FCC Test Report (WLAN)

Report No.:	RF160818E03
FCC ID:	Q87-WHW03
Test Model:	WHW03
Received Date:	Aug. 29, 2016
Test Date:	Oct. 05 to 13, 2016
Issued Date:	Nov. 03, 2016
Applicant:	Linksys LLC
Address:	121 Theory Drive Irvine California 92617 United States
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
Lab Address:	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
Test Location (1):	E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C.
Test Location (2):	No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan R.O.C.

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Release Control Record

Issue No.	Description	Date Issued
RF160818E03	Original release.	Nov. 03, 2016

1 Certificate of Conformity

Product:	Access Point
Brand:	LINKSYS
Test Model:	WHW03
Sample Status:	ENGINEERING SAMPLE
Applicant:	Linksys LLC
Test Date:	Oct. 05 to 13, 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 : Cindy Hsin , **Date:** Nov. 03, 2016

Cindy Hsin / Specialist

Approved by : , **Date:** Nov. 03, 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 -8.33dB at 0.41563MHz.
15.205 / 15.209 / 15.247(d)	Radiated Emissions and Band Edge Measurement	PASS	Meet the requirement of limit. Minimum passing margin is -1.0dB at 2390.00MHz.
15.247(d)	Antenna Port Emission	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	Antenna connector i-pex(MHF) is not a standard connector.

2.1 Measurement Uncertainty

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

Measurement	Frequency	Expended Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	1.83 dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.31 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	3.40 dB
	6GHz ~ 18GHz	3.73 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 (WLAN)

Product	Access Point
Brand	LINKSYS
Test Model	WHW03
Status of EUT	ENGINEERING SAMPLE
Power Supply Rating	DC 12V from power adapter
Driver Version	0.0.19
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM 256QAM for OFDM in 11ac mode and VHT20/40 in 2.4GHz band.
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b: up to 11Mbps 802.11a/g: up to 54Mbps 802.11n: up to 300Mbps 802.11ac: up to 866.7Mbps
Operating Frequency	**2.4GHz**: 2.412GHz ~ 2.462GHz **5GHz**: 5.18GHz ~ 5.24GHz, 5.745GHz ~ 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:** 783.486mW **Beamforming Mode:** 741.194mW **5GHz:** **5.18GHz ~ 5.24GHz:** 762.255mW **5.745GHz ~ 5.825GHz:** 930.619mW
Antenna Type	Refer to Note
Antenna Connector	Refer to Note
Accessory Device	Adapter x 1
Data Cable Supplied	NA

Note:

1. There are WLAN, Bluetooth, Zigbee technology used for the EUT.
2. Simultaneously transmission condition

Condition	Technology			
1	WLAN (Radio 1) (2.4GHz / 5GHz-UNII-1)	WLAN (Radio 2) (5GHz-UNII-3)	Bluetooth	Zigbee
Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.				

3. The EUT power needs to be supplied from one power adapter , the information is as below table:

Adapter		
Brand	Model	Spec.
Linksys	MU24A6120200-A1	Input: 100-240Vac, 50/60Hz, 0.7A Output: 12V, 2A DC output cable (Unshielded, 1.5m)

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

BT Antenna Spec.						
Antenna No	Brand	Mode	Antenna Net Gain(dBi)	Frequency range (GHz)	Antenna Type	Connecter Type
1	galtronics	60-2703-03	3.13	2.4~2.4835	Dipole	i-pex(MHF)
Zigbee Antenna Spec.						
Antenna No	Brand	Mode	Antenna Net Gain(dBi)	Frequency range (GHz)	Antenna Type	Connecter Type
2	galtronics	60-2699-03	2.52	2.4~2.4835	Dipole	i-pex(MHF)

WLAN (Radio 2) Antenna Spec.							
Antenna No	Transmitter Circuit	Brand	Model	Antenna Net Gain(dBi)	Frequency range (GHz)	Antenna Type	Connecter Type
3	5GHz-Chain (1) (UNII-2C,UNII-3)	galtronics	60-2704-03	3.86	5.5~5.825	Dipole	i-pex(MHF)
4	5GHz-Chain (0) (UNII-2C,UNII-3)	galtronics	60-2708-03	2.36	5.5~5.825	Dipole	i-pex(MHF)

WLAN (Radio 1) Antenna Spec.							
Antenna No	Transmitter Circuit	Brand	Model	Antenna Net Gain(dBi)	Frequency range (GHz)	Antenna Type	Connecter Type
5	2.4GHz-Chain (0)	galtronics	60-2698-03	3.43	2.4~2.4835	Dipole	i-pex(MHF)
	5GHz-Chain (1) (UNII-1, UNII-2A)			3.62	5.18~5.320		
6	2.4GHz-Chain (1)	galtronics	60-2697-03	1.49	2.4~2.4835	Dipole	i-pex(MHF)
	5GHz-Chain (0) (UNII-1, UNII-2A)			4.35	5.18~5.320		

5. The EUT incorporates a MIMO function.

2.4GHz Band			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11b	1 ~ 11Mbps	2TX	2RX
802.11g	6 ~ 54Mbps	2TX	2RX
802.11n HT20	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11n HT40	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11n VHT20	MCS0~8 Nss=1	2TX	2RX
	MCS0~8 Nss=2	2TX	2RX
802.11n VHT40	MCS0~9 Nss=1	2TX	2RX
	MCS0~9 Nss=2	2TX	2RX
802.11n VHT80	MCS0~9 Nss=1	2TX	2RX
	MCS0~9 Nss=2	2TX	2RX
5GHz Band			
MODULATION MODE	**DATA RATE (MCS)**	**TX & RX CONFIGURATION**	
802.11a	6 ~ 54Mbps	2TX	2RX
802.11n HT20	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11n HT40	MCS 0~7	2TX	2RX
	MCS 8~15	2TX	2RX
802.11ac VHT20	MCS0~8 Nss=1	2TX	2RX
	MCS0~8 Nss=2	2TX	2RX
802.11ac VHT40	MCS0~9 Nss=1	2TX	2RX
	MCS0~9 Nss=2	2TX	2RX
802.11ac VHT80	MCS0~9 Nss=1	2TX	2RX
	MCS0~9 Nss=2	2TX	2RX

Note:
1. All of modulation mode support beamforming function except 802.11b modulation mode.
2. The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz) and 802.11ac mode for 20MHz (40MHz), therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

6. 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	
-	√	√	√	√	-

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

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
Beamforming Mode					
MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
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	11	DSSS	DBPSK	1

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	11	DSSS	DBPSK	1

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

Test Condition:

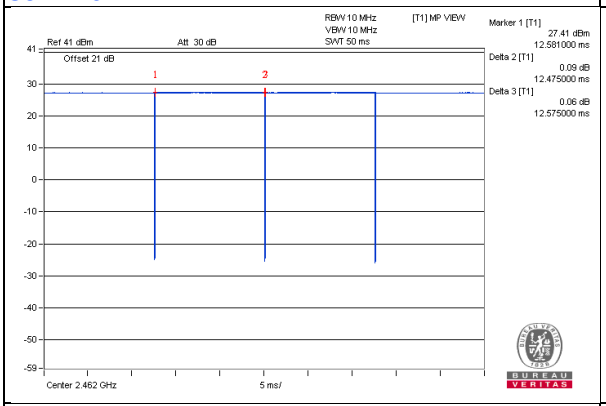
APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 61%RH	120Vac, 60Hz	JyunChun. Lin
RE<1G	23deg. C, 61%RH	120Vac, 60Hz	JyunChun. Lin
PLC	25deg. C, 75%RH	120Vac, 60Hz	Barry Lee
APCM	25deg. C, 60%RH	120Vac, 60Hz	Robert Cheng

3.3 Duty Cycle of Test Signal

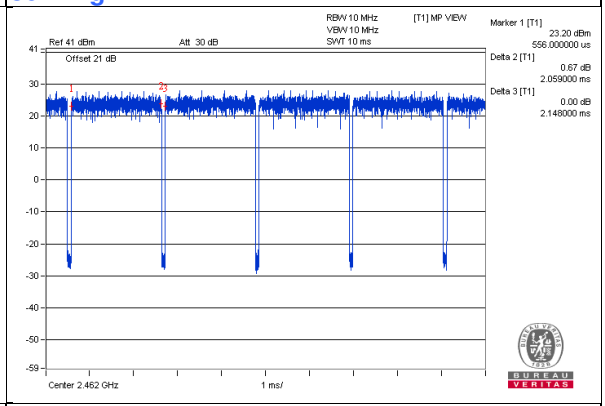
If duty cycle of test signal is ≥ 98 %, duty factor is not required.
If duty cycle of test signal is < 98%, duty factor shall be considered.

802.11b: Duty cycle = 12.475/12.575 = 0.992,
802.11g: Duty cycle = 2.059/2.148 = 0.959, Duty factor = 10 * log(1/0.959) = 0.18
802.11n (HT20): Duty cycle = 4.975/5.085 = 0.978, Duty factor = 10 * log(1/0.978) = 0.09
802.11n (HT40): Duty cycle = 2.424/2.515 = 0.964, Duty factor = 10 * log(1/0.964) = 0.16

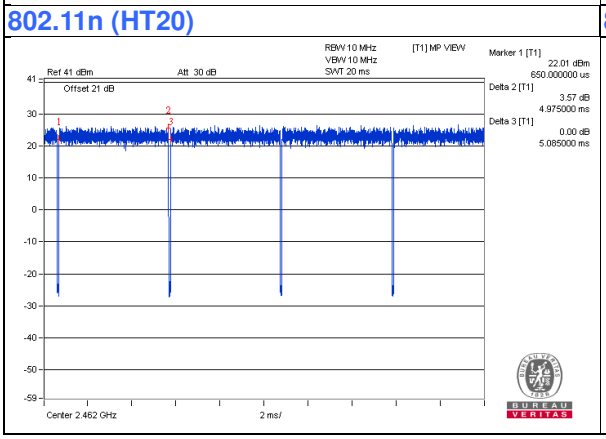
802.11b



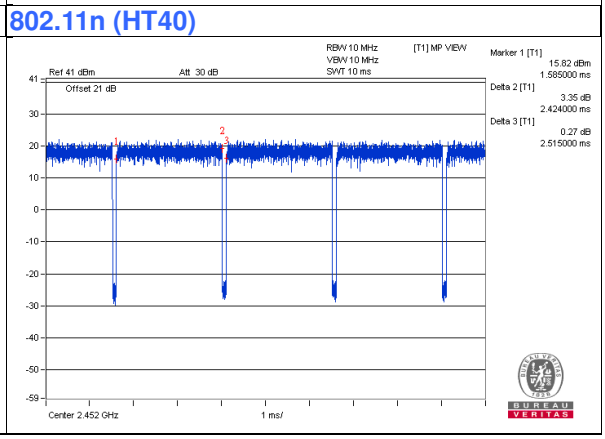
802.11g



802.11n (HT20)



802.11n (HT40)



3.4 Description of Support Units

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

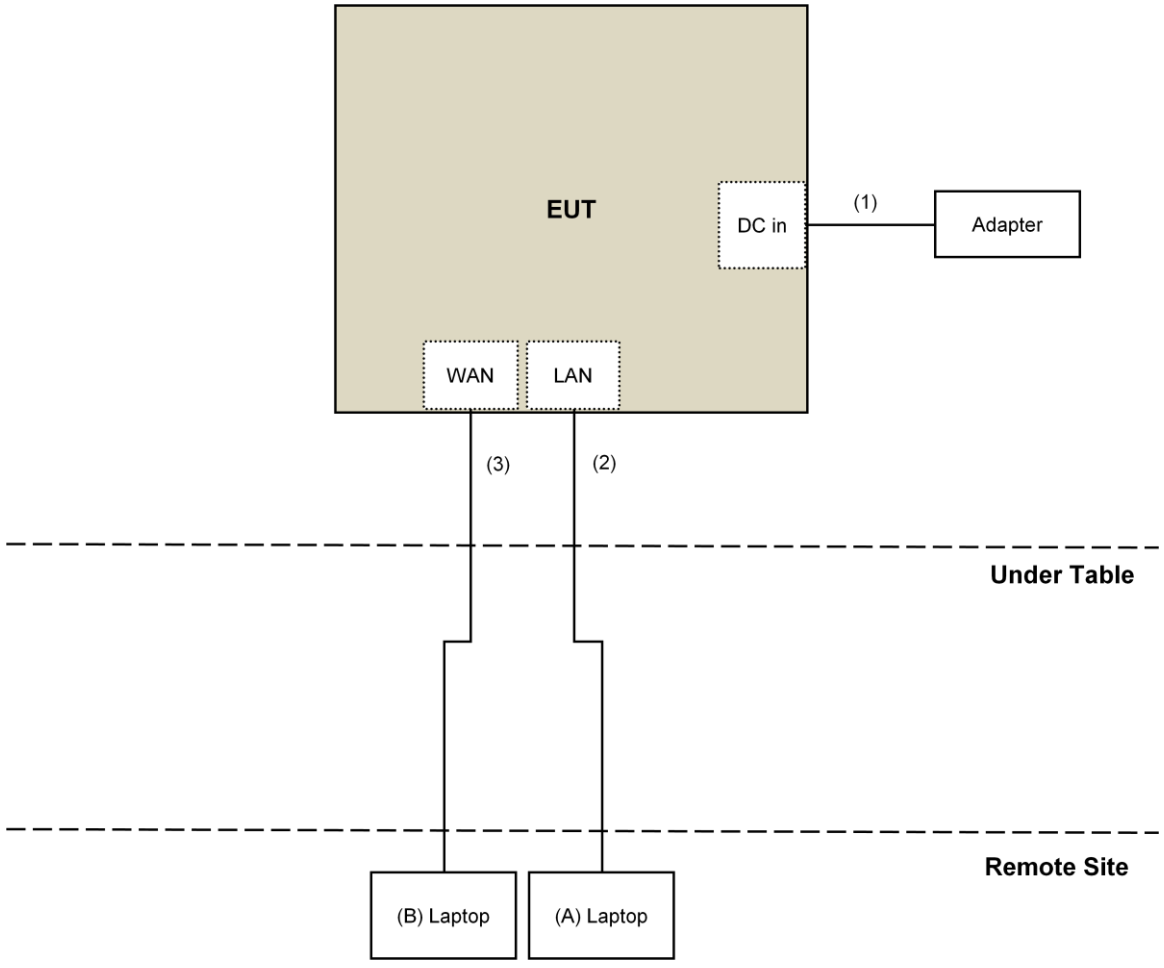
ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	HP	Pavilion 14-ab023TU	5CD5340WXZ	NA	Provided by Lab
B.	Laptop	DELL	E6440	F9LYQ32	FCC DoC	Provided by Lab

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.	DC Cable	1	1.5	No	0	Supplied by client
2.	RJ-45 Cable	1	10	No	0	Provided by Lab
3.	RJ-45 Cable	1	10	No	0	Provided by Lab

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	MY50010156	Aug. 18, 2016	Aug. 17, 2017
Pre-Amplifier(*) EMCI	EMC001340	980142	Jan. 20, 2016	Jan. 19, 2018
Loop Antenna(*) Electro-Metrics	EM-6879	264	Dec. 16, 2014	Dec. 15, 2016
RF Cable	NA	LOOPCAB-001 LOOPCAB-002	Jan. 18, 2016	Jan. 17, 2017
Pre-Amplifier Mini-Circuits	ZFL-1000VH2B	AMP-ZFL-05	May 07, 2016	May 06, 2017
Trilog Broadband Antenna SCHWARZBECK	VULB 9168	9168-156	Jan. 04, 2016	Jan. 03, 2017
RF Cable	8D	966-3-1 966-3-2 966-3-3	Apr. 02, 2016	Apr. 01, 2017
Horn_Antenna SCHWARZBECK	BBHA9120-D	9120D-406	Jan. 20, 2016	Jan. 19, 2017
Pre-Amplifier Agilent	8449B	3008A02465	Apr. 05, 2016	Apr. 04, 2017
RF Cable	EMC104-SM-SM-2000 EMC104-SM-SM-5000 EMC104-SM-SM-5000	150317 150321 150322	Mar. 30, 2016	Mar. 29, 2017
Spectrum Analyzer Keysight	N9030A	MY54490520	July 29, 2016	July 28, 2017
Pre-Amplifier EMCI	EMC184045	980143	Jan. 15, 2016	Jan. 14, 2017
Horn_Antenna SCHWARZBECK	BBHA 9170	BBHA9170608	Jan. 08, 2016	Jan. 07, 2017
RF Cable	SUCOFLEX 102	36432/2 36441/2	Jan. 16, 2016	Jan. 15, 2017
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower & Turn Table Max-Full	MF-7802	MF780208406	NA	NA
Boresight Antenna Fixture	FBA-01	FBA-SIP01	NA	NA
Power meter Anritsu	ML2495A	1014008	May 5, 2016	May 4, 2017
Power sensor Anritsu	MA2411B	0917122	May 5, 2016	May 4, 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. 3.
4. The FCC Site Registration No. is 147459
5. The CANADA Site Registration No. is 20331-1
6. Loop antenna was used for all emissions below 30 MHz
7. Tested Date:Oct. 05 to 06, 2016

4.1.3 Test Procedures

For Radiated emission below 30MHz

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.

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

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

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

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

NOTE:

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

For Radiated emission above 30MHz

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

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

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

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

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

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

Note:

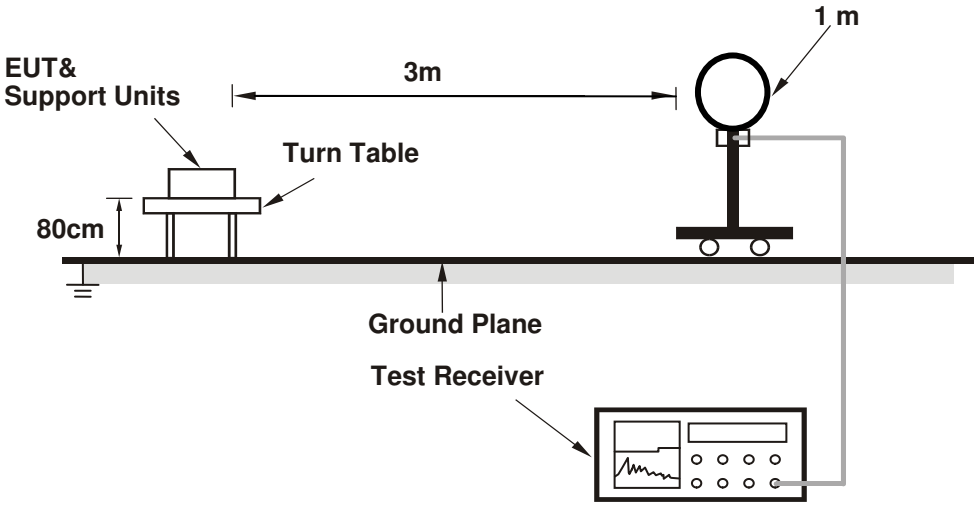
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.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

4.1.4 Deviation from Test Standard

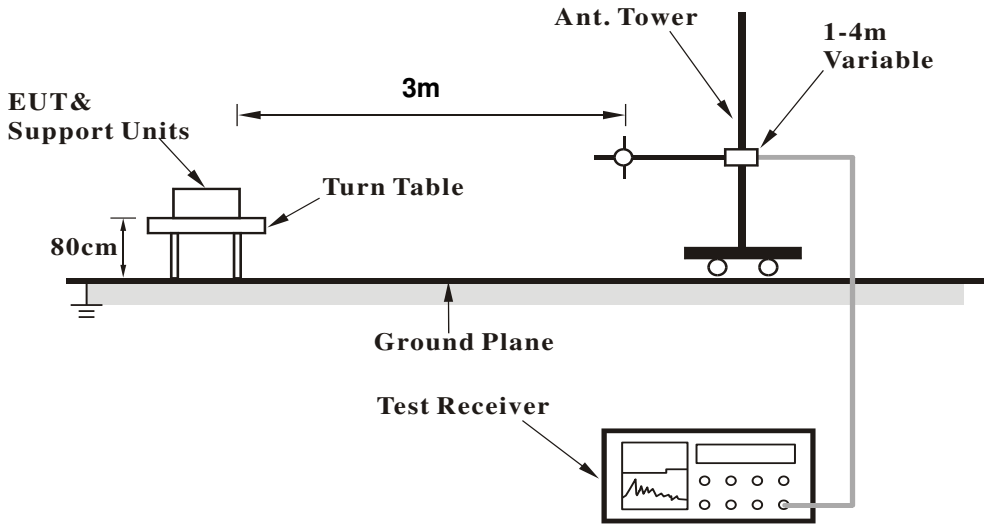
No deviation.

4.1.5 Test Setup

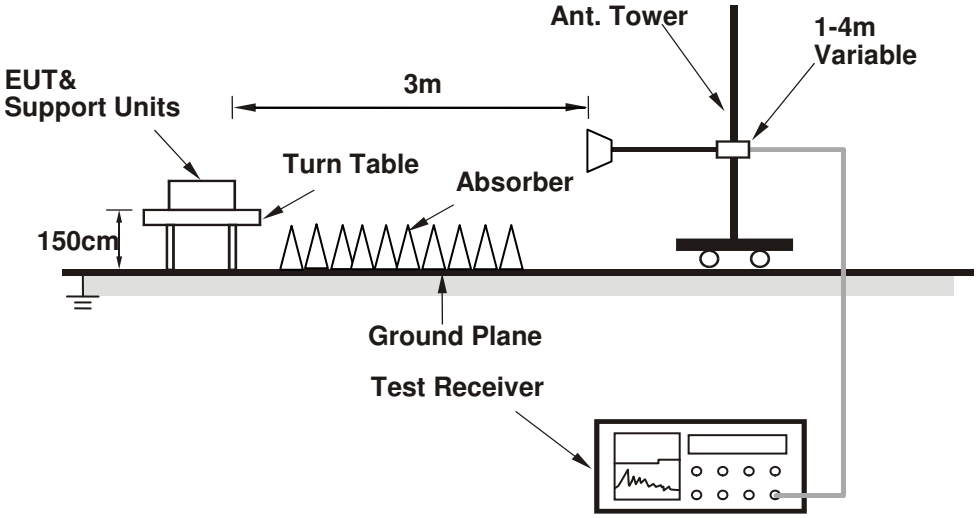
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

4.1.6 EUT Operating Conditions

a. Connected the EUT with the laptop which is placed on remote site.
b. Contorlling software (nodes QCA9886 power command band 3-4.txt) has been activated to set the EUT on specific status.

4.1.7 Test Results

Above 1GHz Data：

802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.8 PK	74.0	-13.2	1.70 H	3	65.0	-4.2
2	2390.00	48.9 AV	54.0	-5.1	1.70 H	3	53.1	-4.2
3	*2412.00	117.5 PK			1.70 H	3	121.6	-4.1
4	*2412.00	114.1 AV			1.70 H	3	118.2	-4.1
5	4824.00	48.9 PK	74.0	-25.1	2.05 H	167	46.6	2.3
6	4824.00	42.8 AV	54.0	-11.2	2.05 H	167	40.5	2.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	63.1 PK	74.0	-10.9	1.50 V	352	67.3	-4.2
2	2390.00	51.2 AV	54.0	-2.8	1.50 V	352	55.4	-4.2
3	*2412.00	119.7 PK			1.50 V	352	123.8	-4.1
4	*2412.00	116.1 AV			1.50 V	352	120.2	-4.1
5	4824.00	49.8 PK	74.0	-24.2	3.14 V	173	47.5	2.3
6	4824.00	45.1 AV	54.0	-8.9	3.14 V	173	42.8	2.3

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	58.1 PK	74.0	-15.9	1.67 H	12	62.3	-4.2
2	2390.00	45.2 AV	54.0	-8.8	1.67 H	12	49.4	-4.2
3	*2437.00	118.1 PK			1.67 H	12	122.1	-4.0
4	*2437.00	114.5 AV			1.67 H	12	118.5	-4.0
5	2483.50	59.2 PK	74.0	-14.8	1.67 H	12	63.2	-4.0
6	2483.50	45.4 AV	54.0	-8.6	1.67 H	12	49.4	-4.0
7	4874.00	48.7 PK	74.0	-25.3	2.07 H	169	46.2	2.5
8	4874.00	42.7 AV	54.0	-11.3	2.07 H	169	40.2	2.5
9	7311.00	55.4 PK	74.0	-18.6	1.69 H	234	46.5	8.9
10	7311.00	47.2 AV	54.0	-6.8	1.69 H	234	38.3	8.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.3 PK	74.0	-13.7	1.19 V	345	64.5	-4.2
2	2390.00	47.7 AV	54.0	-6.3	1.19 V	345	51.9	-4.2
3	*2437.00	120.4 PK			1.19 V	345	124.4	-4.0
4	*2437.00	117.0 AV			1.19 V	345	121.0	-4.0
5	2483.50	61.8 PK	74.0	-12.2	1.19 V	345	65.8	-4.0
6	2483.50	47.6 AV	54.0	-6.4	1.19 V	345	51.6	-4.0
7	4874.00	50.1 PK	74.0	-23.9	3.09 V	167	47.6	2.5
8	4874.00	45.2 AV	54.0	-8.8	3.09 V	167	42.7	2.5
9	7311.00	51.6 PK	74.0	-22.4	3.47 V	172	42.7	8.9
10	7311.00	41.9 AV	54.0	-12.1	3.47 V	172	33.0	8.9

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	116.5 PK			1.73 H	10	120.6	-4.1
2	*2462.00	112.8 AV			1.73 H	10	116.9	-4.1
3	2483.50	58.8 PK	74.0	-15.2	1.73 H	10	62.8	-4.0
4	2483.50	46.7 AV	54.0	-7.3	1.73 H	10	50.7	-4.0
5	4924.00	48.7 PK	74.0	-25.3	2.09 H	178	46.2	2.5
6	4924.00	42.8 AV	54.0	-11.2	2.09 H	178	40.3	2.5
7	7386.00	55.7 PK	74.0	-18.3	1.65 H	223	46.4	9.3
8	7386.00	47.3 AV	54.0	-6.7	1.65 H	223	38.0	9.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	118.8 PK			1.19 V	172	122.9	-4.1
2	*2462.00	115.3 AV			1.19 V	172	119.4	-4.1
3	2483.50	61.2 PK	74.0	-12.8	1.19 V	172	65.2	-4.0
4	2483.50	49.1 AV	54.0	-4.9	1.19 V	172	53.1	-4.0
5	4924.00	50.4 PK	74.0	-23.6	3.23 V	160	47.9	2.5
6	4924.00	45.7 AV	54.0	-8.3	3.23 V	160	43.2	2.5
7	7386.00	51.9 PK	74.0	-22.1	3.48 V	175	42.6	9.3
8	7386.00	42.3 AV	54.0	-11.7	3.48 V	175	33.0	9.3

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. 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	68.1 PK	74.0	-5.9	1.74 H	12	72.3	-4.2
2	2390.00	50.2 AV	54.0	-3.8	1.74 H	12	54.4	-4.2
3	*2412.00	115.1 PK			1.74 H	12	119.2	-4.1
4	*2412.00	103.1 AV			1.74 H	12	107.2	-4.1
5	4824.00	45.8 PK	74.0	-28.2	2.08 H	165	43.5	2.3
6	4824.00	35.2 AV	54.0	-18.8	2.08 H	165	32.9	2.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	70.5 PK	74.0	-3.5	1.95 V	169	74.7	-4.2
2	**2390.00**	**53.0 AV**	**54.0**	**-1.0**	**1.95 V**	**169**	**57.2**	**-4.2**
3	*2412.00	117.4 PK			1.95 V	169	121.5	-4.1
4	*2412.00	106.2 AV			1.95 V	169	110.3	-4.1
5	4824.00	46.2 PK	74.0	-27.8	3.14 V	173	43.9	2.3
6	4824.00	36.1 AV	54.0	-17.9	3.14 V	173	33.8	2.3

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.8 PK	74.0	-12.2	1.83 H	18	66.0	-4.2
2	2390.00	46.1 AV	54.0	-7.9	1.83 H	18	50.3	-4.2
3	*2437.00	118.6 PK			1.83 H	18	122.6	-4.0
4	*2437.00	106.3 AV			1.83 H	18	110.3	-4.0
5	2483.50	61.2 PK	74.0	-12.8	1.83 H	18	65.2	-4.0
6	2483.50	45.8 AV	54.0	-8.2	1.83 H	18	49.8	-4.0
7	4874.00	45.8 PK	74.0	-28.2	2.06 H	173	43.3	2.5
8	4874.00	35.4 AV	54.0	-18.6	2.06 H	173	32.9	2.5
9	7311.00	54.6 PK	74.0	-19.4	1.66 H	224	45.7	8.9
10	7311.00	42.1 AV	54.0	-11.9	1.66 H	224	33.2	8.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.0 PK	74.0	-10.0	1.95 V	251	68.2	-4.2
2	2390.00	48.5 AV	54.0	-5.5	1.95 V	251	52.7	-4.2
3	*2437.00	120.9 PK			1.95 V	251	124.9	-4.0
4	*2437.00	109.4 AV			1.95 V	251	113.4	-4.0
5	2483.50	63.8 PK	74.0	-10.2	1.95 V	251	67.8	-4.0
6	2483.50	48.1 AV	54.0	-5.9	1.95 V	251	52.1	-4.0
7	4874.00	46.2 PK	74.0	-27.8	3.14 V	162	43.7	2.5
8	4874.00	36.0 AV	54.0	-18.0	3.14 V	162	33.5	2.5
9	7311.00	50.1 PK	74.0	-23.9	3.47 V	188	41.2	8.9
10	7311.00	38.2 AV	54.0	-15.8	3.47 V	188	29.3	8.9

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	117.1 PK			1.81 H	36	121.2	-4.1
2	*2462.00	104.8 AV			1.81 H	36	108.9	-4.1
3	2483.50	70.0 PK	74.0	-4.0	1.81 H	36	74.0	-4.0
4	2483.50	50.6 AV	54.0	-3.4	1.81 H	36	54.6	-4.0
5	4924.00	46.1 PK	74.0	-27.9	2.10 H	181	43.6	2.5
6	4924.00	35.9 AV	54.0	-18.1	2.10 H	181	33.4	2.5
7	7386.00	55.2 PK	74.0	-18.8	1.69 H	234	45.9	9.3
8	7386.00	42.5 AV	54.0	-11.5	1.69 H	234	33.2	9.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	119.4 PK			2.40 V	277	123.5	-4.1
2	*2462.00	108.0 AV			2.40 V	277	112.1	-4.1
3	2483.50	72.5 PK	74.0	-1.5	2.40 V	277	76.5	-4.0
4	**2483.50**	**53.0 AV**	**54.0**	**-1.0**	**2.40 V**	**277**	**57.0**	**-4.0**
5	4924.00	46.5 PK	74.0	-27.5	3.18 V	170	44.0	2.5
6	4924.00	36.2 AV	54.0	-17.8	3.18 V	170	33.7	2.5
7	7386.00	49.8 PK	74.0	-24.2	3.49 V	175	40.5	9.3
8	7386.00	38.0 AV	54.0	-16.0	3.49 V	175	28.7	9.3

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. 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	66.9 PK	74.0	-7.1	1.80 H	28	71.1	-4.2
2	2390.00	50.1 AV	54.0	-3.9	1.80 H	28	54.3	-4.2
3	*2412.00	113.1 PK			1.80 H	28	117.2	-4.1
4	*2412.00	100.4 AV			1.80 H	28	104.5	-4.1
5	4824.00	45.9 PK	74.0	-28.1	2.11 H	161	43.6	2.3
6	4824.00	35.5 AV	54.0	-18.5	2.11 H	161	33.2	2.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.2 PK	74.0	-5.8	1.59 V	166	72.4	-4.2
2	2390.00	52.8 AV	54.0	-1.2	1.59 V	166	57.0	-4.2
3	*2412.00	115.4 PK			1.59 V	166	119.5	-4.1
4	*2412.00	103.6 AV			1.59 V	166	107.7	-4.1
5	4824.00	46.4 PK	74.0	-27.6	3.19 V	176	44.1	2.3
6	4824.00	36.4 AV	54.0	-17.6	3.19 V	176	34.1	2.3

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.8 PK	74.0	-9.2	1.77 H	15	69.0	-4.2
2	2390.00	47.9 AV	54.0	-6.1	1.77 H	15	52.1	-4.2
3	*2437.00	118.0 PK			1.77 H	15	122.0	-4.0
4	*2437.00	105.9 AV			1.77 H	15	109.9	-4.0
5	2483.50	63.1 PK	74.0	-10.9	1.77 H	15	67.1	-4.0
6	2483.50	47.0 AV	54.0	-7.0	1.77 H	15	51.0	-4.0
7	4874.00	45.7 PK	74.0	-28.3	2.01 H	171	43.2	2.5
8	4874.00	35.5 AV	54.0	-18.5	2.01 H	171	33.0	2.5
9	7311.00	55.0 PK	74.0	-19.0	1.66 H	213	46.1	8.9
10	7311.00	42.5 AV	54.0	-11.5	1.66 H	213	33.6	8.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	66.2 PK	74.0	-7.8	1.34 V	180	70.4	-4.2
2	2390.00	50.2 AV	54.0	-3.8	1.34 V	180	54.4	-4.2
3	*2437.00	120.4 PK			1.34 V	180	124.4	-4.0
4	*2437.00	109.1 AV			1.34 V	180	113.1	-4.0
5	2483.50	64.5 PK	74.0	-9.5	1.34 V	180	68.5	-4.0
6	2483.50	49.3 AV	54.0	-4.7	1.34 V	180	53.3	-4.0
7	4874.00	46.9 PK	74.0	-27.1	3.14 V	163	44.4	2.5
8	4874.00	36.6 AV	54.0	-17.4	3.14 V	163	34.1	2.5
9	7311.00	49.4 PK	74.0	-24.6	3.49 V	185	40.5	8.9
10	7311.00	37.7 AV	54.0	-16.3	3.49 V	185	28.8	8.9

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	115.7 PK			1.76 H	28	119.8	-4.1
2	*2462.00	102.5 AV			1.76 H	28	106.6	-4.1
3	2483.50	65.8 PK	74.0	-8.2	1.76 H	28	69.8	-4.0
4	2483.50	50.1 AV	54.0	-3.9	1.76 H	28	54.1	-4.0
5	4924.00	45.7 PK	74.0	-28.3	2.05 H	175	43.2	2.5
6	4924.00	35.3 AV	54.0	-18.7	2.05 H	175	32.8	2.5
7	7386.00	54.7 PK	74.0	-19.3	1.71 H	227	45.4	9.3
8	7386.00	42.4 AV	54.0	-11.6	1.71 H	227	33.1	9.3
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	118.2 PK			1.56 V	181	122.3	-4.1
2	*2462.00	105.8 AV			1.56 V	181	109.9	-4.1
3	2483.50	67.9 PK	74.0	-6.1	1.56 V	181	71.9	-4.0
4	2483.50	52.4 AV	54.0	-1.6	1.56 V	181	56.4	-4.0
5	4924.00	46.4 PK	74.0	-27.6	3.16 V	177	43.9	2.5
6	4924.00	36.2 AV	54.0	-17.8	3.16 V	177	33.7	2.5
7	7386.00	50.3 PK	74.0	-23.7	3.55 V	180	41.0	9.3
8	7386.00	38.5 AV	54.0	-15.5	3.55 V	180	29.2	9.3

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. 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	68.3 PK	74.0	-5.7	1.72 H	32	72.5	-4.2
2	2390.00	48.3 AV	54.0	-5.7	1.72 H	32	52.5	-4.2
3	*2422.00	108.2 PK			1.72 H	32	112.3	-4.1
4	*2422.00	96.3 AV			1.72 H	32	100.4	-4.1
5	4844.00	45.7 PK	74.0	-28.3	2.00 H	179	43.4	2.3
6	4844.00	35.3 AV	54.0	-18.7	2.00 H	179	33.0	2.3
7	7266.00	54.8 PK	74.0	-19.2	1.65 H	230	46.0	8.8
8	7266.00	42.4 AV	54.0	-11.6	1.65 H	230	33.6	8.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	72.8 PK	74.0	-1.2	2.08 V	171	77.0	-4.2
2	2390.00	51.1 AV	54.0	-2.9	2.08 V	171	55.3	-4.2
3	*2422.00	110.7 PK			2.08 V	171	114.8	-4.1
4	*2422.00	99.8 AV			2.08 V	171	103.9	-4.1
5	4844.00	46.2 PK	74.0	-27.8	3.17 V	167	43.9	2.3
6	4844.00	35.7 AV	54.0	-18.3	3.17 V	167	33.4	2.3
7	7266.00	49.7 PK	74.0	-24.3	3.49 V	179	40.9	8.8
8	7266.00	38.2 AV	54.0	-15.8	3.49 V	179	29.4	8.8

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.3 PK	74.0	-9.7	1.78 H	19	68.5	-4.2
2	2390.00	49.6 AV	54.0	-4.4	1.78 H	19	53.8	-4.2
3	*2437.00	110.7 PK			1.78 H	19	114.7	-4.0
4	*2437.00	98.7 AV			1.78 H	19	102.7	-4.0
5	2483.50	66.5 PK	74.0	-7.5	1.78 H	19	70.5	-4.0
6	2483.50	49.9 AV	54.0	-4.1	1.78 H	19	53.9	-4.0
7	4874.00	45.8 PK	74.0	-28.2	2.10 H	167	43.3	2.5
8	4874.00	35.4 AV	54.0	-18.6	2.10 H	167	32.9	2.5
9	7311.00	54.3 PK	74.0	-19.7	1.69 H	213	45.4	8.9
10	7311.00	41.8 AV	54.0	-12.2	1.69 H	213	32.9	8.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.6 PK	74.0	-5.4	2.19 V	175	72.8	-4.2
2	2390.00	52.2 AV	54.0	-1.8	2.19 V	175	56.4	-4.2
3	*2437.00	113.6 PK			2.19 V	175	117.6	-4.0
4	*2437.00	102.1 AV			2.19 V	175	106.1	-4.0
5	2483.50	70.8 PK	74.0	-3.2	2.19 V	175	74.8	-4.0
6	2483.50	52.5 AV	54.0	-1.5	2.19 V	175	56.5	-4.0
7	4874.00	46.8 PK	74.0	-27.2	3.18 V	171	44.3	2.5
8	4874.00	36.7 AV	54.0	-17.3	3.18 V	171	34.2	2.5
9	7311.00	49.8 PK	74.0	-24.2	3.49 V	166	40.9	8.9
10	7311.00	38.1 AV	54.0	-15.9	3.49 V	166	29.2	8.9

REMARKS:

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	109.0 PK			1.76 H	3	113.1	-4.1
2	*2452.00	96.5 AV			1.76 H	3	100.6	-4.1
3	2483.50	70.2 PK	74.0	-3.8	1.76 H	3	74.2	-4.0
4	2483.50	45.8 AV	54.0	-8.2	1.76 H	3	49.8	-4.0
5	4904.00	45.9 PK	74.0	-28.1	2.07 H	167	43.4	2.5
6	4904.00	35.6 AV	54.0	-18.4	2.07 H	167	33.1	2.5
7	7356.00	54.3 PK	74.0	-19.7	1.69 H	226	45.1	9.2
8	7356.00	41.9 AV	54.0	-12.1	1.69 H	226	32.7	9.2
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	111.5 PK			2.19 V	175	115.6	-4.1
2	*2452.00	99.8 AV			2.19 V	175	103.9	-4.1
3	**2483.50**	**73.0 PK**	**74.0**	**-1.0**	**2.19 V**	**175**	**77.0**	**-4.0**
4	2483.50	48.2 AV	54.0	-5.8	2.19 V	175	52.2	-4.0
5	4904.00	45.9 PK	74.0	-28.1	3.20 V	183	43.4	2.5
6	4904.00	35.7 AV	54.0	-18.3	3.20 V	183	33.2	2.5
7	7356.00	50.4 PK	74.0	-23.6	3.45 V	167	41.2	9.2
8	7356.00	38.4 AV	54.0	-15.6	3.45 V	167	29.2	9.2

REMARKS:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. 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 11	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9kHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	86.62	27.5 QP	40.0	-12.5	2.50 H	290	41.4	-13.9
2	133.28	26.9 QP	43.5	-16.6	1.50 H	84	36.6	-9.7
3	179.14	27.6 QP	43.5	-15.9	1.50 H	328	37.1	-9.5
4	333.00	30.8 QP	46.0	-15.2	1.00 H	315	37.3	-6.5
5	570.87	36.0 QP	46.0	-10.0	1.50 H	94	37.1	-1.1
6	951.43	32.2 QP	46.0	-13.8	1.00 H	290	27.4	4.8
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	36.52	33.2 QP	40.0	-6.8	1.00 V	360	42.8	-9.6
2	85.92	35.6 QP	40.0	-4.4	1.50 V	37	49.4	-13.8
3	102.48	34.7 QP	43.5	-8.8	2.50 V	130	47.2	-12.5
4	330.48	32.7 QP	46.0	-13.3	1.50 V	9	39.2	-6.5
5	570.85	40.0 QP	46.0	-6.0	1.00 V	47	41.1	-1.1
6	951.43	35.6 QP	46.0	-10.4	1.00 V	90	30.8	4.8

REMARKS:

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

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

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

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

4.2.2 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver R&S	ESCS 30	100375	May 09, 2016	May 08, 2017
Line-Impedance Stabilization Network (for EUT) SCHWARZBECK	NSLK-8127	8127-522	Aug. 31, 2016	Aug. 30, 2017
Line-Impedance Stabilization Network (for Peripheral) R&S	ENV216	100072	June 13, 2016	June 12, 2017
RF Cable	5D-FB	COACAB-002	Mar. 04, 2016	Mar. 03, 2017
10 dB PAD Mini-Circuits	HAT-10+	CONATT-003	Sep. 13, 2016	Sep. 12, 2017
50 ohms Terminator	N/A	EMC-03	Sep. 29, 2016	Sep. 28, 2017
50 ohms Terminator	50	3	Oct. 21, 2015	Oct. 20, 2016
Software BVADT	BVADT_Cond_ V7.3.7.4	NA	NA	NA

Note:

1. The calibration interval of the above test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. C.
3 The VCCI Con C Registration No. is C-3611.
4 Tested Date:Oct. 06, 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.

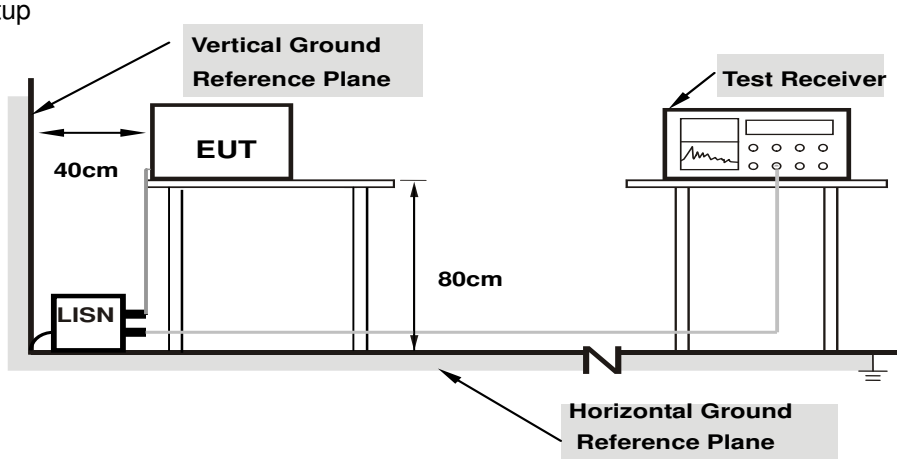
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

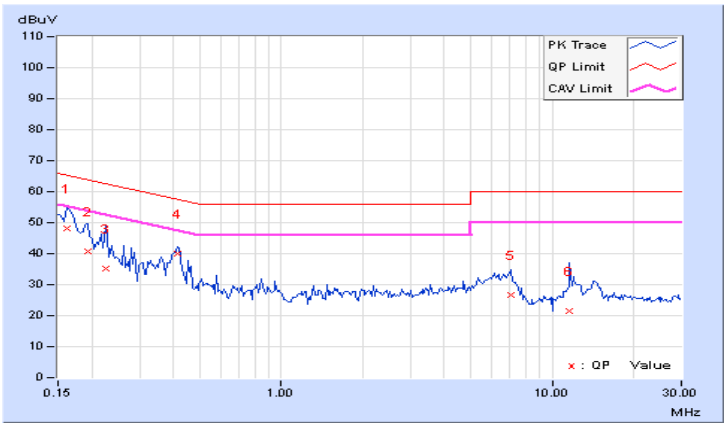
4.2.7 Test Results

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	0.16172	10.14	38.12	23.38	48.26	33.52	65.38	55.38	-17.12	-21.86
2	0.19297	10.12	30.56	19.29	40.68	29.41	63.91	53.91	-23.23	-24.50
3	0.22422	10.12	25.20	13.79	35.32	23.91	62.66	52.66	-27.34	-28.75
4	**0.41563**	**10.11**	**29.89**	**29.10**	**40.00**	**39.21**	**57.54**	**47.54**	**-17.54**	**-8.33**
5	7.01172	10.37	16.34	11.56	26.71	21.93	60.00	50.00	-33.29	-28.07
6	11.57813	10.49	10.96	6.25	21.45	16.74	60.00	50.00	-38.55	-33.26

REMARKS:

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

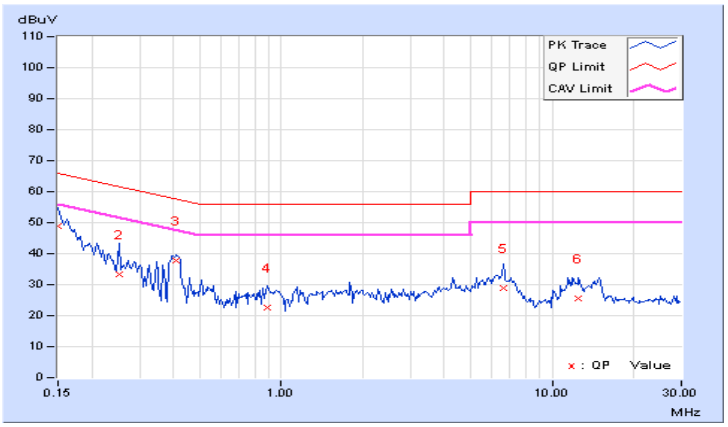


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	10.19	38.81	25.11	49.00	35.30	66.00	56.00	-17.00	-20.70
2	0.25156	10.08	23.43	12.67	33.51	22.75	61.71	51.71	-28.20	-28.96
3	0.41172	10.09	27.83	26.77	37.92	36.86	57.61	47.61	-19.69	-10.75
4	0.89219	10.19	12.26	7.02	22.45	17.21	56.00	46.00	-33.55	-28.79
5	6.58594	10.39	18.44	12.72	28.83	23.11	60.00	50.00	-31.17	-26.89
6	12.52344	10.58	15.06	9.72	25.64	20.30	60.00	50.00	-34.36	-29.70

REMARKS:

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

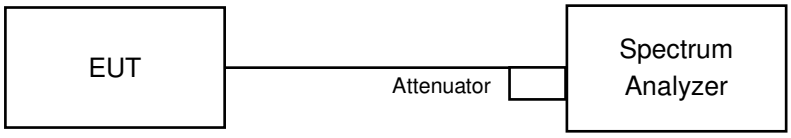


4.3 6dB Bandwidth Measurement

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

CDD Mode

802.11b

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	8.15	8.09	0.5	PASS
6	2437	8.12	8.12	0.5	PASS
11	2462	7.63	8.12	0.5	PASS

Beamforming Mode

802.11g

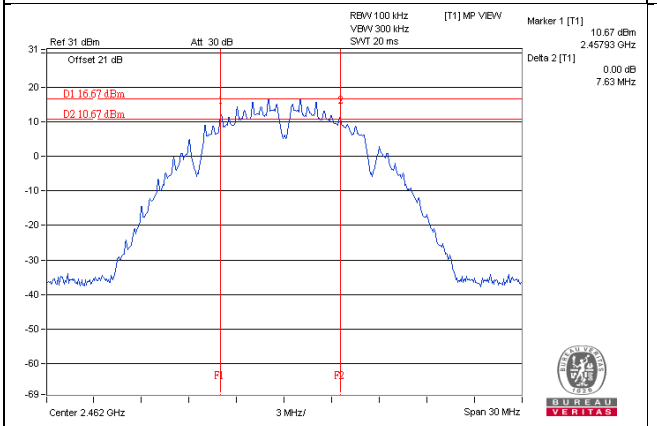
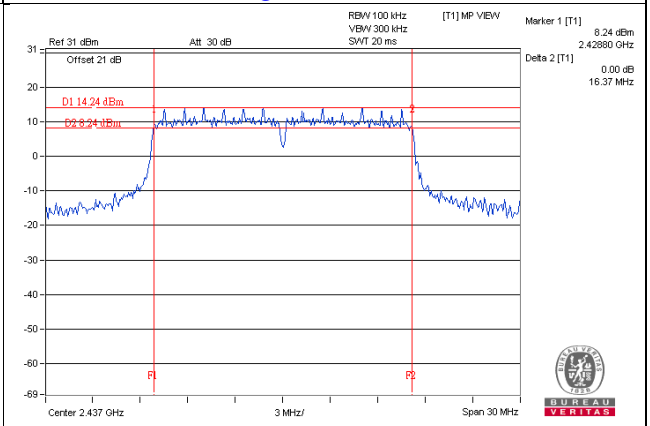
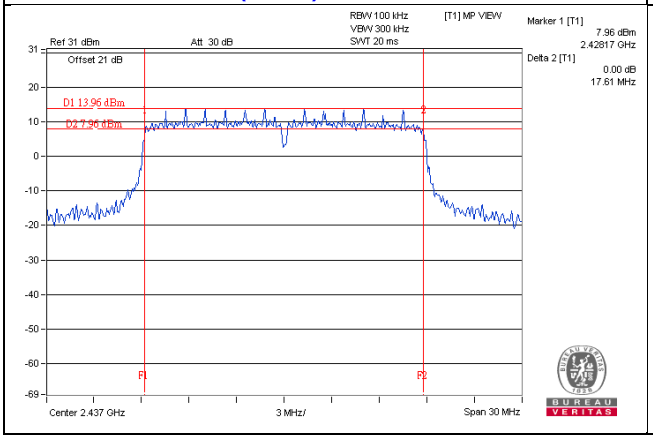
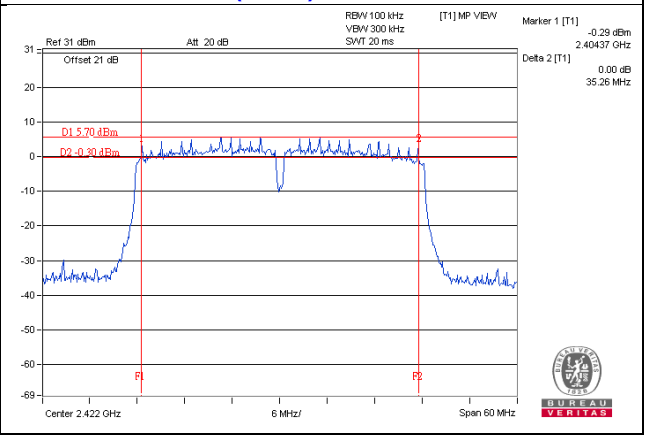
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.43	16.43	0.5	PASS
6	2437	16.38	16.37	0.5	PASS
11	2462	16.39	16.39	0.5	PASS

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.65	17.65	0.5	Pass
6	2437	17.61	17.62	0.5	Pass
11	2462	17.66	17.65	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.26	35.30	0.5	Pass
6	2437	35.31	35.33	0.5	Pass
9	2452	35.47	35.50	0.5	Pass

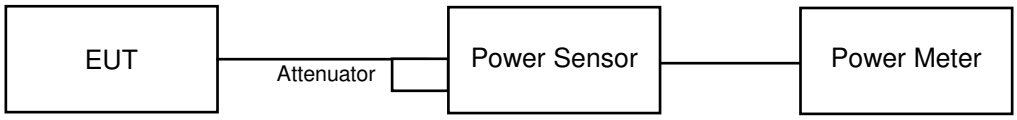
Spectrum Plot of Worst Value	
802.11b / Chain 0 : CH11	**802.11g / Chain 1 : CH6**
	
802.11n (HT20) / Chain 0 : CH6	**802.11n (HT40) / Chain 0 : CH3**
	

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)

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				
1	2412	25.96	25.53	751.73	28.76	30	Pass
6	2437	25.52	25.93	748.193	28.74	30	Pass
11	2462	25.92	25.94	783.486	28.94	30	Pass

Beamforming Mode

802.11g

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass/Fail
		Chain 0	Chain 1				
1	2412	22.22	22.22	333.45	25.23	30	Pass
6	2437	25.36	25.75	719.395	28.57	30	Pass
11	2462	22.50	22.25	345.708	25.39	30	Pass

Note: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 5.52dBi < 6dBi , so the power limit shall not to be reduced.

802.11n (HT20)

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass/Fail
		Chain 0	Chain 1				
1	2412	19.94	20.57	212.653	23.28	30	Pass
6	2437	25.96	25.40	741.194	28.70	30	Pass
11	2462	21.20	20.61	246.906	23.93	30	Pass

Note: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 5.52dBi < 6dBi , so the power limit shall not to be reduced.

802.11n (HT40)

Chan.	Frequency (MHz)	Avg. Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass/Fail
		Chain 0	Chain 1				
3	2422	20.36	20.76	227.767	23.57	30	Pass
6	2437	21.92	21.37	292.685	24.66	30	Pass
9	2452	19.93	20.39	207.797	23.18	30	Pass

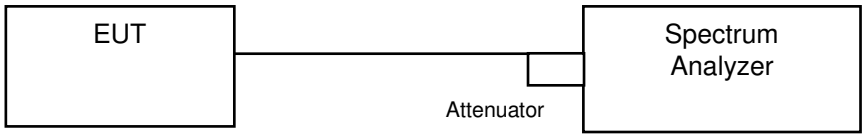
Note: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 5.52dBi < 6dBi , so the power limit shall not to be reduced.

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

802.11b

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.

802.11g, 802.11n (HT20), 802.11n (HT40)

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6

4.5.7 Test Results

CDD Mode

802.11b

TX chain	Channel	Freq. (MHz)	PSD (dBm/3kHz)	10 log (N=2) dB	Total PSD (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-3.79	3.01	-0.78	8.00	Pass
	6	2437	-3.67	3.01	-0.66	8.00	Pass
	11	2462	-3.62	3.01	-0.61	8.00	Pass
1	1	2412	-3.55	3.01	-0.54	8.00	Pass
	6	2437	-3.60	3.01	-0.59	8.00	Pass
	11	2462	-3.98	3.01	-0.97	8.00	Pass

Note: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 5.52dBi < 6dBi , so the power density limit shall not to be reduced.

Beamforming Mode

802.11g

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/3kHz)	10 log (N=2) dB	Duty Factor (dB)	TOTAL PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-10.19	3.01	0.18	-7.00	8.00	Pass
	6	2437	-7.30	3.01	0.18	-4.11	8.00	Pass
	11	2462	-10.74	3.01	0.18	-7.55	8.00	Pass
1	1	2412	-10.26	3.01	0.18	-7.07	8.00	Pass
	6	2437	-6.33	3.01	0.18	-3.14	8.00	Pass
	11	2462	-9.79	3.01	0.18	-6.60	8.00	Pass

Note: 1. Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2$ / 2] = 5.52dBi < 6dBi , so the power density limit shall not to be reduced.

2. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/3kHz)	10 log (N=2) dB	Duty Factor (dB)	TOTAL PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	1	2412	-12.60	3.01	0.09	-9.50	8.00	Pass
	6	2437	-7.15	3.01	0.09	-4.05	8.00	Pass
	11	2462	-11.34	3.01	0.09	-8.24	8.00	Pass
1	1	2412	-12.49	3.01	0.09	-9.39	8.00	Pass
	6	2437	-7.19	3.01	0.09	-4.09	8.00	Pass
	11	2462	-11.67	3.01	0.09	-8.57	8.00	Pass

Note: 1. Directional gain = 10 log[(10$^{G1/20}$ + 10$^{G2/20}$)^{2} / 2] = 5.52dBi < 6dBi , so the power density limit shall not to be reduced.

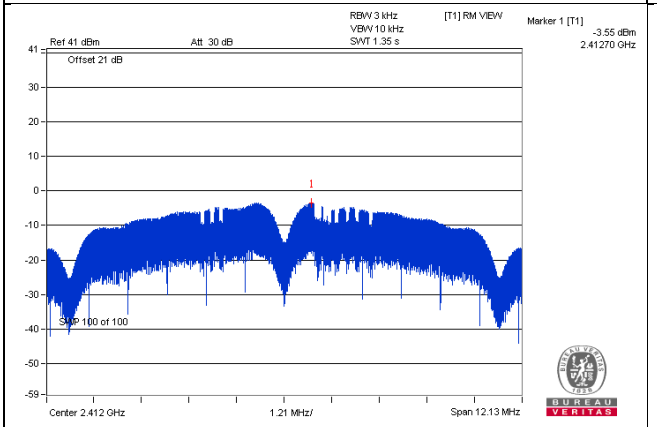
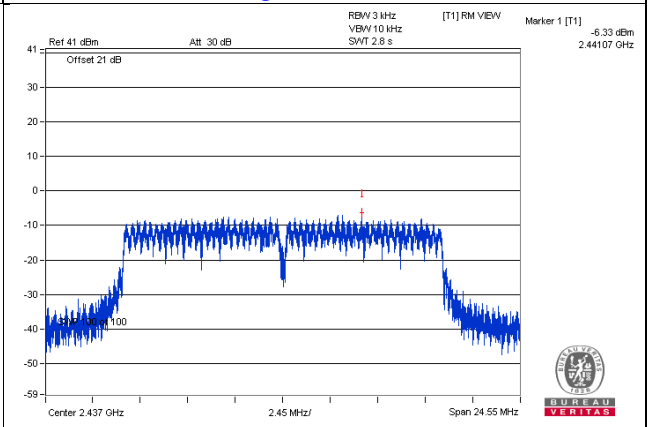
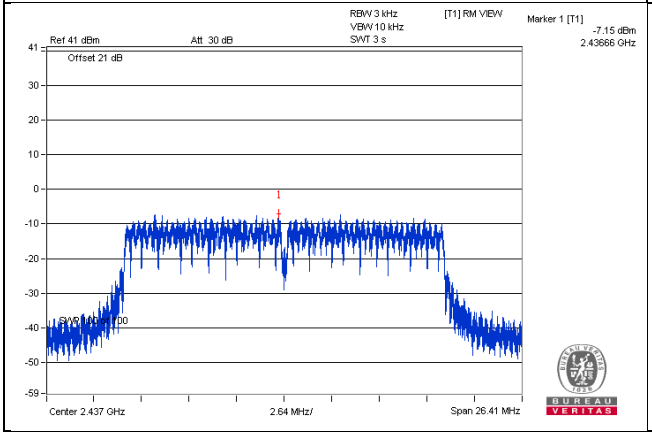
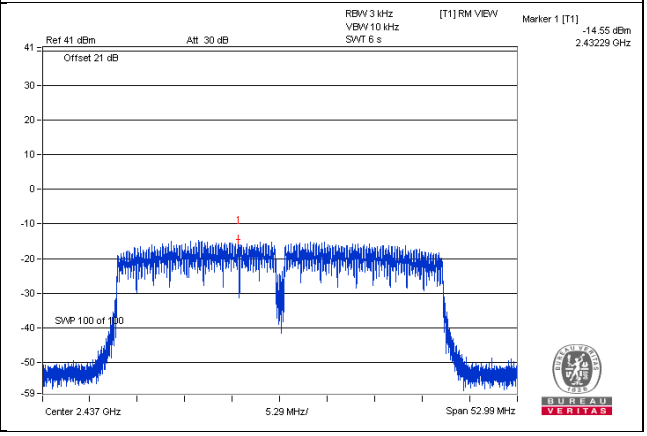
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

TX chain	Channel	Freq. (MHz)	PSD W/O Duty Factor (dBm/3kHz)	10 log (N=2) dB	Duty Factor (dB)	TOTAL PSD With Duty Factor (dBm/3kHz)	Limit (dBm/3kHz)	Pass /Fail
0	3	2422	-15.67	3.01	0.16	-12.50	8.00	Pass
	6	2437	-14.59	3.01	0.16	-11.42	8.00	Pass
	9	2452	-16.11	3.01	0.16	-12.94	8.00	Pass
1	3	2422	-15.27	3.01	0.16	-12.10	8.00	Pass
	6	2437	-14.55	3.01	0.16	-11.38	8.00	Pass
	9	2452	-15.90	3.01	0.16	-12.73	8.00	Pass

Note: 1. Directional gain = 10 log[(10$^{G1/20}$ + 10$^{G2/20}$)^{2} / 2] = 5.52dBi < 6dBi , so the power density limit shall not to be reduced.

4. Refer to section 3.3 for duty cycle spectrum plot.

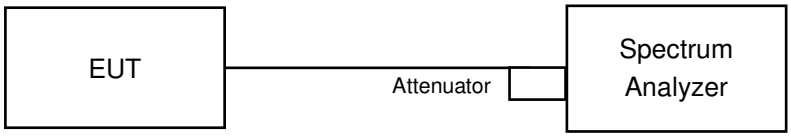
Spectrum Plot of Worst Value	
802.11b / Chain 1 : CH1	**802.11g / Chain 1 : CH6**
	
802.11n (HT20) / Chain 0 : CH6	**802.11n (HT40) / Chain 1 : CH6**
	

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

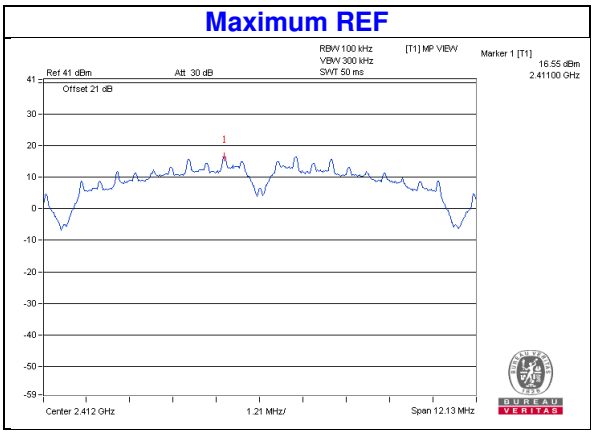
Same as Item 4.3.6

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.

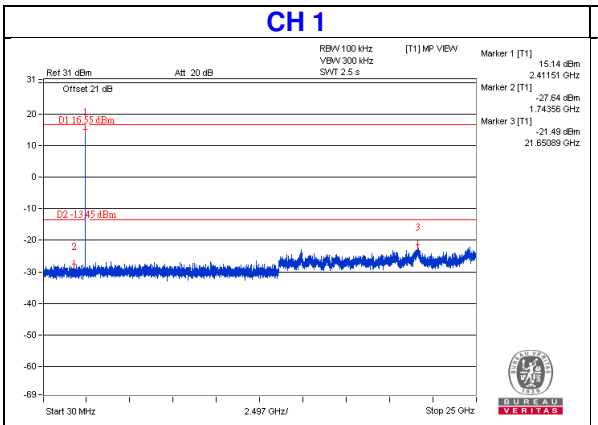
802.11b

Maximum REF

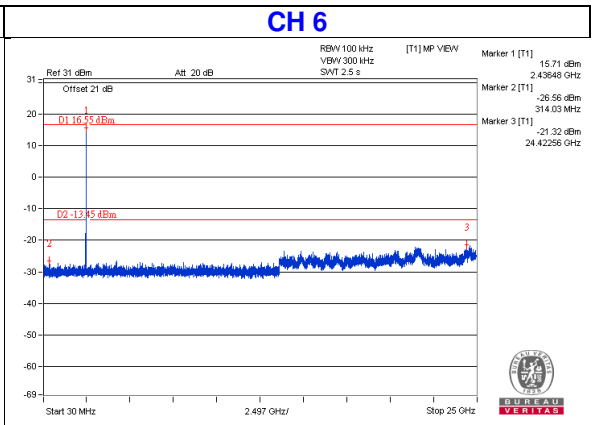


CHAIN 0

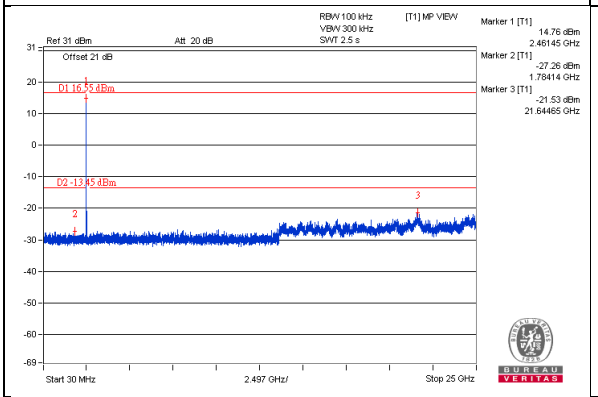
CH 1



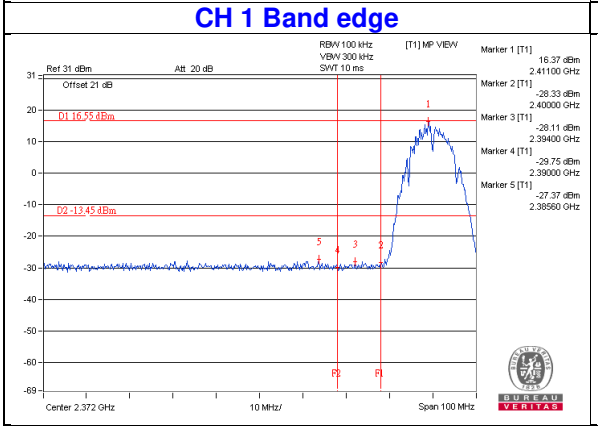
CH 6



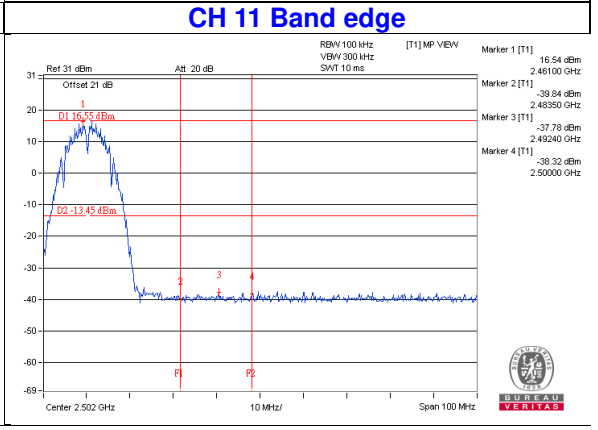
CH 11



CH 1 Band edge

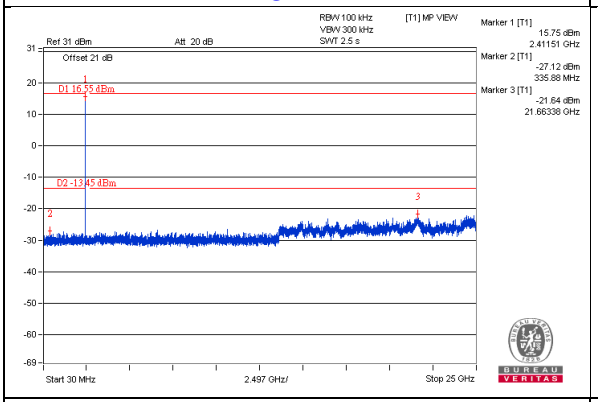


CH 11 Band edge

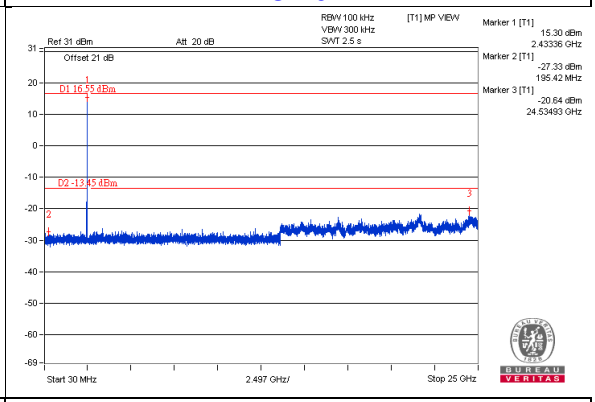


CHAIN 1

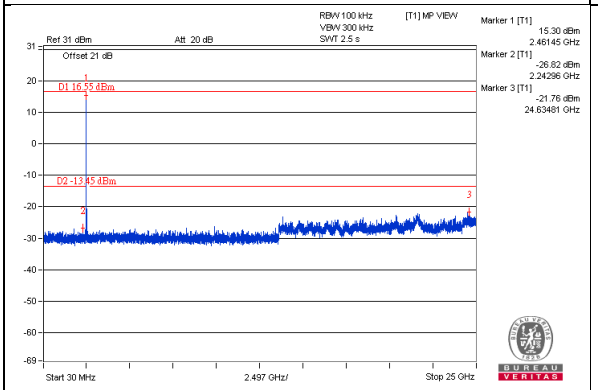
CH 1



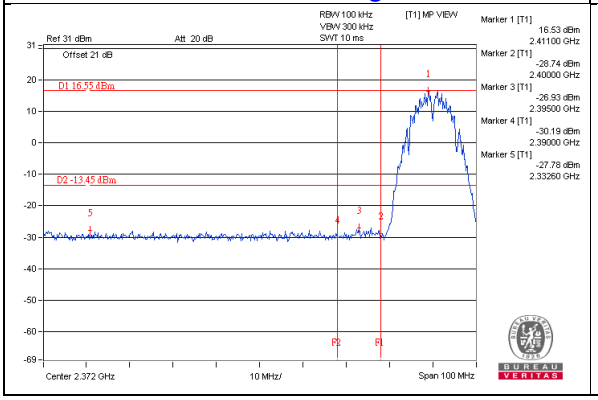
CH 6



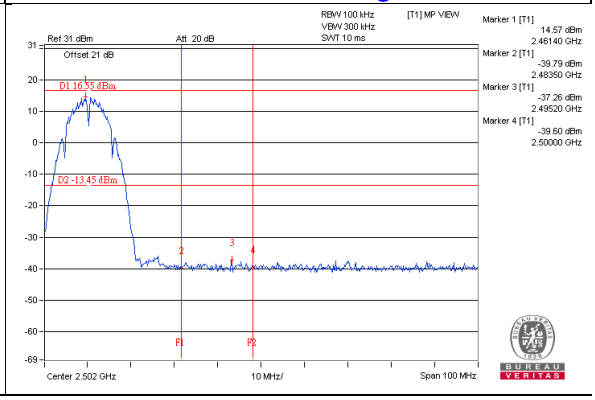
CH 11



CH 1 Band edge

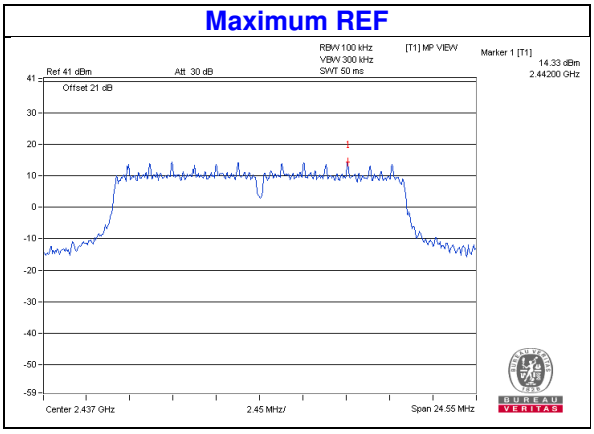


CH 11 Band edge



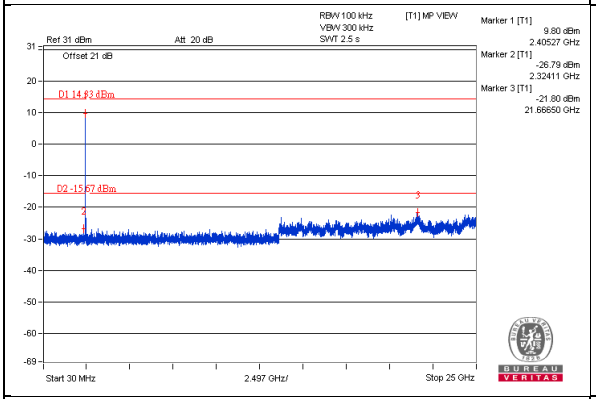
802.11g

Maximum REF

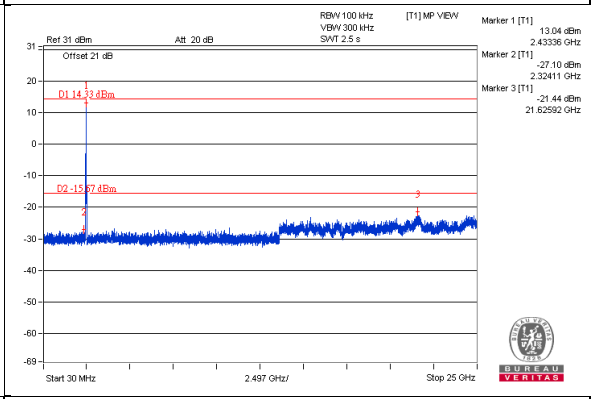


CHAIN 0

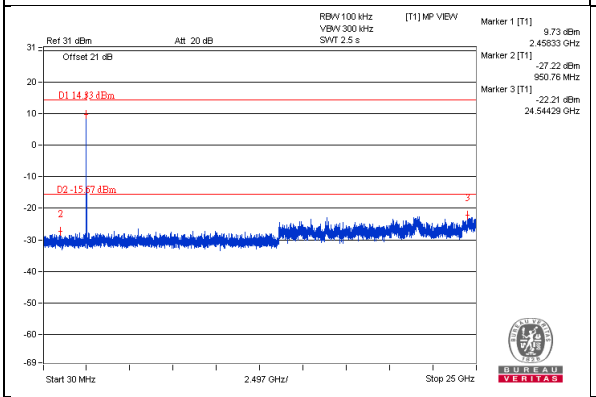
CH 1



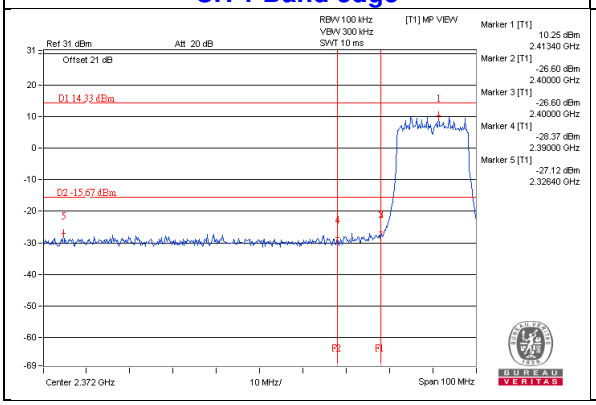
CH 6



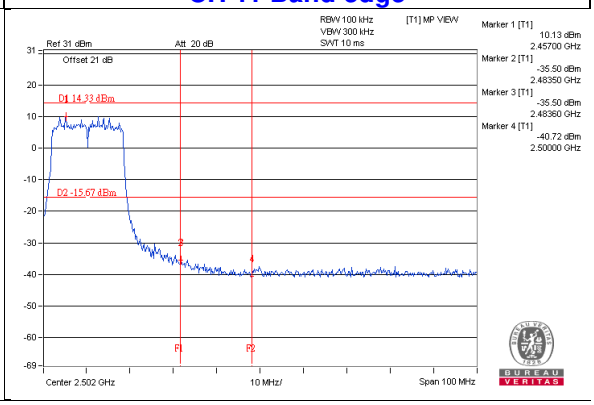
CH 11



CH 1 Band edge

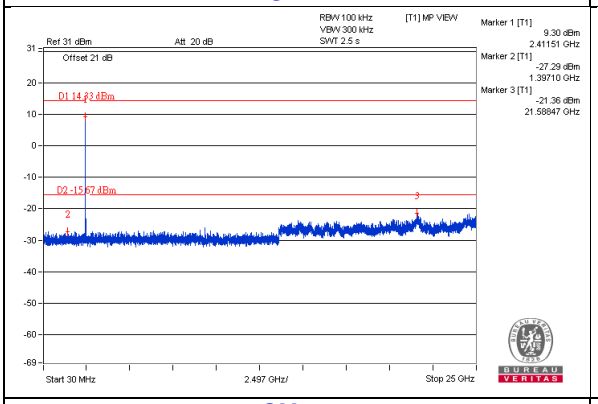


CH 11 Band edge

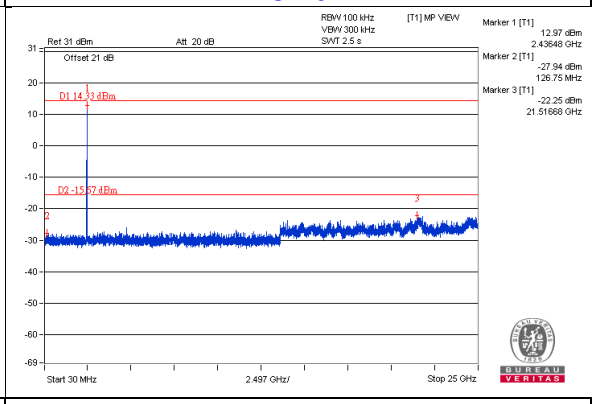


CHAIN 1

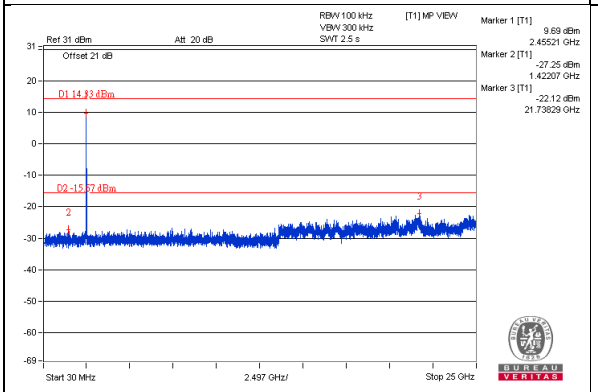
CH 1



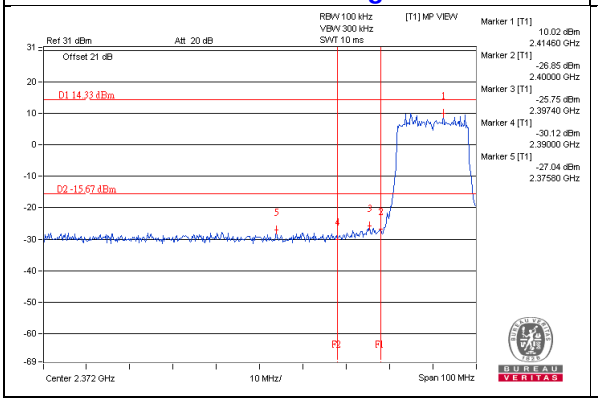
CH 6



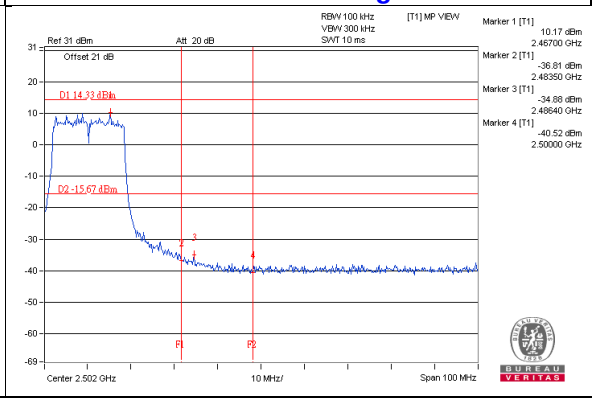
CH 11



CH 1 Band edge

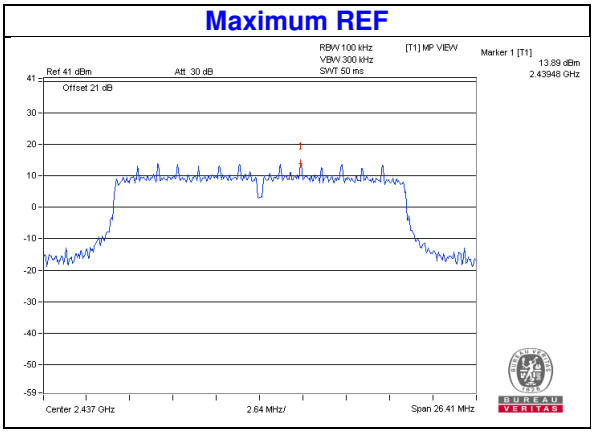


CH 11 Band edge



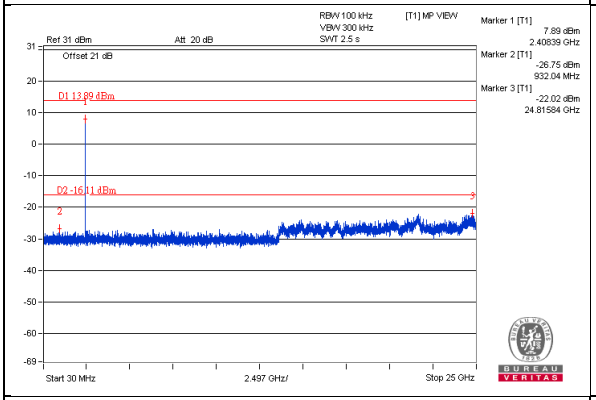
802.11n (HT20)

Maximum REF

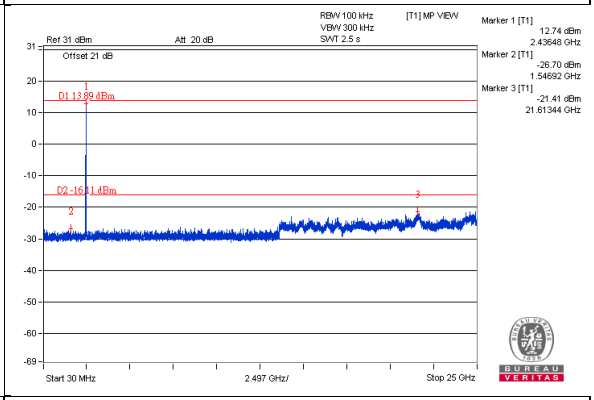


CHAIN 0

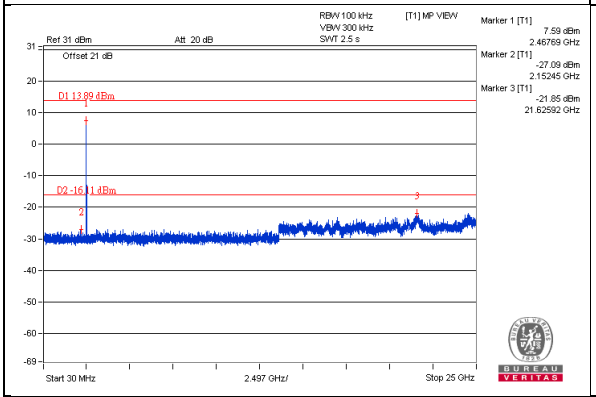
CH 1



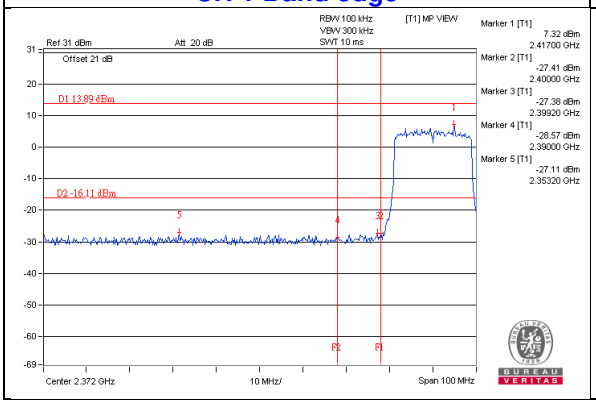
CH 6



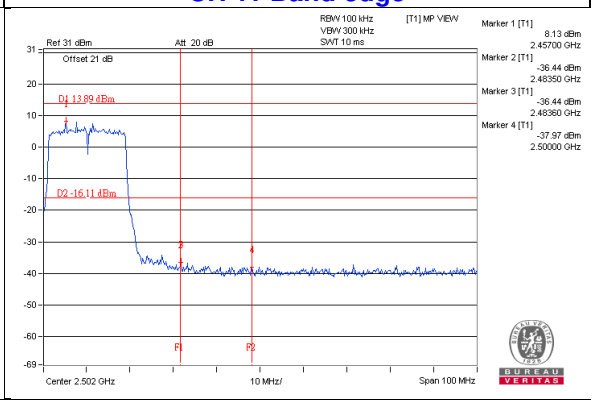
CH 11



CH 1 Band edge

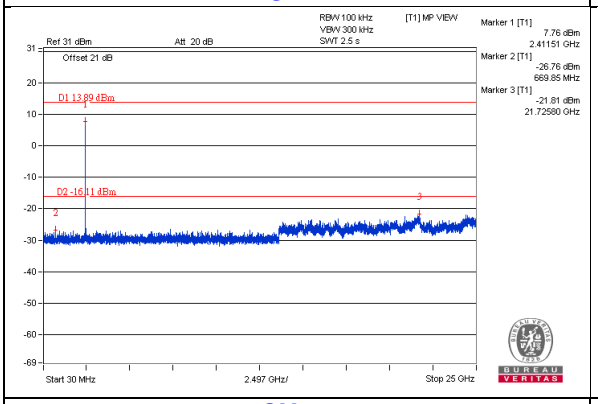


CH 11 Band edge

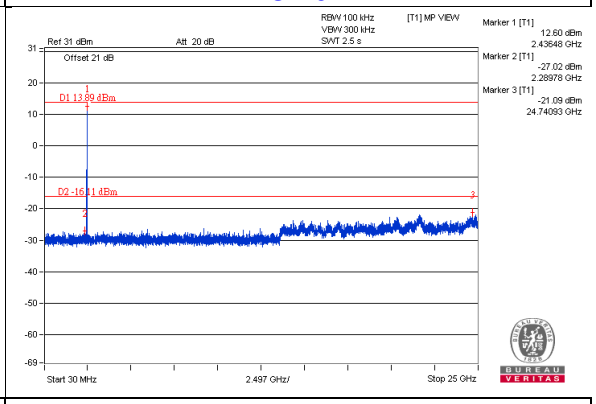


CHAIN 1

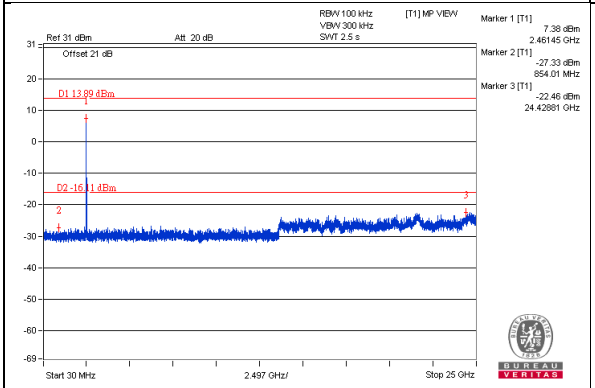
CH 1



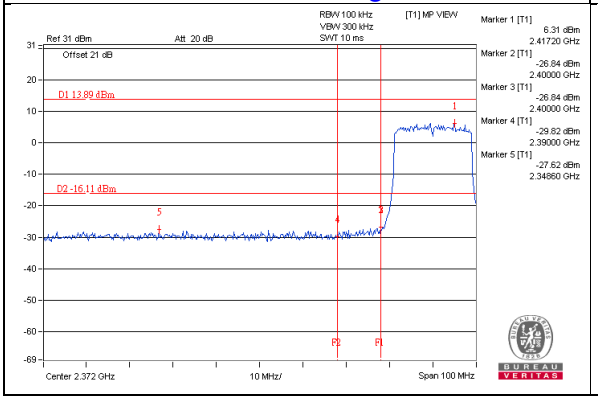
CH 6



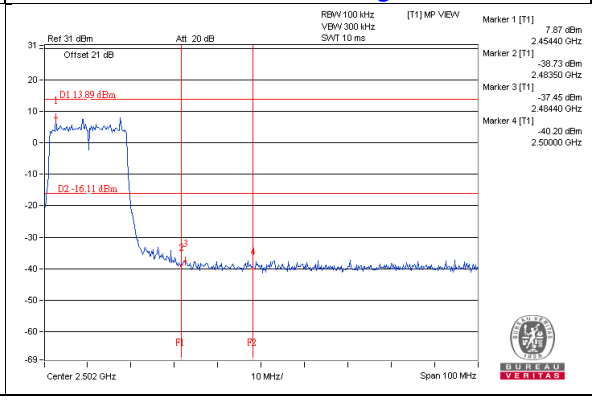
CH 11



CH 1 Band edge

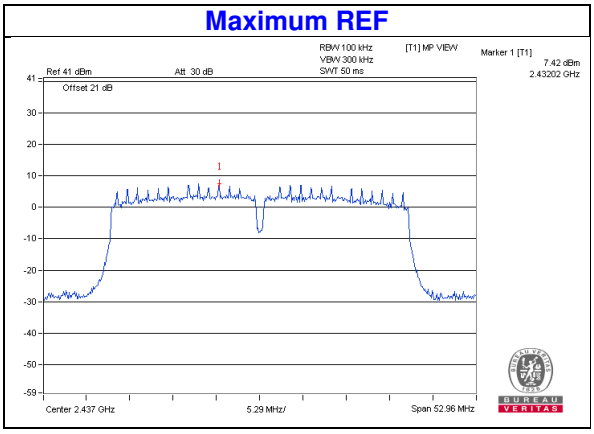


CH 11 Band edge



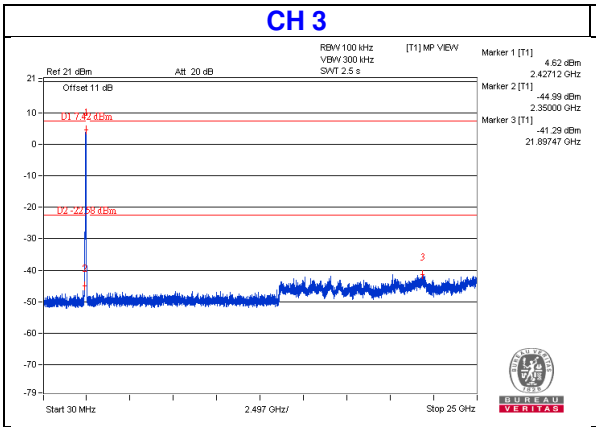
802.11n (HT40)

Maximum REF

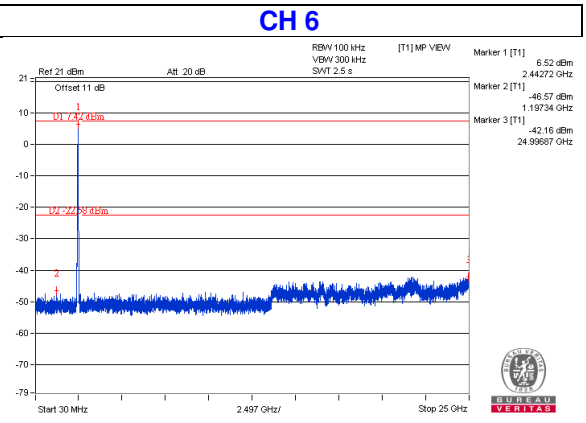


CHAIN 0

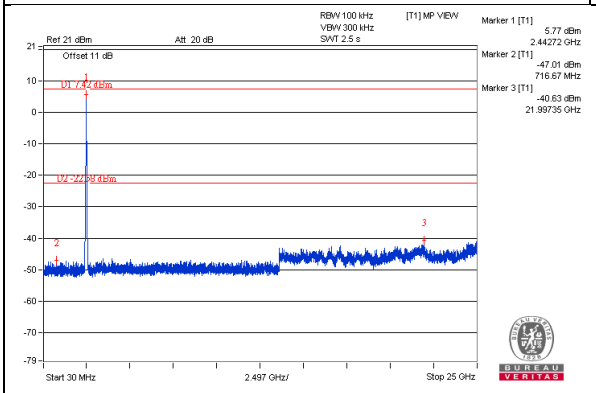
CH 3



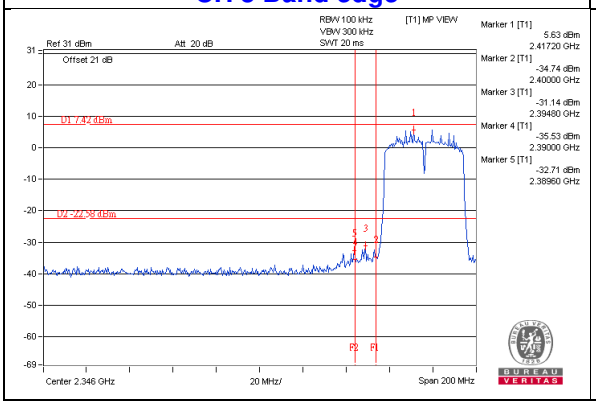
CH 6



CH 9



CH 3 Band edge



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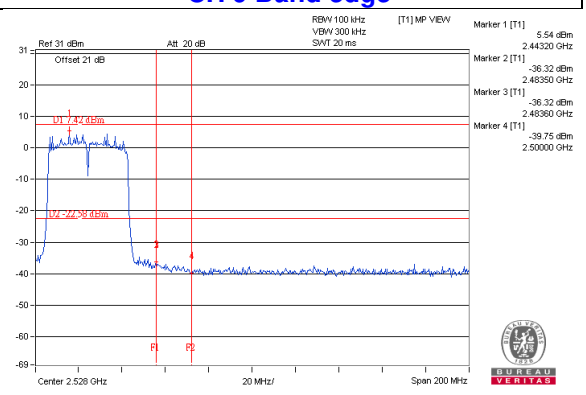
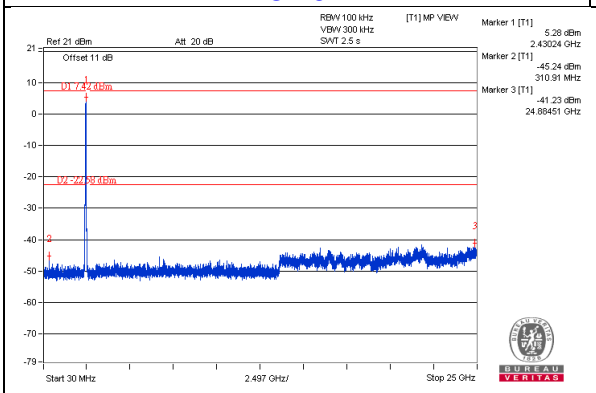
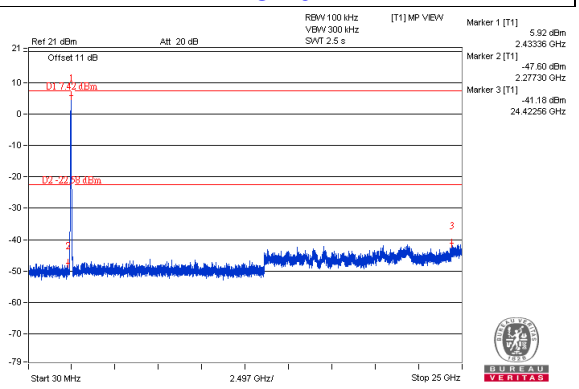


CHAIN 1

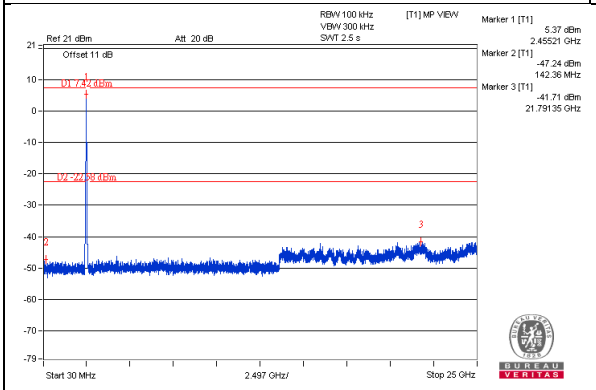
CH 3



CH 6



CH 9



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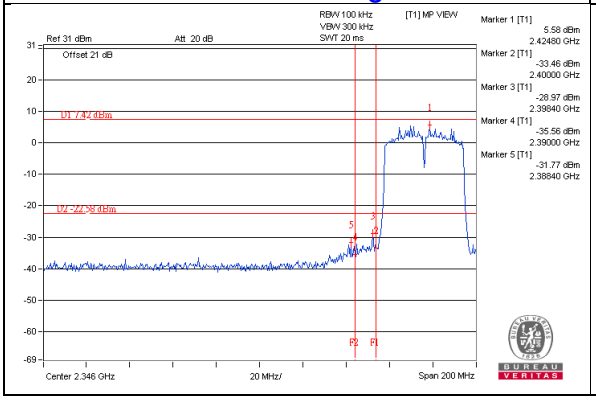
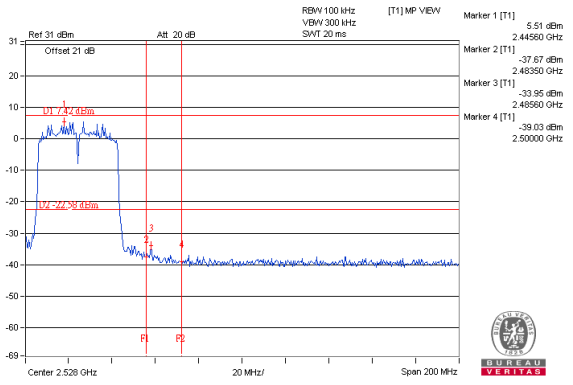


CH 9 Band edge



5 Pictures of Test Arrangements

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

Appendix – Information on the Testing Laboratories

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

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

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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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