FCC TEST REPORT (15.247)

REPORT NO.:	RF110324E03
MODEL NO.:	DAP-1522
FCC ID:	KA2AP1522B1
RECEIVED:	Mar. 24, 2011
TESTED:	Mar. 30 to May 06, 2011
ISSUED:	June 22, 2011

APPLICANT:	D-Link Corporation
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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF110324E03	Original release	June 22, 2011

1. CERTIFICATION

PRODUCT:	Xtreme N DUO Wireless Bridge/Access Point
BRAND NAME:	D-Link
MODEL NO.:	DAP-1522
TEST SAMPLE:	MASS-PRODUCTION
APPLICANT:	D-Link Corporation
TESTED:	Mar. 30 to May 06, 2011
STANDARDS:	FCC Part 15, Subpart C (Section 15.247) ANSI C63.4-2003 ANSI C63.10-2009

The above equipment (Model: DAP-1522) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : _____, **DATE:** *June 22, 2011*
(Midoli Peng, Specialist)

APPROVED BY : _____, **DATE:** *June 22, 2011*
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

For 2.4GHz, 2412~2462MHz Band

APPLIED STANDARD: FCC Part 15, Subpart C			
Standard Section	**Test Type and Limit**	**Result**	**Remark**
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -17.79dB at 18.457MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -0.5dB at 2390.00MHz & 2483.50MHz
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Conducted Out-Band Emission Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used.

For 5GHz, 5725~5850MHz Band

APPLIED STANDARD: FCC Part 15, Subpart C			
Standard Section	**Test Type and Limit**	**Result**	**Remark**
15.207	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -14.61dB at 12.629MHz
15.247(a)(2)	Spectrum Bandwidth of a Direct Sequence Spread Spectrum System Limit: min. 500kHz	PASS	Meet the requirement of limit.
15.247(b)	Maximum Peak Output Power Limit: max. 30dBm	PASS	Meet the requirement of limit.
15.247(d)	Radiated Emissions Limit: Table 15.209	PASS	Meet the requirement of limit. Minimum passing margin is -6.0dB at 42.95MHz
15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Meet the requirement of limit.
15.247(d)	Conducted Out-Band Emission Measurement Limit: 20dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used.

NOTE:

1. The EUT was operating in 2400 ~ 2483.5MHz, 5.15~5.25GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 2400 ~ 2483.5MHz and 5.725~5.850GHz. For the 5.15~5.25GHz RF parameters was recorded in another test report.

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:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Conducted emissions	2.45 dB
Radiated emissions (30MHz-1GHz)	3.3 dB
Radiated emissions (1GHz -18GHz)	2.19 dB
Radiated emissions (18GHz -40GHz)	2.55 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Xtreme N DUO Wireless Bridge/Access Point
MODEL NO.	DAP-1522
FCC ID	KA2AP1522B1
POWER SUPPLY	DC 5V from power adapter
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11g: 54 / 48 / 36 / 24 / 18 / 12 / 9 / 6Mbps 802.11b:11/ 5.5 / 2 /1Mbps 802.11a: 54/48/36/24/18/12/9/6Mbps HT20 MCS0~7 (800ns GI): 6.5Mbps, 13Mbps, 19.5Mbps, 26Mbps, 39Mbps, 52Mbps, 58.5Mbps, 65Mbps, HT20 MCS8~15 (800ns GI): 13Mbps, 26Mbps, 39Mbps, 52Mbps, 78Mbps, 104Mbps, 117Mbps, 130Mbps. HT40 MCS0~7 (800ns GI): 13.5Mbps, 27Mbps, 40.5Mbps, 54Mbps, 81Mbps, 108Mbps, 121.5Mbps, 135Mbps. HT40 MCS8~15 (800ns GI): 27Mbps, 54Mbps, 81Mbps, 108Mbps, 162Mbps, 216Mbps, 243Mbps, 270Mbps. HT20 MCS0~7 (400ns GI): 7.2Mbps, 14.4Mbps, 21.7Mbps, 28.9Mbps, 43.3Mbps, 57.8Mbps, 65.0Mbps, 72.2Mbps, HT20 MCS8~15 (400ns GI): 14.444Mbps, 28.889Mbps, 43.333Mbps, 57.778Mbps, 86.667Mbps, 115.556Mbps, 130.000Mbps, 144.444Mbps. HT40 MCS0~7 (400ns GI): 15.0Mbps, 30.0Mbps, 45.0Mbps, 60.0Mbps, 90.0Mbps, 120.0Mbps, 135.0Mbps, 150.0Mbps, HT40 MCS8~15 (400ns GI): 30.0Mbps, 60.0Mbps, 90.0Mbps, 120.0Mbps, 180.0Mbps, 240.0Mbps, 270.0Mbps, 300.0Mbps.
OPERATING FREQUENCY	**For 15.407** 802.11a: 5.18 ~ 5.24GHz
	For 15.247 802.11b & 802.11g: 2.412 ~ 2.462GHz 802.11a: 5.745 ~ 5.825GHz

NUMBER OF CHANNEL	**For 15.407** 4 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)
	For 15.247(2.4GHz) 11 for 802.11b, 802.11g, 802.11n (20MHz) 7 for 802.11n (40MHz) **For 15.247(5GHz)** 5 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)
MAXIMUM OUTPUT POWER	**For 15.407** 802.11a: 28.2mW 802.11n (20MHz): 29.6mW 802.11n (40MHz): 43.3 mW **For 15.247(2.4GHz)** 802.11b: 74.1mW 802.11g: 398.1mW 802.11n (20MHz): 604.6mW 802.11n (40MHz): 432.8mW **For 15.247(5GHz)** 802.11a: 173.8mW 802.11n (20MHz): 285.9mW 802.11n (40MHz): 320.7mW
ANTENNA TYPE	Please see note
DATA CABLE	Ethernet cable (unshielded, 1.5m)
I/O PORTS	LAN port (10, 100, 1000Mbps) port x 4
ASSOCIATED DEVICES	Adapter x 1

NOTE:

1. There are two sets of antennas provided to this EUT, please refer to the following table:

Antenna Set 1						
Transmitter Circuit	Brand name	Model name	Antenna Gain		Antenna Type	Connector
			For 2.4GHz Gain (dBi)	For 5GHz Gain (dBi)		
Chain (0)	MAG. LAYERS	MSA-3115-25GC1-A1	3.52	1.63	PIFA	NA
Chain (1)	MAG. LAYERS	MSA-3815-25GC1-A2	2.19	2.68	PIFA	NA
Antenna Set 2						
Transmitter Circuit	Brand name	Model name	Antenna Gain		Antenna Type	Connector
			For 2.4GHz Gain (dBi)	For 5GHz Gain (dBi)		
Chain (0)	Airgain	M2445UDC-T2-G	3.9	2.0	PIFA	NA
Chain (1)	Airgain	M2445UDC-T2-G	3.9	2.0	PIFA	NA

Note: 1. This report chose the max. Antenna gain to do final test.
2. For 2.4GHz: Antenna set 2 was selected as representative antennas for the test.
3. For 802.11a: Antenna set 2 was selected as representative antennas for the test.
4. For 802.11n (20MHz) & 802.11n (40MHz) of 5GHz: Antenna set 1 was selected as representative antennas for the test.

2. The EUT must be supplied with a power adapter and following two different models could be chosen:

Adapter 1	
BRAND	D-Link
MANUFACTURE	Yeou Diann
MODEL	AMS3-0502000SU
INPUT POWER	AC 100-120V, 60Hz, 0.5A
OUTPUT POWER	DC 5V, 2.0A DC Cable: 1.5m unshielded
Adapter 2	
BRAND	D-Link
MANUFACTURE	Yeou Diann
MODEL	AMS3-0502000FU
INPUT POWER	AC 100-240V, 50/60Hz, 0.5A
OUTPUT POWER	DC 5V, 2.0A DC Cable: 1.5m unshielded

For radiated test, the EUT was pre-tested with above adapters, the worse case was found in the **adapter 2**. Therefore only the test data of the adapter was recorded in this report.

3. The EUT was pre-tested in chamber under the following modes:

Test Mode	Description
Mode A	Level-set
Mode B	Tower-set

From the above modes, the radiated emissions worse case was found in Mode A. Therefore only the test data of the mode was recorded in this report.

4. 2.4GHz and 5GHz technology cannot transmit at same time.

5. The EUT incorporates a MIMO function with 802.11n.

6. The EUT is 2 * 2 spatial MIMO (2Tx & 2Rx) without beam forming function. The 11abg legacy mode is limited to single transmitter only.

7. When the EUT operating in 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 15.

8. The EUT complies with 802.11n standards and backwards compatible with 802.11b, 802.11g products.

9. The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

Operated in 2400 ~ 2483.5MHz band:

Eleven channels are provided for 802.11b, 802.11g, 802.11n (20MHz):

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		

Seven channels are provided for 802.11n (40MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
3	2422MHz	7	2442MHz
4	2427MHz	8	2447MHz
5	2432MHz	9	2452MHz
6	2437MHz		

Operated in 5725 ~ 5850MHz band:

Five channels are provided for 802.11a, 802.11n (20MHz):

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745 MHz	161	5805 MHz
153	5765 MHz	165	5825 MHz
157	5785 MHz		

Two channels are provided for 802.11n (40MHz):

CHANNEL	FREQUENCY
151	5755 MHz
159	5795 MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

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

Where **PLC:** Power Line Conducted Emission **RE < 1G:** Radiated Emission below 1GHz

RE ³ 1G: Radiated Emission above 1GHz **APCM:** Antenna Port Conducted Measurement

ANTENNA COMBINATION MODE:

COMBINATION MODE	OPERATION MODE	TX CHAIN(0)	TX CHAIN(1)
A	802.11 b	√	
B	802.11 g	√	
C	802.11 a	√	
D	802.11n(20MHz) for MCS0~15	√	√
E	802.11n(40MHz) for MCS0~15	√	√
Note: The above information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.			

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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	COMBINATION MODE
For 2.4 GHz 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	6.5	D
For 5 GHz 802.11n (40MHz)	151 to 159	159	OFDM	BPSK	13.5	E

RADIATED EMISSION TEST (BELOW 1 GHz):

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	COMBINATION MODE
For 2.4 GHz 802.11n (20MHz)	1 to 11	6	OFDM	BPSK	6.5	D
For 5 GHz 802.11n (40MHz)	151 to 159	159	OFDM	BPSK	13.5	E

RADIATED EMISSION TEST (ABOVE 1 GHz):

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	COMBINATION MODE
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	A
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	B
For 2.4 GHz 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	D
For 2.4 GHz 802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	13.5	E
802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6	C
For 5 GHz 802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	6.5	D
For 5 GHz 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	13.5	E

CONDUCTED OUT-BAND EMISSION MEASUREMENT:

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

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

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	COMBINATION MODE
802.11b	1 to 11	1, 11	DSSS	DBPSK	1	A
802.11g	1 to 11	1, 11	OFDM	BPSK	6	B
For 2.4 GHz 802.11n (20MHz)	1 to 11	1, 11	OFDM	BPSK	6.5	D
For 2.4 GHz 802.11n (40MHz)	3 to 9	3, 9	OFDM	BPSK	13.5	E
802.11a	149 to 165	149, 165	OFDM	BPSK	6	C
For 5 GHz 802.11n (20MHz)	149 to 165	149, 165	OFDM	BPSK	6.5	D
For 5 GHz 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	13.5	E

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.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	COMBINATION MODE
802.11b	1 to 11	1, 6, 11	DSSS	DBPSK	1	A
802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6	B
For 2.4 GHz 802.11n (20MHz)	1 to 11	1, 6, 11	OFDM	BPSK	6.5	D
For 2.4 GHz 802.11n (40MHz)	3 to 9	3, 6, 9	OFDM	BPSK	13.5	E
802.11a	149 to 165	149, 157, 165	OFDM	BPSK	6	C
For 5 GHz 802.11n (20MHz)	149 to 165	149, 157, 165	OFDM	BPSK	6.5	D
For 5 GHz 802.11n (40MHz)	151 to 159	151, 159	OFDM	BPSK	13.5	E

※ Bandwidth as show worst chain in report base on preliminary measurement.

※ TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE≥1G	21deg. C, 66%RH, 1022 hPa	120Vac, 60Hz	Frank Liu
RE<1G	18deg. C, 60%RH, 1022 hPa	120Vac, 60Hz	Kent Liu
PLC	25deg. C, 68%RH, 1022 hPa	120Vac, 60Hz	Timmy Hu
APCM	25deg. C, 60%RH, 1022 hPa	120Vac, 60Hz	Kent Liu

3.3 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)
ANSI C63.4-2003
ANSI C63.10-2009

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

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

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.

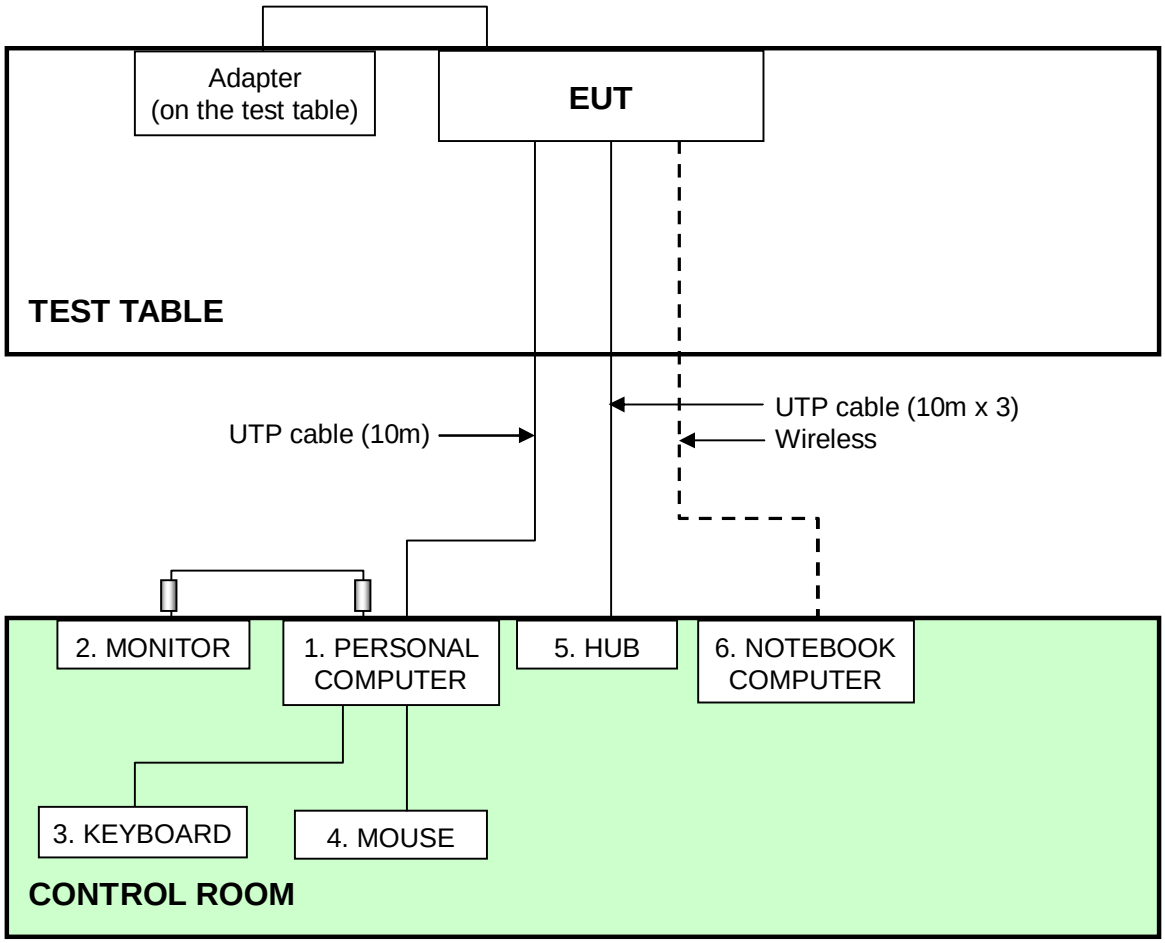
No.	Product	Brand	Model No.	Serial No.	FCC ID
1	PERSONAL COMPUTER	COMPAQ	DESKPRO	5K19FR4ZA02J	FCC DoC
2	MONITOR	Alston	AT-1501	NA	NA
3	KEYBOARD	DELL	SK-8110	MY-05N456-71679-3C1-1635	FCC DoC
4	MOUSE	BTC	M851	G00347024426	FCC DoC
5	HUB	ZyXEL	ES-116P	S060H02000215	NA
6	NOTEBOOK COMPUTER	DELL	PP19L	CN-OHC416-70166-5CA-0448	PIW632500516610
7	NOTEBOOK COMPUTER	DELL	PP32LA	GSLB32S	FCC DoC

No.	Signal cable description
1	UTP Cable (10m)
2	1.8 m braid shielded wire, VGA connector, with two cores.
3	1.8 m foil shielded wire, USB Connector, , w/o core
4	1.5 m foil shielded wire, USB Connector, w/o core.
5	UTP Cable (10m)
6	NA
7	UTP Cable (10m)

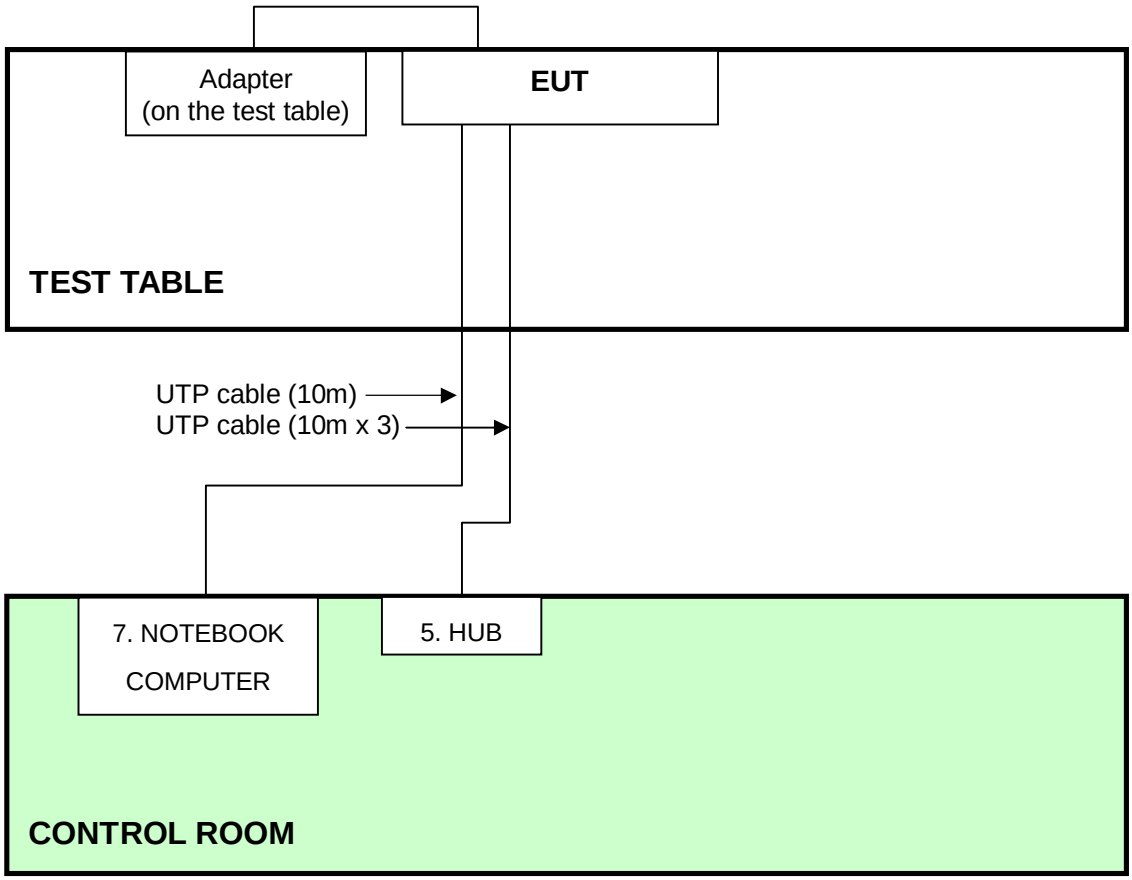
Note: The power cords of the above support units were unshielded (1.8m).

3.5 CONFIGURATION OF SYSTEM UNDER TEST

For Conducted test:



For other test items:



4.TEST TYPES AND RESULTS (802.11b & g, 2400 ~ 2483.5MHz Band)

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

NOTE:
1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	Mar. 02, 2011	Mar. 01, 2012
Line-Impedance Stabilization Network (for EUT)	NSLK 8127	8127-523	Sep. 17, 2010	Sep. 16, 2011
Line-Impedance Stabilization Network (for Peripheral)	ENV-216	100072	June 11, 2010	June 10, 2011
RF Cable (JYEBAO)	5DFB	CONCAB-003	Aug. 06, 2010	Aug. 05, 2011
50 ohms Terminator	50	3	Nov. 03, 2010	Nov. 02, 2011
Software	BV ADT_Cond_V7.3.7	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 Shielded Room No. A.
3 The VCCI Con A Registration No. is C-817.

4.1.3 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.

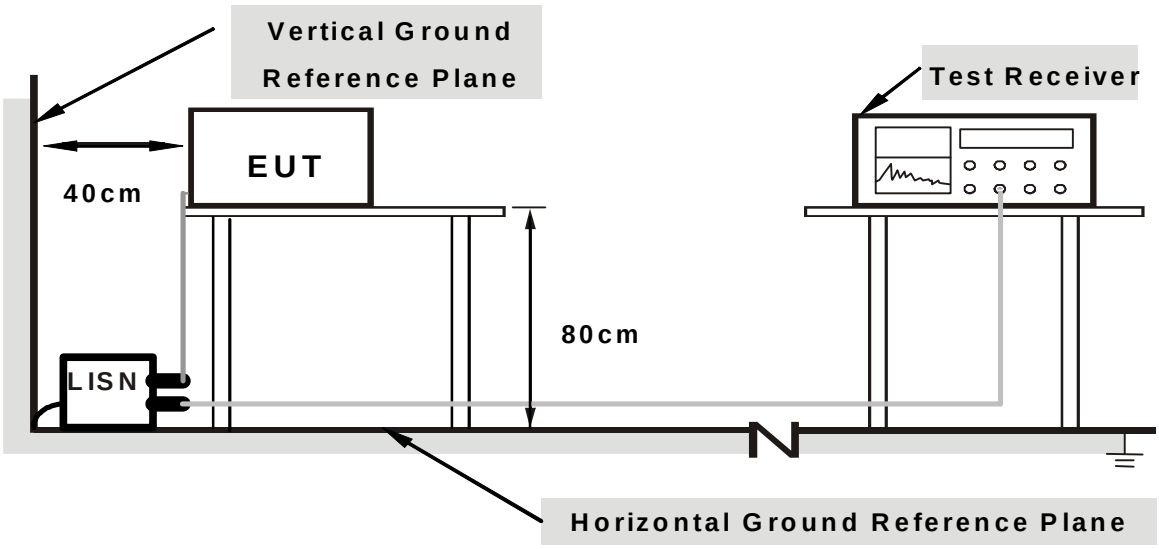
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.1.6 EUT OPERATING CONDITIONS

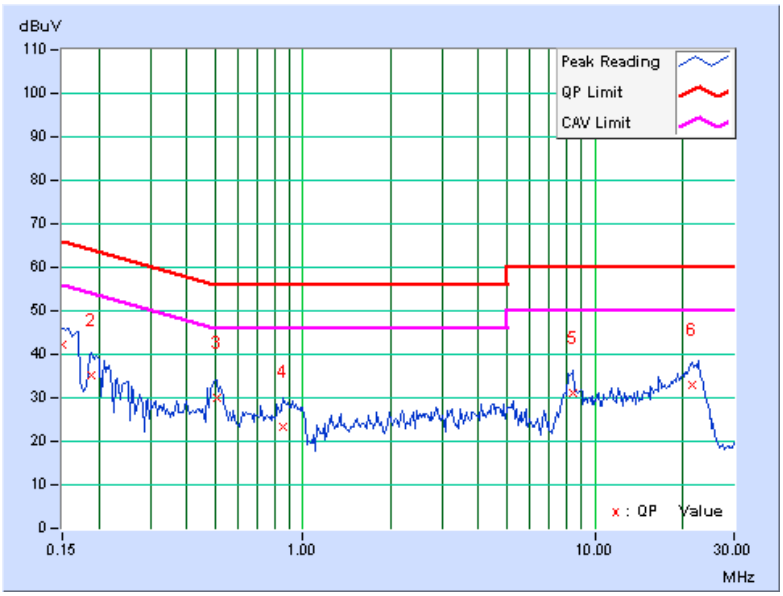
1. Placed the EUT on testing table.
2. Prepared other computer systems (support units 1 & 6) to act as communication partners and placed them outside of testing area.
3. The communication partners ran test program “WinTG.exe” & “Ping.exe” to enable EUT under transmission/receiving condition continuously via one UTP cable and wireless transmission.

4.1.7 TEST RESULTS (With adapter 1)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.37	41.85	30.51	42.22	30.88	66.00	56.00	-23.78	-25.12
2	0.189	0.36	34.72	21.52	35.08	21.88	64.08	54.08	-29.00	-32.20
3	0.505	0.37	29.49	21.84	29.86	22.21	56.00	46.00	-26.14	-23.79
4	0.853	0.40	22.76	16.13	23.16	16.53	56.00	46.00	-32.84	-29.47
5	8.469	0.64	30.30	24.66	30.94	25.30	60.00	50.00	-29.06	-24.70
6	21.512	1.11	31.97	27.35	33.08	28.46	60.00	50.00	-26.92	-21.54

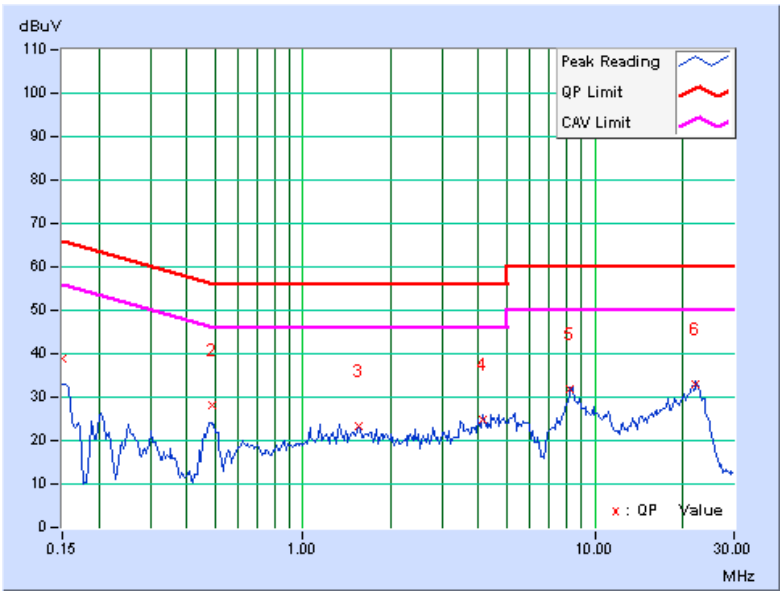
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.10	38.77	30.31	38.87	30.41	66.00	56.00	-27.13	-25.59
2	0.486	0.12	28.20	22.93	28.32	23.05	56.24	46.24	-27.92	-23.19
3	1.547	0.18	23.33	18.21	23.51	18.39	56.00	46.00	-32.49	-27.61
4	4.133	0.25	24.72	20.04	24.97	20.29	56.00	46.00	-31.03	-25.71
5	8.234	0.41	31.39	25.85	31.80	26.26	60.00	50.00	-28.20	-23.74
6	22.234	1.32	31.47	26.52	32.79	27.84	60.00	50.00	-27.21	-22.16

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.

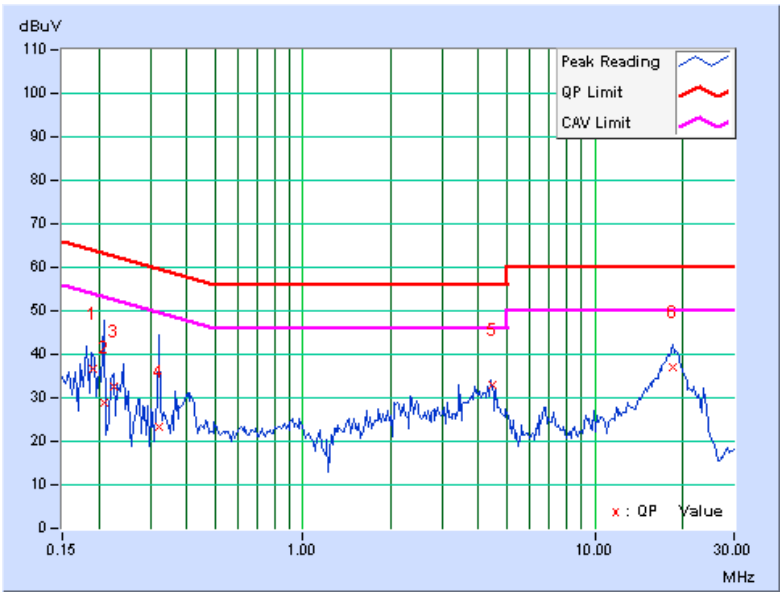


4.1.8 TEST RESULTS (With adapter 2)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.191	0.36	36.15	25.05	36.51	25.41	63.98	53.98	-27.47	-28.57
2	0.209	0.36	28.54	11.16	28.90	11.52	63.26	53.26	-34.36	-41.74
3	0.224	0.36	32.27	17.86	32.63	18.22	62.67	52.67	-30.04	-34.45
4	0.322	0.36	22.80	13.49	23.16	13.85	59.66	49.66	-36.50	-35.81
5	4.434	0.52	32.27	27.65	32.79	28.17	56.00	46.00	-23.21	-17.83
6	**18.457**	**1.03**	**36.15**	**31.18**	**37.18**	**32.21**	**60.00**	**50.00**	**-22.82**	**-17.79**

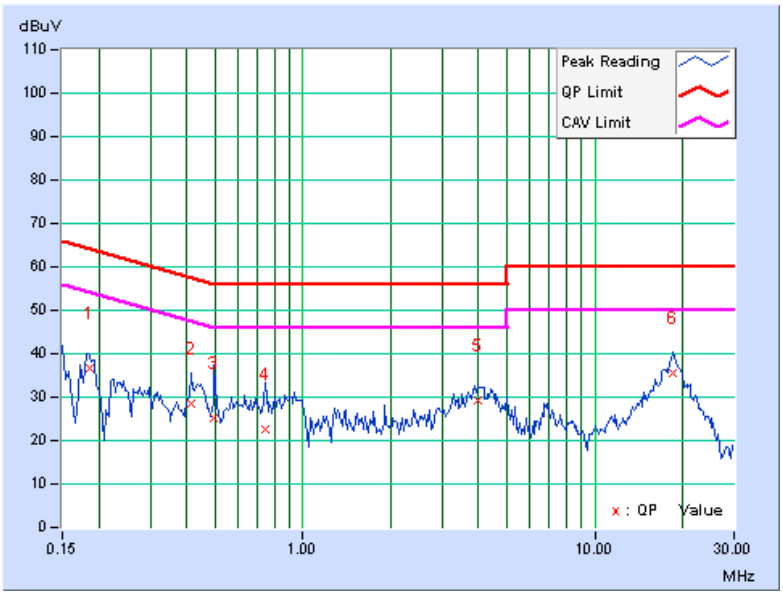
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.186	0.10	36.50	28.40	36.60	28.50	64.22	54.22	-27.63	-25.73
2	0.416	0.11	28.26	22.92	28.37	23.03	57.54	47.54	-29.16	-24.50
3	0.498	0.12	24.89	18.67	25.01	18.79	56.04	46.04	-31.03	-27.25
4	0.748	0.14	22.42	16.50	22.56	16.64	56.00	46.00	-33.44	-29.36
5	3.996	0.24	29.20	24.53	29.44	24.77	56.00	46.00	-26.56	-21.23
6	18.566	1.08	34.65	29.41	35.73	30.49	60.00	50.00	-24.27	-19.51

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

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. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.
4. Section 15.205 restricted bands of operation shall compliance with the limits in Section 15.209.

4.2.2 TEST INSTRUMENTS

Test date: Mar. 30 to Apr. 14, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250254	July 14, 2010	July 13, 2011
Agilent Pre-Selector	N9039A	MY46520311	July 14, 2010	July 13, 2011
Agilent Signal Generator	N5181A	MY49060517	July 14, 2010	July 13, 2011
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-03	Nov. 16, 2010	Nov. 15, 2011
Agilent Pre-Amplifier	8449B	3008A02578	July 05, 2010	July 04, 2011
Miteq Pre-Amplifier	AFS33-18002650-30-8P-44	881786	NA	NA
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-360	Apr. 29, 2010	Apr. 28, 2011
AISI Horn_Antenna	AIH.8018	0000320091110	Nov. 12, 2010	Nov. 11, 2011
SCHWARZBECK Horn_Antenna	BBHA 9170	9170-424	Oct. 08, 2010	Oct. 07, 2011
RF CABLE	NA	RF104-201 RF104-203 RF104-204	Dec. 27, 2010	Dec. 26, 2011
RF Cable	NA	CHGCAB_001	NA	NA
Software	ADT_Radiated_V8.7.05	NA	NA	NA
CT Antenna Tower & Turn Table	NA	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 horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in 966 Chamber No. G.
4. The FCC Site Registration No. is 966073.
5. The VCCI Site Registration No. is G-137.
6. The CANADA Site Registration No. is IC 7450H-2.

4.2.3 TEST PROCEDURES

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

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

c. 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.

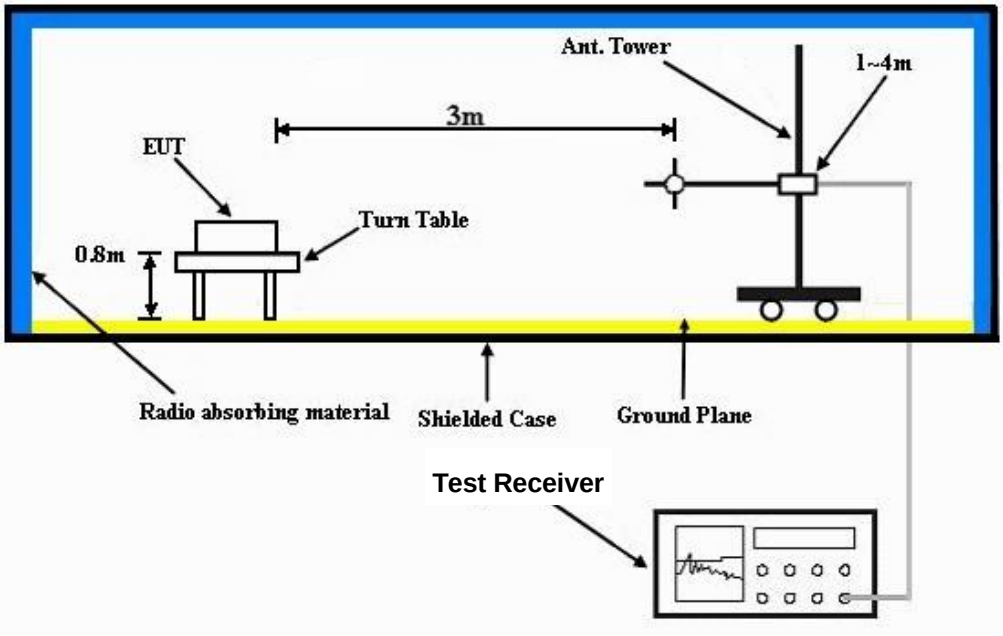
NOTE:

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 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

4.2.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.2.6 EUT OPERATING CONDITIONS

1. Placed the EUT on testing table.
2. Prepared other computer system (support unit 7) to act as communication partner and placed it outside of testing area.
3. The communication partners ran test program “QA_RT3883-AP-V1.0.4.5” to enable EUT under transmission/receiving condition continuously via one UTP cable transmission.

4.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA：802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	18deg. C, 60%RH 1022 hPa	TESTED BY	Kent Liu

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	250.03	32.7 QP	46.0	-13.3	1.25 H	73	19.24	13.42
2	500.02	33.3 QP	46.0	-12.7	1.50 H	329	13.20	20.10
3	574.98	34.2 QP	46.0	-11.8	1.50 H	318	12.41	21.81
4	624.96	38.6 QP	46.0	-7.4	1.25 H	315	15.92	22.71
5	750.01	33.5 QP	46.0	-12.5	1.00 H	179	9.14	24.33
6	875.06	34.0 QP	46.0	-12.0	1.00 H	319	7.64	26.37
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	42.95	33.8 QP	40.0	-6.3	1.00 V	0	19.53	14.22
2	250.03	30.0 QP	46.0	-16.0	1.00 V	257	16.55	13.42
3	374.97	27.0 QP	46.0	-19.0	1.75 V	298	9.91	17.12
4	500.02	32.5 QP	46.0	-13.5	1.00 V	2	12.42	20.10
5	574.98	31.8 QP	46.0	-14.2	1.00 V	257	10.00	21.81
6	625.07	33.3 QP	46.0	-12.7	1.00 V	319	10.59	22.72
7	874.95	34.9 QP	46.0	-11.2	1.25 V	196	8.48	26.37

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.

ABOVE 1GHz WORST-CASE DATA

802.11b DSSS MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 66%RH 1022 hPa	TESTED BY	Frank Liu

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	2386.40	60.5 PK	74.0	-13.5	1.00 H	118	28.85	31.65
2	2386.40	48.8 AV	54.0	-5.2	1.00 H	118	17.15	31.65
3	*2412.00	106.0 PK			1.00 H	117	74.27	31.73
4	*2412.00	104.1 AV			1.00 H	117	72.37	31.73
5	4824.00	51.4 PK	74.0	-22.6	1.06 H	162	12.43	38.97
6	4824.00	48.3 AV	54.0	-5.7	1.06 H	162	9.33	38.97
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2387.20	57.7 PK	74.0	-16.3	1.48 V	147	26.05	31.65
2	2387.20	47.3 AV	54.0	-6.7	1.48 V	147	15.65	31.65
3	*2412.00	103.7 PK			1.48 V	147	71.97	31.73
4	*2412.00	100.9 AV			1.48 V	147	69.17	31.73
5	4824.00	56.1 PK	74.0	-17.9	1.08 V	79	17.13	38.97
6	4824.00	53.2 AV	54.0	-0.8	1.08 V	79	14.23	38.97

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 66%RH 1022 hPa	TESTED BY	Frank Liu

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	105.9 PK			1.00 H	113	74.09	31.81
2	*2437.00	104.0 AV			1.00 H	113	72.19	31.81
3	4874.00	51.7 PK	74.0	-22.3	1.04 H	157	12.56	39.14
4	4874.00	48.1 AV	54.0	-5.9	1.04 H	157	8.96	39.14
5	7311.00	56.3 PK	74.0	-17.7	1.02 H	24	9.67	46.63
6	7311.00	44.0 AV	54.0	-10.0	1.02 H	24	-2.63	46.63
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	103.7 PK			1.43 V	152	71.89	31.81
2	*2437.00	100.2 AV			1.43 V	152	68.39	31.81
3	4874.00	57.1 PK	74.0	-16.9	1.06 V	78	17.96	39.14
4	4874.00	53.2 AV	54.0	-0.8	1.06 V	78	14.06	39.14
5	7311.00	54.7 PK	74.0	-19.3	1.04 V	21	8.07	46.63
6	7311.00	43.8 AV	54.0	-10.2	1.04 V	21	-2.83	46.63

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 66%RH 1022 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	106.2 PK			1.00 H	110	74.31	31.89
2	*2462.00	104.3 AV			1.00 H	110	72.41	31.89
3	2485.06	58.5 PK	74.0	-15.5	1.00 H	110	26.53	31.97
4	2485.06	47.0 AV	54.0	-7.0	1.00 H	110	15.03	31.97
5	4924.00	51.4 PK	74.0	-22.6	1.06 H	154	12.09	39.31
6	4924.00	48.3 AV	54.0	-5.7	1.06 H	154	8.99	39.31
7	7386.00	56.1 PK	74.0	-17.9	1.03 H	27	9.50	46.60
8	7386.00	43.4 AV	54.0	-10.6	1.03 H	27	-3.20	46.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	103.4 PK			1.42 V	153	71.51	31.89
2	*2462.00	100.4 AV			1.42 V	153	68.51	31.89
3	2483.50	55.7 PK	74.0	-18.3	1.48 V	163	23.73	31.97
4	2483.50	43.8 AV	54.0	-10.2	1.48 V	163	11.83	31.97
5	4924.00	57.4 PK	74.0	-16.6	1.03 V	81	18.09	39.31
6	4924.00	53.3 AV	54.0	-0.7	1.03 V	81	13.99	39.31
7	7386.00	54.2 PK	74.0	-19.8	1.02 V	43	7.60	46.60
8	7386.00	43.6 AV	54.0	-10.4	1.02 V	43	-3.00	46.60

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

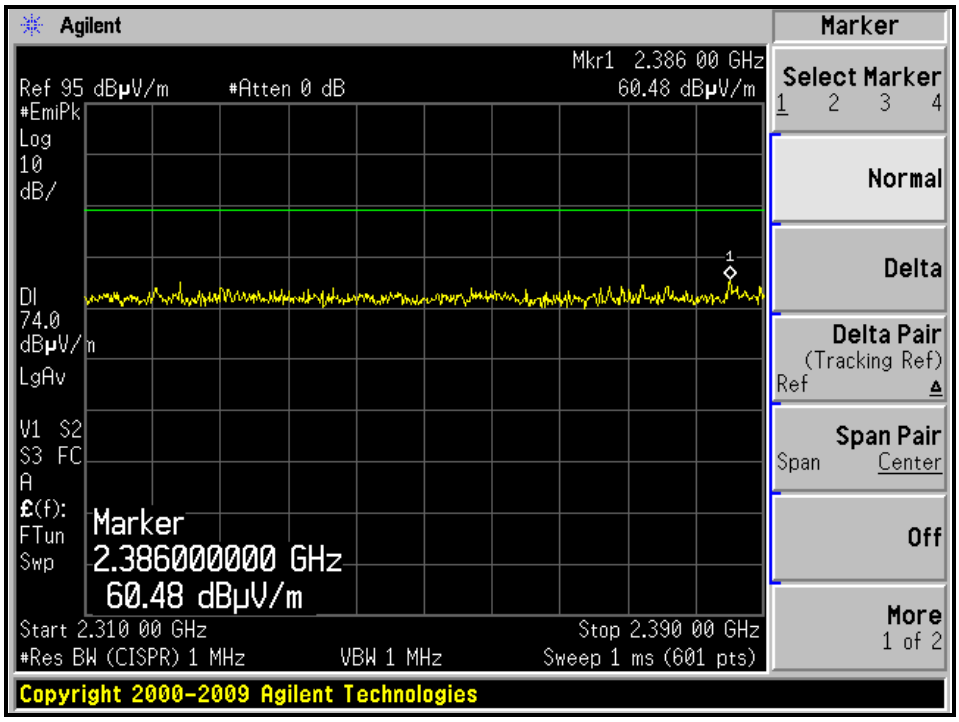
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

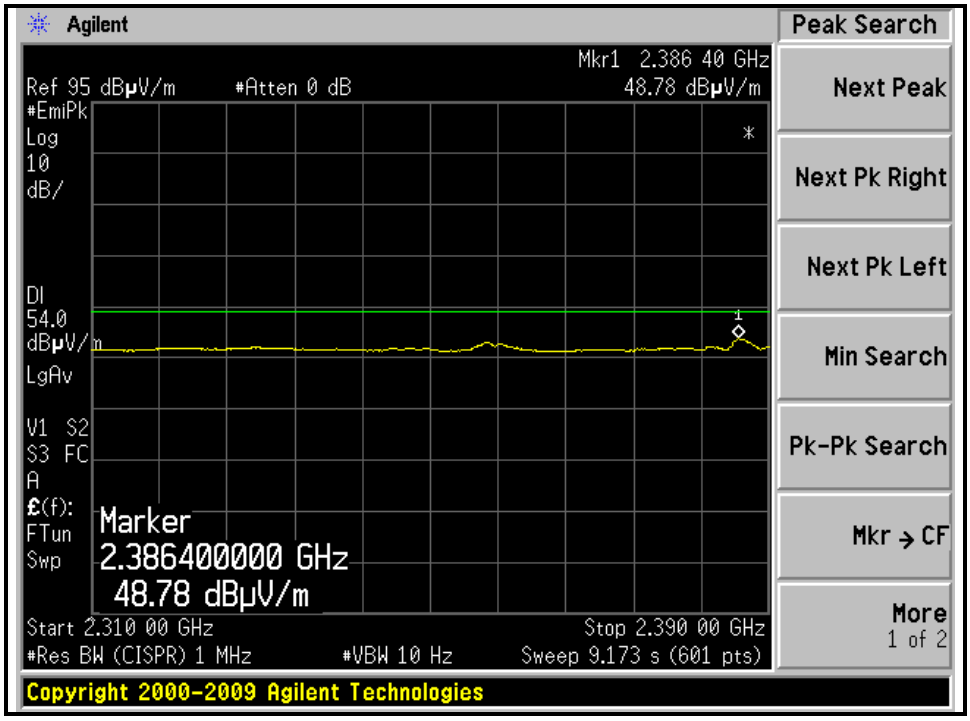
3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

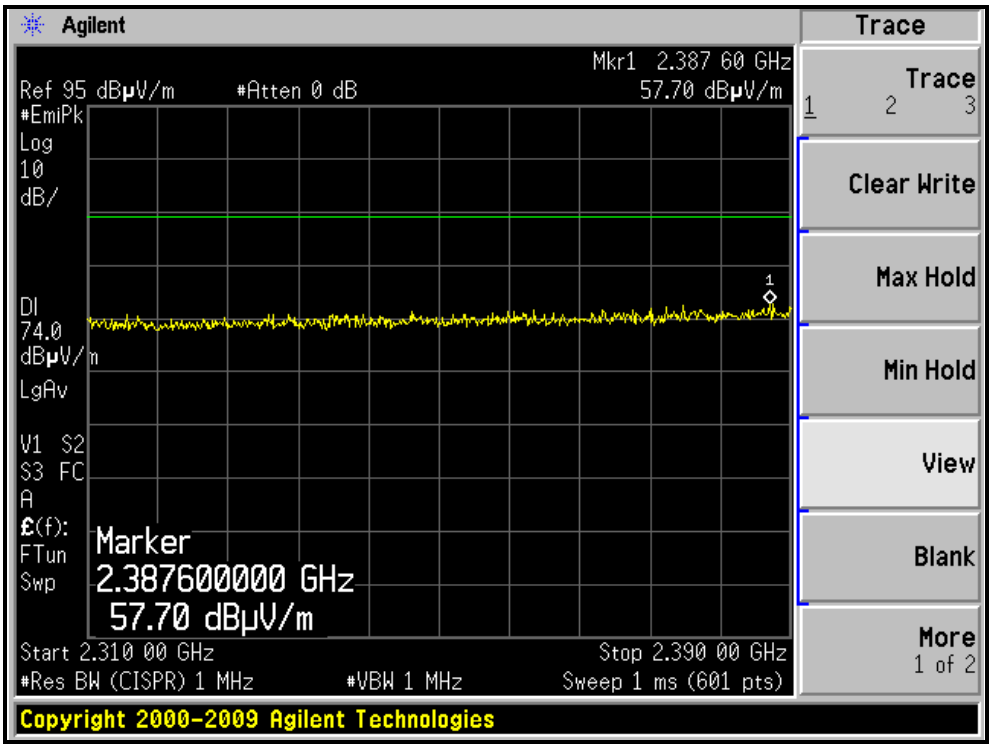
5. " * ": Fundamental frequency.

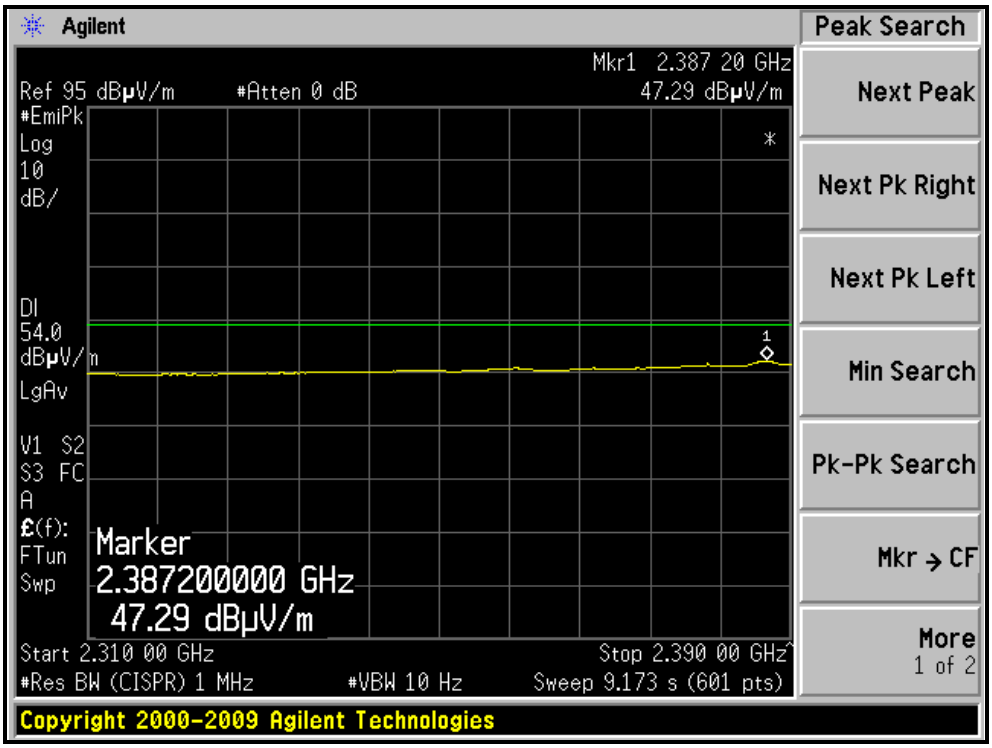
RESTRICTED BANDEDGE (802.11b MODE,CH1, HORIZONTAL)



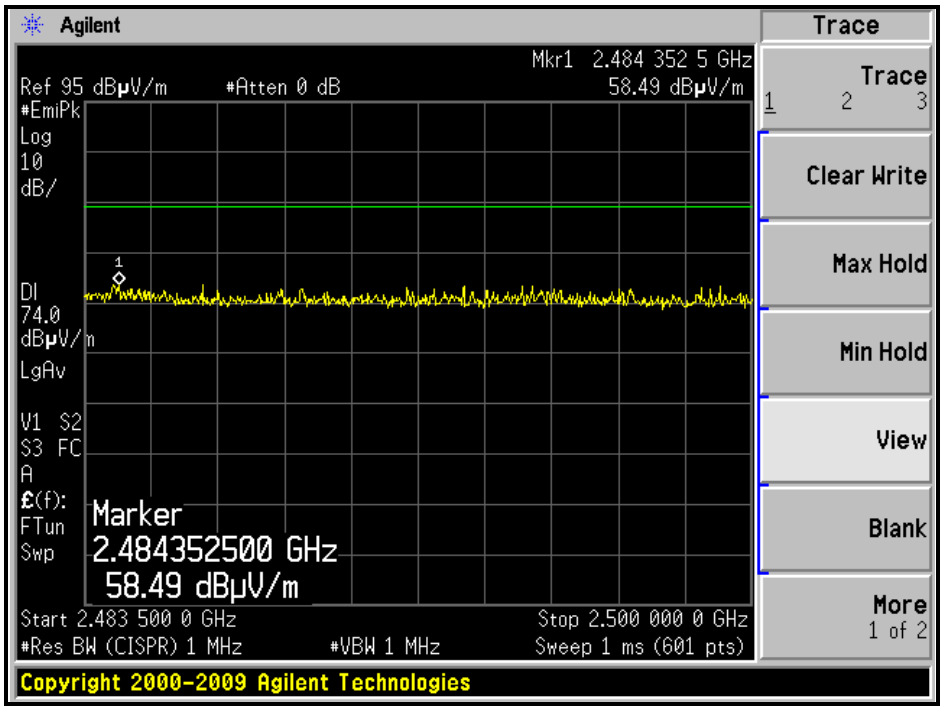


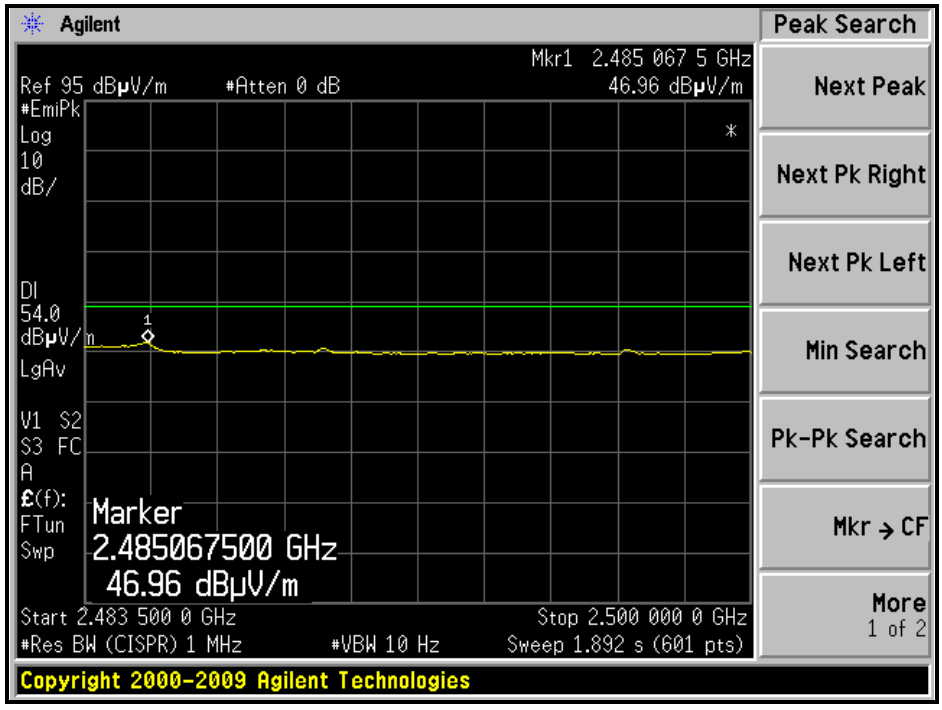
RESTRICTED BANDEDGE (802.11b MODE,CH1, VERTICAL)



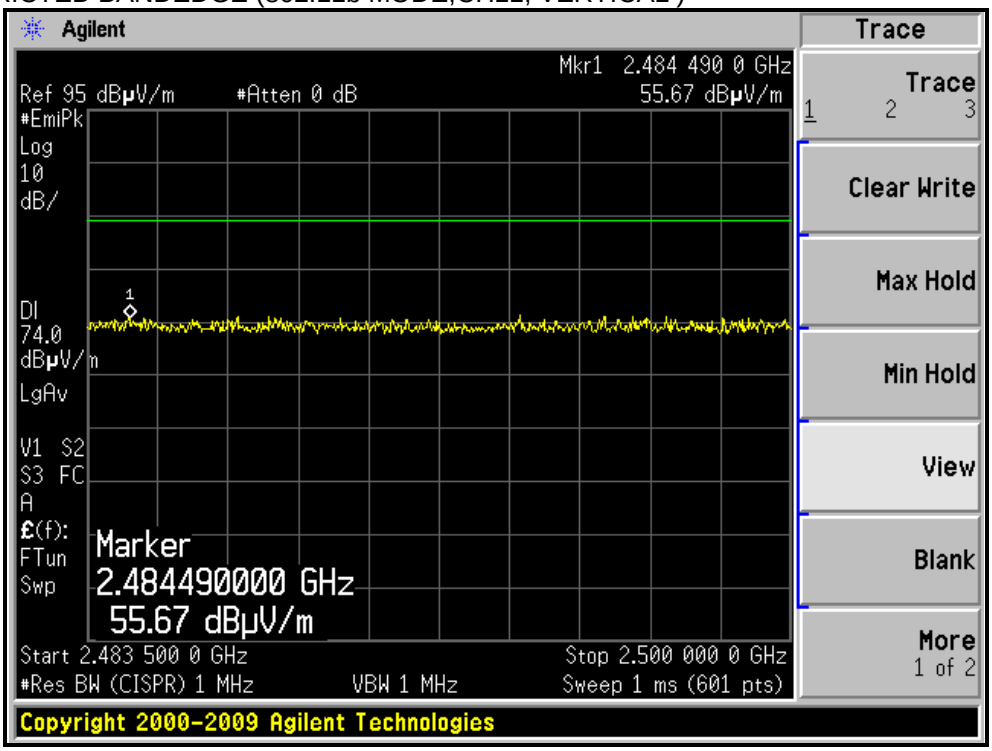


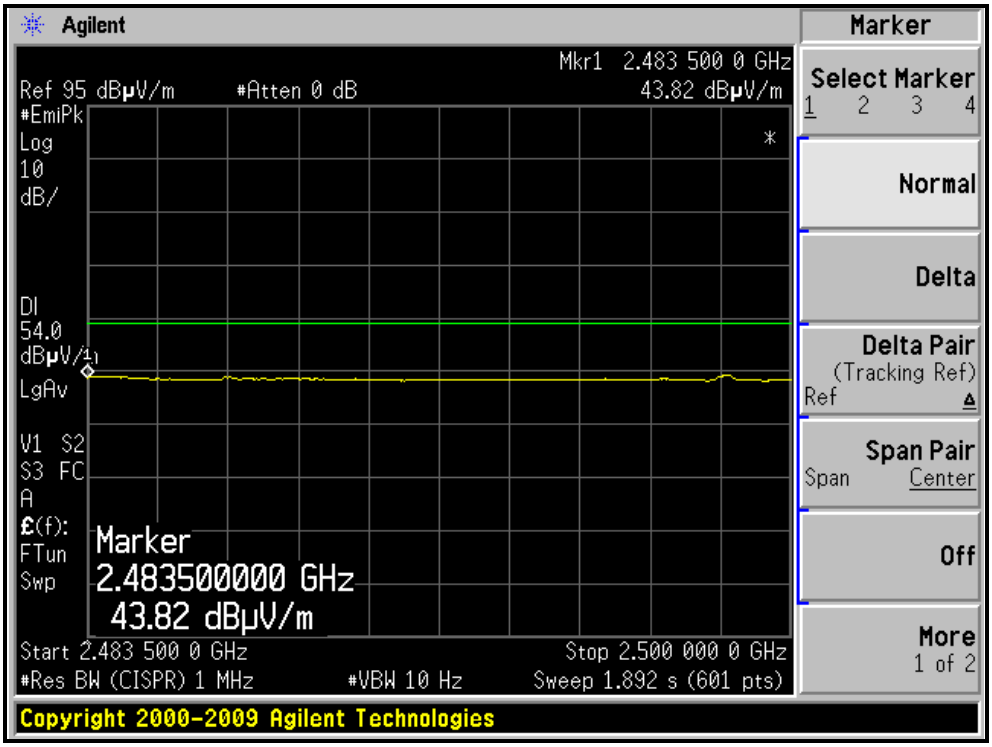
RESTRICTED BANDEDGE (802.11b MODE,CH11, HORIZONTAL)





RESTRICTED BANDEDGE (802.11b MODE,CH11, VERTICAL)





802.11g OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 66%RH 1022 hPa	TESTED BY	Frank Liu

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	69.1 PK	74.0	-4.9	1.44 H	207	37.44	31.66
2	**2390.00**	**53.5 AV**	**54.0**	**-0.5**	**1.44 H**	**207**	**21.84**	**31.66**
3	*2412.00	108.8 PK			1.44 H	206	77.07	31.73
4	*2412.00	98.3 AV			1.44 H	206	66.57	31.73
5	4824.00	52.6 PK	74.0	-21.4	1.03 H	134	13.63	38.97
6	4824.00	40.7 AV	54.0	-13.3	1.03 H	134	1.73	38.97
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.8 PK	74.0	-5.2	1.46 V	149	37.14	31.66
2	2390.00	53.3 AV	54.0	-0.7	1.46 V	149	21.64	31.66
3	*2412.00	107.9 PK			1.43 V	150	76.17	31.73
4	*2412.00	97.5 AV			1.43 V	150	65.77	31.73
5	4824.00	52.7 PK	74.0	-21.3	1.13 V	236	13.73	38.97
6	4824.00	40.3 AV	54.0	-13.7	1.13 V	236	1.33	38.97

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 66%RH 1022 hPa	TESTED BY	Frank Liu

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	60.1 PK	74.0	-13.9	1.39 H	192	28.44	31.66
2	2390.00	48.2 AV	54.0	-5.8	1.39 H	192	16.54	31.66
3	*2437.00	110.3 PK			1.42 H	216	78.49	31.81
4	*2437.00	100.0 AV			1.42 H	216	68.19	31.81
5	4874.00	53.6 PK	74.0	-20.4	1.12 H	135	14.46	39.14
6	4874.00	43.4 AV	54.0	-10.6	1.12 H	135	4.26	39.14
7	7311.00	52.9 PK	74.0	-21.1	1.17 H	332	6.27	46.63
8	7311.00	42.6 AV	54.0	-11.4	1.17 H	332	-4.03	46.63
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	109.3 PK			1.44 V	121	77.49	31.81
2	*2437.00	99.4 AV			1.44 V	121	67.59	31.81
3	4874.00	54.4 PK	74.0	-19.6	1.14 V	238	15.26	39.14
4	4874.00	42.4 AV	54.0	-11.6	1.14 V	238	3.26	39.14
5	7311.00	52.7 PK	74.0	-21.3	1.10 V	144	6.07	46.63
6	7311.00	42.3 AV	54.0	-11.7	1.10 V	144	-4.33	46.63

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 66%RH 1022 hPa	TESTED BY	Frank Liu

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	107.5 PK			1.45 H	214	75.61	31.89
2	*2462.00	97.9 AV			1.45 H	214	66.01	31.89
3	2483.50	70.2 PK	74.0	-3.8	1.41 H	214	38.23	31.97
4	**2483.50**	**53.5 AV**	**54.0**	**-0.5**	**1.41 H**	**214**	**21.53**	**31.97**
5	4924.00	52.3 PK	74.0	-21.7	1.13 H	127	12.99	39.31
6	4924.00	40.4 AV	54.0	-13.6	1.13 H	127	1.09	39.31
7	7386.00	53.1 PK	74.0	-20.9	1.12 H	264	6.50	46.60
8	7386.00	42.4 AV	54.0	-11.6	1.12 H	264	-4.20	46.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	107.2 PK			1.44 V	151	75.31	31.89
2	*2462.00	97.4 AV			1.44 V	151	65.51	31.89
3	2483.50	68.6 PK	74.0	-5.4	1.48 V	160	36.63	31.97
4	2483.50	52.1 AV	54.0	-1.9	1.48 V	160	20.13	31.97
5	4924.00	52.4 PK	74.0	-21.6	1.13 V	251	13.09	39.31
6	4924.00	40.6 AV	54.0	-13.4	1.13 V	251	1.29	39.31
7	7386.00	52.9 PK	74.0	-21.1	1.09 V	149	6.30	46.60
8	7386.00	42.4 AV	54.0	-11.6	1.09 V	149	-4.20	46.60

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

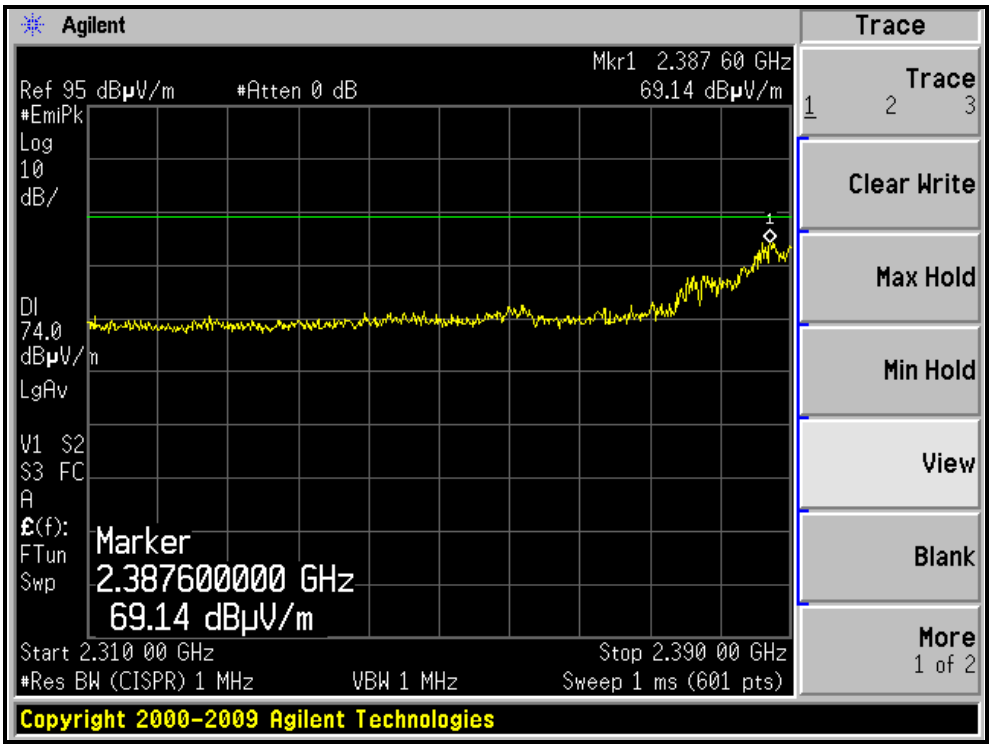
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

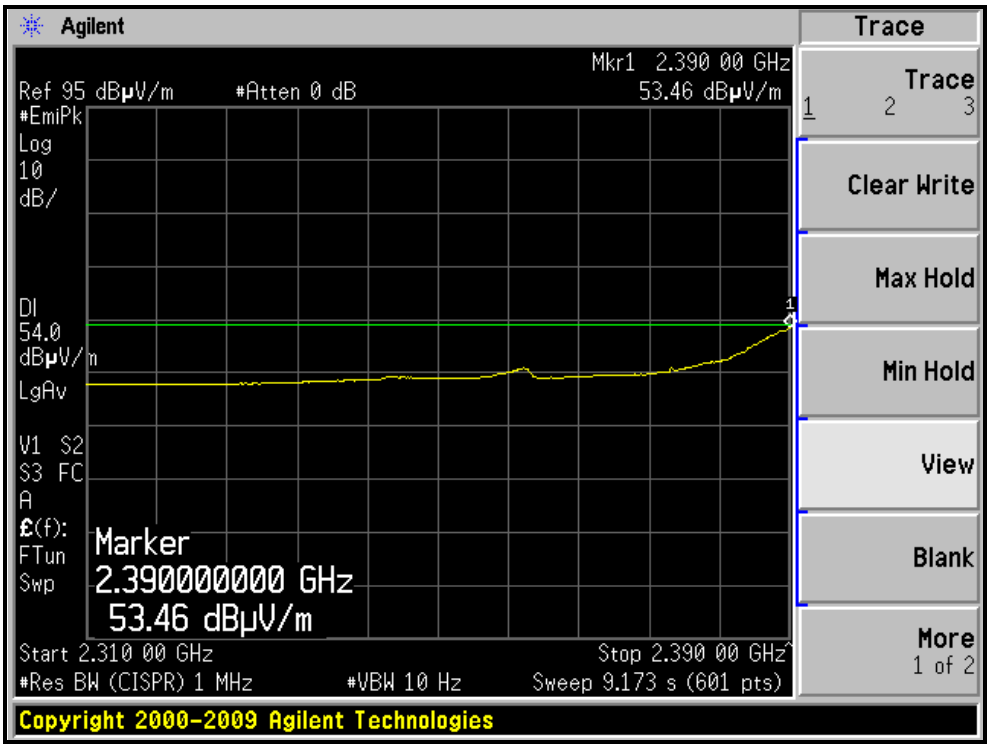
3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

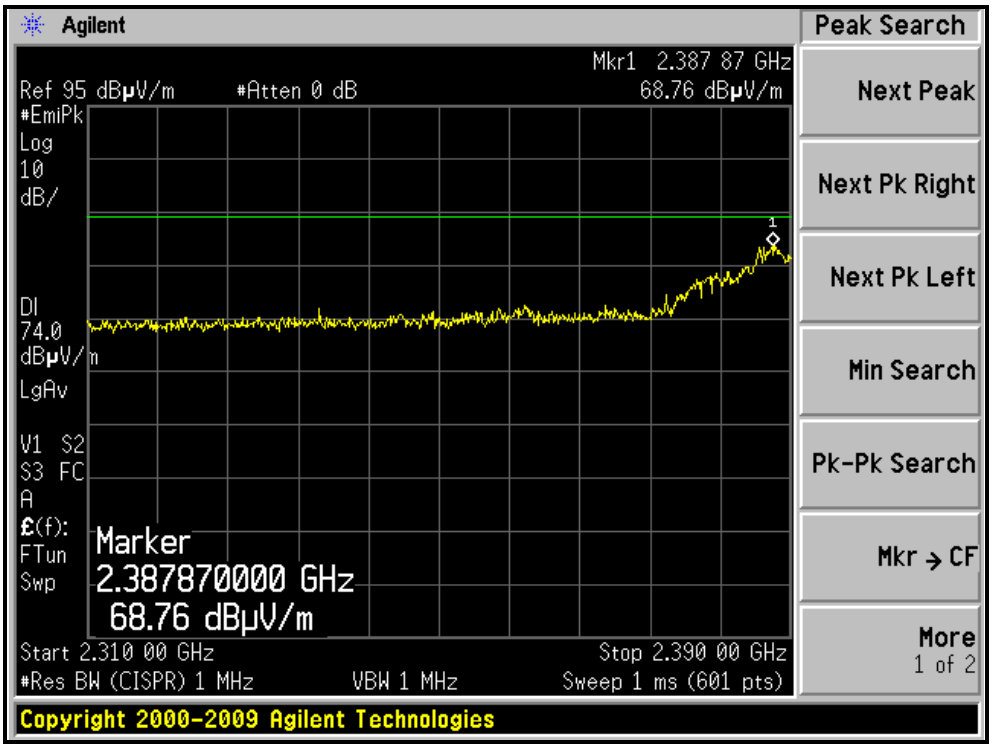
5. " * ": Fundamental frequency.

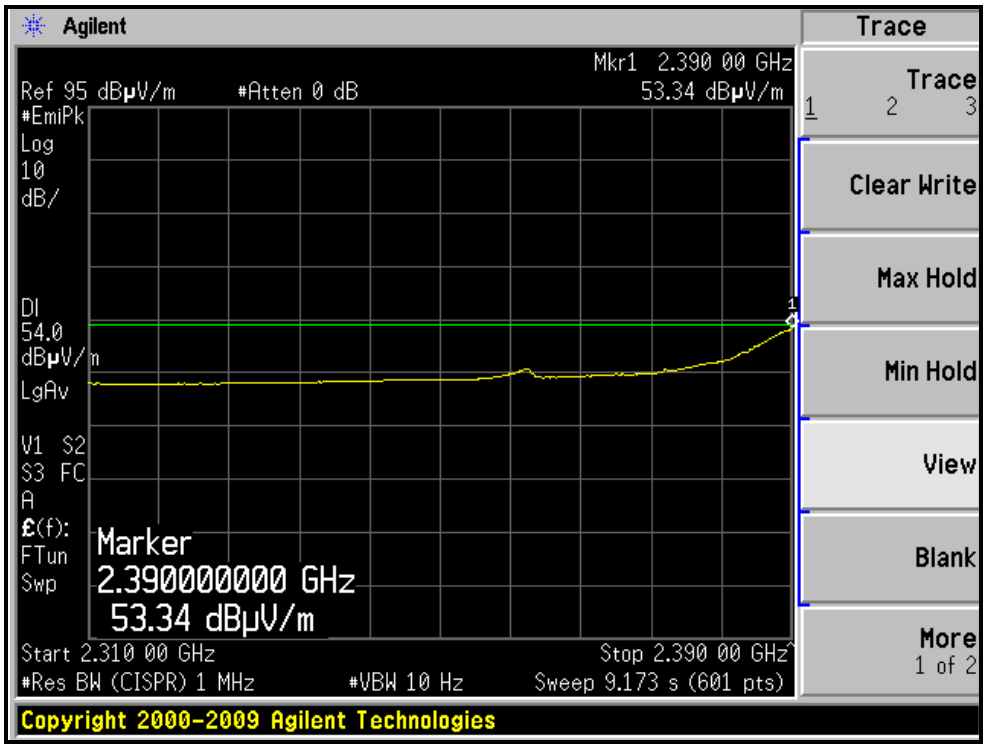
RESTRICTED BANDEDGE (802.11g MODE,CH1, HORIZONTAL)



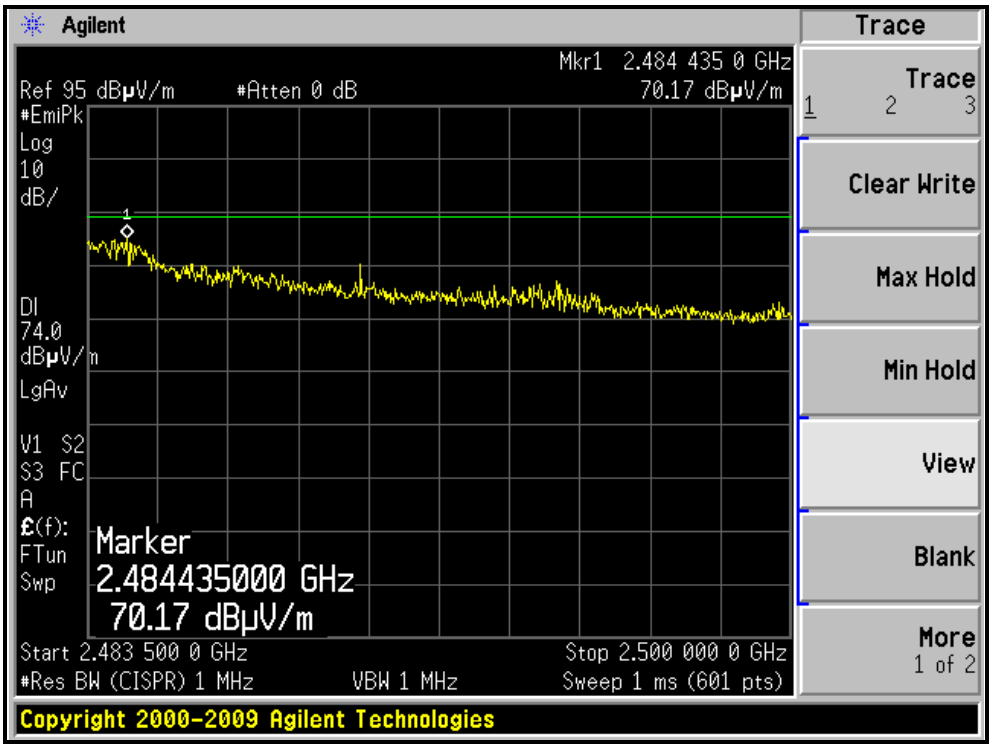


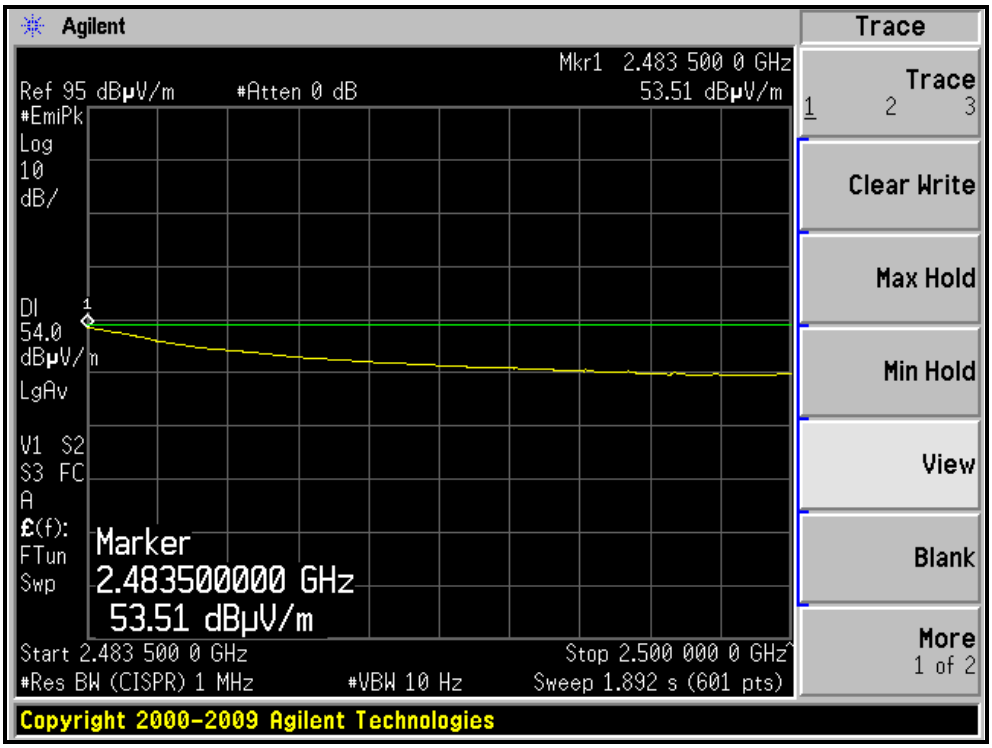
RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)



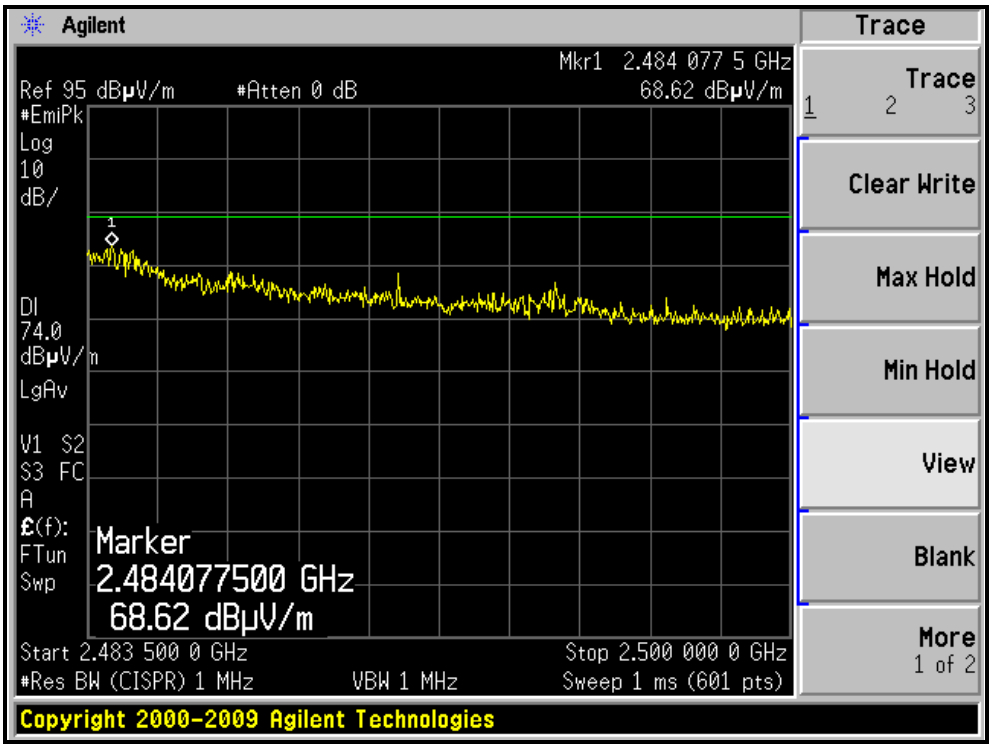


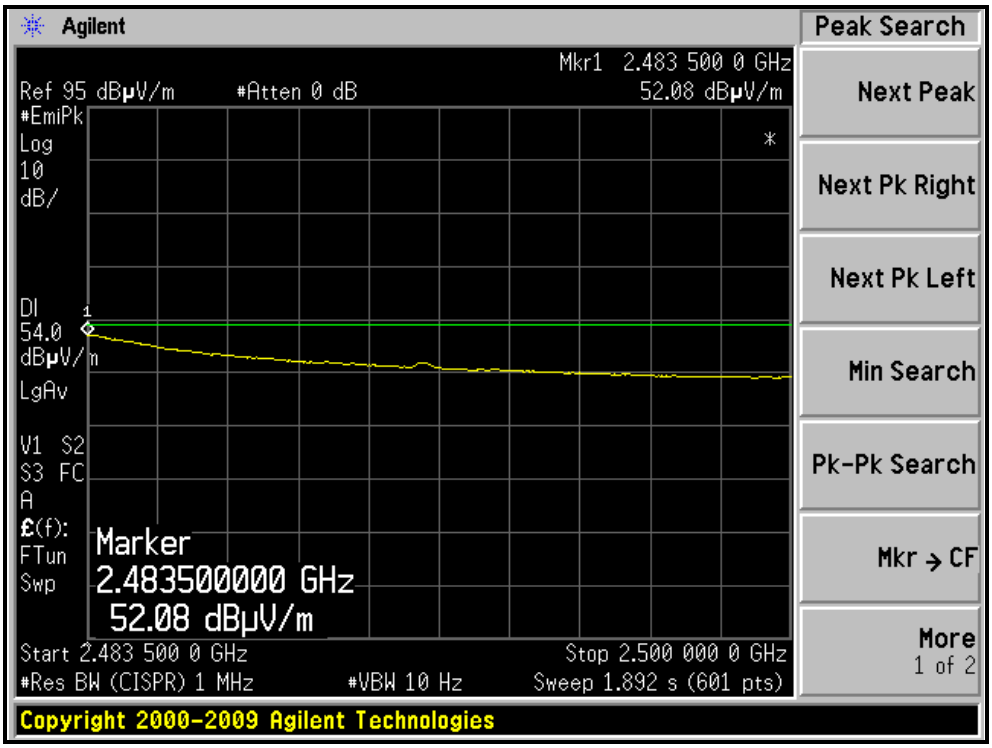
RESTRICTED BANDEDGE (802.11g MODE,CH11, HORIZONTAL)





RESTRICTED BANDEDGE (802.11g MODE,CH11, VERTICAL)





802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 66%RH 1022 hPa	TESTED BY	Frank Liu

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	72.8 PK	74.0	-1.2	1.18 H	213	41.14	31.66
2	2390.00	48.8 AV	54.0	-5.2	1.18 H	213	17.14	31.66
3	*2412.00	110.1 PK			1.18 H	213	78.37	31.73
4	*2412.00	98.8 AV			1.18 H	213	67.07	31.73
5	4824.00	49.6 PK	74.0	-24.4	1.52 H	127	10.63	38.97
6	4824.00	40.7 AV	54.0	-13.3	1.52 H	127	1.73	38.97
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	61.5 PK	74.0	-12.5	1.18 V	147	29.84	31.66
2	2390.00	47.8 AV	54.0	-6.2	1.18 V	147	16.14	31.66
3	*2412.00	109.2 PK			1.18 V	146	77.47	31.73
4	*2412.00	97.4 AV			1.18 V	146	65.67	31.73
5	4824.00	52.1 PK	74.0	-21.9	1.53 V	154	13.13	38.97
6	4824.00	40.3 AV	54.0	-13.7	1.53 V	154	1.33	38.97

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 66%RH 1022 hPa	TESTED BY	Frank Liu

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	2385.00	61.9 PK	74.0	-12.1	1.18 H	171	30.26	31.64
2	2385.00	52.0 AV	54.0	-2.0	1.18 H	171	20.36	31.64
3	*2437.00	111.3 PK			1.14 H	216	79.49	31.81
4	*2437.00	101.1 AV			1.14 H	216	69.29	31.81
5	4874.00	49.8 PK	74.0	-24.2	1.53 H	168	10.66	39.14
6	4874.00	40.2 AV	54.0	-13.8	1.53 H	168	1.06	39.14
7	7311.00	55.4 PK	74.0	-18.6	1.04 H	29	8.77	46.63
8	7311.00	44.3 AV	54.0	-9.7	1.04 H	29	-2.33	46.63
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	110.2 PK			1.14 V	154	78.39	31.81
2	*2437.00	100.3 AV			1.14 V	154	68.49	31.81
3	4874.00	52.4 PK	74.0	-21.6	1.52 V	149	13.26	39.14
4	4874.00	41.1 AV	54.0	-12.9	1.52 V	149	1.96	39.14
5	7311.00	55.7 PK	74.0	-18.3	1.02 V	29	9.07	46.63
6	7311.00	44.3 AV	54.0	-9.7	1.02 V	29	-2.33	46.63

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 66%RH 1022 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	106.9 PK			1.17 H	216	75.01	31.89
2	*2462.00	95.9 AV			1.17 H	216	64.01	31.89
3	2483.50	73.0 PK	74.0	-1.0	1.17 H	216	41.03	31.97
4	2483.50	52.9 AV	54.0	-1.1	1.17 H	216	20.93	31.97
5	4924.00	49.9 PK	74.0	-24.1	1.54 H	167	10.59	39.31
6	4924.00	40.1 AV	54.0	-13.9	1.54 H	167	0.79	39.31
7	7386.00	55.7 PK	74.0	-18.3	1.03 H	34	9.10	46.60
8	7386.00	44.2 AV	54.0	-9.8	1.03 H	34	-2.40	46.60
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	105.3 PK			1.19 V	147	73.41	31.89
2	*2462.00	94.1 AV			1.19 V	147	62.21	31.89
3	2483.50	70.2 PK	74.0	-3.8	1.20 V	144	38.23	31.97
4	2483.50	49.2 AV	54.0	-4.8	1.20 V	144	17.23	31.97
5	4924.00	52.1 PK	74.0	-21.9	1.54 V	153	12.79	39.31
6	4924.00	41.0 AV	54.0	-13.0	1.54 V	153	1.69	39.31
7	7386.00	55.9 PK	74.0	-18.1	1.04 V	32	9.30	46.60
8	7386.00	44.6 AV	54.0	-9.4	1.04 V	32	-2.00	46.60

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

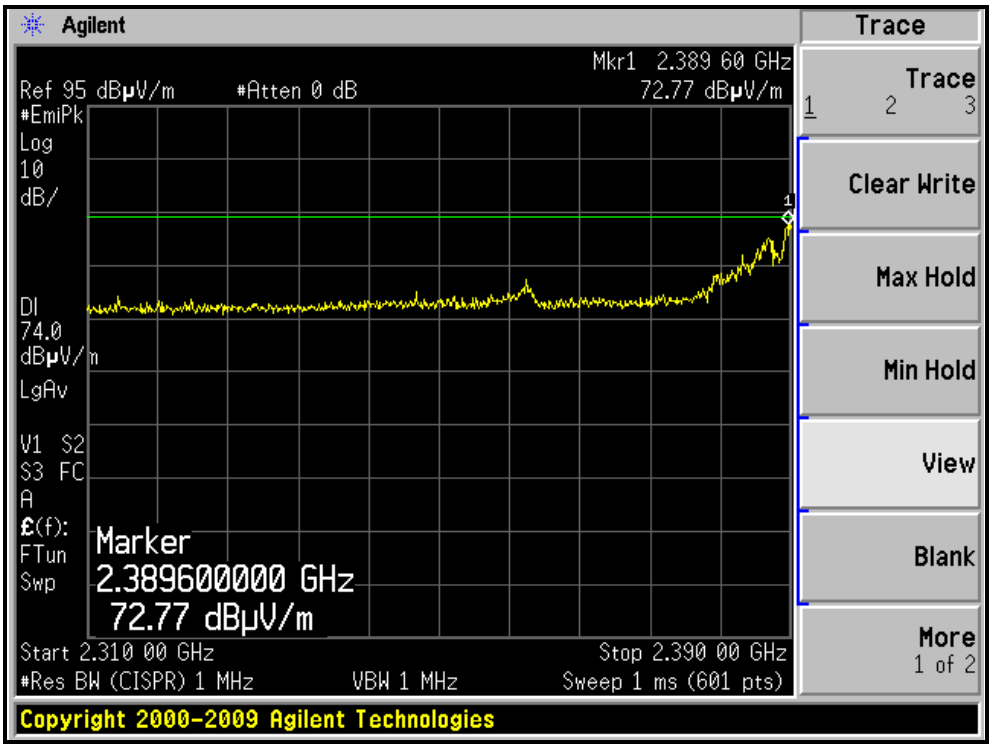
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

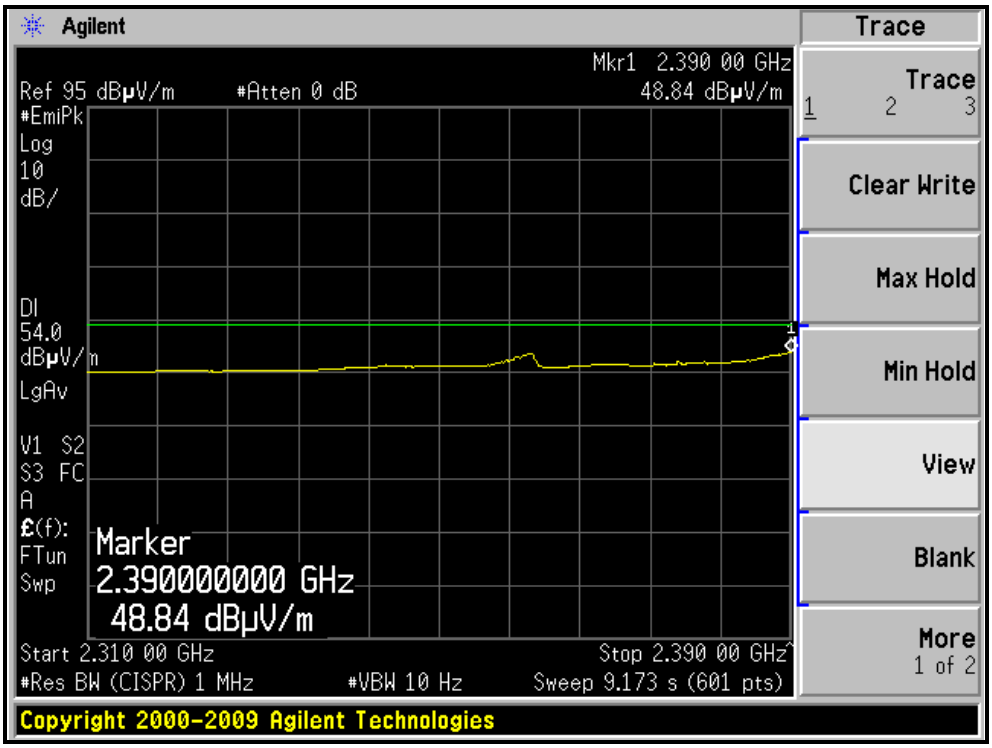
3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

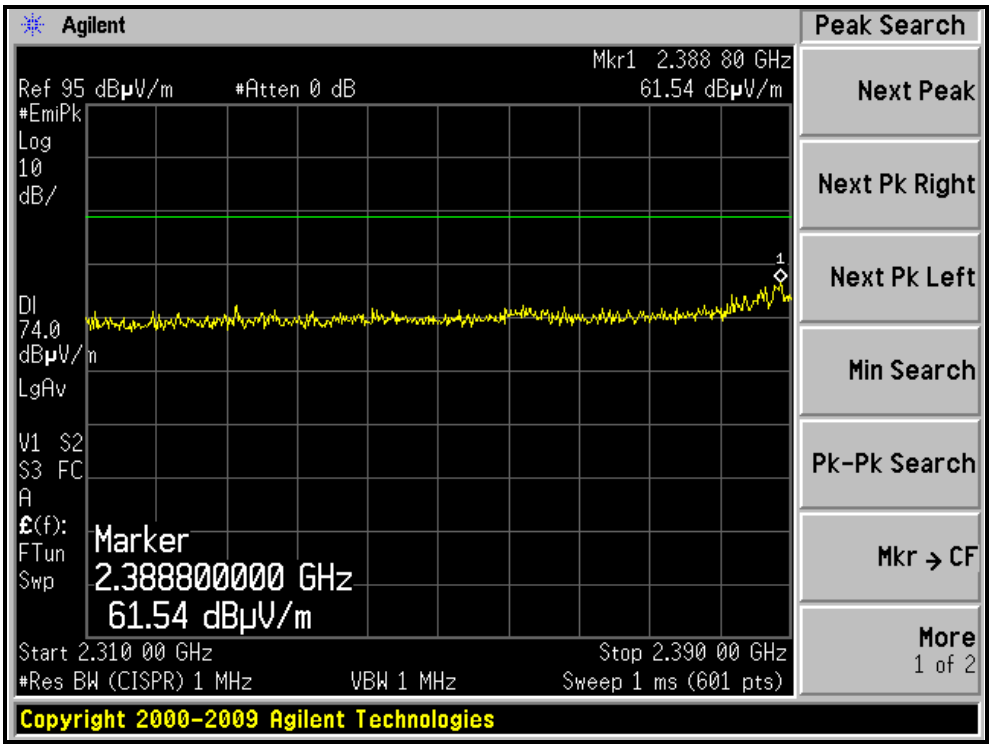
5. " * ": Fundamental frequency.

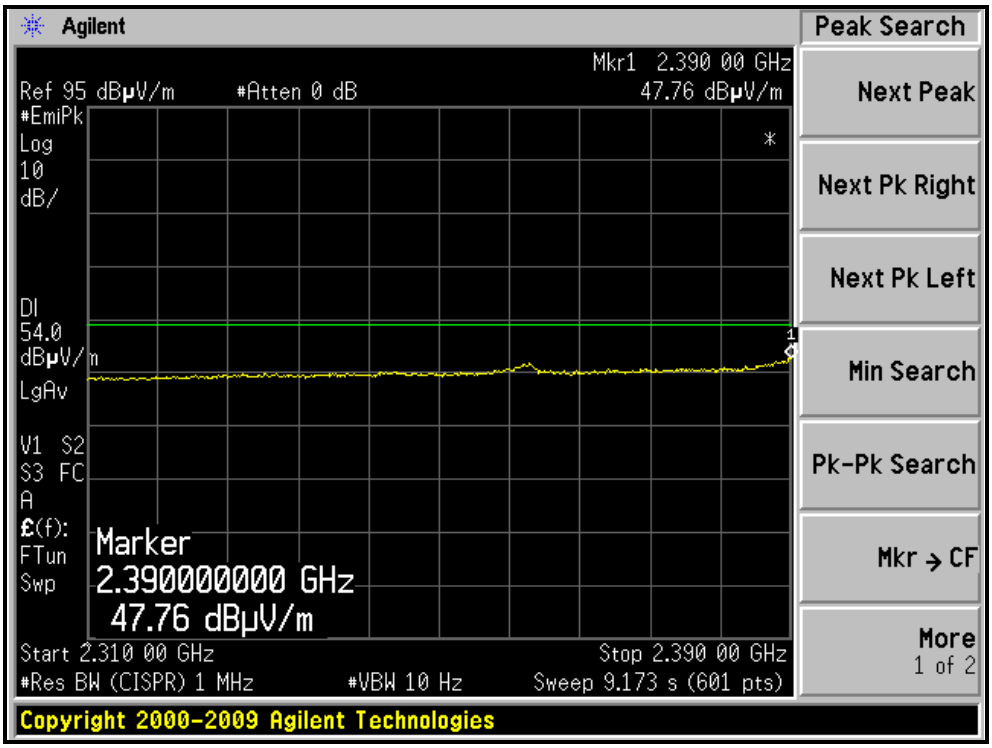
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, HORIZONTAL)



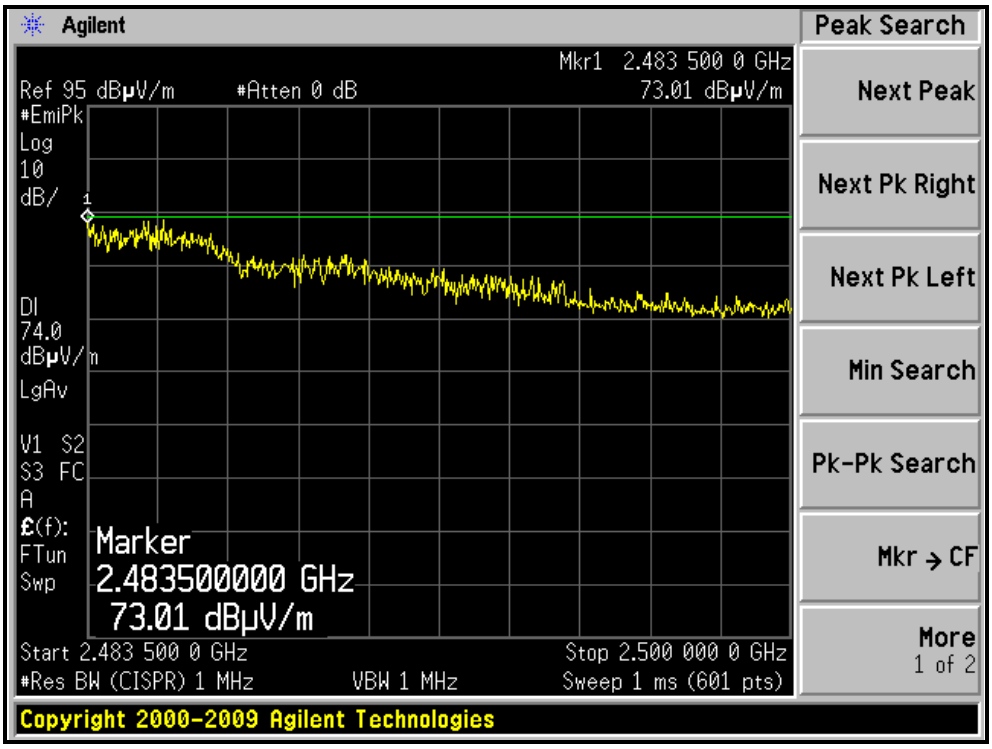


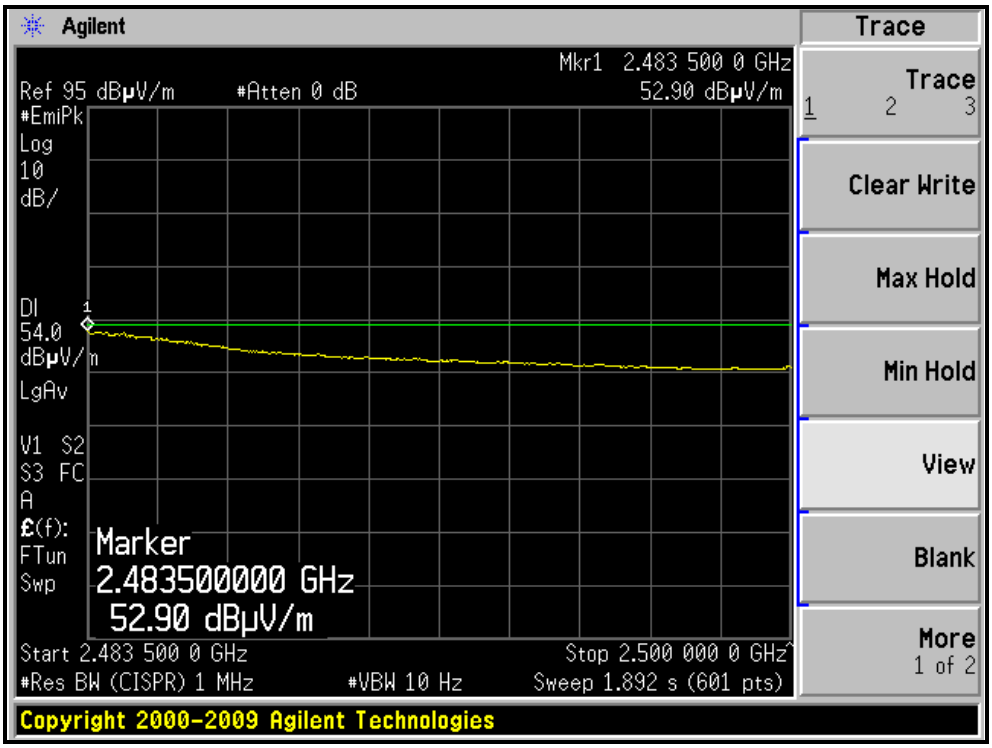
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH1, VERTICAL)



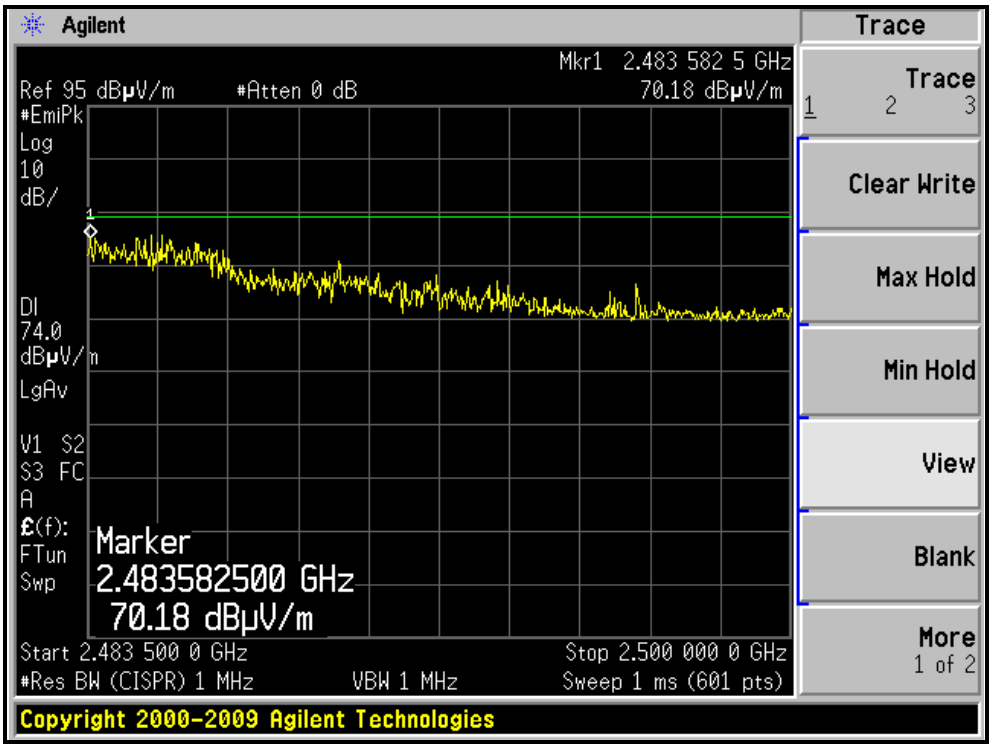


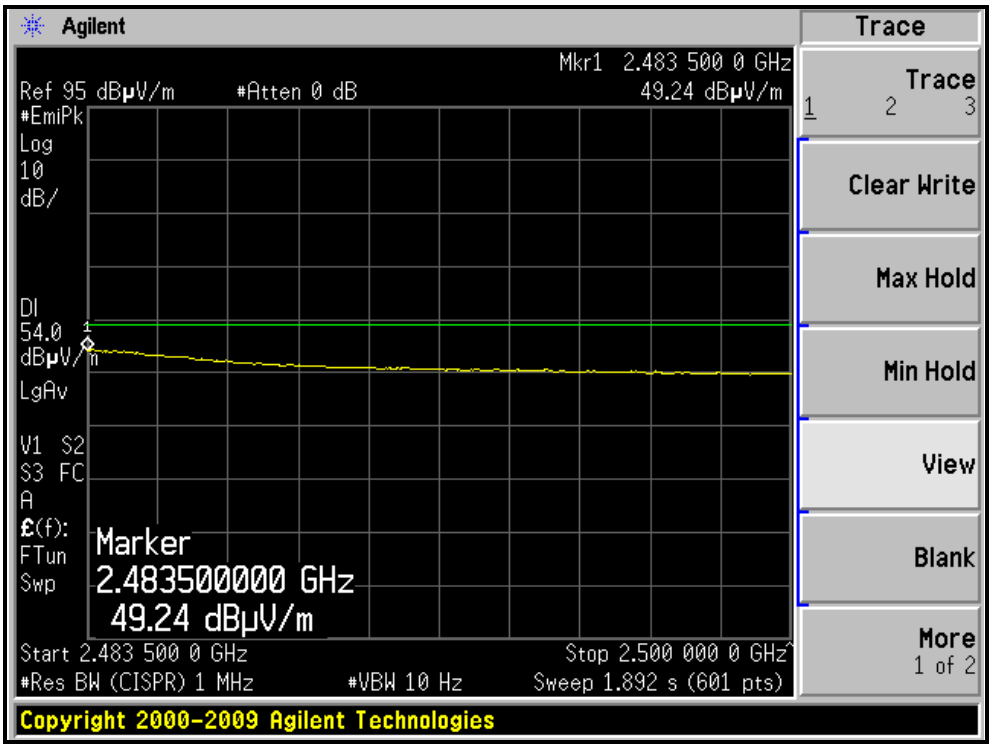
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH11, HORIZONTAL)





RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH11, VERTICAL)





802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 3	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 66%RH 1022 hPa	TESTED BY	Frank Liu

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	70.3 PK	74.0	-3.7	1.19 H	212	38.64	31.66
2	2390.00	52.4 AV	54.0	-1.6	1.19 H	212	20.74	31.66
3	*2422.00	107.2 PK			1.19 H	212	75.44	31.76
4	*2422.00	94.2 AV			1.19 H	212	62.44	31.76
5	4844.00	49.7 PK	74.0	-24.3	1.44 H	129	10.66	39.04
6	4844.00	40.1 AV	54.0	-13.9	1.44 H	129	1.06	39.04
7	7266.00	55.4 PK	74.0	-18.6	1.04 H	37	8.73	46.67
8	7266.00	44.3 AV	54.0	-9.7	1.04 H	37	-2.37	46.67
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	64.9 PK	74.0	-9.1	1.04 V	153	33.24	31.66
2	2390.00	51.3 AV	54.0	-2.7	1.04 V	153	19.64	31.66
3	*2422.00	104.3 PK			1.13 V	152	72.54	31.76
4	*2422.00	93.2 AV			1.13 V	152	61.44	31.76
5	4844.00	52.4 PK	74.0	-21.6	1.52 V	154	13.36	39.04
6	4844.00	40.7 AV	54.0	-13.3	1.52 V	154	1.66	39.04
7	7266.00	56.1 PK	74.0	-17.9	1.07 V	46	9.43	46.67
8	7266.00	44.3 AV	54.0	-9.7	1.07 V	46	-2.37	46.67

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 66%RH 1022 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	67.9 PK	74.0	-6.1	1.20 H	217	36.24	31.66
2	2390.00	53.0 AV	54.0	-1.0	1.20 H	217	21.34	31.66
3	*2437.00	109.4 PK			1.10 H	219	77.59	31.81
4	*2437.00	96.7 AV			1.10 H	219	64.89	31.81
5	4874.00	49.3 PK	74.0	-24.7	1.46 H	157	10.16	39.14
6	4874.00	40.4 AV	54.0	-13.6	1.46 H	157	1.26	39.14
7	7311.00	55.1 PK	74.0	-18.9	1.03 H	32	8.47	46.63
8	7311.00	44.2 AV	54.0	-9.8	1.03 H	32	-2.43	46.63
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	108.2 PK			1.14 V	143	76.39	31.81
2	*2437.00	95.1 AV			1.14 V	143	63.29	31.81
3	4874.00	52.4 PK	74.0	-21.6	1.52 V	159	13.26	39.14
4	4874.00	41.3 AV	54.0	-12.7	1.52 V	159	2.16	39.14
5	7311.00	55.9 PK	74.0	-18.1	1.04 V	36	9.27	46.63
6	7311.00	44.7 AV	54.0	-9.3	1.04 V	36	-1.93	46.63

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 9	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 66%RH 1022 hPa	TESTED BY	Frank Liu

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	106.8 PK			1.12 H	216	74.94	31.86
2	*2452.00	94.4 AV			1.12 H	216	62.54	31.86
3	2483.50	72.9 PK	74.0	-1.1	1.17 H	216	40.93	31.97
4	2483.50	50.8 AV	54.0	-3.2	1.17 H	216	18.83	31.97
5	4904.00	49.2 PK	74.0	-24.8	1.47 H	136	9.96	39.24
6	4904.00	40.1 AV	54.0	-13.9	1.47 H	136	0.86	39.24
7	7356.00	55.4 PK	74.0	-18.6	1.07 H	39	8.79	46.61
8	7356.00	44.6 AV	54.0	-9.4	1.07 H	39	-2.01	46.61
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	104.9 PK			1.14 V	153	73.04	31.86
2	*2452.00	93.4 AV			1.14 V	153	61.54	31.86
3	2483.50	65.1 PK	74.0	-8.9	1.18 V	147	33.13	31.97
4	2483.50	47.0 AV	54.0	-7.0	1.18 V	147	15.03	31.97
5	4904.00	52.6 PK	74.0	-21.4	1.43 V	154	13.36	39.24
6	4904.00	41.1 AV	54.0	-12.9	1.43 V	154	1.86	39.24
7	7356.00	55.7 PK	74.0	-18.3	1.06 V	27	9.09	46.61
8	7356.00	44.3 AV	54.0	-9.7	1.06 V	27	-2.31	46.61

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

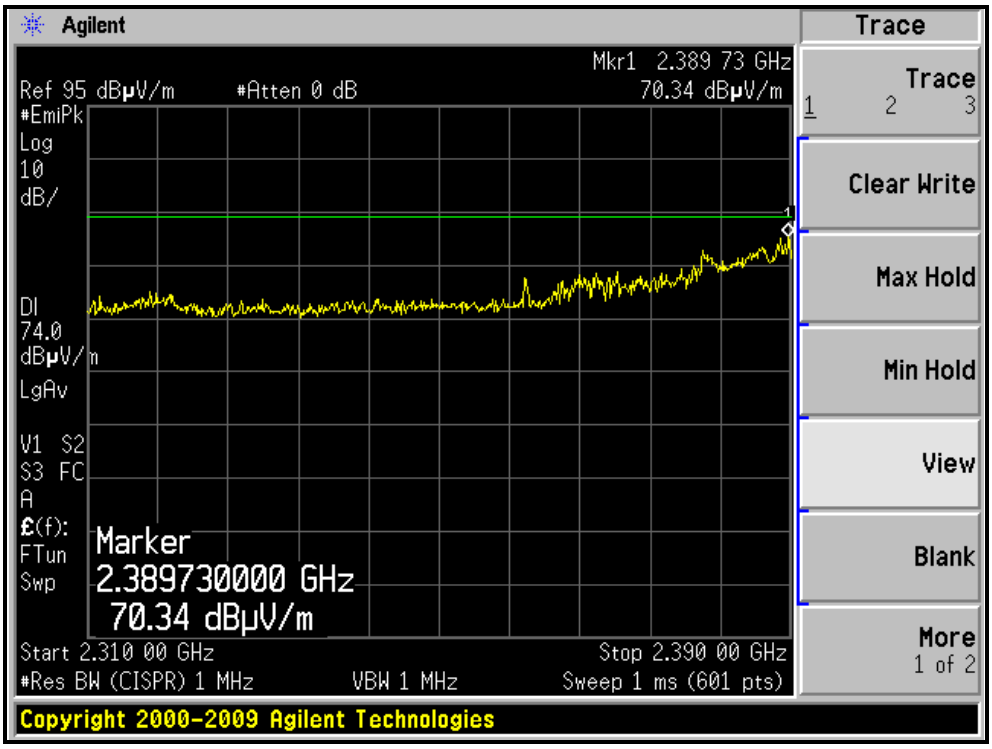
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

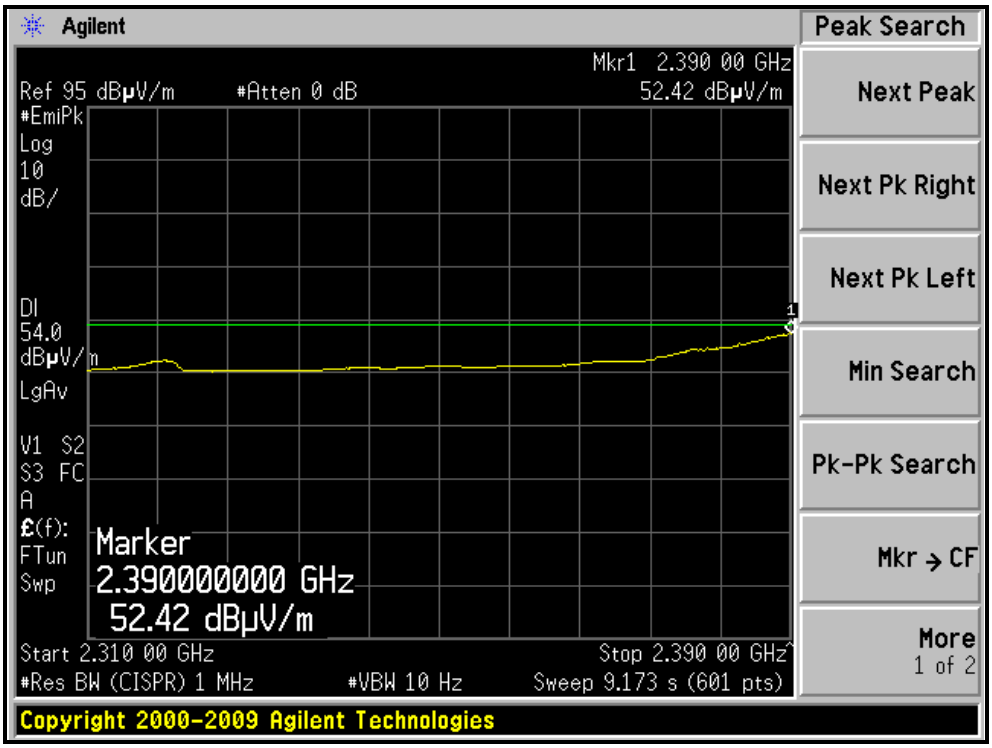
3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

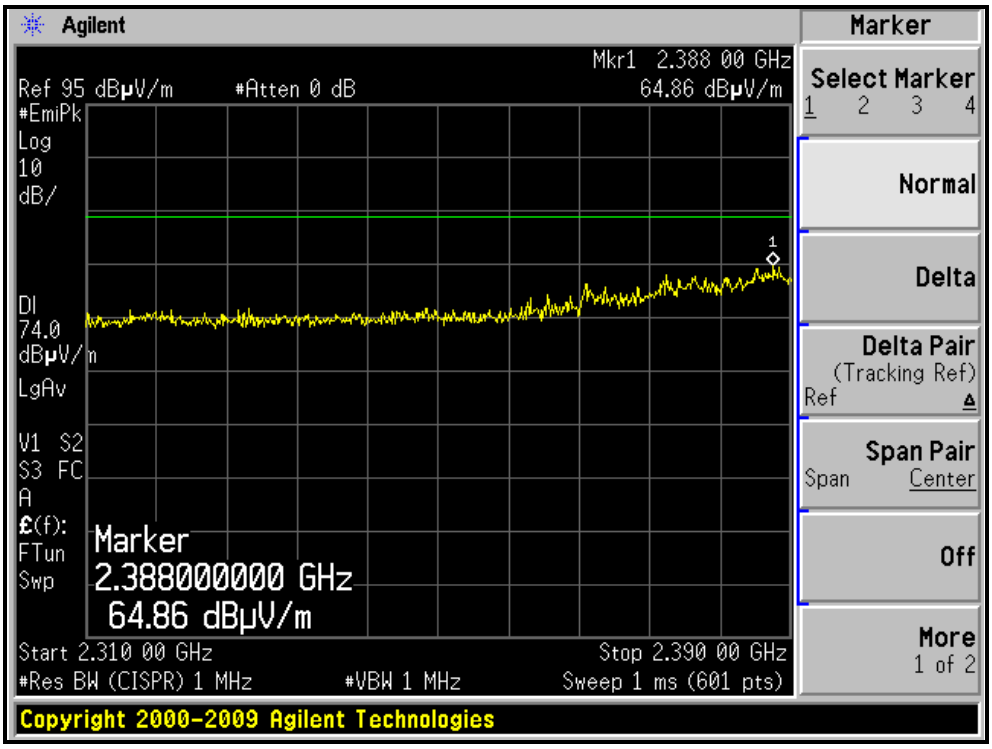
5. " * ": Fundamental frequency.

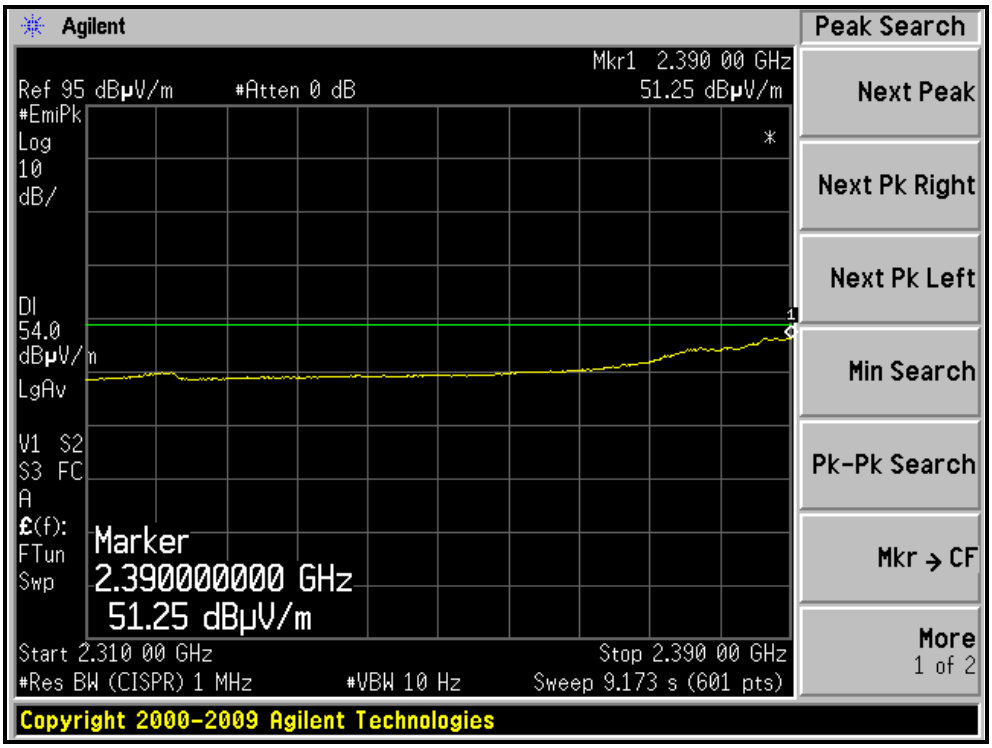
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH3, HORIZONTAL)



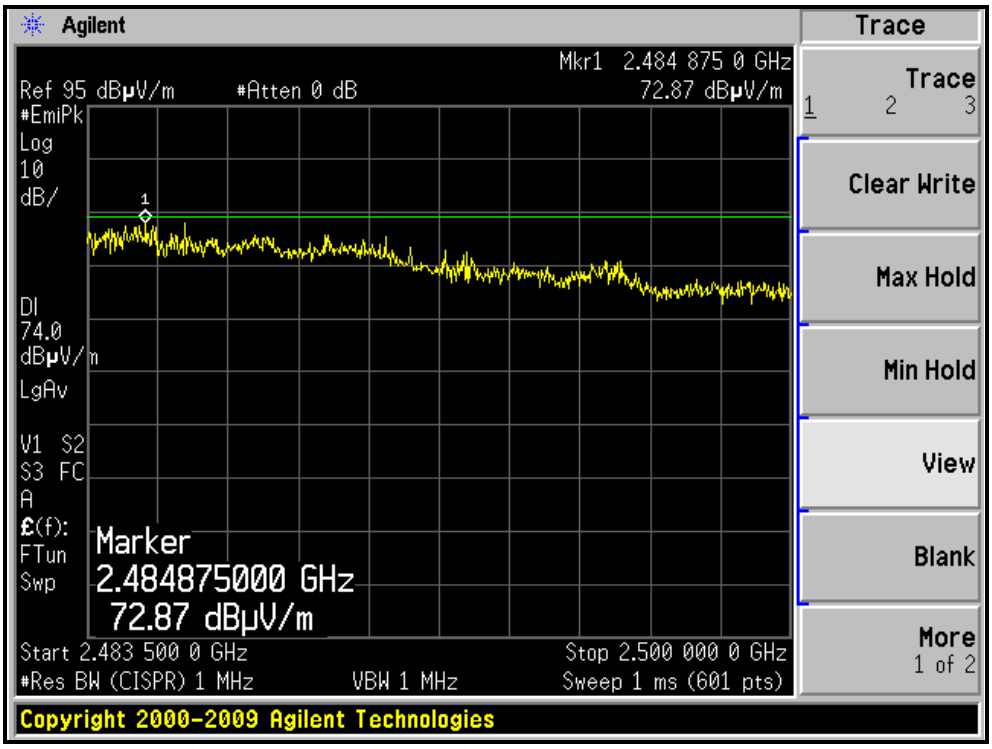


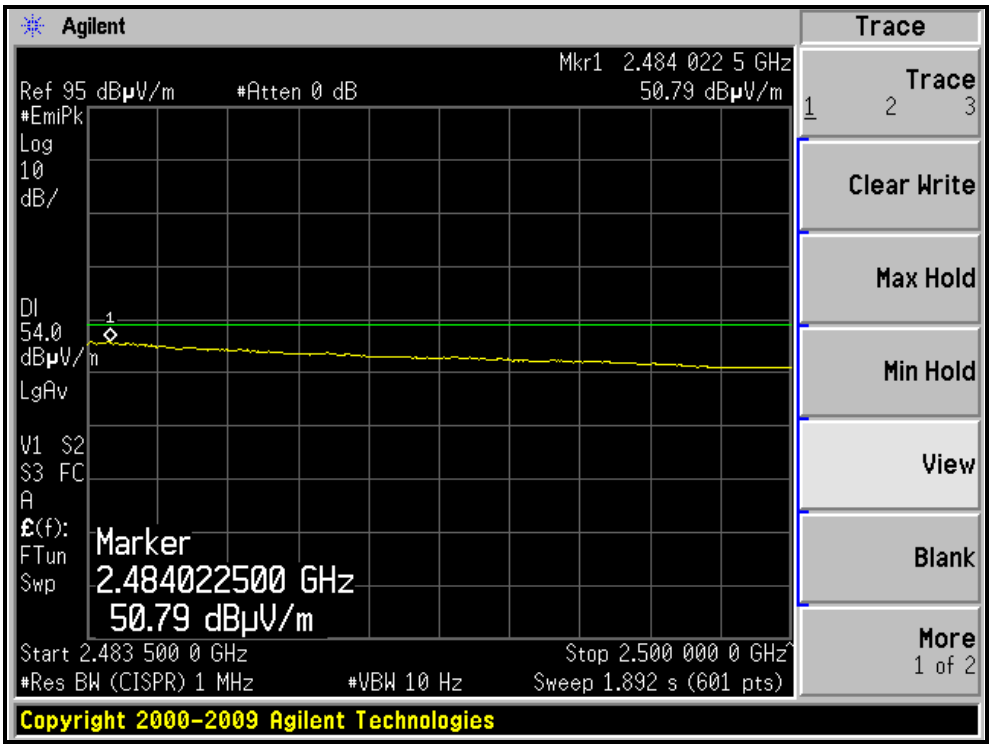
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH3, VERTICAL)



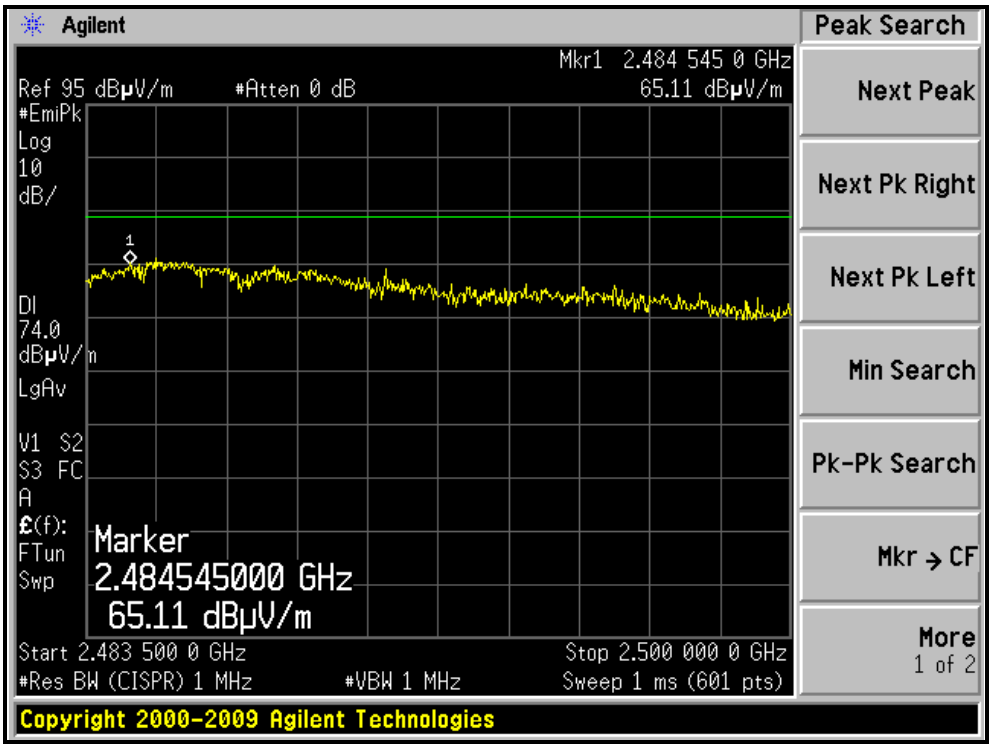


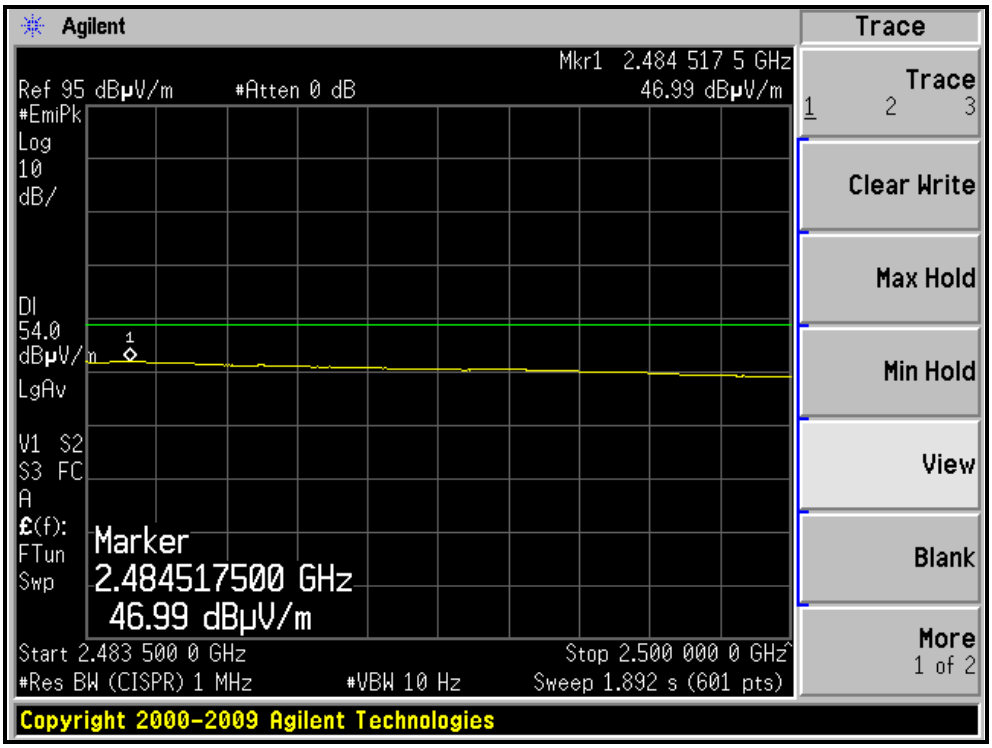
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH9, HORIZONTAL)





RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH9, VERTICAL)





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 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	FSP 40	100060	May 17, 2010	May 16, 2011

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

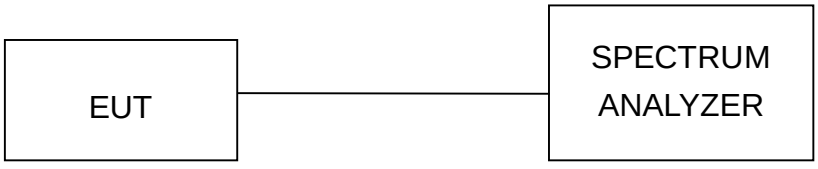
4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

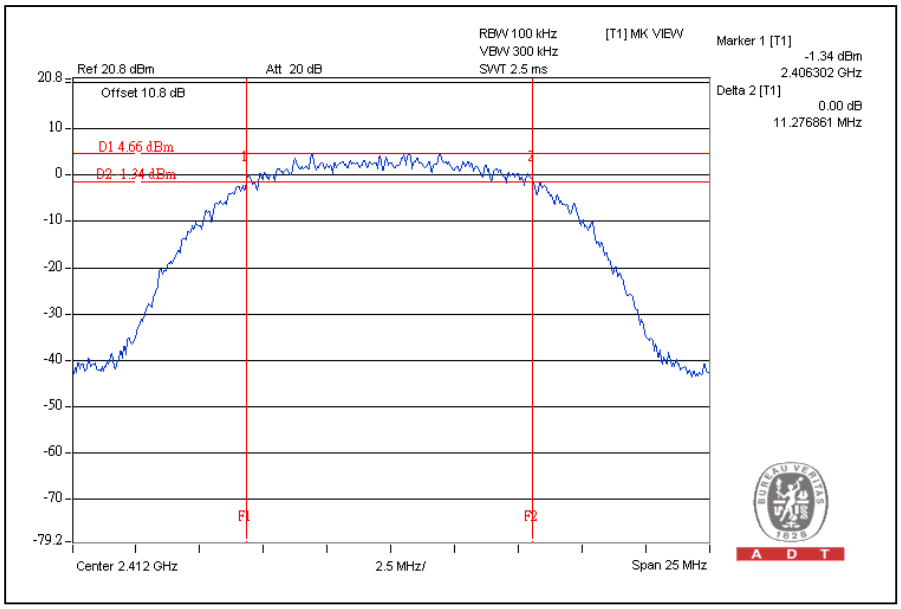
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	11.27	0.5	PASS
6	2437	11.25	0.5	PASS
11	2462	11.26	0.5	PASS

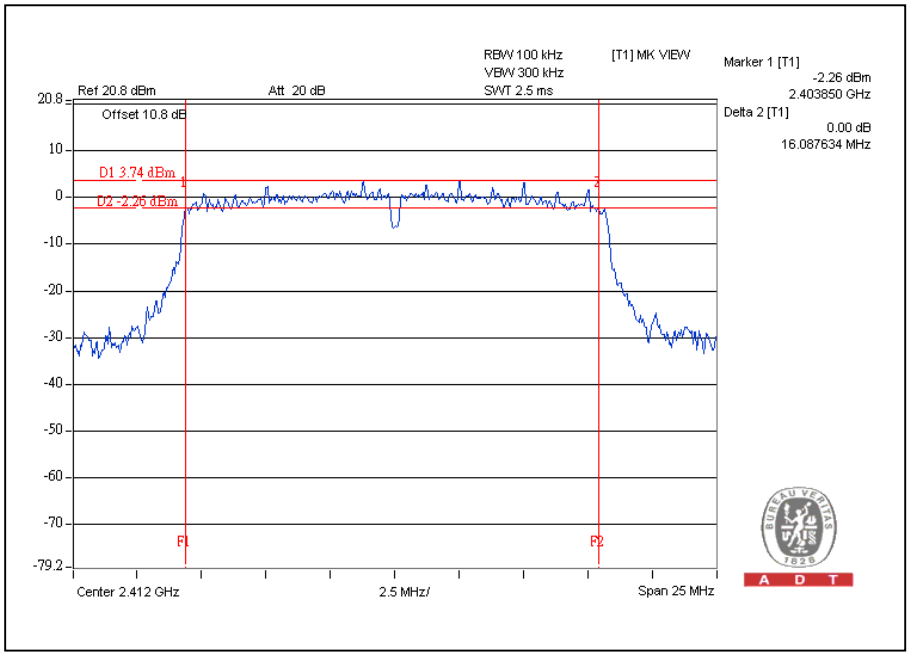
CH1



802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.08	0.5	PASS
6	2437	15.38	0.5	PASS
11	2462	14.72	0.5	PASS

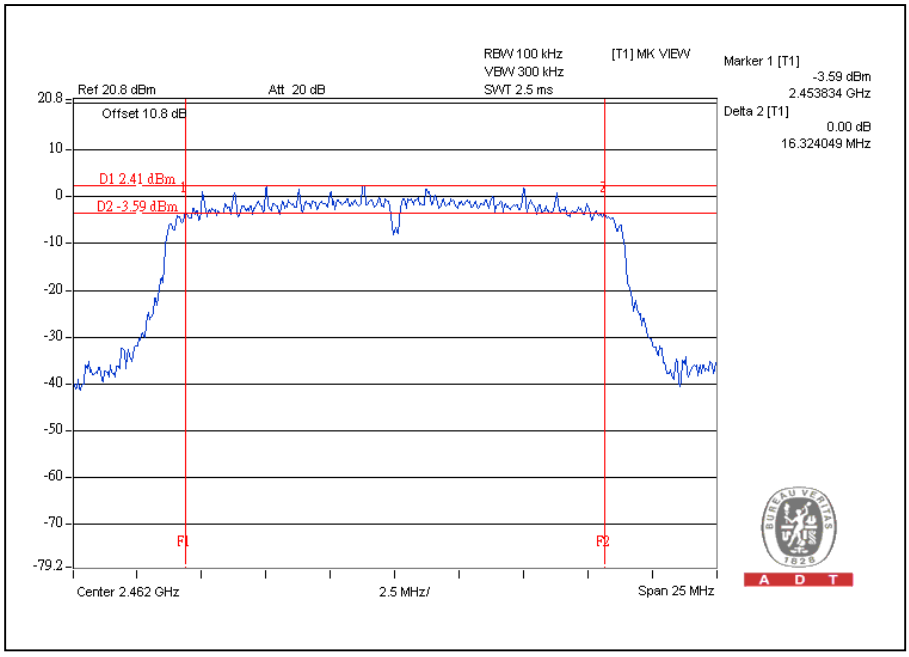
CH1



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	15.82	0.5	PASS
6	2437	15.16	0.5	PASS
11	2462	16.32	0.5	PASS

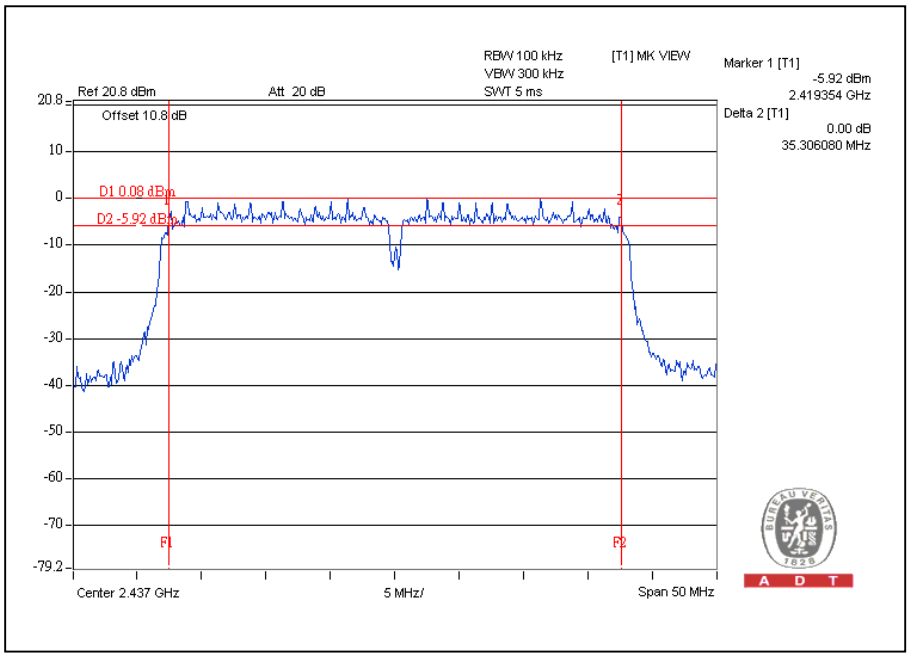
CH11



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
3	2422	35.16	0.5	PASS
6	2437	35.30	0.5	PASS
9	2452	35.13	0.5	PASS

CH6



4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 INSTRUMENTS

Test date: Apr. 14, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Peak Power Meter	ML2495A	0824006	May 04, 2010	May 03, 2011
Power Sensor	MA2411B	0738172	May 04, 2010	May 03, 2011

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

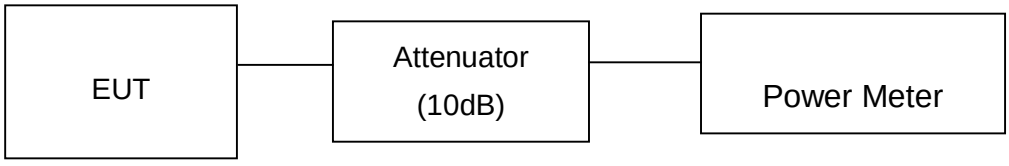
4.4.3 TEST PROCEDURES

1. The transmitter output was connected to the power meter through an attenuator; the bandwidth of the fundamental frequency was measured with the power meter.
2. Record the power level.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

4.4.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	74.1	18.7	30	PASS
6	2437	64.6	18.1	30	PASS
11	2462	63.1	18.0	30	PASS

802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	295.1	24.7	30	PASS
6	2437	398.1	26.0	30	PASS
11	2462	281.8	24.5	30	PASS

802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
1	2412	23.4	23.5	442.6	26.5	30	PASS
6	2437	25.0	24.6	604.6	27.8	30	PASS
11	2462	23.6	23.4	447.9	26.5	30	PASS

802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
3	2422	21.2	21.3	266.7	24.3	30	PASS
6	2437	23.5	23.2	432.8	26.4	30	PASS
9	2452	21.9	21.4	292.9	24.7	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 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	FSP 40	100060	May 17, 2010	May 16, 2011

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

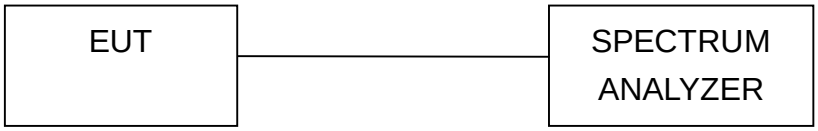
4.5.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.
The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

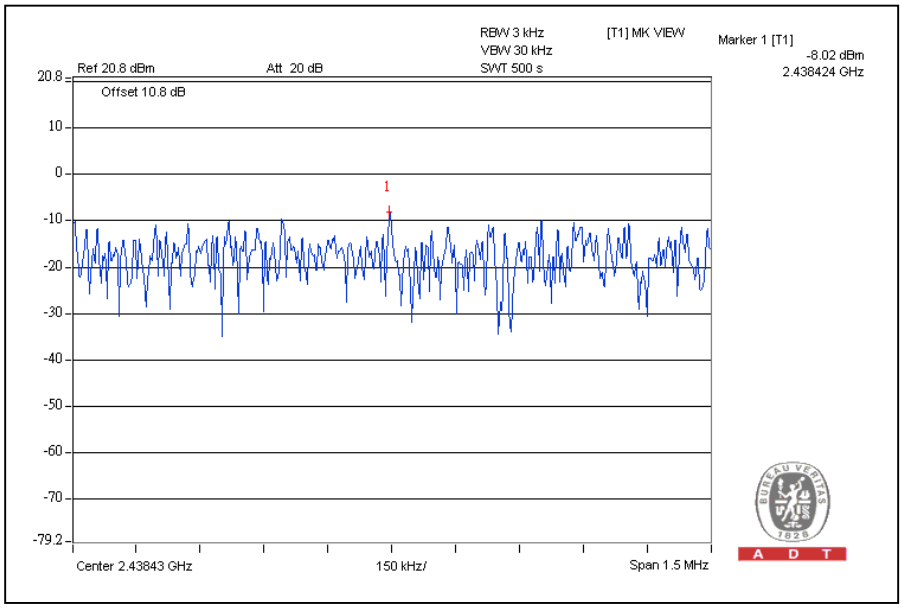
Same as Item 4.3.6

4.5.7 TEST RESULTS

802.11b DSSS MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-8.7	8	PASS
6	2437	-8.0	8	PASS
11	2462	-8.3	8	PASS

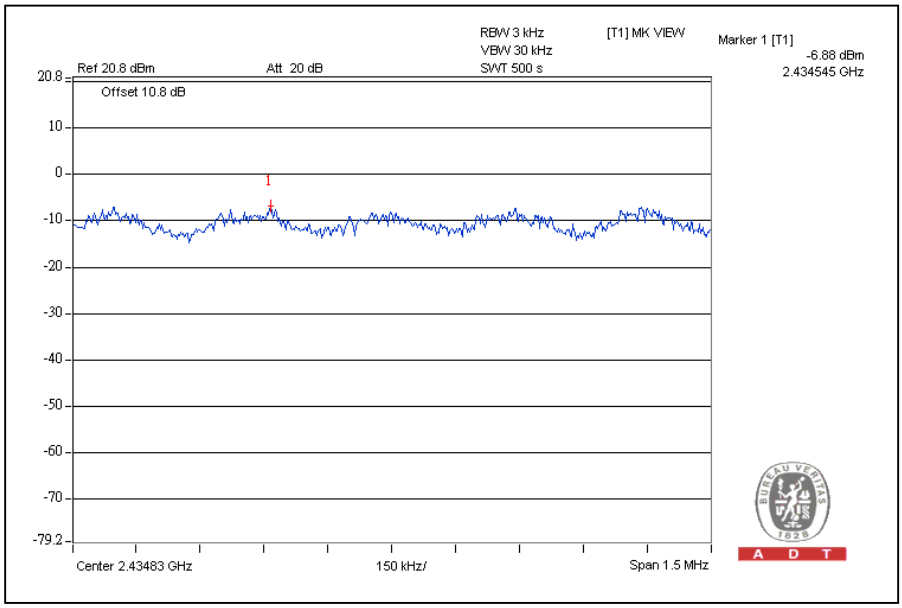
CH6



802.11g OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-10.9	8	PASS
6	2437	-6.9	8	PASS
11	2462	-11.4	8	PASS

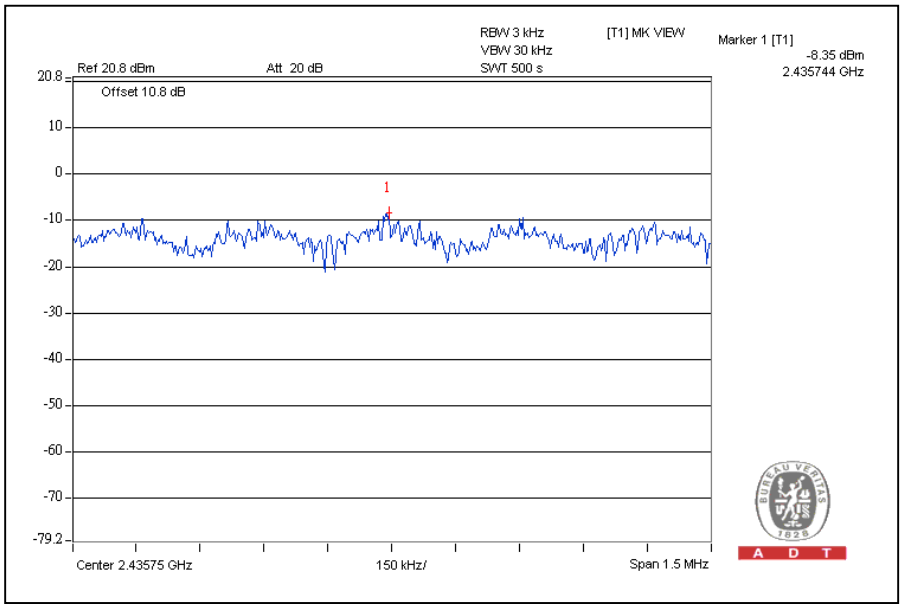
CH6



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)			
1	2412	-13.3	-13.1	-10.2	8	PASS
6	2437	-8.4	-9.9	-6.1	8	PASS
11	2462	-12.2	-11.9	-9.0	8	PASS

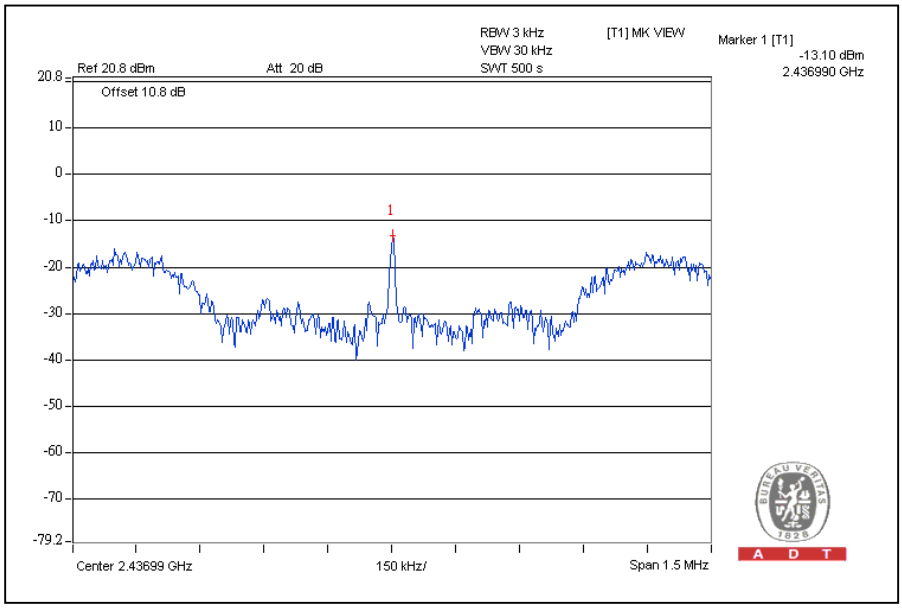
For Chain(0): CH6



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)			
3	2422	-16.1	-15.2	-12.6	8	PASS
6	2437	-14.2	-13.1	-10.6	8	PASS
9	2452	-17.8	-15.8	-13.7	8	PASS

For Chain (1): CH6



4.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

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

4.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	FSP 40	100060	May 17, 2010	May 16, 2011

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.6.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set RBW of spectrum analyzer to 100kHz and VBW of spectrum analyzer to 300kHz with suitable frequency span including 100MHz or 200MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (RBW = 100kHz, VBW = 300kHz) are attached on the following pages.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

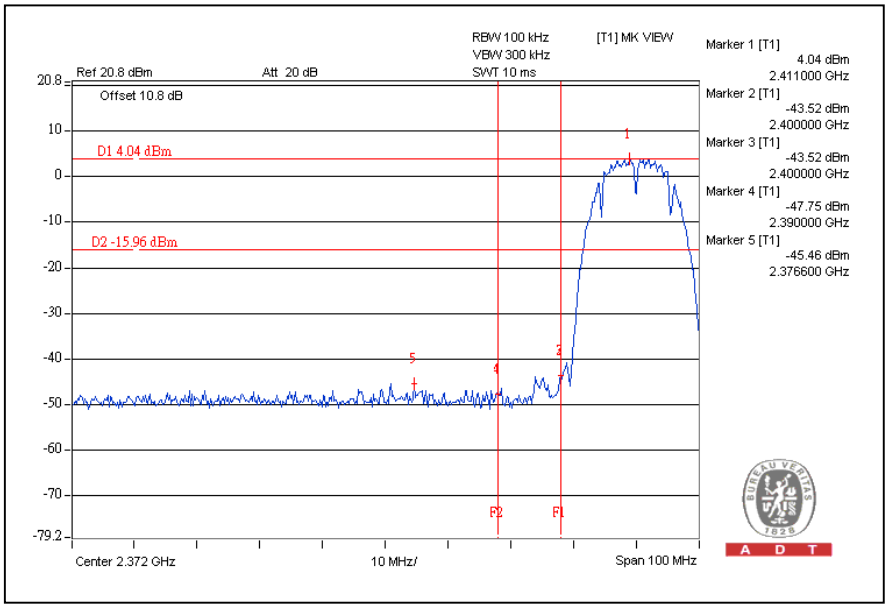
Same as Item 4.3.6

4.6.6 TEST RESULTS

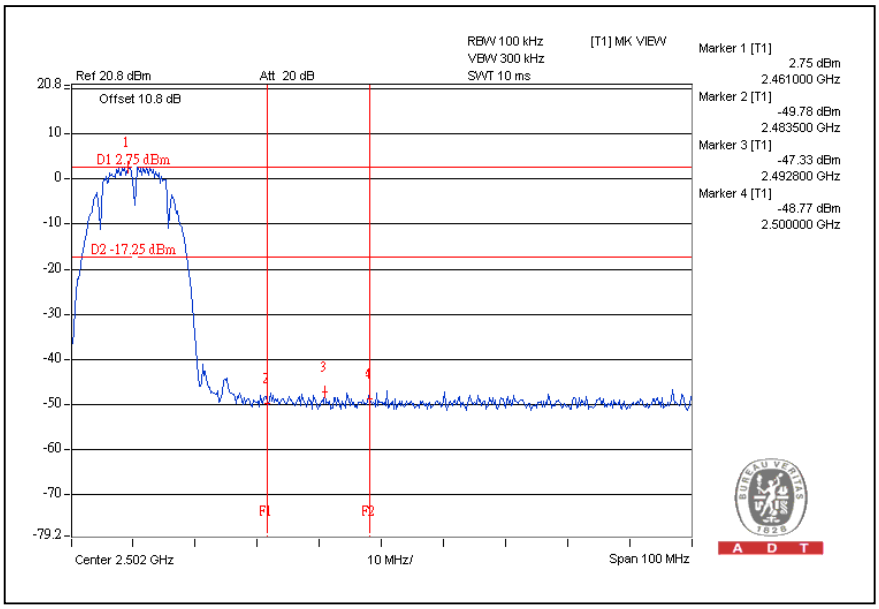
The spectrum plots are attached on the following images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

802.11b DSSS MODULATION:

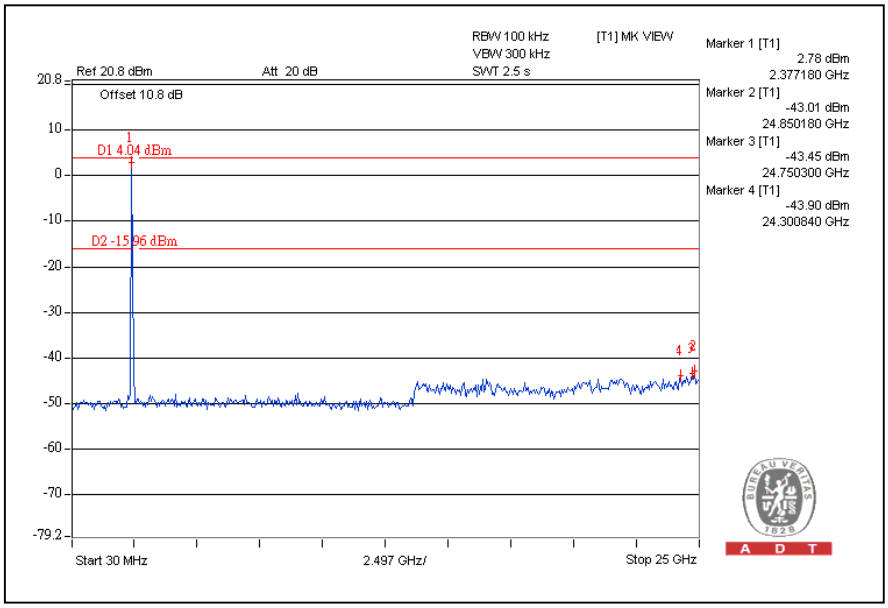
CH1



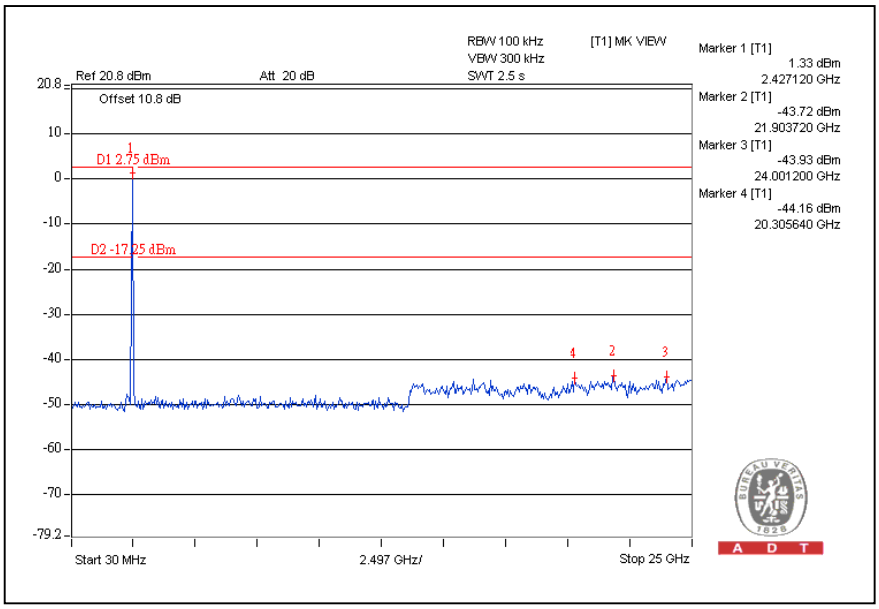
CH11



CH1

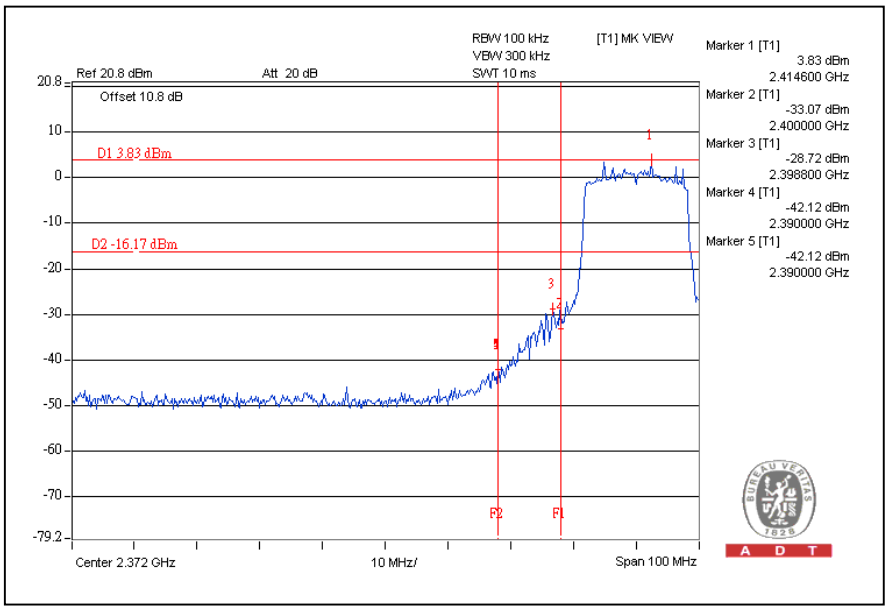

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.8 dBm
Att 20 dB
Offset 10.8 dB
D1 4.04 dBm
D2 -15.96 dBm
Marker 1 [T1]
2.78 dBm
2.377180 GHz
Marker 2 [T1]
-43.01 dBm
24.850180 GHz
Marker 3 [T1]
-43.45 dBm
24.750300 GHz
Marker 4 [T1]
-43.90 dBm
24.300840 GHz
20.8
10
0
-10
-20
-30
-40
-50
-60
-70
-79.2
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH11

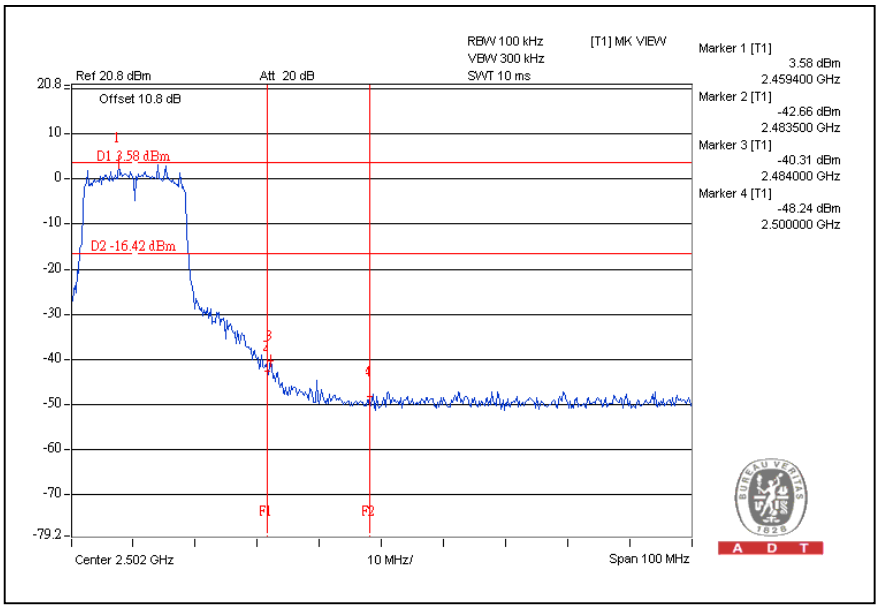

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.8 dBm
Att 20 dB
Offset 10.8 dB
D1 2.75 dBm
D2 -17.25 dBm
Marker 1 [T1]
1.33 dBm
2.427120 GHz
Marker 2 [T1]
-43.72 dBm
21.903720 GHz
Marker 3 [T1]
-43.93 dBm
24.001200 GHz
Marker 4 [T1]
-44.16 dBm
20.305640 GHz
20.8
10
0
-10
-20
-30
-40
-50
-60
-70
-79.2
Start 30 MHz
2.497 GHz/
Stop 25 GHz

802.11g OFDM MODULATION:

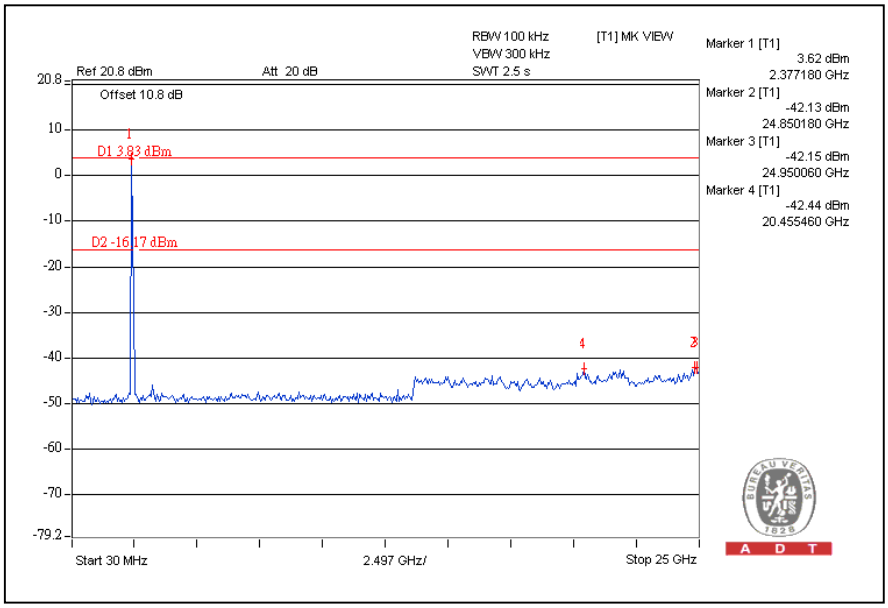
CH1



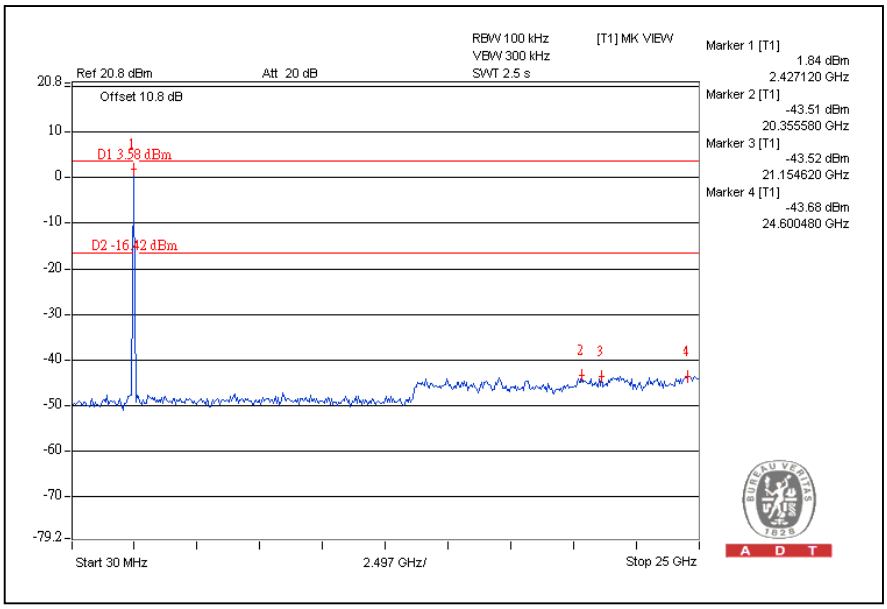
CH11



CH1


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.8 dBm
Att 20 dB
Offset 10.8 dB
D1 3.83 dBm
D2 -16.17 dBm
Marker 1 [T1]
3.62 dBm
2.377180 GHz
Marker 2 [T1]
-42.13 dBm
24.850180 GHz
Marker 3 [T1]
-42.15 dBm
24.950060 GHz
Marker 4 [T1]
-42.44 dBm
20.455460 GHz
20.8
10
0
-10
-20
-30
-40
-50
-60
-70
-79.2
Start 30 MHz
2.497 GHz/
Stop 25 GHz

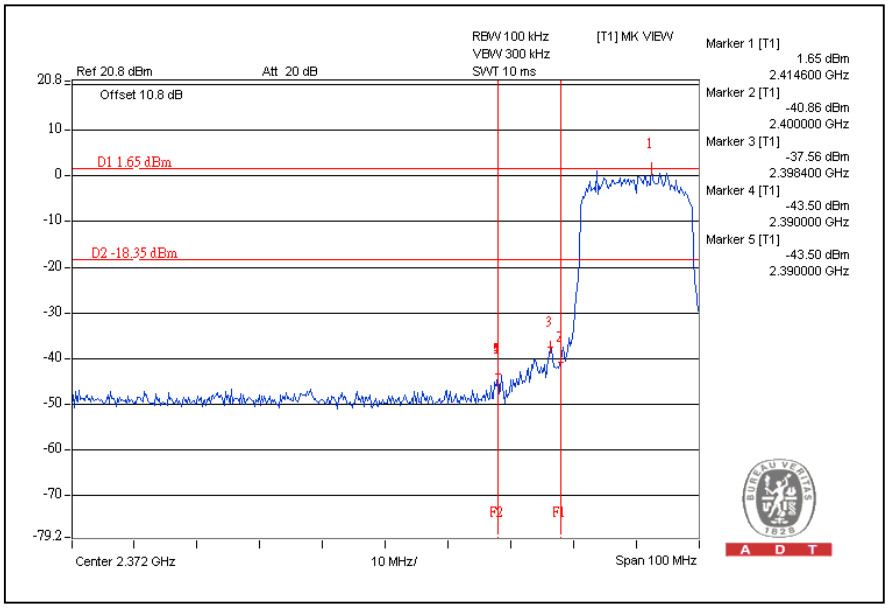
CH11


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.8 dBm
Att 20 dB
Offset 10.8 dB
D1 3.58 dBm
D2 -16.42 dBm
Marker 1 [T1]
1.84 dBm
2.427120 GHz
Marker 2 [T1]
-43.51 dBm
20.355580 GHz
Marker 3 [T1]
-43.52 dBm
21.154620 GHz
Marker 4 [T1]
-43.68 dBm
24.600480 GHz
20.8
10
0
-10
-20
-30
-40
-50
-60
-70
-79.2
Start 30 MHz
2.497 GHz/
Stop 25 GHz

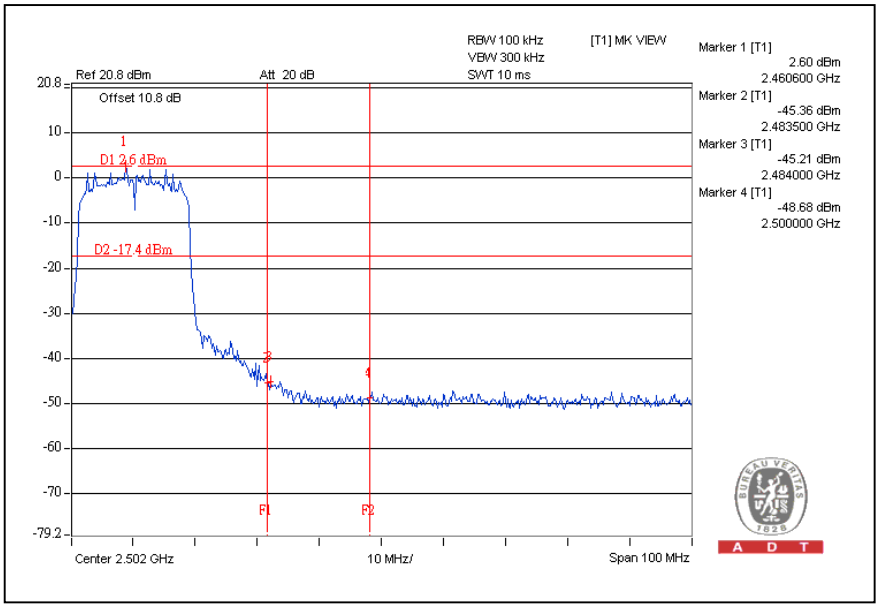
802.11n (20MHz) OFDM MODULATION:

For Chain (0)

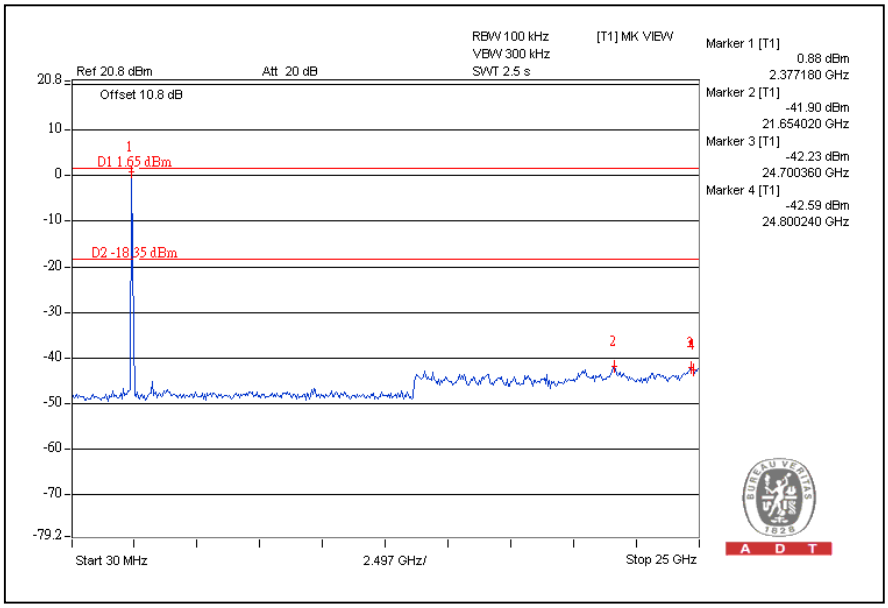
CH1



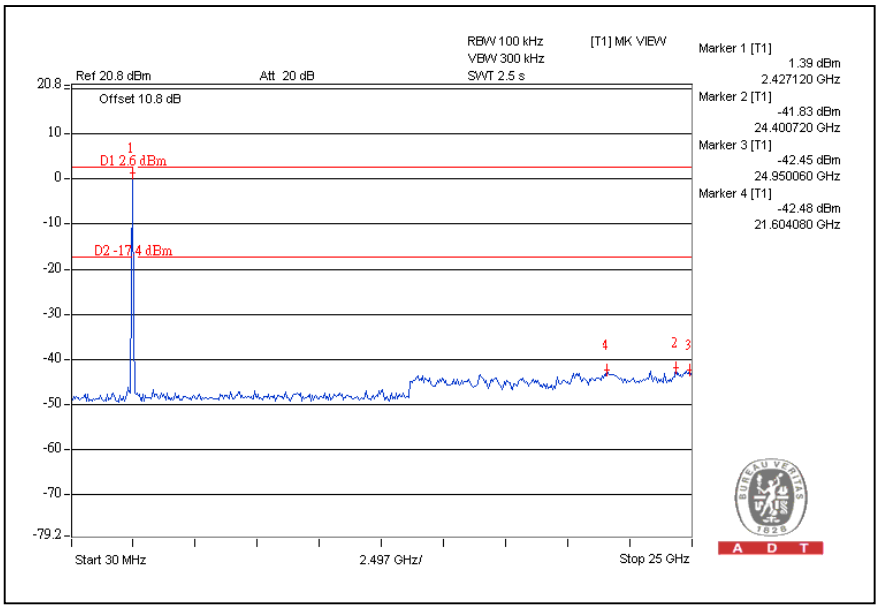
CH11



CH1

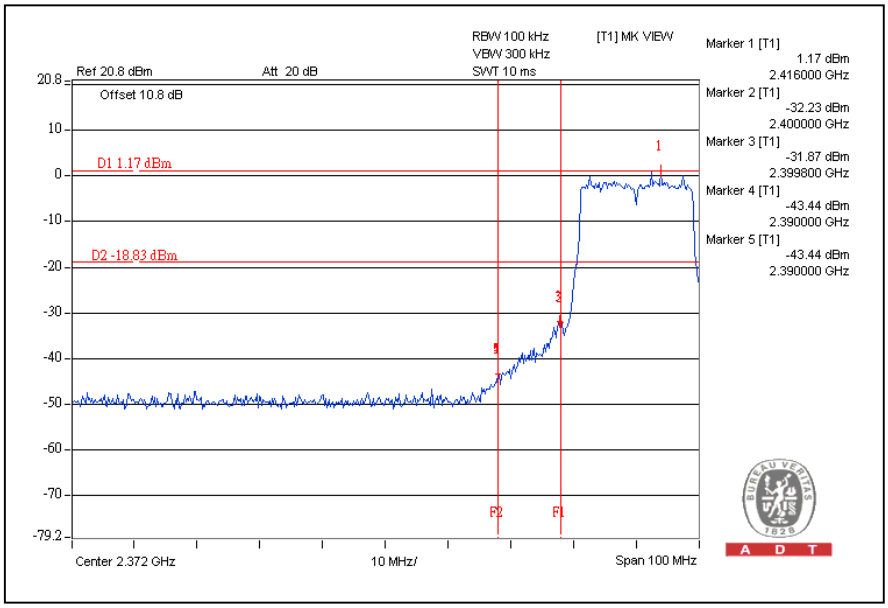

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.8 dBm
Att 20 dB
Offset 10.8 dB
D1 1.65 dBm
D2 -18.35 dBm
Marker 1 [T1]
0.88 dBm
2.377180 GHz
Marker 2 [T1]
-41.90 dBm
21.654020 GHz
Marker 3 [T1]
-42.23 dBm
24.700360 GHz
Marker 4 [T1]
-42.59 dBm
24.800240 GHz
20.8
10
0
-10
-20
-30
-40
-50
-60
-70
-79.2
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH11

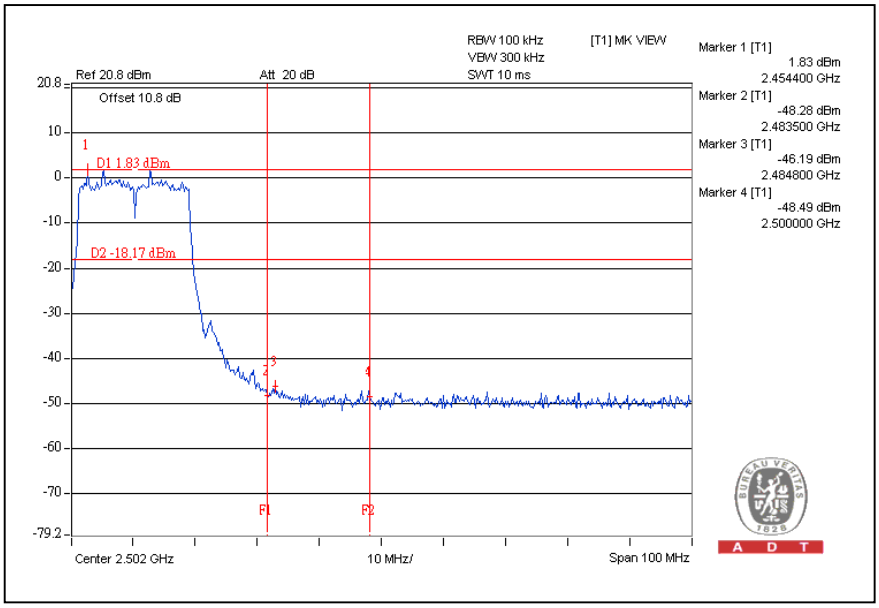

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.8 dBm
Att 20 dB
Offset 10.8 dB
D1 2.6 dBm
D2 -17.4 dBm
Marker 1 [T1]
1.39 dBm
2.427120 GHz
Marker 2 [T1]
-41.83 dBm
24.400720 GHz
Marker 3 [T1]
-42.45 dBm
24.950060 GHz
Marker 4 [T1]
-42.48 dBm
21.604080 GHz
20.8
10
0
-10
-20
-30
-40
-50
-60
-70
-79.2
Start 30 MHz
2.497 GHz/
Stop 25 GHz

For Chain (1)

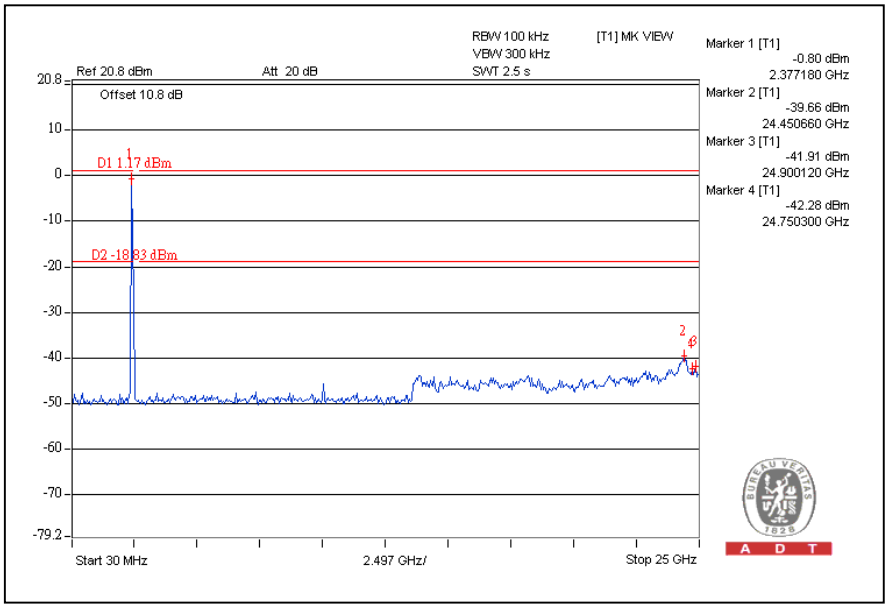
CH1



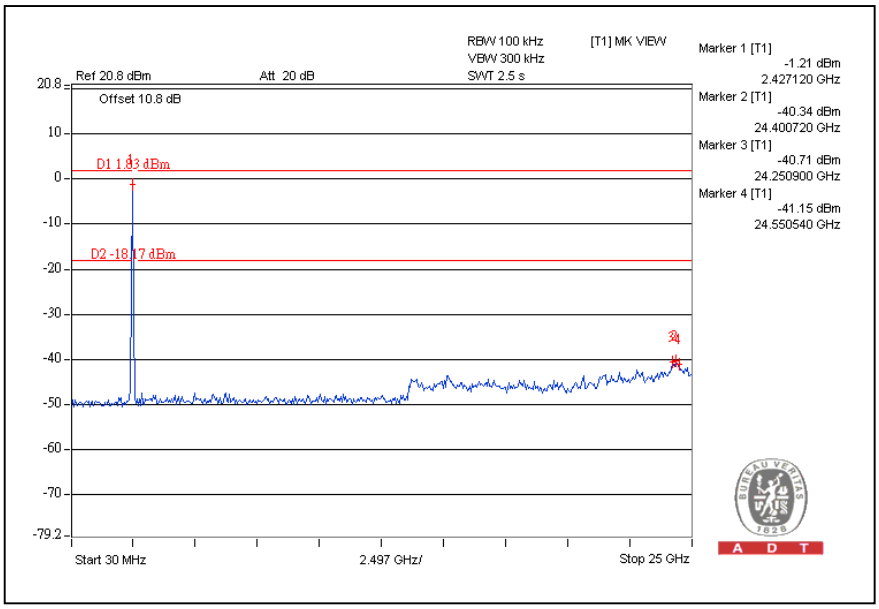
CH11



CH1


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.8 dBm
Att 20 dB
Offset 10.8 dB
D1 1.17 dBm
D2 -18.83 dBm
Marker 1 [T1]
-0.80 dBm
2.377180 GHz
Marker 2 [T1]
-39.66 dBm
24.450660 GHz
Marker 3 [T1]
-41.91 dBm
24.900120 GHz
Marker 4 [T1]
-42.28 dBm
24.750300 GHz
20.8
10
0
-10
-20
-30
-40
-50
-60
-70
-79.2
Start 30 MHz
2.497 GHz/
Stop 25 GHz

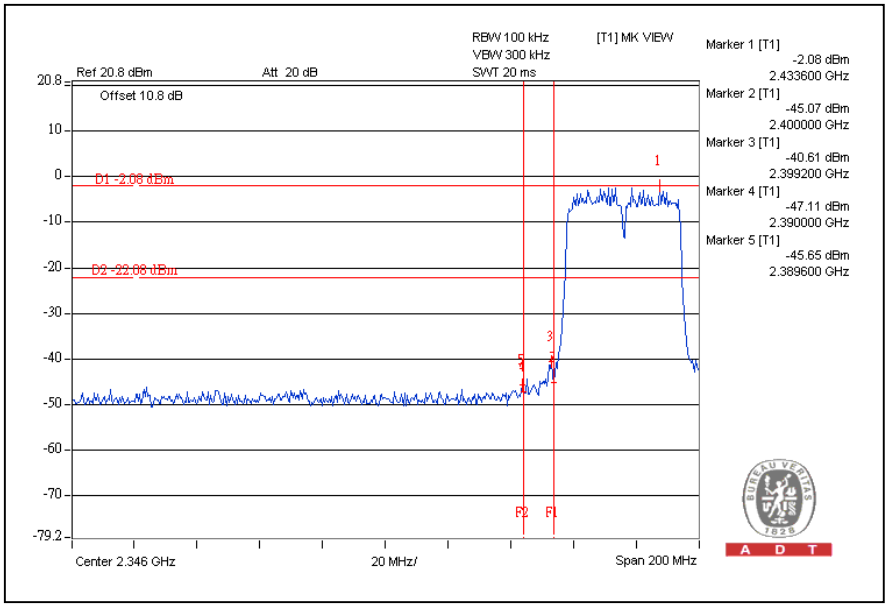
CH11


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.8 dBm
Att 20 dB
Offset 10.8 dB
D1 1.83 dBm
D2 -18.17 dBm
Marker 1 [T1]
-1.21 dBm
2.427120 GHz
Marker 2 [T1]
-40.34 dBm
24.400720 GHz
Marker 3 [T1]
-40.71 dBm
24.250900 GHz
Marker 4 [T1]
-41.15 dBm
24.550540 GHz
20.8
10
0
-10
-20
-30
-40
-50
-60
-70
-79.2
Start 30 MHz
2.497 GHz/
Stop 25 GHz

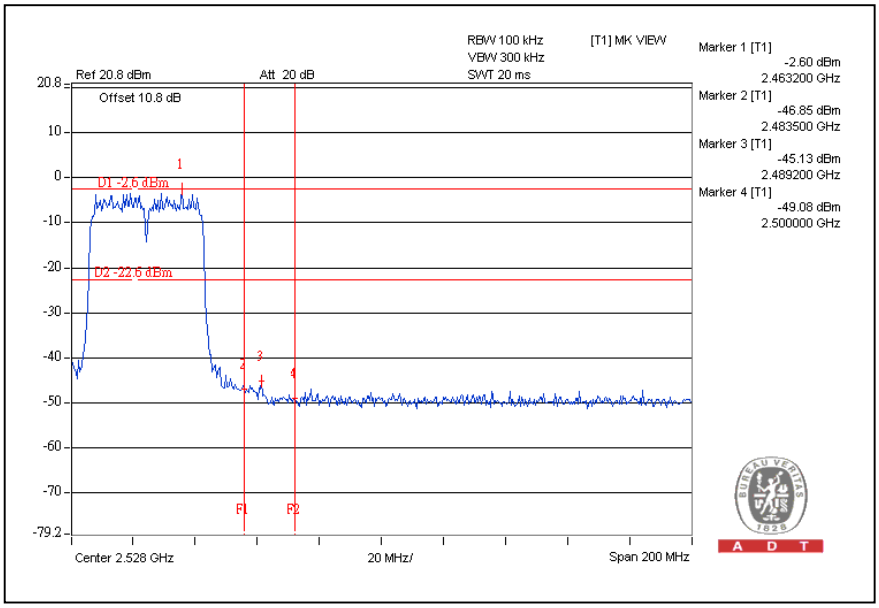
802.11n (40MHz) OFDM MODULATION:

For Chain (0)

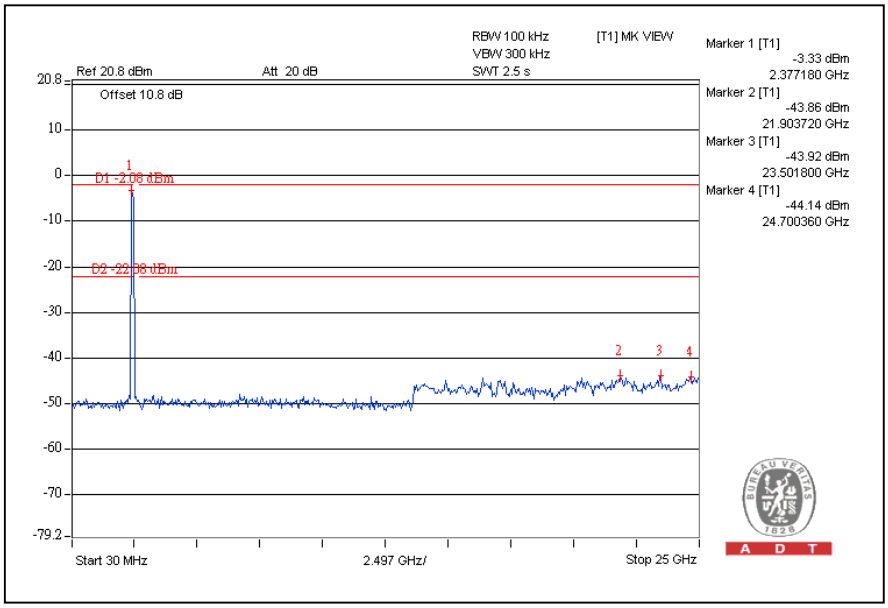
CH3



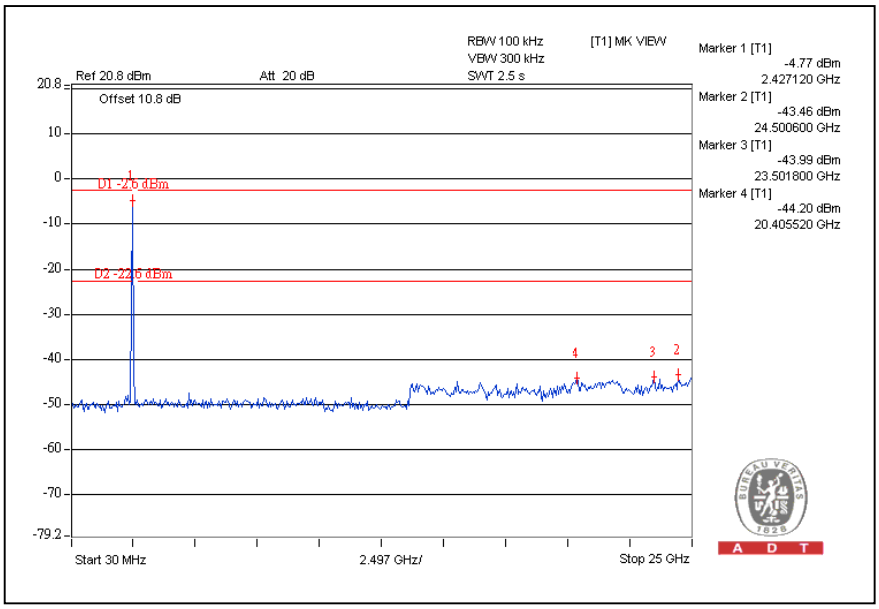
CH9



CH3

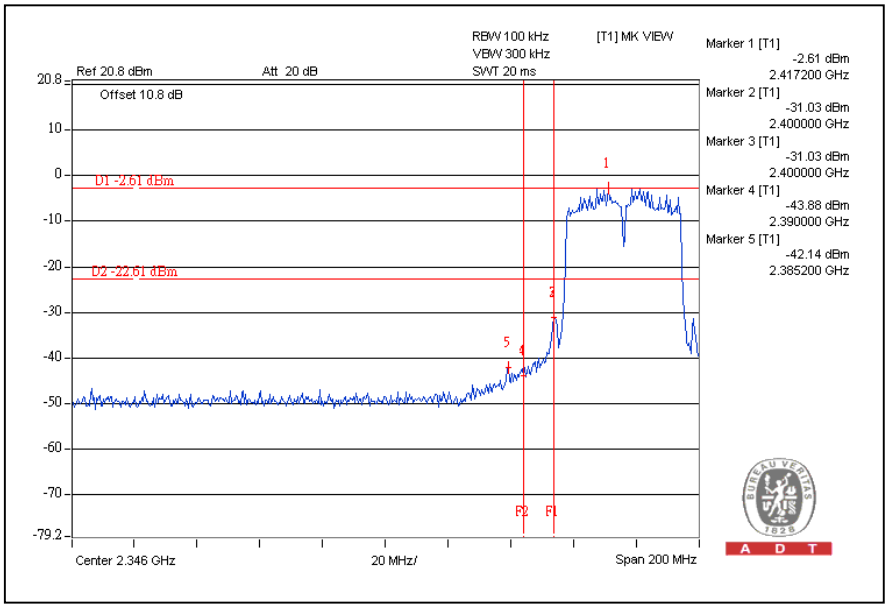

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.8 dBm
Att 20 dB
Offset 10.8 dB
D1 -2.06 dBm
D2 -22.06 dBm
Marker 1 [T1]
-3.33 dBm
2.377180 GHz
Marker 2 [T1]
-43.86 dBm
21.903720 GHz
Marker 3 [T1]
-43.92 dBm
23.501800 GHz
Marker 4 [T1]
-44.14 dBm
24.700360 GHz
20.8
10
0
-10
-20
-30
-40
-50
-60
-70
-79.2
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH9

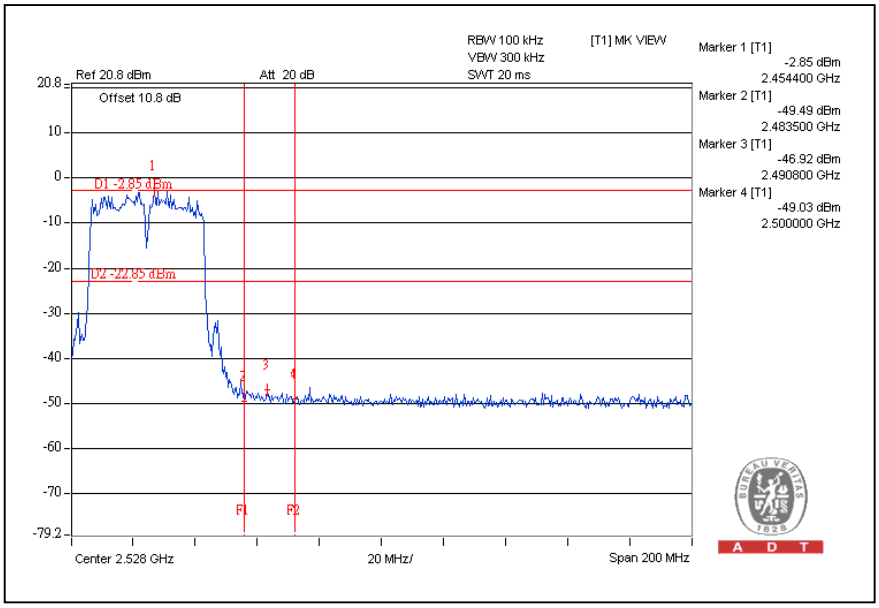

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 20.8 dBm
Att 20 dB
Offset 10.8 dB
D1 -2.6 dBm
D2 -22.6 dBm
Marker 1 [T1]
-4.77 dBm
2.427120 GHz
Marker 2 [T1]
-43.46 dBm
24.500600 GHz
Marker 3 [T1]
-43.99 dBm
23.501800 GHz
Marker 4 [T1]
-44.20 dBm
20.405520 GHz
20.8
10
0
-10
-20
-30
-40
-50
-60
-70
-79.2
Start 30 MHz
2.497 GHz/
Stop 25 GHz

For Chain (1)

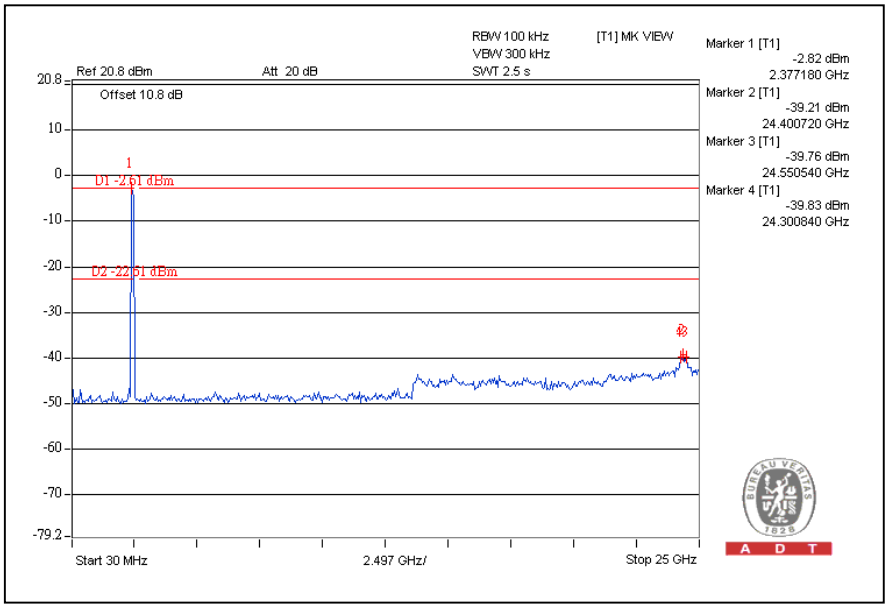
CH3



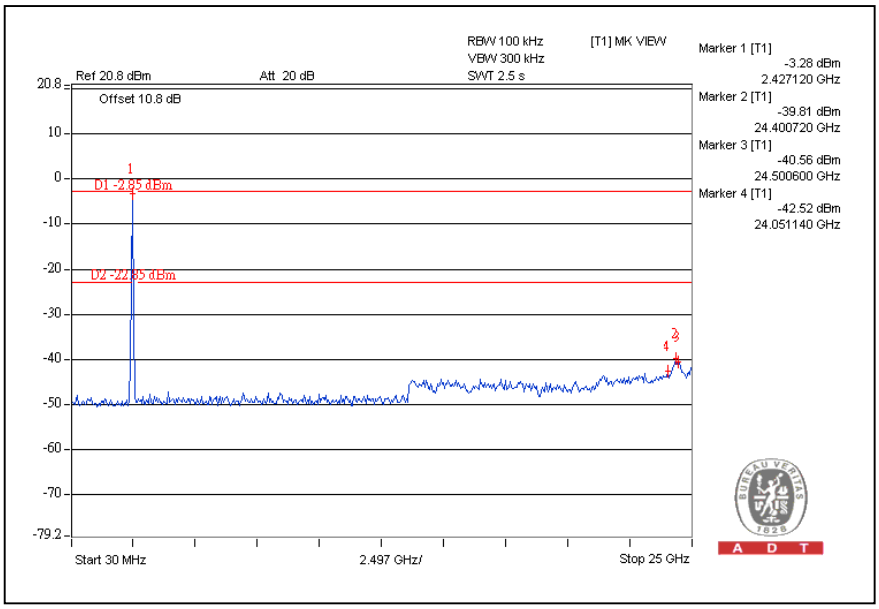
CH9



CH3


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Marker 1 [T1]
-2.82 dBm
2.377180 GHz
Marker 2 [T1]
-39.21 dBm
24.400720 GHz
Marker 3 [T1]
-39.76 dBm
24.550540 GHz
Marker 4 [T1]
-39.83 dBm
24.300840 GHz
Ref 20.8 dBm
Att 20 dB
Offset 10.8 dB
D1 -2.61 dBm
D2 -22.61 dBm
20.8
10
0
-10
-20
-30
-40
-50
-60
-70
-79.2
Start 30 MHz
2.497 GHz/
Stop 25 GHz

CH9


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Marker 1 [T1]
-3.28 dBm
2.427120 GHz
Marker 2 [T1]
-39.81 dBm
24.400720 GHz
Marker 3 [T1]
-40.56 dBm
24.500600 GHz
Marker 4 [T1]
-42.52 dBm
24.051140 GHz
Ref 20.8 dBm
Att 20 dB
Offset 10.8 dB
D1 -2.85 dBm
D2 -22.85 dBm
20.8
10
0
-10
-20
-30
-40
-50
-60
-70
-79.2
Start 30 MHz
2.497 GHz/
Stop 25 GHz

5. TEST TYPES AND RESULTS (802.11a, 5725~5850MHz Band)

5.1 CONDUCTED EMISSION MEASUREMENT

5.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15-0.5 0.5-5 5-30	66 to 56 56 60	56 to 46 46 50

NOTE: 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

5.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	Mar. 02, 2011	Mar. 01, 2012
Line-Impedance Stabilization Network (for EUT)	NSLK 8127	8127-523	Sep. 17, 2010	Sep. 16, 2011
Line-Impedance Stabilization Network (for Peripheral)	ENV-216	100072	June 11, 2010	June 10, 2011
RF Cable (JYEBAO)	5DFB	CONCAB-003	Aug. 06, 2010	Aug. 05, 2011
50 ohms Terminator	50	3	Nov. 03, 2010	Nov. 02, 2011
Software	BV ADT_Cond_V7.3.7	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 Shielded Room No. A.
3 The VCCI Con A Registration No. is C-817.

5.1.3 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.

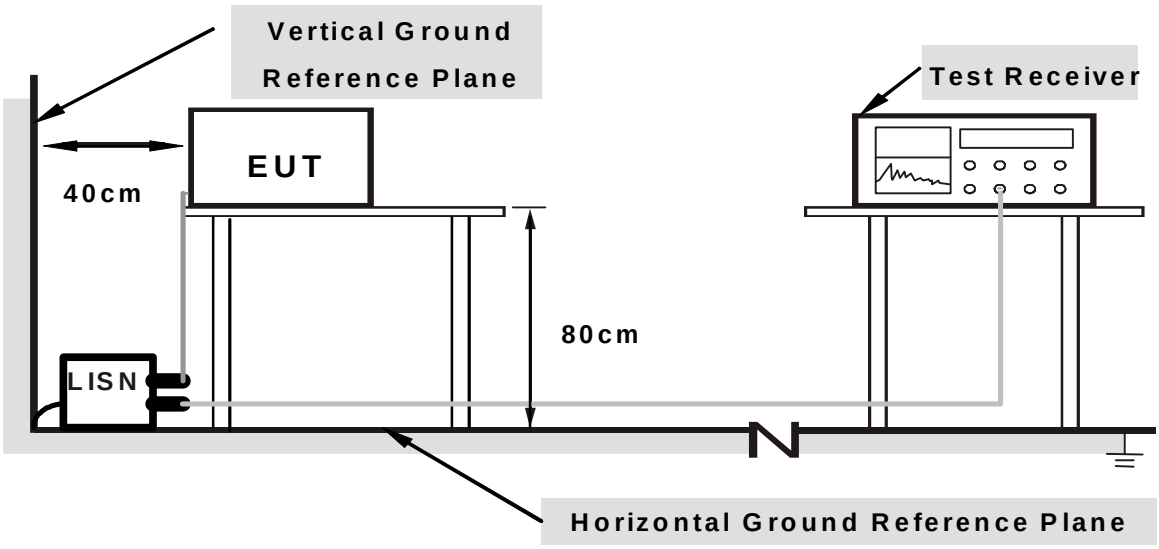
b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

5.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

5.1.6 EUT OPERATING CONDITIONS

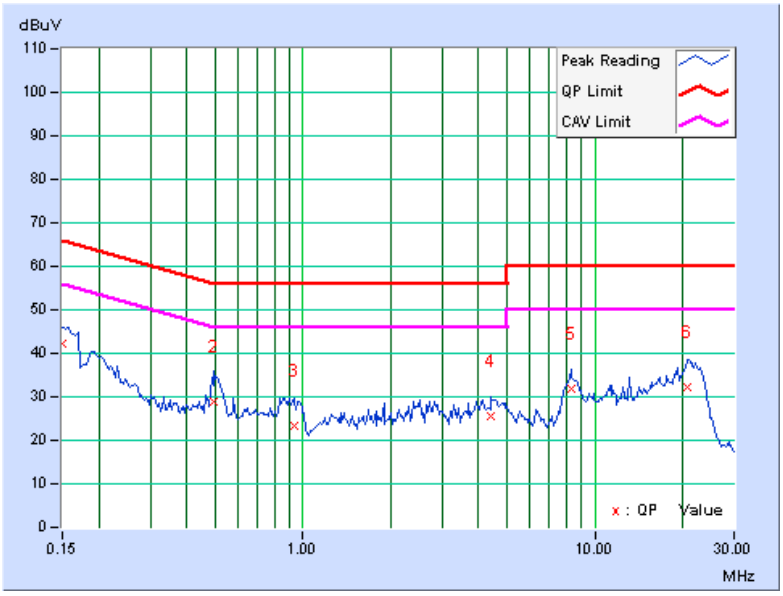
Same as the 4.1.6

5.1.7 TEST RESULTS (With adapter 1)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.37	41.91	30.86	42.28	31.23	66.00	56.00	-23.72	-24.77
2	0.498	0.37	28.60	19.24	28.97	19.61	56.04	46.04	-27.07	-26.43
3	0.931	0.40	23.02	15.83	23.42	16.23	56.00	46.00	-32.58	-29.77
4	4.430	0.52	24.89	20.16	25.41	20.68	56.00	46.00	-30.59	-25.32
5	8.266	0.64	31.06	25.58	31.70	26.22	60.00	50.00	-28.30	-23.78
6	20.809	1.08	31.31	26.42	32.39	27.50	60.00	50.00	-27.61	-22.50

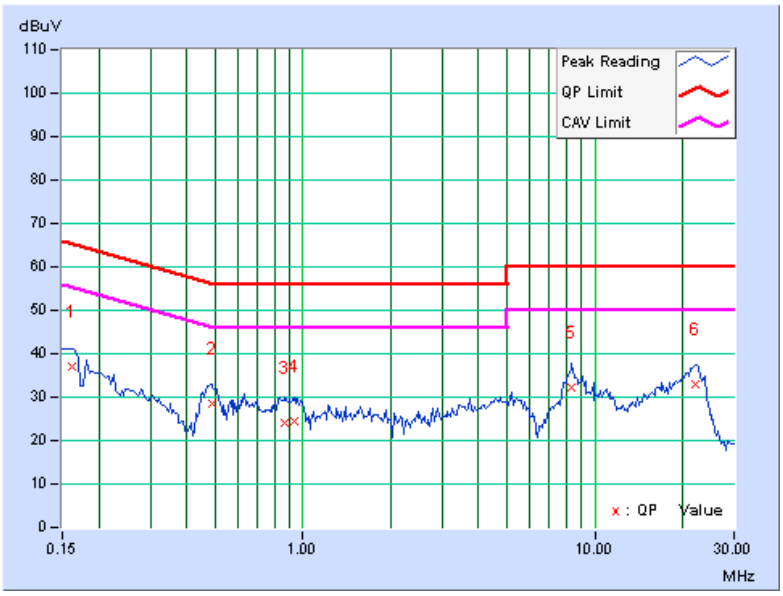
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.162	0.10	36.76	26.03	36.86	26.13	65.38	55.38	-28.52	-29.25
2	0.486	0.12	28.48	23.35	28.60	23.47	56.24	46.24	-27.64	-22.77
3	0.865	0.15	23.76	17.65	23.91	17.80	56.00	46.00	-32.09	-28.20
4	0.931	0.15	24.11	18.05	24.26	18.20	56.00	46.00	-31.74	-27.80
5	8.336	0.41	31.72	25.82	32.13	26.23	60.00	50.00	-27.87	-23.77
6	22.020	1.30	31.65	26.54	32.95	27.84	60.00	50.00	-27.05	-22.16

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.

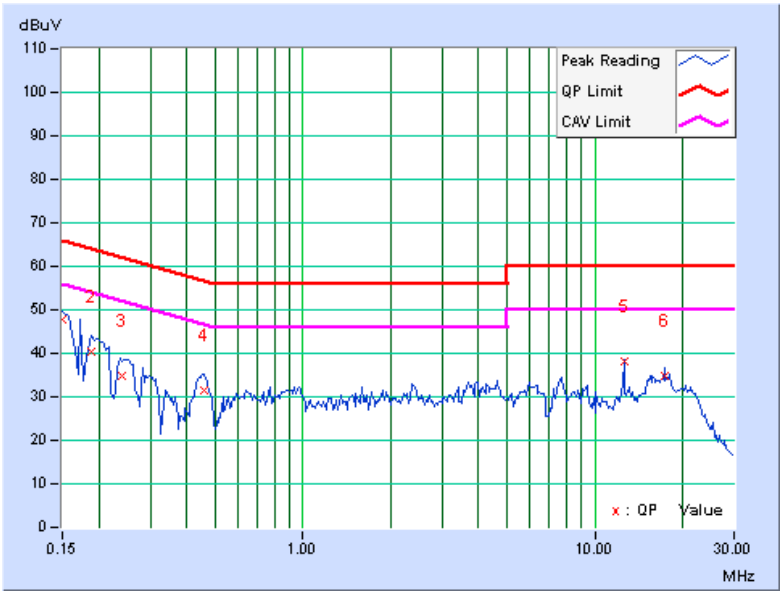


5.1.8 TEST RESULTS (With adapter 2)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.37	47.51	37.68	47.88	38.05	66.00	56.00	-18.12	-17.95
2	0.189	0.36	40.03	28.84	40.39	29.20	64.08	54.08	-23.69	-24.88
3	0.239	0.36	34.30	24.36	34.66	24.72	62.12	52.12	-27.46	-27.40
4	0.459	0.36	31.00	21.58	31.36	21.94	56.72	46.72	-25.35	-24.77
5	12.629	0.85	37.42	34.51	38.27	35.36	60.00	50.00	-21.73	-14.64
6	17.410	1.02	33.81	30.26	34.83	31.28	60.00	50.00	-25.17	-18.72

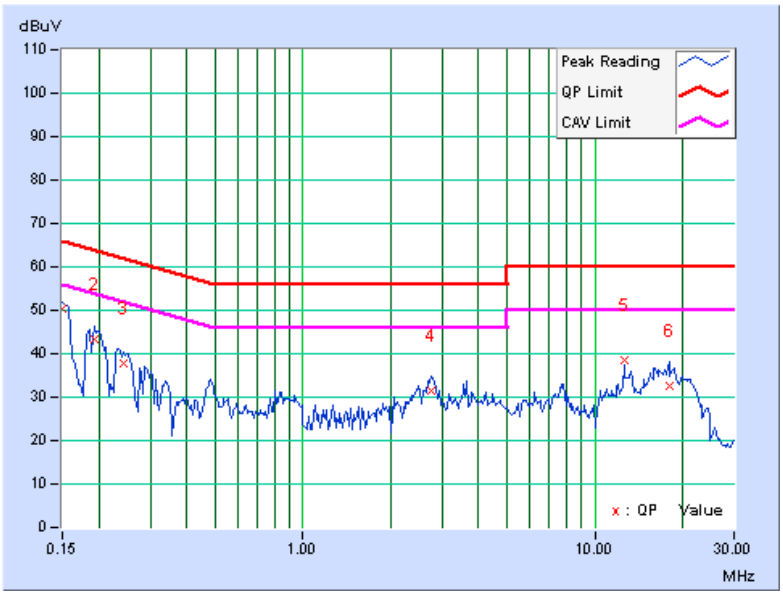
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.10	50.28	38.53	50.38	38.63	66.00	56.00	-15.62	-17.37
2	0.193	0.10	43.07	31.03	43.17	31.13	63.91	53.91	-20.74	-22.78
3	0.243	0.10	37.52	26.66	37.62	26.76	62.00	52.00	-24.37	-25.23
4	2.770	0.22	31.13	23.62	31.35	23.84	56.00	46.00	-24.65	-22.16
5	**12.629**	**0.72**	**37.64**	**34.67**	**38.36**	**35.39**	**60.00**	**50.00**	**-21.64**	**-14.61**
6	18.102	1.06	31.65	26.66	32.71	27.72	60.00	50.00	-27.29	-22.28

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



5.2 RADIATED EMISSION MEASUREMENT

5.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

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. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.
4. Section 15.205 restricted bands of operation shall compliance with the limits in Section 15.209.

5.2.2 TEST INSTRUMENTS

Test date: Mar. 30 to Apr. 14, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250254	July 14, 2010	July 13, 2011
Agilent Pre-Selector	N9039A	MY46520311	July 14, 2010	July 13, 2011
Agilent Signal Generator	N5181A	MY49060517	July 14, 2010	July 13, 2011
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-03	Nov. 16, 2010	Nov. 15, 2011
Agilent Pre-Amplifier	8449B	3008A02578	July 05, 2010	July 04, 2011
Miteq Pre-Amplifier	AFS33-18002650-30-8P-44	881786	NA	NA
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-360	Apr. 29, 2010	Apr. 28, 2011
AISI Horn_Antenna	AIH.8018	0000320091110	Nov. 12, 2010	Nov. 11, 2011
SCHWARZBECK Horn_Antenna	BBHA 9170	9170-424	Oct. 08, 2010	Oct. 07, 2011
RF CABLE	NA	RF104-201 RF104-203 RF104-204	Dec. 27, 2010	Dec. 26, 2011
RF Cable	NA	CHGCAB_001	NA	NA
Software	ADT_Radiated_V8.7.05	NA	NA	NA
CT Antenna Tower & Turn Table	NA	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 horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in 966 Chamber No. G.
4. The FCC Site Registration No. is 966073.
5. The VCCI Site Registration No. is G-137.
6. The CANADA Site Registration No. is IC 7450H-2.

5.2.3 TEST PROCEDURES

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

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

c. 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.

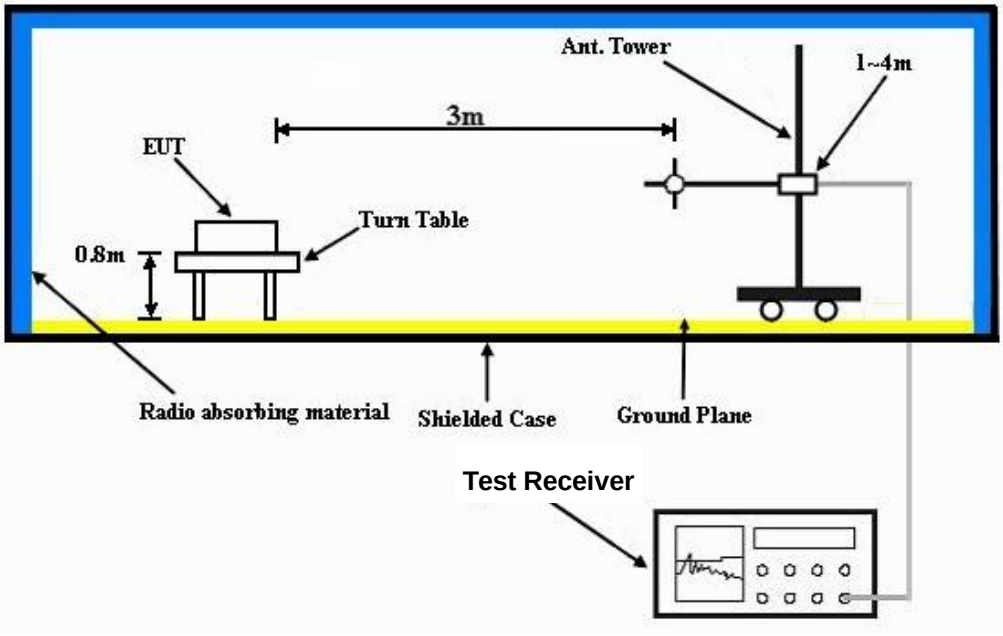
NOTE:

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 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.

5.2.4 DEVIATION FROM TEST STANDARD

No deviation

5.2.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

5.2.6 EUT OPERATING CONDITIONS

Same as the 4.1.6

5.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA：802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	**FREQUENCY RANGE**	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	**DETECTOR FUNCTION**	Quasi-Peak
ENVIRONMENTAL CONDITIONS	18deg. C, 60%RH 1022 hPa	**TESTED BY**	Kent Liu

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	250.01	33.2 QP	46.0	-12.8	1.22 H	84	19.82	13.42
2	500.01	33.1 QP	46.0	-12.9	1.25 H	254	13.04	20.10
3	574.99	34.5 QP	46.0	-11.5	1.49 H	322	12.69	21.81
4	625.00	38.6 QP	46.0	-7.4	2.04 H	318	15.92	22.71
5	750.00	33.6 QP	46.0	-12.4	1.00 H	176	9.25	24.32
6	875.02	33.8 QP	46.0	-12.2	1.00 H	315	7.46	26.37
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	**42.95**	**34.0 QP**	**40.0**	**-6.0**	**1.00 V**	**24**	**19.74**	**14.22**
2	250.01	30.2 QP	46.0	-15.8	1.00 V	261	16.82	13.42
3	374.99	26.9 QP	46.0	-19.1	1.74 V	301	9.82	17.12
4	500.01	32.4 QP	46.0	-13.6	1.04 V	4	12.28	20.10
5	574.96	32.1 QP	46.0	-13.9	1.04 V	274	10.26	21.81
6	625.03	33.2 QP	46.0	-12.9	1.00 V	334	10.43	22.72
7	874.99	35.1 QP	46.0	-10.9	1.27 V	44	8.72	26.37

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.

ABOVE 1GHz WORST-CASE DATA

802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 66%RH 1022 hPa	TESTED BY	Frank Liu

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	*5745.00	109.3 PK			1.03 H	27	67.75	41.55
2	*5745.00	99.3 AV			1.03 H	27	57.75	41.55
3	11490.00	54.8 PK	74.0	-19.2	1.32 H	27	7.09	47.71
4	11490.00	44.5 AV	54.0	-9.5	1.32 H	27	-3.21	47.71
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	*5745.00	112.4 PK			1.41 V	284	70.85	41.55
2	*5745.00	103.2 AV			1.41 V	284	61.65	41.55
3	11490.00	55.4 PK	74.0	-18.6	1.56 V	142	7.69	47.71
4	11490.00	45.5 AV	54.0	-8.5	1.56 V	142	-2.21	47.71

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 66%RH 1022 hPa	TESTED BY	Frank Liu

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	109.8 PK			1.06 H	24	68.12	41.68
2	*5785.00	99.4 AV			1.06 H	24	57.72	41.68
3	11570.00	54.7 PK	74.0	-19.3	1.37 H	32	6.95	47.75
4	11570.00	44.6 AV	54.0	-9.4	1.37 H	32	-3.15	47.75
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	112.9 PK			1.44 V	287	71.22	41.68
2	*5785.00	103.6 AV			1.44 V	287	61.92	41.68
3	11570.00	56.7 PK	74.0	-17.3	1.54 V	127	8.95	47.75
4	11570.00	45.8 AV	54.0	-8.2	1.54 V	127	-1.95	47.75

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 66%RH 1022 hPa	TESTED BY	Frank Liu

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	109.3 PK			1.07 H	32	67.52	41.78
2	*5825.00	99.7 AV			1.07 H	32	57.92	41.78
3	11650.00	54.3 PK	74.0	-19.7	1.32 H	46	6.47	47.83
4	11650.00	44.4 AV	54.0	-9.6	1.32 H	46	-3.43	47.83
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	112.7 PK			1.43 V	293	70.92	41.78
2	*5825.00	103.7 AV			1.43 V	293	61.92	41.78
3	11650.00	56.9 PK	74.0	-17.1	1.49 V	134	9.07	47.83
4	11650.00	45.9 AV	54.0	-8.1	1.49 V	134	-1.93	47.83

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.

802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 149	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 66%RH 1022 hPa	TESTED BY	Frank Liu

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	*5745.00	110.3 PK			1.21 H	54	68.75	41.55
2	*5745.00	100.1 AV			1.21 H	54	58.55	41.55
3	11490.00	56.3 PK	74.0	-17.7	1.00 H	27	8.59	47.71
4	11490.00	45.2 AV	54.0	-8.8	1.00 H	27	-2.51	47.71
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	*5745.00	112.2 PK			1.43 V	274	70.65	41.55
2	*5745.00	102.1 AV			1.43 V	274	60.55	41.55
3	11490.00	56.0 PK	74.0	-18.0	1.46 V	102	8.29	47.71
4	11490.00	47.3 AV	54.0	-6.7	1.46 V	102	-0.41	47.71

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 157	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 66%RH 1022 hPa	TESTED BY	Frank Liu

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	110.3 PK			1.24 H	59	68.62	41.68
2	*5785.00	100.2 AV			1.24 H	59	58.52	41.68
3	11570.00	56.4 PK	74.0	-17.6	1.00 H	46	8.65	47.75
4	11570.00	46.7 AV	54.0	-7.3	1.00 H	46	-1.05	47.75
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	112.3 PK			1.47 V	279	70.62	41.68
2	*5785.00	102.4 AV			1.47 V	279	60.72	41.68
3	11570.00	57.4 PK	74.0	-16.6	1.39 V	104	9.65	47.75
4	11570.00	47.6 AV	54.0	-6.4	1.39 V	104	-0.15	47.75

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 165	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 66%RH 1022 hPa	TESTED BY	Frank Liu

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	110.4 PK			1.27 H	63	68.62	41.78
2	*5825.00	100.3 AV			1.27 H	63	58.52	41.78
3	11650.00	56.7 PK	74.0	-17.3	1.00 H	34	8.87	47.83
4	11650.00	46.3 AV	54.0	-7.7	1.00 H	34	-1.53	47.83
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	112.4 PK			1.46 V	284	70.62	41.78
2	*5825.00	102.6 AV			1.46 V	284	60.82	41.78
3	11650.00	57.0 PK	74.0	-17.0	1.35 V	108	9.17	47.83
4	11650.00	47.4 AV	54.0	-6.6	1.35 V	108	-0.43	47.83

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.

802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 151	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 66%RH 1022 hPa	TESTED BY	Frank Liu

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	*5755.00	109.3 PK			1.24 H	63	67.71	41.59
2	*5755.00	99.3 AV			1.24 H	63	57.71	41.59
3	11510.00	56.9 PK	74.0	-17.1	1.00 H	44	9.18	47.72
4	11510.00	46.7 AV	54.0	-7.3	1.00 H	44	-1.02	47.72
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	*5755.00	110.2 PK			1.34 V	109	68.61	41.59
2	*5755.00	100.1 AV			1.34 V	109	58.51	41.59
3	11510.00	57.4 PK	74.0	-16.6	1.24 V	108	9.68	47.72
4	11510.00	47.3 AV	54.0	-6.7	1.24 V	108	-0.42	47.72

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 159	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 66%RH 1022 hPa	TESTED BY	Frank Liu

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	109.4 PK			1.26 H	54	67.70	41.70
2	*5795.00	99.7 AV			1.26 H	54	58.00	41.70
3	11590.00	56.9 PK	74.0	-17.1	1.00 H	37	9.14	47.76
4	11590.00	46.4 AV	54.0	-7.6	1.00 H	37	-1.36	47.76
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	110.3 PK			1.39 V	104	68.60	41.70
2	*5795.00	100.4 AV			1.39 V	104	58.70	41.70
3	11590.00	57.2 PK	74.0	-16.8	1.29 V	109	9.44	47.76
4	11590.00	47.1 AV	54.0	-6.9	1.29 V	109	-0.66	47.76

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.

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 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	FSP 40	100060	May 17, 2010	May 16, 2011

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

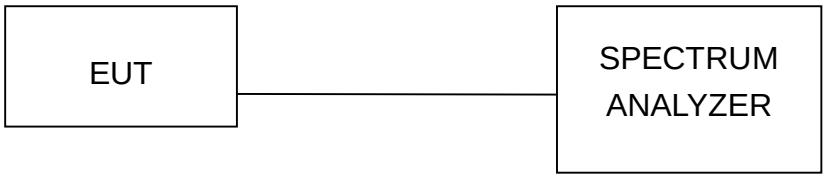
5.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

5.3.4 DEVIATION FROM TEST STANDARD

No deviation

5.3.5 TEST SETUP



5.3.6 EUT OPERATING CONDITIONS

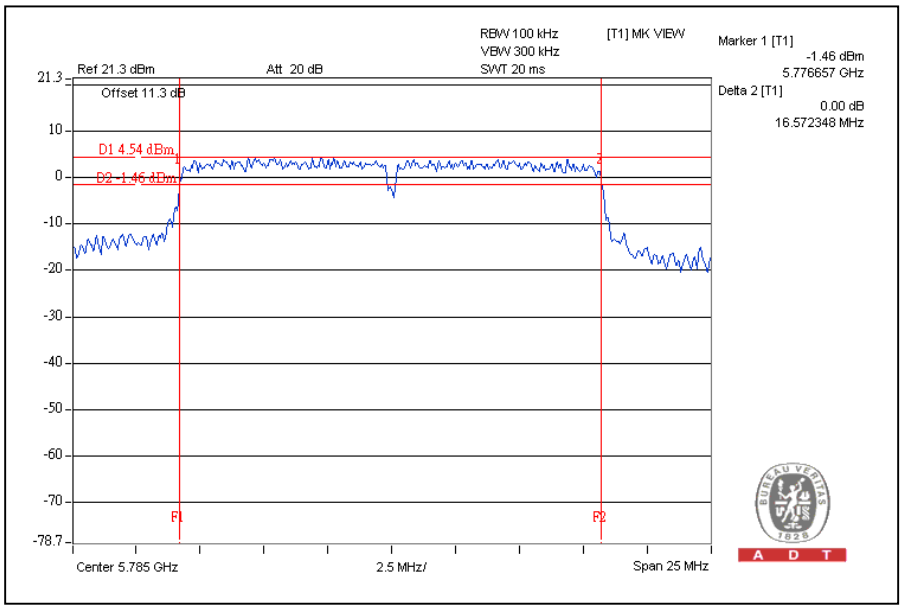
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

5.3.7 TEST RESULTS

802.11a OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	16.54	0.5	PASS
157	5785	16.57	0.5	PASS
165	5825	16.56	0.5	PASS

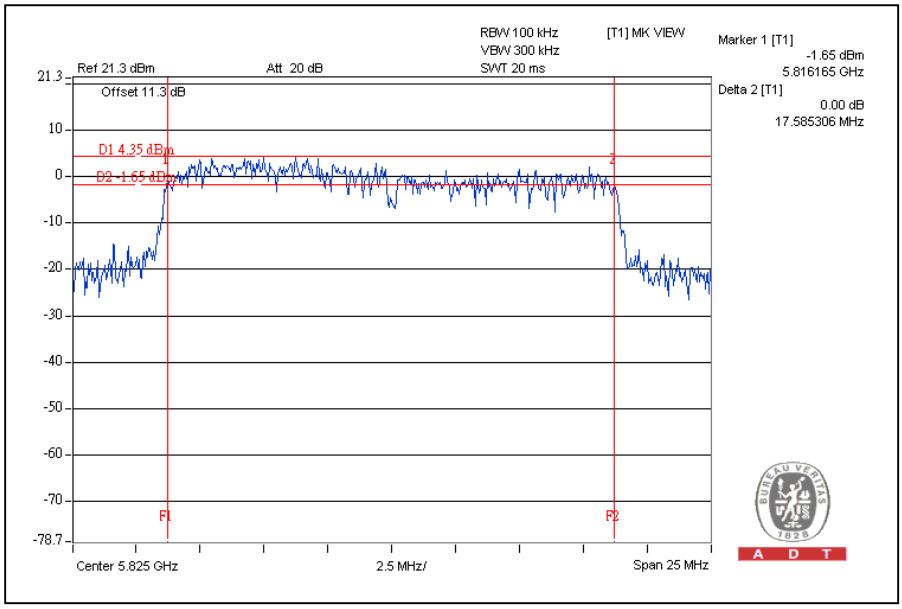
CH157



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
149	5745	16.99	0.5	PASS
157	5785	17.33	0.5	PASS
165	5825	17.58	0.5	PASS

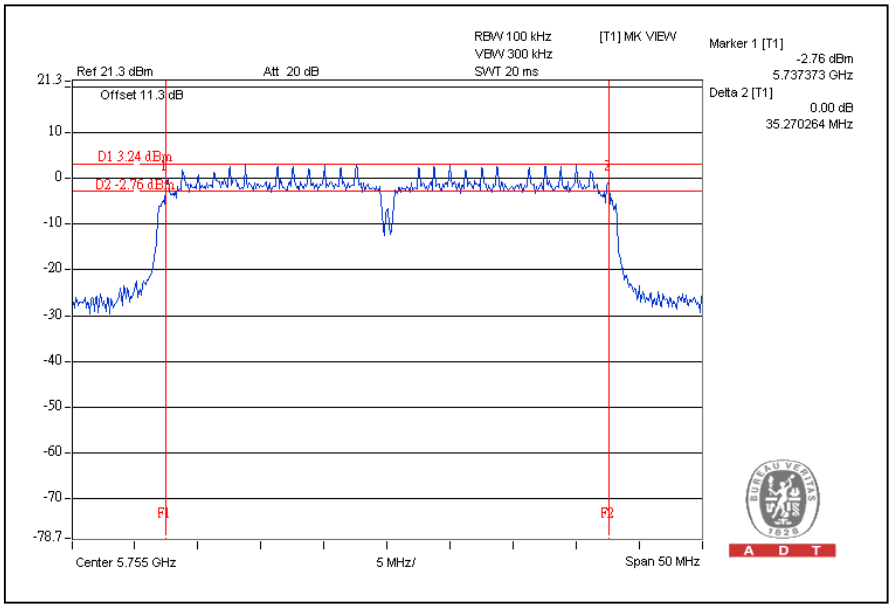
CH165



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
151	5755	35.27	0.5	PASS
159	5795	35.26	0.5	PASS

CH151



5.4 MAXIMUM PEAK OUTPUT POWER

5.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

5.4.2 INSTRUMENTS

Test date: Apr. 14, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Peak Power Meter	ML2495A	0824006	May 04, 2010	May 03, 2011
Power Sensor	MA2411B	0738172	May 04, 2010	May 03, 2011

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

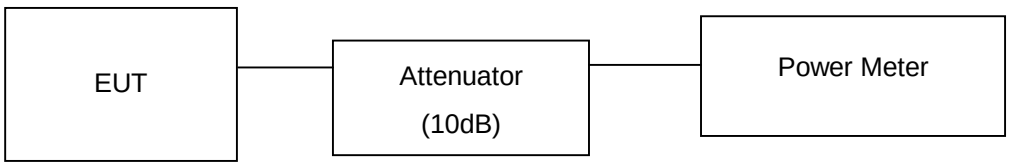
5.4.3 TEST PROCEDURES

1. The transmitter output was connected to the power meter through an attenuator; the bandwidth of the fundamental frequency was measured with the power meter.
2. Record the power level.

5.4.4 DEVIATION FROM TEST STANDARD

No deviation

5.4.5 TEST SETUP



5.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

5.4.7 TEST RESULTS

802.11a OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
149	5745	173.8	22.4	30	PASS
157	5785	162.2	22.1	30	PASS
165	5825	154.9	21.9	30	PASS

802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
149	5745	21.4	21.7	285.9	24.6	30	PASS
157	5785	21.4	21.6	282.6	24.5	30	PASS
165	5825	21.1	21.3	263.7	24.2	30	PASS

802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)				
151	5755	21.9	21.7	302.8	24.8	30	PASS
159	5795	22.0	22.1	320.7	25.1	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 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	FSP 40	100060	May 17, 2010	May 16, 2011

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

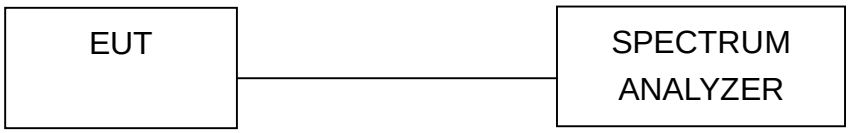
5.5.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3 kHz RBW and 30 kHz VBW, set sweep time = span/3 kHz. The power spectral density was measured and recorded.
The sweep time is allowed to be longer than span/3 kHz for a full response of the mixer in the spectrum analyzer.

5.5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5.5 TEST SETUP



5.5.6 EUT OPERATING CONDITION

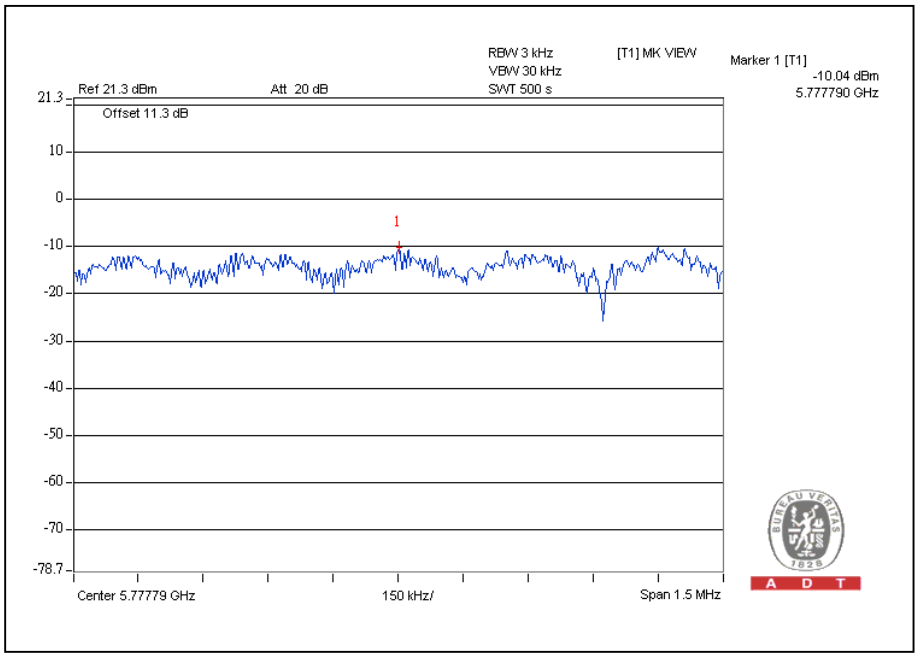
Same as Item 4.3.6

5.5.7 TEST RESULTS

802.11a OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
149	5745	-10.2	8	PASS
157	5785	-10.0	8	PASS
165	5825	-10.2	8	PASS

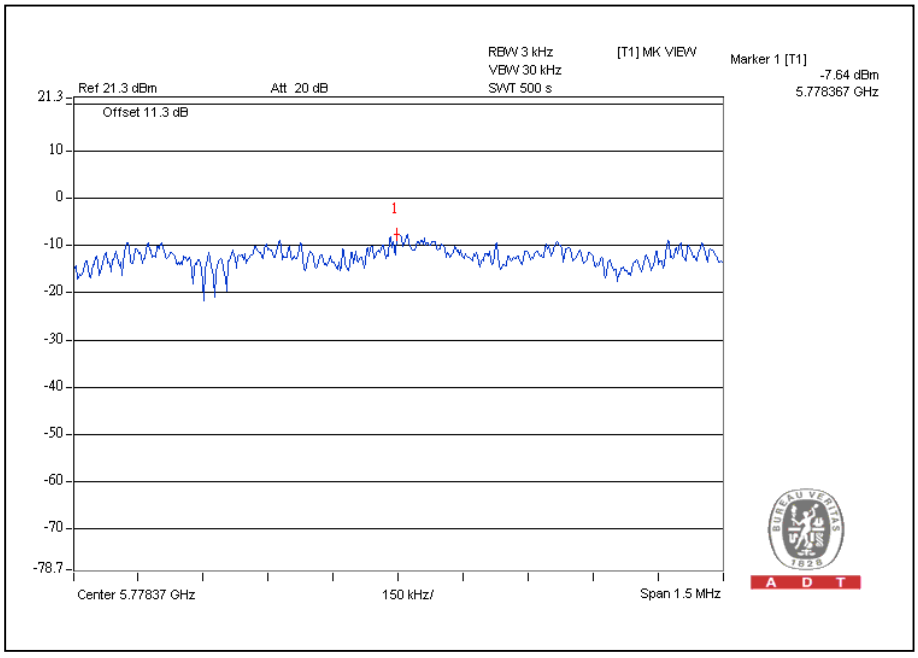
CH157



802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)			
149	5745	-8.4	-8.5	-5.4	8	PASS
157	5785	-7.6	-8.7	-5.1	8	PASS
165	5825	-8.4	-10.6	-6.4	8	PASS

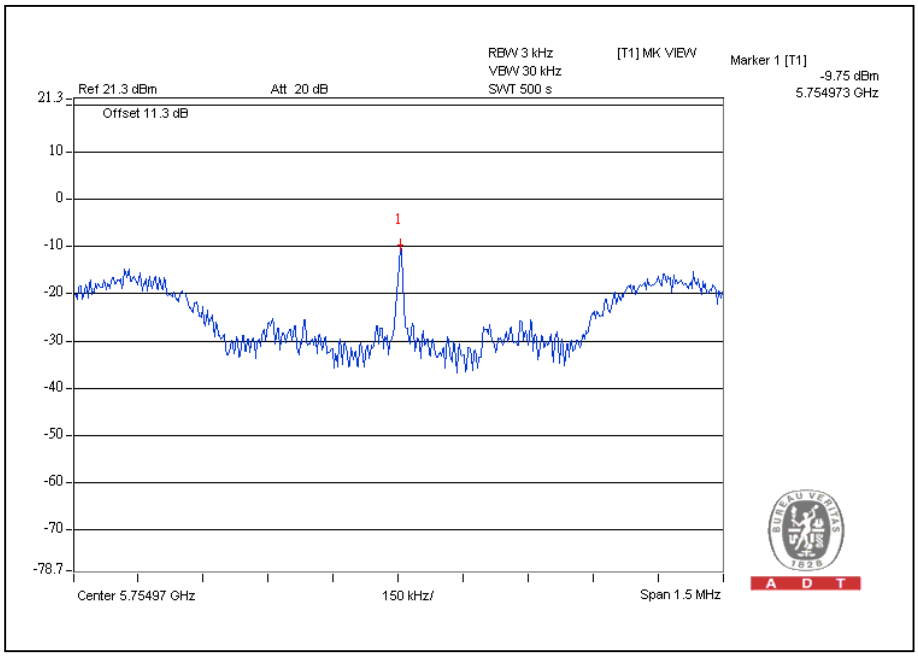
For Chain(0): CH157



802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)			
151	5755	-9.8	-13.0	-8.1	8	PASS
159	5795	-10.1	-12.8	-8.2	8	PASS

For Chain(0): CH151



5.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

5.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

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

5.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	FSP 40	100060	May 17, 2010	May 16, 2011

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

5.6.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set RBW of spectrum analyzer to 100kHz and VBW of spectrum analyzer to 300kHz with suitable frequency span including 100MHz or 200MHz bandwidth from band edge. The band edges was measured and recorded.

5.6.4 DEVIATION FROM TEST STANDARD

No deviation

5.6.5 EUT OPERATING CONDITION

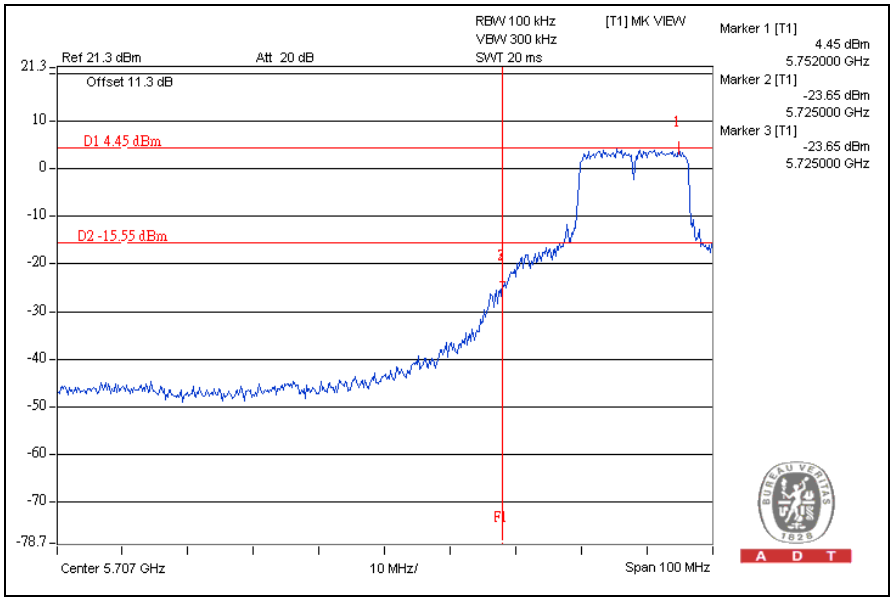
Same as Item 4.3.6

5.6.6 TEST RESULTS

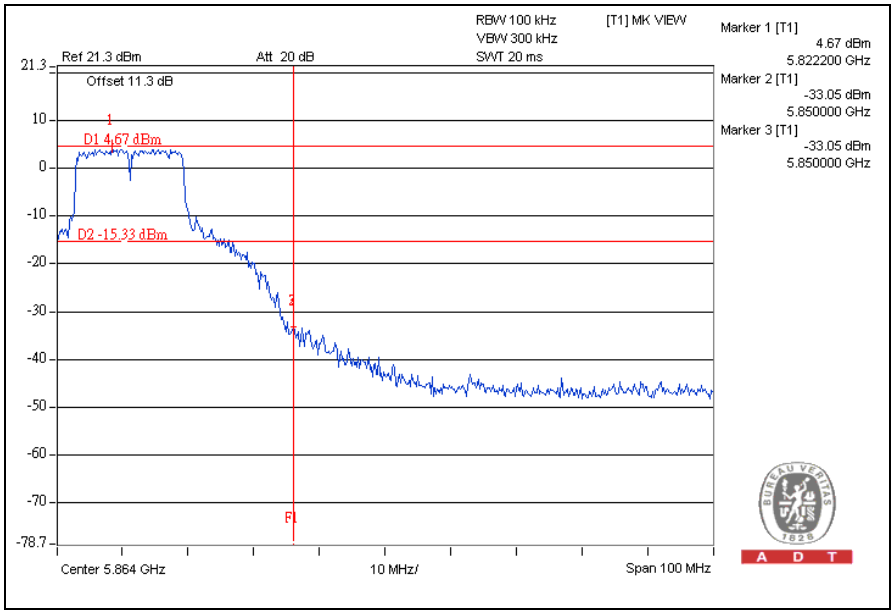
The spectrum plots are attached on the following pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(d).

802.11a OFDM modulation

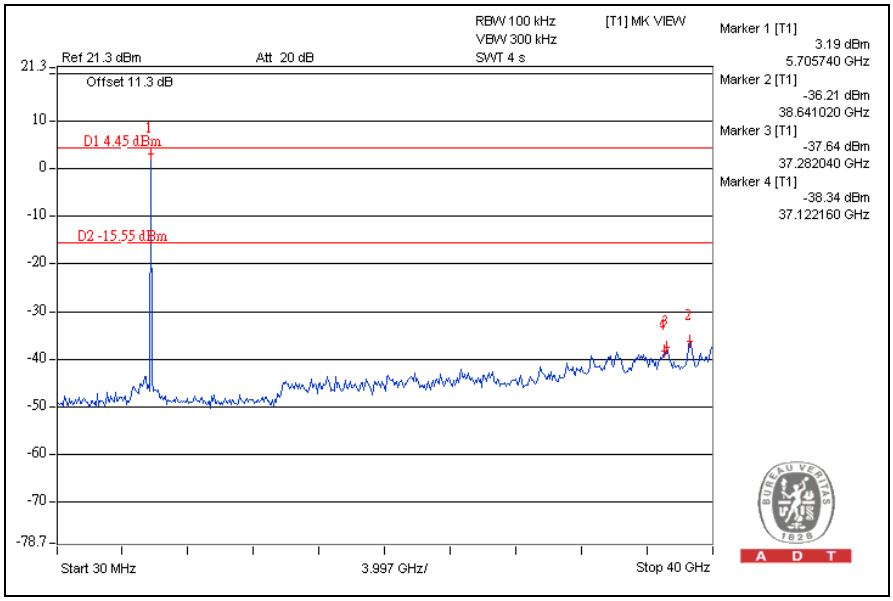
CH149



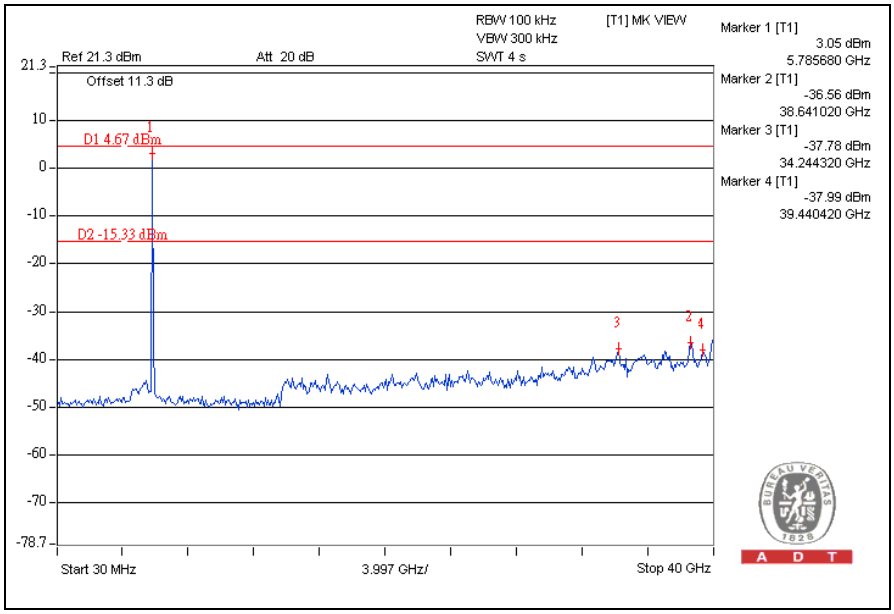
CH165



CH149


RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 21.3 dBm
Att 20 dB
Offset 11.3 dB
D1 4.45 dBm
D2 -15.55 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz
Marker 1 [T1]
3.19 dBm
5.705740 GHz
Marker 2 [T1]
-36.21 dBm
38.641020 GHz
Marker 3 [T1]
-37.64 dBm
37.282040 GHz
Marker 4 [T1]
-38.34 dBm
37.122160 GHz

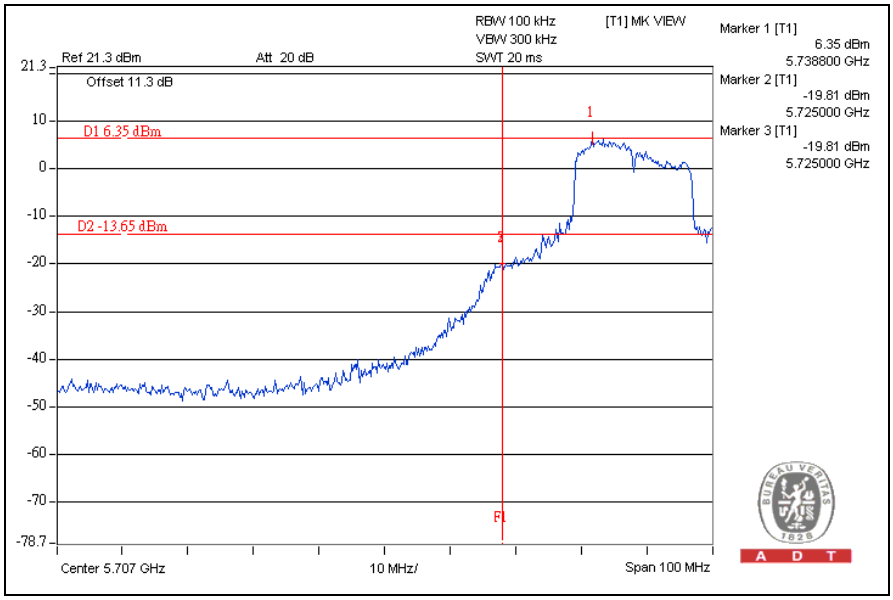
CH165


RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 21.3 dBm
Att 20 dB
Offset 11.3 dB
D1 4.67 dBm
D2 -15.33 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz
Marker 1 [T1]
3.05 dBm
5.785680 GHz
Marker 2 [T1]
-36.56 dBm
38.641020 GHz
Marker 3 [T1]
-37.78 dBm
34.244320 GHz
Marker 4 [T1]
-37.99 dBm
39.440420 GHz

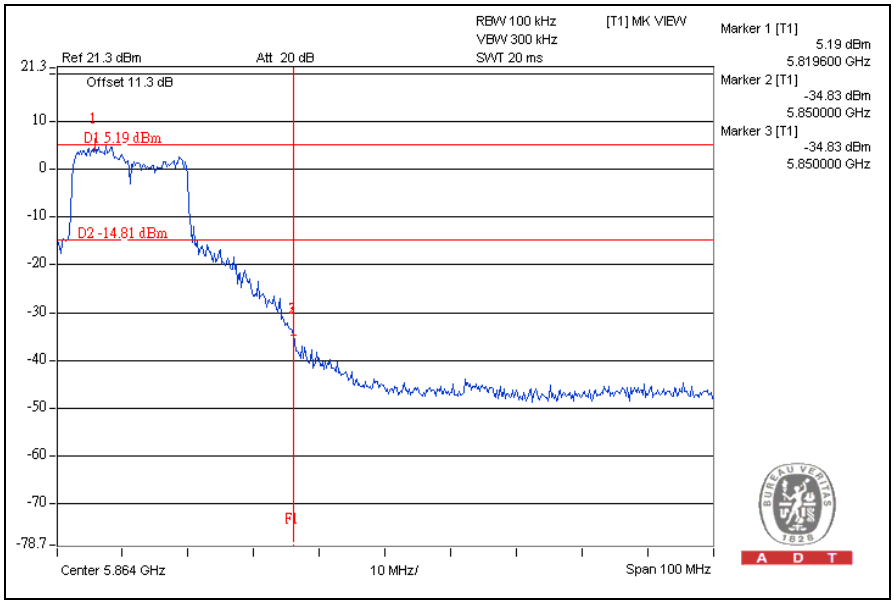
802.11n (20MHz) OFDM MODULATION:

For Chain (0)

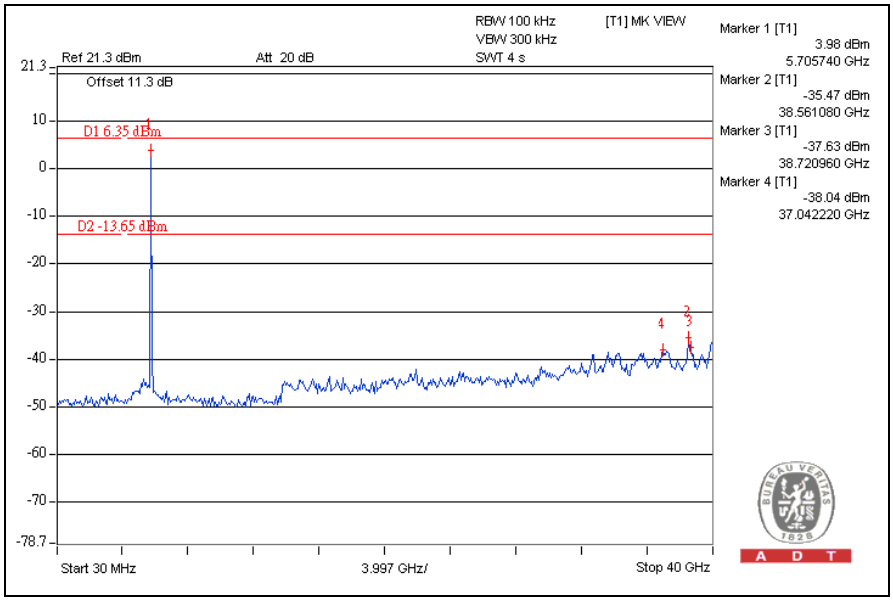
CH149



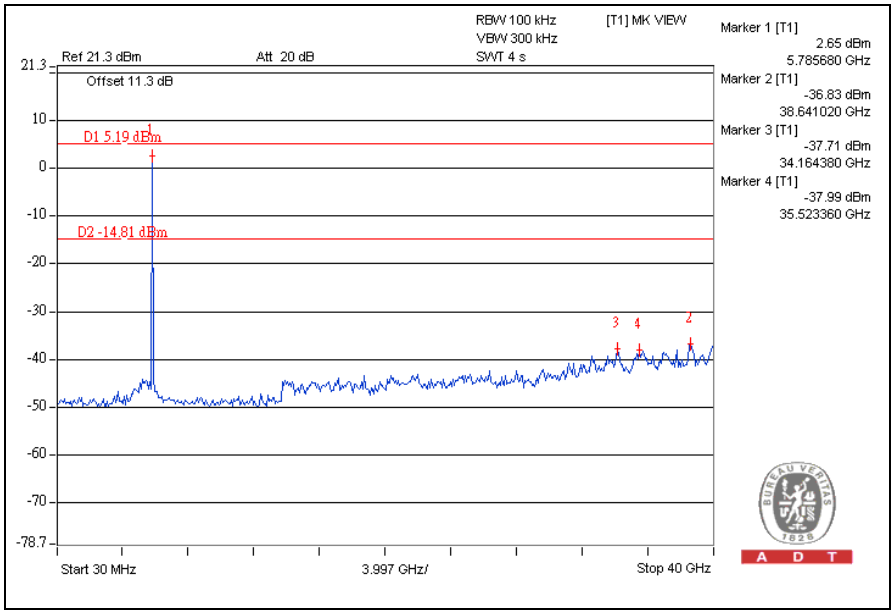
CH165



CH149

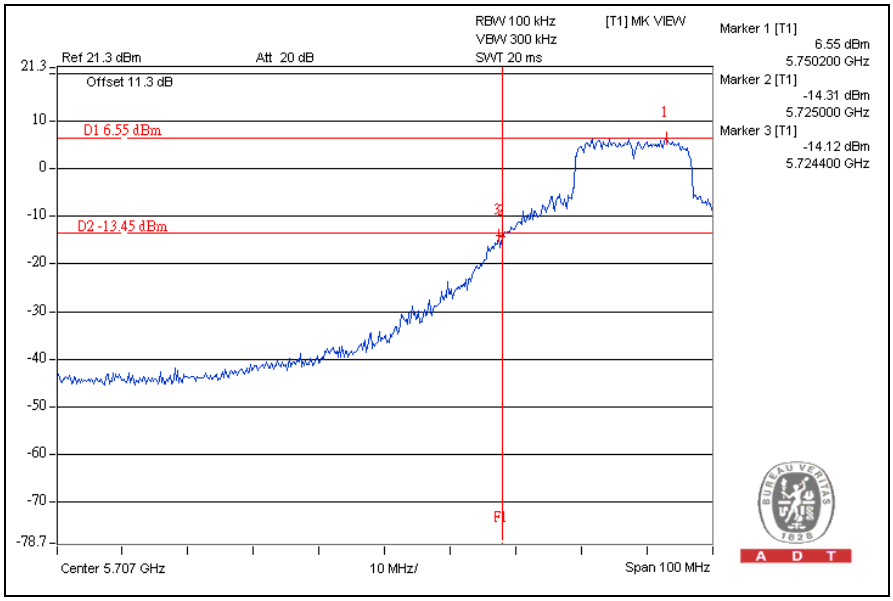

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 21.3 dBm
Att 20 dB
Offset 11.3 dB
D1 6.35 dBm
D2 -13.65 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz
Marker 1 [T1]
3.98 dBm
5.705740 GHz
Marker 2 [T1]
-35.47 dBm
38.561080 GHz
Marker 3 [T1]
-37.63 dBm
38.720960 GHz
Marker 4 [T1]
-38.04 dBm
37.042220 GHz

CH165

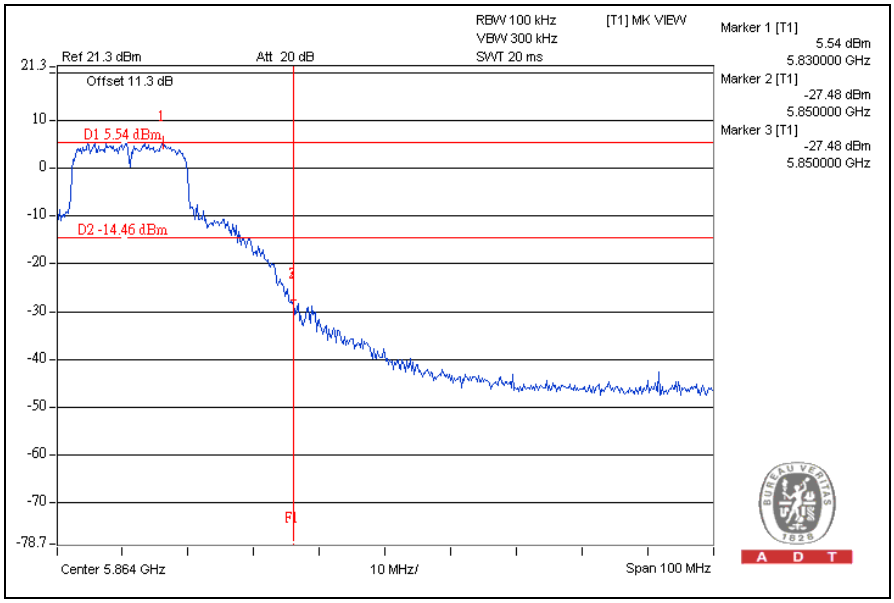

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 21.3 dBm
Att 20 dB
Offset 11.3 dB
D1 5.19 dBm
D2 -14.81 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz
Marker 1 [T1]
2.65 dBm
5.785680 GHz
Marker 2 [T1]
-36.83 dBm
38.641020 GHz
Marker 3 [T1]
-37.71 dBm
34.164380 GHz
Marker 4 [T1]
-37.99 dBm
35.523360 GHz

For Chain (1)

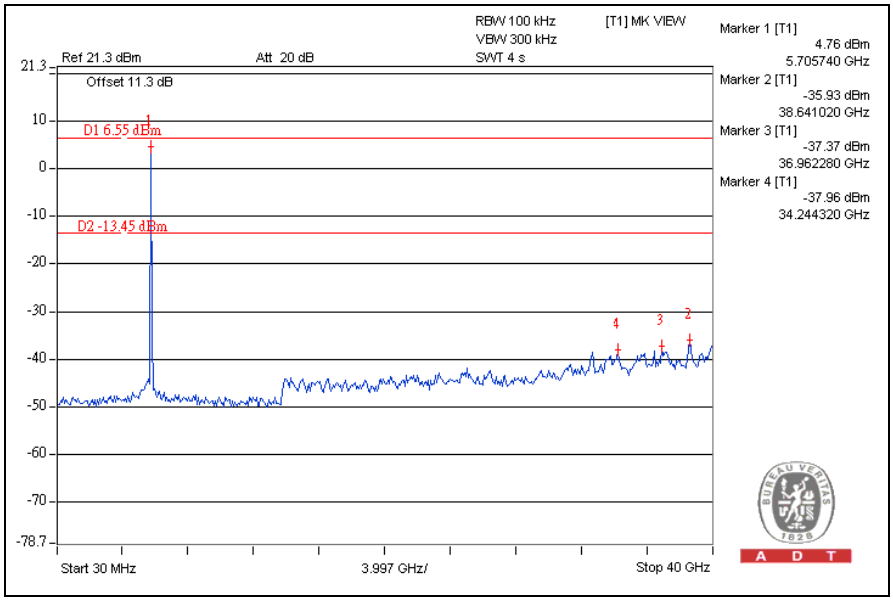
CH149



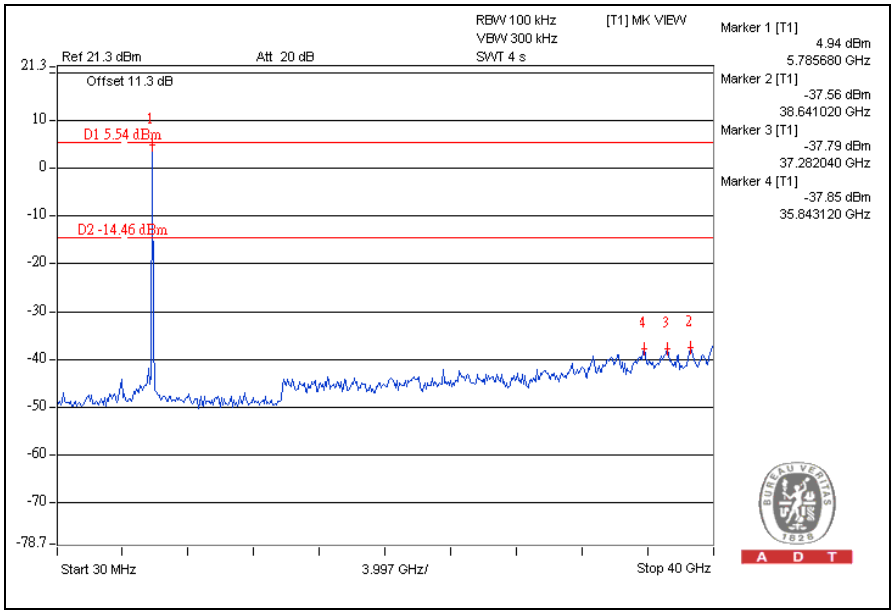
CH165



CH149


RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 21.3 dBm
Att 20 dB
Offset 11.3 dB
D1 6.55 dBm
D2 -13.45 dBm
Marker 1 [T1]
4.76 dBm
5.705740 GHz
Marker 2 [T1]
-35.93 dBm
38.641020 GHz
Marker 3 [T1]
-37.37 dBm
36.962280 GHz
Marker 4 [T1]
-37.96 dBm
34.244320 GHz
21.3
10
0
-10
-20
-30
-40
-50
-60
-70
-78.7
Start 30 MHz
3.997 GHz/
Stop 40 GHz

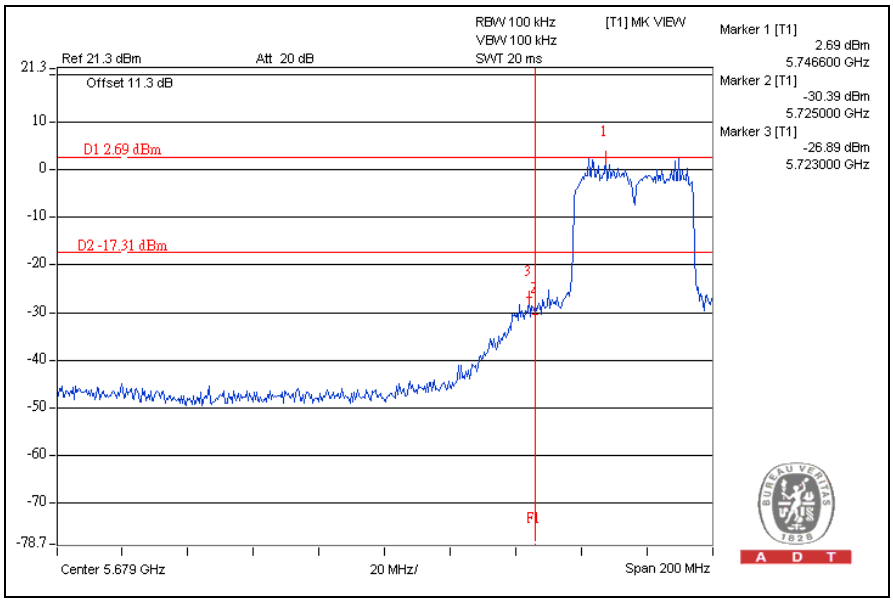
CH165


RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 21.3 dBm
Att 20 dB
Offset 11.3 dB
D1 5.54 dBm
D2 -14.46 dBm
Marker 1 [T1]
4.94 dBm
5.785680 GHz
Marker 2 [T1]
-37.56 dBm
38.641020 GHz
Marker 3 [T1]
-37.79 dBm
37.282040 GHz
Marker 4 [T1]
-37.85 dBm
35.843120 GHz
21.3
10
0
-10
-20
-30
-40
-50
-60
-70
-78.7
Start 30 MHz
3.997 GHz/
Stop 40 GHz

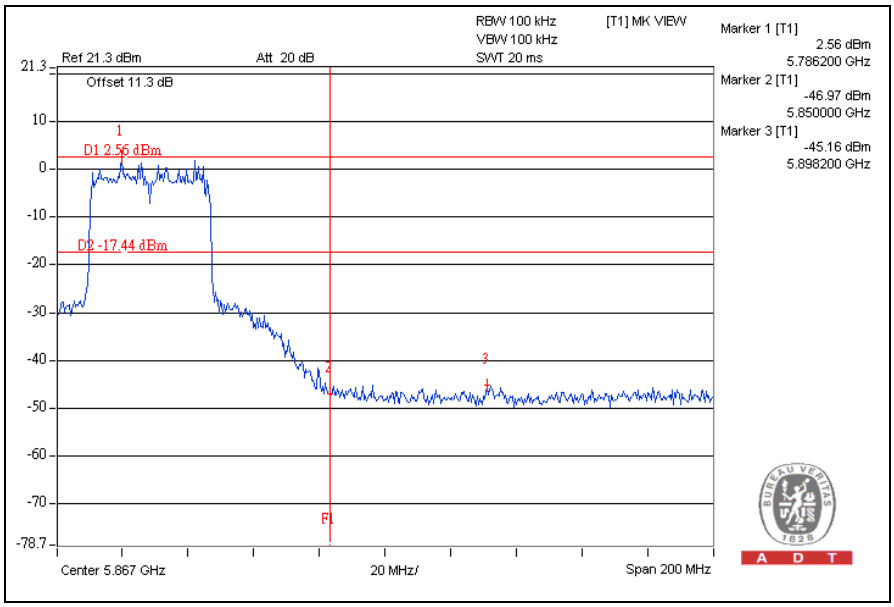
802.11n (40MHz) OFDM MODULATION:

For Chain (0)

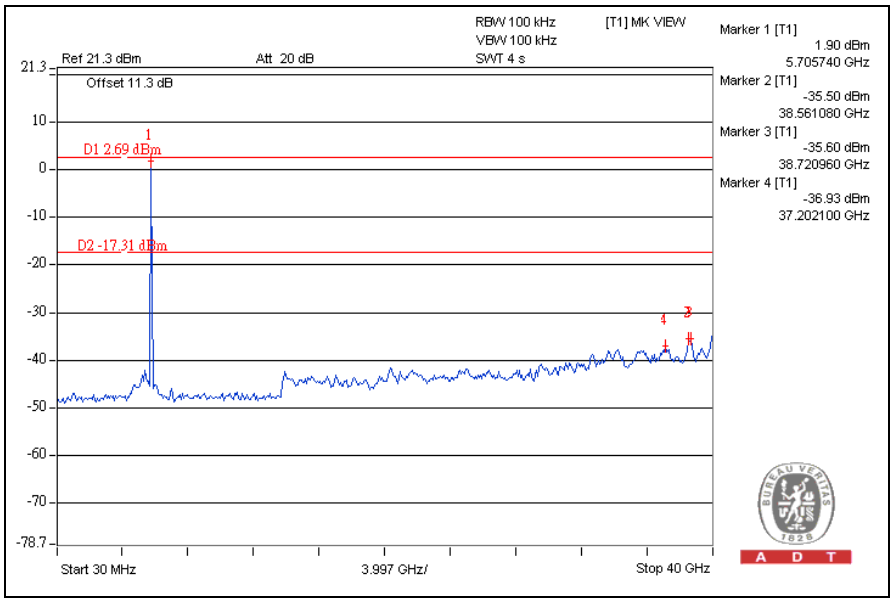
CH151



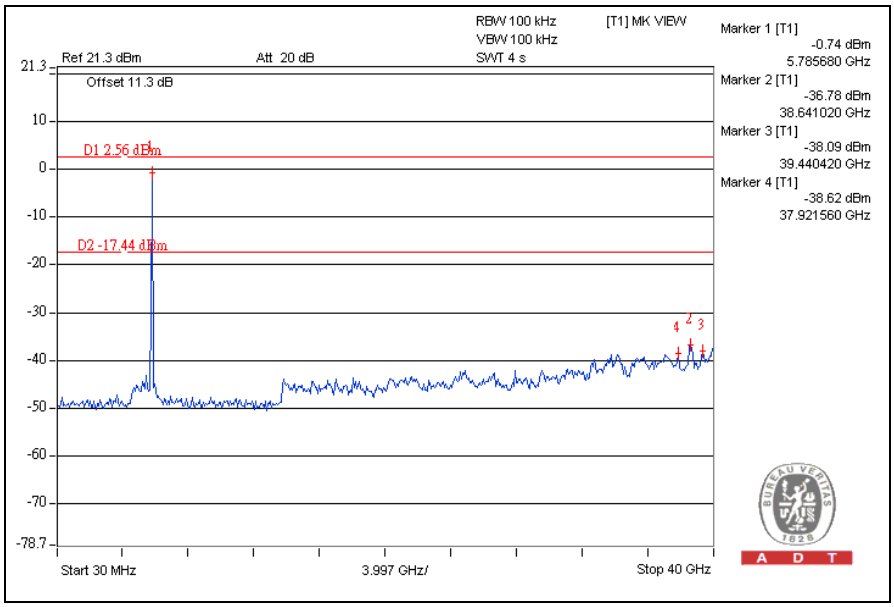
CH159



CH151

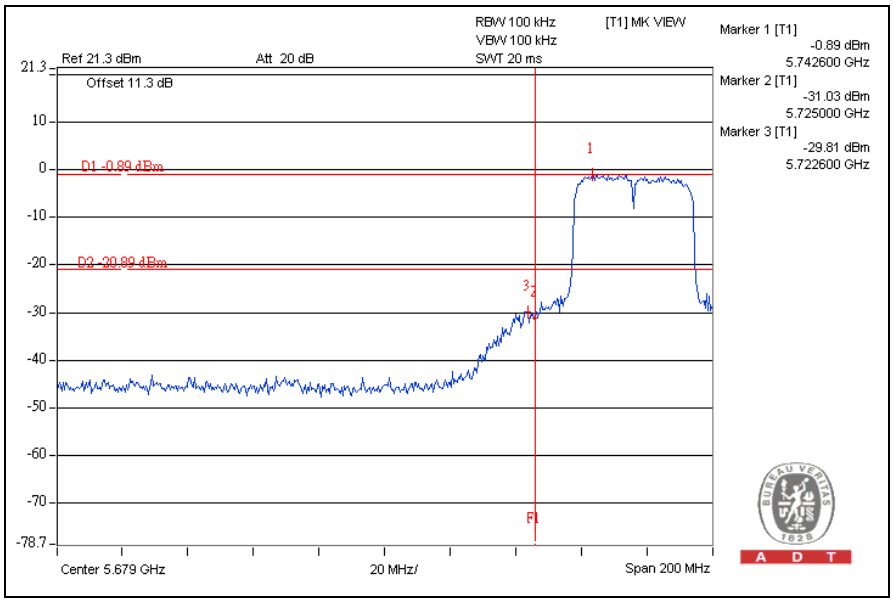

RBW 100 kHz
VBW 100 kHz
SWT 4 s
[T1] MK VIEW
Ref 21.3 dBm
Att 20 dB
Offset 11.3 dB
D1 2.69 dBm
D2 -17.31 dBm
Marker 1 [T1]
1.90 dBm
5.705740 GHz
Marker 2 [T1]
-35.50 dBm
38.561080 GHz
Marker 3 [T1]
-35.60 dBm
38.720960 GHz
Marker 4 [T1]
-36.93 dBm
37.202100 GHz
21.3
10
0
-10
-20
-30
-40
-50
-60
-70
-78.7
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH159

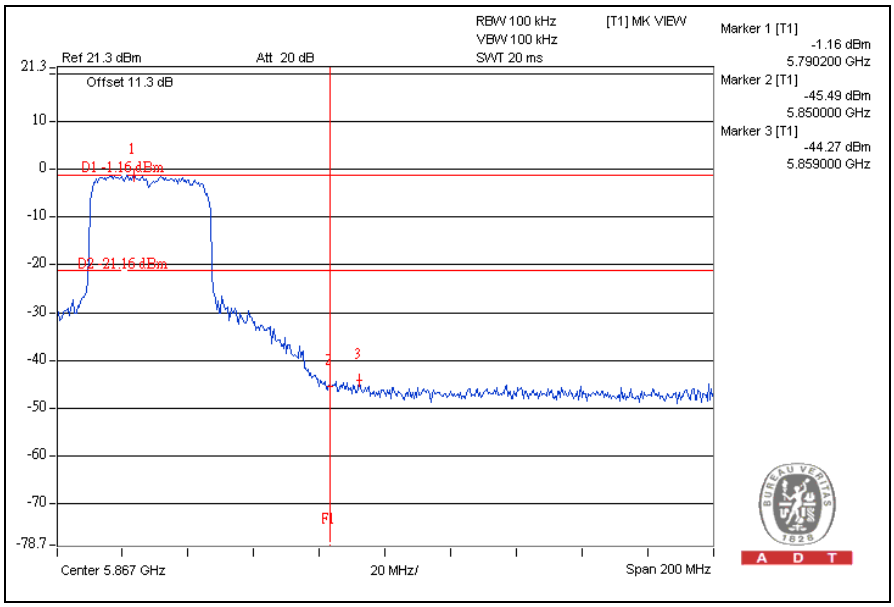

RBW 100 kHz
VBW 100 kHz
SWT 4 s
[T1] MK VIEW
Ref 21.3 dBm
Att 20 dB
Offset 11.3 dB
D1 2.56 dBm
D2 -17.44 dBm
Marker 1 [T1]
-0.74 dBm
5.785680 GHz
Marker 2 [T1]
-36.78 dBm
38.641020 GHz
Marker 3 [T1]
-38.09 dBm
39.440420 GHz
Marker 4 [T1]
-38.62 dBm
37.921560 GHz
21.3
10
0
-10
-20
-30
-40
-50
-60
-70
-78.7
Start 30 MHz
3.997 GHz/
Stop 40 GHz

For Chain (1)

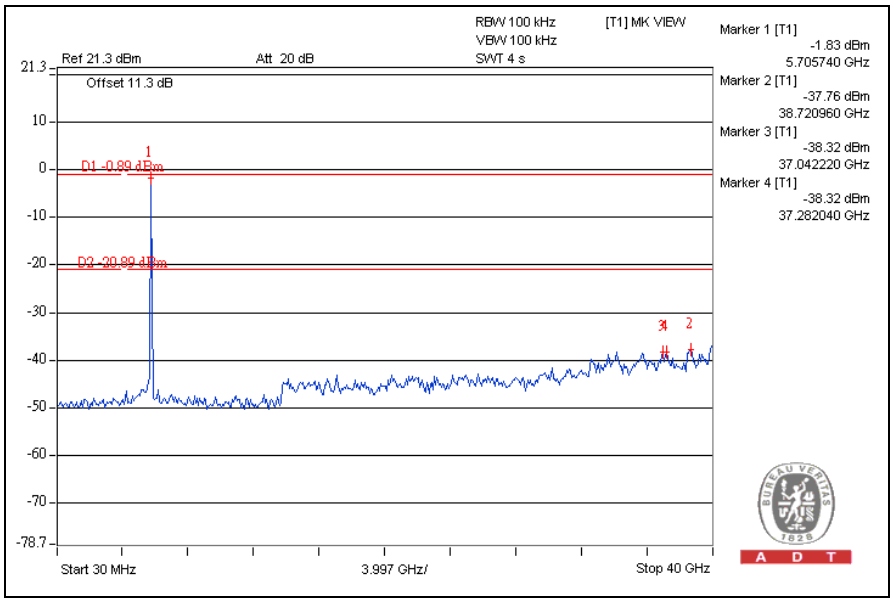
CH151



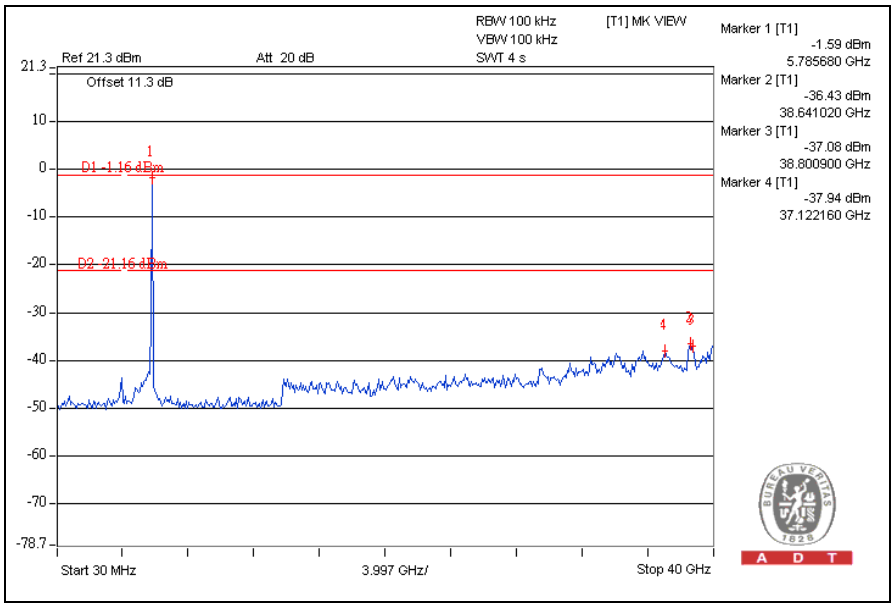
CH159



CH151


RBW 100 kHz
VBW 100 kHz
SWT 4 s
[T1] MK VIEW
Ref 21.3 dBm
Att 20 dB
Offset 11.3 dB
D1 -0.89 dBm
D2 -20.89 dBm
Marker 1 [T1]
-1.83 dBm
5.705740 GHz
Marker 2 [T1]
-37.76 dBm
38.720960 GHz
Marker 3 [T1]
-38.32 dBm
37.042220 GHz
Marker 4 [T1]
-38.32 dBm
37.282040 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH159


RBW 100 kHz
VBW 100 kHz
SWT 4 s
[T1] MK VIEW
Ref 21.3 dBm
Att 20 dB
Offset 11.3 dB
D1 -1.16 dBm
D2 -21.16 dBm
Marker 1 [T1]
-1.59 dBm
5.785680 GHz
Marker 2 [T1]
-36.43 dBm
38.641020 GHz
Marker 3 [T1]
-37.08 dBm
38.800900 GHz
Marker 4 [T1]
-37.94 dBm
37.122160 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz

6. 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.

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5.phtml. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:
Tel: 886-2-26052180
Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:
Tel: 886-3-5935343
Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab:
Tel: 886-3-3183232
Fax: 886-3-3185050

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

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

7.APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

--- END ---