



Test Report

Product Name	Notebook
Model No	MS-1242, U200
FCC ID	I4L-12-EM730512H

Applicant	MICRO-STAR INT'L Co., LTD.
Address	No. 69, Li-De St., Jung-He City, Taipei Hsien, Taiwan, R.O.C.

Date of Receipt	May 26, 2009
Issued Date	July 17, 2009
Report No.	096001R-RFUSP08V01
Report Version	V1.0

The test results relate only to the samples tested.


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This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

Test Report Certification

Issued Date: July 17, 2009

Report No.: 096001R-RFUSP08V01



Product Name	Notebook	
Applicant	MICRO-STAR INT'L Co., LTD.	
Address	No. 69, Li-De St., Jung-He City, Taipei Hsien, Taiwan, R.O.C.	
Manufacturer	MICRO-STAR INT'L Co., LTD.	
Model No.	MS-1242, U200	
FCC ID.	I4L-12-EM730512H	
EUT Rated Voltage	AC 120V/60Hz	
EUT Test Voltage	DC 3.3V	
Trade Name	MSI	
Applicable Standard	FCC CFR Title 47 Part 15 Subpart E: 2008 ANSI C63.4: 2003	 <small>NVLAP Lab Code: 200533-0</small>
Test Result	Complied	

The Test Results relate only to the samples tested.

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Documented By : Genie Chang
(Senior Adm. Specialist / Genie Chang)



Tested By : Johnson Liao
(Engineer / Johnson Liao)

Approved By : Vincent Lin
(Manager / Vincent Lin)



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Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Notebook
Trade Name	MSI
FCC ID.	I4L-12-EM730512H
Model No.	MS-1242, U200
Frequency Range	5180-5320MHz, 5500-5700MHz
Number of Channels	802.11a/n-20MHz: 19; 802.11n-40MHz: 9
Data Rate	802.11a: 6 - 54Mbps 802.11n: 7.2-150Mbps
Channel Control	Auto
Type of Modulation	802.11a/n:OFDM, BPSK, QPSK, 16QAM, 64QAM
Antenna type	Printed on PCB
Antenna Gain	Refer to the table "Antenna List"
Power Adapter	MFR: DELTA, M/N: ADP-40MH BD Input: AC 100-240V, 50-60Hz, 1.2A Output: DC 20V, 2A Cable Out: Shielded, 1.7m with one ferrite core bonded.

Antenna List

No.	Manufacturer	Part No.	Peak Gain
1	INPAQ	S79-1800N80-I05	2.6 dBi in 2.4 GHz 3.6 dBi in 5GHz

Note: The antenna of EUT is conform to FCC 15.203

802.11a/n-20MHz Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 36:	5180 MHz	Channel 40:	5200 MHz	Channel 44:	5220 MHz	Channel 48:	5240 MHz
Channel 52:	5260 MHz	Channel 56:	5280 MHz	Channel 60:	5300 MHz	Channel 64:	5320 MHz
Channel 100:	5500 MHz	Channel 104:	5520 MHz	Channel 108:	5540 MHz	Channel 112:	5560 MHz
Channel 116:	5580 MHz	Channel 120:	5600 MHz	Channel 124:	5620 MHz	Channel 128:	5640 MHz
Channel 132:	5660 MHz	Channel 136:	5680 MHz	Channel 140:	5700 MHz		

802.11n-40MHz Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 38:	5190 MHz	Channel 46:	5230 MHz	Channel 54:	5270 MHz	Channel 62:	5310 MHz
Channel 102:	5510 MHz	Channel 110:	5550 MHz	Channel 118:	5590 MHz	Channel 126:	5630 MHz
Channel 134:	5670 MHz						

Note:

1. This device is a Notebook with a built-in WLAN transceiver.
2. The EUT is including two models, The MS-1242 for MSI and the U200 for different marketing requirement.
3. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11a is 6Mbps, 802.11n-20BW is 13.5Mbps and 802.11n-40BW are 27Mbps)
4. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart E for Unlicensed National Information Infrastructure devices.

1.2. Operational Description

The EUT is a Notebook with a built-in 2.4GHz and 5GHz WLAN card. This device provided four kinds of transmitting speed 1, 2, 5.5 and 11Mbps and the device of RF carrier is DBPSK, DQPSK and CCK (IEEE 802.11b). The device provided of eight kinds of transmitting speed 6, 9, 12, 18, 24, 36, 48 and 54Mbps the device of RF carrier is BPSK, QPSK, 16QAM and 64QAM (IEEE 802.11a/g).

The device provided of eight kinds of transmitting speed 7.2、14.4、21.7、28.9、43.3、57.8、65 and 72.2Mbps in 802.11n(20BW) mode and 15、30、45、60、90、120、135 and 150Mbps(40BW) the device of RF carrier is BPSK, QPSK, 16QAM and 64QAM (IEEE 802.11n).

The device adapts direct sequence spread spectrum modulation. The antenna provides diversity function to improve the receiving function and the antennas to support 1(Transmit) × 2 (Receive) MISO technology.

This Notebook, compliant with IEEE 802.11b and IEEE 802.11a/g/n, is a high-efficiency Wireless LAN adapter. It allows your computer to connect to a wireless network and to share resources, such as files or printers without being bound to the network wires. Operation in 2.4GHz Direct Sequence Spread Spectrum (DSSS) radio transmission, the Notebook Wired Equivalent Protection (WEP) algorithm is used. In addition, its standard compliance ensures that it can communicate with any IEEE 802.11b and IEEE 802.11a/g/n network.

This equipment includes WLAN, Bluetooth & 3G module, which can transmit signals simultaneously, the antenna distance of more than 5 cm, no assessment of collocation.

No ad-hoc operation in the DFS band, Another information please refer to users manual.

Test Mode	Mode 1: Transmitter (802.11a-6Mbps) Mode 2: Transmitter (802.11n-20BW 13.5Mbps) Mode 3: Transmitter (802.11n-40BW 27Mbps)
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Note: 802.11b/g/n are tested by Chain A.

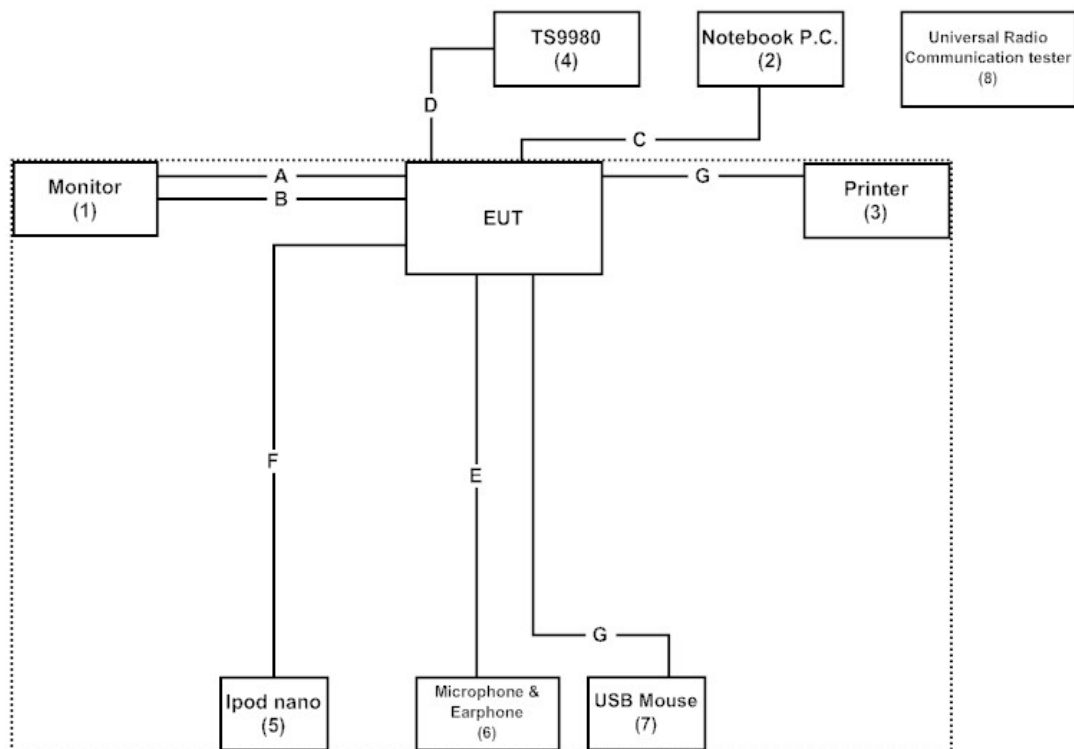
1.3. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

	Product	Manufacturer	Model No.	Serial No.	Power Cord
(1)	Monitor	Dell	2408WFPb	CN-0NN792-74261-82S-0YCS	Non-Shielded, 1.8m
(2)	Notebook PC	DELL	PP04X	C8YYM1S	Non-Shielded, 1.8m
(3)	Printer	EPSON	StyLus C63	FAPY012396	Non-Shielded, 1.8m
(4)	TS9980	R&S	N/A	N/A	Non-Shielded, 1.8m
(5)	iPod nano	Apple	A1236	7K823DY0Y0P	N/A
(6)	Microphone & Earphone	PCHOME	N/A	N/A	N/A
(7)	USB Mouse	Logitech	M-BE58	HCA24311471	N/A
(8)	Universal Radio Communication tester	Rohde & Schwarz	CMU200	104846	Non-Shielded, 1.8m

Signal Cable Type	Signal cable Description
A	D-SUB Cable
B	HDMI Cable
C	LAN Cable
D	Coaxial Cable
E	Earphone & Microphone Cable
F	USB Cable
G	USB Cable

1.4. Configuration of tested System



1.5. EUT Exercise Software

- (1) Setup the EUT as shown in Section 1.4
- (2) Execute CRTU (Version 5.0.48.0000) on the EUT.
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Press “OK” to start the continuous transmission.
- (5) Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from Quietek Corporation's Web Site : <http://tw.quietek.com/modules/myalbum/>

The address and introduction of Quietek Corporation's laboratories can be founded in our Web site : <http://www.quietek.com/>

Site Description: File on
 Federal Communications Commission
 FCC Engineering Laboratory
 7435 Oakland Mills Road
 Columbia, MD 21046
 Registration Number: 92195



Accreditation on NVLAP
 NVLAP Lab Code: 200533-0



Site Name: Quietek Corporation
 Site Address: No. 5-22, Ruei-Shu Valley, Ruei-Ping Tsuen,
 Lin-Kou Shiang, Taipei,
 Taiwan, R.O.C.
 TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789
 E-Mail : service@quietek.com

FCC Accreditation Number: TW1014



2. Conducted Emission

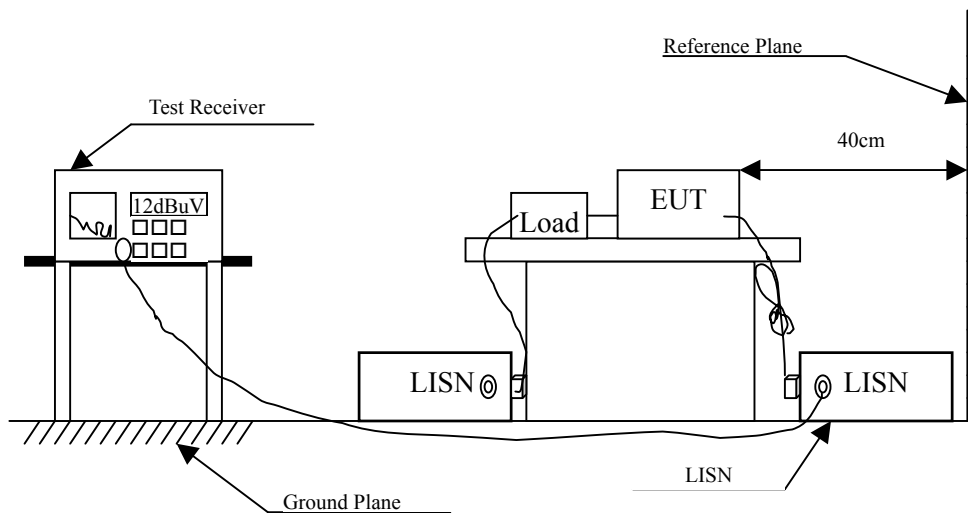
2.1. Test Equipment

The following test equipment are used during the conducted emission test:

Item	Instrument	Manufacturer	Type No./Serial No	Last Cal.	Remark
1	Test Receiver	R & S	ESCS 30/825442/17	May, 2009	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2009	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2009	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2009	
5	No.1 Shielded Room			N/A	

Note: All equipments are calibrated every one year.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit		
Frequency MHz	Limits	
	QP	AV
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks : In the above table, the tighter limit applies at the band edges.

2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of Aug 2002 DA 02-2138 for compliance to FCC 47CFR Subpart E requirements.

2.5. Uncertainty

± 2.26 dB

2.6. Test Result of Conducted Emission

Product : Notebook
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps) (5190MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
LINE 1					
Quasi-Peak					
0.193	9.711	35.750	45.461	-19.310	64.771
0.451	9.640	29.190	38.830	-18.570	57.400
0.732	9.635	34.200	43.835	-12.165	56.000
1.670	9.680	22.470	32.150	-23.850	56.000
6.107	9.740	19.940	29.680	-30.320	60.000
16.709	10.000	16.060	26.060	-33.940	60.000
Average					
0.193	9.711	28.080	37.791	-16.980	54.771
0.451	9.640	28.290	37.930	-9.470	47.400
0.732	9.635	24.000	33.635	-12.365	46.000
1.670	9.680	22.280	31.960	-14.040	46.000
6.107	9.740	14.440	24.180	-25.820	50.000
16.709	10.000	9.520	19.520	-30.480	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Notebook
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps) (5190MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
LINE 2					
Quasi-Peak					
0.197	9.719	32.530	42.249	-22.408	64.657
0.451	9.643	31.930	41.573	-15.827	57.400
0.724	9.652	29.760	39.412	-16.588	56.000
1.607	9.680	20.110	29.790	-26.210	56.000
4.435	9.700	21.220	30.920	-25.080	56.000
23.986	10.060	17.230	27.290	-32.710	60.000
Average					
0.197	9.719	23.270	32.989	-21.668	54.657
0.451	9.643	30.970	40.613	-6.787	47.400
0.724	9.652	21.950	31.602	-14.398	46.000
1.607	9.680	19.630	29.310	-16.690	46.000
4.435	9.700	15.120	24.820	-21.180	46.000
23.986	10.060	10.220	20.280	-29.720	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Notebook
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps) (5270MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
LINE 1					
Quasi-Peak					
0.189	9.714	32.510	42.224	-22.662	64.886
0.451	9.640	29.530	39.170	-18.230	57.400
0.736	9.636	34.110	43.746	-12.254	56.000
1.736	9.680	23.600	33.280	-22.720	56.000
4.630	9.700	20.250	29.950	-26.050	56.000
16.345	9.990	24.130	34.120	-25.880	60.000
Average					
0.189	9.714	24.990	34.704	-20.182	54.886
0.451	9.640	28.620	38.260	-9.140	47.400
0.736	9.636	24.400	34.036	-11.964	46.000
1.736	9.680	23.510	33.190	-12.810	46.000
4.630	9.700	13.240	22.940	-23.060	46.000
16.345	9.990	20.600	30.590	-19.410	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Notebook
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps) (5270MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
LINE 2					
Quasi-Peak					
0.193	9.721	35.510	45.231	-19.540	64.771
0.322	9.660	34.510	44.170	-16.916	61.086
0.713	9.650	30.270	39.920	-16.080	56.000
1.865	9.680	18.970	28.650	-27.350	56.000
4.634	9.700	23.260	32.960	-23.040	56.000
24.720	10.130	19.490	29.620	-30.380	60.000
Average					
0.193	9.721	25.600	35.321	-19.450	54.771
0.322	9.660	32.960	42.620	-8.466	51.086
0.713	9.650	22.290	31.940	-14.060	46.000
1.865	9.680	17.310	26.990	-19.010	46.000
4.634	9.700	15.500	25.200	-20.800	46.000
24.720	10.130	12.730	22.860	-27.140	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Notebook
 Test Item : Conducted Emission Test
 Power Line : Line 1
 Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps) (5590MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
LINE 1					
Quasi-Peak					
0.193	9.711	35.230	44.941	-19.830	64.771
0.384	9.650	30.120	39.770	-19.544	59.314
0.716	9.630	26.830	36.460	-19.540	56.000
2.193	9.680	22.050	31.730	-24.270	56.000
4.705	9.700	21.190	30.890	-25.110	56.000
16.494	9.995	22.900	32.895	-27.105	60.000
Average					
0.193	9.711	28.240	37.951	-16.820	54.771
0.384	9.650	29.800	39.450	-9.864	49.314
0.716	9.630	18.080	27.710	-18.290	46.000
2.193	9.680	20.120	29.800	-16.200	46.000
4.705	9.700	11.770	21.470	-24.530	46.000
16.494	9.995	17.770	27.765	-22.235	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Notebook
 Test Item : Conducted Emission Test
 Power Line : Line 2
 Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps) (5590MHz)

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV	Margin dB	Limit dBuV
LINE 2					
Quasi-Peak					
0.193	9.721	35.030	44.751	-20.020	64.771
0.322	9.660	34.590	44.250	-16.836	61.086
0.720	9.651	30.270	39.921	-16.079	56.000
5.154	9.700	23.730	33.430	-26.570	60.000
16.498	9.999	20.020	30.019	-29.981	60.000
24.357	10.090	22.150	32.240	-27.760	60.000
Average					
0.193	9.721	26.440	36.161	-18.610	54.771
0.322	9.660	33.210	42.870	-8.216	51.086
0.720	9.651	21.300	30.951	-15.049	46.000
5.154	9.700	16.170	25.870	-24.130	50.000
16.498	9.999	16.380	26.379	-23.621	50.000
24.357	10.090	15.500	25.590	-24.410	50.000

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

3. Peak Transmit Power

3.1. Test Equipment

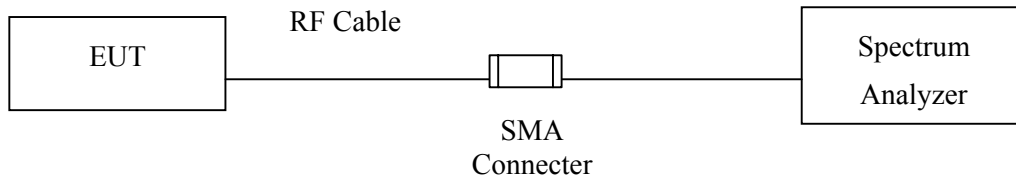
The following test equipments are used during the radiated emission tests:

Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X Power Meter	Anritsu	ML2495A/6K00003357	May, 2009
X Power Sensor	Anritsu	MA2411B/0738448	Jun, 2009
X Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2009

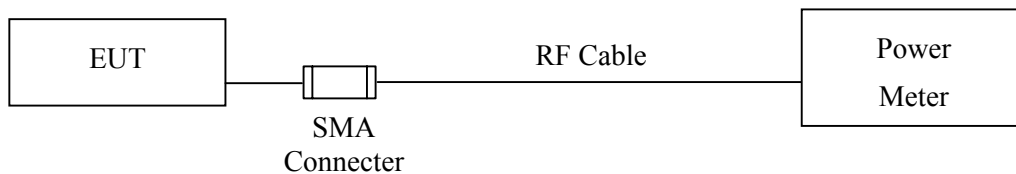
- Note:
1. All equipments are calibrated every one year.
 2. The test instruments marked by “X” are used to measure the final test results.

3.2. Test Setup

26dBc Occupied Bandwidth



Conduction Power Measurement



3.3. Limits

- (1) For the band 5.15-5.25 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 50 mW or $4 \text{ dBm} + 10\log B$, where B is the 26-dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the peak transmit power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
- (2) For the band 5.25-5.35 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10\log B$, where B is the 26-dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the peak transmit power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
- (3) For the band 5.725-5.825 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 1W or $17 \text{ dBm} + 10\log B$, where B is the 26-dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the peak transmit power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.

3.4. Test Procedur

As an alternative to DA 02-2138, the EUT peak power was measured with a peak power meter employing a video bandwidth greater than 6dB BW of the emission under test. Peak output power was read directly from the meter across all data rates, and across three channels within each sub-band. Special care was used to make sure that the EUT was transmitting in continuous mode. This method exceeds the limitations of DA 02-2138, and provides more accurate measurements.

3.5. Uncertainty

$\pm 1.27 \text{ dB}$

3.6. Test Result of Peak Transmit Power

Product : Notebook
 Test Item : Peak Transmit Power
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps)

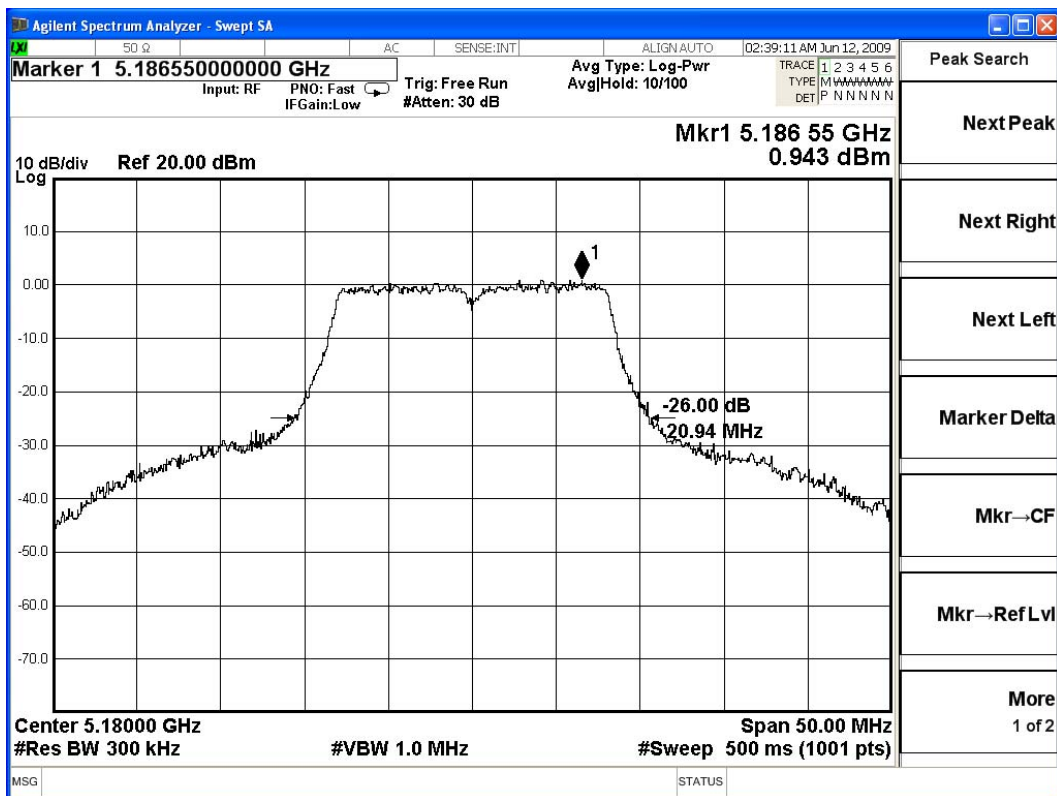
Cable loss=1dB		Peak Power Output								Required Limit
Channel No.	Frequency (MHz)	Data Rate								
		6	9	12	18	24	36	48	54	
36	5180	16.9	--	--	--	--	--	--	--	<17dBm
44	5220	16.95	16.91	16.89	16.90	16.79	16.81	16.75	16.71	<17dBm
48	5240	16.78	--	--	--	--	--	--	--	<17dBm
52	5260	16.31	16.2	16.02	15.35	15.88	15.49	15.55	16.1	<24dBm
60	5300	16.3	--	--	--	--	--	--	--	<24dBm
64	5320	16.33	--	--	--	--	--	--	--	<24dBm
100	5500	16.98	--	--	--	--	--	--	--	<24dBm
120	5600	17.41	17.3	16.58	16.66	16.45	17.08	17.12	17	<24dBm
140	5700	15.00	--	--	--	--	--	--	--	<24dBm

Note: Peak Power Output Value = Reading value on peak power meter + cable loss

Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
36	5180	20.94	16.9	17	17.21	Pass

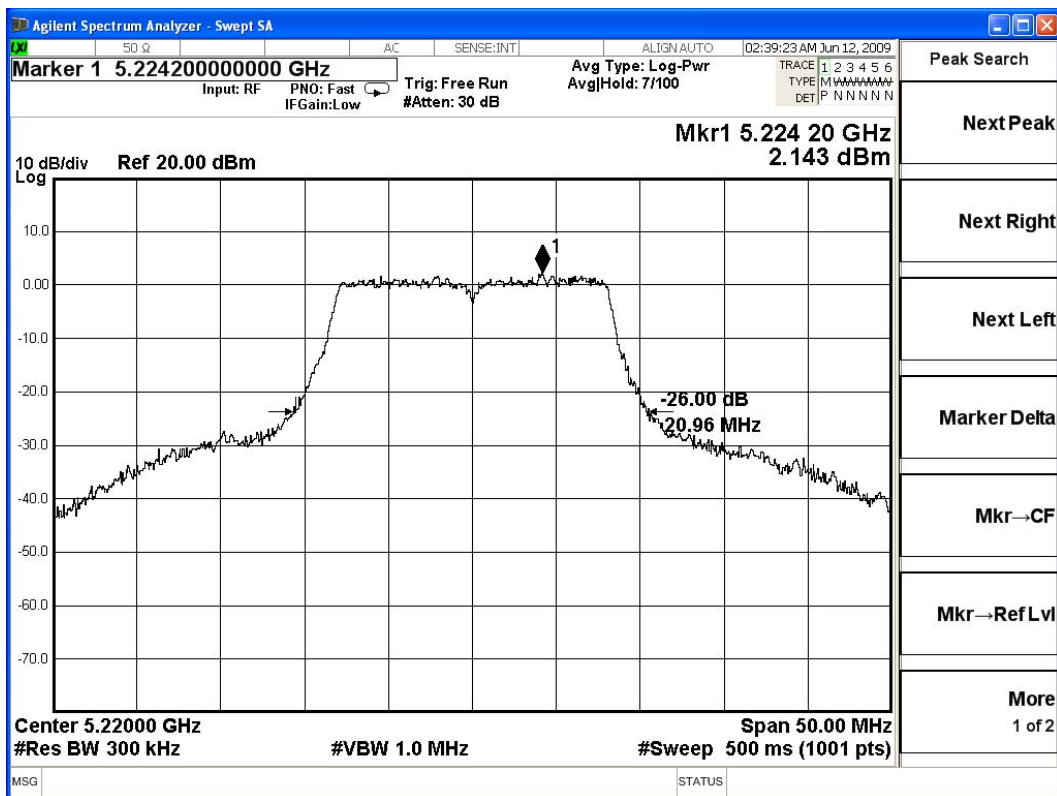
**26dBc Occupied Bandwidth:
Channel 36**



Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
44	5220	20.96	16.95	17	17.21	Pass

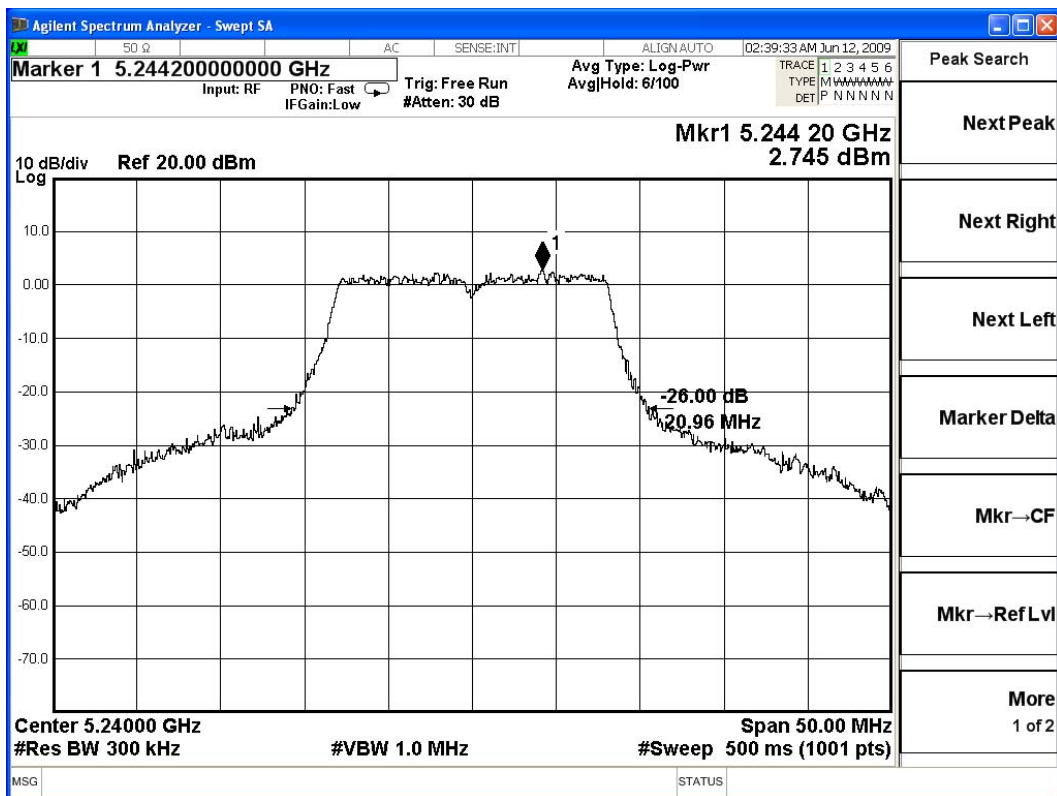
**26dBc Occupied Bandwidth:
Channel 40**



Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
48	5240	20.96	16.78	17	17.21	Pass

**26dBc Occupied Bandwidth:
Channel 48**

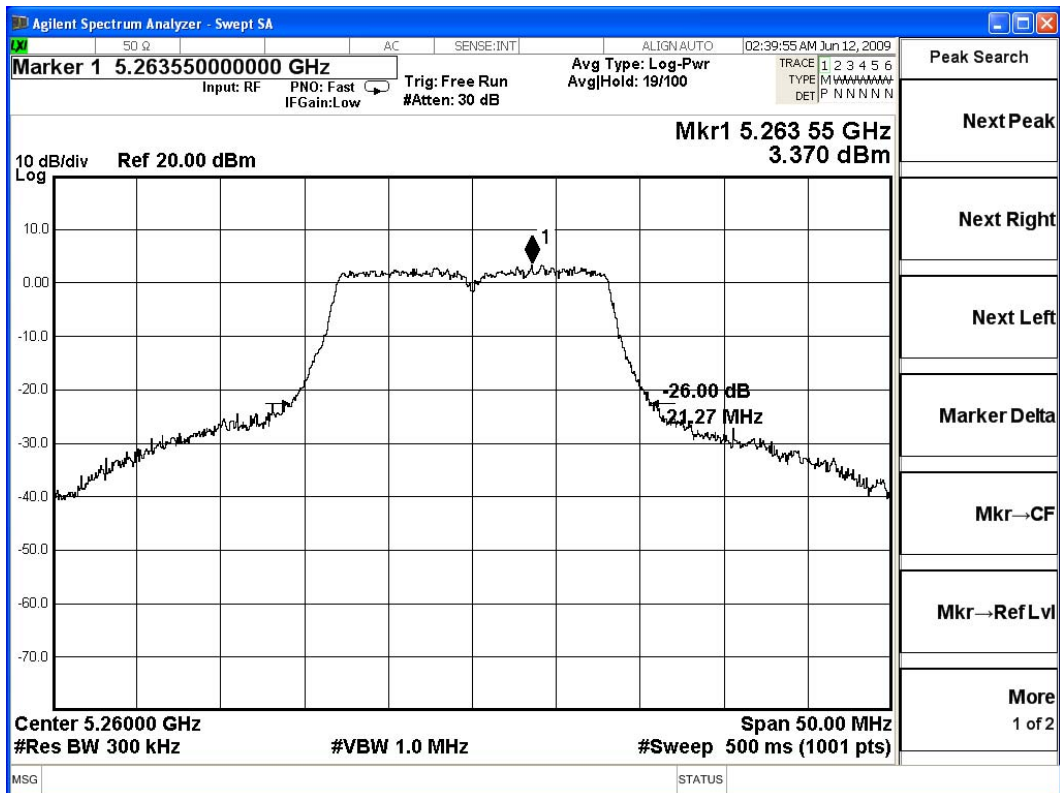


Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
52	5260	21.27	16.31	24	24.28	Pass

26dBc Occupied Bandwidth:

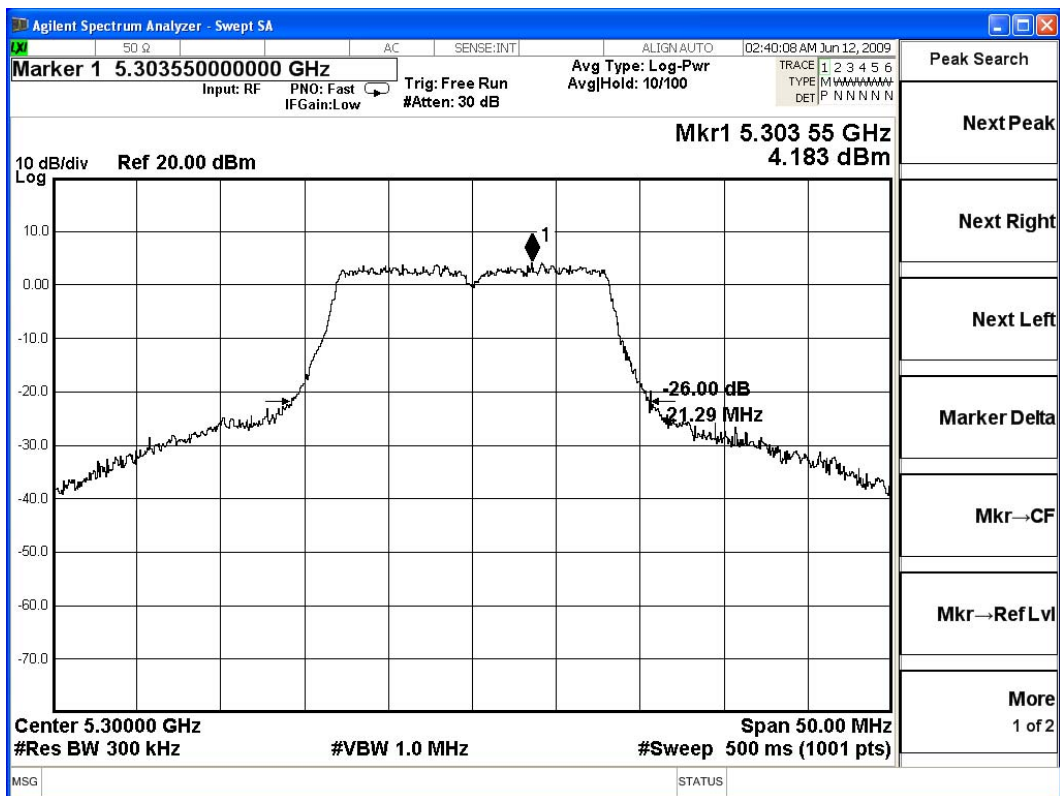
Channel 52



Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
60	5300	21.29	16.3	24	24.28	Pass

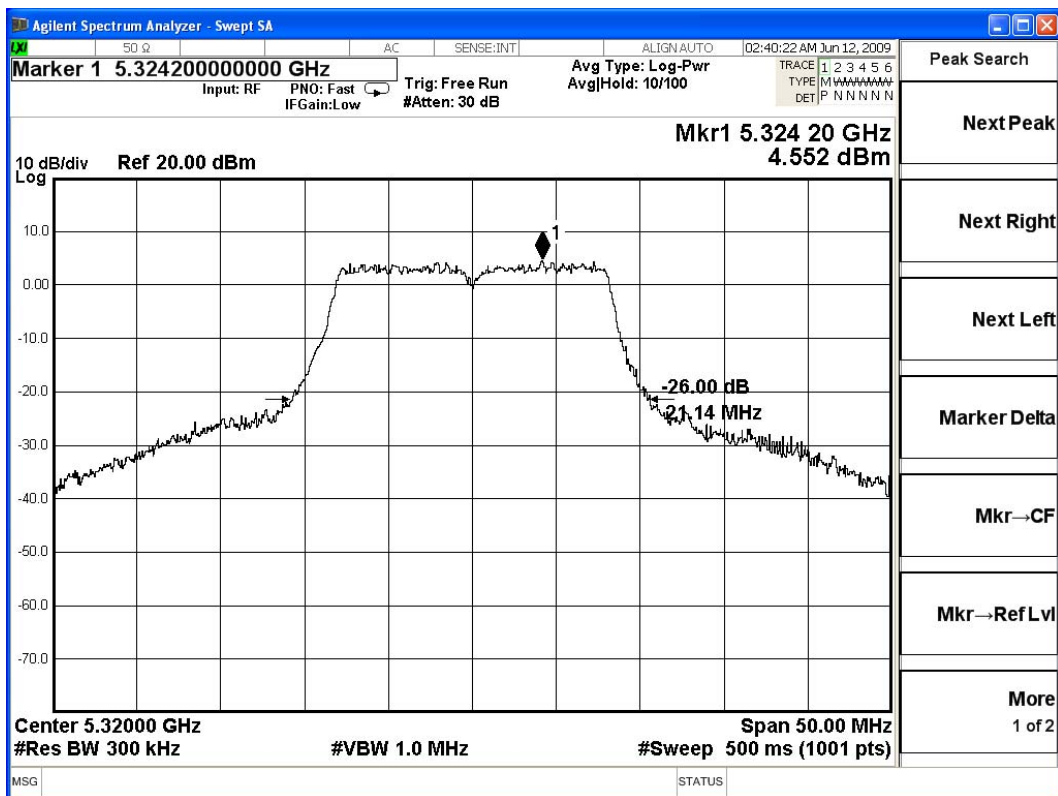
**26dBc Occupied Bandwidth:
Channel 60**



Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
64	5320	21.14	16.33	24	24.25	Pass

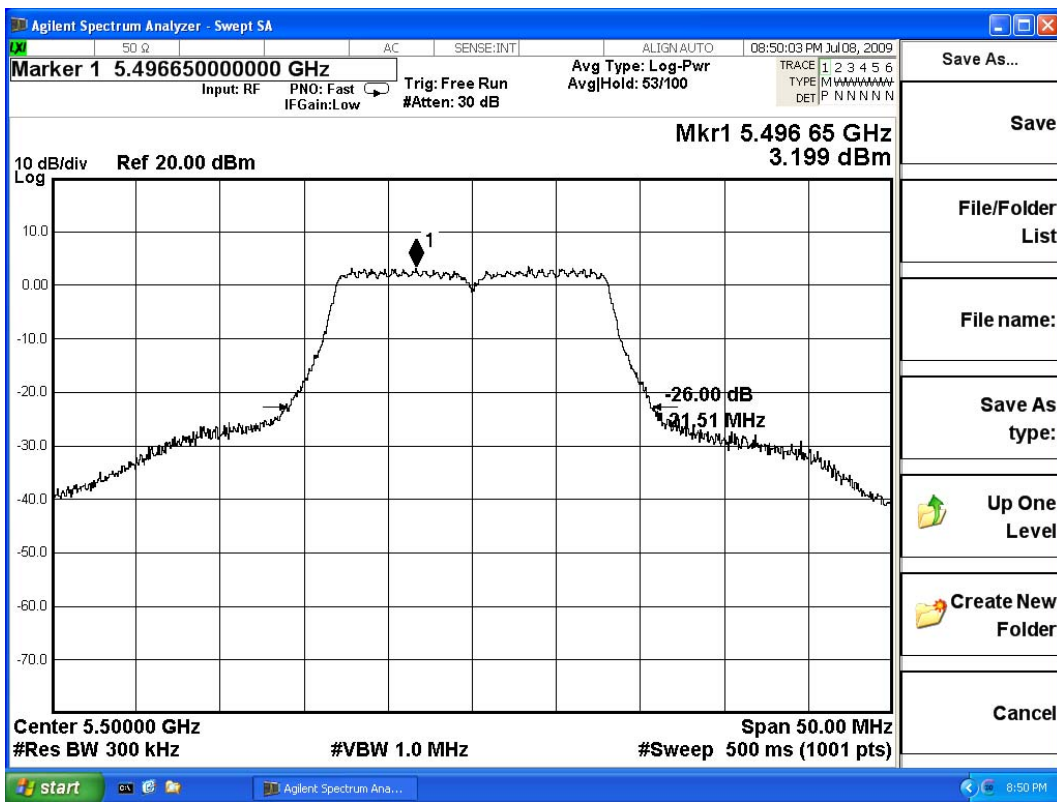
**26dBc Occupied Bandwidth:
Channel 64**



Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
100	5500	31.51	16.98	24	25.98	Pass

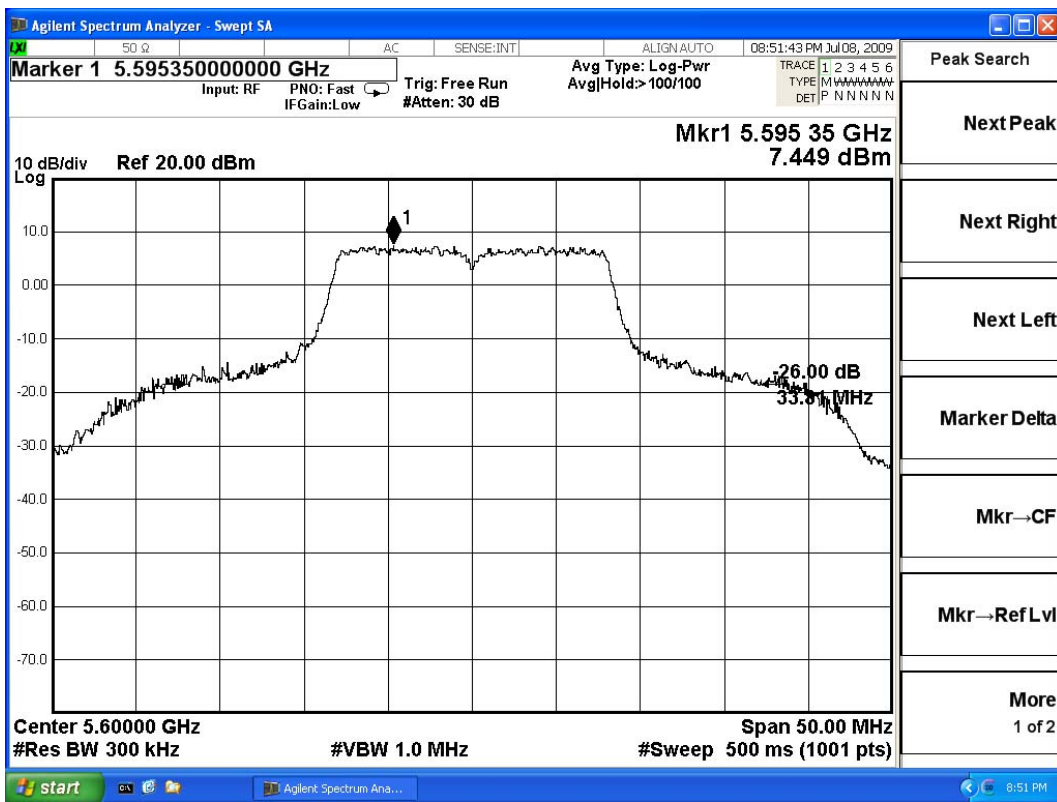
**26dBc Occupied Bandwidth:
Channel 100**



Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
120	5600	33.31	17.41	24	26.23	Pass

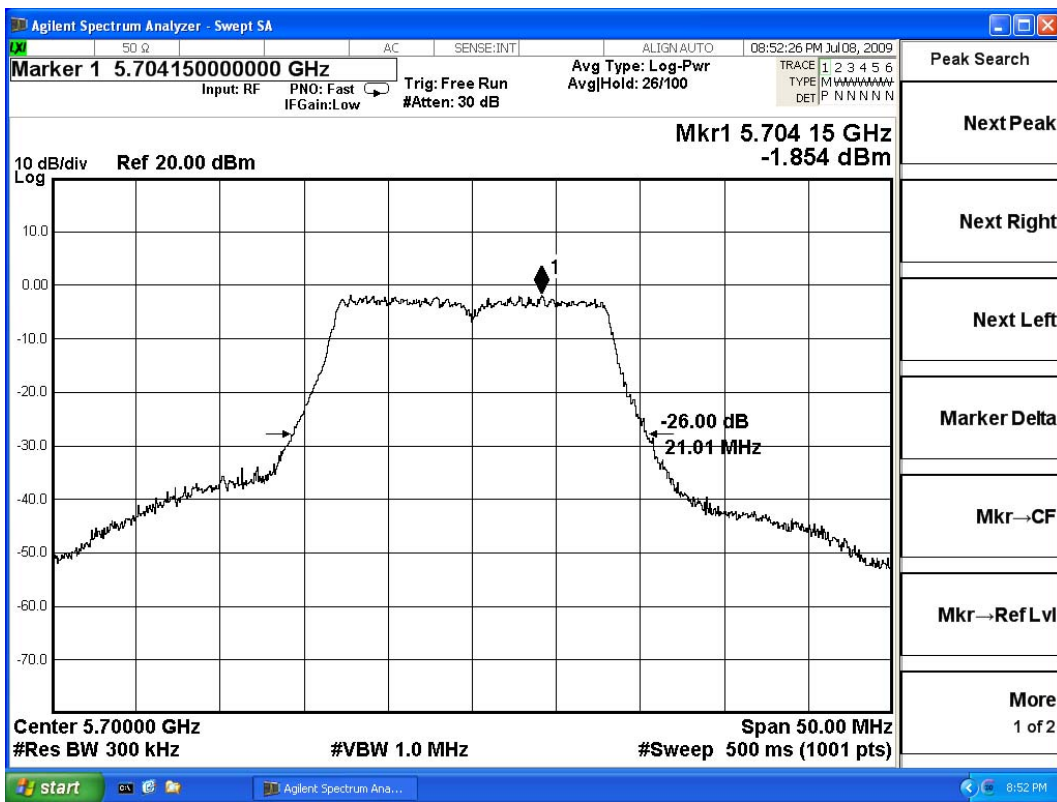
**26dBc Occupied Bandwidth:
Channel 120**



Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
140	5700	21.01	15.00	24	24.22	Pass

**26dBc Occupied Bandwidth:
Channel 140**



Product : Notebook
 Test Item : Peak Transmit Power
 Test Site : No.3 OATS
 Test Mode : Mode 2: Transmitter (802.11n-20BW 13.5Mbps)

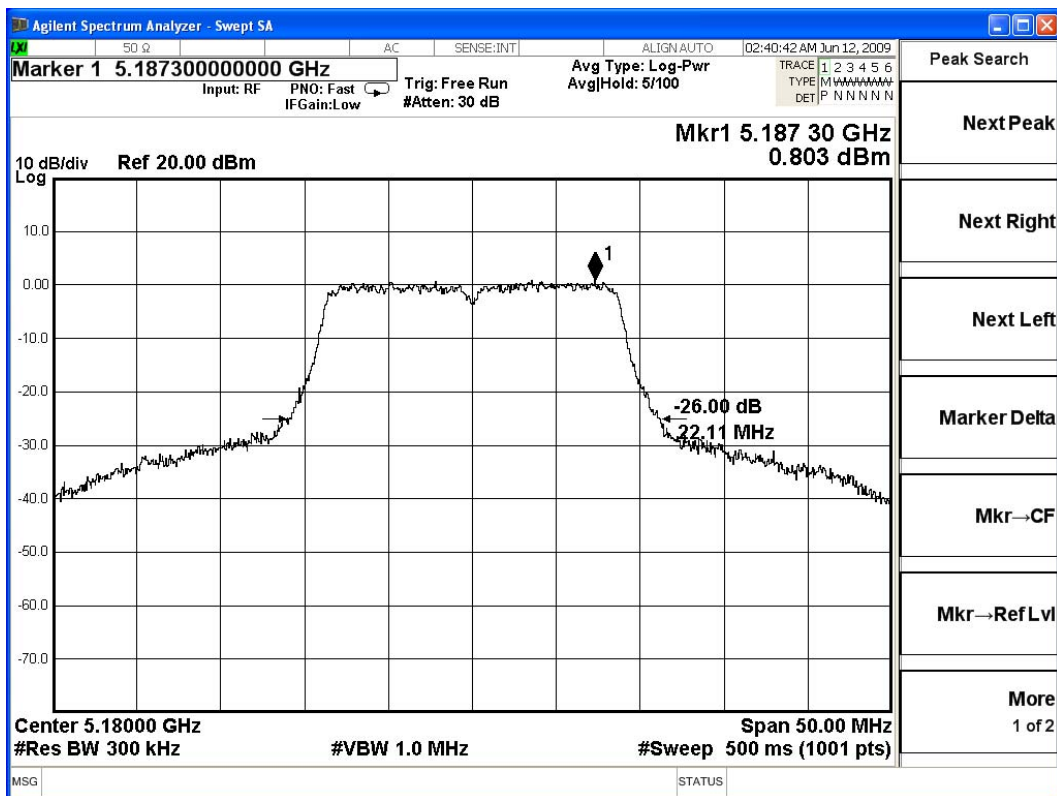
Cable loss=1dB		Peak Power Output								
Channel No.	Frequency (MHz)	Data Rate(MCS)								Required Limit
		6	9	12	18	24	36	48	54	
36	5180	16.72	--	--	--	--	--	--	--	<17dBm
44	5220	16.69	16.63	16.56	16.53	16.4	16.6	16.31	16.21	<17dBm
48	5240	16.79	--	--	--	--	--	--	--	<17dBm
52	5260	16.1	15.36	15.37	15.38	15.39	15.4	15.41	15.42	<24dBm
60	5300	16.18	--	--	--	--	--	--	--	<24dBm
64	5320	16.62	--	--	--	--	--	--	--	<24dBm
100	5500	16.39	--	--	--	--	--	--	--	<24dBm
120	5600	16.47	16.33	16.25	15.88	15.95	16.22	16.05	16.2	<24dBm
140	5700	16.29	--	--	--	--	--	--	--	<24dBm

Note: Peak Power Output Value =Reading value on peak power meter + cable loss

Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
36	5180	22.11	16.72	17	17.45	Pass

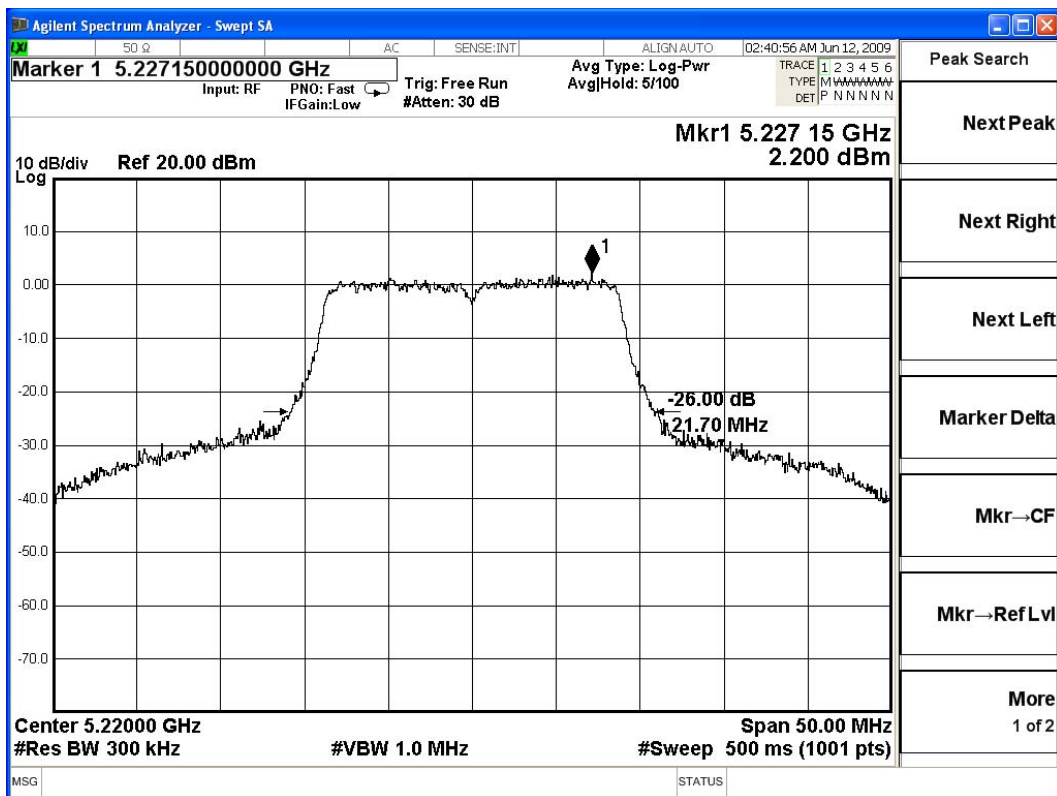
**26dBc Occupied Bandwidth:
Channel 36**



Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
44	5220	21.7	16.69	17	17.36	Pass

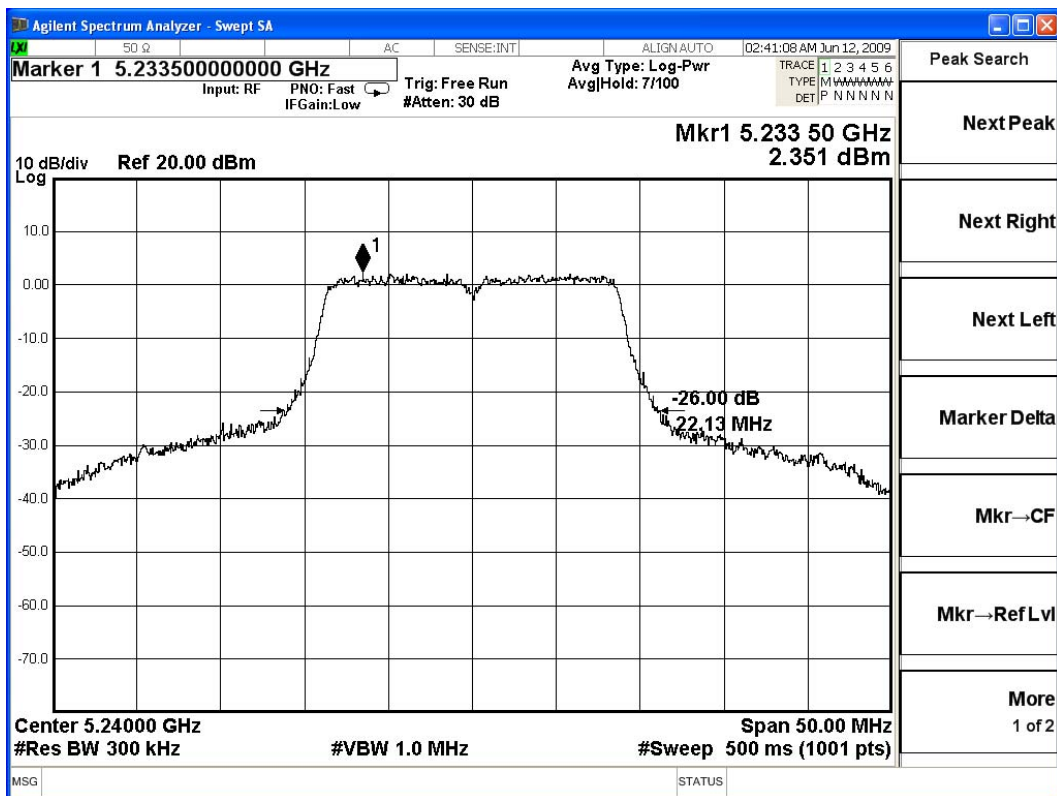
**26dBc Occupied Bandwidth:
Channel 44**



Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
48	5240	22.23	16.79	17	17.47	Pass

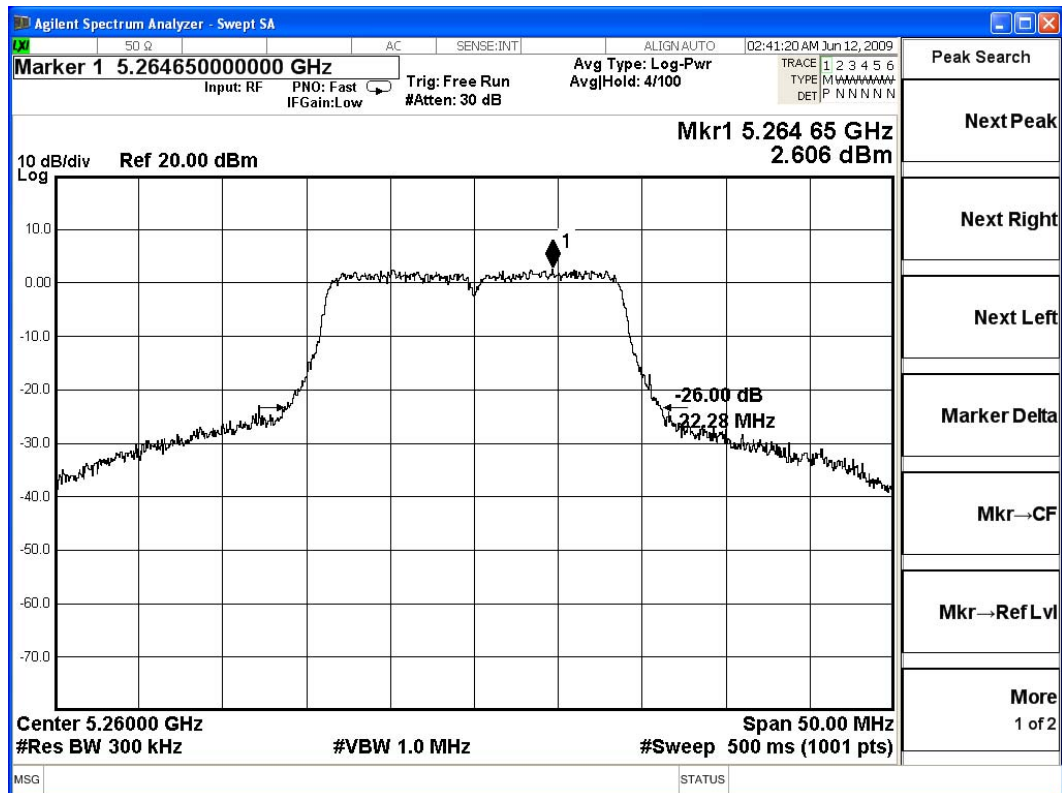
**26dBc Occupied Bandwidth:
Channel 48**



Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
52	5260	22.28	16.1	24	24.48	Pass

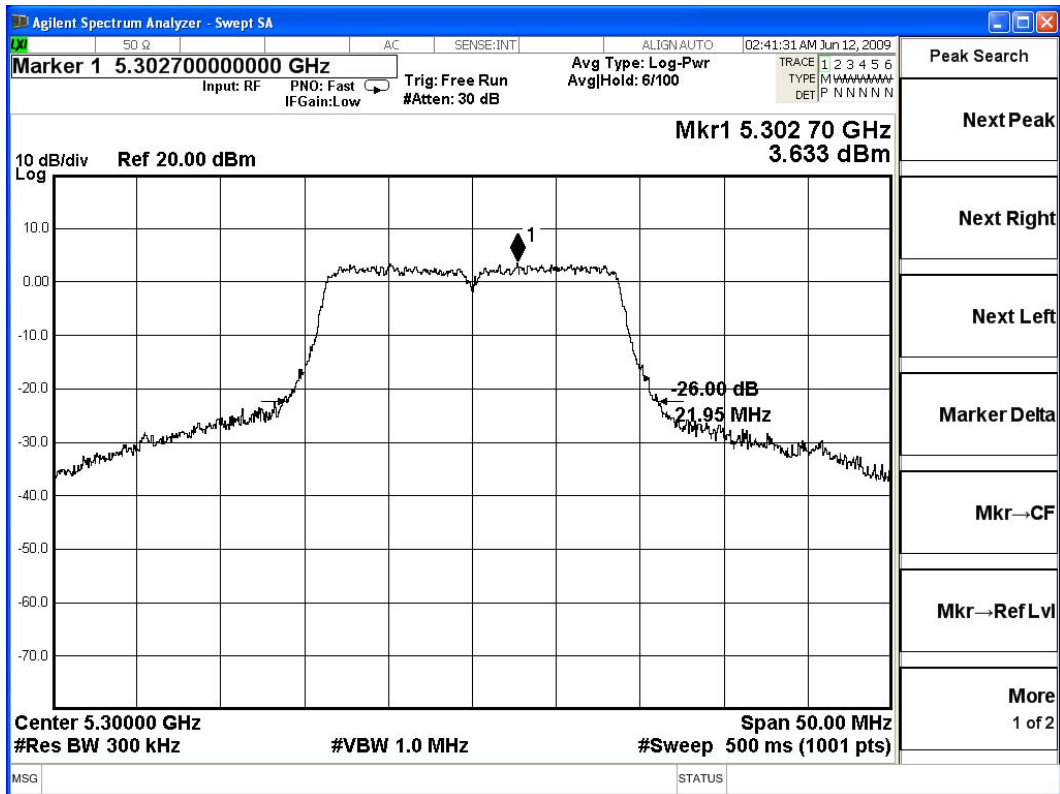
**26dBc Occupied Bandwidth:
Channel 52**



Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
60	5300	21.95	16.18	24	24.41	Pass

**26dBc Occupied Bandwidth:
Channel 60**

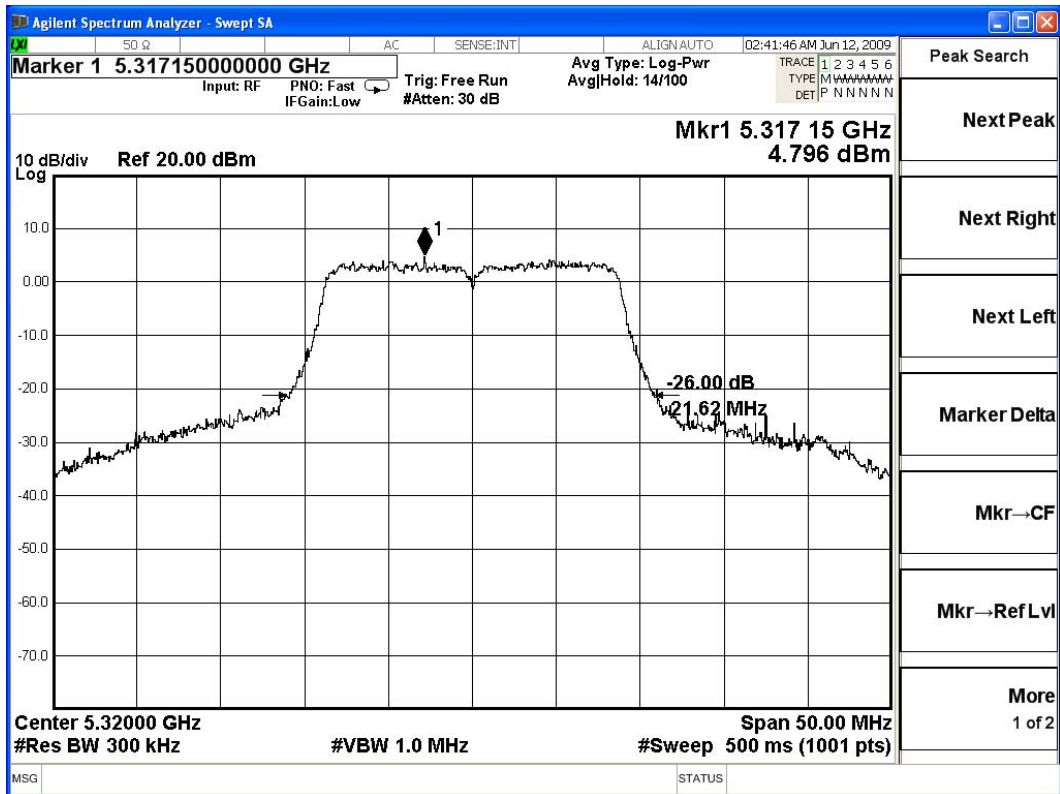


Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
64	5320	21.62	16.62	24	24.35	Pass

26dBc Occupied Bandwidth:

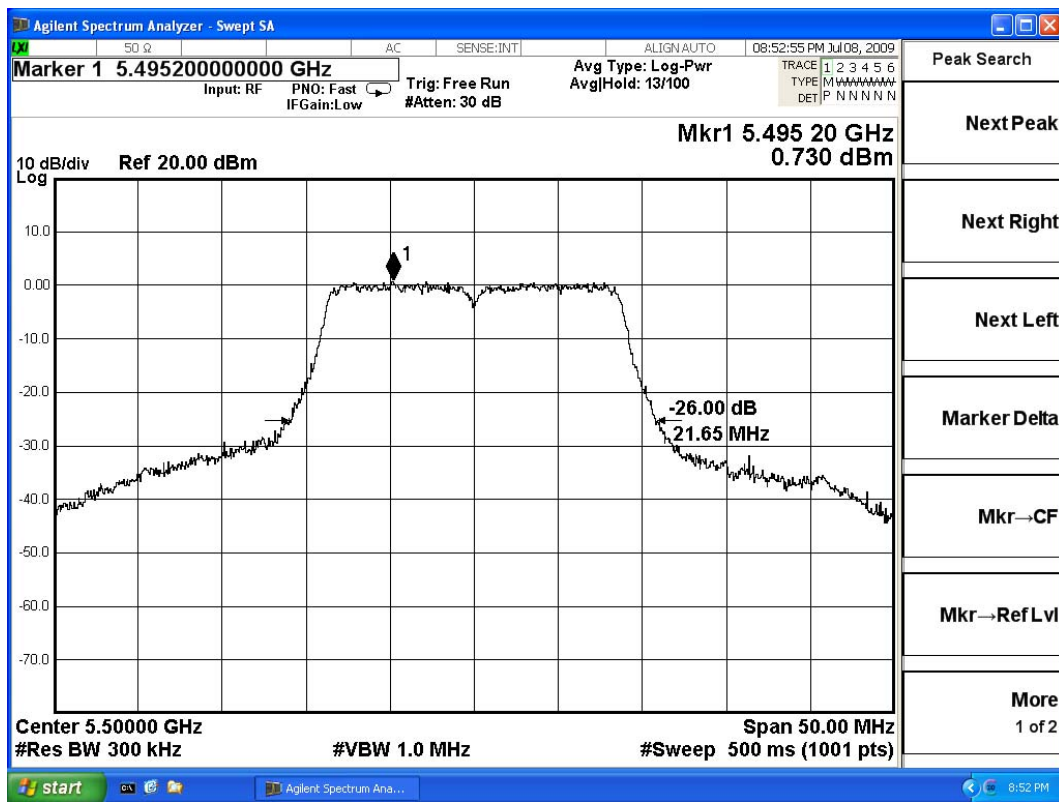
Channel 64



Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
100	5500	21.65	16.39	24	24.35	Pass

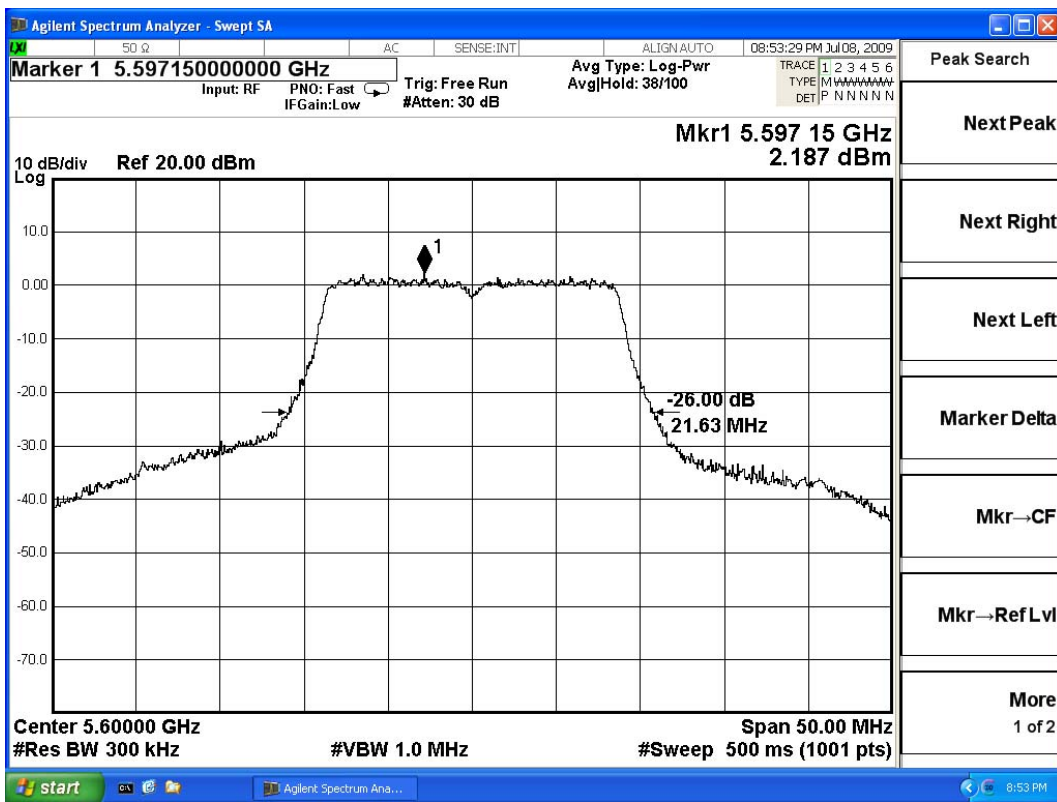
**26dBc Occupied Bandwidth:
Channel 100**



Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
120	5600	21.63	16.47	24	24.35	Pass

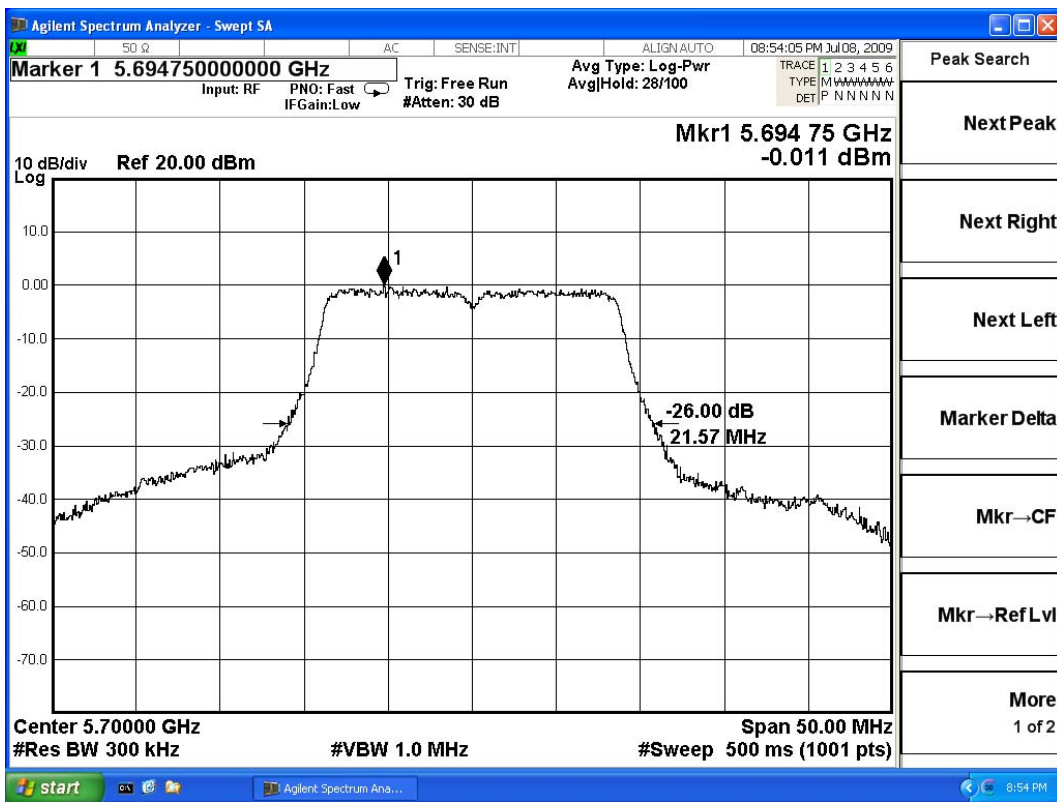
**26dBc Occupied Bandwidth:
Channel 120**



Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
140	5700	21.57	16.29	24	24.34	Pass

**26dBc Occupied Bandwidth:
Channel 140**



Product : Notebook
 Test Item : Peak Transmit Power
 Test Site : No.3 OATS
 Test Mode : Mode 3: Transmitter (802.11n-40BW 27Mbps)

Cable loss=1dB		Peak Power Output								
Channel No.	Frequency (MHz)	Data Rate(Mbps)								Required Limit
		27	54	81	108	162	216	243	270	
38	5190	16.19	16.11	16.05	15.97	15.91	15.85	15.89	15.85	<17dBm
46	5230	16.89	--	--	--	--	--	--	--	<17dBm
54	5270	16.68	16.55	16.32	16.15	15.85	16.22	16.33	16.25	<24dBm
62	5310	16.87	--	--	--	--	--	--	--	<24dBm
102	5510	17.00	--	--	--	--	--	--	--	<24dBm
118	5590	16.88	16.55	16.32	16.55	16.05	16.25	16.21	16.55	<24dBm
134	5670	16.44	--	--	--	--	--	--	--	<24dBm

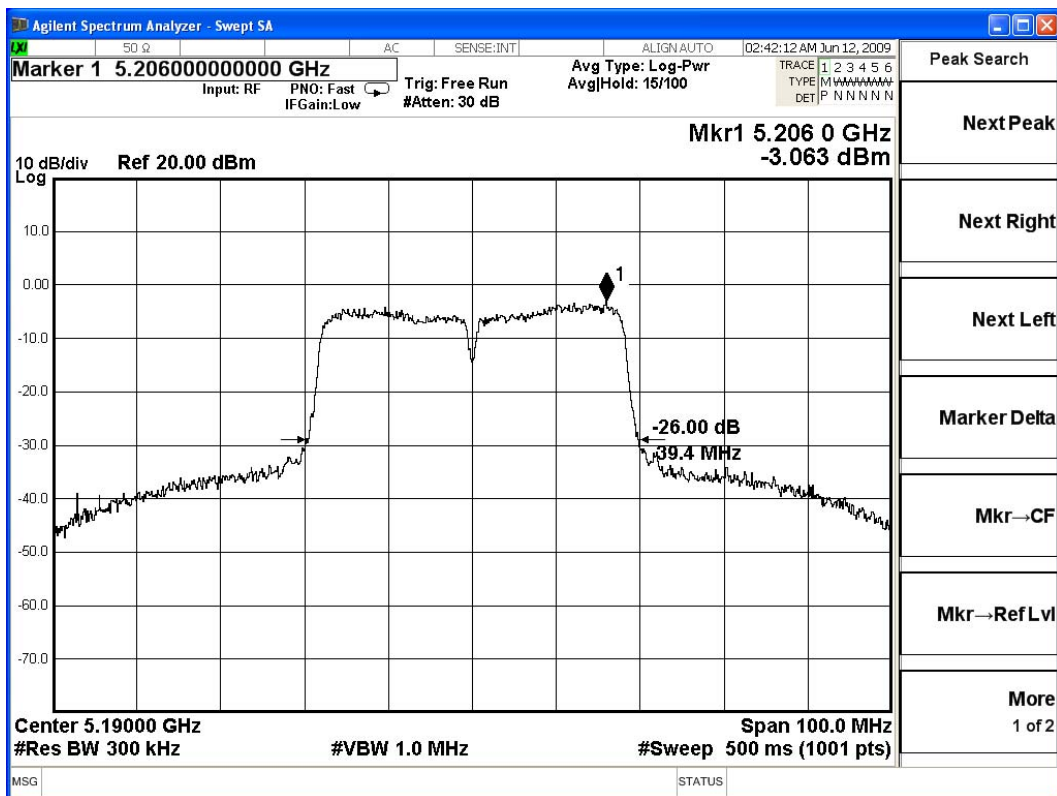
Note: Peak Power Output Value =Reading value on peak power meter + cable loss

Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
38	5190	39.4	16.19	17	19.95	Pass

26dBc Occupied Bandwidth:

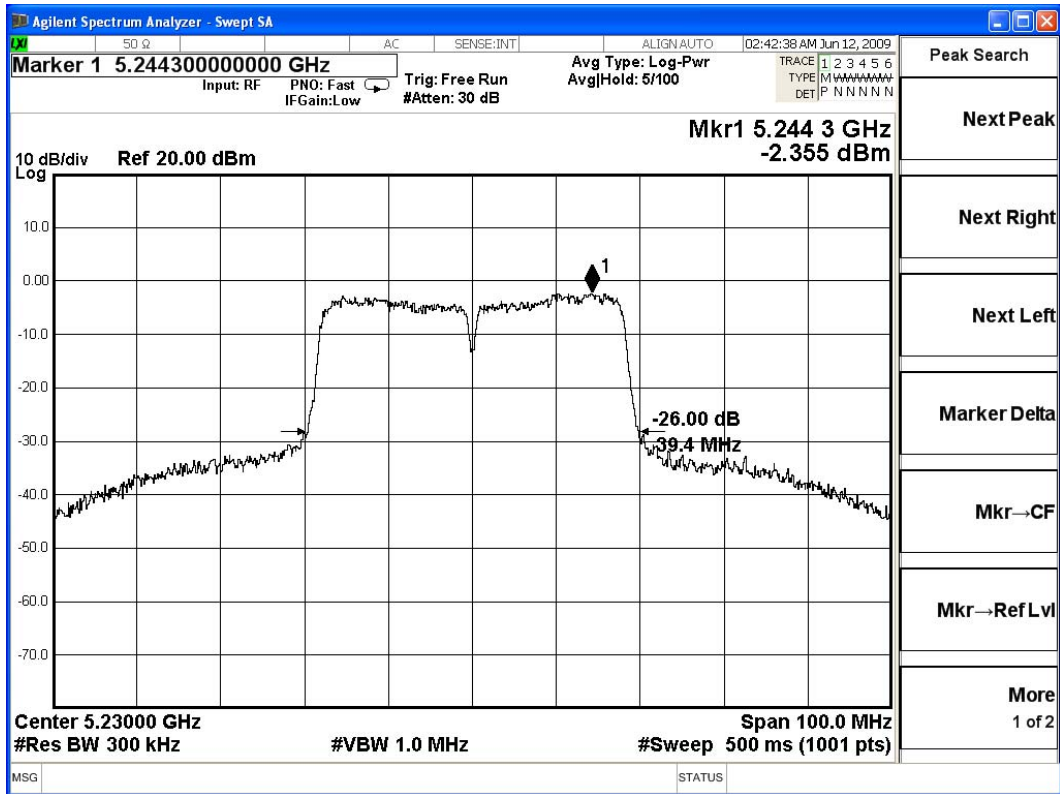
Channel 38



Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
46	5230	39.4	16.89	17	19.95	Pass

**26dBc Occupied Bandwidth:
Channel 46**

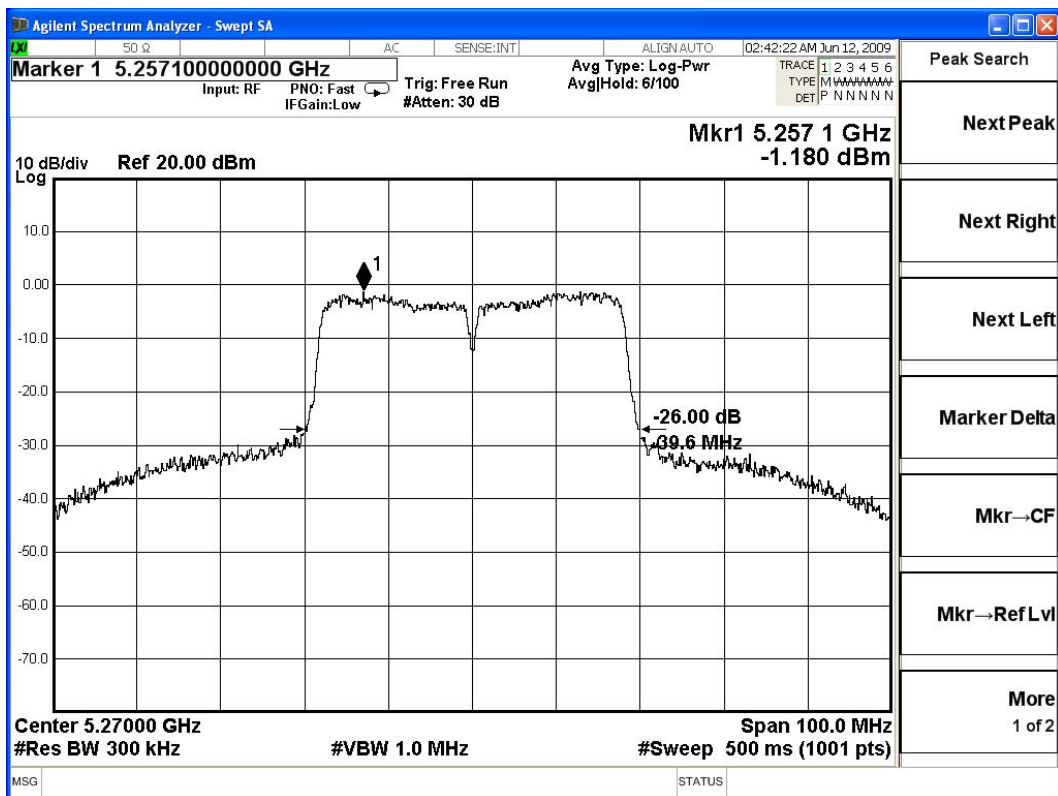


Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
54	5270	39.6	16.68	24	26.98	Pass

26dBc Occupied Bandwidth:

Channel 54

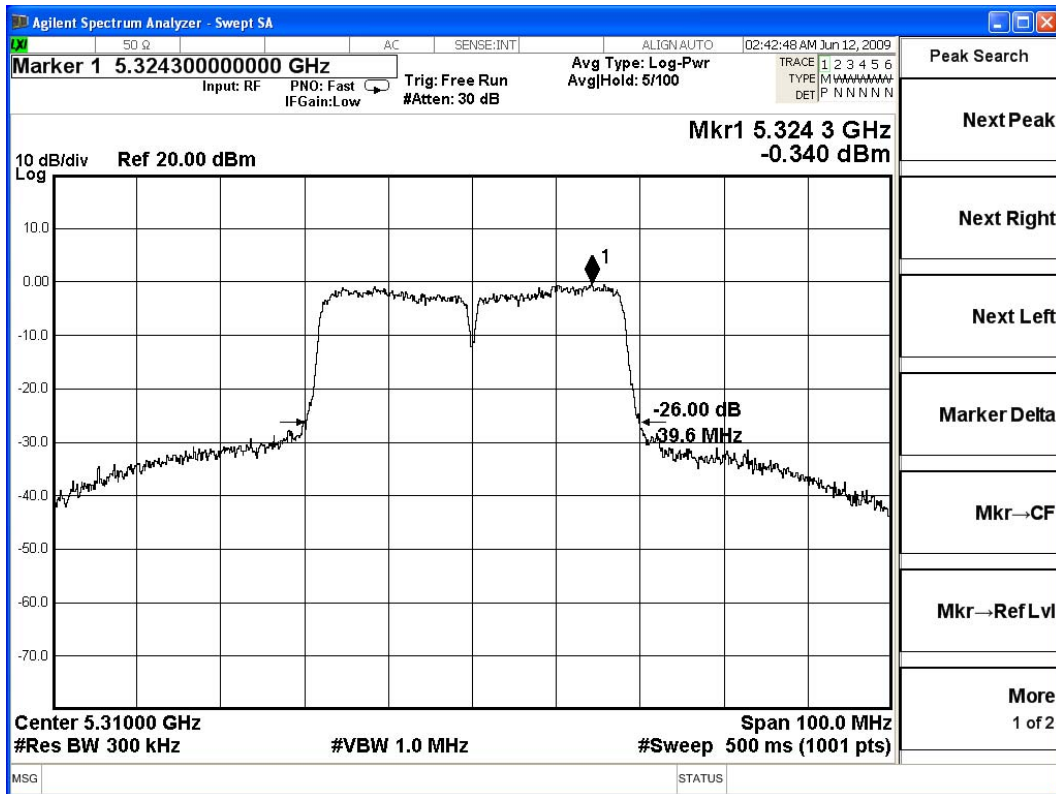


Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
62	5310	39.6	16.87	24	26.98	Pass

26dBc Occupied Bandwidth:

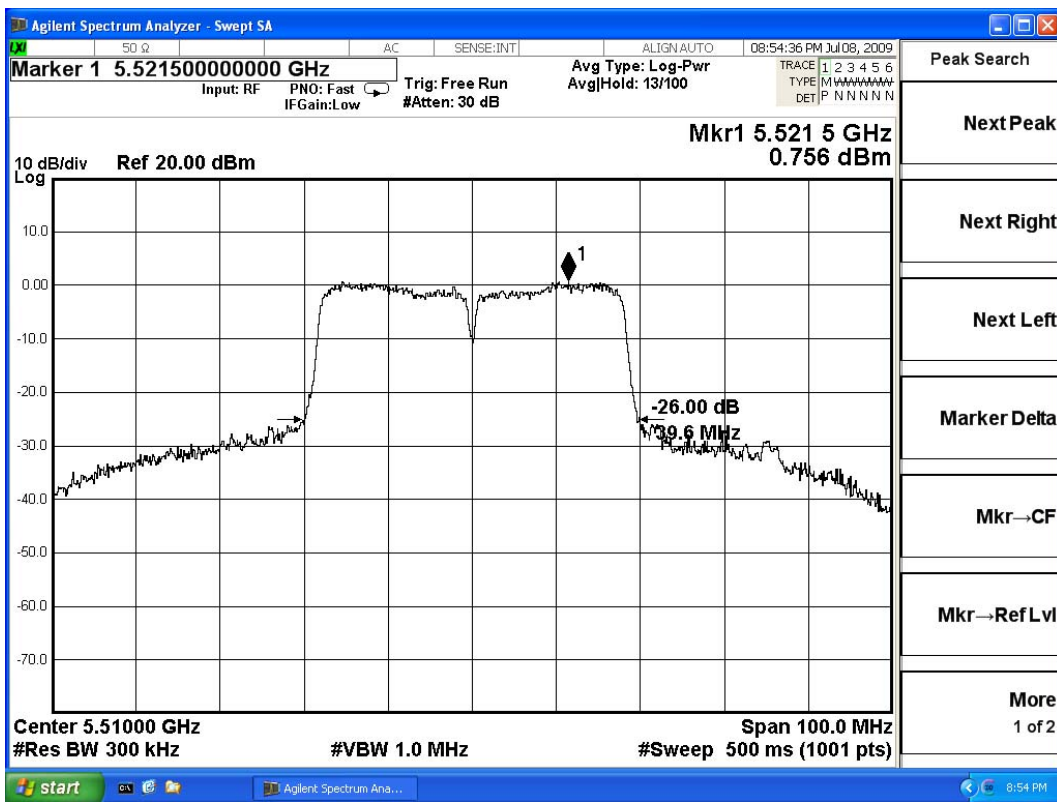
Channel 62



Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
102	5510	39.60	17.00	24	26.98	Pass

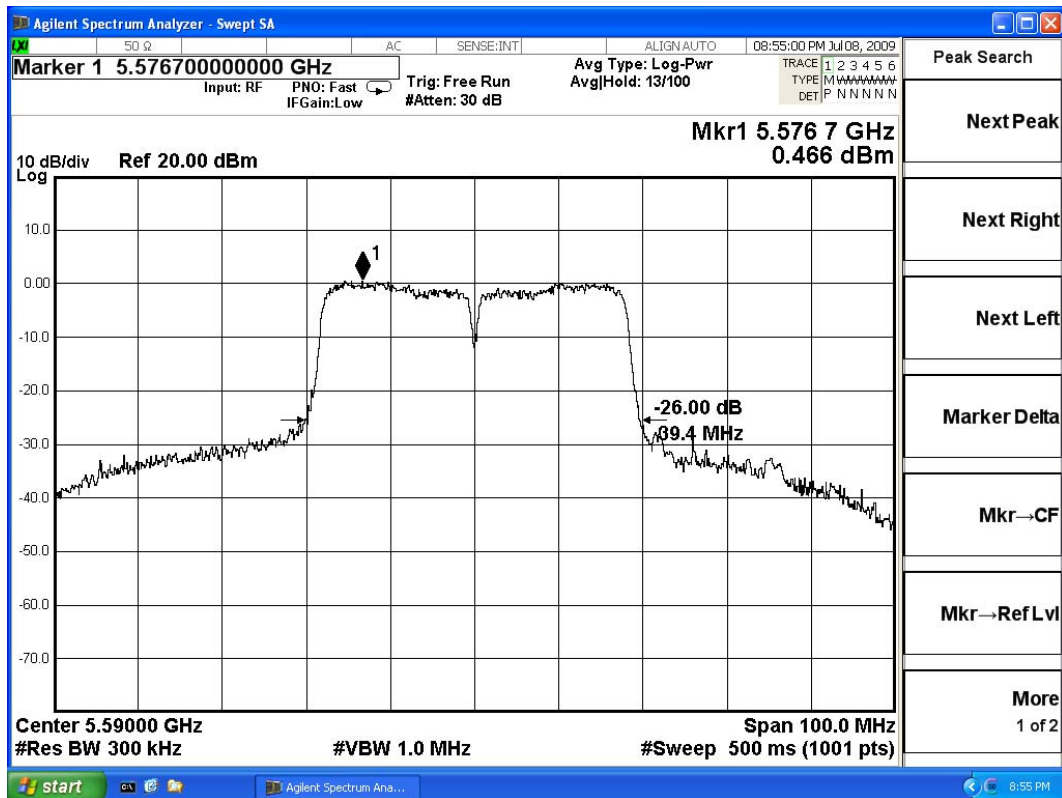
**26dBc Occupied Bandwidth:
Channel 102**



Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
118	5590	39.40	16.88	24	26.95	Pass

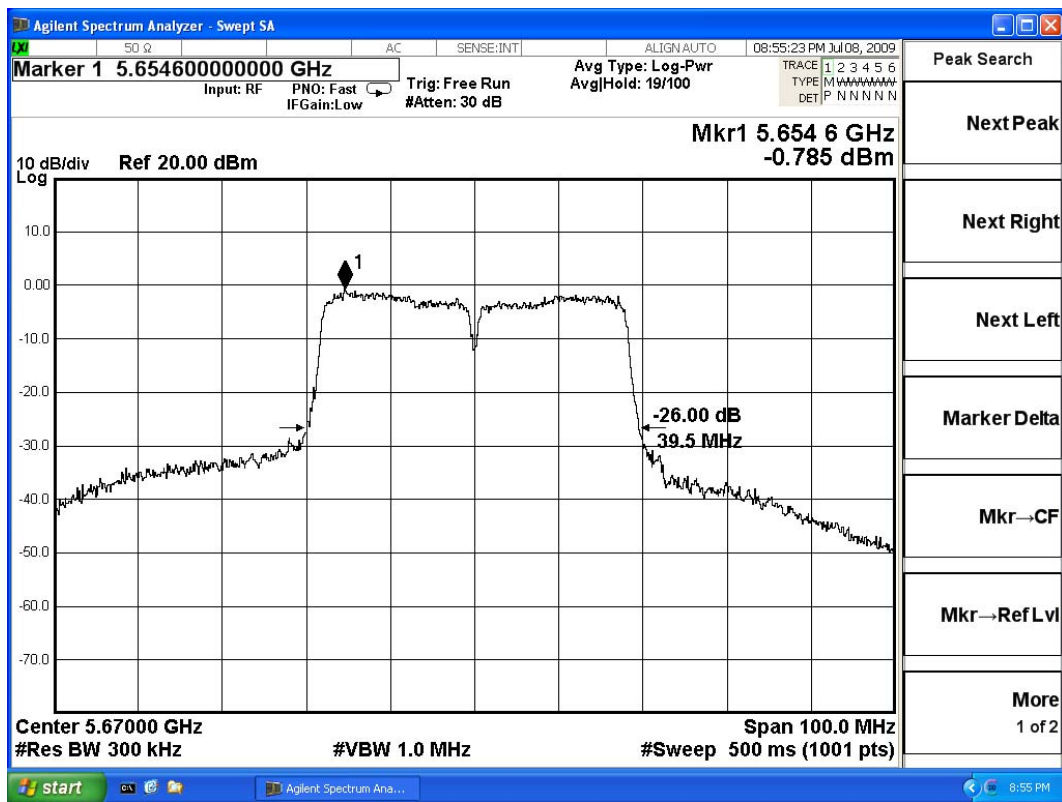
**26dBc Occupied Bandwidth:
Channel 118**



Peak Transmit Power Measurement:

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Output Power (dBm)	Output Power Limit		Result
				(dBm)	dBm+10log(BW)	
134	5670	39.50	16.44	24	26.97	Pass

**26dBc Occupied Bandwidth:
Channel 134**



4. Peak Power Spectral Density

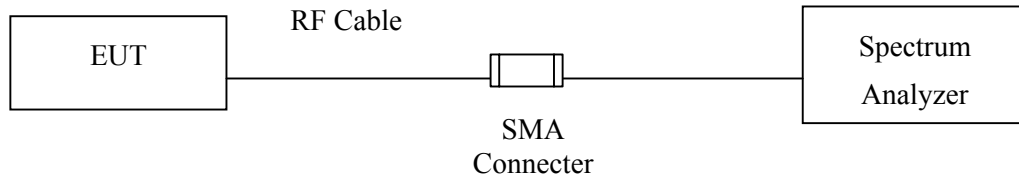
4.1. Test Equipment

The following test equipments are used during the radiated emission tests:

	Equipment	Manufacturer	Model No./Serial No.	Last Cal.
X	Spectrum Analyzer	Agilent	N9010A / MY48030495	Apr., 2009

- Note:
1. All equipments are calibrated every one year.
 2. The test instruments marked by “X” are used to measure the final test results.

4.2. Test Setup



4.3. Limits

- (4) For the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
- (5) For the band 5.25-5.35 GHz, the peak power spectral density shall not exceed 11 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
- (6) For the band 5.725-5.825 GHz, the peak power spectral density shall not exceed 17 dBm in any 1-MHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.

4.4. Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of Aug 2002 DA 02-2138 for compliance to FCC 47CFR Subpart E requirements.

4.5. Uncertainty

± 1.27 dB

4.6. Test Result of Peak Power Spectral Density

Product : Notebook
 Test Item : Peak Power Spectral Density
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmitter (802.11a-6Mbps)

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
36	5180	-1.43	<4	Pass
44	5220	-0.38	<4	Pass
48	5240	0.30	<4	Pass
52	5260	0.77	<11	Pass
60	5300	1.29	<11	Pass
64	5320	1.94	<11	Pass
100	5500	0.058	<11	Pass
120	5600	4.440	<11	Pass
140	5700	-4.484	<11	Pass

Channel 36:

