

FCC Test Report

Report No.: RF160914E09 R1

FCC ID: UXX-S5A643A

Test Model: S5A643A

Series Model: S5A644A

Received Date: Sep. 19, 2016

Test Date: Sep. 24 to Oct. 04, 2016

Issued Date: Oct. 20, 2016

Applicant: Cradlepoint, Inc

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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Release Control Record

Issue No.	Description	Date Issued
RF160914E09	Original release.	Oct. 19, 2016
RF160914E09 R1	Removed the model : S5A648A	Oct. 20, 2016

1 Certificate of Conformity

Product: 2x2 Dual Band Concurrent AP
Brand: Cradlepoint
Test Model: S5A643A
Series Model: S5A644A
Sample Status: ENGINEERING SAMPLE
Applicant: Cradlepoint, Inc
Test Date: Sep. 24 to Oct. 04, 2016
Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10: 2013

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

Prepared by : Midoli Peng , **Date:** Oct. 20, 2016
Midoli Peng / Specialist

Approved by : May Chen , **Date:** Oct. 20, 2016
May Chen / Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (SECTION 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -4.91dB at 0.34141MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.1dB at 2390.00MHz.
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is R-SMA not a standard connector.

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	Expended Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.83 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.19 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	3.43 dB
	6GHz ~ 18GHz	3.49 dB
	18GHz ~ 40GHz	4.11 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	2x2 Dual Band Concurrent AP
Brand	Cradlepoint
Test Model	S5A643A
Series Model	S5A644A
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	12Vdc from power adapter
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode only.
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n: up to 600Mbps 802.11ac: up to 1733.3Mbps
Operating Frequency	2.4GHz: 2.412 ~ 2.462GHz 5GHz: 5.18 ~ 5.24GHz and 5.745 ~ 5.825GHz
Number of Channel	2.4GHz: 802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7 5GHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 9 802.11n (HT40), 802.11ac (VHT40): 4 802.11ac (VHT80): 2
Output Power	2.4GHz: CDD Mode: 645.542mW Beamforming Mode: 618.533mW 5GHz: 5.18GHz ~ 5.24GHz: CDD Mode: 180.436mW Beamforming Mode: 153.735mW 5.745GHz ~ 5.825GHz: CDD Mode: 351.186mW Beamforming Mode: 349.474mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x1
Data Cable Supplied	NA

Note:

1. All models are listed as below.

Model	Different			
	WiFi function	LTE function	Embedded radio	SKU
S5A643A	V	V	Model: MC7455	IBR900LP6
S5A644A	V	-	-	IBR900NM

From the above models, model: **S5A643A** was selected as representative model for the test and its data was recorded in this report.

2. There are WLAN, GPS and WWAN(LTE) technology used for the EUT.
3. EUT inside has one WWAN(LTE) module (contains FCC ID: N7NMC7455).
4. Simultaneously transmission condition.

Condition	Technology		
1	WLAN (2.4GHz)	WLAN (5GHz)	WWAN(LTE)

Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.

5. The EUT must be supplied with a power adapter and following different models could be chosen as following table:

No	Brand	Model No.	Spec.
1	Asian Power Devices Inc.	WA-36A12R	Input: 100-240V~50-60Hz, 0.9A Max. Output: 12V / 3A DC output cable: 1.45m, unshielded
2	LEI	MU30-P120200-A1	Input: 100-240V~50/60Hz, 0.8A Output: 12V / 2A DC output cable: 1.5m, unshielded
3	Ten Pao International Inc.	S024WM1200150	Input: 100-240V~50/60Hz 600mA Max. Output: 12V / 1500mA DC output cable: 2m, unshielded

Note:

1. For radiated emissions test, the EUT was pre-tested with above adapters, the worst case was found in adapter 3. Therefore only the test data of the adapter was recorded in this report.

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

Antenna No.	Antenna Gain(dBi) Including cable loss	Frequency Range (GHz to GHz)	Antenna Type	Connector Type
1	4.49	2.4~2.4835	Dipole	R-SMA
	4.56	5.15~5.25		
	4.56	5.25~5.35		
	4.63	5.47~5.725		
	4.44	5.725~5.85		
2	4.49	2.4~2.4835	Dipole	R-SMA
	4.56	5.15~5.25		
	4.56	5.25~5.35		
	4.63	5.47~5.725		
	4.44	5.725~5.85		

7. The EUT incorporates a MIMO function.

2.4GHz Band			
MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11b	1 ~ 11Mbps	2TX	2RX
802.11g	6 ~ 54Mbps	2TX	2RX
802.11n (HT20)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11n (HT40)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
5GHz Band			
MODULATION MODE	DATA RATE (MCS)	TX & RX CONFIGURATION	
802.11a	6 ~ 54Mbps	2TX	2RX
802.11n (HT20)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11n (HT40)	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11ac (VHT20)	MCS 0~8, Nss=1	2TX	2RX
	MCS 0~8, Nss=2	2TX	2RX
802.11ac (VHT40)	MCS 0~9, Nss=1	2TX	2RX
	MCS 0~9, Nss=2	2TX	2RX
802.11ac (VHT80)	MCS 0~9, Nss=1	2TX	2RX
	MCS 0~9, Nss=2	2TX	2RX

Note:
1. All of modulation mode support beamforming function except 802.11a/b/g modulation mode.

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

3.2 Description of Test Modes

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

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

7 channels are provided for 802.11n (HT40):

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE $\geq$ 1G	RE<1G	PLC	APCM	
1	-	-	√	-	With adapter 1
2	-	-	√	-	With adapter 2
3	√	√	√	√	With adapter 3

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

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

Radiated Emission Test (Above 1GHz):

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

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

Radiated Emission Test (Below 1GHz):

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

CDD Mode					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11n (HT20)	1 to 11	6	OFDM	BPSK	6.5

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.

CDD Mode					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11n (HT20)	1 to 11	6	OFDM	BPSK	6.5

Antenna Port Conducted Measurement:

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

CDD Mode					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6
802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	6.5
802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	13.5
Beamforming Mode(Output power only)					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
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 $\geq$ 1G	25deg. C, 71%RH	120Vac, 60Hz	Gary Cheng
RE $<$ 1G	19deg. C, 67%RH	120Vac, 60Hz	Gary Cheng
PLC	27deg. C, 76%RH	120Vac, 60Hz	Eagle Chen
APCM	25deg. C, 60%RH	120Vac, 60Hz	Gary Cheng

3.3 Duty Cycle of Test Signal

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

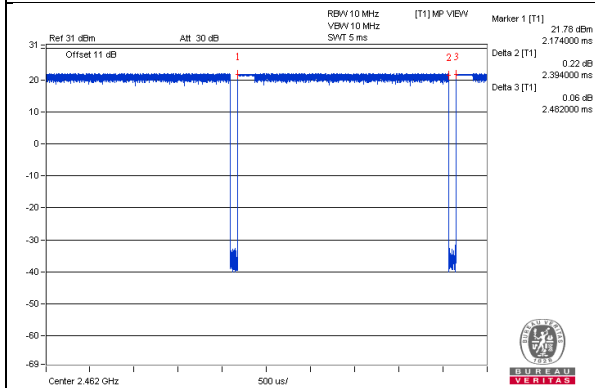
802.11b: Duty cycle = $2.394/2.482 = 0.965$, Duty factor = $10 * \log(1/0.965) = 0.16$

802.11g: Duty cycle = $2.715/2.808 = 0.967$, Duty factor = $10 * \log(1/0.967) = 0.15$

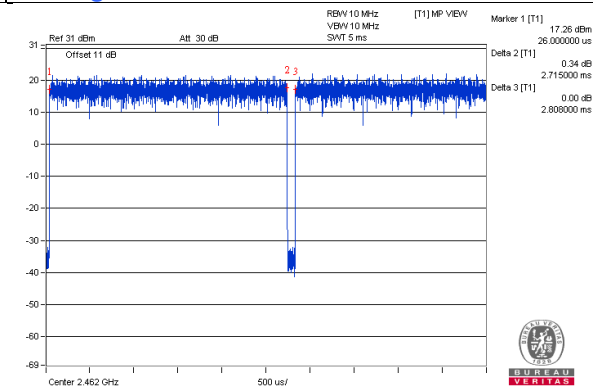
802.11n (HT20): Duty cycle = $2.524/2.617 = 0.964$, Duty factor = $10 * \log(1/0.964) = 0.16$

802.11n (HT40): Duty cycle = $1.835/1.925 = 0.953$, Duty factor = $10 * \log(1/0.953) = 0.21$

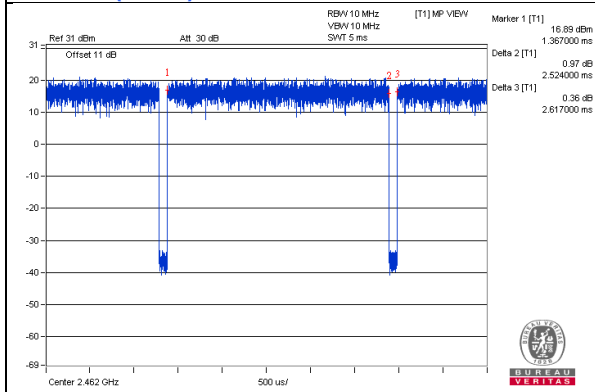
802.11b



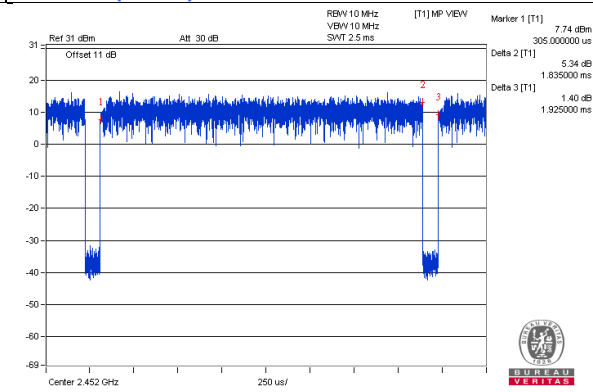
802.11g



802.11n (HT20)



802.11n (HT40)



3.4 Description of Support Units

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

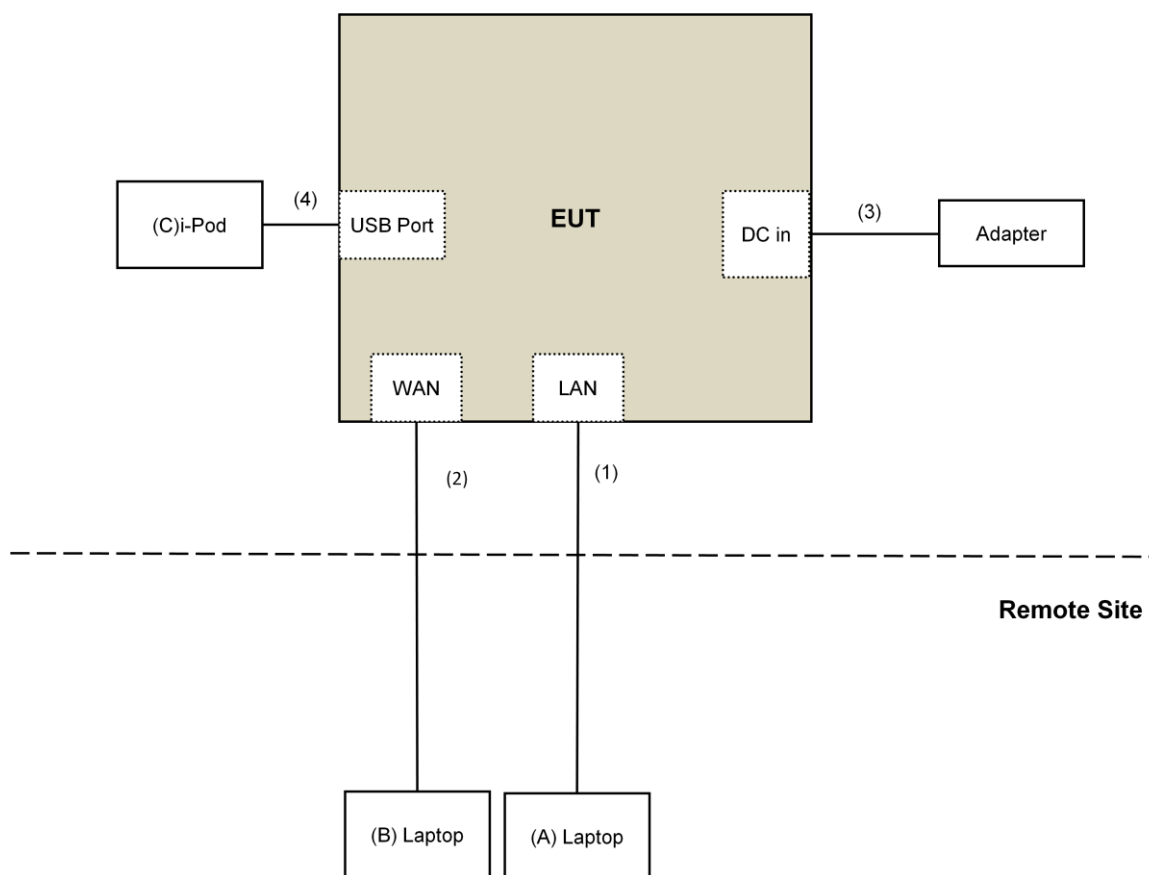
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	DELL	E5430	HYV4VY1	FCC DoC	Provided by Lab
B.	Laptop	DELL	PP32LA	FSLB32S	FCC DoC	Provided by Lab
C.	i-Pod	Apple	MD778TA/A	CC4JMFL0F4T1	NA	Provided by Lab

Note:

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

ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	RJ-45 Cable	1	10	No	0	Provided by Lab
2.	RJ-45 Cable	1	10	No	0	Provided by Lab
3.	DC Cable	1	2	No	0	Supplied by client
		1	1.45	No	0	
		1	1.5	No	0	

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards

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

FCC Part 15, Subpart C (15.247)
KDB 558074 D01 DTS Meas Guidance v03r05
KDB 662911 D01 Multiple Transmitter Output v02r01
ANSI C63.10-2013

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

NOTE: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

NOTE:

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

4.1.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Keysight	N9038A	MY54450088	July 20, 2016	July 19, 2017
Pre-Amplifier ^(*) EMCI	EMC001340	980142	Jan. 20, 2016	Jan. 19, 2018
Loop Antenna ^(*) Electro-Metrics	EM-6879	264	Dec. 16, 2014	Dec. 15, 2016
RF Cable	NA	LOOPCAB-001 LOOPCAB-002	Jan. 18, 2016	Jan. 17, 2017
Pre-Amplifier Mini-Circuits	ZFL-1000VH2 B	AMP-ZFL-01	Nov. 11, 2015	Nov. 10, 2016
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-406	Jan. 04, 2016	Jan. 03, 2017
RF Cable	8D	966-4-1 966-4-2 966-4-3	Apr. 02, 2016	Apr. 01, 2017
Horn_Antenna SCHWARZBECK	BBHA 9120D	9120D-783	Jan. 19, 2016	Jan. 18, 2017
Pre-Amplifier Agilent	8449B	3008A01922	Sep. 18, 2016	Sep. 17, 2017
RF Cable	EMC104-SM- SM-2000 EMC104-SM- SM-5000 EMC104-SM- SM-5000	150318 150323 150324	Mar. 30, 2016	Mar. 29, 2017
Pre-Amplifier EMCI	EMC184045	980143	Jan. 15, 2016	Jan. 14, 2017
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Jan. 08, 2016	Jan. 07, 2017
RF Cable	SUCOFLEX 102	36432/2 36441/2	Jan. 16, 2016	Jan. 15, 2017
Software	ADT_Radiated _V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208410	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP02	NA	NA
Spectrum Analyzer R&S	FSP40	100036	Jan. 27, 2016	Jan. 26, 2017
Power meter Anritsu	ML2495A	0824006	May 26, 2016	May 25, 2017
Power sensor Anritsu	MA2411B	0738172	May 26, 2016	May 25, 2017

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. *The calibration interval of the above test instruments is 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
- 3 Loop antenna was used for all emissions below 30 MHz.
4. The test was performed in 966 Chamber No. 4.
5. The FCC Site Registration No. is 292998
6. The CANADA Site Registration No. is 20331-2
7. Tested Date: Sep. 24 to Oct. 04, 2016

4.1.3 Test Procedures

For Radiated emission below 30MHz

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

NOTE:

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

For Radiated emission above 30MHz

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

Note:

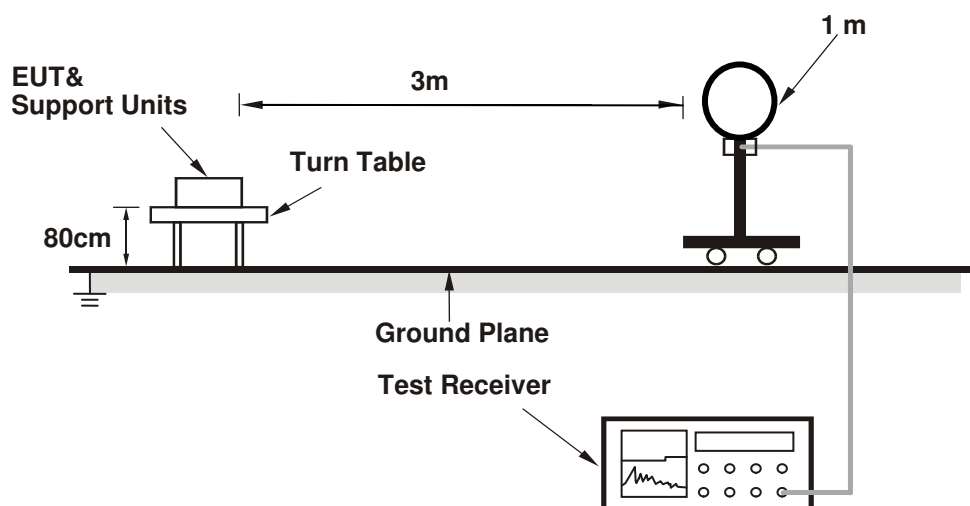
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.1.4 Deviation from Test Standard

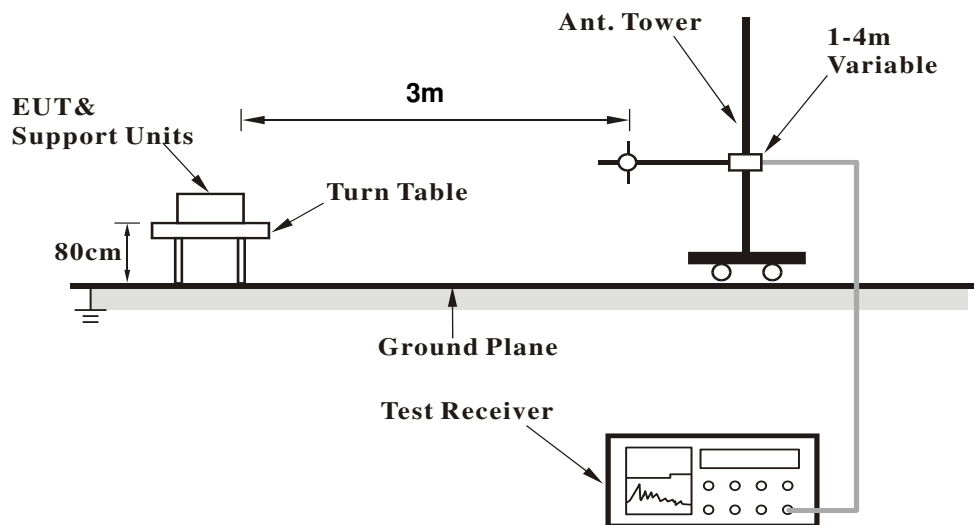
No deviation.

4.1.5 Test Setup

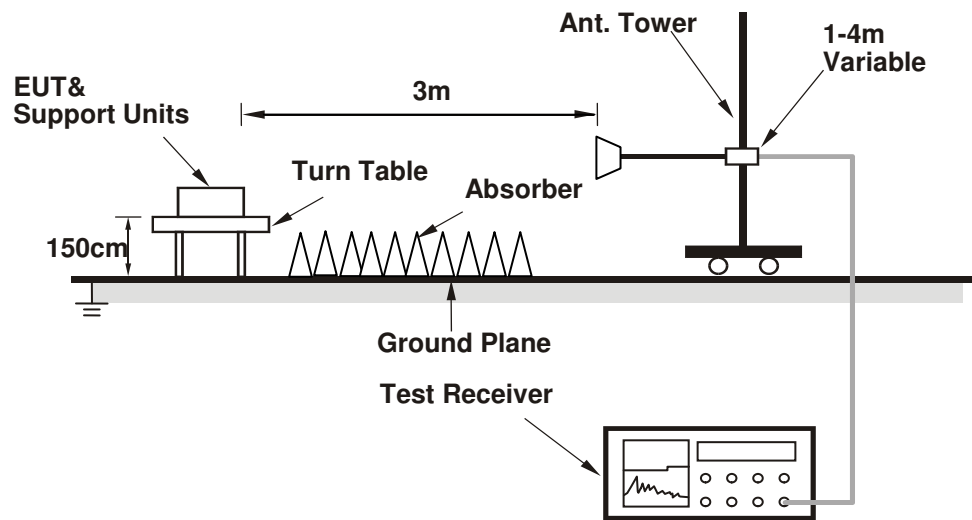
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

- Connected the EUT with the Laptop which is placed on remote site.
- Contorlling software (QDART-Connectivity1000036.exe) has been activated to set the EUT on specific status.

4.1.7 Test Results

Above 1GHz Data :

CDD Mode

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2387.50	53.6 PK	74.0	-20.4	1.38 H	234	59.3	-5.7
2	2387.50	47.3 AV	54.0	-6.7	1.38 H	234	53.0	-5.7
3	*2412.00	107.3 PK			1.38 H	234	112.9	-5.6
4	*2412.00	104.7 AV			1.38 H	234	110.3	-5.6
5	4824.00	43.5 PK	74.0	-30.5	2.23 H	243	42.7	0.8
6	4824.00	37.1 AV	54.0	-16.9	2.23 H	243	36.3	0.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2387.50	58.9 PK	74.0	-15.1	1.57 V	341	64.6	-5.7
2	2387.50	53.8 AV	54.0	-0.2	1.57 V	341	59.5	-5.7
3	*2412.00	113.4 PK			1.57 V	341	119.0	-5.6
4	*2412.00	110.3 AV			1.57 V	341	115.9	-5.6
5	4824.00	45.4 PK	74.0	-28.6	3.64 V	201	44.6	0.8
6	4824.00	39.5 AV	54.0	-14.5	3.64 V	201	38.7	0.8

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	48.1 PK	74.0	-25.9	1.39 H	255	53.8	-5.7
2	2390.00	41.3 AV	54.0	-12.7	1.39 H	255	47.0	-5.7
3	*2437.00	107.5 PK			1.39 H	255	113.0	-5.5
4	*2437.00	105.0 AV			1.39 H	255	110.5	-5.5
5	2483.50	48.5 PK	74.0	-25.5	1.39 H	255	54.0	-5.5
6	2483.50	40.3 AV	54.0	-13.7	1.39 H	255	45.8	-5.5
7	4874.00	43.4 PK	74.0	-30.6	2.25 H	252	42.5	0.9
8	4874.00	36.8 AV	54.0	-17.2	2.25 H	252	35.9	0.9
9	7311.00	47.3 PK	74.0	-26.7	2.53 H	59	39.9	7.4
10	7311.00	35.9 AV	54.0	-18.1	2.53 H	59	28.5	7.4

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	53.0 PK	74.0	-21.0	1.61 V	344	58.7	-5.7
2	2390.00	46.1 AV	54.0	-7.9	1.61 V	344	51.8	-5.7
3	*2437.00	113.2 PK			1.61 V	344	118.7	-5.5
4	*2437.00	110.2 AV			1.61 V	344	115.7	-5.5
5	2483.50	53.2 PK	74.0	-20.8	1.61 V	344	58.7	-5.5
6	2483.50	45.4 AV	54.0	-8.6	1.61 V	344	50.9	-5.5
7	4874.00	45.2 PK	74.0	-28.8	3.62 V	190	44.3	0.9
8	4874.00	39.5 AV	54.0	-14.5	3.62 V	190	38.6	0.9
9	7311.00	48.6 PK	74.0	-25.4	1.10 V	335	41.2	7.4
10	7311.00	38.4 AV	54.0	-15.6	1.10 V	335	31.0	7.4

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	111.3 PK			1.40 H	256	116.7	-5.4
2	*2462.00	109.1 AV			1.40 H	256	114.5	-5.4
3	2483.50	54.2 PK	74.0	-19.8	1.40 H	256	59.7	-5.5
4	2483.50	48.2 AV	54.0	-5.8	1.40 H	256	53.7	-5.5
5	4924.00	43.3 PK	74.0	-30.7	2.24 H	244	42.2	1.1
6	4924.00	36.8 AV	54.0	-17.2	2.24 H	244	35.7	1.1
7	7386.00	46.9 PK	74.0	-27.1	2.59 H	45	39.3	7.6
8	7386.00	35.6 AV	54.0	-18.4	2.59 H	45	28.0	7.6

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	116.7 PK			1.57 V	360	122.1	-5.4
2	*2462.00	114.0 AV			1.57 V	360	119.4	-5.4
3	2483.50	58.9 PK	74.0	-15.1	1.57 V	360	64.4	-5.5
4	2483.50	53.0 AV	54.0	-1.0	1.57 V	360	58.5	-5.5
5	4924.00	45.2 PK	74.0	-28.8	3.63 V	202	44.1	1.1
6	4924.00	39.4 AV	54.0	-14.6	3.63 V	202	38.3	1.1
7	7386.00	48.4 PK	74.0	-25.6	1.05 V	335	40.8	7.6
8	7386.00	38.2 AV	54.0	-15.8	1.05 V	335	30.6	7.6

REMARKS:

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

802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.0 PK	74.0	-6.0	2.15 H	40	73.7	-5.7
2	2390.00	46.0 AV	54.0	-8.0	2.15 H	40	51.7	-5.7
3	*2412.00	108.0 PK			2.15 H	40	113.6	-5.6
4	*2412.00	95.9 AV			2.15 H	40	101.5	-5.6
5	4824.00	43.6 PK	74.0	-30.4	2.20 H	229	42.8	0.8
6	4824.00	37.0 AV	54.0	-17.0	2.20 H	229	36.2	0.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	73.2 PK	74.0	-0.8	1.42 V	360	78.9	-5.7
2	2390.00	52.3 AV	54.0	-1.7	1.42 V	360	58.0	-5.7
3	*2412.00	114.1 PK			1.42 V	360	119.7	-5.6
4	*2412.00	102.3 AV			1.42 V	360	107.9	-5.6
5	4824.00	44.6 PK	74.0	-29.4	3.57 V	185	43.8	0.8
6	4824.00	39.0 AV	54.0	-15.0	3.57 V	185	38.2	0.8

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.8 PK	74.0	-17.2	2.11 H	46	62.5	-5.7
2	2390.00	41.4 AV	54.0	-12.6	2.11 H	46	47.1	-5.7
3	*2437.00	113.4 PK			2.11 H	46	118.9	-5.5
4	*2437.00	101.3 AV			2.11 H	46	106.8	-5.5
5	2483.50	60.4 PK	74.0	-13.6	2.11 H	46	65.9	-5.5
6	2483.50	43.3 AV	54.0	-10.7	2.11 H	46	48.8	-5.5
7	4874.00	43.1 PK	74.0	-30.9	2.25 H	228	42.2	0.9
8	4874.00	36.4 AV	54.0	-17.6	2.25 H	228	35.5	0.9
9	7311.00	46.6 PK	74.0	-27.4	2.59 H	45	39.2	7.4
10	7311.00	35.4 AV	54.0	-18.6	2.59 H	45	28.0	7.4

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.8 PK	74.0	-11.2	1.55 V	330	68.5	-5.7
2	2390.00	46.2 AV	54.0	-7.8	1.55 V	330	51.9	-5.7
3	*2437.00	119.1 PK			1.55 V	330	124.6	-5.5
4	*2437.00	107.2 AV			1.55 V	330	112.7	-5.5
5	2483.50	65.5 PK	74.0	-8.5	1.55 V	330	71.0	-5.5
6	2483.50	49.2 AV	54.0	-4.8	1.55 V	330	54.7	-5.5
7	4874.00	44.9 PK	74.0	-29.1	3.62 V	197	44.0	0.9
8	4874.00	39.3 AV	54.0	-14.7	3.62 V	197	38.4	0.9
9	7311.00	48.6 PK	74.0	-25.4	1.05 V	346	41.2	7.4
10	7311.00	38.6 AV	54.0	-15.4	1.05 V	346	31.2	7.4

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	110.1 PK			2.10 H	50	115.5	-5.4
2	*2462.00	98.5 AV			2.10 H	50	103.9	-5.4
3	2483.50	66.8 PK	74.0	-7.2	2.10 H	50	72.3	-5.5
4	2483.50	46.8 AV	54.0	-7.2	2.10 H	50	52.3	-5.5
5	4924.00	43.6 PK	74.0	-30.4	2.29 H	241	42.5	1.1
6	4924.00	37.2 AV	54.0	-16.8	2.29 H	241	36.1	1.1
7	7386.00	47.3 PK	74.0	-26.7	2.60 H	37	39.7	7.6
8	7386.00	36.0 AV	54.0	-18.0	2.60 H	37	28.4	7.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	116.1 PK			1.68 V	360	121.5	-5.4
2	*2462.00	104.1 AV			1.68 V	360	109.5	-5.4
3	2483.50	72.9 PK	74.0	-1.1	1.68 V	360	78.4	-5.5
4	2483.50	52.4 AV	54.0	-1.6	1.68 V	360	57.9	-5.5
5	4924.00	45.6 PK	74.0	-28.4	3.57 V	193	44.5	1.1
6	4924.00	39.8 AV	54.0	-14.2	3.57 V	193	38.7	1.1
7	7386.00	49.0 PK	74.0	-25.0	1.05 V	333	41.4	7.6
8	7386.00	38.6 AV	54.0	-15.4	1.05 V	333	31.0	7.6

REMARKS:

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

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.5 PK	74.0	-5.5	2.17 H	27	74.2	-5.7
2	2390.00	44.9 AV	54.0	-9.1	2.17 H	27	50.6	-5.7
3	*2412.00	110.3 PK			2.17 H	27	115.9	-5.6
4	*2412.00	98.9 AV			2.17 H	27	104.5	-5.6
5	4824.00	44.0 PK	74.0	-30.0	2.24 H	216	43.2	0.8
6	4824.00	37.4 AV	54.0	-16.6	2.24 H	216	36.6	0.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	73.9 PK	74.0	-0.1	1.82 V	328	79.6	-5.7
2	2390.00	50.3 AV	54.0	-3.7	1.82 V	328	56.0	-5.7
3	*2412.00	115.9 PK			1.82 V	328	121.5	-5.6
4	*2412.00	104.1 AV			1.82 V	328	109.7	-5.6
5	4824.00	45.8 PK	74.0	-28.2	3.53 V	198	45.0	0.8
6	4824.00	40.1 AV	54.0	-13.9	3.53 V	198	39.3	0.8

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	50.8 PK	74.0	-23.2	2.11 H	60	56.5	-5.7
2	2390.00	37.0 AV	54.0	-17.0	2.11 H	60	42.7	-5.7
3	*2437.00	114.4 PK			2.11 H	60	119.9	-5.5
4	*2437.00	103.3 AV			2.11 H	60	108.8	-5.5
5	2483.50	61.3 PK	74.0	-12.7	2.11 H	60	66.8	-5.5
6	2483.50	44.3 AV	54.0	-9.7	2.11 H	60	49.8	-5.5
7	4874.00	43.6 PK	74.0	-30.4	2.24 H	213	42.7	0.9
8	4874.00	36.7 AV	54.0	-17.3	2.24 H	213	35.8	0.9
9	7311.00	46.4 PK	74.0	-27.6	2.64 H	48	39.0	7.4
10	7311.00	35.0 AV	54.0	-19.0	2.64 H	48	27.6	7.4

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.6 PK	74.0	-13.4	1.66 V	327	66.3	-5.7
2	2390.00	42.6 AV	54.0	-11.4	1.66 V	327	48.3	-5.7
3	*2437.00	120.5 PK			1.66 V	327	126.0	-5.5
4	*2437.00	109.0 AV			1.66 V	327	114.5	-5.5
5	2483.50	67.3 PK	74.0	-6.7	1.66 V	327	72.8	-5.5
6	2483.50	50.5 AV	54.0	-3.5	1.66 V	327	56.0	-5.5
7	4874.00	45.5 PK	74.0	-28.5	3.56 V	204	44.6	0.9
8	4874.00	39.6 AV	54.0	-14.4	3.56 V	204	38.7	0.9
9	7311.00	49.1 PK	74.0	-24.9	1.07 V	327	41.7	7.4
10	7311.00	38.5 AV	54.0	-15.5	1.07 V	327	31.1	7.4

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	110.3 PK			2.09 H	49	115.7	-5.4
2	*2462.00	98.6 AV			2.09 H	49	104.0	-5.4
3	2483.50	67.1 PK	74.0	-6.9	2.09 H	49	72.6	-5.5
4	2483.50	47.2 AV	54.0	-6.8	2.09 H	49	52.7	-5.5
5	4924.00	43.4 PK	74.0	-30.6	2.33 H	237	42.3	1.1
6	4924.00	36.8 AV	54.0	-17.2	2.33 H	237	35.7	1.1
7	7386.00	47.8 PK	74.0	-26.2	2.57 H	47	40.2	7.6
8	7386.00	36.3 AV	54.0	-17.7	2.57 H	47	28.7	7.6
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	115.9 PK			1.62 V	359	121.3	-5.4
2	*2462.00	104.1 AV			1.62 V	359	109.5	-5.4
3	2483.50	73.8 PK	74.0	-0.2	1.62 V	359	79.3	-5.5
4	2483.50	52.6 AV	54.0	-1.4	1.62 V	359	58.1	-5.5
5	4924.00	46.2 PK	74.0	-27.8	3.56 V	180	45.1	1.1
6	4924.00	40.2 AV	54.0	-13.8	3.56 V	180	39.1	1.1
7	7386.00	49.0 PK	74.0	-25.0	1.00 V	346	41.4	7.6
8	7386.00	38.6 AV	54.0	-15.4	1.00 V	346	31.0	7.6

REMARKS:

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

802.11n (HT40)

CHANNEL	TX Channel 3	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	65.7 PK	74.0	-8.3	2.16 H	31	71.4	-5.7
2	2390.00	46.3 AV	54.0	-7.7	2.16 H	31	52.0	-5.7
3	*2422.00	100.6 PK			2.16 H	31	106.1	-5.5
4	*2422.00	89.8 AV			2.16 H	31	95.3	-5.5
5	4844.00	41.6 PK	74.0	-32.4	2.40 H	238	40.8	0.8
6	4844.00	36.0 AV	54.0	-18.0	2.40 H	238	35.2	0.8
7	7266.00	46.5 PK	74.0	-27.5	2.55 H	48	39.0	7.5
8	7266.00	35.3 AV	54.0	-18.7	2.55 H	48	27.8	7.5
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	73.9 PK	74.0	-0.1	1.50 V	335	79.6	-5.7
2	2390.00	53.6 AV	54.0	-0.4	1.50 V	335	59.3	-5.7
3	*2422.00	110.4 PK			1.50 V	335	115.9	-5.5
4	*2422.00	98.6 AV			1.50 V	335	104.1	-5.5
5	4844.00	45.3 PK	74.0	-28.7	3.55 V	182	44.5	0.8
6	4844.00	39.1 AV	54.0	-14.9	3.55 V	182	38.3	0.8
7	7266.00	48.1 PK	74.0	-25.9	1.02 V	354	40.6	7.5
8	7266.00	37.4 AV	54.0	-16.6	1.02 V	354	29.9	7.5

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.5 PK	74.0	-13.5	2.10 H	44	66.2	-5.7
2	2390.00	46.8 AV	54.0	-7.2	2.10 H	44	52.5	-5.7
3	*2437.00	104.2 PK			2.10 H	44	109.7	-5.5
4	*2437.00	92.3 AV			2.10 H	44	97.8	-5.5
5	2483.50	60.5 PK	74.0	-13.5	2.10 H	44	66.0	-5.5
6	2483.50	46.8 AV	54.0	-7.2	2.10 H	44	52.3	-5.5
7	4874.00	41.6 PK	74.0	-32.4	2.38 H	231	40.7	0.9
8	4874.00	36.2 AV	54.0	-17.8	2.38 H	231	35.3	0.9
9	7311.00	47.0 PK	74.0	-27.0	2.57 H	62	39.6	7.4
10	7311.00	35.7 AV	54.0	-18.3	2.57 H	62	28.3	7.4

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.9 PK	74.0	-5.1	1.34 V	360	74.6	-5.7
2	2390.00	53.2 AV	54.0	-0.8	1.34 V	360	58.9	-5.7
3	*2437.00	111.9 PK			1.34 V	360	117.4	-5.5
4	*2437.00	99.9 AV			1.34 V	360	105.4	-5.5
5	2483.50	68.8 PK	74.0	-5.2	1.34 V	360	74.3	-5.5
6	2483.50	52.9 AV	54.0	-1.1	1.34 V	360	58.4	-5.5
7	4874.00	45.6 PK	74.0	-28.4	3.54 V	184	44.7	0.9
8	4874.00	39.4 AV	54.0	-14.6	3.54 V	184	38.5	0.9
9	7311.00	48.6 PK	74.0	-25.4	1.10 V	350	41.2	7.4
10	7311.00	37.9 AV	54.0	-16.1	1.10 V	350	30.5	7.4

REMARKS:

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

CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK)
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	*2452.00	100.6 PK			2.21 H	29	106.1	-5.5
2	*2452.00	89.5 AV			2.21 H	29	95.0	-5.5
3	2483.50	65.9 PK	74.0	-8.1	2.21 H	29	71.4	-5.5
4	2483.50	46.6 AV	54.0	-7.4	2.21 H	29	52.1	-5.5
5	4904.00	42.3 PK	74.0	-31.7	2.41 H	241	41.3	1.0
6	4904.00	36.4 AV	54.0	-17.6	2.41 H	241	35.4	1.0
7	7356.00	46.9 PK	74.0	-27.1	2.49 H	48	39.3	7.6
8	7356.00	35.7 AV	54.0	-18.3	2.49 H	48	28.1	7.6

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	109.5 PK			1.75 V	360	115.0	-5.5
2	*2452.00	98.2 AV			1.75 V	360	103.7	-5.5
3	2483.50	73.7 PK	74.0	-0.3	1.75 V	360	79.2	-5.5
4	2483.50	53.8 AV	54.0	-0.2	1.75 V	360	59.3	-5.5
5	4904.00	45.8 PK	74.0	-28.2	3.50 V	180	44.8	1.0
6	4904.00	39.5 AV	54.0	-14.5	3.50 V	180	38.5	1.0
7	7356.00	48.5 PK	74.0	-25.5	1.11 V	352	40.9	7.6
8	7356.00	38.2 AV	54.0	-15.8	1.11 V	352	30.6	7.6

REMARKS:

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

Beamforming Mode

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.2 PK	74.0	-6.8	2.20 H	42	72.9	-5.7
2	2390.00	40.1 AV	54.0	-13.9	2.20 H	42	45.8	-5.7
3	*2412.00	108.8 PK			2.20 H	42	114.4	-5.6
4	*2412.00	97.6 AV			2.20 H	42	103.2	-5.6
5	4824.00	43.9 PK	74.0	-30.1	2.18 H	210	43.1	0.8
6	4824.00	37.1 AV	54.0	-16.9	2.18 H	210	36.3	0.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	73.2 PK	74.0	-0.8	1.35 V	358	78.9	-5.7
2	2390.00	45.7 AV	54.0	-8.3	1.35 V	358	51.4	-5.7
3	*2412.00	114.4 PK			1.35 V	358	120.0	-5.6
4	*2412.00	103.2 AV			1.35 V	358	108.8	-5.6
5	4824.00	45.9 PK	74.0	-28.1	3.57 V	192	45.1	0.8
6	4824.00	39.8 AV	54.0	-14.2	3.57 V	192	39.0	0.8

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	65.1 PK	74.0	-8.9	2.15 H	34	70.8	-5.7
2	2390.00	47.2 AV	54.0	-6.8	2.15 H	34	52.9	-5.7
3	*2437.00	115.7 PK			2.15 H	34	121.2	-5.5
4	*2437.00	104.7 AV			2.15 H	34	110.2	-5.5
5	2483.50	57.7 PK	74.0	-16.3	2.15 H	34	63.2	-5.5
6	2483.50	41.9 AV	54.0	-12.1	2.15 H	34	47.4	-5.5
7	4874.00	43.0 PK	74.0	-31.0	2.25 H	207	42.1	0.9
8	4874.00	36.2 AV	54.0	-17.8	2.25 H	207	35.3	0.9
9	7311.00	46.4 PK	74.0	-27.6	2.60 H	33	39.0	7.4
10	7311.00	35.0 AV	54.0	-19.0	2.60 H	33	27.6	7.4

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	71.1 PK	74.0	-2.9	1.57 V	360	76.8	-5.7
2	2390.00	53.3 AV	54.0	-0.7	1.57 V	360	59.0	-5.7
3	*2437.00	121.9 PK			1.57 V	360	127.4	-5.5
4	*2437.00	110.7 AV			1.57 V	360	116.2	-5.5
5	2483.50	63.7 PK	74.0	-10.3	1.57 V	360	69.2	-5.5
6	2483.50	47.9 AV	54.0	-6.1	1.57 V	360	53.4	-5.5
7	4874.00	45.5 PK	74.0	-28.5	3.56 V	190	44.6	0.9
8	4874.00	39.8 AV	54.0	-14.2	3.56 V	190	38.9	0.9
9	7311.00	49.4 PK	74.0	-24.6	1.03 V	326	42.0	7.4
10	7311.00	38.7 AV	54.0	-15.3	1.03 V	326	31.3	7.4

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.9 PK			2.15 H	30	115.3	-5.4
2	*2462.00	98.6 AV			2.15 H	30	104.0	-5.4
3	2483.50	66.8 PK	74.0	-7.2	2.15 H	30	72.3	-5.5
4	2483.50	44.5 AV	54.0	-9.5	2.15 H	30	50.0	-5.5
5	4924.00	43.6 PK	74.0	-30.4	2.21 H	213	42.5	1.1
6	4924.00	36.9 AV	54.0	-17.1	2.21 H	213	35.8	1.1
7	7386.00	46.0 PK	74.0	-28.0	2.64 H	52	38.4	7.6
8	7386.00	34.8 AV	54.0	-19.2	2.64 H	52	27.2	7.6

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	116.3 PK			1.53 V	360	121.7	-5.4
2	*2462.00	105.4 AV			1.53 V	360	110.8	-5.4
3	2483.50	73.1 PK	74.0	-0.9	1.53 V	360	78.6	-5.5
4	2483.50	50.9 AV	54.0	-3.1	1.53 V	360	56.4	-5.5
5	4924.00	45.0 PK	74.0	-29.0	3.61 V	205	43.9	1.1
6	4924.00	39.3 AV	54.0	-14.7	3.61 V	205	38.2	1.1
7	7386.00	49.5 PK	74.0	-24.5	1.04 V	318	41.9	7.6
8	7386.00	38.6 AV	54.0	-15.4	1.04 V	318	31.0	7.6

REMARKS:

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

802.11n (HT40)

CHANNEL	TX Channel 3	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	65.3 PK	74.0	-8.7	2.16 H	52	71.0	-5.7
2	2390.00	46.6 AV	54.0	-7.4	2.16 H	52	52.3	-5.7
3	*2422.00	104.9 PK			2.16 H	52	110.4	-5.5
4	*2422.00	94.0 AV			2.16 H	52	99.5	-5.5
5	4844.00	41.1 PK	74.0	-32.9	2.42 H	242	40.3	0.8
6	4844.00	35.7 AV	54.0	-18.3	2.42 H	242	34.9	0.8
7	7266.00	47.0 PK	74.0	-27.0	2.58 H	42	39.5	7.5
8	7266.00	35.7 AV	54.0	-18.3	2.58 H	42	28.2	7.5
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.6 PK	74.0	-1.4	1.26 V	360	78.3	-5.7
2	2390.00	53.7 AV	54.0	-0.3	1.26 V	360	59.4	-5.7
3	*2422.00	112.2 PK			1.26 V	360	117.7	-5.5
4	*2422.00	101.2 AV			1.26 V	360	106.7	-5.5
5	4844.00	45.5 PK	74.0	-28.5	3.54 V	177	44.7	0.8
6	4844.00	39.1 AV	54.0	-14.9	3.54 V	177	38.3	0.8
7	7266.00	48.8 PK	74.0	-25.2	1.15 V	338	41.3	7.5
8	7266.00	38.1 AV	54.0	-15.9	1.15 V	338	30.6	7.5

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.5 PK	74.0	-12.5	2.10 H	33	67.2	-5.7
2	2390.00	46.6 AV	54.0	-7.4	2.10 H	33	52.3	-5.7
3	*2437.00	108.3 PK			2.10 H	33	113.8	-5.5
4	*2437.00	96.0 AV			2.10 H	33	101.5	-5.5
5	2483.50	61.4 PK	74.0	-12.6	2.10 H	33	66.9	-5.5
6	2483.50	43.4 AV	54.0	-10.6	2.10 H	33	48.9	-5.5
7	4874.00	42.3 PK	74.0	-31.7	2.40 H	254	41.4	0.9
8	4874.00	36.5 AV	54.0	-17.5	2.40 H	254	35.6	0.9
9	7311.00	46.8 PK	74.0	-27.2	2.56 H	52	39.4	7.4
10	7311.00	35.8 AV	54.0	-18.2	2.56 H	52	28.4	7.4

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.8 PK	74.0	-5.2	1.44 V	358	74.5	-5.7
2	2390.00	53.7 AV	54.0	-0.3	1.44 V	358	59.4	-5.7
3	*2437.00	115.7 PK			1.44 V	358	121.2	-5.5
4	*2437.00	103.3 AV			1.44 V	358	108.8	-5.5
5	2483.50	68.7 PK	74.0	-5.3	1.44 V	358	74.2	-5.5
6	2483.50	50.7 AV	54.0	-3.3	1.44 V	358	56.2	-5.5
7	4874.00	45.8 PK	74.0	-28.2	3.54 V	170	44.9	0.9
8	4874.00	39.4 AV	54.0	-14.6	3.54 V	170	38.5	0.9
9	7311.00	48.8 PK	74.0	-25.2	1.11 V	346	41.4	7.4
10	7311.00	38.3 AV	54.0	-15.7	1.11 V	346	30.9	7.4

REMARKS:

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

CHANNEL	TX Channel 9	DETECTOR FUNCTION	Peak (PK)
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	*2452.00	105.0 PK			2.20 H	41	110.5	-5.5
2	*2452.00	93.8 AV			2.20 H	41	99.3	-5.5
3	2483.50	66.0 PK	74.0	-8.0	2.20 H	41	71.5	-5.5
4	2483.50	45.1 AV	54.0	-8.9	2.20 H	41	50.6	-5.5
5	4904.00	41.3 PK	74.0	-32.7	2.42 H	237	40.3	1.0
6	4904.00	35.9 AV	54.0	-18.1	2.42 H	237	34.9	1.0
7	7356.00	46.2 PK	74.0	-27.8	2.52 H	45	38.6	7.6
8	7356.00	35.2 AV	54.0	-18.8	2.52 H	45	27.6	7.6

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	112.1 PK			1.54 V	360	117.6	-5.5
2	*2452.00	101.2 AV			1.54 V	360	106.7	-5.5
3	2483.50	73.5 PK	74.0	-0.5	1.54 V	360	79.0	-5.5
4	2483.50	52.4 AV	54.0	-1.6	1.54 V	360	57.9	-5.5
5	4904.00	45.0 PK	74.0	-29.0	3.52 V	198	44.0	1.0
6	4904.00	38.9 AV	54.0	-15.1	3.52 V	198	37.9	1.0
7	7356.00	49.0 PK	74.0	-25.0	1.12 V	337	41.4	7.6
8	7356.00	38.0 AV	54.0	-16.0	1.12 V	337	30.4	7.6

REMARKS:

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

Below 1GHz Data:

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	50.54	33.6 QP	40.0	-6.4	1.05 H	314	42.4	-8.8
2	59.37	32.0 QP	40.0	-8.0	2.50 H	297	41.0	-9.0
3	86.14	26.4 QP	40.0	-13.6	2.05 H	116	40.9	-14.5
4	125.01	40.2 QP	43.5	-3.3	2.50 H	285	50.6	-10.4
5	230.55	25.2 QP	46.0	-20.8	1.50 H	261	36.5	-11.3
6	874.99	33.0 QP	46.0	-13.0	1.50 H	360	29.6	3.4
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	59.56	36.5 QP	40.0	-3.5	1.05 V	270	45.5	-9.0
2	67.81	35.2 QP	40.0	-4.8	1.05 V	15	45.8	-10.6
3	86.41	34.2 QP	40.0	-5.8	1.50 V	31	48.7	-14.5
4	95.21	32.6 QP	43.5	-10.9	2.05 V	0	46.4	-13.8
5	125.01	36.4 QP	43.5	-7.1	1.05 V	332	46.8	-10.4
6	874.99	32.6 QP	46.0	-13.4	1.05 V	360	29.2	3.4

REMARKS:

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

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

Note: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	100375	May 09, 2016	May 08, 2017
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK-8127	8127-522	Aug. 31, 2016	Aug. 30, 2017
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV216	100072	June 13, 2016	June 12, 2017
RF Cable	5D-FB	COACAB-002	Mar. 04, 2016	Mar. 03, 2017
10 dB PAD Mini-Circuits	HAT-10+	CONATT-003	Sep. 13, 2016	Sep. 12, 2017
50 ohms Terminator	N/A	04	Nov. 18, 2015	Nov. 17, 2016
50 ohms Terminator	50	3	Oct. 21, 2015	Oct. 20, 2016
Software BVADT	BVADT_Cond_ V7.3.7.4	NA	NA	NA

Note:

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. C.
- 3 The VCCI Con C Registration No. is C-3611.
- 4 Tested Date: Oct. 01, 2016

4.2.3 Test Procedures

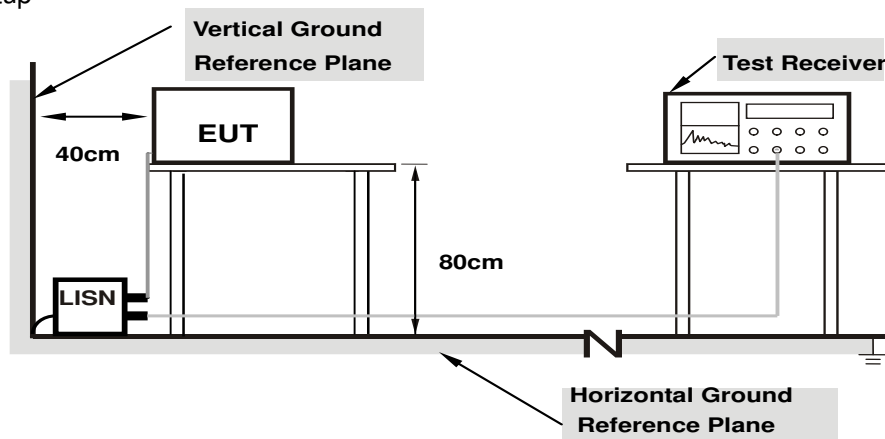
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

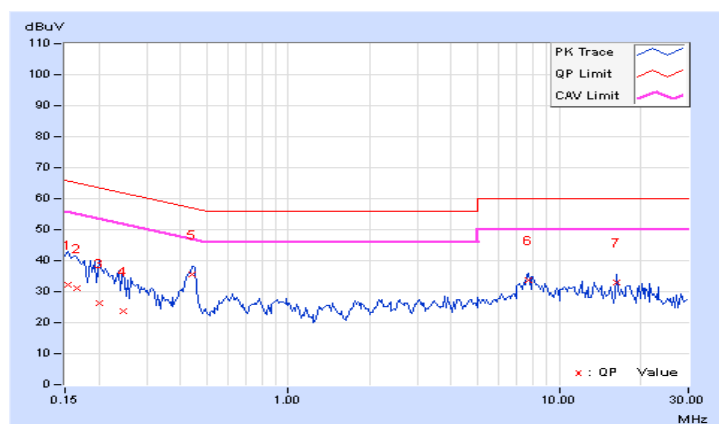
4.2.7 Test Results (Mode 1)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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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	0.15391	10.24	21.95	12.16	32.19	22.40	65.79	55.79	-33.60	-33.39
2	0.16562	10.24	20.70	10.76	30.94	21.00	65.18	55.18	-34.24	-34.18
3	0.20078	10.25	16.16	6.56	26.41	16.81	63.58	53.58	-37.17	-36.77
4	0.24766	10.25	13.53	8.56	23.78	18.81	61.84	51.84	-38.06	-33.03
5	0.44297	10.24	25.28	22.63	35.52	32.87	57.01	47.01	-21.49	-14.14
6	7.75000	10.69	23.00	21.92	33.69	32.61	60.00	50.00	-26.31	-17.39
7	16.23047	11.17	21.62	21.13	32.79	32.30	60.00	50.00	-27.21	-17.70

Remarks:

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

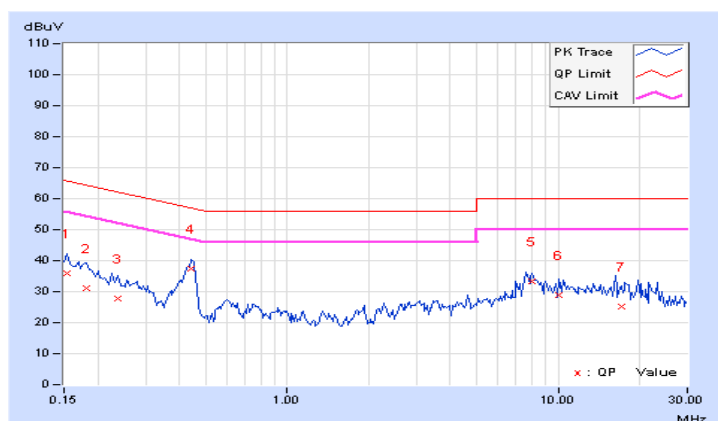


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	10.28	25.51	16.99	35.79	27.27	65.79	55.79	-30.00	-28.52
2	0.18125	10.24	20.90	12.31	31.14	22.55	64.43	54.43	-33.29	-31.88
3	0.23594	10.23	17.67	11.96	27.90	22.19	62.24	52.24	-34.34	-30.05
4	0.44297	10.31	26.98	24.37	37.29	34.68	57.01	47.01	-19.72	-12.33
5	8.00000	10.79	22.45	20.81	33.24	31.60	60.00	50.00	-26.76	-18.40
6	10.00000	10.88	18.10	14.75	28.98	25.63	60.00	50.00	-31.02	-24.37
7	17.14453	11.23	14.03	10.78	25.26	22.01	60.00	50.00	-34.74	-27.99

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



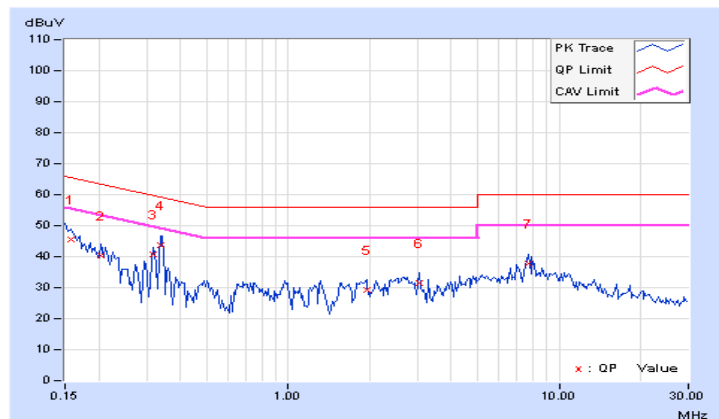
4.2.8 Test Results (Mode 2)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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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	0.15781	10.24	35.23	20.60	45.47	30.84	65.58	55.58	-20.11	-24.74
2	0.20469	10.25	30.29	18.91	40.54	29.16	63.42	53.42	-22.88	-24.26
3	0.31797	10.24	30.42	30.22	40.66	40.46	59.76	49.76	-19.10	-9.30
4	0.33750	10.24	33.50	31.47	43.74	41.71	59.26	49.26	-15.52	-7.55
5	1.94141	10.43	19.01	13.29	29.44	23.72	56.00	46.00	-26.56	-22.28
6	3.05078	10.48	21.11	12.70	31.59	23.18	56.00	46.00	-24.41	-22.82
7	7.75000	10.69	27.05	25.52	37.74	36.21	60.00	50.00	-22.26	-13.79

Remarks:

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

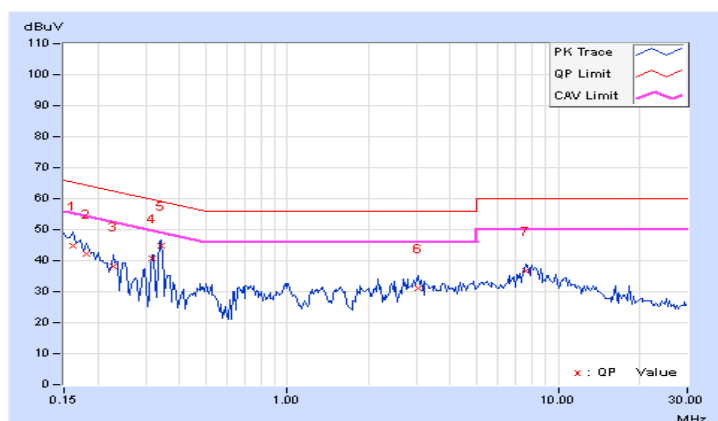


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16172	10.27	34.63	19.96	44.90	30.23	65.38	55.38	-20.48	-25.15
2	0.18125	10.24	31.80	17.21	42.04	27.45	64.43	54.43	-22.39	-26.98
3	0.22812	10.23	27.91	19.47	38.14	29.70	62.52	52.52	-24.38	-22.82
4	0.31797	10.27	30.43	29.76	40.70	40.03	59.76	49.76	-19.06	-9.73
5	0.34141	10.28	34.43	33.98	44.71	44.26	59.17	49.17	-14.46	-4.91
6	3.04688	10.50	20.71	12.88	31.21	23.38	56.00	46.00	-24.79	-22.62
7	7.62891	10.77	26.01	23.08	36.78	33.85	60.00	50.00	-23.22	-16.15

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



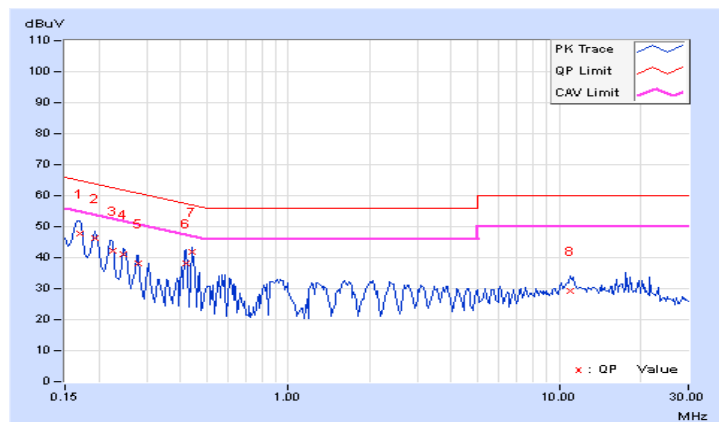
4.2.9 Test Results (Mode 3)

Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
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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	0.16953	10.24	37.41	26.94	47.65	37.18	64.98	54.98	-17.33	-17.80
2	0.19297	10.25	36.18	26.09	46.43	36.34	63.91	53.91	-17.48	-17.57
3	0.22422	10.25	32.14	23.35	42.39	33.60	62.66	52.66	-20.27	-19.06
4	0.24766	10.25	30.77	23.50	41.02	33.75	61.84	51.84	-20.82	-18.09
5	0.27891	10.25	28.01	21.88	38.26	32.13	60.85	50.85	-22.59	-18.72
6	0.41953	10.24	28.08	22.79	38.32	33.03	57.46	47.46	-19.14	-14.43
7	0.44297	10.24	31.57	29.80	41.81	40.04	57.01	47.01	-15.20	-6.97
8	11.00000	10.86	18.40	13.95	29.26	24.81	60.00	50.00	-30.74	-25.19

Remarks:

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

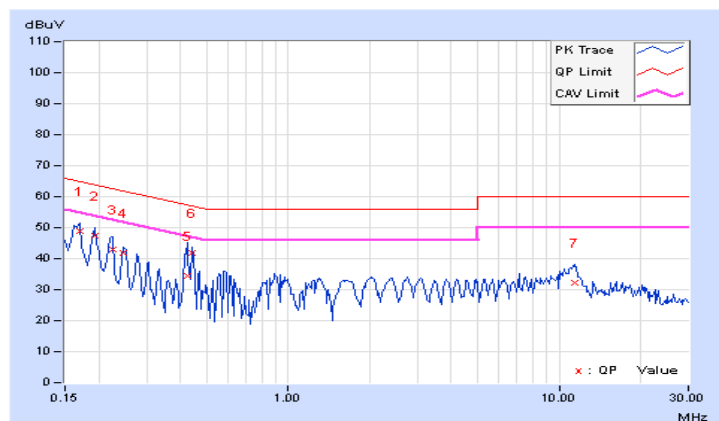


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
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Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16953	10.26	38.73	28.28	48.99	38.54	64.98	54.98	-15.99	-16.44
2	0.19297	10.23	37.34	27.82	47.57	38.05	63.91	53.91	-16.34	-15.86
3	0.22422	10.23	32.90	25.20	43.13	35.43	62.66	52.66	-19.53	-17.23
4	0.24766	10.24	31.43	25.80	41.67	36.04	61.84	51.84	-20.17	-15.80
5	0.42344	10.31	24.12	17.04	34.43	27.35	57.38	47.38	-22.95	-20.03
6	0.44244	10.31	31.70	30.59	42.01	40.90	57.02	47.02	-15.01	-6.12
7	11.39063	10.95	21.23	15.26	32.18	26.21	60.00	50.00	-27.82	-23.79

Remarks:

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

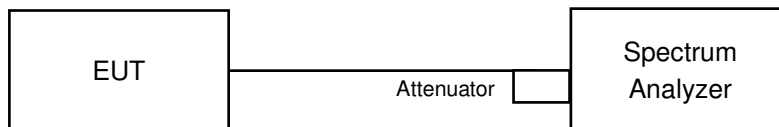


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

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

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	8.33	8.45	0.5	PASS
6	2437	9.04	8.35	0.5	PASS
11	2462	7.37	8.37	0.5	PASS

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.42	16.41	0.5	PASS
6	2437	16.40	16.38	0.5	PASS
11	2462	16.41	16.39	0.5	PASS

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.62	17.62	0.5	PASS
6	2437	17.62	17.61	0.5	PASS
11	2462	17.62	17.64	0.5	PASS

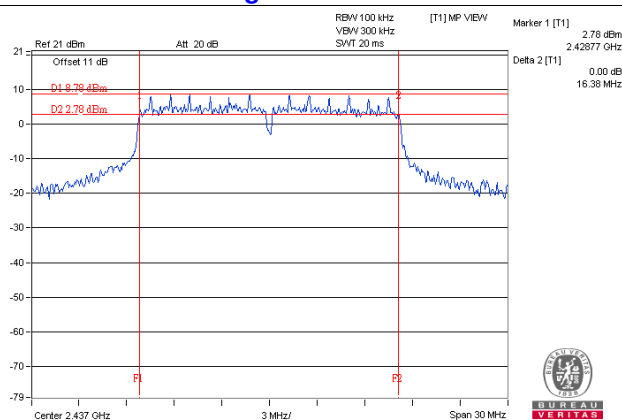
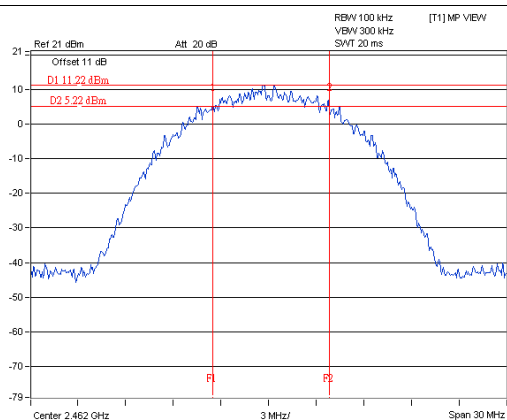
802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.55	35.50	0.5	PASS
6	2437	36.43	36.40	0.5	PASS
9	2452	36.07	36.02	0.5	PASS

Spectrum Plot of Worst Value

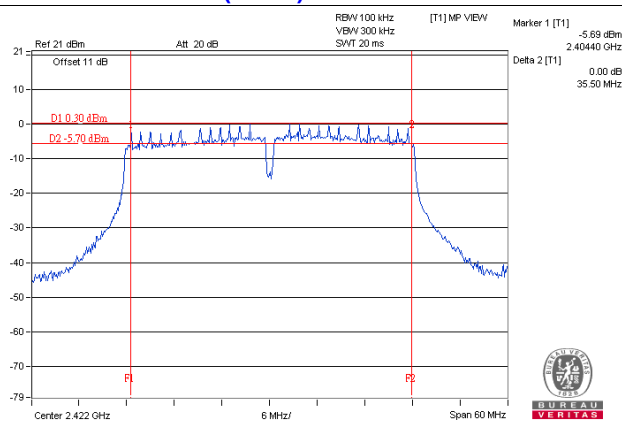
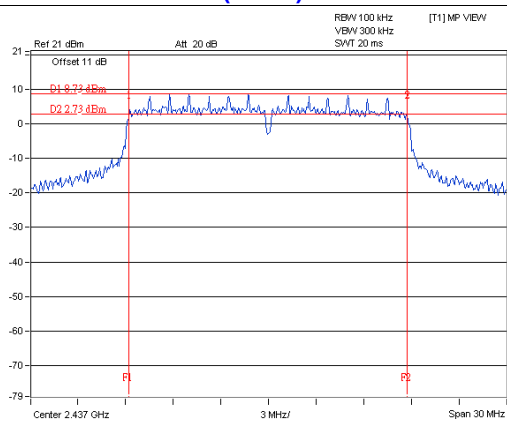
802.11b / Chain 0 : CH11

802.11g / Chain 1 : CH6



802.11n (HT20) / Chain 1 : CH6

802.11n (HT40) / Chain 1 : CH3



4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

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

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

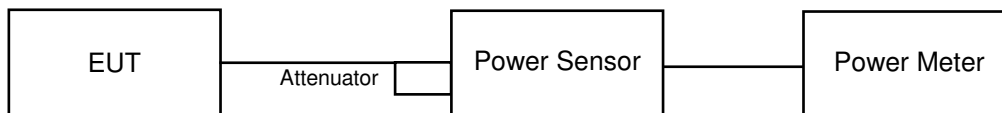
Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;

Array Gain = $5 \log(N_{ANT}/N_{SS})$ dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

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

4.4.2 Test Setup



4.4.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.4.4 Test Procedures

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

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as Item 4.3.6.

4.4.7 Test Results

FOR PEAK POWER

CDD Mode

802.11b

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	23.48	22.62	405.654	26.08	30	Pass
6	2437	23.51	23.49	447.745	26.51	30	Pass
11	2462	22.79	21.71	338.36	25.29	30	Pass

802.11g

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	23.93	23.51	471.56	26.74	30	Pass
6	2437	24.93	25.23	644.598	28.09	30	Pass
11	2462	24.91	24.26	576.428	27.61	30	Pass

802.11n (HT20)

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	23.95	23.40	467.089	26.69	30	Pass
6	2437	24.90	25.27	645.542	28.10	30	Pass
11	2462	24.19	23.61	492.037	26.92	30	Pass

802.11n (HT40)

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	23.17	22.88	401.58	26.04	30	Pass
6	2437	24.29	24.35	540.804	27.33	30	Pass
9	2452	23.44	22.56	401.102	26.03	30	Pass

Beamforming Mode

802.11n (HT20)

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	22.60	22.36	354.157	25.49	28.50	Pass
6	2437	24.73	25.07	618.533	27.91	28.50	Pass
11	2462	23.85	23.04	444.033	26.47	28.50	Pass

Note: Directional gain = $4.49\text{dBi} + 10\log(2) = 7.5\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (7.50 - 6) = 28.50\text{dBm}$.

802.11n (HT40)

Chan.	Freq. (MHz)	Peak Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	21.33	21.61	280.708	24.48	28.50	Pass
6	2437	23.49	23.75	460.494	26.63	28.50	Pass
9	2452	21.15	20.53	243.297	23.86	28.50	Pass

Note: Directional gain = $4.49\text{dBi} + 10\log(2) = 7.5\text{dBi} > 6\text{dBi}$, so the power limit shall be reduced to $30 - (7.50 - 6) = 28.50\text{dBm}$.

FOR AVERAGE POWER

CDD Mode

802.11b

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	21.14	20.55	243.518	23.87
6	2437	21.39	21.41	276.078	24.41
11	2462	20.45	19.21	194.285	22.88

802.11g

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	16.01	15.58	76.043	18.81
6	2437	20.09	20.52	214.814	23.32
11	2462	17.07	16.00	90.744	19.58

802.11n (HT20)

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	15.82	15.75	75.778	18.80
6	2437	20.22	20.50	217.398	23.37
11	2462	16.56	15.57	81.348	19.10

802.11n (HT40)

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
3	2422	14.35	14.16	53.289	17.27
6	2437	17.14	16.95	101.306	20.06
9	2452	15.13	14.41	60.19	17.80

Beamforming Mode

802.11n (HT20)

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
1	2412	14.08	13.93	50.303	17.02
6	2437	19.46	19.50	177.433	22.49
11	2462	15.75	14.89	68.416	18.35

802.11n (HT40)

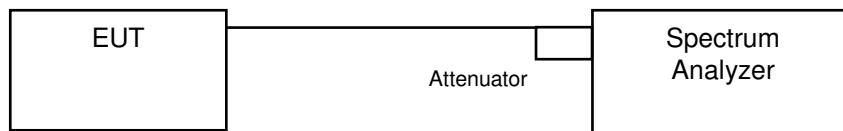
Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)
		Chain 0	Chain 1		
3	2422	12.42	12.24	34.207	15.34
6	2437	15.04	14.83	62.324	17.95
9	2452	12.18	11.46	30.516	14.85

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6

4.5.7 Test Results

802.11b

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-1.92	3.01	1.09	6.5	Pass
	6	2437	-1.40	3.01	1.61	6.5	Pass
	11	2462	-3.28	3.01	-0.27	6.5	Pass
1	1	2412	-1.75	3.01	1.26	6.5	Pass
	6	2437	-1.28	3.01	1.73	6.5	Pass
	11	2462	-2.95	3.01	0.06	6.5	Pass

NOTE: Directional gain = 4.49dBi + 10log(2) = 7.5dBi > 6dBi , so the power density limit shall be reduced to 8-(7.5-6) =6.5dBm.

802.11g

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-13.30	3.01	-10.29	6.5	Pass
	6	2437	-8.64	3.01	-5.63	6.5	Pass
	11	2462	-12.67	3.01	-9.66	6.5	Pass
1	1	2412	-12.17	3.01	-9.16	6.5	Pass
	6	2437	-9.20	3.01	-6.19	6.5	Pass
	11	2462	-12.12	3.01	-9.11	6.5	Pass

NOTE: Directional gain = 4.49dBi + 10log(2) = 7.5dBi > 6dBi , so the power density limit shall be reduced to 8-(7.5-6) =6.5dBm.

802.11n (HT20)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-12.17	3.01	-9.16	6.5	Pass
	6	2437	-8.81	3.01	-5.80	6.5	Pass
	11	2462	-12.01	3.01	-9.00	6.5	Pass
1	1	2412	-12.69	3.01	-9.68	6.5	Pass
	6	2437	-8.65	3.01	-5.64	6.5	Pass
	11	2462	-11.96	3.01	-8.95	6.5	Pass

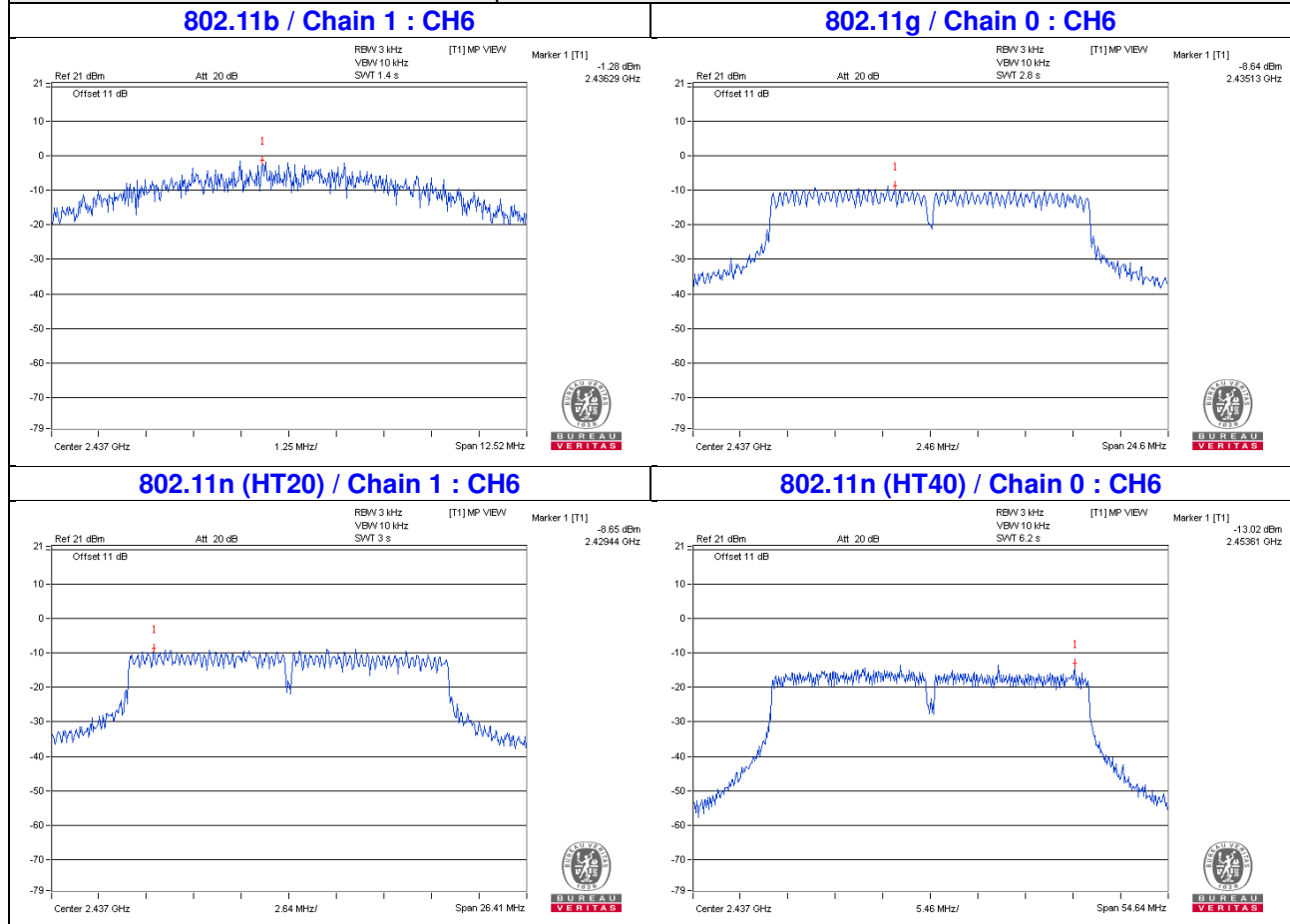
NOTE: Directional gain = 4.49dBi + 10log(2) = 7.5dBi > 6dBi , so the power density limit shall be reduced to 8-(7.5-6) =6.5dBm.

802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	3	2422	-16.23	3.01	-13.22	6.5	Pass
	6	2437	-13.02	3.01	-10.01	6.5	Pass
	9	2452	-15.46	3.01	-12.45	6.5	Pass
1	3	2422	-15.29	3.01	-12.28	6.5	Pass
	6	2437	-13.81	3.01	-10.80	6.5	Pass
	9	2452	-16.43	3.01	-13.42	6.5	Pass

NOTE: Directional gain = 4.49dBi + 10log(2) = 7.5dBi > 6dBi , so the power density limit shall be reduced to 8-(7.5-6)=6.5dBm.

Spectrum Plot of Worst Value

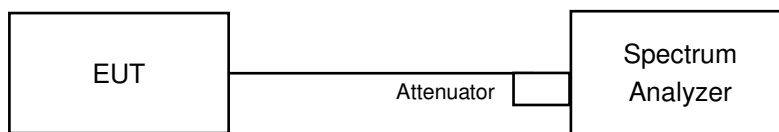


4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOB

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

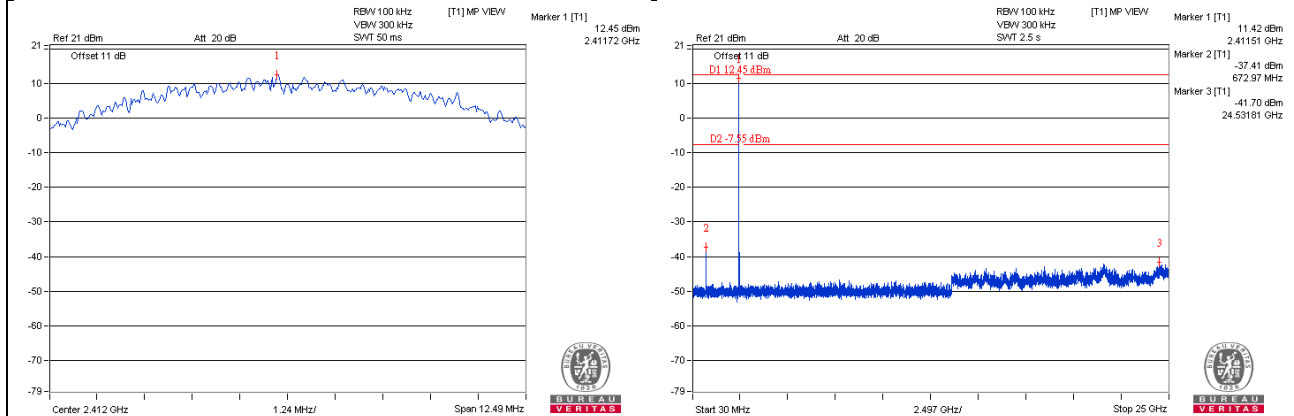
Same as Item 4.3.6

4.6.7 Test Results

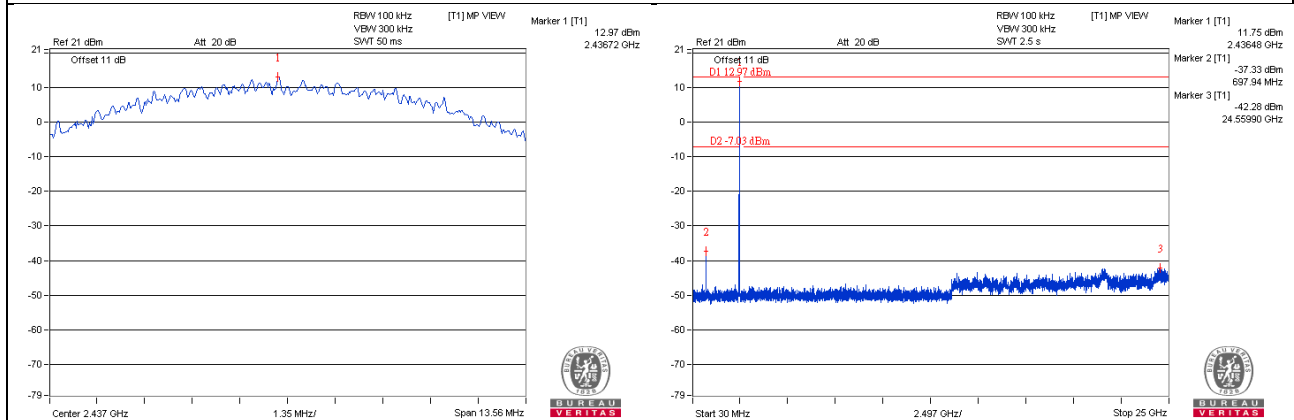
The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement.

802.11b / Chain 0

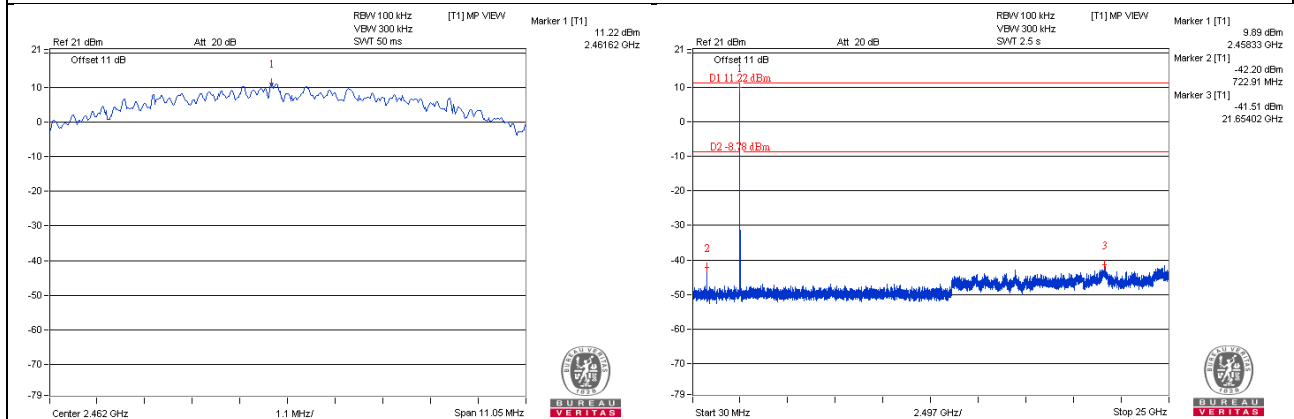
CH 1



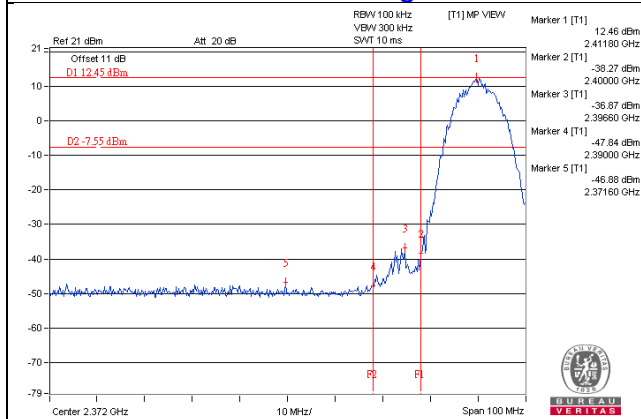
CH 6



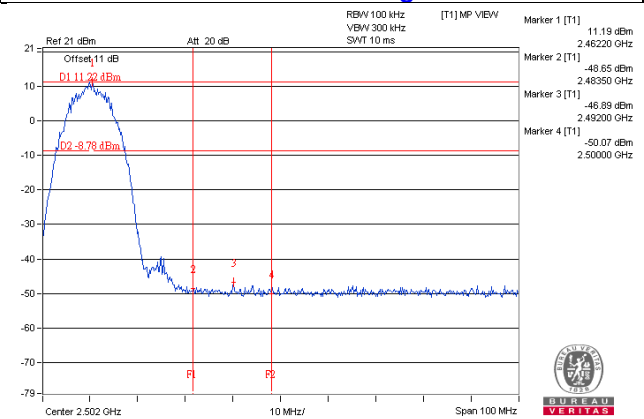
CH 11



CH 1 Band edge

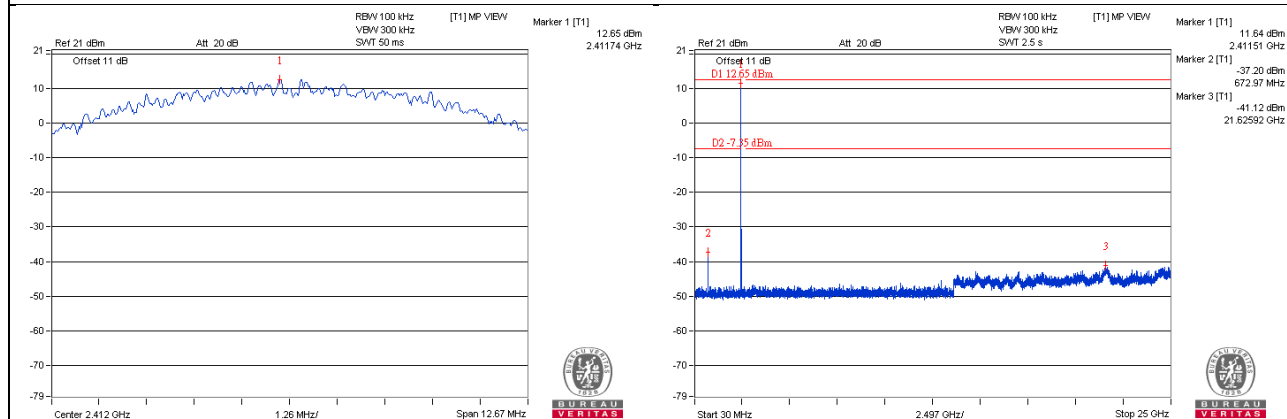


CH 11 Band edge

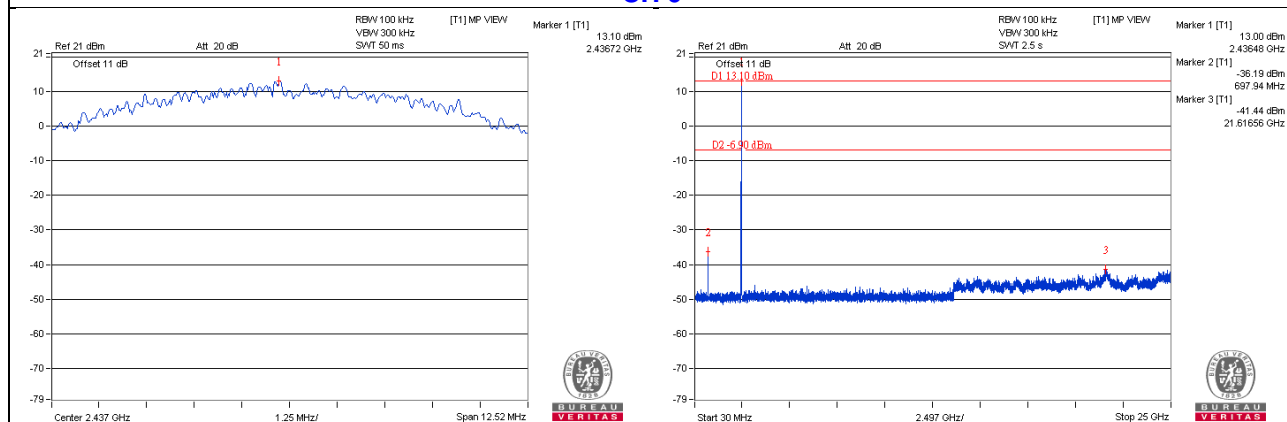


802.11b / Chain 1

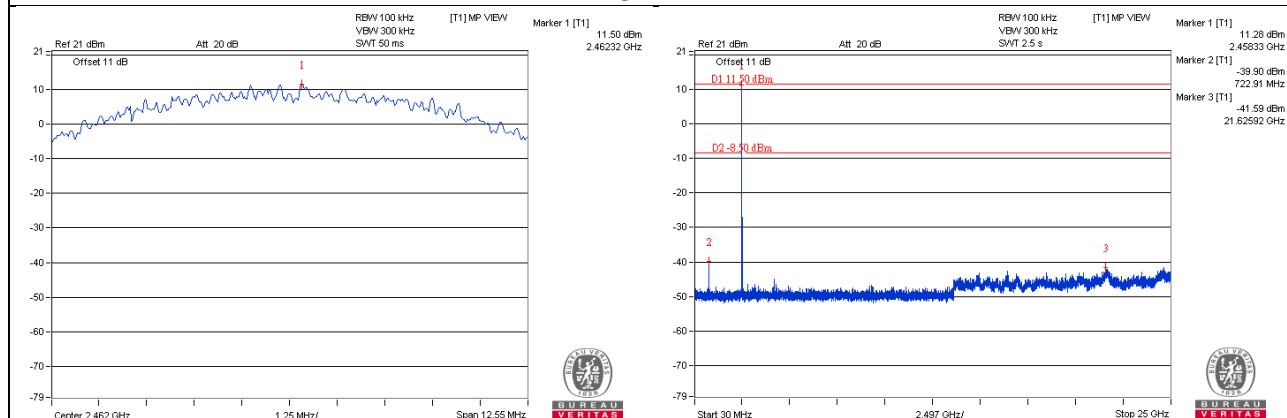
CH 1



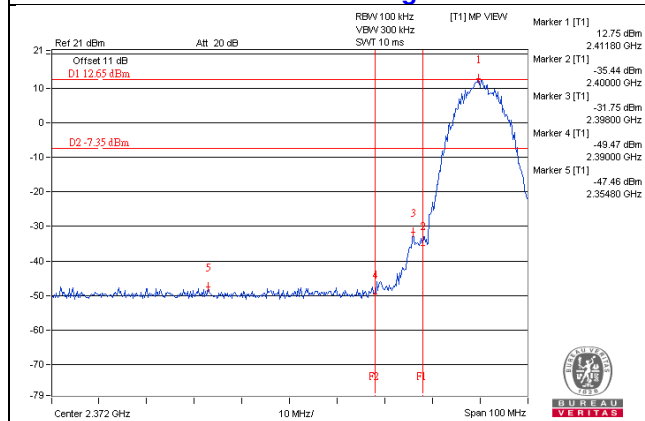
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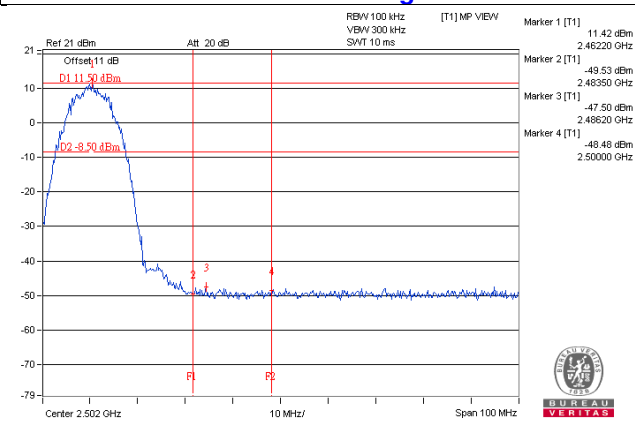
CH 11



CH 1 Band edge

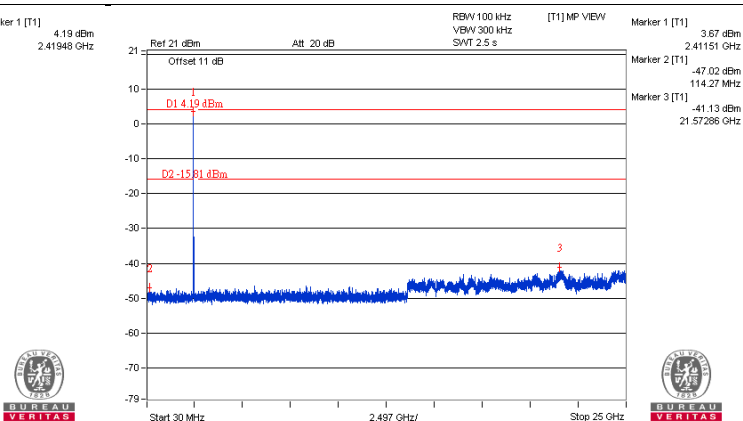
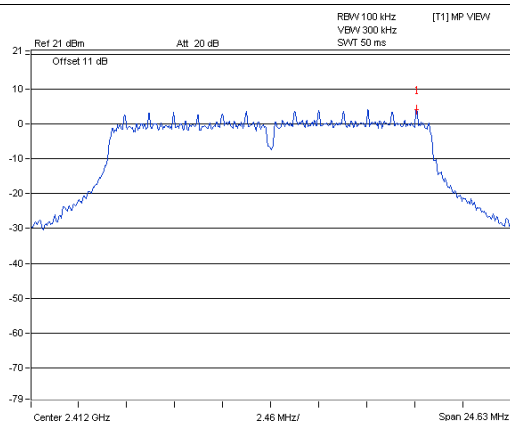


CH 11 Band edge

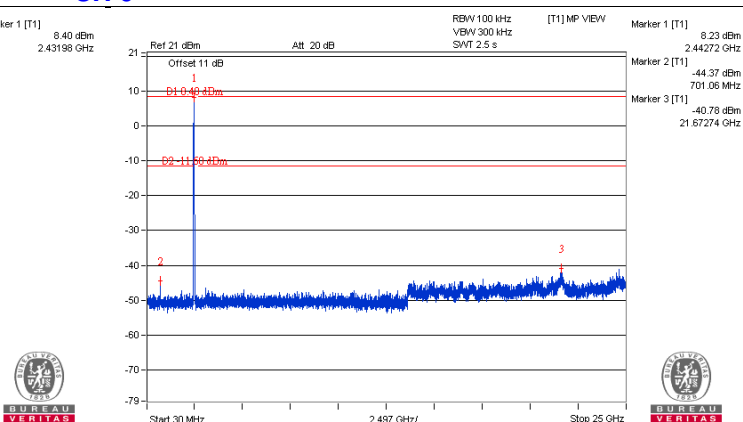
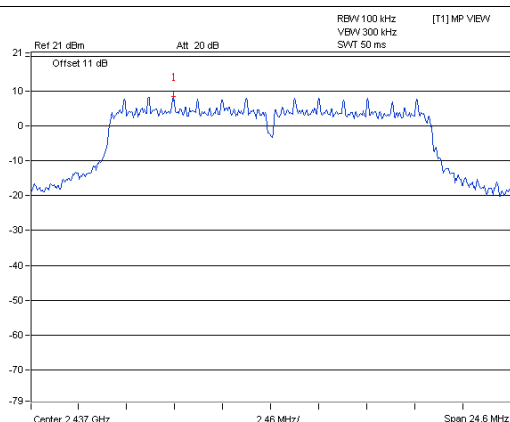


802.11g / Chain 0

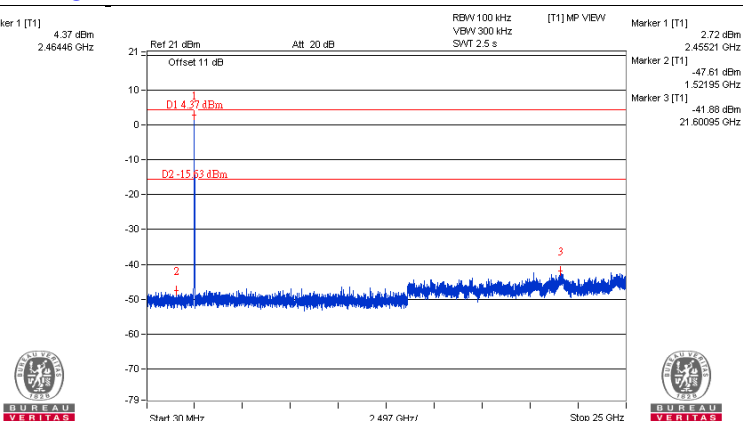
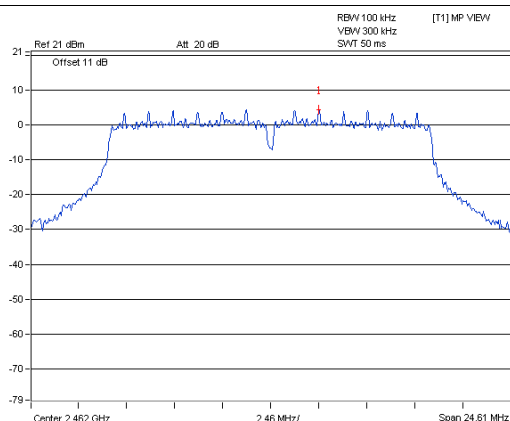
CH 1



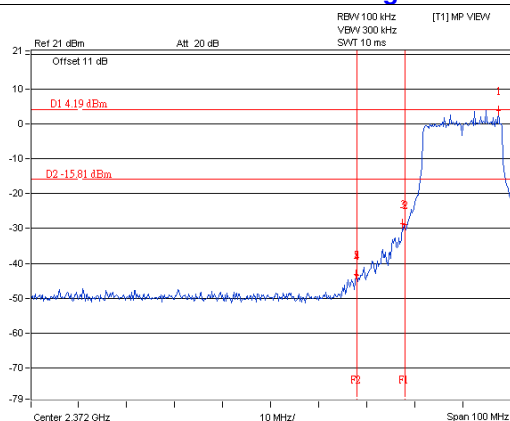
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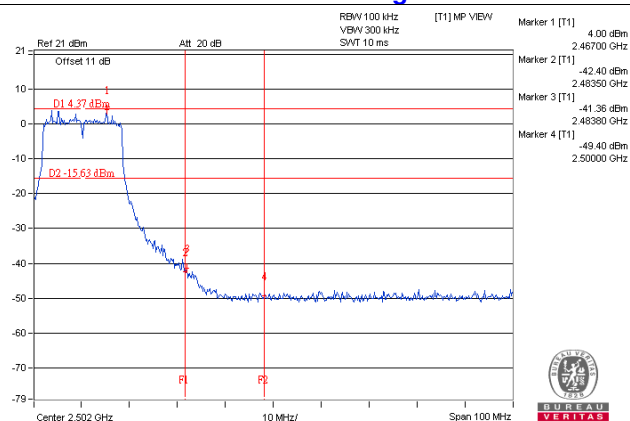
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CH 1 Band edge

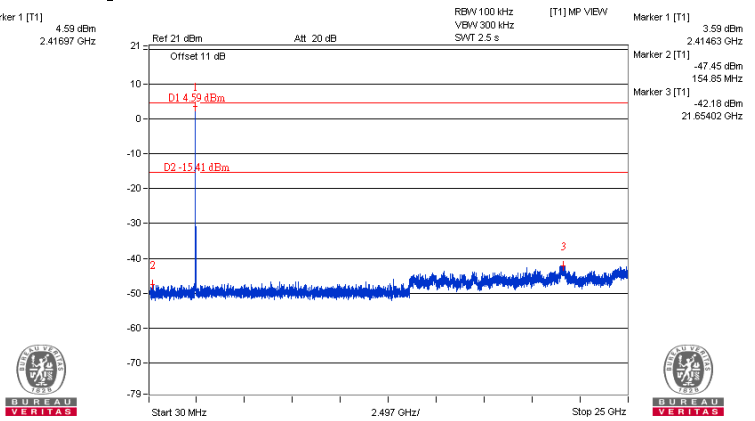
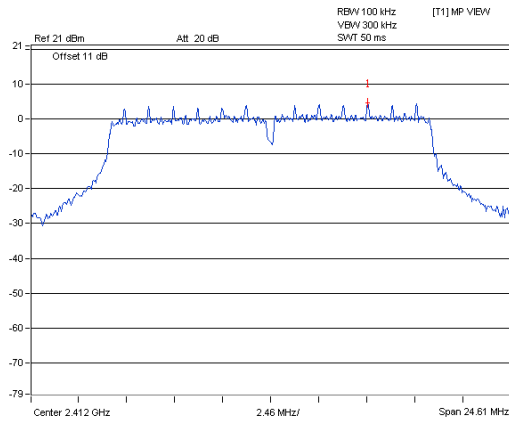


CH 11 Band edge

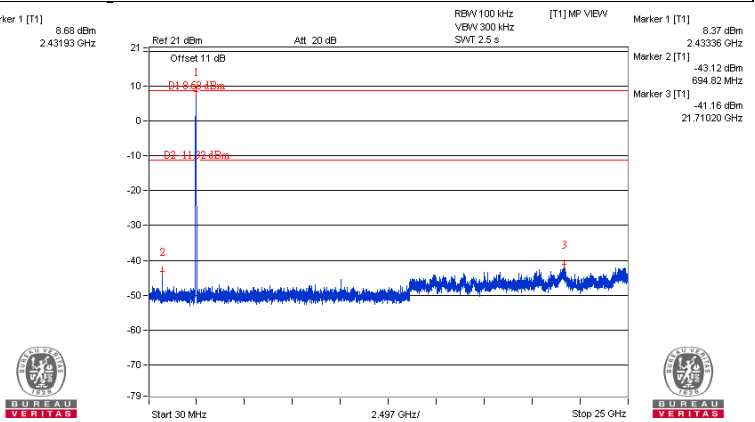
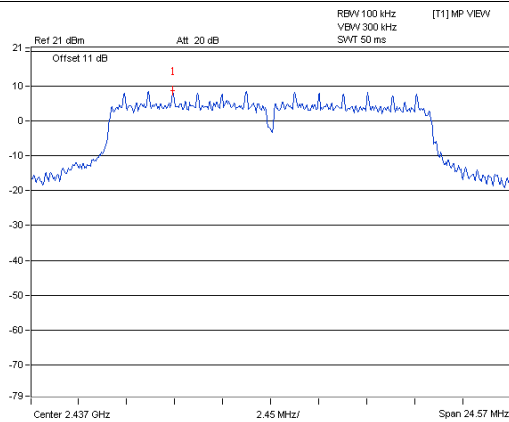


802.11g / Chain 1

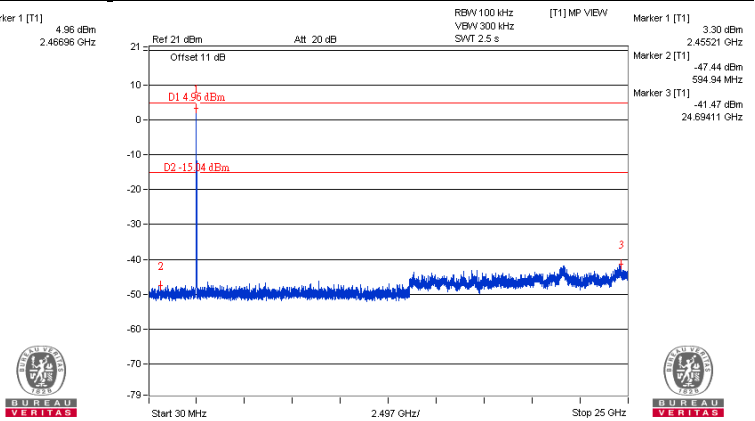
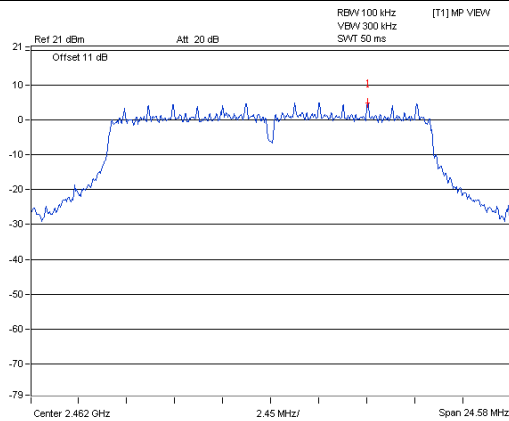
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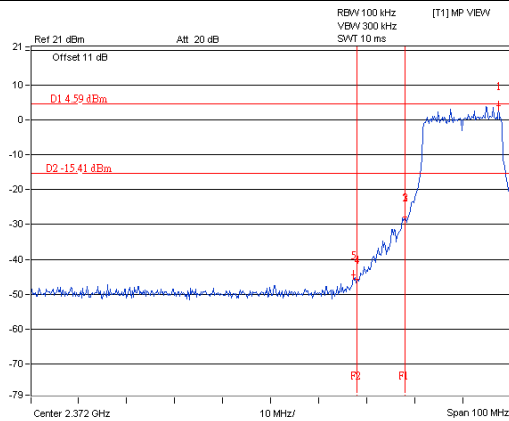
CH 6



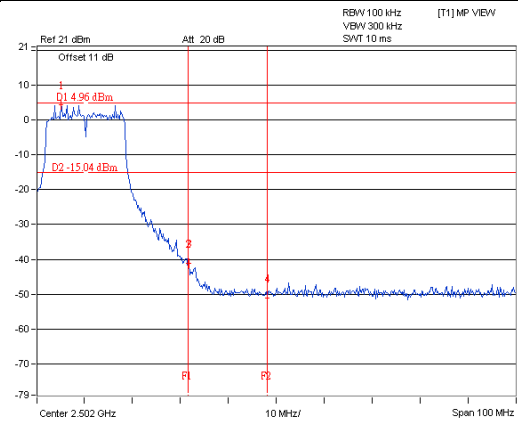
CH 11



CH 1 Band edge

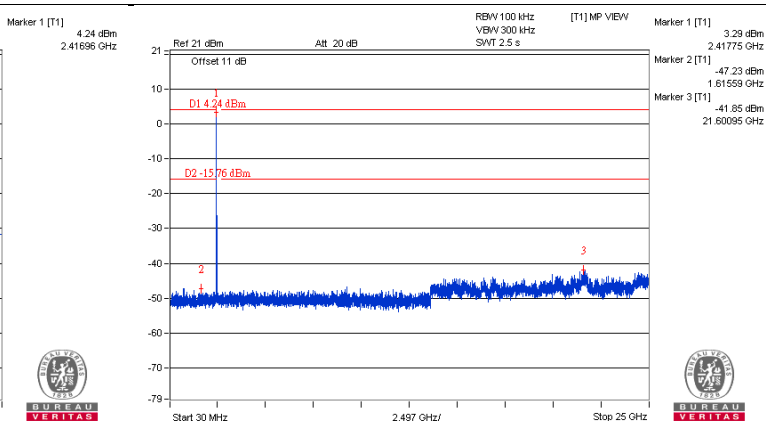
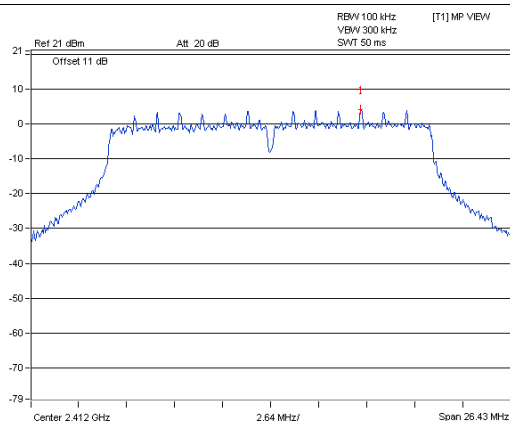


CH 11 Band edge

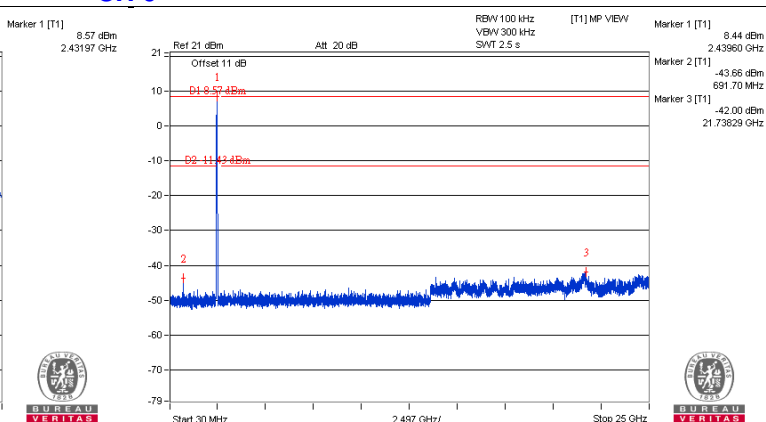
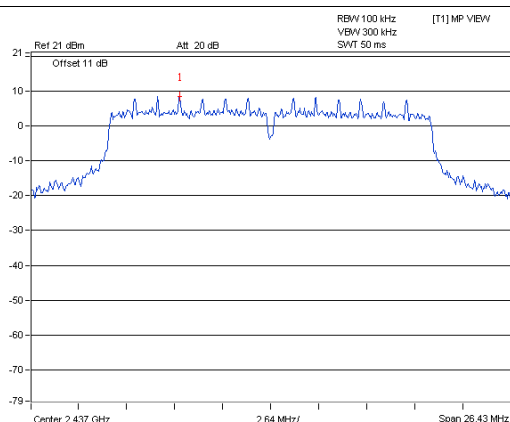


802.11n (HT20) / Chain 0

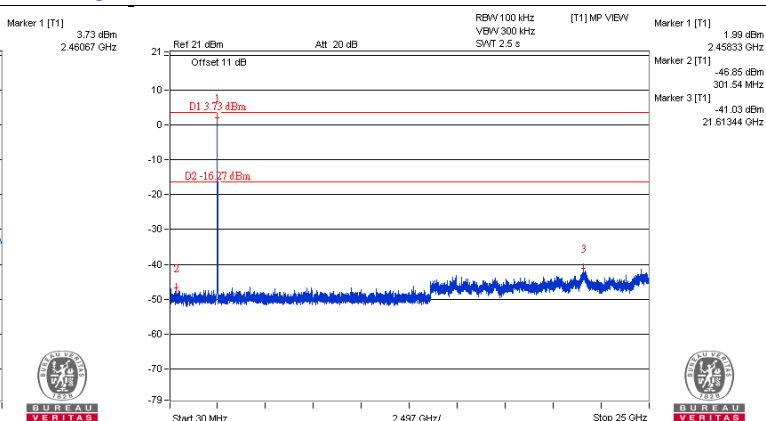
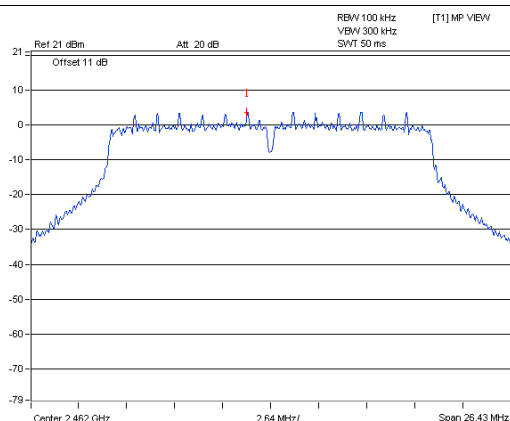
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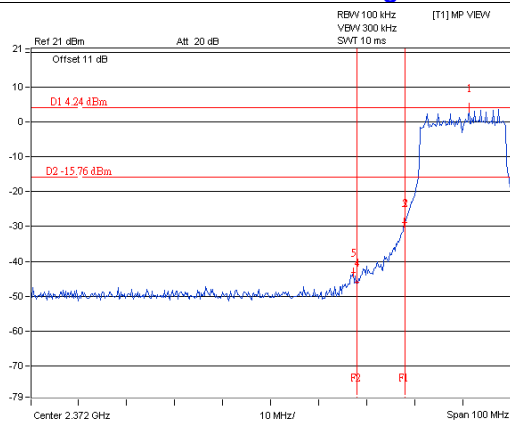
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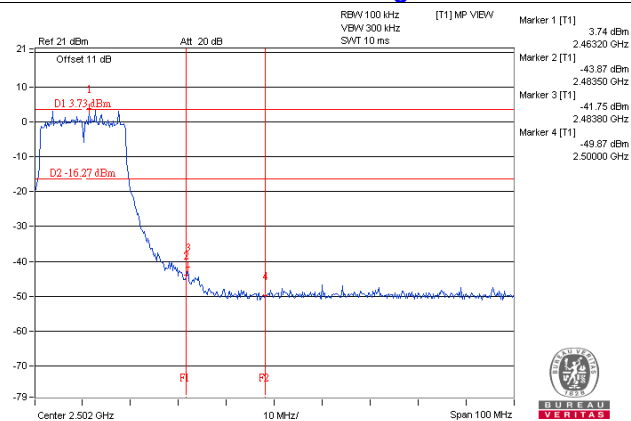
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CH 1 Band edge

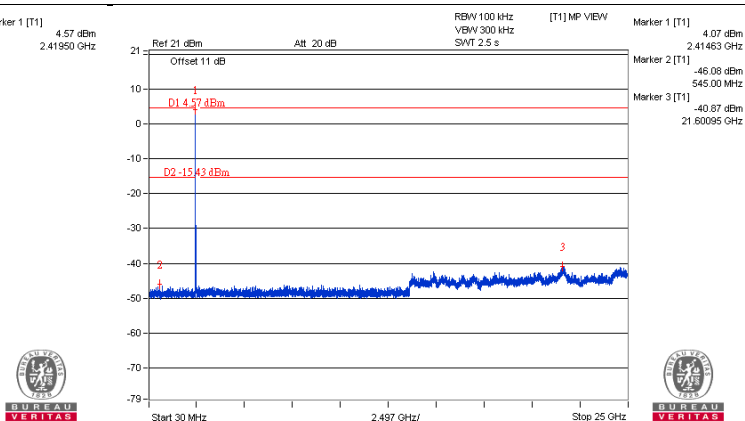
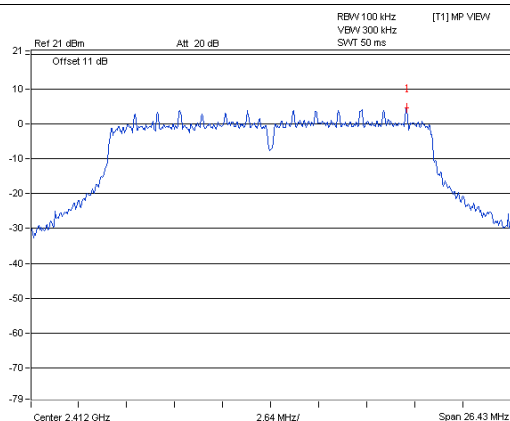


CH 11 Band edge

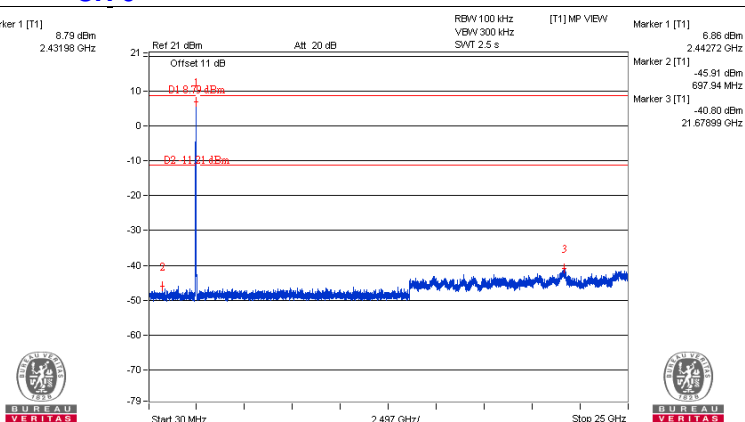
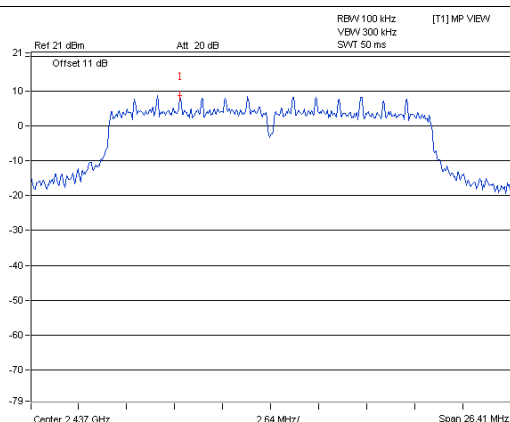


802.11n (HT20) / Chain 1

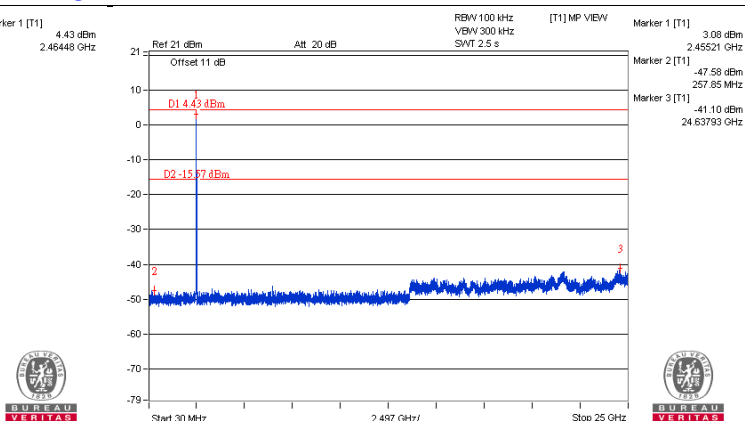
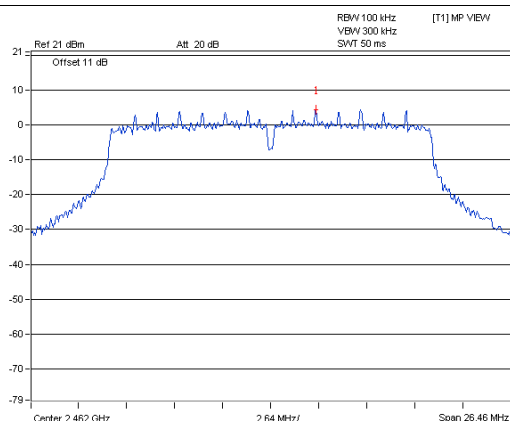
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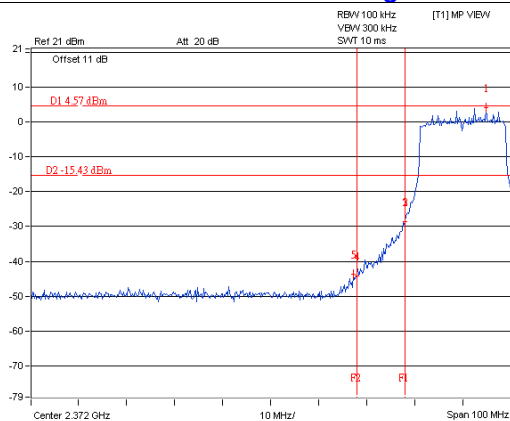
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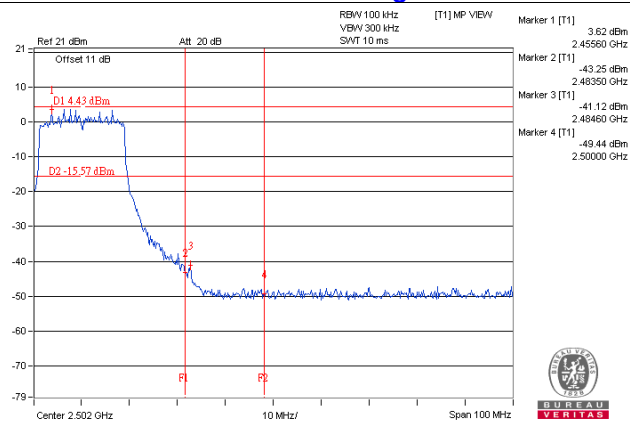
CH 11



CH 1 Band edge

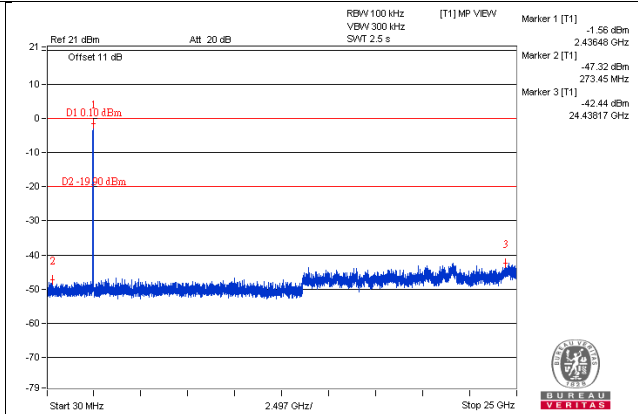
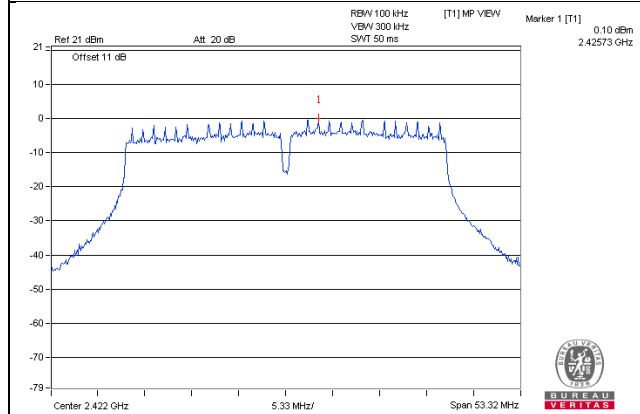


CH 11 Band edge

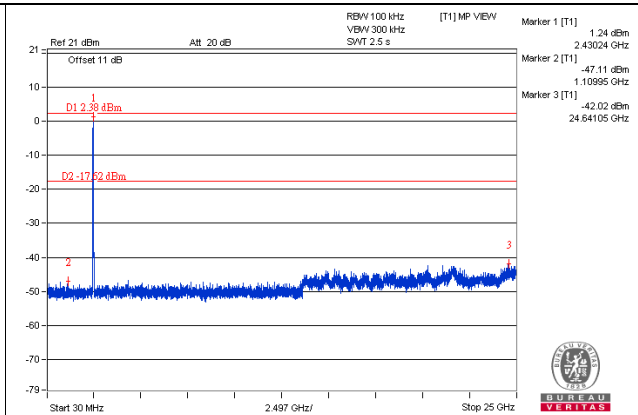
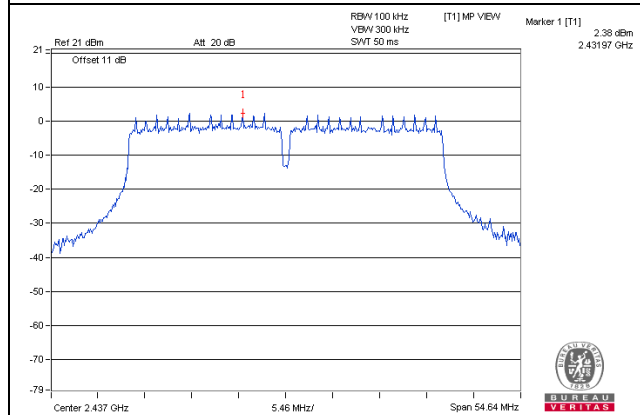


802.11n (HT40) / Chain 0

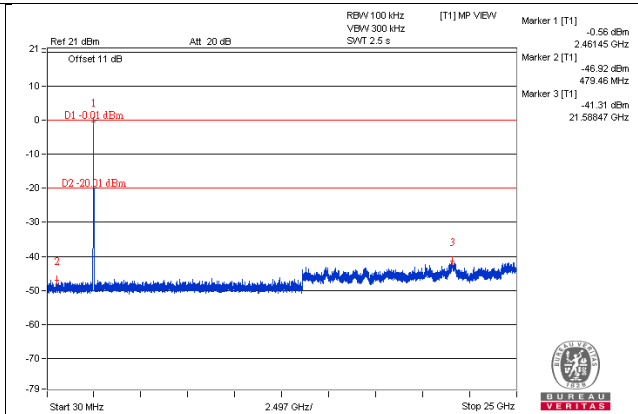
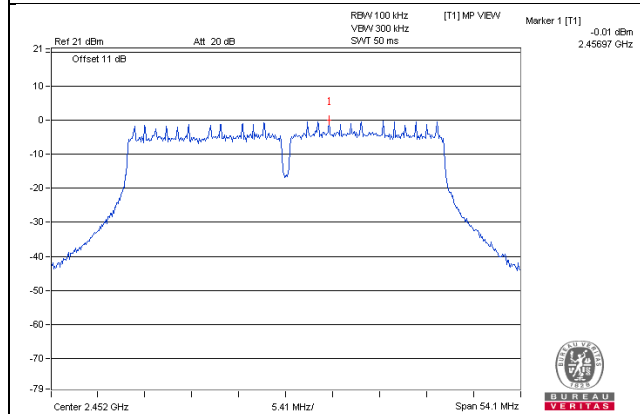
CH 3



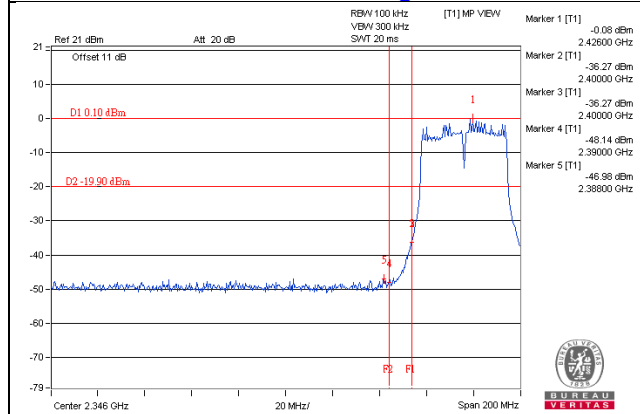
CH 6



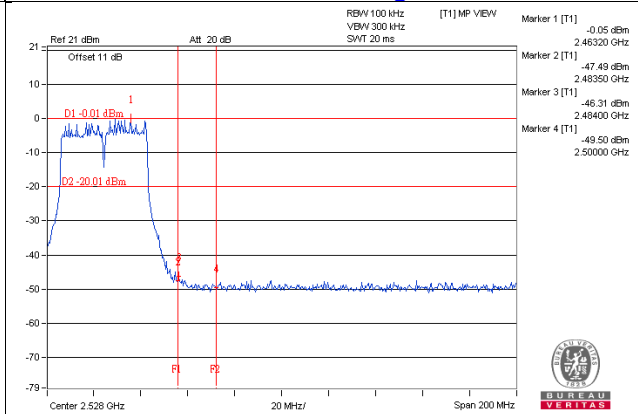
CH 9



CH 3 Band edge

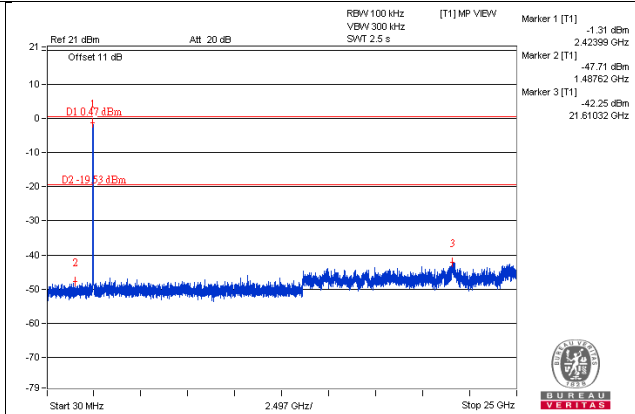
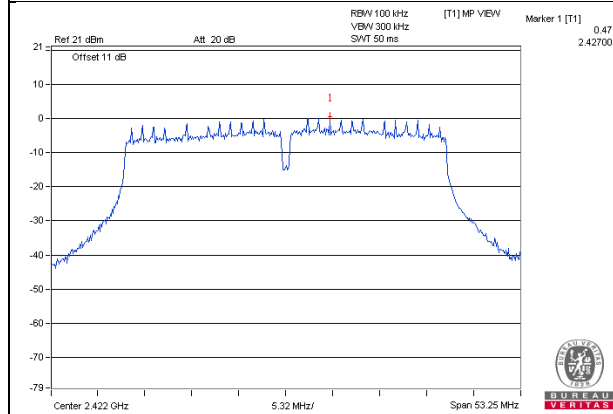


CH 9 Band edge

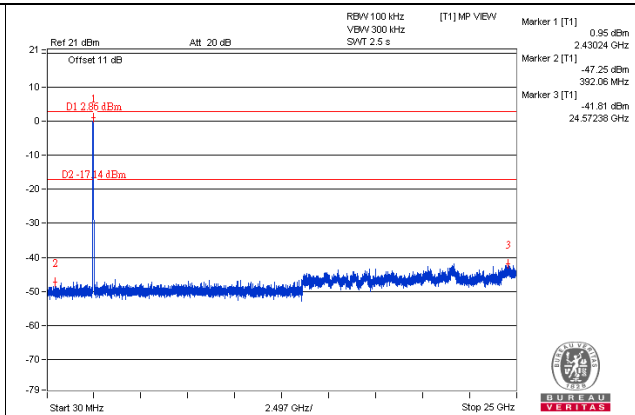
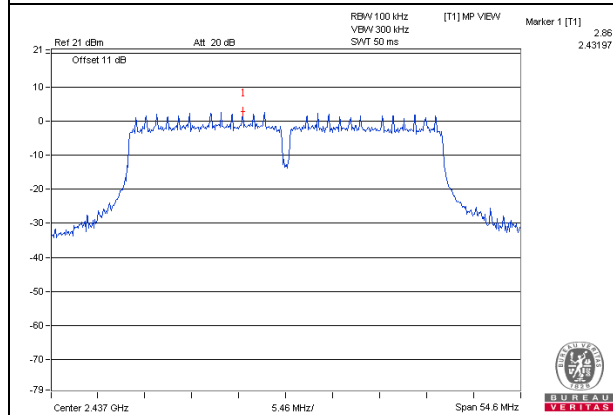


802.11n (HT40) / Chain 1

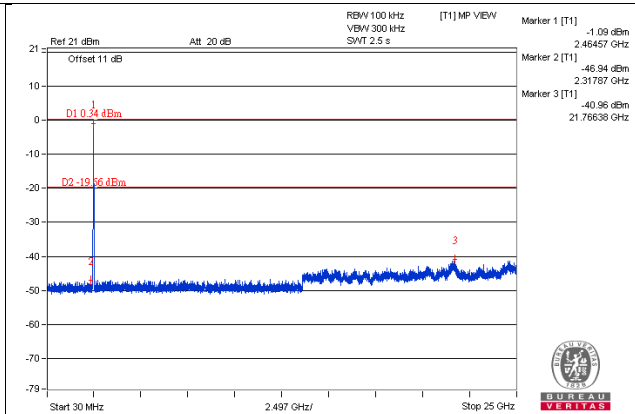
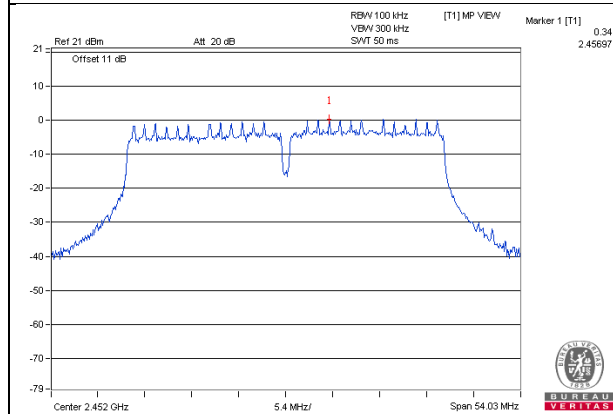
CH 3



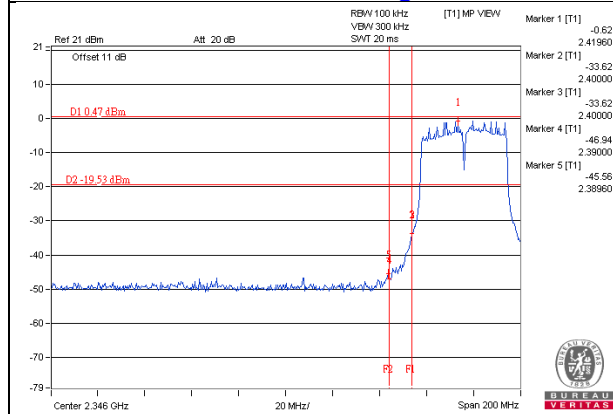
CH 6



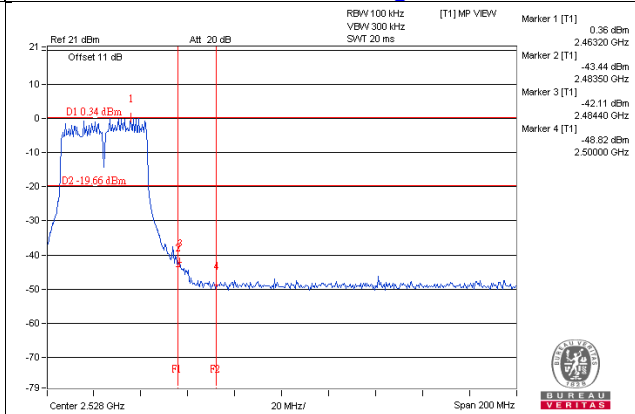
CH 9



CH 3 Band edge



CH 9 Band edge



5 Pictures of Test Arrangements

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

Appendix – Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

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

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

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