FCC Test Report

Report No.:	RF171127C13-2
FCC ID:	AZ489FT7104
Test Model:	LEX L11n
Received Date:	Nov. 27, 2017
Test Date:	Dec. 13, 2017 ~ Feb. 01, 2018
Issued Date:	Mar. 02, 2018
Applicant:	Motorola Solutions, Inc.
Address:	8000 West Sunrise Boulevard, Fort Lauderdale, Florida 33322
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)
FCC Registration/ Designation Number:	788550 / TW0003

Testing Laboratory
2021

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Release Control Record

Issue No.	Description	Date Issued
RF171127C13-2	Original release.	Mar. 02, 2018

1 Certificate of Conformity

Product:	LEX L11 Mission Critical LTE Device
Brand:	Motorola Solutions
Test Model:	LEX L11n
Sample Status:	Engineering sample
Applicant:	Motorola Solutions, Inc.
Test Date:	Dec. 13, 2017 ~ Feb. 01, 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 RF characteristics under the conditions specified in this report.

Prepared by : _____ , **Date:** Mar. 02, 2018

Pettie Chen / Senior Specialist

Approved by : _____ , **Date:** Mar. 02, 2018

Bruce Chen / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (SECTION 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -15.76dB at 0.27120MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -1.1dB at 2390.00MHz.
15.247(d)	Antenna Port Emission	Pass	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	Pass	Meet the requirement of limit.
15.247(b)	Conducted power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	No antenna connector is used.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	2.94 dB
Radiated Emissions	30MHz ~ 200MHz	3.63 dB
	200MHz ~ 1000MHz	3.64 dB
	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	LEX L11 Mission Critical LTE Device
Brand	Motorola Solutions
Test Model	LEX L11n
Status of EUT	Engineering sample
Power Supply Rating	3.7Vdc (Battery) 5Vdc or 9Vdc or 12Vdc (adapter) 5Vdc or 9Vdc (Car Charger)
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: 11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300Mbps
Operating Frequency	2412 ~ 2462MHz
Number of Channel	11 for 802.11b, 802.11g, 802.11n (HT20) 7 for 802.11n (HT40)
Output Power	168.655mW
Antenna Type	Main Antenna: Monopole antenna with -3.0 dBi gain Aux. Antenna: Monopole antenna with -2.2 dBi gain
Antenna Connector	Connector RF, Female(Receptacle/Socket), 8, Straight, Micro Coaxial, 2W, 50ohm, SMD, T/R
Accessory Device	Refer to Note as below
Data Cable Supplied	Refer to Note as below

Note:
1. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitter and 2 receivers.

Modulation Mode	TX Function
802.11b	2TX
802.11g	2TX
802.11n (HT20)	2TX
802.11n (HT40)	2TX

2. The EUT uses following devices and cables.

Item	Brand	Model	Specification	Remark
Charger 1	Motorola Solutions	MU27-4090300-A1 Part No: PS000278A01	Quick USB Wall Charger Input: 100-240Vac, 50/60Hz, 0.7A Output: 5V / 3A 9V / 3A 12V / 2.25A	Accessory
Charger 2	Motorola Solutions	MU08-L050150-A1 Part No: PS000150A31	Micro USB Wall Charger Input: 100-240Vac, 50/60Hz, 16-22VA, 0.25A Output: 5V / 1.5A	Accessory
Charger 3 (Car charger)	Motorola Solutions	CB18-2090200-C Part No: PMLN7779A	Vehicle Charger Input: 12/24V / 2.0A Output: 5V / 3A; 9V / 2A 0.35m DC cable without core attached	Accessory
Battery 1 (Hi-Cap)	Motorola Solutions	PMNN4546A	3.7V RECHARGEABLE LITHIUM ION BATTERY Rating: 3.7Vdc 5000mAh	Accessory
Battery 2 (Standard)	Motorola Solutions	PMNN4545A	3.7V RECHARGEABLE LITHIUM ION BATTERY Rating: 3.7Vdc 2500mAh	Accessory
Cable 1	Motorola Solutions	CB0000756A01	Type C to Type C 0.95m shielded USB cable without core	Accessory (for Charger PS000278A01 used)
Cable 2	Motorola Solutions	CB0000754A01	Type A to Type C 0.95m shielded USB cable without core	Accessory (for Charger PS000150A31 used)

3. 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	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	
A	-	√	√	-	Power from Charger 1
B	√	√	√	√	Power from Charger 2
C	-	√	-	-	Power from Charger 3 (12Vdc)
D	-	√	-	-	Power from Charger 3 (24Vdc)

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

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

Note:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on X-plane.
2. "-" means no effect.

Radiated Emission Test (Above 1GHz):

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
B	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
B	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
B	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
B	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Radiated Emission Test (Below 1GHz):

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B, C, D	802.11b	1 to 11	1	DSSS	DBPSK	1.0

Power Line Conducted Emission Test:

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B	802.11b	1 to 11	1	DSSS	DBPSK	1.0

Antenna Port Conducted Measurement:

☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
B	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
B	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
B	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
B	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Test Condition:

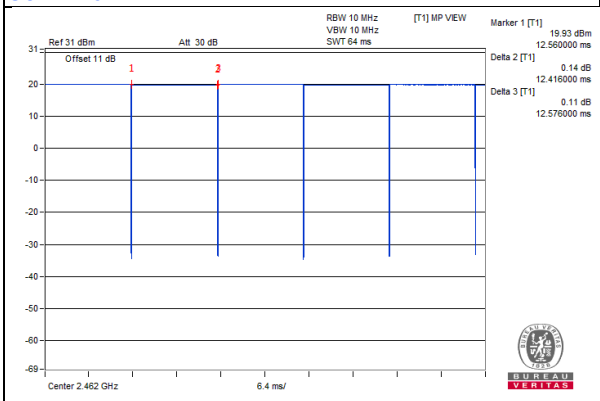
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 66%RH	120Vac, 60Hz	Greg Lin
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Greg Lin
PLC	25deg. C, 75%RH	120Vac, 60Hz	Greg Lin
APCM	25deg. C, 60%RH	120Vac, 60Hz	Ted Chang

3.3 Duty Cycle of Test Signal

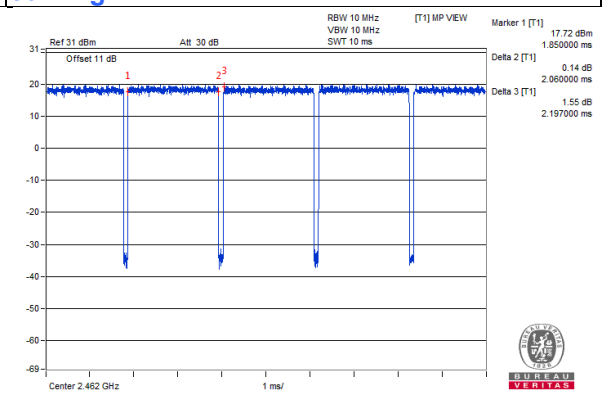
Duty cycle of test signal is ≥ 98%, duty factor is not required.
Duty cycle of test signal is < 98%, duty factor is required.

802.11b: Duty cycle = 12.416/12.576 = 0.987
802.11g: Duty cycle = 2.060/2.197 = 0.938, Duty factor = 10 * log(1/0.938) = 0.28
802.11n (HT20): Duty cycle = 1.92/2.035 = 0.943, Duty factor = 10 * log(1/0.943) = 0.25
802.11n (HT40): Duty cycle = 0.944/1.049 = 0.900, Duty factor = 10 * log(1/0.900) = 0.46

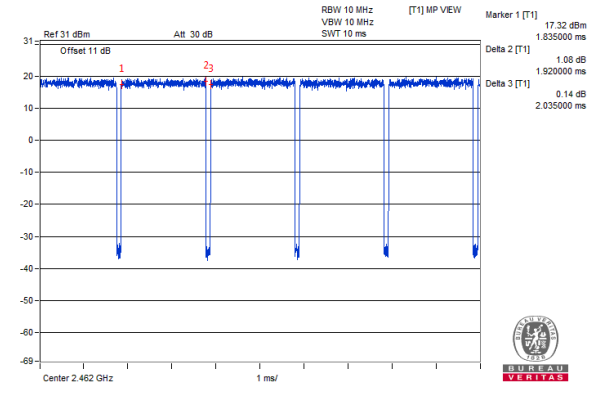
802.11b



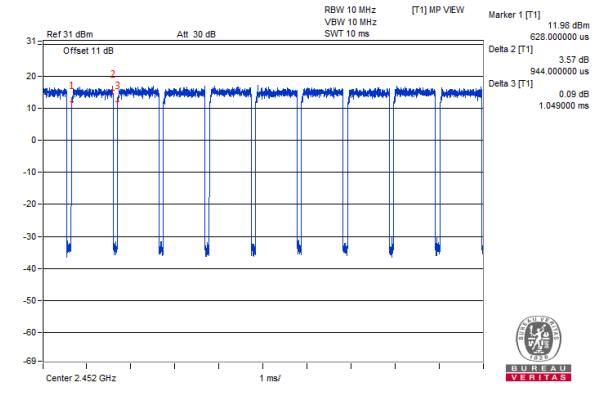
802.11g



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.	Power Supply	acpower	ADC-48-20A	802001	NA	-

Note:

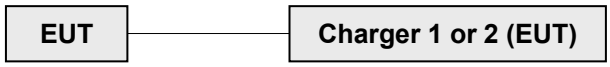
1. All power cords of the above support units are non-shielded (1.8m).

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	Power cable	1	1.8	N	0	-

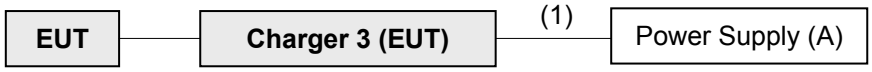
Note: The core(s) is(are) originally attached to the cable(s).

3.4.1 Configuration of System under Test

Test Mode A, B



Test Mode C, D



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 DTS Meas Guidance v04
KDB 662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10-2013

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 30dB below the highest level of the desired power:

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

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 30dB under any condition of modulation.

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver KEYSIGHT	N9038A	MY55420137	Mar. 27, 2017	Mar. 26, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	May 11, 2017	May 10, 2018
BILOG Antenna SCHWARZBECK	VULB9168	9168-148	Dec. 11, 2017	Dec. 10, 2018
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Dec. 12, 2017	Dec. 11, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Dec. 01, 2017	Nov. 30, 2018
Loop Antenna EMCI	EM-6879	269	Aug. 11, 2017	Aug. 10, 2018
Preamplifier Agilent (Below 1GHz)	8447D	2944A10638	Aug. 08, 2017	Aug. 07, 2018
Preamplifier Agilent (Above 1GHz)	8449B	3008A01922	Sep. 15, 2017	Sep. 14, 2018
RF signal cable HUBER+SUHNER&EMCI	SUCOFLEX 104 & EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	Jan. 15, 2018	Jan. 14, 2019
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/ 4)	Aug. 08, 2017	Aug. 07, 2018
RF signal cable Woken	8D-FB	Cable-CH9-01	Aug. 01, 2017	Jul. 31, 2018
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower &Turn BV ADT	AT100	AT93021705	NA	NA
Turn Table BV ADT	TT100	TT93021705	NA	NA
Turn Table Controller BV ADT	SC100	SC93021705	NA	NA
High Speed Peak Power Meter	ML2495A	0824012	Aug. 18, 2017	Aug. 17, 2018
Power Sensor	MA2411B	0738171	Aug. 18, 2017	Aug. 17, 2018

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 9.
3. The FCC Designation Number is TW0003. The number will be varied with the Lab location and scope as attached.
4. The IC Site Registration No. is IC 7450F-9.

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. Both X and Y axes of the antenna are set to make the measurement.

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

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

NOTE:

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

For Radiated emission above 30MHz

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

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

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

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

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

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

Note:

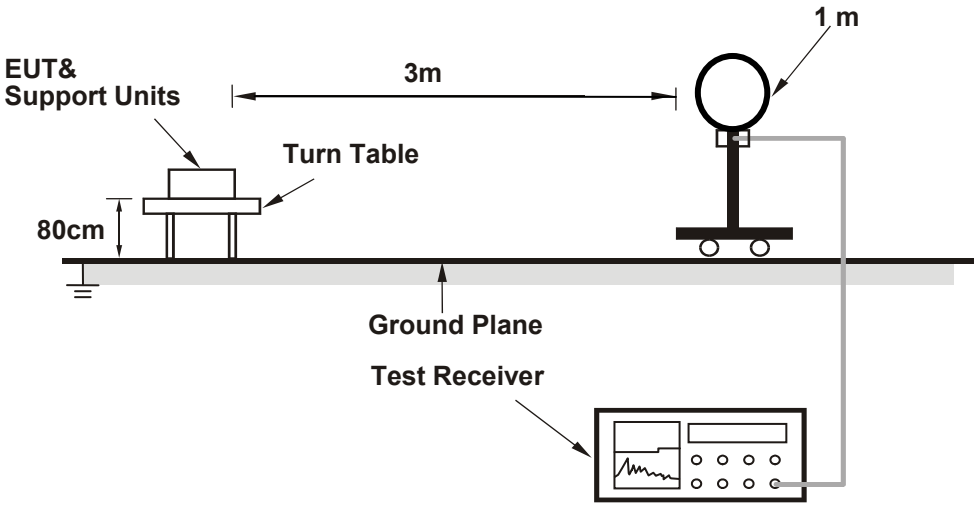
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.1.4 Deviation from Test Standard

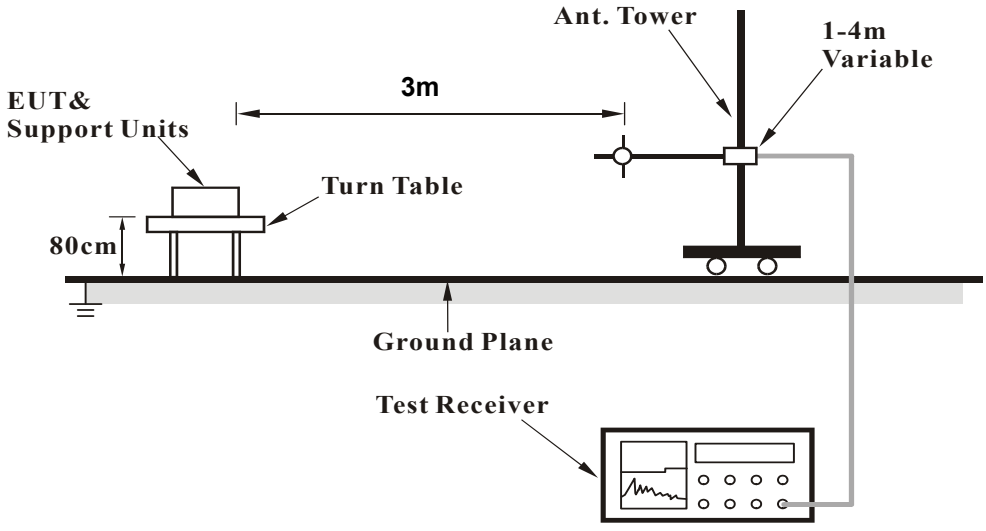
No deviation.

4.1.5 Test Set Up

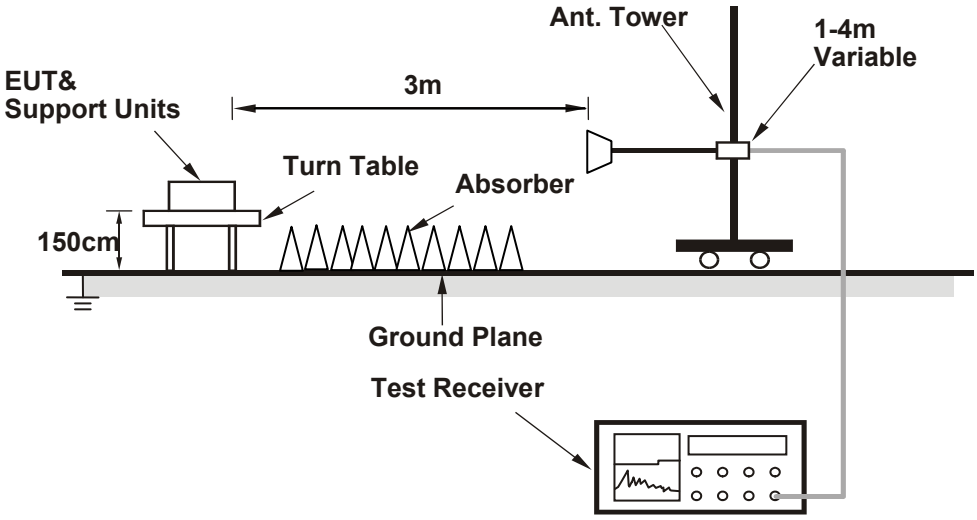
For Radiated emission below 30MHz



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. Set the EUT under transmission condition continuously at specific channel frequency.

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	58.3 PK	74.0	-15.7	3.65 H	294	24.9	33.4
2	2390.00	45.6 AV	54.0	-8.4	3.65 H	294	12.2	33.4
3	*2412.00	106.4 PK			3.71 H	288	72.9	33.5
4	*2412.00	102.8 AV			3.71 H	288	69.3	33.5
5	4824.00	49.0 PK	74.0	-25.0	3.53 H	263	45.3	3.7
6	4824.00	38.5 AV	54.0	-15.5	3.53 H	263	34.8	3.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.4 PK	74.0	-16.6	3.45 V	144	24.0	33.4
2	2390.00	45.7 AV	54.0	-8.3	3.45 V	144	12.3	33.4
3	*2412.00	101.1 PK			3.42 V	147	67.6	33.5
4	*2412.00	97.0 AV			3.42 V	147	63.5	33.5
5	4824.00	49.4 PK	74.0	-24.6	3.45 V	268	45.7	3.7
6	4824.00	39.0 AV	54.0	-15.0	3.45 V	268	35.3	3.7

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	106.4 PK			3.60 H	28	72.8	33.6
2	*2437.00	102.7 AV			3.60 H	28	69.1	33.6
3	4874.00	47.8 PK	74.0	-26.2	3.25 H	46	43.9	3.9
4	4874.00	35.4 AV	54.0	-18.6	3.25 H	46	31.5	3.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	102.6 PK			3.73 V	143	69.0	33.6
2	*2437.00	98.5 AV			3.73 V	143	64.9	33.6
3	4874.00	46.8 PK	74.0	-27.2	2.65 V	188	42.9	3.9
4	4874.00	34.2 AV	54.0	-19.8	2.65 V	188	30.3	3.9

REMARKS:

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

CHANNEL	TX Channel 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			3.54 H	353	72.4	33.8
2	*2462.00	102.5 AV			3.54 H	353	68.7	33.8
3	2483.50	58.3 PK	74.0	-15.7	3.55 H	350	24.4	33.9
4	2483.50	47.1 AV	54.0	-6.9	3.55 H	350	13.2	33.9
5	4924.00	48.2 PK	74.0	-25.8	3.12 H	101	44.2	4.0
6	4924.00	36.9 AV	54.0	-17.1	3.12 H	101	32.9	4.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	106.1 PK			3.75 V	208	72.3	33.8
2	*2462.00	102.4 AV			3.75 V	208	68.6	33.8
3	2483.50	57.8 PK	74.0	-16.2	3.74 V	204	23.9	33.9
4	2483.50	46.5 AV	54.0	-7.5	3.74 V	204	12.6	33.9
5	4924.00	47.3 PK	74.0	-26.7	3.45 V	142	43.3	4.0
6	4924.00	36.3 AV	54.0	-17.7	3.45 V	142	32.3	4.0

REMARKS:

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

802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	63.0 PK	74.0	-11.0	3.81 H	0	29.6	33.4
2	2390.00	50.7 AV	54.0	-3.3	3.81 H	0	17.3	33.4
3	*2412.00	105.7 PK			3.64 H	352	72.2	33.5
4	*2412.00	95.4 AV			3.64 H	352	61.9	33.5
5	4824.00	47.5 PK	74.0	-26.5	1.57 H	184	43.8	3.7
6	4824.00	34.0 AV	54.0	-20.0	1.57 H	184	30.3	3.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.5 PK	74.0	-11.5	3.89 V	205	29.1	33.4
2	2390.00	48.8 AV	54.0	-5.2	3.89 V	205	15.4	33.4
3	*2412.00	99.2 PK			3.64 V	8	65.7	33.5
4	*2412.00	88.8 AV			3.64 V	8	55.3	33.5
5	4824.00	47.2 PK	74.0	-26.8	2.15 V	178	43.5	3.7
6	4824.00	33.8 AV	54.0	-20.2	2.15 V	178	30.1	3.7

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	106.6 PK			3.52 H	76	73.0	33.6
2	*2437.00	96.4 AV			3.52 H	76	62.8	33.6
3	4874.00	46.9 PK	74.0	-27.1	1.88 H	268	43.0	3.9
4	4874.00	34.1 AV	54.0	-19.9	1.88 H	268	30.2	3.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	102.2 PK			3.91 V	205	68.6	33.6
2	*2437.00	92.2 AV			3.91 V	205	58.6	33.6
3	4874.00	47.0 PK	74.0	-27.0	2.68 V	182	43.1	3.9
4	4874.00	34.1 AV	54.0	-19.9	2.68 V	182	30.2	3.9

REMARKS:

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

CHANNEL	TX Channel 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	107.6 PK			3.45 H	68	73.8	33.8
2	*2462.00	96.8 AV			3.45 H	68	63.0	33.8
3	2483.50	61.4 PK	74.0	-12.6	3.44 H	1	27.5	33.9
4	2483.50	49.2 AV	54.0	-4.8	3.44 H	1	15.3	33.9
5	4924.00	47.2 PK	74.0	-26.8	2.22 H	186	43.2	4.0
6	4924.00	33.9 AV	54.0	-20.1	2.22 H	186	29.9	4.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	104.5 PK			3.77 V	208	70.7	33.8
2	*2462.00	95.3 AV			3.77 V	208	61.5	33.8
3	2483.50	58.2 PK	74.0	-15.8	3.65 V	278	24.3	33.9
4	2483.50	47.0 AV	54.0	-7.0	3.65 V	278	13.1	33.9
5	4924.00	47.0 PK	74.0	-27.0	2.00 V	155	43.0	4.0
6	4924.00	33.9 AV	54.0	-20.1	2.00 V	155	29.9	4.0

REMARKS:

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

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.7 PK	74.0	-12.3	3.85 H	198	28.3	33.4
2	2390.00	49.2 AV	54.0	-4.8	3.85 H	198	15.8	33.4
3	*2412.00	105.6 PK			3.36 H	184	72.1	33.5
4	*2412.00	95.9 AV			3.36 H	184	62.4	33.5
5	4824.00	46.6 PK	74.0	-27.4	1.57 H	169	42.9	3.7
6	4824.00	33.7 AV	54.0	-20.3	1.57 H	169	30.0	3.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.0 PK	74.0	-16.0	3.55 V	154	24.6	33.4
2	2390.00	47.8 AV	54.0	-6.2	3.55 V	154	14.4	33.4
3	*2412.00	103.6 PK			3.90 V	203	70.1	33.5
4	*2412.00	93.9 AV			3.90 V	203	60.4	33.5
5	4824.00	48.3 PK	74.0	-25.7	2.43 V	156	44.6	3.7
6	4824.00	34.3 AV	54.0	-19.7	2.43 V	156	30.6	3.7

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	102.7 PK			3.48 H	179	69.1	33.6
2	*2437.00	91.9 AV			3.48 H	179	58.3	33.6
3	4874.00	46.5 PK	74.0	-27.5	2.61 H	104	42.6	3.9
4	4874.00	33.8 AV	54.0	-20.2	2.61 H	104	29.9	3.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	102.3 PK			3.86 V	204	68.7	33.6
2	*2437.00	91.9 AV			3.86 V	204	58.3	33.6
3	4874.00	46.6 PK	74.0	-27.4	3.00 V	115	42.7	3.9
4	4874.00	34.0 AV	54.0	-20.0	3.00 V	115	30.1	3.9

REMARKS:

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

CHANNEL	TX Channel 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			3.49 H	60	72.4	33.8
2	*2462.00	96.3 AV			3.49 H	60	62.5	33.8
3	2483.50	61.4 PK	74.0	-12.6	3.49 H	288	27.5	33.9
4	2483.50	49.1 AV	54.0	-4.9	3.49 H	288	15.2	33.9
5	4924.00	46.9 PK	74.0	-27.1	1.64 H	78	42.9	4.0
6	4924.00	33.9 AV	54.0	-20.1	1.64 H	78	29.9	4.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	106.0 PK			3.76 V	207	72.2	33.8
2	*2462.00	95.4 AV			3.76 V	207	61.6	33.8
3	2483.50	58.5 PK	74.0	-15.5	3.74 V	221	24.6	33.9
4	2483.50	46.5 AV	54.0	-7.5	3.74 V	221	12.6	33.9
5	4924.00	46.8 PK	74.0	-27.2	2.50 V	166	42.8	4.0
6	4924.00	33.9 AV	54.0	-20.1	2.50 V	166	29.9	4.0

REMARKS:

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

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.0 PK	74.0	-7.0	3.41 H	14	33.6	33.4
2	**2390.00**	**52.9 AV**	**54.0**	**-1.1**	**3.41 H**	**14**	**19.5**	**33.4**
3	*2422.00	99.9 PK			3.43 H	184	66.3	33.6
4	*2422.00	90.2 AV			3.43 H	184	56.6	33.6
5	4944.00	47.1 PK	74.0	-26.9	1.15 H	168	42.9	4.2
6	4944.00	33.8 AV	54.0	-20.2	1.15 H	168	29.6	4.2
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	61.2 PK	74.0	-12.8	3.86 V	325	27.8	33.4
2	2390.00	49.4 AV	54.0	-4.6	3.86 V	325	16.0	33.4
3	*2422.00	97.2 PK			3.98 V	204	63.6	33.6
4	*2422.00	87.6 AV			3.98 V	204	54.0	33.6
5	4844.00	47.1 PK	74.0	-26.9	1.56 V	215	43.3	3.8
6	4844.00	33.9 AV	54.0	-20.1	1.56 V	215	30.1	3.8

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) 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	66.6 PK	74.0	-7.4	3.61 H	186	33.2	33.4
2	2390.00	52.7 AV	54.0	-1.3	3.61 H	186	19.3	33.4
3	*2437.00	103.2 PK			3.57 H	79	69.6	33.6
4	*2437.00	93.2 AV			3.57 H	79	59.6	33.6
5	4874.00	47.0 PK	74.0	-27.0	2.41 H	199	43.1	3.9
6	4874.00	33.9 AV	54.0	-20.1	2.41 H	199	30.0	3.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.4 PK	74.0	-9.6	3.85 V	219	31.0	33.4
2	2390.00	50.9 AV	54.0	-3.1	3.85 V	219	17.5	33.4
3	*2437.00	100.2 PK			3.90 V	205	66.6	33.6
4	*2437.00	90.2 AV			3.90 V	205	56.6	33.6
5	4874.00	47.0 PK	74.0	-27.0	2.46 V	188	43.1	3.9
6	4874.00	33.7 AV	54.0	-20.3	2.46 V	188	29.8	3.9

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	103.0 PK			3.12 H	69	69.2	33.8
2	*2452.00	93.5 AV			3.12 H	69	59.7	33.8
3	2483.50	66.3 PK	74.0	-7.7	2.77 H	336	32.4	33.9
4	2483.50	52.7 AV	54.0	-1.3	2.77 H	336	18.8	33.9
5	4904.00	47.3 PK	74.0	-26.7	1.18 H	325	43.3	4.0
6	4904.00	34.1 AV	54.0	-19.9	1.18 H	325	30.1	4.0
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	99.6 PK			3.55 V	215	65.8	33.8
2	*2452.00	89.8 AV			3.55 V	215	56.0	33.8
3	2483.50	62.5 PK	74.0	-11.5	4.00 V	217	28.6	33.9
4	2483.50	49.7 AV	54.0	-4.3	4.00 V	217	15.8	33.9
5	4904.00	47.6 PK	74.0	-26.4	1.62 V	274	43.6	4.0
6	4904.00	33.8 AV	54.0	-20.2	1.62 V	274	29.8	4.0

REMARKS:

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

Below 1GHz Data:

802.11b

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

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	30.00	30.3 QP	40.0	-9.7	1.50 H	35	45.4	-15.1
2	105.66	24.9 QP	43.5	-18.6	1.00 H	64	42.1	-17.2
3	239.52	22.4 QP	46.0	-23.6	1.25 H	4	37.1	-14.7
4	621.70	23.0 QP	46.0	-23.0	1.00 H	347	29.9	-6.9
5	746.83	34.1 QP	46.0	-11.9	1.50 H	153	38.8	-4.7
6	943.74	27.3 QP	46.0	-18.7	2.00 H	233	29.0	-1.7
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	58.13	29.5 QP	40.0	-10.5	2.00 V	70	43.1	-13.6
2	90.14	27.1 QP	43.5	-16.4	1.50 V	265	45.9	-18.8
3	196.84	18.6 QP	43.5	-24.9	1.25 V	144	34.7	-16.1
4	460.68	21.1 QP	46.0	-24.9	1.00 V	193	30.7	-9.6
5	719.67	33.7 QP	46.0	-12.3	1.50 V	340	39.1	-5.4
6	929.19	27.9 QP	46.0	-18.1	2.00 V	6	29.8	-1.9

REMARKS:

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

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

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	33.88	29.1 QP	40.0	-10.9	1.50 H	317	43.9	-14.8
2	90.14	27.0 QP	43.5	-16.5	1.25 H	181	45.8	-18.8
3	198.78	25.9 QP	43.5	-17.6	1.00 H	158	42.1	-16.2
4	617.82	23.0 QP	46.0	-23.0	1.00 H	122	29.9	-6.9
5	712.88	26.3 QP	46.0	-19.7	1.00 H	282	31.9	-5.6
6	934.04	27.9 QP	46.0	-18.1	1.50 H	39	29.7	-1.8
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	55.22	33.5 QP	40.0	-6.5	1.00 V	256	47.0	-13.5
2	90.14	28.9 QP	43.5	-14.6	1.00 V	203	47.7	-18.8
3	198.78	21.1 QP	43.5	-22.4	1.50 V	208	37.3	-16.2
4	451.95	21.8 QP	46.0	-24.2	1.00 V	34	31.6	-9.8
5	759.44	25.5 QP	46.0	-20.5	1.25 V	19	29.8	-4.3
6	900.09	27.6 QP	46.0	-18.4	1.25 V	334	30.3	-2.7

REMARKS:

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

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

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	32.91	28.6 QP	40.0	-11.4	1.00 H	5	43.4	-14.8
2	162.89	18.2 QP	43.5	-25.3	1.50 H	274	31.6	-13.4
3	369.50	18.9 QP	46.0	-27.1	1.25 H	76	30.1	-11.2
4	545.07	20.7 QP	46.0	-25.3	1.00 H	151	29.4	-8.7
5	714.82	31.4 QP	46.0	-14.6	1.50 H	136	36.9	-5.5
6	932.10	28.0 QP	46.0	-18.0	1.00 H	96	29.8	-1.8
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	36.79	33.1 QP	40.0	-6.9	1.50 V	227	47.6	-14.5
2	108.57	21.5 QP	43.5	-22.0	1.25 V	182	38.2	-16.7
3	442.25	20.9 QP	46.0	-25.1	1.50 V	221	30.9	-10.0
4	592.60	22.0 QP	46.0	-24.0	1.50 V	114	29.5	-7.5
5	713.85	30.3 QP	46.0	-15.7	2.00 V	22	35.9	-5.6
6	929.19	27.9 QP	46.0	-18.1	1.25 V	6	29.8	-1.9

REMARKS:

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

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

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	60.07	18.8 QP	40.0	-21.2	1.25 H	12	32.5	-13.7
2	216.24	17.0 QP	46.0	-29.0	1.50 H	233	33.1	-16.1
3	398.60	18.9 QP	46.0	-27.1	2.00 H	215	29.8	-10.9
4	618.79	22.4 QP	46.0	-23.6	2.00 H	142	29.3	-6.9
5	765.26	26.0 QP	46.0	-20.0	1.50 H	117	30.3	-4.3
6	937.92	27.7 QP	46.0	-18.3	1.25 H	162	29.4	-1.7
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	94.99	24.4 QP	43.5	-19.1	1.00 V	213	42.9	-18.5
2	204.60	17.7 QP	43.5	-25.8	1.50 V	245	33.9	-16.2
3	305.48	16.6 QP	46.0	-29.4	2.00 V	169	28.7	-12.1
4	538.28	21.4 QP	46.0	-24.6	1.00 V	147	30.3	-8.9
5	749.74	25.2 QP	46.0	-20.8	1.25 V	117	29.9	-4.7
6	929.19	27.9 QP	46.0	-18.1	1.50 V	21	29.8	-1.9

REMARKS:

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

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.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Nov. 23, 2017	Nov. 22, 2018
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Sep. 05, 2017	Sep. 04, 2018
LISN ROHDE & SCHWARZ (EUT)	ESH3-Z5	835239/001	Mar. 10, 2017	Mar. 09, 2018
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 15, 2017	Aug. 14, 2018
Software ADT	BV ADT_Cond_ V7.3.7.4	NA	NA	NA
Extension Cord	Extension Cord	1-1	Dec. 22, 2016	Dec. 21, 2017
			Dec. 22, 2017	Dec. 21, 2018

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 1.
3. The VCCI Site Registration No. is C-2040.

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.

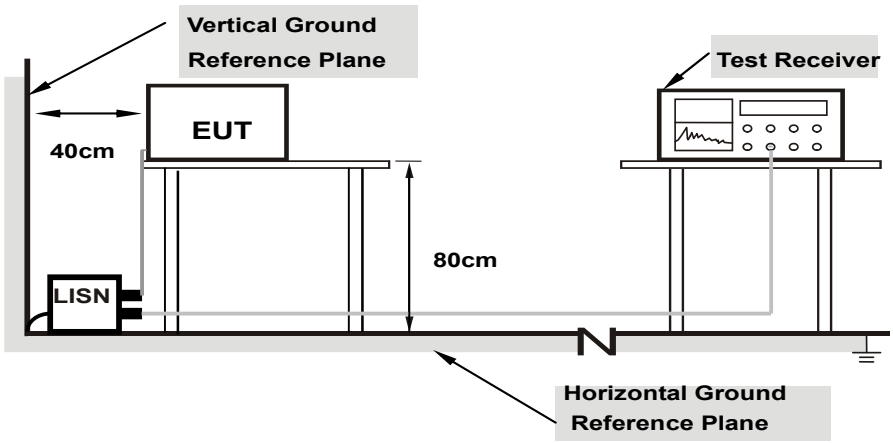
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

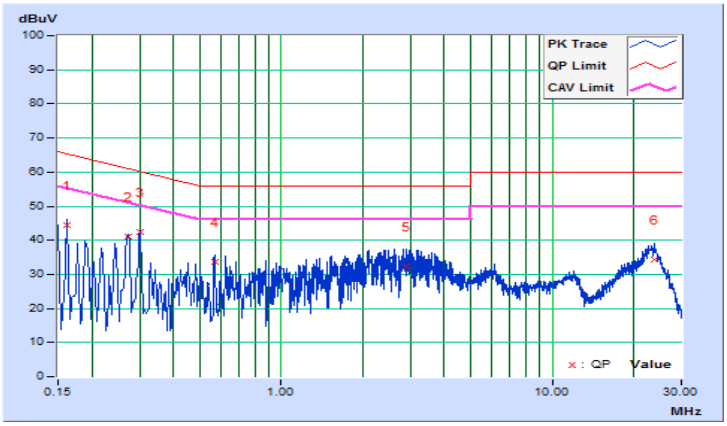
802.11b

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	Channel 1	Test Mode	A

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	0.16173	10.45	33.89	20.00	44.34	30.45	65.37	55.37	-21.03	-24.92
2	**0.27120**	**10.48**	**30.74**	**24.84**	**41.22**	**35.32**	**61.08**	**51.08**	**-19.86**	**-15.76**
3	0.30214	10.49	31.91	21.14	42.40	31.63	60.18	50.18	-17.78	-18.55
4	0.56837	10.51	23.19	11.52	33.70	22.03	56.00	46.00	-22.30	-23.97
5	2.90655	10.58	21.86	8.30	32.44	18.88	56.00	46.00	-23.56	-27.12
6	23.75076	11.58	22.67	10.83	34.25	22.41	60.00	50.00	-25.75	-27.59

REMARKS:

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

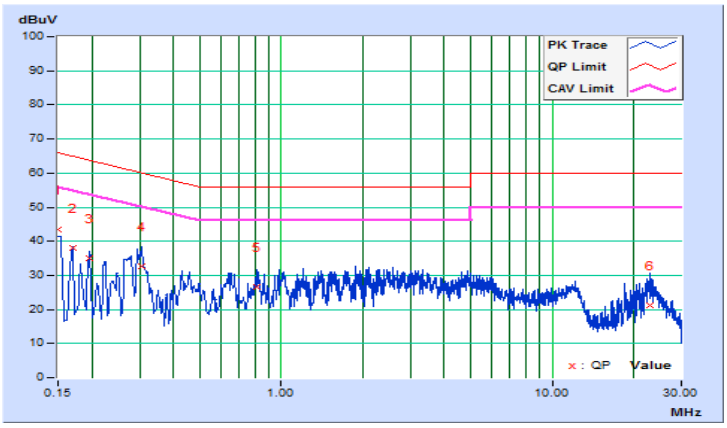


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	Channel 1	Test Mode	A

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	10.20	33.29	20.79	43.49	30.99	66.00	56.00	-22.51	-25.01
2	0.16955	10.21	27.99	14.83	38.20	25.04	64.98	54.98	-26.78	-29.94
3	0.19692	10.22	24.79	12.98	35.01	23.20	63.74	53.74	-28.73	-30.54
4	0.30615	10.23	22.54	15.15	32.77	25.38	60.07	50.07	-27.30	-24.69
5	0.81079	10.25	16.36	9.35	26.61	19.60	56.00	46.00	-29.39	-26.40
6	23.00004	11.14	9.96	1.44	21.10	12.58	60.00	50.00	-38.90	-37.42

REMARKS:

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

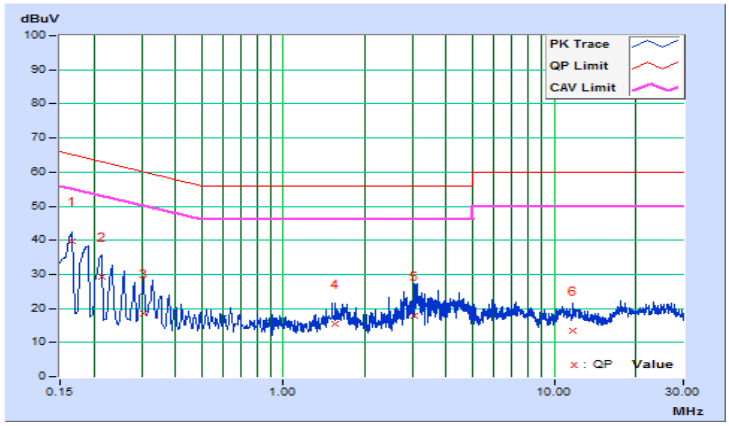


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	Channel 1	Test Mode	B

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	0.16600	10.45	29.28	16.37	39.73	26.82	65.16	55.16	-25.43	-28.34
2	0.21350	10.46	18.91	7.89	29.37	18.35	63.07	53.07	-33.70	-34.72
3	0.30600	10.49	7.91	2.74	18.40	13.23	60.08	50.08	-41.68	-36.85
4	1.56200	10.51	5.06	1.21	15.57	11.72	56.00	46.00	-40.43	-34.28
5	3.06600	10.59	7.29	1.67	17.88	12.26	56.00	46.00	-38.12	-33.74
6	11.78200	11.02	2.58	2.43	13.60	13.45	60.00	50.00	-46.40	-36.55

REMARKS:

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

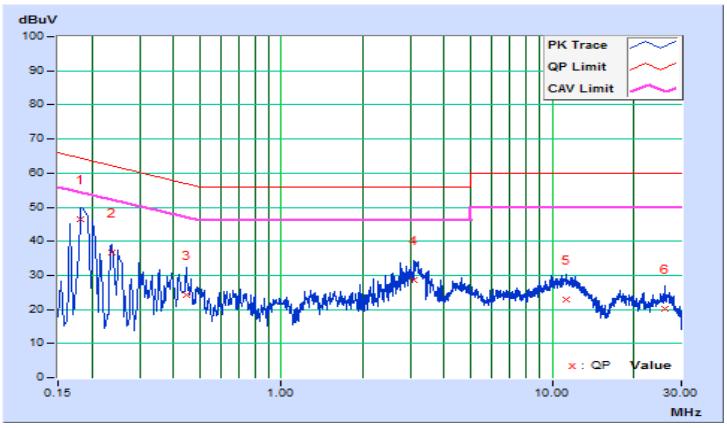


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Channel	Channel 1	Test Mode	B

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	0.18180	10.22	36.14	19.65	46.36	29.87	64.40	54.40	-18.04	-24.53
2	0.23785	10.23	26.49	11.08	36.72	21.31	62.17	52.17	-25.45	-30.86
3	0.44600	10.24	14.02	2.41	24.26	12.65	56.95	46.95	-32.69	-34.30
4	3.09800	10.36	18.10	6.38	28.46	16.74	56.00	46.00	-27.54	-29.26
5	11.25400	10.72	12.34	6.97	23.06	17.69	60.00	50.00	-36.94	-32.31
6	26.10200	11.22	9.03	4.04	20.25	15.26	60.00	50.00	-39.75	-34.74

REMARKS:

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

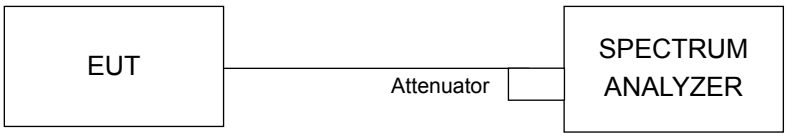


4.3 6dB Bandwidth Measurement

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	8.06	7.13	0.5	Pass
6	2437	7.57	8.08	0.5	Pass
11	2462	8.08	7.13	0.5	Pass

802.11g

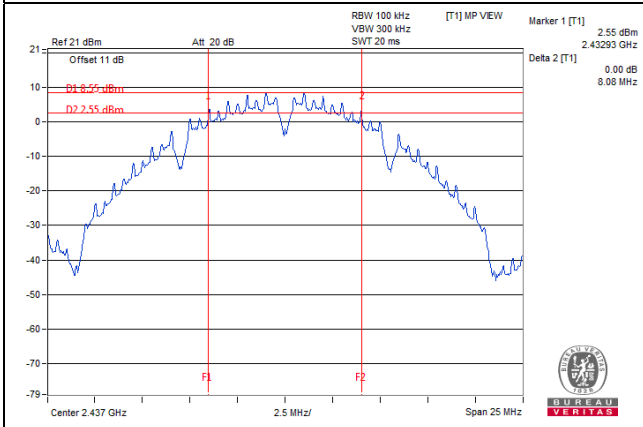
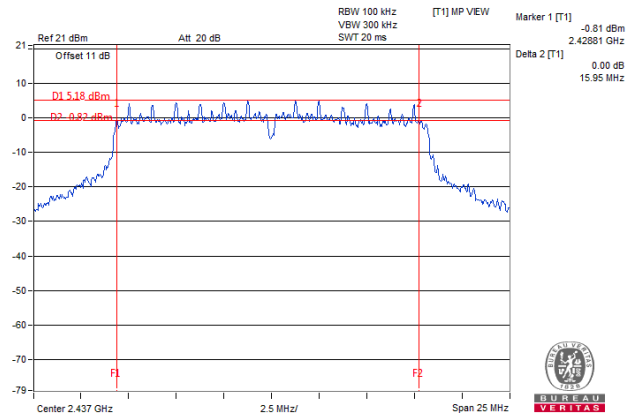
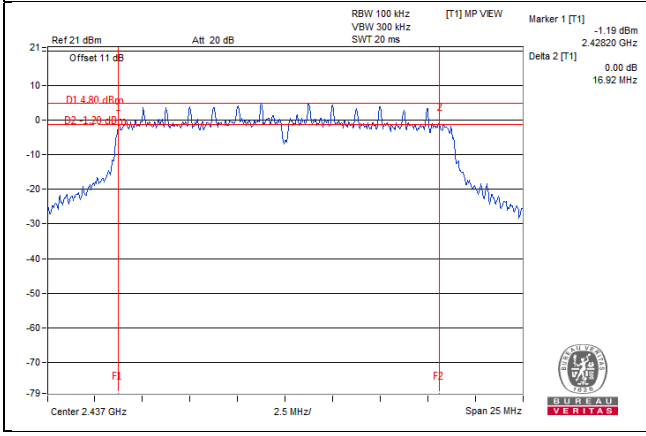
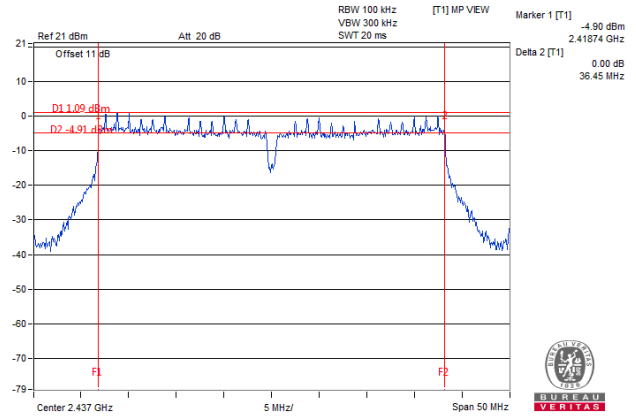
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.52	15.35	0.5	Pass
6	2437	15.95	15.70	0.5	Pass
11	2462	15.36	15.73	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	15.75	15.19	0.5	Pass
6	2437	16.92	16.85	0.5	Pass
11	2462	15.99	15.99	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.15	32.62	0.5	Pass
6	2437	36.44	36.45	0.5	Pass
9	2452	35.22	35.18	0.5	Pass

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

4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

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

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

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

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

4.4.2 Test Setup

4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

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

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

802.11b

Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	18.96	19.50	167.830	22.25	30	Pass
6	2437	19.02	19.47	168.311	22.26	30	Pass
11	2462	19.06	19.45	168.655	22.27	30	Pass

802.11g

Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	15.54	16.81	83.783	19.23	30	Pass
6	2437	15.67	15.74	74.395	18.72	30	Pass
11	2462	16.55	16.72	92.175	19.65	30	Pass

802.11n (HT20)

Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	15.55	16.53	80.870	19.08	30	Pass
6	2437	15.61	15.75	73.976	18.69	30	Pass
11	2462	16.58	16.72	92.488	19.66	30	Pass

802.11n (HT40)

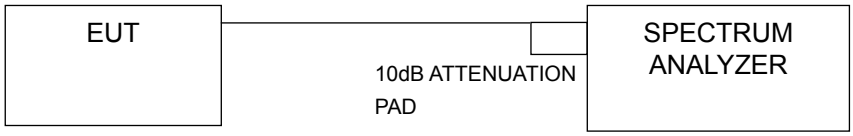
Chan.	Freq. (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	12.59	12.80	37.210	15.71	30	Pass
6	2437	12.96	12.86	39.090	15.92	30	Pass
9	2452	12.32	12.48	34.762	15.41	30	Pass

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

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

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6

4.5.7 Test Results

802.11b

TX chain	Chan.	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-9.90	3.01	-6.89	8.00	Pass
	6	2437	-10.16	3.01	-7.15	8.00	Pass
	11	2462	-9.84	3.01	-6.83	8.00	Pass
1	1	2412	-9.35	3.01	-6.34	8.00	Pass
	6	2437	-10.49	3.01	-7.48	8.00	Pass
	11	2462	-9.24	3.01	-6.23	8.00	Pass

NOTE:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/2$]=0.42dBi< 6dBi, so the power density limit no need to reduce.

802.11g

TX chain	Chan.	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Duty Factor	Total PSD with Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-14.59	3.01	0.28	-11.30	8.00	Pass
	6	2437	-15.62	3.01	0.28	-12.33	8.00	Pass
	11	2462	-15.10	3.01	0.28	-11.81	8.00	Pass
1	1	2412	-14.13	3.01	0.28	-10.84	8.00	Pass
	6	2437	-15.91	3.01	0.28	-12.62	8.00	Pass
	11	2462	-14.13	3.01	0.28	-10.84	8.00	Pass

NOTE:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/2$]=0.42dBi< 6dBi, so the power density limit no need to reduce.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Chan.	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Duty Factor	Total PSD with Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	1	2412	-15.97	3.01	0.25	-12.71	8.00	Pass
	6	2437	-15.60	3.01	0.25	-12.34	8.00	Pass
	11	2462	-14.56	3.01	0.25	-11.30	8.00	Pass
1	1	2412	-14.49	3.01	0.25	-11.23	8.00	Pass
	6	2437	-15.71	3.01	0.25	-12.45	8.00	Pass
	11	2462	-14.63	3.01	0.25	-11.37	8.00	Pass

NOTE:

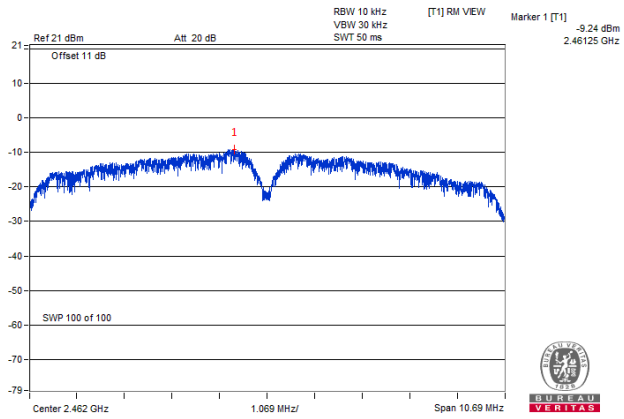
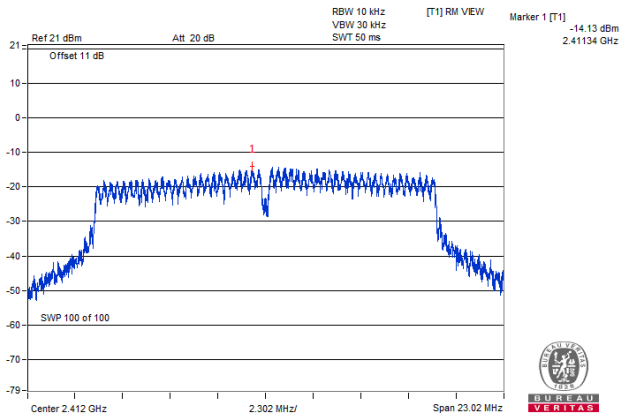
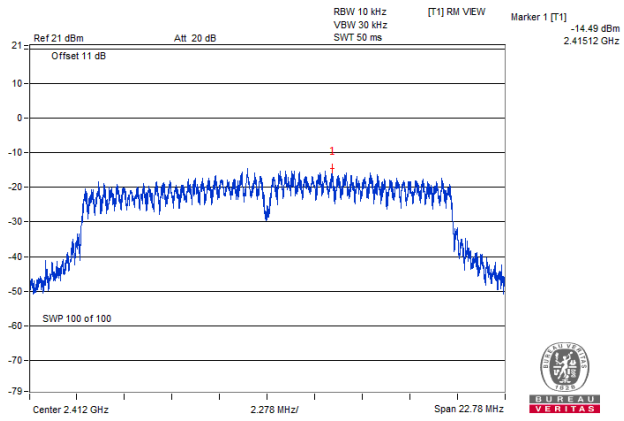
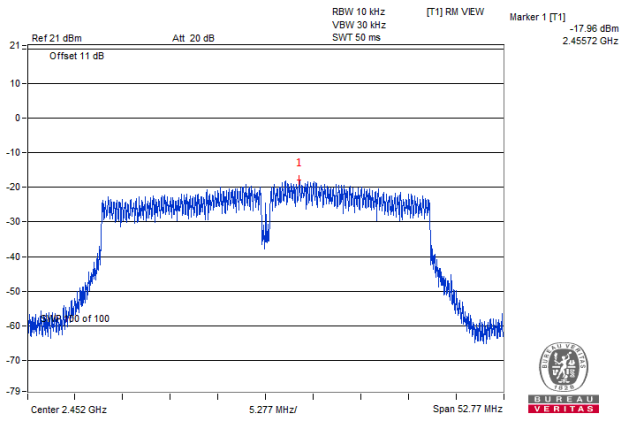
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/2$]=0.42dBi< 6dBi, so the power density limit no need to reduce.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

TX chain	Chan.	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=2) dB	Duty Factor	Total PSD with Duty Factor (dBm/10kHz)	Limit (dBm/3kHz)	Pass / Fail
0	3	2422	-20.56	3.01	0.46	-17.09	8.00	Pass
	6	2437	-20.18	3.01	0.46	-16.71	8.00	Pass
	9	2452	-19.11	3.01	0.46	-15.64	8.00	Pass
1	3	2422	-19.76	3.01	0.46	-16.29	8.00	Pass
	6	2437	-20.12	3.01	0.46	-16.65	8.00	Pass
	9	2452	-17.96	3.01	0.46	-14.49	8.00	Pass

NOTE:

1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2/2$]=0.42dBi< 6dBi, so the power density limit no need to reduce.
3. Refer to section 3.3 for duty cycle spectrum plot.

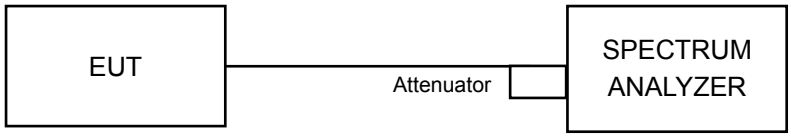
Spectrum Plot of Worst Value	
802.11b	**802.11g**
	
802.11n (HT20)	**802.11n (HT40)**
	

4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOBE

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

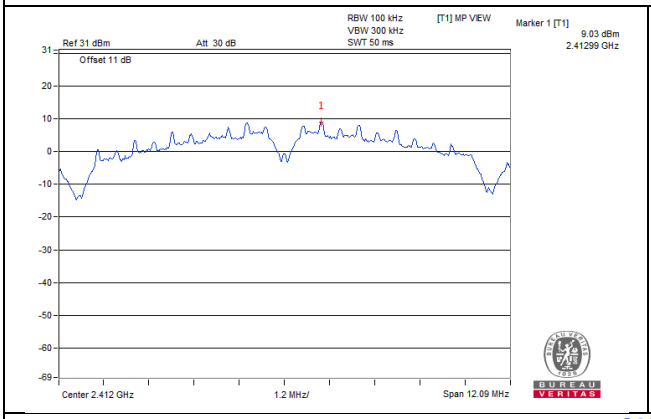
Same as Item 4.3.6

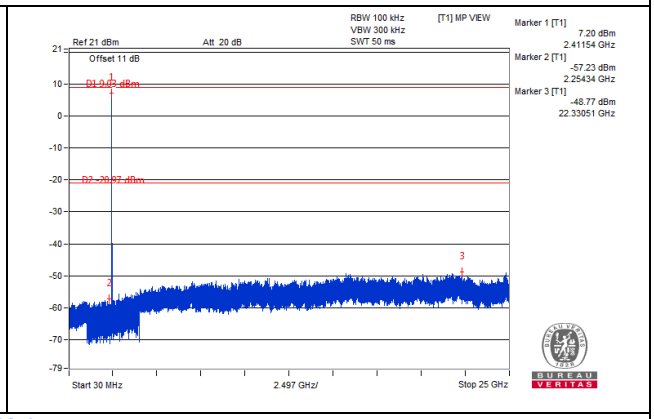
4.6.7 Test Results

The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 30dB offset below D1. It shows compliance with the requirement.

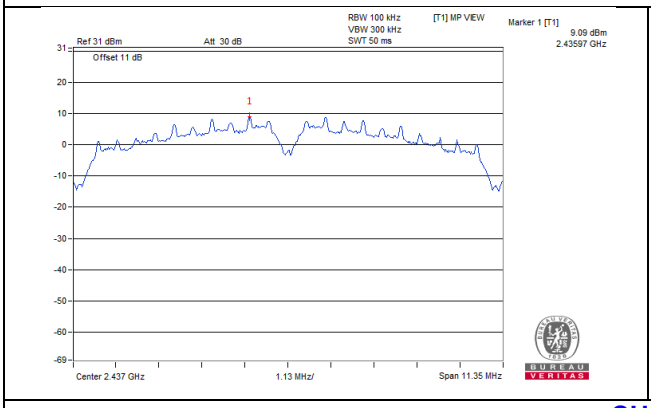
802.11b
CHAIN 0

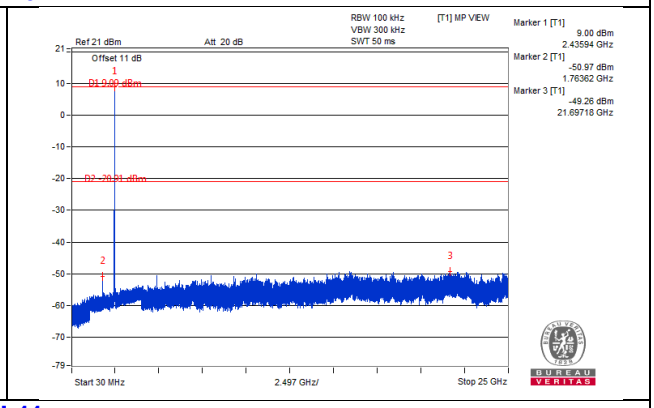
CH 1



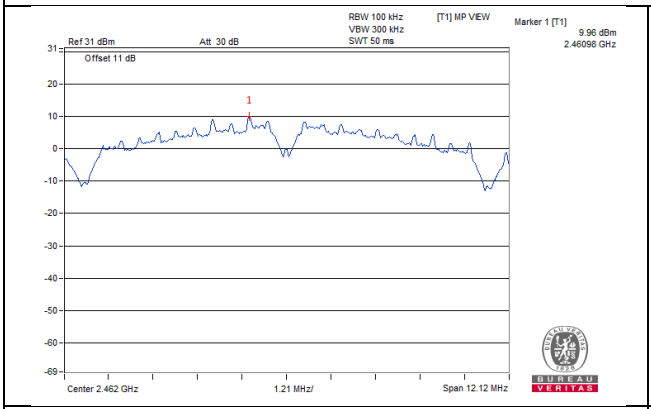


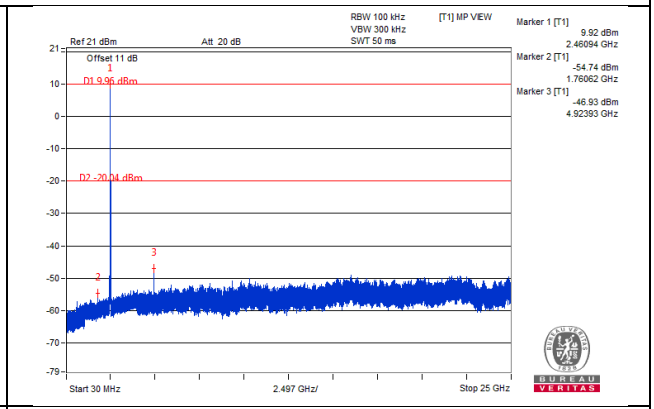
CH 6



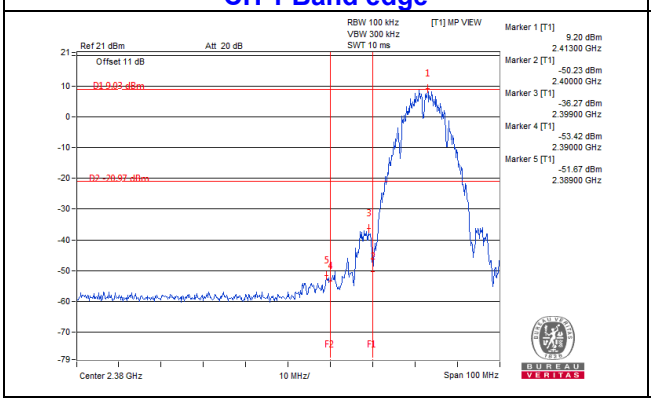


CH 11

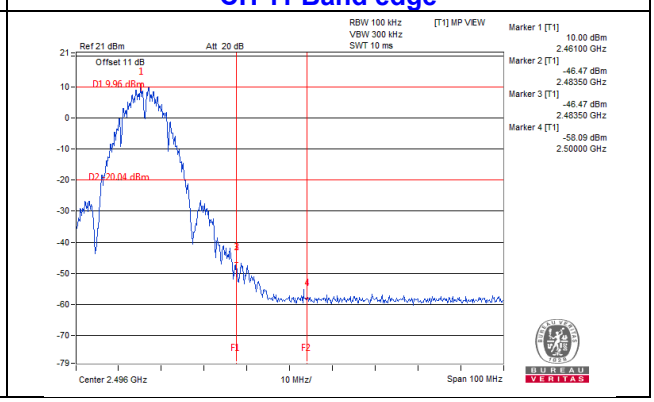




CH 1 Band edge

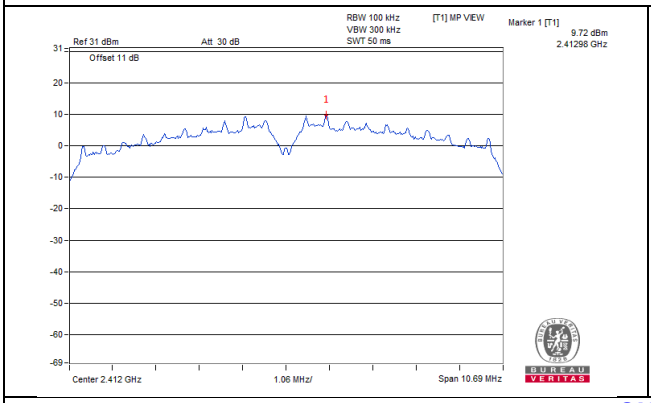


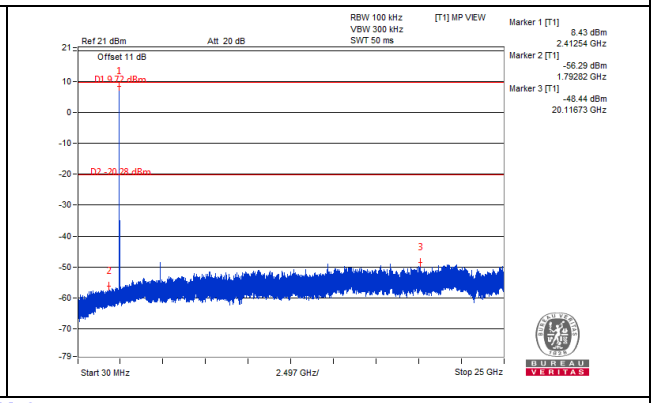
CH 11 Band edge



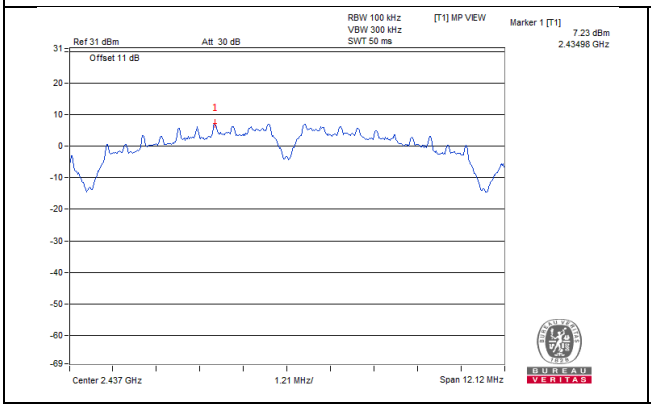
CHAIN 1

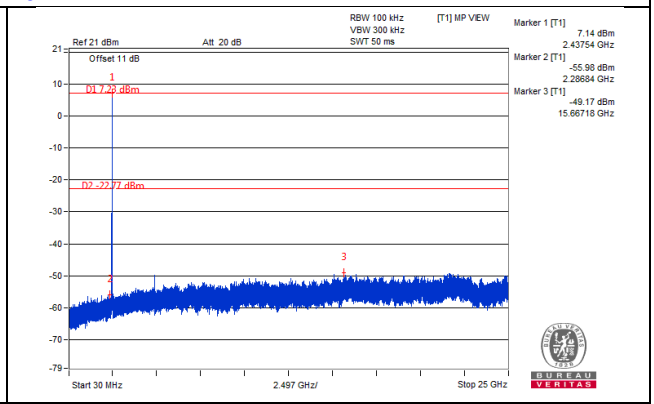
CH 1



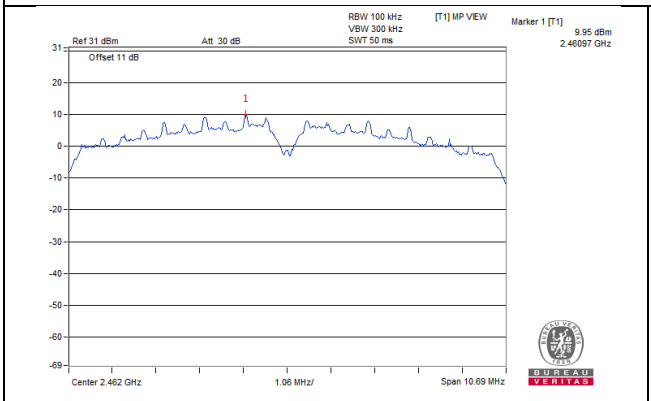


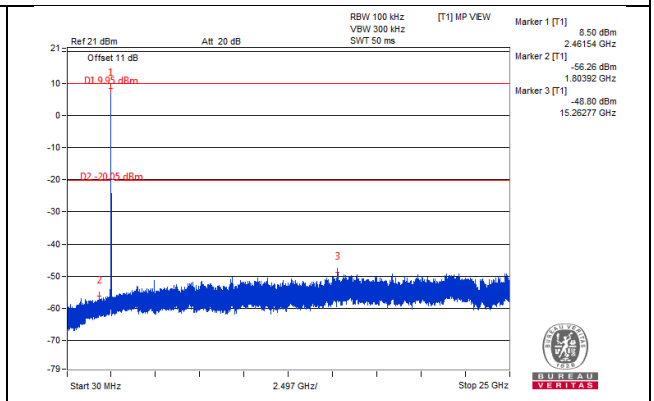
CH 6



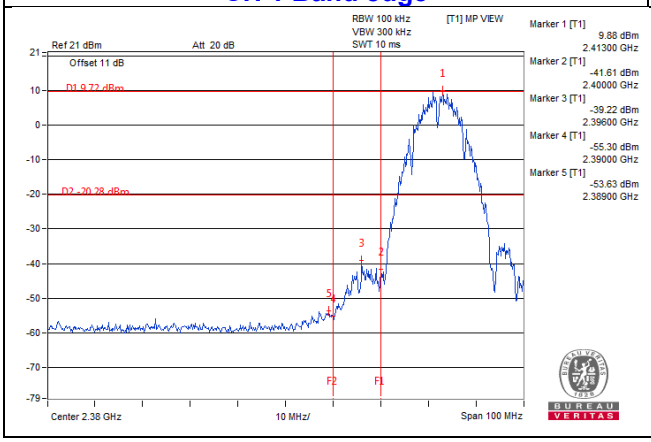


CH 11

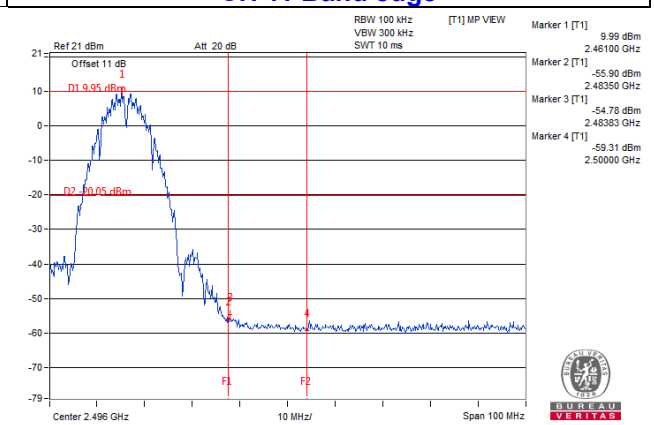




CH 1 Band edge

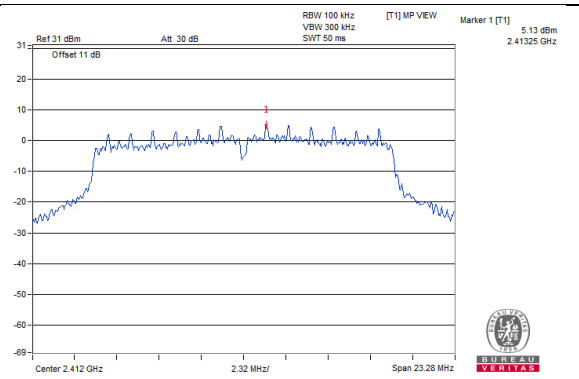


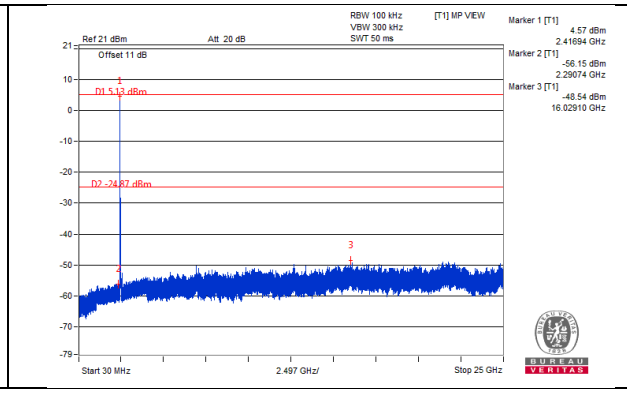
CH 11 Band edge



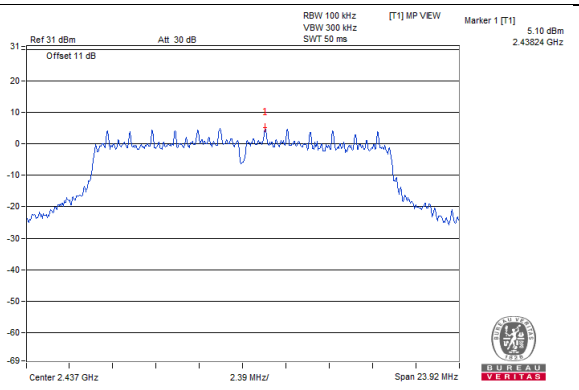
802.11g
CHAIN 0

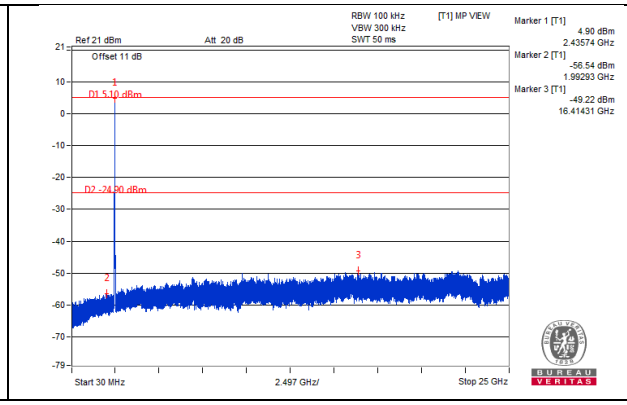
CH 1



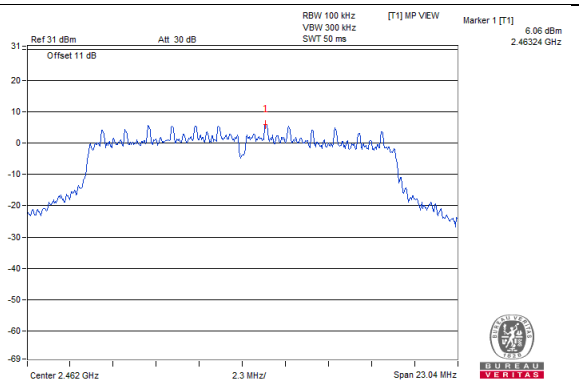


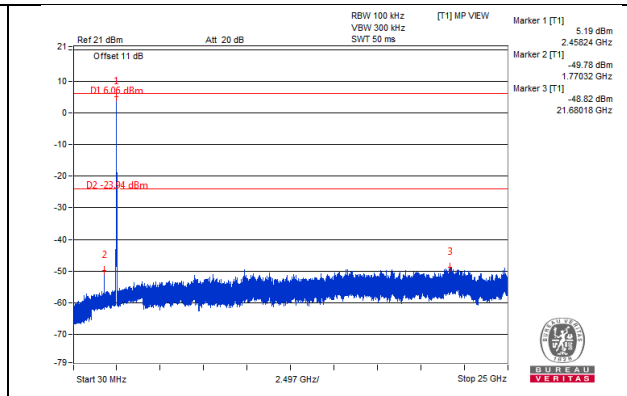
CH 6



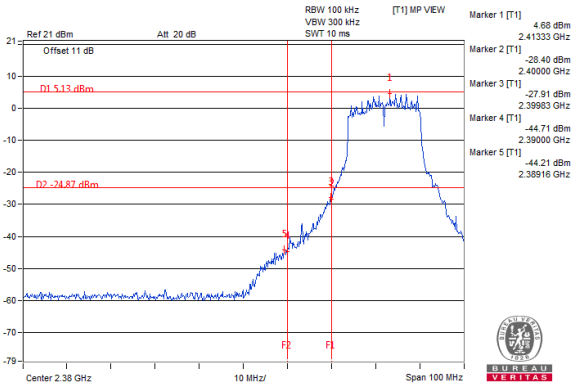


CH 11

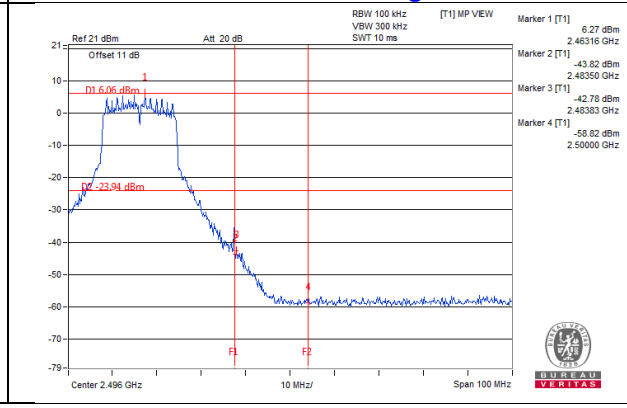




CH 1 Band edge

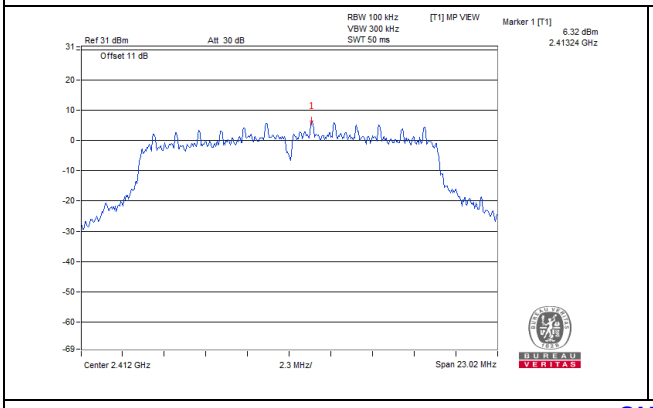


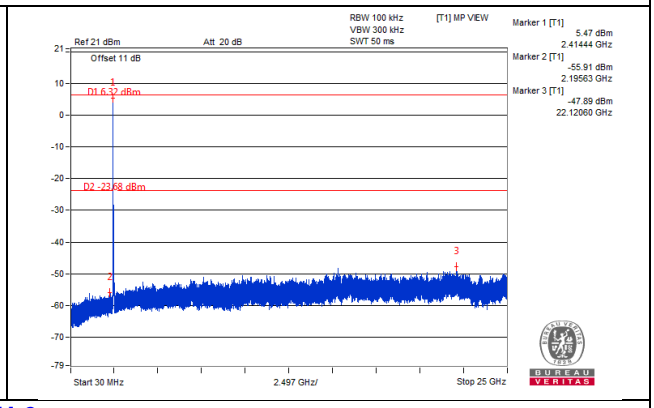
CH 11 Band edge



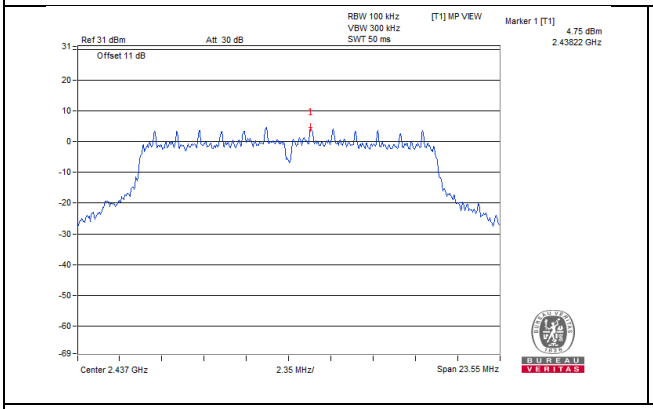
CHAIN 1

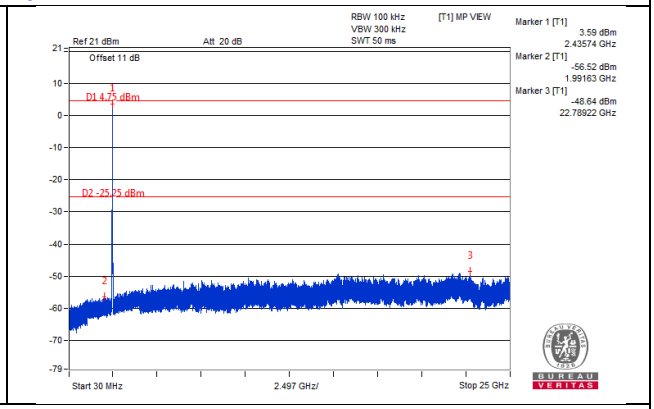
CH 1



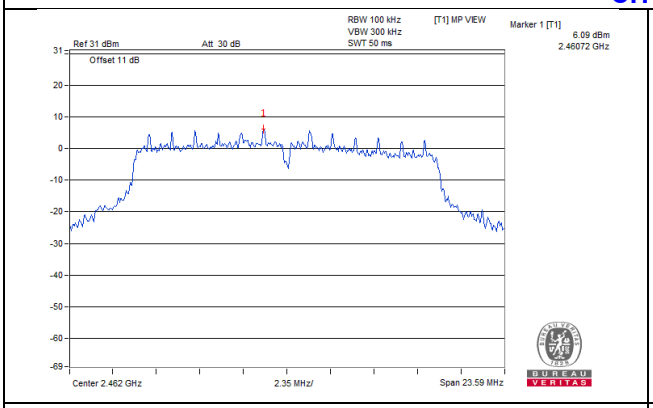


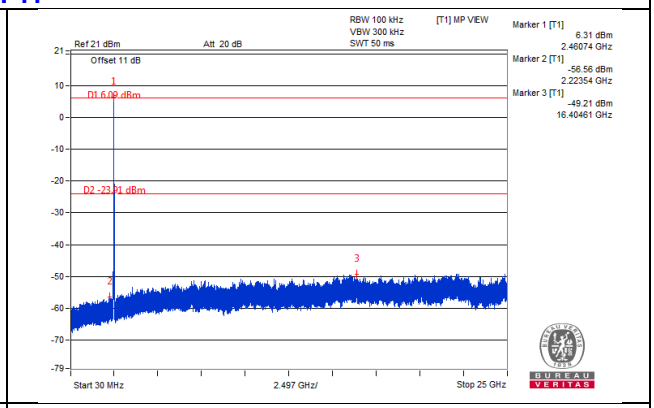
CH 6



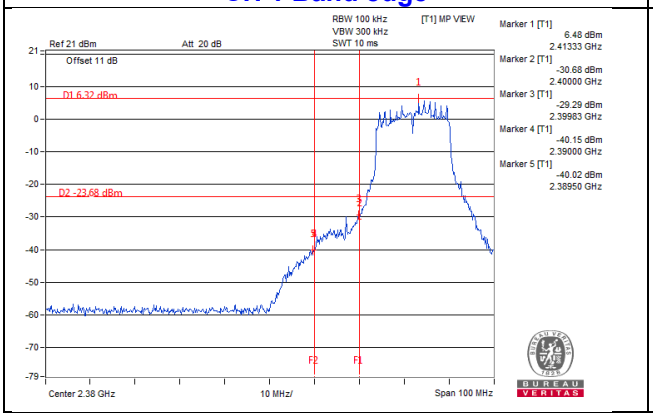


CH 11

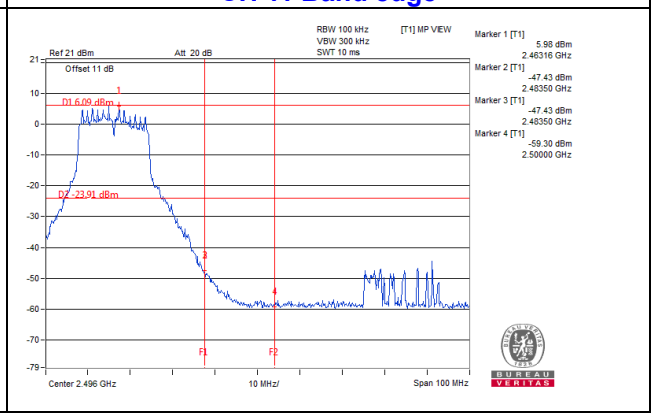




CH 1 Band edge

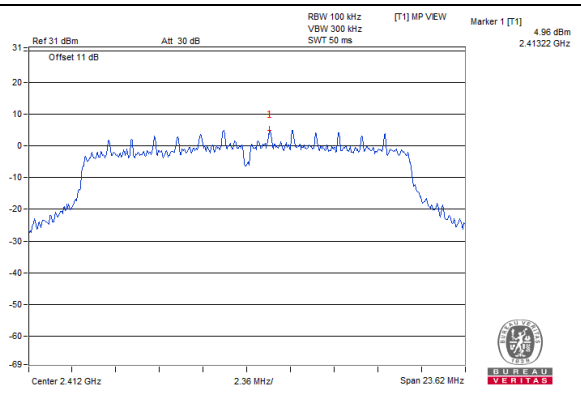


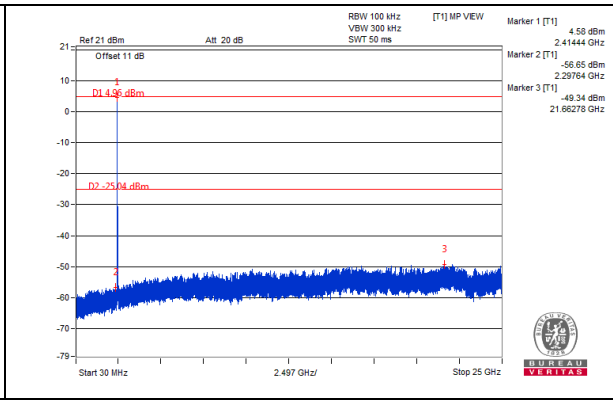
CH 11 Band edge



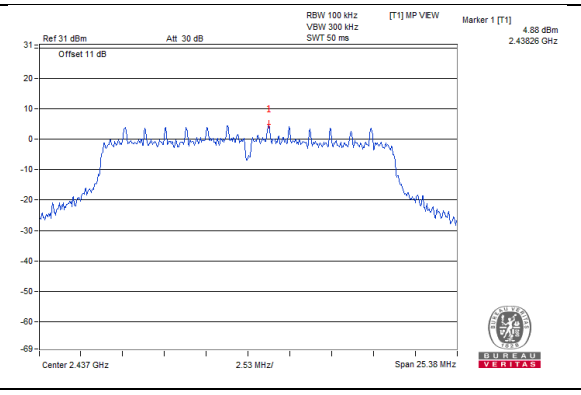
802.11n (HT20)
CHAIN 0

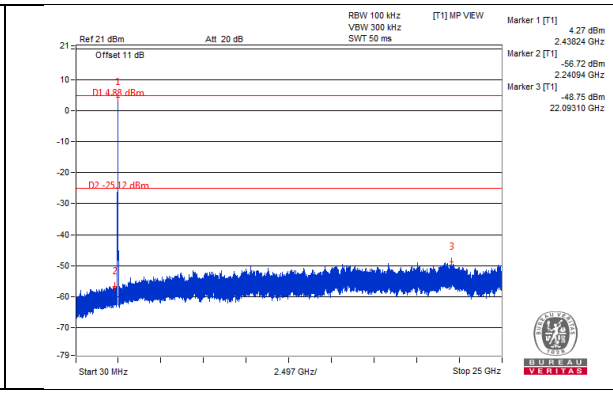
CH 1



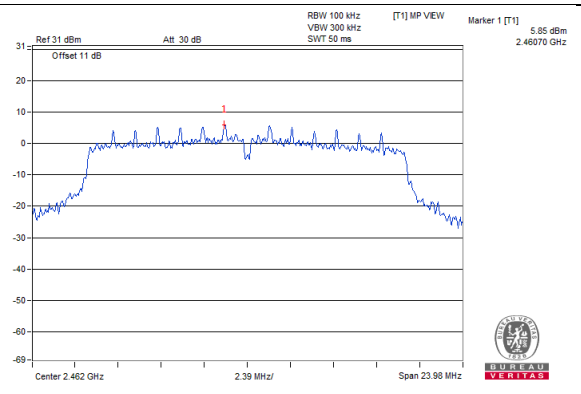


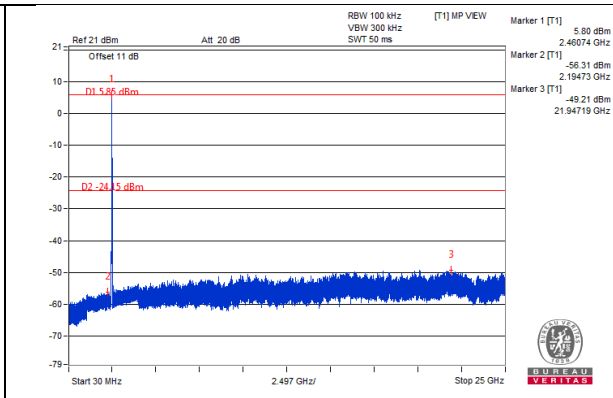
CH 6



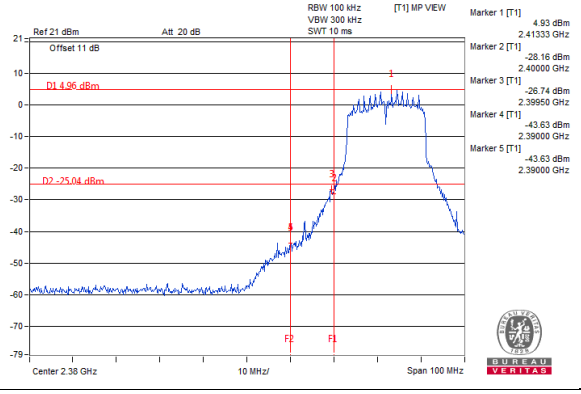


CH 11

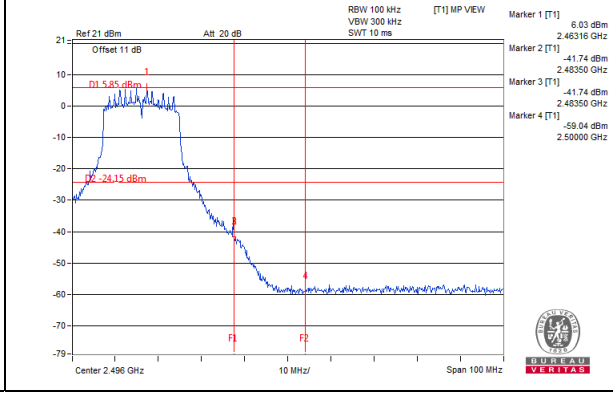




CH 1 Band edge

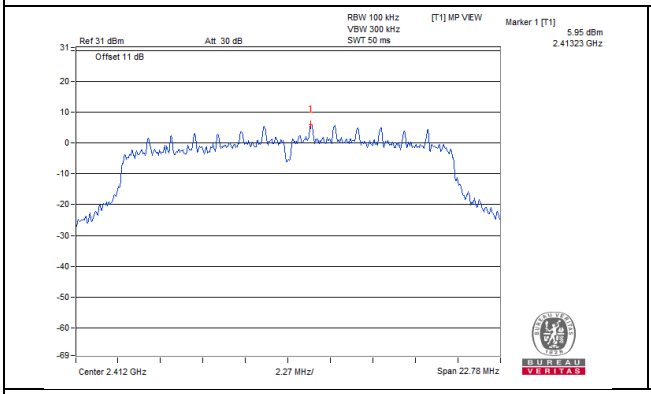


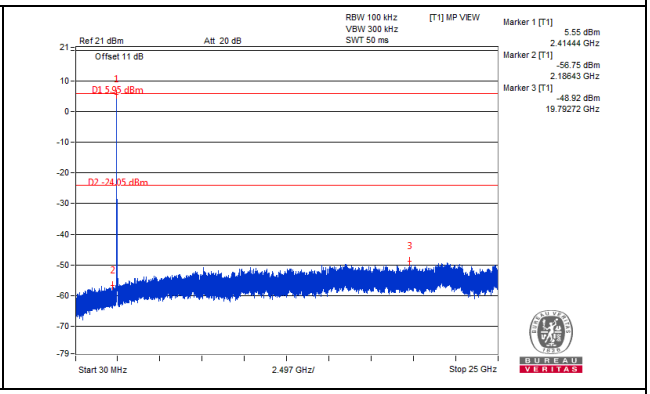
CH 11 Band edge



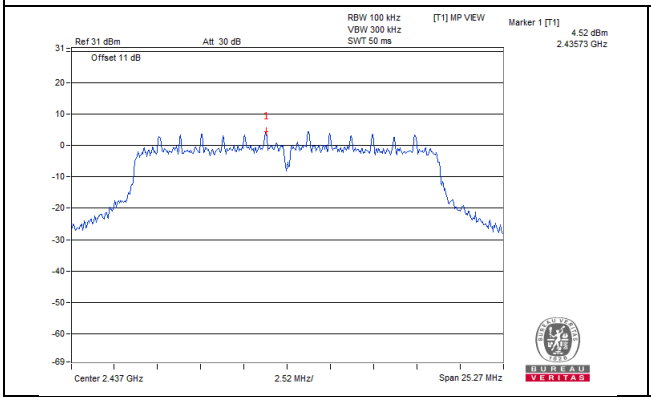
CHAIN 1

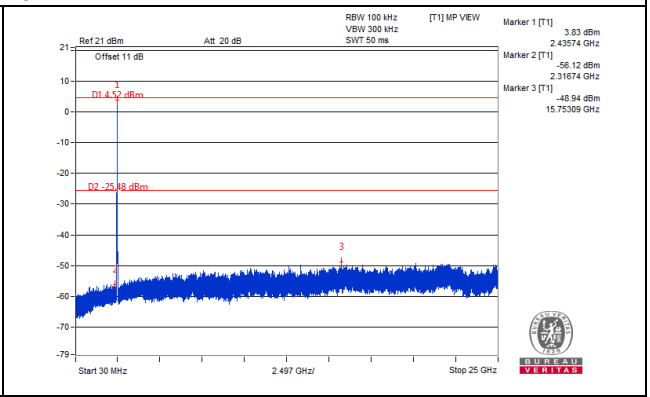
CH 1



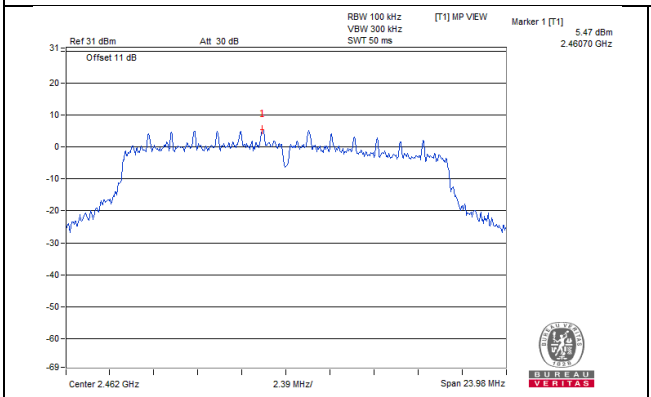


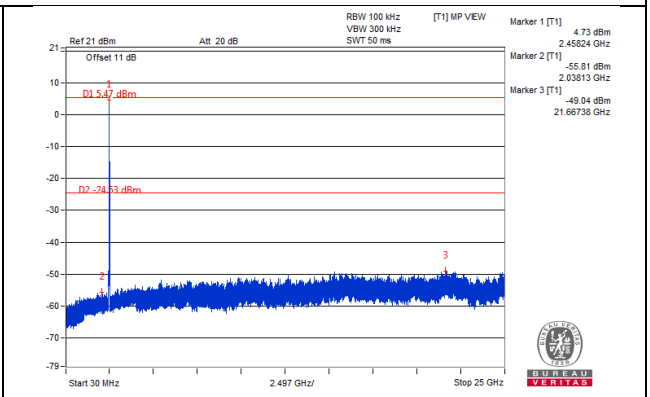
CH 6



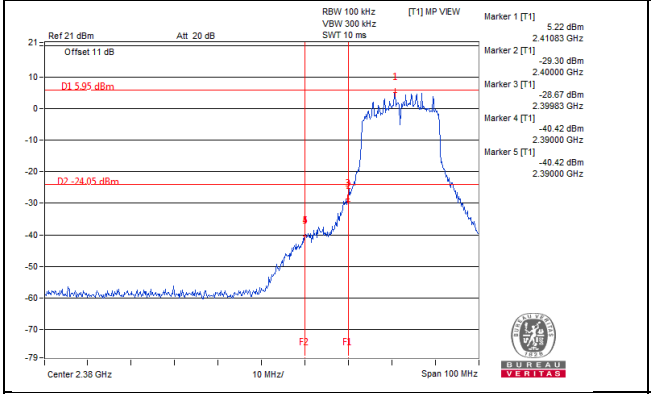


CH 11

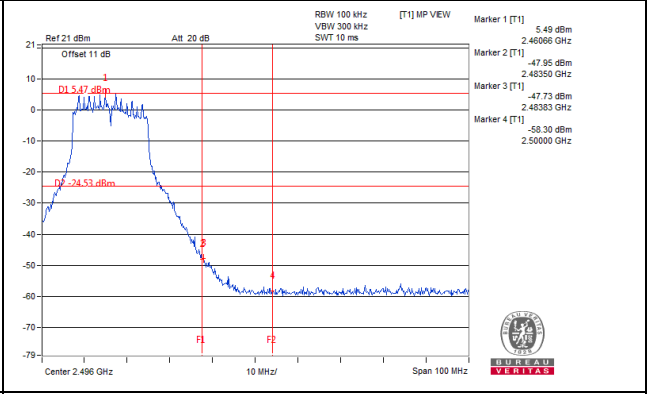




CH 1 Band edge

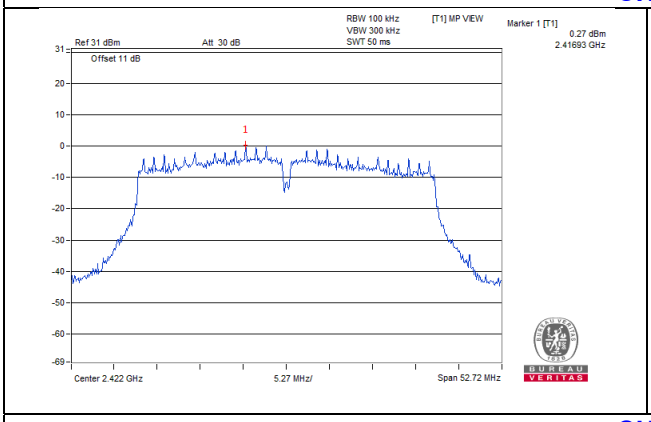


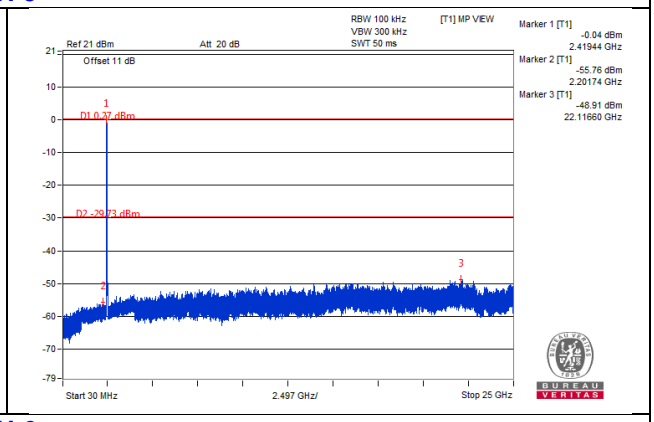
CH 11 Band edge



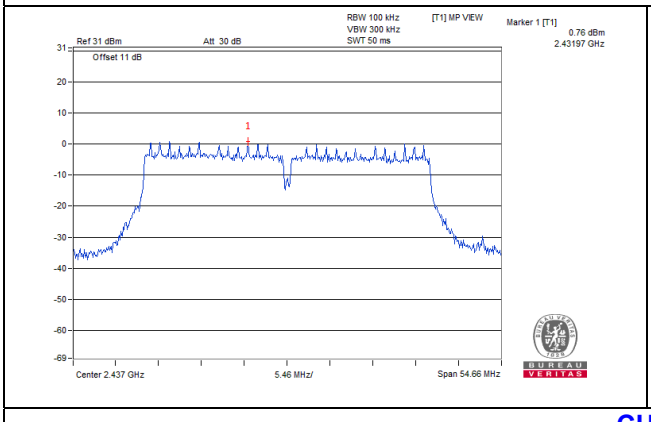
802.11n (HT40)
CHAIN 0

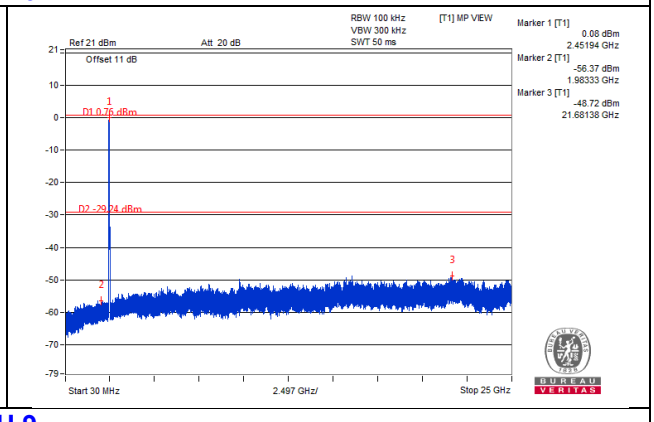
CH 3



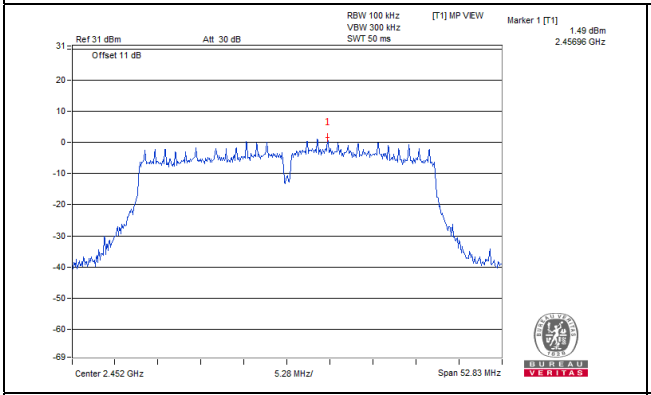


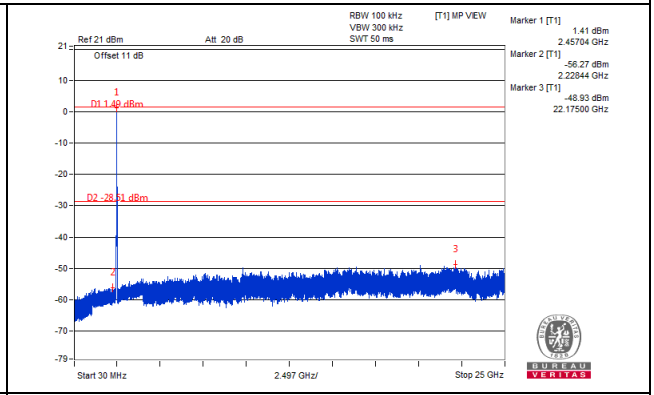
CH 6



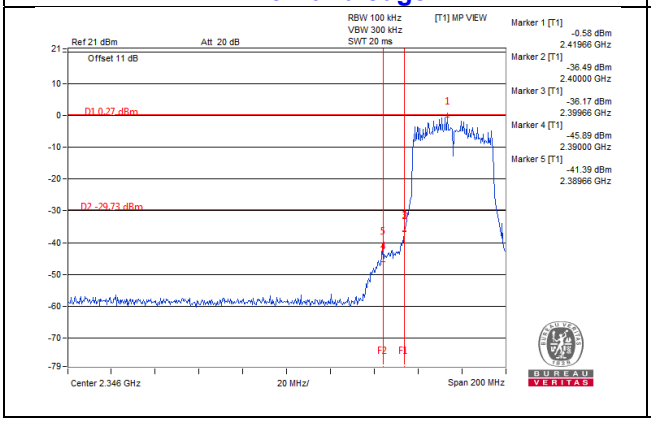


CH 9

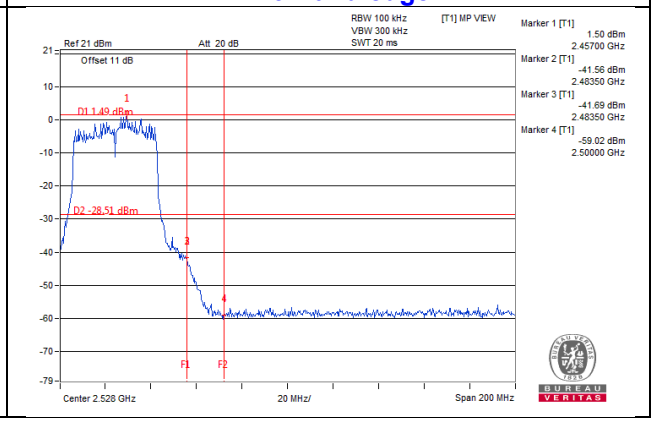




CH 3 Band edge

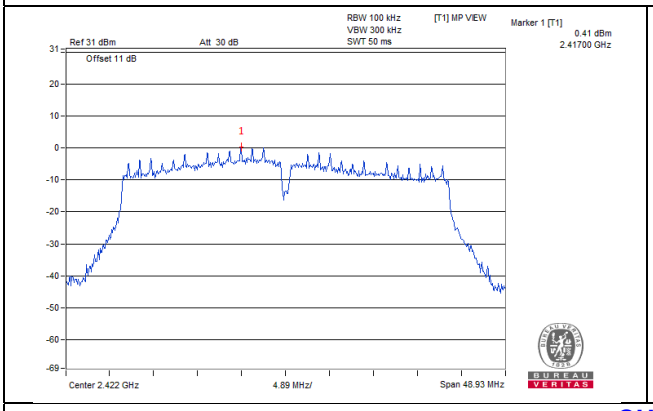


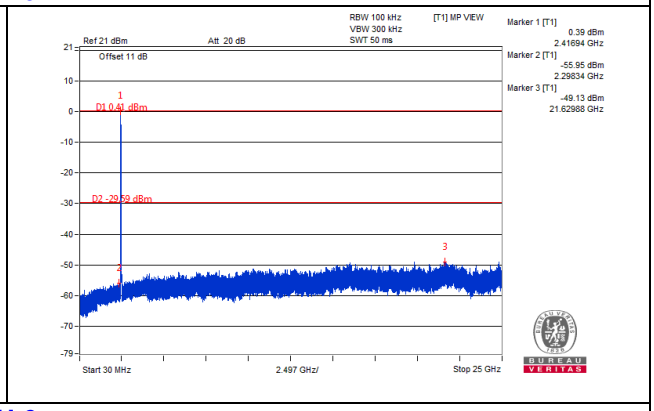
CH 9 Band edge



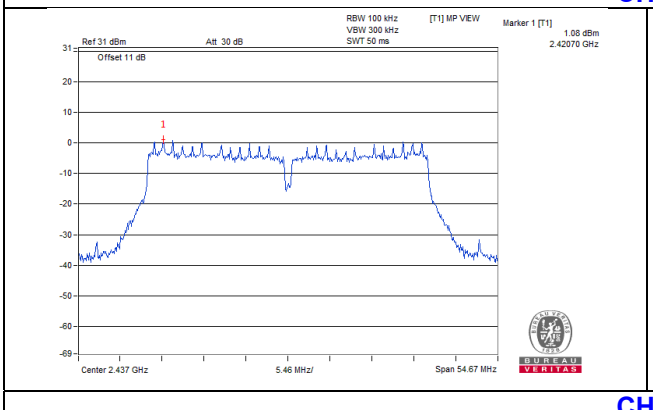
CHAIN 1

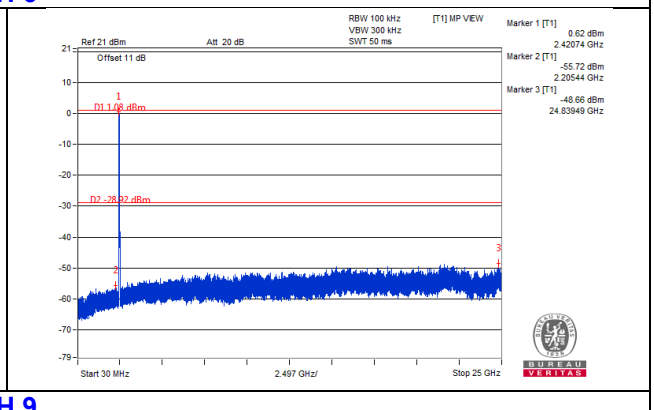
CH 3



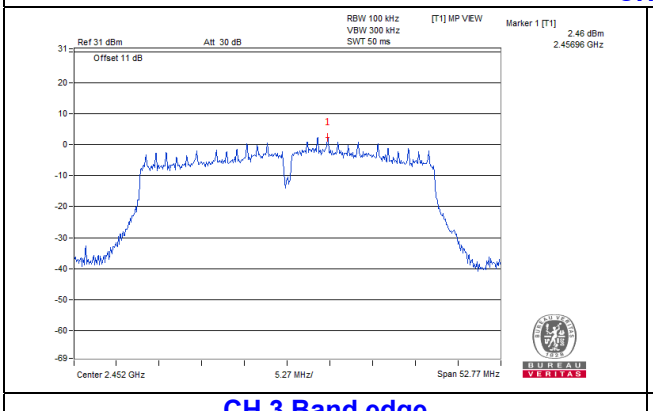


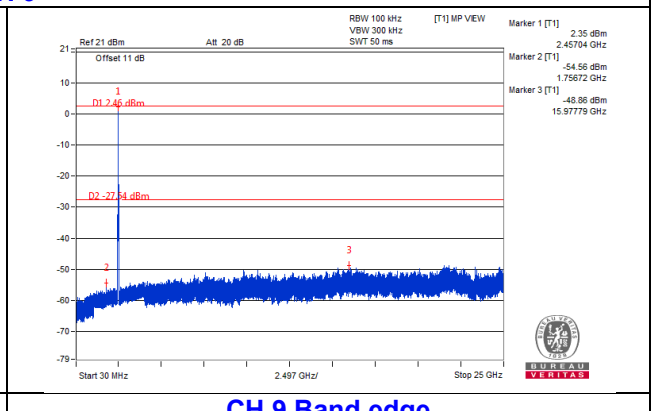
CH 6



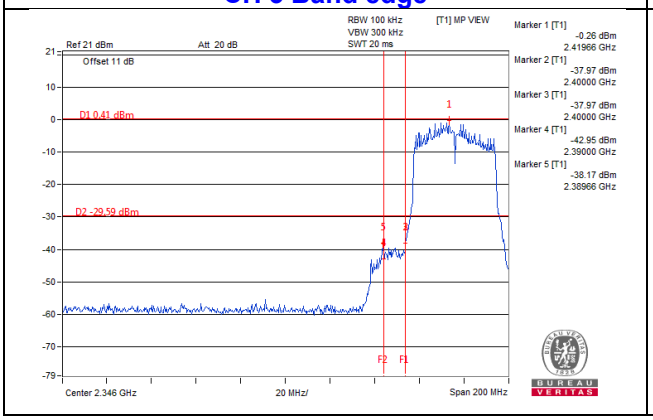


CH 9





CH 3 Band edge



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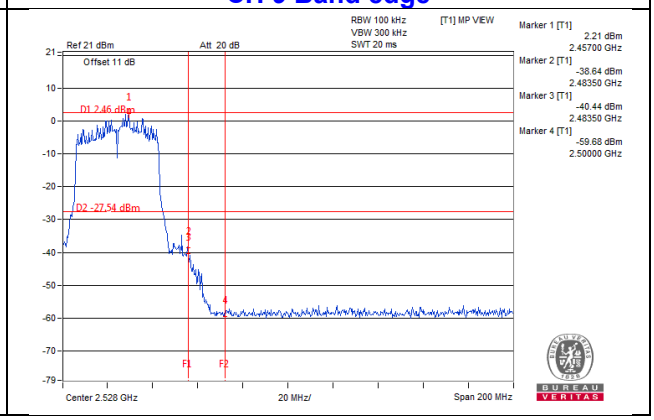

5 Pictures of Test Arrangements

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

Appendix – Information on 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 accredited and approved according to ISO/IEC 17025.

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

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Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

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

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