

FCC Test Report

Report No.: RFBDIS-WTW-P21030719

FCC ID: 2AKCZ-107

Test Model: APL67-107

Received Date: Mar. 26, 2021

Test Date: Apr. 06 ~ Jun 28, 2021

Issued Date: Sep. 08, 2021

Applicant: SonicWall Inc.

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**FCC Registration /
Designation Number:** 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
RFBDYS-WTW-P21030719	Original Release	Sep. 08, 2021

1 Certificate of Conformity

Product: Wireless Access Point

Brand: SONICWALL

Test Model: APL67-107

Sample Status: Engineering Sample

Applicant: SonicWall Inc.

Test Date: Apr. 06 ~ Jun 28, 2021

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:** Sep. 08, 2021
Polly Chien / Specialist

Approved by : , **Date:** Sep. 08, 2021
Bruce Chen / Senior 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 -6.08dB at 0.51200MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.5dB at 12060.00MHz.
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 are I-PEX not a standard connector.

Note:

1. For 2.4G band compliance with rule 15.247(d) of the band-edge items, the test plots were recorded in Annex A. Test Procedures refer to report 4.1.3.
2. 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) (\pm)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.79 dB
Radiated Emissions up to 1 GHz	9kHz ~ 30MHz	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	SONICWALL
Test Model	APL67-107
Sample Status	Engineering Sample
Power Supply Rating	12Vdc from Adapter 54Vdc from POE
Modulation Type	CCK, DQPSK, DBPSK for DSSS 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM 1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDMA
Modulation Technology	DSSS, OFDM, OFDMA
Transfer Rate	802.11b: 11/5.5/2/1Mbps 802.11g: 54/48/36/24/18/12/9/6Mbps 802.11n (HT20/40): up to 600Mbps 802.11n (VHT20/40): up to 800Mbps 802.11ax: up to 1147.1Mbps
Operating Frequency	2412 ~ 2462MHz
Number of Channel	2G traffic radio (Radio 2): 802.11b, 802.11g, 802.11n (HT20), 802.11n (VHT20), 802.11ax (HE20): 11 802.11n (HT40), 802.11n (VHT40), 802.11ax (HE40): 7 Scanning radio (Radio 3): 802.11b, 802.11g, 802.11n (HT20), 802.11n (VHT20): 11 802.11n (HT40), 802.11n (VHT40): 7
Output Power	2G traffic radio (Radio 2): CDD Mode: 441.201mW Beamforming Mode: 386.934mW Scanning radio (Radio 3): CDD Mode: 17.140mW
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	NA
Cable Supplied	NA

Note:

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

Radio	Modulation Mode	Beamforming Mode	TX Function
2G traffic radio (Radio 2)	802.11b	Not Support	4TX
	802.11g	Not Support	4TX
	802.11n (HT20)	Not Support	4TX
	802.11n (HT40)	Not Support	4TX
	802.11n (VHT20)	Support	4TX
	802.11n (VHT40)	Support	4TX
	802.11ax (HE20)	Support	4TX
	802.11ax (HE40)	Support	4TX
Scanning radio (Radio 3)	802.11b	Not Support	1TX
	802.11g	Not Support	1TX
	802.11n (HT20)	Not Support	1TX
	802.11n (HT40)	Not Support	1TX
	802.11n (VHT20)	Not Support	1TX
	802.11n (VHT40)	Not Support	1TX

* The bandwidth and modulation are similar for HT20/HT40 on 802.11n mode and VHT20/VHT40 on 802.11n mode and HE20/HE40 on 802.11ax mode. Therefore the investigated worst case is the representative mode in test report. (Final test mode refer section 3.2.1)

* 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.

2. The EUT consumes power from the following adapter and PoE. (Support units only)

Adapter (Support unit only)	
Brand	Sunny
Model	SYS1546-3612-T3
Input Power	100-240Vac, 1.5A MAX, 50-60Hz
Output Power	12Vdc, 3.0A
Power cord	Non-shielded AC (1.77m) Non-shielded DC (1.86m) with one core

POE (Support unit only)	
Brand	EnGenius
Model	EPA5006GAT
Input Power	100-240Vac, 0.8A, 50-60Hz
Output Power	54Vdc, 0.6A
Power cord	Non-shielded AC (0.5m)

3. The following antennas were provided to the EUT.

Antenna Type	PIFA					
Antenna Connector	I-PEX					
Antenna No.	Gain (dBi)					
	2400MHz	2450MHz	2500MHz	5150MHz	5500MHz	5850MHz
2G1	3.34	3.54	3.44	-	-	-
2G2	3.51	4.29	4.46	-	-	-
2G3	2.71	2.94	2.96	-	-	-
2G4	2.64	3.69	3.86	-	-	-
5G1	-	-	-	4.94	4.03	4.33
5G2	-	-	-	4.24	3.68	3.66
5G3	-	-	-	3.65	4.82	4.28
5G4	-	-	-	4.44	5.01	5.74
Scan	3.98	2.98	2.74	4.95	3.32	3.79
BLE	3.56	3.13	3.02	-	-	-

*The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

4. The simultaneous operation mode was determined by client.

No	Mode
1	2GHz traffic radio (Radio 2) + 5GHz traffic radio (Radio 1) + 5GHz Scanning radio (Radio 3) + BLE
2	5GHz traffic radio (Radio 1) + 2GHz Scanning radio (Radio 3) + BLE

* 5GHz traffic radio (Radio 1) and 5GHz Scanning radio (Radio 3) cannot transmit in the same band at same time.

*2GHz traffic radio (Radio 2) and 2GHz Scanning radio (Radio 3) cannot transmit at same time.

* Spurious emission of the simultaneous operation has been evaluated and no non-compliance was found.

3.2 Description of Test Modes

11 channels are provided for 802.11b, 802.11g, 802.11n (HT20), 802.11n (VHT20), 802.11ax (HE20):

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), 802.11n (VHT40), 802.11ax (HE40):

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable to				Description
	RE \geq 1G	RE<1G	PLC	APCM	
A	√	√	√	√	EUT power from adapter
B	-	√	√	-	EUT power from PoE

Where RE \geq 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 **Z-plane**.
2. For radiated emission (below 1GHz) and power line conducted emission test items chosen the worst maximum power mode.
3. "-" means no effect.

Radiated Emission Test (Above 1GHz):

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)	Remark
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	Radio 2
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	
A	802.11ax (HE20)	1 to 11	1, 6, 11	OFDMA	BPSK	MCS0	
A	802.11ax (HE40)	3 to 9	3, 6, 9	OFDMA	BPSK	MCS0	
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	Radio 3
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	
A	802.11n (VHT20)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	
A	802.11n (VHT40)	3 to 9	3, 6, 9	OFDM	BPSK	15.0	

Radiated Emission Test (Below 1GHz):

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)	Remark
A, B	802.11ax (HE20)	1 to 11	6	OFDMA	BPSK	MCS0	Radio 2
A, B	802.11b	1 to 11	6	DSSS	DBPSK	1.0	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
A, B	802.11ax (HE20)	1 to 11	6	OFDMA	BPSK	MCS0	Radio 2
A, B	802.11b	1 to 11	6	DSSS	DBPSK	1.0	Radio 3

Transmit Power 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
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	Radio 2
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	
A	802.11n (VHT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	
A	802.11n (VHT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5	
A	802.11ax (HE20)	1 to 11	1, 6, 11	OFDMA	BPSK	MCS0	
A	802.11ax (HE40)	3 to 9	3, 6, 9	OFDMA	BPSK	MCS0	
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	Radio 3
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	
A	802.11n (VHT20)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	
A	802.11n (VHT40)	3 to 9	3, 6, 9	OFDM	BPSK	15.0	

Bandwidth, Power Spectral Density 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
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	Radio 2
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	
A	802.11ax (HE20)	1 to 11	1, 6, 11	OFDMA	BPSK	MCS0	
A	802.11ax (HE40)	3 to 9	3, 6, 9	OFDMA	BPSK	MCS0	
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0	Radio 3
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0	
A	802.11n (VHT20)	1 to 11	1, 6, 11	OFDM	BPSK	7.2	
A	802.11n (VHT40)	3 to 9	3, 6, 9	OFDM	BPSK	15.0	

Test Condition:

Applicable to	Environmental Conditions	Input Power (System)	Tested by
RE≥1G	23 deg. C, 66% RH 22 deg. C, 69% RH	120Vac, 60Hz	Titan Hsu, Edison Lee
RE<1G	23 deg. C, 66% RH	120Vac, 60Hz 54Vdc	Titan Hsu
PLC	25 deg. C, 75% RH	120Vac, 60Hz 54Vdc	Rex Wang
APCM	25 deg. C, 60% RH	120Vac, 60Hz	Jisyong Wang

3.3 Duty Cycle of Test Signal

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

Duty cycle of test signal is $< 98\%$, duty factor is required.

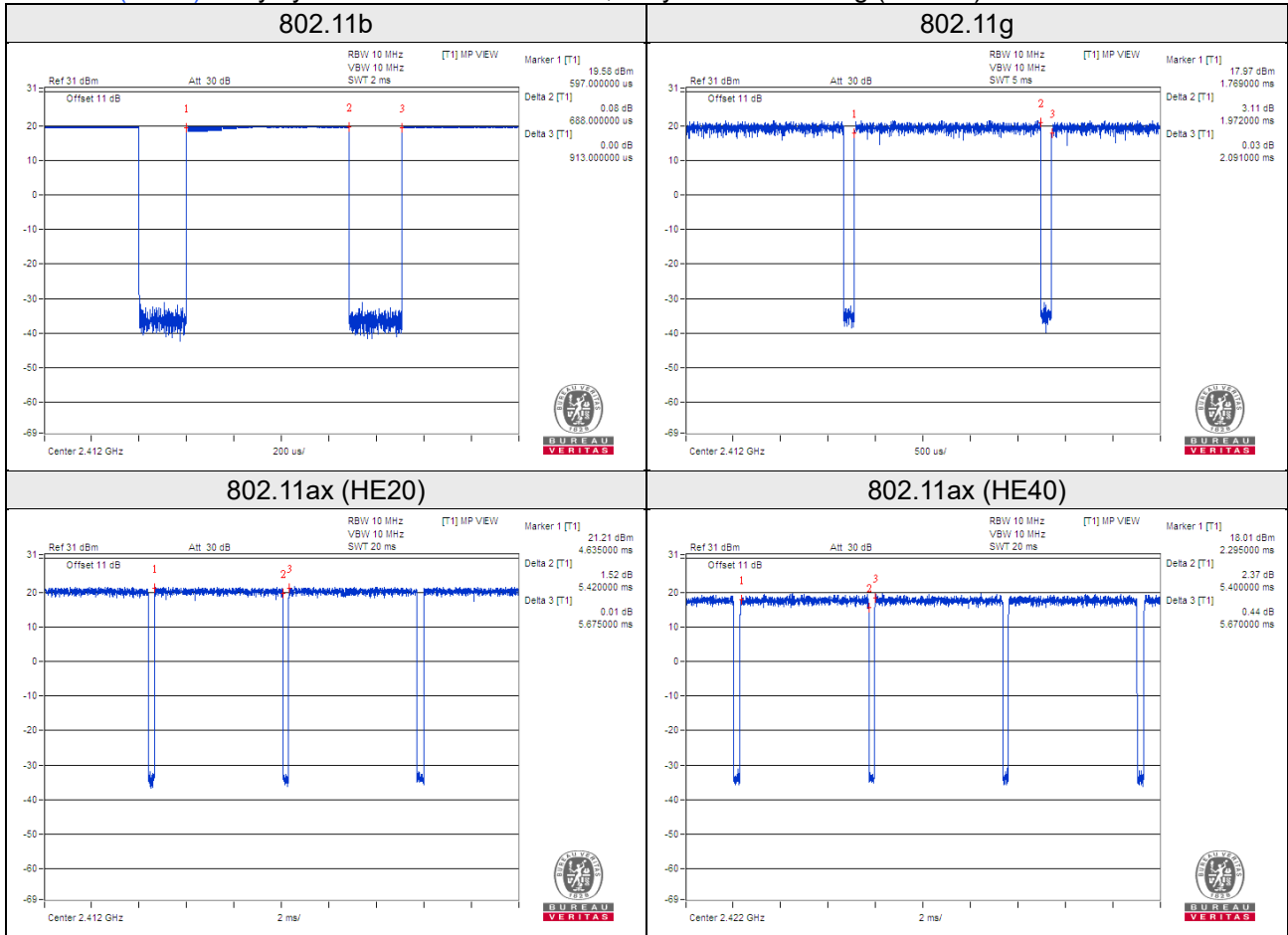
2G traffic radio (Radio 2)

802.11b: Duty cycle = $0.688/0.913 = 0.754$, Duty factor = $10 * \log(1/0.754) = 1.23$

802.11g: Duty cycle = $1.972/2.091 = 0.943$, Duty factor = $10 * \log(1/0.943) = 0.25$

802.11ax (HE20): Duty cycle = $5.420/5.675 = 0.955$, Duty factor = $10 * \log(1/0.955) = 0.20$

802.11ax (HE40): Duty cycle = $5.400/5.670 = 0.952$, Duty factor = $10 * \log(1/0.952) = 0.21$



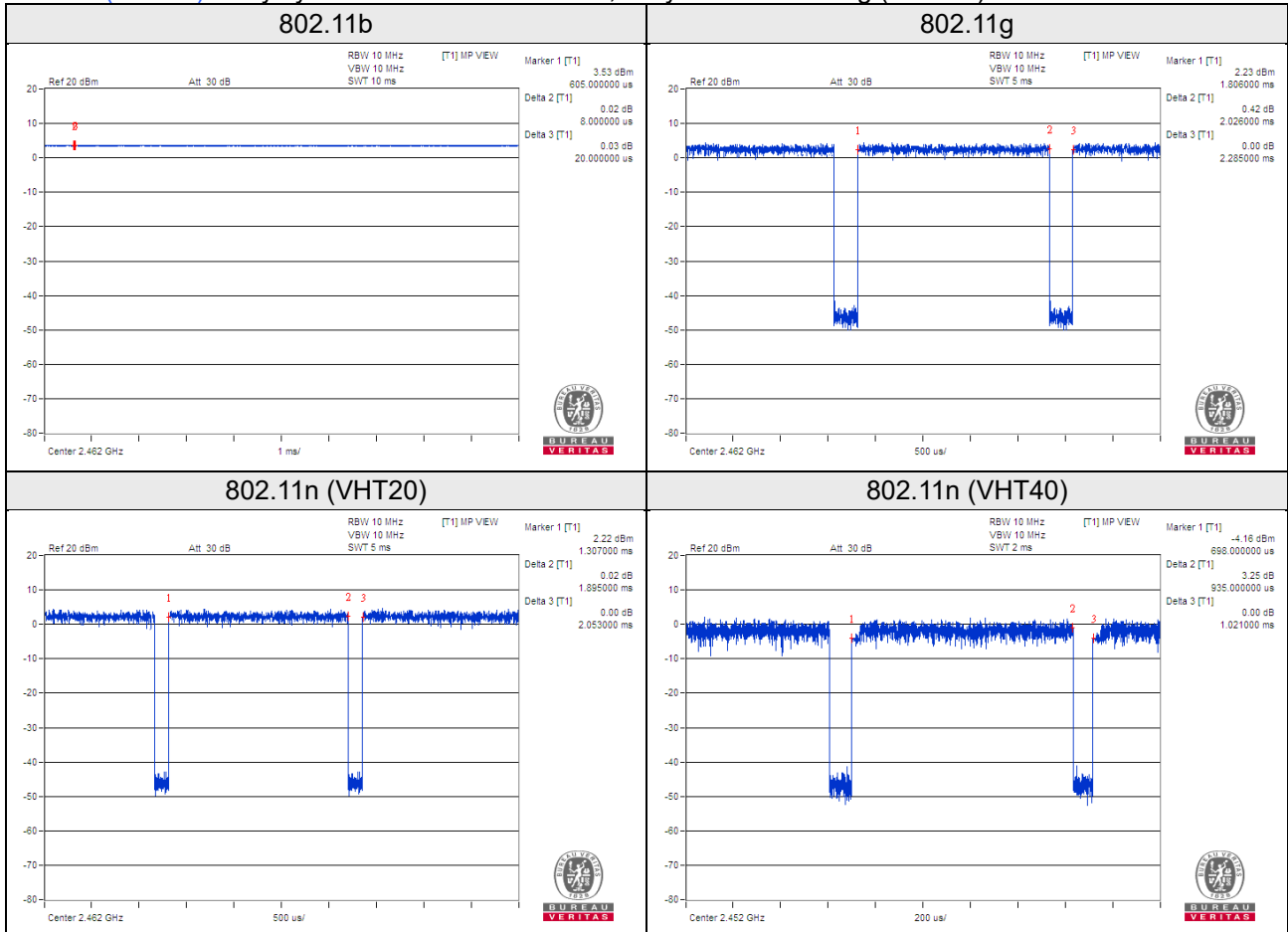
Scanning radio (Radio 3)

802.11b: Duty cycle = 100%

802.11g: Duty cycle = 2.026/2.285 = 0.887, Duty factor = $10 * \log(1/0.887) = 0.52$

802.11n (VHT20): Duty cycle = 1.895/2.053 = 0.923, Duty factor = $10 * \log(1/0.923) = 0.35$

802.11n (VHT40): Duty cycle = 0.935/1.021 = 0.916, Duty factor = $10 * \log(1/0.916) = 0.38$



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.	Adapter	Sunny	SYS1546-3612-T3	NA	NA	Provided by client
C.	POE	SENAO	EPA5006GAT	NA	NA	Provided by client
D.	Flash	HP	v250W	NA	NA	-

Note:

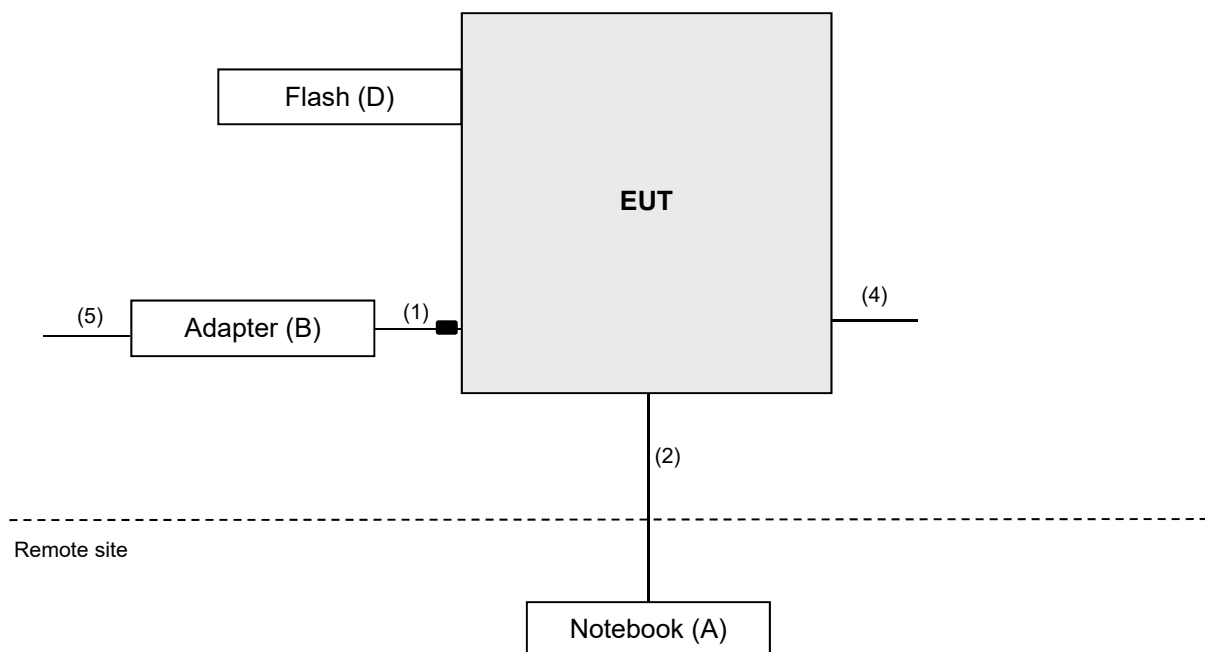
1. All power cords of the above support units are non-shielded (1.8m).
2. Items A acted as communication partner to transfer data.

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC Power cable	1	1.86	N	1	Provided by client
2.	LAN	1	7.0	N	0	RJ45, Cat5e
3.	LAN	1	1.5	N	0	RJ45, Cat5e
4.	Console	1	1.5	N	0	-
5.	AC Power cable	1	1.77	N	0	Provided by client
6.	AC Power cable	1	0.5	N	0	Provided by client

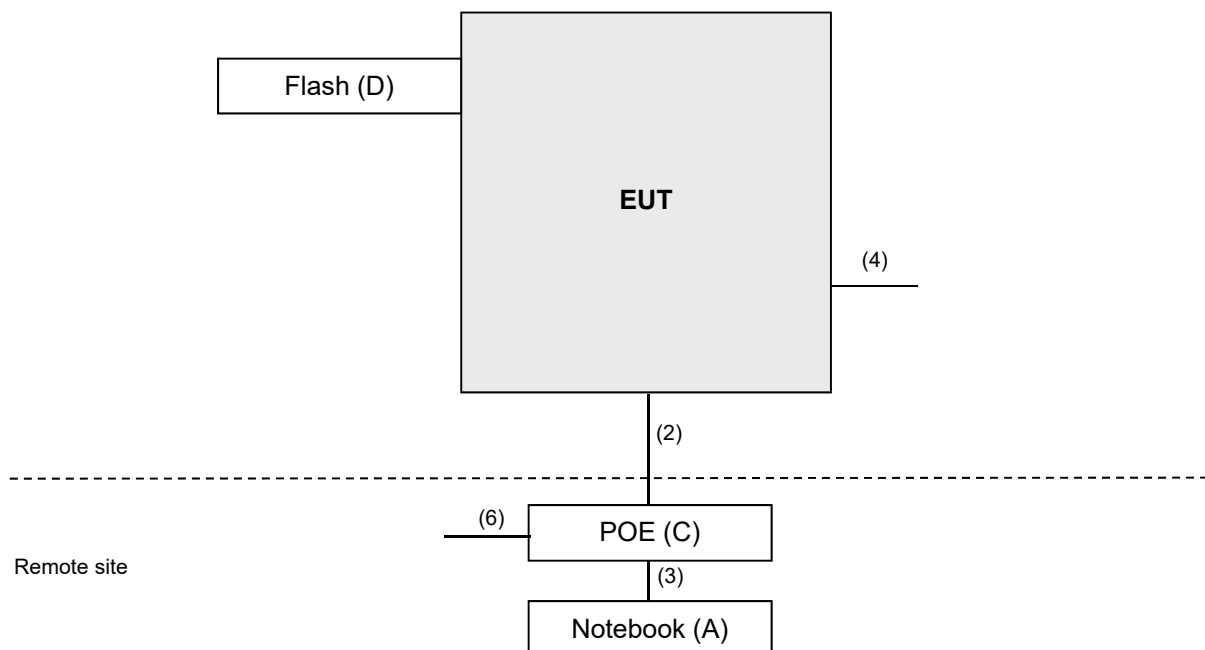
Note: The core(s) is(are) originally attached to the cable(s).

3.4.1 Configuration of System under Test

Test Mode A



Test Mode B



3.5 General Description of Applied Standards and References

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

Test standard:

FCC Part 15, Subpart C (15.247)

ANSI C63.10:2013

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

References Test Guidance:

KDB 558074 D01 15.247 Meas Guidance v05r02

KDB 662911 D01 Multiple Transmitter Output v02r01

All test items have been performed as a reference to the above KDB test guidance.

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	ESR3	102579	Jul. 07, 2020	Jul. 06, 2021
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jun. 09, 2020	Jun. 08, 2021
			Jun. 07, 2021	Jun. 06, 2022
BILOG Antenna SCHWARZBECK	VULB9168	9168-171	Nov. 04, 2020	Nov. 03, 2021
HORN Antenna SCHWARZBECK	9120D	209	Nov. 22, 2020	Nov. 21, 2021
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 22, 2020	Nov. 21, 2021
Loop Antenna TESEQ	HLA 6121	45745	Jul. 06, 2020	Jul. 05, 2021
Preamplifier Agilent (Below 1GHz)	8447D	2944A10738	Aug. 16, 2020	Aug. 15, 2021
Preamplifier Agilent (Above 1GHz)	8449B	3008A02465	Mar. 22, 2021	Mar. 21, 2022
RF Coaxial Cable WOKEN With 5dB PAD	8D-FB	Cable-CH3-01	Aug. 16, 2020	Aug. 15, 2021
RF signal cable HUBER+SUHNER	SUCOFLEX 104	Cable-CH3-03 (223653/4)	Aug. 16, 2020	Aug. 15, 2021
RF signal cable HUBER+SUHNER& EMCI	SUCOFLEX 104&EMC104-SM- SM-8000	Cable-CH3-03 (309224+170907)	Aug. 16, 2020	Aug. 15, 2021
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. 13, 2020	Jul. 12, 2021
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	10115	Feb. 03, 2021	Feb. 02, 2022

- 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:

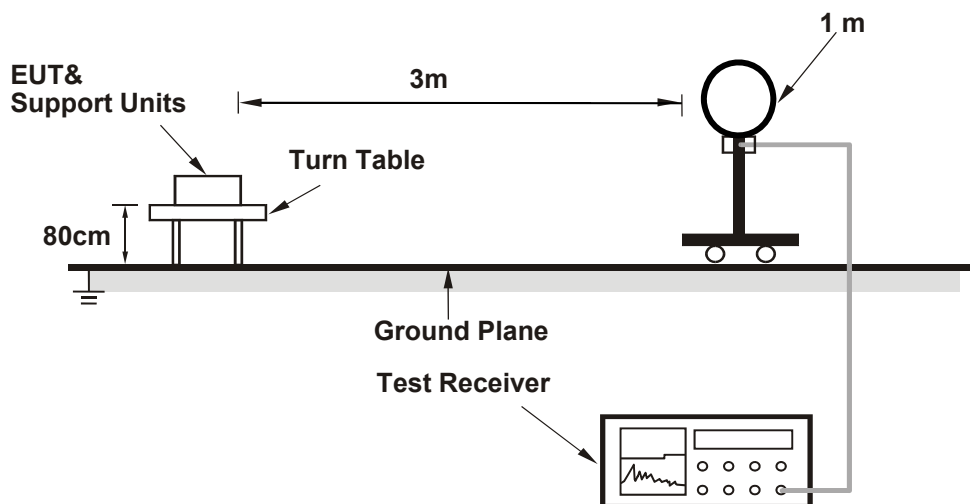
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
2G traffic radio (Radio 2)
(802.11b: RBW = 1MHz, VBW = 3kHz; 802.11g: RBW = 1MHz, VBW = 1kHz; 802.11ax (HE20): RBW = 1MHz, VBW = 1kHz; 802.11ax (HE40): RBW = 1MHz, VBW = 1kHz)
Scanning radio (Radio 3)
(802.11b: RBW = 1MHz, VBW = 10Hz; 802.11g: RBW = 1MHz, VBW = 1kHz; 802.11n (VHT20): RBW = 1MHz, VBW = 1kHz; 802.11n (VHT40): RBW = 1MHz, VBW = 3kHz)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

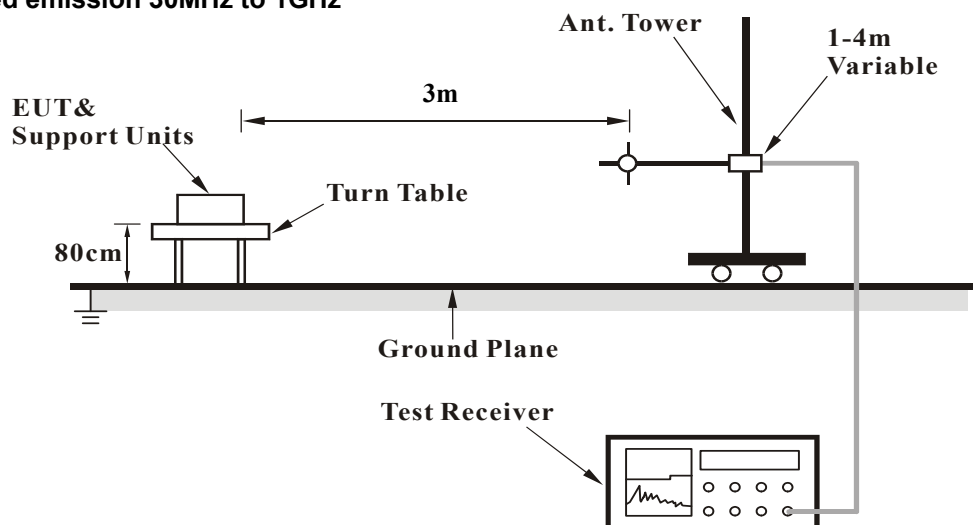
No deviation.

4.1.5 Test Setup

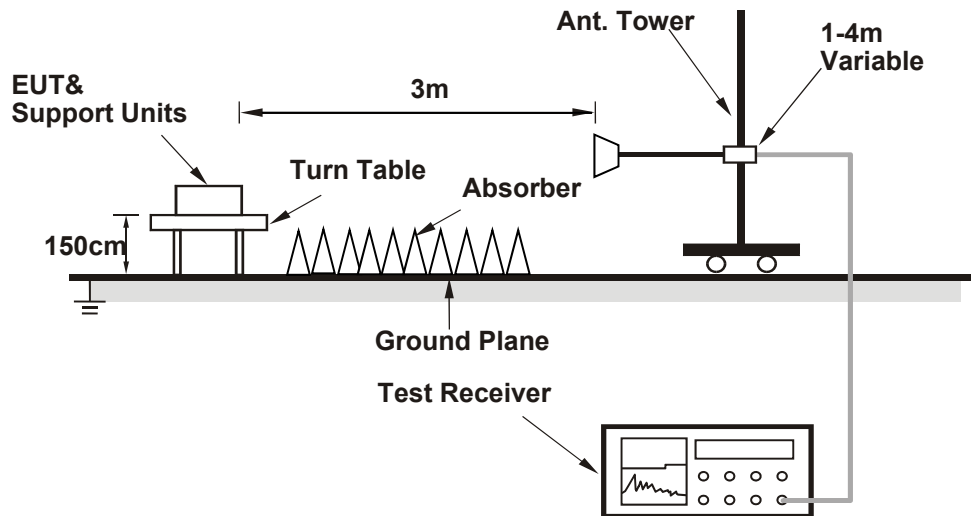
For Radiated emission below 30MHz



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 an RJ45 cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1GHz Data:

2G traffic radio (Radio 2)

RF Mode	TX 802.11b	Channel	CH 1 : 2412 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (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	59.0 PK	74.0	-15.0	1.17 H	285	24.6	34.4
2	2390.00	46.3 AV	54.0	-7.7	1.17 H	285	11.9	34.4
3	*2412.00	112.7 PK			1.17 H	285	78.4	34.3
4	*2412.00	110.1 AV			1.17 H	285	75.8	34.3
5	4824.00	50.4 PK	74.0	-23.6	1.52 H	360	44.0	6.4
6	4824.00	43.4 AV	54.0	-10.6	1.52 H	360	37.0	6.4
7	12060.00	61.6 PK	74.0	-12.4	1.54 H	349	44.5	17.1
8	12060.00	53.5 AV	54.0	-0.5	1.54 H	349	36.4	17.1

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (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	59.0 PK	74.0	-15.0	2.47 V	348	24.6	34.4
2	2390.00	46.3 AV	54.0	-7.7	2.47 V	348	11.9	34.4
3	*2412.00	112.9 PK			2.45 V	345	78.6	34.3
4	*2412.00	110.8 AV			2.45 V	345	76.5	34.3
5	4824.00	49.8 PK	74.0	-24.2	1.64 V	329	43.4	6.4
6	4824.00	41.5 AV	54.0	-12.5	1.64 V	329	35.1	6.4
7	12060.00	59.3 PK	74.0	-14.7	1.41 V	15	42.2	17.1
8	12060.00	48.0 AV	54.0	-6.0	1.41 V	15	30.9	17.1

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 other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (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	113.6 PK			1.13 H	289	79.3	34.3
2	*2437.00	111.1 AV			1.13 H	289	76.8	34.3
3	4874.00	52.3 PK	74.0	-21.7	1.48 H	10	46.5	5.8
4	4874.00	47.6 AV	54.0	-6.4	1.48 H	10	41.8	5.8

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (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			2.71 V	346	79.4	34.3
2	*2437.00	111.2 AV			2.71 V	346	76.9	34.3
3	4874.00	52.4 PK	74.0	-21.6	1.85 V	332	46.6	5.8
4	4874.00	48.1 AV	54.0	-5.9	1.85 V	332	42.3	5.8

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 other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

RF Mode	TX 802.11b	Channel	CH 11 : 2462 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (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	112.5 PK			1.26 H	281	78.1	34.4
2	*2462.00	110.1 AV			1.26 H	281	75.7	34.4
3	2483.50	61.3 PK	74.0	-12.7	2.67 H	306	26.9	34.4
4	2483.50	52.2 AV	54.0	-1.8	2.67 H	306	17.8	34.4
5	4924.00	51.0 PK	74.0	-23.0	1.12 H	335	45.3	5.7
6	4924.00	46.3 AV	54.0	-7.7	1.12 H	335	40.6	5.7

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (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	112.9 PK			2.39 V	344	78.5	34.4
2	*2462.00	110.6 AV			2.39 V	344	76.2	34.4
3	2483.50	60.4 PK	74.0	-13.6	2.63 V	307	26.0	34.4
4	2483.50	50.9 AV	54.0	-3.1	2.63 V	307	16.5	34.4
5	4924.00	51.0 PK	74.0	-23.0	1.85 V	342	45.3	5.7
6	4924.00	45.8 AV	54.0	-8.2	1.85 V	342	40.1	5.7

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11g	Channel	CH 1 : 2412 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (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	70.4 PK	74.0	-3.6	1.98 H	300	36.0	34.4
2	2390.00	51.9 AV	54.0	-2.1	1.98 H	300	17.5	34.4
3	*2412.00	111.8 PK			2.09 H	318	77.5	34.3
4	*2412.00	102.1 AV			2.09 H	318	67.8	34.3
5	4824.00	56.6 PK	74.0	-17.4	2.20 H	325	50.2	6.4
6	4824.00	41.3 AV	54.0	-12.7	2.20 H	325	34.9	6.4

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (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	70.2 PK	74.0	-3.8	2.48 V	15	35.8	34.4
2	2390.00	52.4 AV	54.0	-1.6	2.48 V	15	18.0	34.4
3	*2412.00	113.2 PK			2.43 V	353	78.9	34.3
4	*2412.00	104.0 AV			2.43 V	353	69.7	34.3
5	4824.00	60.6 PK	74.0	-13.4	1.70 V	321	54.2	6.4
6	4824.00	42.0 AV	54.0	-12.0	1.70 V	321	35.6	6.4

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 other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11g	Channel	CH 6 : 2437 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (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	117.4 PK			1.86 H	285	83.1	34.3
2	*2437.00	107.4 AV			1.86 H	285	73.1	34.3
3	4874.00	65.9 PK	74.0	-8.1	2.21 H	319	60.1	5.8
4	4874.00	45.0 AV	54.0	-9.0	2.21 H	319	39.2	5.8

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (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	117.5 PK			2.44 V	347	83.2	34.3
2	*2437.00	108.3 AV			2.44 V	347	74.0	34.3
3	4874.00	66.8 PK	74.0	-7.2	1.79 V	328	61.0	5.8
4	4874.00	46.8 AV	54.0	-7.2	1.79 V	328	41.0	5.8

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 other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11g	Channel	CH 11 : 2462 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (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	111.4 PK			1.69 H	301	77.0	34.4
2	*2462.00	102.1 AV			1.69 H	301	67.7	34.4
3	2483.50	67.1 PK	74.0	-6.9	1.67 H	306	32.7	34.4
4	2483.50	52.6 AV	54.0	-1.4	1.67 H	306	18.2	34.4
5	4924.00	53.7 PK	74.0	-20.3	2.08 H	318	48.0	5.7
6	4924.00	39.7 AV	54.0	-14.3	2.08 H	318	34.0	5.7

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (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	112.3 PK			2.26 V	327	77.9	34.4
2	*2462.00	103.1 AV			2.26 V	327	68.7	34.4
3	2483.50	64.4 PK	74.0	-9.6	2.35 V	347	30.0	34.4
4	2483.50	52.7 AV	54.0	-1.3	2.35 V	347	18.3	34.4
5	4924.00	52.2 PK	74.0	-21.8	2.42 V	335	46.5	5.7
6	4924.00	38.3 AV	54.0	-15.7	2.42 V	335	32.6	5.7

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

RF Mode	TX 802.11ax (HE20)	Channel	CH 1 : 2412 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (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	70.7 PK	74.0	-3.3	1.76 H	319	36.3	34.4
2	2390.00	52.2 AV	54.0	-1.8	1.76 H	319	17.8	34.4
3	*2412.00	117.7 PK			1.67 H	297	83.4	34.3
4	*2412.00	103.3 AV			1.67 H	297	69.0	34.3
5	4824.00	56.0 PK	74.0	-18.0	2.26 H	319	49.6	6.4
6	4824.00	42.6 AV	54.0	-11.4	2.26 H	319	36.2	6.4

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (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	69.6 PK	74.0	-4.4	2.29 V	10	35.2	34.4
2	2390.00	52.8 AV	54.0	-1.2	2.29 V	10	18.4	34.4
3	*2412.00	117.8 PK			2.40 V	348	83.5	34.3
4	*2412.00	103.4 AV			2.40 V	348	69.1	34.3
5	4824.00	62.8 PK	74.0	-11.2	2.12 V	327	56.4	6.4
6	4824.00	44.4 AV	54.0	-9.6	2.12 V	327	38.0	6.4

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 other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11ax (HE20)	Channel	CH 6 : 2437 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	120.7 PK			1.76 H	296	86.4	34.3
2	*2437.00	108.5 AV			1.76 H	296	74.2	34.3
3	2483.50	64.0 PK	74.0	-10.0	1.78 H	300	29.6	34.4
4	2483.50	51.1 AV	54.0	-2.9	1.78 H	300	16.7	34.4
5	4874.00	57.4 PK	74.0	-16.6	2.31 H	336	51.6	5.8
6	4874.00	39.8 AV	54.0	-14.2	2.31 H	336	34.0	5.8

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	120.8 PK			2.23 V	345	86.5	34.3
2	*2437.00	107.6 AV			2.23 V	345	73.3	34.3
3	2483.50	67.3 PK	74.0	-6.7	2.37 V	344	32.9	34.4
4	2483.50	52.6 AV	54.0	-1.4	2.37 V	344	18.2	34.4
5	4874.00	66.0 PK	74.0	-8.0	2.03 V	327	60.2	5.8
6	4874.00	44.8 AV	54.0	-9.2	2.03 V	327	39.0	5.8

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 other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11ax (HE20)	Channel	CH 11 : 2462 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	113.8 PK			1.72 H	299	79.4	34.4
2	*2462.00	102.2 AV			1.72 H	299	67.8	34.4
3	2483.50	66.6 PK	74.0	-7.4	1.72 H	288	32.2	34.4
4	2483.50	53.3 AV	54.0	-0.7	1.72 H	288	18.9	34.4
5	4924.00	52.5 PK	74.0	-21.5	2.17 H	318	46.8	5.7
6	4924.00	38.5 AV	54.0	-15.5	2.17 H	318	32.8	5.7

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	115.5 PK			2.47 V	329	81.1	34.4
2	*2462.00	102.6 AV			2.47 V	329	68.2	34.4
3	2483.50	65.6 PK	74.0	-8.4	2.46 V	355	31.2	34.4
4	2483.50	52.6 AV	54.0	-1.4	2.46 V	355	18.2	34.4
5	4924.00	56.9 PK	74.0	-17.1	2.18 V	327	51.2	5.7
6	4924.00	41.9 AV	54.0	-12.1	2.18 V	327	36.2	5.7

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11ax (HE40)	Channel	CH 3 : 2422 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (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	61.3 PK	74.0	-12.7	1.79 H	305	26.9	34.4
2	2390.00	48.4 AV	54.0	-5.6	1.79 H	305	14.0	34.4
3	*2422.00	113.0 PK			1.71 H	300	78.7	34.3
4	*2422.00	100.8 AV			1.71 H	300	66.5	34.3
5	4844.00	54.7 PK	74.0	-19.3	2.25 H	317	48.6	6.1
6	4844.00	44.3 AV	54.0	-9.7	2.25 H	317	38.2	6.1

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (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	69.0 PK	74.0	-5.0	2.53 V	355	34.6	34.4
2	2390.00	52.5 AV	54.0	-1.5	2.53 V	355	18.1	34.4
3	*2422.00	113.5 PK			2.69 V	329	79.2	34.3
4	*2422.00	100.5 AV			2.69 V	329	66.2	34.3
5	4844.00	55.3 PK	74.0	-18.7	1.79 V	311	49.2	6.1
6	4844.00	40.3 AV	54.0	-13.7	1.79 V	311	34.2	6.1

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 other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11ax (HE40)	Channel	CH 6 : 2437 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (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	60.3 PK	74.0	-13.7	1.66 H	302	25.9	34.4
2	2390.00	48.2 AV	54.0	-5.8	1.66 H	302	13.8	34.4
3	*2437.00	113.6 PK			1.62 H	297	79.3	34.3
4	*2437.00	101.0 AV			1.62 H	297	66.7	34.3
5	4874.00	55.7 PK	74.0	-18.3	2.11 H	336	49.9	5.8
6	4874.00	42.3 AV	54.0	-11.7	2.11 H	336	36.5	5.8

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (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	66.6 PK	74.0	-7.4	3.23 V	323	32.2	34.4
2	2390.00	52.7 AV	54.0	-1.3	3.23 V	323	18.3	34.4
3	*2437.00	114.0 PK			2.32 V	330	79.7	34.3
4	*2437.00	101.8 AV			2.32 V	330	67.5	34.3
5	4874.00	56.0 PK	74.0	-18.0	2.01 V	308	50.2	5.8
6	4874.00	39.4 AV	54.0	-14.6	2.01 V	308	33.6	5.8

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 other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11ax (HE40)	Channel	CH 9 : 2452 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2452.00	110.8 PK			1.75 H	303	76.5	34.3
2	*2452.00	99.8 AV			1.75 H	303	65.5	34.3
3	2483.50	66.6 PK	74.0	-7.4	1.77 H	302	32.2	34.4
4	2483.50	51.3 AV	54.0	-2.7	1.77 H	302	16.9	34.4
5	4904.00	55.2 PK	74.0	-18.8	2.30 H	315	49.6	5.6
6	4904.00	41.1 AV	54.0	-12.9	2.30 H	315	35.5	5.6

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (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	113.0 PK			2.57 V	330	78.7	34.3
2	*2452.00	100.5 AV			2.57 V	330	66.2	34.3
3	2483.50	69.6 PK	74.0	-4.4	2.68 V	318	35.2	34.4
4	2483.50	52.4 AV	54.0	-1.6	2.68 V	318	18.0	34.4
5	4904.00	55.8 PK	74.0	-18.2	1.87 V	324	50.2	5.6
6	4904.00	41.6 AV	54.0	-12.4	1.87 V	324	36.0	5.6

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 other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

Scanning radio (Radio 3)

RF Mode	TX 802.11b	Channel	CH 1 : 2412 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (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	1.22 H	45	25.1	34.4
2	2390.00	46.6 AV	54.0	-7.4	1.22 H	45	12.2	34.4
3	*2412.00	103.1 PK			1.20 H	41	68.8	34.3
4	*2412.00	100.4 AV			1.20 H	41	66.1	34.3
5	4824.00	53.2 PK	74.0	-20.8	1.81 H	324	46.8	6.4
6	4824.00	48.9 AV	54.0	-5.1	1.81 H	324	42.5	6.4

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (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	59.2 PK	74.0	-14.8	2.25 V	22	24.8	34.4
2	2390.00	46.2 AV	54.0	-7.8	2.25 V	22	11.8	34.4
3	*2412.00	99.4 PK			2.23 V	21	65.1	34.3
4	*2412.00	96.9 AV			2.23 V	21	62.6	34.3
5	4824.00	54.8 PK	74.0	-19.2	1.63 V	341	48.4	6.4
6	4824.00	50.8 AV	54.0	-3.2	1.63 V	341	44.4	6.4

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 other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (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	100.5 PK			1.33 H	39	66.2	34.3
2	*2437.00	97.9 AV			1.33 H	39	63.6	34.3
3	4874.00	54.0 PK	74.0	-20.0	2.39 H	325	48.2	5.8
4	4874.00	50.0 AV	54.0	-4.0	2.39 H	325	44.2	5.8

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	99.5 PK			2.04 V	16	65.2	34.3
2	*2437.00	96.9 AV			2.04 V	16	62.6	34.3
3	4874.00	54.4 PK	74.0	-19.6	1.76 V	8	48.6	5.8
4	4874.00	50.9 AV	54.0	-3.1	1.76 V	8	45.1	5.8

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 other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11b	Channel	CH 11 : 2462 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (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	101.0 PK			1.23 H	34	66.6	34.4
2	*2462.00	98.6 AV			1.23 H	34	64.2	34.4
3	2483.50	59.5 PK	74.0	-14.5	1.26 H	35	25.1	34.4
4	2483.50	48.4 AV	54.0	-5.6	1.26 H	35	14.0	34.4
5	4924.00	52.5 PK	74.0	-21.5	2.47 H	334	46.8	5.7
6	4924.00	47.8 AV	54.0	-6.2	2.47 H	334	42.1	5.7

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2462.00	100.4 PK			2.22 V	10	66.0	34.4
2	*2462.00	97.7 AV			2.22 V	10	63.3	34.4
3	2483.50	59.2 PK	74.0	-14.8	2.26 V	15	24.8	34.4
4	2483.50	48.3 AV	54.0	-5.7	2.26 V	15	13.9	34.4
5	4924.00	53.6 PK	74.0	-20.4	1.62 V	8	47.9	5.7
6	4924.00	49.4 AV	54.0	-4.6	1.62 V	8	43.7	5.7

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11g	Channel	CH 1 : 2412 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (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	1.25 H	39	25.1	34.4
2	2390.00	46.6 AV	54.0	-7.4	1.25 H	39	12.2	34.4
3	*2412.00	103.9 PK			1.22 H	37	69.6	34.3
4	*2412.00	93.8 AV			1.22 H	37	59.5	34.3
5	4824.00	51.5 PK	74.0	-22.5	2.03 H	323	45.1	6.4
6	4824.00	37.7 AV	54.0	-16.3	2.03 H	323	31.3	6.4

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	59.7 PK	74.0	-14.3	1.69 V	10	25.3	34.4
2	2390.00	46.5 AV	54.0	-7.5	1.69 V	10	12.1	34.4
3	*2412.00	102.3 PK			1.80 V	18	68.0	34.3
4	*2412.00	92.0 AV			1.80 V	18	57.7	34.3
5	4824.00	49.1 PK	74.0	-24.9	1.72 V	10	42.7	6.4
6	4824.00	35.6 AV	54.0	-18.4	1.72 V	10	29.2	6.4

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 other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

RF Mode	TX 802.11g	Channel	CH 6 : 2437 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (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	101.7 PK			1.34 H	43	67.4	34.3
2	*2437.00	91.9 AV			1.34 H	43	57.6	34.3
3	4874.00	50.0 PK	74.0	-24.0	2.05 H	328	44.2	5.8
4	4874.00	36.0 AV	54.0	-18.0	2.05 H	328	30.2	5.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (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	101.1 PK			2.01 V	15	66.8	34.3
2	*2437.00	90.5 AV			2.01 V	15	56.2	34.3
3	4874.00	48.6 PK	74.0	-25.4	1.66 V	17	42.8	5.8
4	4874.00	35.3 AV	54.0	-18.7	1.66 V	17	29.5	5.8

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 other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11g	Channel	CH 11 : 2462 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (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	102.8 PK			1.02 H	39	68.4	34.4
2	*2462.00	93.0 AV			1.02 H	39	58.6	34.4
3	2483.50	59.2 PK	74.0	-14.8	1.05 H	41	24.8	34.4
4	2483.50	48.4 AV	54.0	-5.6	1.05 H	41	14.0	34.4
5	4924.00	49.9 PK	74.0	-24.1	2.08 H	328	44.2	5.7
6	4924.00	35.8 AV	54.0	-18.2	2.08 H	328	30.1	5.7

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (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	102.5 PK			2.27 V	14	68.1	34.4
2	*2462.00	92.1 AV			2.27 V	14	57.7	34.4
3	2483.50	59.1 PK	74.0	-14.9	2.29 V	18	24.7	34.4
4	2483.50	47.9 AV	54.0	-6.1	2.29 V	18	13.5	34.4
5	4924.00	48.9 PK	74.0	-25.1	1.66 V	11	43.2	5.7
6	4924.00	34.9 AV	54.0	-19.1	1.66 V	11	29.2	5.7

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11n (VHT20)	Channel	CH 1 : 2412 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	58.7 PK	74.0	-15.3	1.19 H	45	24.3	34.4
2	2390.00	46.4 AV	54.0	-7.6	1.19 H	45	12.0	34.4
3	*2412.00	103.7 PK			1.18 H	44	69.4	34.3
4	*2412.00	93.4 AV			1.18 H	44	59.1	34.3
5	4824.00	49.8 PK	74.0	-24.2	1.82 H	317	43.4	6.4
6	4824.00	37.5 AV	54.0	-16.5	1.82 H	317	31.1	6.4

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (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	60.0 PK	74.0	-14.0	2.50 V	21	25.6	34.4
2	2390.00	46.4 AV	54.0	-7.6	2.50 V	21	12.0	34.4
3	*2412.00	101.3 PK			2.47 V	19	67.0	34.3
4	*2412.00	91.1 AV			2.47 V	19	56.8	34.3
5	4824.00	47.8 PK	74.0	-26.2	1.75 V	8	41.4	6.4
6	4824.00	35.0 AV	54.0	-19.0	1.75 V	8	28.6	6.4

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 other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11n (VHT20)	Channel	CH 6 : 2437 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (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	101.6 PK			1.34 H	45	67.3	34.3
2	*2437.00	92.0 AV			1.34 H	45	57.7	34.3
3	4874.00	47.9 PK	74.0	-26.1	2.34 H	321	42.1	5.8
4	4874.00	37.0 AV	54.0	-17.0	2.34 H	321	31.2	5.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	99.1 PK			2.25 V	15	64.8	34.3
2	*2437.00	89.5 AV			2.25 V	15	55.2	34.3
3	4874.00	46.9 PK	74.0	-27.1	1.79 V	14	41.1	5.8
4	4874.00	33.4 AV	54.0	-20.6	1.79 V	14	27.6	5.8

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 other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11n (VHT20)	Channel	CH 11 : 2462 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (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	102.6 PK			1.00 H	38	68.2	34.4
2	*2462.00	92.7 AV			1.00 H	38	58.3	34.4
3	2483.50	58.8 PK	74.0	-15.2	1.06 H	36	24.4	34.4
4	2483.50	48.4 AV	54.0	-5.6	1.06 H	36	14.0	34.4
5	4924.00	47.6 PK	74.0	-26.4	2.36 H	335	41.9	5.7
6	4924.00	35.2 AV	54.0	-18.8	2.36 H	335	29.5	5.7

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (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	102.0 PK			2.27 V	13	67.6	34.4
2	*2462.00	91.8 AV			2.27 V	13	57.4	34.4
3	2483.50	59.4 PK	74.0	-14.6	2.30 V	15	25.0	34.4
4	2483.50	48.3 AV	54.0	-5.7	2.30 V	15	13.9	34.4
5	4924.00	46.8 PK	74.0	-27.2	1.69 V	9	41.1	5.7
6	4924.00	33.7 AV	54.0	-20.3	1.69 V	9	28.0	5.7

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

RF Mode	TX 802.11n (VHT40)	Channel	CH 3 : 2422 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	60.1 PK	74.0	-13.9	1.20 H	50	25.7	34.4
2	2390.00	47.1 AV	54.0	-6.9	1.20 H	50	12.7	34.4
3	*2422.00	101.2 PK			1.19 H	47	66.9	34.3
4	*2422.00	90.9 AV			1.19 H	47	56.6	34.3
5	4844.00	47.8 PK	74.0	-26.2	2.39 H	317	41.7	6.1
6	4844.00	35.9 AV	54.0	-18.1	2.39 H	317	29.8	6.1

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (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	59.0 PK	74.0	-15.0	2.80 V	5	24.6	34.4
2	2390.00	46.8 AV	54.0	-7.2	2.80 V	5	12.4	34.4
3	*2422.00	98.7 PK			2.99 V	1	64.4	34.3
4	*2422.00	87.5 AV			2.99 V	1	53.2	34.3
5	4844.00	46.7 PK	74.0	-27.3	1.77 V	10	40.6	6.1
6	4844.00	34.5 AV	54.0	-19.5	1.77 V	10	28.4	6.1

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 other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11n (VHT40)	Channel	CH 6 : 2437 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2437.00	99.9 PK			1.26 H	40	65.6	34.3
2	*2437.00	89.0 AV			1.26 H	40	54.7	34.3
3	4874.00	47.3 PK	74.0	-26.7	2.18 H	329	41.5	5.8
4	4874.00	34.9 AV	54.0	-19.1	2.18 H	329	29.1	5.8
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (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	97.1 PK			2.99 V	23	62.8	34.3
2	*2437.00	87.2 AV			2.99 V	23	52.9	34.3
3	4874.00	47.1 PK	74.0	-26.9	1.61 V	9	41.3	5.8
4	4874.00	34.3 AV	54.0	-19.7	1.61 V	9	28.5	5.8

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 other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

RF Mode	TX 802.11n (VHT40)	Channel	CH 9 : 2452 MHz
Frequency Range	1GHz ~ 25GHz	Detector Function	Peak (PK) Average (AV)

Antenna Polarity & Test Distance : Horizontal at 3 m

No	Frequency (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	99.7 PK			1.30 H	41	65.4	34.3
2	*2452.00	89.1 AV			1.30 H	41	54.8	34.3
3	2483.50	62.5 PK	74.0	-11.5	1.33 H	40	28.1	34.4
4	2483.50	50.6 AV	54.0	-3.4	1.33 H	40	16.2	34.4
5	4904.00	47.4 PK	74.0	-26.6	2.51 H	337	41.8	5.6
6	4904.00	34.9 AV	54.0	-19.1	2.51 H	337	29.3	5.6

Antenna Polarity & Test Distance : Vertical at 3 m

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2452.00	98.1 PK			2.97 V	24	63.8	34.3
2	*2452.00	87.0 AV			2.97 V	24	52.7	34.3
3	2483.50	60.5 PK	74.0	-13.5	2.99 V	30	26.1	34.4
4	2483.50	49.1 AV	54.0	-4.9	2.99 V	30	14.7	34.4
5	4904.00	46.8 PK	74.0	-27.2	1.66 V	342	41.2	5.6
6	4904.00	34.0 AV	54.0	-20.0	1.66 V	342	28.4	5.6

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 other emission levels were very low against the limit.
5. " * " : Fundamental frequency.

Below 1GHz worst-case data:

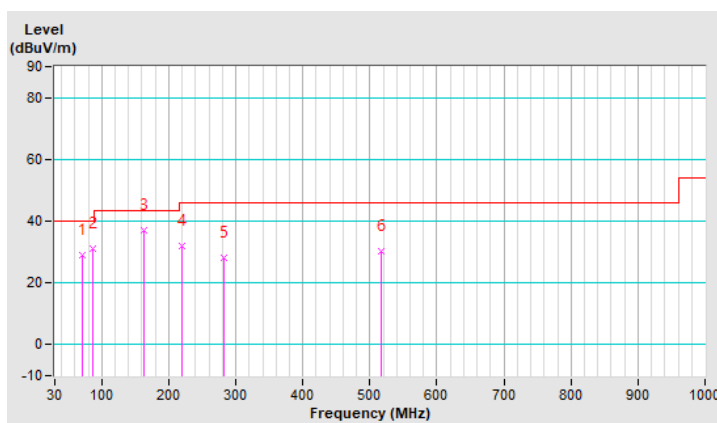
2G traffic radio (Radio 2)

RF Mode	TX 802.11ax (HE20)	Channel	CH 6 : 2437 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Test Mode	A		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	70.77	29.1 QP	40.0	-10.9	1.00 H	30	40.2	-11.1
2	87.64	31.1 QP	40.0	-8.9	1.99 H	73	45.5	-14.4
3	162.14	37.1 QP	43.5	-6.4	1.49 H	220	45.5	-8.4
4	219.78	31.9 QP	46.0	-14.1	1.00 H	179	42.4	-10.5
5	283.04	28.2 QP	46.0	-17.8	1.00 H	201	35.1	-6.9
6	517.81	30.4 QP	46.0	-15.6	1.49 H	161	32.3	-1.9

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

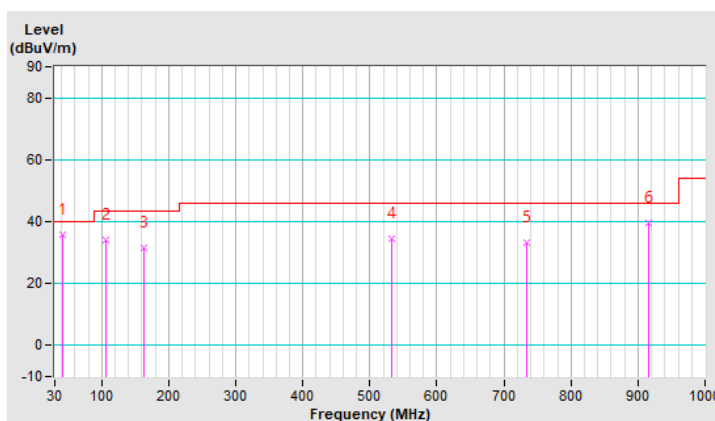


RF Mode	TX 802.11ax (HE20)	Channel	CH 6 : 2437 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Test Mode	A		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	42.65	35.7 QP	40.0	-4.3	1.00 V	332	45.1	-9.4
2	105.91	34.1 QP	43.5	-9.4	1.00 V	48	46.5	-12.4
3	162.14	31.6 QP	43.5	-11.9	1.00 V	259	40.0	-8.4
4	533.28	34.6 QP	46.0	-11.4	1.99 V	14	36.2	-1.6
5	734.30	33.1 QP	46.0	-12.9	1.50 V	7	30.2	2.9
6	915.65	39.6 QP	46.0	-6.4	1.00 V	128	33.4	6.2

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 other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

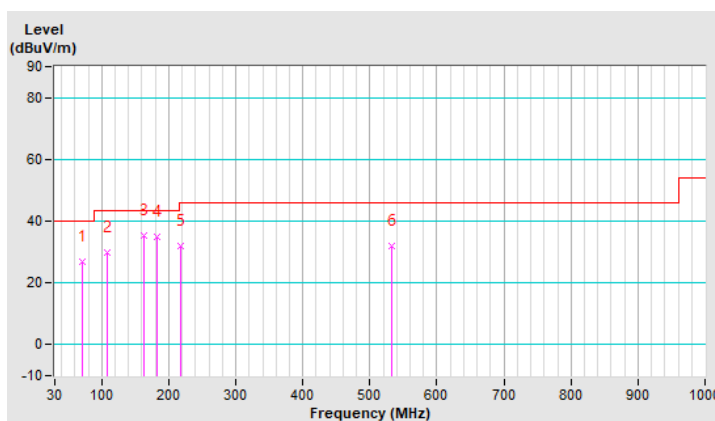


RF Mode	TX 802.11ax (HE20)	Channel	CH 6 : 2437 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Test Mode	B		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	70.77	26.9 QP	40.0	-13.1	1.00 H	8	38.0	-11.1
2	108.72	29.7 QP	43.5	-13.8	1.49 H	6	41.7	-12.0
3	163.55	35.3 QP	43.5	-8.2	1.49 H	241	43.8	-8.5
4	183.23	34.9 QP	43.5	-8.6	1.00 H	206	45.1	-10.2
5	218.38	31.8 QP	46.0	-14.2	1.00 H	192	42.4	-10.6
6	533.28	31.9 QP	46.0	-14.1	1.49 H	178	33.5	-1.6

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 other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

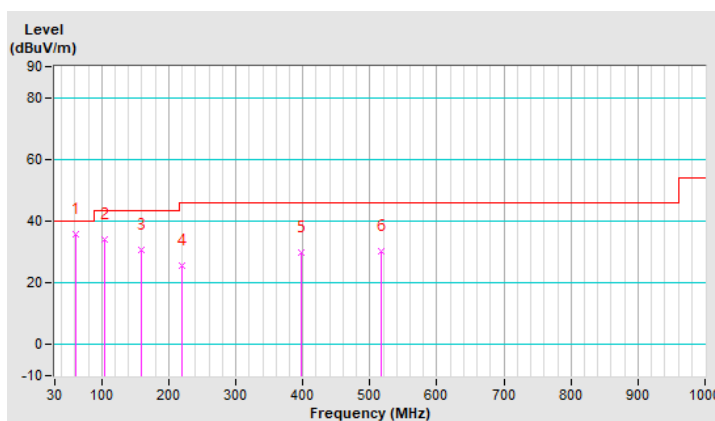


RF Mode	TX 802.11ax (HE20)	Channel	CH 6 : 2437 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Test Mode	B		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	60.93	35.6 QP	40.0	-4.4	1.00 V	304	45.4	-9.8
2	104.51	34.0 QP	43.5	-9.5	1.00 V	46	46.5	-12.5
3	159.33	30.8 QP	43.5	-12.7	1.00 V	221	39.1	-8.3
4	219.78	25.7 QP	46.0	-20.3	1.49 V	43	36.2	-10.5
5	398.32	30.0 QP	46.0	-16.0	1.00 V	148	34.8	-4.8
6	517.81	30.4 QP	46.0	-15.6	1.00 V	11	32.3	-1.9

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



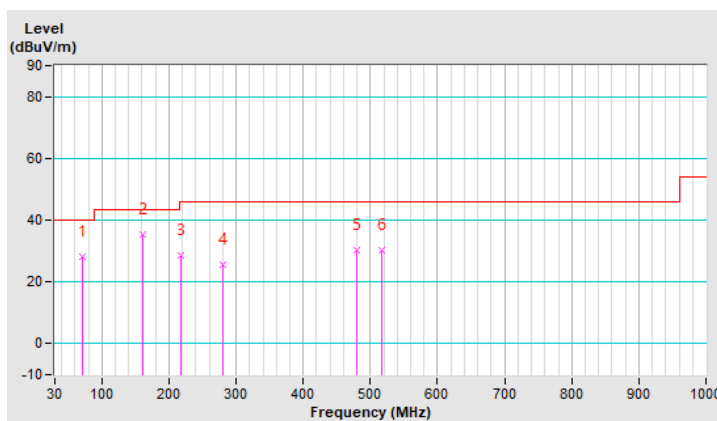
Scanning radio (Radio 3)

RF Mode	TX 802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Test Mode	A		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	70.77	28.3 QP	40.0	-11.7	1.00 H	16	39.4	-11.1
2	160.74	35.3 QP	43.5	-8.2	1.50 H	234	43.7	-8.4
3	218.38	28.4 QP	46.0	-17.6	1.50 H	200	39.0	-10.6
4	280.23	25.4 QP	46.0	-20.6	1.50 H	350	32.3	-6.9
5	479.86	30.2 QP	46.0	-15.8	1.00 H	321	32.8	-2.6
6	517.81	30.3 QP	46.0	-15.7	1.50 H	144	32.2	-1.9

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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

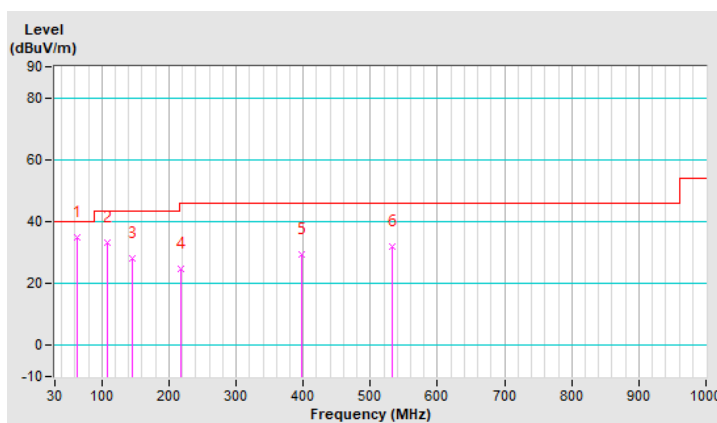


RF Mode	TX 802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Test Mode	A		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	62.33	35.0 QP	40.0	-5.0	2.00 V	314	44.7	-9.7
2	108.72	33.2 QP	43.5	-10.3	1.50 V	64	45.2	-12.0
3	145.28	28.1 QP	43.5	-15.4	1.50 V	345	36.8	-8.7
4	218.38	24.8 QP	46.0	-21.2	1.50 V	44	35.4	-10.6
5	396.91	29.5 QP	46.0	-16.5	1.50 V	357	34.3	-4.8
6	533.28	32.1 QP	46.0	-13.9	1.00 V	0	33.7	-1.6

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 other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

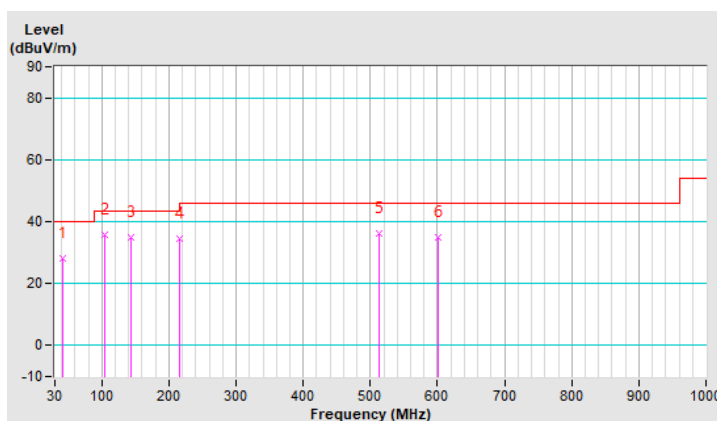


RF Mode	TX 802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Test Mode	B		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	42.65	28.3 QP	40.0	-11.7	1.49 H	49	37.7	-9.4
2	104.51	35.9 QP	43.5	-7.6	1.49 H	284	48.4	-12.5
3	142.46	34.8 QP	43.5	-8.7	1.00 H	96	43.7	-8.9
4	215.57	34.5 QP	43.5	-9.0	1.00 H	205	45.2	-10.7
5	513.59	36.2 QP	46.0	-9.8	1.49 H	170	38.2	-2.0
6	600.75	35.0 QP	46.0	-11.0	1.49 H	18	34.7	0.3

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 other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

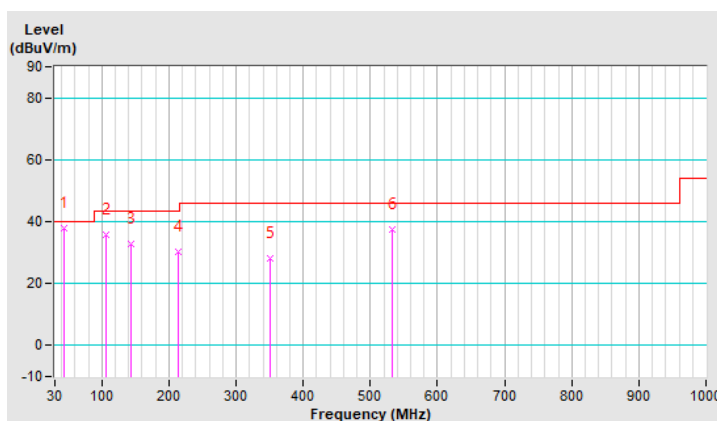


RF Mode	TX 802.11b	Channel	CH 6 : 2437 MHz
Frequency Range	30MHz ~ 1GHz	Detector Function	Quasi-Peak (QP)
Test Mode	B		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	44.06	37.8 QP	40.0	-2.2	1.00 V	19	47.0	-9.2
2	105.91	35.6 QP	43.5	-7.9	1.50 V	170	48.0	-12.4
3	143.87	32.7 QP	43.5	-10.8	1.00 V	283	41.5	-8.8
4	214.16	30.4 QP	43.5	-13.1	1.50 V	356	41.2	-10.8
5	350.52	28.0 QP	46.0	-18.0	1.00 V	204	33.6	-5.6
6	533.28	37.3 QP	46.0	-8.7	1.00 V	151	38.9	-1.6

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 other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB 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: Apr. 06, 2021

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESR3	102783	Dec. 21, 2020	Dec. 20, 2021
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond2-01	Sep. 04, 2020	Sep. 03, 2021
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Jan. 28, 2021	Jan. 27, 2022
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Aug. 18, 2020	Aug. 17, 2021
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 2 (Conduction 2).

3. The VCCI Site Registration No. is C-12047.

4.2.3 Test Procedures

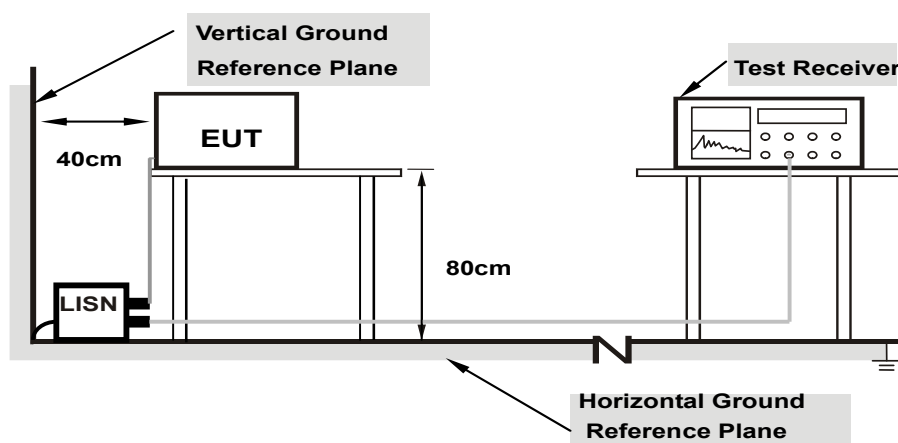
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

Worst-case data:

2G traffic radio (Radio 2)

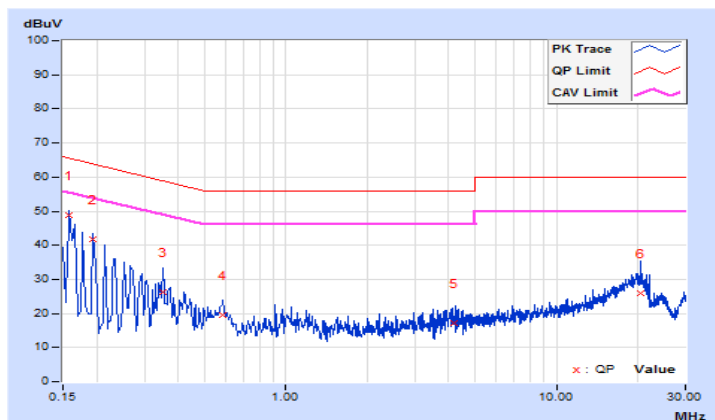
802.11ax (HE20)

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

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15687	10.07	38.88	21.20	48.95	31.27	65.63	55.63	-16.68	-24.36
2	0.19265	10.08	31.72	12.84	41.80	22.92	63.92	53.92	-22.12	-31.00
3	0.34943	10.09	16.29	2.78	26.38	12.87	58.98	48.98	-32.60	-36.11
4	0.58102	10.11	9.35	2.70	19.46	12.81	56.00	46.00	-36.54	-33.19
5	4.17400	10.22	6.87	1.88	17.09	12.10	56.00	46.00	-38.91	-33.90
6	20.40200	10.44	15.60	7.70	26.04	18.14	60.00	50.00	-33.96	-31.86

Remarks:

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

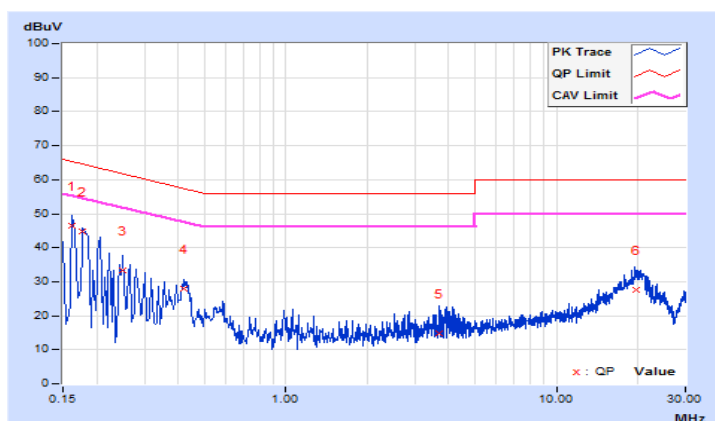


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.16105	10.08	36.26	17.07	46.34	27.15	65.41
2	0.17615	10.08	34.83	16.32	44.91	26.40	64.67	54.67	-19.76	-28.27
3	0.24810	10.08	23.27	6.85	33.35	16.93	61.82	51.82	-28.47	-34.89
4	0.42020	10.10	17.72	10.80	27.82	20.90	57.44	47.44	-29.62	-26.54
5	3.66600	10.24	4.70	3.22	14.94	13.46	56.00	46.00	-41.06	-32.54
6	19.63000	10.64	17.10	9.46	27.74	20.10	60.00	50.00	-32.26	-29.90

Remarks:

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

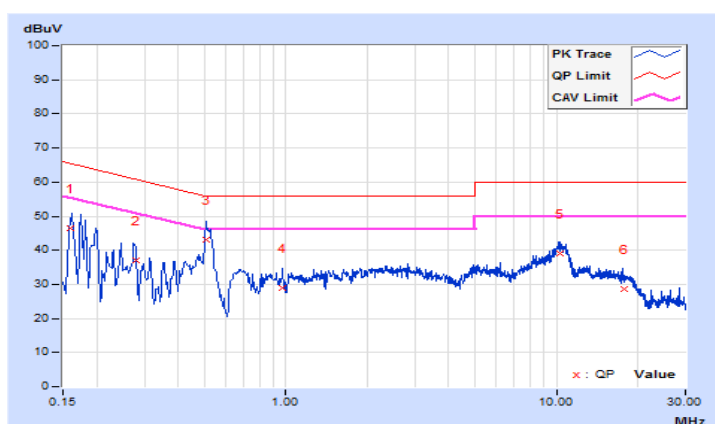


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15895	10.07	36.24	25.35	46.31	35.42	65.52
2	0.27800	10.08	26.88	17.53	36.96	27.61	60.88	50.88	-23.92	-23.27
3	0.50530	10.10	32.90	26.43	43.00	36.53	56.00	46.00	-13.00	-9.47
4	0.96864	10.14	18.87	13.79	29.01	23.93	56.00	46.00	-26.99	-22.07
5	10.25800	10.32	28.61	23.36	38.93	33.68	60.00	50.00	-21.07	-16.32
6	17.72200	10.42	18.12	12.64	28.54	23.06	60.00	50.00	-31.46	-26.94

Remarks:

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

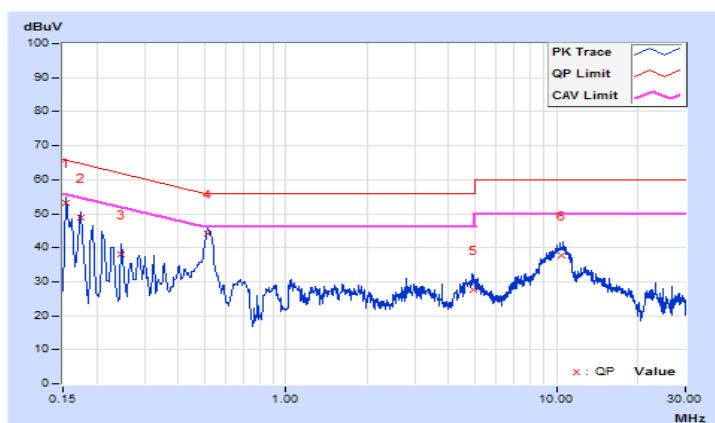


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15400	10.08	43.08	27.22	53.16	37.30	65.78	55.78	-12.62	-18.48
2	0.17384	10.08	38.74	23.24	48.82	33.32	64.77	54.77	-15.95	-21.45
3	0.24485	10.08	27.96	15.99	38.04	26.07	61.93	51.93	-23.89	-25.86
4	0.51335	10.11	34.11	28.56	44.22	38.67	56.00	46.00	-11.78	-7.33
5	4.90885	10.28	17.31	10.68	27.59	20.96	56.00	46.00	-28.41	-25.04
6	10.39800	10.42	27.22	21.99	37.64	32.41	60.00	50.00	-22.36	-17.59

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.



Scanning radio (Radio 3)

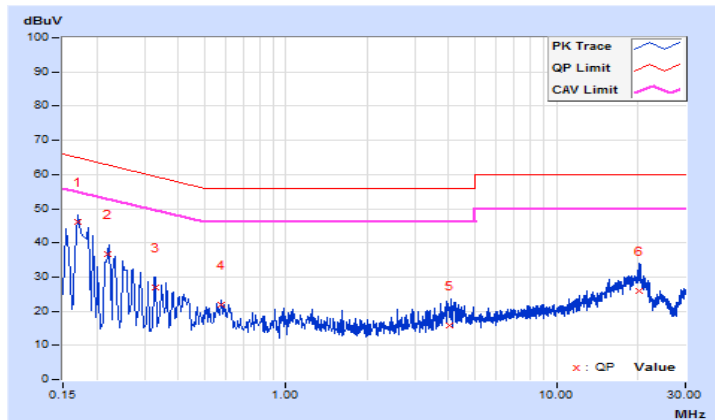
802.11b

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

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.16932	10.07	35.93	17.95	46.00	28.02	64.99
2	0.21862	10.08	26.68	9.12	36.76	19.20	62.87	52.87	-26.11	-33.67
3	0.32802	10.09	16.94	2.47	27.03	12.56	59.50	49.50	-32.47	-36.94
4	0.57342	10.10	11.90	4.24	22.00	14.34	56.00	46.00	-34.00	-31.66
5	4.01800	10.22	5.47	2.19	15.69	12.41	56.00	46.00	-40.31	-33.59
6	20.11000	10.45	15.57	7.85	26.02	18.30	60.00	50.00	-33.98	-31.70

Remarks:

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

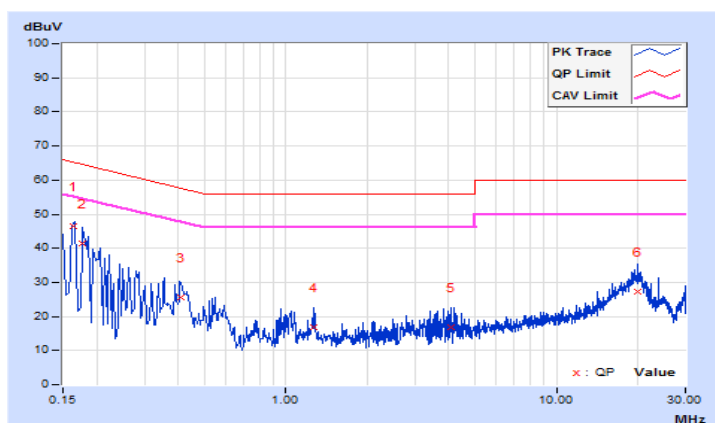


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.16319	10.08	36.47	19.93	46.55	30.01	65.30
2	0.17615	10.08	31.24	11.81	41.32	21.89	64.67	54.67	-23.35	-32.78
3	0.41000	10.10	15.41	7.84	25.51	17.94	57.65	47.65	-32.14	-29.71
4	1.26061	10.16	6.78	5.14	16.94	15.30	56.00	46.00	-39.06	-30.70
5	4.05800	10.26	6.41	3.81	16.67	14.07	56.00	46.00	-39.33	-31.93
6	19.91400	10.65	16.73	9.01	27.38	19.66	60.00	50.00	-32.62	-30.34

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.

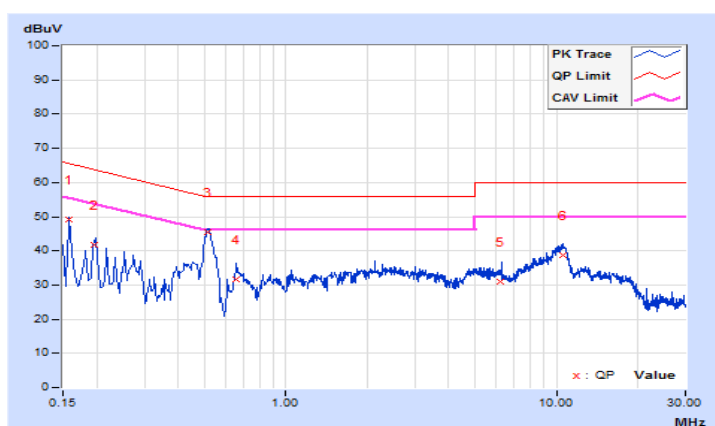


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15687	10.07	39.21	23.53	49.28	33.60	65.63
2	0.19469	10.08	31.75	16.45	41.83	26.53	63.83	53.83	-22.00	-27.30
3	0.51200	10.10	35.36	29.82	45.46	39.92	56.00	46.00	-10.54	-6.08
4	0.65588	10.11	21.63	16.62	31.74	26.73	56.00	46.00	-24.26	-19.27
5	6.18600	10.26	20.72	15.09	30.98	25.35	60.00	50.00	-29.02	-24.65
6	10.53800	10.33	28.42	23.44	38.75	33.77	60.00	50.00	-21.25	-16.23

Remarks:

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

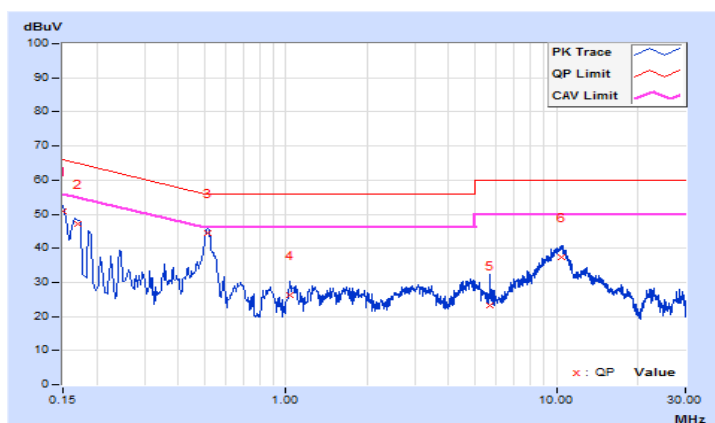


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			1	0.15000	10.08	40.80	24.80	50.88	34.88	66.00
2	0.17000	10.08	36.89	21.29	46.97	31.37	64.96	54.96	-17.99	-23.59
3	0.51200	10.11	34.36	28.72	44.47	38.83	56.00	46.00	-11.53	-7.17
4	1.02915	10.15	16.03	9.91	26.18	20.06	56.00	46.00	-29.82	-25.94
5	5.64445	10.30	12.87	6.25	23.17	16.55	60.00	50.00	-36.83	-33.45
6	10.40093	10.42	26.98	21.73	37.40	32.15	60.00	50.00	-22.60	-17.85

Remarks:

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

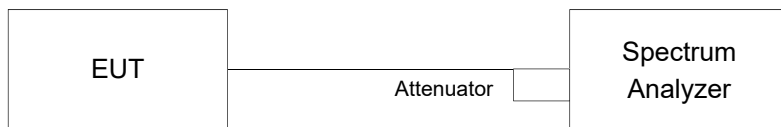


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

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

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

2G traffic radio (Radio 2)

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	8.09	6.64	7.59	7.57	0.50	Pass
6	2437	8.06	7.62	7.13	7.13	0.50	Pass
11	2462	8.59	8.57	8.07	8.07	0.50	Pass

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	16.10	16.36	16.36	16.35	0.50	Pass
6	2437	15.55	15.72	15.79	15.55	0.50	Pass
11	2462	15.81	15.79	15.98	15.81	0.50	Pass

802.11ax (HE20)

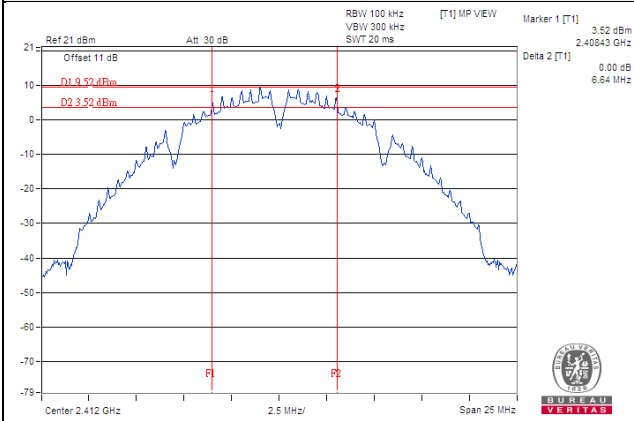
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
1	2412	18.84	18.95	18.81	18.87	0.50	Pass
6	2437	18.70	18.70	18.91	18.91	0.50	Pass
11	2462	18.95	18.93	18.98	18.91	0.50	Pass

802.11ax (HE40)

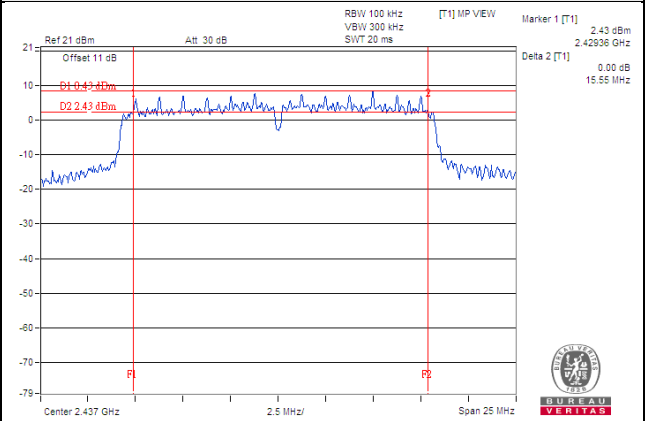
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3		
3	2422	38.06	37.92	38.01	37.98	0.50	Pass
6	2437	38.02	37.97	38.13	38.04	0.50	Pass
9	2452	37.90	37.80	36.11	37.68	0.50	Pass

Spectrum Plot of Worst Value

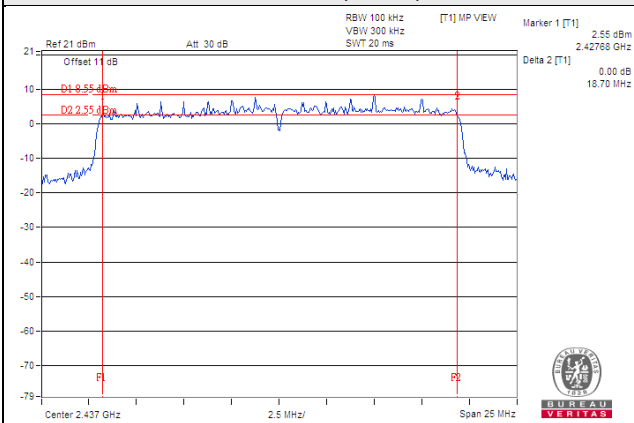
802.11b



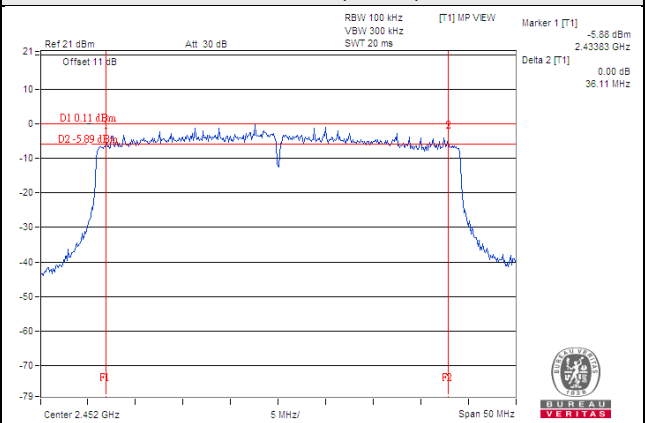
802.11g



802.11ax (HE20)



802.11ax (HE40)



Scanning radio (Radio 3)

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	7.10	0.50	Pass
6	2437	7.11	0.50	Pass
11	2462	7.09	0.50	Pass

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	16.13	0.50	Pass
6	2437	16.34	0.50	Pass
11	2462	16.37	0.50	Pass

802.11n (VHT20)

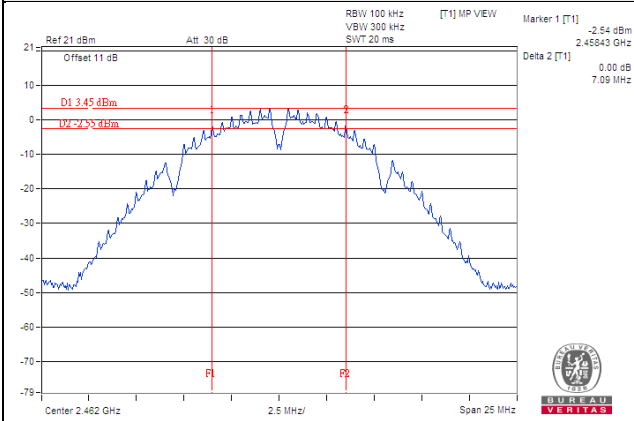
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	16.58	0.50	Pass
6	2437	16.36	0.50	Pass
11	2462	17.33	0.50	Pass

802.11n (VHT40)

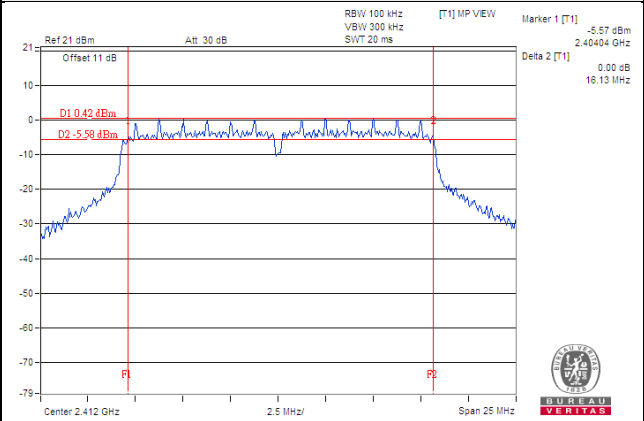
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
3	2422	35.96	0.50	Pass
6	2437	35.56	0.50	Pass
9	2452	36.09	0.50	Pass

Spectrum Plot of Worst Value

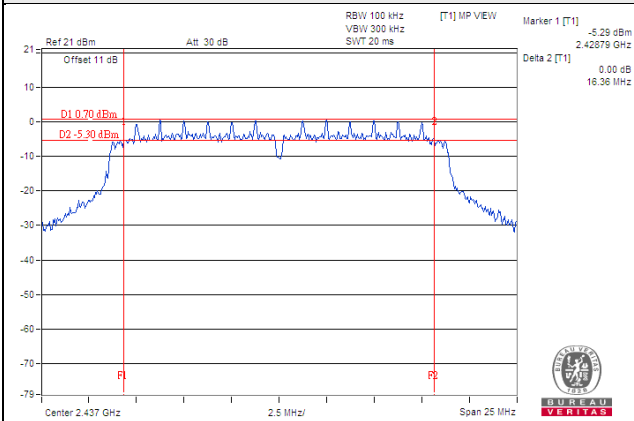
802.11b



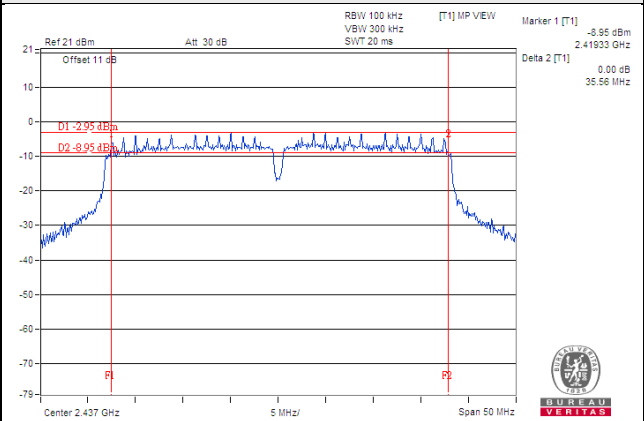
802.11g



802.11n (VHT20)



802.11n (VHT40)



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,

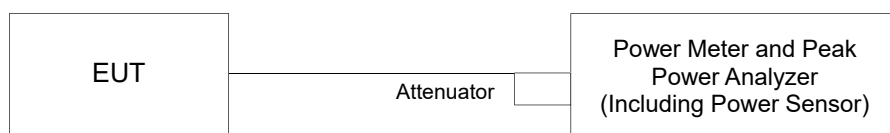
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

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

2G traffic radio (Radio 2)

CDD Mode

802.11b

Channel	Frequency (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	18.62	18.82	18.88	18.79	301.937	24.80	30	Pass
6	2437	20.02	20.06	20.12	20.15	408.169	26.11	30	Pass
11	2462	19.03	19.04	19.19	19.22	326.697	25.14	30	Pass

802.11g

Channel	Frequency (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	15.74	15.76	15.95	15.99	154.242	21.88	30	Pass
6	2437	20.19	20.32	20.42	20.45	433.190	26.37	30	Pass
11	2462	15.64	15.82	15.99	16.22	156.437	21.94	30	Pass

802.11n (VHT20)

Channel	Frequency (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	15.08	15.50	15.50	15.63	139.733	21.45	30	Pass
6	2437	20.31	20.34	20.43	20.51	438.411	26.42	30	Pass
11	2462	14.53	14.94	15.15	15.17	125.187	20.98	30	Pass

802.11n (VHT40)

Channel	Frequency (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	15.20	15.23	15.62	15.71	140.170	21.47	30	Pass
6	2437	16.21	16.45	16.83	16.80	181.998	22.60	30	Pass
9	2452	14.62	14.83	15.26	15.30	126.840	21.03	30	Pass

802.11ax (HE20)

Channel	Frequency (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	15.11	15.52	15.53	15.68	140.789	21.49	30	Pass
6	2437	20.33	20.37	20.46	20.54	441.201	26.45	30	Pass
11	2462	14.56	14.97	15.18	15.21	126.131	21.01	30	Pass

802.11ax (HE40)

Channel	Frequency (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	15.22	15.27	15.66	15.73	141.141	21.50	30	Pass
6	2437	16.23	16.48	16.86	16.82	183.052	22.63	30	Pass
9	2452	14.65	14.86	15.29	15.32	127.641	21.06	30	Pass

Beamforming Mode

802.11n (VHT20)

Channel	Frequency (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	15.08	15.50	15.50	15.63	139.733	21.45	26.26	Pass
6	2437	19.74	19.77	19.86	19.94	384.487	25.85	26.26	Pass
11	2462	14.53	14.94	15.15	15.17	125.187	20.98	26.26	Pass

Note: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 9.74\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (9.74 - 6) = 26.26\text{dBm}$.

802.11n (VHT40)

Channel	Frequency (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	15.20	15.23	15.62	15.71	140.17	21.47	26.26	Pass
6	2437	16.21	16.45	16.83	16.80	181.998	22.60	26.26	Pass
9	2452	14.62	14.83	15.26	15.30	126.84	21.03	26.26	Pass

Note: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 9.74\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (9.74 - 6) = 26.26\text{dBm}$.

802.11ax (HE20)

Channel	Frequency (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	15.11	15.52	15.53	15.68	140.789	21.49	26.26	Pass
6	2437	19.76	19.80	19.89	19.97	386.934	25.88	26.26	Pass
11	2462	14.56	14.97	15.18	15.21	126.131	21.01	26.26	Pass

Note: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 9.74\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (9.74 - 6) = 26.26\text{dBm}$.

802.11ax (HE40)

Channel	Frequency (MHz)	Average Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	15.22	15.27	15.66	15.73	141.141	21.50	26.26	Pass
6	2437	16.23	16.48	16.86	16.82	183.052	22.63	26.26	Pass
9	2452	14.65	14.86	15.29	15.32	127.641	21.06	26.26	Pass

Note: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 9.74\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (9.74 - 6) = 26.26\text{dBm}$.

Scanning radio (Radio 3)

802.11b

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	17.140	12.34	30.00	Pass
6	2437	16.827	12.26	30.00	Pass
11	2462	16.711	12.23	30.00	Pass

802.11g

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	15.922	12.02	30.00	Pass
6	2437	16.032	12.05	30.00	Pass
11	2462	16.144	12.08	30.00	Pass

802.11n (VHT20)

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	15.885	12.01	30.00	Pass
6	2437	15.922	12.02	30.00	Pass
11	2462	16.444	12.16	30.00	Pass

802.11n (VHT40)

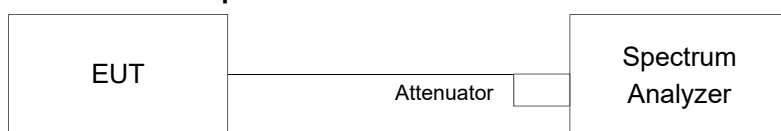
Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
3	2422	16.482	12.17	30.00	Pass
6	2437	15.922	12.02	30.00	Pass
9	2452	16.827	12.26	30.00	Pass

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm in any 3 kHz.

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 $\geq 98\%$)

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

For Average Power (Duty cycle $< 98\%$)

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as item 4.3.6

4.5.7 Test Results

2G traffic radio (Radio 2)

802.11b

TX chain	Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/3kHz)	10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-12.89	6.02	1.23	-5.64	4.26	Pass
	6	2437	-12.63	6.02	1.23	-5.38	4.26	Pass
	11	2462	-13.67	6.02	1.23	-6.42	4.26	Pass
1	1	2412	-13.65	6.02	1.23	-6.40	4.26	Pass
	6	2437	-13.02	6.02	1.23	-5.77	4.26	Pass
	11	2462	-13.93	6.02	1.23	-6.68	4.26	Pass
2	1	2412	-14.39	6.02	1.23	-7.14	4.26	Pass
	6	2437	-12.75	6.02	1.23	-5.50	4.26	Pass
	11	2462	-13.84	6.02	1.23	-6.59	4.26	Pass
3	1	2412	-13.61	6.02	1.23	-6.36	4.26	Pass
	6	2437	-12.63	6.02	1.23	-5.38	4.26	Pass
	11	2462	-13.67	6.02	1.23	-6.42	4.26	Pass

Note:

- Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure value and add $10 \log (N_{ANT})$ dB.
- Directional gain = Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 9.74\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8 - (9.74 - 6) = 4.26\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11g

TX chain	Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/3kHz)	10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-18.99	6.02	0.25	-12.72	4.26	Pass
	6	2437	-14.97	6.02	0.25	-8.70	4.26	Pass
	11	2462	-19.33	6.02	0.25	-13.06	4.26	Pass
1	1	2412	-18.86	6.02	0.25	-12.59	4.26	Pass
	6	2437	-14.96	6.02	0.25	-8.69	4.26	Pass
	11	2462	-19.78	6.02	0.25	-13.51	4.26	Pass
2	1	2412	-18.84	6.02	0.25	-12.57	4.26	Pass
	6	2437	-14.79	6.02	0.25	-8.52	4.26	Pass
	11	2462	-19.62	6.02	0.25	-13.35	4.26	Pass
3	1	2412	-18.63	6.02	0.25	-12.36	4.26	Pass
	6	2437	-14.97	6.02	0.25	-8.70	4.26	Pass
	11	2462	-19.33	6.02	0.25	-13.06	4.26	Pass

Note:

- Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure value and add 10 log (N_{ANT}) dB.
- Directional gain = Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 9.74\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8 - (9.74 - 6) = 4.26\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE20)

TX chain	Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/3kHz)	10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-22.09	6.02	0.20	-15.87	4.26	Pass
	6	2437	-17.56	6.02	0.20	-11.34	4.26	Pass
	11	2462	-22.91	6.02	0.20	-16.69	4.26	Pass
1	1	2412	-22.14	6.02	0.20	-15.92	4.26	Pass
	6	2437	-17.56	6.02	0.20	-11.34	4.26	Pass
	11	2462	-22.88	6.02	0.20	-16.66	4.26	Pass
2	1	2412	-22.03	6.02	0.20	-15.81	4.26	Pass
	6	2437	-17.48	6.02	0.20	-11.26	4.26	Pass
	11	2462	-22.87	6.02	0.20	-16.65	4.26	Pass
3	1	2412	-22.06	6.02	0.20	-15.84	4.26	Pass
	6	2437	-17.56	6.02	0.20	-11.34	4.26	Pass
	11	2462	-22.91	6.02	0.20	-16.69	4.26	Pass

Note:

- Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure value and add 10 log (N_{ANT}) dB.
- Directional gain = Directional gain = $10 \log[(10^{G^1/20} + 10^{G^2/20} + \dots + 10^{G^N/20})^2/4] = 9.74\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8 - (9.74 - 6) = 4.26\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

802.11ax (HE40)

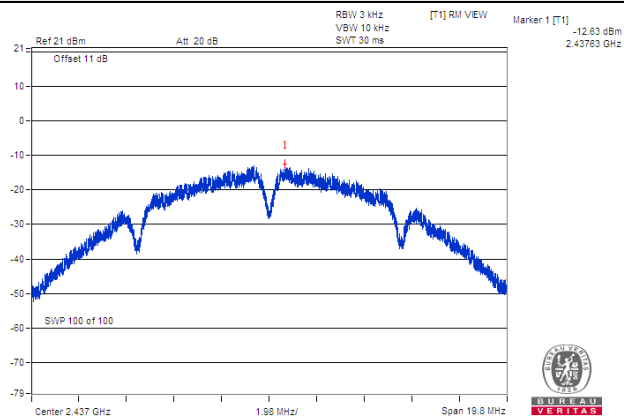
TX chain	Channel	Frequency (MHz)	PSD w/o Duty Factor (dBm/3kHz)	10 log (N=4) dB	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
0	3	2422	-25.38	6.02	0.21	-19.15	4.26	Pass
	6	2437	-24.18	6.02	0.21	-17.95	4.26	Pass
	9	2452	-24.90	6.02	0.21	-18.67	4.26	Pass
1	3	2422	-25.37	6.02	0.21	-19.14	4.26	Pass
	6	2437	-24.32	6.02	0.21	-18.09	4.26	Pass
	9	2452	-24.85	6.02	0.21	-18.62	4.26	Pass
3	3	2422	-25.34	6.02	0.21	-19.11	4.26	Pass
	6	2437	-24.32	6.02	0.21	-18.09	4.26	Pass
	9	2452	-24.87	6.02	0.21	-18.64	4.26	Pass
4	3	2422	-25.11	6.02	0.21	-18.88	4.26	Pass
	6	2437	-24.18	6.02	0.21	-17.95	4.26	Pass
	9	2452	-24.90	6.02	0.21	-18.67	4.26	Pass

Note:

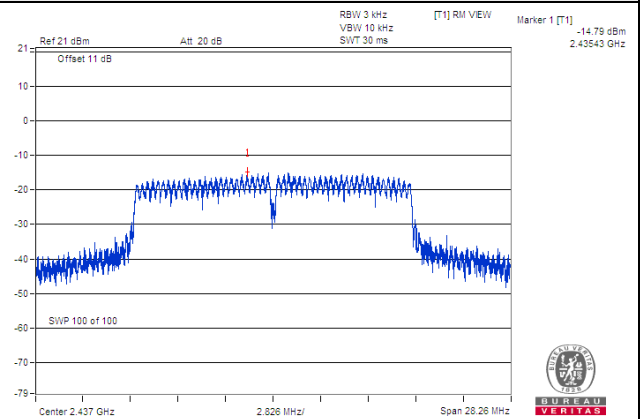
- Method E) 2) c) of power density measurement of KDB 662911 is using for calculating total power density, Measure value and add $10 \log (N_{ANT})$ dB.
- Directional gain = Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/4] = 9.74\text{dBi} > 6\text{dBi}$, so the power density limit shall be reduced to $8 - (9.74 - 6) = 4.26\text{dBm}$.
- Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

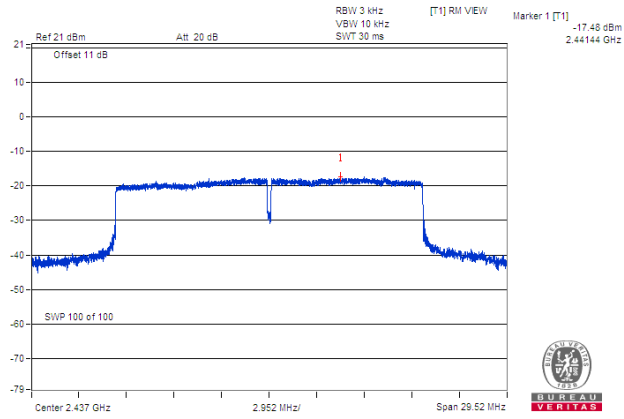
802.11b / Chain 0 / CH 6



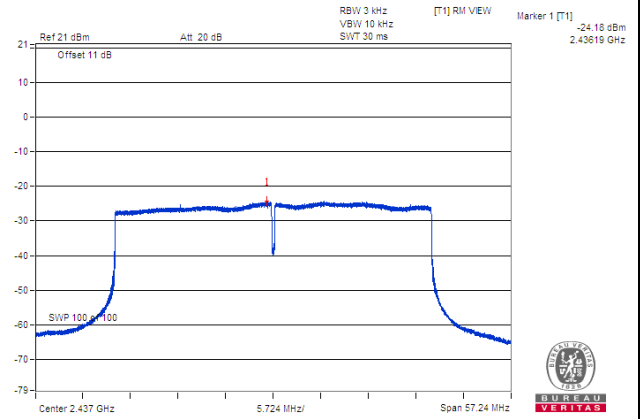
802.11g / Chain 2 / CH 6



802.11ax (HE20) / Chain 2 / CH 6



802.11ax (HE40) / Chain 0 / CH 6



Scanning radio (Radio 3)

802.11b

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
1	2412	-21.60	8.00	Pass
6	2437	-21.51	8.00	Pass
11	2462	-22.69	8.00	Pass

802.11g

Channel	Frequency (MHz)	PSD W/O Duty Factor (dBm/3kHz)	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
1	2412	-26.68	0.52	-26.16	8.00	Pass
6	2437	-26.40	0.52	-25.88	8.00	Pass
11	2462	-26.59	0.52	-26.07	8.00	Pass

802.11n (VHT20)

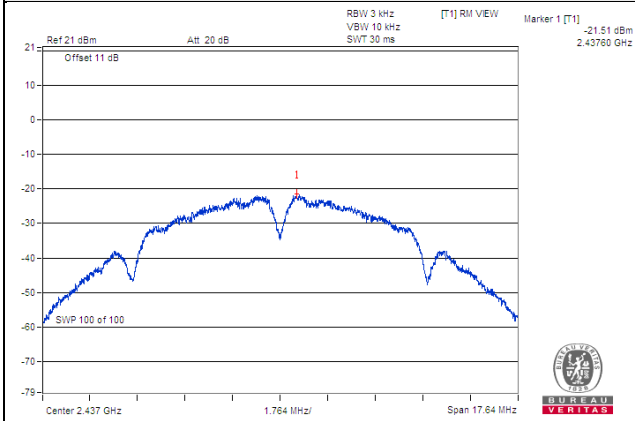
Channel	Frequency (MHz)	PSD W/O Duty Factor (dBm/3kHz)	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
1	2412	-26.87	0.35	-26.52	8.00	Pass
6	2437	-26.87	0.35	-26.52	8.00	Pass
11	2462	-26.78	0.35	-26.43	8.00	Pass

802.11n (VHT40)

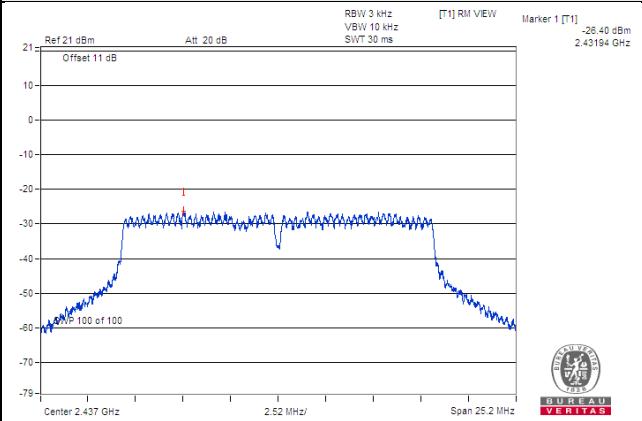
Channel	Frequency (MHz)	PSD W/O Duty Factor (dBm/3kHz)	Duty Factor (dB)	Total PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
3	2422	-29.51	0.38	-29.13	8.00	Pass
6	2437	-29.88	0.38	-29.50	8.00	Pass
9	2452	-29.48	0.38	-29.10	8.00	Pass

Spectrum Plot of Worst Value

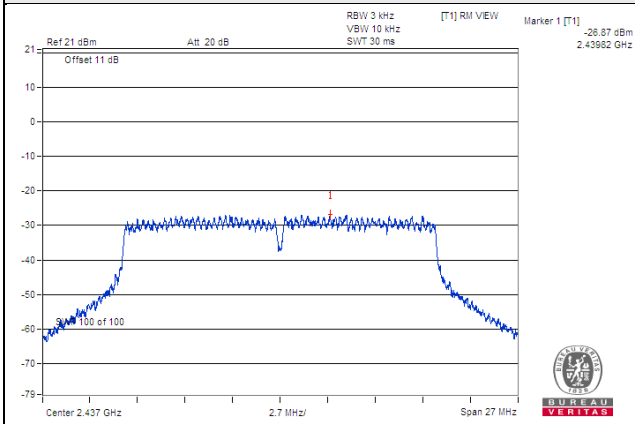
802.11b



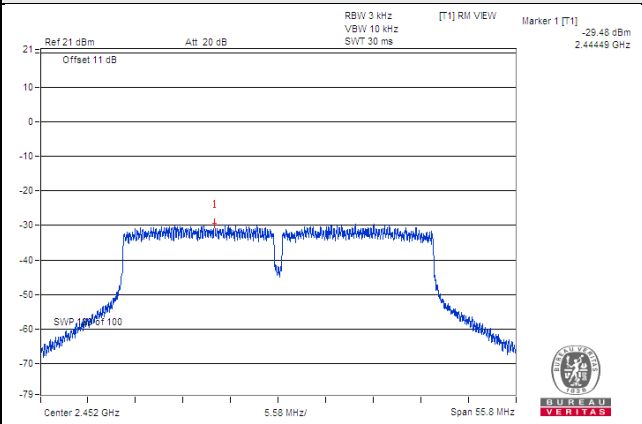
802.11g



802.11n (VHT20)



802.11n (VHT40)

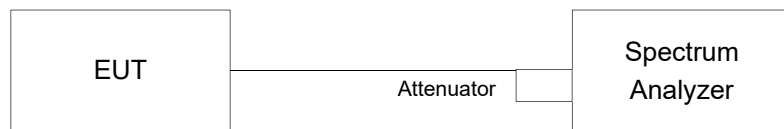


4.6 Conducted Out of Band Emission Measurement

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

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

MEASUREMENT PROCEDURE OOB

- Set RBW = 100 kHz.
- Set VBW \geq 300 kHz.
- Detector = peak.
- Sweep = auto couple.
- Trace Mode = max hold.
- Allow trace to fully stabilize.
- 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

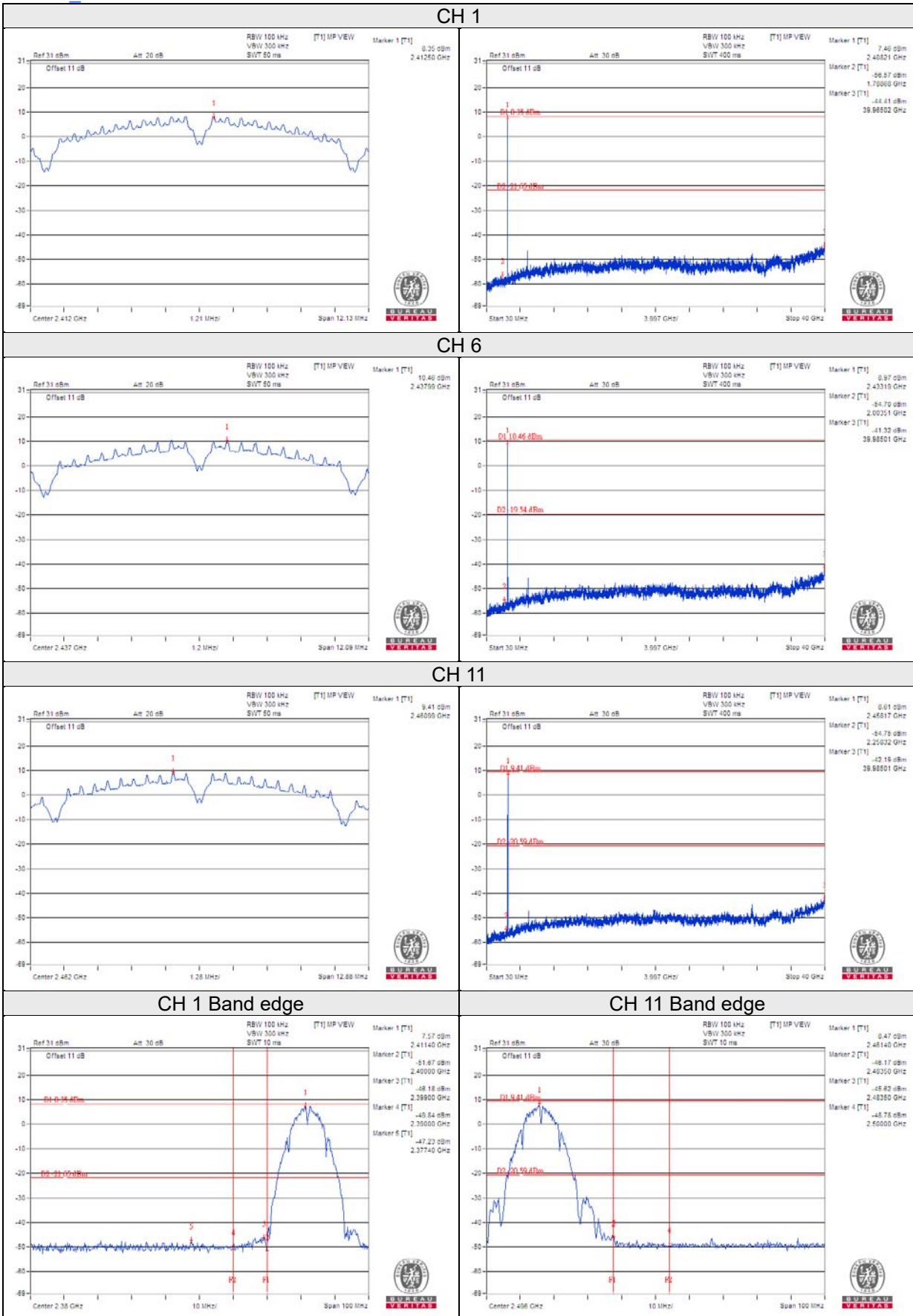
Same as item 4.3.6

4.6.7 Test Results

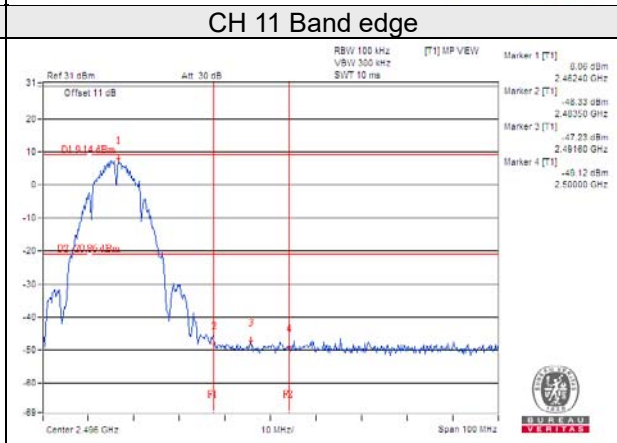
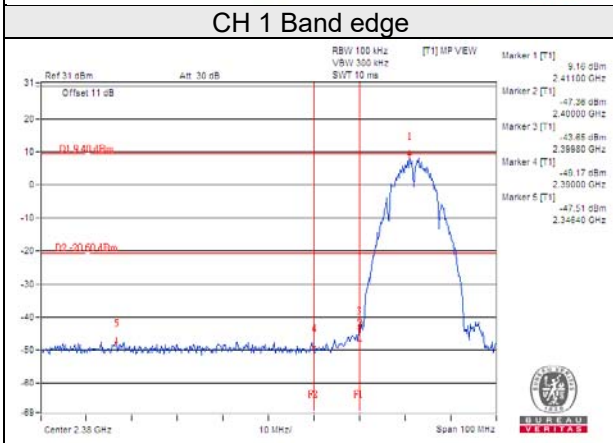
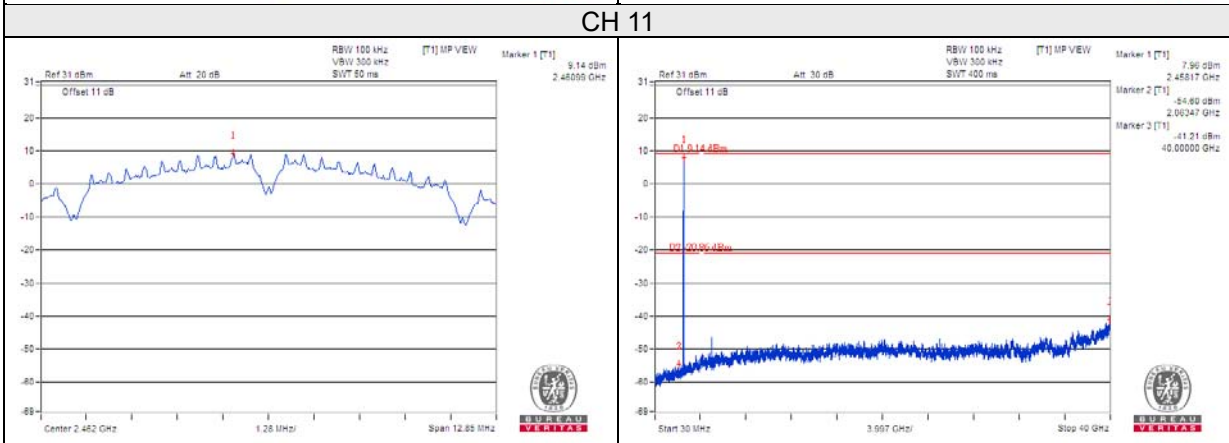
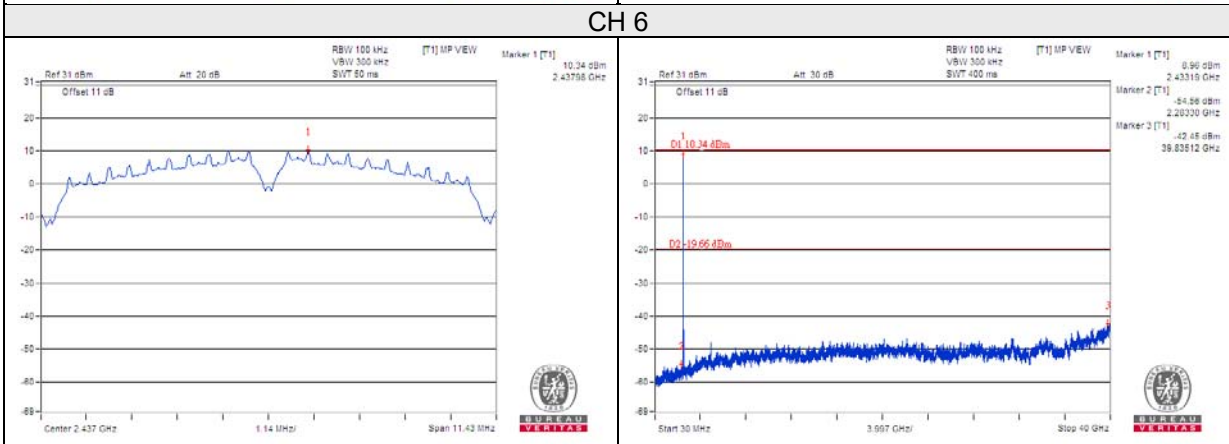
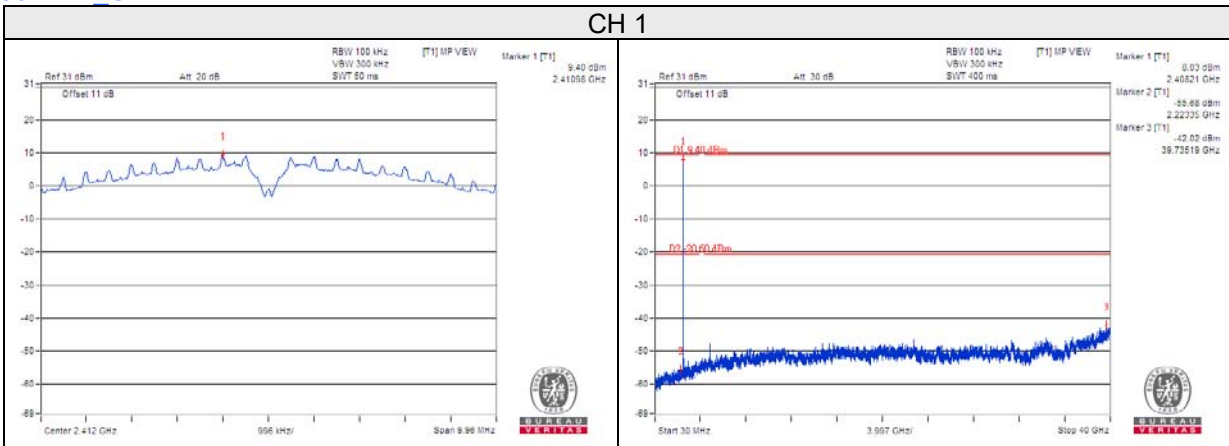
The conducted emission test is performed on each TX port of operating mode without summing or adding 10log (N) since the limit is relative emission limit.

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.

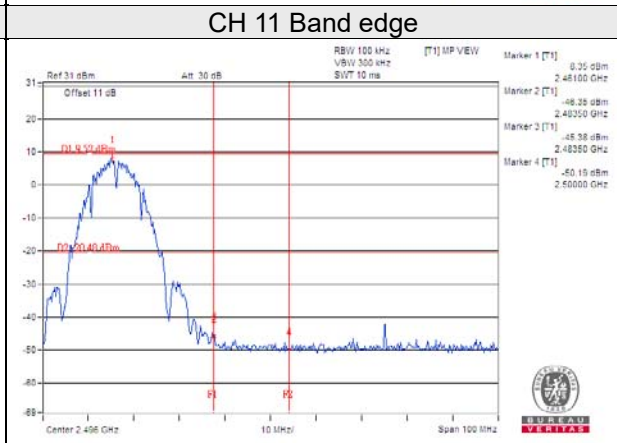
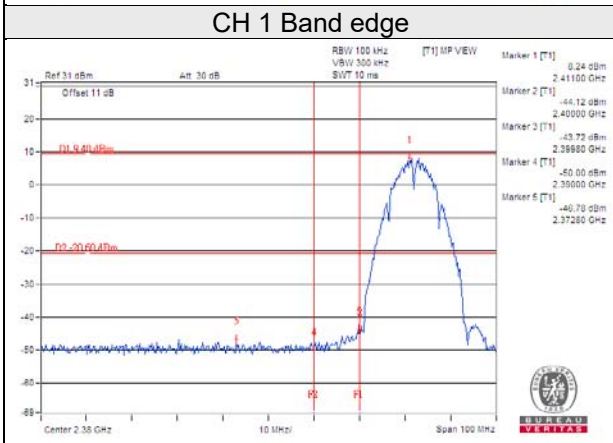
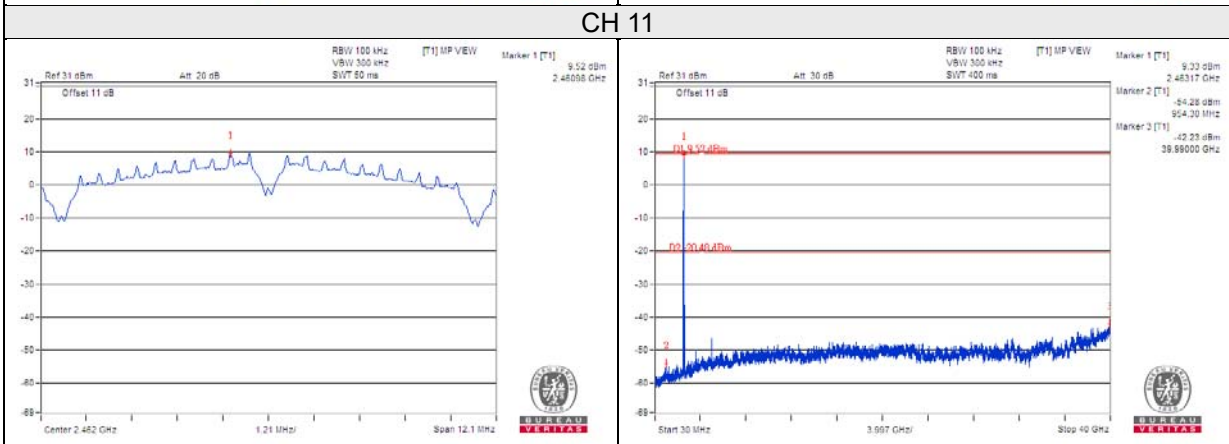
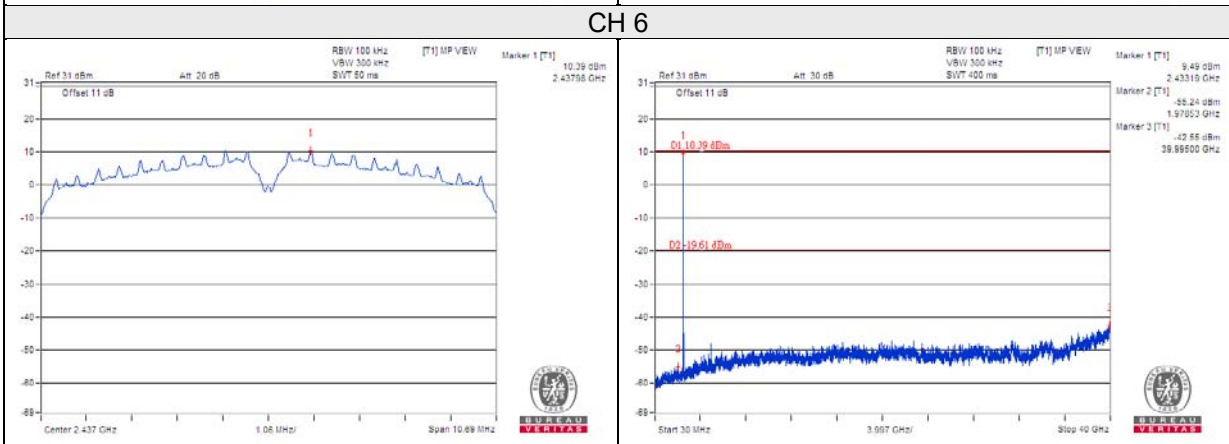
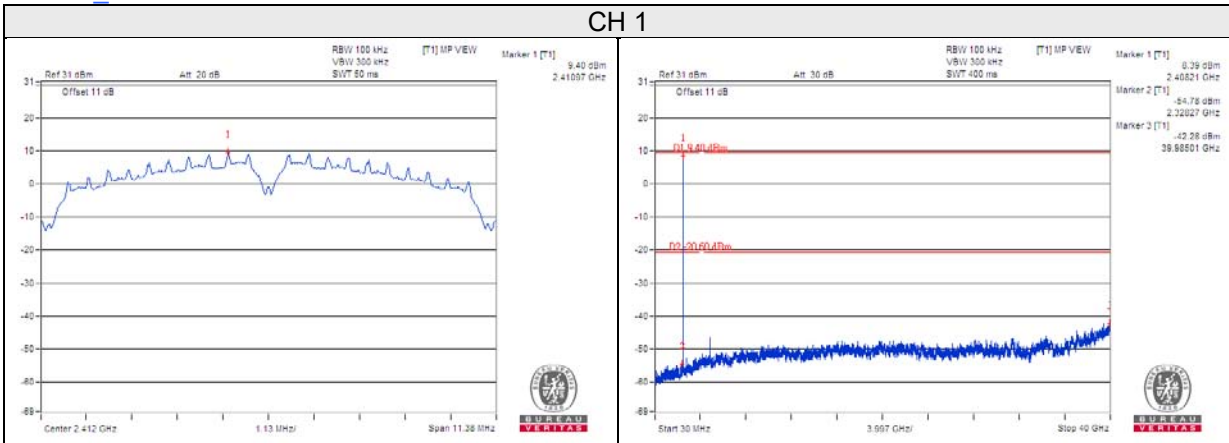
2G traffic radio (Radio 2)
802.11b_Chain 0



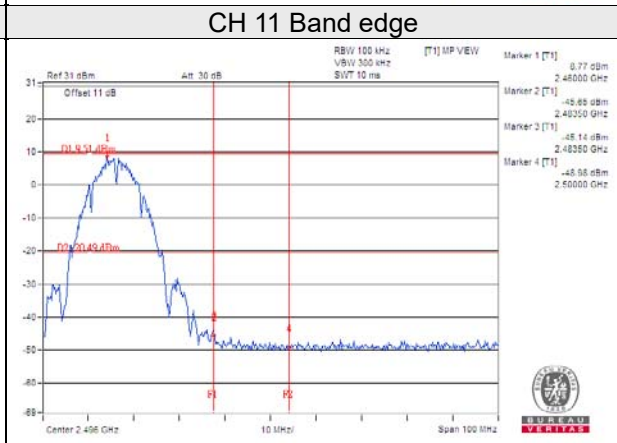
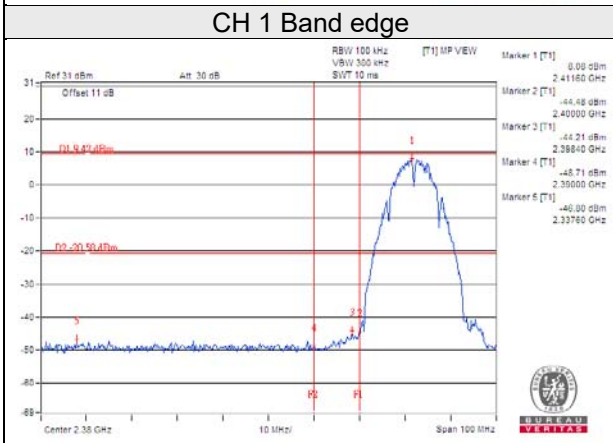
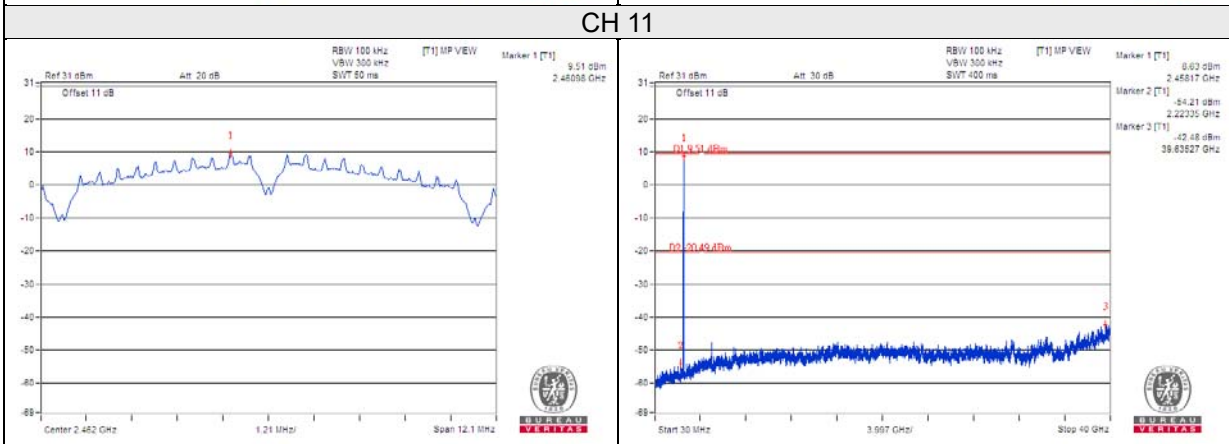
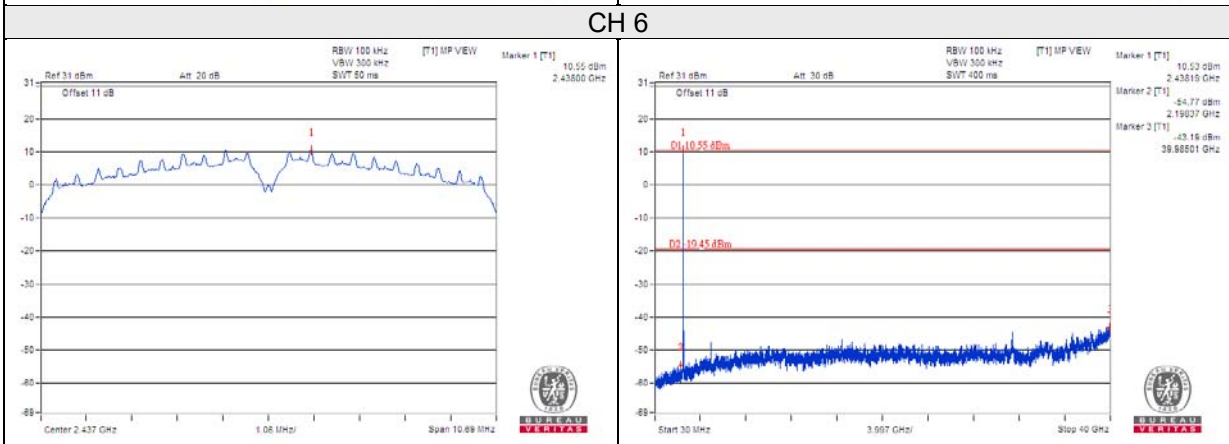
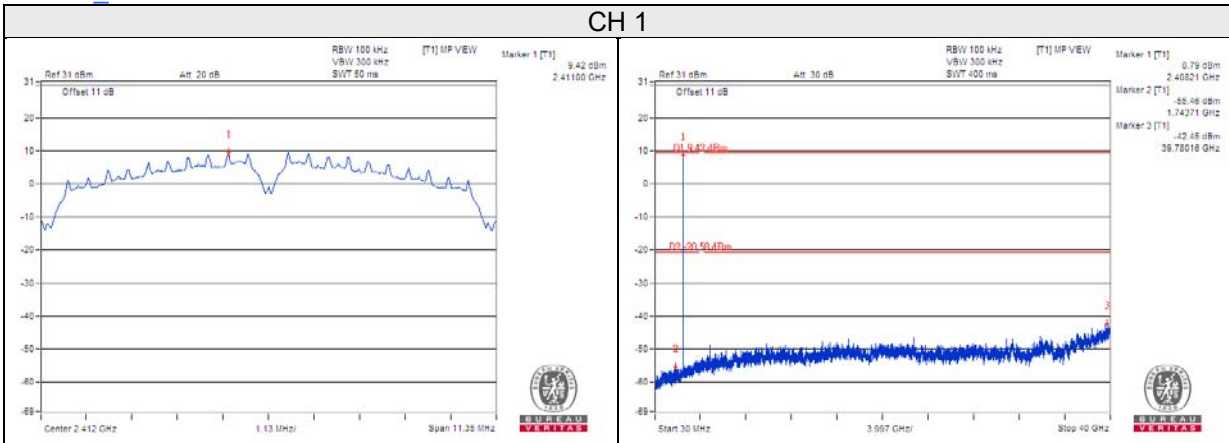
802.11b_Chain 1



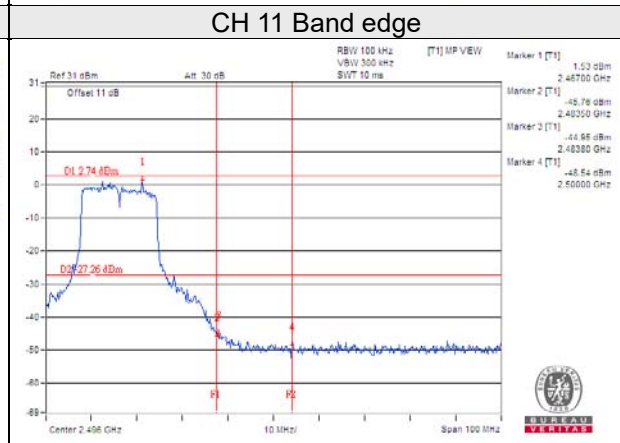
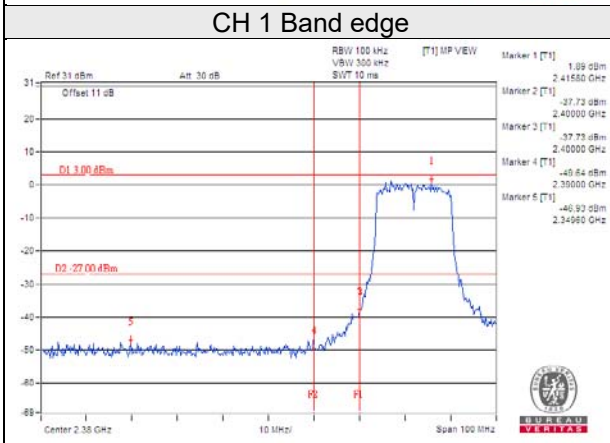
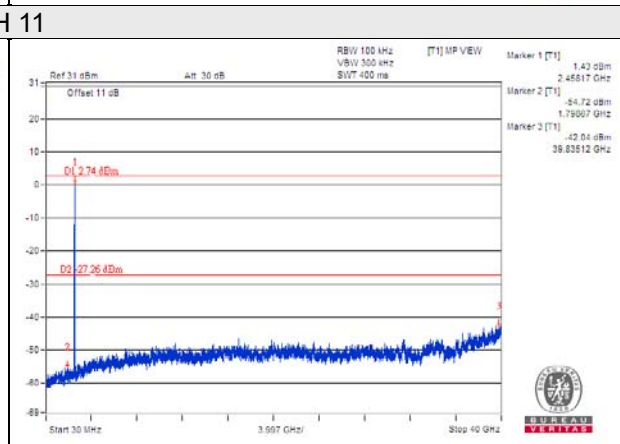
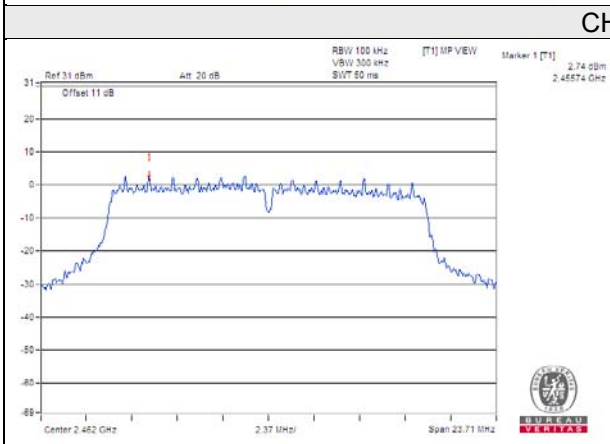
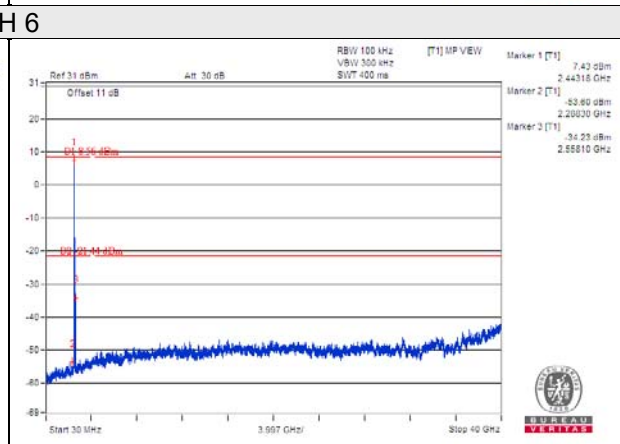
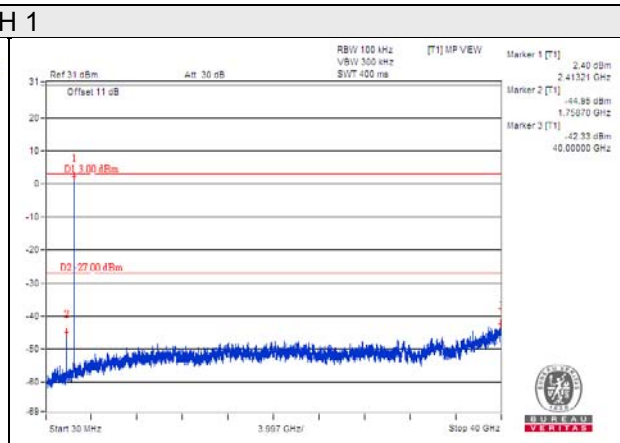
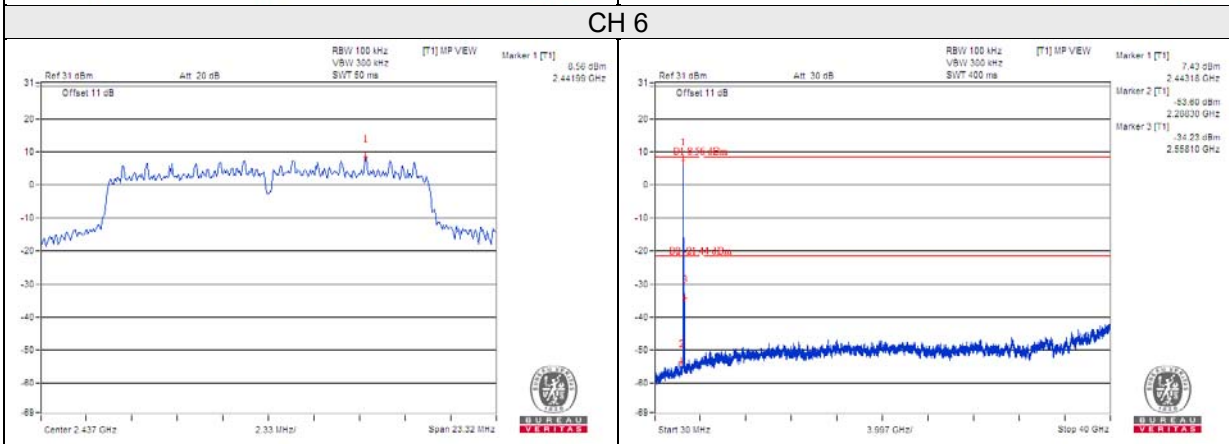
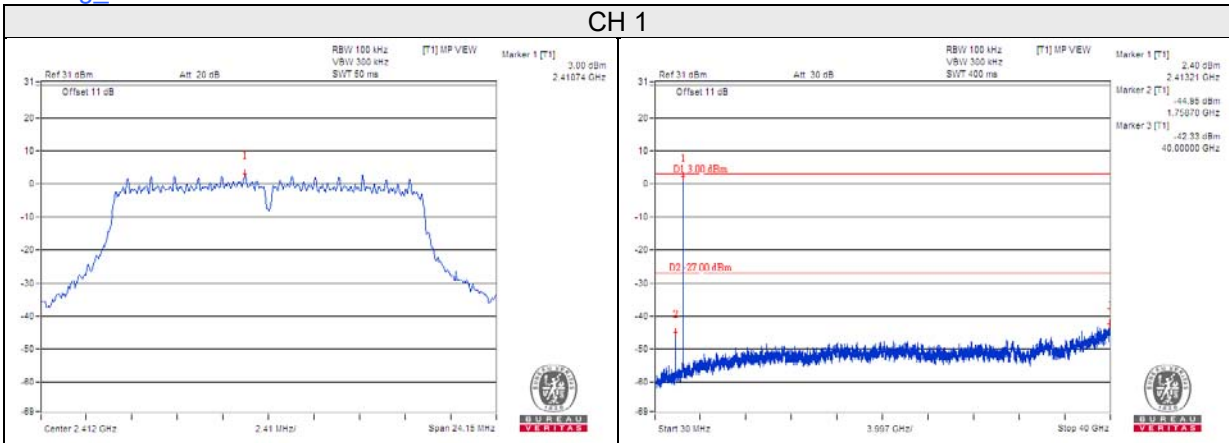
802.11b_Chain 2



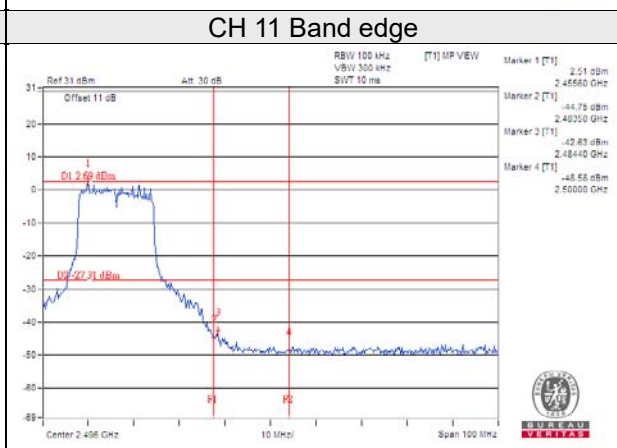
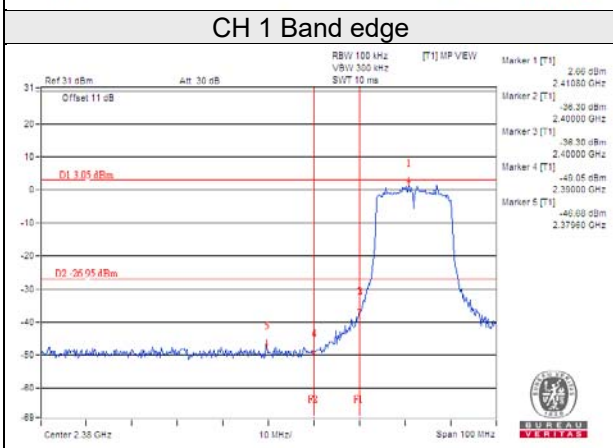
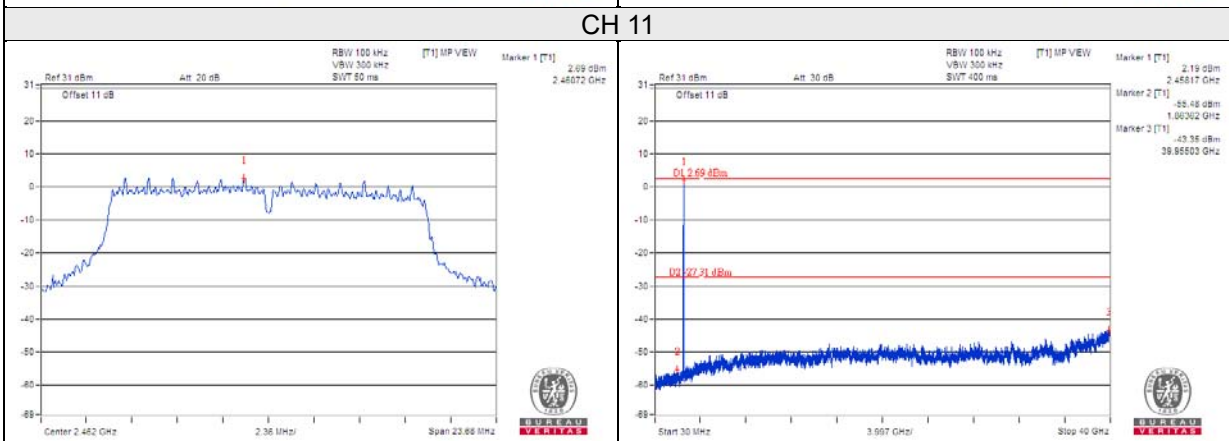
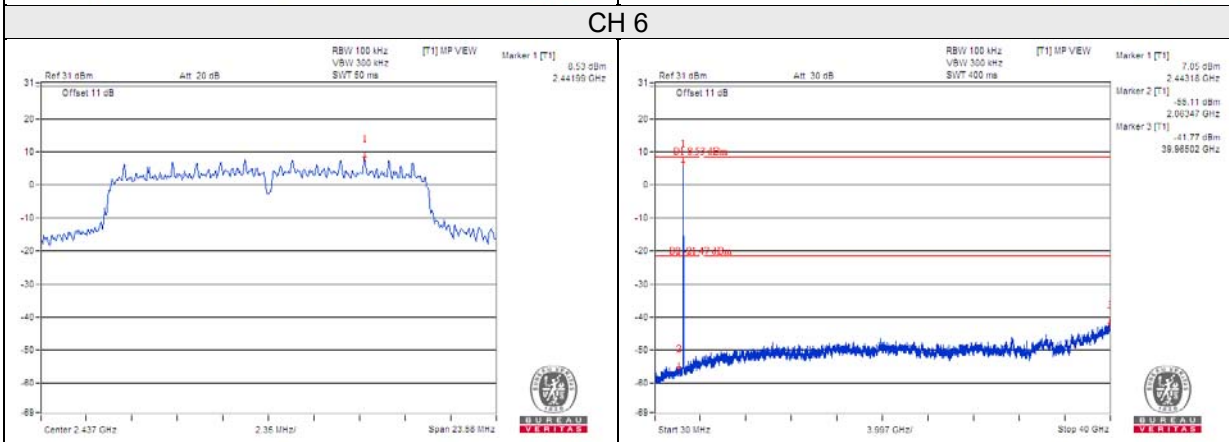
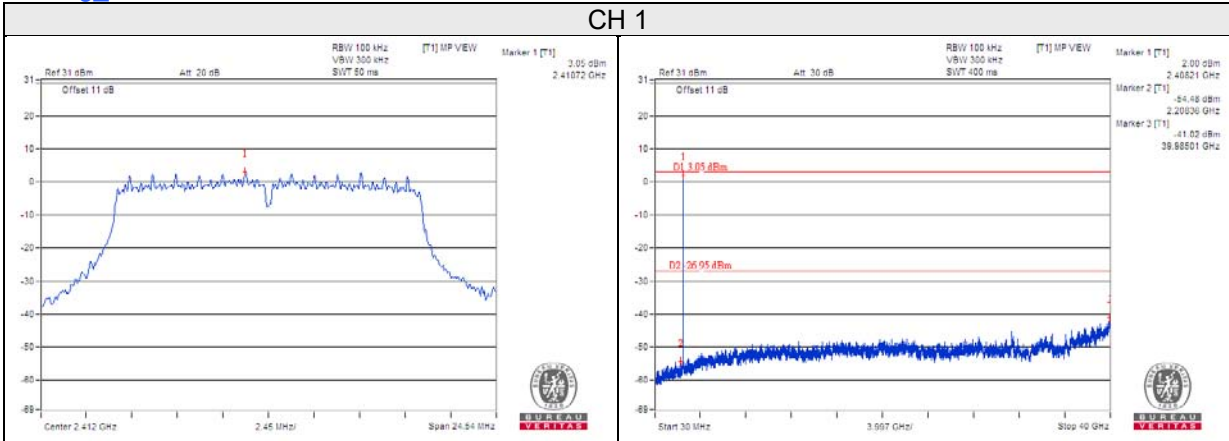
802.11b_Chain 3



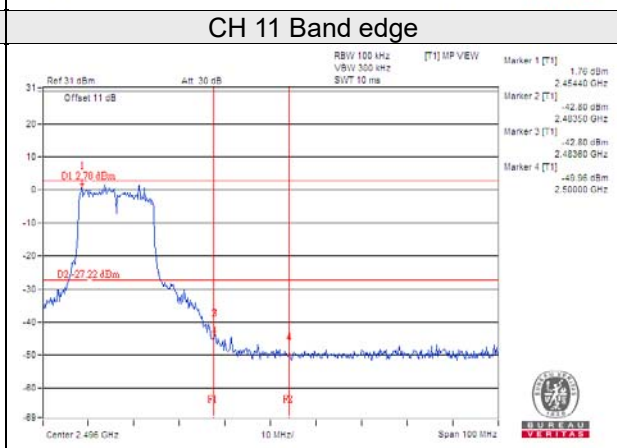
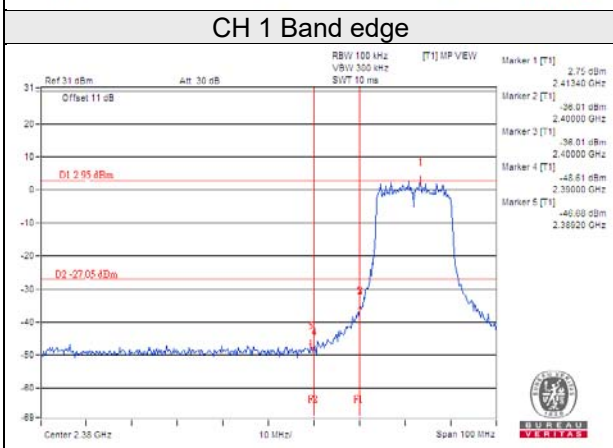
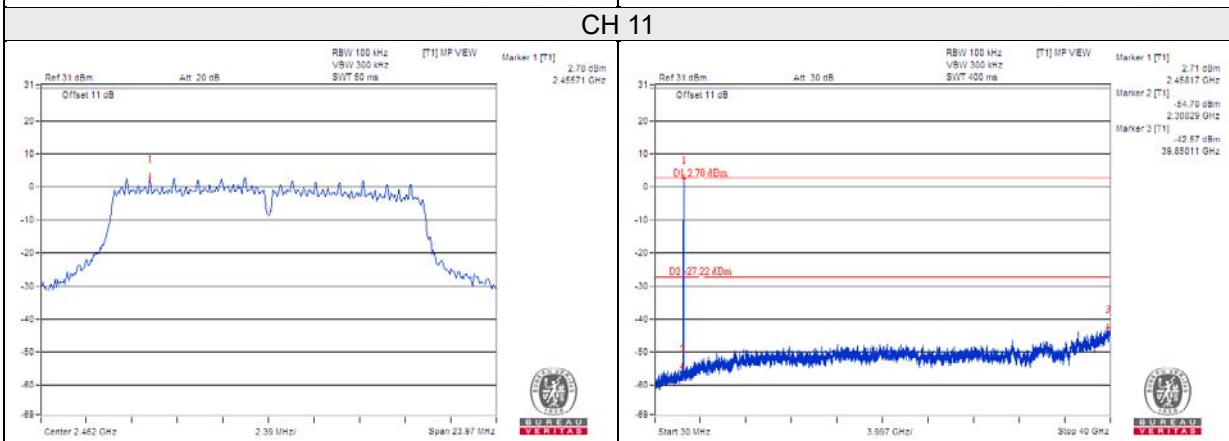
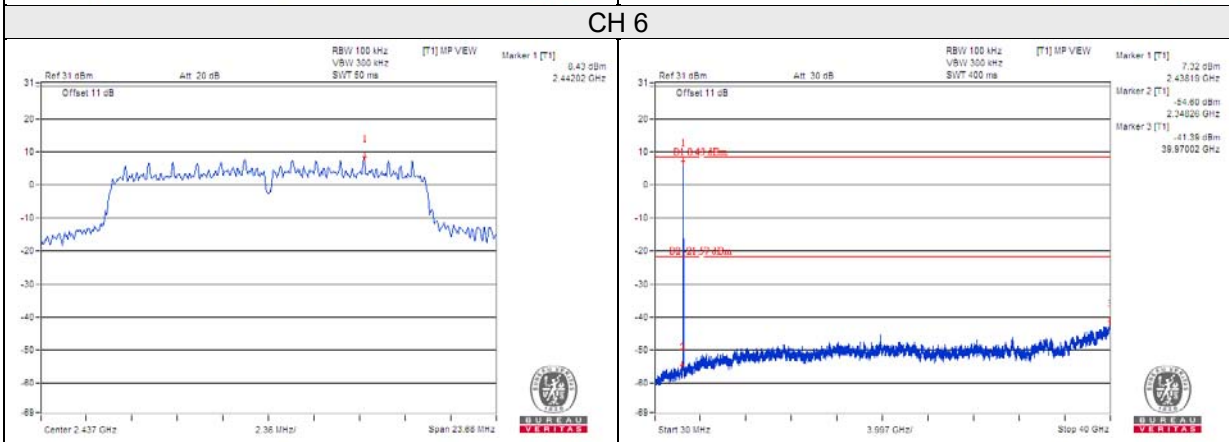
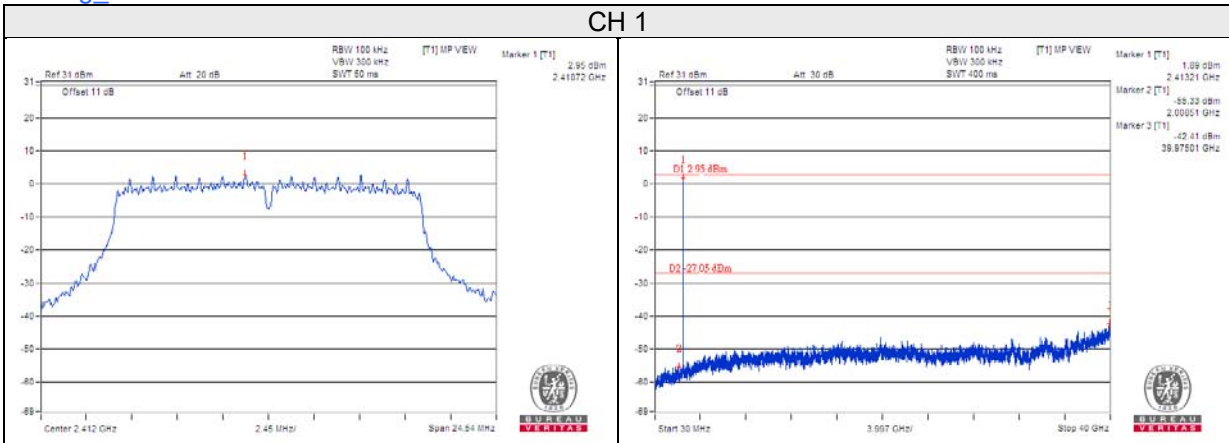
802.11g_Chain 0



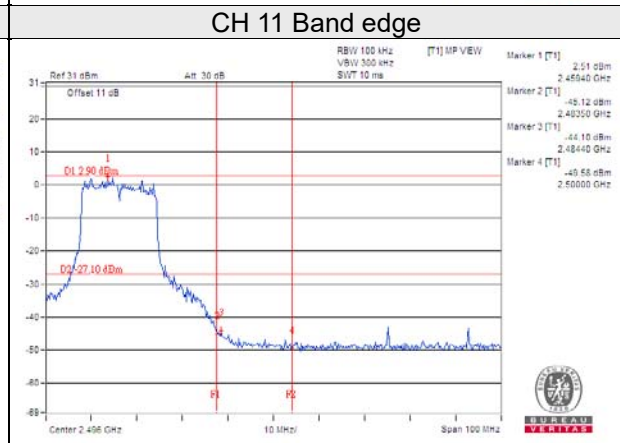
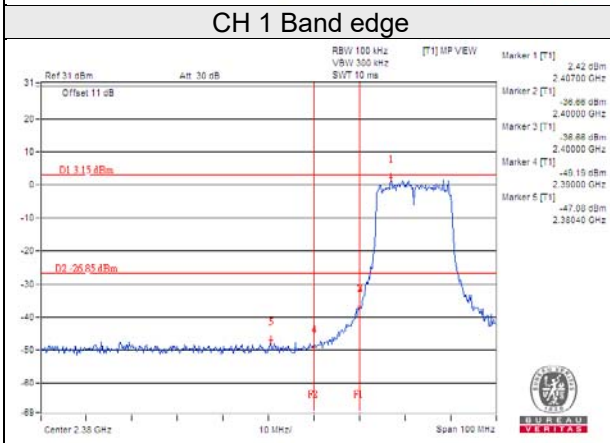
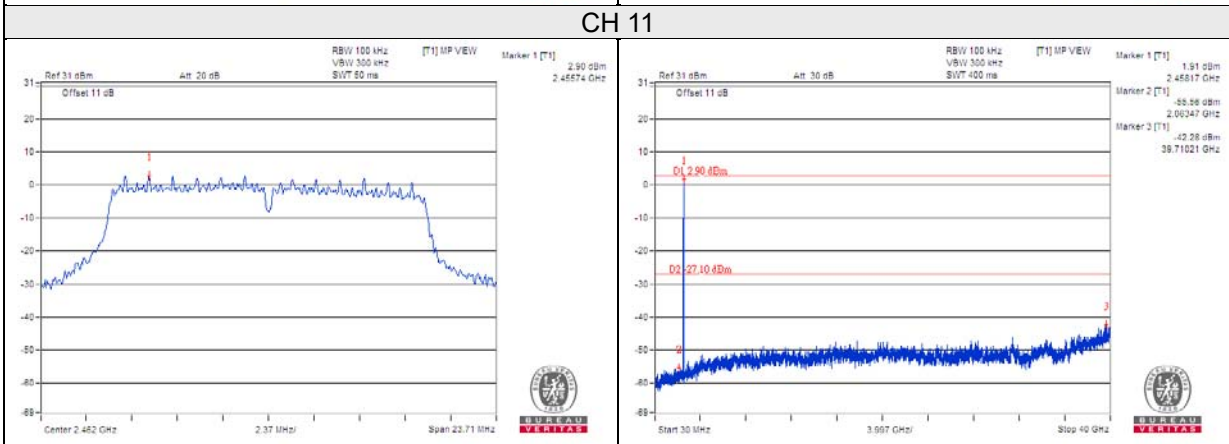
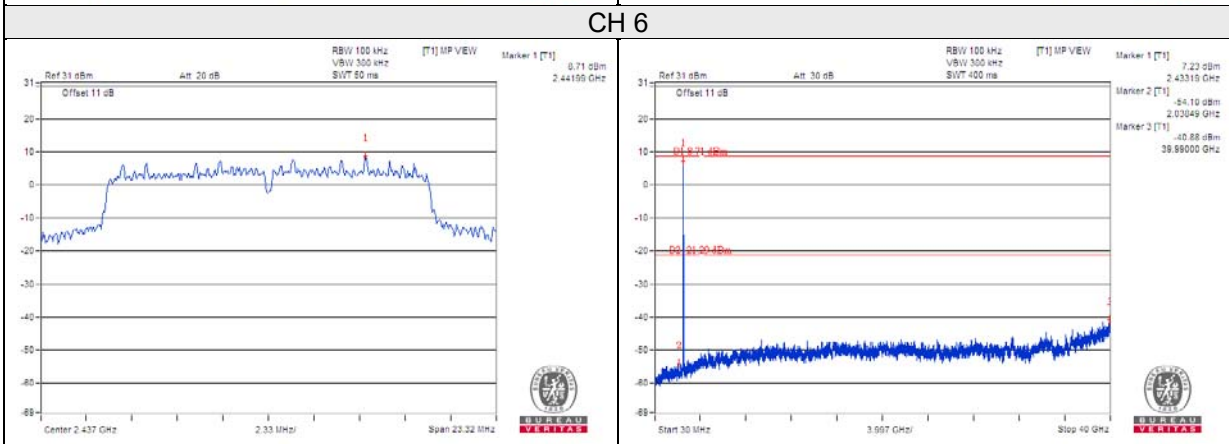
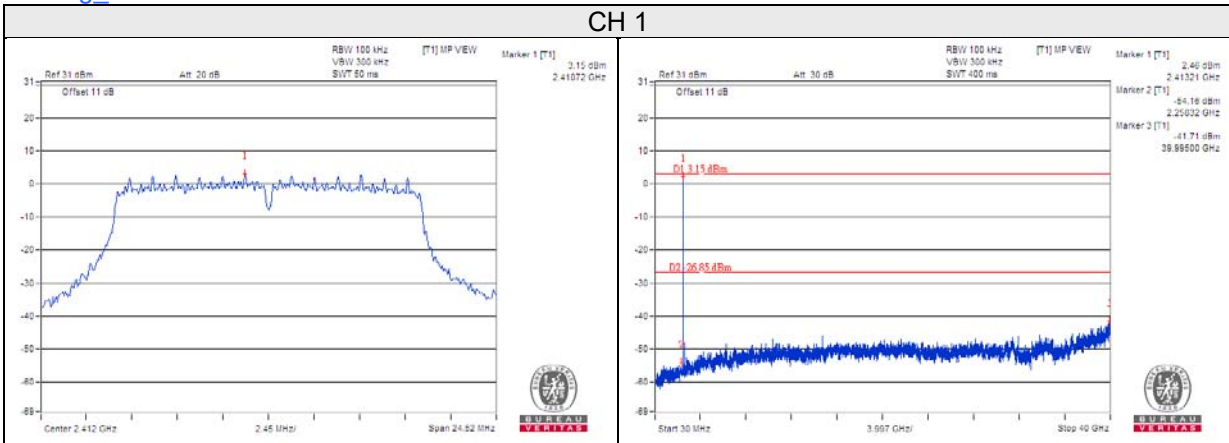
802.11g Chain 1



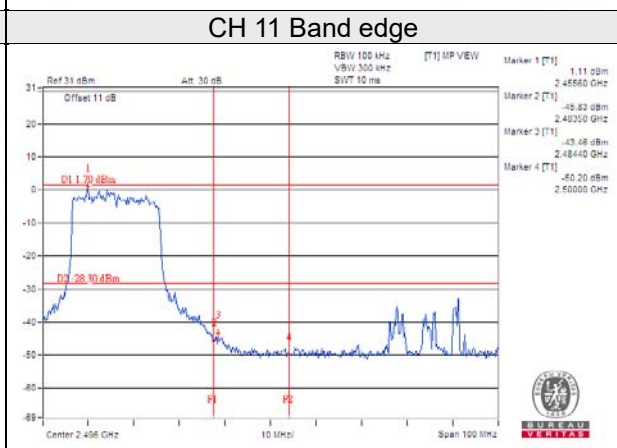
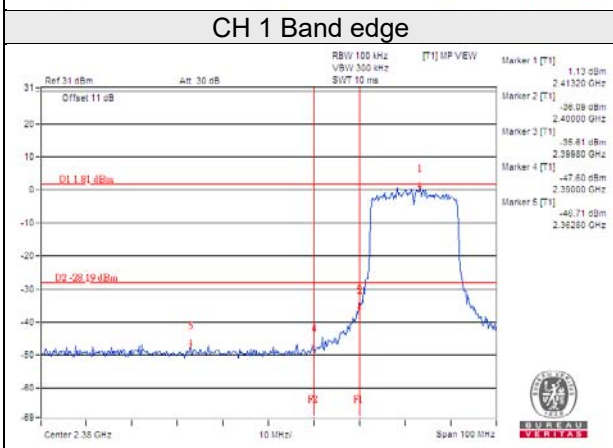
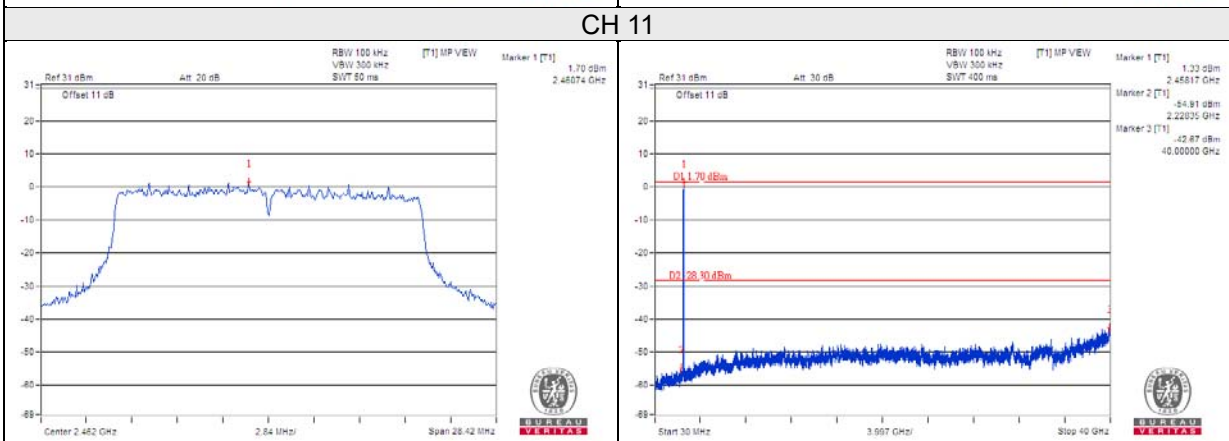
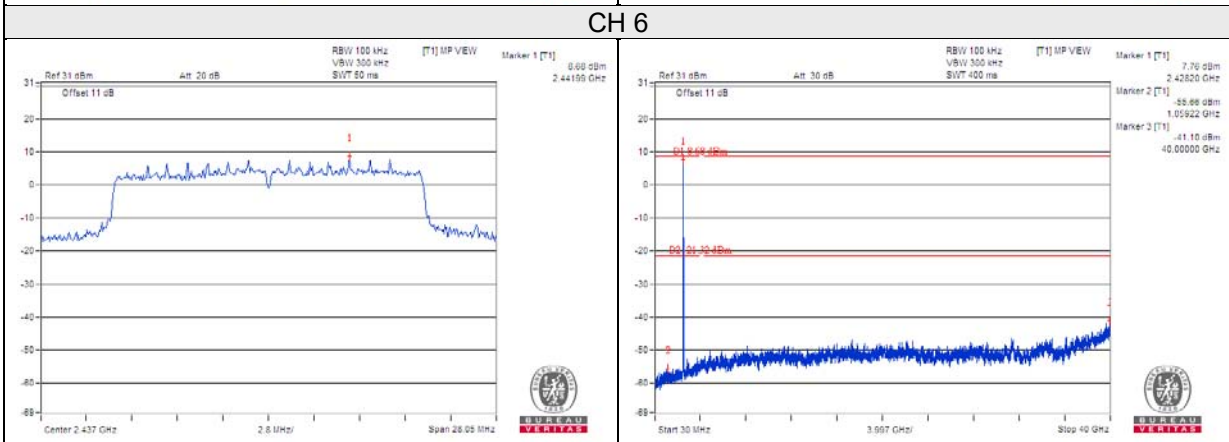
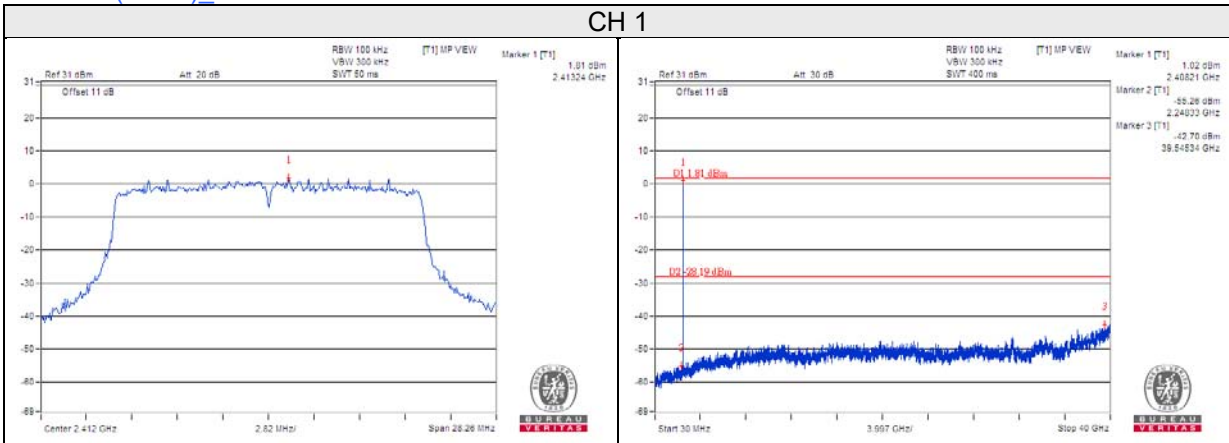
802.11g Chain 2



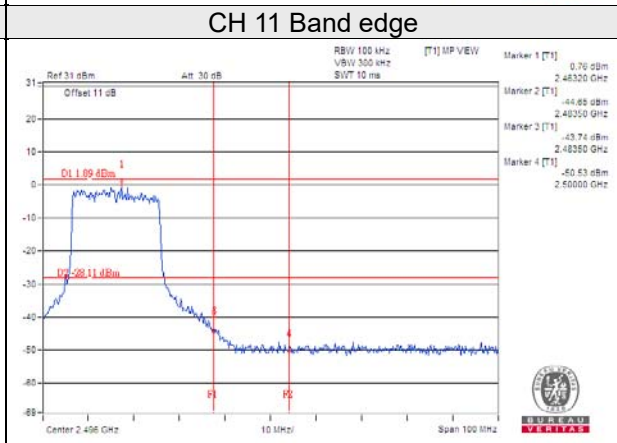
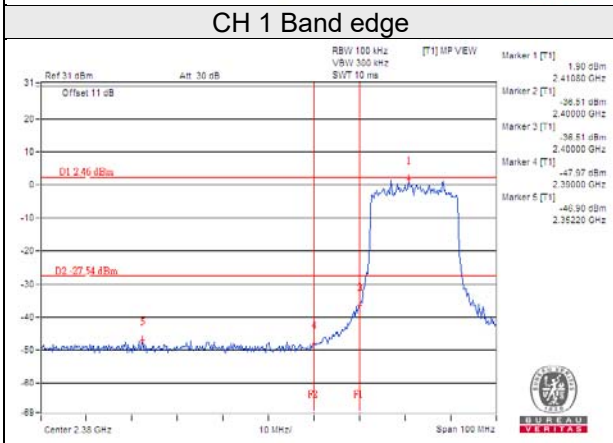
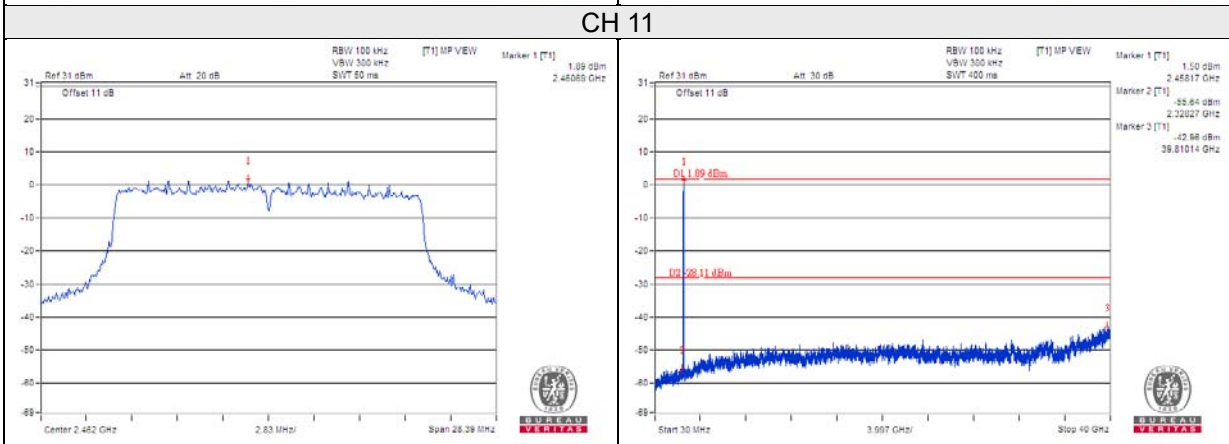
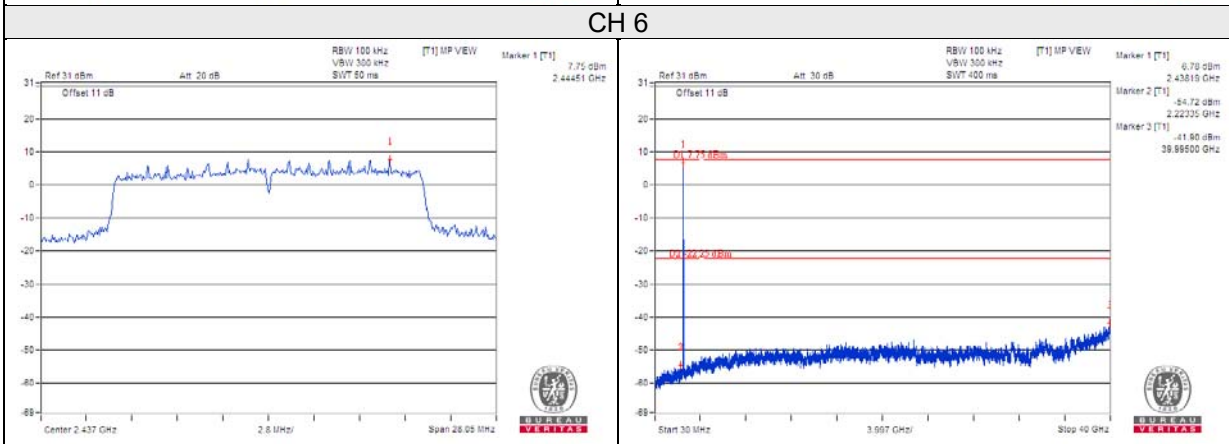
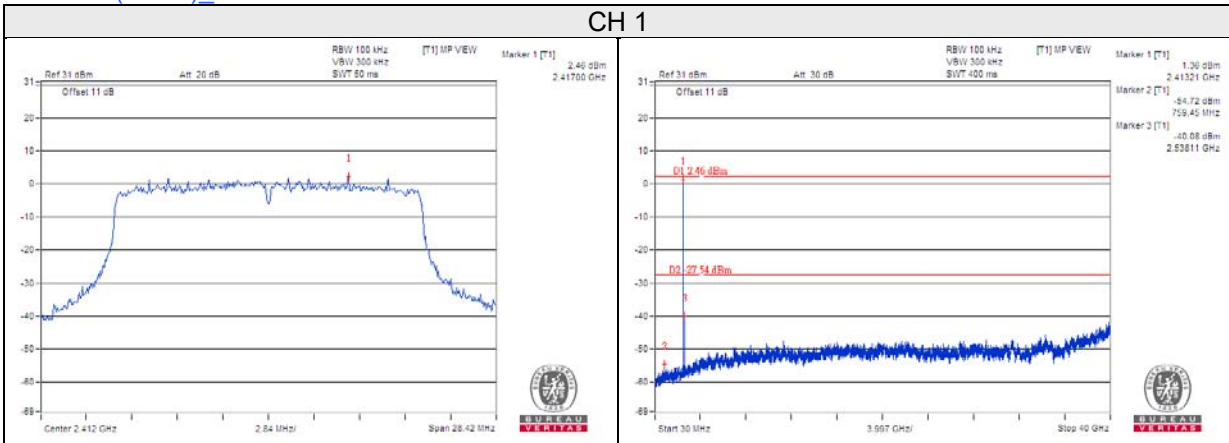
802.11g Chain 3



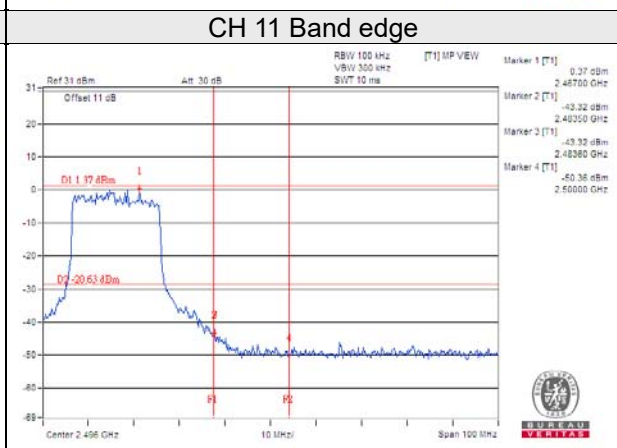
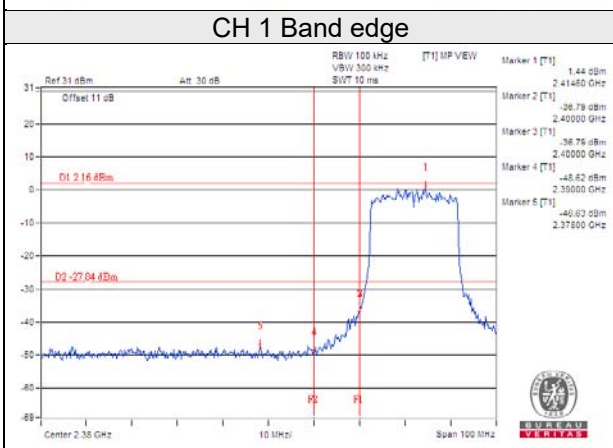
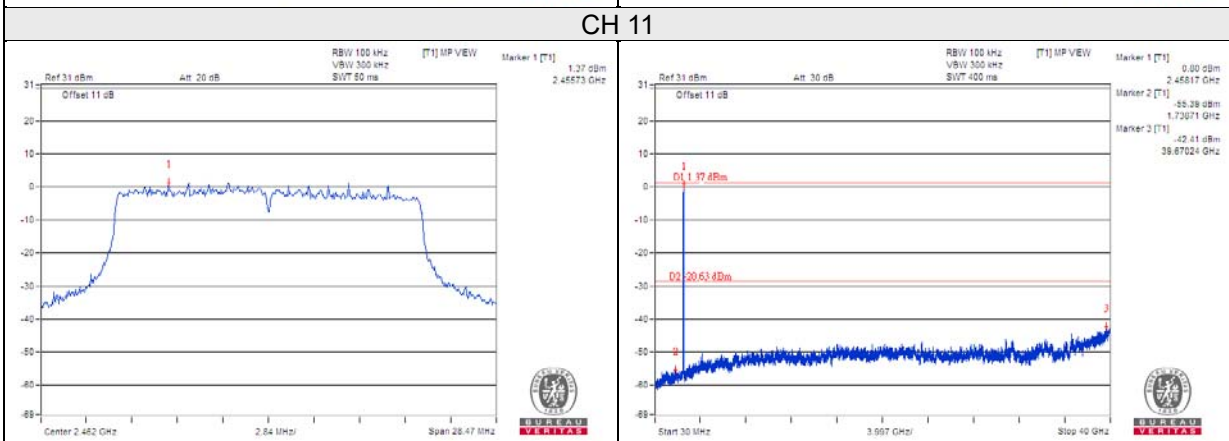
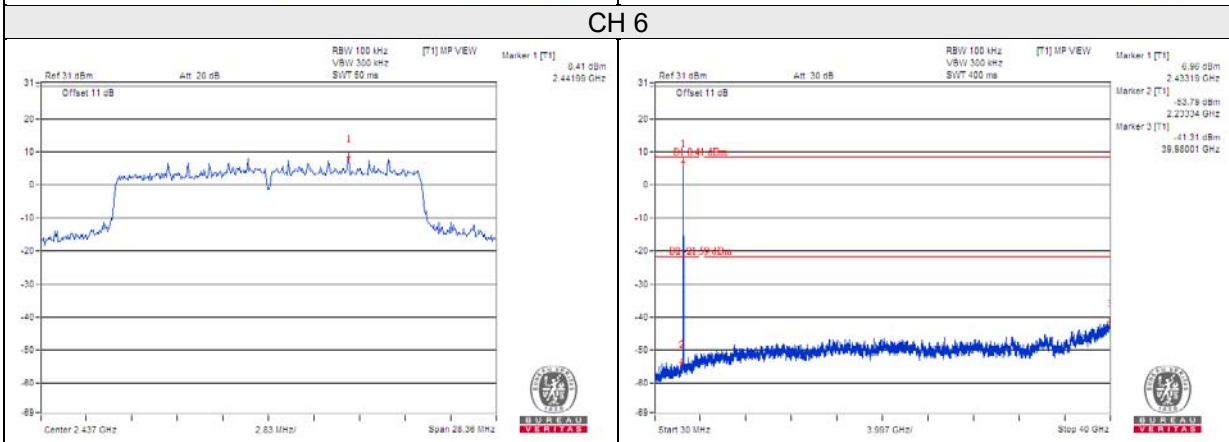
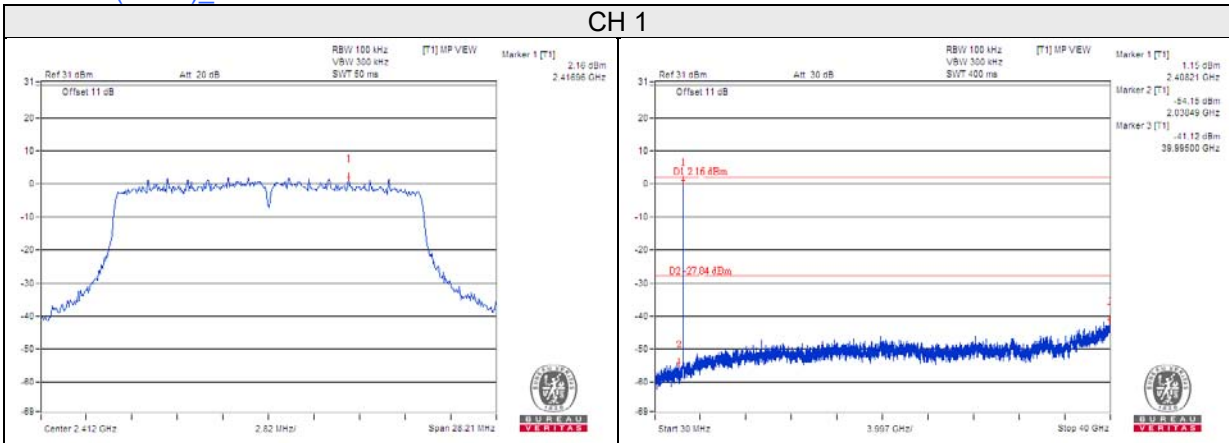
802.11ax (HE20)_Chain 0



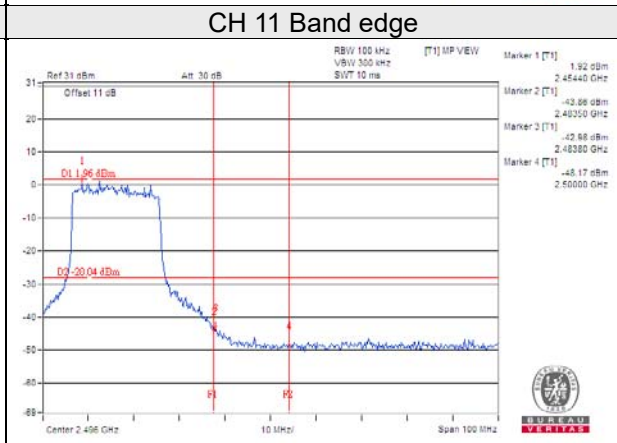
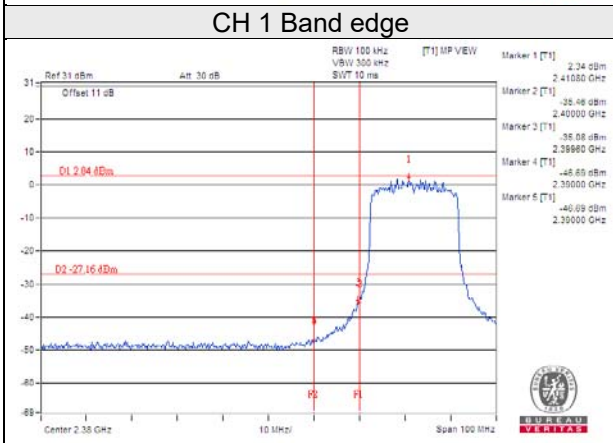
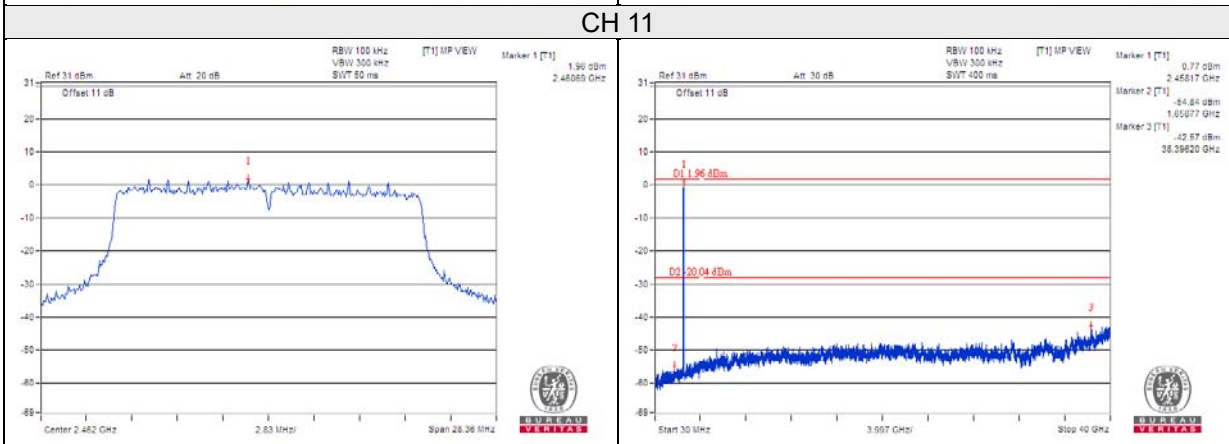
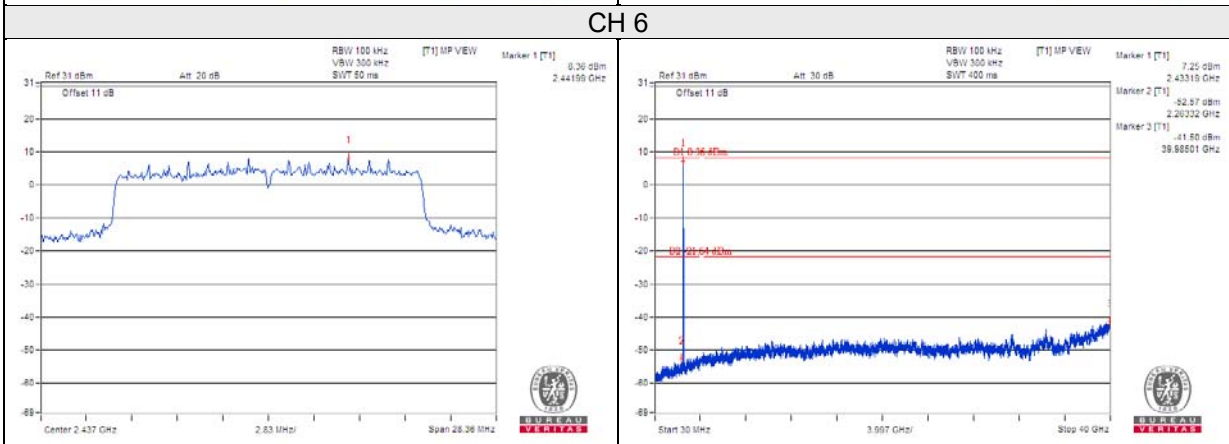
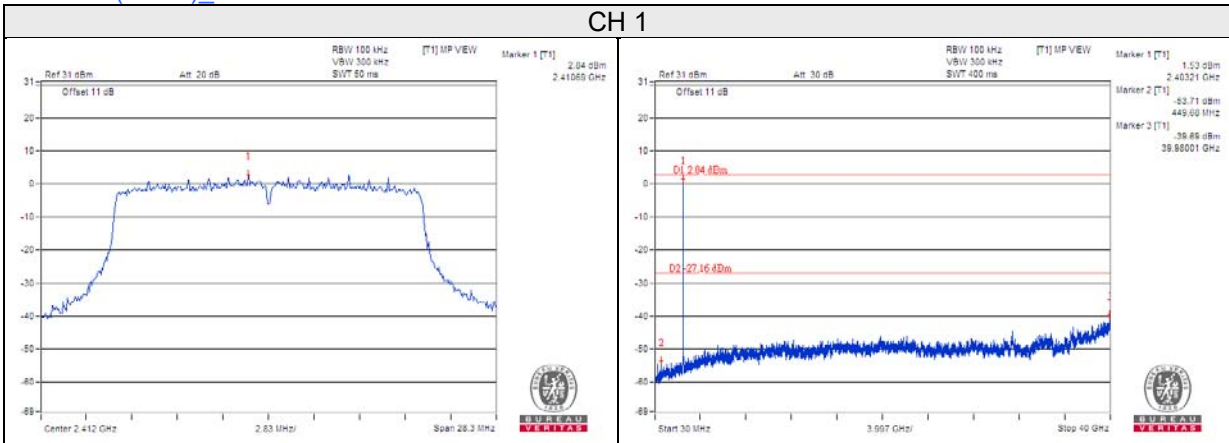
802.11ax (HE20)_Chain 1



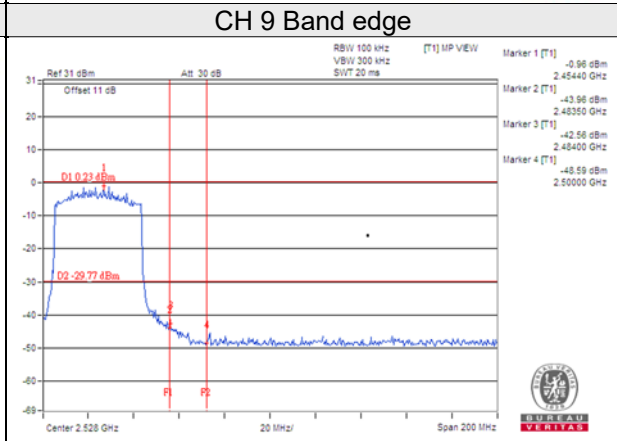
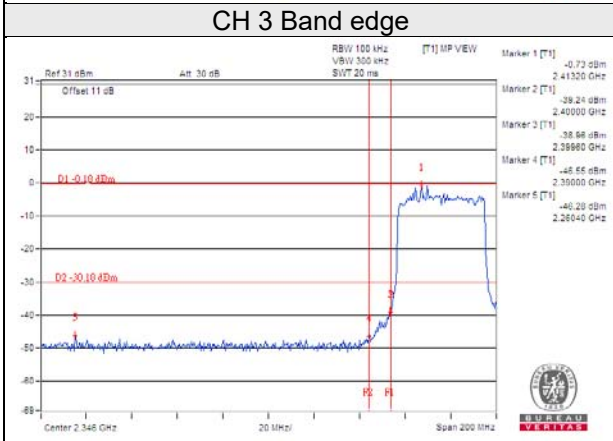
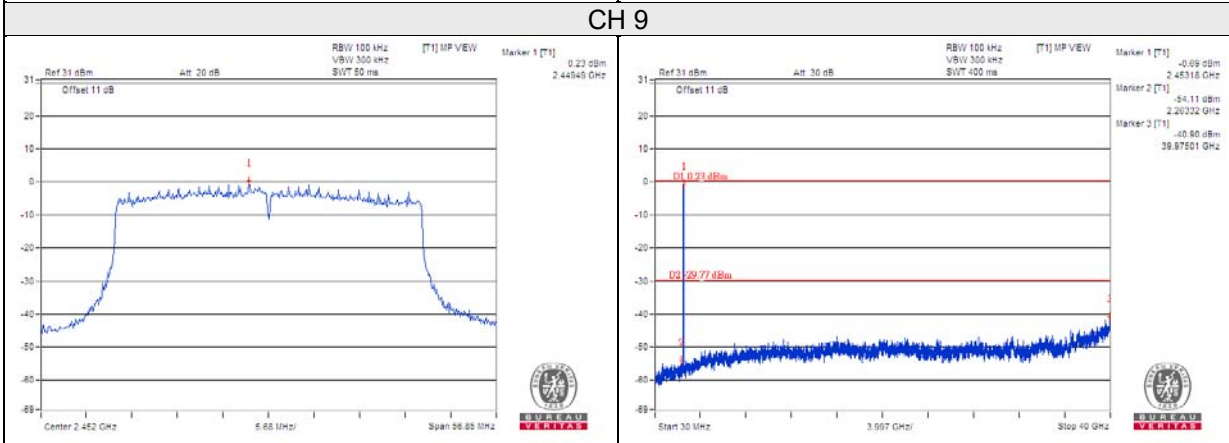
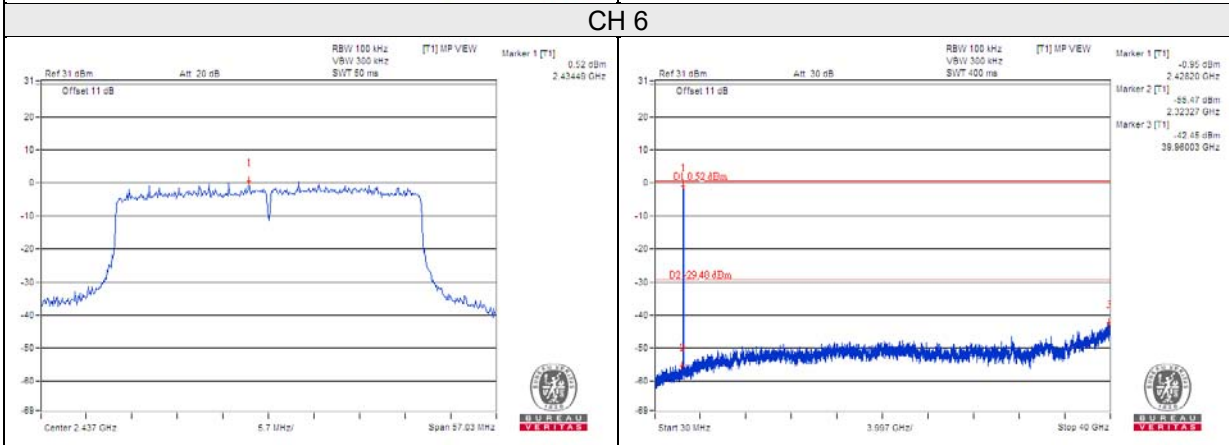
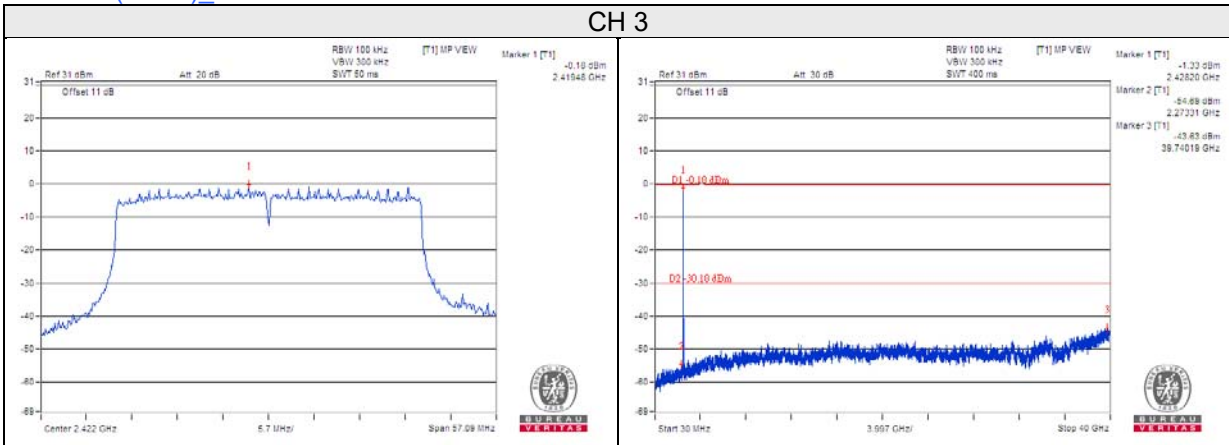
802.11ax (HE20)_Chain 2



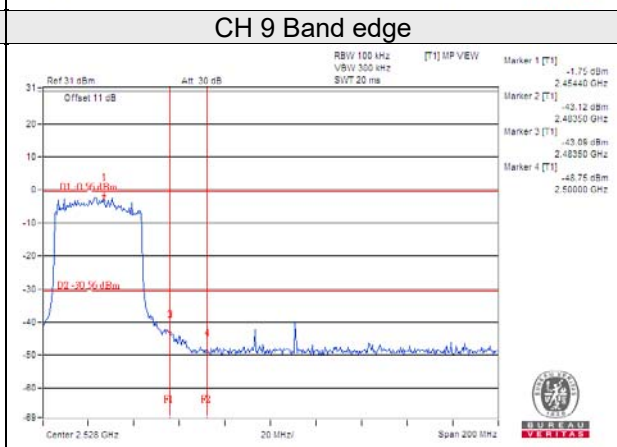
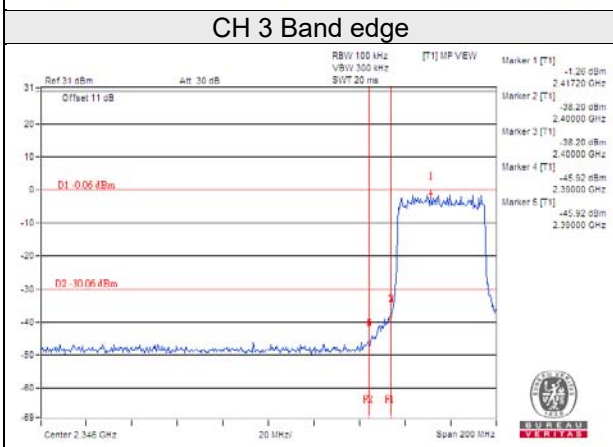
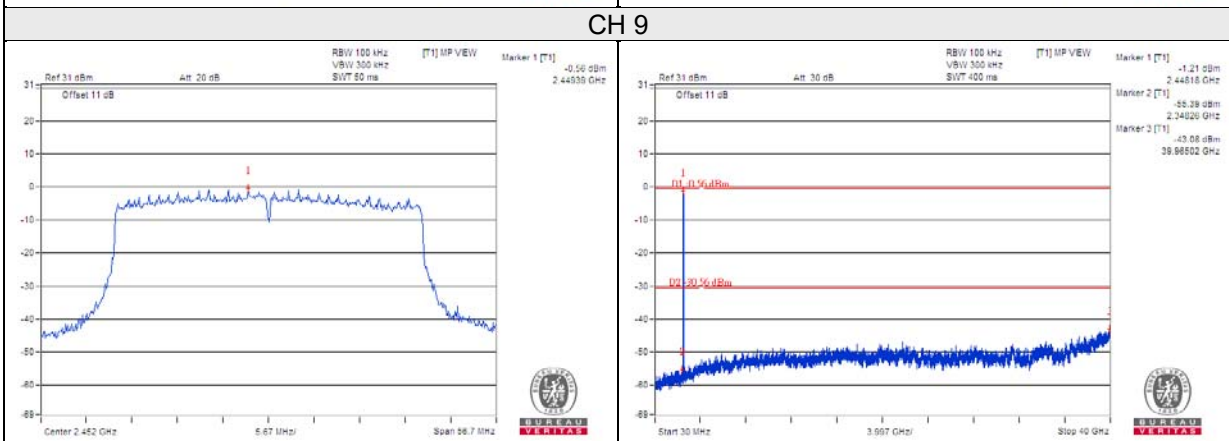
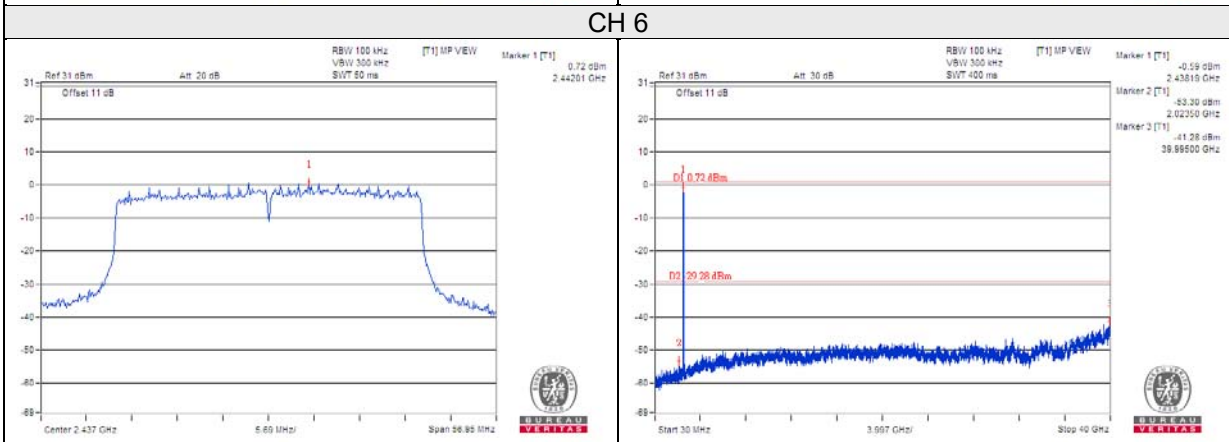
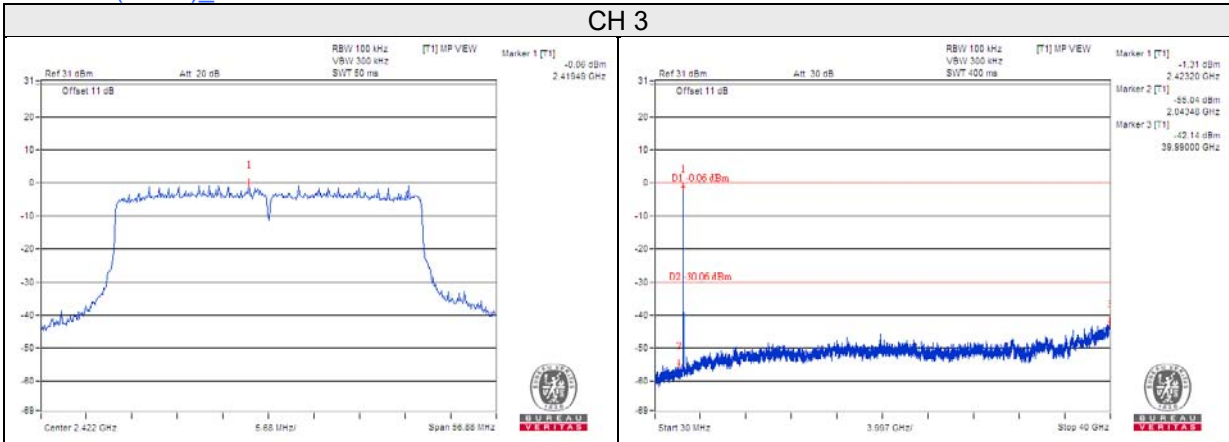
802.11ax (HE20)_Chain 3



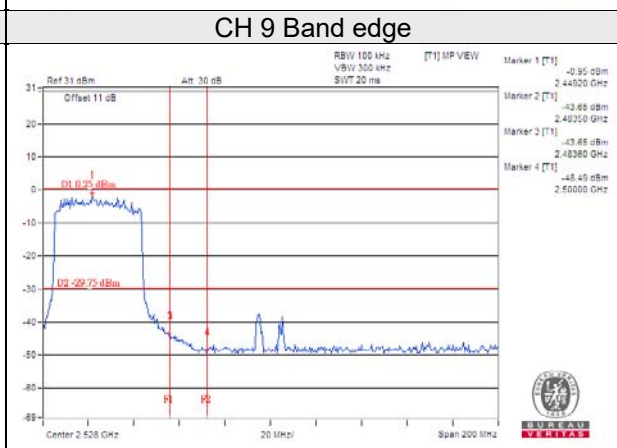
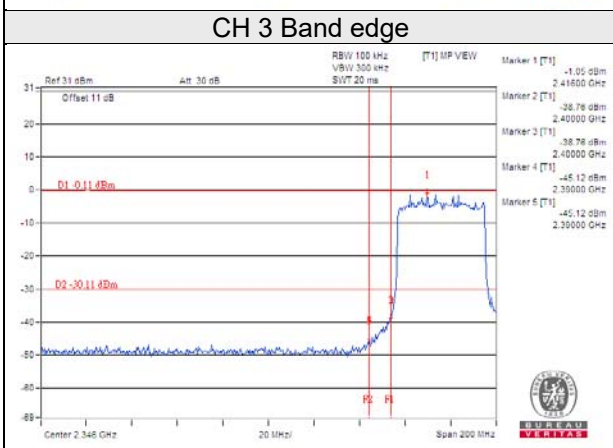
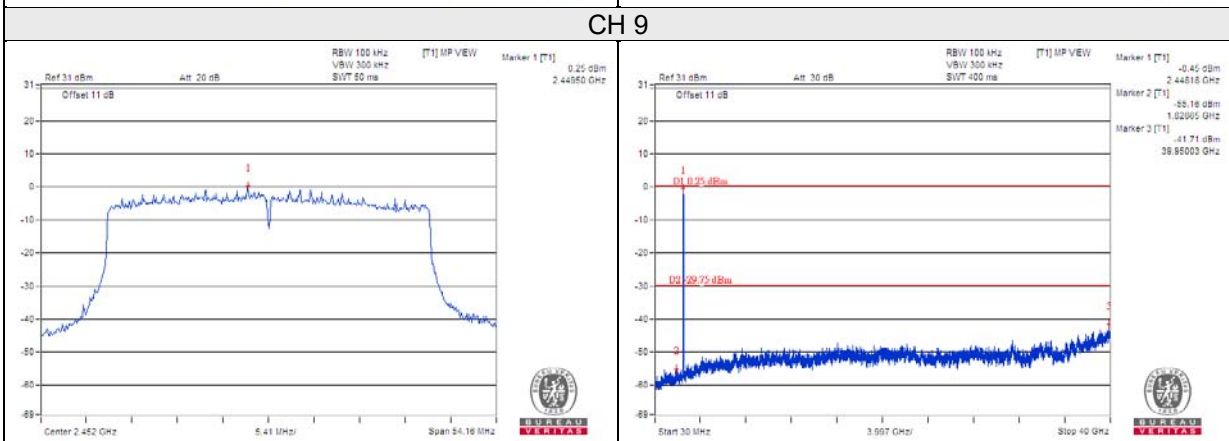
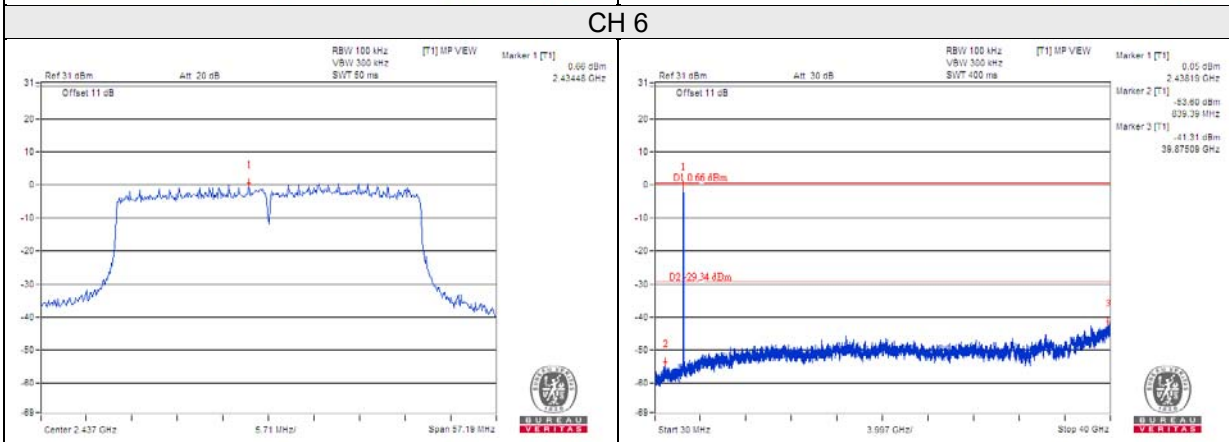
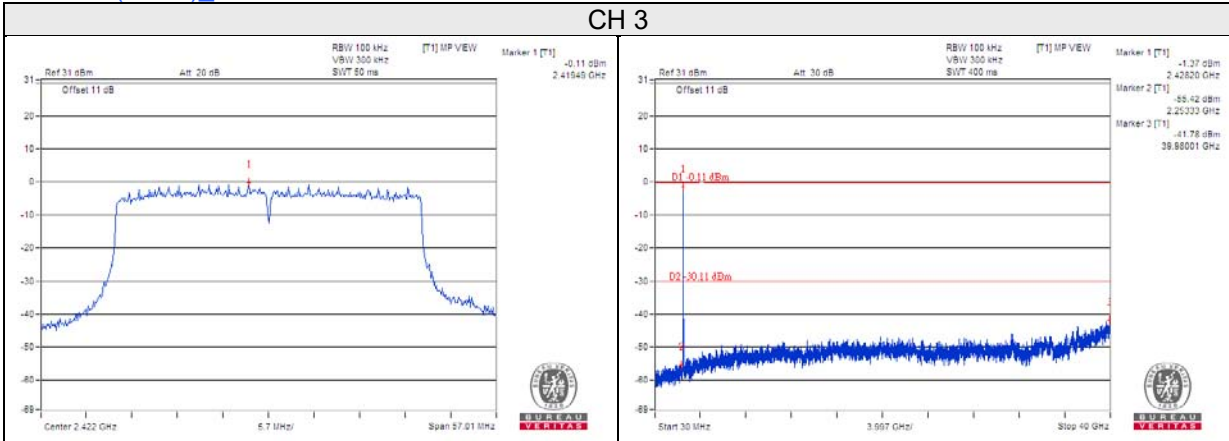
802.11ax (HE40)_Chain 0



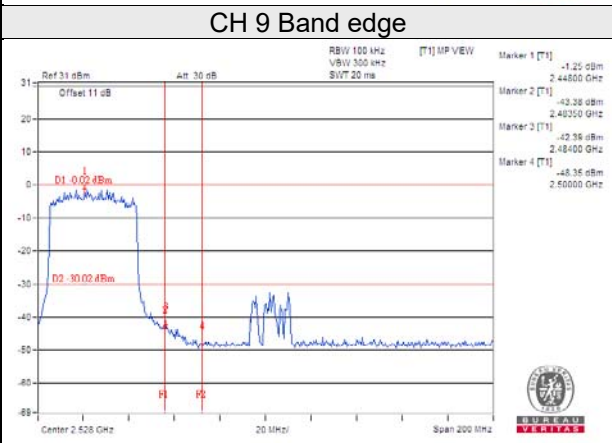
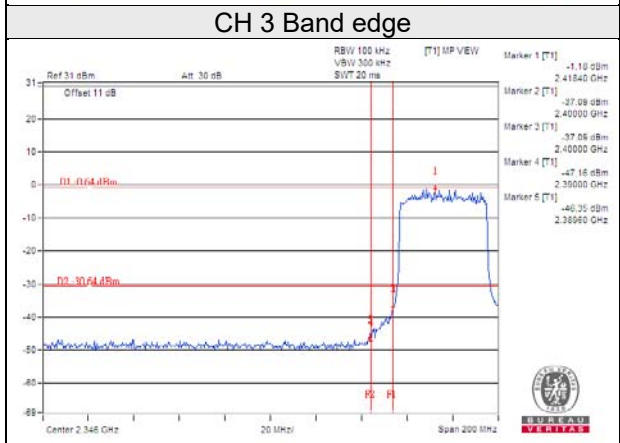
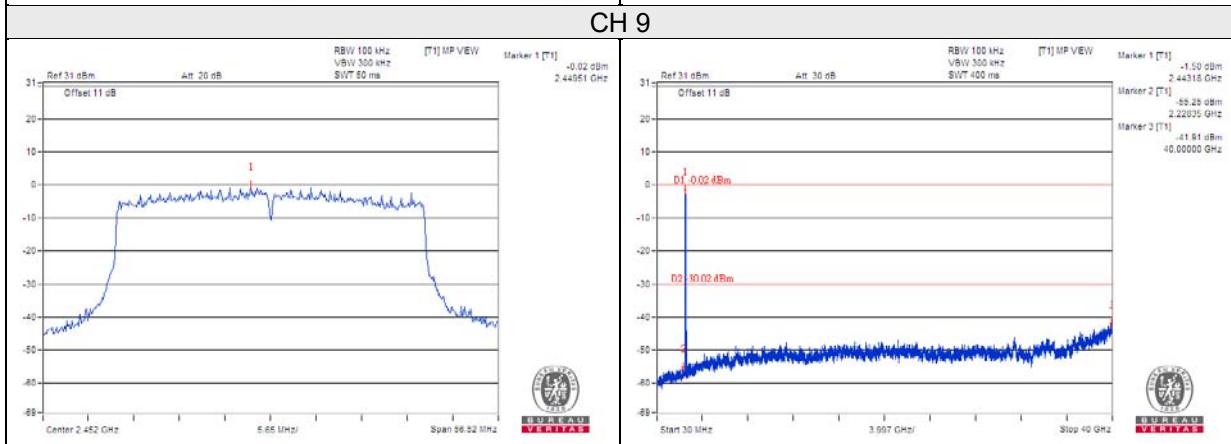
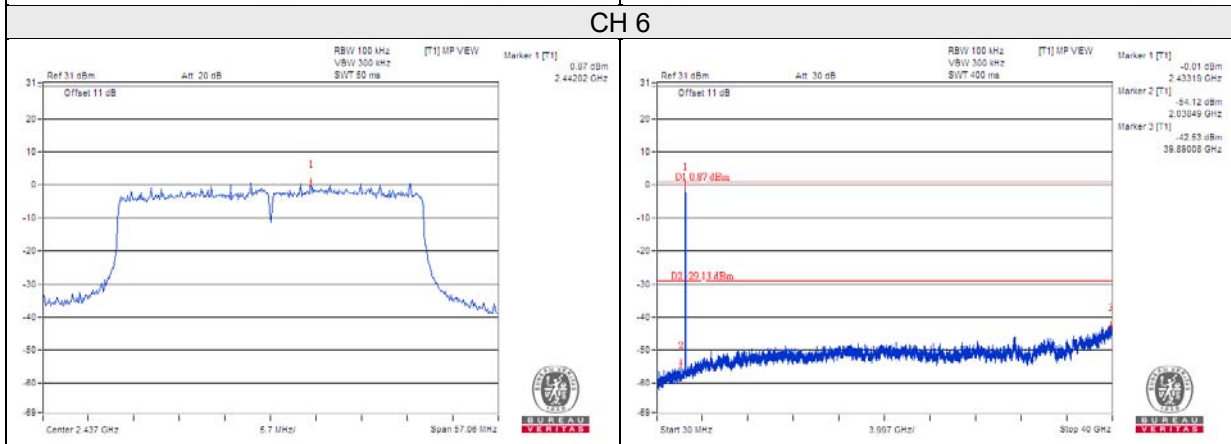
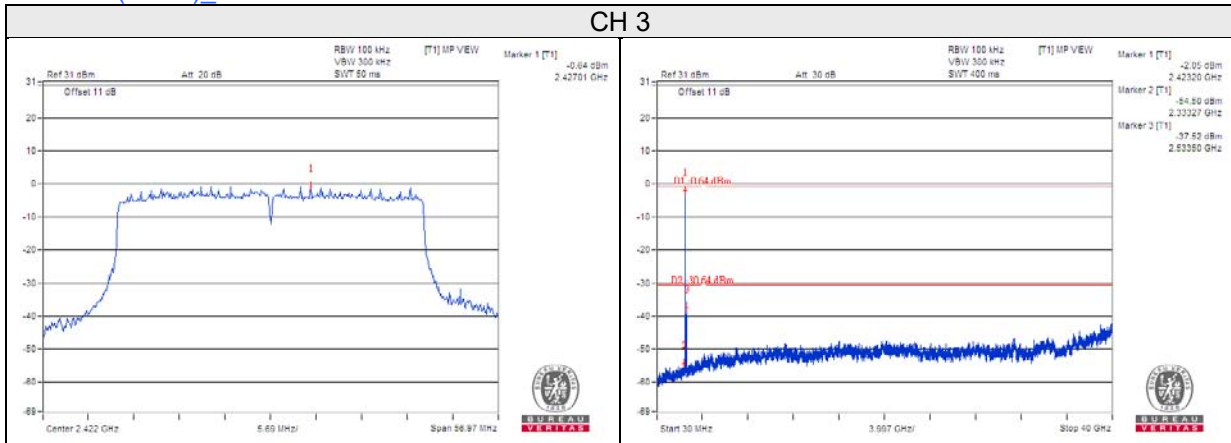
802.11ax (HE40)_Chain 1



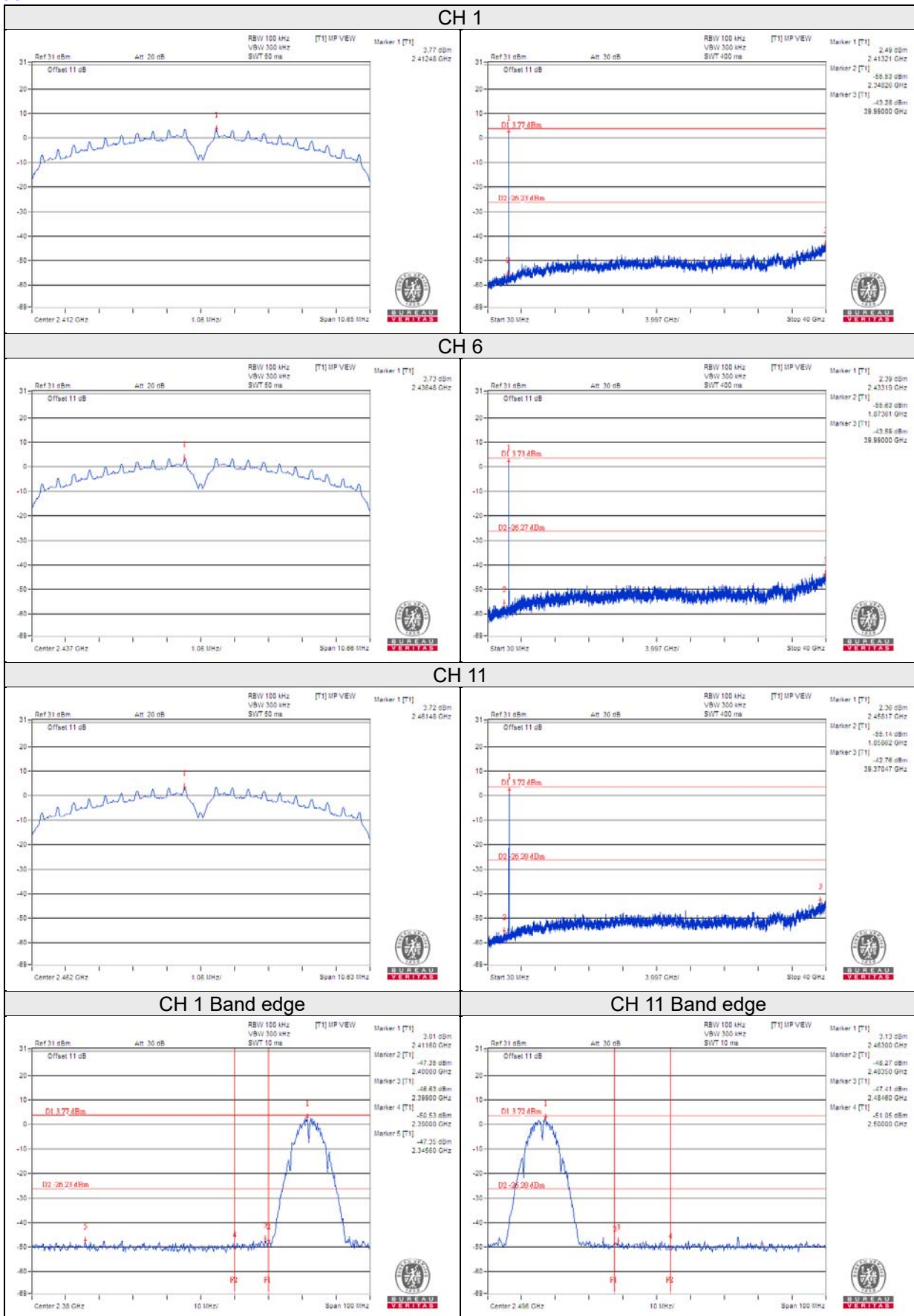
802.11ax (HE40)_Chain 2



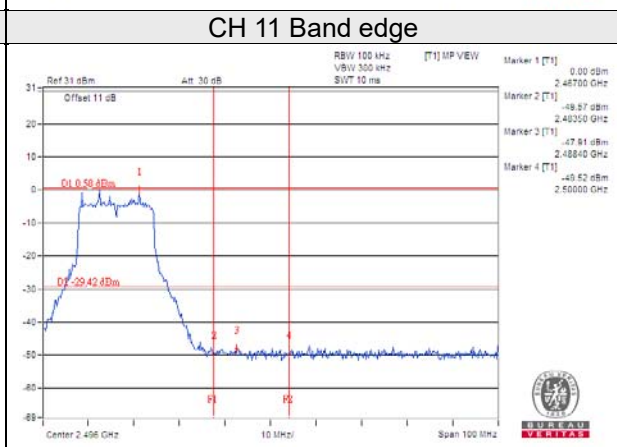
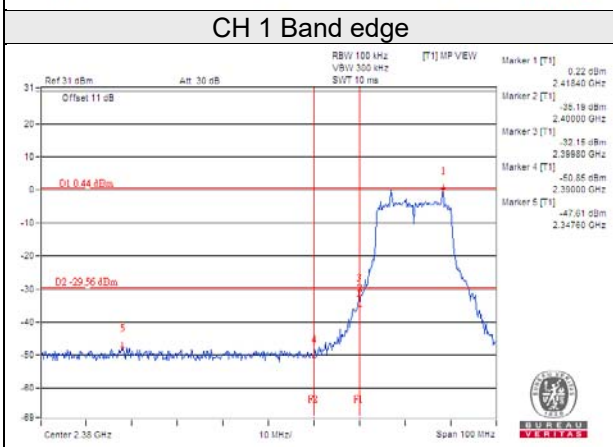
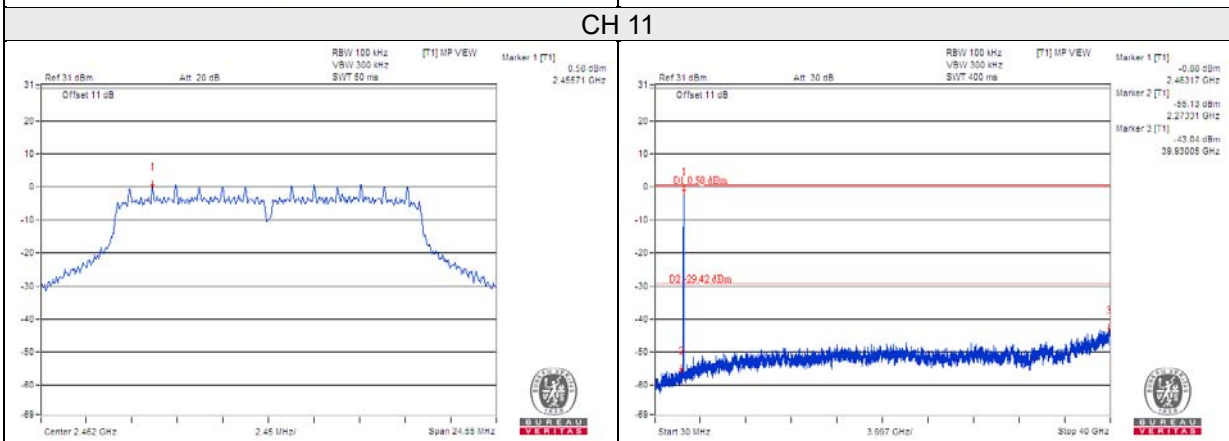
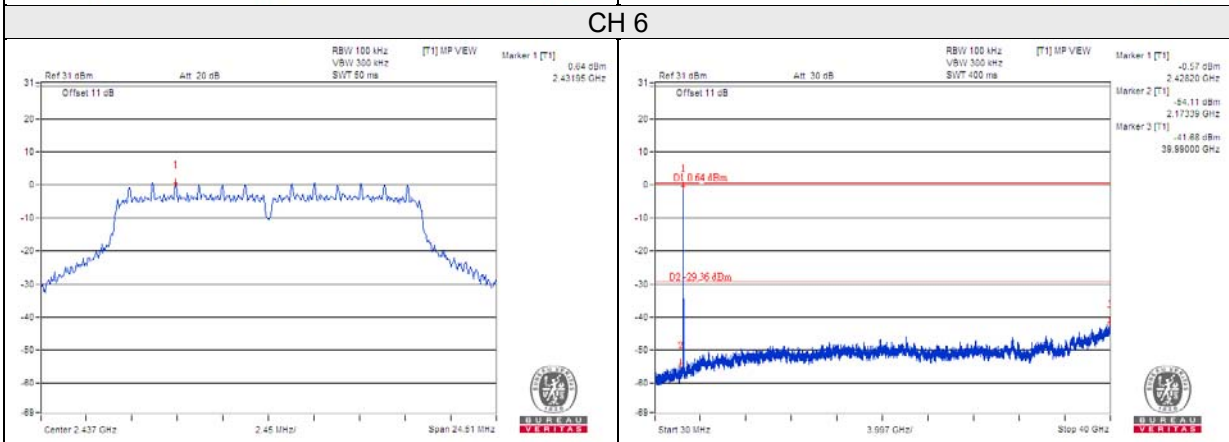
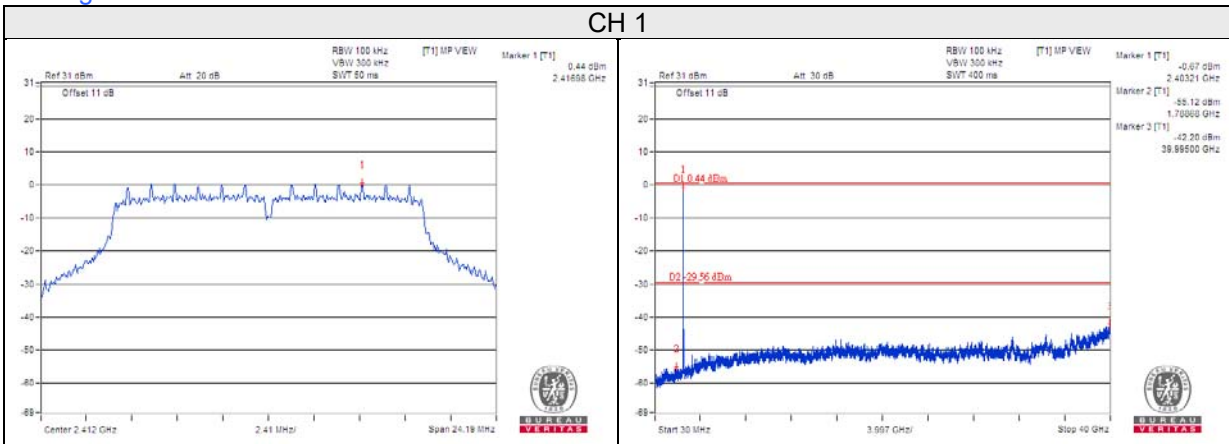
802.11ax (HE40)_Chain 3



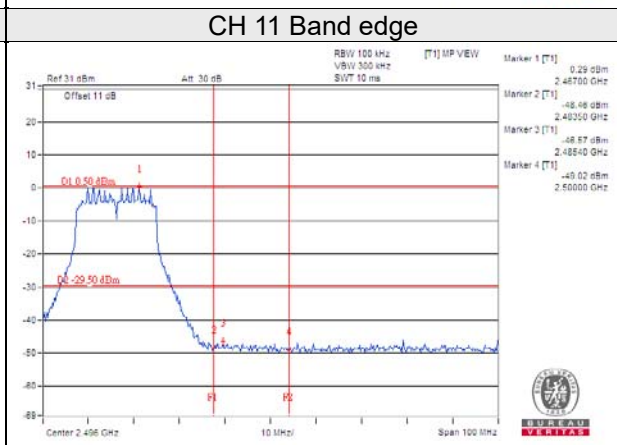
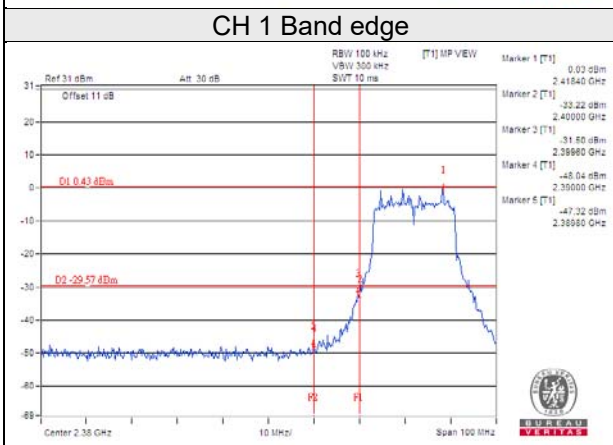
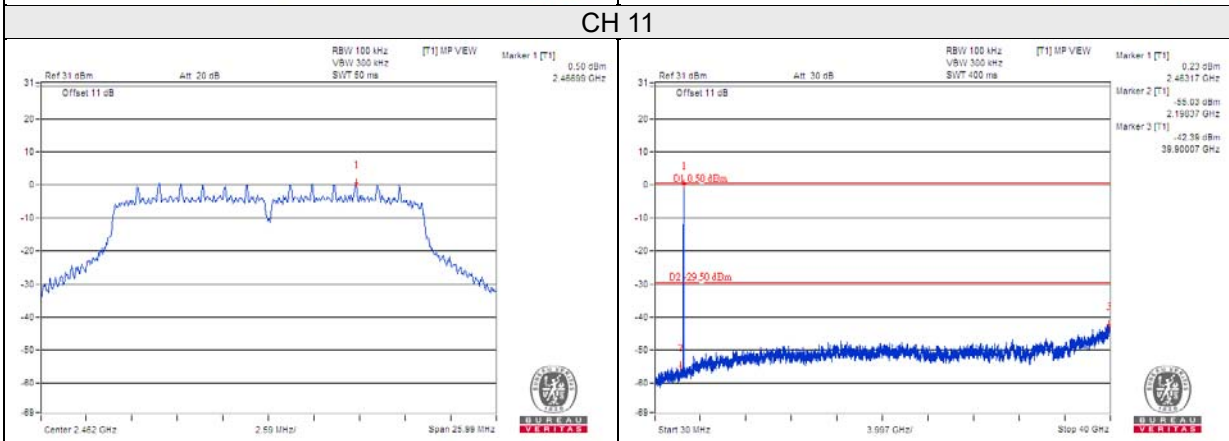
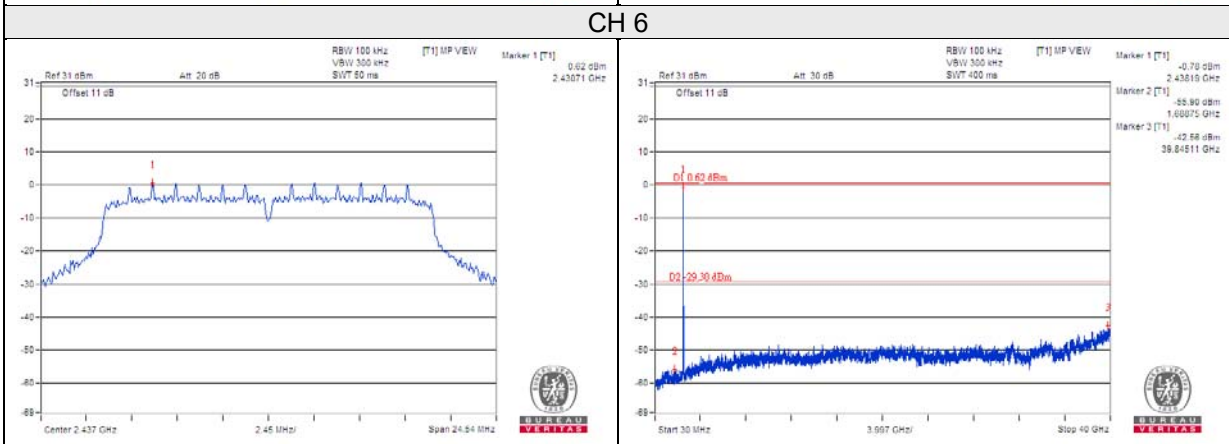
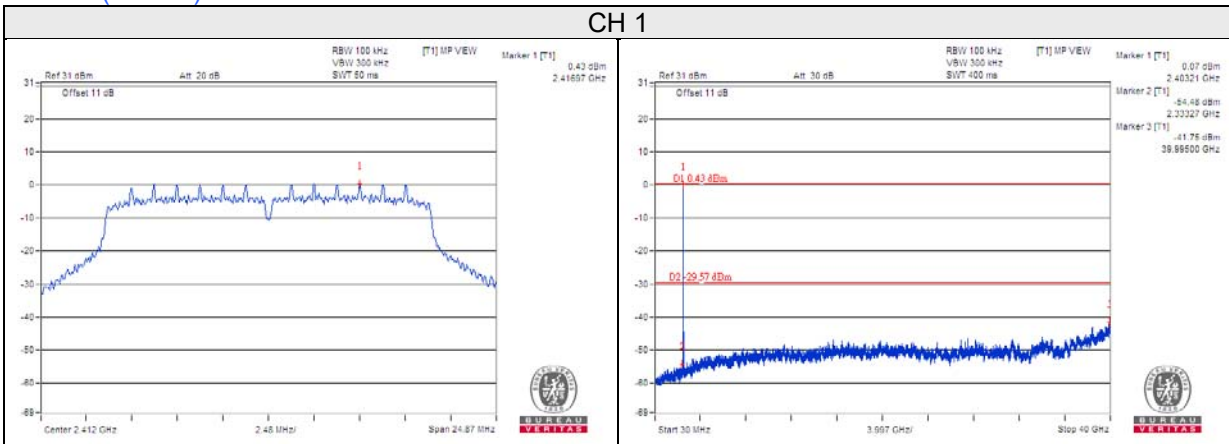
Scanning radio (Radio 3)
802.11b



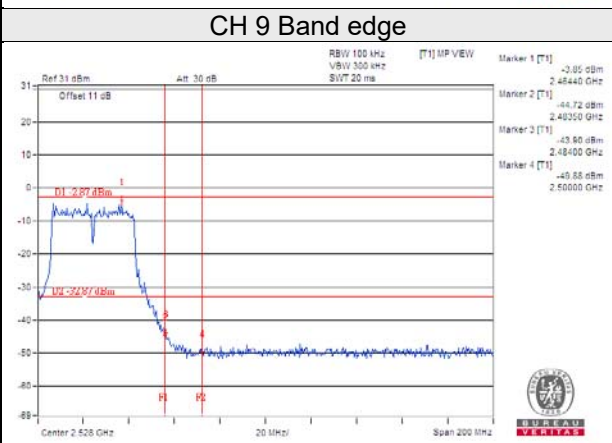
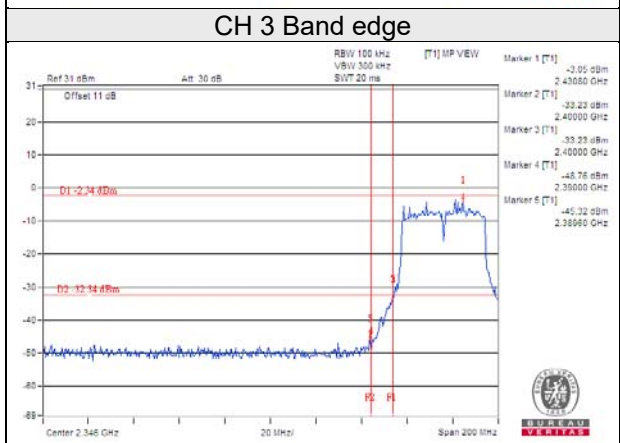
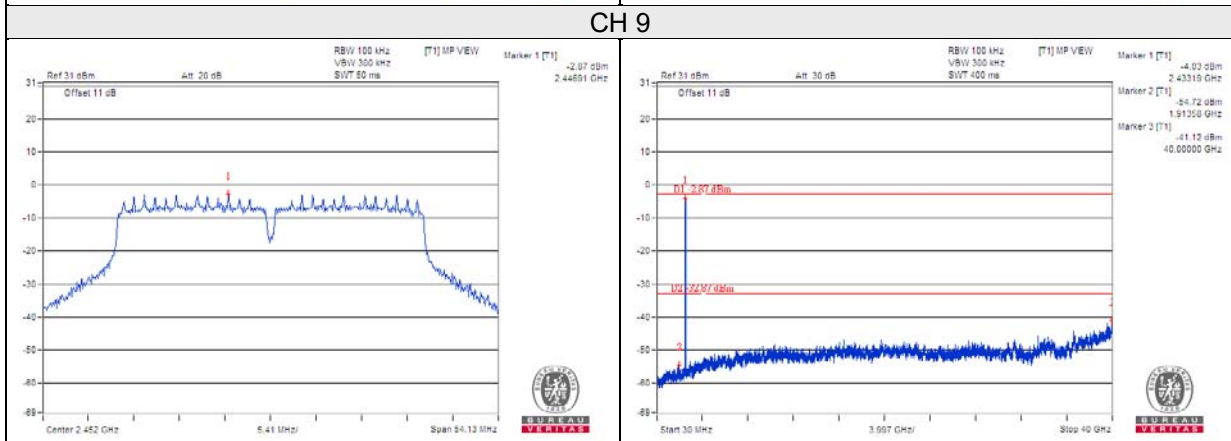
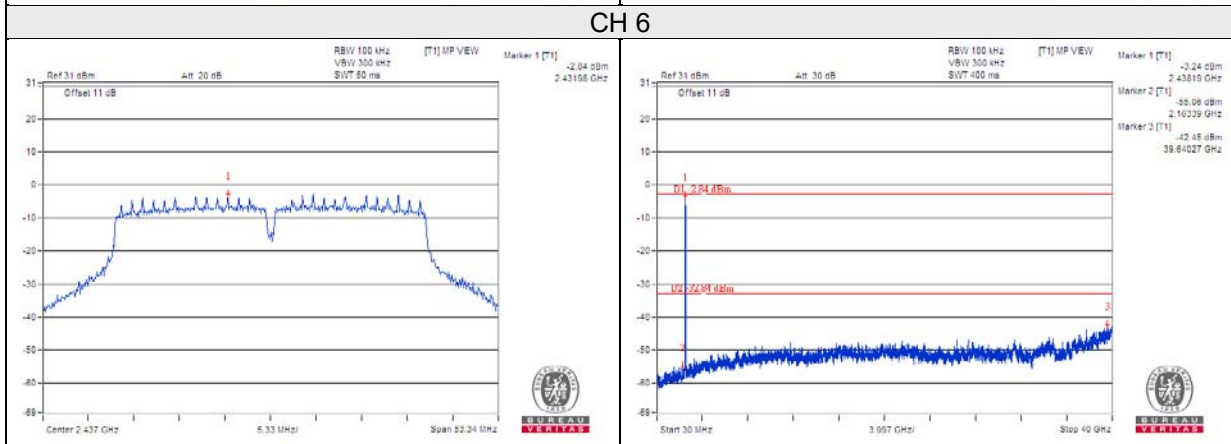
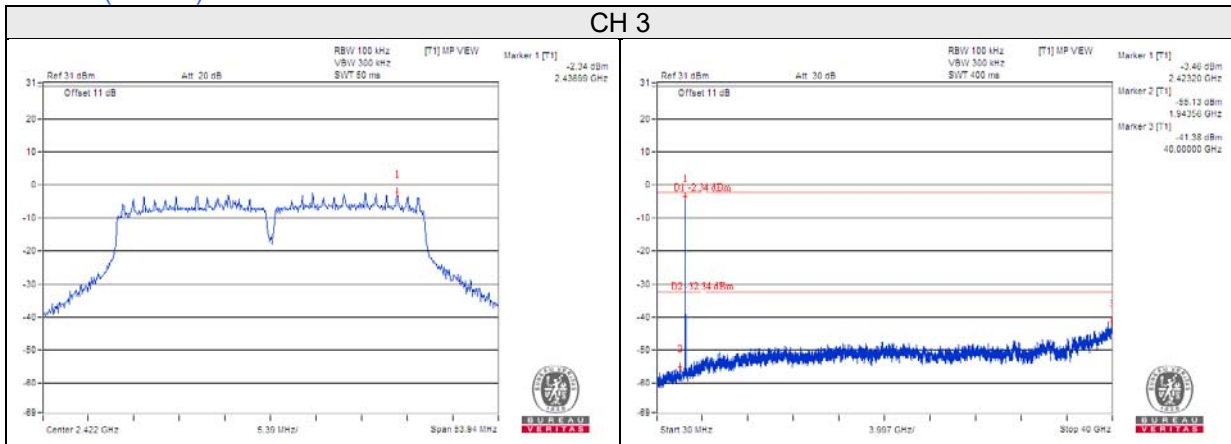
802.11g



802.11n (VHT20)



802.11n (VHT40)

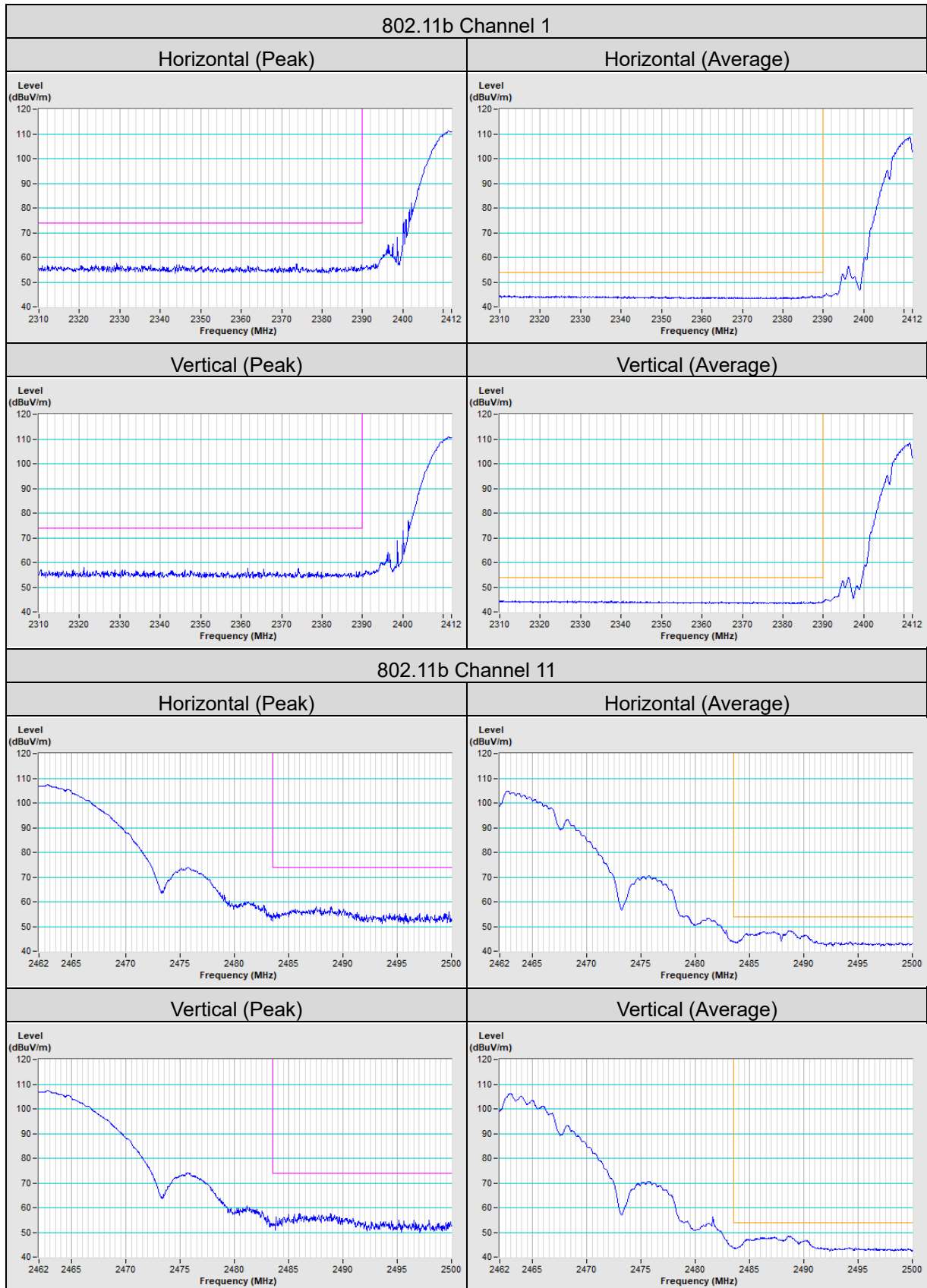


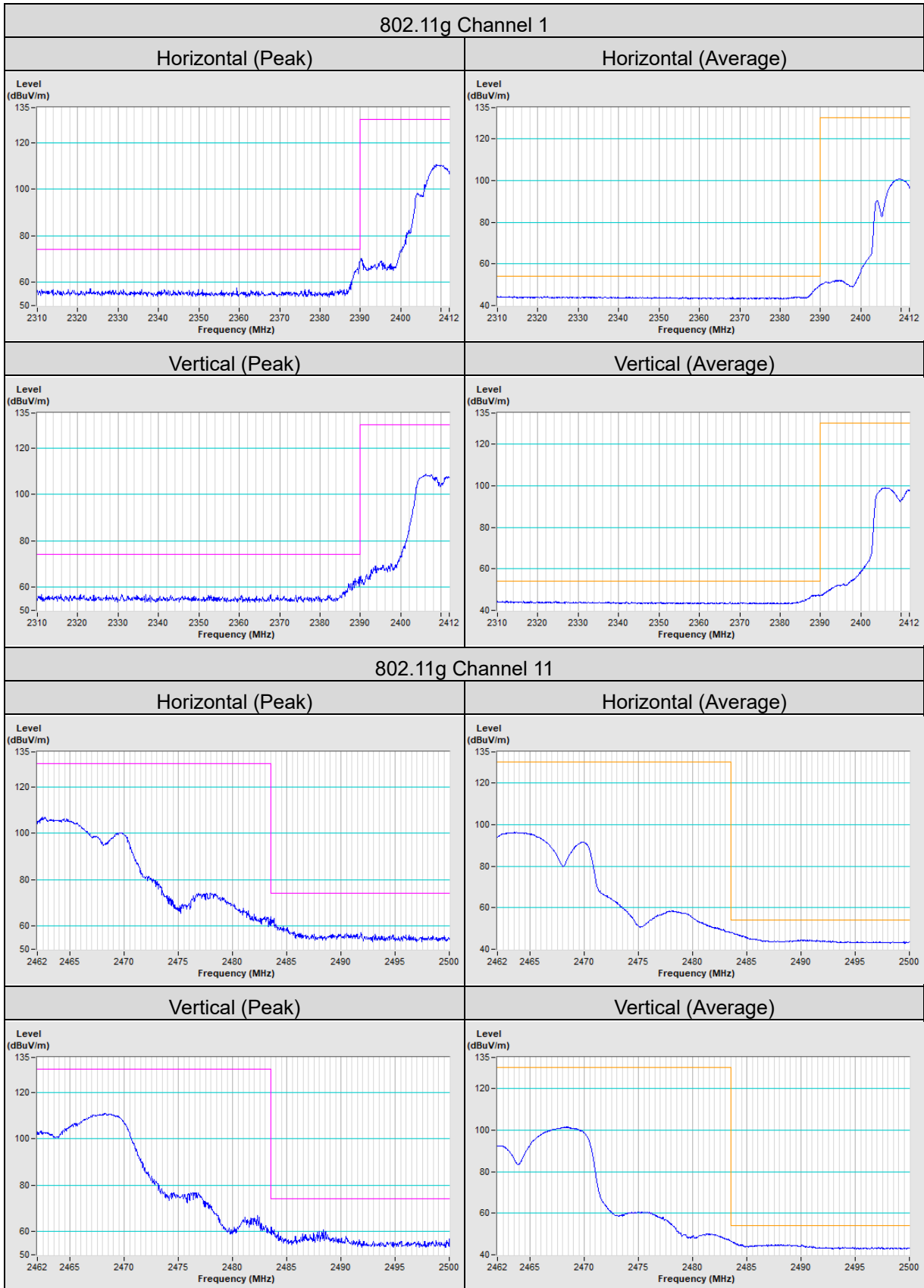
5 Pictures of Test Arrangements

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

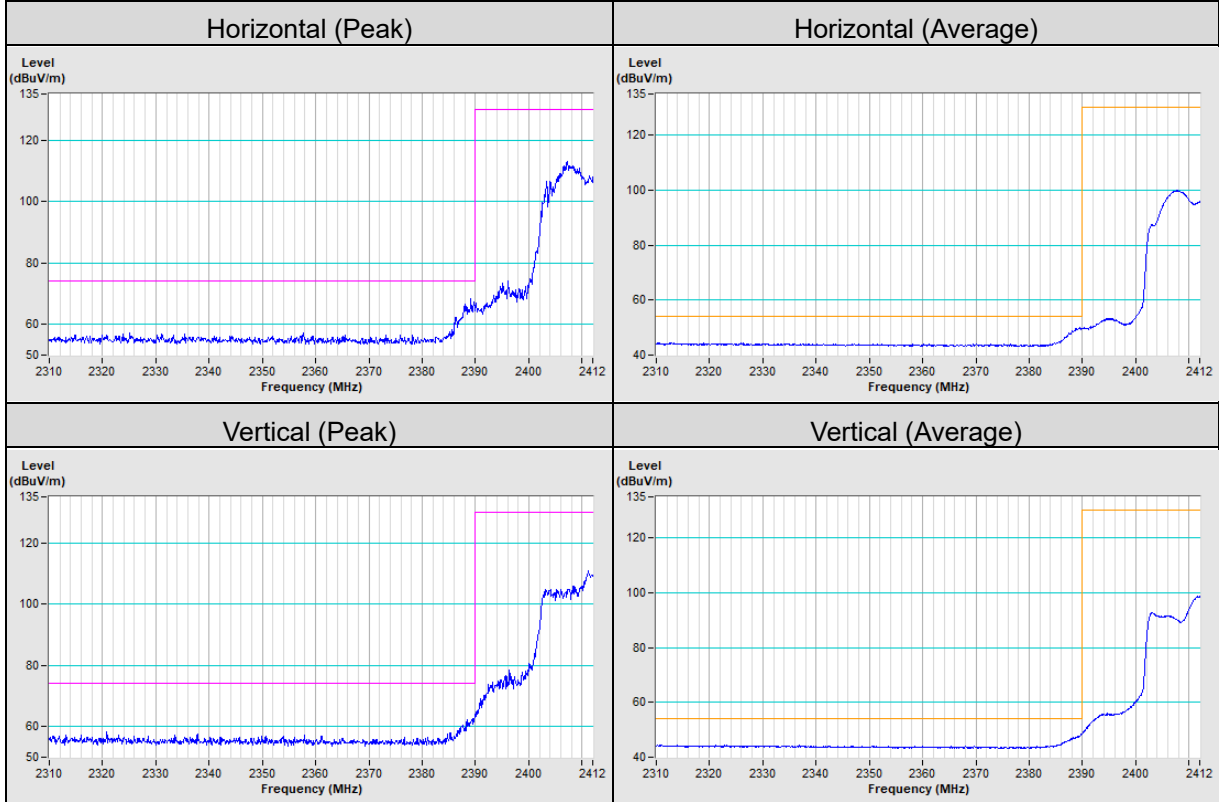
Annex A - Band Edge Measurement

2G traffic radio (Radio 2)

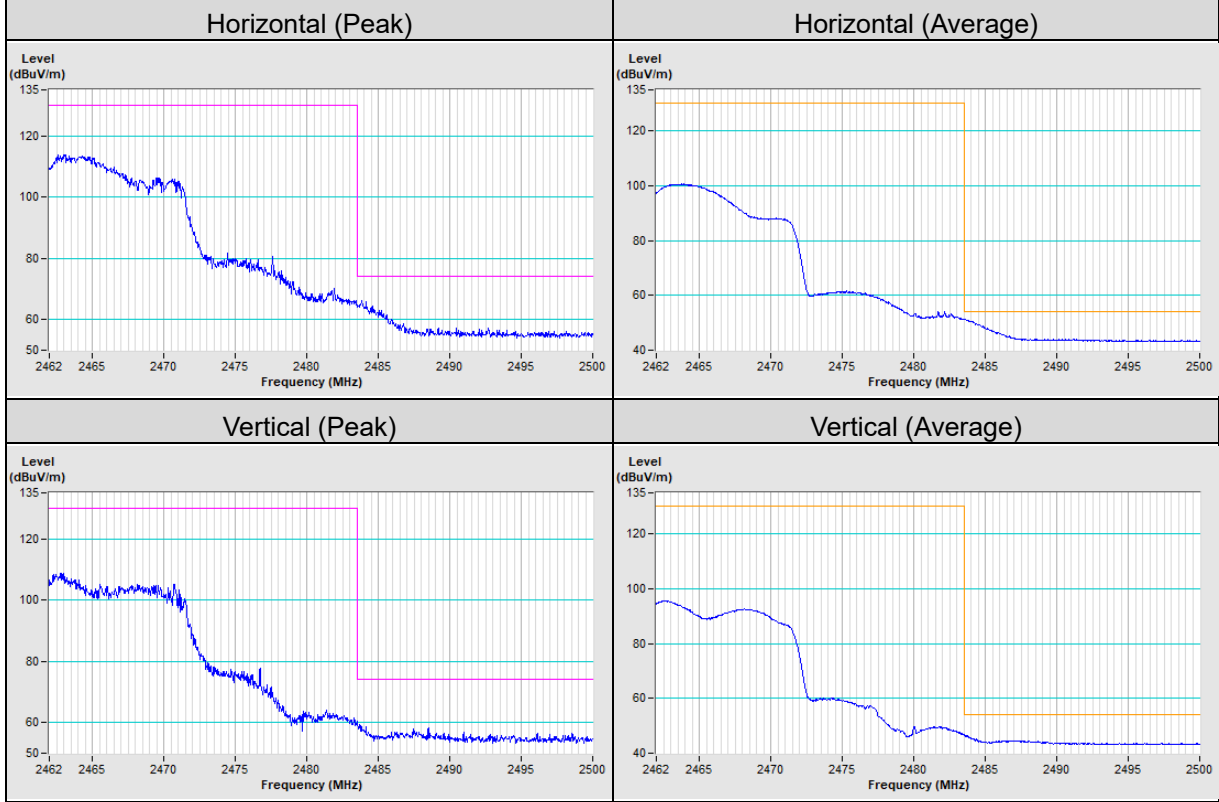


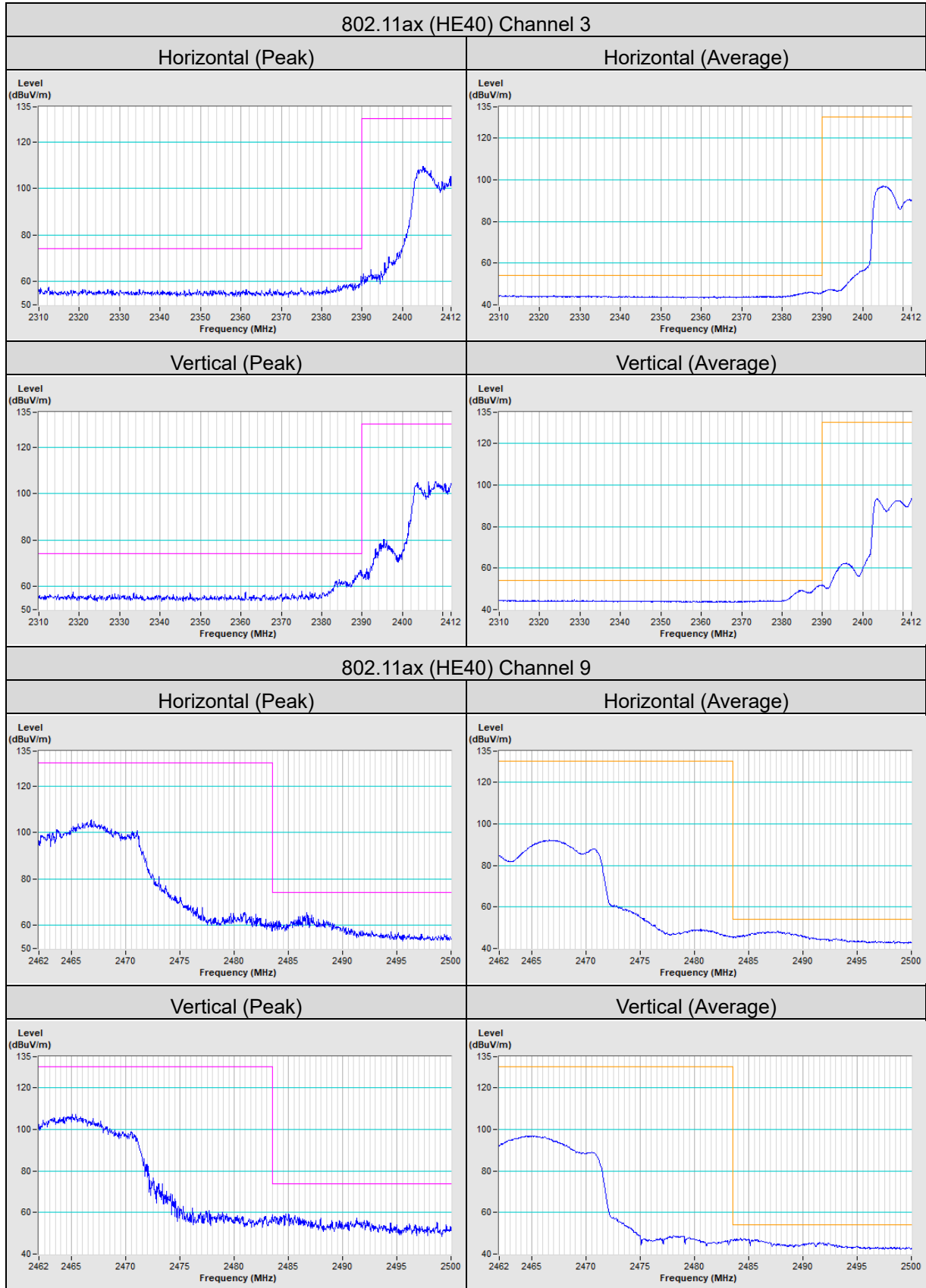


802.11ax (HE20) Channel 1

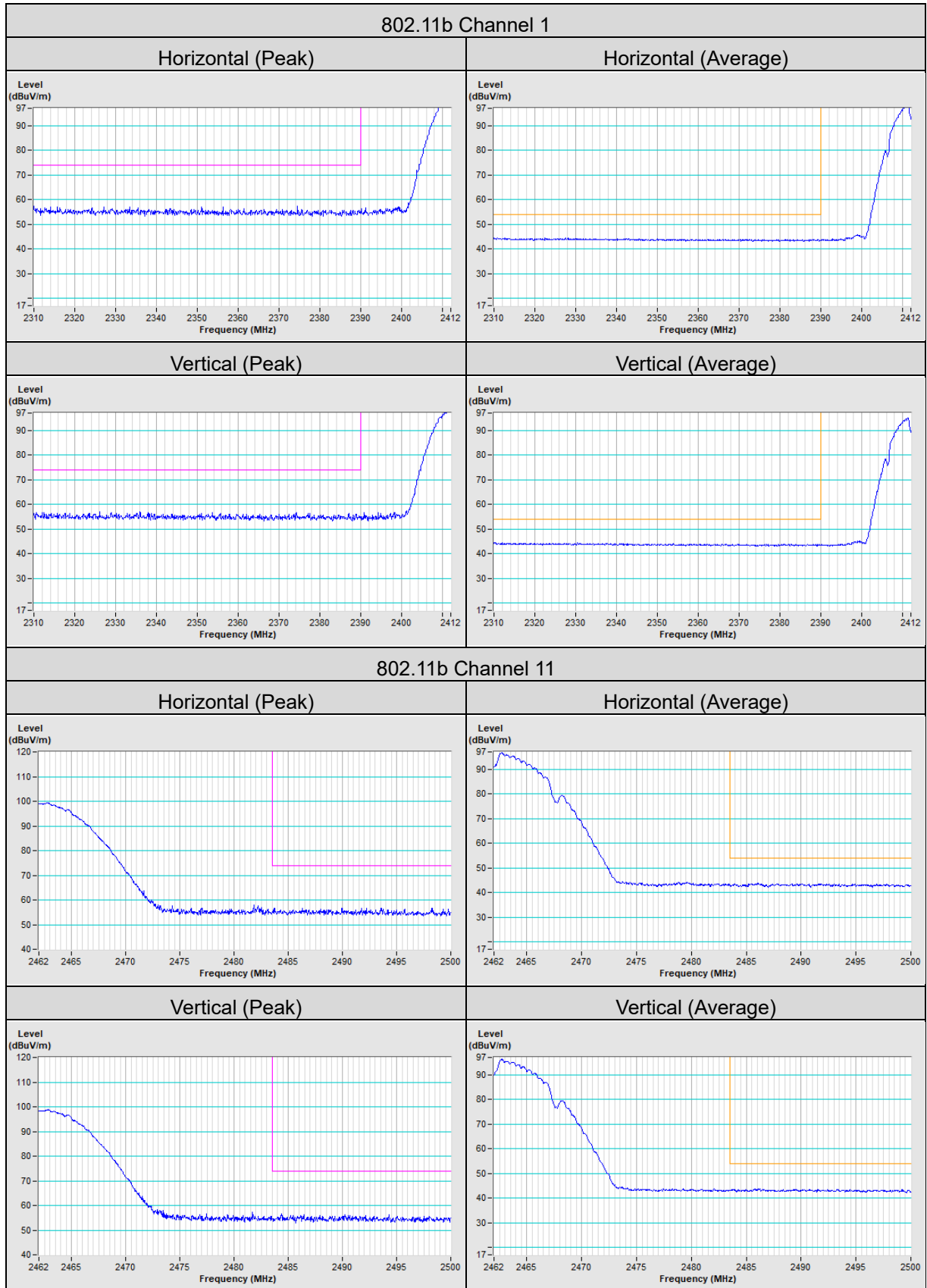


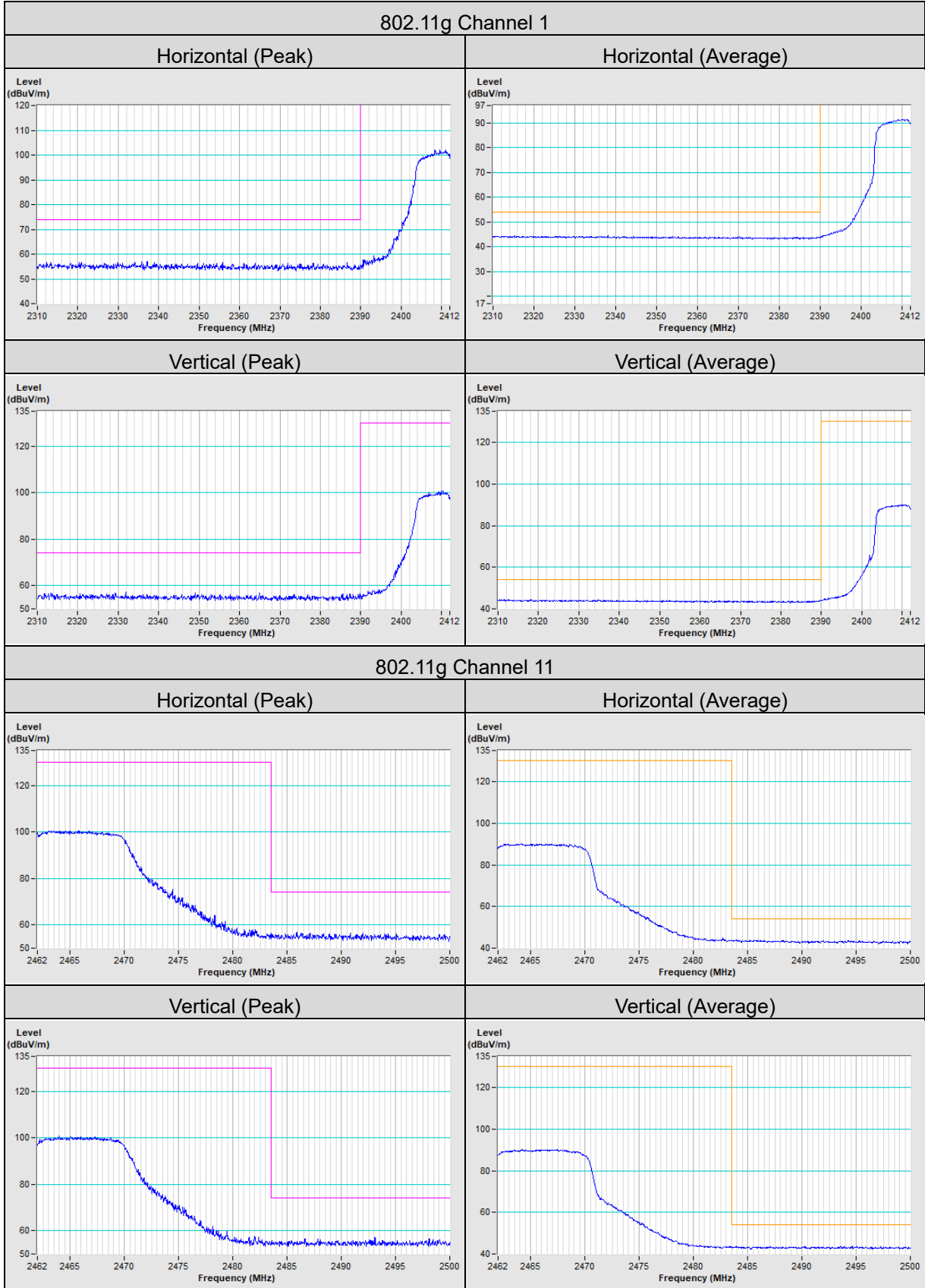
802.11ax (HE20) Channel 11



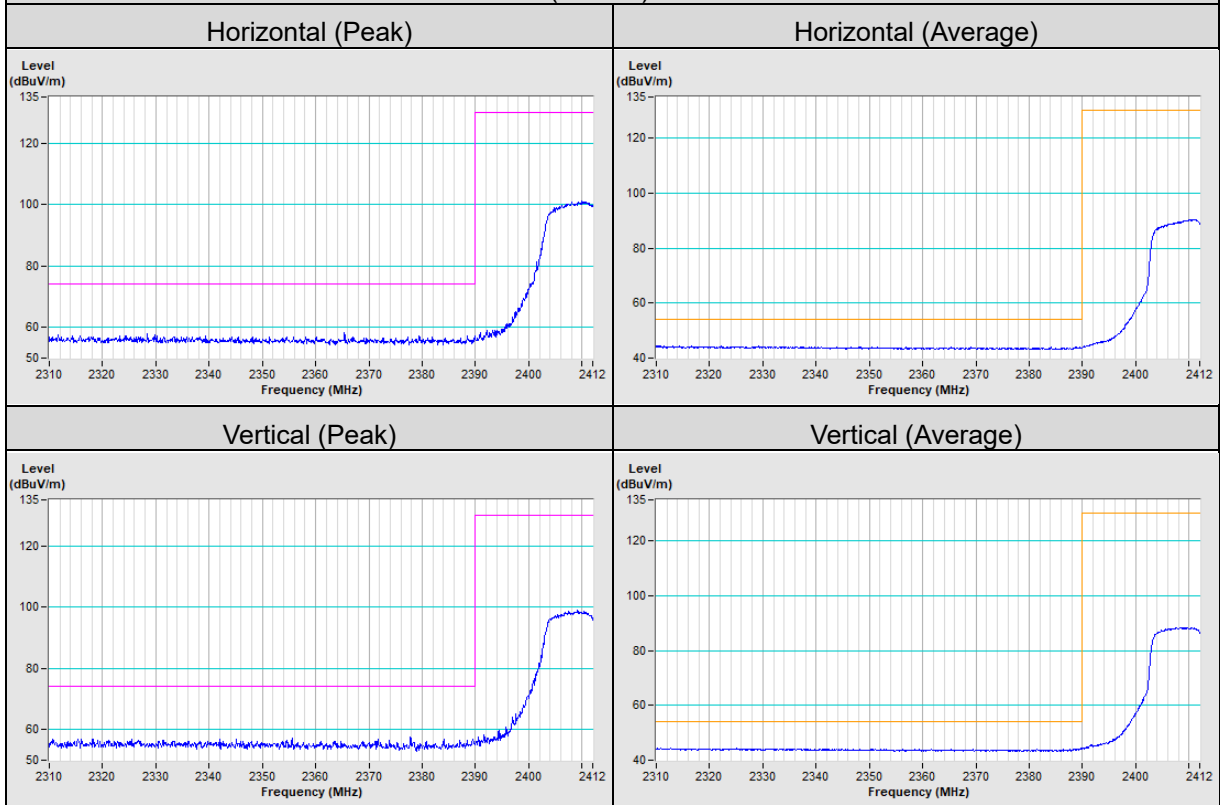


Scanning radio (Radio 3)

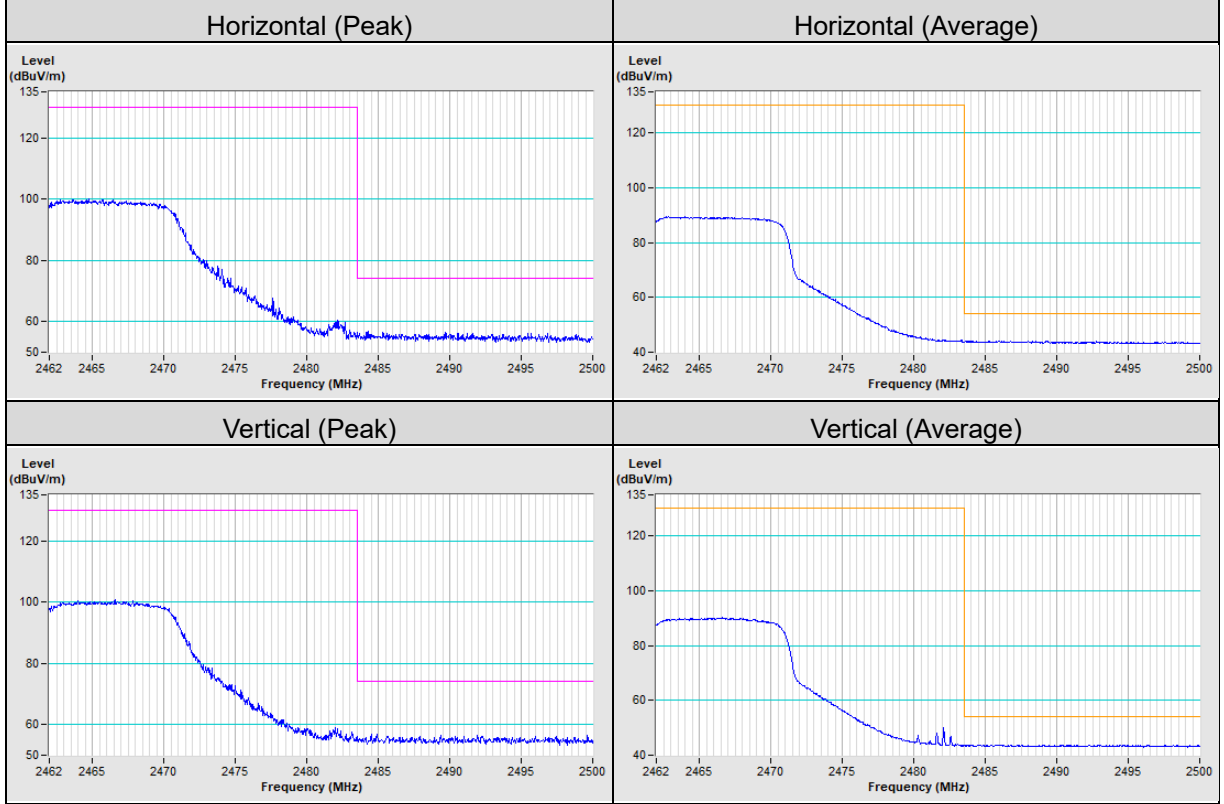




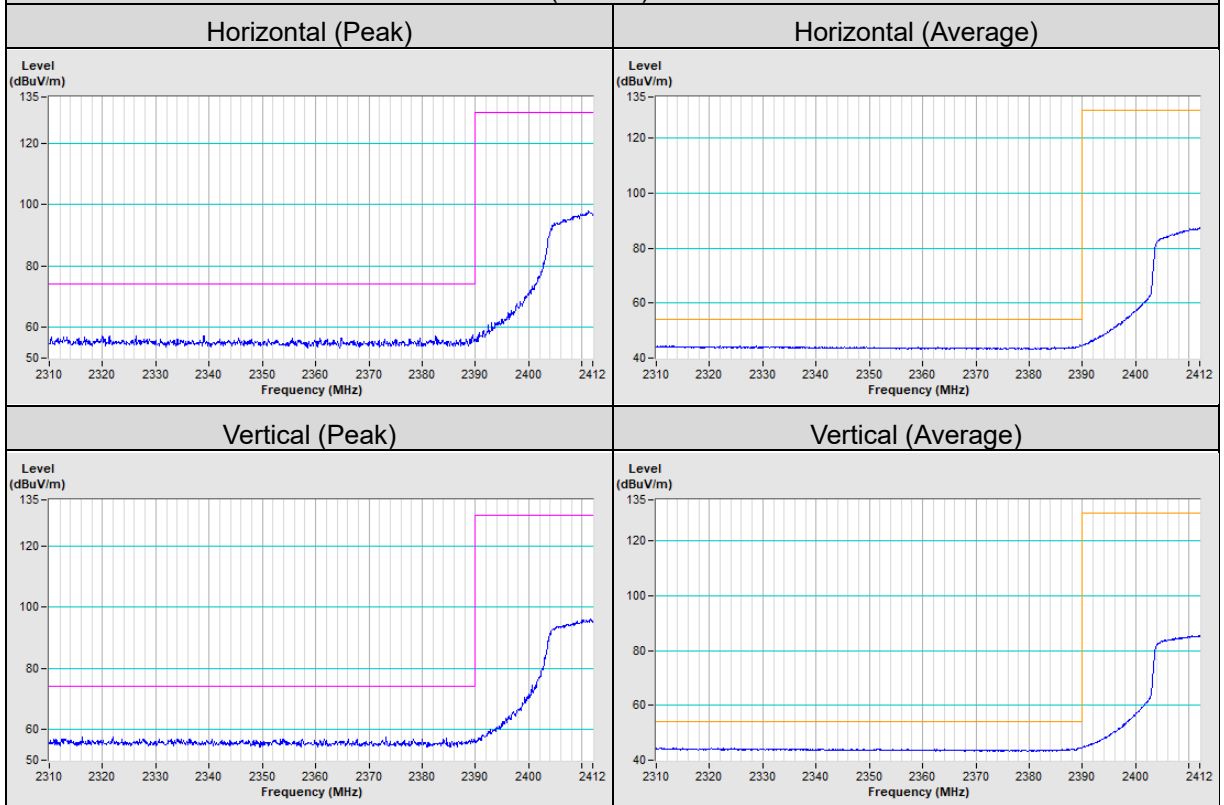
802.11n (VHT20) Channel 1



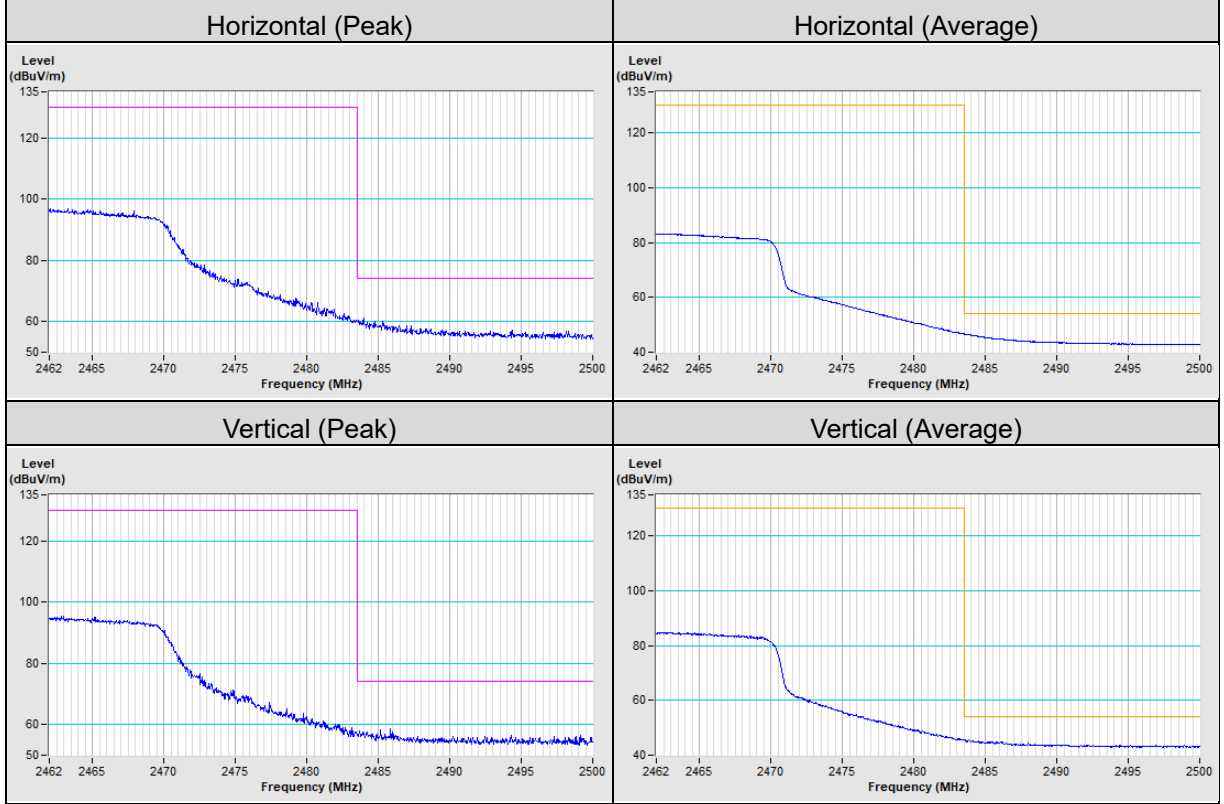
802.11n (VHT20) Channel 11



802.11n (VHT40) Channel 3



802.11n (VHT40) Channel 6



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:

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Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

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