



FCC TEST REPORT (15.407)

REPORT NO.: RF110913E01-1

MODEL NO.: 8017-01620P, WLU5150-D81, 8017-01622P,
8017-01618P, 8017-01619P, WLU5151-D81

FCC ID: H8N-WLU5150

RECEIVED: Oct. 11, 2011

TESTED: Nov. 08 to 18, 2011

ISSUED: Nov. 28, 2011

APPLICANT: Askey Computer Corp

ADDRESS: 10F, No. 119, Chienkang Rd Chung-Ho
Taipei Taiwan 235

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

LAB ADDRESS: No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen,
Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

TEST LOCATION (1): No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen,
Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

TEST LOCATION (2): No. 49, Ln. 206, Wende Rd., Shangshan Tsuen,
Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

This test report consists of 116 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product certification, approval, or endorsement by TAF or any government agencies. The test results in the report only apply to the tested sample.





A D T

Table of Contents

RELEASE CONTROL RECORD	4
1. CERTIFICATION	5
2. SUMMARY OF TEST RESULTS	6
2.1 MEASUREMENT UNCERTAINTY	7
3. GENERAL INFORMATION	8
3.1 GENERAL DESCRIPTION OF EUT	8
3.2 DESCRIPTION OF TEST MODES	12
3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL	14
3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS	17
3.4 DESCRIPTION OF SUPPORT UNITS.....	18
3.5 CONFIGURATION OF SYSTEM UNDER TEST	18
4. TEST TYPES AND RESULTS	19
4.1 CONDUCTED EMISSION MEASUREMENT	19
4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT	19
4.1.2 TEST INSTRUMENTS.....	19
4.1.3 TEST PROCEDURES	20
4.1.4 DEVIATION FROM TEST STANDARD	20
4.1.5 TEST SETUP	21
4.1.6 EUT OPERATING CONDITIONS	21
4.1.7 TEST RESULTS	22
4.2 RADIATED EMISSION MEASUREMENT	24
4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT	24
4.2.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS.....	25
4.2.3 TEST INSTRUMENTS.....	26
4.2.4 TEST PROCEDURES	27
4.2.5 DEVIATION FROM TEST STANDARD	27
4.2.6 TEST SETUP	28
4.2.7 EUT OPERATING CONDITION	28
4.2.8 TEST RESULTS	29
4.3 OUTPUT TRANSMIT POWER MEASUREMENT	75
4.3.1 LIMITS OF OUTPUT TRANSMIT POWER MEASUREMENT	75
4.3.2 TEST INSTRUMENTS.....	75
4.3.3 TEST PROCEDURE.....	76
4.3.4 DEVIATION FROM TEST STANDARD	76
4.3.5 TEST SETUP	76
4.3.6 EUT OPERATING CONDITIONS	76
4.3.7 TEST RESULTS	77
4.4 PEAK POWER EXCURSION MEASUREMENT	82
4.4.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT	82
4.4.2 TEST INSTRUMENTS.....	82



A D T

4.4.3	TEST PROCEDURE.....	82
4.4.4	DEVIATION FROM TEST STANDARD.....	82
4.4.5	TEST SETUP	83
4.4.6	EUT OPERATING CONDITIONS	83
4.4.7	TEST RESULTS	84
4.5	PEAK POWER SPECTRAL DENSITY MEASUREMENT	90
4.5.1	LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT	90
4.5.2	TEST INSTRUMENTS.....	90
4.5.3	TEST PROCEDURES	90
4.5.4	DEVIATION FROM TEST STANDARD.....	90
4.5.5	TEST SETUP	90
4.5.6	EUT OPERATING CONDITIONS	90
4.5.7	TEST RESULTS	91
4.6	FREQUENCY STABILITY.....	98
4.6.1	LIMITS OF FREQUENCY STABILITY MEASUREMENT	98
4.6.2	TEST INSTRUMENTS.....	98
4.6.3	TEST PROCEDURE.....	98
4.6.4	DEVIATION FROM TEST STANDARD.....	99
4.6.5	TEST SETUP	99
4.6.6	EUT OPERATING CONDITION.....	99
4.6.7	TEST RESULTS	100
4.7	CONDUCTED OUT-BAND EMISSION MEASUREMENT.....	101
4.7.1	TEST INSTRUMENTS.....	101
4.7.2	TEST PROCEDURE.....	101
4.7.3	EUT OPERATING CONDITION.....	101
4.7.4	TEST RESULTS	101
5.	INFORMATION ON THE TESTING LABORATORIES	115
6.	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB.....	116



A D T

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF111011C17-1	Original release	Nov. 28, 2011



A D T

1. CERTIFICATION

PRODUCT: Wireless LAN Adaptor
BRAND NAME: Panasonic
MODEL NO.: 8017-01620P, WLU5150-D81, 8017-01622P,
8017-01618P, 8017-01619P, WLU5151-D81
TEST SAMPLE: ENGINEERING SAMPLE
APPLICANT: Askey Computer Corp
TESTED: Nov. 08 to 18, 2011
STANDARDS: FCC Part 15, Subpart E (Section 15.407)
ANSI C63.4-2003
ANSI C63.10-2009

The above equipment (Model: 8017-01622P) 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:** Nov. 28, 2011
(Claire Kuan, Specialist)

APPROVED BY :  , **DATE:** Nov. 28, 2011
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

For 5GHz, 5150~5350MHz & 5470~5600 & 5650~5725MHz

APPLIED STANDARD: FCC Part 15, Subpart E (Section 15.407)			
Standard Section	Test Type	Result	Remark
15.407(b)(5)	AC Power Conducted Emission	PASS	Meet the requirement of limit. Minimum passing margin is -7.60dB at 0.189MHz
15.407(b/1/2/3) (b)(5)	Electric Field Strength Spurious Emissions, 30MHz ~ 40000MHz	PASS	Meet the requirement of limit. Minimum passing margin is -0.9dB at 5350.00MHz
15.407(a/1/2/3)	Output Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(6)	Peak Power Excursion	PASS	Meet the requirement of limit.
15.407(a/1/2/3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	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, 5.15~5.35GHz, 5.47~5.6GHz & 5.65~5.725GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 5.15~5.35GHz and 5.47~5.6GHz & 5.65~5.725GHz. For the 2400 ~ 2483.5MHz and 5.725~5.85GHz RF parameters was recorded in another test report.
2. The DFS report was recorded in another test report. <Report No.: RF111011C17E>



A D T

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)	3.89 dB
Radiated emissions (1GHz -18GHz)	2.19 dB
Radiated emissions (18GHz -40GHz)	2.56 dB



A D T

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wireless LAN Adaptor
MODEL NO.	8017-01620P, WLU5150-D81, 8017-01622P, 8017-01618P, 8017-01619P, WLU5151-D81
FCC ID	H8N-WLU5150
POWER SUPPLY	DC 5V from host equipment
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11b: up to 11Mbps 802.11a / g: up to 54Mbps 802.11n: up to 300Mbps
OPERATING FREQUENCY	For 15.407 802.11a: 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.5~5.58GHz & 5.66~5.7GHz
	For 15.247 802.11b & 802.11g: 2.412 ~ 2.462GHz 802.11a: 5.745 ~ 5.825GHz
NUMBER OF CHANNEL	For 15.407 16 for 802.11a, 802.11n (20MHz) 7 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: 77.3mW 802.11n (20MHz): 64.0mW 802.11n (40MHz): 55.8mW For 15.247(2.4GHz) 802.11b: 54.5mW 802.11g: 381.1mW 802.11n (20MHz): 381.2mW 802.11n (40MHz): 200.0mW For 15.247(5GHz) 802.11a: 447.9mW 802.11n (20MHz): 442.9mW 802.11n (40MHz): 392.6mW
ANTENNA TYPE	Please see note
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

- The EUT has six model names, which are identical to each other in all aspects except for the following:

Brand	Model Name	USB connector type	Note
Panasonic	8017-01620P	mini type USB connector	Different with enclosure shape
	WLU5150-D81	mini type USB connector	
	8017-01622P	A type USB connector	
	8017-01618P	A type USB connector	
	8017-01619P	A type USB connector	
	WLU5151-D81	A type USB connector	

From the above models, model: **8017-01622P** was selected as representative model for the test and its data was recorded in this report.



A D T

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

Set	Transmitter Circuit	Brand	Model	Antenna Type	Gain (dBi)	Antenna Connector
1	Chain (0) Ant 1(L)	GULTECH	WLU5150-D81	PCB	Please refer table 1	NA
	Chain (1) Ant 2(R)	GULTECH	WLU5150-D81	PCB	Please refer table 1	NA
Set	Transmitter Circuit	Brand	Model	Antenna Type	Gain (dBi)	Antenna Connector
2	Chain (0) Ant 1(L)	GULTECH	WLU5151-D81	PCB	Please refer table 2	NA
	Chain (1) Ant 2(R)	GULTECH	WLU5151-D81	PCB	Please refer table 2	NA

Antenna set 1 was used for model: 8017-01620P, WLU5150-D81

Antenna set 2 was used for model: 8017-01622P, 8017-01618P, 8017-01619P, WLU5151-D81

Table 1

Ant 1(L)	Frequency (MHz)	2412	2450	2484	5180	5250	5350	5500	5725	5806
	Peak Gain (dBi)	-0.83	0.40	1.23	2.45	2.21	2.20	3.14	3.73	3.64
	Average Gain(dBi)	-6.59	-6.26	-5.05	-4.09	-2.31	-2.58	-2.95	-2.82	-2.01
	Efficiency (%)	21.92	23.69	31.24	38.97	58.79	55.20	50.73	52.27	62.96
Ant 2(R)	Frequency (MHz)	2412	2450	2484	5180	5250	5350	5500	5725	5806
	Peak Gain (dBi)	-3.76	-2.96	-0.76	0.99	3.21	3.06	3.29	3.49	3.71
	Average Gain(dBi)	-3.76	-2.96	-0.76	0.99	3.21	3.06	3.29	3.49	3.71
	Efficiency (%)	16.08	18.41	28.57	39.12	56.11	55.78	58.86	59.90	63.23

Table 2

Ant 1(L)	Frequency (MHz)	2412	2450	2484	5180	5250	5350	5500	5725	5806
	Peak Gain (dBi)	0.60	1.72	2.15	3.42	3.55	3.81	4.02	3.89	4.39
	Average Gain(dBi)	-4.68	-3.45	-2.90	-2.25	-2.17	-1.91	-1.95	-1.65	-1.67
	Efficiency (%)	34.05	45.24	51.27	59.55	60.71	64.38	63.89	68.43	68.03
Ant 2(R)	Frequency (MHz)	2412	2450	2484	5180	5250	5350	5500	5725	5806
	Peak Gain (dBi)	-3.40	-2.06	-0.70	2.35	2.47	2.64	3.09	3.16	2.79
	Average Gain(dBi)	-7.75	-6.15	-5.06	-1.99	-2.02	-2.00	-2.10	-1.95	-1.83
	Efficiency (%)	16.79	24.27	31.20	63.30	62.83	63.03	61.64	63.83	65.66



A D T

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

Pre-test Mode	Description
Mode A	A type USB connector with X-Y plane
Mode B	A type USB connector with X-Z plane
Mode C	A type USB connector with Y-Z plane
Mode D	mini type USB connector with X-Y plane
Mode E	mini type USB connector with X-Z plane
Mode F	mini type USB connector with Y-Z plane

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

4. 2.4GHz & 5GHz technology cannot transmit at same time.
5. The EUT incorporates CDD function with 802.11a, 802.11b & 802.11g.
6. The EUT is 2 * 2 spatial MIMO (2Tx & 2Rx) without beam forming function.
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 above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's.



A D T

3.2 DESCRIPTION OF TEST MODES

Operated in 5150MHz ~ 5350MHz bands:

Eight channels are provided for 802.11a and 802.11n (20MHz):

CHANNEL	FREQUENCY
36	5180 MHz
40	5200 MHz
44	5220 MHz
48	5240 MHz
52	5260 MHz
56	5280 MHz
60	5300 MHz
64	5320 MHz

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

CHANNEL	FREQUENCY
38	5190 MHz
46	5230 MHz
54	5270 MHz
62	5310 MHz



A D T

Operated in 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz bands:

Eight channels are provided for 802.11a and 802.11n (20MHz):

CHANNEL	FREQUENCY
100	5500 MHz
104	5520 MHz
108	5540 MHz
112	5560 MHz
116	5580 MHz
132	5660 MHz
136	5680 MHz
140	5700 MHz

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

CHANNEL	FREQUENCY
102	5510 MHz
110	5550 MHz
134	5670 MHz



A D T

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO					DESCRIPTION
	PLC	RE < 1G	RE ≥ 1G	APCM	OB	
-	√	√	√	√	√	-

Where **PLC**: Power Line Conducted Emission **RE < 1G**: Radiated Emission below 1GHz
RE ≥ 1G: Radiated Emission above 1GHz **APCM**: Antenna Port Conducted Measurement
OB: Conducted Out-Band Emission Measurement

ANTENNA COMBINATION MODE:

COMBINATION MODE	OPERATION MODE	TX CHAIN(0)	TX CHAIN(1)
A	802.11 a	√	√
B	802.11n(20MHz) for MCS0~15	√	√
C	802.11n(40MHz) for MCS0~15	√	√

Note: 1. 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
802.11a	36 to 140	100	OFDM	BPSK	6	A



A D T

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
802.11a	36 to 140	100	OFDM	BPSK	6	A

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
802.11a	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	BPSK	6	A
For 5 GHz 802.11n (20MHz)	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	BPSK	6.5	B
For 5 GHz 802.11n (40MHz)	38 to 134	38, 46, 54, 62, 102, 110, 134	OFDM	BPSK	13.5	C



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
802.11a	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	BPSK	6	A
For 5 GHz 802.11n (20MHz)	36 to 140	36, 40, 48, 52, 60, 64, 100, 116, 132, 140	OFDM	BPSK	6.5	B
For 5 GHz 802.11n (40MHz)	38 to 134	38, 46, 54, 62, 102, 110, 134	OFDM	BPSK	13.5	C

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
802.11a	36 to 140	36, 64, 100, 140	OFDM	BPSK	6	A
For 5 GHz 802.11n (20MHz)	36 to 140	36, 64, 100, 140	OFDM	BPSK	6.5	B
For 5 GHz 802.11n (40MHz)	38 to 134	38, 62, 102, 134	OFDM	BPSK	13.5	C

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
PLC	26deg. C, 61%RH	120Vac, 60Hz	Kent Liu
RE<1G	25deg. C, 69%RH	120Vac, 60Hz	Nelson Teng
RE ³ 1G	24deg. C, 63%RH	120Vac, 60Hz	Amos Chuang
APCM	25deg. C, 60%RH	120Vac, 60Hz	Rex Huang
OB	25deg. C, 60%RH	120Vac, 60Hz	Rex Huang



A D T

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 E (Section 15.407)

ANSI C63.4-2003

ANSI C63.10-2009

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

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

3.4 DESCRIPTION OF SUPPORT UNITS

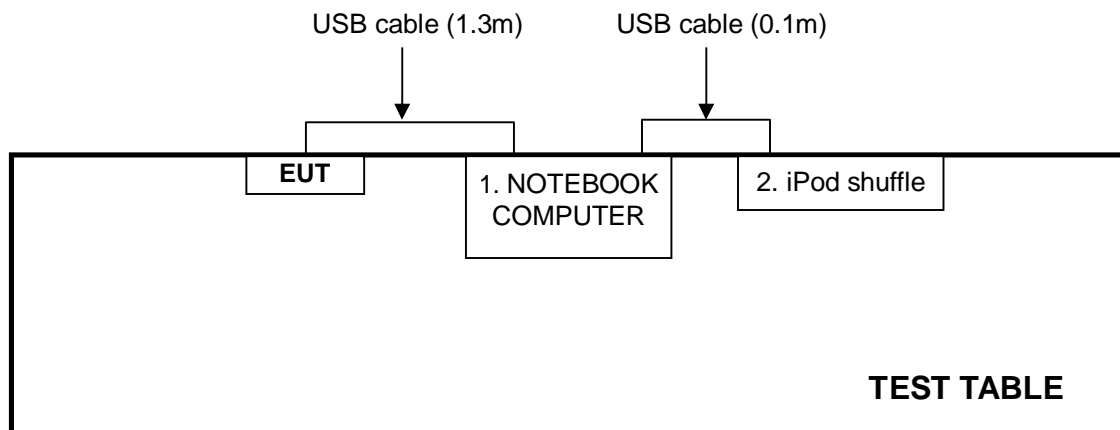
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP32LA	FSLB32S	FCC DoC
2	iPod shuffle	Apple	MC749TA/A	CC4DN25WDFDM	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	USB Cable (1.3m)
2	USB Cable (0.1m)

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

3.5 CONFIGURATION OF SYSTEM UNDER TEST



4. TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	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

Test date: Nov. 18, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver	ESCS 30	100375	Mar. 09, 2011	Mar. 08, 2012
Line-Impedance Stabilization Network (for EUT)	NSLK 8127	8127-522	Sep. 07, 2011	Sep. 06, 2012
Line-Impedance Stabilization Network (for Peripheral)	ESH3-Z5	848773/004	Nov. 01, 2011	Oct. 31, 2012
RF Cable (JYEBAO)	5DFB	COCCAB-002	Aug. 29, 2011	Aug. 28, 2012
50 ohms Terminator	50	3	Nov. 02, 2011	Nov. 01, 2012
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. C.
3. The VCCI Con C Registration No. is C-3611.



A D T

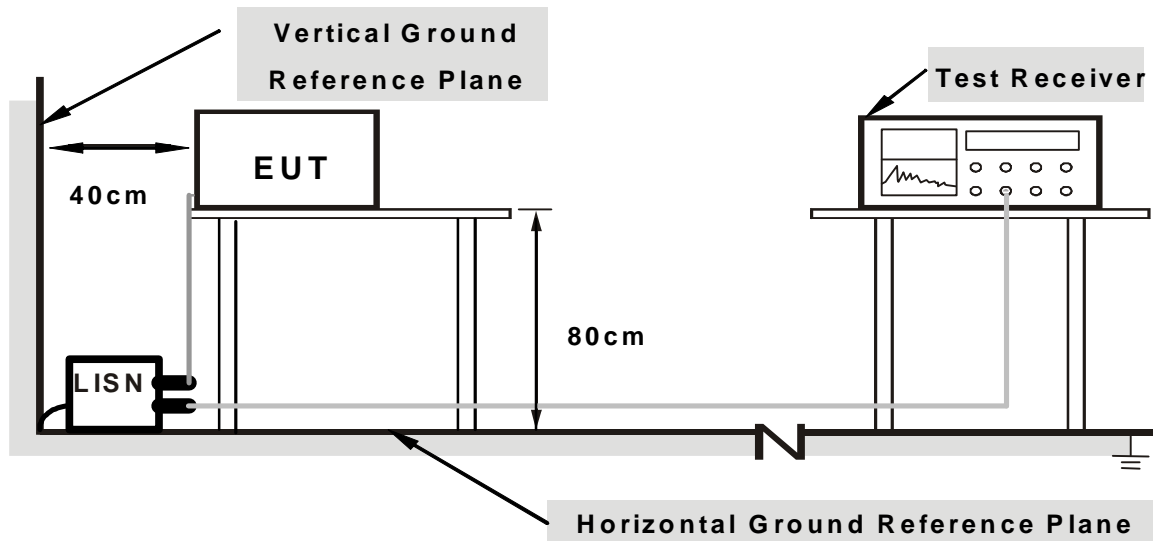
4.1.3 TEST PROCEDURES

- 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.
- b. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- c. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- d. The frequency range from 150kHz to 30MHz was searched. Emission level under (Limit – 20dB) was 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

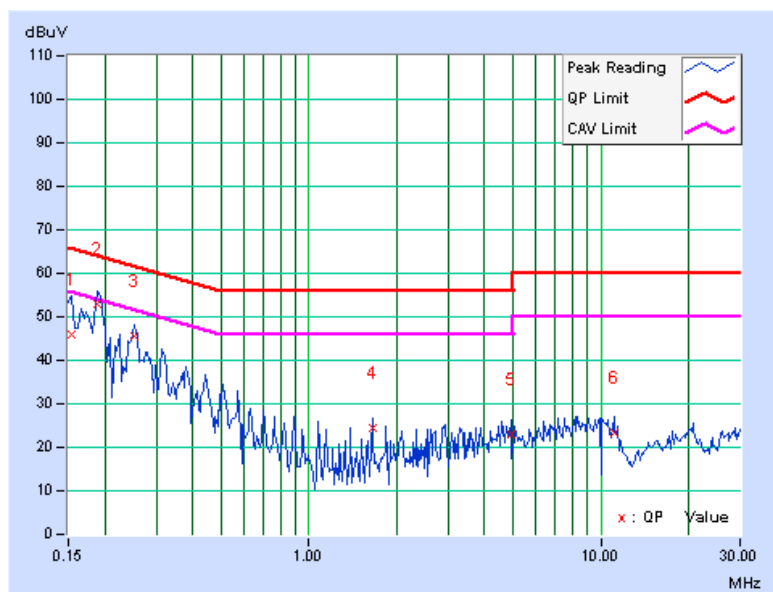
1. Connect the EUT with the support unit 1 (Notebook Computer) which is placed on a testing table.
2. The communication partner run test program “artgui.exe” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.1.7 TEST RESULTS

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
--------------	----------	----------------------	-------

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.154	0.09	45.80	18.27	45.89	18.36	65.79	55.79	-19.90	-37.43
2	0.189	0.10	52.92	46.38	53.02	46.48	64.08	54.08	-11.06	-7.60
3	0.252	0.10	45.39	37.66	45.49	37.76	61.71	51.71	-16.21	-13.94
4	1.648	0.18	24.09	20.23	24.27	20.41	56.00	46.00	-31.73	-25.59
5	4.949	0.36	22.65	15.71	23.01	16.07	56.00	46.00	-32.99	-29.93
6	11.098	0.58	22.87	18.37	23.45	18.95	60.00	50.00	-36.55	-31.05

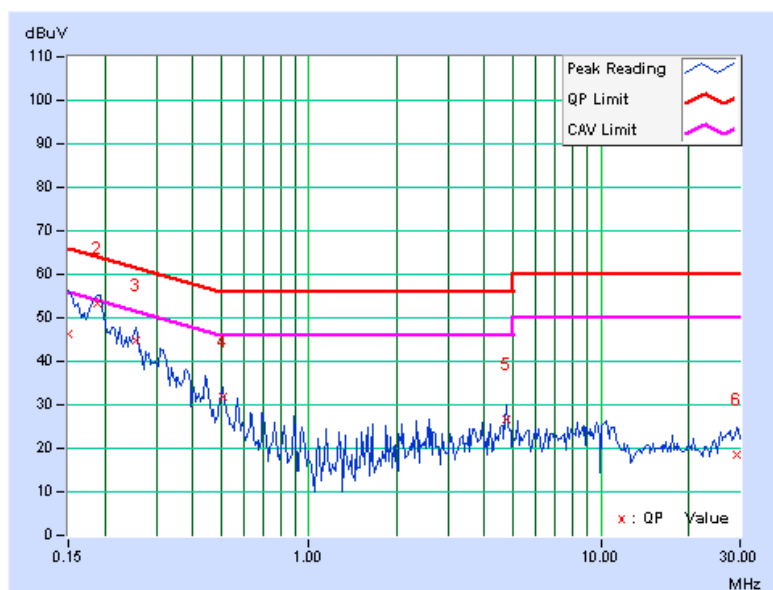
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. The emission levels of other frequencies were very low against the limit.
 3. Margin value = Emission level - Limit value
 4. Correction factor = Insertion loss + Cable loss
 5. Emission Level = Correction Factor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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
--------------	-------------	----------------------	-------

No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
		(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.07	46.29	20.57	46.36	20.64	66.00	56.00	-19.64	-35.36
2	0.189	0.09	53.21	46.26	53.30	46.35	64.08	54.08	-10.78	-7.73
3	0.255	0.10	44.72	37.51	44.82	37.61	61.58	51.58	-16.76	-13.97
4	0.509	0.11	31.72	26.22	31.83	26.33	56.00	46.00	-24.17	-19.67
5	4.754	0.26	26.42	19.14	26.68	19.40	56.00	46.00	-29.32	-26.60
6	29.137	0.88	17.69	12.73	18.57	13.61	60.00	50.00	-41.43	-36.39

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



4.2 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.



A D T

4.2.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

Frequencies (MHz)	EIRP Limit (dBm)	Equivalent Field Strength at 3m (dB μ V/m) *note 3
5150~5250	-27	68.3
5250~5350	-27	68.3
5470~5725	-27	68.3
5725~5825	-27 *note 1	68.3
	-17 *note 2	78.3

NOTE:

1. For frequencies 10MHz or greater above or below the band edge.
2. All emissions within the frequency range from the band edge to 10MHz above or below the band edge.
3. The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m, where P is the eirp (Watts)}$$



A D T

4.2.3 TEST INSTRUMENTS

Test date: Nov. 08 to 10, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250253	Aug. 29, 2011	Aug. 28, 2012
Agilent Pre-Selector	N9039A	MY46520310	Aug. 29, 2011	Aug. 28, 2012
Agilent Signal Generator	N5181A	MY49060347	July 25, 2011	July 24, 2012
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-04	Nov. 16, 2010	Nov. 15, 2011
Agilent Pre-Amplifier	8449B	3008A02465	Feb. 28, 2011	Feb. 27, 2012
Miteq Pre-Amplifier	AFS33-1800265 0-30-8P-44	881786	Nov. 16, 2010	Nov. 15, 2011
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-361	Apr. 14, 2011	Apr. 13, 2012
AISI Horn_Antenna	AIH.8018	0000220091110	Nov. 22, 2010	Nov. 21, 2011
SCHWARZBECK Horn_Antenna	BBHA 9170	9170-424	Oct. 07, 2011	Oct. 06, 2012
RF CABLE	NA	RF104-205 RF104-207 RF104-202	Dec. 28, 2010	Dec. 27, 2011
RF Cable	NA	CHHCAB_001	Oct. 08, 2011	Oct. 07, 2012
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. H.
4. The FCC Site Registration No. is 797305.
5. The CANADA Site Registration No. is IC 7450H-3.



A D T

4.2.4 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.

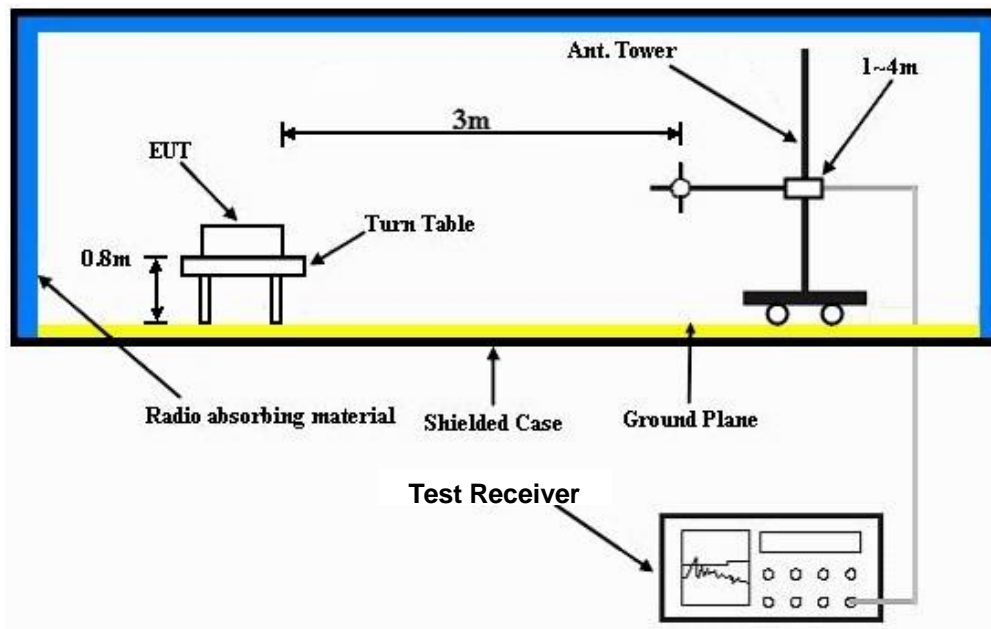
NOTE:

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.

4.2.5 DEVIATION FROM TEST STANDARD

No deviation

4.2.6 TEST SETUP



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

4.2.7 EUT OPERATING CONDITION

Same as 4.1.6



A D T

4.2.8 TEST RESULTS

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 69%RH	TESTED BY	Nelson Teng

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	115.42	33.7 QP	43.5	-9.8	1.25 H	0	21.81	11.86
2	238.81	41.1 QP	46.0	-4.9	1.25 H	360	28.24	12.85
3	335.71	40.3 QP	46.0	-5.8	1.00 H	325	24.06	16.19
4	517.25	41.6 QP	46.0	-4.5	1.25 H	143	21.11	20.44
5	557.91	42.0 QP	46.0	-4.1	1.55 H	201	20.62	21.33
6	960.22	41.6 QP	54.0	-12.4	1.75 H	129	13.84	27.80
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	129.87	32.3 QP	43.5	-11.2	1.00 V	225	18.94	13.39
2	189.13	35.3 QP	43.5	-8.2	1.00 V	270	23.06	12.20
3	242.30	34.0 QP	46.0	-12.0	1.50 V	100	20.98	12.99
4	480.24	41.0 QP	46.0	-5.0	1.25 V	125	21.45	19.58
5	793.24	33.0 QP	46.0	-13.0	1.83 V	215	7.61	25.39
6	959.13	38.2 QP	46.0	-7.9	1.00 V	360	10.36	27.79

- 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.



A D T

ABOVE 1GHz WORST-CASE DATA

802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	5150.00	68.3 PK	74.0	-5.7	1.24 H	253	26.58	41.72
2	5150.00	52.3 AV	54.0	-1.7	1.24 H	253	10.58	41.72
3	*5180.00	116.0 PK			1.26 H	253	74.24	41.76
4	*5180.00	103.2 AV			1.26 H	253	61.44	41.76
5	#10360.00	53.5 PK	68.3	-14.8	1.23 H	297	4.98	48.52
6	15540.00	62.9 PK	74.0	-11.1	1.00 H	70	8.83	54.07
7	15540.00	50.7 AV	54.0	-3.3	1.00 H	70	-3.37	54.07

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	5150.00	59.5 PK	74.0	-14.5	1.24 V	77	17.78	41.72
2	5150.00	46.9 AV	54.0	-7.1	1.24 V	77	5.18	41.72
3	*5180.00	106.0 PK			1.23 V	78	64.24	41.76
4	*5180.00	95.1 AV			1.23 V	78	53.34	41.76
5	#10360.00	52.3 PK	68.3	-16.0	1.26 V	318	3.78	48.52
6	15540.00	63.2 PK	74.0	-10.8	1.05 V	177	9.13	54.07
7	15540.00	50.8 AV	54.0	-3.2	1.05 V	177	-3.27	54.07

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. "#":The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	*5200.00	115.6 PK			1.26 H	250	73.82	41.78
2	*5200.00	102.0 AV			1.26 H	250	60.22	41.78
3	#10400.00	54.3 PK	68.3	-14.0	1.23 H	281	5.62	48.68
4	15600.00	62.7 PK	74.0	-11.3	1.00 H	81	9.12	53.58
5	15600.00	50.6 AV	54.0	-3.4	1.00 H	81	-2.98	53.58

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	*5200.00	105.5 PK			1.25 V	80	63.72	41.78
2	*5200.00	94.3 AV			1.25 V	80	52.52	41.78
3	#10400.00	52.4 PK	68.3	-15.9	1.25 V	320	3.72	48.68
4	15600.00	63.3 PK	74.0	-10.7	1.05 V	178	9.72	53.58
5	15600.00	50.5 AV	54.0	-3.5	1.05 V	178	-3.08	53.58

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. “ # “: The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	*5240.00	114.5 PK			1.27 H	251	72.63	41.87
2	*5240.00	101.0 AV			1.27 H	251	59.13	41.87
3	#10480.00	54.1 PK	68.3	-14.2	1.25 H	278	5.48	48.62
4	15720.00	62.5 PK	74.0	-11.5	1.00 H	69	8.64	53.86
5	15720.00	50.5 AV	54.0	-3.5	1.00 H	69	-3.36	53.86
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	*5240.00	105.1 PK			1.25 V	77	63.23	41.87
2	*5240.00	93.6 AV			1.25 V	77	51.73	41.87
3	#10480.00	52.5 PK	68.3	-15.8	1.25 V	321	3.88	48.62
4	15720.00	63.1 PK	74.0	-10.9	1.05 V	176	9.24	53.86
5	15720.00	50.6 AV	54.0	-3.4	1.05 V	176	-3.26	53.86

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. “ # “: The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	*5260.00	113.9 PK			1.22 H	115	71.99	41.91
2	*5260.00	100.3 AV			1.22 H	115	58.39	41.91
3	#10520.00	53.1 PK	68.3	-15.2	1.25 H	288	4.44	48.66
4	15780.00	62.7 PK	74.0	-11.3	1.00 H	66	8.78	53.92
5	15780.00	50.5 AV	54.0	-3.5	1.00 H	66	-3.42	53.92
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	*5260.00	104.9 PK			1.25 V	80	62.99	41.91
2	*5260.00	93.1 AV			1.25 V	80	51.19	41.91
3	#10520.00	52.7 PK	68.3	-15.6	1.29 V	319	4.04	48.66
4	15780.00	63.5 PK	74.0	-10.5	1.04 V	176	9.58	53.92
5	15780.00	51.2 AV	54.0	-2.8	1.04 V	176	-2.72	53.92

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. “ # “: The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	*5300.00	112.7 PK			1.21 H	121	70.70	42.00
2	*5300.00	100.1 AV			1.21 H	121	58.10	42.00
3	10600.00	56.6 PK	74.0	-17.4	1.26 H	269	7.68	48.92
4	10600.00	45.9 AV	54.0	-8.1	1.26 H	269	-3.02	48.92
5	15900.00	63.0 PK	74.0	-11.0	1.00 H	67	8.36	54.64
6	15900.00	50.5 AV	54.0	-3.5	1.00 H	67	-4.14	54.64
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	*5300.00	105.0 PK			1.25 V	69	63.00	42.00
2	*5300.00	92.5 AV			1.25 V	69	50.50	42.00
3	10600.00	55.2 PK	74.0	-18.8	1.31 V	0	6.28	48.92
4	10600.00	44.3 AV	54.0	-9.7	1.31 V	0	-4.62	48.92
5	15900.00	62.5 PK	74.0	-11.5	1.04 V	172	7.86	54.64
6	15900.00	50.3 AV	54.0	-3.7	1.04 V	172	-4.34	54.64

- 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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	*5320.00	113.8 PK			1.22 H	111	71.76	42.04
2	*5320.00	101.7 AV			1.22 H	111	59.66	42.04
3	5350.00	68.3 PK	74.0	-5.7	1.18 H	111	26.21	42.09
4	5350.00	49.7 AV	54.0	-4.3	1.18 H	111	7.61	42.09
5	10640.00	57.1 PK	74.0	-16.9	1.25 H	271	8.29	48.81
6	10640.00	45.9 AV	54.0	-8.1	1.25 H	271	-2.91	48.81
7	15960.00	62.3 PK	74.0	-11.7	1.00 H	70	7.96	54.34
8	15960.00	50.3 AV	54.0	-3.7	1.00 H	70	-4.04	54.34
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	*5320.00	107.6 PK			1.28 V	87	65.56	42.04
2	*5320.00	95.9 AV			1.28 V	87	53.86	42.04
3	5350.00	61.6 PK	74.0	-12.4	1.31 V	86	19.51	42.09
4	5350.00	47.0 AV	54.0	-7.0	1.31 V	86	4.91	42.09
5	10640.00	55.5 PK	74.0	-18.5	1.31 V	358	6.69	48.81
6	10640.00	44.6 AV	54.0	-9.4	1.31 V	358	-4.21	48.81
7	15960.00	62.7 PK	74.0	-11.3	1.05 V	175	8.36	54.34
8	15960.00	50.4 AV	54.0	-3.6	1.05 V	175	-3.94	54.34

- 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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	5460.00	62.2 PK	74.0	-11.8	1.22 H	110	19.98	42.22
2	5460.00	49.2 AV	54.0	-4.8	1.22 H	110	6.98	42.22
3	#5470.00	58.2 PK	68.3	-10.1	1.23 H	122	15.97	42.23
4	*5500.00	114.5 PK			1.24 H	117	72.25	42.25
5	*5500.00	102.1 AV			1.24 H	117	59.85	42.25
6	11000.00	56.4 PK	74.0	-17.6	1.26 H	277	7.42	48.98
7	11000.00	45.0 AV	54.0	-9.0	1.26 H	277	-3.98	48.98
8	#16500.00	59.2 PK	68.3	-9.1	1.00 H	68	3.27	55.93

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	5460.00	58.5 PK	74.0	-15.5	1.28 V	80	16.28	42.22
2	5460.00	46.7 AV	54.0	-7.3	1.28 V	80	4.48	42.22
3	#5470.00	55.5 PK	68.3	-12.8	1.27 V	82	13.27	42.23
4	*5500.00	108.6 PK			1.26 V	80	66.35	42.25
5	*5500.00	97.2 AV			1.26 V	80	54.95	42.25
6	11000.00	55.3 PK	74.0	-18.7	1.27 V	323	6.32	48.98
7	11000.00	44.5 AV	54.0	-9.5	1.27 V	323	-4.48	48.98
8	#16500.00	56.1 PK	68.3	-12.2	1.05 V	175	0.17	55.93

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. “#”:The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	*5580.00	113.6 PK			1.24 H	113	71.21	42.39
2	*5580.00	101.4 AV			1.24 H	113	59.01	42.39
3	11160.00	58.1 PK	74.0	-15.9	1.26 H	275	9.04	49.06
4	11160.00	45.6 AV	54.0	-8.4	1.26 H	275	-3.46	49.06
5	#16740.00	58.7 PK	68.3	-9.6	1.00 H	70	2.50	56.20

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	107.5 PK			1.24 V	81	65.11	42.39
2	*5580.00	96.4 AV			1.24 V	81	54.01	42.39
3	11160.00	55.7 PK	74.0	-18.3	1.27 V	319	6.64	49.06
4	11160.00	44.7 AV	54.0	-9.3	1.27 V	319	-4.36	49.06
5	#16740.00	55.9 PK	68.3	-12.4	1.05 V	174	-0.30	56.20

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. “#”:The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 132	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	*5660.00	113.9 PK			1.20 H	112	71.34	42.56
2	*5660.00	103.2 AV			1.20 H	112	60.64	42.56
3	11320.00	59.0 PK	74.0	-15.0	1.27 H	277	9.95	49.05
4	11320.00	46.2 AV	54.0	-7.8	1.27 H	277	-2.85	49.05
5	#16980.00	59.8 PK	68.3	-8.5	1.00 H	67	3.44	56.36

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	*5660.00	109.4 PK			1.25 V	79	66.84	42.56
2	*5660.00	98.3 AV			1.25 V	79	55.74	42.56
3	11320.00	56.1 PK	74.0	-17.9	1.25 V	320	7.05	49.05
4	11320.00	44.8 AV	54.0	-9.2	1.25 V	320	-4.25	49.05
5	#16980.00	56.2 PK	68.3	-12.1	1.05 V	177	-0.16	56.36

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. “#”:The radiated frequency is out the restricted band.



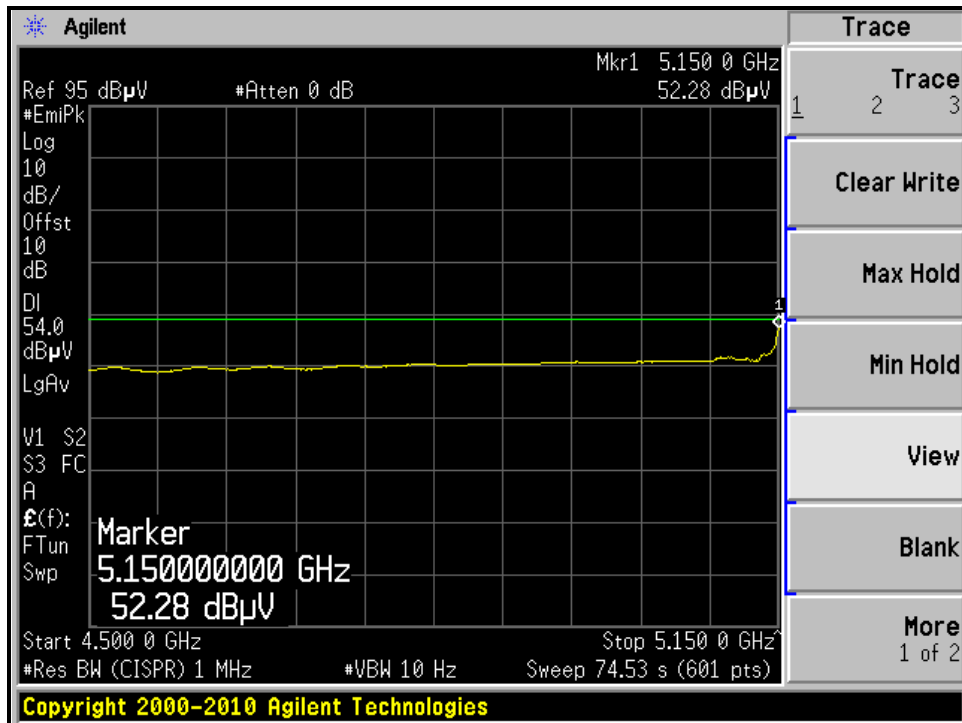
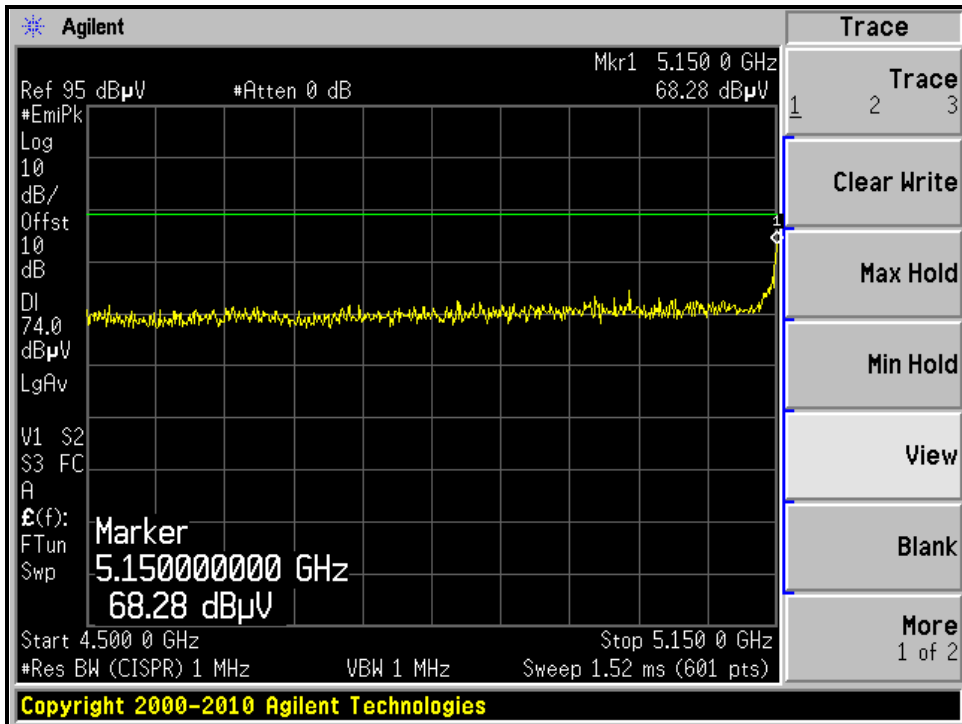
A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	*5700.00	114.5 PK			1.22 H	112	71.86	42.64
2	*5700.00	102.1 AV			1.22 H	112	59.46	42.64
3	#5725.00	61.5 PK	68.3	-6.8	1.22 H	111	18.83	42.67
4	11400.00	60.2 PK	74.0	-13.8	1.25 H	266	10.97	49.23
5	11400.00	47.6 AV	54.0	-6.4	1.25 H	266	-1.63	49.23
6	#17100.00	59.9 PK	68.3	-8.4	1.00 H	66	3.30	56.60
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	*5700.00	107.6 PK			1.25 V	76	64.96	42.64
2	*5700.00	96.5 AV			1.25 V	76	53.86	42.64
3	#5725.00	59.1 PK	68.3	-9.2	1.25 V	80	16.43	42.67
4	11400.00	58.7 PK	74.0	-15.3	1.26 V	319	9.47	49.23
5	11400.00	46.5 AV	54.0	-7.5	1.26 V	319	-2.73	49.23
6	#17100.00	55.7 PK	68.3	-12.6	1.05 V	168	-0.90	56.60

- 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.
 6. “#”:The radiated frequency is out the restricted band.

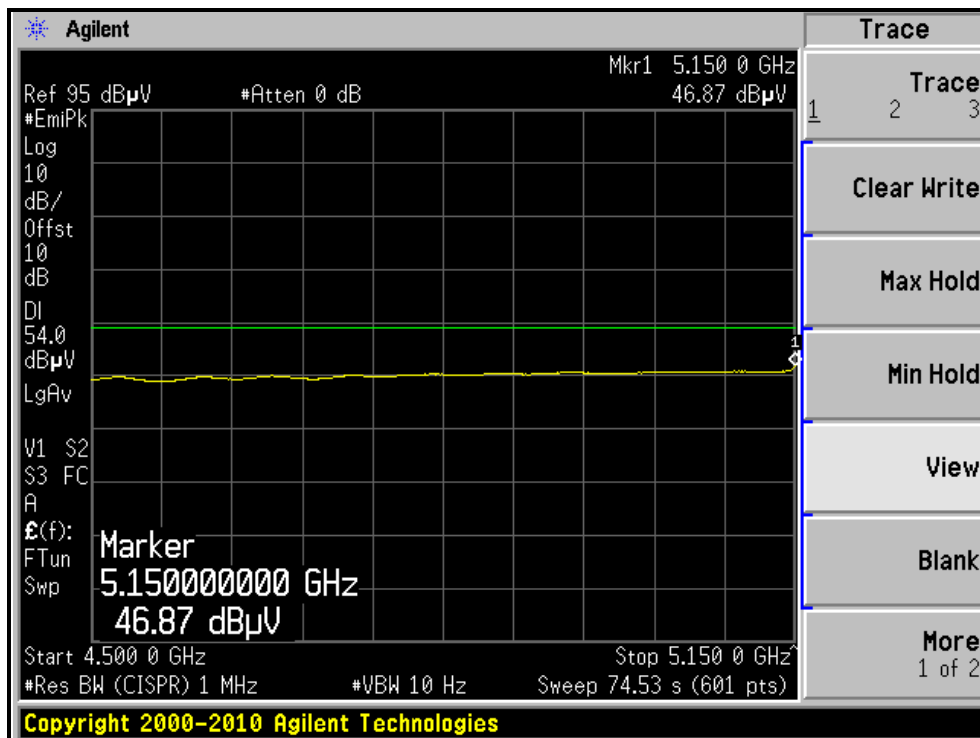
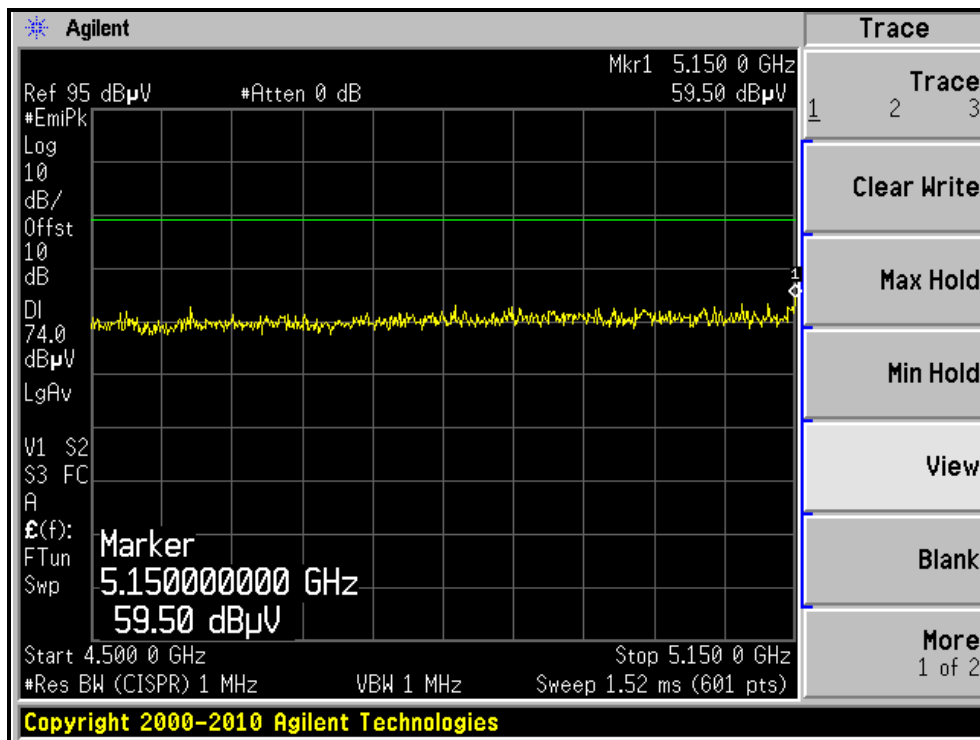
RESTRICTED BANDEDGE (802.11a MODE, CH36, HORIZONTAL)





A D T

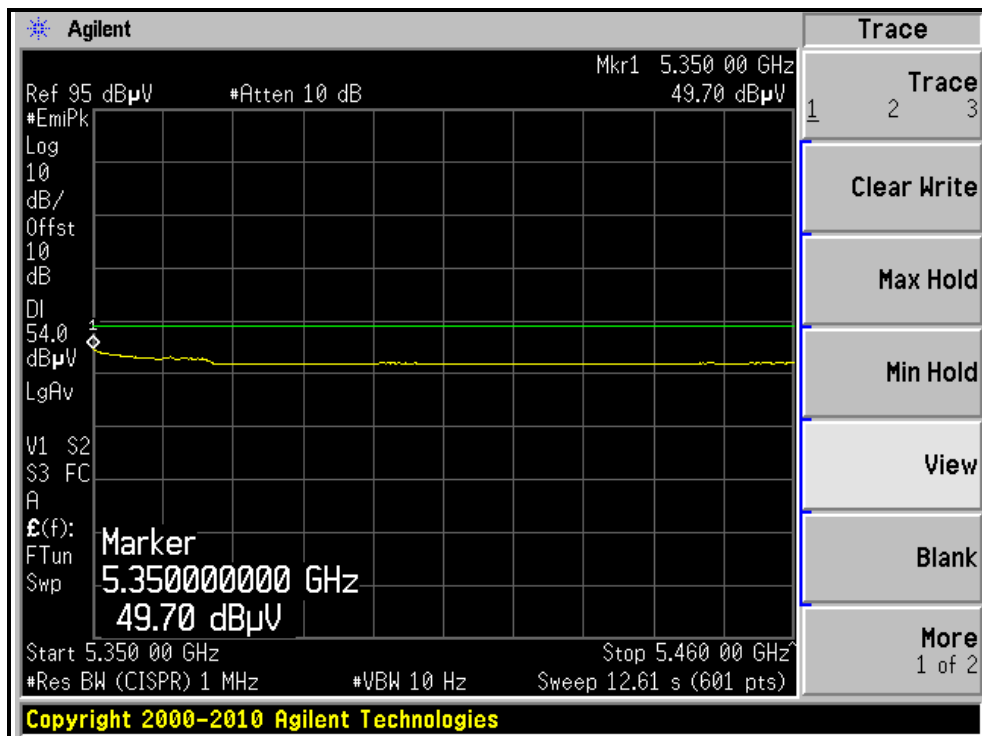
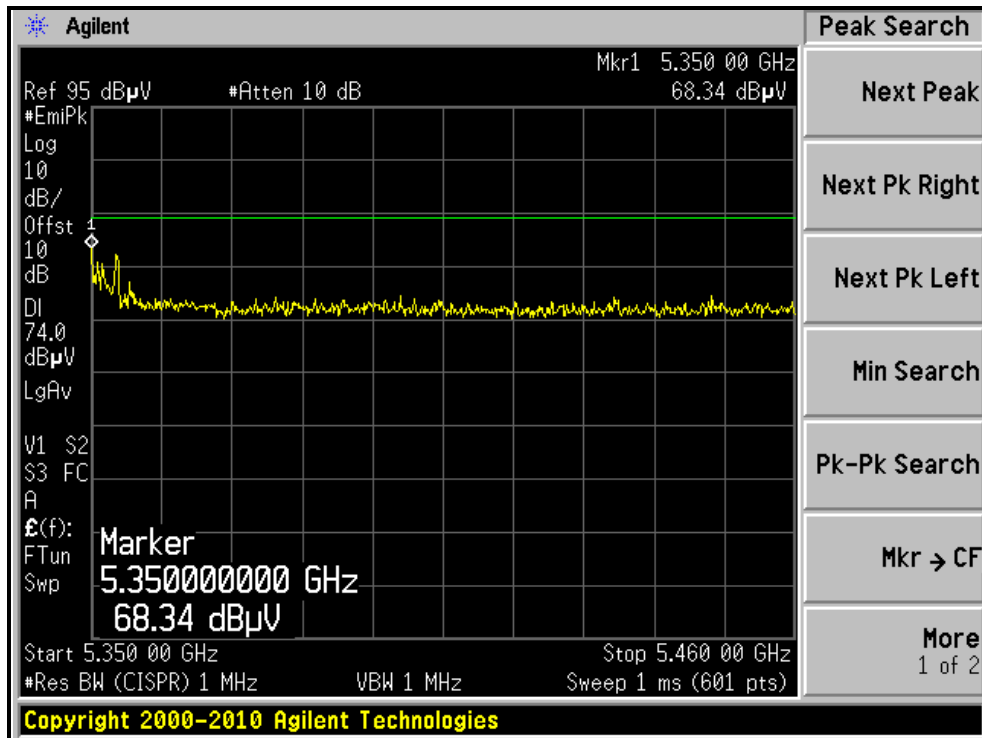
RESTRICTED BANDEDGE (802.11a MODE, CH36, VERTICAL)





A D T

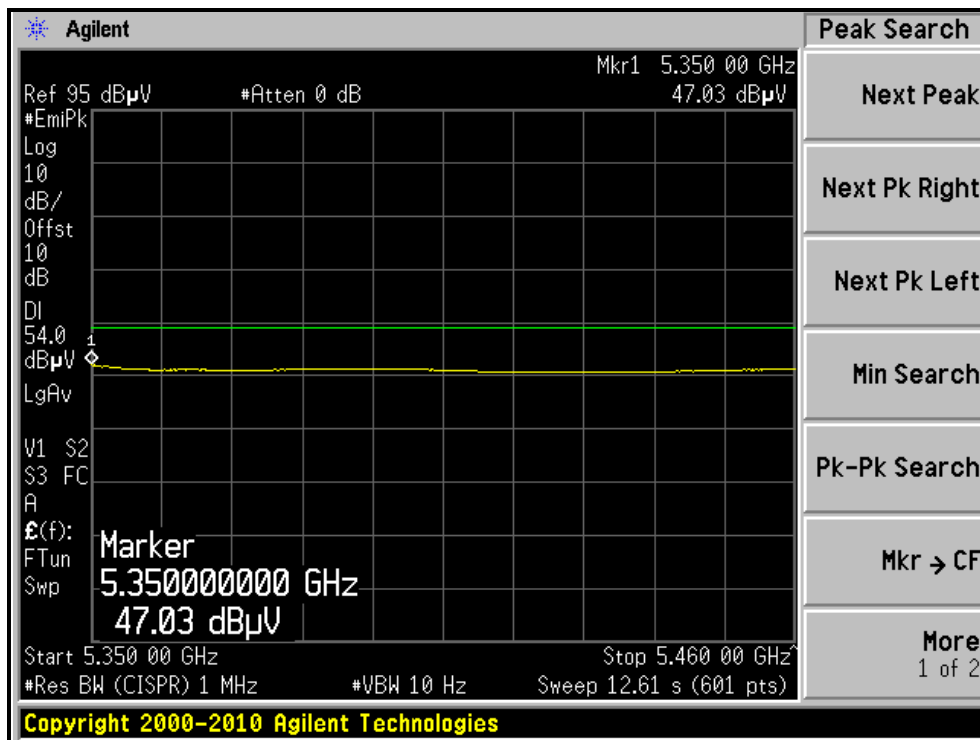
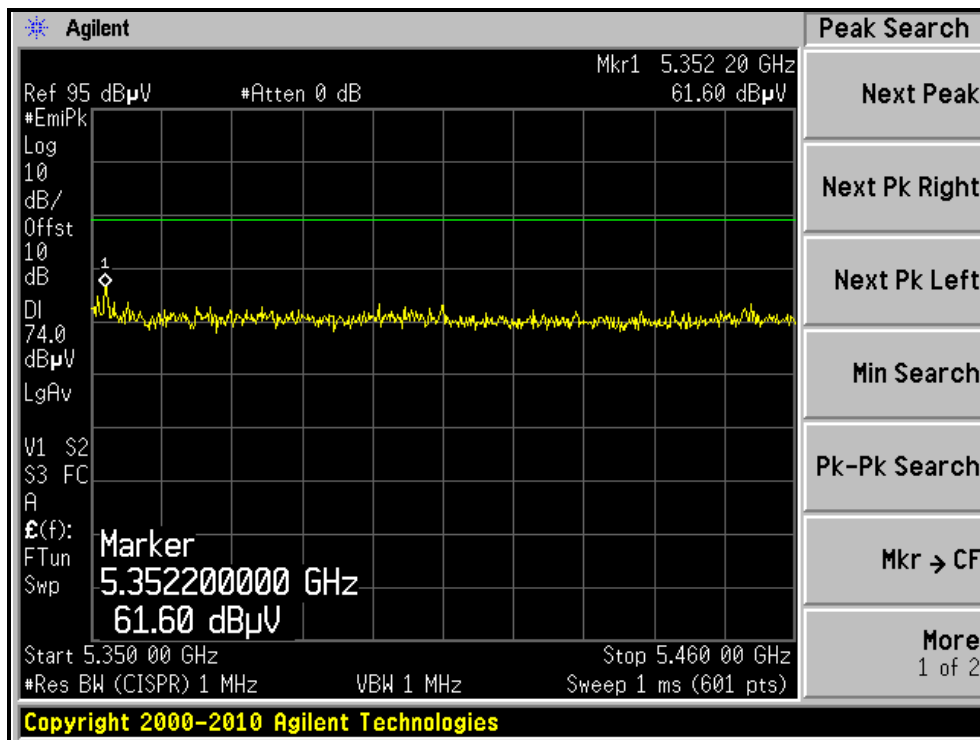
RESTRICTED BANDEDGE (802.11a MODE, CH64, HORIZONTAL)





A D T

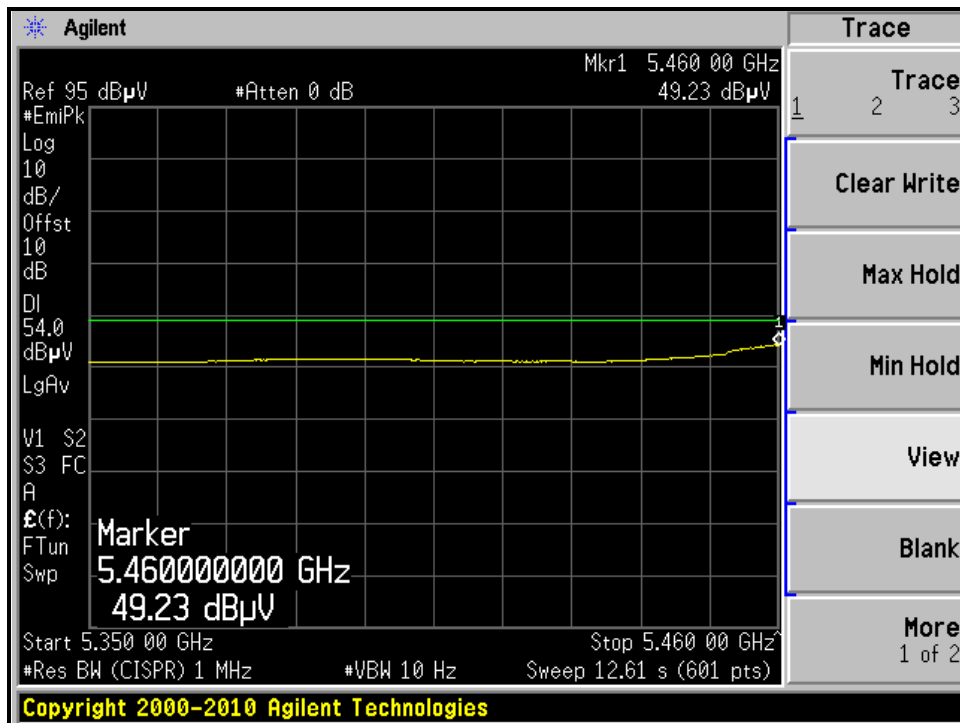
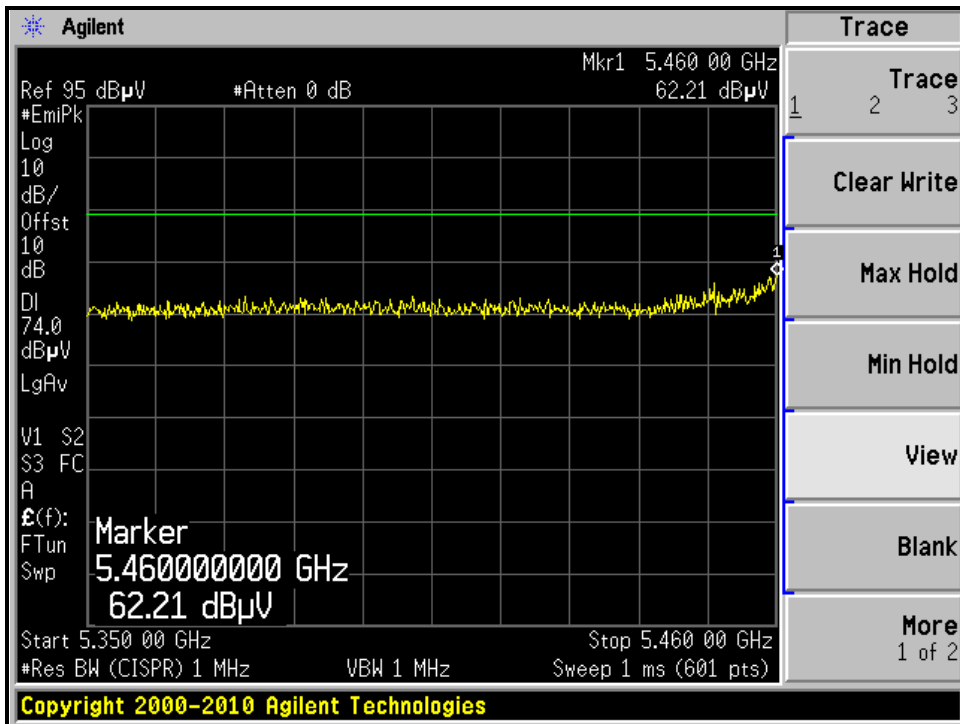
RESTRICTED BANDEDGE (802.11a MODE, CH64, VERTICAL)



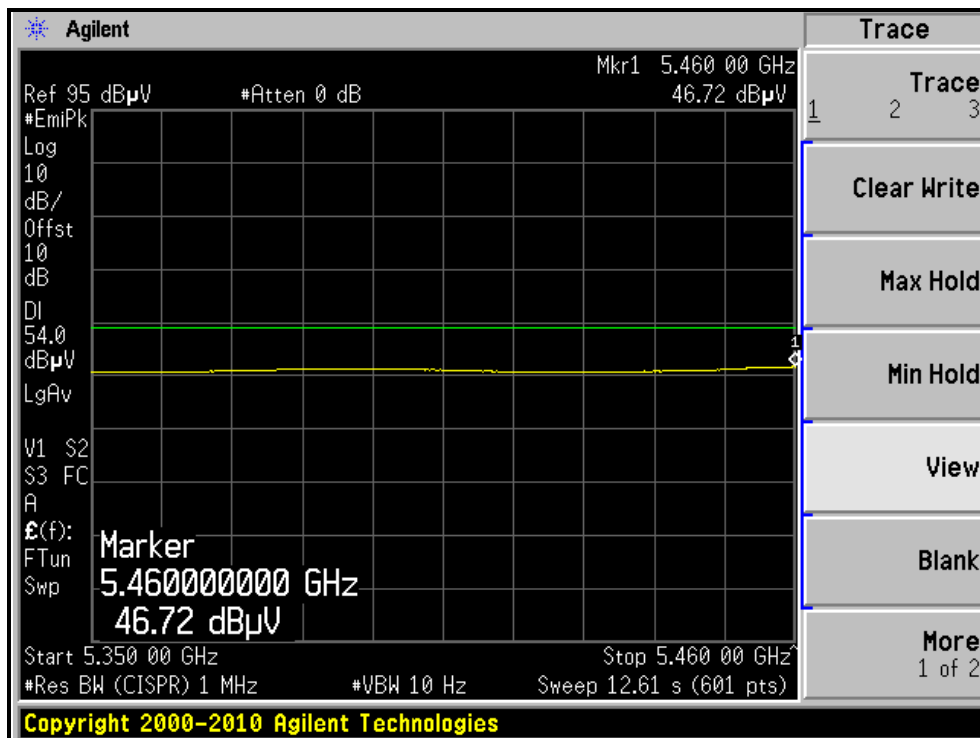
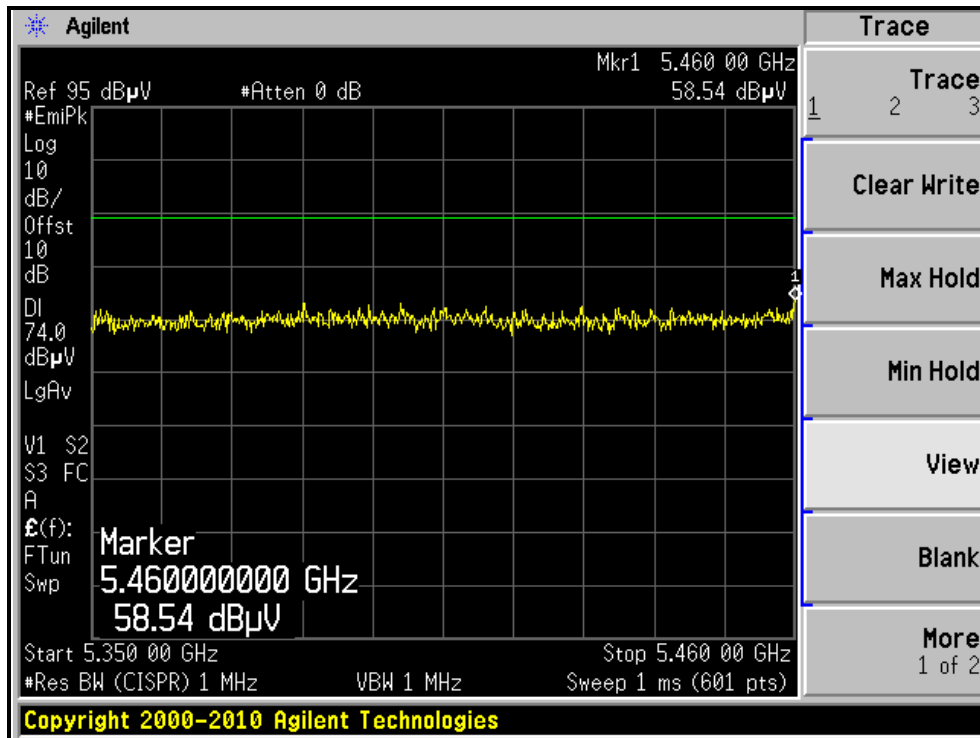


A D T

RESTRICTED BANDEDGE (802.11a MODE, CH100, HORIZONTAL)



RESTRICTED BANDEDGE (802.11a MODE, CH100, VERTICAL)





A D T

802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	5150.00	67.4 PK	74.0	-6.6	1.26 H	262	25.68	41.72
2	5150.00	52.5 AV	54.0	-1.5	1.26 H	262	10.78	41.72
3	*5180.00	116.2 PK			1.24 H	261	74.44	41.76
4	*5180.00	103.2 AV			1.24 H	261	61.44	41.76
5	#10360.00	54.0 PK	68.3	-14.3	1.26 H	296	5.48	48.52
6	15540.00	63.6 PK	74.0	-10.4	1.00 H	71	9.53	54.07
7	15540.00	50.8 AV	54.0	-3.2	1.00 H	71	-3.27	54.07

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	5150.00	62.1 PK	74.0	-11.9	1.22 V	80	20.38	41.72
2	5150.00	47.4 AV	54.0	-6.6	1.22 V	80	5.68	41.72
3	*5180.00	106.1 PK			1.23 V	77	64.34	41.76
4	*5180.00	94.3 AV			1.23 V	77	52.54	41.76
5	#10360.00	51.7 PK	68.3	-16.6	1.26 V	318	3.18	48.52
6	15540.00	63.0 PK	74.0	-11.0	1.05 V	178	8.93	54.07
7	15540.00	50.8 AV	54.0	-3.2	1.05 V	178	-3.27	54.07

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. “#“: The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	*5200.00	115.0 PK			1.26 H	115	73.22	41.78
2	*5200.00	101.0 AV			1.26 H	115	59.22	41.78
3	#10400.00	55.3 PK	68.3	-13.0	1.26 H	294	6.62	48.68
4	15600.00	62.6 PK	74.0	-11.4	1.00 H	70	9.02	53.58
5	15600.00	50.5 AV	54.0	-3.5	1.00 H	70	-3.08	53.58

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	*5200.00	104.5 PK			1.25 V	80	62.72	41.78
2	*5200.00	92.4 AV			1.25 V	80	50.62	41.78
3	#10400.00	52.1 PK	68.3	-16.2	1.26 V	311	3.42	48.68
4	15600.00	62.5 PK	74.0	-11.5	1.05 V	177	8.92	53.58
5	15600.00	50.4 AV	54.0	-3.6	1.05 V	177	-3.18	53.58

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. “#”:The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	*5240.00	114.8 PK			1.26 H	113	72.93	41.87
2	*5240.00	100.0 AV			1.26 H	113	58.13	41.87
3	#10480.00	55.5 PK	68.3	-12.8	1.26 H	288	6.88	48.62
4	15720.00	62.1 PK	74.0	-11.9	1.00 H	68	8.24	53.86
5	15720.00	50.3 AV	54.0	-3.7	1.00 H	68	-3.56	53.86
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	*5240.00	103.9 PK			1.26 V	77	62.03	41.87
2	*5240.00	92.1 AV			1.26 V	77	50.23	41.87
3	#10480.00	52.3 PK	68.3	-16.0	1.25 V	310	3.68	48.62
4	15720.00	62.6 PK	74.0	-11.4	1.05 V	176	8.74	53.86
5	15720.00	50.5 AV	54.0	-3.5	1.05 V	176	-3.36	53.86

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. “ # “: The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	*5260.00	113.8 PK			1.27 H	112	71.89	41.91
2	*5260.00	100.9 AV			1.27 H	112	58.99	41.91
3	#10520.00	56.1 PK	68.3	-12.2	1.26 H	278	7.44	48.66
4	15780.00	62.3 PK	74.0	-11.7	1.00 H	70	8.38	53.92
5	15780.00	50.4 AV	54.0	-3.6	1.00 H	70	-3.52	53.92

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	*5260.00	103.6 PK			1.24 V	69	61.69	41.91
2	*5260.00	92.4 AV			1.24 V	69	50.49	41.91
3	#10520.00	54.1 PK	68.3	-14.2	1.24 V	321	5.44	48.66
4	15780.00	62.4 PK	74.0	-11.6	1.05 V	174	8.48	53.92
5	15780.00	50.5 AV	54.0	-3.5	1.05 V	174	-3.42	53.92

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. “#”:The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	*5300.00	113.1 PK			1.27 H	116	71.10	42.00
2	*5300.00	100.6 AV			1.27 H	116	58.60	42.00
3	10600.00	57.5 PK	74.0	-16.5	1.22 H	269	8.58	48.92
4	10600.00	45.6 AV	54.0	-8.4	1.22 H	269	-3.32	48.92
5	15900.00	62.1 PK	74.0	-11.9	1.00 H	66	7.46	54.64
6	15900.00	50.4 AV	54.0	-3.6	1.00 H	66	-4.24	54.64
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	*5300.00	103.5 PK			1.24 V	80	61.50	42.00
2	*5300.00	92.2 AV			1.24 V	80	50.20	42.00
3	10600.00	56.9 PK	74.0	-17.1	1.25 V	319	7.98	48.92
4	10600.00	44.7 AV	54.0	-9.3	1.25 V	319	-4.22	48.92
5	15900.00	62.3 PK	74.0	-11.7	1.05 V	177	7.66	54.64
6	15900.00	50.3 AV	54.0	-3.7	1.05 V	177	-4.34	54.64

- 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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	*5320.00	113.3 PK			1.27 H	113	71.26	42.04
2	*5320.00	101.0 AV			1.27 H	113	58.96	42.04
3	5350.00	63.1 PK	74.0	-10.9	1.28 H	113	21.01	42.09
4	5350.00	48.0 AV	54.0	-6.0	1.28 H	113	5.91	42.09
5	10640.00	56.9 PK	74.0	-17.1	1.26 H	281	8.09	48.81
6	10640.00	45.4 AV	54.0	-8.6	1.26 H	281	-3.41	48.81
7	15960.00	62.2 PK	74.0	-11.8	1.00 H	69	7.86	54.34
8	15960.00	50.5 AV	54.0	-3.5	1.00 H	69	-3.84	54.34

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	*5320.00	104.6 PK			1.26 V	77	62.56	42.04
2	*5320.00	93.3 AV			1.26 V	77	51.26	42.04
3	5350.00	58.4 PK	74.0	-15.6	1.24 V	81	16.31	42.09
4	5350.00	45.9 AV	54.0	-8.1	1.24 V	81	3.81	42.09
5	10640.00	56.6 PK	74.0	-17.4	1.25 V	320	7.79	48.81
6	10640.00	44.9 AV	54.0	-9.1	1.25 V	320	-3.91	48.81
7	15960.00	62.4 PK	74.0	-11.6	1.05 V	174	8.06	54.34
8	15960.00	50.3 AV	54.0	-3.7	1.05 V	174	-4.04	54.34

- 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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	5460.00	63.8 PK	74.0	-10.2	1.24 H	114	21.58	42.22
2	5460.00	48.7 AV	54.0	-5.3	1.24 H	114	6.48	42.22
3	#5470.00	60.3 PK	68.3	-8.0	1.23 H	239	18.07	42.23
4	*5500.00	113.2 PK			1.24 H	241	70.95	42.25
5	*5500.00	100.8 AV			1.24 H	241	58.55	42.25
6	11000.00	57.5 PK	74.0	-16.5	1.25 H	276	8.52	48.98
7	11000.00	44.6 AV	54.0	-9.4	1.25 H	276	-4.38	48.98
8	#16500.00	59.7 PK	68.3	-8.6	1.00 H	70	3.77	55.93
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	5460.00	58.1 PK	74.0	-15.9	1.26 V	70	15.88	42.22
2	5460.00	46.2 AV	54.0	-7.8	1.26 V	70	3.98	42.22
3	#5470.00	58.6 PK	68.3	-9.7	1.25 V	70	16.37	42.23
4	*5500.00	104.1 PK			1.25 V	69	61.85	42.25
5	*5500.00	93.1 AV			1.25 V	69	50.85	42.25
6	11000.00	56.7 PK	74.0	-17.3	1.24 V	318	7.72	48.98
7	11000.00	44.1 AV	54.0	-9.9	1.24 V	318	-4.88	48.98
8	#16500.00	56.9 PK	68.3	-11.4	1.01 V	177	0.97	55.93

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. “#”:The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	*5580.00	112.5 PK			1.22 H	247	70.11	42.39
2	*5580.00	100.0 AV			1.22 H	247	57.61	42.39
3	11160.00	58.5 PK	74.0	-15.5	1.26 H	274	9.44	49.06
4	11160.00	46.6 AV	54.0	-7.4	1.26 H	274	-2.46	49.06
5	#16740.00	59.8 PK	68.3	-8.5	1.00 H	69	3.60	56.20
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	103.5 PK			1.24 V	80	61.11	42.39
2	*5580.00	92.8 AV			1.24 V	80	50.41	42.39
3	11160.00	56.9 PK	74.0	-17.1	1.23 V	310	7.84	49.06
4	11160.00	45.7 AV	54.0	-8.3	1.23 V	310	-3.36	49.06
5	#16740.00	57.6 PK	68.3	-10.7	1.04 V	176	1.40	56.20

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. "#":The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 132	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	*5660.00	113.4 PK			1.22 H	255	70.84	42.56
2	*5660.00	100.7 AV			1.22 H	255	58.14	42.56
3	11320.00	61.2 PK	74.0	-12.8	1.26 H	264	12.15	49.05
4	11320.00	48.6 AV	54.0	-5.4	1.26 H	264	-0.45	49.05
5	#16980.00	59.6 PK	68.3	-8.7	1.00 H	66	3.24	56.36
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	*5660.00	104.3 PK			1.26 V	77	61.74	42.56
2	*5660.00	93.1 AV			1.26 V	77	50.54	42.56
3	11320.00	58.4 PK	74.0	-15.6	1.25 V	319	9.35	49.05
4	11320.00	46.2 AV	54.0	-7.8	1.25 V	319	-2.85	49.05
5	#16980.00	56.7 PK	68.3	-11.6	1.05 V	174	0.34	56.36

- 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.
 6. "#":The radiated frequency is out the restricted band.
 4. Margin value = Emission level – Limit value.



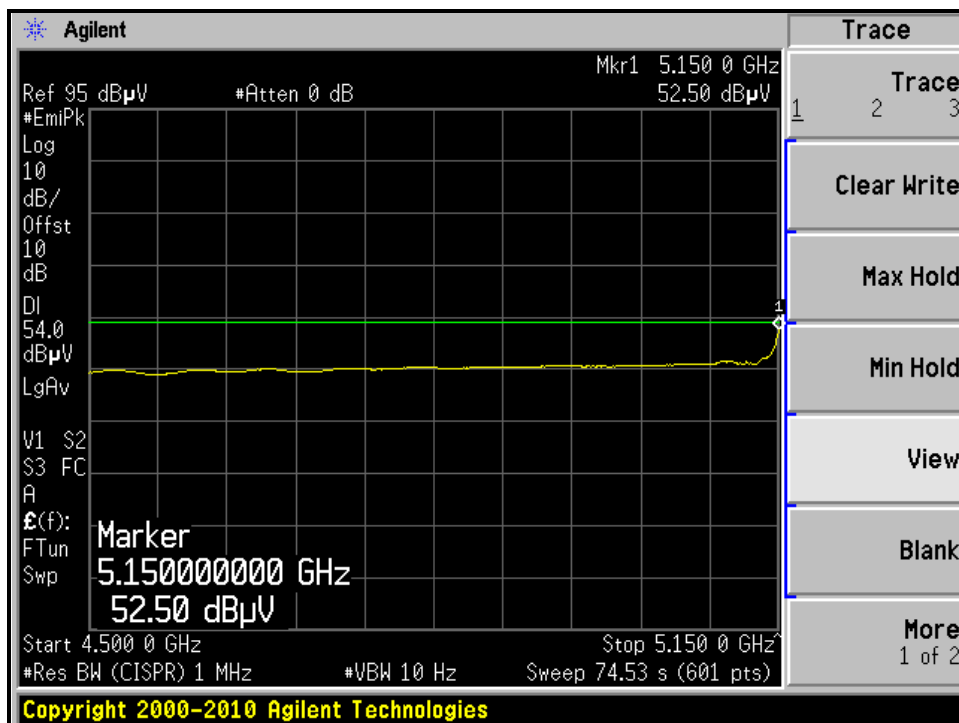
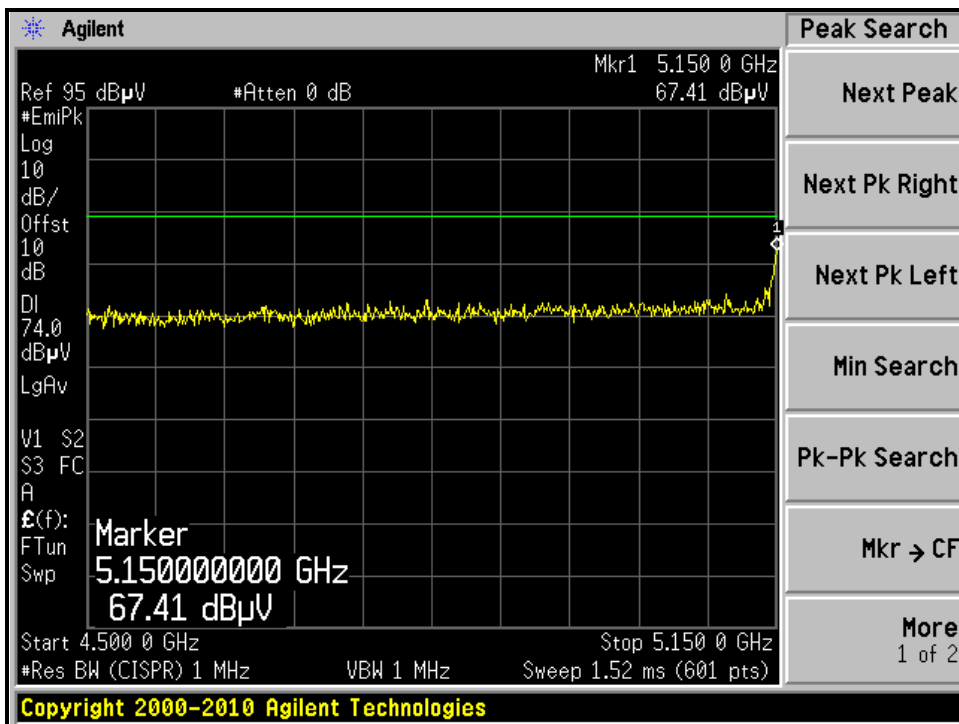
A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	*5700.00	113.0 PK			1.21 H	262	70.36	42.64
2	*5700.00	100.1 AV			1.21 H	262	57.46	42.64
3	#5725.00	60.5 PK	68.3	-7.8	1.23 H	245	17.83	42.67
4	11400.00	60.2 PK	74.0	-13.8	1.25 H	267	10.97	49.23
5	11400.00	48.3 AV	54.0	-5.7	1.25 H	267	-0.93	49.23
6	#17100.00	60.0 PK	68.3	-8.3	1.00 H	70	3.40	56.60
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	*5700.00	103.9 PK			1.24 V	81	61.26	42.64
2	*5700.00	92.8 AV			1.24 V	81	50.16	42.64
3	#5725.00	58.4 PK	68.3	-9.9	1.24 V	82	15.73	42.67
4	11400.00	58.7 PK	74.0	-15.3	1.26 V	311	9.47	49.23
5	11400.00	46.3 AV	54.0	-7.7	1.26 V	311	-2.93	49.23
6	#17100.00	57.8 PK	68.3	-10.5	1.04 V	179	1.20	56.60

- 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.
 6. “#”:The radiated frequency is out the restricted band.

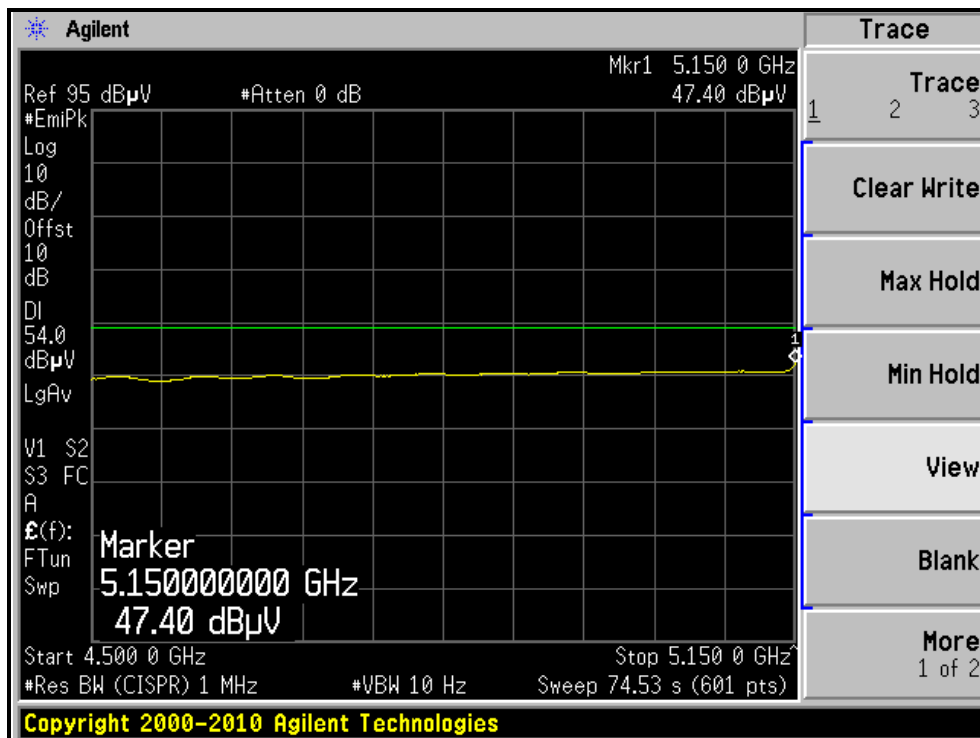
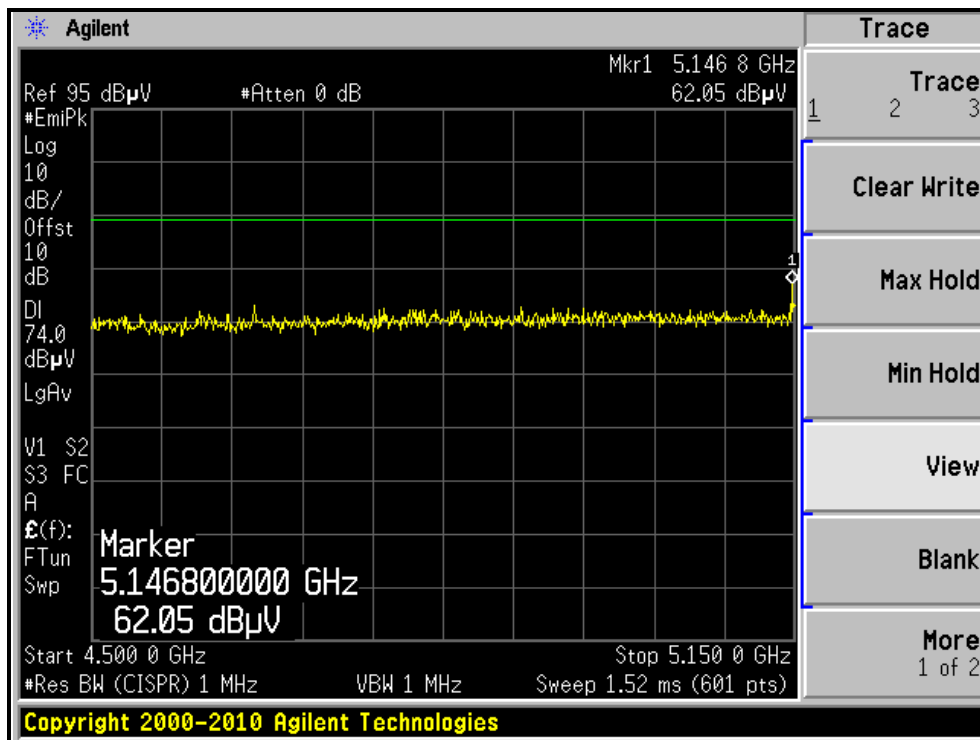
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH36, HORIZONTAL)





A D T

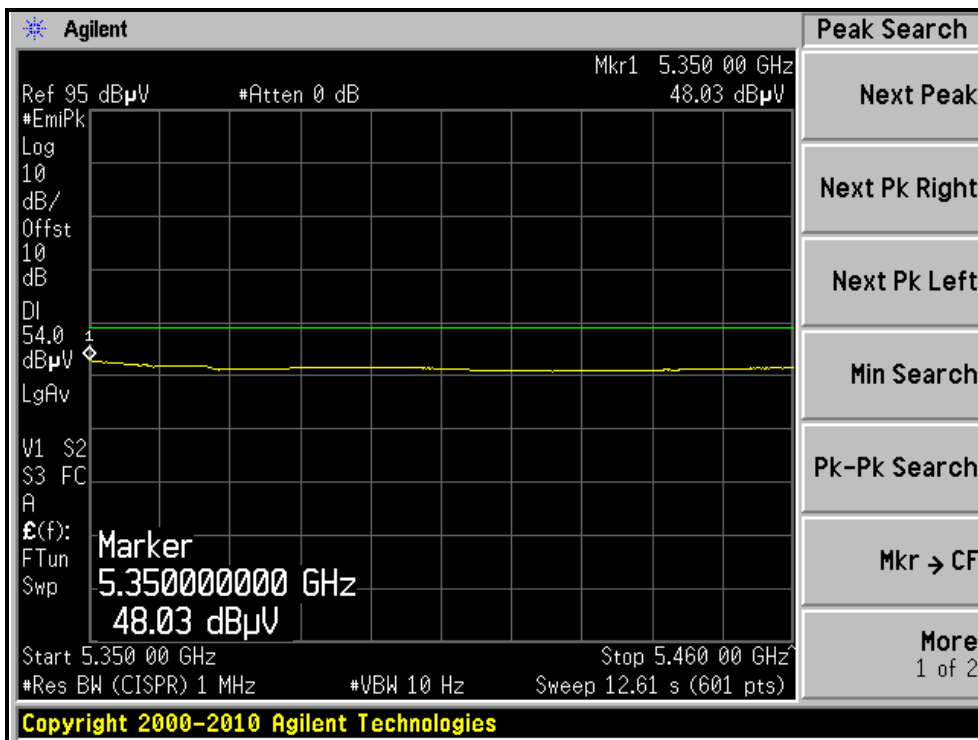
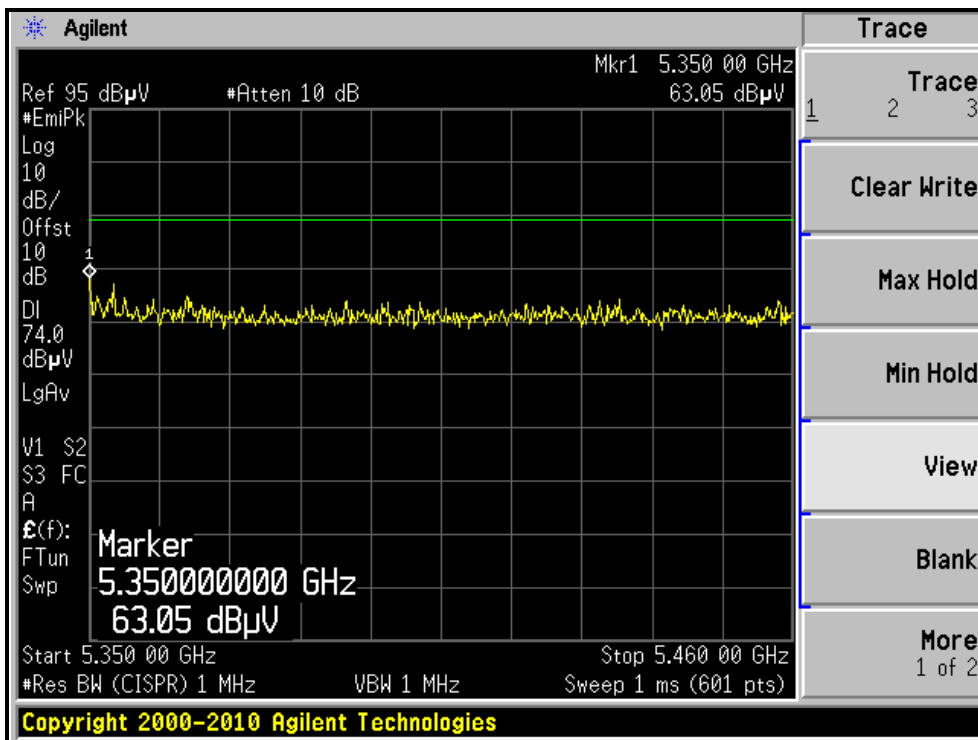
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH36, VERTICAL)





A D T

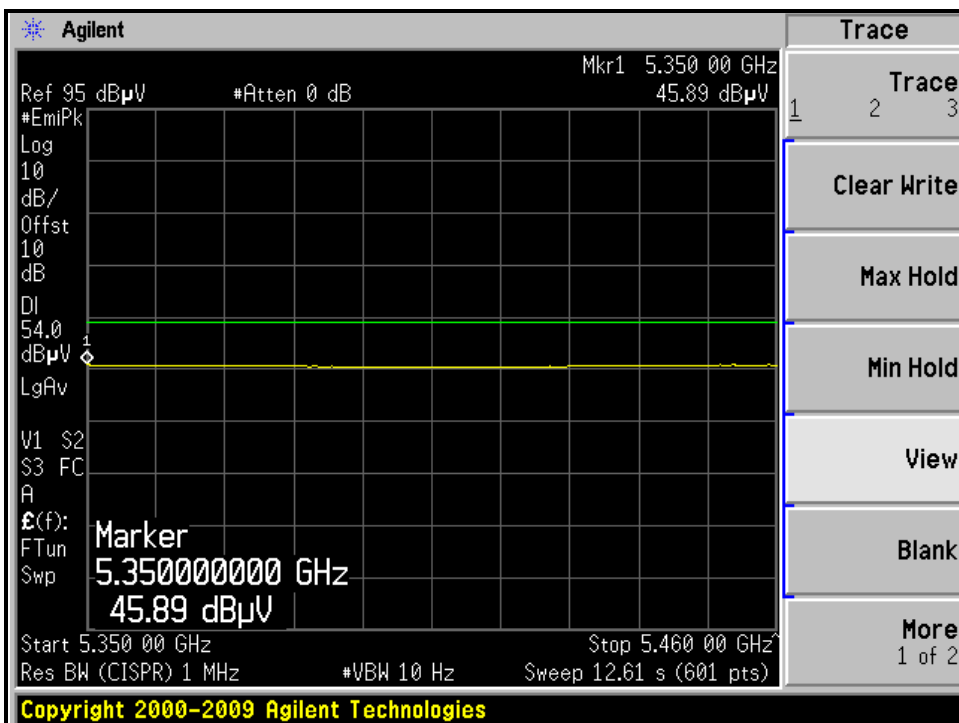
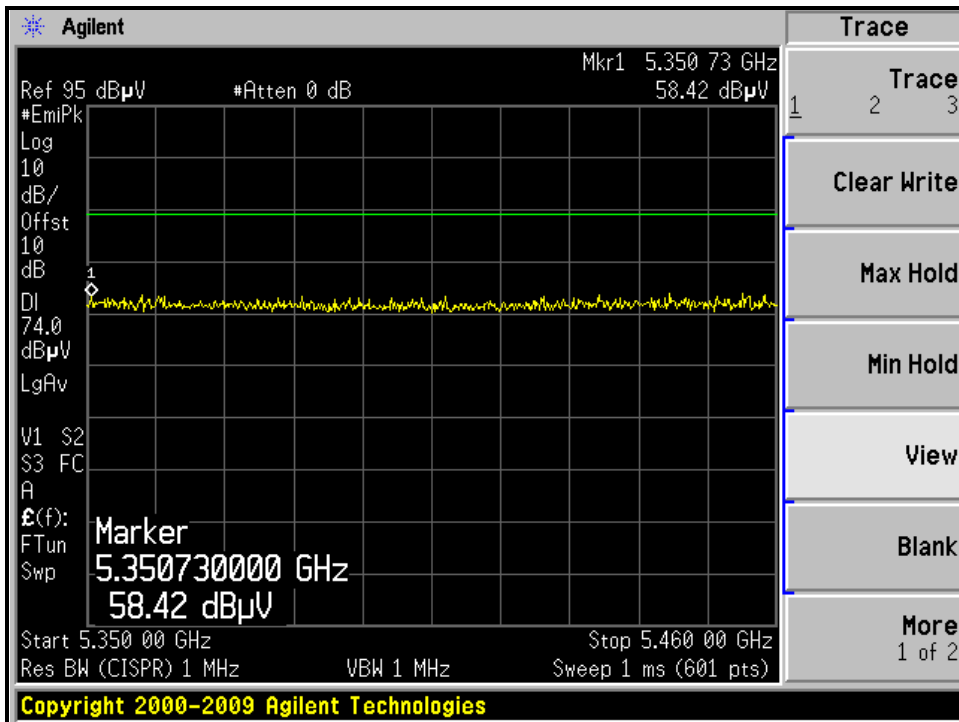
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH 64, HORIZONTAL)





A D T

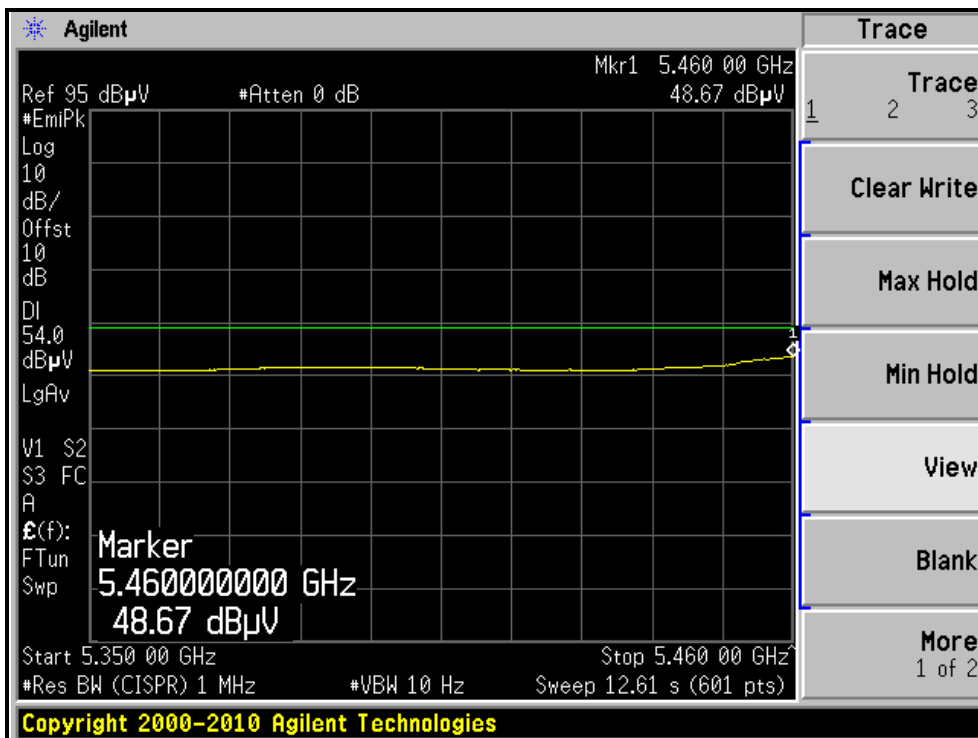
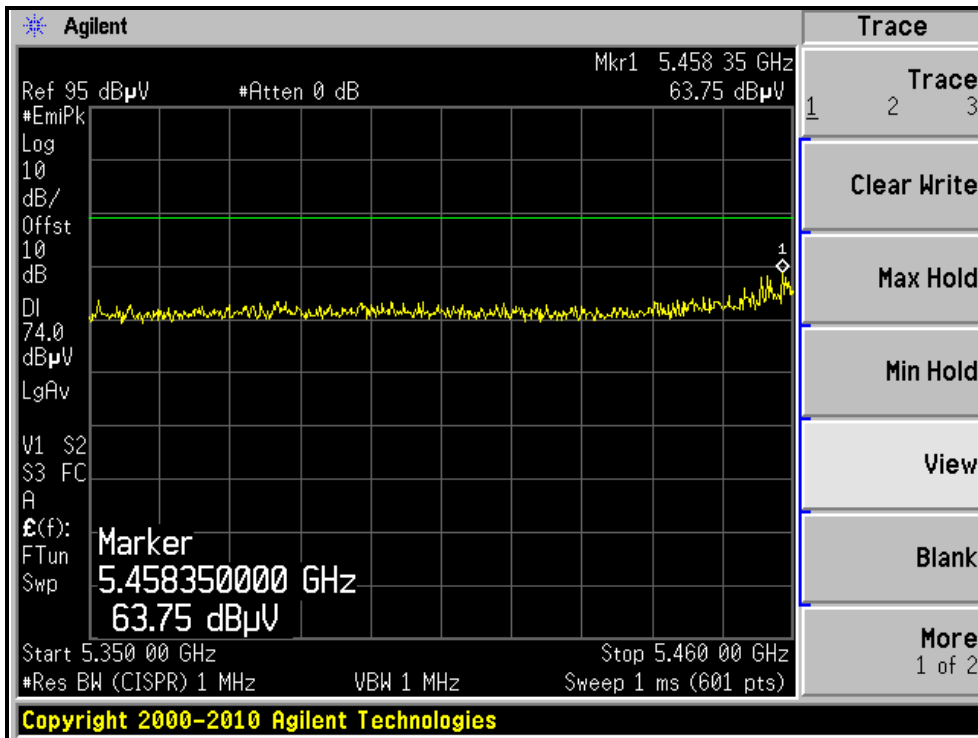
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH 64, VERTICAL)





A D T

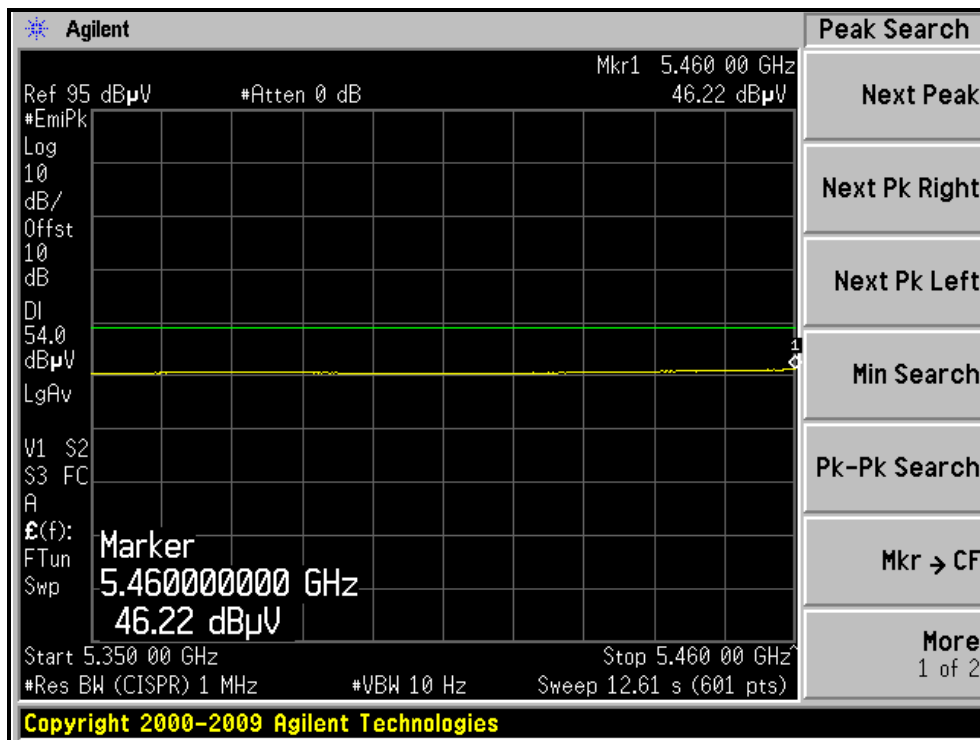
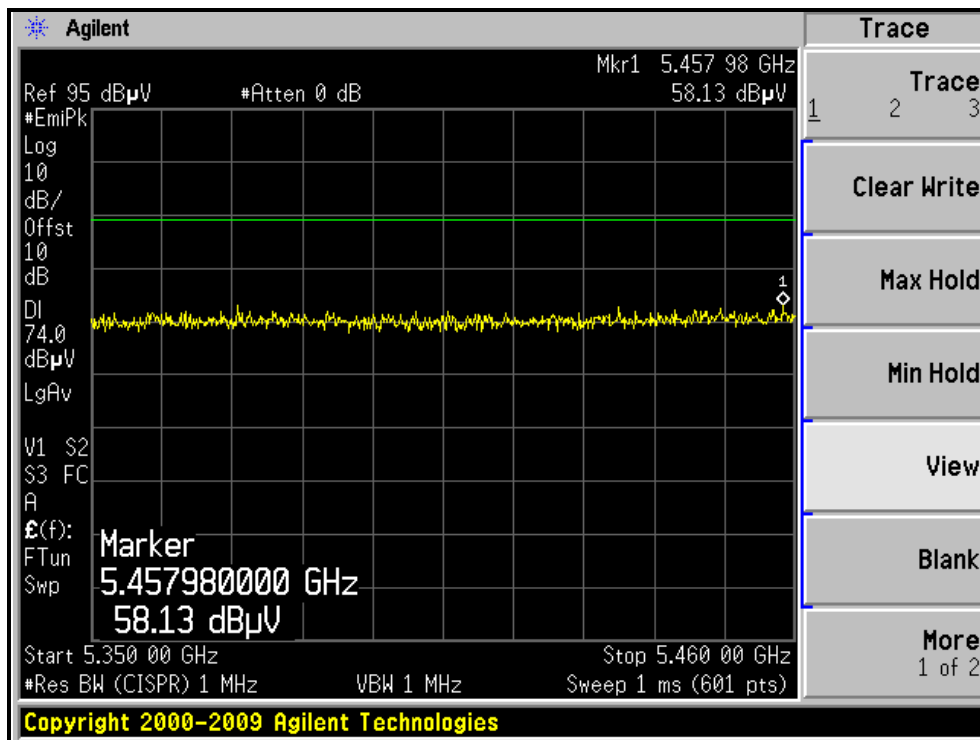
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH 100, HORIZONTAL)





A D T

RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH 100, VERTICAL)





A D T

802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 38	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	5150.00	67.8 PK	74.0	-6.2	1.12 H	253	26.08	41.72
2	5150.00	53.0 AV	54.0	-1.0	1.12 H	253	11.28	41.72
3	*5190.00	106.9 PK			1.27 H	254	65.13	41.77
4	*5190.00	92.1 AV			1.27 H	254	50.33	41.77
5	#10380.00	51.1 PK	68.3	-17.2	1.26 H	270	2.50	48.60
6	15570.00	62.6 PK	74.0	-11.4	1.00 H	70	8.78	53.82
7	15570.00	50.3 AV	54.0	-3.7	1.00 H	70	-3.52	53.82

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	5150.00	60.2 PK	74.0	-13.8	1.23 V	79	18.48	41.72
2	5150.00	48.0 AV	54.0	-6.0	1.23 V	79	6.28	41.72
3	*5190.00	101.3 PK			1.24 V	80	59.53	41.77
4	*5190.00	88.5 AV			1.24 V	80	46.73	41.77
5	#10380.00	50.4 PK	68.3	-17.9	1.29 V	321	1.80	48.60
6	15570.00	62.7 PK	74.0	-11.3	1.04 V	176	8.88	53.82
7	15570.00	50.4 AV	54.0	-3.6	1.04 V	176	-3.42	53.82

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. "#":The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 46	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	*5230.00	108.7 PK			1.26 H	251	66.85	41.85
2	*5230.00	94.8 AV			1.26 H	251	52.95	41.85
3	#10460.00	51.3 PK	68.3	-17.0	1.25 H	281	2.67	48.63
4	15690.00	62.4 PK	74.0	-11.6	1.00 H	68	8.59	53.81
5	15690.00	50.2 AV	54.0	-3.8	1.00 H	68	-3.61	53.81

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	*5230.00	102.5 PK			1.23 V	77	60.65	41.85
2	*5230.00	90.0 AV			1.23 V	77	48.15	41.85
3	#10460.00	50.7 PK	68.3	-17.6	1.26 V	311	2.07	48.63
4	15690.00	62.8 PK	74.0	-11.2	1.05 V	177	8.99	53.81
5	15690.00	50.4 AV	54.0	-3.6	1.05 V	177	-3.41	53.81

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. “#”:The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 54	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	*5270.00	108.9 PK			1.25 H	256	66.97	41.93
2	*5270.00	95.3 AV			1.25 H	256	53.37	41.93
3	#10540.00	50.6 PK	68.3	-17.7	1.26 H	268	1.87	48.73
4	15810.00	62.5 PK	74.0	-11.5	1.00 H	67	8.49	54.01
5	15810.00	50.4 AV	54.0	-3.6	1.00 H	67	-3.61	54.01

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	*5270.00	102.9 PK			1.26 V	81	60.97	41.93
2	*5270.00	91.5 AV			1.26 V	81	49.57	41.93
3	#10540.00	50.3 PK	68.3	-18.0	1.28 V	320	1.57	48.73
4	15810.00	62.4 PK	74.0	-11.6	1.05 V	176	8.39	54.01
5	15810.00	50.2 AV	54.0	-3.8	1.05 V	176	-3.81	54.01

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. “ # “: The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 62	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	*5310.00	106.7 PK			1.22 H	116	64.68	42.02
2	*5310.00	92.6 AV			1.22 H	116	50.58	42.02
3	5350.00	69.5 PK	74.0	-4.5	1.27 H	117	27.41	42.09
4	5350.00	53.1 AV	54.0	-0.9	1.27 H	117	11.01	42.09
5	10620.00	56.6 PK	74.0	-17.4	1.22 H	287	7.73	48.87
6	10620.00	45.2 AV	54.0	-8.8	1.22 H	287	-3.67	48.87
7	15930.00	62.5 PK	74.0	-11.5	1.00 H	68	8.01	54.49
8	15930.00	50.2 AV	54.0	-3.8	1.00 H	68	-4.29	54.49
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	*5310.00	101.0 PK			1.26 V	74	58.98	42.02
2	*5310.00	88.6 AV			1.26 V	74	46.58	42.02
3	5350.00	65.4 PK	74.0	-8.6	1.26 V	80	23.31	42.09
4	5350.00	48.7 AV	54.0	-5.3	1.26 V	80	6.61	42.09
5	10620.00	55.3 PK	74.0	-18.7	1.28 V	320	6.43	48.87
6	10620.00	44.6 AV	54.0	-9.4	1.28 V	320	-4.27	48.87
7	15930.00	62.7 PK	74.0	-11.3	1.05 V	177	8.21	54.49
8	15930.00	50.4 AV	54.0	-3.6	1.05 V	177	-4.09	54.49

- 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.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 102	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	5460.00	68.1 PK	74.0	-5.9	1.21 H	108	25.88	42.22
2	5460.00	52.1 AV	54.0	-1.9	1.21 H	108	9.88	42.22
3	#5470.00	66.7 PK	68.3	-1.6	1.22 H	114	24.47	42.23
4	*5510.00	107.3 PK			1.22 H	115	65.03	42.27
5	*5510.00	93.7 AV			1.22 H	115	51.43	42.27
6	11020.00	57.7 PK	74.0	-16.3	1.26 H	291	8.70	49.00
7	11020.00	45.3 AV	54.0	-8.7	1.26 H	291	-3.70	49.00
8	#16530.00	58.4 PK	68.3	-9.9	1.00 H	69	2.52	55.88
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	5460.00	65.6 PK	74.0	-8.4	1.24 V	81	23.38	42.22
2	5460.00	49.2 AV	54.0	-4.8	1.24 V	81	6.98	42.22
3	#5470.00	61.9 PK	68.3	-6.4	1.25 V	80	19.67	42.23
4	*5510.00	101.9 PK			1.24 V	80	59.63	42.27
5	*5510.00	89.6 AV			1.24 V	80	47.33	42.27
6	11020.00	55.9 PK	74.0	-18.1	1.28 V	319	6.90	49.00
7	11020.00	43.7 AV	54.0	-10.3	1.28 V	319	-5.30	49.00
8	#16530.00	58.3 PK	68.3	-10.0	1.05 V	178	2.42	55.88

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. “#”:The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 110	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

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	*5550.00	110.1 PK			1.23 H	114	67.76	42.34
2	*5550.00	95.8 AV			1.23 H	114	53.46	42.34
3	11100.00	57.9 PK	74.0	-16.1	1.26 H	287	8.80	49.10
4	11100.00	45.6 AV	54.0	-8.4	1.26 H	287	-3.50	49.10
5	#16650.00	58.6 PK	68.3	-9.7	1.00 H	71	2.68	55.92
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	*5550.00	102.5 PK			1.25 V	77	60.16	42.34
2	*5550.00	91.3 AV			1.25 V	77	48.96	42.34
3	11100.00	56.5 PK	74.0	-17.5	1.28 V	320	7.40	49.10
4	11100.00	44.6 AV	54.0	-9.4	1.28 V	320	-4.50	49.10
5	#16650.00	57.6 PK	68.3	-10.7	1.06 V	177	1.68	55.92

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. “ # “: The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 134	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	24deg. C, 63%RH	TESTED BY	Amos Chung

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

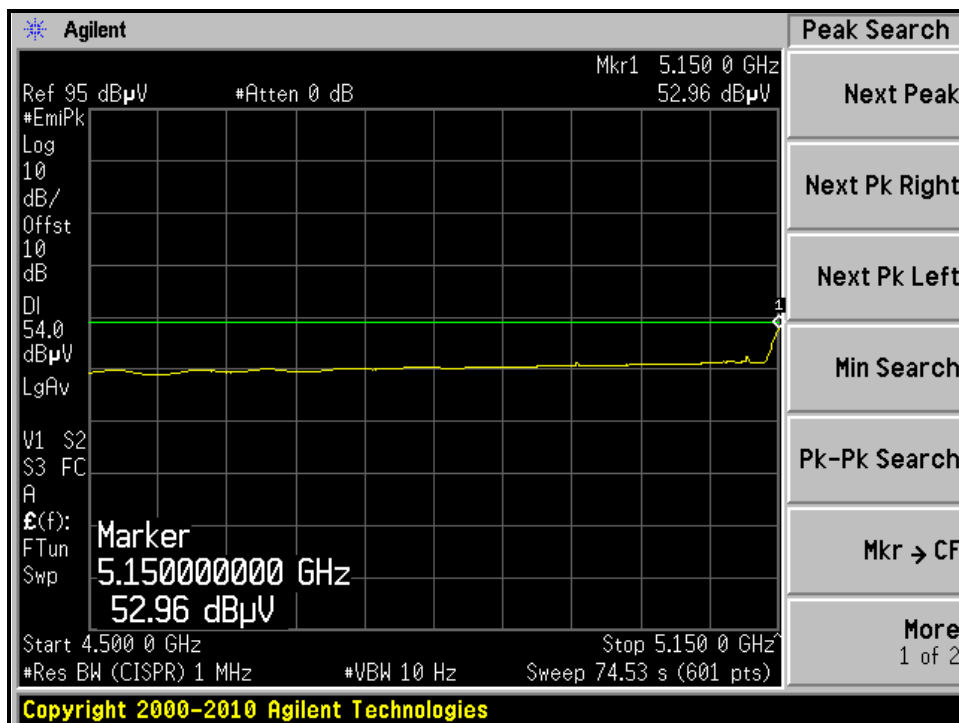
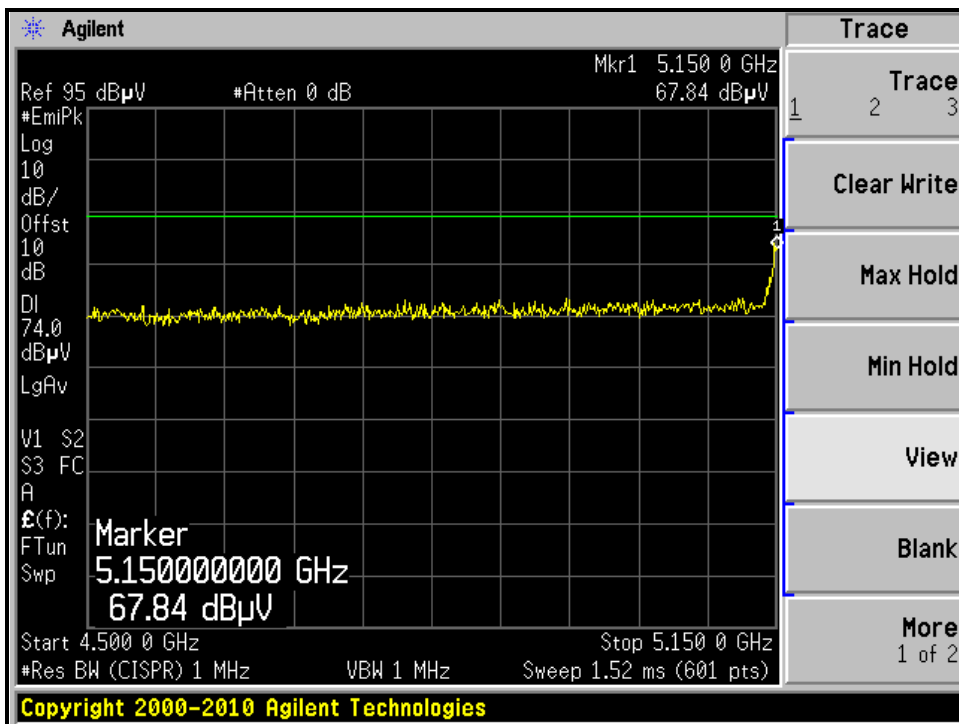
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	109.3 PK			1.21 H	113	66.72	42.58
2	*5670.00	96.9 AV			1.21 H	113	54.32	42.58
3	#5725.00	56.4 PK	68.3	-11.9	1.21 H	114	13.73	42.67
4	11340.00	57.3 PK	74.0	-16.7	1.27 H	284	8.21	49.09
5	11340.00	45.3 AV	54.0	-8.7	1.27 H	284	-3.79	49.09
6	#17010.00	58.5 PK	68.3	-9.8	1.00 H	70	2.14	56.36

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	*5670.00	103.4 PK			1.23 V	80	60.82	42.58
2	*5670.00	92.4 AV			1.23 V	80	49.82	42.58
3	#5725.00	54.5 PK	68.3	-13.8	1.23 V	81	11.83	42.67
4	11340.00	56.7 PK	74.0	-17.3	1.28 V	311	7.61	49.09
5	11340.00	44.8 AV	54.0	-9.2	1.28 V	311	-4.29	49.09
6	#17010.00	58.1 PK	68.3	-10.2	1.07 V	167	1.74	56.36

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 6. “#”:The radiated frequency is out the restricted band.

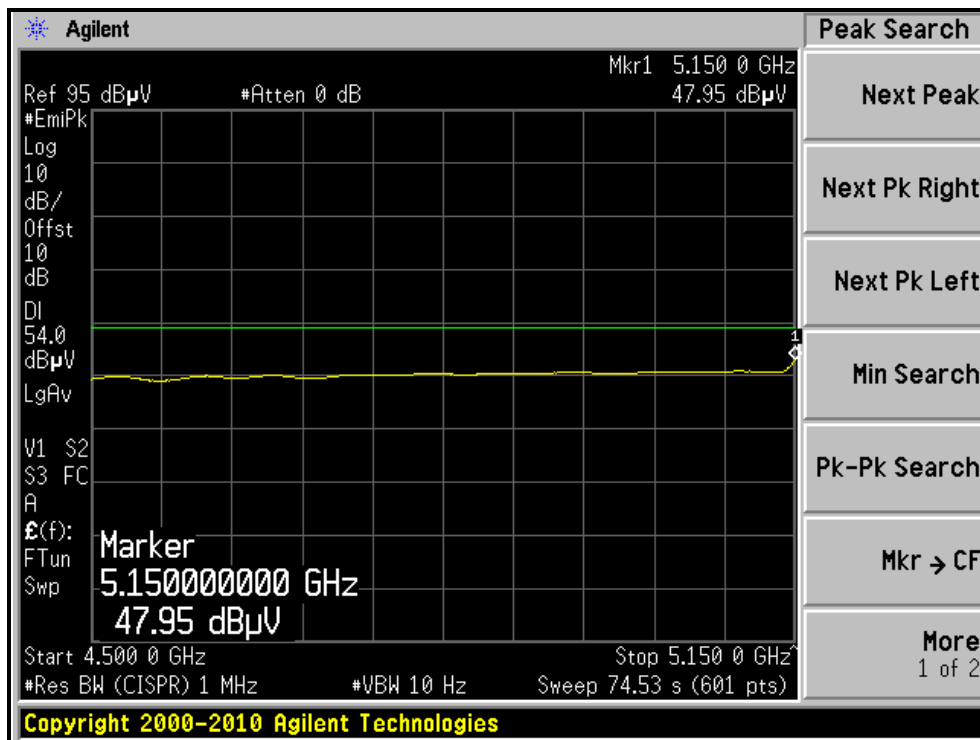
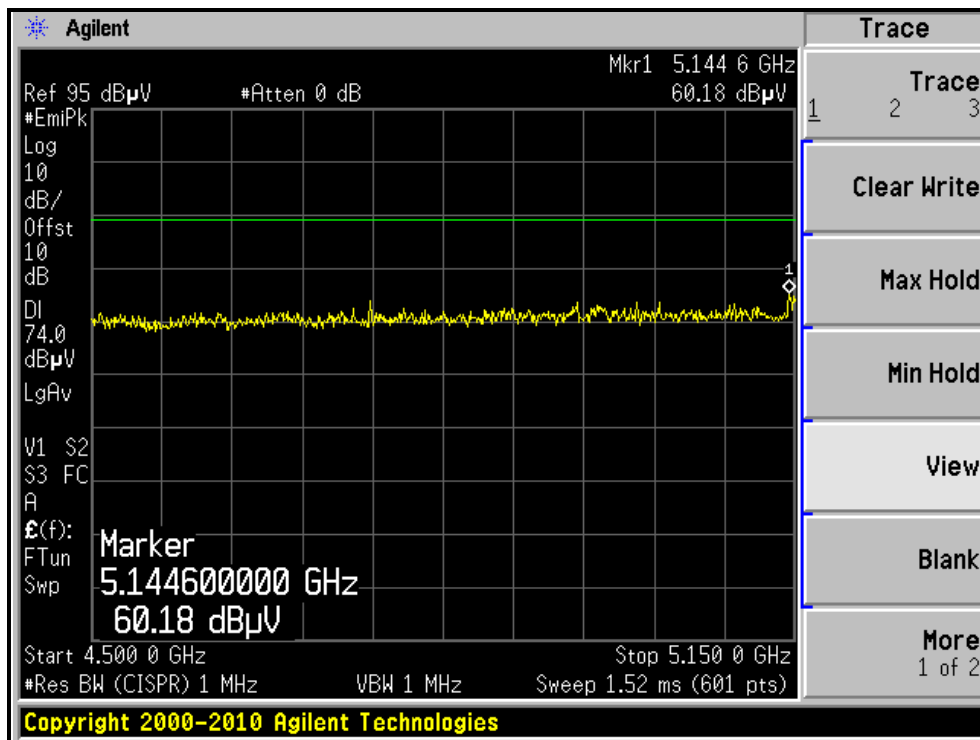
RESTRICTED BANDEDGE (802.11n (40MHz) MODE, CH38, HORIZONTAL)





A D T

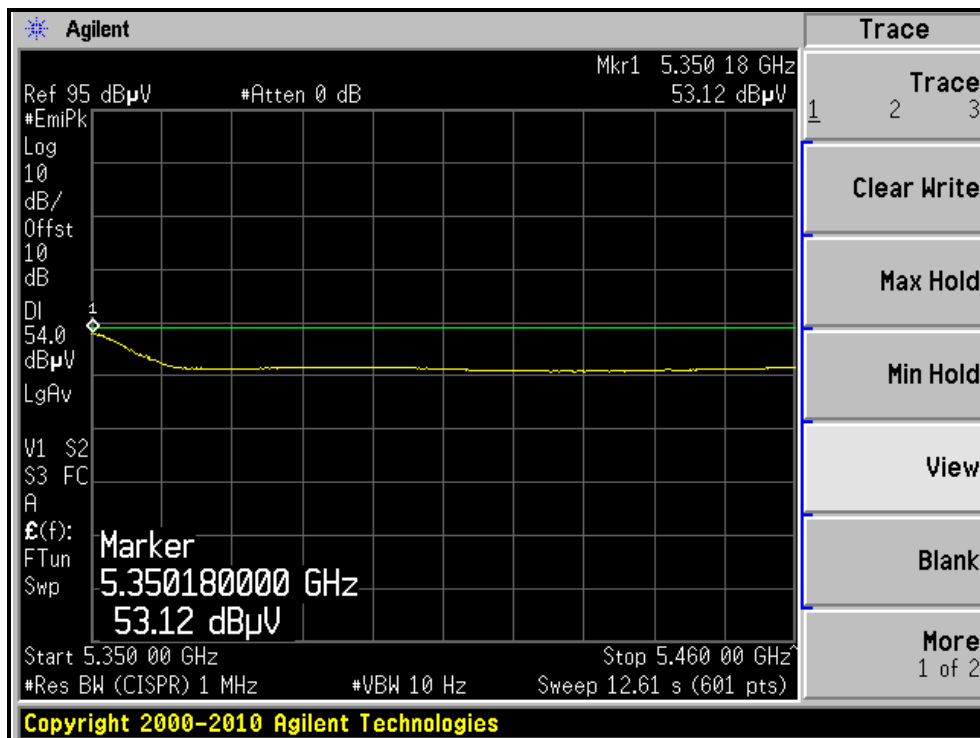
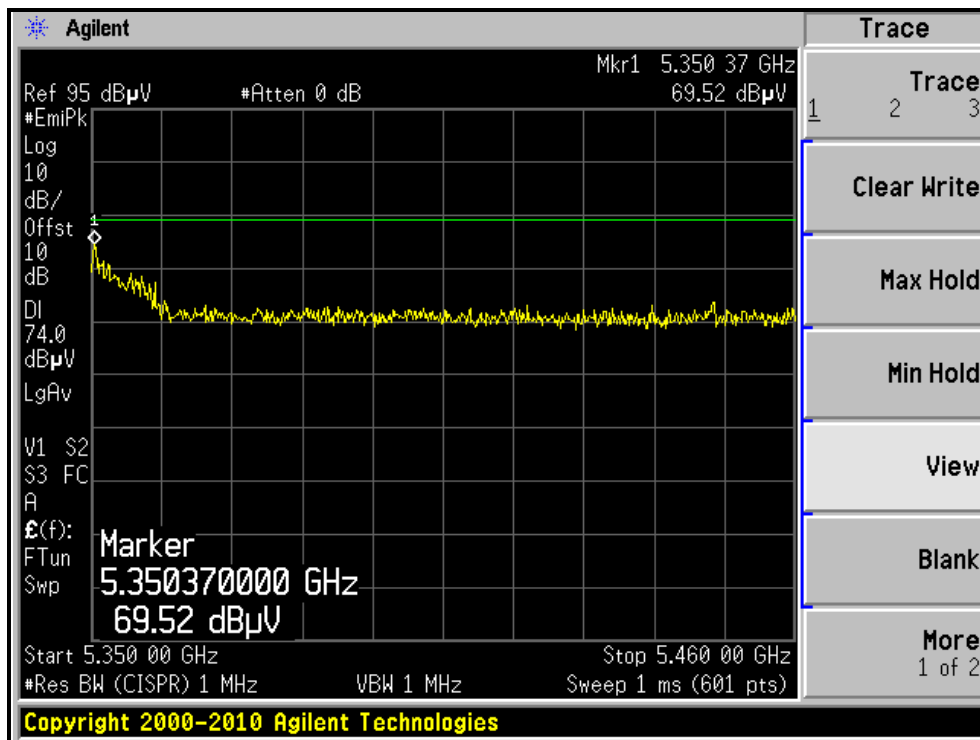
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH38, VERTICAL)





A D T

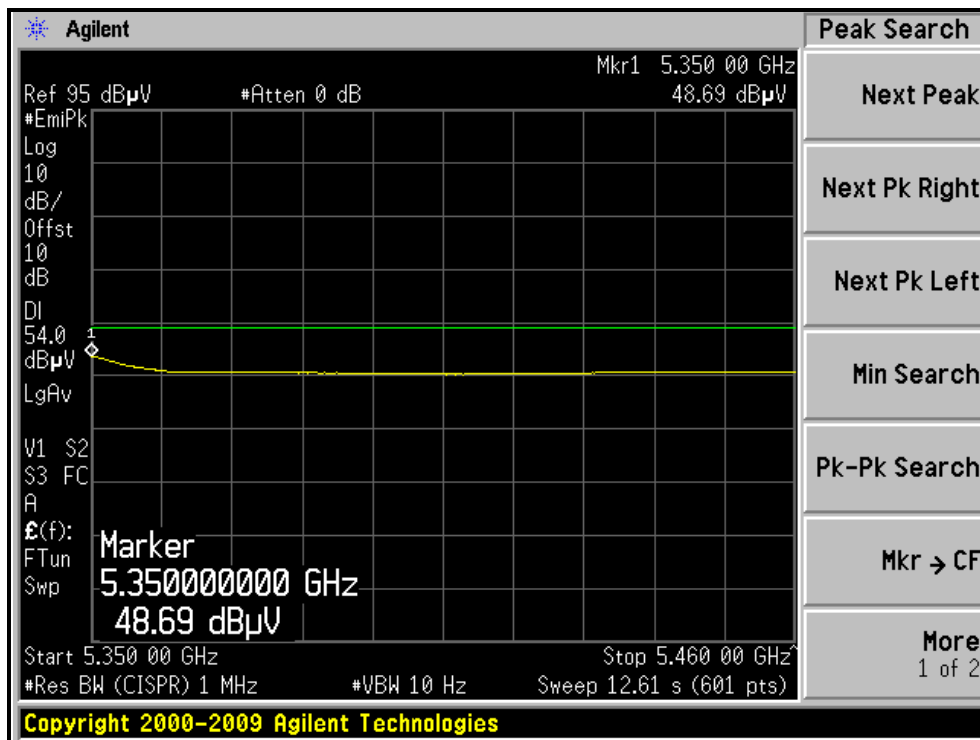
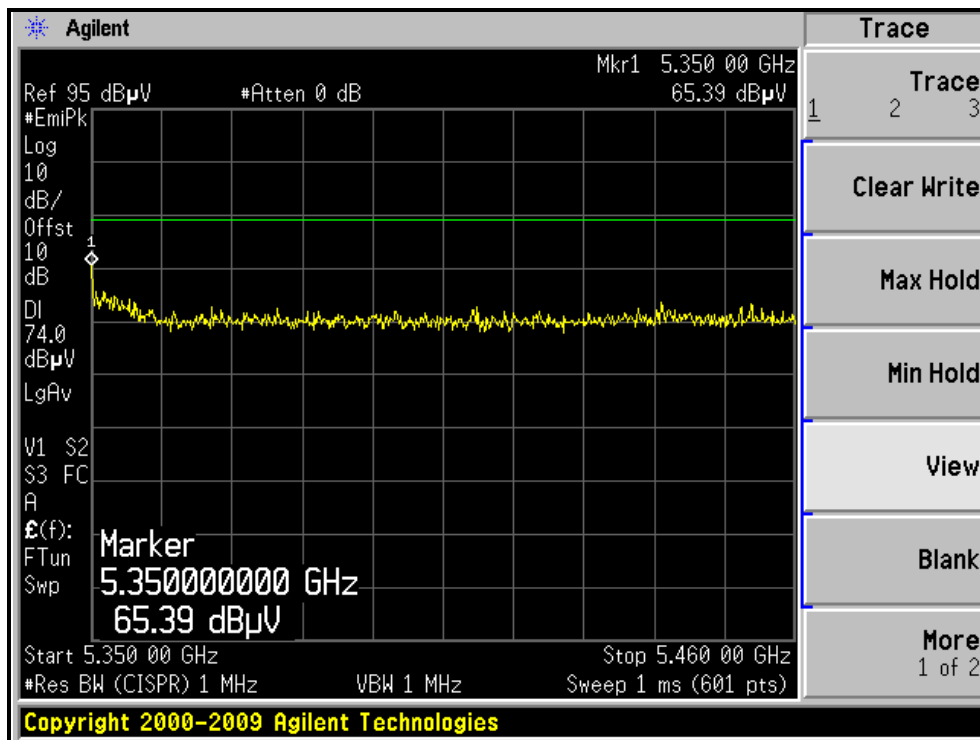
RESTRICTED BANDEDGE (802.11n (40MHz) MODE, CH62, HORIZONTAL)





A D T

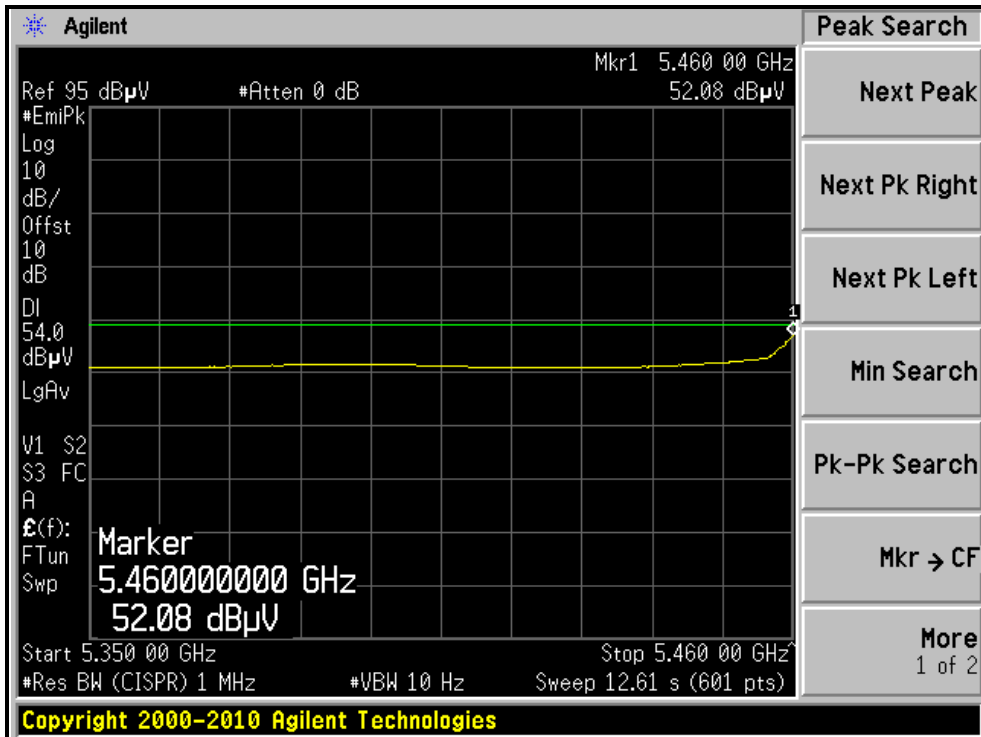
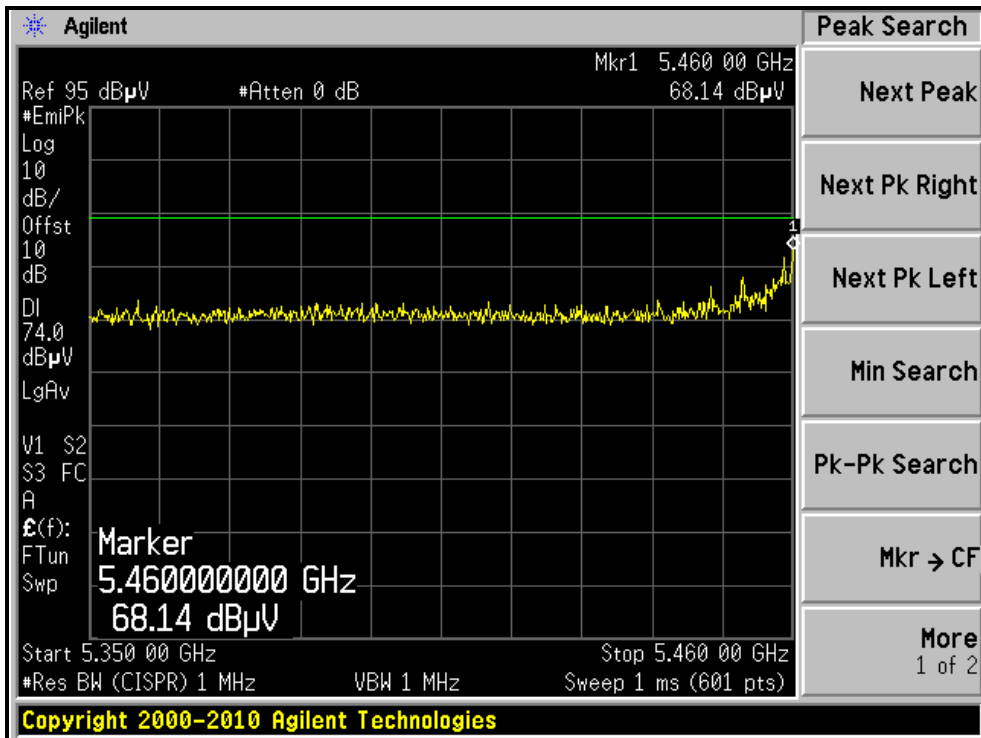
RESTRICTED BANDEDGE (802.11n (40MHz) MODE, CH62, VERTICAL)





A D T

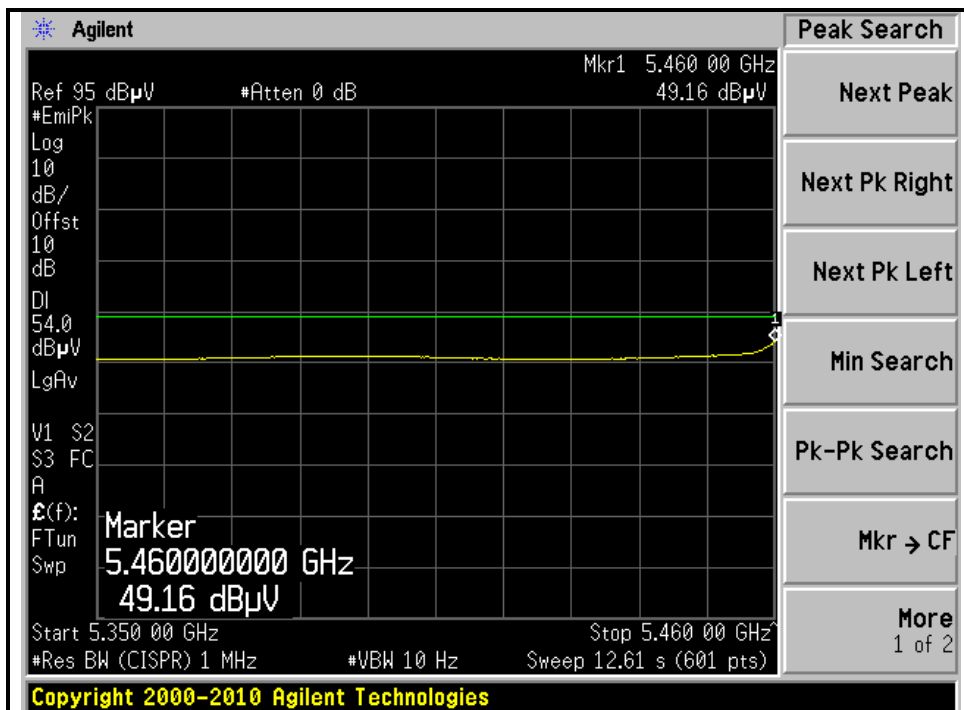
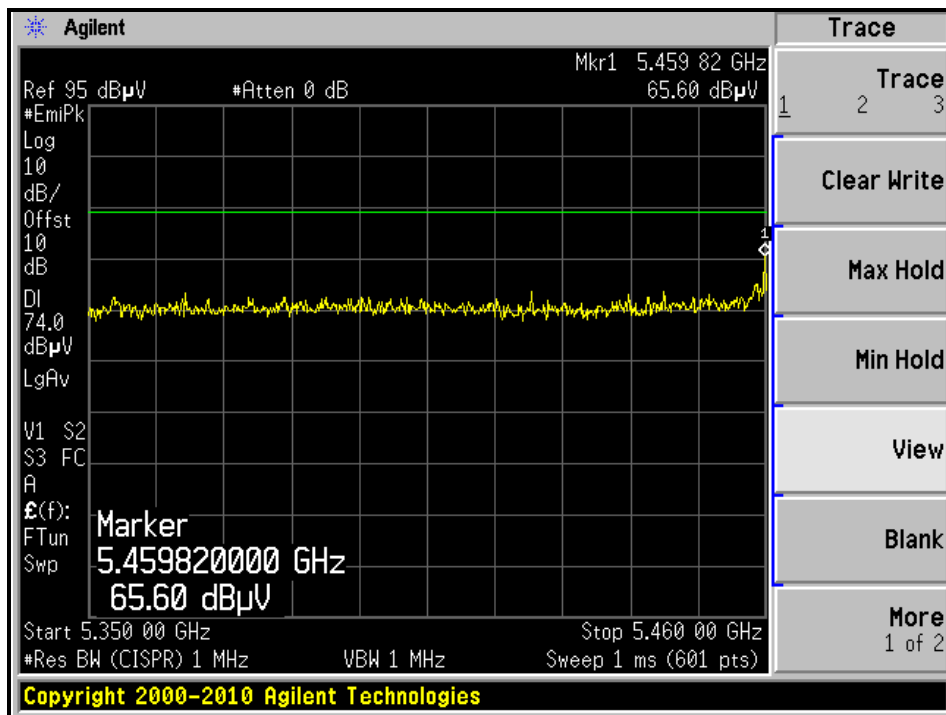
RESTRICTED BANDEDGE (802.11n (40MHz) MODE, CH102, HORIZONTAL)





A D T

RESTRICTED BANDEDGE (802.11n (40MHz) MODE, CH102, VERTICAL)





4.3 OUTPUT TRANSMIT POWER MEASUREMENT

4.3.1 LIMITS OF OUTPUT TRANSMIT POWER MEASUREMENT

Frequency Band	Limit
5.15 – 5.25GHz	The lesser of 50mW (17dBm) or 4dBm + 10logB
5.25 – 5.35GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.47 – 5.725GHz	The lesser of 250mW (24dBm) or 11dBm + 10logB
5.725 – 5.825GHz	The lesser of 1W (30dBm) or 17dBm + 10logB

NOTE: Where B is the 26dB emission bandwidth in MHz.

4.3.2 TEST INSTRUMENTS

FOR POWER OUTPUT MEASUREMENT

Test date: Nov. 11, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Peak Power Meter	ML2495A	0824006	May 04, 2011	May 03, 2012
Power Sensor	MA2411B	0738172	May 03, 2011	May 02, 2012

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

FOR 26dB OCCUPIED BANDWIDTH

Test date: Oct. 18, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	E4446A	MY48250254	July 12, 2011	July 11, 2012

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

FOR POWER OUTPUT MEASUREMENT

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

FOR 26dB OCCUPIED BANDWIDTH

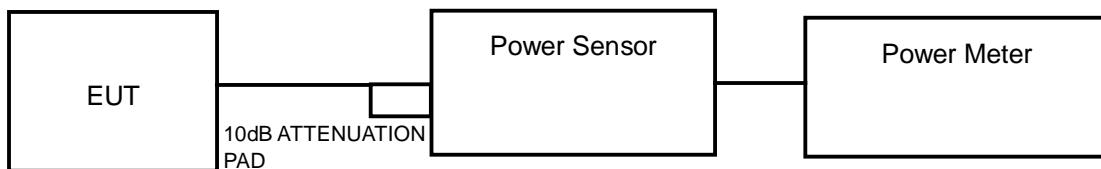
The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 300kHz RBW and 1MHz VBW. The 26dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 26dB.

4.3.4 DEVIATION FROM TEST STANDARD

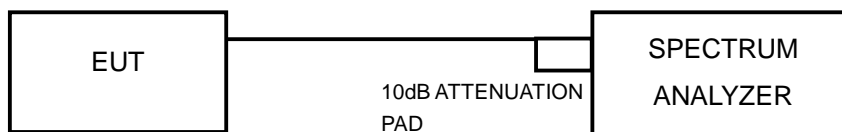
No deviation

4.3.5 TEST SETUP

FOR POWER OUTPUT MEASUREMENT



FOR 26dB OCCUPIED BANDWIDTH



4.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.



A D T

4.3.7 TEST RESULTS

POWER OUTPUT: 802.11a

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN (0)	CHAIN (1)				
36	5180	9.7	11.3	22.8	13.6	16.9	PASS
40	5200	10.1	11.4	24.0	13.8	16.9	PASS
48	5240	10.3	11.8	25.9	14.1	16.9	PASS
52	5260	15.2	15.5	68.6	18.4	23.8	PASS
60	5300	14.8	15.0	61.8	17.9	23.8	PASS
64	5320	14.5	14.6	57.0	17.6	23.8	PASS
100	5500	16.6	15.0	77.3	18.9	23.4	PASS
116	5580	15.7	16.0	77.0	18.9	23.4	PASS
132	5660	14.0	14.2	51.4	17.1	23.4	PASS
140	5700	15.5	15.8	73.5	18.7	23.4	PASS

For Operated in 5150MHz ~ 5250MHz bands:

$$\text{Directional gain} = 10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2]$$

$$\text{Effective Legacy Gain (dBi)} = 6.1$$

The effective legacy gain is 6.1dBi, therefore the limit needs to reduce.

For Operated in 5250MHz ~ 5350MHz bands:

$$\text{Directional gain} = 10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2]$$

$$\text{Effective Legacy Gain (dBi)} = 6.2$$

The effective legacy gain is 6.2dBi, therefore the limit needs to reduce.

For Operated in 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz bands:

$$\text{Directional gain} = 10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2]$$

$$\text{Effective Legacy Gain (dBi)} = 6.6$$

The effective legacy gain is 6.6dBi, therefore the limit needs to reduce.



A D T

802.11n (20MHz)

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN (0)	CHAIN (1)				
36	5180	10.4	12.0	26.8	14.3	17	PASS
40	5200	11.0	12.1	28.8	14.6	17	PASS
48	5240	11.5	11.7	28.9	14.6	17	PASS
52	5260	14.5	14.6	57.0	17.6	24	PASS
60	5300	14.0	14.1	50.8	17.1	24	PASS
64	5320	13.7	13.8	47.4	16.8	24	PASS
100	5500	15.7	14.2	63.5	18.0	24	PASS
116	5580	14.9	15.2	64.0	18.1	24	PASS
132	5660	14.1	14.3	52.6	17.2	24	PASS
140	5700	14.6	15.0	60.5	17.8	24	PASS

802.11n (40MHz)

CHAN.	CHAN. FREQ. (MHz)	POWER OUTPUT (dBm)		TOTAL POWER (mW)	TOTAL POWER (dBm)	POWER LIMIT (dBm)	PASS / FAIL
		CHAIN (0)	CHAIN (1)				
38	5190	6.3	7.8	10.3	10.1	17	PASS
46	5230	13.3	12.8	40.4	16.1	17	PASS
54	5270	13.5	13.7	45.8	16.6	24	PASS
62	5310	9.7	9.9	19.1	12.8	24	PASS
102	5510	12.9	11.6	34.0	15.3	24	PASS
110	5550	14.7	14.2	55.8	17.5	24	PASS
134	5670	13.8	14.5	52.2	17.2	24	PASS

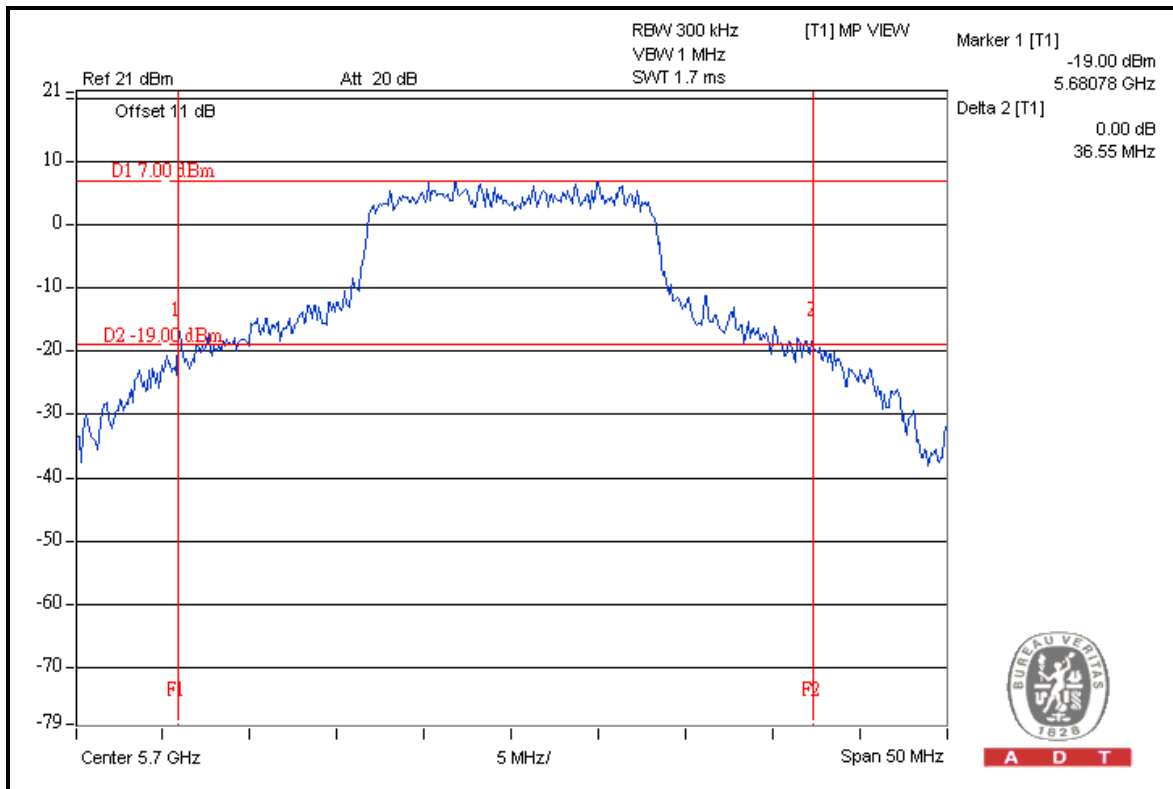


A D T

26dB OCCUPIED BANDWIDTH: 802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)	
		CHAIN (0)	CHAIN (1)
36	5180	22.44	25.84
40	5200	23.55	24.34
48	5240	21.84	22.47
52	5260	31.35	32.00
60	5300	30.16	30.10
64	5320	29.58	27.63
100	5500	35.44	27.69
116	5580	30.38	27.68
132	5660	28.14	27.82
140	5700	29.00	36.55

CHAIN (1) CH 140



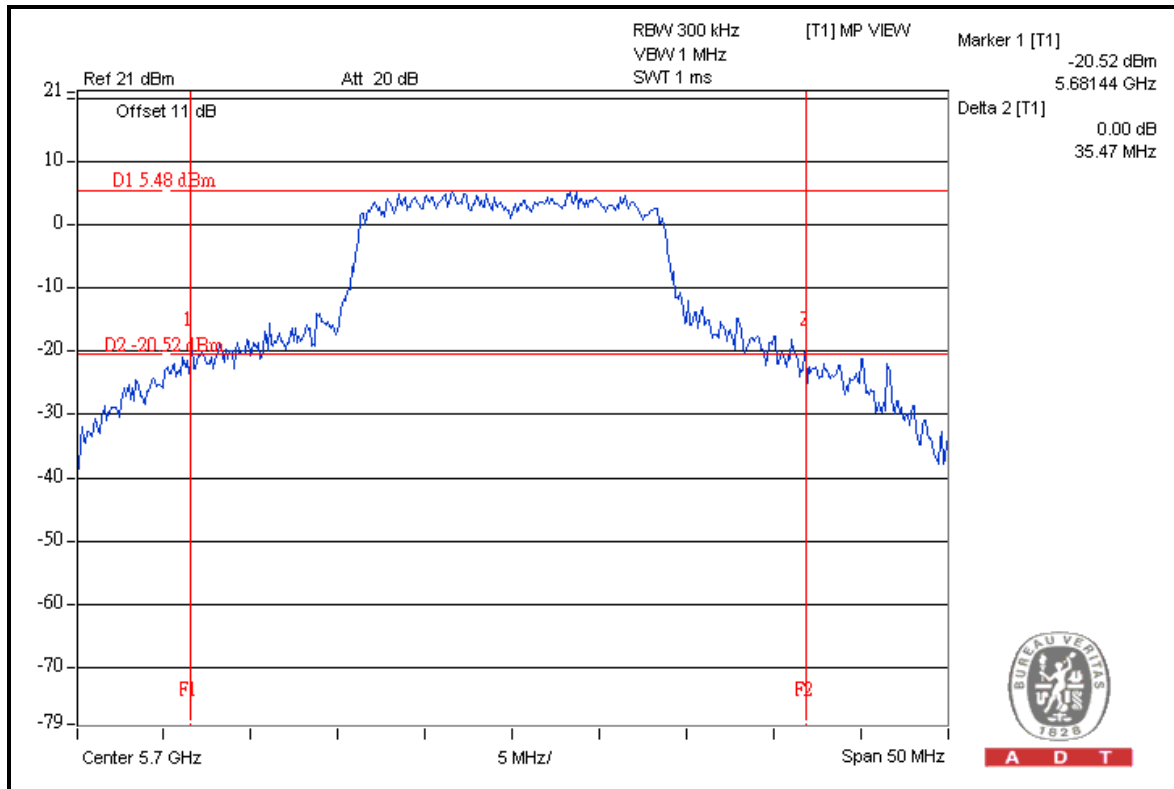


A D T

802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)	
		CHAIN (0)	CHAIN (1)
36	5180	23.66	25.45
40	5200	23.79	25.47
48	5240	24.53	24.09
52	5260	30.12	32.47
60	5300	28.96	27.47
64	5320	26.56	28.46
100	5500	31.24	23.59
116	5580	27.25	29.63
132	5660	30.75	31.98
140	5700	33.57	35.47

FOR CHAIN (1): CH 140



A D T

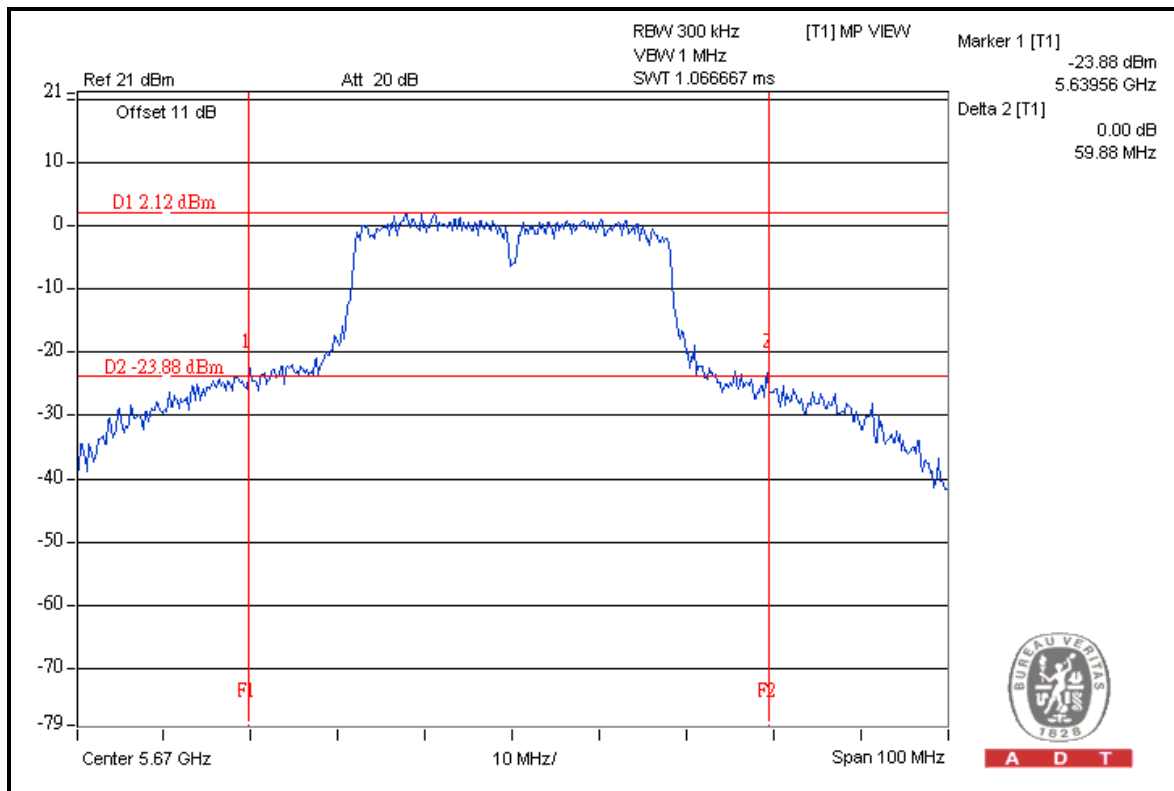


A D T

802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	26dBc OCCUPIED BANDWIDTH (MHz)	
		CHAIN (0)	CHAIN (1)
38	5190	43.95	43.99
46	5230	46.87	47.70
54	5270	49.64	50.18
62	5310	43.93	43.34
102	5510	45.32	45.12
110	5550	56.44	55.76
134	5670	50.66	59.88

FOR CHAIN (1): CH 134



4.4 PEAK POWER EXCURSION MEASUREMENT

4.4.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

Frequency Band	Limit
5.15 – 5.25 GHz	13dB
5.25 – 5.35 GHz	13dB
5.47 – 5.725GHz	13dB
5.725 – 5.825 GHz	13dB

4.4.2 TEST INSTRUMENTS

Test date: Nov. 17, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	E4446A	MY48250254	July 12, 2011	July 11, 2012

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

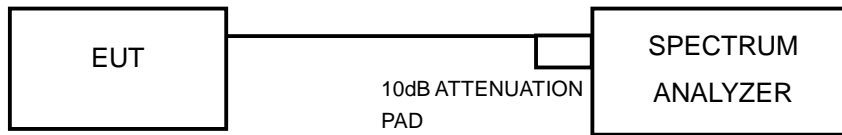
4.4.3 TEST PROCEDURE

1. Connect the cable from the spectrum analyzer to the EUT antenna port using an appropriate RF attenuator.
2. Verify the antenna port selected is the active one if the system has more than one antenna.
3. Verify the unlicensed wireless device is set to operate at 100 % duty cycle at the maximum allowed power for operation.
4. Testing shall be done on the center frequency of each U-NII band.
5. Set the spectrum analyzer span to view the entire emission bandwidth. The largest difference between the following two traces must be 13 dB for all frequencies across the emission bandwidth.
 - a. First trace: set RBW = 1 MHz, VBW = 3 MHz with peak detector and max hold settings.
 - b. Second trace: set RBW = 1 MHz, VBW = 3 MHz with sample detector and trace average across 100 traces in power averaging mode.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.



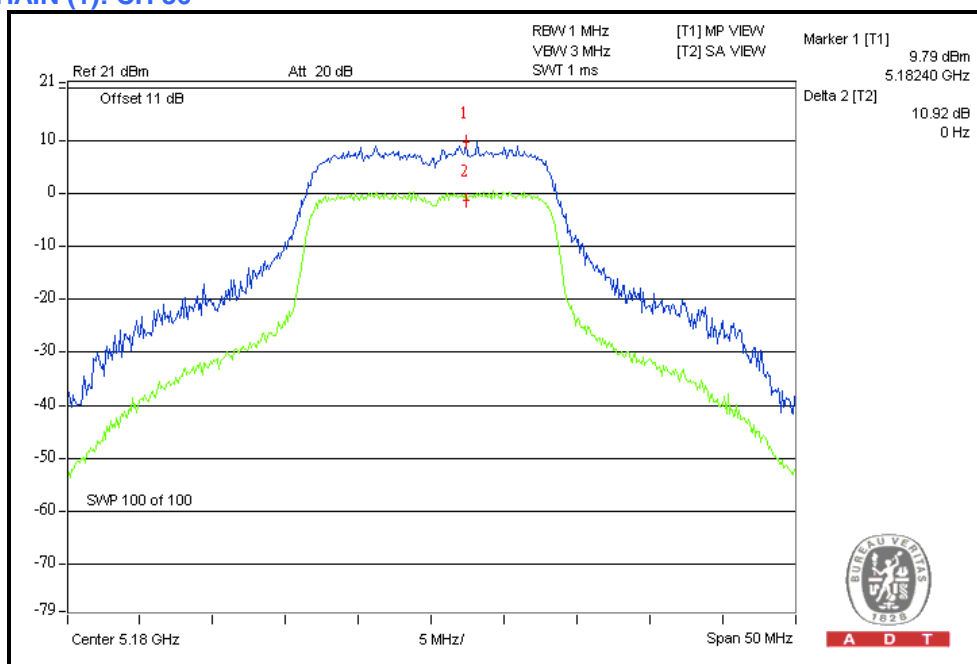
A D T

4.4.7 TEST RESULTS

802.11a OFDM MODULATION

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)		PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
		CHAIN (0)	CHAIN (1)		
36	5180	9.5	10.9	13	PASS
40	5200	8.6	8.9	13	PASS
48	5240	8.4	8.9	13	PASS
52	5260	9.3	10.0	13	PASS
60	5300	8.8	9.5	13	PASS
64	5320	9.6	9.6	13	PASS
100	5500	8.6	9.7	13	PASS
116	5580	8.8	9.5	13	PASS
132	5660	8.6	10.1	13	PASS
140	5700	9.3	10.0	13	PASS

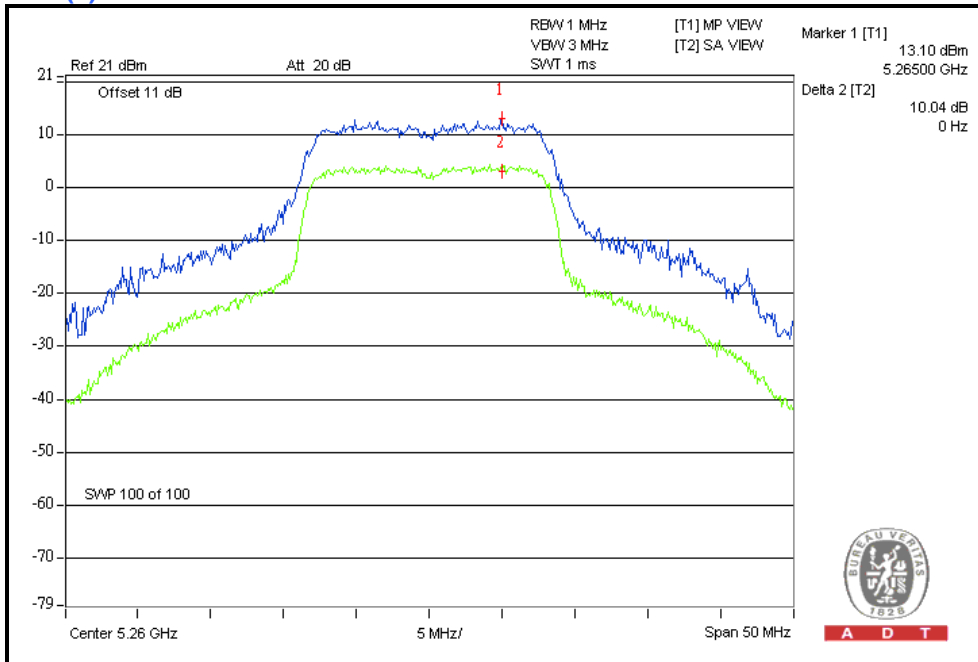
FOR CHAIN (1): CH 36



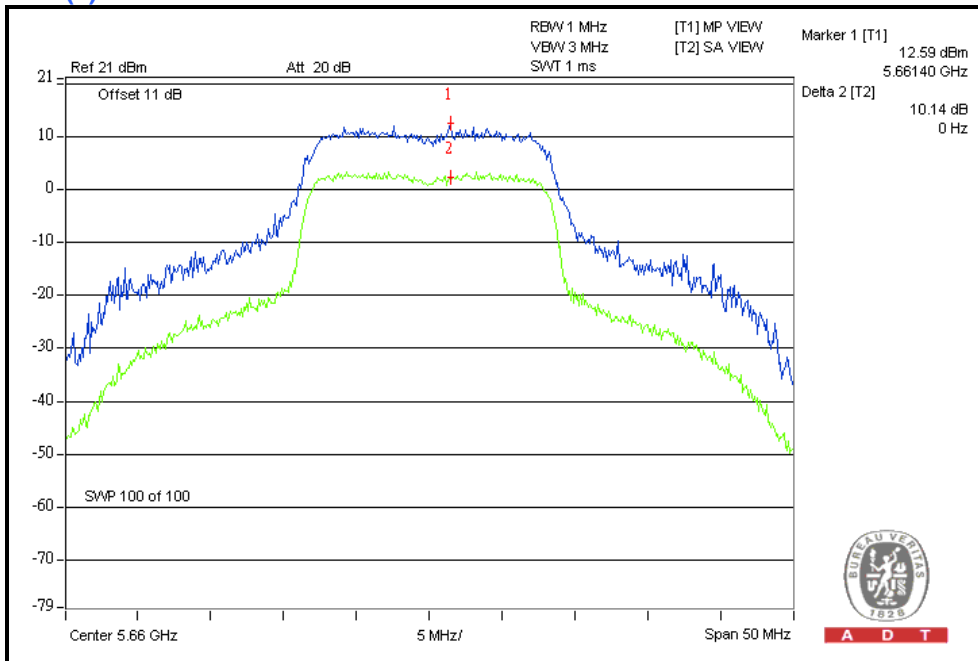


A D T

FOR CHAIN (1): CH52



FOR CHAIN (1): CH132



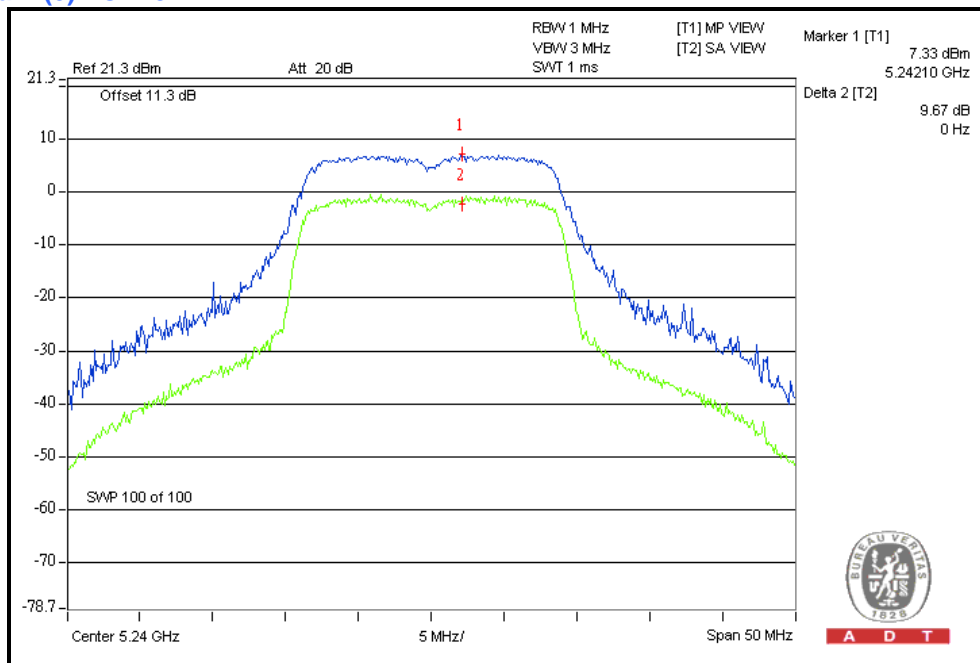


A D T

802.11n (20MHz) OFDM modulation:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)		PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
		CHAIN (0)	CHAIN (1)		
36	5180	8.2	9.6	13	PASS
40	5200	8.0	8.5	13	PASS
48	5240	9.7	9.1	13	PASS
52	5260	8.9	8.6	13	PASS
60	5300	9.0	9.0	13	PASS
64	5320	8.9	9.9	13	PASS
100	5500	8.9	9.2	13	PASS
116	5580	9.2	9.5	13	PASS
132	5660	9.6	8.0	13	PASS
140	5700	8.5	8.3	13	PASS

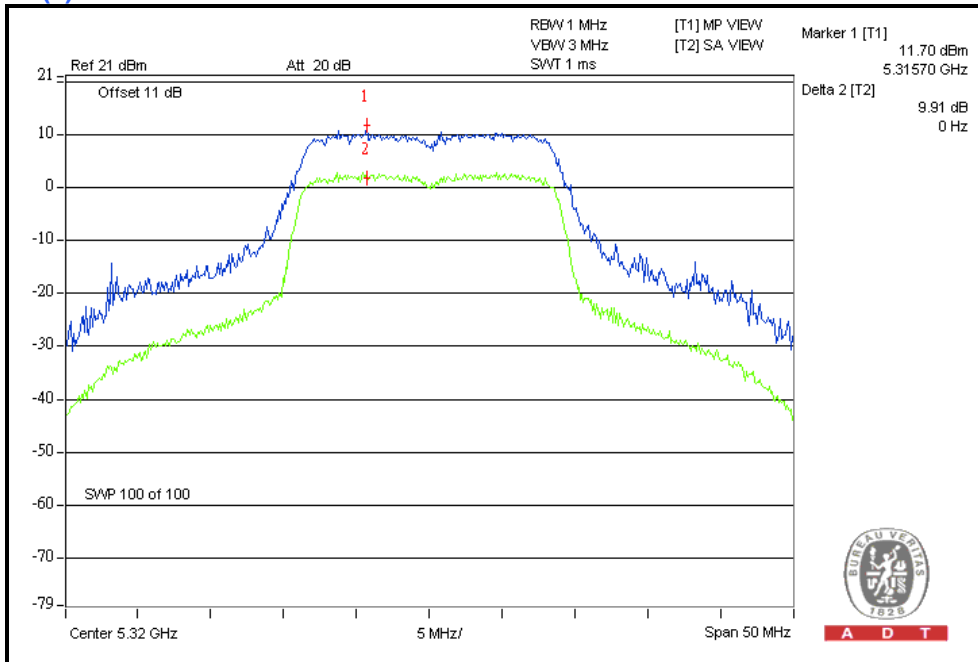
For Chain (0) : CH48



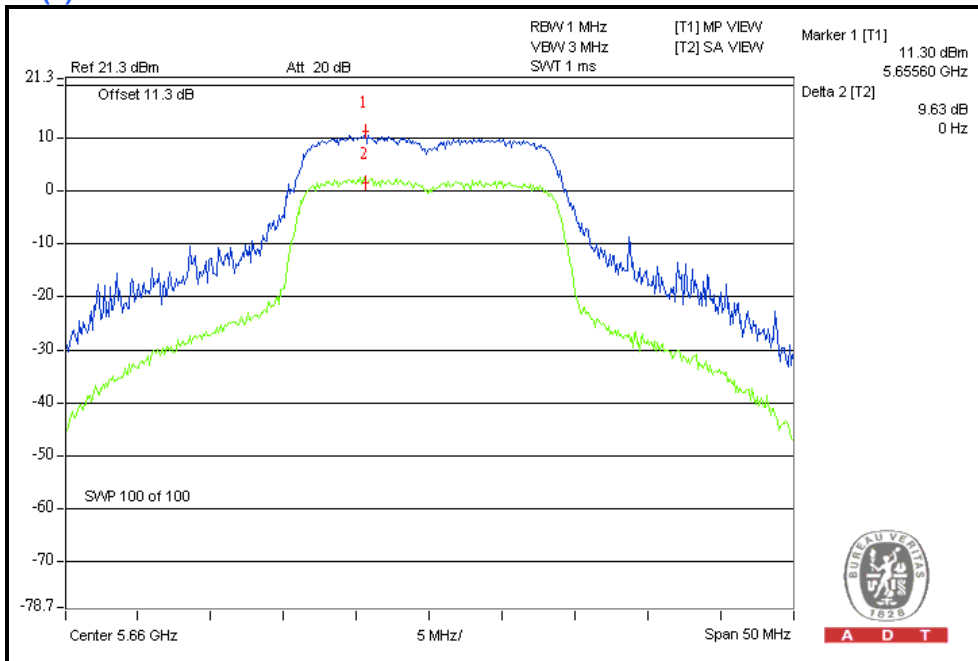


A D T

For Chain (1) : CH64



For Chain (0) : CH132



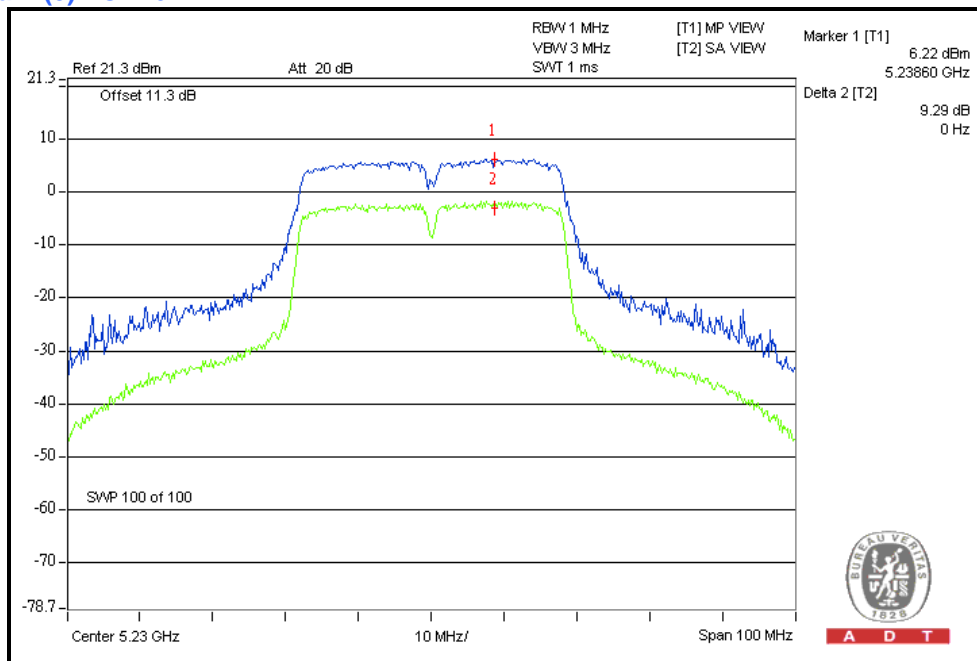


A D T

802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)		PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
		CHAIN(0)	CHAIN(1)		
38	5190	8.2	8.6	13	PASS
46	5230	9.3	9.0	13	PASS
54	5270	9.0	8.3	13	PASS
62	5310	9.4	9.2	13	PASS
102	5510	8.9	8.9	13	PASS
110	5550	8.8	8.8	13	PASS
134	5670	8.6	9.7	13	PASS

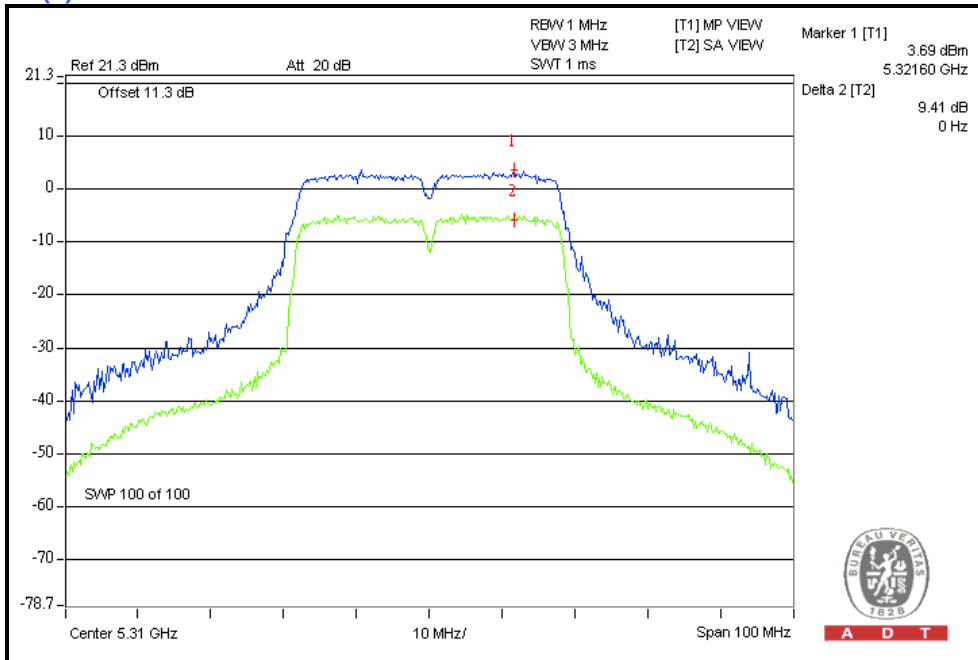
For Chain (0) : CH46



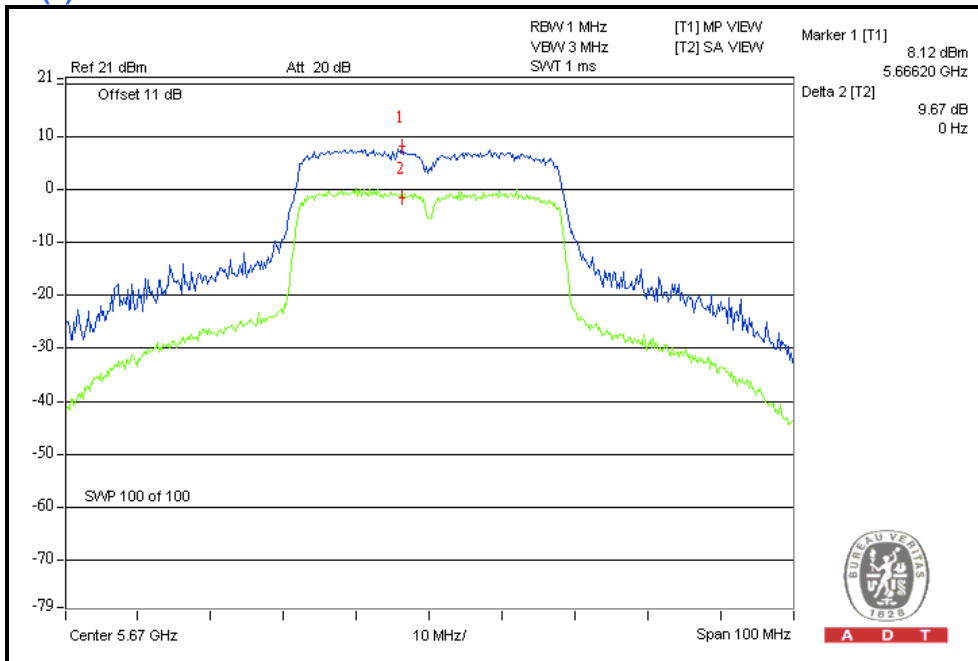


A D T

For Chain (0) : CH62



For Chain (1) : CH134





A D T

4.5 PEAK POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

Frequency Band	Limit
5.15 ~ 5.25GHz	4dBm
5.25 ~ 5.35GHz	11dBm
5.47 – 5.725GHz	11dBm
5.725 ~ 5.825GHz	17dBm

4.5.2 TEST INSTRUMENTS

Test date: Nov. 17, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	E4446A	MY48250254	July 12, 2011	July 11, 2012

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

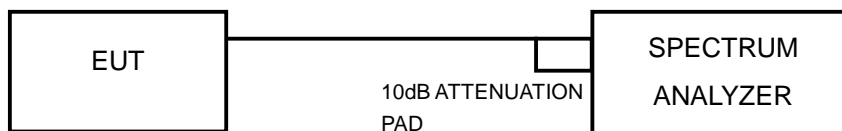
4.5.3 TEST PROCEDURES

1. The transmitter output was connected to the spectrum analyzer.
2. Set RBW=1MHz, VBW=3MHz. The PPSD is the highest level found across the emission in any 1MHz band.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITIONS

Same as 4.3.6



4.5.7 TEST RESULTS

802.11a OFDM MODULATION

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN (0)	CHAIN (1)			
36	5180	-1.2	0.6	2.6	3.9	PASS
40	5200	-0.8	1.0	2.8	3.9	PASS
48	5240	-0.4	0.4	2.6	3.9	PASS
52	5260	3.7	4.3	7.0	10.8	PASS
60	5300	4.0	4.1	6.5	10.8	PASS
64	5320	3.5	3.3	6.2	10.8	PASS
100	5500	6.2	4.0	8.0	10.4	PASS
116	5580	4.7	4.7	7.4	10.4	PASS
132	5660	3.0	3.5	6.0	10.4	PASS
140	5700	5.0	4.7	7.4	10.4	PASS

Note: Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer

For Operated in 5150MHz ~ 5250MHz bands:

$$\text{Directional gain} = 10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2]$$

Effective Legacy Gain (dBi) = 6.1

The effective legacy gain is 6.1dBi, therefore the limit needs to reduce.

For Operated in 5250MHz ~ 5350MHz bands:

$$\text{Directional gain} = 10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2]$$

Effective Legacy Gain (dBi) = 6.2

The effective legacy gain is 6.2dBi, therefore the limit needs to reduce.

For Operated in 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz bands:

$$\text{Directional gain} = 10 \log[(10^{G1/20} + 10^{G2/20})^2 / 2]$$

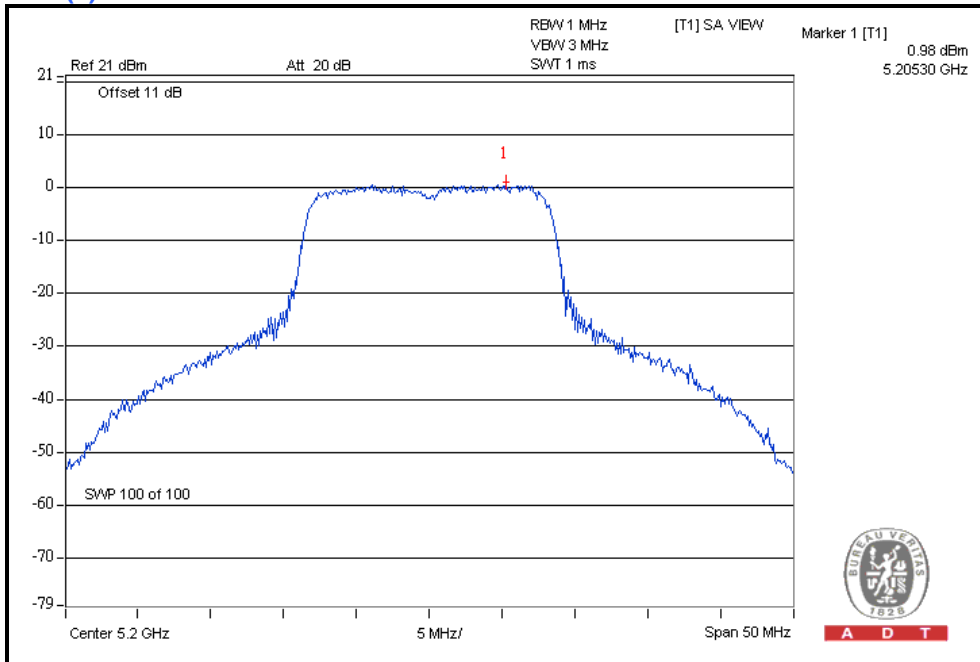
Effective Legacy Gain (dBi) = 6.6

The effective legacy gain is 6.6dBi, therefore the limit needs to reduce.

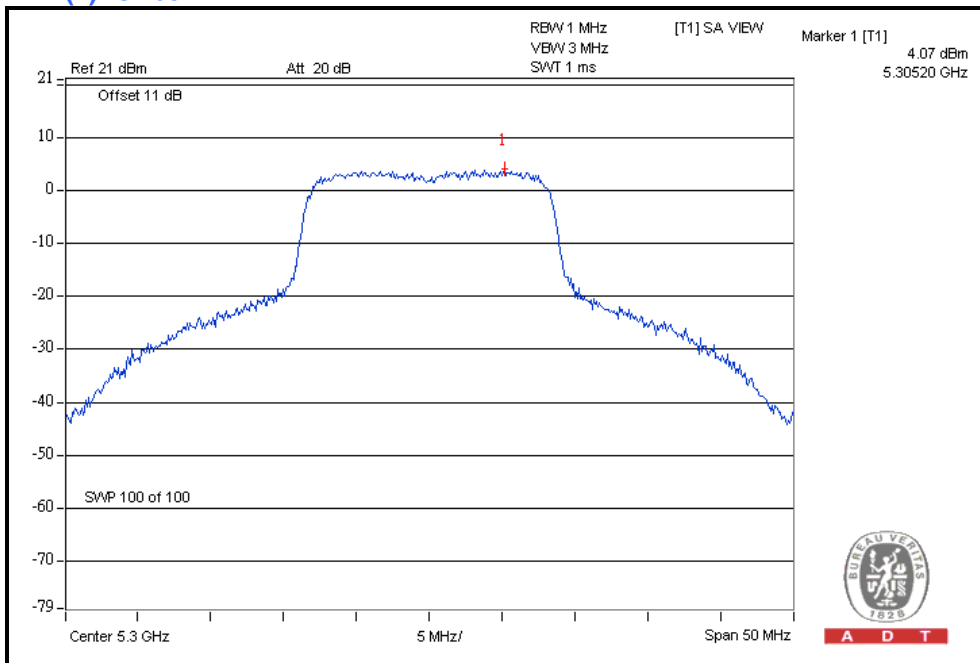


A D T

FOR CHAIN (1): CH40



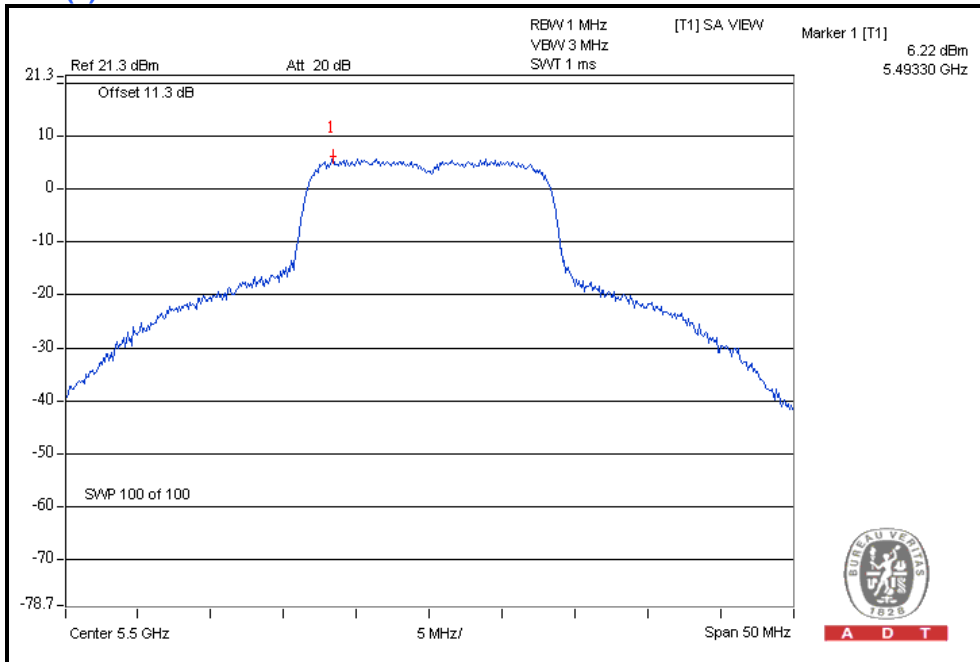
FOR CHAIN (1): CH60





A D T

FOR CHAIN (0): CH100



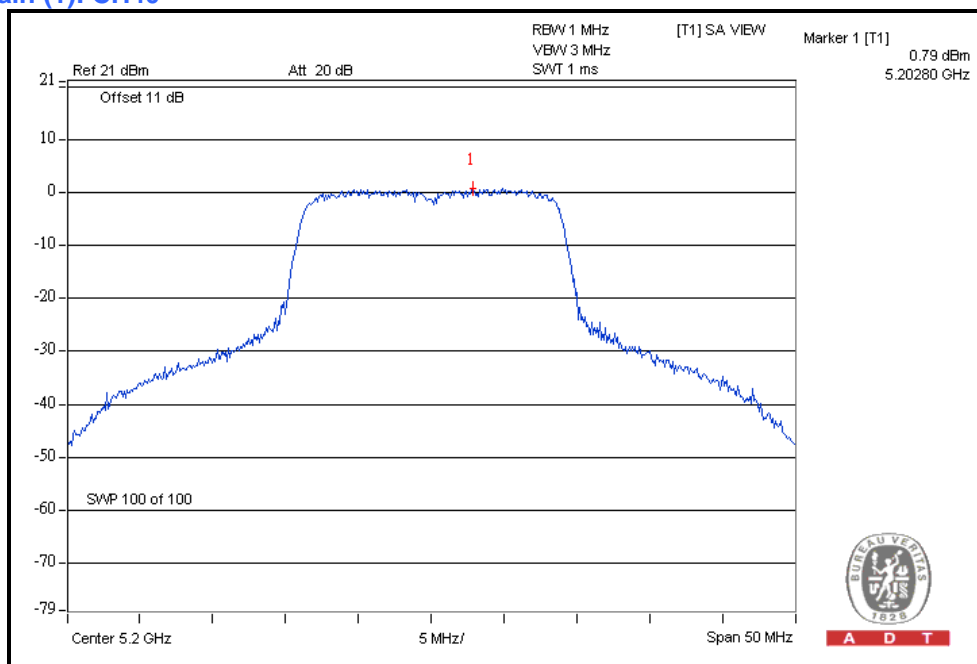
A D T

802.11n (20MHz) OFDM MODULATION:

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN (0)	CHAIN (1)			
36	5180	-0.8	0.6	2.8	4	PASS
40	5200	-0.2	0.8	3.2	4	PASS
48	5240	-0.6	0.3	2.7	4	PASS
52	5260	3.0	3.7	6.1	11	PASS
60	5300	2.4	3.3	5.6	11	PASS
64	5320	2.1	3.0	5.4	11	PASS
100	5500	4.5	2.6	6.4	11	PASS
116	5580	3.5	3.9	6.7	11	PASS
132	5660	2.9	3.1	5.8	11	PASS
140	5700	3.8	4.1	6.5	11	PASS

Note: Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer

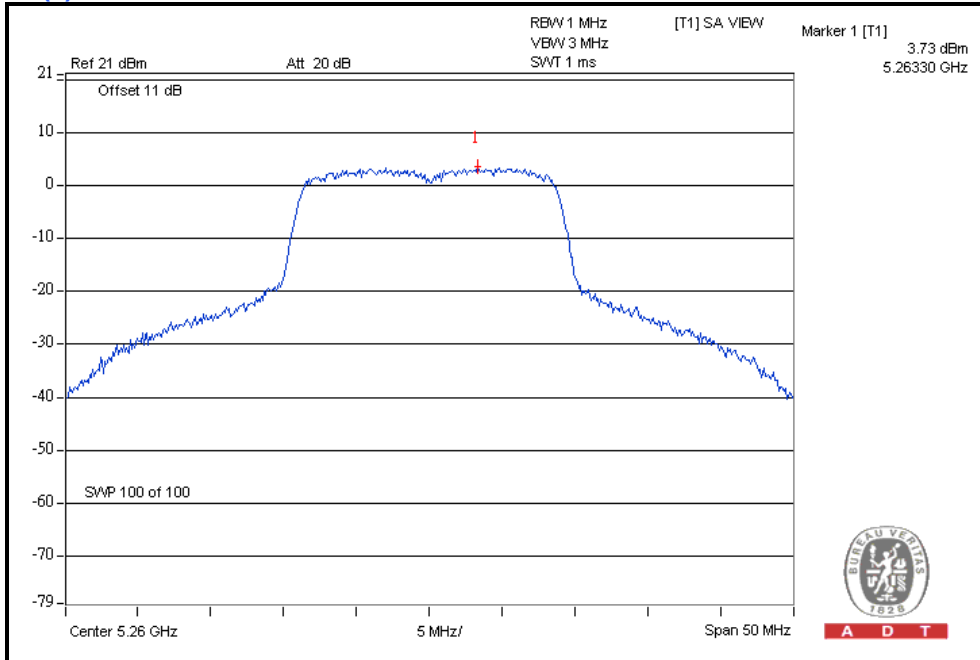
For Chain (1): CH40



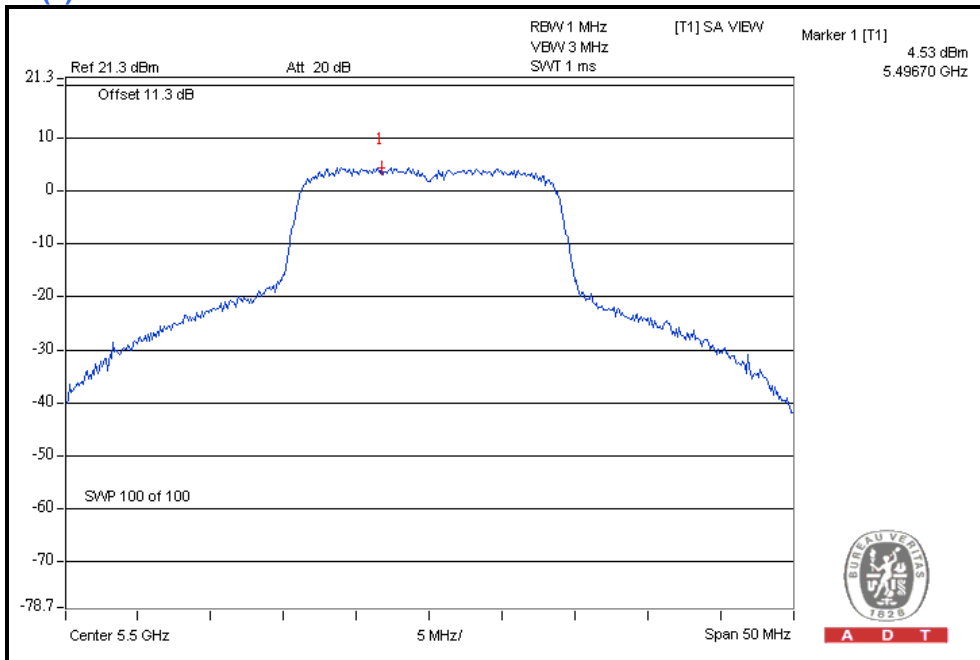


A D T

For Chain (1): CH52



For Chain (0): CH100

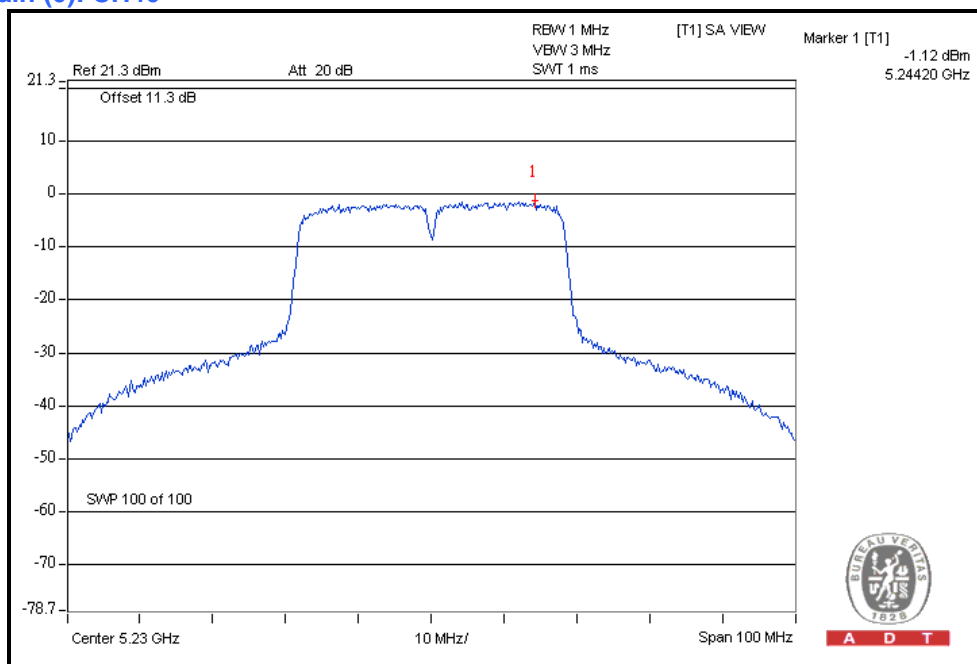


802.11n (40MHz) OFDM MODULATION:

CHAN.	CHAN. FREQ. (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN (0)	CHAIN (1)			
38	5190	-8.1	-6.0	-4.4	4	PASS
46	5230	-1.1	-1.6	1.4	4	PASS
54	5270	-0.4	-0.5	2.5	11	PASS
62	5310	-4.5	-4.0	-1.7	11	PASS
102	5510	-1.3	-2.5	1.0	11	PASS
110	5550	0.6	-0.1	2.9	11	PASS
134	5670	-0.3	0.2	2.6	11	PASS

Note: Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer

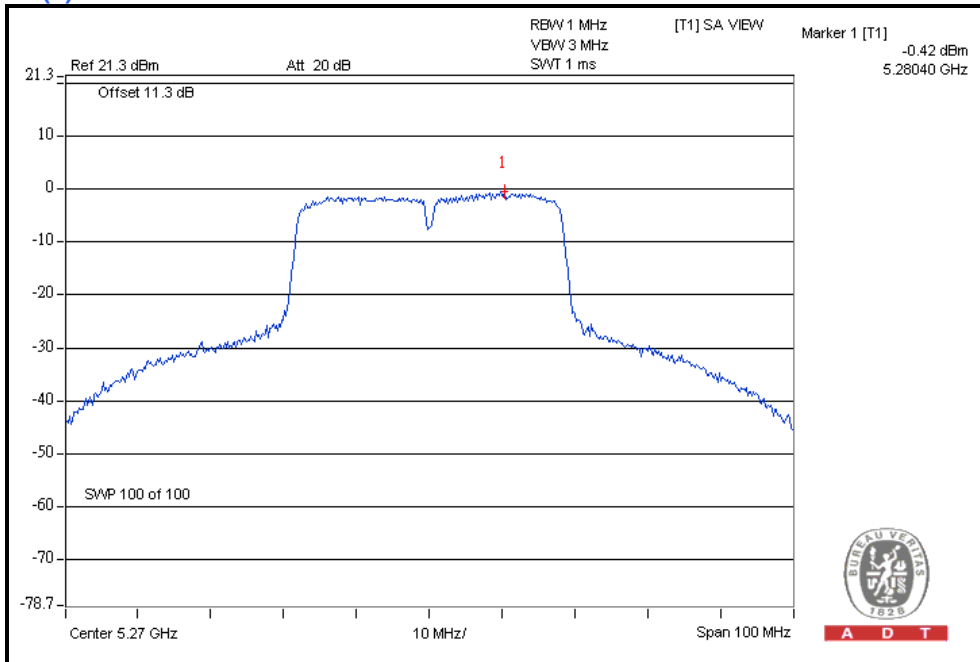
For Chain (0): CH46



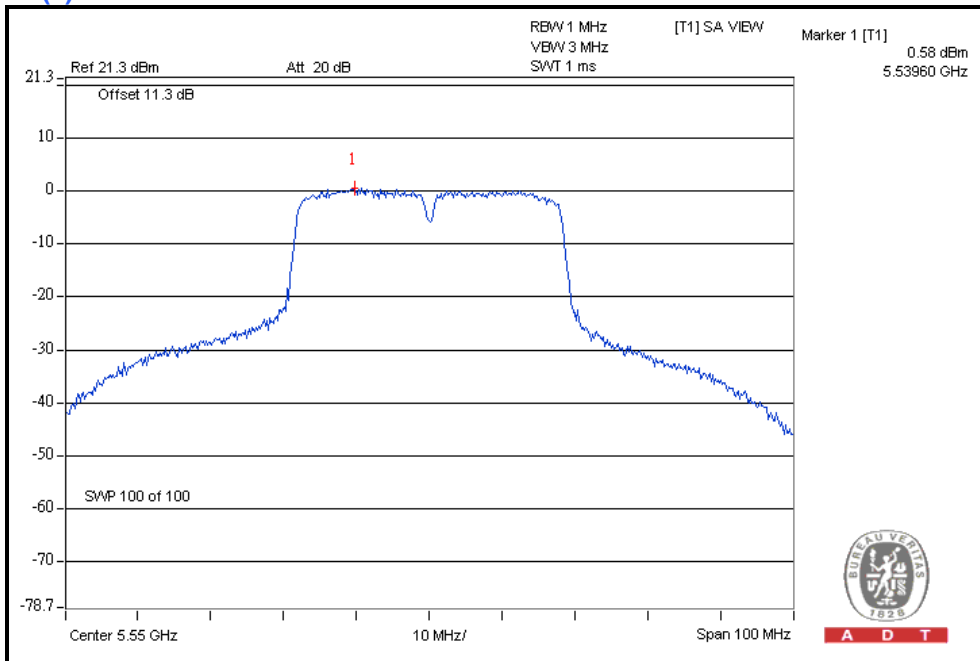


A D T

For Chain (0): CH54



For Chain (0): CH110



4.6 FREQUENCY STABILITY

4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency tolerance of the carrier signal shall be maintained within the band of the operating frequency over a temperature variation of –30 degrees to 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

4.6.2 TEST INSTRUMENTS

Test date: Nov. 17, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP40	100036	Dec. 08, 2010	Dec. 07, 2011

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

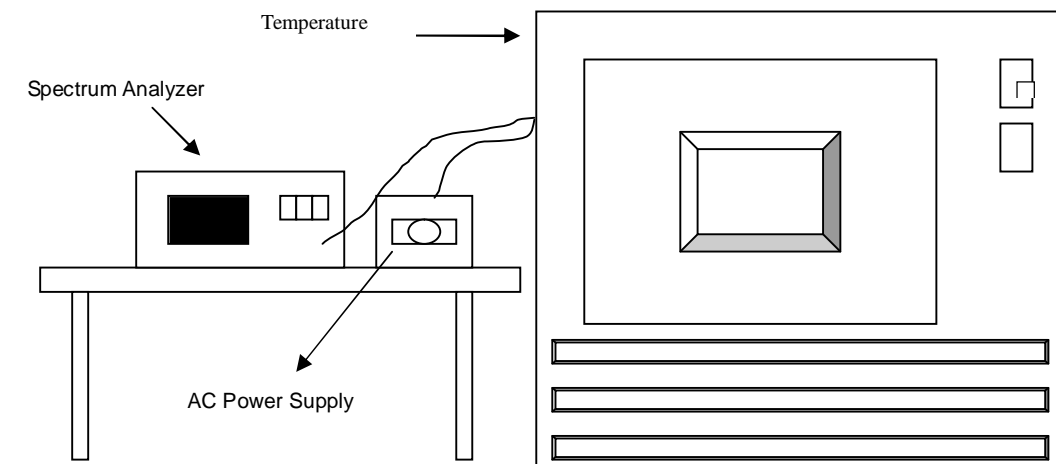
4.6.3 TEST PROCEDURE

1. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 TEST SETUP



4.6.6 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.



A D T

4.6.7 TEST RESULTS

Operating frequency: 5320MHz									
Temp. (°C)	Power supply (VAC)	0 minute		2 minute		5 minute		10 minute	
		(MHz)	ppm	(MHz)	ppm	(MHz)	ppm	(MHz)	ppm
50	138	5319.9897	-1.9361	5319.9884	-2.1805	5319.984	-3.0075	5319.9879	-2.2744
	120	5319.99	-1.8797	5319.9884	-2.1805	5319.9838	-3.0451	5319.9874	-2.3684
	102	5319.9887	-2.1241	5319.9885	-2.1617	5319.9832	-3.1579	5319.9877	-2.3120
40	138	5319.9942	-1.0902	5319.9927	-1.3722	5319.9882	-2.2180	5319.9841	-2.9887
	120	5319.9945	-1.0338	5319.9931	-1.2970	5319.9901	-1.8609	5319.9838	-3.0451
	102	5319.9928	-1.3534	5319.9923	-1.4474	5319.9894	-1.9925	5319.9854	-2.7444
30	138	5319.9999	-0.0188	5320.0006	0.1128	5319.9953	-0.8835	5319.998	-0.3759
	120	5319.9987	-0.2444	5319.9999	-0.0188	5319.9969	-0.5827	5319.9992	-0.1504
	102	5320.0002	0.0376	5320.0004	0.0752	5319.9966	-0.6391	5319.9983	-0.3195
20	138	5319.9901	-1.8609	5319.9897	-1.9361	5319.9852	-2.7820	5319.9824	-3.3083
	120	5319.9901	-1.8609	5319.9913	-1.6353	5319.9855	-2.7256	5319.9824	-3.3083
	102	5319.9907	-1.7481	5319.991	-1.6917	5319.9853	-2.7632	5319.9825	-3.2895
10	138	5319.9904	-1.8045	5319.9965	-0.6579	5319.994	-1.1278	5319.9973	-0.5075
	120	5319.992	-1.5038	5319.9952	-0.9023	5319.9941	-1.1090	5319.996	-0.7519
	102	5319.9918	-1.5414	5319.996	-0.7519	5319.9924	-1.4286	5319.9972	-0.5263
0	138	5320.0129	2.4248	5320.0098	1.8421	5320.014	2.6316	5320.013	2.4436
	120	5320.0129	2.4248	5320.0112	2.1053	5320.0154	2.8947	5320.013	2.4436
	102	5320.0115	2.1617	5320.0099	1.8609	5320.0151	2.8383	5320.0128	2.4060
-10	138	5320.013	2.4436	5320.0138	2.5940	5320.0183	3.4398	5320.0207	3.8910
	120	5320.0126	2.3684	5320.0133	2.5000	5320.0187	3.5150	5320.019	3.5714
	102	5320.0134	2.5188	5320.0145	2.7256	5320.0185	3.4774	5320.0192	3.6090
-20	138	5320.0051	0.9586	5320.0057	1.0714	5320.0056	1.0526	5320.0001	0.0188
	120	5320.005	0.9398	5320.0055	1.0338	5320.0057	1.0714	5320.0004	0.0752
	102	5320.0058	1.0902	5320.0062	1.1654	5320.0044	0.8271	5320.0008	0.1504
-30	138	5319.9996	-0.0752	5319.9996	-0.0752	5320.0043	0.8083	5320.0048	0.9023
	120	5319.9987	-0.2444	5320.0001	0.0188	5320.0047	0.8835	5320.0048	0.9023
	102	5319.9982	-0.3383	5320.0006	0.1128	5320.0059	1.1090	5320.0044	0.8271

4.7 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.7.1 TEST INSTRUMENTS

Test date : Nov. 17, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S Spectrum Analyzer	FSP40	100036	Dec. 08, 2010	Dec. 07, 2011

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

4.7.2 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low loss cable. Set RBW of spectrum analyzer to 1MHz with suitable frequency span including 100 MHz or 200 MHz bandwidth from band edge. The band edges was measured and recorded.

4.7.3 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

4.7.4 TEST RESULTS

For 5.15 to 5.35GHz band:

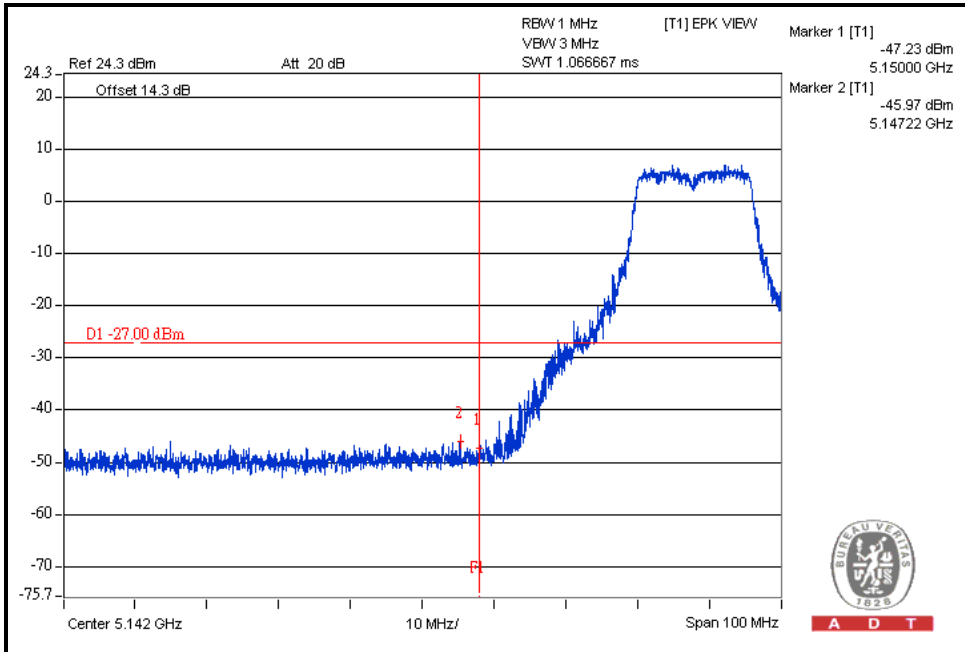
The spectrum plots (Peak RBW=1MHz, VBW=3MHz) are attached on the following pages.



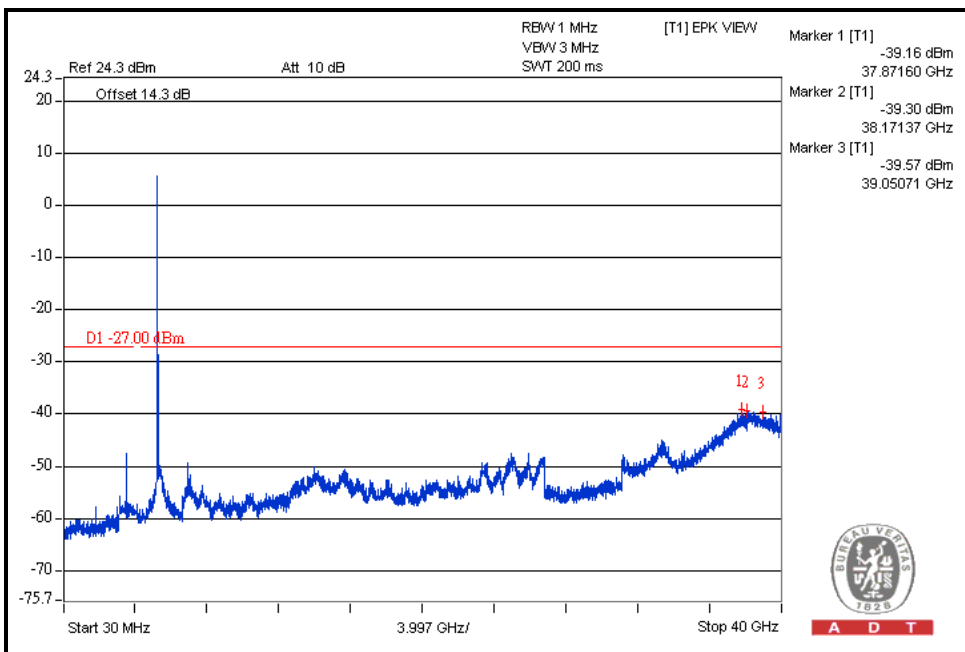
A D T

Performing measurements: Measure and add 10 log(N) dB 802.11a OFDM MODULATION

CH36



A D T

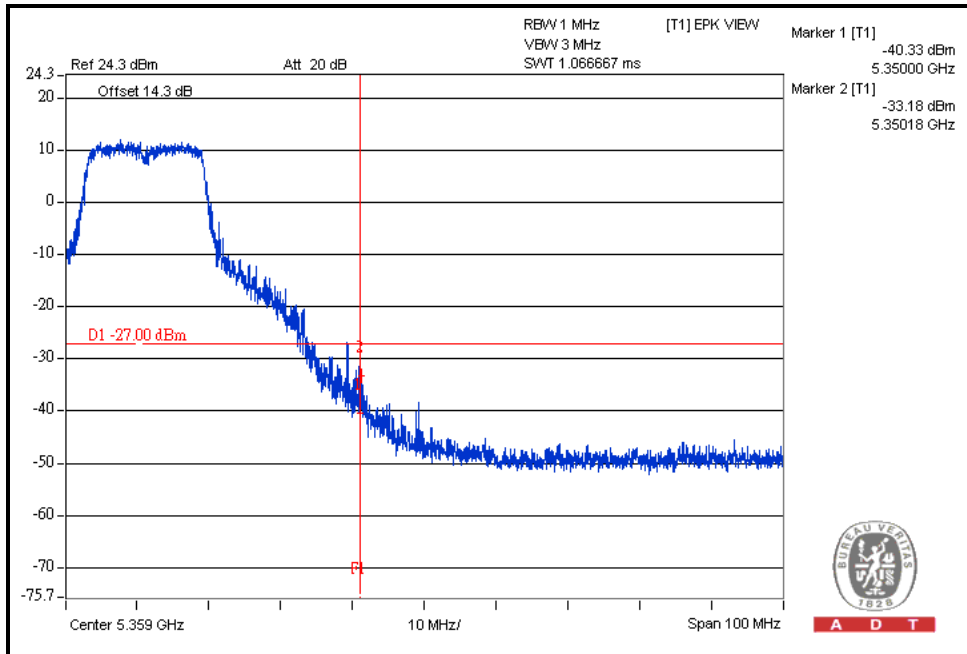


A D T

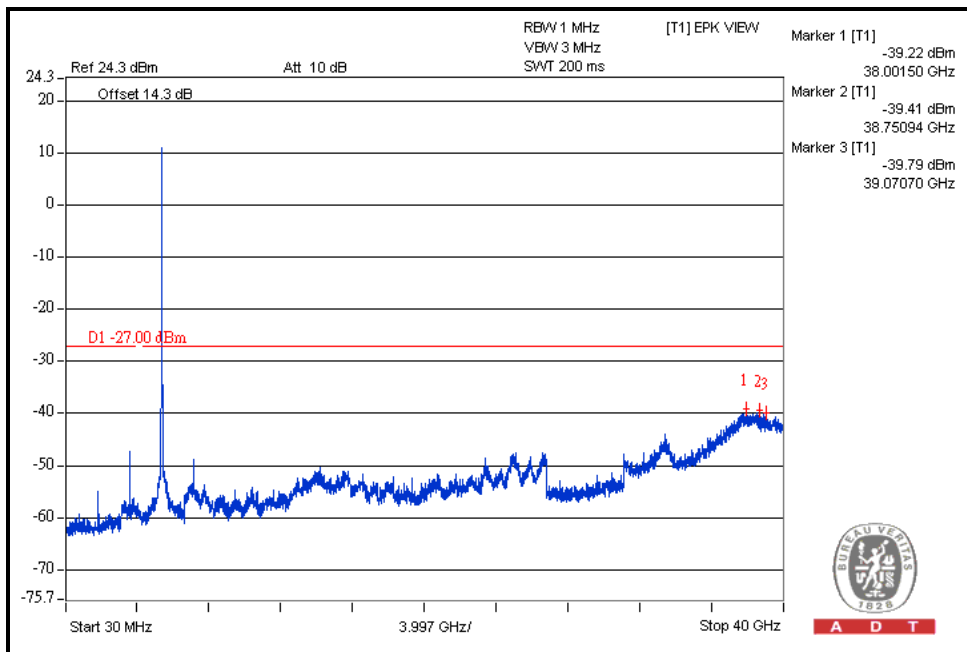


A D T

CH64



A D T



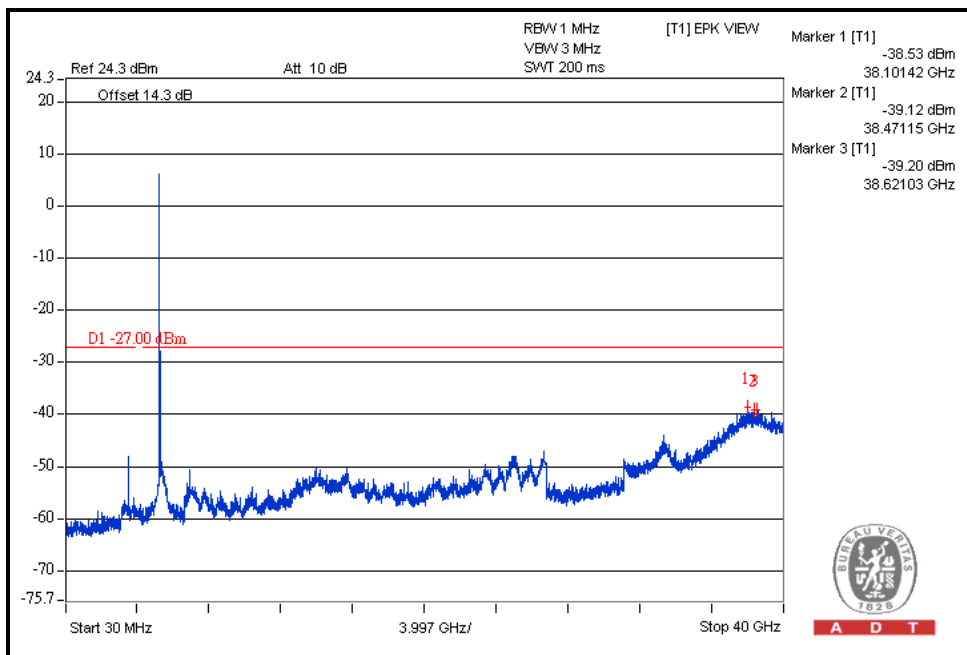
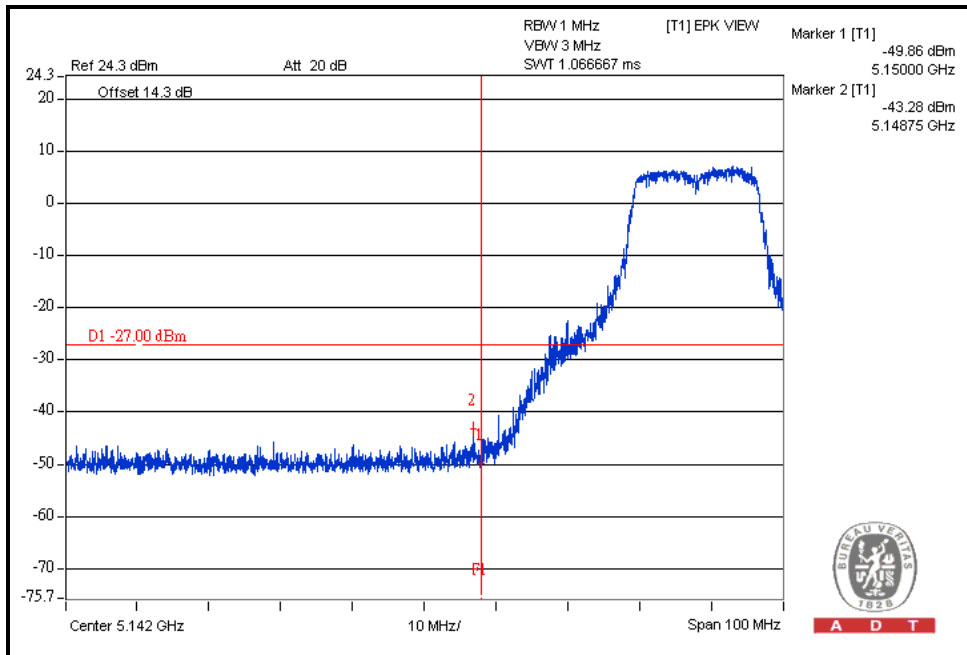
A D T



A D T

802.11n (20MHz) OFDM MODULATION:

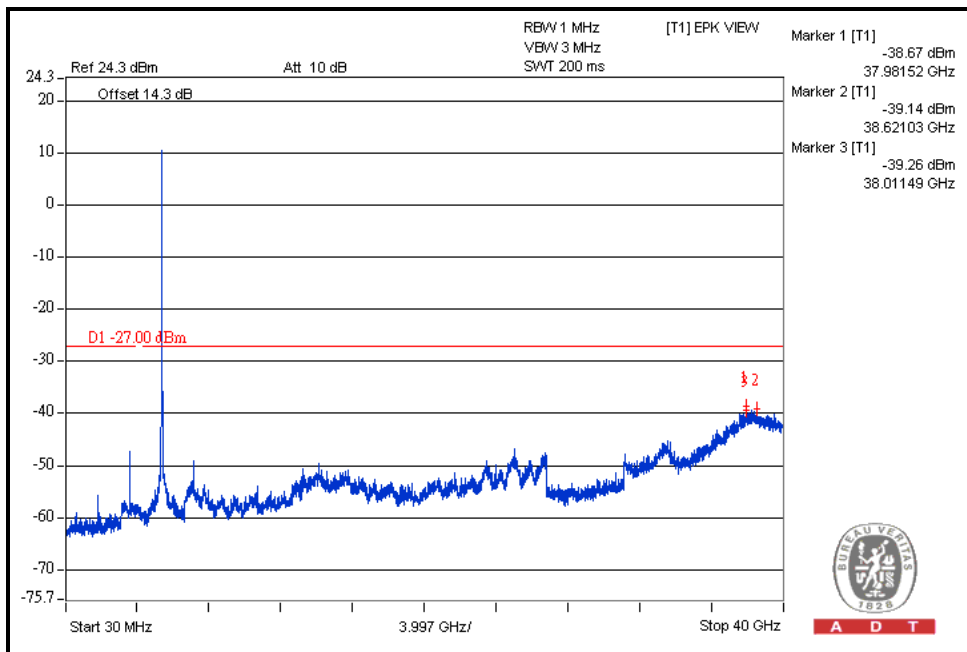
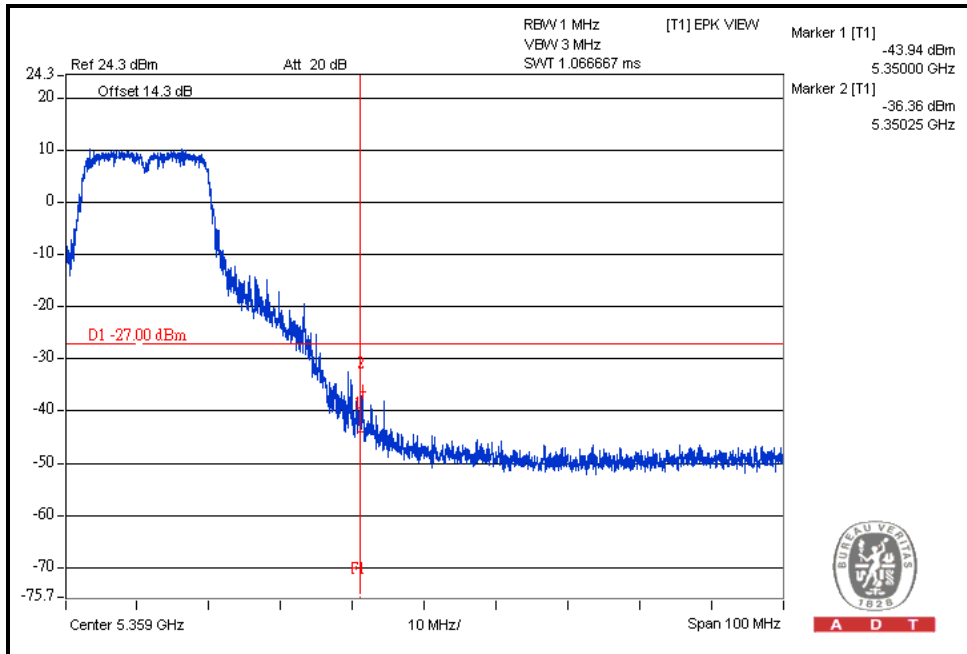
CH36





A D T

CH64

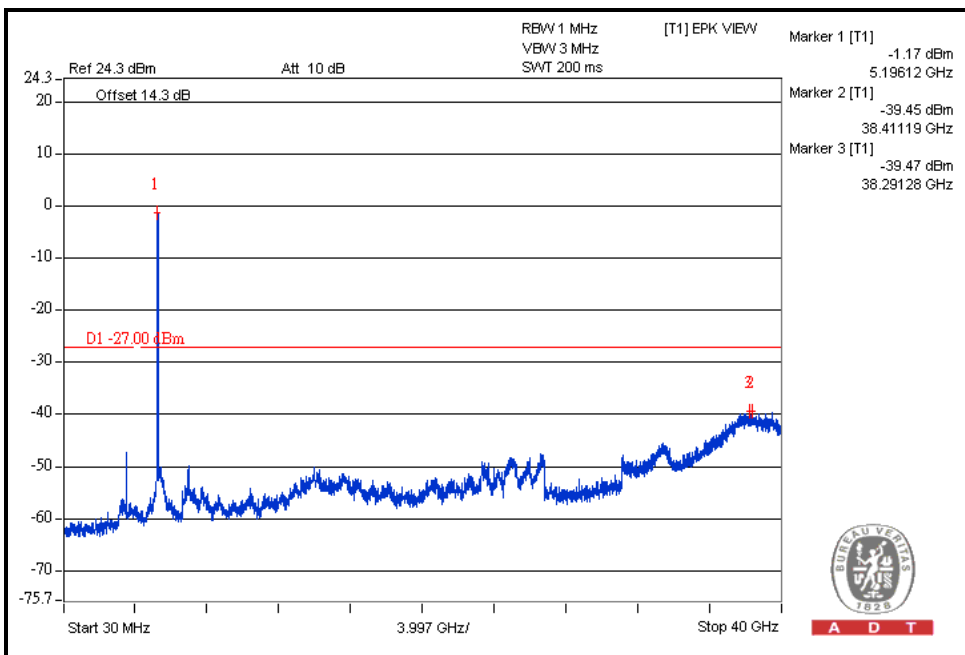
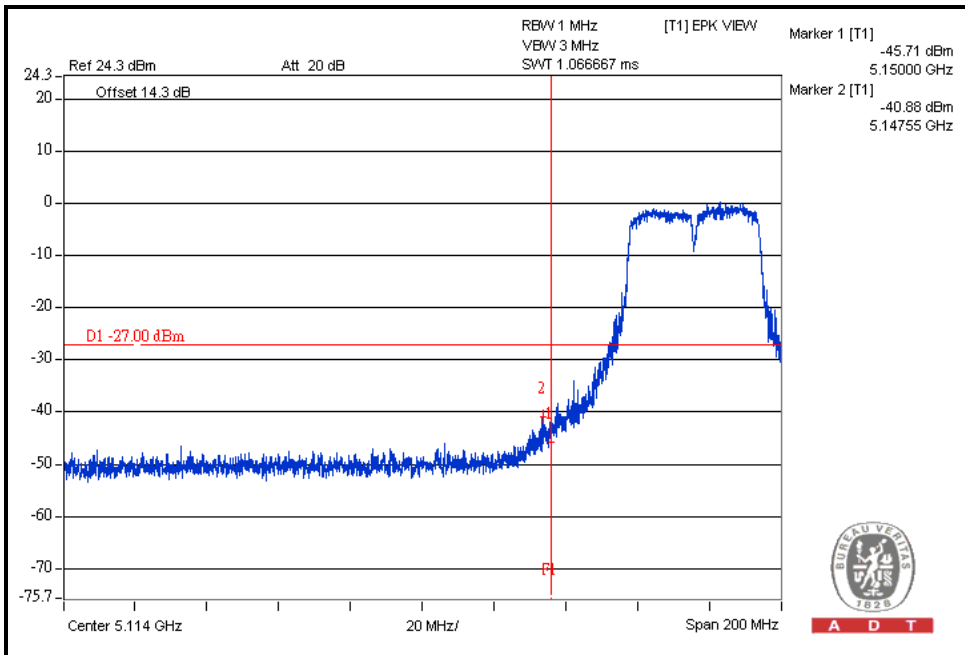




A D T

802.11n (40MHz) OFDM MODULATION:

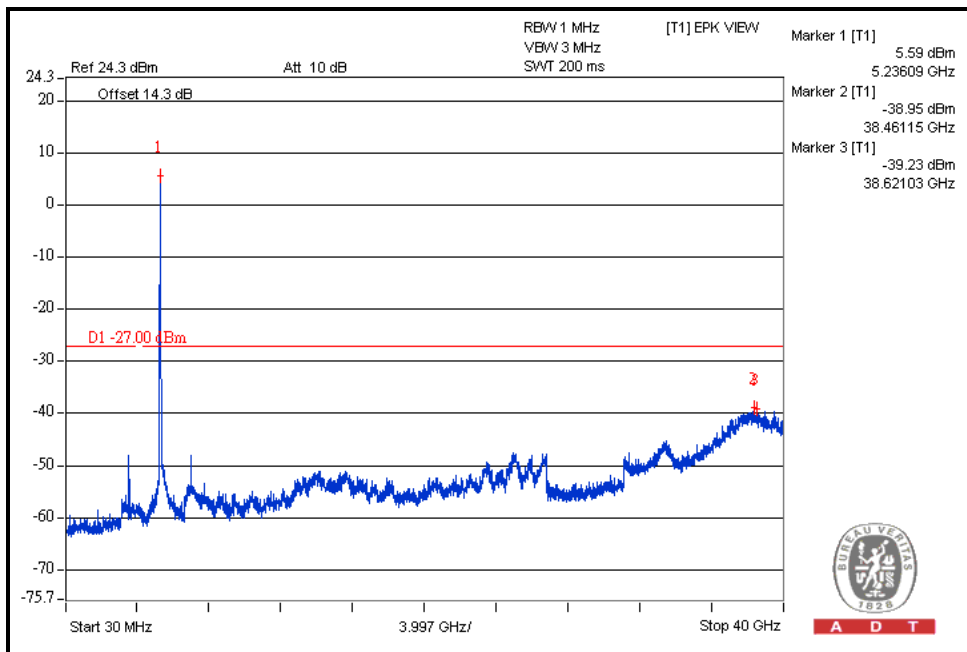
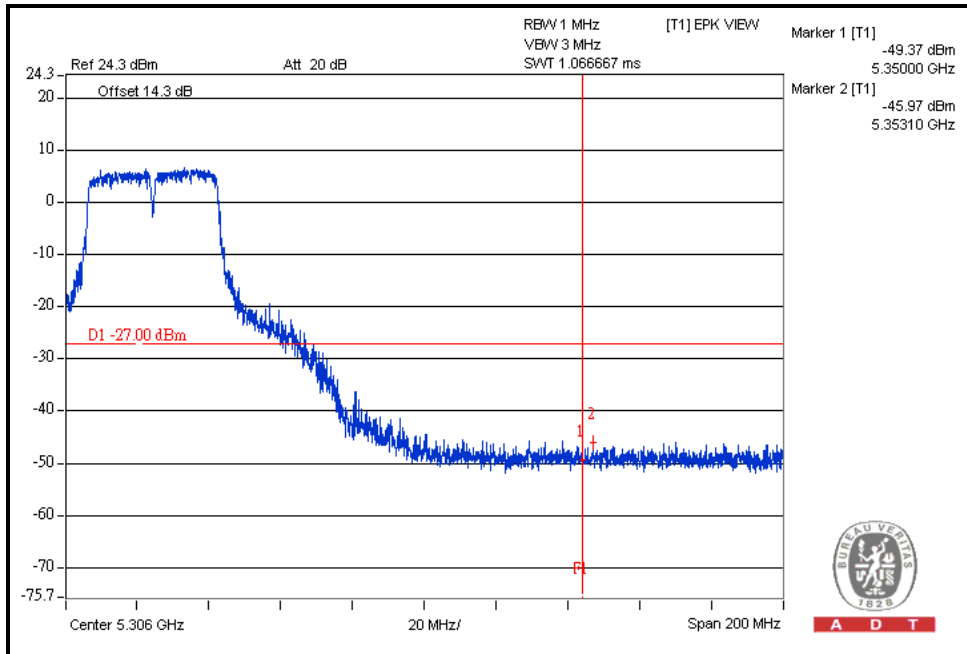
CH38





A D T

CH62





A D T

For 5.47 to 5.725GHz band:

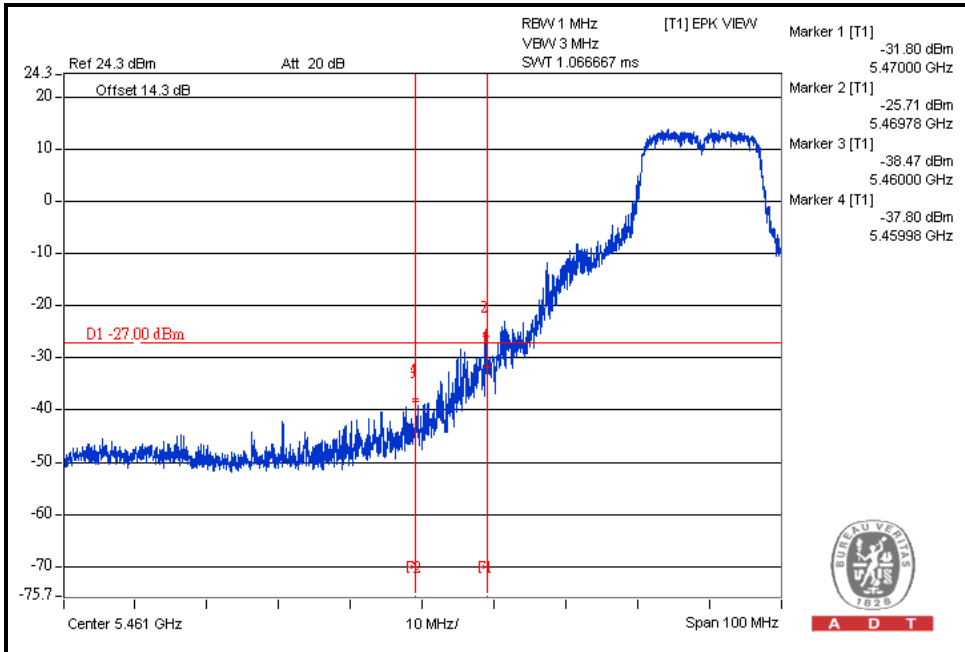
The spectrum plots (Peak RBW=1MHz, VBW=3MHz) are attached on the following pages.



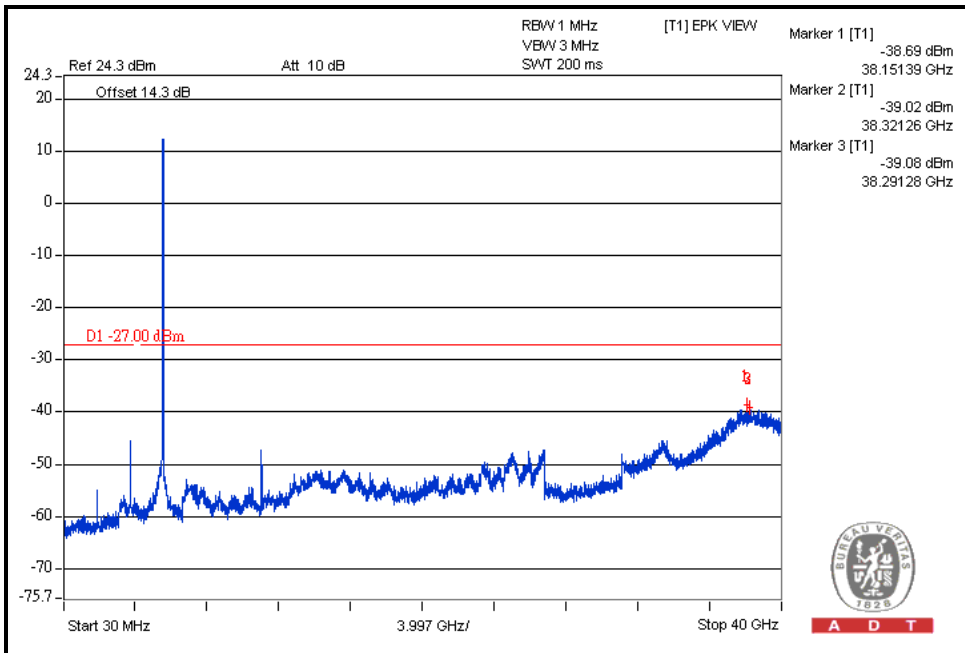
A D T

Performing measurements: Measure and add 10 log(N) dB 802.11a OFDM MODULATION

CH100



A D T

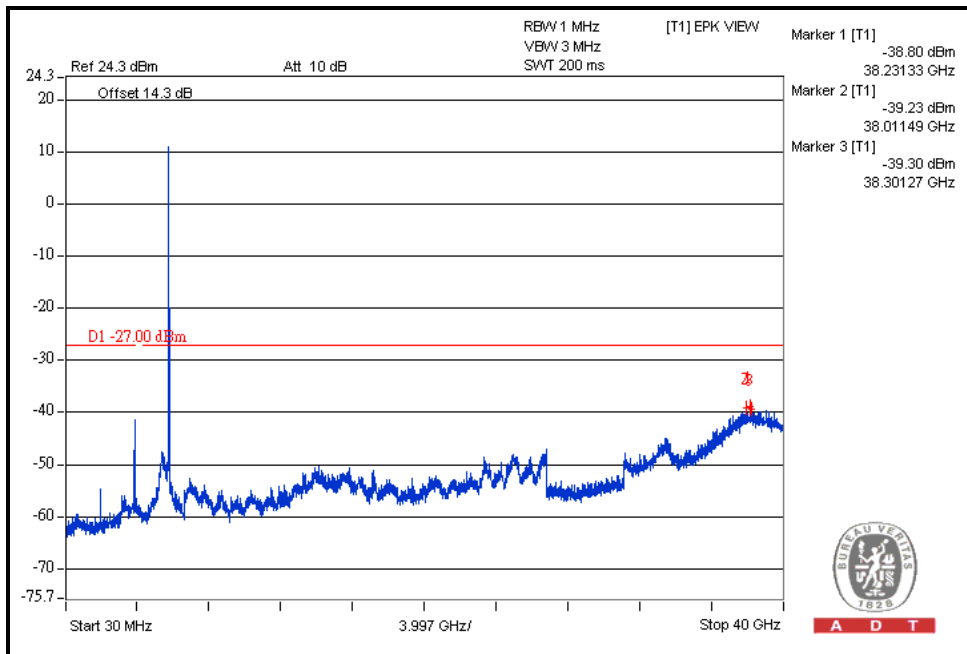
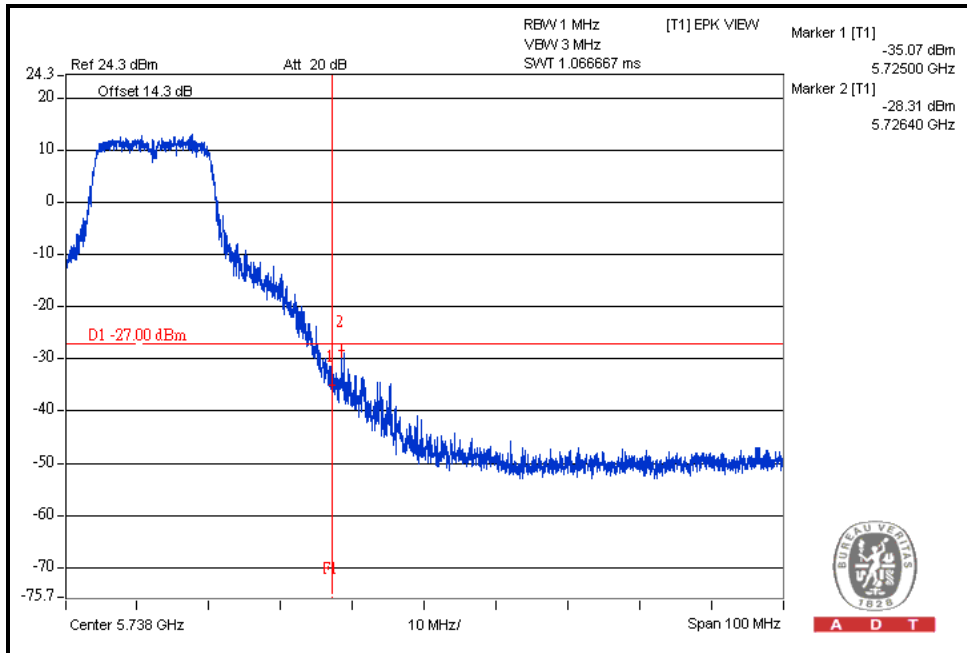


A D T



A D T

CH140

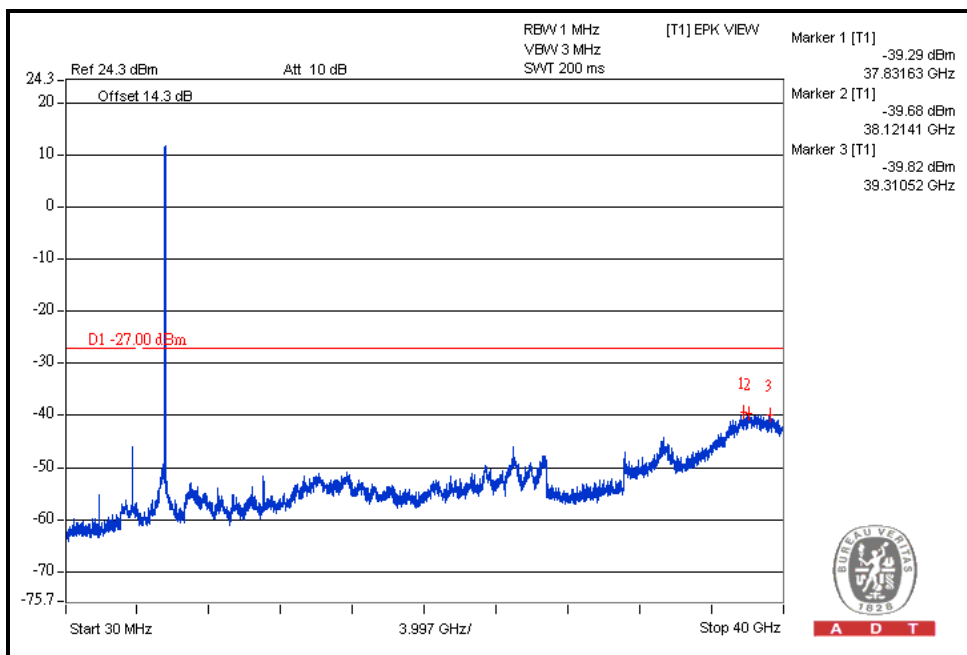
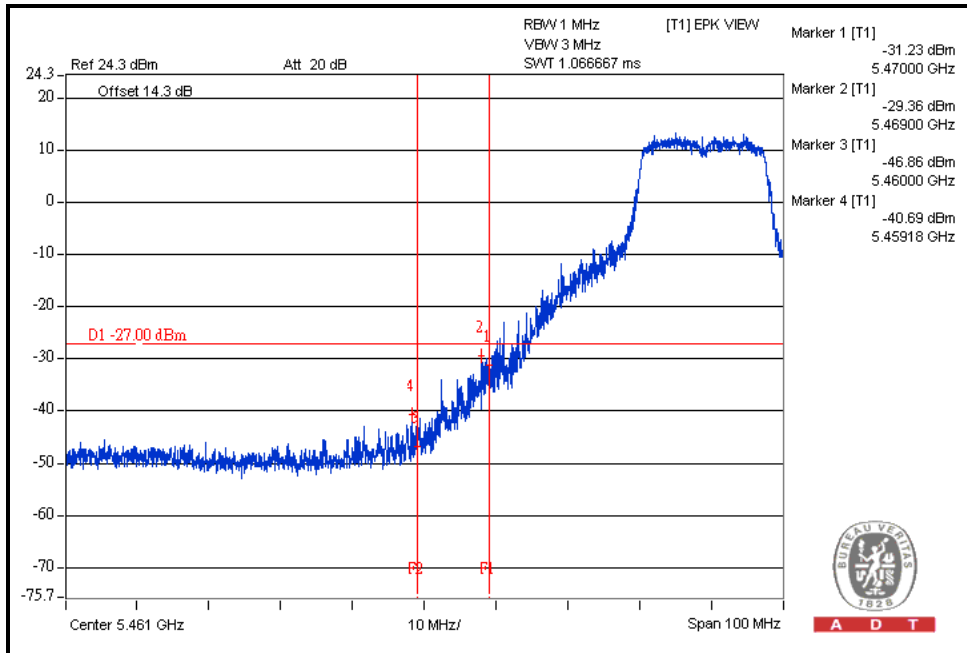




A D T

802.11n (20MHz) OFDM MODULATION:

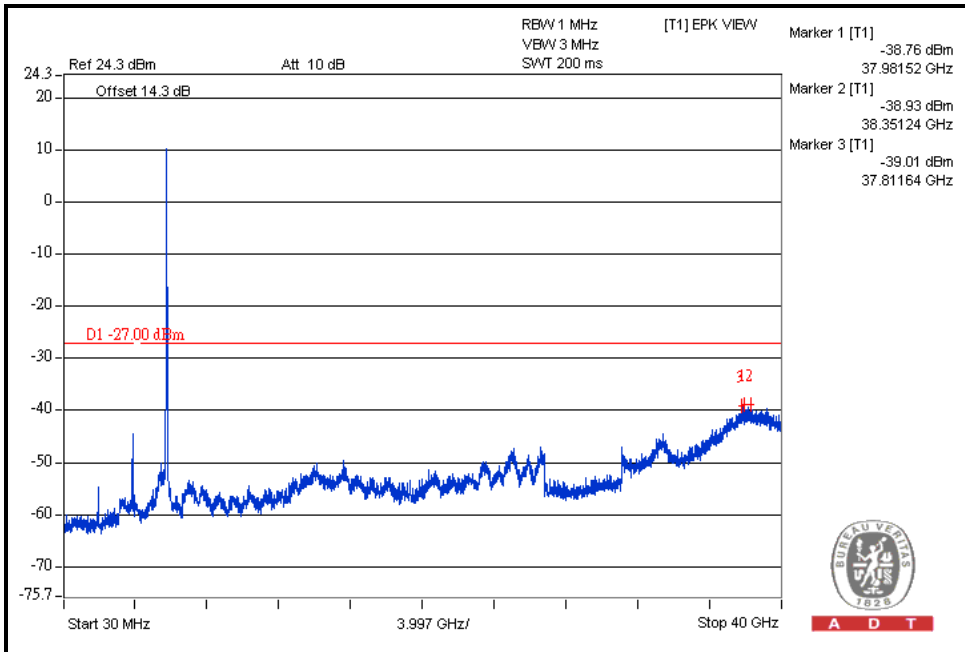
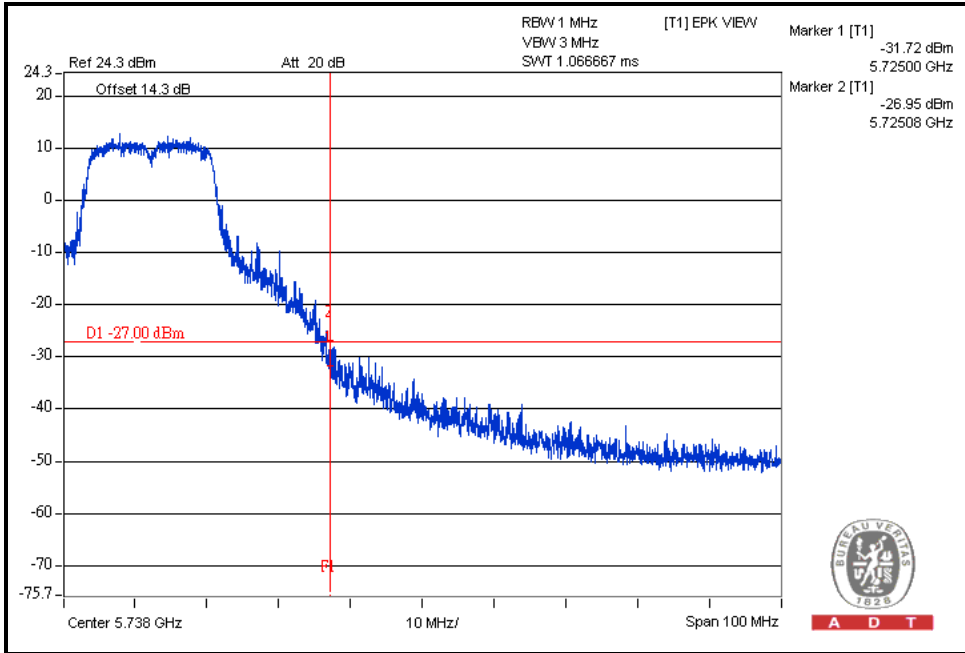
CH100





A D T

CH140

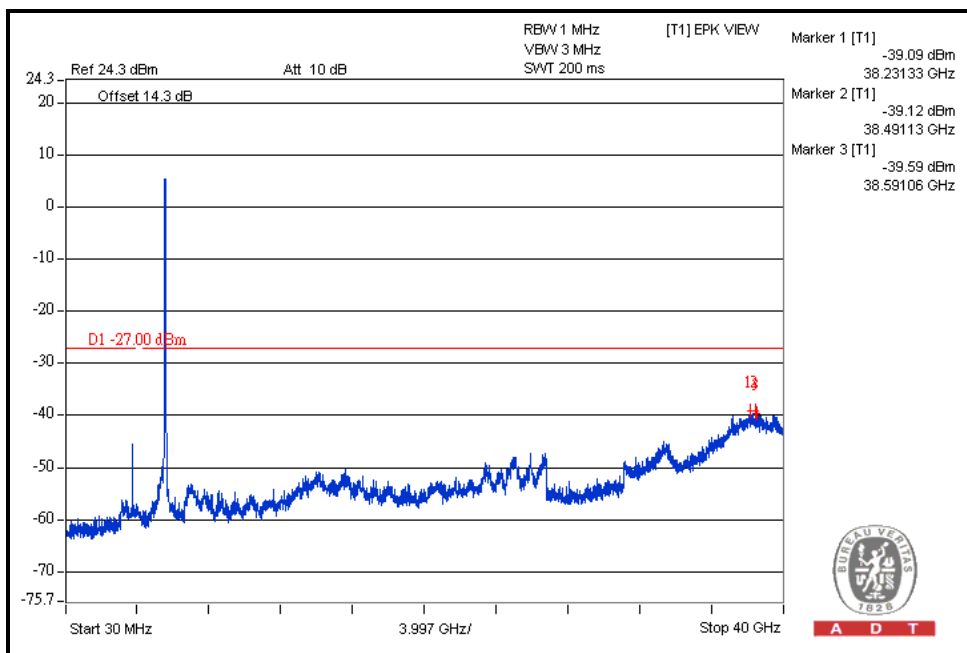
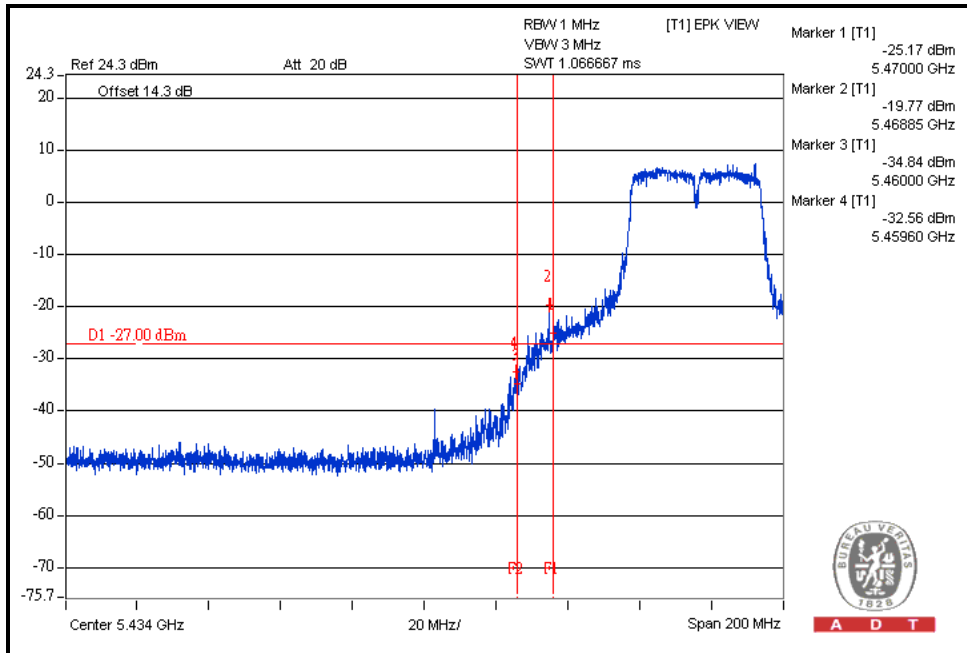




A D T

802.11n (40MHz) OFDM MODULATION:

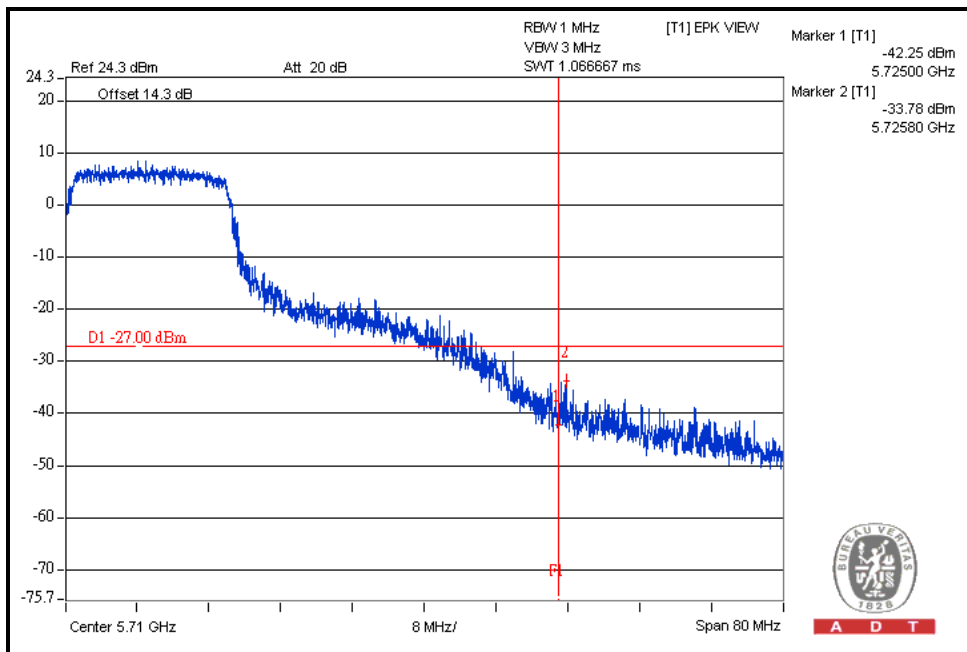
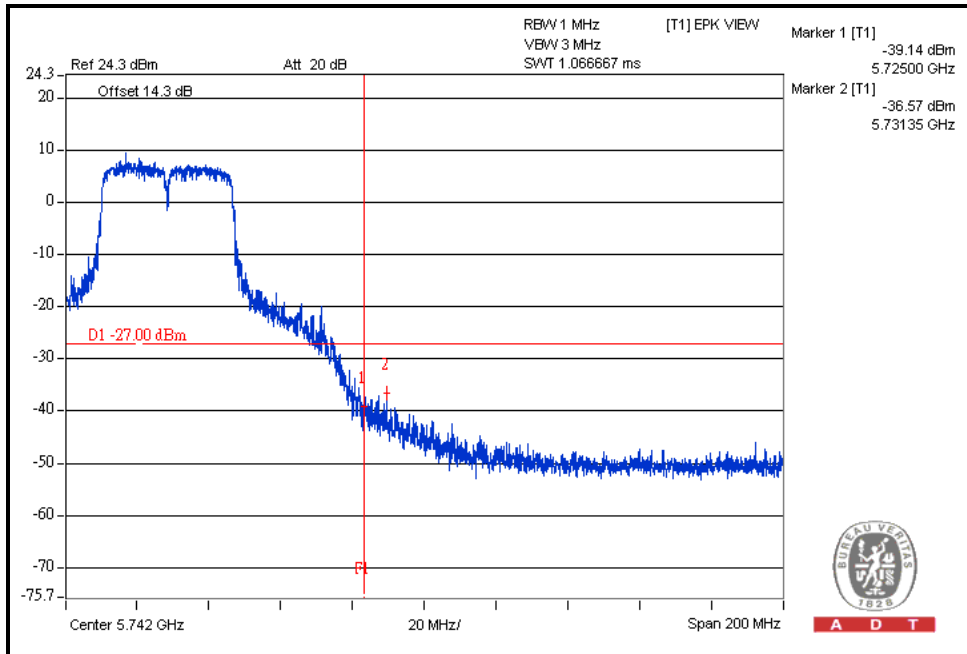
CH102





A D T

CH134





5. 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 and authorization 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.



A D T

6.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 ---