FCC Test Report

Report No.:	RF181023E02
FCC ID:	2AHKM-CSN01
Test Model:	CSN-01
Received Date:	Oct. 23, 2018
Test Date:	Nov. 05 to 07, 2018
Issued Date:	Nov. 19, 2018
Applicant:	Hitron Technologies Inc.
Address:	No. 1-8,Li-Hsin 1st Rd.,Hsinchu Science Park, HSINCHU,30078,Taiwan
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
FCC Registration / Designation Number:	723255 / TW2022

Testing Laboratory
2022

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Release Control Record

Issue No.	Description	Date Issued
RF181023E02	Original release.	Nov. 19, 2018

1 Certificate of Conformity

Product:	Signal Generator
Brand:	Hitron
Test Model:	CSN-01
Sample Status:	ENGINEERING SAMPLE
Applicant:	Hitron Technologies Inc.
Test Date:	Nov. 05 to 07, 2018
Standards:	47 CFR FCC Part 15, Subpart C (Section 15.247) ANSI C63.10: 2013

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

Prepared by : Phoenix Huang , **Date:** Nov. 19, 2018

Phoenix Huang / Specialist

Approved by : , **Date:** Nov. 19, 2018

Max Chen / Manager

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 -13.32dB at 23.12891MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.1dB at 2390.00MHz and 2483.50MHz.
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is i-pex(MHF) not a standard connector.
-	Occupied Bandwidth Measurement	-	Reference only

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.84 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.53 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.08 dB
	6GHz ~ 18GHz	4.98 dB
	18GHz ~ 40GHz	5.19 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Signal Generator
Brand	Hitron
Test Model	CSN-01
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	5Vdc from power adapter or 5Vdc from battery
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11g: up to 54Mbps 802.11n: up to 300Mbps
Operating Frequency	2.412 ~ 2.462GHz
Number of Channel	802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7
Output Power	513.616mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x1 F-CONN x 1
Cable Supplied	USB cable x 1 (0.5m, shielded)

Note:

1. The EUT could be supplied with an USB adapter or battery as the following table:

Adapter		
Brand	Model	Specification
Asian power Devices Inc	WB-10E05FU	Input: 100-240V, 50-60Hz, 0.4A Max Output: 5V, 2A
Battery		
Brand	Model	Rating
HighCell Tech Co.,LTD	OEM-1S4P	DC 5V 1000mAh 5Wh

2. The antennas provided to the EUT, please refer to the following table:

Antenna No.	Brand	Model	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connecter Type	Cable Length (mm)
1	Anjie	AJMP2J-W0001	4.93	2.4~2.4835	PCB	i-pex(MHF)	145
2	Anjie	AJMP2J-C0001	3.44	2.4~2.4835	PCB	i-pex(MHF)	150

3. The EUT incorporates a MIMO function:

MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11b	1 ~ 11Mbps	2TX	2RX
802.11g	6 ~ 54Mbps	2TX	2RX
802.11n (HT20)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11n (HT40)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX

4. The EUT was pre-tested under following test modes:

Pre-test Mode	Description
Mode A	Battery mode
Mode B	**Adapter mode**
Note: For the above modes, the worse radiated emissions test was found in **Mode B**. Therefore only the test data of the modes were recorded in this report.	

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

3.2 Description of Test Modes

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

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

7 channels are provided for 802.11n (HT40):

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
-	√	√	√	√	-

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

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

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.

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

Radiated Emission Test (Below 1GHz):

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11g	1 to 11	6	OFDM	BPSK	6

Power Line Conducted Emission Test:

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11g	1 to 11	6	OFDM	BPSK	6

Antenna Port Conducted Measurement:

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

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

Test Condition:

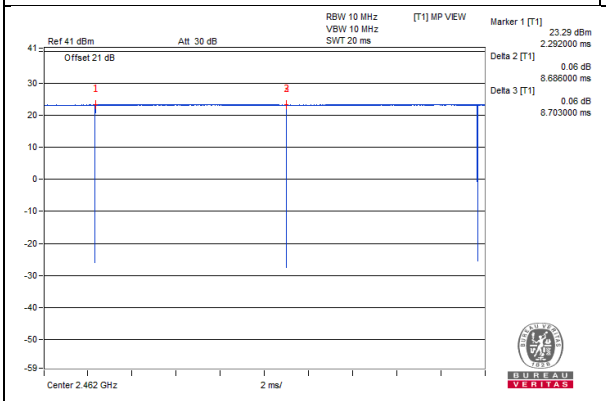
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	22deg. C, 65%RH	120Vac, 60Hz	Frank Chuang
RE<1G	22deg. C, 67%RH	120Vac, 60Hz	Frank Chuang
PLC	25deg. C, 75%RH	120Vac, 60Hz	Andy Ho
APCM	25deg. C, 60%RH	120Vac, 60Hz	Jyunchun Lin

3.3 Duty Cycle of Test Signal

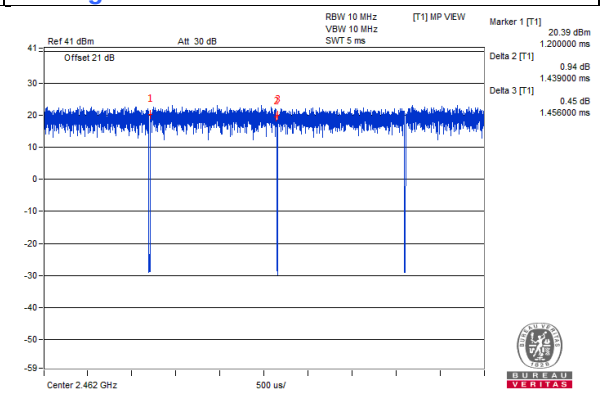
If duty cycle of test signal is ≥ 98 %, duty factor is not required.
If duty cycle of test signal is < 98%, duty factor shall be considered.

802.11b: Duty cycle = 8.686 ms/8.703 ms = 0.998
802.11g: Duty cycle = 1.439 ms/1.456 ms = 0.988
802.11n (HT20): Duty cycle = 1.347 ms/1.364 ms = 0.988
802.11n (HT40): Duty cycle = 0.667 ms/0.683 ms = 0.977, Duty factor = 10 * log (1/Duty cycle) = 0.1

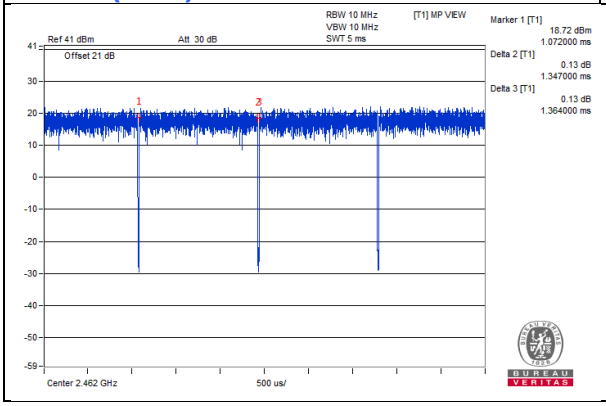
802.11b



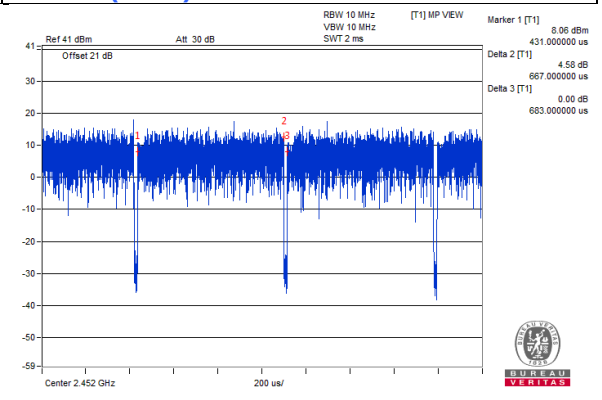
802.11g



802.11n (HT20)



802.11n (HT40)



3.4 Description of Support Units

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

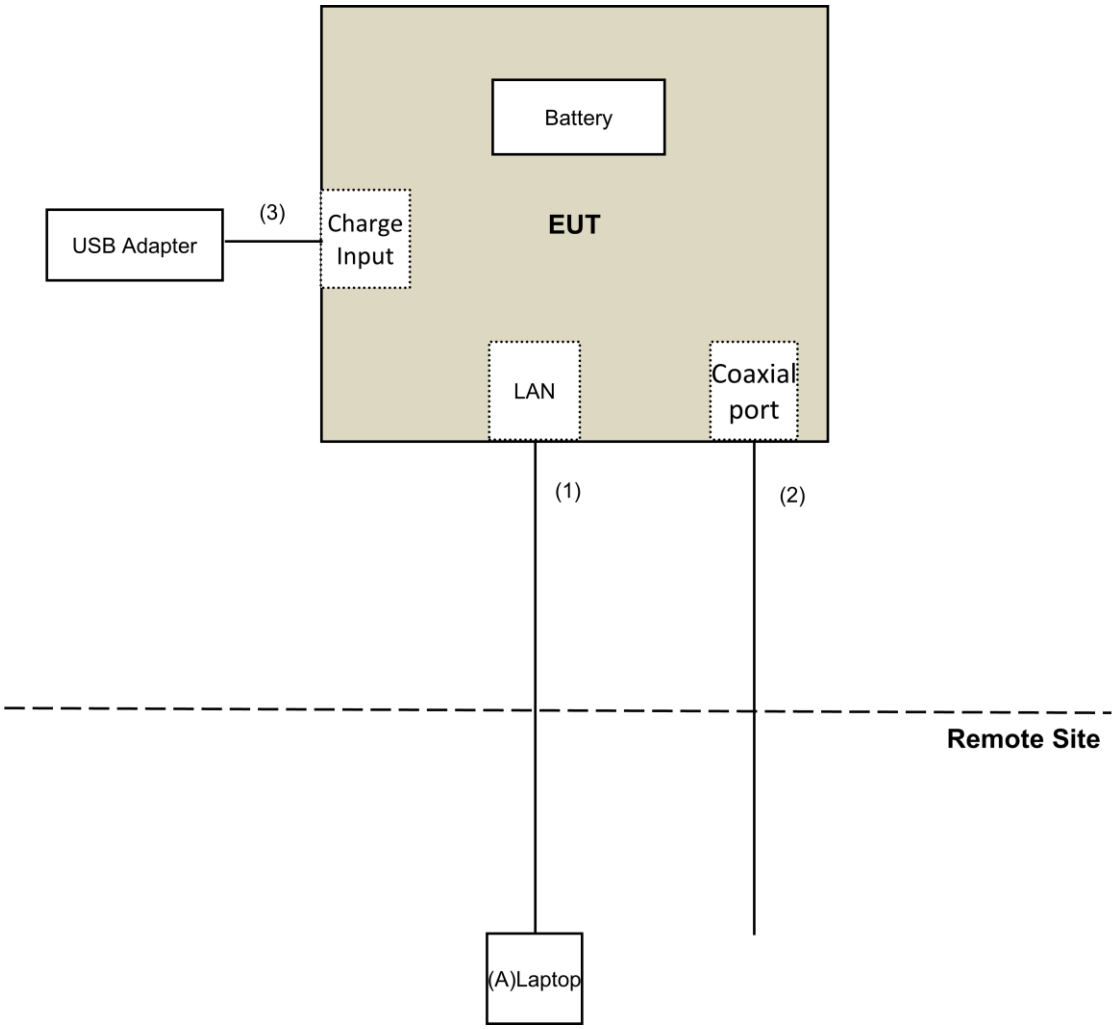
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	DELL	E6420	B92T3R1	FCC DoC	Provided by Lab

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ-45 Cable	1	10	No	0	Provided by Lab
2.	Coaxial Cable	1	10	Yes	0	Provided by Lab
3.	USB Cable	1	0.5	Yes	0	Supplied by client

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards

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

FCC Part 15, Subpart C (15.247)
KDB 558074 D01 15.247 Meas Guidance v05
KDB 662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10-2013

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

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

Note:

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

4.1.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY50010156	July 12, 2018	July 11, 2019
Pre-Amplifier EMCI	EMC001340	980142	Feb. 09, 2018	Feb. 08, 2019
Loop Antenna(*) Electro-Metrics	EM-6879	264	Dec. 16, 2016	Dec. 15, 2018
RF Cable	NA	LOOPCAB-001	Jan. 15, 2018	Jan. 14, 2019
RF Cable	NA	LOOPCAB-002	Jan. 15, 2018	Jan. 14, 2019
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-05	May 05, 2018	May 04, 2019
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-361	Nov. 29, 2017	Nov. 28, 2018
RF Cable	8D	966-3-1	Mar. 20, 2018	Mar. 19, 2019
RF Cable	8D	966-3-2	Mar. 20, 2018	Mar. 19, 2019
RF Cable	8D	966-3-3	Mar. 20, 2018	Mar. 19, 2019
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-3m-3-01	Sep. 27, 2018	Sep. 26, 2019
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Dec. 12, 2017	Dec. 11, 2018
Pre-Amplifier EMCI	EMC12630SE	980384	Jan. 29, 2018	Jan. 28, 2019
RF Cable	EMC104-SM-SM-1200	160922	Jan. 29, 2018	Jan. 28, 2019
RF Cable	EMC104-SM-SM-2000	150317	Jan. 29, 2018	Jan. 28, 2019
RF Cable	EMC104-SM-SM-5000	150322	Jan. 29, 2018	Jan. 28, 2019
Spectrum Analyzer Keysight	N9030A	MY54490679	July 23, 2018	July 22, 2019
Pre-Amplifier EMCI	EMC184045SE	980386	Jan. 29, 2018	Jan. 28, 2019
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Dec. 14, 2017	Dec. 13, 2018
RF Cable	EMC102-KM-KM-1200	160924	Jan. 29, 2018	Jan. 28, 2019
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Spectrum Analyzer R&S	FSV40	100964	June 20, 2018	June 19, 2019
Power meter Anritsu	ML2495A	1014008	May 09, 2018	May 08, 2019
Power sensor Anritsu	MA2411B	0917122	May 09, 2018	May 08, 2019

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. *The calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
3. The test was performed in 966 Chamber No. 3.
4. The CANADA Site Registration No. is 20331-1
5. Loop antenna was used for all emissions below 30 MHz.
6. Tested Date: Nov. 05 to 06, 2018

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 detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

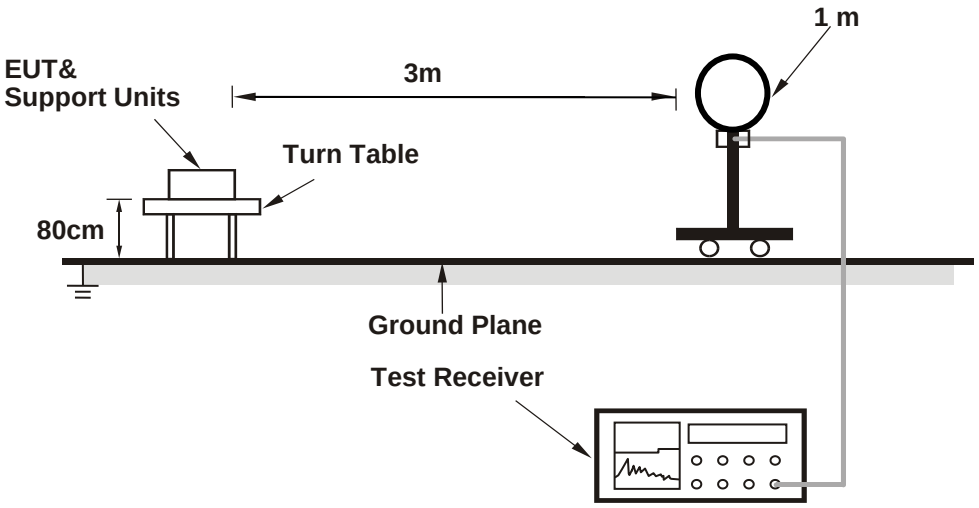
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

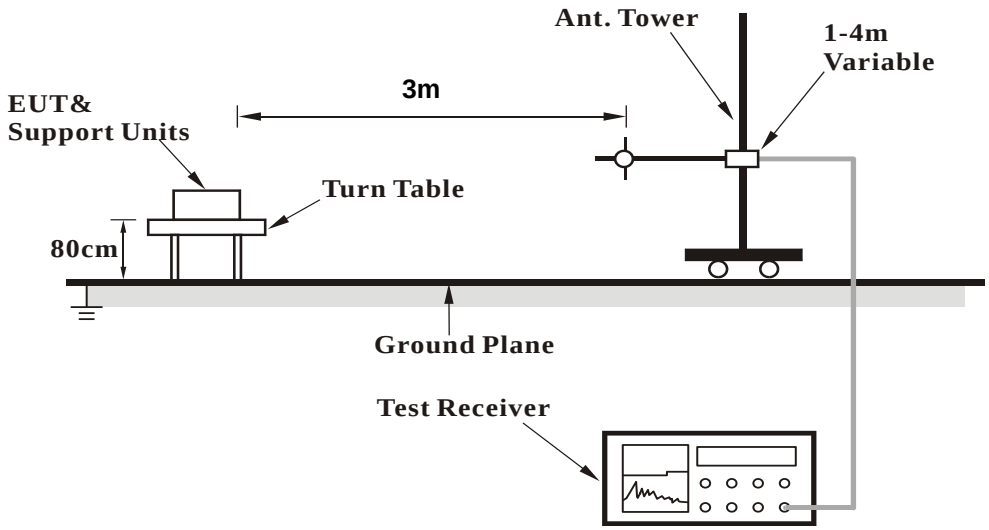
No deviation.

4.1.5 Test Setup

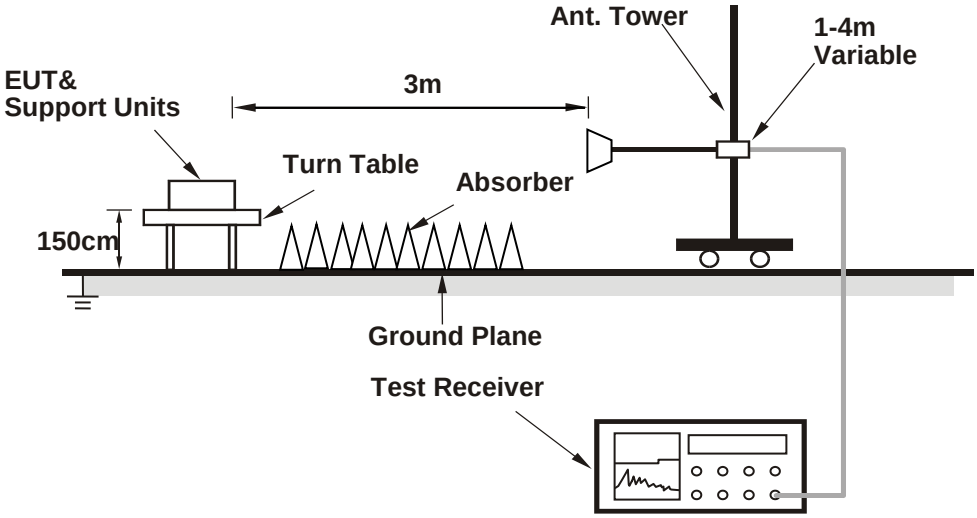
For Radiated emission below 30MHz



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. Connected the EUT with the Laptop which is placed on remote site.
b. Controlling software (MT7620 QA V1.0.6.0) has been activated to set the EUT on specific status.

4.1.7 Test Results

Above 1GHz Data:

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2390.00	68.8 PK	74.0	-5.2	1.06 H	73	71.5	-2.7
2	2390.00	53.8 AV	54.0	-0.2	1.06 H	73	56.5	-2.7
3	*2412.00	105.9 PK			1.06 H	73	108.6	-2.7
4	*2412.00	103.7 AV			1.06 H	73	106.4	-2.7
5	4824.00	47.3 PK	74.0	-26.7	1.91 H	352	45.7	1.6
6	4824.00	45.0 AV	54.0	-9.0	1.91 H	352	43.4	1.6
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	2390.00	62.0 PK	74.0	-12.0	1.04 V	329	64.7	-2.7
2	2390.00	50.9 AV	54.0	-3.1	1.04 V	329	53.6	-2.7
3	*2412.00	102.1 PK			1.04 V	329	104.8	-2.7
4	*2412.00	99.7 AV			1.04 V	329	102.4	-2.7
5	4824.00	50.8 PK	74.0	-23.2	1.18 V	309	49.2	1.6
6	4824.00	49.0 AV	54.0	-5.0	1.18 V	309	47.4	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.2 PK	74.0	-7.8	1.02 H	64	68.9	-2.7
2	2390.00	45.3 AV	54.0	-8.7	1.02 H	64	48.0	-2.7
3	*2437.00	108.7 PK			1.02 H	64	111.7	-3.0
4	*2437.00	106.2 AV			1.02 H	64	109.2	-3.0
5	2483.50	64.5 PK	74.0	-9.5	1.02 H	64	67.5	-3.0
6	2483.50	45.6 AV	54.0	-8.4	1.02 H	64	48.6	-3.0
7	4874.00	47.1 PK	74.0	-26.9	1.89 H	358	45.5	1.6
8	4874.00	44.9 AV	54.0	-9.1	1.89 H	358	43.3	1.6
9	7311.00	55.8 PK	74.0	-18.2	1.06 H	259	48.1	7.7
10	7311.00	51.6 AV	54.0	-2.4	1.06 H	259	43.9	7.7
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	61.1 PK	74.0	-12.9	1.04 V	329	63.8	-2.7
2	2390.00	40.1 AV	54.0	-13.9	1.04 V	329	42.8	-2.7
3	*2437.00	104.2 PK			1.04 V	329	107.2	-3.0
4	*2437.00	101.5 AV			1.04 V	329	104.5	-3.0
5	2483.50	60.9 PK	74.0	-13.1	1.04 V	329	63.9	-3.0
6	2483.50	39.6 AV	54.0	-14.4	1.04 V	329	42.6	-3.0
7	4874.00	50.8 PK	74.0	-23.2	1.20 V	301	49.2	1.6
8	4874.00	48.8 AV	54.0	-5.2	1.20 V	301	47.2	1.6
9	7311.00	54.6 PK	74.0	-19.4	1.44 V	350	46.9	7.7
10	7311.00	50.1 AV	54.0	-3.9	1.44 V	350	42.4	7.7

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	106.6 PK			1.03 H	66	109.6	-3.0
2	*2462.00	104.2 AV			1.03 H	66	107.2	-3.0
3	2483.50	67.8 PK	74.0	-6.2	1.03 H	66	70.8	-3.0
4	2483.50	53.7 AV	54.0	-0.3	1.03 H	66	56.7	-3.0
5	4924.00	46.6 PK	74.0	-27.4	1.93 H	359	44.9	1.7
6	4924.00	44.6 AV	54.0	-9.4	1.93 H	359	42.9	1.7
7	7386.00	55.3 PK	74.0	-18.7	1.01 H	245	47.4	7.9
8	7386.00	51.1 AV	54.0	-2.9	1.01 H	245	43.2	7.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	101.7 PK			1.04 V	329	104.7	-3.0
2	*2462.00	99.4 AV			1.04 V	329	102.4	-3.0
3	2483.50	62.2 PK	74.0	-11.8	1.04 V	329	65.2	-3.0
4	2483.50	51.0 AV	54.0	-3.0	1.04 V	329	54.0	-3.0
5	4924.00	51.4 PK	74.0	-22.6	1.20 V	295	49.7	1.7
6	4924.00	49.1 AV	54.0	-4.9	1.20 V	295	47.4	1.7
7	7386.00	55.0 PK	74.0	-19.0	1.40 V	350	47.1	7.9
8	7386.00	50.3 AV	54.0	-3.7	1.40 V	350	42.4	7.9

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.4 PK	74.0	-1.6	1.01 H	72	75.1	-2.7
2	2390.00	53.7 AV	54.0	-0.3	1.01 H	72	56.4	-2.7
3	*2412.00	104.0 PK			1.01 H	72	106.7	-2.7
4	*2412.00	94.9 AV			1.01 H	72	97.6	-2.7
5	4824.00	48.9 PK	74.0	-25.1	1.92 H	350	47.3	1.6
6	4824.00	36.0 AV	54.0	-18.0	1.92 H	350	34.4	1.6
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	2390.00	68.5 PK	74.0	-5.5	1.04 V	329	71.2	-2.7
2	2390.00	50.1 AV	54.0	-3.9	1.04 V	329	52.8	-2.7
3	*2412.00	99.2 PK			1.04 V	329	101.9	-2.7
4	*2412.00	90.1 AV			1.04 V	329	92.8	-2.7
5	4824.00	48.3 PK	74.0	-25.7	1.17 V	295	46.7	1.6
6	4824.00	35.8 AV	54.0	-18.2	1.17 V	295	34.2	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.8 PK	74.0	-4.2	1.04 H	72	72.5	-2.7
2	2390.00	49.7 AV	54.0	-4.3	1.04 H	72	52.4	-2.7
3	*2437.00	110.5 PK			1.04 H	72	113.5	-3.0
4	*2437.00	101.3 AV			1.04 H	72	104.3	-3.0
5	2483.50	65.5 PK	74.0	-8.5	1.04 H	72	68.5	-3.0
6	2483.50	48.1 AV	54.0	-5.9	1.04 H	72	51.1	-3.0
7	4874.00	48.8 PK	74.0	-25.2	1.83 H	354	47.2	1.6
8	4874.00	36.1 AV	54.0	-17.9	1.83 H	354	34.5	1.6
9	7311.00	49.8 PK	74.0	-24.2	1.00 H	267	42.1	7.7
10	7311.00	41.0 AV	54.0	-13.0	1.00 H	267	33.3	7.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.6 PK	74.0	-8.4	1.04 V	329	68.3	-2.7
2	2390.00	46.9 AV	54.0	-7.1	1.04 V	329	49.6	-2.7
3	*2437.00	106.1 PK			1.04 V	329	109.1	-3.0
4	*2437.00	96.5 AV			1.04 V	329	99.5	-3.0
5	2483.50	60.8 PK	74.0	-13.2	1.04 V	329	63.8	-3.0
6	2483.50	43.5 AV	54.0	-10.5	1.04 V	329	46.5	-3.0
7	4874.00	48.2 PK	74.0	-25.8	1.23 V	289	46.6	1.6
8	4874.00	35.5 AV	54.0	-18.5	1.23 V	289	33.9	1.6
9	7311.00	51.6 PK	74.0	-22.4	1.50 V	360	43.9	7.7
10	7311.00	37.9 AV	54.0	-16.1	1.50 V	360	30.2	7.7

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	106.2 PK			1.00 H	73	109.2	-3.0
2	*2462.00	95.7 AV			1.00 H	73	98.7	-3.0
3	2483.50	71.6 PK	74.0	-2.4	1.00 H	73	74.6	-3.0
4	2483.50	53.8 AV	54.0	-0.2	1.00 H	73	56.8	-3.0
5	4924.00	48.3 PK	74.0	-25.7	1.90 H	357	46.6	1.7
6	4924.00	35.8 AV	54.0	-18.2	1.90 H	357	34.1	1.7
7	7386.00	50.9 PK	74.0	-23.1	1.02 H	258	43.0	7.9
8	7386.00	37.2 AV	54.0	-16.8	1.02 H	258	29.3	7.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	99.0 PK			1.04 V	329	102.0	-3.0
2	*2462.00	89.7 AV			1.04 V	329	92.7	-3.0
3	2483.50	68.3 PK	74.0	-5.7	1.04 V	329	71.3	-3.0
4	2483.50	50.1 AV	54.0	-3.9	1.04 V	329	53.1	-3.0
5	4924.00	48.7 PK	74.0	-25.3	1.20 V	312	47.0	1.7
6	4924.00	36.2 AV	54.0	-17.8	1.20 V	312	34.5	1.7
7	7386.00	51.6 PK	74.0	-22.4	1.47 V	343	43.7	7.9
8	7386.00	37.9 AV	54.0	-16.1	1.47 V	343	30.0	7.9

REMARKS:

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

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.2 PK	74.0	-1.8	1.04 H	67	74.9	-2.7
2	2390.00	53.7 AV	54.0	-0.3	1.04 H	67	56.4	-2.7
3	*2412.00	103.6 PK			1.04 H	67	106.3	-2.7
4	*2412.00	93.8 AV			1.04 H	67	96.5	-2.7
5	4824.00	48.9 PK	74.0	-25.1	1.87 H	360	47.3	1.6
6	4824.00	36.3 AV	54.0	-17.7	1.87 H	360	34.7	1.6
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	2390.00	68.5 PK	74.0	-5.5	1.04 V	329	71.2	-2.7
2	2390.00	50.1 AV	54.0	-3.9	1.04 V	329	52.8	-2.7
3	*2412.00	98.0 PK			1.04 V	329	100.7	-2.7
4	*2412.00	89.1 AV			1.04 V	329	91.8	-2.7
5	4824.00	48.3 PK	74.0	-25.7	1.19 V	293	46.7	1.6
6	4824.00	35.4 AV	54.0	-18.6	1.19 V	293	33.8	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. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.8 PK	74.0	-4.2	1.00 H	68	72.5	-2.7
2	2390.00	50.2 AV	54.0	-3.8	1.00 H	68	52.9	-2.7
3	*2437.00	111.1 PK			1.00 H	68	114.1	-3.0
4	*2437.00	101.6 AV			1.00 H	68	104.6	-3.0
5	2483.50	65.3 PK	74.0	-8.7	1.00 H	68	68.3	-3.0
6	2483.50	48.8 AV	54.0	-5.2	1.00 H	68	51.8	-3.0
7	4874.00	48.7 PK	74.0	-25.3	1.92 H	360	47.1	1.6
8	4874.00	35.8 AV	54.0	-18.2	1.92 H	360	34.2	1.6
9	7311.00	49.8 PK	74.0	-24.2	1.08 H	265	42.1	7.7
10	7311.00	41.4 AV	54.0	-12.6	1.08 H	265	33.7	7.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.2 PK	74.0	-8.8	1.04 V	329	67.9	-2.7
2	2390.00	46.5 AV	54.0	-7.5	1.04 V	329	49.2	-2.7
3	*2437.00	105.7 PK			1.04 V	329	108.7	-3.0
4	*2437.00	96.2 AV			1.04 V	329	99.2	-3.0
5	2483.50	60.2 PK	74.0	-13.8	1.04 V	329	63.2	-3.0
6	2483.50	43.1 AV	54.0	-10.9	1.04 V	329	46.1	-3.0
7	4874.00	48.6 PK	74.0	-25.4	1.18 V	293	47.0	1.6
8	4874.00	35.5 AV	54.0	-18.5	1.18 V	293	33.9	1.6
9	7311.00	51.5 PK	74.0	-22.5	1.43 V	346	43.8	7.7
10	7311.00	37.6 AV	54.0	-16.4	1.43 V	346	29.9	7.7

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.5 PK			1.02 H	75	107.5	-3.0
2	*2462.00	94.4 AV			1.02 H	75	97.4	-3.0
3	2483.50	73.0 PK	74.0	-1.0	1.02 H	75	76.0	-3.0
4	**2483.50**	**53.9 AV**	**54.0**	**-0.1**	**1.02 H**	**75**	**56.9**	**-3.0**
5	4924.00	48.6 PK	74.0	-25.4	1.91 H	360	46.9	1.7
6	4924.00	36.1 AV	54.0	-17.9	1.91 H	360	34.4	1.7
7	7386.00	51.3 PK	74.0	-22.7	1.09 H	245	43.4	7.9
8	7386.00	37.9 AV	54.0	-16.1	1.09 H	245	30.0	7.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	98.5 PK			1.04 V	329	101.5	-3.0
2	*2462.00	89.6 AV			1.04 V	329	92.6	-3.0
3	2483.50	68.6 PK	74.0	-5.4	1.04 V	329	71.6	-3.0
4	2483.50	50.2 AV	54.0	-3.8	1.04 V	329	53.2	-3.0
5	4924.00	49.0 PK	74.0	-25.0	1.24 V	286	47.3	1.7
6	4924.00	36.0 AV	54.0	-18.0	1.24 V	286	34.3	1.7
7	7386.00	51.4 PK	74.0	-22.6	1.44 V	348	43.5	7.9
8	7386.00	37.5 AV	54.0	-16.5	1.44 V	348	29.6	7.9

REMARKS:

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

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.1 PK	74.0	-3.9	1.01 H	70	72.8	-2.7
2	**2390.00**	**53.9 AV**	**54.0**	**-0.1**	**1.01 H**	**70**	**56.6**	**-2.7**
3	*2422.00	99.9 PK			1.01 H	70	102.8	-2.9
4	*2422.00	89.4 AV			1.01 H	70	92.3	-2.9
5	4844.00	48.2 PK	74.0	-25.8	1.85 H	360	46.6	1.6
6	4844.00	35.8 AV	54.0	-18.2	1.85 H	360	34.2	1.6
7	7266.00	51.3 PK	74.0	-22.7	1.09 H	260	43.5	7.8
8	7266.00	37.8 AV	54.0	-16.2	1.09 H	260	30.0	7.8
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	69.1 PK	74.0	-4.9	1.04 V	329	71.8	-2.7
2	2390.00	50.5 AV	54.0	-3.5	1.04 V	329	53.2	-2.7
3	*2422.00	95.1 PK			1.04 V	329	98.0	-2.9
4	*2422.00	84.6 AV			1.04 V	329	87.5	-2.9
5	4844.00	48.6 PK	74.0	-25.4	1.22 V	286	47.0	1.6
6	4844.00	35.9 AV	54.0	-18.1	1.22 V	286	34.3	1.6
7	7266.00	51.1 PK	74.0	-22.9	1.46 V	345	43.3	7.8
8	7266.00	37.2 AV	54.0	-16.8	1.46 V	345	29.4	7.8

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.9 PK	74.0	-5.1	1.00 H	74	71.6	-2.7
2	2390.00	53.8 AV	54.0	-0.2	1.00 H	74	56.5	-2.7
3	*2437.00	102.1 PK			1.00 H	74	105.1	-3.0
4	*2437.00	92.2 AV			1.00 H	74	95.2	-3.0
5	2483.50	67.4 PK	74.0	-6.6	1.00 H	74	70.4	-3.0
6	2483.50	48.5 AV	54.0	-5.5	1.00 H	74	51.5	-3.0
7	4874.00	48.3 PK	74.0	-25.7	1.91 H	344	46.7	1.6
8	4874.00	35.6 AV	54.0	-18.4	1.91 H	344	34.0	1.6
9	7311.00	50.6 PK	74.0	-23.4	1.11 H	263	42.9	7.7
10	7311.00	37.3 AV	54.0	-16.7	1.11 H	263	29.6	7.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.6 PK	74.0	-5.4	1.04 V	329	71.3	-2.7
2	2390.00	50.3 AV	54.0	-3.7	1.04 V	329	53.0	-2.7
3	*2437.00	97.4 PK			1.04 V	329	100.4	-3.0
4	*2437.00	87.5 AV			1.04 V	329	90.5	-3.0
5	2483.50	62.5 PK	74.0	-11.5	1.04 V	329	65.5	-3.0
6	2483.50	43.5 AV	54.0	-10.5	1.04 V	329	46.5	-3.0
7	4874.00	48.5 PK	74.0	-25.5	1.19 V	309	46.9	1.6
8	4874.00	35.6 AV	54.0	-18.4	1.19 V	309	34.0	1.6
9	7311.00	51.5 PK	74.0	-22.5	1.49 V	340	43.8	7.7
10	7311.00	38.1 AV	54.0	-15.9	1.49 V	340	30.4	7.7

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	101.0 PK			1.03 H	73	104.0	-3.0
2	*2452.00	91.1 AV			1.03 H	73	94.1	-3.0
3	2483.50	70.5 PK	74.0	-3.5	1.03 H	73	73.5	-3.0
4	2483.50	53.8 AV	54.0	-0.2	1.03 H	73	56.8	-3.0
5	4904.00	48.0 PK	74.0	-26.0	1.83 H	360	46.3	1.7
6	4904.00	35.7 AV	54.0	-18.3	1.83 H	360	34.0	1.7
7	7356.00	51.6 PK	74.0	-22.4	1.07 H	253	43.7	7.9
8	7356.00	38.0 AV	54.0	-16.0	1.07 H	253	30.1	7.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	96.3 PK			1.04 V	329	99.3	-3.0
2	*2452.00	86.5 AV			1.04 V	329	89.5	-3.0
3	2483.50	68.9 PK	74.0	-5.1	1.04 V	329	71.9	-3.0
4	2483.50	50.7 AV	54.0	-3.3	1.04 V	329	53.7	-3.0
5	4904.00	48.6 PK	74.0	-25.4	1.16 V	306	46.9	1.7
6	4904.00	35.4 AV	54.0	-18.6	1.16 V	306	33.7	1.7
7	7356.00	51.2 PK	74.0	-22.8	1.39 V	346	43.3	7.9
8	7356.00	37.8 AV	54.0	-16.2	1.39 V	346	29.9	7.9

REMARKS:

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

Below 1GHz Data:

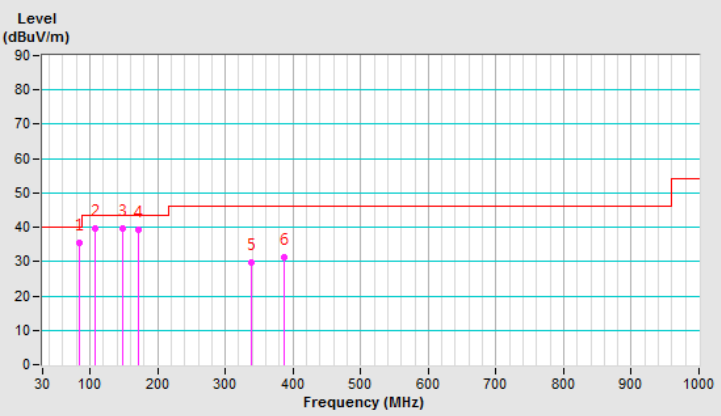
802.11g

CHANNEL	TX Channel 6	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 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	84.49	35.5 QP	40.0	-4.5	2.00 H	360	49.0	-13.5
2	107.31	39.8 QP	43.5	-3.7	2.00 H	275	50.8	-11.0
3	147.61	39.8 QP	43.5	-3.7	2.00 H	290	47.5	-7.7
4	171.11	39.3 QP	43.5	-4.2	1.50 H	277	47.7	-8.4
5	338.51	29.8 QP	46.0	-16.2	2.00 H	360	35.6	-5.8
6	386.67	31.4 QP	46.0	-14.6	1.00 H	54	36.1	-4.7

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 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.

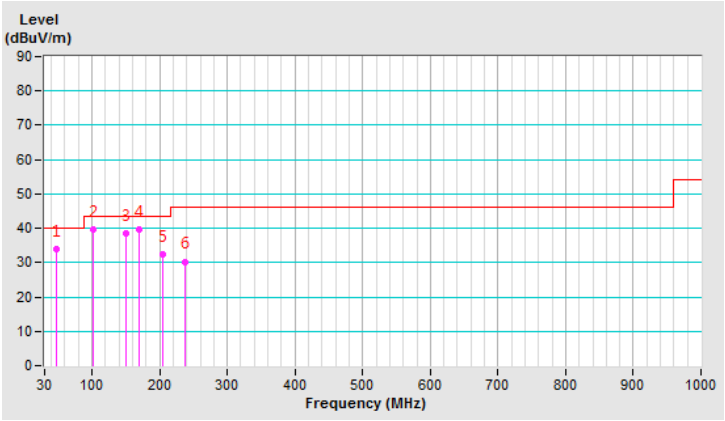


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	47.68	34.0 QP	40.0	-6.0	1.00 V	286	42.0	-8.0
2	101.44	39.5 QP	43.5	-4.0	1.00 V	334	51.5	-12.0
3	150.62	38.5 QP	43.5	-5.0	1.00 V	198	46.0	-7.5
4	169.51	39.6 QP	43.5	-3.9	1.00 V	346	47.9	-8.3
5	205.04	32.5 QP	43.5	-11.0	1.00 V	343	43.5	-11.0
6	237.05	30.3 QP	46.0	-15.7	2.00 V	360	39.8	-9.5

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	847124/029	Oct. 24, 2018	Oct. 23, 2019
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Nov. 15, 2017	Nov. 14, 2018
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV216	100072	June 04, 2018	June 03, 2019
50 ohms Terminator	50	3	Oct. 22, 2018	Oct. 21, 2019
RF Cable	5D-FB	COCCAB-001	Sep. 28, 2018	Sep. 27, 2019
Fixed attenuator EMCI	STI02-2200-10	003	Mar. 16, 2018	Mar. 15, 2019
Software BVADT	BVADT_Cond_ V7.3.7.4	NA	NA	NA

Note:

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Conduction 1.
3 Tested Date: Nov. 07, 2018

4.2.3 Test Procedures

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

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

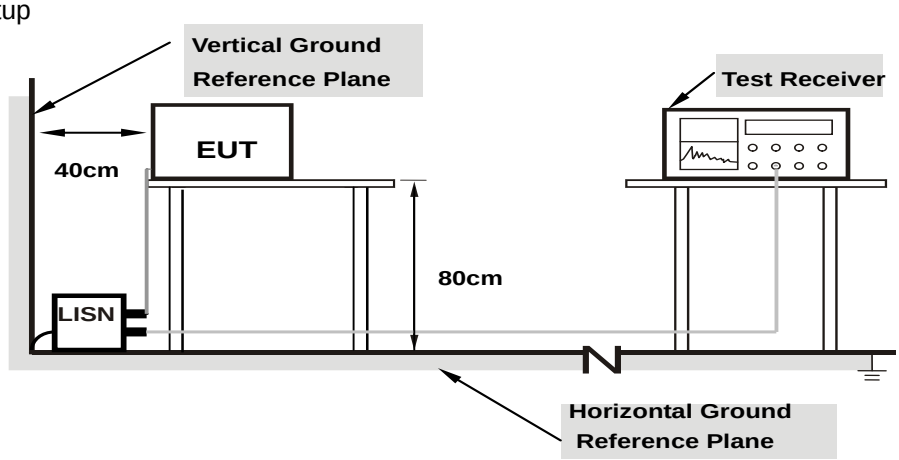
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

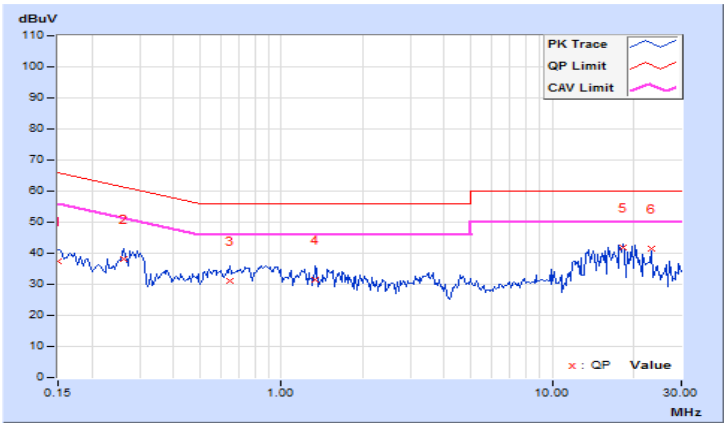
4.2.7 Test Results

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.03	27.44	13.80	37.47	23.83	66.00	56.00	-28.53	-32.17
2	0.26328	10.06	28.00	18.56	38.06	28.62	61.33	51.33	-23.27	-22.71
3	0.65000	10.10	20.98	11.27	31.08	21.37	56.00	46.00	-24.92	-24.63
4	1.33984	10.15	21.22	10.37	31.37	20.52	56.00	46.00	-24.63	-25.48
5	18.30469	11.25	30.70	25.06	41.95	36.31	60.00	50.00	-18.05	-13.69
6	**23.12891**	**11.43**	**30.12**	**25.25**	**41.55**	**36.68**	**60.00**	**50.00**	**-18.45**	**-13.32**

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

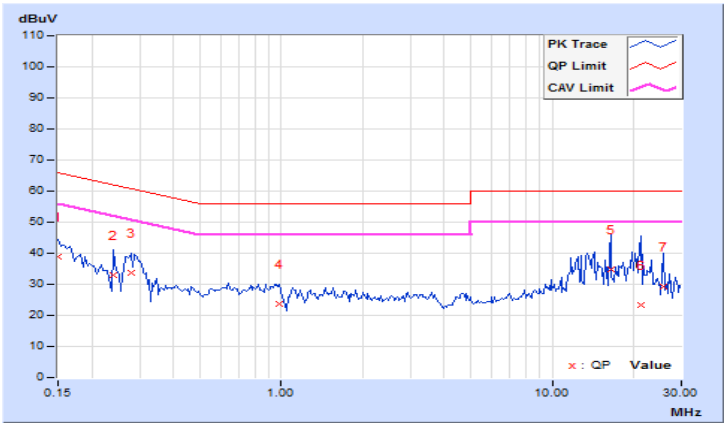


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.94	29.01	15.25	38.95	25.19	66.00	56.00	-27.05	-30.81
2	0.23984	9.96	23.17	10.82	33.13	20.78	62.10	52.10	-28.97	-31.32
3	0.27891	9.96	23.59	5.23	33.55	15.19	60.85	50.85	-27.30	-35.66
4	0.98594	10.00	13.52	1.45	23.52	11.45	56.00	46.00	-32.48	-34.55
5	16.47184	10.92	23.79	15.31	34.71	26.23	60.00	50.00	-25.29	-23.77
6	21.16797	11.16	12.19	5.73	23.35	16.89	60.00	50.00	-36.65	-33.11
7	25.87500	11.24	17.94	12.04	29.18	23.28	60.00	50.00	-30.82	-26.72

Remarks:

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

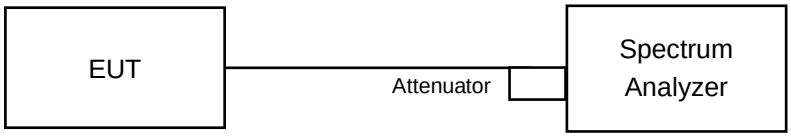


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

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

4.3.5 Deviation 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

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	10.13	10.11	0.5	Pass
6	2437	10.13	10.15	0.5	Pass
11	2462	10.11	10.13	0.5	Pass

802.11g

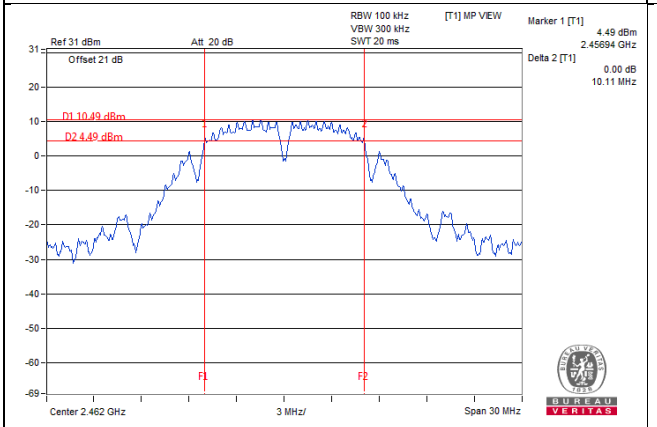
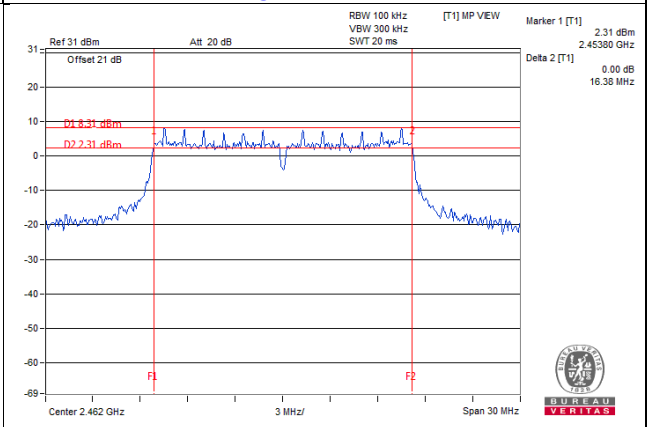
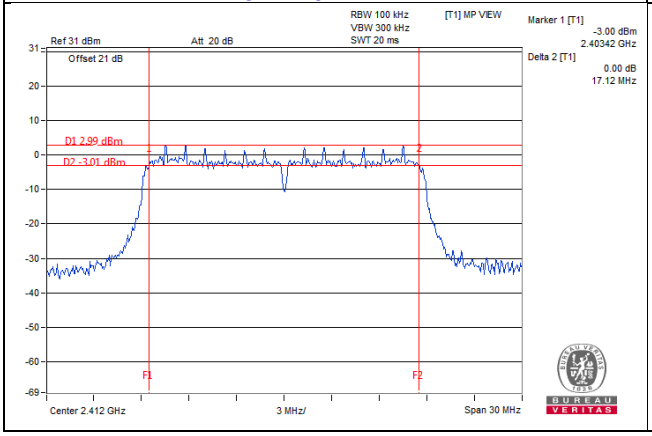
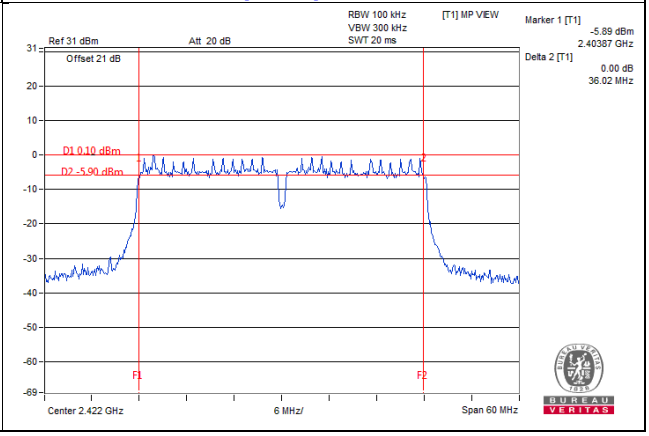
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.41	16.46	0.5	Pass
6	2437	16.42	16.41	0.5	Pass
11	2462	16.38	16.39	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.38	17.12	0.5	Pass
6	2437	17.58	17.37	0.5	Pass
11	2462	17.37	17.34	0.5	Pass

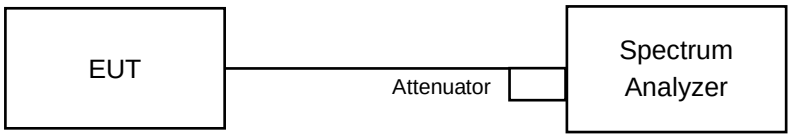
802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	36.02	36.05	0.5	Pass
6	2437	36.18	36.38	0.5	Pass
9	2452	36.06	36.39	0.5	Pass

Spectrum Plot of Worst Value	
802.11b_Chain 0 / CH11	**802.11g_Chain 0 / CH11**
	
802.11n (HT20)_Chain 1 / CH1	**802.11n (HT40)_Chain 0 / CH3**
	

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

Same as Item 4.3.6.

4.4.6 Test Results

802.11b

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
1	2412	12.48	12.48
6	2437	15.24	16.08
11	2462	13.20	14.16

802.11g

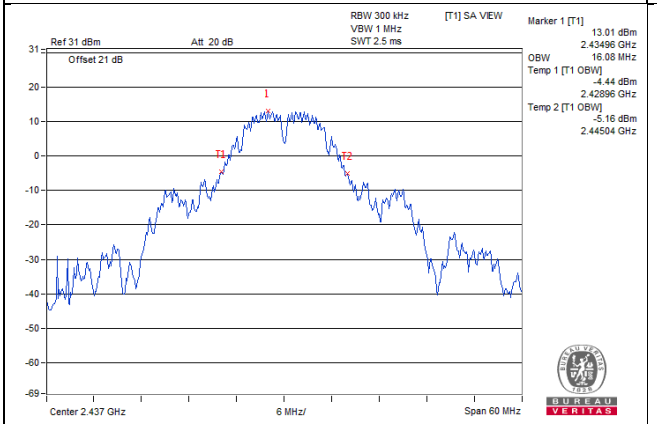
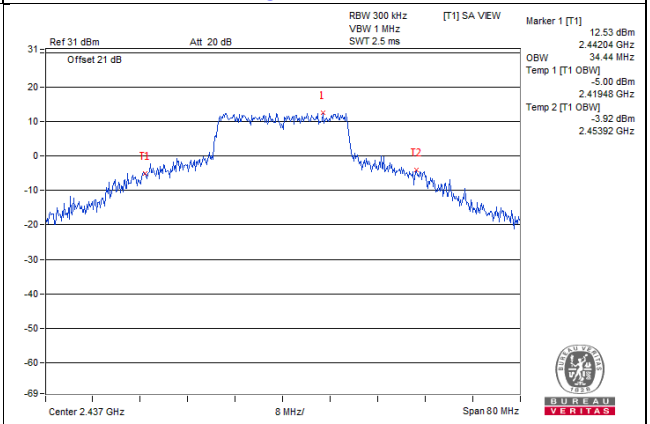
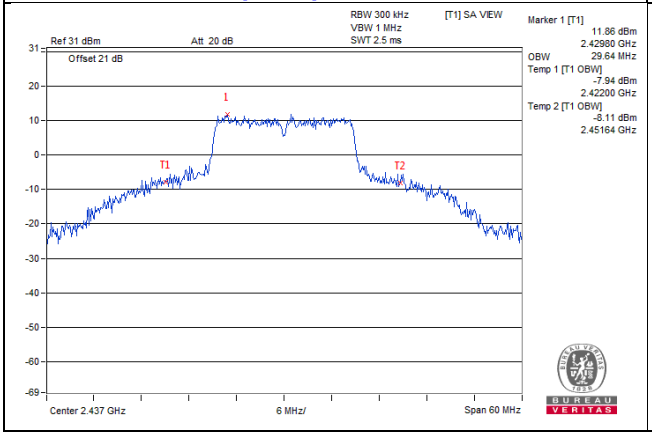
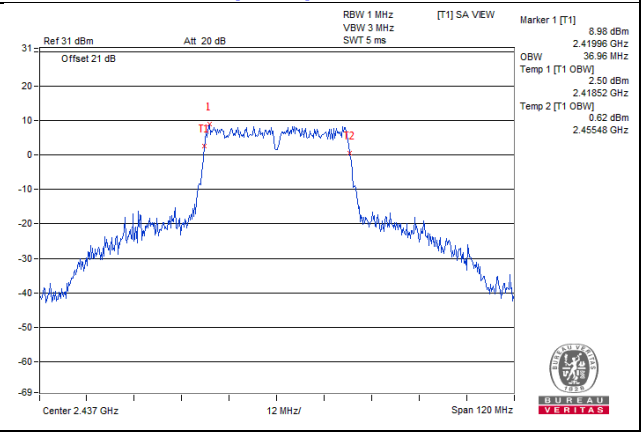
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
1	2412	16.80	16.92
6	2437	25.32	34.44
11	2462	17.40	19.68

802.11n (HT20)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
1	2412	17.76	17.76
6	2437	28.08	29.64
11	2462	18.00	19.08

802.11n (HT40)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	
		Chain 0	Chain 1
3	2422	36.72	36.72
6	2437	36.72	36.96
9	2452	36.72	36.96

Spectrum Plot of Max. Value	
802.11b_Chain 1 / CH6	**802.11g_Chain 1 / CH6**
	
802.11n (HT20) _Chain 1 / CH6	**802.11n (HT40) _Chain 1 / CH6**
	

4.5 Conducted Output Power Measurement

4.5.1 Limits of Conducted Output Power Measurement

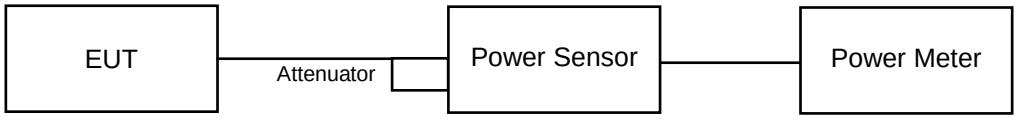
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

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.

4.5.2 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

Same as Item 4.3.6.

4.5.7 Test Results

FOR PEAK POWER

802.11b

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	21.68	21.60	291.775	24.65	30	Pass
6	2437	24.32	23.86	513.616	27.11	30	Pass
11	2462	22.94	22.51	375.027	25.74	30	Pass

802.11g

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	20.86	21.35	258.357	24.12	30	Pass
6	2437	23.46	24.13	480.641	26.82	30	Pass
11	2462	23.35	23.12	421.388	26.25	30	Pass

802.11n (HT20)

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	20.13	20.38	212.183	23.27	30	Pass
6	2437	24.21	23.52	488.538	26.89	30	Pass
11	2462	23.35	22.19	381.849	25.82	30	Pass

802.11n (HT40)

Chan.	Chan. Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	19.63	19.08	172.743	22.37	30	Pass
6	2437	22.15	21.94	320.374	25.06	30	Pass
9	2452	21.77	20.19	254.786	24.06	30	Pass

FOR AVERAGE POWER

802.11b

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	18.65	18.64	146.396	21.66
6	2437	22.94	22.23	363.898	25.61
11	2462	20.81	20.56	234.267	23.70

802.11g

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	14.02	14.25	51.842	17.15
6	2437	21.43	21.84	291.752	24.65
11	2462	18.57	18.08	136.214	21.34

802.11n (HT20)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	12.84	13.32	40.709	16.10
6	2437	21.73	21.28	283.212	24.52
11	2462	17.72	17.38	113.858	20.56

802.11n (HT40)

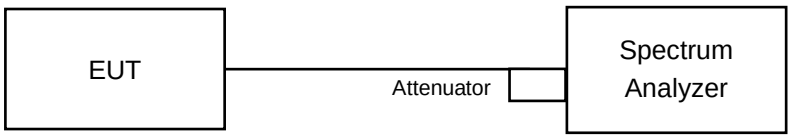
Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
3	2422	12.36	11.85	32.53	15.12
6	2437	15.75	15.48	72.902	18.63
9	2452	15.06	14.82	62.402	17.95

4.6 Power Spectral Density Measurement

4.6.1 Limits of Power Spectral Density Measurement

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

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

a. Set analyzer center frequency to DTS channel center frequency.
b. Set the span to 1.5 times the DTS bandwidth.
c. Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d. Set the VBW ≥ 3 × RBW.
e. Detector = peak.
f. Sweep time = auto couple.
g. Trace mode = max hold.
h. Allow trace to fully stabilize.
i. Use the peak marker function to determine the maximum amplitude level within the RBW.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

Same as Item 4.3.6

4.6.7 Test Results

802.11b

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-6.14	3.01	-3.13	6.77	Pass
	6	2437	-2.35	3.01	0.66	6.77	Pass
	11	2462	-4.29	3.01	-1.28	6.77	Pass
1	1	2412	-5.60	3.01	-2.59	6.77	Pass
	6	2437	-3.52	3.01	-0.51	6.77	Pass
	11	2462	-4.62	3.01	-1.61	6.77	Pass

Note: The directional gain = 10 log[(10$^{Chain0/20}$ + 10$^{Chain1/20}$)^2 / 2] = 7.23dBi > 6dBi , so the power density limit shall be reduced to 8-(7.23-6) = 6.77dBm.

802.11g

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-11.98	3.01	-8.97	6.77	Pass
	6	2437	-6.23	3.01	-3.22	6.77	Pass
	11	2462	-8.82	3.01	-5.81	6.77	Pass
1	1	2412	-12.10	3.01	-9.09	6.77	Pass
	6	2437	-4.53	3.01	-1.52	6.77	Pass
	11	2462	-9.16	3.01	-6.15	6.77	Pass

Note: The directional gain = 10 log[(10$^{Chain0/20}$ + 10$^{Chain1/20}$)^2 / 2] = 7.23dBi > 6dBi , so the power density limit shall be reduced to 8-(7.23-6) = 6.77dBm.

802.11n (HT20)

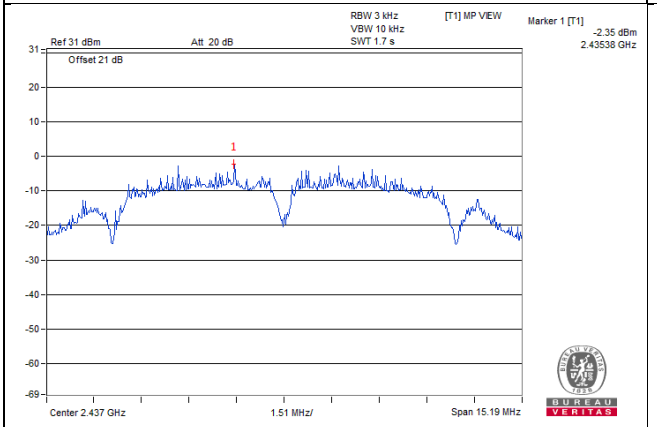
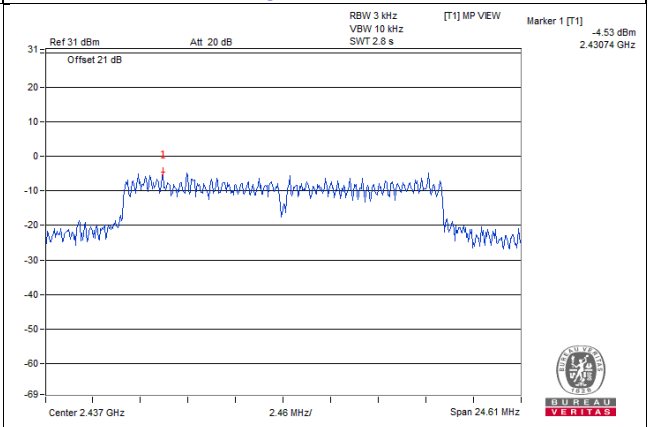
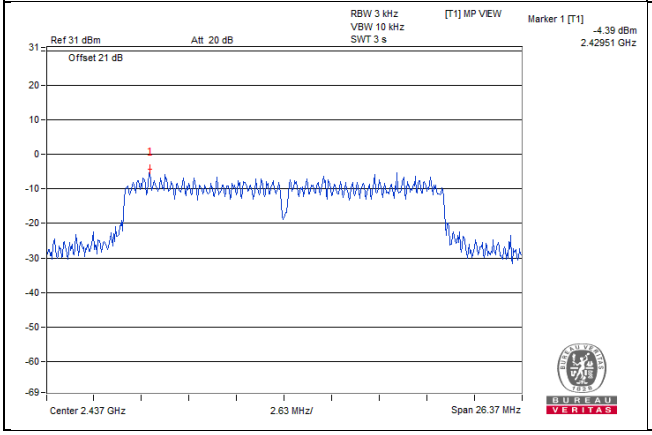
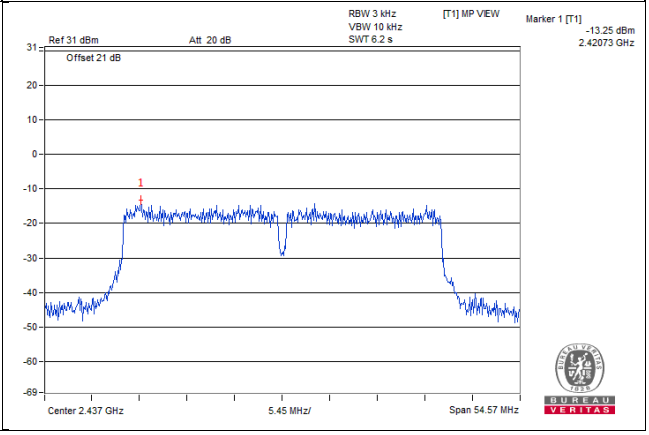
TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-13.30	3.01	-10.29	6.77	Pass
	6	2437	-4.39	3.01	-1.38	6.77	Pass
	11	2462	-9.27	3.01	-6.26	6.77	Pass
1	1	2412	-12.28	3.01	-9.27	6.77	Pass
	6	2437	-6.24	3.01	-3.23	6.77	Pass
	11	2462	-9.54	3.01	-6.53	6.77	Pass

Note: The directional gain = 10 log[(10$^{Chain0/20}$ + 10$^{Chain1/20}$)^2 / 2] = 7.23dBi > 6dBi , so the power density limit shall be reduced to 8-(7.23-6) = 6.77dBm.

802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	3	2422	-15.95	3.01	-12.94	6.77	Pass
	6	2437	-14.20	3.01	-11.19	6.77	Pass
	9	2452	-14.51	3.01	-11.50	6.77	Pass
1	3	2422	-17.81	3.01	-14.80	6.77	Pass
	6	2437	-13.25	3.01	-10.24	6.77	Pass
	9	2452	-14.75	3.01	-11.74	6.77	Pass

Note: The directional gain = 10 log[$(10^{Chain0/20} + 10^{Chain1/20})^2$ / 2] = 7.23dBi > 6dBi , so the power density limit shall be reduced to 8-(7.23-6) = 6.77dBm.

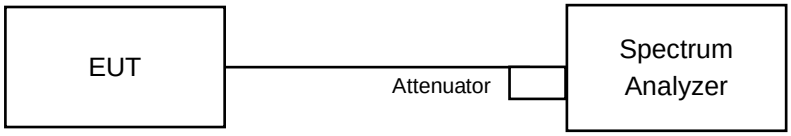
Spectrum Plot of Worst Value	
802.11b_Chain 0 / CH6	**802.11g_Chain 1 / CH6**
	
802.11n (HT20)_Chain 0 / CH6	**802.11n (HT40)_Chain 1 / CH6**
	

4.7 Conducted Out of Band Emission Measurement

4.7.1 Limits of Conducted Out of Band Emission Measurement

Below 20dB of the highest emission level of operating band (in 100kHz 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 ≥ 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOBE

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

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

Same as Item 4.3.6

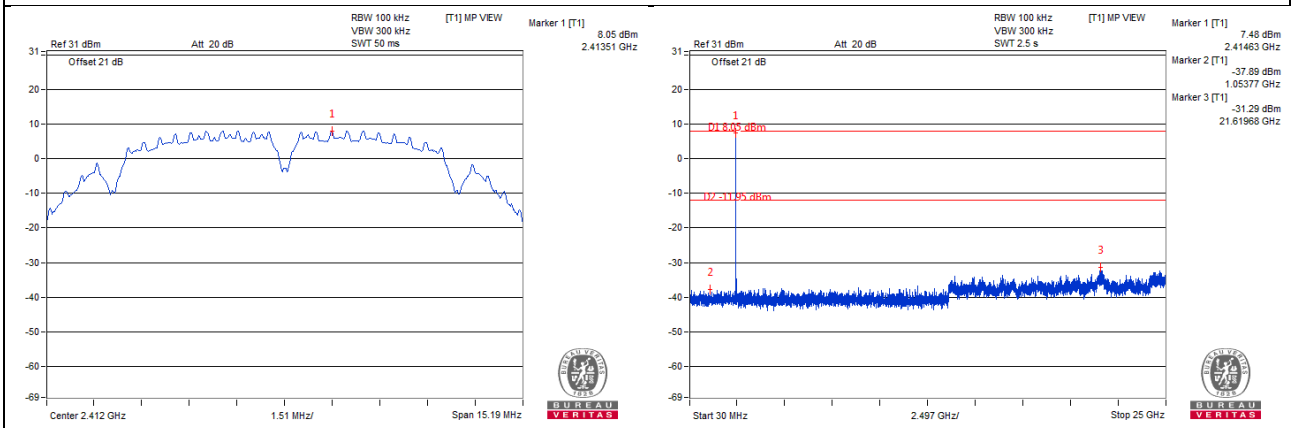
4.7.7 Test Results

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

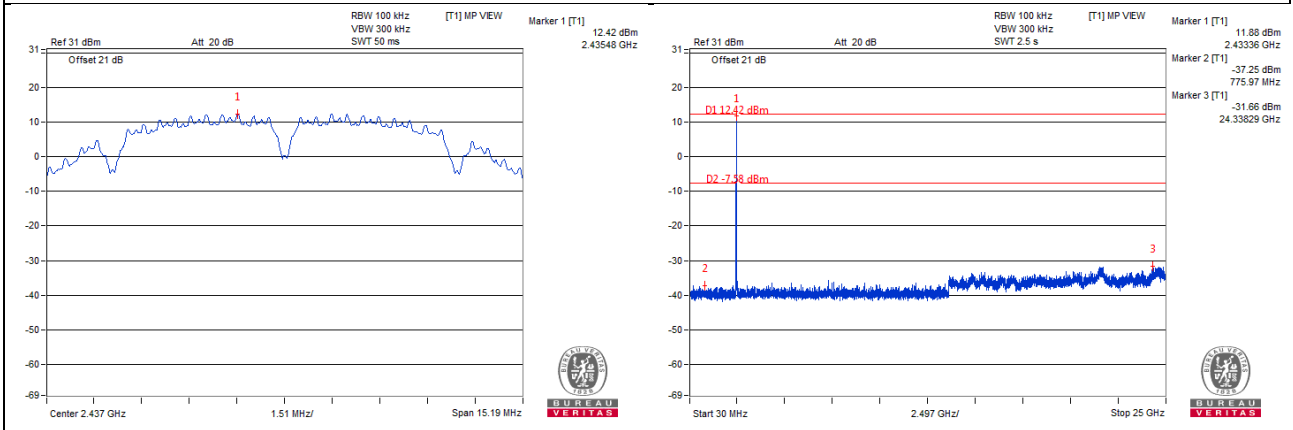
802.11b

Chain 0

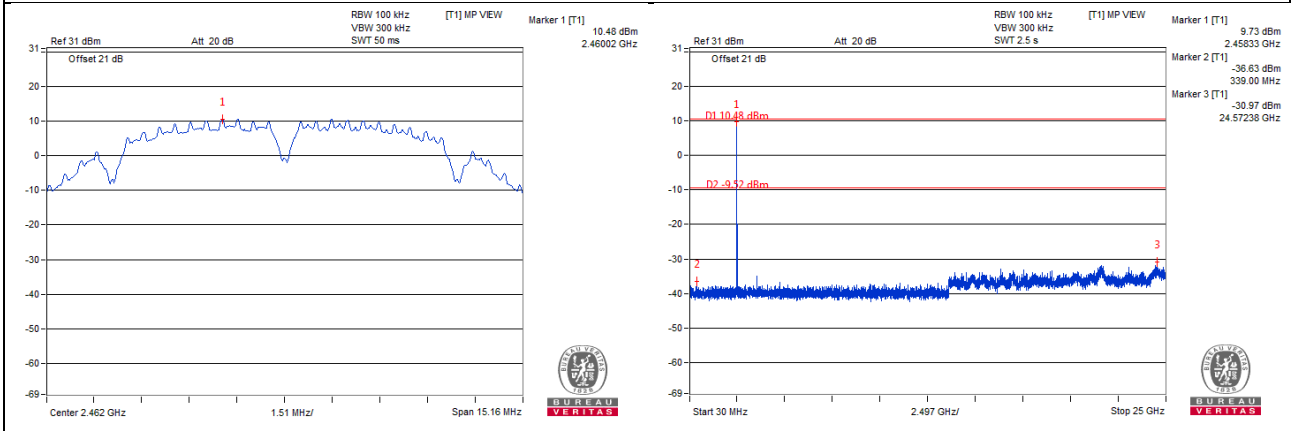
CH 1



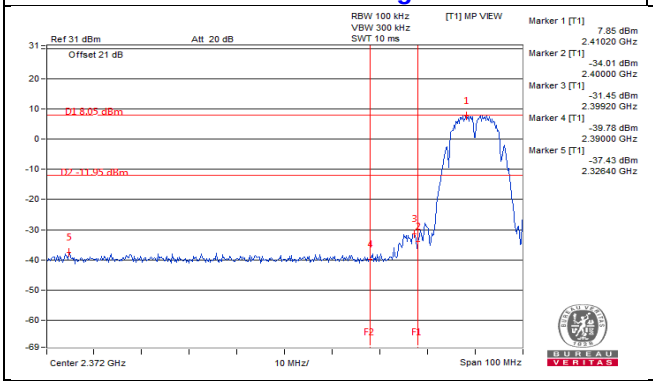
CH 6



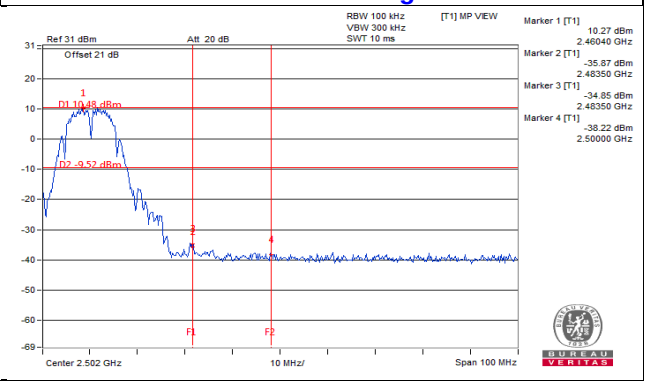
CH 11



CH 1 Band edge

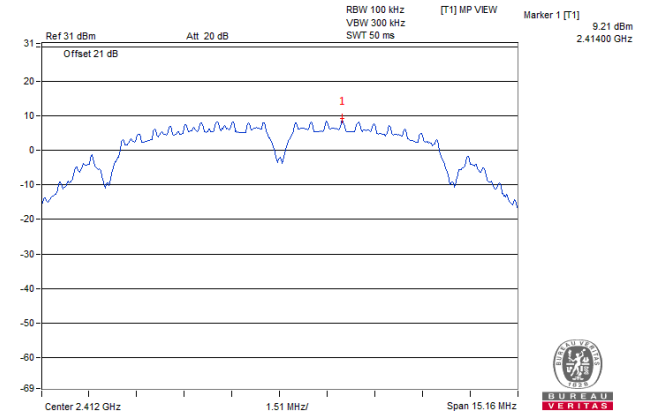


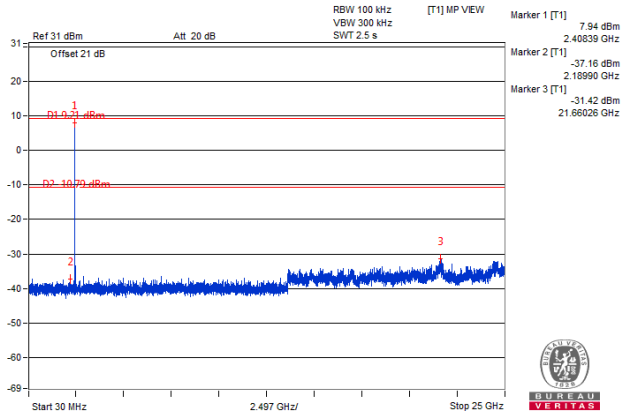
CH 11 Band edge



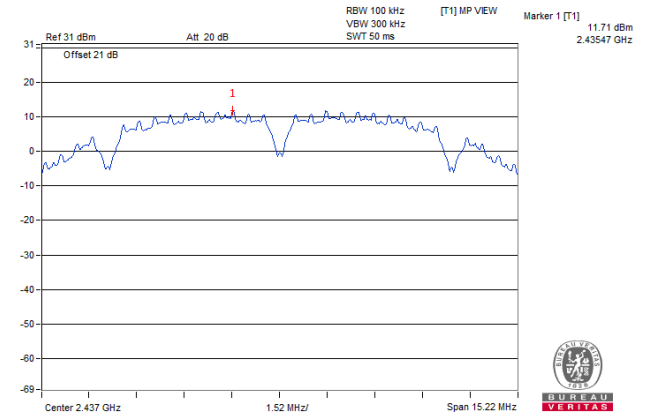
Chain 1

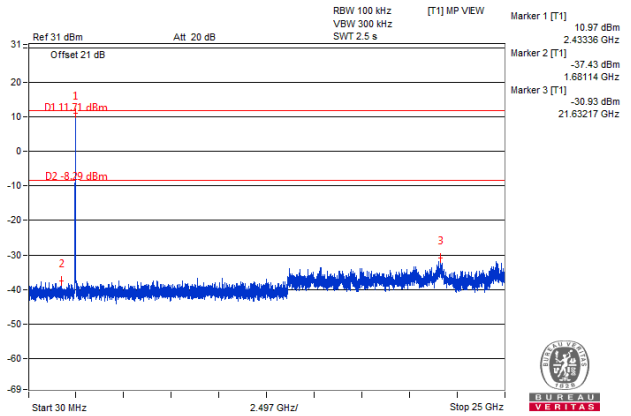
CH 1



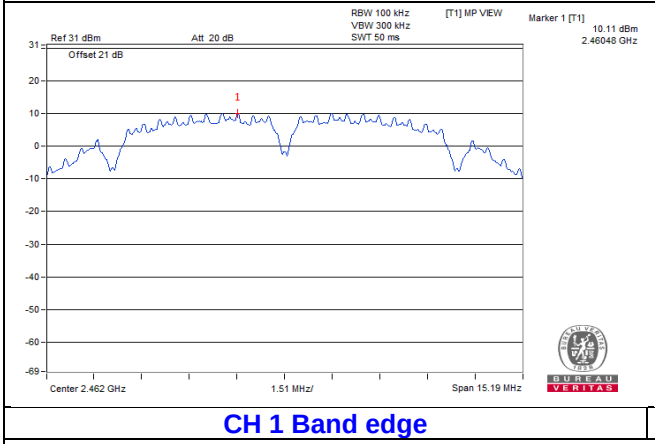


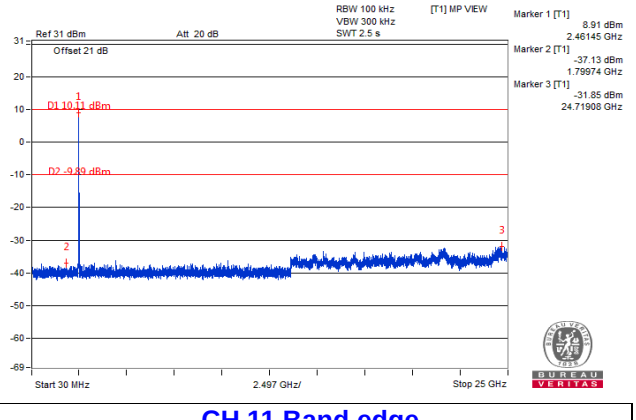
CH 6



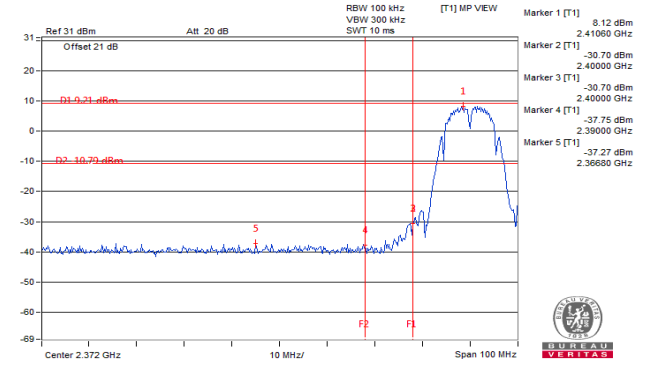


CH 11

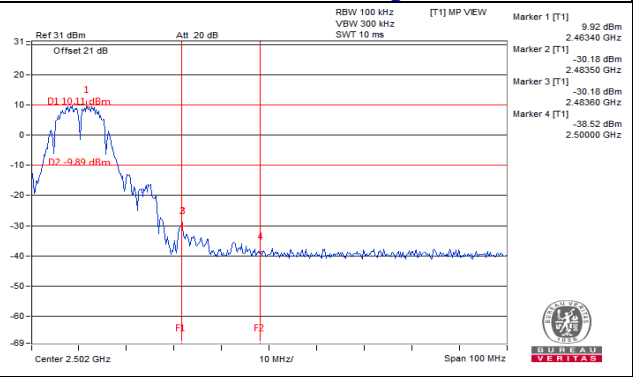




CH 1 Band edge



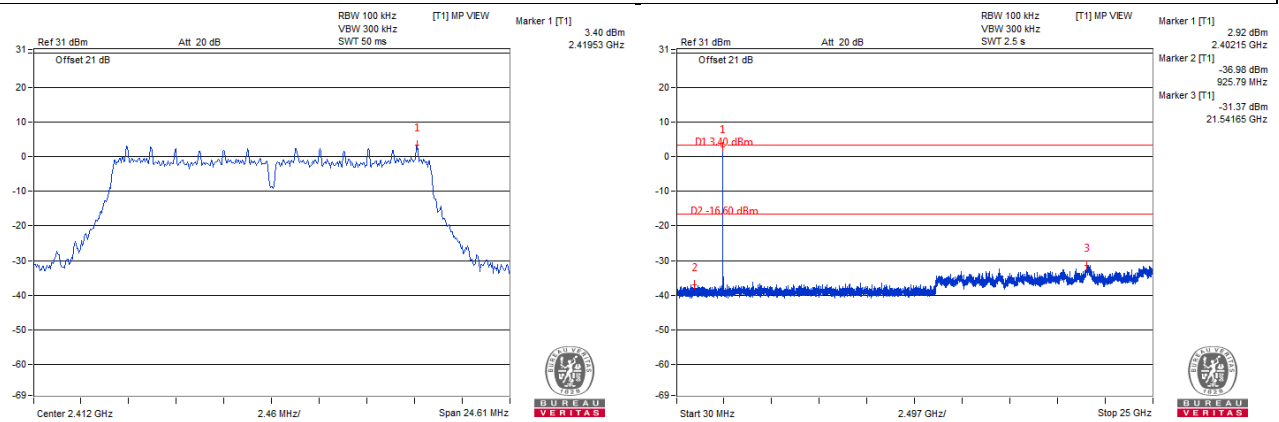
CH 11 Band edge



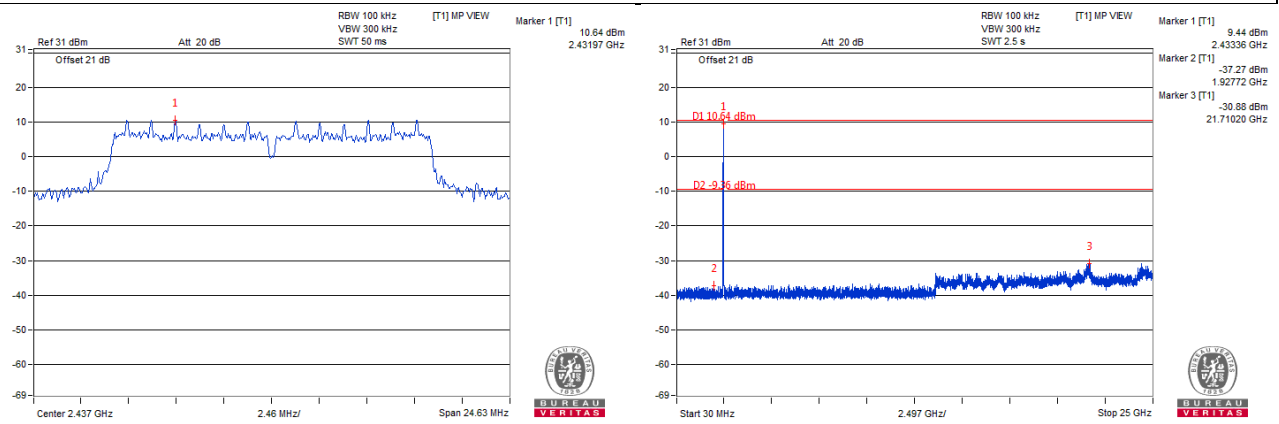
802.11g

Chain 0

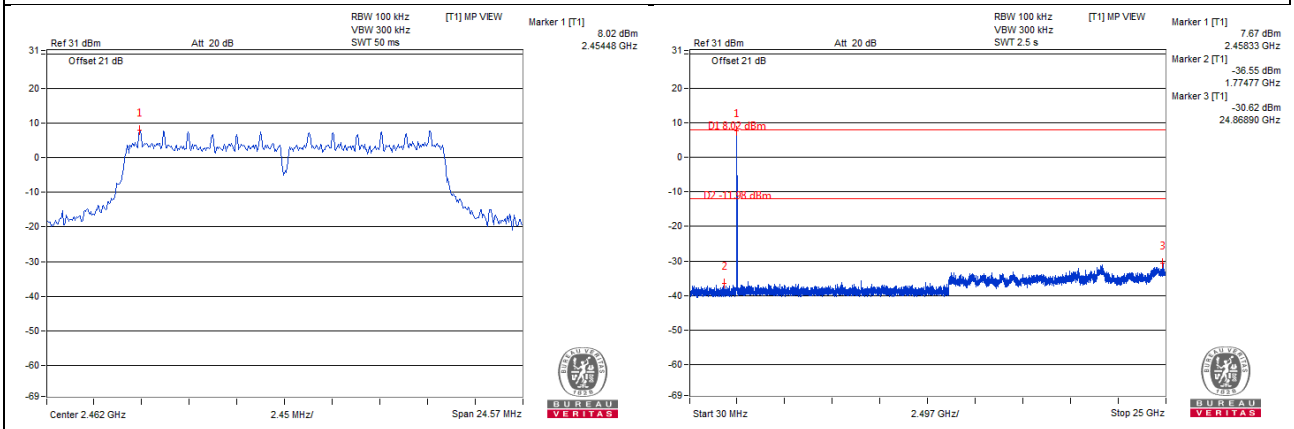
CH 1



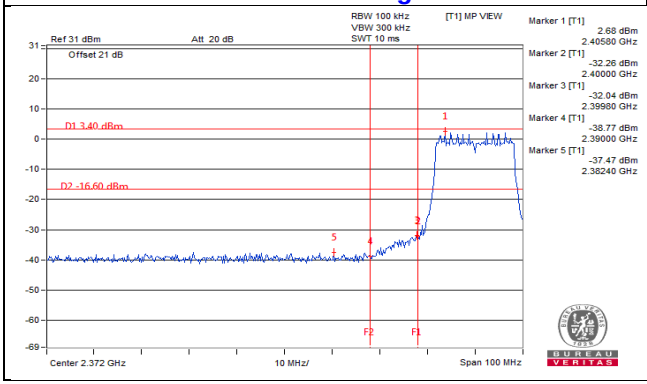
CH 6



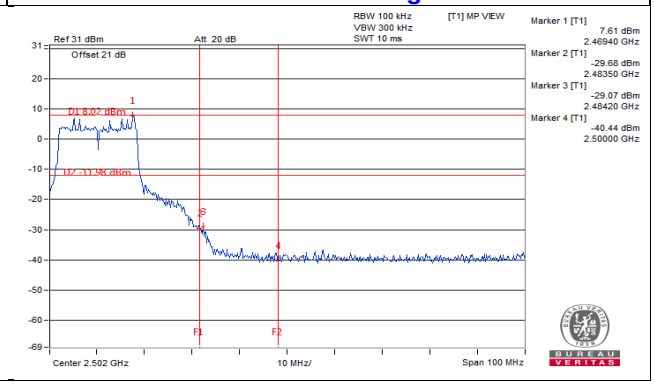
CH 11



CH 1 Band edge

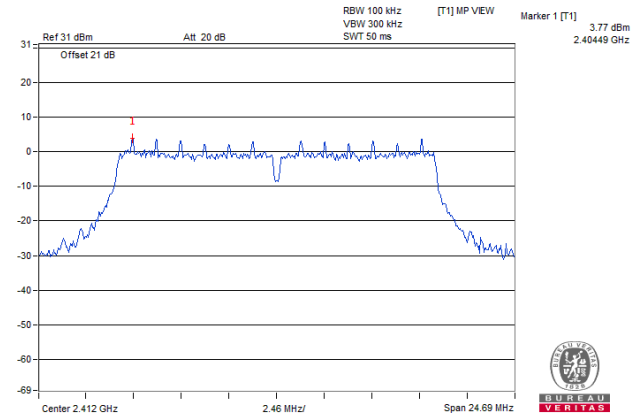


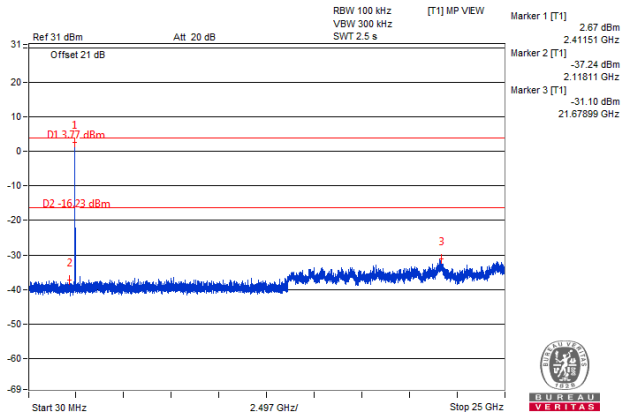
CH 11 Band edge



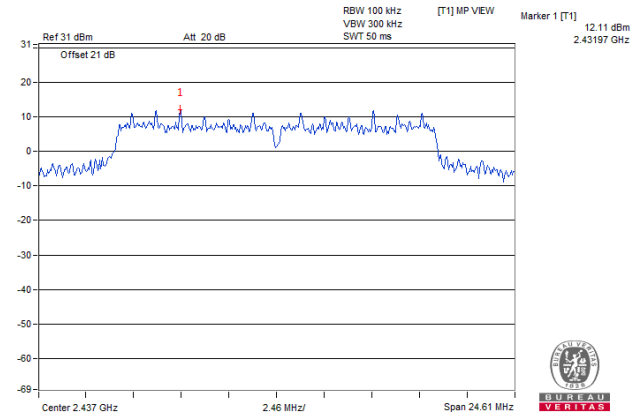
Chain 1

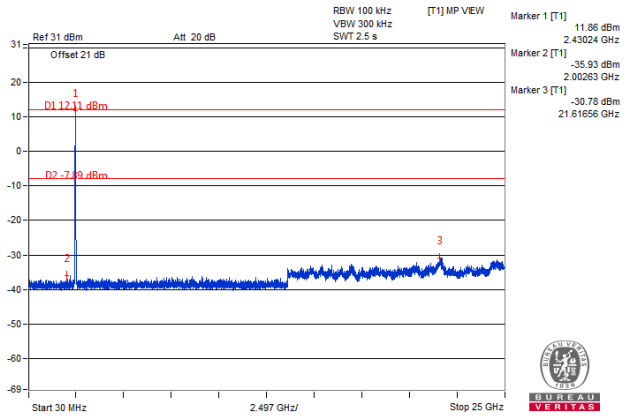
CH 1



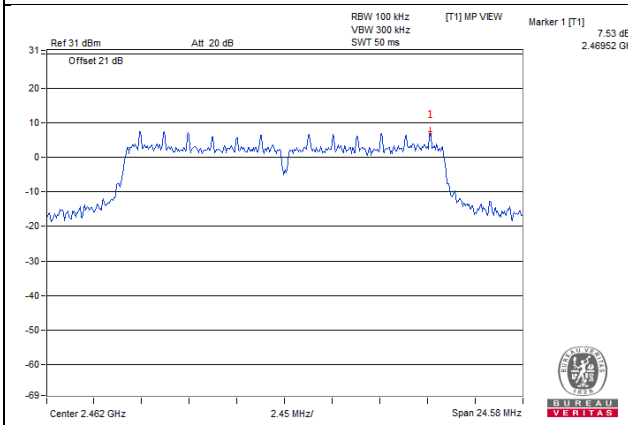


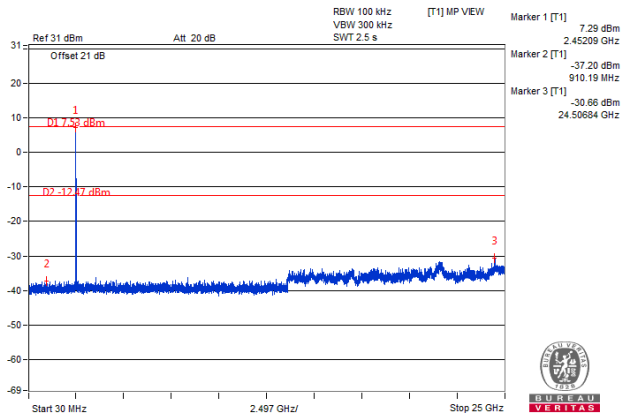
CH 6



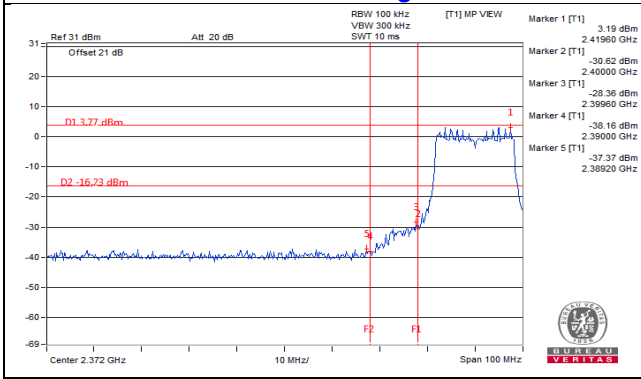


CH 11

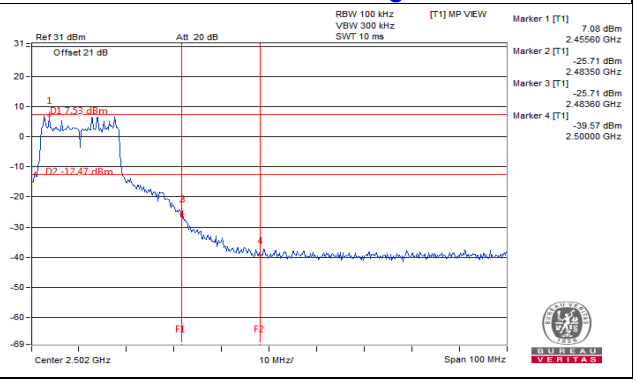




CH 1 Band edge



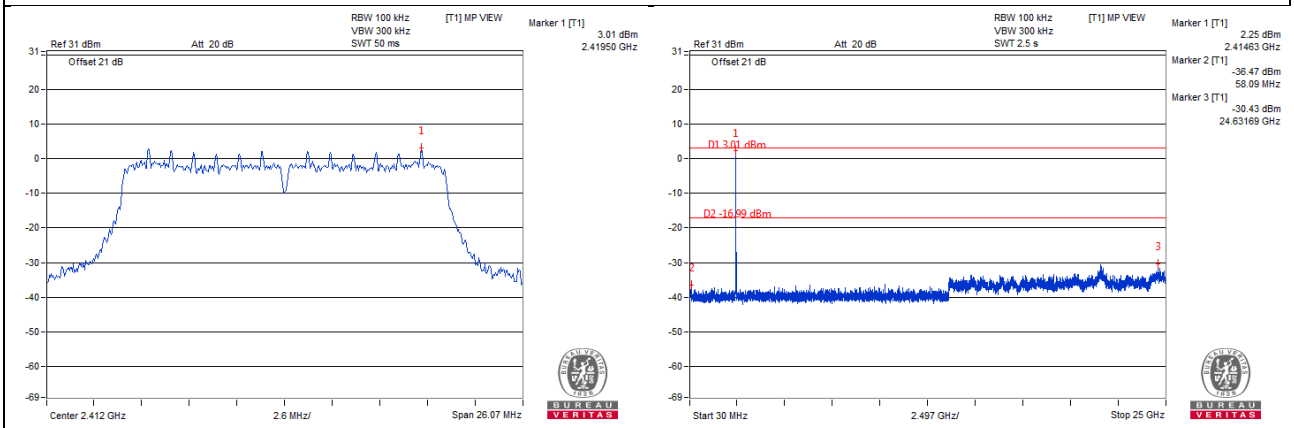
CH 11 Band edge



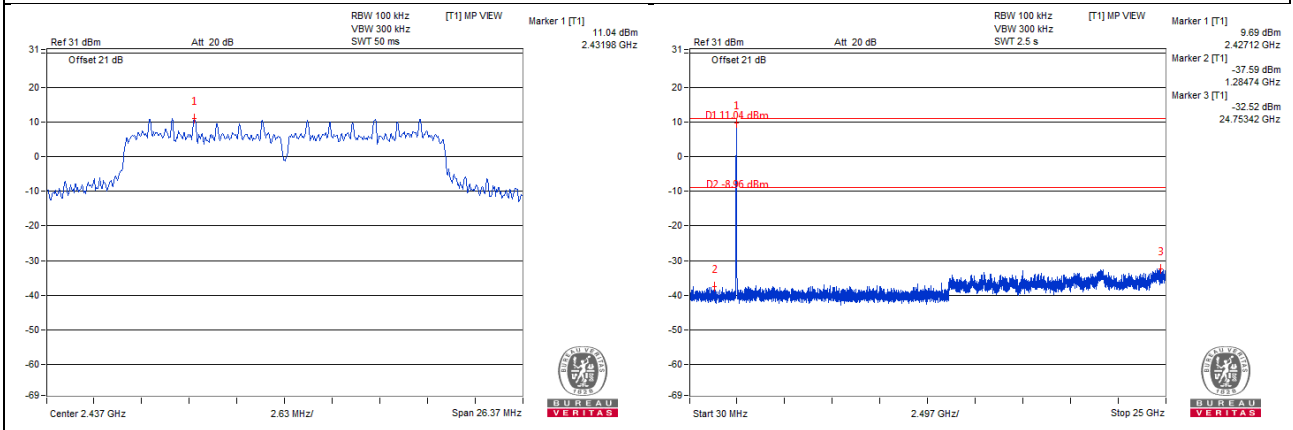
802.11n (HT20)

Chain 0

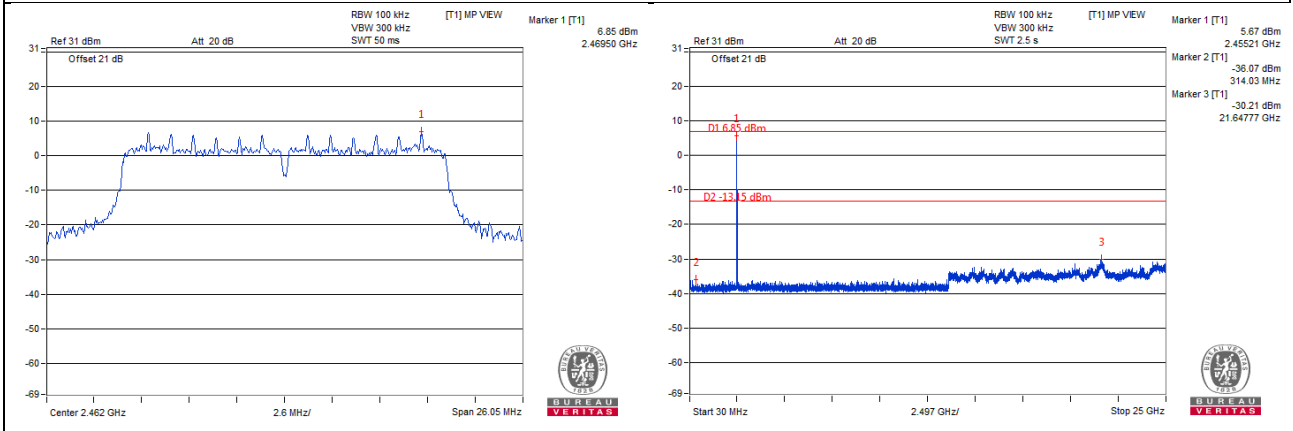
CH 1



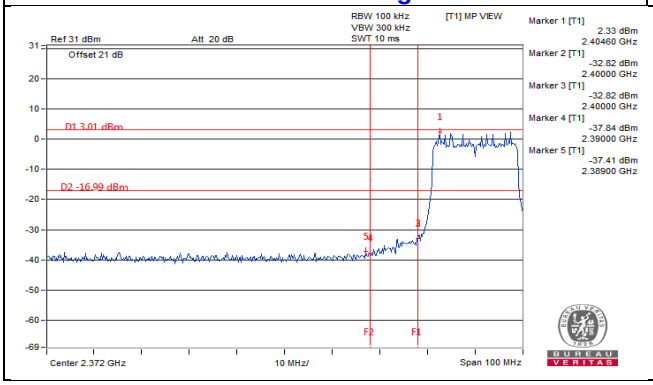
CH 6



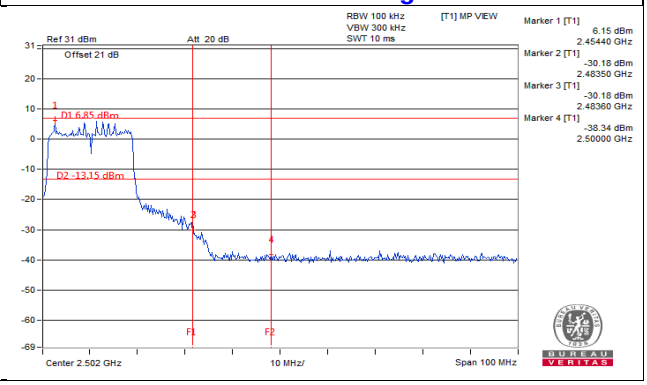
CH 11



CH 1 Band edge

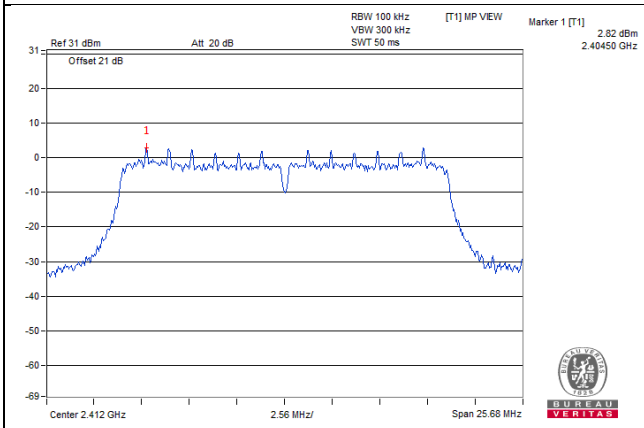


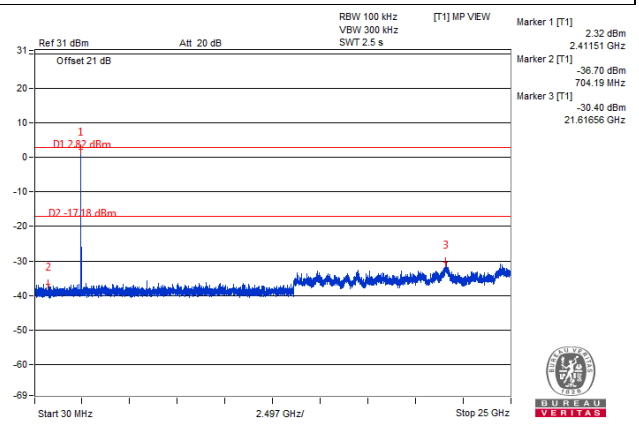
CH 11 Band edge



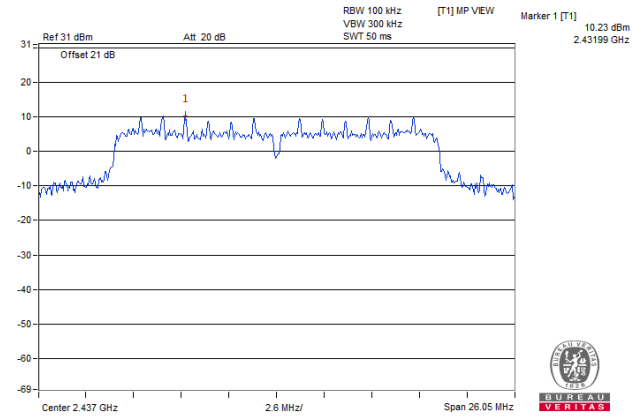
Chain 1

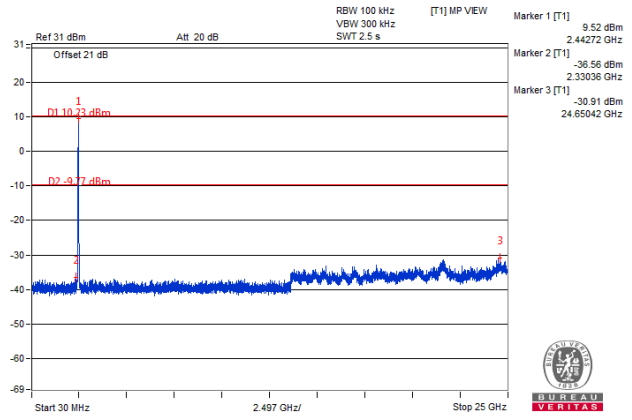
CH 1





CH 6





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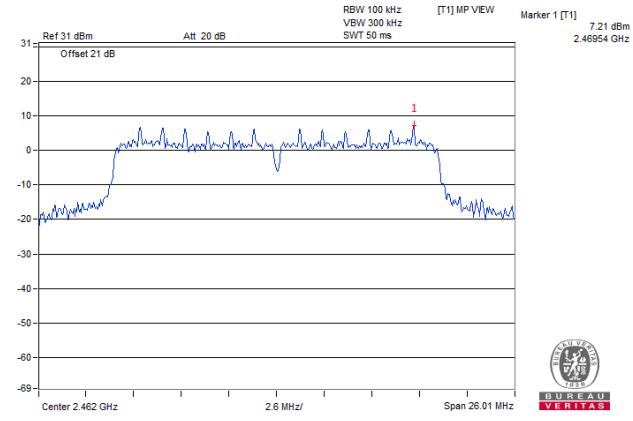
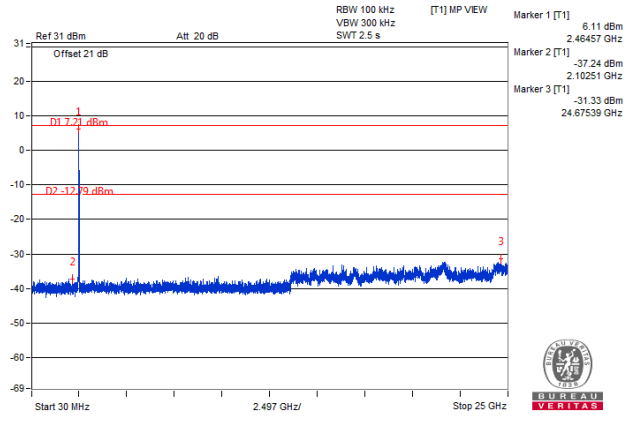
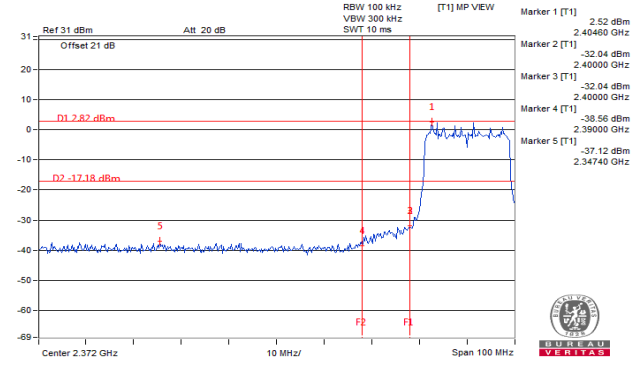




CH 1 Band edge



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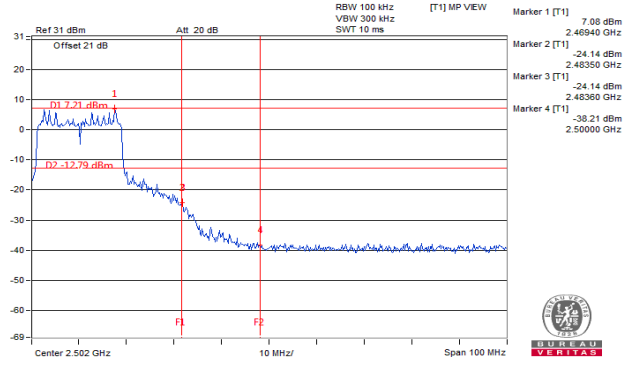
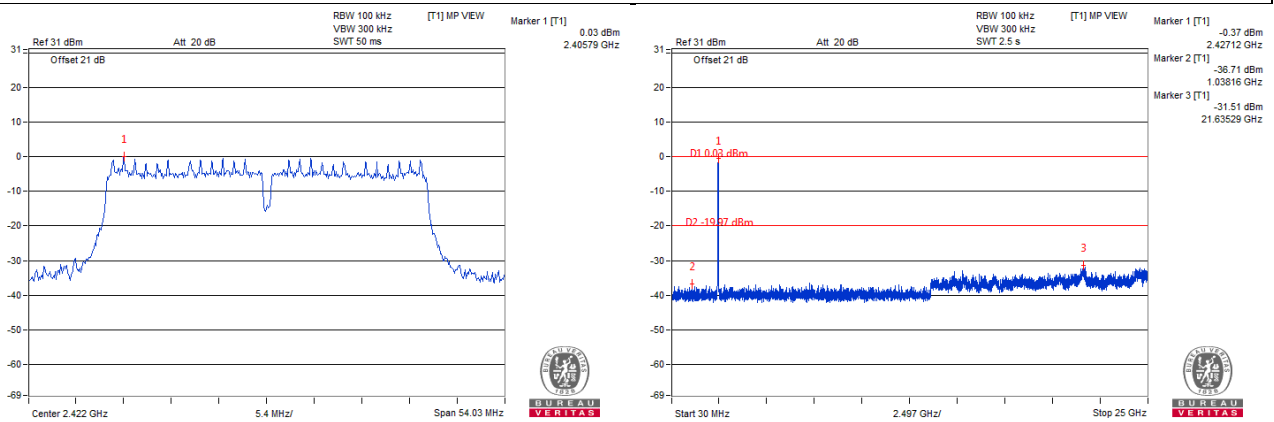


802.11n (HT40)

Chain 0

CH 3



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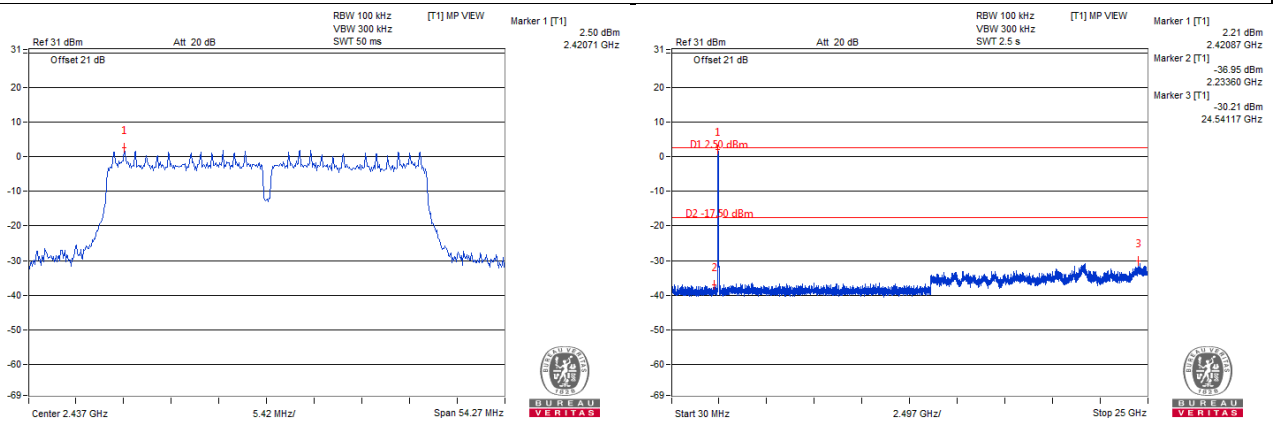
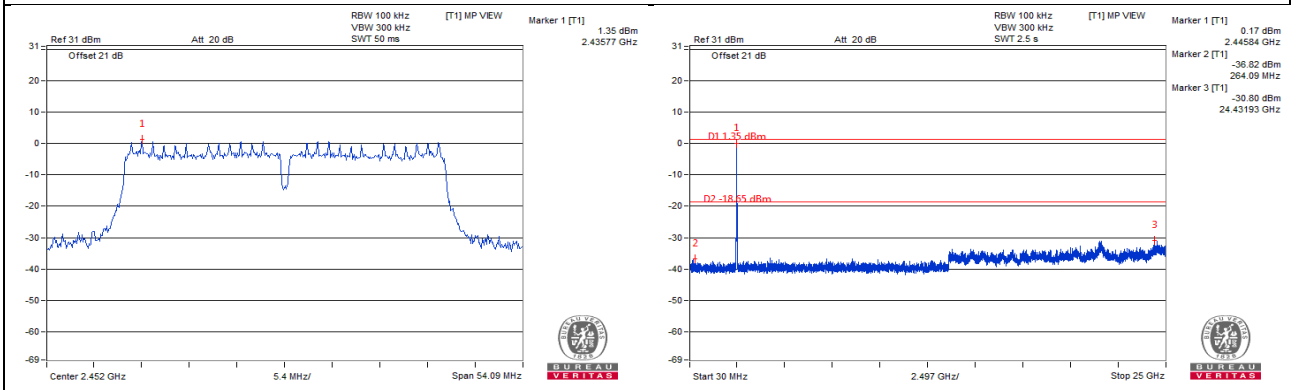
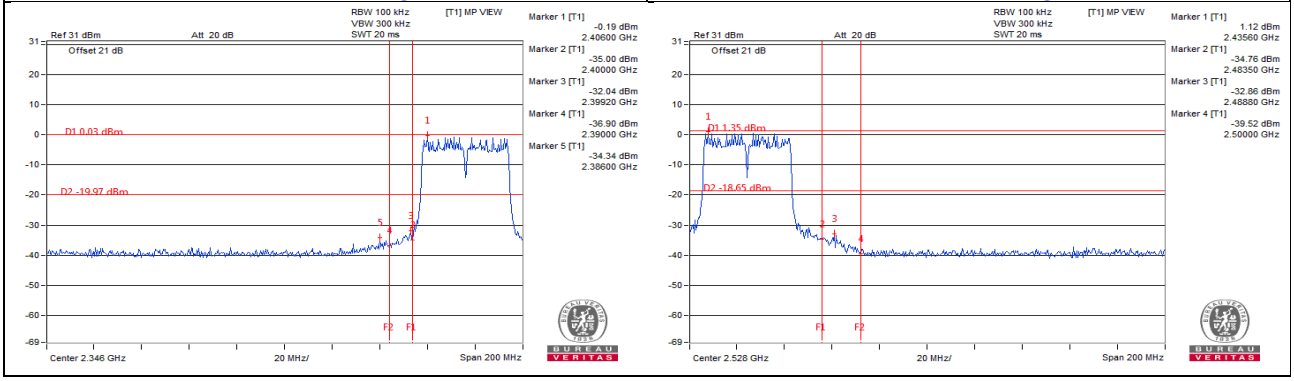


CH 9



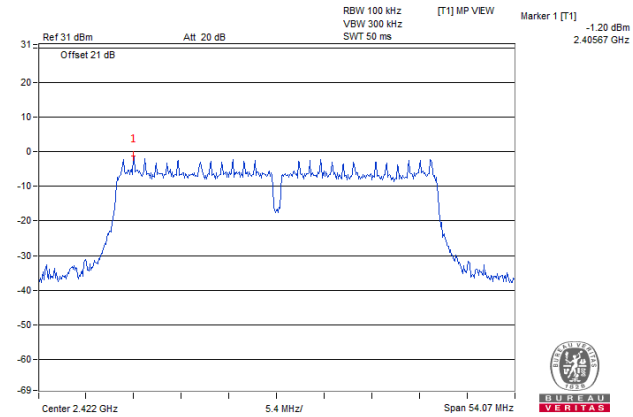
CH 3 Band edge

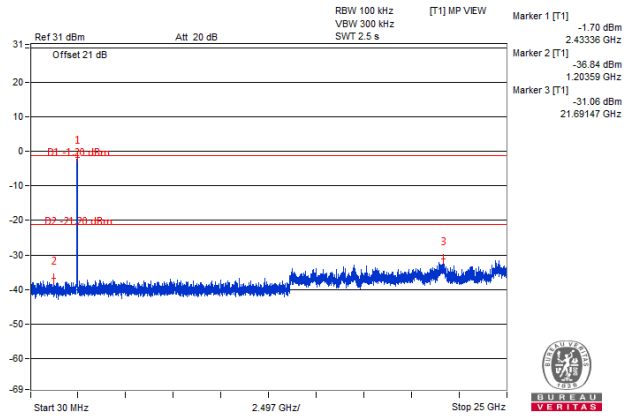


CH 9 Band edge

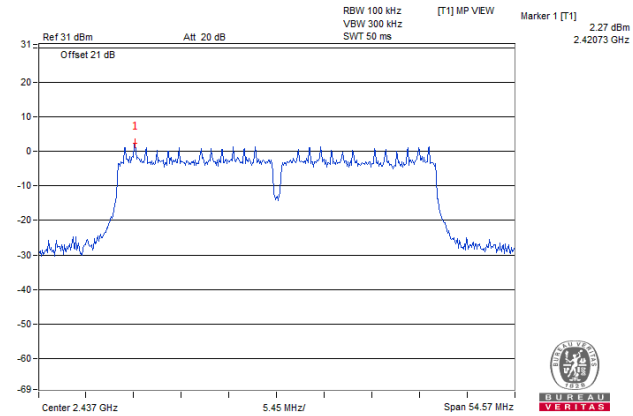
Chain 1

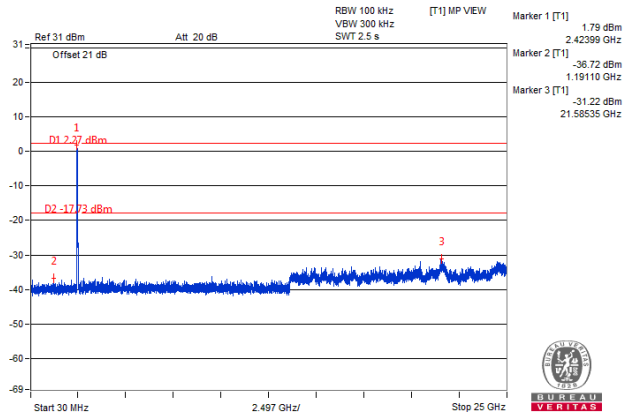
CH 3



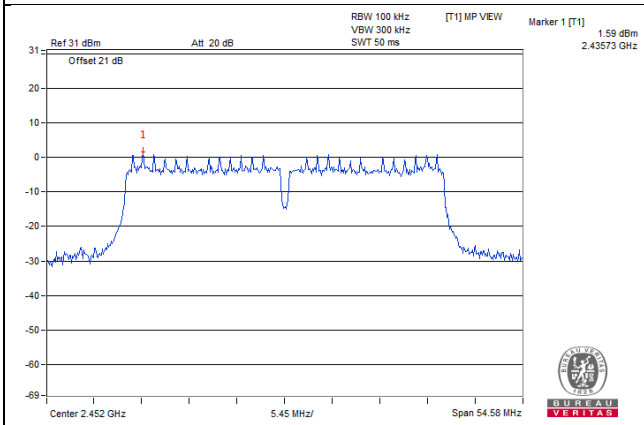


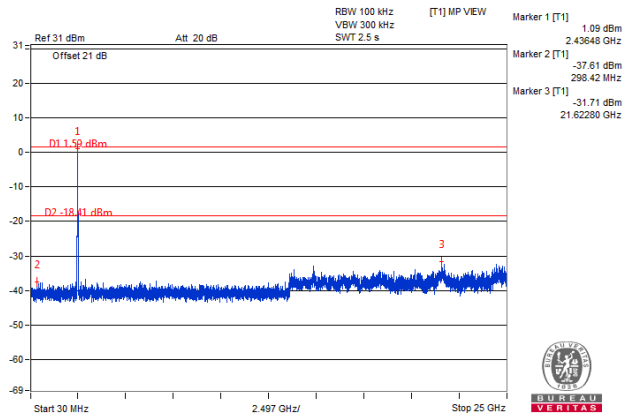
CH 6



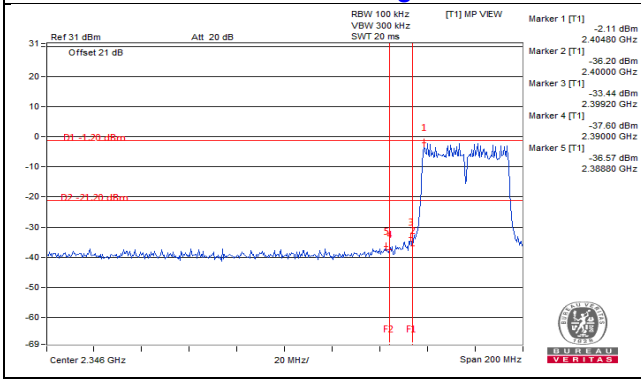


CH 9

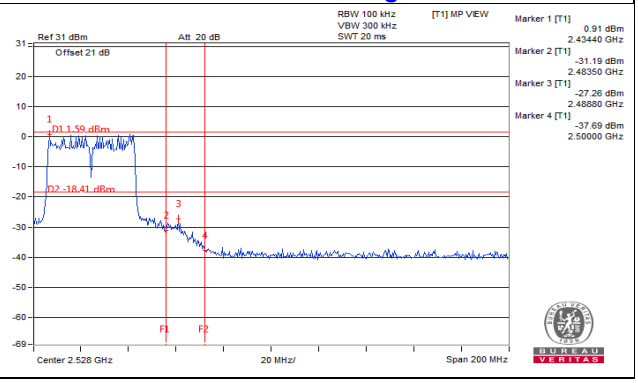




CH 3 Band edge



CH 9 Band edge



5 Pictures of Test Arrangements

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

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited 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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