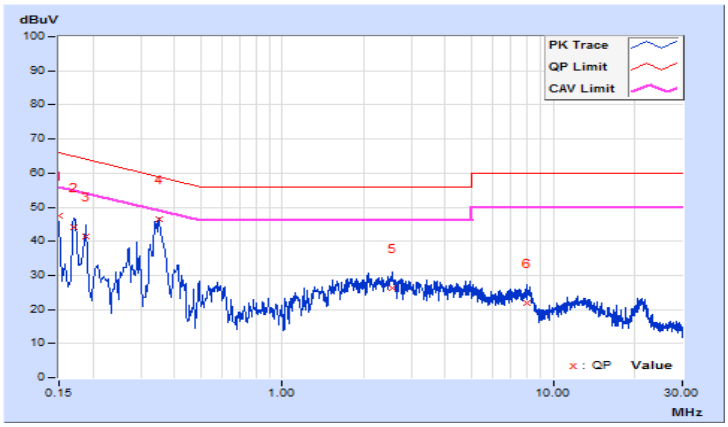
Worst-case data: 802.11g

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B1		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.84	37.77	23.33	47.61	33.17	66.00	56.00	-18.39	-22.83
2	0.16967	9.84	34.25	18.02	44.09	27.86	64.98	54.98	-20.89	-27.12
3	0.18903	9.85	31.68	16.52	41.53	26.37	64.08	54.08	-22.55	-27.71
4	0.34926	9.87	36.70	29.49	46.57	39.36	58.98	48.98	-12.41	-9.62
5	2.53901	9.97	16.33	11.11	26.30	21.08	56.00	46.00	-29.70	-24.92
6	8.04038	10.11	11.85	6.74	21.96	16.85	60.00	50.00	-38.04	-33.15

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.

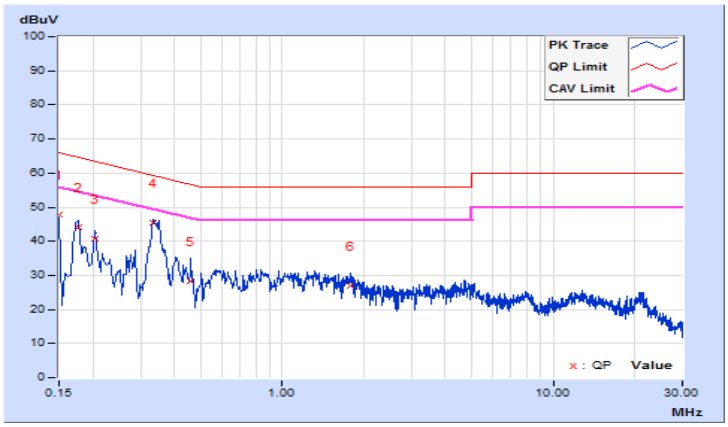


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B1		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.82	38.07	24.36	47.89	34.18	66.00	56.00	-18.11	-21.82
2	0.17605	9.83	34.11	21.75	43.94	31.58	64.67	54.67	-20.73	-23.09
3	0.20458	9.84	30.85	19.30	40.69	29.14	63.42	53.42	-22.73	-24.28
4	0.33396	9.86	35.50	28.58	45.36	38.44	59.35	49.35	-13.99	-10.91
5	0.45889	9.87	18.31	12.15	28.18	22.02	56.71	46.71	-28.53	-24.69
6	1.78047	9.92	17.09	11.74	27.01	21.66	56.00	46.00	-28.99	-24.34

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.

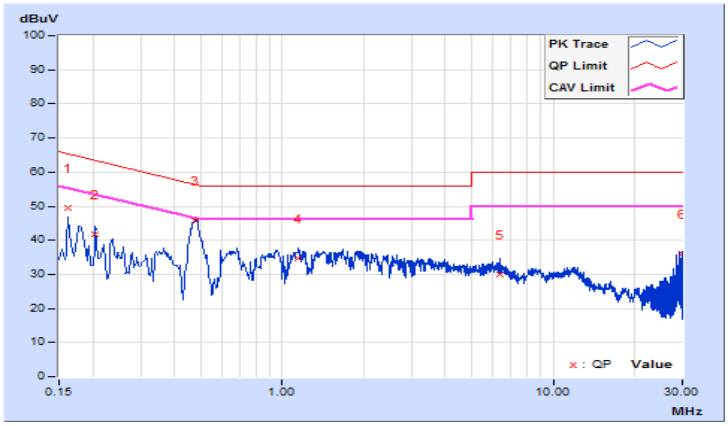


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B2		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16181	9.69	39.97	25.81	49.66	35.50	65.37	55.37	-15.71	-19.87
2	0.20474	9.68	32.15	19.63	41.83	29.31	63.42	53.42	-21.59	-24.11
3	0.47789	9.68	36.01	30.85	45.69	40.53	56.38	46.38	-10.69	-5.85
4	1.14705	9.67	25.12	21.52	34.79	31.19	56.00	46.00	-21.21	-14.81
5	6.37863	9.80	20.22	14.91	30.02	24.71	60.00	50.00	-29.98	-25.29
6	29.82690	9.95	26.13	24.22	36.08	34.17	60.00	50.00	-23.92	-15.83

Remarks:

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

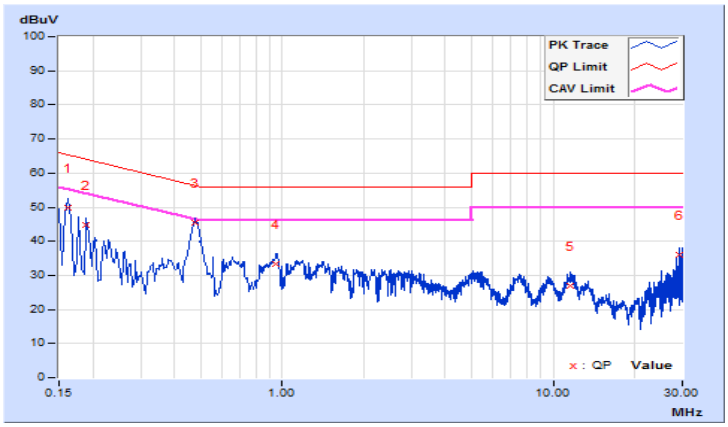


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B2		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16173	9.66	40.26	25.42	49.92	35.08	65.37	55.37	-15.45	-20.29
2	0.18910	9.66	35.05	20.87	44.71	30.53	64.08	54.08	-19.37	-23.55
3	0.47844	9.65	35.67	30.71	45.32	40.36	56.37	46.37	-11.05	-6.01
4	0.95059	9.64	23.63	19.95	33.27	29.59	56.00	46.00	-22.73	-16.41
5	11.52810	9.87	17.00	11.95	26.87	21.82	60.00	50.00	-33.13	-28.18
6	29.32642	10.04	26.15	23.41	36.19	33.45	60.00	50.00	-23.81	-16.55

Remarks:

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

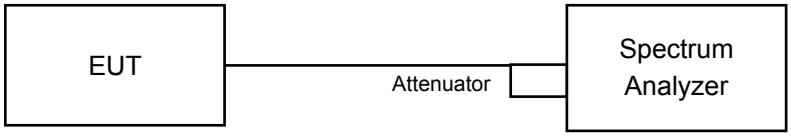


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

a. Set resolution bandwidth (RBW) = 100kHz.
b. Set the video bandwidth (VBW) ≥ 3 x RBW, Detector = peak.
c. Trace mode = max hold.
d. Sweep = auto couple.
e. Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

4.3.5 Deviation fromTest 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

Mode A2: Radio 1

802.11b

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

802.11g

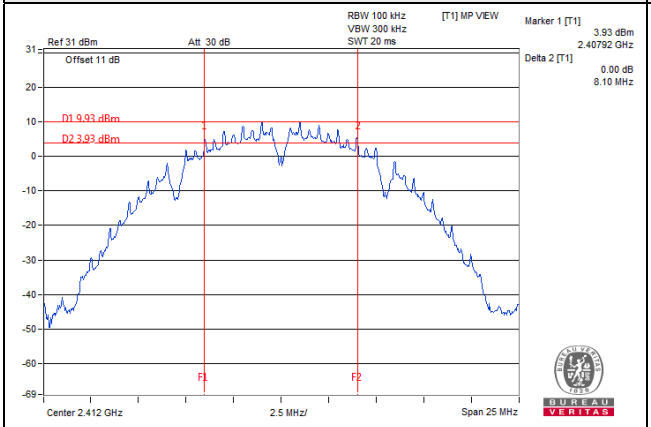
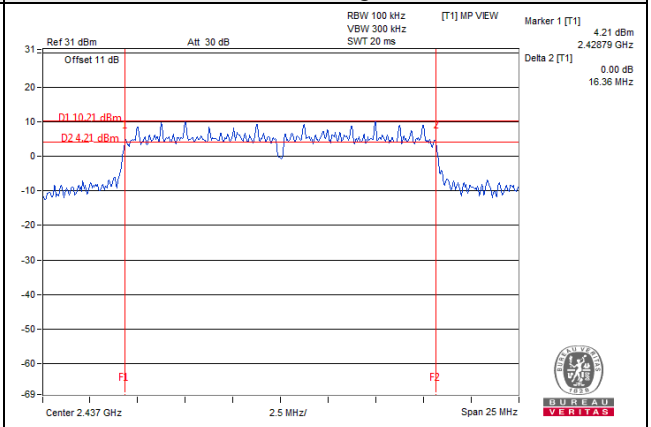
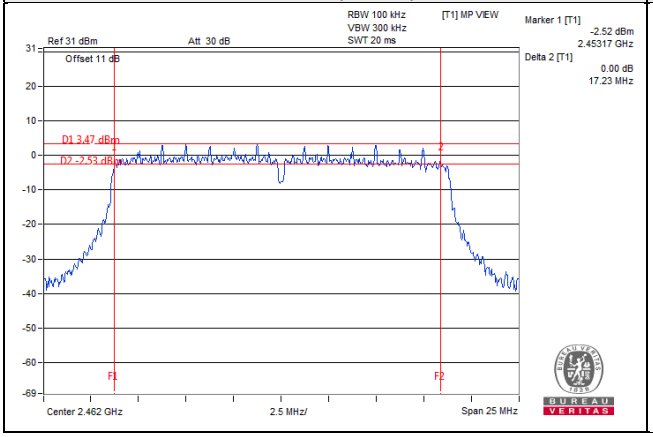
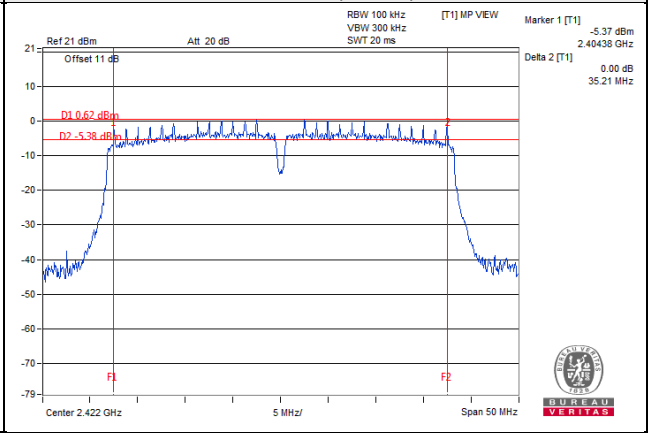
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.37	16.39	0.5	Pass
6	2437	16.36	16.39	0.5	Pass
11	2462	16.38	16.40	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.61	17.60	0.5	Pass
6	2437	17.63	17.62	0.5	Pass
11	2462	17.23	17.62	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.22	35.21	0.5	Pass
6	2437	35.28	35.25	0.5	Pass
9	2452	35.30	35.26	0.5	Pass

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

Mode B2: Radio 3

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	9.64	9.64	0.5	Pass
6	2437	11.11	9.63	0.5	Pass
11	2462	10.08	10.13	0.5	Pass

802.11g

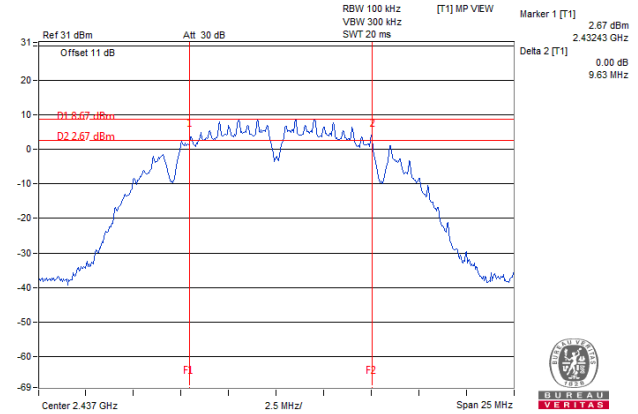
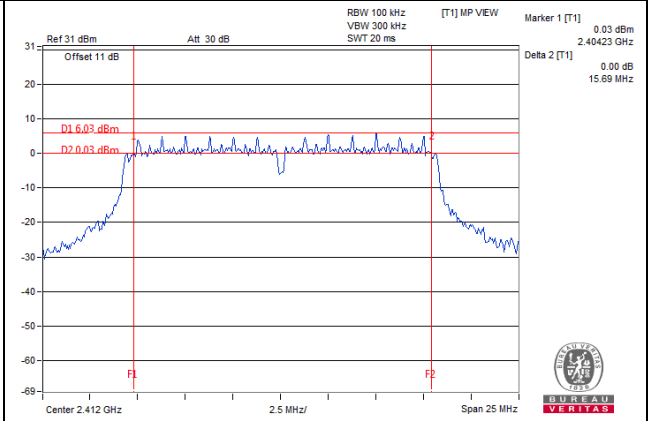
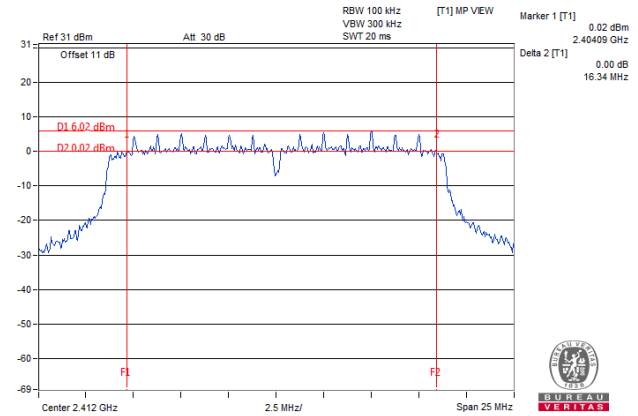
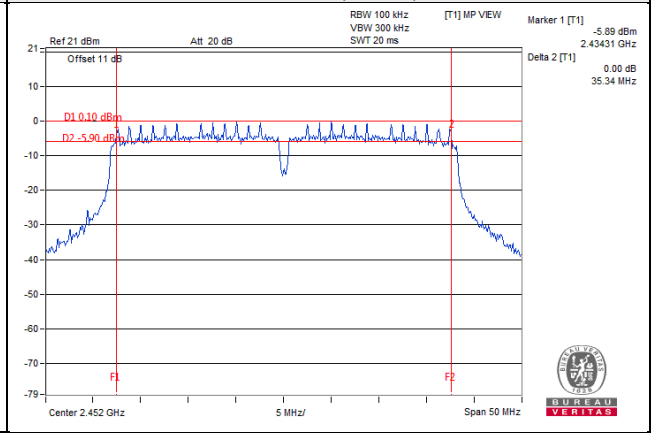
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.69	16.10	0.5	Pass
6	2437	16.33	15.97	0.5	Pass
11	2462	16.10	16.14	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.34	16.85	0.5	Pass
6	2437	16.97	17.19	0.5	Pass
11	2462	16.83	17.20	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.51	35.34	0.5	Pass
6	2437	35.53	35.75	0.5	Pass
9	2452	35.34	35.48	0.5	Pass

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

4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

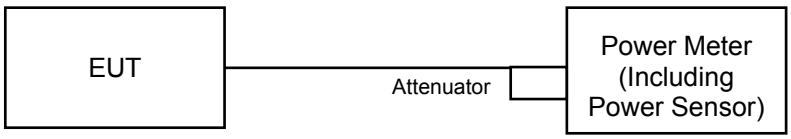
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

Per KDB 662911 D01 Multiple Transmitter Output Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

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

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

Average power sensor was used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

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

Mode A2: Radio 1

CDD Mode

802.11b

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	18.90	18.81	153.658	21.87	30	Pass
6	2437	20.02	20.20	205.175	23.12	30	Pass
11	2462	19.25	18.83	160.524	22.06	30	Pass

802.11g

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	16.98	17.19	102.248	20.10	30	Pass
6	2437	21.55	21.64	288.770	24.61	30	Pass
11	2462	15.35	15.28	68.006	18.33	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				
1	2412	17.01	17.04	100.816	20.04	30	Pass
6	2437	21.63	21.57	**289.095**	24.61	30	Pass
11	2462	15.37	15.01	66.131	18.20	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				
3	2422	15.18	15.02	64.730	18.11	30	Pass
6	2437	17.85	17.69	119.703	20.78	30	Pass
9	2452	14.81	14.73	59.986	17.78	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				
1	2412	14.00	14.03	50.412	17.03	28.29	Pass
6	2437	18.62	18.56	**144.557**	21.60	28.29	Pass
11	2462	12.36	12.00	33.068	15.19	28.29	Pass

Note: Max. Beamforming Gain = 4.70dBi + 10log(2) = 7.71dBi > 6dBi, so the limit shall be reduced to 30-(7.71-6) = 28.29dBm.

802.11n (HT40)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	12.17	12.01	32.367	15.10	28.29	Pass
6	2437	14.84	14.68	59.855	17.77	28.29	Pass
9	2452	11.80	11.72	29.995	14.77	28.29	Pass

Note: Max. Beamforming Gain = 4.70dBi + 10log(2) = 7.71dBi > 6dBi, so the limit shall be reduced to 30-(7.71-6) = 28.29dBm.

Mode B2: Radio 3

CDD Mode

802.11b

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	19.08	19.13	162.756	22.12	30	Pass
6	2437	18.01	17.95	125.614	20.99	30	Pass
11	2462	18.04	17.66	122.025	20.86	30	Pass

802.11g

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	16.69	16.85	95.083	19.78	30	Pass
6	2437	21.18	21.09	**259.749**	24.15	30	Pass
11	2462	15.38	15.21	67.703	18.31	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				
1	2412	16.69	16.75	93.981	19.73	30	Pass
6	2437	21.11	21.02	255.596	24.08	30	Pass
11	2462	14.81	14.65	59.443	17.74	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				
3	2422	14.71	14.75	59.434	17.74	30	Pass
6	2437	16.65	16.35	89.390	19.51	30	Pass
9	2452	14.35	14.07	52.754	17.22	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				
1	2412	13.68	13.74	46.994	16.72	27.39	Pass
6	2437	18.10	18.01	**127.806**	21.07	27.39	Pass
11	2462	11.80	11.64	29.724	14.73	27.39	Pass

Note: Max. Beamforming Gain = 5.6dBi + 10log(2) = 8.61dBi > 6dBi, so the limit shall be reduced to 30-(8.61-6) = 27.39dBm.

802.11n (HT40)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	11.70	11.74	29.719	14.73	27.39	Pass
6	2437	13.64	13.34	44.698	16.50	27.39	Pass
9	2452	11.34	11.06	26.378	14.21	27.39	Pass

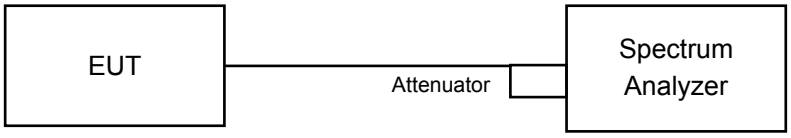
Note: Max. Beamforming Gain = 5.6dBi + 10log(2) = 8.61dBi > 6dBi, so the limit shall be reduced to 30-(8.61-6) = 27.39dBm.

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm in any 3 kHz band during any time interval of continuous transmission.

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 Average Power (Duty cycle ≥ 98%)
a) Set instrument center frequency to DTS channel center frequency.
b) Set span to at least 1.5 times the OBW.
c) Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d) Set VBW ≥3 x RBW.
e) Detector = power averaging (RMS) or sample detector (when RMS not available).
f) Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.
g) Sweep time = auto couple.
h) Employ trace averaging (RMS) mode over a minimum of 100 traces.
i) Use the peak marker function to determine the maximum amplitude level.

For Average Power (Duty cycle < 98%)
a) Measure the duty cycle (x).
b) Set instrument center frequency to DTS channel center frequency.
c) Set span to at least 1.5 times the OBW.
d) Set RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
e) Set VBW ≥3 x RBW.
f) Detector = power averaging (RMS) or sample detector (when RMS not available).
g) Ensure that the number of measurement points in the sweep ≥ 2 x span/RBW.
h) Sweep time = auto couple.
i) Do not use sweep triggering. Allow sweep to “free run”.
j) Employ trace averaging (RMS) mode over a minimum of 100 traces.
k) Use the peak marker function to determine the maximum amplitude level.
l) Add 10 log (1/x), where x is the duty cycle measured in step (a, to the measured PSD to compute the average PSD during the actual transmission time.

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as item 4.3.6.

4.5.7 Test Results

Mode A2: Radio 1

802.11b

TX chain	Channel	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Total PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-9.27	3.01	-6.26	6.29	Pass
	6	2437	-7.46	3.01	-4.45	6.29	Pass
	11	2462	-8.61	3.01	-5.60	6.29	Pass
1	1	2412	-9.27	3.01	-6.26	6.29	Pass
	6	2437	-7.97	3.01	-4.96	6.29	Pass
	11	2462	-8.70	3.01	-5.69	6.29	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Max. Directional Gain = 4.7dBi + 10log(2) = 7.71dBi > 6dBi, so the limit shall be reduced to 8-(7.71-6) = 6.29dBm.

802.11g

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/10kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-14.43	3.01	0.22	-11.20	6.29	Pass
	6	2437	-10.29	3.01	0.22	-7.06	6.29	Pass
	11	2462	-16.39	3.01	0.22	-13.16	6.29	Pass
1	1	2412	-14.26	3.01	0.22	-11.03	6.29	Pass
	6	2437	-9.67	3.01	0.22	-6.44	6.29	Pass
	11	2462	-15.74	3.01	0.22	-12.51	6.29	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Max. Directional Gain = 4.7dBi + 10log(2) = 7.71dBi > 6dBi, so the limit shall be reduced to 8-(7.71-6) = 6.29dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/10kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-14.06	3.01	0.11	-10.94	6.29	Pass
	6	2437	-9.91	3.01	0.11	-6.79	6.29	Pass
	11	2462	-15.22	3.01	0.11	-12.10	6.29	Pass
1	1	2412	-13.42	3.01	0.11	-10.30	6.29	Pass
	6	2437	-8.74	3.01	0.11	-5.62	6.29	Pass
	11	2462	-15.36	3.01	0.11	-12.24	6.29	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Max. Directional Gain = 4.7dBi + 10log(2) = 7.71dBi > 6dBi, so the limit shall be reduced to 8-(7.71-6) = 6.29dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

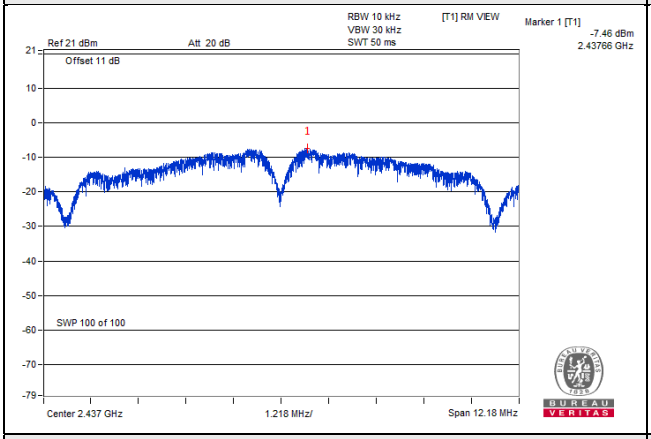
802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/10kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass /Fail
0	3	2422	-17.65	3.01	0.17	-14.47	6.29	Pass
	6	2437	-15.70	3.01	0.17	-12.52	6.29	Pass
	9	2452	-18.42	3.01	0.17	-15.24	6.29	Pass
1	3	2422	-17.99	3.01	0.17	-14.81	6.29	Pass
	6	2437	-15.51	3.01	0.17	-12.33	6.29	Pass
	9	2452	-18.55	3.01	0.17	-15.37	6.29	Pass

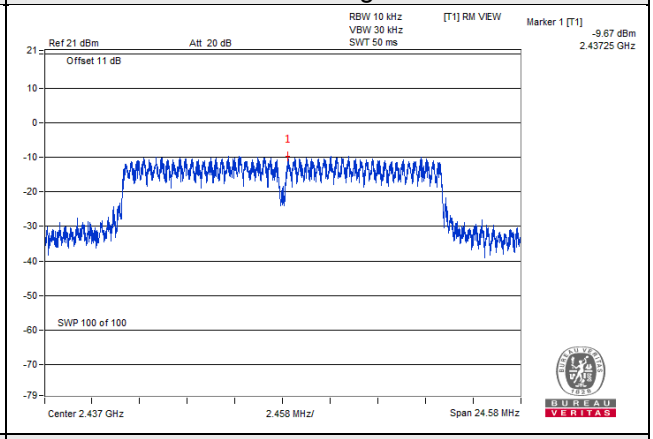
Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Max. Directional Gain = 4.7dBi + 10log(2) = 7.71dBi > 6dBi, so the limit shall be reduced to 8-(7.71-6) = 6.29dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

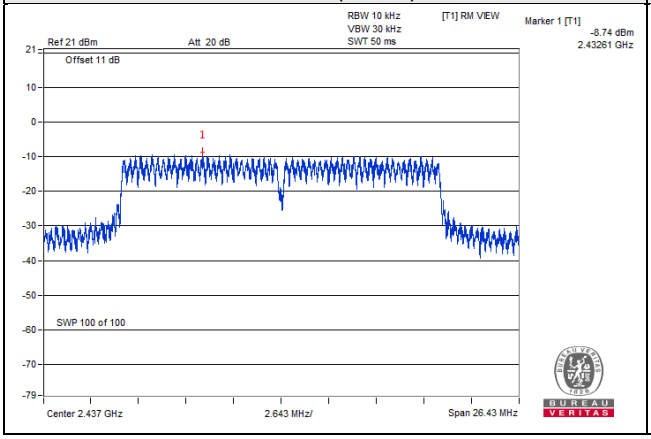
802.11b



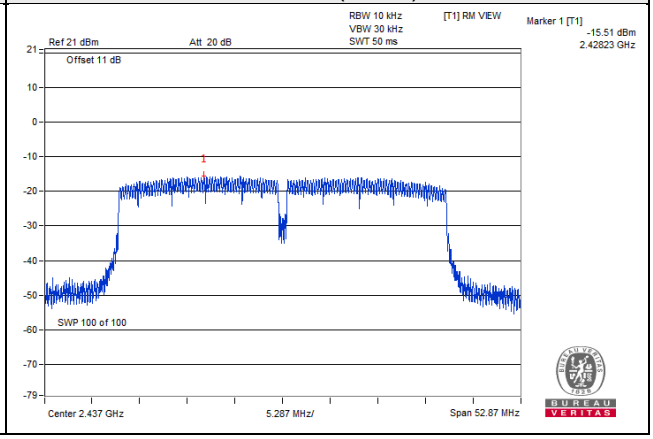
802.11g



802.11n (HT20)



802.11n (HT40)



Mode B2: Radio 3

802.11b

TX chain	Channel	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Total PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-10.00	3.01	-6.99	5.39	Pass
	6	2437	-11.22	3.01	-8.21	5.39	Pass
	11	2462	-11.29	3.01	-8.28	5.39	Pass
1	1	2412	-9.91	3.01	-6.90	5.39	Pass
	6	2437	-11.59	3.01	-8.58	5.39	Pass
	11	2462	-11.26	3.01	-8.25	5.39	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Max. Directional Gain = 5.6dBi + 10log(2) = 8.61dBi > 6dBi, so the limit shall be reduced to 8-(8.61-6) = 5.39dBm.

802.11g

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/10kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-15.35	3.01	0.23	-12.11	5.39	Pass
	6	2437	-10.30	3.01	0.23	-7.06	5.39	Pass
	11	2462	-16.14	3.01	0.23	-12.90	5.39	Pass
1	1	2412	-14.13	3.01	0.23	-10.89	5.39	Pass
	6	2437	-9.98	3.01	0.23	-6.74	5.39	Pass
	11	2462	-16.20	3.01	0.23	-12.96	5.39	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Max. Directional Gain = 5.6dBi + 10log(2) = 8.61dBi > 6dBi, so the limit shall be reduced to 8-(8.61-6) = 5.39dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/10kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-14.76	3.01	0.23	-11.52	5.39	Pass
	6	2437	-9.83	3.01	0.23	-6.59	5.39	Pass
	11	2462	-16.93	3.01	0.23	-13.69	5.39	Pass
1	1	2412	-15.24	3.01	0.23	-12.00	5.39	Pass
	6	2437	-10.56	3.01	0.23	-7.32	5.39	Pass
	11	2462	-16.81	3.01	0.23	-13.57	5.39	Pass

Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Max. Directional Gain = 5.6dBi + 10log(2) = 8.61dBi > 6dBi, so the limit shall be reduced to 8-(8.61-6) = 5.39dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

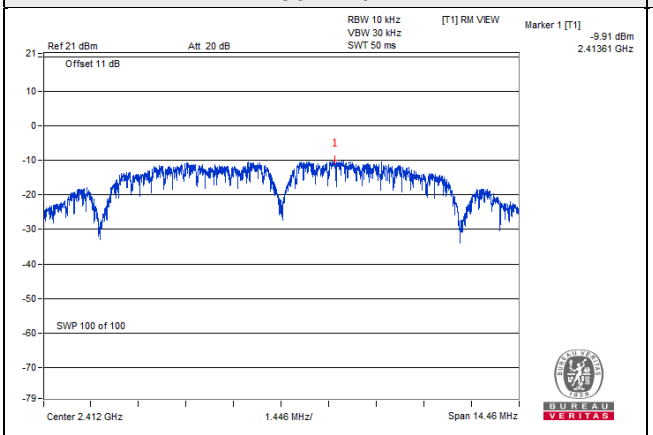
802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/10kHz)	10 log (N=2) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass /Fail
0	3	2422	-20.73	3.01	0.32	-17.40	5.39	Pass
	6	2437	-19.05	3.01	0.32	-15.72	5.39	Pass
	9	2452	-21.28	3.01	0.32	-17.95	5.39	Pass
1	3	2422	-20.43	3.01	0.32	-17.10	5.39	Pass
	6	2437	-18.94	3.01	0.32	-15.61	5.39	Pass
	9	2452	-20.50	3.01	0.32	-17.17	5.39	Pass

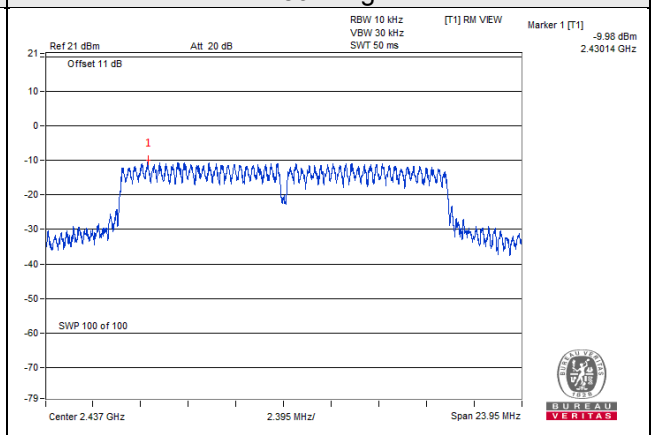
Note:
1. Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density.
2. Max. Directional Gain = 5.6dBi + 10log(2) = 8.61dBi > 6dBi, so the limit shall be reduced to 8-(8.61-6) = 5.39dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

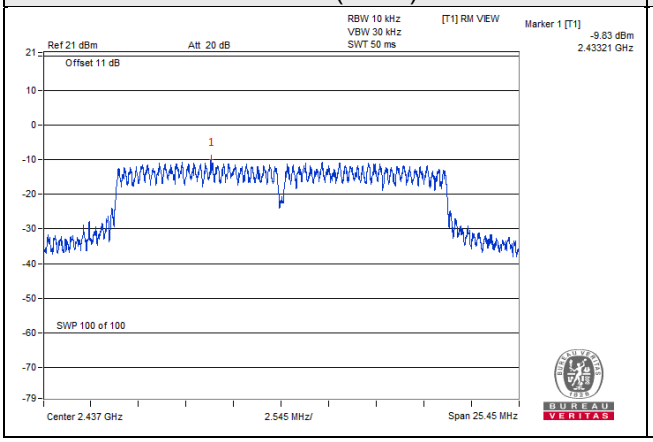
802.11b



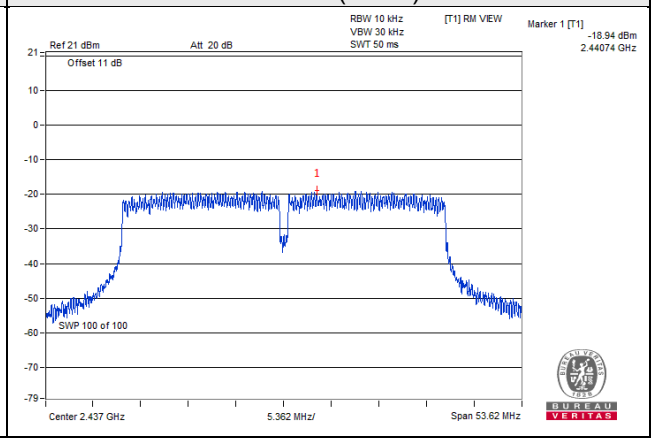
802.11g



802.11n (HT20)



802.11n (HT40)

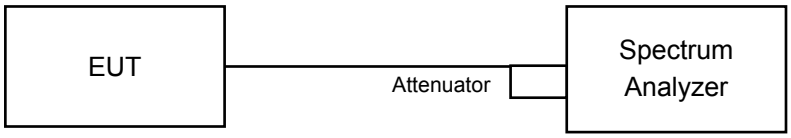


4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOBE

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

Same as item 4.3.6.

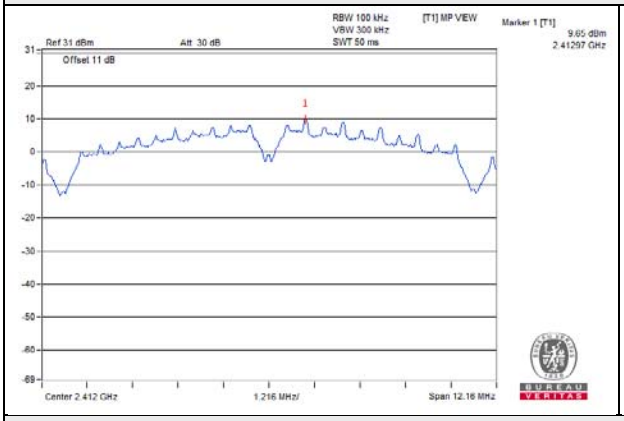
4.6.7 Test Results

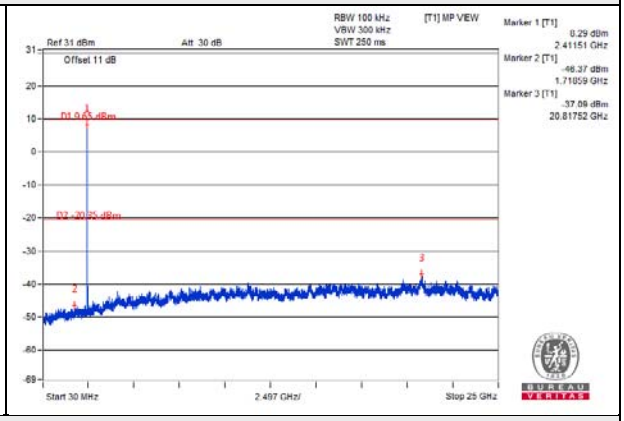
The conducted emission test is performed on each TX port of operating mode without summing or adding 10log (N) since the limit is relative emission limit.
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows compliance with the requirement.

Mode A2: Radio 1

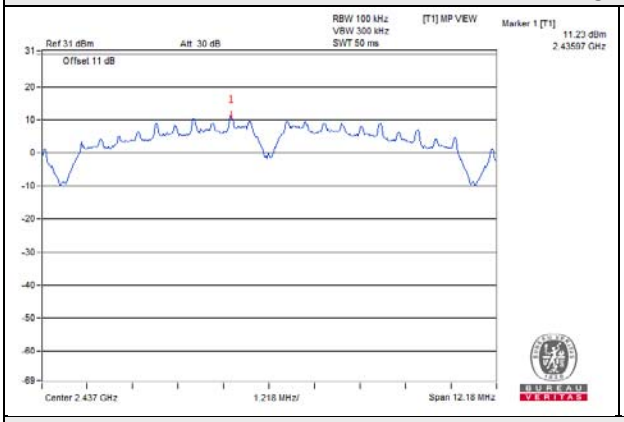
802.11b_Chain 0

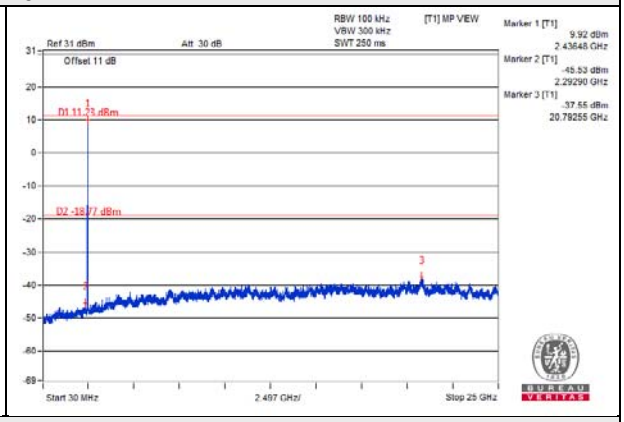
CH 1



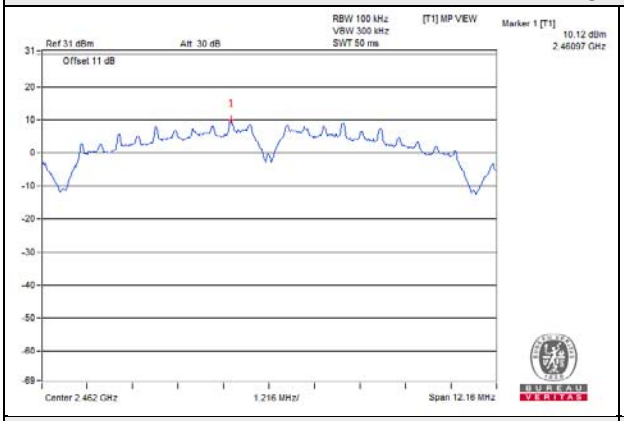


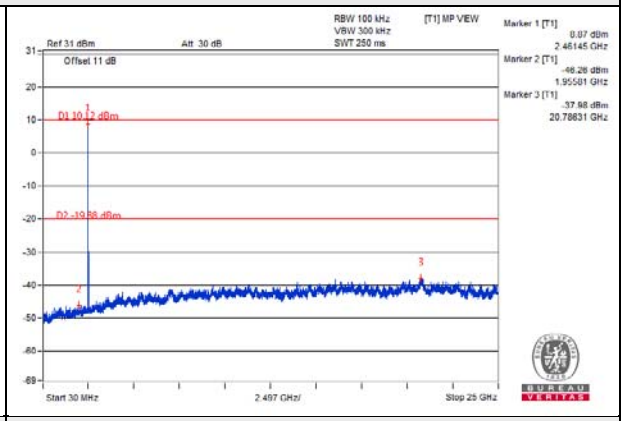
CH 6



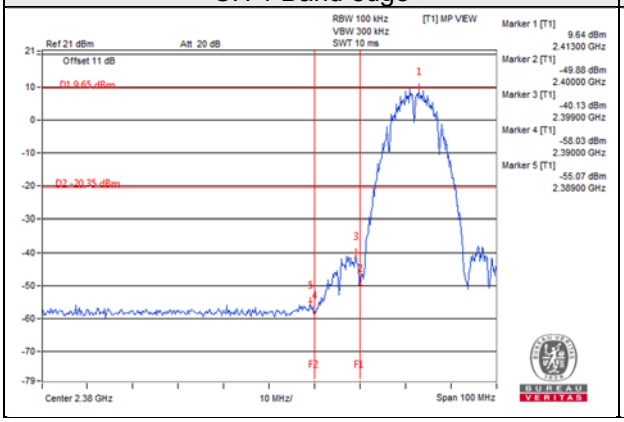


CH 11

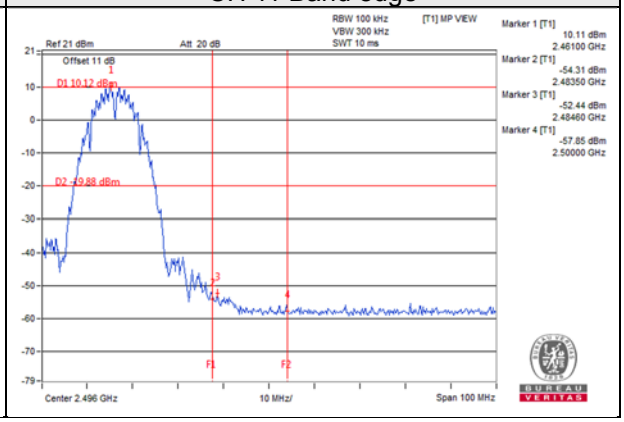




CH 1 Band edge

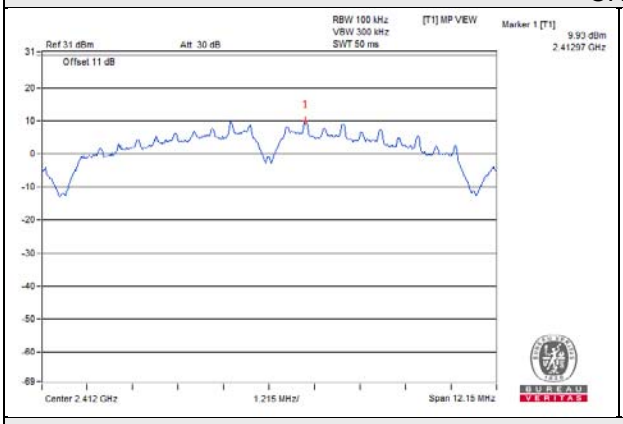


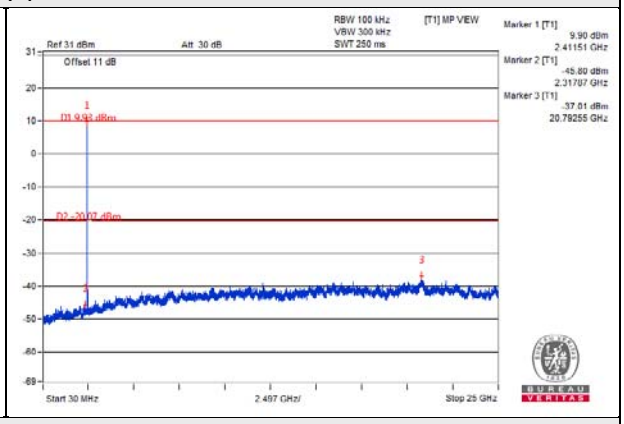
CH 11 Band edge



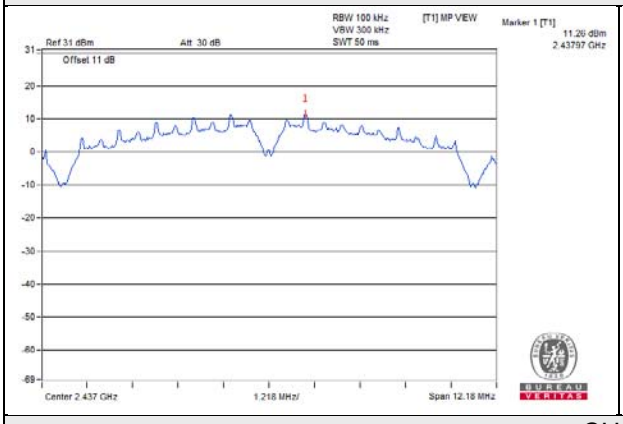
802.11b_Chain 1

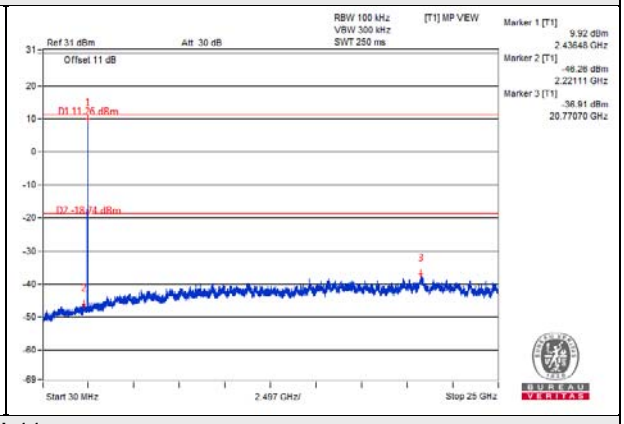
CH 1



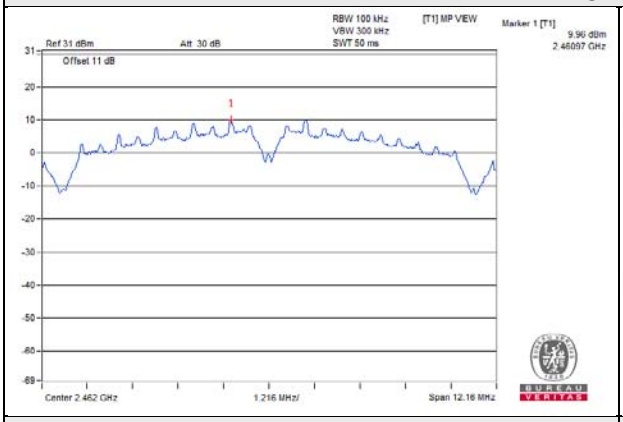


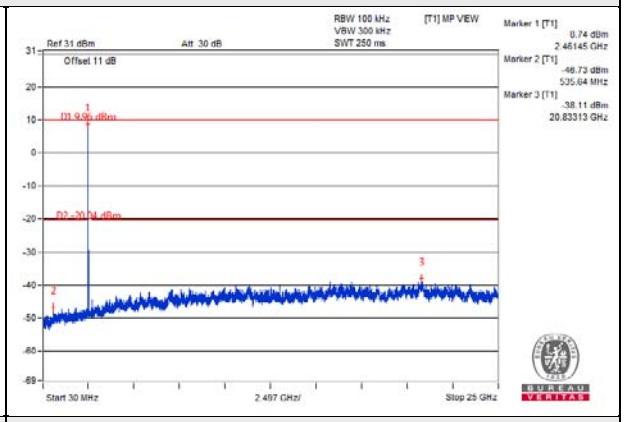
CH 6



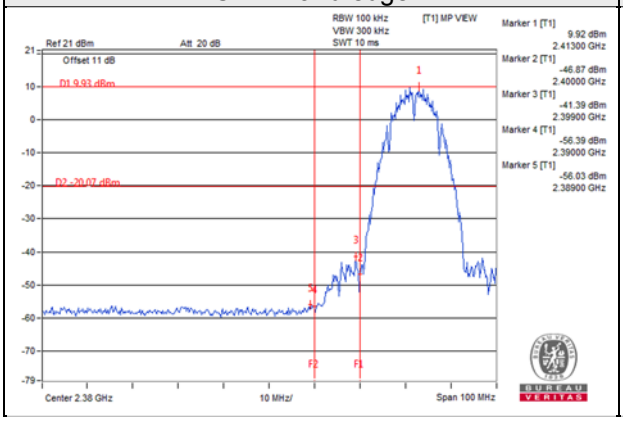


CH 11

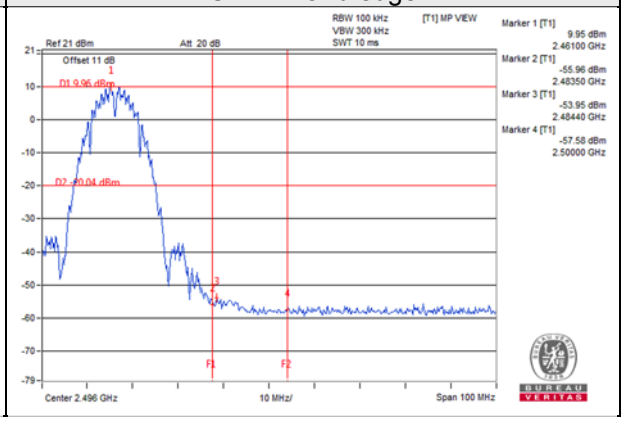




CH 1 Band edge

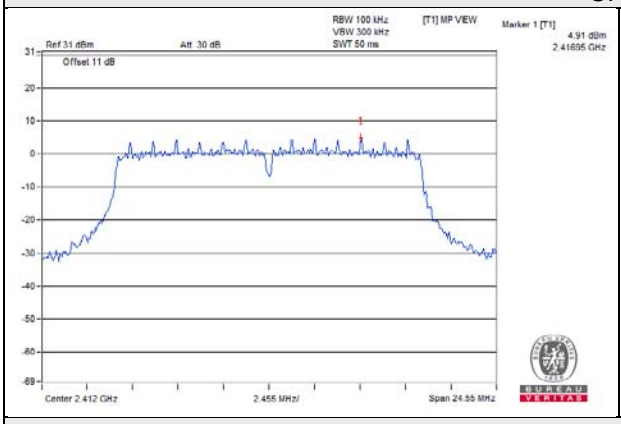


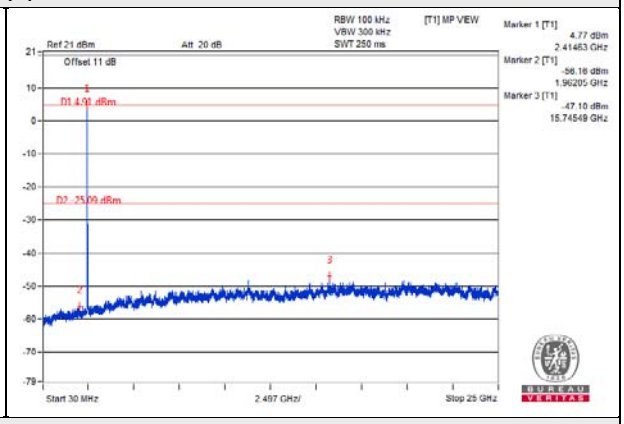
CH 11 Band edge



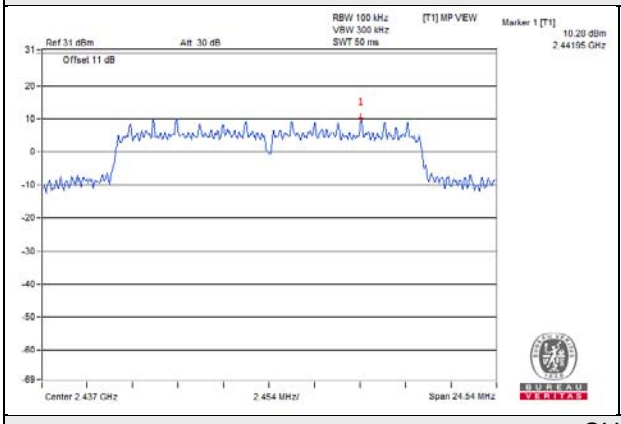
802.11g_Chain 0

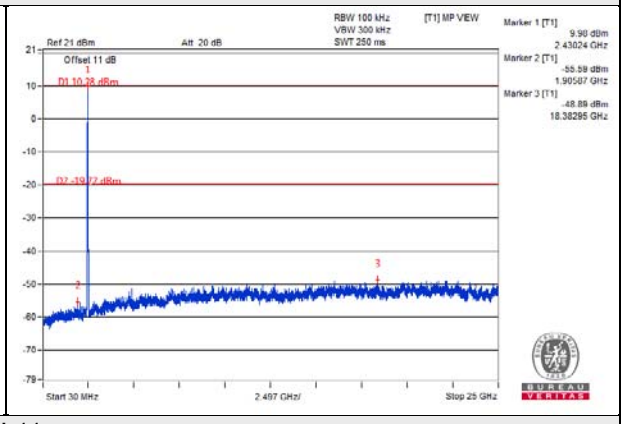
CH 1



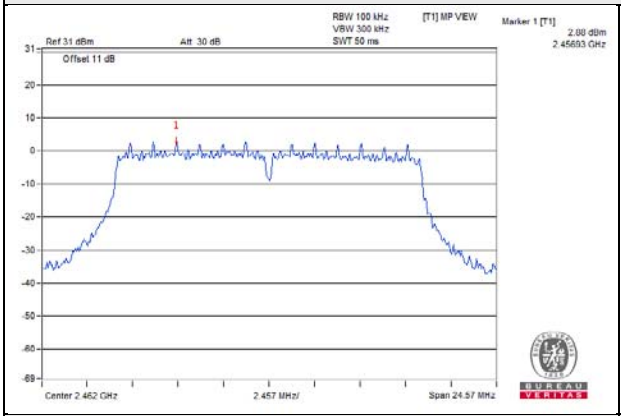


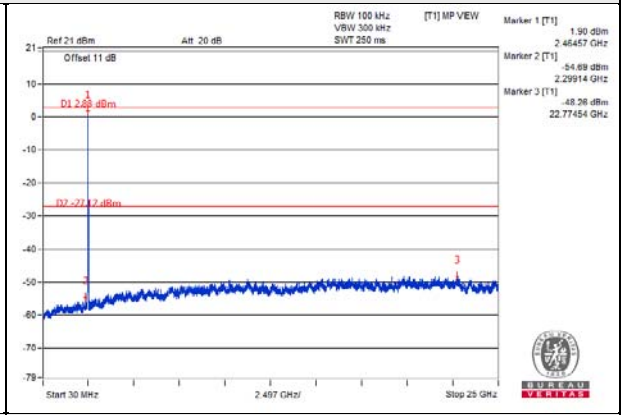
CH 6



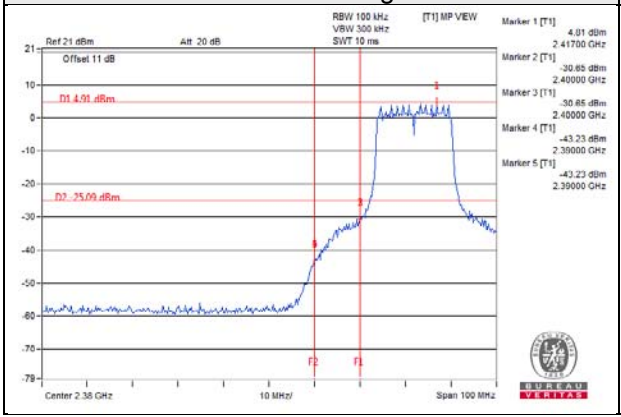


CH 11

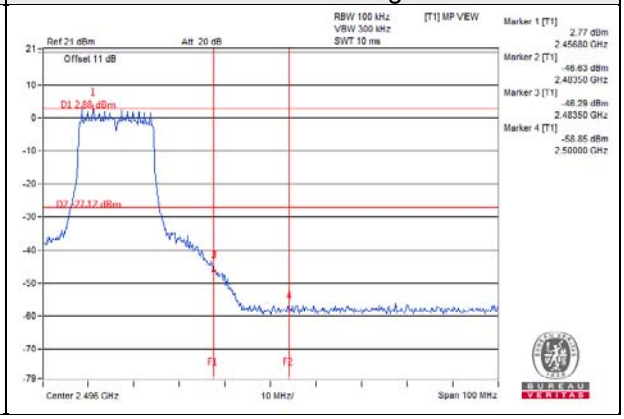




CH 1 Band edge

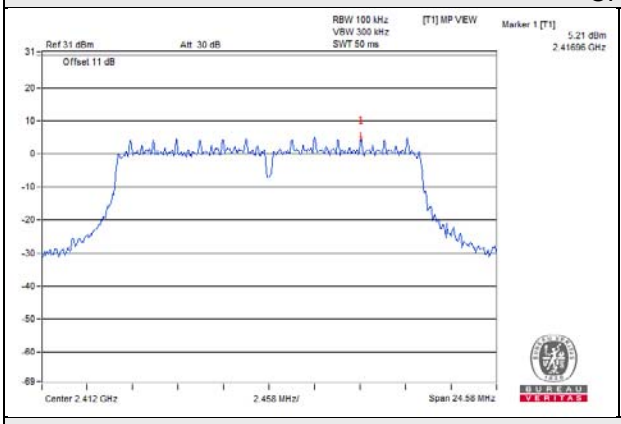


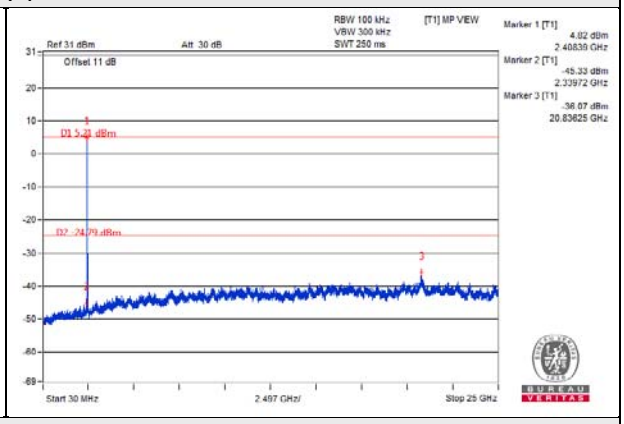
CH 11 Band edge



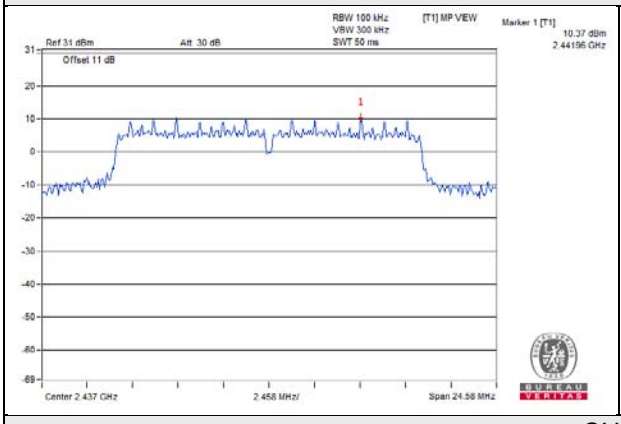
802.11g_Chain 1

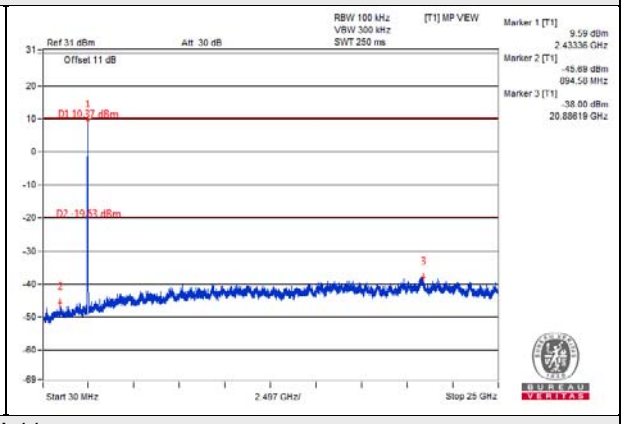
CH 1



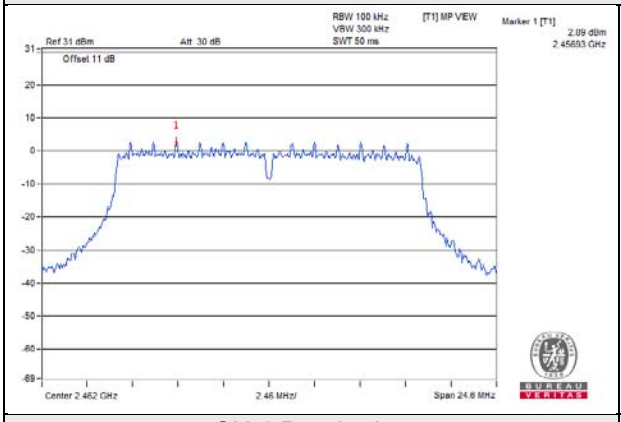


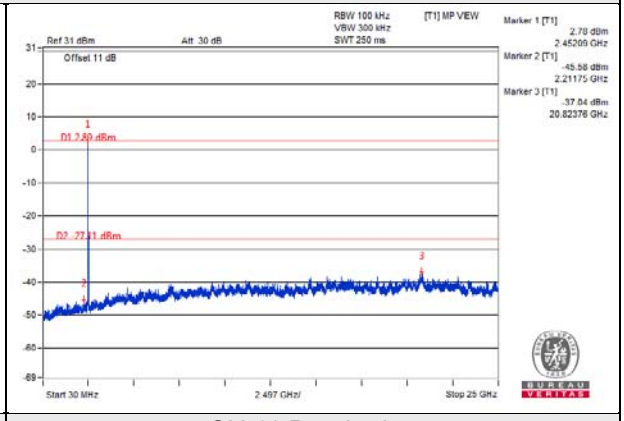
CH 6



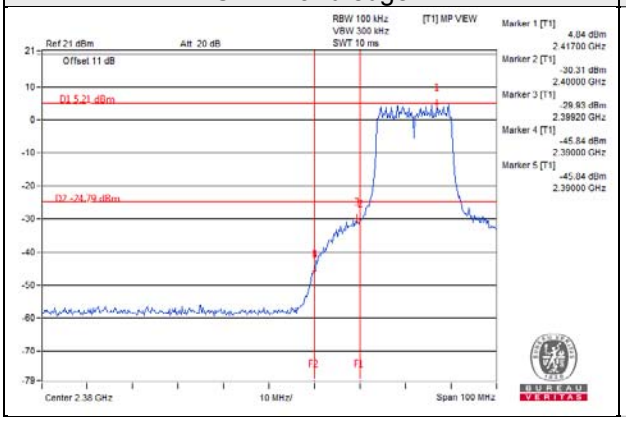


CH 11

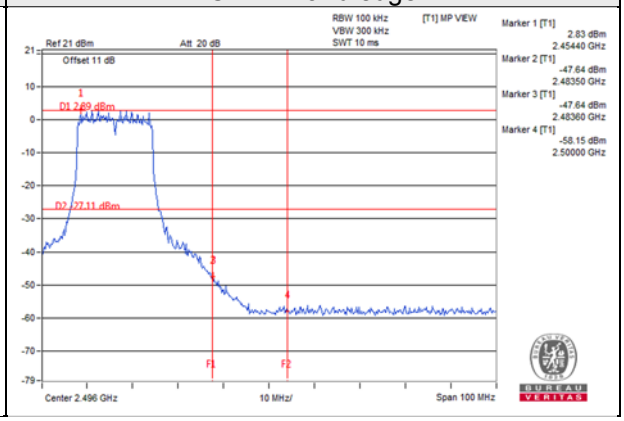




CH 1 Band edge

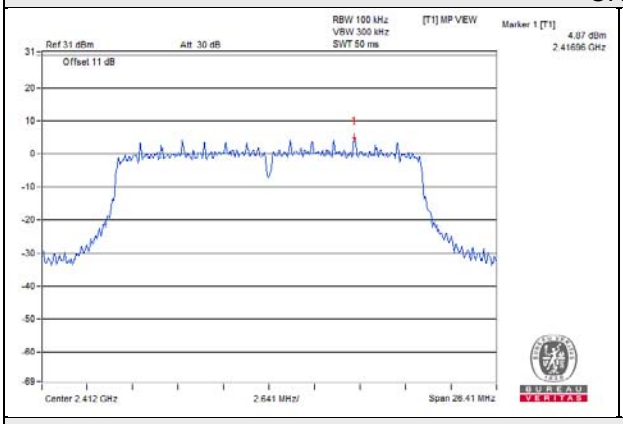


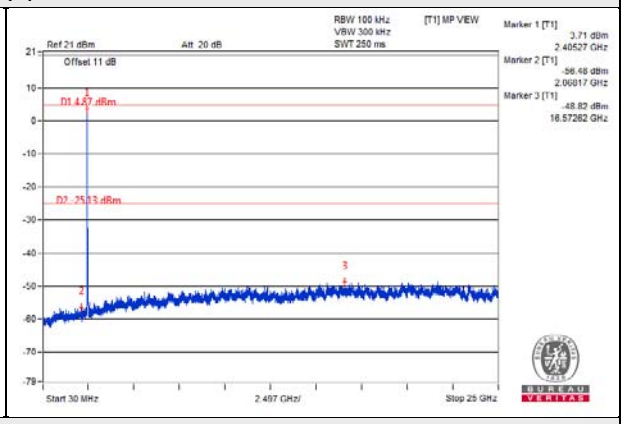
CH 11 Band edge



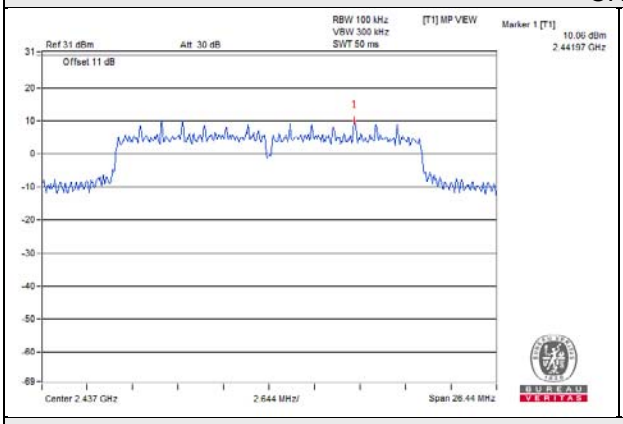
802.11n (HT20)_Chain 0

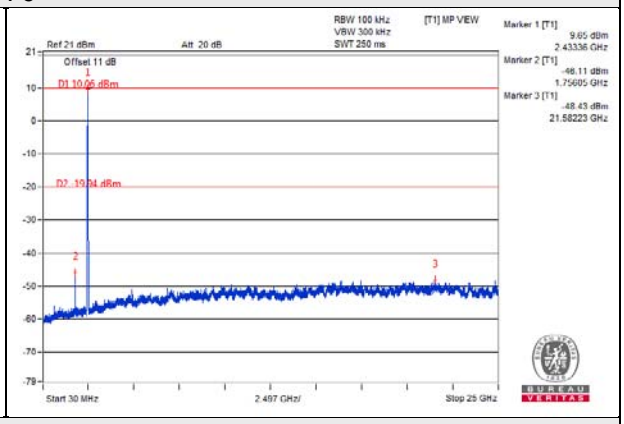
CH 1



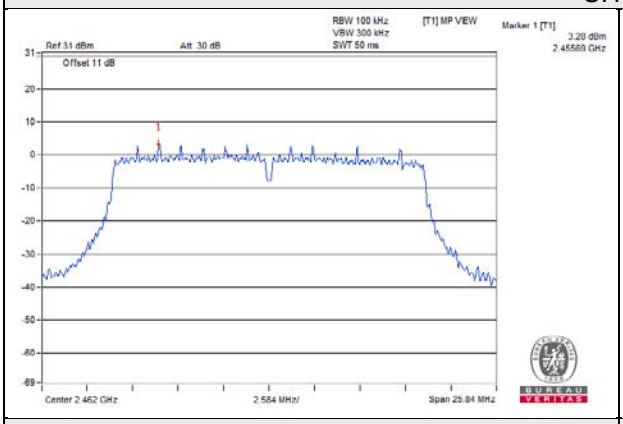


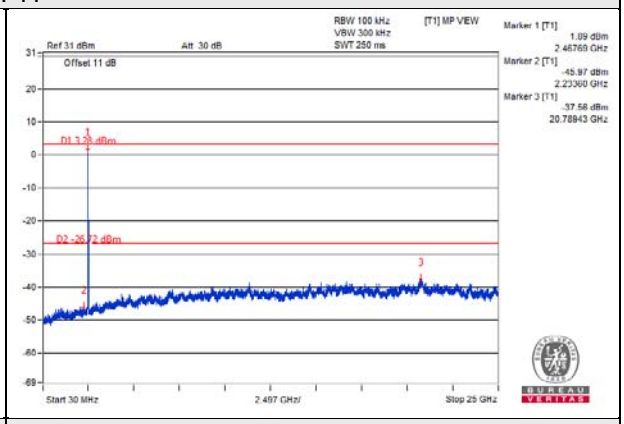
CH 6



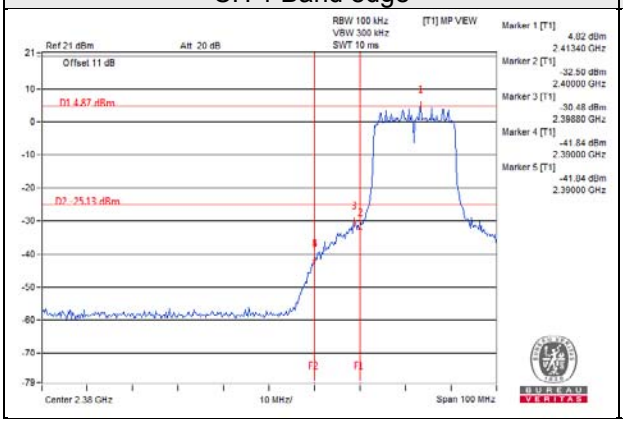


CH 11

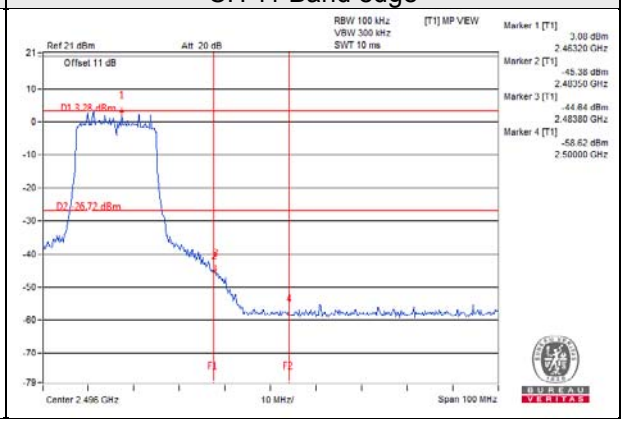




CH 1 Band edge

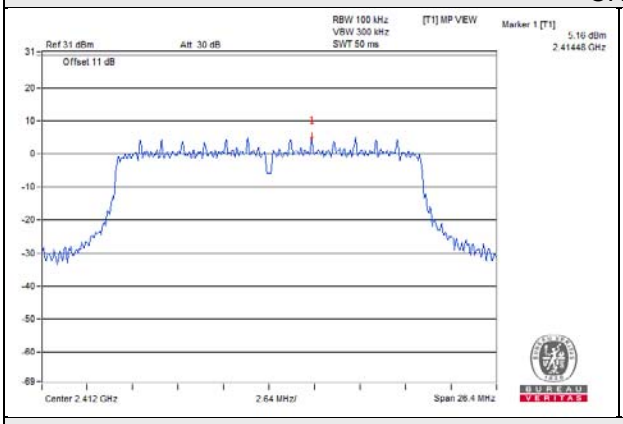


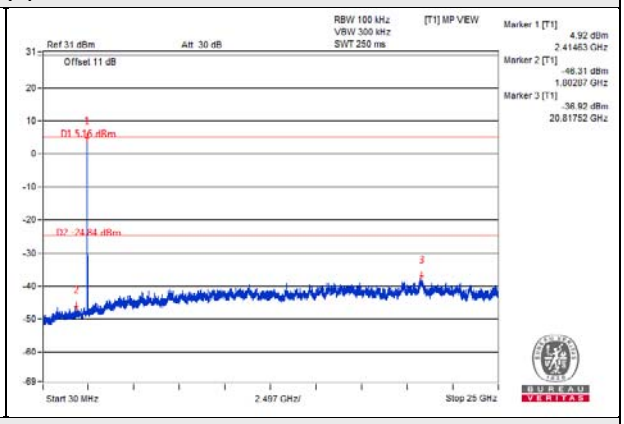
CH 11 Band edge



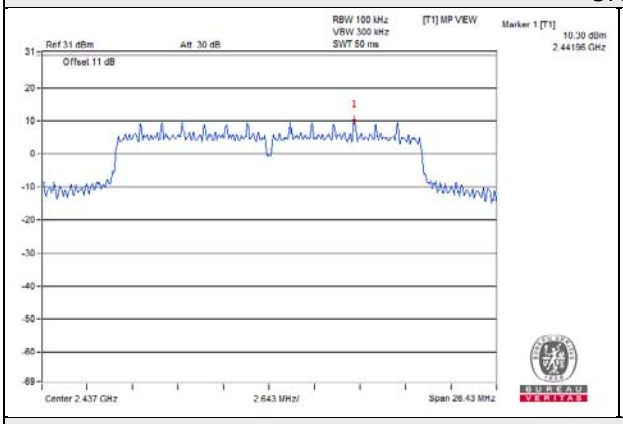
802.11n (HT20)_Chain 1

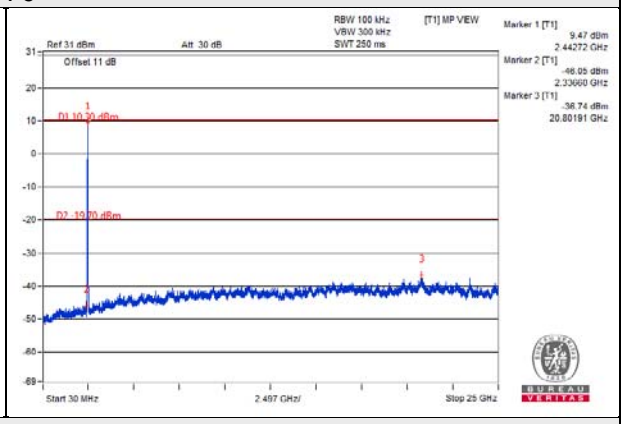
CH 1



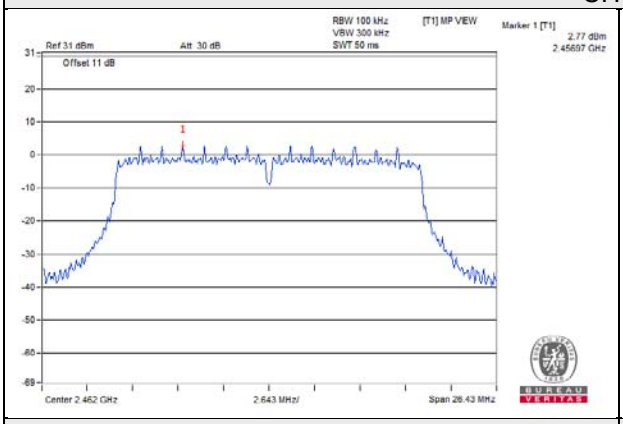


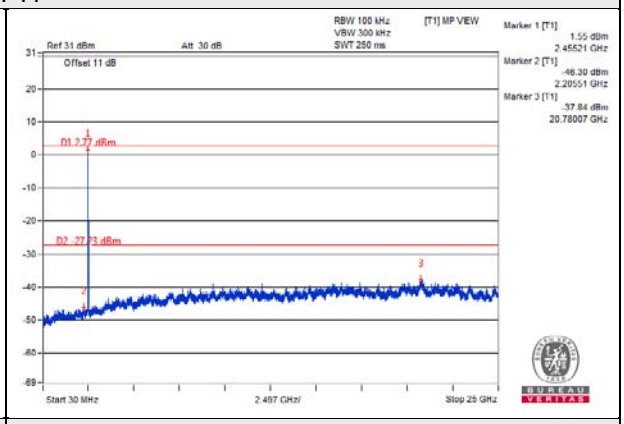
CH 6



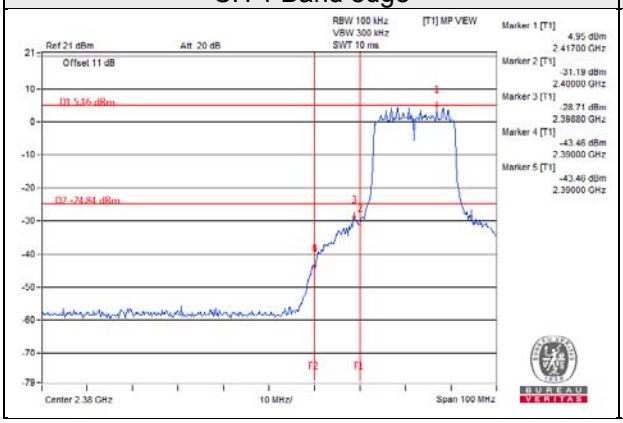


CH 11

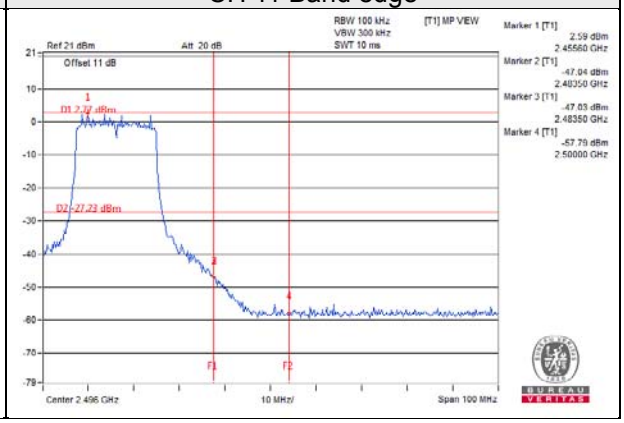




CH 1 Band edge

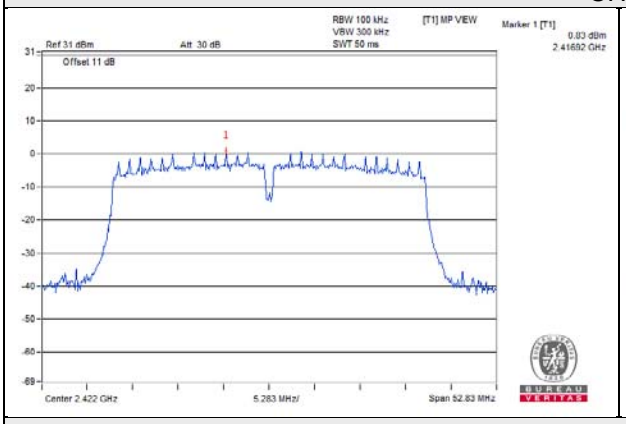


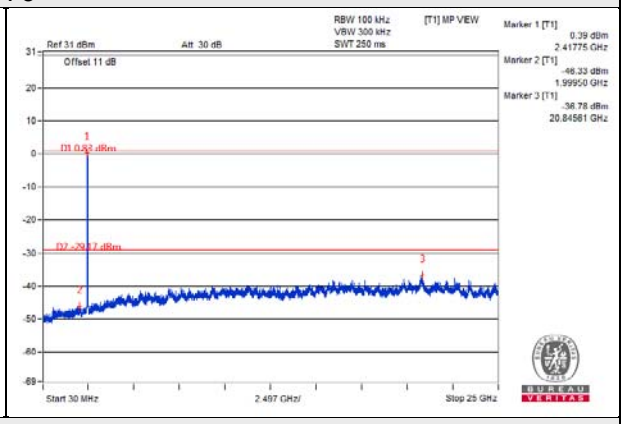
CH 11 Band edge



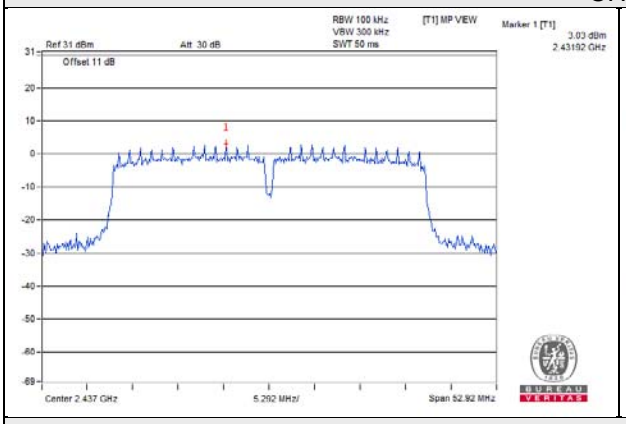
802.11n (HT40)_Chain 0

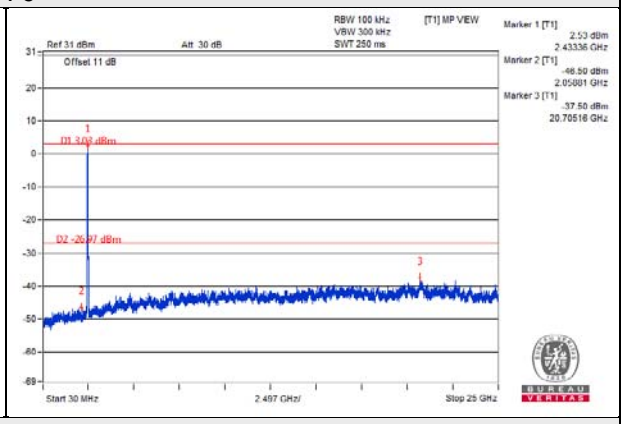
CH 3



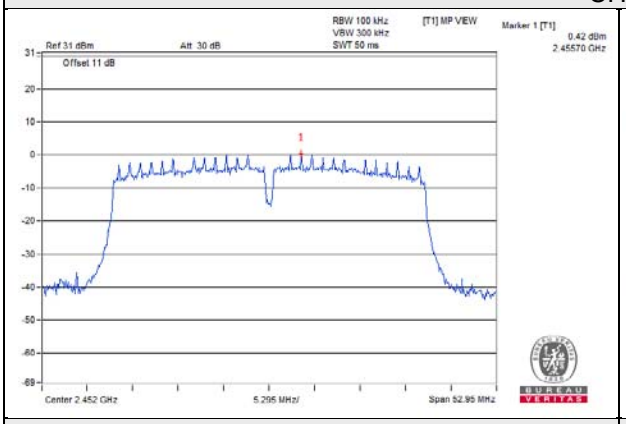


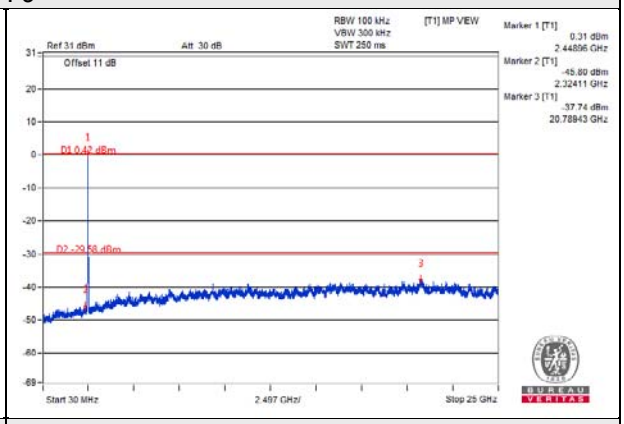
CH 6



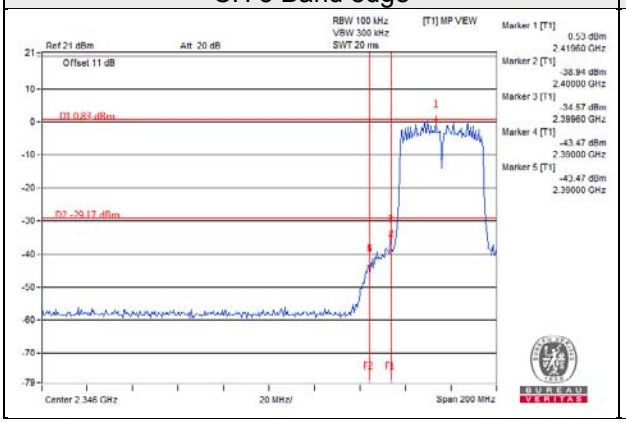


CH 9

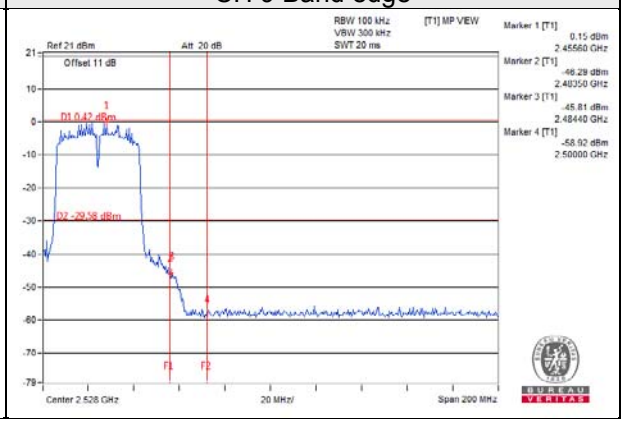




CH 3 Band edge

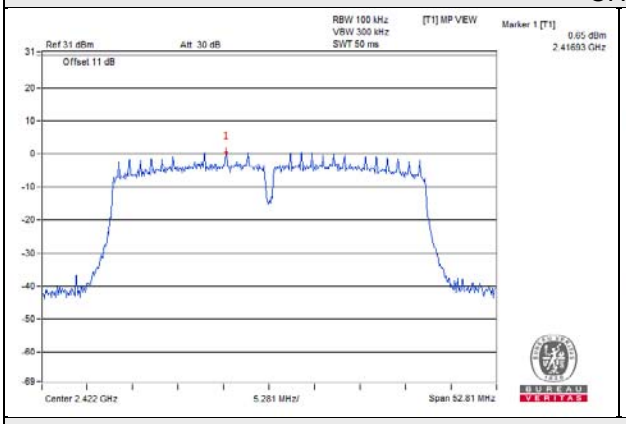


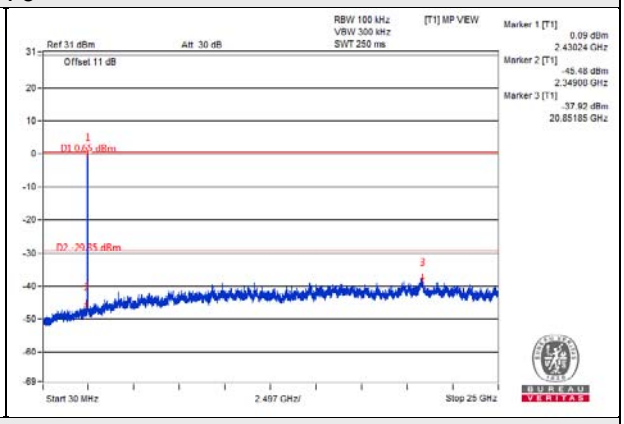
CH 9 Band edge



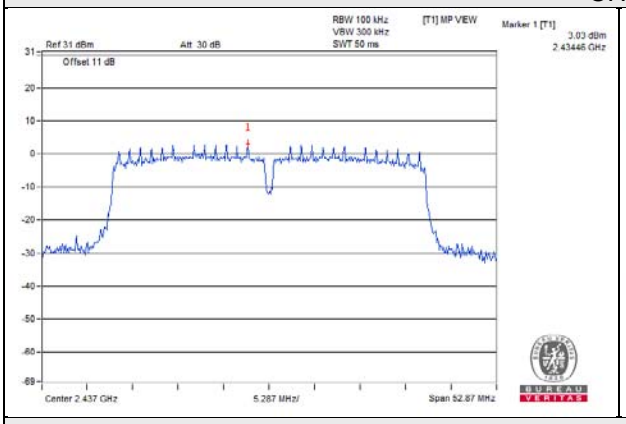
802.11n (HT40)_Chain 1

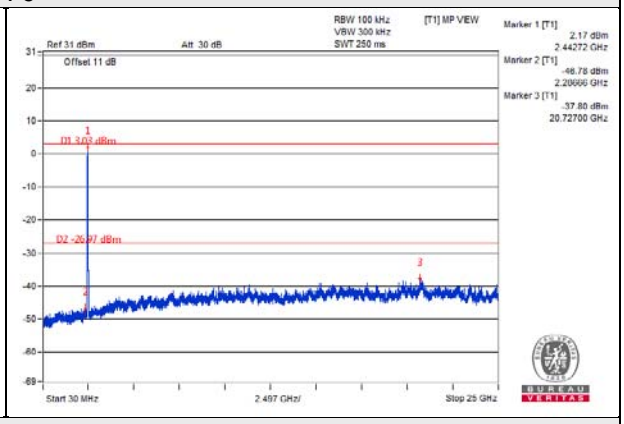
CH 3



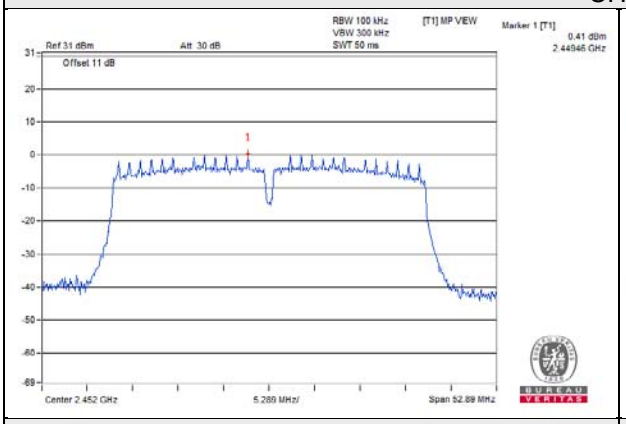


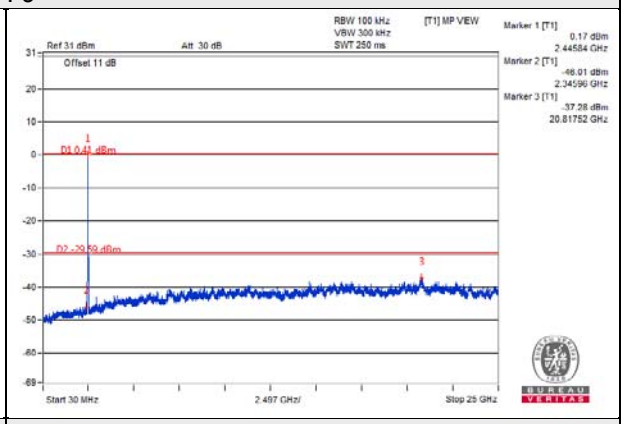
CH 6



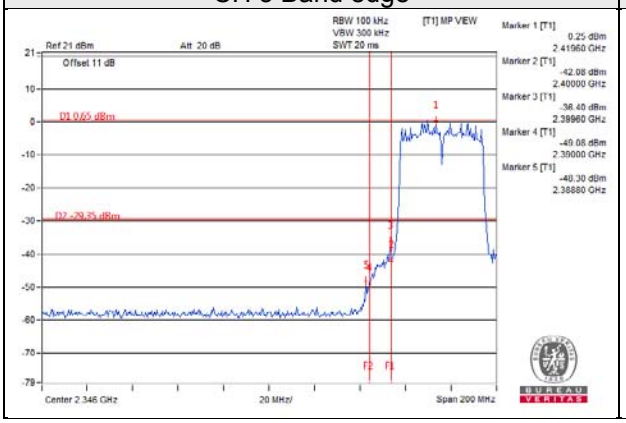


CH 9

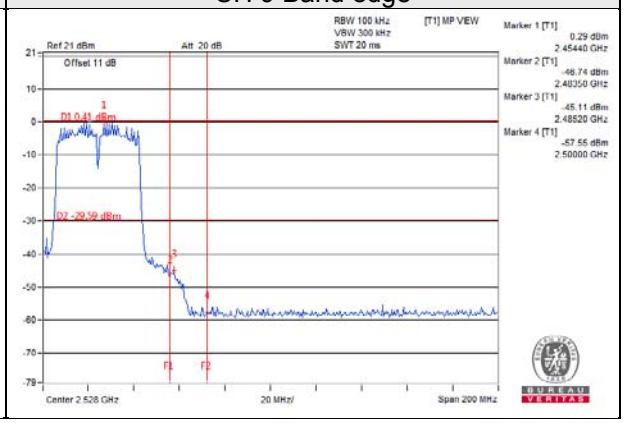




CH 3 Band edge



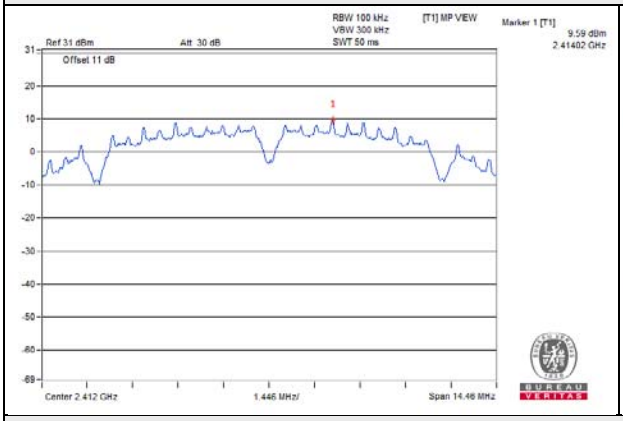
CH 9 Band edge

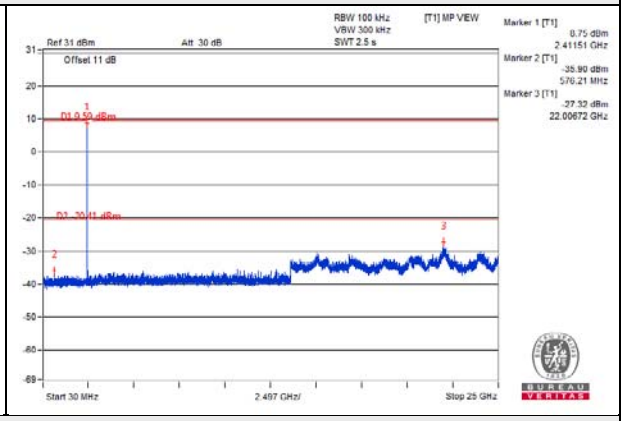


Mode B2: Radio 3

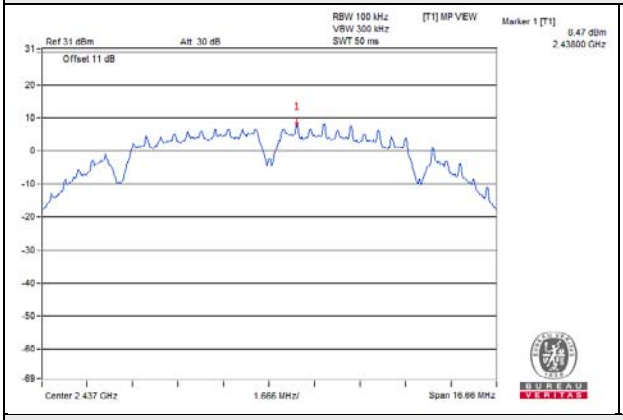
802.11b_Chain 0

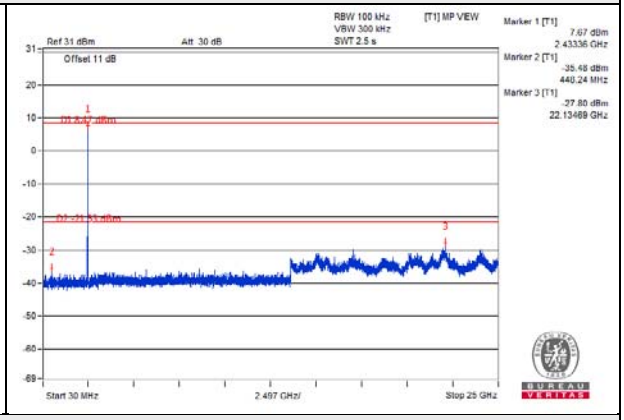
CH 1



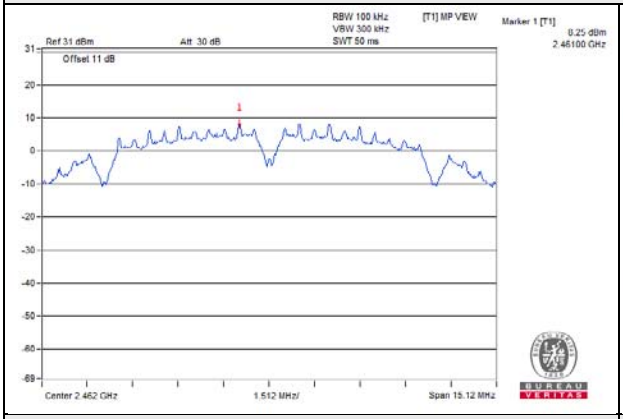


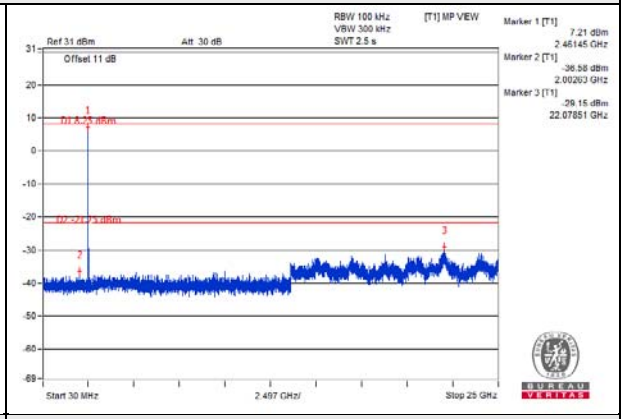
CH 6



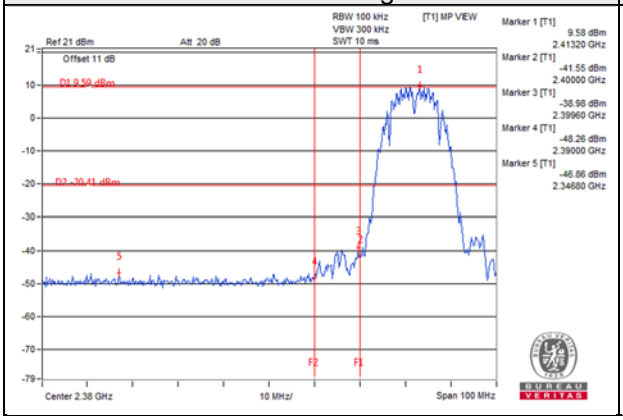


CH 11

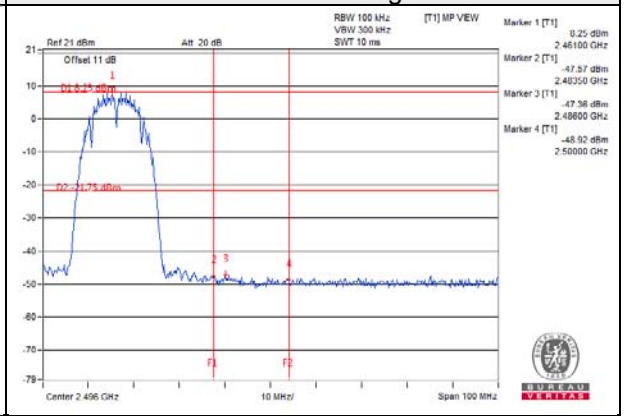




CH 1 Band edge

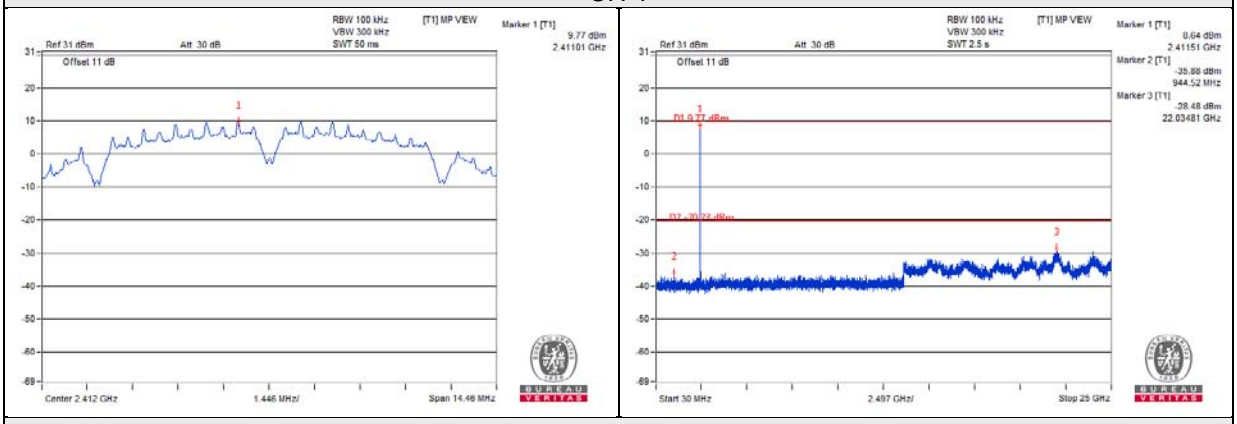


CH 11 Band edge

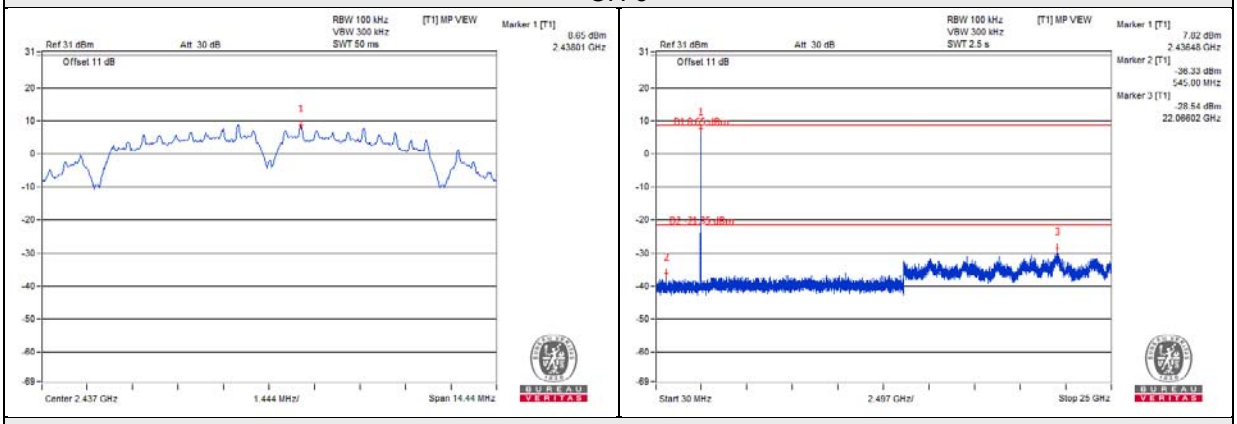


802.11b_Chain 1

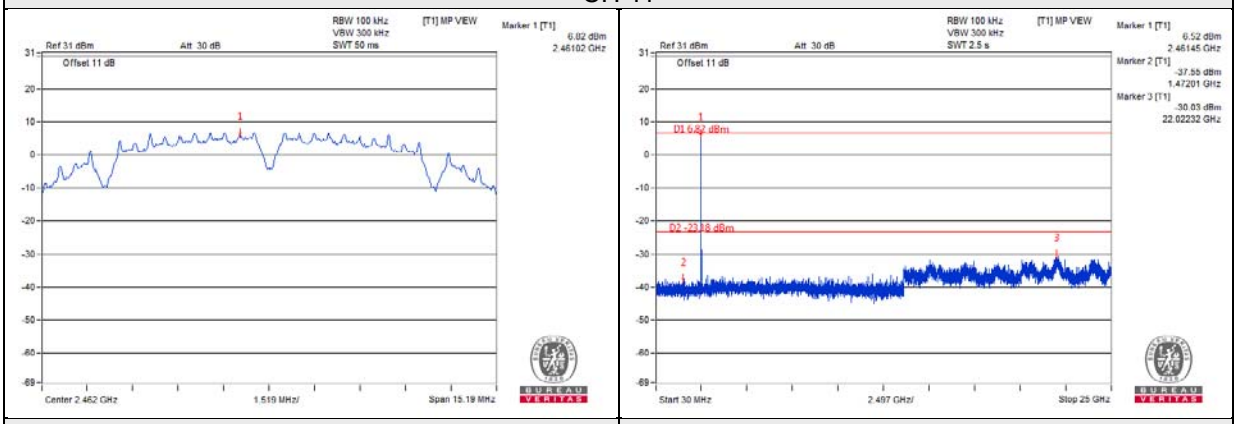
CH 1



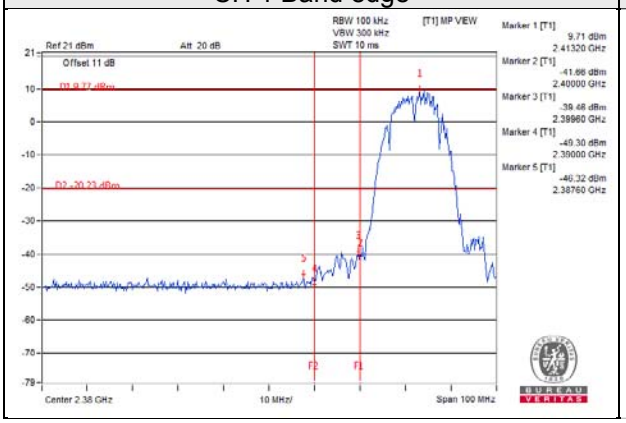
CH 6



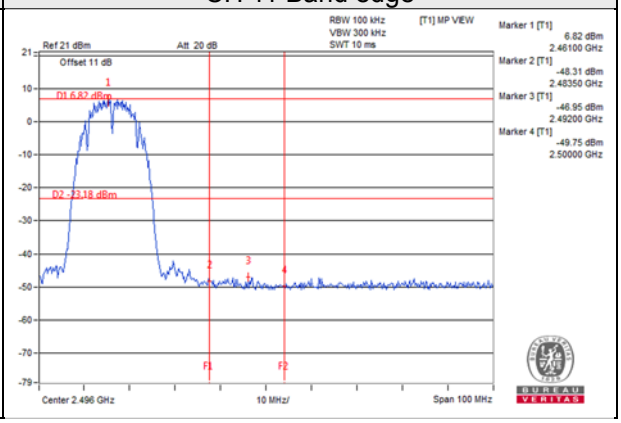
CH 11



CH 1 Band edge

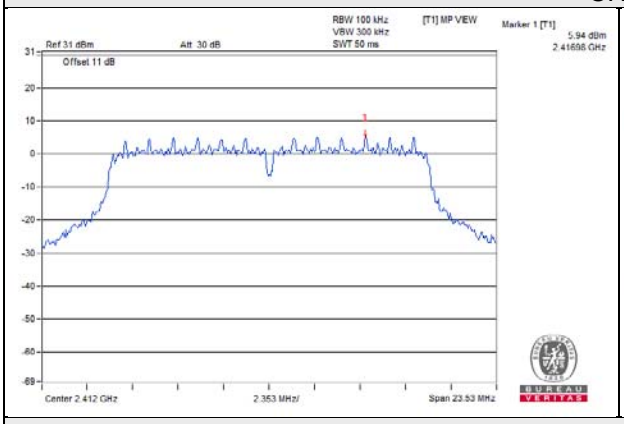


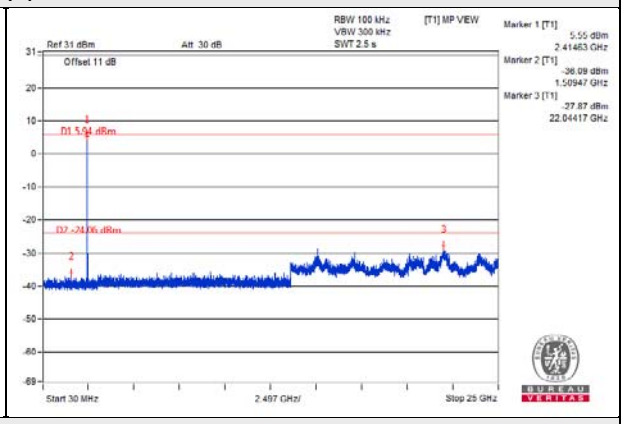
CH 11 Band edge



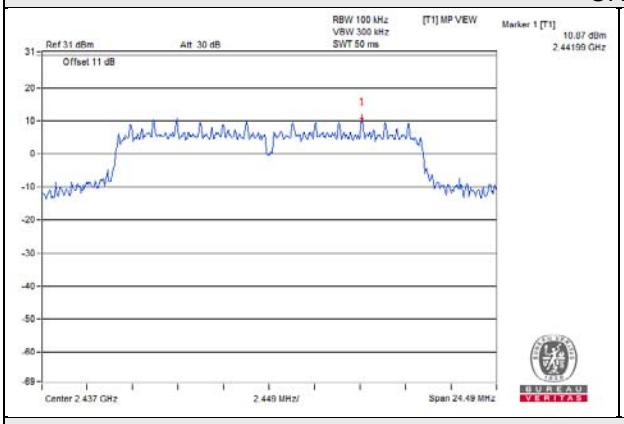
802.11g_Chain 0

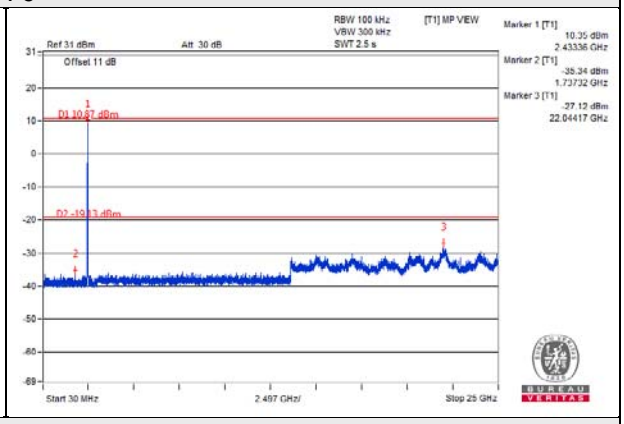
CH 1



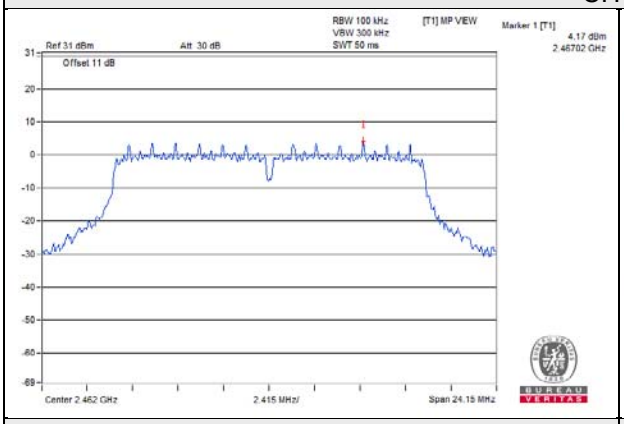


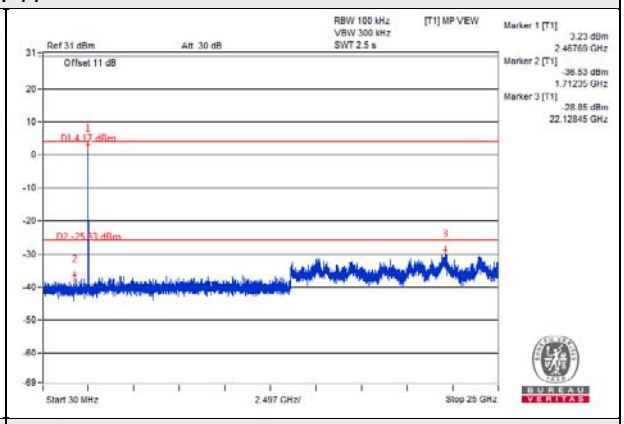
CH 6



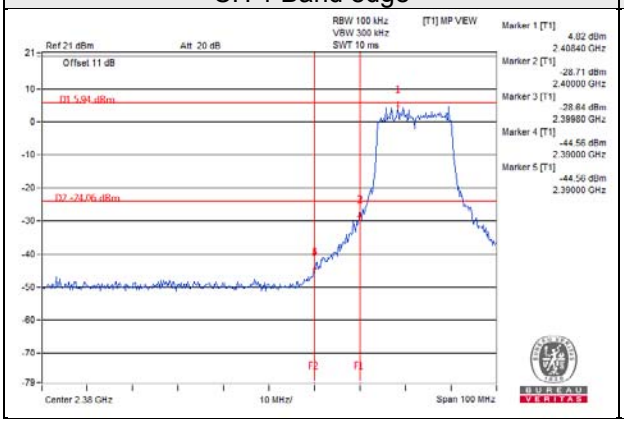


CH 11

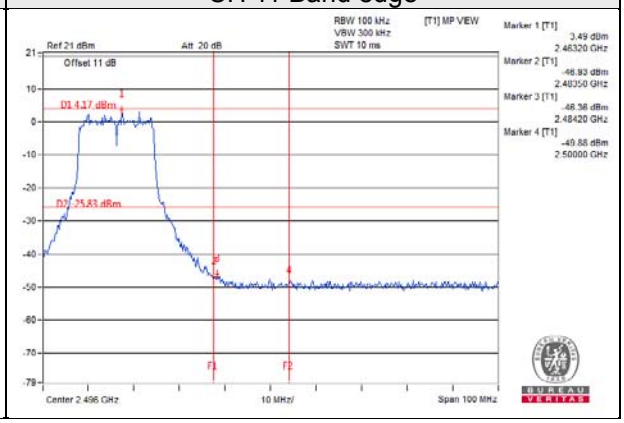




CH 1 Band edge

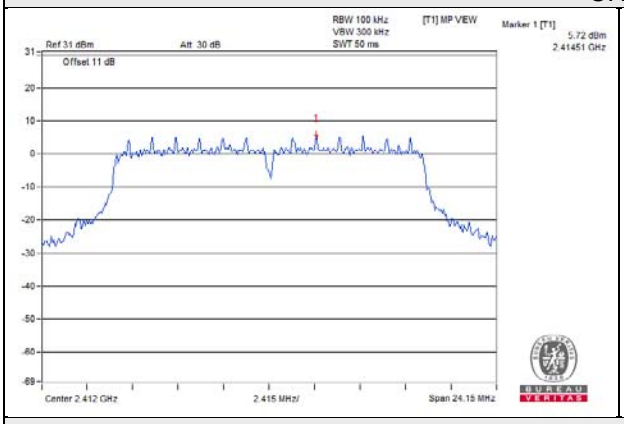


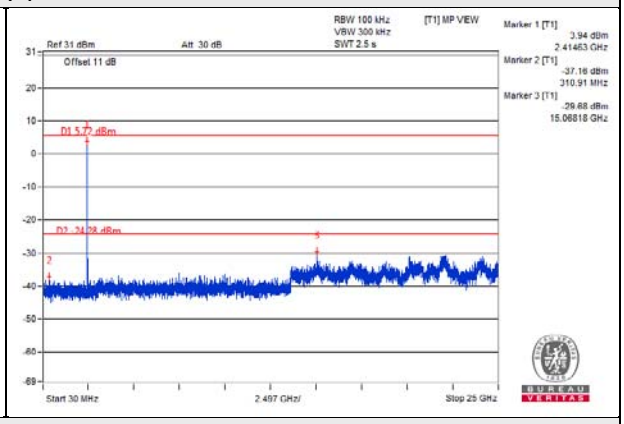
CH 11 Band edge



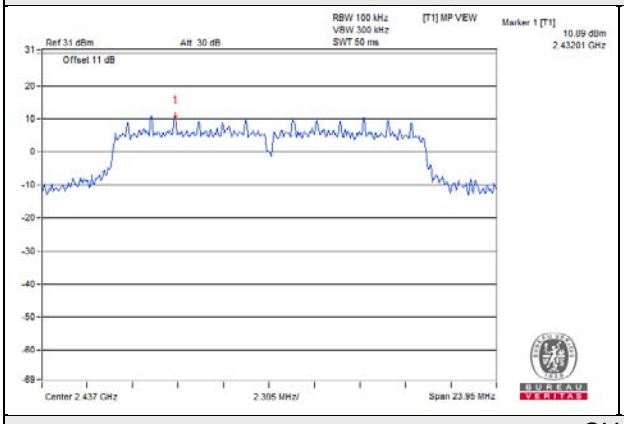
802.11g_Chain 1

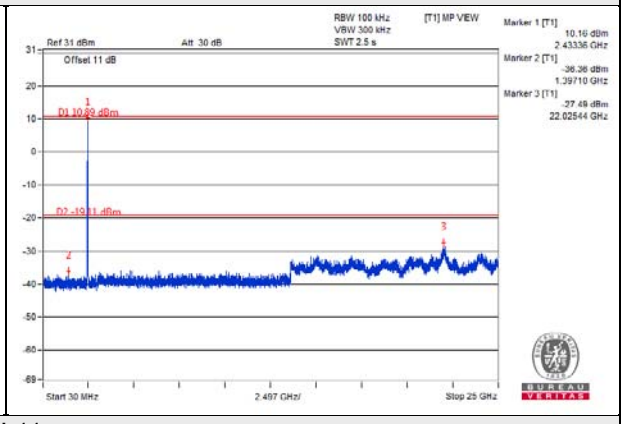
CH 1



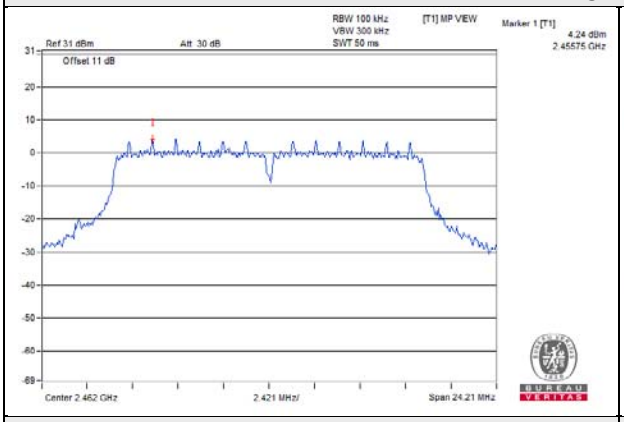


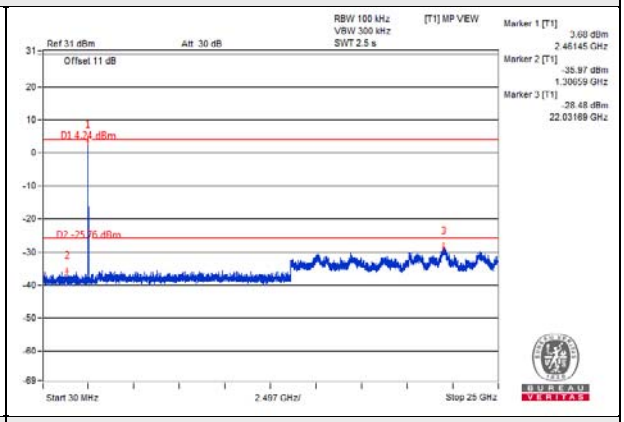
CH 6



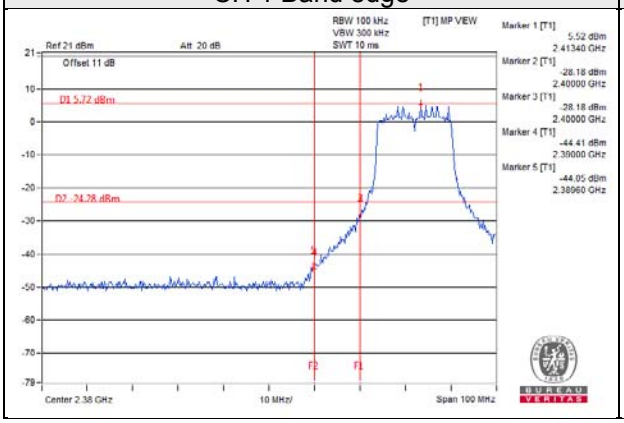


CH 11

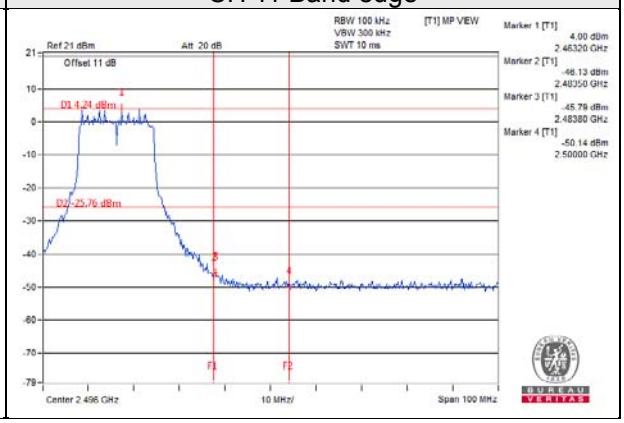




CH 1 Band edge

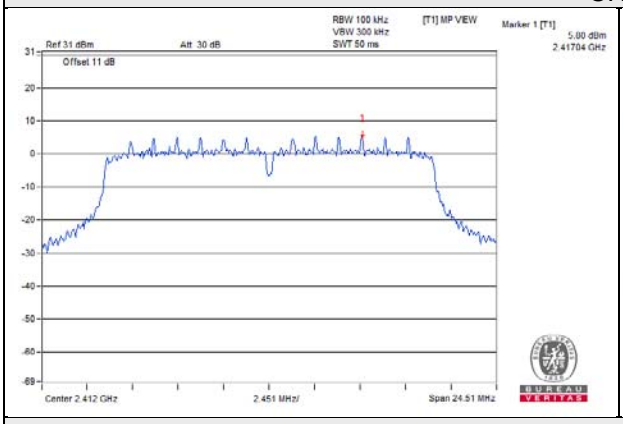


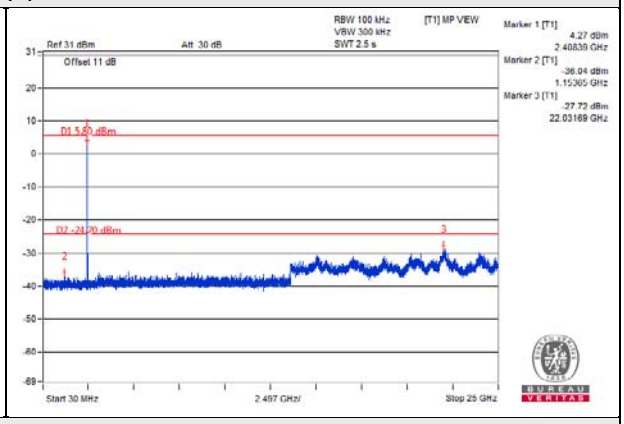
CH 11 Band edge



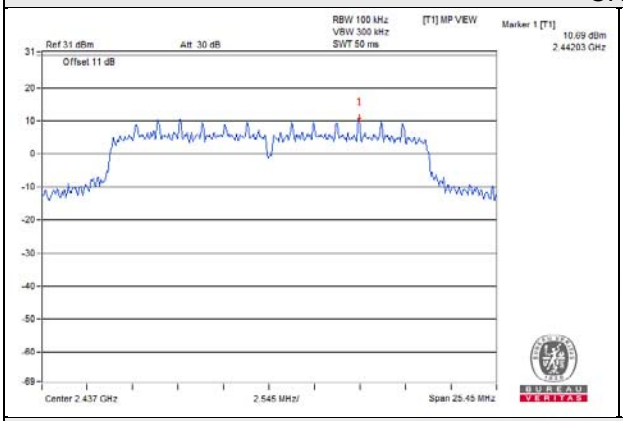
802.11n (HT20)_Chain 0

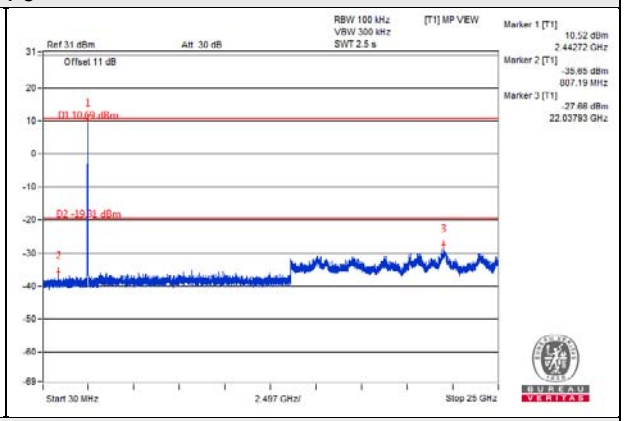
CH 1



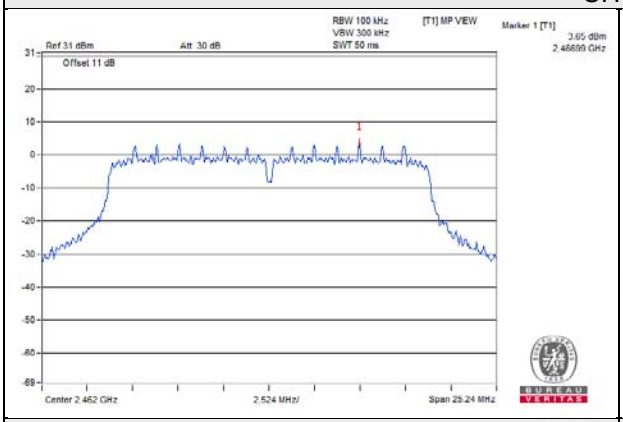


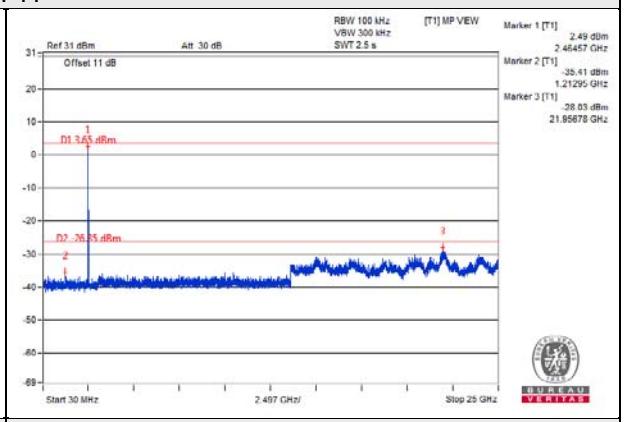
CH 6



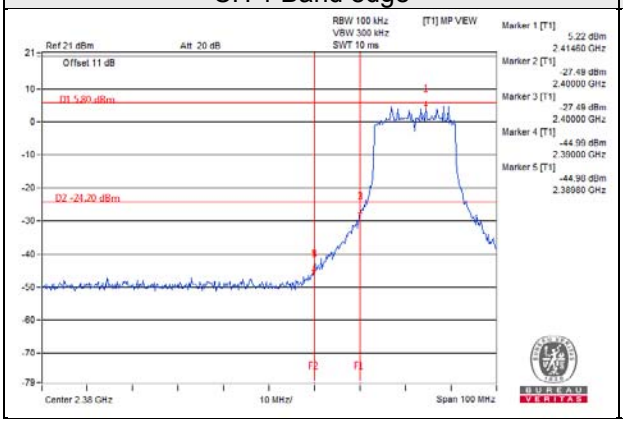


CH 11

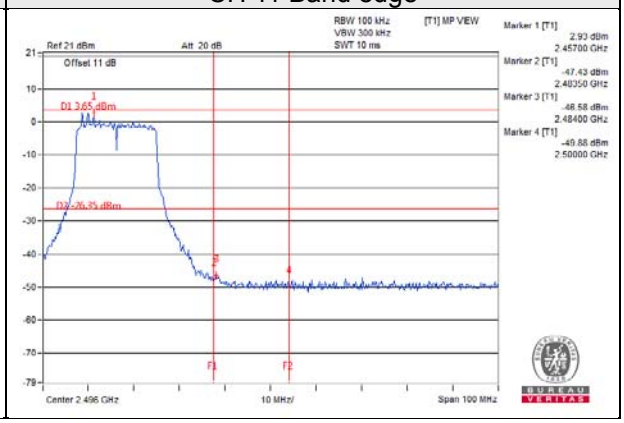




CH 1 Band edge

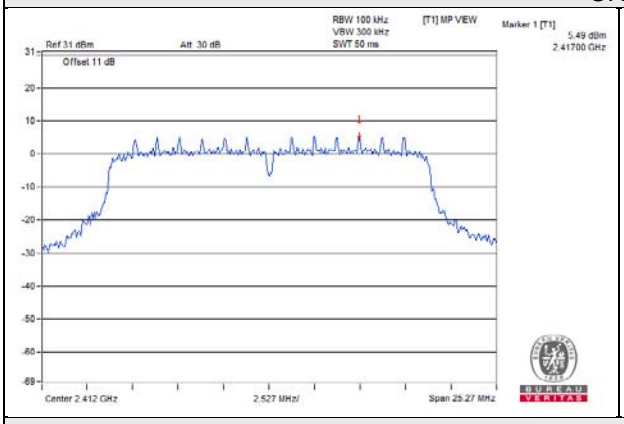


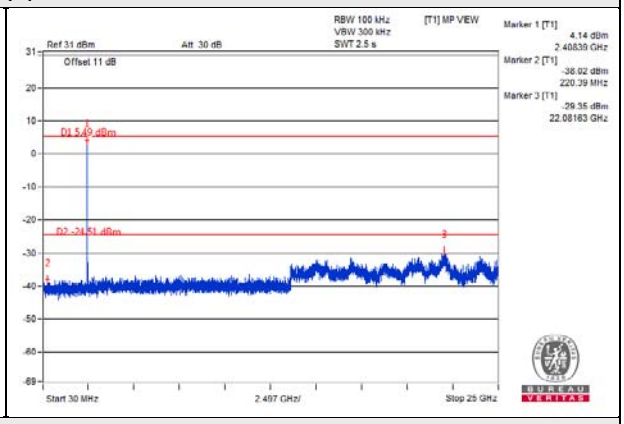
CH 11 Band edge



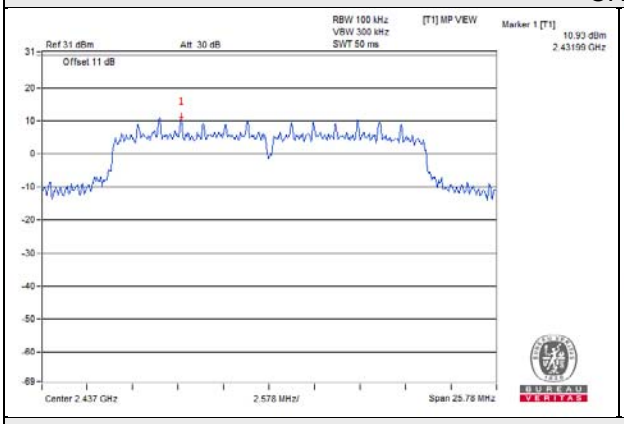
802.11n (HT20)_Chain 1

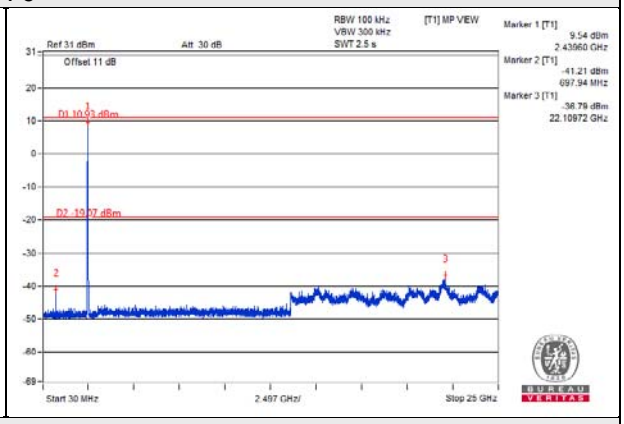
CH 1



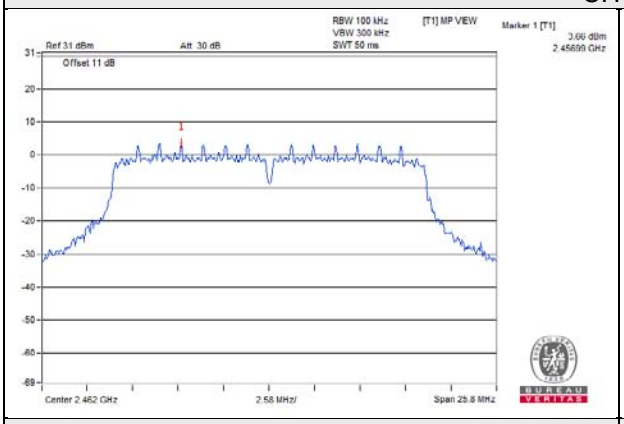


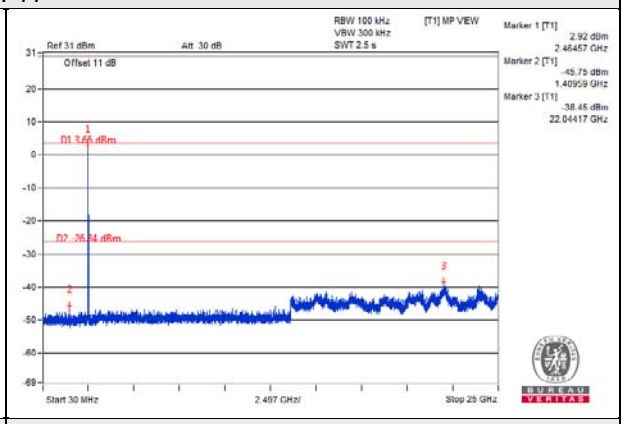
CH 6



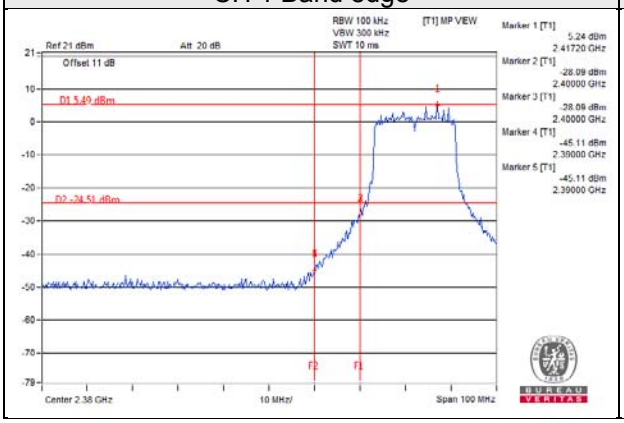


CH 11

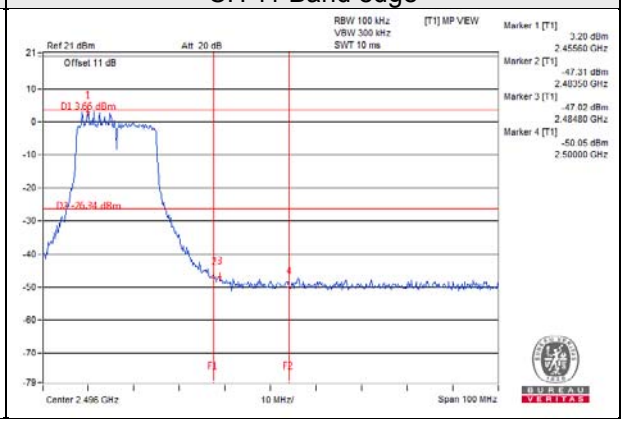




CH 1 Band edge

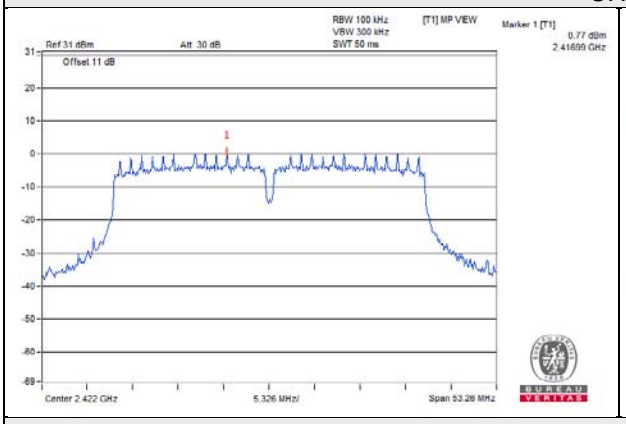


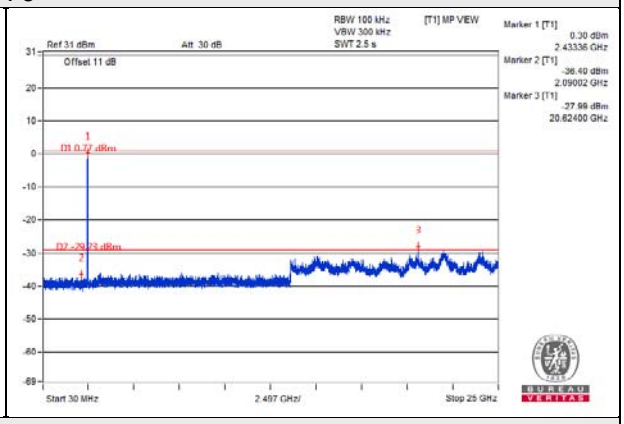
CH 11 Band edge



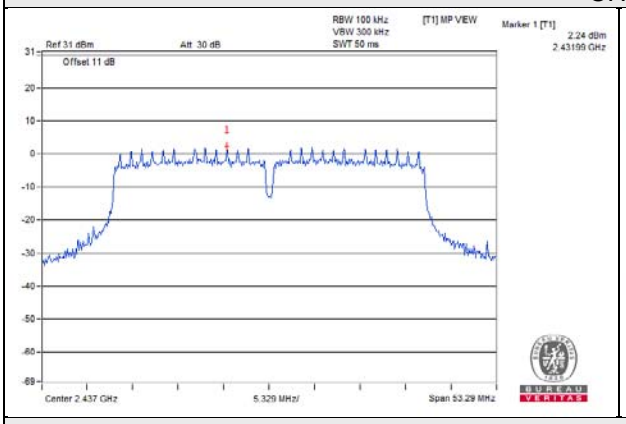
802.11n (HT40)_Chain 0

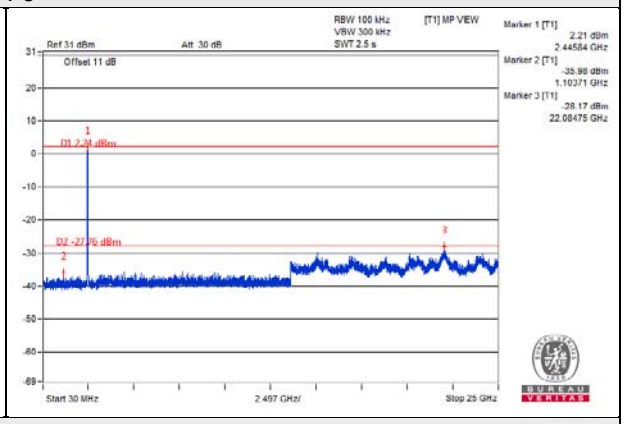
CH 3



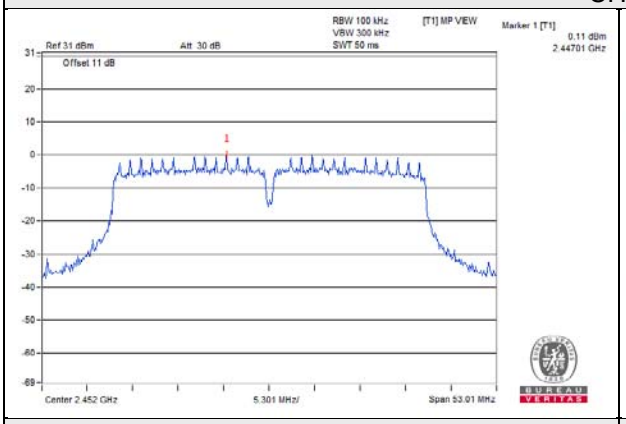


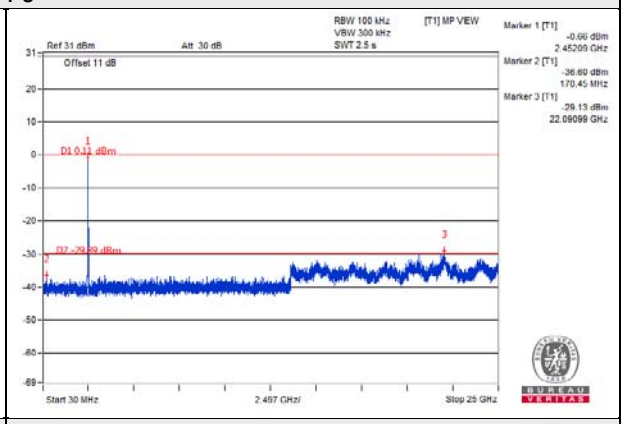
CH 6



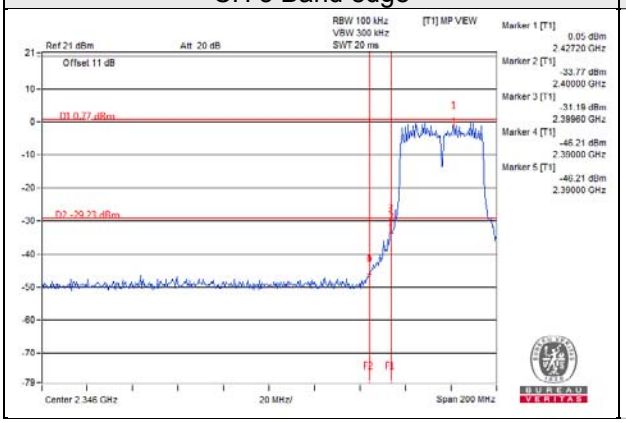


CH 9

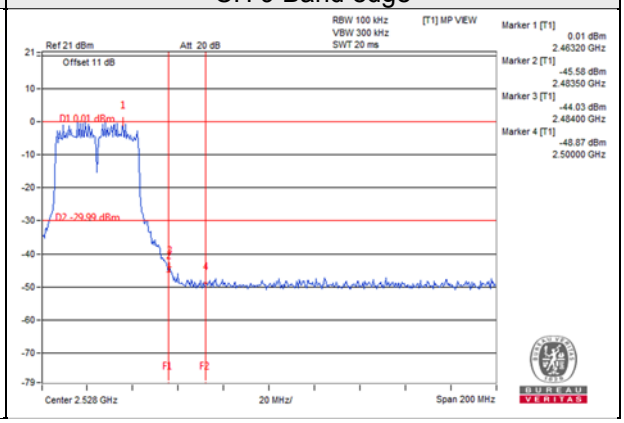




CH 3 Band edge

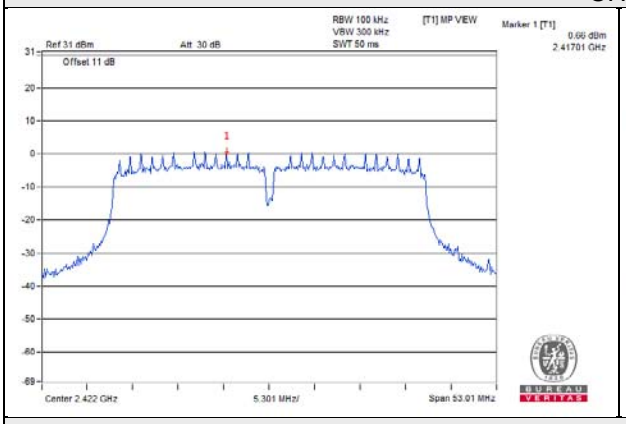


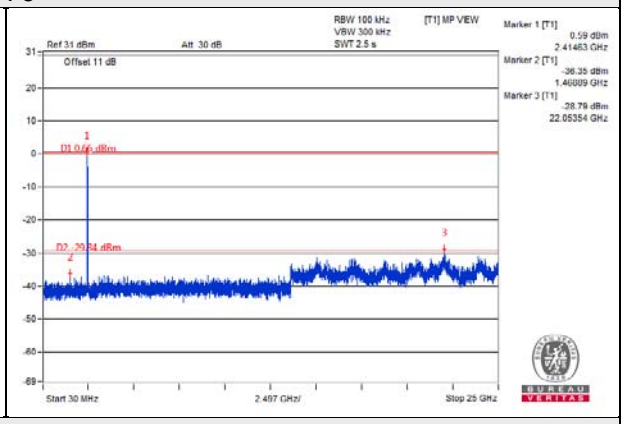
CH 9 Band edge



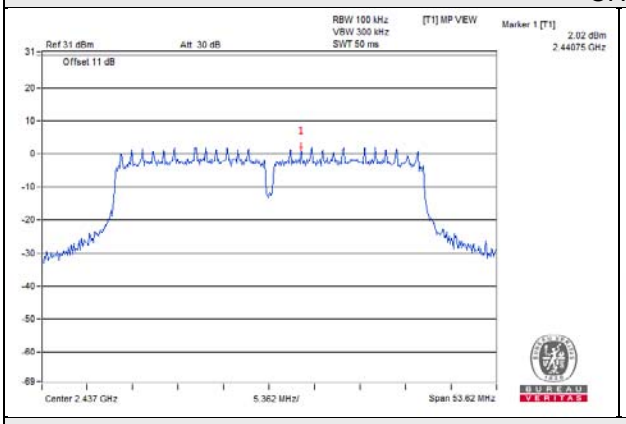
802.11n (HT40)_Chain 1

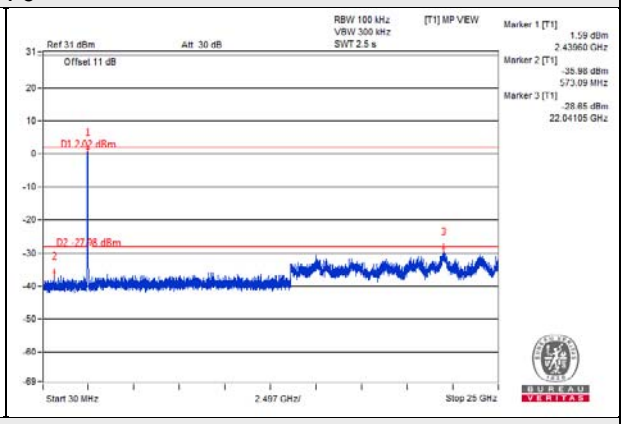
CH 3



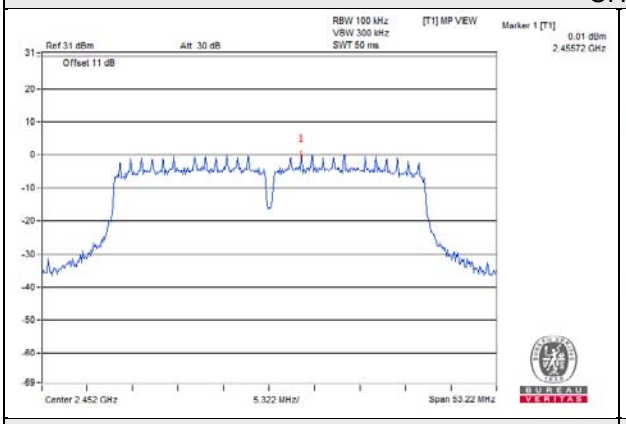


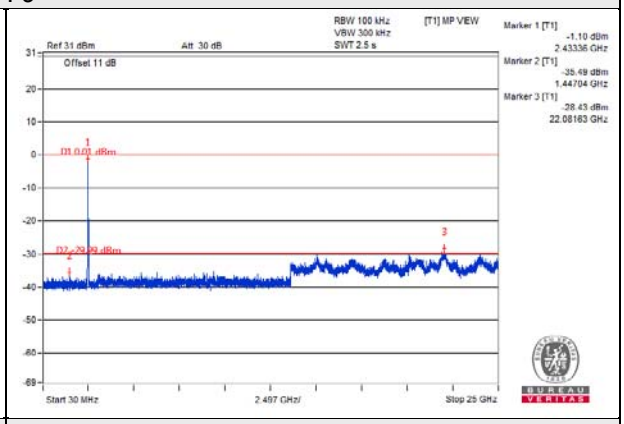
CH 6



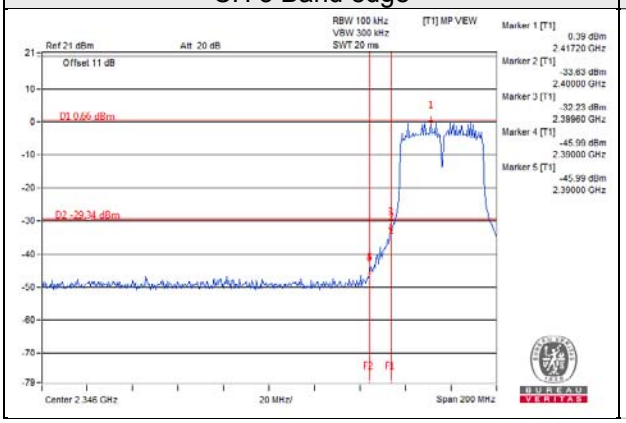


CH 9

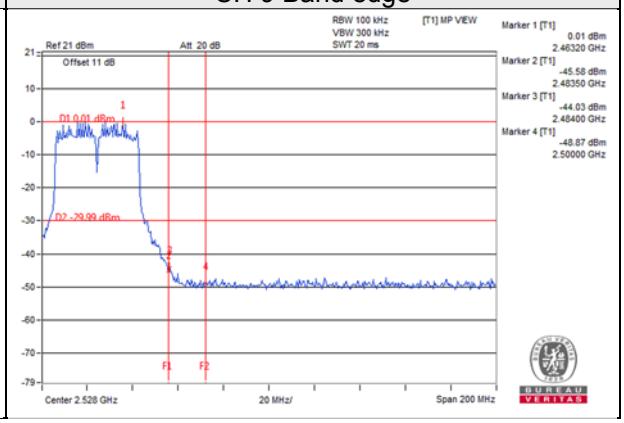




CH 3 Band edge



CH 9 Band edge



5 Pictures of Test Arrangements

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

Appendix – Information of 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 FCC recognized accredited test firms and accredited and approved according to ISO/IEC 17025.

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

Lin Kou 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.

--- END ---