

FCC TEST REPORT (15.407)

REPORT NO.: RF110324E03A-1

MODEL NO.: DAP-1522

FCC ID: KA2AP1522B1

RECEIVED: Mar. 24, 2011

TESTED: Mar. 30 to Apr.14, 2011 and Sep. 01, 2011

ISSUED: Oct. 06, 2011

APPLICANT: D-Link Corporation

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF110324E03A-1	Original release	Oct. 06, 2011

1. CERTIFICATION

PRODUCT: Xtreme N DUO Wireless Bridge/Access Point
BRAND NAME: D-Link
MODEL NO.: DAP-1522
TEST SAMPLE: MASS-PRODUCTION
APPLICANT: D-Link Corporation
TESTED: Mar. 30 to Apr.14, 2011 and Sep. 01, 2011
STANDARDS: FCC Part 15, Subpart E (Section 15.407)
ANSI C63.4-2003
ANSI C63.10-2009

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

PREPARED BY : Midoli Peng, **DATE:** Oct. 06, 2011
(Midoli Peng, Specialist)

APPROVED BY : May Chen, **DATE:** Oct. 06, 2011
(May Chen, Deputy Manager)

2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

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 -14.63dB at 12.629MHz
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 -0.5dB at 5725.0MHz
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: The DFS report was recorded in another test report<Report No.: RF110324E03A-2>.

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

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT(ONLY FOR ADDITIONAL DFS BAND)

PRODUCT	Xtreme N DUO Wireless Bridge/Access Point
MODEL NO.	DAP-1522
FCC ID	KA2AP1522B1
POWER SUPPLY	DC 5V from power adapter
MODULATION TYPE	64QAM, 16QAM, QPSK, BPSK
MODULATION TECHNOLOGY	OFDM
TRANSFER RATE	802.11a: 54/48/36/24/18/12/9/6Mbps. HT20 MCS0~7 (800ns GI): 6.5Mbps, 13Mbps, 19.5Mbps, 26Mbps, 39Mbps, 52Mbps, 58.5Mbps, 65Mbps HT20 MCS8~15 (800ns GI): 13Mbps, 26Mbps, 39Mbps, 52Mbps, 78Mbps, 104Mbps, 117Mbps, 130Mbps. HT40 MCS0~7 (800ns GI): 13.5Mbps, 27Mbps, 40.5Mbps, 54Mbps, 81Mbps, 108Mbps, 121.5Mbps, 135Mbps. HT40 MCS8~15 (800ns GI): 27Mbps, 54Mbps, 81Mbps, 108Mbps, 162Mbps, 216Mbps, 243Mbps, 270Mbps. HT20 MCS0~7 (400ns GI): 7.2Mbps, 14.4Mbps, 21.7Mbps, 28.9Mbps, 43.3Mbps, 57.8Mbps, 65.0Mbps, 72.2Mbps. HT20 MCS8~15 (400ns GI): 14.444Mbps, 28.889Mbps, 43.333Mbps, 57.778Mbps, 86.667Mbps, 115.556Mbps, 130.000Mbps, 144.444Mbps. HT40 MCS0~7 (400ns GI): 15Mbps, 30Mbps, 45Mbps, 60Mbps, 90Mbps, 120Mbps, 135Mbps, 150Mbps. HT40 MCS8~15 (400ns GI): 30Mbps, 60Mbps, 90Mbps, 120Mbps, 180Mbps, 240Mbps, 270Mbps, 300Mbps.
OPERATING FREQUENCY	5.26 ~ 5.32GHz, 5.5~5.58GHz & 5.66~5.7GHz
NUMBER OF CHANNEL	12 for 802.11a, 802.11n (20MHz) 6 for 802.11n (40MHz)
MAXIMUM OUTPUT POWER	802.11a: 83.2mW 802.11n (20MHz): 138.4mW 802.11n (40MHz): 138.4mW
ANTENNA TYPE	Please see note
DATA CABLE	Ethernet cable (unshielded, 1.5m)
I/O PORTS	LAN port (10, 100, 1000Mbps) port x 4
ASSOCIATED DEVICES	Adapter x 1

NOTE:

1. This report is prepared for FCC Class II change. The difference compared with the Report No.: RF110324E03-1 design is as the following:

- u Add DFS band < 5250MHz ~ 5350MHz and 5470MHz ~ 5600MHz & 5650MHz ~ 5725MHz >

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

Antenna Set 1						
Transmitter Circuit	Brand name	Model name	Antenna Gain		Antenna Type	Connector
			For 2.4GHz Gain (dBi)	For 5GHz Gain (dBi)		
Chain (0)	MAG. LAYERS	MSA-3115-2 5GC1-A1	3.52	1.63	PIFA	NA
Chain (1)	MAG. LAYERS	MSA-3815-2 5GC1-A2	2.19	2.68	PIFA	NA
Antenna Set 2						
Transmitter Circuit	Brand name	Model name	Antenna Gain		Antenna Type	Connector
			For 2.4GHz Gain (dBi)	For 5GHz Gain (dBi)		
Chain (0)	Airgain	M2445UDC-T2-G	3.9	2.0	PIFA	NA
Chain (1)	Airgain	M2445UDC-T2-G	3.9	2.0	PIFA	NA
Note: 1. This report chose the max. Antenna gain to do final test. 2. For 802.11a: Antenna set 2 was selected as representative antennas for the test. 3. For 802.11n (20MHz) & 802.11n (40MHz) of 5GHz: Antenna set 1 was selected as representative antennas for the test. 4. Please refer to the section 3.2.1(Antenna Combination mode) for the detail.						

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

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

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

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

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

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

5. 2.4GHz and 5GHz technology cannot transmit at same time.
6. The EUT incorporates a MIMO function with 802.11n.
7. The EUT is 2 * 2 spatial MIMO (2Tx & 2Rx) without beam forming function. The 11abg legacy mode is limited to single transmitter only.
8. When the EUT operating in 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) from 0 to 15.
9. The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

Operated in 5250MHz ~ 5350MHz bands:

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

CHANNEL	FREQUENCY
52	5260 MHz
56	5280 MHz
60	5300 MHz
64	5320 MHz

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

CHANNEL	FREQUENCY
54	5270 MHz
62	5310 MHz

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

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

CHANNEL	FREQUENCY
102	5510 MHz
110	5550 MHz
118	5590 MHz
134	5670 MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

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

Where **PLC**: Power Line Conducted Emission **RE < 1G**: Radiated Emission below 1GHz
RE ³ 1G: Radiated Emission above 1GHz **APCM**: Antenna Port Conducted Measurement
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
For 5 GHz 802.11n (20MHz)	52 to 140	52	OFDM	BPSK	6.5	B

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
For 5 GHz 802.11n (20MHz)	52 to 140	52	OFDM	BPSK	6.5	B

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

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
PLC	26deg. C, 68%RH	120Vac, 60Hz	Timmy Hu
RE<1G	18deg. C, 60%RH	120Vac, 60Hz	Kent Liu
RE ³ 1G	22deg. C, 64%RH	120Vac, 60Hz	Kent Liu
APCM	25deg. C, 60%RH	120Vac, 60Hz	Kent Liu
OB	25deg. C, 60%RH	120Vac, 60Hz	Kent Liu

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 15, Subpart 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.

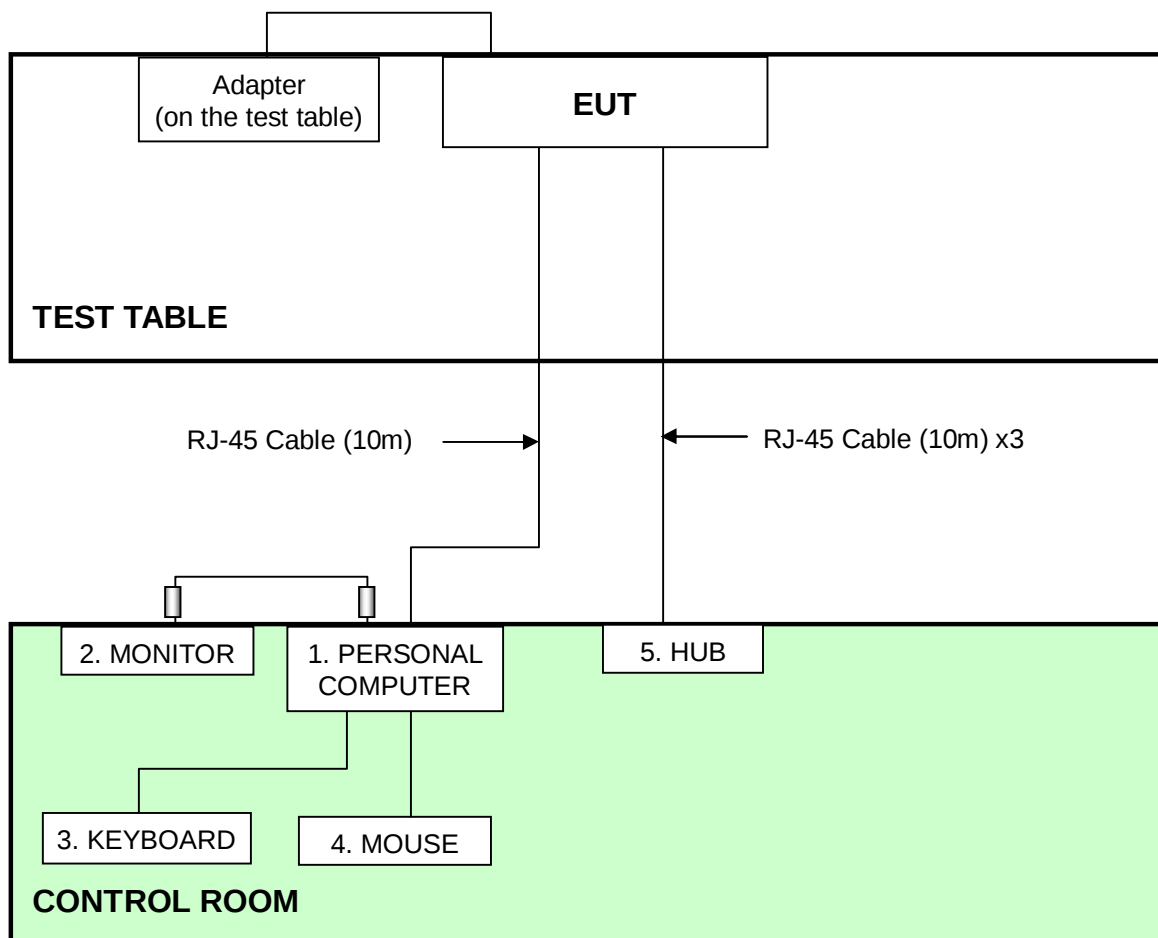
No.	Product	Brand	Model No.	Serial No.	FCC ID
1	PERSONAL COMPUTER	COMPAQ	DESKPRO	5K19FR4ZA02J	FCC DoC
2	MONITOR	Alston	AT-1501	NA	NA
3	KEYBOARD	DELL	SK-8110	MY-05N456-71679-3 C1-1635	FCC DoC
4	MOUSE	BTC	M851	G00347024426	FCC DoC
5	HUB	ZyXEL	ES-116P	S060H02000215	NA
6	NOTEBOOK COMPUTER	DELL	PP32LA	GSLB32S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

No.	Signal cable description
1	RJ-45 Cable (unshielded, 10m)
2	VGA Cable (shielded, 1.8m with two cores)
3	USB Cable (shielded, 1.8m)
4	USB Cable (shielded, 1.5m)
5	RJ-45 Cable (unshielded, 10m)
6	RJ-45 Cable (unshielded, 10m)

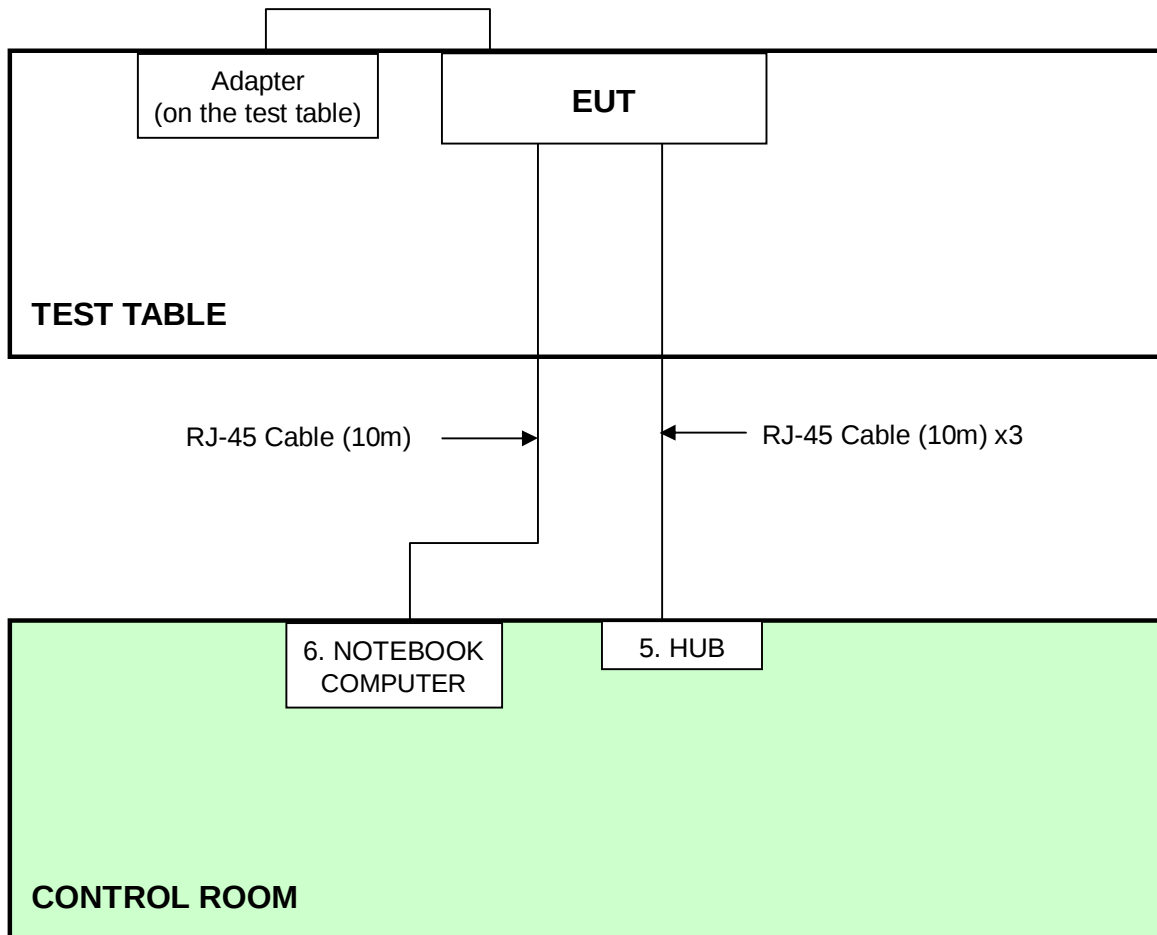
Note: The power cords of the above support units were unshielded (1.8m).

3.5 CONFIGURATION OF SYSTEM UNDER TEST

For Conducted test:



For other test items:



4. TEST TYPES AND RESULTS

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: Sep. 01, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Test Receiver	ESCS 30	100287	Mar. 02, 2011	Mar. 01, 2012
Line-Impedance Stabilization Network (for EUT)	NSLK 8127	8127-523	Sep. 17, 2010	Sep. 16, 2011
Line-Impedance Stabilization Network (for Peripheral)	ENV-216	100072	June 10, 2011	June 09, 2012
RF Cable (JYEBAO)	5DFB	CONCAB-003	Aug. 05, 2011	Aug. 04, 2012
50 ohms Terminator	50	3	Nov. 03, 2010	Nov. 02, 2011
Software	BV ADT_Cond_V7.3.7	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. A.
3. The VCCI Con A Registration No. is C-817.

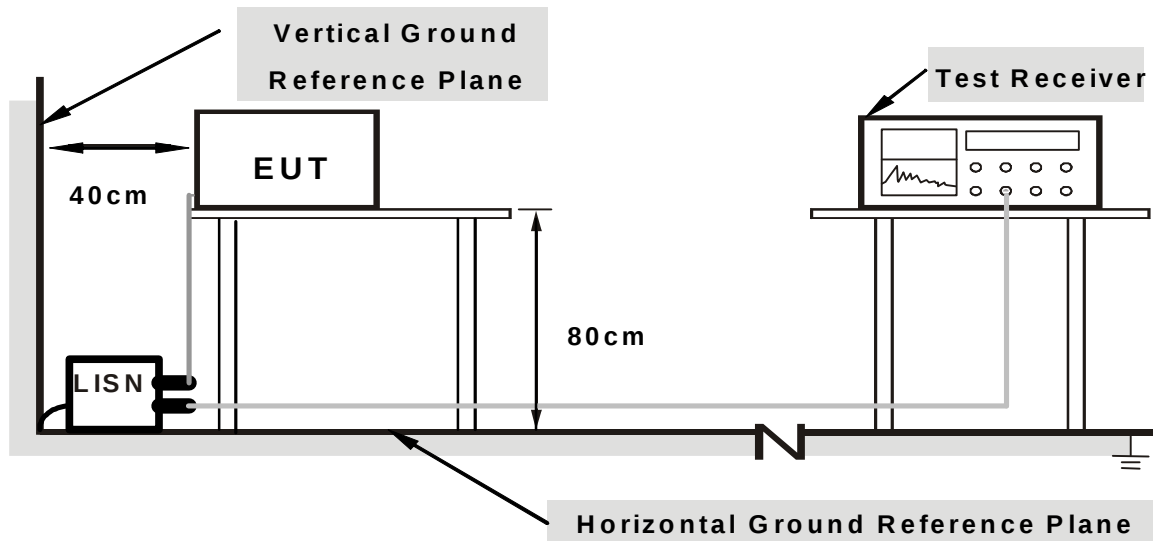
4.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN.
- 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

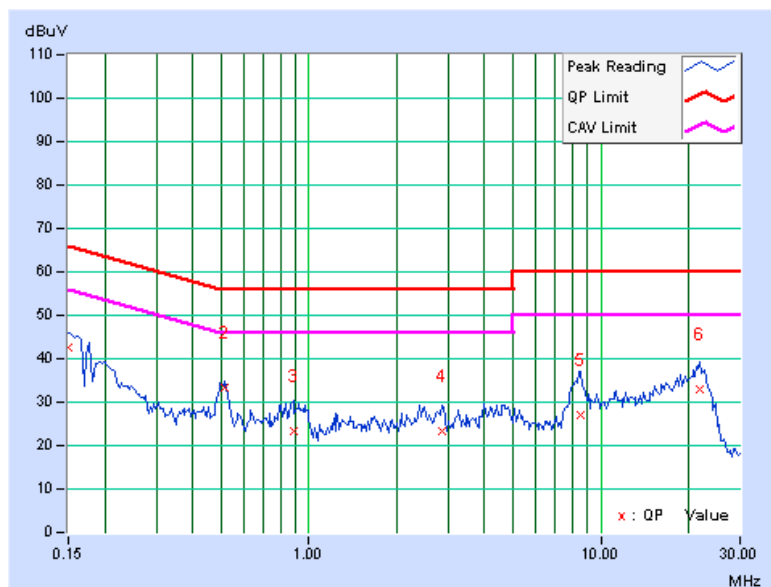
1. Placed the EUT on testing table.
2. Prepared other computer system (support unit 1) to act as communication partner and placed it outside of testing area.
3. The communication partners ran test program “QA_RT3883-AP-V1.0.4.5” to enable EUT under transmission/receiving condition continuously via one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

4.1.7 TEST RESULTS (With adapter 1)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
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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	0.36	42.31	37.25	42.67	37.61	66.00	56.00	-23.32	-18.38
2	0.513	0.37	32.86	25.91	33.23	26.28	56.00	46.00	-22.77	-19.72
3	0.884	0.40	22.76	15.46	23.16	15.86	56.00	46.00	-32.84	-30.14
4	2.863	0.48	22.87	17.52	23.35	18.00	56.00	46.00	-32.65	-28.00
5	8.484	0.64	26.25	22.86	26.89	23.50	60.00	50.00	-33.11	-26.50
6	21.898	1.13	31.94	27.31	33.07	28.44	60.00	50.00	-26.93	-21.56

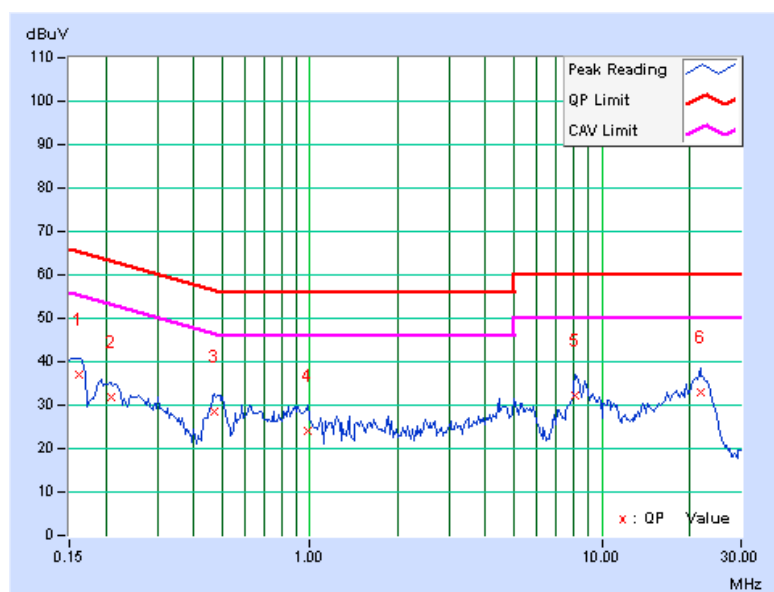
- REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor +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



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

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.162	0.10	37.08	27.14	37.18	27.24	65.38	55.38	-28.20	-28.14
2	0.209	0.10	31.62	23.52	31.72	23.62	63.26	53.26	-31.54	-29.64
3	0.470	0.12	28.46	22.35	28.58	22.47	56.51	46.51	-27.93	-24.04
4	0.982	0.16	23.84	18.28	24.00	18.44	56.00	46.00	-32.00	-27.56
5	8.156	0.41	31.82	25.93	32.23	26.34	60.00	50.00	-27.77	-23.66
6	21.719	1.28	31.61	26.88	32.89	28.16	60.00	50.00	-27.11	-21.84

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

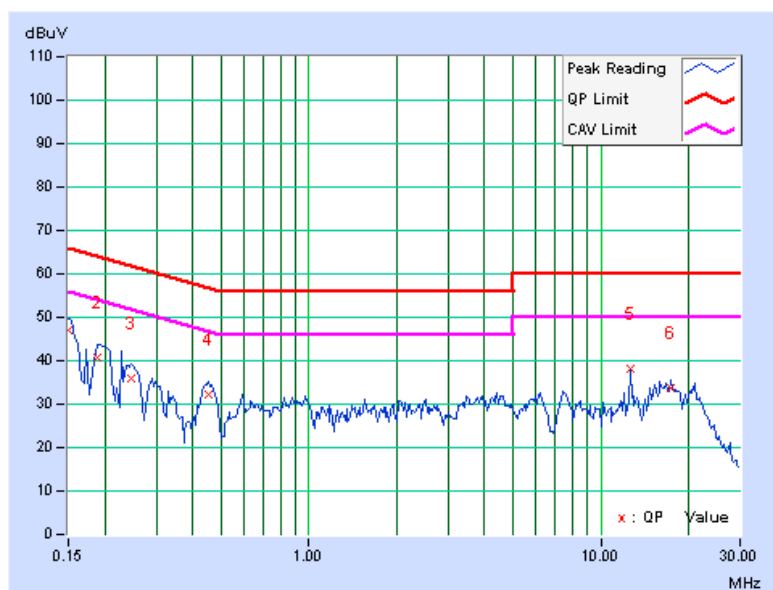


4.1.8 TEST RESULTS (With adapter 2)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.36	46.56	37.47	46.92	37.83	66.00	56.00	-19.07	-18.16
2	0.189	0.36	40.36	28.86	40.72	29.22	64.06	54.06	-23.34	-24.84
3	0.248	0.36	35.73	28.32	36.09	28.68	61.83	51.83	-25.74	-23.15
4	0.451	0.36	31.79	27.61	32.15	27.97	56.86	46.86	-24.71	-18.89
5	12.629	0.85	37.46	34.52	38.31	35.37	60.00	50.00	-21.69	-14.63
6	17.398	1.02	32.59	28.67	33.61	29.69	60.00	50.00	-26.39	-20.31

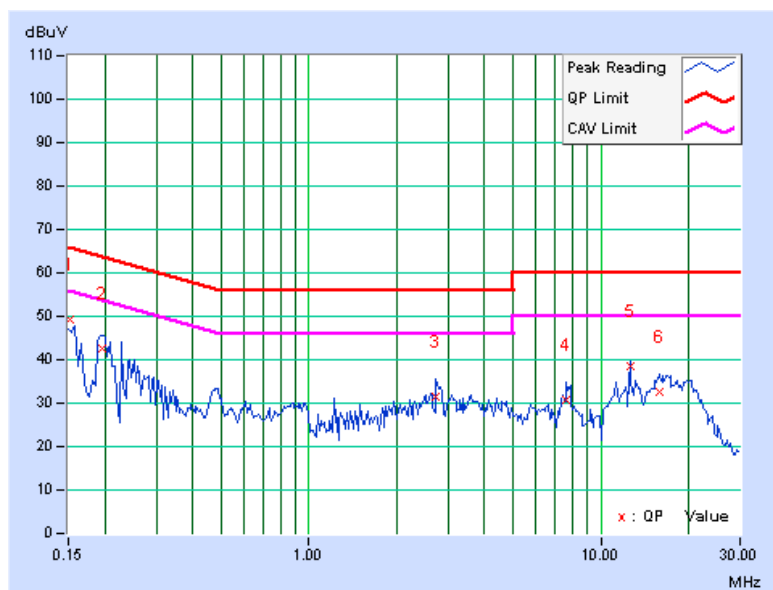
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. The emission levels of other frequencies were very low against the limit.
 3. Margin value = Emission level - Limit value
 4. Correction factor = Insertion loss + Cable loss
 5. Emission Level = Correction Factor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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
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	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.152	0.10	49.21	37.26	49.31	37.36	65.89	55.89	-16.58	-18.53
2	0.197	0.10	42.61	31.35	42.71	31.45	63.74	53.74	-21.03	-22.29
3	2.734	0.21	31.22	23.21	31.43	23.42	56.00	46.00	-24.57	-22.58
4	7.652	0.39	30.17	24.86	30.56	25.25	60.00	50.00	-29.44	-24.75
5	12.629	0.72	37.73	34.61	38.45	35.33	60.00	50.00	-21.55	-14.67
6	15.852	0.97	31.49	26.25	32.46	27.22	60.00	50.00	-27.54	-22.78

- 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.

4.2.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

Frequencies (MHz)	EIRP Limit (dBm)	Equivalent Field Strength at 3m (dBμV/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

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

4.2.3 TEST INSTRUMENTS

Test date: Mar. 30 to Apr. 13, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250254	July 14, 2010	July 13, 2011
Agilent Pre-Selector	N9039A	MY46520311	July 14, 2010	July 13, 2011
Agilent Signal Generator	N5181A	MY49060517	July 14, 2010	July 13, 2011
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-03	Nov. 16, 2010	Nov. 15, 2011
Agilent Pre-Amplifier	8449B	3008A02578	July 05, 2010	July 04, 2011
Miteq Pre-Amplifier	AFS33-1800265 0-30-8P-44	881786	NA	NA
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-360	Apr. 29, 2010	Apr. 28, 2011
AISI Horn_Antenna	AIH.8018	0000320091110	Nov. 12, 2010	Nov. 11, 2011
SCHWARZBECK Horn_Antenna	BBHA 9170	9170-424	Oct. 08, 2010	Oct. 07, 2011
RF CABLE	NA	RF104-201 RF104-203 RF104-204	Dec. 27, 2010	Dec. 26, 2011
RF Cable	NA	CHGCAB_001	NA	NA
Software	ADT_Radiated_V8.7.05	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The horn antenna, preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

3. The test was performed in 966 Chamber No. G.

4. The FCC Site Registration No. is 966073.

5. The VCCI Site Registration No. is G-137.

6. The CANADA Site Registration No. is IC 7450H-2.

4.2.4 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 Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

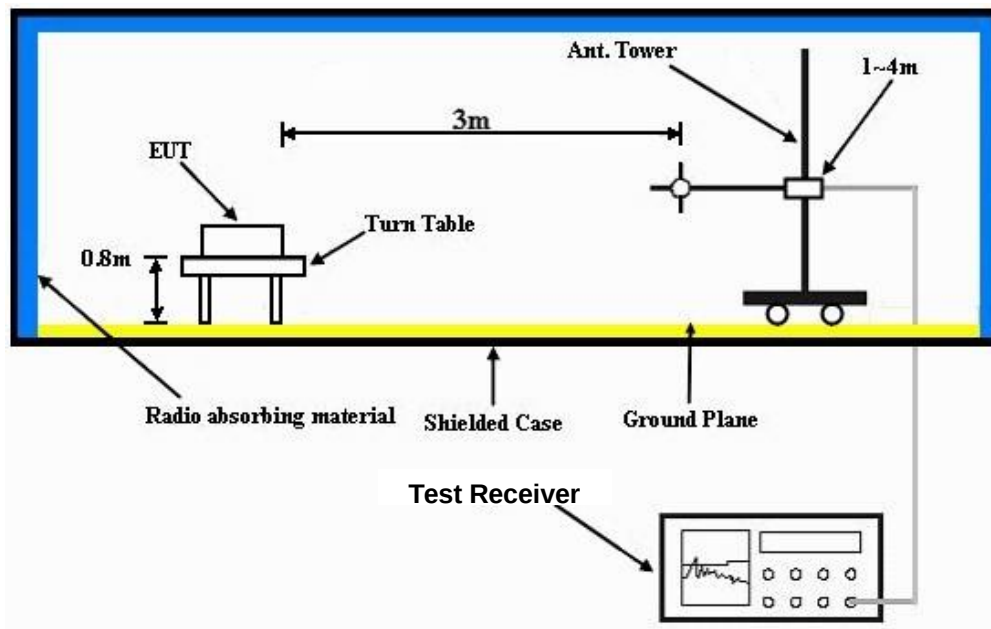
NOTE:

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

4.2.8 TEST RESULTS

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	18deg. C, 60%RH	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	250.03	31.3 QP	46.0	-14.7	1.25 H	167	17.84	13.42
2	500.02	32.6 QP	46.0	-13.4	1.50 H	132	12.54	20.10
3	574.98	33.9 QP	46.0	-12.1	1.00 H	3	12.11	21.81
4	624.96	37.1 QP	46.0	-9.0	1.25 H	343	14.34	22.71
5	750.01	32.8 QP	46.0	-13.2	1.00 H	176	8.48	24.33
6	875.06	34.0 QP	46.0	-12.0	1.00 H	352	7.66	26.37
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	42.94	32.6 QP	40.0	-7.4	1.00 V	158	18.41	14.22
2	250.03	28.4 QP	46.0	-17.6	1.00 V	193	14.97	13.42
3	500.02	31.6 QP	46.0	-14.4	1.00 V	28	11.52	20.10
4	574.98	30.9 QP	46.0	-15.1	1.00 V	256	9.10	21.81
5	625.05	32.6 QP	46.0	-13.4	1.00 V	343	9.86	22.72
6	874.95	33.3 QP	46.0	-12.8	1.25 V	164	6.88	26.37

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



A D T

ABOVE 1GHz WORST-CASE DATA

802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 64%RH	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	58.1 PK	74.0	-15.9	1.00 H	293	18.16	39.94
2	5150.00	45.9 AV	54.0	-8.1	1.00 H	293	5.96	39.94
3	*5260.00	103.2 PK			1.00 H	292	62.97	40.23
4	*5260.00	91.8 AV			1.00 H	292	51.57	40.23
5	#10520.00	54.6 PK	68.3	-13.7	1.00 H	200	7.88	46.72
6	15780.00	62.5 PK	74.0	-11.5	1.09 H	189	10.92	51.58
7	15780.00	49.0 AV	54.0	-5.0	1.09 H	189	-2.58	51.58
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	5150.00	60.1 PK	74.0	-13.9	1.00 V	247	20.16	39.94
2	5150.00	48.6 AV	54.0	-5.4	1.00 V	247	8.66	39.94
3	*5260.00	115.5 PK			1.00 V	247	75.27	40.23
4	*5260.00	105.6 AV			1.00 V	247	65.37	40.23
5	#10520.00	55.3 PK	68.3	-13.0	1.00 V	280	8.58	46.72
6	15780.00	63.3 PK	74.0	-10.7	1.00 V	275	11.72	51.58
7	15780.00	49.1 AV	54.0	-4.9	1.00 V	275	-2.48	51.58

- 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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 64%RH	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	103.4 PK			1.02 H	288	63.07	40.33
2	*5300.00	92.3 AV			1.02 H	288	51.97	40.33
3	10600.00	55.1 PK	74.0	-18.9	1.00 H	207	8.28	46.82
4	10600.00	43.3 AV	54.0	-10.7	1.00 H	207	-3.52	46.82
5	15900.00	63.0 PK	74.0	-11.0	1.03 H	178	11.34	51.66
6	15900.00	49.3 AV	54.0	-4.7	1.03 H	178	-2.36	51.66
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	113.9 PK			1.00 V	247	73.57	40.33
2	*5300.00	104.7 AV			1.00 V	247	64.37	40.33
3	5350.00	65.3 PK	74.0	-8.7	1.00 V	247	24.83	40.47
4	5350.00	52.9 AV	54.0	-1.1	1.00 V	247	12.43	40.47
5	10600.00	55.9 PK	74.0	-18.1	1.00 V	279	9.08	46.82
6	10600.00	43.2 AV	54.0	-10.8	1.00 V	279	-3.62	46.82
7	15900.00	63.2 PK	74.0	-10.8	1.06 V	264	11.54	51.66
8	15900.00	48.8 AV	54.0	-5.2	1.06 V	264	-2.86	51.66

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 64%RH	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	103.8 PK			1.03 H	277	63.41	40.39
2	*5320.00	92.6 AV			1.03 H	277	52.21	40.39
3	5350.00	63.1 PK	74.0	-10.9	1.00 H	293	22.63	40.47
4	5350.00	48.4 AV	54.0	-5.6	1.00 H	293	7.93	40.47
5	10640.00	55.3 PK	74.0	-18.7	1.00 H	211	8.43	46.87
6	10640.00	43.4 AV	54.0	-10.6	1.00 H	211	-3.47	46.87
7	15960.00	63.8 PK	74.0	-10.2	1.05 H	184	12.07	51.73
8	15960.00	49.9 AV	54.0	-4.1	1.05 H	184	-1.83	51.73
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	111.4 PK			1.00 V	247	71.01	40.39
2	*5320.00	102.1 AV			1.00 V	247	61.71	40.39
3	5350.00	69.7 PK	74.0	-4.3	1.00 V	247	29.23	40.47
4	5350.00	53.4 AV	54.0	-0.6	1.00 V	247	12.93	40.47
5	10640.00	55.9 PK	74.0	-18.1	1.00 V	268	9.03	46.87
6	10640.00	43.0 AV	54.0	-11.0	1.00 V	268	-3.87	46.87
7	15960.00	63.0 PK	74.0	-11.0	1.04 V	276	11.27	51.73
8	15960.00	48.8 AV	54.0	-5.2	1.04 V	276	-2.93	51.73

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 64%RH	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	59.3 PK	74.0	-14.7	1.12 H	292	18.54	40.76
2	5460.00	47.5 AV	54.0	-6.5	1.12 H	292	6.74	40.76
3	#5470.00	62.5 PK	68.3	-5.8	1.12 H	293	21.72	40.78
4	*5500.00	102.1 PK			1.01 H	271	61.24	40.86
5	*5500.00	90.7 AV			1.01 H	271	49.84	40.86
6	11000.00	55.9 PK	74.0	-18.1	1.05 H	199	8.62	47.28
7	11000.00	43.8 AV	54.0	-10.2	1.05 H	199	-3.48	47.28
8	#16500.00	63.4 PK	68.3	-4.9	1.00 H	179	10.37	53.03
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	5447.70	61.8 PK	74.0	-12.2	1.52 V	291	21.07	40.73
2	5447.70	51.4 AV	54.0	-2.6	1.52 V	291	10.67	40.73
3	#5470.00	67.4 PK	68.3	-0.9	1.52 V	291	26.62	40.78
4	*5500.00	110.4 PK			1.52 V	291	69.54	40.86
5	*5500.00	99.3 AV			1.52 V	291	58.44	40.86
6	11000.00	55.7 PK	74.0	-18.3	1.00 V	277	8.42	47.28
7	11000.00	43.1 AV	54.0	-10.9	1.00 V	277	-4.18	47.28
8	#16500.00	63.2 PK	68.3	-5.1	1.02 V	287	10.17	53.03

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 64%RH	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	104.2 PK			1.00 H	273	63.11	41.09
2	*5580.00	92.7 AV			1.00 H	273	51.61	41.09
3	11160.00	56.1 PK	74.0	-17.9	1.05 H	208	8.71	47.39
4	11160.00	43.7 AV	54.0	-10.3	1.05 H	208	-3.69	47.39
5	#16740.00	63.6 PK	68.3	-4.7	1.00 H	166	10.11	53.49
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	*5580.00	113.6 PK			1.57 V	279	72.51	41.09
2	*5580.00	102.5 AV			1.57 V	279	61.41	41.09
3	11160.00	56.1 PK	74.0	-17.9	1.00 V	290	8.71	47.39
4	11160.00	43.3 AV	54.0	-10.7	1.00 V	290	-4.09	47.39
5	#16740.00	63.4 PK	68.3	-4.9	1.03 V	278	9.91	53.49

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 132	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 64%RH	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5660.00	103.7 PK			1.01 H	277	62.39	41.31
2	*5660.00	92.1 AV			1.01 H	277	50.79	41.31
3	11320.00	56.7 PK	74.0	-17.3	1.00 H	207	9.15	47.55
4	11320.00	44.5 AV	54.0	-9.5	1.00 H	207	-3.05	47.55
5	#16980.00	63.6 PK	68.3	-4.7	1.00 H	188	9.58	54.02
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	113.1 PK			1.52 V	305	71.79	41.31
2	*5660.00	101.9 AV			1.52 V	305	60.59	41.31
3	11320.00	56.4 PK	74.0	-17.6	1.00 V	269	8.85	47.55
4	11320.00	43.6 AV	54.0	-10.4	1.00 V	269	-3.95	47.55
5	#16980.00	63.1 PK	68.3	-5.2	1.07 V	283	9.08	54.02

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.



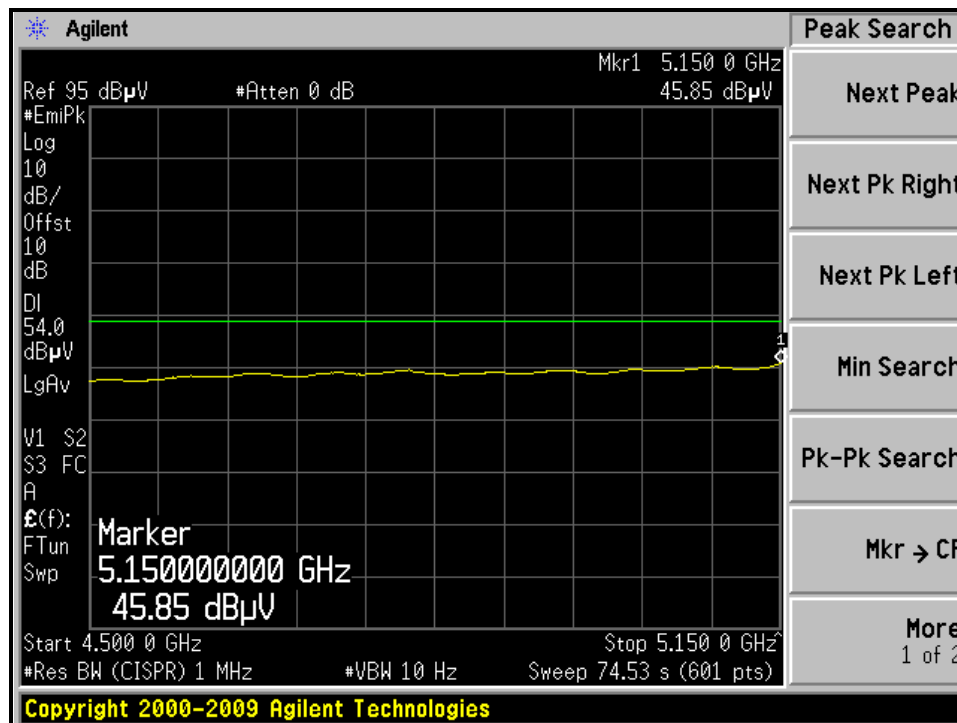
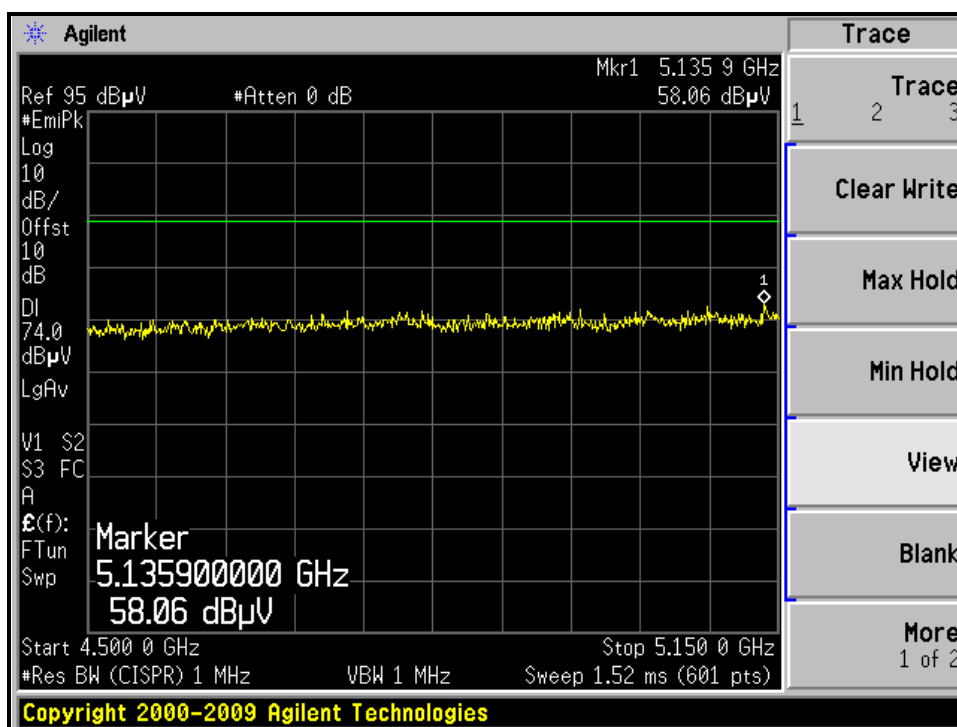
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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 64%RH	TESTED BY	Kent Liu

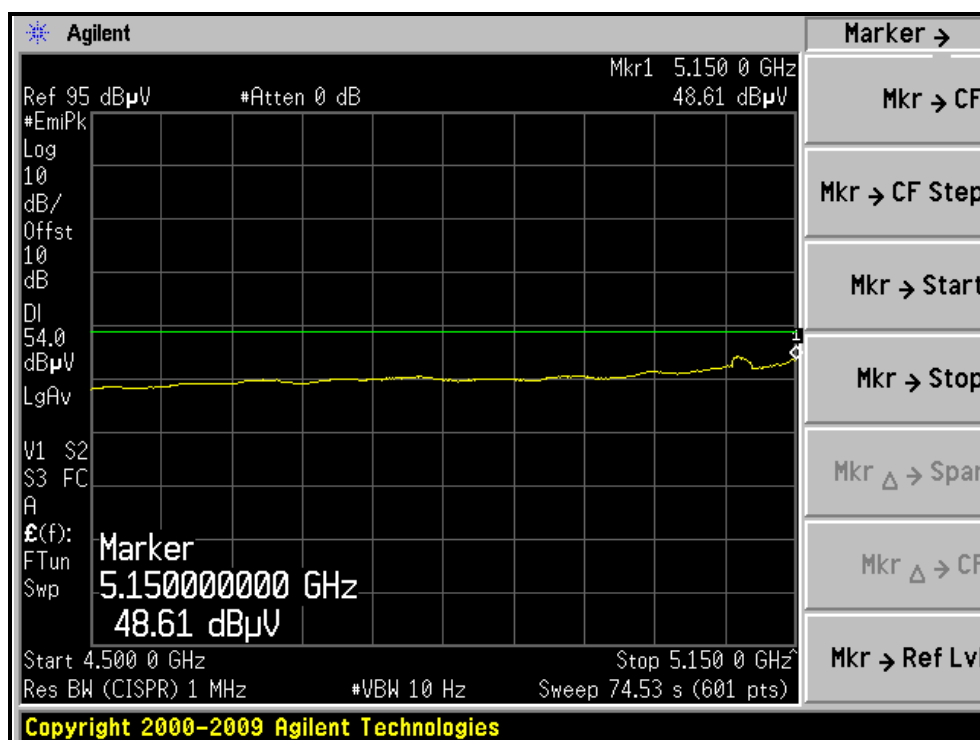
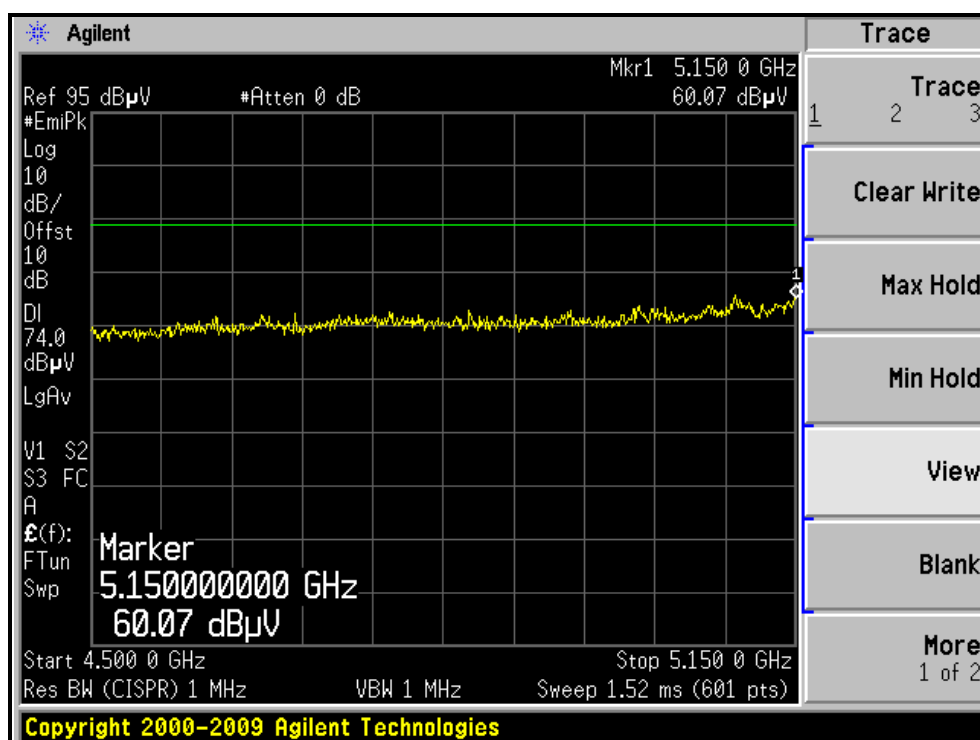
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NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	101.1 PK			1.01 H	274	59.68	41.42
2	*5700.00	90.3 AV			1.01 H	274	48.88	41.42
3	#5725.00	61.2 PK	68.3	-7.1	1.01 H	272	19.71	41.49
4	11400.00	56.5 PK	74.0	-17.5	1.00 H	198	8.88	47.62
5	11400.00	44.3 AV	54.0	-9.7	1.00 H	198	-3.32	47.62
6	#17100.00	63.6 PK	68.3	-4.7	1.04 H	156	9.40	54.20
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	*5700.00	110.9 PK			1.47 V	295	69.48	41.42
2	*5700.00	99.8 AV			1.47 V	295	58.38	41.42
3	#5725.00	67.2 PK	68.3	-1.1	1.47 V	295	25.71	41.49
4	11400.00	55.9 PK	74.0	-18.1	1.00 V	279	8.28	47.62
5	11400.00	43.1 AV	54.0	-10.9	1.00 V	279	-4.52	47.62
6	#17100.00	62.9 PK	68.3	-5.4	1.00 V	285	8.70	54.20

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.

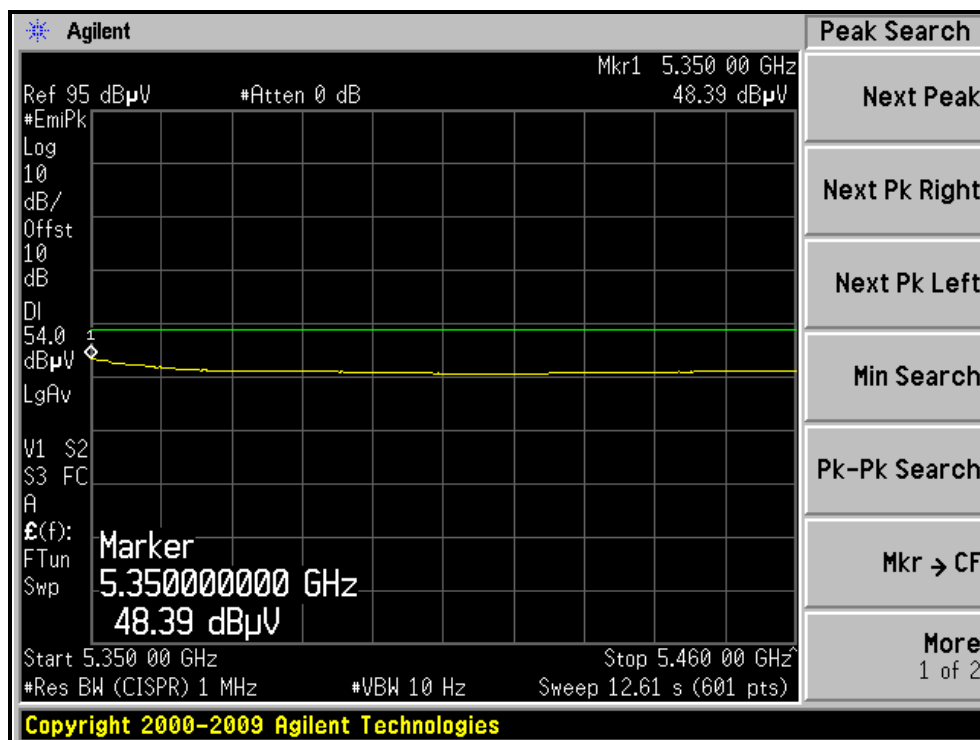
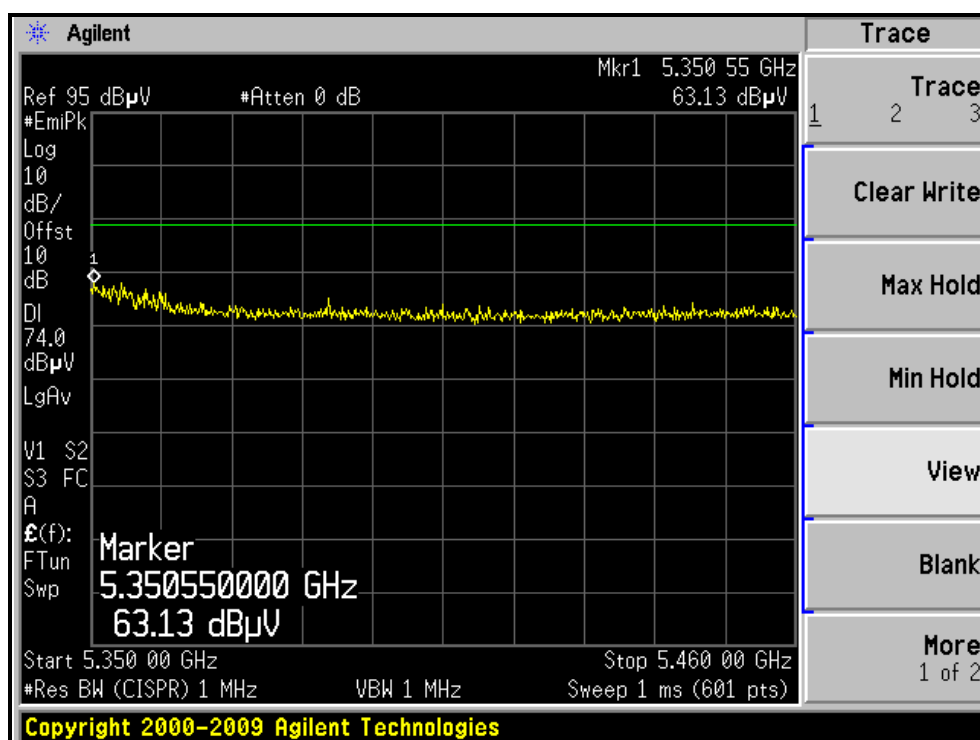
RESTRICTED BANDEDGE (802.11a MODE, CH52, HORIZONTAL)



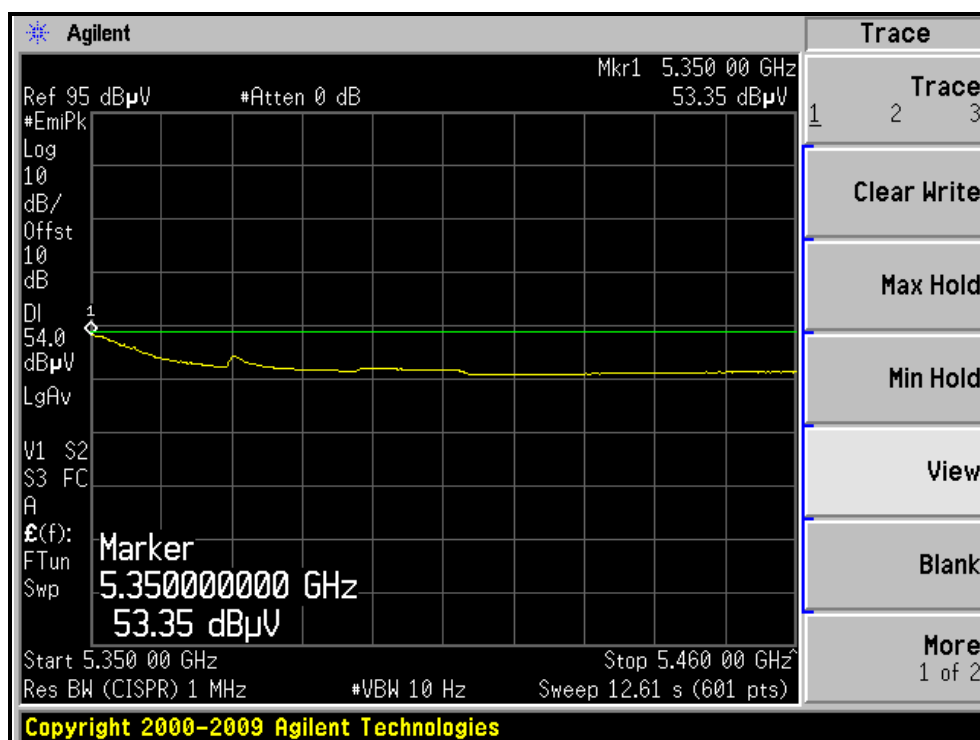
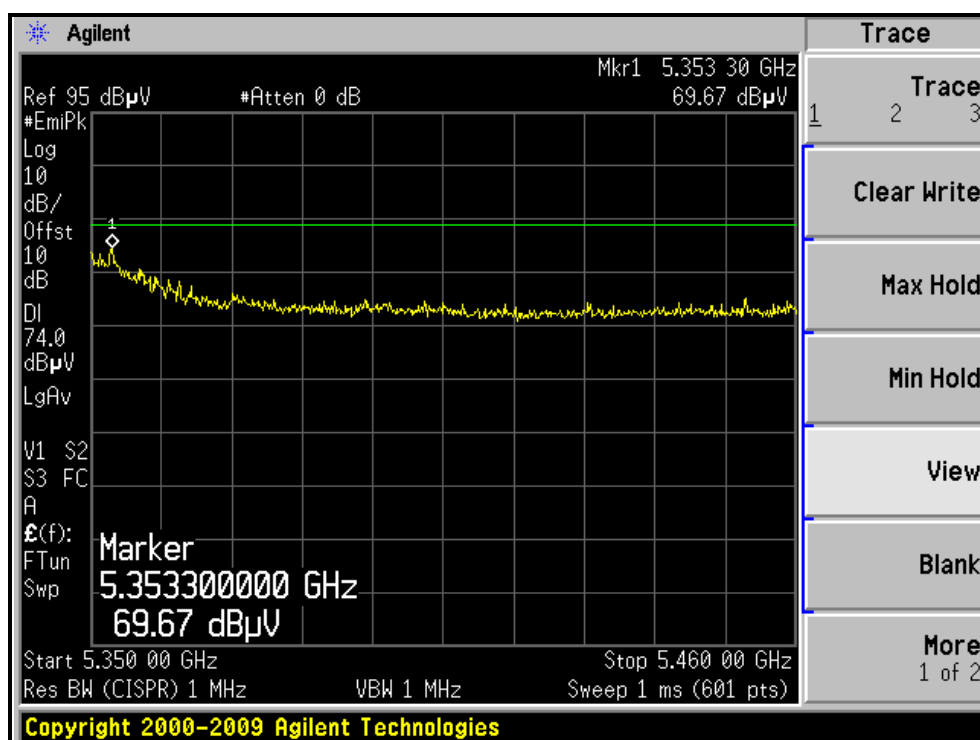
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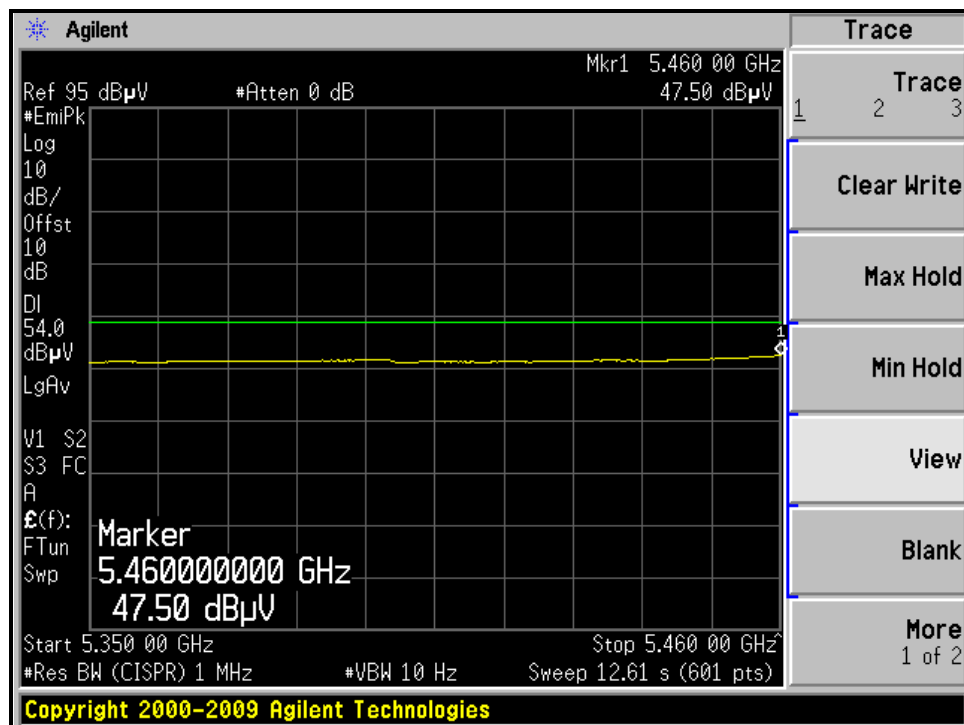
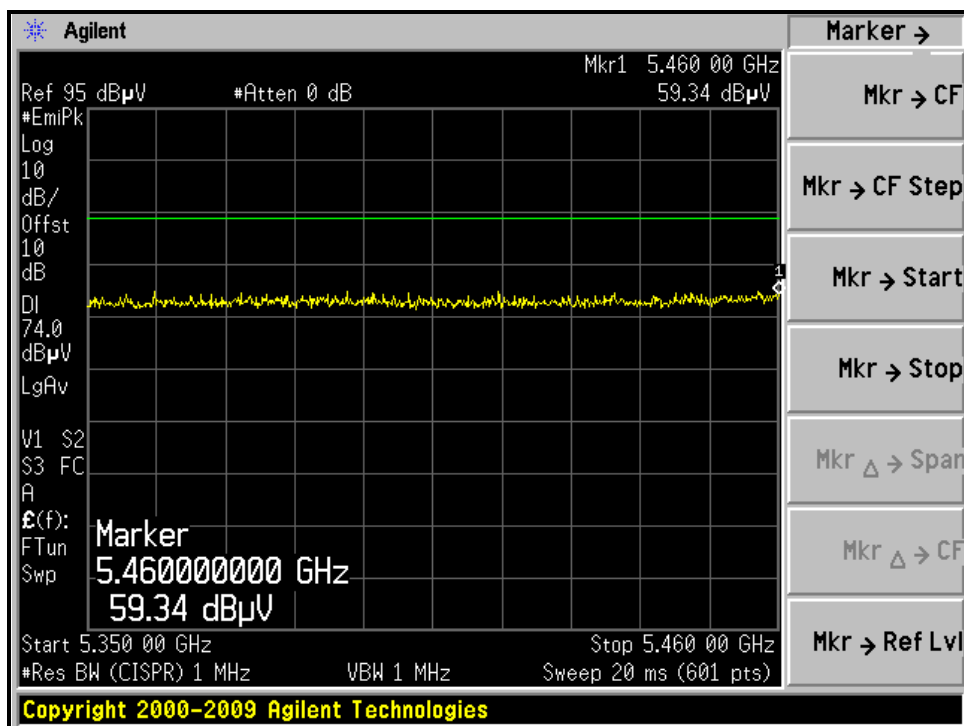
RESTRICTED BANDEDGE (802.11a MODE, CH64, HORIZONTAL)



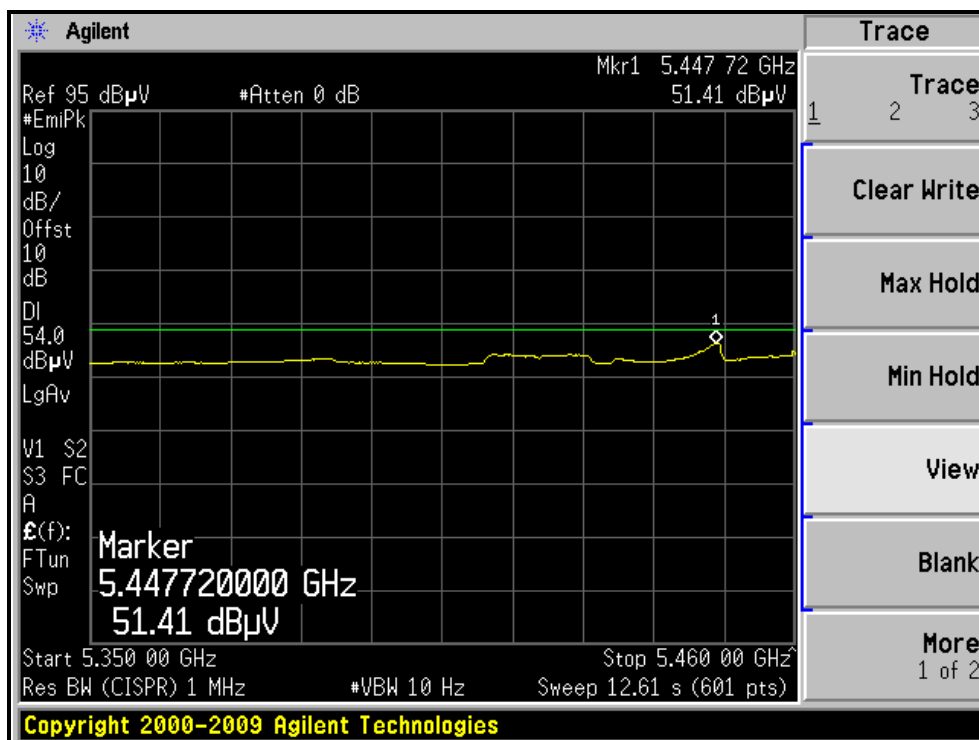
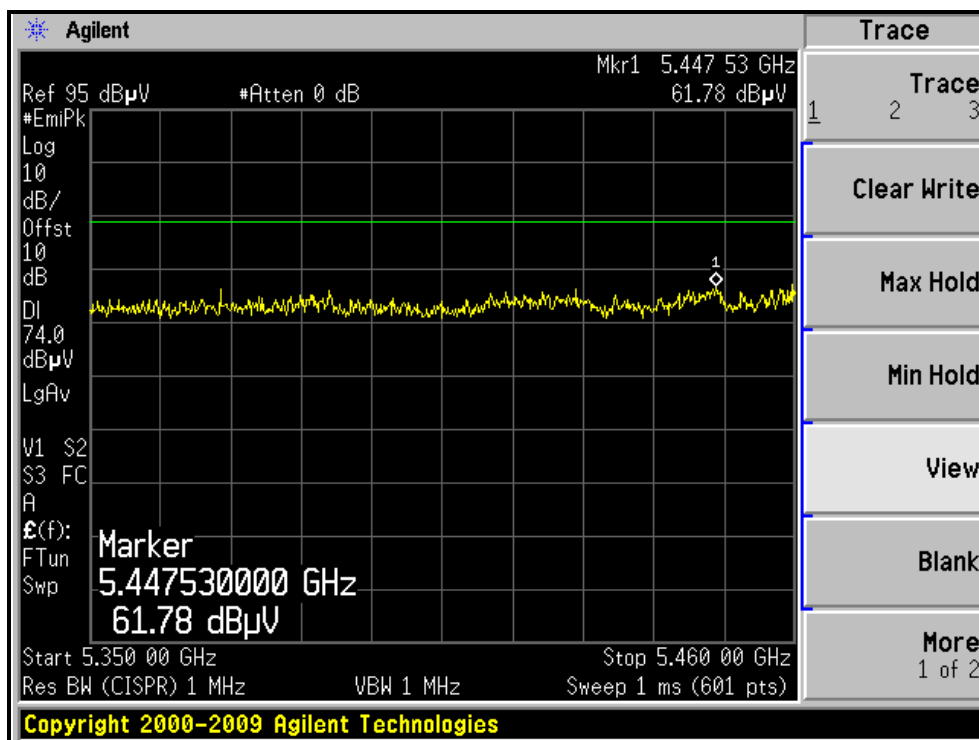
RESTRICTED BANDEDGE (802.11a MODE, CH64, VERTICAL)



RESTRICTED BANDEDGE (802.11a MODE, CH100, HORIZONTAL)



RESTRICTED BANDEDGE (802.11a MODE, CH100, VERTICAL)



802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 64%RH	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	60.1 PK	74.0	-13.9	1.00 H	293	20.16	39.94
2	5150.00	48.2 AV	54.0	-5.8	1.00 H	293	8.26	39.94
3	*5260.00	112.8 PK			1.19 H	49	72.57	40.23
4	*5260.00	101.3 AV			1.19 H	49	61.07	40.23
5	#10520.00	54.4 PK	68.3	-13.9	1.00 H	193	7.68	46.72
6	15780.00	62.6 PK	74.0	-11.4	1.06 H	188	11.02	51.58
7	15780.00	48.9 AV	54.0	-5.1	1.06 H	188	-2.68	51.58
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	5094.80	58.4 PK	74.0	-15.6	1.53 V	143	18.60	39.80
2	5094.80	47.5 AV	54.0	-6.5	1.53 V	143	7.70	39.80
3	*5260.00	114.9 PK			1.53 V	143	74.67	40.23
4	*5260.00	103.5 AV			1.53 V	143	63.27	40.23
5	#10520.00	56.0 PK	68.3	-12.3	1.00 V	281	9.28	46.72
6	15780.00	63.5 PK	74.0	-10.5	1.02 V	288	11.92	51.58
7	15780.00	49.3 AV	54.0	-4.7	1.02 V	288	-2.28	51.58

- 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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 64%RH	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	111.5 PK			1.23 H	61	71.17	40.33
2	*5300.00	99.8 AV			1.23 H	61	59.47	40.33
3	10600.00	54.9 PK	74.0	-19.1	1.00 H	195	8.08	46.82
4	10600.00	43.2 AV	54.0	-10.8	1.00 H	195	-3.62	46.82
5	15900.00	63.3 PK	74.0	-10.7	1.12 H	198	11.64	51.66
6	15900.00	49.5 AV	54.0	-4.5	1.12 H	198	-2.16	51.66
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	112.6 PK			1.51 V	145	72.27	40.33
2	*5300.00	101.3 AV			1.51 V	145	60.97	40.33
3	5351.70	63.7 PK	74.0	-10.3	1.48 V	148	23.23	40.47
4	5351.70	52.4 AV	54.0	-1.6	1.48 V	148	11.93	40.47
5	10600.00	56.5 PK	74.0	-17.5	1.00 V	284	9.68	46.82
6	10600.00	43.9 AV	54.0	-10.1	1.00 V	284	-2.92	46.82
7	15900.00	63.3 PK	74.0	-10.7	1.08 V	291	11.64	51.66
8	15900.00	49.0 AV	54.0	-5.0	1.08 V	291	-2.66	51.66

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 64%RH	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	110.9 PK			1.24 H	66	70.51	40.39
2	*5320.00	99.4 AV			1.24 H	66	59.01	40.39
3	5350.00	67.7 PK	74.0	-6.3	1.24 H	66	27.23	40.47
4	5350.00	51.6 AV	54.0	-2.4	1.24 H	66	11.13	40.47
5	11000.00	57.5 PK	74.0	-16.5	1.00 H	150	10.22	47.28
6	11000.00	44.3 AV	54.0	-9.7	1.00 H	150	-2.98	47.28
7	#16500.00	62.3 PK	68.3	-6.0	1.00 H	192	9.27	53.03
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	111.9 PK			1.34 V	138	71.51	40.39
2	*5320.00	99.8 AV			1.34 V	138	59.41	40.39
3	5350.00	69.1 PK	74.0	-4.9	1.34 V	138	28.63	40.47
4	5350.00	52.9 AV	54.0	-1.1	1.34 V	138	12.43	40.47
5	10640.00	57.1 PK	74.0	-16.9	1.07 V	129	10.23	46.87
6	10640.00	43.5 AV	54.0	-10.5	1.07 V	129	-3.37	46.87
7	15960.00	62.2 PK	74.0	-11.8	1.00 V	203	10.47	51.73
8	15960.00	51.1 AV	54.0	-2.9	1.00 V	203	-0.63	51.73

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 64%RH	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	64.9 PK	74.0	-9.1	1.21 H	63	24.14	40.76
2	5460.00	49.8 AV	54.0	-4.2	1.21 H	63	9.04	40.76
3	#5470.00	67.6 PK	68.3	-0.7	1.23 H	69	26.82	40.78
4	*5500.00	109.7 PK			1.21 H	70	68.84	40.86
5	*5500.00	98.5 AV			1.21 H	70	57.64	40.86
6	11000.00	58.0 PK	74.0	-16.0	1.00 H	157	10.72	47.28
7	11000.00	44.5 AV	54.0	-9.5	1.00 H	157	-2.78	47.28
8	#16500.00	62.2 PK	68.3	-6.1	1.00 H	203	9.17	53.03
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	5448.08	63.1 PK	74.0	-10.9	1.56 V	147	22.37	40.73
2	5448.08	49.8 AV	54.0	-4.2	1.56 V	147	9.07	40.73
3	#5470.00	66.8 PK	68.3	-1.5	1.56 V	147	26.02	40.78
4	*5500.00	109.2 PK			1.31 V	124	68.34	40.86
5	*5500.00	98.1 AV			1.31 V	124	57.24	40.86
6	11000.00	57.1 PK	74.0	-16.9	1.01 V	133	9.82	47.28
7	11000.00	43.2 AV	54.0	-10.8	1.01 V	133	-4.08	47.28
8	#16500.00	61.7 PK	68.3	-6.6	1.04 V	204	8.67	53.03

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 64%RH	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5580.00	110.1 PK			1.20 H	79	69.01	41.09
2	*5580.00	99.0 AV			1.20 H	79	57.91	41.09
3	11160.00	57.9 PK	74.0	-16.1	1.00 H	167	10.51	47.39
4	11160.00	44.3 AV	54.0	-9.7	1.00 H	167	-3.09	47.39
5	#16740.00	62.2 PK	68.3	-6.1	1.00 H	198	8.71	53.49
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	*5580.00	110.8 PK			1.27 V	132	69.71	41.09
2	*5580.00	98.6 AV			1.27 V	132	57.51	41.09
3	11160.00	57.0 PK	74.0	-17.0	1.00 V	142	9.61	47.39
4	11160.00	43.4 AV	54.0	-10.6	1.00 V	142	-3.99	47.39
5	#16740.00	61.9 PK	68.3	-6.4	1.07 V	193	8.41	53.49

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



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 132	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 64%RH	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5660.00	109.7 PK			1.16 H	89	68.39	41.31
2	*5660.00	98.7 AV			1.16 H	89	57.39	41.31
3	11320.00	57.8 PK	74.0	-16.2	1.01 H	161	10.25	47.55
4	11320.00	44.4 AV	54.0	-9.6	1.01 H	161	-3.15	47.55
5	#16980.00	62.6 PK	68.3	-5.7	1.00 H	188	8.58	54.02
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	109.3 PK			1.23 V	118	67.99	41.31
2	*5660.00	98.4 AV			1.23 V	118	57.09	41.31
3	11320.00	57.7 PK	74.0	-16.3	1.00 V	131	10.15	47.55
4	11320.00	43.8 AV	54.0	-10.2	1.00 V	131	-3.75	47.55
5	#16980.00	62.0 PK	68.3	-6.3	1.03 V	198	7.98	54.02

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.



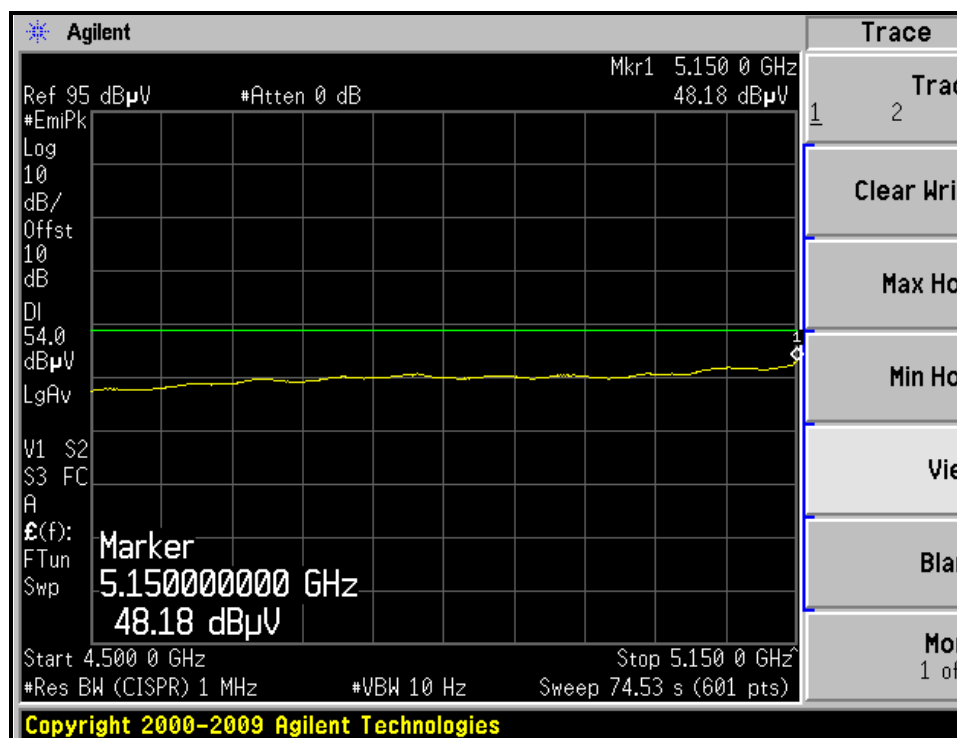
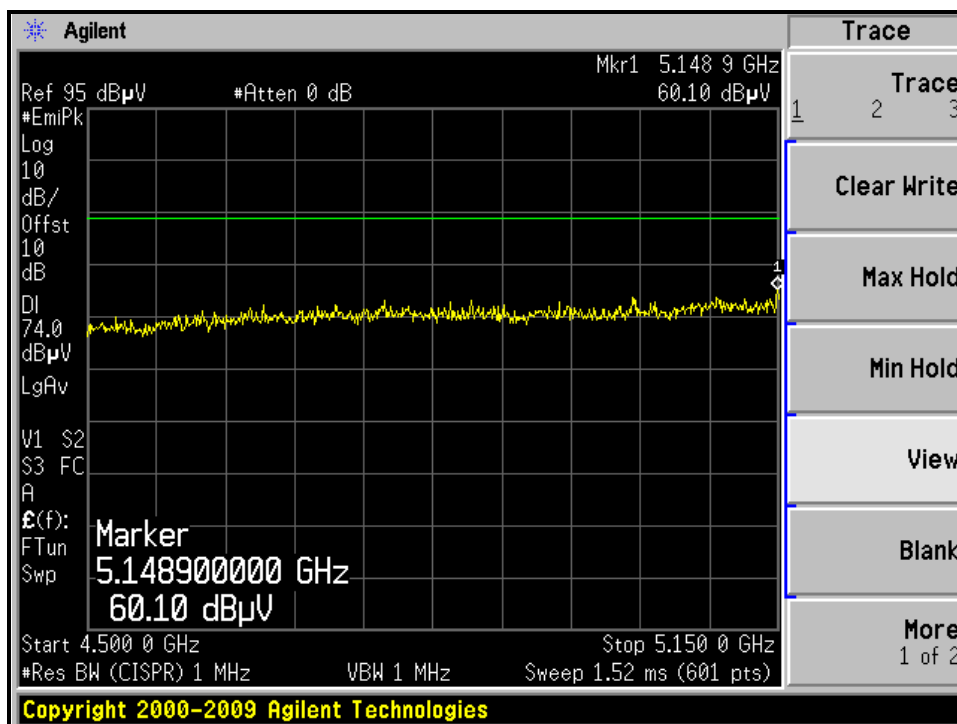
A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 64%RH	TESTED BY	Kent Liu

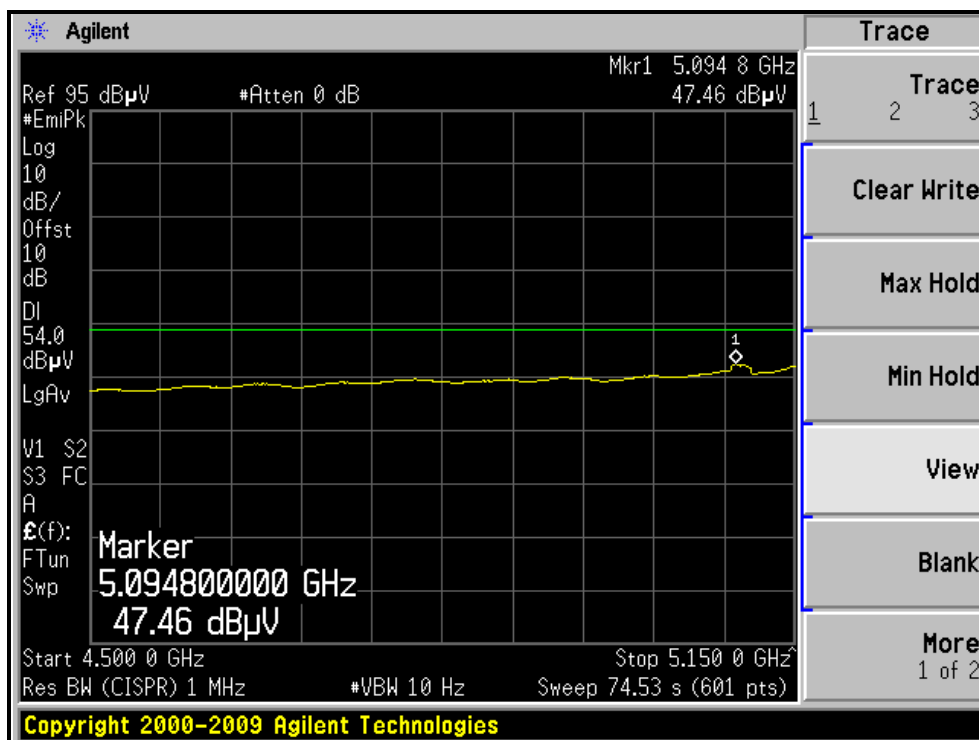
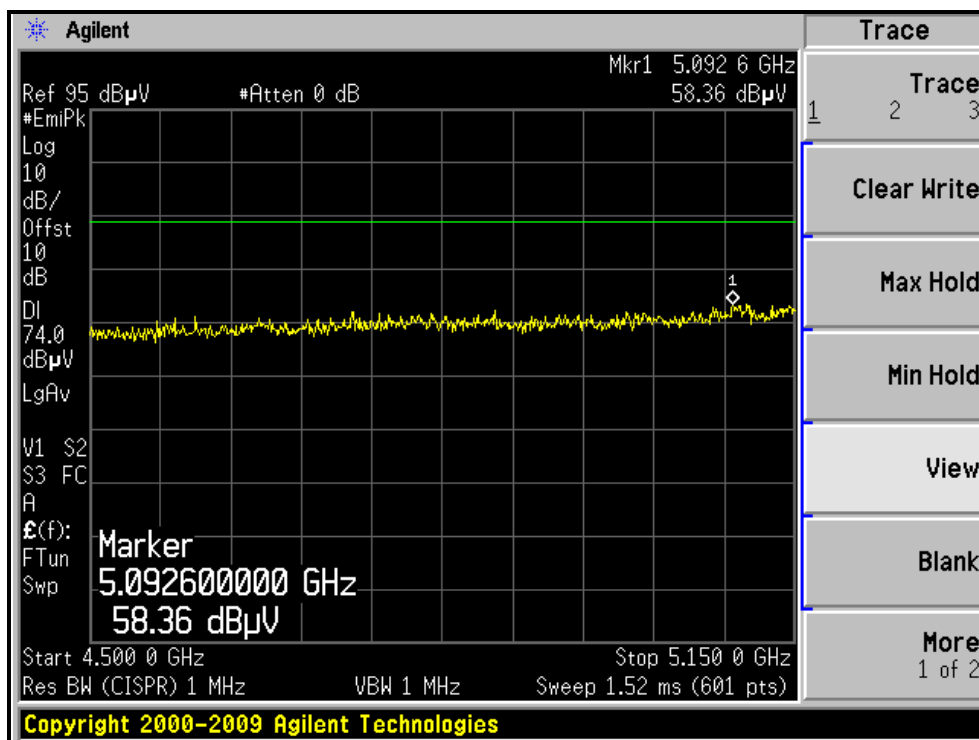
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NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	104.6 PK			1.12 H	86	63.18	41.42
2	*5700.00	94.2 AV			1.12 H	86	52.78	41.42
3	#5725.00	67.6 PK	68.3	-0.7	1.24 H	68	26.11	41.49
4	11400.00	57.9 PK	74.0	-16.1	1.01 H	155	10.28	47.62
5	11400.00	44.6 AV	54.0	-9.4	1.01 H	155	-3.02	47.62
6	#17100.00	63.0 PK	68.3	-5.3	1.00 H	177	8.80	54.20
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	*5700.00	104.4 PK			1.24 V	109	62.98	41.42
2	*5700.00	94.3 AV			1.24 V	109	52.88	41.42
3	#5725.00	67.3 PK	68.3	-1.0	1.64 V	30	25.81	41.49
4	11400.00	57.6 PK	74.0	-16.4	1.00 V	127	9.98	47.62
5	11400.00	43.9 AV	54.0	-10.1	1.00 V	127	-3.72	47.62
6	#17100.00	61.8 PK	68.3	-6.5	1.07 V	206	7.60	54.20

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.

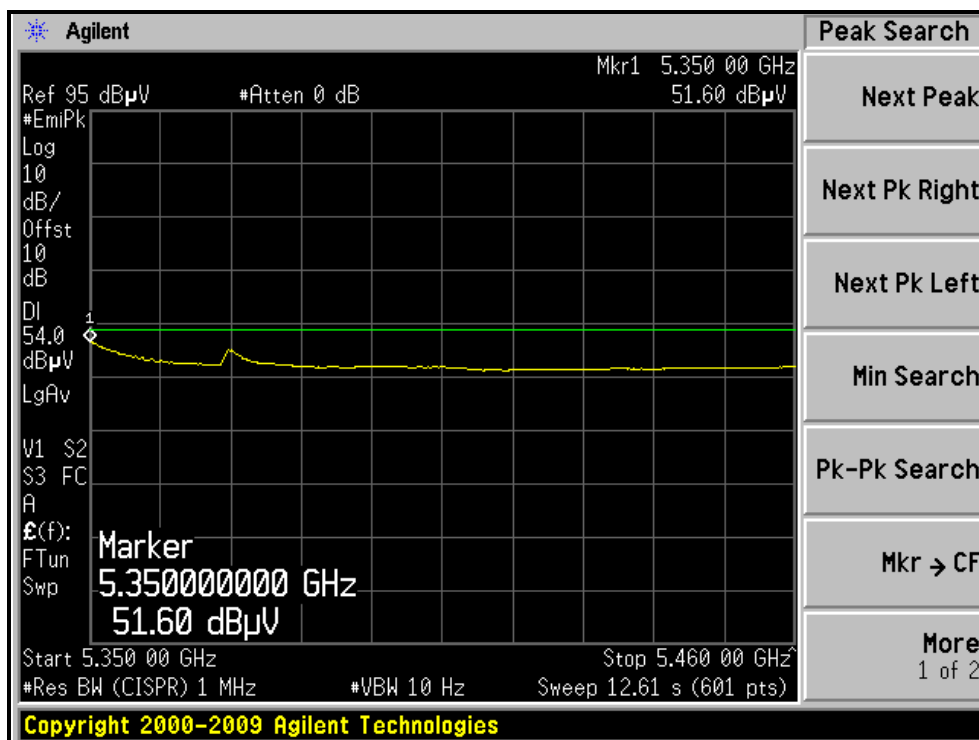
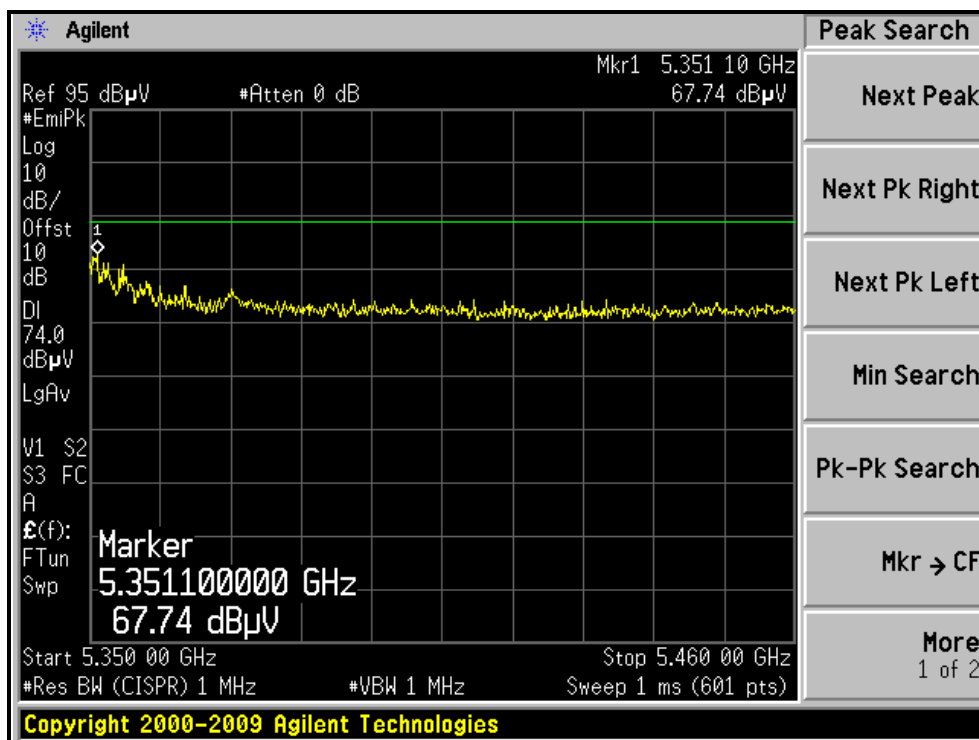
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH52, HORIZONTAL)



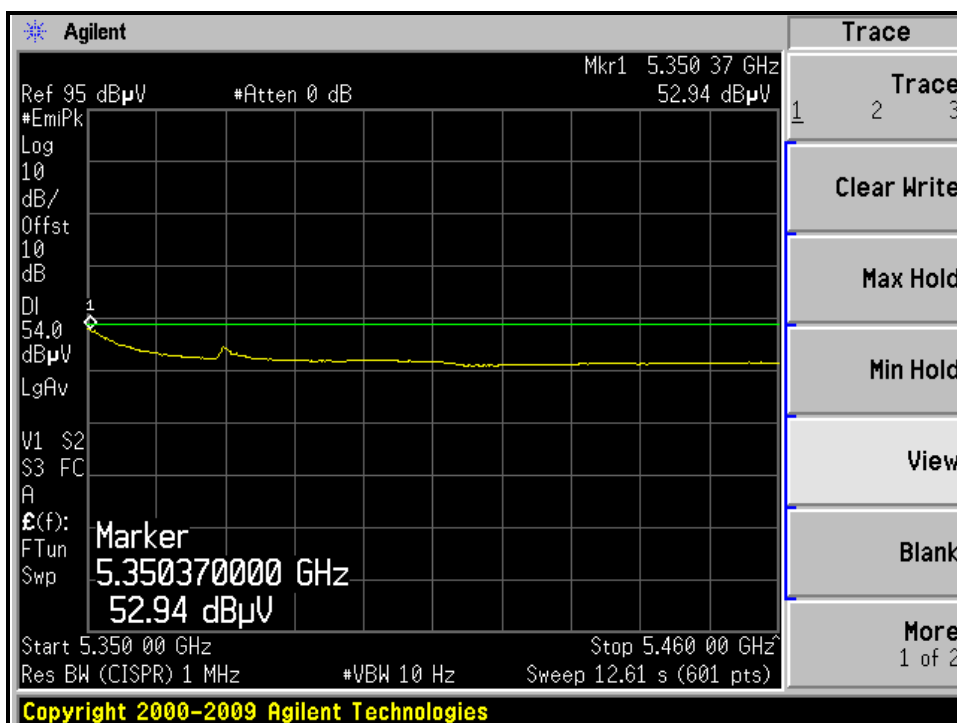
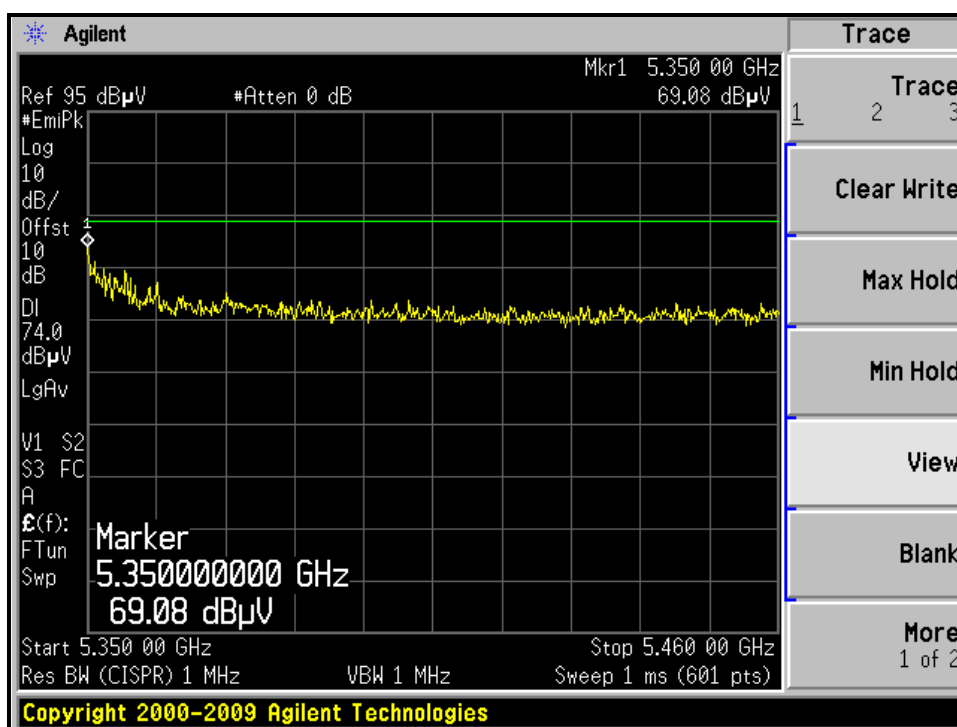
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH52, VERTICAL)



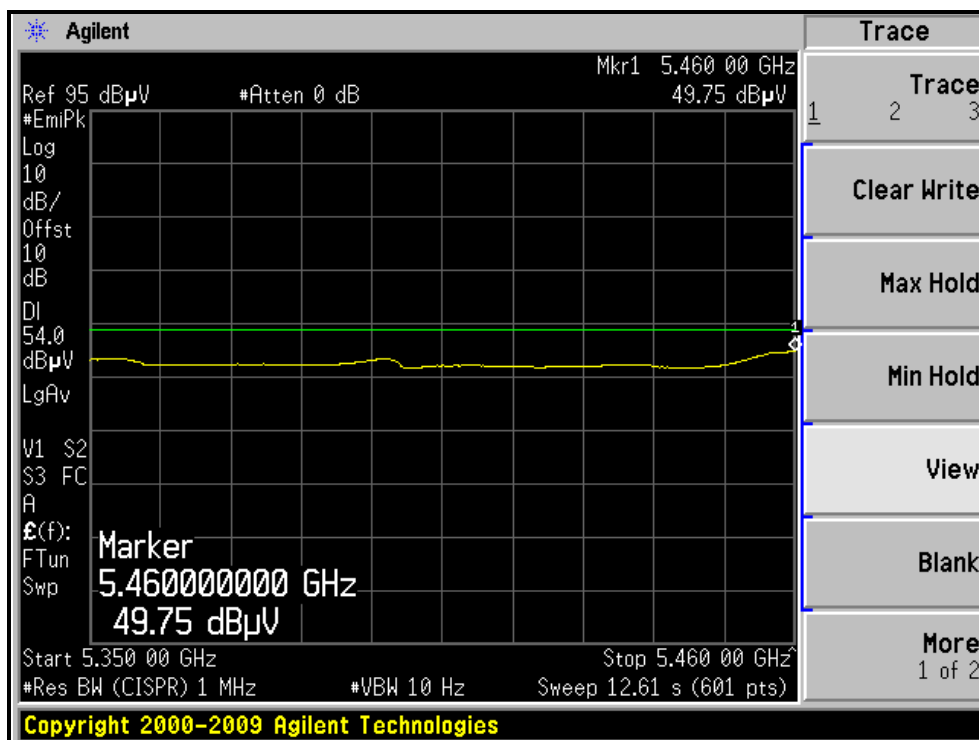
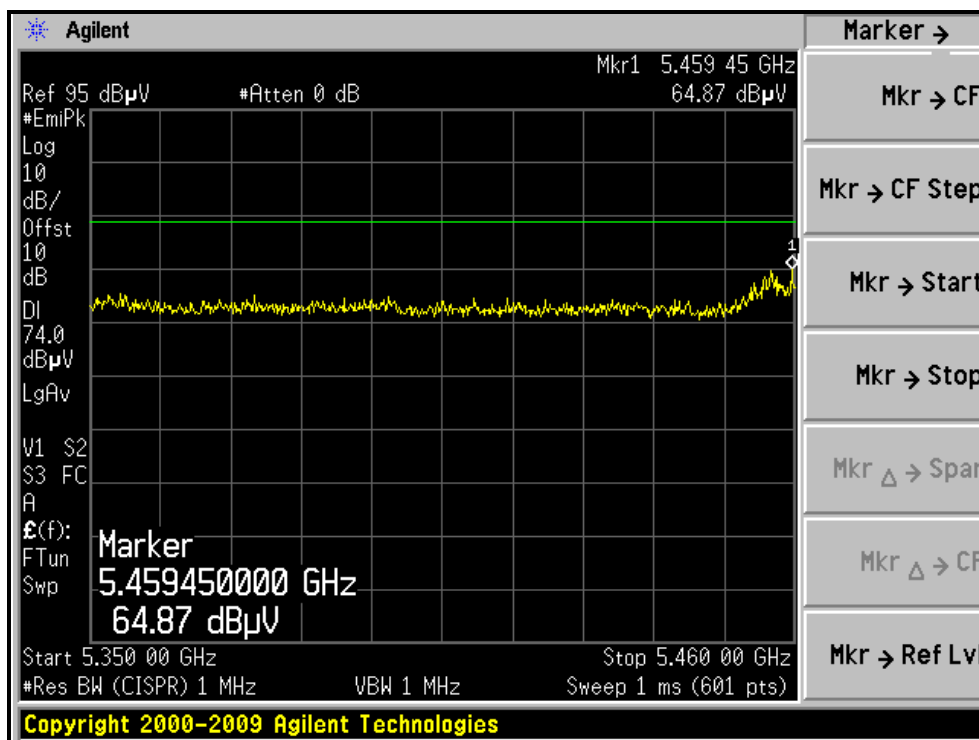
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH 64, HORIZONTAL)



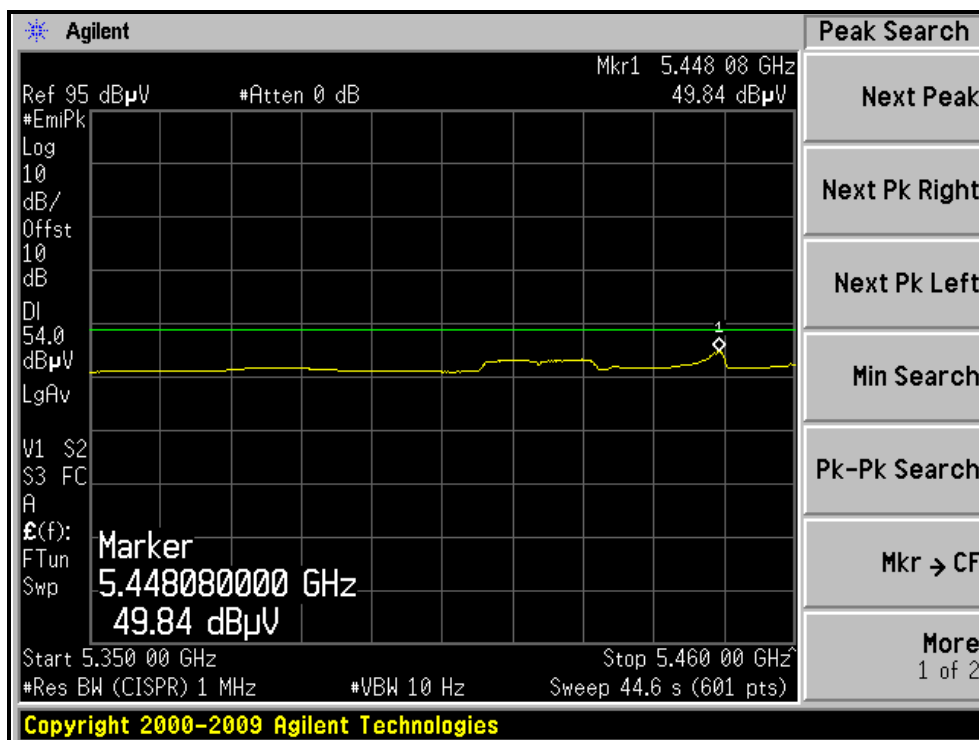
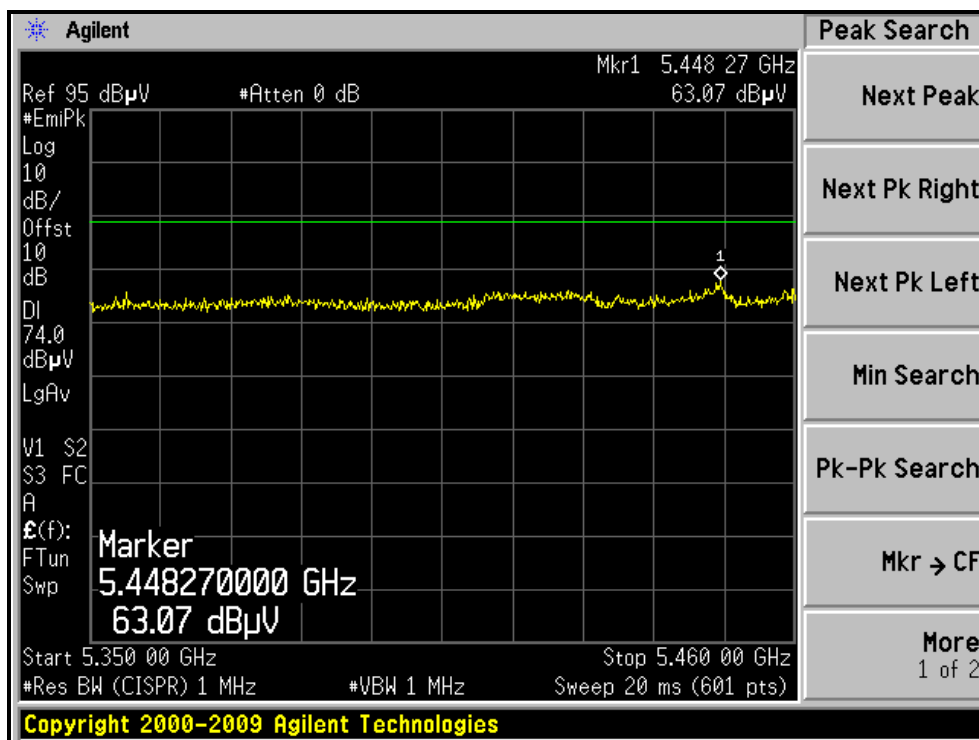
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH 64, VERTICAL)



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



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



802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 54	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 64%RH	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	59.1 PK	74.0	-14.9	1.00 H	293	19.16	39.94
2	5150.00	47.7 AV	54.0	-6.3	1.00 H	293	7.76	39.94
3	*5270.00	106.5 PK			1.21 H	56	66.25	40.25
4	*5270.00	98.6 AV			1.21 H	56	58.35	40.25
5	#10540.00	55.3 PK	68.3	-13.0	1.00 H	196	8.55	46.75
6	15810.00	63.0 PK	74.0	-11.0	1.06 H	175	11.39	51.61
7	15810.00	48.8 AV	54.0	-5.2	1.06 H	175	-2.81	51.61
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	59.8 PK	74.0	-14.2	1.51 V	145	19.86	39.94
2	5150.00	47.7 AV	54.0	-6.3	1.51 V	145	7.76	39.94
3	*5270.00	107.9 PK			1.51 V	145	67.65	40.25
4	*5270.00	99.1 AV			1.51 V	145	58.85	40.25
5	#10540.00	56.1 PK	68.3	-12.2	1.00 V	282	9.35	46.75
6	15810.00	63.2 PK	74.0	-10.8	1.01 V	285	11.59	51.61
7	15810.00	49.1 AV	54.0	-4.9	1.01 V	285	-2.51	51.61

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 62	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 64%RH	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5310.00	103.2 PK			1.23 H	61	62.84	40.36
2	*5310.00	93.5 AV			1.23 H	61	53.14	40.36
3	5350.00	65.9 PK	74.0	-8.1	1.22 H	64	25.43	40.47
4	5350.00	52.2 AV	54.0	-1.8	1.22 H	64	11.73	40.47
5	10620.00	54.9 PK	74.0	-19.1	1.00 H	195	8.06	46.84
6	10620.00	43.2 AV	54.0	-10.8	1.00 H	195	-3.64	46.84
7	15930.00	63.3 PK	74.0	-10.7	1.12 H	198	11.61	51.69
8	15930.00	49.5 AV	54.0	-4.5	1.12 H	198	-2.19	51.69
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	103.4 PK			1.47 V	138	63.04	40.36
2	*5310.00	93.8 AV			1.47 V	138	53.44	40.36
3	5350.00	68.9 PK	74.0	-5.1	1.47 V	142	28.43	40.47
4	5350.00	52.4 AV	54.0	-1.6	1.47 V	142	11.93	40.47
5	10620.00	56.8 PK	74.0	-17.2	1.02 V	279	9.96	46.84
6	10620.00	43.1 AV	54.0	-10.9	1.02 V	279	-3.74	46.84
7	15930.00	63.1 PK	74.0	-10.9	1.00 V	284	11.41	51.69
8	15930.00	49.1 AV	54.0	-4.9	1.00 V	284	-2.59	51.69

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 102	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 64%RH	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	60.4 PK	74.0	-13.6	1.21 H	292	19.64	40.76
2	5460.00	47.4 AV	54.0	-6.6	1.21 H	292	6.64	40.76
3	#5470.00	66.8 PK	68.3	-1.5	1.22 H	292	26.02	40.78
4	*5510.00	103.8 PK			1.21 H	64	62.91	40.89
5	*5510.00	94.0 AV			1.21 H	64	53.11	40.89
6	11020.00	55.1 PK	74.0	-18.9	1.00 H	201	7.81	47.29
7	11020.00	43.1 AV	54.0	-10.9	1.00 H	201	-4.19	47.29
8	#16530.00	63.5 PK	68.3	-4.8	1.16 H	185	10.42	53.08
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	62.0 PK	74.0	-12.0	1.58 V	148	21.24	40.76
2	5460.00	47.6 AV	54.0	-6.4	1.58 V	148	6.84	40.76
3	#5470.00	67.4 PK	68.3	-0.9	1.57 V	151	26.62	40.78
4	*5510.00	105.2 PK			1.52 V	138	64.31	40.89
5	*5510.00	91.4 AV			1.52 V	138	50.51	40.89
6	11020.00	57.3 PK	74.0	-16.7	1.00 V	268	10.01	47.29
7	11020.00	43.6 AV	54.0	-10.4	1.00 V	268	-3.69	47.29
8	#16530.00	63.3 PK	68.3	-5.0	1.00 V	291	10.22	53.08

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.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 110	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 64%RH	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5550.00	110.1 PK			1.22 H	67	69.10	41.00
2	*5550.00	97.2 AV			1.22 H	67	56.20	41.00
3	11100.00	55.1 PK	74.0	-18.9	1.00 H	210	7.75	47.35
4	11100.00	42.9 AV	54.0	-11.1	1.00 H	210	-4.45	47.35
5	#16650.00	63.7 PK	68.3	-4.6	1.12 H	178	10.41	53.29
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	110.7 PK			1.49 V	132	69.70	41.00
2	*5550.00	97.5 AV			1.49 V	132	56.50	41.00
3	11100.00	57.6 PK	74.0	-16.4	1.00 V	274	10.25	47.35
4	11100.00	44.2 AV	54.0	-9.8	1.00 V	274	-3.15	47.35
5	#16650.00	63.0 PK	68.3	-5.3	1.00 V	302	9.71	53.29

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.



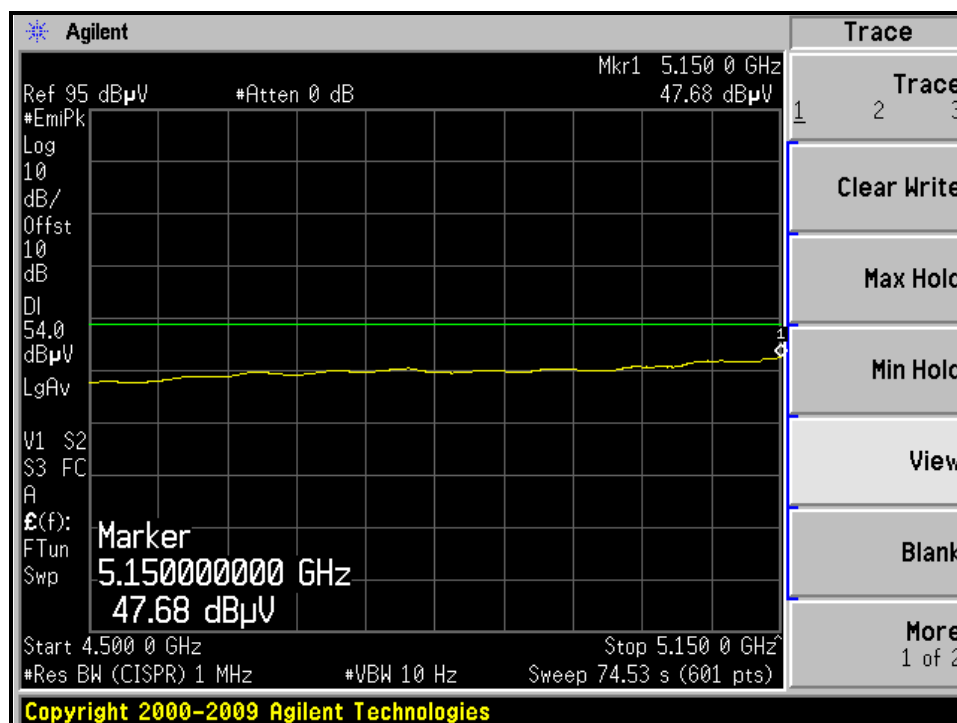
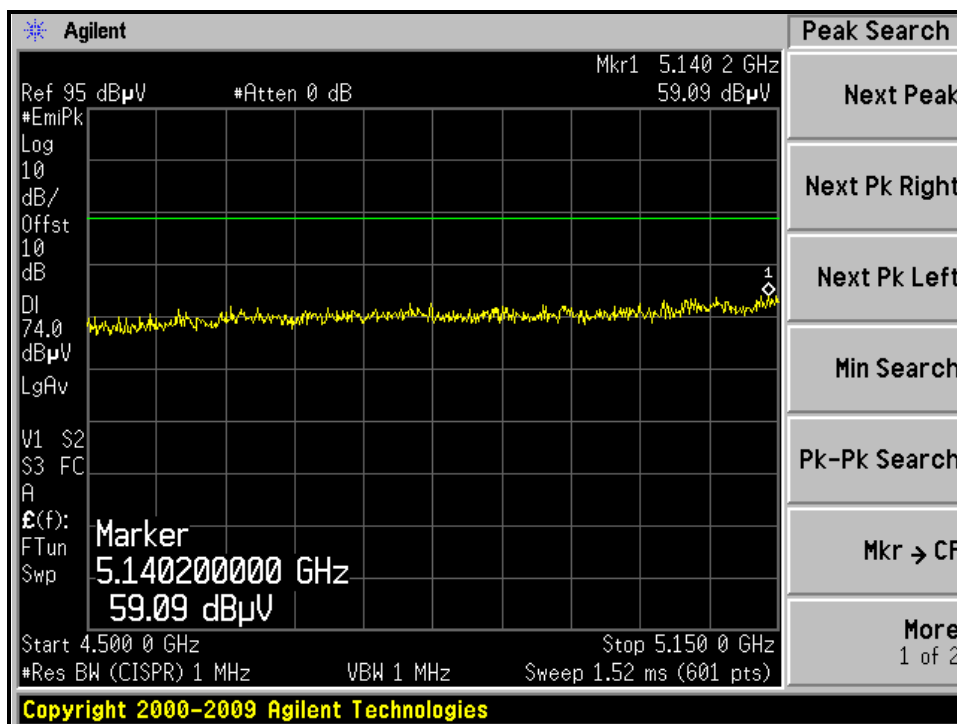
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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 134	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 64%RH	TESTED BY	Kent Liu

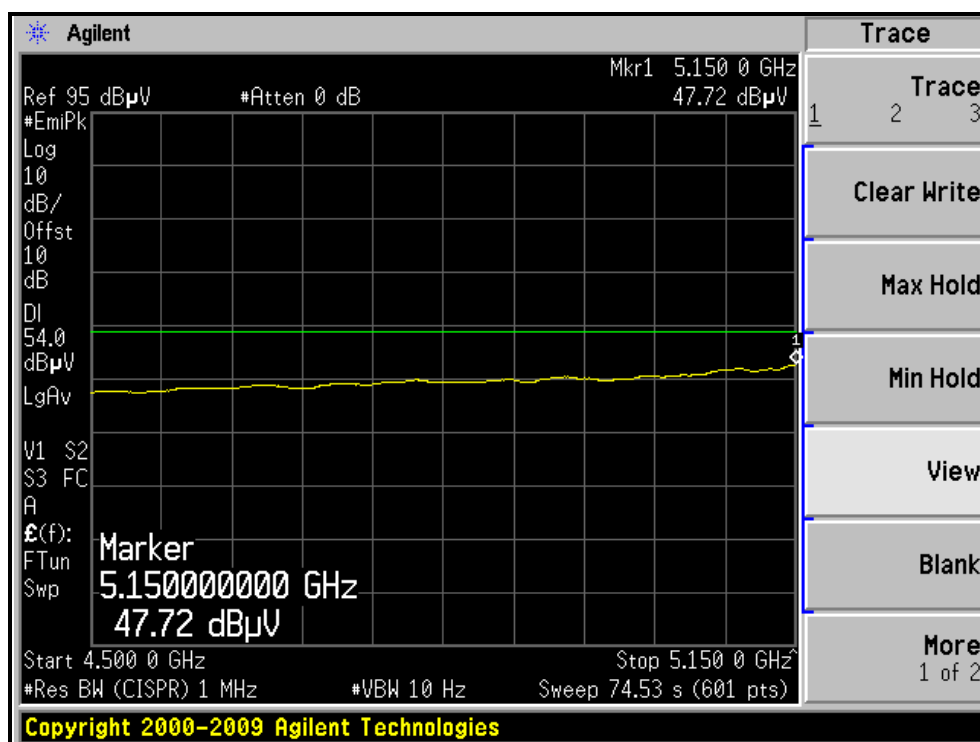
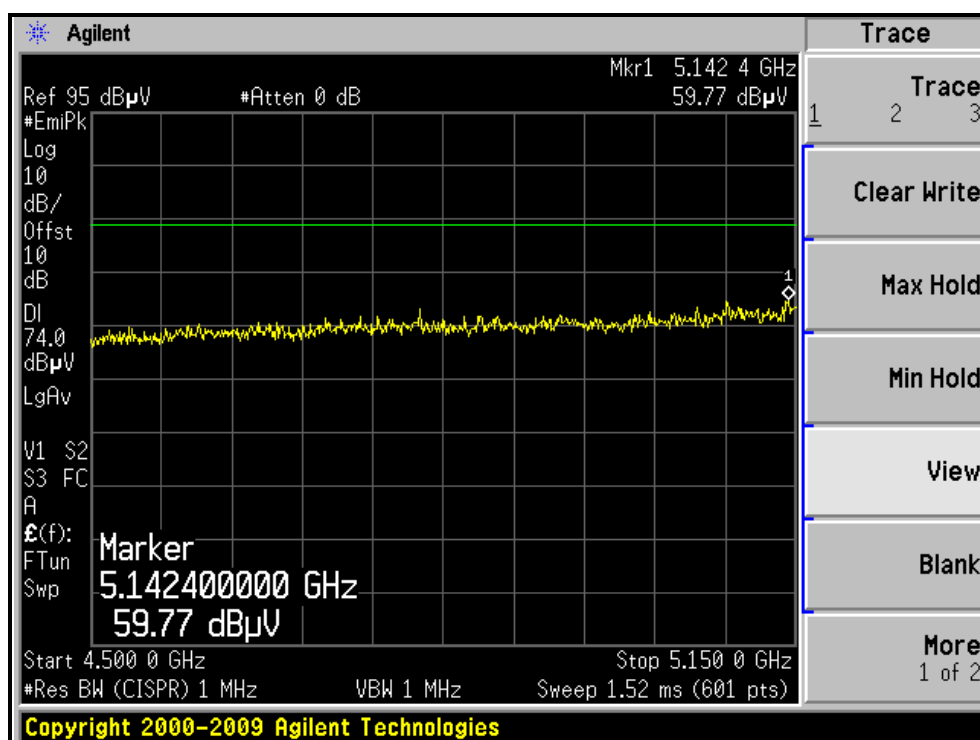
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NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5670.00	110.4 PK			1.20 H	75	69.06	41.34
2	*5670.00	97.4 AV			1.20 H	75	56.06	41.34
3	#5725.00	67.4 PK	68.3	-0.9	1.20 H	74	25.91	41.49
4	11340.00	55.6 PK	74.0	-18.4	1.00 H	205	8.03	47.57
5	11340.00	43.4 AV	54.0	-10.6	1.00 H	205	-4.17	47.57
6	#17010.00	64.2 PK	68.3	-4.1	1.14 H	178	10.11	54.09
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	110.4 PK			1.52 V	138	69.06	41.34
2	*5670.00	97.6 AV			1.52 V	138	56.26	41.34
3	#5725.00	67.8 PK	68.3	-0.5	1.57 V	360	26.31	41.49
4	11340.00	57.9 PK	74.0	-16.1	1.00 V	266	10.33	47.57
5	11340.00	44.8 AV	54.0	-9.2	1.00 V	266	-2.77	47.57
6	#17010.00	63.6 PK	68.3	-4.7	1.00 V	312	9.51	54.09

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.

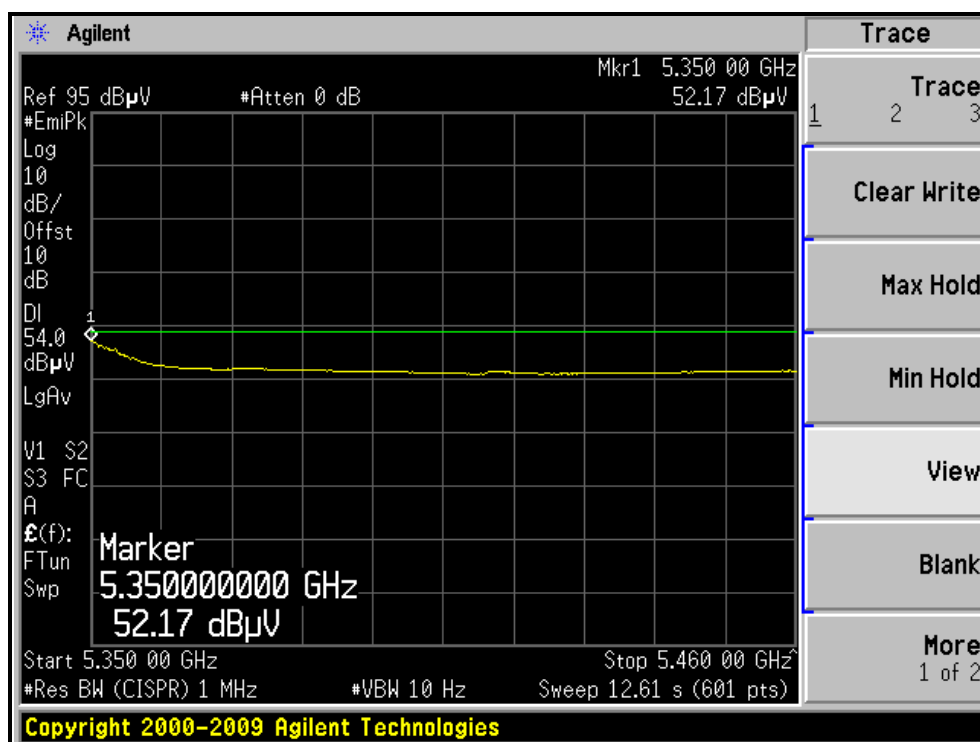
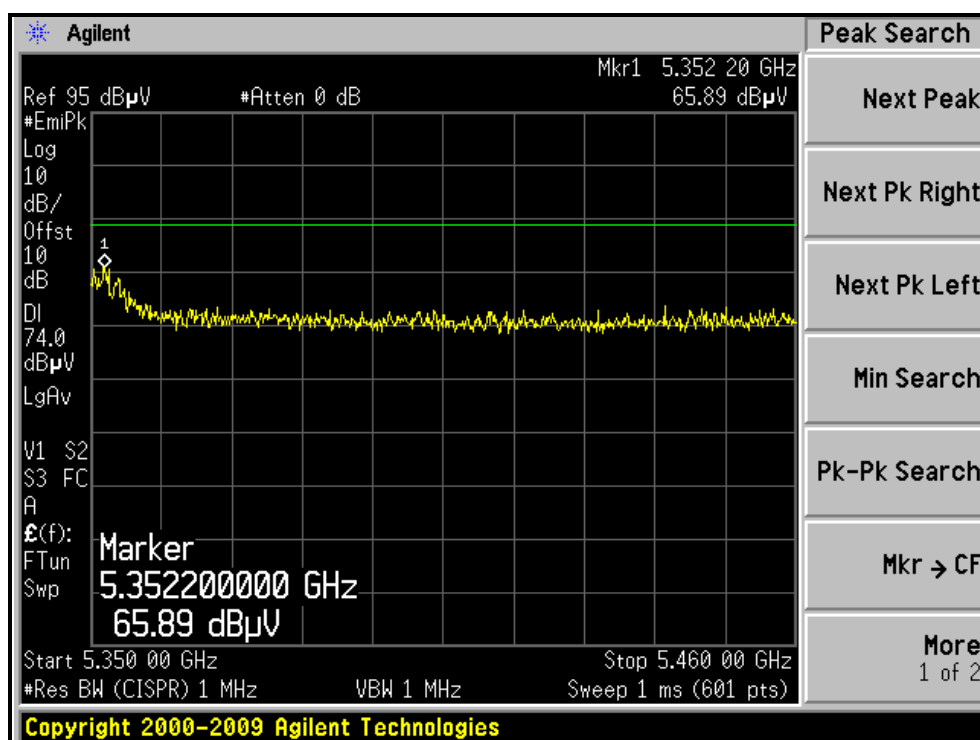
RESTRICTED BANDEDGE (802.11n (40MHz) MODE, CH54, HORIZONTAL)



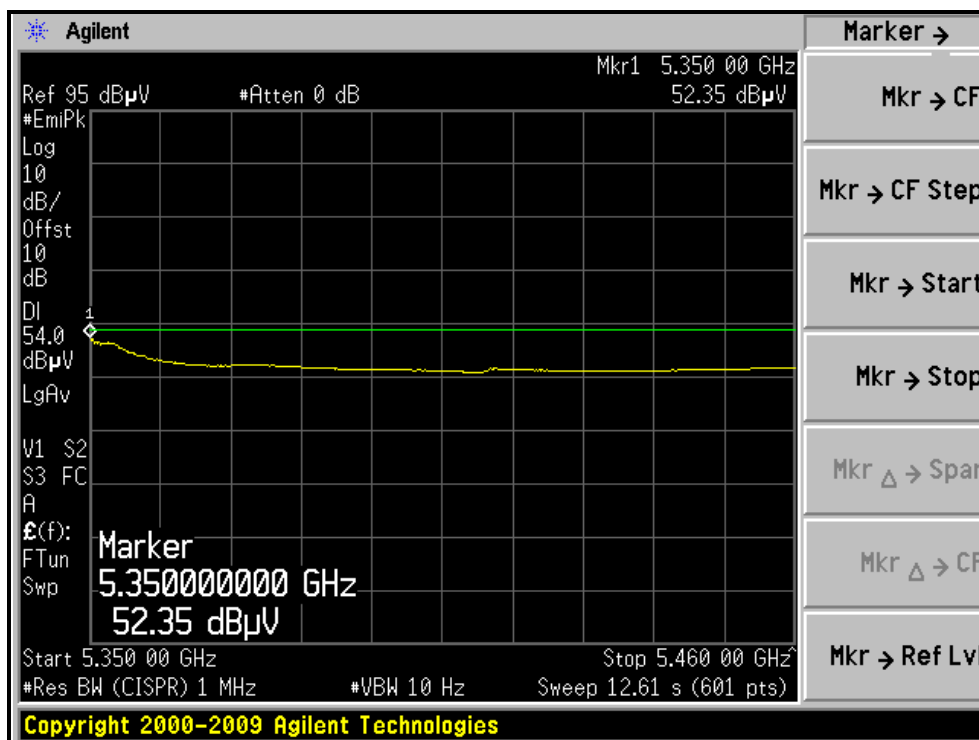
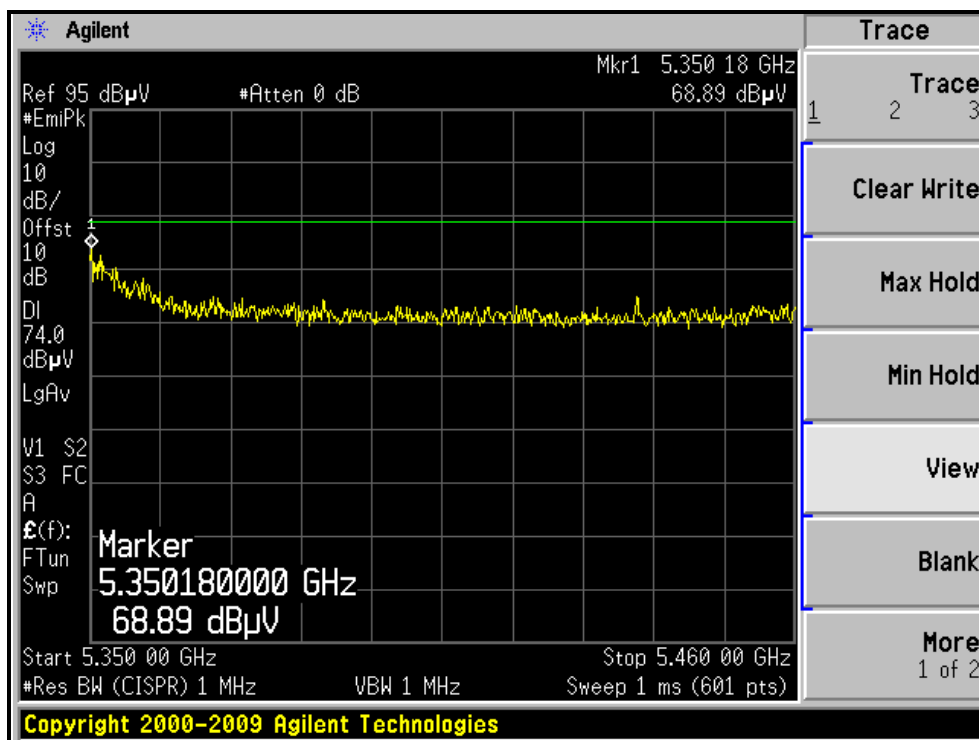
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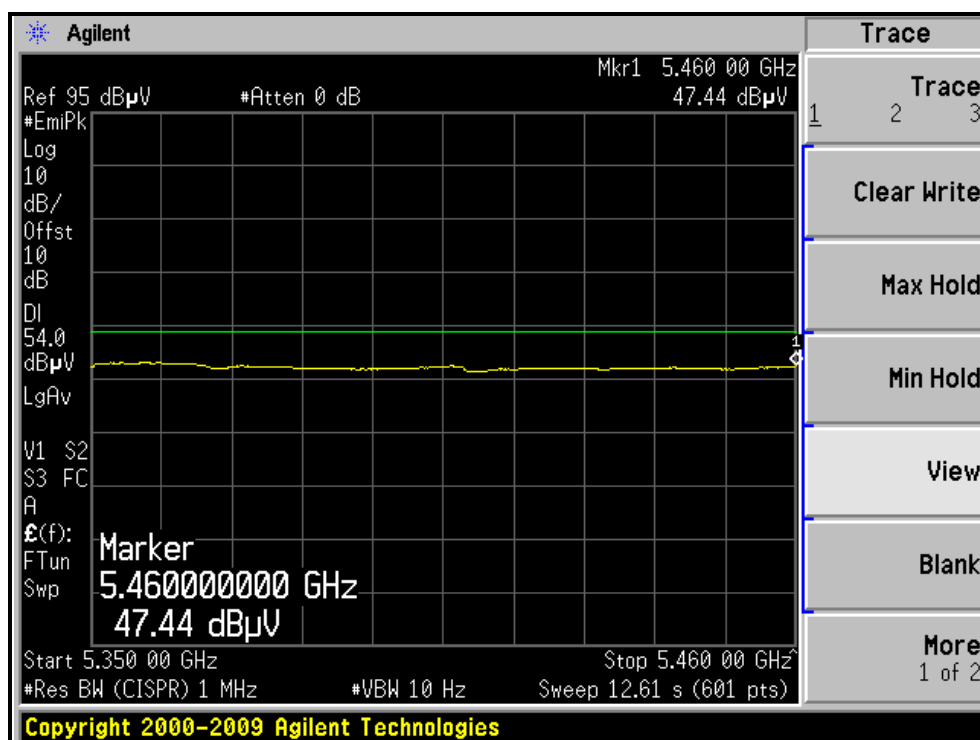
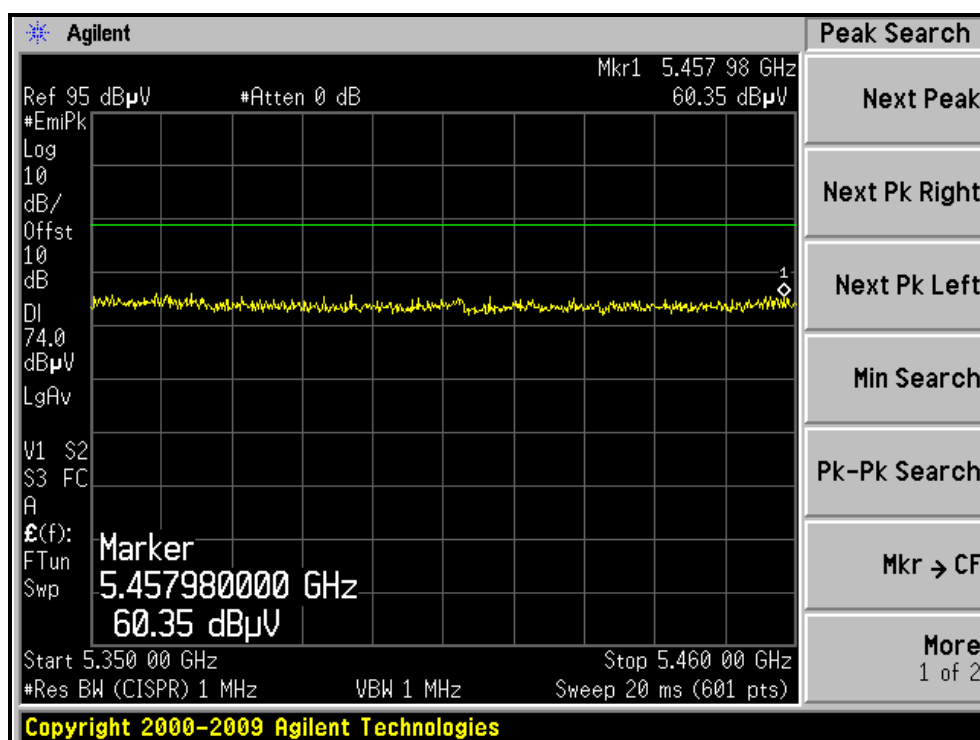
RESTRICTED BANDEDGE (802.11n (40MHz) MODE, CH62, HORIZONTAL)



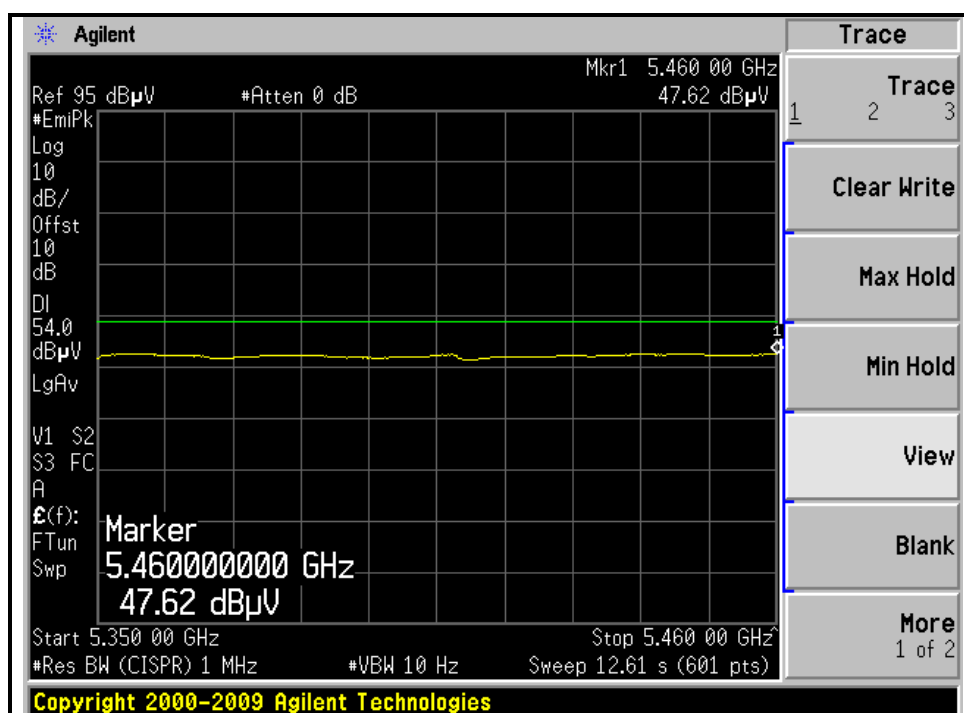
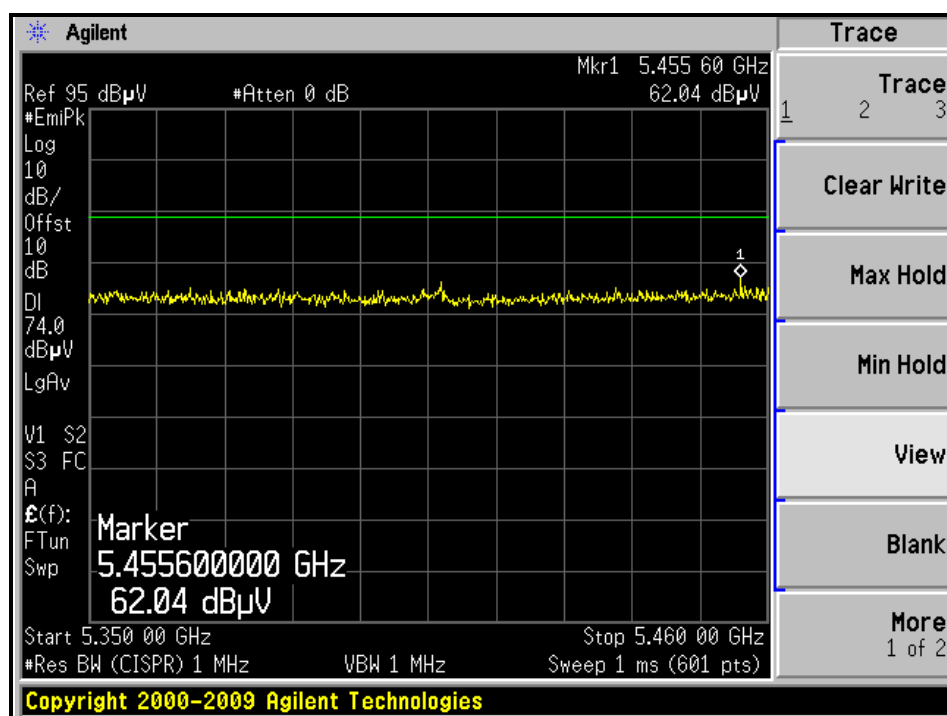
RESTRICTED BANDEDGE (802.11n (40MHz) MODE, CH62, VERTICAL)



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



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

Test date: Apr. 14, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	E4446A	MY48250254	July 14, 2010	July 13, 2011

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

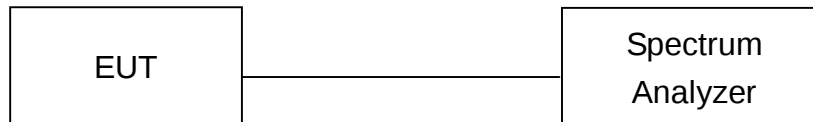
4.3.3 TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer.
2. Set span to encompass the entire emission bandwidth of the signal.
3. Set RBW to 1MHz, VBW to 3MHz.
4. Using the spectrum analyzer's channel power measurement function to measure the output power.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

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

4.3.7 TEST RESULTS

802.11a OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	OUTPUT POWER (mW)	OUTPUT POWER (dBm)	OUTPUT POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS / FAIL
52	5260	83.2	19.2	24	29.5	PASS
60	5300	81.3	19.1	24	31.92	PASS
64	5320	63.1	18.0	24	24.42	PASS
100	5500	50.1	17.0	24	21.08	PASS
116	5580	70.8	18.5	24	42.67	PASS
132	5660	52.5	17.2	24	23	PASS
140	5700	37.2	15.7	24	19.17	PASS

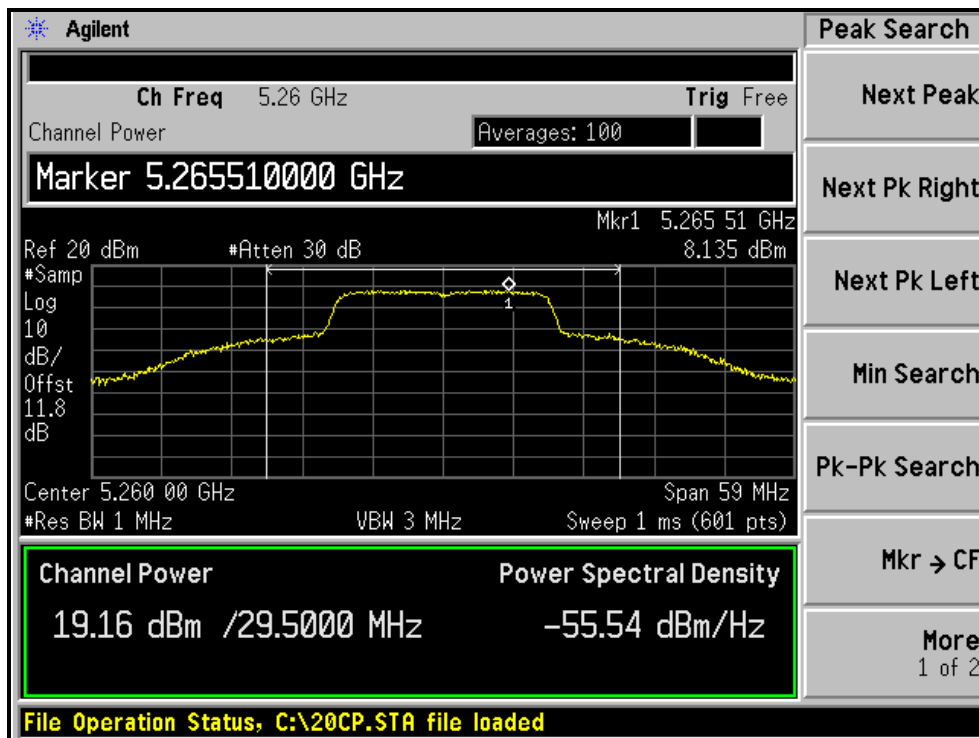
NOTE: 1. The 26dBc Occupied Bandwidth plot, please refer to the following pages.



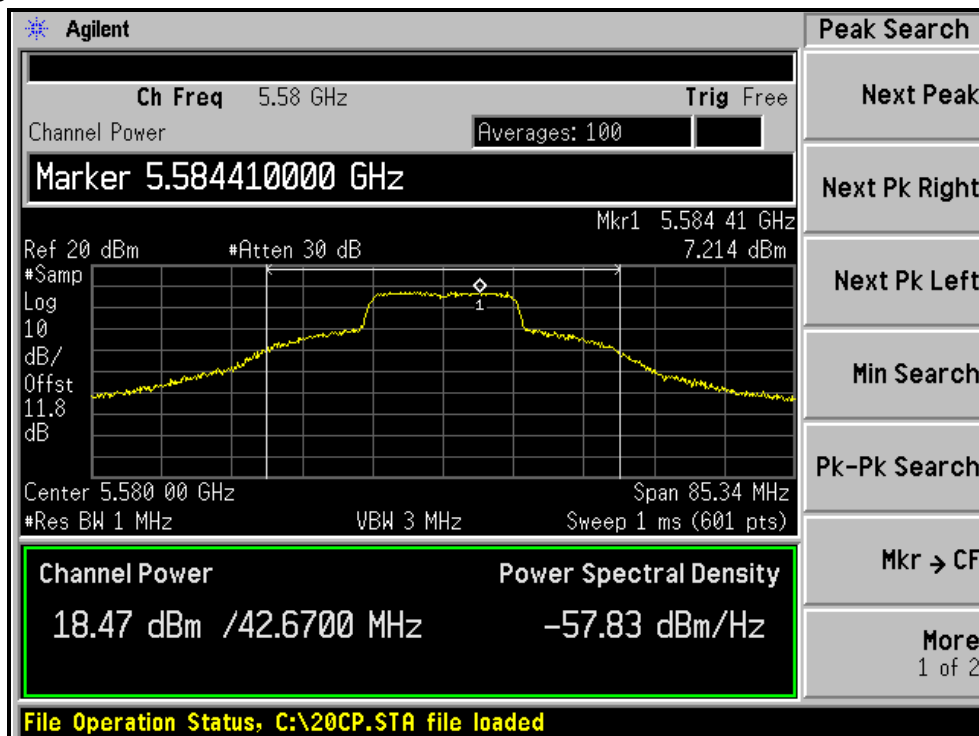
A D T

Peak Power Output:

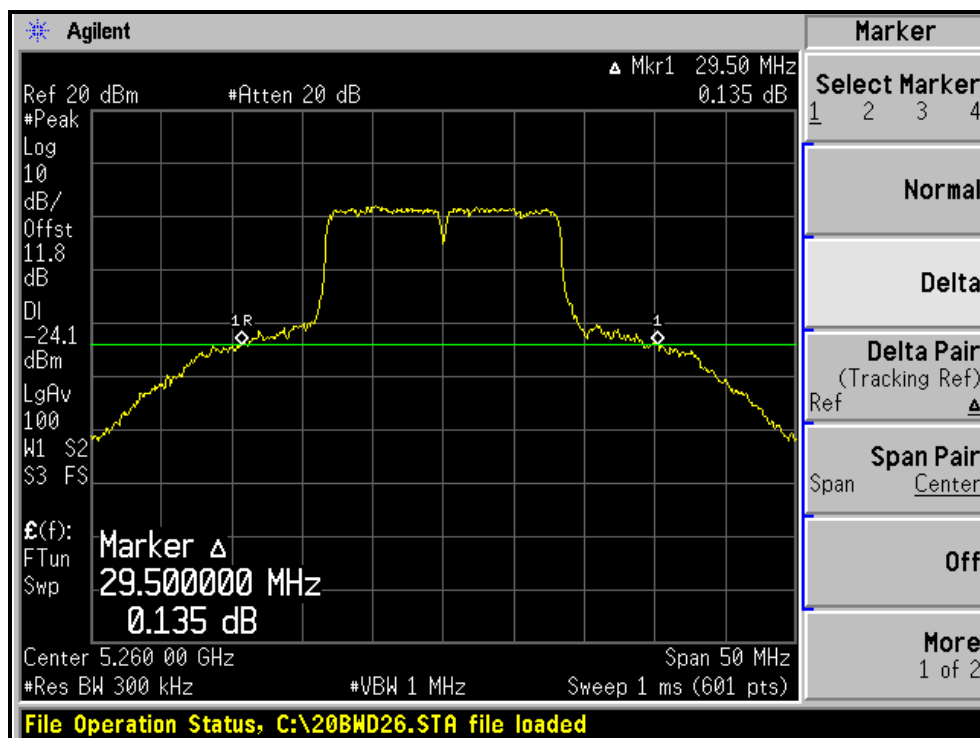
CH52



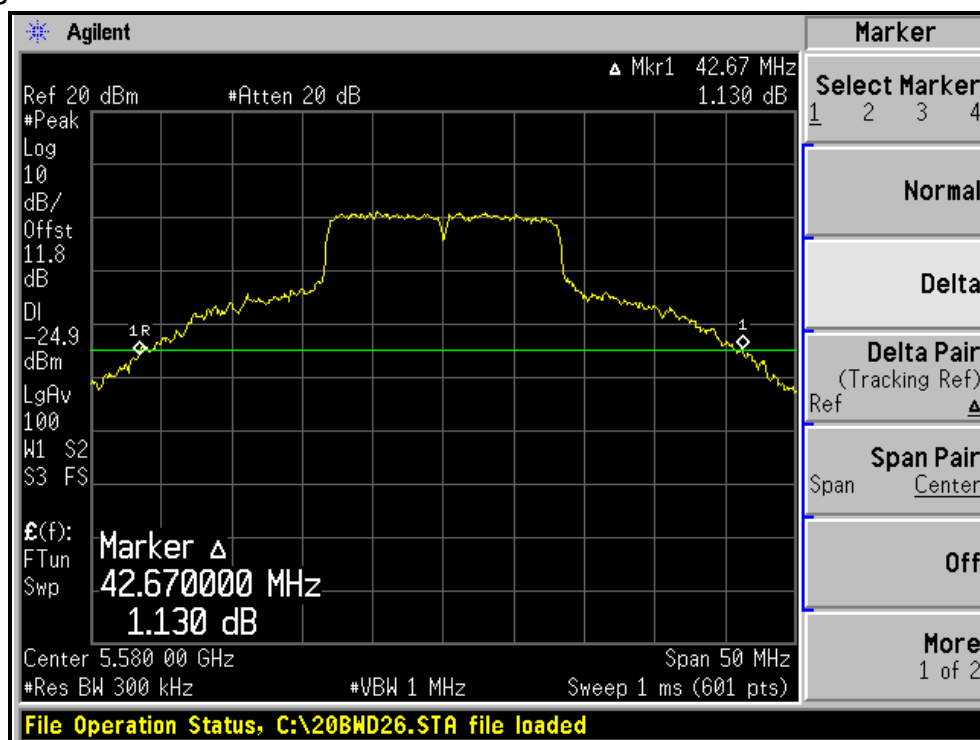
CH116



26dB Occupied Bandwidth:
CH52



CH116



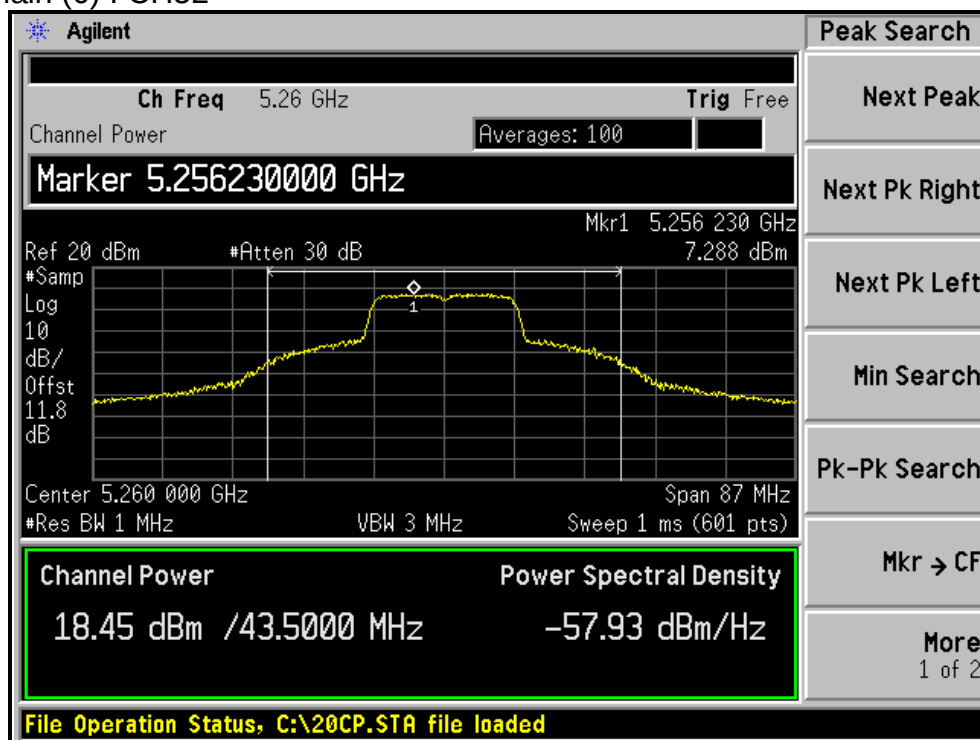
802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	OUTPUT POWER (dBm)		TOTAL OUTPUT POWER (mW)	TOTAL OUTPUT POWER (dBm)	OUTPUT POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)		PASS / FAIL
		CHAIN(0)	CHAIN(1)				CHAIN(0)	CHAIN(1)	
52	5260	18.5	18.3	138.4	21.4	24	43.5	43.1	PASS
60	5300	18.2	18.5	136.9	21.4	24	40.83	40.56	PASS
64	5320	17.7	17.2	111.4	20.5	24	41.33	41.12	PASS
100	5500	15.3	15.0	65.5	18.2	24	27.5	27.33	PASS
116	5580	18.1	18.1	129.1	21.1	24	46.5	46.25	PASS
132	5660	17.3	17.5	109.9	20.4	24	26.25	26.15	PASS
140	5700	13.4	13.7	45.3	16.6	24	20.08	20	PASS

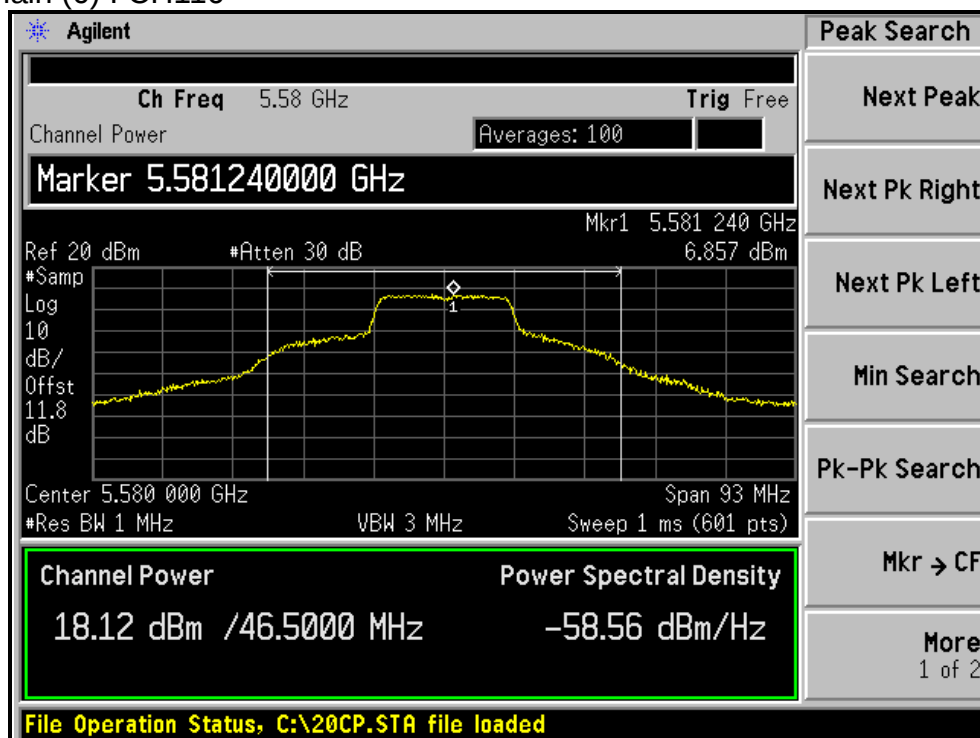
NOTE: The 26dBc Occupied Bandwidth plot, please refer to the following pages.

Peak Power Output:

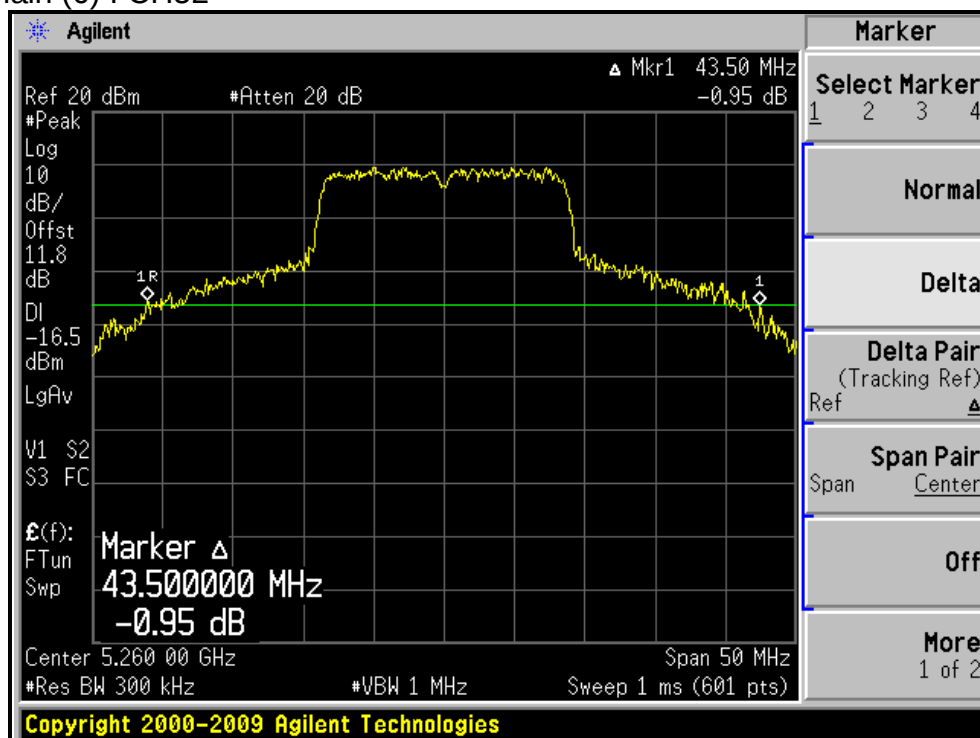
For Chain (0) : CH52



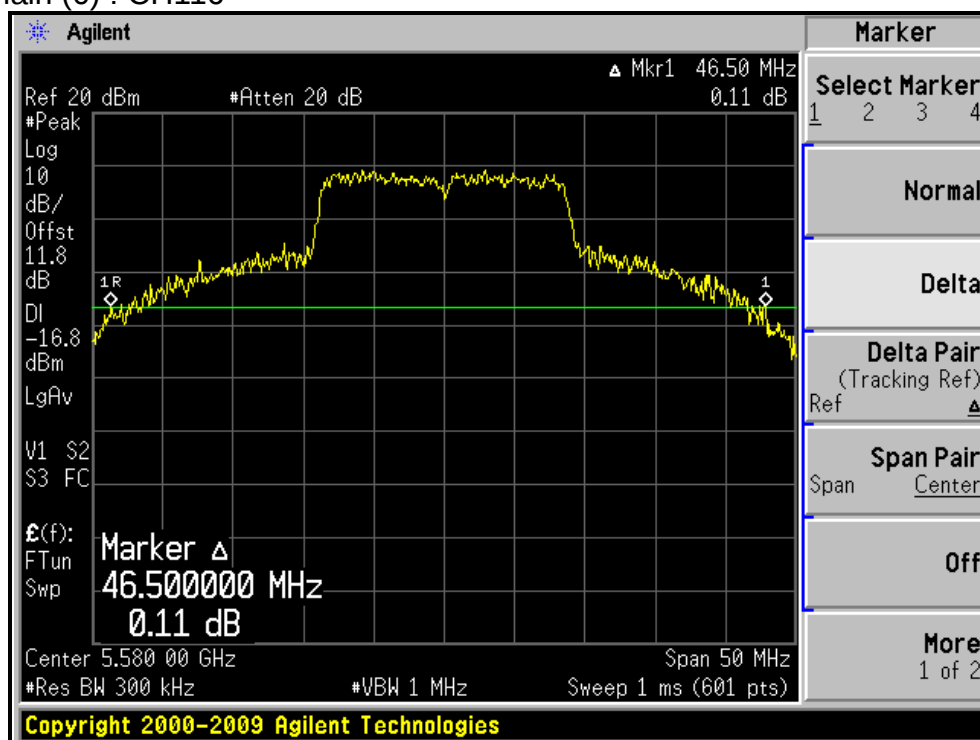
For Chain (0) : CH116



26dB Occupied Bandwidth:
For Chain (0) : CH52



For Chain (0) : CH116



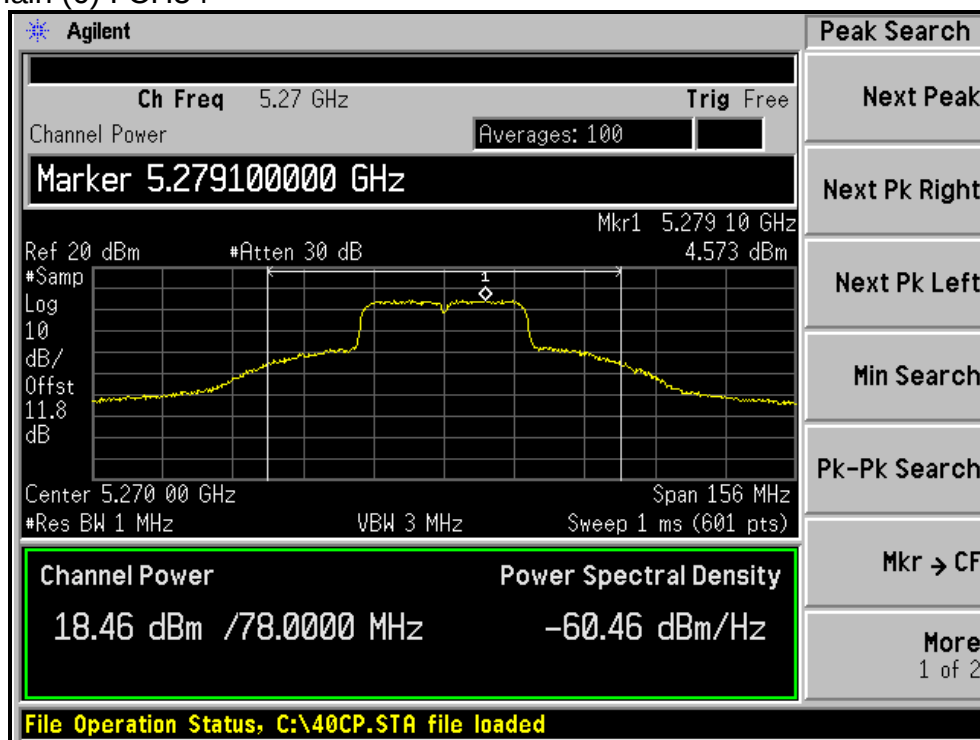
802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	OUTPUT POWER (dBm)		TOTAL OUTPUT POWER (mW)	TOTAL OUTPUT POWER (dBm)	OUTPUT POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)		PASS / FAIL
		CHAIN(0)	CHAIN(1)				CHAIN(0)	CHAIN(1)	
54	5270	18.5	18.3	138.4	21.4	24	78	77.8	PASS
62	5310	15.5	15.3	69.4	18.4	24	40.33	40.21	PASS
102	5510	12.8	12.5	36.8	15.7	24	38.83	38.78	PASS
110	5550	18.3	17.9	129.3	21.1	24	73.5	73.42	PASS
134	5670	16.8	16.8	95.7	19.8	24	64.17	64.03	PASS

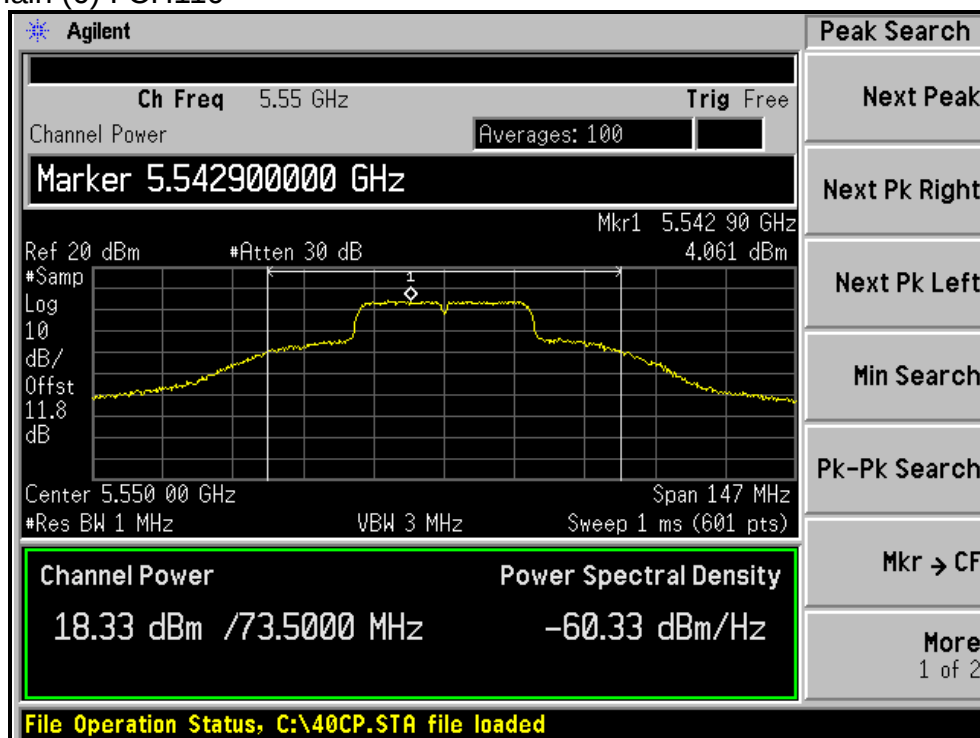
NOTE: The 26dBc Occupied Bandwidth plot, please refer to the following pages.

Peak Power Output:

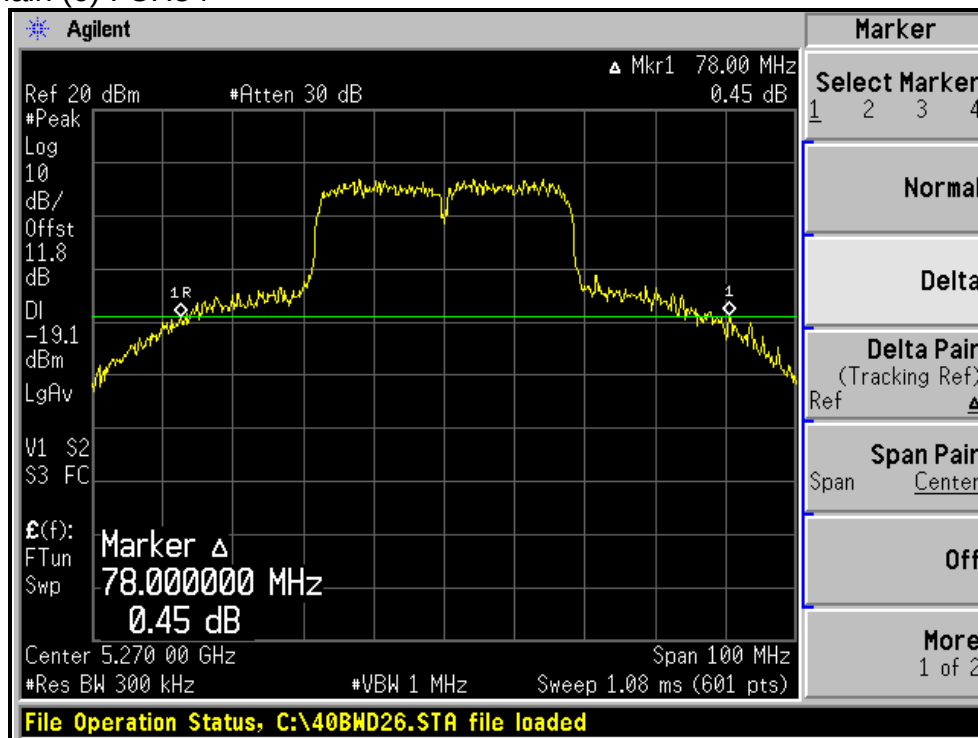
For Chain (0) : CH54



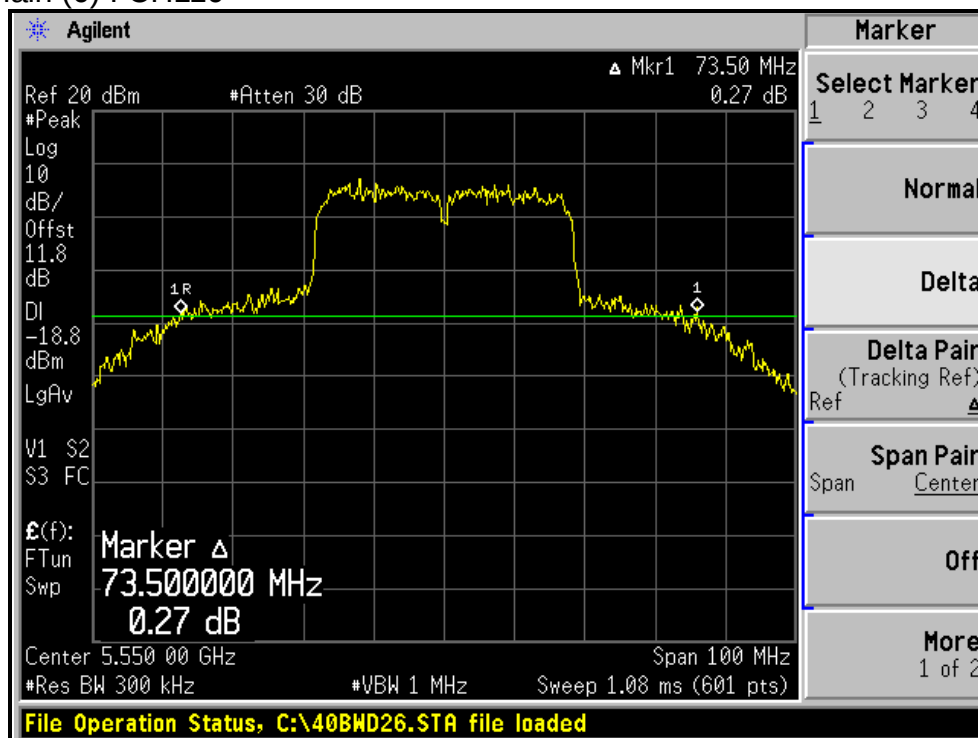
For Chain (0) : CH110



26dB Occupied Bandwidth:
For Chain (0) : CH54



For Chain (0) : CH110



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: Apr. 14, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	E4446A	MY48250254	July 14, 2010	July 13, 2011

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

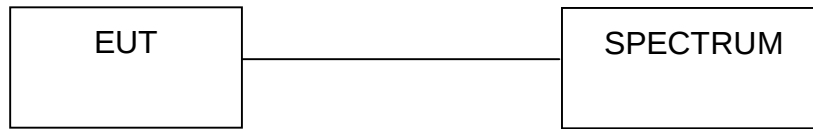
4.4.3 TEST PROCEDURE

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

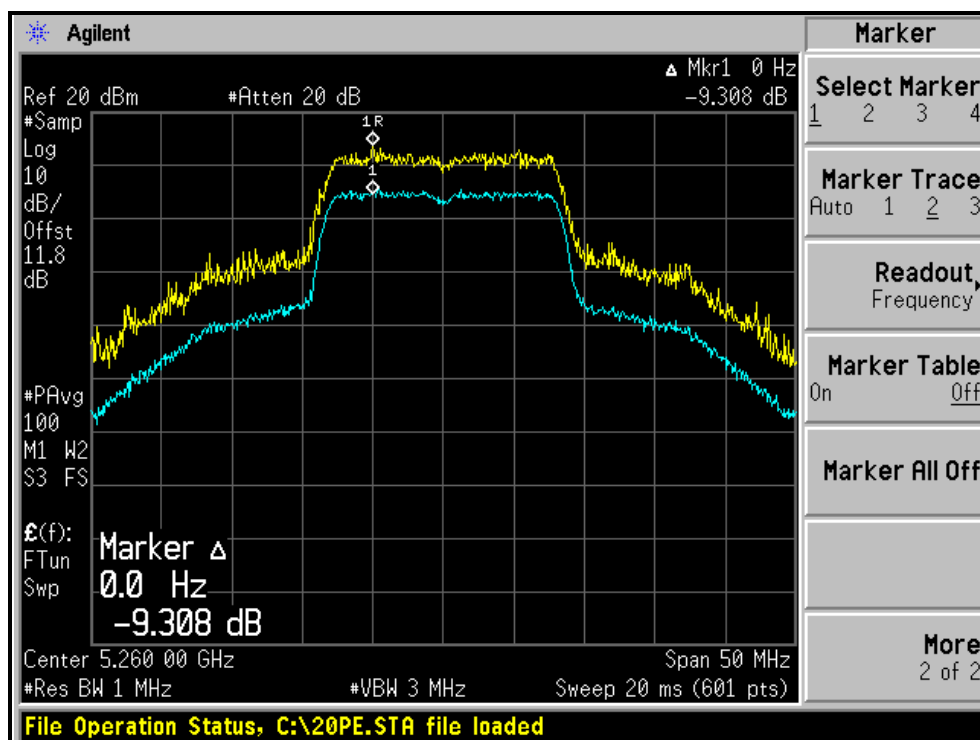
The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

4.4.7 TEST RESULTS

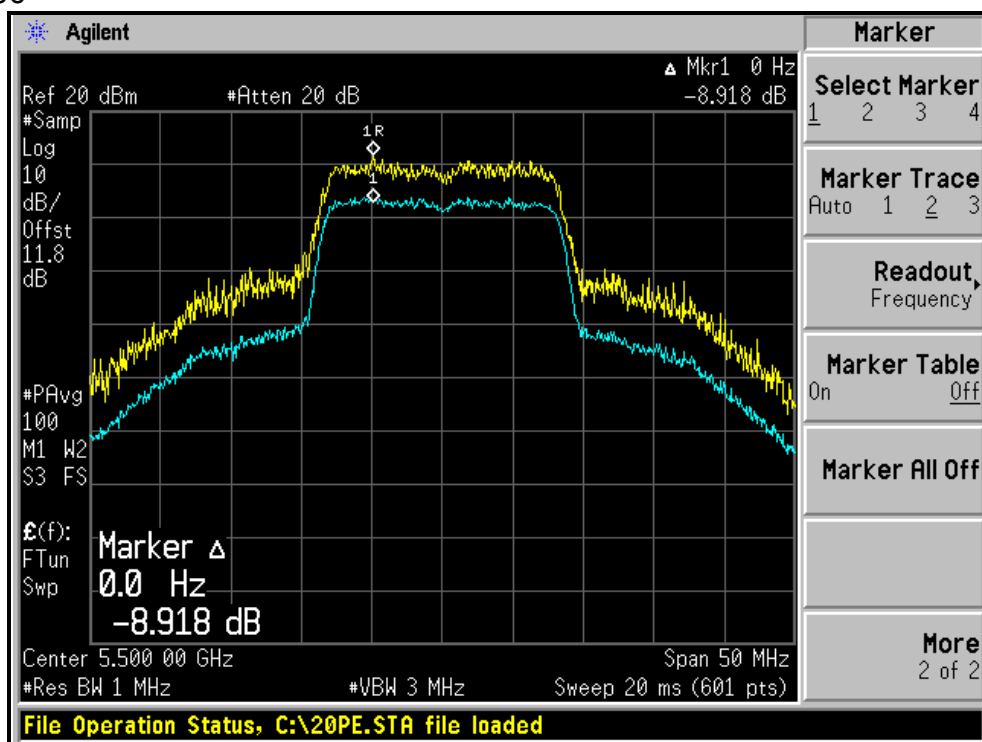
802.11a OFDM MODULATION

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
52	5260	9.3	13	PASS
60	5300	8.3	13	PASS
64	5320	8.3	13	PASS
100	5500	8.9	13	PASS
116	5580	7.9	13	PASS
132	5660	8.4	13	PASS
140	5700	7.9	13	PASS

CH52



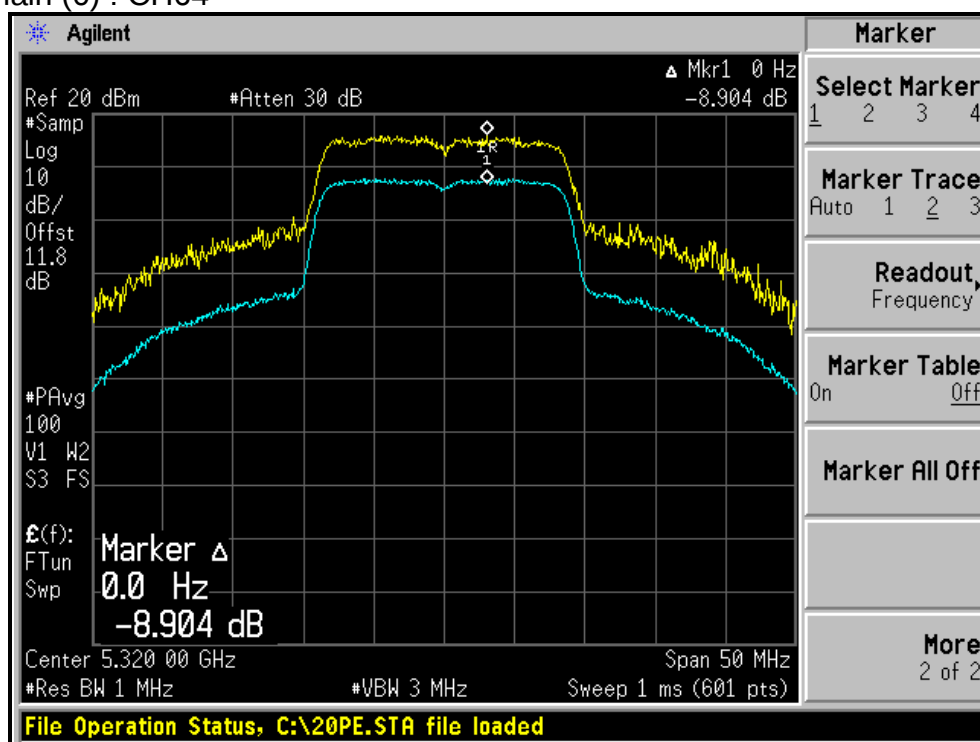
CH100



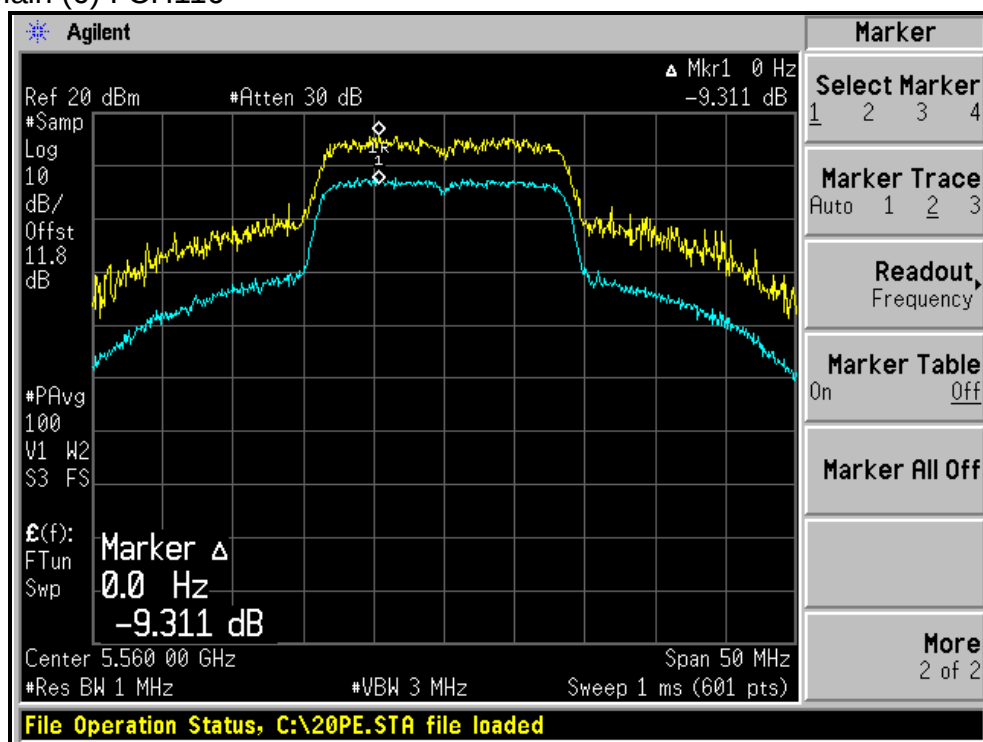
802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)		PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
		CHAIN(0)	CHAIN(1)		
52	5260	8.4	8.3	13	PASS
60	5300	8.6	8.5	13	PASS
64	5320	8.9	8.8	13	PASS
100	5500	7.9	7.7	13	PASS
116	5580	9.3	9.1	13	PASS
132	5660	9.2	9.1	13	PASS
140	5700	9.2	9.1	13	PASS

For Chain (0) : CH64



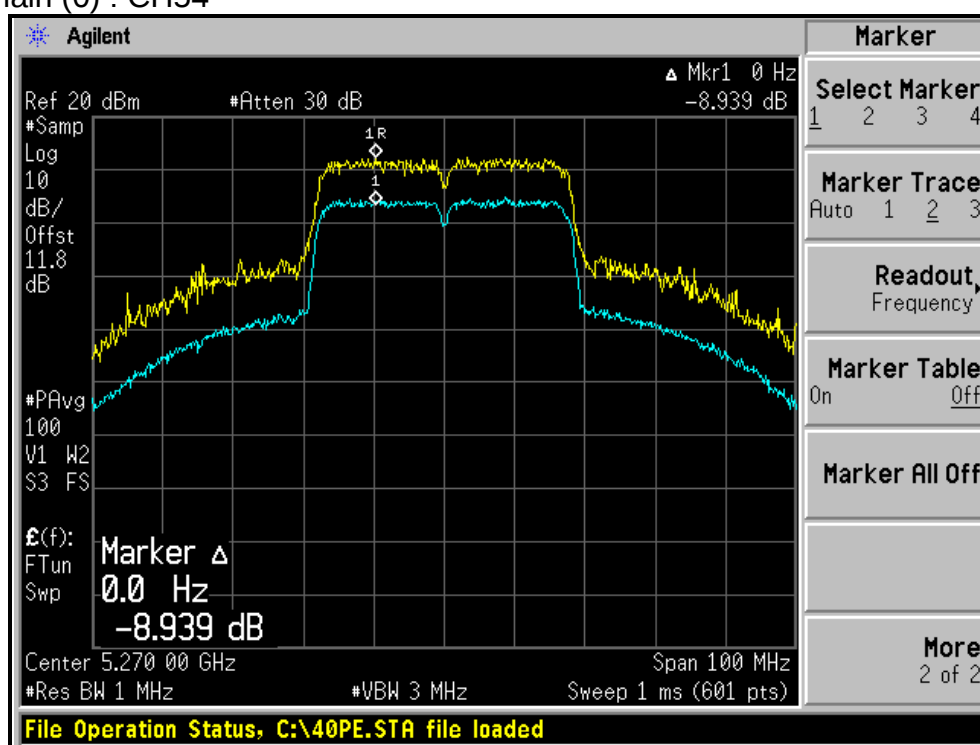
For Chain (0) : CH116



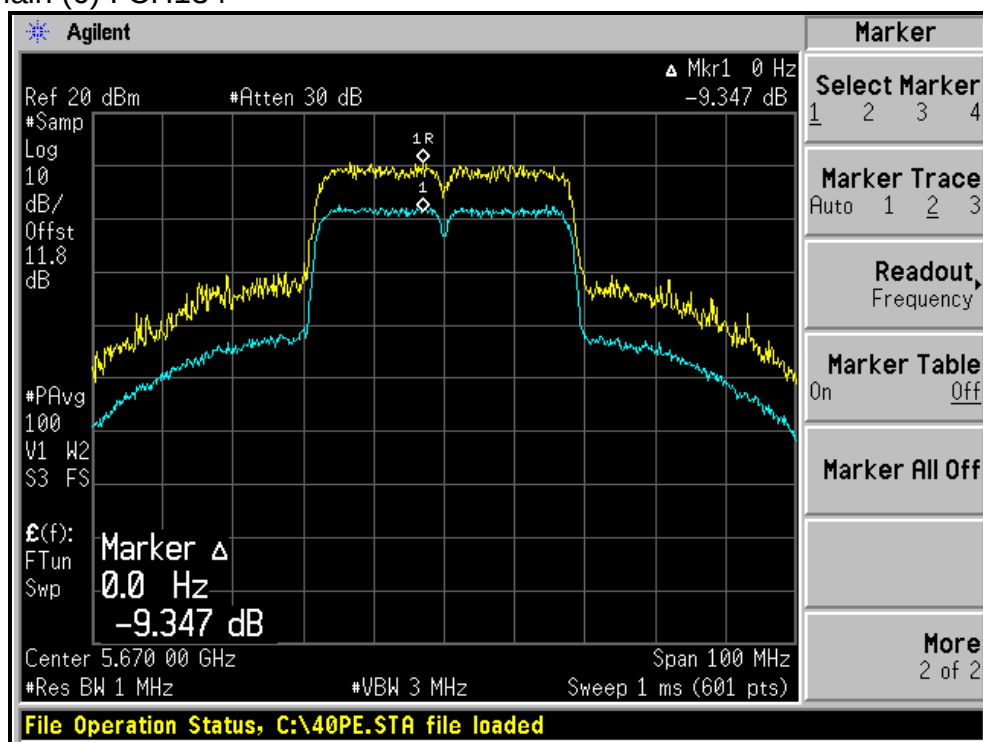
802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)		PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
		CHAIN(0)	CHAIN(1)		
54	5270	8.9	8.8	13	PASS
62	5310	8.1	8	13	PASS
102	5510	9.2	9	13	PASS
110	5550	8.8	8.7	13	PASS
134	5670	9.3	9.1	13	PASS

For Chain (0) : CH54



For Chain (0) : CH134



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: Apr. 14, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	E4446A	MY48250254	July 14, 2010	July 13, 2011

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

4.5.3 TEST 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

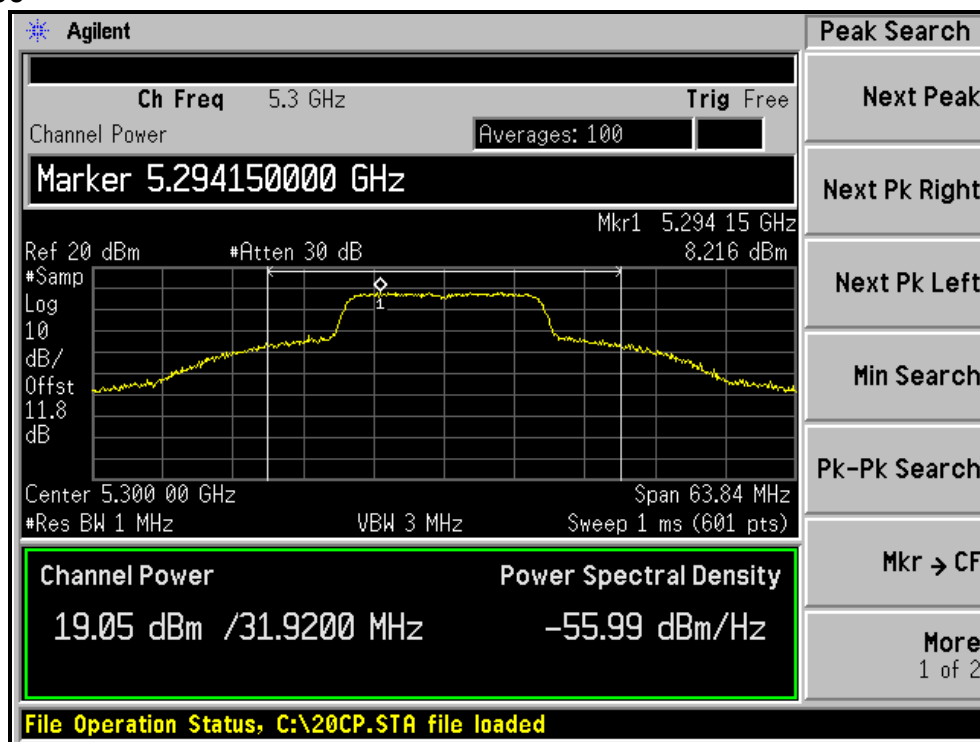
Same as 4.3.6

4.5.7 TEST RESULTS

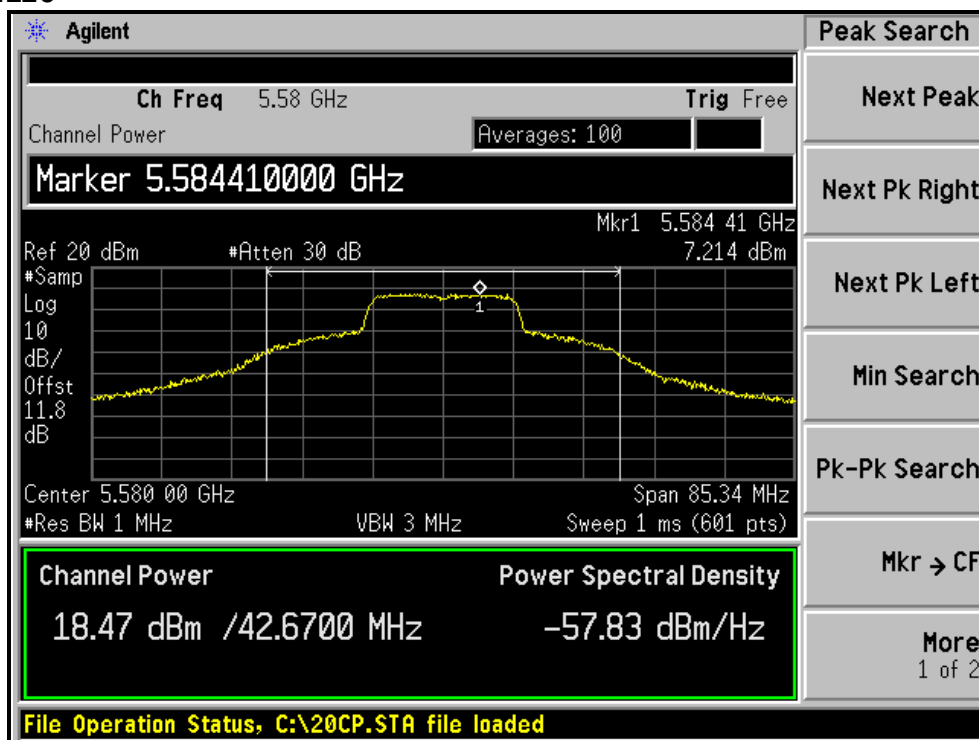
802.11a OFDM MODULATION

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
52	5260	8.1	11	PASS
60	5300	8.2	11	PASS
64	5320	6.8	11	PASS
100	5500	6.2	11	PASS
116	5580	7.2	11	PASS
132	5660	6.2	11	PASS
140	5700	5.1	11	PASS

CH60



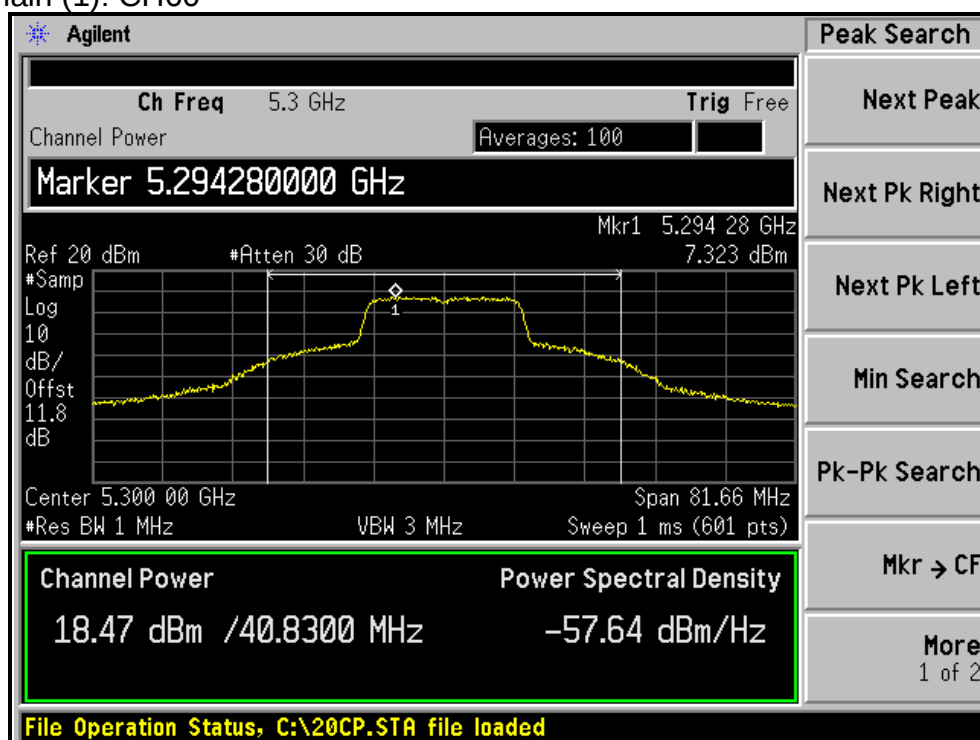
CH116



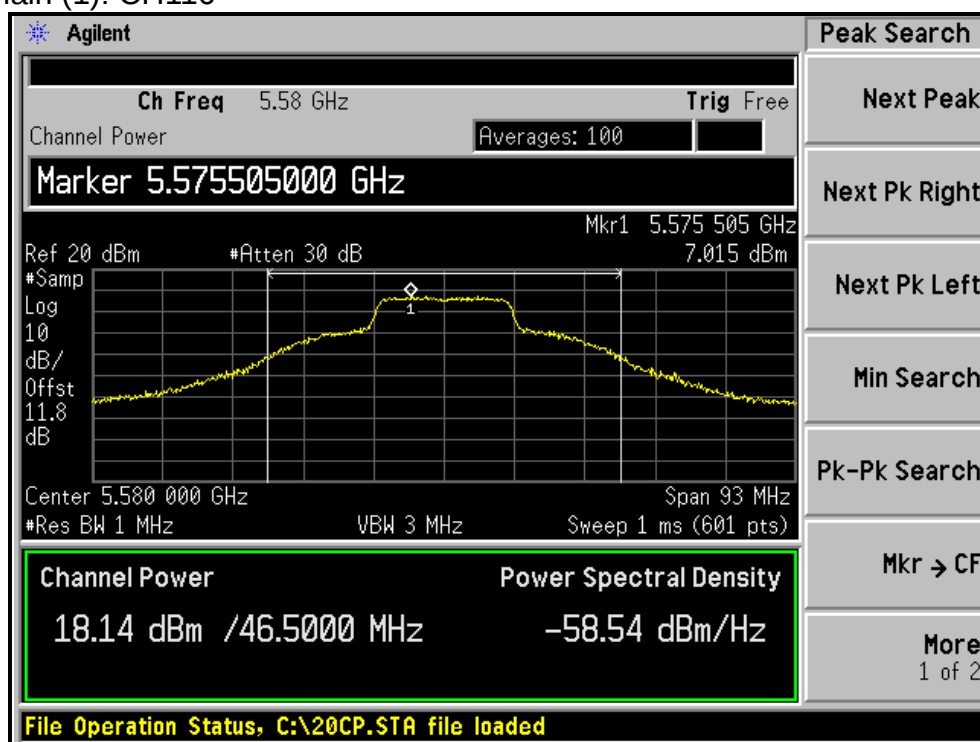
802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)			
52	5260	7.3	6.9	10.1	11	PASS
60	5300	7.1	7.3	10.2	11	PASS
64	5320	6.5	6.1	9.3	11	PASS
100	5500	5.0	4.1	7.6	11	PASS
116	5580	6.9	7.0	10.0	11	PASS
132	5660	3.3	3.5	6.4	11	PASS
140	5700	2.6	2.7	5.7	11	PASS

For Chain (1): CH60



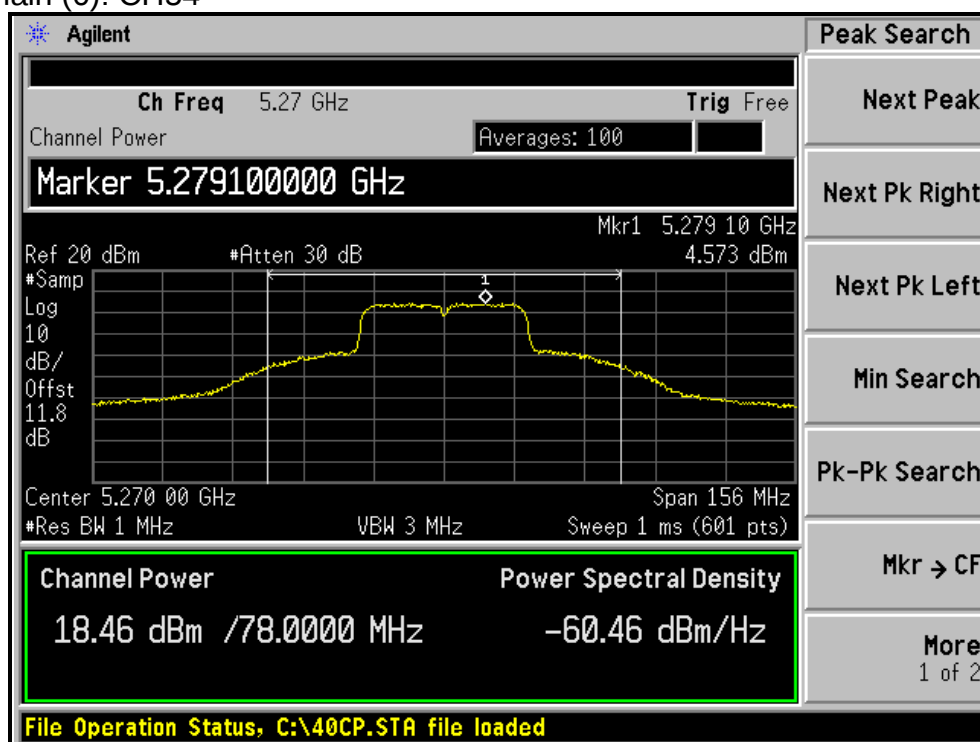
For Chain (1): CH116



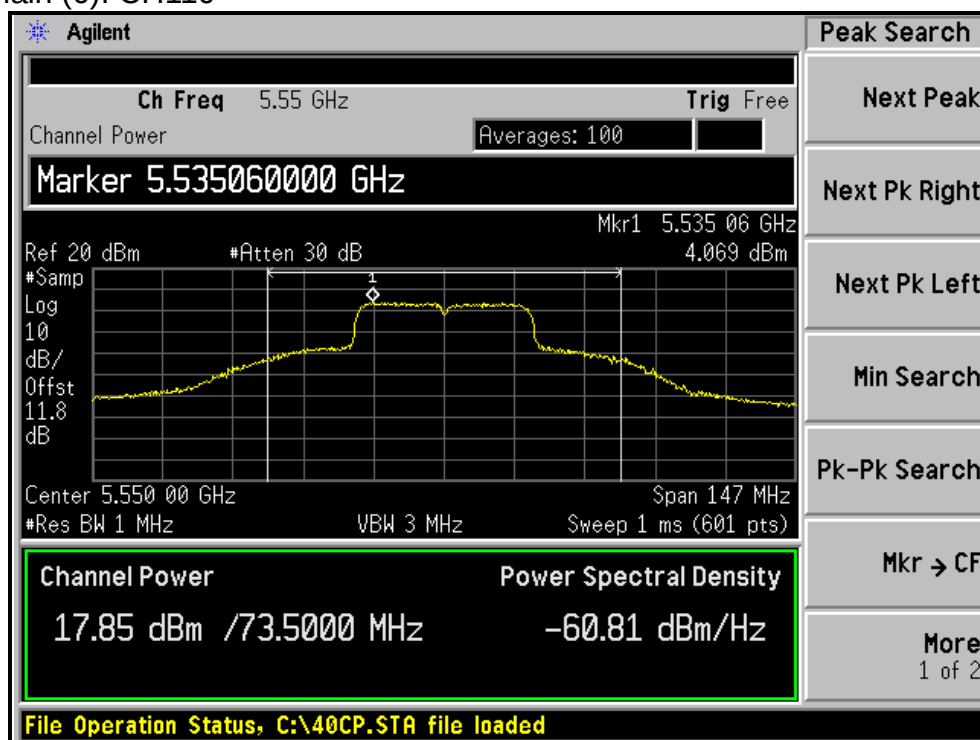
802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)		TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)			
54	5270	4.6	3.9	7.3	11	PASS
62	5310	1.4	1.1	4.3	11	PASS
102	5510	-0.9	-1.6	1.8	11	PASS
110	5550	4.1	4.1	7.1	11	PASS
134	5670	2.8	2.8	5.8	11	PASS

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: Apr. 14, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	E4446A	MY48250254	July 14, 2010	July 13, 2011

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

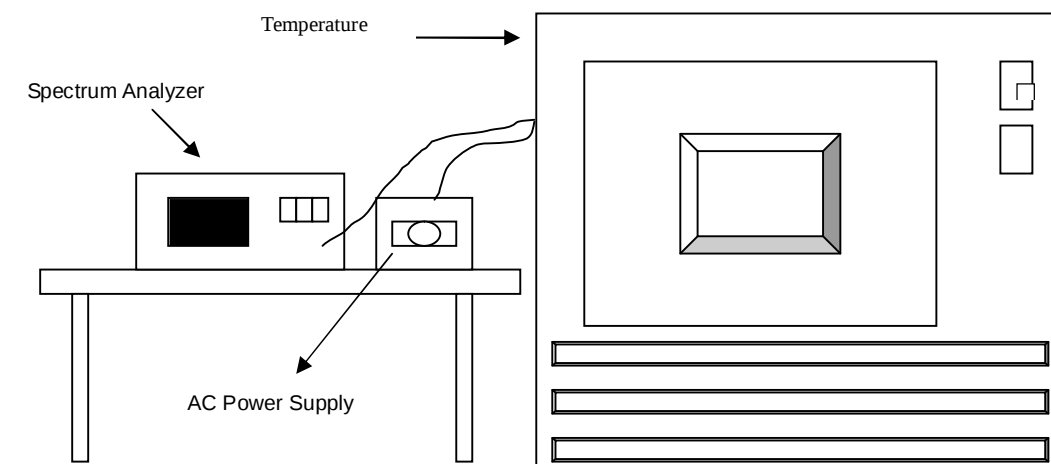
4.6.3 TEST PROCEDURE

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.

4.6.7 TEST RESULTS

Operating frequency: 5310MHz									
Temp. (°C)	Power supply (VAC)	0 minute		2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	138	5310.0101	1.9021	5310.0076	1.4313	5310.0031	0.5838	5310.0005	0.0942
	120	5310.0096	1.8079	5310.0077	1.4501	5310.0041	0.7721	5310.0004	0.0753
	102	5310.0093	1.7514	5310.008	1.5066	5310.004	0.7533	5310	0.0000
40	138	5310.0223	4.1996	5310.0188	3.5405	5310.0168	3.1638	5310.0159	2.9944
	120	5310.0205	3.8606	5310.0194	3.6535	5310.018	3.3898	5310.0165	3.1073
	102	5310.0217	4.0866	5310.0191	3.5970	5310.0184	3.4652	5310.0163	3.0697
30	138	5309.9901	-1.8644	5309.9899	-1.9021	5309.994	-1.1299	5309.9922	-1.4689
	120	5309.9904	-1.8079	5309.9896	-1.9586	5309.9941	-1.1111	5309.9923	-1.4501
	102	5309.9886	-2.1469	5309.9901	-1.8644	5309.9939	-1.1488	5309.9918	-1.5443
20	138	5310.0106	1.9962	5310.0123	2.3164	5310.0107	2.0151	5310.0113	2.1281
	120	5310.009	1.6949	5310.0135	2.5424	5310.0105	1.9774	5310.013	2.4482
	102	5310.0103	1.9397	5310.0123	2.3164	5310.0096	1.8079	5310.012	2.2599
10	138	5310.003	0.5650	5309.9978	-0.4143	5310.0002	0.0377	5310.0017	0.3202
	120	5310.0019	0.3578	5309.9984	-0.3013	5310.0009	0.1695	5310.001	0.1883
	102	5310.0024	0.4520	5309.9976	-0.4520	5309.9998	-0.0377	5310.0009	0.1695
0	138	5310.0058	1.0923	5310.0054	1.0169	5310.0011	0.2072	5310.0004	0.0753
	120	5310.0063	1.1864	5310.0059	1.1111	5310.0008	0.1507	5310.0016	0.3013
	102	5310.0063	1.1864	5310.0062	1.1676	5310.0006	0.1130	5310.0004	0.0753
-10	138	5309.9923	-1.4501	5309.9965	-0.6591	5309.9978	-0.4143	5310.0011	0.2072
	120	5309.9933	-1.2618	5309.9968	-0.6026	5309.9971	-0.5461	5310.0006	0.1130
	102	5309.9932	-1.2806	5309.9967	-0.6215	5309.9974	-0.4896	5310.0007	0.1318
-20	138	5310.015	2.8249	5310.0135	2.5424	5310.019	3.5782	5310.0194	3.6535
	120	5310.0156	2.9379	5310.0134	2.5235	5310.0189	3.5593	5310.0209	3.9360
	102	5310.0161	3.0320	5310.0136	2.5612	5310.0181	3.4087	5310.0197	3.7100
-30	138	5310.0134	2.5235	5310.0098	1.8456	5310.0146	2.7495	5310.0163	3.0697
	120	5310.0132	2.4859	5310.0091	1.7137	5310.0153	2.8814	5310.0168	3.1638
	102	5310.013	2.4482	5310.0096	1.8079	5310.0141	2.6554	5310.0153	2.8814



A D T

4.7 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.7.1 TEST INSTRUMENTS

Test date: Apr. 14, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Spectrum Analyzer	E4446A	MY48250254	July 14, 2010	July 13, 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

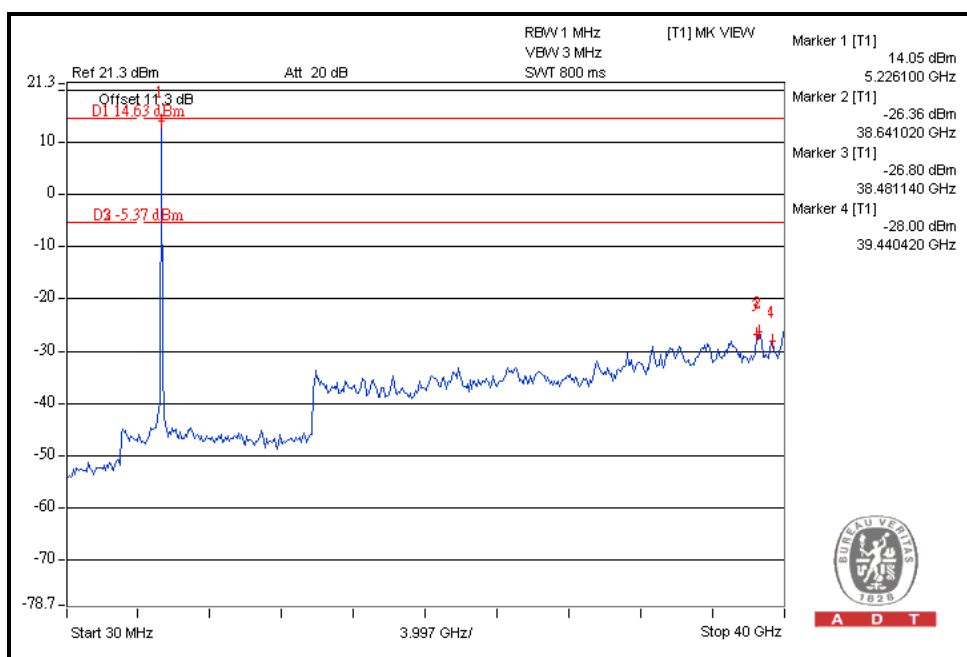
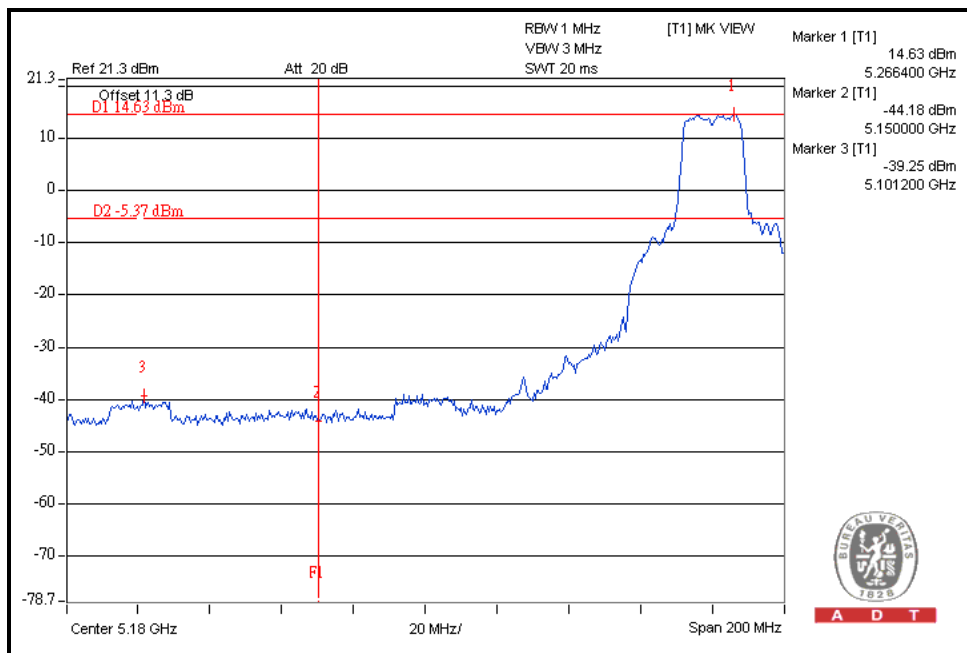
For 5.25 to 5.35GHz band:

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

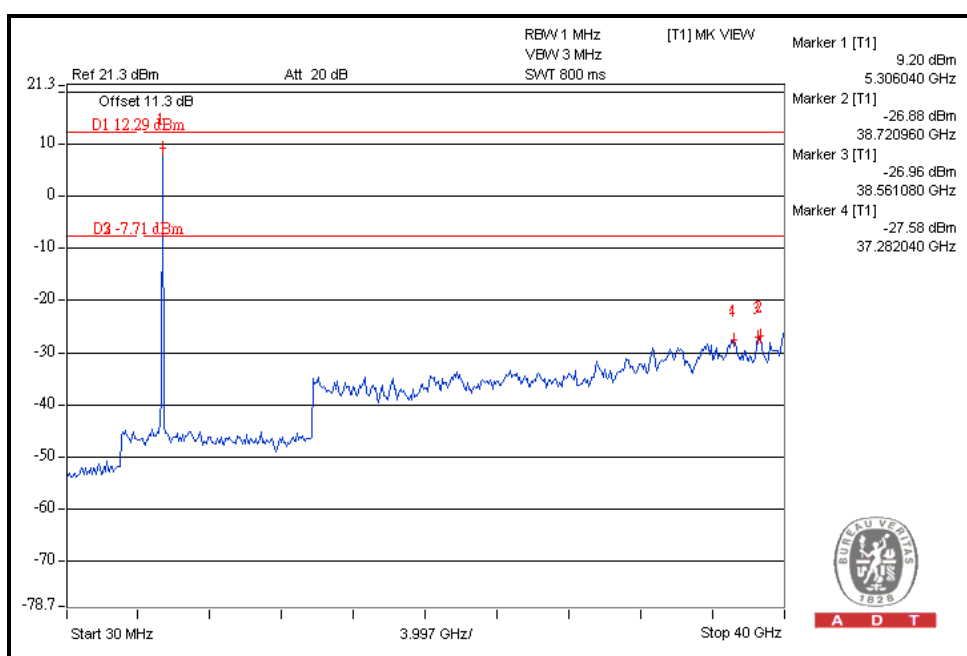
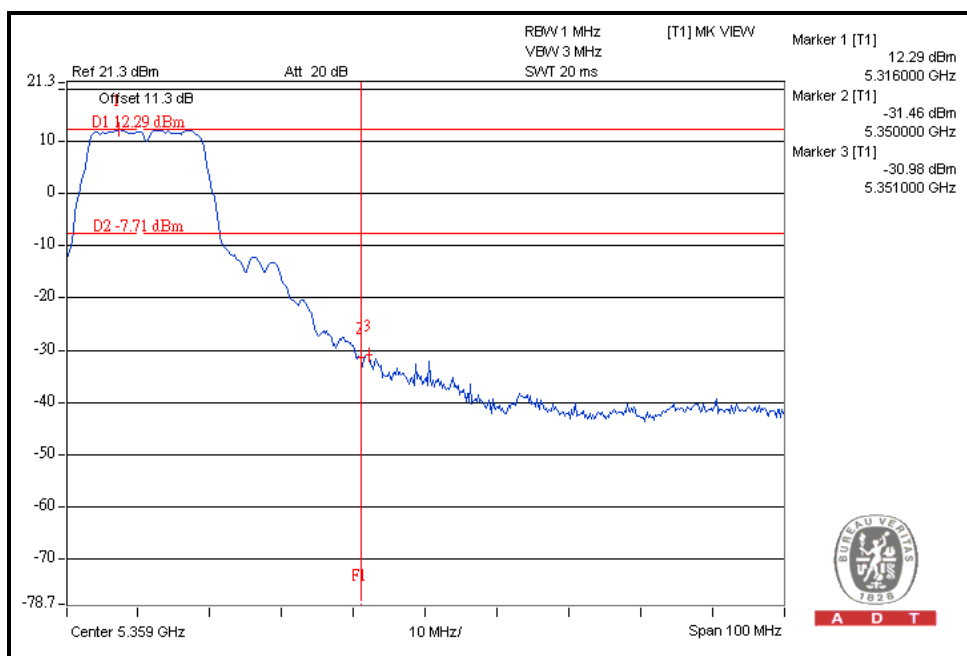
Performing measurements: Measure and add 10 log(N) dB

802.11a OFDM MODULATION

CH52

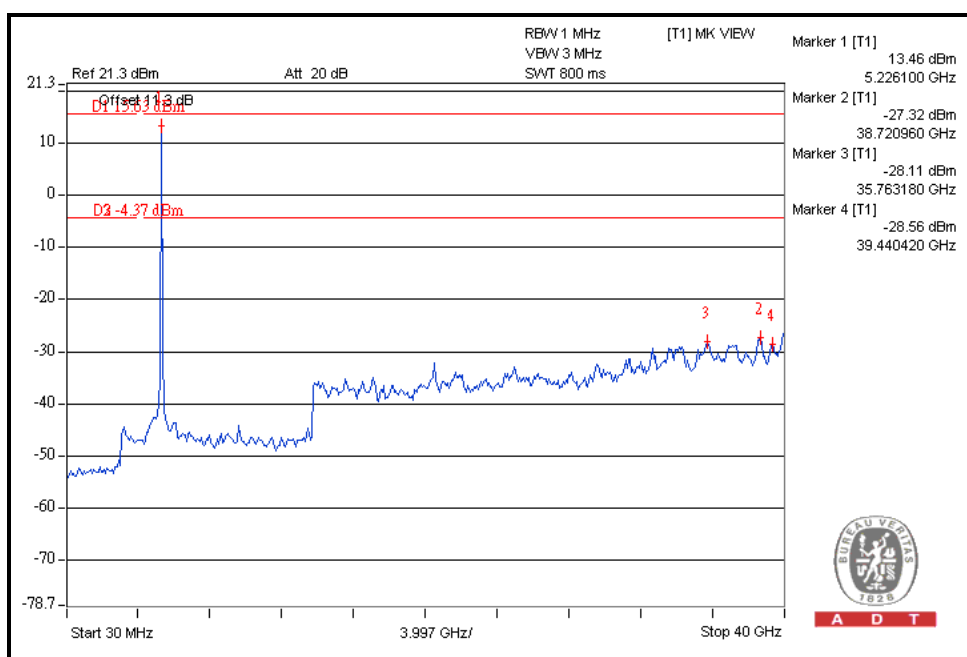
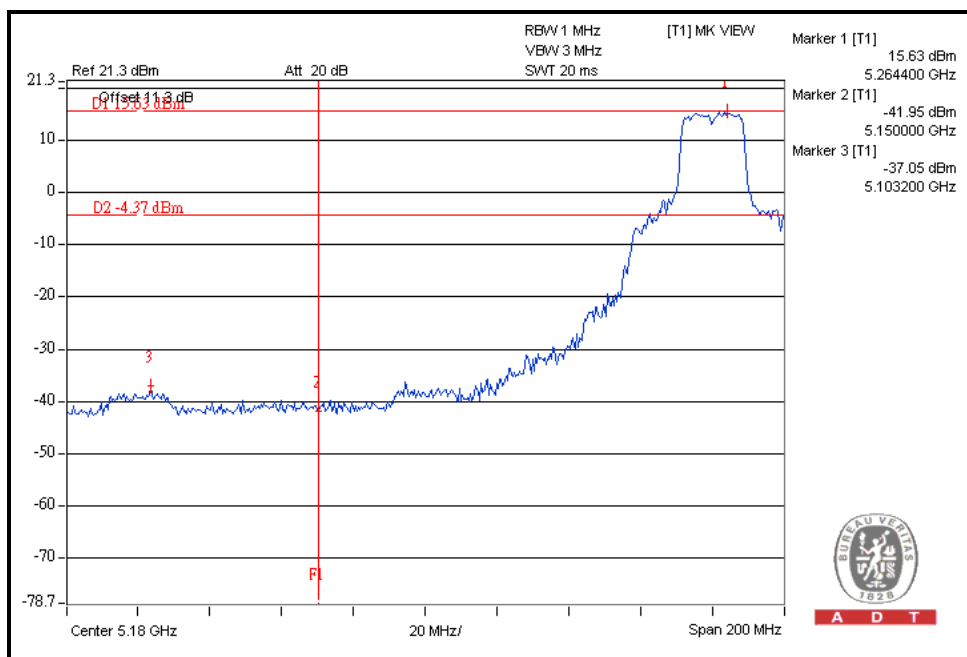


CH64

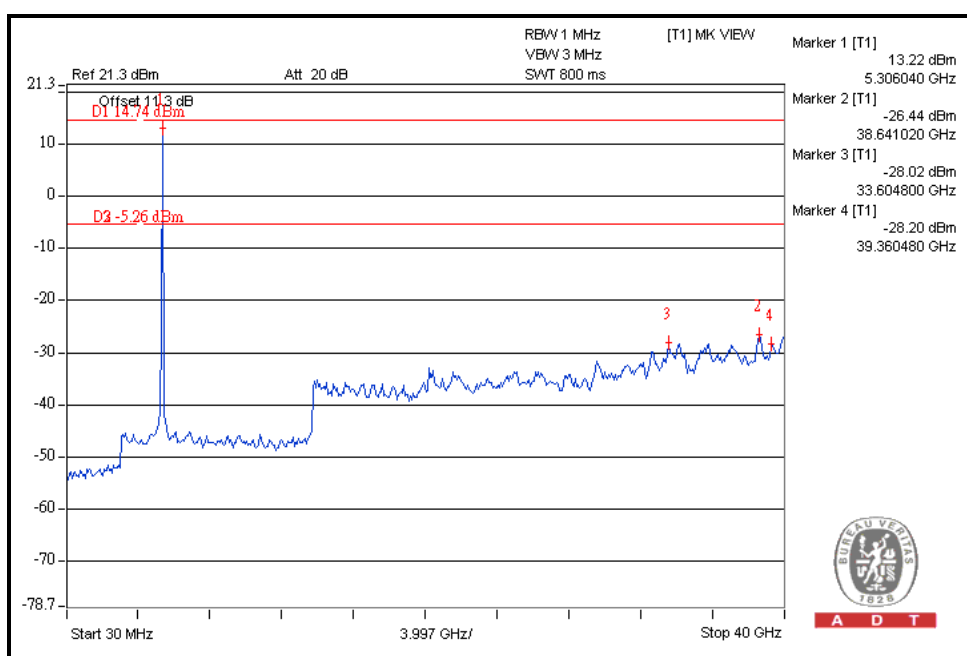
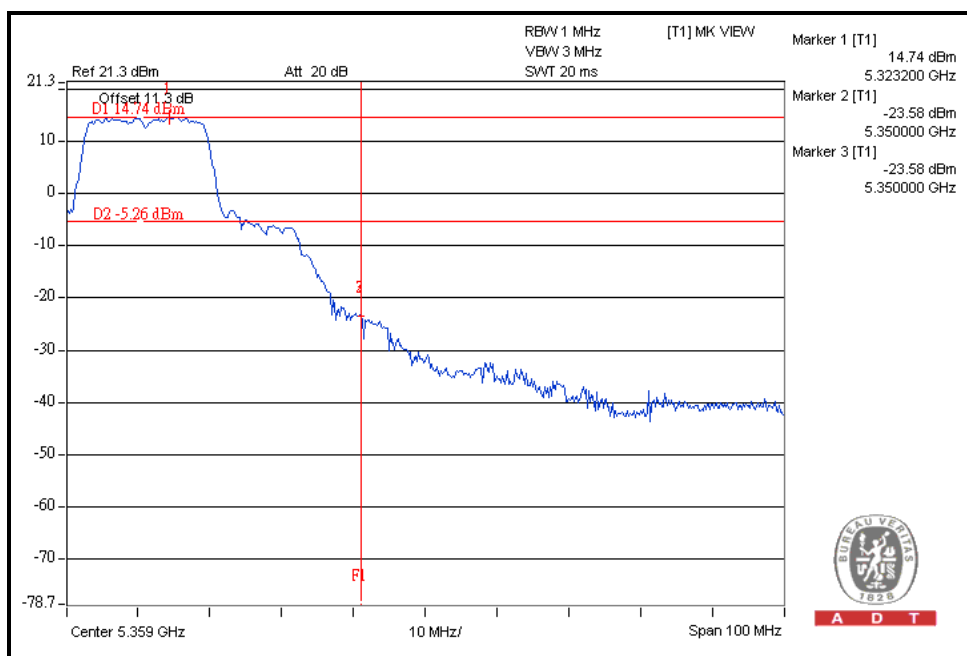


802.11n (20MHz) OFDM MODULATION:

CH52

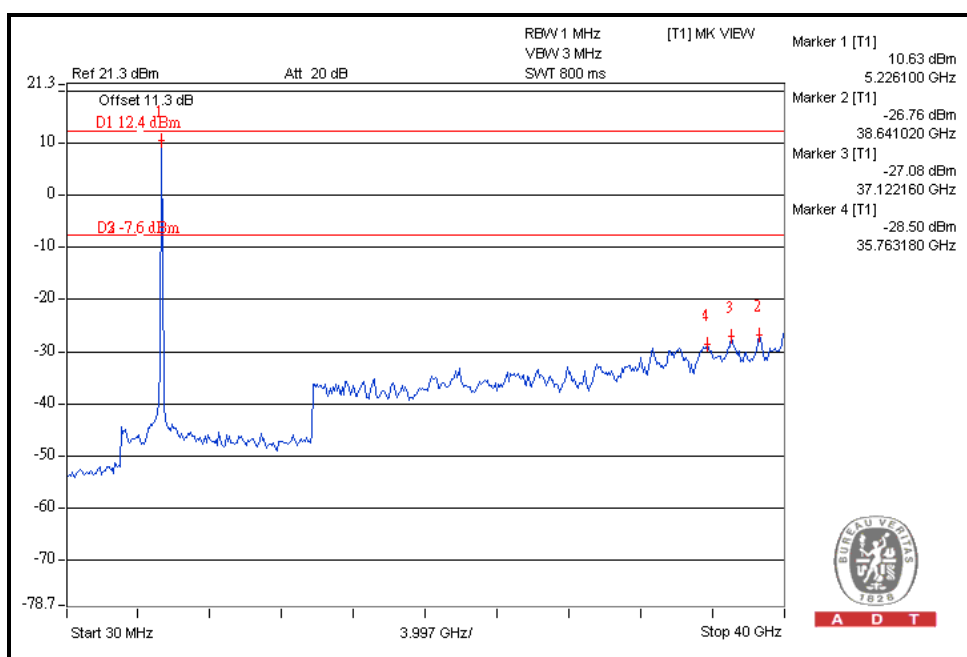
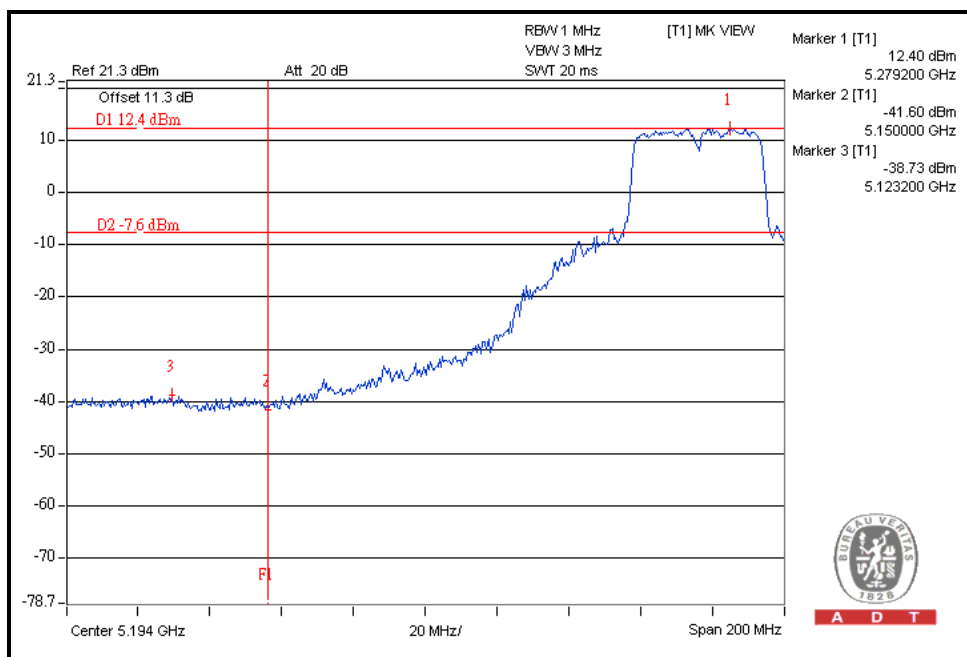


CH64

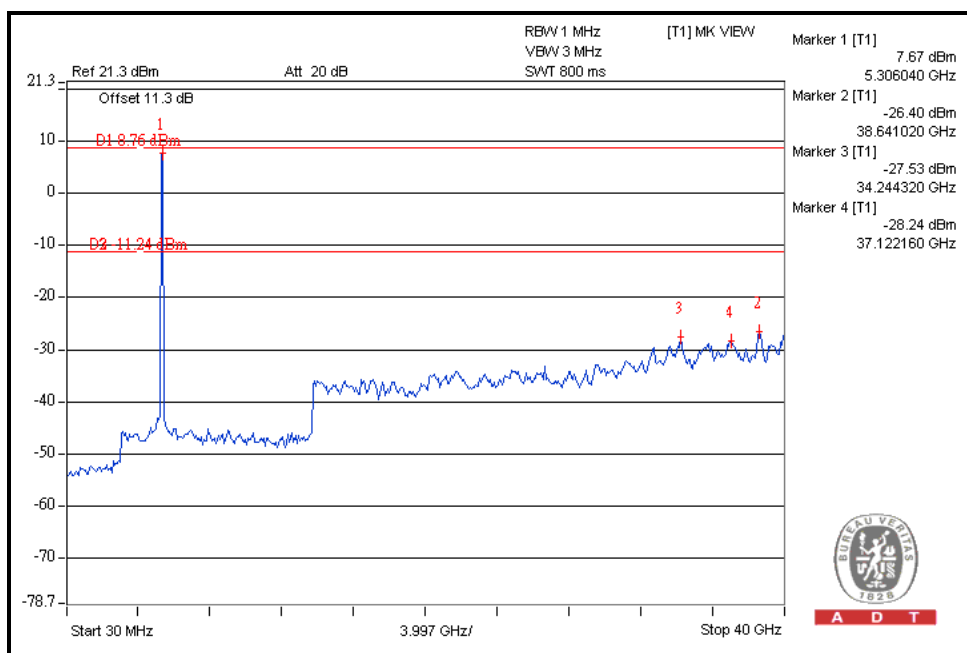
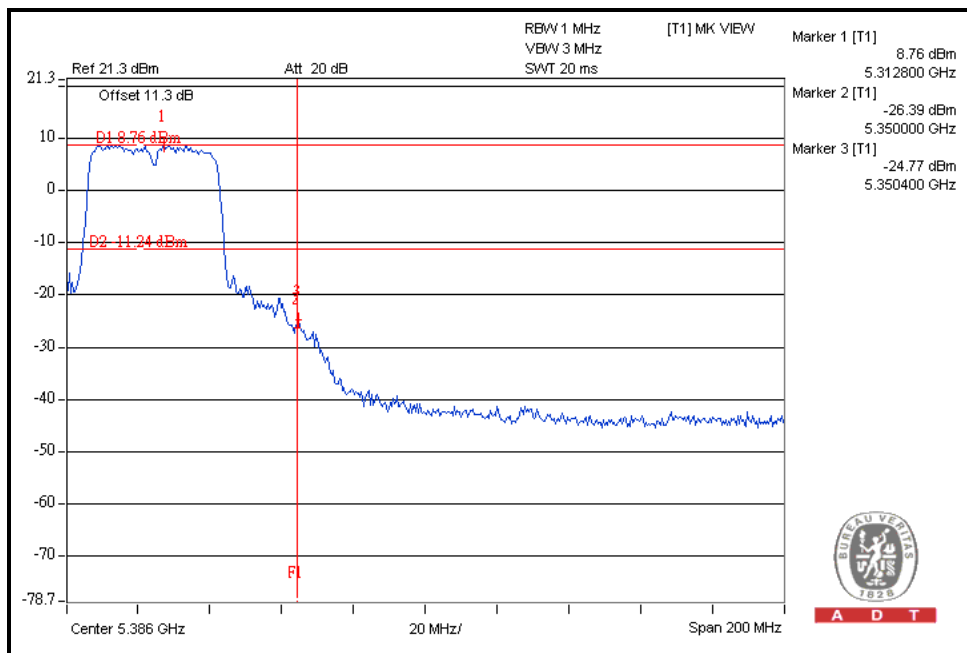


802.11n (40MHz) OFDM MODULATION:

CH54



CH62



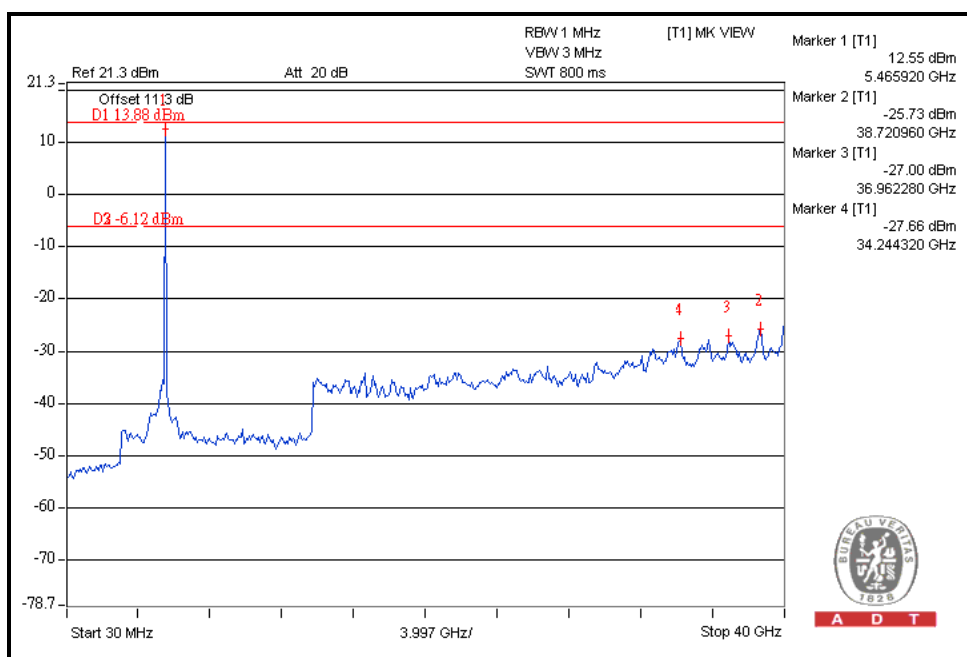
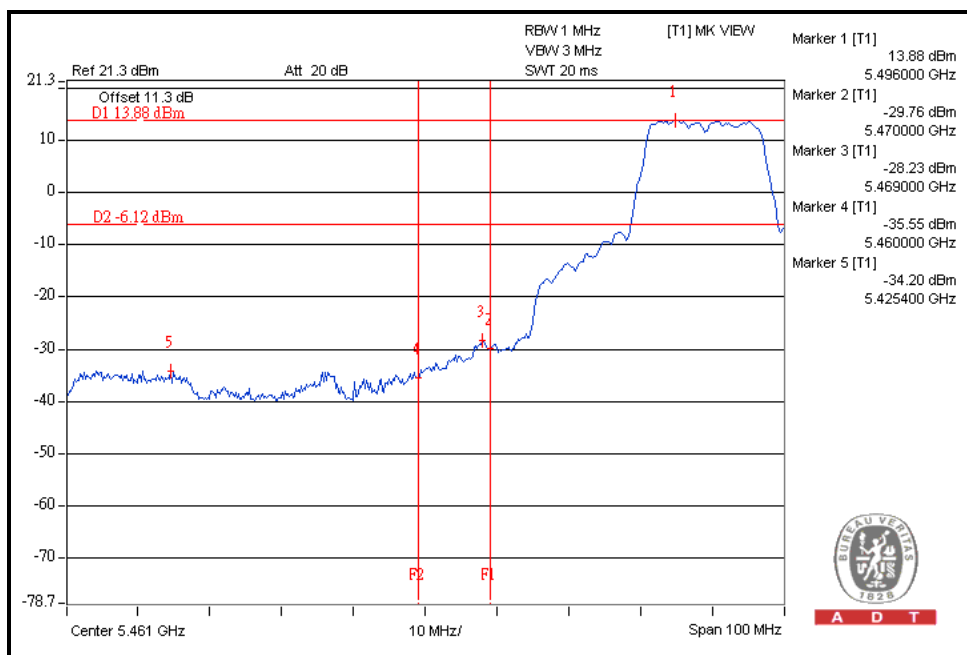
For 5.47 to 5.725GHz band:

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

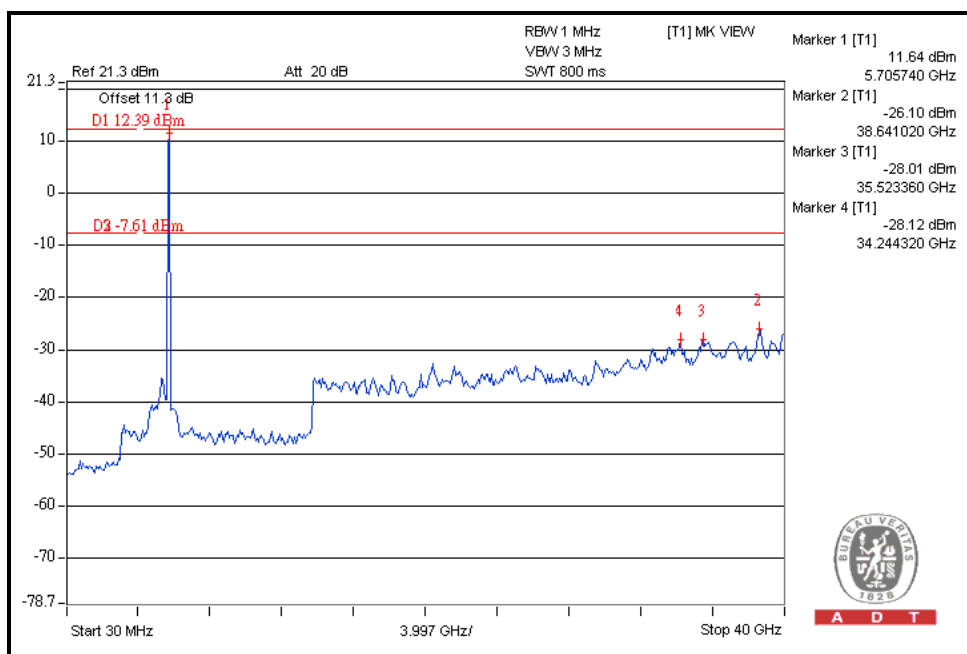
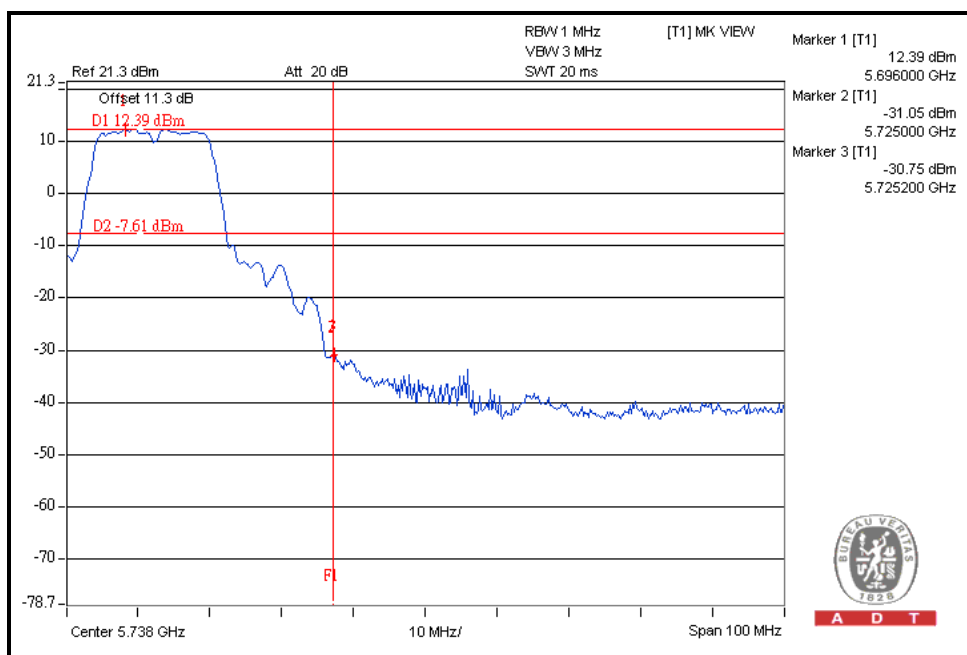
Performing measurements: Measure and add 10 log(N) dB

802.11a OFDM MODULATION

CH100

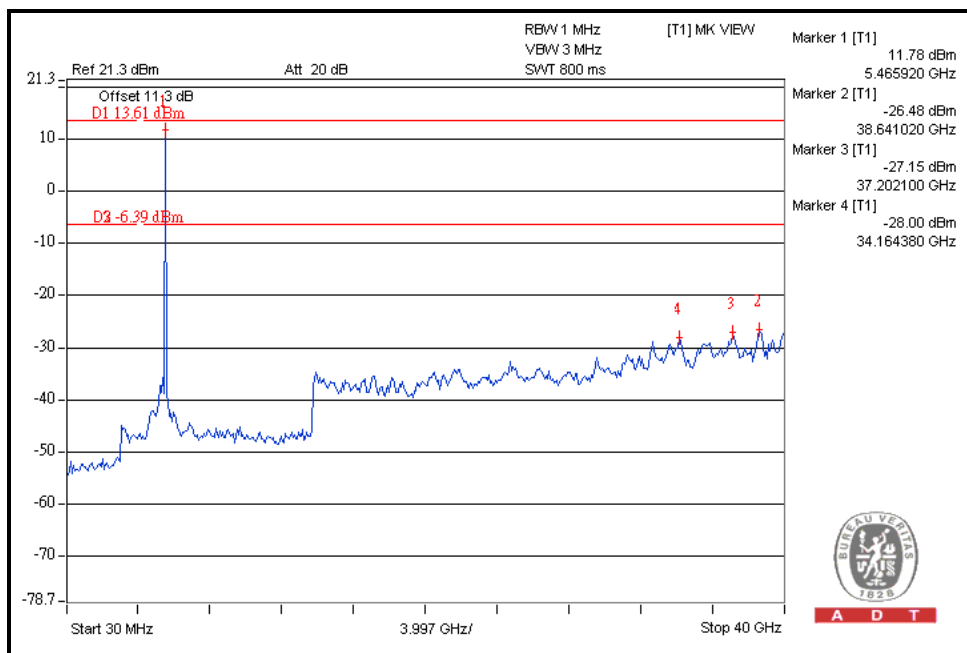
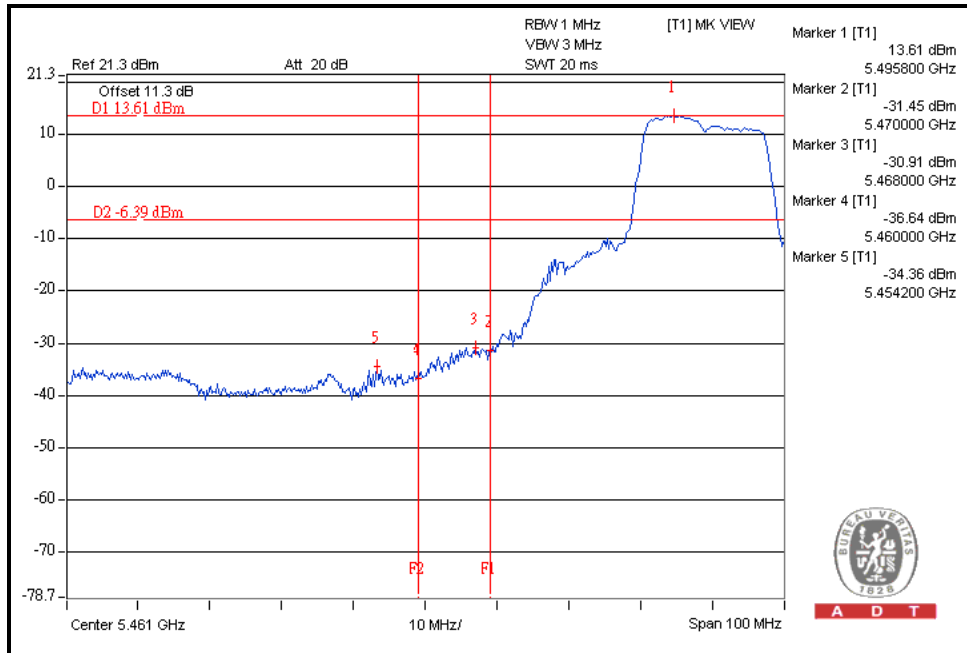


CH140

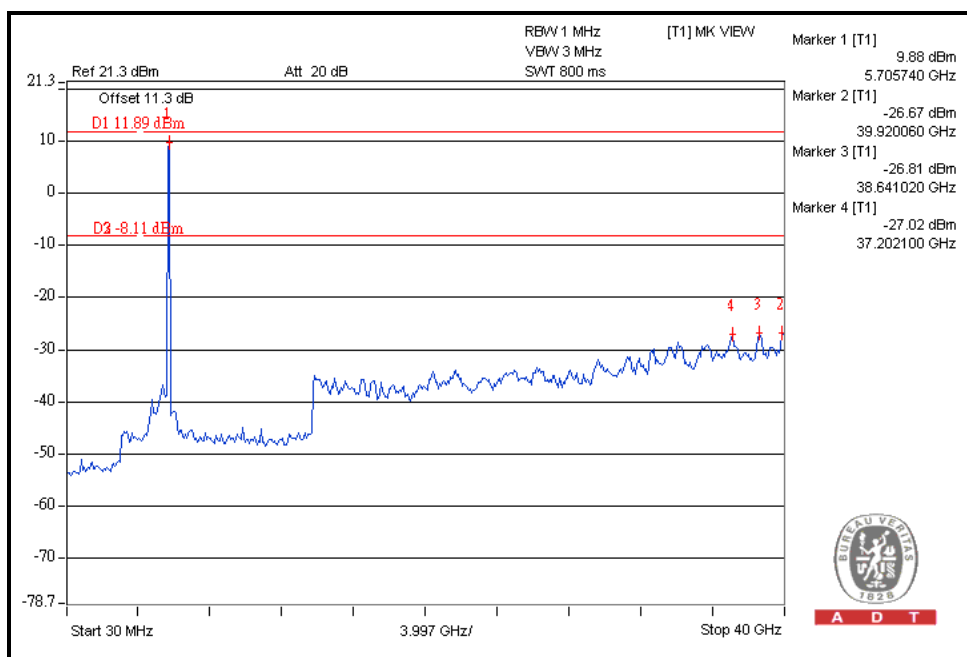
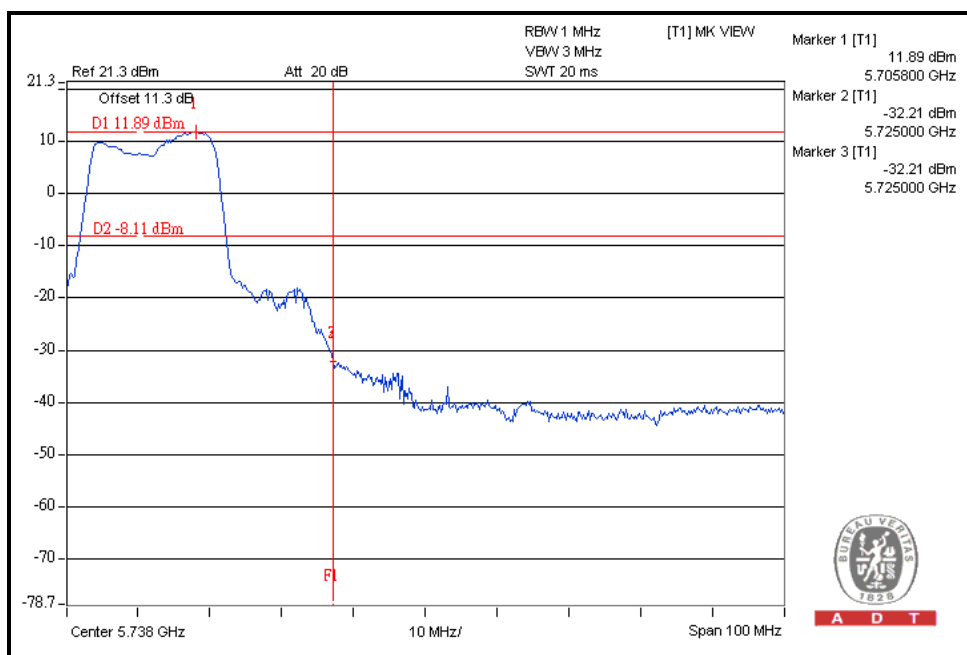


802.11n (20MHz) OFDM MODULATION:

CH100

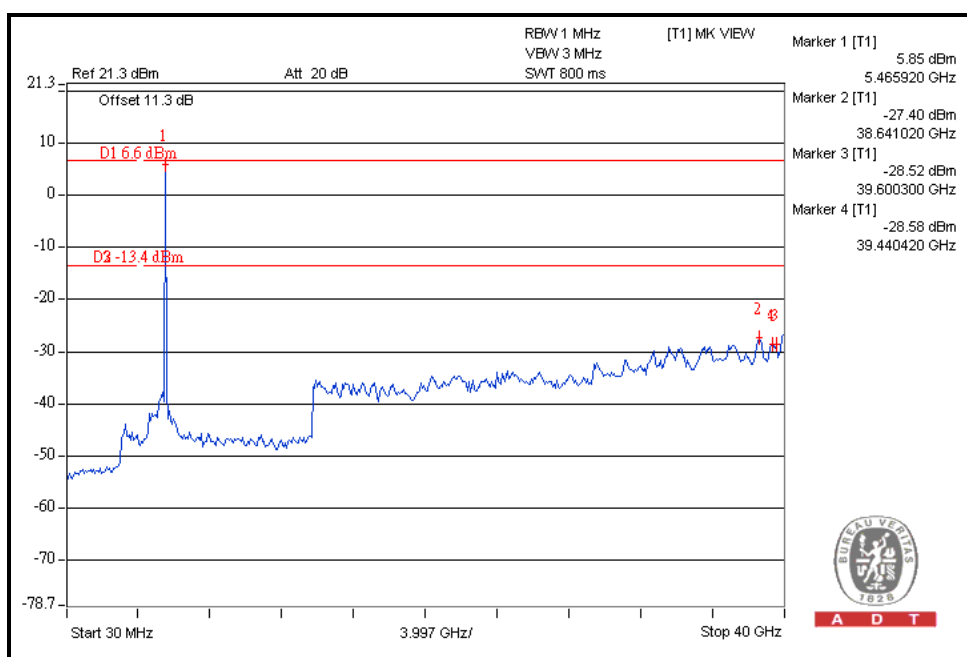
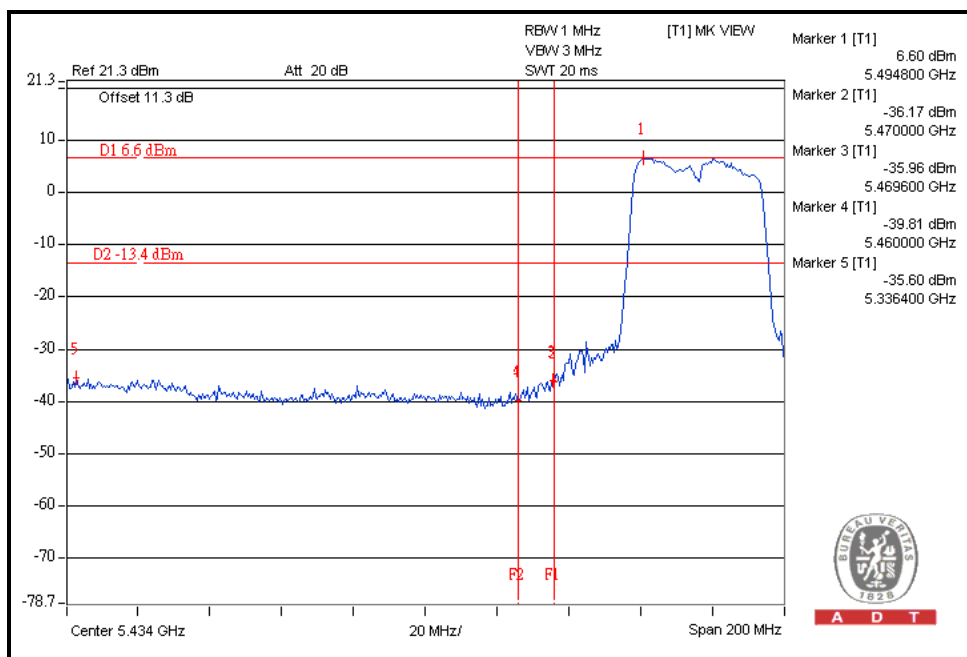


CH140

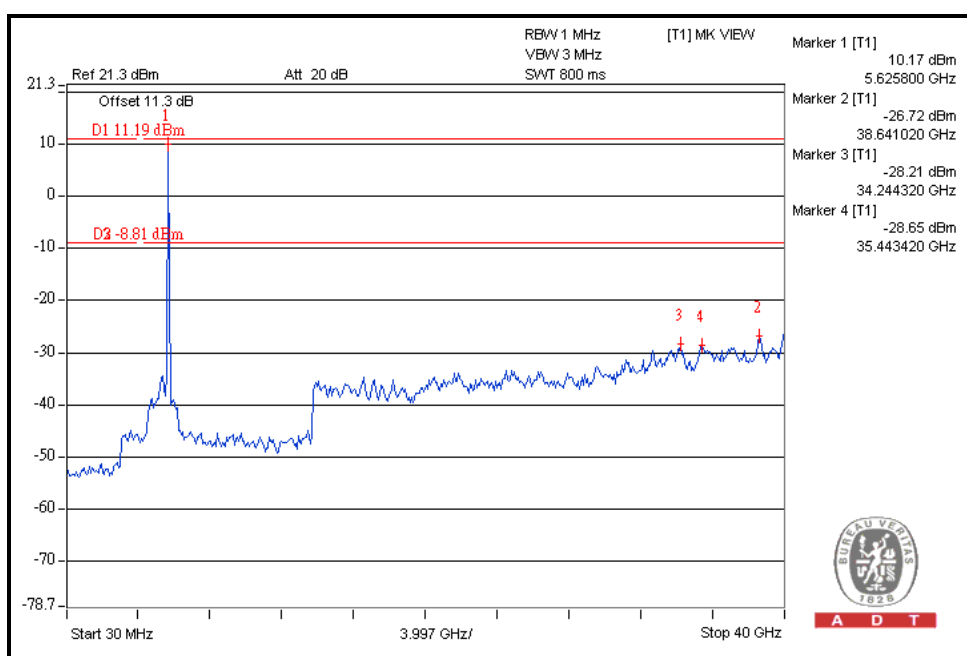
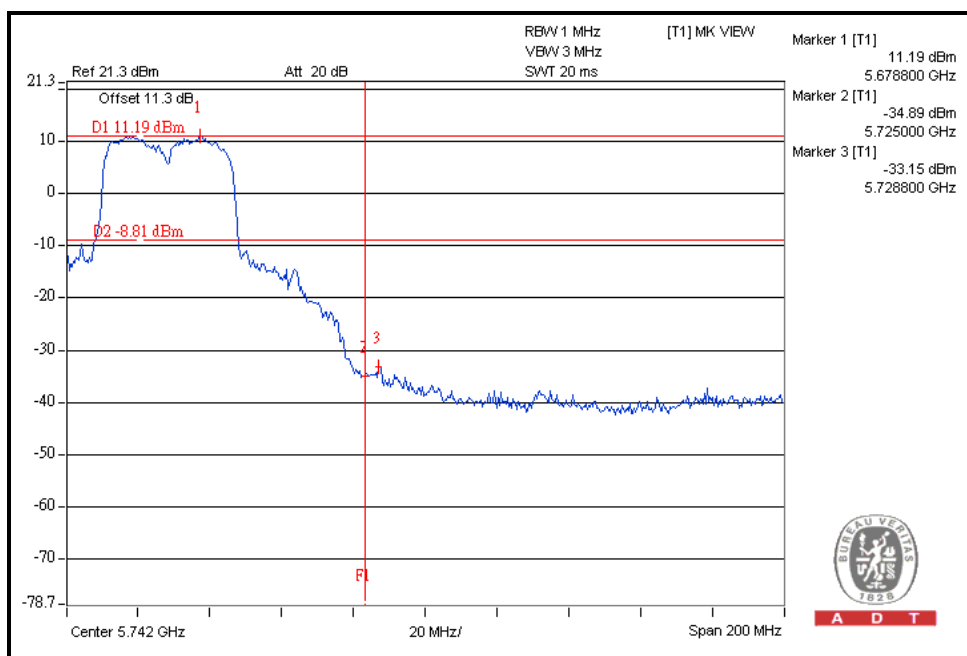


802.11n (40MHz) OFDM MODULATION:

CH102



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 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 ---