FCC TEST REPORT (15.407)

REPORT NO.:	RF990701C17A-1 R1
MODEL NO.:	VEN401-XX (The "X" of Model Name could be 0~9, A~Z or blank)
FCC ID:	MXF-AP990624M
RECEIVED:	July 01, 2010
TESTED:	July 01 to 28, 2010
ISSUED:	Apr. 13, 2011

APPLICANT:	Gemtek Technology Co., Ltd.
ADDRESS:	No.15-1, Zhonghua Rd, Hsinchu Industrial Park , Hsinchu County, Taiwan,R.O.C.303

ISSUED BY:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory
LAB ADDRESS:	No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan
TEST LOCATION (1):	No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan
TEST LOCATION (2):	No. 49, Ln. 206, Wende Rd., Shangshan Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

Table of Contents

RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
Original release	NA	Feb. 21, 2011
RF990701C17A-1 R1	1. Modified the test procedures for section 4.2.4. 2. Modified the test procedures for section 4.3.3. 3. Added 20dB bandwidth measurement for section 8. 4. Modify the test standard.	Apr. 13, 2011

1. CERTIFICATION

PRODUCT:	Wireless Video Access Point
BRAND NAME:	CISCO
MODEL NO.:	VEN401-XX (The "X" of Model Name could be 0~9, A~Z or blank)
TEST SAMPLE:	ENGINEERING SAMPLE
TESTED:	July 01 to 28, 2010
APPLICANT:	Gemtek Technology Co., Ltd.
STANDARDS:	FCC Part 15, Subpart E (Section 15.407) ANSI C63.10-2009

The above equipment (Model: VEN401-AT) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : _____ , **DATE:** Apr. 13, 2011
(Midoli Peng, Specialist)

TECHNICAL ACCEPTANCE : _____ , **DATE:** Apr. 13, 2011
(Hank Chung, Deputy Manager)

APPROVED BY : _____ , **DATE:** Apr. 13, 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 -11.97dB at 0.150MHz
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 11000.0MHz & 11160.0MHz & 15960.0MHz& 5350.90MHz
15.407(a/1/2/3)	Peak Transmit Power	PASS	Meet the requirement of limit.
15.407(a)(6)	Peak Power Excursion	PASS	Meet the requirement of limit.
15.407(a/1/2/3)	Peak Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used.

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)	3.76 dB
Radiated emissions (1GHz -18GHz)	2.19 dB
Radiated emissions (18GHz -40GHz)	2.55 dB

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wireless Video Access Point
MODEL NO.	VEN401-XX (The "X" of Model Name could be 0~9, A~Z or blank)
FCC ID	MXF-AP990624M
POWER SUPPLY	DC 12V from power adapter
MODULATION TYPE	64QAM, 16QAM, QPSK, BPSK
MODULATION TECHNOLOGY	OFDM
TRANSFER RATE	802.11a: 54, 48, 36, 24, 18, 12, 9, 6 Mbps 802.11n: Up to 300 Mbps
OPERATING FREQUENCY	**For 15.407** 802.11a: 5.18 ~ 5.24GHz, 5.26 ~ 5.32GHz, 5.50 ~ 5.70GHz
	For 15.247 802.11a: 5.745 ~ 5.825GHz
NUMBER OF CHANNEL	**For 15.407** 16 for 802.11a, 802.11n (20MHz) 7 for 802.11n (40MHz)
	For 15.247 5 for 802.11a, 802.11n (20MHz) 2 for 802.11n (40MHz)
MAXIMUM OUTPUT POWER	**For 15.407** 802.11a: 75.9mW 802.11n (20MHz): 140.0mW 802.11n (40MHz): 240.5mW **For 15.247** 802.11a: 398.1mW 802.11n (20MHz): 737.0mW 802.11n (40MHz): 734.6mW
ANTENNA TYPE	Please refer note 3
ANTENNA CONNECTOR	Please refer note 3
DATA CABLE	NA
I/O PORTS	LAN port x 1
ASSOCIATED DEVICES	Adapter x 1

NOTE:

1. This report is prepared for FCC permissive change. The difference compared with the Report No.: RF990701C17-1 design is as the following:

   u Add DFS band <5250~5350MHz & 5470~5725MHz>

2. The EUT has below model names which are identical to each other in all aspects except for the following table :

Model No.	Description
VEN401-XX (X could be “0-9”, “A-Z”, “blank”)	for different marketing

   From the above models, model: **VEN401-AT** was selected as model for the test and its data was recorded in this report.

3. There is one set of antenna provided to this EUT, please refer to the following table:

Chain	Antenna Gain			Antenna Type	Connector
	For 5.15~5.25GHz Gain (dBi)	For 5.25~5.35GHz Gain (dBi)	For 5.47~5.725 GHz & 5.725~5.85GHz Gain (dBi)		
0	Peak Gain Top Front Antenna 3.4	Peak Gain Top Front Antenna 3.3	Peak Gain Top Front Antenna 4.3	PIFA	NA
1	Peak Gain Top Middle Antenna 3.9 (Rx only)	Peak Gain Top Middle Antenna 4.0 (Rx only)	Peak Gain Top Middle Antenna 4.5 (Rx only)	PIFA	NA
2	Peak Gain Top Rear Antenna 3.7	Peak Gain Top Rear Antenna 4.3	Peak Gain Top Rear Antenna 4.2	PIFA	NA

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

Adapter 1	
Brand:	OEM
Model No.:	ADS18B-W 120100
Input power :	100-240V 0.5A 50-60Hz
Output power :	12V 1A DC output cable (Unshielded, 1.8m)
Description:	Two types: 1. DC output cable without power switch (※) 2. DC output cable with power switch (※)
Adapter 2	
Brand:	OEM
Model No.:	ADS0128-W 120100
Input power :	100-240V 0.5A 50-60Hz
Output power :	12V 1A DC output cable (Unshielded, 1.8m)
Description:	One type: 1. DC output cable without power switch (※)
Adapter 3	
Brand:	ENG
Model No.:	12GWU12
Input power :	100-120V 0.3A 50-60Hz
Output power :	12V 1A DC output cable (Unshielded, 1.9m)
Description:	Two types: 1. DC output cable without power switch (※) 2. DC output cable with power switch (※)

※**For Radiated test:** The EUT was pre-tested with above adapters, the worse case was found in the **adapter 1 without power switch**. Therefore only the test data of the adapter was recorded in this report.

5. The EUT incorporates a MIMO function with 802.11n. Physically, the EUT provides two completed transmitters and three completed receivers.

6. The EUT is 2 * 3 spatial MIMO (2Tx & 3Rx) without beam forming function. The antenna configurations are two transmitter antennas and three receiver antennas, as there are 3 PIFA antennas. Spatial multiplexing modes for simultaneous transmission using 2 antennas, and for simultaneous receiver using 3 antennas. The 11a legacy mode is limited to single transmitter only.

7. The EUT complies with 802.11n standards and backwards compatible with 802. 11a products.

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

3.2 DESCRIPTION OF TEST MODES

Operated in 5250MHz ~ 5350MHz bands:

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

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

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

CHANNEL	FREQUENCY
54	5270 MHz
62	5310 MHz

Operated in 5470MHz ~ 5725MHz bands:

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

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

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

CHANNEL	FREQUENCY
102	5510 MHz
110	5550 MHz
134	5670 MHz

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	PLC	RE < 1G	RE ³ 1G	APCM	
1	√	√	√	√	**Adapter 1** < DC output cable without power switch>
2	√	-	-	-	**Adapter 1** < DC output cable with power switch>
3	√	-	-	-	**Adapter 2** < DC output cable without power switch>
4	√	-	-	-	**Adapter 3** < DC output cable without power switch>
5	√	-	-	-	**Adapter 3** < DC output cable with power switch>

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

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

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)	EUT CONFIGURE MODE
802.11n (20MHz)	52 to 140	140	OFDM	BPSK	6.5	1~5

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)	EUT CONFIGURE MODE
802.11n (20MHz)	52 to 140	140	OFDM	BPSK	6.5	1

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)	EUT CONFIGURE MODE
802.11a	52 to 140	52, 60, 64, 100, 116, 132, 140	OFDM	BPSK	6	1
802.11n (20MHz)	52 to 140	52, 60, 64, 100, 116, 132, 140	OFDM	BPSK	6.5	1
802.11n (40MHz)	54 to 134	54, 62, 102, 110, 134	OFDM	BPSK	13.5	1

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 N TYPE	DATA RATE (Mbps)	EUT CONFIGURE MODE
802.11a	52 to 140	52, 64, 100, 140	OFDM	BPSK	6	1
802.11n (20MHz)	52 to 140	52, 64, 100, 140	OFDM	BPSK	6.5	1
802.11n (40MHz)	54 to 134	52, 62, 102, 134	OFDM	BPSK	13.5	1

※ After verification, conducted out band emission as show worst chain in report by investigations.

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)	EUT CONFIGURE MODE
802.11a	52 to 140	52, 60, 64, 100, 116, 132, 140	OFDM	BPSK	6	1
802.11n (20MHz)	52 to 140	52, 60, 64, 100, 116, 132, 140	OFDM	BPSK	6.5	1
802.11n (40MHz)	54 to 134	54, 62, 102, 110, 134	OFDM	BPSK	13.5	1

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE[3]1G	27deg. C, 72%RH, 1011 hPa	120Vac, 60Hz	Eric Lee
RE<1G	24deg. C, 68%RH, 1011 hPa	120Vac, 60Hz	Eric Lee
PLC	26deg. C, 76%RH, 1011 hPa	120Vac, 60Hz	Timmy Hu / Andy Ho
APCM	24deg. C, 68%RH, 1011 hPa	120Vac, 60Hz	Eric Lee

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:

47 CFR Part 15, Subpart E. (15.407)

ANSI C63.10-2009

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

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

3.4 DESCRIPTION OF SUPPORT UNITS

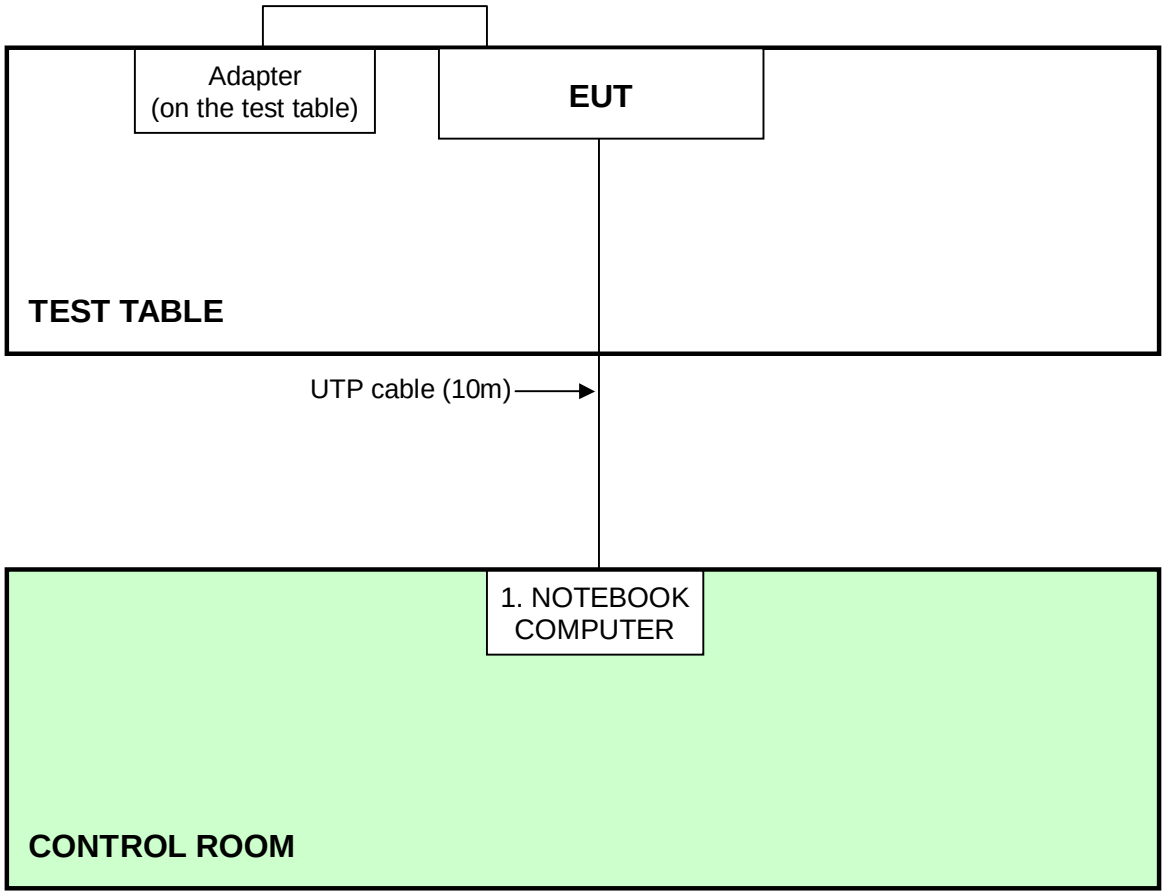
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

For conducted test					
NO.	**PRODUCT**	**BRAND**	**MODEL NO.**	**SERIAL NO.**	**FCC ID**
1	NOTEBOOK COMPUTER	DELL	PP27L	7YLB32S	FCC DoC
For radiated test					
NO.	**PRODUCT**	**BRAND**	**MODEL NO.**	**SERIAL NO.**	**FCC ID**
1	NOTEBOOK COMPUTER	DELL	PP32LA	GSLB32S	FCC DoC

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	UTP cable(10m)

NOTE: 1. All power cords of the above support units are non shielded (1.8m).

3.5 CONFIGURATION OF SYSTEM UNDER TEST



4. TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

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

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

4.1.2 TEST INSTRUMENTS

For test mode 1~3:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver	ESCS 30	100375	Mar. 09, 2010	Mar. 08, 2011
Line-Impedance Stabilization Network (for EUT)	NSLK 8127	8127-522	Sep. 23, 2009	Sep. 22, 2010
Line-Impedance Stabilization Network (for Peripheral)	ESH3-Z5	848773/004	Oct. 26, 2009	Oct. 25, 2010
RF Cable (JYEBAO)	5DFB	COBCAB-001	Nov. 24, 2009	Nov. 23, 2010
50 ohms Terminator	50	3	Oct. 28, 2009	Oct. 27, 2010
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.

For test mode 4~5:

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver	ESCS 30	100375	Mar. 09, 2010	Mar. 08, 2011
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. The two LISNs

b. provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

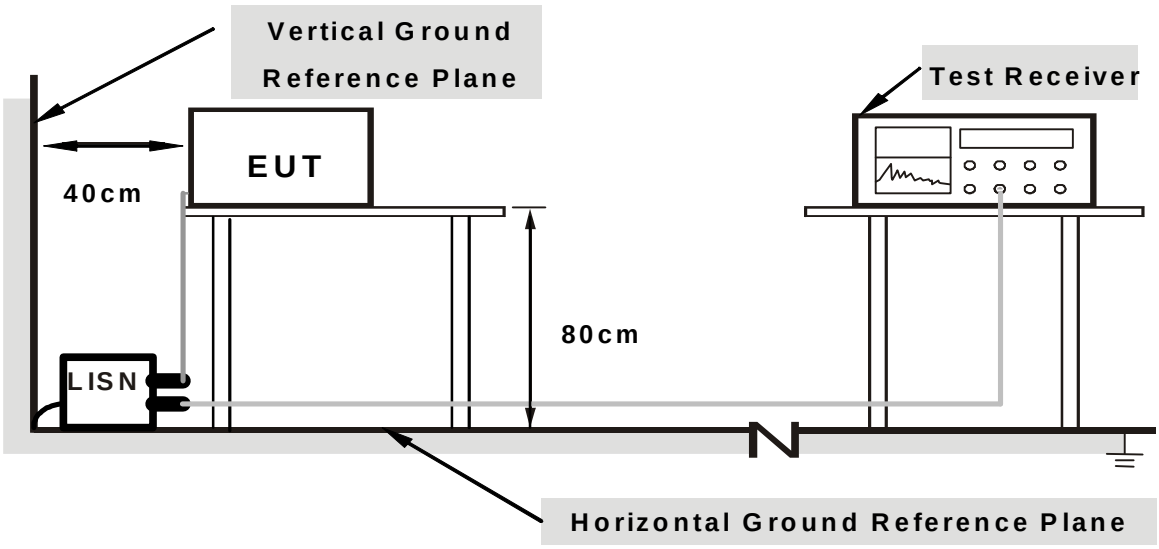
c. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

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

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



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

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

4.1.6 EUT OPERATING CONDITIONS

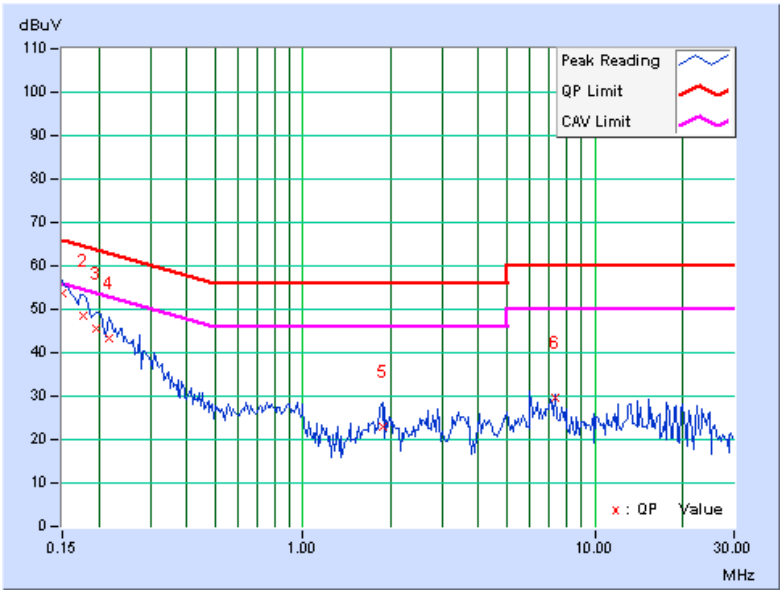
1. Placed the EUT on testing table.
2. Prepared other computer system (support unit 1) to act as communication partners and placed them outside of testing area.
3. The communication partners ran test program “telnet 192.168.1.1 & BRCM command” to enable EUT under transmission/receiving condition continuously at specific channel frequency via one UTP cable.

4.1.7 TEST RESULTS (MODE 1)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.05	53.72	-	53.77	-	66.00	56.00	-12.23	-
2	0.177	0.05	48.51	-	48.56	-	64.61	54.61	-16.05	-
3	0.197	0.05	45.42	-	45.47	-	63.74	53.74	-18.27	-
4	0.216	0.05	43.30	-	43.35	-	62.96	52.96	-19.60	-
5	1.879	0.13	22.91	-	23.04	-	56.00	46.00	-32.96	-
6	7.348	0.28	29.30	-	29.58	-	60.00	50.00	-30.42	-

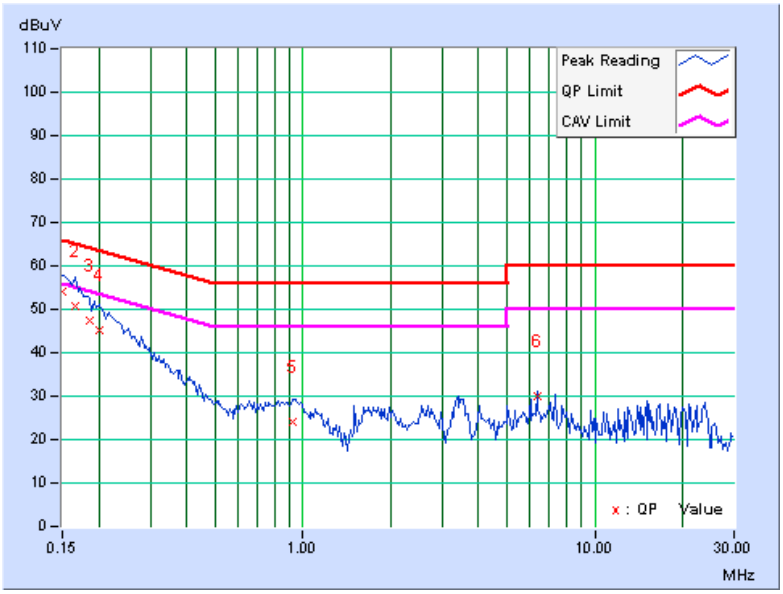
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.150**	**0.06**	**53.97**	**-**	**54.03**	**-**	**66.00**	**56.00**	**-11.97**	**-**
2	0.166	0.06	50.52	-	50.58	-	65.18	55.18	-14.59	-
3	0.185	0.06	47.19	-	47.25	-	64.25	54.25	-17.00	-
4	0.201	0.06	45.31	-	45.37	-	63.58	53.58	-18.21	-
5	0.927	0.10	24.01	-	24.11	-	56.00	46.00	-31.89	-
6	6.348	0.26	29.64	-	29.90	-	60.00	50.00	-30.10	-

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

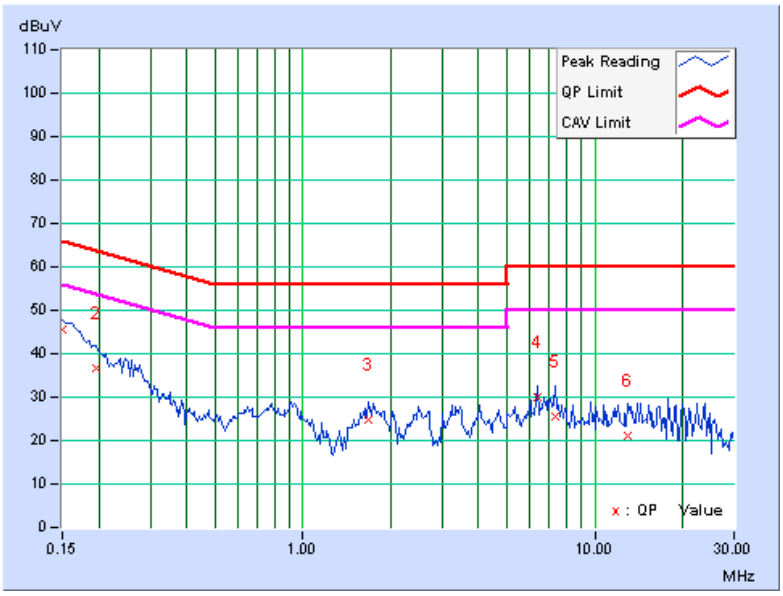


4.1.8 TEST RESULTS (MODE 2)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.05	45.60	-	45.65	-	66.00	56.00	-20.35	-
2	0.197	0.05	36.74	-	36.79	-	63.74	53.74	-26.95	-
3	1.680	0.12	24.70	-	24.82	-	56.00	46.00	-31.18	-
4	6.355	0.25	29.73	-	29.98	-	60.00	50.00	-30.02	-
5	7.363	0.28	25.20	-	25.48	-	60.00	50.00	-34.52	-
6	13.051	0.40	20.54	-	20.94	-	60.00	50.00	-39.06	-

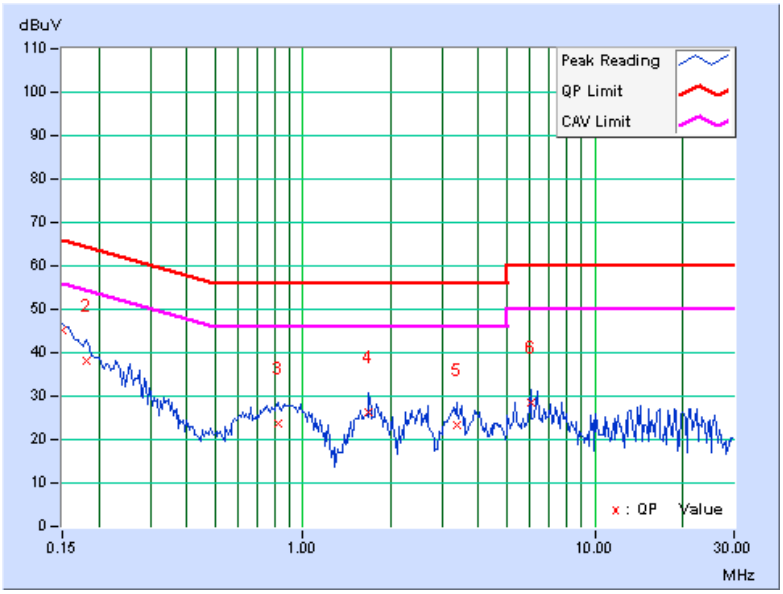
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.06	45.13	-	45.19	-	66.00	56.00	-20.81	-
2	0.181	0.06	38.09	-	38.15	-	64.43	54.43	-26.28	-
3	0.822	0.09	23.77	-	23.86	-	56.00	46.00	-32.14	-
4	1.672	0.13	26.09	-	26.22	-	56.00	46.00	-29.78	-
5	3.367	0.18	23.09	-	23.27	-	56.00	46.00	-32.73	-
6	6.016	0.25	28.29	-	28.54	-	60.00	50.00	-31.46	-

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

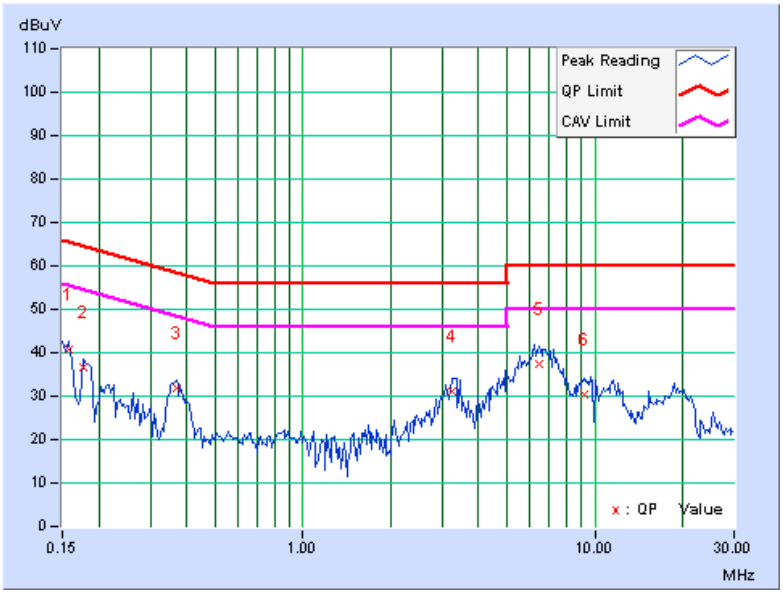


4.1.9 TEST RESULTS (MODE 3)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.158	0.05	40.62	-	40.67	-	65.58	55.58	-24.90	-
2	0.177	0.05	36.47	-	36.52	-	64.61	54.61	-28.09	-
3	0.369	0.06	31.90	-	31.96	-	58.53	48.53	-26.57	-
4	3.242	0.17	30.85	-	31.02	-	56.00	46.00	-24.98	-
5	6.426	0.25	36.98	-	37.23	-	60.00	50.00	-22.77	-
6	9.211	0.33	29.97	-	30.30	-	60.00	50.00	-29.70	-

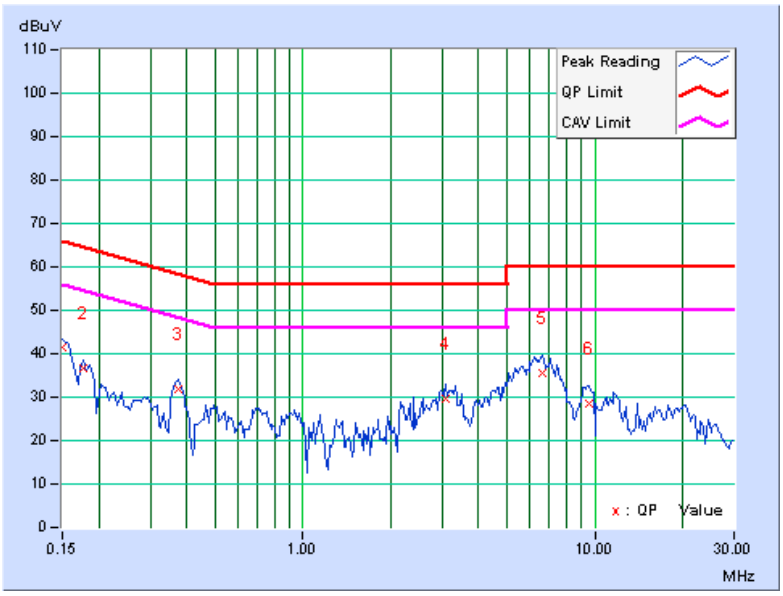
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.06	41.48	-	41.54	-	66.00	56.00	-24.46	-
2	0.177	0.06	36.49	-	36.55	-	64.61	54.61	-28.06	-
3	0.373	0.07	31.64	-	31.71	-	58.44	48.44	-26.73	-
4	3.090	0.17	29.43	-	29.60	-	56.00	46.00	-26.40	-
5	6.578	0.27	35.30	-	35.57	-	60.00	50.00	-24.43	-
6	9.516	0.35	28.33	-	28.68	-	60.00	50.00	-31.32	-

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

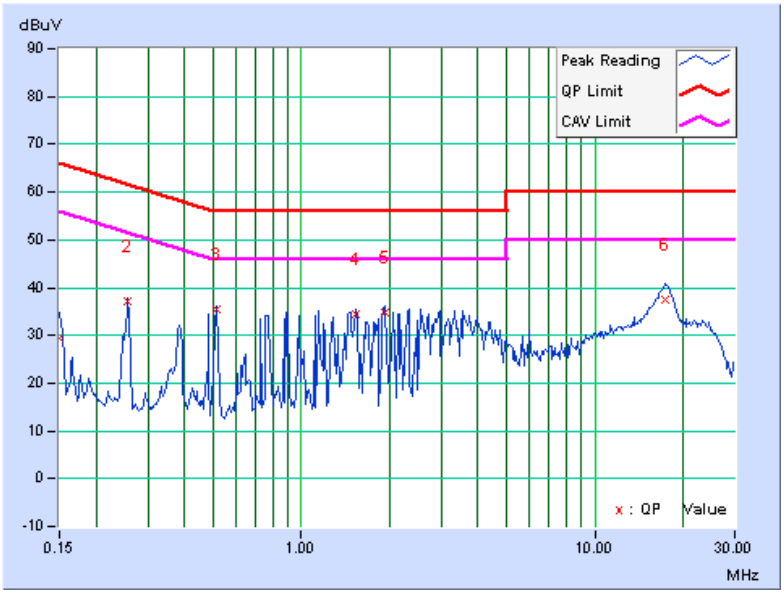


4.1.10 TEST RESULTS (MODE 4)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.10	29.14	-	29.24	-	66.00	56.00	-36.76	-
2	0.256	0.13	37.16	-	37.29	-	61.57	51.57	-24.28	-
3	0.514	0.13	35.29	-	35.42	-	56.00	46.00	-20.58	-
4	1.530	0.15	34.25	-	34.40	-	56.00	46.00	-21.60	-
5	1.933	0.16	34.56	-	34.72	-	56.00	46.00	-21.28	-
6	17.393	0.61	36.88	-	37.49	-	60.00	50.00	-22.51	-

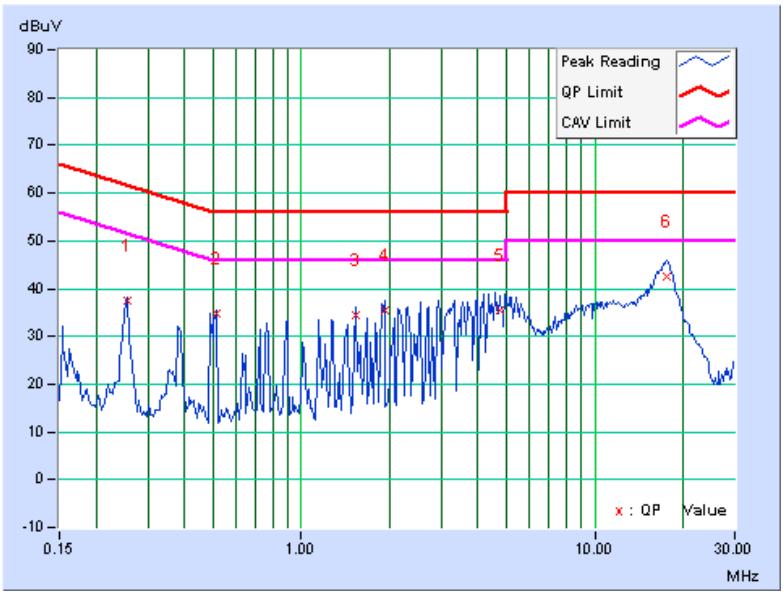
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.255	0.14	37.18	-	37.32	-	61.61	51.61	-24.29	-
2	0.514	0.15	34.48	-	34.63	-	56.00	46.00	-21.37	-
3	1.526	0.18	34.15	-	34.33	-	56.00	46.00	-21.67	-
4	1.921	0.19	35.21	-	35.40	-	56.00	46.00	-20.60	-
5	4.736	0.35	35.02	-	35.37	-	56.00	46.00	-20.63	-
6	17.573	1.27	41.14	-	42.41	-	60.00	50.00	-17.59	-

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

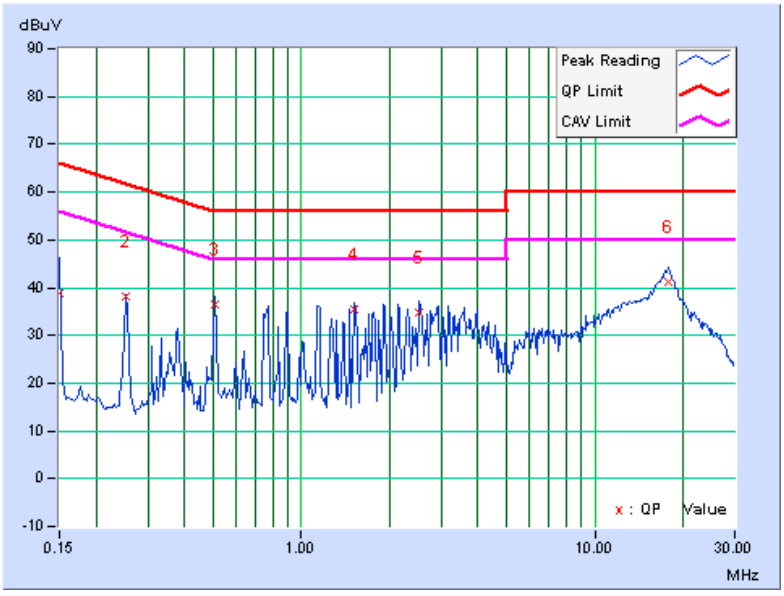


4.1.11 TEST RESULTS (MODE 5)

PHASE	Line (L)	6dB BANDWIDTH	9 kHz

No	Freq.	Corr. Factor	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.10	38.66	-	38.76	-	66.00	56.00	-27.24	-
2	0.252	0.13	37.99	-	38.12	-	61.70	51.70	-23.58	-
3	0.510	0.13	36.29	-	36.42	-	56.00	46.00	-19.58	-
4	1.522	0.15	35.38	-	35.53	-	56.00	46.00	-20.47	-
5	2.523	0.17	34.62	-	34.79	-	56.00	46.00	-21.21	-
6	17.773	0.62	40.44	-	41.06	-	60.00	50.00	-18.94	-

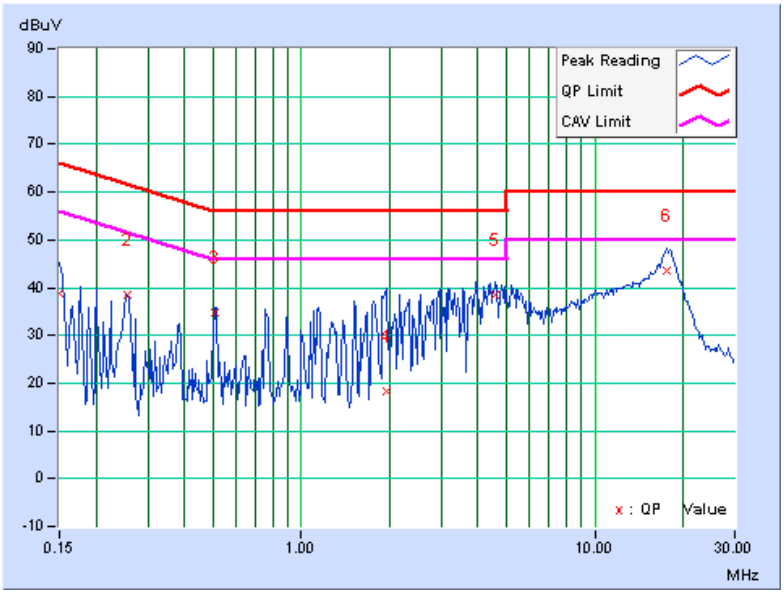
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission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



PHASE	Neutral (N)	6dB BANDWIDTH	9 kHz

	Freq.	Corr.	Reading Value		Emission Level		Limit		Margin	
No		Factor	[dB (uV)]		[dB (uV)]		[dB (uV)]		(dB)	
	[MHz]	(dB)	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.150	0.12	38.70	-	38.82	-	66.00	56.00	-27.18	-
2	0.255	0.14	38.25	-	38.39	-	61.61	51.61	-23.22	-
3	0.510	0.15	34.74	-	34.89	-	56.00	46.00	-21.11	-
4	1.949	0.19	18.17	-	18.36	-	56.00	46.00	-37.64	-
5	4.578	0.33	38.15	-	38.48	-	56.00	46.00	-17.52	-
6	17.655	1.28	42.40	-	43.68	-	60.00	50.00	-16.32	-

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.

4.2.2 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

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

4.2.3 TEST INSTRUMENTS

Test date: July 01 to 21, 2010

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY48250253	Aug. 23, 2010	Aug. 22, 2011
Agilent Pre-Selector	N9039A	MY46520310	Aug. 23, 2010	Aug. 22, 2011
Agilent Signal Generator	N5181A	MY49060347	July 30, 2010	July 29, 2011
LIG NEX1 Test Receiver	ER-265	L09068005	Oct. 25, 2010	Oct. 24, 2011
Mini-Circuits Pre-Amplifier	ZFL-1000VH2B	AMP-ZFL-04	Nov. 16, 2010	Nov. 15, 2011
Agilent Pre-Amplifier	8449B	3008A02465	Mar. 01, 2010	Feb. 28, 2011
Miteq Pre-Amplifier	AFS33-18002650-30-8P-44	881786	NA	NA
SCHWARZBECK Trilog Broadband Antenna	VULB 9168	9168-361	Apr. 28, 2010	Apr. 27, 2011
AISI Horn_Antenna	AIH.8018	0000220091110	Nov. 22, 2010	Nov. 21, 2011
SCHWARZBECK Horn_Antenna	BBHA 9170	9170-424	Oct. 08, 2010	Oct. 07, 2011
RF CABLE	NA	RF104-205 RF104-207 RF104-208	Dec. 24, 2009	Dec. 23, 2010
RF Cable	NA	CHHCAB_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. H.
4. The FCC Site Registration No. is 797305.
5. The CANADA Site Registration No. is IC 7450H-3.

4.2.4 TEST PROCEDURES

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

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

c. The antenna is a broadband antenna, and its height 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 Peak Detect was selected for the test-receiver system and the same measurement settings used to measure the transmit power of the fundamental emission were used here.

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

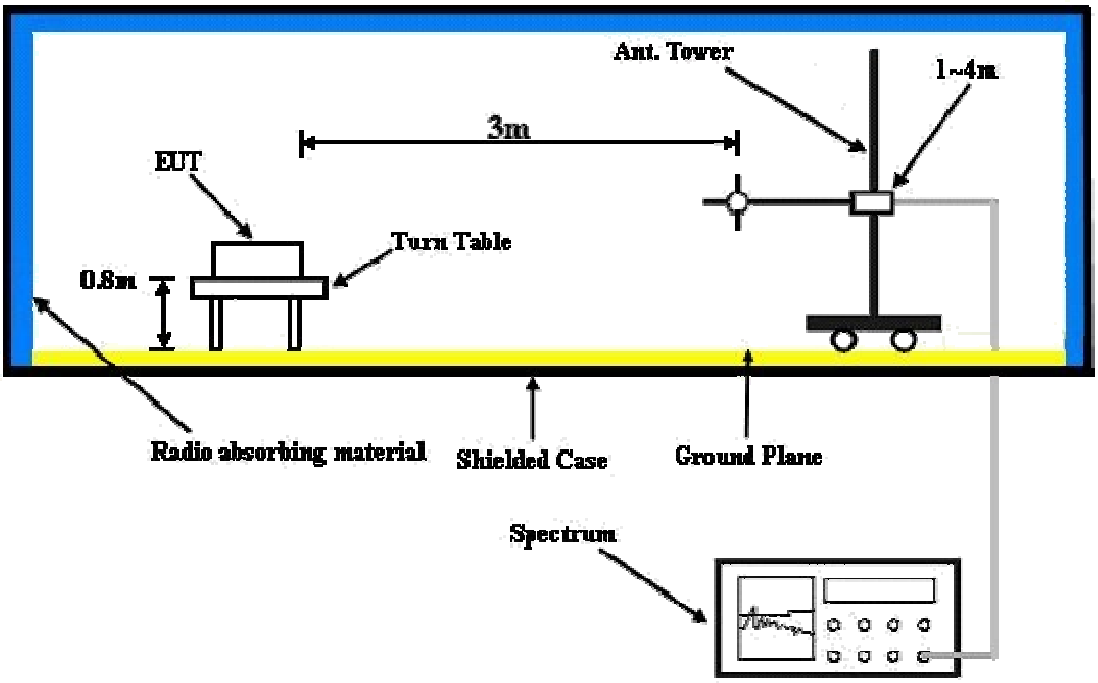
NOTE: Following setting applies to the emissions fall into Restricted Band

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.

4.2.5 DEVIATION FROM TEST STANDARD

No deviation

4.2.6 TEST SETUP



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

4.2.7 EUT OPERATING CONDITION

Same as 4.1.6

4.2.8 TEST RESULTS

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	Below 1000MHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	24deg. C, 68%RH 1011 hPa	TESTED BY	Eric Lee

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	146.24	30.20 QP	43.50	-13.30	1.25 H	325	15.95	14.25
2	196.42	33.25 QP	43.50	-10.25	1.11 H	258	21.77	11.48
3	300.20	35.68 QP	46.00	-10.32	1.00 H	125	20.77	14.91
4	380.15	34.20 QP	46.00	-11.80	1.00 H	58	16.87	17.33
5	532.03	25.41 QP	46.00	-20.59	2.00 H	215	4.51	20.90
6	559.99	26.54 QP	46.00	-19.46	1.75 H	20	4.96	21.58
7	625.01	26.54 QP	46.00	-19.46	1.50 H	196	3.78	22.76
8	640.02	28.54 QP	46.00	-17.46	1.75 H	213	5.64	22.90
9	709.32	33.20 QP	46.00	-12.80	1.50 H	47	9.64	23.56
10	874.99	30.23 QP	46.00	-15.77	1.75 H	48	3.94	26.29
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	36.23	35.65 QP	40.00	-4.35	1.00 V	25	21.72	13.93
2	48.23	32.12 QP	40.00	-7.88	1.25 V	320	17.62	14.50
3	63.21	32.54 QP	40.00	-7.46	1.75 V	147	19.65	12.89
4	73.03	32.78 QP	40.00	-7.22	2.00 V	219	21.14	11.64
5	110.30	32.54 QP	43.50	-10.96	1.50 V	286	21.13	11.41
6	197.34	29.87 QP	43.50	-13.63	1.50 V	245	18.46	11.41
7	340.10	29.85 QP	46.00	-16.15	1.00 V	23	13.73	16.12
8	709.42	34.65 QP	46.00	-11.35	2.00 V	250	11.09	23.56
9	875.00	30.54 QP	46.00	-15.46	1.50 V	96	4.25	26.29
10	904.08	34.10 QP	46.00	-11.90	1.25 V	360	7.41	26.69

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

ABOVE 1GHz WORST-CASE DATA

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 72%RH 1012 hPa	TESTED BY	Eric Lee

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	5139.20	57.3 PK	74.0	-16.7	1.40 H	60	29.77	27.53
2	5139.20	47.2 AV	54.0	-6.8	1.40 H	60	19.67	27.53
3	*5260.00	109.2 PK			1.39 H	58	81.67	27.53
4	*5260.00	98.3 AV			1.39 H	58	70.77	27.53
5	#10520.00	51.9 PK	68.3	-16.4	1.10 H	114	34.37	27.53
6	15780.00	67.5 PK	74.0	-6.5	1.05 H	133	39.97	27.53
7	15780.00	52.9 AV	54.0	-1.1	1.05 H	133	25.37	27.53
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	5100.00	58.2 PK	74.0	-15.8	1.20 V	111	30.67	27.53
2	5100.00	48.0 AV	54.0	-6.0	1.20 V	111	20.47	27.53
3	*5260.00	113.2 PK			1.20 V	111	85.67	27.53
4	*5260.00	101.6 AV			1.20 V	111	74.07	27.53
5	#10520.00	57.6 PK	68.3	-10.7	1.16 V	63	40.07	27.53
6	15780.00	62.5 PK	74.0	-11.5	1.19 V	60	34.97	27.53
7	15780.00	51.2 AV	54.0	-2.8	1.19 V	60	23.67	27.53

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

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 72%RH 1012 hPa	TESTED BY	Eric Lee

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	107.9 PK			1.33 H	96	80.37	27.53
2	*5300.00	97.8 AV			1.33 H	96	70.27	27.53
3	10600.00	61.5 PK	74.0	-12.5	1.45 H	124	33.97	27.53
4	10600.00	49.8 AV	54.0	-4.2	1.45 H	124	22.27	27.53
5	15900.00	66.5 PK	74.0	-7.5	1.00 H	133	38.97	27.53
6	15900.00	53.4 AV	54.0	-0.6	1.00 H	133	25.87	27.53
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	113.5 PK			1.35 V	112	85.97	27.53
2	*5300.00	101.2 AV			1.35 V	112	73.67	27.53
3	10600.00	64.3 PK	74.0	-9.7	1.00 V	138	36.77	27.53
4	10600.00	52.7 AV	54.0	-1.3	1.00 V	138	25.17	27.53
5	15900.00	62.3 PK	74.0	-11.7	1.45 V	180	34.77	27.53
6	15900.00	51.5 AV	54.0	-2.5	1.45 V	180	23.97	27.53

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

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

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

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	**FREQUENCY RANGE**	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 72%RH 1012 hPa	**TESTED BY**	Eric Lee

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	109.2 PK			1.32 H	98	81.67	27.53
2	*5320.00	99.4 AV			1.32 H	98	71.87	27.53
3	5350.00	59.9 PK	74.0	-14.1	1.31 H	100	32.37	27.53
4	5350.00	47.7 AV	54.0	-6.3	1.31 H	100	20.17	27.53
5	10640.00	61.1 PK	74.0	-12.9	1.66 H	40	33.57	27.53
6	10640.00	49.9 AV	54.0	-4.1	1.66 H	40	22.37	27.53
7	15960.00	66.6 PK	74.0	-7.4	1.02 H	84	39.07	27.53
8	15960.00	53.2 AV	54.0	-0.8	1.02 H	84	25.67	27.53
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	113.2 PK			1.23 V	88	85.67	27.53
2	*5320.00	101.2 AV			1.23 V	88	73.67	27.53
3	5350.00	71.1 PK	74.0	-2.9	1.24 V	89	43.57	27.53
4	5350.00	53.4 AV	54.0	-0.6	1.24 V	89	25.87	27.53
5	10640.00	65.3 PK	74.0	-8.7	1.00 V	2	37.77	27.53
6	10640.00	53.4 AV	54.0	-0.6	1.00 V	2	25.87	27.53
7	15960.00	65.1 PK	74.0	-8.9	1.11 V	118	37.57	27.53
8	15960.00	52.0 AV	54.0	-2.0	1.11 V	118	24.47	27.53

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

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

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

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	**FREQUENCY RANGE**	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 72%RH 1012 hPa	**TESTED BY**	Eric Lee

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	58.9 PK	74.0	-15.1	1.29 H	99	31.37	27.53
2	5460.00	46.2 AV	54.0	-7.8	1.29 H	99	18.67	27.53
3	#5470.00	49.1 PK	68.3	-19.2	1.31 H	100	31.57	27.53
4	*5500.00	108.7 PK			1.28 H	100	81.17	27.53
5	*5500.00	98.1 AV			1.28 H	100	70.57	27.53
6	11000.00	63.3 PK	74.0	-10.7	1.66 H	55	35.77	27.53
7	11000.00	50.0 AV	54.0	-4.0	1.66 H	55	22.47	27.53
8	#16500.00	56.9 PK	68.3	-11.4	1.05 H	90	39.37	27.53
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	61.0 PK	74.0	-13.0	1.18 V	100	33.47	27.53
2	5460.00	49.3 AV	54.0	-4.7	1.18 V	100	21.77	27.53
3	#5470.00	56.5 PK	68.3	-11.8	1.19 V	102	38.97	27.53
4	*5500.00	112.4 PK			1.20 V	108	84.87	27.53
5	*5500.00	100.8 AV			1.20 V	108	73.27	27.53
6	11000.00	68.5 PK	74.0	-5.5	1.10 V	65	40.97	27.53
7	**11000.00**	**53.5 AV**	**54.0**	**-0.5**	**1.10 V**	**65**	**25.97**	**27.53**
8	#16500.00	54.8 PK	68.3	-13.5	1.14 V	91	37.27	27.53

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

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	**FREQUENCY RANGE**	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 72%RH 1012 hPa	**TESTED BY**	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*5580.00	109.1 PK			1.31 H	90	81.57	27.53
2	*5580.00	97.9 AV			1.31 H	90	70.37	27.53
3	11160.00	66.1 PK	74.0	-7.9	1.14 H	113	38.57	27.53
4	11160.00	52.0 AV	54.0	-2.0	1.14 H	113	24.47	27.53
5	#16740.00	52.1 PK	68.3	-16.2	1.15 H	80	34.57	27.53
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*5580.00	112.9 PK			1.29 V	111	85.37	27.53
2	*5580.00	101.2 AV			1.29 V	111	73.67	27.53
3	11160.00	66.3 PK	74.0	-7.7	1.10 V	65	38.77	27.53
4	**11160.00**	**53.5 AV**	**54.0**	**-0.5**	**1.10 V**	**65**	**25.97**	**27.53**
5	#16740.00	51.9 PK	68.3	-16.4	1.20 V	80	34.37	27.53

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

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 132	**FREQUENCY RANGE**	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 72%RH 1012 hPa	**TESTED BY**	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*5660.00	109.2 PK			1.29 H	88	81.67	27.53
2	*5660.00	97.6 AV			1.29 H	88	70.07	27.53
3	11320.00	64.3 PK	74.0	-9.7	1.05 H	73	36.77	27.53
4	11320.00	51.3 AV	54.0	-2.7	1.05 H	73	23.77	27.53
5	#16980.00	53.0 PK	68.3	-15.3	1.20 H	60	35.47	27.53
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*5660.00	112.7 PK			1.27 V	106	85.17	27.53
2	*5660.00	101.9 AV			1.27 V	106	74.37	27.53
3	11320.00	64.7 PK	74.0	-9.3	1.06 V	82	37.17	27.53
4	11320.00	52.4 AV	54.0	-1.6	1.06 V	82	24.87	27.53
5	#16980.00	52.5 PK	68.3	-15.8	1.18 V	25	34.97	27.53

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

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

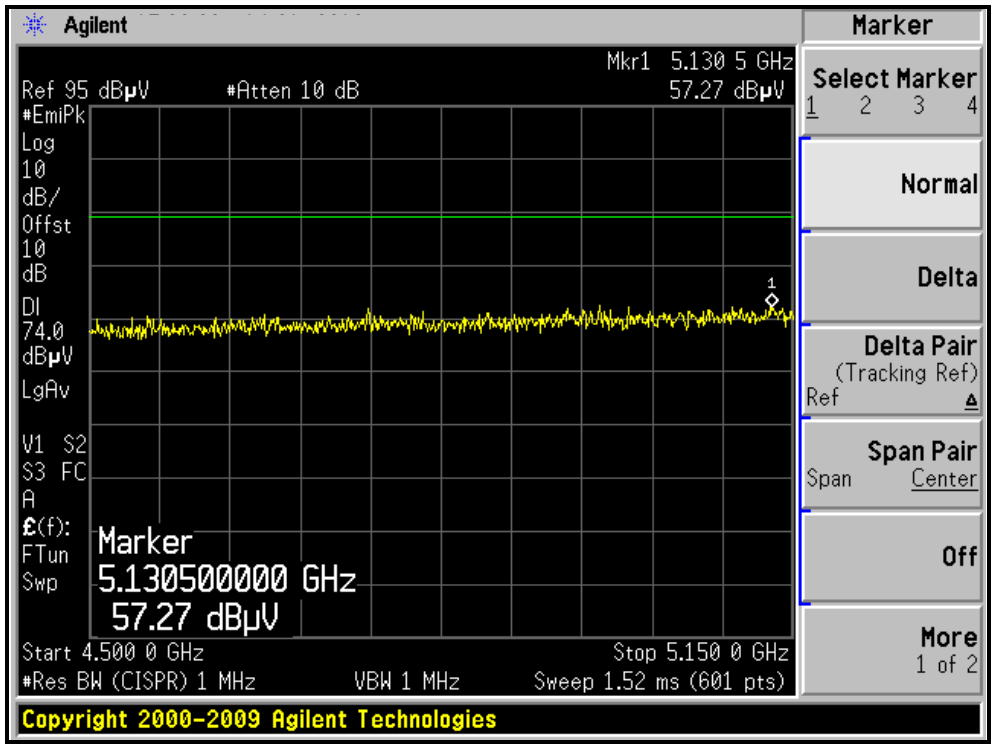
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 72%RH 1012 hPa	TESTED BY	Eric Lee

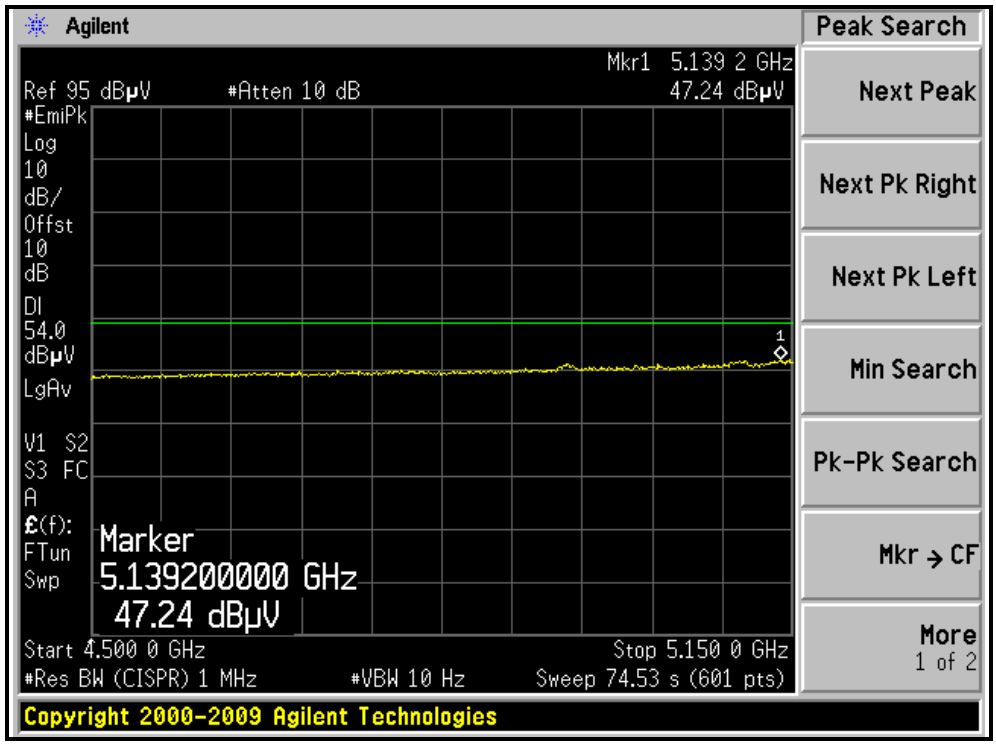
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5700.00	109.7 PK			1.30 H	90	82.17	27.53
2	*5700.00	98.1 AV			1.30 H	90	70.57	27.53
3	#5725.00	49.9 PK	68.3	-18.4	1.29 H	88	32.37	27.53
4	11400.00	62.0 PK	74.0	-12.0	1.04 H	48	34.47	27.53
5	11400.00	49.2 AV	54.0	-4.8	1.04 H	48	21.67	27.53
6	#17100.00	54.2 PK	68.3	-14.1	1.00 H	90	36.67	27.53
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	113.0 PK			1.25 V	100	85.47	27.53
2	*5700.00	100.7 AV			1.25 V	100	73.17	27.53
3	#5725.00	57.5 PK	68.3	-10.8	1.26 V	98	39.97	27.53
4	11400.00	60.3 PK	74.0	-13.7	1.17 V	61	32.77	27.53
5	11400.00	47.7 AV	54.0	-6.3	1.17 V	61	20.17	27.53
6	#17100.00	52.9 PK	68.3	-15.4	1.29 V	30	35.37	27.53

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

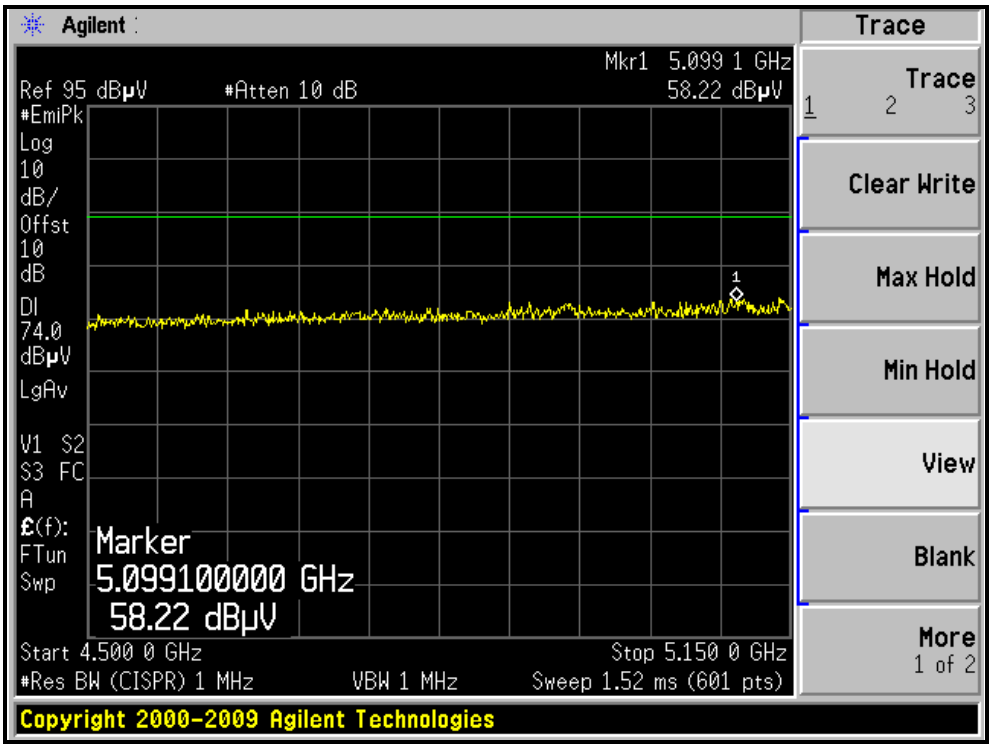
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

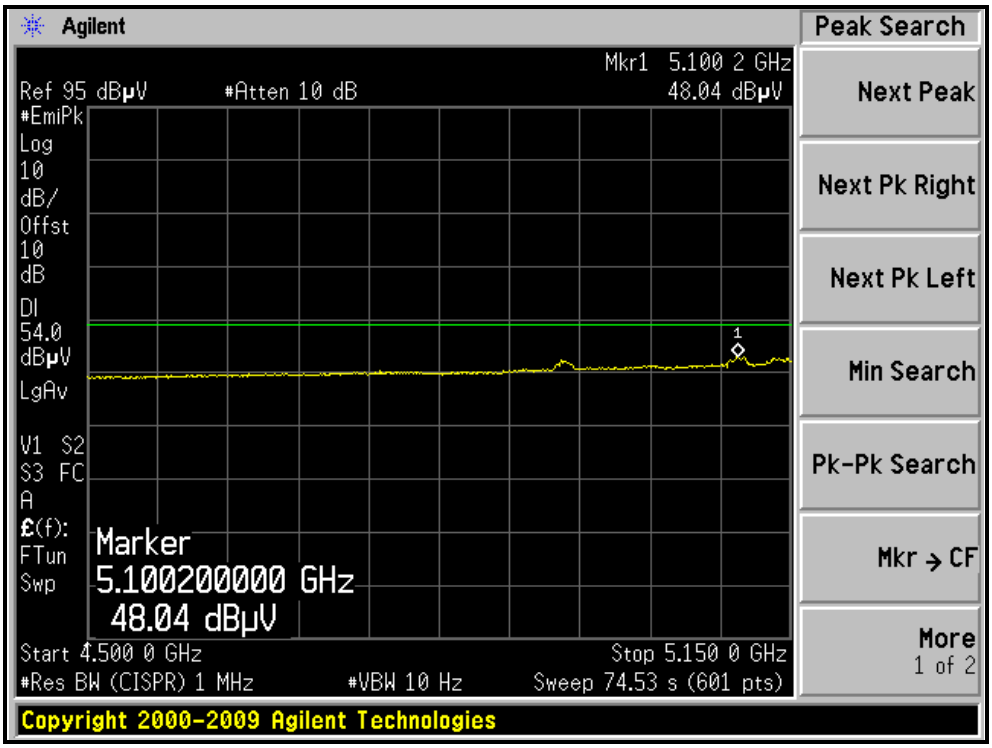
RESTRICTED BANDEDGE (802.11a MODE, CH52, HORIZONTAL)



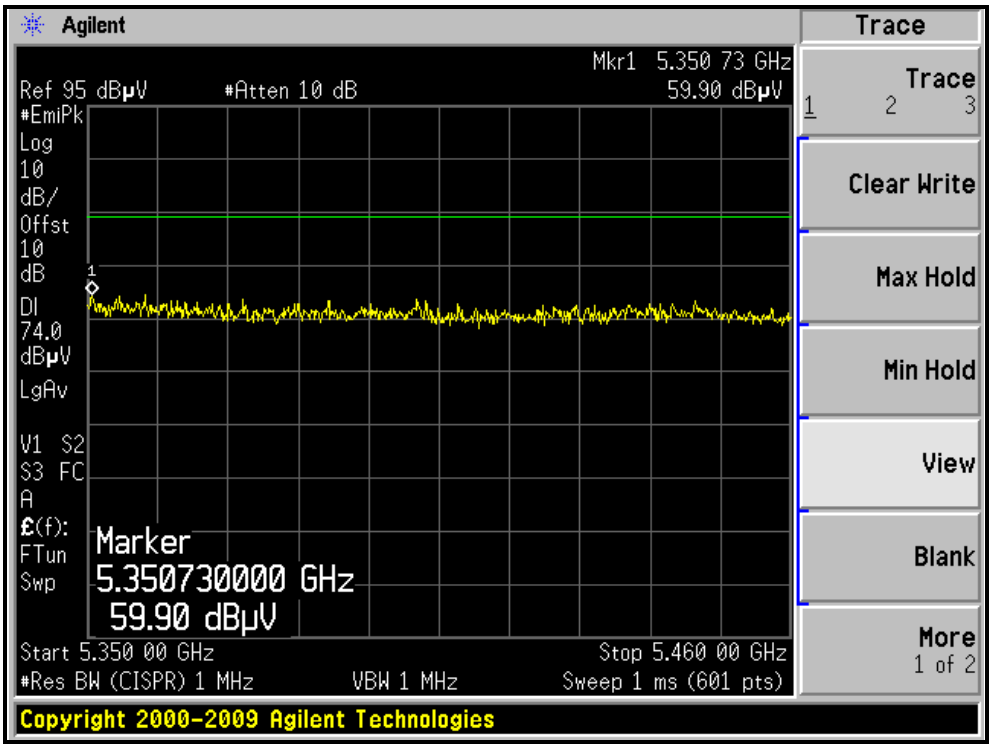


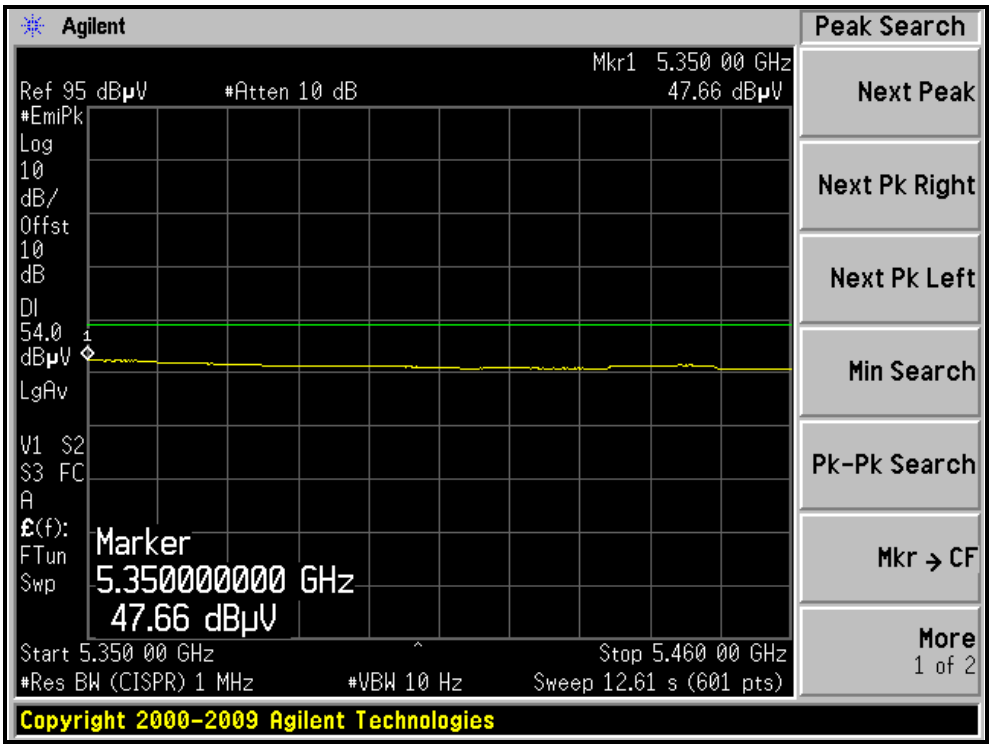
RESTRICTED BANDEDGE (802.11a MODE, CH52, VERTICAL)



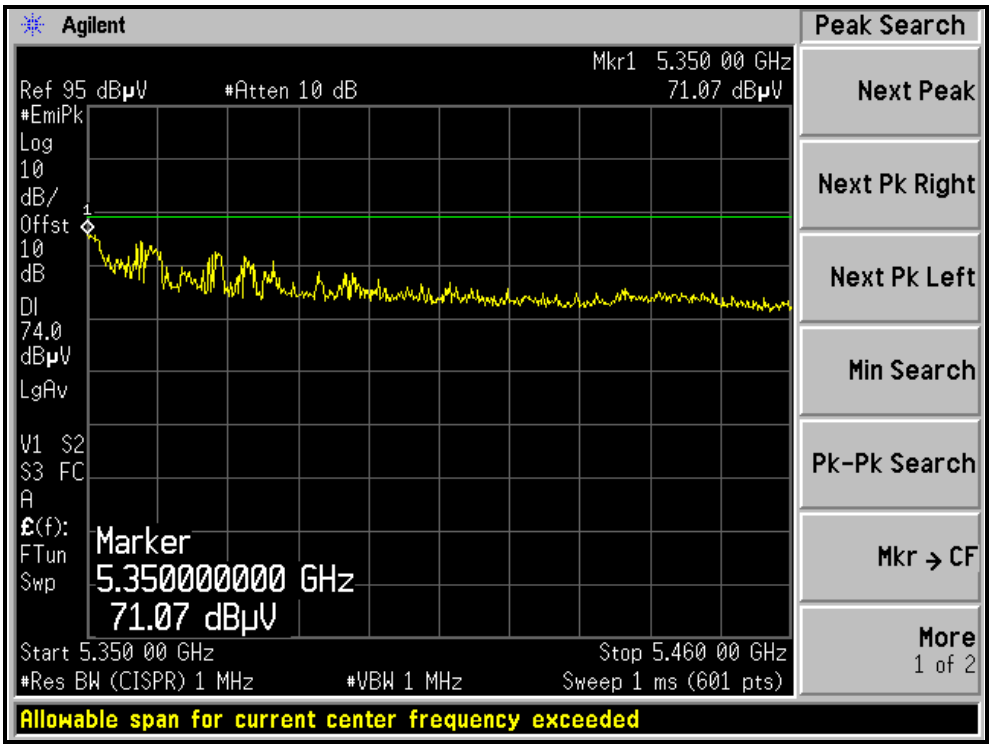


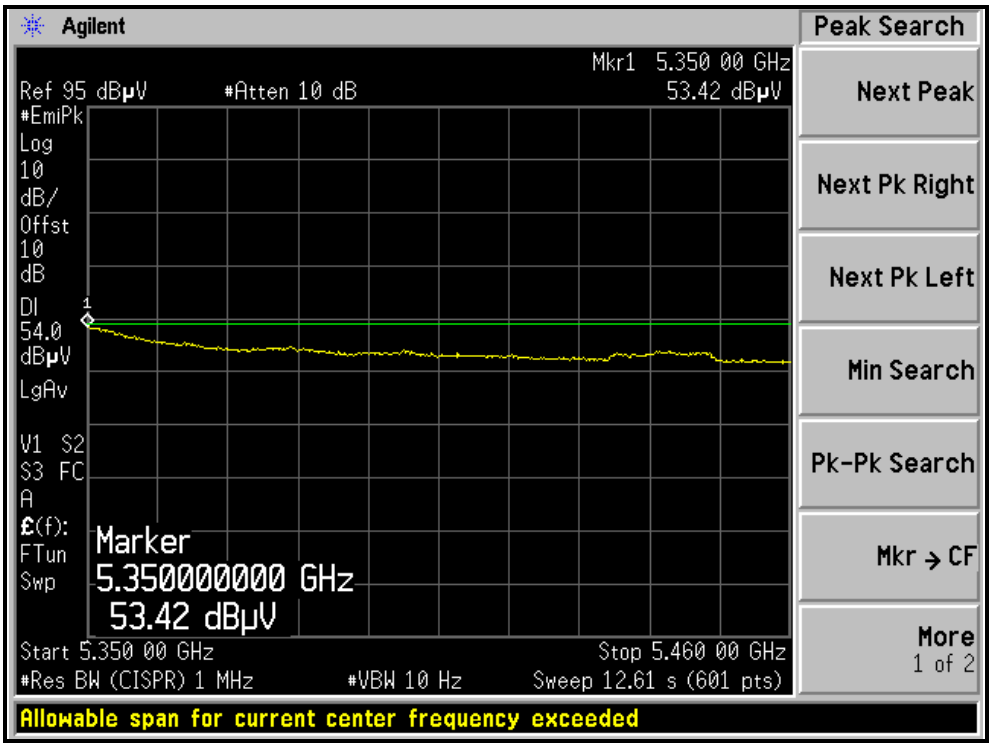
RESTRICTED BANDEDGE (802.11a MODE, CH64, HORIZONTAL)



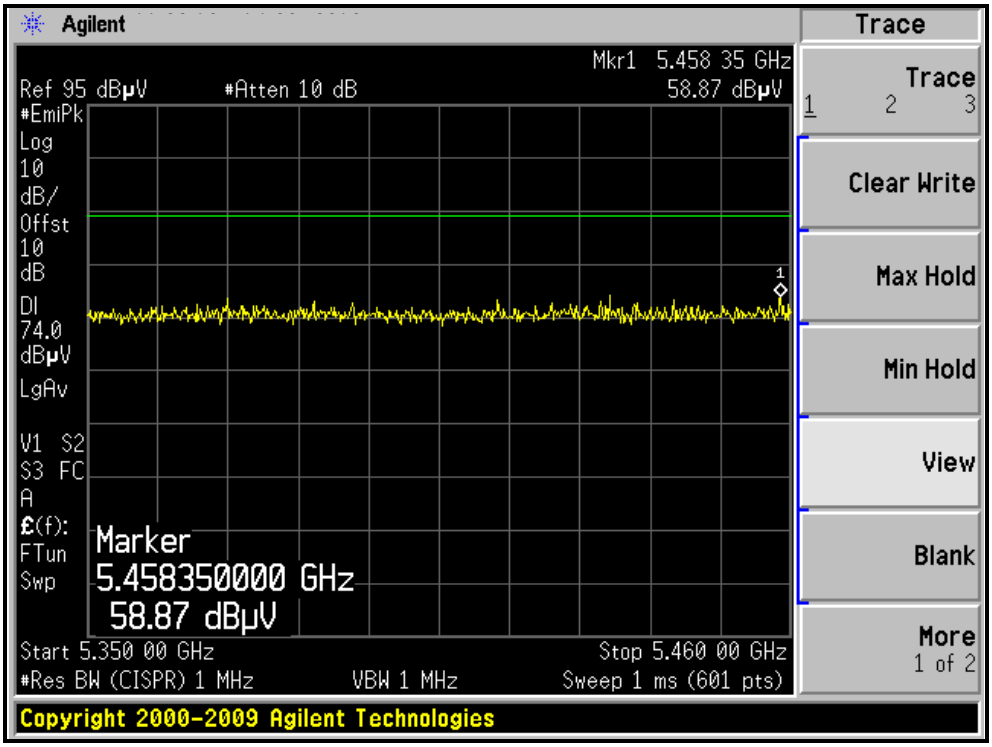


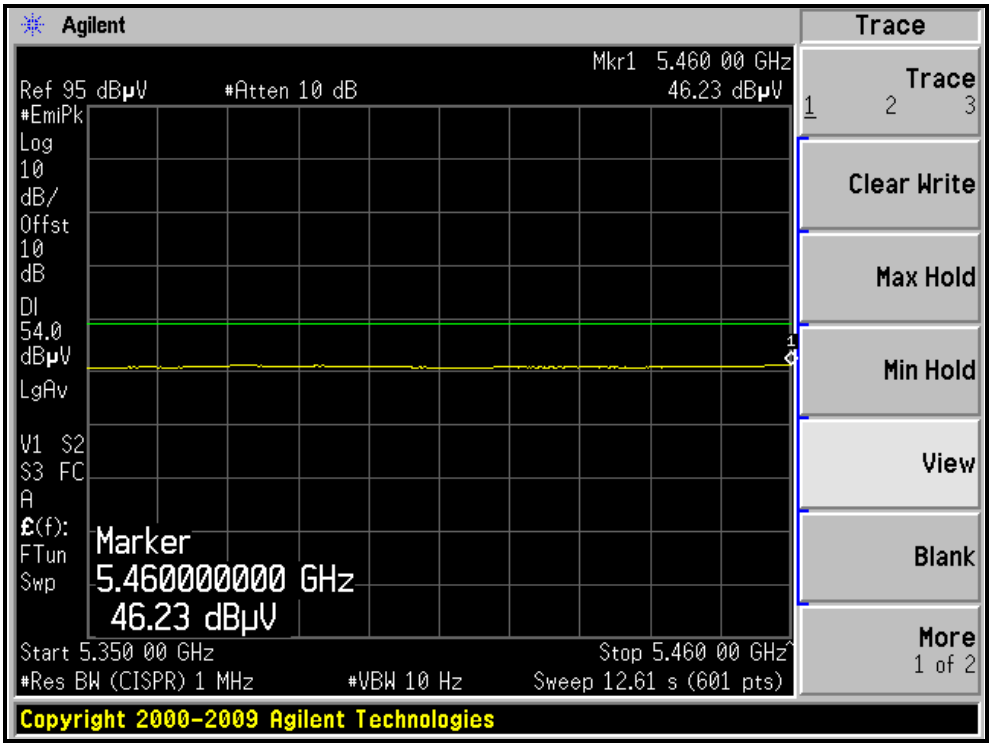
RESTRICTED BANDEDGE (802.11a MODE, CH64, VERTICAL)



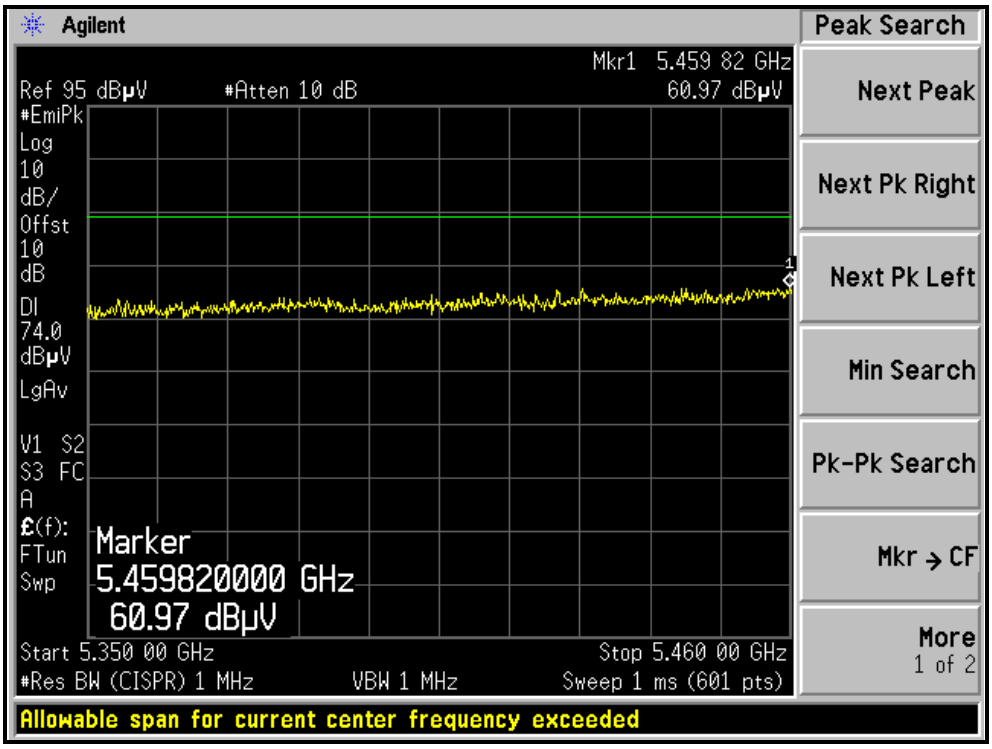


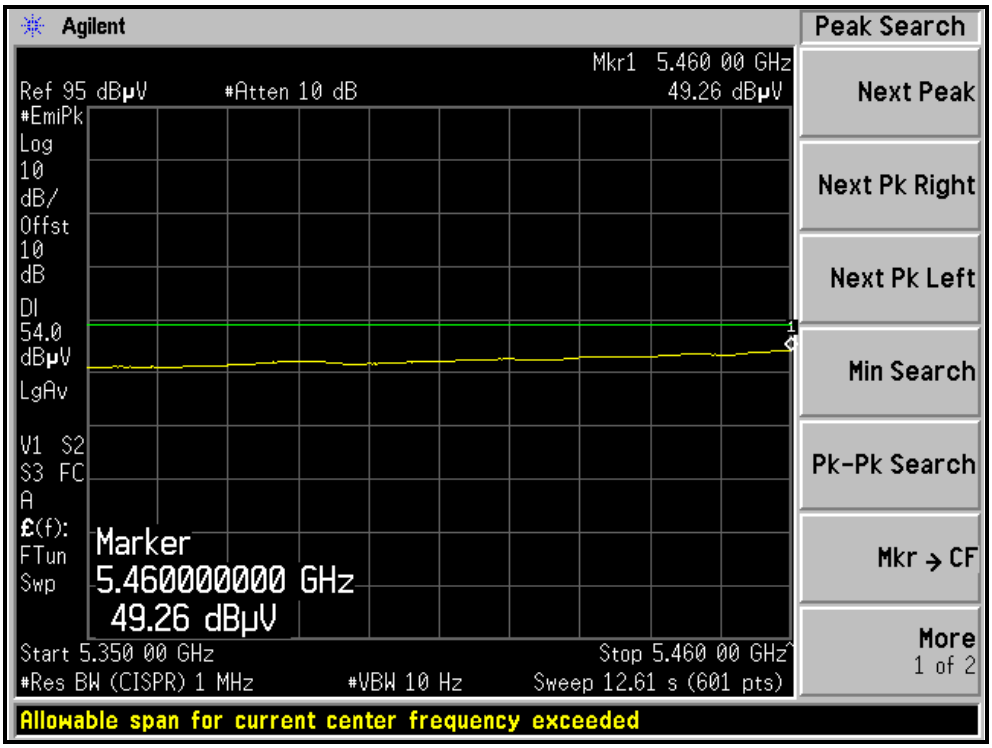
RESTRICTED BANDEDGE (802.11a MODE, CH100, HORIZONTAL)





RESTRICTED BANDEDGE (802.11a MODE, CH100, VERTICAL)





802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 52	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 72%RH 1012 hPa	TESTED BY	Eric Lee

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	5132.70	57.5 PK	74.0	-16.5	1.20 H	25	29.97	27.53
2	5132.70	46.8 AV	54.0	-7.2	1.20 H	25	19.27	27.53
3	*5260.00	113.2 PK			1.39 H	84	85.67	27.53
4	*5260.00	103.6 AV			1.39 H	84	76.07	27.53
5	#10520.00	50.0 PK	68.3	-18.3	1.26 H	181	32.47	27.53
6	15780.00	63.9 PK	74.0	-10.1	1.11 H	94	36.37	27.53
7	15780.00	51.1 AV	54.0	-2.9	1.11 H	94	23.57	27.53
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	5106.70	58.7 PK	74.0	-15.3	1.54 V	87	31.17	27.53
2	5106.70	47.5 AV	54.0	-6.5	1.54 V	87	19.97	27.53
3	*5260.00	116.8 PK			1.30 V	90	89.27	27.53
4	*5260.00	107.2 AV			1.30 V	90	79.67	27.53
5	#10520.00	57.8 PK	68.3	-10.5	1.14 V	60	40.27	27.53
6	15780.00	68.1 PK	74.0	-5.9	1.09 V	80	40.57	27.53
7	15780.00	53.0 AV	54.0	-1.0	1.09 V	80	25.47	27.53

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

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 60	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 72%RH 1012 hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*5300.00	113.7 PK			1.42 H	74	86.17	27.53
2	*5300.00	103.7 AV			1.42 H	74	76.17	27.53
3	10600.00	71.2 PK	74.0	-2.8	1.40 H	98	43.67	27.53
4	10600.00	52.9 AV	54.0	-1.1	1.40 H	98	25.37	27.53
5	15900.00	64.9 PK	74.0	-9.1	1.12 H	101	37.37	27.53
6	15900.00	50.2 AV	54.0	-3.8	1.12 H	101	22.67	27.53
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	116.6 PK			1.21 V	83	89.07	27.53
2	*5300.00	107.6 AV			1.21 V	83	80.07	27.53
3	10600.00	70.4 PK	74.0	-3.6	1.12 V	60	42.87	27.53
4	10600.00	52.0 AV	54.0	-2.0	1.12 V	60	24.47	27.53
5	15900.00	68.8 PK	74.0	-5.2	1.10 V	73	41.27	27.53
6	15900.00	53.1 AV	54.0	-0.9	1.10 V	73	25.57	27.53

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 64	**FREQUENCY RANGE**	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 72%RH 1012 hPa	**TESTED BY**	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*5320.00	113.3 PK			1.39 H	91	85.77	27.53
2	*5320.00	102.8 AV			1.39 H	91	75.27	27.53
3	5350.60	65.6 PK	74.0	-8.4	1.41 H	86	38.07	27.53
4	5350.60	51.2 AV	54.0	-2.8	1.41 H	86	23.67	27.53
5	10640.00	68.2 PK	74.0	-5.8	1.11 H	60	40.67	27.53
6	10640.00	50.1 AV	54.0	-3.9	1.11 H	60	22.57	27.53
7	15960.00	68.9 PK	74.0	-5.1	1.05 H	82	41.37	27.53
8	**15960.00**	**53.5 AV**	**54.0**	**-0.5**	**1.05 H**	**82**	**25.97**	**27.53**
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	116.7 PK			1.25 V	99	89.17	27.53
2	*5320.00	107.1 AV			1.25 V	99	79.57	27.53
3	5350.00	71.8 PK	74.0	-2.2	1.26 V	101	44.27	27.53
4	5350.00	53.2 AV	54.0	-0.8	1.26 V	101	25.67	27.53
5	10640.00	69.9 PK	74.0	-4.1	1.10 V	56	42.37	27.53
6	10640.00	51.5 AV	54.0	-2.5	1.10 V	56	23.97	27.53
7	15960.00	66.9 PK	74.0	-7.1	1.03 V	81	39.37	27.53
8	15960.00	53.1 AV	54.0	-0.9	1.03 V	81	25.57	27.53

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

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

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

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 100	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 72%RH 1012 hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	5460.00	60.0 PK	74.0	-14.0	1.28 H	85	32.47	27.53
2	5460.00	47.6 AV	54.0	-6.4	1.28 H	85	20.07	27.53
3	#5470.00	53.4 PK	68.3	-14.9	1.30 H	90	35.87	27.53
4	*5500.00	112.7 PK			1.29 H	83	85.17	27.53
5	*5500.00	102.6 AV			1.29 H	83	75.07	27.53
6	11000.00	72.9 PK	74.0	-1.1	1.11 H	70	45.37	27.53
7	11000.00	52.8 AV	54.0	-1.2	1.11 H	70	25.27	27.53
8	#16500.00	57.2 PK	68.3	-11.1	1.01 H	111	39.67	27.53
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	69.8 PK	74.0	-4.2	1.19 V	100	42.27	27.53
2	5460.00	52.9 AV	54.0	-1.1	1.19 V	100	25.37	27.53
3	#5470.00	63.9 PK	68.3	-4.4	1.20 V	103	46.37	27.53
4	*5500.00	117.5 PK			1.17 V	101	89.97	27.53
5	*5500.00	107.4 AV			1.17 V	101	79.87	27.53
6	11000.00	73.4 PK	74.0	-0.6	1.04 V	53	45.87	27.53
7	11000.00	53.4 AV	54.0	-0.6	1.04 V	53	25.87	27.53
8	#16500.00	56.1 PK	68.3	-12.2	1.00 V	120	38.57	27.53

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

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 116	**FREQUENCY RANGE**	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 72%RH 1012 hPa	**TESTED BY**	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*5580.00	112.2 PK			1.29 H	80	84.67	27.53
2	*5580.00	102.1 AV			1.29 H	80	74.57	27.53
3	11160.00	68.4 PK	74.0	-5.6	1.09 H	106	40.87	27.53
4	11160.00	51.5 AV	54.0	-2.5	1.09 H	106	23.97	27.53
5	#16740.00	55.5 PK	68.3	-12.8	1.07 H	111	37.97	27.53
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*5580.00	116.2 PK			1.19 V	90	88.67	27.53
2	*5580.00	106.0 AV			1.19 V	90	78.47	27.53
3	11160.00	71.5 PK	74.0	-2.5	1.13 V	60	43.97	27.53
4	11160.00	52.4 AV	54.0	-1.6	1.13 V	60	24.87	27.53
5	#16740.00	56.7 PK	68.3	-11.6	1.01 V	99	39.17	27.53

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

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 132	**FREQUENCY RANGE**	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 72%RH 1012 hPa	**TESTED BY**	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*5660.00	112.8 PK			1.33 H	74	85.27	27.53
2	*5660.00	103.0 AV			1.33 H	74	75.47	27.53
3	11320.00	68.4 PK	74.0	-5.6	1.07 H	63	40.87	27.53
4	11320.00	51.8 AV	54.0	-2.2	1.07 H	63	24.27	27.53
5	#16980.00	56.2 PK	68.3	-12.1	1.01 H	140	38.67	27.53
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*5660.00	117.1 PK			1.25 V	83	89.57	27.53
2	*5660.00	104.8 AV			1.25 V	83	77.27	27.53
3	11320.00	68.7 PK	74.0	-5.3	1.14 V	60	41.17	27.53
4	11320.00	50.8 AV	54.0	-3.2	1.14 V	60	23.27	27.53
5	#16980.00	56.9 PK	68.3	-11.4	1.07 V	41	39.37	27.53

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

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 140	**FREQUENCY RANGE**	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 72%RH 1012 hPa	**TESTED BY**	Eric Lee

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	112.5 PK			1.27 H	76	84.97	27.53
2	*5700.00	102.7 AV			1.27 H	76	75.17	27.53
3	#5725.00	54.1 PK	68.3	-14.2	1.28 H	80	36.57	27.53
4	11400.00	67.8 PK	74.0	-6.2	1.03 H	360	40.27	27.53
5	11400.00	52.6 AV	54.0	-1.4	1.03 H	360	25.07	27.53
6	#17100.00	54.7 PK	68.3	-13.6	1.06 H	40	37.17	27.53
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	116.8 PK			1.24 V	80	89.27	27.53
2	*5700.00	107.2 AV			1.24 V	80	79.67	27.53
3	#5725.00	59.8 PK	68.3	-8.5	1.25 V	78	42.27	27.53
4	11400.00	68.6 PK	74.0	-5.4	1.08 V	58	41.07	27.53
5	11400.00	51.0 AV	54.0	-3.0	1.08 V	58	23.47	27.53
6	#17100.00	54.4 PK	68.3	-13.9	1.00 V	249	36.87	27.53

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

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

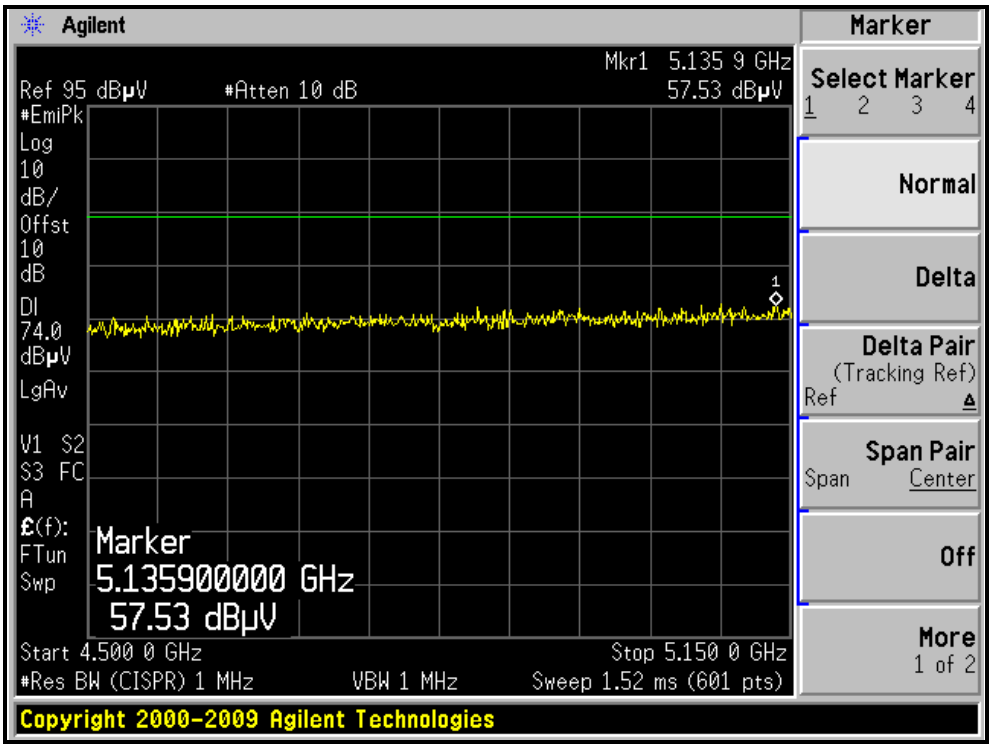
3. The other emission levels were very low against the limit.

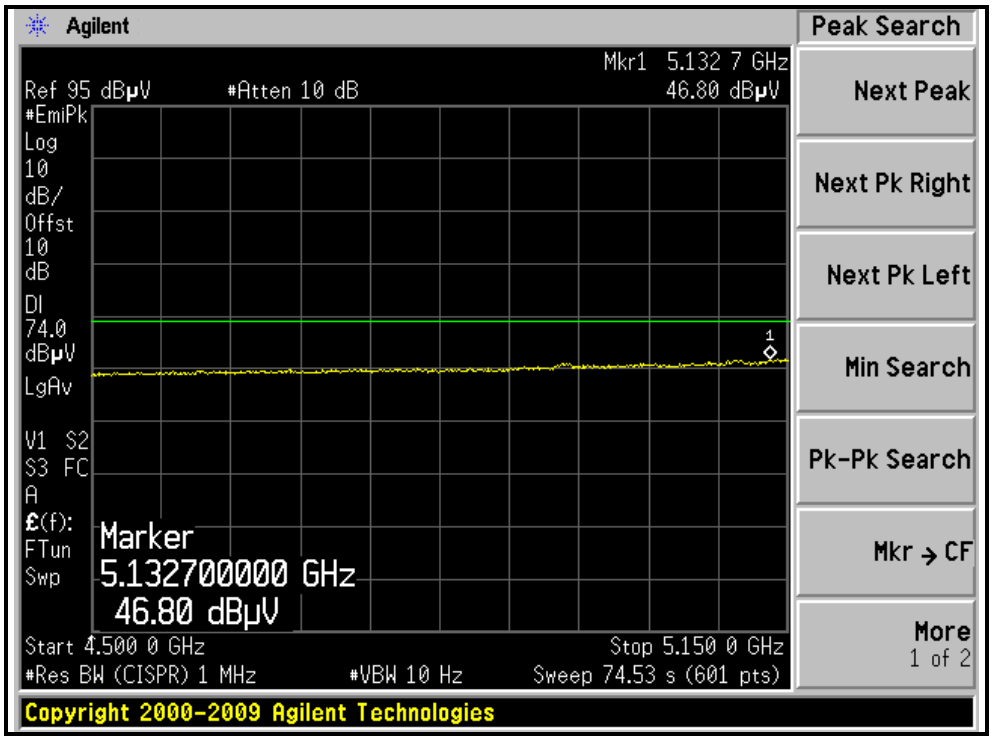
4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

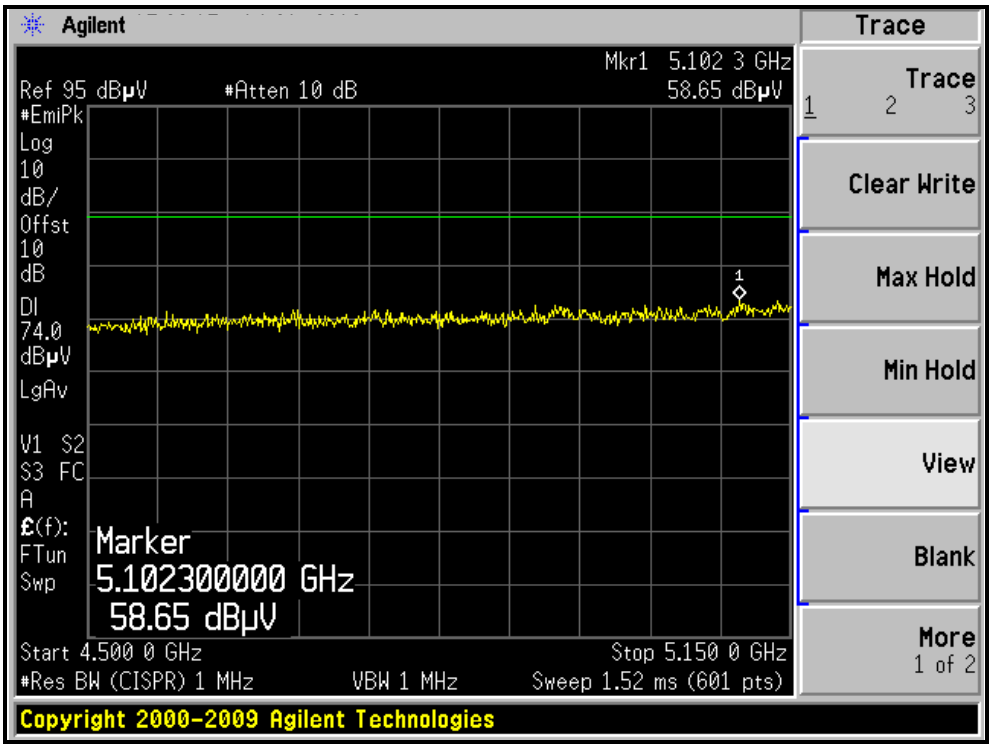
6. "#":The radiated frequency is out the restricted band.

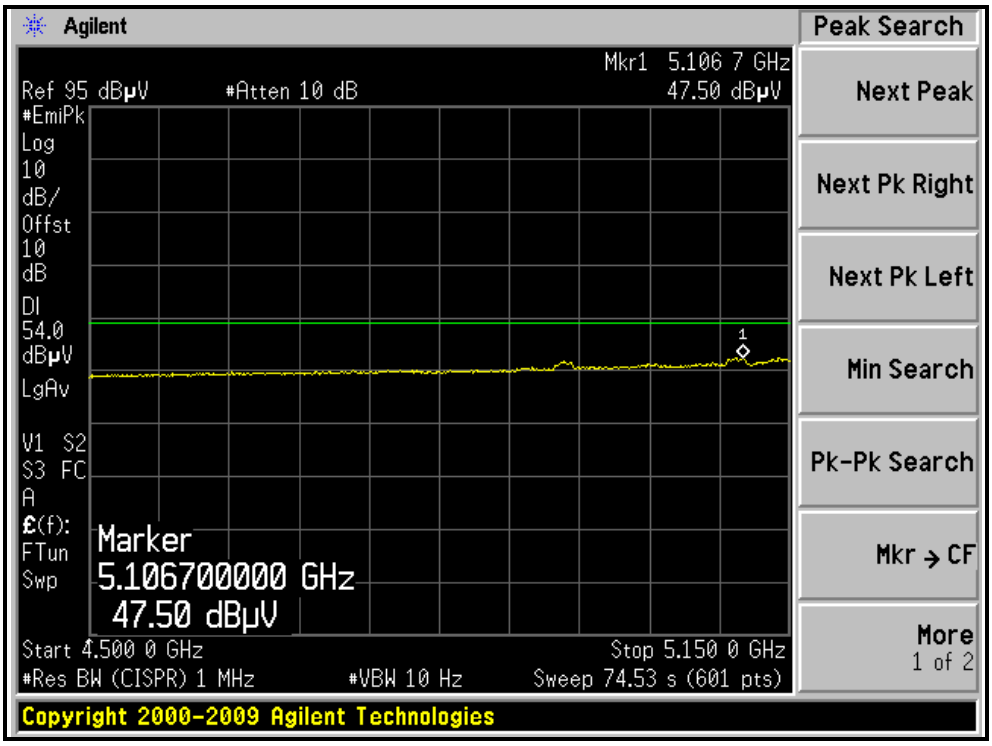
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH52, HORIZONTAL)



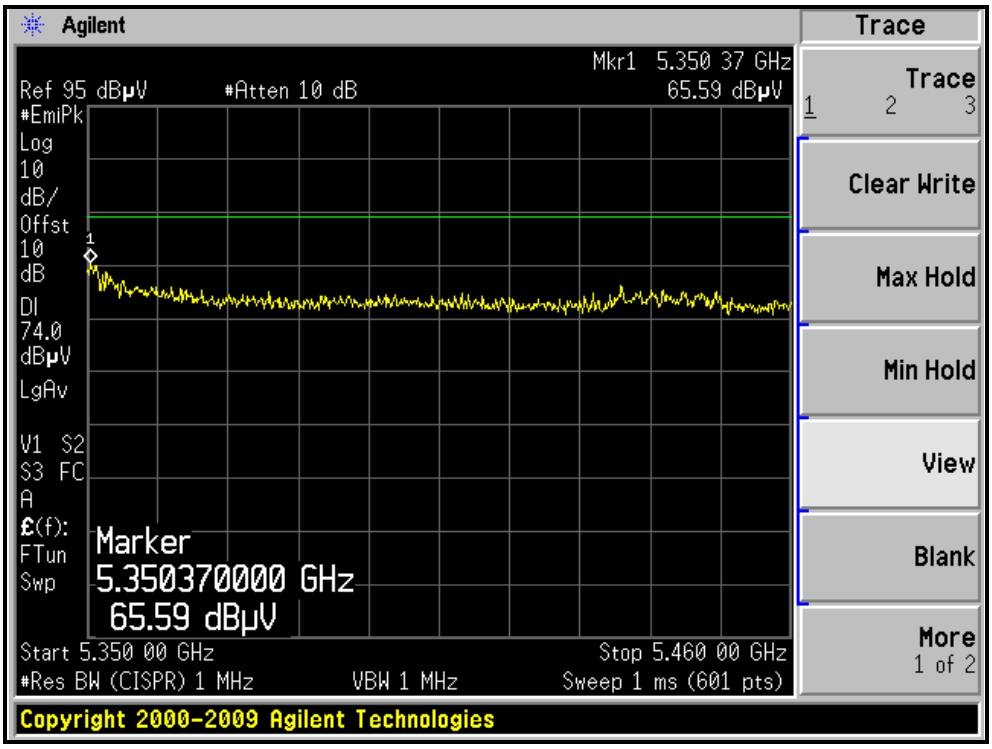


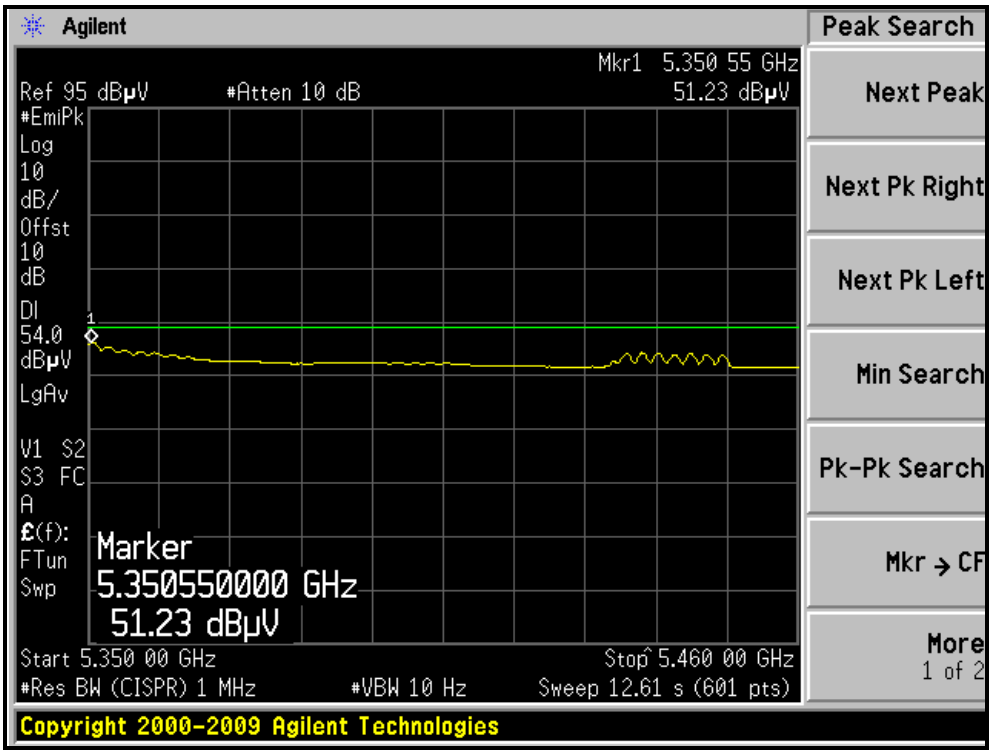
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH52, VERTICAL)



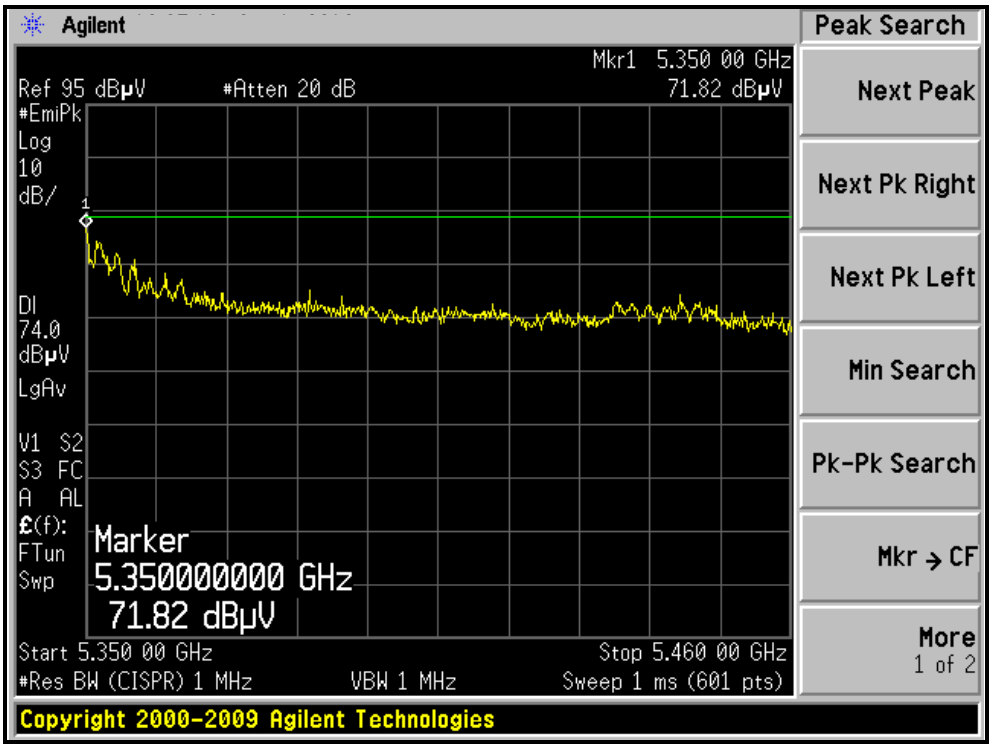


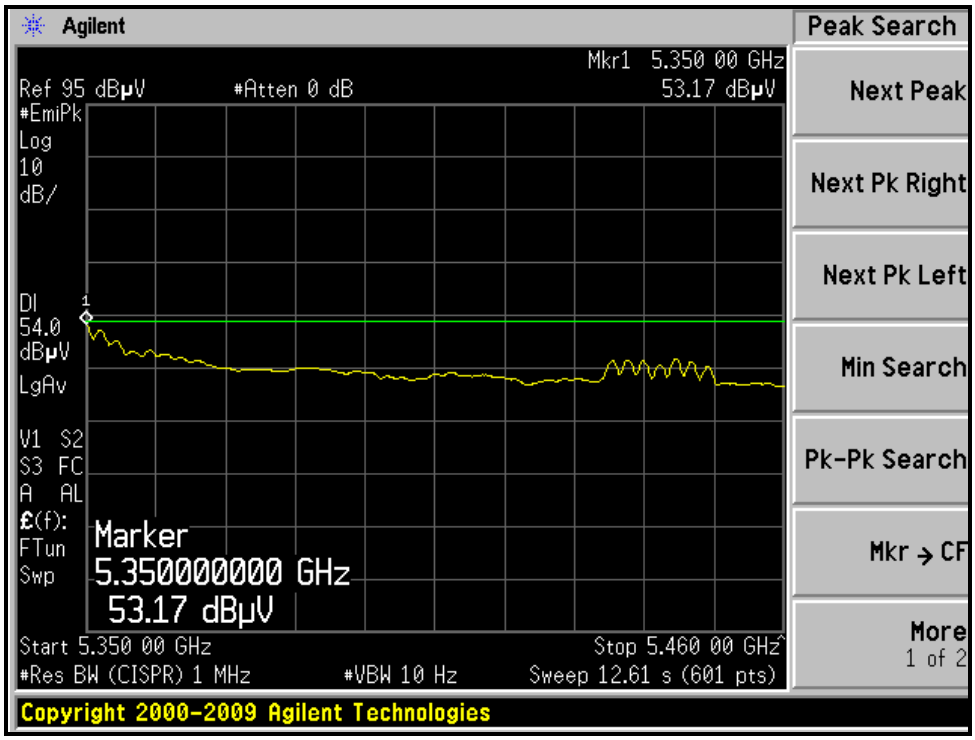
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH64, HORIZONTAL)



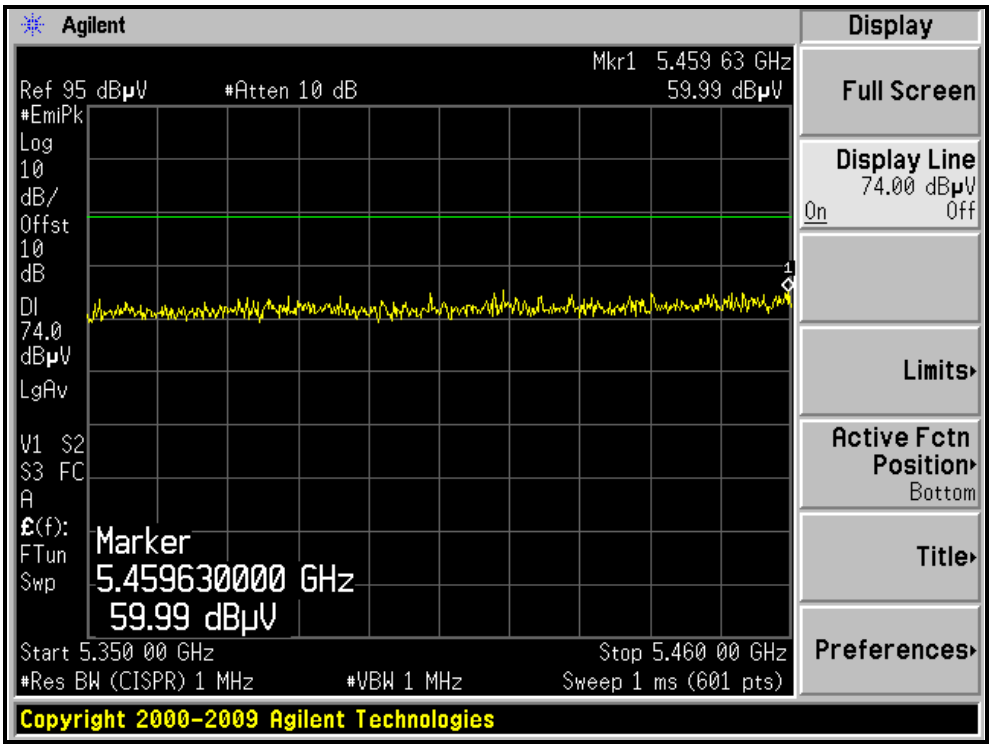


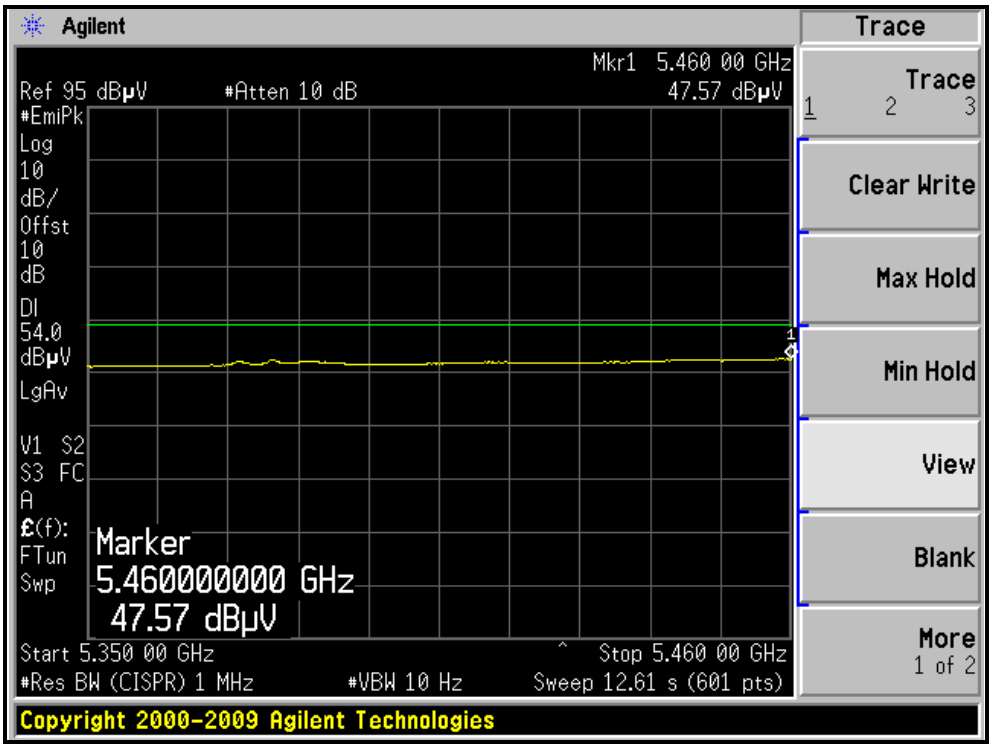
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH64, VERTICAL)



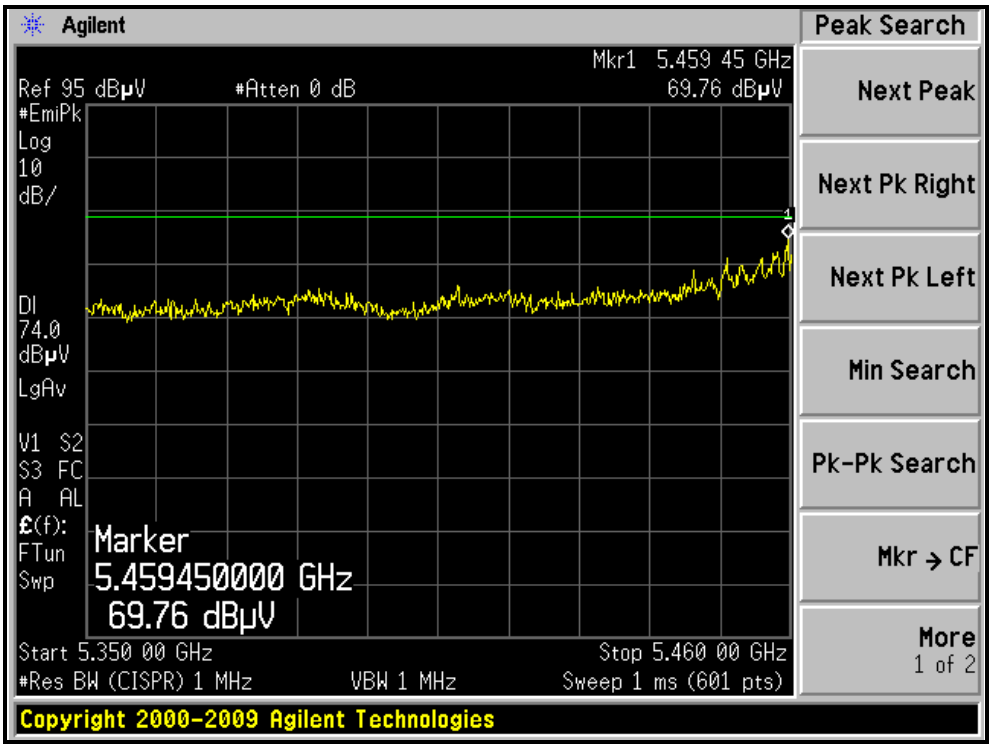


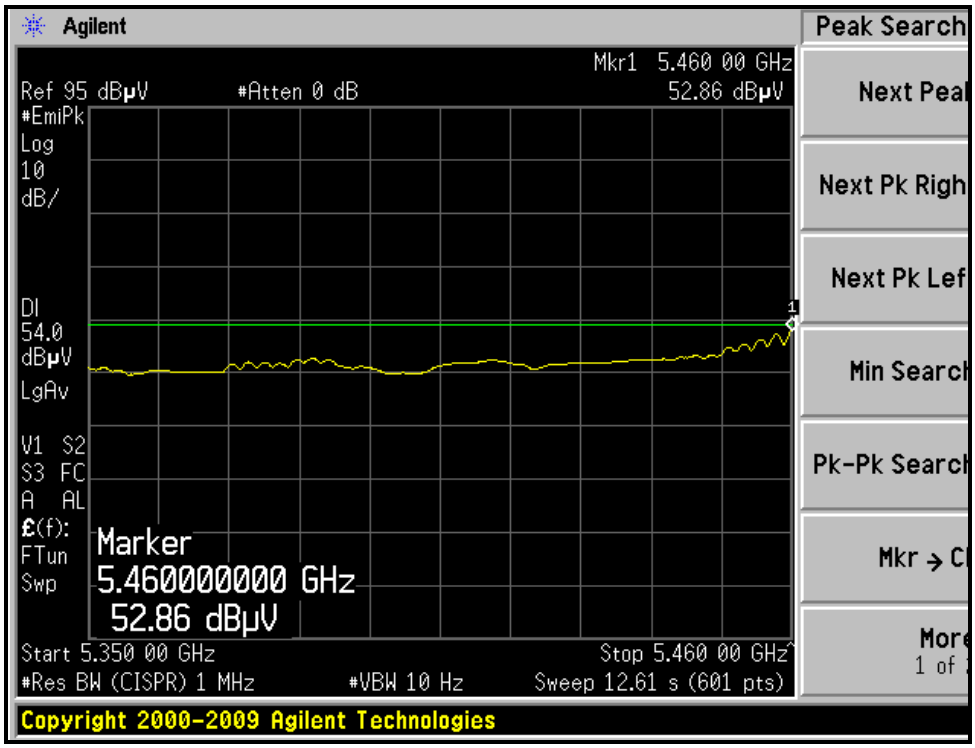
RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH100, HORIZONTAL)





RESTRICTED BANDEDGE (802.11n (20MHz) MODE,CH100, VERTICAL)





802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 54	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 72%RH 1012 hPa	TESTED BY	Eric Lee

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	5146.80	57.4 PK	74.0	-16.6	1.24 H	51	29.87	27.53
2	5146.80	46.7 AV	54.0	-7.3	1.24 H	51	19.17	27.53
3	*5270.00	115.2 PK			1.40 H	70	87.67	27.53
4	*5270.00	100.0 AV			1.40 H	70	72.47	27.53
5	#10540.00	54.0 PK	68.3	-14.3	1.16 H	70	36.47	27.53
6	15810.00	66.5 PK	74.0	-7.5	1.42 H	80	38.97	27.53
7	15810.00	53.2 AV	54.0	-0.8	1.42 H	80	25.67	27.53
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	4951.80	59.9 PK	74.0	-14.1	1.52 V	20	32.37	27.53
2	4951.80	49.3 AV	54.0	-4.7	1.52 V	20	21.77	27.53
3	*5270.00	118.1 PK			1.39 V	120	90.57	27.53
4	*5270.00	103.2 AV			1.39 V	120	75.67	27.53
5	#10540.00	56.8 PK	68.3	-11.5	1.15 V	58	39.27	27.53
6	15810.00	66.0 PK	74.0	-8.0	1.07 V	74	38.47	27.53
7	15810.00	53.1 AV	54.0	-0.9	1.07 V	74	25.57	27.53

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

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 62	**FREQUENCY RANGE**	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 72%RH 1012 hPa	**TESTED BY**	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*5310.00	109.0 PK			1.37 H	67	81.47	27.53
2	*5310.00	94.9 AV			1.37 H	67	67.37	27.53
3	5350.90	67.2 PK	74.0	-6.8	1.38 H	76	39.67	27.53
4	5350.90	50.1 AV	54.0	-3.9	1.38 H	76	22.57	27.53
5	10620.00	61.1 PK	74.0	-12.9	1.11 H	83	33.57	27.53
6	10620.00	48.0 AV	54.0	-6.0	1.11 H	83	20.47	27.53
7	15930.00	68.2 PK	74.0	-5.8	1.20 H	40	40.67	27.53
8	15930.00	53.1 AV	54.0	-0.9	1.20 H	40	25.57	27.53
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*5310.00	112.3 PK			1.21 V	90	84.77	27.53
2	*5310.00	97.8 AV			1.21 V	90	70.27	27.53
3	**5350.90**	**73.5 PK**	**74.0**	**-0.5**	**1.23 V**	**82**	**45.97**	**27.53**
4	5350.90	53.4 AV	54.0	-0.6	1.23 V	82	25.87	27.53
5	10620.00	64.4 PK	74.0	-9.6	1.14 V	58	36.87	27.53
6	10620.00	49.4 AV	54.0	-4.6	1.14 V	58	21.87	27.53
7	15930.00	65.9 PK	74.0	-8.1	1.06 V	76	38.37	27.53
8	15930.00	51.2 AV	54.0	-2.8	1.06 V	76	23.67	27.53

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 102	**FREQUENCY RANGE**	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 72%RH 1012 hPa	**TESTED BY**	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	5460.00	59.9 PK	74.0	-14.1	1.43 H	69	32.37	27.53
2	5460.00	48.4 AV	54.0	-5.6	1.43 H	69	20.87	27.53
3	#5470.00	54.8 PK	68.3	-13.5	1.23 H	70	37.27	27.53
4	*5510.00	111.0 PK			1.36 H	68	83.47	27.53
5	*5510.00	95.9 AV			1.36 H	68	68.37	27.53
6	11020.00	60.0 PK	74.0	-14.0	1.23 H	100	32.47	27.53
7	11020.00	48.1 AV	54.0	-5.9	1.23 H	100	20.57	27.53
8	#16530.00	52.9 PK	68.3	-15.4	1.11 H	78	35.37	27.53
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	71.1 PK	74.0	-2.9	1.40 V	90	43.57	27.53
2	5460.00	53.3 AV	54.0	-0.7	1.40 V	90	25.77	27.53
3	#5470.00	58.9 PK	68.3	-9.4	1.48 V	88	41.37	27.53
4	*5510.00	114.6 PK			1.50 V	9	87.07	27.53
5	*5510.00	99.0 AV			1.50 V	9	71.47	27.53
6	11020.00	61.6 PK	74.0	-12.4	1.16 V	81	34.07	27.53
7	11020.00	49.3 AV	54.0	-4.7	1.16 V	81	21.77	27.53
8	#16530.00	51.9 PK	68.3	-16.4	1.23 V	81	34.37	27.53

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

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

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 110	**FREQUENCY RANGE**	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 72%RH 1012 hPa	**TESTED BY**	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*5550.00	114.1 PK			1.39 H	40	86.57	27.53
2	*5550.00	99.9 AV			1.39 H	40	72.37	27.53
3	11100.00	58.5 PK	74.0	-15.5	1.21 H	71	30.97	27.53
4	11100.00	47.6 AV	54.0	-6.4	1.21 H	71	20.07	27.53
5	#16650.00	53.4 PK	68.3	-14.9	1.10 H	88	35.87	27.53
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*5550.00	117.0 PK			1.39 V	82	89.47	27.53
2	*5550.00	103.6 AV			1.39 V	82	76.07	27.53
3	11100.00	60.5 PK	74.0	-13.5	1.13 V	60	32.97	27.53
4	11100.00	48.5 AV	54.0	-5.5	1.13 V	60	20.97	27.53
5	#16650.00	51.5 PK	68.3	-16.8	1.19 V	70	33.97	27.53

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

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

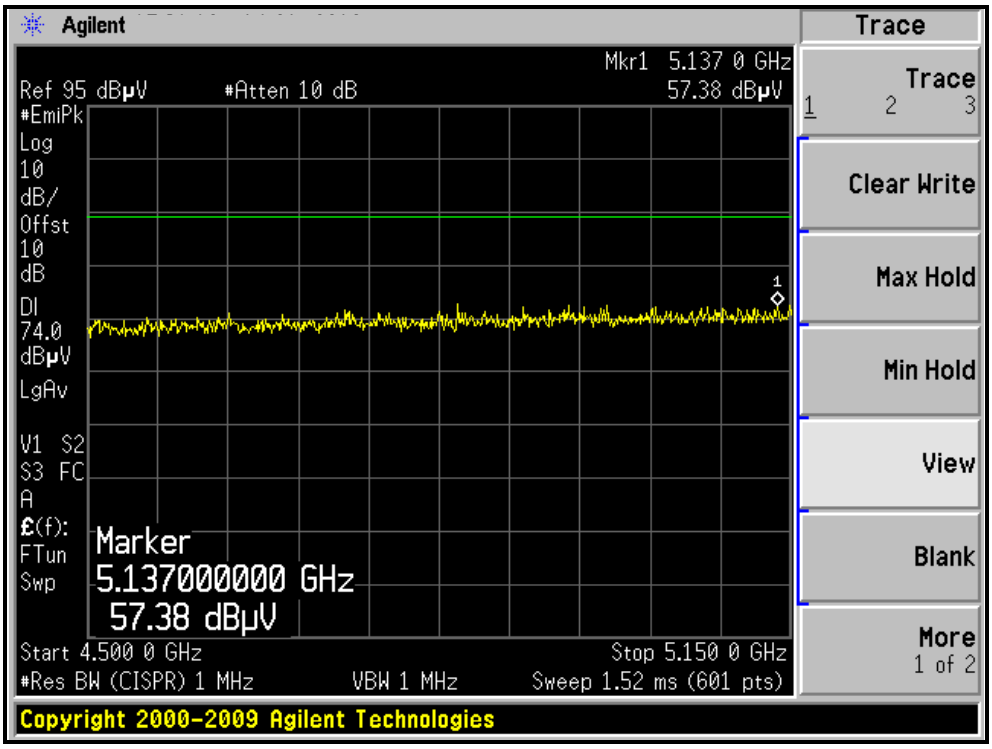
EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 134	**FREQUENCY RANGE**	1 ~ 40GHz
INPUT POWER	120Vac, 60 Hz	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	27deg. C, 72%RH 1012 hPa	**TESTED BY**	Eric Lee

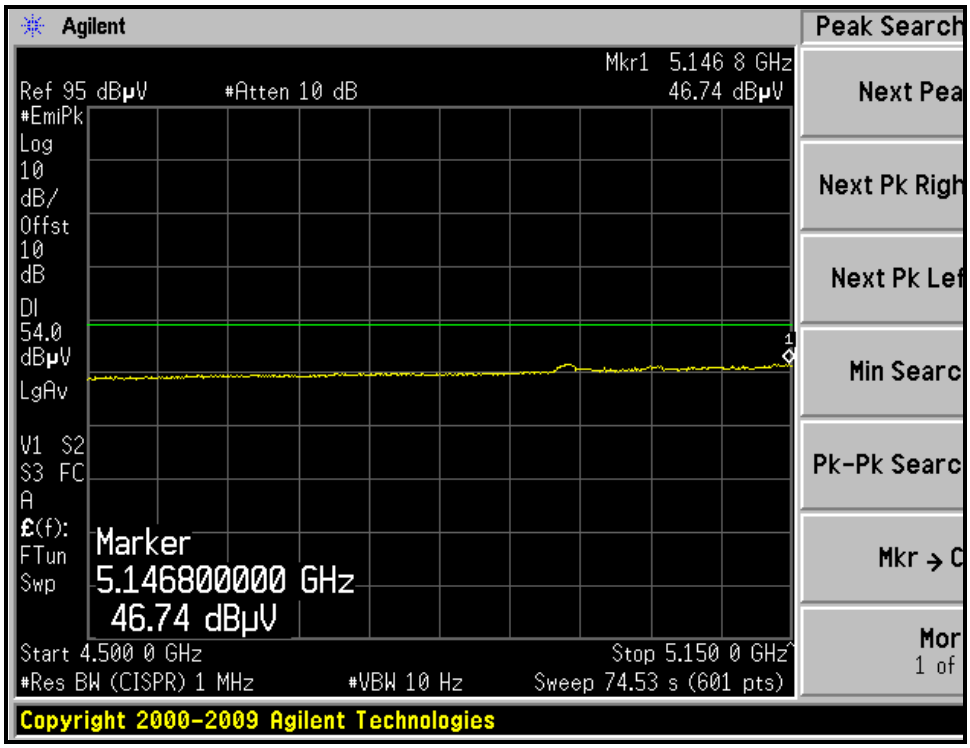
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*5670.00	115.4 PK			1.29 H	70	87.87	27.53
2	*5670.00	100.1 AV			1.29 H	70	72.57	27.53
3	#5725.00	50.9 PK	68.3	-17.4	1.30 H	81	33.37	27.53
4	11340.00	64.1 PK	74.0	-9.9	1.20 H	101	36.57	27.53
5	11340.00	50.1 AV	54.0	-3.9	1.20 H	101	22.57	27.53
6	#17010.00	56.8 PK	68.3	-11.5	1.11 H	24	39.27	27.53
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	*5670.00	117.9 PK			1.27 V	75	90.37	27.53
2	*5670.00	103.3 AV			1.27 V	75	75.77	27.53
3	#5725.00	60.2 PK	68.3	-8.1	1.28 V	79	42.67	27.53
4	11340.00	66.8 PK	74.0	-7.2	1.07 V	77	39.27	27.53
5	11340.00	52.4 AV	54.0	-1.6	1.07 V	77	24.87	27.53
6	#17010.00	54.2 PK	68.3	-14.1	1.20 V	83	36.67	27.53

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

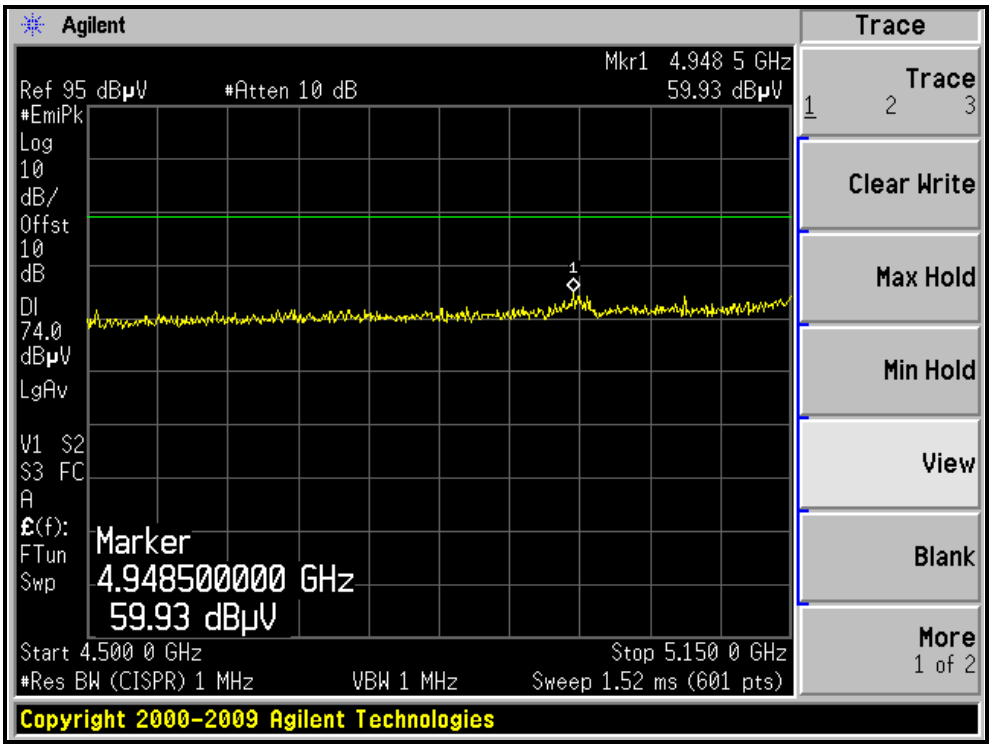
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. "#":The radiated frequency is out the restricted band.

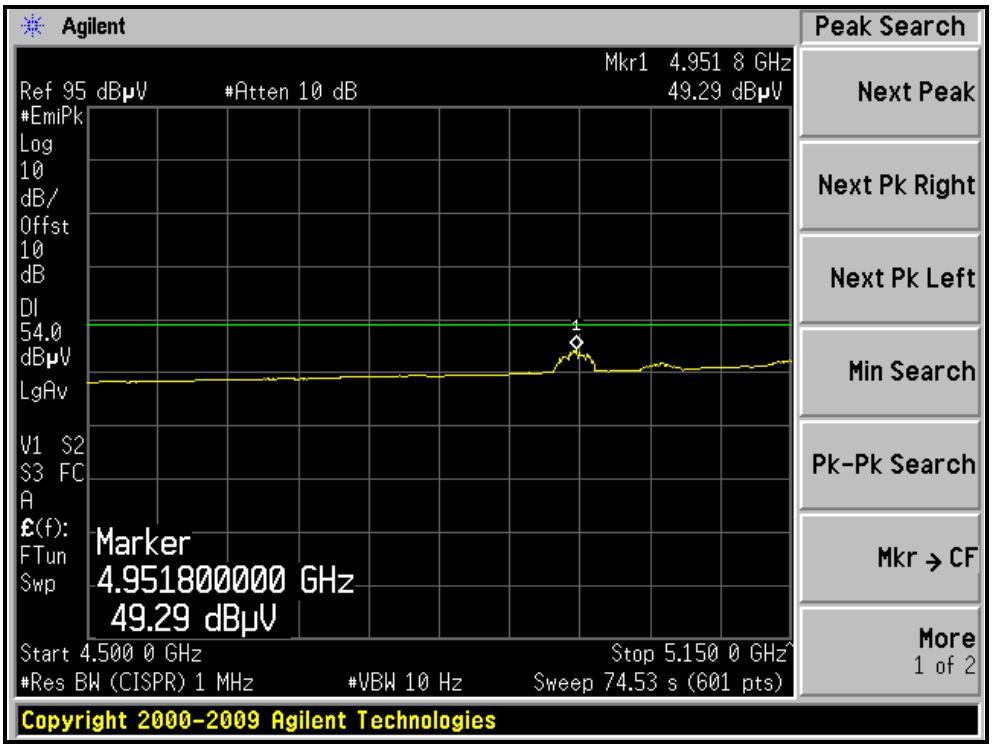
RESTRICTED BANDEDGE (802.11n (40MHz) MODE, CH54, HORIZONTAL)



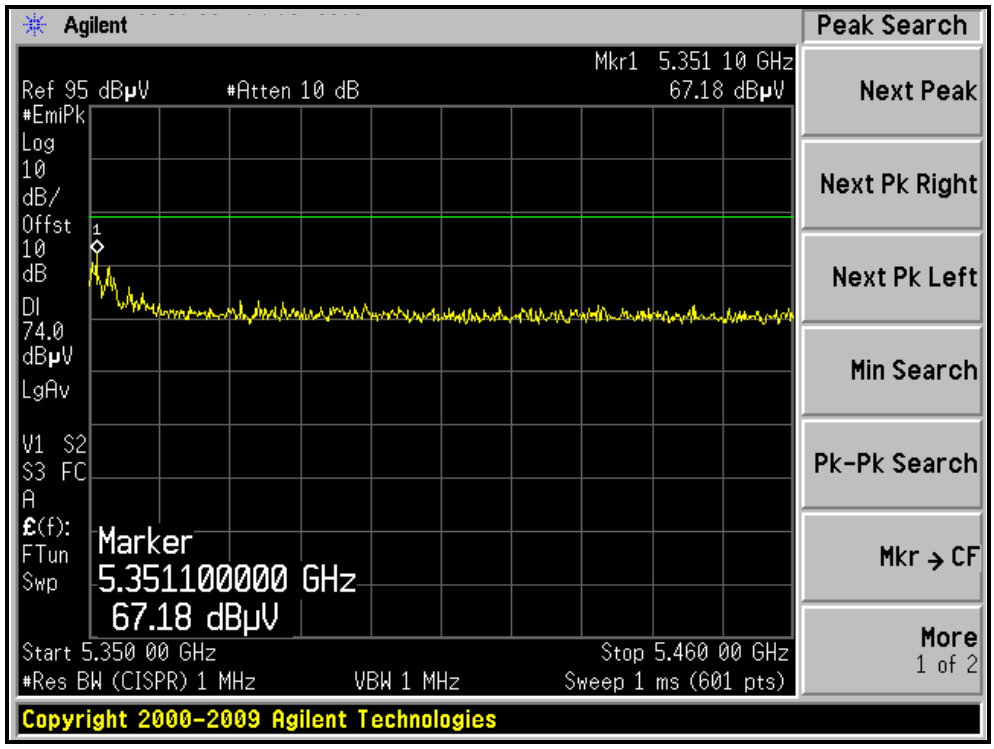


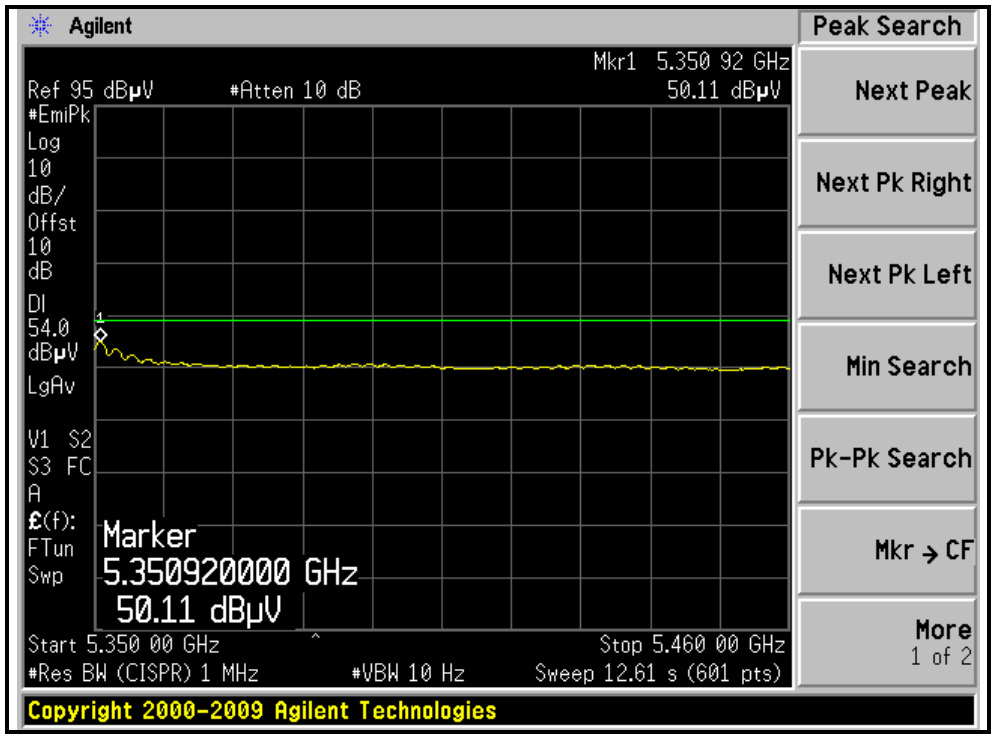
RESTRICTED BANDEDGE (802.11n (40MHz) MODE,CH54, VERTICAL)



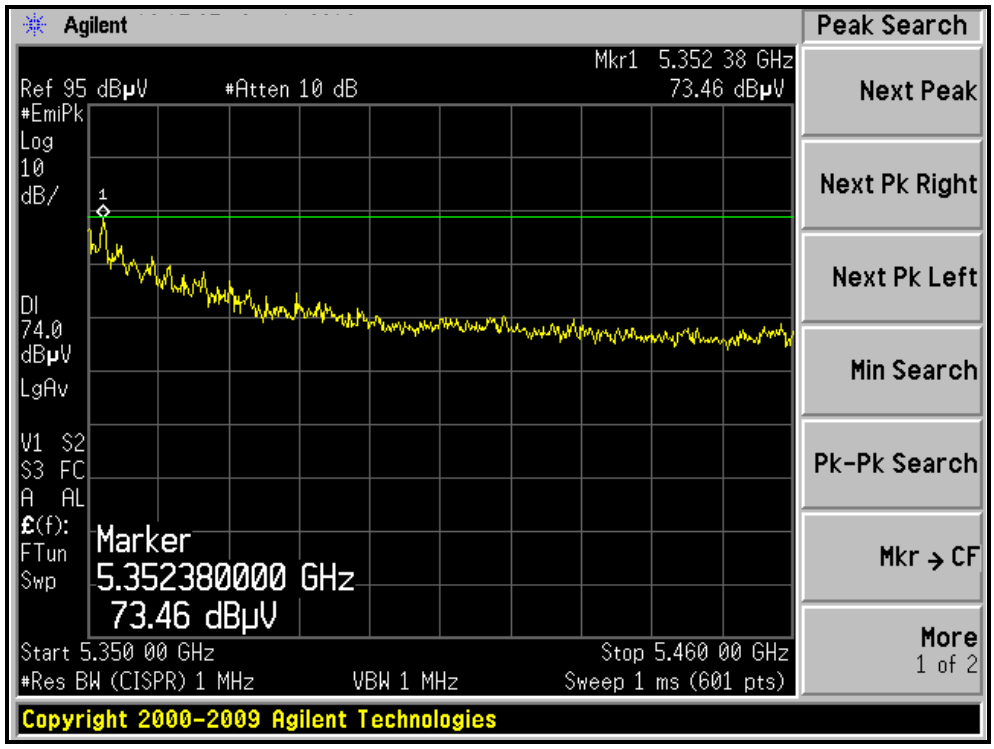


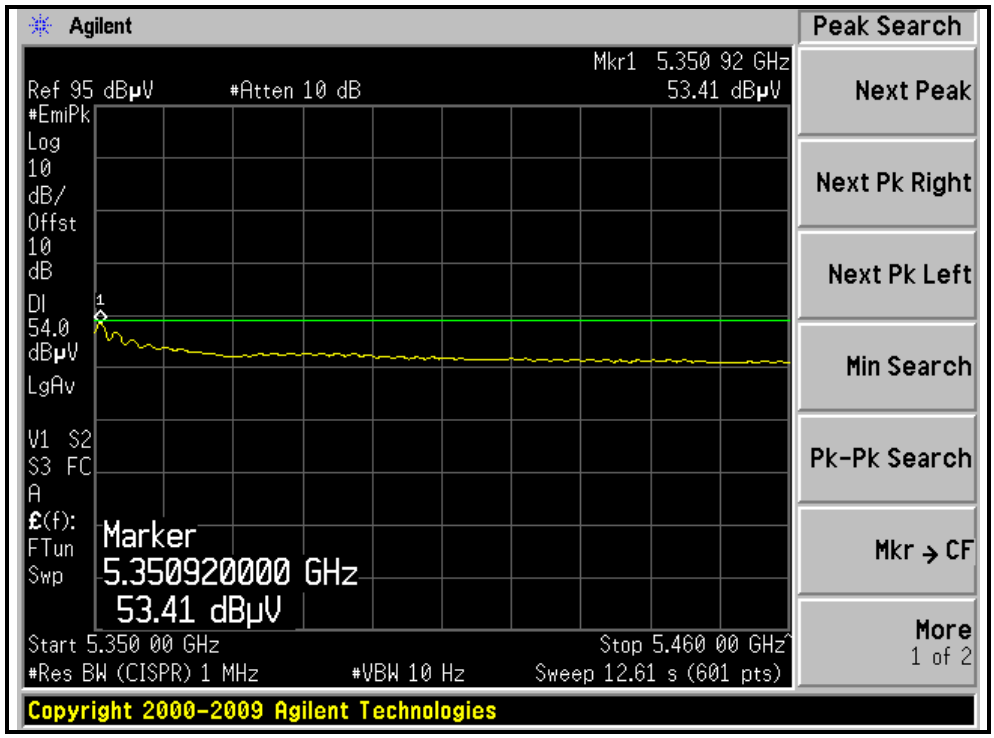
RESTRICTED BANDEDGE (802.11n (40MHz) MODE, CH62, HORIZONTAL)



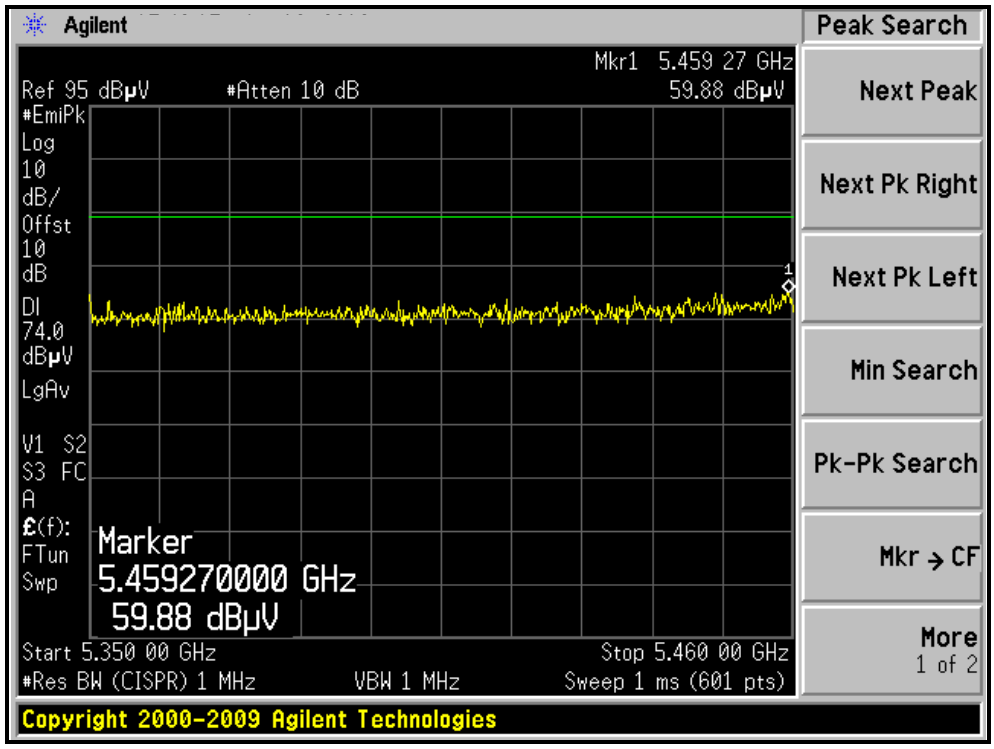


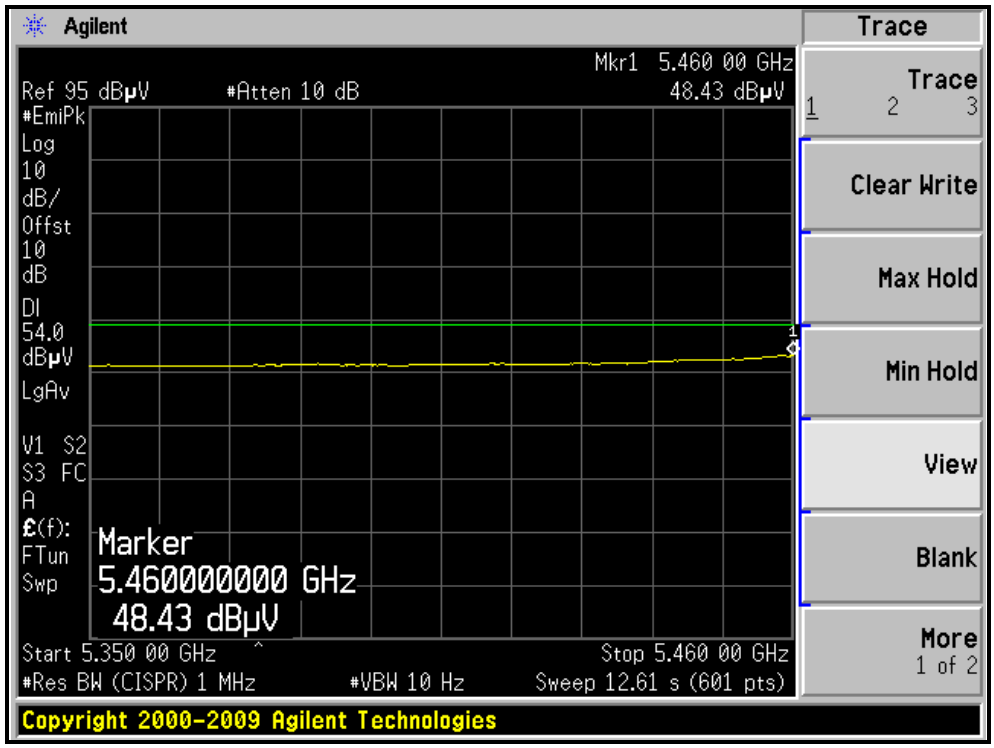
RESTRICTED BANDEDGE (802.11n (40MHz) MODE, CH62, VERTICAL)



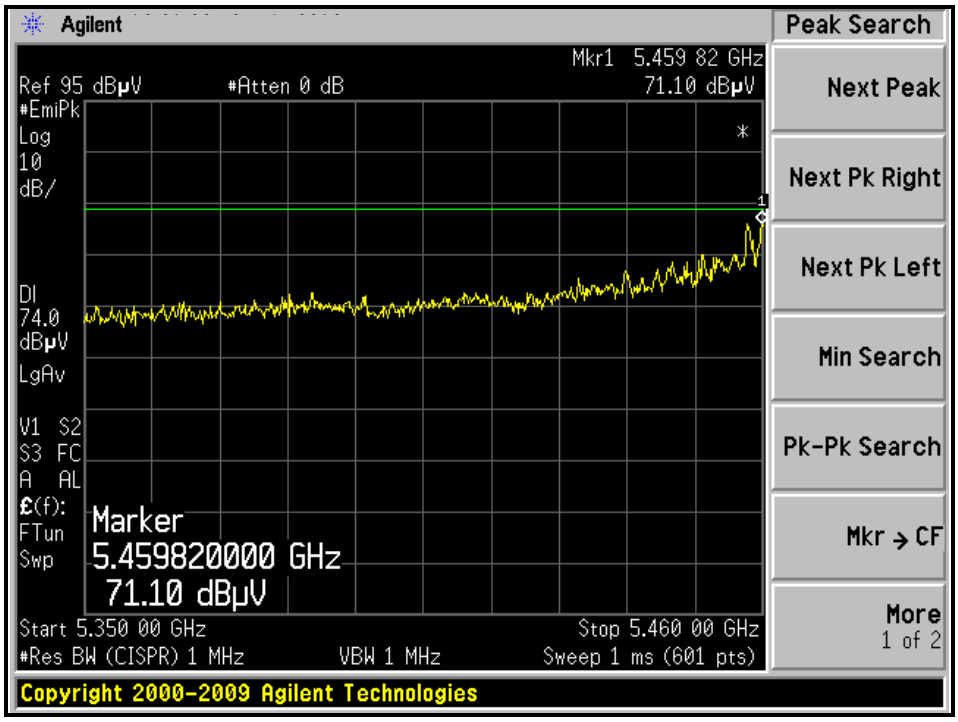


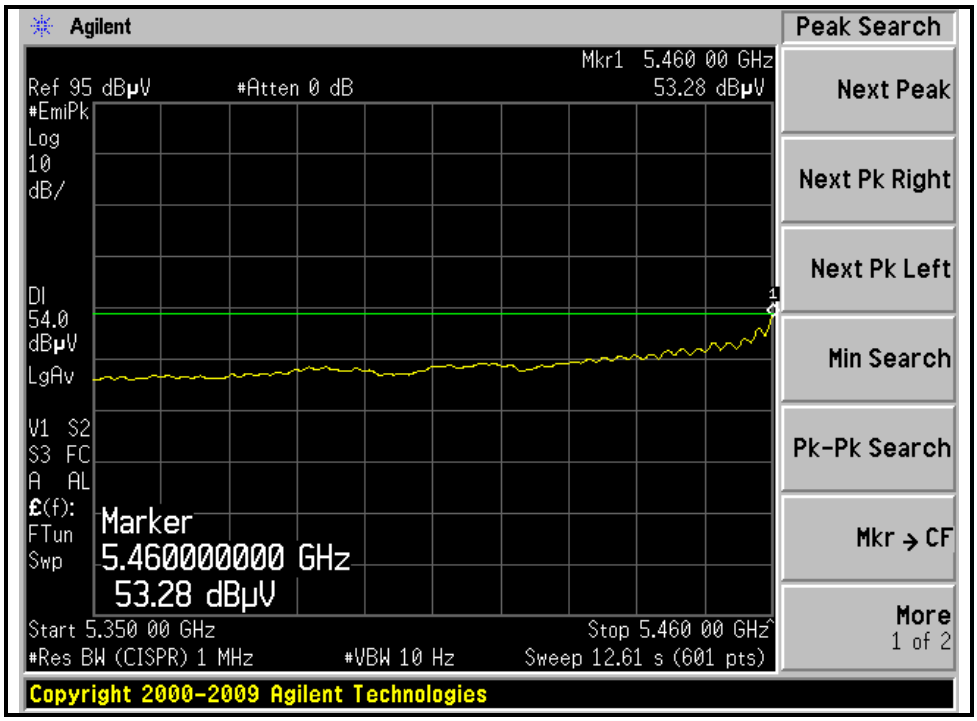
RESTRICTED BANDEDGE (802.11n (40MHz) MODE, CH102, HORIZONTAL)





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





4.3 PEAK TRANSMIT POWER MEASUREMENT

4.3.1 LIMITS OF PEAK 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
AGILENT SPECTRUM ANALYZER	E4446A	MY46180622	May 12, 2010	May 11, 2011

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

4.3.3 TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer.
2. Set span to encompass the entire emission bandwidth of the signal.
3. Set RBW to 1MHz, VBW to 3MHz. Power average 100 times.
4. Using the spectrum analyzer's channel power measurement function to measure the output power.

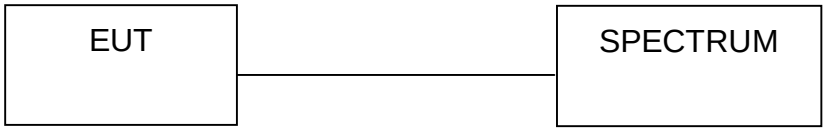
NOTE:
The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

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.

4.3.7 TEST RESULTS

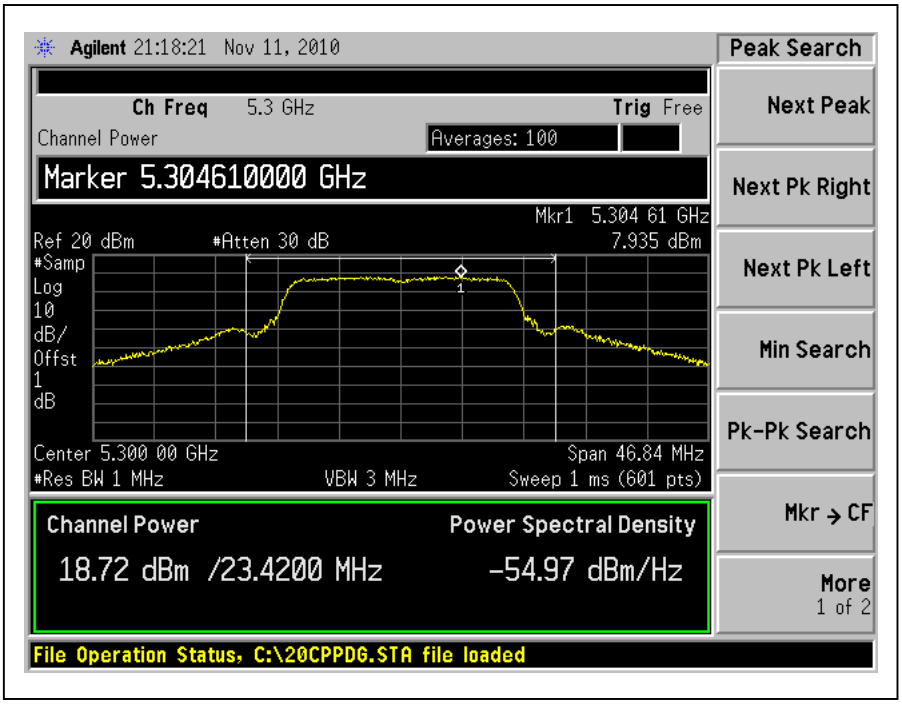
802.11a OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/ FAIL
52	5260	72.4	18.6	24.0	24.75	PASS
60	5300	74.1	18.7	24.0	23.42	PASS
64	5320	63.1	18.0	24.0	25.75	PASS
100	5500	61.7	17.9	24.0	25.67	PASS
116	5580	70.8	18.5	24.0	22.58	PASS
132	5660	75.9	18.8	24.0	28.00	PASS
140	5700	72.4	18.6	24.0	28.25	PASS

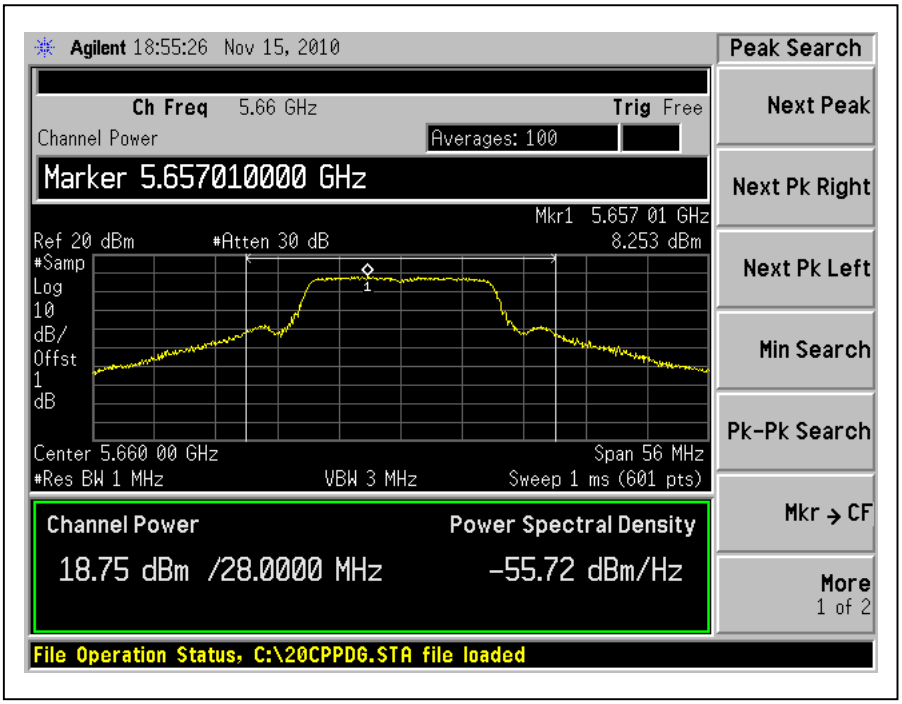
NOTE: The 26dBc Occupied Bandwidth plot, please refer to the following page.

Peak Power Output:

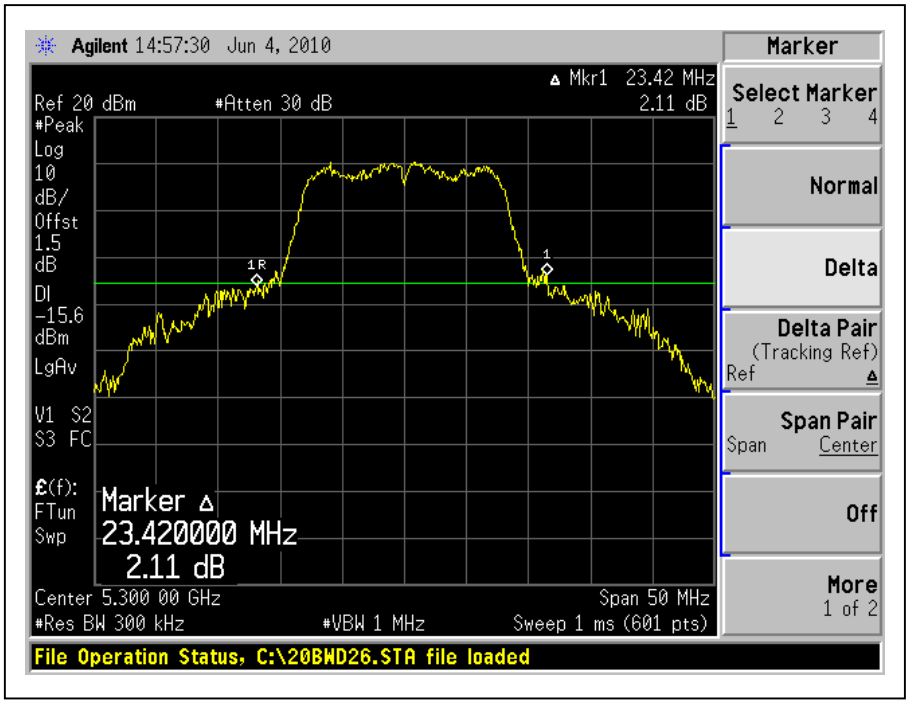
CH60



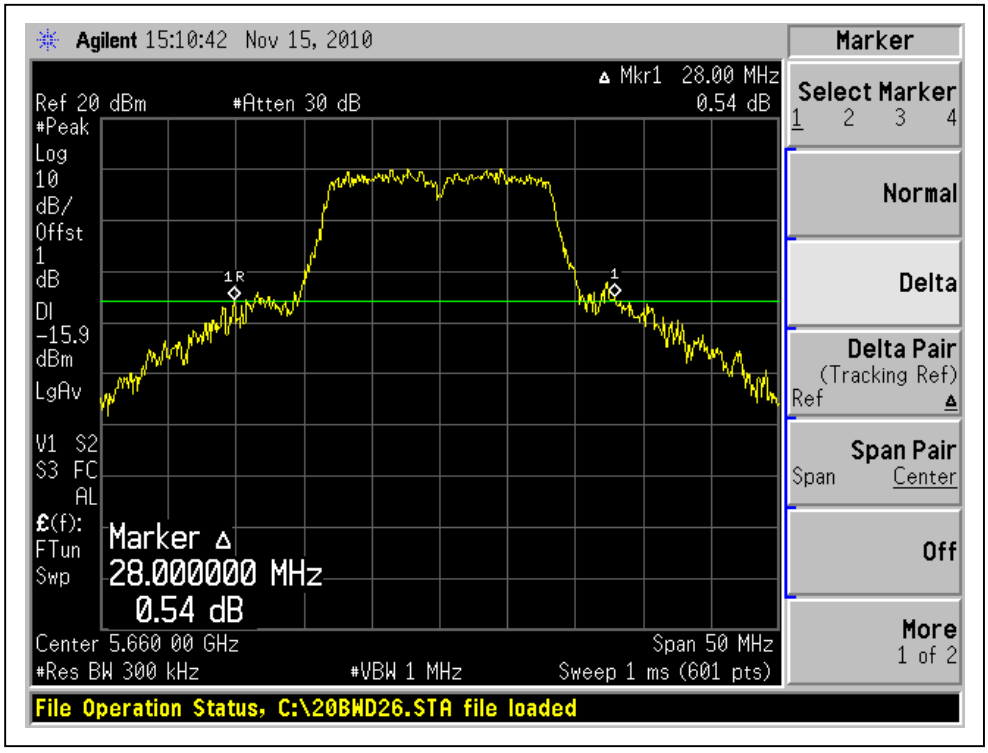
CH132



26dB Occupied Bandwidth:
CH60



CH132

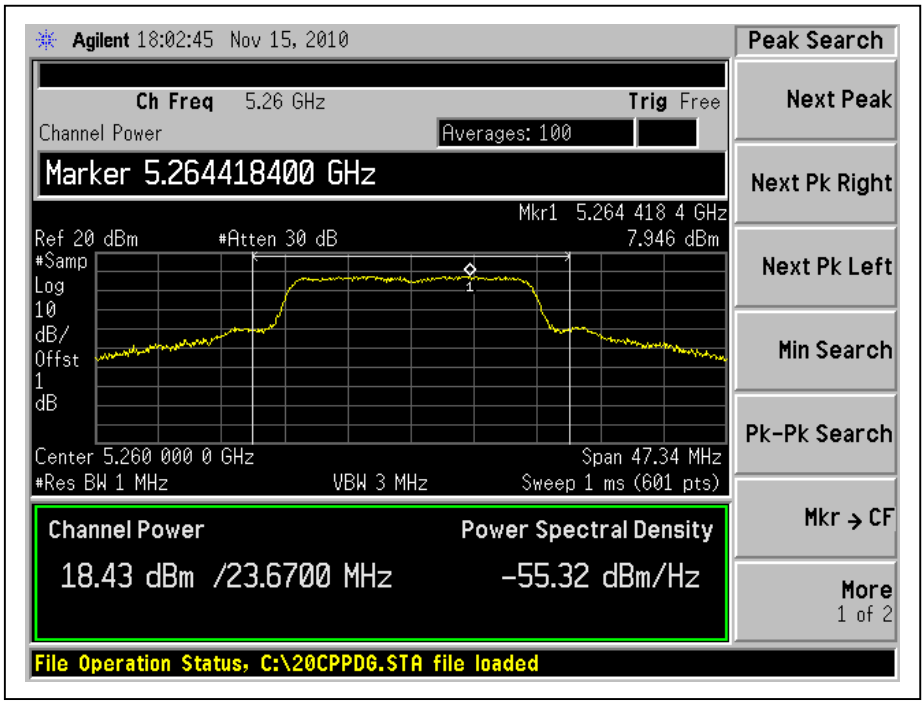


802.11n (20MHz) OFDM MODULATION:

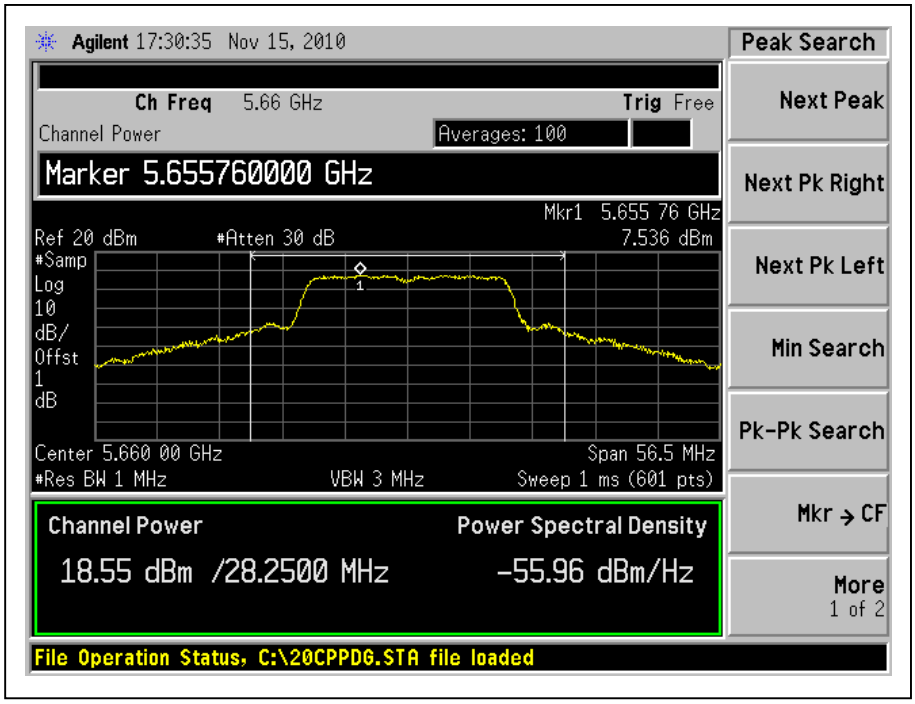
CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/ FAIL
		Chain 0	Chain 2					
52	5260	18.4	18.1	133.7	21.3	24.0	23.67	PASS
60	5300	18.4	18.1	133.7	21.3	24.0	23.58	PASS
64	5320	17.9	18.0	124.8	21.0	24.0	25.50	PASS
100	5500	18.2	18.0	129.2	21.1	24.0	25.83	PASS
116	5580	18.2	18.4	135.3	21.3	24.0	26.75	PASS
132	5660	18.1	18.6	137.0	21.4	24.0	28.25	PASS
140	5700	18.5	18.4	140.0	21.5	24.0	29.83	PASS

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

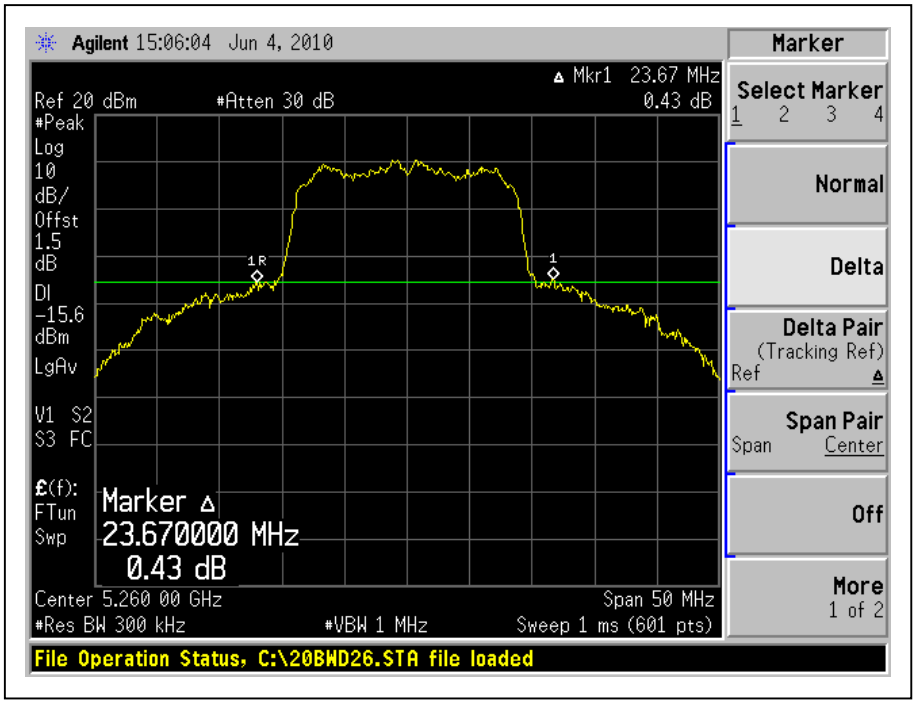
Peak Power Output:
For Chain (0) :CH52



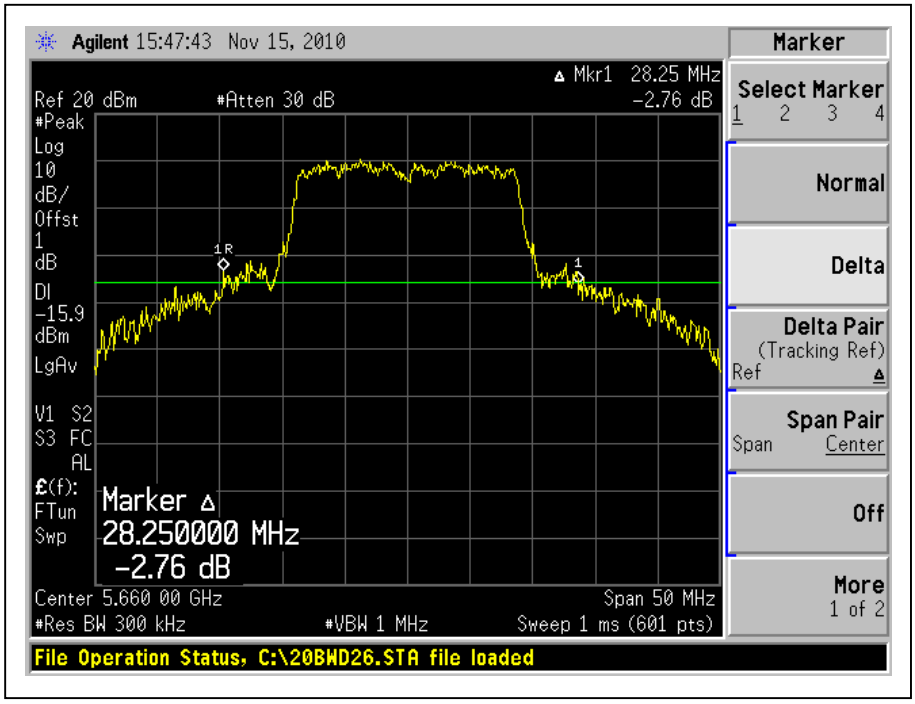
For Chain (2) :CH132



26dB Occupied Bandwidth:
CH52



CH132

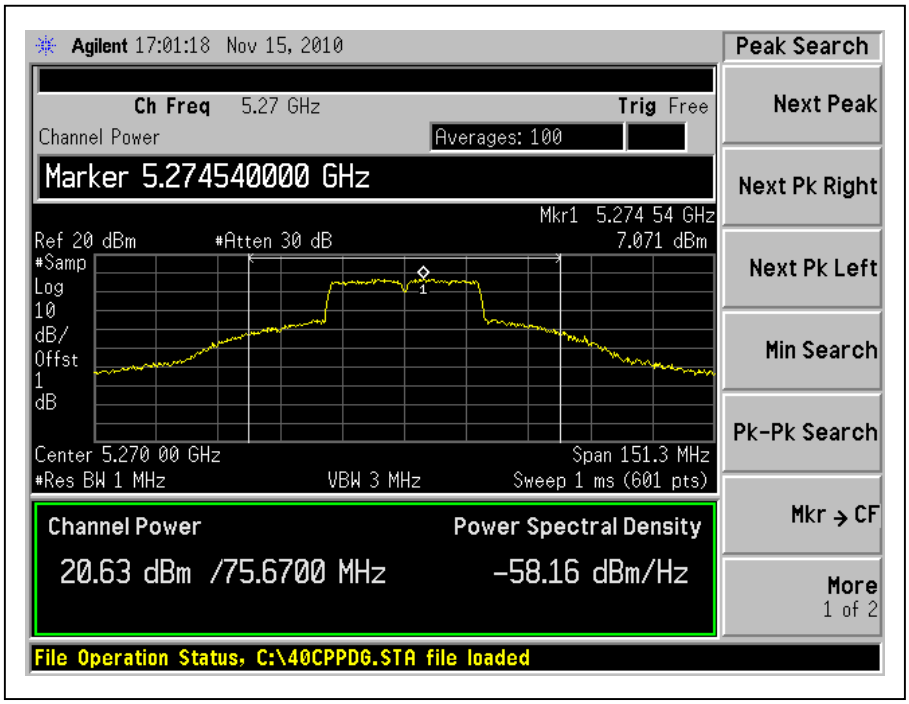


802.11n (40MHz) OFDM MODULATION:

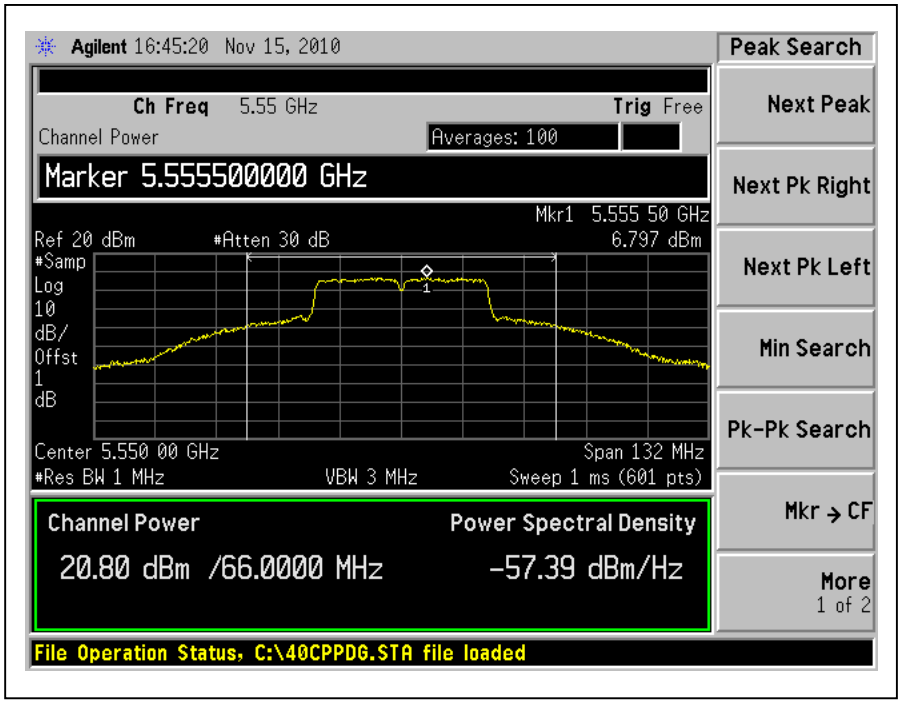
CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	26dBc Occupied Bandwidth (MHz)	PASS/ FAIL
		Chain 0	Chain 2					
54	5270	20.4	20.6	224.5	23.5	24.0	75.67	PASS
62	5310	14.9	14.8	61.1	17.9	24.0	38.17	PASS
102	5510	16.6	16.8	93.6	19.7	24.0	42.17	PASS
110	5550	20.8	20.8	240.5	23.8	24.0	66.00	PASS
134	5670	20.6	20.7	232.3	23.7	24.0	64.33	PASS

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

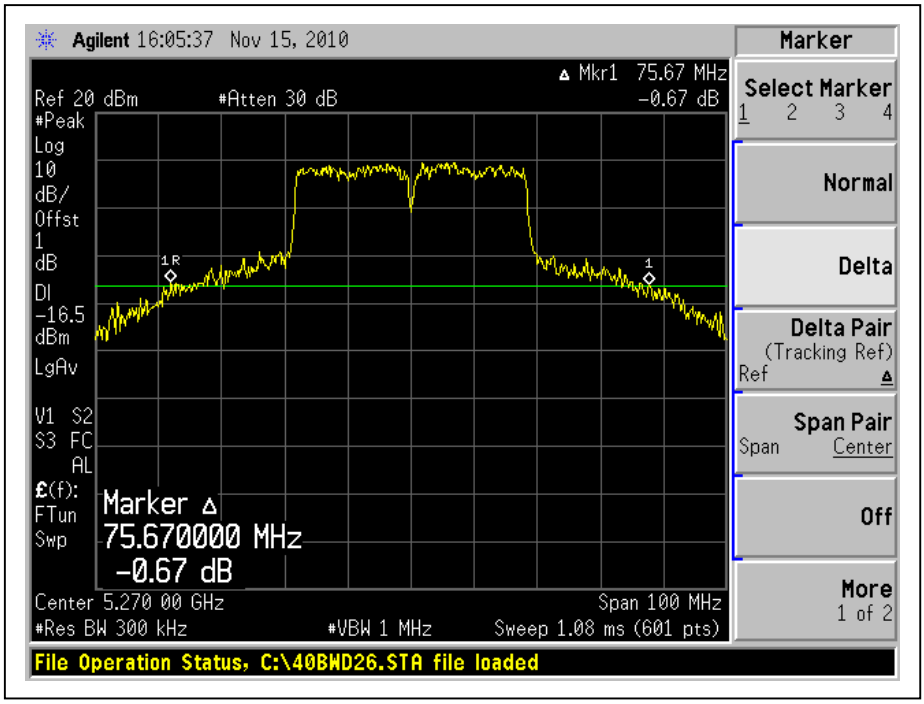
Peak Power Output:
For Chain (2) :CH54



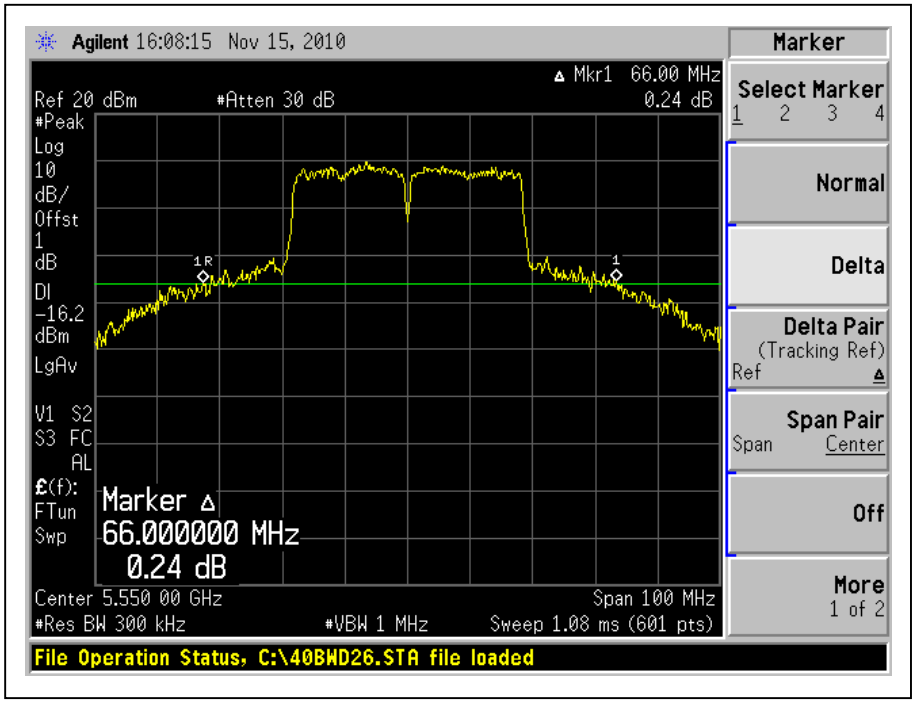
For Chain (2) :CH110



26dB Occupied Bandwidth:
CH54



CH110



4.4 PEAK POWER EXCURSION MEASUREMENT

4.4.1 LIMITS OF PEAK POWER EXCURSION MEASUREMENT

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

4.4.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
AGILENT SPECTRUM ANALYZER	E4446A	MY46180622	May 12, 2010	May 11, 2011

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

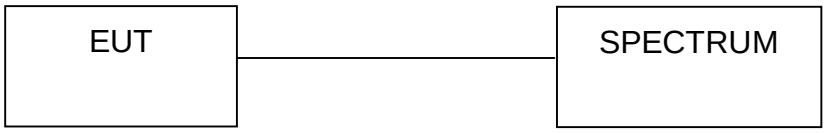
4.4.3 TEST PROCEDURE

1. The transmitter output was connected to the spectrum analyzer.
2. Set the spectrum bandwidth span to view the entire spectrum.
3. Using peak detector and Max-hold function for Trace 1 (RB=1MHz, VB=3MHz) and 2 (RB=1MHz, VB=300kHz).
4. The largest difference between Trace 1 and Trace 2 in any 1MHz band on any frequency was recorded.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

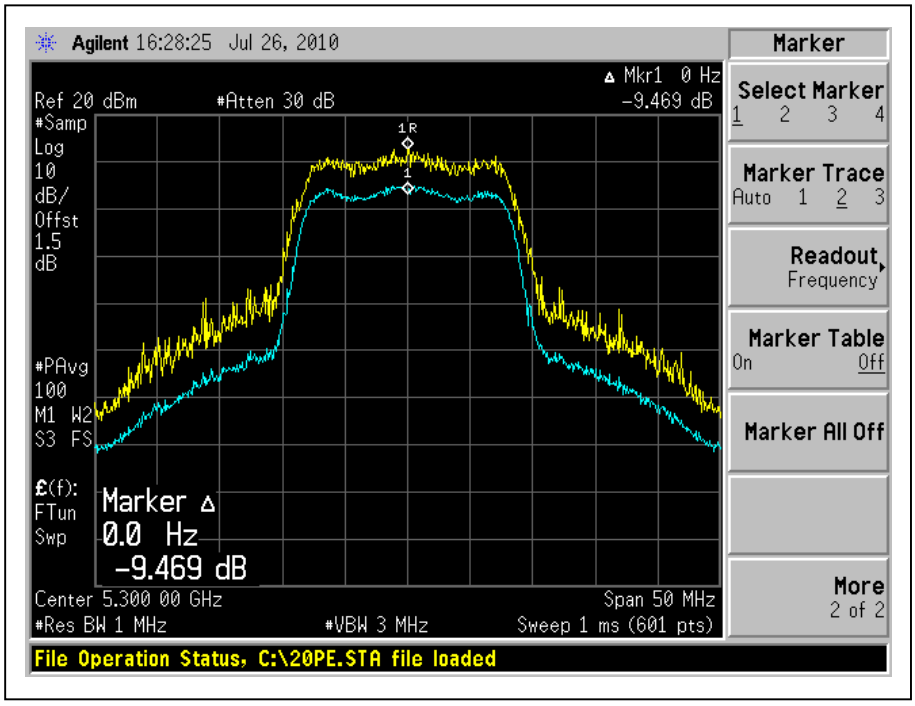
The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

4.4.7 TEST RESULTS

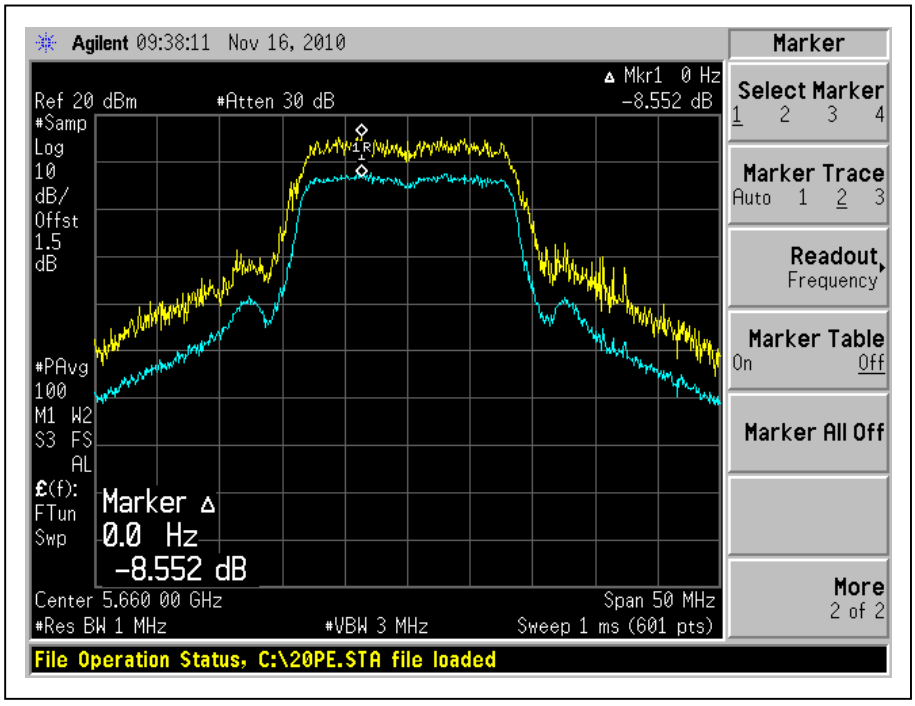
802.11a OFDM MODULATION

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
52	5260	9.1	13	PASS
60	5300	9.5	13	PASS
64	5320	8.7	13	PASS
100	5500	8.4	13	PASS
116	5580	8.2	13	PASS
132	5660	8.6	13	PASS
140	5700	8.5	13	PASS

CH60


Agilent 16:28:25 Jul 26, 2010
Marker
Ref 20 dBm
#Atten 30 dB
Mkr1 0 Hz
-9.469 dB
#Samp
Log
10
dB/
Offst
1.5
dB
#PAvg
100
M1 W2
S3 FS
£(f):
FTun
Swp
Marker Δ
0.0 Hz
-9.469 dB
Center 5.300 00 GHz
Span 50 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Select Marker
1 2 3 4
Marker Trace
Auto 1 2 3
Readout
Frequency
Marker Table
On Off
Marker All Off
More
2 of 2
File Operation Status, C:\20PE.STA file loaded

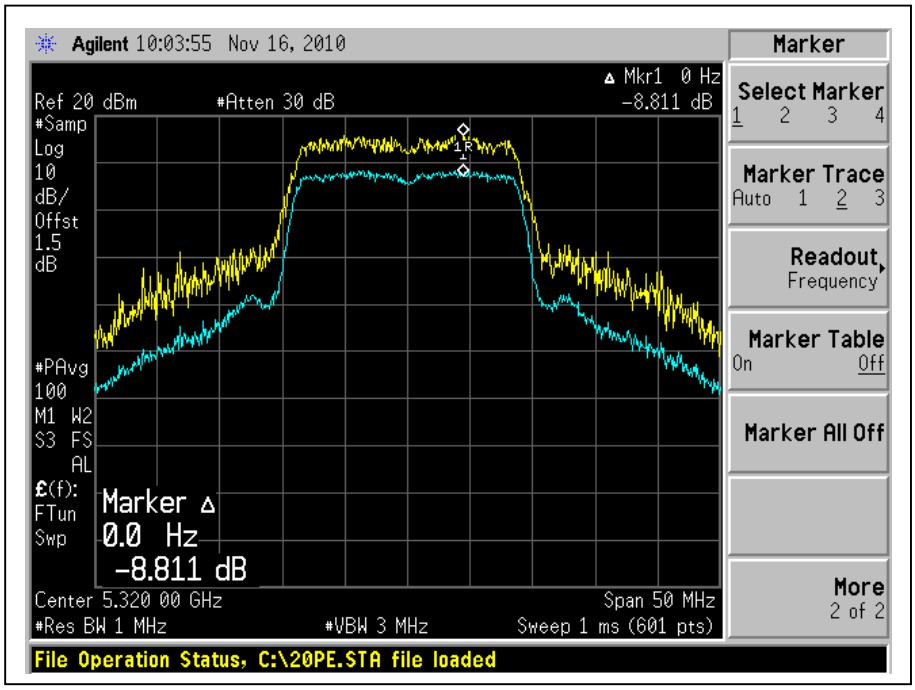
CH132


Agilent 09:38:11 Nov 16, 2010
Marker
Ref 20 dBm
#Atten 30 dB
Mkr1 0 Hz
-8.552 dB
#Samp
Log
10
dB/
Offst
1.5
dB
#PAvg
100
M1 W2
S3 FS
AL
£(f):
FTun
Swp
Marker Δ
0.0 Hz
-8.552 dB
Center 5.660 00 GHz
Span 50 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Select Marker
1 2 3 4
Marker Trace
Auto 1 2 3
Readout
Frequency
Marker Table
On Off
Marker All Off
More
2 of 2
File Operation Status, C:\20PE.STA file loaded

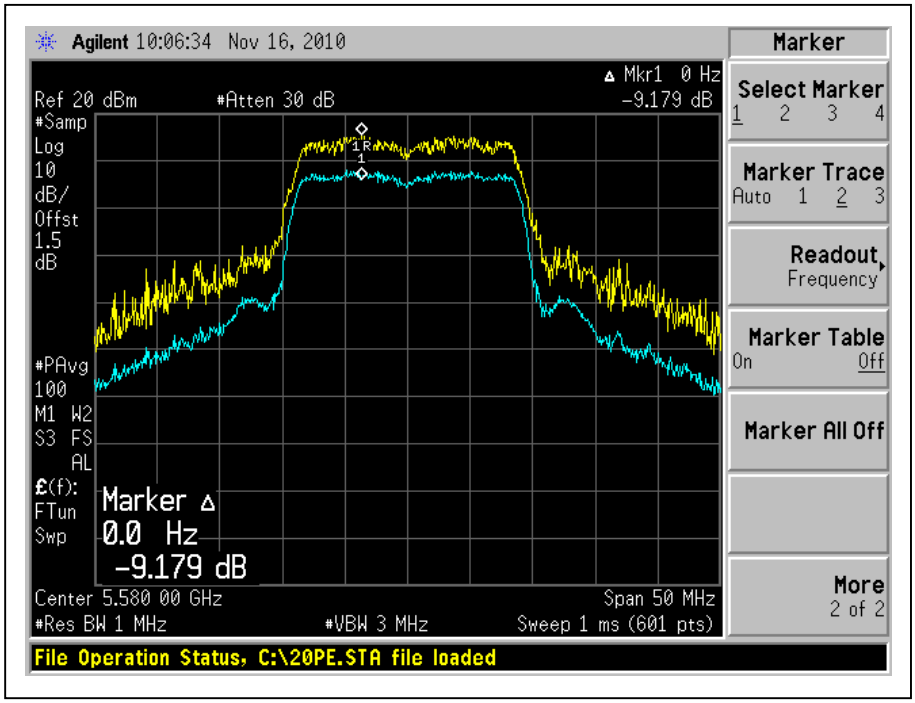
802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
52	5260	8.5	13	PASS
60	5300	8.3	13	PASS
64	5320	8.8	13	PASS
100	5500	8.0	13	PASS
116	5580	9.2	13	PASS
132	5660	8.1	13	PASS
140	5700	7.7	13	PASS

CH64


Agilent 10:03:55 Nov 16, 2010
Ref 20 dBm
#Atten 30 dB
Mkr1 0 Hz
-8.811 dB
#Samp
Log
10
dB/
Offst
1.5
dB
#PAvg
100
M1 W2
S3 FS
AL
£(f):
FTun
Swp
Marker Δ
0.0 Hz
-8.811 dB
Center 5.320 00 GHz
Span 50 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
File Operation Status, C:\20PE.STA file loaded
Marker
Select Marker
1 2 3 4
Marker Trace
Auto 1 2 3
Readout
Frequency
Marker Table
On Off
Marker All Off
More
2 of 2

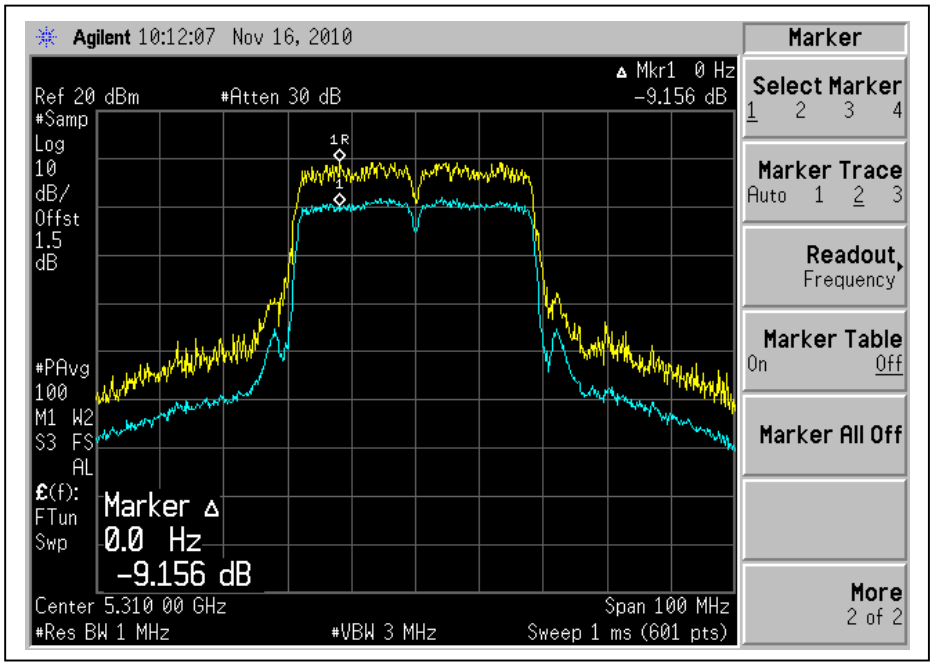
CH116


Agilent 10:06:34 Nov 16, 2010
Ref 20 dBm
#Atten 30 dB
Mkr1 0 Hz
-9.179 dB
#Samp
Log
10
dB/
Offst
1.5
dB
#PAvg
100
M1 W2
S3 FS
AL
£(f):
FTun
Swp
Marker Δ
0.0 Hz
-9.179 dB
Center 5.580 00 GHz
Span 50 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
File Operation Status, C:\20PE.STA file loaded
Marker
Select Marker
1 2 3 4
Marker Trace
Auto 1 2 3
Readout
Frequency
Marker Table
On Off
Marker All Off
More
2 of 2

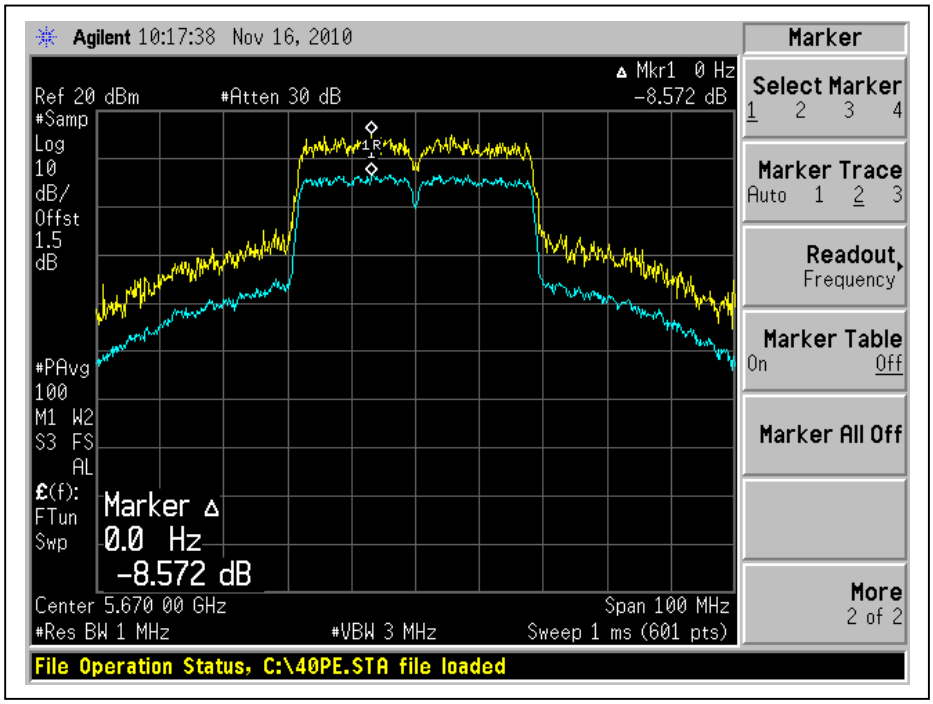
802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER EXCURSION (dB)	PEAK to AVERAGE EXCURSION LIMIT (dB)	PASS/FAIL
54	5270	8.4	13	PASS
62	5310	9.2	13	PASS
102	5510	8.0	13	PASS
110	5550	8.4	13	PASS
134	5670	8.6	13	PASS

CH62


Agilent 10:12:07 Nov 16, 2010
Marker
Ref 20 dBm
#Atten 30 dB
Mkr1 0 Hz
-9.156 dB
#Samp
Log
10
dB/
Offst
1.5
dB
#PAvg
100
M1 W2
S3 FS
AL
£(f):
FTun
Swp
Marker Δ
0.0 Hz
-9.156 dB
Center 5.310 00 GHz
Span 100 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
Select Marker
1 2 3 4
Marker Trace
Auto 1 2 3
Readout
Frequency
Marker Table
On Off
Marker All Off
More
2 of 2

CH134


Agilent 10:17:38 Nov 16, 2010
Marker
Ref 20 dBm
#Atten 30 dB
Mkr1 0 Hz
-8.572 dB
#Samp
Log
10
dB/
Offst
1.5
dB
#PAvg
100
M1 W2
S3 FS
AL
£(f):
FTun
Swp
Marker Δ
0.0 Hz
-8.572 dB
Center 5.670 00 GHz
Span 100 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (601 pts)
File Operation Status, C:\40PE.STA file loaded
Select Marker
1 2 3 4
Marker Trace
Auto 1 2 3
Readout
Frequency
Marker Table
On Off
Marker All Off
More
2 of 2

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
AGILENT SPECTRUM ANALYZER	E4446A	MY46180622	May 12, 2010	May 11, 2011

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

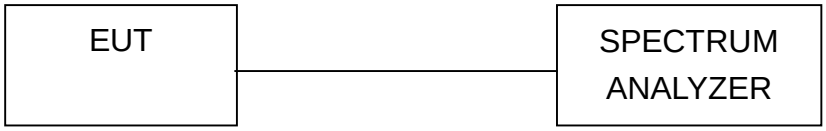
4.5.3 TEST PROCEDURES

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

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITIONS

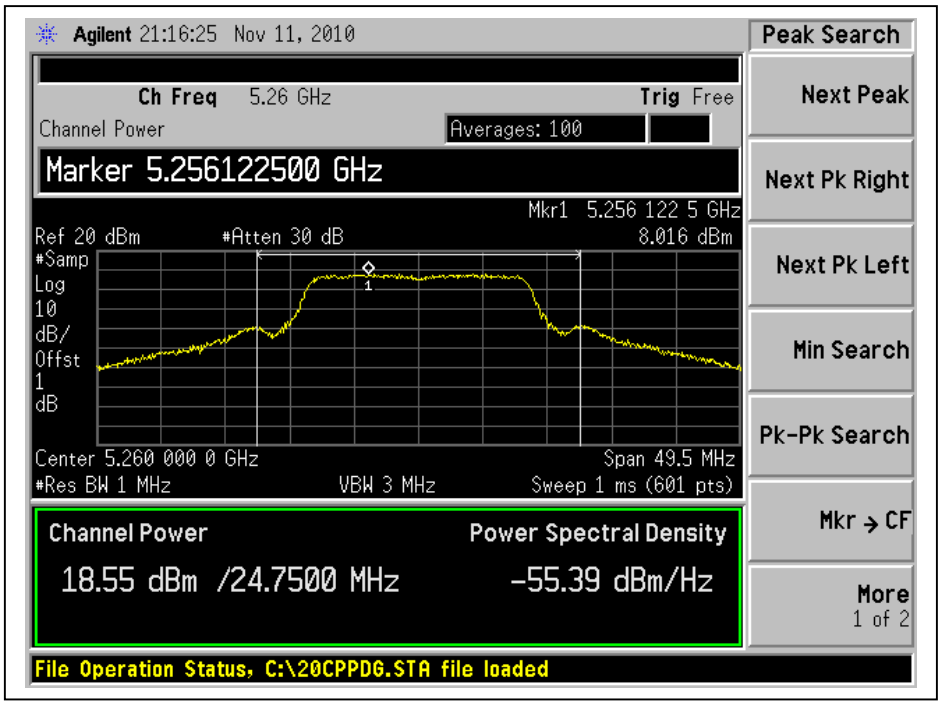
Same as 4.3.6

4.5.7 TEST RESULTS

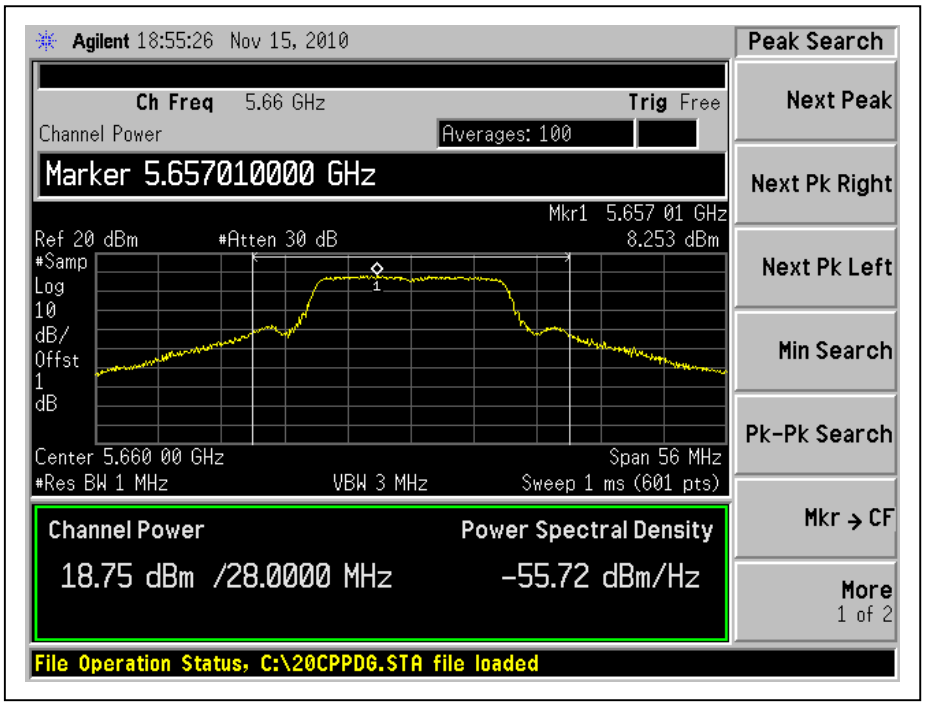
802.11a OFDM MODULATION

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
52	5260	8	11	PASS
60	5300	7.9	11	PASS
64	5320	7.3	11	PASS
100	5500	7.2	11	PASS
116	5580	7.6	11	PASS
132	5660	8.3	11	PASS
140	5700	7.7	11	PASS

CH52


Agilent 21:16:25 Nov 11, 2010
Peak Search
Ch Freq 5.26 GHz
Trig Free
Channel Power
Averages: 100
Marker 5.256122500 GHz
Mkr1 5.256 122 5 GHz
Ref 20 dBm
#Atten 30 dB
8.016 dBm
#Samp
Log
10
dB/
Offst
1
dB
Center 5.260 000 0 GHz
Span 49.5 MHz
#Res BW 1 MHz
VBW 3 MHz
Sweep 1 ms (601 pts)
Channel Power
18.55 dBm /24.7500 MHz
Power Spectral Density
-55.39 dBm/Hz
File Operation Status, C:\20CPPDG.STA file loaded
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2

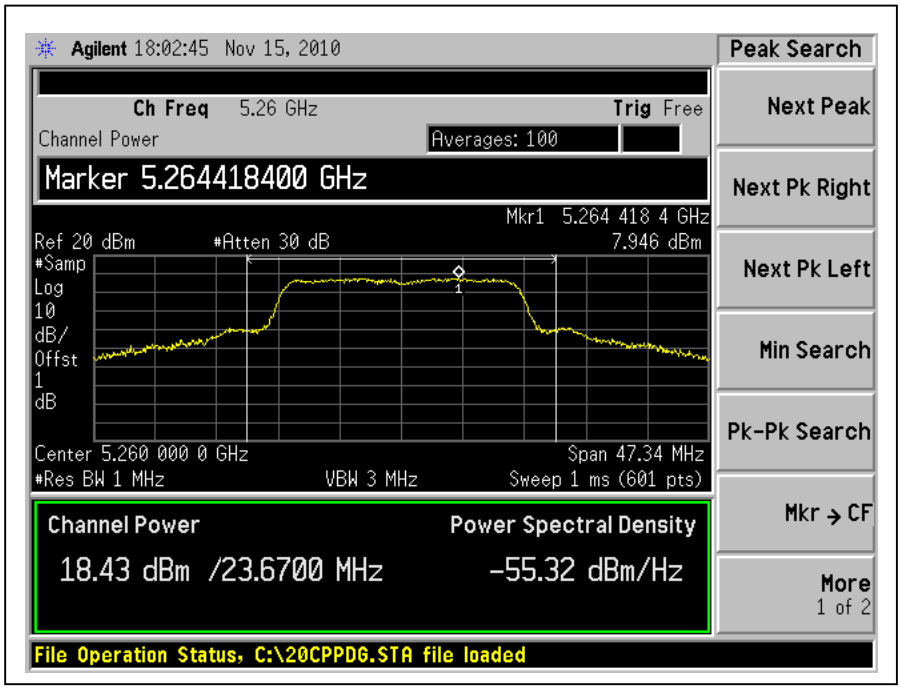
CH132


Agilent 18:55:26 Nov 15, 2010
Peak Search
Ch Freq 5.66 GHz
Trig Free
Channel Power
Averages: 100
Marker 5.657010000 GHz
Mkr1 5.657 01 GHz
Ref 20 dBm
#Atten 30 dB
8.253 dBm
#Samp
Log
10
dB/
Offst
1
dB
Center 5.660 00 GHz
Span 56 MHz
#Res BW 1 MHz
VBW 3 MHz
Sweep 1 ms (601 pts)
Channel Power
18.75 dBm /28.0000 MHz
Power Spectral Density
-55.72 dBm/Hz
File Operation Status, C:\20CPPDG.STA file loaded
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2

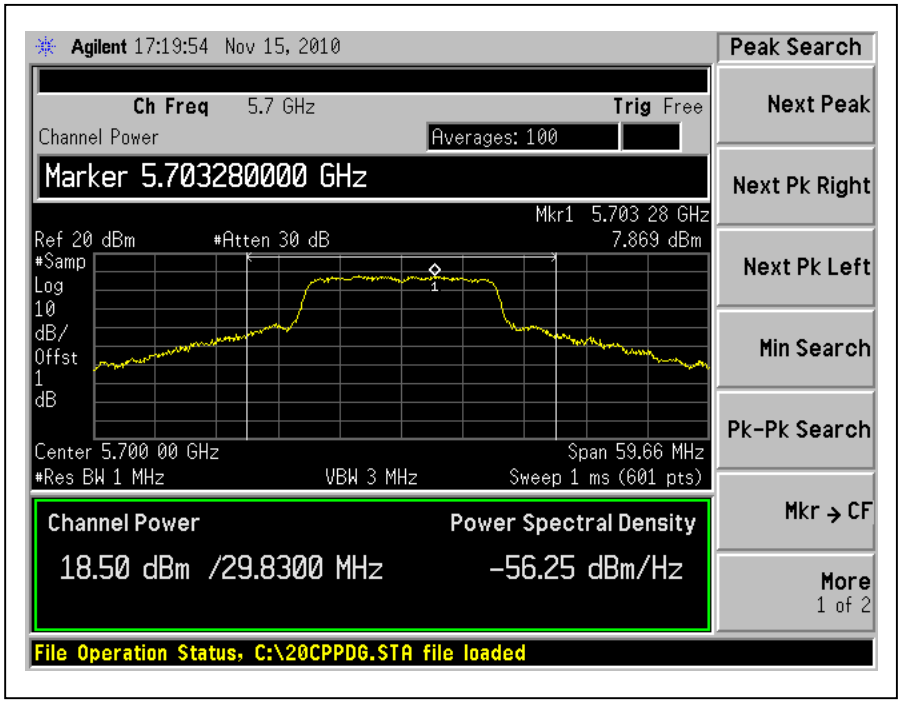
802.11n (20MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)		TOTAL OUTPUT POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
		Chain (0)	Chain(2)			
52	5260	7.90	7.00	10.50	11	PASS
60	5300	7.80	7.50	10.70	11	PASS
64	5320	6.80	7.50	10.20	11	PASS
100	5500	7.60	7.10	10.40	11	PASS
116	5580	7.30	7.70	10.50	11	PASS
132	5660	7.30	7.50	10.40	11	PASS
140	5700	7.90	7.50	10.70	11	PASS

For Chain (0) : CH52



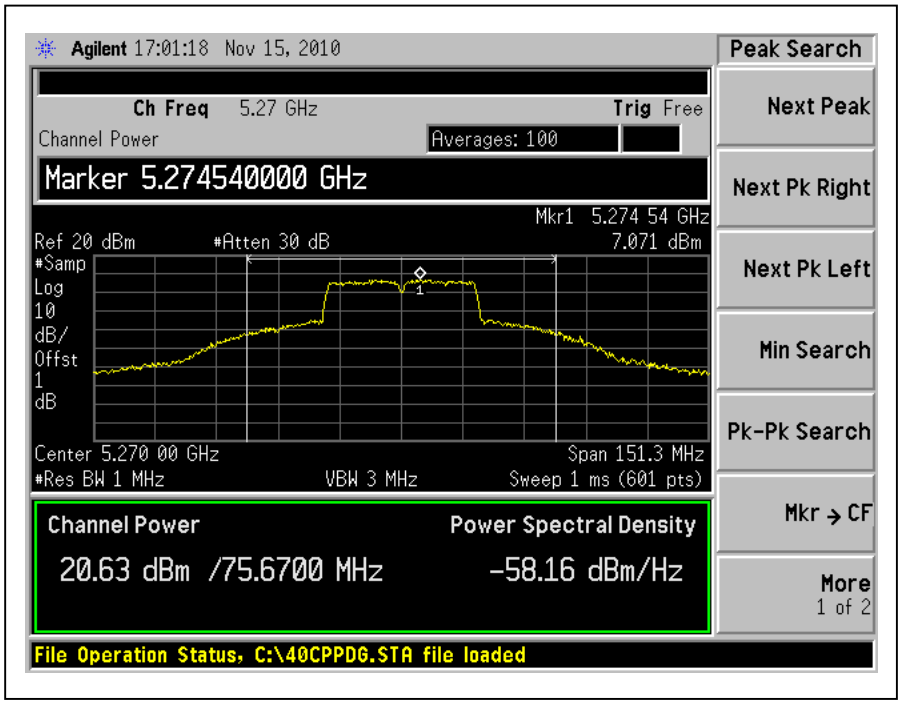
For Chain (0) : CH140



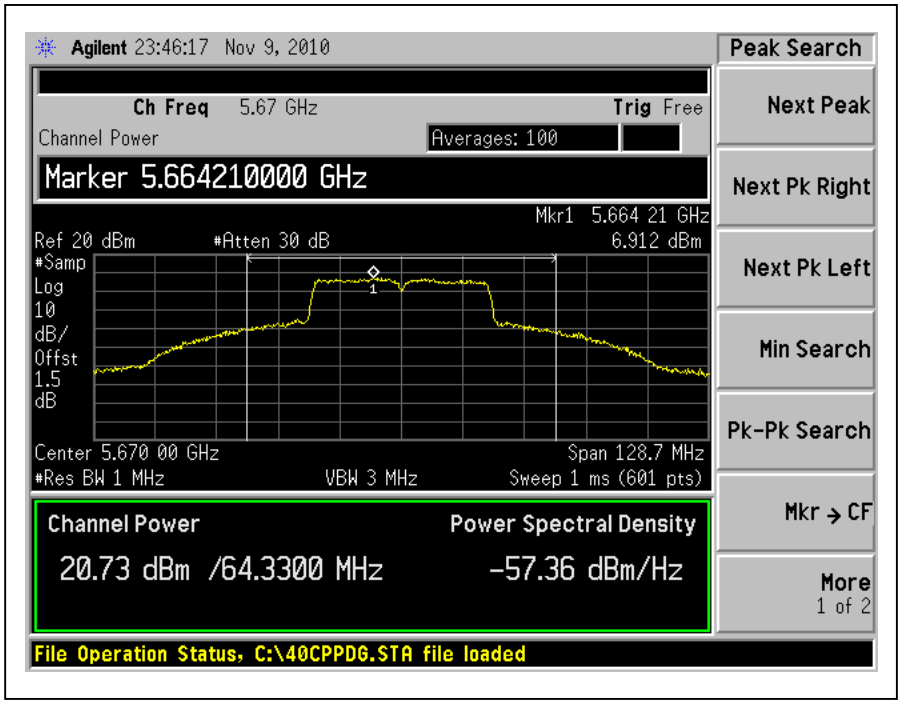
802.11n (40MHz) OFDM MODULATION:

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 1MHz BW (dBm)		TOTAL OUTPUT POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
		Chain (0)	Chain(2)			
54	5270	6.4	7.1	9.8	11	PASS
62	5310	1.0	1.6	4.3	11	PASS
102	5510	2.9	3.0	6.0	11	PASS
110	5550	6.9	6.8	9.9	11	PASS
134	5670	6.9	6.9	9.9	11	PASS

For Chain (2) : CH54



For Chain (2) : CH134



4.6 FREQUENCY STABILITY

4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency tolerance of the carrier signal shall be maintained within +/- 0.02% 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	100036	Dec. 18, 2009	Dec. 17, 2010

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

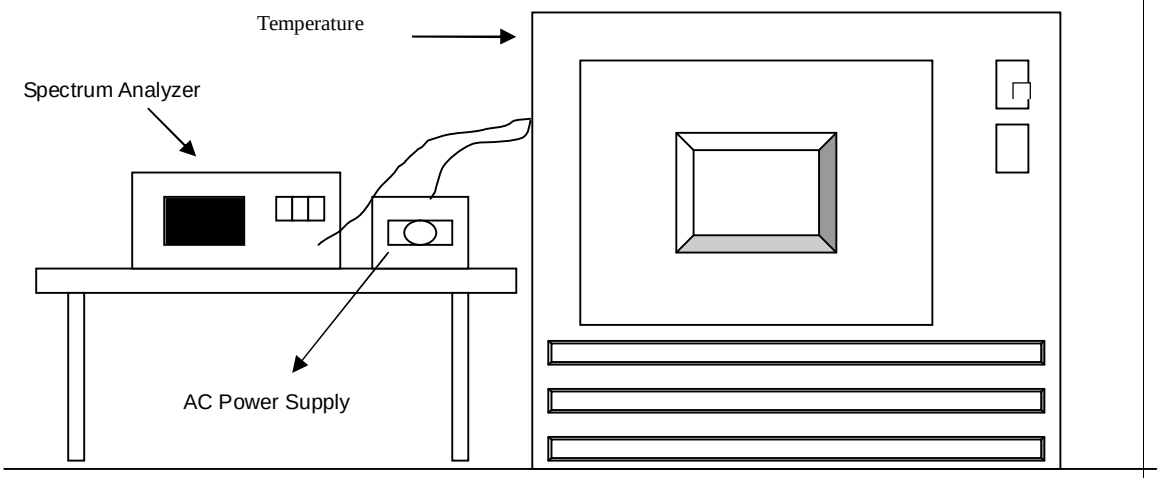
4.6.3 TEST PROCEDURE

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

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 TEST SETUP



4.6.6 EUT OPERATING CONDITION

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

4.6.7 TEST RESULTS

Operating frequency: 5320MHz									
Temp. (℃)	Power supply (VAC)	0 minute		2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	126.5	5320.0152	0.000286	5320.0138	0.000259	5320.0120	0.000226	5320.0123	0.000231
	110	5320.015	0.000282	5320.0158	0.000297	5320.0140	0.000263	5320.0147	0.000276
	93.5	5320.015	0.000282	5320.0128	0.000241	5320.0120	0.000226	5320.0145	0.000273
40	126.5	5320.021	0.000395	5320.0215	0.000404	5320.0218	0.000410	5320.0219	0.000412
	110	5320.021	0.000395	5320.0214	0.000402	5320.0218	0.000410	5320.0225	0.000423
	93.5	5320.0212	0.000398	5320.0212	0.000398	5320.0218	0.000410	5320.0223	0.000419
30	126.5	5320.0146	0.000274	5320.0098	0.000184	5320.0060	0.000113	5320.0053	0.000100
	110	5320.0146	0.000274	5320.0128	0.000241	5320.0090	0.000169	5320.0077	0.000145
	93.5	5320.0146	0.000274	5320.0088	0.000165	5320.0070	0.000132	5320.0063	0.000118
20	126.5	5320.0076	0.000143	5320.0028	0.000053	5320.0030	0.000056	5320.0033	0.000062
	110	5320.0076	0.000143	5320.0058	0.000109	5320.0040	0.000075	5320.0039	0.000073
	93.5	5320.0056	0.000105	5320.0028	0.000053	5320.0030	0.000056	5320.0037	0.000070
10	126.5	5319.9768	0.000436	5319.9767	0.000438	5319.9767	0.000438	5319.9755	0.000461
	110	5319.9768	0.000436	5319.9769	0.000434	5319.9768	0.000436	5319.9763	0.000445
	93.5	5319.9768	0.000436	5319.9767	0.000438	5319.9766	0.000440	5319.9757	0.000457
0	126.5	5319.9917	0.000156	5319.9916	0.000158	5319.9915	0.000160	5319.9917	0.000156
	110	5319.9918	0.000154	5319.992	0.000150	5319.9919	0.000152	5319.9915	0.000160
	93.5	5319.9917	0.000156	5319.9916	0.000158	5319.9915	0.000160	5319.9912	0.000165
-10	126.5	5319.9727	0.000513	5319.9824	0.000331	5319.9823	0.000333	5319.9826	0.000327
	110	5319.9728	0.000511	5319.9824	0.000331	5319.9825	0.000329	5319.9822	0.000335
	93.5	5319.9827	0.000325	5319.9827	0.000325	5319.9822	0.000335	5319.9825	0.000329
-20	126.5	5319.9962	0.000071	5319.9959	0.000077	5319.9958	0.000079	5319.9947	0.000100
	110	5319.9962	0.000071	5319.9961	0.000073	5319.9961	0.000073	5319.9945	0.000103
	93.5	5319.9962	0.000071	5319.9959	0.000077	5319.9958	0.000079	5319.9942	0.000109
-30	126.5	5319.997	0.000056	5319.997	0.000056	5319.9969	0.000058	5319.9959	0.000077
	110	5319.997	0.000056	5319.997	0.000056	5319.9971	0.000055	5319.9957	0.000081
	93.5	5319.997	0.000056	5319.9969	0.000058	5319.9968	0.000060	5319.9955	0.000085

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	100036	Dec. 18, 2009	Dec. 17, 2010

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 lose cable. Set RBW of spectrum analyzer to 1MHz with suitable frequency span including 100 MHz or 200 MHz bandwidth from band edge. The band edges was measured and recorded.

4.7.3 EUT OPERATING CONDITION

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

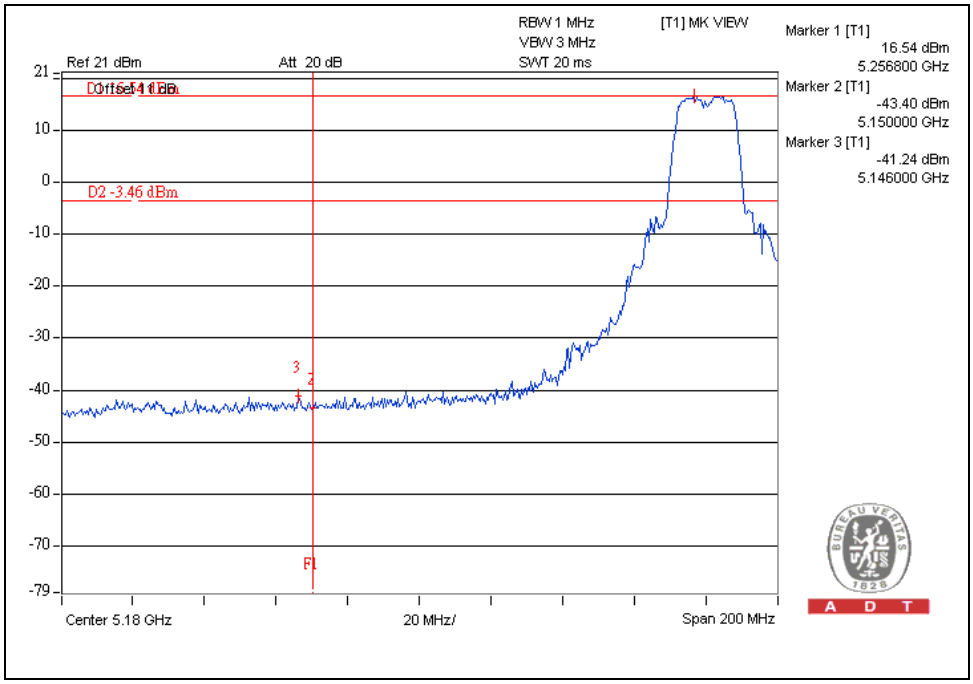
4.7.4 TEST RESULTS

For 5.25 to 5.35GHz band:

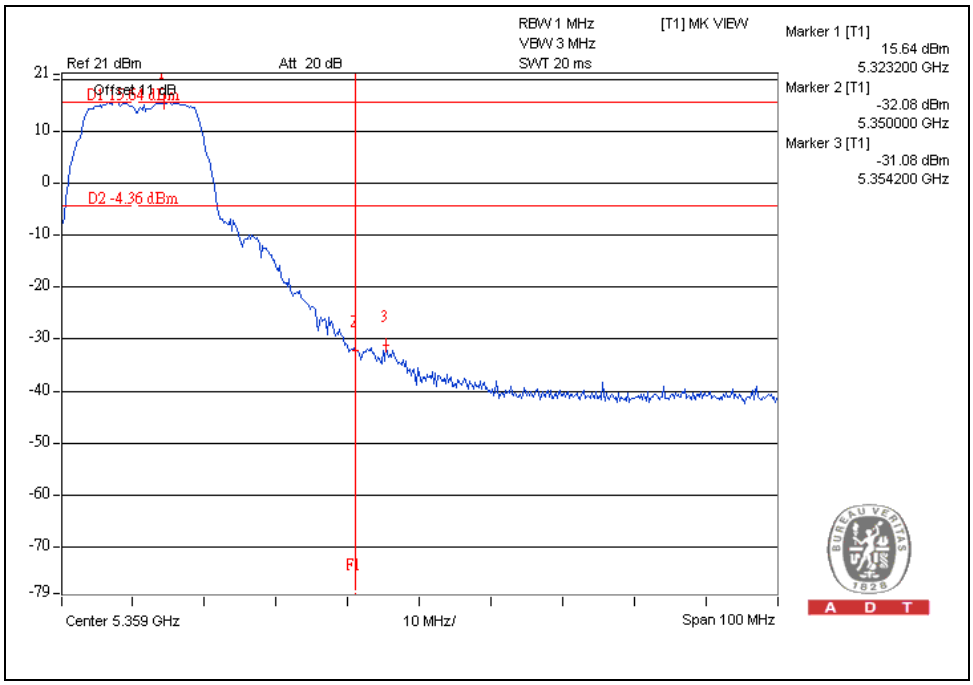
The spectrum plots (Peak RBW=1MHz, VBW=3MHz) are attached on the following pages.

802.11a OFDM MODULATION

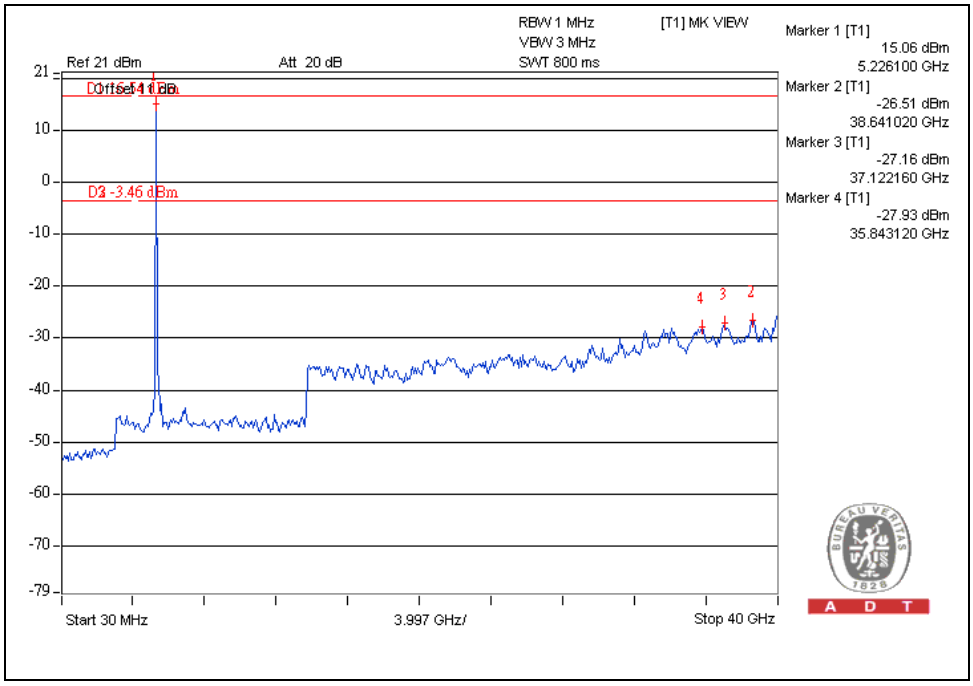
CH 52



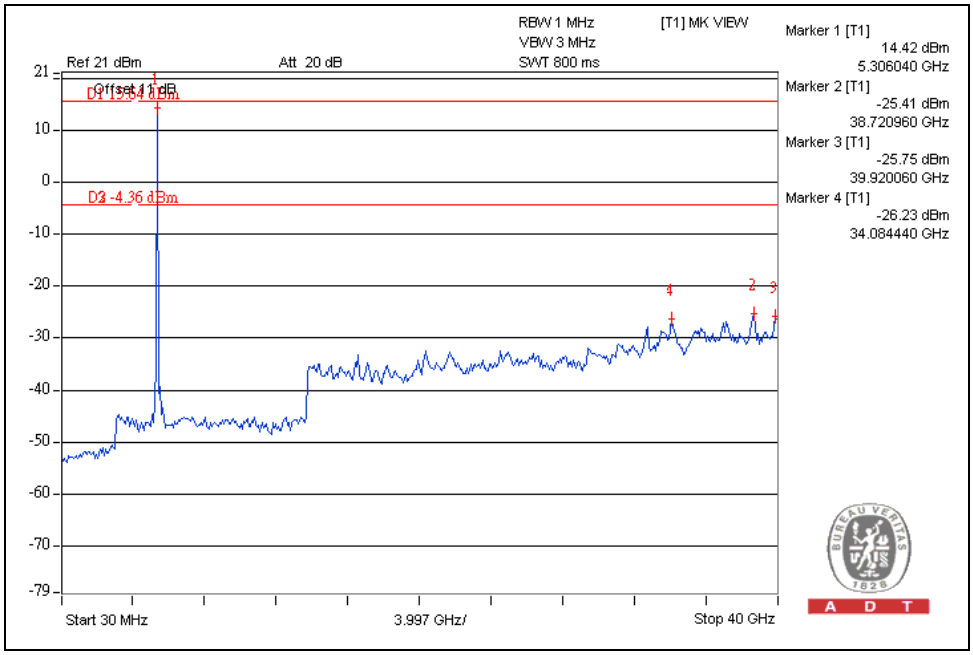
CH 64



CH 52

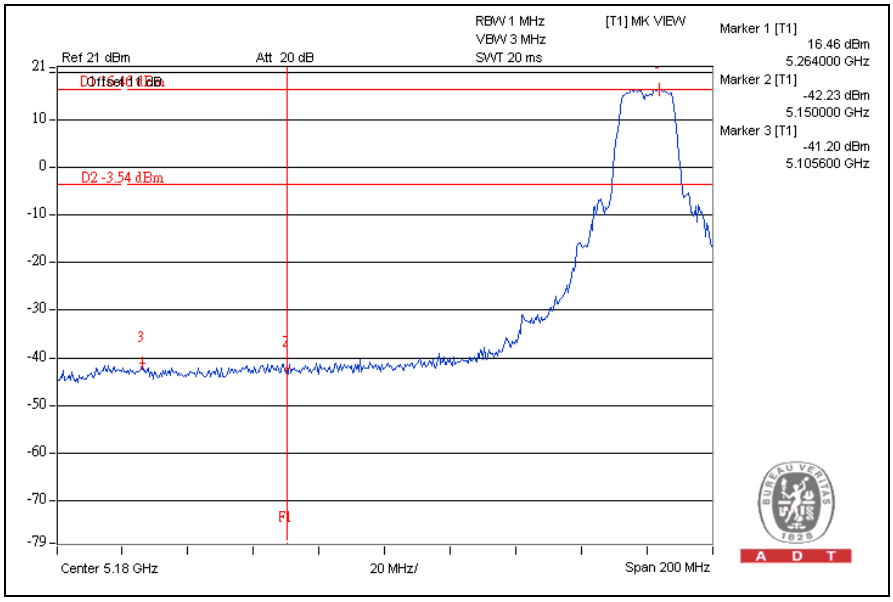

RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 21 dBm
Att 20 dB
Offset 11 dB
D1 15.54 dBm
D2 -3.46 dBm
Marker 1 [T1]
15.06 dBm
5.226100 GHz
Marker 2 [T1]
-26.51 dBm
38.641020 GHz
Marker 3 [T1]
-27.16 dBm
37.122160 GHz
Marker 4 [T1]
-27.93 dBm
35.843120 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH 64

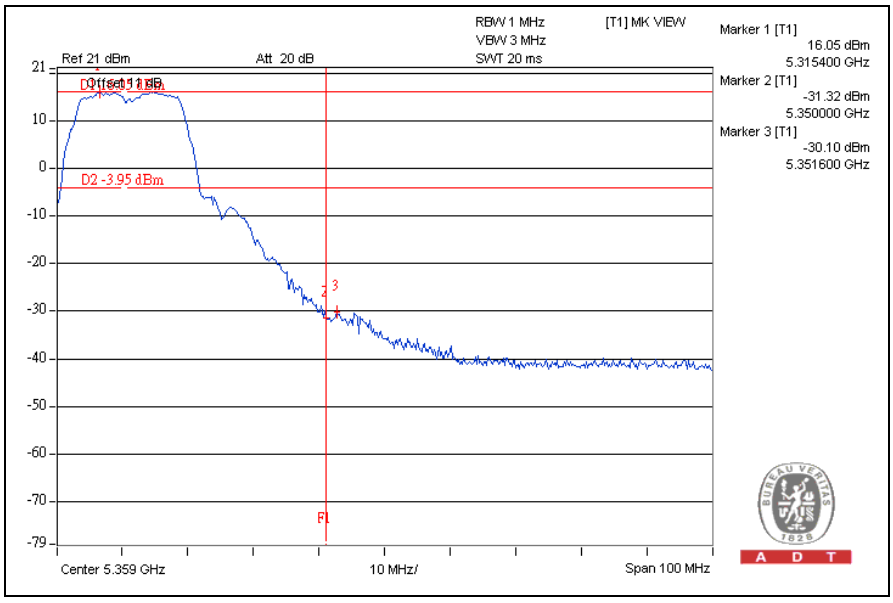

RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 21 dBm
Att 20 dB
Offset 11 dB
D1 15.64 dBm
D2 -4.36 dBm
Marker 1 [T1]
14.42 dBm
5.306040 GHz
Marker 2 [T1]
-25.41 dBm
38.720960 GHz
Marker 3 [T1]
-25.75 dBm
39.920060 GHz
Marker 4 [T1]
-26.23 dBm
34.084440 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
3.997 GHz/
Stop 40 GHz

802.11n (20MHz) OFDM MODULATION:

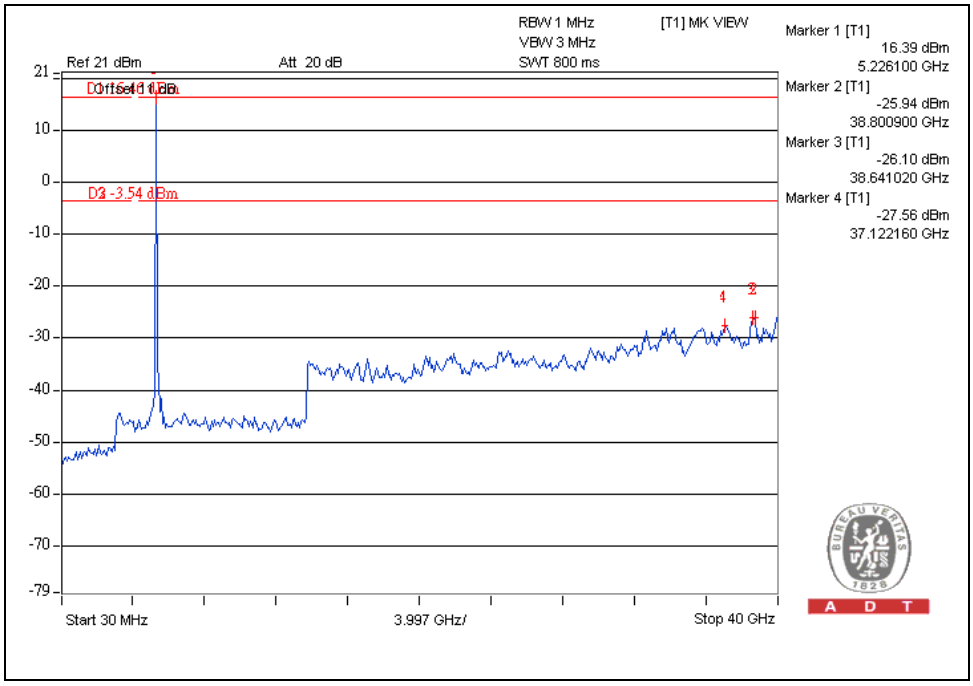
CH52



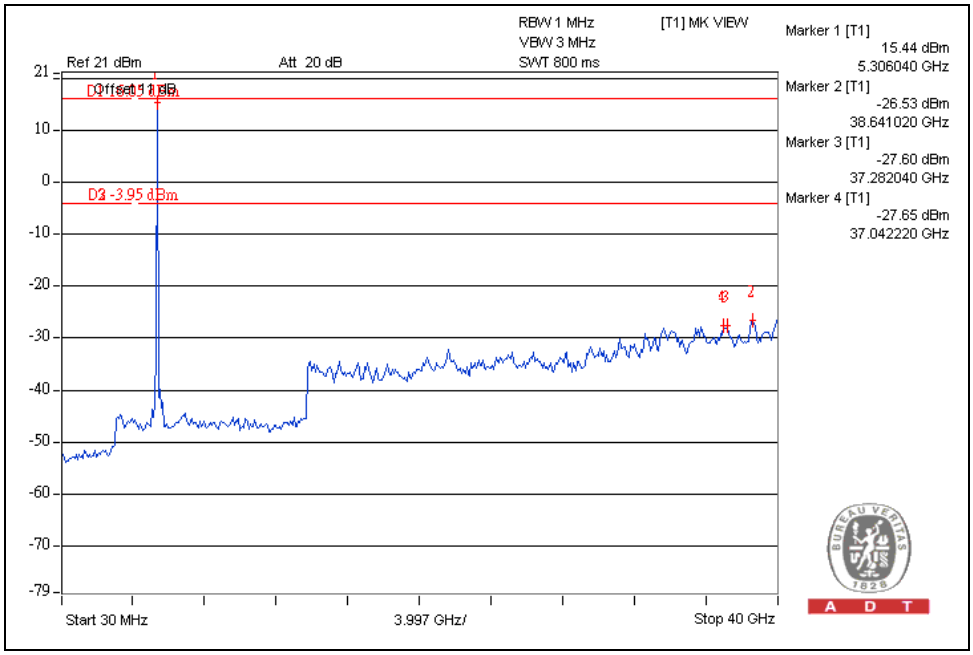
CH64



CH52

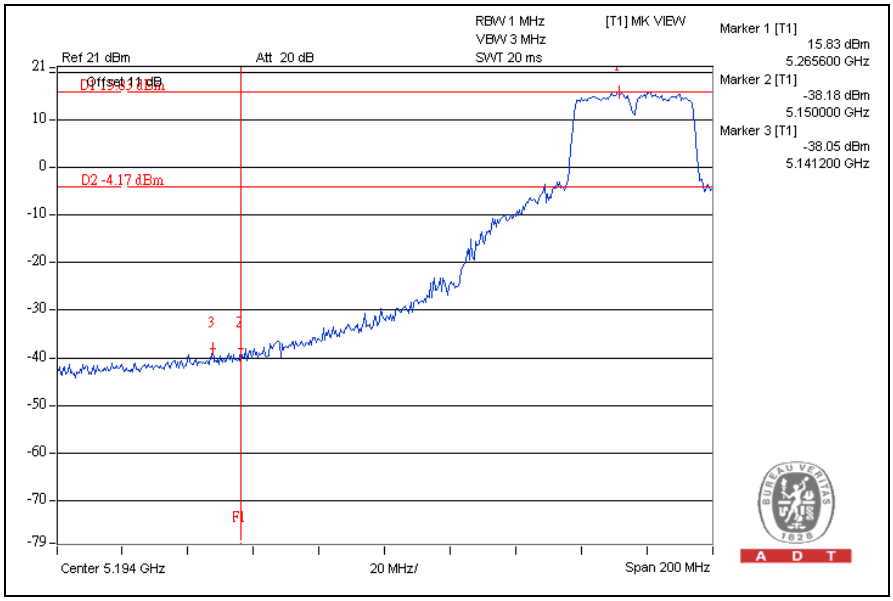

RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 21 dBm
Att 20 dB
D2 -3.54 dBm
Marker 1 [T1]
16.39 dBm
5.226100 GHz
Marker 2 [T1]
-25.94 dBm
38.800900 GHz
Marker 3 [T1]
-26.10 dBm
38.641020 GHz
Marker 4 [T1]
-27.56 dBm
37.122160 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH64

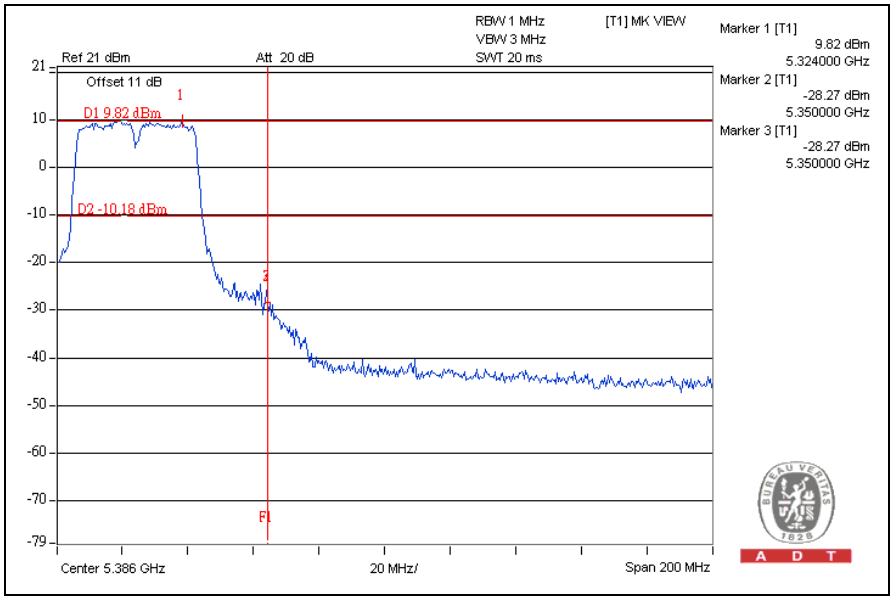

RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 21 dBm
Att 20 dB
D2 -3.95 dBm
Marker 1 [T1]
15.44 dBm
5.306040 GHz
Marker 2 [T1]
-26.53 dBm
38.641020 GHz
Marker 3 [T1]
-27.60 dBm
37.282040 GHz
Marker 4 [T1]
-27.65 dBm
37.042220 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
3.997 GHz/
Stop 40 GHz

802.11n (40MHz) OFDM MODULATION:

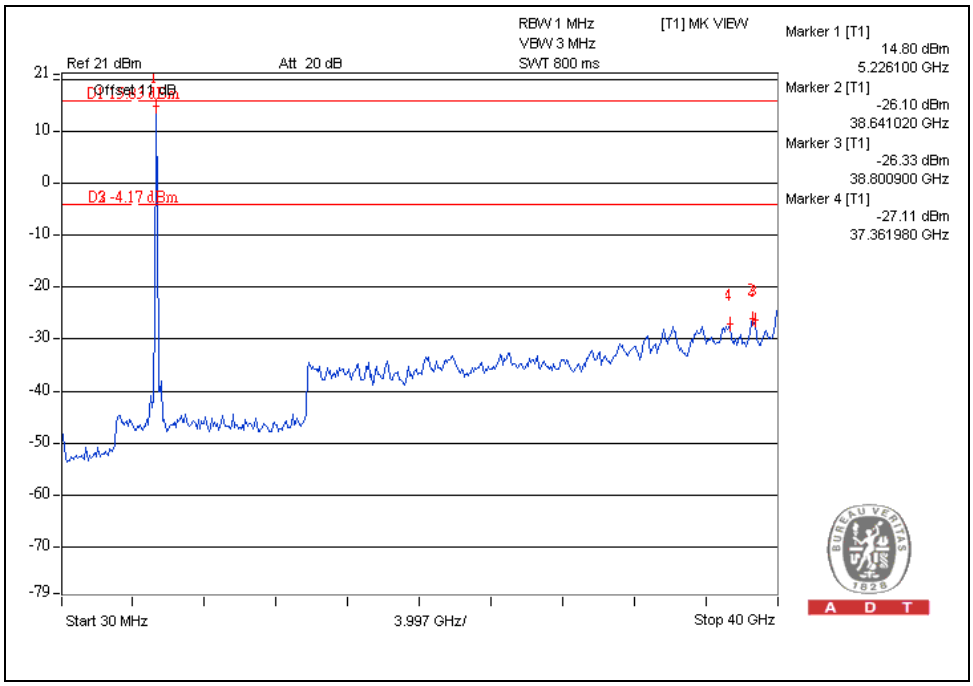
CH54



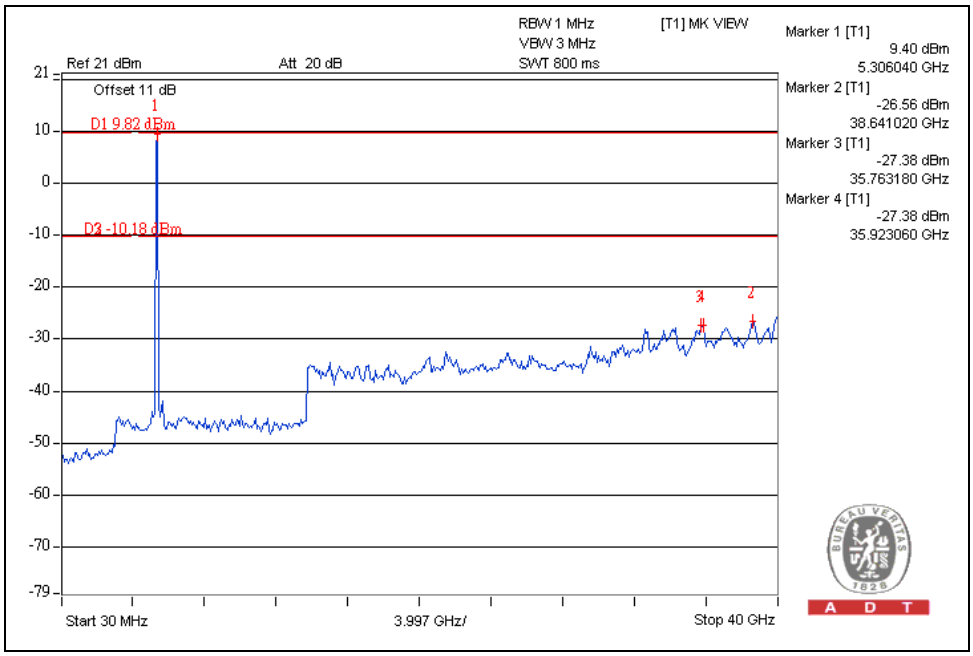
CH62



CH54


RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 21 dBm
Att 20 dB
Offset 11 dB
D1 9.82 dBm
D2 -4.17 dBm
Marker 1 [T1]
14.80 dBm
5.226100 GHz
Marker 2 [T1]
-26.10 dBm
38.641020 GHz
Marker 3 [T1]
-26.33 dBm
38.800900 GHz
Marker 4 [T1]
-27.11 dBm
37.361980 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH62

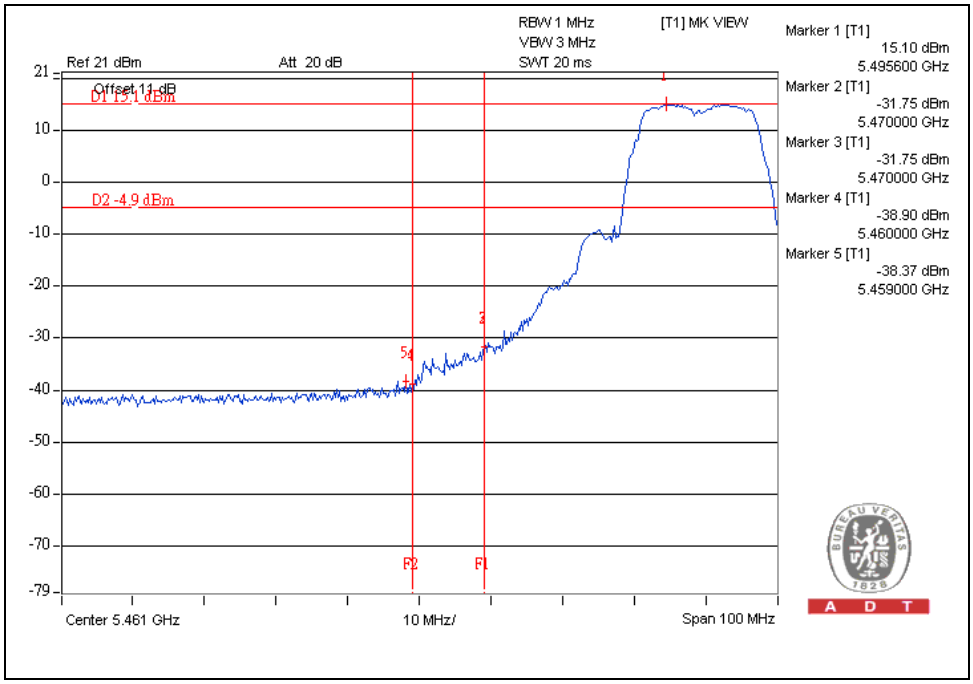

RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 21 dBm
Att 20 dB
Offset 11 dB
D1 9.82 dBm
D2 -10.18 dBm
Marker 1 [T1]
9.40 dBm
5.306040 GHz
Marker 2 [T1]
-26.56 dBm
38.641020 GHz
Marker 3 [T1]
-27.38 dBm
35.763180 GHz
Marker 4 [T1]
-27.38 dBm
35.923060 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
3.997 GHz/
Stop 40 GHz

For 5.47 to 5.725GHz band:

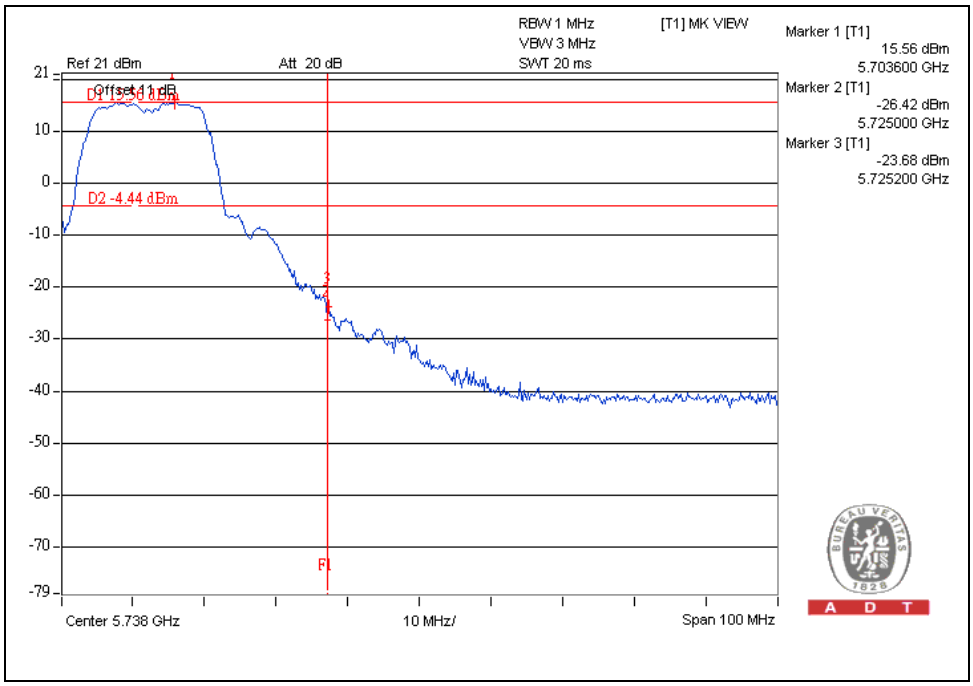
The spectrum plots (Peak RBW=1MHz, VBW=3MHz) are attached on the following pages.

802.11a OFDM MODULATION

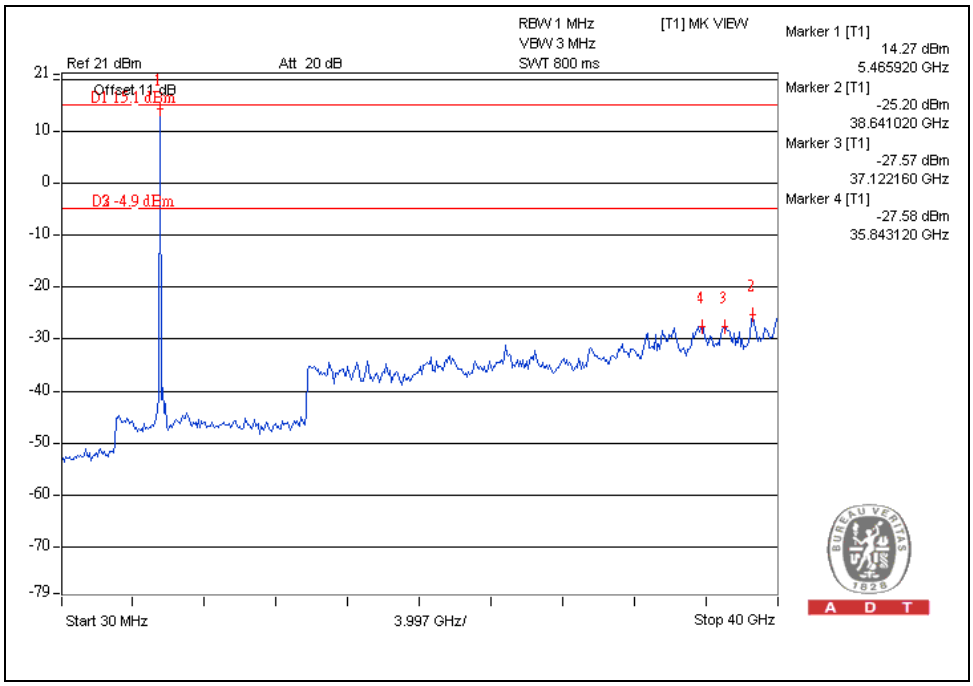
CH 100



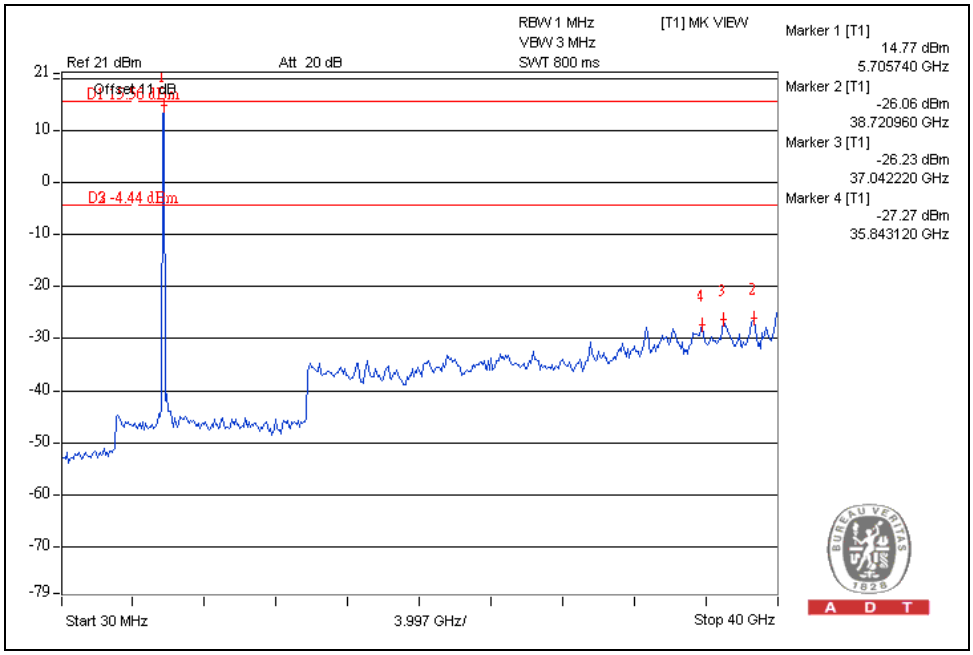
CH 140



CH 100

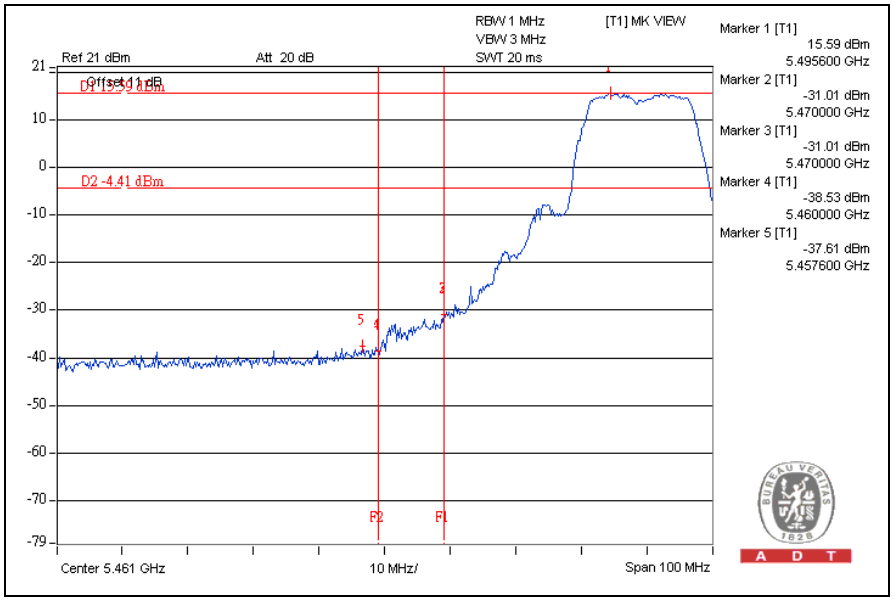

RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 21 dBm
Att 20 dB
Offset 11 dB
D1 15.1 dBm
D2 -4.9 dBm
Marker 1 [T1]
14.27 dBm
5.465920 GHz
Marker 2 [T1]
-25.20 dBm
38.641020 GHz
Marker 3 [T1]
-27.57 dBm
37.122160 GHz
Marker 4 [T1]
-27.58 dBm
35.843120 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH 140

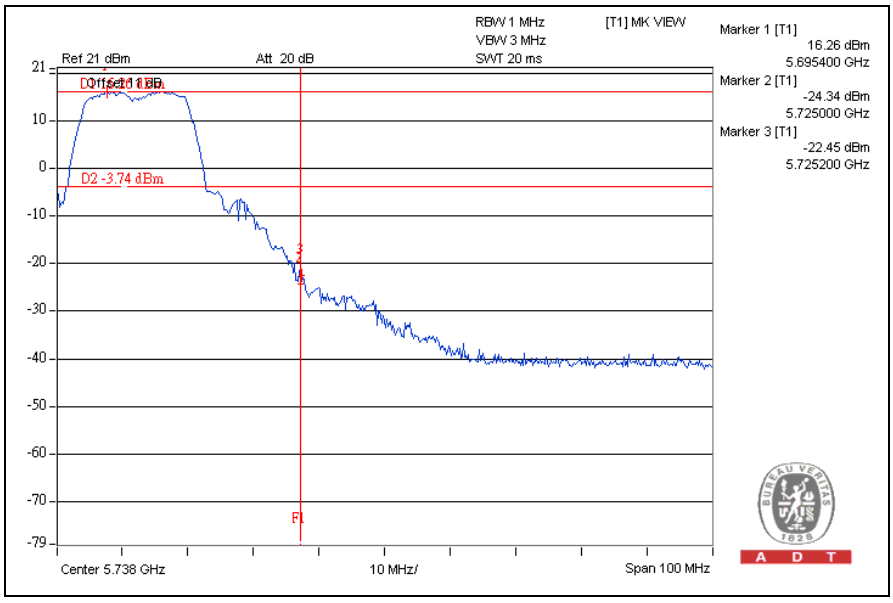

RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 21 dBm
Att 20 dB
Offset 11 dB
D1 15.6 dBm
D2 -4.44 dBm
Marker 1 [T1]
14.77 dBm
5.705740 GHz
Marker 2 [T1]
-26.06 dBm
38.720960 GHz
Marker 3 [T1]
-26.23 dBm
37.042220 GHz
Marker 4 [T1]
-27.27 dBm
35.843120 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
3.997 GHz/
Stop 40 GHz

802.11n (20MHz) OFDM MODULATION:

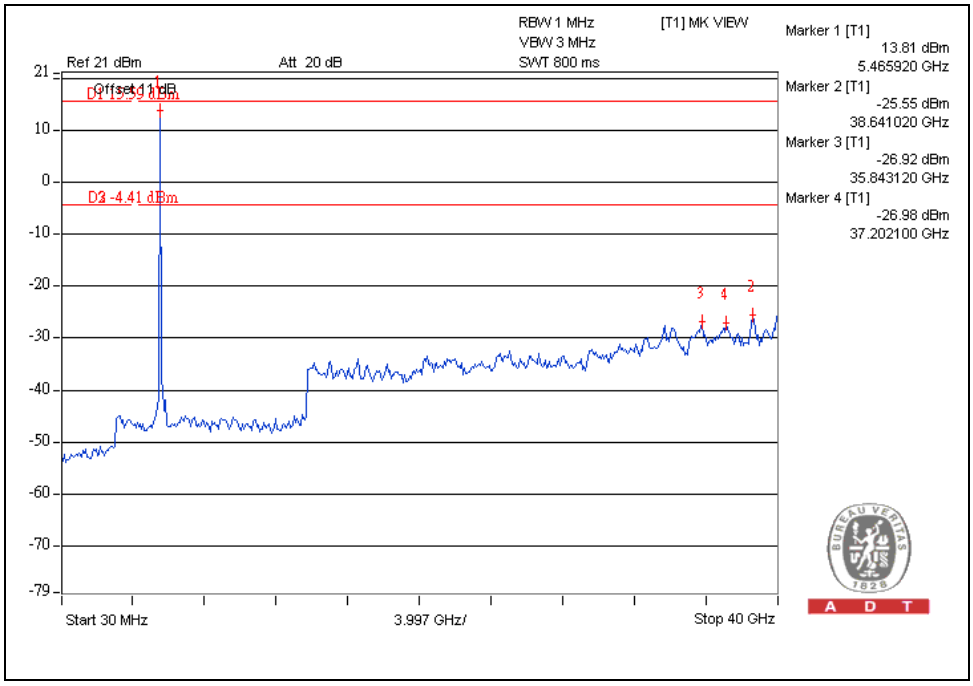
CH100



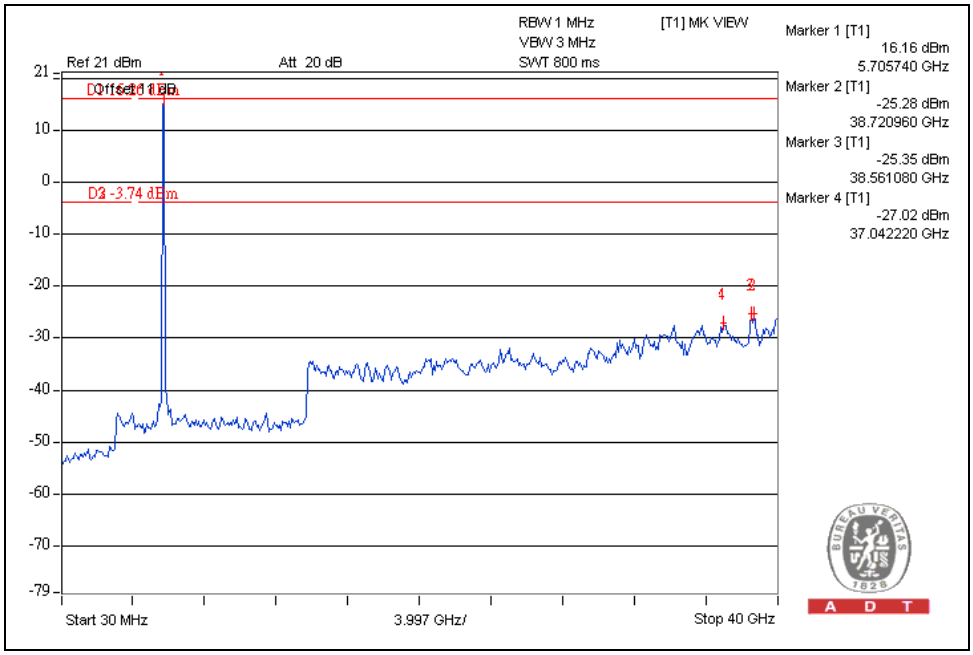
CH140



CH100

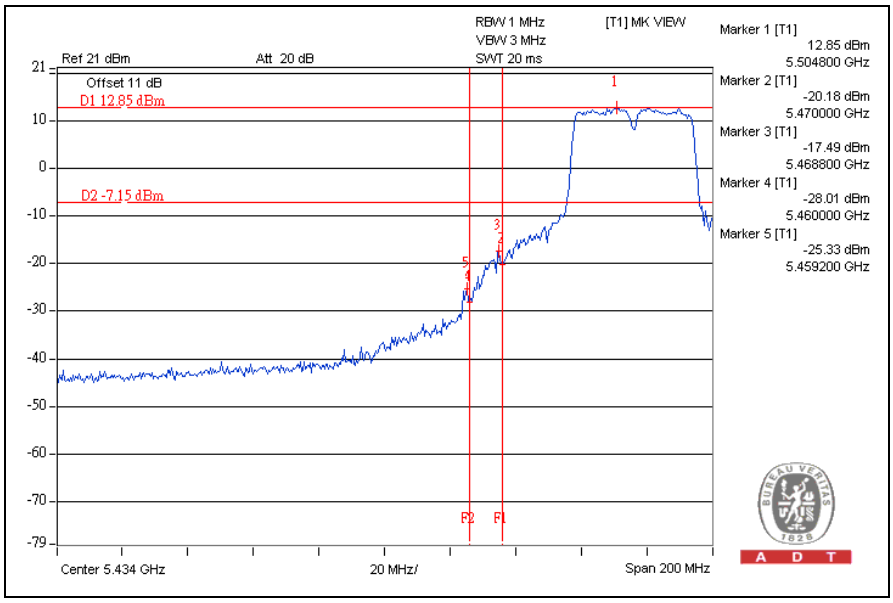

RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 21 dBm
Att 20 dB
Offset 11 dB
D1 13.59 dBm
D2 -4.41 dBm
Marker 1 [T1]
13.81 dBm
5.465920 GHz
Marker 2 [T1]
-25.55 dBm
38.641020 GHz
Marker 3 [T1]
-26.92 dBm
35.843120 GHz
Marker 4 [T1]
-26.98 dBm
37.202100 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH140

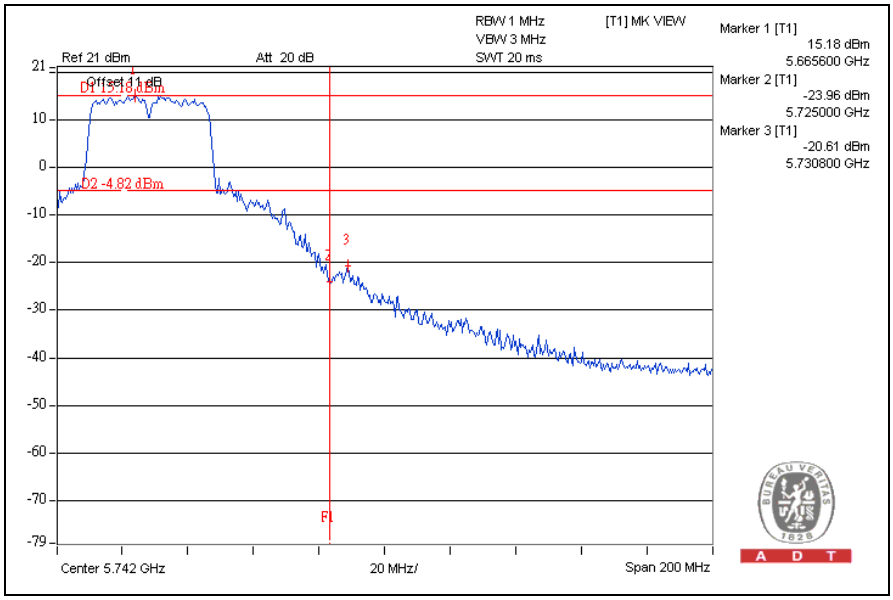

RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 21 dBm
Att 20 dB
Offset 11 dB
D1 13.26 dBm
D2 -3.74 dBm
Marker 1 [T1]
16.16 dBm
5.705740 GHz
Marker 2 [T1]
-25.28 dBm
38.720960 GHz
Marker 3 [T1]
-25.35 dBm
38.561080 GHz
Marker 4 [T1]
-27.02 dBm
37.042220 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
3.997 GHz/
Stop 40 GHz

802.11n (40MHz) OFDM MODULATION:

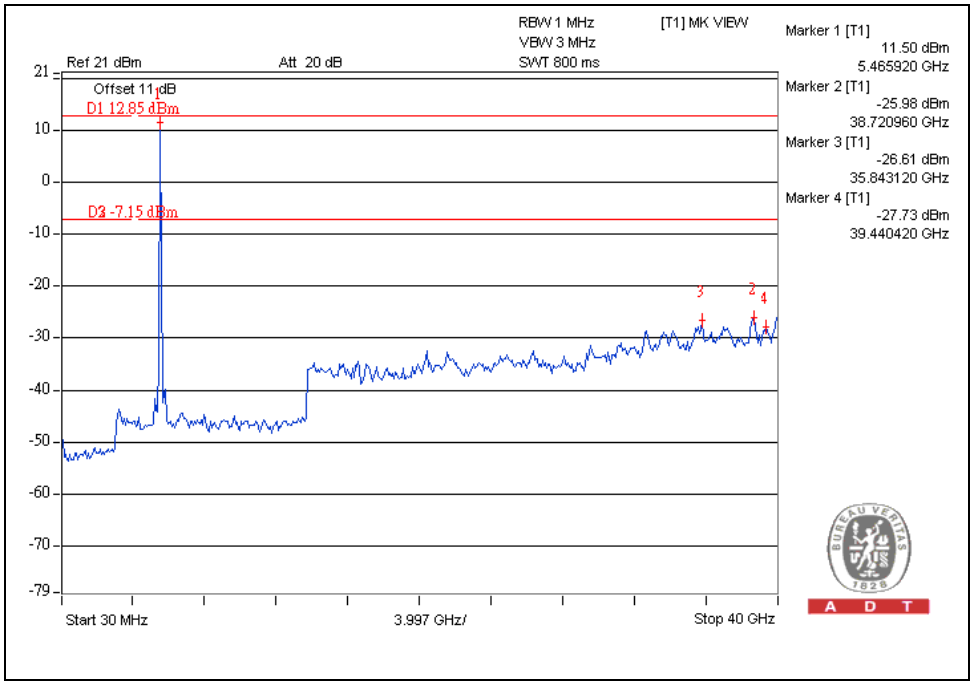
CH102



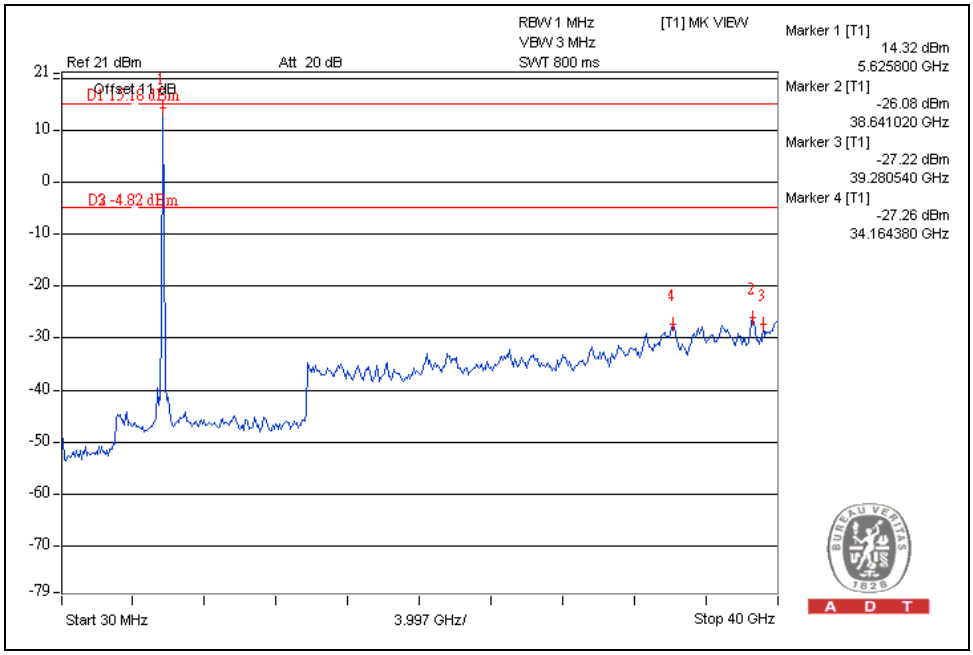
CH134



CH102


RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 21 dBm
Att 20 dB
Offset 11 dB
D1 12.85 dBm
D2 -7.15 dBm
Marker 1 [T1]
11.50 dBm
5.465920 GHz
Marker 2 [T1]
-25.98 dBm
38.720960 GHz
Marker 3 [T1]
-26.61 dBm
35.843120 GHz
Marker 4 [T1]
-27.73 dBm
39.440420 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH134


RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 21 dBm
Att 20 dB
Offset 11 dB
D1 15.18 dBm
D2 -4.82 dBm
Marker 1 [T1]
14.32 dBm
5.625800 GHz
Marker 2 [T1]
-26.08 dBm
38.641020 GHz
Marker 3 [T1]
-27.22 dBm
39.280540 GHz
Marker 4 [T1]
-27.26 dBm
34.164380 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
3.997 GHz/
Stop 40 GHz

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.

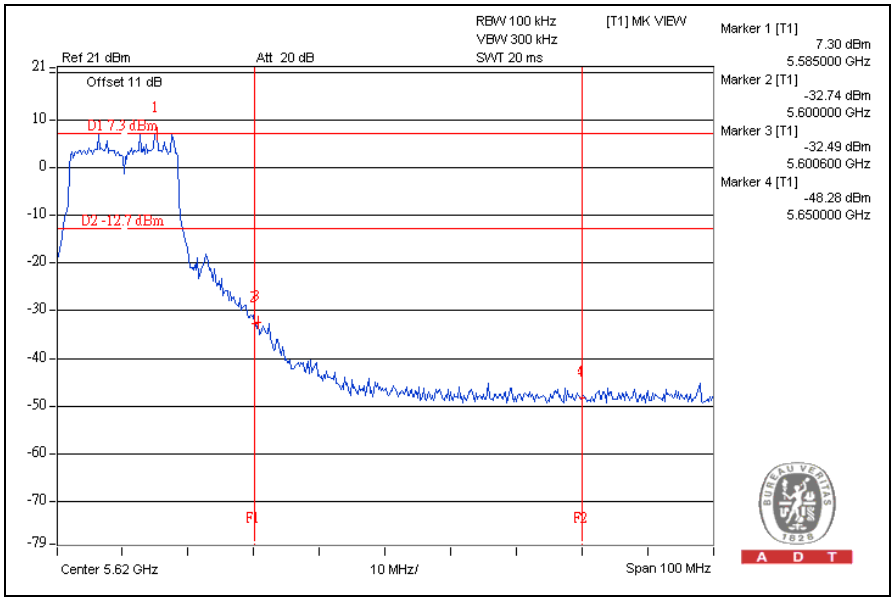
6.APPENDIX-A- MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

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

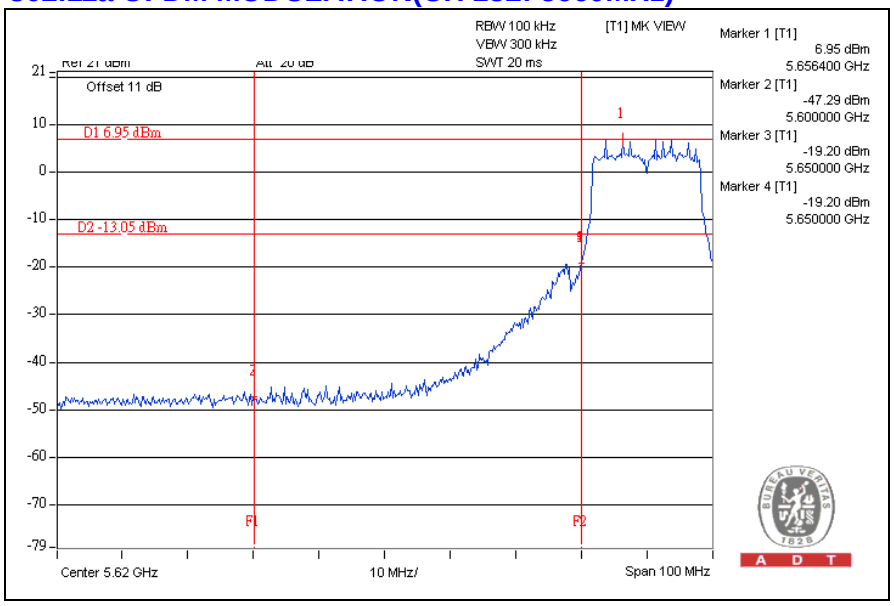
7.APPENDIX-B ADDITIONAL REQUIREMENTS FOR THE BAND 5600-5650MHz

7.1 FOR REFERENCE

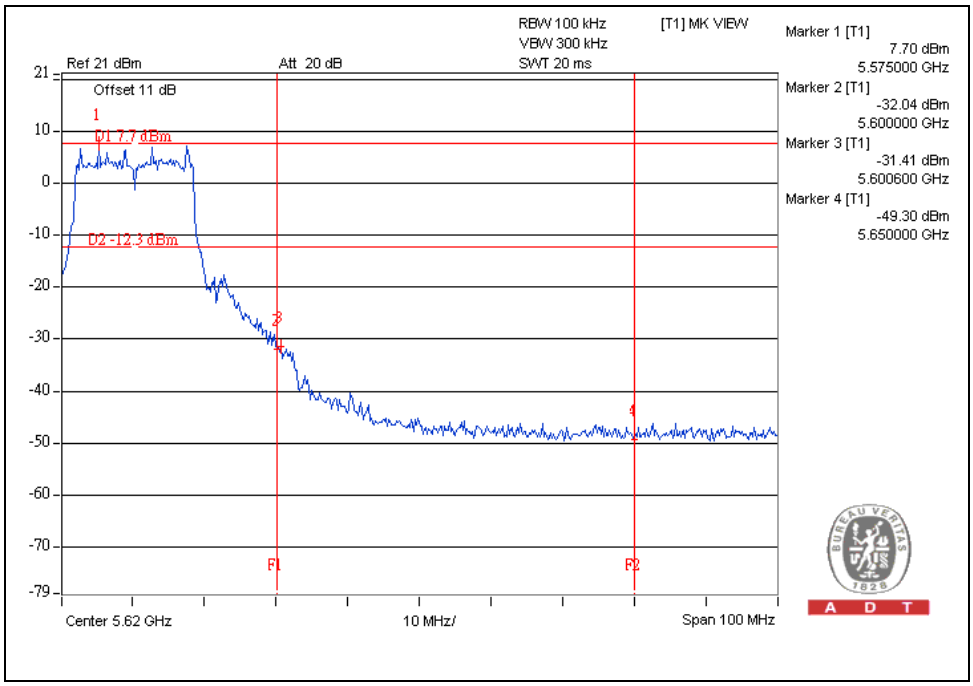
802.11a OFDM MODULATION (CH 116: 5580MHz)



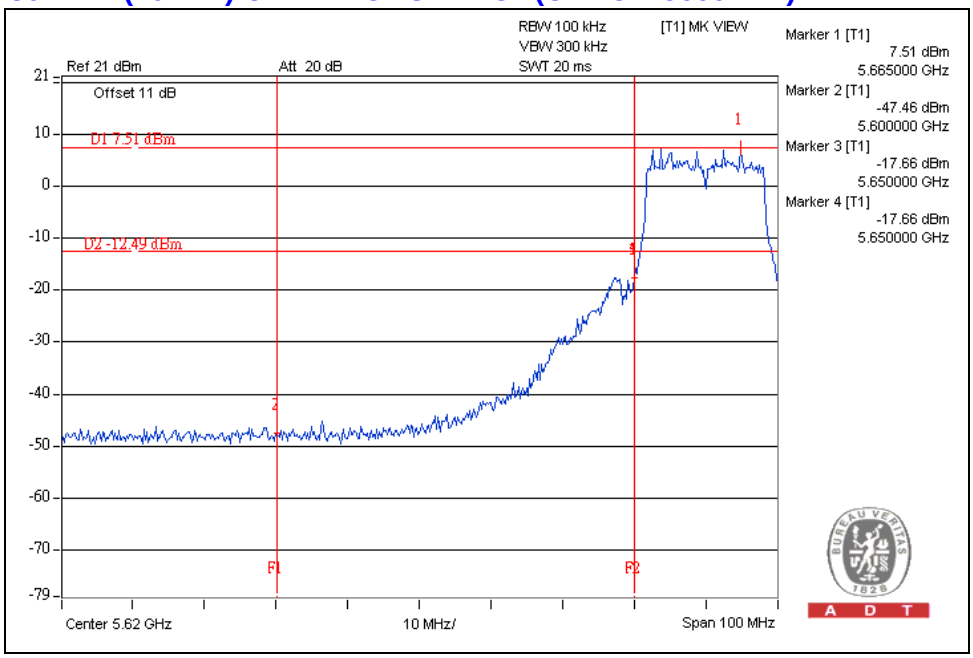
802.11a OFDM MODULATION(CH 132: 5660MHz)



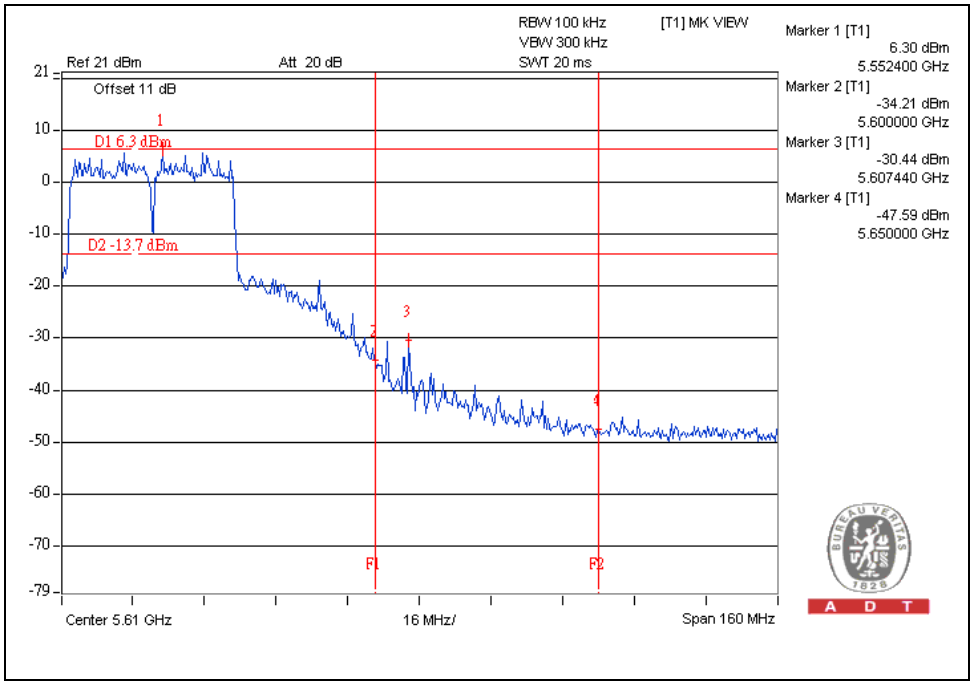
802.11n (20MHz) OFDM MODULATION(CH 116: 5580MHz)



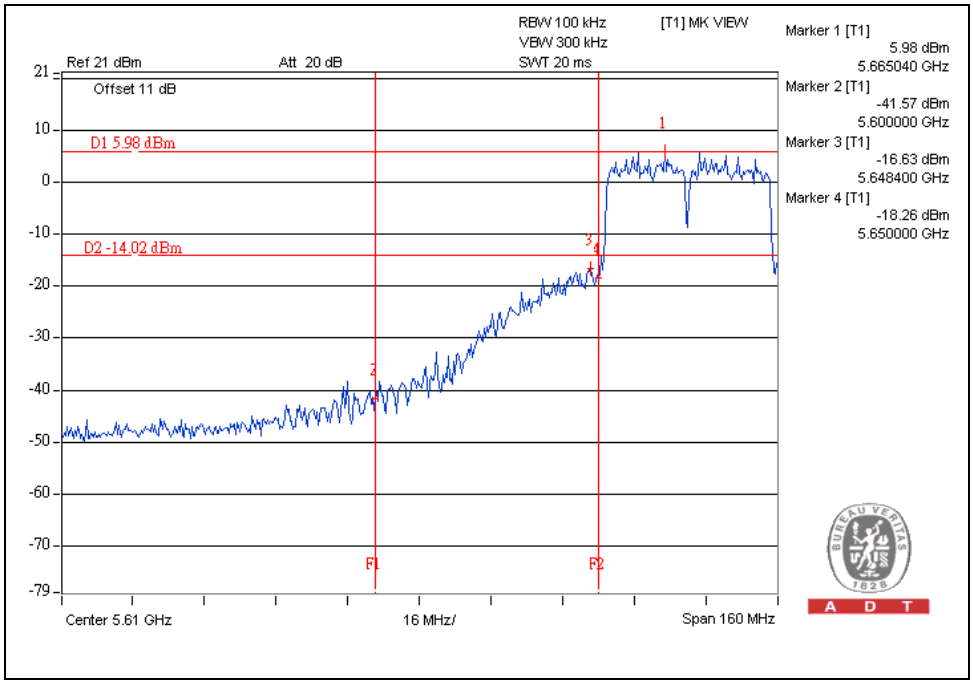
802.11n (20MHz) OFDM MODULATION(CH 132: 5660MHz)



802.11n (40MHz) OFDM MODULATION(CH 110: 5550MHz)



802.11n (40MHz) OFDM MODULATION(CH 134: 5670MHz)



8.APPENDIX-C ADDITIONAL 20dB BANDWIDTH MEASUREMENT

8.1 20dB BANDWIDTH MEASUREMENT

8.1.1 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
R&S SPECTRUM ANALYZER	FSP40	100036	Dec. 18, 2009	Dec. 17, 2010

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

8.1.2 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 300 kHz RBW and 1MHz VBW. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

8.1.3 DEVIATION FROM TEST STANDARD

No deviation.

8.1.4 TEST SETUP

8.1.5 EUT OPERATING CONDITIONS

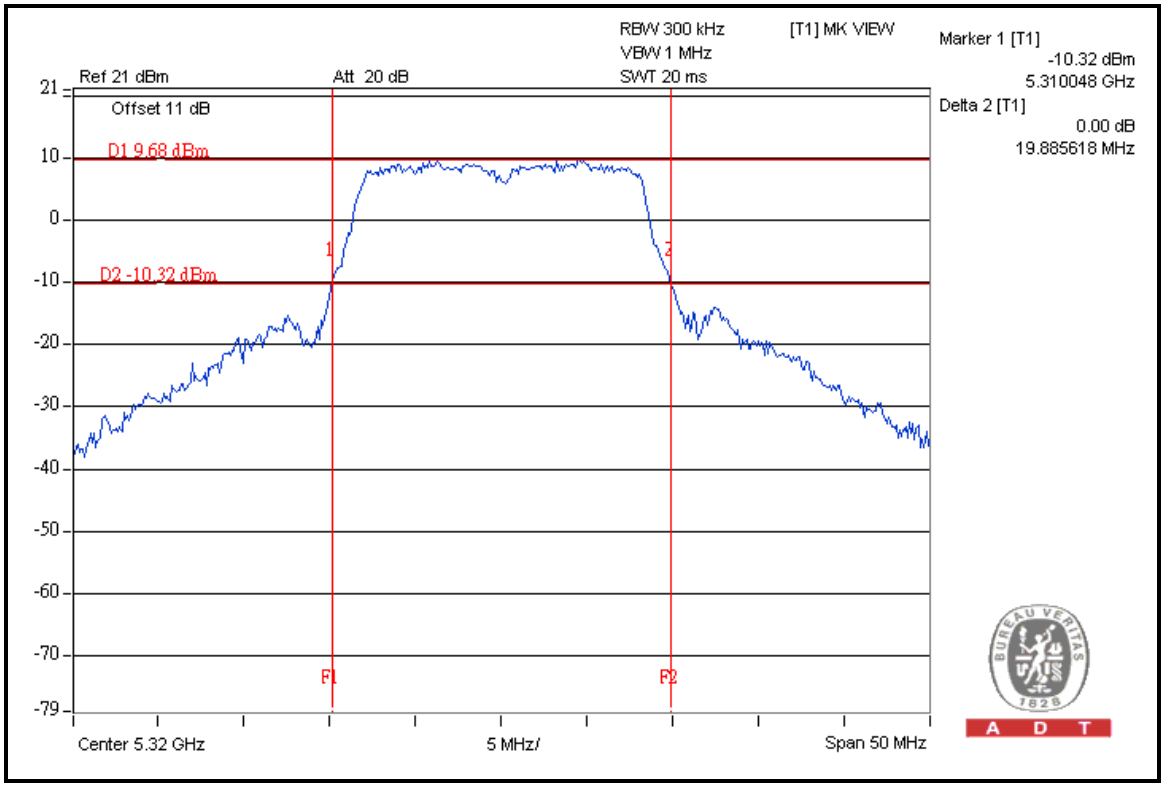
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

8.1.6 TEST RESULTS

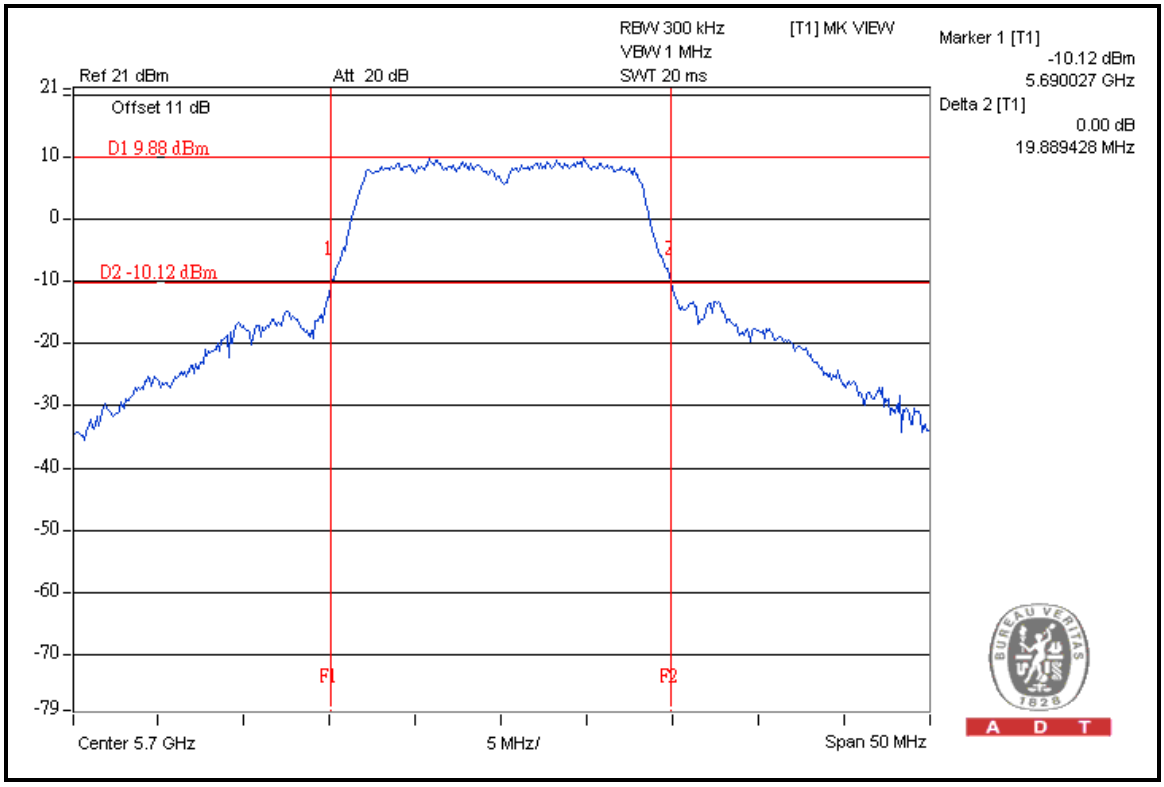
802.11a

CHANNEL	CHANNEL FREQUENCY (MHz)	20dB BANDWIDTH (MHz)	PASS / FAIL
52	5260	19.87	PASS
60	5300	19.80	PASS
64	5320	19.88	PASS
100	5500	19.70	PASS
116	5580	19.85	PASS
132	5660	19.76	PASS
140	5700	19.88	PASS

CH 64



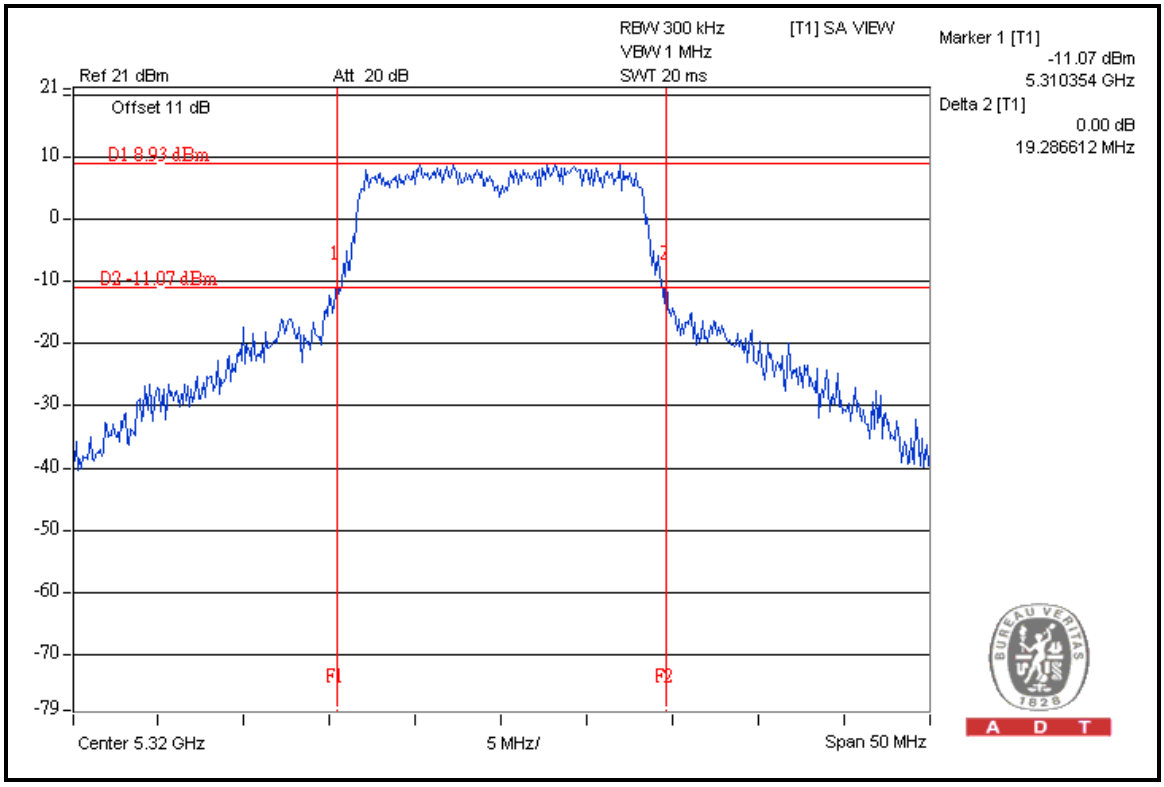
CH 140


RBW 300 kHz
VBW 1 MHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
-10.12 dBm
5.690027 GHz
Delta 2 [T1]
0.00 dB
19.889428 MHz
Ref 21 dBm
Att 20 dB
Offset 11 dB
D1 9.88 dBm
D2 -10.12 dBm
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
F1
F2
Center 5.7 GHz
5 MHz/
Span 50 MHz

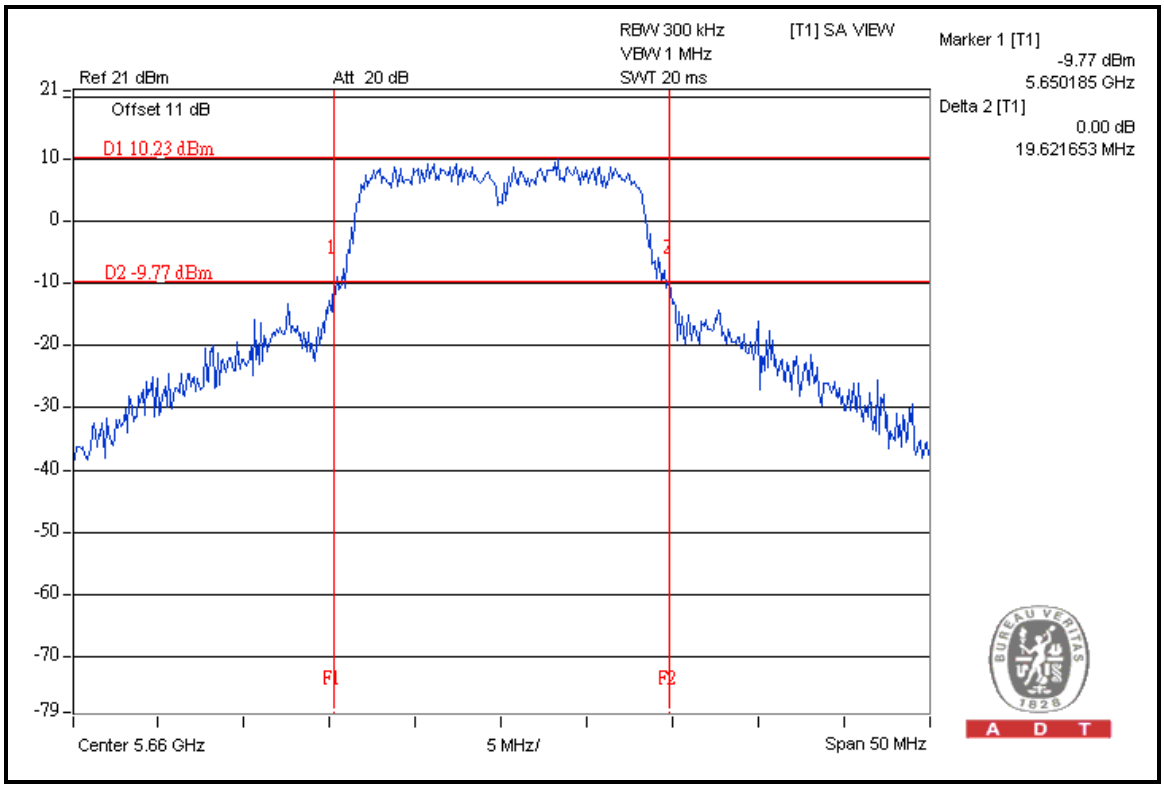
802.11n (20MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	20dB BANDWIDTH (MHz)	PASS / FAIL
52	5260	19.09	PASS
60	5300	19.17	PASS
64	5320	19.28	PASS
100	5500	19.29	PASS
116	5580	19.23	PASS
132	5660	19.62	PASS
140	5700	19.47	PASS

CH 64



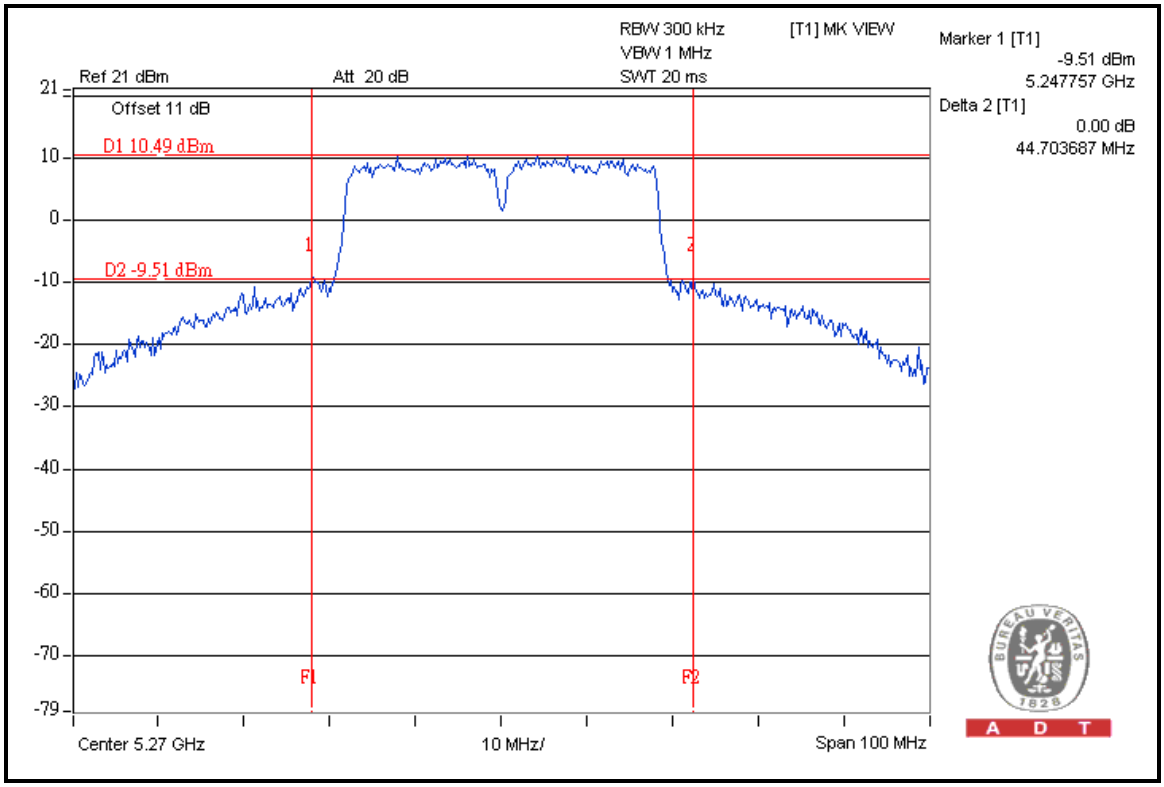
CH 132


RBW 300 kHz
VBW 1 MHz
SWT 20 ms
[T1] SA VIEW
Marker 1 [T1]
-9.77 dBm
5.650185 GHz
Delta 2 [T1]
0.00 dB
19.621653 MHz
Ref 21 dBm
Att 20 dB
Offset 11 dB
D1 10.23 dBm
D2 -9.77 dBm
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
F1
F2
Center 5.66 GHz
5 MHz/
Span 50 MHz

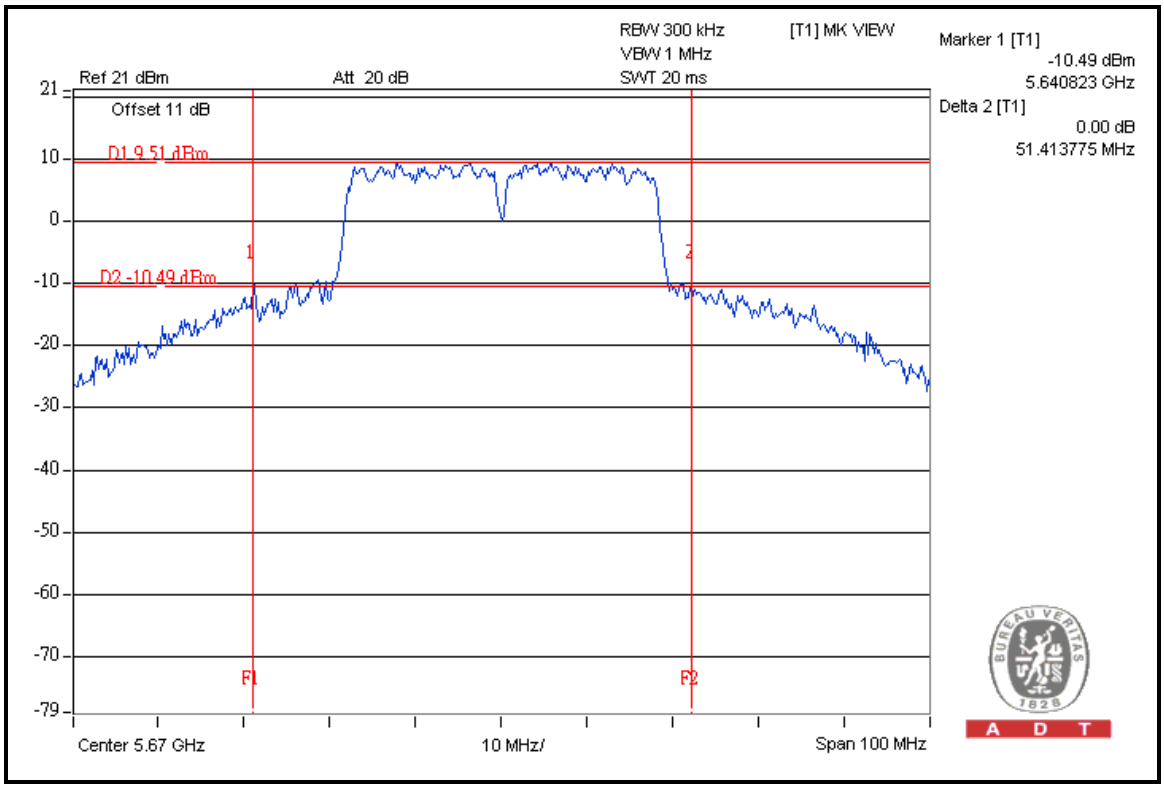
802.11n (40MHz)

CHANNEL	CHANNEL FREQUENCY (MHz)	20dB BANDWIDTH (MHz)	PASS / FAIL
54	5270	44.70	PASS
62	5310	38.73	PASS
102	5510	38.54	PASS
110	5550	40.40	PASS
134	5670	51.41	PASS

CH 54



CH 134


RBW 300 kHz
VBW 1 MHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
-10.49 dBm
5.640823 GHz
Delta 2 [T1]
0.00 dB
51.413775 MHz
Ref 21 dBm
Att 20 dB
Offset 11 dB
D1 9.51 dBm
D2 -10.49 dBm
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
1
2
F1
F2
Center 5.67 GHz
10 MHz/
Span 100 MHz

---END---