FCC Test Report

Report No.: RF160629E03

FCC ID: W59XWR3100

Test Model: XWR-3100

Received Date: June 29,2016

Test Date: July 07 to 19, 2016

Issued Date: Aug. 09, 2016

Applicant: Luxul Wireless

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory

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Testing Laboratory
2022

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Table of Contents

Release Control Record **4**

1 Certificate of Conformity **5**

2 Summary of Test Results **6**

2.1 Measurement Uncertainty 6
2.2 Modification Record 6

3 General Information **7**

3.1 General Description of EUT 7
3.2 Description of Test Modes 10
3.2.1 Test Mode Applicability and Tested Channel Detail 11
3.3 Duty Cycle of Test Signal 13
3.4 Description of Support Units 14
3.4.1 Configuration of System under Test 15
3.5 General Description of Applied Standards 16

4 Test Types and Results **17**

4.1 Radiated Emission and Bandedge Measurement 17
4.1.1 Limits of Radiated Emission and Bandedge Measurement 17
4.1.2 Test Instruments 18
4.1.3 Test Procedures 19
4.1.4 Deviation from Test Standard 19
4.1.5 Test Setup 20
4.1.6 EUT Operating Conditions 20
4.1.7 Test Results (Mode 1) 21
4.1.8 Test Results (Mode 2) 34
4.2 Conducted Emission Measurement 47
4.2.1 Limits of Conducted Emission Measurement 47
4.2.2 Test Instruments 47
4.2.3 Test Procedures 48
4.2.4 Deviation from Test Standard 48
4.2.5 Test Setup 48
4.2.6 EUT Operating Conditions 48
4.2.7 Test Results (Mode 1) 49
4.2.8 Test Results (Mode 2) 51
4.3 6dB Bandwidth Measurement 53
4.3.1 Limits of 6dB Bandwidth Measurement 53
4.3.2 Test Setup 53
4.3.3 Test Instruments 53
4.3.4 Test Procedure 53
4.3.5 Deviation fromTest Standard 53
4.3.6 EUT Operating Conditions 53
4.3.7 Test Result 54
4.4 Conducted Output Power Measurement 56
4.4.1 Limits of Conducted Output Power Measurement 56
4.4.2 Test Setup 56
4.4.3 Test Instruments 56
4.4.4 Test Procedures 56
4.4.5 Deviation from Test Standard 56
4.4.6 EUT Operating Conditions 56
4.4.7 Test Results 57
4.5 Power Spectral Density Measurement 59
4.5.1 Limits of Power Spectral Density Measurement 59
4.5.2 Test Setup 59
4.5.3 Test Instruments 59
4.5.4 Test Procedure 59

4.5.5 Deviation from Test Standard 59
4.5.6 EUT Operating Condition 59
4.5.7 Test Results 60
4.6 Conducted Out of Band Emission Measurement 63
4.6.1 Limits of Conducted Out of Band Emission Measurement 63
4.6.2 Test Setup 63
4.6.3 Test Instruments 63
4.6.4 Test Procedure 63
4.6.5 Deviation from Test Standard 63
4.6.6 EUT Operating Condition 63
4.6.7 Test Results 63

5 Pictures of Test Arrangements 80

Appendix – Information on the Testing Laboratories 81

Release Control Record

Issue No.	Description	Date Issued
RF160629E03	Original release.	Aug. 09, 2016

1 Certificate of Conformity

Product: Dual-Band AC3100 Gigabit Router

Brand: Luxul

Test Model: XWR-3100

Sample Status: ENGINEERING SAMPLE

Applicant: Luxul Wireless

Test Date: July 07 to 19, 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 : _____ , **Date:** Aug. 09, 2016
Wendy Wu / Specialist

Approved by : _____ , **Date:** Aug. 09, 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 -4.44dB at 0.41563.MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -0.10dB at 2390.00MHz, 2483.50MHz.
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector is 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	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.83 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.19 dB
	1GHz ~ 6GHz	3.43 dB
Radiated Emissions above 1 GHz	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	Dual-Band AC3100 Gigabit Router
Brand	Luxul
Test Model	XWR-3100
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	DC 12V from 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:** 920.645mW **Beamforming Mode:** 400.875mW **5GHz:** **5.18GHz ~ 5.24GHz:** **CDD Mode:** 851.538mW **Beamforming Mode:** 429.856mW **5.745GHz ~ 5.825GHz:** **CDD Mode:** 984.837mW **Beamforming Mode:** 576.38mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x 1
Data Cable Supplied	RJ45 cable x 1 (Unshielded, 31cm)

Note:

1. The EUT must be supplied from power adapter and following different models could be chosen as following table:

No.	Brand	Model No.	Spec.
1	LEI	MU42-3120300-A1	Input: 100-240Vac, 1.5A, 50-60Hz Output: 12V, 3.0A DC output cable: Unshielded 1.2m
2	CWT	2ABN036F US	Input: 100-240Vac, 1.0A, 50-60Hz Output: 12V, 3.0A DC output cable: Unshielded 1.2m

2. 2.4GHz and 5GHz technology can not transmit at same time.
3. The antennas provided to the EUT, please refer to the following table:

Antenna No	Brand	Model	Antenna Net Gain (dBi)	Frequency range (MHz ~ MHz)	Antenna Type	Connecter Type	Cable Length	Cable Loss
1	NA	290-20268	3.88	2.4~2.4835	Dipole	R-SMA	200mm	0.53
			3.62	5.15~5.25				0.83
			2.9	5.25~5.35				0.83
			2.34	5.47~5.850				0.83
2	NA	290-20268	3.88	2.4~2.4835	Dipole	R-SMA	200mm	0.53
			3.62	5.15~5.25				0.83
			2.9	5.25~5.35				0.83
			2.34	5.47~5.850				0.83
3	NA	290-20268	3.88	2.4~2.4835	Dipole	R-SMA	200mm	0.53
			3.62	5.15~5.25				0.83
			2.9	5.25~5.35				0.83
			2.34	5.47~5.850				0.83
4	NA	290-20268	3.88	2.4~2.4835	Dipole	R-SMA	200mm	0.53
			3.62	5.15~5.25				0.83
			2.9	5.25~5.35				0.83
			2.34	5.47~5.850				0.83

4. The EUT incorporates a MIMO function.

2.4GHz Band			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11b	1 ~ 11Mbps	4TX	4RX
802.11g	6 ~ 54Mbps	4TX	4RX
802.11n (HT20)	MCS 0~7	4TX	4RX
	MCS 8~15	4TX	4RX
	MCS 16~23	4TX	4RX
	MCS 24~31	4TX	4RX
802.11n (HT40)	MCS 0~7	4TX	4RX
	MCS 8~15	4TX	4RX
	MCS 16~23	4TX	4RX
	MCS 24~31	4TX	4RX
5GHz Band			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11a	6 ~ 54Mbps	4TX	4RX
802.11n (HT20)	MCS 0~7	4TX	4RX
	MCS 8~15	4TX	4RX
	MCS 16~23	4TX	4RX
	MCS 24~31	4TX	4RX
802.11n (HT40)	MCS 0~7	4TX	4RX
	MCS 8~15	4TX	4RX
	MCS 16~23	4TX	4RX
	MCS 24~31	4TX	4RX
802.11ac (VHT20)	MCS 0~8, NSS=1	4TX	4RX
	MCS 0~8, NSS=2	4TX	4RX
	MCS 0~9, NSS=3	4TX	4RX
	MCS 0~8, NSS=4	4TX	4RX
802.11ac (VHT40)	MCS 0~9, NSS=1	4TX	4RX
	MCS 0~9, NSS=2	4TX	4RX
	MCS 0~9, NSS=3	4TX	4RX
	MCS 0~9, NSS=4	4TX	4RX
802.11ac (VHT80)	MCS 0~9, NSS=1	4TX	4RX
	MCS 0~9, NSS=2	4TX	4RX
	MCS 0~9, NSS=3	4TX	4RX
	MCS 0~9, NSS=4	4TX	4RX

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

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

3.2 Description of Test Modes

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

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

7 channels are provided for 802.11n (HT40):

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

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
1	√	√	√	√	Power from adapter 1
2	√	√	√	-	Power from adapter 2

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

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

NOTE: 1. The EUT had been pre-tested on the positioned of each 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

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)
802.11b	1 to 11	6	DSSS	DBPSK	6

Power Line Conducted Emission Test:

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

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

CDD Mode					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11b	1 to 11	6	DSSS	DBPSK	6

Antenna Port Conducted Measurement:

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

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

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

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 (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:

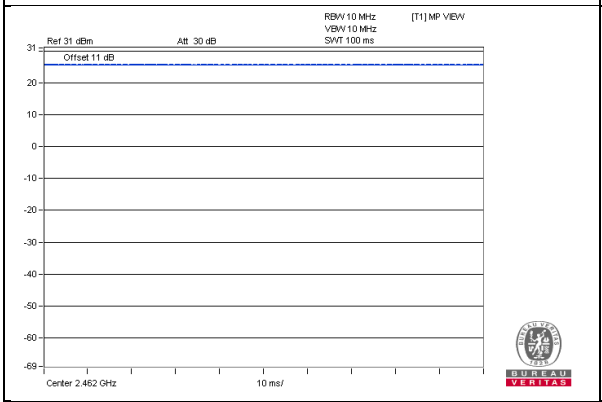
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	22deg. C, 67%RH	120Vac, 60Hz	Russell Yeh
RE<1G	23deg. C, 65%RH	120Vac, 60Hz	Robert Teng
PLC	24deg. C, 61%RH	120Vac, 60Hz	Jyunchun Lin
APCM	25deg. C, 60%RH	120Vac, 60Hz	Gary Teng

3.3 Duty Cycle of Test Signal

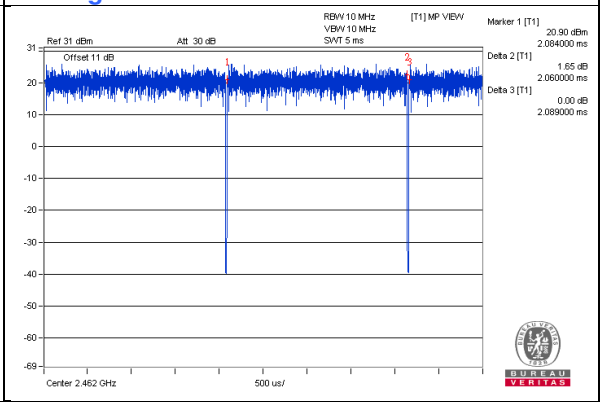
If duty cycle of test signal is ≥ 98 %, duty factor is not required.

802.11b: Duty cycle of test signal is 100 %
802.11g: Duty cycle = 2.06/2.089 = 0.986
802.11n (HT20): Duty cycle = 1.919/1.939 = 0.99
802.11n (HT40): Duty cycle = 0.943/0.962 = 0.98

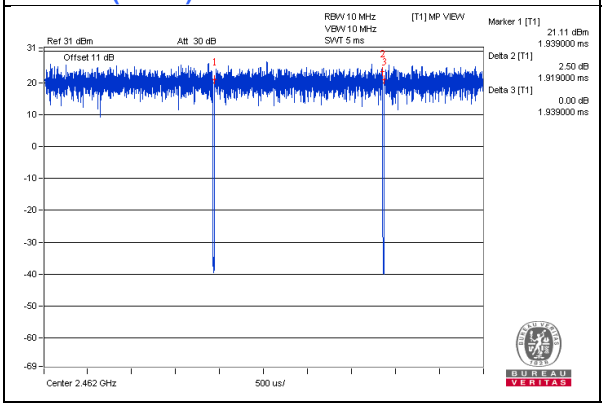
802.11b



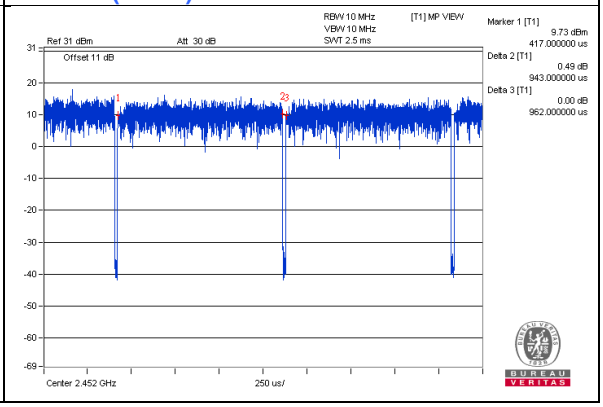
802.11g



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.

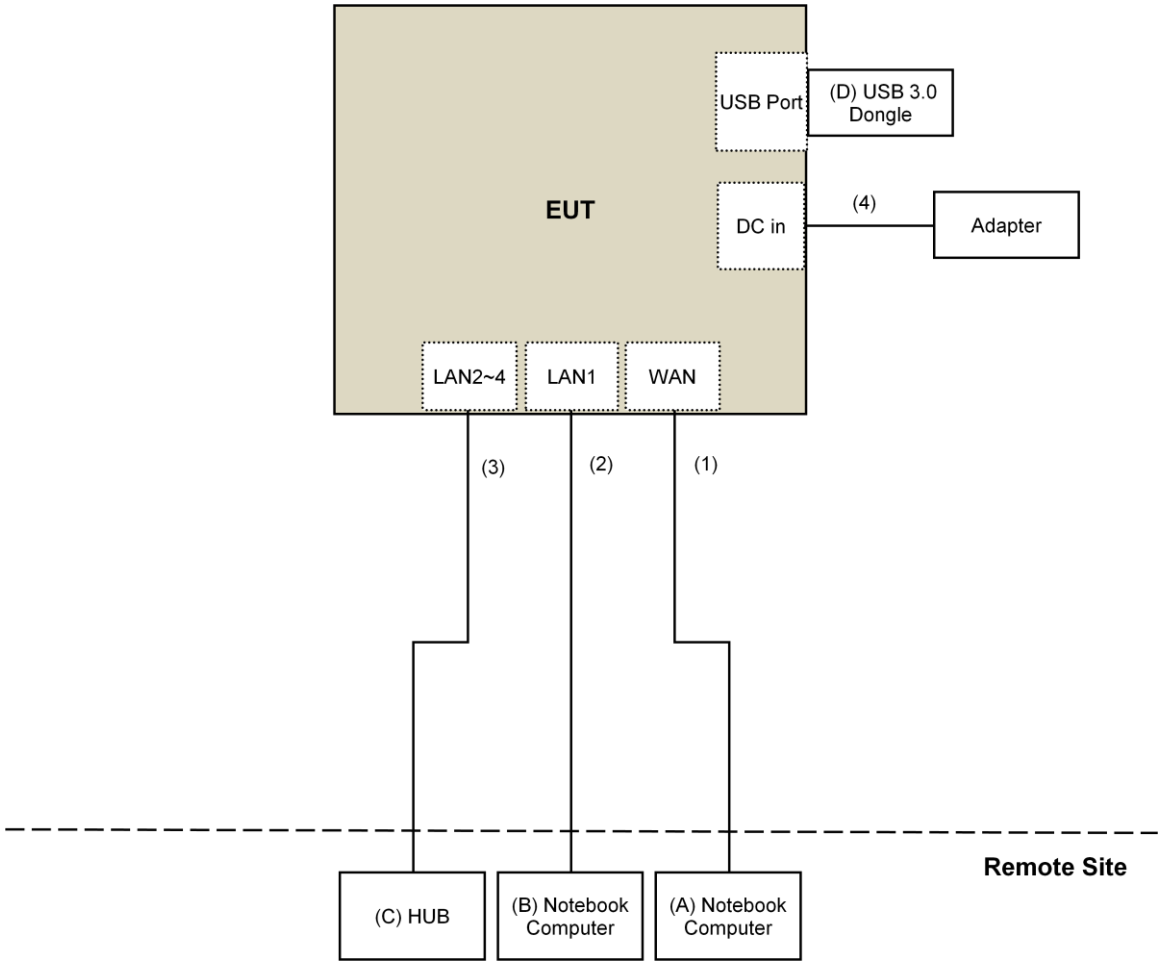
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook Computer	DELL	E5430	4YV4VY1	FCC DoC	Provided by Lab
B.	Notebook Computer	DELL	E5430	HYV4VY1	FCC DoC	Provided by Lab
C.	HUB	ZyXEL	ES-116P	S060H02000215	FCC DoC	Provided by Lab
D.	USB 3.0 Dongle	Transcend	NA	NA	NA	Provided by Lab

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.	RJ-45 Cable	3	10	No	0	Provided by Lab
4.	DC Cable	1	1.2	No	0	Supplied by client

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards

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

FCC Part 15, Subpart C (15.247)
KDB 558074 D01 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 30dB below the highest level of the desired power:

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

NOTE:

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

4.1.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver Agilent	N9038A	MY54450088	July 24, 2015	July 23, 2016
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-1000VH2B	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. 19, 2015	Sep. 18, 2016
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_V8.7.07	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	100060	May 11, 2016	May 10, 2017
Power meter Anritsu	ML2495A	1014008	May 05, 2016	May 04, 2017
Power sensor Anritsu	MA2411B	0917122	May 05, 2016	May 04, 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. The test was performed in 966 Chamber No. 4.
4. The FCC Site Registration No. is 292998
5. The CANADA Site Registration No. is 20331-2
6 Loop antenna was used for all emissions below 30 MHz.
7. Tested Date: July 13 to 15, 2016

4.1.3 Test Procedures

a. The EUT was placed on the top of a rotating table 0.8 meters (for below 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:

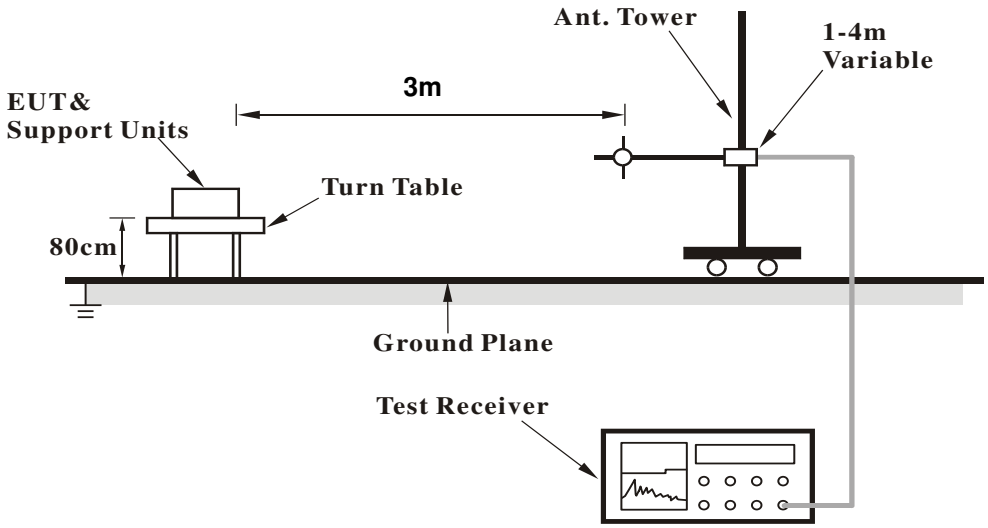
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor (10 log(1/duty cycle)).
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.
5. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

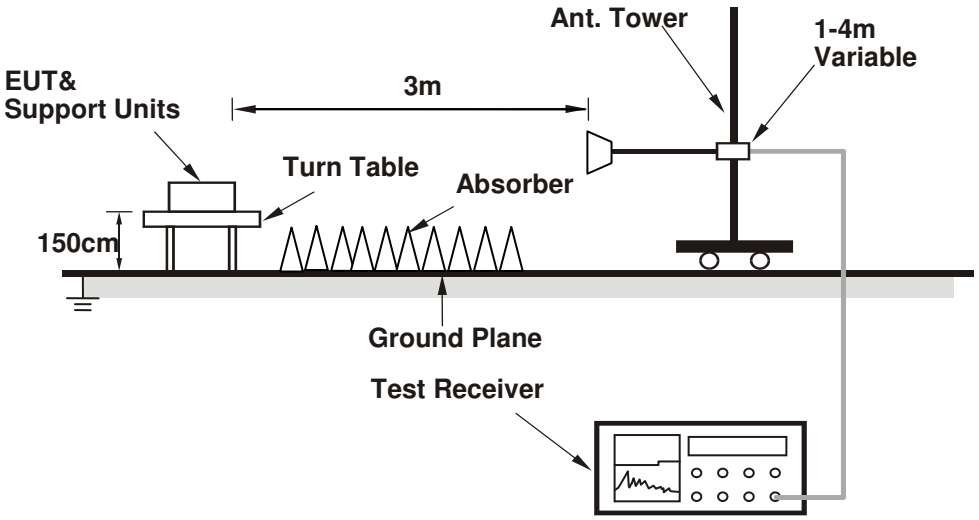
No deviation.

4.1.5 Test Setup

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



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

4.1.6 EUT Operating Conditions

a. Connected the EUT with the Notebook Computer which is placed on remote site.
b. Contorlling software (M_Tool _2.0.3.2.exe) has been activated to set the EUT on specific status.

4.1.7 Test Results (Mode 1)

Above 1GHz Data:

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2390.00	59.00 PK	74.00	-15.00	1.05 H	92	64.60	-5.60
2	2390.00	47.00 AV	54.00	-7.00	1.05 H	92	52.60	-5.60
3	*2412.00	111.10 PK			1.05 H	92	116.60	-5.50
4	*2412.00	108.50 AV			1.05 H	92	114.00	-5.50
5	4824.00	41.70 PK	74.00	-32.30	1.91 H	180	40.80	0.90
6	4824.00	35.40 AV	54.00	-18.60	1.91 H	180	34.50	0.90
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	64.60 PK	74.00	-9.40	1.31 V	180	70.20	-5.60
2	2390.00	52.90 AV	54.00	-1.10	1.31 V	180	58.50	-5.60
3	*2412.00	123.50 PK			1.31 V	180	129.00	-5.50
4	*2412.00	119.90 AV			1.31 V	180	125.40	-5.50
5	4824.00	46.60 PK	74.00	-27.40	1.11 V	124	45.70	0.90
6	4824.00	43.60 AV	54.00	-10.40	1.11 V	124	42.70	0.90

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	111.10 PK			1.00 H	84	116.50	-5.40
2	*2437.00	108.30 AV			1.00 H	84	113.70	-5.40
3	4874.00	41.10 PK	74.00	-32.90	1.95 H	172	40.10	1.00
4	4874.00	34.40 AV	54.00	-19.60	1.95 H	172	33.40	1.00
5	7311.00	46.80 PK	74.00	-27.20	1.79 H	159	39.20	7.60
6	7311.00	34.80 AV	54.00	-19.20	1.79 H	159	27.20	7.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	123.60 PK			1.43 V	10	129.00	-5.40
2	*2437.00	119.60 AV			1.43 V	10	125.00	-5.40
3	4874.00	46.10 PK	74.00	-27.90	1.14 V	153	45.10	1.00
4	4874.00	42.80 AV	54.00	-11.20	1.14 V	153	41.80	1.00
5	7311.00	46.70 PK	74.00	-27.30	1.00 V	36	39.10	7.60
6	7311.00	37.50 AV	54.00	-16.50	1.00 V	36	29.90	7.60

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	110.90 PK			1.03 H	78	116.20	-5.30
2	*2462.00	108.60 AV			1.03 H	78	113.90	-5.30
3	2483.50	58.50 PK	74.00	-15.50	1.03 H	78	63.80	-5.30
4	2483.50	46.80 AV	54.00	-7.20	1.03 H	78	52.10	-5.30
5	4924.00	42.00 PK	74.00	-32.00	1.91 H	166	40.70	1.30
6	4924.00	35.10 AV	54.00	-18.90	1.91 H	166	33.80	1.30
7	7386.00	45.70 PK	74.00	-28.30	1.68 H	174	38.00	7.70
8	7386.00	34.20 AV	54.00	-19.80	1.68 H	174	26.50	7.70
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	124.10 PK			1.29 V	178	129.40	-5.30
2	*2462.00	120.20 AV			1.29 V	178	125.50	-5.30
3	2483.50	65.20 PK	74.00	-8.80	1.29 V	178	70.50	-5.30
4	2483.50	53.00 AV	54.00	-1.00	1.29 V	178	58.30	-5.30
5	4924.00	46.70 PK	74.00	-27.30	1.19 V	137	45.40	1.30
6	4924.00	43.60 AV	54.00	-10.40	1.19 V	137	42.30	1.30
7	7386.00	46.50 PK	74.00	-27.50	1.01 V	23	38.80	7.70
8	7386.00	37.20 AV	54.00	-16.80	1.01 V	23	29.50	7.70

REMARKS:

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

802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.80 PK	74.00	-16.20	1.00 H	96	63.40	-5.60
2	2390.00	46.10 AV	54.00	-7.90	1.00 H	96	51.70	-5.60
3	*2412.00	112.40 PK			1.00 H	96	117.90	-5.50
4	*2412.00	102.10 AV			1.00 H	96	107.60	-5.50
5	4824.00	40.00 PK	74.00	-34.00	1.95 H	155	39.10	0.90
6	4824.00	29.00 AV	54.00	-25.00	1.95 H	155	28.10	0.90
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	71.70 PK	74.00	-2.30	1.38 V	176	77.30	-5.60
2	**2390.00**	**53.70 AV**	**54.00**	**-0.30**	**1.38 V**	**176**	**59.30**	**-5.60**
3	*2412.00	123.50 PK			1.38 V	176	129.00	-5.50
4	*2412.00	113.50 AV			1.38 V	176	119.00	-5.50
5	4824.00	42.90 PK	74.00	-31.10	1.06 V	133	42.00	0.90
6	4824.00	32.10 AV	54.00	-21.90	1.06 V	133	31.20	0.90

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.80 PK	74.00	-19.20	1.12 H	110	60.40	-5.60
2	2390.00	42.70 AV	54.00	-11.30	1.12 H	110	48.30	-5.60
3	*2437.00	114.00 PK			1.12 H	110	119.40	-5.40
4	*2437.00	103.50 AV			1.12 H	110	108.90	-5.40
5	2483.50	56.80 PK	74.00	-17.20	1.12 H	110	62.10	-5.30
6	2483.50	43.30 AV	54.00	-10.70	1.12 H	110	48.60	-5.30
7	4874.00	40.50 PK	74.00	-33.50	2.01 H	180	39.50	1.00
8	4874.00	29.60 AV	54.00	-24.40	2.01 H	180	28.60	1.00
9	7311.00	46.40 PK	74.00	-27.60	1.77 H	160	38.80	7.60
10	7311.00	34.90 AV	54.00	-19.10	1.77 H	160	27.30	7.60
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	64.60 PK	74.00	-9.40	1.71 V	360	70.20	-5.60
2	2390.00	48.30 AV	54.00	-5.70	1.71 V	360	53.90	-5.60
3	*2437.00	125.90 PK			1.71 V	360	131.30	-5.40
4	*2437.00	115.20 AV			1.71 V	360	120.60	-5.40
5	2483.50	67.30 PK	74.00	-6.70	1.71 V	360	72.60	-5.30
6	2483.50	48.50 AV	54.00	-5.50	1.71 V	360	53.80	-5.30
7	4874.00	43.10 PK	74.00	-30.90	1.02 V	134	42.10	1.00
8	4874.00	32.60 AV	54.00	-21.40	1.02 V	134	31.60	1.00
9	7311.00	47.20 PK	74.00	-26.80	1.08 V	35	39.60	7.60
10	7311.00	35.70 AV	54.00	-18.30	1.08 V	35	28.10	7.60

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	110.00 PK			1.00 H	109	115.30	-5.30
2	*2462.00	100.40 AV			1.00 H	109	105.70	-5.30
3	2483.50	58.50 PK	74.00	-15.50	1.00 H	109	63.80	-5.30
4	2483.50	46.90 AV	54.00	-7.10	1.00 H	109	52.20	-5.30
5	4924.00	39.10 PK	74.00	-34.90	1.97 H	157	37.80	1.30
6	4924.00	29.00 AV	54.00	-25.00	1.97 H	157	27.70	1.30
7	7386.00	45.50 PK	74.00	-28.50	1.68 H	141	37.80	7.70
8	7386.00	34.50 AV	54.00	-19.50	1.68 H	141	26.80	7.70
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	121.80 PK			1.40 V	187	127.10	-5.30
2	*2462.00	111.00 AV			1.40 V	187	116.30	-5.30
3	2483.50	69.20 PK	74.00	-4.80	1.40 V	187	74.50	-5.30
4	2483.50	53.70 AV	54.00	-0.30	1.40 V	187	59.00	-5.30
5	4924.00	43.70 PK	74.00	-30.30	1.00 V	136	42.40	1.30
6	4924.00	32.80 AV	54.00	-21.20	1.00 V	136	31.50	1.30
7	7386.00	46.40 PK	74.00	-27.60	1.01 V	34	38.70	7.70
8	7386.00	35.00 AV	54.00	-19.00	1.01 V	34	27.30	7.70

REMARKS:

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

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.00 PK	74.00	-16.00	1.03 H	79	63.60	-5.60
2	2390.00	46.40 AV	54.00	-7.60	1.03 H	79	52.00	-5.60
3	*2412.00	110.30 PK			1.03 H	79	115.80	-5.50
4	*2412.00	99.50 AV			1.03 H	79	105.00	-5.50
5	4824.00	39.10 PK	74.00	-34.90	1.87 H	188	38.20	0.90
6	4824.00	28.90 AV	54.00	-25.10	1.87 H	188	28.00	0.90
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	72.10 PK	74.00	-1.90	1.25 V	190	77.70	-5.60
2	2390.00	53.70 AV	54.00	-0.30	1.25 V	190	59.30	-5.60
3	*2412.00	120.90 PK			1.25 V	190	126.40	-5.50
4	*2412.00	109.40 AV			1.25 V	190	114.90	-5.50
5	4824.00	43.70 PK	74.00	-30.30	1.08 V	162	42.80	0.90
6	4824.00	32.60 AV	54.00	-21.40	1.08 V	162	31.70	0.90

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	53.50 PK	74.00	-20.50	1.02 H	73	59.10	-5.60
2	2390.00	42.40 AV	54.00	-11.60	1.02 H	73	48.00	-5.60
3	*2437.00	113.90 PK			1.02 H	73	119.30	-5.40
4	*2437.00	103.10 AV			1.02 H	73	108.50	-5.40
5	2483.50	53.80 PK	74.00	-20.20	1.02 H	73	59.10	-5.30
6	2483.50	43.30 AV	54.00	-10.70	1.02 H	73	48.60	-5.30
7	4874.00	40.00 PK	74.00	-34.00	1.89 H	181	39.00	1.00
8	4874.00	29.40 AV	54.00	-24.60	1.89 H	181	28.40	1.00
9	7311.00	46.40 PK	74.00	-27.60	1.75 H	171	38.80	7.60
10	7311.00	35.30 AV	54.00	-18.70	1.75 H	171	27.70	7.60
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	68.70 PK	74.00	-5.30	1.49 V	8	74.30	-5.60
2	2390.00	49.60 AV	54.00	-4.40	1.49 V	8	55.20	-5.60
3	*2437.00	124.30 PK			1.49 V	8	129.70	-5.40
4	*2437.00	113.00 AV			1.49 V	8	118.40	-5.40
5	2483.50	68.50 PK	74.00	-5.50	1.49 V	8	73.80	-5.30
6	2483.50	50.50 AV	54.00	-3.50	1.49 V	8	55.80	-5.30
7	4874.00	42.70 PK	74.00	-31.30	1.08 V	143	41.70	1.00
8	4874.00	32.10 AV	54.00	-21.90	1.08 V	143	31.10	1.00
9	7311.00	46.40 PK	74.00	-27.60	1.02 V	26	38.80	7.60
10	7311.00	34.80 AV	54.00	-19.20	1.02 V	26	27.20	7.60

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.40 PK			1.00 H	67	114.70	-5.30
2	*2462.00	99.60 AV			1.00 H	67	104.90	-5.30
3	2483.50	57.60 PK	74.00	-16.40	1.00 H	67	62.90	-5.30
4	2483.50	46.50 AV	54.00	-7.50	1.00 H	67	51.80	-5.30
5	4924.00	40.80 PK	74.00	-33.20	2.01 H	167	39.50	1.30
6	4924.00	30.10 AV	54.00	-23.90	2.01 H	167	28.80	1.30
7	7386.00	45.90 PK	74.00	-28.10	1.70 H	184	38.20	7.70
8	7386.00	34.30 AV	54.00	-19.70	1.70 H	184	26.60	7.70
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	119.20 PK			1.37 V	211	124.50	-5.30
2	*2462.00	109.00 AV			1.37 V	211	114.30	-5.30
3	2483.50	58.20 PK	74.00	-15.80	1.37 V	211	63.50	-5.30
4	2483.50	53.40 AV	54.00	-0.60	1.37 V	211	58.70	-5.30
5	4924.00	44.00 PK	74.00	-30.00	1.03 V	150	42.70	1.30
6	4924.00	33.10 AV	54.00	-20.90	1.03 V	150	31.80	1.30
7	7386.00	47.20 PK	74.00	-26.80	1.08 V	48	39.50	7.70
8	7386.00	35.70 AV	54.00	-18.30	1.08 V	48	28.00	7.70

REMARKS:

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

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.40 PK	74.00	-15.60	1.03 H	67	64.00	-5.60
2	2390.00	47.10 AV	54.00	-6.90	1.03 H	67	52.70	-5.60
3	*2422.00	101.50 PK			1.03 H	67	106.90	-5.40
4	*2422.00	91.30 AV			1.03 H	67	96.70	-5.40
5	4844.00	40.10 PK	74.00	-33.90	1.92 H	180	39.20	0.90
6	4844.00	29.90 AV	54.00	-24.10	1.92 H	180	29.00	0.90
7	7266.00	46.30 PK	74.00	-27.70	1.71 H	185	38.60	7.70
8	7266.00	35.10 AV	54.00	-18.90	1.71 H	185	27.40	7.70
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	67.80 PK	74.00	-6.20	1.32 V	189	73.40	-5.60
2	2390.00	53.40 AV	54.00	-0.60	1.32 V	189	59.00	-5.60
3	*2422.00	113.40 PK			1.32 V	189	118.80	-5.40
4	*2422.00	101.50 AV			1.32 V	189	106.90	-5.40
5	4844.00	40.20 PK	74.00	-33.80	1.00 V	146	39.30	0.90
6	4844.00	29.00 AV	54.00	-25.00	1.00 V	146	28.10	0.90
7	7266.00	46.50 PK	74.00	-27.50	1.01 V	33	38.80	7.70
8	7266.00	35.10 AV	54.00	-18.90	1.01 V	33	27.40	7.70

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.70 PK	74.00	-15.30	1.02 H	105	64.30	-5.60
2	2390.00	46.50 AV	54.00	-7.50	1.02 H	105	52.10	-5.60
3	*2437.00	105.50 PK			1.02 H	105	110.90	-5.40
4	*2437.00	94.20 AV			1.02 H	105	99.60	-5.40
5	2483.50	56.00 PK	74.00	-18.00	1.02 H	105	61.30	-5.30
6	2483.50	44.90 AV	54.00	-9.10	1.02 H	105	50.20	-5.30
7	4874.00	40.20 PK	74.00	-33.80	1.95 H	173	39.20	1.00
8	4874.00	29.70 AV	54.00	-24.30	1.95 H	173	28.70	1.00
9	7311.00	46.70 PK	74.00	-27.30	1.77 H	187	39.10	7.60
10	7311.00	35.10 AV	54.00	-18.90	1.77 H	187	27.50	7.60
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	69.10 PK	74.00	-4.90	1.39 V	157	74.70	-5.60
2	2390.00	53.40 AV	54.00	-0.60	1.39 V	157	59.00	-5.60
3	*2437.00	116.40 PK			1.39 V	157	121.80	-5.40
4	*2437.00	105.00 AV			1.39 V	157	110.40	-5.40
5	2483.50	67.90 PK	74.00	-6.10	1.39 V	157	73.20	-5.30
6	2483.50	52.90 AV	54.00	-1.10	1.39 V	157	58.20	-5.30
7	4874.00	40.10 PK	74.00	-33.90	1.02 V	151	39.10	1.00
8	4874.00	29.10 AV	54.00	-24.90	1.02 V	151	28.10	1.00
9	7311.00	46.80 PK	74.00	-27.20	1.00 V	44	39.20	7.60
10	7311.00	35.40 AV	54.00	-18.60	1.00 V	44	27.80	7.60

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	101.50 PK			1.00 H	93	106.90	-5.40
2	*2452.00	90.70 AV			1.00 H	93	96.10	-5.40
3	2483.50	58.40 PK	74.00	-15.60	1.00 H	93	63.70	-5.30
4	2483.50	46.90 AV	54.00	-7.10	1.00 H	93	52.20	-5.30
5	4904.00	40.00 PK	74.00	-34.00	1.88 H	157	38.80	1.20
6	4904.00	29.30 AV	54.00	-24.70	1.88 H	157	28.10	1.20
7	7356.00	46.00 PK	74.00	-28.00	1.79 H	154	38.30	7.70
8	7356.00	34.20 AV	54.00	-19.80	1.79 H	154	26.50	7.70
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	113.10 PK			1.50 V	208	118.50	-5.40
2	*2452.00	101.00 AV			1.50 V	208	106.40	-5.40
3	2483.50	68.50 PK	74.00	-5.50	1.50 V	208	73.80	-5.30
4	2483.50	53.70 AV	54.00	-0.30	1.50 V	208	59.00	-5.30
5	4904.00	40.40 PK	74.00	-33.60	1.03 V	169	39.20	1.20
6	4904.00	29.30 AV	54.00	-24.70	1.03 V	169	28.10	1.20
7	7356.00	46.00 PK	74.00	-28.00	1.00 V	28	38.30	7.70
8	7356.00	34.90 AV	54.00	-19.10	1.00 V	28	27.20	7.70

REMARKS:

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

Below 1GHz Data:

802.11b

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	below 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	30.61	33.14 QP	40.00	-6.86	1.00 H	348	42.99	-9.85
2	43.46	27.47 QP	40.00	-12.53	1.00 H	91	36.24	-8.77
3	128.94	26.96 QP	43.50	-16.54	1.00 H	77	36.88	-9.92
4	253.46	35.19 QP	46.00	-10.81	1.00 H	278	45.02	-9.83
5	273.11	35.28 QP	46.00	-10.72	1.00 H	286	44.03	-8.75
6	614.26	30.40 QP	46.00	-15.60	1.00 H	49	30.68	-0.28
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	62.18	27.72 QP	40.00	-12.28	1.00 V	360	37.32	-9.60
2	82.55	30.13 QP	40.00	-9.87	1.00 V	15	44.20	-14.07
3	187.26	31.25 QP	43.50	-12.25	1.00 V	343	42.46	-11.21
4	275.17	29.55 QP	46.00	-16.45	1.00 V	360	38.21	-8.66
5	594.98	30.31 QP	46.00	-15.69	1.00 V	327	31.03	-0.72
6	698.82	29.30 QP	46.00	-16.70	1.00 V	22	28.68	0.62

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

4.1.8 Test Results (Mode 2)

Above 1GHz Data:

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2390.00	58.40 PK	74.00	-15.60	1.00 H	84	64.00	-5.60
2	2390.00	46.70 AV	54.00	-7.30	1.00 H	84	52.30	-5.60
3	*2412.00	110.90 PK			1.00 H	84	116.40	-5.50
4	*2412.00	108.30 AV			1.00 H	84	113.80	-5.50
5	4824.00	41.70 PK	74.00	-32.30	1.92 H	185	40.80	0.90
6	4824.00	35.10 AV	54.00	-18.90	1.92 H	185	34.20	0.90
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	65.00 PK	74.00	-9.00	1.35 V	173	70.60	-5.60
2	2390.00	53.40 AV	54.00	-0.60	1.35 V	173	59.00	-5.60
3	*2412.00	124.00 PK			1.35 V	173	129.50	-5.50
4	*2412.00	120.30 AV			1.35 V	173	125.80	-5.50
5	4824.00	46.70 PK	74.00	-27.30	1.08 V	125	45.80	0.90
6	4824.00	43.50 AV	54.00	-10.50	1.08 V	125	42.60	0.90

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	110.90 PK			1.00 H	84	116.30	-5.40
2	*2437.00	108.10 AV			1.00 H	84	113.50	-5.40
3	4874.00	41.80 PK	74.00	-32.20	1.97 H	177	40.80	1.00
4	4874.00	34.90 AV	54.00	-19.10	1.97 H	177	33.90	1.00
5	7311.00	46.10 PK	74.00	-27.90	1.77 H	165	38.50	7.60
6	7311.00	34.40 AV	54.00	-19.60	1.77 H	165	26.80	7.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	123.60 PK			1.49 V	15	129.00	-5.40
2	*2437.00	119.80 AV			1.49 V	15	125.20	-5.40
3	4874.00	46.20 PK	74.00	-27.80	1.08 V	139	45.20	1.00
4	4874.00	43.10 AV	54.00	-10.90	1.08 V	139	42.10	1.00
5	7311.00	46.70 PK	74.00	-27.30	1.01 V	33	39.10	7.60
6	7311.00	37.30 AV	54.00	-16.70	1.01 V	33	29.70	7.60

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	111.00 PK			1.00 H	72	116.30	-5.30
2	*2462.00	108.70 AV			1.00 H	72	114.00	-5.30
3	2483.50	59.10 PK	74.00	-14.90	1.00 H	72	64.40	-5.30
4	2483.50	47.20 AV	54.00	-6.80	1.00 H	72	52.50	-5.30
5	4924.00	41.80 PK	74.00	-32.20	1.92 H	165	40.50	1.30
6	4924.00	35.00 AV	54.00	-19.00	1.92 H	165	33.70	1.30
7	7386.00	46.40 PK	74.00	-27.60	1.73 H	174	38.70	7.70
8	7386.00	34.60 AV	54.00	-19.40	1.73 H	174	26.90	7.70
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	123.90 PK			1.32 V	166	129.20	-5.30
2	*2462.00	119.90 AV			1.32 V	166	125.20	-5.30
3	2483.50	65.70 PK	74.00	-8.30	1.32 V	166	71.00	-5.30
4	2483.50	53.40 AV	54.00	-0.60	1.32 V	166	58.70	-5.30
5	4924.00	46.40 PK	74.00	-27.60	1.13 V	139	45.10	1.30
6	4924.00	43.40 AV	54.00	-10.60	1.13 V	139	42.10	1.30
7	7386.00	46.40 PK	74.00	-27.60	1.00 V	29	38.70	7.70
8	7386.00	37.10 AV	54.00	-16.90	1.00 V	29	29.40	7.70

REMARKS:

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

802.11g

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.40 PK	74.00	-15.60	1.04 H	97	64.00	-5.60
2	2390.00	46.50 AV	54.00	-7.50	1.04 H	97	52.10	-5.60
3	*2412.00	112.40 PK			1.04 H	97	117.90	-5.50
4	*2412.00	102.10 AV			1.04 H	97	107.60	-5.50
5	4824.00	40.20 PK	74.00	-33.80	2.00 H	170	39.30	0.90
6	4824.00	29.40 AV	54.00	-24.60	2.00 H	170	28.50	0.90
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	71.90 PK	74.00	-2.10	1.35 V	178	77.50	-5.60
2	**2390.00**	**53.90 AV**	**54.00**	**-0.10**	**1.35 V**	**178**	**59.50**	**-5.60**
3	*2412.00	123.40 PK			1.35 V	178	128.90	-5.50
4	*2412.00	113.30 AV			1.35 V	178	118.80	-5.50
5	4824.00	43.30 PK	74.00	-30.70	1.07 V	143	42.40	0.90
6	4824.00	32.30 AV	54.00	-21.70	1.07 V	143	31.40	0.90

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	54.20 PK	74.00	-19.80	1.06 H	98	59.80	-5.60
2	2390.00	42.20 AV	54.00	-11.80	1.06 H	98	47.80	-5.60
3	*2437.00	113.80 PK			1.06 H	98	119.20	-5.40
4	*2437.00	103.50 AV			1.06 H	98	108.90	-5.40
5	2483.50	56.70 PK	74.00	-17.30	1.06 H	98	62.00	-5.30
6	2483.50	43.30 AV	54.00	-10.70	1.06 H	98	48.60	-5.30
7	4874.00	40.10 PK	74.00	-33.90	1.96 H	172	39.10	1.00
8	4874.00	29.50 AV	54.00	-24.50	1.96 H	172	28.50	1.00
9	7311.00	46.50 PK	74.00	-27.50	1.73 H	164	38.90	7.60
10	7311.00	35.10 AV	54.00	-18.90	1.73 H	164	27.50	7.60
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	64.40 PK	74.00	-9.60	1.71 V	360	70.00	-5.60
2	2390.00	47.90 AV	54.00	-6.10	1.71 V	360	53.50	-5.60
3	*2437.00	125.20 PK			1.71 V	360	130.60	-5.40
4	*2437.00	114.70 AV			1.71 V	360	120.10	-5.40
5	2483.50	66.80 PK	74.00	-7.20	1.71 V	360	72.10	-5.30
6	2483.50	48.30 AV	54.00	-5.70	1.71 V	360	53.60	-5.30
7	4874.00	43.30 PK	74.00	-30.70	1.06 V	149	42.30	1.00
8	4874.00	32.50 AV	54.00	-21.50	1.06 V	149	31.50	1.00
9	7311.00	46.50 PK	74.00	-27.50	1.03 V	32	38.90	7.60
10	7311.00	35.20 AV	54.00	-18.80	1.03 V	32	27.60	7.60

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	110.40 PK			1.00 H	96	115.70	-5.30
2	*2462.00	100.90 AV			1.00 H	96	106.20	-5.30
3	2483.50	58.10 PK	74.00	-15.90	1.00 H	96	63.40	-5.30
4	2483.50	46.40 AV	54.00	-7.60	1.00 H	96	51.70	-5.30
5	4924.00	39.90 PK	74.00	-34.10	1.92 H	163	38.60	1.30
6	4924.00	29.50 AV	54.00	-24.50	1.92 H	163	28.20	1.30
7	7386.00	46.10 PK	74.00	-27.90	1.70 H	151	38.40	7.70
8	7386.00	34.90 AV	54.00	-19.10	1.70 H	151	27.20	7.70
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	122.30 PK			1.35 V	178	127.60	-5.30
2	*2462.00	111.30 AV			1.35 V	178	116.60	-5.30
3	2483.50	69.80 PK	74.00	-4.20	1.35 V	178	75.10	-5.30
4	**2483.50**	**53.90 AV**	**54.00**	**-0.10**	**1.35 V**	**178**	**59.20**	**-5.30**
5	4924.00	43.30 PK	74.00	-30.70	1.05 V	146	42.00	1.30
6	4924.00	32.60 AV	54.00	-21.40	1.05 V	146	31.30	1.30
7	7386.00	46.50 PK	74.00	-27.50	1.06 V	38	38.80	7.70
8	7386.00	35.10 AV	54.00	-18.90	1.06 V	38	27.40	7.70

REMARKS:

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

802.11n (HT20)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.20 PK	74.00	-15.80	1.00 H	89	63.80	-5.60
2	2390.00	46.50 AV	54.00	-7.50	1.00 H	89	52.10	-5.60
3	*2412.00	110.20 PK			1.00 H	89	115.70	-5.50
4	*2412.00	99.40 AV			1.00 H	89	104.90	-5.50
5	4824.00	39.60 PK	74.00	-34.40	1.91 H	173	38.70	0.90
6	4824.00	29.20 AV	54.00	-24.80	1.91 H	173	28.30	0.90
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	72.40 PK	74.00	-1.60	1.27 V	205	78.00	-5.60
2	**2390.00**	**53.90 AV**	**54.00**	**-0.10**	**1.27 V**	**205**	**59.50**	**-5.60**
3	*2412.00	121.10 PK			1.27 V	205	126.60	-5.50
4	*2412.00	109.70 AV			1.27 V	205	115.20	-5.50
5	4824.00	43.10 PK	74.00	-30.90	1.09 V	150	42.20	0.90
6	4824.00	32.10 AV	54.00	-21.90	1.09 V	150	31.20	0.90

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	53.20 PK	74.00	-20.80	1.00 H	72	58.80	-5.60
2	2390.00	42.20 AV	54.00	-11.80	1.00 H	72	47.80	-5.60
3	*2437.00	113.20 PK			1.00 H	72	118.60	-5.40
4	*2437.00	102.60 AV			1.00 H	72	108.00	-5.40
5	2483.50	54.10 PK	74.00	-19.90	1.00 H	72	59.40	-5.30
6	2483.50	43.40 AV	54.00	-10.60	1.00 H	72	48.70	-5.30
7	4874.00	40.30 PK	74.00	-33.70	1.93 H	172	39.30	1.00
8	4874.00	29.80 AV	54.00	-24.20	1.93 H	172	28.80	1.00
9	7311.00	46.50 PK	74.00	-27.50	1.74 H	166	38.90	7.60
10	7311.00	35.30 AV	54.00	-18.70	1.74 H	166	27.70	7.60
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	68.80 PK	74.00	-5.20	1.45 V	5	74.40	-5.60
2	2390.00	49.90 AV	54.00	-4.10	1.45 V	5	55.50	-5.60
3	*2437.00	124.80 PK			1.45 V	5	130.20	-5.40
4	*2437.00	113.30 AV			1.45 V	5	118.70	-5.40
5	2483.50	68.30 PK	74.00	-5.70	1.45 V	5	73.60	-5.30
6	2483.50	50.40 AV	54.00	-3.60	1.45 V	5	55.70	-5.30
7	4874.00	42.90 PK	74.00	-31.10	1.07 V	143	41.90	1.00
8	4874.00	32.20 AV	54.00	-21.80	1.07 V	143	31.20	1.00
9	7311.00	46.70 PK	74.00	-27.30	1.07 V	30	39.10	7.60
10	7311.00	35.20 AV	54.00	-18.80	1.07 V	30	27.60	7.60

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	109.40 PK			1.00 H	75	114.70	-5.30
2	*2462.00	99.40 AV			1.00 H	75	104.70	-5.30
3	2483.50	57.80 PK	74.00	-16.20	1.00 H	75	63.10	-5.30
4	2483.50	46.40 AV	54.00	-7.60	1.00 H	75	51.70	-5.30
5	4924.00	40.30 PK	74.00	-33.70	1.97 H	172	39.00	1.30
6	4924.00	29.70 AV	54.00	-24.30	1.97 H	172	28.40	1.30
7	7386.00	45.90 PK	74.00	-28.10	1.76 H	169	38.20	7.70
8	7386.00	34.60 AV	54.00	-19.40	1.76 H	169	26.90	7.70
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	119.80 PK			1.35 V	207	125.10	-5.30
2	*2462.00	109.40 AV			1.35 V	207	114.70	-5.30
3	2483.50	59.10 PK	74.00	-14.90	1.35 V	207	64.40	-5.30
4	**2483.50**	**53.90 AV**	**54.00**	**-0.10**	**1.35 V**	**207**	**59.20**	**-5.30**
5	4924.00	43.60 PK	74.00	-30.40	1.04 V	139	42.30	1.30
6	4924.00	32.90 AV	54.00	-21.10	1.04 V	139	31.60	1.30
7	7386.00	46.60 PK	74.00	-27.40	1.07 V	41	38.90	7.70
8	7386.00	35.20 AV	54.00	-18.80	1.07 V	41	27.50	7.70

REMARKS:

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

802.11n (HT40)

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.50 PK	74.00	-15.50	1.02 H	79	64.10	-5.60
2	2390.00	47.10 AV	54.00	-6.90	1.02 H	79	52.70	-5.60
3	*2422.00	101.40 PK			1.02 H	79	106.80	-5.40
4	*2422.00	91.10 AV			1.02 H	79	96.50	-5.40
5	4844.00	40.20 PK	74.00	-33.80	1.97 H	186	39.30	0.90
6	4844.00	29.80 AV	54.00	-24.20	1.97 H	186	28.90	0.90
7	7266.00	46.20 PK	74.00	-27.80	1.75 H	179	38.50	7.70
8	7266.00	35.10 AV	54.00	-18.90	1.75 H	179	27.40	7.70
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	68.50 PK	74.00	-5.50	1.34 V	203	74.10	-5.60
2	**2390.00**	**53.90 AV**	**54.00**	**-0.10**	**1.34 V**	**203**	**59.50**	**-5.60**
3	*2422.00	113.30 PK			1.34 V	203	118.70	-5.40
4	*2422.00	101.30 AV			1.34 V	203	106.70	-5.40
5	4844.00	40.10 PK	74.00	-33.90	1.00 V	153	39.20	0.90
6	4844.00	29.10 AV	54.00	-24.90	1.00 V	153	28.20	0.90
7	7266.00	46.50 PK	74.00	-27.50	1.00 V	18	38.80	7.70
8	7266.00	35.00 AV	54.00	-19.00	1.00 V	18	27.30	7.70

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.20 PK	74.00	-15.80	1.00 H	96	63.80	-5.60
2	2390.00	46.30 AV	54.00	-7.70	1.00 H	96	51.90	-5.60
3	*2437.00	105.80 PK			1.00 H	96	111.20	-5.40
4	*2437.00	94.20 AV			1.00 H	96	99.60	-5.40
5	2483.50	56.20 PK	74.00	-17.80	1.00 H	96	61.50	-5.30
6	2483.50	45.10 AV	54.00	-8.90	1.00 H	96	50.40	-5.30
7	4874.00	39.80 PK	74.00	-34.20	2.00 H	183	38.80	1.00
8	4874.00	29.40 AV	54.00	-24.60	2.00 H	183	28.40	1.00
9	7311.00	46.30 PK	74.00	-27.70	1.78 H	175	38.70	7.60
10	7311.00	34.80 AV	54.00	-19.20	1.78 H	175	27.20	7.60
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	69.40 PK	74.00	-4.60	1.36 V	171	75.00	-5.60
2	2390.00	53.60 AV	54.00	-0.40	1.36 V	171	59.20	-5.60
3	*2437.00	116.40 PK			1.36 V	171	121.80	-5.40
4	*2437.00	104.90 AV			1.36 V	171	110.30	-5.40
5	2483.50	67.70 PK	74.00	-6.30	1.36 V	171	73.00	-5.30
6	2483.50	52.50 AV	54.00	-1.50	1.36 V	171	57.80	-5.30
7	4874.00	40.00 PK	74.00	-34.00	1.01 V	145	39.00	1.00
8	4874.00	29.20 AV	54.00	-24.80	1.01 V	145	28.20	1.00
9	7311.00	46.40 PK	74.00	-27.60	1.00 V	31	38.80	7.60
10	7311.00	35.10 AV	54.00	-18.90	1.00 V	31	27.50	7.60

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	101.10 PK			1.00 H	99	106.50	-5.40
2	*2452.00	90.60 AV			1.00 H	99	96.00	-5.40
3	2483.50	58.30 PK	74.00	-15.70	1.00 H	99	63.60	-5.30
4	2483.50	46.80 AV	54.00	-7.20	1.00 H	99	52.10	-5.30
5	4904.00	39.80 PK	74.00	-34.20	1.90 H	171	38.60	1.20
6	4904.00	29.00 AV	54.00	-25.00	1.90 H	171	27.80	1.20
7	7356.00	46.20 PK	74.00	-27.80	1.78 H	155	38.50	7.70
8	7356.00	34.70 AV	54.00	-19.30	1.78 H	155	27.00	7.70
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	112.90 PK			1.53 V	207	118.30	-5.40
2	*2452.00	100.70 AV			1.53 V	207	106.10	-5.40
3	2483.50	69.00 PK	74.00	-5.00	1.53 V	207	74.30	-5.30
4	**2483.50**	**53.90 AV**	**54.00**	**-0.10**	**1.53 V**	**207**	**59.20**	**-5.30**
5	4904.00	40.80 PK	74.00	-33.20	1.00 V	162	39.60	1.20
6	4904.00	29.60 AV	54.00	-24.40	1.00 V	162	28.40	1.20
7	7356.00	46.60 PK	74.00	-27.40	1.00 V	18	38.90	7.70
8	7356.00	35.40 AV	54.00	-18.60	1.00 V	18	27.70	7.70

REMARKS:

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

Below 1GHz Data:

802.11b

CHANNEL	TX Channel 6	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	below 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	30.00	35.01 QP	40.00	-4.99	1.00 H	53	44.85	-9.84
2	148.12	32.92 QP	43.50	-10.58	2.00 H	269	41.39	-8.47
3	163.11	34.03 QP	43.50	-9.47	1.50 H	93	42.65	-8.62
4	200.02	39.51 QP	43.50	-3.99	1.00 H	80	51.43	-11.92
5	259.24	33.05 QP	46.00	-12.95	1.50 H	360	42.60	-9.55
6	619.83	32.28 QP	46.00	-13.72	1.50 H	111	32.49	-0.21
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	63.34	32.94 QP	40.00	-7.06	1.00 V	59	42.51	-9.57
2	83.30	31.92 QP	40.00	-8.08	1.00 V	258	46.08	-14.16
3	96.49	31.22 QP	43.50	-12.28	1.00 V	360	44.81	-13.59
4	163.47	31.85 QP	43.50	-11.65	1.00 V	52	40.47	-8.62
5	608.48	31.80 QP	46.00	-14.20	1.50 V	336	32.17	-0.37
6	730.22	32.58 QP	46.00	-13.42	1.50 V	153	31.06	1.52

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	847124/029	Oct. 23, 2015	Oct. 22, 2016
Line-Impedance Stabilization Network (for EUT) R&S	ESH3-Z5	848773/004	Oct. 28, 2015	Oct. 27, 2016
RF Cable	5D-FB	COACAB-002	Mar. 04, 2016	Mar. 03, 2017
10 dB PAD Mini-Circuits	HAT-10+	CONATT-004	June 20, 2016	June 19, 2017
Software BVADT	BVADT_Cond_ V7.3.7.3	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. 1.
3 Tested Date: July 19, 2016

4.2.3 Test Procedures

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

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

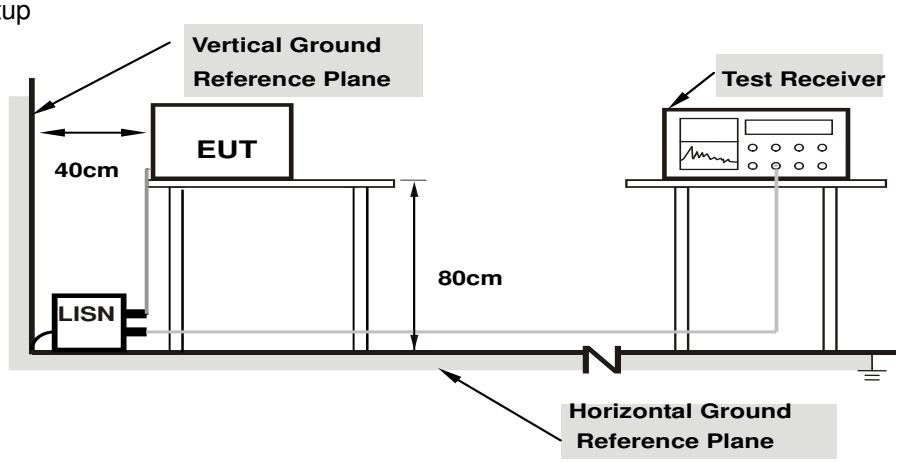
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



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

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

4.2.6 EUT Operating Conditions

Same as 4.1.6.

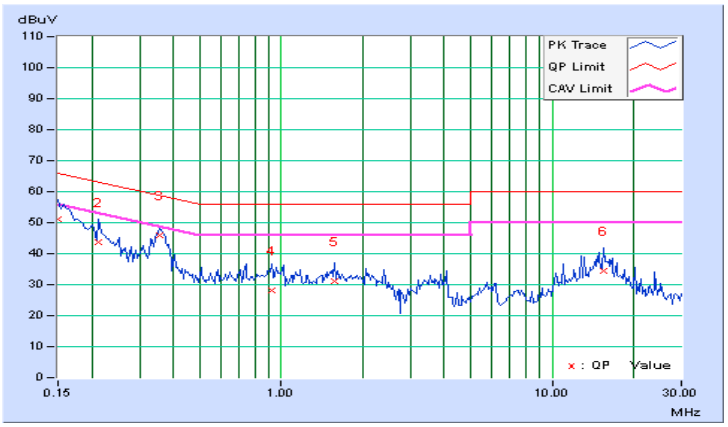
4.2.7 Test Results (Mode 1)

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.21	40.88	29.98	51.09	40.19	66.00	56.00	-14.91	-15.81
2	0.21250	10.22	33.43	24.11	43.65	34.33	63.11	53.11	-19.46	-18.78
3	0.35703	10.22	35.61	31.64	45.83	41.86	58.80	48.80	-12.97	-6.94
4	0.91953	10.25	17.94	12.88	28.19	23.13	56.00	46.00	-27.81	-22.87
5	1.58203	10.29	20.66	15.91	30.95	26.20	56.00	46.00	-25.05	-19.80
6	15.53516	11.10	23.25	18.74	34.35	29.84	60.00	50.00	-25.65	-20.16

REMARKS:

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

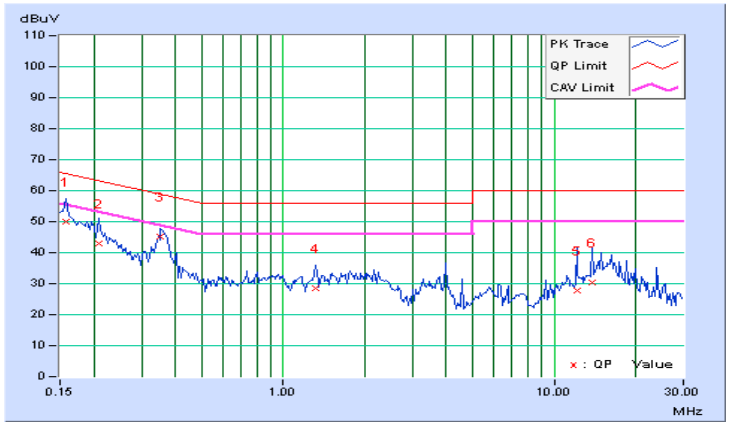


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	10.19	39.81	28.58	50.00	38.77	65.58	55.58	-15.58	-16.81
2	0.20859	10.21	32.58	22.15	42.79	32.36	63.26	53.26	-20.47	-20.90
3	0.35313	10.20	35.05	31.98	45.25	42.18	58.89	48.89	-13.64	-6.71
4	1.32422	10.26	18.15	14.60	28.41	24.86	56.00	46.00	-27.59	-21.14
5	12.17578	10.67	17.17	11.65	27.84	22.32	60.00	50.00	-32.16	-27.68
6	13.88281	10.80	19.70	14.96	30.50	25.76	60.00	50.00	-29.50	-24.24

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.



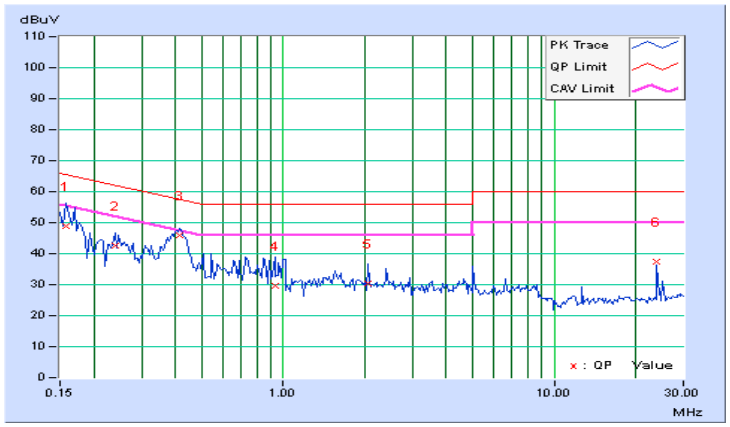
4.2.8 Test Results (Mode 2)

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15781	10.21	38.71	22.15	48.92	32.36	65.58	55.58	-16.66	-23.22
2	0.23984	10.22	32.36	26.05	42.58	36.27	62.10	52.10	-19.52	-15.83
3	0.41563	10.22	35.85	31.18	46.07	41.40	57.54	47.54	-11.46	-6.13
4	0.93125	10.26	19.45	12.88	29.71	23.14	56.00	46.00	-26.29	-22.86
5	2.05078	10.31	19.96	12.39	30.27	22.70	56.00	46.00	-25.73	-23.30
6	24.00000	11.43	25.80	25.54	37.23	36.97	60.00	50.00	-22.77	-13.03

REMARKS:

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

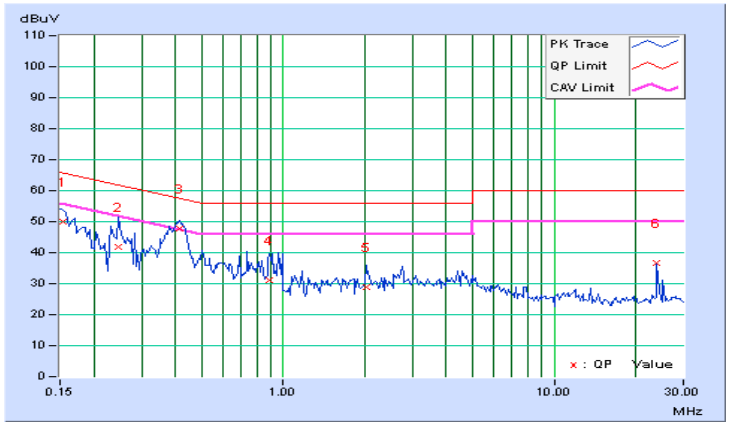


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	10.19	39.76	26.02	49.95	36.21	65.79	55.79	-15.83	-19.57
2	0.24766	10.21	31.64	20.23	41.85	30.44	61.84	51.84	-19.99	-21.40
3	**0.41563**	**10.20**	**37.75**	**32.89**	**47.95**	**43.09**	**57.54**	**47.54**	**-9.58**	**-4.44**
4	0.89219	10.23	20.97	13.06	31.20	23.29	56.00	46.00	-24.80	-22.71
5	2.02344	10.29	18.69	12.39	28.98	22.68	56.00	46.00	-27.02	-23.32
6	24.00000	11.13	25.62	25.03	36.75	36.16	60.00	50.00	-23.25	-13.84

REMARKS:

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

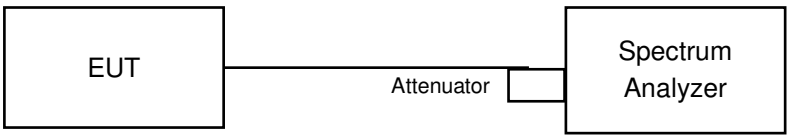


4.3 6dB Bandwidth Measurement

4.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

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

4.3.5 Deviation fromTest Standard

No deviation.

4.3.6 EUT Operating Conditions

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

4.3.7 Test Result

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3		
1	2412	7.61	8.07	7.62	8.08	0.5	PASS
6	2437	8.03	8.06	8.05	8.06	0.5	PASS
11	2462	8.09	8.08	8.07	7.59	0.5	PASS

802.11g

Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3		
1	2412	15.10	15.21	15.20	15.17	0.5	PASS
6	2437	15.18	15.21	15.16	15.20	0.5	PASS
11	2462	15.19	15.17	15.18	15.16	0.5	PASS

802.11n (HT20)

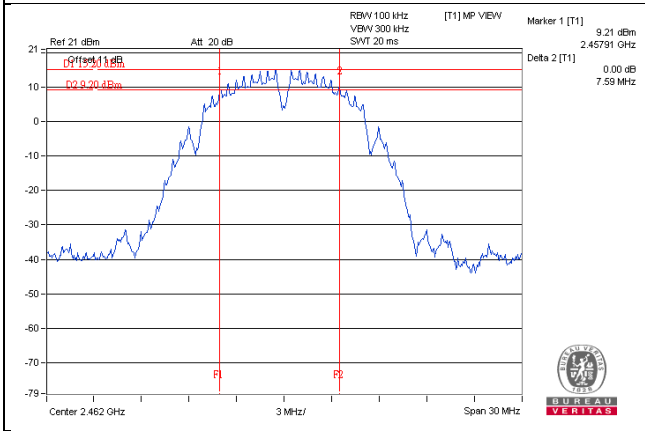
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3		
1	2412	15.18	15.17	15.16	15.20	0.5	PASS
6	2437	15.17	16.26	15.20	15.76	0.5	PASS
11	2462	15.13	15.69	15.17	15.40	0.5	PASS

802.11n (HT40)

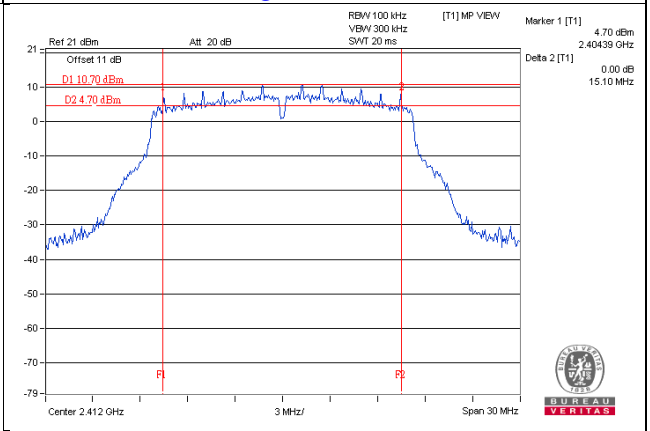
Channel	Frequency (MHz)	6dB Bandwidth (MHz)				Minimum Limit (MHz)	Pass / Fail
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 3		
3	2422	36.09	36.43	36.42	35.91	0.5	PASS
6	2437	36.40	36.48	36.43	36.47	0.5	PASS
9	2452	36.20	36.12	36.43	36.46	0.5	PASS

Spectrum Plot of Worst Value

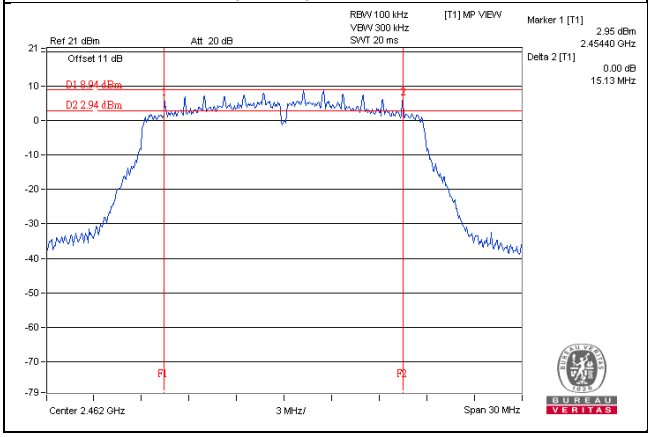
802.11b / Chain 3 : CH11



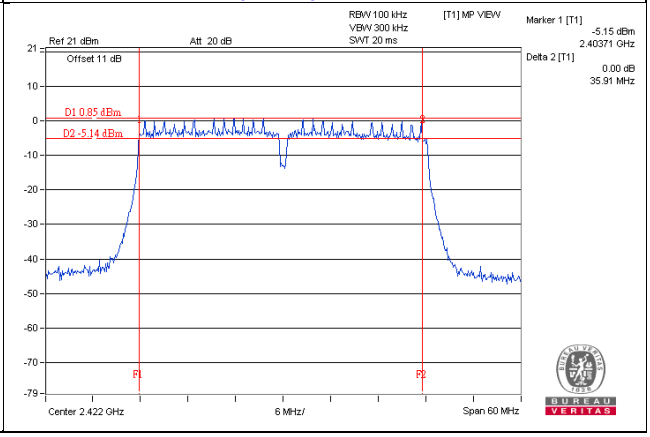
802.11g / Chain 0 : CH1



802.11n (HT20) / Chain 0 : CH11



802.11n (HT40) / Chain 3 : CH3



4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

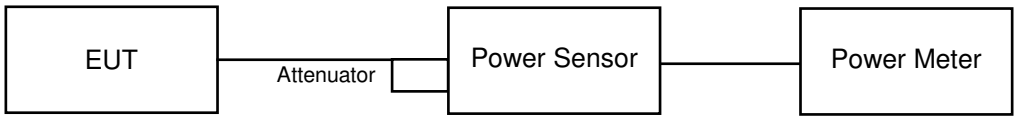
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

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

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

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as Item 4.3.6.

4.4.7 Test Results

CDD Mode

802.11b

Chan.	Frequency (MHz)	Avg. Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	23.67	23.87	23.57	23.32	918.883	29.63	30	Pass
6	2437	23.71	23.82	23.52	23.42	920.645	29.64	30	Pass
11	2462	23.38	23.57	23.38	22.79	853.16	29.31	30	Pass

802.11g

Chan.	Frequency (MHz)	Avg. Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	21.54	21.63	21.43	21.22	559.536	27.48	30	Pass
6	2437	23.40	23.86	23.30	23.39	894.065	29.51	30	Pass
11	2462	19.37	19.10	18.77	18.96	321.821	25.08	30	Pass

802.11n (HT20)

Chan.	Frequency (MHz)	Avg. Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	19.72	19.86	19.62	19.19	365.191	25.63	30	Pass
6	2437	23.44	23.92	23.34	23.46	904.998	29.57	30	Pass
11	2462	19.42	19.58	19.61	19.02	349.49	25.43	30	Pass

802.11n (HT40)

Chan.	Frequency (MHz)	Avg. Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	14.84	14.89	14.83	14.23	118.205	20.73	30	Pass
6	2437	19.27	19.52	19.34	19.05	340.318	25.32	30	Pass
9	2452	14.93	14.86	14.76	14.21	118.023	20.72	30	Pass

Beamforming Mode

802.11n (HT20)

Chan.	Frequency (MHz)	Avg. Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
1	2412	19.72	19.86	19.62	19.19	365.191	25.63	26.10	Pass
6	2437	19.89	20.34	19.85	19.94	400.875	26.03	26.10	Pass
11	2462	19.42	19.58	19.61	19.02	349.49	25.43	26.10	Pass

Note: Directional gain = 3.88dBi + 10log(4) = 9.9dBi > 6dBi , so the power limit shall be reduced to 30-(9.9-6) = 26.10dBm.

802.11n (HT40)

Chan.	Frequency (MHz)	Avg. Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass/Fail
		Chain 0	Chain 1	Chain 2	Chain 3				
3	2422	14.84	14.89	14.83	14.23	118.205	20.73	26.10	Pass
6	2437	19.27	19.52	19.34	19.05	340.318	25.32	26.10	Pass
9	2452	14.93	14.86	14.76	14.21	118.023	20.72	26.10	Pass

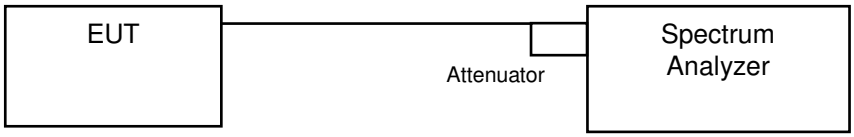
Note: Directional gain = 3.88dBi + 10log(4) = 9.9dBi > 6dBi , so the power limit shall be reduced to 30-(9.9-6) = 26.10dBm.

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

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

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/10kHz)	10 log (N=4) dB	Total PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-4.19	6.02	1.83	4.10	Pass
	6	2437	-4.38	6.02	1.64	4.10	Pass
	11	2462	-4.49	6.02	1.53	4.10	Pass
1	1	2412	-3.97	6.02	2.05	4.10	Pass
	6	2437	-4.18	6.02	1.84	4.10	Pass
	11	2462	-4.28	6.02	1.74	4.10	Pass
2	1	2412	-4.52	6.02	1.50	4.10	Pass
	6	2437	-4.47	6.02	1.55	4.10	Pass
	11	2462	-4.48	6.02	1.54	4.10	Pass
3	1	2412	-3.85	6.02	2.17	4.10	Pass
	6	2437	-4.56	6.02	1.46	4.10	Pass
	11	2462	-3.98	6.02	2.04	4.10	Pass

NOTE: Directional gain = 3.88dBi + 10log(4) = 9.9dBi > 6dBi , so the power density limit shall be reduced to 8-(9.9-6) = 4.10dBm.

802.11g

TX chain	Channel	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=4) dB	Total PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-8.33	6.02	-2.31	4.10	Pass
	6	2437	-5.15	6.02	0.87	4.10	Pass
	11	2462	-9.92	6.02	-3.90	4.10	Pass
1	1	2412	-7.54	6.02	-1.52	4.10	Pass
	6	2437	-5.01	6.02	1.01	4.10	Pass
	11	2462	-8.58	6.02	-2.56	4.10	Pass
2	1	2412	-7.62	6.02	-1.60	4.10	Pass
	6	2437	-5.59	6.02	0.43	4.10	Pass
	11	2462	-9.09	6.02	-3.07	4.10	Pass
3	1	2412	-6.64	6.02	-0.62	4.10	Pass
	6	2437	-4.62	6.02	1.40	4.10	Pass
	11	2462	-9.75	6.02	-3.73	4.10	Pass

NOTE: Directional gain = 3.88dBi + 10log(4) = 9.9dBi > 6dBi , so the power density limit shall be reduced to 8-(9.9-6) = 4.10dBm.

802.11n (HT20)

TX chain	Channel	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=4) dB	Total PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-10.00	6.02	-3.98	4.10	Pass
	6	2437	-6.56	6.02	-0.54	4.10	Pass
	11	2462	-9.67	6.02	-3.65	4.10	Pass
1	1	2412	-10.66	6.02	-4.64	4.10	Pass
	6	2437	-6.53	6.02	-0.51	4.10	Pass
	11	2462	-10.47	6.02	-4.45	4.10	Pass
2	1	2412	-10.64	6.02	-4.62	4.10	Pass
	6	2437	-6.84	6.02	-0.82	4.10	Pass
	11	2462	-10.78	6.02	-4.76	4.10	Pass
3	1	2412	-10.36	6.02	-4.34	4.10	Pass
	6	2437	-6.83	6.02	-0.81	4.10	Pass
	11	2462	-10.50	6.02	-4.48	4.10	Pass

NOTE: Directional gain = 3.88dBi + 10log(4) = 9.9dBi > 6dBi , so the power density limit shall be reduced to 8-(9.9-6) = 4.10dBm.

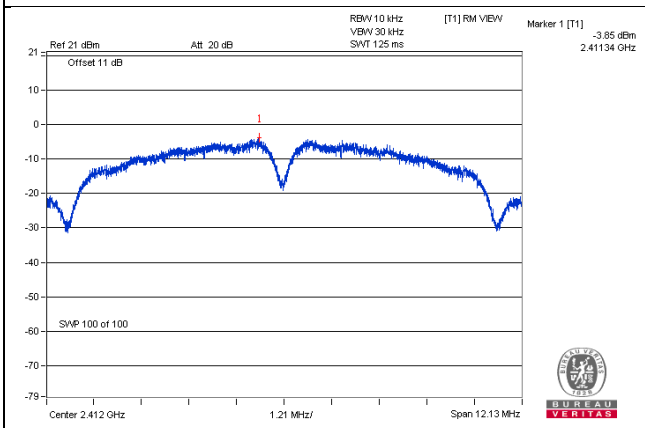
802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD (dBm/10kHz)	10 log (N=4) dB	Total PSD (dBm/10kHz)	Limit (dBm/3kHz)	Pass /Fail
0	3	2422	-18.45	6.02	-12.43	4.10	Pass
	6	2437	-13.72	6.02	-7.70	4.10	Pass
	9	2452	-18.30	6.02	-12.28	4.10	Pass
1	3	2422	-18.26	6.02	-12.24	4.10	Pass
	6	2437	-13.75	6.02	-7.73	4.10	Pass
	9	2452	-16.99	6.02	-10.97	4.10	Pass
2	3	2422	-18.09	6.02	-12.07	4.10	Pass
	6	2437	-13.92	6.02	-7.90	4.10	Pass
	9	2452	-17.73	6.02	-11.71	4.10	Pass
3	3	2422	-17.77	6.02	-11.75	4.10	Pass
	6	2437	-13.09	6.02	-7.07	4.10	Pass
	9	2452	-18.40	6.02	-12.38	4.10	Pass

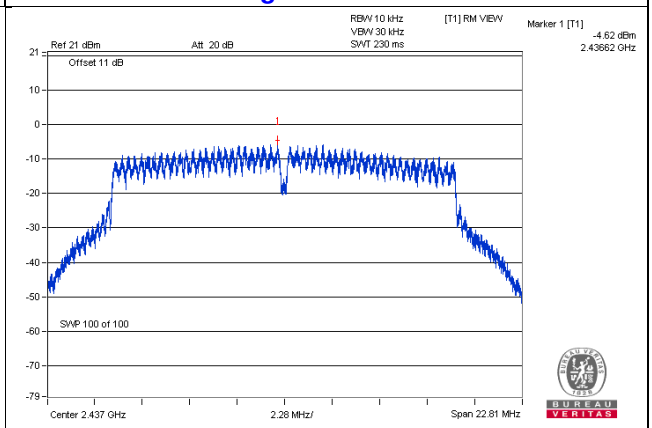
NOTE: Directional gain = 3.88dBi + 10log(4) = 9.9dBi > 6dBi , so the power density limit shall be reduced to 8-(9.9-6) = 4.10dBm.

Spectrum Plot of Worst Value

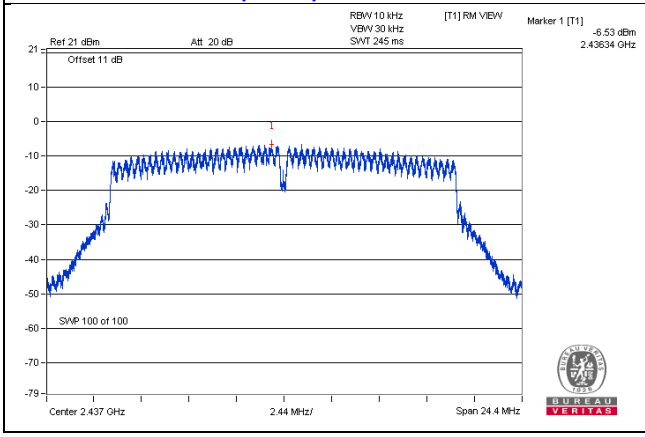
802.11b / Chain 3 : CH1



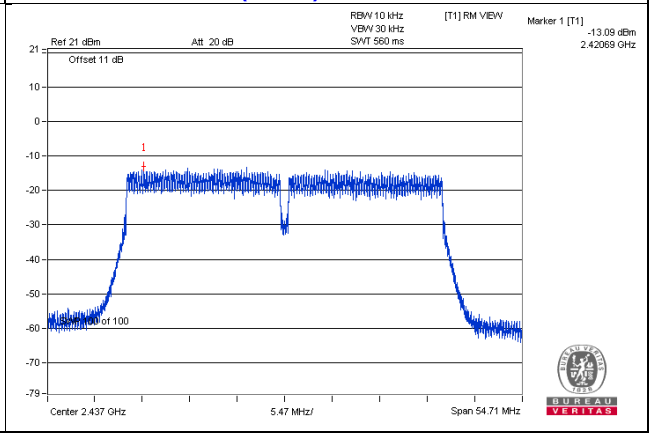
802.11g / Chain 3 : CH6



802.11n (HT20) / Chain 1 : CH6



802.11n (HT40) / Chain 3 : CH6

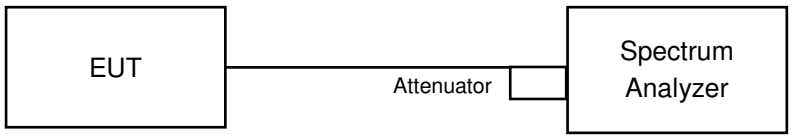


4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

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

MEASUREMENT PROCEDURE OOBE

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

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

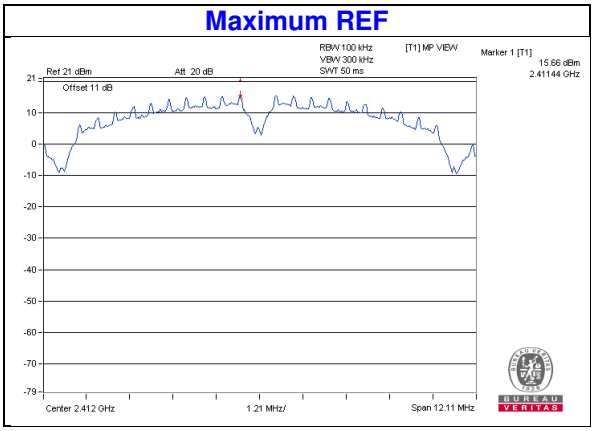
Same as Item 4.3.6

4.6.7 Test Results

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

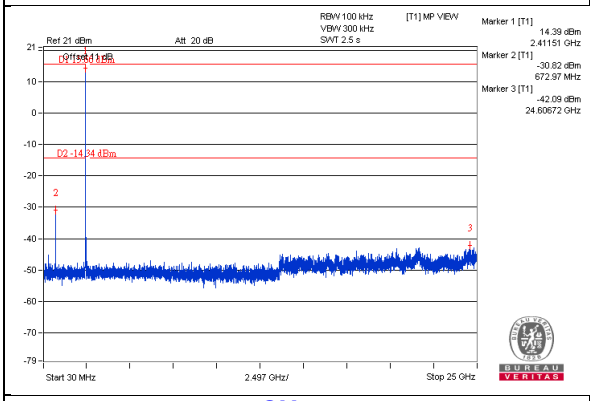
802.11b

Maximum REF

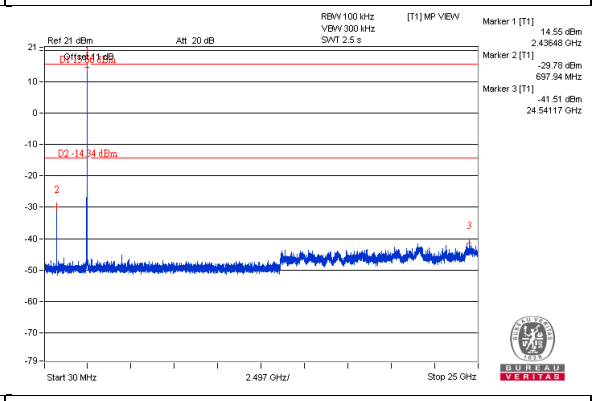


CHAIN 0

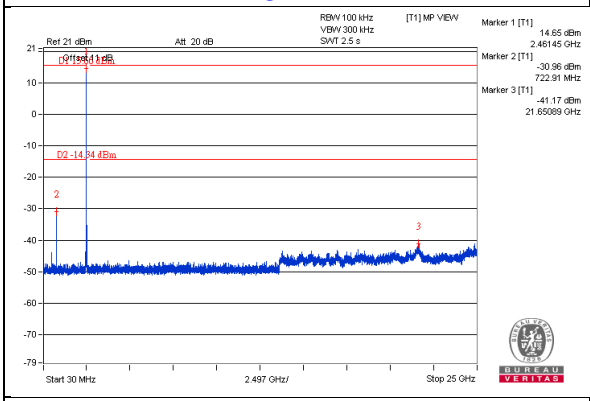
CH 1



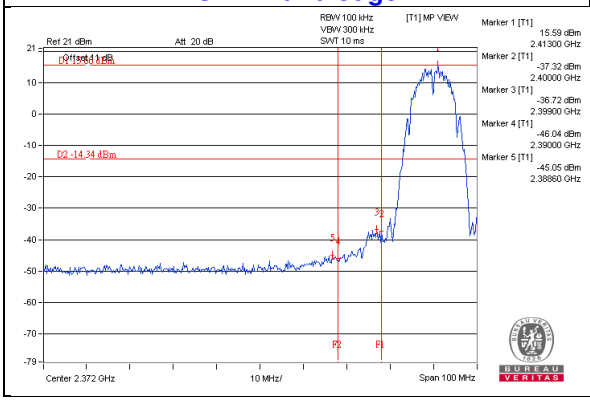
CH 6



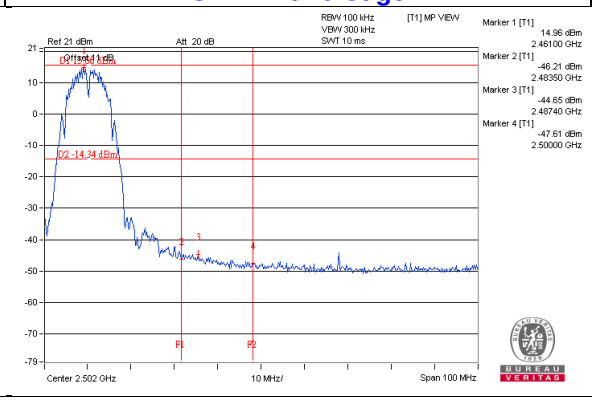
CH 11



CH 1 Band edge

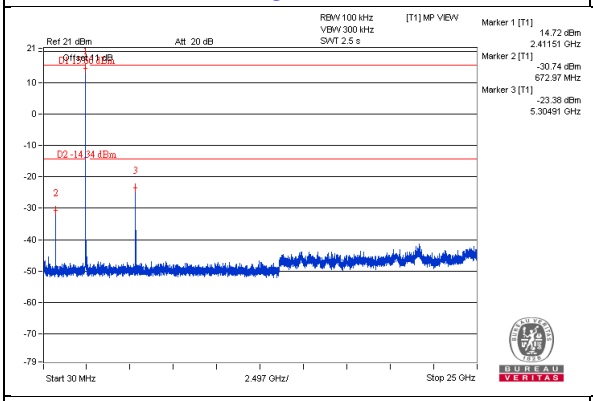


CH 11 Band edge

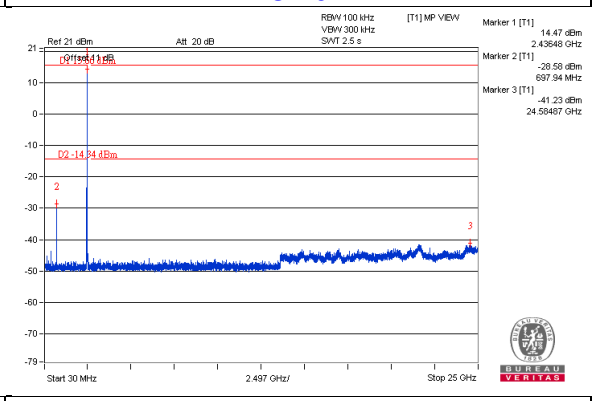


CHAIN 1

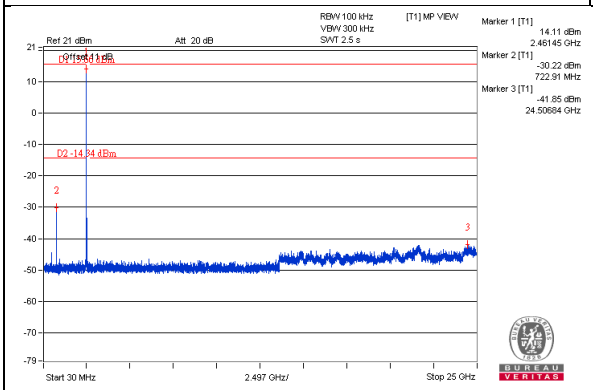
CH 1



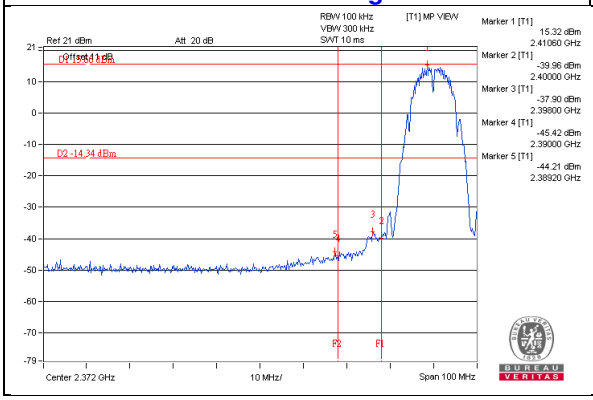
CH 6



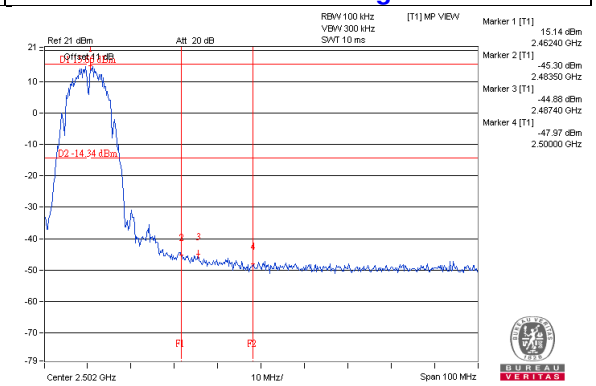
CH 11



CH 1 Band edge

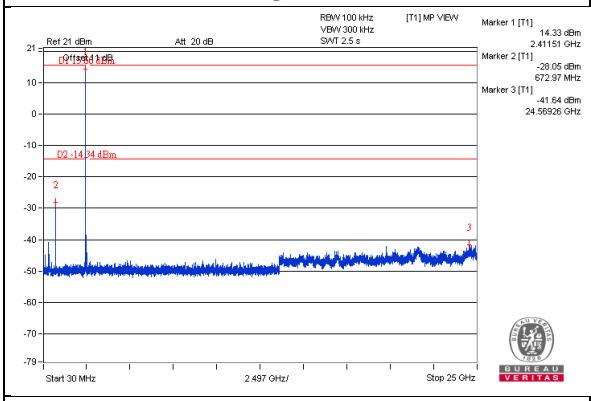


CH 11 Band edge

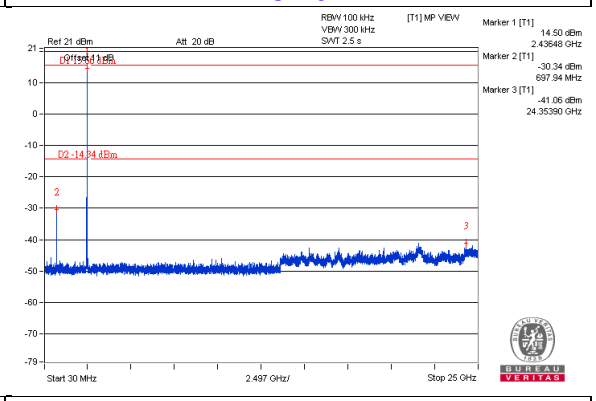


CHAIN 2

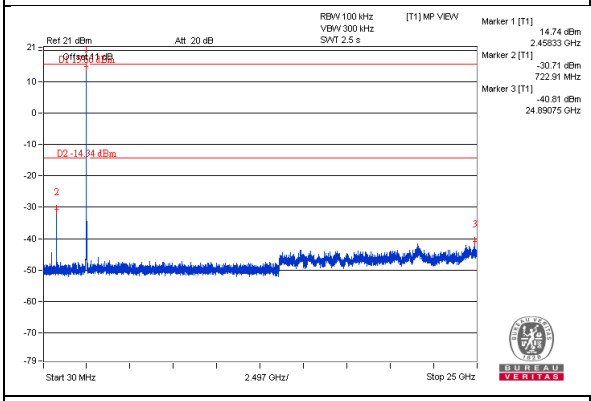
CH 1



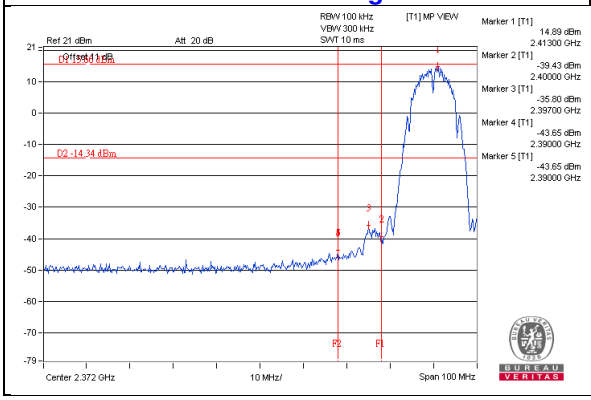
CH 6



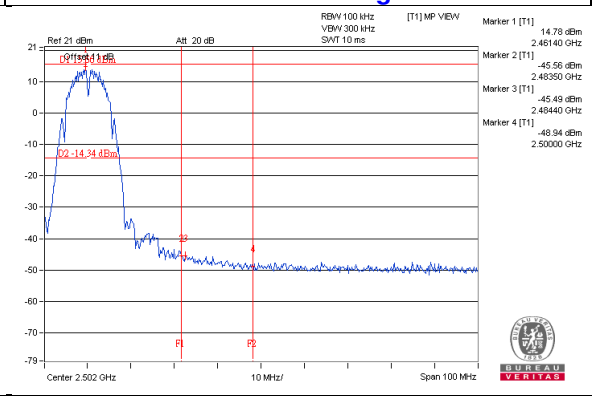
CH 11



CH 1 Band edge

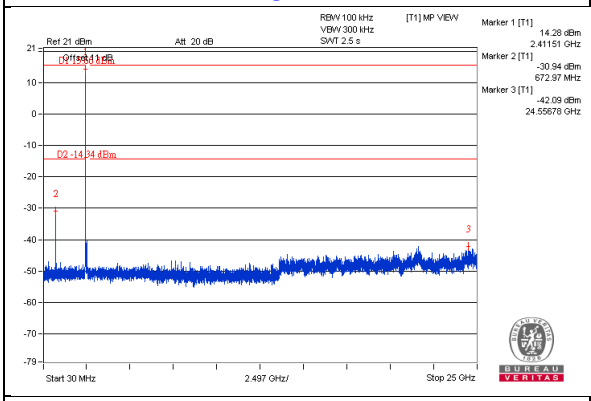


CH 11 Band edge



CHAIN 3

CH 1



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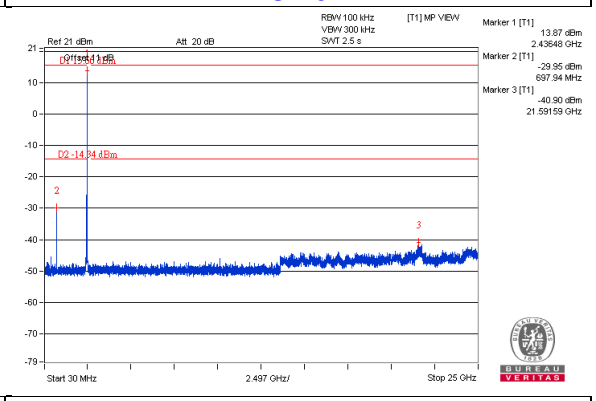
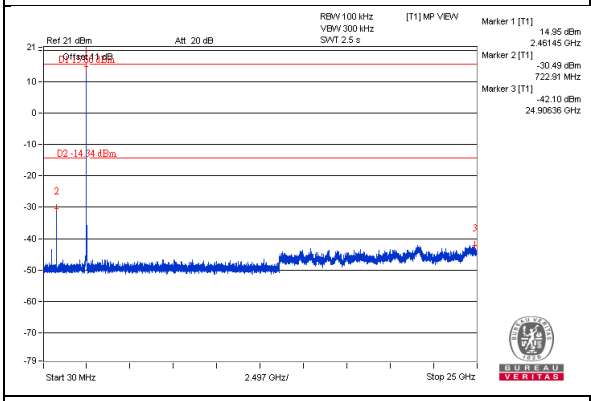
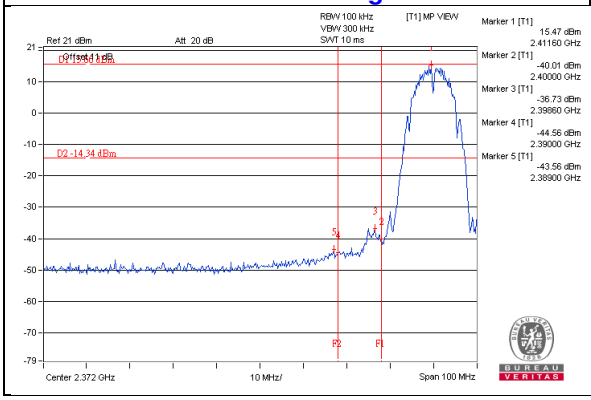


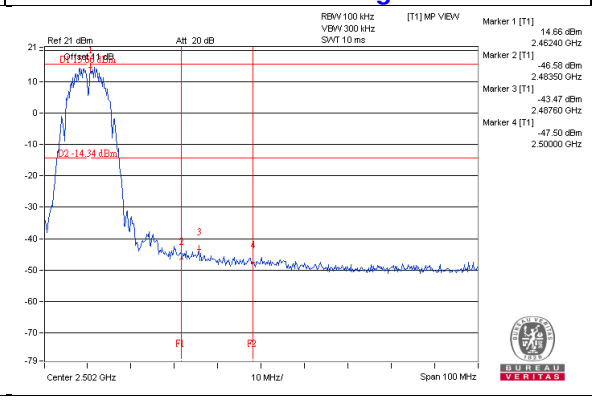
CH 11



CH 1 Band edge

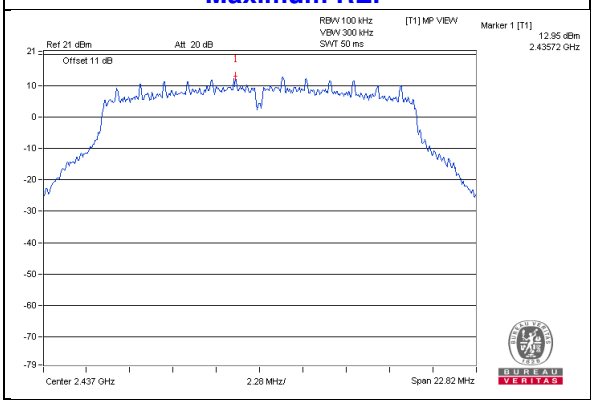


CH 11 Band edge



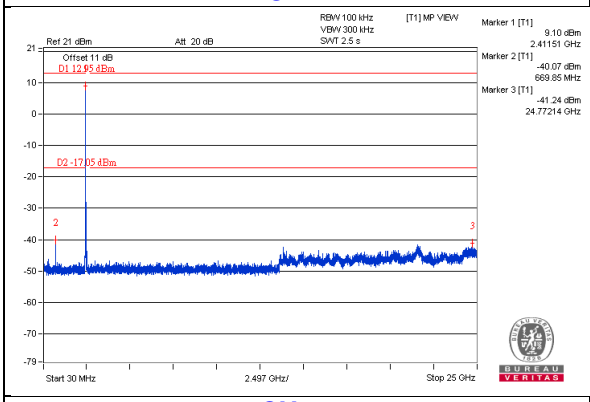
802.11g

Maximum REF



CHAIN 0

CH 1



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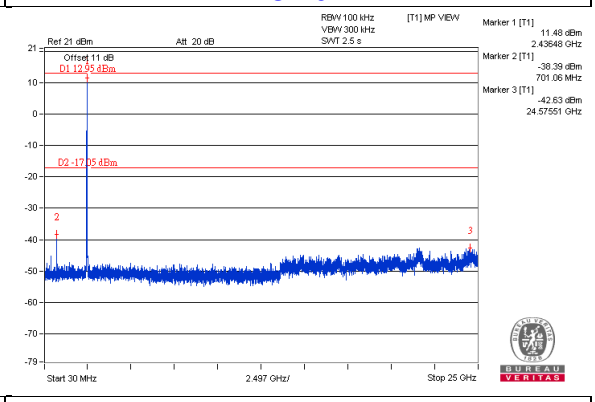

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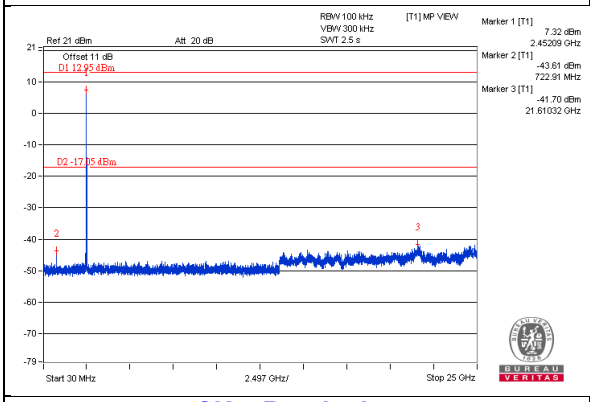
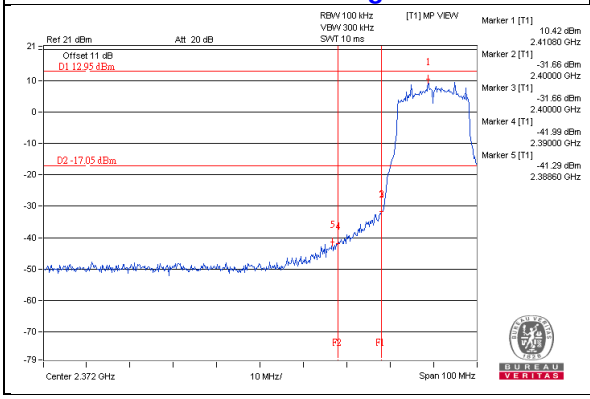
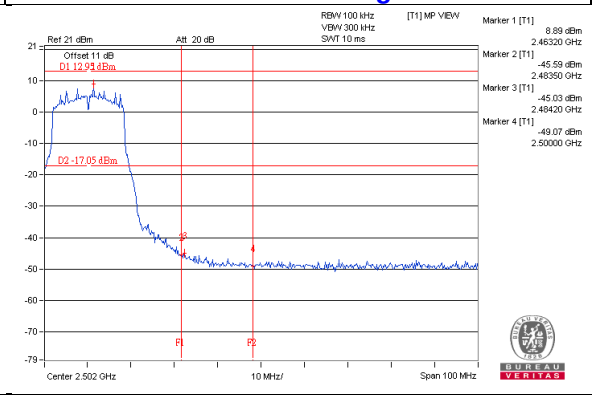


CH 1 Band edge

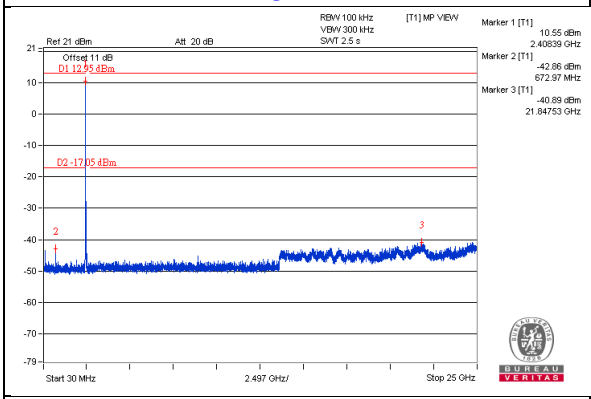


CH 11 Band edge

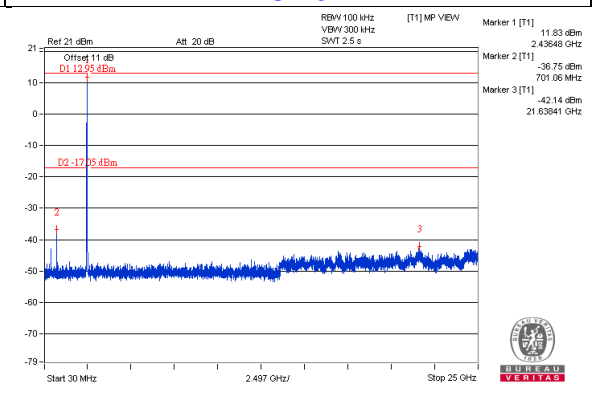


CHAIN 1

CH 1



CH 6



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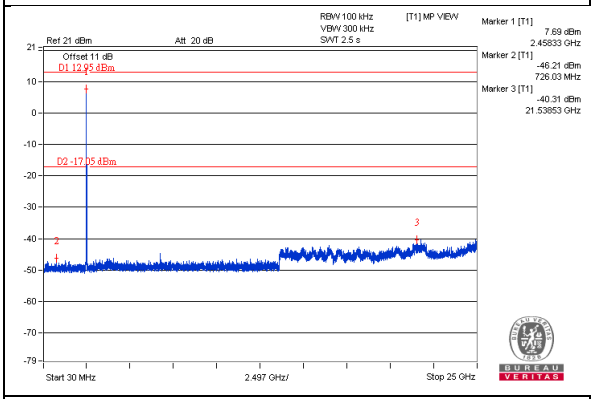
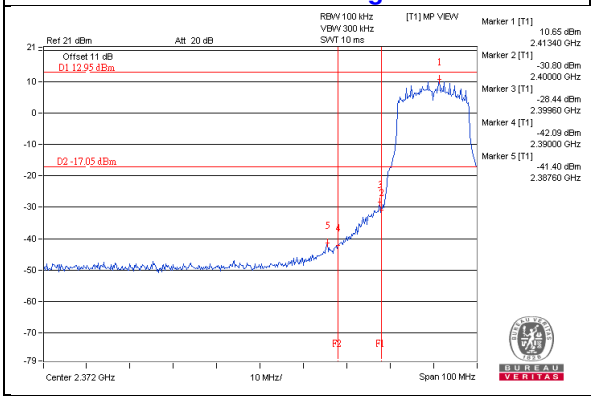
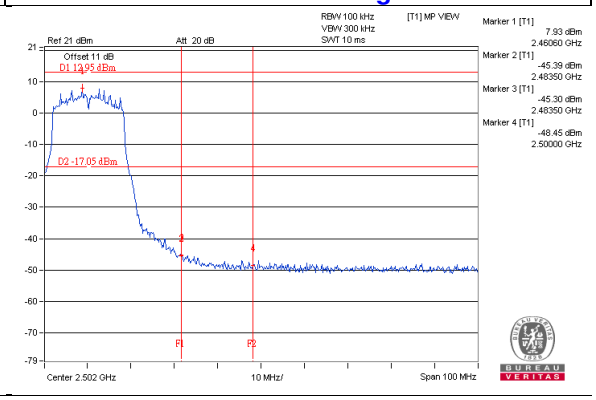


CH 1 Band edge

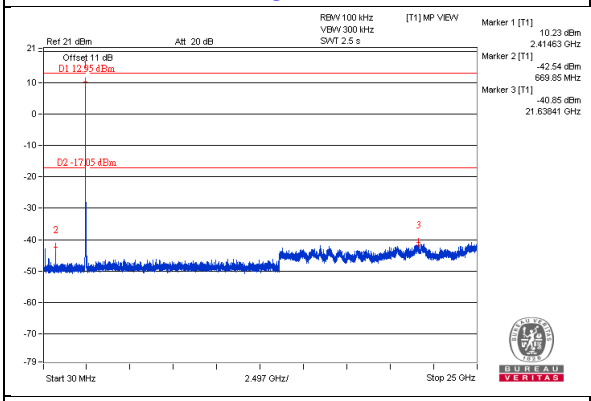


CH 11 Band edge

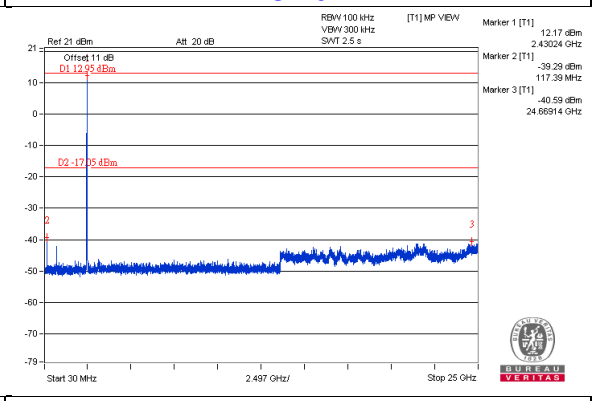


CHAIN 2

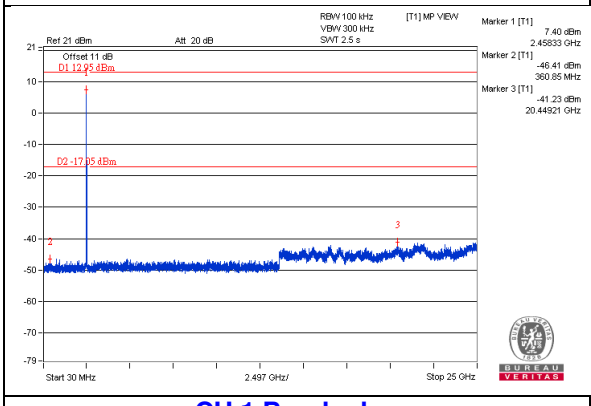
CH 1



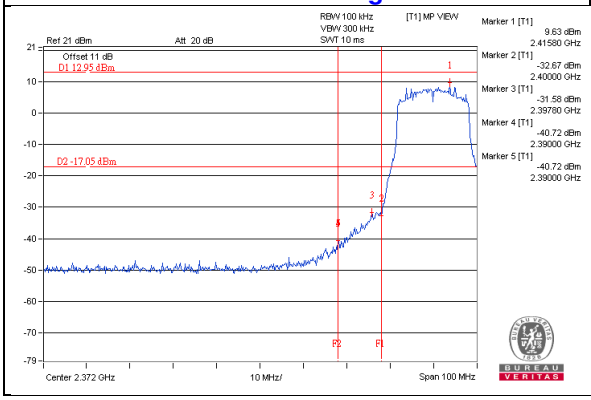
CH 6



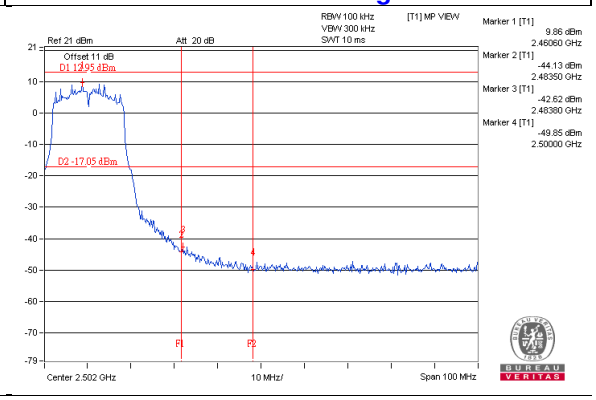
CH 11



CH 1 Band edge

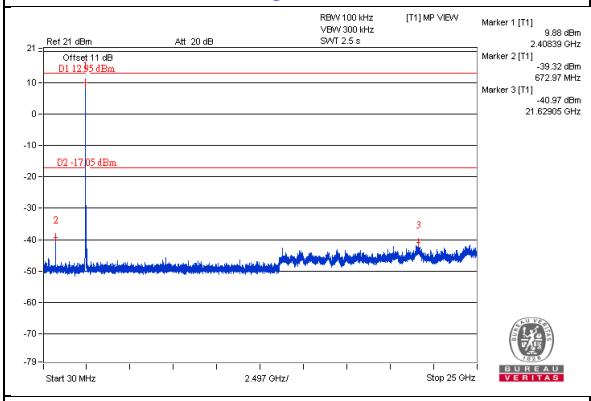


CH 11 Band edge

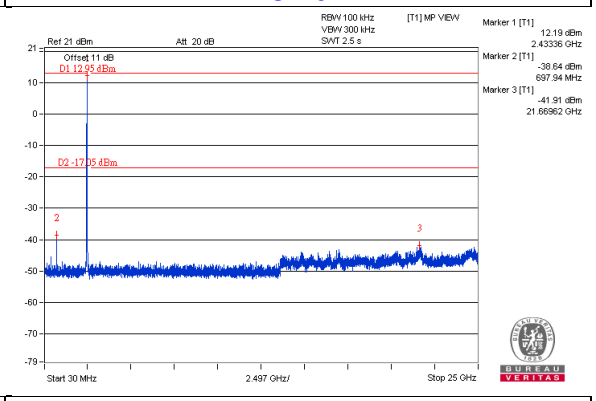


CHAIN 3

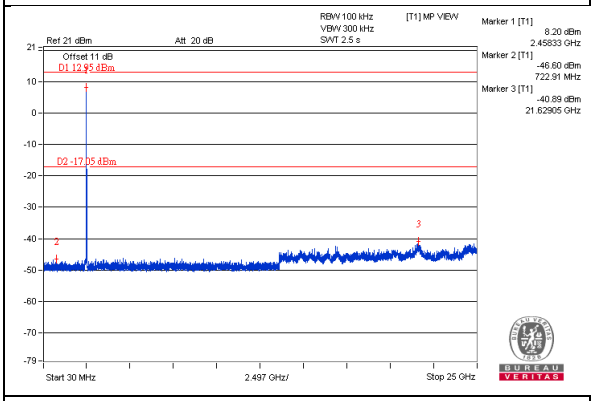
CH 1



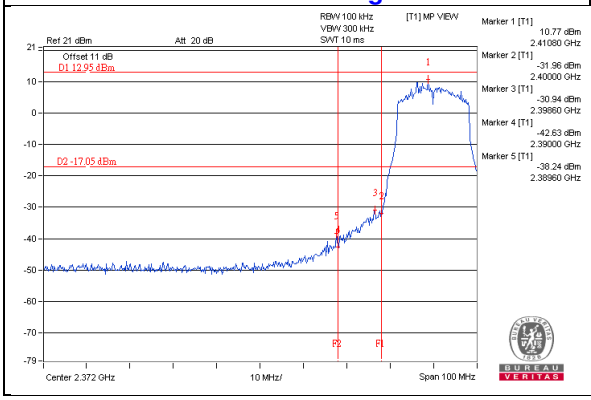
CH 6



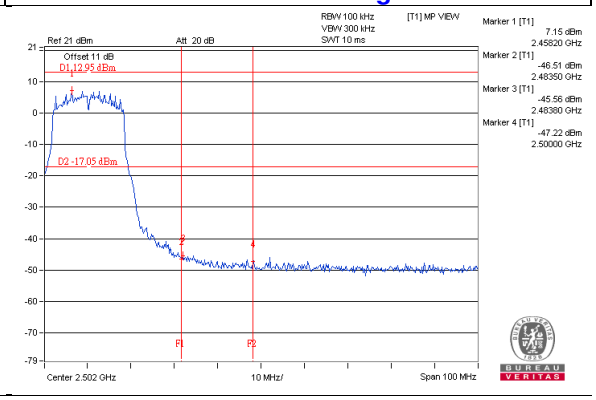
CH 11



CH 1 Band edge

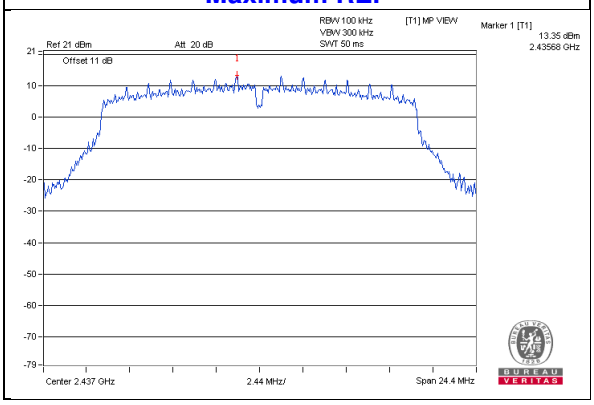


CH 11 Band edge



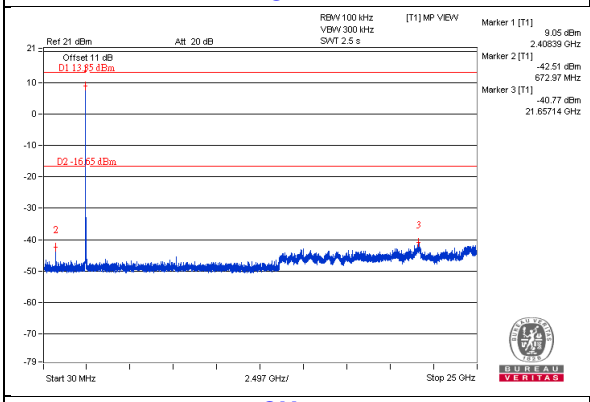
802.11n (HT20)

Maximum REF

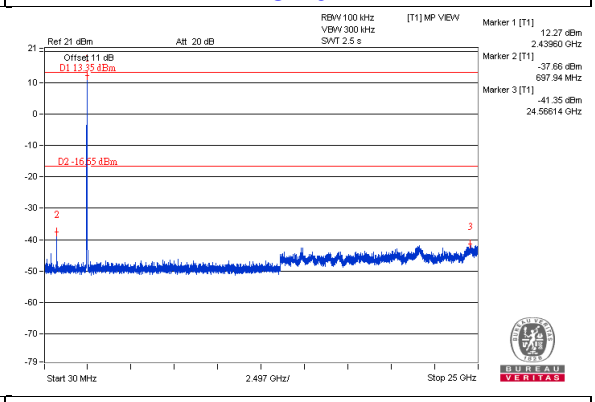


CHAIN 0

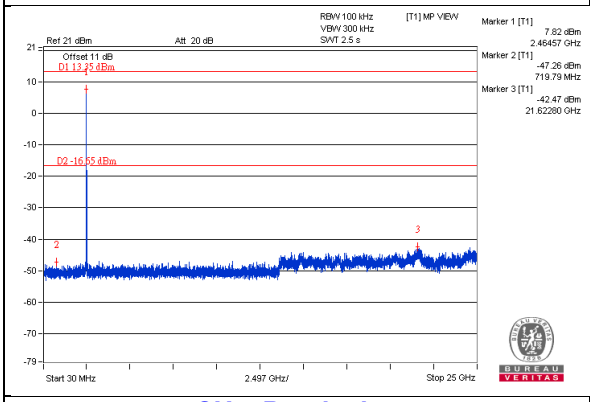
CH 1



CH 6



CH 11



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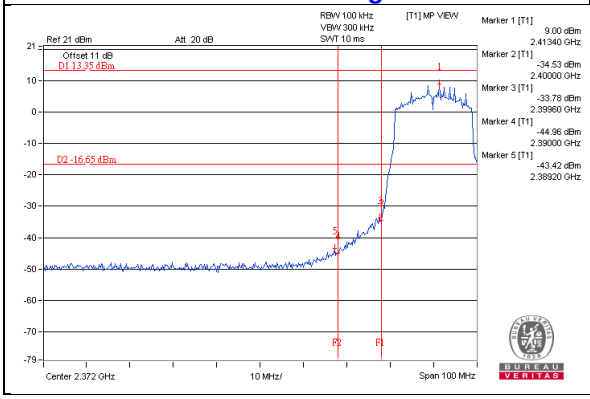

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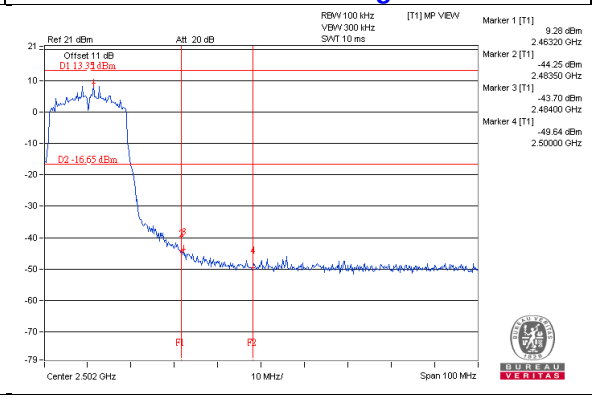
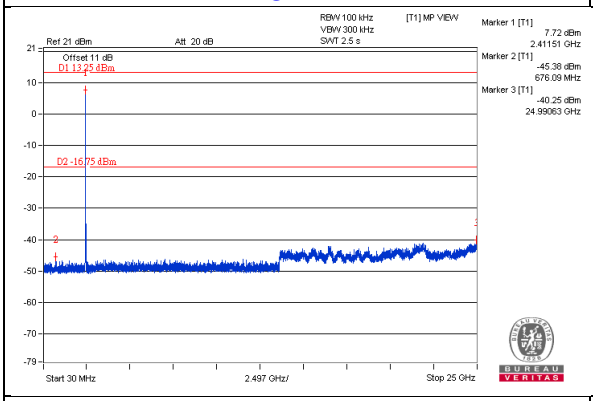


CHAIN 1

CH 1



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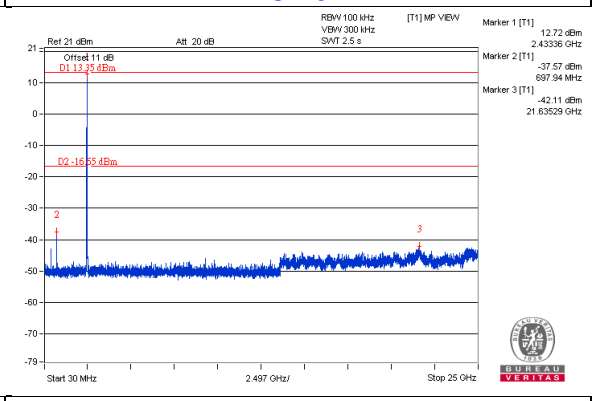

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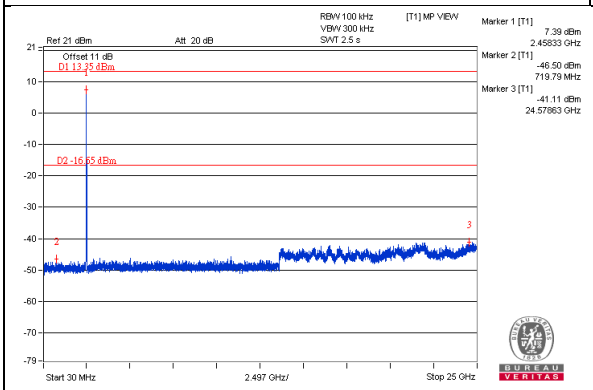

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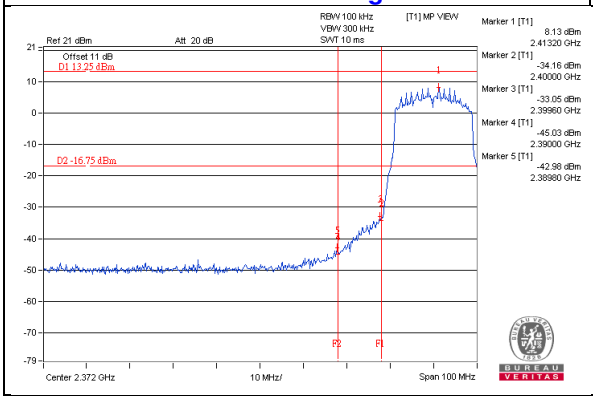

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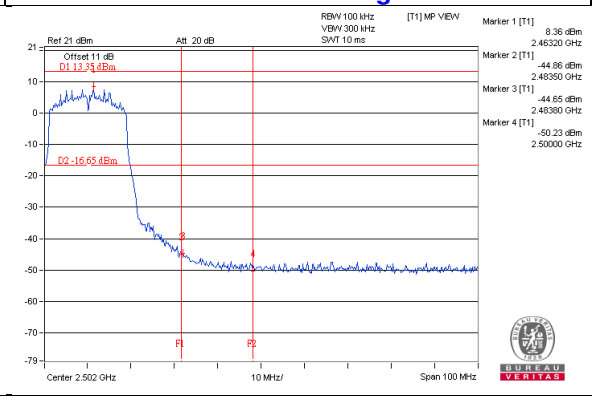

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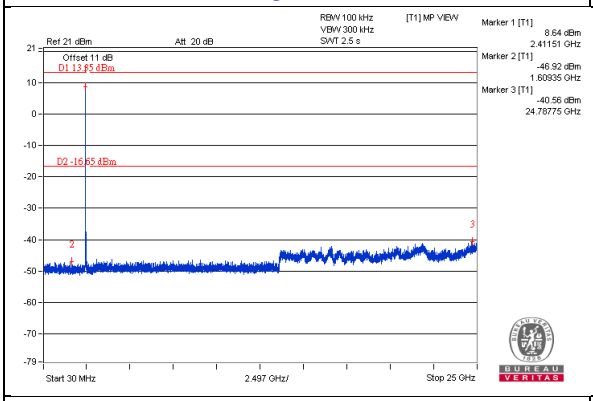
CH 1



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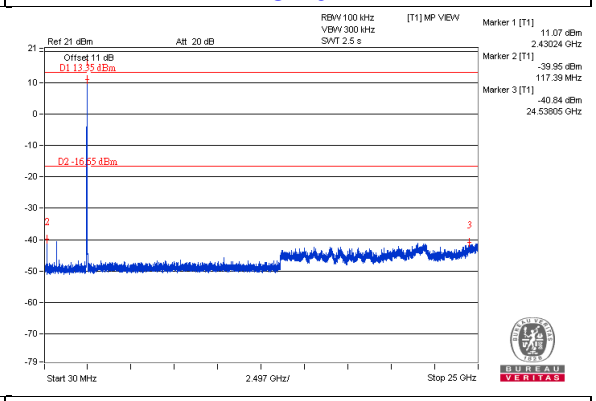

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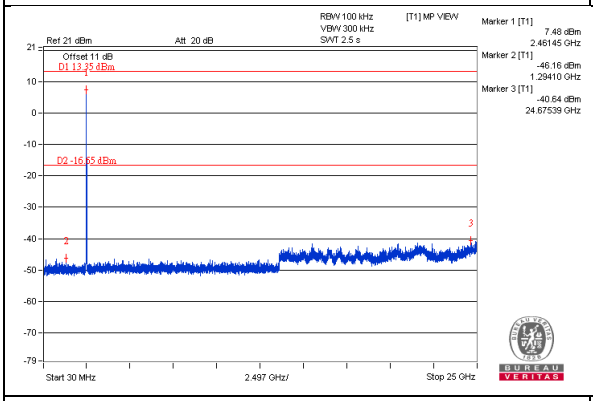

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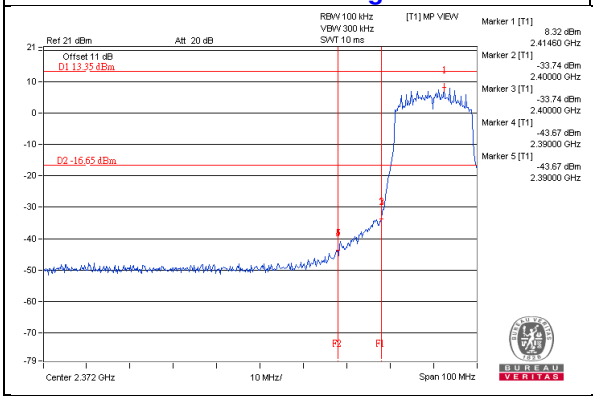

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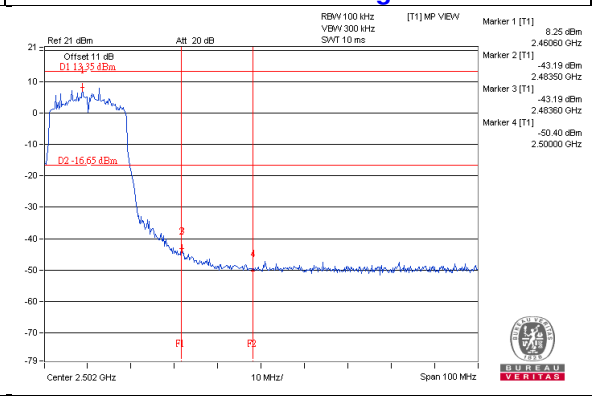
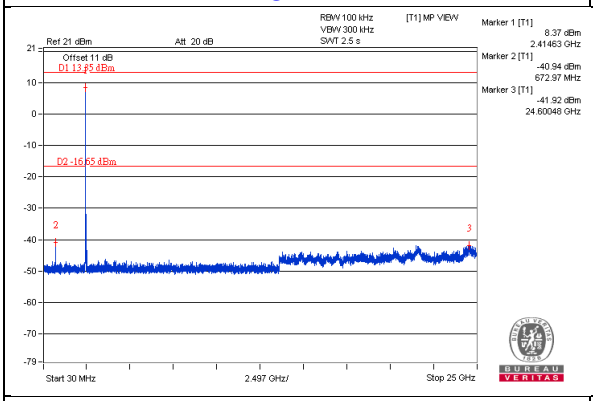


CHAIN 3

CH 1



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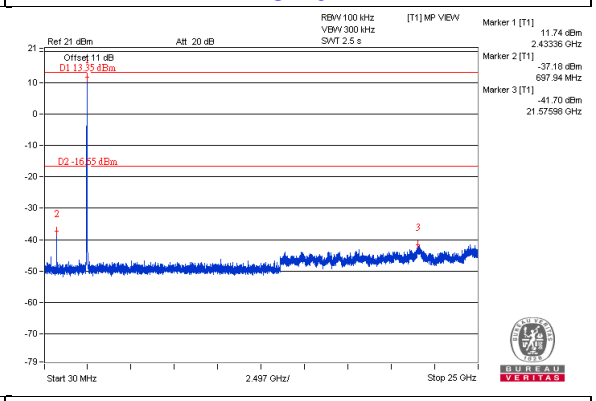

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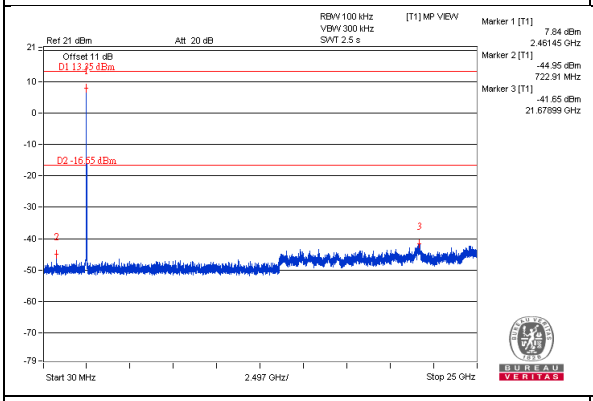

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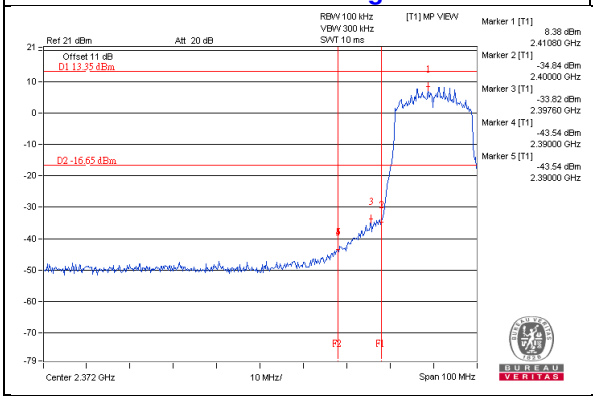

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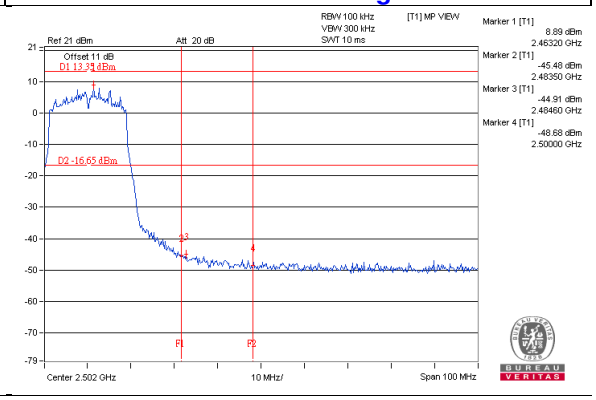
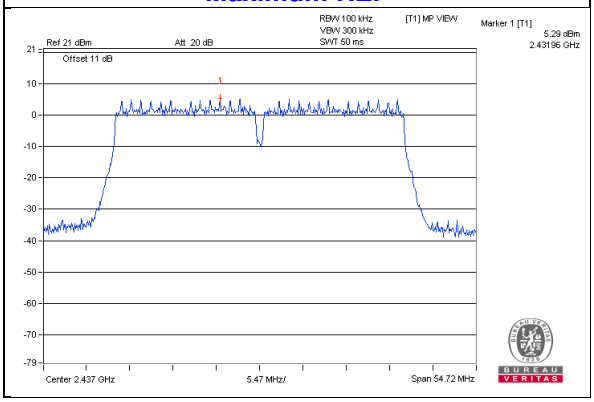


802.11n (HT40)

Maximum REF



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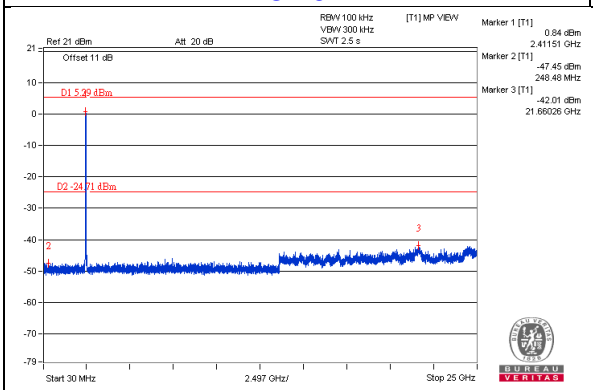
CH 3



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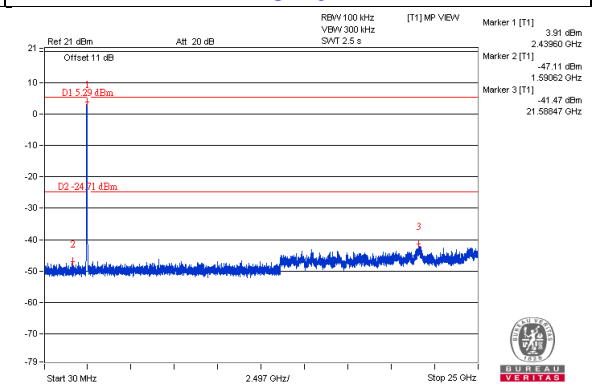

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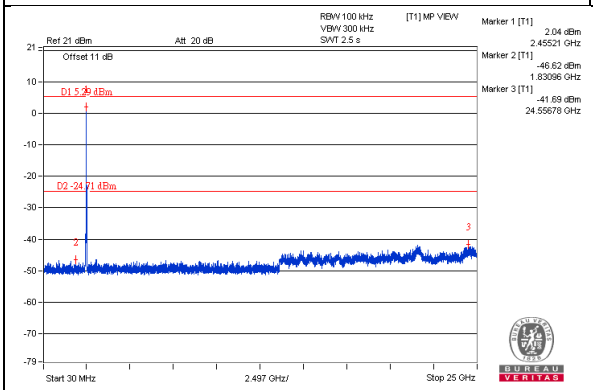

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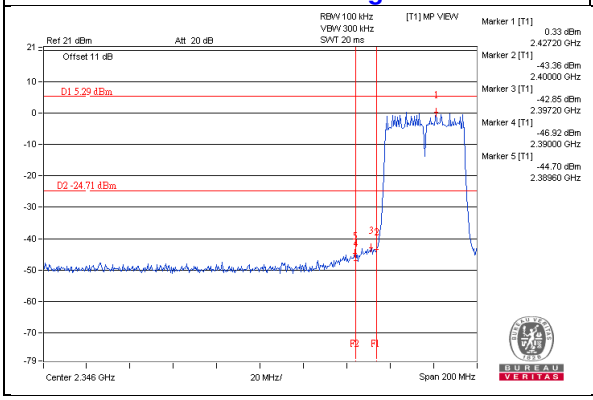

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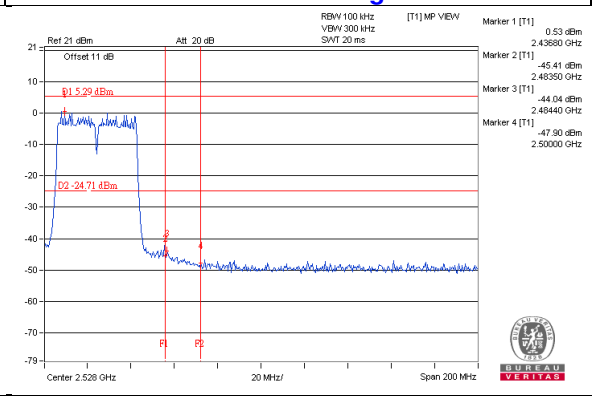

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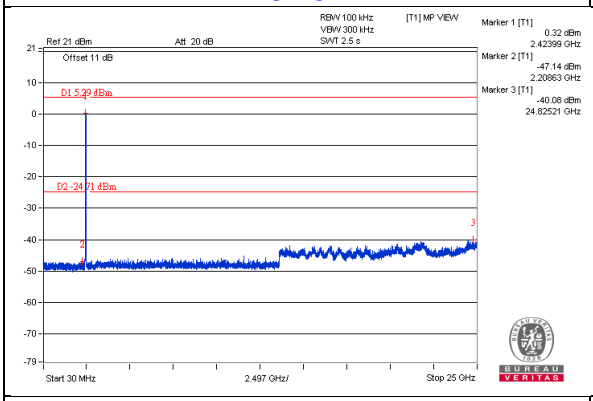
CH 3



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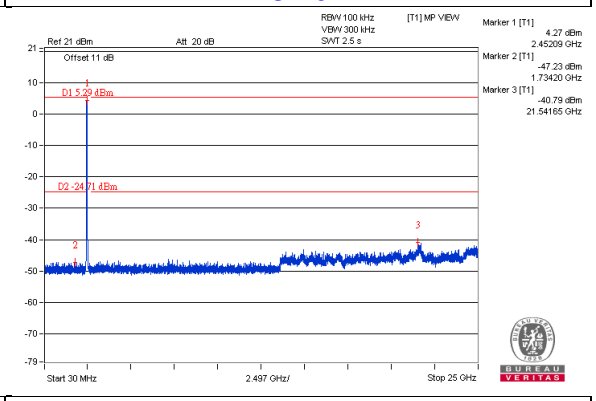

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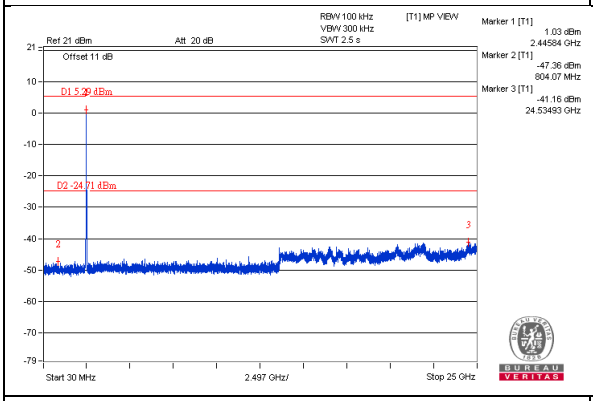

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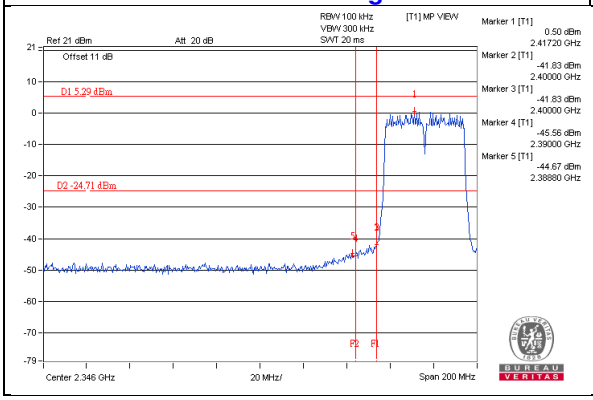

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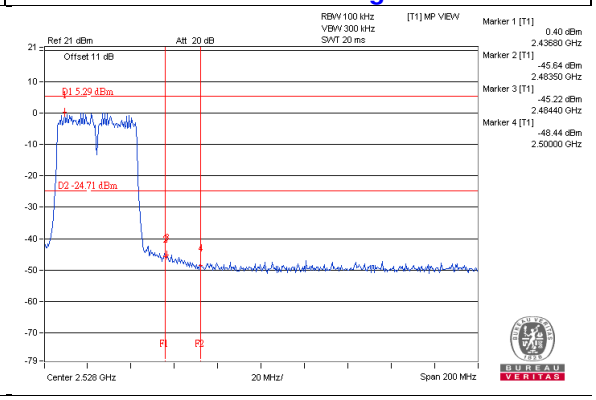

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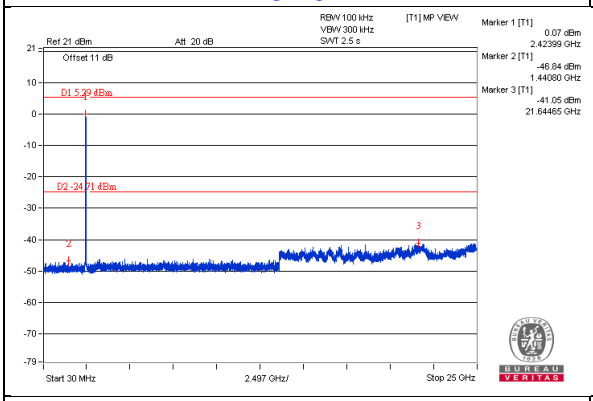
CH 3



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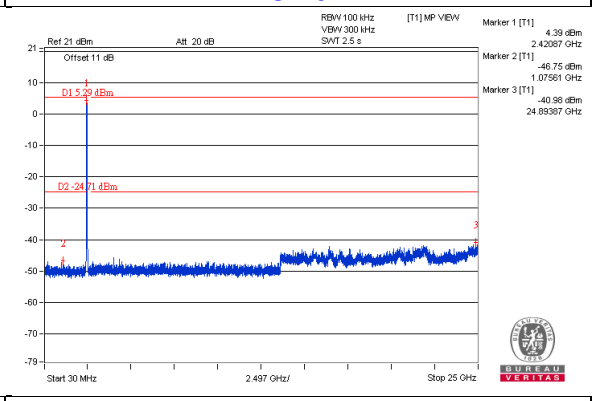

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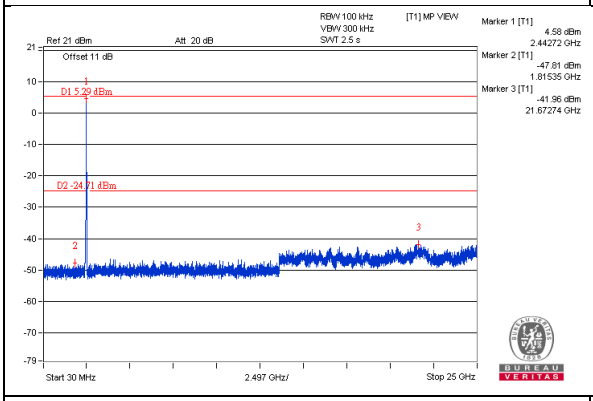

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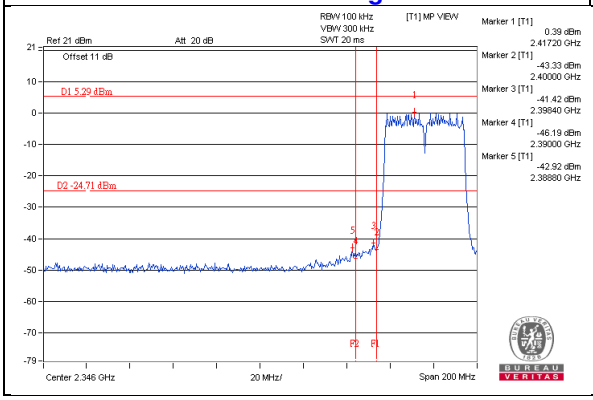

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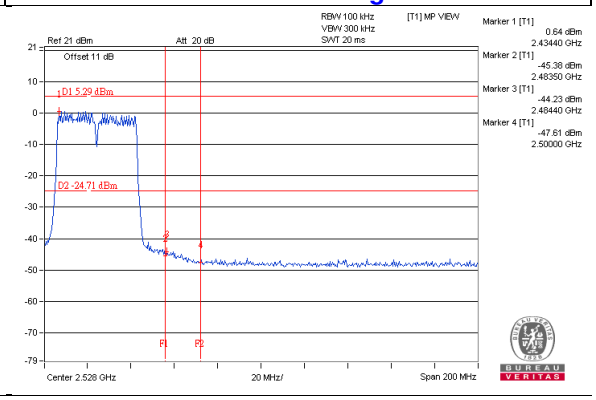
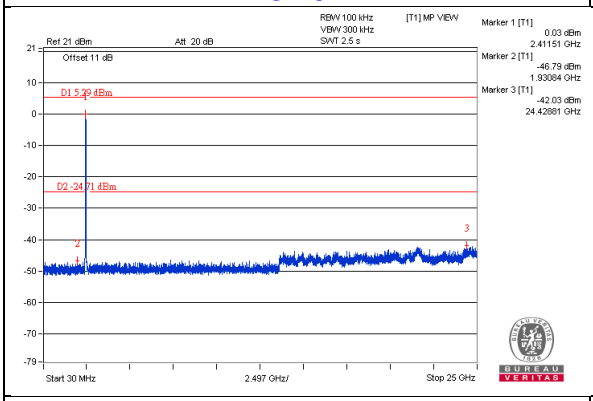


CHAIN 3

CH 3



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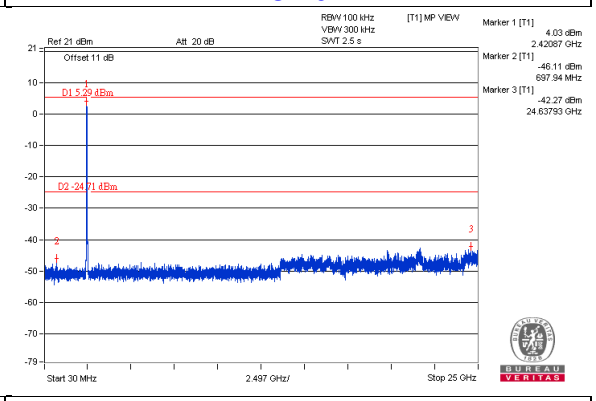

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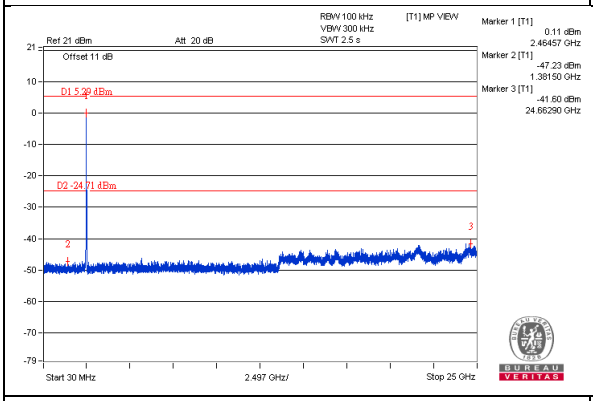

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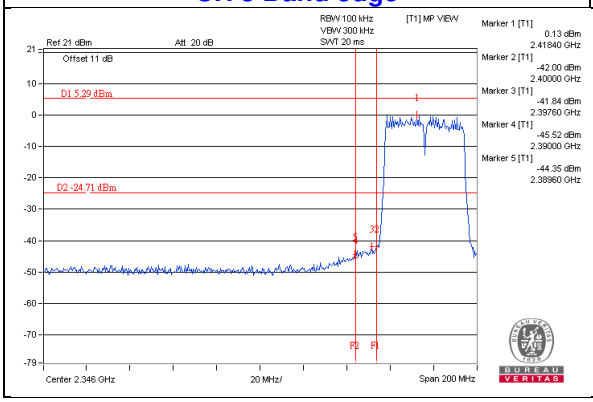

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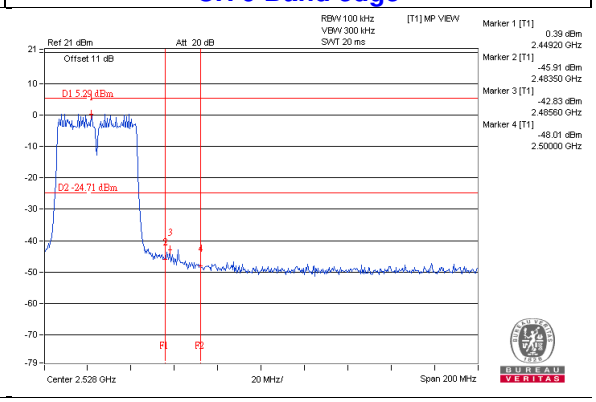

5 Pictures of Test Arrangements

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

Appendix – Information on the Testing Laboratories

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

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

Linko EMC/RF Lab
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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