

FCC Test Report

Report No.: RF200406C42

FCC ID: 2AQLWYYCBV3

Test Model: Angel

Received Date: Apr. 06, 2020

Test Date: Jun. 11 ~ Jun. 19, 2020

Issued Date: Jun. 30, 2020

Applicant: Yun yun AI Baby camera Co., Ltd.

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



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Table of Contents

Release Control Record	4
1 Certificate of Conformity	5
2 Summary of Test Results.....	6
2.1 Measurement Uncertainty.....	6
2.2 Modification Record	6
3 General Information	7
3.1 General Description of EUT	7
3.2 Description of Test Modes.....	8
3.2.1 Test Mode Applicability and Tested Channel Detail.....	9
3.3 Duty Cycle of Test Signal	11
3.4 Description of Support Units	12
3.4.1 Configuration of System under Test	12
3.5 General Description of Applied Standards and References	13
4 Test Types and Results	14
4.1 Radiated Emission and Bandedge Measurement	14
4.1.1 Limits of Radiated Emission and Bandedge Measurement	14
4.1.2 Test Instruments	15
4.1.3 Test Procedures.....	16
4.1.4 Deviation from Test Standard	17
4.1.5 Test Set Up	17
4.1.6 EUT Operating Conditions.....	18
4.1.7 Test Results	19
4.2 Conducted Emission Measurement.....	40
4.2.1 Limits of Conducted Emission Measurement	40
4.2.2 Test Instruments	40
4.2.3 Test Procedures.....	40
4.2.4 Deviation from Test Standard	41
4.2.5 Test Setup.....	41
4.2.6 EUT Operating Conditions.....	41
4.2.7 Test Results	42
4.3 6 dB Bandwidth Measurement.....	48
4.3.1 Limits of 6 dB Bandwidth Measurement.....	48
4.3.2 Test Setup.....	48
4.3.3 Test Instruments	48
4.3.4 Test Procedure	48
4.3.5 Deviation from Test Standard	48
4.3.6 EUT Operating Conditions.....	48
4.3.7 Test Results	49
4.4 Occupied Bandwidth Measurement.....	51
4.4.1 Test Setup.....	51
4.4.2 Test Instruments	51
4.4.3 Test Procedure	51
4.4.4 Deviation from Test Standard	51
4.4.5 EUT Operating Conditions.....	51
4.4.6 Test Results	52
4.5 Conducted Output Power Measurement	54
4.5.1 Limits of Conducted Output Power Measurement.....	54
4.5.2 Test Setup.....	54
4.5.3 Test Instruments	54
4.5.4 Test Procedures.....	54
4.5.5 Deviation from Test Standard	54
4.5.6 EUT Operating Conditions.....	54
4.5.7 Test Results	55

4.6	Power Spectral Density Measurement	57
4.6.1	Limits of Power Spectral Density Measurement.....	57
4.6.2	Test Setup.....	57
4.6.3	Test Instruments	57
4.6.4	Test Procedure	57
4.6.5	Deviation from Test Standard	57
4.6.6	EUT Operating Condition	57
4.6.7	Test Results	58
4.7	Conducted Out of Band Emission Measurement	60
4.7.1	Limits of Conducted Out of Band Emission Measurement.....	60
4.7.2	Test Setup.....	60
4.7.3	Test Instruments	60
4.7.4	Test Procedure	60
4.7.5	Deviation from Test Standard	60
4.7.6	EUT Operating Condition	60
4.7.7	Test Results	61
5	Pictures of Test Arrangements.....	67
	Annex A – Band Edge Measurement	68
	Appendix – Information of the Testing Laboratories	76

Release Control Record

Issue No.	Description	Date Issued
RF200406C42	Original Release	Jun. 30, 2020

1 Certificate of Conformity

Product: Cubo AI Baby Monitor

Brand: CuboAi

Test Model: Angel

Sample Status: Production Unit

Applicant: Yun yun AI Baby camera Co., Ltd.

Test Date: Jun. 11 ~ Jun. 19, 2020

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 : Gina Liu, **Date:** Jun. 30, 2020
Gina Liu / Specialist

Approved by : Dylan Chiou, **Date:** Jun. 30, 2020
Dylan Chiou / Senior Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -1.01 dB at 0.67000 MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.6 dB at 2390 MHz.
15.247(d)	Antenna Port Emission	Pass	Meet the requirement of limit.
15.247(a)(2)	6 dB Bandwidth	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	Pass	Reference only
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	No antenna connector is used.

Note:

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

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.79 dB
Radiated Emissions up to 1 GHz	9 kHz ~ 30 MHz	3.04 dB
	30 MHz ~ 200 MHz	2.93 dB
	200 MHz ~ 1000 MHz	2.95 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Cubo AI Baby Monitor
Brand	CuboAi
Test Model	Angel
Status of EUT	Production Unit
Power Supply Rating	5.0 Vdc (adapter & host equipment)
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: 11.0 / 5.5 / 2.0 / 1.0 Mbps 802.11g: 54.0 / 48.0 / 36.0 / 24.0 / 18.0 / 12.0 / 9.0 / 6.0 Mbps 802.11n: up to 72.2 Mbps
Operating Frequency	2412 ~ 2472 MHz
Number of Channel	13 for 802.11b, 802.11g, 802.11n (HT20)
Output Power (Measured Max. Peak)	238.781 mW
Antenna Type	PCB antenna with 1.97 dBi gain
Antenna Connector	IPEX
Accessory Device	Refer to Note as below
Data Cable Supplied	Refer to Note as below

Note:

1. The EUT incorporates a SISO function. Physically, the EUT provides one completed transmitter and one receiver.

Modulation Mode	Tx Function
802.11b	1TX
802.11g	1TX
802.11n (HT20)	1TX

2. The following accessories were for the End-product.

Product	Brand	Model	Description
Adapter	CuboAi	YJC010W-0502000U	I/P: 100-240 Vac, 50/60 Hz, 500 mA O/P: 5.0 Vdc, 2000 mA
USB Cable 1	CuboAi	AS42-20020033(2M)	2m shielded cable with core
USB Cable 2	CuboAi	AS42-20020034(3M)	3m shielded cable with core

3. 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 above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

3.2 Description of Test Modes

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

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

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 with Adapter
B	-	√	√	-	EUT with Notebook
C	-	√	√	-	EUT with Stand

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

NOTE: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.

NOTE: "-" means no effect.

NOTE: For radiated emission (below 1GHz) and power line conducted emission test items, the worst maximum power was selected.

Radiated Emission Test (Above 1 GHz):

☒ 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)
B	802.11b	1 to 13	1, 6, 11, 12, 13	DSSS	DBPSK	1.0
	802.11g	1 to 13	1, 6, 11, 12, 13	OFDM	BPSK	6.0
	802.11n (HT20)	1 to 13	1, 6, 11, 12, 13	OFDM	BPSK	6.5

Radiated Emission Test (Below 1 GHz):

☒ 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)
A, B, C	802.11g	1 to 13	6	OFDM	BPSK	6.0

Power Line Conducted Emission Test:

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

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A, B, C	802.11g	1 to 13	6	OFDM	BPSK	6.0

Bandedge Measurement:

- ☒ 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)
B	802.11b	1 to 13	1, 11, 12, 13	DSSS	DBPSK	1.0
	802.11g	1 to 13	1, 11, 12, 13	OFDM	BPSK	6.0
	802.11n (HT20)	1 to 13	1, 11, 12, 13	OFDM	BPSK	6.5

Antenna Port Conducted Measurement:

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
B	802.11b	1 to 13	1, 6, 11, 12, 13	DSSS	DBPSK	1.0
	802.11g	1 to 13	1, 6, 11, 12, 13	OFDM	BPSK	6.0
	802.11n (HT20)	1 to 13	1, 6, 11, 12, 13	OFDM	BPSK	6.5

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE $\geq$ 1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Greg Lin, Adair Peng
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Adair Peng
PLC	25 deg. C, 65 % RH	120 Vac, 60 Hz	Titan Hsu
APCM	25 deg. C, 65 % RH	5 Vdc	Wayne Lin

3.3 Duty Cycle of Test Signal

802.11b: Duty cycle of test signal is $\geq 98\%$, duty factor is not required.

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

802.11g: Duty cycle = $1.426/1.533 = 0.930$, Duty factor = $10 * \log(1/0.930) = 0.31$

802.11n (HT20): Duty cycle = $1.334/1.44 = 0.926$, Duty factor = $10 * \log(1/0.926) = 0.33$



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	E5420	33MJMQ1	N/A	Provided by Lab
B.	Stand	N/A	N/A	N/A	N/A	Provided by Client

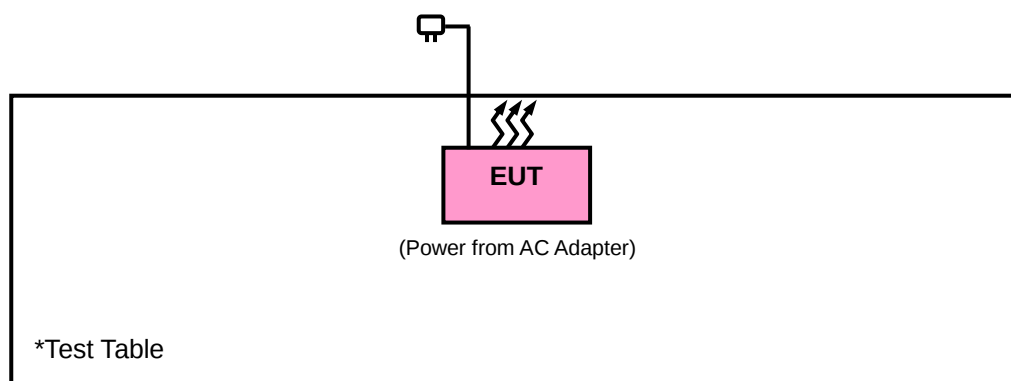
Note:

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

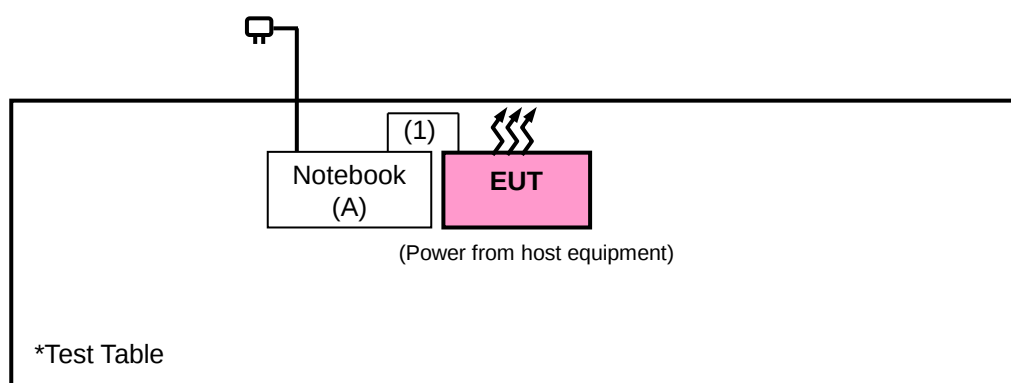
ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	USB Cable	1	2.0	Y	0	Accessory of the EUT

3.4.1 Configuration of System under Test

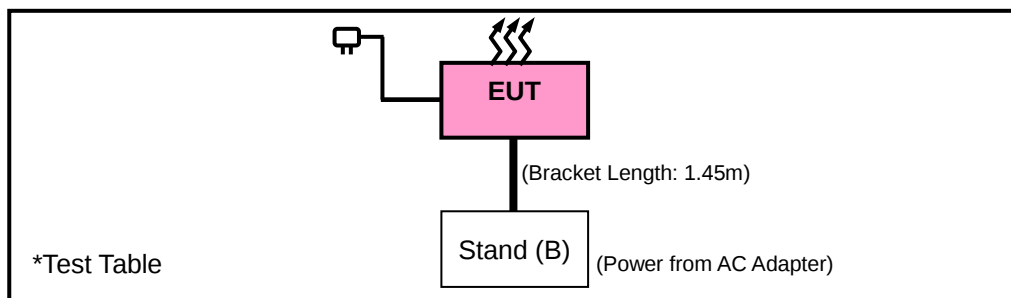
Mode A



Mode B



Mode C



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 Meas Guidance v05r02

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 20 dB 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 1000 MHz, 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 20 dB under any condition of modulation.

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date Of Calibration	Due Date Of Calibration
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 16, 2020	Apr. 15, 2021
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100039	Jun. 12, 2019	Jun. 11, 2020
			Jun. 12, 2020	Jun. 11, 2021
Spectrum Analyzer ROHDE & SCHWARZ	FSV40	100980	Apr. 20, 2020	Apr. 19, 2021
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Nov. 07, 2019	Nov. 06, 2020
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Nov. 24, 2019	Nov. 23, 2020
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 24, 2019	Nov. 23, 2020
Preamplifier Agilent (Below 1GHz)	8447D	2944A10638	Jul. 11, 2019	Jul. 10, 2020
Preamplifier Agilent (Above 1GHz)	8449B	3008A02367	Feb. 18, 2020	Feb. 17, 2021
RF signal cable HUBER+SUHNER&EMCI	SUCOFLEX 104 & EMC104-SM-SM80 00	CABLE-CH9-02 (248780+171006)	Feb. 18, 2020	Feb. 17, 2021
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(25079 5/4)	Jul. 11, 2019	Jul. 10, 2020
RF signal cable Woken	8D-FB	Cable-CH9-01	Jul. 30, 2019	Jul. 29, 2020
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower &Turn BV ADT	AT100	AT93021705	NA	NA
Turn Table BV ADT	TT100	TT93021705	NA	NA
Turn Table Controller BV ADT	SC100	SC93021705	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY55 190004/MY5519000 7/MY55210005	Jul. 15, 2019	Jul. 14, 2020

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 9.

4.1.3 Test Procedures

For Radiated Emission below 30 MHz

- 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 9 kHz at frequency below 30 MHz.

For Radiated Emission above 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30 MHz ~ 1 GHz) / 1.5 meters (for above 1 GHz) 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 detected 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:

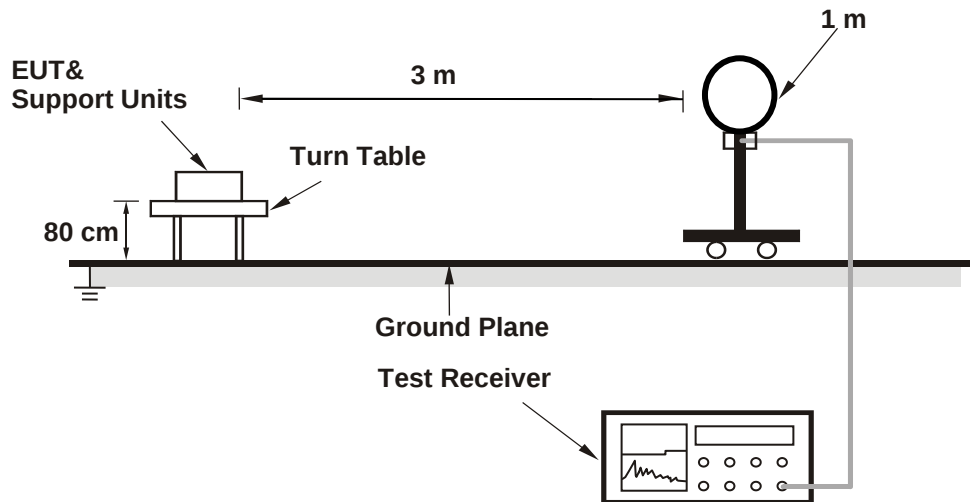
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or 10 Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1 GHz.
(11b: RBW = 1 MHz, VBW = 10 Hz ; 11g: RBW = 1 MHz, VBW = 1 kHz ;
11n (HT20): RBW = 1 MHz, VBW = 1 kHz)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

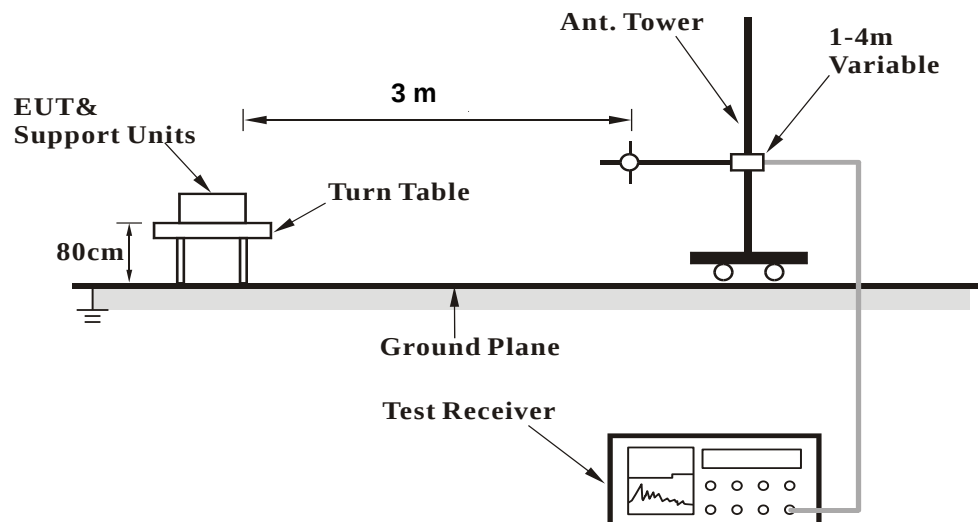
No deviation.

4.1.5 Test Set Up

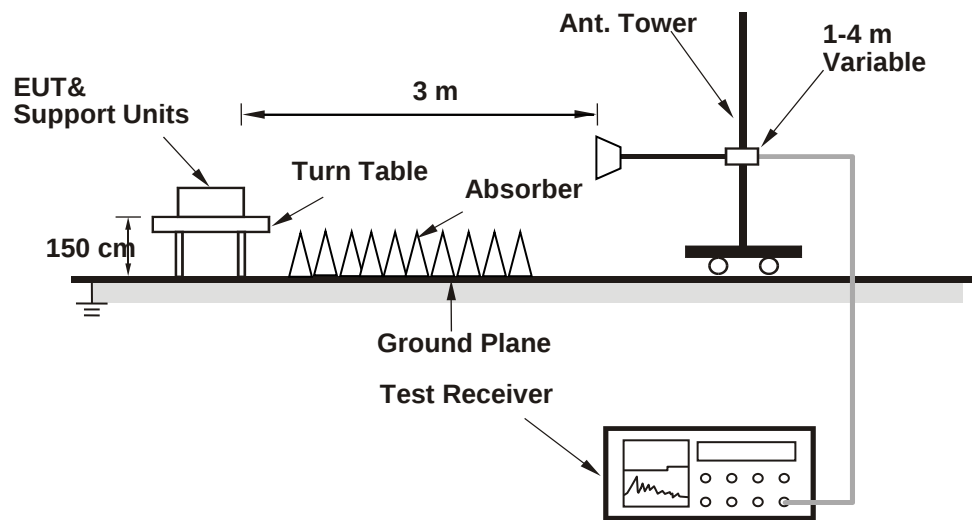
<Radiated Emission below 30 MHz>



<Radiated Emission 30 MHz to 1 GHz>



<Radiated Emission above 1 GHz>



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

4.1.6 EUT Operating Conditions

- Placed the EUT on a testing table.
- Use the software to control the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1 GHz Data :

Mode B

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2387.44	58.6 PK	74.0	-15.4	2.01 H	187	27.4	31.2
2	2387.44	48.7 AV	54.0	-5.3	2.01 H	187	17.5	31.2
3	*2412.00	102.4 PK			1.98 H	187	71.3	31.1
4	*2412.00	98.5 AV			1.98 H	187	67.4	31.1
5	4824.00	46.4 PK	74.0	-27.6	2.30 H	263	44.6	1.8
6	4824.00	38.8 AV	54.0	-15.2	2.30 H	263	37.0	1.8
7	#7236.00	57.6 PK	74.0	-16.4	2.89 H	107	49.0	8.6
8	#7236.00	52.1 AV	54.0	-1.9	2.89 H	107	43.5	8.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2387.44	59.6 PK	74.0	-14.4	1.00 V	86	28.4	31.2
2	2387.44	52.9 AV	54.0	-1.1	1.00 V	86	21.7	31.2
3	*2412.00	107.0 PK			1.00 V	86	75.9	31.1
4	*2412.00	103.4 AV			1.00 V	86	72.3	31.1
5	4824.00	47.9 PK	74.0	-26.1	3.51 V	259	46.1	1.8
6	4824.00	42.3 AV	54.0	-11.7	3.51 V	259	40.5	1.8
7	#7236.00	55.8 PK	74.0	-18.2	3.54 V	138	47.2	8.6
8	#7236.00	50.0 AV	54.0	-4.0	3.54 V	138	41.4	8.6

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.
6. " # ": The radiated frequency is out of the restricted band.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	102.1 PK			1.93 H	184	71.0	31.1
2	*2437.00	98.4 AV			1.93 H	184	67.3	31.1
3	4874.00	47.0 PK	74.0	-27.0	2.22 H	235	45.0	2.0
4	4874.00	40.5 AV	54.0	-13.5	2.22 H	235	38.5	2.0
5	7311.00	58.8 PK	74.0	-15.2	2.65 H	109	50.1	8.7
6	7311.00	52.6 AV	54.0	-1.4	2.65 H	109	43.9	8.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	106.9 PK			1.04 V	88	75.8	31.1
2	*2437.00	103.2 AV			1.04 V	88	72.1	31.1
3	4874.00	48.0 PK	74.0	-26.0	3.44 V	272	46.0	2.0
4	4874.00	42.2 AV	54.0	-11.8	3.44 V	272	40.2	2.0
5	7311.00	56.9 PK	74.0	-17.1	3.34 V	137	48.2	8.7
6	7311.00	51.0 AV	54.0	-3.0	3.34 V	137	42.3	8.7

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.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	100.5 PK			1.93 H	184	69.4	31.1
2	*2462.00	96.8 AV			1.93 H	184	65.7	31.1
3	2483.50	57.7 PK	74.0	-16.3	1.93 H	184	26.5	31.2
4	2483.50	48.7 AV	54.0	-5.3	1.93 H	184	17.5	31.2
5	4924.00	48.0 PK	74.0	-26.0	2.37 H	274	45.9	2.1
6	4924.00	42.3 AV	54.0	-11.7	2.37 H	274	40.2	2.1
7	7386.00	58.4 PK	74.0	-15.6	2.93 H	114	49.8	8.6
8	7386.00	52.2 AV	54.0	-1.8	2.93 H	114	43.6	8.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.2 PK			1.13 V	76	74.1	31.1
2	*2462.00	101.5 AV			1.13 V	76	70.4	31.1
3	2483.50	60.1 PK	74.0	-13.9	1.13 V	76	28.9	31.2
4	2483.50	53.0 AV	54.0	-1.0	1.13 V	76	21.8	31.2
5	4924.00	47.4 PK	74.0	-26.6	3.54 V	251	45.3	2.1
6	4924.00	41.7 AV	54.0	-12.3	3.54 V	251	39.6	2.1
7	7386.00	57.9 PK	74.0	-16.1	3.49 V	142	49.3	8.6
8	7386.00	51.8 AV	54.0	-2.2	3.49 V	142	43.2	8.6

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.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2467.00	99.0 PK			2.07 H	183	67.9	31.1
2	*2467.00	95.3 AV			2.07 H	183	64.2	31.1
3	2483.50	58.1 PK	74.0	-15.9	2.07 H	183	26.9	31.2
4	2483.50	48.6 AV	54.0	-5.4	2.07 H	183	17.4	31.2
5	4934.00	46.9 PK	74.0	-27.1	2.43 H	274	44.8	2.1
6	4934.00	41.3 AV	54.0	-12.7	2.43 H	274	39.2	2.1
7	7401.00	57.0 PK	74.0	-17.0	2.82 H	113	48.4	8.6
8	7401.00	50.8 AV	54.0	-3.2	2.82 H	113	42.2	8.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2467.00	103.6 PK			1.03 V	75	72.5	31.1
2	*2467.00	100.1 AV			1.03 V	75	69.0	31.1
3	2484.20	61.4 PK	74.0	-12.6	1.03 V	75	30.2	31.2
4	2484.20	52.9 AV	54.0	-1.1	1.03 V	75	21.7	31.2
5	4934.00	46.3 PK	74.0	-27.7	3.47 V	267	44.2	2.1
6	4934.00	40.8 AV	54.0	-13.2	3.47 V	267	38.7	2.1
7	7401.00	56.5 PK	74.0	-17.5	3.63 V	146	47.9	8.6
8	7401.00	50.4 AV	54.0	-3.6	3.63 V	146	41.8	8.6

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.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2472.00	96.6 PK			1.96 H	180	65.5	31.1
2	*2472.00	92.9 AV			1.96 H	180	61.8	31.1
3	2485.70	58.2 PK	74.0	-15.8	1.96 H	180	27.0	31.2
4	2485.70	48.5 AV	54.0	-5.5	1.96 H	180	17.3	31.2
5	4944.00	46.5 PK	74.0	-27.5	2.36 H	258	44.3	2.2
6	4944.00	41.1 AV	54.0	-12.9	2.36 H	258	38.9	2.2
7	7416.00	56.2 PK	74.0	-17.8	2.97 H	113	47.6	8.6
8	7416.00	50.0 AV	54.0	-4.0	2.97 H	113	41.4	8.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2472.00	101.4 PK			1.05 V	77	70.3	31.1
2	*2472.00	97.6 AV			1.05 V	77	66.5	31.1
3	2485.80	60.6 PK	74.0	-13.4	1.05 V	77	29.4	31.2
4	2485.80	53.1 AV	54.0	-0.9	1.05 V	77	21.9	31.2
5	4944.00	46.0 PK	74.0	-28.0	3.49 V	253	43.8	2.2
6	4944.00	40.6 AV	54.0	-13.4	3.49 V	253	38.4	2.2
7	7416.00	55.8 PK	74.0	-18.2	3.54 V	131	47.2	8.6
8	7416.00	49.7 AV	54.0	-4.3	3.54 V	131	41.1	8.6

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.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.1 PK	74.0	-6.9	1.61 H	166	34.8	32.3
2	2390.00	51.1 AV	54.0	-2.9	1.61 H	166	18.8	32.3
3	*2412.00	100.7 PK			1.61 H	166	68.4	32.3
4	*2412.00	91.5 AV			1.61 H	166	59.2	32.3
5	4824.00	44.7 PK	74.0	-29.3	2.20 H	244	42.0	2.7
6	4824.00	31.4 AV	54.0	-22.6	2.20 H	244	28.7	2.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.2 PK	74.0	-3.8	1.00 V	59	37.9	32.3
2	2390.00	53.4 AV	54.0	-0.6	1.00 V	59	21.1	32.3
3	*2412.00	105.5 PK			1.00 V	59	73.2	32.3
4	*2412.00	96.1 AV			1.00 V	59	63.8	32.3
5	4824.00	44.5 PK	74.0	-29.5	2.93 V	303	41.8	2.7
6	4824.00	31.6 AV	54.0	-22.4	2.93 V	303	28.9	2.7

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.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.0 PK	74.0	-13.0	1.55 H	168	28.7	32.3
2	2390.00	47.7 AV	54.0	-6.3	1.55 H	168	15.4	32.3
3	*2437.00	104.0 PK			1.55 H	168	71.7	32.3
4	*2437.00	94.2 AV			1.55 H	168	61.9	32.3
5	4874.00	45.3 PK	74.0	-28.7	2.11 H	239	42.2	3.1
6	4874.00	32.3 AV	54.0	-21.7	2.11 H	239	29.2	3.1
7	7311.00	58.3 PK	74.0	-15.7	2.05 H	61	48.3	10.0
8	7311.00	45.2 AV	54.0	-8.8	2.05 H	61	35.2	10.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.5 PK	74.0	-9.5	1.14 V	79	32.2	32.3
2	2390.00	51.0 AV	54.0	-3.0	1.14 V	79	18.7	32.3
3	*2437.00	107.9 PK			1.14 V	79	75.6	32.3
4	*2437.00	98.3 AV			1.14 V	79	66.0	32.3
5	4874.00	45.7 PK	74.0	-28.3	2.88 V	293	42.6	3.1
6	4874.00	32.1 AV	54.0	-21.9	2.88 V	293	29.0	3.1
7	7311.00	61.0 PK	74.0	-13.0	1.15 V	332	51.0	10.0
8	7311.00	47.7 AV	54.0	-6.3	1.15 V	332	37.7	10.0

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	102.0 PK			1.61 H	171	69.6	32.4
2	*2462.00	92.9 AV			1.61 H	171	60.5	32.4
3	2483.50	65.8 PK	74.0	-8.2	1.62 H	171	33.4	32.4
4	2483.50	50.1 AV	54.0	-3.9	1.62 H	171	17.7	32.4
5	4924.00	45.1 PK	74.0	-28.9	2.30 H	233	41.8	3.3
6	4924.00	32.2 AV	54.0	-21.8	2.30 H	233	28.9	3.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.6 PK			1.10 V	45	73.2	32.4
2	*2462.00	96.4 AV			1.10 V	45	64.0	32.4
3	2483.50	72.4 PK	74.0	-1.6	1.10 V	45	40.0	32.4
4	2483.50	52.4 AV	54.0	-1.6	1.10 V	45	20.0	32.4
5	4924.00	45.3 PK	74.0	-28.7	3.01 V	312	42.0	3.3
6	4924.00	32.4 AV	54.0	-21.6	3.01 V	312	29.1	3.3

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.
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2467.00	98.9 PK			1.67 H	165	66.5	32.4
2	*2467.00	89.9 AV			1.67 H	165	57.5	32.4
3	2483.50	67.0 PK	74.0	-7.0	1.67 H	165	34.6	32.4
4	2483.50	50.1 AV	54.0	-3.9	1.67 H	165	17.7	32.4
5	4934.00	45.1 PK	74.0	-28.9	2.03 H	253	41.7	3.4
6	4934.00	32.3 AV	54.0	-21.7	2.03 H	253	28.9	3.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2467.00	103.7 PK			1.12 V	59	71.3	32.4
2	*2467.00	94.4 AV			1.12 V	59	62.0	32.4
3	2483.50	70.8 PK	74.0	-3.2	1.12 V	59	38.4	32.4
4	2483.50	52.4 AV	54.0	-1.6	1.12 V	59	20.0	32.4
5	4934.00	45.3 PK	74.0	-28.7	2.85 V	299	41.9	3.4
6	4934.00	32.2 AV	54.0	-21.8	2.85 V	299	28.8	3.4

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.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2472.00	97.6 PK			1.56 H	169	65.2	32.4
2	*2472.00	88.5 AV			1.56 H	169	56.1	32.4
3	2483.50	69.0 PK	74.0	-5.0	1.56 H	169	36.6	32.4
4	2483.50	50.2 AV	54.0	-3.8	1.56 H	169	17.8	32.4
5	4944.00	45.7 PK	74.0	-28.3	2.23 H	231	42.3	3.4
6	4944.00	32.0 AV	54.0	-22.0	2.23 H	231	28.6	3.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2472.00	101.9 PK			1.12 V	60	69.5	32.4
2	*2472.00	92.7 AV			1.12 V	60	60.3	32.4
3	2483.50	72.4 PK	74.0	-1.6	1.12 V	60	40.0	32.4
4	2483.50	52.3 AV	54.0	-1.7	1.12 V	60	19.9	32.4
5	4944.00	46.0 PK	74.0	-28.0	2.91 V	305	42.6	3.4
6	4944.00	32.2 AV	54.0	-21.8	2.91 V	305	28.8	3.4

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.

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	63.6 PK	74.0	-10.4	1.60 H	168	31.3	32.3
2	2390.00	49.3 AV	54.0	-4.7	1.60 H	168	17.0	32.3
3	*2412.00	100.3 PK			1.60 H	168	68.0	32.3
4	*2412.00	90.3 AV			1.60 H	168	58.0	32.3
5	4824.00	44.5 PK	74.0	-29.5	1.93 H	221	41.8	2.7
6	4824.00	31.4 AV	54.0	-22.6	1.93 H	221	28.7	2.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.3 PK	74.0	-4.7	1.00 V	66	37.0	32.3
2	2390.00	53.1 AV	54.0	-0.9	1.00 V	66	20.8	32.3
3	*2412.00	104.3 PK			1.00 V	66	72.0	32.3
4	*2412.00	94.4 AV			1.00 V	66	62.1	32.3
5	4824.00	44.7 PK	74.0	-29.3	2.85 V	291	42.0	2.7
6	4824.00	31.3 AV	54.0	-22.7	2.85 V	291	28.6	2.7

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.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.1 PK	74.0	-11.9	1.58 H	171	29.8	32.3
2	2390.00	48.7 AV	54.0	-5.3	1.58 H	171	16.4	32.3
3	*2437.00	103.7 PK			1.58 H	171	71.4	32.3
4	*2437.00	93.4 AV			1.58 H	171	61.1	32.3
5	4874.00	45.3 PK	74.0	-28.7	2.05 H	255	42.2	3.1
6	4874.00	31.9 AV	54.0	-22.1	2.05 H	255	28.8	3.1
7	7311.00	57.8 PK	74.0	-16.2	1.93 H	57	47.8	10.0
8	7311.00	44.7 AV	54.0	-9.3	1.93 H	57	34.7	10.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.0 PK	74.0	-8.0	1.08 V	81	33.7	32.3
2	2390.00	50.6 AV	54.0	-3.4	1.08 V	81	18.3	32.3
3	*2437.00	107.6 PK			1.08 V	81	75.3	32.3
4	*2437.00	97.6 AV			1.08 V	81	65.3	32.3
5	4874.00	45.5 PK	74.0	-28.5	2.99 V	312	42.4	3.1
6	4874.00	31.7 AV	54.0	-22.3	2.99 V	312	28.6	3.1
7	7311.00	59.6 PK	74.0	-14.4	1.19 V	341	49.6	10.0
8	7311.00	46.9 AV	54.0	-7.1	1.19 V	341	36.9	10.0

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	101.3 PK			1.63 H	170	68.9	32.4
2	*2462.00	91.4 AV			1.63 H	170	59.0	32.4
3	2483.50	64.6 PK	74.0	-9.4	1.63 H	170	32.2	32.4
4	2483.50	49.8 AV	54.0	-4.2	1.63 H	170	17.4	32.4
5	4924.00	45.4 PK	74.0	-28.6	2.05 H	247	42.1	3.3
6	4924.00	31.9 AV	54.0	-22.1	2.05 H	247	28.6	3.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	106.1 PK			1.05 V	65	73.7	32.4
2	*2462.00	96.2 AV			1.05 V	65	63.8	32.4
3	2483.50	69.7 PK	74.0	-4.3	1.05 V	65	37.3	32.4
4	2483.50	53.1 AV	54.0	-0.9	1.05 V	65	20.7	32.4
5	4924.00	45.5 PK	74.0	-28.5	2.85 V	303	42.2	3.3
6	4924.00	32.1 AV	54.0	-21.9	2.85 V	303	28.8	3.3

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.
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2467.00	98.2 PK			1.54 H	170	65.8	32.4
2	*2467.00	88.8 AV			1.54 H	170	56.4	32.4
3	2483.50	68.4 PK	74.0	-5.6	1.54 H	170	36.0	32.4
4	2483.50	49.0 AV	54.0	-5.0	1.54 H	170	16.6	32.4
5	4934.00	45.6 PK	74.0	-28.4	1.97 H	233	42.2	3.4
6	4934.00	32.3 AV	54.0	-21.7	1.97 H	233	28.9	3.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2467.00	104.2 PK			1.12 V	59	71.8	32.4
2	*2467.00	94.2 AV			1.12 V	59	61.8	32.4
3	2483.50	72.6 PK	74.0	-1.4	1.12 V	59	40.2	32.4
4	2483.50	51.8 AV	54.0	-2.2	1.12 V	59	19.4	32.4
5	4934.00	45.5 PK	74.0	-28.5	2.93 V	311	42.1	3.4
6	4934.00	32.1 AV	54.0	-21.9	2.93 V	311	28.7	3.4

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.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2472.00	97.3 PK			1.55 H	170	64.9	32.4
2	*2472.00	87.7 AV			1.55 H	170	55.3	32.4
3	2483.50	69.6 PK	74.0	-4.4	1.55 H	170	37.2	32.4
4	2483.50	49.5 AV	54.0	-4.5	1.55 H	170	17.1	32.4
5	4944.00	45.5 PK	74.0	-28.5	2.22 H	242	42.1	3.4
6	4944.00	32.0 AV	54.0	-22.0	2.22 H	242	28.6	3.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2472.00	102.9 PK			1.11 V	63	70.5	32.4
2	*2472.00	91.8 AV			1.11 V	63	59.4	32.4
3	2483.50	72.8 PK	74.0	-1.2	1.11 V	63	40.4	32.4
4	2483.50	51.5 AV	54.0	-2.5	1.11 V	63	19.1	32.4
5	4944.00	45.7 PK	74.0	-28.3	2.88 V	299	42.3	3.4
6	4944.00	32.3 AV	54.0	-21.7	2.88 V	299	28.9	3.4

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.

30 MHz ~ 1 GHz Worst-Case Data:

802.11g

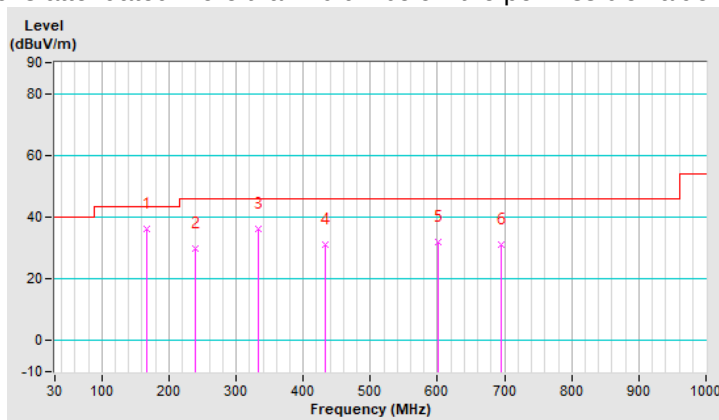
Mode A

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	166.36	36.1 QP	43.5	-7.4	1.51 H	11	44.8	-8.7
2	239.46	29.9 QP	46.0	-16.1	2.00 H	55	39.8	-9.9
3	333.65	36.3 QP	46.0	-9.7	1.00 H	127	42.6	-6.3
4	432.06	31.2 QP	46.0	-14.8	2.00 H	278	34.3	-3.1
5	600.75	31.8 QP	46.0	-14.2	1.51 H	138	30.7	1.1
6	694.94	31.2 QP	46.0	-14.8	1.00 H	203	29.2	2.0

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. 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.

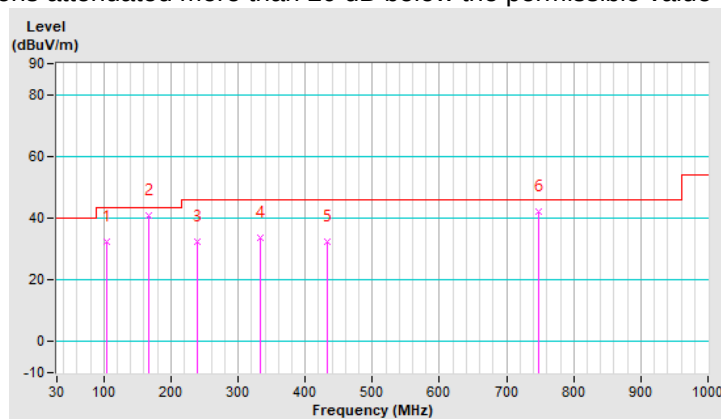


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	104.51	32.5 QP	43.5	-11.0	1.00 V	46	44.9	-12.4
2	166.36	40.8 QP	43.5	-2.7	1.00 V	102	49.5	-8.7
3	239.46	32.2 QP	46.0	-13.8	1.00 V	137	42.1	-9.9
4	333.65	33.6 QP	46.0	-12.4	1.00 V	199	39.9	-6.3
5	432.06	32.5 QP	46.0	-13.5	1.00 V	68	35.6	-3.1
6	746.96	42.3 QP	46.0	-3.7	1.49 V	282	39.5	2.8

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 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.



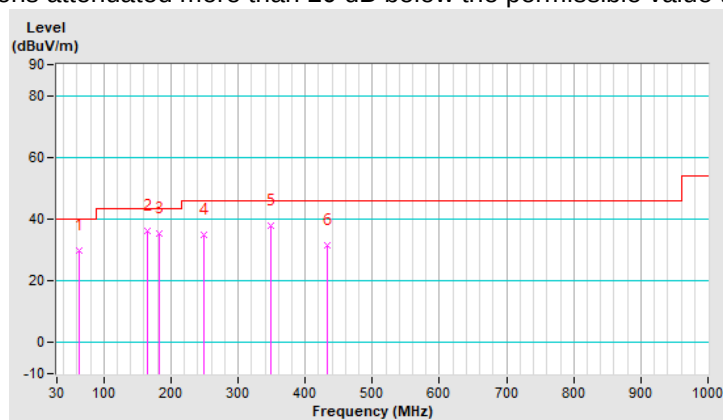
Mode B

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	62.33	29.7 QP	40.0	-10.3	1.50 H	180	39.2	-9.5
2	164.96	36.0 QP	43.5	-7.5	1.50 H	271	44.7	-8.7
3	181.83	35.5 QP	43.5	-8.0	1.50 H	319	45.6	-10.1
4	249.30	34.8 QP	46.0	-11.2	1.00 H	312	44.3	-9.5
5	349.12	38.0 QP	46.0	-8.0	1.00 H	141	44.3	-6.3
6	432.06	31.6 QP	46.0	-14.4	1.99 H	194	34.7	-3.1

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 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.

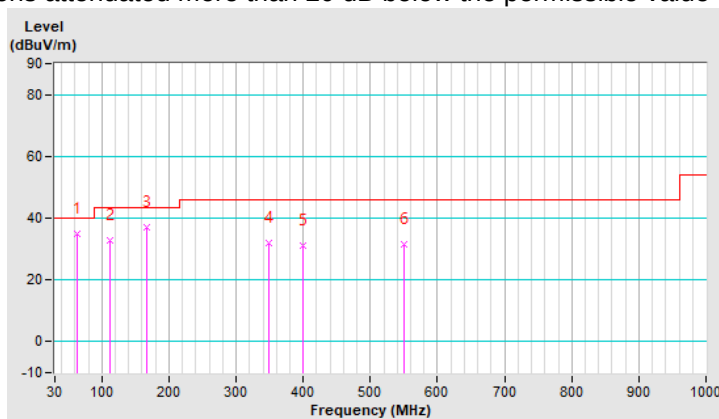


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	62.33	35.0 QP	40.0	-5.0	2.00 V	15	44.5	-9.5
2	111.54	32.8 QP	43.5	-10.7	1.00 V	111	44.6	-11.8
3	166.36	37.0 QP	43.5	-6.5	1.00 V	27	45.7	-8.7
4	349.12	32.1 QP	46.0	-13.9	1.00 V	234	38.4	-6.3
5	399.72	30.9 QP	46.0	-15.1	1.51 V	354	35.4	-4.5
6	550.14	31.4 QP	46.0	-14.6	1.00 V	15	31.9	-0.5

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The 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.



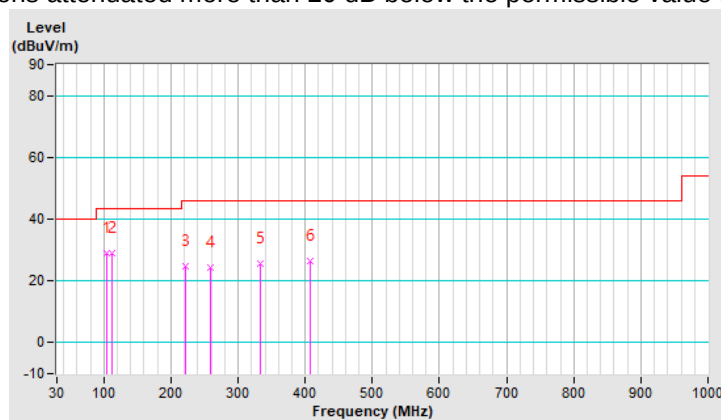
Mode C

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	104.51	29.0 QP	43.5	-14.5	2.00 H	215	41.4	-12.4
2	111.54	29.1 QP	43.5	-14.4	2.00 H	215	40.9	-11.8
3	222.59	24.8 QP	46.0	-21.2	1.51 H	314	36.0	-11.2
4	259.14	24.4 QP	46.0	-21.6	1.01 H	208	33.5	-9.1
5	333.65	25.8 QP	46.0	-20.2	1.01 H	188	32.1	-6.3
6	408.16	26.3 QP	46.0	-19.7	2.00 H	150	30.6	-4.3

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.

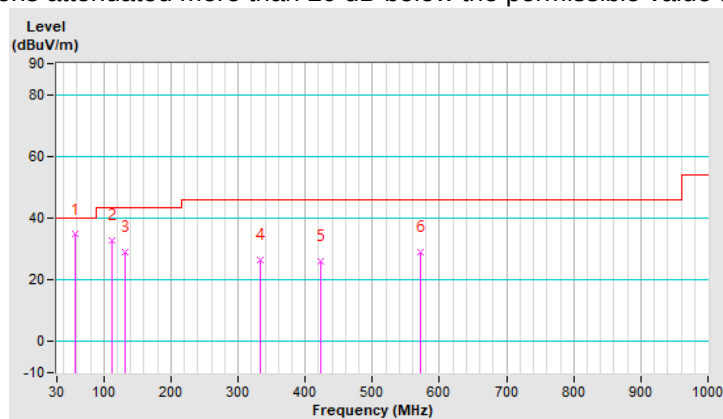


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	56.71	34.7 QP	40.0	-5.3	1.00 V	275	43.8	-9.1
2	111.54	32.9 QP	43.5	-10.6	1.00 V	154	44.7	-11.8
3	131.22	28.9 QP	43.5	-14.6	1.00 V	88	38.8	-9.9
4	333.65	26.3 QP	46.0	-19.7	1.99 V	237	32.6	-6.3
5	423.62	25.9 QP	46.0	-20.1	1.00 V	201	29.4	-3.5
6	572.64	28.9 QP	46.0	-17.1	1.00 V	54	28.6	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.



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 0.50 MHz.

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Dec. 11, 2019	Dec. 10, 2020
RF signal cable Woken	5D-FB	Cable-cond1-01	Sep. 05, 2019	Sep. 04, 2020
LISN ROHDE & SCHWARZ (EUT)	ENV216	101826	Feb. 20, 2020	Feb. 19, 2021
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 22, 2019	Aug. 21, 2020
Software ADT	BV ADT_Cond_ V7.3.7.4	NA	NA	NA

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

4.2.3 Test Procedures

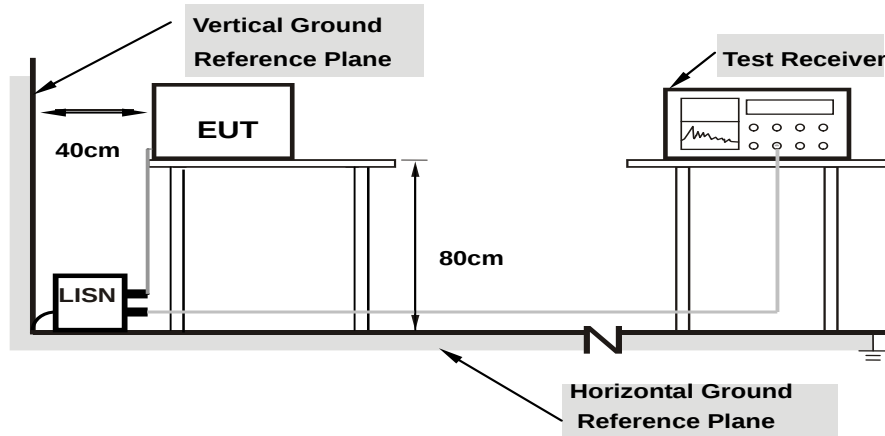
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50 uH of coupling impedance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

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

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

- Placed the EUT on a testing table.
- Use the software to control the EUT under transmission condition continuously at specific channel frequency.

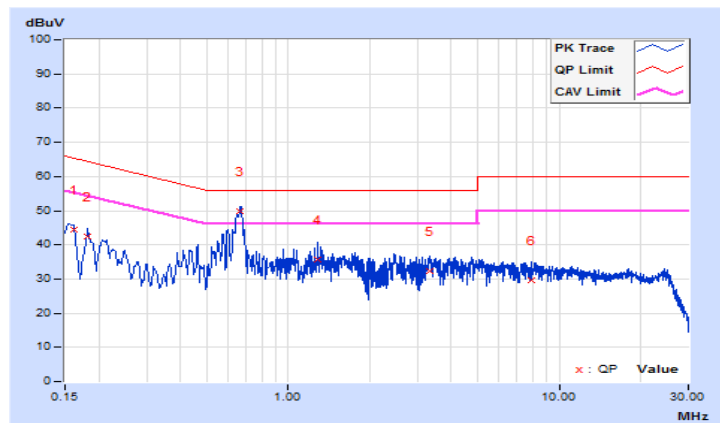
4.2.7 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	23°C, 66%RH
Tested by	Titan Hsu	Test Date	2020/6/19
Test Mode	Mode A		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16200	9.80	34.49	21.41	44.29	31.21	65.36	55.36	-21.07	-24.15
2	0.18200	9.81	32.77	20.02	42.58	29.83	64.39	54.39	-21.81	-24.56
3	0.66200	9.89	40.08	30.85	49.97	40.74	56.00	46.00	-6.03	-5.26
4	1.28200	9.93	25.83	15.05	35.76	24.98	56.00	46.00	-20.24	-21.02
5	3.34200	10.02	22.21	13.05	32.23	23.07	56.00	46.00	-23.77	-22.93
6	7.85400	10.11	19.61	10.70	29.72	20.81	60.00	50.00	-30.28	-29.19

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

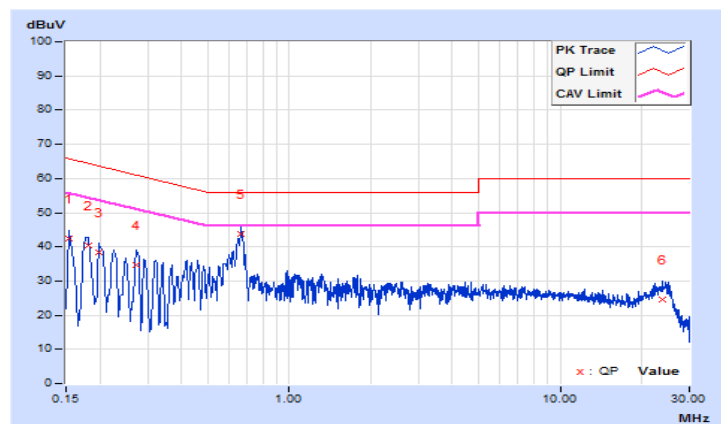


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	23°C, 66%RH
Tested by	Titan Hsu	Test Date	2020/6/19
Test Mode	Mode A		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15400	9.82	32.75	18.72	42.57	28.54	65.78	55.78	-23.21	-27.24
2	0.18200	9.81	30.74	16.81	40.55	26.62	64.39	54.39	-23.84	-27.77
3	0.19800	9.81	28.72	15.79	38.53	25.60	63.69	53.69	-25.16	-28.09
4	0.27400	9.84	24.79	10.25	34.63	20.09	61.00	51.00	-26.37	-30.91
5	0.66200	9.92	33.82	25.85	43.74	35.77	56.00	46.00	-12.26	-10.23
6	23.83800	10.38	14.14	3.04	24.52	13.42	60.00	50.00	-35.48	-36.58

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

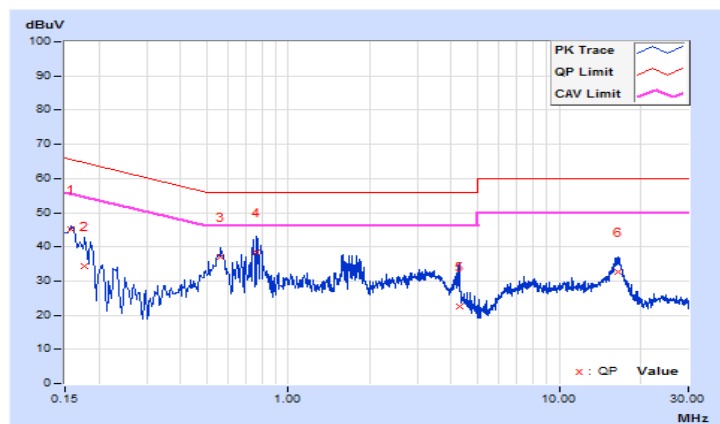


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	23°C, 66%RH
Tested by	Titan Hsu	Test Date	2020/6/18
Test Mode	Mode B		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15770	9.63	35.64	27.77	45.27	37.40	65.58	55.58	-20.31	-18.18
2	0.17800	9.62	24.76	11.28	34.38	20.90	64.58	54.58	-30.20	-33.68
3	0.56200	9.66	27.44	18.80	37.10	28.46	56.00	46.00	-18.90	-17.54
4	0.76200	9.67	28.77	15.40	38.44	25.07	56.00	46.00	-17.56	-20.93
5	4.27400	9.79	12.63	7.19	22.42	16.98	56.00	46.00	-33.58	-29.02
6	16.56200	9.90	22.78	14.14	32.68	24.04	60.00	50.00	-27.32	-25.96

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

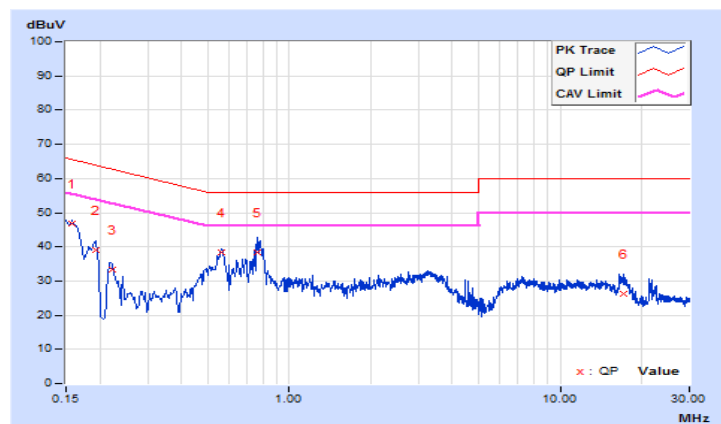


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	23°C, 66%RH
Tested by	Titan Hsu	Test Date	2020/6/18
Test Mode	Mode B		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15770	9.66	37.15	29.61	46.81	39.27	65.58	55.58	-18.77	-16.31
2	0.19400	9.64	29.46	18.18	39.10	27.82	63.86	53.86	-24.76	-26.04
3	0.22200	9.64	23.63	13.43	33.27	23.07	62.74	52.74	-29.47	-29.67
4	0.56146	9.68	28.54	19.99	38.22	29.67	56.00	46.00	-17.78	-16.33
5	0.75800	9.69	28.62	15.65	38.31	25.34	56.00	46.00	-17.69	-20.66
6	17.08600	10.00	16.14	9.45	26.14	19.45	60.00	50.00	-33.86	-30.55

Remarks:

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

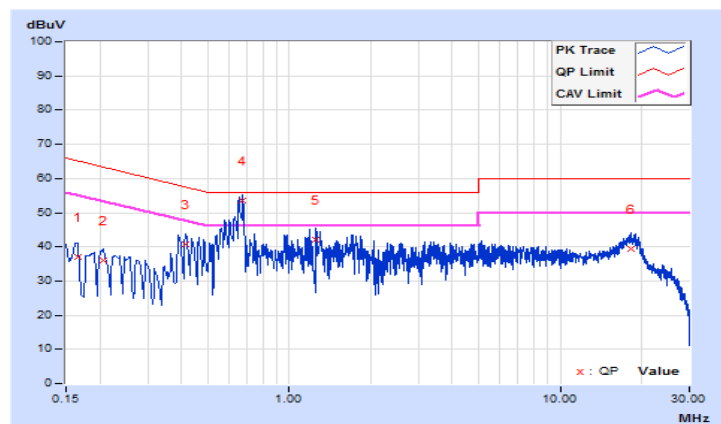


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	23°C, 66%RH
Tested by	Titan Hsu	Test Date	2020/6/19
Test Mode	Mode C		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16535	9.63	27.53	17.78	37.16	27.41	65.19	55.19	-28.03	-27.78
2	0.20600	9.62	26.34	18.11	35.96	27.73	63.37	53.37	-27.41	-25.64
3	0.41400	9.65	30.96	22.89	40.61	32.54	57.57	47.57	-16.96	-15.03
4	0.67000	9.66	43.88	35.33	53.54	44.99	56.00	46.00	-2.46	-1.01
5	1.25800	9.69	32.48	21.63	42.17	31.32	56.00	46.00	-13.83	-14.68
6	18.33000	9.91	29.64	18.44	39.55	28.35	60.00	50.00	-20.45	-21.65

Remarks:

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

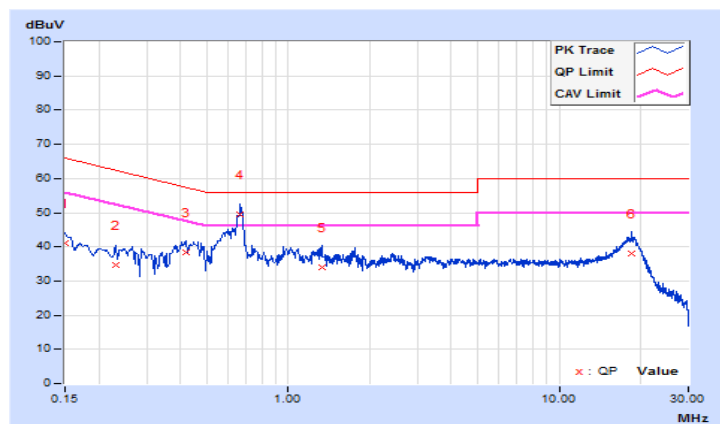


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	23°C, 66%RH
Tested by	Titan Hsu	Test Date	2020/6/19
Test Mode	Mode C		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.66	31.27	15.40	40.93	25.06	66.00	56.00	-25.07	-30.94
2	0.22985	9.64	24.92	12.90	34.56	22.54	62.46	52.46	-27.90	-29.92
3	0.41799	9.67	28.60	16.93	38.27	26.60	57.49	47.49	-19.22	-20.89
4	0.66600	9.68	39.69	29.66	49.37	39.34	56.00	46.00	-6.63	-6.66
5	1.33000	9.72	24.34	14.03	34.06	23.75	56.00	46.00	-21.94	-22.25
6	18.59800	10.02	27.86	14.74	37.88	24.76	60.00	50.00	-22.12	-25.24

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

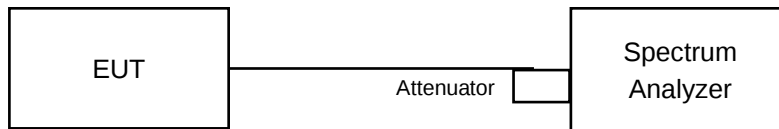


4.3 6 dB Bandwidth Measurement

4.3.1 Limits of 6 dB Bandwidth Measurement

The minimum of 6 dB 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) = 100 kHz
- 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 Results

802.11b

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	7.60	0.5	Pass
6	2437	9.01	0.5	Pass
11	2462	7.58	0.5	Pass
12	2467	7.14	0.5	Pass
13	2472	7.56	0.5	Pass

802.11g

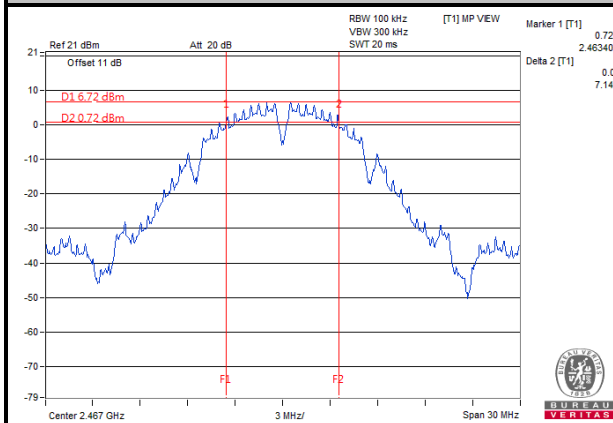
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	15.22	0.5	Pass
6	2437	15.20	0.5	Pass
11	2462	15.21	0.5	Pass
12	2467	15.24	0.5	Pass
13	2472	15.16	0.5	Pass

802.11n (HT20)

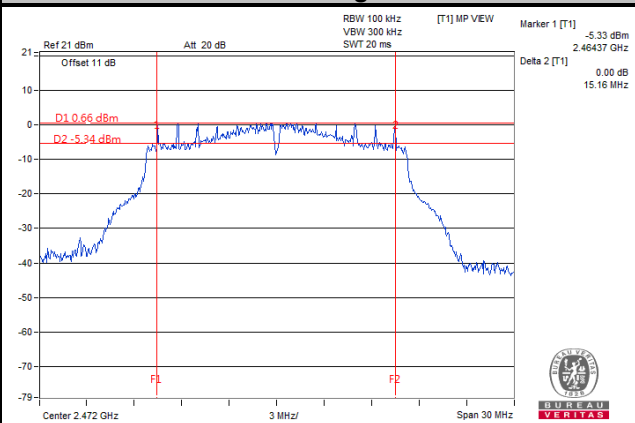
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	15.49	0.5	Pass
6	2437	15.75	0.5	Pass
11	2462	15.21	0.5	Pass
12	2467	15.20	0.5	Pass
13	2472	15.22	0.5	Pass

Spectrum Plot of Worst Value

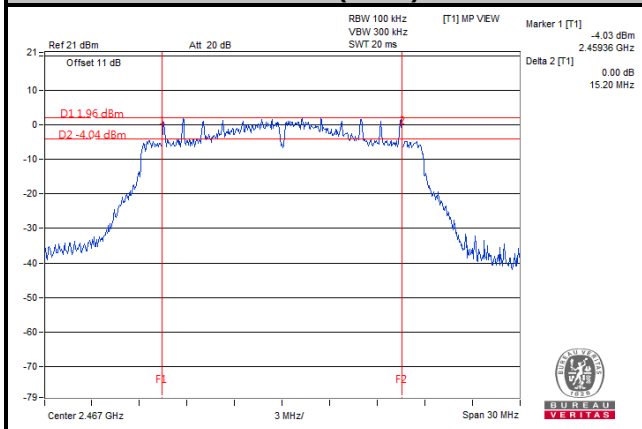
802.11b



802.11g

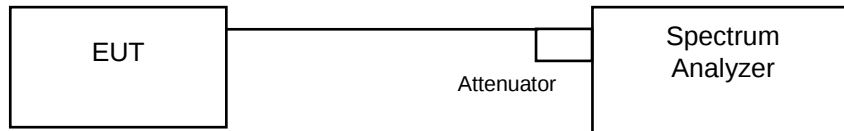


802.11n (HT20)



4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with resolution bandwidth in the range of 1 % to 5 % of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth and set the detector to sampling. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

4.4.4 Deviation from Test Standard

No deviation.

4.4.5 EUT Operating Conditions

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

4.4.6 Test Results

802.11b

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	Pass / Fail
1	2412	12.02	Pass
6	2437	13.94	Pass
11	2462	11.83	Pass
12	2467	11.35	Pass
13	2472	10.77	Pass

802.11g

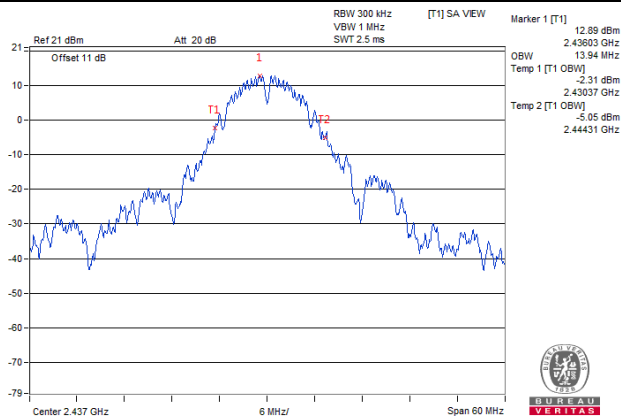
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	Pass / Fail
1	2412	16.64	Pass
6	2437	26.44	Pass
11	2462	16.64	Pass
12	2467	16.64	Pass
13	2472	16.64	Pass

802.11n (HT20)

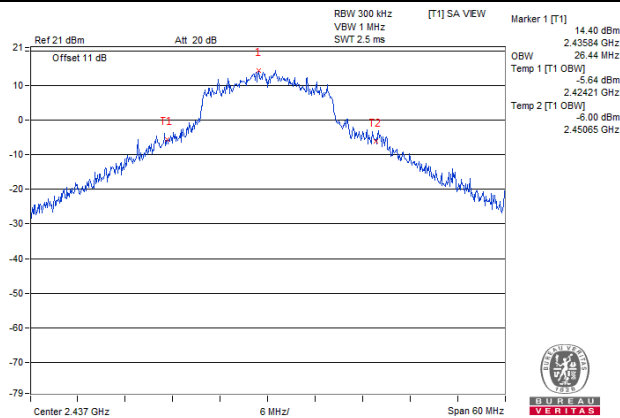
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	Pass / Fail
1	2412	17.79	Pass
6	2437	28.46	Pass
11	2462	17.70	Pass
12	2467	17.79	Pass
13	2472	17.70	Pass

Spectrum Plot of Worst Value

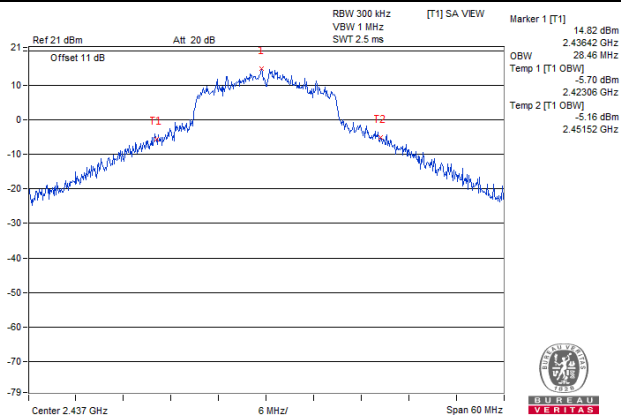
802.11b



802.11g



802.11n (HT20)

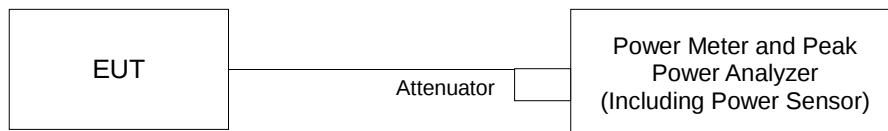


4.5 Conducted Output Power Measurement

4.5.1 Limits of Conducted Output Power Measurement

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

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 Procedures

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

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.

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

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

4.5.7 Test Results

Peak Power

802.11b

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	110.917	20.45	30	Pass
6	2437	202.302	23.06	30	Pass
11	2462	79.25	18.99	30	Pass
12	2467	56.624	17.53	30	Pass
13	2472	28.973	14.62	30	Pass

802.11g

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	135.831	21.33	30	Pass
6	2437	238.781	23.78	30	Pass
11	2462	145.211	21.62	30	Pass
12	2467	105.682	20.24	30	Pass
13	2472	112.46	20.51	30	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Peak Power (mW)	Peak Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	142.889	21.55	30	Pass
6	2437	211.349	23.25	30	Pass
11	2462	165.577	22.19	30	Pass
12	2467	130.017	21.14	30	Pass
13	2472	103.514	20.15	30	Pass

Average Power

802.11b

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	57.28	17.58	30	Pass
6	2437	119.674	20.78	30	Pass
11	2462	40.738	16.10	30	Pass
12	2467	35.156	15.46	30	Pass
13	2472	13.646	11.35	30	Pass

802.11g

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	27.925	14.46	30	Pass
6	2437	140.929	21.49	30	Pass
11	2462	39.994	16.02	30	Pass
12	2467	23.067	13.63	30	Pass
13	2472	16.255	12.11	30	Pass

802.11n (HT20)

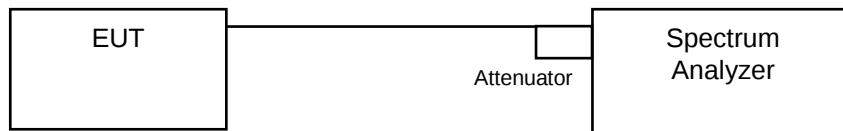
Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	30.479	14.84	30	Pass
6	2437	152.405	21.83	30	Pass
11	2462	39.084	15.92	30	Pass
12	2467	21.038	13.23	30	Pass
13	2472	14.997	11.76	30	Pass

4.6 Power Spectral Density Measurement

4.6.1 Limits of Power Spectral Density Measurement

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

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

- Set analyzer center frequency to DTS channel center frequency.
- Set the span to 1.5 times the DTS bandwidth.
- Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- Set the VBW $\geq 3 \times \text{RBW}$.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum amplitude level within the RBW.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

802.11b

Channel	Frequency (MHz)	PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Pass / Fail
1	2412	-4.75	8	Pass
6	2437	-1.78	8	Pass
11	2462	-5.65	8	Pass
12	2467	-6.44	8	Pass
13	2472	-10.95	8	Pass

802.11g

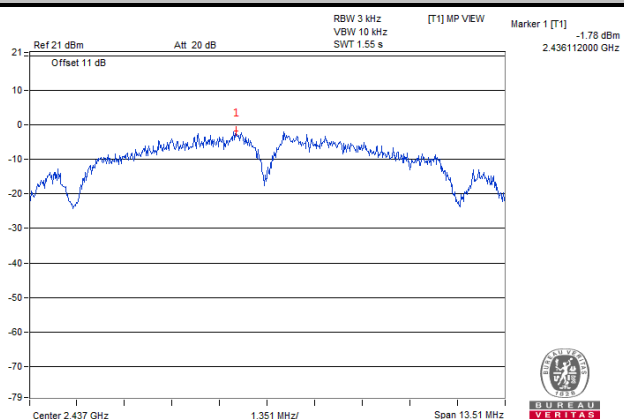
Channel	Frequency (MHz)	PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Pass / Fail
1	2412	-9.12	8	Pass
6	2437	-1.84	8	Pass
11	2462	-6.57	8	Pass
12	2467	-9.43	8	Pass
13	2472	-10.54	8	Pass

802.11n (HT20)

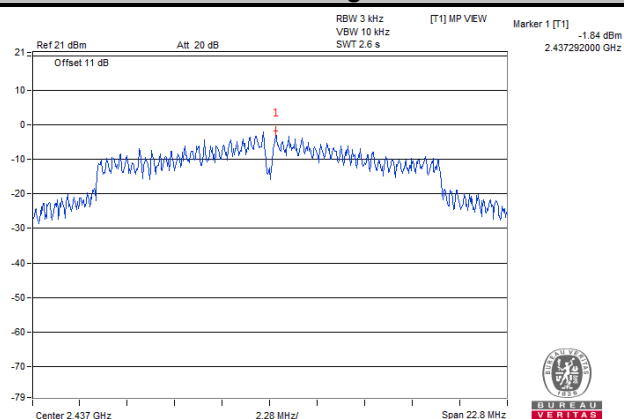
Channel	Frequency (MHz)	PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Pass / Fail
1	2412	-8.33	8	Pass
6	2437	-2.08	8	Pass
11	2462	-8.10	8	Pass
12	2467	-9.87	8	Pass
13	2472	-11.68	8	Pass

Spectrum Plot of Worst Value

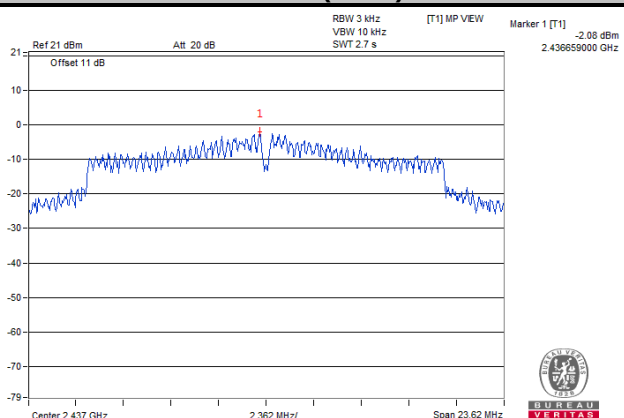
802.11b



802.11g



802.11n (HT20)

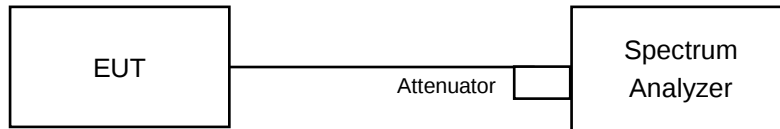


4.7 Conducted Out of Band Emission Measurement

4.7.1 Limits of Conducted Out of Band Emission Measurement

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

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOB

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

4.7.5 Deviation from Test Standard

No deviation.

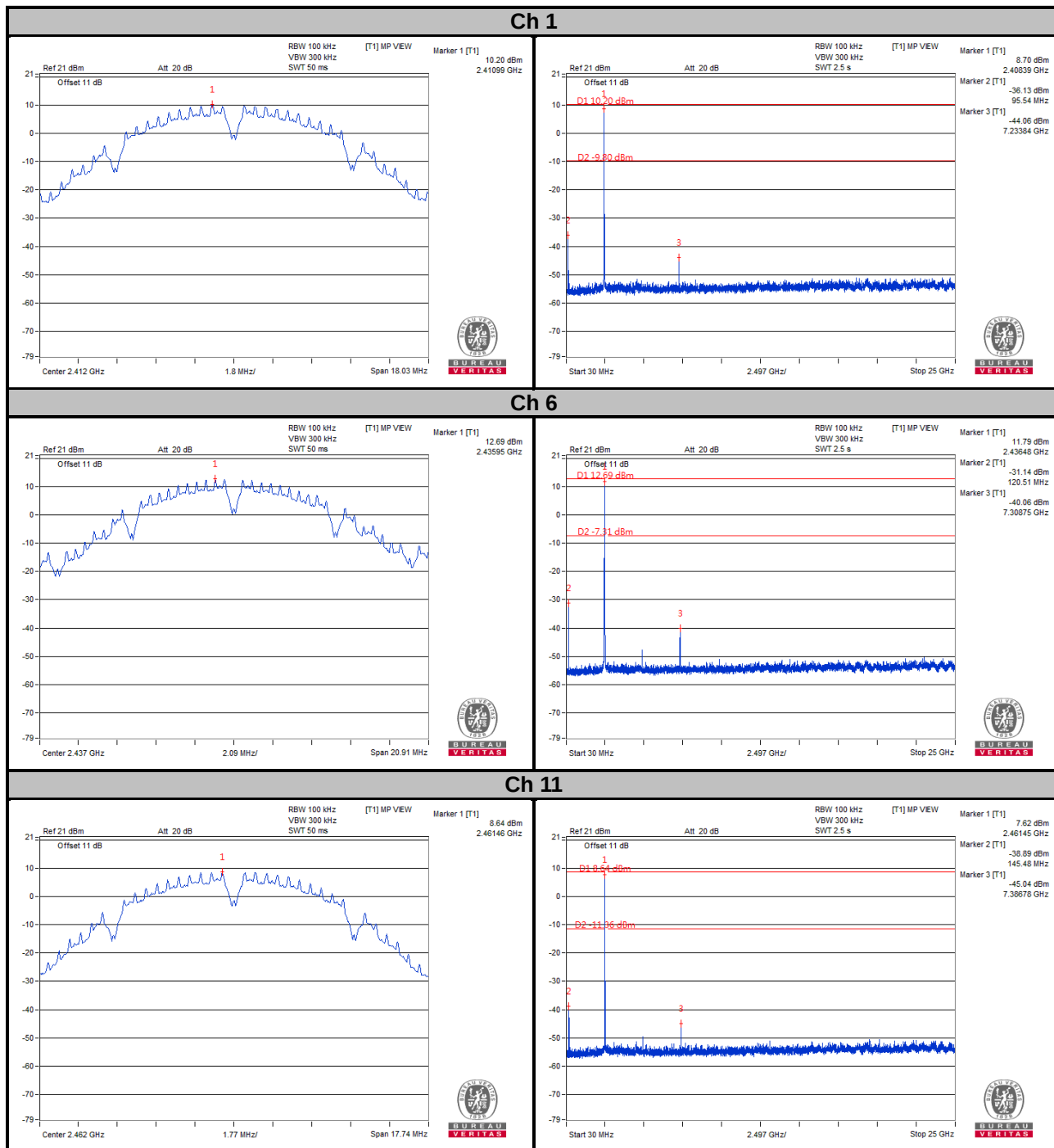
4.7.6 EUT Operating Condition

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

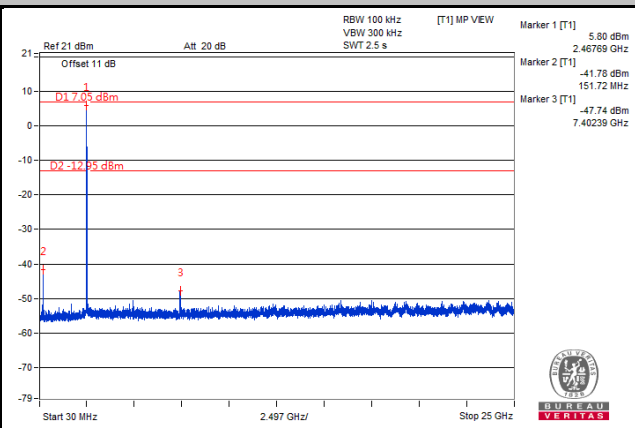
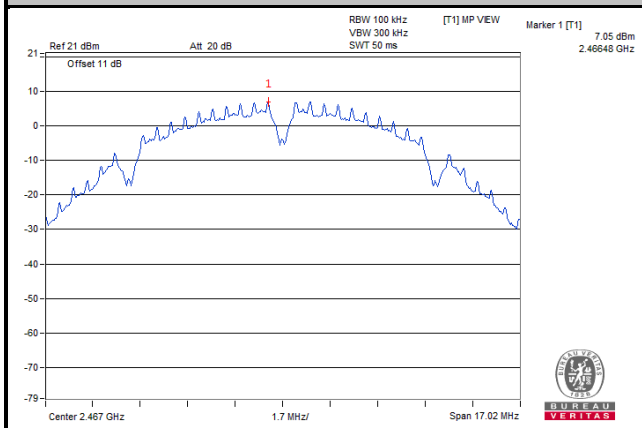
4.7.7 Test Results

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

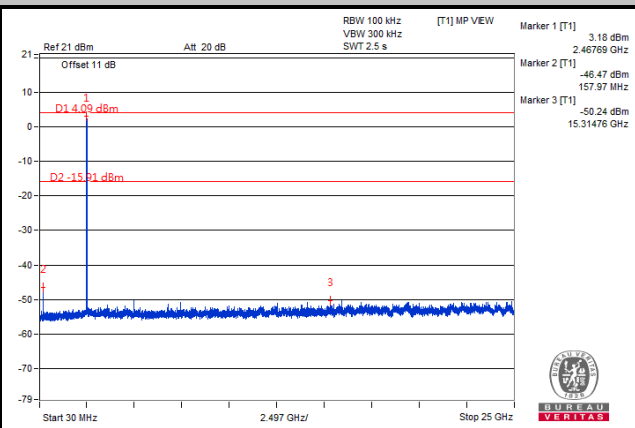
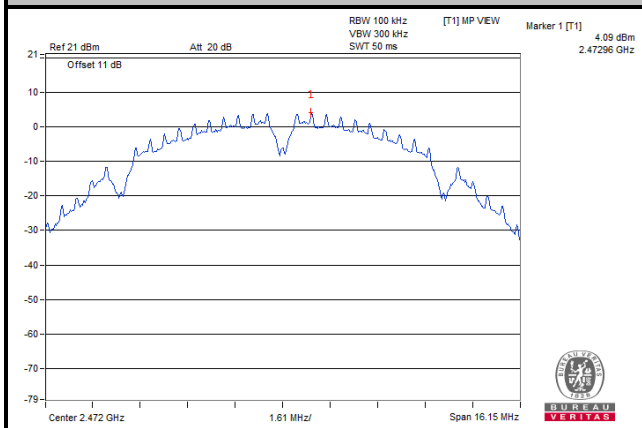
802.11b



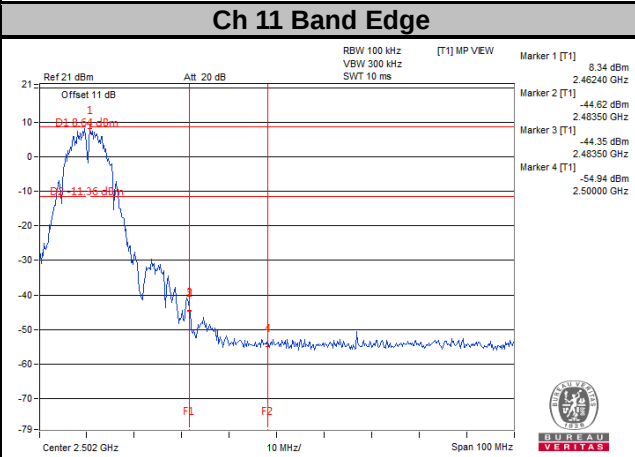
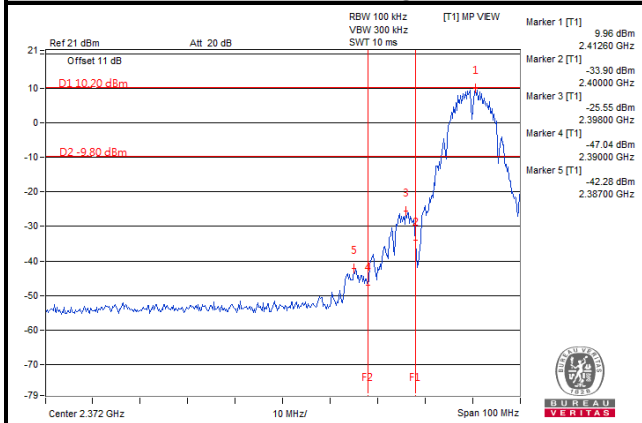
Ch 12



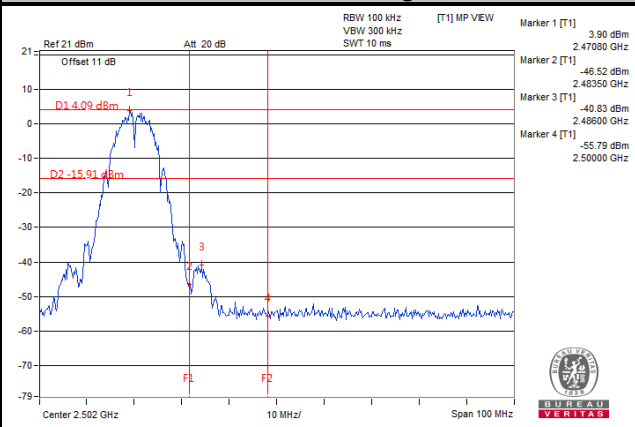
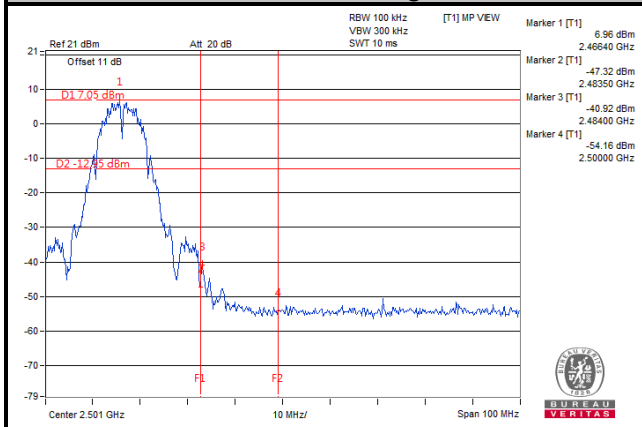
Ch 13



Ch 1 Band Edge



Ch 11 Band Edge

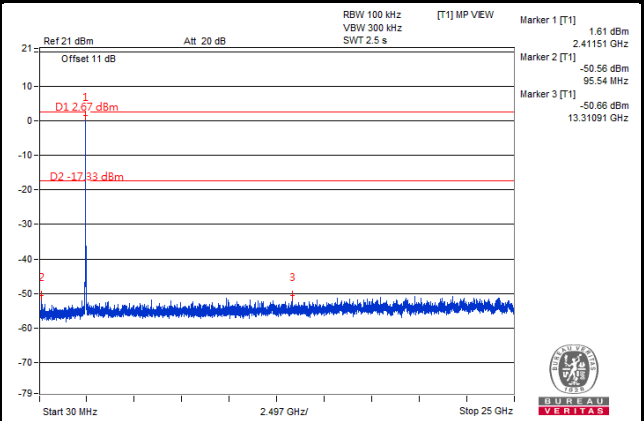
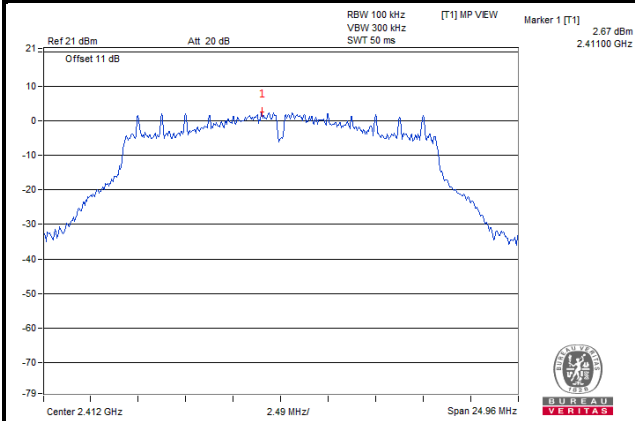


Ch 12 Band Edge

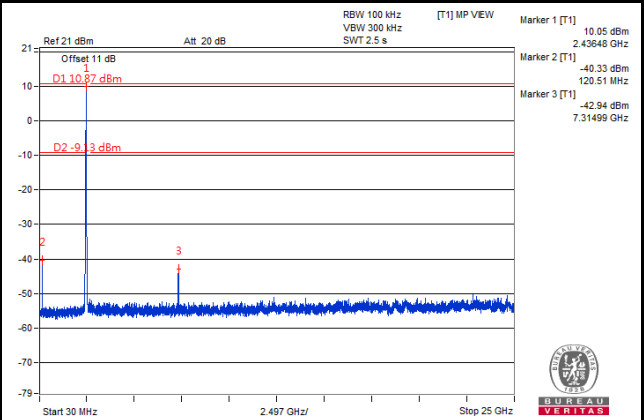
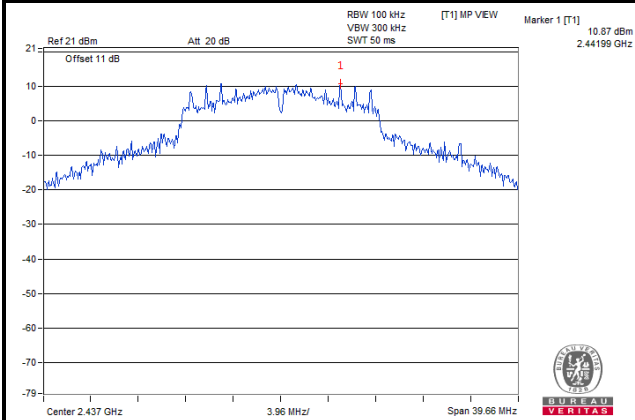
Ch 13 Band Edge

802.11g

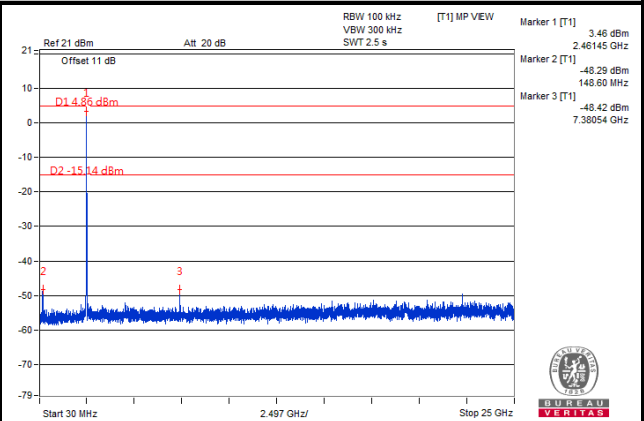
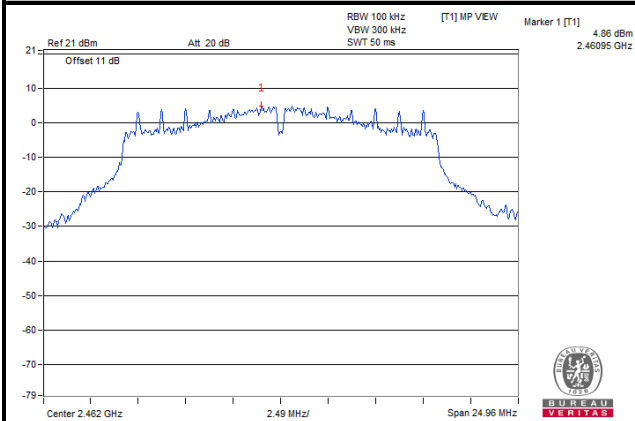
Ch 1



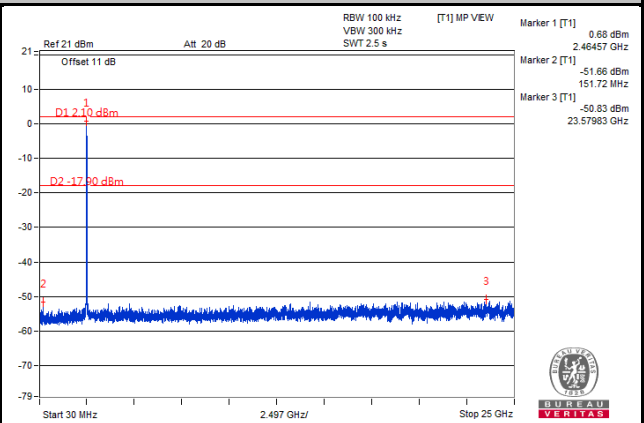
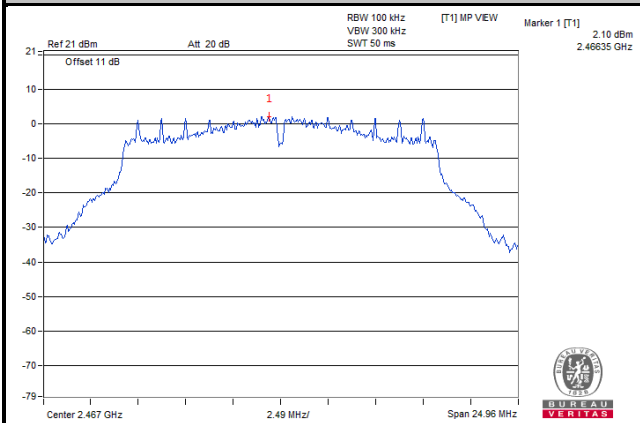
Ch 6



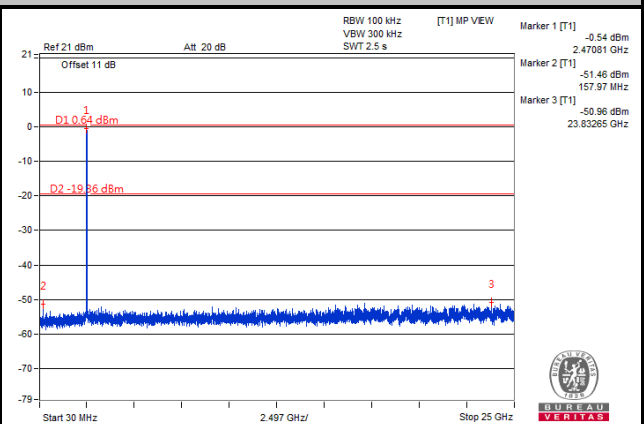
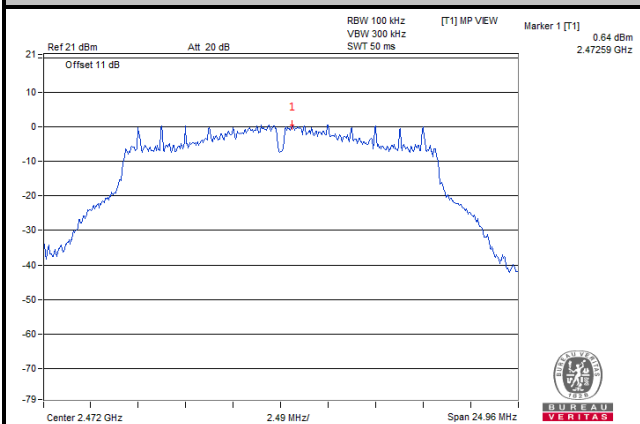
Ch 11



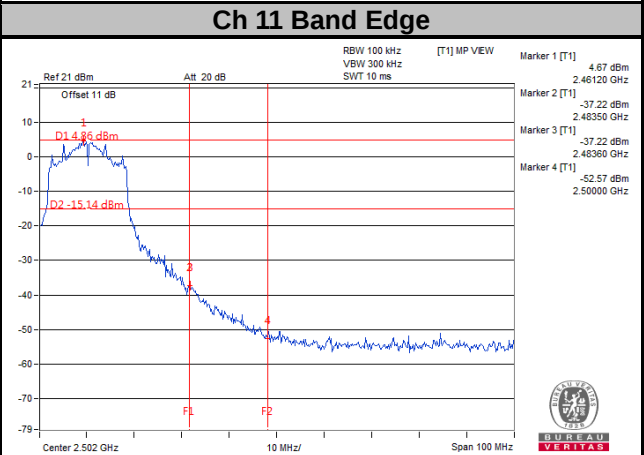
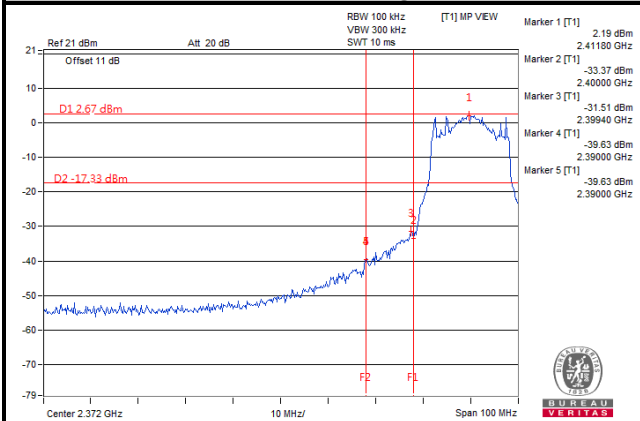
Ch 12



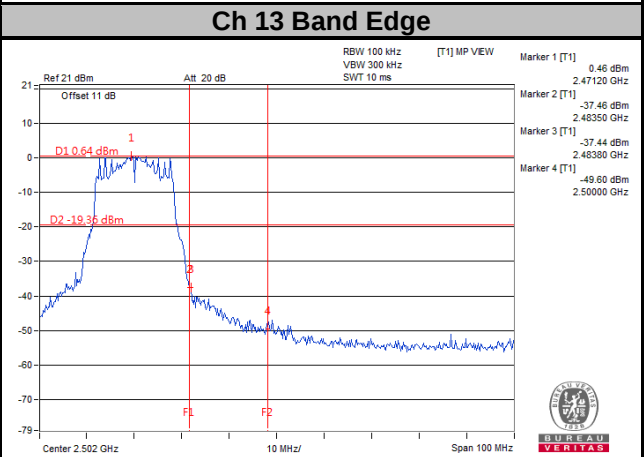
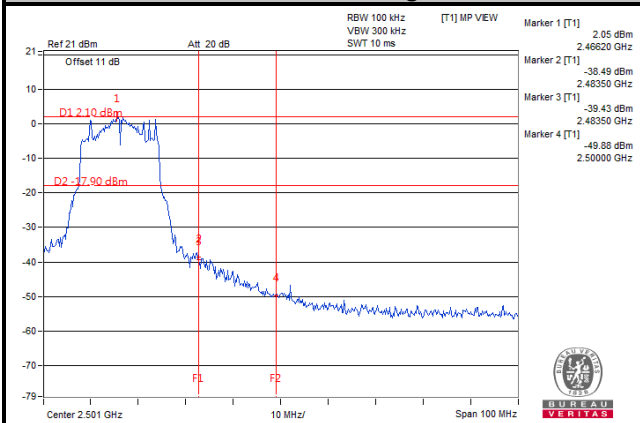
Ch 13



Ch 1 Band Edge

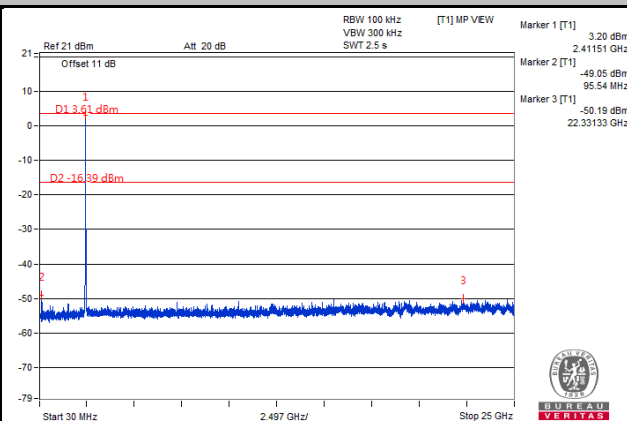
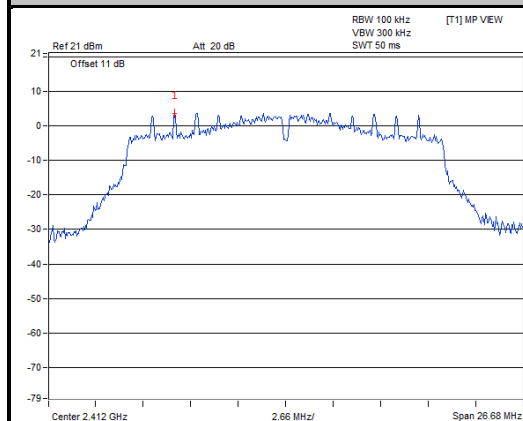


Ch 12 Band Edge

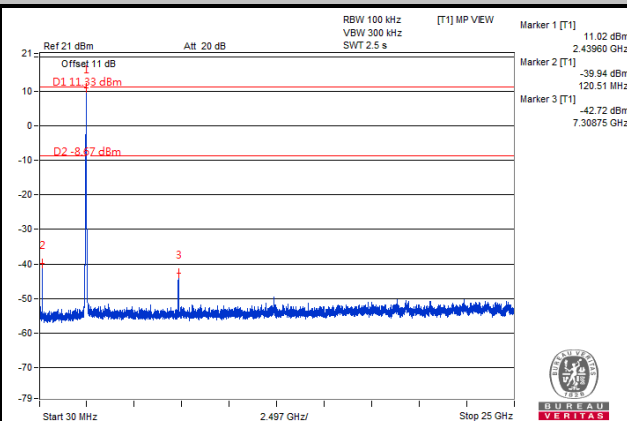
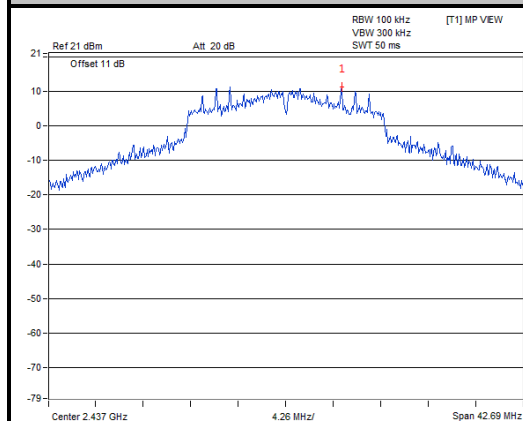


802.11n (HT20)

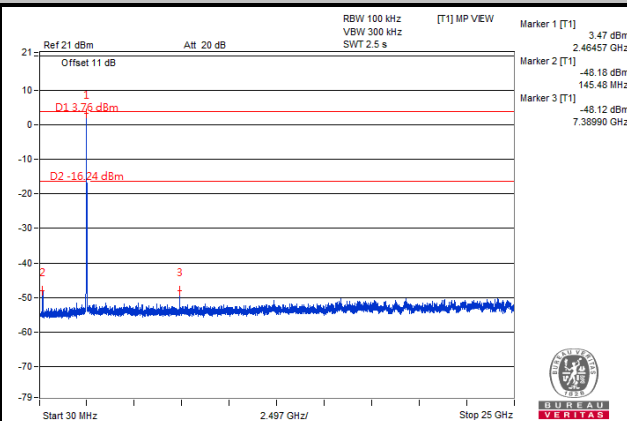
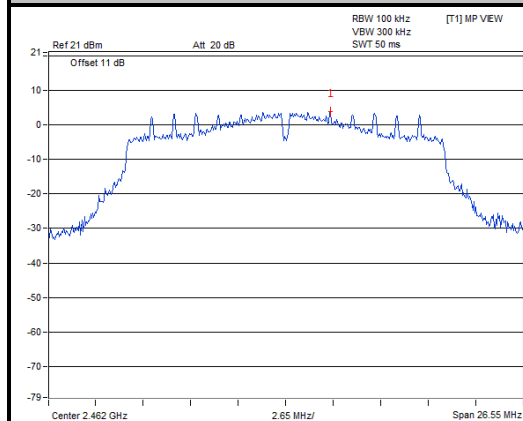
Ch 1



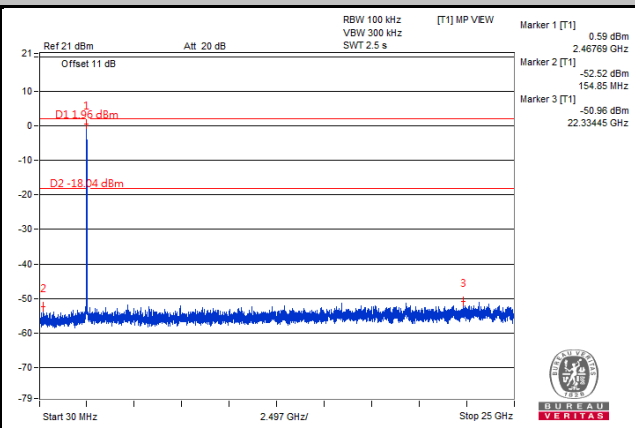
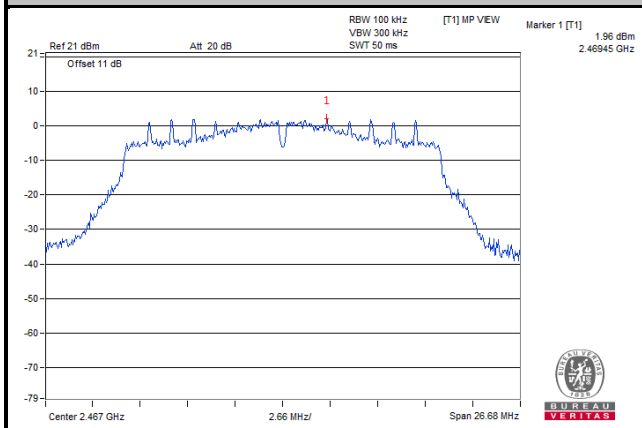
Ch 6



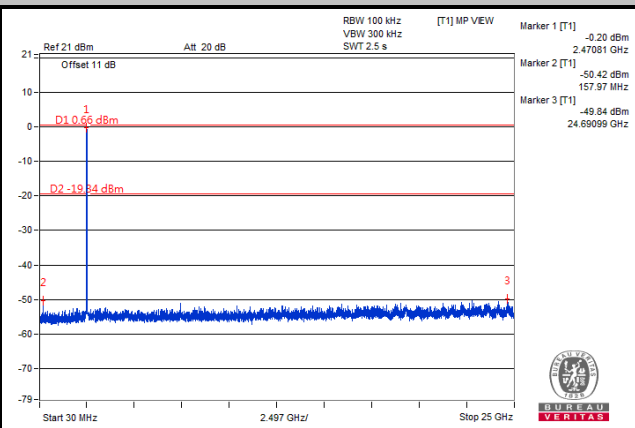
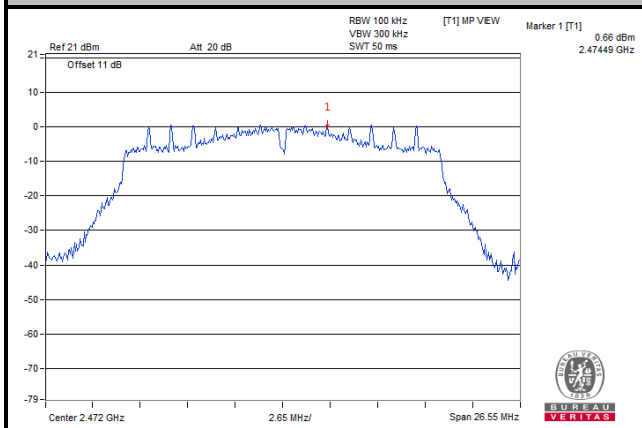
Ch 11



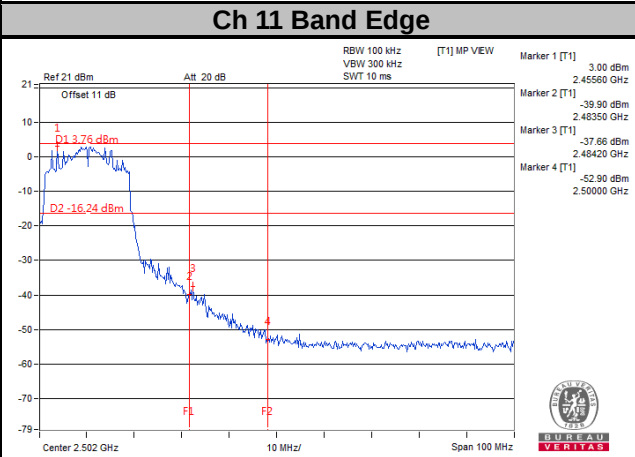
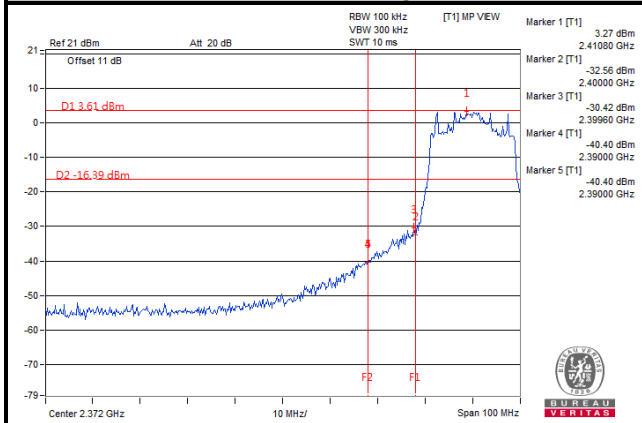
Ch 12



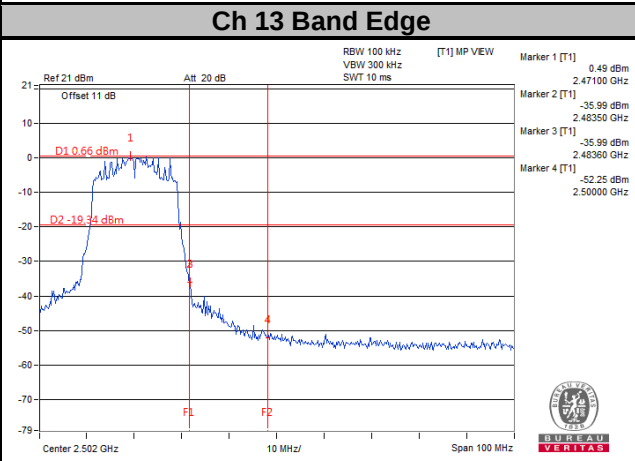
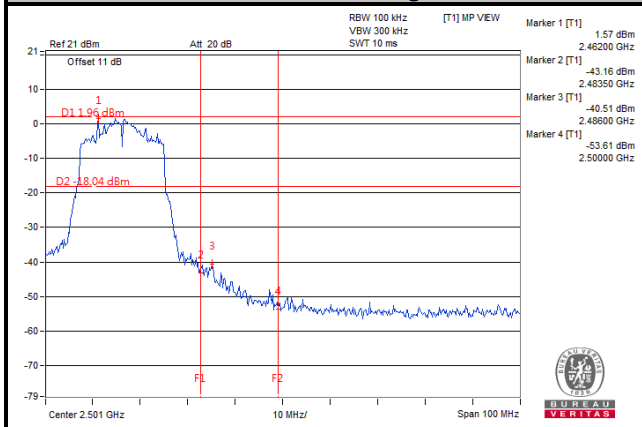
Ch 13



Ch 1 Band Edge



Ch 12 Band Edge

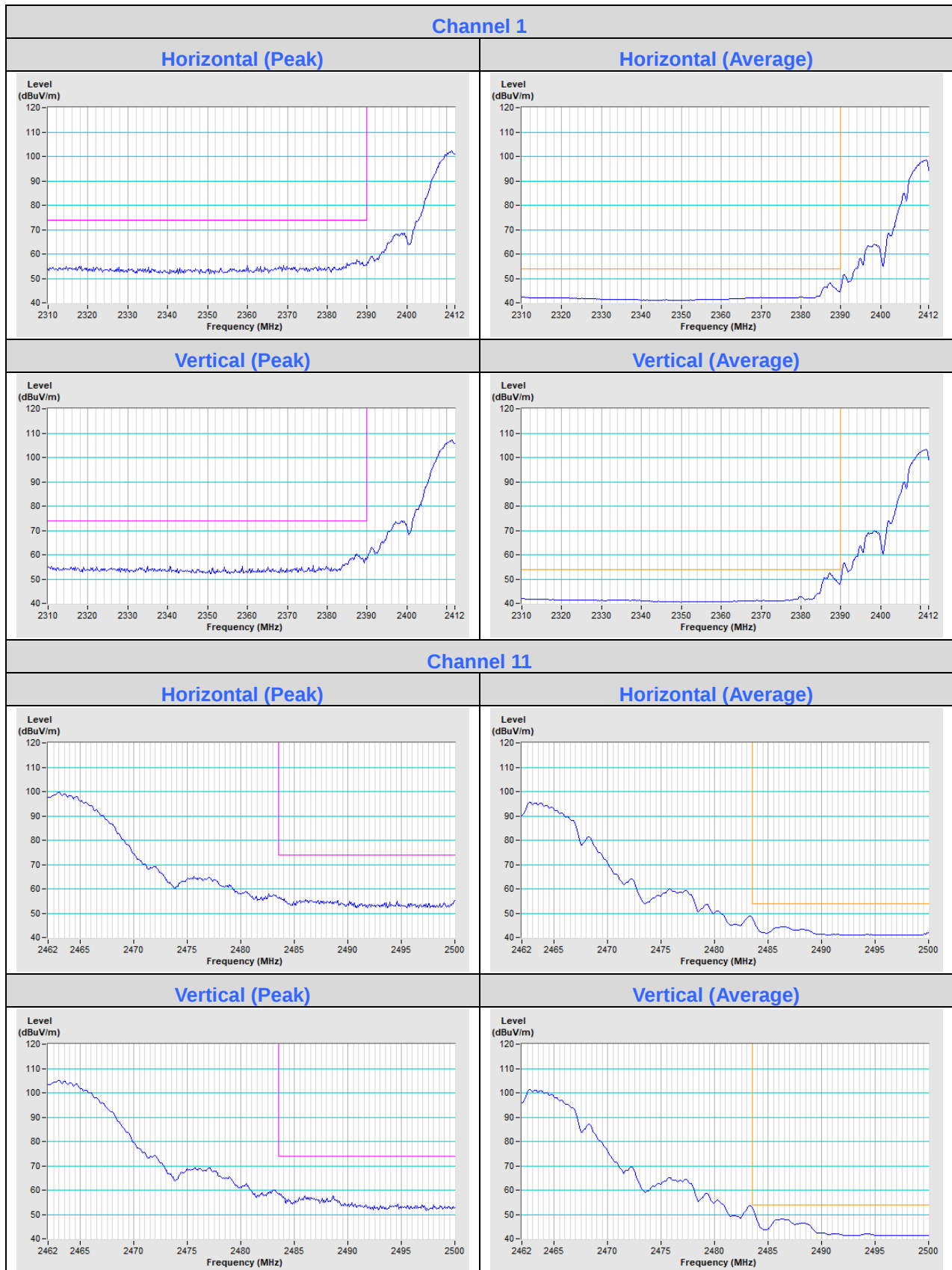


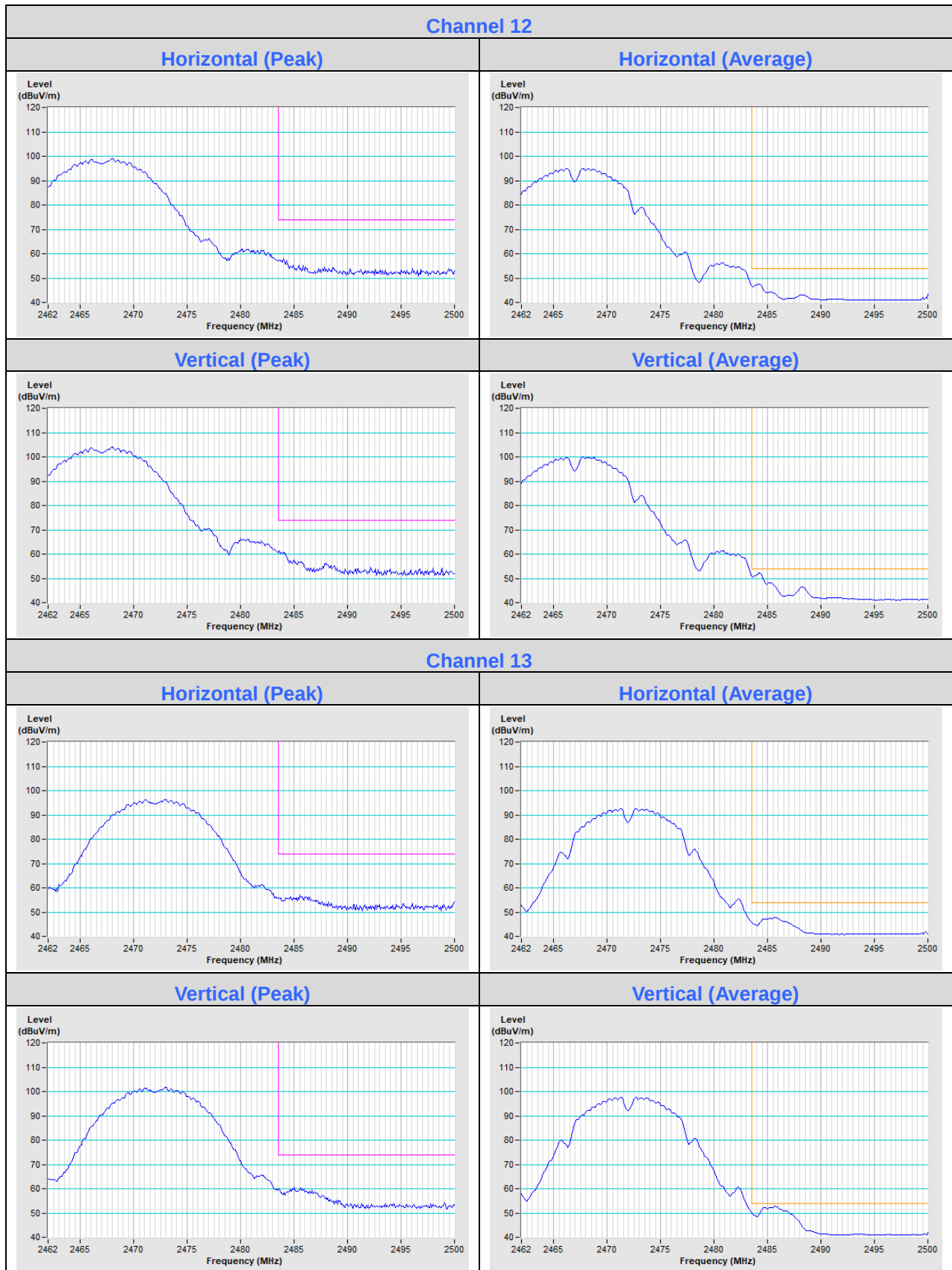
5 Pictures of Test Arrangements

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

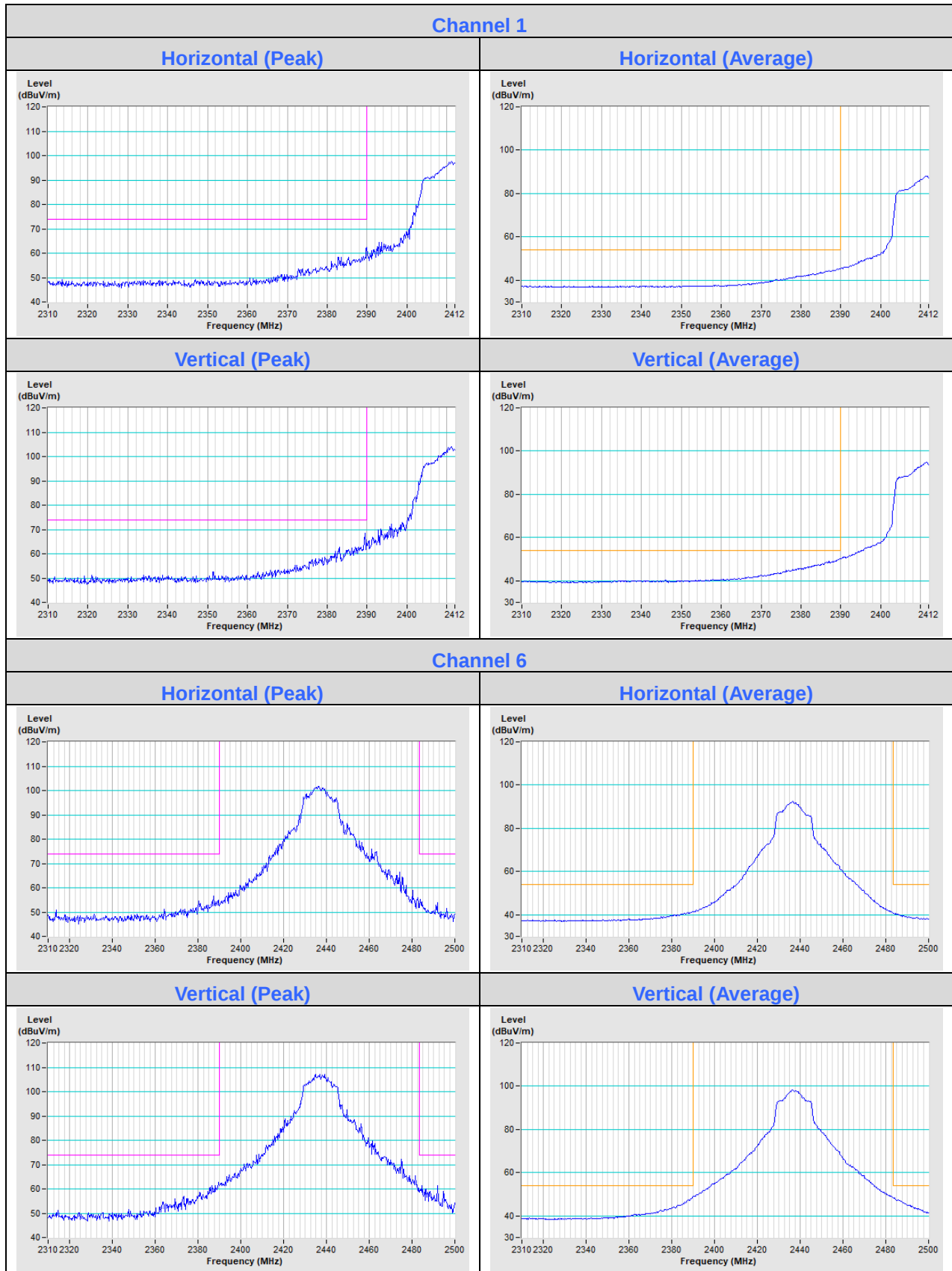
Annex A – Band Edge Measurement

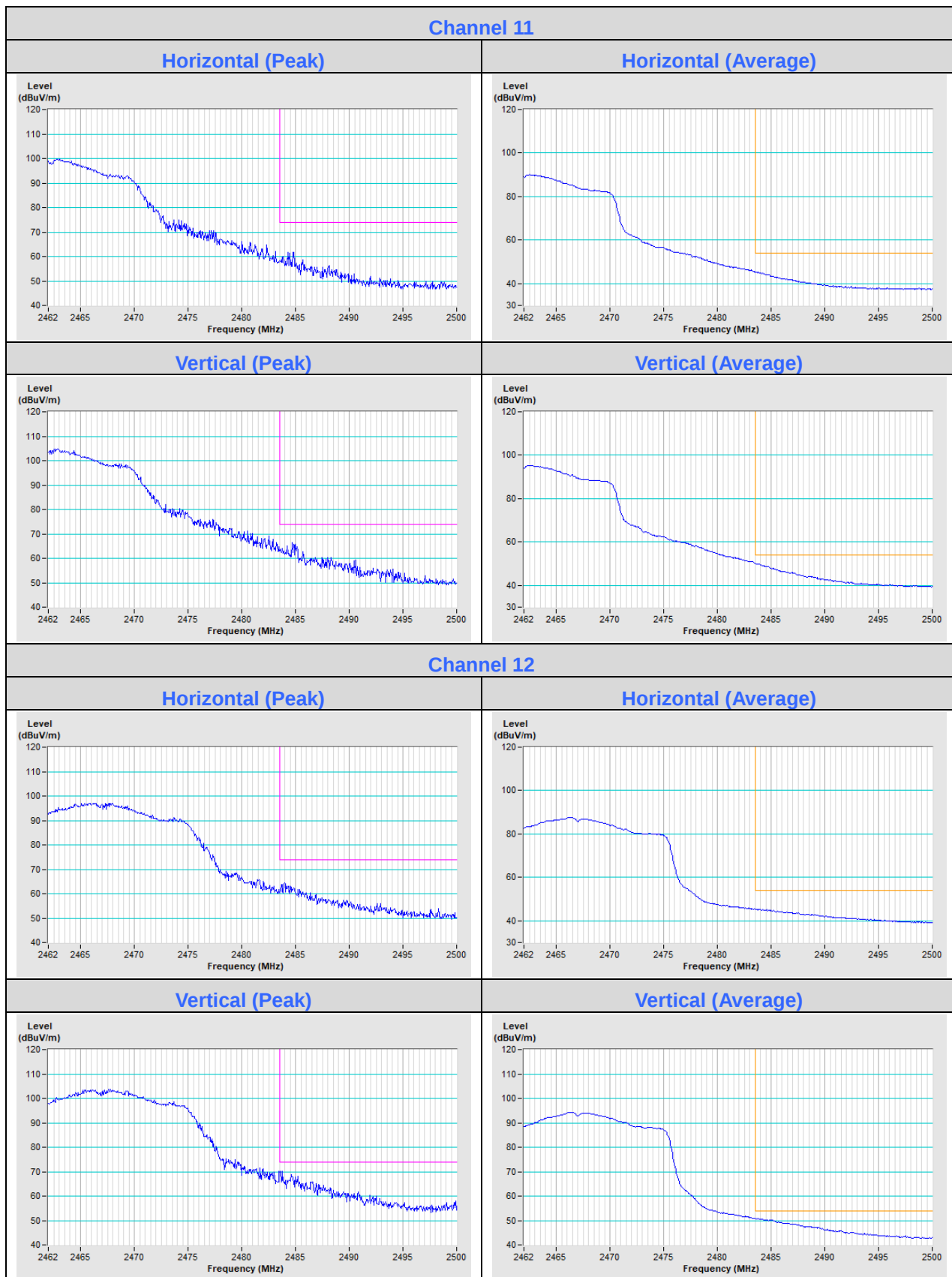
802.11b

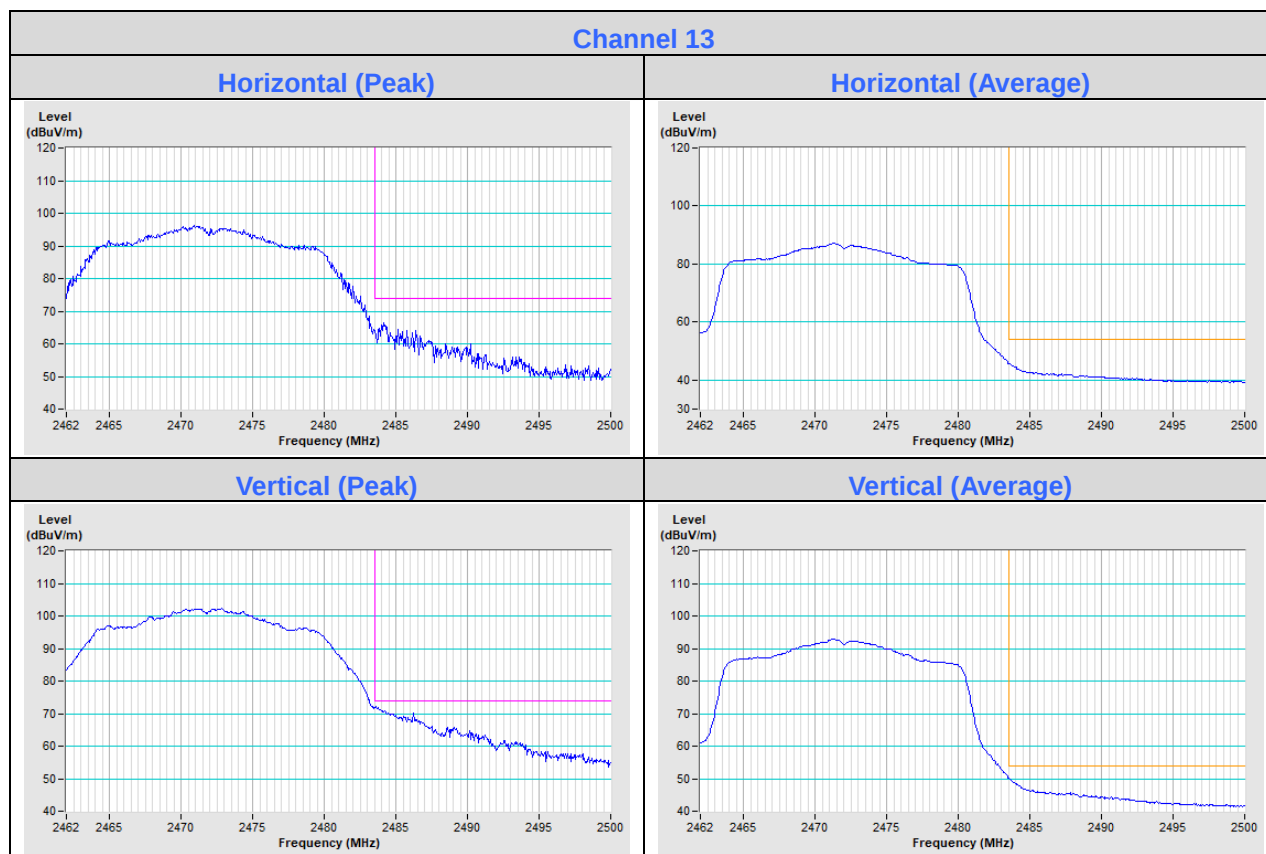




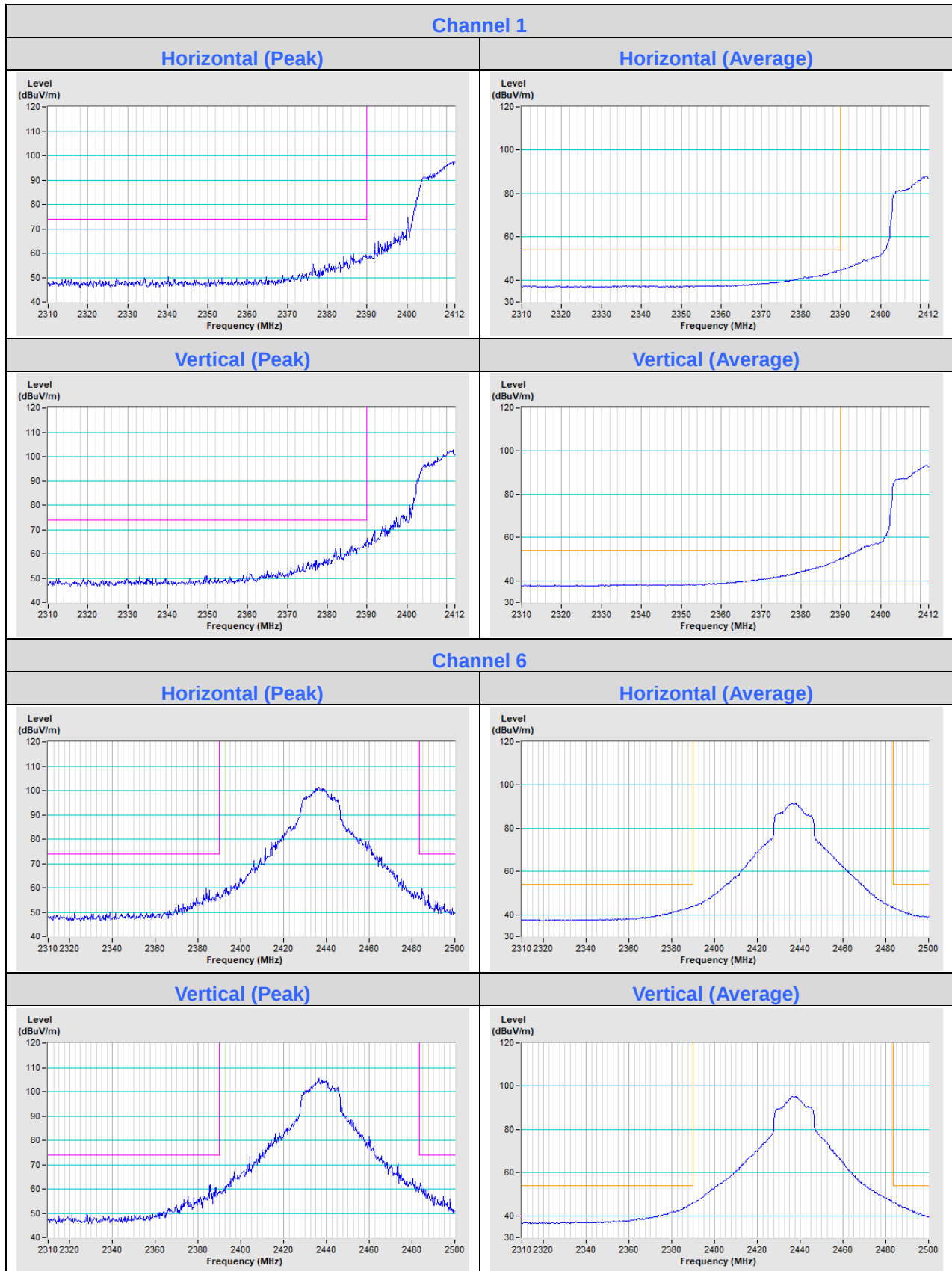
802.11g

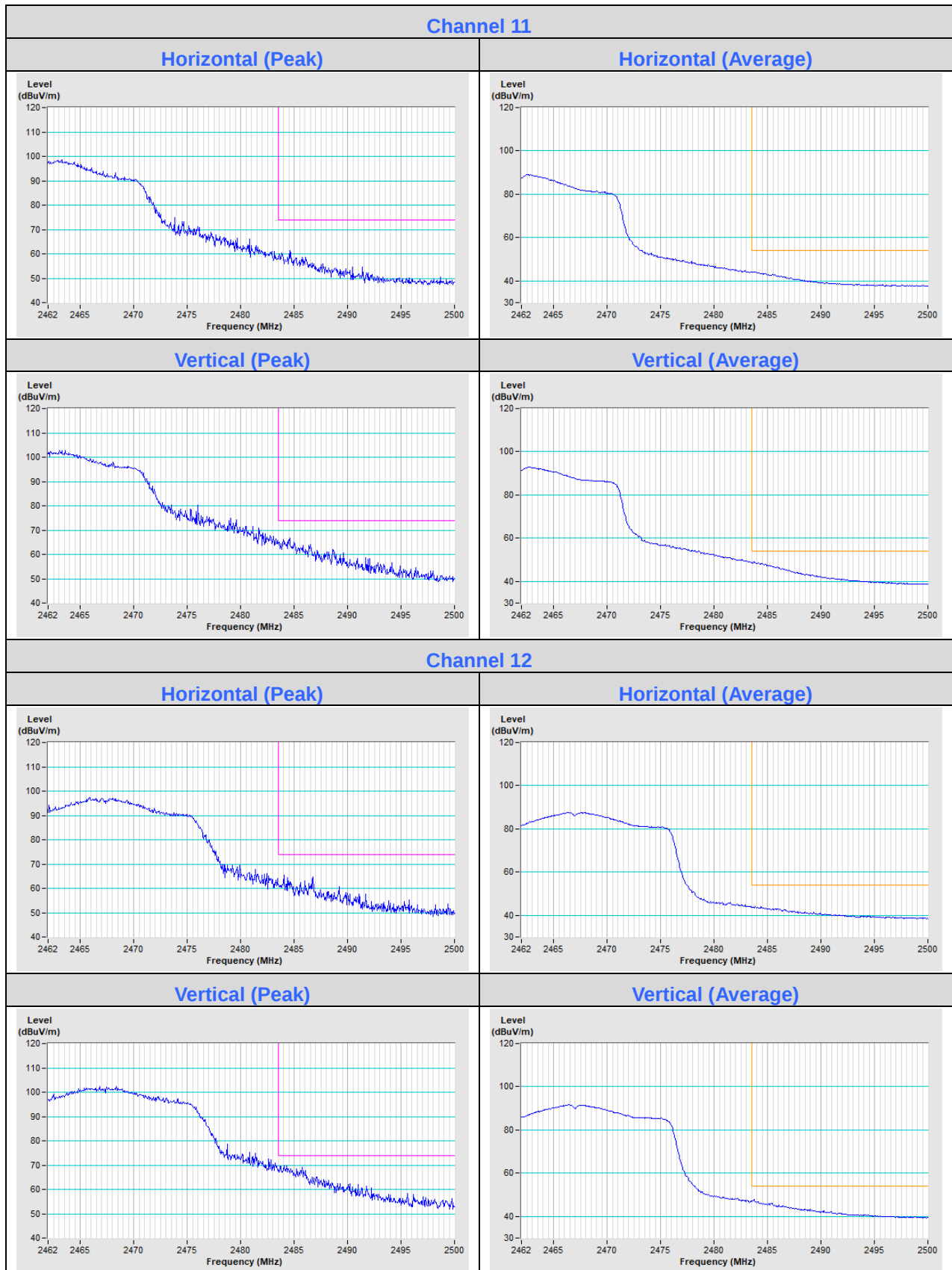


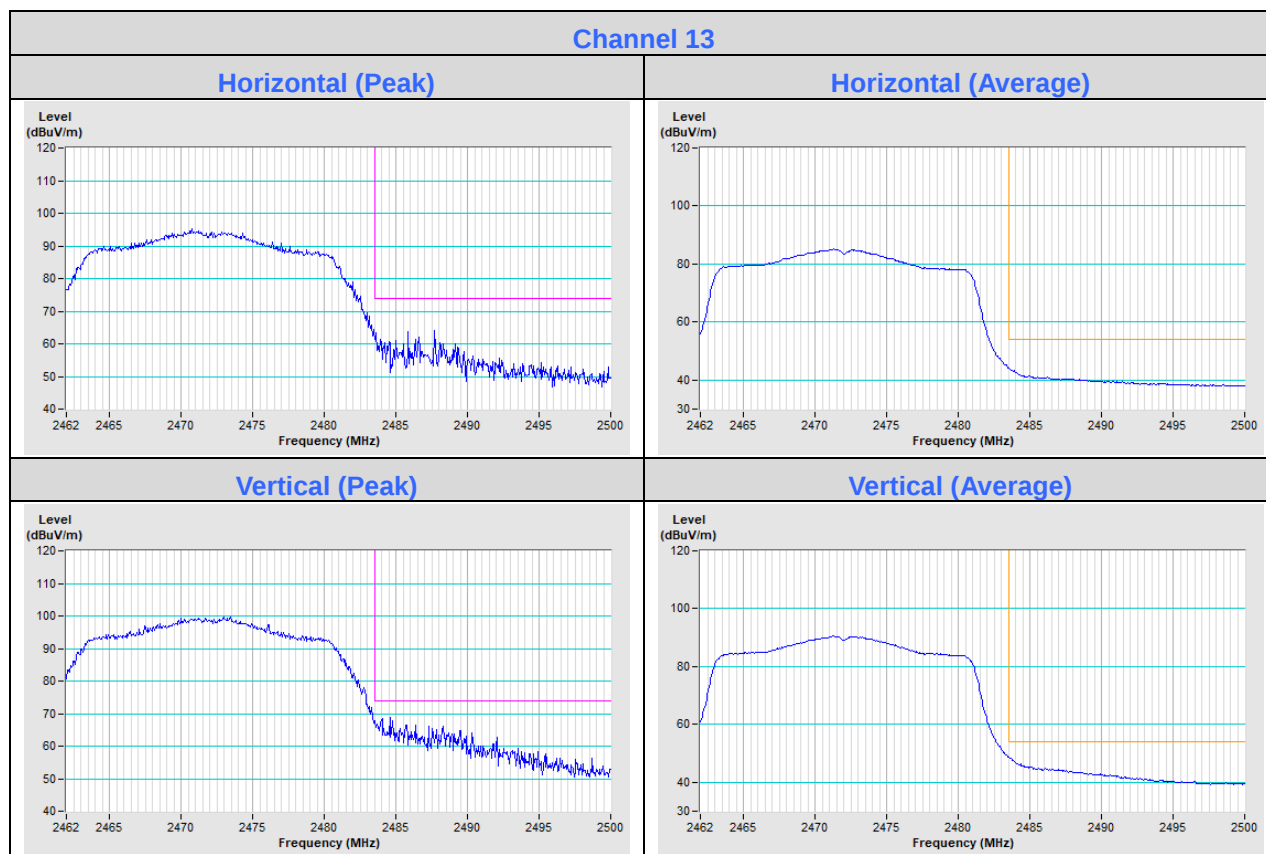




802.11n (HT20)







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 according to ISO/IEC 17025.

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

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Fax: 886-3-6668323

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Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

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