FCC Test Report

Report No.:	RF191111C21
FCC ID:	KA2WL6720APA1
Test Model:	DWL-6720AP
Received Date:	Nov. 11, 2019
Test Date:	Nov. 17, 2019 ~ Jan. 07, 2020
Issued Date:	Apr. 28, 2020
Applicant:	D-Link Corporation
Address:	17595 Mt. Herrmann, Fountain Valley, California, United States, 92708
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan
FCC Registration / Designation Number:	788550 / TW0003

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
RF191111C21	Original Release	Apr. 28, 2020

1 Certificate of Conformity

Product:	Unified AC Concurrent Dual-band PoE Access Point
Brand:	D-Link
Test Model:	DWL-6720AP
Sample Status:	Engineering Sample
Applicant:	D-Link Corporation
Test Date:	Nov. 17, 2019 ~ Jan. 07, 2020
Standards:	47 CFR FCC Part 15, Subpart C (Section 15.247) ANSI C63.10:2013

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

Prepared by :  , **Date:** Apr. 28, 2020

Gina Liu / Specialist

Approved by :  , **Date:** Apr. 28, 2020

Dylan Chiou / Senior Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)			
FCC Clause	**Test Item**	**Result**	**Remarks**
15.207	AC Power Conducted Emission	Pass	Meet the requirement of limit. Minimum passing margin is -2.41 dB at 0.554 MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	Pass	Meet the requirement of limit. Minimum passing margin is -0.3 dB at 2390 MHz.
15.247(d)	Antenna Port Emission	Pass	Meet the requirement of limit.
15.247(a)(2)	6 dB Bandwidth	Pass	Meet the requirement of limit.
---	Occupied Bandwidth Measurement	Pass	Reference only
15.247(b)	Conducted power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is I-PEX / R-SMA not a standard connector.

Note:

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

2.1 Measurement Uncertainty

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

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

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Unified AC Concurrent Dual-band PoE Access Point
Brand	D-Link
Test Model	DWL-6720AP
Status of EUT	Engineering Sample
Power Supply Rating	48 Vdc (POE)
Modulation Type	CCK, DQPSK, DBPSK for DSSS 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: 11.0 / 5.5 / 2.0 / 1.0 Mbps 802.11g: 54.0 / 48.0 / 36.0 / 24.0 / 18.0 / 12.0 / 9.0 / 6.0 Mbps 802.11n: up to 400.0 Mbps
Operating Frequency	2412 ~ 2462 MHz
Number of Channel	11 for 802.11b, 802.11g, 802.11n (HT20), 802.11ac (VHT20) 7 for 802.11n (HT40), 802.11ac (VHT40)
Output Power	CDD Mode:651.721 mW Beamforming Mode: 188.016 mW
Antenna Type	Refer to Note as below
Antenna Connector	Refer to Note as below
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 two completed transmitters and two receivers.

Modulation Mode	Beamformng Mode	Tx Function
802.11b	Not Support	2TX
802.11g	Not Support	2TX
802.11n (HT20)	Support	2TX
802.11n (HT40)	Support	2TX
802.11ac (HT20)	Support	2TX
802.11ac (HT40)	Support	2TX

* The modulation and bandwidth are similar for 802.11n mode for HT20 / HT40 and 802.11ac mode for HT20 / HT40, therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

* For 802.11n, CDD mode is the worst case for final radiated emission and power line conducted emission tests after pretesting CDD mode and beamforming mode.

2. The antenna information is listed as below.

Antenna NO.	RF Chain NO.	Brand	Model	Antenna Gain (dBi)	Frequency range	Antenna Type	Connecter Type
1 (Internal)	1	whayu	C056-511224-A	3.50	2.412~2.462GHz	Dipole	i-pex(MHF)
				4.80	5.18~5.24GHz		
				4.70	5.745~5.825 GHz		
2 (Internal)	2	whayu	C056-511225-A	3.20	2.4~2.4835GHz	Dipole	i-pex(MHF)
				4.60	5.18~5.24GHz		
				4.40	5.745~5.825 GHz		
3 (External)	-	whayu	C059-510399-A	3.35	2.4~2.4835GHz	Dipole	R-SMA
				4.54	5.18~5.24GHz		
				4.19	5.745~5.825 GHz		
*During the test, the maximum gain of Internal 1 was selected as representative antenna and therefore only Internal antenna 1 and External antenna 3 were chosen for final test.							

3. The EUT contains following accessory devices.

Product	Brand	Model	Description
RJ45 Cable	N/A	N/A	1.9 m shielded

4. **There're 2 configurations for the EUT listed as below.**

   Mode A: Internal Antenna

   Mode B: External Antenna

5. 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), 802.11ac (VHT20):

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

7 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	Internal Antenna
B	√	v	√	-	External Antenna

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

NOTE: The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.
NOTE: "-"means no effect.

Radiated Emission Test (Above 1 GHz):

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A, B	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
	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 1 GHz):

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A	802.11b	1 to 11	11	DSSS	DBPSK	1.0
B	802.11g	1 to 11	1	OFDM	BPSK	6.0

Power Line Conducted Emission Test:

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A	802.11b	1 to 11	11	DSSS	DBPSK	1.0
B	802.11g	1 to 11	1	OFDM	BPSK	6.0

Bandedge Measurement:

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A	802.11b	1 to 11	1, 11	DSSS	DBPSK	1.0
	802.11g	1 to 11	1, 11	OFDM	BPSK	6.0
	802.11n (HT20)	1 to 11	1, 11	OFDM	BPSK	6.5
	802.11n (HT40)	3 to 9	3, 9	OFDM	BPSK	13.5

Antenna Port Conducted Measurement:

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

EUT Configure Mode	Mode	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested by
RE≥1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Willy Cheng, James Yang
RE<1G	25 deg. C, 65 % RH	120 Vac, 60 Hz	Greg Lin
PLC	25 deg. C, 65 % RH	120 Vac, 60 Hz	Jones Chang, Noah Chang
APCM	25 deg. C, 65 % RH	48 Vdc	Ivan Tseng

3.3 Duty Cycle of Test Signal

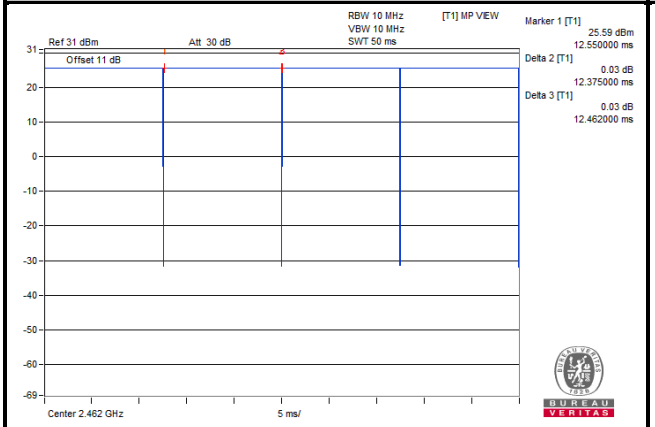
802.11b: Duty cycle of test signal is ≥ 98 %, duty factor is not required.

802.11g: Duty cycle = 2.055/2.155 = 0.954, Duty factor = 10 * log(1/0.954) = 0.21

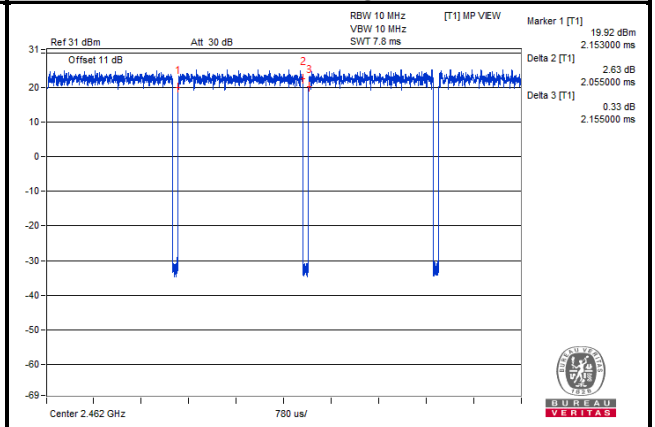
802.11n (HT20): Duty cycle = 4.98/5.085 = 0.979, Duty factor = 10 * log(1/0.979) = 0.09

802.11n (HT40): Duty cycle = 2.42/2.512 = 0.963, Duty factor = 10 * log(1/0.963) = 0.16

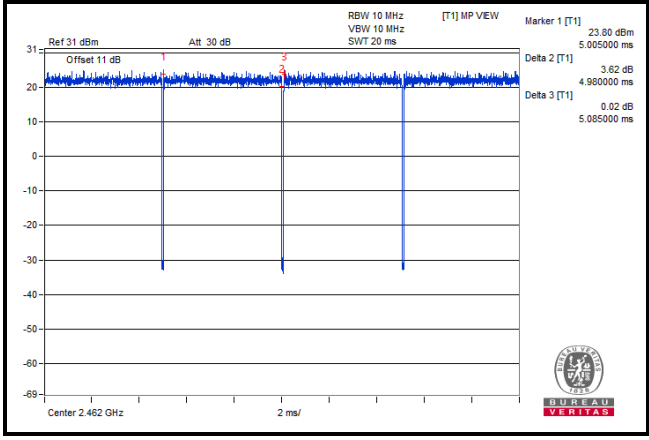
802.11b



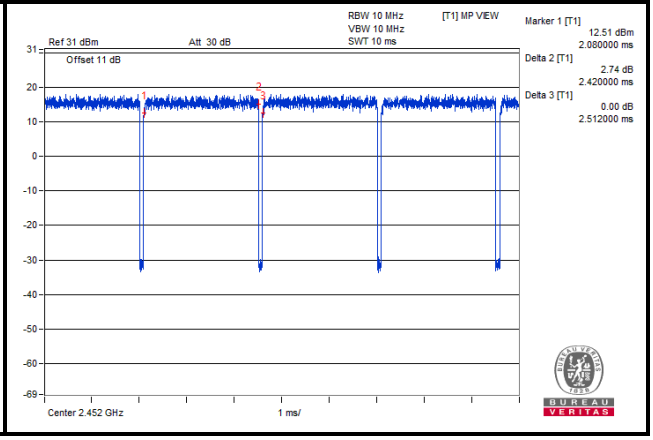
802.11g



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.

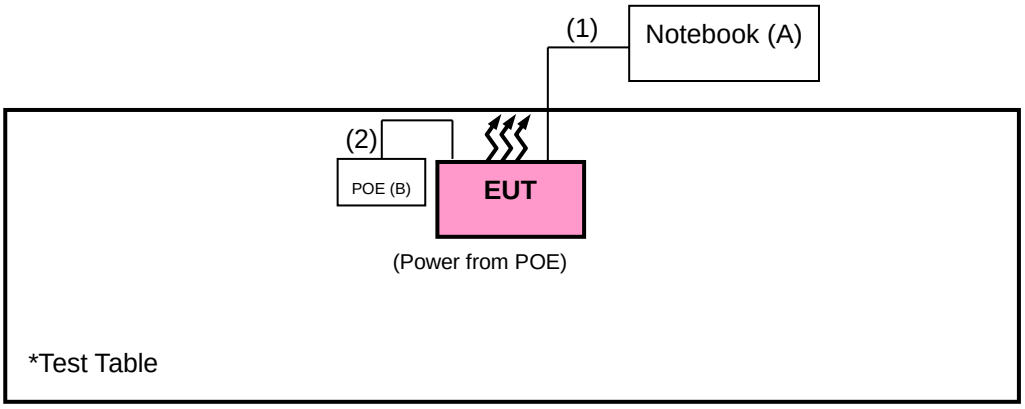
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	1HC2XM1	N/A	Provided by Lab
B.	POE	Ubiquiti Networks. Inc.	GP-H480-050G	N/A	N/A	Provided by Client

Note:

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

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	LAN Cable	1	10	N	0	RJ45, Cat5e, Provided by Lab
2.	LAN Cable	1	1.9	Y	0	Accessory of the EUT

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards and References

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

Test Standard:

FCC Part 15, Subpart C (15.247)
ANSI C63.10-2013

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

References Test Guidance:

KDB 558074 D01 Meas Guidance v05r02
KDB 662911 D01 Multiple Transmitter Output v02r01

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

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

NOTE:

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

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date Of Calibration	Due Date Of Calibration
Test Receiver KEYSIGHT	N9038A	MY55420137	Apr. 15, 2019	Apr. 14, 2020
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Jun. 04, 2019	Jun. 03, 2020
BILOG Antenna SCHWARZBECK	VULB9168	9168-160	Nov. 07, 2019	Nov. 06, 2020
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Nov. 25, 2018	Nov. 24, 2019
			Nov. 24, 2019	Nov. 23, 2020
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Nov. 25, 2018	Nov. 24, 2019
			Nov. 24, 2019	Nov. 23, 2020
Preamplifier Agilent (Below 1GHz)	8447D	2944A10638	Jul. 11, 2019	Jul. 10, 2020
Preamplifier Agilent (Above 1GHz)	8449B	3008A02367	Feb. 19, 2019	Feb. 18, 2020
RF signal cable HUBER+SUHNER&EMCI	SUCOFLEX 104 & EMC104-SM-SM8000	CABLE-CH9-02 (248780+171006)	Jan. 19, 2019	Jan. 18, 2020
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-(250795/4)	Jul. 11, 2019	Jul. 10, 2020
RF signal cable Woken	8D-FB	Cable-CH9-01	Jul. 30, 2019	Jul. 29, 2020
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower &Turn BV ADT	AT100	AT93021705	NA	NA
Turn Table BV ADT	TT100	TT93021705	NA	NA
Turn Table Controller BV ADT	SC100	SC93021705	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
USB Wideband Power Sensor KEYSIGHT	U2021XA	MY55050005/MY55190004/MY55190007/MY55210005	Jul. 15, 2019	Jul. 14, 2020

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

4.1.3 Test Procedures

For Radiated Emission below 30 MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

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

For Radiated Emission above 30 MHz

a. The EUT was placed on the top of a rotating table 0.8 meters (for 30 MHz ~ 1 GHz) / 1.5 meters (for above 1 GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
f. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

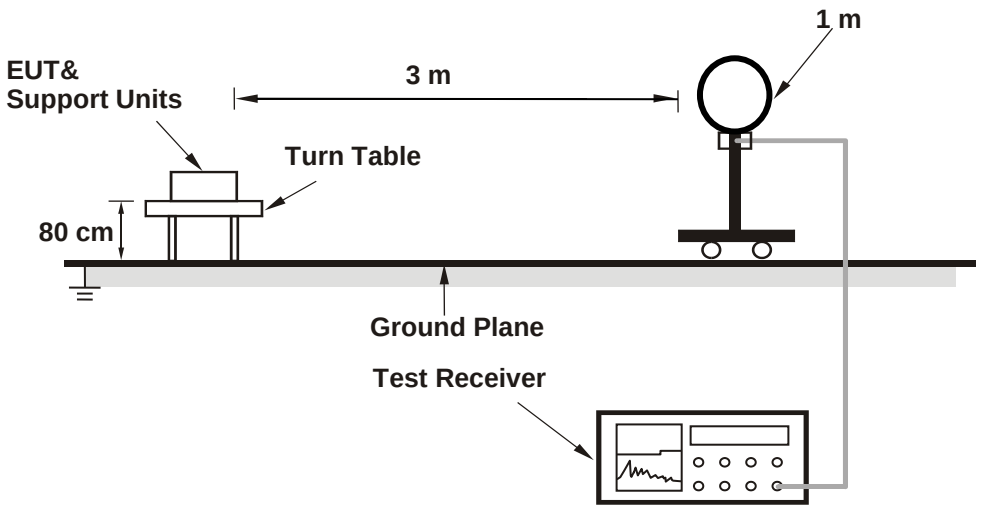
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98 %) or 10 Hz (Duty cycle ≥ 98 %) for Average detection (AV) at frequency above 1 GHz. (11b: RBW = 1 MHz, VBW =10 Hz ; 11g: RBW = 1 MHz, VBW = 1 kHz ;
   11n (HT20): RBW = 1 MHz, VBW = 1 kHz ; 11n (HT40): RBW = 1 MHz, VBW = 1 kHz)
4. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

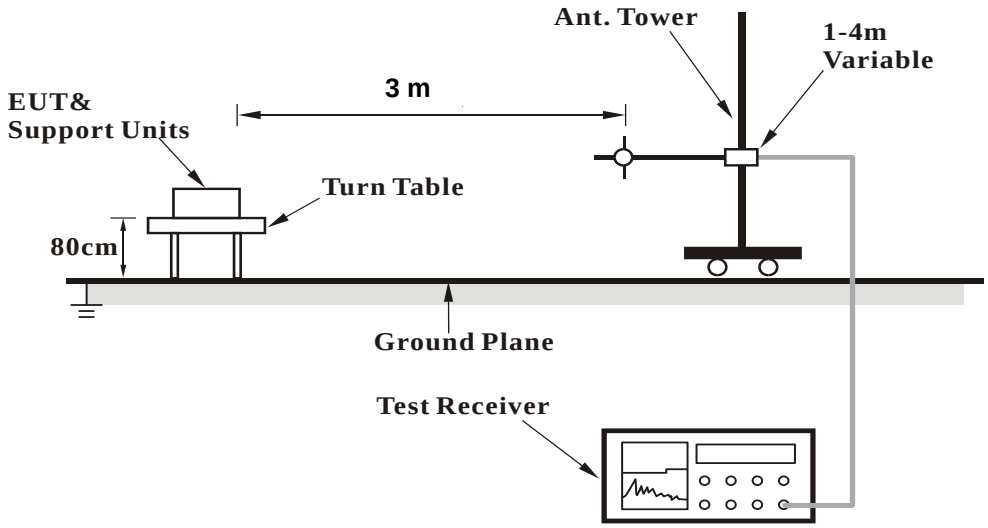
No deviation.

4.1.5 Test Set Up

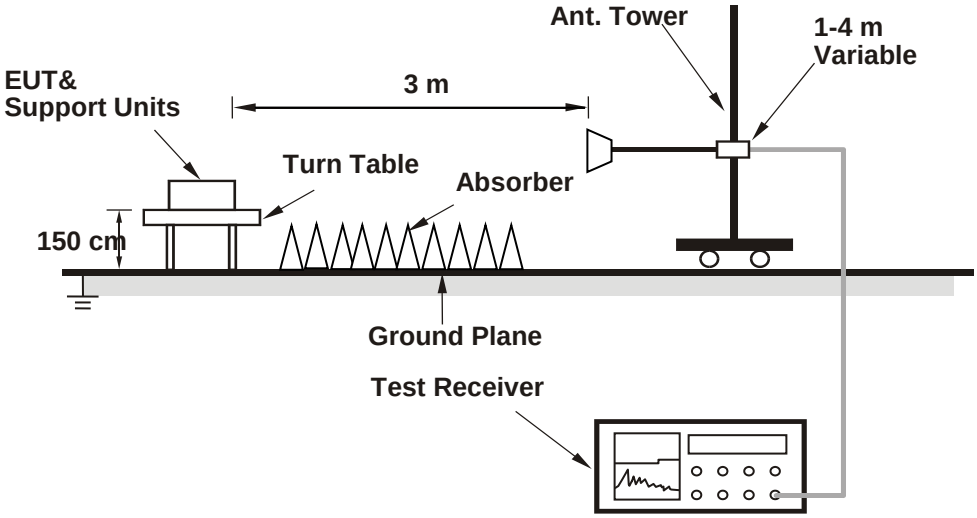
<Radiated Emission below 30 MHz>



<Radiated Emission 30 MHz to 1 GHz>



<Radiated Emission above 1 GHz>



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

4.1.6 EUT Operating Conditions

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

4.1.7 Test Results

Above 1 GHz Data：

Mode A

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	60.0 PK	74.0	-14.0	2.02 H	76	27.9	32.1
2	2390.00	49.4 AV	54.0	-4.6	2.02 H	76	17.3	32.1
3	*2412.00	110.3 PK			2.03 H	84	78.1	32.2
4	*2412.00	106.5 AV			2.03 H	84	74.3	32.2
5	4824.00	53.1 PK	74.0	-20.9	2.35 H	123	49.0	4.1
6	4824.00	50.6 AV	54.0	-3.4	2.35 H	123	46.5	4.1
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	62.6 PK	74.0	-11.4	1.54 V	269	30.5	32.1
2	2390.00	53.2 AV	54.0	-0.8	1.54 V	269	21.1	32.1
3	*2412.00	118.4 PK			2.76 V	348	86.2	32.2
4	*2412.00	113.8 AV			2.76 V	348	81.6	32.2
5	4824.00	50.6 PK	74.0	-23.4	1.36 V	359	46.5	4.1
6	4824.00	45.7 AV	54.0	-8.3	1.36 V	359	41.6	4.1

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	2390.00	59.3 PK	74.0	-14.7	2.00 H	76	27.2	32.1
2	2390.00	51.4 AV	54.0	-2.6	2.00 H	76	19.3	32.1
3	*2437.00	109.4 PK			1.97 H	173	77.3	32.1
4	*2437.00	107.3 AV			1.97 H	173	75.2	32.1
5	4874.00	54.9 PK	74.0	-19.1	2.73 H	285	50.9	4.0
6	4874.00	52.5 AV	54.0	-1.5	2.73 H	285	48.5	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	2390.00	60.0 PK	74.0	-14.0	1.51 V	22	27.9	32.1
2	2390.00	53.1 AV	54.0	-0.9	1.51 V	22	21.0	32.1
3	*2437.00	119.2 PK			2.66 V	347	87.1	32.1
4	*2437.00	115.2 AV			2.66 V	347	83.1	32.1
5	4874.00	50.9 PK	74.0	-23.1	1.74 V	320	46.9	4.0
6	4874.00	47.3 AV	54.0	-6.7	1.74 V	320	43.3	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. 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	111.1 PK			2.60 H	195	79.0	32.1
2	*2462.00	108.3 AV			2.60 H	195	76.2	32.1
3	2483.50	57.1 PK	74.0	-16.9	2.57 H	350	25.0	32.1
4	2483.50	46.9 AV	54.0	-7.1	2.57 H	350	14.8	32.1
5	4924.00	54.3 PK	74.0	-19.7	2.27 H	119	50.3	4.0
6	4924.00	51.7 AV	54.0	-2.3	2.27 H	119	47.7	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	117.9 PK			2.00 V	351	85.8	32.1
2	*2462.00	115.4 AV			2.00 V	351	83.3	32.1
3	2483.50	60.4 PK	74.0	-13.6	1.78 V	88	28.3	32.1
4	2483.50	53.5 AV	54.0	-0.5	1.78 V	88	21.4	32.1
5	4924.00	51.3 PK	74.0	-22.7	1.89 V	322	47.3	4.0
6	4924.00	48.1 AV	54.0	-5.9	1.89 V	322	44.1	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. 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	60.2 PK	74.0	-13.8	1.97 H	87	28.1	32.1
2	2390.00	47.0 AV	54.0	-7.0	1.97 H	87	14.9	32.1
3	*2412.00	104.7 PK			2.67 H	66	72.5	32.2
4	*2412.00	94.4 AV			2.67 H	66	62.2	32.2
5	4824.00	44.4 PK	74.0	-29.6	1.89 H	219	40.3	4.1
6	4824.00	31.6 AV	54.0	-22.4	1.89 H	219	27.5	4.1
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	67.6 PK	74.0	-6.4	2.53 V	354	35.5	32.1
2	2390.00	53.1 AV	54.0	-0.9	2.53 V	354	21.0	32.1
3	*2412.00	113.2 PK			3.28 V	8	81.0	32.2
4	*2412.00	103.4 AV			3.28 V	8	71.2	32.2
5	4824.00	45.2 PK	74.0	-28.8	1.18 V	36	41.1	4.1
6	4824.00	32.0 AV	54.0	-22.0	1.18 V	36	27.9	4.1

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	59.0 PK	74.0	-15.0	1.97 H	84	26.9	32.1
2	2390.00	46.2 AV	54.0	-7.8	1.97 H	84	14.1	32.1
3	*2437.00	110.5 PK			1.97 H	83	78.4	32.1
4	*2437.00	100.2 AV			1.97 H	83	68.1	32.1
5	2483.50	57.9 PK	74.0	-16.1	1.94 H	86	25.8	32.1
6	2483.50	45.4 AV	54.0	-8.6	1.94 H	86	13.3	32.1
7	4874.00	49.5 PK	74.0	-24.5	1.92 H	126	45.5	4.0
8	4874.00	36.7 AV	54.0	-17.3	1.92 H	126	32.7	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	2390.00	64.2 PK	74.0	-9.8	2.98 V	290	32.1	32.1
2	2390.00	49.0 AV	54.0	-5.0	2.98 V	290	16.9	32.1
3	*2437.00	117.2 PK			2.80 V	267	85.1	32.1
4	*2437.00	107.1 AV			2.80 V	267	75.0	32.1
5	2483.50	63.4 PK	74.0	-10.6	2.81 V	235	31.3	32.1
6	2483.50	47.6 AV	54.0	-6.4	2.81 V	235	15.5	32.1
7	4874.00	45.2 PK	74.0	-28.8	2.35 V	220	41.2	4.0
8	4874.00	32.6 AV	54.0	-21.4	2.35 V	220	28.6	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. 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	106.6 PK			1.95 H	70	74.5	32.1
2	*2462.00	95.7 AV			1.95 H	70	63.6	32.1
3	2483.50	60.0 PK	74.0	-14.0	1.68 H	78	27.9	32.1
4	2483.50	47.1 AV	54.0	-6.9	1.68 H	78	15.0	32.1
5	4924.00	45.0 PK	74.0	-29.0	1.27 H	228	41.0	4.0
6	4924.00	31.6 AV	54.0	-22.4	1.27 H	228	27.6	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	114.1 PK			1.25 V	13	82.0	32.1
2	*2462.00	104.4 AV			1.25 V	13	72.3	32.1
3	2483.50	69.9 PK	74.0	-4.1	2.79 V	244	37.8	32.1
4	2483.50	53.5 AV	54.0	-0.5	2.79 V	244	21.4	32.1
5	4924.00	44.2 PK	74.0	-29.8	1.45 V	333	40.2	4.0
6	4924.00	30.9 AV	54.0	-23.1	1.45 V	333	26.9	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. 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	59.1 PK	74.0	-14.9	2.02 H	85	27.0	32.1
2	2390.00	46.9 AV	54.0	-7.1	2.02 H	85	14.8	32.1
3	*2412.00	103.2 PK			1.80 H	61	71.0	32.2
4	*2412.00	93.0 AV			1.80 H	61	60.8	32.2
5	4824.00	44.7 PK	74.0	-29.3	2.72 H	105	40.6	4.1
6	4824.00	31.6 AV	54.0	-22.4	2.72 H	105	27.5	4.1
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	68.7 PK	74.0	-5.3	2.53 V	6	36.6	32.1
2	2390.00	53.2 AV	54.0	-0.8	2.53 V	6	21.1	32.1
3	*2412.00	112.6 PK			3.32 V	0	80.4	32.2
4	*2412.00	102.2 AV			3.32 V	0	70.0	32.2
5	4824.00	44.7 PK	74.0	-29.3	1.89 V	215	40.6	4.1
6	4824.00	31.4 AV	54.0	-22.6	1.89 V	215	27.3	4.1

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)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.4 PK	74.0	-12.6	1.82 H	86	29.3	32.1
2	2390.00	46.5 AV	54.0	-7.5	1.82 H	86	14.4	32.1
3	*2437.00	110.3 PK			1.75 H	62	78.2	32.1
4	*2437.00	99.7 AV			1.75 H	62	67.6	32.1
5	2483.50	60.5 PK	74.0	-13.5	1.87 H	67	28.4	32.1
6	2483.50	45.5 AV	54.0	-8.5	1.87 H	67	13.4	32.1
7	4874.00	45.3 PK	74.0	-28.7	1.26 H	335	41.3	4.0
8	4874.00	32.6 AV	54.0	-21.4	1.26 H	335	28.6	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	2390.00	68.4 PK	74.0	-5.6	2.52 V	356	36.3	32.1
2	2390.00	51.4 AV	54.0	-2.6	2.52 V	356	19.3	32.1
3	*2437.00	117.9 PK			2.23 V	178	85.8	32.1
4	*2437.00	108.1 AV			2.23 V	178	76.0	32.1
5	2483.50	66.1 PK	74.0	-7.9	2.57 V	208	34.0	32.1
6	2483.50	48.3 AV	54.0	-5.7	2.57 V	208	16.2	32.1
7	4874.00	44.8 PK	74.0	-29.2	2.22 V	140	40.8	4.0
8	4874.00	31.0 AV	54.0	-23.0	2.22 V	140	27.0	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. 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	105.1 PK			1.73 H	84	73.0	32.1
2	*2462.00	94.8 AV			1.73 H	84	62.7	32.1
3	2483.50	58.8 PK	74.0	-15.2	1.51 H	85	26.7	32.1
4	2483.50	46.9 AV	54.0	-7.1	1.51 H	85	14.8	32.1
5	4924.00	44.3 PK	74.0	-29.7	2.47 H	104	40.3	4.0
6	4924.00	31.8 AV	54.0	-22.2	2.47 H	104	27.8	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	114.2 PK			3.16 V	359	82.1	32.1
2	*2462.00	104.0 AV			3.16 V	359	71.9	32.1
3	2483.50	68.3 PK	74.0	-5.7	2.33 V	275	36.2	32.1
4	2483.50	53.1 AV	54.0	-0.9	2.33 V	275	21.0	32.1
5	4924.00	44.2 PK	74.0	-29.8	1.85 V	160	40.2	4.0
6	4924.00	31.3 AV	54.0	-22.7	1.85 V	160	27.3	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. 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	60.4 PK	74.0	-13.6	2.02 H	61	28.3	32.1
2	2390.00	48.3 AV	54.0	-5.7	2.02 H	61	16.2	32.1
3	*2422.00	98.2 PK			2.01 H	87	66.1	32.1
4	*2422.00	88.7 AV			2.01 H	87	56.6	32.1
5	4844.00	44.8 PK	74.0	-29.2	1.65 H	168	40.8	4.0
6	4844.00	31.4 AV	54.0	-22.6	1.65 H	168	27.4	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	2390.00	67.2 PK	74.0	-6.8	1.82 V	256	35.1	32.1
2	2390.00	53.3 AV	54.0	-0.7	1.82 V	256	21.2	32.1
3	*2422.00	107.1 PK			3.28 V	358	75.0	32.1
4	*2422.00	98.1 AV			3.28 V	358	66.0	32.1
5	4844.00	44.3 PK	74.0	-29.7	2.10 V	239	40.3	4.0
6	4844.00	31.1 AV	54.0	-22.9	2.10 V	239	27.1	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. 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	2390.00	58.4 PK	74.0	-15.6	2.05 H	89	26.3	32.1
2	2390.00	47.0 AV	54.0	-7.0	2.05 H	89	14.9	32.1
3	*2437.00	101.5 PK			1.94 H	68	69.4	32.1
4	*2437.00	92.0 AV			1.94 H	68	59.9	32.1
5	2483.50	59.6 PK	74.0	-14.4	2.09 H	77	27.5	32.1
6	2483.50	46.3 AV	54.0	-7.7	2.09 H	77	14.2	32.1
7	4874.00	44.7 PK	74.0	-29.3	1.85 H	294	40.7	4.0
8	4874.00	31.6 AV	54.0	-22.4	1.85 H	294	27.6	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	2390.00	65.1 PK	74.0	-8.9	2.51 V	348	33.0	32.1
2	2390.00	53.2 AV	54.0	-0.8	2.51 V	348	21.1	32.1
3	*2437.00	109.2 PK			2.95 V	353	77.1	32.1
4	*2437.00	100.1 AV			2.95 V	353	68.0	32.1
5	2483.50	65.4 PK	74.0	-8.6	2.34 V	321	33.3	32.1
6	2483.50	51.0 AV	54.0	-3.0	2.34 V	321	18.9	32.1
7	4874.00	44.8 PK	74.0	-29.2	1.64 V	123	40.8	4.0
8	4874.00	30.9 AV	54.0	-23.1	1.64 V	123	26.9	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. 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	97.9 PK			1.97 H	81	65.8	32.1
2	*2452.00	88.6 AV			1.97 H	81	56.5	32.1
3	2483.50	58.9 PK	74.0	-15.1	1.89 H	86	26.8	32.1
4	2483.50	47.5 AV	54.0	-6.5	1.89 H	86	15.4	32.1
5	4904.00	44.4 PK	74.0	-29.6	3.18 H	109	40.5	3.9
6	4904.00	30.7 AV	54.0	-23.3	3.18 H	109	26.8	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	*2452.00	106.9 PK			3.52 V	1	74.8	32.1
2	*2452.00	97.2 AV			3.52 V	1	65.1	32.1
3	2483.50	66.6 PK	74.0	-7.4	2.83 V	357	34.5	32.1
4	2483.50	53.3 AV	54.0	-0.7	2.83 V	357	21.2	32.1
5	4904.00	44.9 PK	74.0	-29.1	2.25 V	119	41.0	3.9
6	4904.00	31.2 AV	54.0	-22.8	2.25 V	119	27.3	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

Mode B

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	57.1 PK	74.0	-16.9	1.24 H	148	25.0	32.1
2	2390.00	44.6 AV	54.0	-9.4	1.24 H	148	12.5	32.1
3	*2412.00	106.1 PK			1.06 H	131	73.9	32.2
4	*2412.00	104.1 AV			1.06 H	131	71.9	32.2
5	4824.00	52.8 PK	74.0	-21.2	2.63 H	115	48.7	4.1
6	4824.00	49.1 AV	54.0	-4.9	2.63 H	115	45.0	4.1
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	61.2 PK	74.0	-12.8	1.46 V	189	29.1	32.1
2	2390.00	53.6 AV	54.0	-0.4	1.46 V	189	21.5	32.1
3	*2412.00	118.6 PK			1.41 V	182	86.4	32.2
4	*2412.00	116.7 AV			1.41 V	182	84.5	32.2
5	4824.00	49.2 PK	74.0	-24.8	1.53 V	352	45.1	4.1
6	4824.00	43.6 AV	54.0	-10.4	1.53 V	352	39.5	4.1

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	2390.00	56.4 PK	74.0	-17.6	2.43 H	169	24.3	32.1
2	2390.00	44.7 AV	54.0	-9.3	2.43 H	169	12.6	32.1
3	*2437.00	106.1 PK			2.87 H	145	74.0	32.1
4	*2437.00	104.0 AV			2.87 H	145	71.9	32.1
5	4874.00	53.2 PK	74.0	-20.8	2.47 H	115	49.2	4.0
6	4874.00	50.5 AV	54.0	-3.5	2.47 H	115	46.5	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	2390.00	59.3 PK	74.0	-14.7	1.55 V	203	27.2	32.1
2	2390.00	52.3 AV	54.0	-1.7	1.55 V	203	20.2	32.1
3	*2437.00	121.6 PK			1.63 V	180	89.5	32.1
4	*2437.00	119.6 AV			1.63 V	180	87.5	32.1
5	4874.00	51.5 PK	74.0	-22.5	1.68 V	328	47.5	4.0
6	4874.00	48.2 AV	54.0	-5.8	1.68 V	328	44.2	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. 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	106.7 PK			1.06 H	189	74.6	32.1
2	*2462.00	104.6 AV			1.06 H	189	72.5	32.1
3	2483.50	56.5 PK	74.0	-17.5	1.36 H	200	24.4	32.1
4	2483.50	49.8 AV	54.0	-4.2	1.36 H	200	17.7	32.1
5	4924.00	53.0 PK	74.0	-21.0	2.08 H	127	49.0	4.0
6	4924.00	49.6 AV	54.0	-4.4	2.08 H	127	45.6	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	119.1 PK			2.03 V	336	87.0	32.1
2	*2462.00	117.0 AV			2.03 V	336	84.9	32.1
3	2483.50	62.1 PK	74.0	-11.9	2.03 V	3	30.0	32.1
4	2483.50	53.6 AV	54.0	-0.4	2.03 V	3	21.5	32.1
5	4924.00	51.5 PK	74.0	-22.5	3.56 V	328	47.5	4.0
6	4924.00	47.3 AV	54.0	-6.7	3.56 V	328	43.3	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. 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	57.2 PK	74.0	-16.8	1.38 H	188	25.1	32.1
2	2390.00	45.4 AV	54.0	-8.6	1.38 H	188	13.3	32.1
3	*2412.00	102.0 PK			1.19 H	193	69.8	32.2
4	*2412.00	91.7 AV			1.19 H	193	59.5	32.2
5	4824.00	44.1 PK	74.0	-29.9	2.95 H	241	40.0	4.1
6	4824.00	31.5 AV	54.0	-22.5	2.95 H	241	27.4	4.1
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	68.6 PK	74.0	-5.4	1.56 V	182	36.5	32.1
2	**2390.00**	**53.7 AV**	**54.0**	**-0.3**	**1.56 V**	**182**	**21.6**	**32.1**
3	*2412.00	115.8 PK			1.46 V	183	83.6	32.2
4	*2412.00	105.2 AV			1.46 V	183	73.0	32.2
5	4824.00	44.9 PK	74.0	-29.1	2.25 V	142	40.8	4.1
6	4824.00	31.9 AV	54.0	-22.1	2.25 V	142	27.8	4.1

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	2390.00	56.7 PK	74.0	-17.3	1.07 H	188	24.6	32.1
2	2390.00	45.2 AV	54.0	-8.8	1.07 H	188	13.1	32.1
3	*2437.00	107.5 PK			1.03 H	190	75.4	32.1
4	*2437.00	97.3 AV			1.03 H	190	65.2	32.1
5	2483.50	56.7 PK	74.0	-17.3	1.35 H	192	24.6	32.1
6	2483.50	44.8 AV	54.0	-9.2	1.35 H	192	12.7	32.1
7	4874.00	46.4 PK	74.0	-27.6	3.00 H	187	42.4	4.0
8	4874.00	33.6 AV	54.0	-20.4	3.00 H	187	29.6	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	2390.00	68.7 PK	74.0	-5.3	1.51 V	182	36.6	32.1
2	2390.00	52.9 AV	54.0	-1.1	1.51 V	182	20.8	32.1
3	*2437.00	122.0 PK			2.51 V	8	89.9	32.1
4	*2437.00	111.3 AV			2.51 V	8	79.2	32.1
5	2483.50	68.1 PK	74.0	-5.9	2.64 V	358	36.0	32.1
6	2483.50	51.6 AV	54.0	-2.4	2.64 V	358	19.5	32.1
7	4874.00	45.3 PK	74.0	-28.7	1.76 V	10	41.3	4.0
8	4874.00	33.4 AV	54.0	-20.6	1.76 V	10	29.4	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. 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	101.4 PK			1.06 H	193	69.3	32.1
2	*2462.00	91.4 AV			1.06 H	193	59.3	32.1
3	2483.50	56.7 PK	74.0	-17.3	1.33 H	185	24.6	32.1
4	2483.50	45.1 AV	54.0	-8.9	1.33 H	185	13.0	32.1
5	4924.00	44.5 PK	74.0	-29.5	2.54 H	113	40.5	4.0
6	4924.00	30.8 AV	54.0	-23.2	2.54 H	113	26.8	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	115.4 PK			2.33 V	15	83.3	32.1
2	*2462.00	105.2 AV			2.33 V	15	73.1	32.1
3	2483.50	68.1 PK	74.0	-5.9	2.69 V	6	36.0	32.1
4	2483.50	53.5 AV	54.0	-0.5	2.69 V	6	21.4	32.1
5	4924.00	44.4 PK	74.0	-29.6	1.99 V	173	40.4	4.0
6	4924.00	31.5 AV	54.0	-22.5	1.99 V	173	27.5	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. 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	56.9 PK	74.0	-17.1	1.36 H	231	24.8	32.1
2	2390.00	44.7 AV	54.0	-9.3	1.36 H	231	12.6	32.1
3	*2412.00	101.1 PK			1.21 H	192	68.9	32.2
4	*2412.00	90.8 AV			1.21 H	192	58.6	32.2
5	4824.00	45.3 PK	74.0	-28.7	2.81 H	154	41.2	4.1
6	4824.00	31.7 AV	54.0	-22.3	2.81 H	154	27.6	4.1
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	66.9 PK	74.0	-7.1	1.36 V	225	34.8	32.1
2	2390.00	53.5 AV	54.0	-0.5	1.36 V	225	21.4	32.1
3	*2412.00	114.7 PK			1.00 V	187	82.5	32.2
4	*2412.00	104.2 AV			1.00 V	187	72.0	32.2
5	4824.00	44.4 PK	74.0	-29.6	2.64 V	188	40.3	4.1
6	4824.00	31.2 AV	54.0	-22.8	2.64 V	188	27.1	4.1

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	2390.00	56.7 PK	74.0	-17.3	2.46 H	193	24.6	32.1
2	2390.00	44.8 AV	54.0	-9.2	2.46 H	193	12.7	32.1
3	*2437.00	102.7 PK			2.30 H	228	70.6	32.1
4	*2437.00	92.5 AV			2.30 H	228	60.4	32.1
5	2483.50	56.4 PK	74.0	-17.6	2.08 H	236	24.3	32.1
6	2483.50	44.7 AV	54.0	-9.3	2.08 H	236	12.6	32.1
7	4874.00	49.5 PK	74.0	-24.5	2.29 H	128	45.5	4.0
8	4874.00	35.9 AV	54.0	-18.1	2.29 H	128	31.9	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	2390.00	69.3 PK	74.0	-4.7	2.20 V	22	37.2	32.1
2	2390.00	52.3 AV	54.0	-1.7	2.20 V	22	20.2	32.1
3	*2437.00	120.9 PK			2.47 V	2	88.8	32.1
4	*2437.00	110.4 AV			2.47 V	2	78.3	32.1
5	2483.50	70.7 PK	74.0	-3.3	2.65 V	7	38.6	32.1
6	2483.50	51.7 AV	54.0	-2.3	2.65 V	7	19.6	32.1
7	4874.00	47.7 PK	74.0	-26.3	2.84 V	137	43.7	4.0
8	4874.00	34.6 AV	54.0	-19.4	2.84 V	137	30.6	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. 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	100.6 PK			1.17 H	189	68.5	32.1
2	*2462.00	90.2 AV			1.17 H	189	58.1	32.1
3	2483.50	57.7 PK	74.0	-16.3	1.36 H	205	25.6	32.1
4	2483.50	46.0 AV	54.0	-8.0	1.36 H	205	13.9	32.1
5	4924.00	44.6 PK	74.0	-29.4	2.69 H	188	40.6	4.0
6	4924.00	31.5 AV	54.0	-22.5	2.69 H	188	27.5	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	115.6 PK			1.76 V	188	83.5	32.1
2	*2462.00	105.4 AV			1.76 V	188	73.3	32.1
3	2483.50	67.9 PK	74.0	-6.1	1.14 V	195	35.8	32.1
4	2483.50	53.5 AV	54.0	-0.5	1.14 V	195	21.4	32.1
5	4924.00	44.2 PK	74.0	-29.8	1.85 V	231	40.2	4.0
6	4924.00	30.9 AV	54.0	-23.1	1.85 V	231	26.9	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. 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	59.0 PK	74.0	-15.0	1.22 H	189	26.9	32.1
2	2390.00	47.4 AV	54.0	-6.6	1.22 H	189	15.3	32.1
3	*2422.00	92.6 PK			1.26 H	186	60.5	32.1
4	*2422.00	83.9 AV			1.26 H	186	51.8	32.1
5	4844.00	44.0 PK	74.0	-30.0	2.63 H	190	40.0	4.0
6	4844.00	31.0 AV	54.0	-23.0	2.63 H	190	27.0	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	2390.00	66.8 PK	74.0	-7.2	1.00 V	197	34.7	32.1
2	2390.00	53.6 AV	54.0	-0.4	1.00 V	197	21.5	32.1
3	*2422.00	106.8 PK			1.21 V	173	74.7	32.1
4	*2422.00	97.8 AV			1.21 V	173	65.7	32.1
5	4844.00	43.5 PK	74.0	-30.5	1.90 V	229	39.5	4.0
6	4844.00	30.9 AV	54.0	-23.1	1.90 V	229	26.9	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. 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	2390.00	58.0 PK	74.0	-16.0	1.20 H	191	25.9	32.1
2	2390.00	46.7 AV	54.0	-7.3	1.20 H	191	14.6	32.1
3	*2437.00	97.8 PK			1.27 H	187	65.7	32.1
4	*2437.00	87.7 AV			1.27 H	187	55.6	32.1
5	2483.50	58.2 PK	74.0	-15.8	1.19 H	188	26.1	32.1
6	2483.50	45.5 AV	54.0	-8.5	1.19 H	188	13.4	32.1
7	4874.00	43.9 PK	74.0	-30.1	2.71 H	187	39.9	4.0
8	4874.00	31.1 AV	54.0	-22.9	2.71 H	187	27.1	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	2390.00	65.5 PK	74.0	-8.5	1.14 V	171	33.4	32.1
2	2390.00	53.6 AV	54.0	-0.4	1.14 V	171	21.5	32.1
3	*2437.00	111.6 PK			1.00 V	171	79.5	32.1
4	*2437.00	102.1 AV			1.00 V	171	70.0	32.1
5	2483.50	66.4 PK	74.0	-7.6	1.43 V	174	34.3	32.1
6	2483.50	52.0 AV	54.0	-2.0	1.43 V	174	19.9	32.1
7	4874.00	44.0 PK	74.0	-30.0	1.77 V	239	40.0	4.0
8	4874.00	30.9 AV	54.0	-23.1	1.77 V	239	26.9	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. 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	93.8 PK			1.18 H	187	61.7	32.1
2	*2452.00	84.7 AV			1.18 H	187	52.6	32.1
3	2483.50	57.4 PK	74.0	-16.6	1.23 H	189	25.3	32.1
4	2483.50	46.5 AV	54.0	-7.5	1.23 H	189	14.4	32.1
5	4904.00	44.1 PK	74.0	-29.9	2.61 H	189	40.2	3.9
6	4904.00	30.9 AV	54.0	-23.1	2.61 H	189	27.0	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	*2452.00	108.1 PK			1.19 V	170	76.0	32.1
2	*2452.00	98.8 AV			1.19 V	170	66.7	32.1
3	2483.50	64.3 PK	74.0	-9.7	1.17 V	170	32.2	32.1
4	2483.50	53.5 AV	54.0	-0.5	1.17 V	170	21.4	32.1
5	4904.00	43.6 PK	74.0	-30.4	1.78 V	235	39.7	3.9
6	4904.00	31.2 AV	54.0	-22.8	1.78 V	235	27.3	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. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency.

30 MHz ~ 1 GHz Worst-Case Data:

Mode A

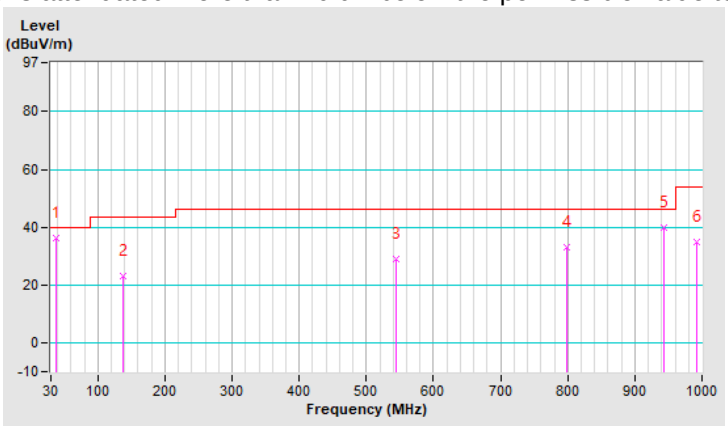
802.11b

CHANNEL	TX Channel 11	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	38.76	36.2 QP	40.0	-3.8	1.00 H	70	46.9	-10.7
2	137.67	23.3 QP	43.5	-20.2	1.00 H	105	33.3	-10.0
3	545.07	29.0 QP	46.0	-17.0	1.00 H	317	31.9	-2.9
4	799.21	33.2 QP	46.0	-12.8	1.00 H	111	31.7	1.5
5	943.74	39.8 QP	46.0	-6.2	1.00 H	52	35.5	4.3
6	991.27	34.8 QP	54.0	-19.2	1.00 H	18	30.0	4.8

REMARKS:

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

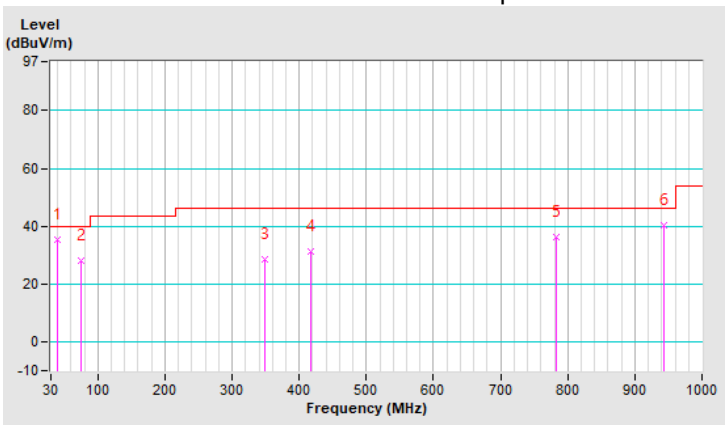


CHANNEL	TX Channel 11	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	40.67	35.5 QP	40.0	-4.5	1.00 V	283	45.8	-10.3
2	75.59	28.1 QP	40.0	-11.9	1.00 V	8	40.9	-12.8
3	349.13	28.7 QP	46.0	-17.3	1.00 V	118	35.8	-7.1
4	418.00	31.3 QP	46.0	-14.7	1.50 V	262	36.8	-5.5
5	783.69	36.1 QP	46.0	-9.9	1.00 V	324	34.6	1.5
6	943.74	40.4 QP	46.0	-5.6	2.00 V	24	36.1	4.3

REMARKS:

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



Mode B

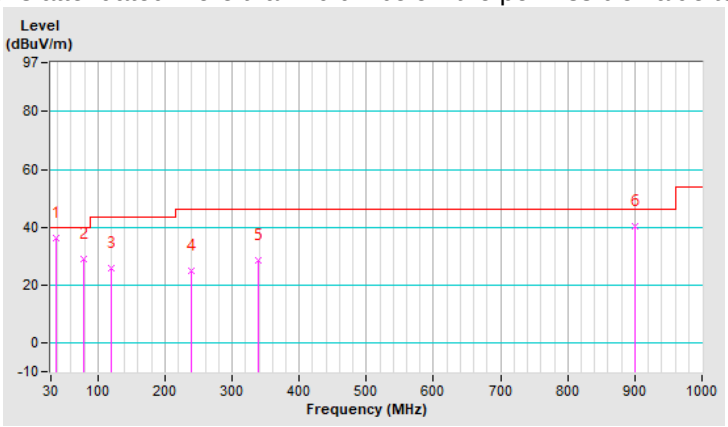
802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	37.76	36.3 QP	40.0	-3.7	1.25 H	72	47.0	-10.7
2	78.50	28.8 QP	40.0	-11.2	1.00 H	289	42.3	-13.5
3	119.24	26.0 QP	43.5	-17.5	1.50 H	283	37.8	-11.8
4	238.55	25.0 QP	46.0	-21.0	1.00 H	10	35.6	-10.6
5	339.43	28.6 QP	46.0	-17.4	1.25 H	110	35.8	-7.2
6	901.06	40.2 QP	46.0	-5.8	1.25 H	9	36.9	3.3

REMARKS:

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

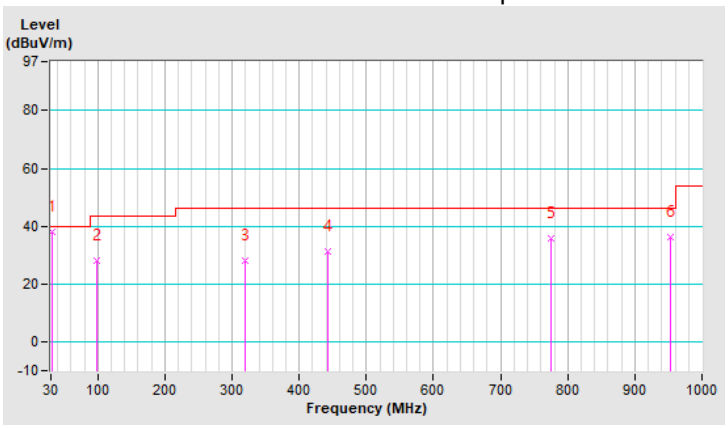


CHANNEL	TX Channel 1	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	**31.94**	**38.1 QP**	**40.0**	**-1.9**	**1.25 V**	**59**	**49.5**	**-11.4**
2	97.90	28.0 QP	43.5	-15.5	1.00 V	87	42.2	-14.2
3	320.03	28.1 QP	46.0	-17.9	1.50 V	94	35.6	-7.5
4	442.25	31.4 QP	46.0	-14.6	1.00 V	109	36.0	-4.6
5	775.93	36.0 QP	46.0	-10.0	1.50 V	284	34.6	1.4
6	952.47	36.3 QP	46.0	-9.7	1.25 V	308	31.8	4.5

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.



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

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

4.2.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver ROHDE & SCHWARZ	ESCI	100613	Dec. 14, 2018	Dec. 13, 2019
			Dec. 11, 2019	Dec. 10, 2020
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond1-01	Sep. 05, 2019	Sep. 04, 2020
LISN ROHDE & SCHWARZ (EUT)	ENV216	101826	Mar. 06, 2019	Mar. 05, 2020
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100311	Aug. 22, 2019	Aug. 21, 2020
Software ADT	BV ADT_Cond_ V7.3.7.4	NA	NA	NA

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

4.2.3 Test Procedures

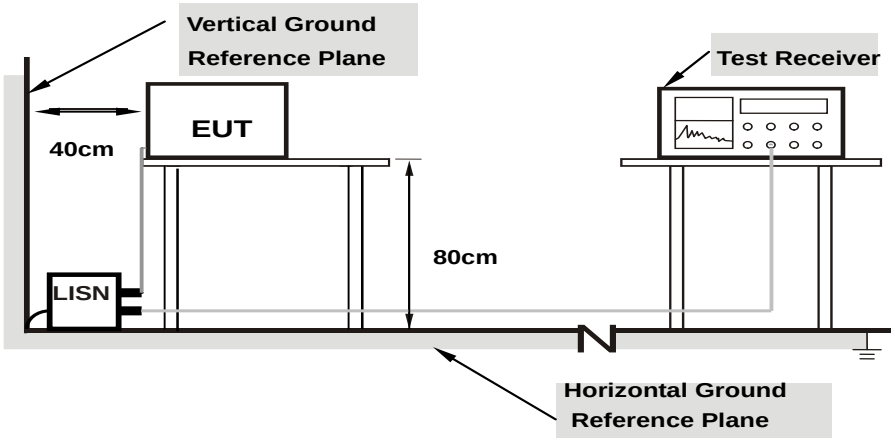
a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/50 uH of coupling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

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

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

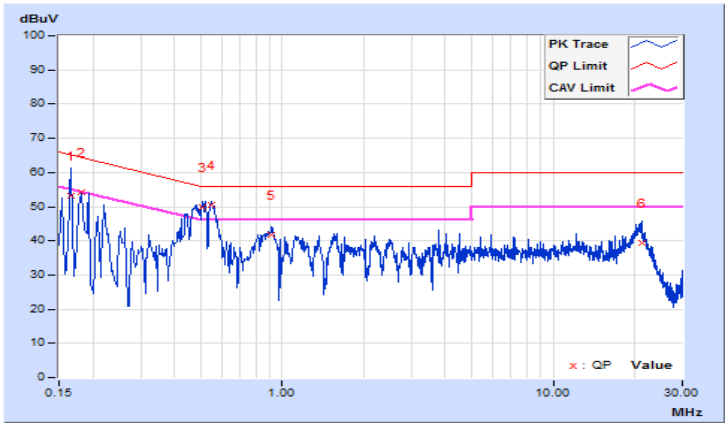
4.2.7 Test Results

Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 75%RH
Tested by	Jones Chang	Test Date	2020/1/7
Test Mode	Mode A		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16564	9.67	43.41	16.06	53.08	25.73	65.18	55.18	-12.10	-29.45
2	0.18128	9.66	44.47	33.31	54.13	42.97	64.43	54.43	-10.30	-11.46
3	0.50972	9.70	40.24	30.58	49.94	40.28	56.00	46.00	-6.06	-5.72
4	0.54806	9.70	40.64	31.84	50.34	41.54	56.00	46.00	-5.66	-4.46
5	0.91636	9.72	32.16	23.16	41.88	32.88	56.00	46.00	-14.12	-13.12
6	21.24054	9.99	29.40	24.16	39.39	34.15	60.00	50.00	-20.61	-15.85

Remarks:

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

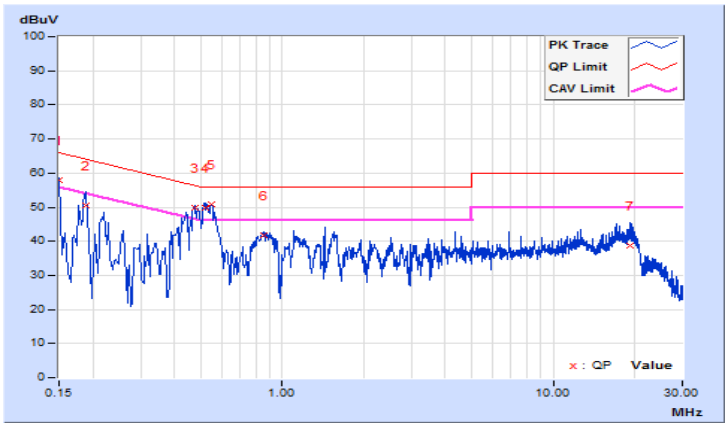


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 75%RH
Tested by	Jones Chang	Test Date	2020/1/7
Test Mode	Mode A		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.64	48.25	34.67	57.89	44.31	66.00	56.00	-8.11	-11.69
2	0.18903	9.64	40.80	26.34	50.44	35.98	64.08	54.08	-13.64	-18.10
3	0.47412	9.66	40.02	32.15	49.68	41.81	56.44	46.44	-6.76	-4.63
4	0.52145	9.67	40.26	30.89	49.93	40.56	56.00	46.00	-6.07	-5.44
5	0.54491	9.67	41.07	32.05	50.74	41.72	56.00	46.00	-5.26	-4.28
6	0.85100	9.69	31.90	22.84	41.59	32.53	56.00	46.00	-14.41	-13.47
7	19.16433	10.04	28.60	23.31	38.64	33.35	60.00	50.00	-21.36	-16.65

Remarks:

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

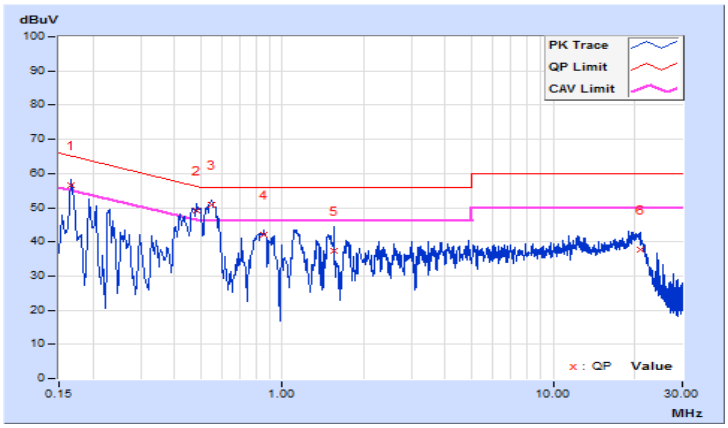


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 75%RH
Tested by	Noah Chang	Test Date	2019/12/2
Test Mode	Mode B		

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16600	9.67	47.00	35.91	56.67	45.58	65.16	55.16	-8.49	-9.58
2	0.48190	9.70	39.61	29.61	49.31	39.31	56.31	46.31	-7.00	-7.00
3	0.54600	9.70	41.11	31.69	50.81	41.39	56.00	46.00	-5.19	-4.61
4	0.85357	9.72	32.42	24.07	42.14	33.79	56.00	46.00	-13.86	-12.21
5	1.55400	9.76	27.63	18.99	37.39	28.75	56.00	46.00	-18.61	-17.25
6	20.93800	9.99	27.78	22.49	37.77	32.48	60.00	50.00	-22.23	-17.52

Remarks:

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

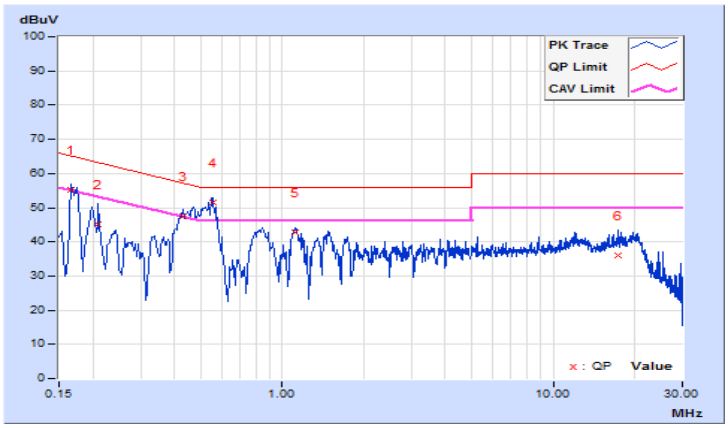


Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9kHz
Input Power	120Vac, 60Hz	Environmental Conditions	25℃, 75%RH
Tested by	Noah Chang	Test Date	2019/12/2
Test Mode	Mode B		

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16600	9.64	45.45	34.98	55.09	44.62	65.16	55.16	-10.07	-10.54
2	0.21000	9.64	35.46	20.19	45.10	29.83	63.21	53.21	-18.11	-23.38
3	0.43000	9.66	37.69	29.29	47.35	38.95	57.25	47.25	-9.90	-8.30
4	**0.55400**	**9.67**	**41.71**	**33.92**	**51.38**	**43.59**	**56.00**	**46.00**	**-4.62**	**-2.41**
5	1.11379	9.71	33.09	23.62	42.80	33.33	56.00	46.00	-13.20	-12.67
6	17.46600	10.02	25.91	19.92	35.93	29.94	60.00	50.00	-24.07	-20.06

Remarks:

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

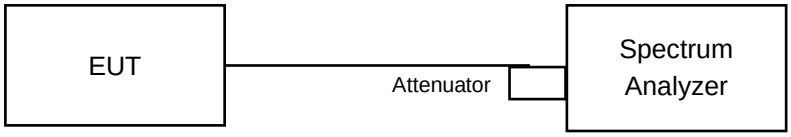


4.3 6 dB Bandwidth Measurement

4.3.1 Limits of 6 dB Bandwidth Measurement

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

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

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Results

802.11b

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	7.63	7.61	0.5	Pass
6	2437	10.13	10.13	0.5	Pass
11	2462	10.09	10.06	0.5	Pass

802.11g

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.39	16.41	0.5	Pass
6	2437	16.34	16.37	0.5	Pass
11	2462	16.38	16.42	0.5	Pass

802.11n (HT20)

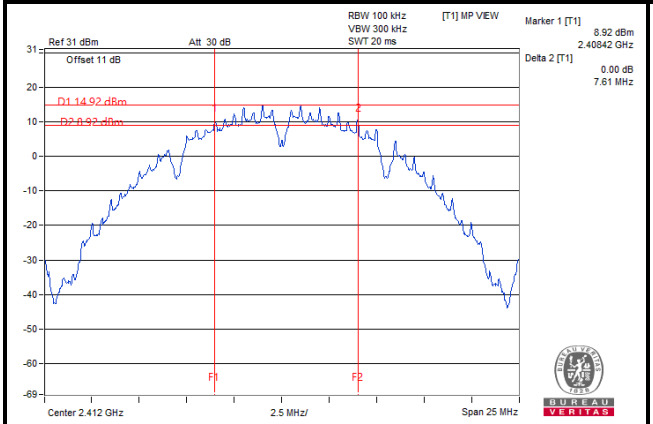
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.62	17.62	0.5	Pass
6	2437	17.57	17.59	0.5	Pass
11	2462	17.63	17.63	0.5	Pass

802.11n (HT40)

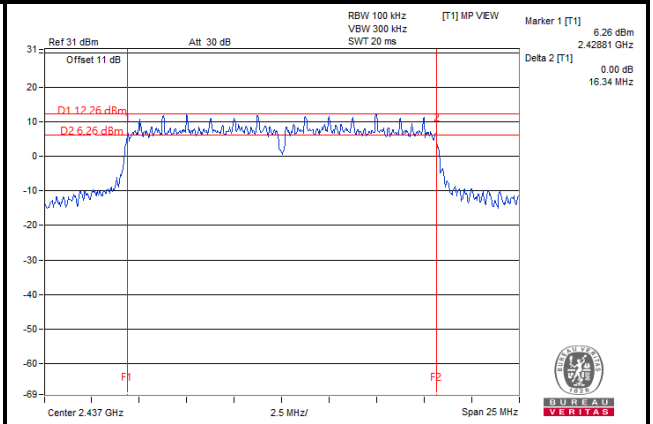
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.26	35.32	0.5	Pass
6	2437	35.25	35.34	0.5	Pass
9	2452	35.26	35.19	0.5	Pass

Spectrum Plot of Worst Value

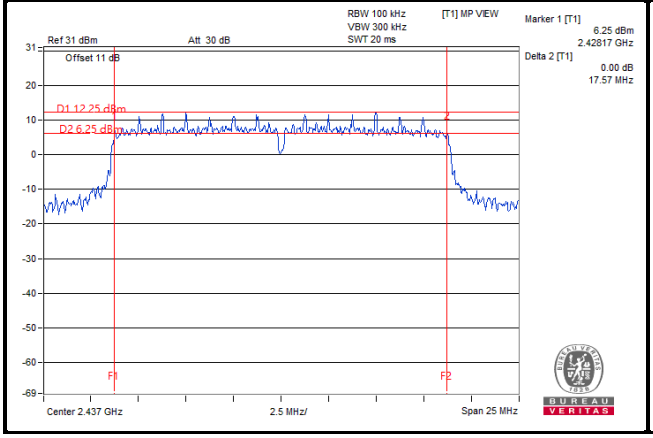
802.11b



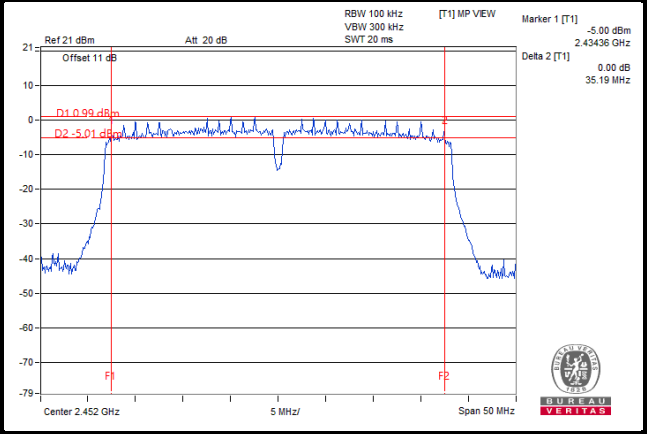
802.11g



802.11n (HT20)

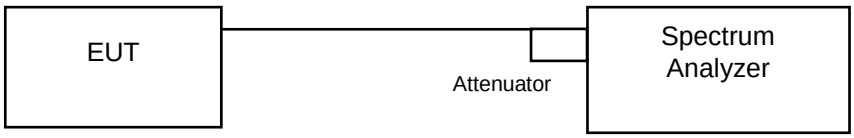


802.11n (HT40)



4.4 Occupied Bandwidth Measurement

4.4.1 Test Setup



4.4.2 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.3 Test Procedure

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

4.4.4 Deviation from Test Standard

No deviation.

4.4.5 EUT Operating Conditions

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

4.4.6 Test Results

802.11b

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		Pass / Fail
		Chain 0	Chain 1	
1	2412	13.40	13.48	Pass
6	2437	17.04	17.28	Pass
11	2462	15.36	15.00	Pass

802.11g

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		Pass / Fail
		Chain 0	Chain 1	
1	2412	16.44	16.44	Pass
6	2437	18.00	17.76	Pass
11	2462	16.44	16.44	Pass

802.11n (HT20)

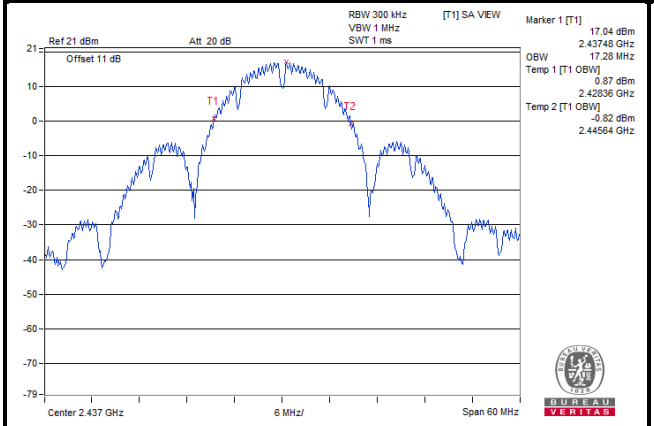
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		Pass / Fail
		Chain 0	Chain 1	
1	2412	17.64	17.64	Pass
6	2437	18.08	18.48	Pass
11	2462	17.64	17.64	Pass

802.11n (HT40)

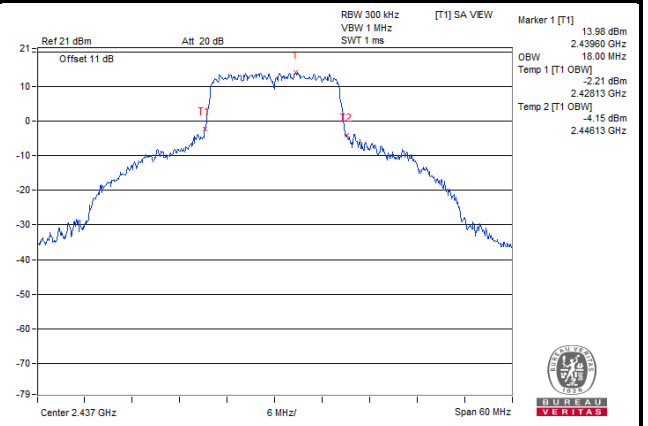
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)		Pass / Fail
		Chain 0	Chain 1	
3	2422	36.00	36.00	Pass
6	2437	36.00	36.00	Pass
9	2452	36.00	36.00	Pass

Spectrum Plot of Worst Value

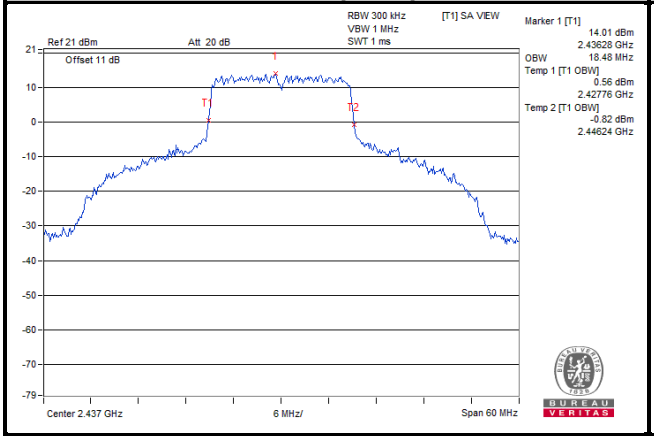
802.11b



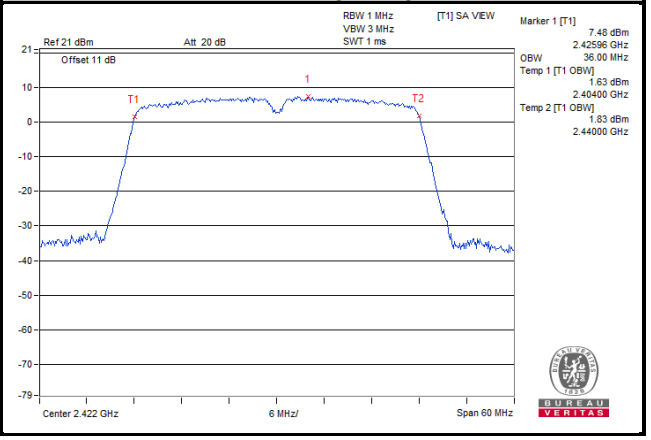
802.11g



802.11n (HT20)



802.11n (HT40)



4.5 Conducted Output Power Measurement

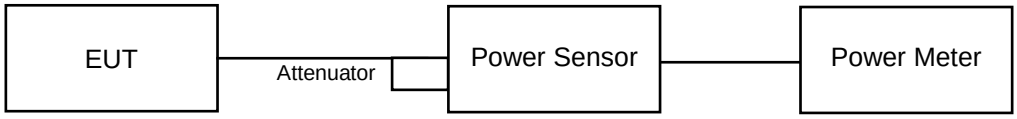
4.5.1 Limits of Conducted Output Power Measurement

For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30 dBm)
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 NANT ≤ 4;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT;
Array Gain = 5 log(NANT/NSS) dB or 3 dB, whichever is less for 20 MHz channel widths with NANT ≥ 5.

For power measurements on all other devices: Array Gain = 10 log(NANT/NSS) dB.

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedures

Average power sensor was used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Conditions

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

4.5.7 Test Results

CDD Mode

802.11b

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	21.96	22.26	325.303	25.12	30	Pass
6	2437	24.91	25.34	651.721	28.14	30	Pass
11	2462	24.08	24.07	511.129	27.09	30	Pass

802.11g

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	18.10	18.01	127.806	21.07	30	Pass
6	2437	23.09	23.13	409.293	26.12	30	Pass
11	2462	18.76	18.79	150.845	21.79	30	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	14.14	14.46	107.727	20.32	30	Pass
6	2437	19.85	19.61	376.007	25.75	30	Pass
11	2462	14.91	14.86	123.179	20.91	30	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	12.66	12.90	37.948	15.79	30	Pass
6	2437	16.79	17.19	100.113	20.00	30	Pass
9	2452	13.78	14.23	50.363	17.02	30	Pass

Beamforming Mode

802.11n (HT20)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	14.14	14.46	53.867	17.31	29.49	Pass
6	2437	19.85	19.61	188.016	22.74	29.49	Pass
11	2462	14.91	14.86	61.594	17.90	29.49	Pass

NOTE:

1. Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \ldots. + 10^{GN/20})^2 / N_{ANT}]$ = 6.51 dBi > 6 dBi, so the power density limit shall be reduced to 30-(6.51-6) = 29.49 dBm.

802.11n (HT40)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	9.65	9.89	18.976	12.78	29.49	Pass
6	2437	13.78	14.18	50.06	16.99	29.49	Pass
9	2452	10.77	11.22	25.183	14.01	29.49	Pass

NOTE:

1. Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \ldots. + 10^{GN/20})^2 / N_{ANT}]$ = 6.51 dBi > 6 dBi, so the power density limit shall be reduced to 30-(6.51-6) = 29.49 dBm.

4.6 Power Spectral Density Measurement

4.6.1 Limits of Power Spectral Density Measurement

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

4.6.2 Test Setup

4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

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

4.6.7 Test Results

802.11b

TX Chain	Channel	Freq. (MHz)	PSD (dBm/3 kHz)	10 log (N=2) dB	Total PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Pass / Fail
0	1	2412	-3.99	3.01	-0.98	7.49	Pass
	6	2437	-1.89	3.01	1.12	7.49	Pass
	11	2462	-3.48	3.01	-0.47	7.49	Pass
1	1	2412	-4.06	3.01	-1.05	7.49	Pass
	6	2437	-2.39	3.01	0.62	7.49	Pass
	11	2462	-2.70	3.01	0.31	7.49	Pass

NOTE:

1. Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \ldots. + 10^{GN/20})^2 / N_{ANT}]$ = 6.51 dBi > 6 dBi, so the power density limit shall be reduced to 8-(6.51-6) = 7.49 dBm.
2. Method 2) C) of power density measurement of KDB 662911 is using for calculating total power density.

802.11g

TX Chain	Channel	Freq. (MHz)	PSD (dBm/3 kHz)	10 log (N=2) dB	Total PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Pass / Fail
0	1	2412	-12.11	3.01	-8.89	7.49	Pass
	6	2437	-7.43	3.01	-4.21	7.49	Pass
	11	2462	-11.33	3.01	-8.11	7.49	Pass
1	1	2412	-12.01	3.01	-8.79	7.49	Pass
	6	2437	-7.54	3.01	-4.32	7.49	Pass
	11	2462	-11.20	3.01	-7.98	7.49	Pass

NOTE:

1. Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \ldots. + 10^{GN/20})^2 / N_{ANT}]$ = 6.51 dBi > 6 dBi, so the power density limit shall be reduced to 8-(6.51-6) = 7.49 dBm.
2. Method 2) C) of power density measurement of KDB 662911 is using for calculating total power density.

802.11n (HT20)

TX Chain	Channel	Freq. (MHz)	PSD (dBm/3 kHz)	10 log (N=2) dB	Total PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Pass / Fail
0	1	2412	-12.20	3.01	-9.10	7.49	Pass
	6	2437	-6.97	3.01	-3.87	7.49	Pass
	11	2462	-11.72	3.01	-8.62	7.49	Pass
1	1	2412	-11.48	3.01	-8.38	7.49	Pass
	6	2437	-7.11	3.01	-4.01	7.49	Pass
	11	2462	-11.39	3.01	-8.29	7.49	Pass

NOTE:

1. Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \ldots. + 10^{GN/20})^2 / N_{ANT}]$ = 6.51 dBi > 6 dBi, so the power density limit shall be reduced to 8-(6.51-6) = 7.49 dBm.
2. Method 2) C) of power density measurement of KDB 662911 is using for calculating total power density.

802.11n (HT40)

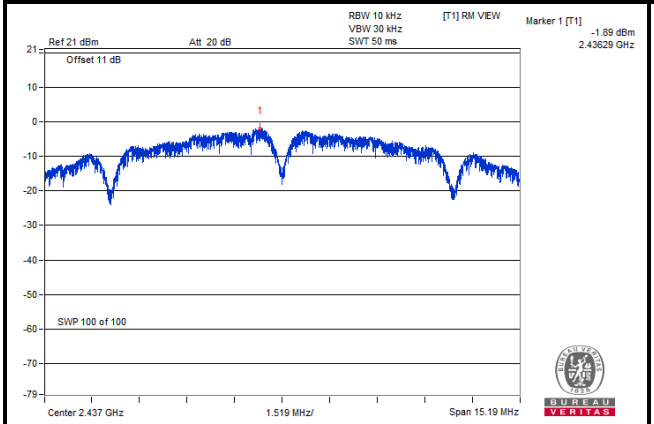
TX Chain	Channel	Freq. (MHz)	PSD (dBm/3 kHz)	10 log (N=2) dB	Total PSD (dBm/3 kHz)	Limit (dBm/3 kHz)	Pass / Fail
0	3	2422	-19.25	3.01	-16.08	7.49	Pass
	6	2437	-15.55	3.01	-12.38	7.49	Pass
	9	2452	-18.15	3.01	-14.98	7.49	Pass
1	3	2422	-19.28	3.01	-16.11	7.49	Pass
	6	2437	-15.44	3.01	-12.27	7.49	Pass
	9	2452	-17.89	3.01	-14.72	7.49	Pass

NOTE:

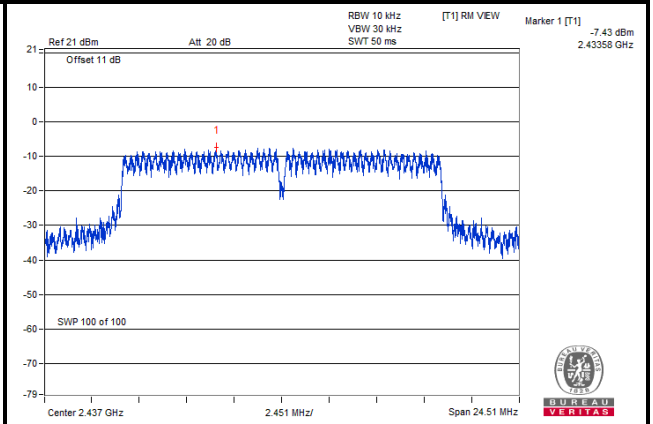
1. Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \ldots. + 10^{GN/20})^2 / N_{ANT}]$ = 6.51 dBi > 6 dBi, so the power density limit shall be reduced to 8-(6.51-6) = 7.49 dBm.
2. Method 2) C) of power density measurement of KDB 662911 is using for calculating total power density.

Spectrum Plot of Worst Value

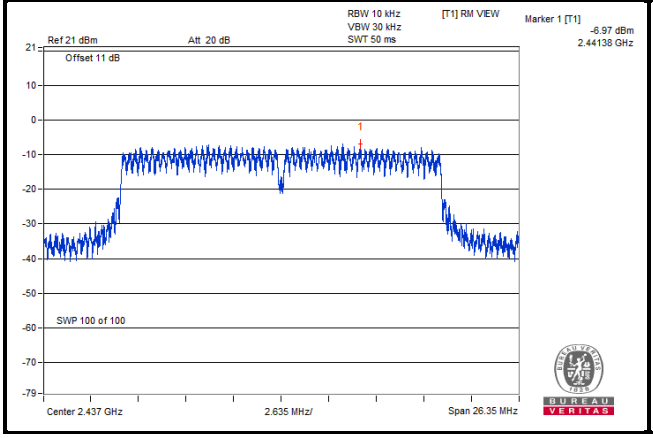
802.11b



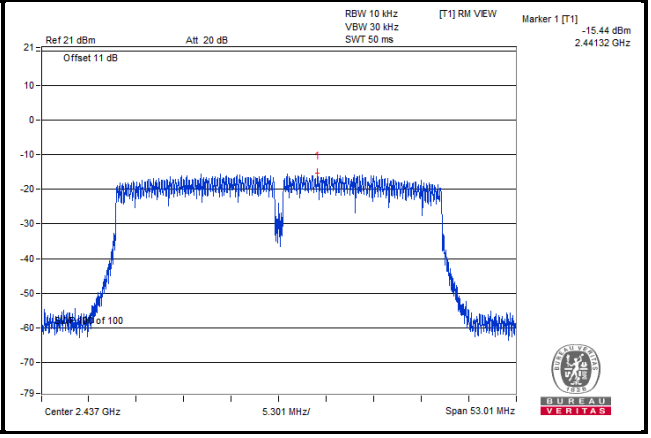
802.11g



802.11n (HT20)



802.11n (HT40)

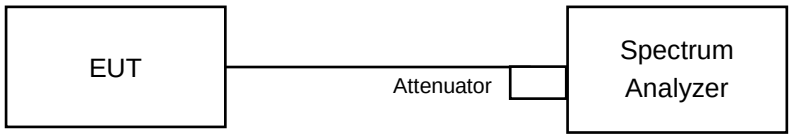


4.7 Conducted Out of Band Emission Measurement

4.7.1 Limits of Conducted Out of Band Emission Measurement

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

4.7.2 Test Setup



4.7.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.7.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOBE

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

4.7.5 Deviation from Test Standard

No deviation.

4.7.6 EUT Operating Condition

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

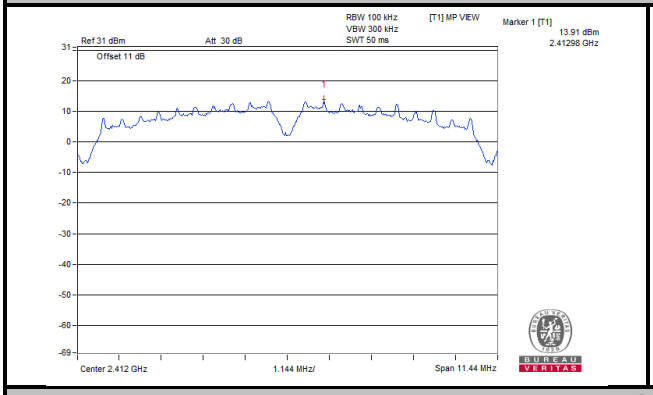
4.7.7 Test Results

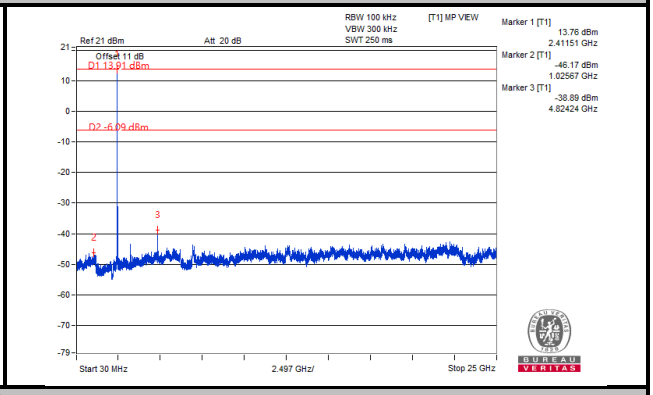
The spectrum plots are attached on the following images. D1 line indicates the highest level, and D2 line indicates the 20 dB offset below D1. It shows compliance with the requirement.

802.11b

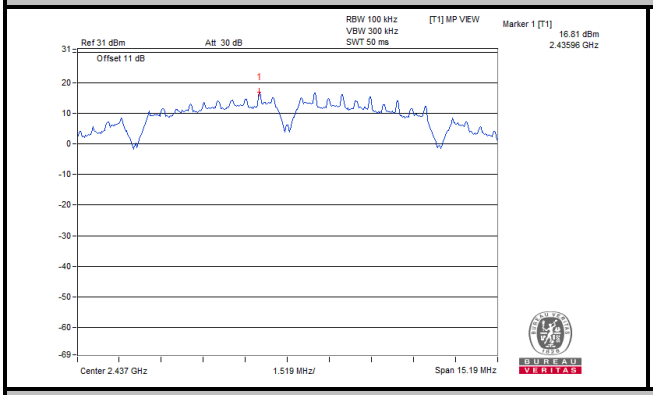
CHAIN 0

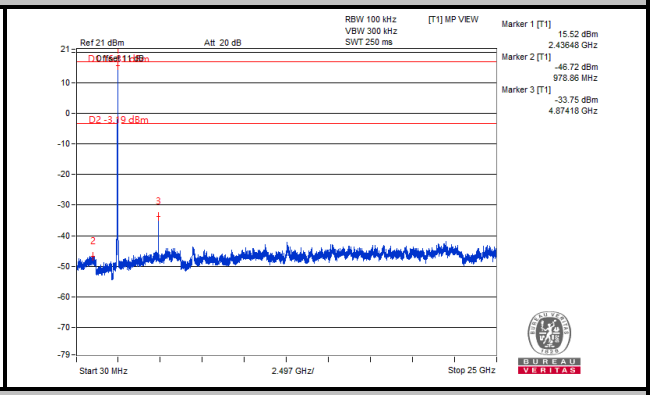
Ch 1



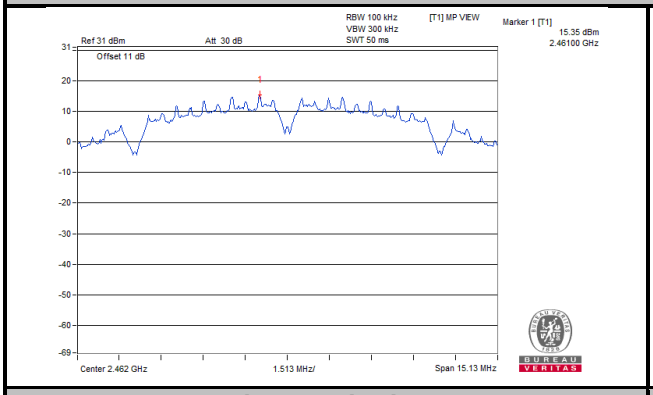


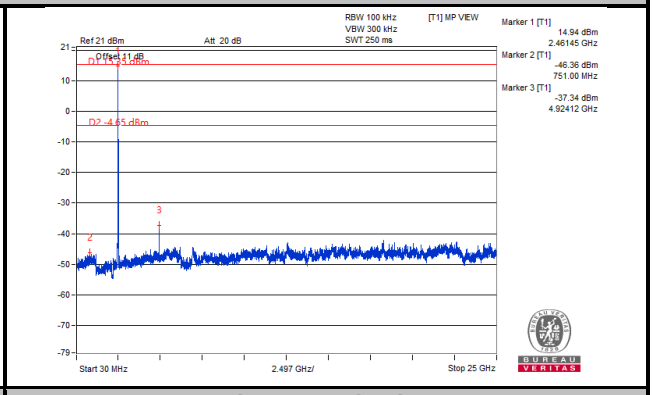
Ch 6



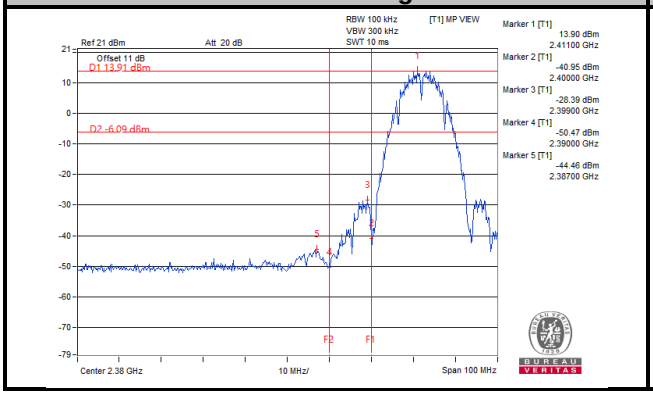


Ch 11

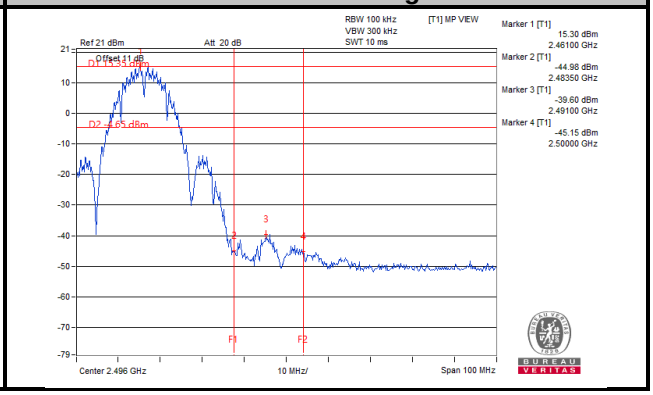




Ch 1 Band Edge



Ch 11 Band Edge



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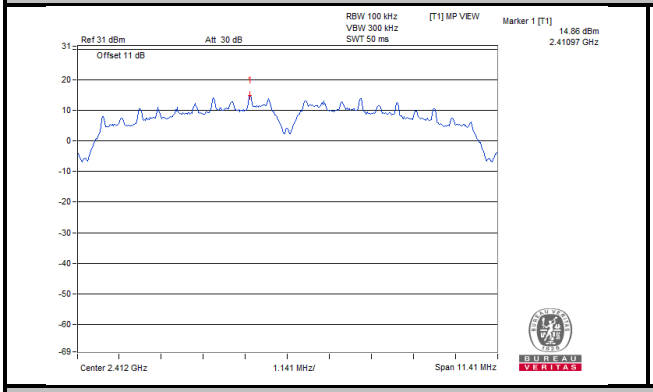

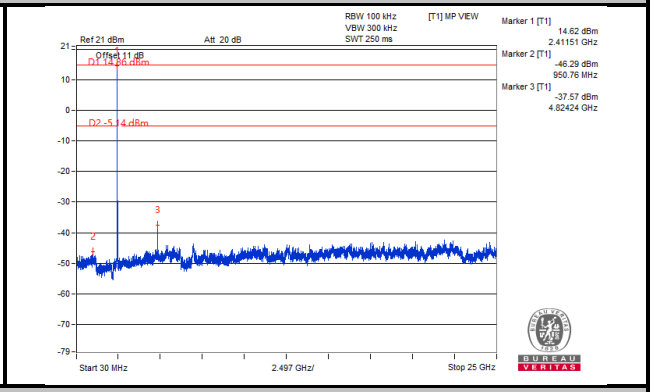

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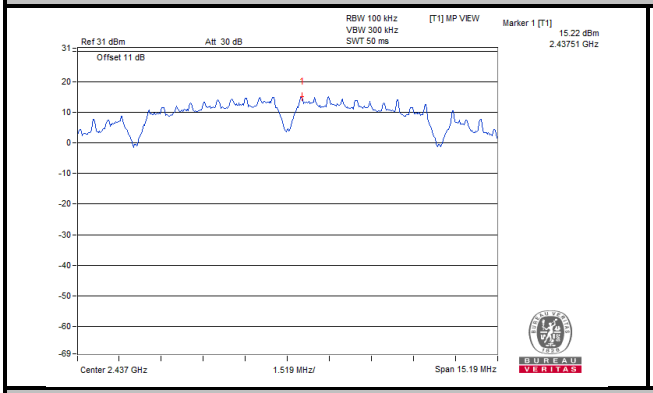

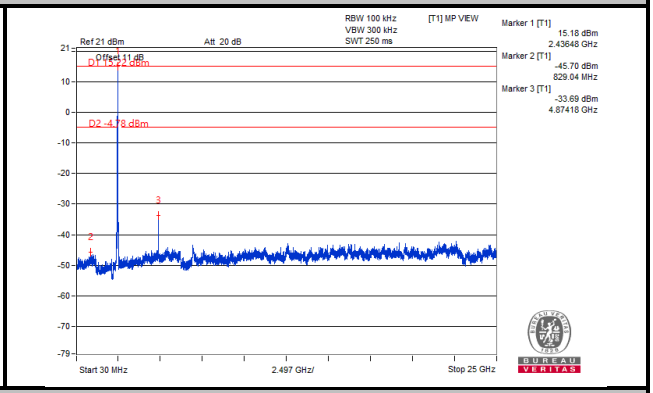

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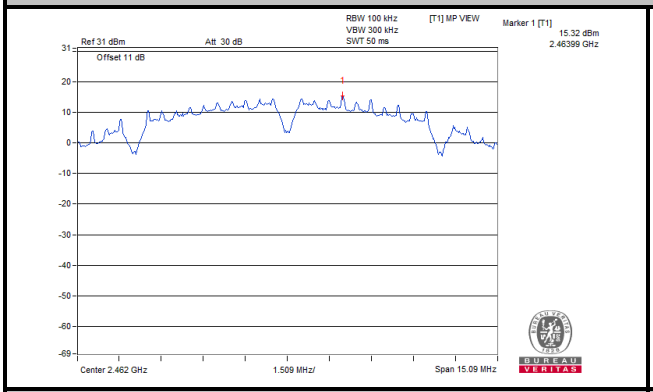

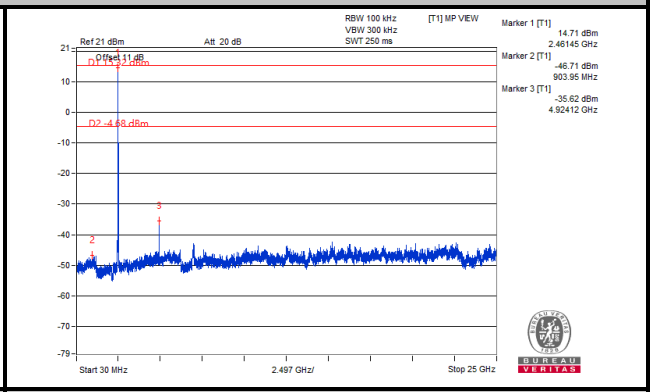

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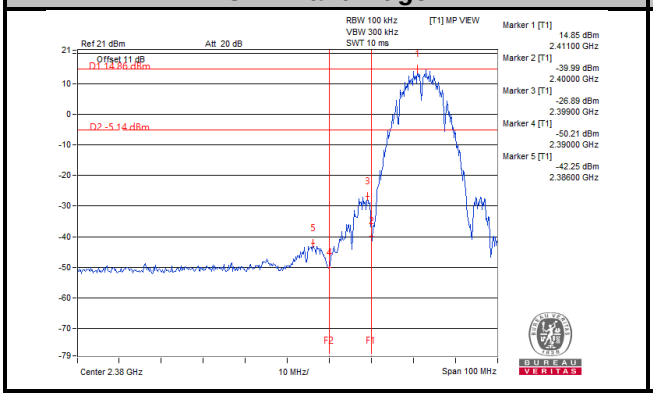

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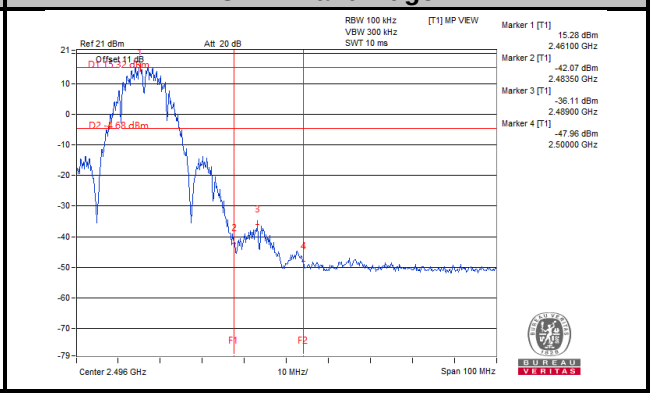

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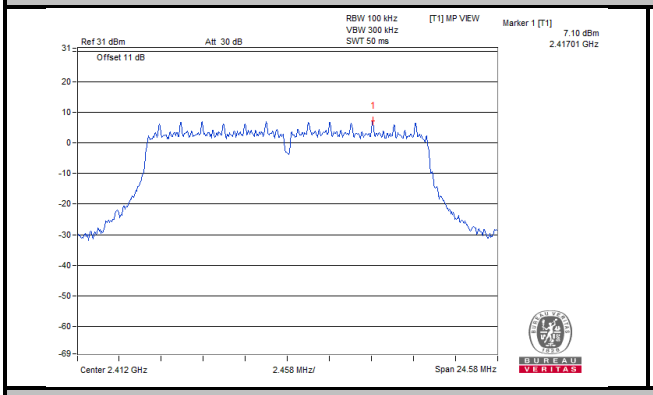

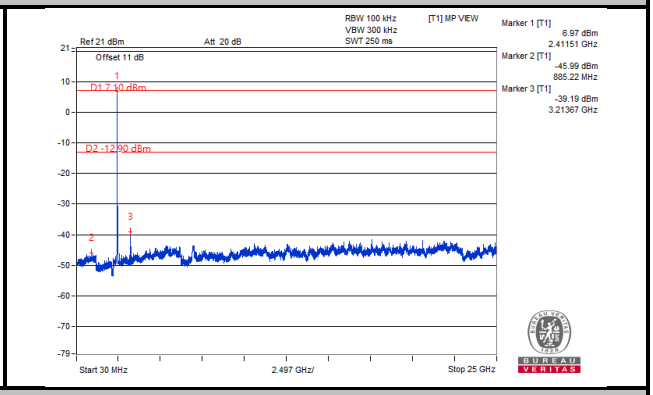

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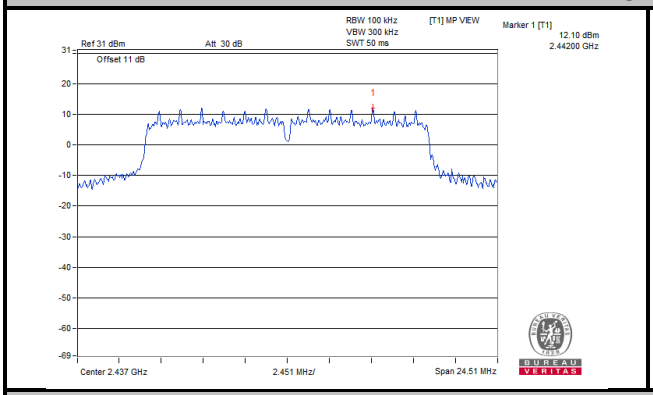

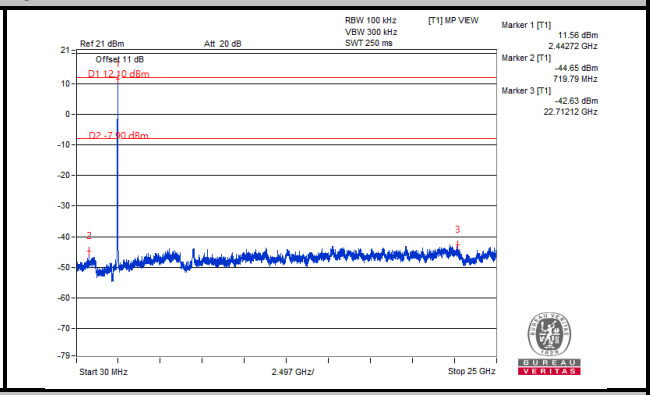

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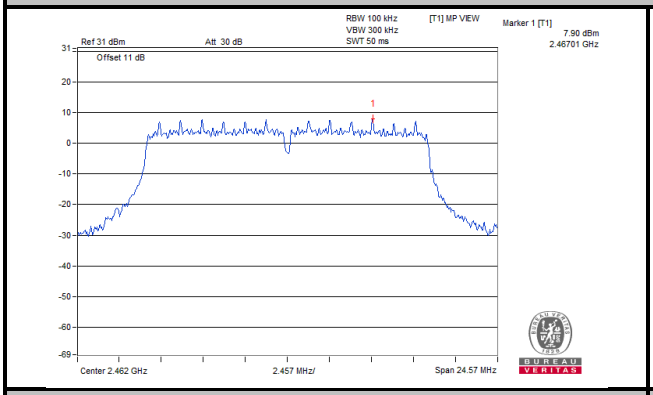

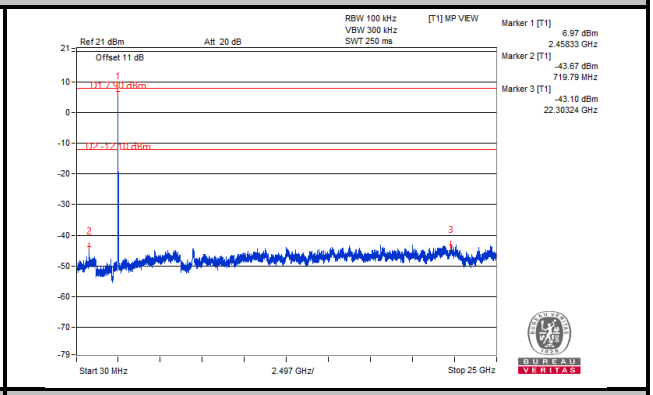

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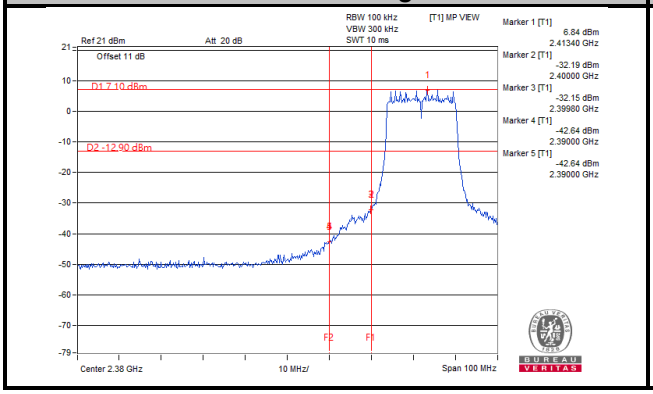

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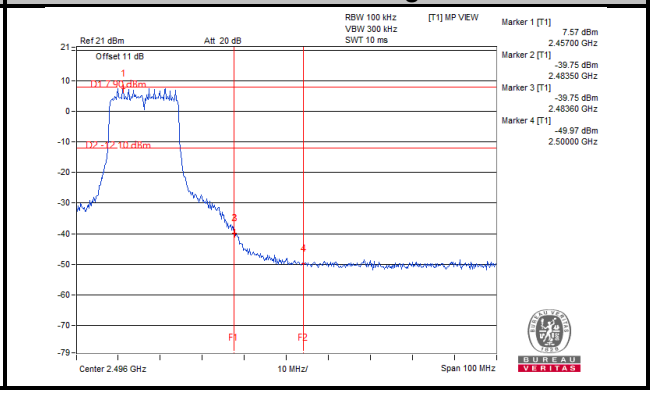

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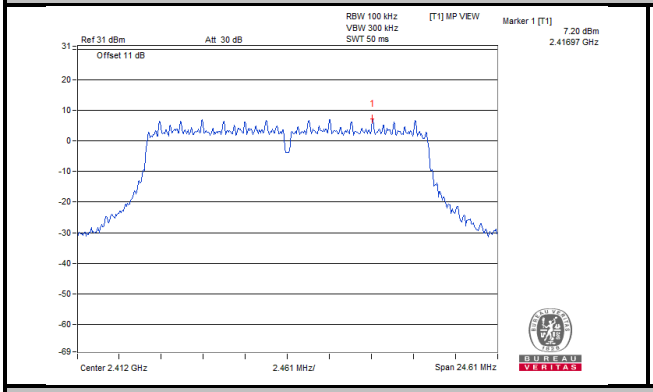
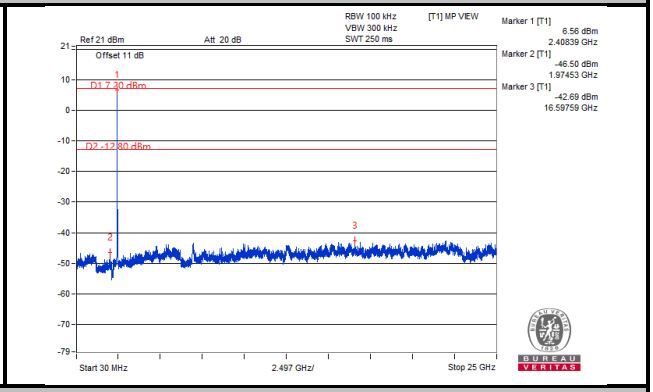
Ch 1





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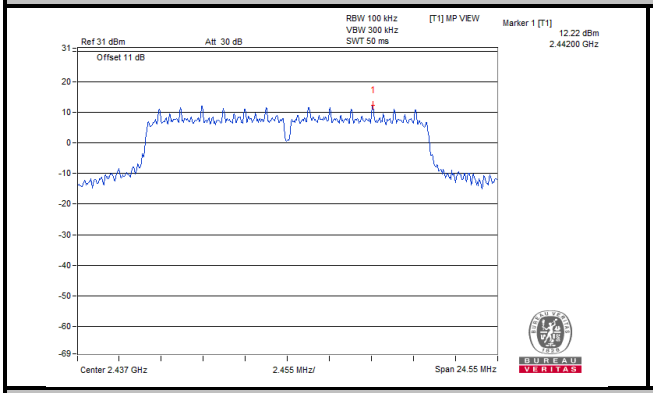

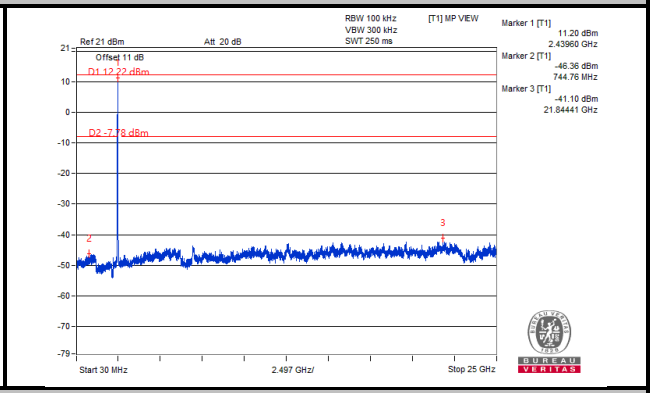

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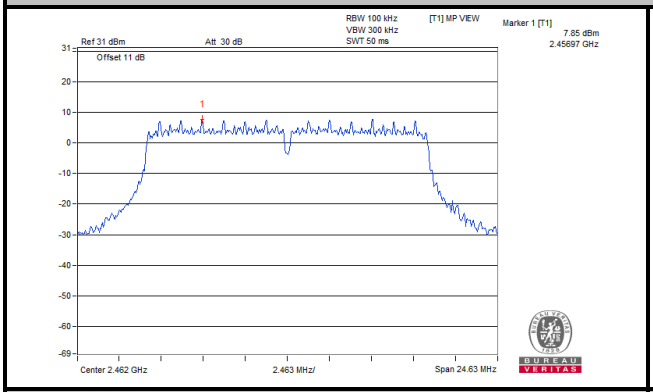

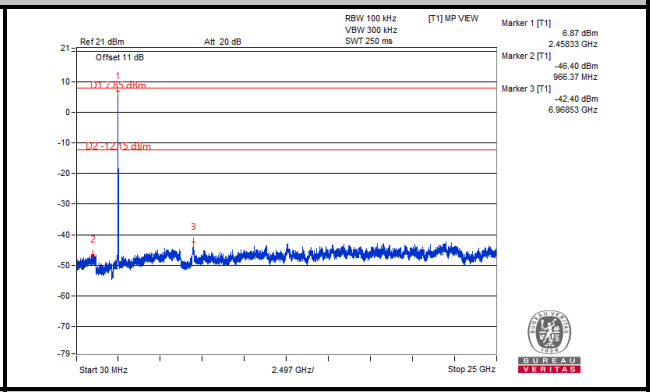

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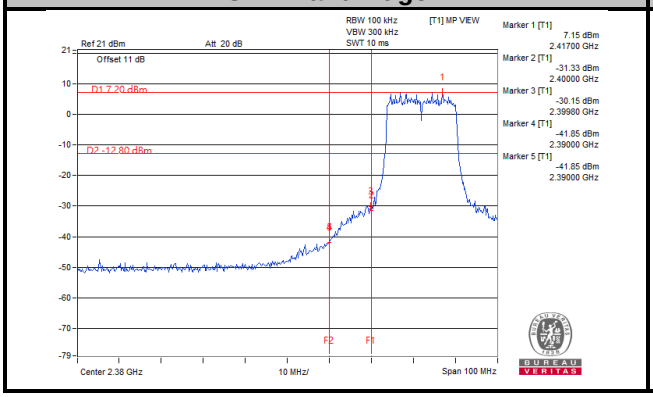

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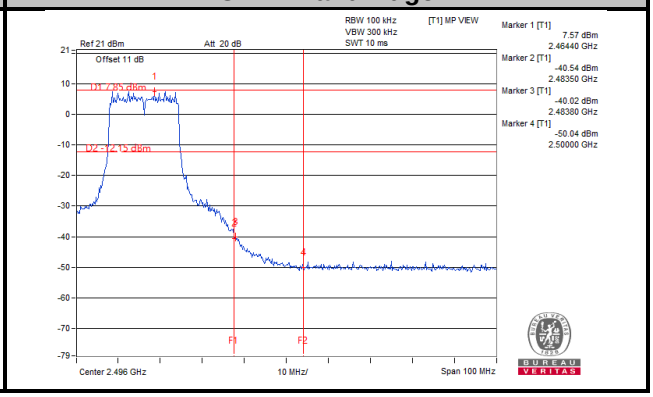

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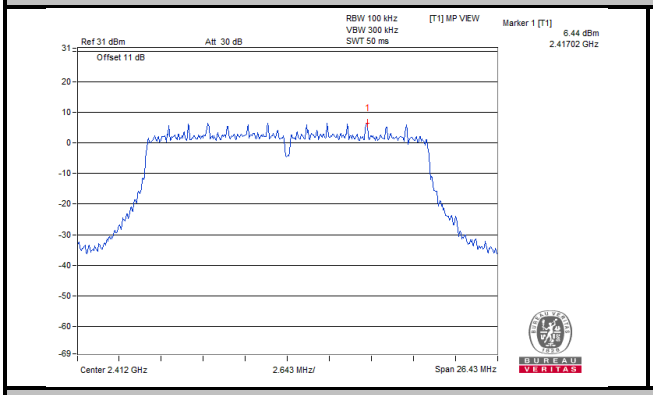
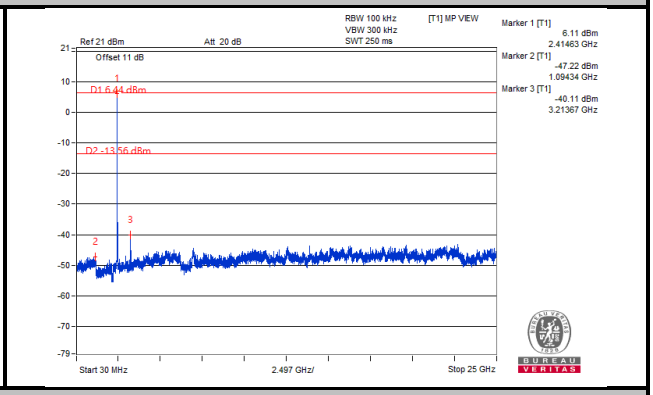
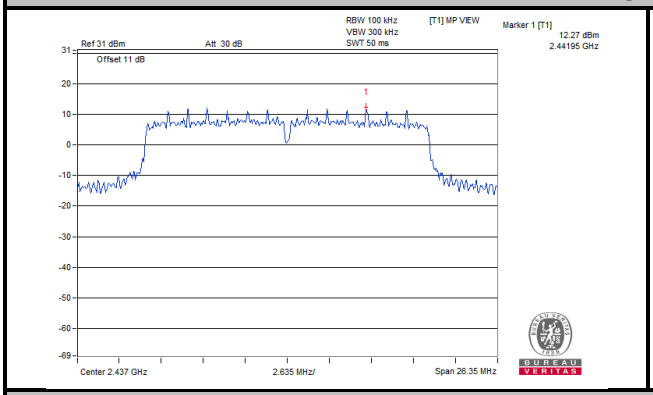
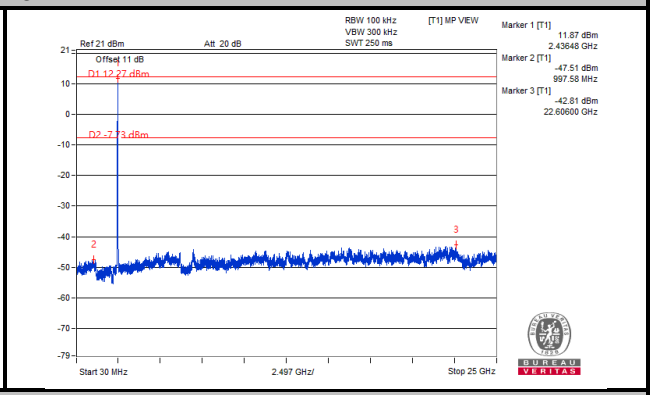
Ch 1





Ch 6





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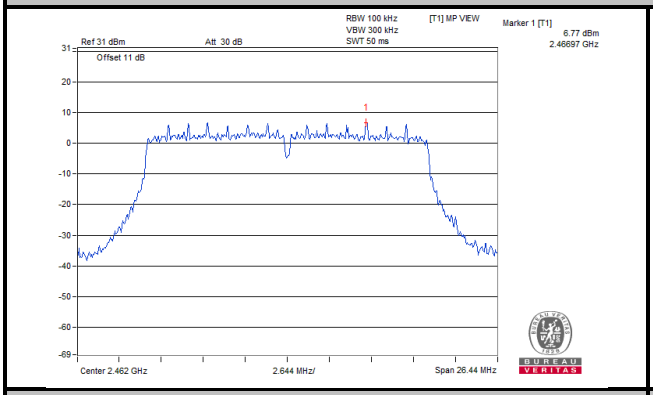
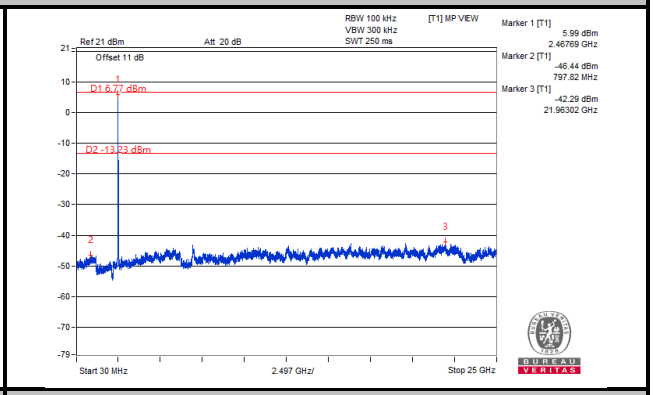
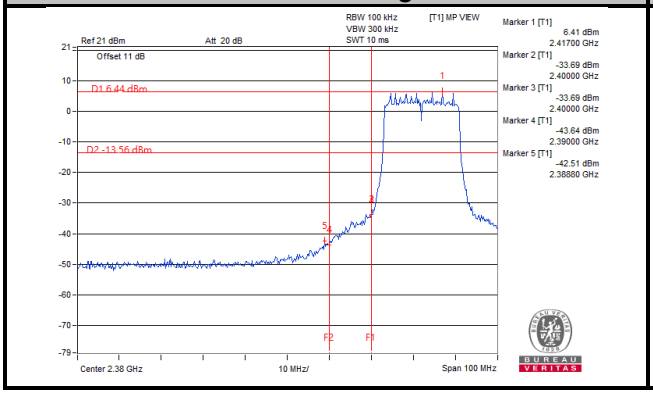




Ch 1 Band Edge



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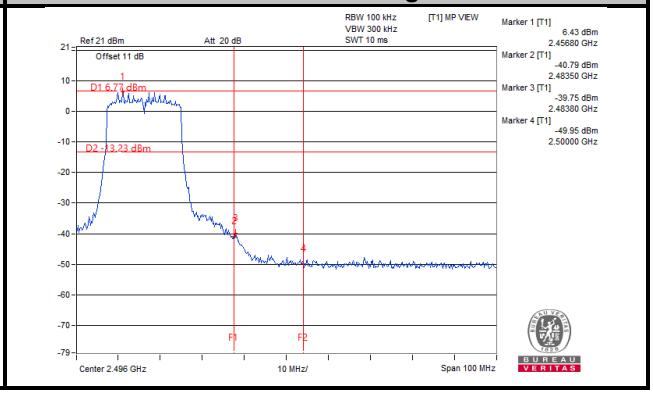

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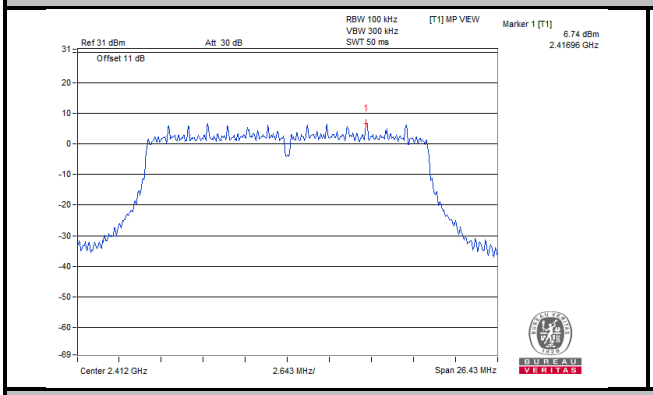
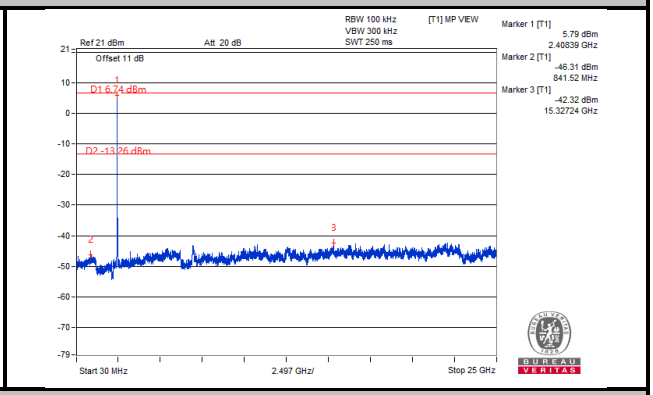
Ch 1





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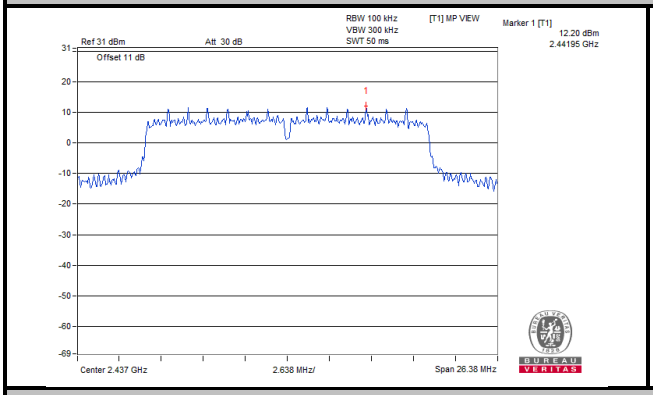
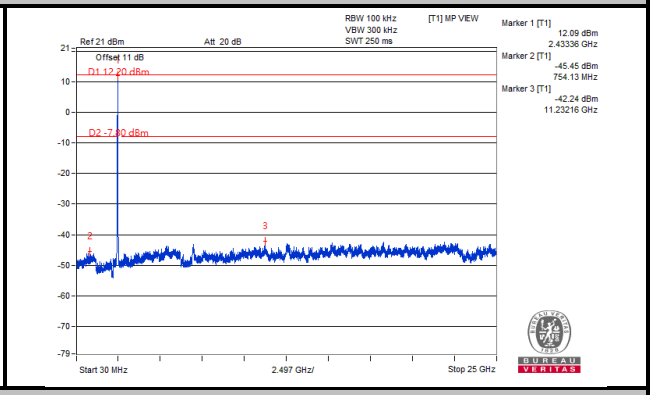
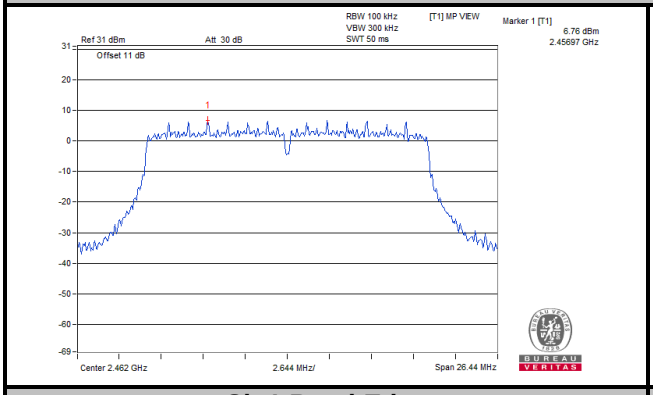
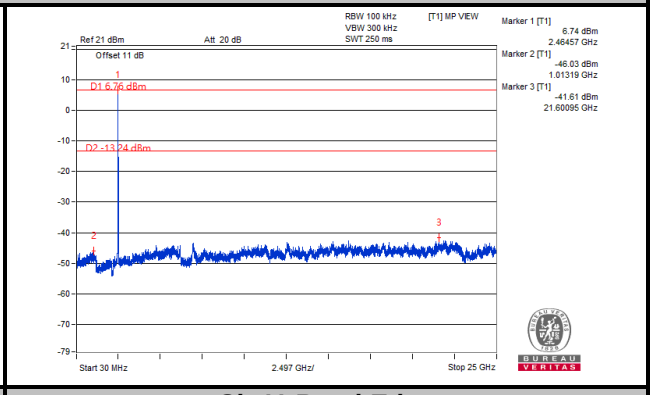


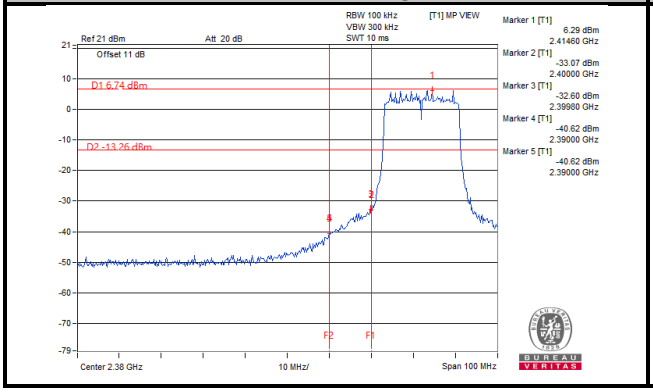


Ch 11

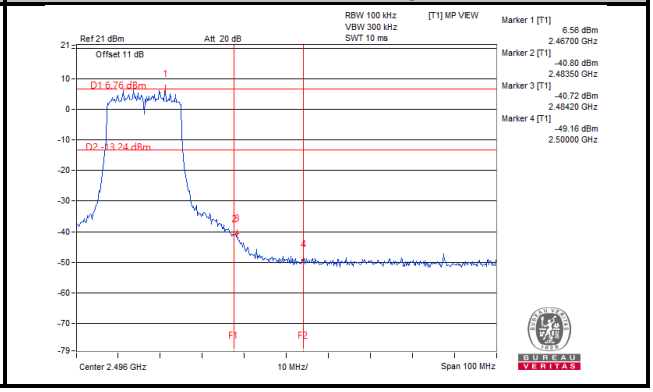




Ch 1 Band Edge



Ch 11 Band Edge



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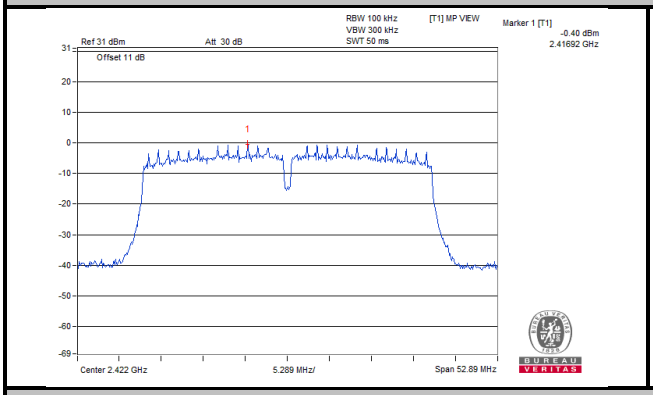
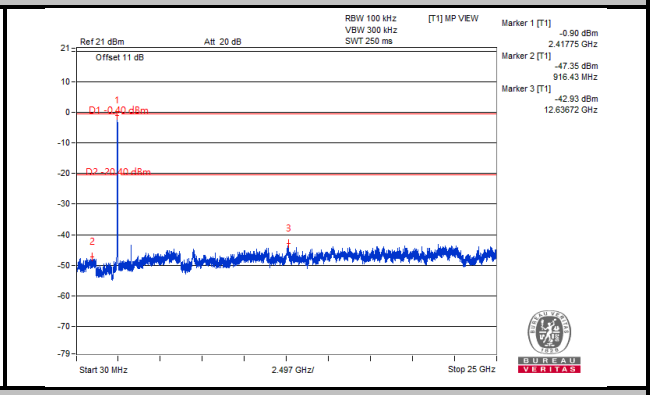
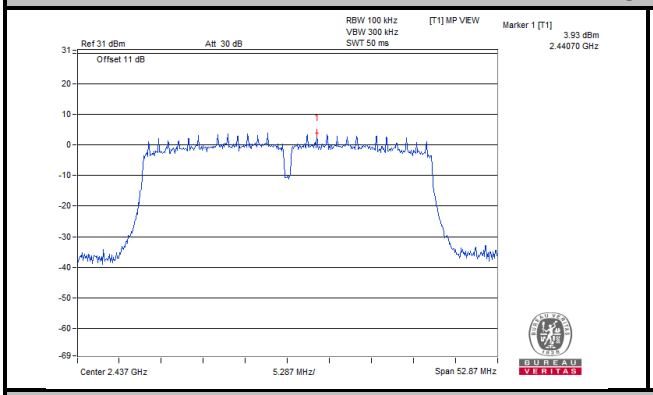
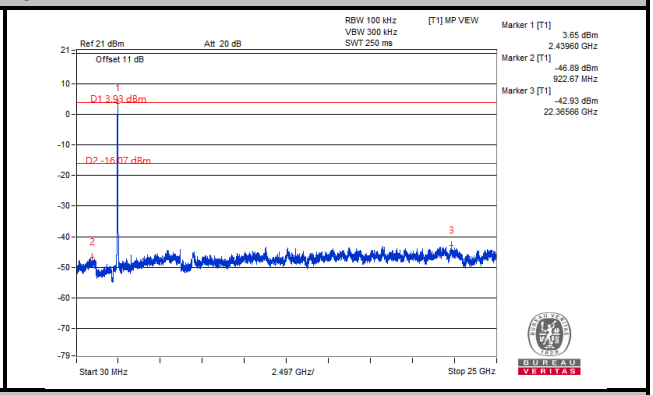
Ch 3



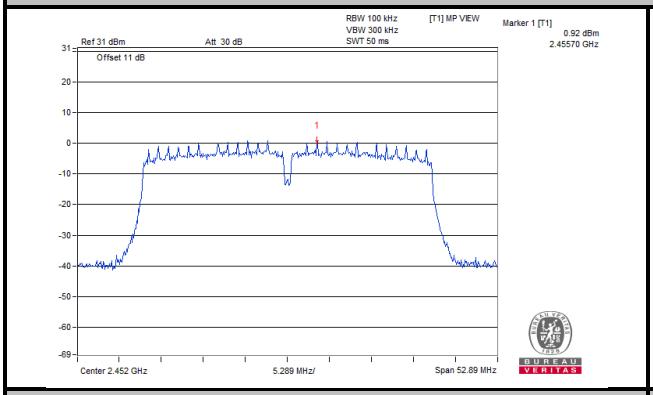


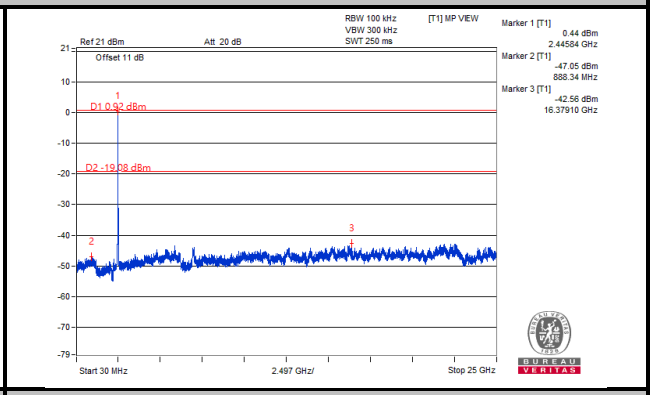
Ch 6



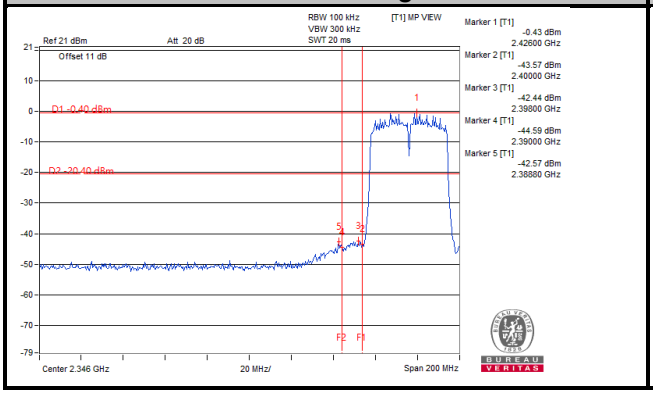


Ch 9

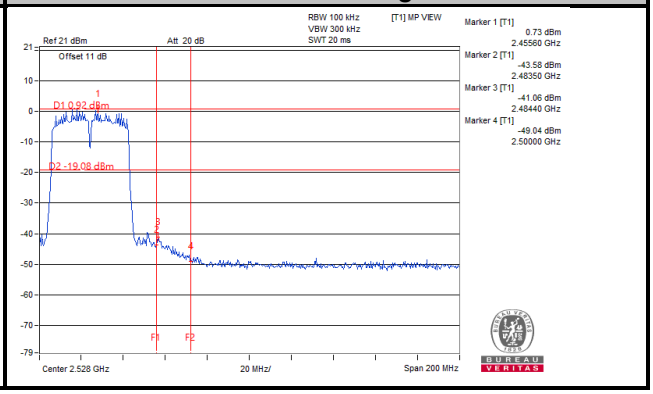




Ch 3 Band Edge

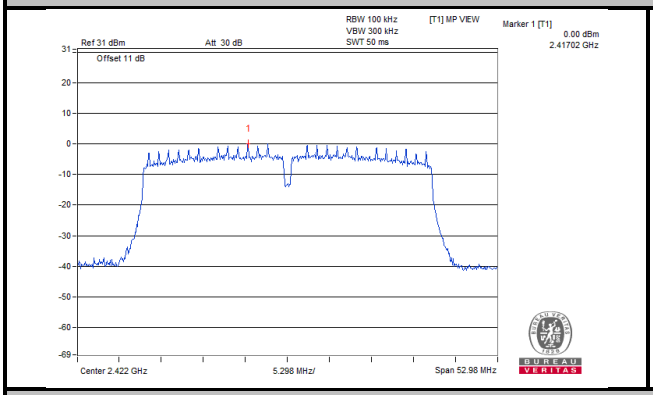


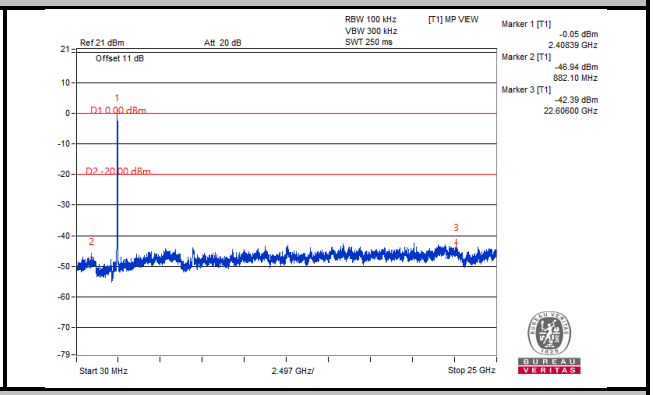
Ch 9 Band Edge



CHAIN 1

Ch 3





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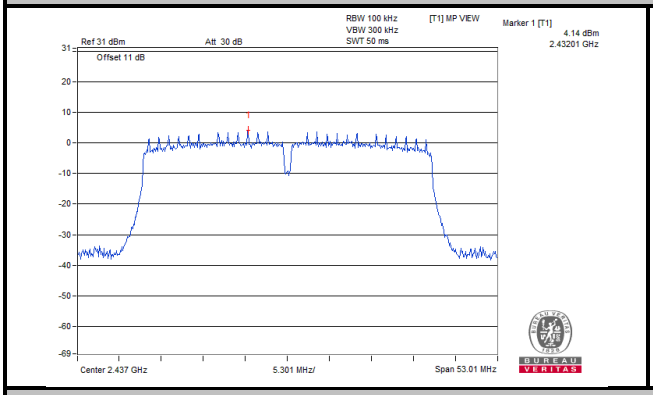
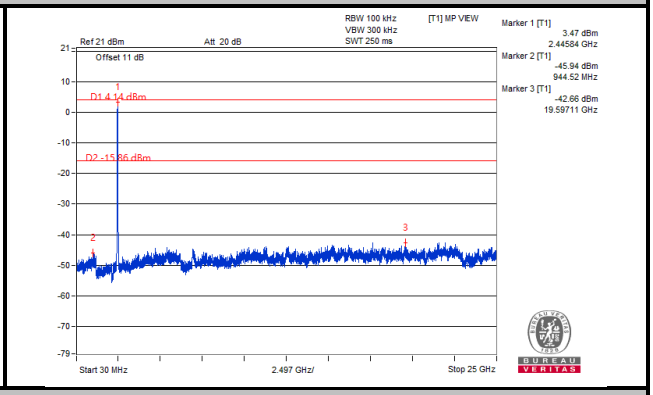
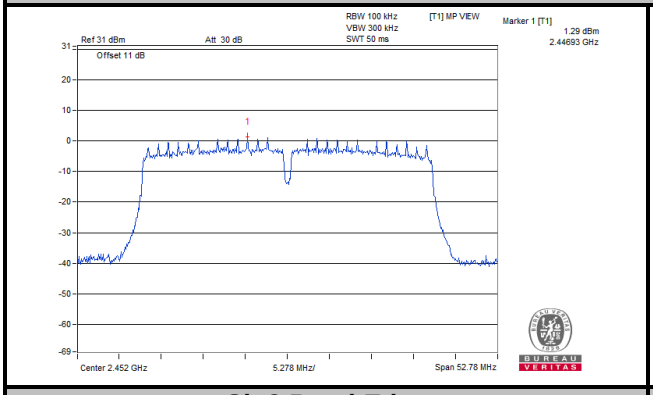
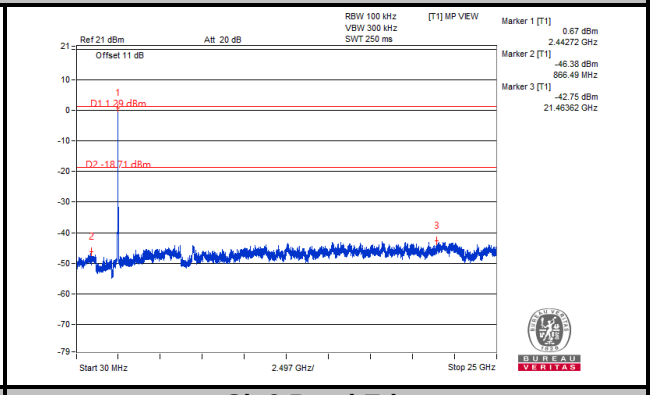


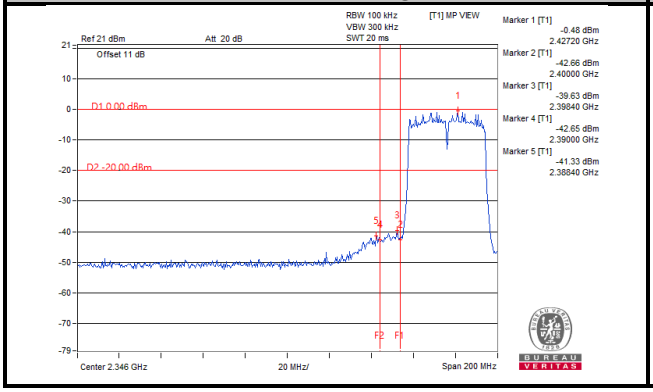


Ch 9

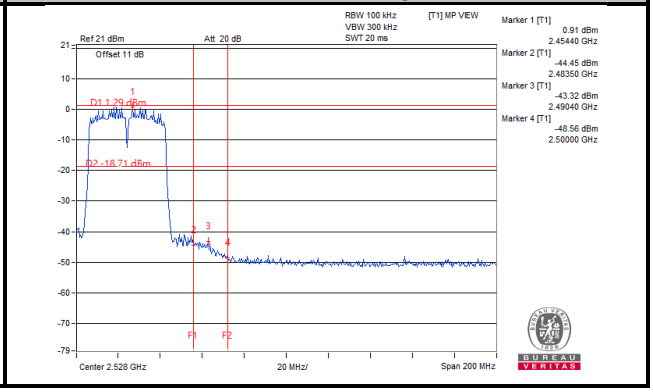




Ch 3 Band Edge



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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Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab
Tel: 886-3-3183232
Fax: 886-3-3270892

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

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

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