



FCC TEST REPORT (15.407)

REPORT NO.: RF110223E04-1 R1

MODEL NO.: Alpha Networks WMC-ND02

FCC ID: SBVRM004

RECEIVED: Feb. 23, 2011

TESTED: Mar. 17 to Apr. 15, 2011

ISSUED: May 27, 2011

APPLICANT: SONOS, INC.

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

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF110223E04-1	Original release	May 03, 2011
RF110223E04-1 R1	<ol style="list-style-type: none">1. Modify the model name of EUT.2. Remove some sentence of item 3.3.3. Added the Conducted Out-Band Emission Measurement of item 4.7.4	May 27, 2011



1. CERTIFICATION

PRODUCT: 802.11abgn Mini PCIe Card
BRAND NAME: SONOS
MODEL NO.: Alpha Networks WMC-ND02
TEST SAMPLE: MASS-PRODUCTION
APPLICANT: SONOS, INC.
TESTED: Mar. 17 to Apr. 15, 2011
STANDARDS: FCC Part 15, Subpart E (Section 15.407)
ANSI C63.4-2003
ANSI C63.10-2009

The above equipment (Model: Alpha Networks WMC-ND02) 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 : Carol Liao , **DATE:** May 27, 2011
(Carol Liao, Specialist)

APPROVED BY : May Chen , **DATE:** May 27, 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 -5.69dB 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 -0.5dB at 5350.00MHz & 5725.00MHz
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	Antenna connector is I-PEX not a standard connector.

NOTE:

1. The EUT was operating in 2400 ~ 2483.5MHz, 5.15~5.35GHz, 5.47~5.725GHz and 5.725~5.850GHz frequencies band. This report was recorded the RF parameters including 5.15~5.35GHz and 5.47~5.725GHz. 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.

2.1 MEASUREMENT UNCERTAINTY

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

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

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



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3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	802.11abgn Mini PCIe Card
MODEL NO.	Alpha Networks WMC-ND02
FCC ID	SBVRM004
POWER SUPPLY	DC 3.3V±10% from host equipment
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
MODULATION TECHNOLOGY	DSSS, OFDM
TRANSFER RATE	802.11a: 24Mbps 5G HT20 MCS3 (800ns GI): 26Mbps 5G HT20 MCS9 (800ns GI): 26Mbps 5G HT20 MCS3 (400ns GI): 28.9Mbps 5G HT20 MCS9 (400ns GI): 28.889Mbps 802.11g: 24Mbps 2.4G HT20 MCS9 (800ns GI): 26Mbps 2.4G HT20 MCS9 (400ns GI): 28.889Mbps
OPERATING FREQUENCY	For 15.407 802.11a: 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.50 ~ 5.70GHz For 15.247 802.11g: 2.412 ~ 2.462GHz 802.11a: 5.745 ~ 5.825GHz
NUMBER OF CHANNEL	For 15.407 19 for 802.11a, 802.11n (20MHz) For 15.247(2.4GHz) 11 for 802.11g, 802.11n (20MHz) For 15.247(5GHz) 5 for 802.11a, 802.11n (20MHz)
MAXIMUM OUTPUT POWER	For 15.407 802.11a: 109.8mW 802.11n (20MHz): 150.5mW For 15.247(2.4GHz) 802.11g: 467.8mW 802.11n (20MHz): 626.6mW For 15.247(5GHz) 802.11a: 472.7mW 802.11n (20MHz): 577.8mW



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ANTENNA TYPE	Please see note
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

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

Transmitter Circuit	Manufacture	Model name	Antenna Gain		Antenna Type	Connector
			For 2.4GHz Gain (dBi)	For 5GHz Gain (dBi)		
Chain (0) Antenna (1)	WHA YU INDUSTRIAL CO., LTD.	NA	6.4	5G Band1: 3.72 5G Band2: 3.72 5G Band3: 4.24 5G Band4: 4.5	PCB	I-PEX
Chain (1) Antenna (2)	WHA YU INDUSTRIAL CO., LTD.	NA	5.49	5G Band1: 4.13 5G Band2: 4.13 5G Band3: 4.78 5G Band4: 3.73	PCB	I-PEX
Chain (2) Antenna (3)	WHA YU INDUSTRIAL CO., LTD.	NA	2.74	5G Band1: 2.49 5G Band2: 2.49 5G Band3: 0 5G Band4: 0	PCB	I-PEX

2. The EUT incorporates CDD function with 802.11a, 802.11g and MIMO function with 802.11n.
3. 2.4GHz and 5GHz technology cannot transmit at same time.
4. The EUT is 3 * 3 spatial MIMO (3Tx & 3Rx) without beam forming function.
5. When the EUT operating in 802.11n, the software operation, which is defined by manufacturer, MCS (Modulation and Coding Schemes) are 3 or 9.
6. 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.



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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

Operated in 5470MHz ~ 5725MHz bands:

Eleven 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
120	5600 MHz
124	5620 MHz
128	5640 MHz
132	5660 MHz
136	5680 MHz
140	5700 MHz



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3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:

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

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

ANTENNA COMBINATION MODE:

COMBINATION MODE	OPERATION MODE	TX CHAIN(0)	TX CHAIN(1)	TX CHAIN(2)
A	802.11 a	√	√	√
B	802.11n(20MHz) for MCS3 or 9	√	√	√

Note: The above information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

POWER LINE CONDUCTED EMISSION TEST:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (MBPS)	COMBINATION MODE
802.11n (20MHz)	36 to 140	40	OFDM	BPSK	26	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 MODE
802.11n (20MHz)	36 to 140	40	OFDM	BPSK	26	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 MODE
802.11a	36 to 140	36, 40, 48, 52, 60, 64, 100, 120, 140	OFDM	BPSK	24	A
802.11n (20MHz)	36 to 140	36, 40, 48, 52, 60, 64, 100, 120, 140	OFDM	BPSK	26	B

CONDUCTED OUT-BAND EMISSION MEASUREMENT:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	COMBINATION MODE
802.11a	36 to 140	36, 40, 48, 52, 60, 64, 100, 120, 140	OFDM	BPSK	24	A
802.11n (20MHz)	36 to 140	36, 40, 48, 52, 60, 64, 100, 120, 140	OFDM	BPSK	26	B

※ Conducted out band emission as show worst chain in report base on preliminary measurement.



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ANTENNA PORT CONDUCTED MEASUREMENT:

- This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)	COMBINATION MODE
802.11a	36 to 140	36, 40, 48, 52, 60, 64, 100, 120, 140	OFDM	BPSK	24	A
802.11n (20MHz)	36 to 140	36, 40, 48, 52, 60, 64, 100, 120, 140	OFDM	BPSK	26	B

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

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER (SYSTEM)	TESTED BY
RE ³ 1G	21deg. C, 69%RH, 1024 hPa	120Vac, 60Hz	Frank Liu
RE<1G	17deg. C, 64%RH, 1024 hPa	120Vac, 60Hz	Kent Liu
PLC	18deg. C, 67%RH, 1024 hPa	120Vac, 60Hz	Kent Liu
APCM	21deg. C, 68%RH, 1024 hPa	120Vac, 60Hz	Frank 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 (15.407)

ANSI C63.4-2003

ANSI C63.10-2009

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

3.4 DESCRIPTION OF SUPPORT UNITS

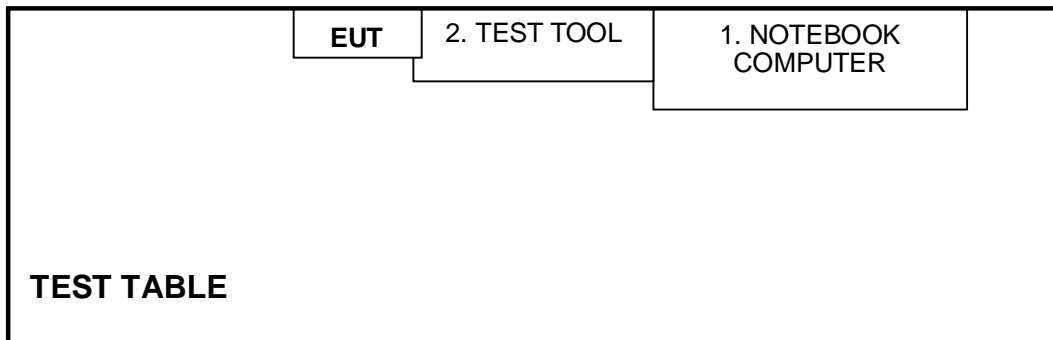
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Product	Brand	Model No.	Serial No.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP19L	CN-OHC416-70166-5CA-0448	PIW632500516610
2	TEST TOOL	Alpha	NA	NA	NA

No.	Signal cable description
1	NA
2	NA

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

3.5 CONFIGURATION OF SYSTEM UNDER TEST



* : The test configuration was defined by the applicant requirement.

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

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. 08, 2010	Sep. 07, 2011
Line-Impedance Stabilization Network (for Peripheral)	ESH3-Z5	848773/004	Nov. 03, 2010	Nov. 02, 2011
RF Cable (JYEBAO)	5DFB	COCCAB-002	Aug. 30, 2010	Aug. 29, 2011
50 ohms Terminator	50	3	Nov. 03, 2010	Nov. 02, 2011
Software	BV ADT_Cond_V7.3.7	NA	NA	NA

Note:

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

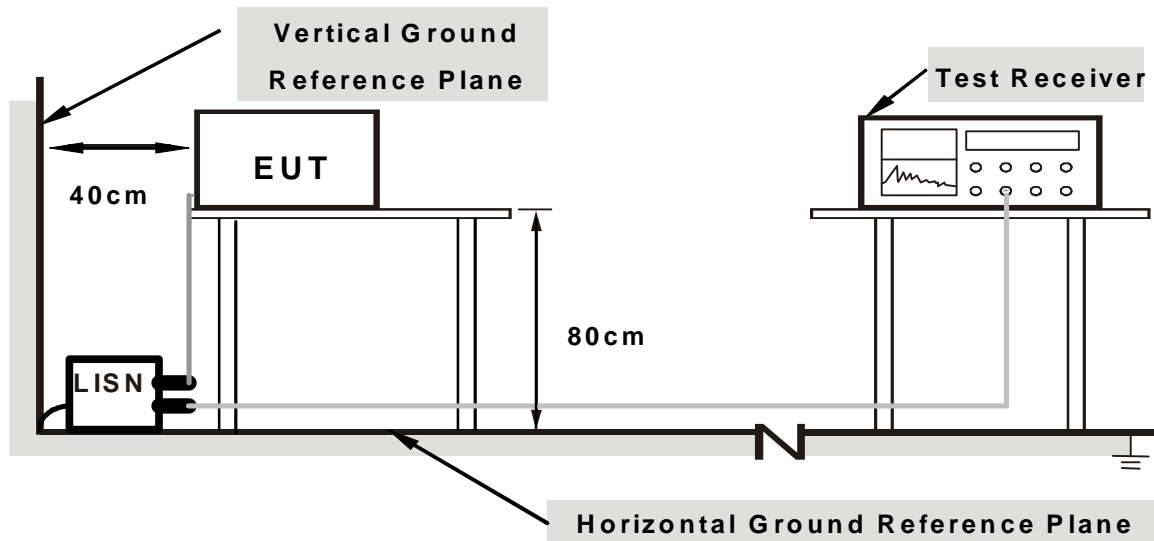
4.1.3 TEST PROCEDURES

- 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

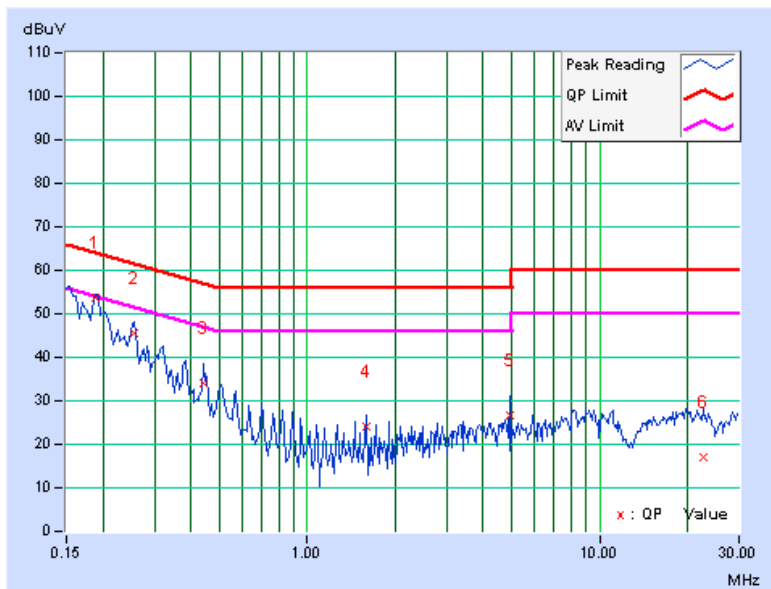
1. Connect the EUT with the support unit 1 (Notebook Computer) which is placed on a testing table.
2. The communication partner runs test program “art2_ver_2_14BIN” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.1.7 TEST RESULTS

PHASE	Line (L)	6dB BANDWIDTH	9 kHz
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No	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
	[MHz]	Factor (dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
			[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	[dB (uV)]	(dB)	(dB)
1	0.189	0.12	53.69	46.18	53.81	46.30	64.08	54.08	-10.26	-7.77
2	0.255	0.13	45.42	37.61	45.55	37.74	61.58	51.58	-16.03	-13.84
3	0.443	0.13	33.88	29.46	34.01	29.59	57.01	47.01	-23.00	-17.42
4	1.586	0.15	24.06	18.04	24.21	18.19	56.00	46.00	-31.79	-27.81
5	4.945	0.24	26.59	21.48	26.83	21.72	56.00	46.00	-29.17	-24.28
6	22.699	0.75	16.39	9.68	17.14	10.43	60.00	50.00	-42.86	-39.57

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



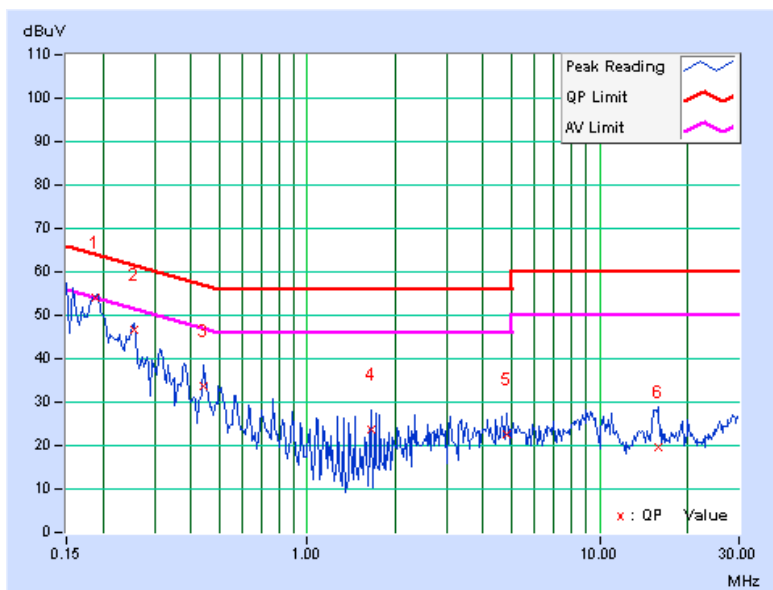


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PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz
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No	Freq. [MHz]	Corr. Factor (dB)	Reading Value		Emission Level		Limit		Margin	
			[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.189	0.13	53.83	48.25	53.96	48.38	64.08	54.08	-10.11	-5.69
2	0.255	0.14	46.67	37.37	46.81	37.51	61.58	51.58	-14.76	-14.06
3	0.443	0.15	33.61	29.21	33.76	29.36	57.01	47.01	-23.25	-17.65
4	1.648	0.18	23.39	19.51	23.57	19.69	56.00	46.00	-32.43	-26.31
5	4.813	0.35	22.40	15.73	22.75	16.08	56.00	46.00	-33.25	-29.92
6	15.883	1.17	18.47	10.95	19.64	12.12	60.00	50.00	-40.36	-37.88

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



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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

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

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.
4. Section 15.205 restricted bands of operation shall compliance with the limits in Section 15.209.



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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

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



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4.2.3 TEST INSTRUMENTS

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 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. 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.

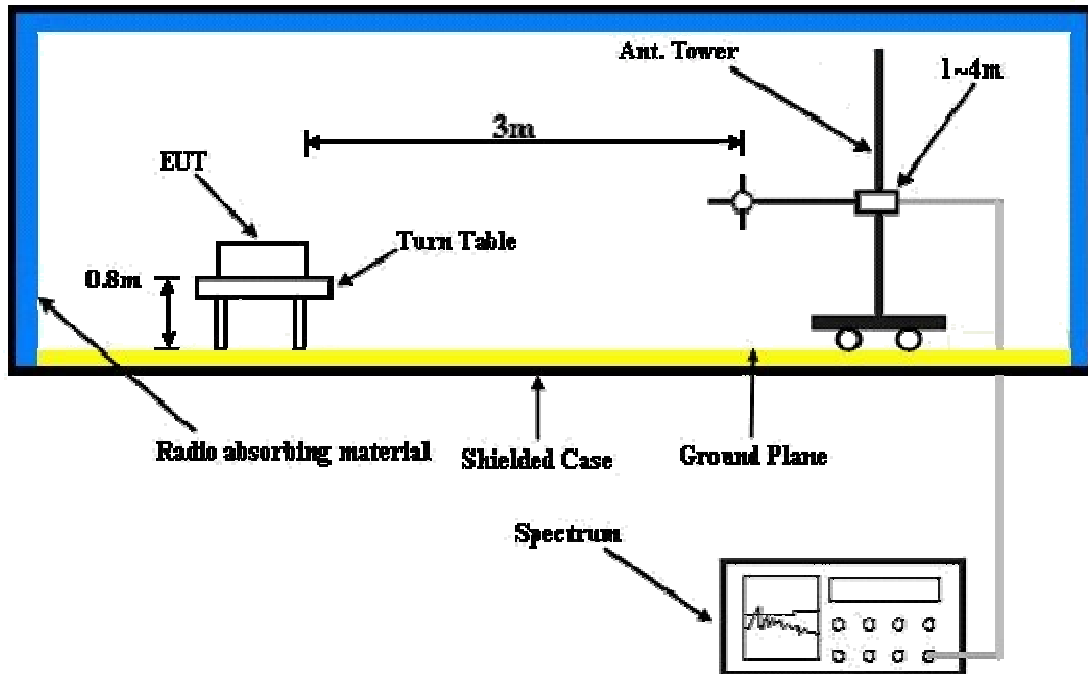
NOTE:

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



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4.2.8 TEST RESULTS

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 40	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	17deg. C, 64%RH 1024 hPa	TESTED BY	Kent Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	99.99	28.6 QP	43.5	-14.9	1.68 H	23	19.12	9.45
2	166.60	38.0 QP	43.5	-5.5	1.74 H	55	24.12	13.84
3	399.95	41.2 QP	46.0	-4.8	1.00 H	224	23.51	17.69
4	499.90	38.6 QP	46.0	-7.4	1.52 H	229	18.54	20.10
5	707.90	38.2 QP	46.0	-7.8	1.00 H	24	14.43	23.77
6	900.00	38.6 QP	46.0	-7.4	1.96 H	338	11.76	26.80
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	299.90	38.7 QP	46.0	-7.3	1.15 V	224	23.23	15.46
2	399.95	33.9 QP	46.0	-12.1	1.98 V	228	16.20	17.69
3	431.68	39.3 QP	46.0	-6.7	1.05 V	33	20.89	18.44
4	600.00	37.2 QP	46.0	-8.8	1.02 V	14	14.86	22.38
5	799.90	38.6 QP	46.0	-7.4	1.26 V	239	13.56	25.00
6	949.98	33.9 QP	46.0	-12.1	1.21 V	345	6.67	27.23

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



ABOVE 1GHz WORST-CASE DATA

802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 36	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 69%RH 1024 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	54.8 PK	74.0	-19.2	1.11 H	169	14.86	39.94
2	5150.00	46.3 AV	54.0	-7.7	1.11 H	169	6.36	39.94
3	*5180.00	107.0 PK			1.12 H	186	66.98	40.02
4	*5180.00	93.3 AV			1.12 H	186	53.28	40.02
5	#10360.00	53.8 PK	68.3	-14.5	1.00 H	134	7.27	46.53
6	15540.00	61.2 PK	74.0	-12.8	1.40 H	121	9.83	51.37
7	15540.00	48.4 AV	54.0	-5.6	1.40 H	121	-2.97	51.37
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	5150.00	56.5 PK	74.0	-17.5	1.31 V	185	16.56	39.94
2	5150.00	45.9 AV	54.0	-8.1	1.31 V	185	5.96	39.94
3	*5180.00	107.6 PK			1.31 V	160	67.58	40.02
4	*5180.00	94.6 AV			1.31 V	160	54.58	40.02
5	#10360.00	53.9 PK	68.3	-14.4	1.21 V	240	7.37	46.53
6	15540.00	61.4 PK	74.0	-12.6	1.09 V	263	10.03	51.37
7	15540.00	51.1 AV	54.0	-2.9	1.09 V	263	-0.27	51.37

- 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.
 5. “ * “: Fundamental frequency.
 6. "#":The radiated frequency is out the restricted band.



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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	21deg. C, 69%RH 1024 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	106.3 PK			1.12 H	187	66.23	40.07
2	*5200.00	92.9 AV			1.12 H	187	52.83	40.07
3	#10400.00	53.3 PK	68.3	-15.0	1.00 H	133	6.73	46.57
4	15600.00	61.8 PK	74.0	-12.2	1.40 H	131	10.33	51.47
5	15600.00	48.3 AV	54.0	-5.7	1.40 H	131	-3.17	51.47
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	107.2 PK			1.32 V	162	67.13	40.07
2	*5200.00	94.3 AV			1.32 V	162	54.23	40.07
3	#10400.00	54.2 PK	68.3	-14.1	1.20 V	249	7.63	46.57
4	15600.00	59.6 PK	74.0	-14.4	1.09 V	258	8.13	51.47
5	15600.00	48.2 AV	54.0	-5.8	1.09 V	258	-3.27	51.47

- 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 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 69%RH 1024 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	106.5 PK			1.12 H	187	66.33	40.17
2	*5240.00	92.6 AV			1.12 H	187	52.43	40.17
3	5350.00	53.9 PK	74.0	-20.1	1.15 H	171	13.43	40.47
4	5350.00	42.8 AV	54.0	-11.2	1.15 H	171	2.33	40.47
5	#10480.00	54.6 PK	68.3	-13.7	1.02 H	147	7.93	46.67
6	15720.00	61.4 PK	74.0	-12.6	1.42 H	129	9.89	51.51
7	15720.00	48.3 AV	54.0	-5.7	1.42 H	129	-3.21	51.51

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	106.7 PK			1.33 V	165	66.53	40.17
2	*5240.00	93.9 AV			1.33 V	165	53.73	40.17
3	5360.00	54.8 PK	74.0	-19.2	1.22 V	245	14.30	40.50
4	5360.00	44.1 AV	54.0	-9.9	1.22 V	245	3.60	40.50
5	#10480.00	53.5 PK	68.3	-14.8	1.22 V	245	6.83	46.67
6	15720.00	61.7 PK	74.0	-12.3	1.07 V	262	10.19	51.51
7	15720.00	48.5 AV	54.0	-5.5	1.07 V	262	-3.01	51.51

- 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 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 68%RH 1024 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5260.00	117.6 PK			1.21 H	200	77.37	40.23
2	*5260.00	101.0 AV			1.21 H	200	60.77	40.23
3	#10520.00	56.8 PK	68.3	-11.5	1.09 H	138	10.08	46.72
4	15780.00	61.9 PK	74.0	-12.1	1.00 H	49	10.32	51.58
5	15780.00	50.7 AV	54.0	-3.3	1.00 H	49	-0.88	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	*5260.00	116.2 PK			1.00 V	80	75.97	40.23
2	*5260.00	100.3 AV			1.00 V	80	60.07	40.23
3	#10520.00	57.1 PK	68.3	-11.2	1.00 V	126	10.38	46.72
4	15780.00	62.2 PK	74.0	-11.8	1.00 V	215	10.62	51.58
5	15780.00	51.1 AV	54.0	-2.9	1.00 V	215	-0.48	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.



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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	22deg. C, 68%RH 1024 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	117.0 PK			1.20 H	199	76.67	40.33
2	*5300.00	101.2 AV			1.20 H	199	60.87	40.33
3	10600.00	56.5 PK	74.0	-17.5	1.10 H	137	9.68	46.82
4	10600.00	42.8 AV	54.0	-11.2	1.10 H	137	-4.02	46.82
5	15900.00	62.1 PK	74.0	-11.9	1.00 H	61	10.44	51.66
6	15900.00	50.9 AV	54.0	-3.1	1.00 H	61	-0.76	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	116.8 PK			1.28 V	145	76.47	40.33
2	*5300.00	100.5 AV			1.28 V	145	60.17	40.33
3	10600.00	56.8 PK	74.0	-17.2	1.00 V	140	9.98	46.82
4	10600.00	43.1 AV	54.0	-10.9	1.00 V	140	-3.72	46.82
5	15900.00	61.7 PK	74.0	-12.3	1.04 V	207	10.04	51.66
6	15900.00	50.8 AV	54.0	-3.2	1.04 V	207	-0.86	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.



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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	22deg. C, 68%RH 1024 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	114.4 PK			1.09 H	194	74.01	40.39
2	*5320.00	98.3 AV			1.09 H	194	57.91	40.39
3	5350.00	69.1 PK	74.0	-4.9	1.09 H	194	28.63	40.47
4	5350.00	53.5 AV	54.0	-0.5	1.09 H	194	13.03	40.47
5	10640.00	56.5 PK	74.0	-17.5	1.14 H	140	9.63	46.87
6	10640.00	42.8 AV	54.0	-11.2	1.14 H	140	-4.07	46.87
7	15960.00	62.3 PK	74.0	-11.7	1.00 H	47	10.57	51.73
8	15960.00	51.1 AV	54.0	-2.9	1.00 H	47	-0.63	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	113.6 PK			1.12 V	225	73.21	40.39
2	*5320.00	97.9 AV			1.12 V	225	57.51	40.39
3	5350.00	65.5 PK	74.0	-8.5	1.09 V	225	25.03	40.47
4	5350.00	48.7 AV	54.0	-5.3	1.09 V	225	8.23	40.47
5	10640.00	56.7 PK	74.0	-17.3	1.01 V	150	9.83	46.87
6	10640.00	43.2 AV	54.0	-10.8	1.01 V	150	-3.67	46.87
7	15960.00	61.9 PK	74.0	-12.1	1.00 V	218	10.17	51.73
8	15960.00	51.1 AV	54.0	-2.9	1.00 V	218	-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.



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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	22deg. C, 68%RH 1024 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	58.2 PK	74.0	-15.8	1.15 H	196	17.44	40.76
2	5460.00	46.2 AV	54.0	-7.8	1.15 H	196	5.44	40.76
3	#5470.00	67.7 PK	68.3	-0.6	1.15 H	196	26.92	40.78
4	*5500.00	110.5 PK			1.16 H	196	69.64	40.86
5	*5500.00	95.1 AV			1.16 H	196	54.24	40.86
6	11000.00	56.5 PK	74.0	-17.5	1.17 H	131	9.22	47.28
7	11000.00	43.0 AV	54.0	-11.0	1.17 H	131	-4.28	47.28
8	#16500.00	62.8 PK	68.3	-5.5	1.00 H	61	9.77	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	5460.00	59.9 PK	74.0	-14.1	1.17 V	231	19.14	40.76
2	5460.00	46.1 AV	54.0	-7.9	1.17 V	231	5.34	40.76
3	#5470.00	66.9 PK	68.3	-1.4	1.17 V	231	26.12	40.78
4	*5500.00	110.2 PK			1.17 V	231	69.34	40.86
5	*5500.00	94.9 AV			1.17 V	231	54.04	40.86
6	11000.00	57.1 PK	74.0	-16.9	1.03 V	142	9.82	47.28
7	11000.00	43.7 AV	54.0	-10.3	1.03 V	142	-3.58	47.28
8	#16500.00	61.7 PK	68.3	-6.6	1.02 V	217	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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 120	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 68%RH 1024 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5600.00	117.9 PK			1.11 H	196	76.75	41.15
2	*5600.00	102.3 AV			1.11 H	196	61.15	41.15
3	11200.00	57.0 PK	74.0	-17.0	1.22 H	131	9.58	47.42
4	11200.00	43.7 AV	54.0	-10.3	1.22 H	131	-3.72	47.42
5	#16800.00	63.6 PK	68.3	-4.7	1.00 H	55	9.97	53.63
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5600.00	117.6 PK			1.23 V	231	76.45	41.15
2	*5600.00	101.9 AV			1.23 V	231	60.75	41.15
3	11200.00	57.7 PK	74.0	-16.3	1.04 V	153	10.28	47.42
4	11200.00	44.2 AV	54.0	-9.8	1.04 V	153	-3.22	47.42
5	#16800.00	61.9 PK	68.3	-6.4	1.04 V	224	8.27	53.63

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 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 (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 68%RH 1024 hPa	TESTED BY	Frank Liu

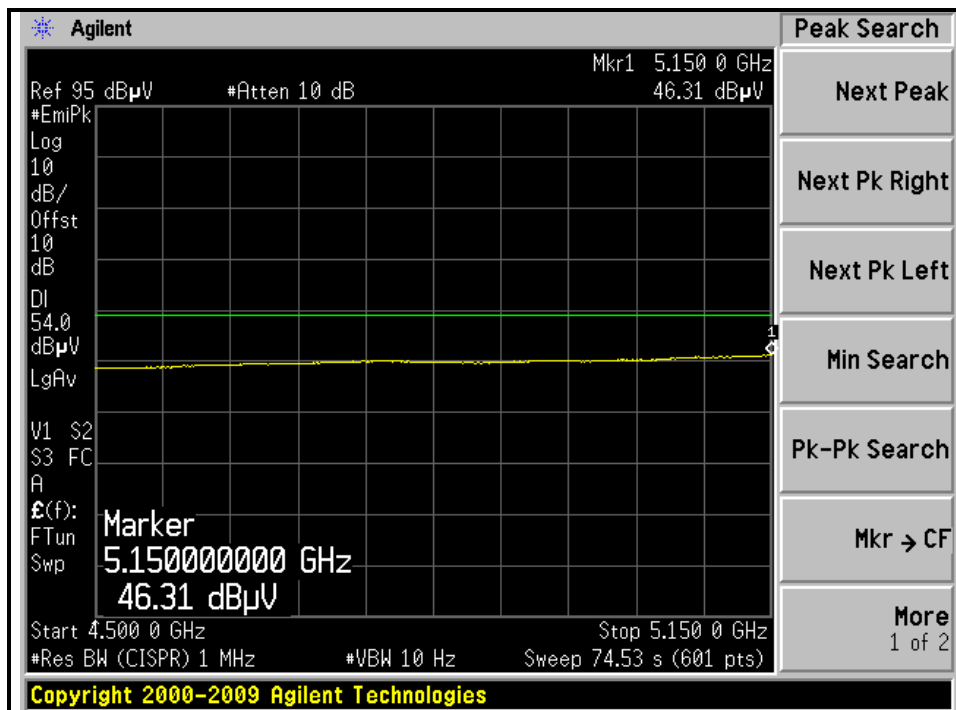
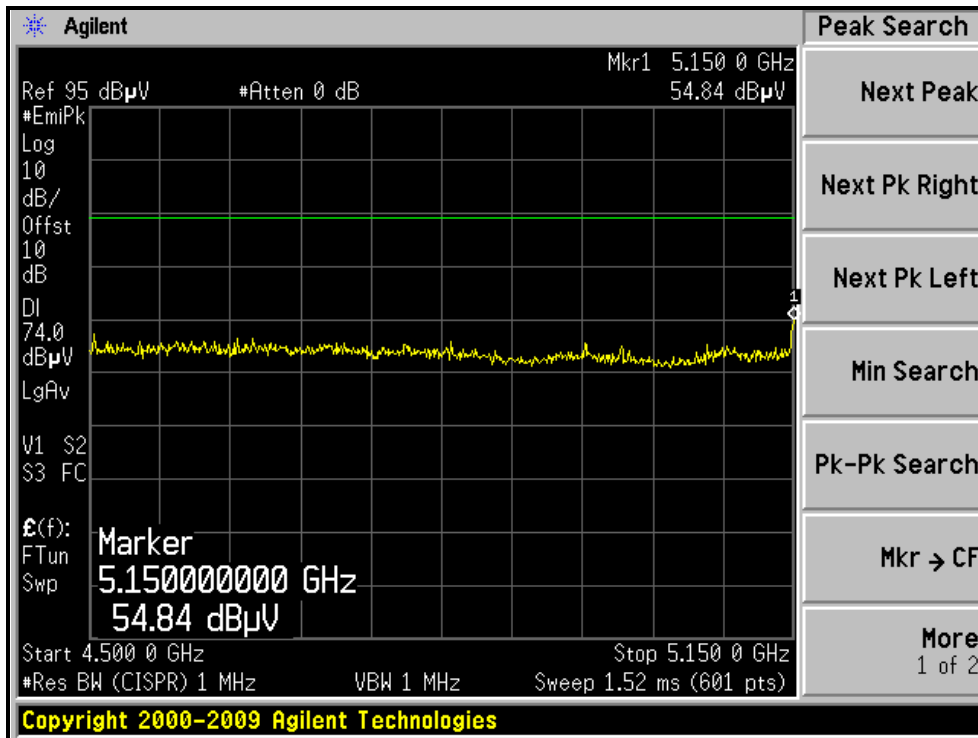
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	113.4 PK			1.18 H	178	71.98	41.42
2	*5700.00	96.7 AV			1.18 H	178	55.28	41.42
3	#5725.00	67.4 PK	68.3	-0.9	1.08 H	177	25.91	41.49
4	11400.00	57.0 PK	74.0	-17.0	1.22 H	140	9.38	47.62
5	11400.00	43.7 AV	54.0	-10.3	1.22 H	140	-3.92	47.62
6	#17100.00	64.5 PK	68.3	-3.8	1.00 H	61	10.30	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	114.5 PK			1.16 V	230	73.08	41.42
2	*5700.00	97.2 AV			1.16 V	230	55.78	41.42
3	#5725.00	67.8 PK	68.3	-0.5	1.16 V	230	26.31	41.49
4	11400.00	58.3 PK	74.0	-15.7	1.00 V	159	10.68	47.62
5	11400.00	44.8 AV	54.0	-9.2	1.00 V	159	-2.82	47.62
6	#17100.00	62.4 PK	68.3	-5.9	1.10 V	228	8.20	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.



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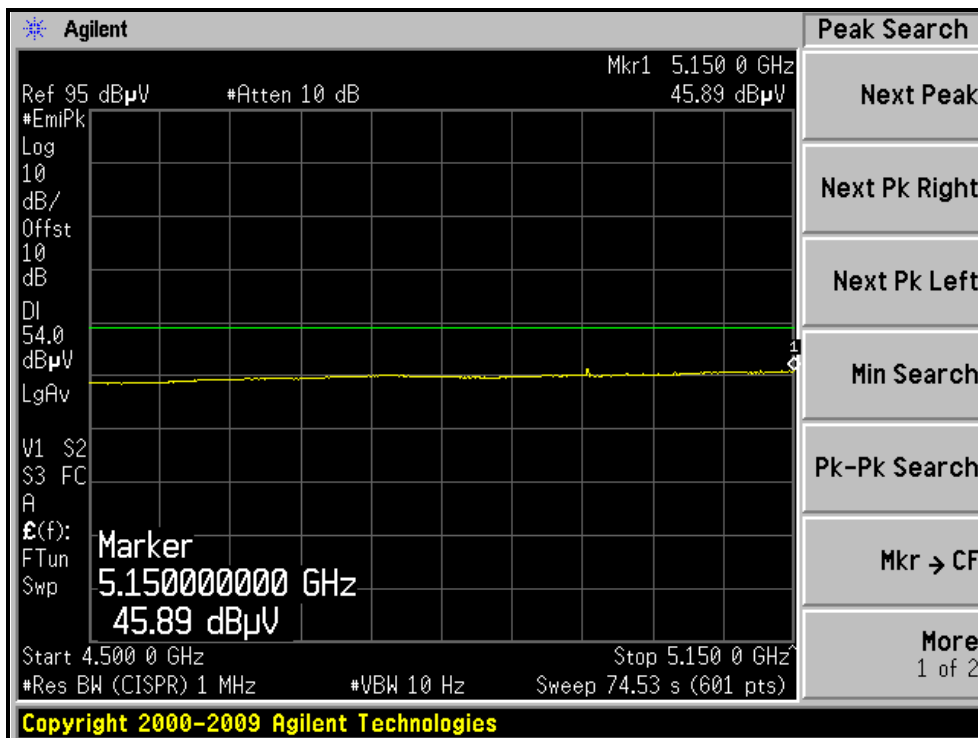
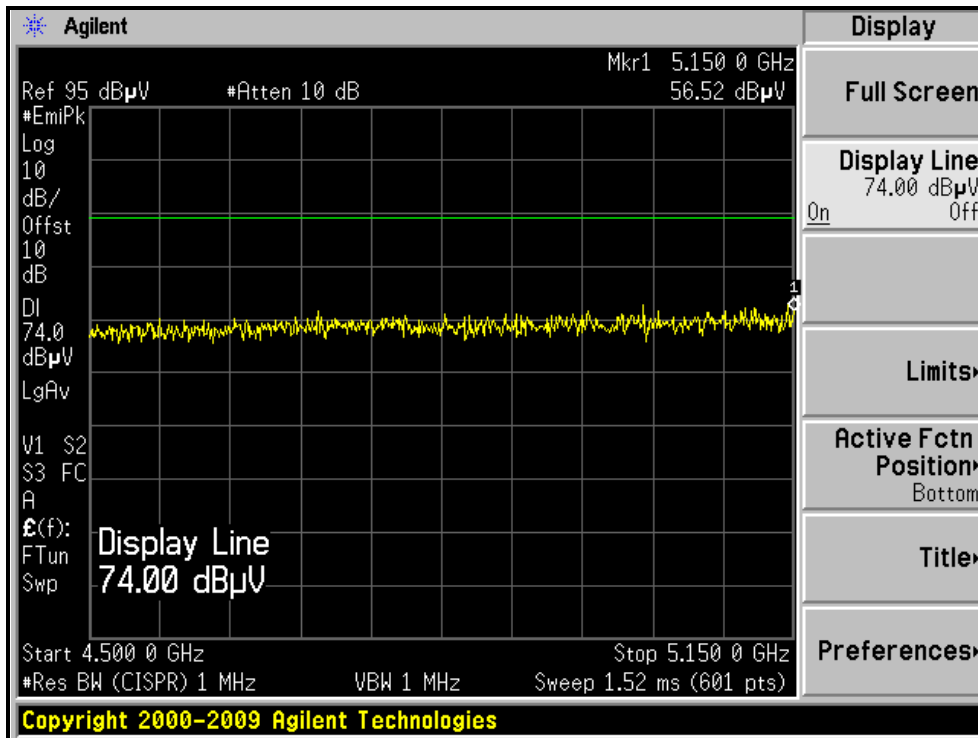
RESTRICTED BANDEDGE (802.11a MODE, CH36, HORIZONTAL)





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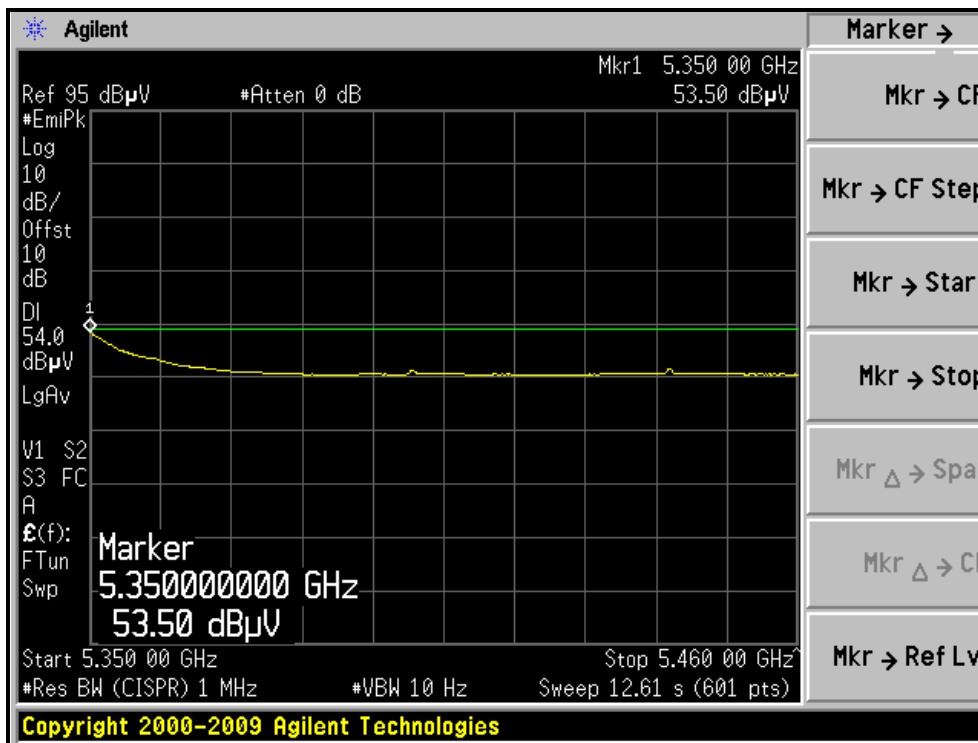
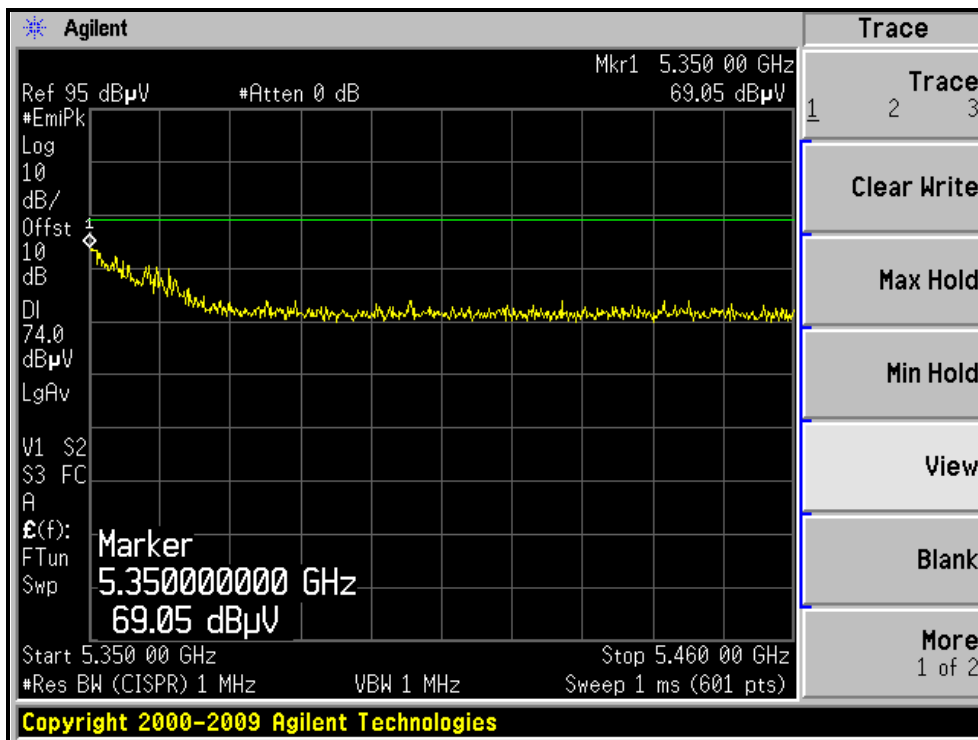
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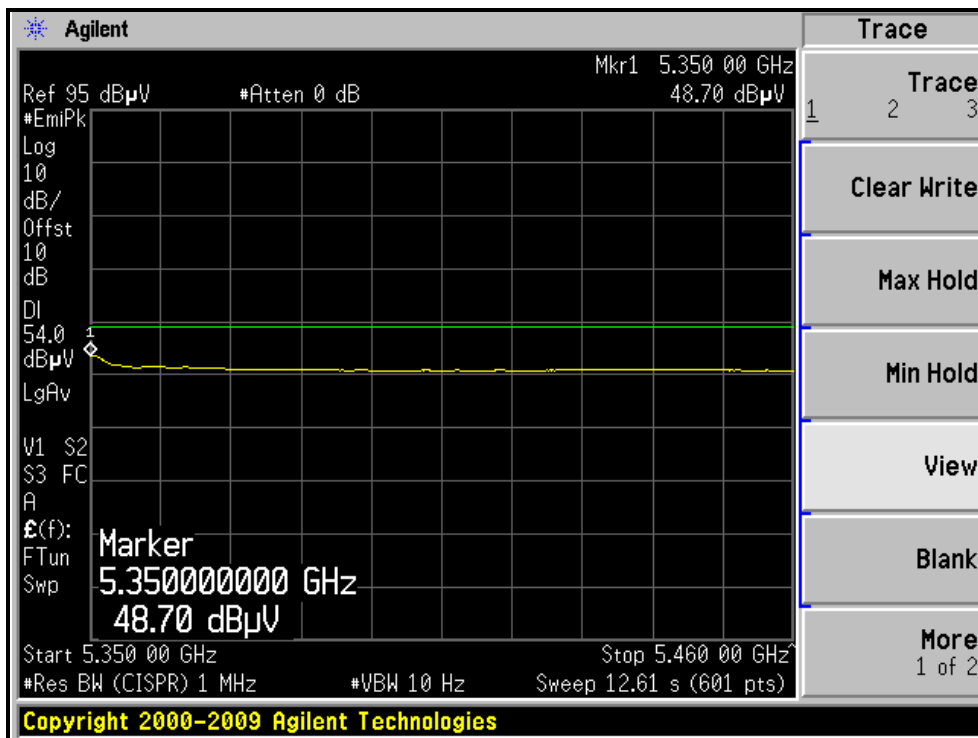
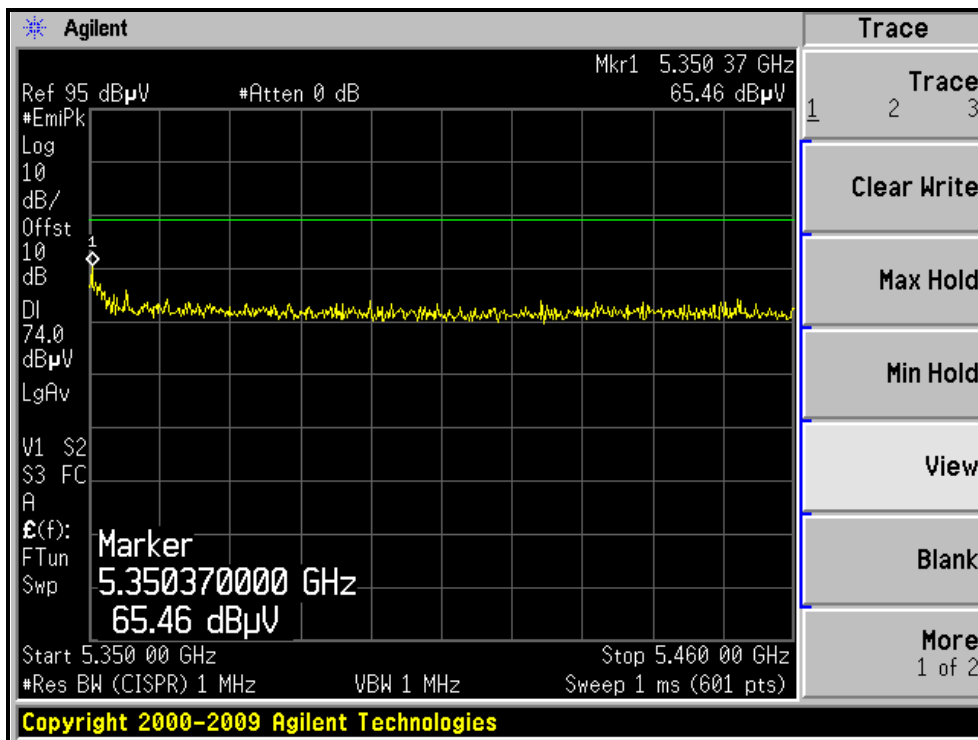
RESTRICTED BANDEDGE (802.11a MODE, CH64, HORIZONTAL)





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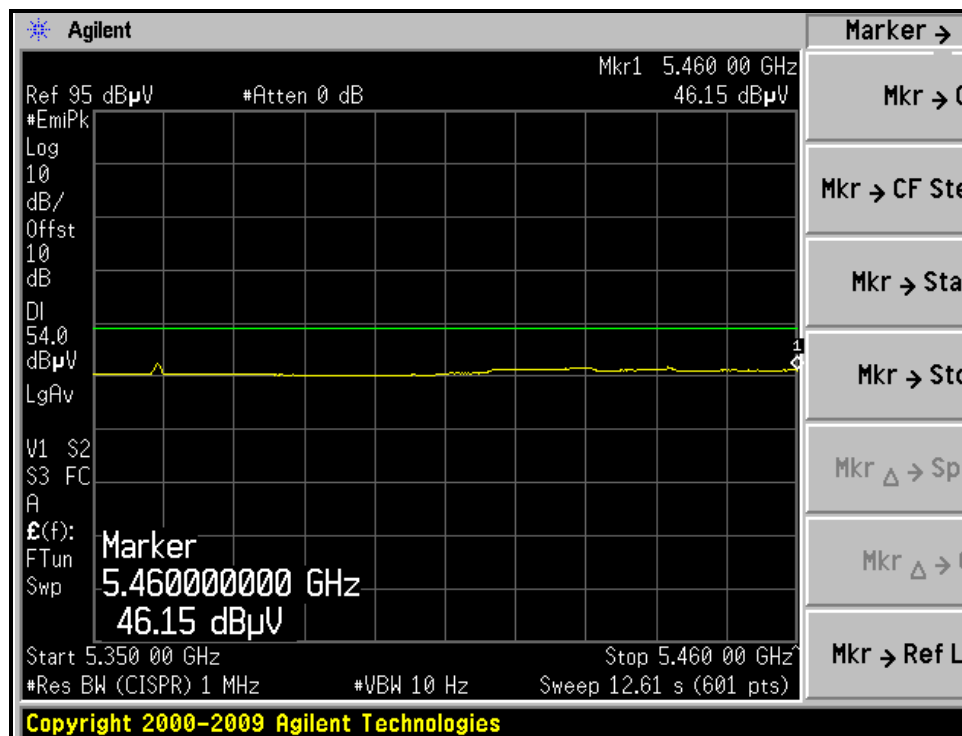
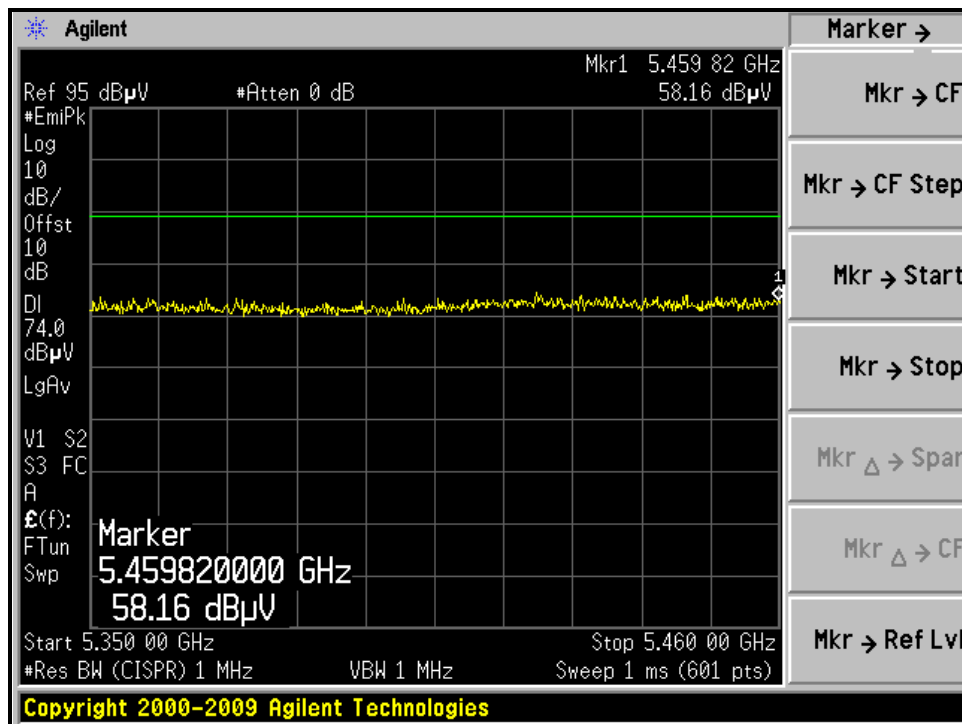
RESTRICTED BANDEDGE (802.11a MODE, CH64, VERTICAL)





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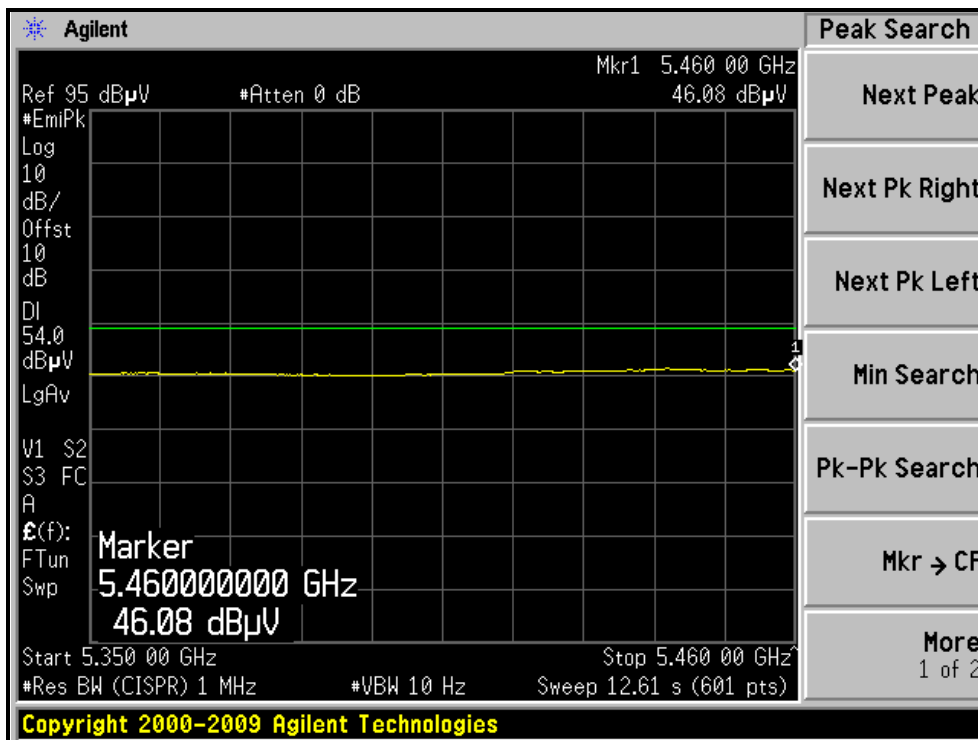
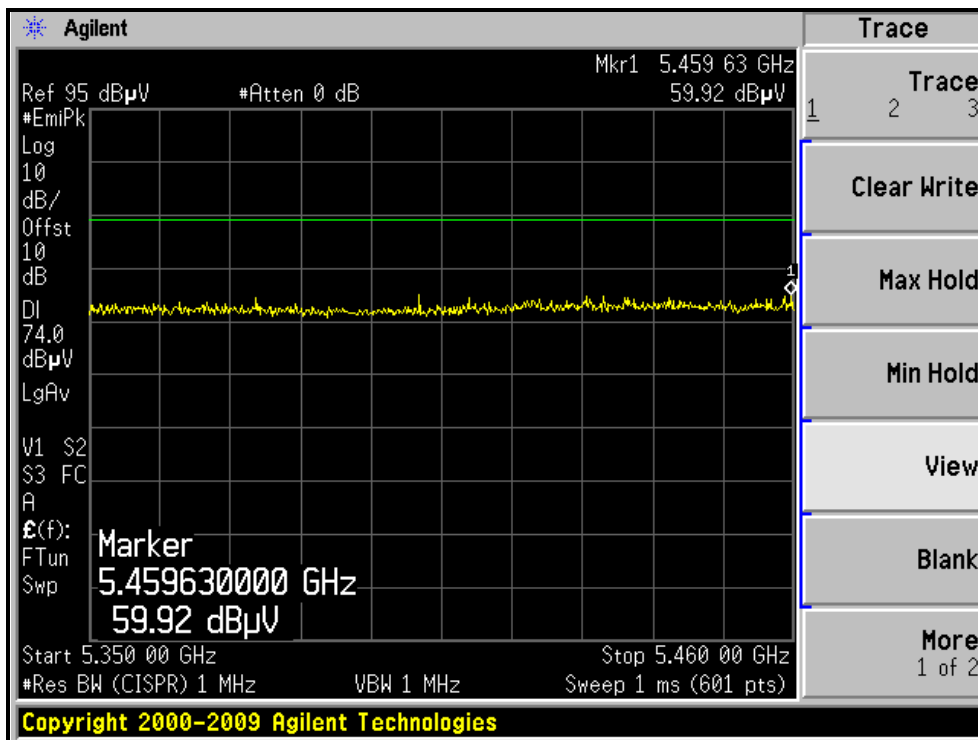
RESTRICTED BANDEDGE (802.11a MODE, CH100, HORIZONTAL)





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RESTRICTED BANDEDGE (802.11a MODE, CH100, VERTICAL)



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	21deg. C, 69%RH 1024 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5150.00	65.3 PK	74.0	-8.7	1.13 H	118	25.36	39.94
2	5150.00	49.5 AV	54.0	-4.5	1.13 H	118	9.56	39.94
3	*5180.00	110.6 PK			1.11 H	118	70.58	40.02
4	*5180.00	97.1 AV			1.11 H	118	57.08	40.02
5	#10360.00	53.9 PK	68.3	-14.4	1.00 H	131	7.37	46.53
6	15540.00	61.3 PK	74.0	-12.7	1.42 H	122	9.93	51.37
7	15540.00	48.1 AV	54.0	-5.9	1.42 H	122	-3.27	51.37
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	5150.00	65.8 PK	74.0	-8.2	1.14 V	158	25.86	39.94
2	5150.00	50.6 AV	54.0	-3.4	1.14 V	158	10.66	39.94
3	*5180.00	113.3 PK			1.14 V	154	73.28	40.02
4	*5180.00	99.1 AV			1.14 V	154	59.08	40.02
5	#10360.00	54.2 PK	68.3	-14.1	1.20 V	242	7.67	46.53
6	15540.00	61.7 PK	74.0	-12.3	1.10 V	260	10.33	51.37
7	15540.00	48.6 AV	54.0	-5.4	1.10 V	260	-2.77	51.37

- 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.
 5. " * ": Fundamental frequency.
 6. "#": The radiated frequency is out the restricted band.



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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	21deg. C, 69%RH 1024 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5200.00	110.3 PK			1.13 H	181	70.23	40.07
2	*5200.00	97.2 AV			1.13 H	181	57.13	40.07
3	#10400.00	53.6 PK	68.3	-14.7	1.00 H	139	7.03	46.57
4	15600.00	61.7 PK	74.0	-12.3	1.41 H	126	10.23	51.47
5	15600.00	48.4 AV	54.0	-5.6	1.41 H	126	-3.07	51.47
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	112.9 PK			1.13 V	156	72.83	40.07
2	*5200.00	99.3 AV			1.13 V	156	59.23	40.07
3	#10400.00	55.0 PK	68.3	-13.3	1.21 V	243	8.43	46.57
4	15600.00	62.1 PK	74.0	-11.9	1.10 V	265	10.63	51.47
5	15600.00	48.4 AV	54.0	-5.6	1.10 V	265	-3.07	51.47

- 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 48	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	21deg. C, 69%RH 1024 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5240.00	109.2 PK			1.03 H	177	69.03	40.17
2	*5240.00	96.2 AV			1.03 H	177	56.03	40.17
3	5400.00	55.3 PK	74.0	-18.7	1.07 H	174	14.69	40.61
4	5400.00	45.8 AV	54.0	-8.2	1.07 H	174	5.19	40.61
5	#10480.00	53.4 PK	68.3	-14.9	1.02 H	144	6.73	46.67
6	15720.00	61.6 PK	74.0	-12.4	1.40 H	125	10.09	51.51
7	15720.00	48.5 AV	54.0	-5.5	1.40 H	125	-3.01	51.51

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	112.6 PK			1.12 V	153	72.43	40.17
2	*5240.00	98.4 AV			1.12 V	153	58.23	40.17
3	5400.00	55.8 PK	74.0	-18.2	1.14 V	159	15.19	40.61
4	5400.00	47.1 AV	54.0	-6.9	1.14 V	159	6.49	40.61
5	#10480.00	54.4 PK	68.3	-13.9	1.25 V	243	7.73	46.67
6	15720.00	61.4 PK	74.0	-12.6	1.11 V	265	9.89	51.51
7	15720.00	48.2 AV	54.0	-5.8	1.11 V	265	-3.31	51.51

- 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 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 68%RH 1024 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5260.00	117.3 PK			1.22 H	200	77.07	40.23
2	*5260.00	100.5 AV			1.22 H	200	60.27	40.23
3	#10520.00	56.5 PK	68.3	-11.8	1.06 H	136	9.78	46.72
4	15780.00	61.8 PK	74.0	-12.2	1.00 H	56	10.22	51.58
5	15780.00	50.4 AV	54.0	-3.6	1.00 H	56	-1.18	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	*5260.00	115.8 PK			1.21 V	152	75.57	40.23
2	*5260.00	99.1 AV			1.21 V	152	58.87	40.23
3	#10520.00	56.2 PK	68.3	-12.1	1.05 V	120	9.48	46.72
4	15780.00	61.8 PK	74.0	-12.2	1.06 V	209	10.22	51.58
5	15780.00	50.9 AV	54.0	-3.1	1.06 V	209	-0.68	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.



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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	22deg. C, 68%RH 1024 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	118.9 PK			1.22 H	200	78.57	40.33
2	*5300.00	101.1 AV			1.22 H	200	60.77	40.33
3	10600.00	56.9 PK	74.0	-17.1	1.05 H	143	10.08	46.82
4	10600.00	43.5 AV	54.0	-10.5	1.05 H	143	-3.32	46.82
5	15900.00	62.4 PK	74.0	-11.6	1.00 H	47	10.74	51.66
6	15900.00	50.9 AV	54.0	-3.1	1.00 H	47	-0.76	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	117.5 PK			1.28 V	145	77.17	40.33
2	*5300.00	100.7 AV			1.28 V	145	60.37	40.33
3	10600.00	56.6 PK	74.0	-17.4	1.01 V	123	9.78	46.82
4	10600.00	43.3 AV	54.0	-10.7	1.01 V	123	-3.52	46.82
5	15900.00	62.1 PK	74.0	-11.9	1.01 V	216	10.44	51.66
6	15900.00	51.0 AV	54.0	-3.0	1.01 V	216	-0.66	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.



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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	22deg. C, 68%RH 1024 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5320.00	113.9 PK			1.18 H	199	73.51	40.39
2	*5320.00	97.0 AV			1.18 H	199	56.61	40.39
3	5350.00	68.4 PK	74.0	-5.6	1.17 H	199	27.93	40.47
4	5350.00	53.5 AV	54.0	-0.5	1.17 H	199	13.03	40.47
5	10640.00	57.0 PK	74.0	-17.0	1.01 H	152	10.13	46.87
6	10640.00	43.6 AV	54.0	-10.4	1.01 H	152	-3.27	46.87
7	15960.00	62.4 PK	74.0	-11.6	1.00 H	34	10.67	51.73
8	15960.00	51.1 AV	54.0	-2.9	1.00 H	34	-0.63	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	111.9 PK			1.21 V	242	71.51	40.39
2	*5320.00	95.4 AV			1.21 V	242	55.01	40.39
3	5350.00	58.4 PK	74.0	-15.6	1.20 V	241	17.93	40.47
4	5350.00	47.1 AV	54.0	-6.9	1.20 V	241	6.63	40.47
5	10640.00	56.9 PK	74.0	-17.1	1.01 V	126	10.03	46.87
6	10640.00	43.5 AV	54.0	-10.5	1.01 V	126	-3.37	46.87
7	15960.00	62.2 PK	74.0	-11.8	1.02 V	215	10.47	51.73
8	15960.00	51.3 AV	54.0	-2.7	1.02 V	215	-0.43	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.



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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	22deg. C, 68%RH 1024 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	58.4 PK	74.0	-15.6	1.15 H	199	17.64	40.76
2	5460.00	46.0 AV	54.0	-8.0	1.15 H	199	5.24	40.76
3	#5470.00	67.7 PK	68.3	-0.6	1.15 H	199	26.92	40.78
4	*5500.00	111.1 PK			1.15 H	200	70.24	40.86
5	*5500.00	93.9 AV			1.15 H	200	53.04	40.86
6	11000.00	57.3 PK	74.0	-16.7	1.00 H	166	10.02	47.28
7	11000.00	44.1 AV	54.0	-9.9	1.00 H	166	-3.18	47.28
8	#16500.00	62.5 PK	68.3	-5.8	1.02 H	29	9.47	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	5460.00	59.0 PK	74.0	-15.0	1.34 V	211	18.24	40.76
2	5460.00	45.8 AV	54.0	-8.2	1.34 V	211	5.04	40.76
3	#5470.00	60.2 PK	68.3	-8.1	1.34 V	211	19.42	40.78
4	*5500.00	109.2 PK			1.34 V	211	68.34	40.86
5	*5500.00	93.6 AV			1.34 V	211	52.74	40.86
6	11000.00	57.5 PK	74.0	-16.5	1.05 V	137	10.22	47.28
7	11000.00	43.9 AV	54.0	-10.1	1.05 V	137	-3.38	47.28
8	#16500.00	63.0 PK	68.3	-5.3	1.00 V	226	9.97	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.



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EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 120	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 68%RH 1024 hPa	TESTED BY	Frank Liu

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5600.00	117.2 PK			1.24 H	227	76.05	41.15
2	*5600.00	100.3 AV			1.24 H	227	59.15	41.15
3	11200.00	58.0 PK	74.0	-16.0	1.04 H	166	10.58	47.42
4	11200.00	44.7 AV	54.0	-9.3	1.04 H	166	-2.72	47.42
5	#16800.00	62.7 PK	68.3	-5.6	1.01 H	24	9.07	53.63
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5600.00	119.7 PK			1.31 V	223	78.55	41.15
2	*5600.00	102.6 AV			1.31 V	223	61.45	41.15
3	11200.00	57.4 PK	74.0	-16.6	1.08 V	148	9.98	47.42
4	11200.00	43.9 AV	54.0	-10.1	1.08 V	148	-3.52	47.42
5	#16800.00	63.1 PK	68.3	-5.2	1.00 V	222	9.47	53.63

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.
 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 (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	22deg. C, 68%RH 1024 hPa	TESTED BY	Frank Liu

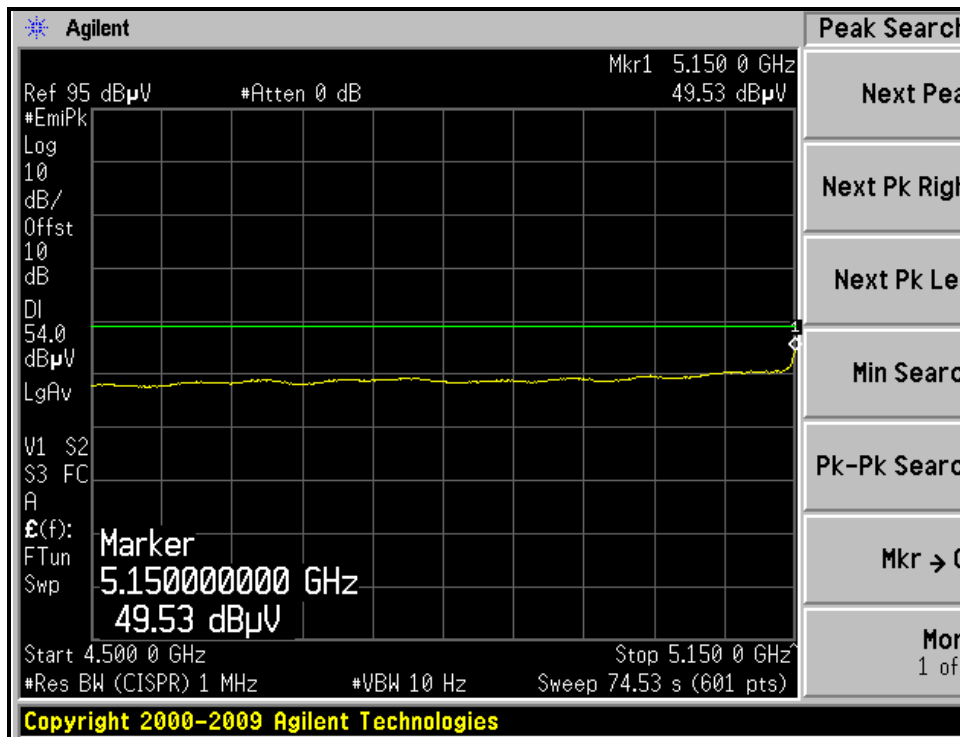
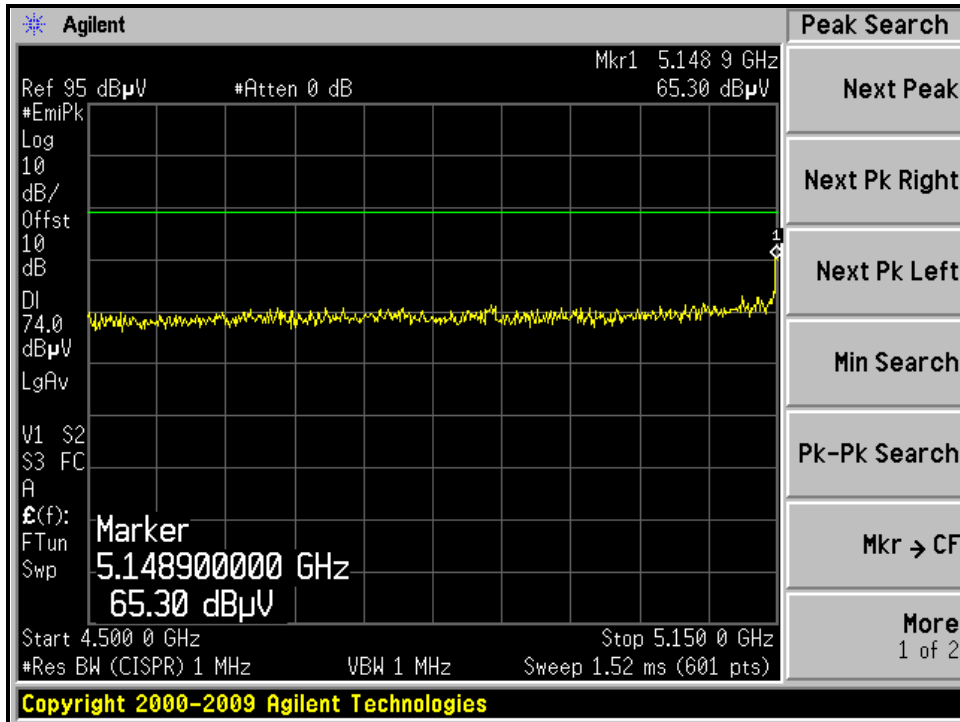
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	111.2 PK			1.10 H	176	69.78	41.42
2	*5700.00	94.3 AV			1.10 H	176	52.88	41.42
3	#5725.00	67.6 PK	68.3	-0.7	1.10 H	176	26.11	41.49
4	11400.00	58.4 PK	74.0	-15.6	1.00 H	171	10.78	47.62
5	11400.00	45.3 AV	54.0	-8.7	1.00 H	171	-2.32	47.62
6	#17100.00	62.5 PK	68.3	-5.8	1.00 H	34	8.30	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	112.4 PK			1.15 V	232	70.98	41.42
2	*5700.00	95.6 AV			1.15 V	232	54.18	41.42
3	#5725.00	67.8 PK	68.3	-0.5	1.15 V	232	26.31	41.49
4	11400.00	57.3 PK	74.0	-16.7	1.10 V	141	9.68	47.62
5	11400.00	44.0 AV	54.0	-10.0	1.10 V	141	-3.62	47.62
6	#17100.00	62.9 PK	68.3	-5.4	1.00 V	227	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.



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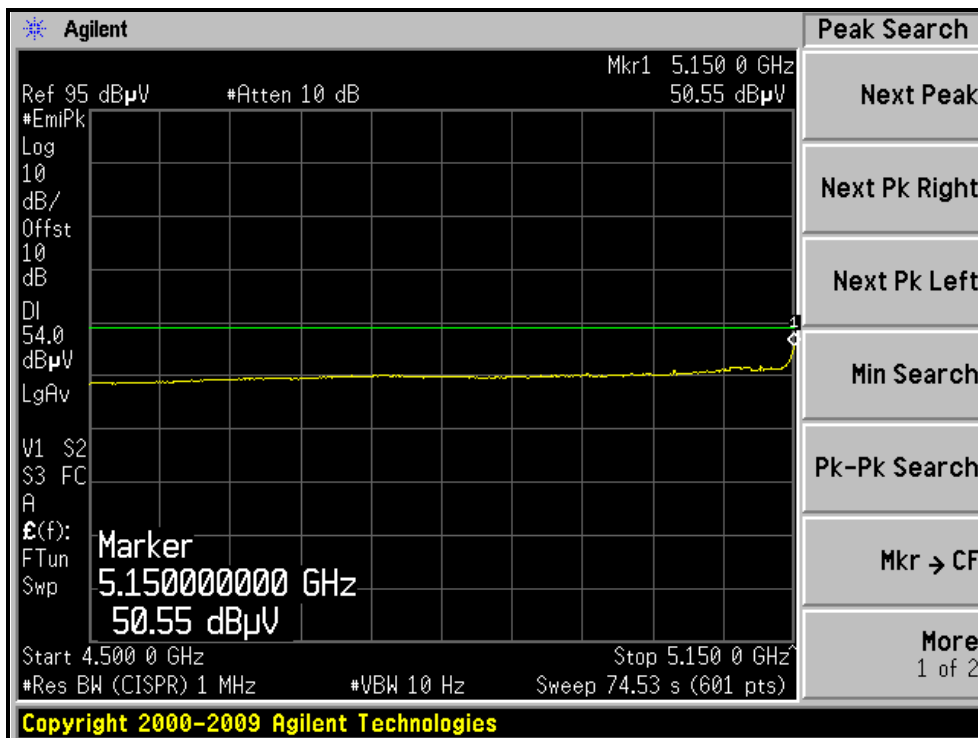
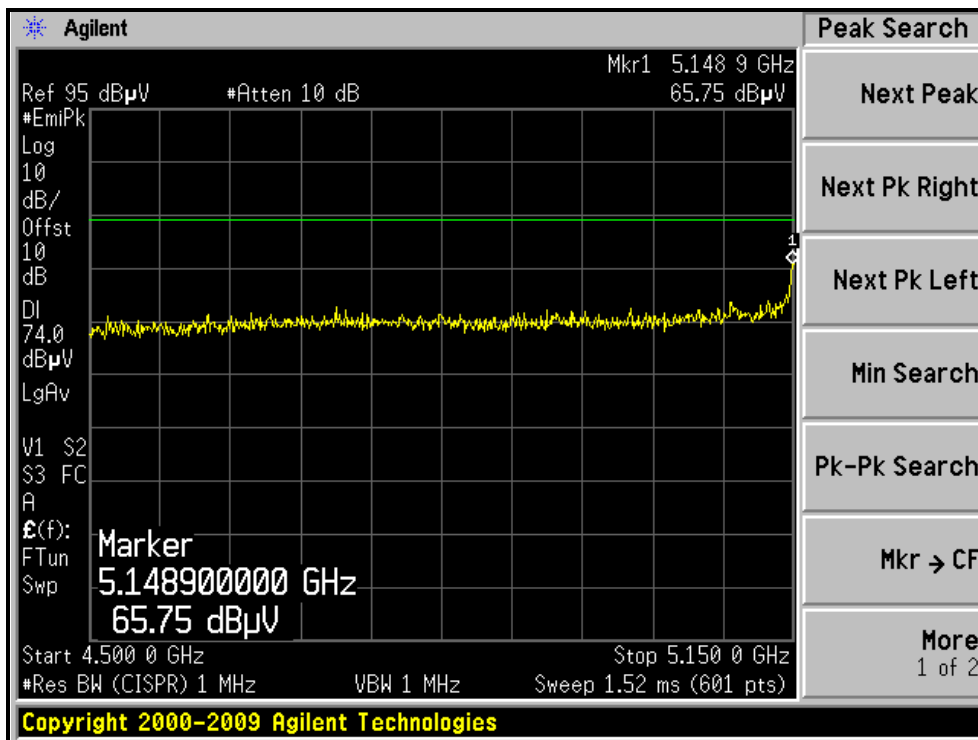
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH36, HORIZONTAL)





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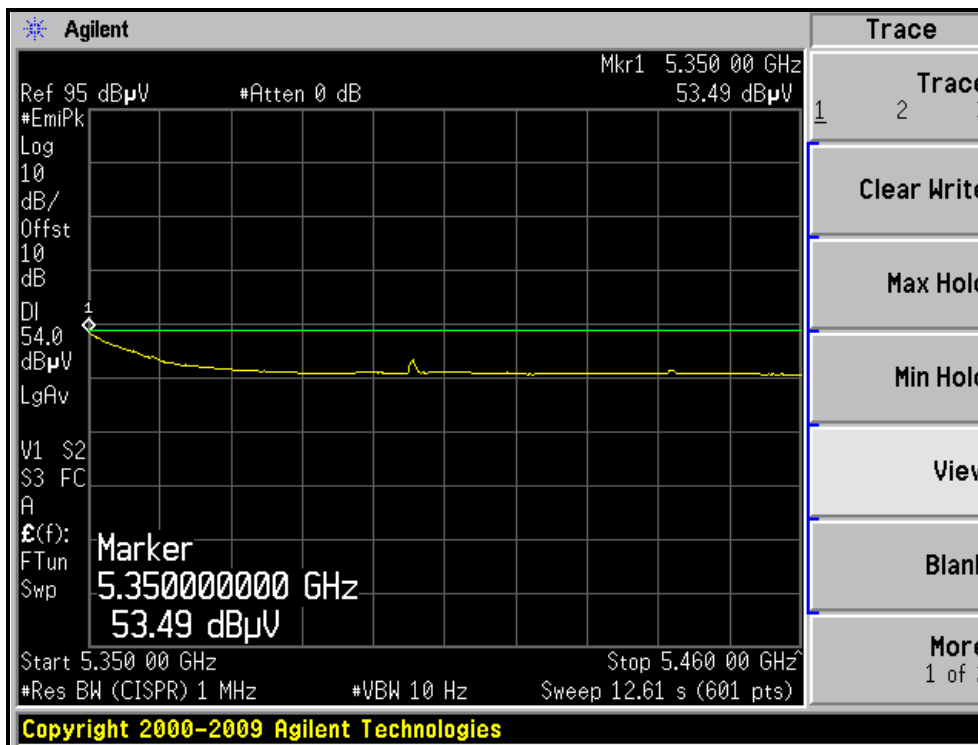
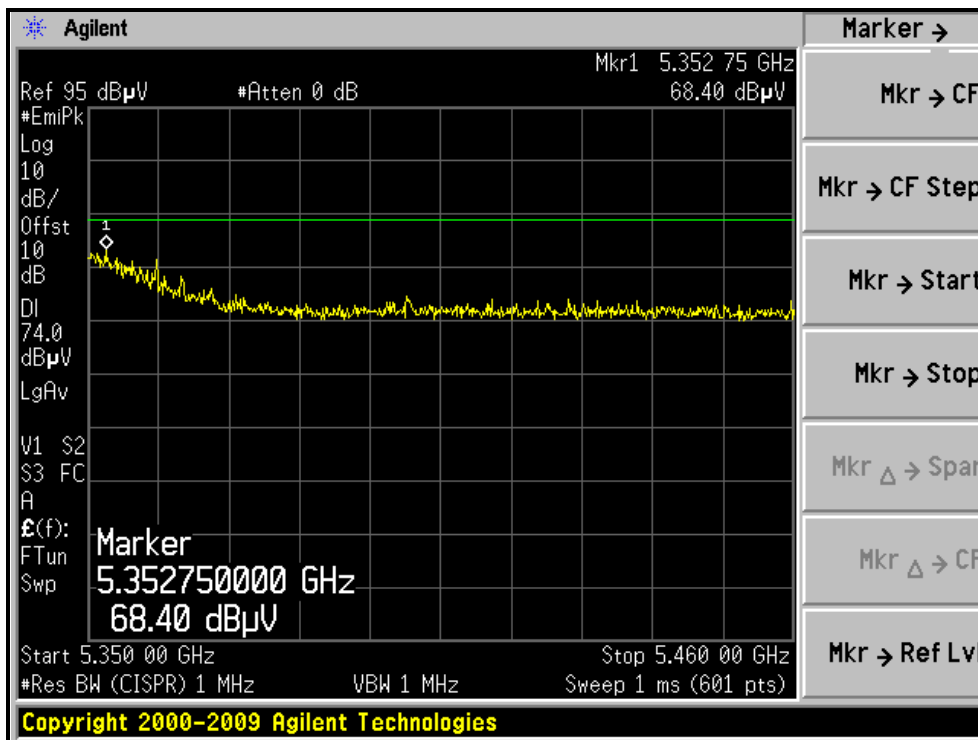
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH36, VERTICAL)





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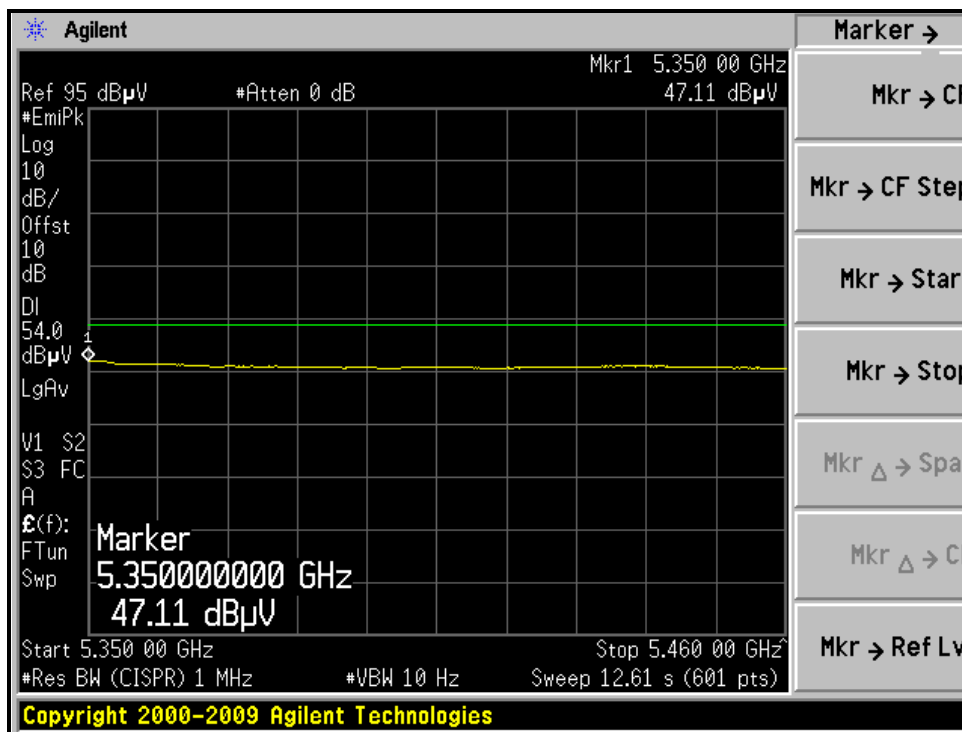
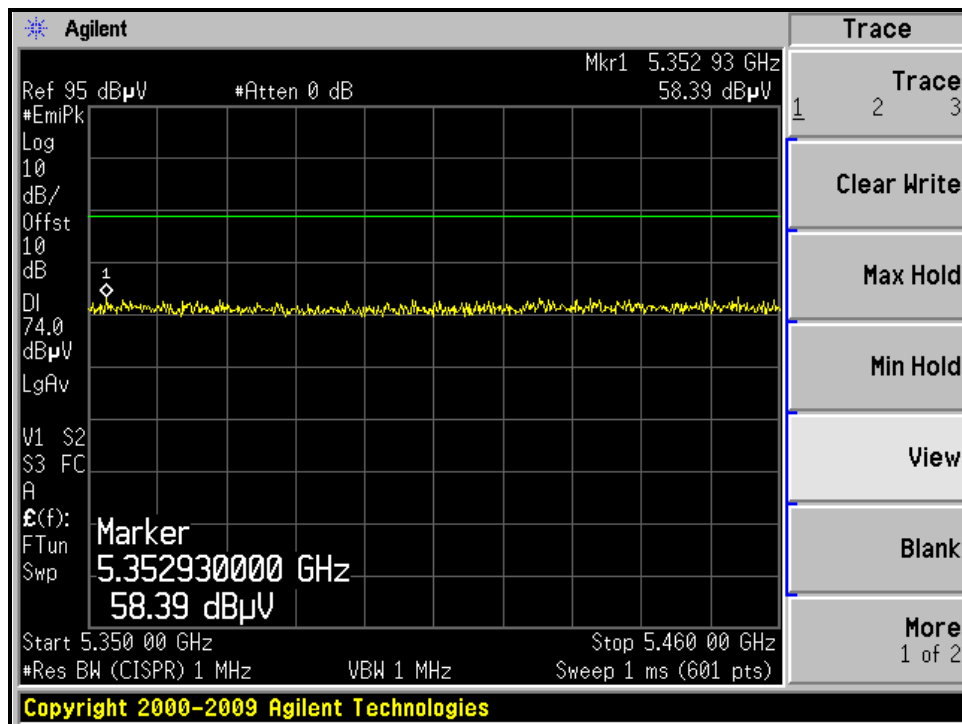
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH 64, HORIZONTAL)





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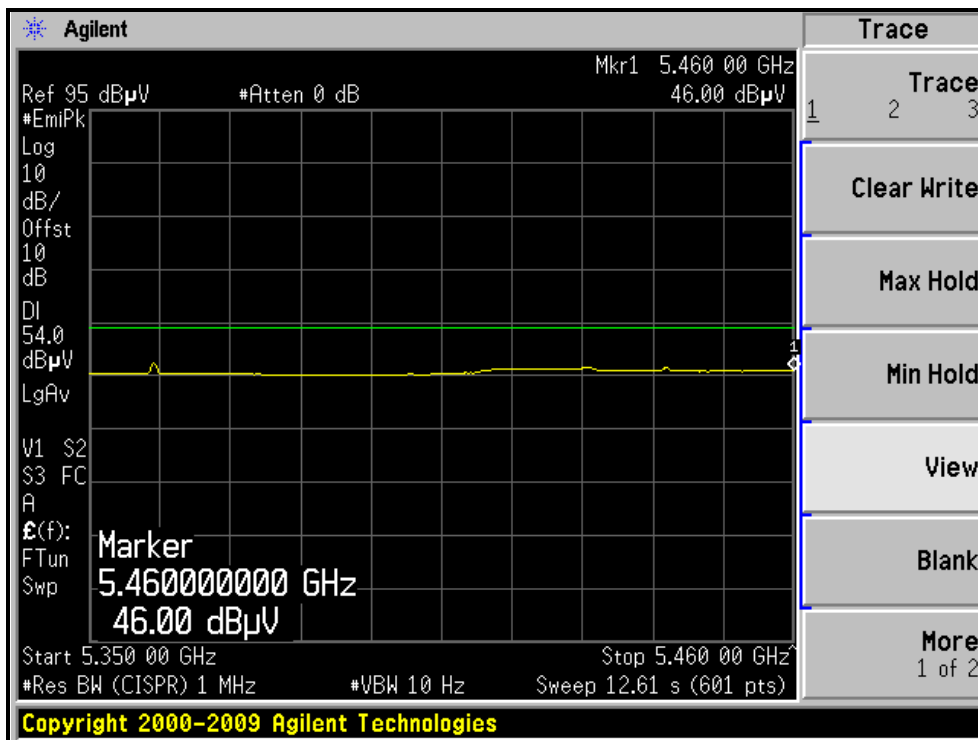
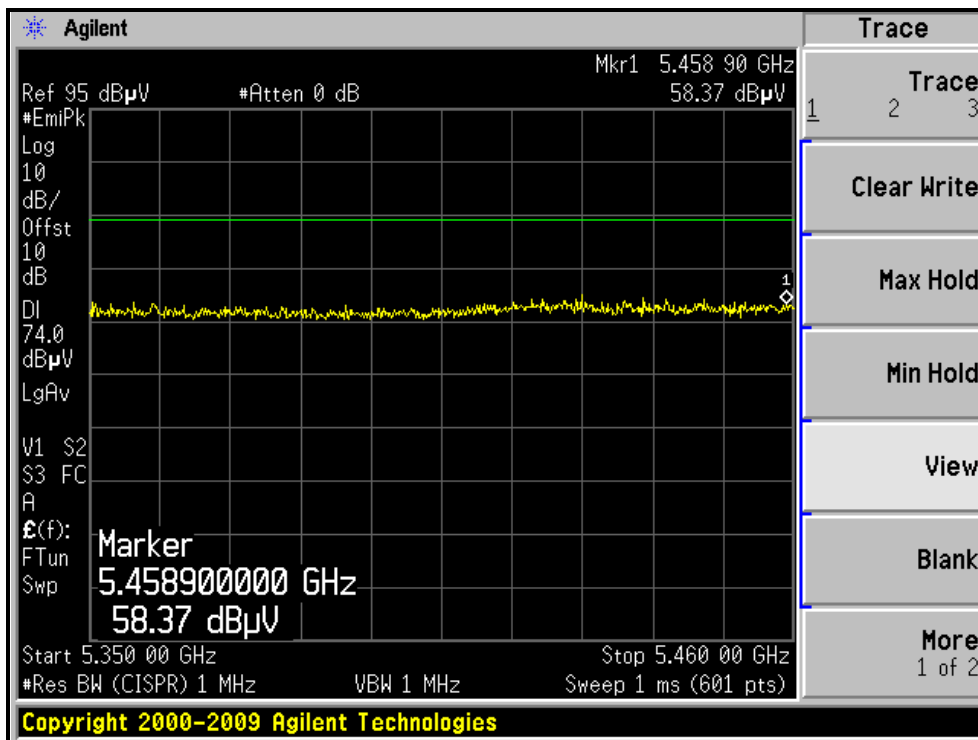
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH 64, VERTICAL)





A D T

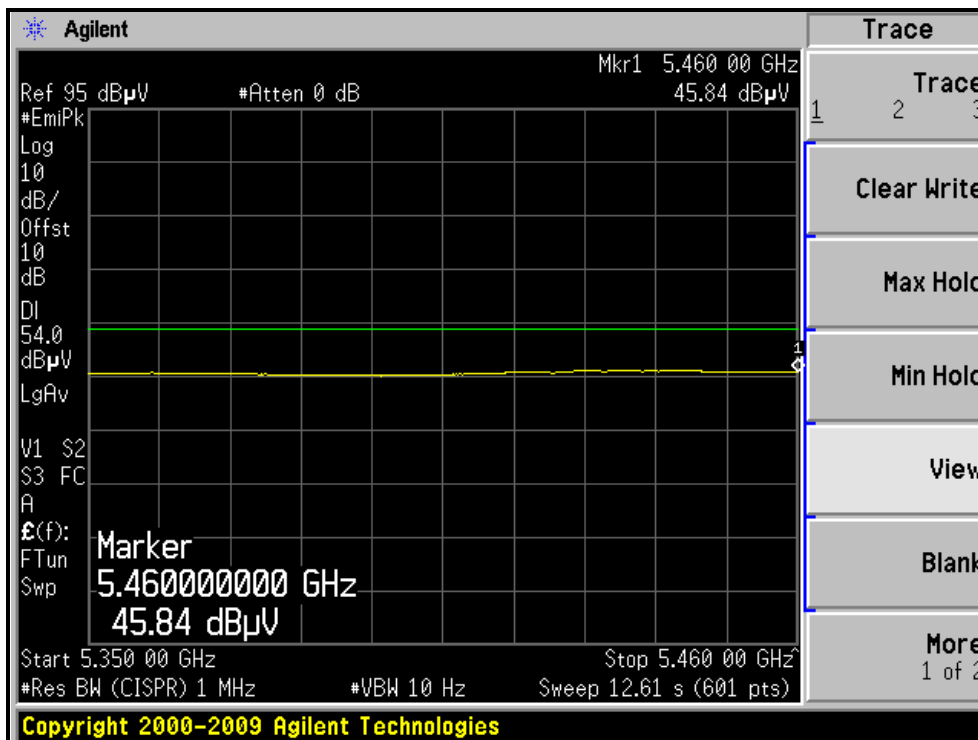
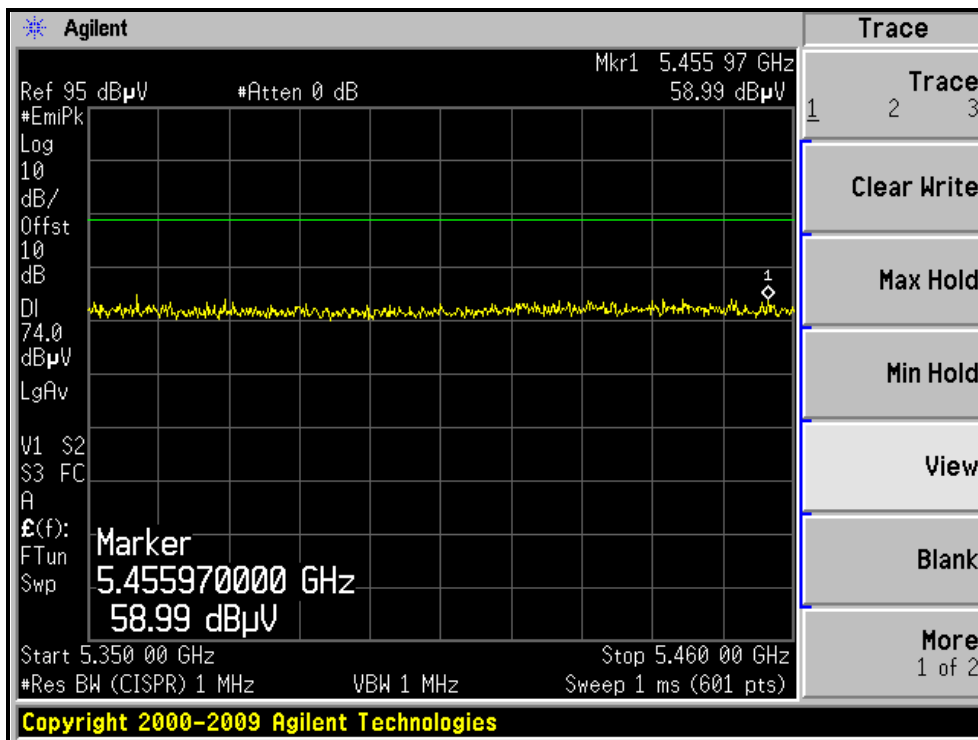
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH 100, HORIZONTAL)





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

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

NOTE:

1. 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.

NOTE:

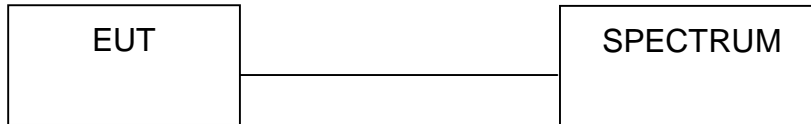
The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

The transmitter output operates continuously therefore Method # 1 is used.

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.



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4.3.7 TEST RESULTS

802.11a 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(2)					
36	5180	7.7	9.7	9.0	23.2	13.7	16.7	21.00	PASS
40	5200	6.9	9.8	8.7	21.9	13.4	16.7	21.08	PASS
48	5240	7.0	10.1	7.9	21.4	13.3	16.7	21.00	PASS
52	5260	14.7	17.0	14.8	109.8	20.4	23.7	26.00	PASS
60	5300	14.3	16.9	14.7	105.4	20.2	23.7	26.75	PASS
64	5320	12.3	15.4	12.3	68.6	18.4	23.7	21.17	PASS
100	5500	10.0	13.1	10.4	41.4	16.2	24	21.08	PASS
120	5600	14.0	16.2	14.4	94.3	19.7	24	23.17	PASS
140	5700	11.0	12.1	10.5	40.0	16.0	24	21.00	PASS

For 5180MHz~5320MHz:

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

Effective Legacy Gain (dBi) = 6.3

The effective legacy gain is 6.3dBi, therefore the limit needs to reduce.

For 5500MHz~5700MHz:

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

Effective Legacy Gain (dBi) = 5.7

The effective legacy gain is 5.7dBi, therefore the limit doesn't reduce.

Note:

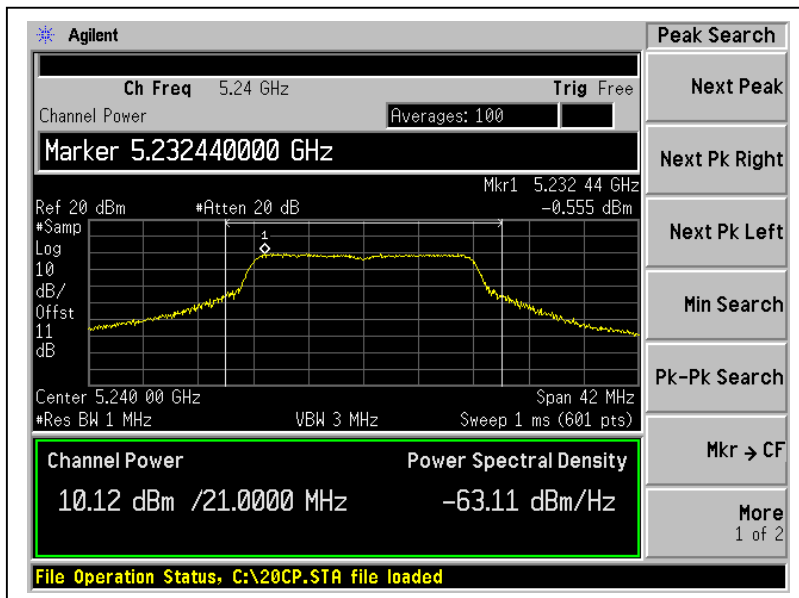
(The antenna layout on chain 0 is horizontal polarized and the other 2 antennas (chain 1 and 2) are vertical polarized. Therefore, effective legacy gain was calculated from chain 1 and chain 2.)

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

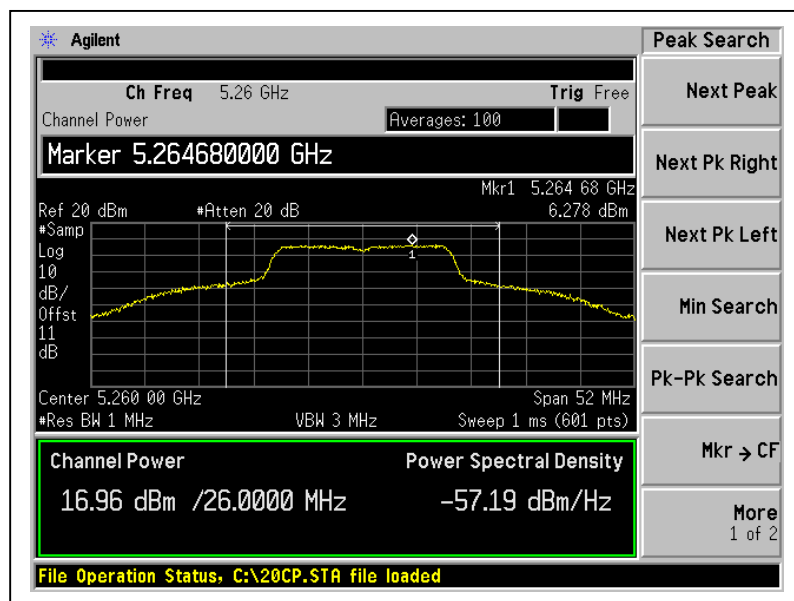


A D T

Output Power:
For Chain(1) : CH48



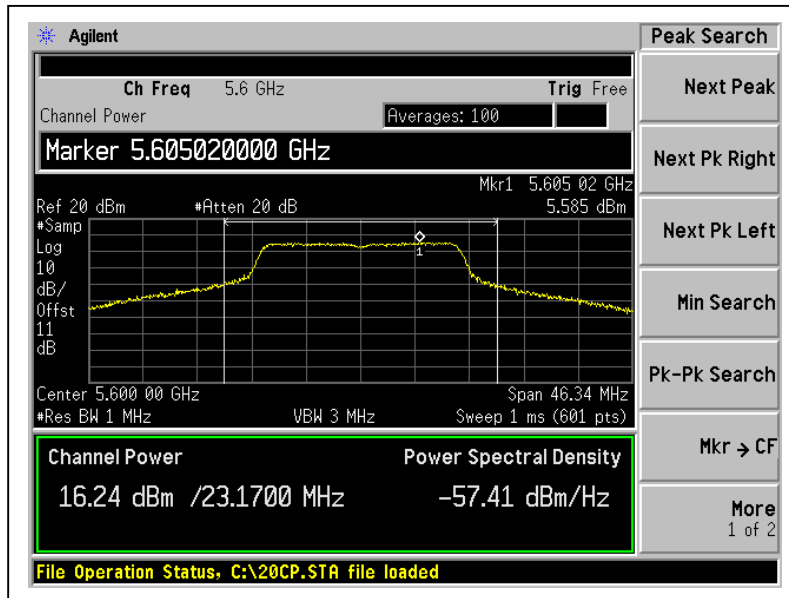
For Chain(1) : CH52





A D T

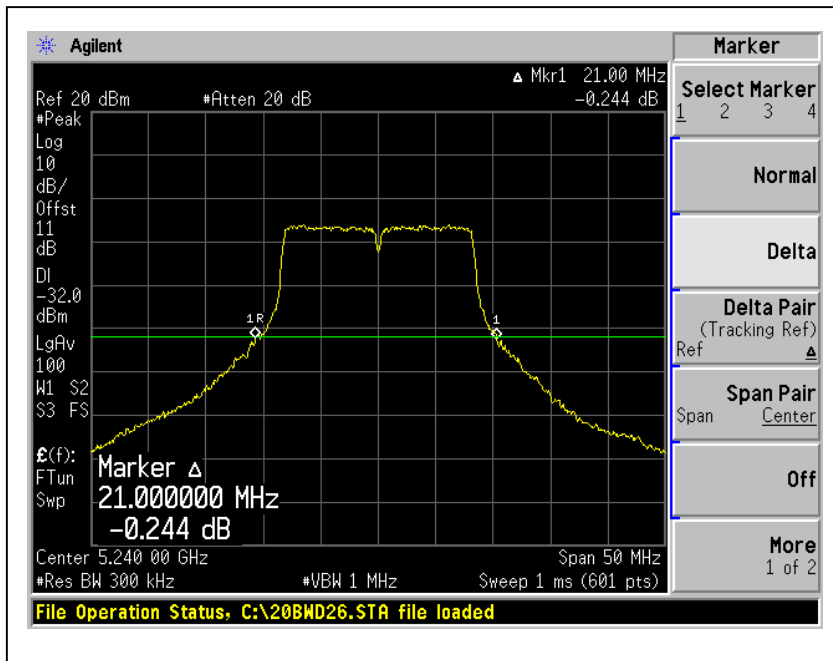
For Chain(1) : CH120



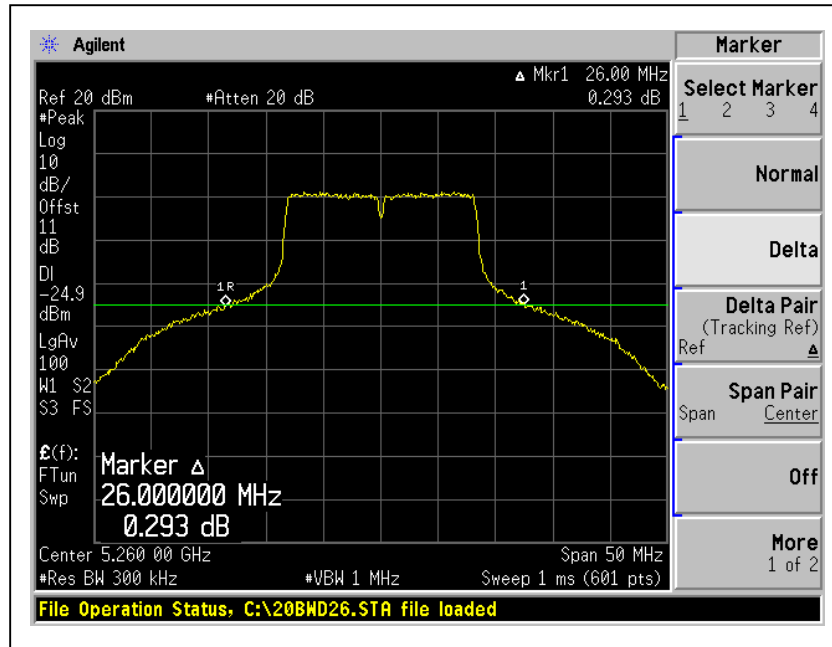


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26dB Occupied Bandwidth: CH48



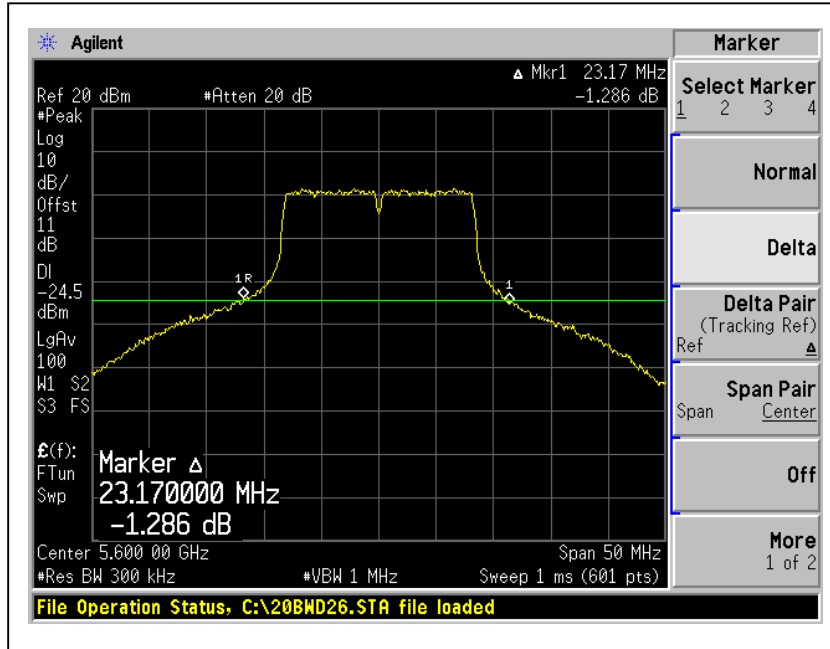
CH52





A D T

CH120





A D T

802.11n (20MHz) OFDM MODULATION:

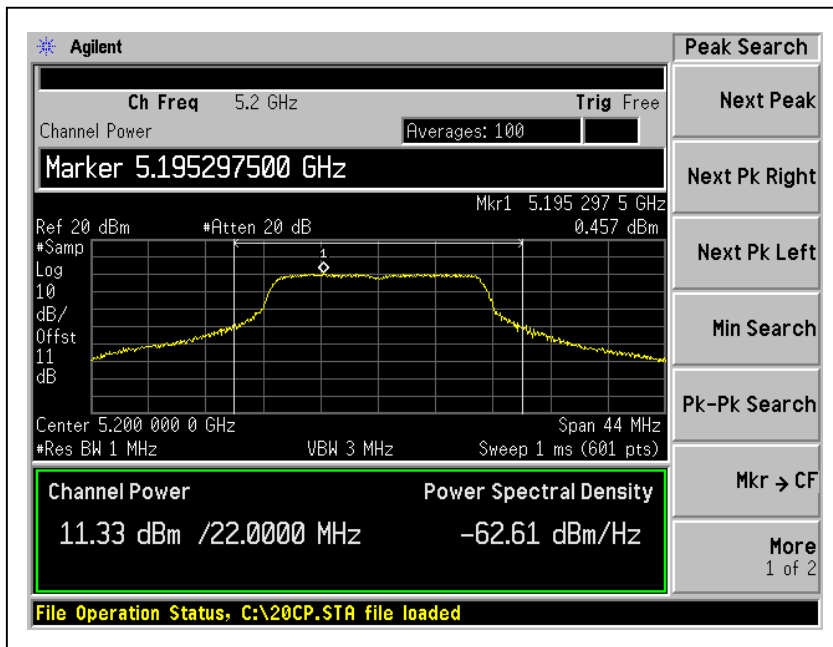
CHANNEL	CHANNEL FREQUENCY (MHz)	OUTPUT POWER (dBm)			TOTAL OUTPUT POWER (mW)	TOTAL OUTPUT POWER (dBm)	OUTPUT POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(2)					
36	5180	8.7	10.3	9.8	27.7	14.4	17	22.00	PASS
40	5200	8.6	11.3	9.5	29.6	14.7	17	22.00	PASS
48	5240	8.4	11.3	9.4	29.1	14.6	17	22.00	PASS
52	5260	16.2	18.0	16.6	150.5	21.8	24	28.67	PASS
60	5300	16.1	18.2	16.1	147.5	21.7	24	25.75	PASS
64	5320	11.9	15.3	11.9	64.9	18.1	24	21.92	PASS
100	5500	9.7	12.6	10.0	37.5	15.7	24	22.00	PASS
120	5600	16.0	17.9	16.7	148.2	21.7	24	24.58	PASS
140	5700	10.3	11.9	10.4	37.2	15.7	24	22.33	PASS

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

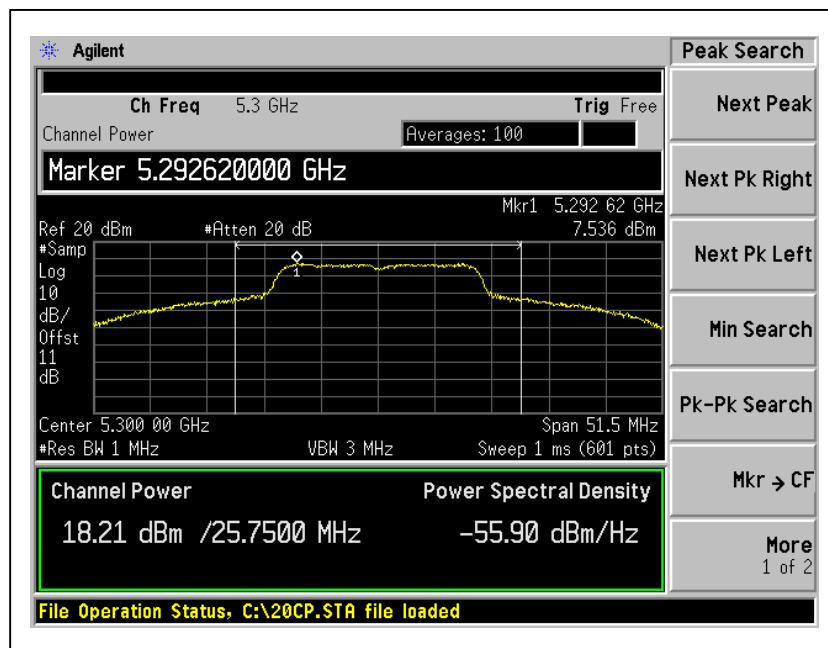


A D T

Output Power:
For Chain (1) :CH40



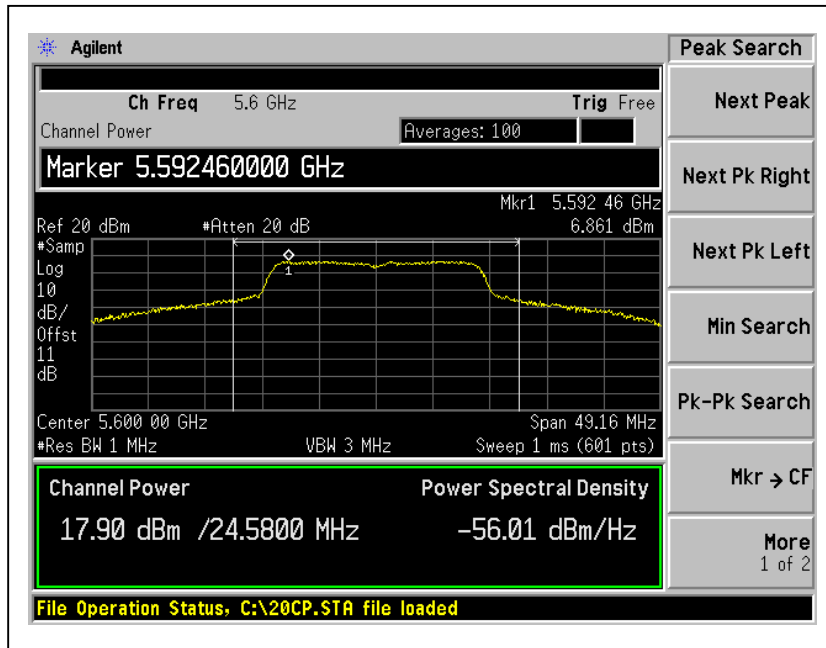
For Chain (1) :CH60





A D T

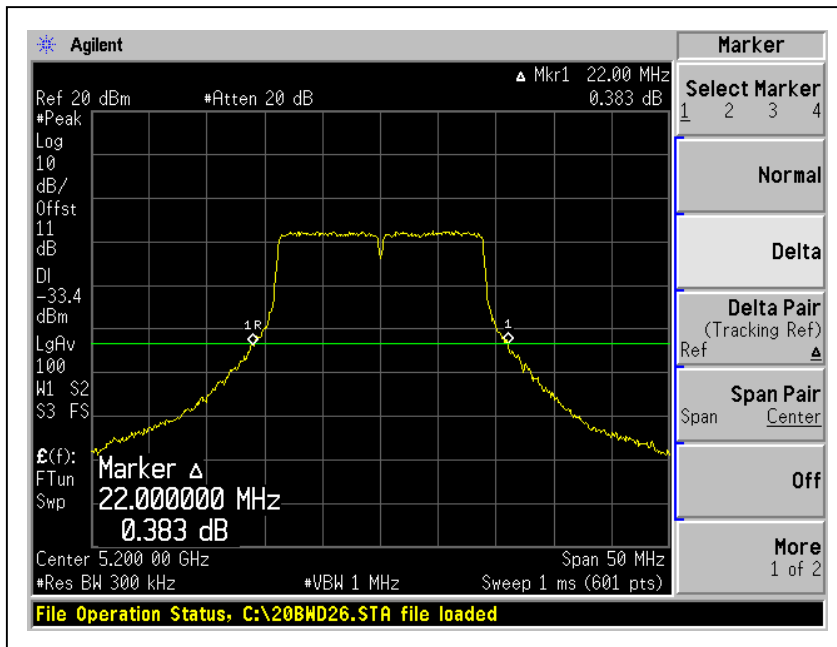
For Chain (1) :CH120



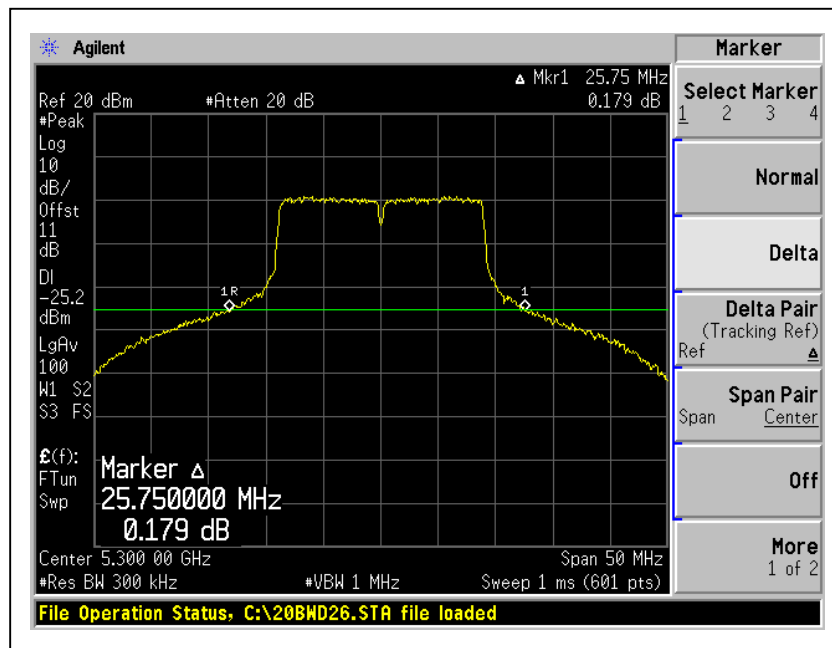


A D T

26dB Occupied Bandwidth: CH40



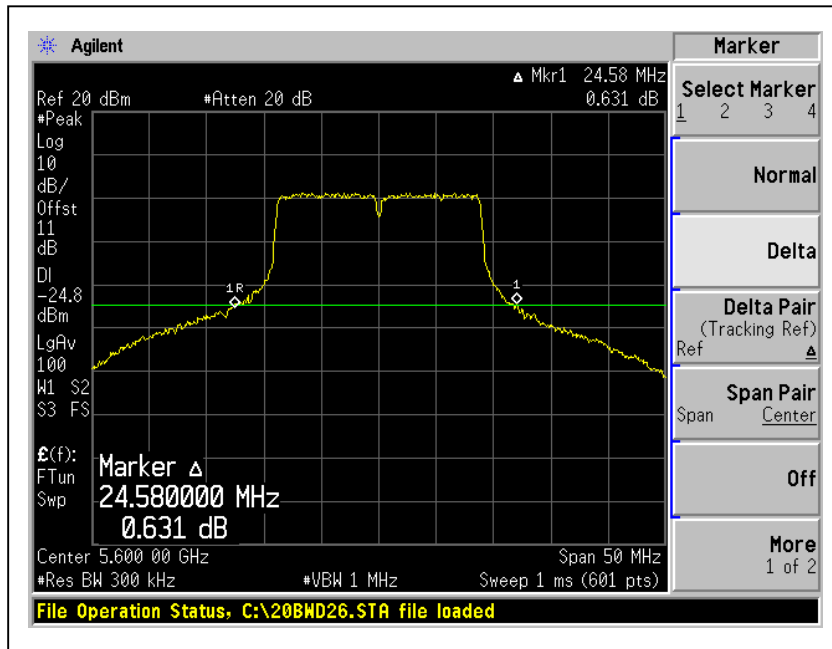
CH60





A D T

CH120



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

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

NOTE:

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

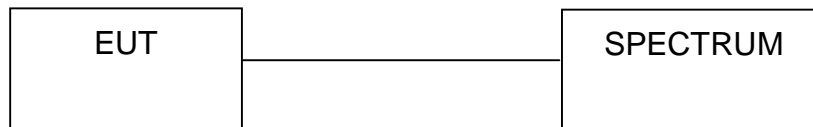
4.4.3 TEST PROCEDURE

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.



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4.4.7 TEST RESULTS

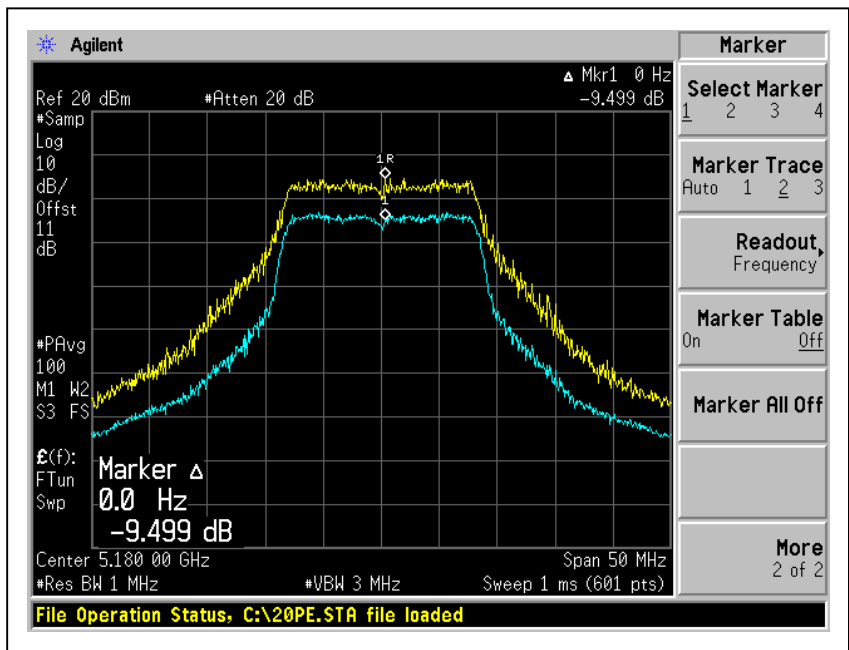
802.11a OFDM MODULATION

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
36	5180	9.5	13	PASS
40	5200	9.3	13	PASS
48	5240	9.0	13	PASS
52	5260	9.7	13	PASS
60	5300	8.8	13	PASS
64	5320	9.7	13	PASS
100	5500	8.7	13	PASS
132	5600	8.6	13	PASS
140	5700	9.1	13	PASS

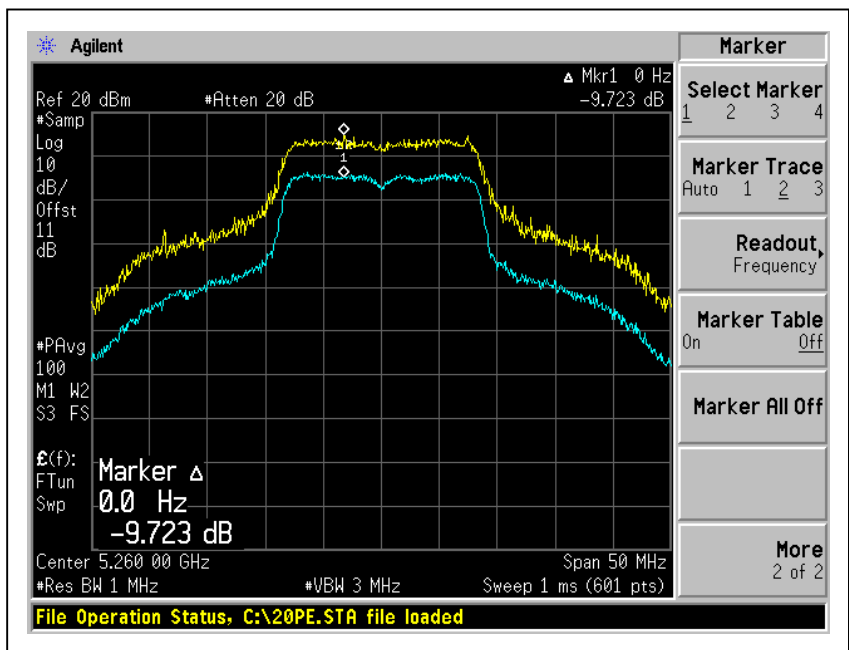


A D T

CH36



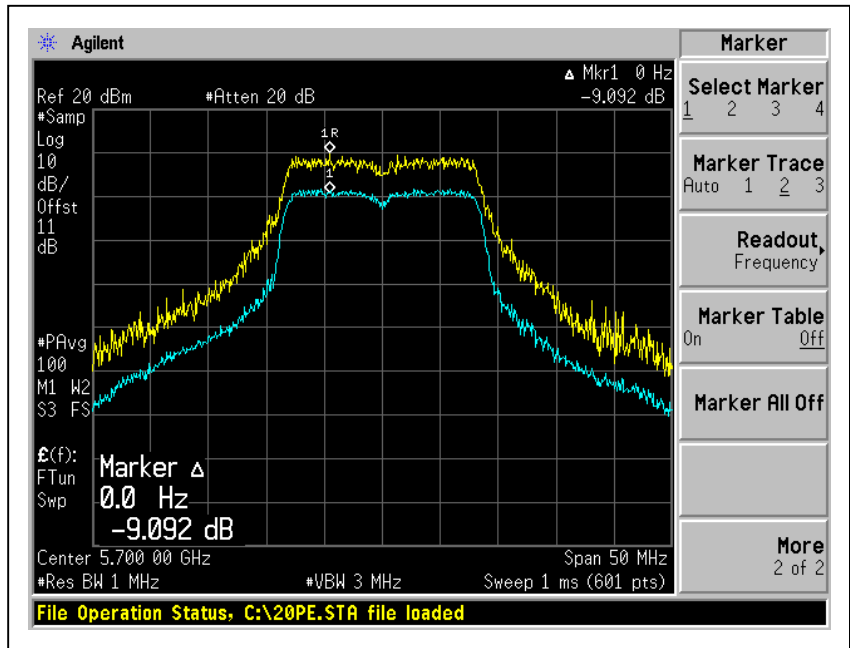
CH52





A D T

CH140





A D T

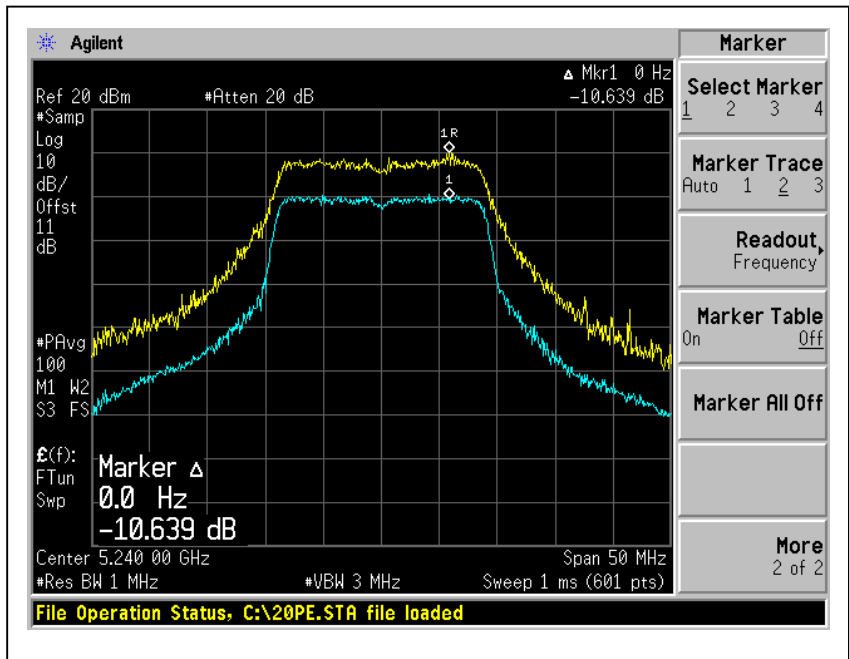
802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
36	5180	10.1	13	PASS
40	5200	10.3	13	PASS
48	5240	10.6	13	PASS
52	5260	9.3	13	PASS
60	5300	9.0	13	PASS
64	5320	9.4	13	PASS
100	5500	9.2	13	PASS
120	5600	9.7	13	PASS
140	5700	8.5	13	PASS

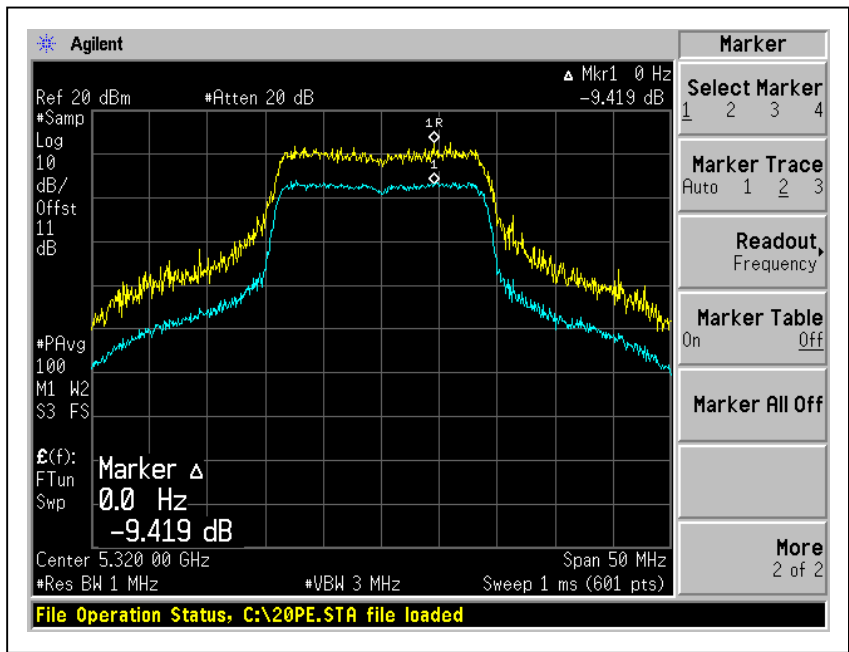


A D T

CH48



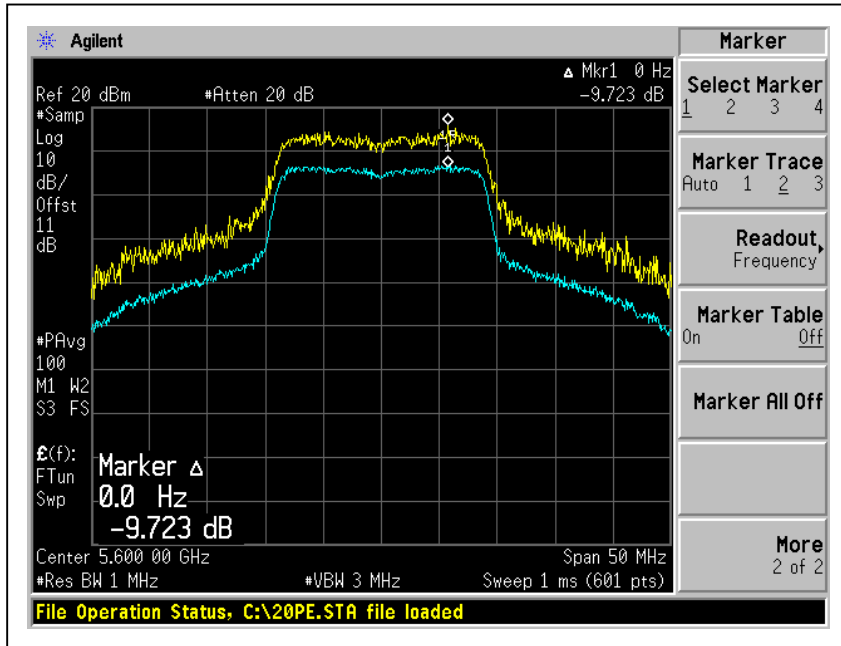
CH64





A D T

CH120



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

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

NOTE:

1. 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



A D T

4.5.7 TEST RESULTS

802.11a 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)	CHAIN(2)			
36	5180	-3.1	-0.8	-1.6	3.0	3.7	PASS
40	5200	-3.0	-1.2	-1.9	2.8	3.7	PASS
48	5240	-3.5	-0.6	-2.5	2.7	3.7	PASS
52	5260	4.4	6.3	4.0	9.8	10.7	PASS
60	5300	3.7	6.1	4.5	9.7	10.7	PASS
64	5320	1.8	4.5	2.4	7.8	10.7	PASS
100	5500	-0.6	2.1	-0.2	5.4	11	PASS
120	5600	3.4	5.6	3.6	9.1	11	PASS
140	5700	0.5	1.4	0.6	5.6	11	PASS

For 5180MHz~5320MHz:

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

Effective Legacy Gain (dBi) = 6.3

The effective legacy gain is 6.3dBi, therefore the limit needs to reduce.

For 5500MHz~5700MHz:

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

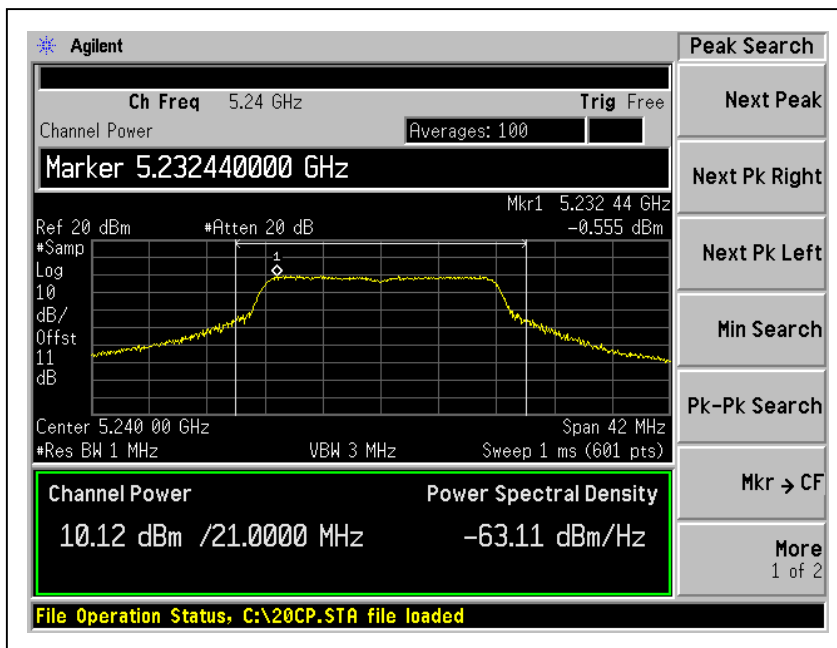
Effective Legacy Gain (dBi) = 5.7

The effective legacy gain is 5.7dBi, therefore the limit doesn't reduce.

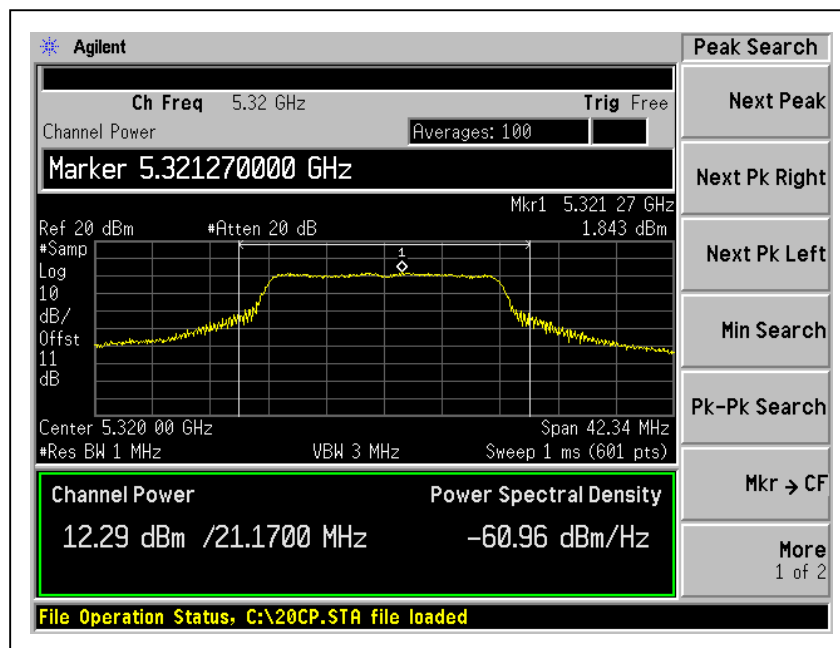


A D T

For Chain (1): CH48



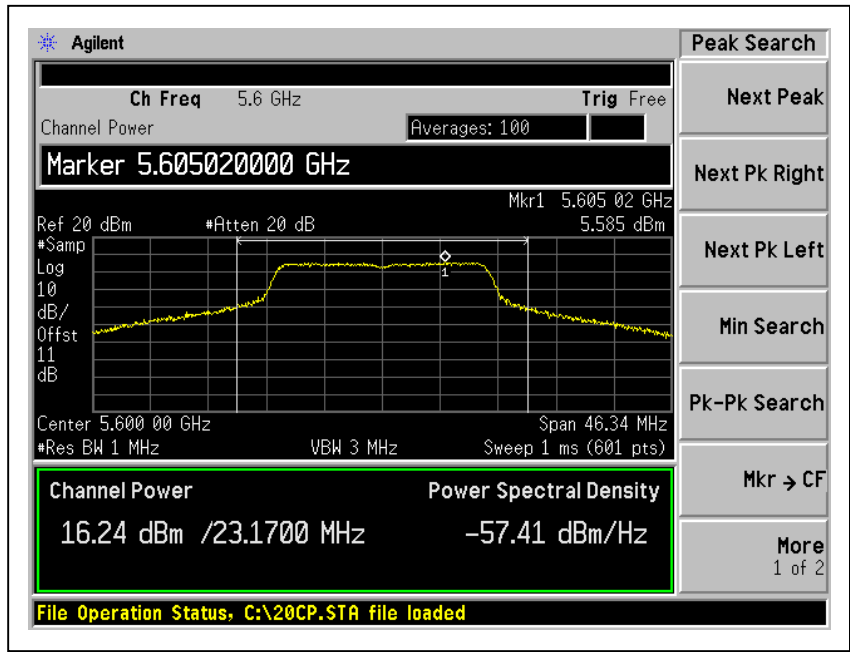
For Chain (0): CH64





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For Chain (1): CH120





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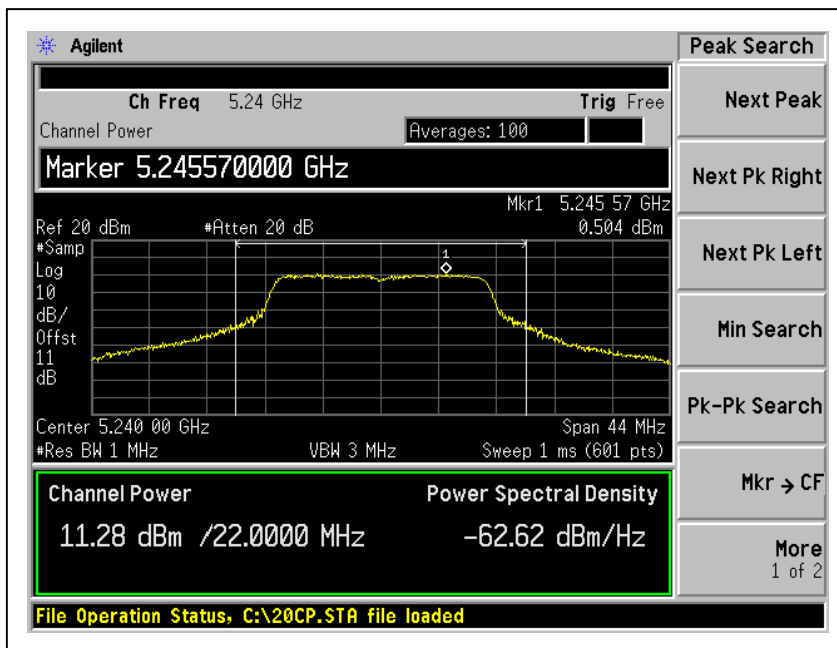
802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)			TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(2)			
36	5180	-2.0	-0.7	-0.9	3.6	4	PASS
40	5200	-2.5	0.5	-1.1	3.9	4	PASS
48	5240	-2.1	0.5	-1.3	3.9	4	PASS
52	5260	5.3	6.8	5.4	10.7	11	PASS
60	5300	5.3	7.5	5.0	10.9	11	PASS
64	5320	0.1	4.4	1.0	7.0	11	PASS
100	5500	-1.0	1.7	-0.7	4.9	11	PASS
120	5600	5.1	6.9	5.8	10.8	11	PASS
140	5700	-0.8	1.0	-0.1	4.9	11	PASS

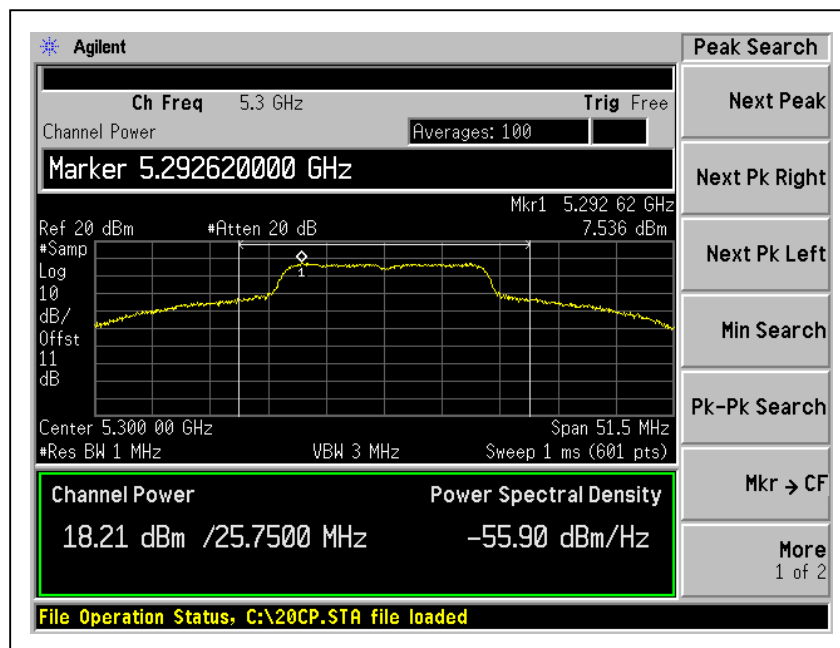


A D T

For Chain (1): CH48



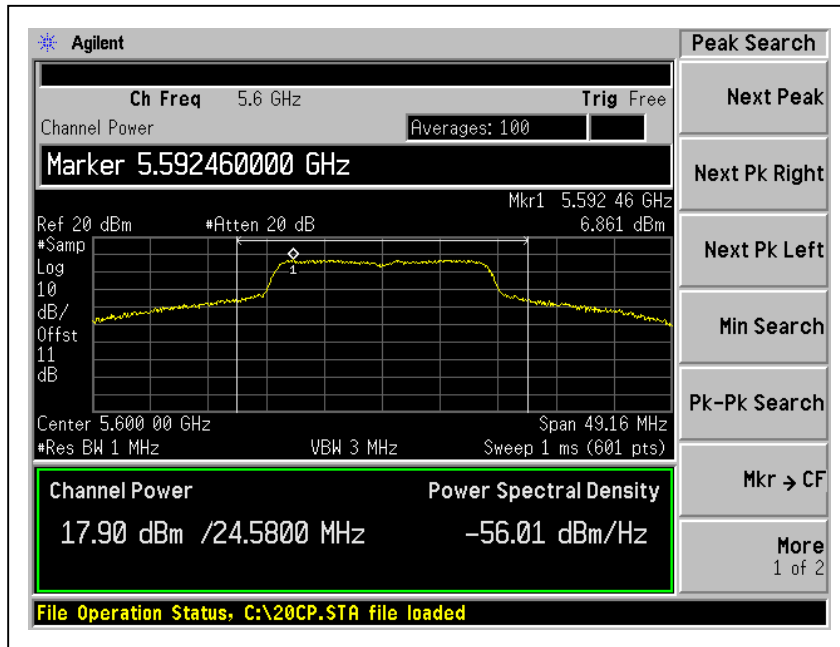
For Chain (1): CH60





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For Chain (1): CH120





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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

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Sep. 08, 2010	Sep. 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.

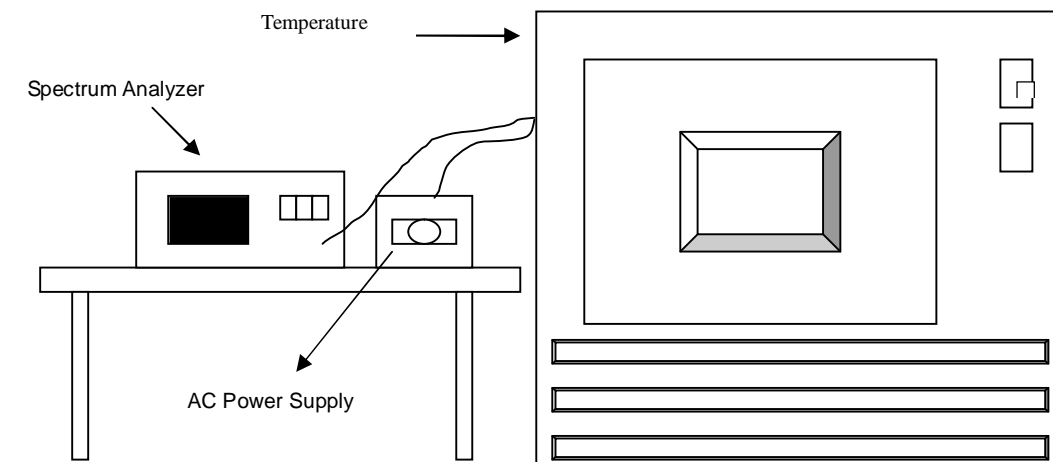
4.6.3 TEST PROCEDURE

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.



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4.6.7 TEST RESULTS

Operating frequency: 5180MHz									
Temp. (°C)	Power supply (VAC)	0 minute		2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	138	5180.0046	-1.8533	5180.0037	-2.0270	5180.0039	-1.9884	5180.0018	-2.3938
	120	5180.0042	-1.9305	5180.0036	-2.0463	5180.0034	-2.0849	5180.001	-2.5483
	102	5180.0047	-1.8340	5180.0047	-1.8340	5180.003	-2.1622	5180.0024	-2.2780
40	138	5180.0123	-0.3668	5180.0103	-0.7529	5180.0079	-1.2162	5180.0099	-0.8301
	120	5180.0115	-0.5212	5180.009	-1.0039	5180.008	-1.1969	5180.0093	-0.9459
	102	5180.0131	-0.2124	5180.0097	-0.8687	5180.0077	-1.2548	5180.0102	-0.7722
30	138	5179.9899	-4.6911	5179.9855	-5.5405	5179.9834	-5.9459	5179.9771	-7.1621
	120	5179.9901	-4.6525	5179.9854	-5.5598	5179.9823	-6.1583	5179.9781	-6.9691
	102	5179.9896	-4.7490	5179.9855	-5.5405	5179.9832	-5.9845	5179.9773	-7.1235
20	138	5180.0109	-0.6371	5180.0084	-1.1197	5180.0069	-1.4093	5180.0078	-1.2355
	120	5180.0104	-0.7336	5180.0081	-1.1776	5180.0076	-1.2741	5180.0084	-1.1197
	102	5180.0121	-0.4054	5180.0079	-1.2162	5180.008	-1.1969	5180.0071	-1.3707
10	138	5180.0059	-1.6023	5180.0087	-1.0618	5180.0039	-1.9884	5180.0096	-0.8880
	120	5180.0056	-1.6602	5180.0082	-1.1583	5180.0048	-1.8147	5180.0085	-1.1004
	102	5180.0048	-1.8147	5180.0085	-1.1004	5180.0051	-1.7568	5180.0085	-1.1004
0	138	5179.9806	-6.4865	5179.9791	-6.7760	5179.9771	-7.1621	5179.9744	-7.6834
	120	5179.9801	-6.5830	5179.9788	-6.8340	5179.9776	-7.0656	5179.9729	-7.9730
	102	5179.9801	-6.5830	5179.9793	-6.7374	5179.9761	-7.3552	5179.9733	-7.8957
-10	138	5180.0162	0.3861	5180.0196	1.0425	5180.0204	1.1969	5180.0241	1.9112
	120	5180.0162	0.3861	5180.0201	1.1390	5180.0195	1.0232	5180.0235	1.7954
	102	5180.0161	0.3668	5180.0195	1.0232	5180.0197	1.0618	5180.0238	1.8533
-20	138	5179.996	-3.5135	5179.9953	-3.6486	5179.9989	-2.9537	5179.9972	-3.2818
	120	5179.9968	-3.3591	5179.9955	-3.6100	5179.9987	-2.9923	5179.9972	-3.2818
	102	5179.997	-3.3205	5179.9965	-3.4170	5179.9983	-3.0695	5179.9976	-3.2046
-30	138	5179.9936	-3.9768	5179.9975	-3.2239	5179.9954	-3.6293	5179.9921	-4.2664
	120	5179.9936	-3.9768	5179.9981	-3.1081	5179.9945	-3.8031	5179.993	-4.0927
	102	5179.9932	-4.0540	5179.9978	-3.1660	5179.9956	-3.5907	5179.9936	-3.9768

4.7 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.7.1 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Sep. 08, 2010	Sep. 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 / 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:

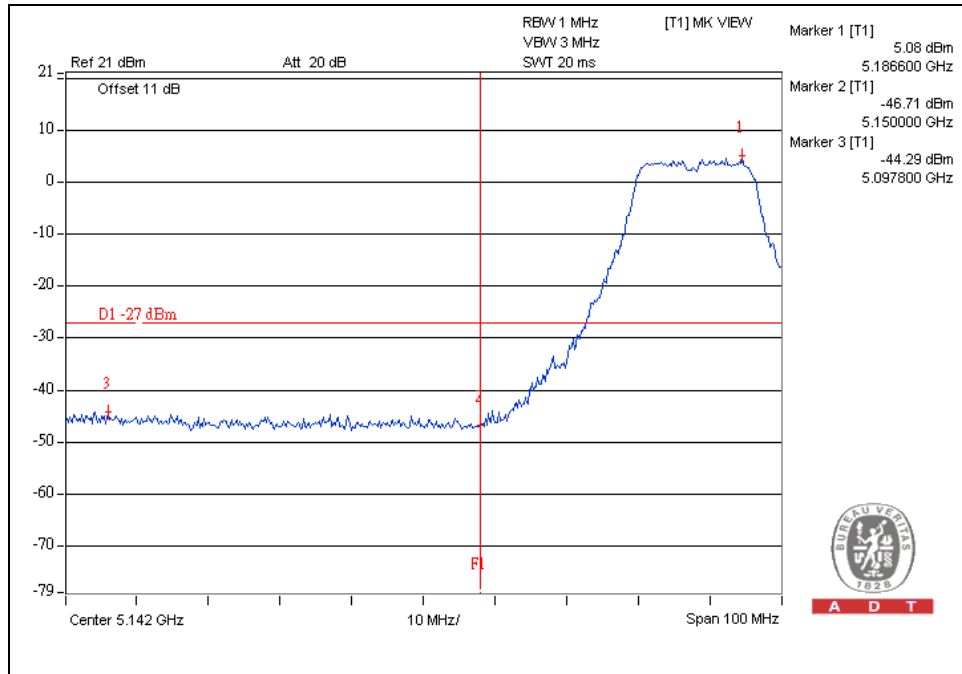
The spectrum plots (Peak RBW=1MHz, VBW=3MHz) are attached on the following pages.



A D T

802.11a OFDM MODULATION

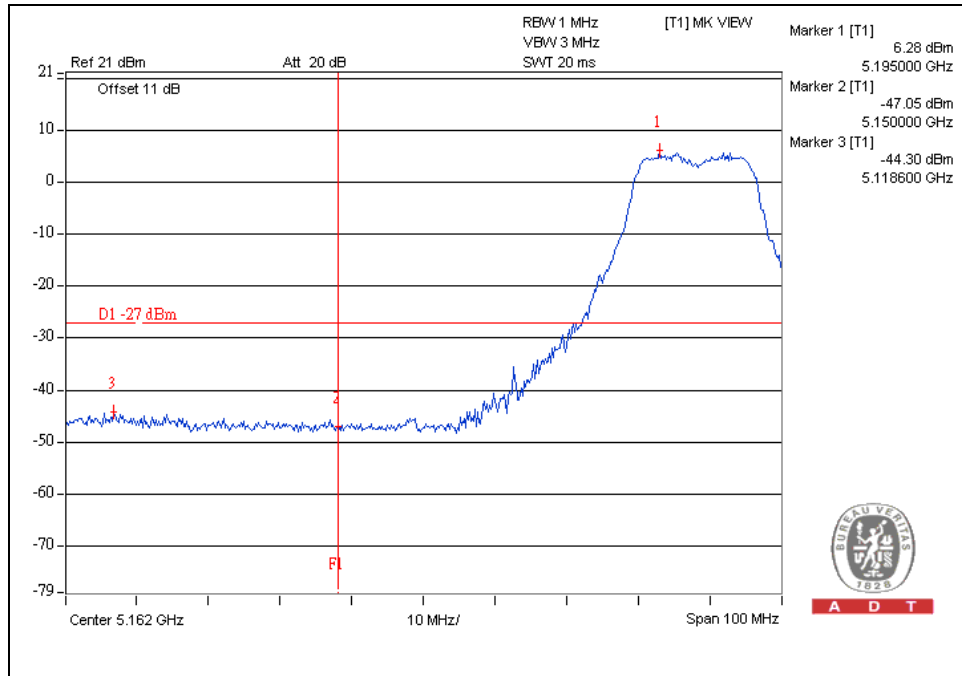
CH 36



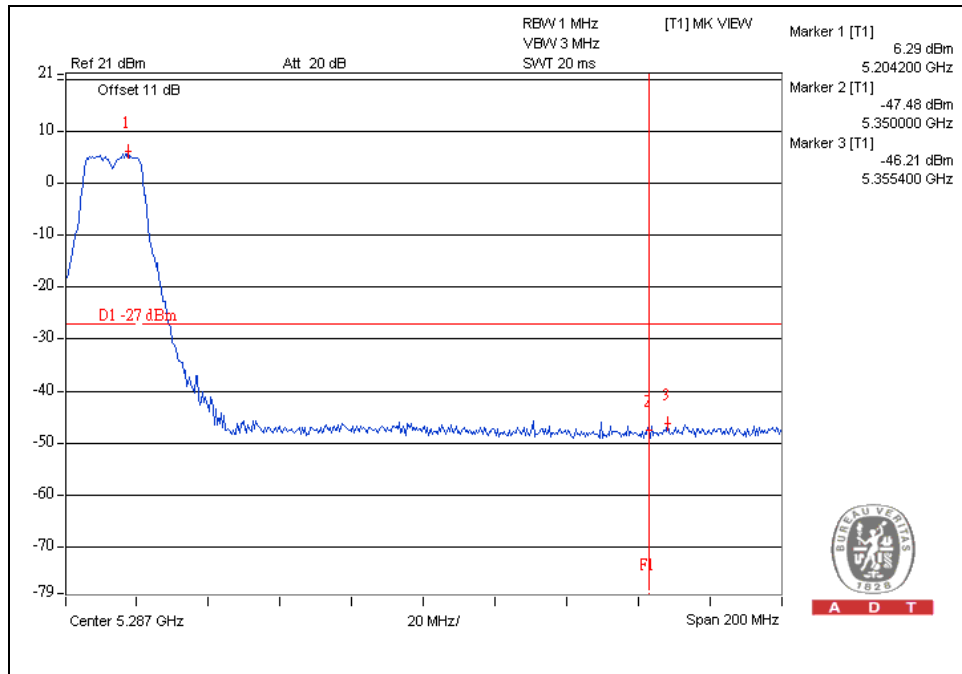


A D T

CH 40



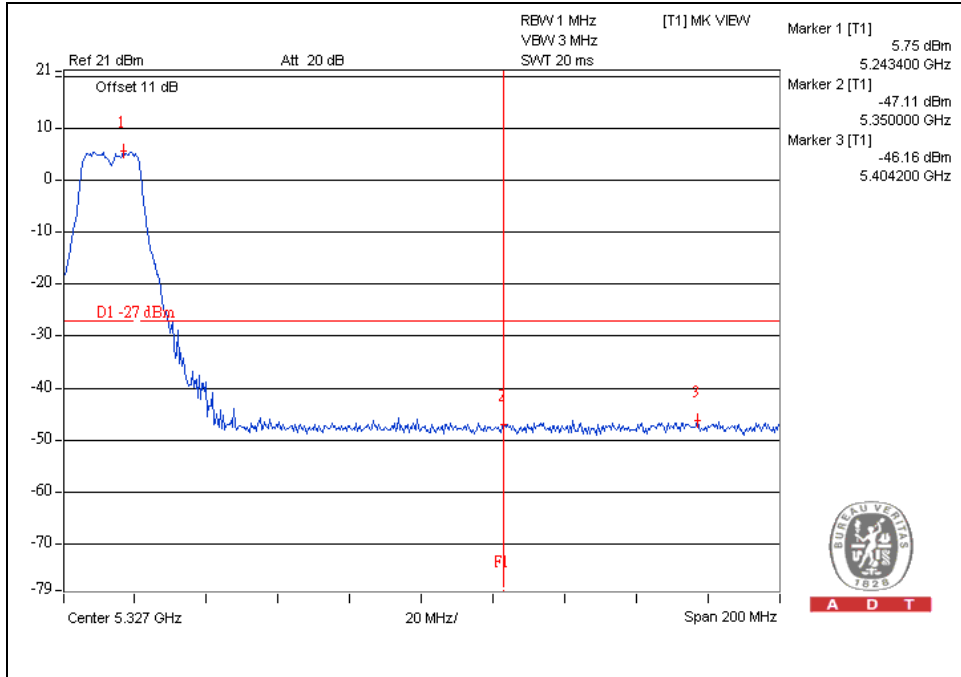
CH 40



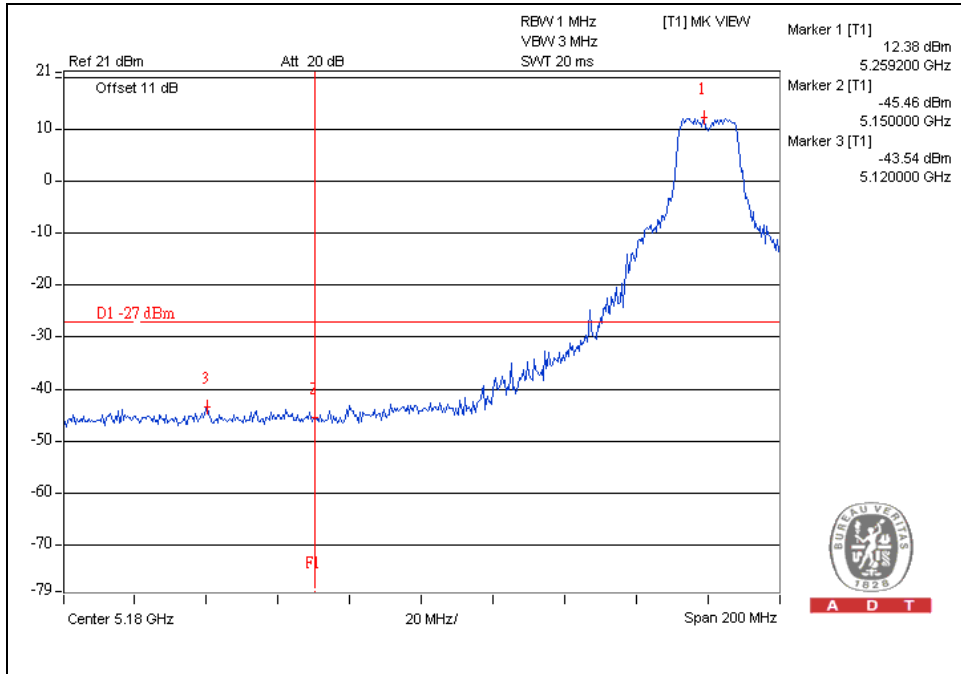


A D T

CH 48



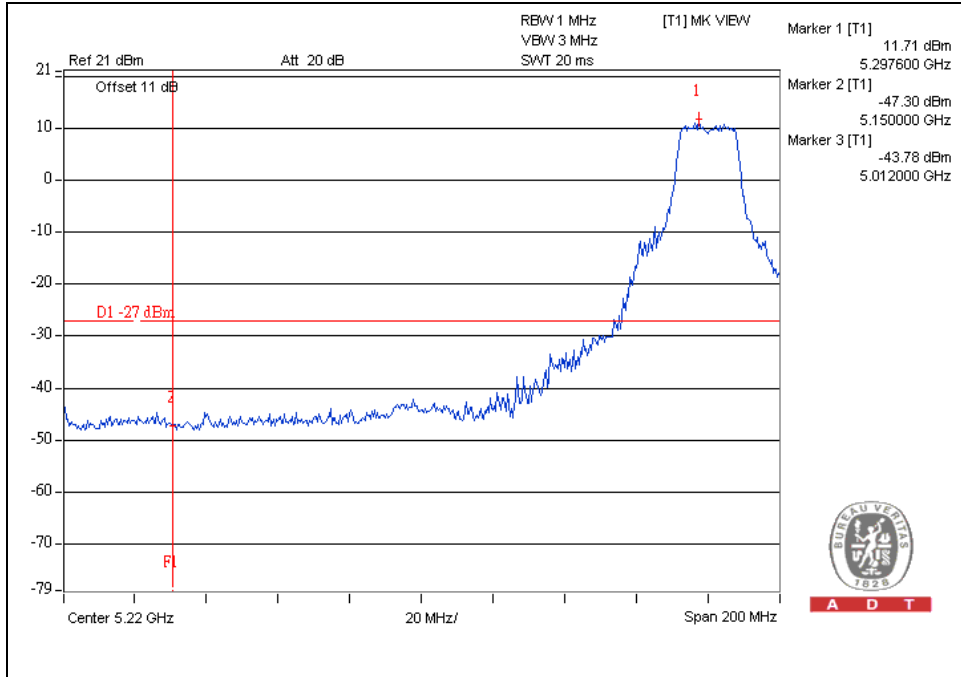
CH 52



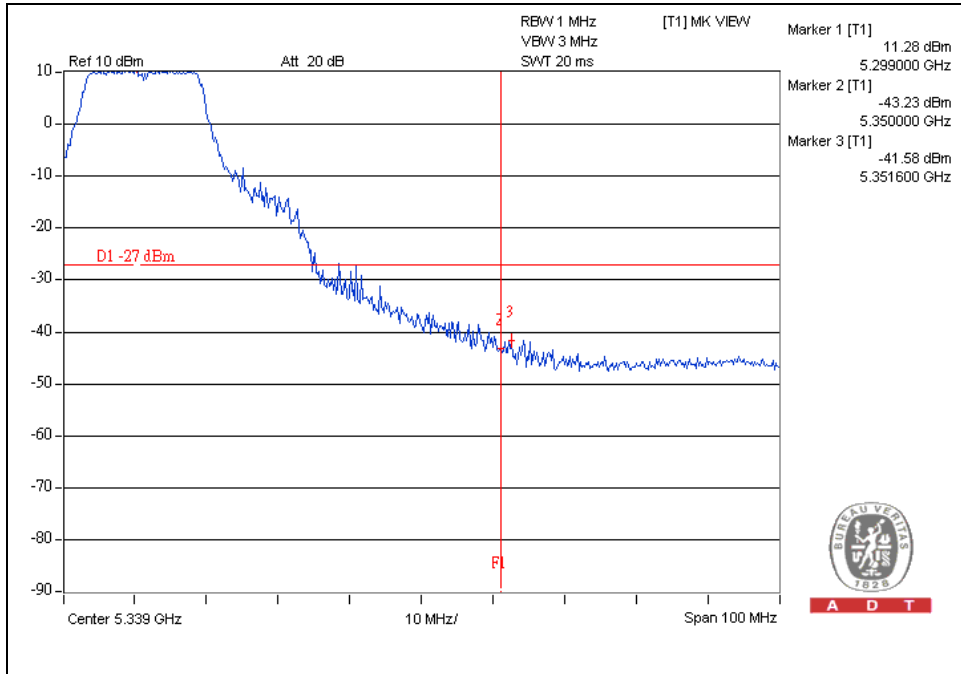


A D T

CH 60



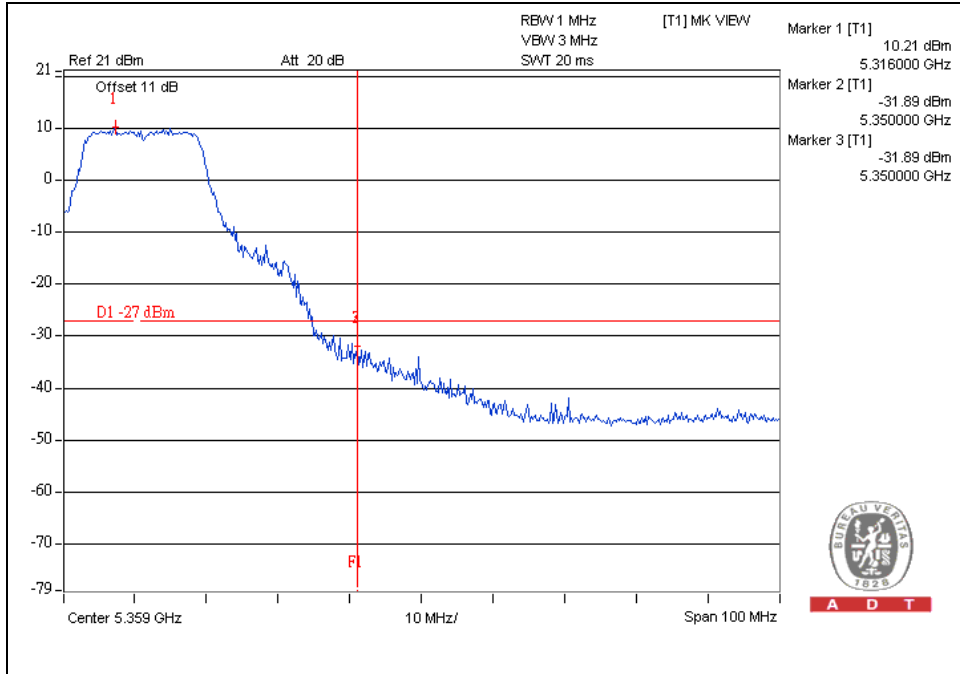
CH 60





A D T

CH 64

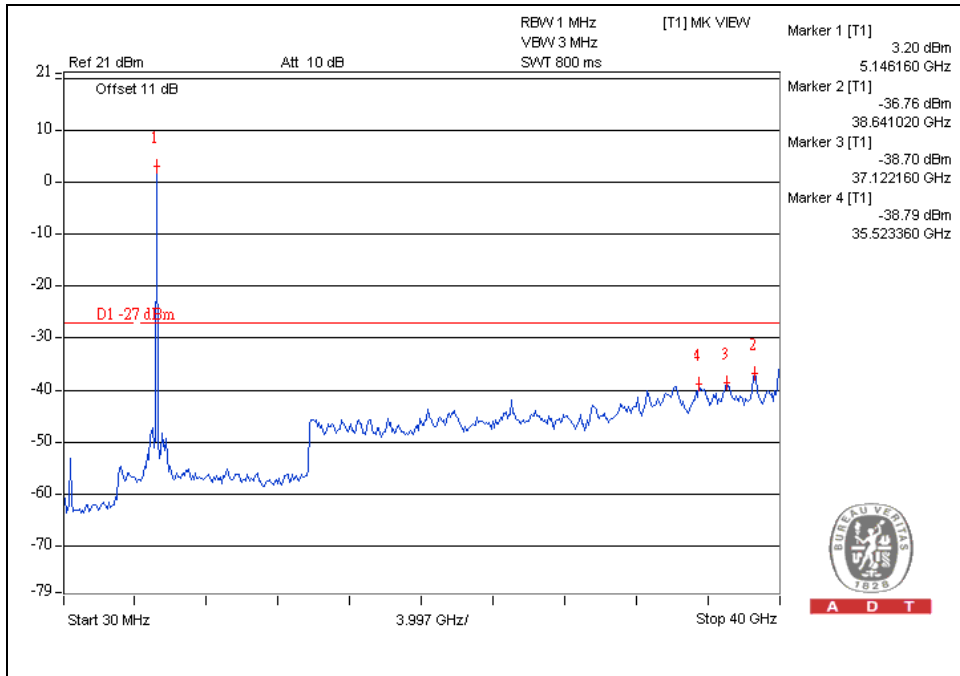


A D T

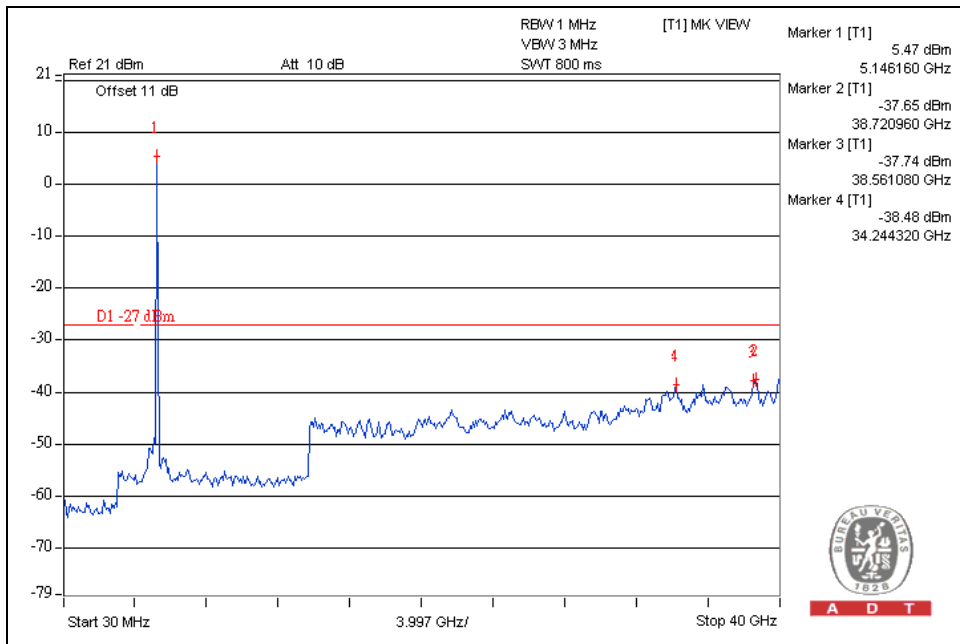


A D T

CH 36



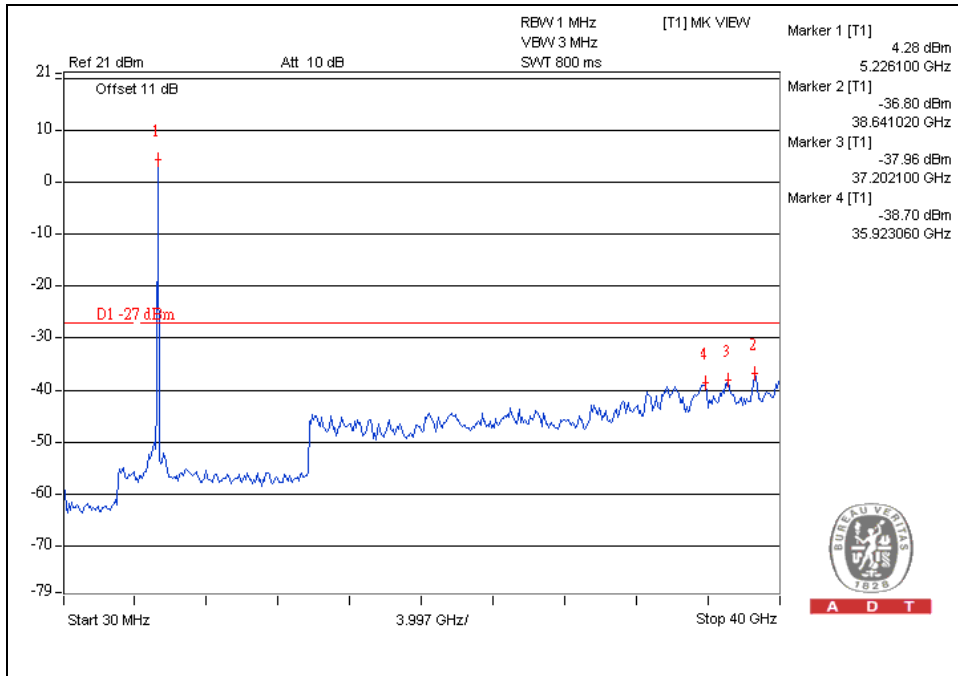
CH 40



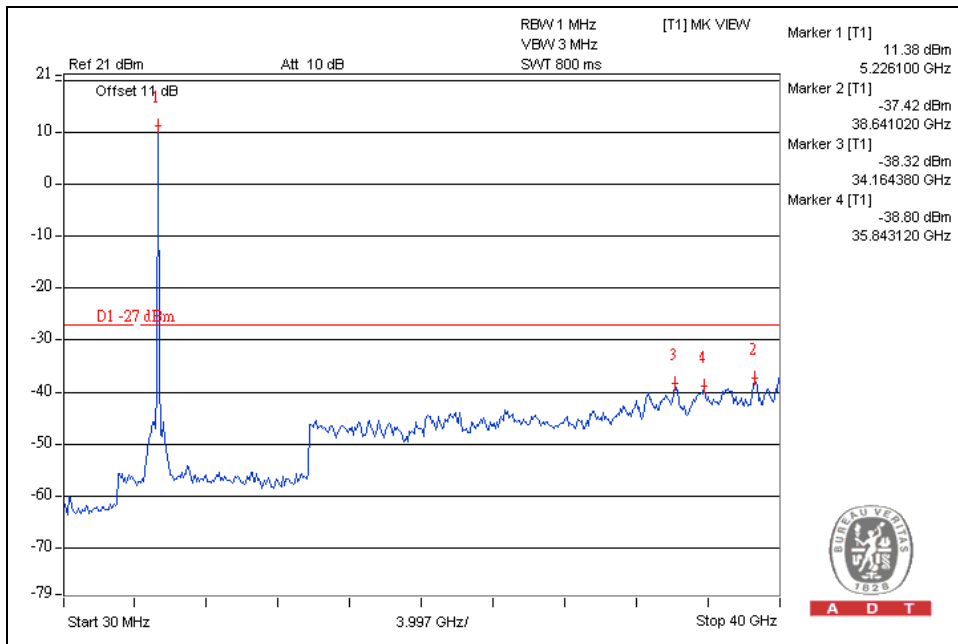


A D T

CH 48



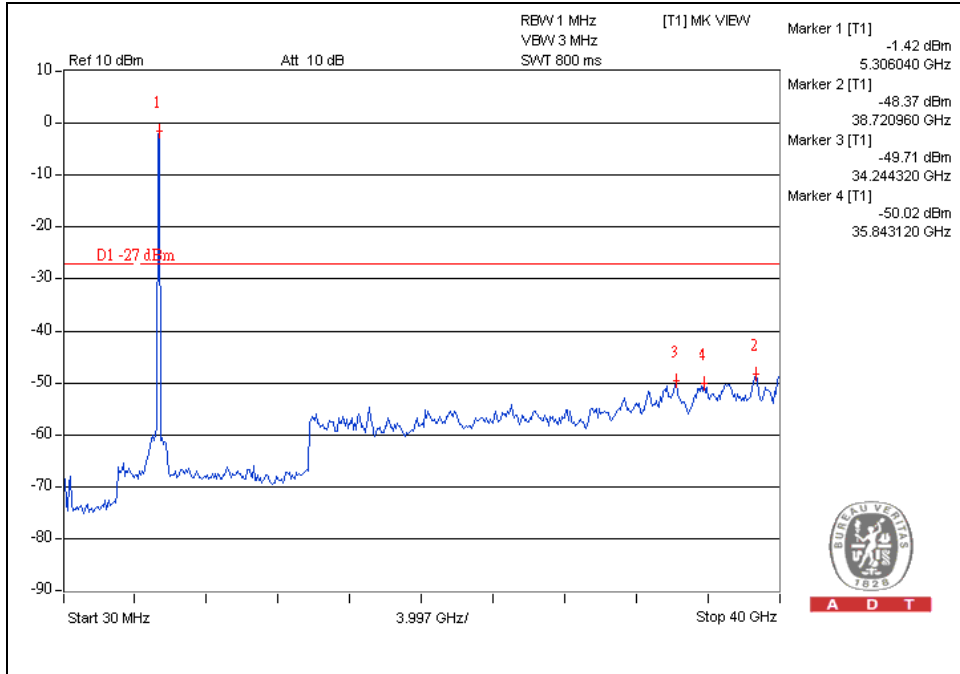
CH 52





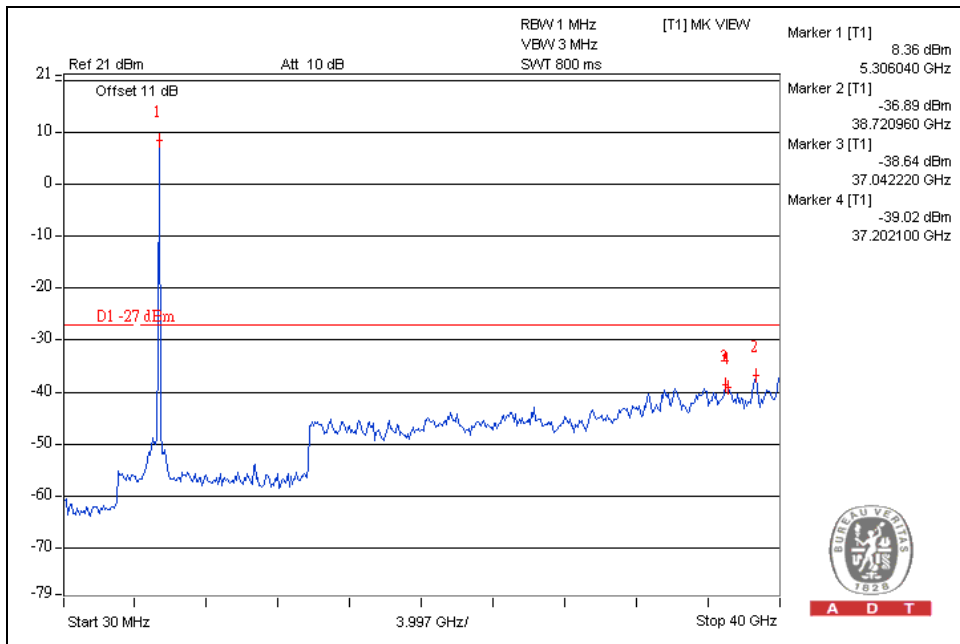
A D T

CH 60



A D T

CH 64



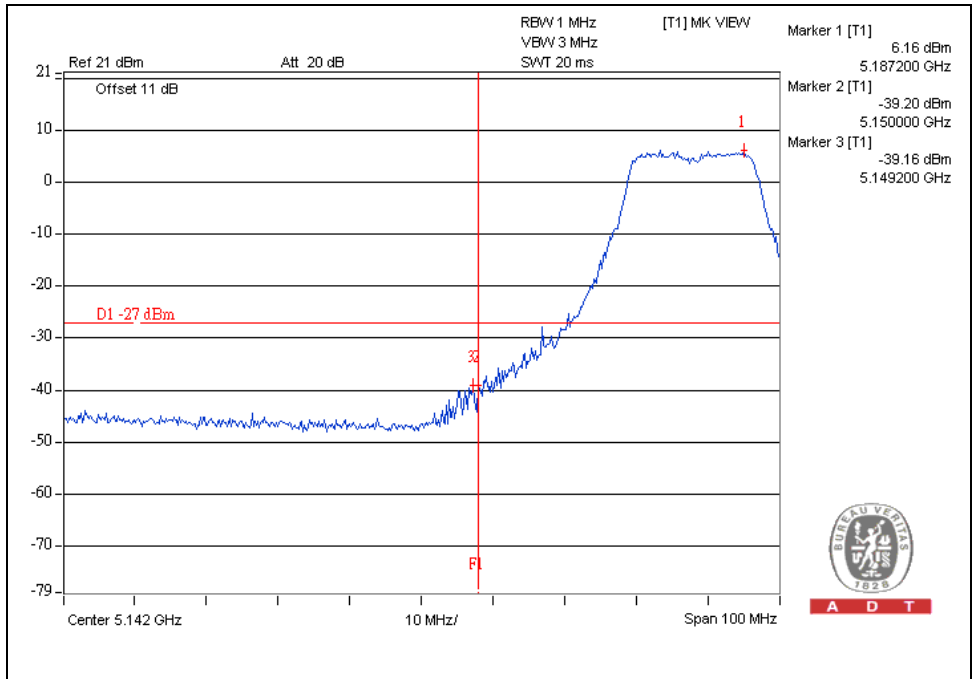
A D T



A D T

802.11n (20MHz) OFDM MODULATION:

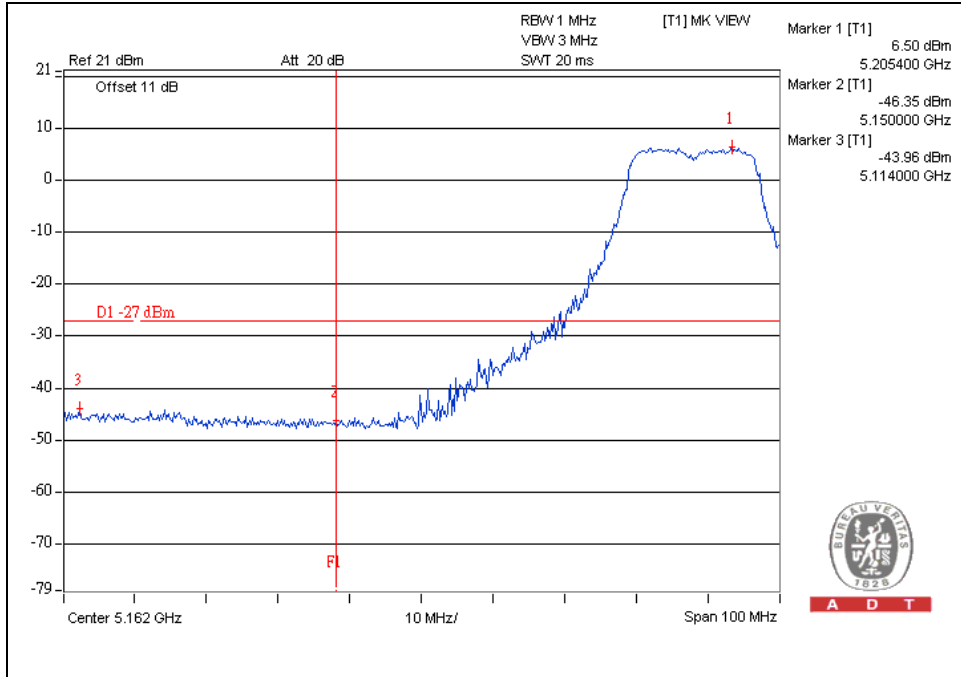
CH 36



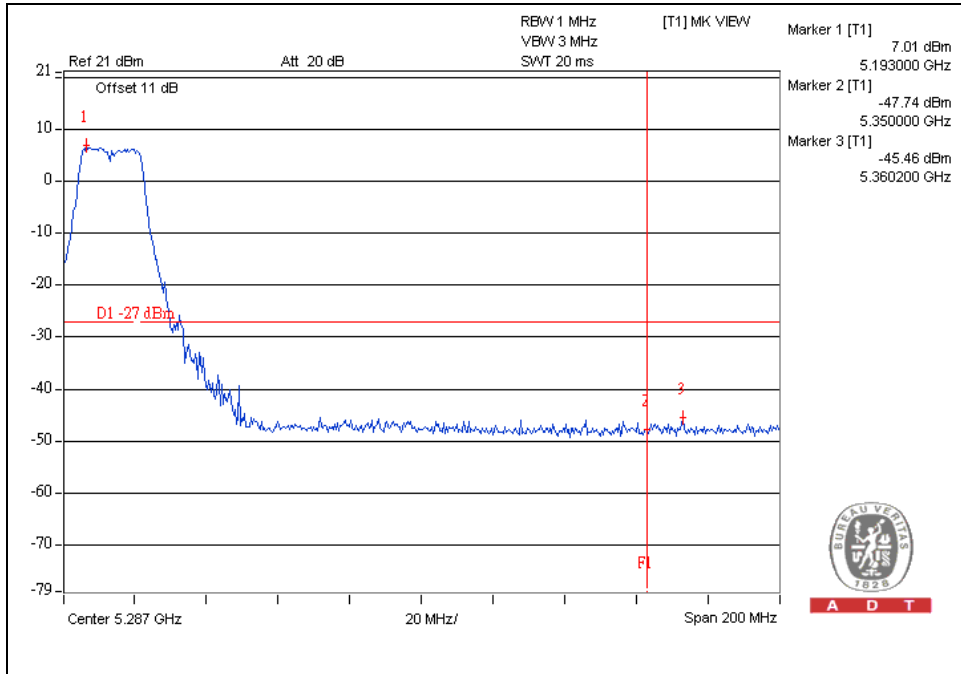


A D T

CH 40



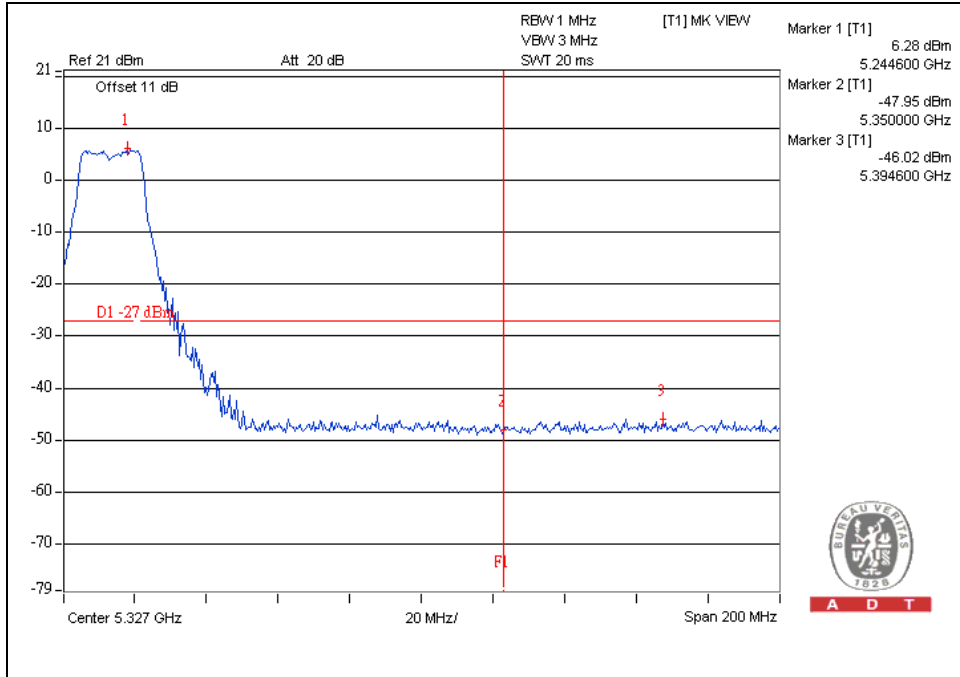
CH 40



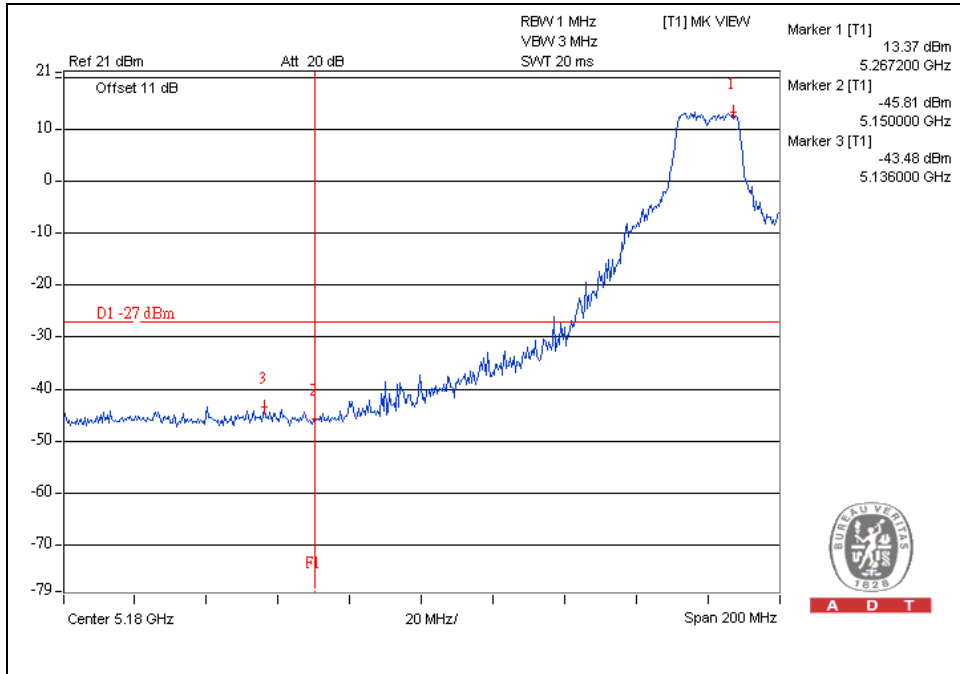


A D T

CH 48



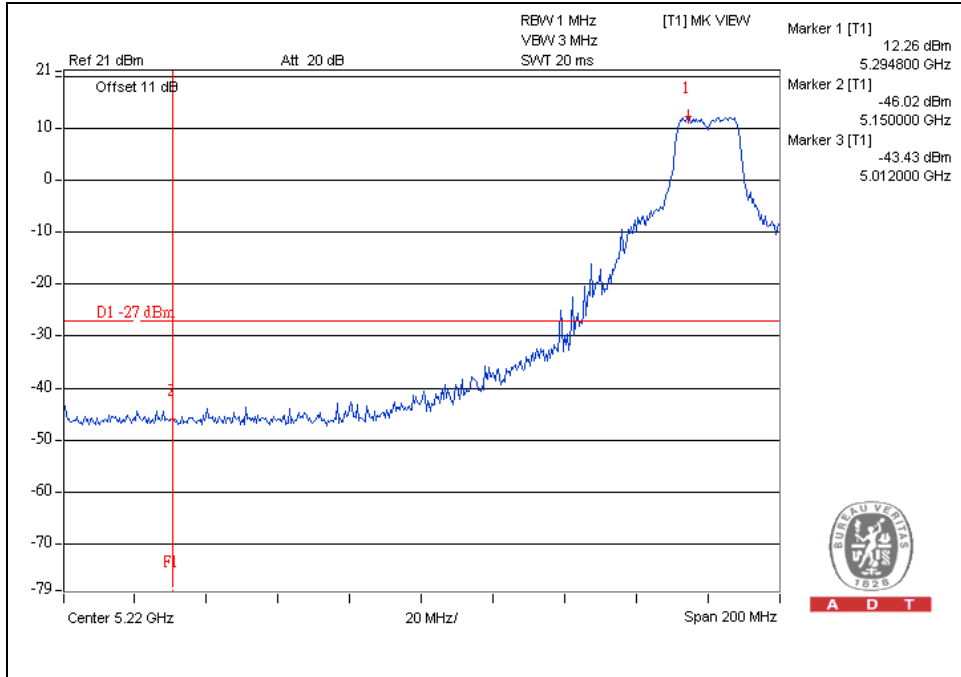
CH 52



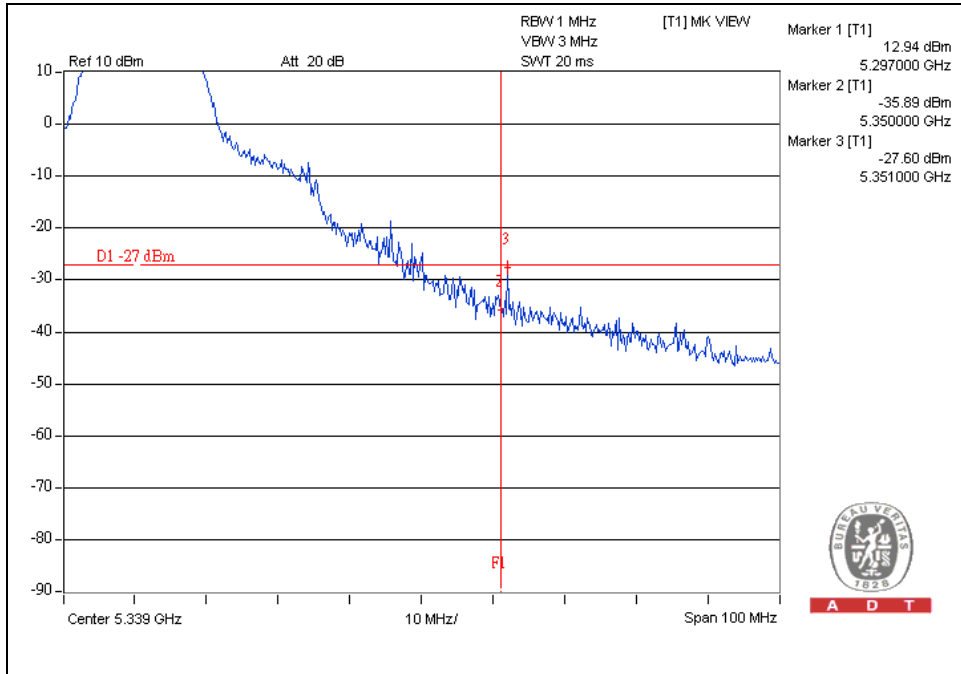


A D T

CH 60



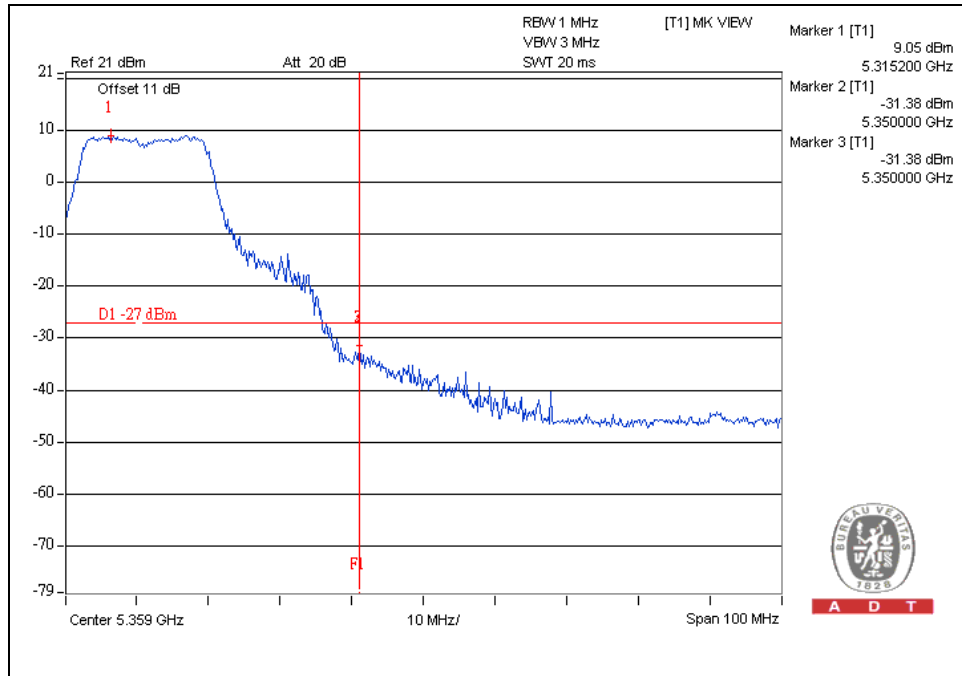
CH 60





A D T

CH 64

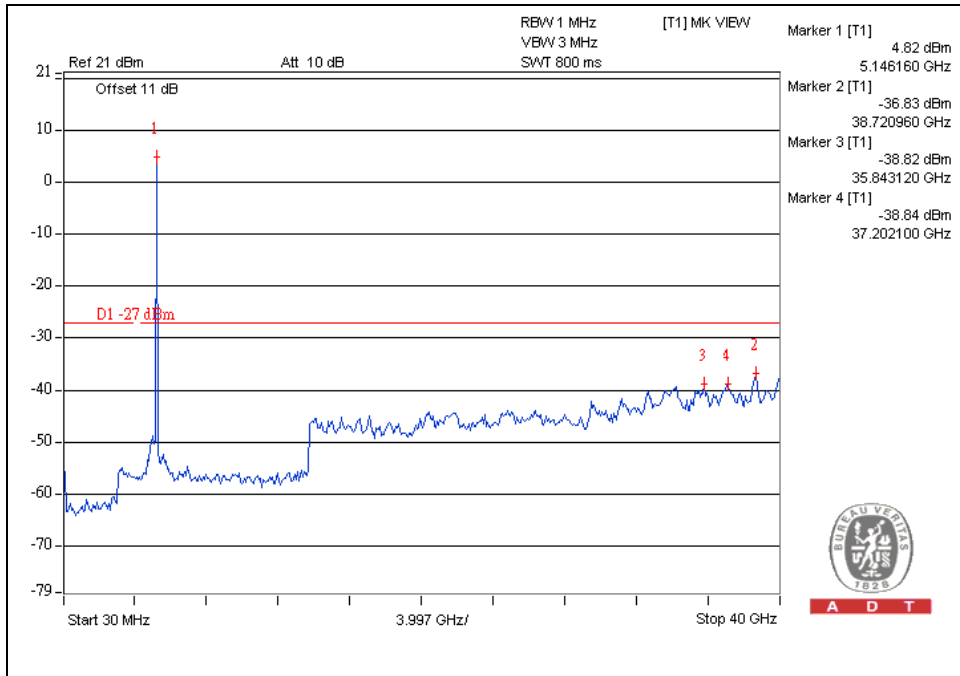


A D T

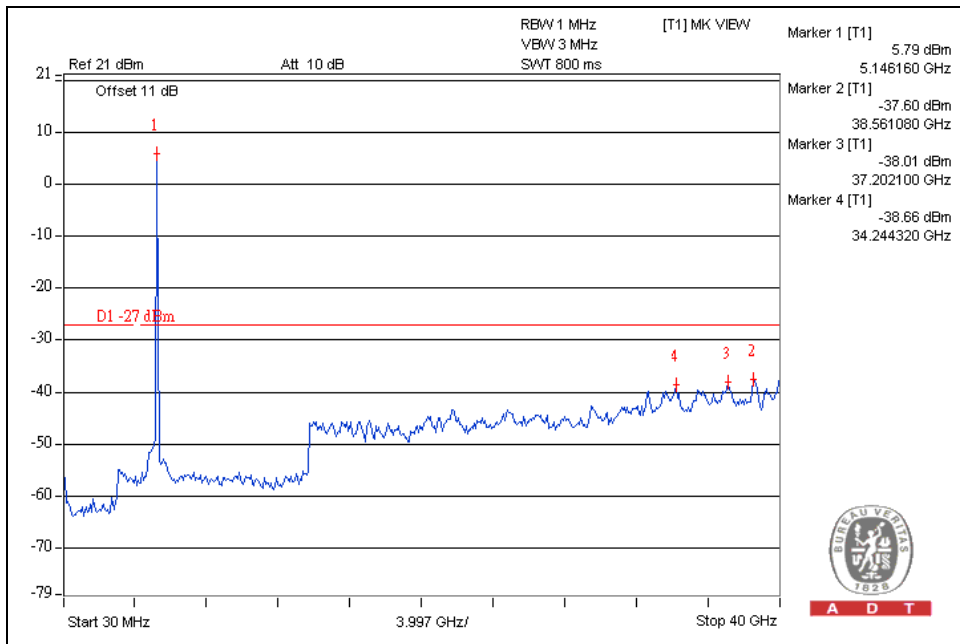


A D T

CH 36



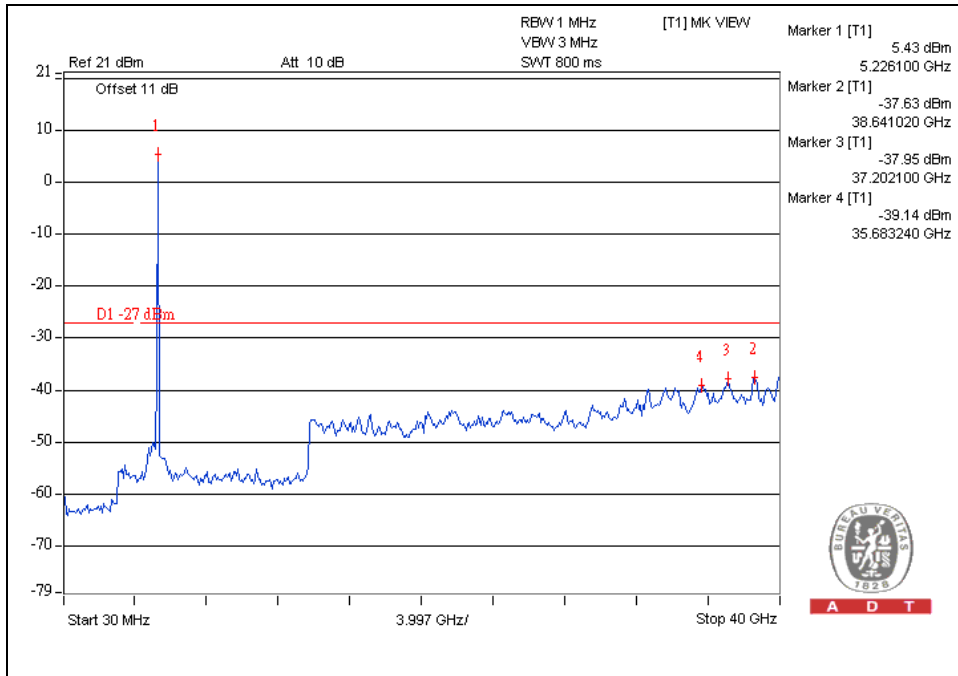
CH 40



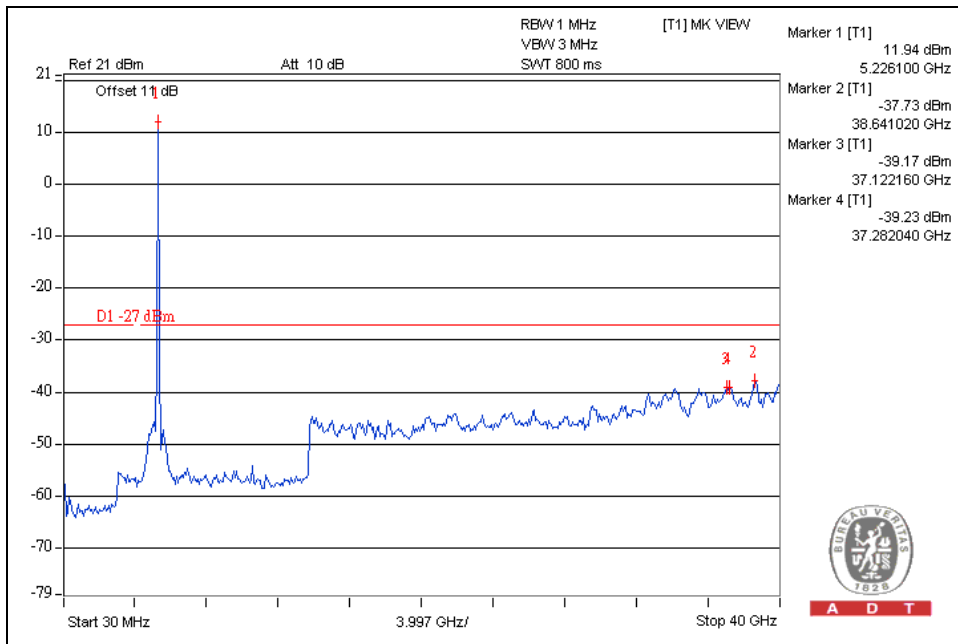


A D T

CH 48



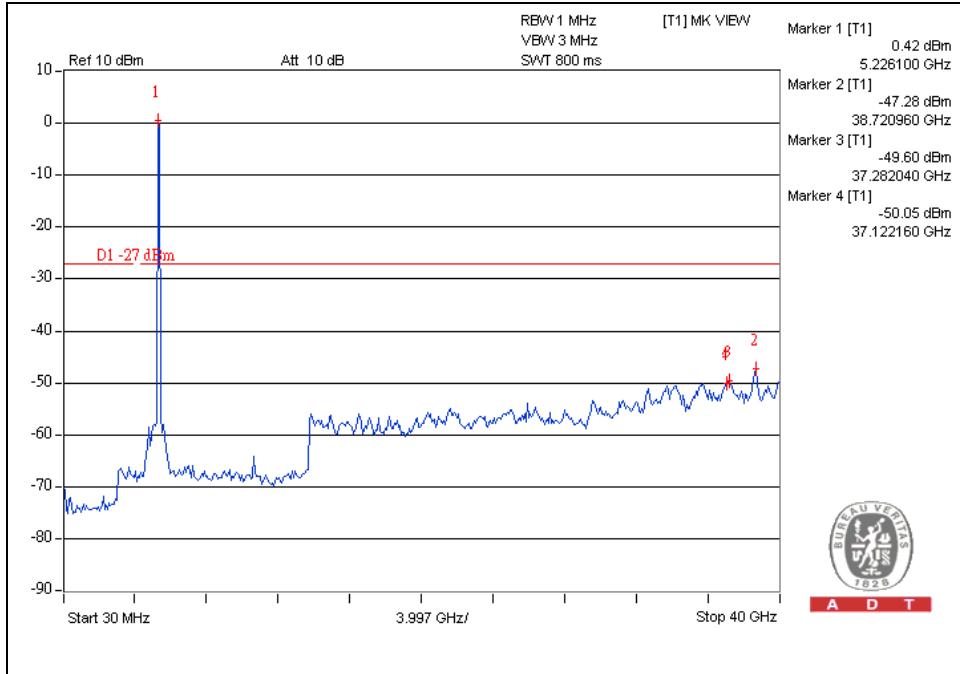
CH 52



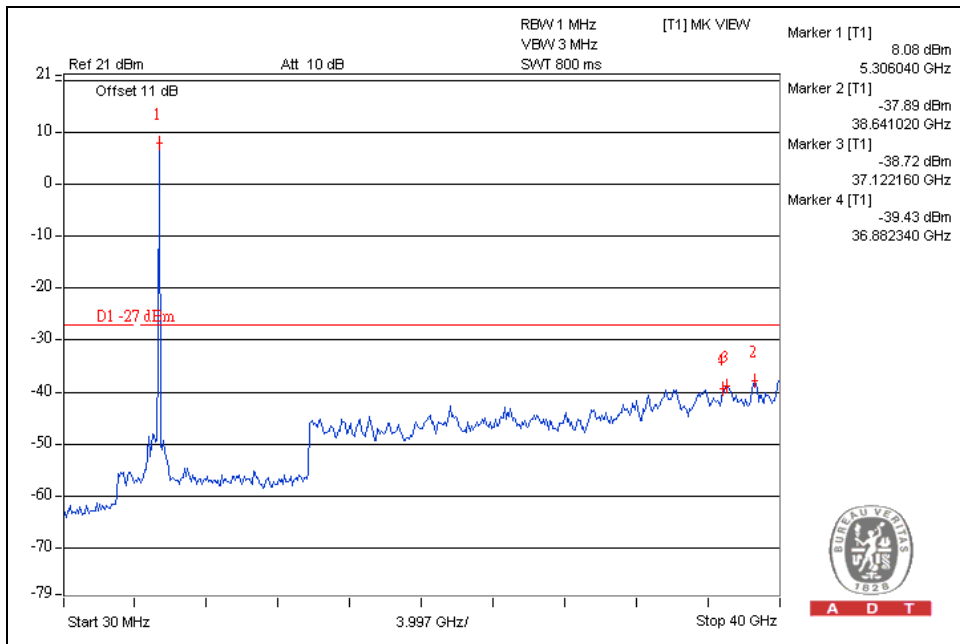


A D T

CH 60



CH 64



For 5.47 to 5.725GHz band:

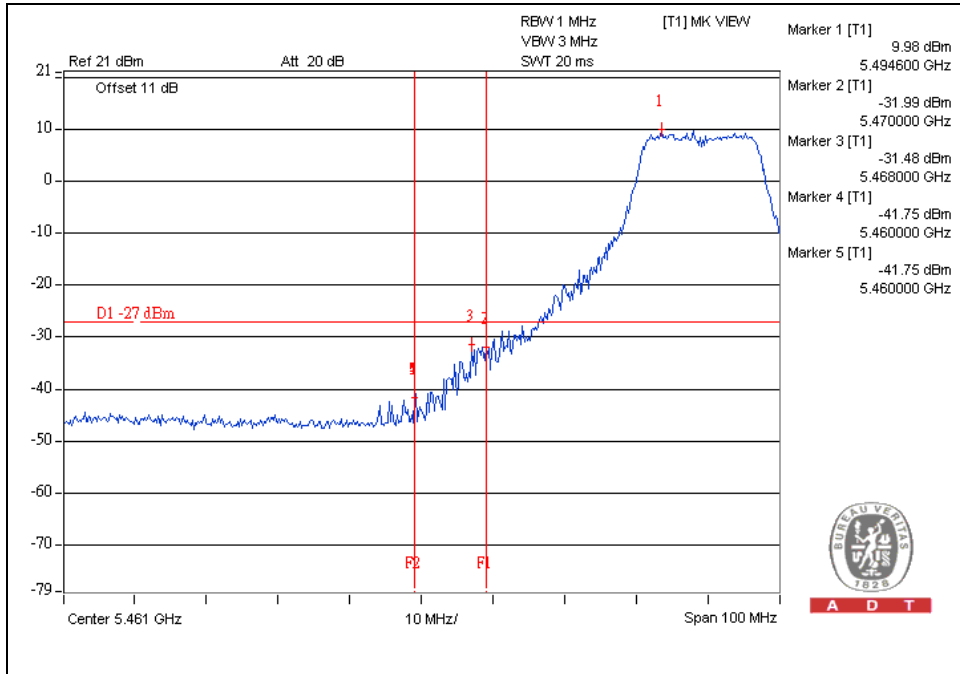
The spectrum plots (Peak RBW=1MHz, VBW=3MHz) are attached on the following pages.



A D T

802.11a OFDM MODULATION

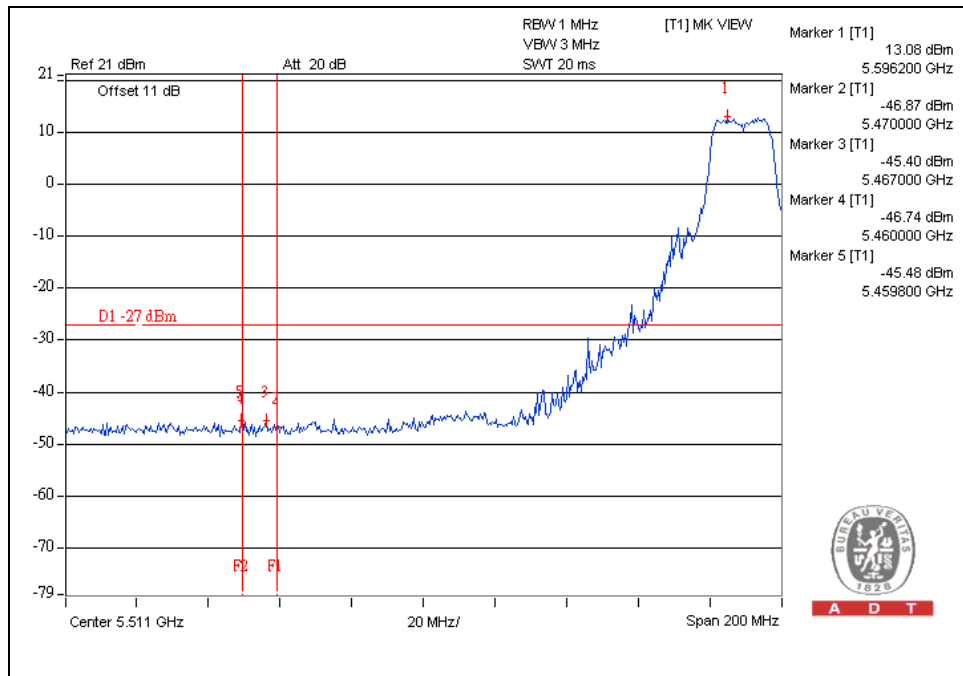
CH 100





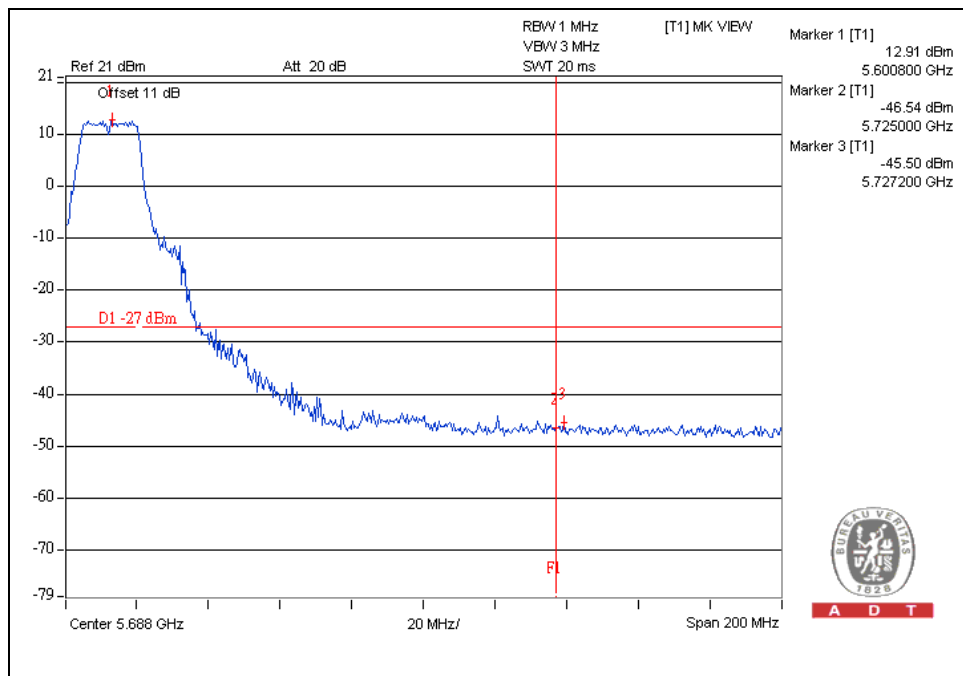
A D T

CH 120



A D T

CH 120

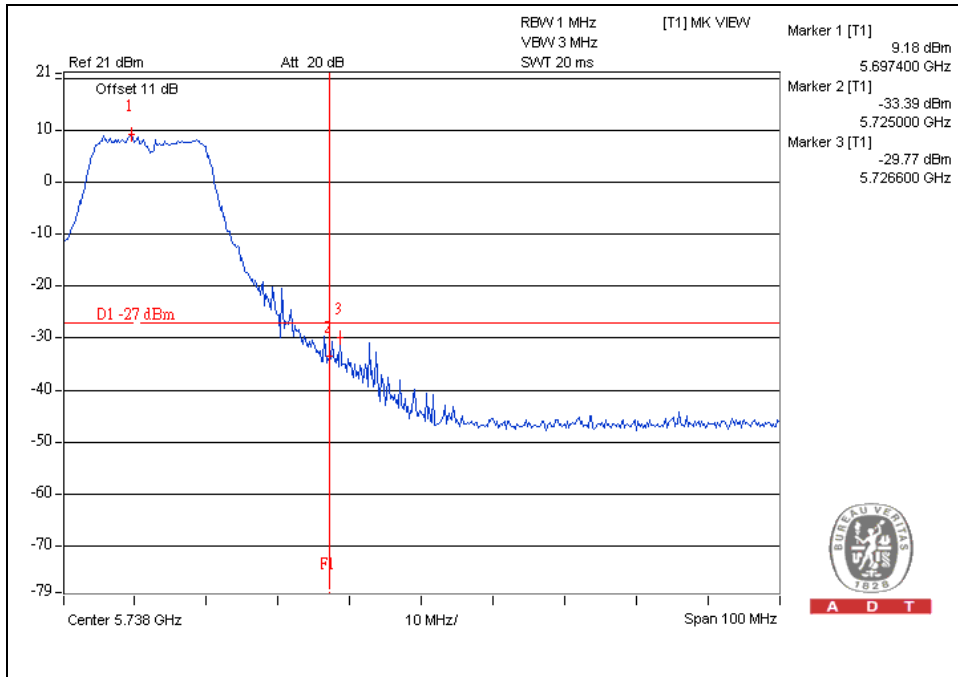


A D T



A D T

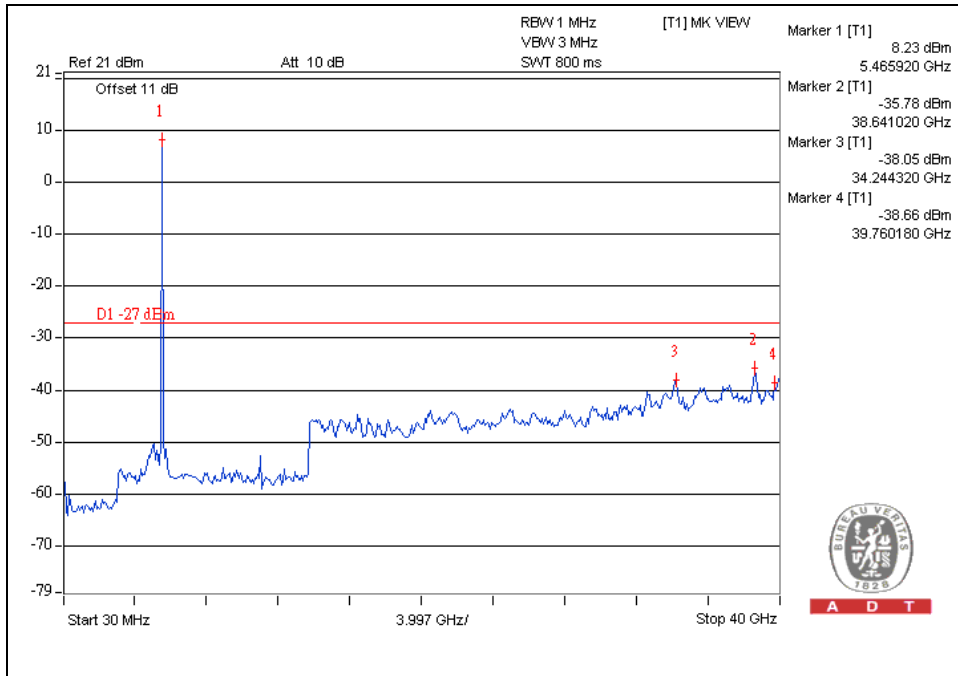
CH 140



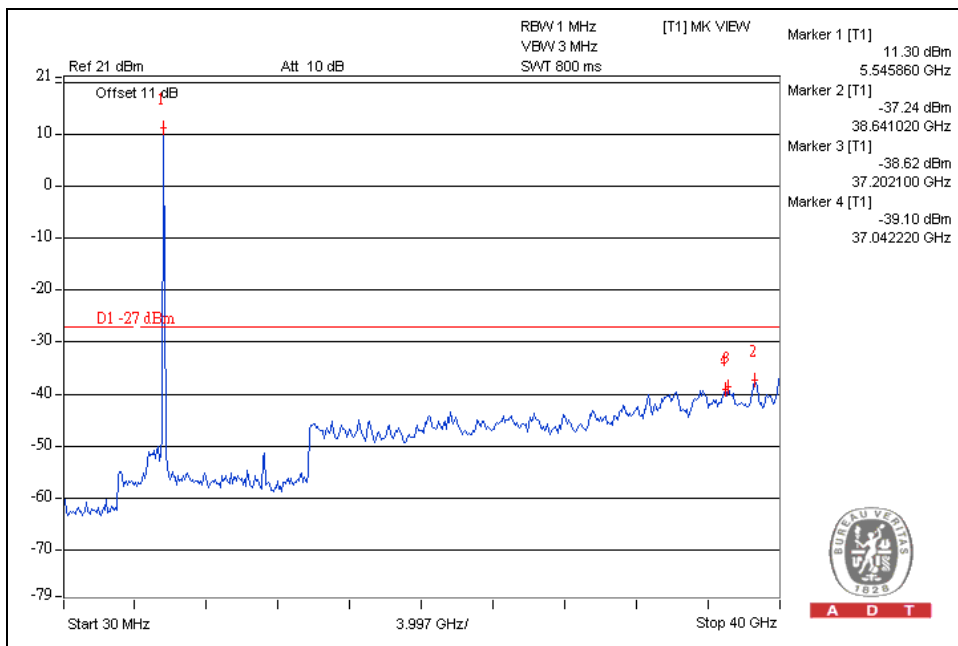


A D T

CH 100



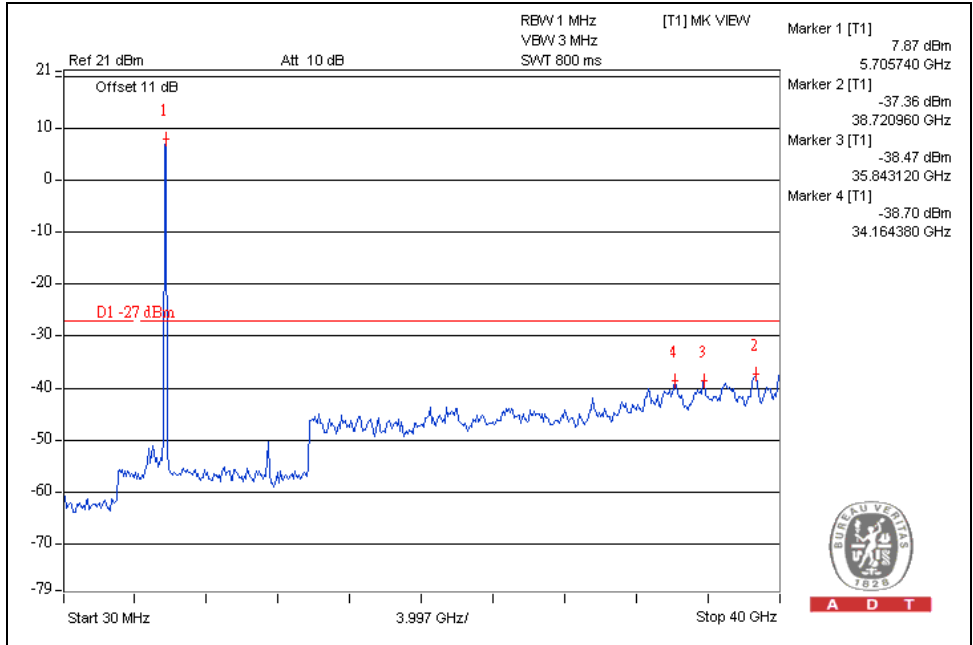
CH 120





A D T

CH 140



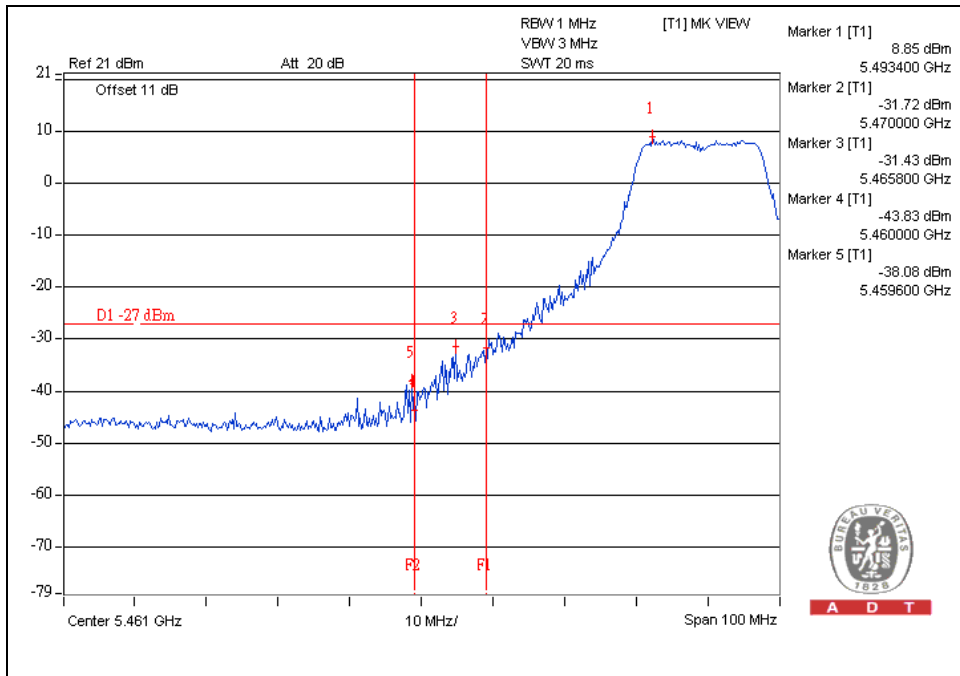
A D T



A D T

802.11n (20MHz) OFDM MODULATION:

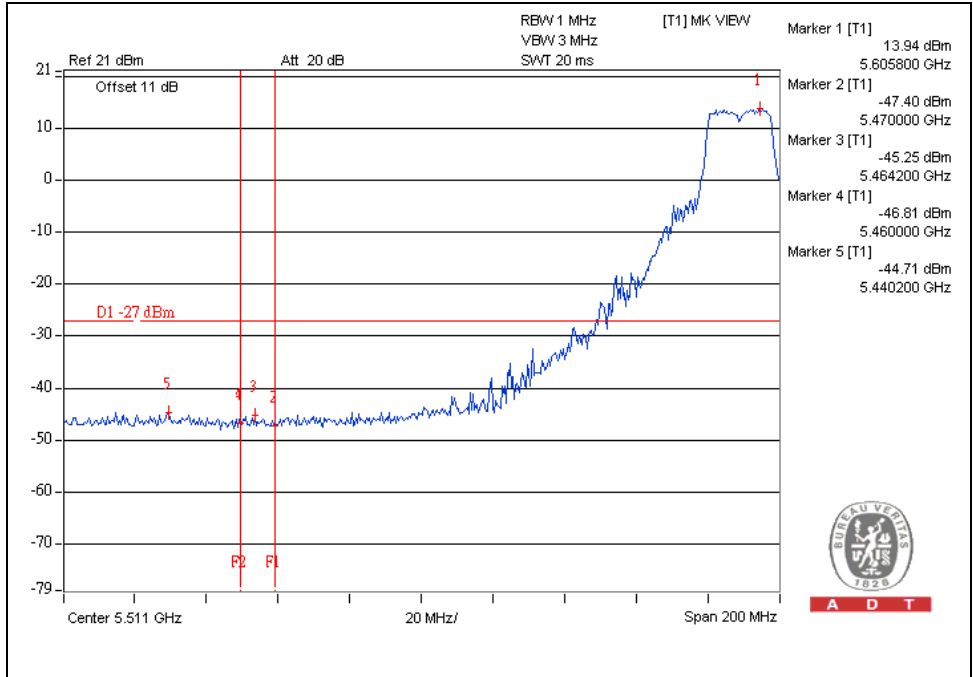
CH 100



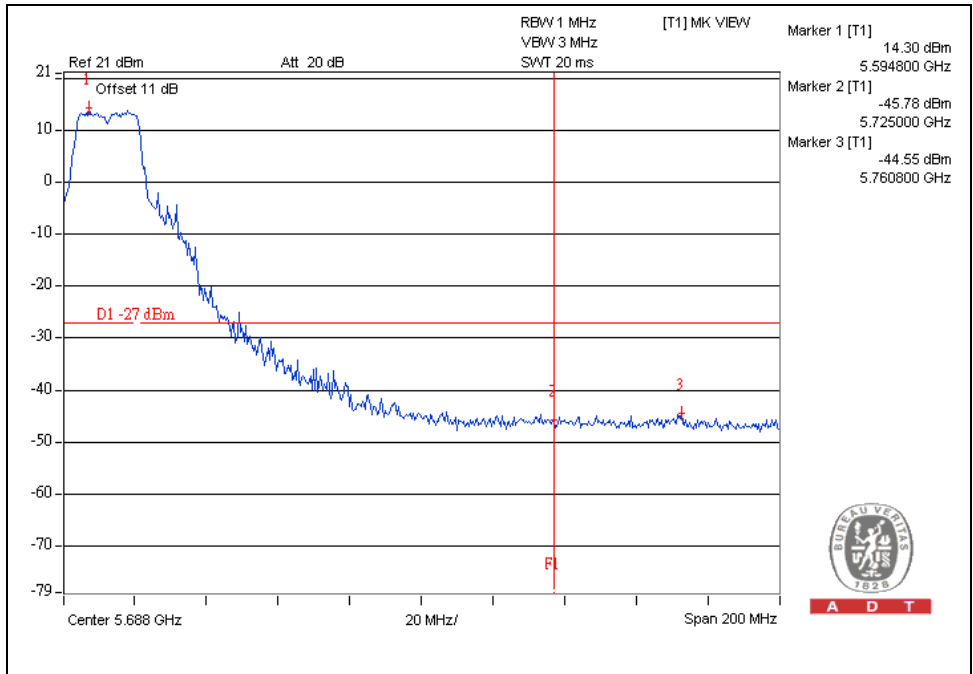


A D T

CH 120



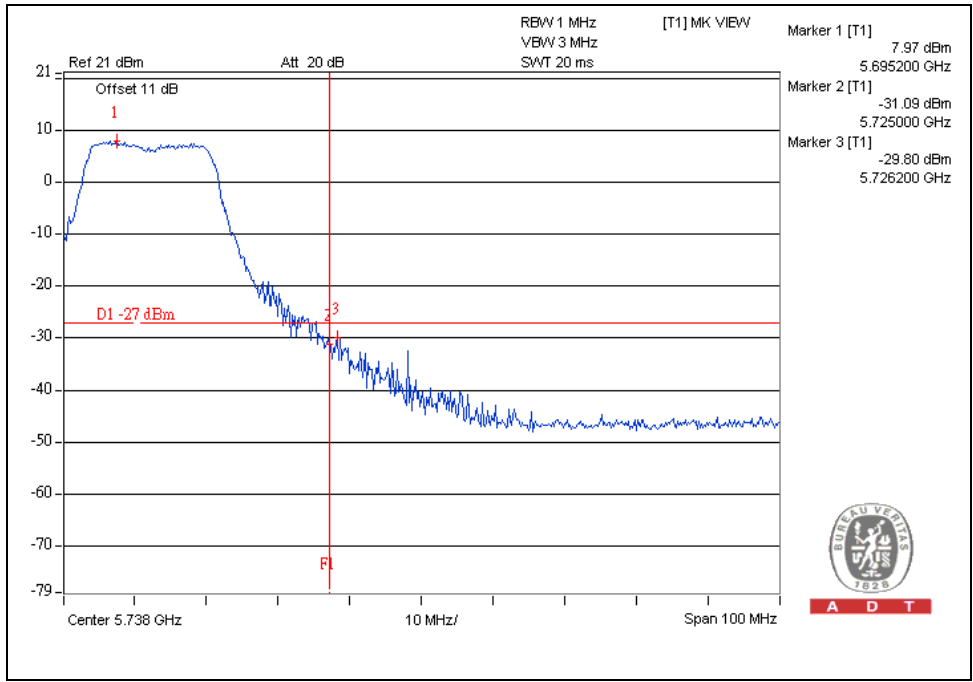
CH 120





A D T

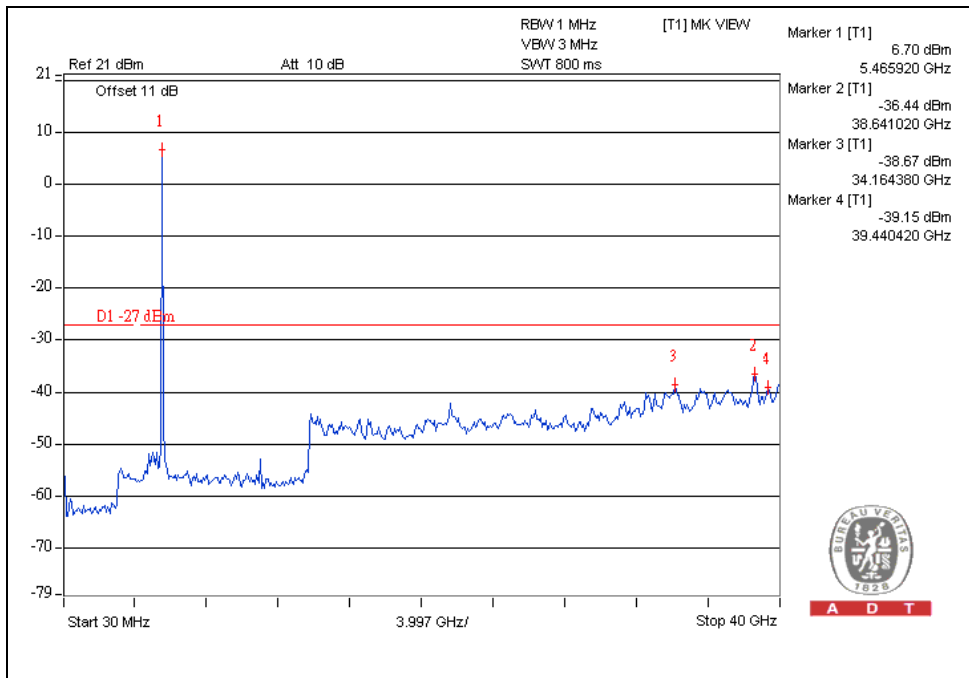
CH 140



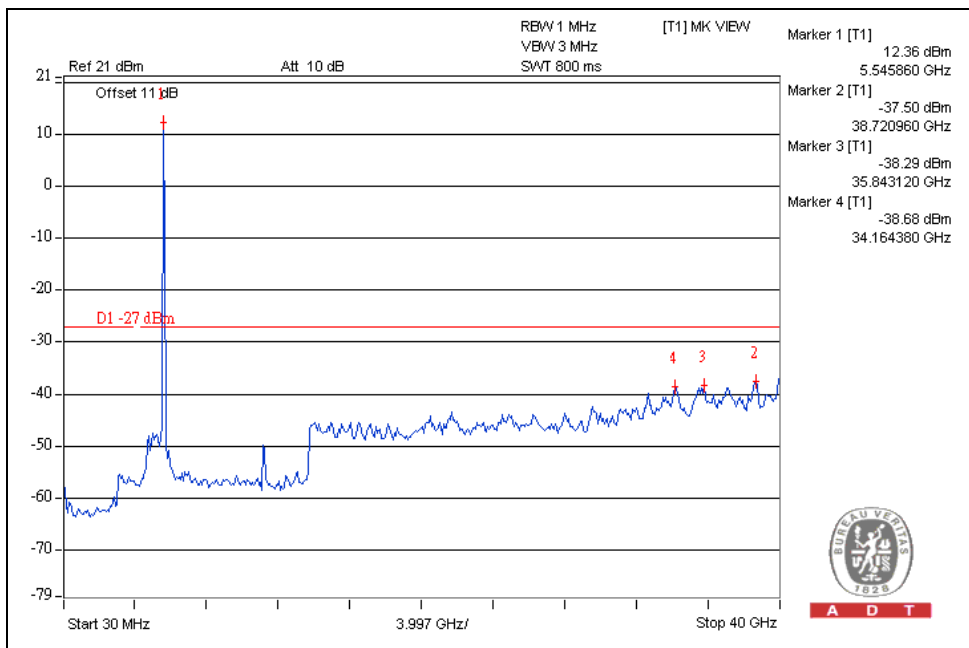


A D T

CH 100



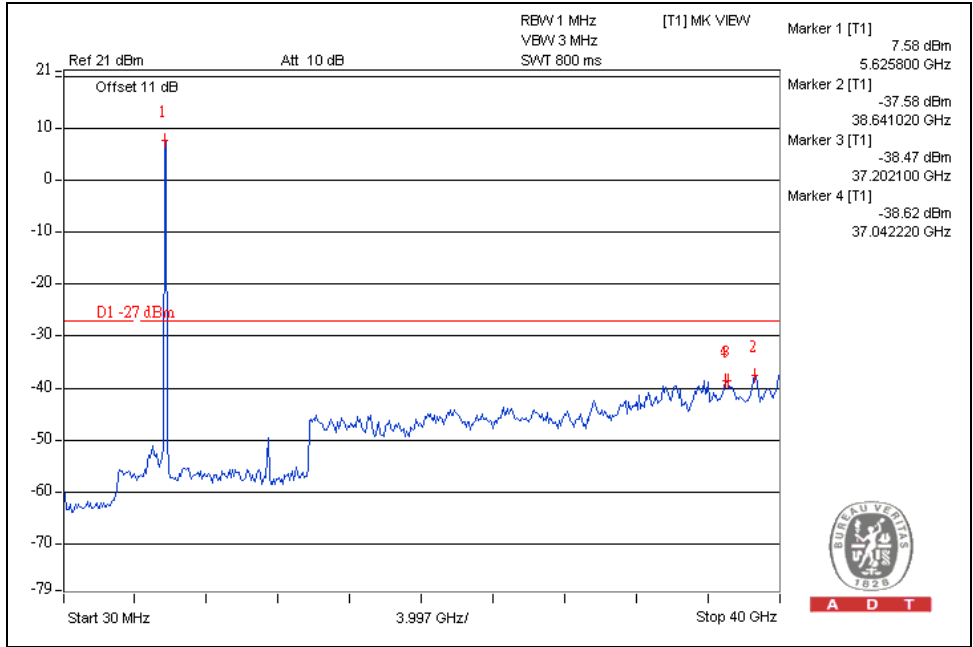
CH 120





A D T

CH 140





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.com.tw

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.

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