FCC Test Report

Report No.:	RF190626E05
FCC ID:	RYK-WPEA251ACNIBT
Test Model:	WPEA-251ACNI(BT)
Received Date:	June 26, 2019
Test Date:	July 22 to 26, 2019
Issued Date:	Nov. 06, 2019
Applicant:	SparkLAN Communications, Inc.
Address:	8F., No.257, Sec. 2, Tiding Blvd., Neihu District, Taipei City 11493, Taiwan (R.O.C.)
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.
Test Location:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan.
FCC Registration / Designation Number:	723255 / TW2022

Testing Laboratory
2022

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Release Control Record

Issue No.	Description	Date Issued
RF190626E05	Original release.	Nov. 06, 2019

1 Certificate of Conformity

Product:	802.11ac/b/g/n Wi-Fi+BT Module
Brand:	Sparklan
Test Model:	WPEA-251ACNI(BT)
Sample Status:	ENGINEERING SAMPLE
Applicant:	SparkLAN Communications, Inc.
Test Date:	July 22 to 26, 2019
Standards:	47 CFR FCC Part 15, Subpart C (Section 15.247) ANSI C63.10: 2013

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

Prepared by : Vivian Huang , **Date:** Nov. 06, 2019

Vivian Huang / Specialist

Approved by : , **Date:** Nov. 06, 2019

Clark Lin / Technical 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 -4.98dB at 0.45078MHz.
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, 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 IPEX MHF 1 not a standard connector.

Note:

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

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.8 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	4.8 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	5.0 dB
	6GHz ~ 18GHz	5.0 dB
	18GHz ~ 40GHz	5.3 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	802.11ac/b/g/n Wi-Fi+BT Module
Brand	Sparklan
Test Model	WPEA-251ACNI(BT)
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	3.3Vdc from host equipment
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode
Modulation Technology	DSSS,OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11g: up to 54Mbps 802.11n: up to 300Mbps 802.11ac: up to 866.7Mbps
Operating Frequency	**2.4GHz:** 2.412 ~ 2.462GHz **5GHz:** 5.18~ 5.24GHz, 5.26GHz ~ 5.32GHz, 5.50GHz ~ 5.72GHz, 5.745 ~ 5.825GHz
Number of Channel	**2.4GHz:** 802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7 **5GHz:** 802.11a, 802.11n (HT20), 802.11ac (VHT20): 25 802.11n (HT40), 802.11ac (VHT40): 12 802.11ac (VHT80): 6
Output Power	**2.4GHz:** 371.591 mW **5.18 ~ 5.24GHz:** 45.406 mW **5.26 ~ 5.32GHz:** 43.668 mW **5.5 ~ 5.72GHz:** 46.392 mW **5.745 ~ 5.825GHz:** 46.658 mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	NA
Data Cable Supplied	NA

Note:

1. Simultaneously transmission condition.

Condition	Technology	
1	WLAN 5GHz	Bluetooth
Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.		

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

Ant. Set	Transmitter Circuit	Brand	Model	Ant. Type	2.4GHz Gain with cable loss (dBi)	5GHz Gain with cable loss (dBi)	Connector Type
1	Chain (0) Chain (1)	Sparklan	AD-300N	Dipole	3	5	RP-SMA
2	Chain (0) Chain (1)	Sparklan	AD-103AG	Dipole	2.02	2.03	
3	Chain (0) Chain (1)	Sparklan	AD-302N	Dipole	3	2	
4	Chain (0) Chain (1)	Sparklan	AD-303N	Dipole	3	3	

Note:

1. For 2.4GHz band spurious emissions test, Antenna Set 4 was selected as representative antennas for the test and its data was recorded in this report.

2. The EUT incorporates a MIMO function.

2.4GHz Band		
MODULATION MODE	**TX & RX CONFIGURATION**	
802.11b	2TX	2RX
802.11g	2TX	2RX
802.11n (HT20)	2TX	2RX
802.11n (HT40)	2TX	2RX
5GHz Band		
MODULATION MODE	**TX & RX CONFIGURATION**	
802.11a	2TX	2RX
802.11n (HT20)	2TX	2RX
802.11n (HT40)	2TX	2RX
802.11ac (VHT20)	2TX	2RX
802.11ac (VHT40)	2TX	2RX
802.11ac (VHT80)	2TX	2RX
Note: The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz) and 802.11ac mode for 20MHz (40MHz), therefore investigated worst case to representative mode in test report.		

3. 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

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

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

7 channels are provided for 802.11n (HT40):

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

3.2.1 Test Mode Applicability and Tested Channel Detail

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

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:

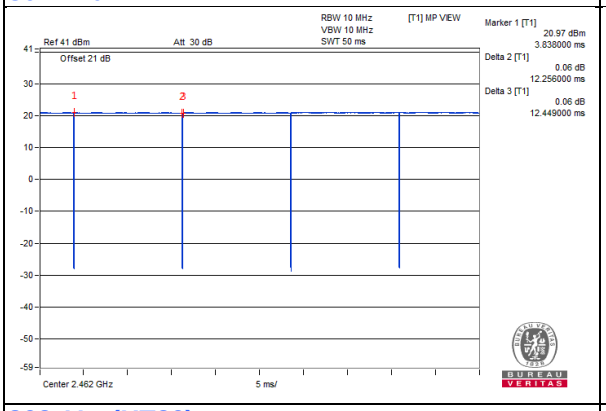
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (System)	TESTED BY
RE≥1G	25deg. C, 65%RH	120Vac, 60Hz	Tank Wu
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Nelson Teng
PLC	25deg. C, 60%RH	120Vac, 60Hz	Jyunchun Lin
APCM	24deg. C, 75%RH	120Vac, 60Hz	Andy Ho

3.3 Duty Cycle of Test Signal

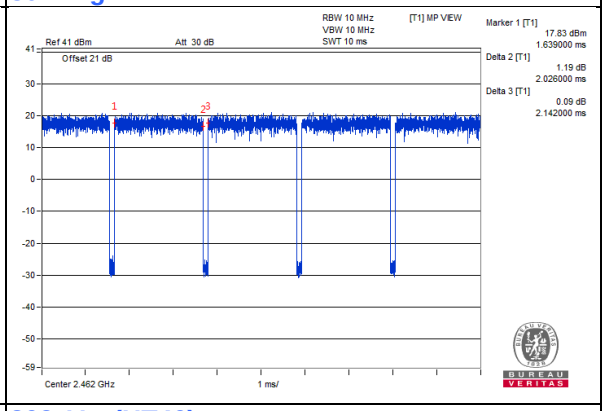
If duty cycle of test signal is ≥ 98 %, duty factor is not required.
If duty cycle of test signal is < 98%, duty factor shall be considered.

802.11b: Duty cycle = 12.256 ms/12.449 ms= 0.984
802.11g: Duty cycle = 2.026 ms/2.142 ms= 0.946, Duty factor = 10 * log (1/Duty cycle) = 0.24
802.11n (HT20): Duty cycle = 1.886 ms /2.001 ms = 0.943, Duty factor = 10 * log (1/Duty cycle) = 0.26
802.11n (HT40): Duty cycle = 0.926 ms /1.036 ms = 0.894, Duty factor = 10 * log (1/Duty cycle) = 0.49

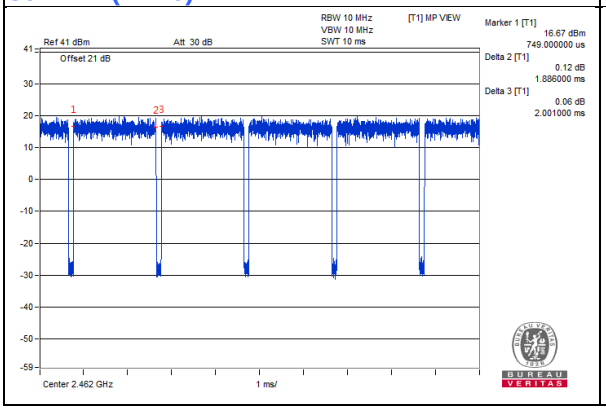
802.11b



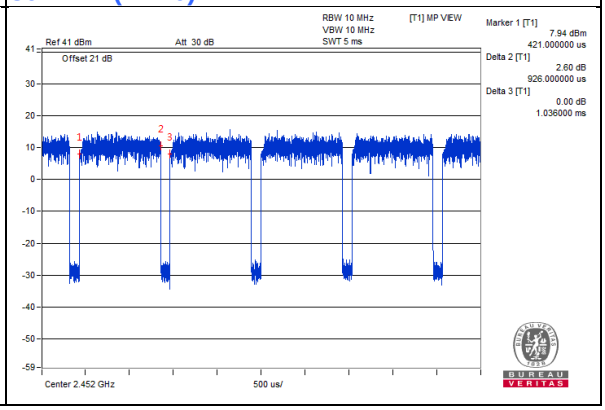
802.11g



802.11n (HT20)



802.11n (HT40)



3.4 Description of Support Units

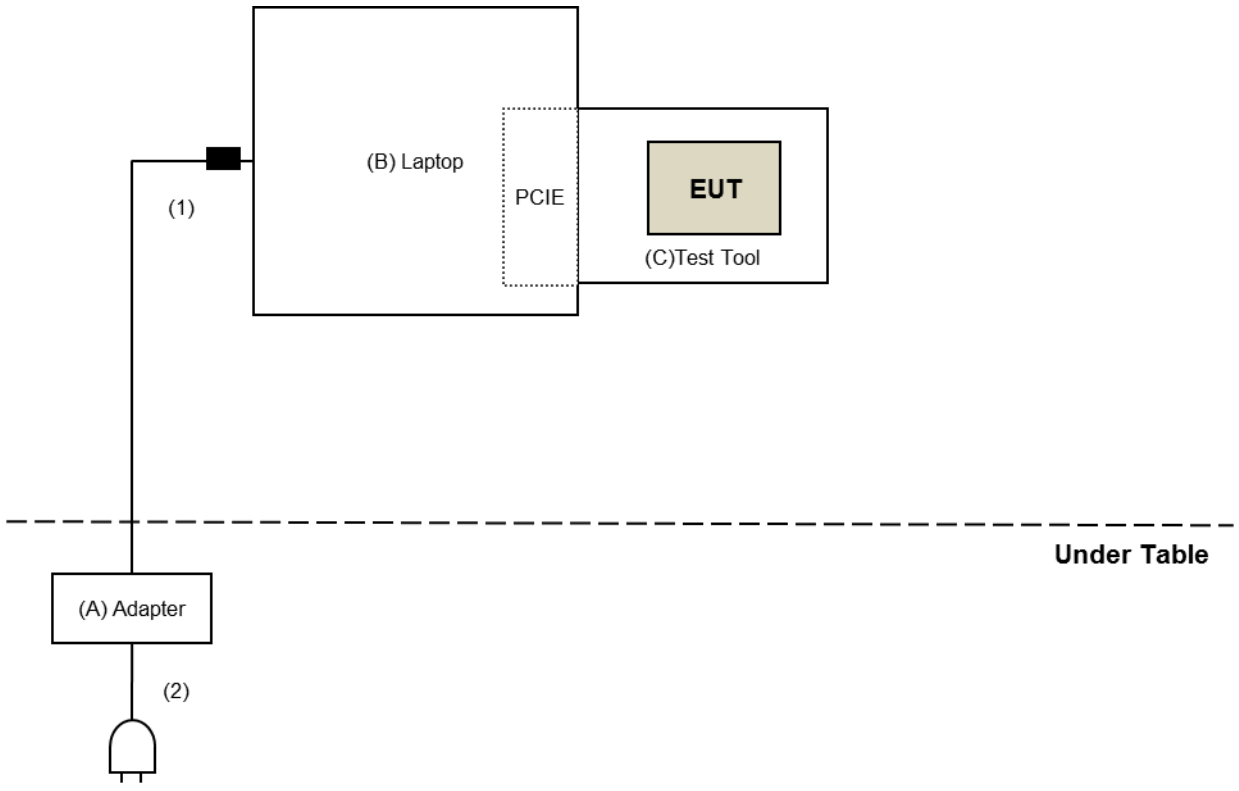
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Adapter	DELL	LA65NS2-01	NA	NA	Provided by Lab
B.	Laptop	DELL	E5430	GM1SKV1	FCC DoC	Provided by Lab
C.	Test Tool	Sparklan	NA	NA	NA	Supplied by client

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC Cable	1	1.8	No	1	Provided by Lab
2.	AC Cable	1	0.8	No	0	Provided by Lab

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

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 v05r02
KDB 662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10-2013

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 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

For Radiated Emission test:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver ESR7 R&S	ESR7	102026	Apr. 24, 2019	Apr. 23, 2020
Spectrum Analyzer Keysight	N9030B	MY57141948	May 25, 2019	May 24, 2020
Pre-Amplifier EMCI	EMC001340	980142	Jan. 25, 2019	Jan. 24, 2020
Loop Antenna Electro-Metrics	EM-6879	269	Sep. 07, 2018	Sep. 06, 2019
RF Cable	NA	LOOPCAB-001	Jan. 14, 2019	Jan. 13, 2020
RF Cable	NA	LOOPCAB-002	Jan. 14, 2019	Jan. 13, 2020
Pre-Amplifier EMCI	EMC330N	980538	Apr. 30, 2019	Apr. 29, 2020
Trilog Broadband Antenna SCHWARZBECK	VULB9168	9168-0842	Nov. 21, 2018	Nov. 20, 2019
RF Cable	8D	966-5-1	May 03, 2019	May 02, 2020
RF Cable	8D	966-5-2	May 03, 2019	May 02, 2020
RF Cable	8D	966-5-3	May 03, 2019	May 02, 2020
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-ATT5-02	Jan. 28, 2019	Jan. 27, 2020
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-1819	Nov. 25, 2018	Nov. 24, 2019
Pre-Amplifier EMCI	EMC12630SE	980509	May 03, 2019	May 02, 2020
RF Cable EMCI	EMC104-SM-SM-1500	180503	May 03, 2019	May 02, 2020
RF Cable EMCI	EMC104-SM-SM-2000	180501	May 03, 2019	May 02, 2020
RF Cable EMCI	EMC104-SM-SM-6000	180505	May 03, 2019	May 02, 2020
Pre-Amplifier EMCI	EMC184045SE	980387	Jan. 28, 2019	Jan. 27, 2020
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170519	Nov. 25, 2018	Nov. 24, 2019
RF Cable	EMC102-KM-KM-1200	160924	Jan. 28, 2019	Jan. 27, 2020
RF Cable	EMC102-KM-KM-1200	160925	Jan. 28, 2019	Jan. 27, 2020
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	NA	NA
Spectrum Analyzer R&S	FSV40	100964	June 04, 2019	June 03, 2020
Power meter Anritsu	ML2495A	1014008	May 13, 2019	May 12, 2020
Power sensor Anritsu	MA2411B	0917122	May 13, 2019	May 12, 2020
Fixed Attenuator Mini-Circuits	MDCS18N-10	MDCS18N-10-01	Apr. 15, 2019	Apr. 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 966 Chamber No. 5.
3. Loop antenna was used for all emissions below 30 MHz.
4. Tested Date: July 22 to 26, 2019

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:

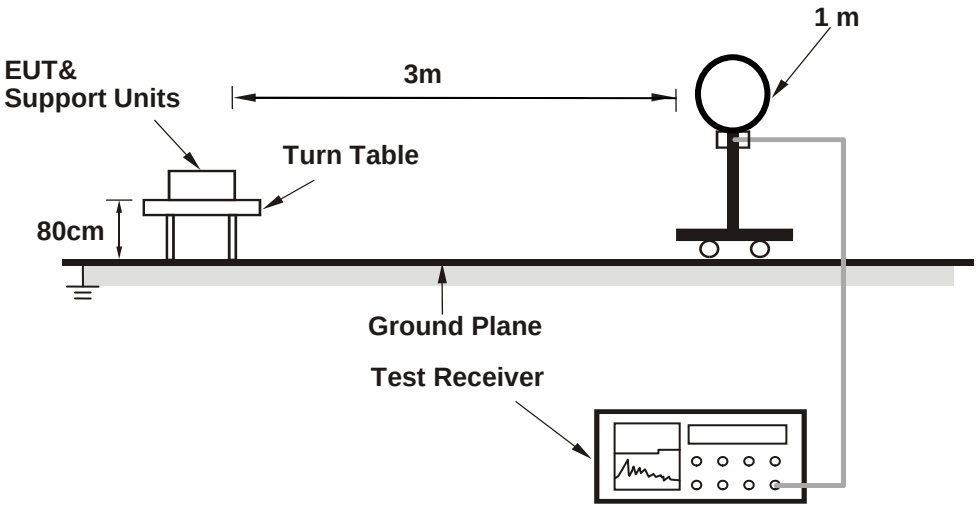
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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

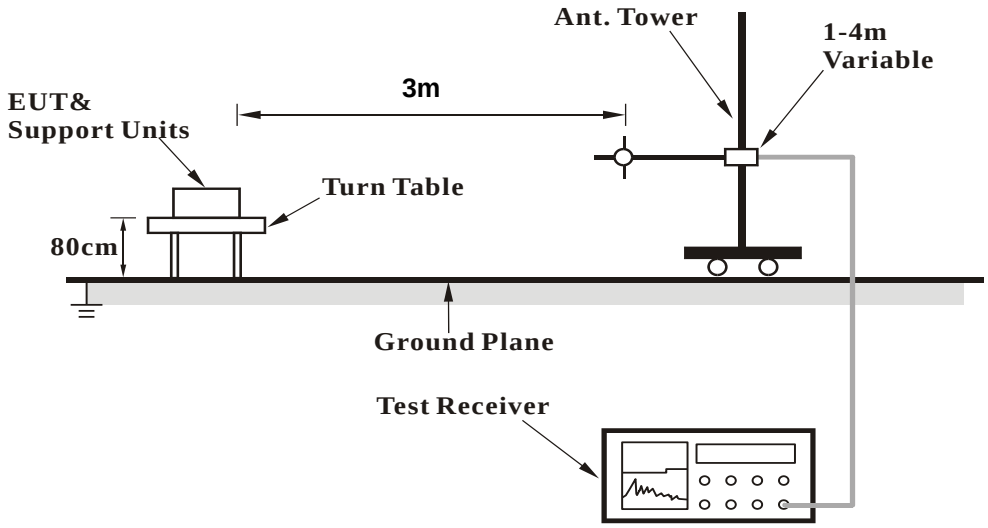
No deviation.

4.1.5 Test Setup

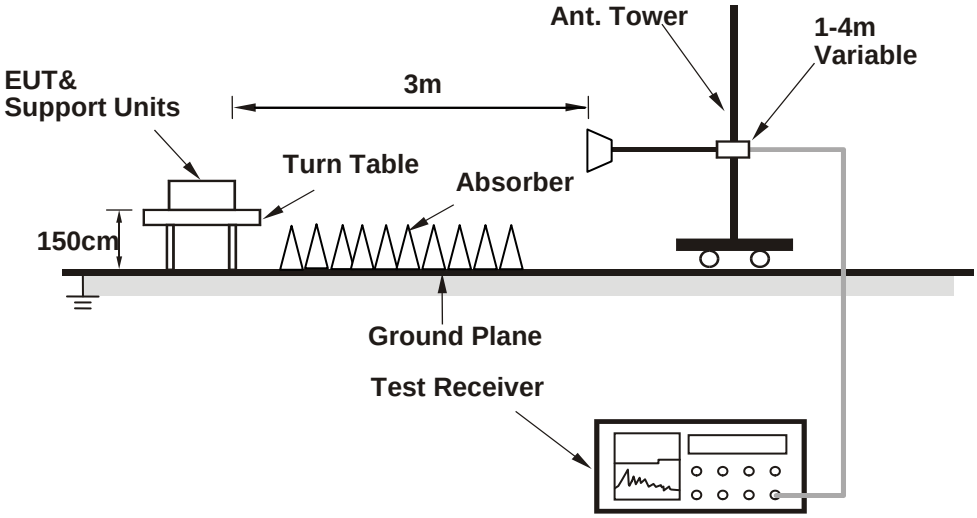
For Radiated emission below 30MHz



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. Placed the EUT on the testing table.
b. Controlling software (QRCT V3.0.187.0) has been activated to set the EUT under transmission condition continuously at specific channel frenquency.

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	56.4 PK	74.0	-17.6	3.15 H	101	59.5	-3.1
2	2390.00	45.3 AV	54.0	-8.7	3.15 H	101	48.4	-3.1
3	*2412.00	103.8 PK			3.15 H	101	106.9	-3.1
4	*2412.00	101.4 AV			3.15 H	101	104.5	-3.1
5	4824.00	52.1 PK	74.0	-21.9	2.82 H	306	50.9	1.2
6	4824.00	50.2 AV	54.0	-3.8	2.82 H	306	49.0	1.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2390.00	59.5 PK	74.0	-14.5	1.63 V	160	62.6	-3.1
2	2390.00	48.6 AV	54.0	-5.4	1.63 V	160	51.7	-3.1
3	*2412.00	113.9 PK			1.63 V	160	117.0	-3.1
4	*2412.00	111.7 AV			1.63 V	160	114.8	-3.1
5	4824.00	55.7 PK	74.0	-18.3	1.14 V	357	54.5	1.2
6	4824.00	53.7 AV	54.0	-0.3	1.14 V	357	52.5	1.2

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	103.3 PK			3.17 H	96	106.4	-3.1
2	*2437.00	101.4 AV			3.17 H	96	104.5	-3.1
3	4874.00	51.8 PK	74.0	-22.2	2.87 H	306	50.6	1.2
4	4874.00	50.2 AV	54.0	-3.8	2.87 H	306	49.0	1.2
5	7311.00	44.9 PK	74.0	-29.1	2.79 H	241	37.7	7.2
6	7311.00	33.9 AV	54.0	-20.1	2.79 H	241	26.7	7.2
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	113.7 PK			1.42 V	160	116.8	-3.1
2	*2437.00	111.8 AV			1.42 V	160	114.9	-3.1
3	2485.00	61.5 PK	74.0	-12.5	1.42 V	160	64.6	-3.1
4	2485.00	50.9 AV	54.0	-3.1	1.42 V	160	54.0	-3.1
5	4874.00	55.2 PK	74.0	-18.8	1.47 V	359	54.0	1.2
6	4874.00	53.7 AV	54.0	-0.3	1.47 V	359	52.5	1.2
7	7311.00	45.2 PK	74.0	-28.8	2.52 V	354	38.0	7.2
8	7311.00	34.1 AV	54.0	-19.9	2.52 V	354	26.9	7.2

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
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	105.3 PK			3.15 H	104	108.4	-3.1
2	*2462.00	103.1 AV			3.15 H	104	106.2	-3.1
3	2483.50	56.6 PK	74.0	-17.4	3.15 H	104	59.7	-3.1
4	2483.50	45.7 AV	54.0	-8.3	3.15 H	104	48.8	-3.1
5	4924.00	51.4 PK	74.0	-22.6	2.81 H	314	50.1	1.3
6	4924.00	49.7 AV	54.0	-4.3	2.81 H	314	48.4	1.3
7	7386.00	44.7 PK	74.0	-29.3	2.75 H	246	37.4	7.3
8	7386.00	33.8 AV	54.0	-20.2	2.75 H	246	26.5	7.3
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	115.9 PK			1.55 V	159	119.0	-3.1
2	*2462.00	113.8 AV			1.55 V	159	116.9	-3.1
3	2483.50	63.8 PK	74.0	-10.2	1.55 V	159	66.9	-3.1
4	2483.50	51.3 AV	54.0	-2.7	1.55 V	159	54.4	-3.1
5	4924.00	53.7 PK	74.0	-20.3	1.49 V	354	52.4	1.3
6	4924.00	52.4 AV	54.0	-1.6	1.49 V	354	51.1	1.3
7	7386.00	45.1 PK	74.0	-28.9	2.54 V	341	37.8	7.3
8	7386.00	34.1 AV	54.0	-19.9	2.54 V	341	26.8	7.3

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.

802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.7 PK	74.0	-17.3	3.09 H	102	59.8	-3.1
2	2390.00	45.6 AV	54.0	-8.4	3.09 H	102	48.7	-3.1
3	*2412.00	105.2 PK			3.09 H	102	108.3	-3.1
4	*2412.00	95.5 AV			3.09 H	102	98.6	-3.1
5	4824.00	57.5 PK	74.0	-16.5	2.87 H	298	56.3	1.2
6	4824.00	45.7 AV	54.0	-8.3	2.87 H	298	44.5	1.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.4 PK	74.0	-6.6	1.49 V	162	70.5	-3.1
2	**2390.00**	**53.9 AV**	**54.0**	**-0.1**	**1.49 V**	**162**	**57.0**	**-3.1**
3	*2412.00	115.3 PK			1.49 V	162	118.4	-3.1
4	*2412.00	106.0 AV			1.49 V	162	109.1	-3.1
5	4824.00	59.9 PK	74.0	-14.1	1.27 V	356	58.7	1.2
6	4824.00	48.4 AV	54.0	-5.6	1.27 V	356	47.2	1.2

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	105.2 PK			3.15 H	106	108.3	-3.1
2	*2437.00	95.6 AV			3.15 H	106	98.7	-3.1
3	4874.00	57.9 PK	74.0	-16.1	2.82 H	301	56.7	1.2
4	4874.00	45.9 AV	54.0	-8.1	2.82 H	301	44.7	1.2
5	7311.00	44.8 PK	74.0	-29.2	2.70 H	234	37.6	7.2
6	7311.00	34.1 AV	54.0	-19.9	2.70 H	234	26.9	7.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	115.7 PK			1.32 V	159	118.8	-3.1
2	*2437.00	106.0 AV			1.32 V	159	109.1	-3.1
3	2485.00	62.1 PK	74.0	-11.9	1.32 V	159	65.2	-3.1
4	2485.00	51.4 AV	54.0	-2.6	1.32 V	159	54.5	-3.1
5	4874.00	59.6 PK	74.0	-14.4	1.28 V	346	58.4	1.2
6	4874.00	48.0 AV	54.0	-6.0	1.28 V	346	46.8	1.2
7	7311.00	44.9 PK	74.0	-29.1	2.60 V	351	37.7	7.2
8	7311.00	34.1 AV	54.0	-19.9	2.60 V	351	26.9	7.2

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
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	105.0 PK			3.20 H	100	108.1	-3.1
2	*2462.00	95.6 AV			3.20 H	100	98.7	-3.1
3	2483.50	56.8 PK	74.0	-17.2	3.20 H	100	59.9	-3.1
4	2483.50	46.0 AV	54.0	-8.0	3.20 H	100	49.1	-3.1
5	4924.00	58.4 PK	74.0	-15.6	2.86 H	294	57.1	1.3
6	4924.00	46.4 AV	54.0	-7.6	2.86 H	294	45.1	1.3
7	7386.00	44.6 PK	74.0	-29.4	2.75 H	231	37.3	7.3
8	7386.00	34.1 AV	54.0	-19.9	2.75 H	231	26.8	7.3
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	115.4 PK			1.49 V	159	118.5	-3.1
2	*2462.00	105.9 AV			1.49 V	159	109.0	-3.1
3	2483.50	67.4 PK	74.0	-6.6	1.49 V	159	70.5	-3.1
4	2483.50	53.5 AV	54.0	-0.5	1.49 V	159	56.6	-3.1
5	4924.00	60.4 PK	74.0	-13.6	1.30 V	350	59.1	1.3
6	4924.00	48.5 AV	54.0	-5.5	1.30 V	350	47.2	1.3
7	7386.00	44.3 PK	74.0	-29.7	2.56 V	355	37.0	7.3
8	7386.00	33.7 AV	54.0	-20.3	2.56 V	355	26.4	7.3

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.

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	56.1 PK	74.0	-17.9	3.20 H	111	59.2	-3.1
2	2390.00	45.3 AV	54.0	-8.7	3.20 H	111	48.4	-3.1
3	*2412.00	105.5 PK			3.20 H	111	108.6	-3.1
4	*2412.00	95.7 AV			3.20 H	111	98.8	-3.1
5	4824.00	57.5 PK	74.0	-16.5	2.81 H	294	56.3	1.2
6	4824.00	46.0 AV	54.0	-8.0	2.81 H	294	44.8	1.2
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	65.9 PK	74.0	-8.1	1.24 V	160	69.0	-3.1
2	2390.00	53.3 AV	54.0	-0.7	1.24 V	160	56.4	-3.1
3	*2412.00	115.0 PK			1.24 V	160	118.1	-3.1
4	*2412.00	105.7 AV			1.24 V	160	108.8	-3.1
5	4824.00	61.0 PK	74.0	-13.0	1.21 V	357	59.8	1.2
6	4824.00	48.9 AV	54.0	-5.1	1.21 V	357	47.7	1.2

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	105.0 PK			3.20 H	115	108.1	-3.1
2	*2437.00	95.3 AV			3.20 H	115	98.4	-3.1
3	4874.00	57.9 PK	74.0	-16.1	2.77 H	310	56.7	1.2
4	4874.00	46.1 AV	54.0	-7.9	2.77 H	310	44.9	1.2
5	7311.00	45.5 PK	74.0	-28.5	2.72 H	228	38.3	7.2
6	7311.00	34.6 AV	54.0	-19.4	2.72 H	228	27.4	7.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	116.1 PK			1.39 V	160	119.2	-3.1
2	*2437.00	106.2 AV			1.39 V	160	109.3	-3.1
3	2485.00	62.3 PK	74.0	-11.7	1.39 V	160	65.4	-3.1
4	2485.00	51.4 AV	54.0	-2.6	1.39 V	160	54.5	-3.1
5	4874.00	59.8 PK	74.0	-14.2	1.33 V	337	58.6	1.2
6	4874.00	48.0 AV	54.0	-6.0	1.33 V	337	46.8	1.2
7	7311.00	44.4 PK	74.0	-29.6	2.64 V	351	37.2	7.2
8	7311.00	33.9 AV	54.0	-20.1	2.64 V	351	26.7	7.2

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
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	104.7 PK			3.20 H	108	107.8	-3.1
2	*2462.00	95.4 AV			3.20 H	108	98.5	-3.1
3	2483.50	56.2 PK	74.0	-17.8	3.20 H	108	59.3	-3.1
4	2483.50	45.5 AV	54.0	-8.5	3.20 H	108	48.6	-3.1
5	4924.00	57.8 PK	74.0	-16.2	2.86 H	286	56.5	1.3
6	4924.00	46.0 AV	54.0	-8.0	2.86 H	286	44.7	1.3
7	7386.00	44.2 PK	74.0	-29.8	2.73 H	223	36.9	7.3
8	7386.00	33.8 AV	54.0	-20.2	2.73 H	223	26.5	7.3
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	114.5 PK			1.48 V	160	117.6	-3.1
2	*2462.00	104.6 AV			1.48 V	160	107.7	-3.1
3	2483.50	67.8 PK	74.0	-6.2	1.48 V	160	70.9	-3.1
4	2483.50	53.7 AV	54.0	-0.3	1.48 V	160	56.8	-3.1
5	4924.00	59.5 PK	74.0	-14.5	1.28 V	356	58.2	1.3
6	4924.00	48.1 AV	54.0	-5.9	1.28 V	356	46.8	1.3
7	7386.00	44.6 PK	74.0	-29.4	2.58 V	358	37.3	7.3
8	7386.00	33.8 AV	54.0	-20.2	2.58 V	358	26.5	7.3

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.

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	56.2 PK	74.0	-17.8	3.20 H	120	59.3	-3.1
2	2390.00	45.6 AV	54.0	-8.4	3.20 H	120	48.7	-3.1
3	*2422.00	101.5 PK			3.20 H	120	104.6	-3.1
4	*2422.00	91.7 AV			3.20 H	120	94.8	-3.1
5	4844.00	52.8 PK	74.0	-21.2	2.91 H	272	51.6	1.2
6	4844.00	41.3 AV	54.0	-12.7	2.91 H	272	40.1	1.2
7	7266.00	45.1 PK	74.0	-28.9	2.75 H	218	38.0	7.1
8	7266.00	34.2 AV	54.0	-19.8	2.75 H	218	27.1	7.1
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	72.2 PK	74.0	-1.8	1.19 V	159	75.3	-3.1
2	2390.00	53.4 AV	54.0	-0.6	1.19 V	159	56.5	-3.1
3	*2422.00	110.0 PK			1.19 V	159	113.1	-3.1
4	*2422.00	100.4 AV			1.19 V	159	103.5	-3.1
5	4844.00	56.2 PK	74.0	-17.8	1.31 V	360	55.0	1.2
6	4844.00	44.5 AV	54.0	-9.5	1.31 V	360	43.3	1.2
7	7266.00	44.7 PK	74.0	-29.3	2.57 V	345	37.6	7.1
8	7266.00	33.9 AV	54.0	-20.1	2.57 V	345	26.8	7.1

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	99.4 PK			3.18 H	108	102.5	-3.1
2	*2437.00	89.5 AV			3.18 H	108	92.6	-3.1
3	4874.00	52.8 PK	74.0	-21.2	2.89 H	280	51.6	1.2
4	4874.00	41.6 AV	54.0	-12.4	2.89 H	280	40.4	1.2
5	7311.00	44.3 PK	74.0	-29.7	2.74 H	205	37.1	7.2
6	7311.00	33.4 AV	54.0	-20.6	2.74 H	205	26.2	7.2
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	108.2 PK			1.63 V	159	111.3	-3.1
2	*2437.00	98.5 AV			1.63 V	159	101.6	-3.1
3	2485.00	68.9 PK	74.0	-5.1	1.63 V	159	72.0	-3.1
4	2485.00	53.7 AV	54.0	-0.3	1.63 V	159	56.8	-3.1
5	4874.00	56.5 PK	74.0	-17.5	1.36 V	360	55.3	1.2
6	4874.00	44.9 AV	54.0	-9.1	1.36 V	360	43.7	1.2
7	7311.00	44.1 PK	74.0	-29.9	2.57 V	335	36.9	7.2
8	7311.00	33.5 AV	54.0	-20.5	2.57 V	335	26.3	7.2

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
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	99.5 PK			3.25 H	130	102.6	-3.1
2	*2452.00	90.1 AV			3.25 H	130	93.2	-3.1
3	2483.50	56.2 PK	74.0	-17.8	3.25 H	130	59.3	-3.1
4	2483.50	45.6 AV	54.0	-8.4	3.25 H	130	48.7	-3.1
5	4904.00	55.6 PK	74.0	-18.4	2.93 H	273	54.3	1.3
6	4904.00	44.1 AV	54.0	-9.9	2.93 H	273	42.8	1.3
7	7356.00	44.0 PK	74.0	-30.0	2.71 H	227	36.8	7.2
8	7356.00	33.5 AV	54.0	-20.5	2.71 H	227	26.3	7.2
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	108.5 PK			1.54 V	160	111.6	-3.1
2	*2452.00	99.2 AV			1.54 V	160	102.3	-3.1
3	2483.50	72.6 PK	74.0	-1.4	1.54 V	160	75.7	-3.1
4	**2483.50**	**53.9 AV**	**54.0**	**-0.1**	**1.54 V**	**160**	**57.0**	**-3.1**
5	4904.00	56.1 PK	74.0	-17.9	1.34 V	360	54.8	1.3
6	4904.00	44.5 AV	54.0	-9.5	1.34 V	360	43.2	1.3
7	7356.00	44.5 PK	74.0	-29.5	2.58 V	347	37.3	7.2
8	7356.00	34.0 AV	54.0	-20.0	2.58 V	347	26.8	7.2

REMARKS:

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

Below 1GHz Data:

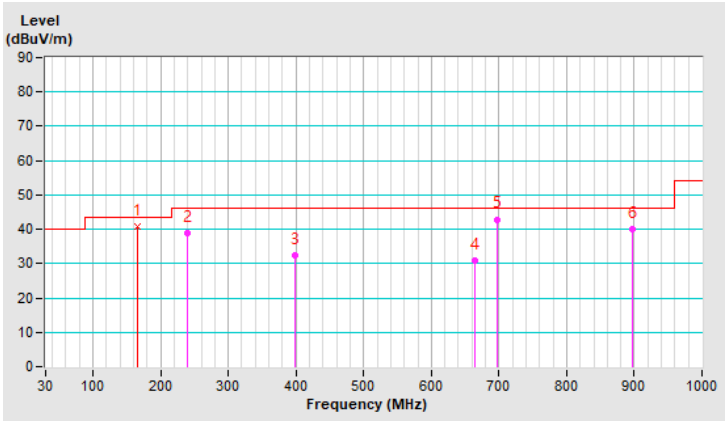
802.11g

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	166.24	40.9 QP	43.5	-2.6	1.99 H	2	54.1	-13.2
2	239.97	39.0 QP	46.0	-7.0	1.00 H	190	53.2	-14.2
3	398.33	32.4 QP	46.0	-13.6	1.00 H	217	42.4	-10.0
4	663.88	30.7 QP	46.0	-15.3	1.00 H	308	35.4	-4.7
5	697.05	42.9 QP	46.0	-3.1	1.00 H	258	46.9	-4.0
6	898.00	40.1 QP	46.0	-5.9	1.50 H	248	41.6	-1.5

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.

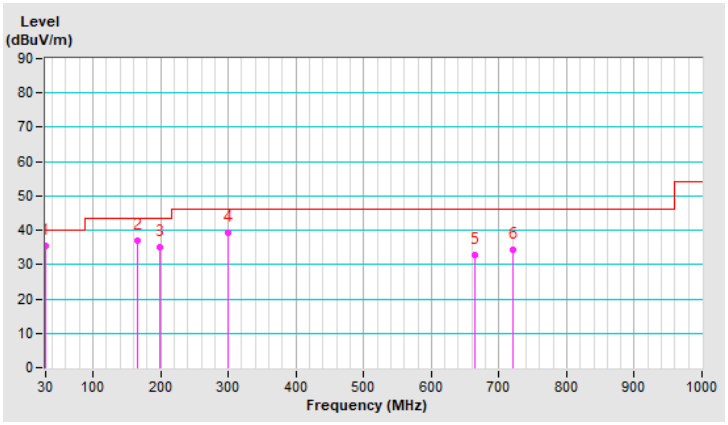


CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

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	30.58	35.5 QP	40.0	-4.5	1.50 V	360	50.1	-14.6
2	166.24	37.1 QP	43.5	-6.4	1.00 V	294	50.3	-13.2
3	199.52	35.0 QP	43.5	-8.5	2.00 V	132	50.6	-15.6
4	299.29	39.2 QP	46.0	-6.8	1.50 V	288	51.6	-12.4
5	663.83	32.7 QP	46.0	-13.3	1.00 V	248	37.4	-4.7
6	721.40	34.2 QP	46.0	-11.8	1.00 V	237	37.8	-3.6

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30MHz~1000MHz.
5. The emission levels were very low against the limit of frequency range 9kHz~30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

Note: 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

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	Oct. 22, 2018	Oct. 21, 2019
Line-Impedance Stabilization Network (for Peripheral) R&S	ESH3-Z5	835239/001	Mar. 17, 2019	Mar. 16, 2020
50 ohms Terminator	N/A	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. 14, 2019	Mar. 13, 2020
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: July 25, 2019

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.

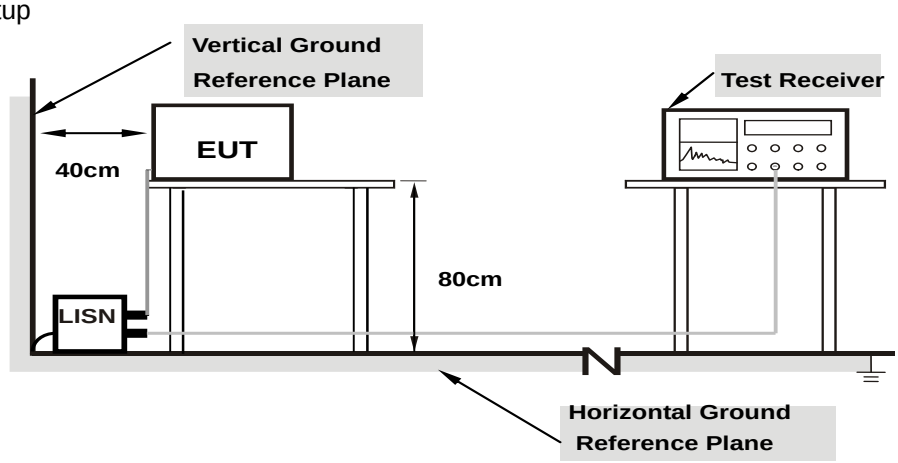
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

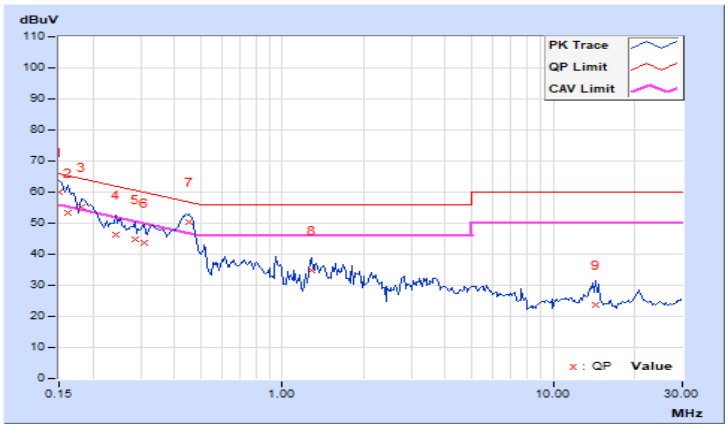
4.2.7 Test Results

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	9.94	49.96	38.72	59.90	48.66	66.00	56.00	-6.10	-7.34
2	0.16172	9.95	43.24	27.55	53.19	37.50	65.38	55.38	-12.19	-17.88
3	0.18125	9.95	45.40	34.98	55.35	44.93	64.43	54.43	-9.08	-9.50
4	0.24375	9.95	36.30	26.92	46.25	36.87	61.97	51.97	-15.72	-15.10
5	0.28672	9.95	34.92	25.09	44.87	35.04	60.62	50.62	-15.75	-15.58
6	0.31016	9.96	33.88	24.46	43.84	34.42	59.97	49.97	-16.13	-15.55
7	**0.45078**	**9.96**	**40.42**	**31.92**	**50.38**	**41.88**	**56.86**	**46.86**	**-6.48**	**-4.98**
8	1.27734	10.02	24.75	17.18	34.77	27.20	56.00	46.00	-21.23	-18.80
9	14.36328	10.72	12.87	6.11	23.59	16.83	60.00	50.00	-36.41	-33.17

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.

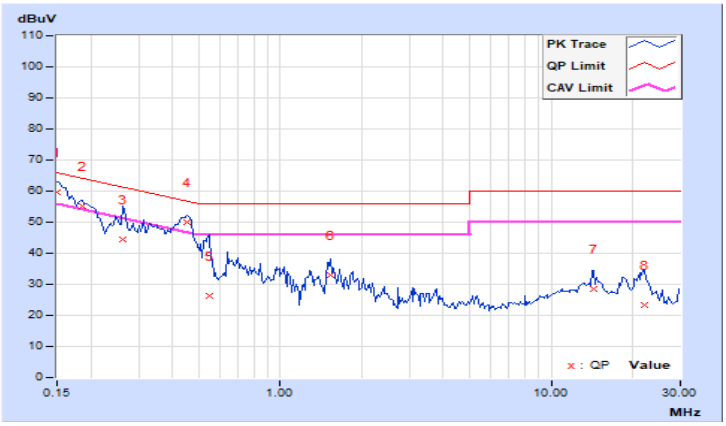


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

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	9.92	49.70	40.08	59.62	50.00	66.00	56.00	-6.38	-6.00
2	0.18516	9.93	45.16	36.31	55.09	46.24	64.25	54.25	-9.16	-8.01
3	0.26328	9.93	34.64	21.91	44.57	31.84	61.33	51.33	-16.76	-19.49
4	0.45078	9.94	40.10	31.29	50.04	41.23	56.86	46.86	-6.82	-5.63
5	0.54844	9.95	16.34	8.12	26.29	18.07	56.00	46.00	-29.71	-27.93
6	1.52734	10.01	23.07	15.27	33.08	25.28	56.00	46.00	-22.92	-20.72
7	14.41797	10.55	18.00	11.73	28.55	22.28	60.00	50.00	-31.45	-27.72
8	14.41797	10.55	18.00	11.73	28.55	22.28	60.00	50.00	-31.45	-27.72

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.

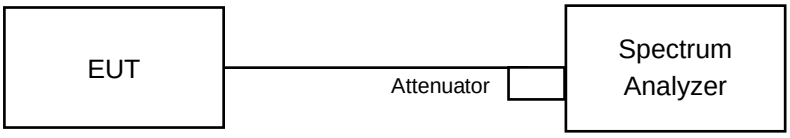


4.3 6dB Bandwidth Measurement

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 fromTest Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	8.09	8.12	0.5	PASS
6	2437	8.09	8.11	0.5	PASS
11	2462	8.12	8.11	0.5	PASS

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.20	15.35	0.5	PASS
6	2437	15.40	15.20	0.5	PASS
11	2462	15.23	15.52	0.5	PASS

802.11n (HT20)

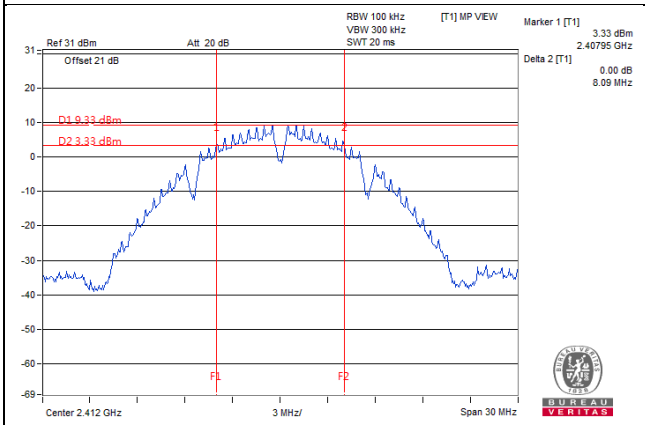
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.20	15.38	0.5	Pass
6	2437	15.37	15.24	0.5	Pass
11	2462	15.24	15.38	0.5	Pass

802.11n (HT40)

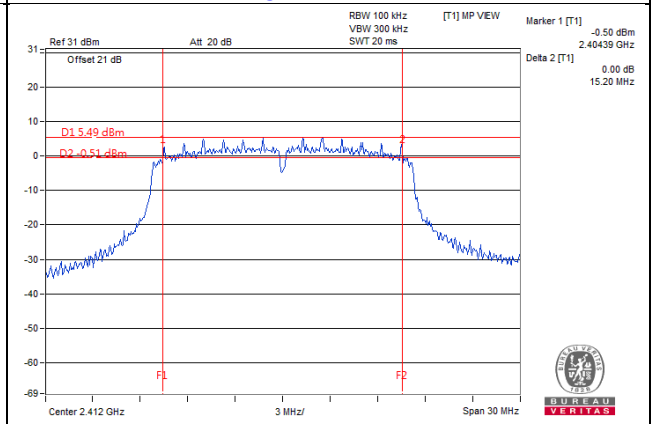
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.18	35.15	0.5	Pass
6	2437	35.21	34.00	0.5	Pass
9	2452	35.30	35.22	0.5	Pass

Spectrum Plot of Worst Value

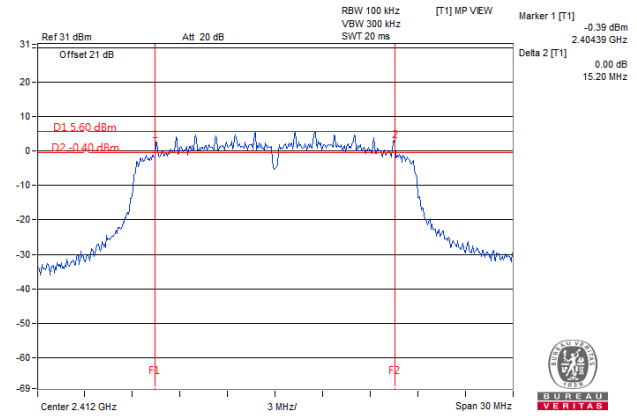
802.11b / Chain 0 : CH1



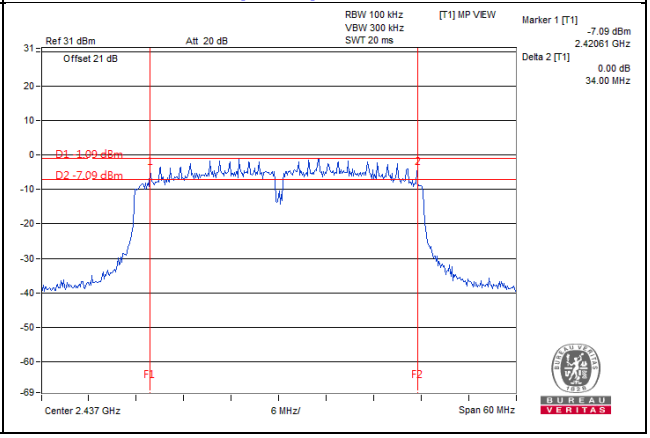
802.11g / Chain 0 : CH1



802.11n (HT20) / Chain 0 : CH1



802.11n (HT40) / Chain 1 : CH6



4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

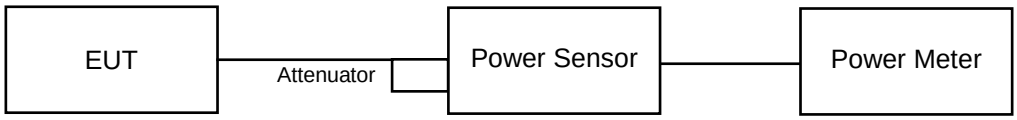
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

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

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

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

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

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..

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as Item 4.3.6.

4.4.7 Test Results

FOR PEAK POWER

802.11b

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	19.92	20.01	198.406	22.98	30	Pass
6	2437	19.73	20.02	194.434	22.89	30	Pass
11	2462	20.52	20.91	236.03	23.73	30	Pass

802.11g

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	22.37	22.60	354.554	25.50	30	Pass
6	2437	22.38	22.98	371.591	25.70	30	Pass
11	2462	21.42	21.67	285.569	24.56	30	Pass

802.11n (HT20)

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	22.46	22.07	337.263	25.28	30	Pass
6	2437	22.21	22.91	361.775	25.58	30	Pass
11	2462	20.62	20.72	233.377	23.68	30	Pass

802.11n (HT40)

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	20.83	20.42	231.214	23.64	30	Pass
6	2437	18.52	18.74	145.938	21.64	30	Pass
9	2452	18.53	18.83	147.669	21.69	30	Pass

FOR AVERAGE POWER

802.11b

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	17.54	17.52	113.248	20.54
6	2437	17.35	17.62	112.135	20.50
11	2462	18.36	18.57	140.494	21.48

802.11g

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	16.27	16.00	82.175	19.15
6	2437	16.41	16.62	89.672	19.53
11	2462	15.67	15.75	74.482	18.72

802.11n (HT20)

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	16.21	16.12	82.709	19.18
6	2437	16.22	16.38	85.33	19.31
11	2462	14.42	14.49	55.788	17.47

802.11n (HT40)

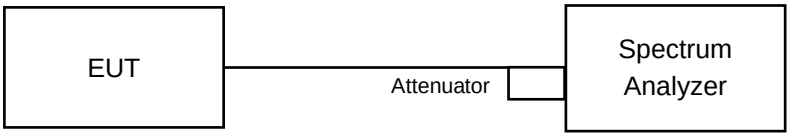
Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
3	2422	14.26	14.10	52.373	17.19
6	2437	11.81	12.26	31.998	15.05
9	2452	11.85	12.23	32.022	15.05

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

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

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

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.

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6

4.5.7 Test Results

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	-5.33	3.01	-2.32	7.99	Pass
	6	2437	-4.57	3.01	-1.56	7.99	Pass
	11	2462	-3.95	3.01	-0.94	7.99	Pass
1	1	2412	-5.61	3.01	-2.60	7.99	Pass
	6	2437	-4.00	3.01	-0.99	7.99	Pass
	11	2462	-2.91	3.01	0.10	7.99	Pass

Note: 1. The directional gain = 3dBi + 10log(2) = 6.01dBi > 6dBi, so the power density limit shall be reduced to 8-(6.01-6)=7.99dBm.

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	-8.99	3.01	-5.98	7.99	Pass
	6	2437	-7.37	3.01	-4.36	7.99	Pass
	11	2462	-7.72	3.01	-4.71	7.99	Pass
1	1	2412	-9.27	3.01	-6.26	7.99	Pass
	6	2437	-7.01	3.01	-4.00	7.99	Pass
	11	2462	-9.81	3.01	-6.80	7.99	Pass

Note: 1. The directional gain = 3dBi + 10log(2) = 6.01dBi > 6dBi, so the power density limit shall be reduced to 8-(6.01-6)=7.99dBm.

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	-9.54	3.01	-6.53	7.99	Pass
	6	2437	-8.99	3.01	-5.98	7.99	Pass
	11	2462	-10.49	3.01	-7.48	7.99	Pass
1	1	2412	-9.57	3.01	-6.56	7.99	Pass
	6	2437	-8.46	3.01	-5.45	7.99	Pass
	11	2462	-11.15	3.01	-8.14	7.99	Pass

Note: 1. The directional gain = 3dBi + 10log(2) = 6.01dBi > 6dBi, so the power density limit shall be reduced to 8-(6.01-6)=7.99dBm.

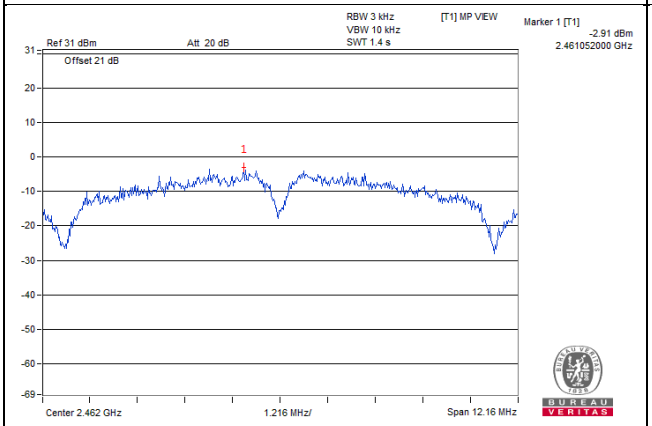
802.11n (HT40)

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	-14.20	3.01	-11.19	7.99	Pass
	6	2437	-15.91	3.01	-12.90	7.99	Pass
	9	2452	-15.91	3.01	-12.90	7.99	Pass
1	3	2422	-14.31	3.01	-11.30	7.99	Pass
	6	2437	-14.91	3.01	-11.90	7.99	Pass
	9	2452	-16.01	3.01	-13.00	7.99	Pass

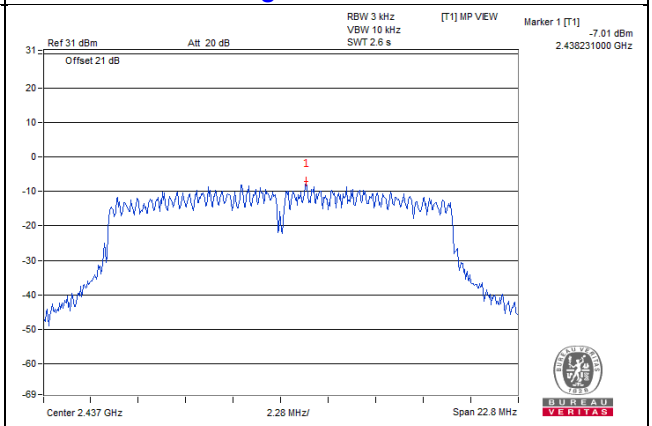
Note: 1. The directional gain = 3dBi + 10log(2) = 6.01dBi > 6dBi, so the power density limit shall be reduced to 8-(6.01-6)=7.99dBm.

Spectrum Plot of Worst Value

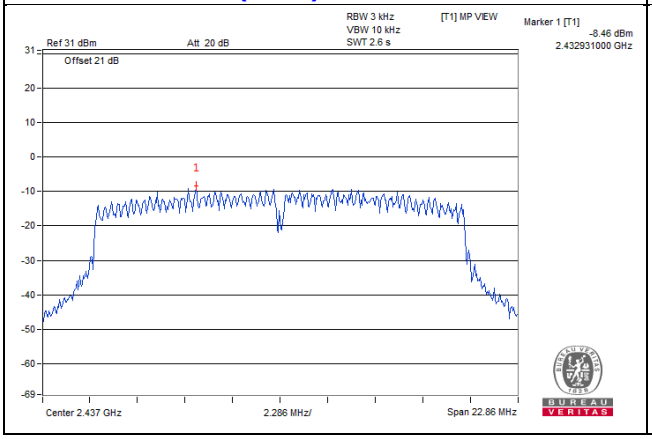
802.11b / Chain 1 : CH11



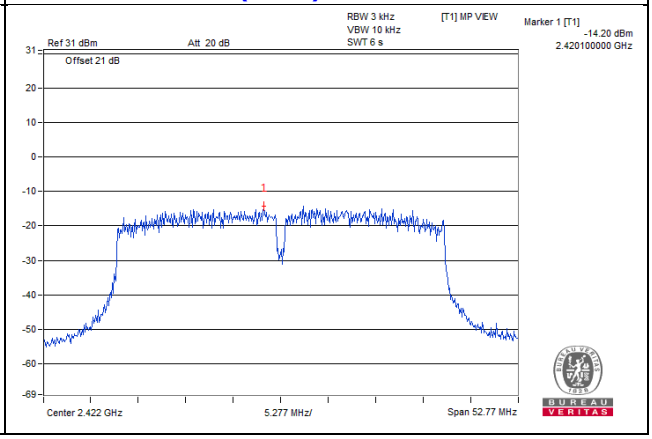
802.11g / Chain 1 : CH6



802.11n (HT20) / Chain 1 : CH6



802.11n (HT40) / Chain 0 : CH3

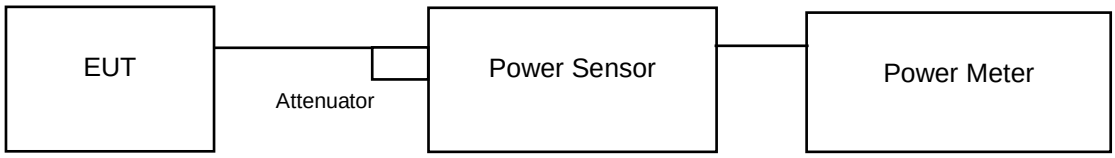


4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOBE

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

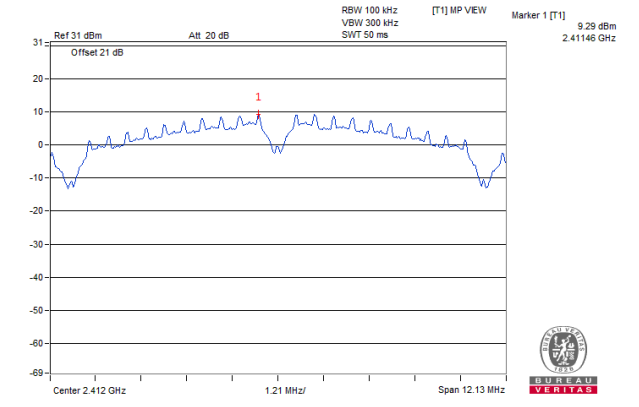
Same as Item 4.3.6

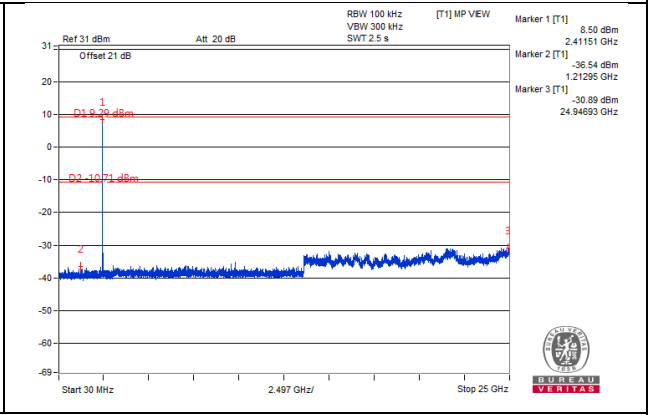
4.6.7 Test Results

The 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.

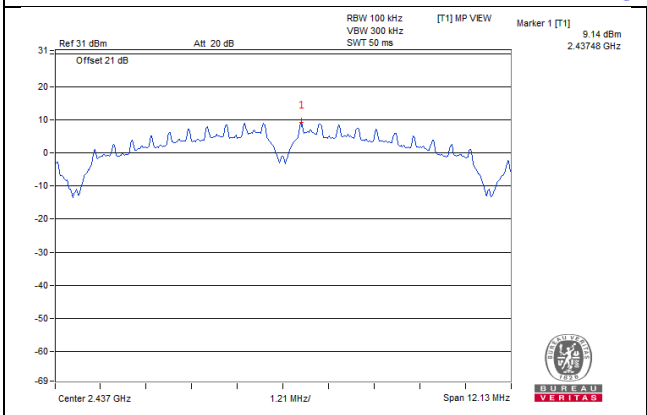
802.11b
Chain 0

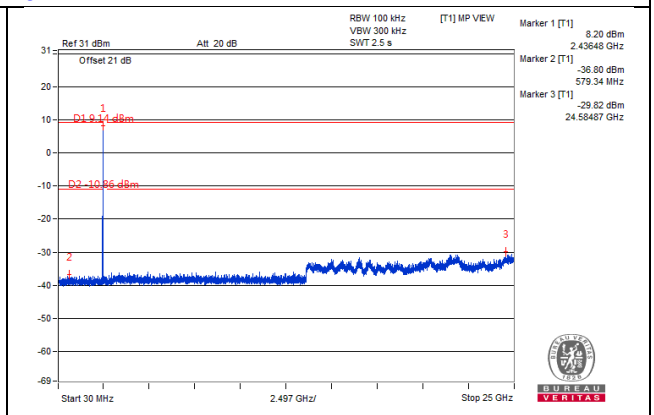
CH 1



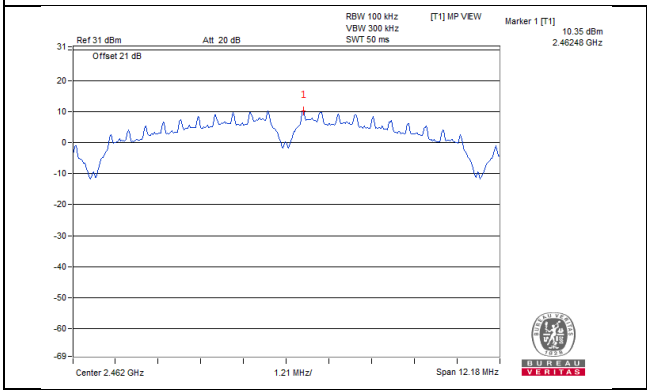


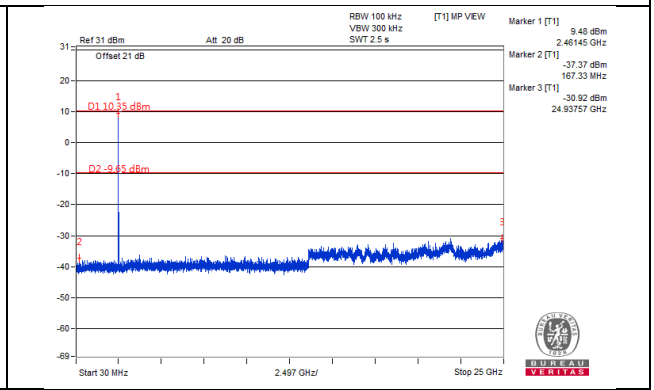
CH 6



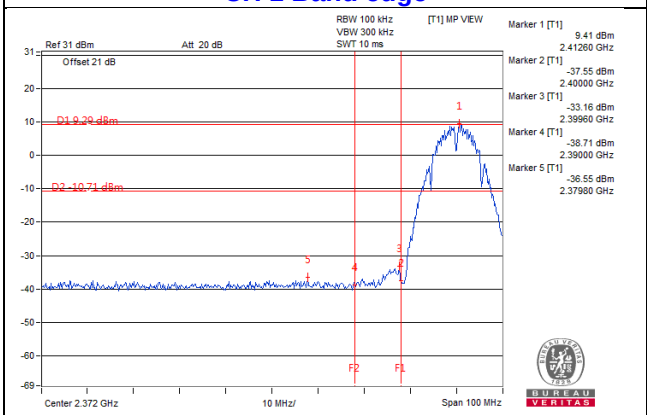


CH 11

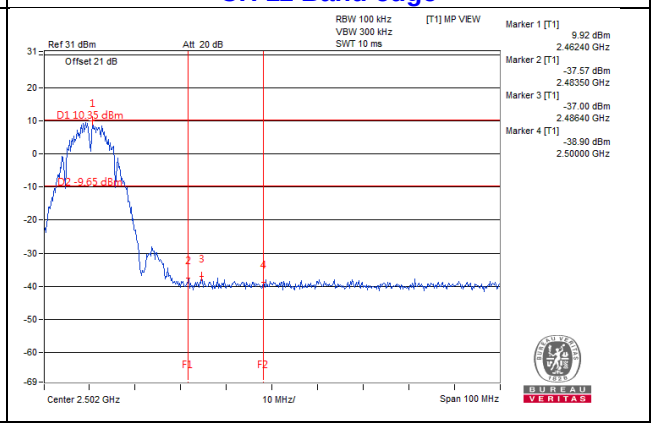




CH 1 Band edge

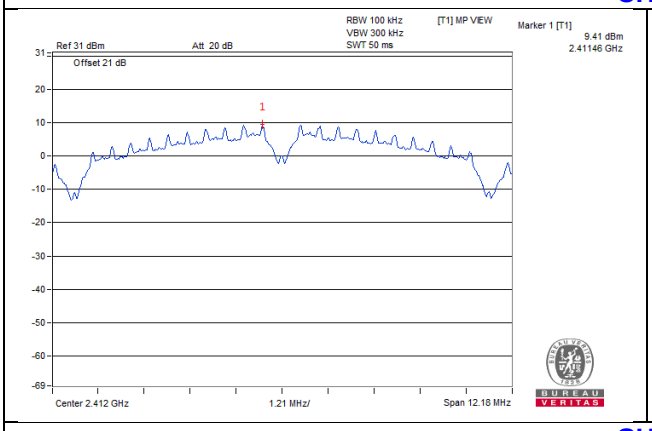


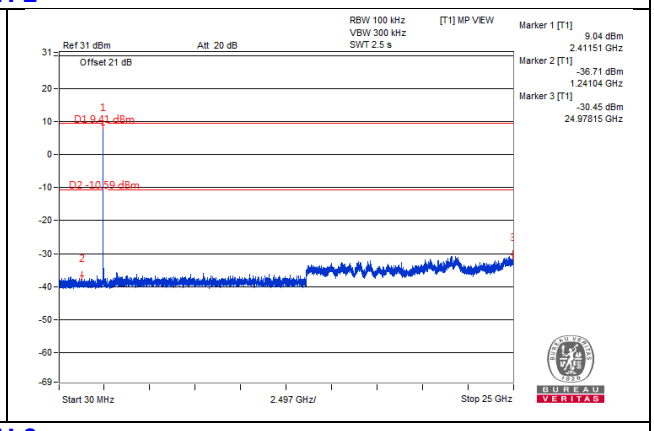
CH 11 Band edge



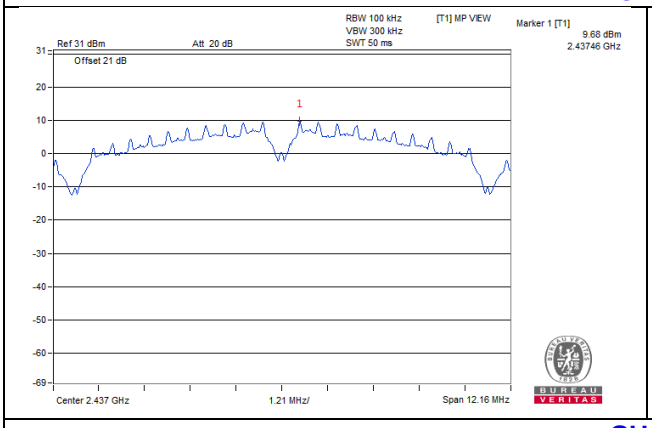
Chain 1

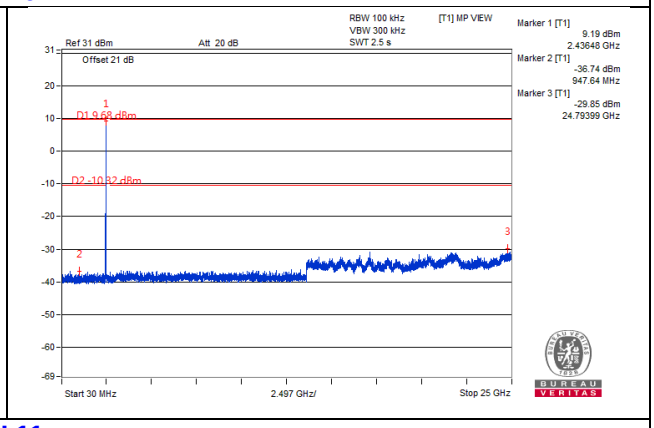
CH 1



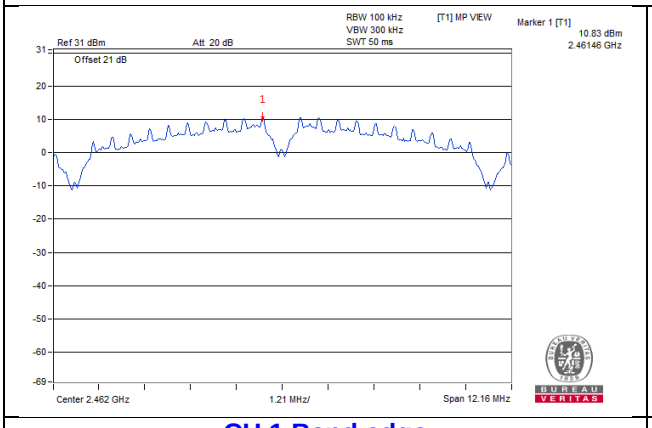


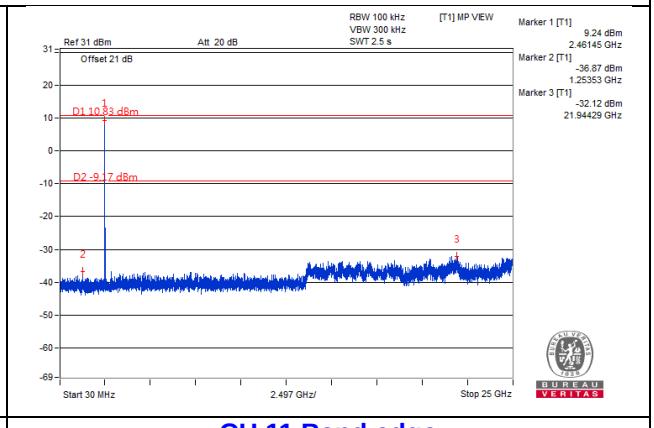
CH 6



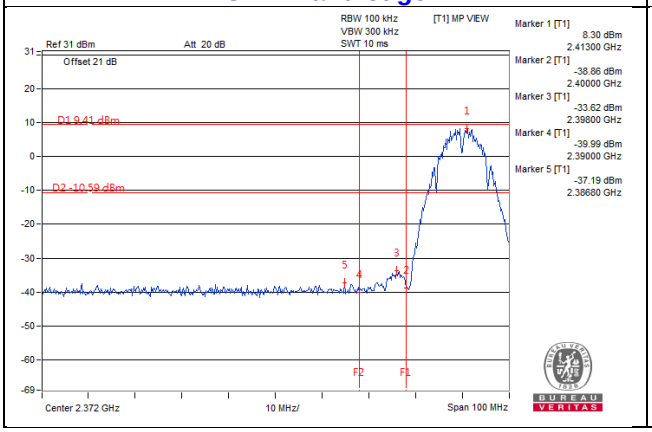


CH 11

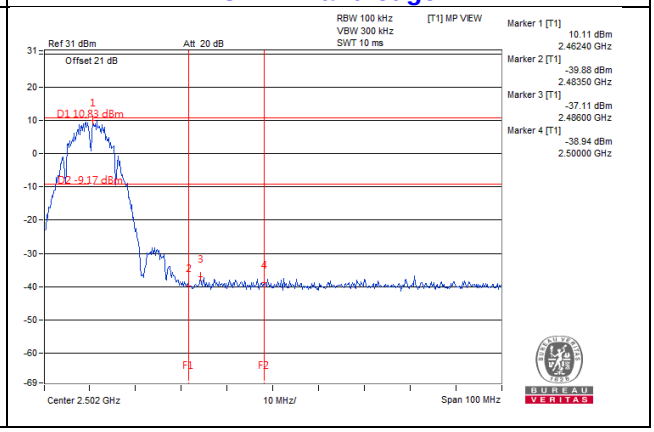




CH 1 Band edge

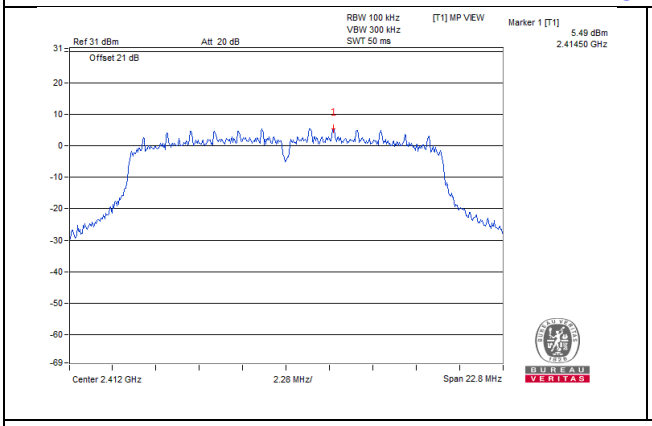


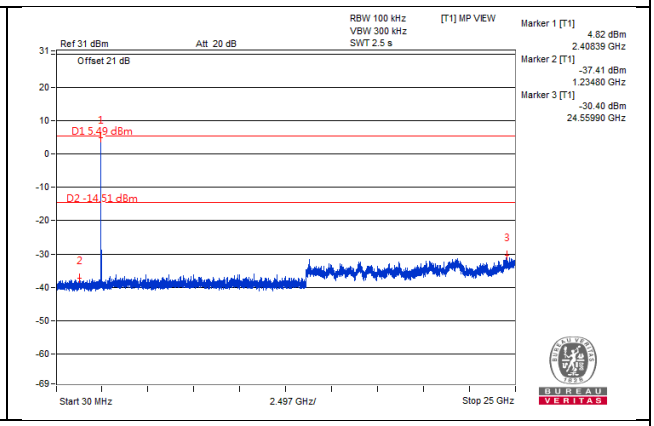
CH 11 Band edge



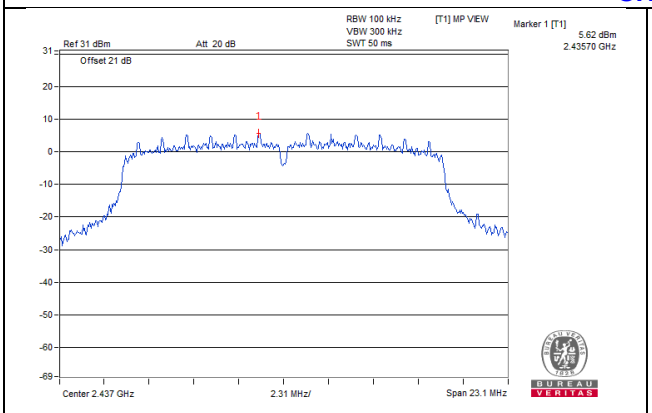
802.11g
Chain 0

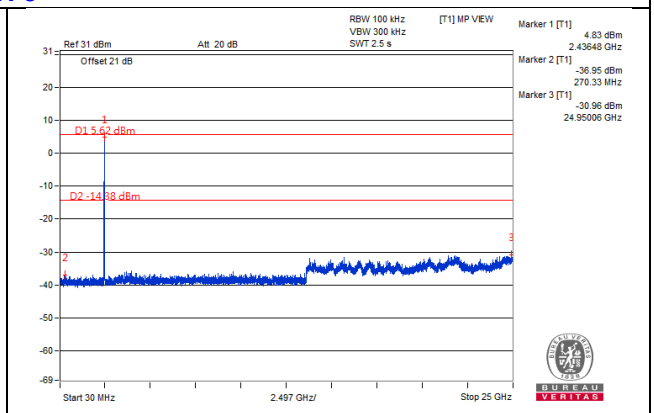
CH 1



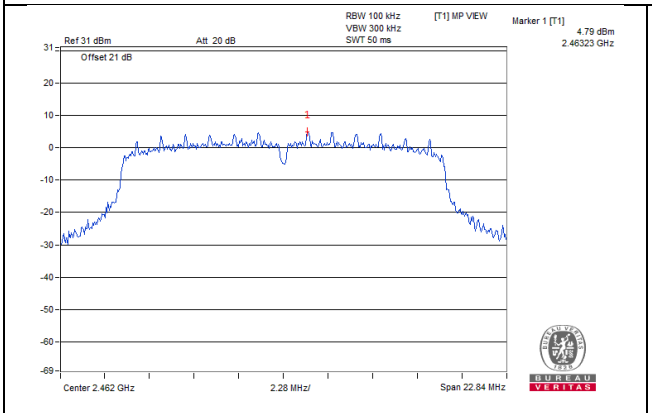


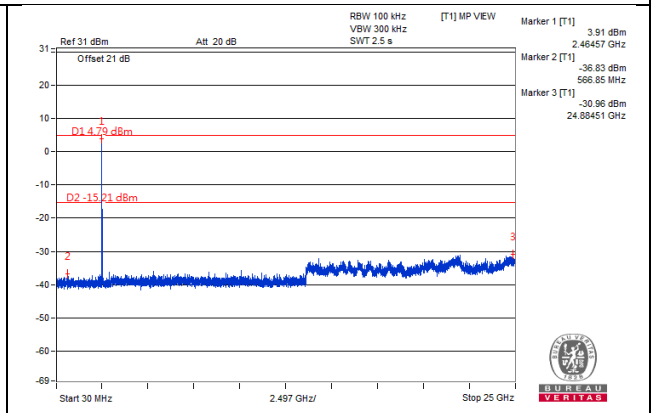
CH 6



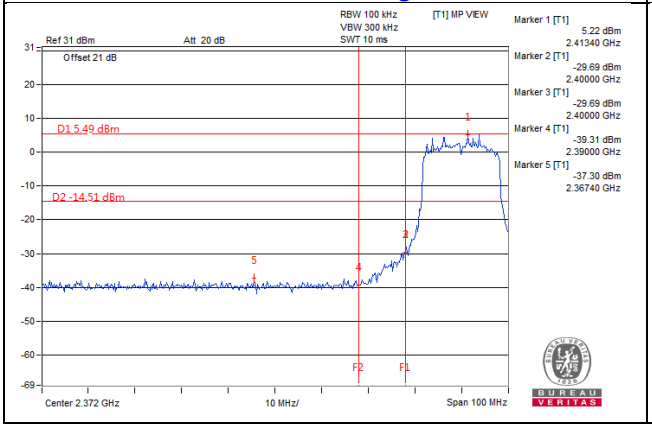


CH 11

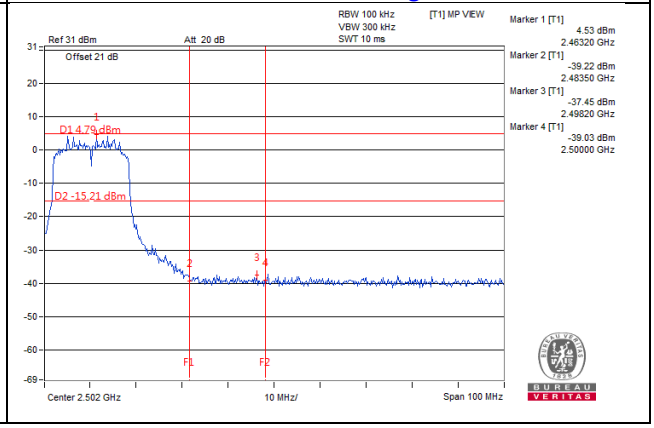




CH 1 Band edge

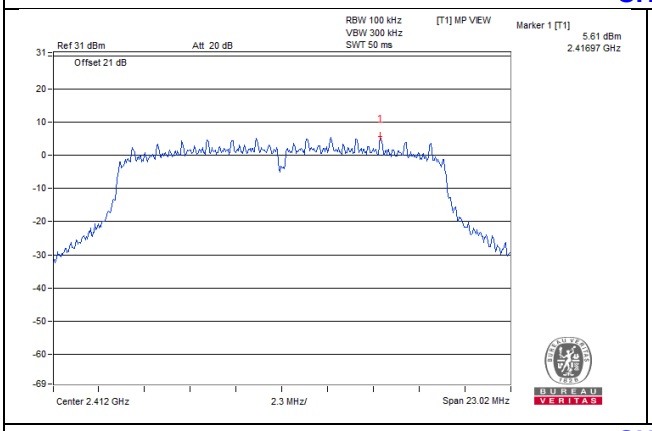


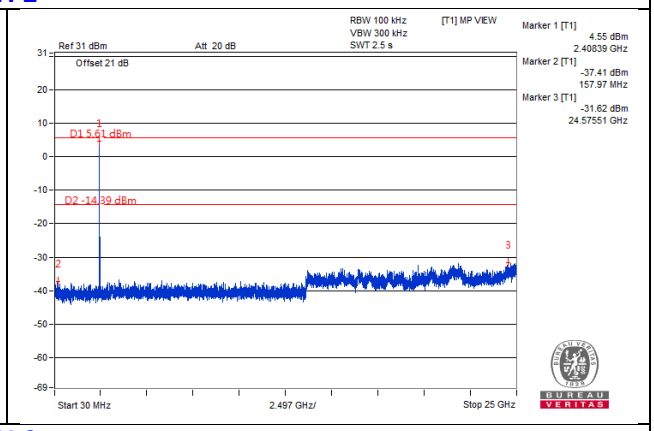
CH 11 Band edge



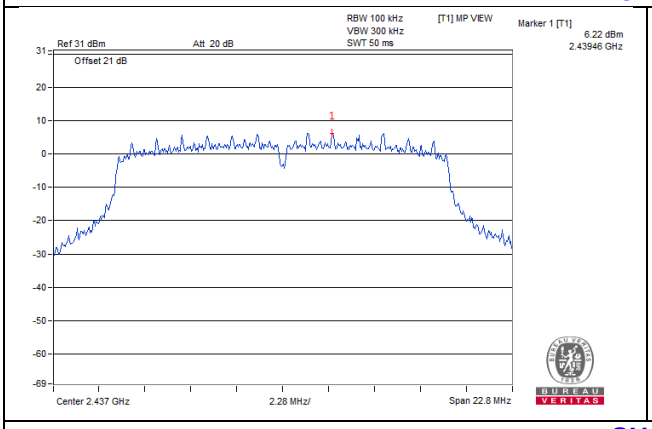
Chain 1

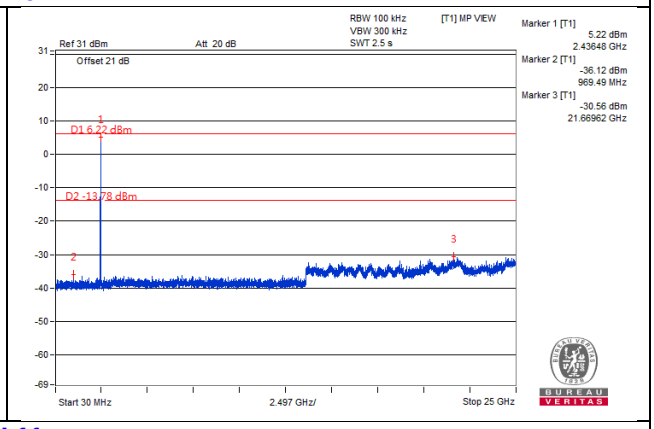
CH 1



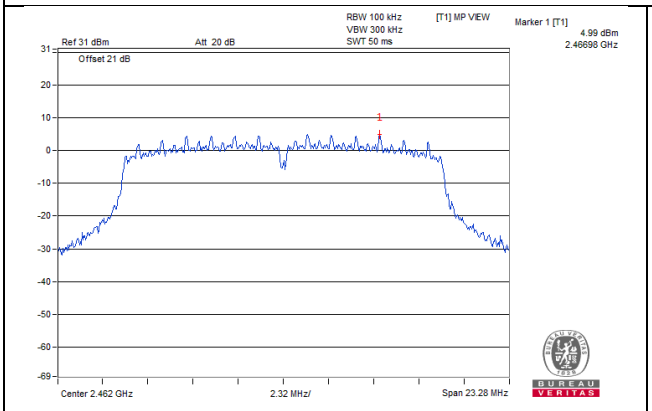


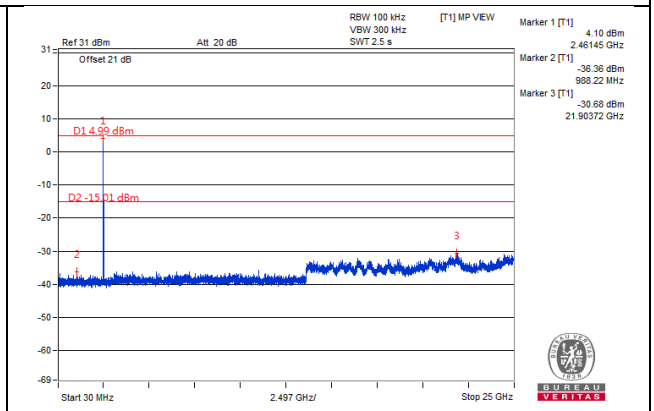
CH 6



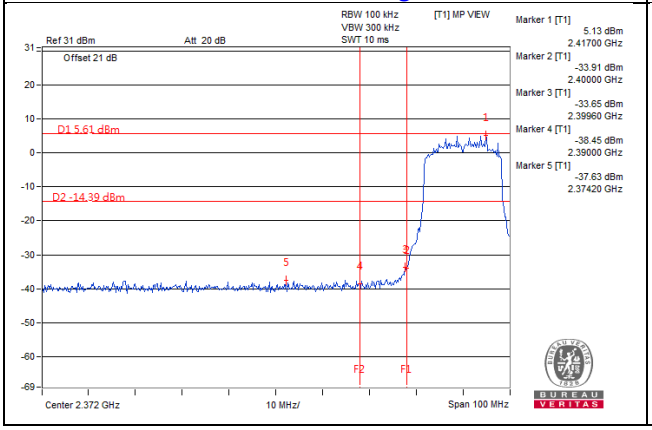


CH 11

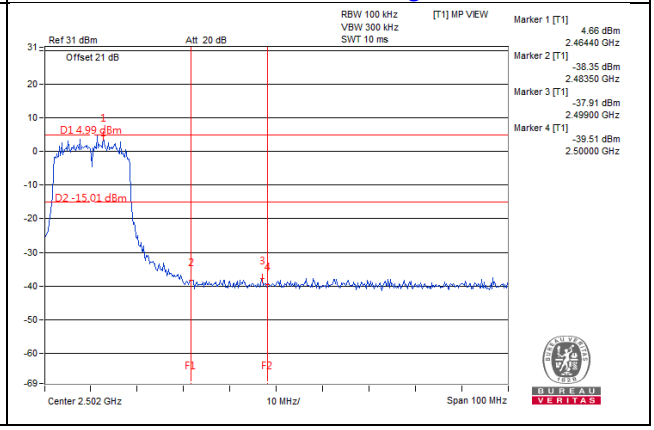




CH 1 Band edge

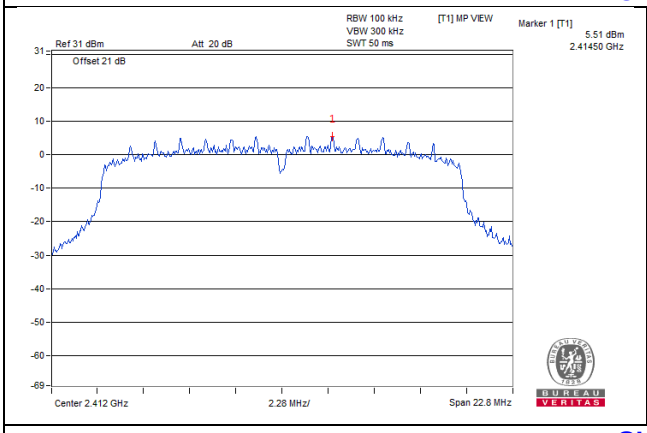


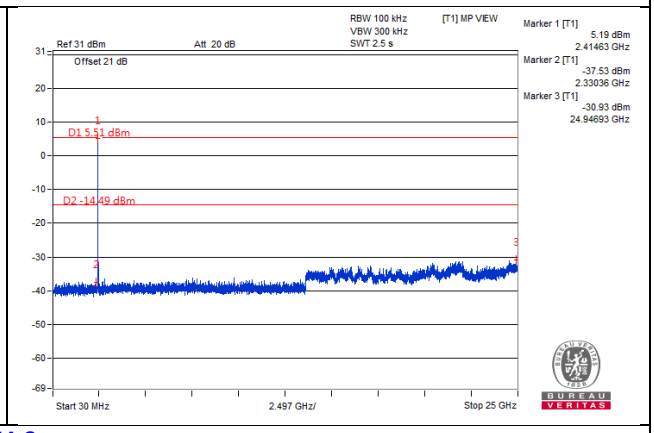
CH 11 Band edge



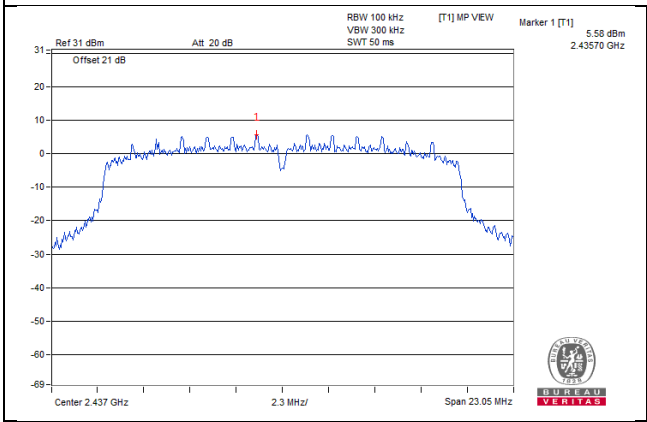
802.11n (HT20)
Chain 0

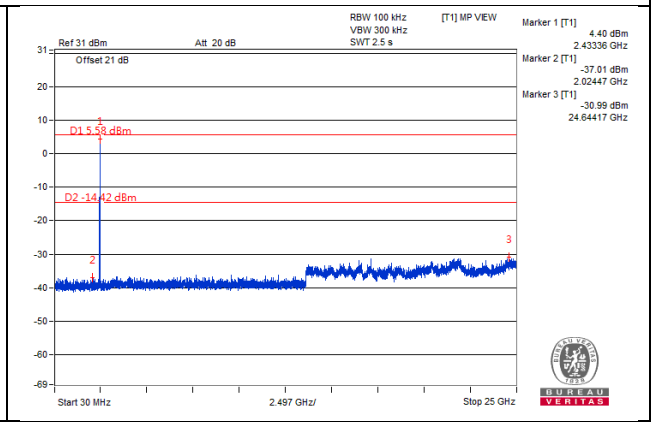
CH 1



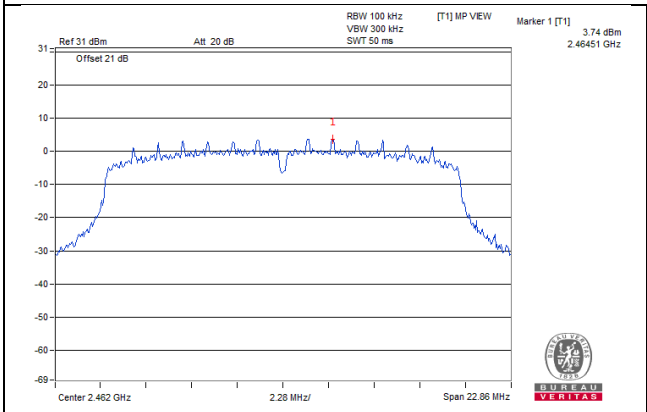


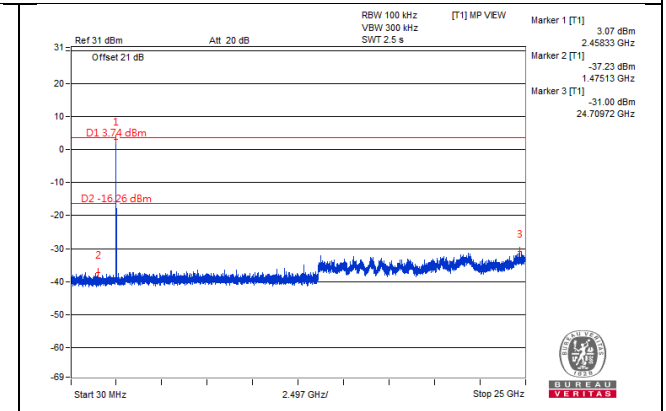
CH 6



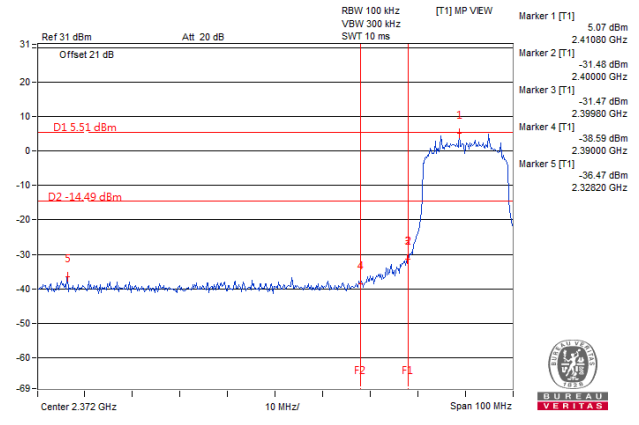


CH 11

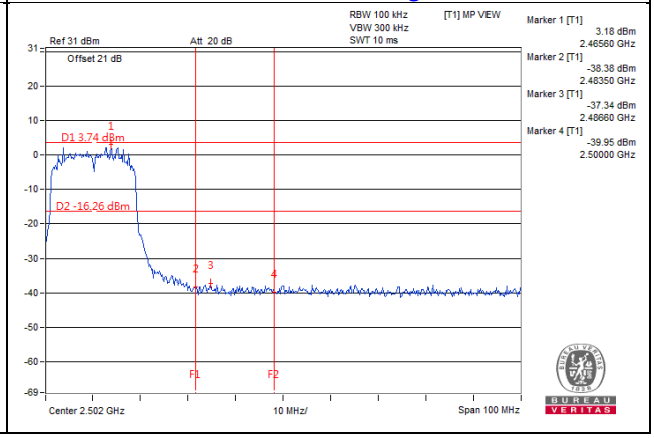




CH 1 Band edge

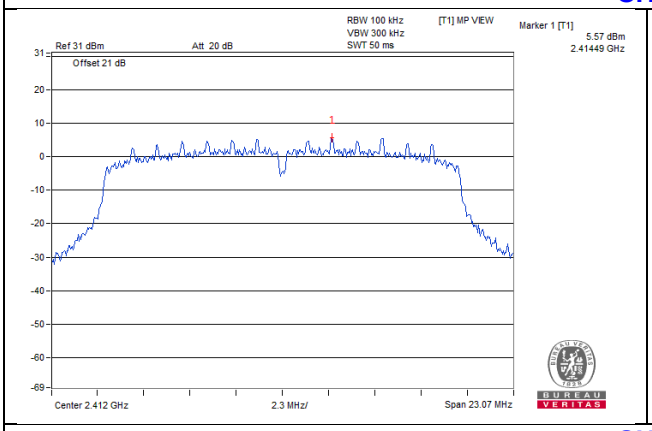


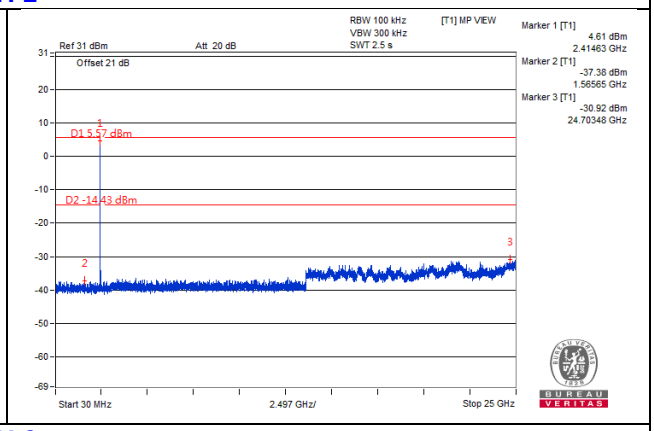
CH 11 Band edge



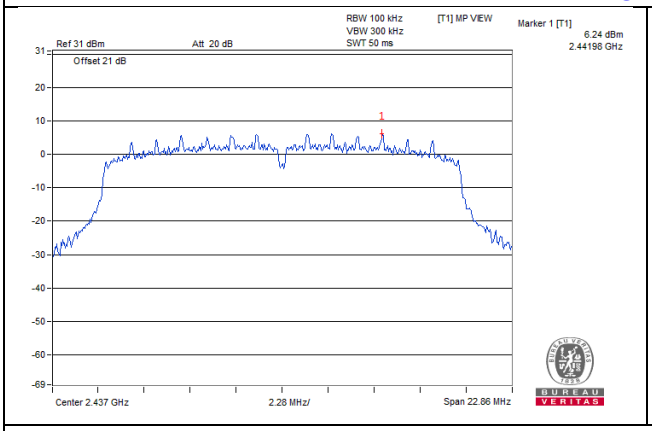
Chain 1

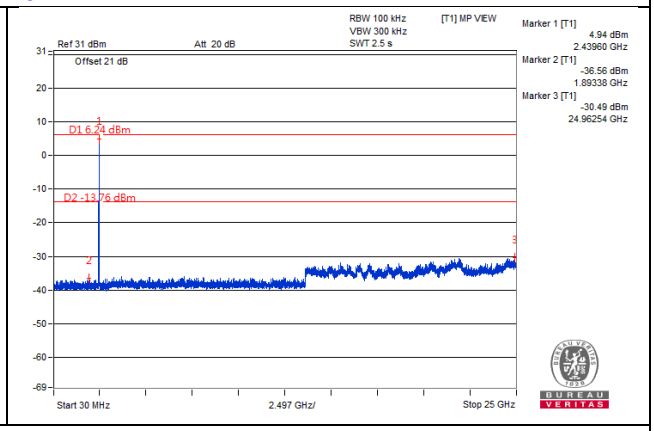
CH 1



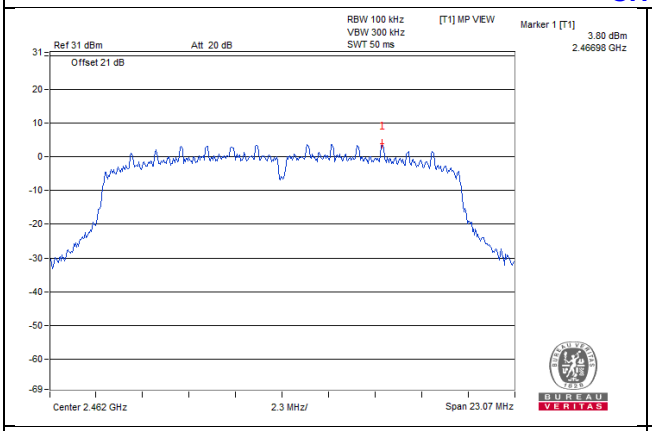


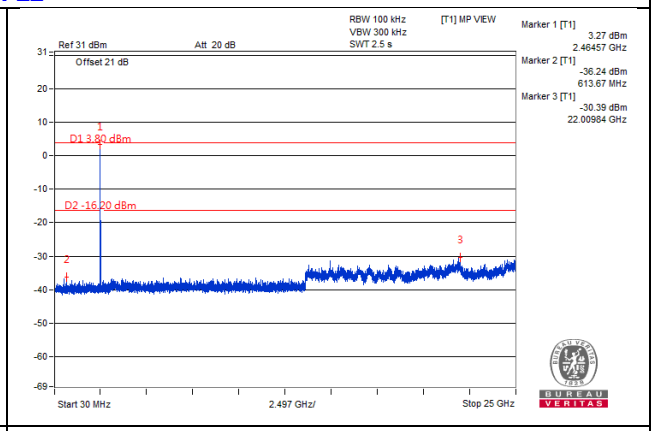
CH 6



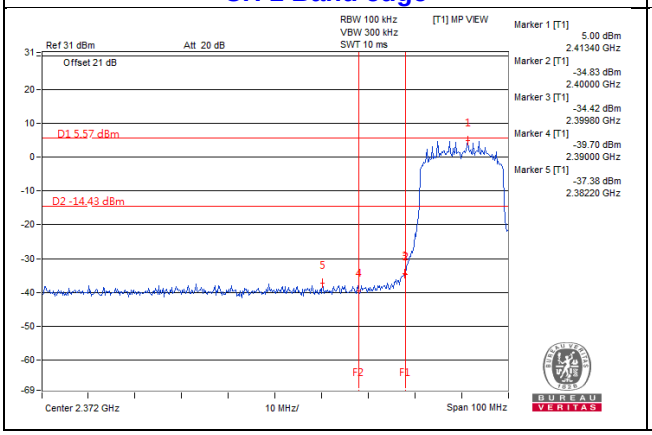


CH 11

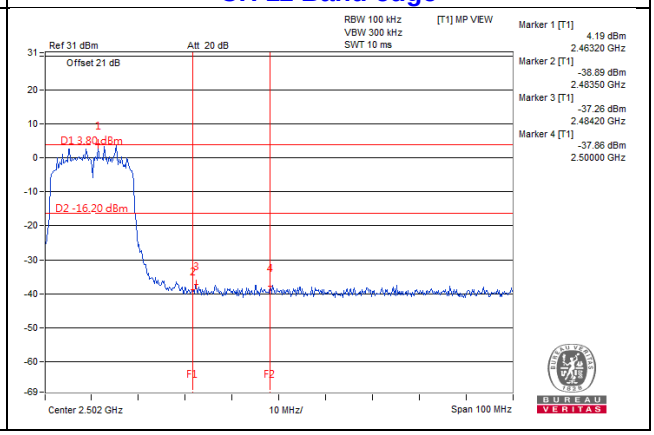




CH 1 Band edge

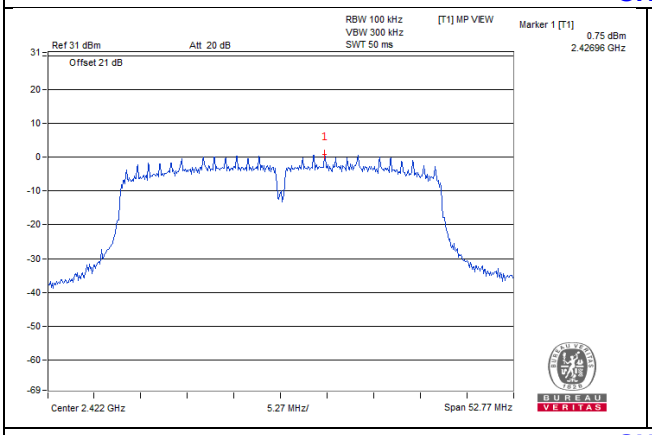


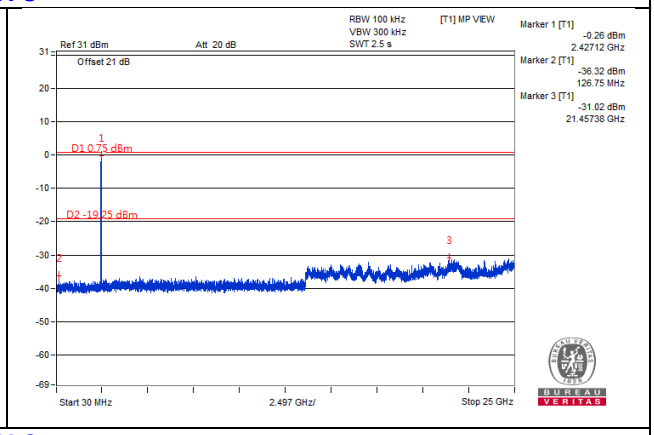
CH 11 Band edge



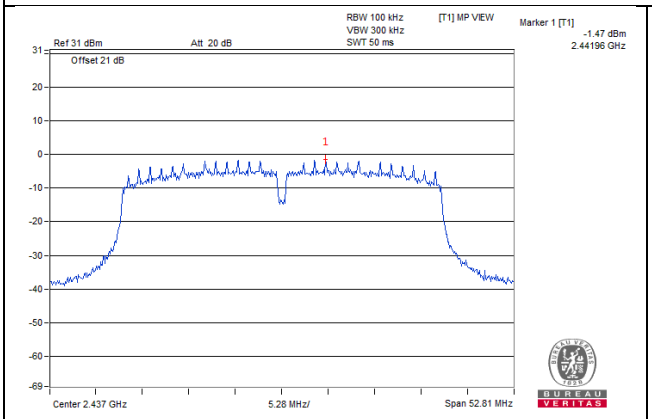
802.11n (HT40)
Chain 0

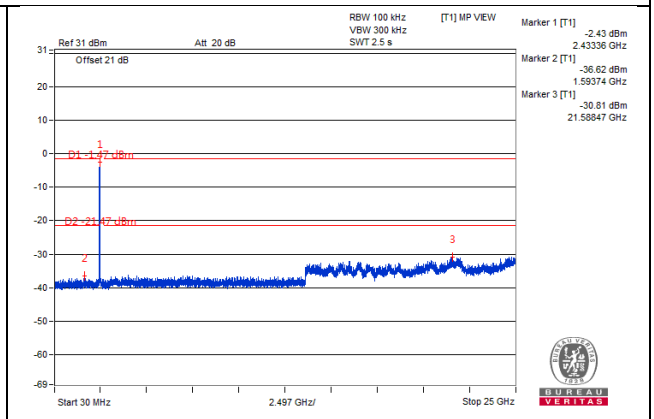
CH 3



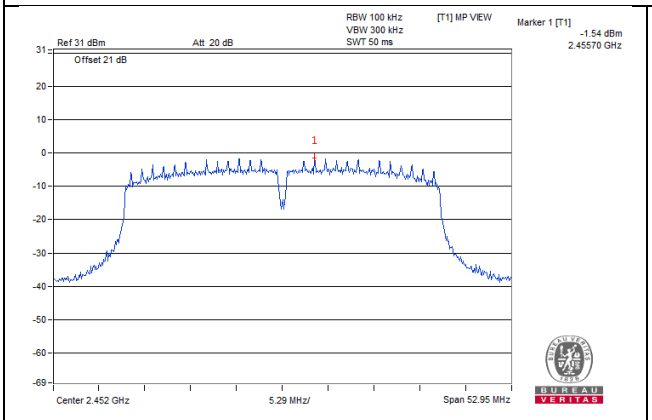


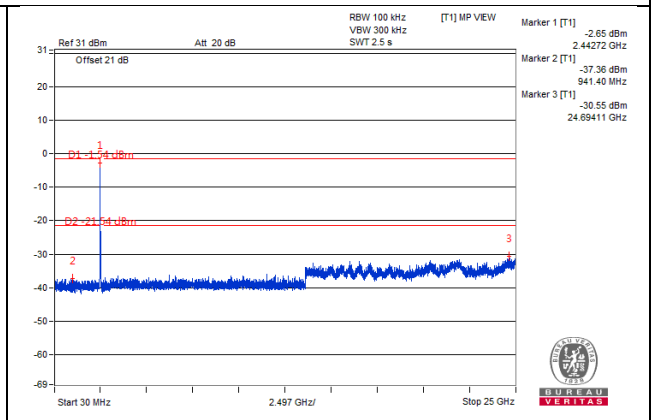
CH 6



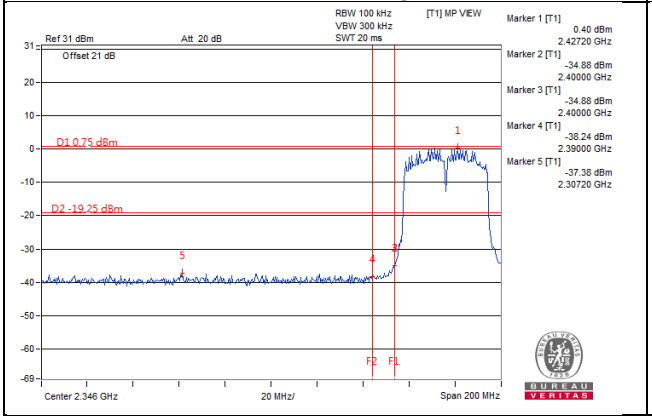


CH 9

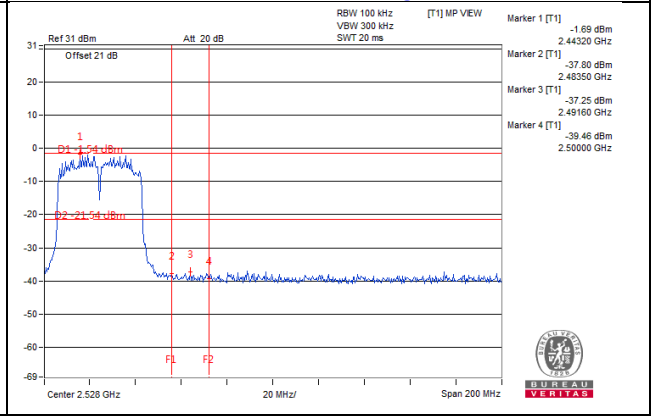




CH 3 Band edge

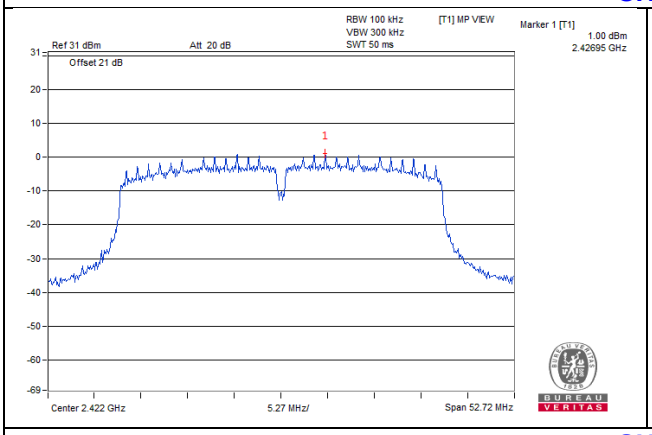


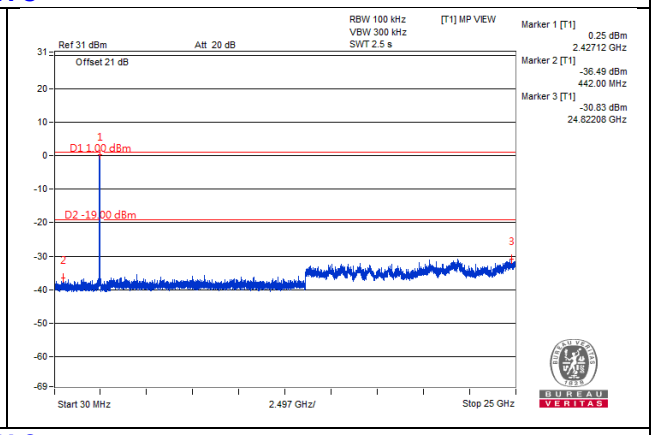
CH 9 Band edge



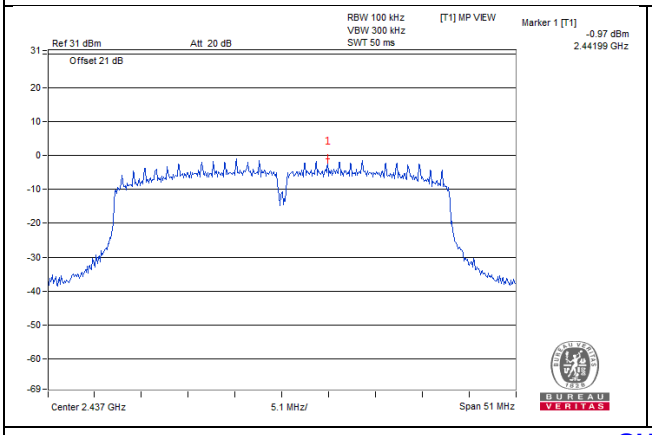
Chain 1

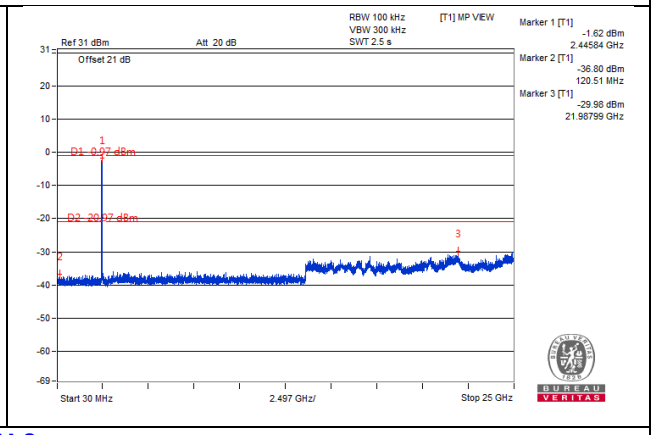
CH 3



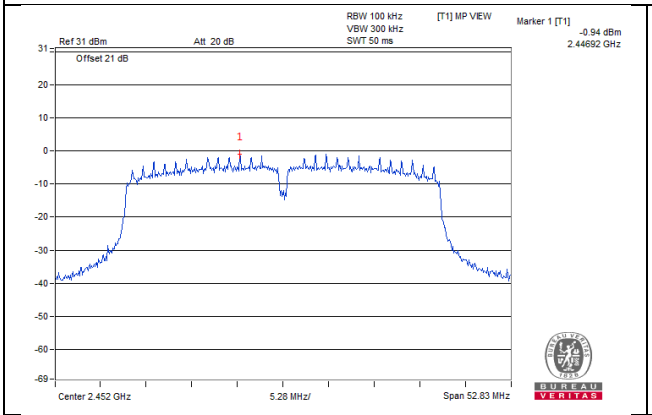


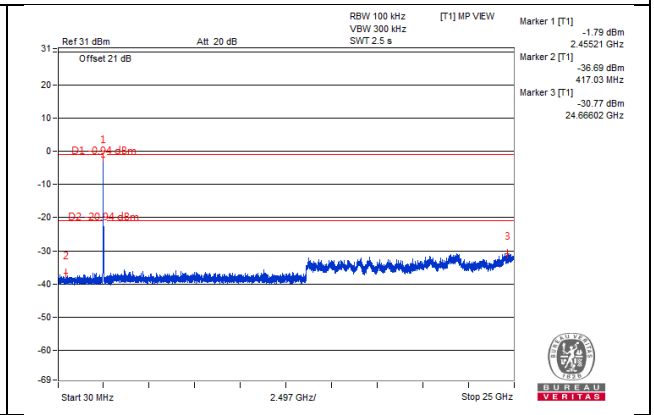
CH 6



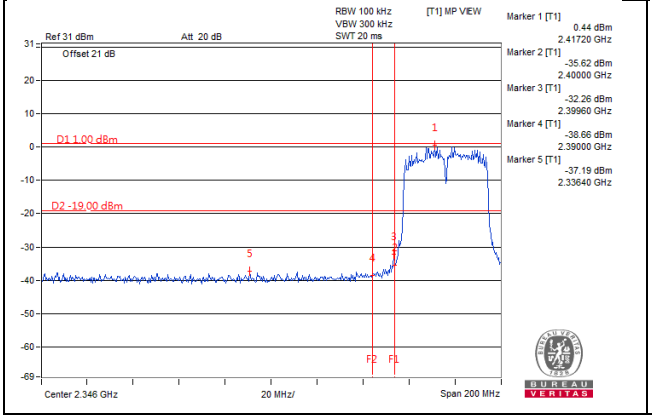


CH 9

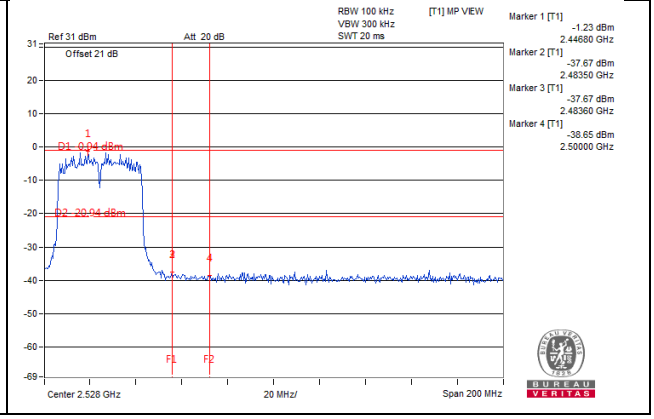




CH 3 Band edge



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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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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