FCC Test Report

Report No.:	RF150717C01
FCC ID:	MSQ-RT1E00
Test Model:	RT-AC1200G
Received Date:	Jul. 17, 2015
Test Date:	Oct. 06 ~ Nov. 06, 2015
Issued Date:	Nov. 09, 2015
Applicant:	ASUSTek COMPUTER INC.
Address:	4F, NO. 150, LI-TE RD. PEITOU, TAIPEI 112, TAIWAN
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.
Test Location:	No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)

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Release Control Record

Issue No.	Description	Date Issued
RF150717C01	Original release.	Nov. 09, 2015

1 Certificate of Conformity

Product:	RT-AC1200G Dual Band 2x2 Wireless-AC1200 Gigabit Router
Brand:	ASUS
Test Model:	RT-AC1200G
Sample Status:	Engineering sample
Applicant:	ASUSTek COMPUTER INC.
Test Date:	Oct. 06 ~ Nov. 06, 2015
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 : Celine Chou , **Date:** Nov. 09, 2015

Celine Chou / Specialist

Approved by : Ken Liu , **Date:** Nov. 09, 2015

Ken Liu / Senior 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 -1.96dB at 0.50181MHz
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, 2483.50MHz and 5850.00MHz.
15.247(d)	Antenna Port Emission	Pass	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	Pass	Meet the requirement of limit.
15.247(b)	Conducted power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	Pass	Meet the requirement of limit.
15.203	Antenna Requirement	Pass	Antenna connector is i-pex (MHF) 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	2.44 dB
Radiated Emissions up to 1 GHz	30MHz ~ 200MHz	3.63 dB
	200MHz ~1000MHz	3.64 dB
Radiated Emissions above 1 GHz	1GHz ~ 18GHz	2.29 dB
	18GHz ~ 40GHz	2.29 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	RT-AC1200G Dual Band 2x2 Wireless-AC1200 Gigabit Router
Brand	ASUS
Test Model	RT-AC1200G
Sample Status	Engineering sample
Power Supply Rating	12Vdc from adapter
Modulation Type	CCK, DQPSK, DBPSK for DSSS 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11b:11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11n: up to 300.0Mbps 802.11ac: up to 866.7Mbps
Operating Frequency	2.4GHz: 2412 ~ 2462MHz 5.0GHz: 5745 ~ 5825MHz
Number of Channel	2.4GHz: 802.11b, 802.11g, 802.11n (HT20): 11 802.11n (HT40): 7 5.0GHz: 802.11a, 802.11n (HT20), 802.11ac (VHT20): 5 802.11n (HT40), 802.11ac (VHT40): 2 802.11ac (VHT80): 1
Output Power	497.915mW for 2412 ~ 2462MHz 739.894mW for 5745 ~ 5825MHz
Antenna Type	Refer to note
Antenna Connector	Refer to note
Accessory Device	Adapter
Data Cable Supplied	N/A

Note:

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

Modulation Mode	TX Function
802.11b	1TX / (Fixed Ant. No.: 800000000562)
802.11g	2TX
802.11a	2TX
802.11n (HT20)	2TX
802.11n (HT40)	2TX
802.11ac (VHT80)	2TX

* 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)

2. The EUT consumes power from the following adapters.

Adapter 1	
Brand	Shenzhen Gongjin Electronics CO., LTD.
Model	S24B17-120A200-Y4
Input Power	100-240Vac, 50/60Hz, 0.7A
Output Power	12Vdc, 2A
Power Line	1.4m power cable without core attached on adapter

Adapter 2	
Brand	ShenZhen SOY Technology Co., Ltd
Model	SOY024A-1200200US
Input Power	100-240Vac, 50/60Hz, 0.6A
Output Power	12Vdc, 2A
Power Line	1.5m power cable with one core attached on adapter

Adapter 3	
Brand	Ten Pao International Inc.
Model	S024AMU1200200
Input Power	100-240Vac, 50/60Hz, 0.6A
Output Power	12Vdc, 2A
Power Line	1.8m power cable without core attached on adapter

3. The EUT with follow antennas gain is listed as table below.

Band	Antenna No.	Antenna type	Model	Manufacturer	connector	Gain(dBi)
2.4GHz	800000000561	Dipole	TA2450MO	Dong guan	i-pex (MHF)	5
	800000000562	Dipole	TA2450MO	Dong guan	i-pex (MHF)	5
5GHz	800000000563	Dipole	TA5X5MO	Dong guan	i-pex (MHF)	5
	800000000564	Dipole	TA5X5MO	Dong guan	i-pex (MHF)	5

3.2 Description of Test Modes

For 2.4GHz:

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		

For 5.0GHz (5745 ~ 5825MHz):

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz		

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

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
155	5775MHz

3.2.1 Test Mode Applicability and Tested Channel Detail

For 2.4GHz:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	Powered by adapter 1
B	-	√	√	-	Powered by adapter 2
C	-	√	√	-	Powered by adapter 3

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

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

Note:

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

Radiated Emission Test (Above 1GHz):

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
A	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	15.0

Radiated Emission Test (Below 1GHz):

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

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

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

Power Line Conducted Emission Test:

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

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

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

Antenna Port Conducted Measurement:

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

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1.0
A	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
A	802.11n (HT20)	1 to 11	1, 6, 11	OFDM	BPSK	7.2
A	802.11n (HT40)	3 to 9	3, 6, 9	OFDM	BPSK	15.0

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 65%RH	120Vac, 60Hz	Tank Wu
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Bayu Chen
PLC	18deg. C, 70%RH	120Vac, 60Hz	Nick Hsu
APCM	25deg. C, 60%RH	120Vac, 60Hz	Antony Lee

For 5.0GHz:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE≥1G	RE<1G	PLC	APCM	
A	√	√	√	√	Powered by adapter 1
B	-	√	√	-	Powered by adapter 2
C	-	√	√	-	Powered by adapter 3

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

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

Note:

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

Radiated Emission Test (Above 1GHz):

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
A	802.11n (HT20)	149 to 165	149, 157, 165	OFDM	BPSK	7.2
A	802.11n (HT40)	151 to 159	151, 159	OFDM	BPSK	15.0
A	802.11ac (VHT80)	155	155	OFDM	BPSK	58.5

Radiated Emission Test (Below 1GHz):

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B, C	802.11a	149 to 165	149	OFDM	BPSK	6.0

Power Line Conducted Emission Test:

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A, B, C	802.11a	149 to 165	149	OFDM	BPSK	6.0

Antenna Port Conducted Measurement:

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

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

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

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6.0
A	802.11n (HT20)	149 to 165	149, 157, 165	OFDM	BPSK	7.2
A	802.11n (HT40)	151 to 159	151, 159	OFDM	BPSK	15.0
A	802.11ac (VHT80)	155	155	OFDM	BPSK	58.5

Test Condition:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	25deg. C, 65%RH	120Vac, 60Hz	Tank Wu
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Bayu Chen
PLC	18deg. C, 70%RH	120Vac, 60Hz	Nick Hsu
APCM	25deg. C, 60%RH	120Vac, 60Hz	Antony Lee

3.3 Duty Cycle of Test Signal

2.4GHz Band:

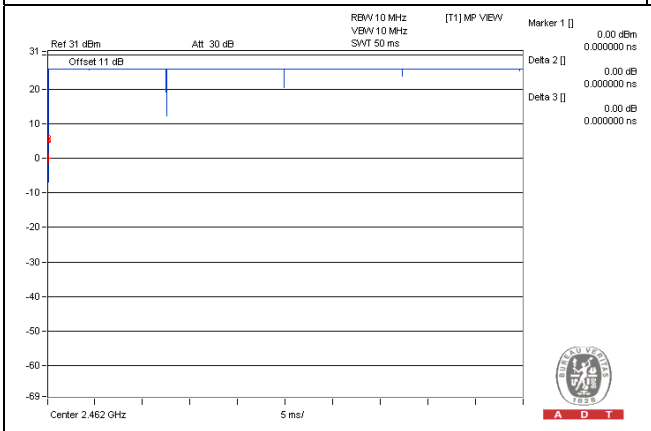
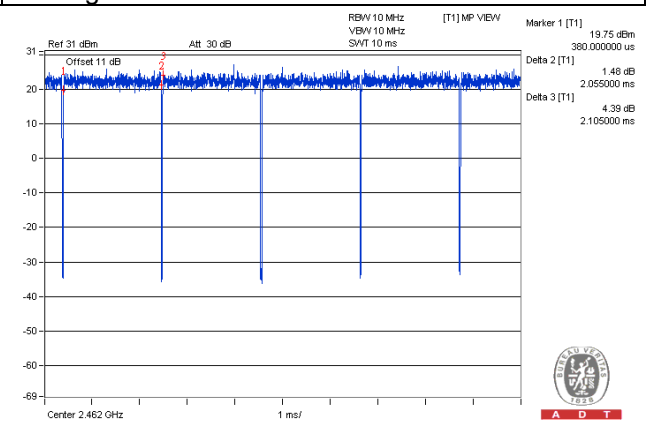
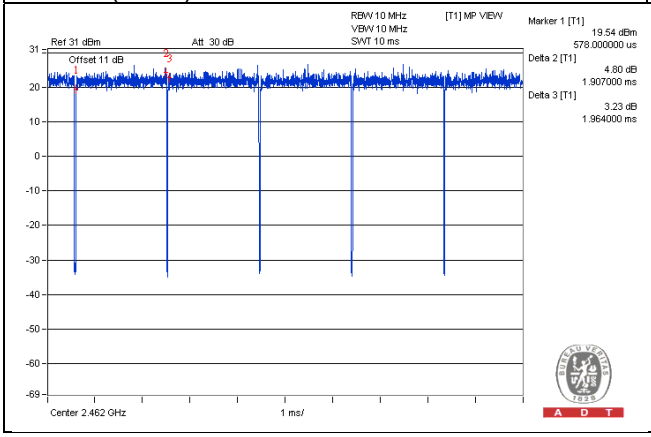
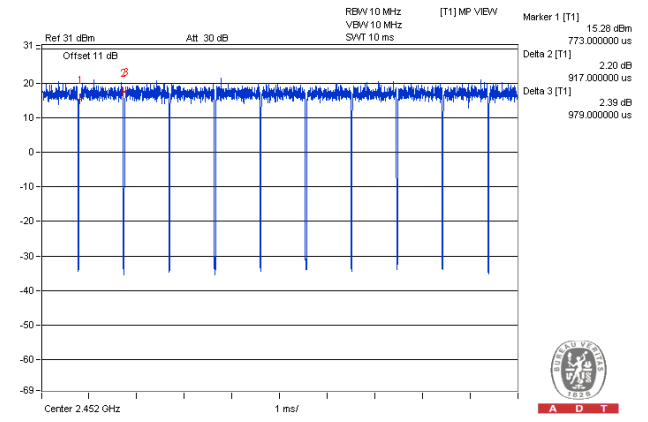
802.11b: Duty cycle of test signal is > 98%

802.11g, 802.11n (HT20), 802.11n (HT40): Duty cycle of test signal is < 98%, duty factor shall be considered.

802.11g: Duty cycle = 2.055/2.105 =0.976, Duty factor = 10 * log(1/0.976) = 0.10

802.11n (HT20): Duty cycle = 1.907/1.964 = 0.971, Duty factor = 10 * log(1/0.971) = 0.13

802.11n (HT40): Duty cycle = 0.917/0.979 = 0.937, Duty factor = 10 * log(1/0.937) = 0.28

802.11b	802.11g
	
802.11n (HT20)	802.11n (HT40)
	

5GHz Band:

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

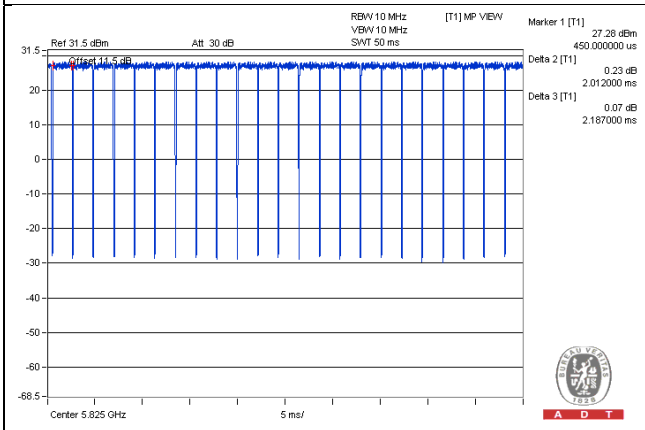
802.11a: Duty cycle = 2.012/2.187 = 0.920, Duty factor = 10 * log(1/0.920) = 0.36

802.11n (HT20): Duty cycle = 1.874/2.062 = 0.909, Duty factor = 10 * log(1/0.909) = 0.42

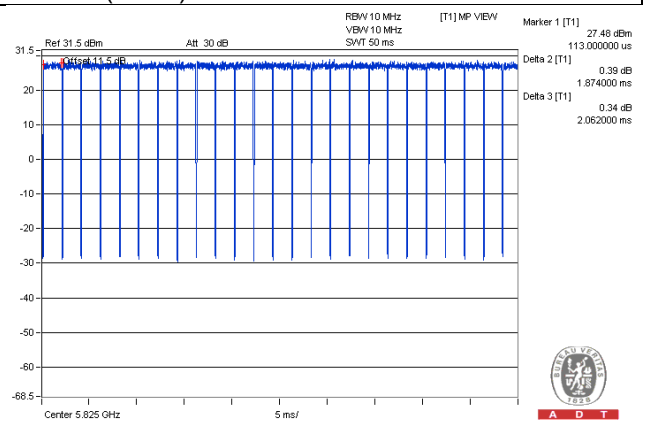
802.11n (HT40): Duty cycle = 0.850/1.312 = 0.648, Duty factor = 10 * log(1/0.648) = 1.89

802.11ac (VHT80): Duty cycle = 0.413/0.513 = 0.805, Duty factor = 10 * log(1/0.805) = 0.94

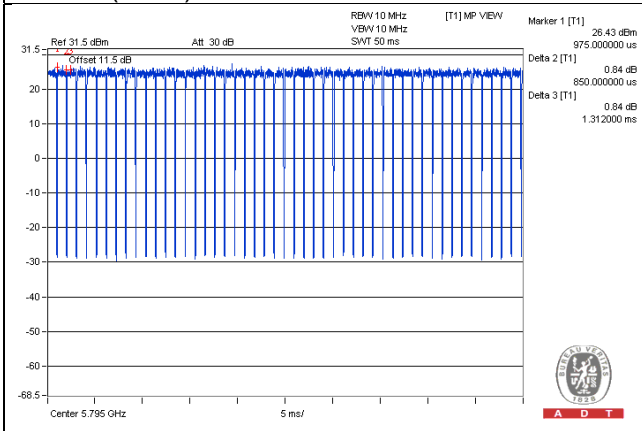
802.11a



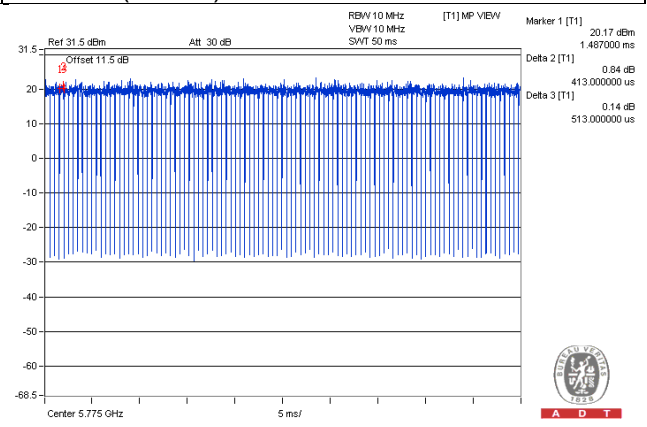
802.11n (HT20)



802.11n (HT40)



802.11ac (VHT80)



3.4 Description of Support Units

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

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Notebook	DELL	E5410	1HC2XM1	FCC DoC Approved	-
B.	Load	NA	NA	NA	NA	-
C.	USB Flash	Transcend	V85	538455 4489	FCC DoC Approved	-

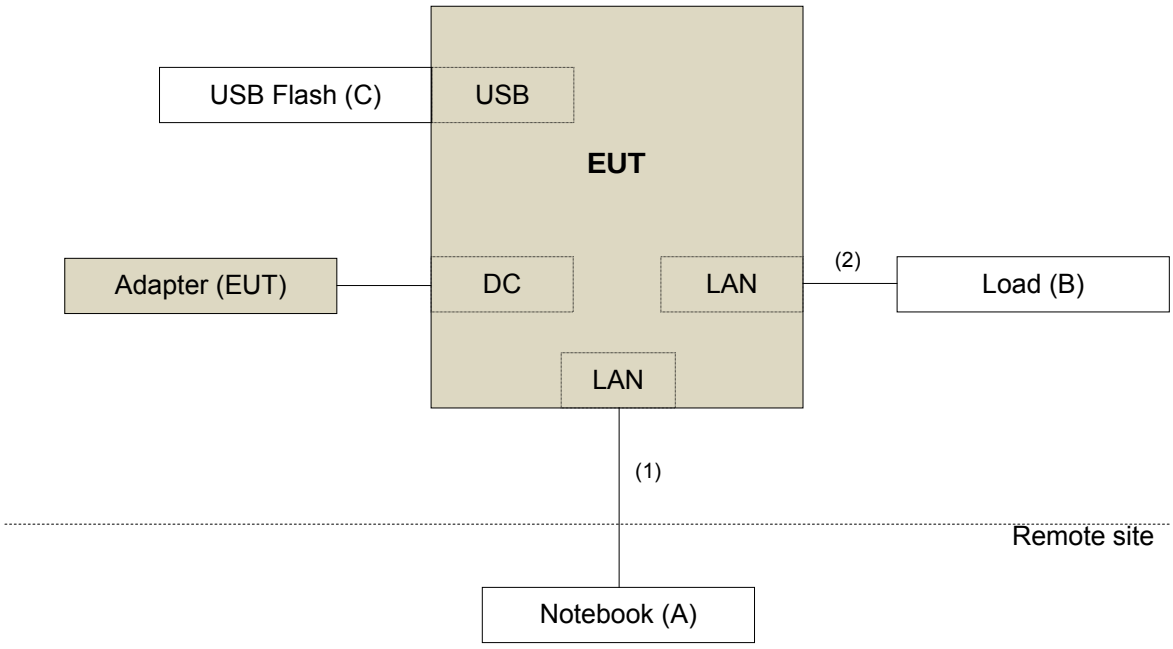
Note:

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

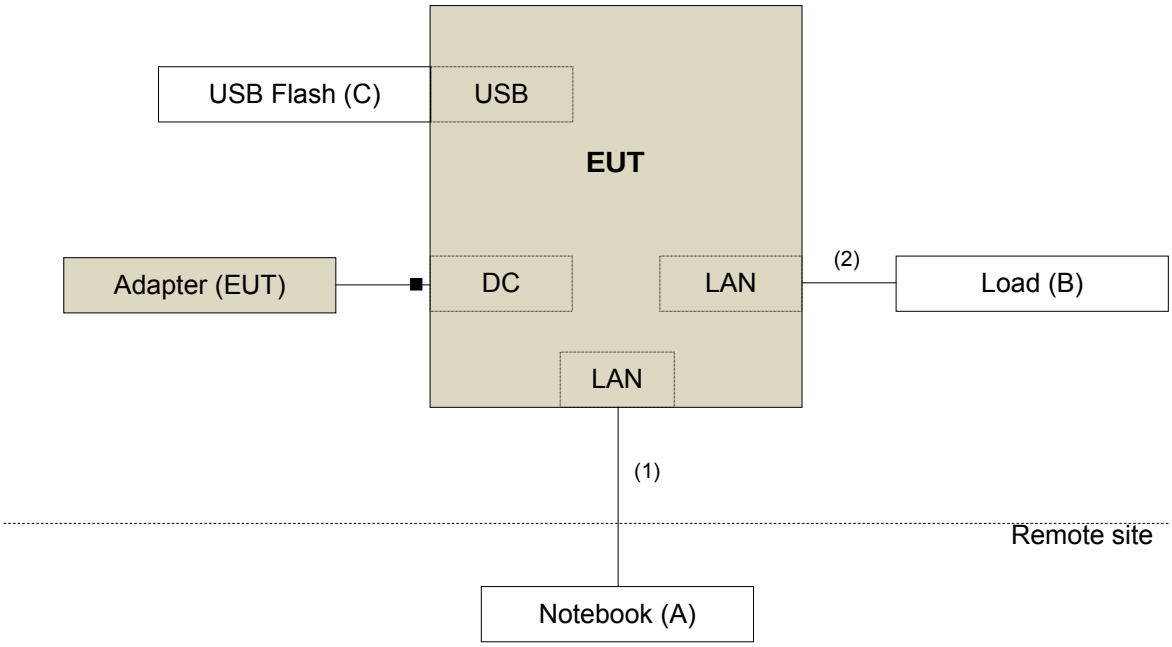
ID	Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	LAN cable	1	3	N	0	-
2.	LAN cable	4	1.8	N	0	-

3.4.1 Configuration of System under Test

Test Mode A and C



Test Mode B



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)

558074 D01 DTS Meas Guidance v03r03

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 is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It 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 (For 2.4GHz Band)

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

Note:

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

4.1.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCS30	100289	Dec. 01, 2014	Nov. 30, 2015
Spectrum Analyzer ROHDE & SCHWARZ	FSP40	100269	Mar. 30, 2015	Mar. 29, 2016
BILOG Antenna SCHWARZBECK	VULB9168	9168-156	Feb. 06, 2015	Feb. 05, 2016
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-1169	Feb. 09, 2015	Feb. 08, 2016
HORN Antenna SCHWARZBECK	BBHA 9170	BBHA9170241	Feb. 09, 2015	Feb. 08, 2016
Preamplifier Agilent	8449B	3008A01911	Aug. 09, 2015	Aug. 08, 2016
Preamplifier Agilent	8447D	2944A10638	Aug. 09, 2015	Aug. 08, 2016
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-02(309222 +248780)	Aug. 09, 2015	Aug. 08, 2016
RF signal cable HUBER+SUHNER	SUCOFLEX 104	CABLE-CH9-03(274092)	Aug. 09, 2015	Aug. 08, 2016
RF signal cable Woken	8D-FB	Cable-CH9-01	Aug. 11, 2015	Aug. 10, 2016
Software BV ADT	ADT_Radiated_ V7.6.15.9.4	NA	NA	NA
Antenna Tower EMCO	2070/2080	512.835.4684	NA	NA
Turn Table EMCO	2087-2.03	NA	NA	NA
Antenna Tower &Turn BV ADT	AT100	AT93021705	NA	NA
Turn Table BV ADT	TT100	TT93021705	NA	NA
Turn Table Controller BV ADT	SC100	SC93021705	NA	NA
High Speed Peak Power Meter	ML2495A	0824011	Jul. 09, 2015	Jul. 08, 2016
Power Sensor	MA2411B	0738171	Jul. 09, 2015	Jul. 08, 2016

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 9.
3. The horn antenna and preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 215374.
5. The IC Site Registration No. is IC 7450F-9.

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:

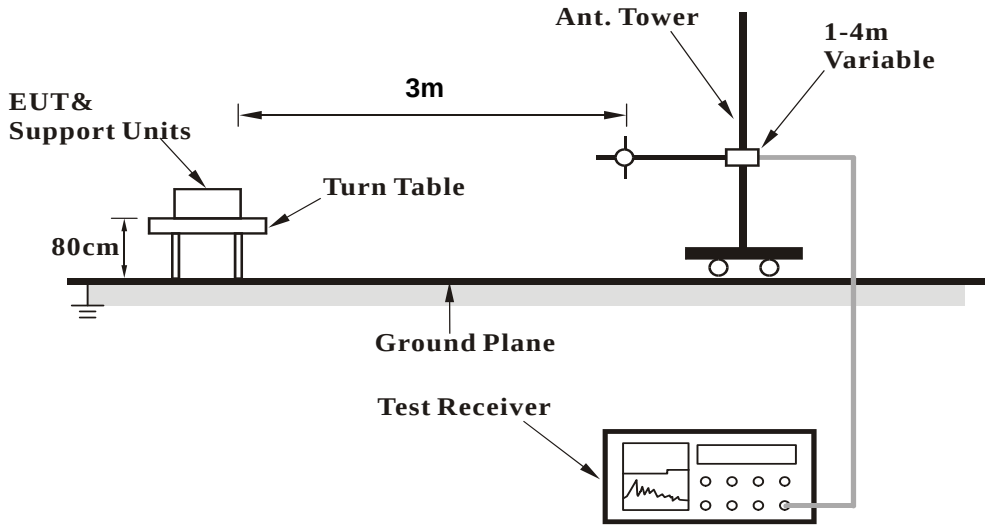
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
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

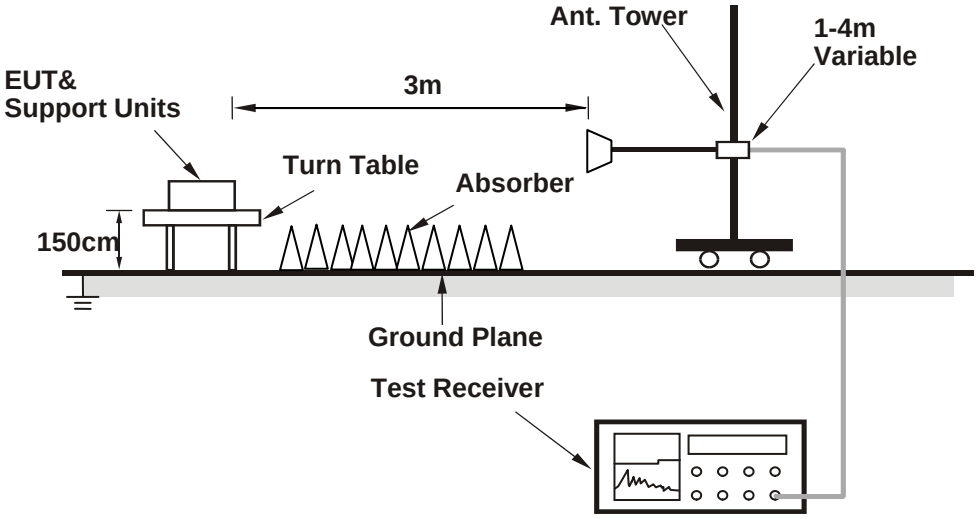
No deviation.

4.1.5 Test Set Up

<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. Placed the EUT on the testing table.
b. Prepared notebook to act as communication partner and placed it outside of testing area.
c. The communication partner connected with EUT via a RJ45 cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
d. The communication partner sent data to EUT by command "PING".
e. The necessary accessories enable the system in full functions.

4.1.7 Test Results

Above 1GHz worst-case 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	60.2 PK	74.0	-13.8	2.06 H	173	25.50	34.70
2	2390.00	48.2 AV	54.0	-5.8	2.06 H	173	13.50	34.70
3	*2412.00	107.2 PK			2.06 H	173	72.30	34.90
4	*2412.00	103.7 AV			2.06 H	173	68.80	34.90
5	4824.00	50.7 PK	74.0	-23.3	1.24 H	61	46.70	4.00
6	4824.00	39.1 AV	54.0	-14.9	1.24 H	61	35.10	4.00
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	64.3 PK	74.0	-9.7	1.90 V	18	29.60	34.70
2	2390.00	51.7 AV	54.0	-2.3	1.90 V	18	17.00	34.70
3	*2412.00	117.3 PK			1.90 V	18	82.40	34.90
4	*2412.00	113.5 AV			1.90 V	18	78.60	34.90
5	4824.00	53.9 PK	74.0	-20.1	1.64 V	35	49.90	4.00
6	4824.00	47.7 AV	54.0	-6.3	1.64 V	35	43.70	4.00

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)
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	107.5 PK			1.94 H	332	72.50	35.00
2	*2437.00	103.6 AV			1.94 H	332	68.60	35.00
3	4874.00	51.1 PK	74.0	-22.9	1.17 H	47	47.10	4.00
4	4874.00	40.5 AV	54.0	-13.5	1.17 H	47	36.50	4.00
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	116.3 PK			1.66 V	57	81.30	35.00
2	*2437.00	112.5 AV			1.66 V	57	77.50	35.00
3	4874.00	54.5 PK	74.0	-19.5	1.82 V	15	50.50	4.00
4	4874.00	48.9 AV	54.0	-5.1	1.82 V	15	44.90	4.00

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	107.3 PK			1.26 H	321	72.10	35.20
2	*2462.00	103.5 AV			1.26 H	321	68.30	35.20
3	2483.50	60.9 PK	74.0	-13.1	1.26 H	321	25.70	35.20
4	2483.50	48.5 AV	54.0	-5.5	1.26 H	321	13.30	35.20
5	4924.00	50.5 PK	74.0	-23.5	1.64 H	41	46.30	4.20
6	4924.00	40.0 AV	54.0	-14.0	1.64 H	41	35.80	4.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	116.4 PK			2.02 V	18	81.20	35.20
2	*2462.00	112.7 AV			2.02 V	18	77.50	35.20
3	2483.50	65.2 PK	74.0	-8.8	2.02 V	18	30.00	35.20
4	2483.50	52.4 AV	54.0	-1.6	2.02 V	18	17.20	35.20
5	4924.00	54.8 PK	74.0	-19.2	1.80 V	8	50.60	4.20
6	4924.00	49.3 AV	54.0	-4.7	1.80 V	8	45.10	4.20

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)
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	62.6 PK	74.0	-11.4	1.21 H	180	27.90	34.70
2	2390.00	48.6 AV	54.0	-5.4	1.21 H	180	13.90	34.70
3	*2412.00	107.1 PK			1.21 H	180	72.20	34.90
4	*2412.00	97.4 AV			1.21 H	180	62.50	34.90
5	4824.00	52.0 PK	74.0	-22.0	1.55 H	335	48.00	4.00
6	4824.00	38.8 AV	54.0	-15.2	1.55 H	335	34.80	4.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	71.1 PK	74.0	-2.9	1.81 V	336	36.40	34.70
2	2390.00	52.8 AV	54.0	-1.2	1.81 V	336	18.10	34.70
3	*2412.00	117.4 PK			1.81 V	336	82.50	34.90
4	*2412.00	107.5 AV			1.81 V	336	72.60	34.90
5	4824.00	55.0 PK	74.0	-19.0	1.07 V	342	51.00	4.00
6	4824.00	41.3 AV	54.0	-12.7	1.07 V	342	37.30	4.00

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)
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	59.2 PK	74.0	-14.8	1.00 H	131	24.50	34.70
2	2390.00	47.8 AV	54.0	-6.2	1.00 H	131	13.10	34.70
3	*2437.00	109.0 PK			1.00 H	131	74.00	35.00
4	*2437.00	99.0 AV			1.00 H	131	64.00	35.00
5	2483.50	61.6 PK	74.0	-12.4	1.00 H	131	26.40	35.20
6	2483.50	48.8 AV	54.0	-5.2	1.00 H	131	13.60	35.20
7	4874.00	54.7 PK	74.0	-19.3	1.08 H	9	50.70	4.00
8	4874.00	41.1 AV	54.0	-12.9	1.08 H	9	37.10	4.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.9 PK	74.0	-11.1	2.13 V	333	28.20	34.70
2	2390.00	51.0 AV	54.0	-3.0	2.13 V	333	16.30	34.70
3	*2437.00	120.7 PK			2.13 V	333	85.70	35.00
4	*2437.00	110.5 AV			2.13 V	333	75.50	35.00
5	2483.50	66.0 PK	74.0	-8.0	2.13 V	333	30.80	35.20
6	2483.50	52.6 AV	54.0	-1.4	2.13 V	333	17.40	35.20
7	4874.00	62.8 PK	74.0	-11.2	1.37 V	342	58.80	4.00
8	4874.00	48.6 AV	54.0	-5.4	1.37 V	342	44.60	4.00

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)
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	105.7 PK			1.03 H	183	70.50	35.20
2	*2462.00	96.2 AV			1.03 H	183	61.00	35.20
3	2483.50	64.2 PK	74.0	-9.8	1.03 H	183	29.00	35.20
4	2483.50	48.7 AV	54.0	-5.3	1.03 H	183	13.50	35.20
5	4924.00	52.2 PK	74.0	-21.8	1.00 H	63	48.00	4.20
6	4924.00	39.1 AV	54.0	-14.9	1.00 H	63	34.90	4.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	117.5 PK			1.73 V	20	82.30	35.20
2	*2462.00	107.1 AV			1.73 V	20	71.90	35.20
3	2483.50	72.9 PK	74.0	-1.1	1.73 V	20	37.70	35.20
4	2483.50	52.9 AV	54.0	-1.1	1.73 V	20	17.70	35.20
5	4924.00	57.7 PK	74.0	-16.3	1.81 V	41	53.50	4.20
6	4924.00	42.3 AV	54.0	-11.7	1.81 V	41	38.10	4.20

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.9 PK	74.0	-12.1	1.39 H	180	27.20	34.70
2	2390.00	48.6 AV	54.0	-5.4	1.39 H	180	13.90	34.70
3	*2412.00	105.3 PK			1.39 H	180	70.40	34.90
4	*2412.00	95.8 AV			1.39 H	180	60.90	34.90
5	4824.00	49.7 PK	74.0	-24.3	1.13 H	67	45.70	4.00
6	4824.00	36.5 AV	54.0	-17.5	1.13 H	67	32.50	4.00
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	71.8 PK	74.0	-2.2	1.93 V	333	37.10	34.70
2	2390.00	52.5 AV	54.0	-1.5	1.93 V	333	17.80	34.70
3	*2412.00	117.3 PK			1.93 V	333	82.40	34.90
4	*2412.00	107.2 AV			1.93 V	333	72.30	34.90
5	4824.00	53.2 PK	74.0	-20.8	1.23 V	340	49.20	4.00
6	4824.00	39.6 AV	54.0	-14.4	1.23 V	340	35.60	4.00

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)
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	59.8 PK	74.0	-14.2	1.34 H	181	25.10	34.70
2	2390.00	47.7 AV	54.0	-6.3	1.34 H	181	13.00	34.70
3	*2437.00	108.5 PK			1.34 H	181	73.50	35.00
4	*2437.00	98.7 AV			1.34 H	181	63.70	35.00
5	2483.50	60.4 PK	74.0	-13.6	1.34 H	181	25.20	35.20
6	2483.50	48.5 AV	54.0	-5.5	1.34 H	181	13.30	35.20
7	4874.00	55.8 PK	74.0	-18.2	1.21 H	69	51.80	4.00
8	4874.00	42.1 AV	54.0	-11.9	1.21 H	69	38.10	4.00
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	62.8 PK	74.0	-11.2	1.75 V	5	28.10	34.70
2	2390.00	50.7 AV	54.0	-3.3	1.75 V	5	16.00	34.70
3	*2437.00	119.4 PK			1.75 V	5	84.40	35.00
4	*2437.00	109.5 AV			1.75 V	5	74.50	35.00
5	2483.50	65.8 PK	74.0	-8.2	1.75 V	5	30.60	35.20
6	2483.50	52.3 AV	54.0	-1.7	1.75 V	5	17.10	35.20
7	4874.00	59.8 PK	74.0	-14.2	1.06 V	347	55.80	4.00
8	4874.00	48.8 AV	54.0	-5.2	1.06 V	347	44.80	4.00

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)
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	103.1 PK			1.60 H	339	67.90	35.20
2	*2462.00	93.3 AV			1.60 H	339	58.10	35.20
3	2483.50	61.2 PK	74.0	-12.8	1.60 H	339	26.00	35.20
4	2483.50	48.4 AV	54.0	-5.6	1.60 H	339	13.20	35.20
5	4924.00	51.1 PK	74.0	-22.9	1.06 H	54	46.90	4.20
6	4924.00	37.9 AV	54.0	-16.1	1.06 H	54	33.70	4.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	115.9 PK			1.75 V	3	80.70	35.20
2	*2462.00	105.9 AV			1.75 V	3	70.70	35.20
3	2483.50	72.5 PK	74.0	-1.5	1.75 V	3	37.30	35.20
4	2483.50	52.9 AV	54.0	-1.1	1.75 V	3	17.70	35.20
5	4924.00	53.5 PK	74.0	-20.5	1.29 V	345	49.30	4.20
6	4924.00	40.1 AV	54.0	-13.9	1.29 V	345	35.90	4.20

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

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	60.3 PK	74.0	-13.7	1.48 H	143	25.60	34.70
2	2390.00	48.0 AV	54.0	-6.0	1.48 H	143	13.30	34.70
3	*2422.00	96.4 PK			1.48 H	143	61.50	34.90
4	*2422.00	86.0 AV			1.48 H	143	51.10	34.90
5	#3230.00	47.9 PK	66.4	-18.5	1.91 H	338	47.90	0.00
6	#3230.00	38.1 AV	56.0	-17.9	1.91 H	338	38.10	0.00
7	4844.00	49.3 PK	74.0	-24.7	1.03 H	122	45.30	4.00
8	4844.00	36.2 AV	54.0	-17.8	1.03 H	122	32.20	4.00
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	70.1 PK	74.0	-3.9	1.62 V	17	35.40	34.70
2	**2390.00**	**53.0 AV**	**54.0**	**-1.0**	**1.62 V**	**17**	**18.30**	**34.70**
3	*2422.00	108.3 PK			1.62 V	17	73.40	34.90
4	*2422.00	98.4 AV			1.62 V	17	63.50	34.90
5	#3230.00	53.6 PK	78.3	-24.7	2.37 V	17	53.60	0.00
6	#3230.00	50.1 AV	68.4	-18.3	2.37 V	17	50.10	0.00
7	4844.00	49.6 PK	74.0	-24.4	1.31 V	59	45.60	4.00
8	4844.00	36.3 AV	54.0	-17.7	1.31 V	59	32.30	4.00

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)
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	61.8 PK	74.0	-12.2	1.85 H	145	27.10	34.70
2	2390.00	48.3 AV	54.0	-5.7	1.85 H	145	13.60	34.70
3	*2437.00	100.7 PK			1.85 H	145	65.70	35.00
4	*2437.00	90.8 AV			1.85 H	145	55.80	35.00
5	2483.50	60.5 PK	74.0	-13.5	1.85 H	145	25.30	35.20
6	2483.50	48.2 AV	54.0	-5.8	1.85 H	145	13.00	35.20
7	#3250.00	48.2 PK	70.7	-22.5	1.58 H	228	48.20	0.00
8	#3250.00	39.6 AV	60.8	-21.2	1.58 H	228	39.60	0.00
9	4874.00	49.6 PK	74.0	-24.4	1.03 H	211	45.60	4.00
10	4874.00	36.6 AV	54.0	-17.4	1.03 H	211	32.60	4.00
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	1.41 V	13	33.50	34.70
2	2390.00	52.4 AV	54.0	-1.6	1.41 V	13	17.70	34.70
3	*2437.00	113.3 PK			1.41 V	13	78.30	35.00
4	*2437.00	103.9 AV			1.41 V	13	68.90	35.00
5	2483.50	71.8 PK	74.0	-2.2	1.41 V	13	36.60	35.20
6	**2483.50**	**53.0 AV**	**54.0**	**-1.0**	**1.41 V**	**13**	**17.80**	**35.20**
7	#3250.00	54.2 PK	83.3	-29.1	1.01 V	18	54.20	0.00
8	#3250.00	50.8 AV	73.9	-23.1	1.01 V	18	50.80	0.00
9	4874.00	52.8 PK	74.0	-21.2	1.26 V	335	48.80	4.00
10	4874.00	40.0 AV	54.0	-14.0	1.26 V	335	36.00	4.00

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)
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	96.1 PK			1.48 H	141	61.10	35.00
2	*2452.00	86.1 AV			1.48 H	141	51.10	35.00
3	2483.50	60.5 PK	74.0	-13.5	1.48 H	141	25.30	35.20
4	2483.50	48.2 AV	54.0	-5.8	1.48 H	141	13.00	35.20
5	#3270.00	47.3 PK	66.1	-18.8	1.01 H	151	47.10	0.20
6	#3270.00	37.0 AV	56.1	-19.1	1.01 H	151	36.80	0.20
7	4904.00	49.8 PK	74.0	-24.2	1.01 H	133	45.60	4.20
8	4904.00	36.5 AV	54.0	-17.5	1.01 H	133	32.30	4.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	109.9 PK			1.76 V	18	74.90	35.00
2	*2452.00	100.4 AV			1.76 V	18	65.40	35.00
3	2483.50	70.1 PK	74.0	-3.9	1.76 V	18	34.90	35.20
4	**2483.50**	**53.0 AV**	**54.0**	**-1.0**	**1.76 V**	**18**	**17.80**	**35.20**
5	#3270.00	53.1 PK	79.9	-26.8	1.00 V	19	52.90	0.20
6	#3270.00	48.8 AV	70.4	-21.6	1.00 V	19	48.60	0.20
7	4904.00	50.3 PK	74.0	-23.7	1.01 V	114	46.10	4.20
8	4904.00	36.3 AV	54.0	-17.7	1.01 V	114	32.10	4.20

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

Below 1GHz worst-case data: 802.11b

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	66.86	31.8 QP	40.0	-8.2	1.24 H	80	47.40	-15.60
2	125.06	29.3 QP	43.5	-14.2	1.99 H	88	45.30	-16.00
3	177.44	27.3 QP	43.5	-16.2	1.24 H	139	42.20	-14.90
4	235.64	30.0 QP	46.0	-16.0	1.00 H	315	45.40	-15.40
5	499.48	28.7 QP	46.0	-17.3	1.49 H	226	37.30	-8.60
6	625.58	27.8 QP	46.0	-18.2	1.49 H	53	33.60	-5.80
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	30.00	33.9 QP	40.0	-6.1	1.26 V	324	49.50	-15.60
2	53.28	29.3 QP	40.0	-10.7	1.01 V	13	43.40	-14.10
3	125.06	28.7 QP	43.5	-14.8	1.51 V	313	44.70	-16.00
4	183.26	31.4 QP	43.5	-12.1	1.01 V	219	46.90	-15.50
5	233.70	29.8 QP	46.0	-16.2	1.26 V	275	45.50	-15.70
6	499.48	30.7 QP	46.0	-15.3	1.51 V	172	39.30	-8.60

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	31.94	26.7 QP	40.0	-13.3	1.50 H	328	42.60	-15.90
2	53.28	24.1 QP	40.0	-15.9	1.25 H	68	38.20	-14.10
3	142.52	29.9 QP	43.5	-13.6	2.00 H	287	44.40	-14.50
4	167.74	31.0 QP	43.5	-12.5	1.50 H	269	45.00	-14.00
5	241.46	30.0 QP	46.0	-16.0	1.25 H	278	44.70	-14.70
6	875.84	33.7 QP	46.0	-12.3	1.50 H	172	35.40	-1.70
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	53.28	35.4 QP	40.0	-4.6	1.00 V	17	49.50	-14.10
2	92.08	31.9 QP	43.5	-11.6	1.49 V	279	51.60	-19.70
3	167.74	33.5 QP	43.5	-10.0	1.00 V	290	47.50	-14.00
4	464.56	33.3 QP	46.0	-12.7	1.00 V	9	42.30	-9.00
5	714.82	34.0 QP	46.0	-12.0	1.00 V	340	38.70	-4.70
6	740.04	41.4 QP	46.0	-4.6	1.99 V	76	45.30	-3.90

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	31.94	25.8 QP	40.0	-14.2	1.25 H	8	41.70	-15.90
2	125.06	33.5 QP	43.5	-10.0	1.50 H	270	49.50	-16.00
3	167.74	30.0 QP	43.5	-13.5	1.25 H	291	44.00	-14.00
4	235.64	28.8 QP	46.0	-17.2	1.50 H	143	44.20	-15.40
5	499.48	31.0 QP	46.0	-15.0	1.50 H	226	39.60	-8.60
6	875.84	34.6 QP	46.0	-11.4	1.50 H	179	36.30	-1.70
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	53.28	33.2 QP	40.0	-6.8	1.00 V	45	47.30	-14.10
2	125.06	27.2 QP	43.5	-16.3	1.00 V	139	43.20	-16.00
3	167.74	32.5 QP	43.5	-11.0	1.00 V	330	46.50	-14.00
4	289.96	28.1 QP	46.0	-17.9	1.50 V	249	40.80	-12.70
5	499.48	30.7 QP	46.0	-15.3	1.00 V	105	39.30	-8.60
6	714.82	35.0 QP	46.0	-11.0	1.00 V	186	39.70	-4.70

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)
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.	Cal. Date	Cal. Due
Test Receiver ROHDE & SCHWARZ	ESCS 30	100288	Apr. 27, 2015	Apr. 26, 2016
RF signal cable (with 10dB PAD) Woken	5D-FB	Cable-cond2-01	Dec. 26, 2014	Dec. 25, 2015
LISN ROHDE & SCHWARZ (EUT)	ESH2-Z5	100100	Dec. 30, 2014	Dec. 29, 2015
LISN ROHDE & SCHWARZ (Peripheral)	ESH3-Z5	100312	Jul. 21, 2015	Jul. 20, 2016
Software ADT	BV ADT_Cond_ V7.3.7.3	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Shielded Room 2.
3. The VCCI Site Registration No. is C-2047.

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.

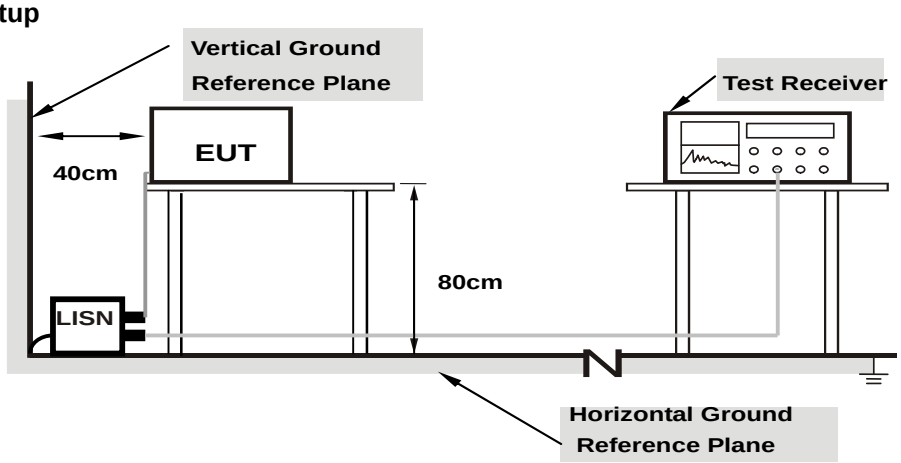
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

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.

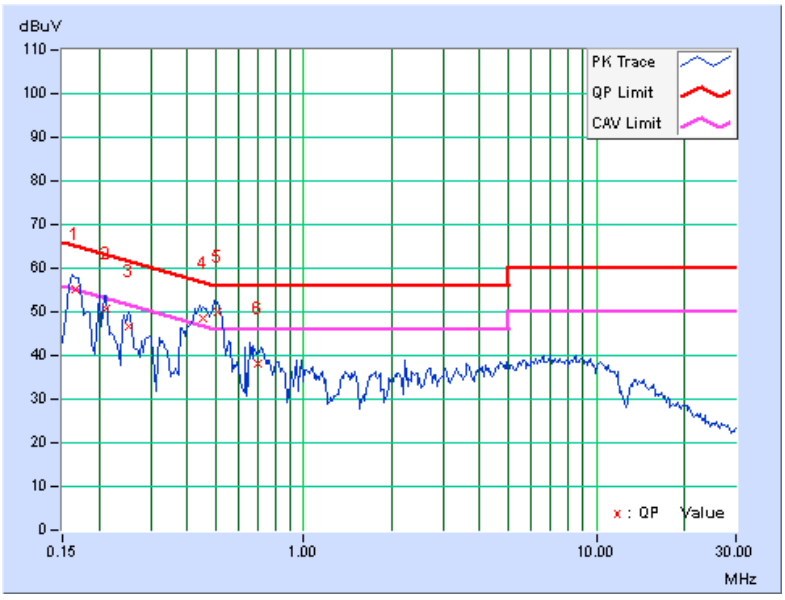
4.2.7 Test Results

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16690	9.94	45.43	35.17	55.37	45.11	65.11	55.11	-9.74	-10.00
2	0.21122	9.95	40.92	31.82	50.87	41.77	63.16	53.16	-12.29	-11.39
3	0.25156	9.95	36.73	29.56	46.68	39.51	61.71	51.71	-15.03	-12.20
4	0.45259	9.96	38.65	30.59	48.61	40.55	56.83	46.83	-8.22	-6.28
5	0.51075	9.97	40.20	33.26	50.17	43.23	56.00	46.00	-5.83	-2.77
6	0.70006	10.01	28.23	18.87	38.24	28.88	56.00	46.00	-17.76	-17.12

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.

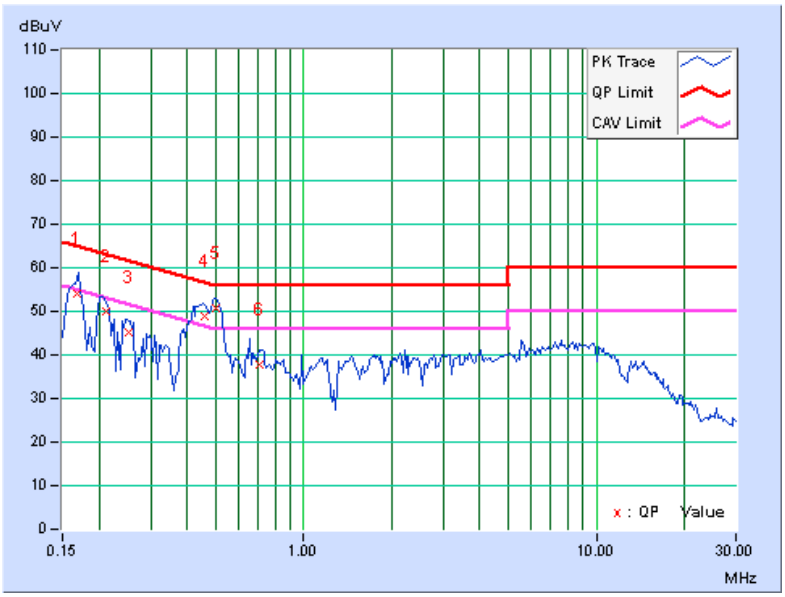


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16825	9.96	44.26	34.07	54.22	44.03	65.05	55.05	-10.83	-11.02
2	0.21114	9.97	40.11	31.95	50.08	41.92	63.16	53.16	-13.08	-11.24
3	0.25275	9.98	35.29	29.23	45.27	39.21	61.67	51.67	-16.40	-12.46
4	0.46031	10.01	38.93	32.61	48.94	42.62	56.69	46.69	-7.75	-4.07
5	**0.50181**	**10.01**	**40.71**	**34.03**	**50.72**	**44.04**	**56.00**	**46.00**	**-5.28**	**-1.96**
6	0.70919	10.04	27.85	19.54	37.89	29.58	56.00	46.00	-18.11	-16.42

Remarks:

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

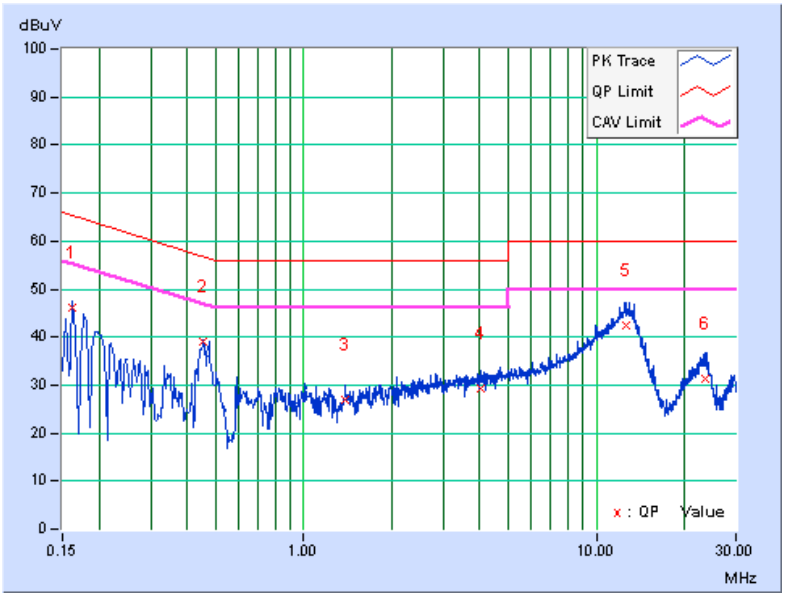


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16181	9.86	36.38	19.43	46.24	29.29	65.37	55.37	-19.13	-26.08
2	0.45498	9.91	29.05	23.90	38.96	33.81	56.78	46.78	-17.82	-12.97
3	1.38923	10.06	16.75	9.73	26.81	19.79	56.00	46.00	-29.19	-26.21
4	4.01730	10.19	19.09	12.10	29.28	22.29	56.00	46.00	-26.72	-23.71
5	12.57598	10.70	31.78	25.16	42.48	35.86	60.00	50.00	-17.52	-14.14
6	23.52007	11.29	20.08	14.85	31.37	26.14	60.00	50.00	-28.63	-23.86

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.

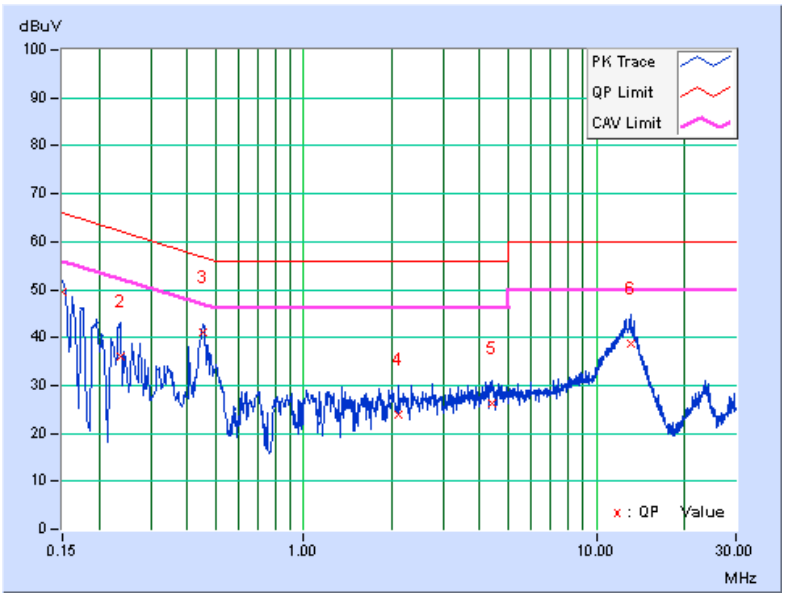


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.89	39.75	27.08	49.64	36.97	66.00	56.00	-16.36	-19.03
2	0.23586	10.02	25.86	12.83	35.88	22.85	62.24	52.24	-26.36	-29.39
3	0.45455	9.99	31.04	25.94	41.03	35.93	56.79	46.79	-15.76	-10.86
4	2.10891	10.10	13.79	4.57	23.89	14.67	56.00	46.00	-32.11	-31.33
5	4.37671	10.35	15.80	6.50	26.15	16.85	56.00	46.00	-29.85	-29.15
6	13.08819	10.74	28.09	21.79	38.83	32.53	60.00	50.00	-21.17	-17.47

Remarks:

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

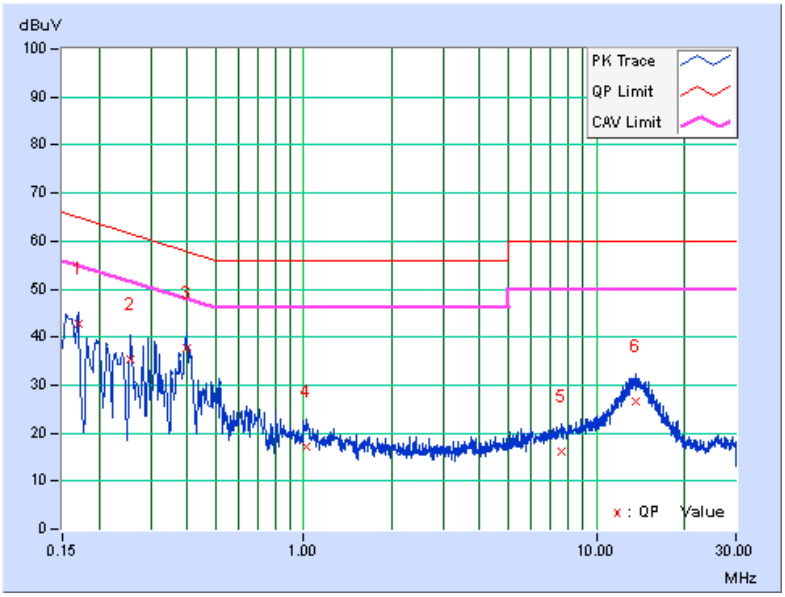


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	C		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16955	9.88	32.74	15.94	42.62	25.82	64.98	54.98	-22.37	-29.17
2	0.25557	9.92	25.30	10.99	35.22	20.91	61.57	51.57	-26.35	-30.66
3	0.40024	9.90	27.85	16.09	37.75	25.99	57.85	47.85	-20.10	-21.86
4	1.02584	10.03	7.05	2.47	17.08	12.50	56.00	46.00	-38.92	-33.50
5	7.63374	10.40	5.67	0.75	16.07	11.15	60.00	50.00	-43.93	-38.85
6	13.56521	10.76	15.70	9.71	26.46	20.47	60.00	50.00	-33.54	-29.53

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.

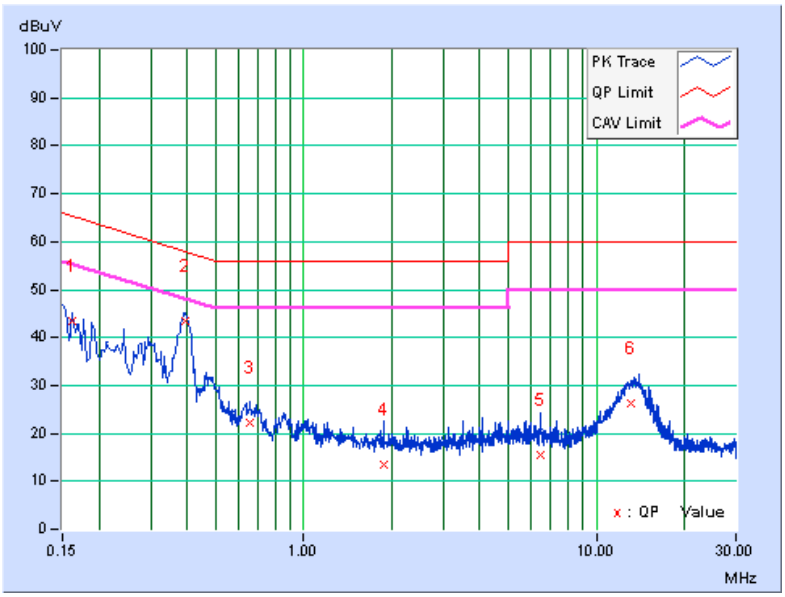


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	C		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16181	9.92	33.55	20.73	43.47	30.65	65.37	55.37	-21.90	-24.72
2	0.39219	9.99	33.31	23.54	43.30	33.53	58.02	48.02	-14.72	-14.49
3	0.65830	10.01	12.36	6.59	22.37	16.60	56.00	46.00	-33.63	-29.40
4	1.87431	10.08	3.35	-0.73	13.43	9.35	56.00	46.00	-42.57	-36.65
5	6.43728	10.44	5.19	-1.48	15.63	8.96	60.00	50.00	-44.37	-41.04
6	13.21331	10.74	15.56	9.76	26.30	20.50	60.00	50.00	-33.70	-29.50

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.

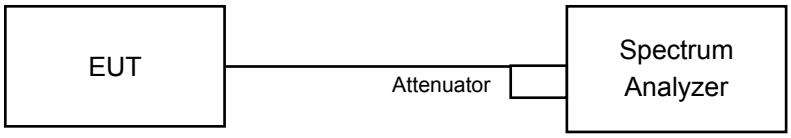


4.3 6dB Bandwidth Measurement

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
1	2412	8.11	0.5	Pass
6	2437	8.09	0.5	Pass
11	2462	8.11	0.5	Pass

802.11g

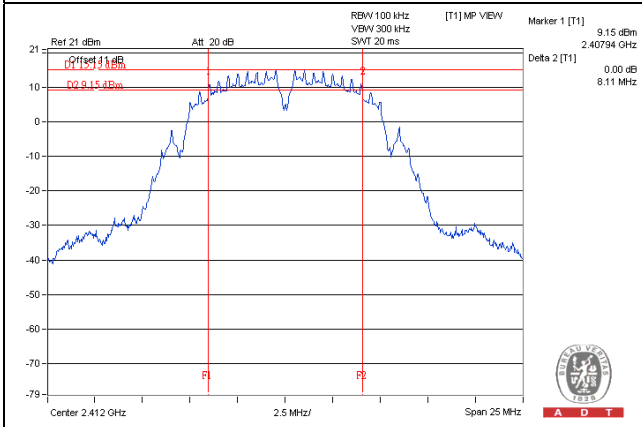
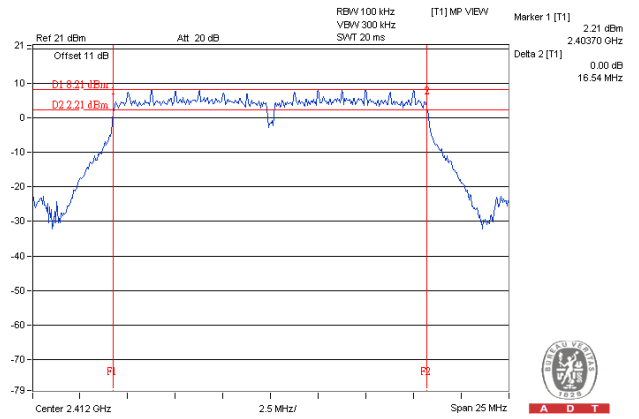
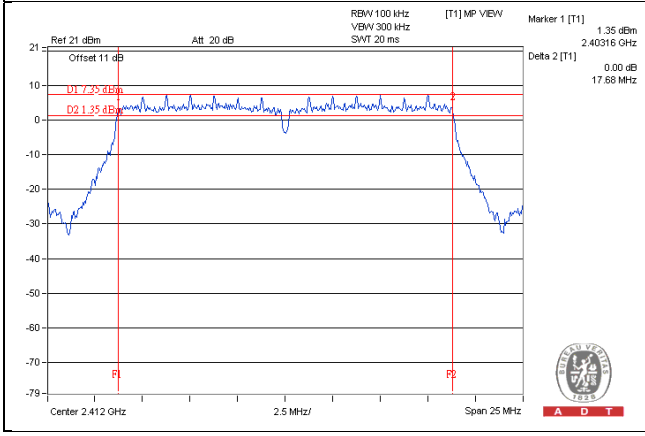
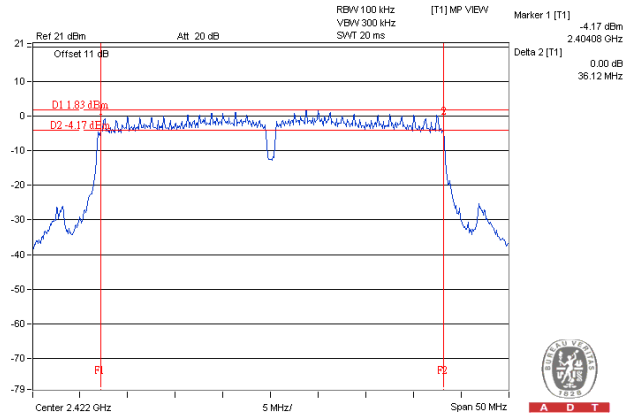
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	16.54	16.42	0.5	Pass
6	2437	16.39	16.42	0.5	Pass
11	2462	16.42	16.41	0.5	Pass

802.11n (HT20)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
1	2412	17.68	17.67	0.5	Pass
6	2437	17.63	17.64	0.5	Pass
11	2462	17.63	17.63	0.5	Pass

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
3	2422	35.83	36.12	0.5	Pass
6	2437	35.62	35.65	0.5	Pass
9	2452	35.60	35.44	0.5	Pass

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

4.4 Conducted Output Power Measurement

4.4.1 Limits of Conducted Output Power Measurement

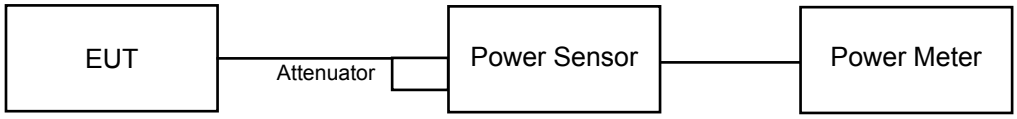
For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30dBm)

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

Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT;
Array Gain = 5 log(NANT/NSS) dB or 3 dB, whichever is less for 20-MHz channel widths with NANT ≥ 5.

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

4.4.2 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 senso. Record the power level.

4.4.5 Deviation from Test Standard

No deviation.

4.4.6 EUT Operating Conditions

Same as Item 4.3.6.

4.4.7 Test Results

802.11b

Channel	Frequency (MHz)	Average Power (mW)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	225.944	23.54	30	Pass
6	2437	231.206	23.64	30	Pass
11	2462	222.331	23.47	30	Pass

802.11g

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	19.12	19.32	167.165	22.23	30	Pass
6	2437	23.51	24.37	**497.915**	26.97	30	Pass
11	2462	18.22	17.88	127.750	21.06	30	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
1	2412	17.84	17.76	120.518	20.81	30	Pass
6	2437	23.30	24.16	474.411	26.76	30	Pass
11	2462	17.81	17.36	114.845	20.60	30	Pass

802.11n (HT40)

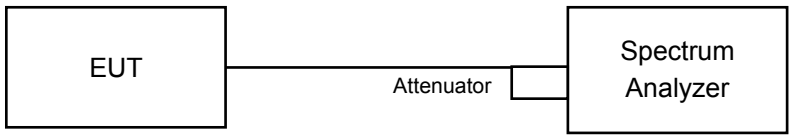
Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
3	2422	15.14	15.63	69.218	18.40	30	Pass
6	2437	19.95	20.10	201.184	23.04	30	Pass
9	2452	15.91	15.59	75.218	18.76	30	Pass

4.5 Power Spectral Density Measurement

4.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 Test Setup



4.5.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.5.4 Test Procedure

For duty cycle ≥ 98%

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

For duty cycle < 98%

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

4.5.5 Deviation from Test Standard

No deviation.

4.5.6 EUT Operating Condition

Same as Item 4.3.6

4.5.7 Test Results

802.11b

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Pass / Fail
1	2412	-4.00	8.00	Pass
6	2437	-4.55	8.00	Pass
11	2462	-5.12	8.00	Pass

802.11g

TX chain	Channel	Frequency (MHz)	PSD (dBm)	10 log (N=2) dB	Duty Factor	Total PSD with Duty Factor (dBm)	Limit (dBm)	Pass / Fail
0	1	2412	-10.62	3.01	0.10	-7.51	5.99	Pass
	6	2437	-8.28	3.01	0.10	-5.17	5.99	Pass
	11	2462	-12.01	3.01	0.10	-8.90	5.99	Pass
1	1	2412	-11.30	3.01	0.10	-8.19	5.99	Pass
	6	2437	-5.63	3.01	0.10	-2.52	5.99	Pass
	11	2462	-12.45	3.01	0.10	-9.34	5.99	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 5dBi + 10log(2) = 8.01dBi > 6dBi, so the power density limit shall be reduced to 8-(8.01-6) = 5.99dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Channel	Frequency (MHz)	PSD (dBm)	10 log (N=2) dB	Duty Factor	Total PSD with Duty Factor (dBm)	Limit (dBm)	Pass / Fail
0	1	2412	-12.15	3.01	0.13	-9.01	5.99	Pass
	6	2437	-7.68	3.01	0.13	-4.54	5.99	Pass
	11	2462	-12.82	3.01	0.13	-9.68	5.99	Pass
1	1	2412	-12.88	3.01	0.13	-9.74	5.99	Pass
	6	2437	-6.26	3.01	0.13	-3.12	5.99	Pass
	11	2462	-13.25	3.01	0.13	-10.11	5.99	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 5dBi + 10log(2) = 8.01dBi > 6dBi, so the power density limit shall be reduced to 8-(8.01-6) = 5.99dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

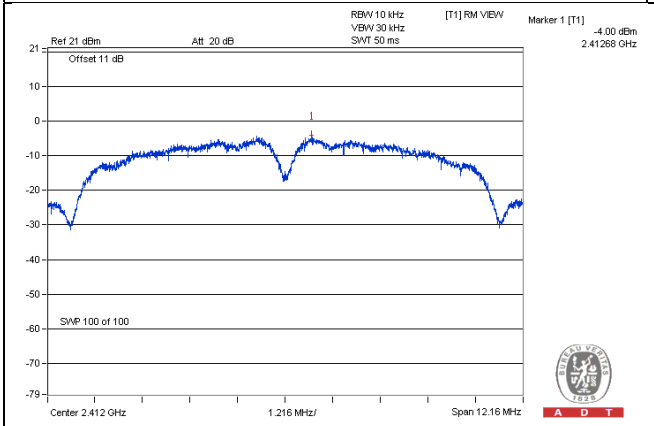
802.11n (HT40)

TX chain	Channel	Frequency (MHz)	PSD (dBm)	10 log (N=2) dB	Duty Factor	Total PSD with Duty Factor (dBm)	Limit (dBm)	Pass / Fail
0	3	2422	-16.94	3.01	0.28	-13.65	5.99	Pass
	6	2437	-12.66	3.01	0.28	-9.37	5.99	Pass
	9	2452	-16.92	3.01	0.28	-13.63	5.99	Pass
1	3	2422	-17.78	3.01	0.28	-14.49	5.99	Pass
	6	2437	-12.61	3.01	0.28	-9.32	5.99	Pass
	9	2452	-16.60	3.01	0.28	-13.31	5.99	Pass

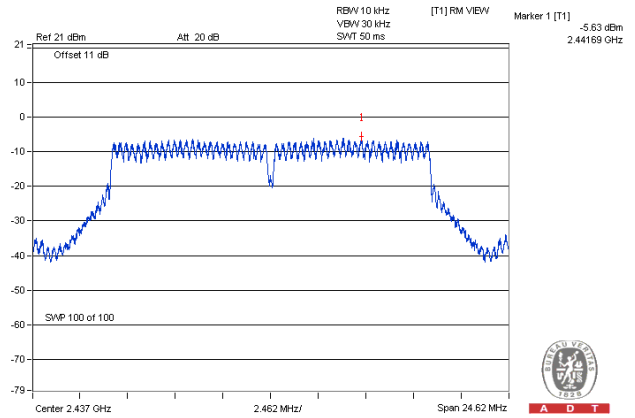
Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 5dBi + 10log(2) = 8.01dBi > 6dBi, so the power density limit shall be reduced to 8-(8.01-6) = 5.99dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value

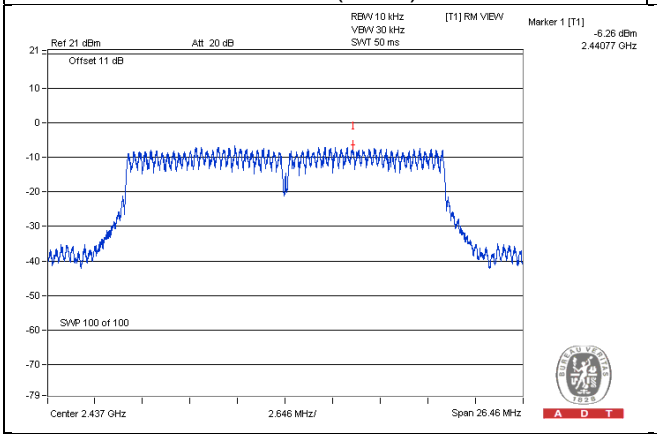
802.11b



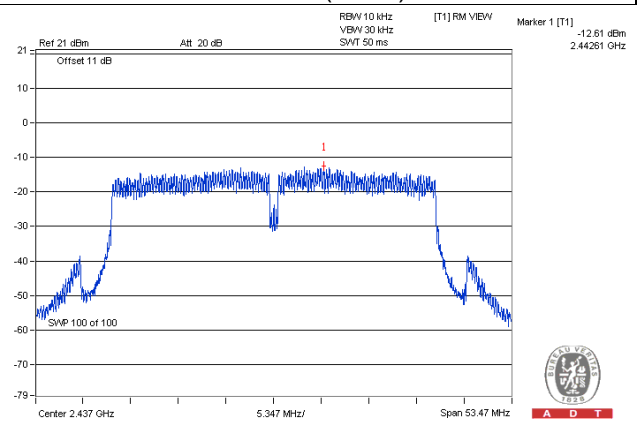
802.11g



802.11n (HT20)



802.11n (HT40)

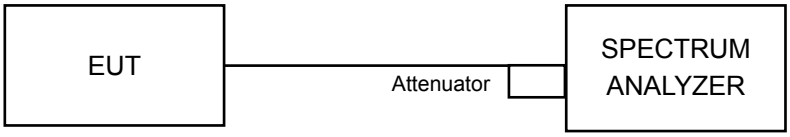


4.6 Conducted Out of Band Emission Measurement

4.6.1 Limits of Conducted Out of Band Emission Measurement

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

4.6.2 Test Setup



4.6.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.6.4 Test Procedure

MEASUREMENT PROCEDURE REF

a. Set the RBW = 100 kHz.

b. Set the VBW ≥ 300 kHz.

c. Detector = average.

d. Sweep time = auto couple.

e. Trace mode = max hold.

f. Allow trace to fully stabilize.

g. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOBE

a. Set RBW = 100 kHz.

b. Set VBW ≥ 300 kHz.

c. Ensure that the number of measurement points ≥ span/RBW

d. According to measurement points to set differ measurement span.

e. Detector = average.

f. Trace Mode = max hold.

g. Sweep = auto couple.

4.6.5 Deviation from Test Standard

No deviation.

4.6.6 EUT Operating Condition

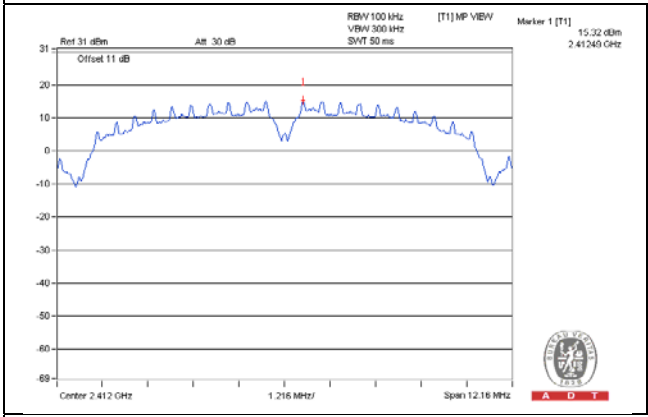
Same as Item 4.3.6

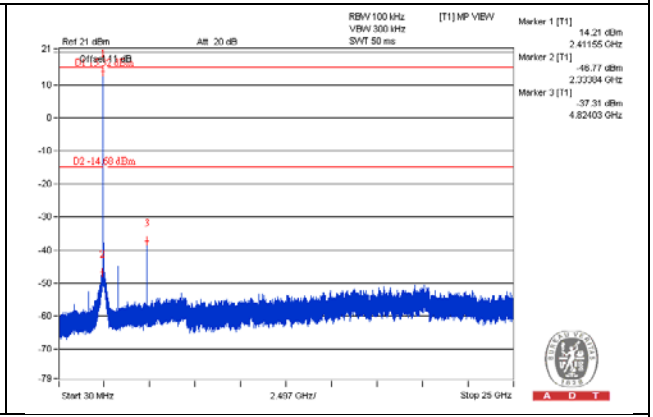
4.6.7 Test Results

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.

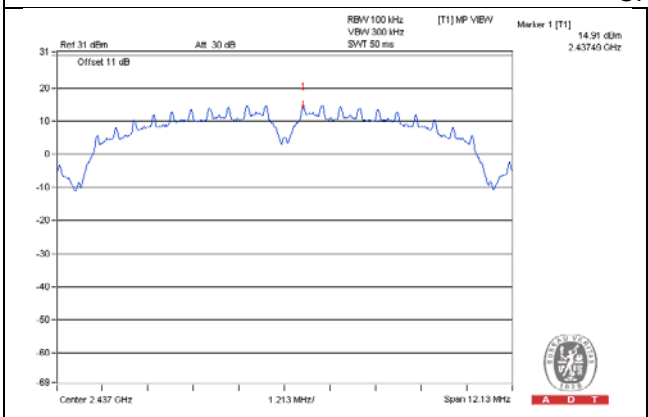
802.11b

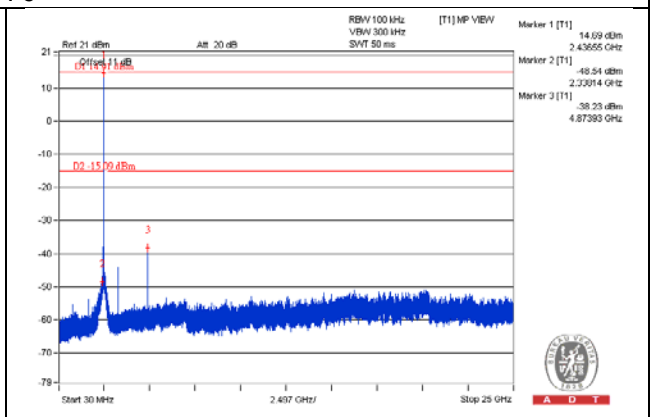
CH 1



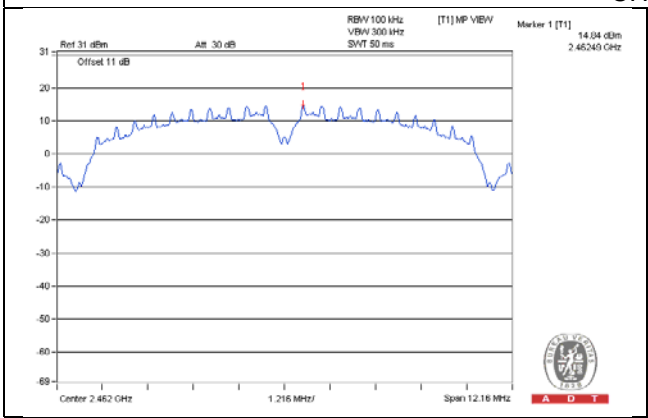


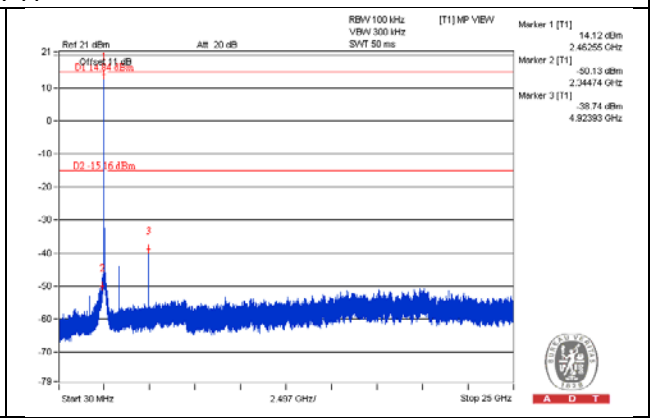
CH 6



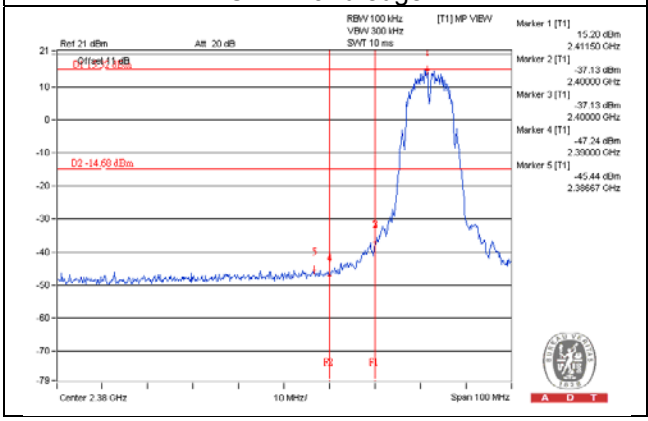


CH 11

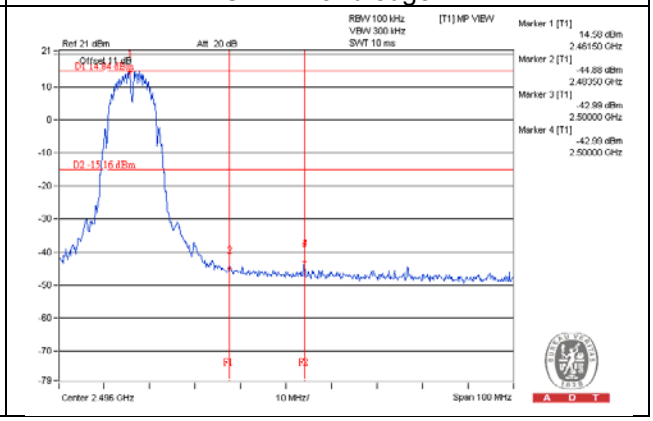




CH 1 Band edge

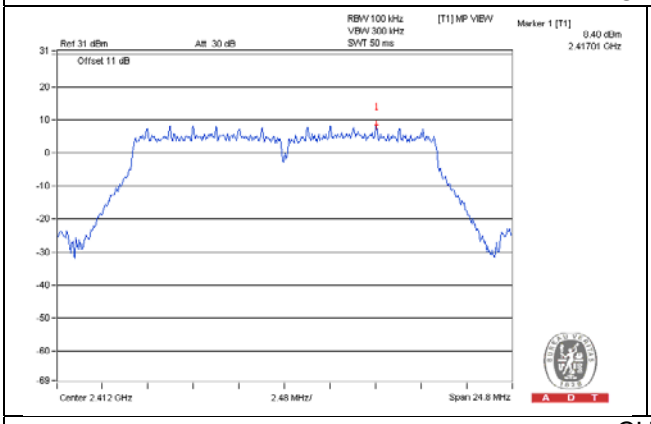


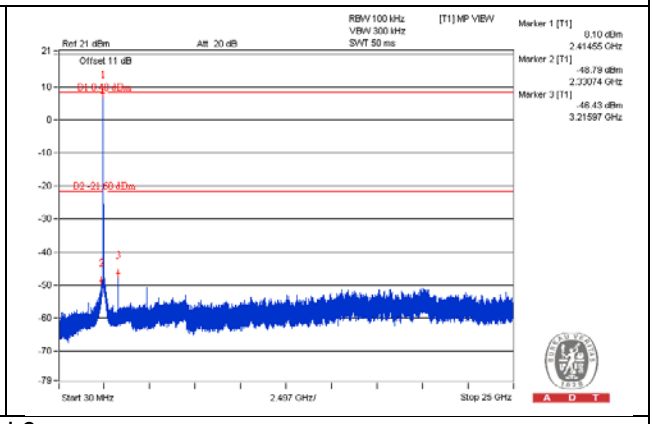
CH 11 Band edge



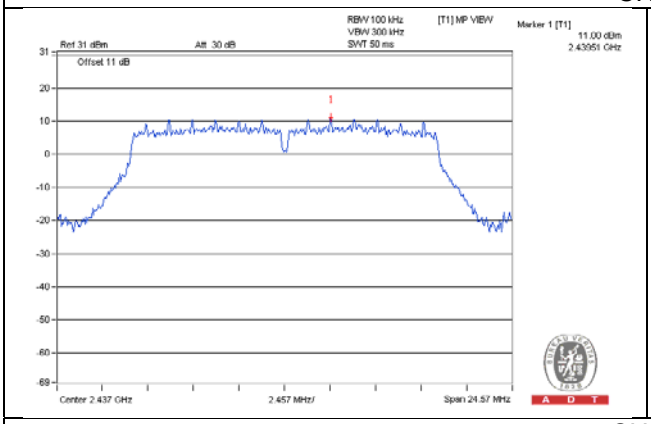
802.11g_Chain 0

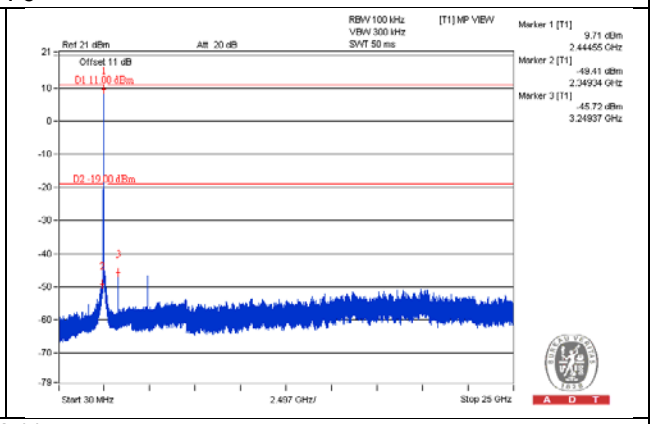
CH 1



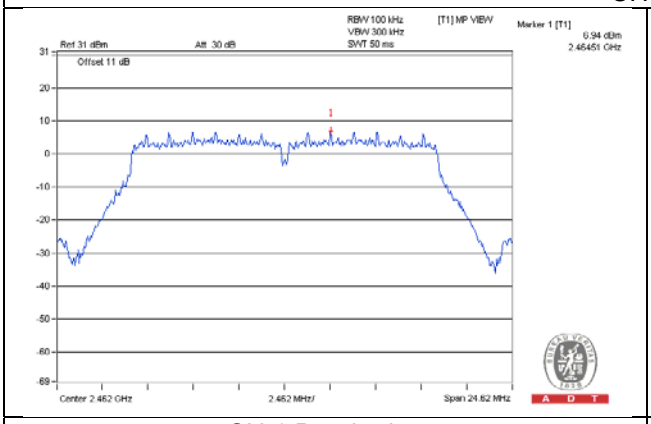


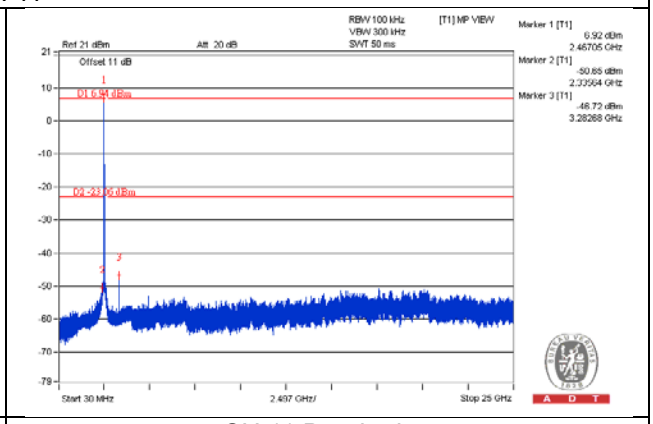
CH 6



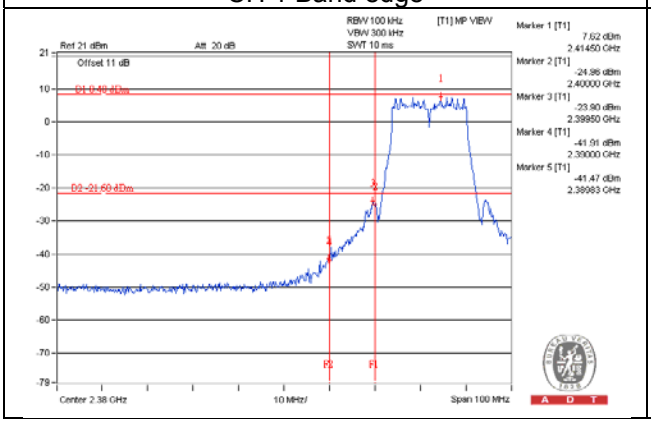


CH 11

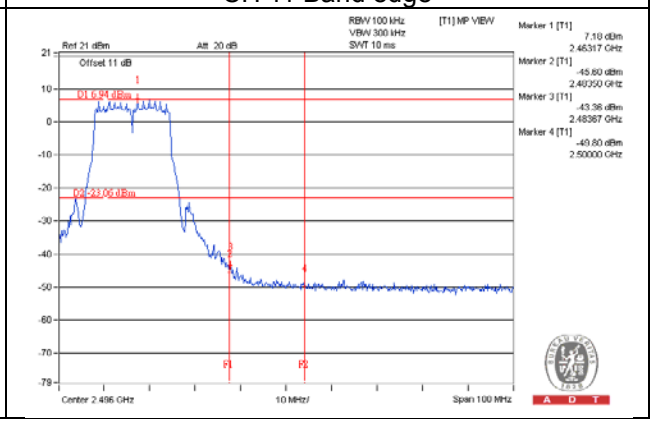




CH 1 Band edge

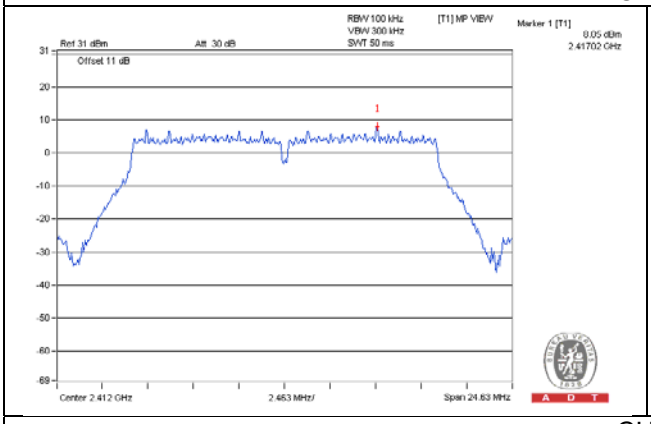


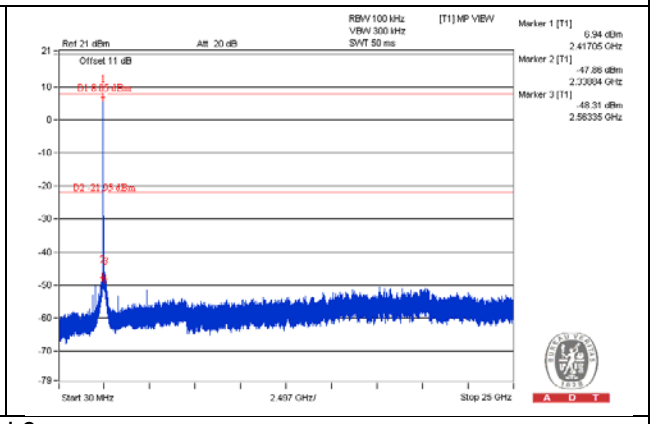
CH 11 Band edge



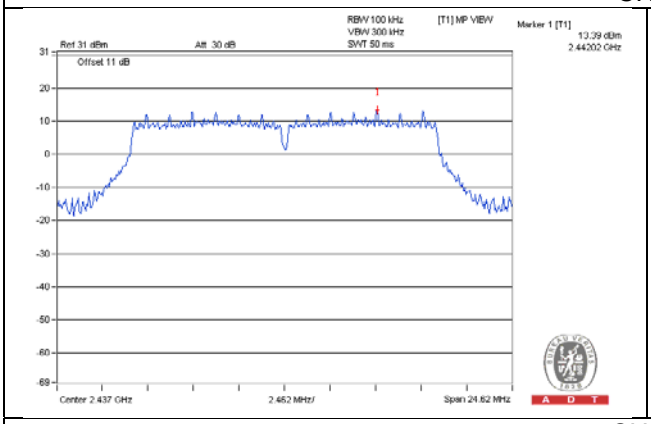
802.11g_Chain 1

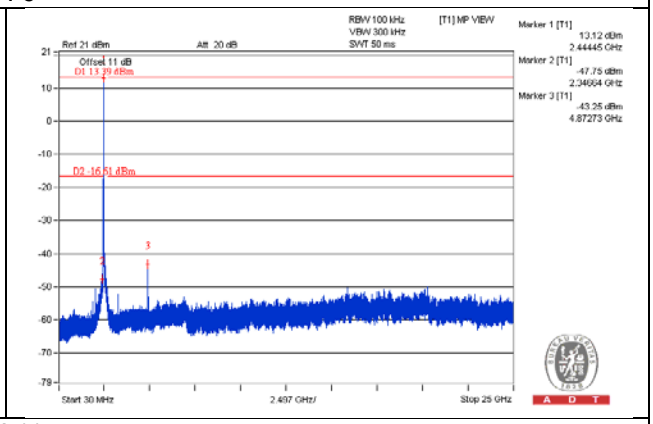
CH 1



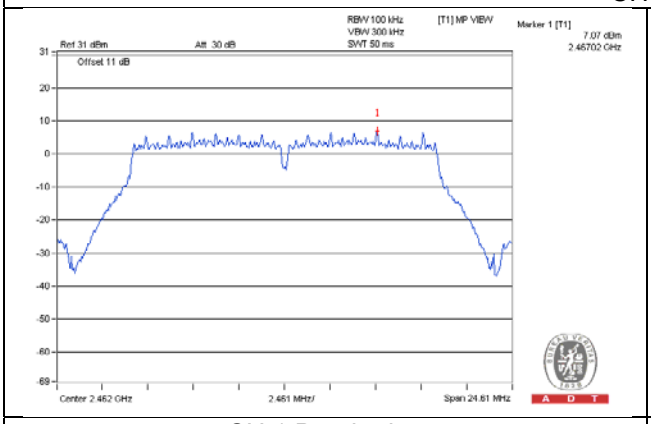


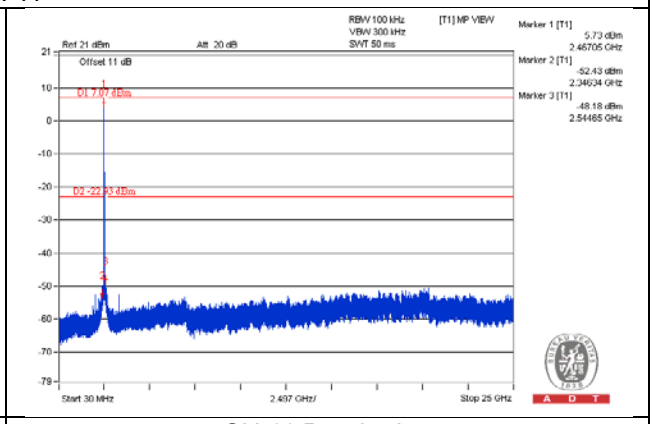
CH 6



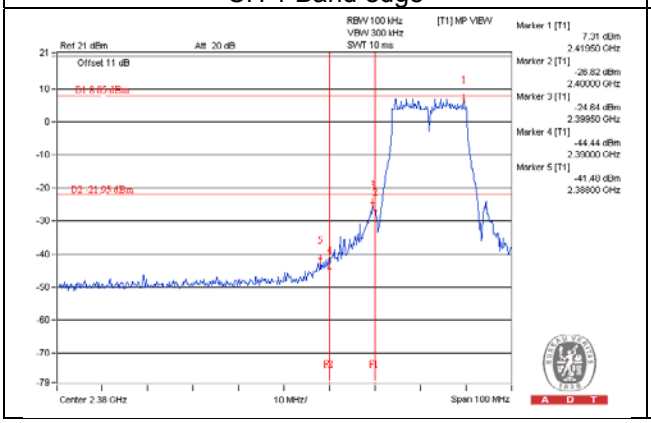


CH 11

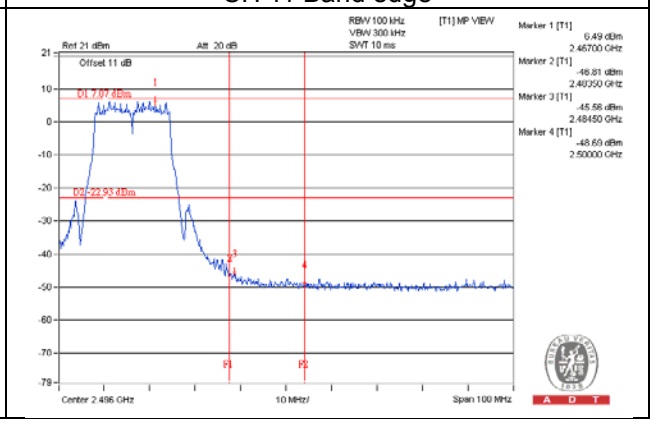




CH 1 Band edge

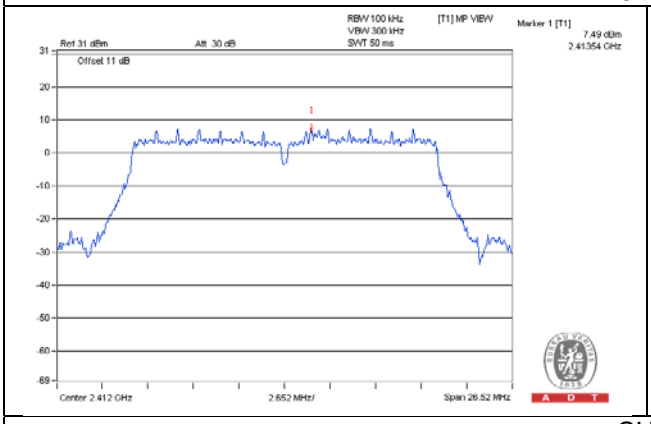


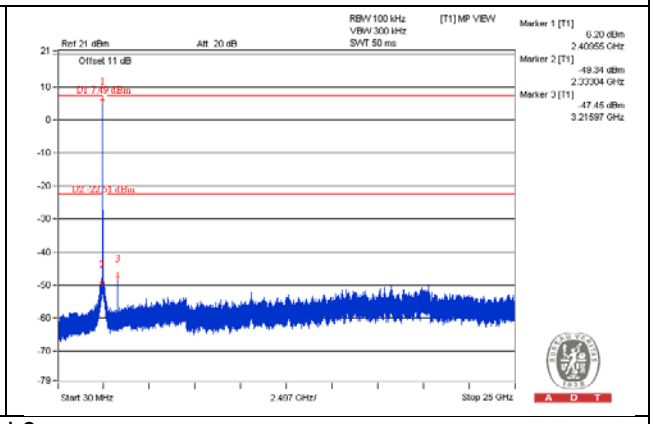
CH 11 Band edge



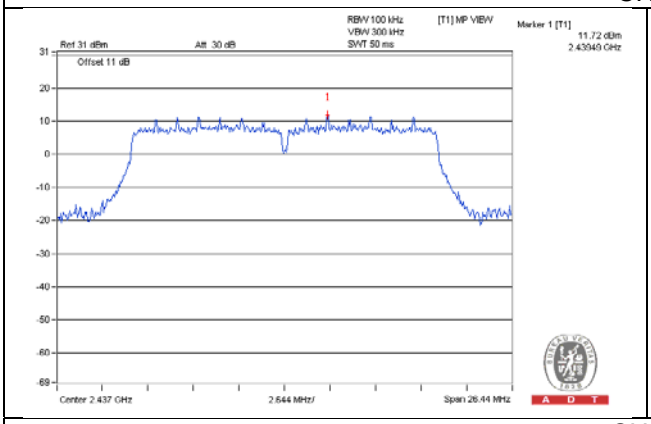
802.11n (HT20)_Chain 0

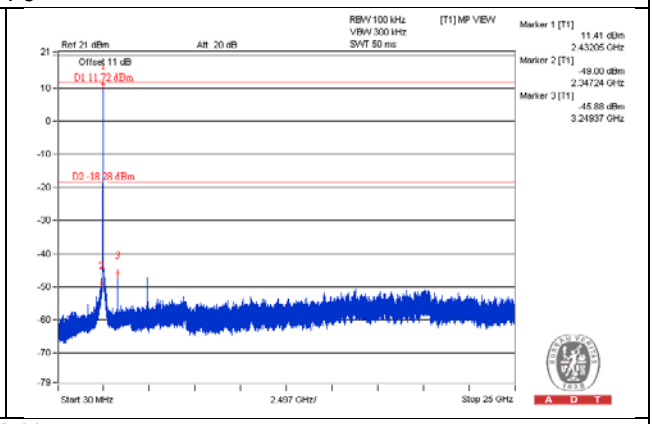
CH 1



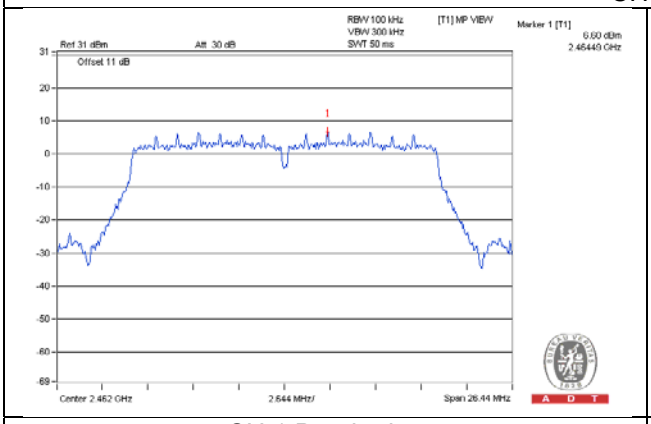


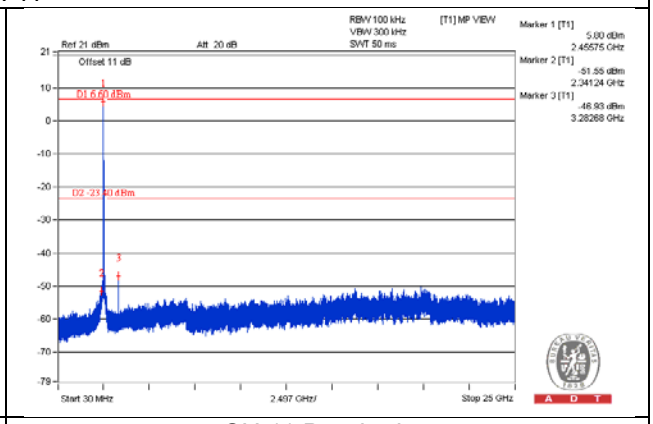
CH 6



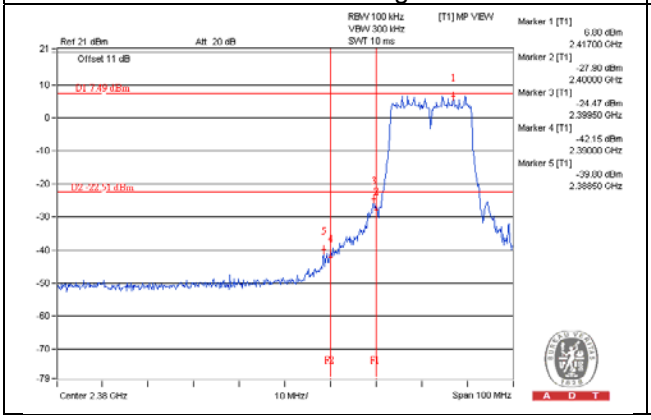


CH 11

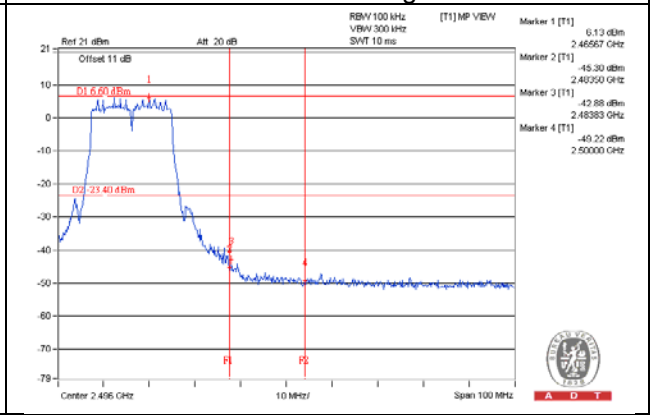




CH 1 Band edge

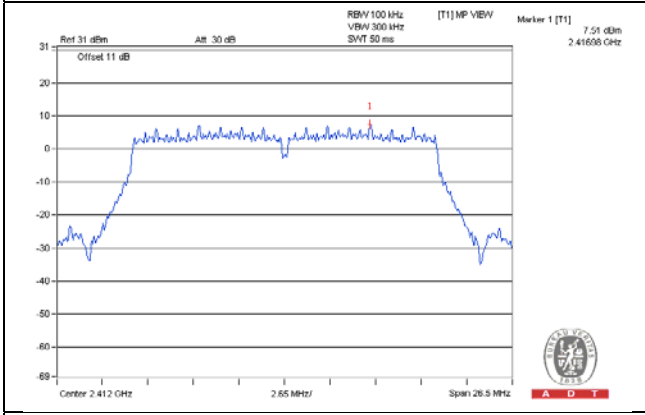


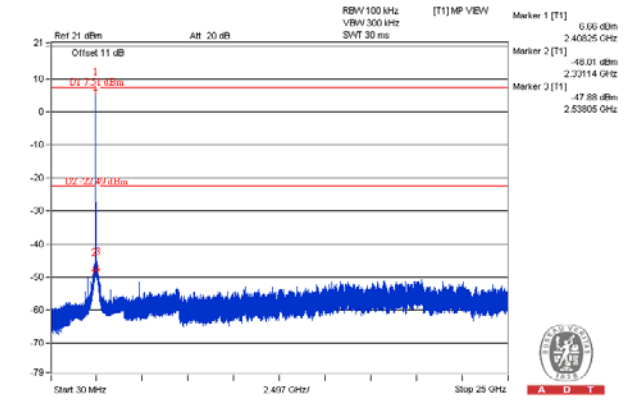
CH 11 Band edge



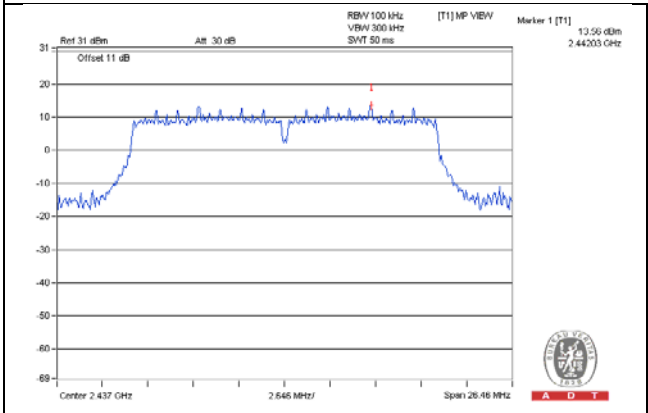
802.11n (HT20)_Chain 1

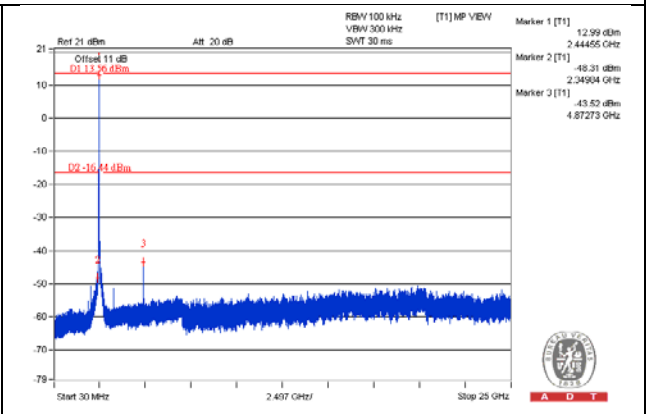
CH 1



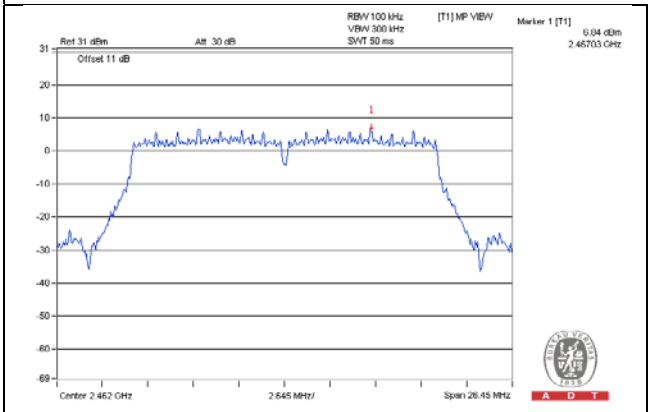


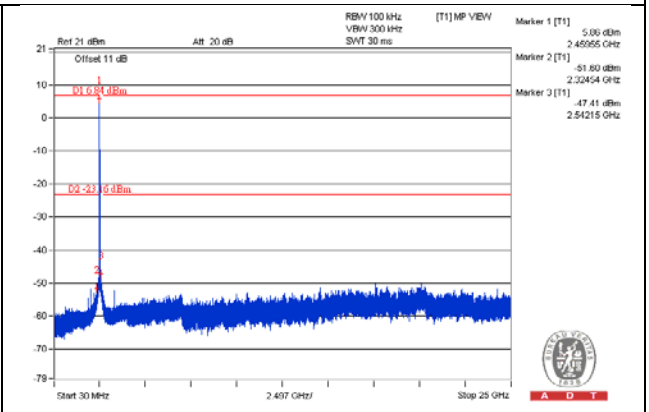
CH 6



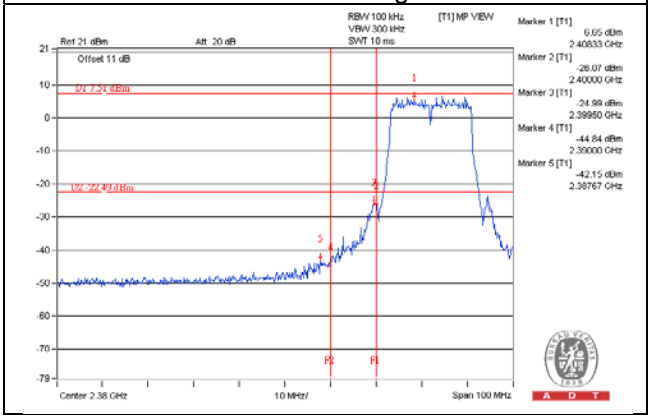


CH 11

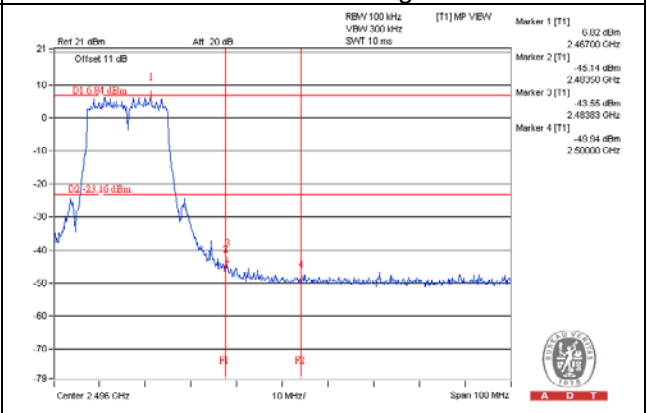




CH 1 Band edge

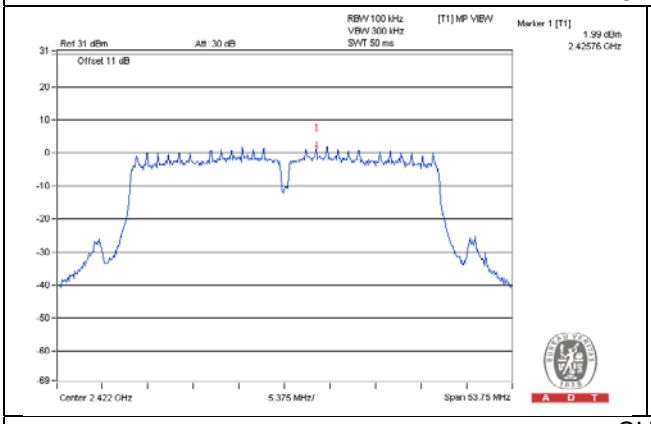


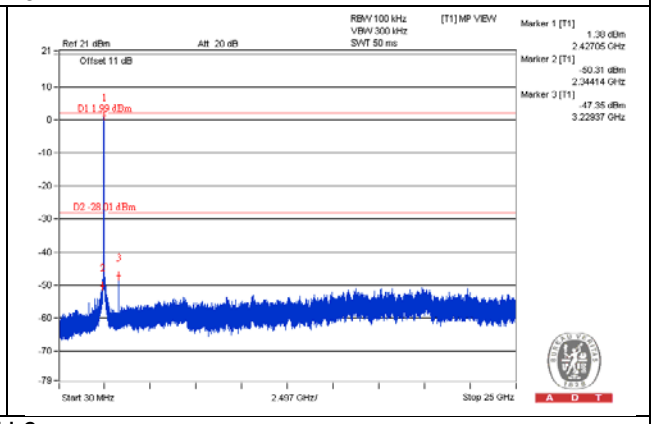
CH 11 Band edge



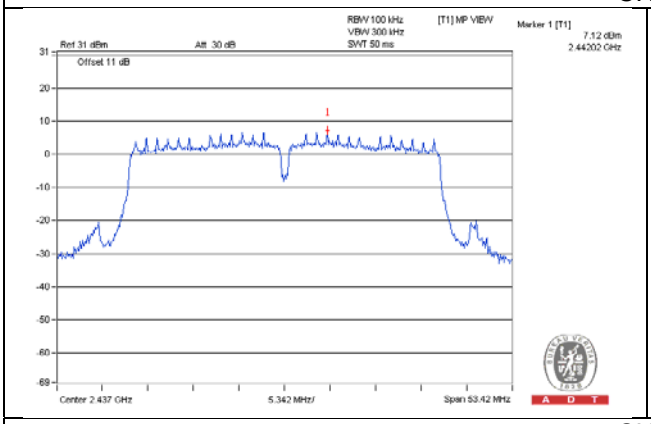
802.11n (HT40)_Chain 0

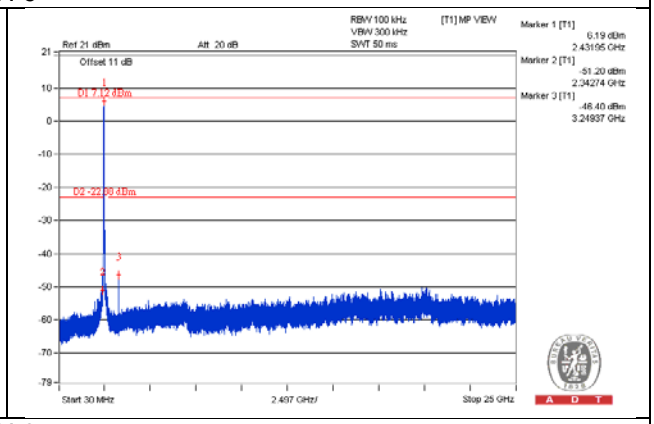
CH 3



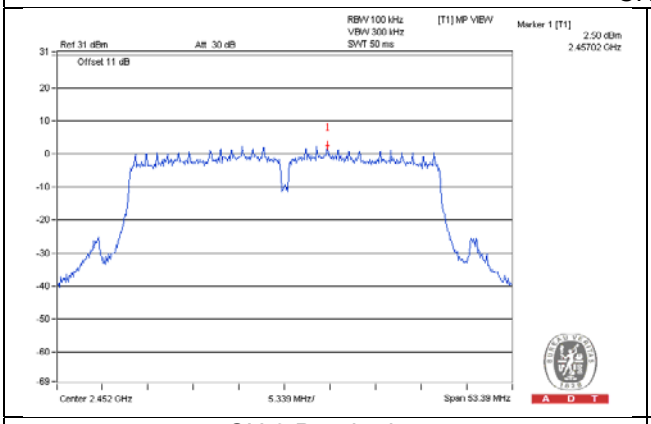


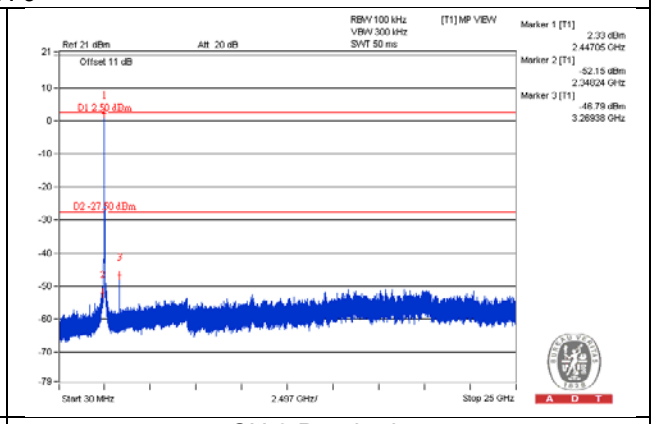
CH 6



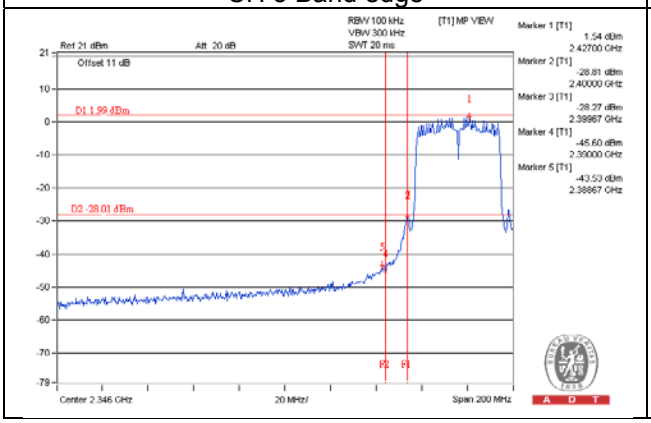


CH 9

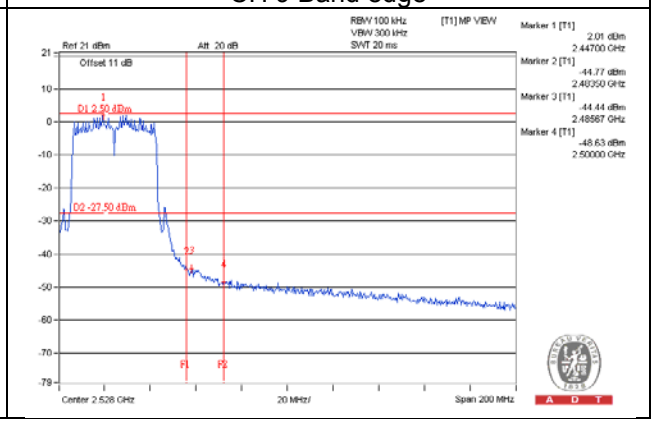




CH 3 Band edge

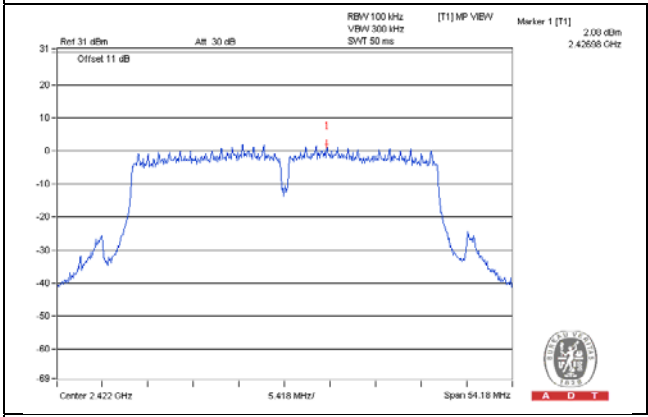


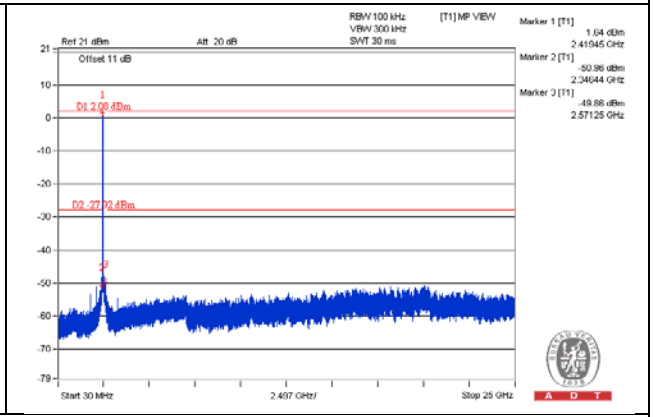
CH 9 Band edge



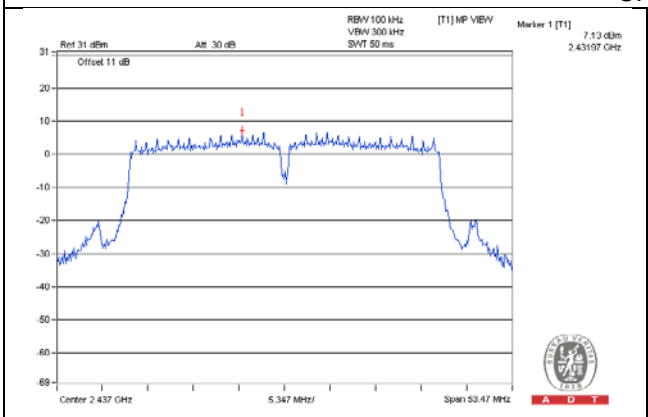
802.11n (HT40)_Chain 1

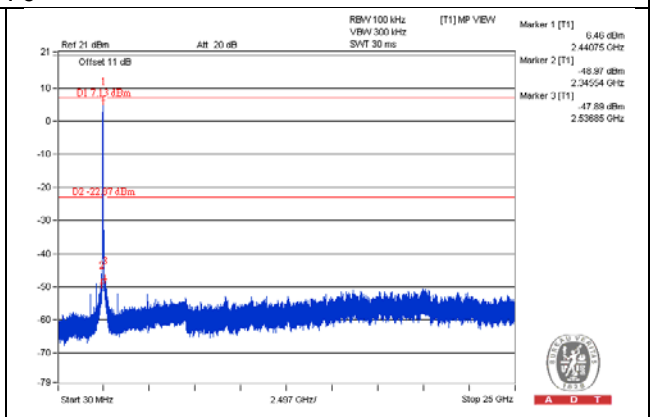
CH 3



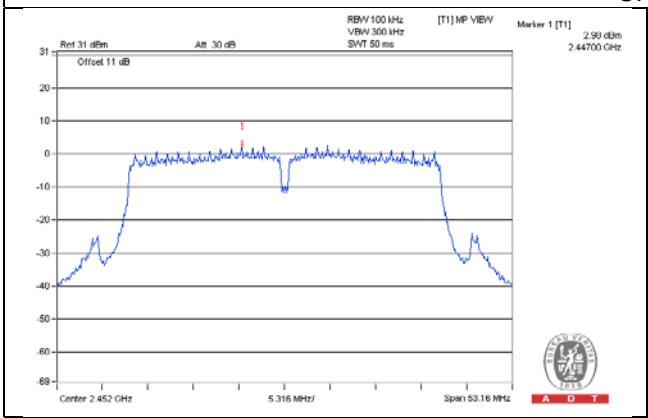


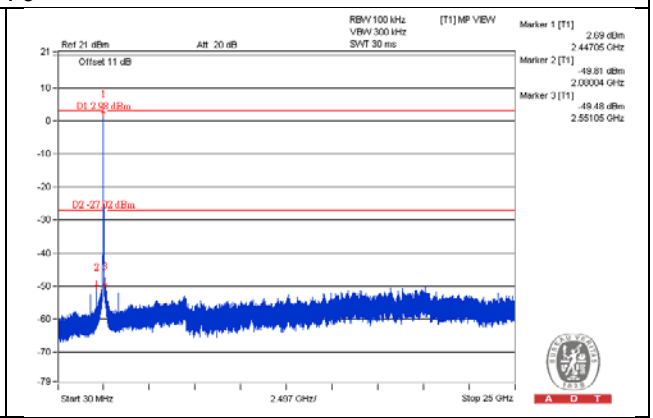
CH 6



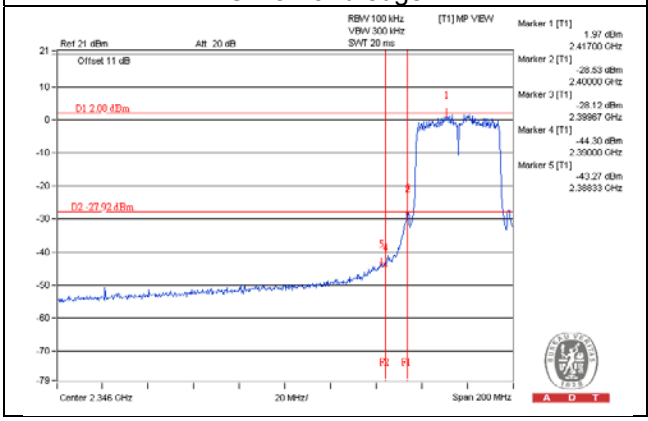


CH 9

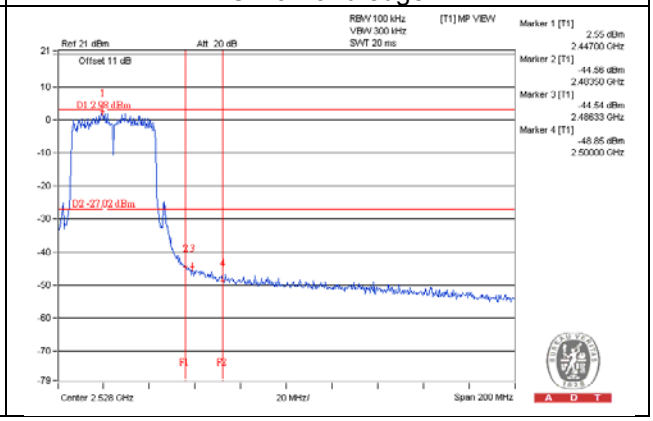




CH 3 Band edge



CH 9 Band edge



5 Test Types and Results (For 5.0GHz Band)

5.1 Radiated Emission and Bandedge Measurement

5.1.1 Limits of Radiated Emission and Bandedge Measurement

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

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

Note:

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

5.1.2 Test Instruments

Same as item 4.1.2.

5.1.3 Test Procedures

Same as item 4.1.3.

5.1.4 Deviation from Test Standard

No deviation.

5.1.5 Test Setup

Same as item 4.1.5.

5.1.6 EUT Operating Conditions

Same as item 4.1.6.

5.1.7 Test Results

Above 1GHz Data:

802.11a

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	#5725.00	75.0 PK	77.2	-2.2	2.42 H	179	70.60	4.40
2	#5725.00	65.2 AV	67.3	-2.1	2.42 H	179	60.80	4.40
3	*5745.00	107.2 PK			1.05 H	80	65.00	42.20
4	*5745.00	97.3 AV			1.05 H	80	55.10	42.20
5	11490.00	64.2 PK	74.0	-9.8	1.03 H	291	48.70	15.50
6	11490.00	49.9 AV	54.0	-4.1	1.03 H	291	34.40	15.50
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	#5725.00	90.5 PK	92.7	-2.2	1.87 V	162	86.10	4.40
2	#5725.00	80.5 AV	82.7	-2.2	1.87 V	162	76.10	4.40
3	*5745.00	122.7 PK			1.90 V	174	80.50	42.20
4	*5745.00	112.7 AV			1.90 V	174	70.50	42.20
5	11490.00	65.9 PK	74.0	-8.1	1.03 V	357	50.40	15.50
6	11490.00	50.0 AV	54.0	-4.0	1.03 V	357	34.50	15.50

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.
7. The limit value is defined as per 15.247.

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	*5785.00	105.6 PK			1.01 H	173	63.30	42.30
2	*5785.00	96.6 AV			1.01 H	173	54.30	42.30
3	11570.00	61.5 PK	74.0	-12.5	1.66 H	347	46.40	15.10
4	11570.00	48.9 AV	54.0	-5.1	1.66 H	347	33.80	15.10
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	*5785.00	121.6 PK			1.89 V	123	79.30	42.30
2	*5785.00	111.9 AV			1.89 V	123	69.60	42.30
3	11570.00	65.3 PK	74.0	-8.7	1.00 V	321	50.20	15.10
4	11570.00	49.4 AV	54.0	-4.6	1.00 V	321	34.30	15.10

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. The limit value is defined as per 15.247.

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	*5825.00	107.4 PK			1.09 H	71	65.10	42.30
2	*5825.00	97.6 AV			1.09 H	71	55.30	42.30
3	#5850.00	64.2 PK	77.4	-13.2	1.10 H	68	59.50	4.70
4	#5850.00	54.4 AV	67.6	-13.2	1.10 H	68	49.70	4.70
5	11650.00	64.9 PK	74.0	-9.1	2.09 H	287	49.60	15.30
6	11650.00	49.7 AV	54.0	-4.3	2.09 H	287	34.40	15.30
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	*5825.00	122.9 PK			1.82 V	154	80.60	42.30
2	*5825.00	113.1 AV			1.82 V	154	70.80	42.30
3	#5850.00	79.7 PK	92.9	-13.2	1.89 V	149	75.00	4.70
4	#5850.00	69.9 AV	83.1	-13.2	1.89 V	149	65.20	4.70
5	11650.00	65.2 PK	74.0	-8.8	1.00 V	25	49.90	15.30
6	11650.00	49.7 AV	54.0	-4.3	1.00 V	25	34.40	15.30

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.
7. The limit value is defined as per 15.247.

802.11n (HT20)

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	#5725.00	74.0 PK	75.9	-1.9	1.22 H	76	69.60	4.40
2	#5725.00	64.0 AV	65.9	-1.9	1.22 H	76	59.60	4.40
3	*5745.00	105.9 PK			1.17 H	81	63.70	42.20
4	*5745.00	95.9 AV			1.17 H	81	53.70	42.20
5	11490.00	62.2 PK	74.0	-11.8	1.00 H	288	46.70	15.50
6	11490.00	47.7 AV	54.0	-6.3	1.00 H	288	32.20	15.50
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	#5725.00	90.2 PK	92.0	-1.8	1.77 V	182	85.80	4.40
2	#5725.00	79.8 AV	81.7	-1.9	1.77 V	182	75.40	4.40
3	*5745.00	122.0 PK			1.87 V	152	79.80	42.20
4	*5745.00	111.7 AV			1.87 V	152	69.50	42.20
5	11490.00	63.9 PK	74.0	-10.1	1.00 V	358	48.40	15.50
6	11490.00	49.0 AV	54.0	-5.0	1.00 V	358	33.50	15.50

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.
7. The limit value is defined as per 15.247.

CHANNEL	TX Channel 157	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	*5785.00	106.8 PK			1.25 H	78	64.50	42.30
2	*5785.00	97.2 AV			1.25 H	78	54.90	42.30
3	11570.00	63.0 PK	74.0	-11.0	1.03 H	279	47.90	15.10
4	11570.00	48.2 AV	54.0	-5.8	1.03 H	279	33.10	15.10
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	*5785.00	122.7 PK			1.87 V	153	80.40	42.30
2	*5785.00	112.6 AV			1.87 V	153	70.30	42.30
3	11570.00	64.4 PK	74.0	-9.6	1.05 V	355	49.30	15.10
4	11570.00	49.3 AV	54.0	-4.7	1.05 V	355	34.20	15.10

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. The limit value is defined as per 15.247.

CHANNEL	TX Channel 165	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	*5825.00	106.4 PK			1.19 H	83	64.10	42.30
2	*5825.00	96.1 AV			1.19 H	83	53.80	42.30
3	#5850.00	68.7 PK	76.4	-7.7	1.26 H	67	64.00	4.70
4	#5850.00	58.4 AV	66.1	-7.7	1.26 H	67	53.70	4.70
5	11650.00	66.3 PK	74.0	-7.7	1.08 H	283	51.00	15.30
6	11650.00	50.6 AV	54.0	-3.4	1.08 H	283	35.30	15.30
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	*5825.00	122.4 PK			1.80 V	154	80.10	42.30
2	*5825.00	111.8 AV			1.80 V	154	69.50	42.30
3	#5850.00	84.7 PK	92.4	-7.7	1.80 V	155	80.00	4.70
4	#5850.00	74.1 AV	81.8	-7.7	1.80 V	155	69.40	4.70
5	11650.00	67.7 PK	74.0	-6.3	1.67 V	357	52.40	15.30
6	11650.00	51.7 AV	54.0	-2.3	1.67 V	357	36.40	15.30

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.
7. The limit value is defined as per 15.247.

802.11n (HT40)

CHANNEL	TX Channel 151	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	#5725.00	69.6 PK	70.5	-0.9	1.00 H	228	65.20	4.40
2	#5725.00	60.2 AV	61.1	-0.9	1.00 H	228	55.80	4.40
3	*5755.00	100.5 PK			1.00 H	228	58.30	42.20
4	*5755.00	91.1 AV			1.00 H	228	48.90	42.20
5	11510.00	62.0 PK	74.0	-12.0	1.00 H	297	46.80	15.20
6	11510.00	48.3 AV	54.0	-5.7	1.00 H	297	33.10	15.20
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	#5725.00	87.7 PK	88.6	-0.9	1.87 V	224	83.30	4.40
2	#5725.00	78.2 AV	79.1	-0.9	1.87 V	224	73.80	4.40
3	*5755.00	118.6 PK			1.87 V	224	76.40	42.20
4	*5755.00	109.1 AV			1.87 V	224	66.90	42.20
5	11510.00	62.8 PK	74.0	-11.2	1.00 V	10	47.60	15.20
6	11510.00	50.1 AV	54.0	-3.9	1.00 V	10	34.90	15.20

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.
7. The limit value is defined as per 15.247.

CHANNEL	TX Channel 159	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	*5795.00	102.5 PK			1.12 H	193	60.20	42.30
2	*5795.00	92.5 AV			1.12 H	193	50.20	42.30
3	#5850.00	56.0 PK	72.5	-16.5	1.23 H	178	51.30	4.70
4	#5850.00	46.0 AV	62.5	-16.5	1.23 H	178	41.30	4.70
5	11590.00	61.3 PK	74.0	-12.7	1.00 H	273	46.20	15.10
6	11590.00	47.5 AV	54.0	-6.5	1.00 H	273	32.40	15.10
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	*5795.00	116.3 PK			1.94 V	209	74.00	42.30
2	*5795.00	106.0 AV			1.94 V	209	63.70	42.30
3	#5850.00	69.8 PK	86.3	-16.5	2.01 V	167	65.10	4.70
4	#5850.00	59.5 AV	76.0	-16.5	2.01 V	167	54.80	4.70
5	11590.00	62.7 PK	74.0	-11.3	1.10 V	322	47.60	15.10
6	11590.00	48.6 AV	54.0	-5.4	1.10 V	322	33.50	15.10

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.
7. The limit value is defined as per 15.247.

802.11ac (VHT80)

CHANNEL	TX Channel 155	DETECTOR FUNCTION	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 40GHz		

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	#5725.00	69.3 PK	70.2	-0.9	1.00 H	179	64.90	4.40
2	#5725.00	59.2 AV	60.1	-0.9	1.00 H	179	54.80	4.40
3	*5775.00	100.2 PK			1.00 H	179	58.00	42.20
4	*5775.00	90.1 AV			1.00 H	179	47.90	42.20
5	#5850.00	62.5 PK	70.2	-7.7	1.00 H	179	57.80	4.70
6	#5850.00	52.4 AV	60.1	-7.7	1.00 H	179	47.70	4.70
7	11550.00	60.5 PK	74.0	-13.5	1.05 H	199	45.40	15.10
8	11550.00	47.9 AV	54.0	-6.1	1.05 H	199	32.80	15.10
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	#5725.00	83.7 PK	84.6	-0.9	2.00 V	46	79.30	4.40
2	#5725.00	73.3 AV	74.2	-0.9	2.00 V	46	68.90	4.40
3	*5775.00	114.6 PK			2.00 V	46	72.40	42.20
4	*5775.00	104.2 AV			2.00 V	46	62.00	42.20
5	#5850.00	76.9 PK	84.6	-7.7	2.00 V	46	72.20	4.70
6	#5850.00	66.5 AV	74.2	-7.7	2.00 V	46	61.80	4.70
7	11550.00	61.4 PK	74.0	-12.6	1.00 V	133	46.30	15.10
8	11550.00	48.3 AV	54.0	-5.7	1.00 V	133	33.20	15.10

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.
7. The limit value is defined as per 15.247.

Below 1GHz Data:

802.11a

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		
TEST MODE	A		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	30.00	28.9 QP	40.0	-11.1	1.51 H	17	44.50	-15.60
2	76.56	25.6 QP	40.0	-14.4	1.26 H	77	43.30	-17.70
3	125.06	31.9 QP	43.5	-11.6	1.26 H	277	47.90	-16.00
4	158.04	30.9 QP	43.5	-12.6	2.00 H	278	44.60	-13.70
5	249.22	32.6 QP	46.0	-13.4	1.00 H	298	47.00	-14.40
6	875.84	33.9 QP	46.0	-12.1	1.26 H	163	35.60	-1.70
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	34.06	30.8 QP	40.0	-9.2	1.00 V	336	46.40	-15.60
2	59.34	27.7 QP	40.0	-12.3	1.00 V	246	42.30	-14.60
3	125.06	32.9 QP	43.5	-10.6	1.00 V	67	48.90	-16.00
4	167.74	31.0 QP	43.5	-12.5	1.00 V	299	45.00	-14.00
5	241.46	27.1 QP	46.0	-18.9	1.00 V	287	41.80	-14.70
6	875.84	35.9 QP	46.0	-10.1	1.00 V	229	37.60	-1.70

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		
TEST MODE	B		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	35.82	27.5 QP	40.0	-12.5	2.00 H	99	43.00	-15.50
2	74.62	32.6 QP	40.0	-7.4	1.51 H	255	49.80	-17.20
3	125.06	30.9 QP	43.5	-12.6	1.51 H	277	46.90	-16.00
4	187.14	29.7 QP	43.5	-13.8	1.26 H	186	45.70	-16.00
5	224.00	30.2 QP	46.0	-15.8	1.26 H	304	46.30	-16.10
6	912.70	31.3 QP	46.0	-14.7	2.00 H	258	32.10	-0.80
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	36.78	34.4 QP	40.0	-5.6	1.00 V	105	49.70	-15.30
2	125.06	30.1 QP	43.5	-13.4	1.00 V	133	46.10	-16.00
3	167.74	30.8 QP	43.5	-12.7	1.00 V	330	44.80	-14.00
4	235.64	28.6 QP	46.0	-17.4	1.00 V	278	44.00	-15.40
5	295.78	26.8 QP	46.0	-19.2	1.00 V	262	39.40	-12.60
6	625.58	32.1 QP	46.0	-13.9	1.49 V	16	37.90	-5.80

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

CHANNEL	TX Channel 149	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	30MHz ~ 1GHz		
TEST MODE	C		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	31.94	31.6 QP	40.0	-8.4	1.24 H	6	47.50	-15.90
2	70.74	23.3 QP	40.0	-16.7	2.00 H	238	39.40	-16.10
3	125.06	31.8 QP	43.5	-11.7	1.49 H	280	47.80	-16.00
4	159.98	29.5 QP	43.5	-14.0	1.24 H	254	43.40	-13.90
5	241.46	30.1 QP	46.0	-15.9	1.00 H	115	44.80	-14.70
6	875.84	35.4 QP	46.0	-10.6	1.24 H	160	37.10	-1.70
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	53.28	34.0 QP	40.0	-6.0	1.49 V	25	48.10	-14.10
2	107.60	27.7 QP	43.5	-15.8	1.00 V	256	45.20	-17.50
3	167.74	31.2 QP	43.5	-12.3	1.00 V	296	45.20	-14.00
4	231.76	29.2 QP	46.0	-16.8	1.00 V	193	45.40	-16.20
5	297.72	26.4 QP	46.0	-19.6	1.24 V	242	39.00	-12.60
6	875.84	34.6 QP	46.0	-11.4	1.00 V	234	36.30	-1.70

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)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value

5.2 Conducted Emission Measurement

5.2.1 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.

5.2.2 Test Instruments

Same as item 4.2.2.

5.2.3 Test Procedures

Same as item 4.2.3.

5.2.4 Deviation from Test Standard

No deviation.

5.2.5 Test Setup

Same as item 4.2.5.

5.2.6 EUT Operating Conditions

Same as item 4.1.6.

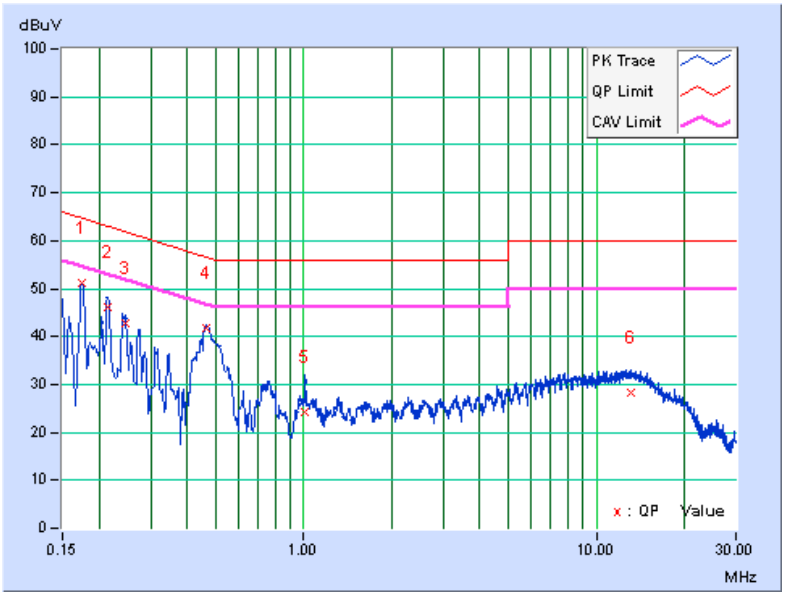
5.2.7 Test Results

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

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17374	9.88	41.32	27.24	51.20	37.12	64.78	54.78	-13.58	-17.66
2	0.21282	9.93	36.32	23.64	46.25	33.57	63.09	53.09	-16.85	-19.53
3	0.24731	9.92	32.87	20.51	42.79	30.43	61.85	51.85	-19.05	-21.41
4	0.46669	9.91	31.70	22.67	41.61	32.58	56.57	46.57	-14.96	-13.99
5	1.01411	10.03	14.14	6.92	24.17	16.95	56.00	46.00	-31.83	-29.05
6	13.15466	10.74	17.63	11.01	28.37	21.75	60.00	50.00	-31.63	-28.25

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.

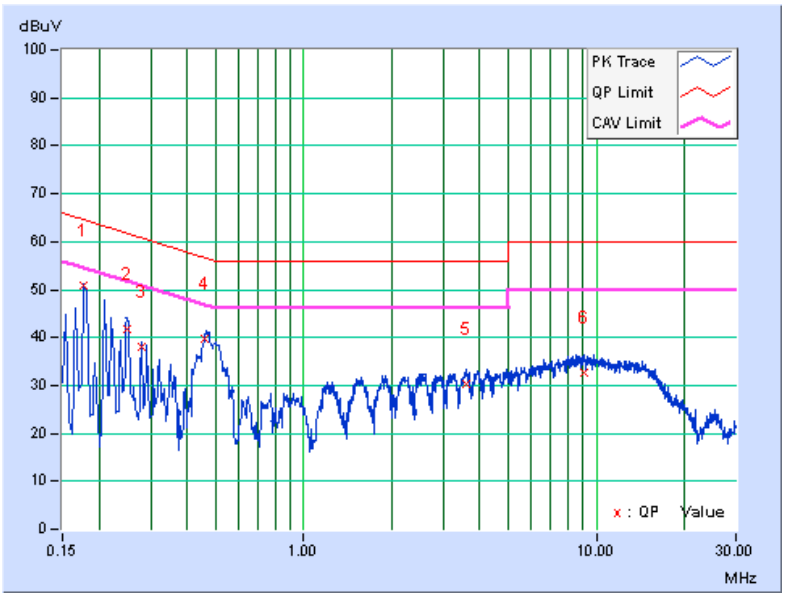


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	A		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.17744	9.97	40.76	26.91	50.73	36.88	64.60	54.60	-13.88	-17.73
2	0.24796	10.02	31.84	19.25	41.86	29.27	61.83	51.83	-19.96	-22.55
3	0.27903	10.01	27.87	14.69	37.88	24.70	60.84	50.84	-22.96	-26.14
4	0.45937	9.99	29.79	20.84	39.78	30.83	56.70	46.70	-16.92	-15.87
5	3.57907	10.28	19.91	14.56	30.19	24.84	56.00	46.00	-25.81	-21.16
6	9.05307	10.55	21.98	16.11	32.53	26.66	60.00	50.00	-27.47	-23.34

Remarks:

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

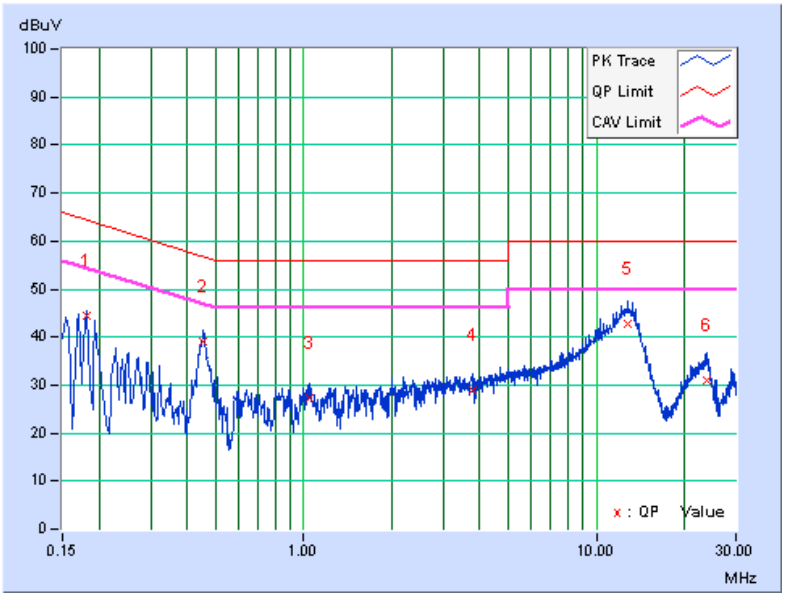


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18128	9.90	34.64	19.75	44.54	29.65	64.43	54.43	-19.89	-24.78
2	0.45455	9.91	29.15	23.90	39.06	33.81	56.79	46.79	-17.73	-12.98
3	1.04930	10.03	17.17	10.87	27.20	20.90	56.00	46.00	-28.80	-25.10
4	3.78630	10.18	18.86	11.41	29.04	21.59	56.00	46.00	-26.96	-24.41
5	12.74802	10.71	32.18	25.77	42.89	36.48	60.00	50.00	-17.11	-13.52
6	24.00100	11.31	19.57	14.42	30.88	25.73	60.00	50.00	-29.12	-24.27

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.

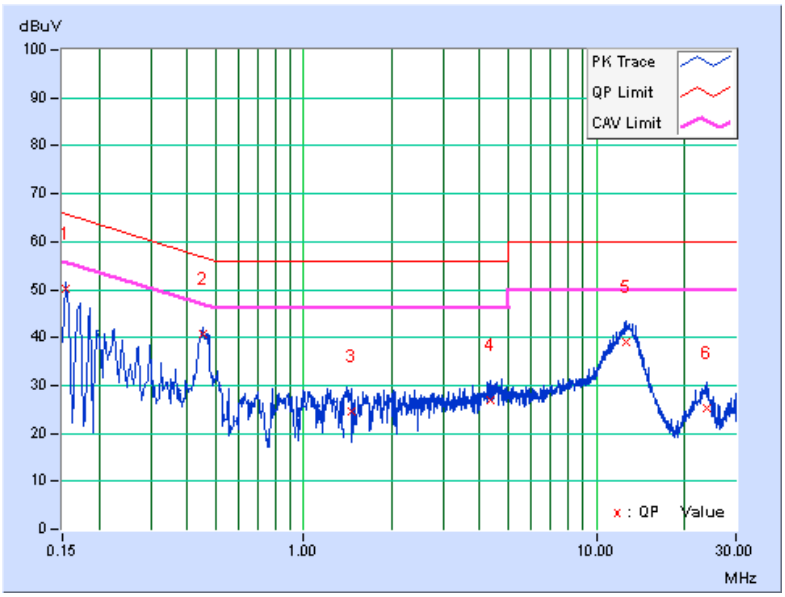


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	B		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15391	9.90	40.14	30.14	50.04	40.04	65.79	55.79	-15.75	-15.75
2	0.45107	9.99	30.64	25.44	40.63	35.43	56.86	46.86	-16.22	-11.42
3	1.45594	10.06	14.63	7.48	24.69	17.54	56.00	46.00	-31.31	-28.46
4	4.33370	10.34	16.47	8.47	26.81	18.81	56.00	46.00	-29.19	-27.19
5	12.71283	10.72	28.38	22.07	39.10	32.79	60.00	50.00	-20.90	-17.21
6	23.84069	11.14	13.96	8.72	25.10	19.86	60.00	50.00	-34.90	-30.14

Remarks:

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

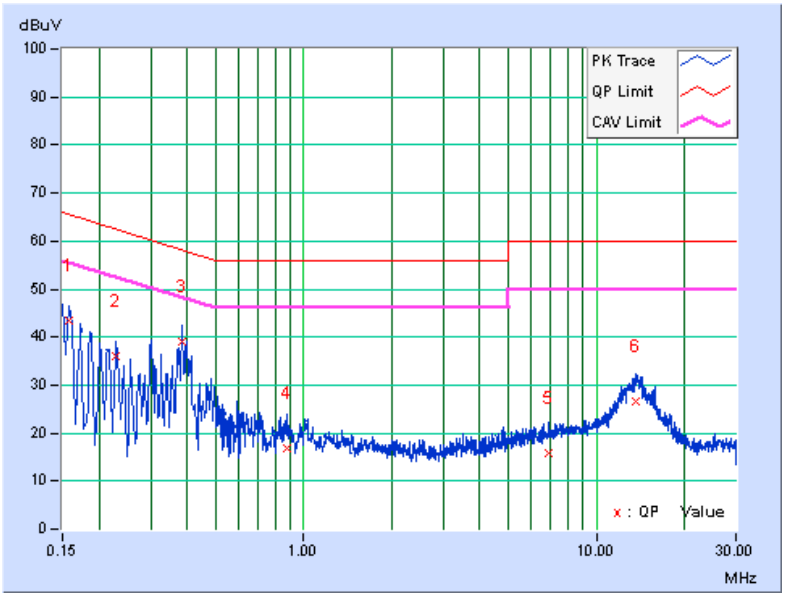


Phase	Line (L)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	C		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15782	9.85	33.49	21.67	43.34	31.52	65.58	55.58	-22.23	-24.05
2	0.22851	9.93	26.03	19.29	35.96	29.22	62.50	52.50	-26.55	-23.29
3	0.38460	9.90	29.16	15.61	39.06	25.51	58.18	48.18	-19.12	-22.67
4	0.87335	10.00	6.89	1.49	16.89	11.49	56.00	46.00	-39.11	-34.51
5	6.88693	10.36	5.33	0.48	15.69	10.84	60.00	50.00	-44.31	-39.16
6	13.70206	10.77	15.67	9.94	26.44	20.71	60.00	50.00	-33.56	-29.29

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.

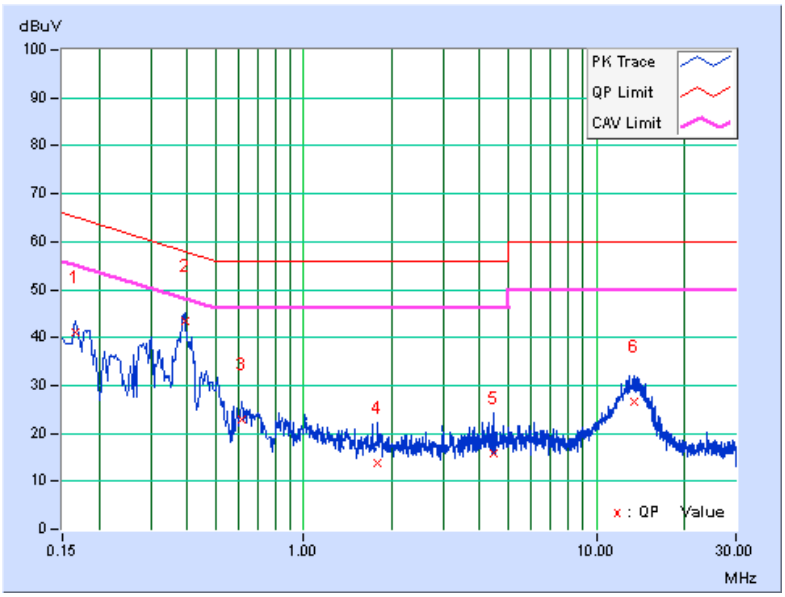


Phase	Neutral (N)	Detector Function	Quasi-Peak (QP) / Average (AV)
Test Mode	C		

No	Freq.	Corr. Factor	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.16569	9.93	31.25	18.92	41.18	28.85	65.17	55.17	-23.99	-26.32
2	0.39219	9.99	33.42	23.76	43.41	33.75	58.02	48.02	-14.61	-14.27
3	0.61529	10.00	12.87	6.28	22.87	16.28	56.00	46.00	-33.13	-29.72
4	1.79611	10.08	3.74	-0.28	13.82	9.80	56.00	46.00	-42.18	-36.20
5	4.43927	10.35	5.55	-0.75	15.90	9.60	56.00	46.00	-40.10	-36.40
6	13.48310	10.75	15.79	9.91	26.54	20.66	60.00	50.00	-33.46	-29.34

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.



5.3 6dB Bandwidth Measurement

5.3.1 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

5.3.2 Test Setup

Same as item 4.3.2.

5.3.3 Test Instruments

Same as item 4.3.3.

5.3.4 Test Procedure

Same as item 4.3.4.

5.3.5 Deviation fromTest Standard

No deviation.

5.3.6 EUT Operating Conditions

Same as item 4.3.3.

5.3.7 Test Result

802.11a

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	16.39	16.39	0.5	PASS
157	5785	16.37	16.39	0.5	PASS
165	5825	16.40	16.39	0.5	PASS

802.11n (HT20)

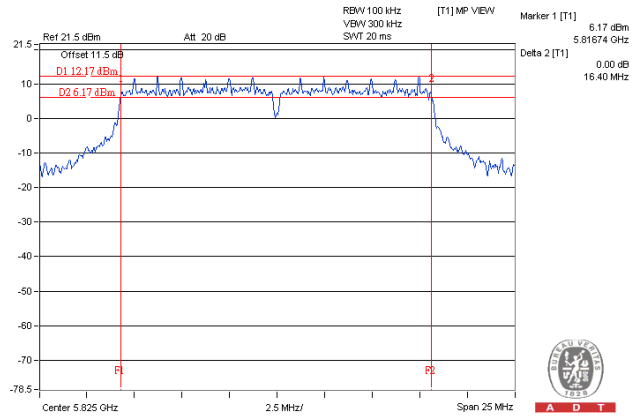
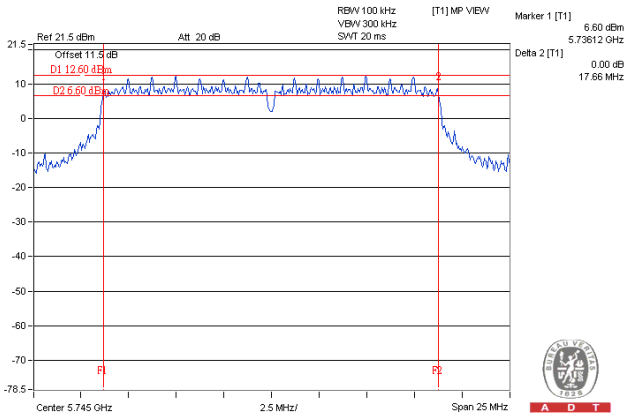
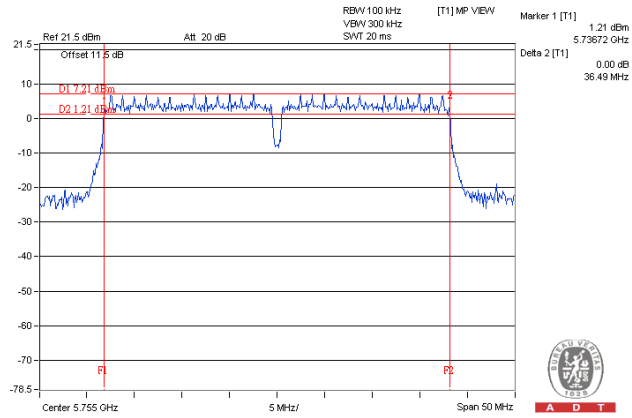
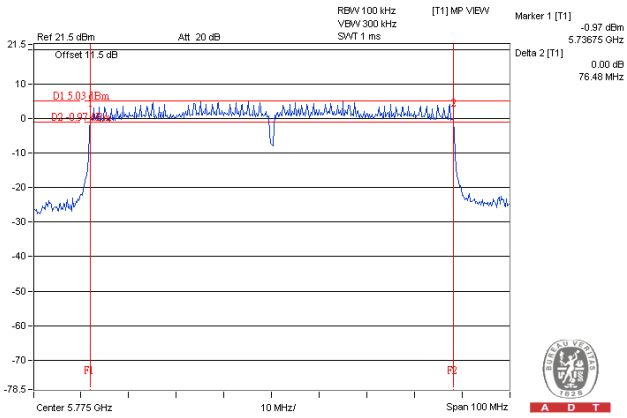
Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
149	5745	17.65	17.66	0.5	PASS
157	5785	17.62	17.64	0.5	PASS
165	5825	17.64	17.66	0.5	PASS

802.11n (HT40)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
151	5755	36.41	36.49	0.5	PASS
159	5795	36.47	36.46	0.5	PASS

802.11ac (VHT80)

Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)	Pass / Fail
		Chain 0	Chain 1		
155	5775	76.10	76.48	0.5	PASS

Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (VHT80)
	

5.4 Conducted Output Power Measurement

5.4.1 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 NANT ≤ 4;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any NANT;
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.

5.4.2 Test Setup

Same as item 4.4.2.

5.4.3 Test Instruments

Same as item 4.4.3.

5.4.4 Test Procedures

Same as item 4.4.4.

5.4.5 Deviation from Test Standard

No deviation.

5.4.6 EUT Operating Conditions

Same as item 4.4.6.

5.4.7 Test Results

802.11a

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
149	5745	25.57	25.79	**739.894**	28.69	30	Pass
157	5785	25.42	25.81	729.403	28.63	30	Pass
165	5825	25.44	25.70	721.480	28.58	30	Pass

802.11n (HT20)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
149	5745	24.39	24.39	549.578	27.40	30	Pass
157	5785	25.41	25.62	712.290	28.53	30	Pass
165	5825	25.63	25.62	730.349	28.64	30	Pass

802.11n (HT40)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
151	5755	23.60	22.29	398.521	26.00	30	Pass
159	5795	25.45	24.01	602.520	27.80	30	Pass

802.11ac (VHT80)

Channel	Frequency (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Limit (dBm)	Pass / Fail
		Chain 0	Chain 1				
155	5775	23.12	22.58	386.250	25.87	30	Pass

5.5 Power Spectral Density Measurement

5.5.1 Limits of Power Spectral Density Measurement

The Maximum of Power Spectral Density Measurement is 8dBm.

5.5.2 Test Setup

Same as Item 4.5.2

5.5.3 Test Instruments

Same as Item 4.5.3

5.5.4 Test Procedure

Same as Item 4.5.4

5.5.5 Deviation from Test Standard

No deviation.

5.5.6 EUT Operating Condition

Same as Item 4.3.6

5.5.7 Test Results

802.11a

TX chain	Channel	Frequency (MHz)	PSD (dBm)	10 log (N=2) dB	Duty Factor	Total PSD with Duty Factor (dBm)	Limit (dBm)	Pass / Fail
0	149	5745	-5.82	3.01	0.36	-2.45	5.99	Pass
	157	5785	-5.88	3.01	0.36	-2.51	5.99	Pass
	165	5825	-7.13	3.01	0.36	-3.76	5.99	Pass
1	149	5745	-5.24	3.01	0.36	-1.87	5.99	Pass
	157	5785	-5.62	3.01	0.36	-2.25	5.99	Pass
	165	5825	-4.80	3.01	0.36	-1.43	5.99	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 5dBi + 10log(2) = 8.01dBi > 6dBi, so the power density limit shall be reduced to 8-(8.01-6) = 5.99dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT20)

TX chain	Channel	Frequency (MHz)	PSD (dBm)	10 log (N=2) dB	Duty Factor	Total PSD with Duty Factor (dBm)	Limit (dBm)	Pass / Fail
0	149	5745	-8.53	3.01	0.42	-5.10	5.99	Pass
	157	5785	-7.61	3.01	0.42	-4.18	5.99	Pass
	165	5825	-8.21	3.01	0.42	-4.78	5.99	Pass
1	149	5745	-8.22	3.01	0.42	-4.79	5.99	Pass
	157	5785	-7.29	3.01	0.42	-3.86	5.99	Pass
	165	5825	-7.09	3.01	0.42	-3.66	5.99	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 5dBi + 10log(2) = 8.01dBi > 6dBi, so the power density limit shall be reduced to 8-(8.01-6) = 5.99dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11n (HT40)

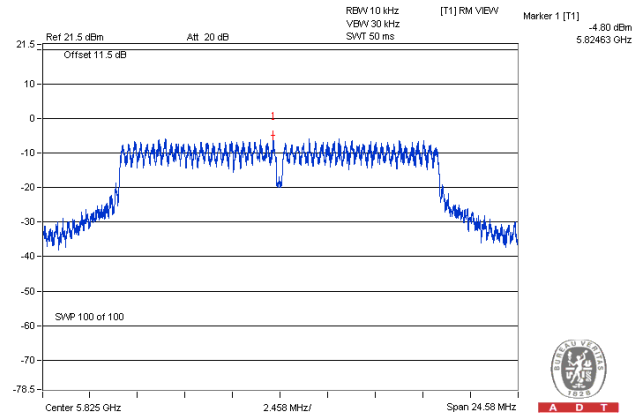
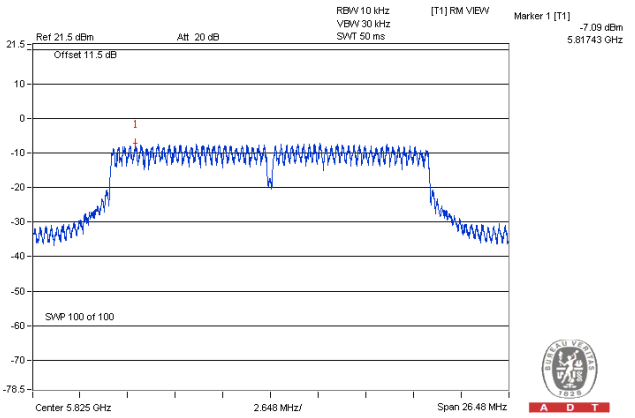
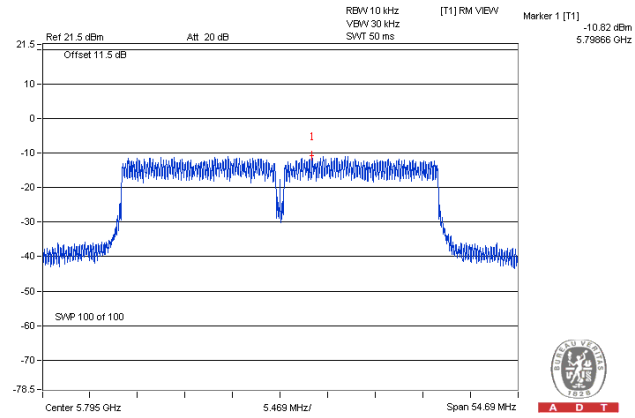
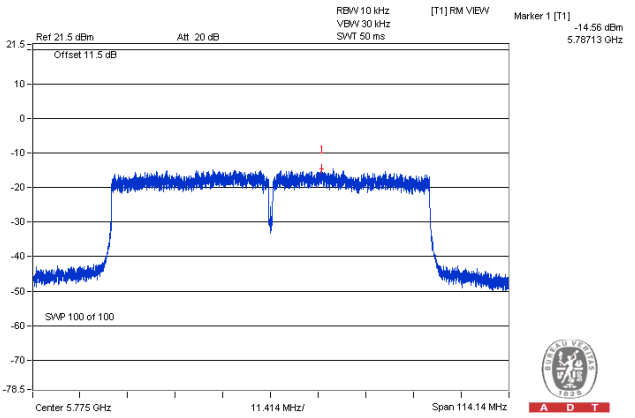
TX chain	Channel	Frequency (MHz)	PSD (dBm)	10 log (N=2) dB	Duty Factor	Total PSD with Duty Factor (dBm)	Limit (dBm)	Pass / Fail
0	151	5755	-11.40	3.01	1.89	-6.50	5.99	Pass
	159	5795	-10.82	3.01	1.89	-5.92	5.99	Pass
1	151	5755	-12.93	3.01	1.89	-8.03	5.99	Pass
	159	5795	-11.68	3.01	1.89	-6.78	5.99	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 5dBi + 10log(2) = 8.01dBi > 6dBi, so the power density limit shall be reduced to 8-(8.01-6) = 5.99dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

802.11ac (VHT80)

TX chain	Channel	Frequency (MHz)	PSD (dBm)	10 log (N=2) dB	Duty Factor	Total PSD with Duty Factor (dBm)	Limit (dBm)	Pass / Fail
0	155	5775	-14.56	3.01	0.94	-10.61	5.99	Pass
1	155	5775	-15.58	3.01	0.94	-11.63	5.99	Pass

Note:
1. Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
2. Directional gain = 5dBi + 10log(2) = 8.01dBi > 6dBi, so the power density limit shall be reduced to 8-(8.01-6) = 5.99dBm.
3. Refer to section 3.3 for duty cycle spectrum plot.

Spectrum Plot of Worst Value	
802.11a	802.11n (HT20)
	
802.11n (HT40)	802.11ac (VHT80)
	

5.6 Conducted Out of Band Emission Measurement

5.6.1 Limits of Conducted Out of Band Emission Measurement

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

5.6.2 Test Setup

Same as Item 4.6.2

5.6.3 Test Instruments

Same as Item 4.6.3

5.6.4 Test Procedure

Same as Item 4.6.4

5.6.5 Deviation from Test Standard

No deviation.

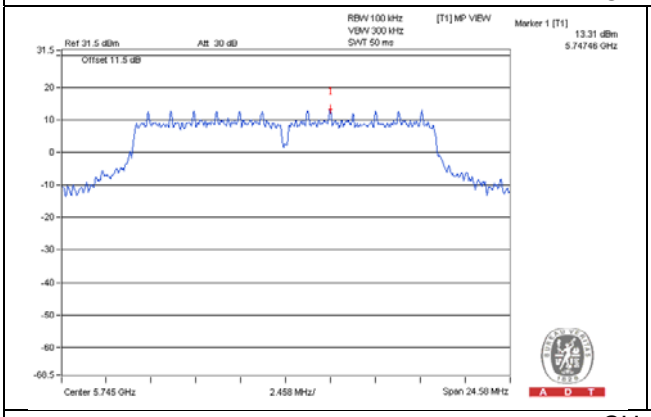
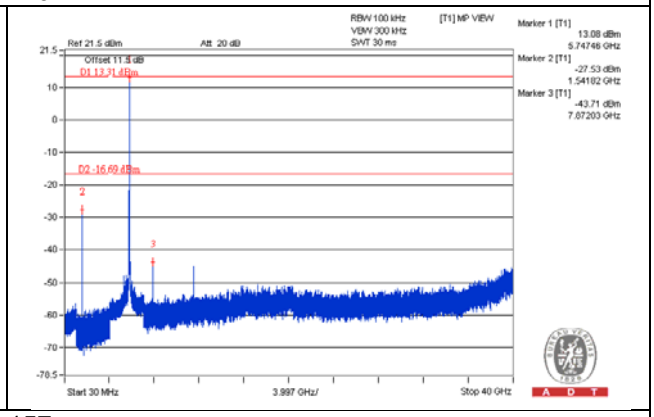
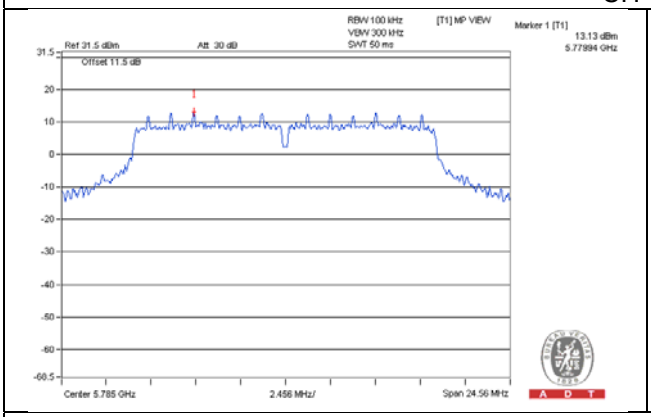
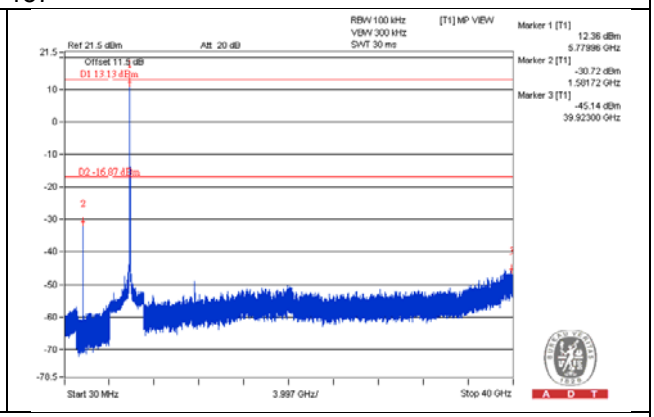
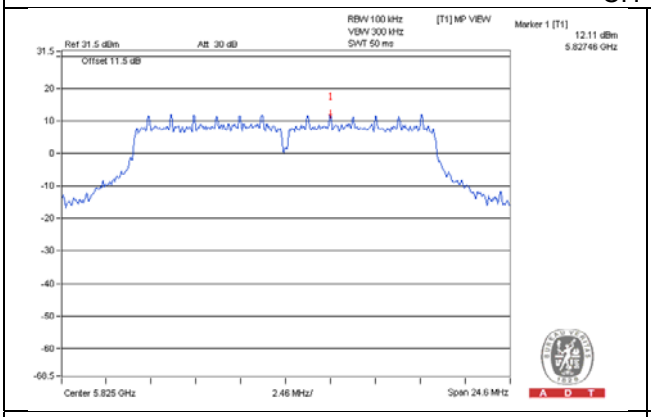
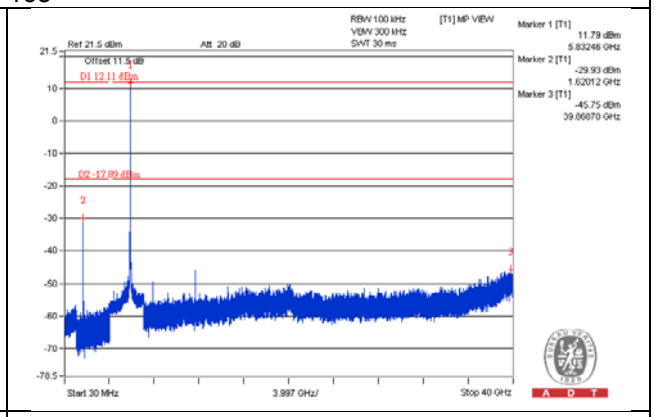
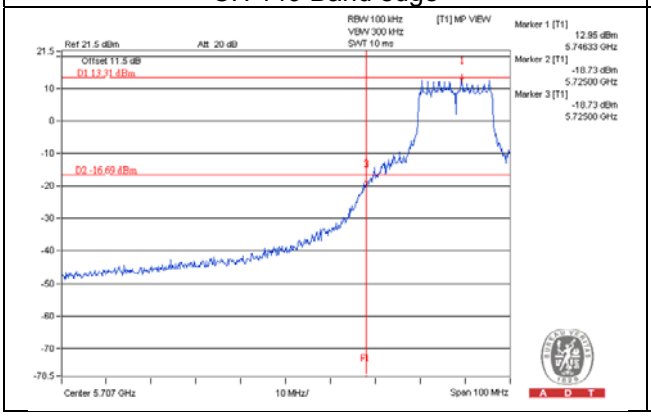
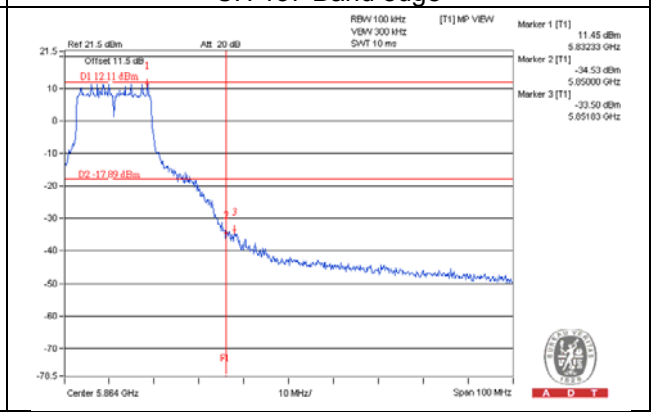
5.6.6 EUT Operating Condition

Same as Item 4.3.6

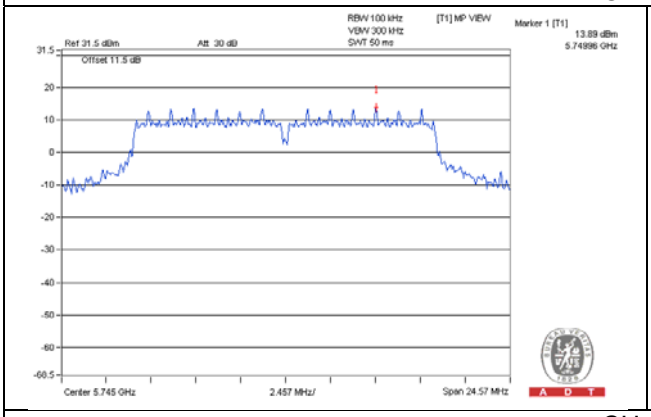
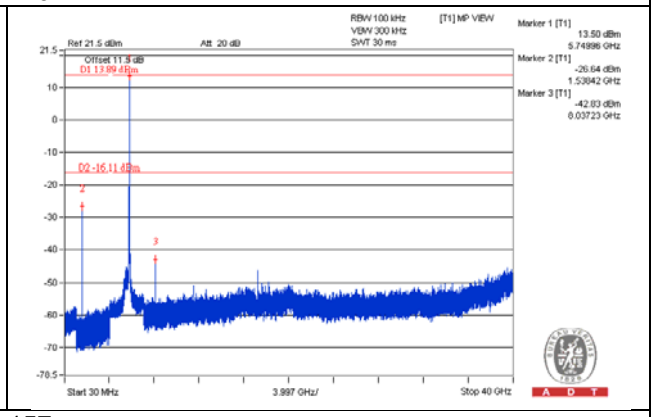
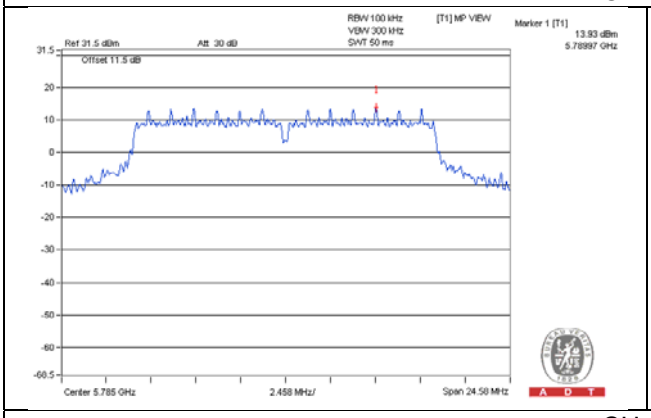
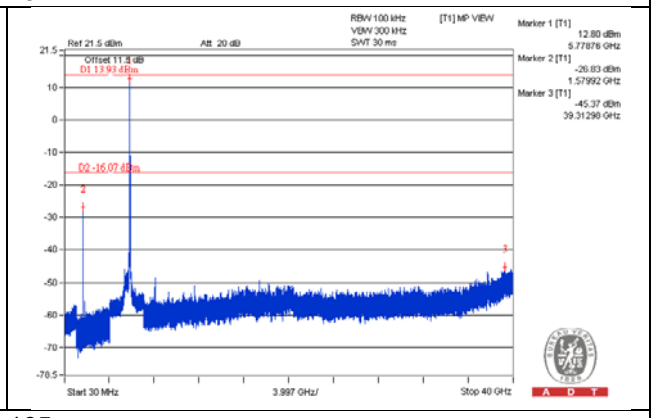
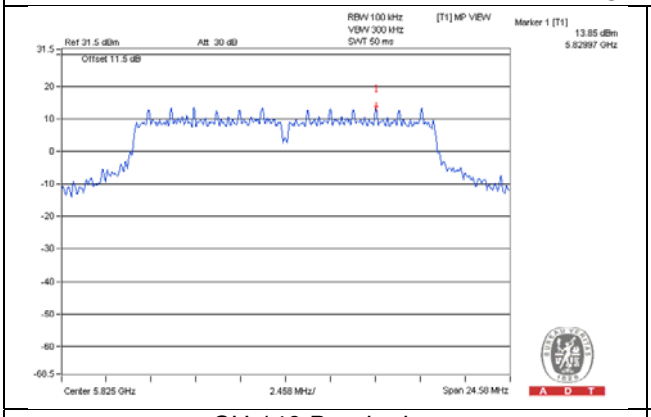
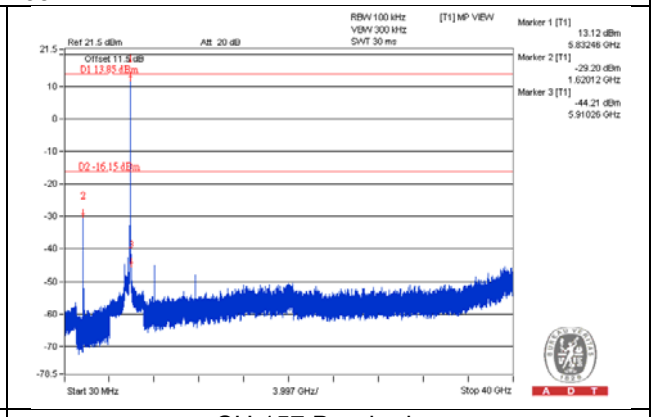
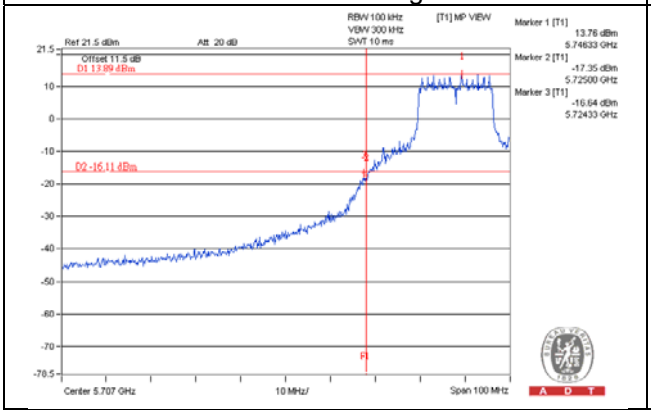
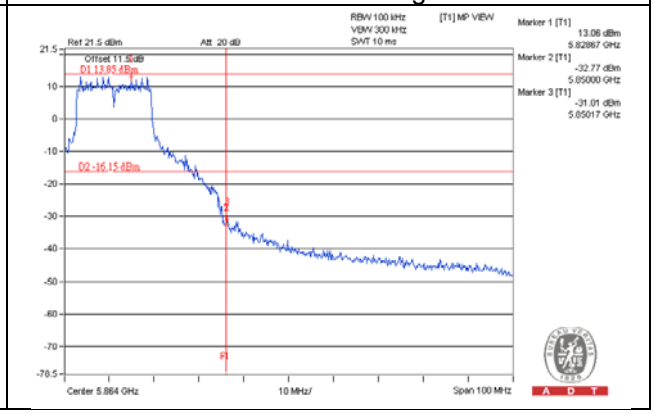
5.6.7 Test Results

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.

802.11a_Chain 0

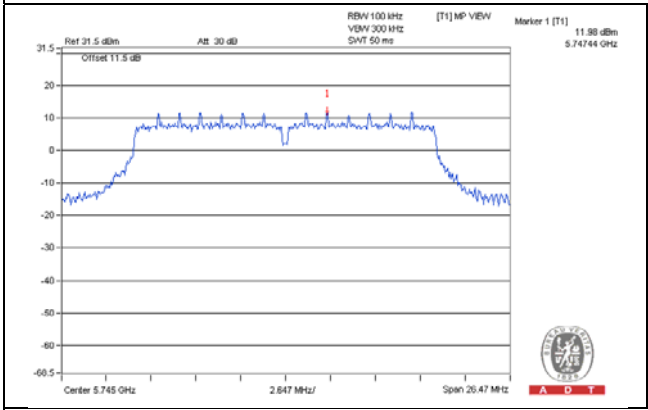
CH 149	
	
CH 157	
	
CH 165	
	
CH 149 Band edge	**CH 157 Band edge**
	

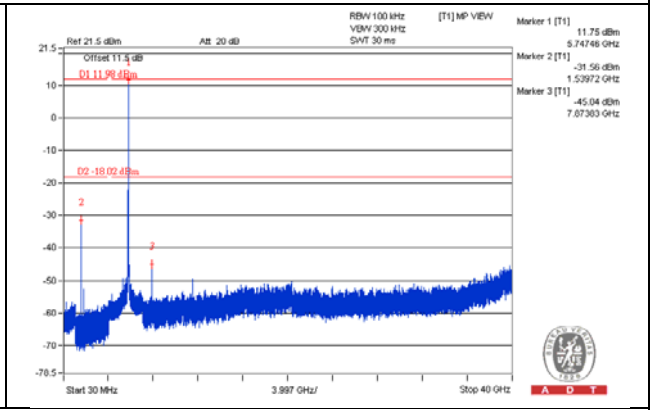
802.11a_Chain 1

CH 149	
	
CH 157	
	
CH 165	
	
CH 149 Band edge	**CH 157 Band edge**
	

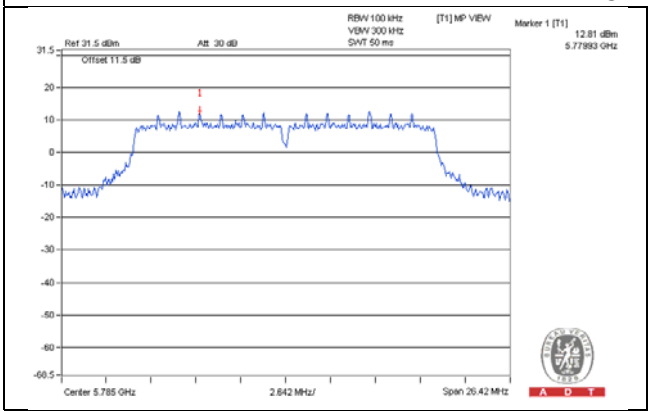
802.11n (HT20)_Chain 0

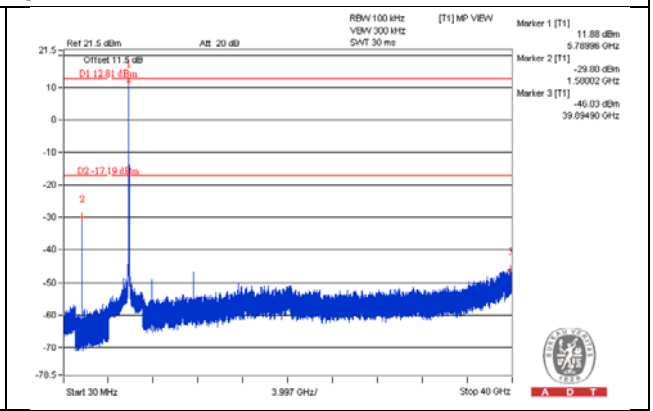
CH 149



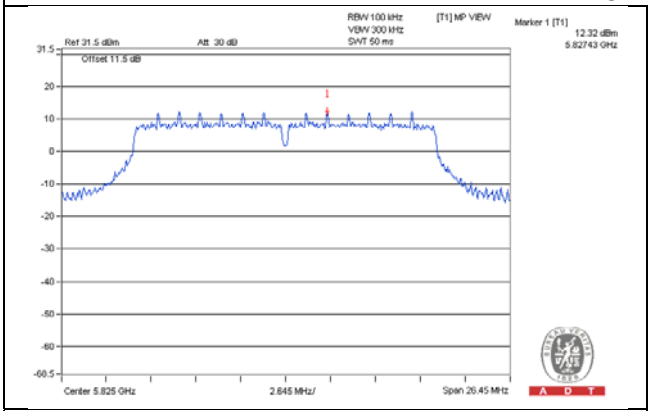


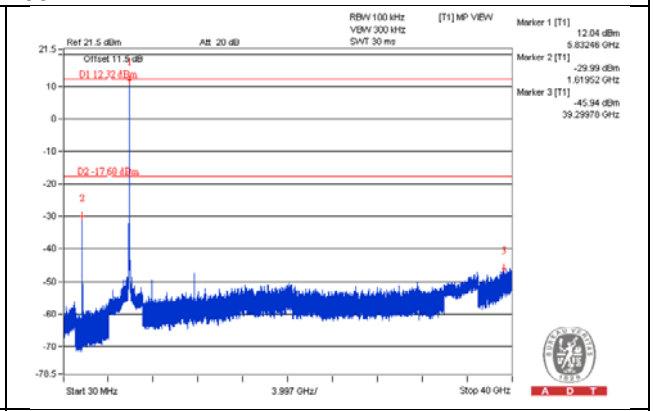
CH 157



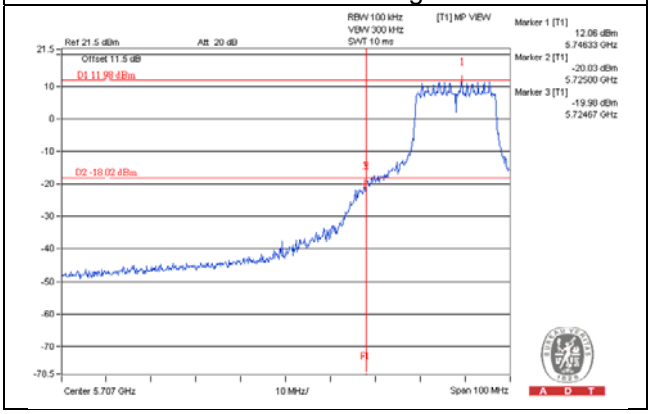


CH 165

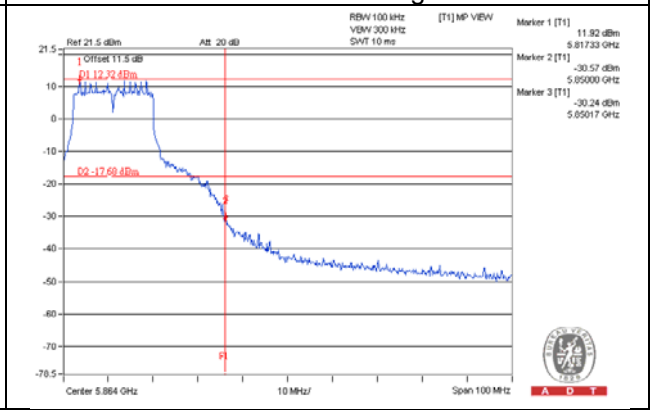




CH 149 Band edge

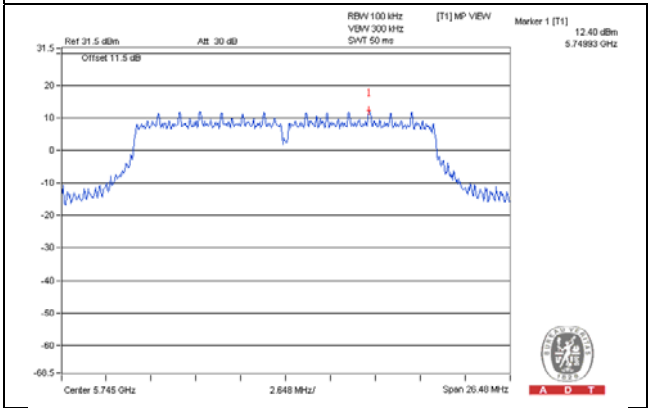


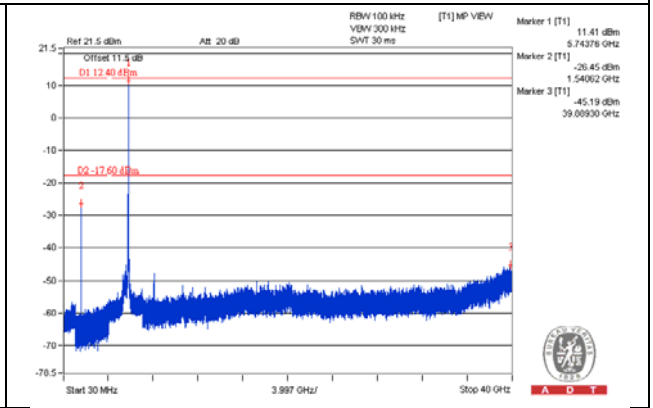
CH 157 Band edge



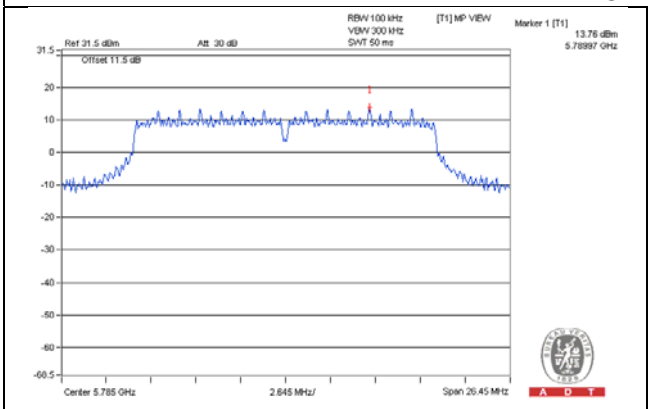
802.11n (HT20)_Chain 1

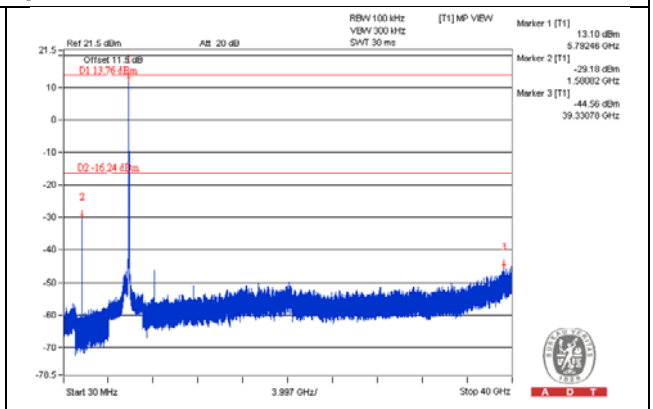
CH 149



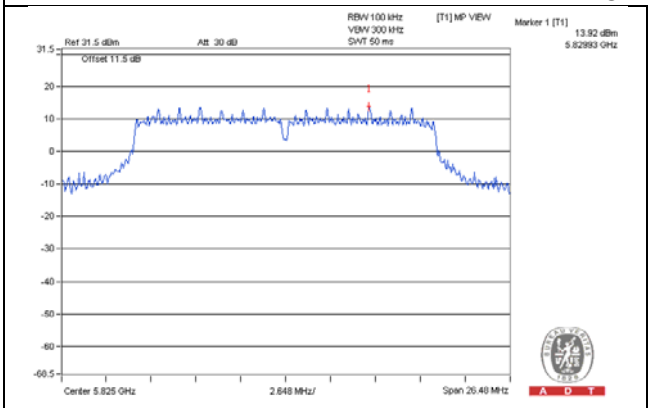


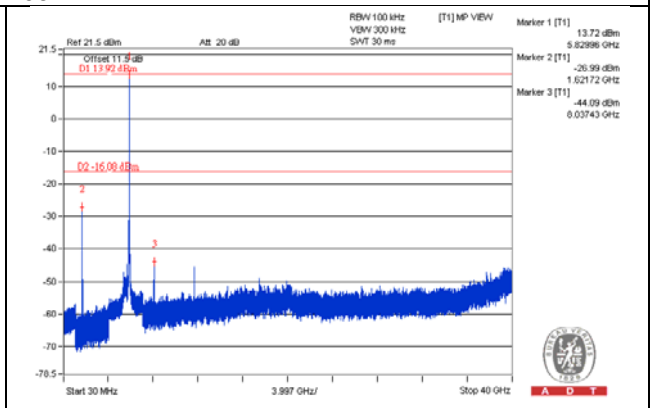
CH 157



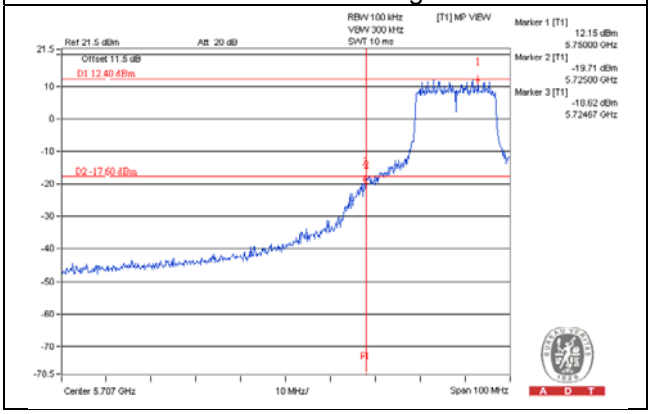


CH 165

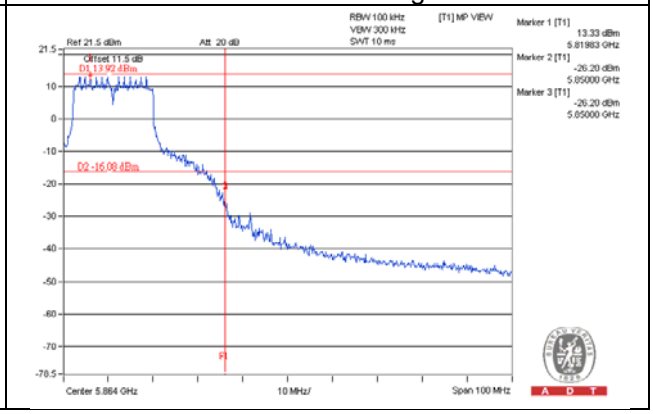




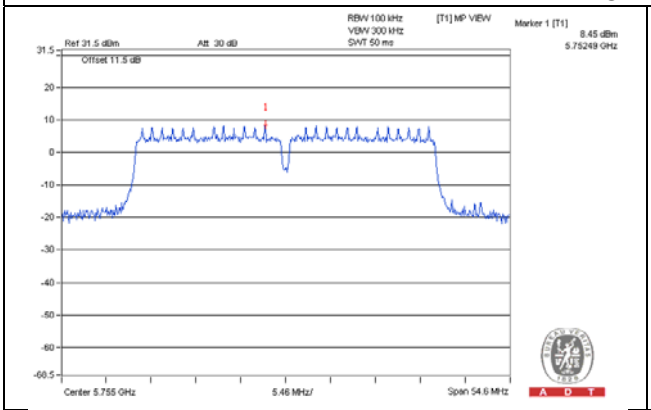
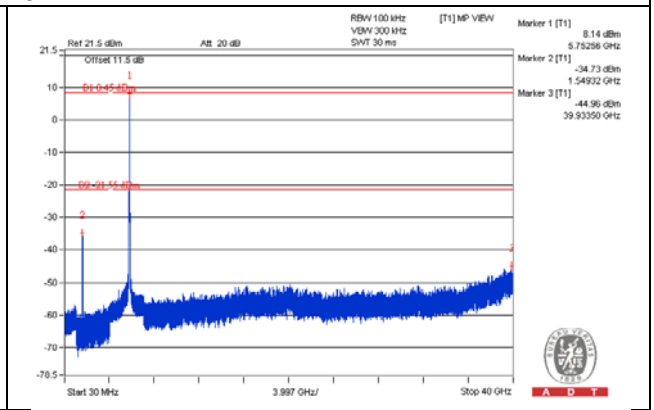
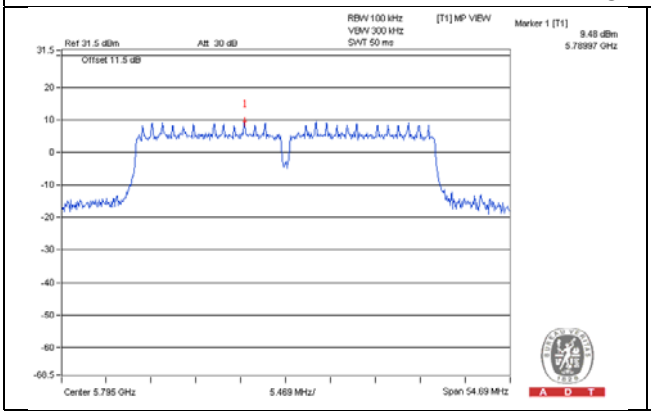
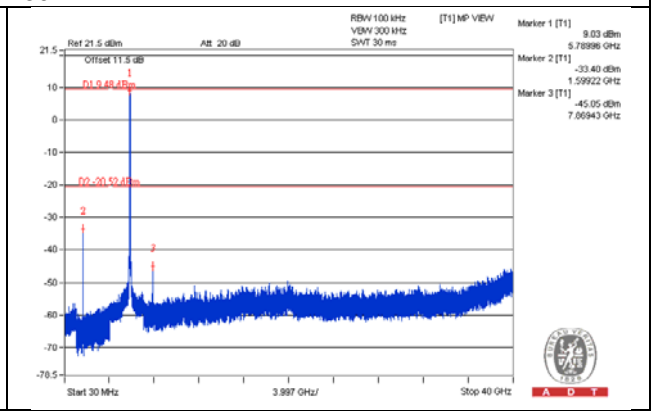
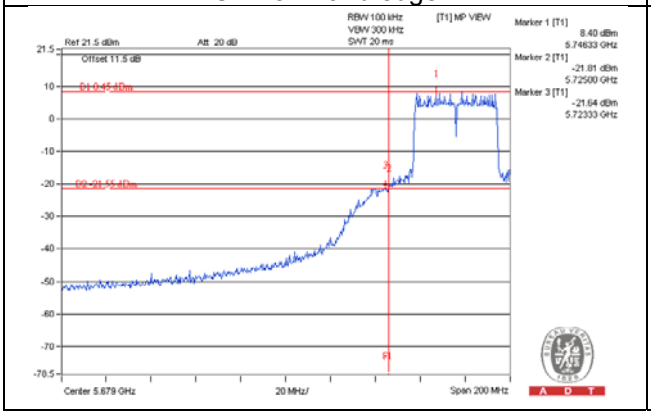
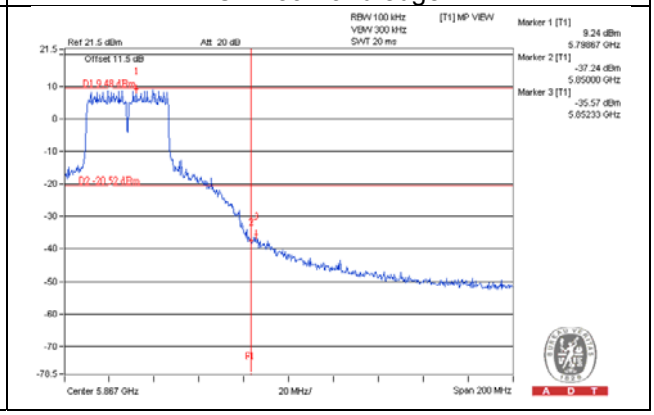
CH 149 Band edge



CH 157 Band edge

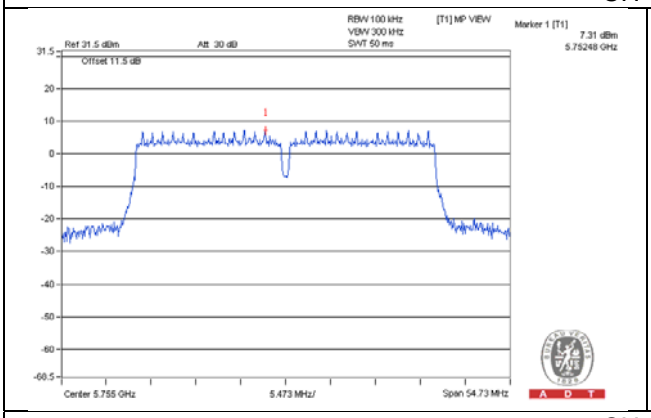


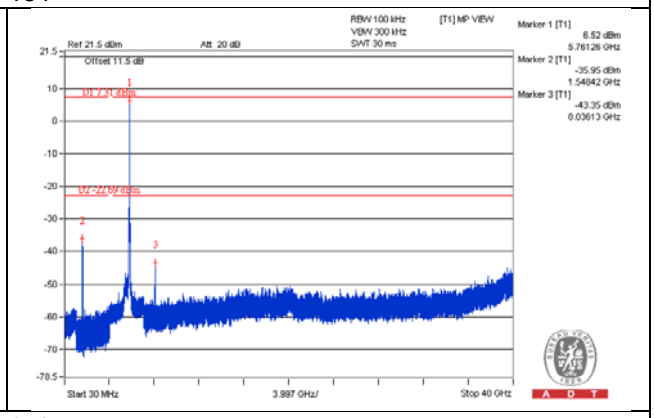
802.11n (HT40)_Chain 0

CH 151	
	
CH 159	
	
CH 151 Band edge	**CH 159 Band edge**
	

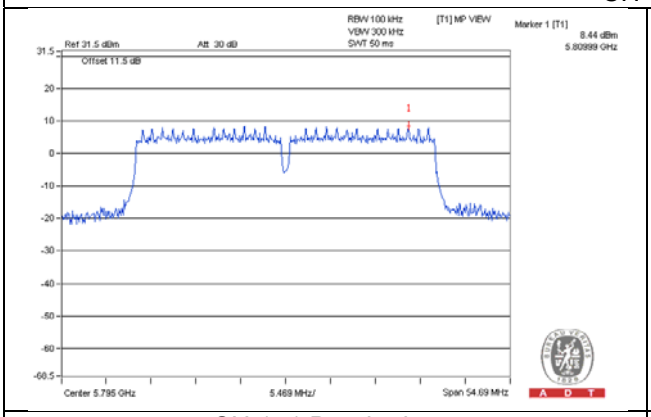
802.11n (HT40)_Chain 1

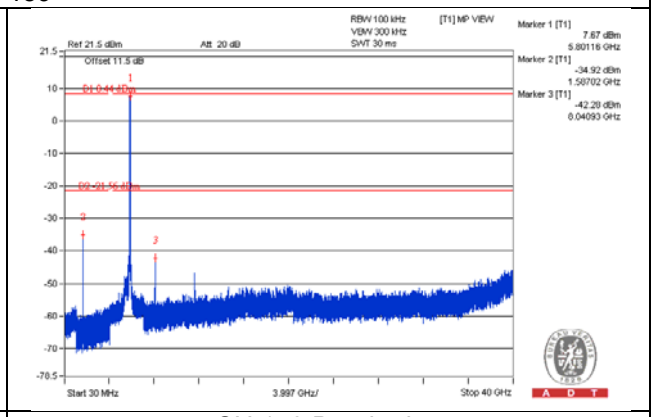
CH 151



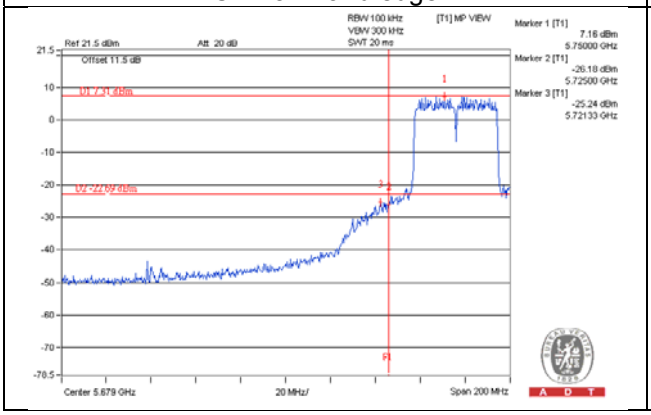


CH 159

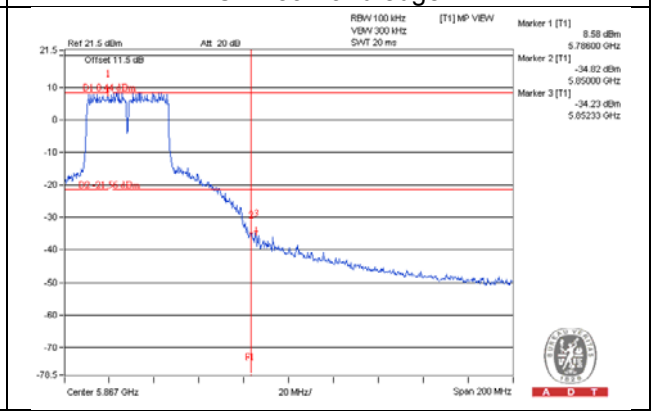




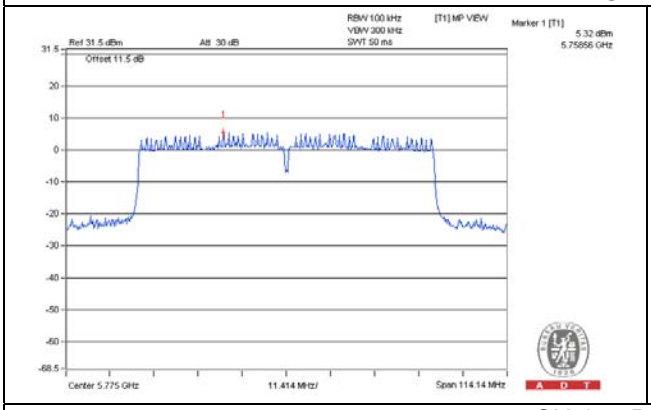
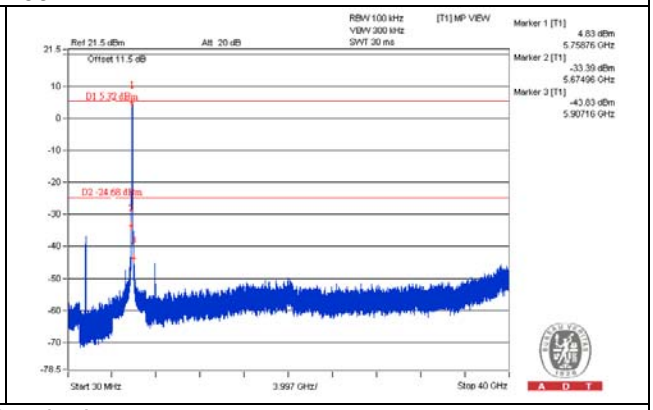
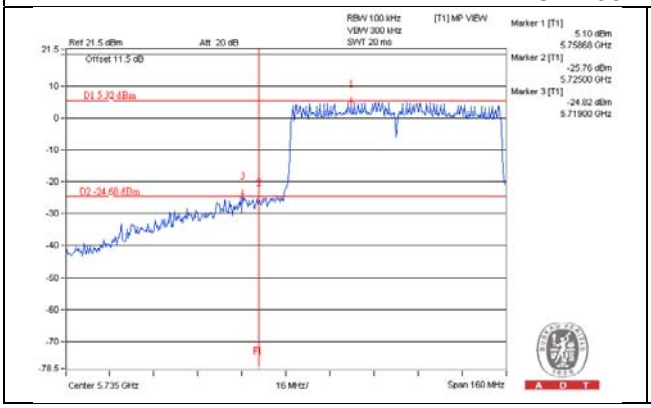
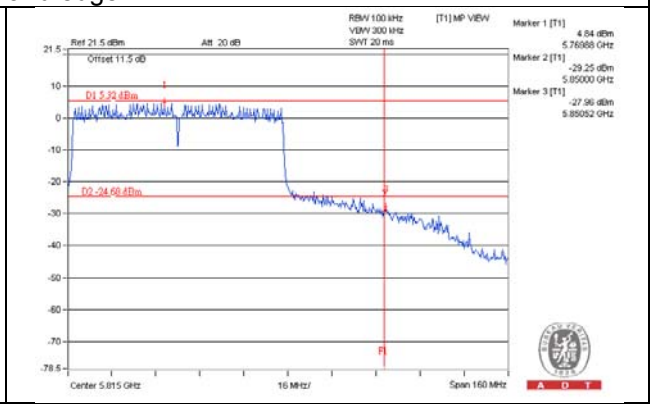
CH 151 Band edge



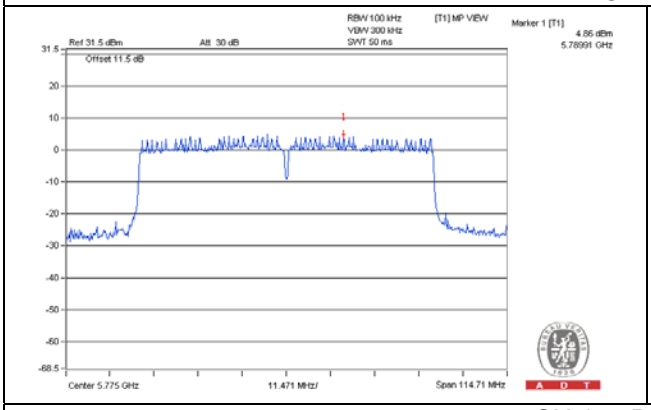
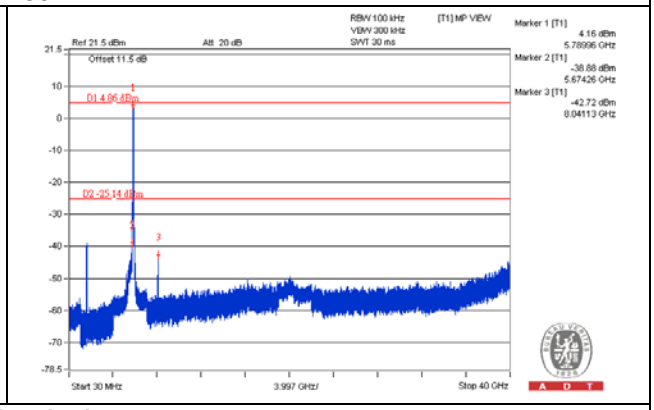
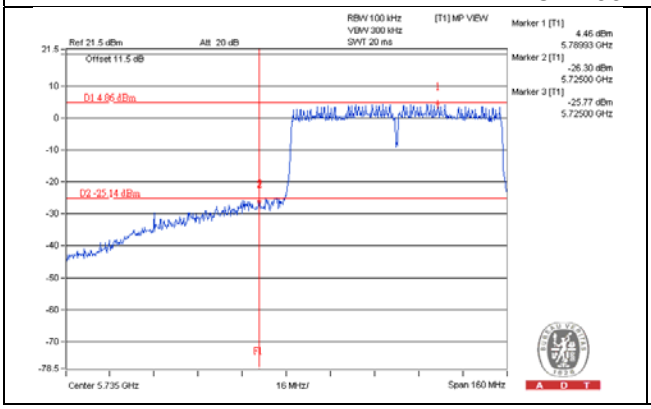
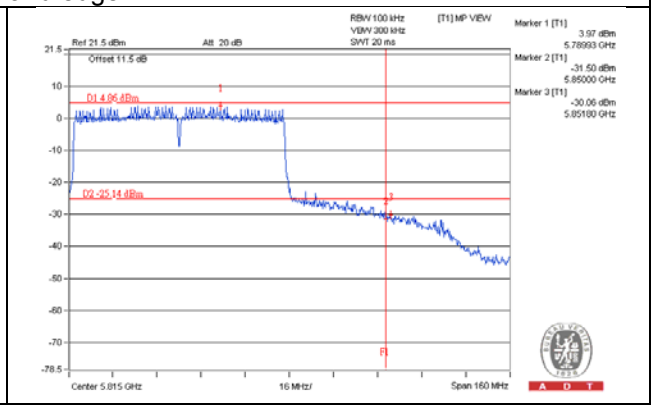
CH 159 Band edge



802.11ac (VHT80)_Chain 0

CH 155	
	
CH 155 Band edge	
	

802.11ac (VHT80)_Chain 1

CH 155	
	
CH 155 Band edge	
	

6 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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Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-5935343
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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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