FCC Part15.247 Test Report

Product Name	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Model No.	:	WLM200N5-23ESD
FCC ID	:	TK4WLM200N5-23ESD

Applicant	：	Compex Systems Pte Ltd
Address	：	135 Joo Seng Road, #08-01 PM Industrial Building Singapore 368363

Date of Receipt	:	Jun. 07, 2010
Test Date	:	Jun. 07, 2010 ~ Jul. 25, 2010
Issued Date	:	Jul. 26, 2010
Report No.	:	106S012R-RF-US-P05V01
Report Version	:	V1.2

Test Report Certification

Issued Date : Jul. 26, 2010
Report No. : 106S012R-RF-US-P05V01

QuieTek

Product Name	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Applicant	:	Compex Systems Pte Ltd
Address	:	135 Joo Seng Road, #08-01 PM Industrial Building Singapore 368363
Manufacturer	:	Compex Systems Pte Ltd
Address	:	135 Joo Seng Road, #08-01 PM Industrial Building Singapore 368363
Model No.	:	WLM200N5-23ESD
FCC ID	:	TK4WLM200N5-23ESD
EUT Voltage	:	DC 3.3V
Trade Name	:	COMPEX
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart C: 2008 ANSI C63.4: 2009 ANSI C63.10: 2009
Test Result	:	Complied
Performed Location	:	SuZhou EMC laboratory No.99 Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech Development Zone., SuZhou, China TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098 FCC Registration Number: 800392, IC Lab Code: 4075B

Documented By : Alice Ni
(Engineering ADM: Alice Ni)

Reviewed By : Marlin Chen
(Engineering Supervisor: Marlin Chen)

Approved By : Dream Cao
(Engineering Manager: Dream Cao)

Laboratory Information

We, **QuieTek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted(audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scope:

Taiwan R.O.C.	**:**	**BSMI, NCC, TAF**
Germany	**:**	**TUV Rheinland**
Norway	**:**	**Nemko, DNV**
USA	**:**	**FCC, NVLAP**
Japan	**:**	**VCCI**

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site : http://www.quietek.com/tw/emc/accreditations/accreditations.htm
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/
If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

HsinChu Testing Laboratory :
No.75-2, 3rd Lin, Wangye Keng, Yonghxing Tsuen, Qionglin Shiang, Hsinchu County 307, Taiwan, R.O.C.
TEL:+886-3-592-8858 / FAX:+886-3-592-8859 E-Mail : service@quietek.com

NVLAP Lab Code : 200347-0

Testing Laboratory 1313

LinKou Testing Laboratory :
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

NVLAP Lab Code: 200533-0

Testing Laboratory 0914

Suzhou (China) Testing Laboratory :
No. 99 Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech Development Zone., Suzhou,China.
TEL : +86-512-6251-5088 / FAX : +86-512-6251-5098 E-Mail : service@quietek.com

NVLAP Lab Code : 200743-0

Testing Laboratory 1596

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1. General Information

1.1. EUT Description

Product Name	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Trade Name	COMPEX
Model No.	WLM200N5-23ESD
EUT Voltage	DC 3.3V
Frequency Range	For 5.0GHz Band 802.11a/n(20MHz): 5500 - 5700 MHz, 5745 - 5825 MHz 802.11n(40MHz): 5510 - 5670 MHz, 5755 - 5795 MHz
Channel Number	For 5.0GHz Band 802.11a/n(20MHz): 16 802.11n(40MHz): 7
Tech. of Modulation	802.11a/n: OFDM
Data Rate	802.11a: 6/9/12/18/24/36/48/54 Mbps
	802.11n: up to 300 Mbps
Channel Control	Auto
Antenna Delivery	2*Tx + 2*Rx
Antenna Type	Reference to Antenna List
Peak Antenna Gain	Reference to Antenna List
AC Adapter	Manufacturer: DVE M/N: DSA-0421S-501 Input: 100-240V~, 1.2A, 50-60Hz Output: 48V, 0.625A MAX

Note: This device applies to the following host (Wireless Access Point System): MMC543HVN5-23ESD, MMC543AHVN5-23ESD, MMS2543HVN5-23ESD, MMS2543AHVN5-23ESD, and MMJ2543LVN5-23ESD;

For 5.0GHz Band

802.11a/n(20MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
100	5500 MHz	104	5520 MHz	108	5540 MHz	112	5560 MHz
116	5580 MHz	120	5600 MHz	124	5620 MHz	128	5640 MHz
132	5660 MHz	136	5680 MHz	140	5700 MHz	149	5745 MHz
153	5765 MHz	157	5785 MHz	161	5805 MHz	165	5825 MHz

802.11n(40MHz) Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
102	5510 MHz	110	5550 MHz	118	5590 MHz	126	5630 MHz
134	5670 MHz	151	5755 MHz	159	5795 MHz	N/A	N/A

802.11a/b/g/n Antenna List

Antenna	Manufacturer	Model No.	Peak Gain
Dipole Antenna	EXCELTEK	C0053-ANG0003	5GHz: 2dBi
Panel Antenna	COMPEX	MJE2-5N17	5GHz: 17dBi
Panel Antenna	COMPEX	MME2-5N19	5GHz: 19dBi
Dual polarized Wide-Band Antenna	WIRELESS BEEHIVE	58DP	5GHz: 26dBi

1.2. Mode of Operation

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode 1-2dBi
Mode 1-1: Transmit by 802.11a
Mode 1-2: Transmit by 802.11n (20MHz)
Mode 1-3: Transmit by 802.11n (40MHz)

Test Mode 2-19dBi
Mode 2-1: Transmit by 802.11a
Mode 2-2: Transmit by 802.11n (20MHz)
Mode 2-3: Transmit by 802.11n (40MHz)

Test Mode 3-26dBi
Mode 2-1: Transmit by 802.11a
Mode 2-2: Transmit by 802.11n (20MHz)
Mode 2-3: Transmit by 802.11n (40MHz)

Note:

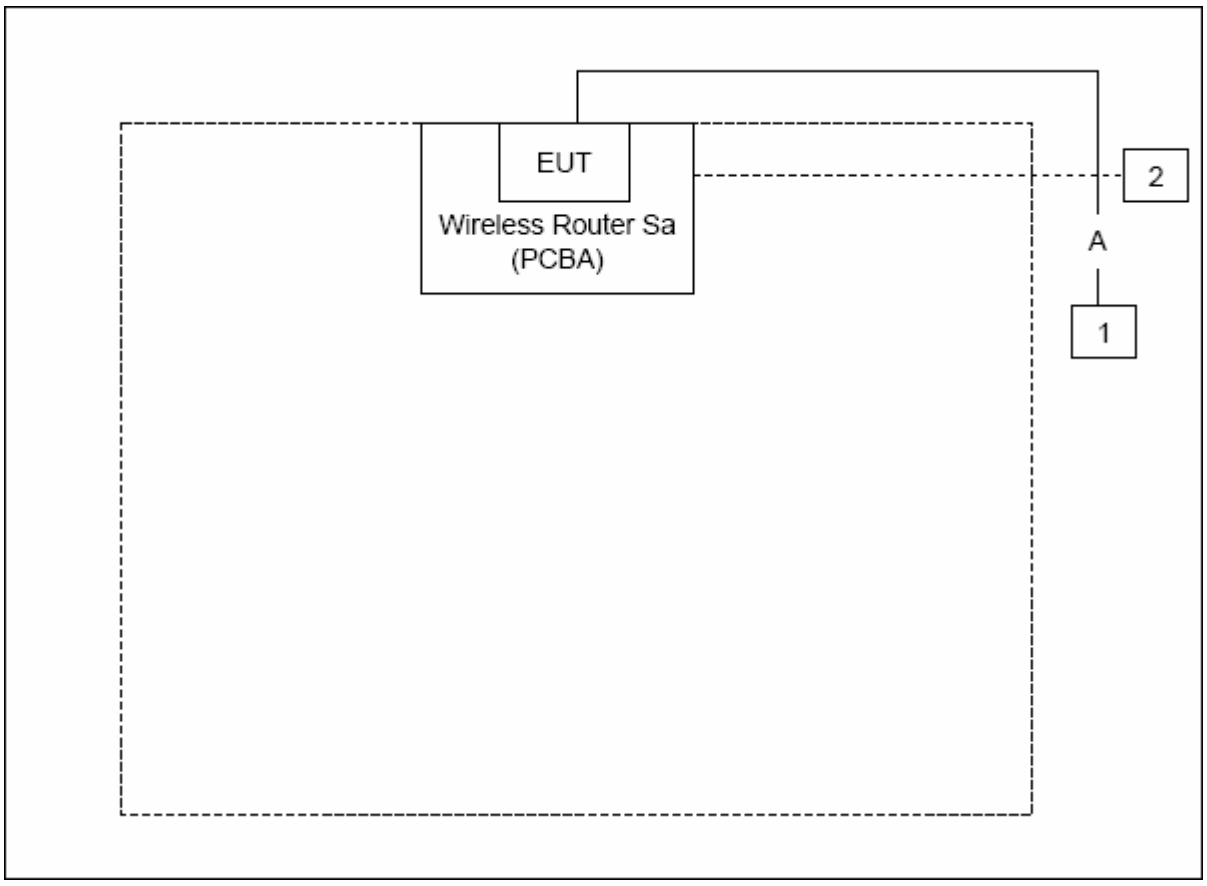
1. Regards to the frequency band operation: the lowest、middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. This device is a composite device in accordance with Part 15 Subpart B regulations. The function for the receiver was measured and made a test report that the report number is 106S012R-RF-US-P02V01.
3. For the same type of antenna, we chose the antenna with higher gain for radiated emission test.

1.3. Tested System Details

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

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook	DELL	PP19L	JH097 A01	N/A
2	MacBook	Apple	MB061CH	W8732B4TZ5V	R33057

1.4. Configuration of Tested System

Connection Diagram


Signal Cable Type		Signal cable Description
A	LAN Cable	Shielded, >10m

1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of equipment.
3	Run the RF test software “BRICKS”, and set the test mode and channel, then press OK to start continue Transmit or receive.

2. Technical Test

2.1. Summary of Test Result

☒ No deviations from the test standards

☐ Deviations from the test standards as below description:

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2008 Section 15.207	Yes	No
Radiated Emission	FCC CFR Title 47 Part 15 Subpart C: 2008 Section 15.209	Yes	No
RF Antenna Conducted Spurious	FCC CFR Title 47 Part 15 Subpart C: 2008 Section 15.247(d)	Yes	No
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2008 15.247(d)	Yes	No
Operation Frequency Range of 20dB Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2008 15.215(c)	Yes	No
Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2008 Section 15.247(a)(2)	Yes	No
Power Output	FCC CFR Title 47 Part 15 Subpart C: 2008 Section 15.247(b)(3)	Yes	No
Power Spectral Density	FCC CFR Title 47 Part 15 Subpart C: 2008 Section 15.247(e)	Yes	No

2.2. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	21
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

3. Conducted Emission

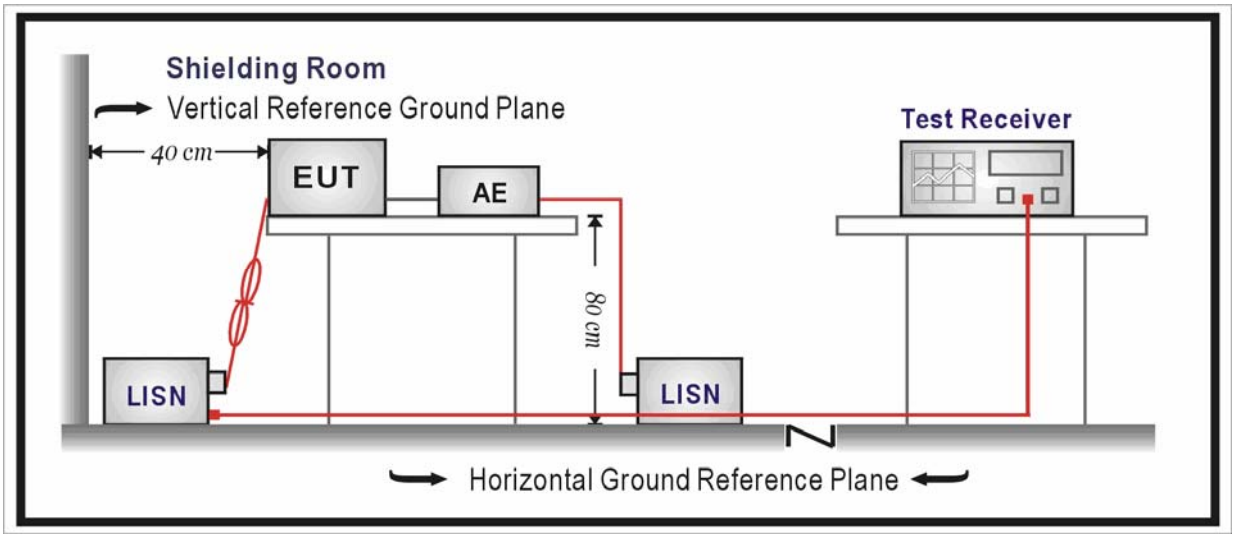
3.1. Test Equipment

Conducted Emission / TR-1

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
EMI Test Receiver	R&S	ESCI	100726	2010.04.23
Two-Line V-Network	R&S	ENV216	100043	2010.06.18
Two-Line V-Network	R&S	ENV216	100044	2009.09.07
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2010.05.05
50ohm Termination	SHX	TF2	07081401	2009.09.29
Temperature/Humidity Meter	zhicheng	ZC1-2	TR1-TH	2010.01.14

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

3.2. Test Setup



3.3. Limit

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

Note 1: The lower limit shall apply at the transition frequencies.

Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

3.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2009 and tested according to ANSI C63.10: 2009 for compliance to FCC 47CFR 15.247 requirements. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs) Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

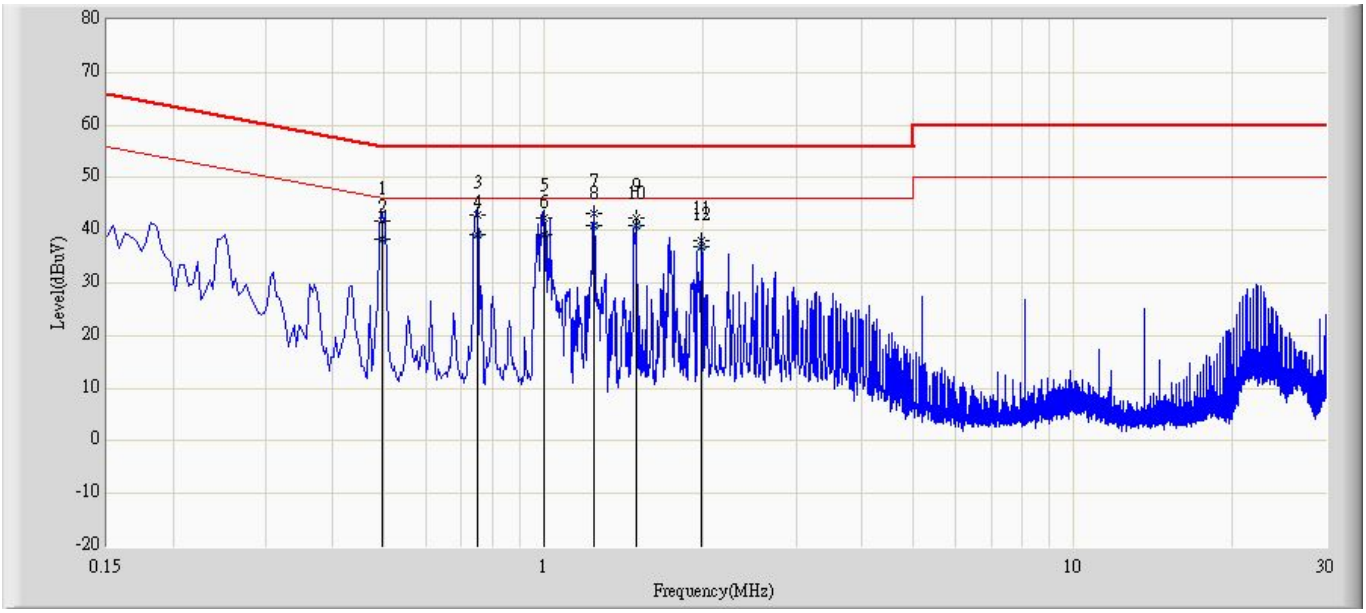
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.

3.5. Uncertainty

The measurement uncertainty is defined as ± 2.02 dB

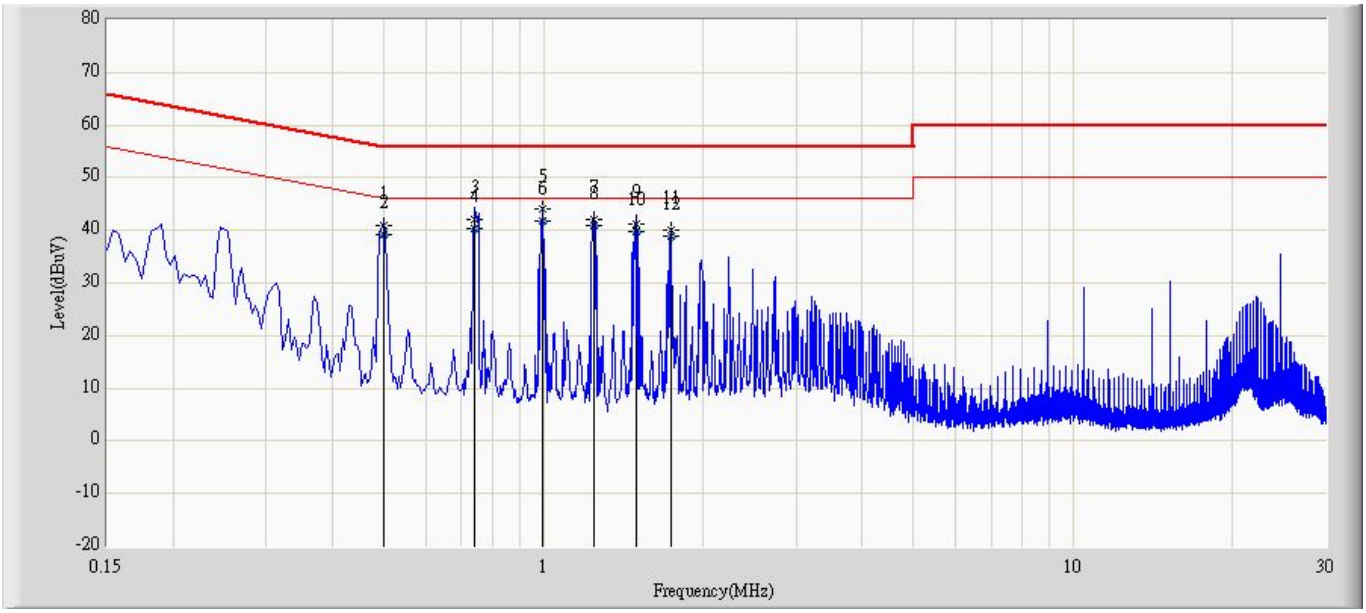
3.6. Test Result

Profile: 106S012R	Page No.: 4
Engineer: Jame	
Site: TR1	Time: 2010/07/28 - 20:21
Limit: FCC_Part15.207_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101043(0.009-30MHz)	Polarity: Line
EUT: WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.495	41.848	32.158	-14.235	56.083	9.690	QP
2		0.495	38.257	28.567	-7.826	46.083	9.690	AV
3		0.750	42.812	33.125	-13.188	56.000	9.687	QP
4		0.750	39.227	29.540	-6.773	46.000	9.687	AV
5		1.002	42.332	32.652	-13.668	56.000	9.680	QP
6		1.002	39.330	29.650	-6.670	46.000	9.680	AV
7		1.246	43.319	33.632	-12.681	56.000	9.687	QP
8		1.246	40.943	31.256	-5.057	46.000	9.687	AV
9		1.494	42.274	32.569	-13.726	56.000	9.705	QP
10	*	1.494	40.961	31.256	-5.039	46.000	9.705	AV
11		1.990	38.055	28.325	-17.945	56.000	9.730	QP
12		1.990	36.925	27.195	-9.075	46.000	9.730	AV

Profile: 106S012R	Page No.: 5
Engineer: Jame	
Site: TR1	Time: 2010/07/28 - 20:25
Limit: FCC_Part15.207_CE_AC Power_ClassB	Margin: 0
Probe: ENV216_101043(0.009-30MHz)	Polarity: Neutral
EUT: WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD	Power: AC 120V/60Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		0.498	40.926	31.256	-15.107	56.033	9.670	QP
2		0.498	39.055	29.385	-6.978	46.033	9.670	AV
3		0.742	41.943	32.250	-14.057	56.000	9.693	QP
4		0.742	40.375	30.682	-5.625	46.000	9.693	AV
5		0.998	43.976	34.256	-12.024	56.000	9.720	QP
6	*	0.998	41.876	32.156	-4.124	46.000	9.720	AV
7		1.246	42.168	32.450	-13.832	56.000	9.718	QP
8		1.246	40.974	31.256	-5.026	46.000	9.718	AV
9		1.498	41.221	31.496	-14.779	56.000	9.725	QP
10		1.498	39.877	30.152	-6.123	46.000	9.725	AV
11		1.742	39.991	30.268	-16.009	56.000	9.723	QP
12		1.742	38.979	29.256	-7.021	46.000	9.723	AV

4. Radiated Emission

4.1. Test Equipment

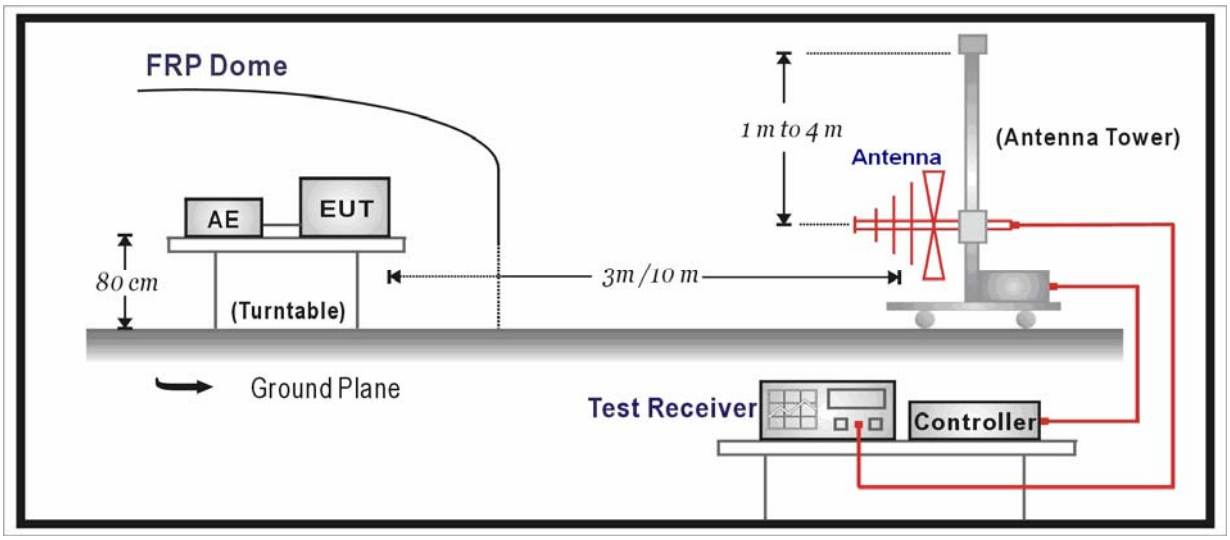
☒Radiated Emission / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2010.04.23
EMI Test Receiver	R&S	ESCI	100906	2010.01.15
Preamplifier	Quietek	AP-180C	CHM-0602013	2010.05.05
Preamplifier	QuieTek	AP-040G	CHM-0906001	2010.05.05
Bilog Antenna	Teseq GmbH	CBL6112D	27612	2009.11.12
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	499	2010.06.11
High-Pass Filter	Wainwright	WHKX2.8/18G-12SS	SN1	2010.03.03
High-Pass Filter	Wainwright	WHKX7.0/18G-8SS	SN16	2010.03.03
Lowpass Filter	Wainwright	WLKS4500-9SS	SN2	2010.03.03
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC5-TH	2010.01.14

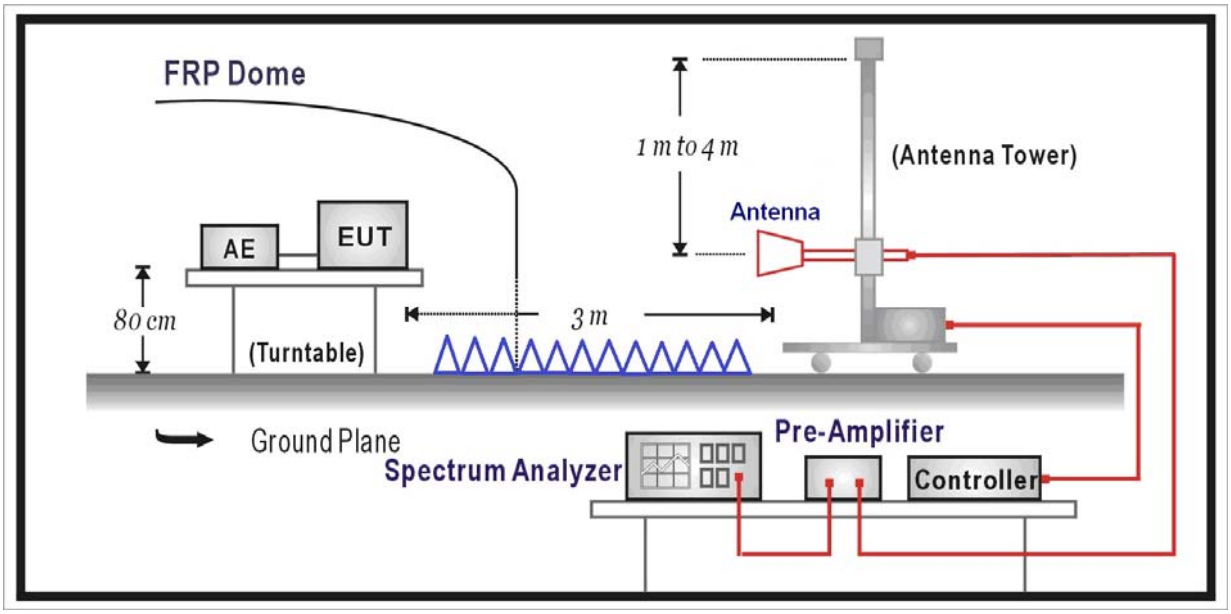
Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

4.2. Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

FCC Part 15 Subpart C Paragraph 15.209		
Frequency (MHz)	Distance (m)	Level (dBuV/m)
30 - 88	3	40
88 - 216	3	43.5
216 - 960	3	46
Above 960	3	54

Note 1: The lower limit shall apply at the transition frequency.

Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

Note 3: E field strength (dBuV/m) = 20 log E field strength (uV/m)

4.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2009 and tested according to ANSI C63.10: 2009 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2009 on radiated measurement.

The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

The frequency range from 30MHz to 10th harmonic is checked.

Note: When doing emission measurement above 1GHz, the horn antenna will be bended down a little (as horn antenna has the narrow beamwidth) in order to keeping the antenna in the “cone of radiation” of EUT. The 3dB beamwidth is 10~60 degrees for H-plane and 10~90 degrees for E-plane.

4.5. Uncertainty

The measurement uncertainty above 1G is defined as ± 3.9 dB

below 1G is defined as ± 3.8 dB

4.6. Test Result

All of the test result shown indicates the worst case, and spectrum analyzer parameters setting as shown below:

Peak detector: RBW = 1MHz, VBW = 3MHz, sweep time = 200ms;

Average detector: RBW = 1MHz, VBW = 10Hz, sweep time = auto.

Measure Level = Reading Level + Cable Loss + Antenna Factor - Preamplifier Gain

With antenna 2dBi

802.11a

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
100	149	V	5738.5	63.5	30.5	94.1	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10392.5	51.1	2.0	53.1	54	-0.9	PK
		H	7494.0	54.6	-5.4	49.2	54	-4.8	PK
		H	11489.0	59.7	2.2	61.9	74	-12.1	PK
		H	11489.0	44.1	2.2	46.3	54	-7.7	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	157	H	5777.5	63.1	31.2	94.3	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10392.5	55.2	2.0	57.2	74	-16.8	PK
		V	10392.5	43.5	2.0	45.5	54	-8.5	AV
		H	7485.5	55.3	-5.4	49.9	54	-4.1	PK
		V	11574.0	60.1	2.0	62.1	74	-11.9	PK
		V	11574.0	45.9	2.0	47.9	54	-6.1	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	165	H	5818.7	66.2	30.3	96.6	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10401.0	52.1	2.0	54.1	74	-19.9	PK
		V	10401.0	37.3	2.0	39.3	54	-14.7	AV
		H	7485.5	55.1	-5.4	49.7	54	-4.3	PK
		H	11650.5	61.3	2.0	63.3	74	-10.7	PK
		H	11650.5	46.2	2.0	48.2	54	-5.8	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK

010	149	H	5738.5	63.5	30.5	94.1	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10384.0	49.3	1.9	51.2	54	-2.8	PK
		H	7485.5	56.0	-5.4	50.6	54	-3.4	PK
		V	11489.0	63.4	2.2	65.6	74	-8.4	PK
		V	11489.0	46.3	2.2	48.5	54	-5.5	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	157	H	5777.5	63.1	31.2	94.3	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10316.0	48.9	2.0	50.9	54	-3.1	PK
		V	7511.0	54.6	-5.3	49.3	54	-4.7	PK
		V	11574.0	61.1	2.0	63.1	74	-10.9	PK
		V	11574.0	46.4	2.0	48.4	54	-5.6	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	165	H	5818.7	66.2	30.3	96.6	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10350.0	48.1	1.9	50.0	54	-4.0	PK
		V	7511.0	54.6	-5.3	49.3	54	-4.7	PK
		V	11650.5	63.2	2.0	65.2	74	-8.8	PK
		V	11650.5	45.6	2.0	47.6	54	-6.4	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK

802.11n(20MHz)

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
100	149	H	5738.5	63.5	30.5	94.1	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		H	10409.5	57.7	2.0	59.7	74	-14.3	PK
		H	10409.5	42.3	2.0	44.3	54	-9.7	AV
		H	7485.5	55.1	-5.4	49.7	54	-4.3	PK
		V	11489.0	56.0	2.2	58.2	74	-15.8	PK
		V	11489.0	41.3	2.2	43.5	54	-10.5	AV

		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	157	H	5777.5	63.1	31.2	94.3	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		H	10401.0	51.5	2.0	53.5	54	-0.5	PK
		H	7511.0	54.5	-5.3	49.2	54	-4.8	PK
		H	11565.5	56.0	1.9	57.9	74	-16.1	PK
		H	11565.5	41.0	1.9	42.9	54	-11.1	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	165	H	5818.7	66.2	30.3	96.6	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		H	10401.0	55.2	2.0	57.2	74	-16.8	PK
		H	10401.0	40.6	2.0	42.6	54	-11.4	AV
		H	7519.5	55.0	-5.3	49.7	54	-4.3	PK
		V	11650.5	58.8	2.0	60.8	74	-13.2	PK
		V	11650.5	43.2	2.0	45.2	54	-8.8	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
010	149	H	5738.5	63.5	30.5	94.1	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10392.5	48.4	2.0	50.4	54	-3.6	PK
		H	7511.0	55.4	-5.3	50.1	54	-3.9	PK
		H	11497.5	59.2	2.2	61.4	74	-12.6	PK
		H	11497.5	42.3	2.2	44.5	54	-9.5	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	157	H	5777.5	63.1	31.2	94.3	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		H	10324.5	49.1	2.0	51.1	54	-2.9	PK
		V	7502.5	55.5	-5.4	50.1	54	-3.9	PK
		V	11574.0	60.0	2.0	62.0	74	-12.0	PK
		V	11574.0	42.5	2.0	44.5	54	-9.5	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	165	H	5818.7	66.2	30.3	96.6	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP

		H	10375.5	49.8	1.9	51.7	54	-2.3	PK
		V	7519.5	54.9	-5.3	49.6	54	-4.4	PK
		V	11642.0	59.3	1.9	61.2	74	-12.8	PK
		V	11642.0	41.1	1.9	43.0	54	-11.0	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
110	149	H	5738.5	63.5	30.5	94.1	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10401.0	56.7	2.0	58.7	54	4.7	PK
		H	7485.5	55.1	-5.4	49.7	54	-4.3	PK
		V	11497.5	62.4	2.2	64.6	74	-9.4	PK
		V	11497.5	47.2	2.2	49.4	54	-4.6	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	157	H	5777.5	63.1	31.2	94.3	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		H	10401.0	53.3	2.0	55.3	74	-18.7	PK
		H	10401.0	37.5	2.0	39.5	54	-14.5	PK
		V	7502.5	55.5	-5.4	50.1	54	-3.9	PK
		H	11565.5	60.8	1.9	62.7	74	-11.3	PK
		H	11565.5	45.2	1.9	47.1	54	-6.9	
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	165	H	5818.7	66.2	30.3	96.6	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		H	10392.5	54.7	2.0	56.7	74	-17.3	PK
		H	10392.5	39.5	2.0	41.5	54	-12.5	AV
		H	7494.0	54.7	-5.4	49.3	54	-4.7	PK
		V	11650.5	61.0	2.0	63.0	74	-11.0	PK
		V	11650.5	45.6	2.0	47.6	54	-6.4	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK

802.11n(40MHz)

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
100	151	H	5757.2	63.5	30.5	94.1	Fundamental	/	PK

		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10401.0	58.4	2.0	60.4	74	-13.6	PK
		V	10401.0	44.1	2.0	46.1	54	-7.9	AV
		H	7502.5	54.9	-5.4	49.5	54	-4.5	PK
		V	11506.0	56.4	2.2	58.6	74	-15.4	PK
		V	11506.0	42.3	2.2	44.5	54	-9.5	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	159	H	5793.6	63.1	31.2	94.3	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10384.0	55.2	1.9	57.1	74	-16.9	PK
		V	10384.0	40.5	1.9	42.4	54	-11.6	AV
		H	7519.5	54.6	-5.3	49.3	54	-4.7	PK
		H	11599.5	55.1	2.0	57.1	74	-16.9	PK
		H	11599.5	40.8	2.0	42.8	54	-11.2	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
010	151	H	5757.2	63.5	30.5	94.1	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		H	10324.5	49.7	2.0	51.7	54	-2.3	PK
		V	7511.0	56.3	-5.3	51.0	54	-3.0	PK
		V	11506.0	60.6	2.2	62.8	74	-11.2	PK
		V	11506.0	45.3	2.2	47.5	54	-6.5	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	159	H	5793.6	63.1	31.2	94.3	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10350.0	50.4	1.9	52.3	54	-1.7	PK
		V	7511.0	55.5	-5.3	50.2	54	-3.8	PK
		V	11591.0	59.2	2.0	61.2	74	-12.8	PK
		V	11591.0	44.2	2.0	46.2	54	-7.8	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
110	151	H	5757.2	63.5	30.5	94.1	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		H	10392.5	55.3	2.0	57.3	74	-16.7	PK

		H	10392.5	40.6	2.0	42.6	54	-11.4	AV
		H	7485.5	56.2	-5.4	50.8	54	-3.2	PK
		H	11506.0	60.2	2.2	62.4	74	-11.6	PK
		H	11506.0	46.1	2.2	48.3	54	-5.7	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	159	H	5793.6	63.1	31.2	94.3	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		H	10324.5	49.7	2.0	51.7	54	-2.3	PK
		V	7511.0	55.5	-5.3	50.2	54	-3.8	PK
		H	11591.0	59.2	2.0	61.2	74	-12.8	PK
		H	11591.0	44.2	2.0	46.2	54	-7.8	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK

With antenna 19dBi

802.11a

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
100	149	V	5738.5	85.0	36.5	121.5	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10375.5	56.0	1.9	57.9	74	-16.1	PK
		V	10375.5	40.4	1.9	42.3	54	-11.7	AV
		H	7485.5	54.4	-5.4	49.0	54	-5.0	PK
		V	11489.0	59.2	2.2	61.4	74	-12.6	PK
		V	11489.0	45.7	2.2	47.9	54	-6.1	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	157	V	5777.5	82.8	36.7	119.5	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10384.0	52.2	1.9	54.1	74	-19.9	PK
		V	10384.0	37.5	1.9	39.4	54	-14.6	AV
		H	7494.0	55.6	-5.4	50.2	54	-3.8	PK
		H	11565.5	58.1	1.9	60.0	74	-14.0	PK
		H	11565.5	45.6	1.9	47.5	54	-6.5	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK

	165	V	5818.7	83.3	36.8	120.1	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10384.0	50.3	1.9	52.2	54	-1.8	PK
		H	7485.5	55.8	-5.4	50.4	54	-3.6	PK
		V	11650.0	59.2	2.0	61.2	74	-12.8	PK
		V	11650.0	45.4	2.0	47.4	54	-6.6	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
010	149	V	5738.5	85.8	36.5	122.3	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10367.0	49.6	1.9	51.5	54	-2.5	PK
		H	7485.5	54.3	-5.4	48.9	54	-5.1	PK
		V	11497.0	64.4	2.2	66.6	74	-7.4	PK
		V	11497.0	50.4	2.2	52.6	54	-1.4	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	157	V	5777.5	83.4	36.7	120.1	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10341.5	49.4	2.0	51.4	54	-2.6	PK
		H	7477.0	54.4	-5.3	49.1	54	-4.9	PK
		V	11574.0	63.6	2.0	65.6	74	-8.4	PK
		V	11574.0	50.4	2.0	52.4	54	-1.6	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	165	V	5818.7	83.9	36.8	120.7	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10375.5	49.8	1.9	51.7	54	-2.3	PK
		H	7511.0	55.5	-5.3	50.2	54	-3.8	PK
		V	11650.0	63.2	2.0	65.2	74	-8.8	PK
		V	11650.0	50.8	2.0	52.8	54	-1.2	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK

802.11n(20MHz)

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector

100	149	V	5738.5	82.2	36.5	118.7	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10392.5	57.5	2.0	59.5	74	-14.5	PK
		V	10392.5	43.1	2.0	45.1	54	-8.9	AV
		H	7494.0	55.8	-5.4	50.4	54	-3.6	PK
		V	11489.0	59.5	2.2	61.7	74	-12.3	PK
		V	11489.0	44.8	2.2	47.0	54	-7.0	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	157	V	5777.5	81.2	36.7	117.7	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10392.5	59.3	2.0	61.3	74	-12.7	PK
		V	10392.5	44.6	2.0	46.6	54	-7.4	PK
		H	7477.0	54.4	-5.3	49.1	54	-4.9	PK
		V	11574.0	56.9	2.0	58.9	74	-15.1	PK
		V	11574.0	43.6	2.0	45.6	54	-8.4	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	165	V	5818.7	82.1	36.8	118.9	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10384.0	59.3	1.9	61.2	74	-12.8	PK
		V	10384.0	43.7	1.9	45.6	54	-8.4	AV
		H	7545.0	55.1	-5.5	49.6	54	-4.4	PK
		V	11642.0	58.0	1.9	59.9	74	-14.1	PK
		V	11642.0	45.2	1.9	47.1	54	-6.9	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
010	149	V	5738.5	83.4	36.5	119.9	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10392.5	49.0	2.0	51.0	54	-3.0	PK
		H	7545.0	55.1	-5.5	49.6	54	-4.4	PK
		V	11642.0	58.0	1.9	59.9	74	-14.1	PK
		V	11642.0	45.2	1.9	47.1	54	-6.9	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	157	V	5777.5	81.3	36.7	118.0	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP

		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10299.0	49.7	2.0	51.7	54	-2.3	PK
		V	7519.5	54.3	-5.3	49.0	54	-5.0	PK
		V	11574.0	61.5	2.0	63.5	74	-10.5	PK
		V	11574.0	45.4	2.0	47.4	54	-6.6	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	165	V	5818.7	81.6	36.8	118.4	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10307.5	48.8	2.0	50.8	54	-3.2	PK
		H	7502.5	55.0	-5.4	49.6	54	-4.4	PK
		V	11489.0	63.0	2.2	65.2	74	-8.8	PK
		V	11489.0	49.7	2.2	51.9	54	-2.1	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
110	149	V	5738.5	87.2	36.5	123.7	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		H	10409.5	55.4	2.0	57.4	74	-16.6	PK
		H	10409.5	40.2	2.0	42.2	54	-11.8	AV
		H	7477.0	56.3	-5.3	51.0	54	-3.0	PK
		H	11497.5	60.9	2.2	63.1	74	-10.9	PK
		H	11497.5	45.1	2.2	47.3	54	-6.7	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	157	V	5777.5	85.2	36.7	121.9	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10392.5	58.4	2.0	60.4	74	-13.6	PK
		V	10392.5	43.6	2.0	45.6	54	-8.4	AV
		H	7502.5	55.1	-5.4	49.7	54	-4.3	PK
		V	11565.0	63.2	1.9	65.1	74	-8.9	PK
		V	11565.0	49.6	1.9	51.5	54	-2.5	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	165	V	5818.7	85.1	36.8	121.9	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10392.5	55.6	2.0	57.6	74	-16.4	PK
		V	10392.5	40.2	2.0	42.2	54	-11.8	AV

		H	7502.5	55.5	-5.4	50.1	54	-3.9	PK
		V	11642.0	61.0	1.9	62.9	74	-11.1	PK
		V	11642.0	45.9	1.9	47.8	54	-6.2	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK

802.11n(40MHz)

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
100	151	V	5757.2	83.5	36.6	120.1	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10384.0	56.8	2.0	58.8	74	-15.2	PK
		V	10384.0	41.3	2.0	43.3	54	-10.7	AV
		H	7519.5	55.9	-5.3	50.6	54	-3.4	PK
		V	11489.0	58.7	2.2	60.9	74	-13.1	PK
		V	11489.0	45.2	2.2	47.4	54	-6.6	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	159	V	5793.6	83.1	36.8	119.9	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10392.5	59.6	2.0	61.6	74	-12.4	PK
		V	10392.5	44.2	2.0	46.2	54	-7.8	AV
		H	7519.5	54.6	-5.3	49.3	54	-4.7	PK
		H	11591.0	58.1	2.1	60.2	74	-13.8	PK
		H	11591.0	44.7	2.1	46.8	54	-7.2	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
010	151	V	5757.2	83.8	36.6	120.4	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10307.5	49.5	2.0	51.5	54	-2.5	PK
		V	7519.5	55.9	-5.3	50.6	54	-3.4	PK
		V	11506.0	64.1	2.2	66.3	74	-7.7	PK
		V	11506.0	49.2	2.2	51.4	54	-2.6	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	159	V	5793.6	83.0	36.8	119.8	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP

		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10316.0	49.6	2.0	51.6	54	-2.4	PK
		H	7477.0	56.3	-5.3	51.0	54	-3.0	PK
		V	11590.0	60.0	2.1	62.1	74	-11.9	PK
		V	11590.0	44.5	2.1	46.6	54	-7.4	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
110	151	V	5757.2	83.9	36.6	120.5	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10392.5	59.8	2.0	61.8	74	-12.2	PK
		V	10392.5	44.3	2.0	46.3	54	-7.7	AV
		V	7502.5	55.5	-5.4	50.1	54	-3.9	PK
		H	11506.0	61.6	2.2	63.8	74	-10.2	PK
		H	11506.0	46.1	2.2	48.3	54	-5.7	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	159	V	5793.6	82.5	36.8	119.3	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10384.0	55.1	1.9	57.0	74	-17.0	PK
		V	10384.0	39.6	1.9	41.5	54	-12.5	AV
		H	7519.5	55.4	-5.3	50.1	54	-3.9	PK
		H	11608.0	61.2	2.0	63.2	74	-10.8	PK
		H	11608.0	45.5	2.0	47.5	54	-6.5	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK

With antenna 26dBi

802.11a

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
100	149	V	5738.5	91.2	36.5	127.7	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		H	10401.0	52.8	2.0	54.8	74	-19.2	PK
		H	10401.0	38.3	2.0	40.3	54	-13.7	AV
		H	7502.5	56.9	-5.4	51.5	54	-2.5	PK
		V	11489.0	62.8	2.2	65.0	74	-9.0	PK

		V	11489.0	49.8	2.2	52.0	54	-2.0	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	157	V	5777.5	88.1	36.7	124.8	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10401.0	60.1	2.0	62.1	74	-11.9	PK
		V	10401.0	44.7	2.0	46.7	54	-7.3	AV
		H	7512.5	57.1	-5.4	51.7	54	-2.3	PK
		V	11565.5	61.2	1.9	63.1	74	-10.9	PK
		V	11565.5	48.4	1.9	50.3	54	-3.7	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	165	V	5818.7	89.1	36.8	125.9	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10401.0	60.4	2.0	62.4	74	-11.6	PK
		V	10401.0	44.9	2.0	46.9	54	-7.1	AV
		H	7477.0	57.8	-5.3	52.5	54	-1.5	PK
		H	11642.0	59.3	1.9	61.2	74	-12.8	PK
		H	11642.0	46.4	1.9	48.3	54	-5.7	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
010	149	V	5738.5	90.3	36.5	126.8	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		H	10401.0	56.8	2.0	58.8	74	-15.2	PK
		H	10401.0	41.5	2.0	43.5	54	-10.5	AV
		H	7494.0	56.8	-5.4	51.4	54	-2.6	PK
		H	11489.0	62.7	2.2	64.9	74	-9.1	PK
		H	11489.0	48.3	2.2	50.5	54	-3.5	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	157	V	5777.5	87.7	36.7	124.4	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10401.0	58.2	2.0	60.2	74	-13.8	PK
		V	10401.0	44.7	2.0	46.7	54	-7.3	AV
		H	7494.0	56.8	-5.4	51.4	54	-2.6	PK
		V	11565.0	53.7	1.9	55.6	74	-18.4	PK
		V	11565.0	66.3	1.9	68.2	54	14.2	AV

		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	165	V	5818.7	87.3	36.8	124.1	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10401.0	57.3	2.0	59.3	74	-14.7	PK
		V	10401.0	45.1	2.0	47.1	54	-6.9	AV
		H	7485.5	55.5	-5.4	50.1	54	-3.9	PK
		H	11659.0	58.0	2.0	60.0	74	-14.0	PK
		H	11659.0	46.5	2.0	48.5	54	-5.5	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK

802.11n(20MHz)

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
100	149	V	5738.5	87.2	36.5	123.7	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10409.5	59.1	2.0	61.1	74	-12.9	PK
		V	10409.5	45.6	2.0	47.6	54	-6.4	AV
		H	7477.0	56.0	-5.3	50.7	54	-3.3	PK
		V	11489.0	57.8	2.2	60.0	74	-14.0	PK
		V	11489.0	46.2	2.2	48.4	54	-5.6	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	157	V	5777.5	85.3	36.7	122.0	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10401.0	58.4	2.0	60.4	74	-13.6	PK
		V	10401.0	44.2	2.0	46.2	54	-7.8	AV
		H	7511.0	56.6	-5.3	51.3	54	-2.7	PK
		V	11565.5	57.7	1.9	59.6	74	-14.4	PK
		V	11565.5	45.4	1.9	47.3	54	-6.7	AV
		H	24000	59.1	-8.9	50.2	54	-3.8	PK
	165	V	5818.7	87.3	36.8	124.1	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10418.0	53.1	1.9	55.0	74	-19.0	PK

		V	10418.0	38.5	1.9	40.4	54	-13.6	AV
		H	7519.5	55.9	-5.3	50.6	54	-3.4	PK
		V	11650.0	58.8	2.0	60.8	74	-13.2	PK
		V	11650.0	46.6	2.0	48.6	54	-5.4	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	149	V	5738.5	86.6	36.5	123.1	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10409.5	57.4	2.0	59.4	74	-14.6	PK
		V	10409.5	42.1	2.0	44.1	54	-9.9	AV
		H	7494.0	56.8	-5.4	51.4	54	-2.6	PK
		V	11489.0	63.6	2.2	65.8	74	-8.2	PK
		V	11489.0	50.3	2.2	52.5	54	-1.5	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	157	V	5777.5	86.1	36.7	122.8	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10409.5	59.2	2.0	61.2	74	-12.8	PK
010		V	10409.5	45.7	2.0	47.7	54	-6.3	AV
		V	7519.5	54.4	-5.3	49.1	54	-4.9	PK
		V	11565.0	62.3	1.9	64.2	74	-9.8	PK
		V	11565.0	49.8	1.9	51.7	54	-2.3	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	165	V	5818.7	86.3	36.8	123.1	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10409.5	60.6	2.0	62.6	74	-11.4	PK
		V	10409.5	45.7	2.0	47.7	54	-6.3	AV
		H	7511.0	56.3	-5.3	51.0	54	-3.0	PK
		V	11642.0	60.2	1.9	62.1	74	-11.9	PK
		V	11642.0	48.5	1.9	50.4	54	-3.6	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
110	149	V	5738.5	90.4	36.5	126.9	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10409.5	60.6	2.0	62.6	74	-11.4	PK
		V	10409.5	45.3	2.0	47.3	54	-6.7	AV

		H	7494.0	57.2	-5.4	51.8	54	-2.2	PK
		V	11480.0	64.9	2.2	67.1	74	-6.9	PK
		V	11480.0	50.7	2.2	52.9	54	-1.1	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	157	V	5777.5	89.1	36.7	125.8	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10392.5	61.1	2.0	63.1	74	-10.9	PK
		V	10392.5	46.6	2.0	48.6	54	-5.4	PK
		H	7511.0	56.4	-5.3	51.1	54	-2.9	PK
		V	11565.0	64.9	1.9	66.8	74	-7.2	PK
		V	11565.0	50.4	1.9	52.3	54	-1.7	AV
		H	24000	59.1	-8.9	50.2	54	-3.8	PK
	165	V	5818.7	88.3	36.8	125.1	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10401.0	59.4	2.0	61.4	74	-12.6	PK
		V	10401.0	44.3	2.0	46.3	54	-7.7	AV
		H	7511.0	56.4	-5.3	51.1	54	-2.9	PK
		V	11650.0	62.3	2.0	64.3	74	-9.7	PK
		V	11650.0	50.5	2.0	52.5	54	-1.5	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK

802.11n(40MHz)

Chain	CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
100		V	5757.2	87.2	36.6	124.8	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10392.5	59.1	2.0	61.1	74	-12.9	PK
	151	V	10392.5	44.5	2.0	46.5	54	-7.5	PK
		H	7502.5	55.7	-5.4	50.3	54	-3.7	PK
		V	11497.0	59.1	2.2	61.3	74	-12.7	PK
		V	11497.0	46.3	2.2	48.5	54	-5.5	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	159	V	5793.6	86.2	36.8	123.0	Fundamental	/	PK

		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10401.0	59.4	2.0	61.4	74	-12.6	PK
		V	10401.0	45.1	2.0	47.1	54	-6.9	AV
		H	7494.0	55.4	-5.4	50.0	54	-4.0	PK
		V	11591.0	57.5	2.1	59.6	74	-14.4	PK
		V	11591.0	43.1	2.1	45.2	54	-8.8	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
010	151	V	5757.2	87.2	36.6	123.8	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		H	10520.0	50.9	2.0	52.9	74	-21.1	PK
		H	7519.5	55.2	-5.3	49.9	74	-24.1	PK
		H	11506.0	57.6	2.2	59.8	74	-14.2	PK
		H	11506.0	46.5	2.2	48.7	54	-5.3	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	159	V	5793.6	88.3	36.8	125.1	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		H	10520.0	50.9	2.0	52.9	74	-21.1	PK
		H	7477.0	55.8	-5.3	50.5	74	-23.5	PK
		V	11591.0	61.5	2.1	63.6	54	9.6	PK
		V	11591.0	50.7	2.1	52.8	54	-1.2	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
110	151	V	5757.2	87.1	36.6	123.7	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10392.5	59.0	2.0	61.0	74	-13.0	PK
		V	10392.5	44.2	2.0	46.2	54	-7.8	PK
		H	7519.5	55.8	-5.3	50.5	54	-3.5	PK
		V	11506.0	64	2.2	66.2	74	-7.8	PK
		V	11506.0	50.4	2.2	52.6	54	-1.4	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK
	159	V	5793.6	87.1	36.8	123.9	Fundamental	/	PK
		H	599.8	34.5	-1.5	33.0	46	-13.0	QP
		H	699.7	34.9	-0.7	34.2	46	-11.8	QP
		V	10409.5	55.5	2.0	57.5	74	-16.5	PK

		V	10409.5	40.2	2.0	42.2	54	-11.8	PK
		V	7519.5	54.5	-5.3	49.2	54	-4.8	PK
		V	11591.0	62.0	2.1	64.1	74	-9.9	PK
		V	11591.0	50.7	2.1	52.8	54	-1.2	AV
		H	24000.0	59.1	-8.9	50.2	54	-3.8	PK

Note 1: This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn’t be performed.

5. RF Antenna Conducted Spurious

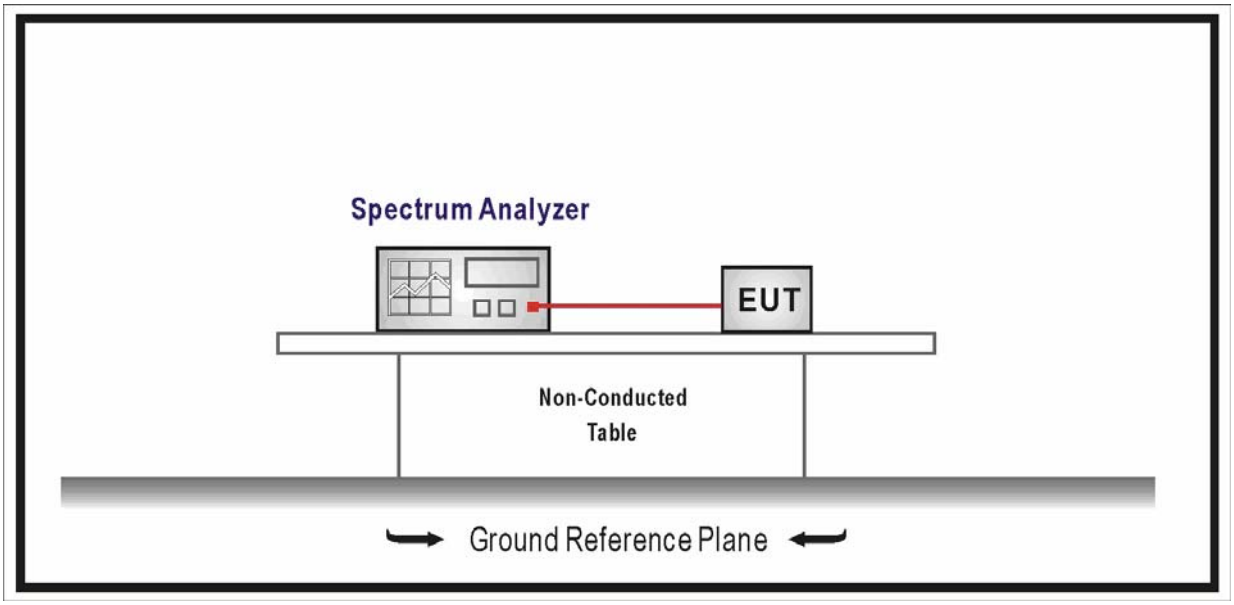
5.1. Test Equipment

RF Antenna Conducted Spurious / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2010.04.30
Temperature/Humidity Meter	zhicheng	ZC1-2	AC6-TH	2010.01.14

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

5.2. Test Setup



5.3. Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

5.4. Test Procedure

The EUT was tested according to DTS test procedure of ANSI C63.10: 2009 for compliance to FCC 47CFR 15.247 requirements.
Set RBW = 100 kHz, Set VBW > RBW, scan up through 10th harmonic.

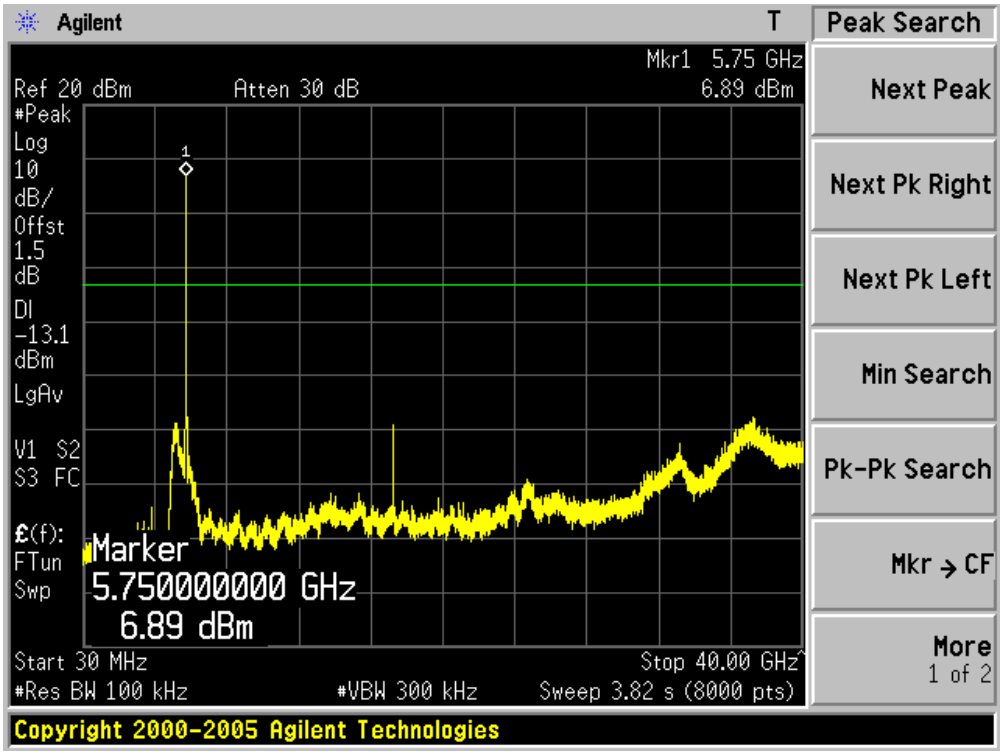
5.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

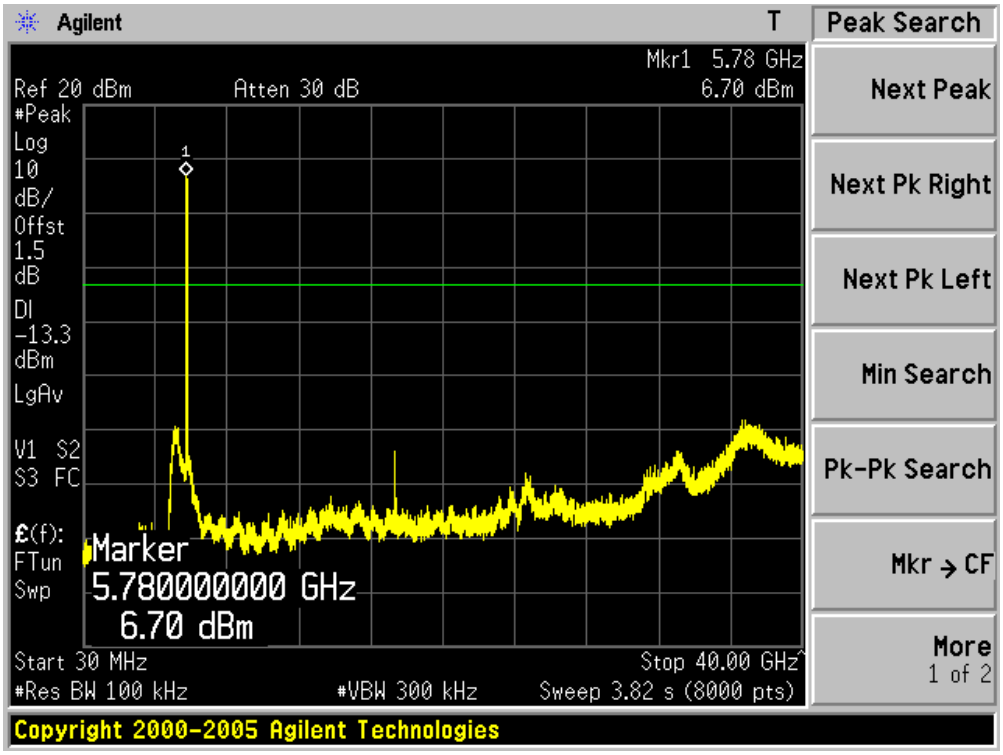
5.6. Test Result

Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11a (Chain 100)

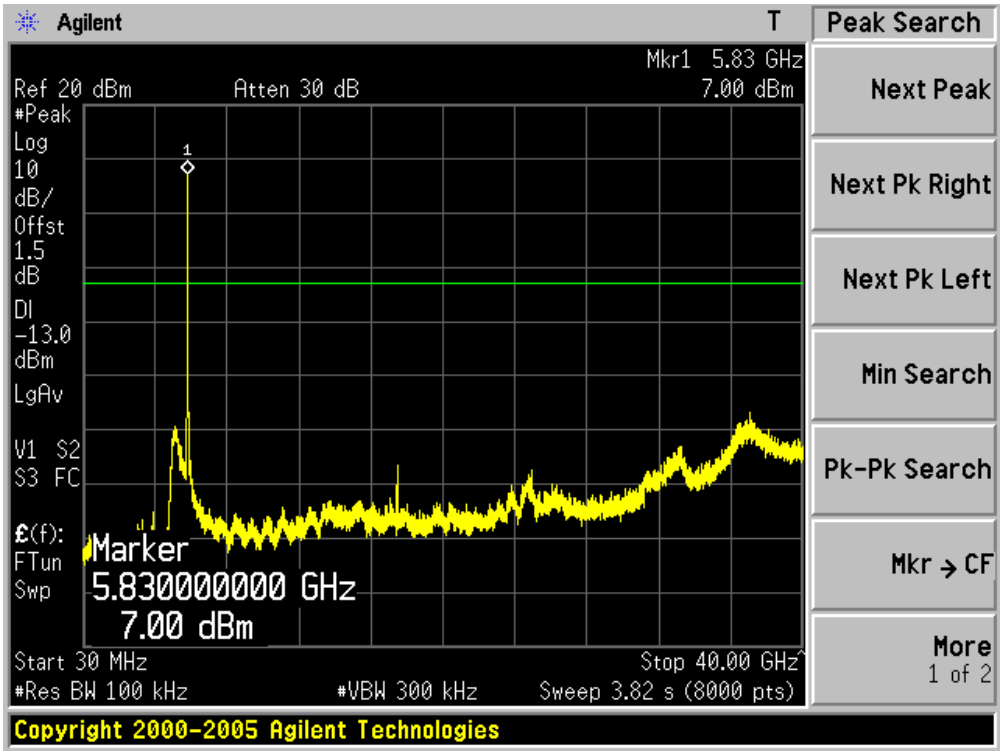
Channel 149 (5745MHz)



Channel 157 (5785MHz)

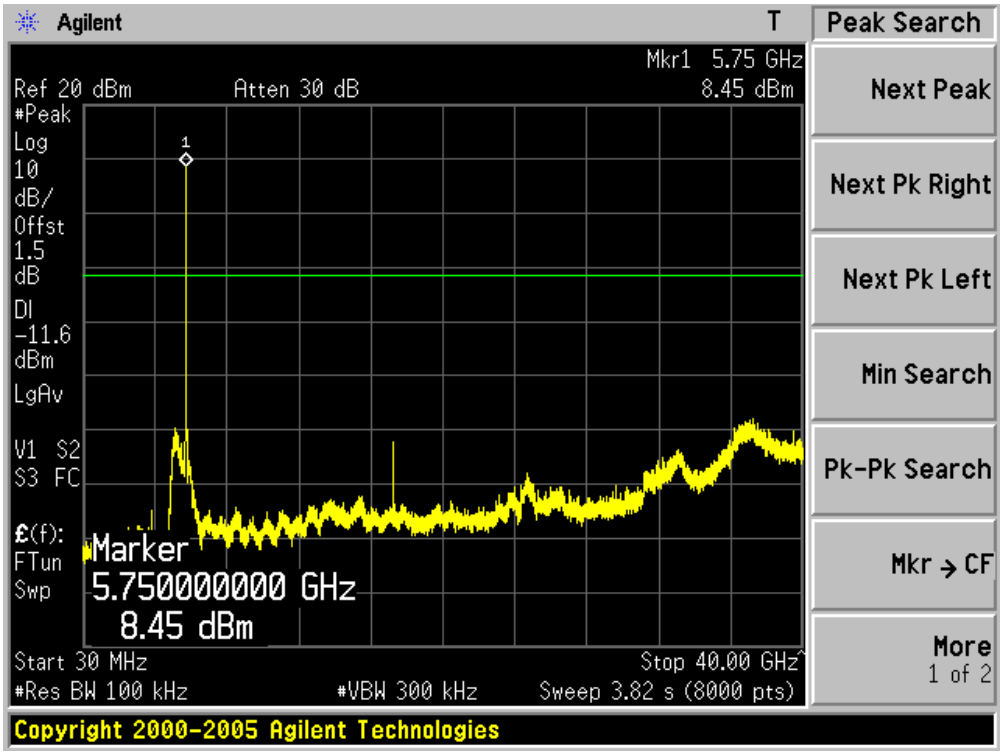


Channel 165 (5825MHz)

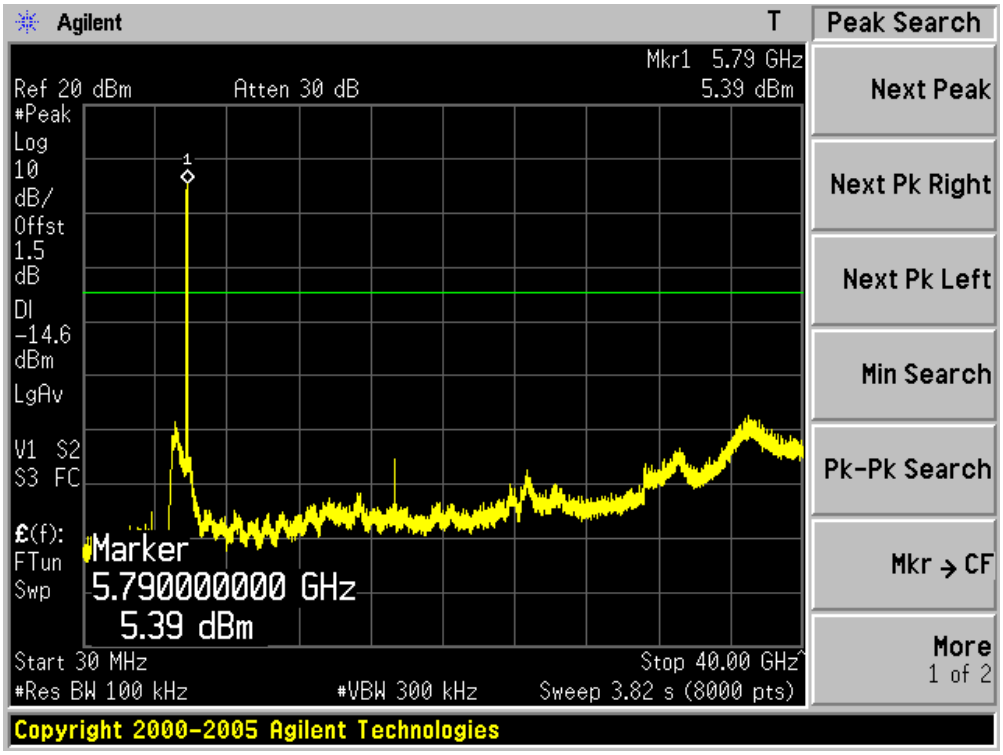


Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz) (Chain 100)

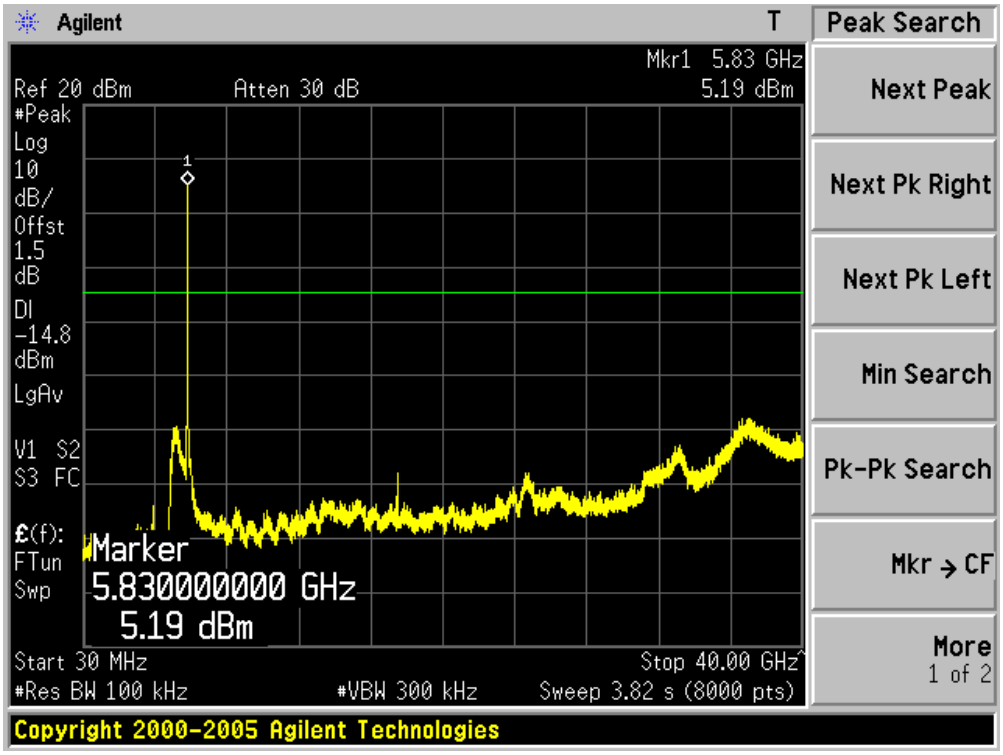
Channel 149 (5745MHz)



Channel 157 (5785MHz)

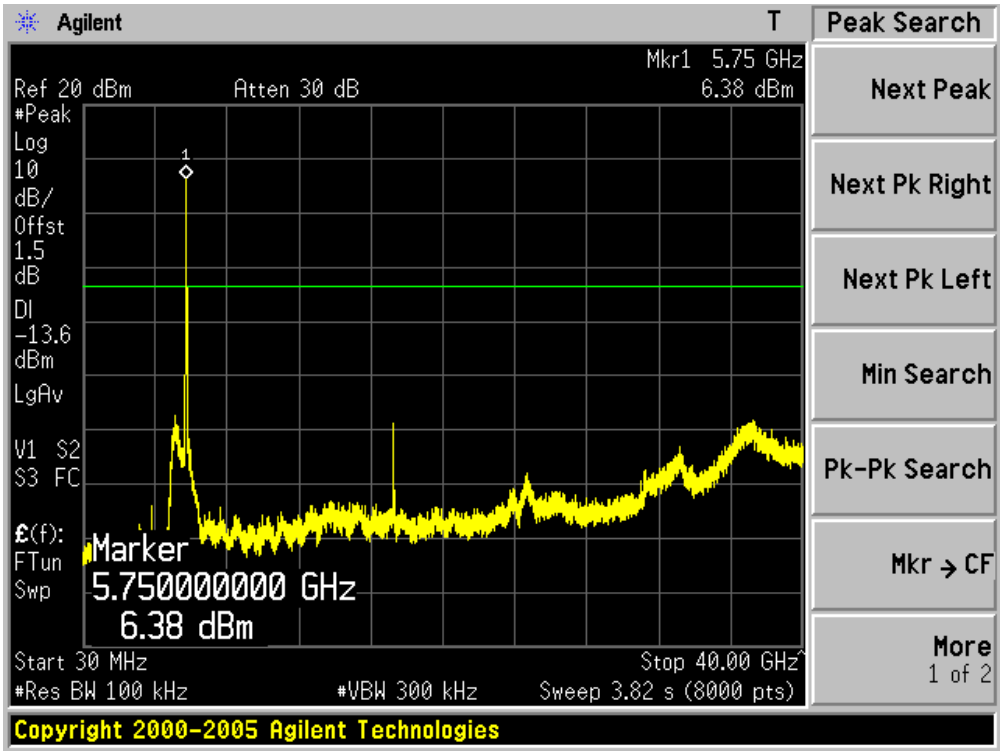


Channel 165 (5825MHz)

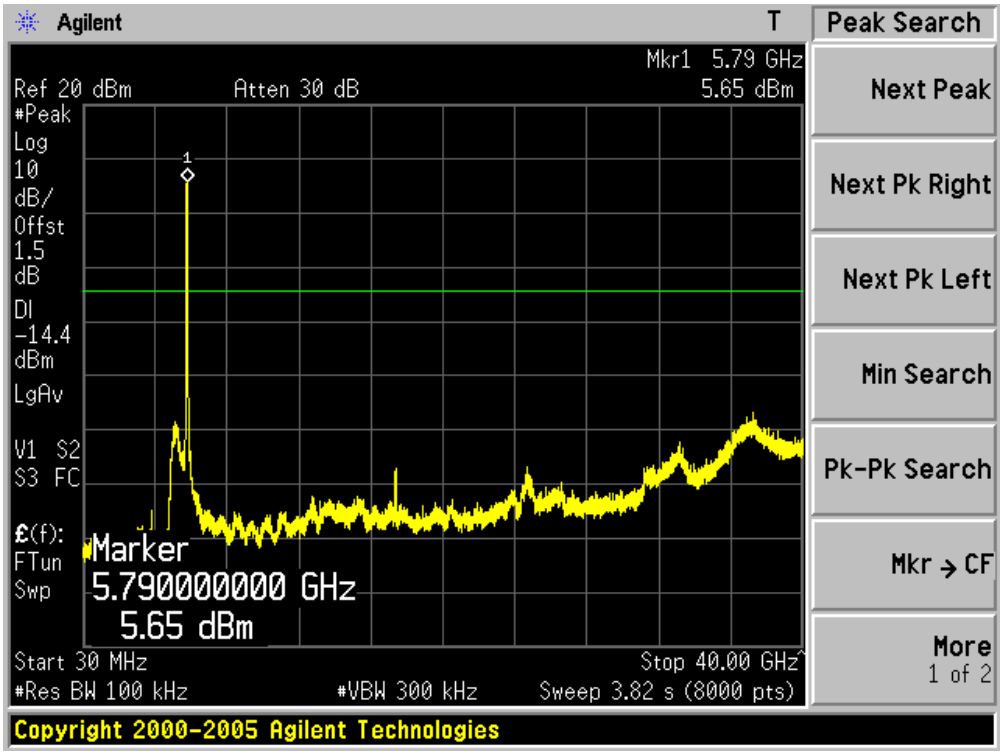


Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(40MHz) (Chain 100)

Channel 151 (5755MHz)

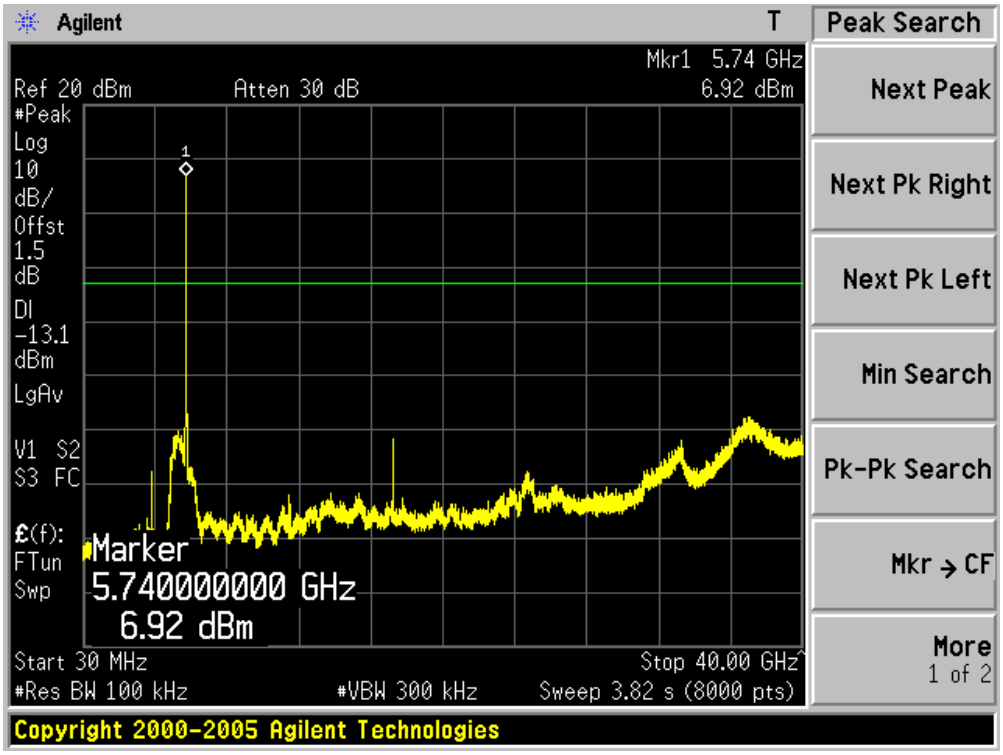


Channel 159 (5795MHz)

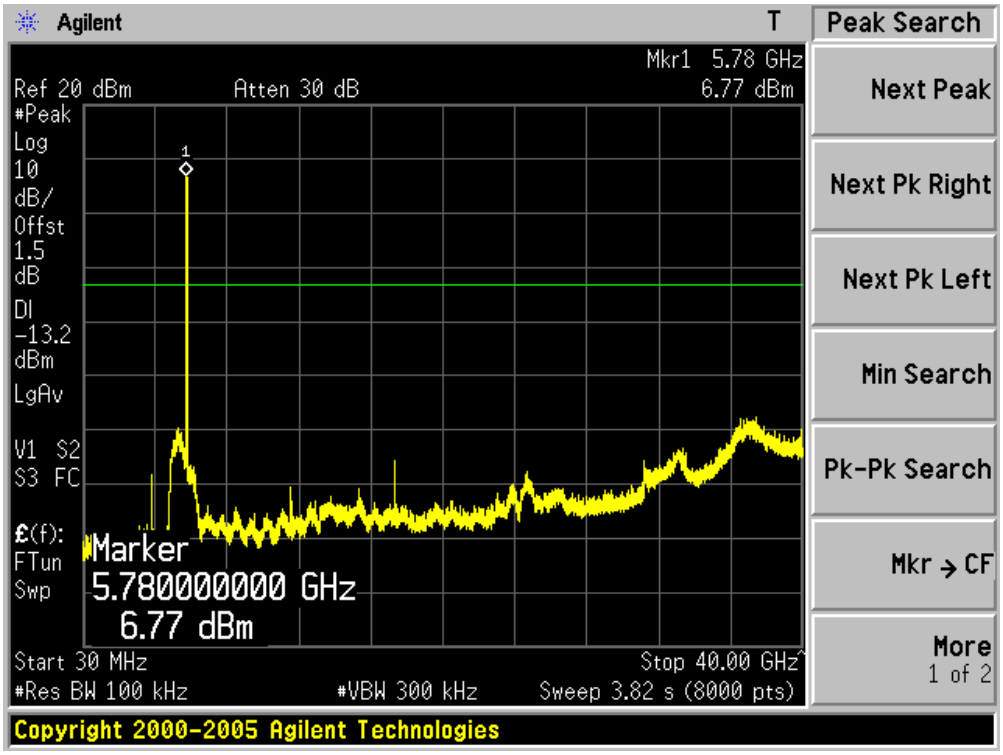


Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11a (Chain 010)

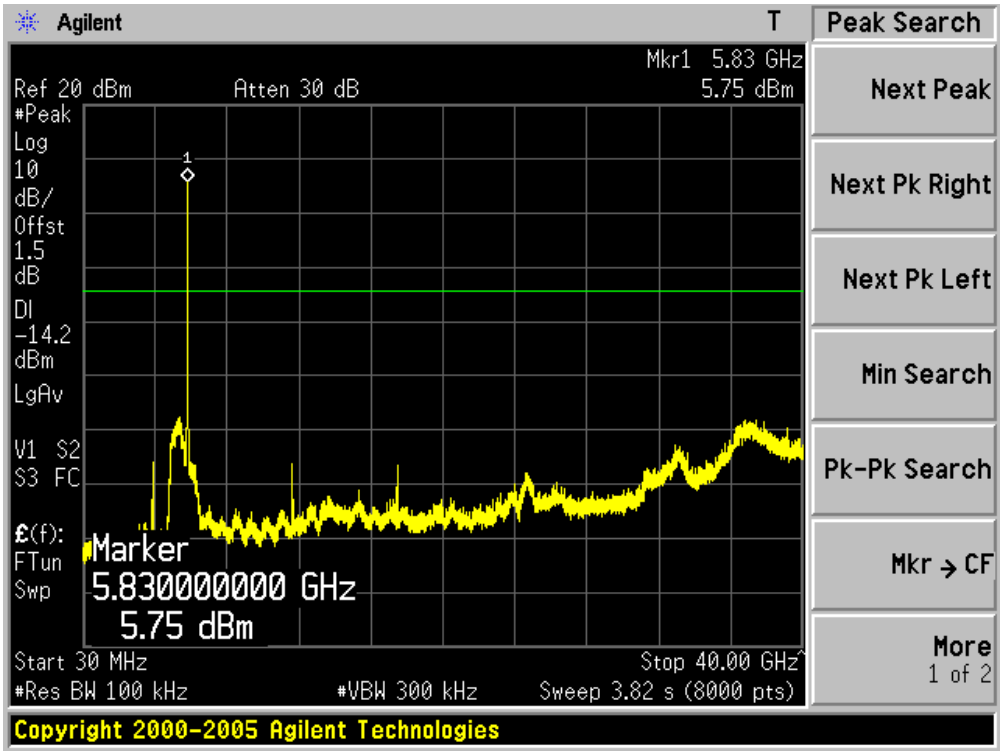
Channel 149 (5745MHz)



Channel 157 (5785MHz)

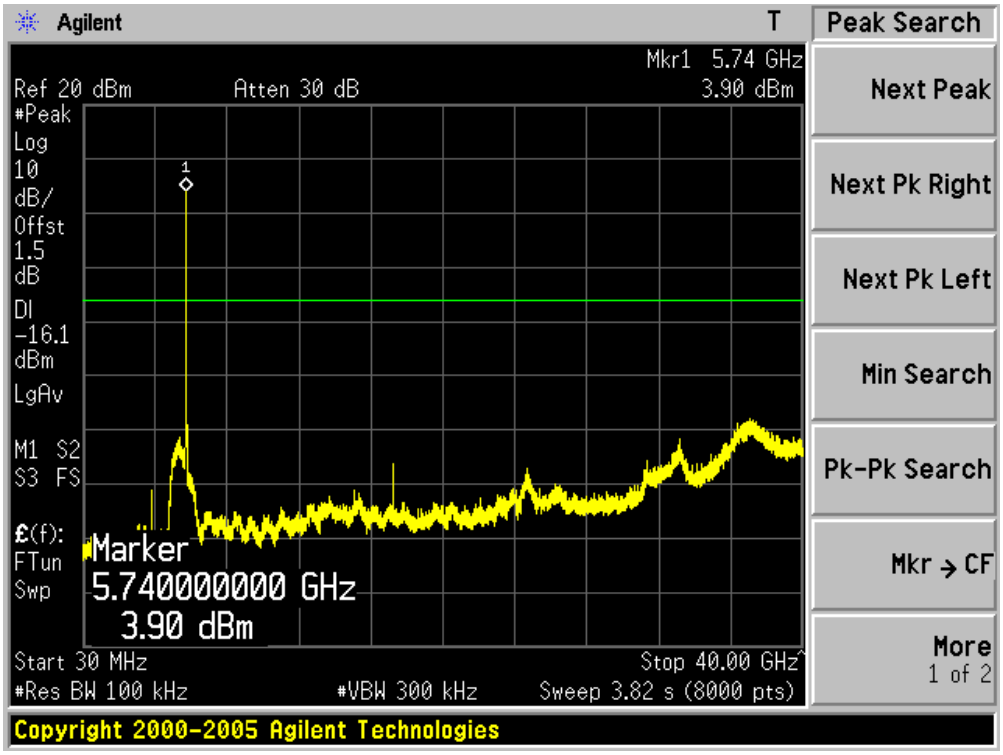


Channel 165 (5825MHz)

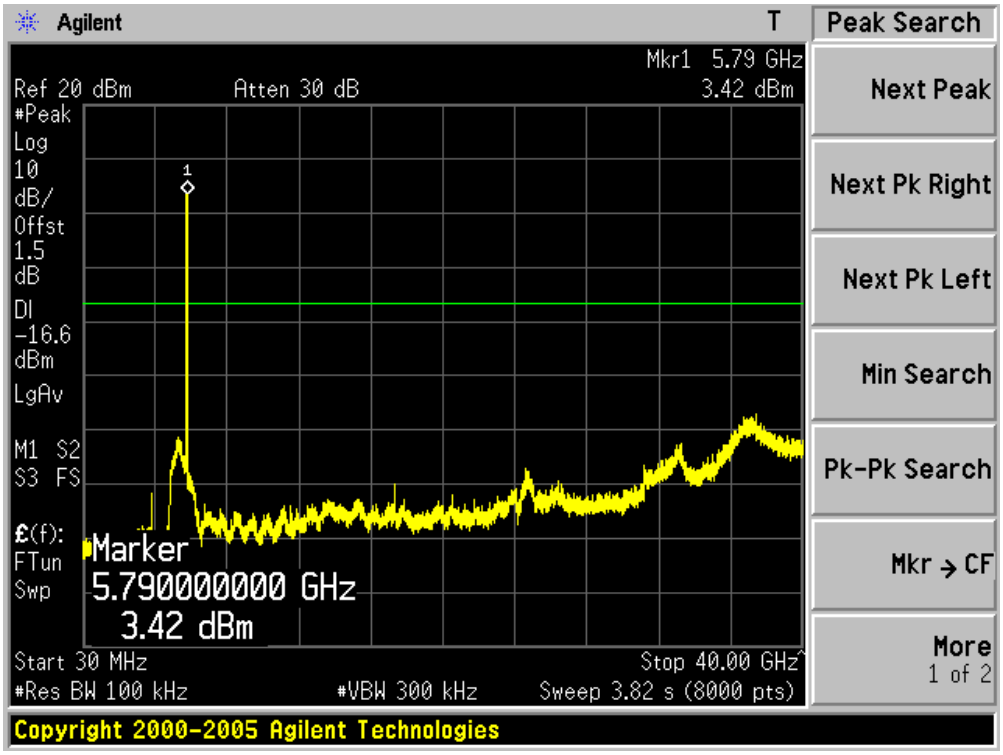


Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n (20MHz) (Chain 010)

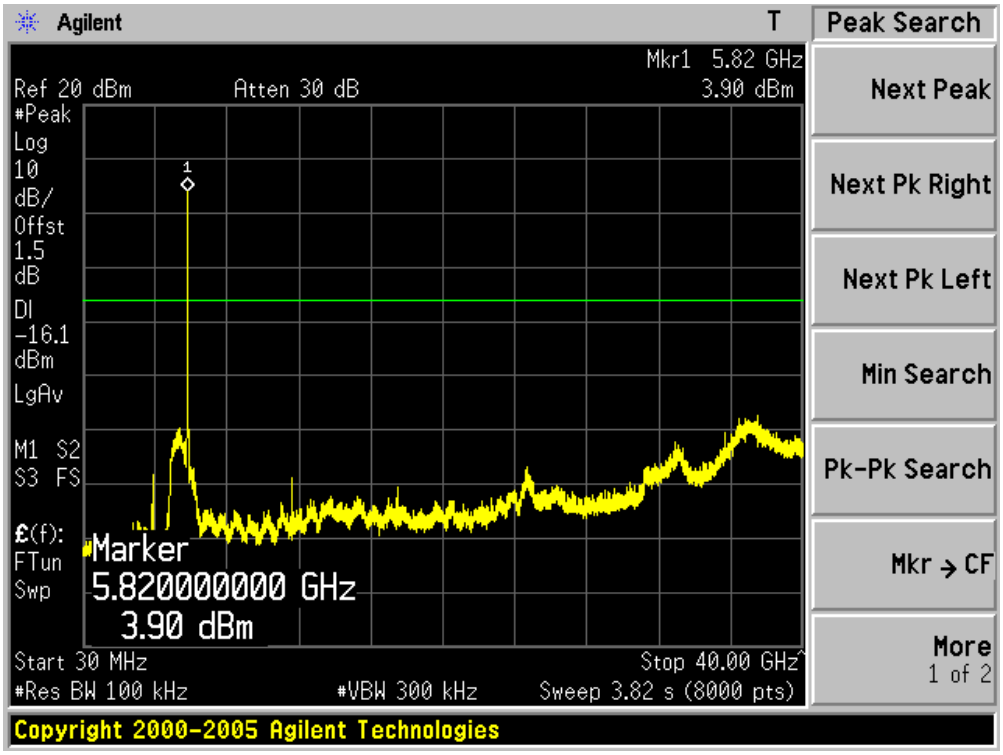
Channel 149 (5745MHz)



Channel 157 (5785MHz)

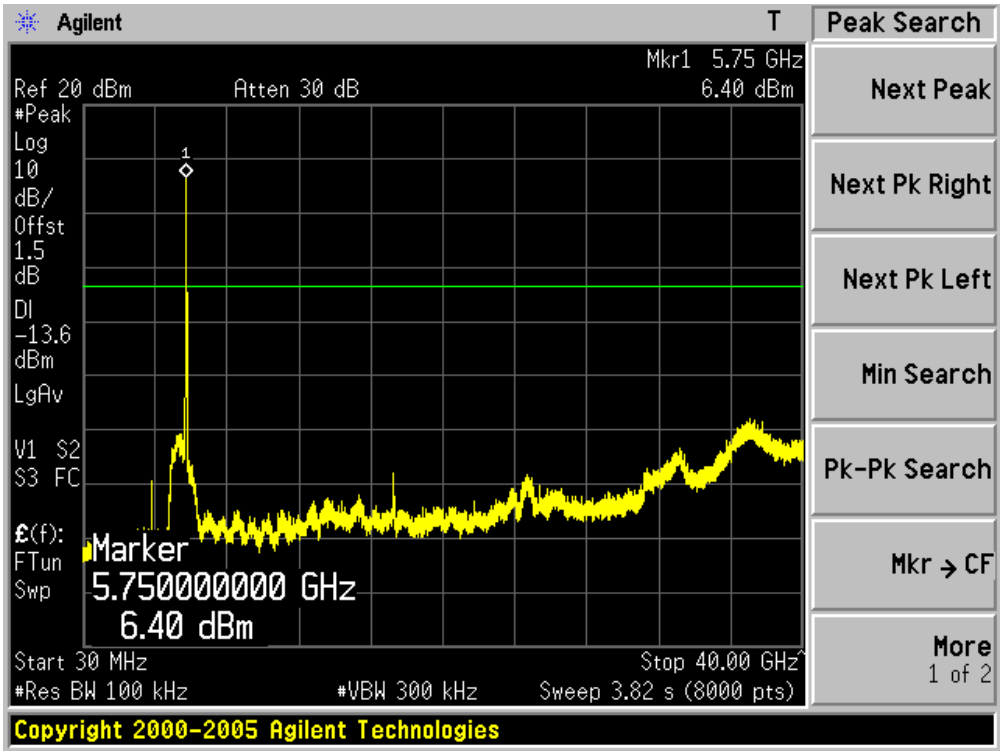


Channel 165 (5825MHz)

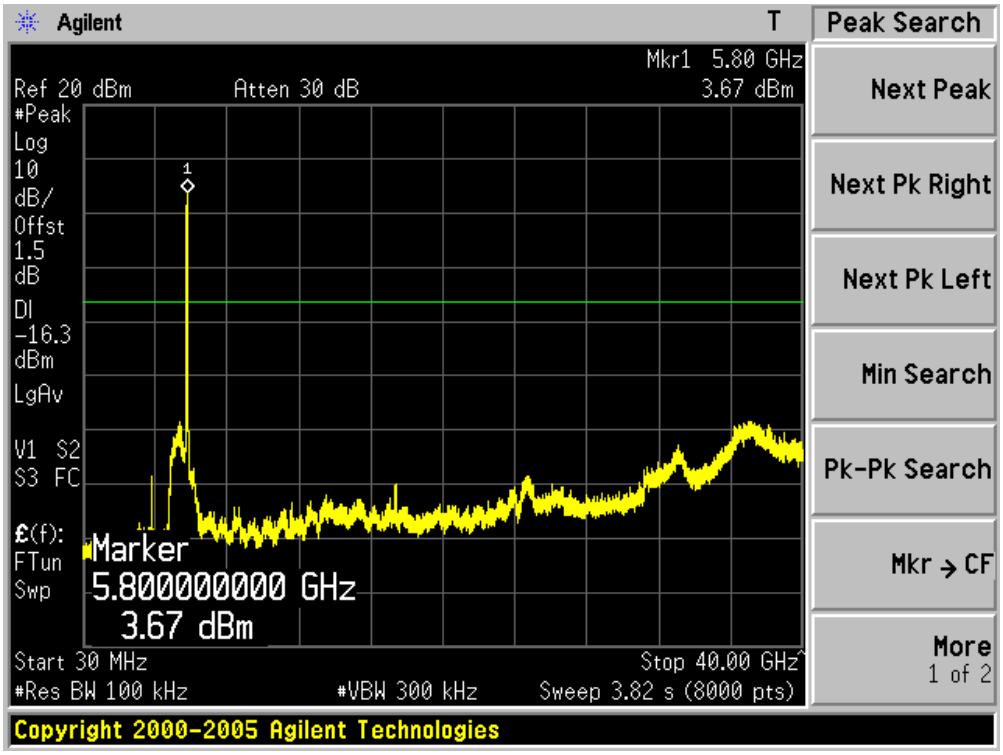


Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	RF Antenna Conducted Spurious
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (40MHz) (Chain 010)

Channel 151(5755MHz)



Channel 159(5795MHz)



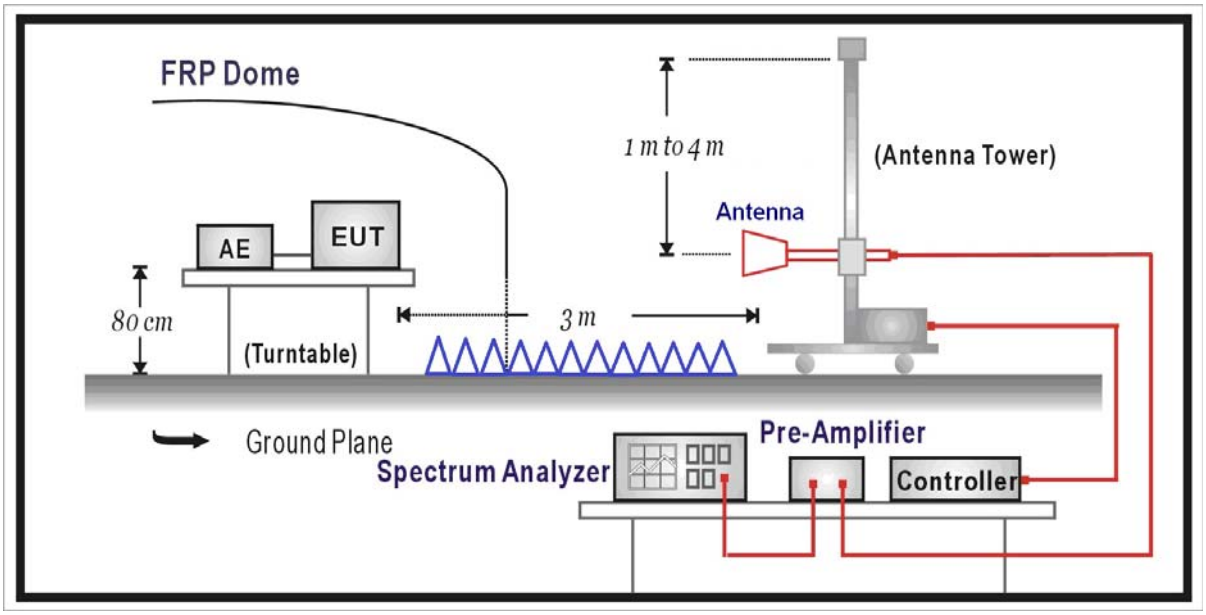
6. Radiated Emission Band Edge

6.1. Test Equipment

☒Radiated Emission Band Edge / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2010.04.23
EMI Test Receiver	R&S	ESCI	100573	2010.04.23
Preamplifier	Quietek	AP-025C	CHM-0511006	2010.05.05
Preamplifier	Quietek	AP-180C	CHM-0602013	2010.05.05
Bilog Type Antenna	Schaffner	CBL6112B	2932	2009.11.21
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	499	2010.06.11
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	2010.05.05
Temperature/Humidity Meter	zhicheng	ZC1-2	AC5-TH	2010.01.14

6.2. Test Setup



6.3. Limit

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

6.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2009 and tested according to ANSI C63.10 for compliance to FCC 47CFR 15.247 requirements.
The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2009 on radiated measurement.

6.5. Uncertainty

The measurement uncertainty above 1G is defined as ± 3.9 dB

6.6. Test Result

Refer to the follow table, the operation frequency is far away from the restriction band 5.35-5.46 and 7.25-7.75, so this item needn't be performed.

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	[2]
13.36 - 13.41			

7. Operation Frequency Range of 20dB Bandwidth

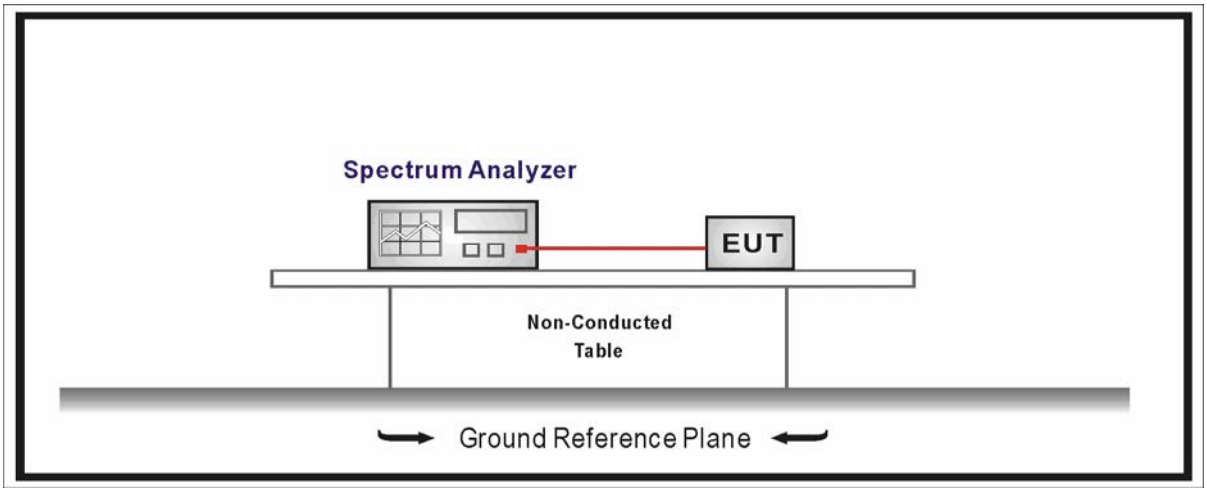
7.1. Test Equipment

Operation Frequency Range of 20dB Bandwidth / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2010.04.30
Temperature/Humidity Meter	zhicheng	ZC1-2	AC6-TH	2010.01.14

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

7.2. Test Setup



7.3. Limit

20 dB bandwidth of the emission is contained within the operation frequency band.

7.4. Test Procedure

The EUT was tested according to ANSI C63.10: 2009 for compliance to FCC 47CFR 15.247 requirements.
Set RBW = 100 kHz, Span greater than RBW.

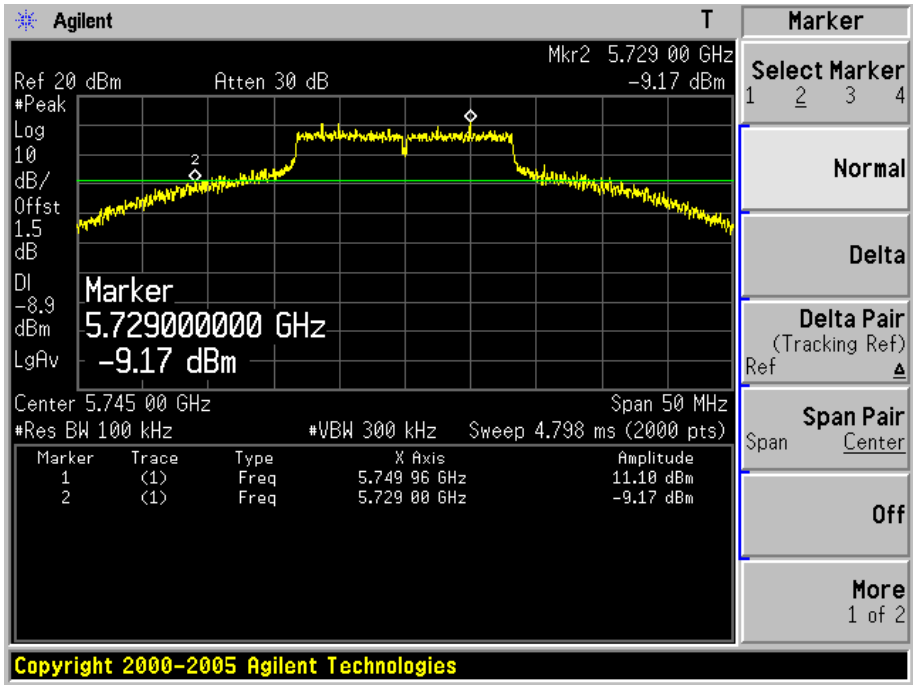
7.5. Uncertainty

The measurement uncertainty is defined as ± 1 kHz

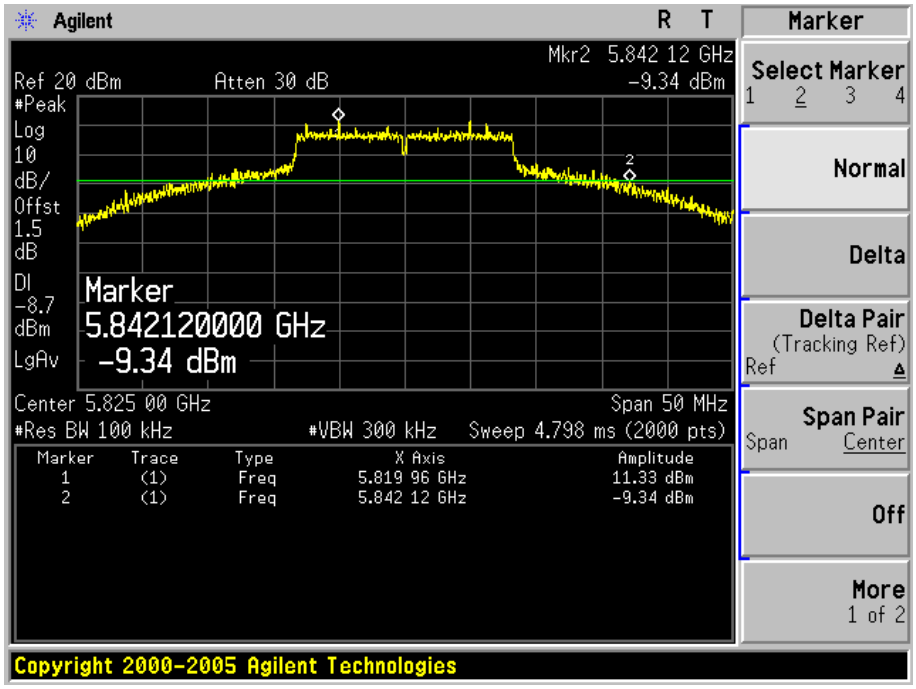
7.6. Test Result

Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11a (Chain 100)

Channel 149(5745MHz)

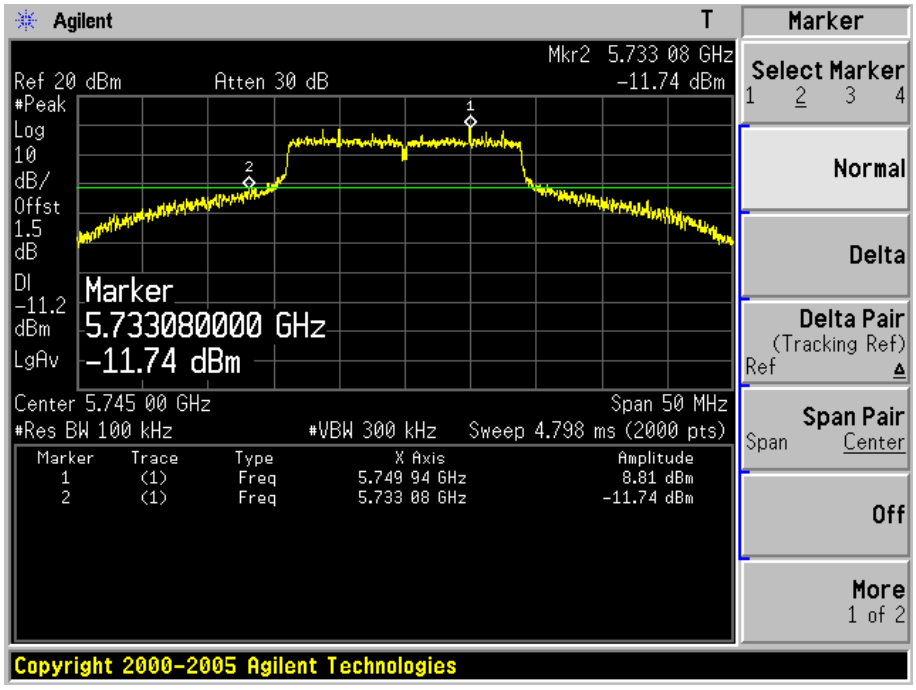


Channel 165(5825MHz)

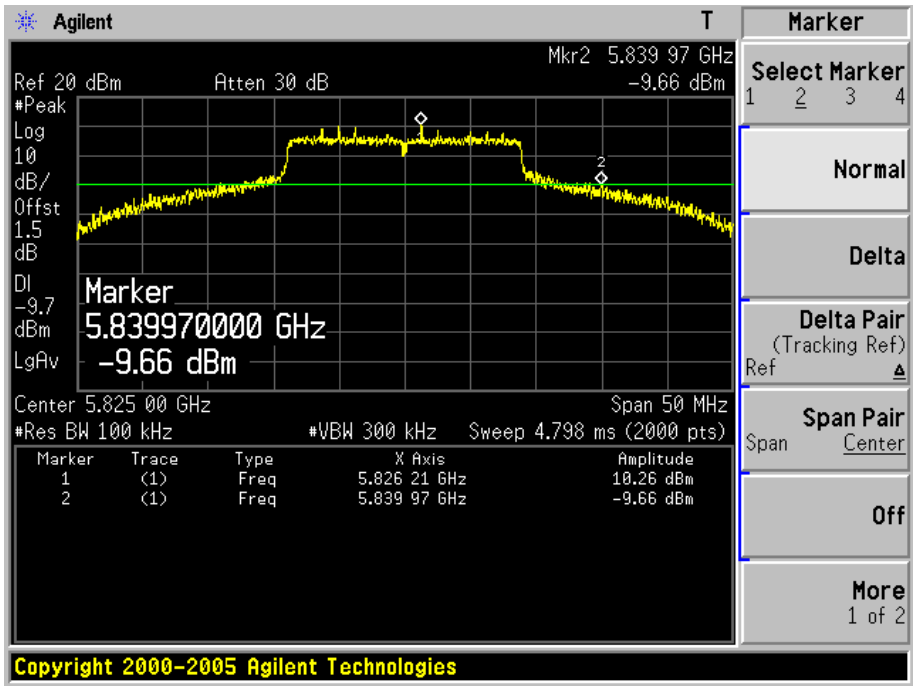


Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz) (Chain 100)

Channel 149(5745MHz)

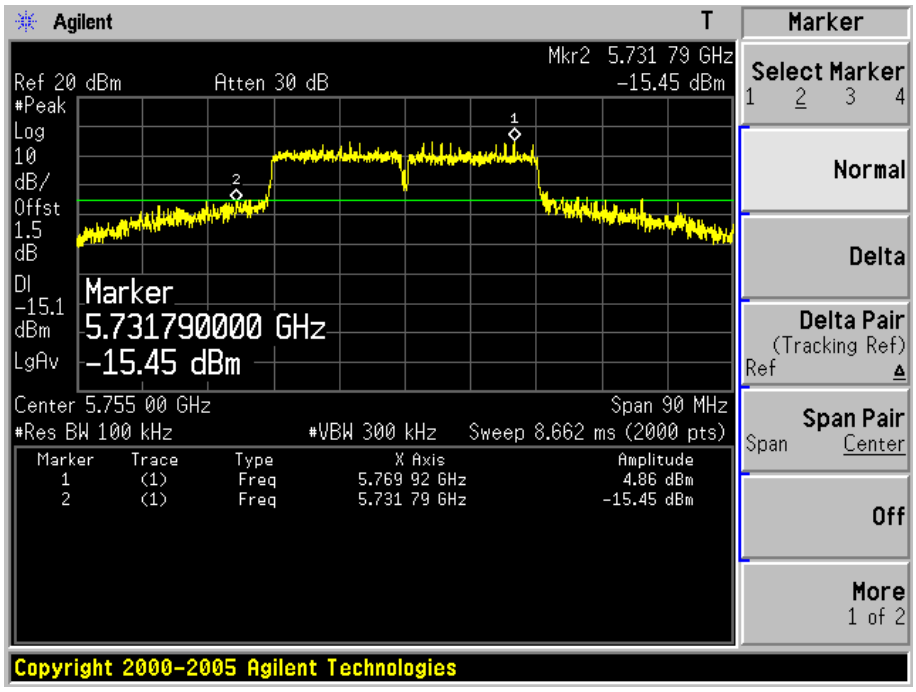


Channel 165(5825MHz)

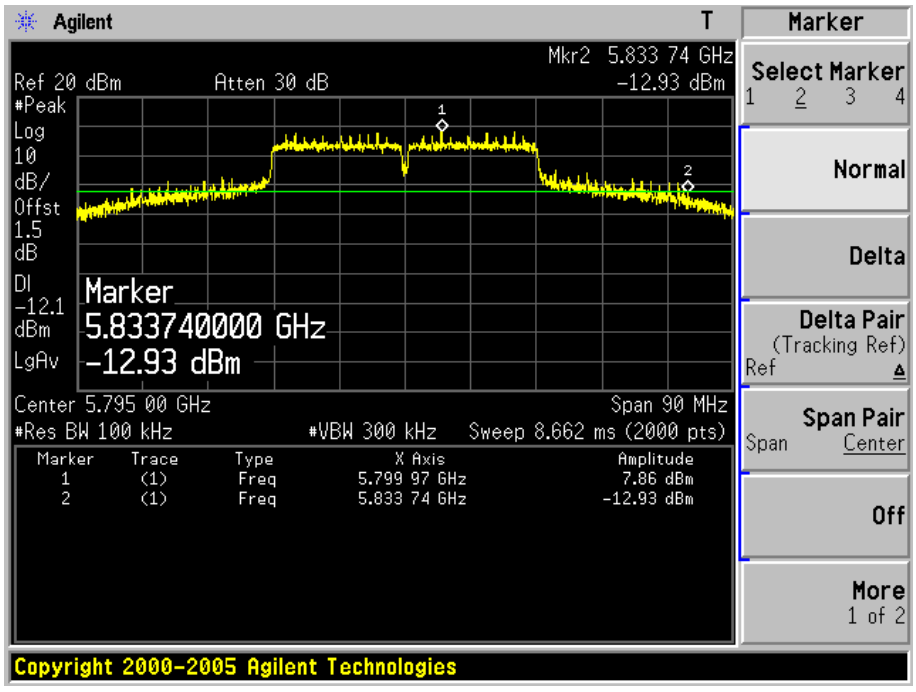


Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(40MHz) (Chain 100)

Channel 151(5755MHz)

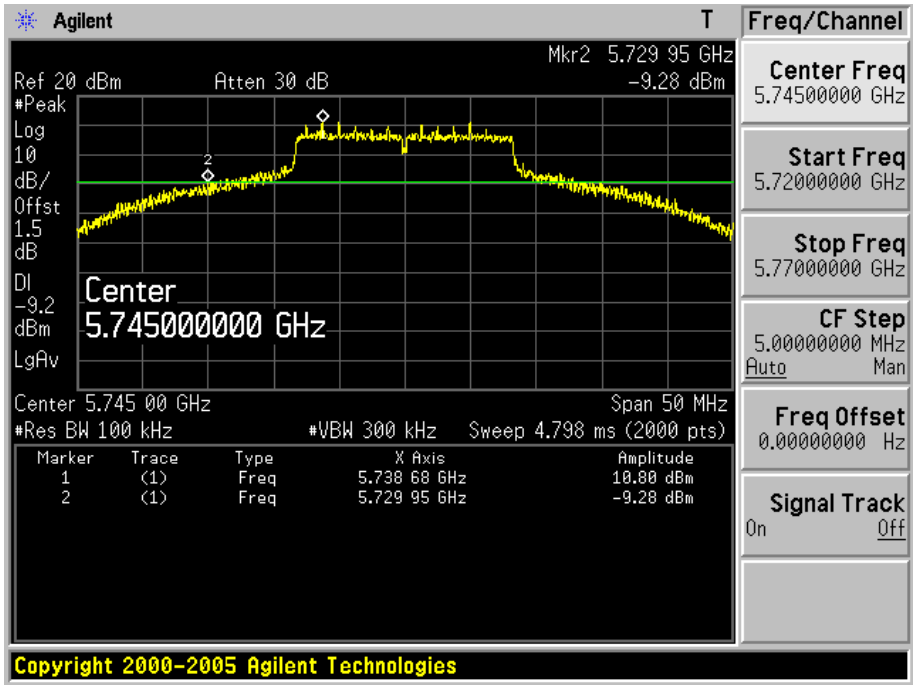


Channel 159(5795MHz)

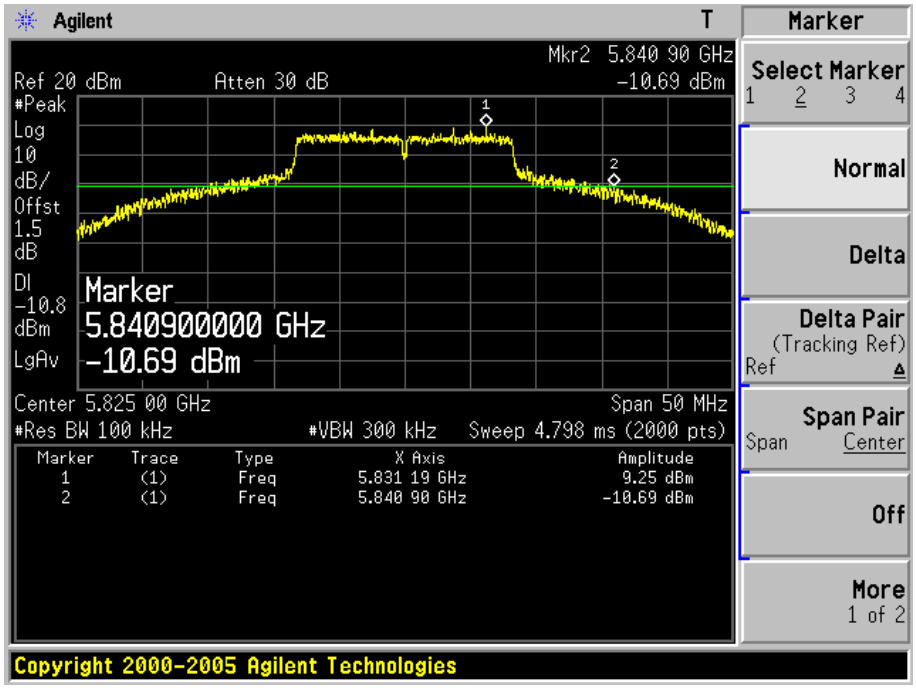


Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11a (Chain 010)

Channel 149(5745MHz)

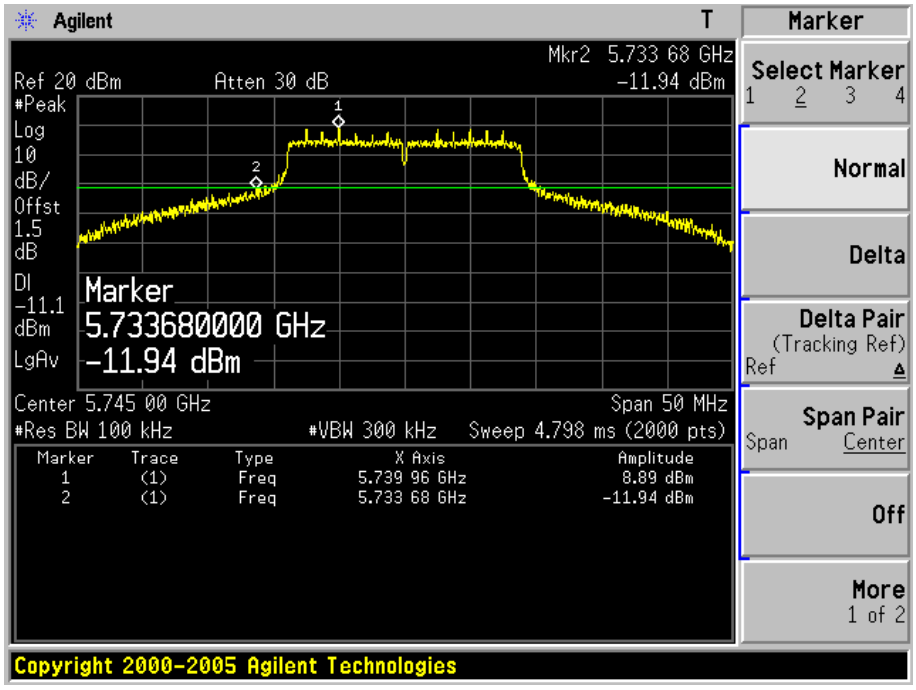


Channel 165(5825MHz)

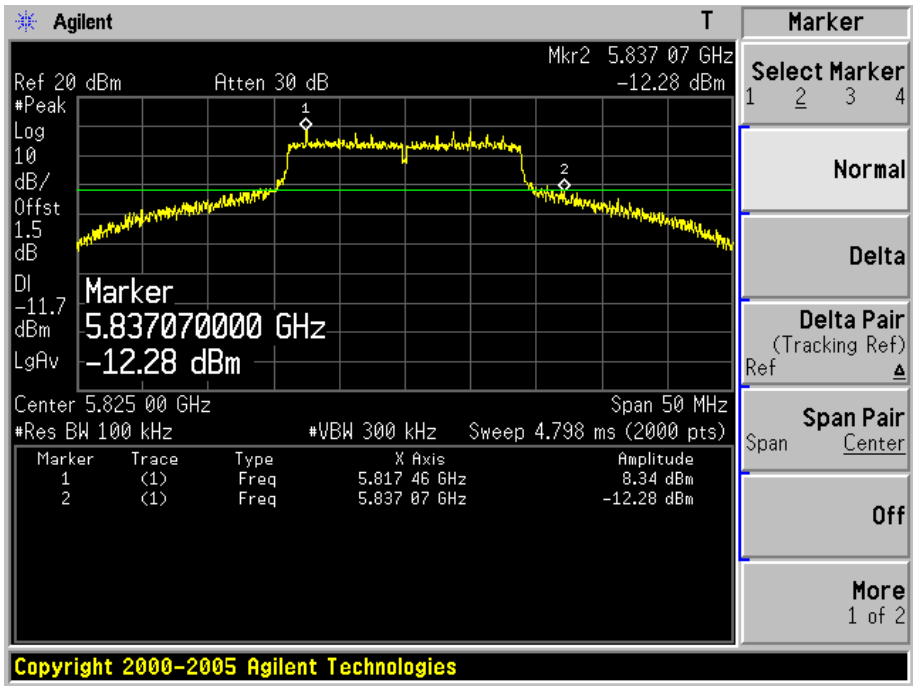


Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n (20MHz) (Chain 010)

Channel 149(5745MHz)

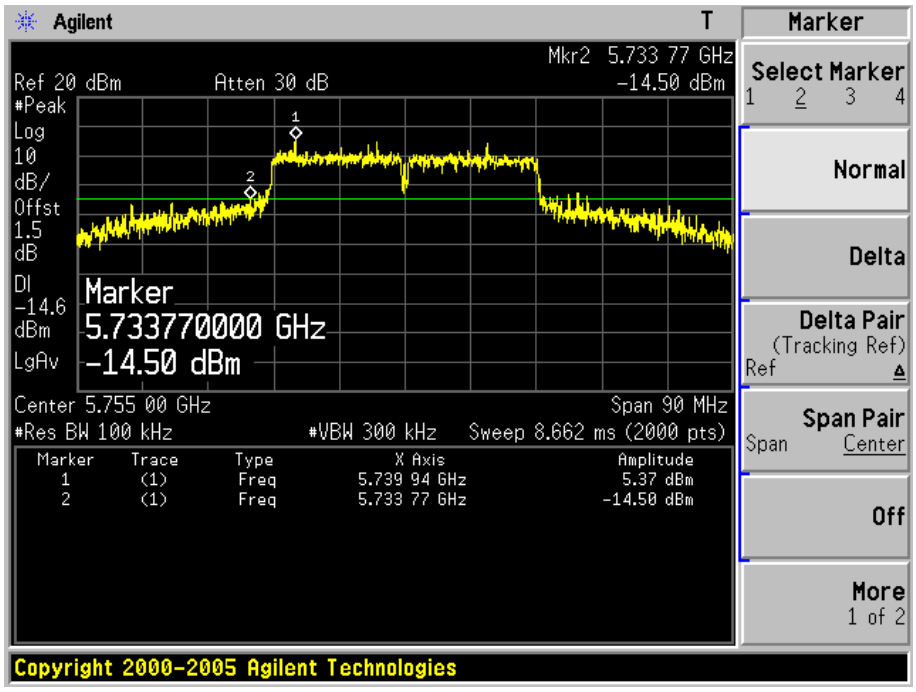


Channel 165(5825MHz)

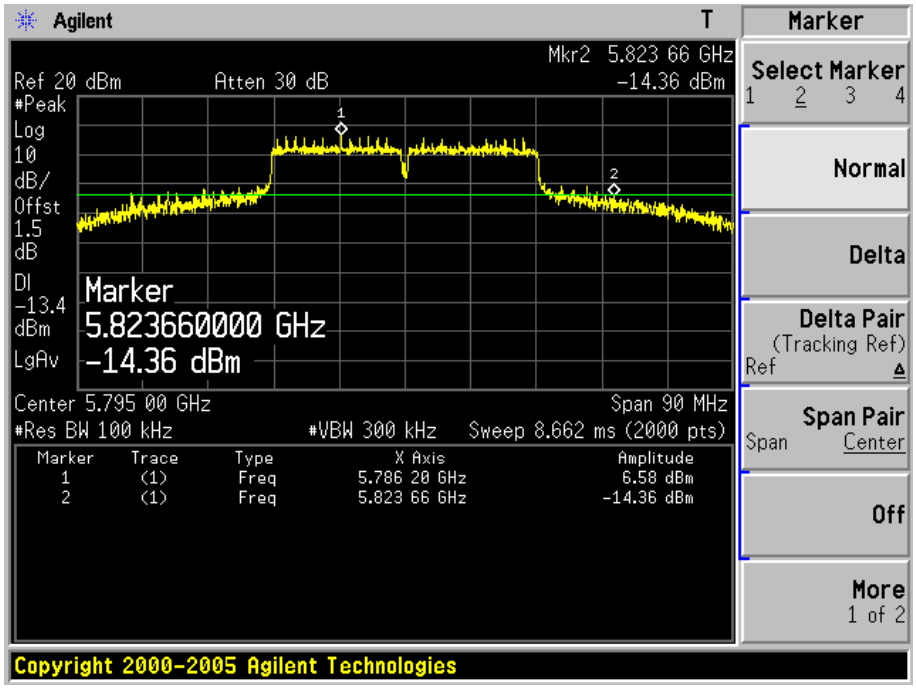


Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	Operation Frequency Range of 20dB Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(40MHz) (Chain 010)

Channel 151(5755MHz)



Channel 159(5795MHz)



8. Occupied Bandwidth

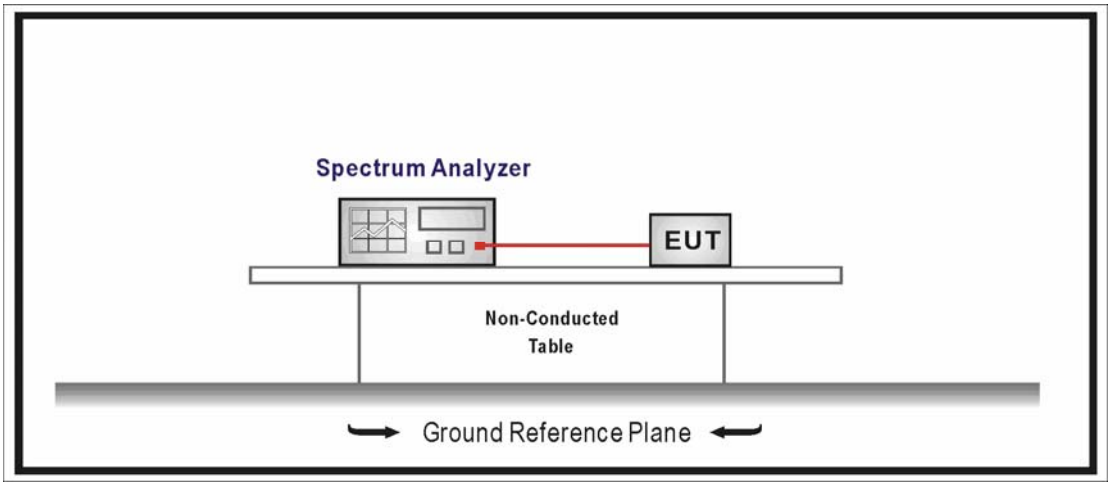
8.1. Test Equipment

Occupied Bandwidth / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2010.04.30
Temperature/Humidity Meter	zhicheng	ZC1-2	AC6-TH	2010.01.14

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

8.2. Test Setup



8.3. Limit

The minimum 6 dB bandwidth shall be at least 500 kHz.

8.4. Test Procedure

The EUT was tested according to ANSI C63.10: 2009 for compliance to FCC 47CFR 15.247 requirements.
Set RBW = 100 kHz, Span greater than RBW.

8.5. Uncertainty

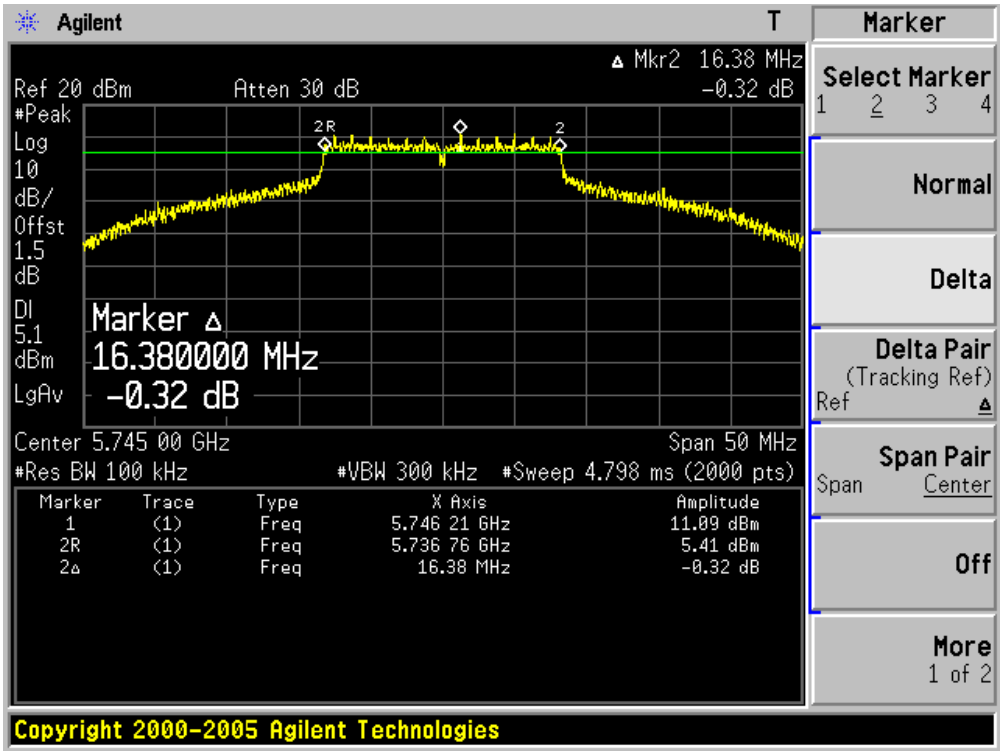
The measurement uncertainty is defined as ± 1 kHz

8.6. Test Result

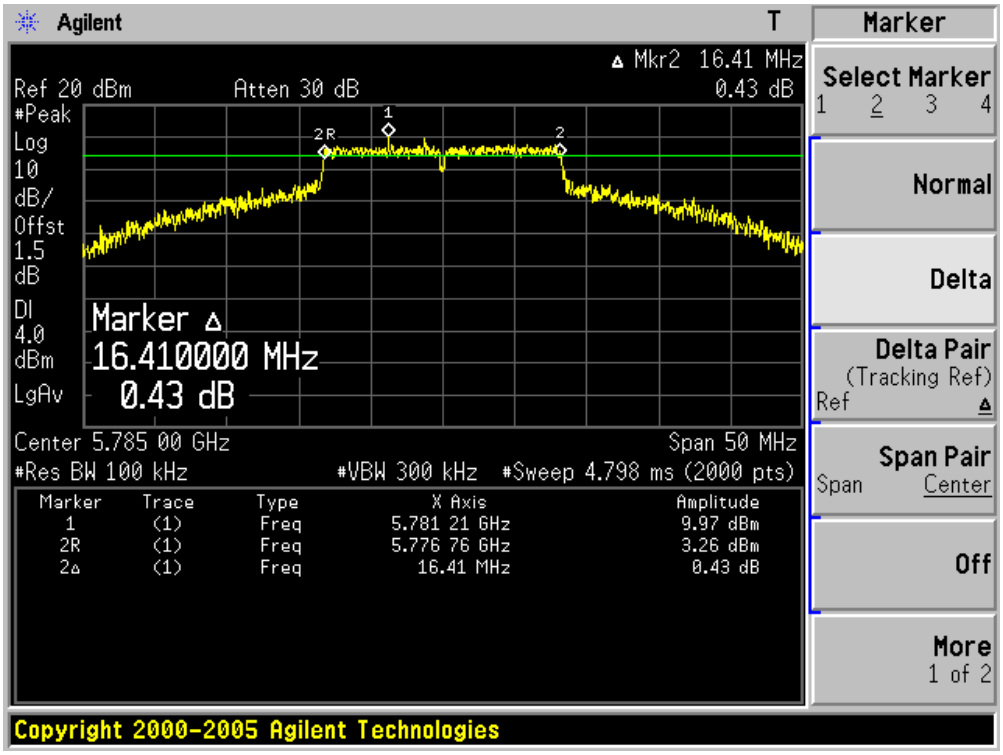
Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11a (Chain 100)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
149	5745	16380	500	Pass
157	5785	16410	500	Pass
165	5825	16380	500	Pass

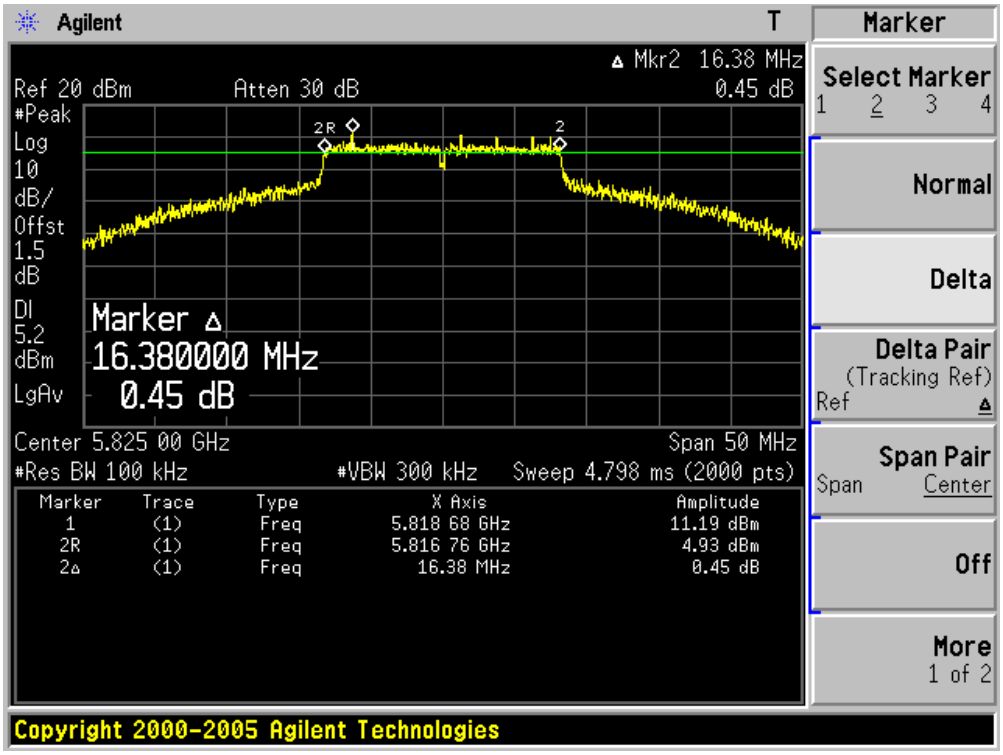
Channel 149 (5745MHz)



Channel 157 (5785MHz)



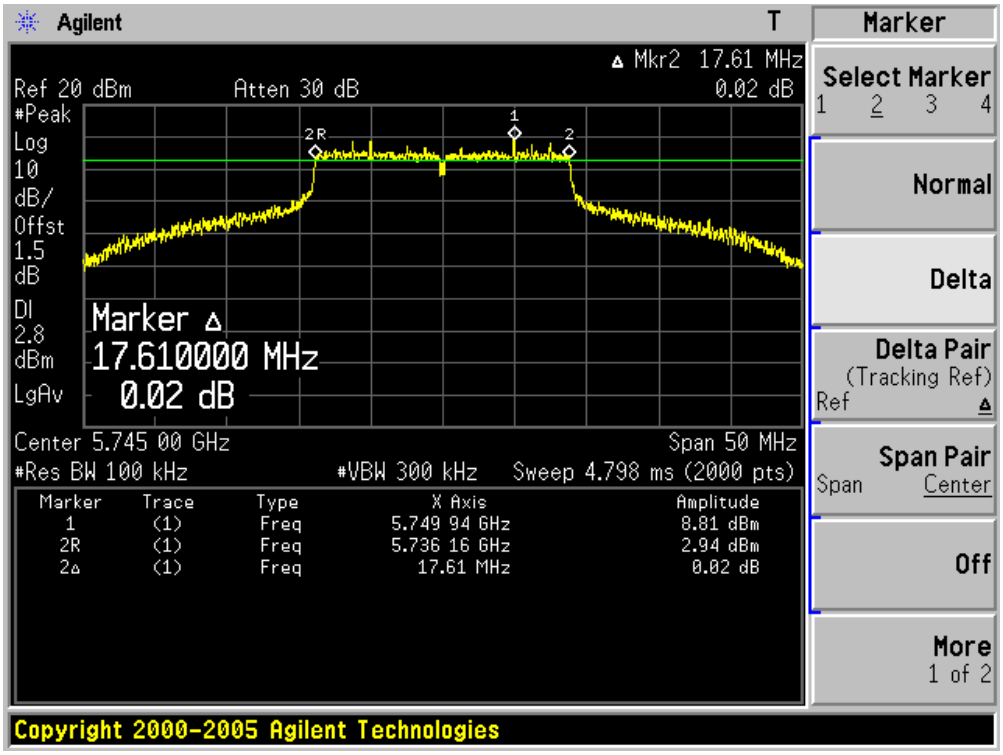
Channel 165 (5825MHz)



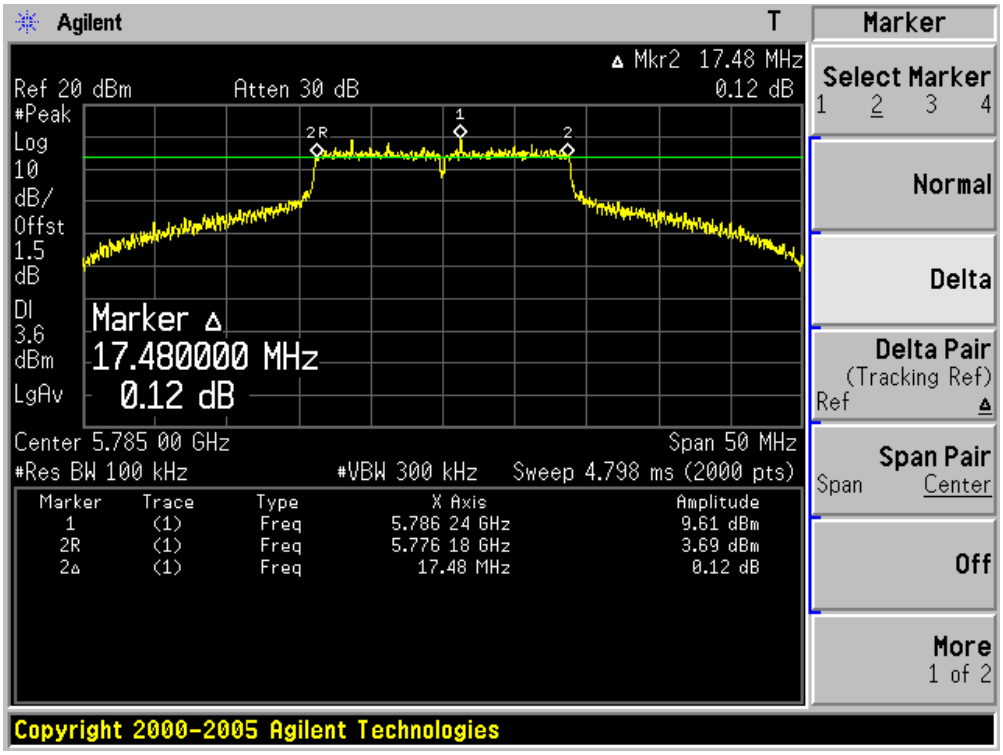
Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz) (Chain 100)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
149	5745	17610	500	Pass
157	5785	17480	500	Pass
165	5825	17580	500	Pass

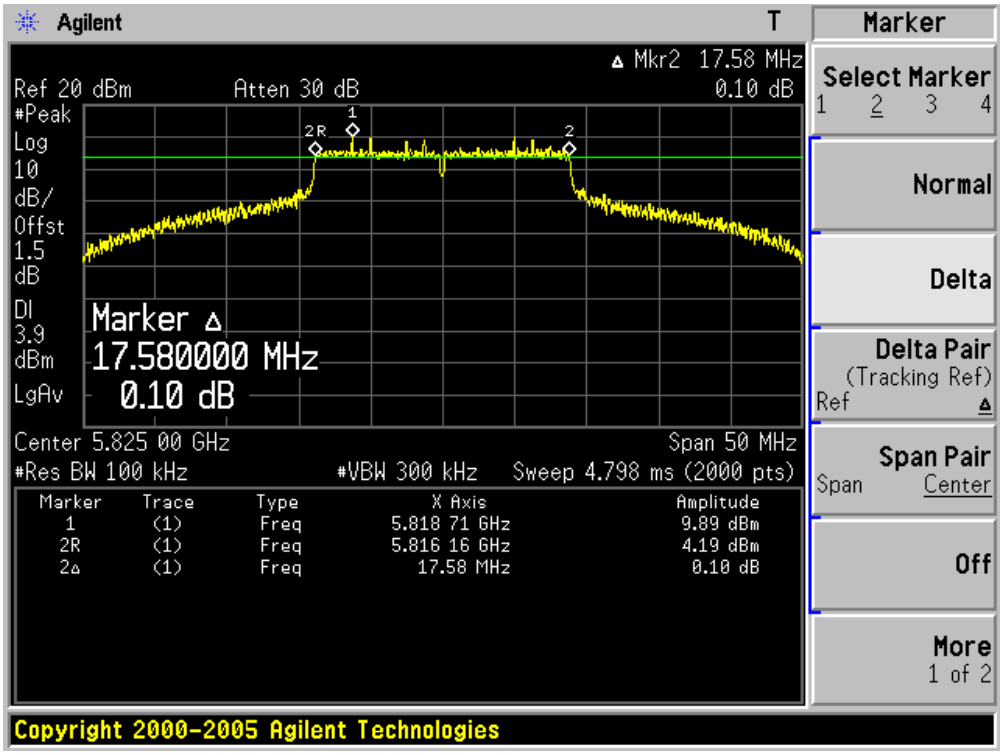
Channel 149 (5745MHz)



Channel 157 (5785MHz)



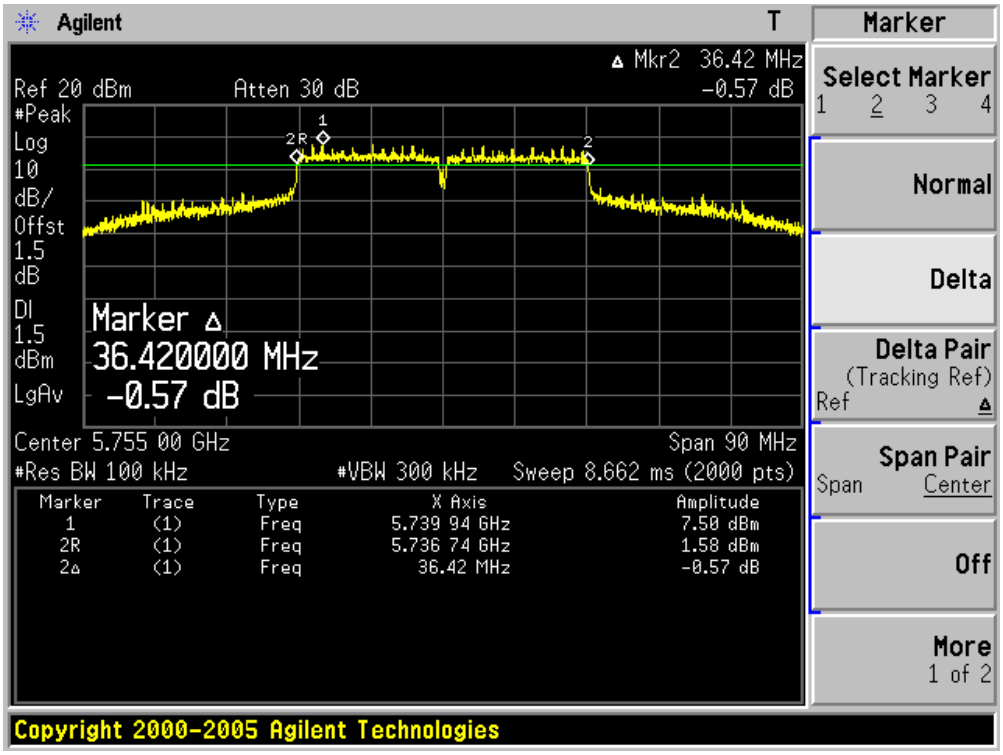
Channel 165 (5825MHz)



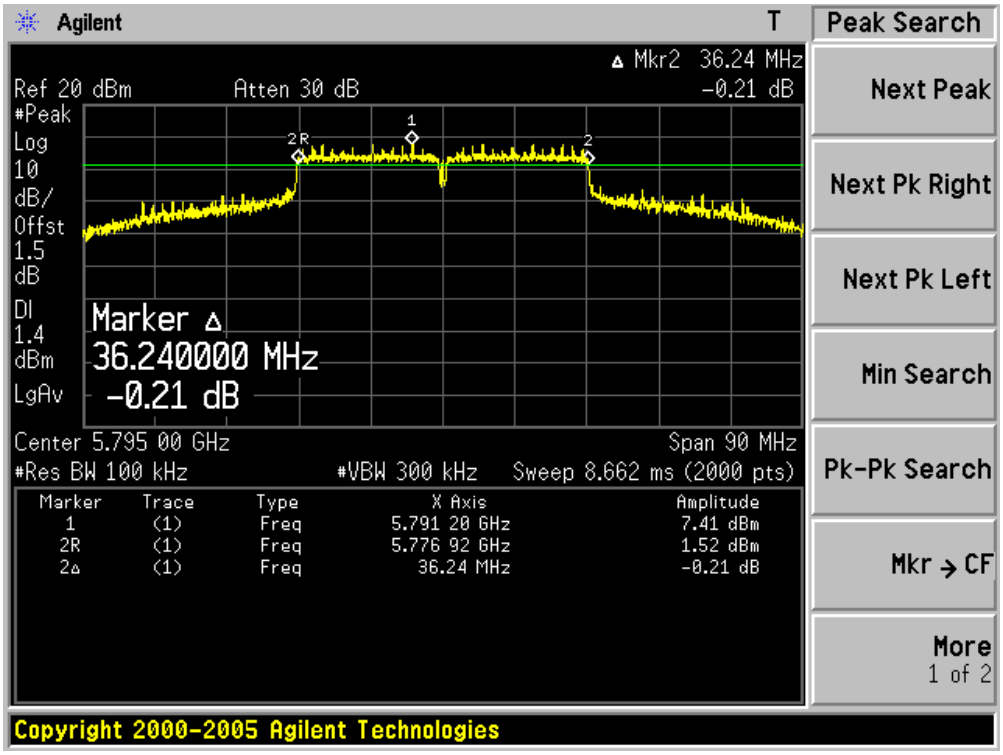
Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (40MHz) (Chain 100)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
151	5755	35420	500	Pass
159	5795	35240	500	Pass

Channel 151 (5755MHz)



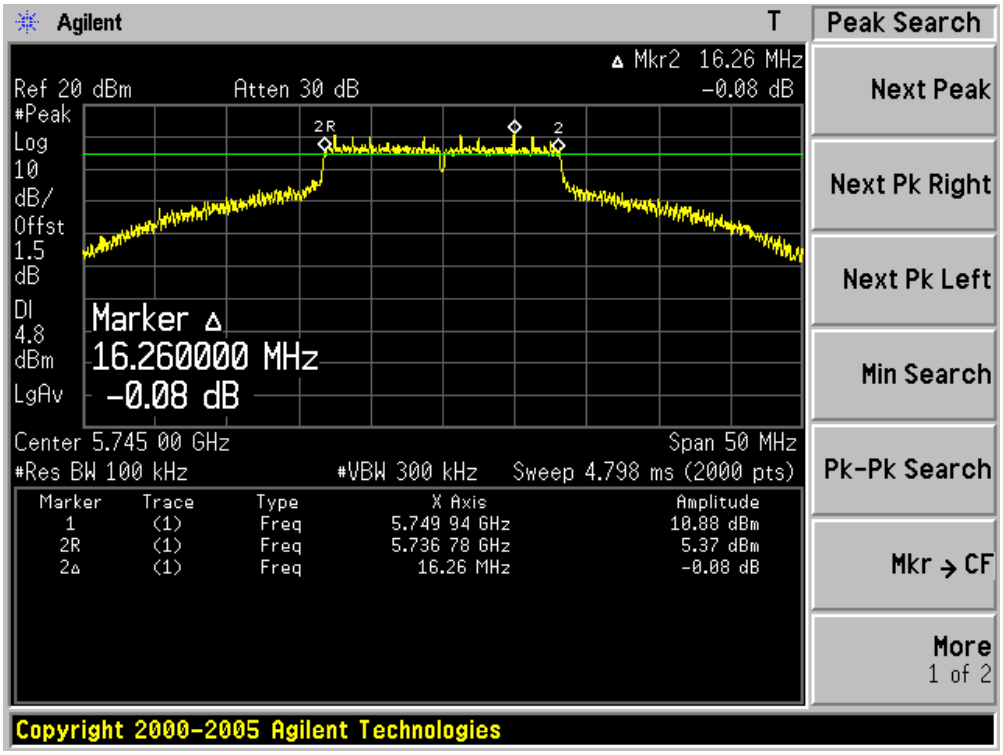
Channel 159 (5795MHz)



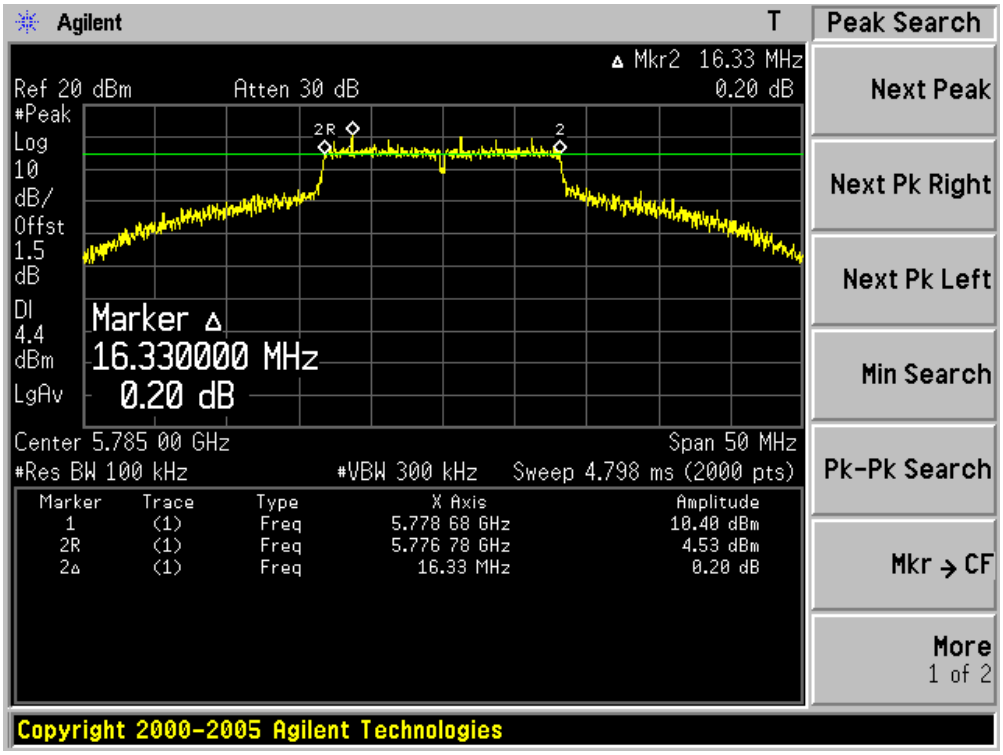
Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11a (Chain 010)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
149	5745	16260	500	Pass
157	5785	16330	500	Pass
165	5825	16530	500	Pass

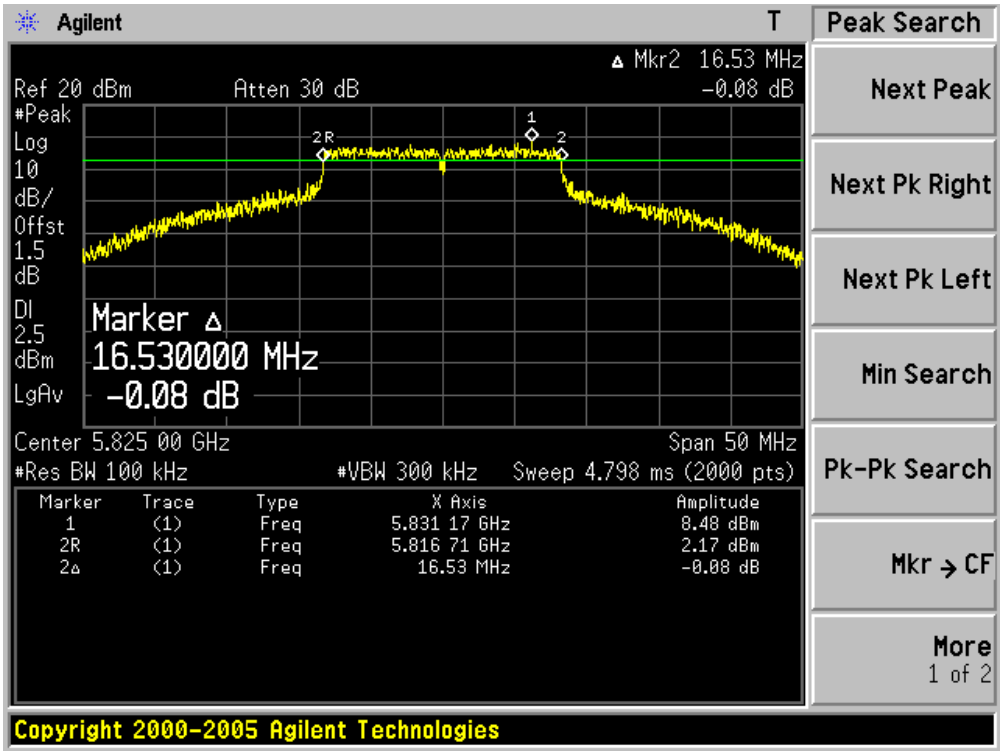
Channel 149 (5745MHz)



Channel 157 (5785MHz)



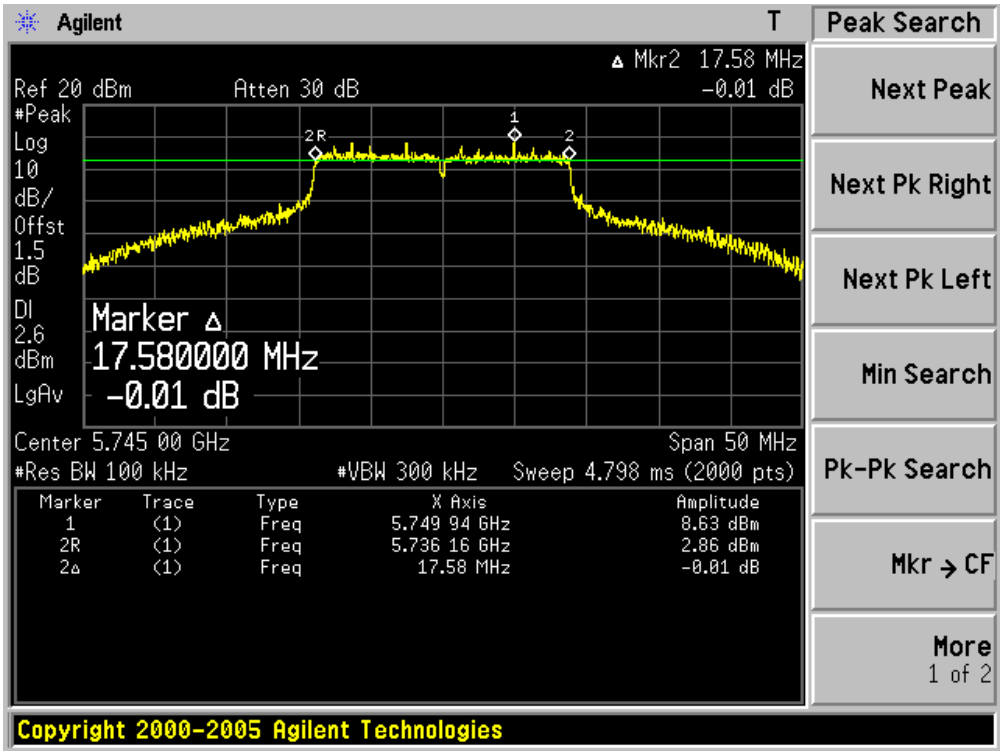
Channel 165 (5825MHz)



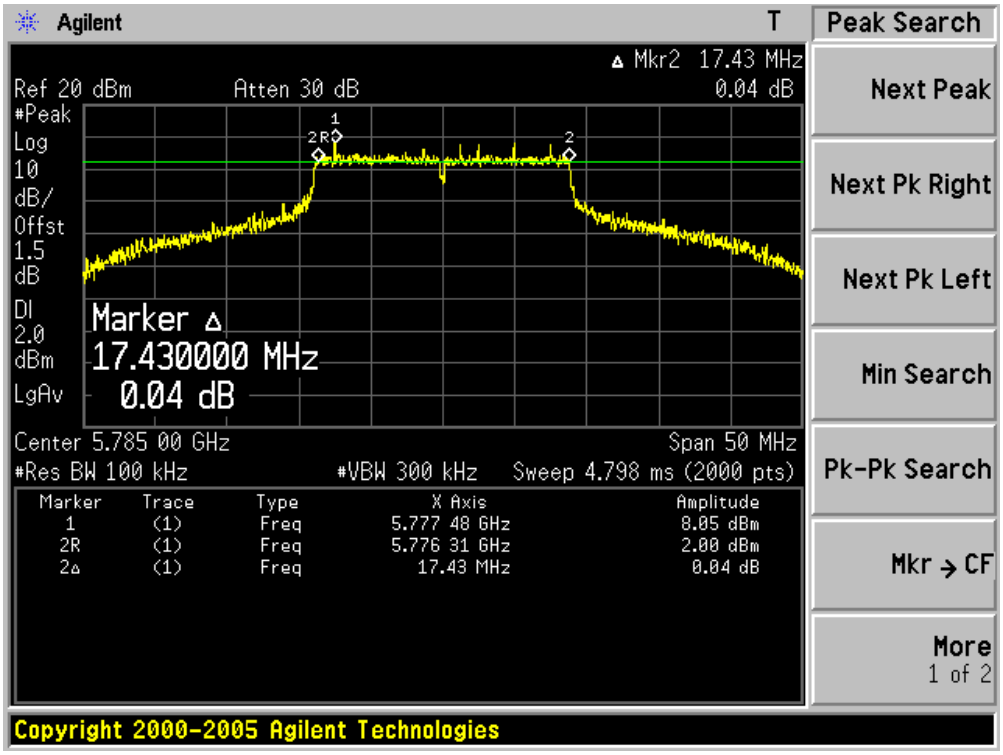
Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz) (Chain 010)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
149	5745	17580	500	Pass
157	5785	17430	500	Pass
165	5825	17310	500	Pass

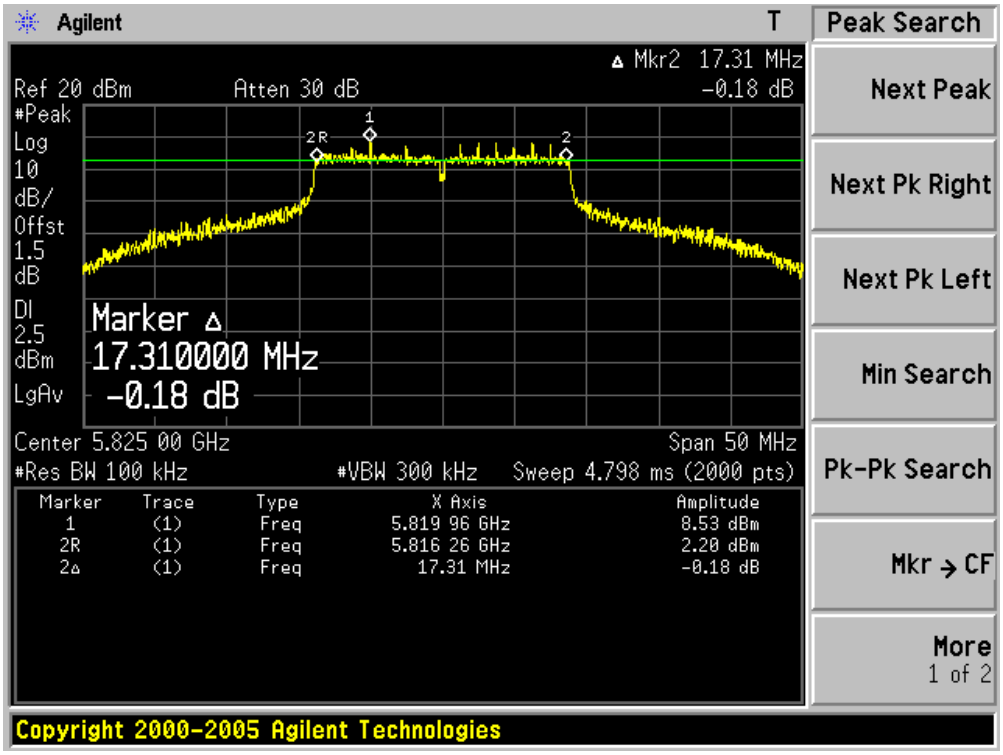
Channel 149 (5745MHz)



Channel 157 (5785MHz)



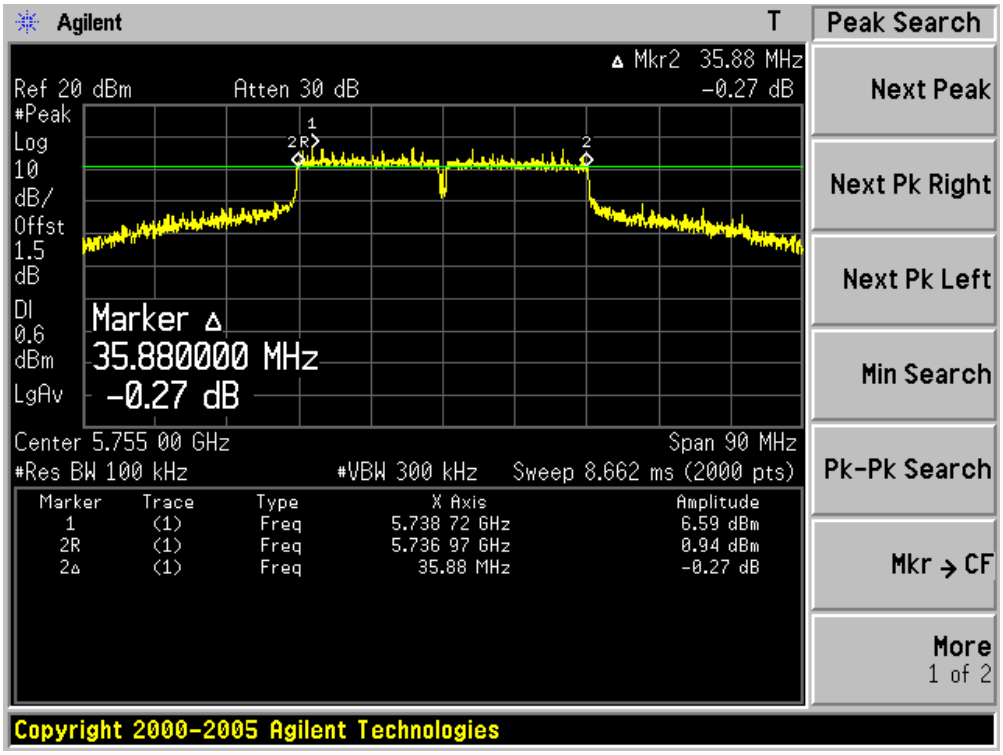
Channel 165 (5825MHz)



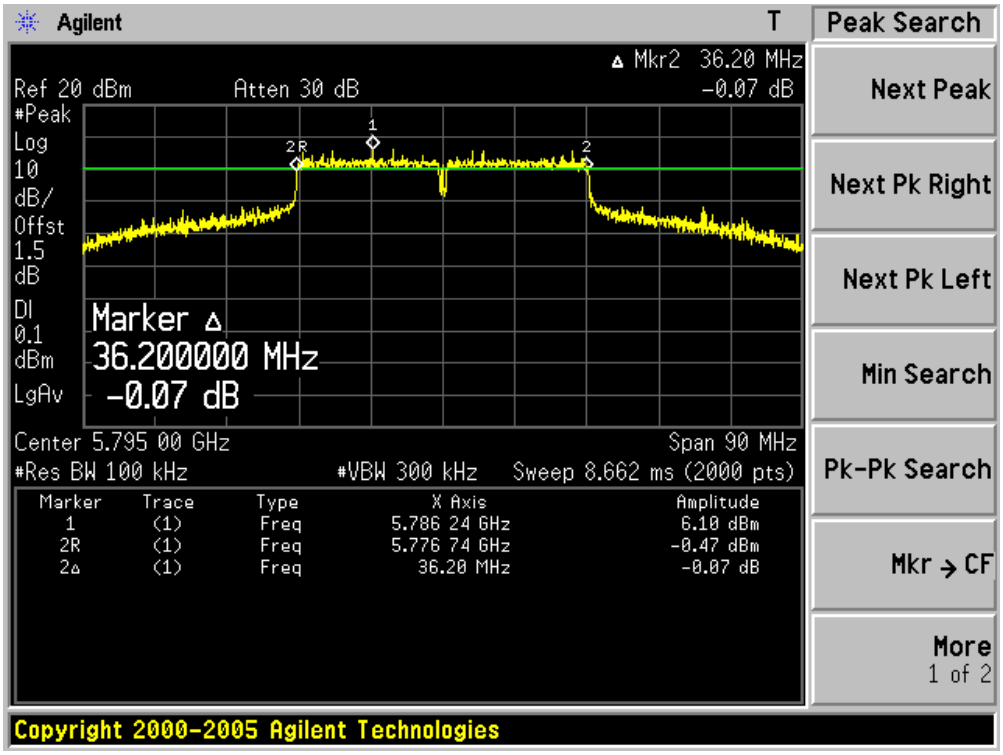
Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	6dB Occupied Bandwidth
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(40MHz) (Chain 010)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
151	5755	35880	500	Pass
159	5795	36200	500	Pass

Channel 151 (5755MHz)



Channel 159 (5795MHz)



9. Power Output

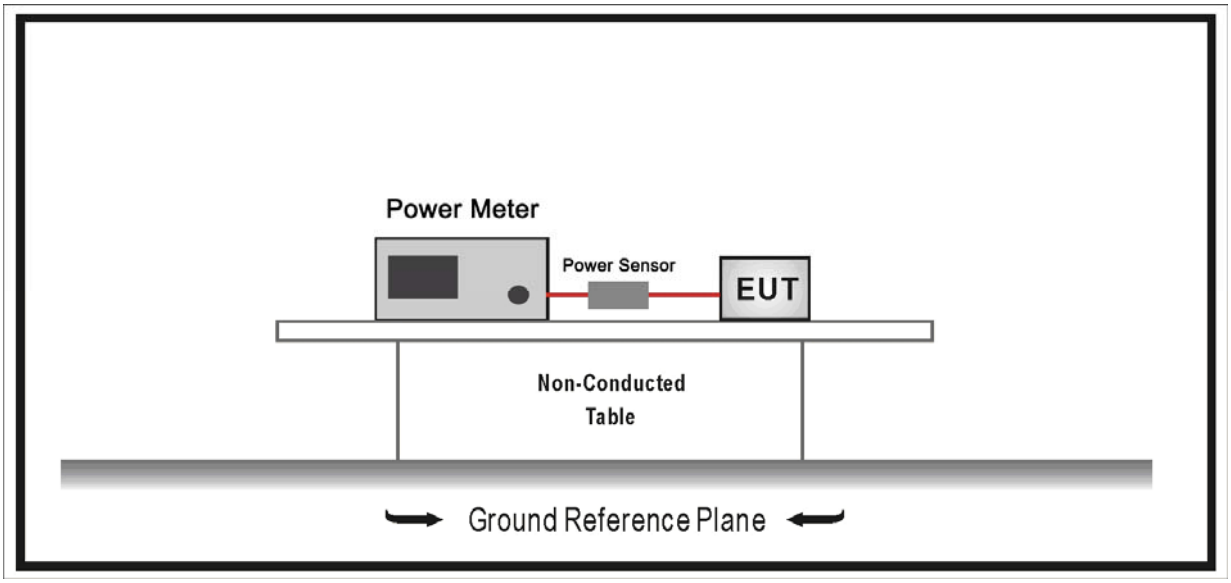
9.1. Test Equipment

Power Output / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Wideband Peak Power Meter	Anritsu	ML2495A	0905006	2010.01.12
Power Sensor	Anritsu	MA2411B	0846014	2010.01.12
Temperature/Humidity Meter	zhicheng	ZC1-2	AC6-TH	2010.01.14

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

9.2. Test Setup



9.3. Limit

The maximum peak power shall be less 1 Watt (30dBm).

Note: the conducted output power limit specified above is based on the use the antennas with directional gains that do not exceed 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values above, as appropriate, by the amount in dB that the directional gain of antenna exceeds 6 dBi.

9.4. Test Procedure

The EUT was tested according to ANSI C63.10: 2009 for compliance to FCC 47CFR 15.247 requirements.

Use the wideband power meter to test peak power and record the result.

9.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

9.6. Test Result

Power output test was verified over all data rates of each mode shown as below, and then choose the maximum power output (blue marker) for final test of each channel.

MCS Index for 802.11n	Spatial Streams	Data Rate (Mbps)				
		802.11a	20MHz Bandwidth		40MHz Bandwidth	
			800ns GI	400ns GI	800ns GI	400ns GI
0	1	6	6.5	7.2	13.5	15.0
1	1	9	13.0	14.4	27.0	30.0
2	1	12	19.5	21.7	40.5	45.0
3	1	18	26.0	28.9	54.0	60.0
4	1	24	39.0	43.3	81.0	90.0
5	1	36	52.0	57.8	108.0	120.0
6	1	48	58.5	65.0	121.5	135.0
7	1	54	65.0	72.2	135.0	150.0
8	2	---	13.0	14.4	27.0	30.0
9	2	---	26.0	28.9	54.0	60.0
10	2	---	39.0	43.3	81.0	90.0
11	2	---	52.0	57.8	108.0	120.0
12	2	---	78.0	86.7	162.0	180.0
13	2	---	104.0	115.6	216.0	240.0
14	2	---	117.0	130.0	243.0	270.0
15	2	---	130.0	144.0	270.0	300.0

Power output at various data rates:

Test Mode	Chain	Bandwidth	Frequency (MHz)	Channel	Data Rate	Peak Power (dBm)
802.11a	100	20	5785	157	6	23.19
					24	23.11
					54	22.93
802.11a	010	20	5785	157	6	23.18
					24	23.12
					54	22.98
802.11n	100	20	5785	157	HT0	23.34
					HT4	23.23
					HT7	23.15
802.11n	010	20	5785	157	HT0	23.23
					HT4	23.17
					HT7	23.03
802.11n	100	40	5795	159	HT0	23.35
					HT4	23.26
					HT7	23.14
802.11n	010	40	5795	159	HT0	23.14
					HT4	23.09
					HT7	22.92

Product	:	Wireless-A/N 23dBm Network Mini PCI Adapter With ESD
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11a (Chain 100)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Chain 100	Chain 010			
149	5745	23.01	N/A	23.01	30.00	Pass
157	5785	23.19	N/A	23.19	30.00	Pass
165	5825	23.27	N/A	23.27	30.00	Pass

Product	:	Wireless-A/N 23dBm Network Mini PCI Adapter With ESD
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11a (Chain 010)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Chain 100	Chain 010			
149	5745	N/A	23.16	23.16	30.00	Pass
157	5785	N/A	23.18	23.18	30.00	Pass
165	5825	N/A	23.21	23.21	30.00	Pass

Product	:	Wireless-A/N 23dBm Network Mini PCI Adapter With ESD
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz) (Chain 100)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Chain 100	Chain 010			
149	5745	22.75	N/A	22.75	30.00	Pass
157	5785	23.34	N/A	23.34	30.00	Pass
165	5825	23.55	N/A	23.55	30.00	Pass

Product	:	Wireless-A/N 23dBm Network Mini PCI Adapter With ESD
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz) (Chain 010)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Chain 100	Chain 010			
149	5745	N/A	22.92	22.92	30.00	Pass
157	5785	N/A	23.23	23.23	30.00	Pass
165	5825	N/A	23.32	23.32	30.00	Pass

Product	:	Wireless-A/N 23dBm Network Mini PCI Adapter With ESD
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz) (Chain 110)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Chain 100	Chain 010			
149	5745	22.89	23.10	26.01	30.00	Pass
157	5785	23.30	23.48	26.40	30.00	Pass
165	5825	23.38	23.61	26.51	30.00	Pass

Product	:	Wireless-A/N 23dBm Network Mini PCI Adapter With ESD
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(40MHz) (Chain 100)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Chain 100	Chain 010			
151	5755	23.38	N/A	23.38	30.00	Pass
159	5795	23.35	N/A	23.35	30.00	Pass

Product	:	Wireless-A/N 23dBm Network Mini PCI Adapter With ESD
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(40MHz) (Chain 010)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Chain 100	Chain 010			
151	5755	N/A	23.17	23.17	30.00	Pass
159	5795	N/A	23.14	23.14	30.00	Pass

Product	:	Wireless-A/N 23dBm Network Mini PCI Adapter With ESD
Test Item	:	Power Output
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(40MHz) (Chain 110)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)		Total Power (dBm)	Limit (dBm)	Result
		Chain 100	Chain 010			
151	5755	23.22	23.42	26.33	30.00	Pass
159	5795	23.33	23.50	26.43	30.00	Pass

Note: this device is used exclusively for fixed or point-to-point operations, so more than 6dBi antenna gain is allowed to use without any corresponding reduction in transmitter conducted output power.

10. Power Spectral Density

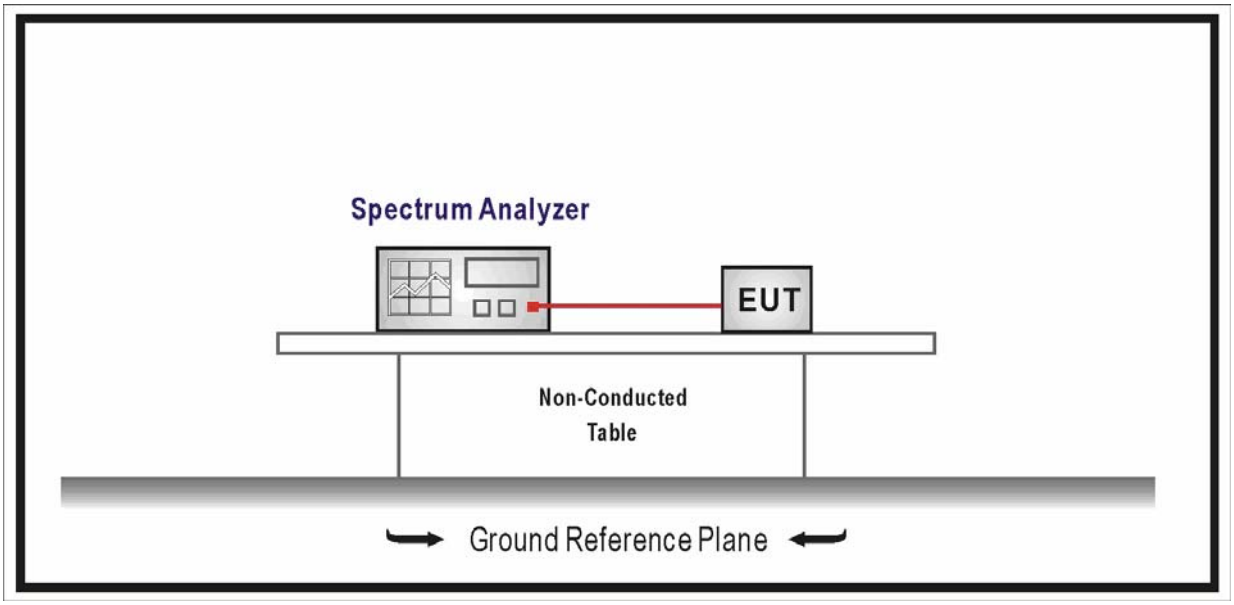
10.1. Test Equipment

Power Spectral Density / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2010.04.30
Temperature/Humidity Meter	zhicheng	ZC1-2	AC6-TH	2010.01.14

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

10.2. Test Setup



10.3. Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiated to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

10.4. Test Procedure

The EUT was tested according to ANSI C63.10: 2009 for compliance to FCC 47CFR 15.247 requirements.
Set RBW= 3 kHz, Set VBW≧ 10 kHz, Sweep time=100s, Set detector=Peak detector.

10.5. Uncertainty

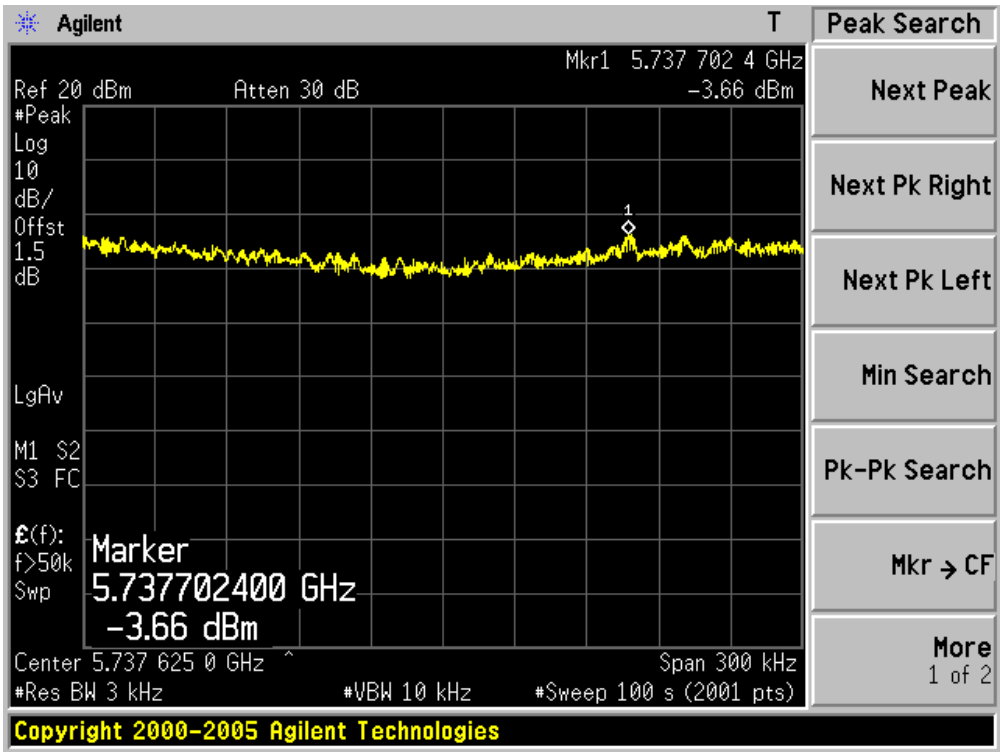
The measurement uncertainty is defined as ± 1.27 dB

10.6. Test Result

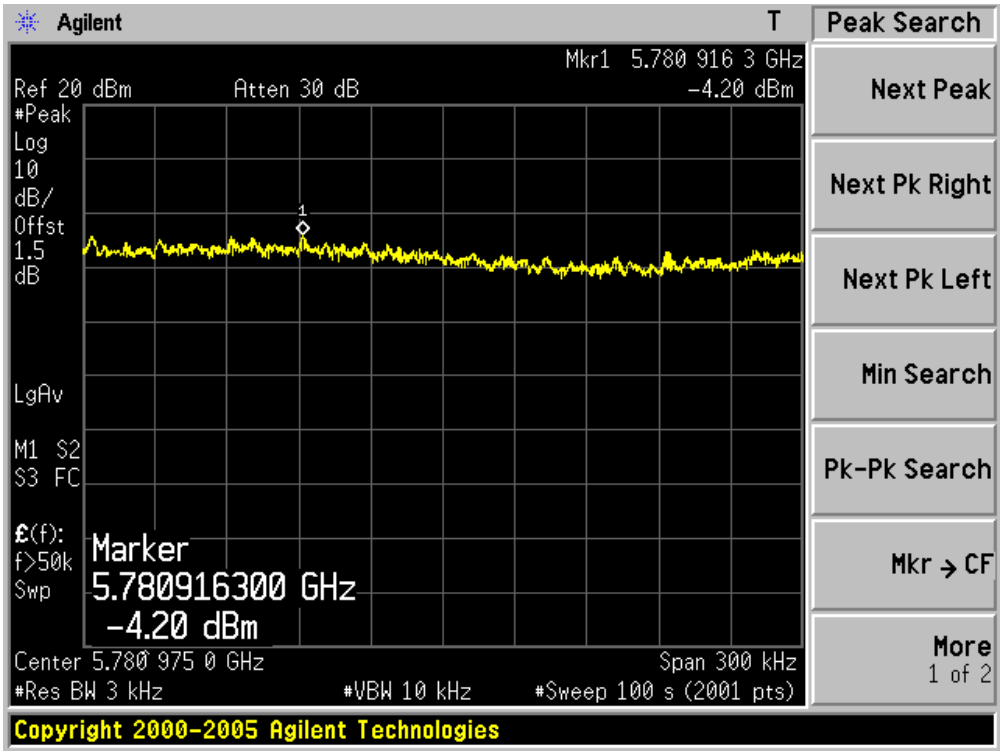
Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11a (Chain 100)

Channel No.	Frequency (MHz)	Measurement PPSD (dBm)		Total PPSD (dBm)	Limit (dBm)	Result
		Chain 100	Chain 010			
149	5745	-3.66	N/A	-3.66	8	Pass
157	5785	-4.20	N/A	-4.20	8	Pass
165	5825	-4.27	N/A	-4.27	8	Pass

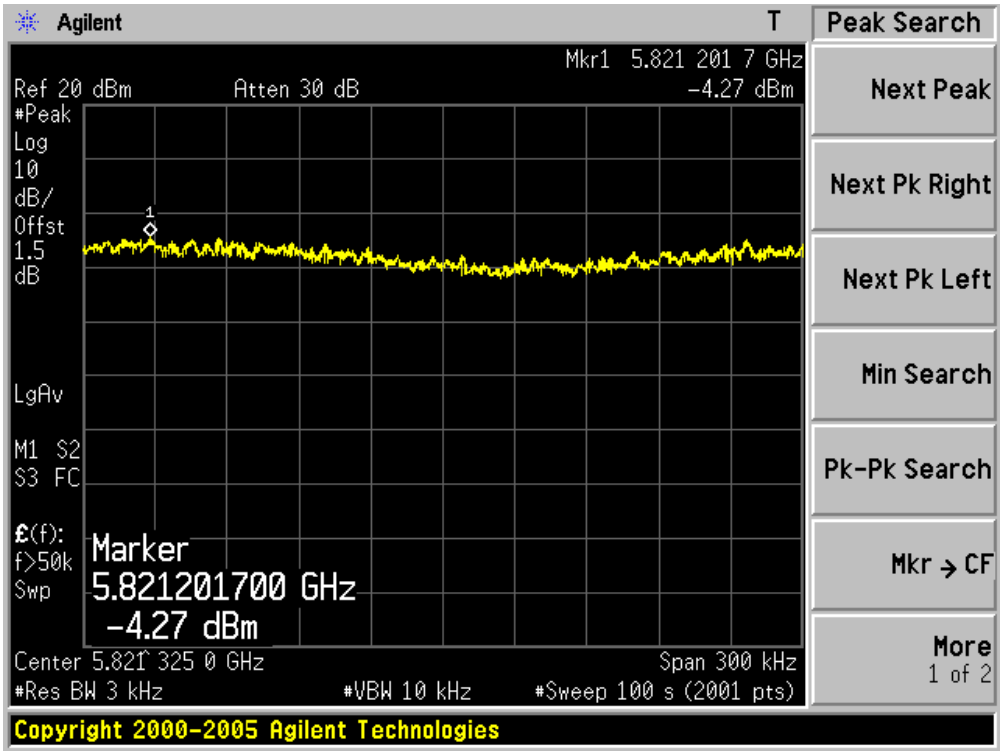
Channel 149 (5745MHz)



Channel 157 (5785MHz)



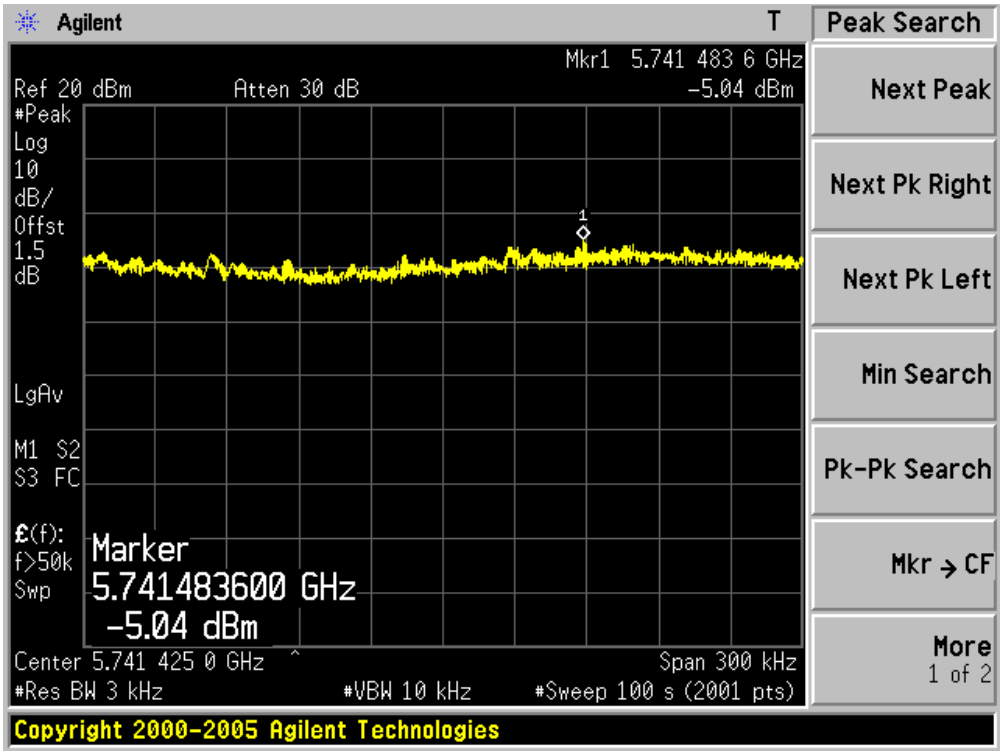
Channel 165 (5825MHz)



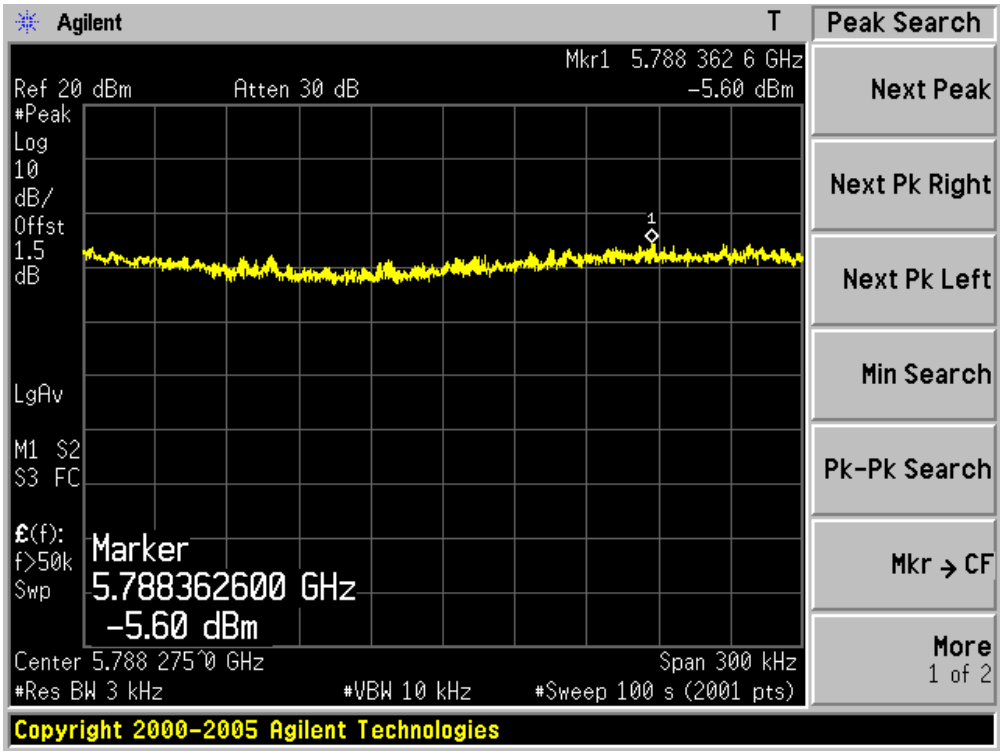
Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz) (Chain 100)

Channel No.	Frequency (MHz)	Measurement PPSD (dBm)		Total PPSD (dBm)	Limit (dBm)	Result
		Chain 100	Chain 010			
149	5745	-5.04	N/A	-5.04	8	Pass
157	5785	-5.60	N/A	-5.60	8	Pass
165	5825	-5.18	N/A	-5.18	8	Pass

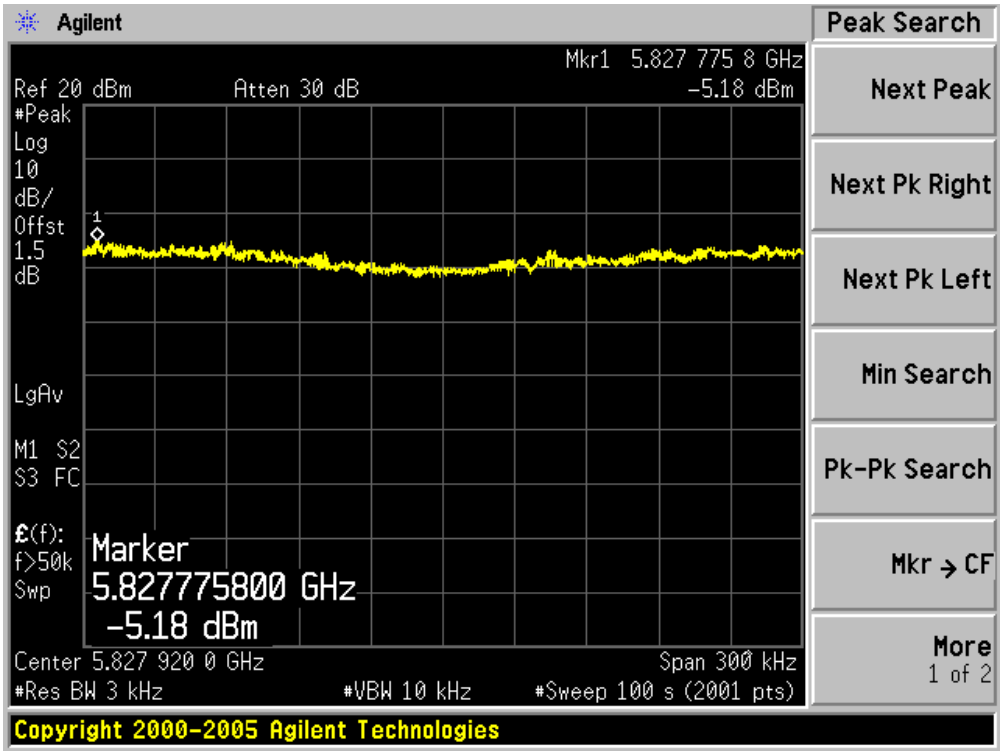
Channel 149 (5745MHz)



Channel 157 (5785MHz)



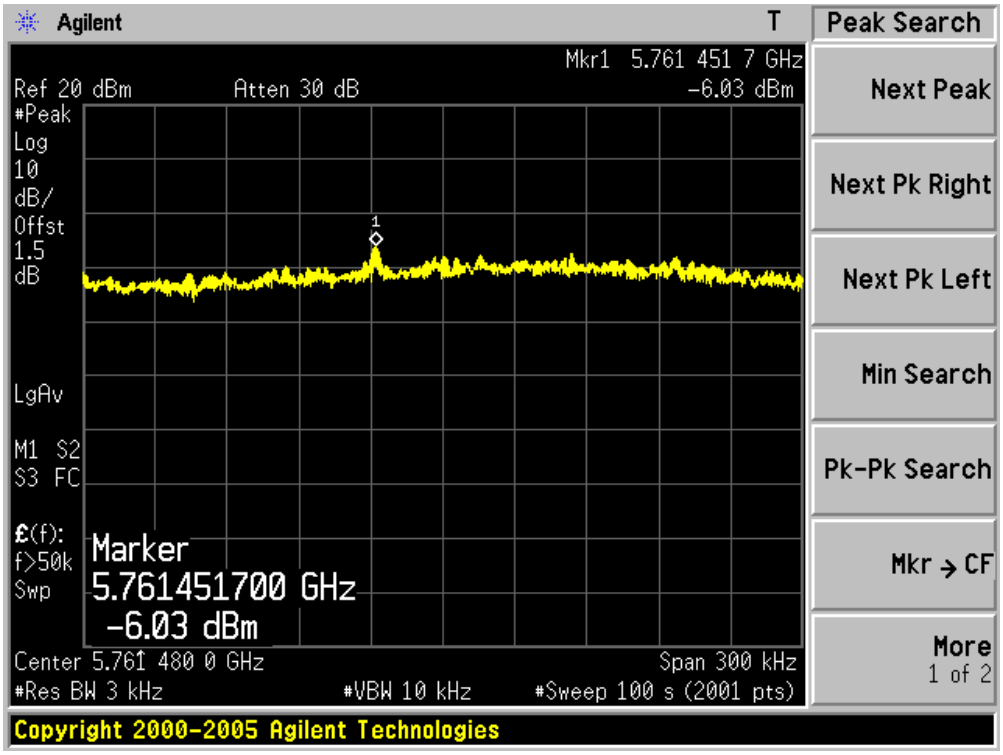
Channel 165 (5825MHz)



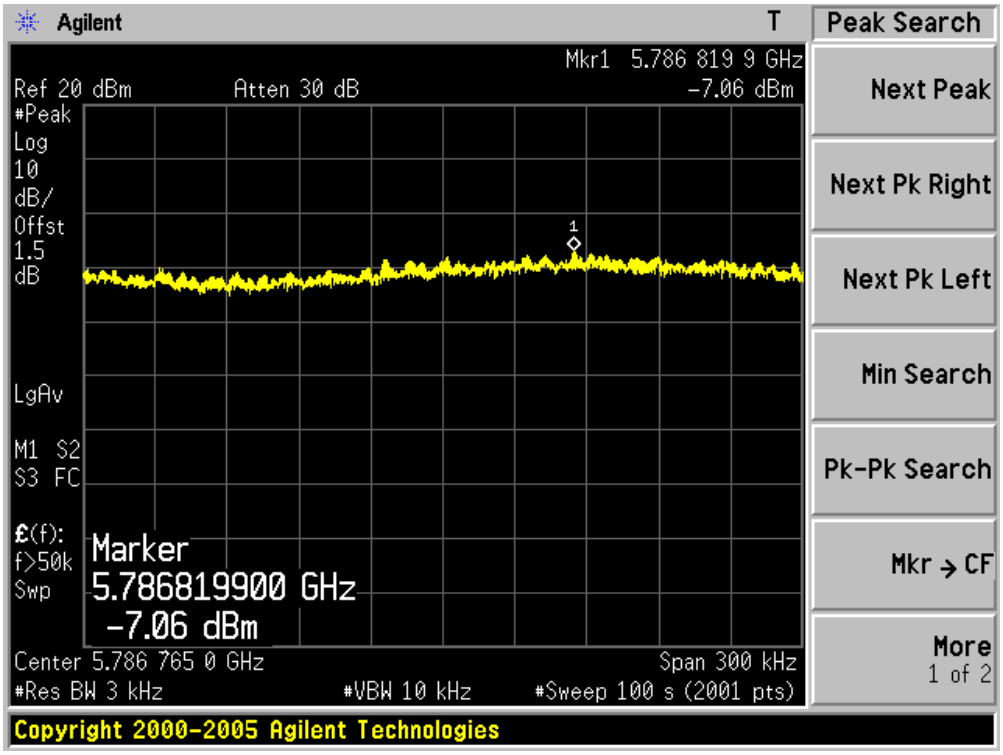
Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n(40MHz) (Chain 100)

Channel No.	Frequency (MHz)	Measurement PPSD (dBm)		Total PPSD (dBm)	Limit (dBm)	Result
		Chain 100	Chain 010			
151	5755	-6.03	N/A	-6.03	8	Pass
159	5795	-7.06	N/A	-7.06	8	Pass

Channel 151 (5755MHz)



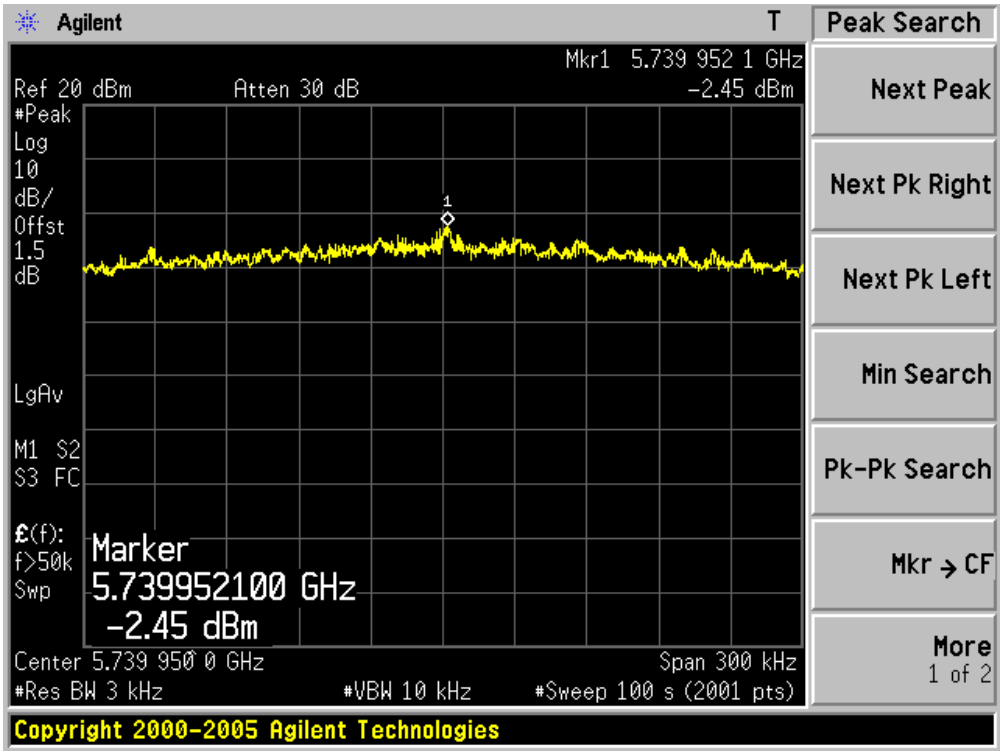
Channel 159 (5795MHz)



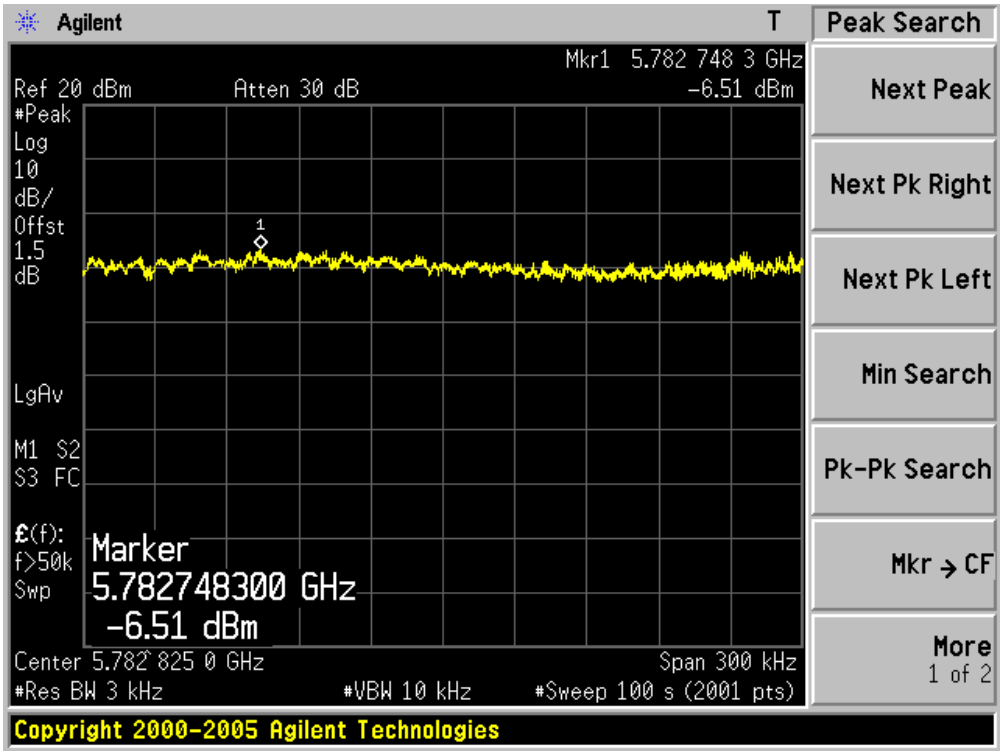
Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 1: Transmit by 802.11a (Chain 010)

Channel No.	Frequency (MHz)	Measurement PPSD (dBm)		Total PPSD (dBm)	Limit (dBm)	Result
		Chain 100	Chain 010			
149	5745	N/A	-2.45	-2.45	8	Pass
157	5785	N/A	-6.51	-6.51	8	Pass
165	5825	N/A	-3.17	-3.17	8	Pass

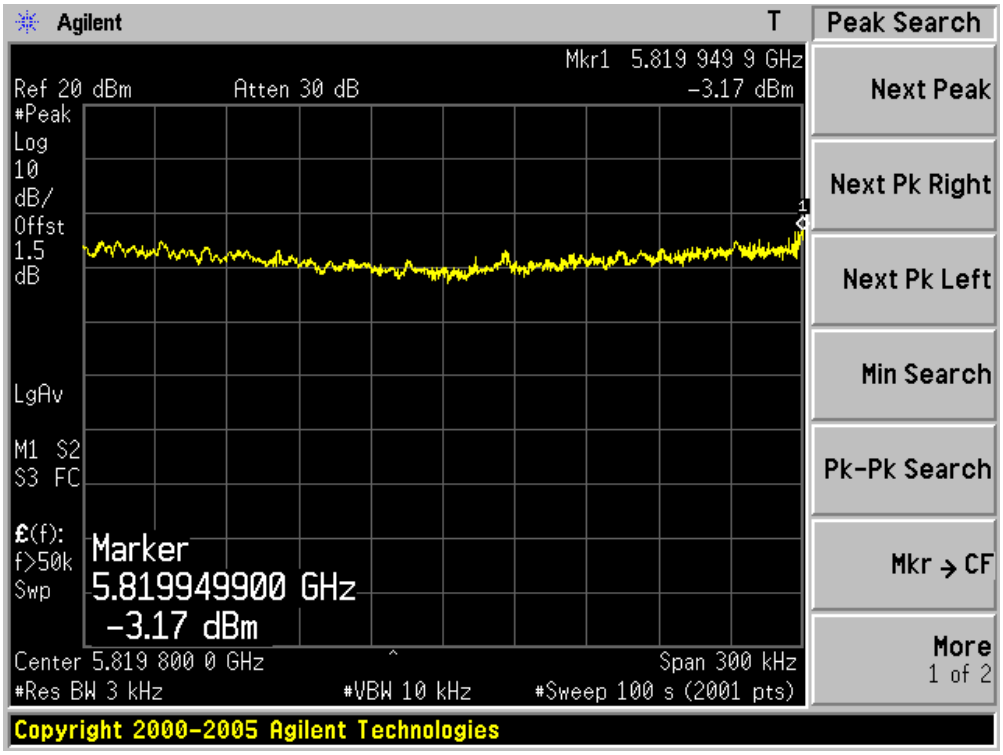
Channel 149 (5745MHz)



Channel 157 (5785MHz)



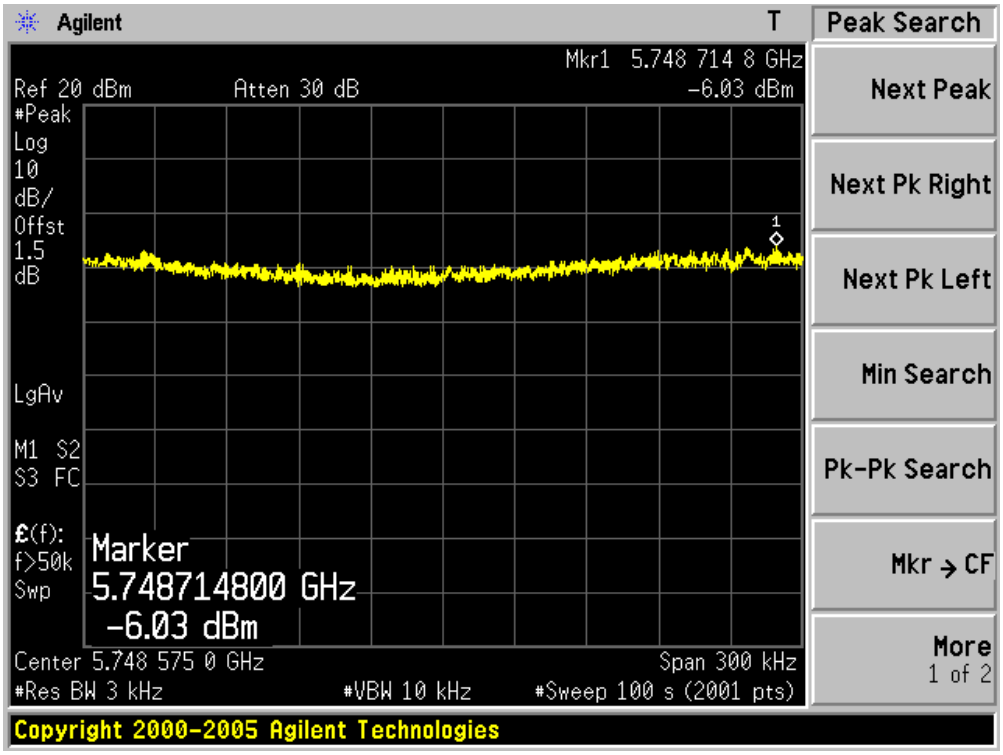
Channel 165 (5825MHz)



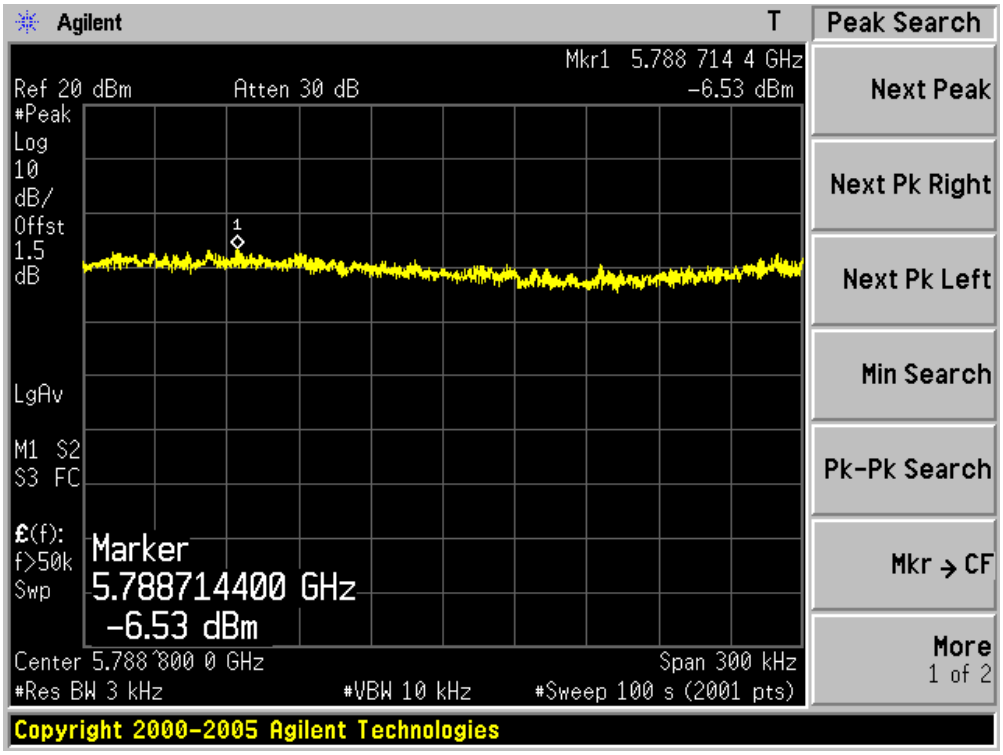
Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n(20MHz) (Chain 010)

Channel No.	Frequency (MHz)	Measurement PPSD (dBm)		Total PPSD (dBm)	Limit (dBm)	Result
		Chain 100	Chain 010			
149	5745	N/A	-6.03	-6.03	8	Pass
157	5785	N/A	-6.53	-6.53	8	Pass
165	5825	N/A	-5.81	-5.81	8	Pass

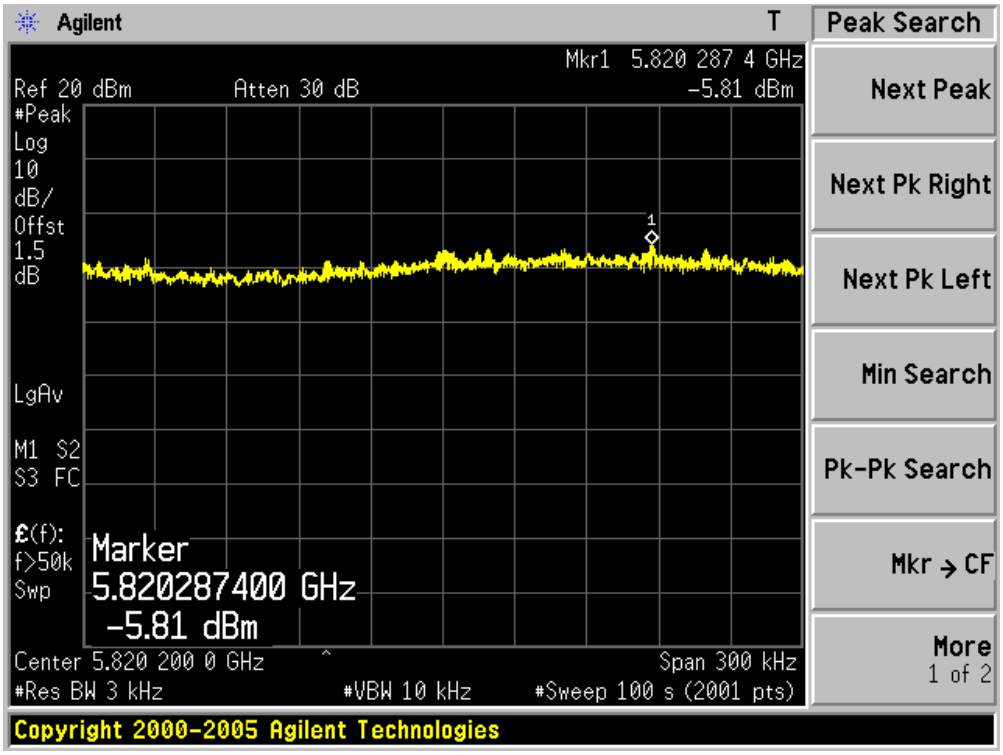
Channel 149 (5745MHz)



Channel 157 (5785MHz)



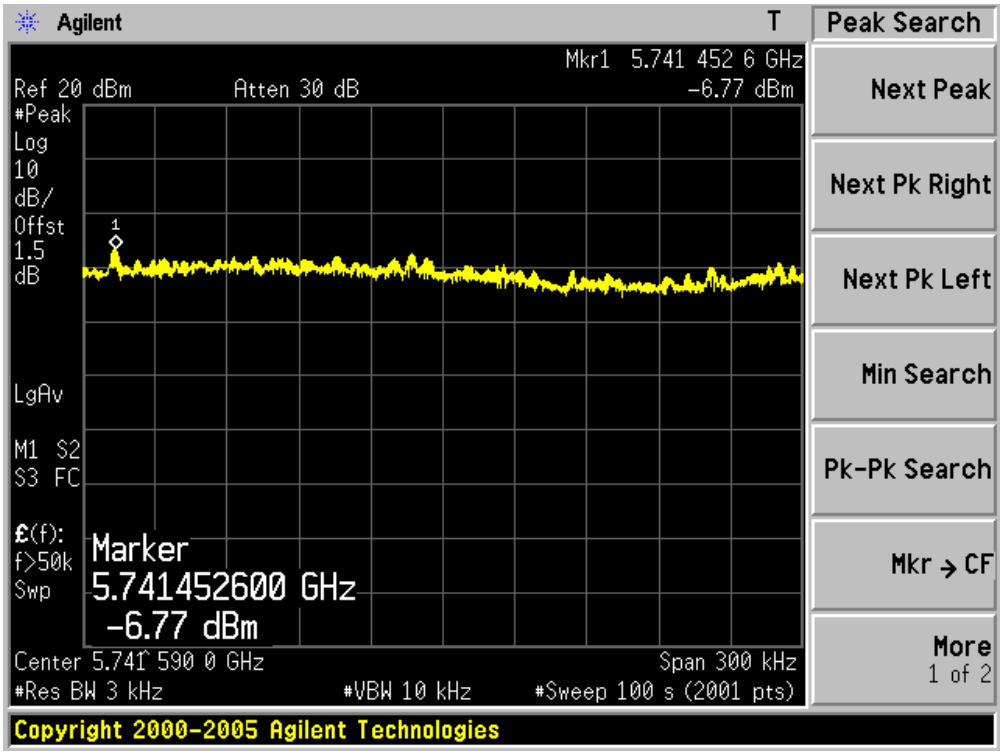
Channel 165 (5825MHz)



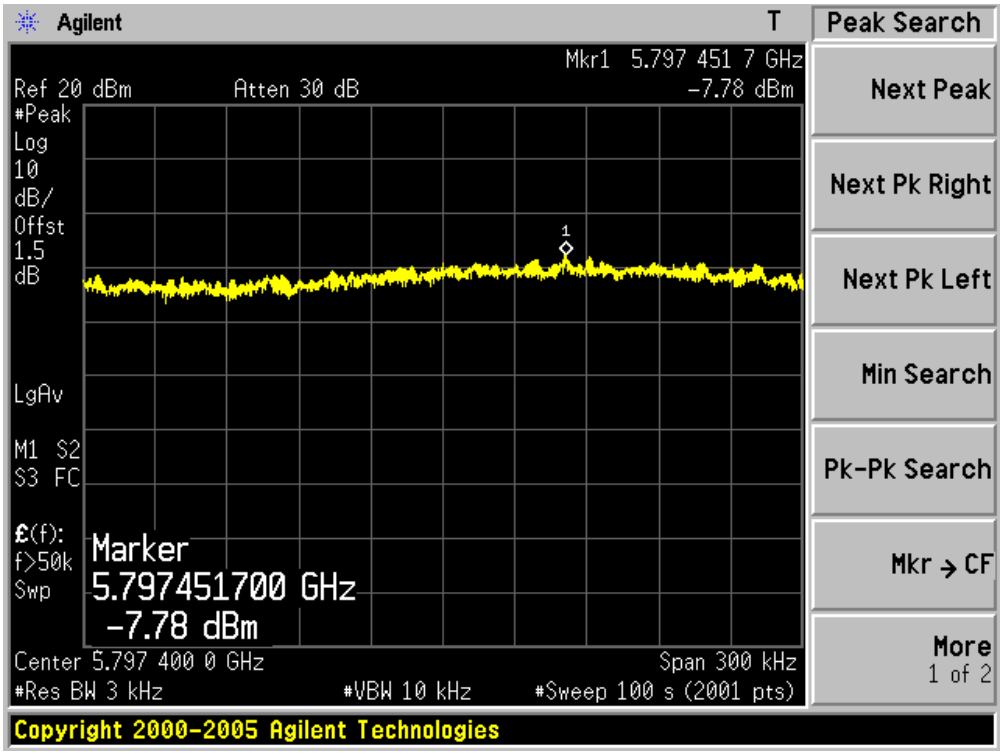
Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (40MHz) (Chain 010)

Channel No.	Frequency (MHz)	Measurement PPSD (dBm)		Total PPSD (dBm)	Limit (dBm)	Result
		Chain 100	Chain 010			
151	5755	N/A	-6.77	-6.77	8	Pass
159	5795	N/A	-7.78	-7.78	8	Pass

Channel 151 (5755MHz)



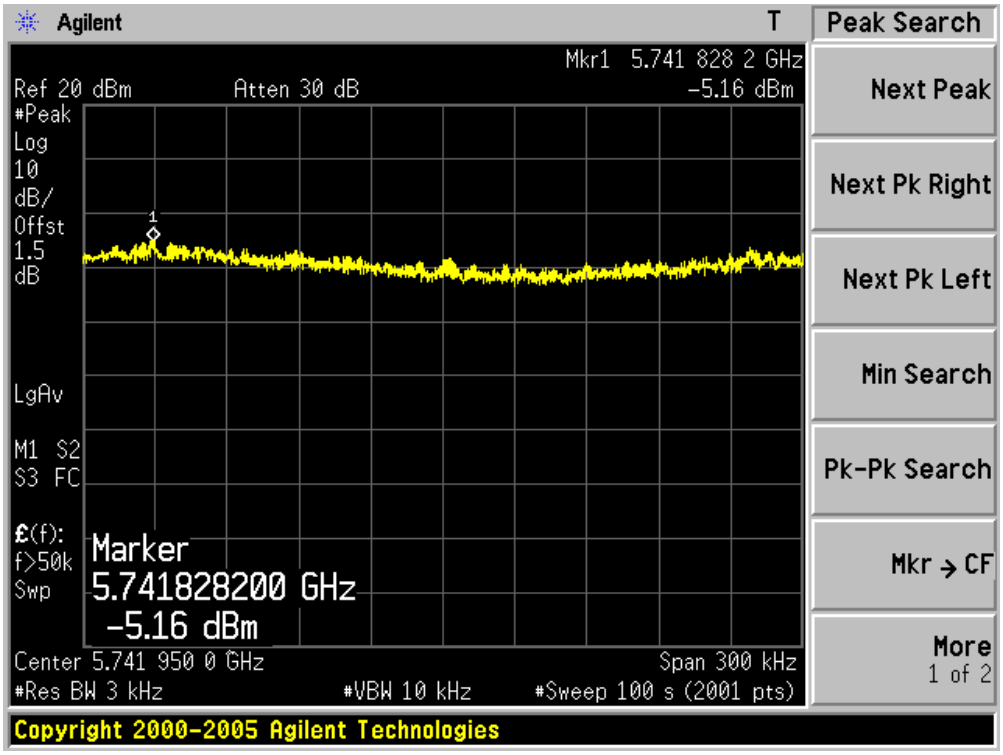
Channel 159 (5795MHz)



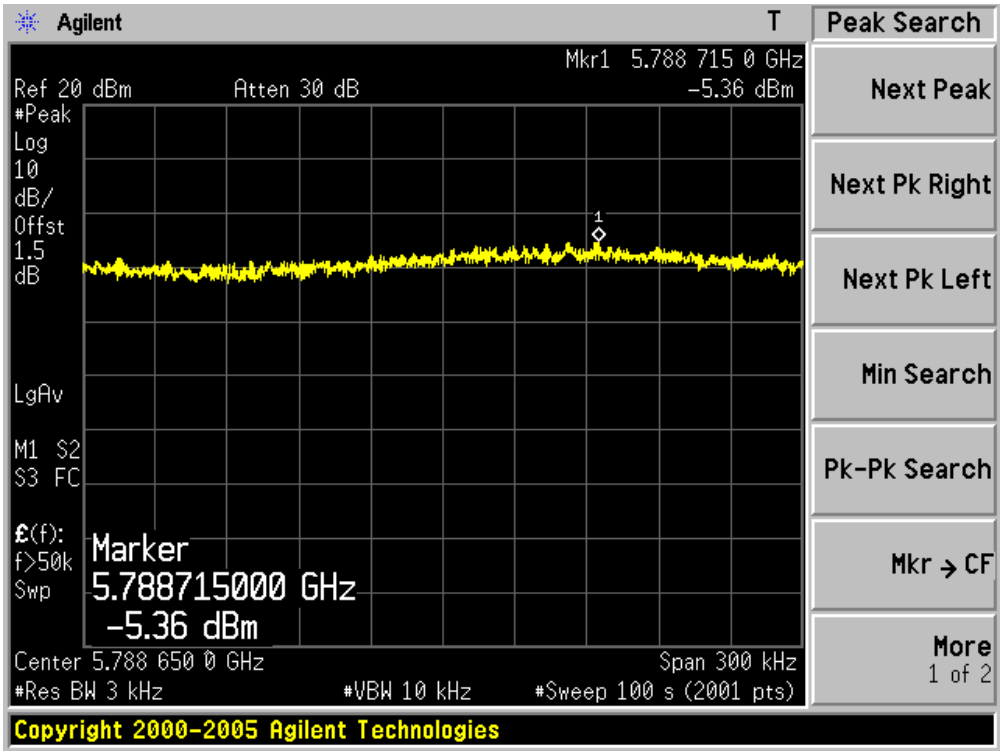
Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 2: Transmit by 802.11n (20MHz) (Chain 110)

Channel No.	Frequency (MHz)	Measurement PPSD (dBm)		Total PPSD (dBm)	Limit (dBm)	Result
		Chain 100	Chain 010			
149	5745	-5.16	-5.76	-2.44	8	Pass
157	5785	-5.36	-6.01	-2.66	8	Pass
165	5825	-4.65	-6.56	-2.49	8	Pass

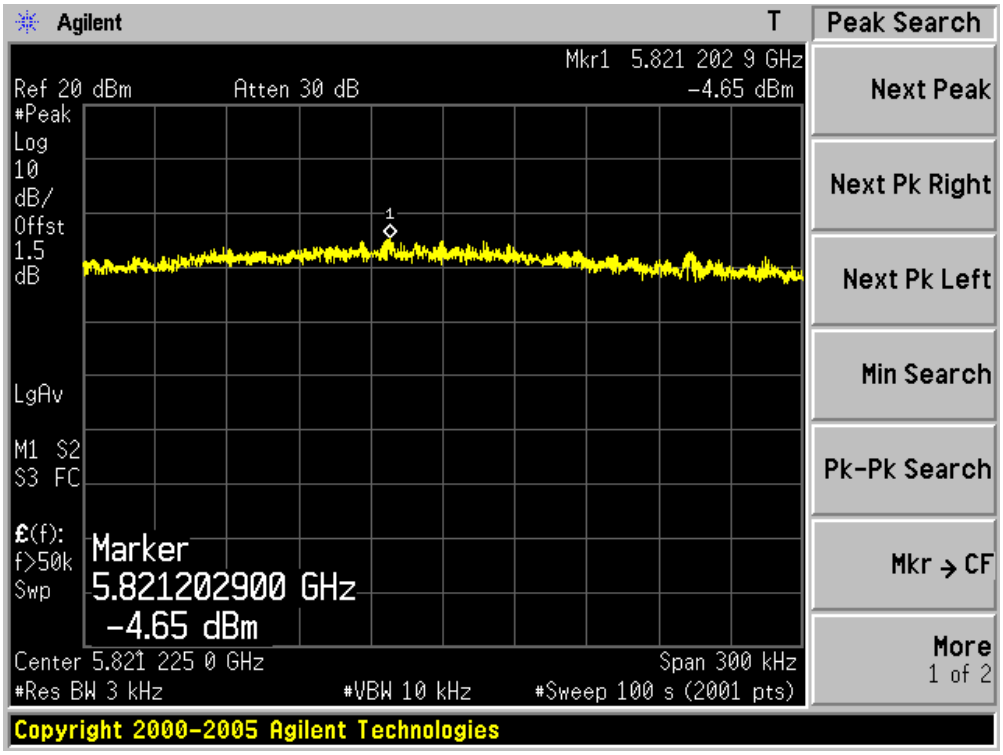
Channel 149 (5745MHz) – Chain 100



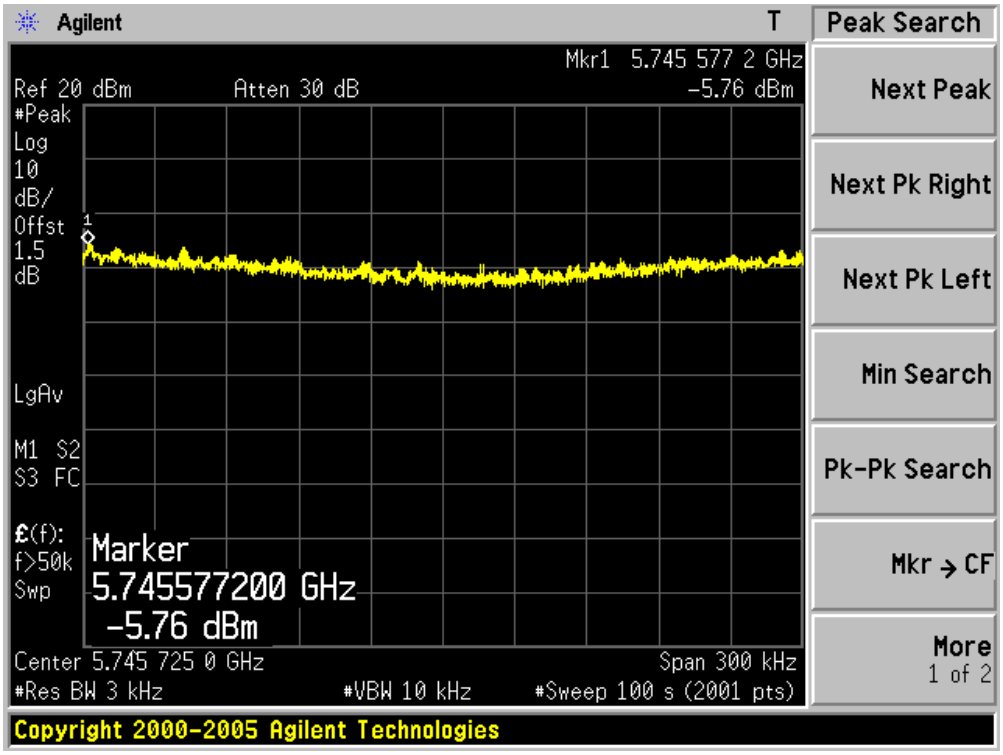
Channel 157 (5785MHz) – Chain 100



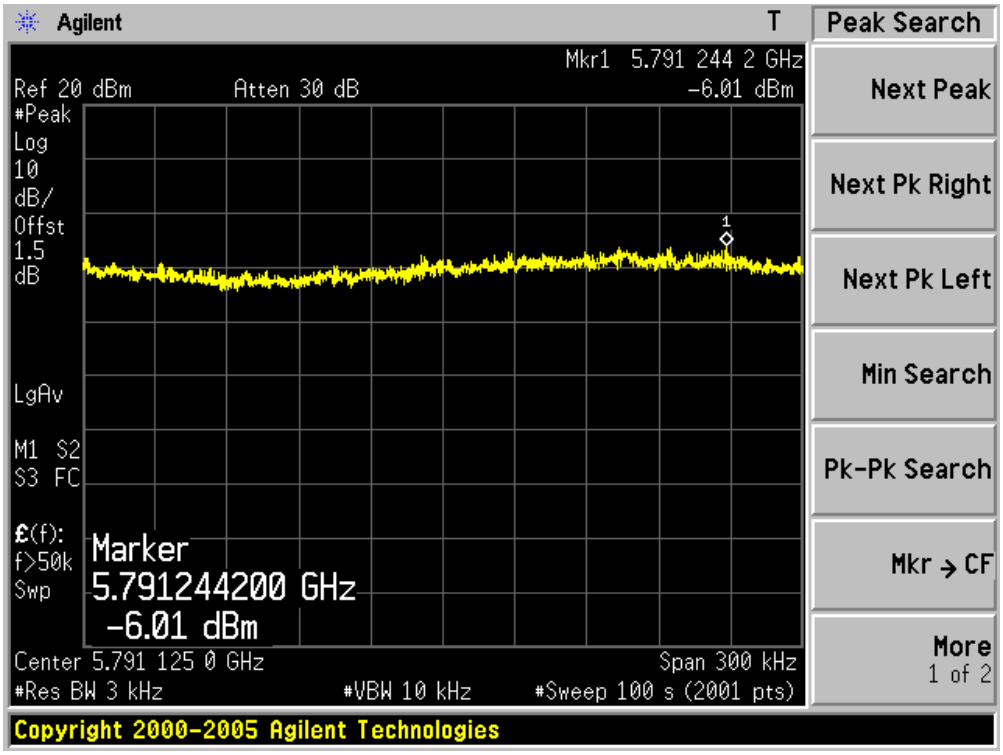
Channel 165 (5825MHz) – Chain 100



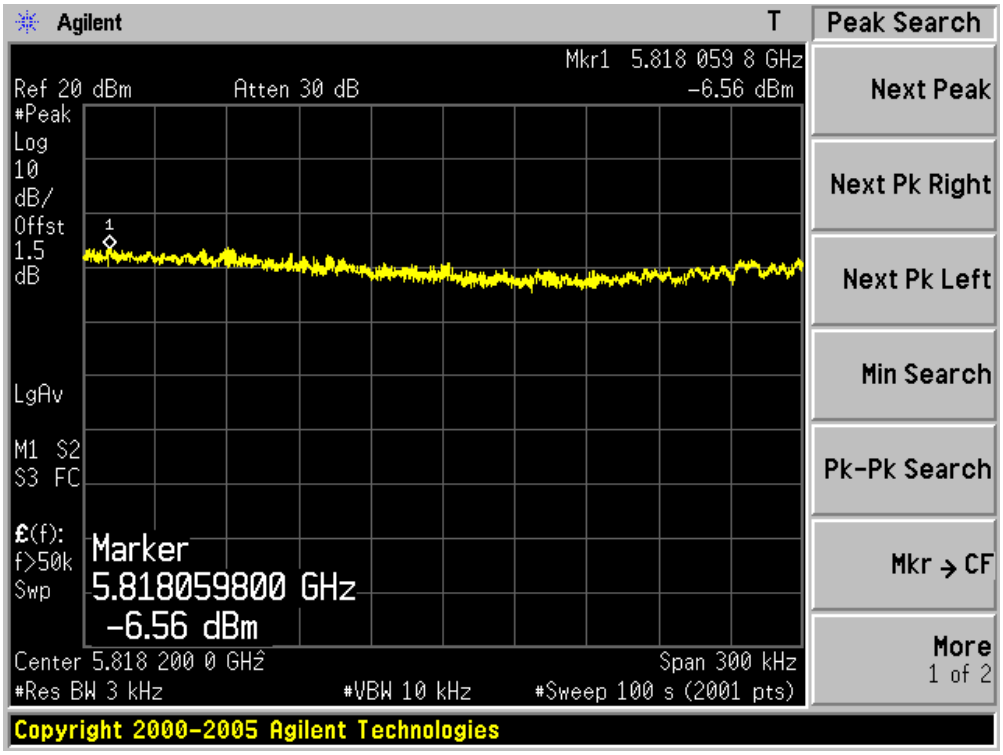
Channel 149 (5745MHz) – Chain 010



Channel 157 (5785MHz) – Chain 010



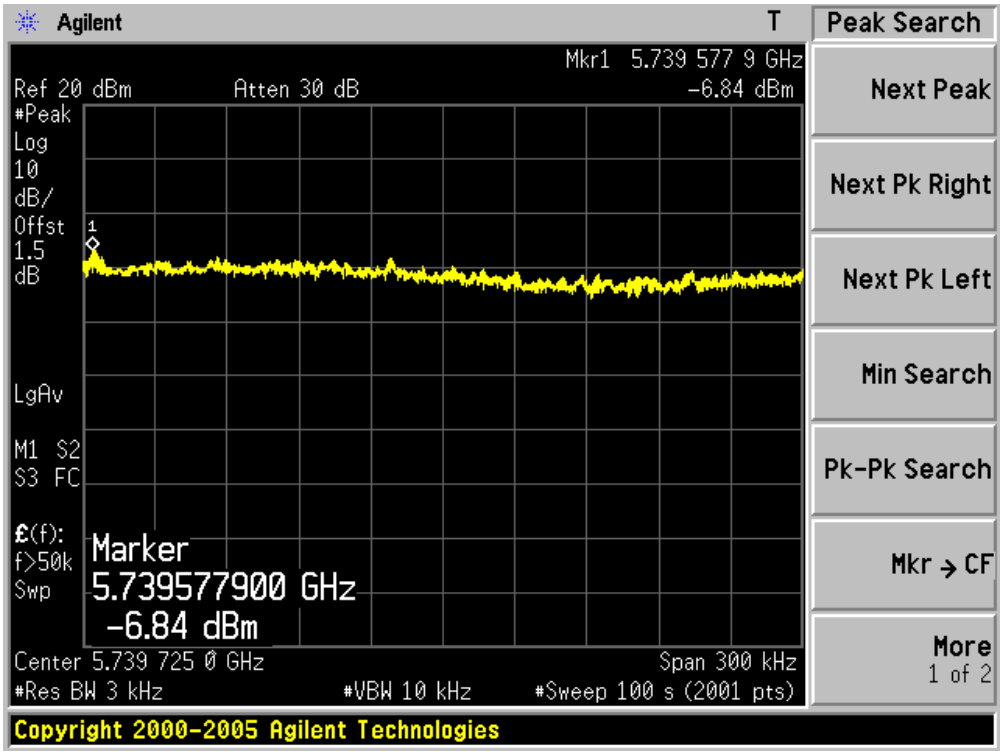
Channel 165 (5825MHz) – Chain 010



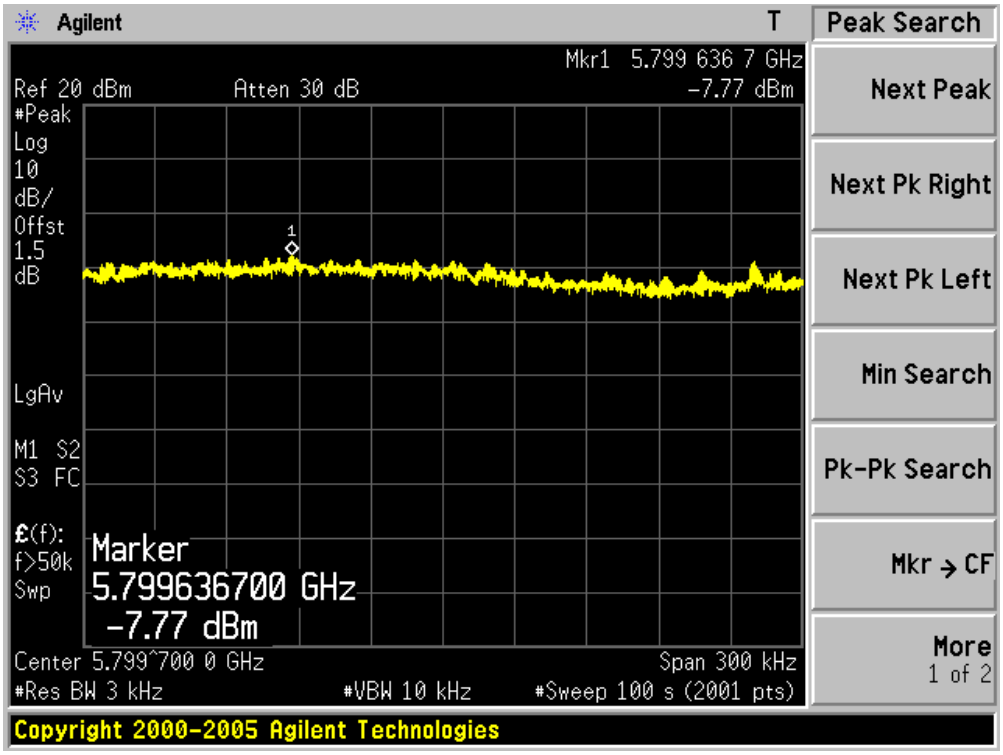
Product	:	WIRELESS-A/N 23DBM NETWORK MINI PCI ADAPTER WITH ESD
Test Item	:	Power Spectral Density
Test Site	:	TR-8
Test Mode	:	Mode 3: Transmit by 802.11n (40MHz) (Chain 110)

Channel No.	Frequency (MHz)	Measurement PPSD (dBm)		Total PPSD (dBm)	Limit (dBm)	Result
		Chain 100	Chain 010			
151	5755	-6.84	-6.07	-3.43	8	Pass
159	5795	-7.77	-8.30	-5.02	8	Pass

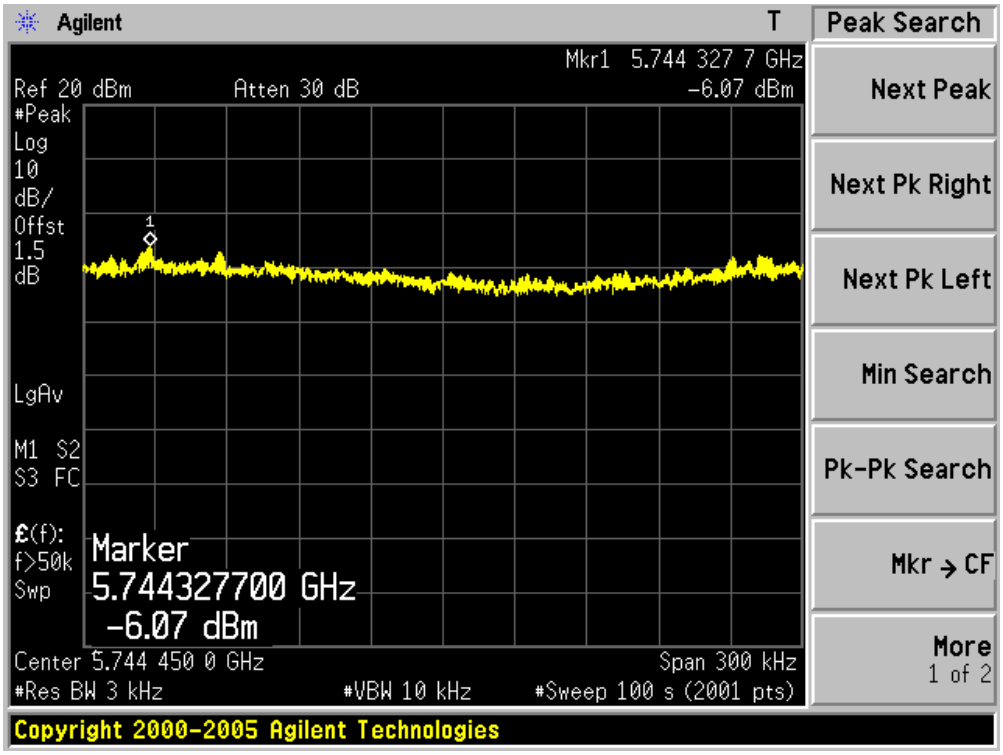
Channel 151 (5755MHz) – Chain 100



Channel 159 (5795MHz) – Chain 100



Channel 151 (5755MHz) – Chain 010



Channel 159 (5795MHz) – Chain 010