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## 4.2 PEAK TRANSMIT POWER MEASUREMENT

### 4.2.1 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.

### 4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
AGILENT SPECTRUM ANALYZER	E4446A	MY46180622	Apr. 24, 2009	Apr. 23, 2010

**NOTE:**

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



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#### 4.2.3 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 300kHz.
4. Using the spectrum analyzer's channel power measurement function to measure the output power.

**NOTE:**

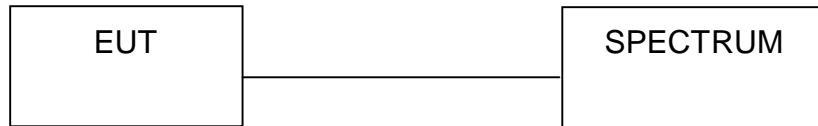
The test is performed in accordance with FCC Public Notice: APPENDIX A Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices – Part 15, Subpart E, August 2002.

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

#### 4.2.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.2.5 TEST SETUP



#### 4.2.6 EUT OPERATING CONDITIONS

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



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#### 4.2.7 TEST RESULTS

##### 802.11a OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	30deg.C, 50%RH, 965hPa
TESTED BY	Eric Lee		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		PEAK POWER OUTPUT (mW)		TOTAL PEAK POWER (dBm)	TOTAL PEAK POWER (mW)	PEAK POWER LIMIT (dBm)	PASS/FAIL
		Chain 0	Chain 1	Chain 0	Chain 1				
36	5180	12.19	12.24	16.558	16.749	15.23	33.307	16.00	PASS
40	5200	12.36	11.76	17.219	14.997	15.08	32.216	16.00	PASS
48	5240	11.72	11.40	14.859	13.804	14.57	28.663	16.00	PASS
52	5260	17.26	17.63	53.211	57.943	20.46	111.154	23.00	PASS
60	5300	16.46	17.08	44.259	51.050	19.79	95.309	23.00	PASS
64	5320	16.32	16.72	42.855	46.989	19.53	89.844	23.00	PASS
100	5500	15.74	16.75	37.497	47.315	19.28	84.812	23.00	PASS
120	5600	17.68	18.40	58.614	69.183	21.07	127.797	23.00	PASS
140	5700	16.01	17.52	39.902	56.494	19.84	96.396	23.00	PASS

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

Directional gain = gain of antenna element + 10 log (# of TX antenna elements)

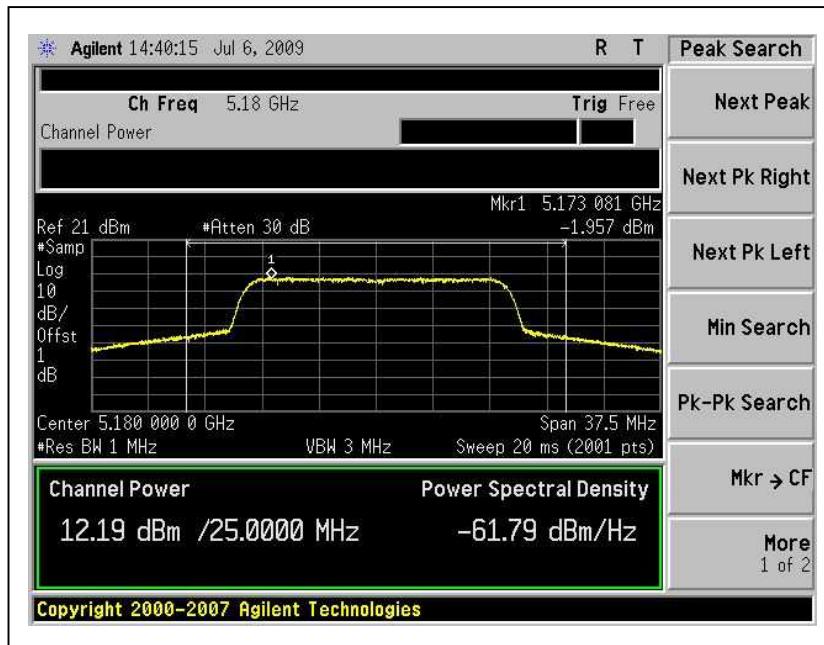
Effective Legacy Gain (dBi)=7

The effective legacy gain is 7dBi, therefore the limit reduce to 16dBm and 23dBm for 5150~5250MHz, 5250~5350 and 5470~5725MHz

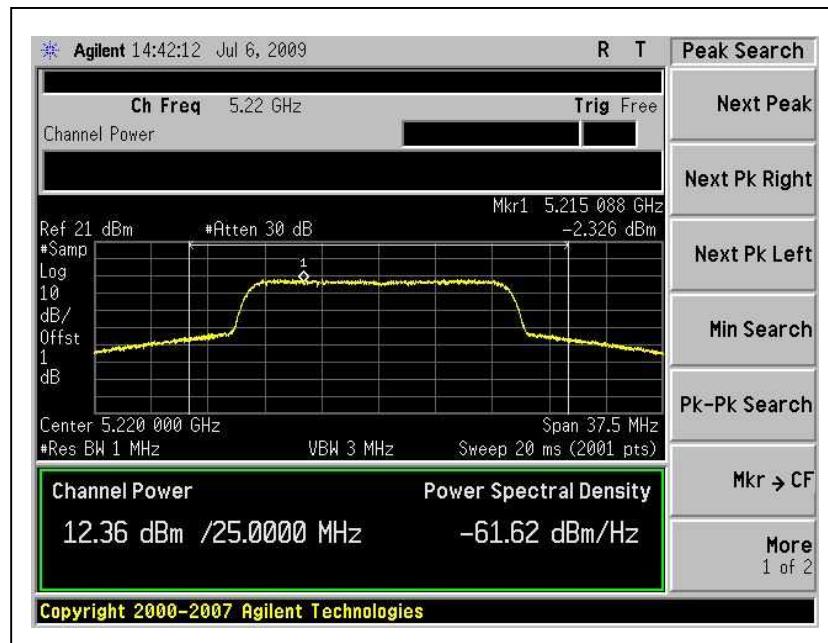


A D T

For Chain (0) :CH36



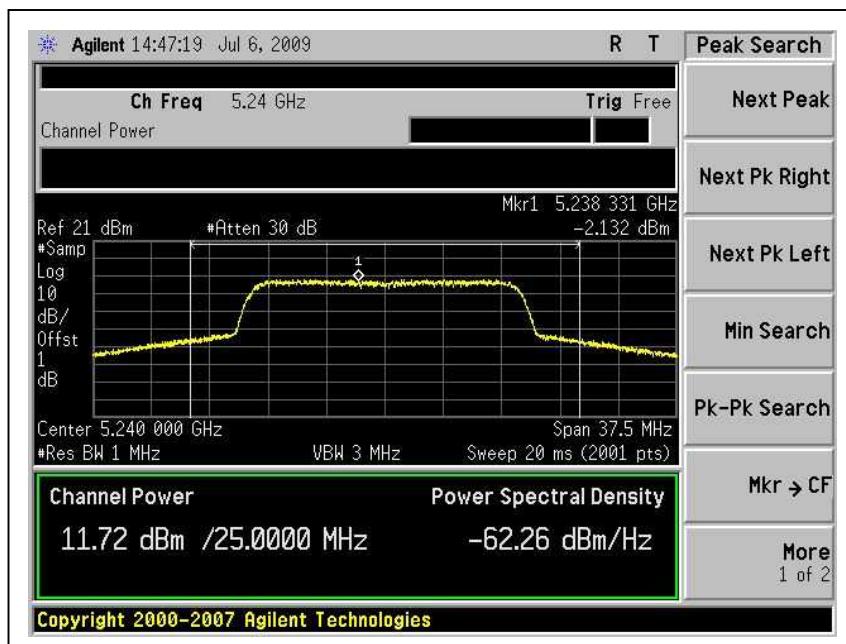
CH40



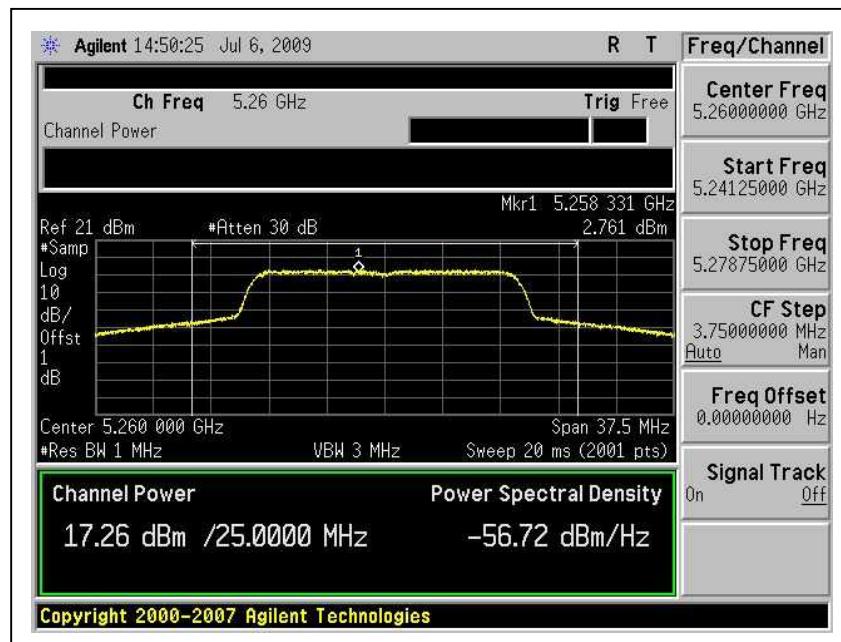


A D T

CH48



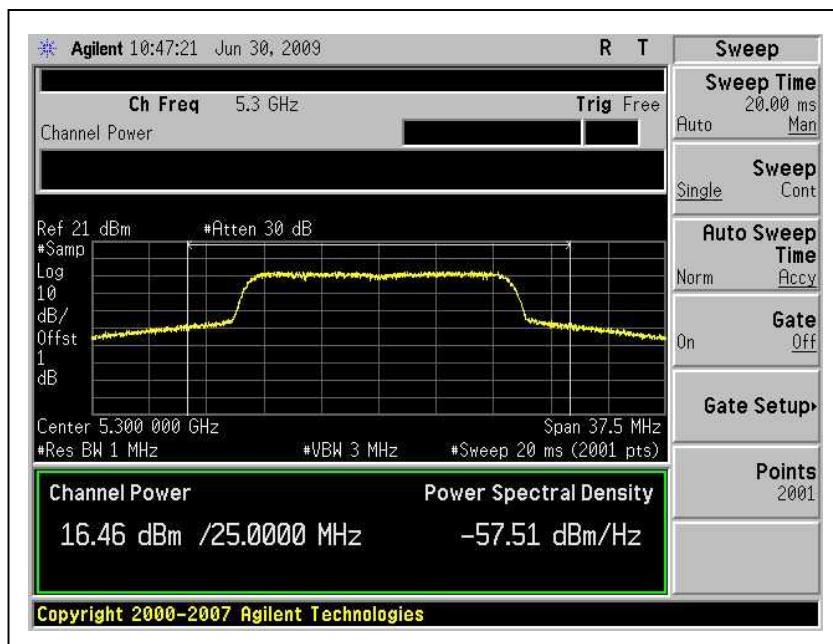
CH52



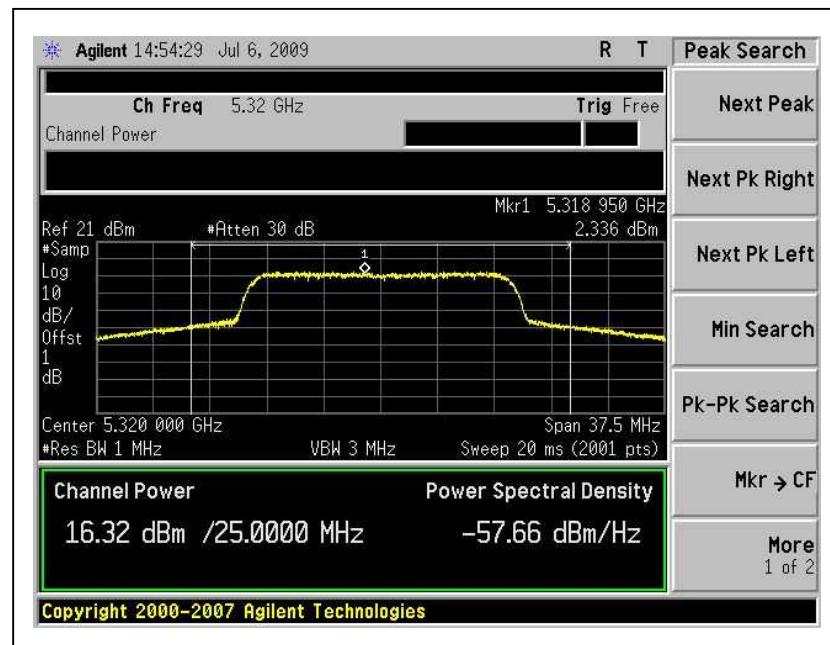


A D T

CH60



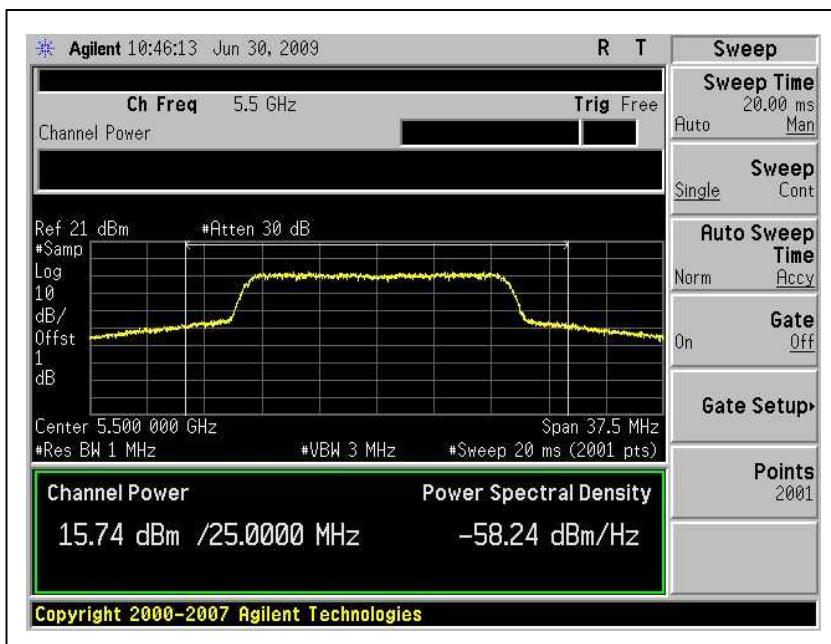
CH64



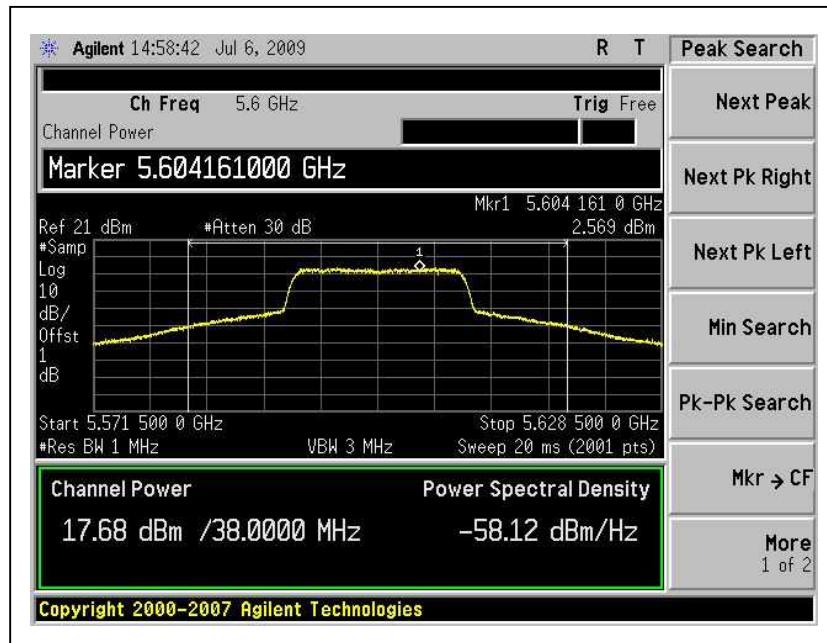


A D T

CH100



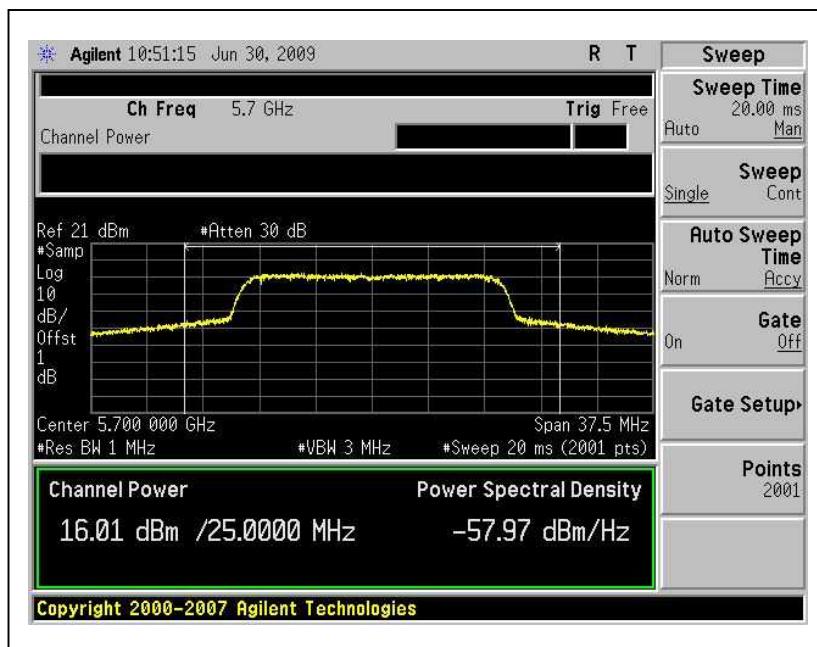
CH120





A D T

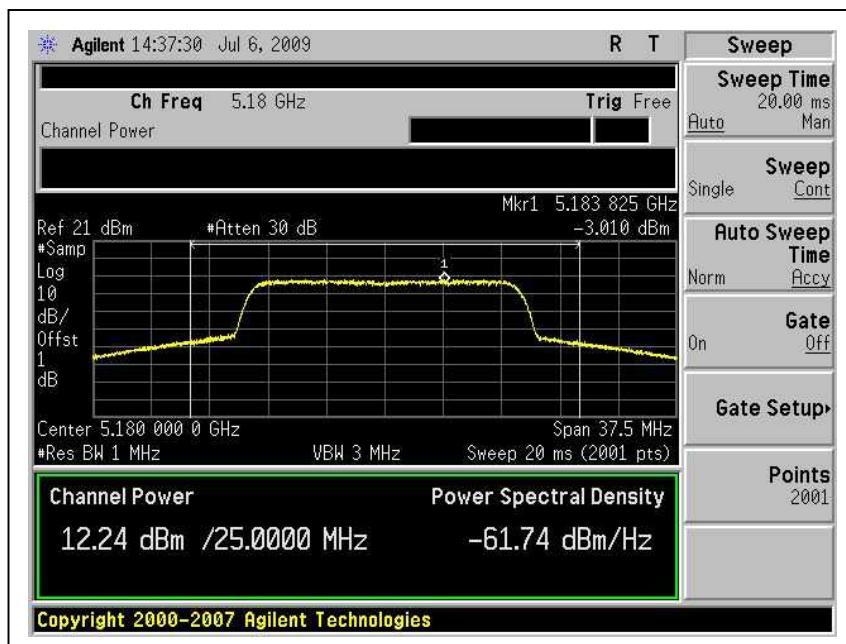
CH140



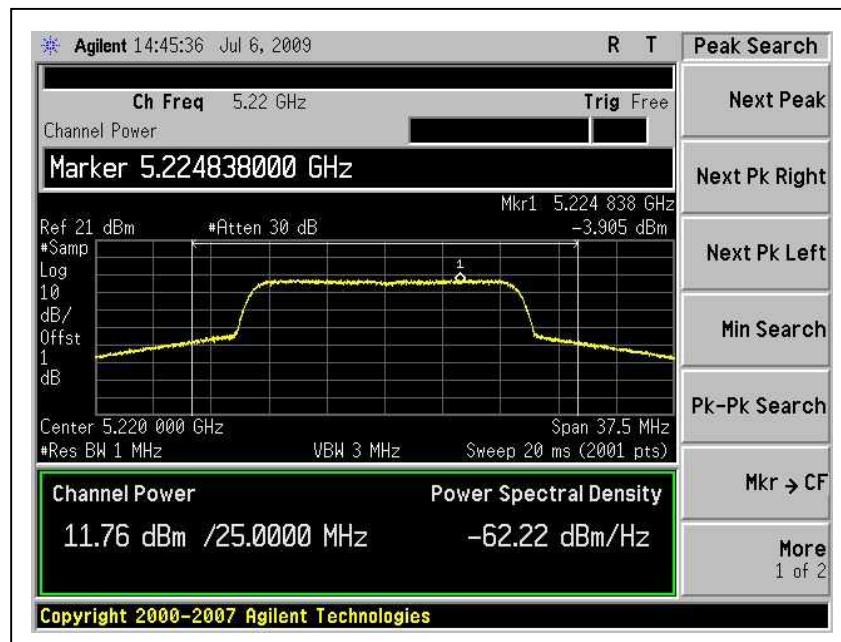


A D T

For Chain (1) :CH36



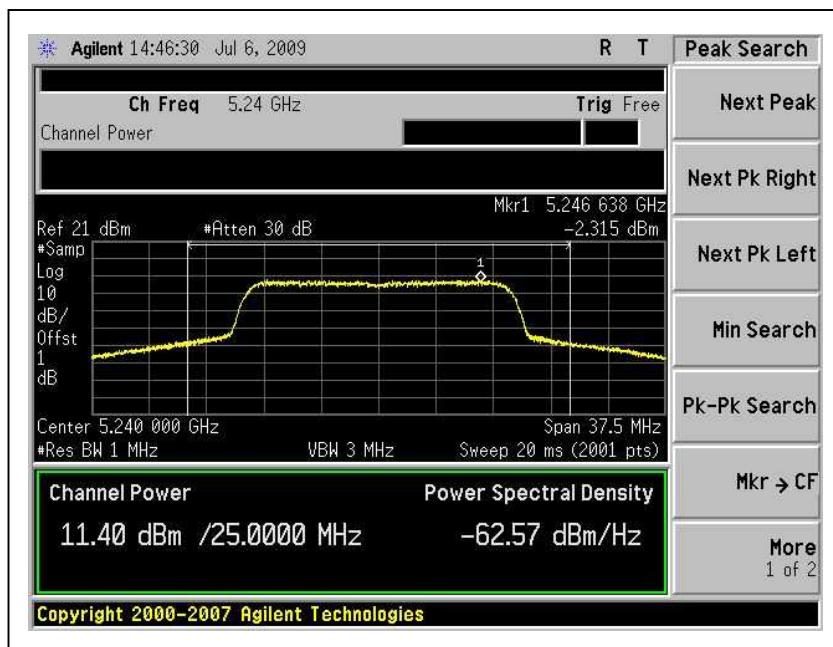
CH40



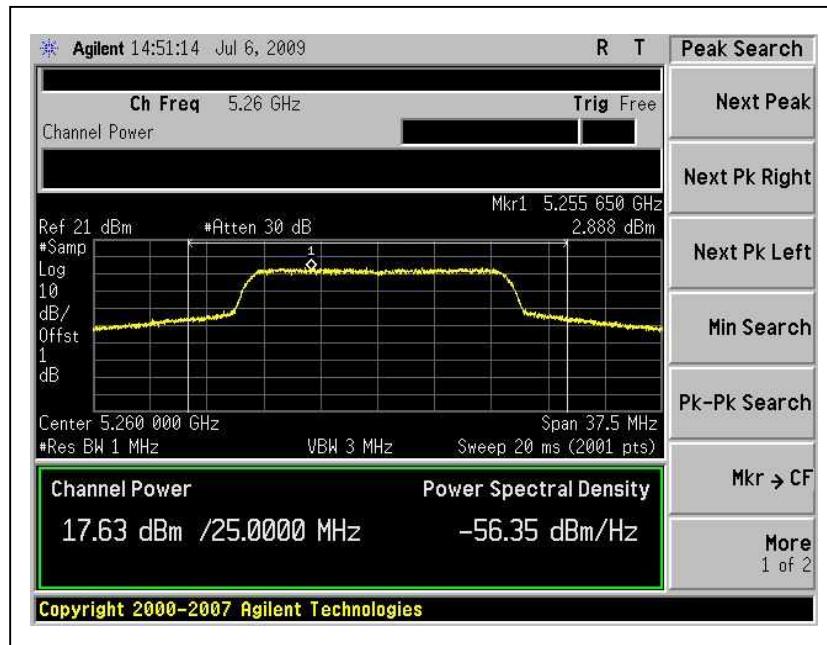


A D T

CH48



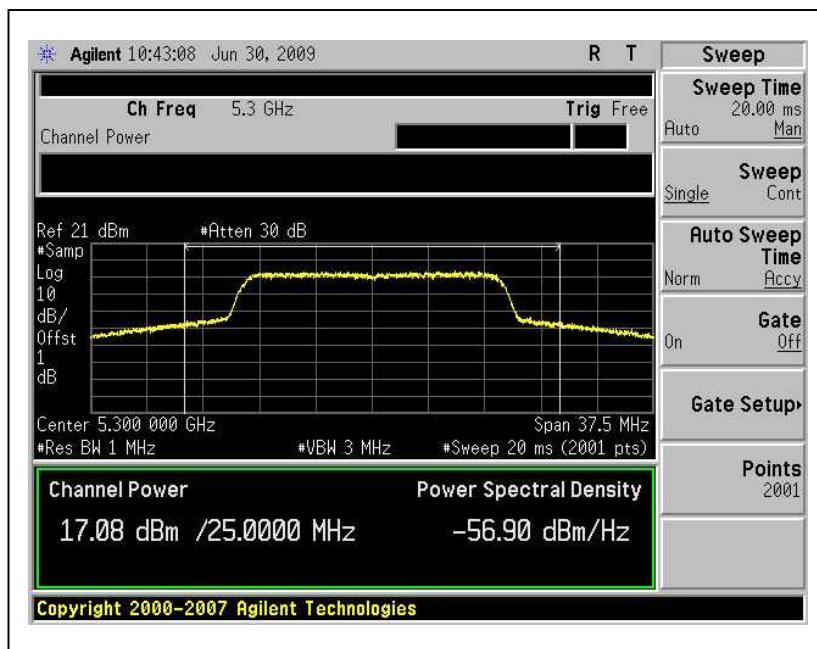
CH52



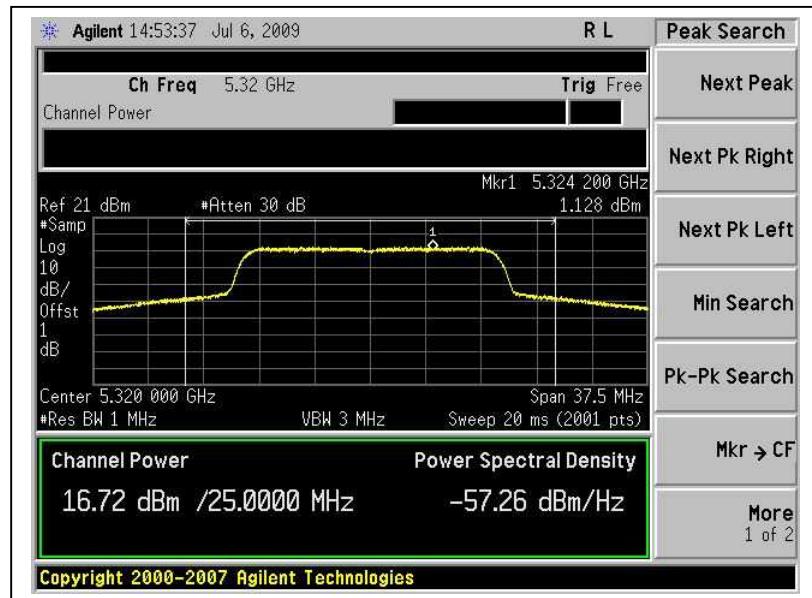


A D T

CH60



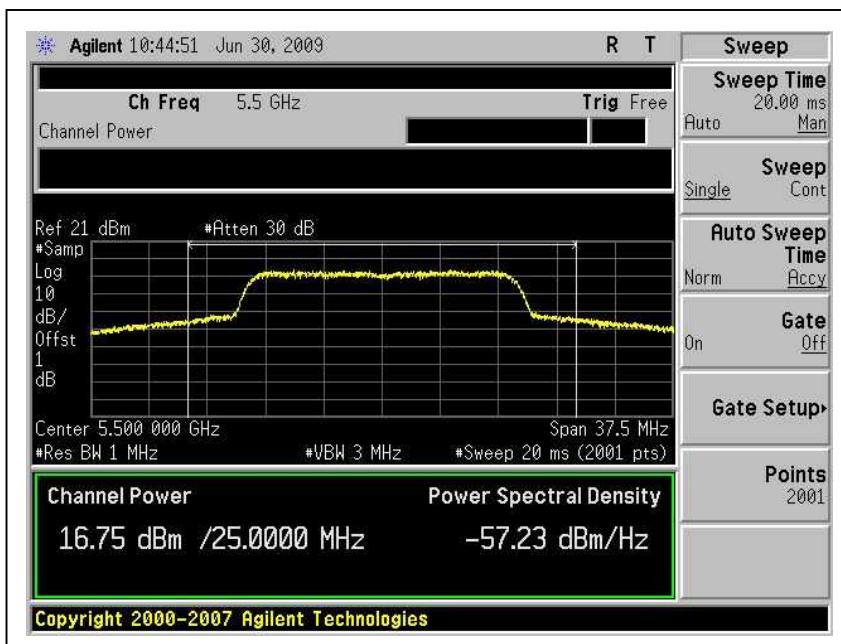
CH64



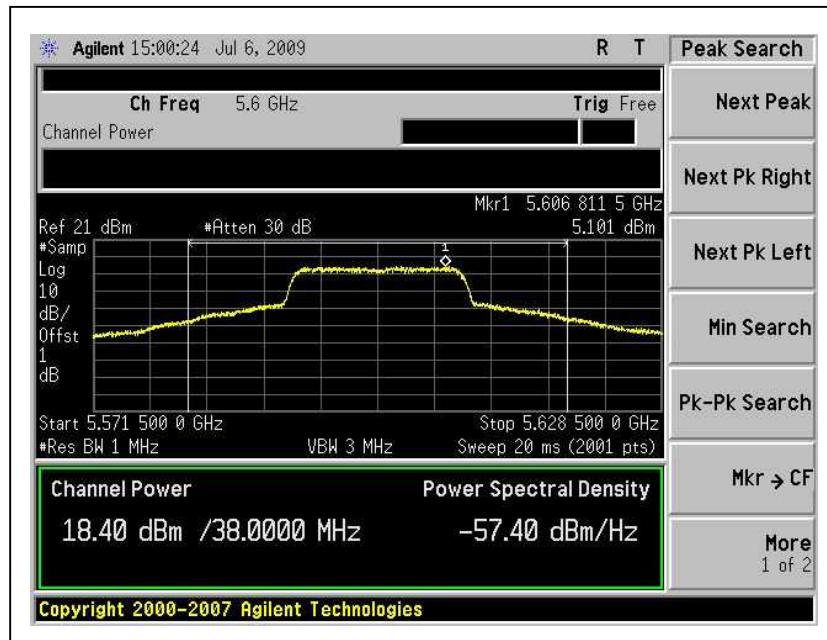


A D T

CH100



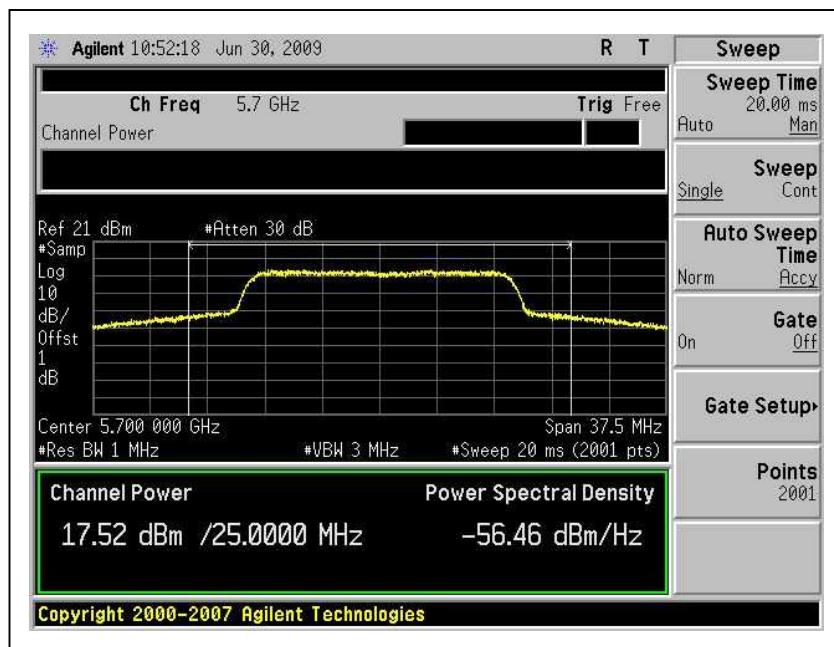
CH120





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CH140





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**DRAFT 802.11n (20MHz) OFDM modulation:**

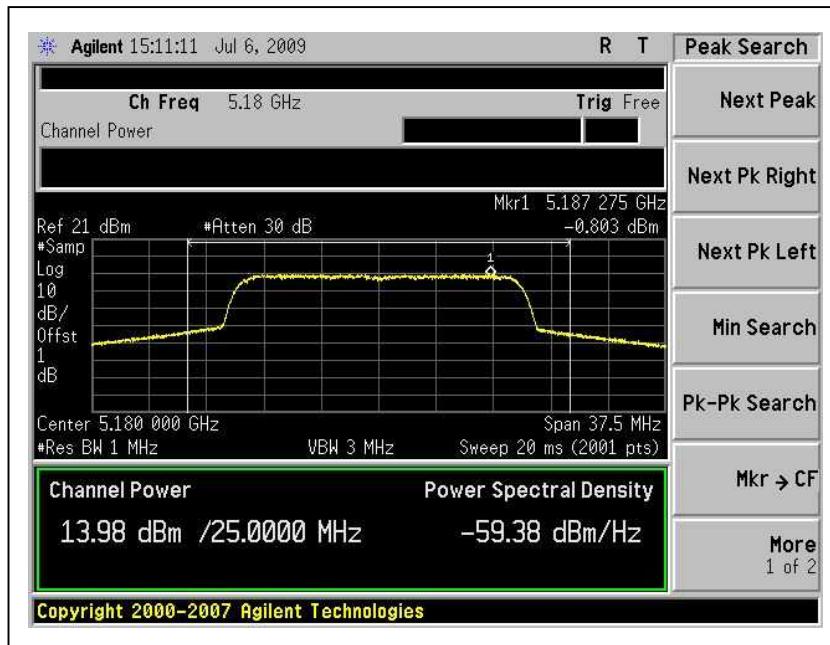
<b>MODULATION TYPE</b>	BPSK	<b>TRANSFER RATE</b>	14.4Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	30deg.C, 50%RH, 965hPa
<b>TESTED BY</b>	Eric Lee		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		PEAK POWER OUTPUT (mW)		TOTAL PEAK POWER (dBm)	TOTAL PEAK POWER (mW)	PEAK POWER LIMIT (dBm)	PASS/FAIL
		Chain 0	Chain 1	Chain 0	Chain 1				
36	5180	13.98	13.89	25.003	24.491	16.95	49.494	17.00	PASS
40	5200	13.68	13.77	23.335	23.823	16.74	47.158	17.00	PASS
48	5240	13.51	12.89	22.439	19.454	16.22	41.893	17.00	PASS
52	5260	17.82	17.30	60.534	53.703	20.58	114.237	24.00	PASS
60	5300	18.62	18.57	72.778	71.945	21.61	144.723	24.00	PASS
64	5320	15.04	16.15	31.915	41.210	18.64	73.125	24.00	PASS
100	5500	16.01	17.38	39.902	54.702	19.76	94.604	24.00	PASS
120	5600	19.09	18.81	81.096	76.033	21.96	157.129	24.00	PASS
140	5700	17.85	18.88	60.954	77.268	21.41	138.222	24.00	PASS

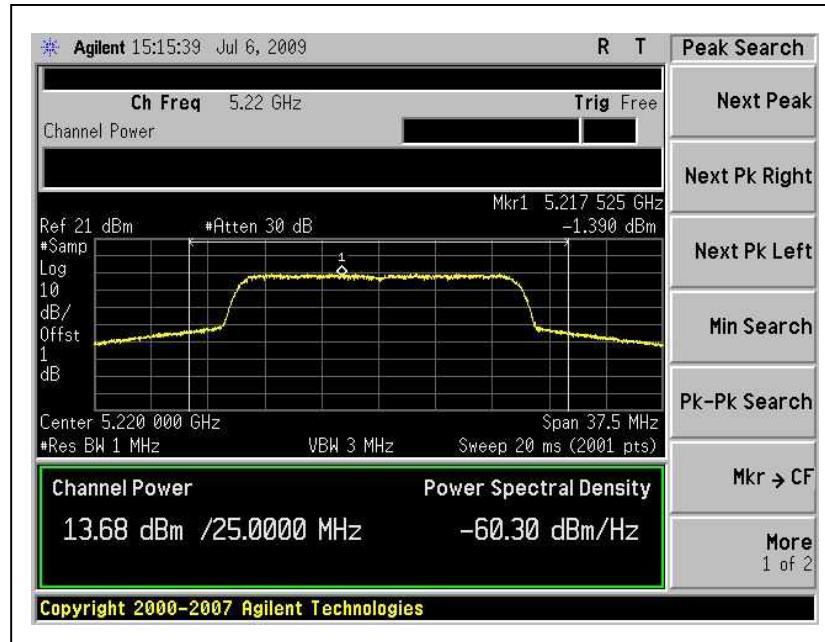


A D T

For Chain (0) :CH36



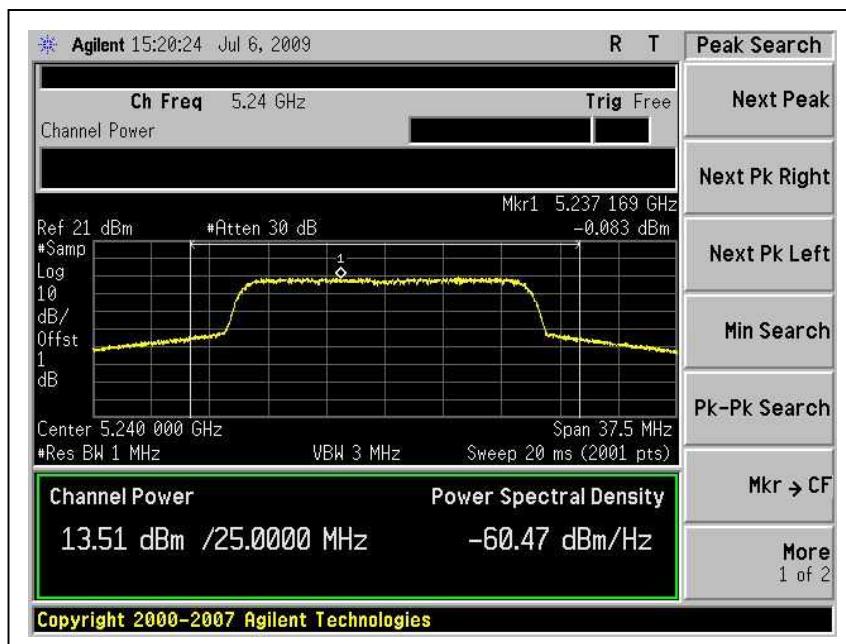
CH40



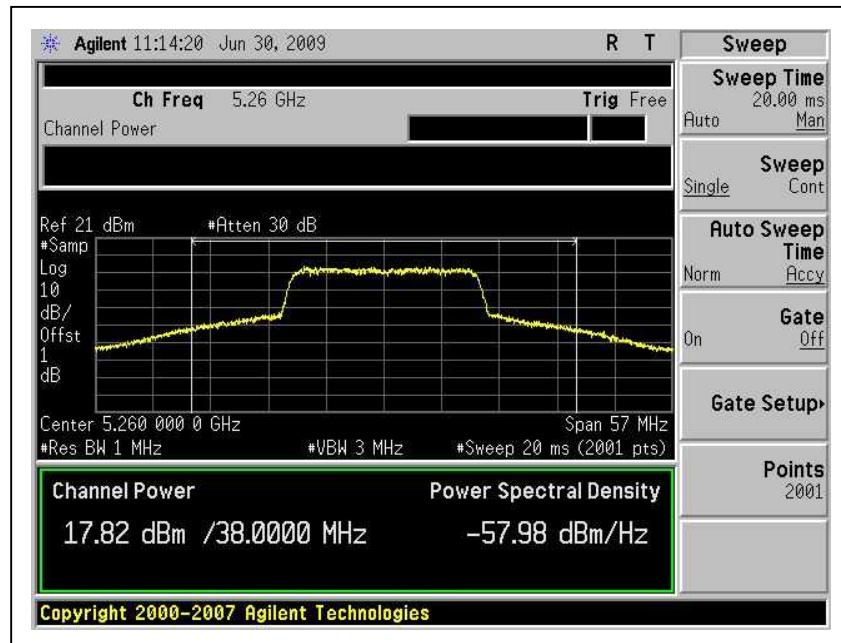


A D T

CH48



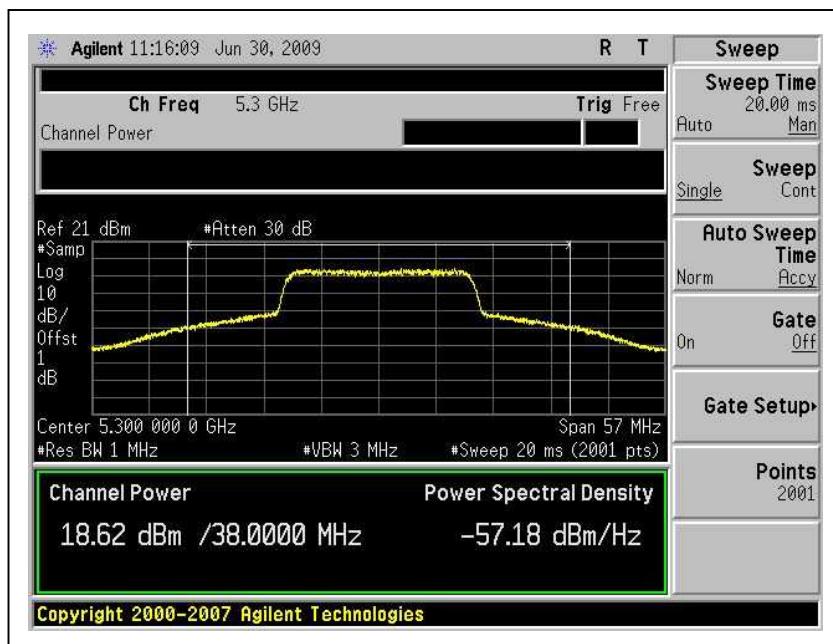
CH52



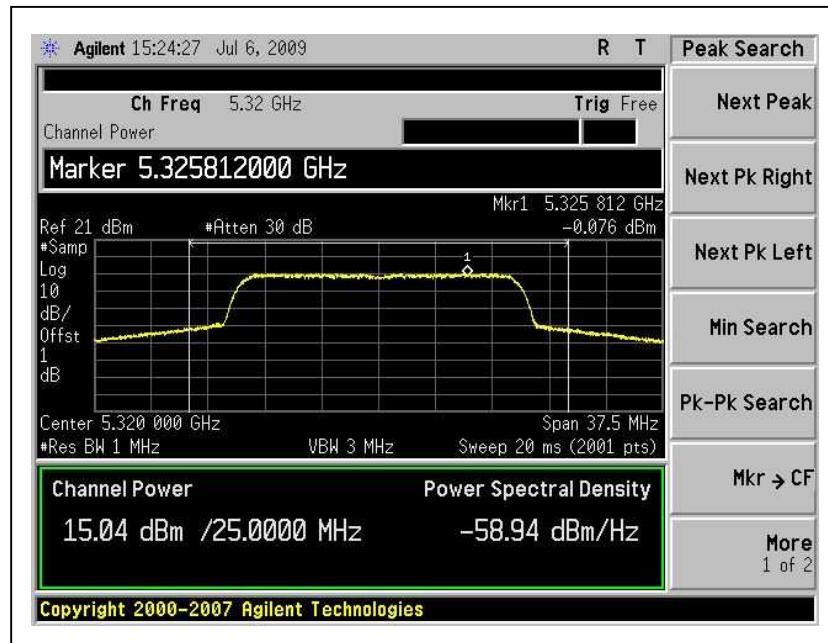


A D T

CH60



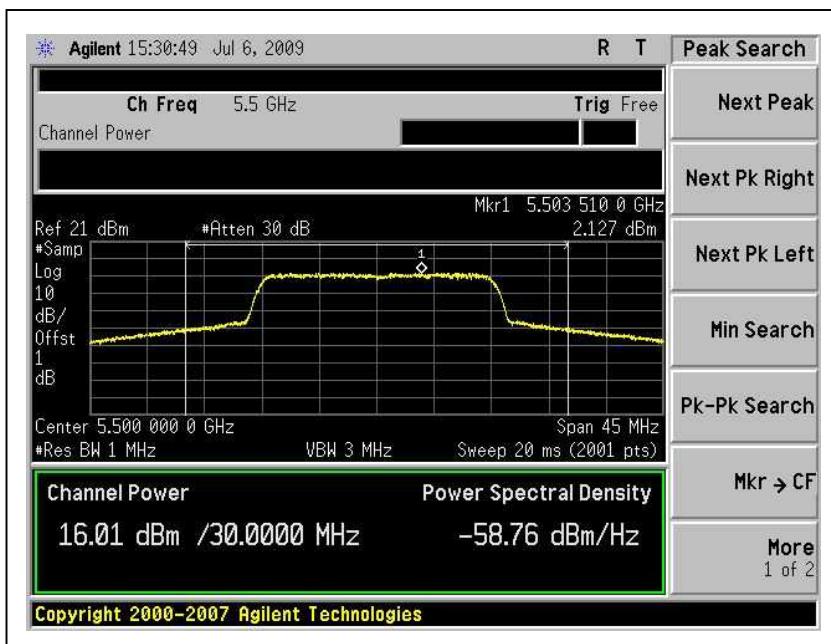
CH64



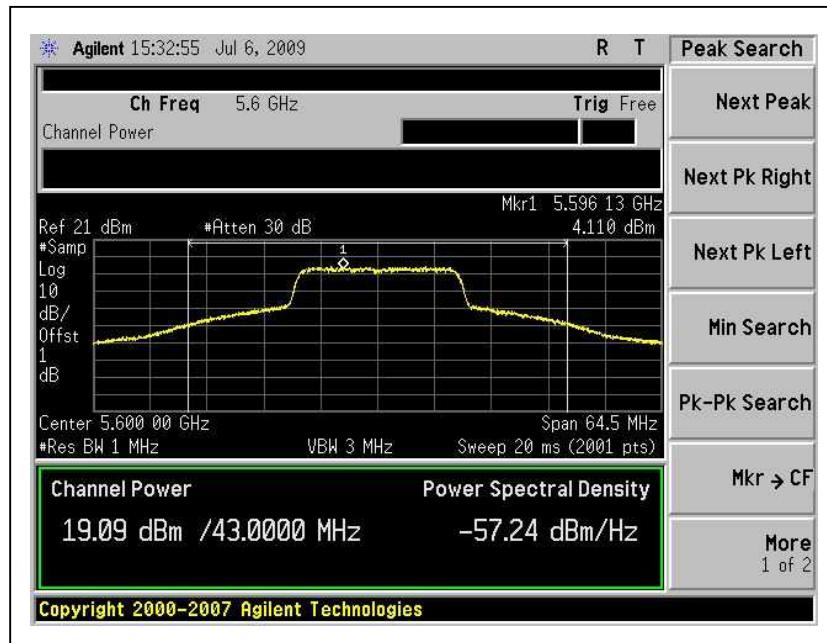


A D T

CH100



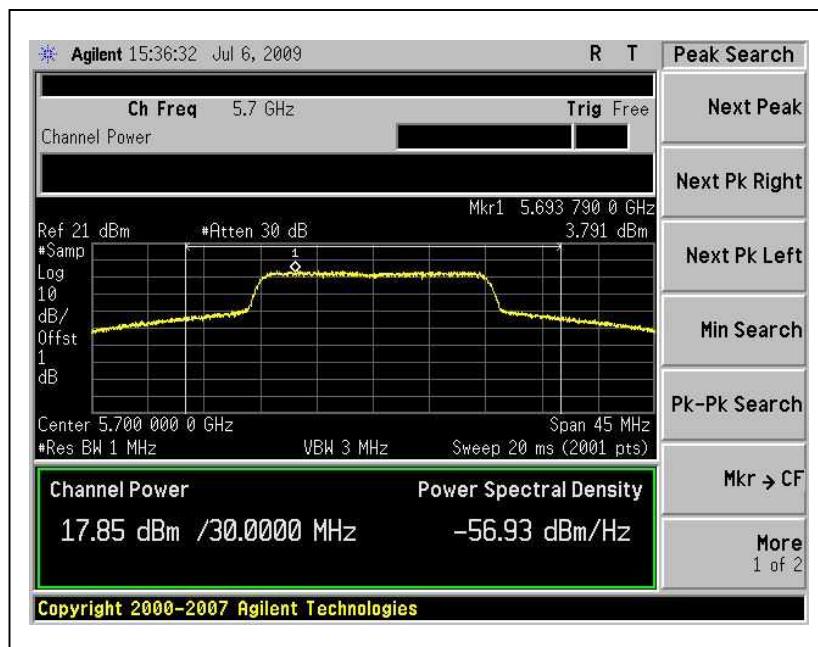
CH120





A D T

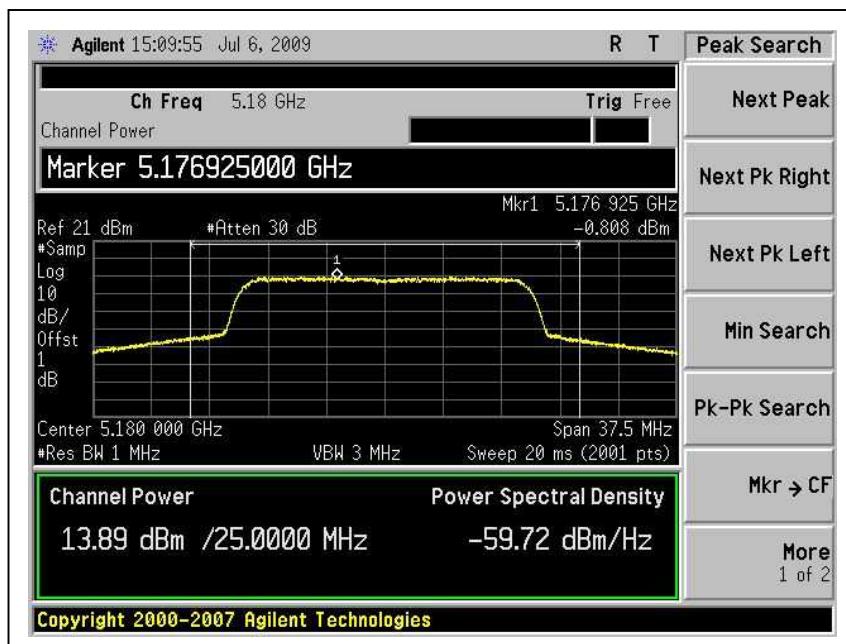
CH140



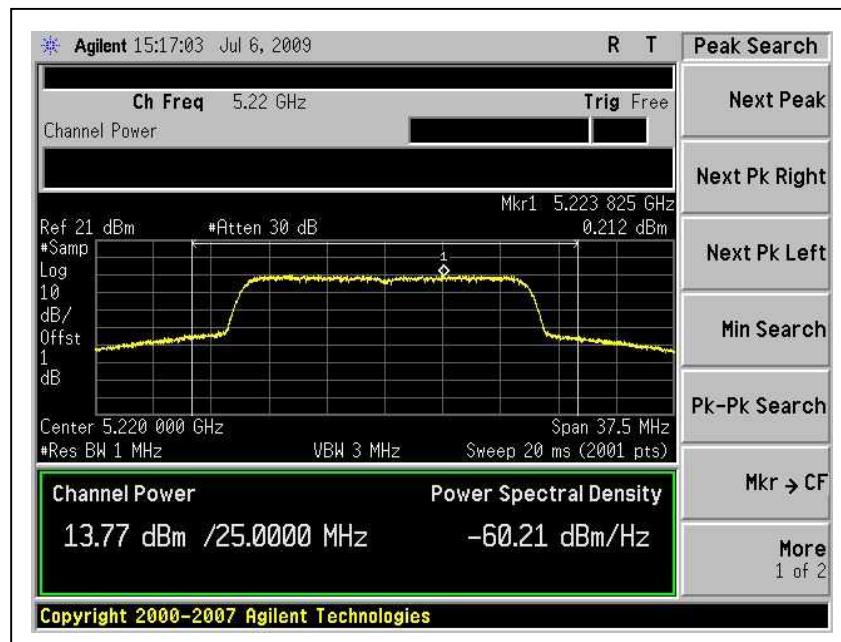


A D T

For Chain (1) :CH36



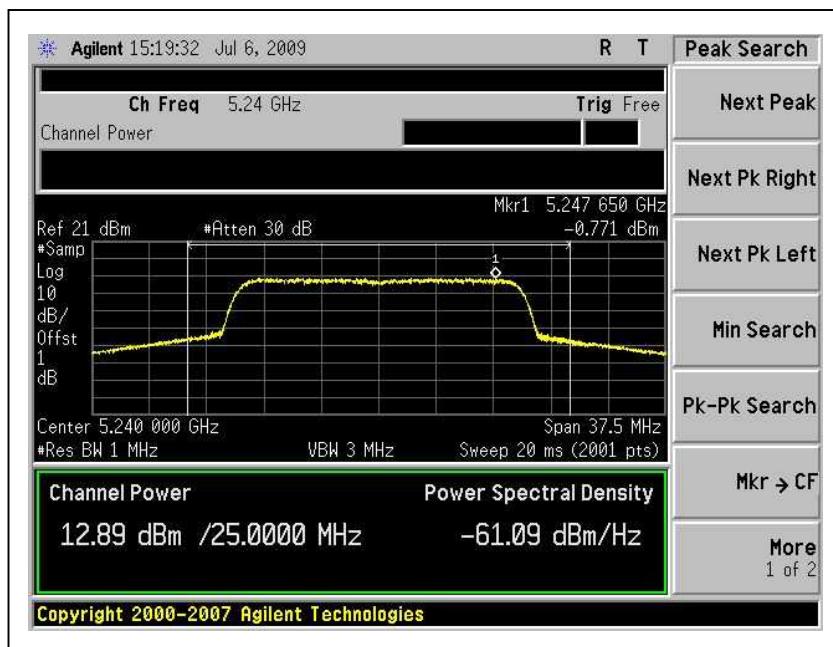
CH40



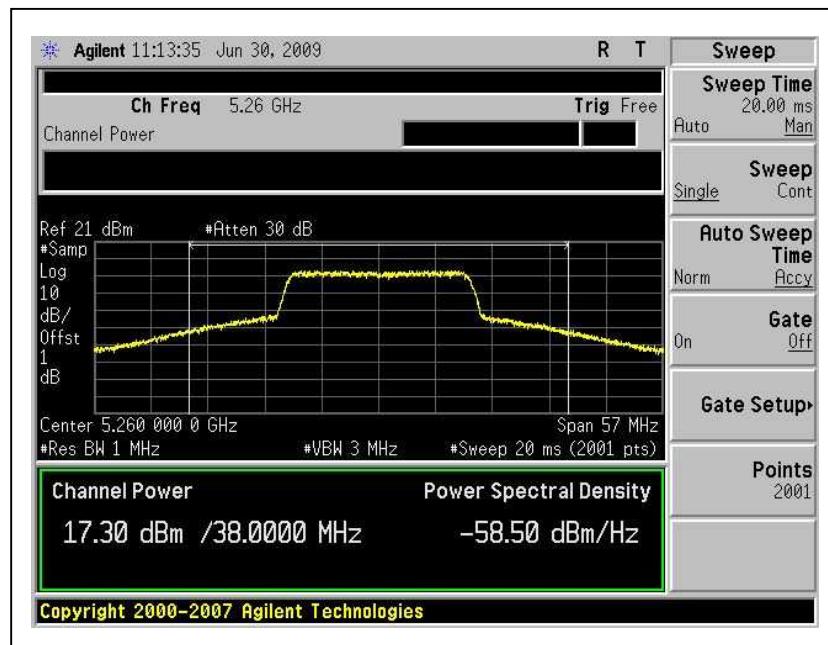


A D T

CH48



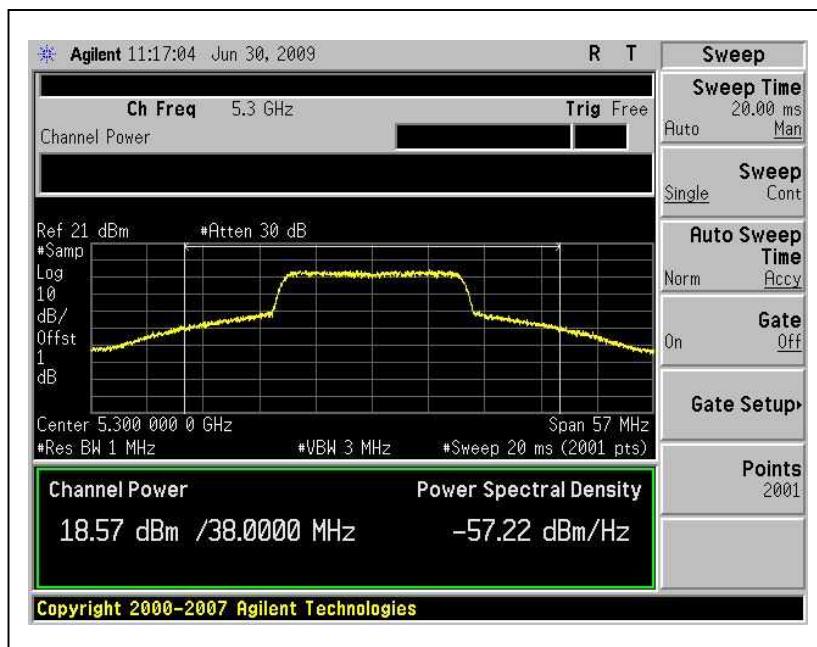
CH52



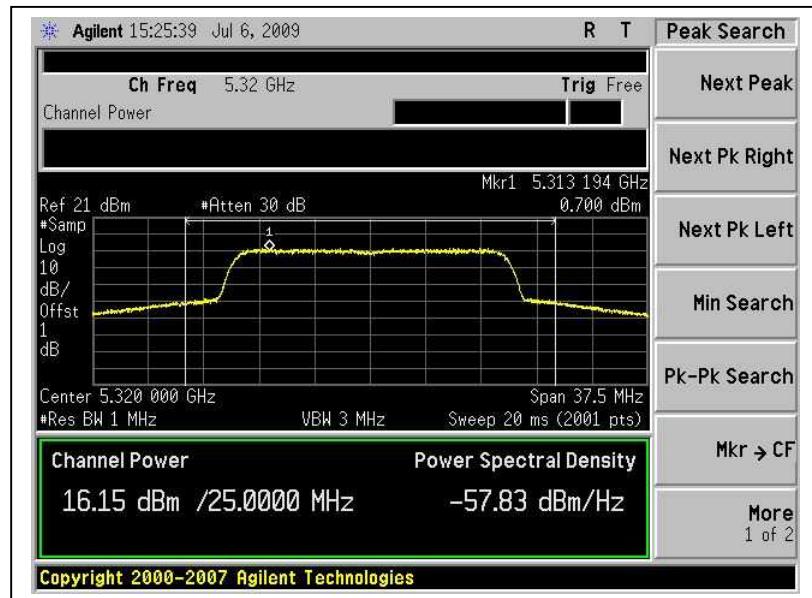


A D T

CH60



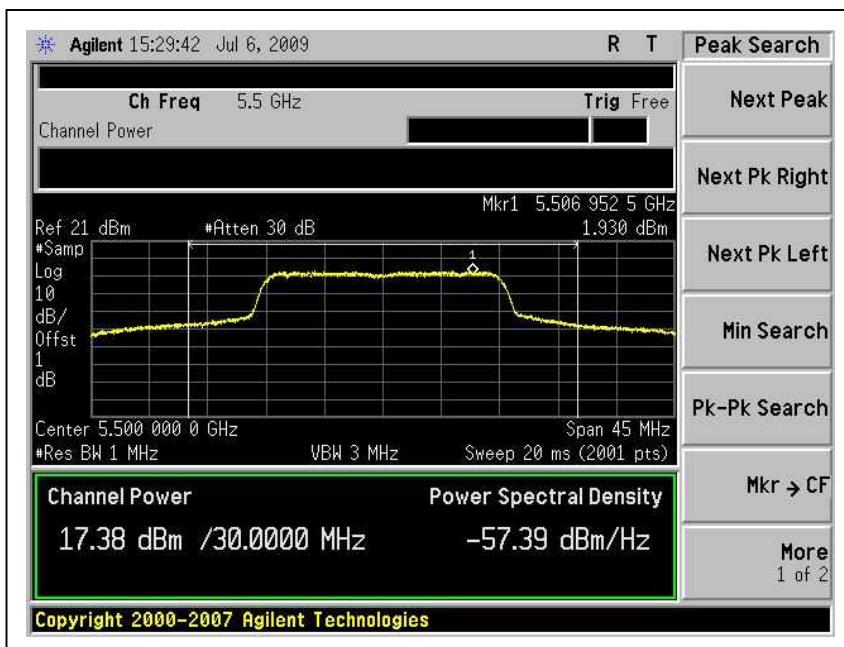
CH64



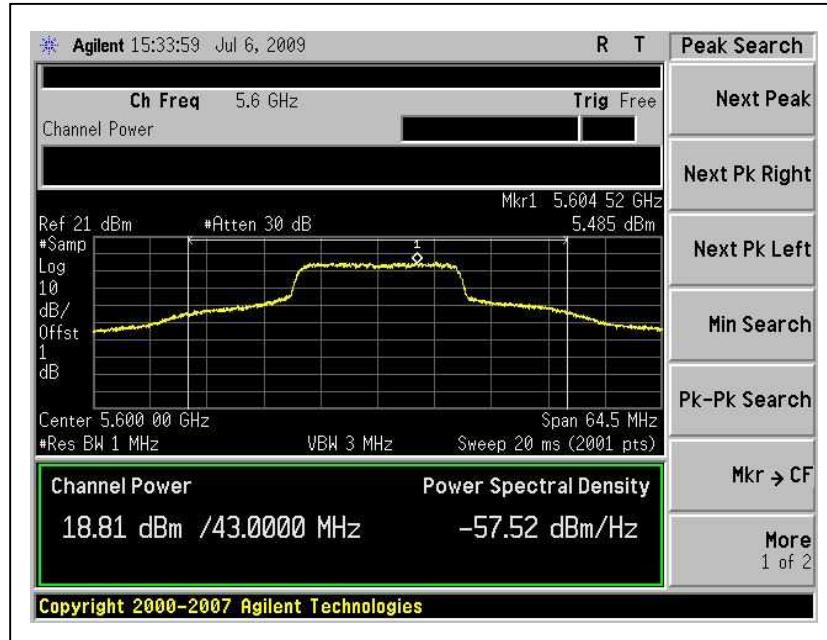


A D T

CH100



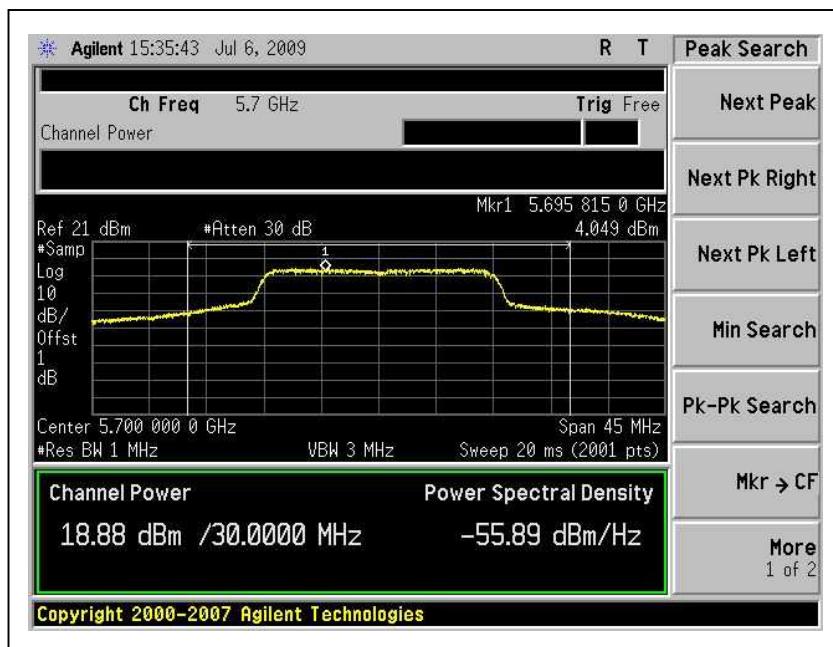
CH120





A D T

CH140





A D T

**DRAFT 802.11n (40MHz) OFDM MODULATION:**

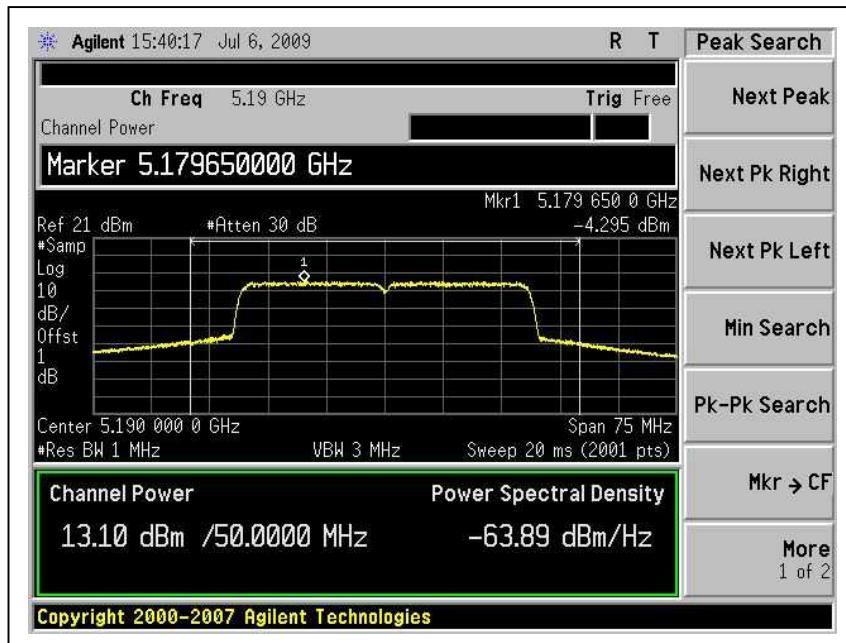
<b>MODULATION TYPE</b>	BPSK	<b>TRANSFER RATE</b>	30Mbps
<b>INPUT POWER (SYSTEM)</b>	120Vac, 60 Hz	<b>ENVIRONMENTAL CONDITIONS</b>	30deg.C, 50%RH, 965hPa
<b>TESTED BY</b>	Eric Lee		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)		PEAK POWER OUTPUT (mW)		TOTAL PEAK POWER (dBm)	TOTAL PEAK POWER (mW)	PEAK POWER LIMIT (dBm)	PASS/FAIL
		Chain 0	Chain 1	Chain 0	Chain 1				
38	5190	13.10	12.83	20.417	19.187	15.98	39.604	17.00	PASS
46	5230	13.01	12.95	19.999	19.724	15.99	39.723	17.00	PASS
54	5270	18.10	18.80	64.565	75.858	21.47	140.423	24.00	PASS
62	5310	12.60	13.69	18.197	23.388	16.19	41.585	24.00	PASS
102	5510	13.32	14.45	21.478	27.861	16.93	49.339	24.00	PASS
118	5590	20.41	21.04	109.901	127.057	23.75	236.958	24.00	PASS
134	5670	17.95	19.11	62.373	81.470	21.58	143.843	24.00	PASS

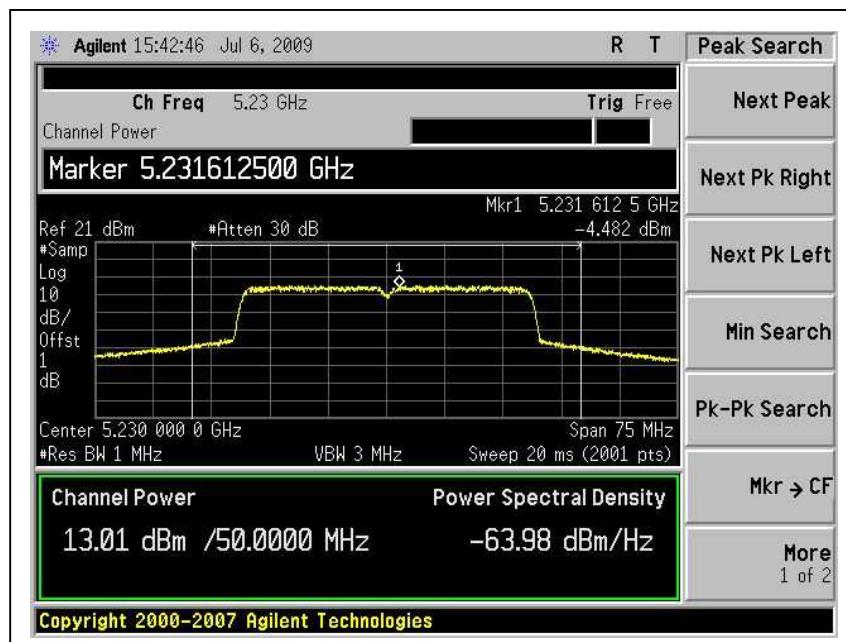


A D T

For Chain (0) :CH38



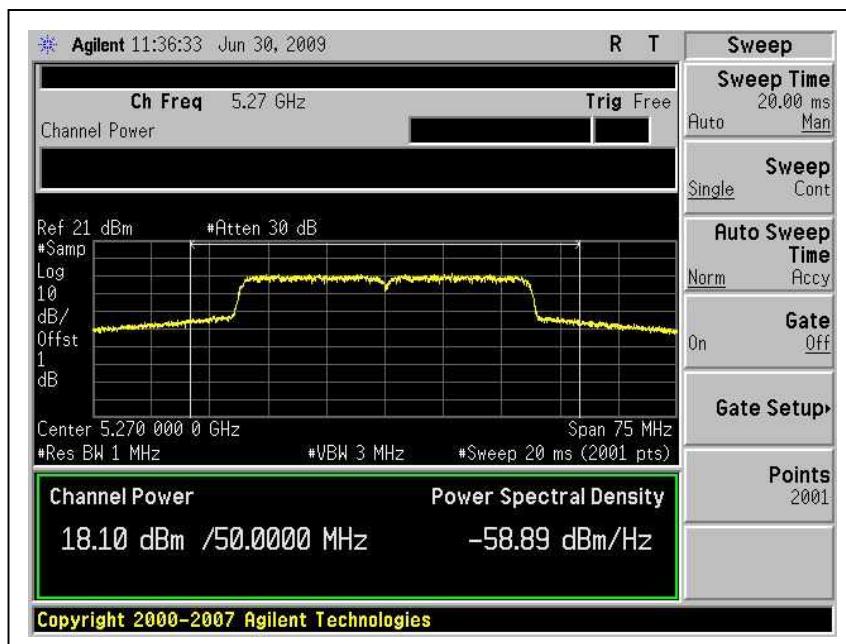
CH46



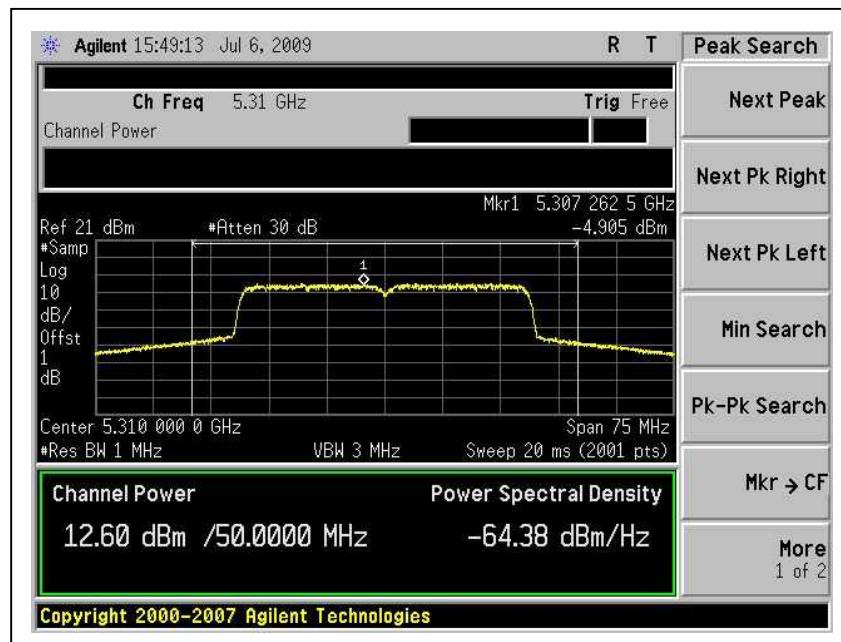


A D T

CH54



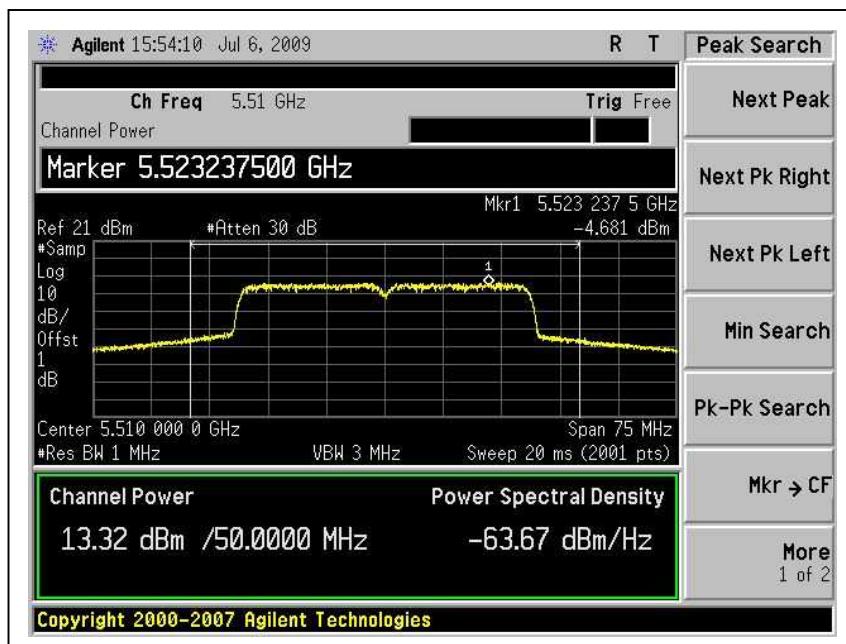
CH62



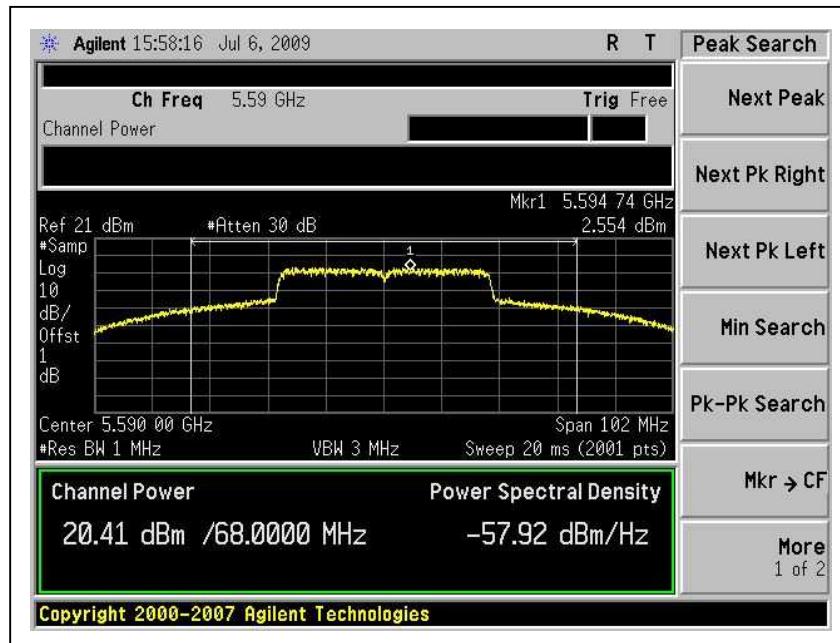


A D T

CH102



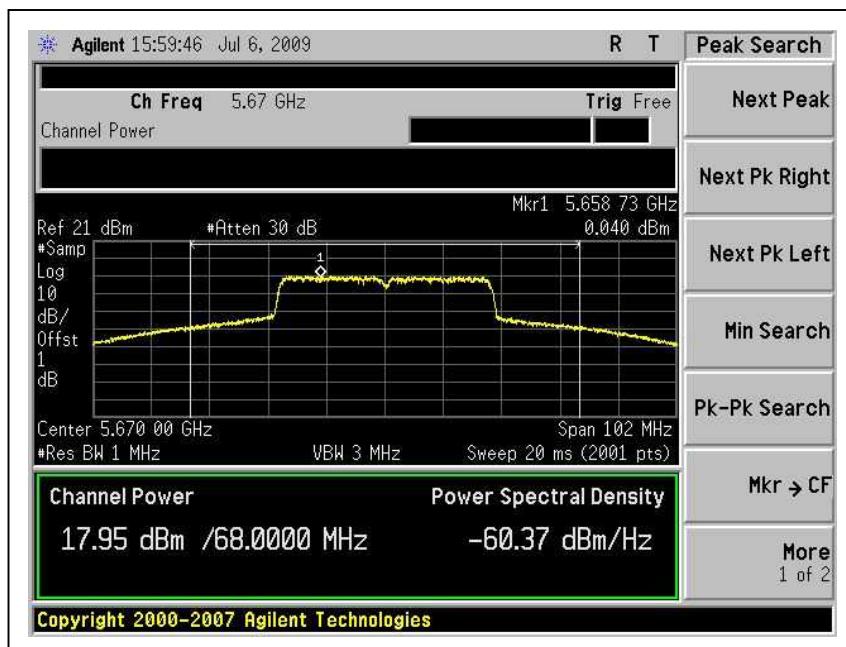
CH118





A D T

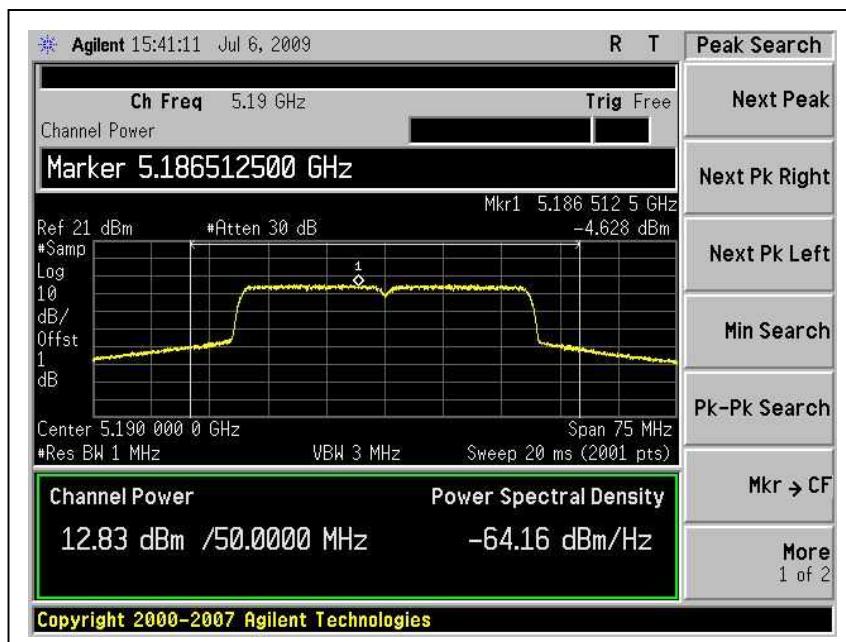
CH134



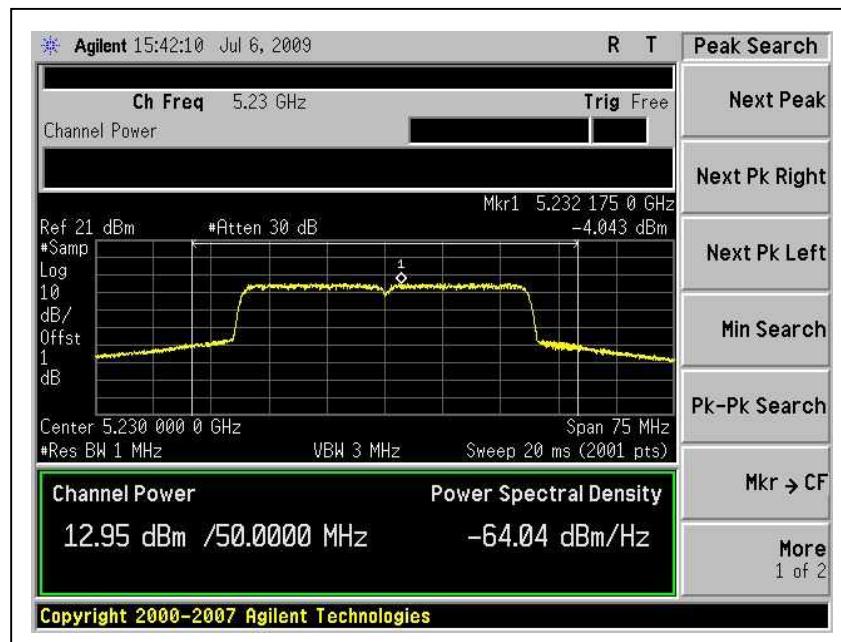


A D T

For Chain (1) :CH38



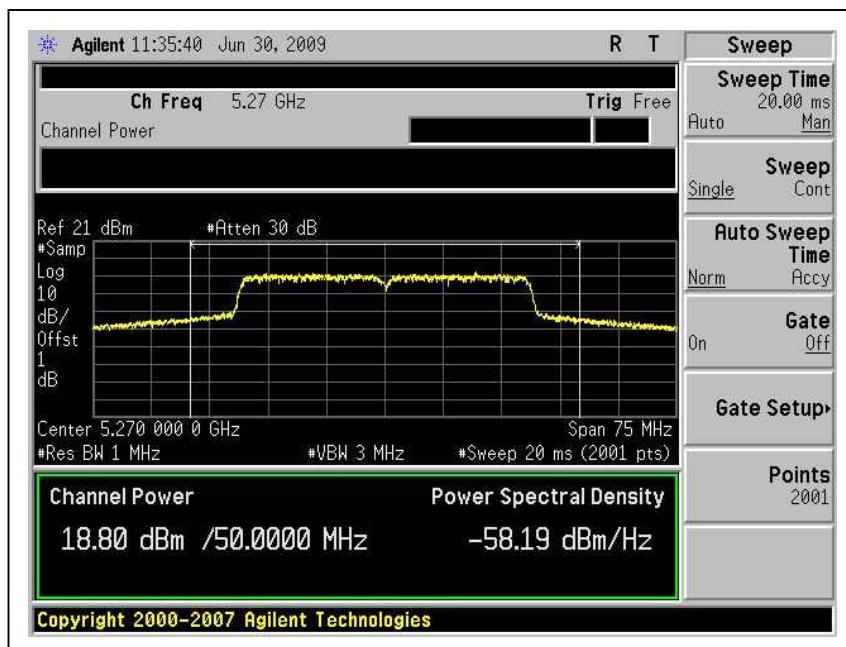
CH46



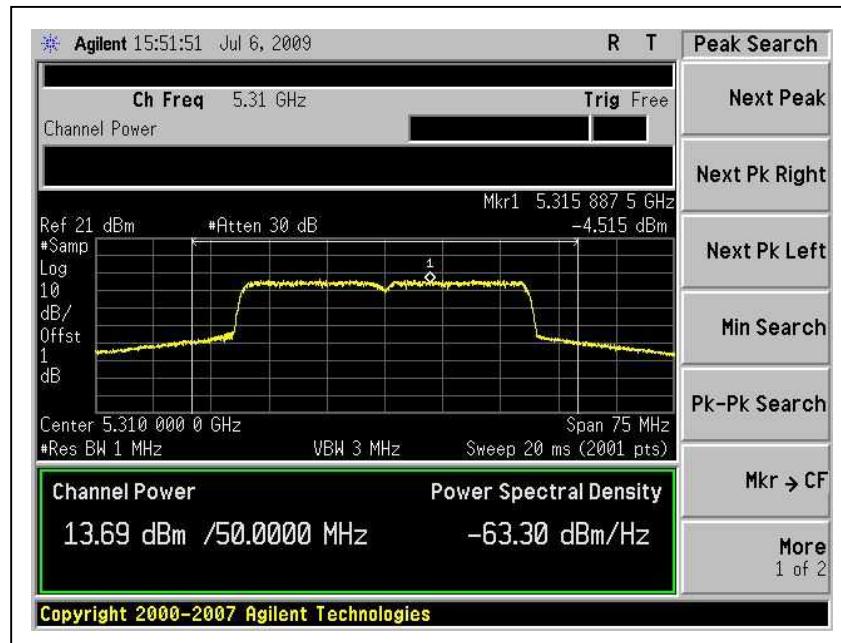


A D T

CH54



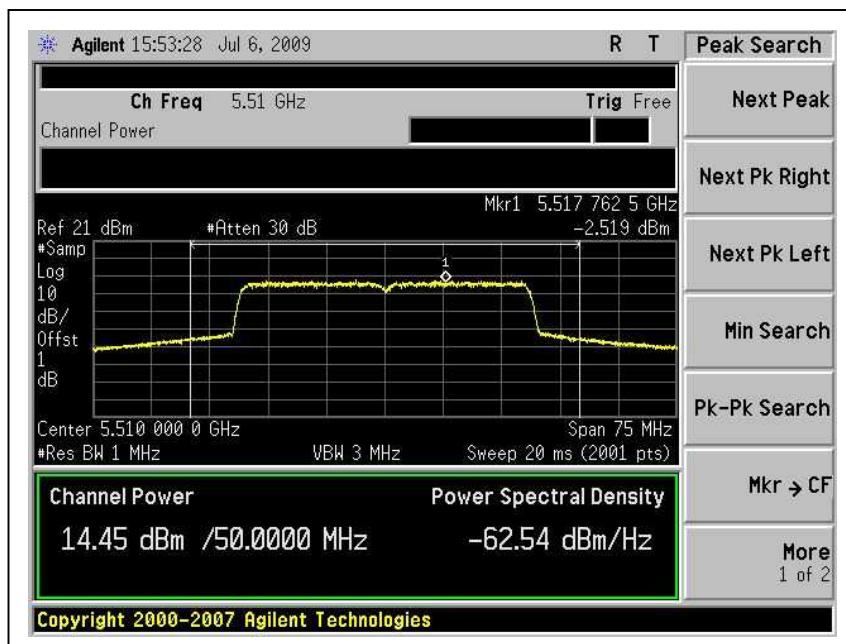
CH62



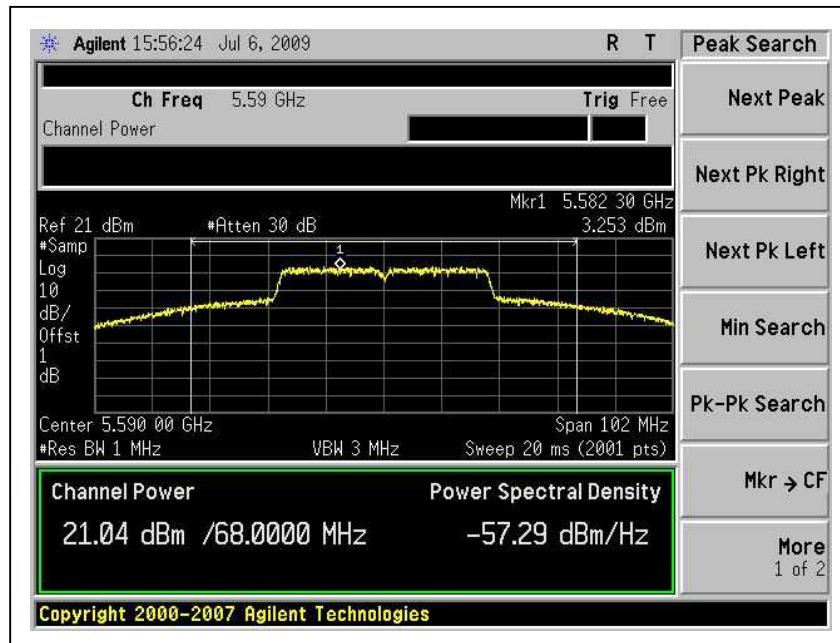


A D T

CH102



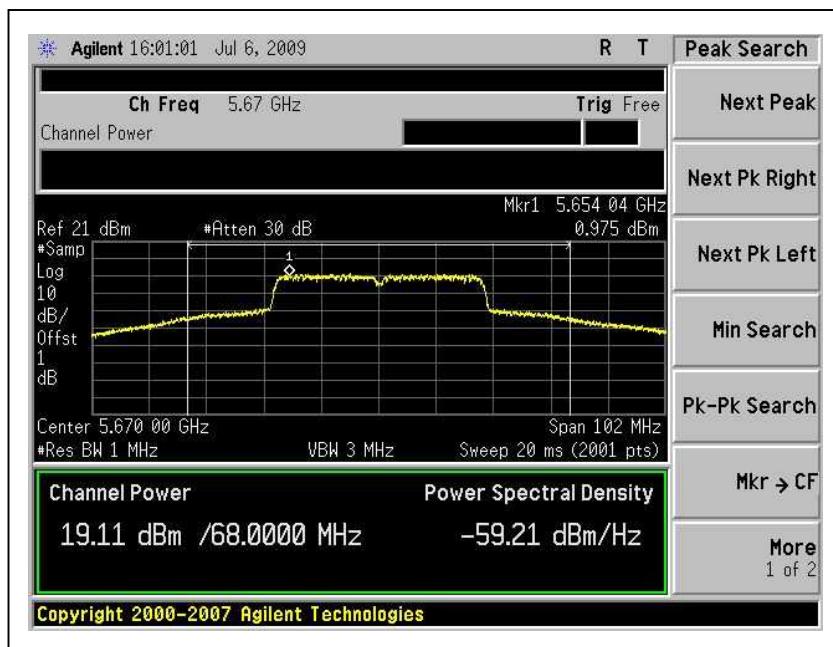
CH118





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CH134





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## 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 by the following approval agencies according to ISO/IEC 17025.

<b>USA</b>	FCC, NVLAP
<b>Germany</b>	TUV Rheinland
<b>Japan</b>	VCCI
<b>Norway</b>	NEMKO
<b>Canada</b>	INDUSTRY CANADA, CSA
<b>R.O.C.</b>	TAF, BSMI, NCC
<b>Netherlands</b>	Telefication
<b>Singapore</b>	GOST-ASIA (MOU)
<b>Russia</b>	CERTIS (MOU)

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](http://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](mailto:service@adt.com.tw)

**Web Site:** [www.adt.com.tw](http://www.adt.com.tw)

The address and road map of all our labs can be found in our web site also.



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## **6.APPENDIX-A- Modifications recorders for engineering changes to the eut BY THE LAB**

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

**---END---**