

MEASUREMENT REPORT of *WIFI module*

Applicant : PEGATRON CORPORATION
EUT : WIFI module
Model No. : UPWL6024
FCC ID : VUIUPWL6024

Tested by :

Training Research Co., Ltd.

TEL : 886-2-26935155 FAX : 886-2-26934440

No. 255, Nanyang Street, Shijr, Taipei Hsien 221, Taiwan, R.O.C.

CERTIFICATION

We here by verify that:

The test data, data evaluation, test procedures and equipment configurations shown in this report were made mainly in accordance with the procedures given in ANSI C63.4 (2003) as a reference. All test were conducted by *Training Research Co., Ltd.*, 255 Nanyang Street, Shijr, Taipei Hsien 221, Taiwan, R.O.C. Also, we attest to the accuracy of each.

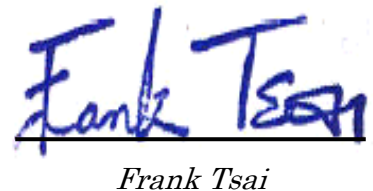
We further submit that the energy emitted by the sample EUT tested as described in the report is **in compliance with** the technical requirements set forth in the FCC Rules Part 15 Subpart E Section 15.407.

Applicant : PEGATRON CORPORATION
Applicant Address : 5F, NO. 76, LIGONG ST., BEITOU DISTRICT,
TAIPEI CITY, Taiwan
FCC ID : VUIUPWL6024
Report No. : P5515090223
Test Date : October 26, 2009 ~ December 12, 2009

Prepared by:


Jack Tsai

Approved by:


Frank Tsai

Conditions of issue :

- (1) **This test report shall not be reproduced except in full, without written approval of TRC. And the test result contained within this report only relate to the sample submitted for testing.**
- (2) **This report must not be used by the client to claim product endorsement by NVLAP or any agency of U.S. Government.**
- (3) **This test report, measurements made by TRC are traceable to the NIST only Conducted and Radiated Method.**



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I . GENERAL

1.1 Introduction

The following measurement report is submitted on behalf of applicant in support that the certification in accordance with Part 2 Subpart J and Part 15 Subpart A, E of the Commission's Rules and Regulations.

1.2 Description of EUT

FCC ID	: VUIUPWL6024
Product Name	: WIFI module
Model Name	: UPWL6024
Frequency Range	: 5.150GHz ~ 5.250GHz, 5.725GHz ~ 5.825GHz
Operating Frequency	: IEEE 802.11a/Draft 1.0 20M: 5.180GHz ~ 5.240GHz, 5.745GHz ~ 5.805GHz IEEE 802.11a Draft 1.0 40M: 5.190GHz ~ 5.230GHz, 5.755GHz ~ 5.795GHz
Channel Spacing	: IEEE 802.11a/Draft 1.0 20M: 20MHz; IEEE 802.11a Draft 1.0 40M: 40MHz
Support Channel	: IEEE 802.11a/Draft 1.0 20M: 4Channels; IEEE 802.11a Draft 1.0 40M: 2Channels
Modulation Skill	: DBPSK, DQPSK, CCK, OFDM
Power Type	: Powered by PCI Express interface of client's device

1.3 Test method

1. Insert the EUT into the PCI Express interface of extend card of the test fixture.
2. Using the computer and software provided by the manufacturer to control EUT. The software is operated under the Windows to control the EUT in the mode of continuous transmission; the test is performed under the specific conditions.
3. The Notebook PC and test fixture is moving when test mode set finish. The software provided by the manufacturer, the test is performed under the specific conditions.
4. Set different channel and data rate being tested and repeat the procedures above.
 - (a) Conducted test and Radiated:
making EUT to the mode of continuous transmission

1.4 Description of Support Equipment

In order to construct the minimum testing, following equipment were used as the support units.

Notebook : **DELL**
Model No. : JX285 (PP26L)
Serial No. : 410362204
FCC ID : Doc Approved
BSMI : R33002

Power Adaptor : **DELL**
Model No. : LA65NS1-00
Part No. : PA-1650-05D3
Serial No. : CN-0YD637-716145-82T-0B8F
FCC ID : Doc Approved
BSMI : R33275
Power type : 100 ~ 240VAC / 50 - 60Hz, 1.5A, Switching
Power cord (Main power to adaptor): Non-shielded, 0.90m length, Plastic hood, No ferrite core
Power cord (DC plug to adaptor): Shielded, 1.83m length, Plastic hood, ferrite core

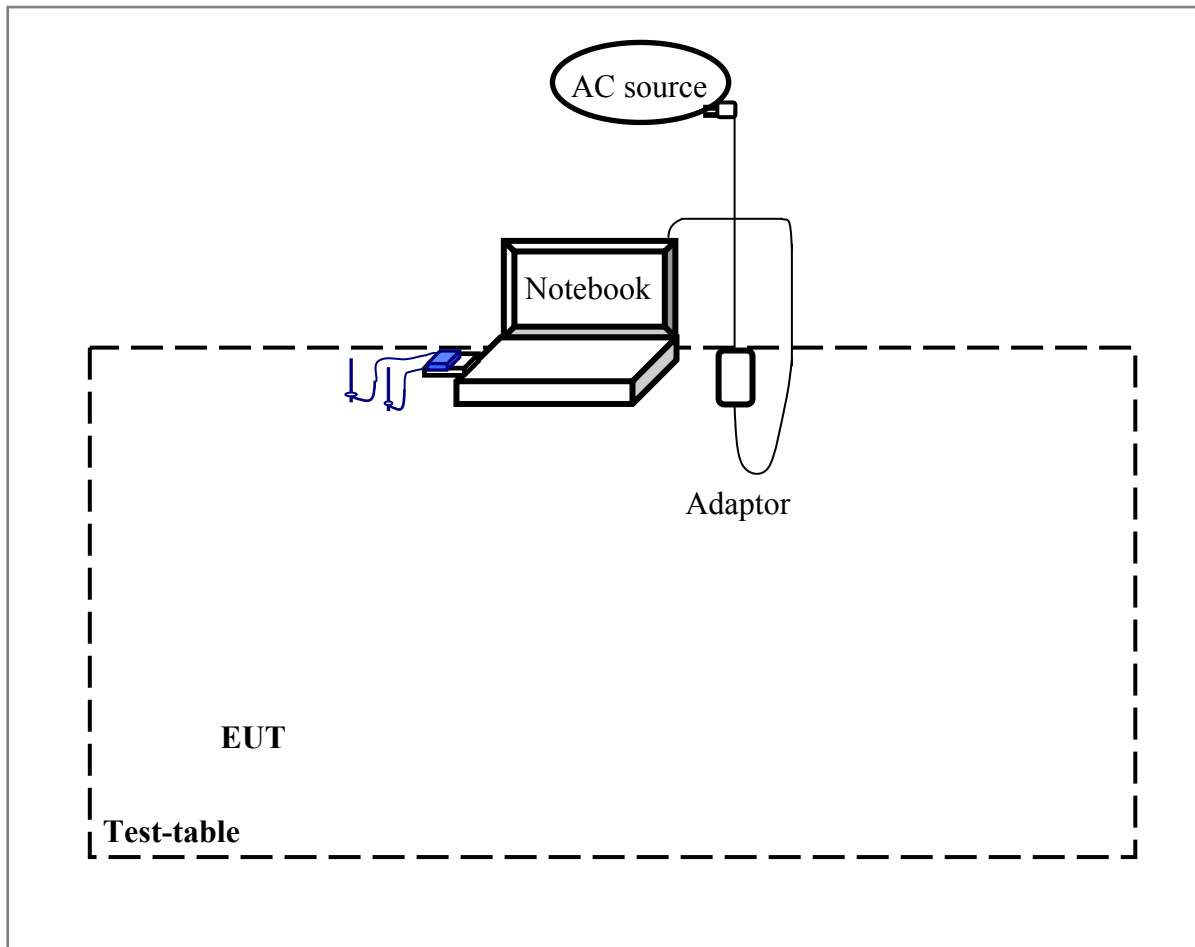
Test fixture

(PCI Express Extend Card):PEGATRON CORPORATION

Model No. : ADC-PEMCCC01
Serial No. : N/A
Power type : By NB

1.5 Configuration of System Under Test

1.5.1 Conducted and Radiated



Notebook PC:

*Mini-PCI Port EUT

The tests below are carried with the EUT transmitter set at high power in TDD mode. The EUT is forced to select of output power level and channel number by notebook computer.

The setting up procedure was recorded in 1.3 test method.

1.6 Verify the Frequency and Channel

Operated at 5150MHz to 5250MHz

802.11a and draft 802.11a (20MHz):

Channel	Frequency (GHz)
1	5.180
2	5.200
3	5.220
4	5.240

Draft 802.11a (40MHz):

Channel	Frequency (GHz)
1	5.190
2	5.230

Operated at 5725MHz to 5825MHz**802.11a and draft 802.11a (20MHz):**

Channel	Frequency (GHz)
1	5.745
2	5.765
3	5.785
4	5.805

Draft 802.11a (40MHz):

Channel	Frequency (GHz)
1	5.755
2	5.795

Note:

1. This is for confirming that all frequencies are in 5.180GHz to 5.240GHz, 5.745GHz to 5.805GHz.
2. Section 15.31(m): Measurements on intentional radiators or receivers shall be performed at three frequencies for operating frequency range over 10 MHz
(The locations of these frequencies one near the top, one near the middle and one near the bottom.)
3. After test, the EUT operating frequencies are in 5.180GHz to 5.240GHz, 5.745GHz to 5.805GHz. So all the items as followed in testing report are need to test these three frequencies:
Lowest: Channel; Middle: Channel; Highest: Channel.

1.7 Test Procedure

All measurements contained in this report were performed mainly according to the techniques described in ANSI C63.4 (2003) and the pre-setup was written on 1.3 test method, the detail setup was written on each test item.

1.8 Location of the Test Site

The radiated emissions measurements required by the rules were performed on the **three-meter, Semi-anechoic Chamber (FCC Registration Number: 93906)** maintained by *Training Research Co., Ltd.* 1F, No. 255 Nanyang Street, Shijr, Taipei Hsien 221, Taiwan, R.O.C. Complete description and measurement data have been placed on file with the commission. The conducted power line emissions tests and other test items were performed in a semi-anechoic chamber also located at Training Research Co., Ltd.

No. 255 Nanyang Street, Shijr, Taipei Hsien 221, Taiwan, R.O.C. *Training Research Co., Ltd.* is listed by the FCC as a facility available to do measurement work for others on a contract basis.

1.9 General Test Condition

The conditions under which the EUT operates were varied to determine their effect on the equipment's emission characteristics. The final configuration of the test system and the mode of operation used during these tests were chosen as that which produced the highest emission levels. However, only those conditions, which the EUT was considered likely to encounter in normal use were investigated.

In test, they were set in high power and continuously transmitting mode that controlled by computer. The lowest; middle and highest channels of EUT were all tested. The setting up procedure is recorded on 1.3 test method.

II. Section 15.203: Antenna requirement

The EUT can be equipped with detachable antenna. The external antenna is affixed to the EUT using a unique connector. The antenna requirement stated in Section 15.203 is inapplicable to this EUT.

The antenna specification of list as follows,

Antenna No.	Antenna Manufacturer	Model	Connector	Antenna Type	Frequency (GHz)	Antenna Gain (Max.)
Antenna#1	PEGATRON	UCW2583	MHF	PCB	5.15	5.24dBi
					5.25	5.31dBi
					5.725	3.93dBi
					5.850	4.07dBi
Antenna#2	PEGATRON	UCW2620	MHF	PCB	5.15	7.74dBi
					5.25	7.88dBi
					5.750	6.29dBi
					5.825	5.33dBi

Note:

- 1) For more detailed features description, please reference to the Antenna Specifications. (Please reference to RF Exposure Information)

III. Section 15.407(b)(6): Power Line Conducted Emissions for AC Powered Units

3.1 Test Condition & Setup

The power line conducted emission measurements were performed in an semi-anechoic chamber. The EUT was assembled on a wooden table, which is 80 centimeters high, was placed 40 centimeters from the backwall and at least 1 meter from the sidewall.

Power was fed to the EUT from the public utility power grid through a line filter and Line Impedance Stabilization Networks (LISNs). The LISN housing, measuring instrumentation case, ground plane, etc., were electrically bonded together at the same RF potential. The Spectrum analyzer (or EMI receiver) was connected to the AC line through an isolation transformer. The 50-ohm output of the LISN was connected to the spectrum analyzer directly. Conducted emission levels were in the CISPR quasi-peak and average detection mode. The analyzer's 6 dB bandwidth was set to 9 KHz. No post-detector video filter was used.

The spectrum was scanned from 150 KHz to 30 MHz. The physical arrangement of the test system and associated cabling was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude and frequency. All spurious emission frequencies were observed. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in paragraph 4.3

There is a test condition apply in this test item, the test procedure description as <1.3>. Three channels were tested, one in the lowest (CH36), one in the middle (CH40) and the other in highest (CH48) for IEEE 802.11a. The setting up procedure is recorded on <1.3>

3.2 List of Test Instruments

Instrument Name	Model	Brand	Serial No.	Calibration Date
				Next time
EMI Receiver	8546A	HP	3520A00242	01/15/10
RF Filter Section	85460A	HP	3448A00217	01/15/10
LISN (EUT)	LISN-01	TRC	99-05	02/10/10
LISN (Support E.)	LISN-01	TRC	9912-03, 04	12/22/09
Pre-amplifier	15542 ZFL-500	Mini – Circuits	0 0117	01/10/10
6dB Attenuator	MCL BW-S6W2	Mini – Circuits	9915 – Conducted	01/10/10
10dB Attenuator	A5542 VAT010	Mini – Circuits	0215 – Conducted	01/10/10
Coaxial Cable (2.0 meter)	A30A30-0058-50FS-2M	Jyebao	SMA-08	01/10/10
Coaxial Cable (1.1 meter)	A30A30-0058-50FS-1M	Jyebao	SMA-09	01/10/10
Coaxial Cable (20 meter)	RG-214/U	Jyebao	NP-01	01/10/10
Coaxial Cable (20 meter)	RG-214/U	Jyebao	NP-02	01/10/10
Auto Switch Box (< 30MHz)	ASB-01	TRC	9904-01	01/10/10

3.3 Test Result of Power Line Conducted Emissions

The following table shows a summary of the highest emissions of power line conducted emissions on the LIVE and NETURAL conductors of the EUT power cord. Show as follows.

Test Conditions: Temperature : 25 °C Humidity : 73 % RH

Test mode: IEEE 802.11a 5180MHz

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBµV)	QP (dBµV)	Average (dBµV)	QP-limit (dBµV)	AVG-limit (dBµV)	Margin (dB)
Line 1	167.000	48.19	---	---	63.94	53.94	-5.75
	338.000	43.40	---	---	60.63	50.63	-7.23
	1346.000	39.30	---	---	56.00	46.00	-6.70
	3413.000	41.90	---	---	56.00	46.00	-4.10
	3702.000	41.73	---	---	56.00	46.00	-4.27
	3975.000	41.02	---	---	56.00	46.00	-4.98
Line 2	172.000	46.14	---	---	65.37	55.37	-9.23
	224.000	48.16	---	---	63.89	53.89	-5.73
	3258.555	46.10	38.07	23.66	56.00	46.00	-17.93
	3653.195	50.86	46.87	29.75	56.00	46.00	-9.13
	3710.300	51.17	46.76	28.70	56.00	46.00	-9.24
	3975.000	42.23	---	---	56.00	46.00	-3.77

NOTE:

- (1)Margin = Peak Amplitude – Limit, *The reading amplitudes are all under limit.*
- (2)A "+" sign in the margin column means the emission is OVER the Class B Limit and "-" sign of means UNDER the Class B limit

Test mode: IEEE 802.11a 5200MHz

<i>Power Connected Emissions</i>					<i>Class B</i>		
<i>Conductor</i>	<i>Frequency (KHz)</i>	<i>Peak (dBμV)</i>	<i>QP (dBμV)</i>	<i>Average (dBμV)</i>	<i>QP-limit (dBμV)</i>	<i>AVG-limit (dBμV)</i>	<i>Margin (dB)</i>
Line 1	169.000	47.63	---	---	65.46	55.46	-7.83
	226.000	46.91	---	---	63.83	53.83	-6.92
	334.000	44.45	---	---	60.74	50.74	-6.29
	504.000	38.57	---	---	56.00	46.00	-7.43
	3819.000	41.46	---	---	56.00	46.00	-4.54
	3975.000	42.24	---	---	56.00	46.00	-3.76
Line 2	167.000	51.18	---	---	65.51	55.51	-4.33
	224.000	48.39	---	---	63.89	53.89	-5.50
	277.000	44.47	---	---	62.37	52.37	-7.90
	504.000	39.77	---	---	56.00	46.00	-6.23
	3540.210	49.00	43.98	27.29	56.00	46.00	-12.02
	3817.740	51.31	48.26	31.25	56.00	46.00	-7.74

Test mode: IEEE 802.11a 5240MHz

<i>Power Connected Emissions</i>					<i>Class B</i>		
<i>Conductor</i>	<i>Frequency (KHz)</i>	<i>Peak (dBμV)</i>	<i>QP (dBμV)</i>	<i>Average (dBμV)</i>	<i>QP-limit (dBμV)</i>	<i>AVG-limit (dBμV)</i>	<i>Margin (dB)</i>
Line 1	167.000	49.76	---	---	65.51	55.51	-5.75
	220.000	47.30	---	---	64.00	54.00	-6.70
	331.000	43.25	---	---	60.83	50.83	-7.58
	504.000	38.94	---	---	56.00	46.00	-7.06
	3710.005	47.12	41.47	27.59	56.00	46.00	-14.53
	3923.365	46.34	40.39	24.41	56.00	46.00	-15.61
Line 2	166.000	50.49	---	---	65.54	55.54	-5.05
	391.000	39.10	---	---	59.11	49.11	-10.01
	504.000	37.06	---	---	56.00	46.00	-8.94
	3593.615	49.48	45.05	28.09	56.00	46.00	-10.95
	3707.565	50.33	47.11	29.55	56.00	46.00	-8.89
	5260.000	38.85	---	---	60.00	50.00	-11.15

Test mode: IEEE 802.11a 20M 5180MHz

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBµV)	QP (dBµV)	Average (dBµV)	QP-limit (dBµV)	AVG-limit (dBµV)	Margin (dB)
Line 1	167.000	50.22	---	---	65.51	55.51	-5.29
	222.000	47.67	---	---	63.94	53.94	-6.27
	267.000	45.70	---	---	62.66	52.66	-6.96
	326.000	44.32	---	---	60.97	50.97	-6.65
	3638.000	42.77	---	---	56.00	46.00	-3.23
	3873.530	47.30	44.71	30.23	56.00	46.00	-11.29
Line 2	226.000	47.83	---	---	63.83	53.83	-6.00
	329.000	43.92	---	---	60.89	50.89	-6.97
	499.000	39.17	---	---	56.03	46.03	-6.86
	3030.000	41.91	---	---	56.00	46.00	-4.09
	3483.450	47.02	43.21	26.91	56.00	46.00	-12.79
	3818.895	50.57	48.93	31.37	56.00	46.00	-7.07

Test mode: IEEE 802.11a 20M 5200MHz

Power Connected Emissions					Class B		
Conductor	Frequency (KHz)	Peak (dBµV)	QP (dBµV)	Average (dBµV)	QP-limit (dBµV)	AVG-limit (dBµV)	Margin (dB)
Line 1	224.000	48.42	---	---	63.89	53.89	-5.47
	282.000	44.14	---	---	62.23	52.23	-8.09
	329.000	44.72	---	---	60.89	50.89	-6.17
	504.000	39.55	---	---	56.00	46.00	-6.45
	1123.000	37.81	---	---	56.00	46.00	-8.19
	3819.320	48.38	45.47	29.02	56.00	46.00	-10.53
Line 2	167.000	48.39	---	---	65.51	55.51	-7.12
	226.000	47.07	---	---	63.83	53.83	-6.76
	274.000	46.88	---	---	62.46	52.46	-5.58
	3094.000	39.78	---	---	56.00	46.00	-6.22
	3536.780	49.32	46.07	26.56	56.00	46.00	-9.93
	3858.000	42.40	---	---	56.00	46.00	-3.60

Test mode: IEEE 802.11a 20M 5240MHz

<i>Power Connected Emissions</i>					<i>Class B</i>		
<i>Conductor</i>	<i>Frequency (KHz)</i>	<i>Peak (dBμV)</i>	<i>QP (dBμV)</i>	<i>Average (dBμV)</i>	<i>QP-limit (dBμV)</i>	<i>AVG-limit (dBμV)</i>	<i>Margin (dB)</i>
Line 1	220.000	47.23	---	---	64.00	54.00	-6.77
	274.000	46.79	---	---	62.46	52.46	-5.67
	331.000	44.67	---	---	60.83	50.83	-6.16
	954.000	38.51	---	---	56.00	46.00	-7.49
	3574.000	39.51	---	---	56.00	46.00	-6.49
	3929.660	47.13	45.10	30.03	56.00	46.00	-10.90
Line 2	224.000	48.50	---	---	63.89	53.89	-5.39
	329.000	44.33	---	---	60.89	50.89	-6.56
	504.000	39.14	---	---	56.00	46.00	-6.86
	3481.485	49.24	44.37	26.99	56.00	46.00	-11.63
	3820.265	50.57	48.79	31.46	56.00	46.00	-7.21
	4043.305	50.90	47.35	30.75	56.00	46.00	-8.65

Test mode: IEEE 802.11a 40M 5190MHz

<i>Power Connected Emissions</i>					<i>Class B</i>		
<i>Conductor</i>	<i>Frequency (KHz)</i>	<i>Peak (dBμV)</i>	<i>QP (dBμV)</i>	<i>Average (dBμV)</i>	<i>QP-limit (dBμV)</i>	<i>AVG-limit (dBμV)</i>	<i>Margin (dB)</i>
Line 1	226.000	46.65	---	---	63.83	53.83	-7.18
	279.000	45.36	---	---	62.31	52.31	-6.95
	338.000	43.26	---	---	60.63	50.63	-7.37
	504.000	38.99	---	---	56.00	46.00	-7.01
	3780.000	41.33	---	---	56.00	46.00	-4.67
	3975.000	42.03	---	---	56.00	46.00	-3.97
Line 2	169.000	50.26	---	---	65.46	55.46	-5.20
	224.000	48.42	---	---	63.89	53.89	-5.47
	494.000	36.50	---	---	56.17	46.17	-9.67
	3606.000	42.36	---	---	56.00	46.00	-3.64
	3817.995	51.66	48.22	29.85	56.00	46.00	-7.78
	4905.000	36.70	---	---	56.00	46.00	-9.30

Test mode: IEEE 802.11a 40M 5230MHz

<i>Power Connected Emissions</i>					<i>FCC Class B</i>		
<i>Conductor</i>	<i>Frequency (KHz)</i>	<i>Peak (dBμV)</i>	<i>QP (dBμV)</i>	<i>Average (dBμV)</i>	<i>QP-limit (dBμV)</i>	<i>AVG-limit (dBμV)</i>	<i>Margin (dB)</i>
Line 1	171.000	49.29	---	---	65.40	55.40	-6.11
	226.000	48.05	---	---	63.83	53.83	-5.78
	279.000	44.77	---	---	62.21	52.21	-7.44
	331.000	44.56	---	---	60.83	50.83	-6.27
	504.000	38.03	---	---	56.00	46.00	-7.97
	3536.740	46.56	40.55	26.76	56.00	46.00	-15.45
Line 2	166.000	50.05	---	---	65.54	55.54	-5.49
	224.000	48.42	---	---	63.89	53.89	-5.47
	274.000	45.57	---	---	62.46	52.46	-6.89
	331.000	44.16	---	---	60.83	50.83	-6.67
	3593.230	50.24	46.05	28.53	56.00	46.00	-9.95
	3818.685	50.48	47.95	32.21	56.00	46.00	-8.05

Test mode: IEEE 802.11a 5745MHz

<i>Power Connected Emissions</i>					<i>Class B</i>		
<i>Conductor</i>	<i>Frequency (KHz)</i>	<i>Peak (dBμV)</i>	<i>QP (dBμV)</i>	<i>Average (dBμV)</i>	<i>QP-limit (dBμV)</i>	<i>AVG-limit (dBμV)</i>	<i>Margin (dB)</i>
Line 1	169.000	49.29	---	---	65.46	55.46	-6.17
	222.000	47.84	---	---	63.94	53.94	-6.10
	274.000	45.36	---	---	62.46	52.46	-7.10
	334.000	43.24	---	---	60.74	50.74	-7.50
	3702.000	42.68	---	---	56.00	46.00	-3.32
	3931.255	48.74	45.65	30.49	56.00	46.00	-10.35
Line 2	166.000	49.36	---	---	65.54	55.54	-6.18
	222.000	48.43	---	---	63.94	53.94	-5.51
	331.000	44.36	---	---	60.83	50.83	-6.47
	3593.300	50.15	45.59	29.07	56.00	46.00	-10.41
	3754.020	51.04	43.57	23.60	56.00	46.00	-12.43
	3817.315	51.21	48.14	30.76	56.00	46.00	-7.86

Test mode: IEEE 802.11a 5785MHz

<i>Power Connected Emissions</i>					<i>Class B</i>		
<i>Conductor</i>	<i>Frequency (KHz)</i>	<i>Peak (dBμV)</i>	<i>QP (dBμV)</i>	<i>Average (dBμV)</i>	<i>QP-limit (dBμV)</i>	<i>AVG-limit (dBμV)</i>	<i>Margin (dB)</i>
Line 1	169.000	47.54	---	---	65.46	55.46	-7.92
	224.000	47.84	---	---	63.89	53.89	-6.05
	277.000	46.12	---	---	62.37	52.37	-6.25
	1059.000	36.92	---	---	56.00	46.00	-9.08
	3702.000	42.59	---	---	56.00	46.00	-3.41
	3818.910	47.48	45.23	31.09	56.00	46.00	-10.77
Line 2	274.000	46.71	---	---	62.46	52.46	-5.75
	3482.180	49.34	44.15	27.12	56.00	46.00	-11.85
	3647.900	51.62	46.23	28.46	56.00	46.00	-9.77
	3702.285	49.79	44.58	28.37	56.00	46.00	-11.42
	3931.570	49.87	48.68	31.45	56.00	46.00	-7.32
	4099.180	48.55	45.26	28.47	56.00	46.00	-10.74

Test mode: IEEE 802.11a 5805MHz

<i>Power Connected Emissions</i>					<i>Class B</i>		
<i>Conductor</i>	<i>Frequency (KHz)</i>	<i>Peak (dBμV)</i>	<i>QP (dBμV)</i>	<i>Average (dBμV)</i>	<i>QP-limit (dBμV)</i>	<i>AVG-limit (dBμV)</i>	<i>Margin (dB)</i>
Line 1	167.000	50.24	---	---	65.51	55.51	-5.27
	279.000	44.77	---	---	62.31	52.31	-7.54
	334.000	42.87	---	---	60.74	50.74	-7.87
	499.000	39.04	---	---	56.03	46.03	-6.99
	893.000	38.36	---	---	56.00	46.00	-7.64
	3638.000	41.88	---	---	56.00	46.00	-4.12
Line 2	224.000	48.43	---	---	63.89	53.89	-5.46
	271.000	46.63	---	---	62.54	52.54	-5.91
	499.000	39.28	---	---	56.03	46.03	-6.75
	3312.260	46.04	40.58	24.50	56.00	46.00	-15.42
	3480.995	48.99	44.04	26.70	56.00	46.00	-11.96
	3932.130	50.67	48.77	31.64	56.00	46.00	-7.23

Test mode: IEEE 802.11a 20M 5745MHz

<i>Power Connected Emissions</i>					<i>Class B</i>		
<i>Conductor</i>	<i>Frequency (KHz)</i>	<i>Peak (dBµV)</i>	<i>QP (dBµV)</i>	<i>Average (dBµV)</i>	<i>QP-limit (dBµV)</i>	<i>AVG-limit (dBµV)</i>	<i>Margin (dB)</i>
Line 1	222.000	48.17	---	---	63.94	53.94	-5.77
	334.000	41.99	---	---	60.74	50.74	-8.75
	504.000	39.06	---	---	56.00	46.00	-6.94
	1566.000	37.35	---	---	56.00	46.00	-8.65
	3510.000	40.42	---	---	56.00	46.00	-5.58
	3932.805	47.86	44.70	29.57	56.00	46.00	-11.30
Line 2	167.000	49.96	---	---	65.51	55.51	-5.55
	226.000	46.67	---	---	63.83	53.83	-7.16
	274.000	47.09	---	---	62.46	52.46	-5.37
	326.000	44.80	---	---	60.97	50.97	-6.17
	3349.000	41.62	---	---	56.00	46.00	-4.38
	3651.850	50.33	45.61	29.09	56.00	46.00	-10.39

Test mode: IEEE 802.11a 20M 5785MHz

<i>Power Connected Emissions</i>					<i>Class B</i>		
<i>Conductor</i>	<i>Frequency (KHz)</i>	<i>Peak (dBµV)</i>	<i>QP (dBµV)</i>	<i>Average (dBµV)</i>	<i>QP-limit (dBµV)</i>	<i>AVG-limit (dBµV)</i>	<i>Margin (dB)</i>
Line 1	169.000	50.35	---	---	65.46	55.46	-5.11
	220.000	46.57	---	---	64.00	54.00	-7.43
	1295.000	37.66	---	---	56.00	46.00	-8.34
	3762.265	47.27	45.19	30.91	56.00	46.00	-10.81
	3875.360	47.46	45.02	31.00	56.00	46.00	-10.98
	4099.415	46.89	43.10	29.07	56.00	46.00	-12.90
Line 2	167.000	49.34	---	---	65.51	55.51	-6.17
	277.000	46.07	---	---	62.37	52.37	-6.30
	504.000	37.46	---	---	56.00	46.00	-8.54
	3649.950	50.09	47.86	30.39	56.00	46.00	-8.14
	3931.120	50.51	48.74	30.30	56.00	46.00	-7.26
	4043.725	49.30	46.73	28.92	56.00	46.00	-9.27

Test mode: IEEE 802.11a 20M 5805MHz

<i>Power Connected Emissions</i>					<i>Class B</i>		
<i>Conductor</i>	<i>Frequency (KHz)</i>	<i>Peak (dBμV)</i>	<i>QP (dBμV)</i>	<i>Average (dBμV)</i>	<i>QP-limit (dBμV)</i>	<i>AVG-limit (dBμV)</i>	<i>Margin (dB)</i>
Line 1	167.000	49.26	---	---	65.51	55.51	-6.25
	220.000	46.91	---	---	64.00	54.00	-7.09
	274.000	46.88	---	---	62.46	52.46	-5.58
	3574.000	40.65	---	---	56.00	46.00	-5.35
	3702.000	42.75	---	---	56.00	46.00	-3.25
	4092.000	39.49	---	---	56.00	46.00	-6.51
Line 2	169.000	49.98	---	---	65.46	55.46	-5.48
	226.000	47.90	---	---	63.83	53.83	-5.93
	262.000	44.77	---	---	62.80	52.80	-8.03
	3366.110	46.68	40.85	24.09	56.00	46.00	-15.15
	3762.740	50.62	47.99	31.22	56.00	46.00	-8.01
	3988.300	50.19	48.10	27.71	56.00	46.00	-7.90

Test mode: IEEE 802.11a 40M 5755MHz

<i>Power Connected Emissions</i>					<i>Class B</i>		
<i>Conductor</i>	<i>Frequency (KHz)</i>	<i>Peak (dBμV)</i>	<i>QP (dBμV)</i>	<i>Average (dBμV)</i>	<i>QP-limit (dBμV)</i>	<i>AVG-limit (dBμV)</i>	<i>Margin (dB)</i>
Line 1	277.000	45.94	---	---	62.37	52.37	-6.43
	331.000	43.91	---	---	60.83	50.83	-6.92
	504.000	39.55	---	---	56.00	46.00	-6.45
	1346.000	39.23	---	---	56.00	46.00	-6.77
	3638.000	41.83	---	---	56.00	46.00	-4.17
	3936.000	38.80	---	---	56.00	46.00	-7.20
Line 2	169.000	50.65	---	---	65.46	55.46	-4.81
	220.000	47.16	---	---	64.00	54.00	-6.84
	274.000	44.70	---	---	62.46	52.46	-7.76
	499.000	38.67	---	---	56.03	46.03	-7.36
	3594.000	49.88	44.63	27.87	56.00	46.00	-11.37
	3929.795	49.56	48.44	30.95	56.00	46.00	-7.56

Test mode: IEEE 802.11a 40M 5795MHz

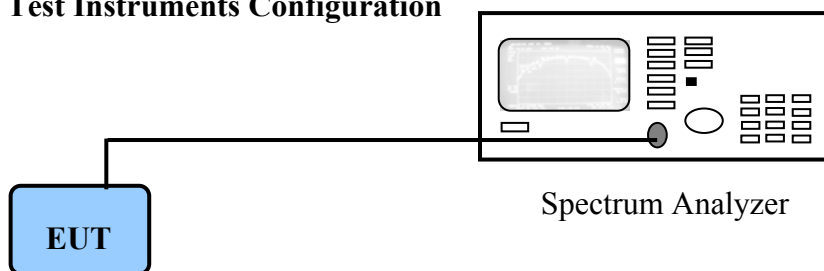
<i>Power Connected Emissions</i>					<i>FCC Class B</i>		
<i>Conductor</i>	<i>Frequency (KHz)</i>	<i>Peak (dBμV)</i>	<i>QP (dBμV)</i>	<i>Average (dBμV)</i>	<i>QP-limit (dBμV)</i>	<i>AVG-limit (dBμV)</i>	<i>Margin (dB)</i>
Line 1	164.000	46.74	---	---	65.60	55.60	-8.86
	222.000	47.89	---	---	63.94	53.94	-6.05
	504.000	36.84	---	---	56.00	46.00	-9.16
	841.000	37.12	---	---	56.00	46.00	-8.88
	3762.330	47.36	44.01	30.03	56.00	46.00	-11.99
	3928.520	49.10	45.34	30.15	56.00	46.00	-10.66
Line 2	167.000	50.40	---	---	65.51	55.51	-5.11
	271.000	45.38	---	---	62.54	52.54	-7.16
	338.000	43.17	---	---	60.63	50.63	-7.46
	3313.480	45.96	39.73	24.19	56.00	46.00	-16.27
	3690.270	49.39	39.00	15.94	56.00	46.00	-17.00
	3931.760	51.78	47.97	30.58	56.00	46.00	-8.03

IV. Section 15.407(a): Bandwidth for Unlicensed National Information Infrastructure.

4.1 Test Condition & Setup

The transmitter bandwidth measurements were performed by the contact manner. The EUT was set to transmit continuously, also various channels were investigated to find the maximum occupied bandwidth. The output of the EUT was connected to the spectrum analyzer. The bandwidth of the fundamental frequency is observed by the spectrum analyzer with RBW 300kHz and VBW 1MHz.

4.2 Test Instruments Configuration



PC to control the EUT at maximal power output and channel number and set antenna kit

4.3 List of Test Instruments

<u>Instrument Name</u>	<u>Model No.</u>	<u>Brand</u>	<u>Serial No.</u>	<u>Next time</u>
Spectrum Analyzer	MS2665C	ANRITSU	6200175476	12/19/09

4.4 Test Result of Bandwidth
Operated at 5150MHz to 5250MHz
IEEE 802.11a

Frequency (MHz)	26dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
	Antenna#1	Antwnna#2	Antenna#1	Antwnna#2
5180	20.00	20.00	16.90	16.80
5200	20.00	20.00	16.90	16.90
5240	20.00	20.10	16.80	16.90

IEEE 802.11a 20M

Frequency (MHz)	26dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
	Antenna#1	Antwnna#2	Antenna#1	Antwnna#2
5180	20.20	20.20	17.90	17.80
5200	20.20	20.20	17.90	17.90
5240	20.20	20.30	17.90	17.90

IEEE 802.11a 40M

Frequency (MHz)	26dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
	Antenna#1	Antwnna#2	Antenna#1	Antwnna#2
5190	40.20	40.40	36.80	36.80
5230	40.20	40.20	36.80	36.80

Operated at 5725MHz to 5825MHz

IEEE 802.11a

Frequency (MHz)	26dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
	Antenna#1	Antwnna#2	Antenna#1	Antwnna#2
5745	20.00	20.00	17.00	16.70
5785	20.00	20.00	16.90	16.80
5805	20.10	20.00	17.00	16.80

IEEE 802.11a 20M

Frequency (MHz)	26dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
	Antenna#1	Antwnna#2	Antenna#1	Antwnna#2
5745	20.10	20.20	18.00	17.90
5785	20.10	20.20	18.10	17.90
5805	20.20	20.30	18.00	17.90

IEEE 802.11a 40M

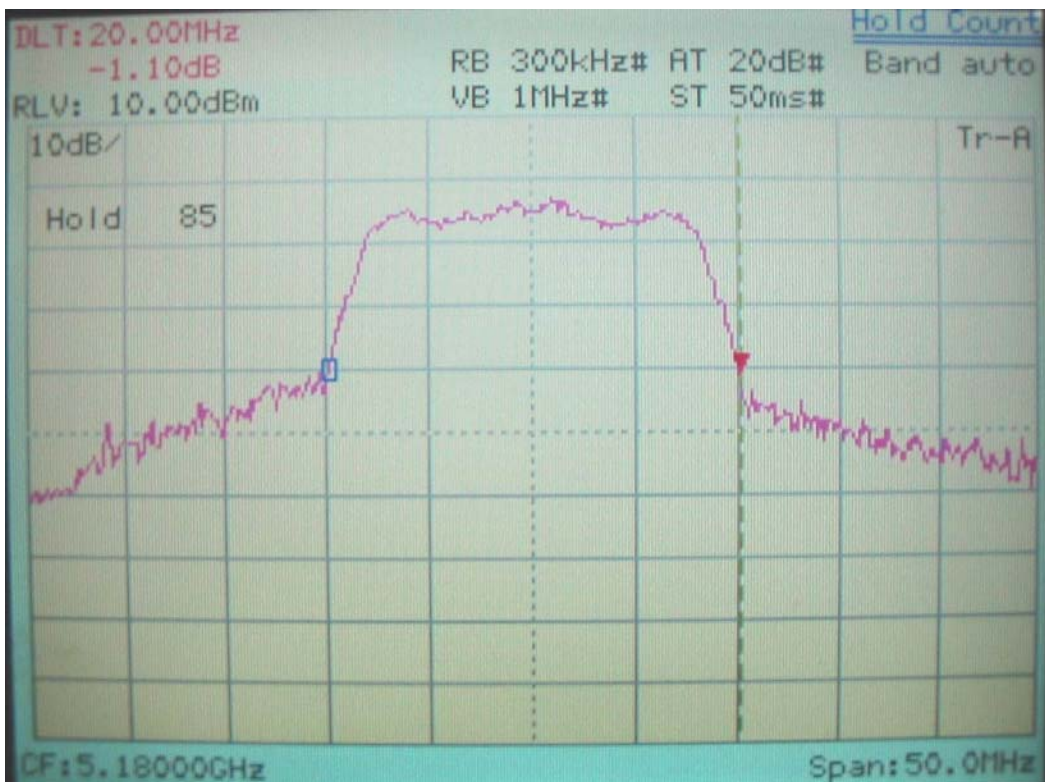
Frequency (MHz)	26dB Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
	Antenna#1	Antwnna#2	Antenna#1	Antwnna#2
5755	40.00	40.20	36.80	36.80
5795	40.20	40.00	36.80	36.80

- Note:
1. The data in the above table are summarizing the following attachment spectrum analyzer hard copy. According to the guidance, we'd made the measurement with the spectrum analyzer's resolution bandwidth (RBW)=300kHz and set the $span \gg RBW$. The results show the measured 26dB and 99% Occupied bandwidth.
 2. The attachments show these on the following pages.

26dB Bandwidth for IEEE 802.11a, 5180MHz



Ant#1



Ant#2

26dB Bandwidth for IEEE 802.11a, 5200MHz



Ant#1



Ant#2

26dB Bandwidth for IEEE 802.11a, 5240MHz

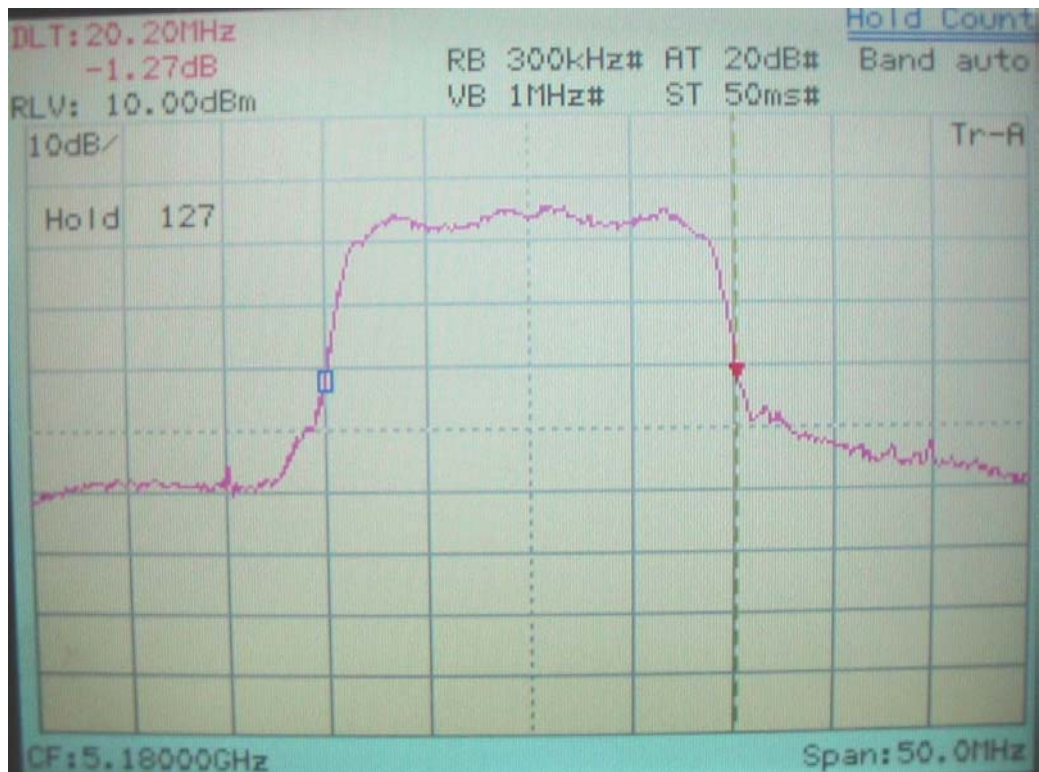


Ant#1



Ant#2

26dB Bandwidth for IEEE 802.11a 20M, 5180MHz



Ant#1

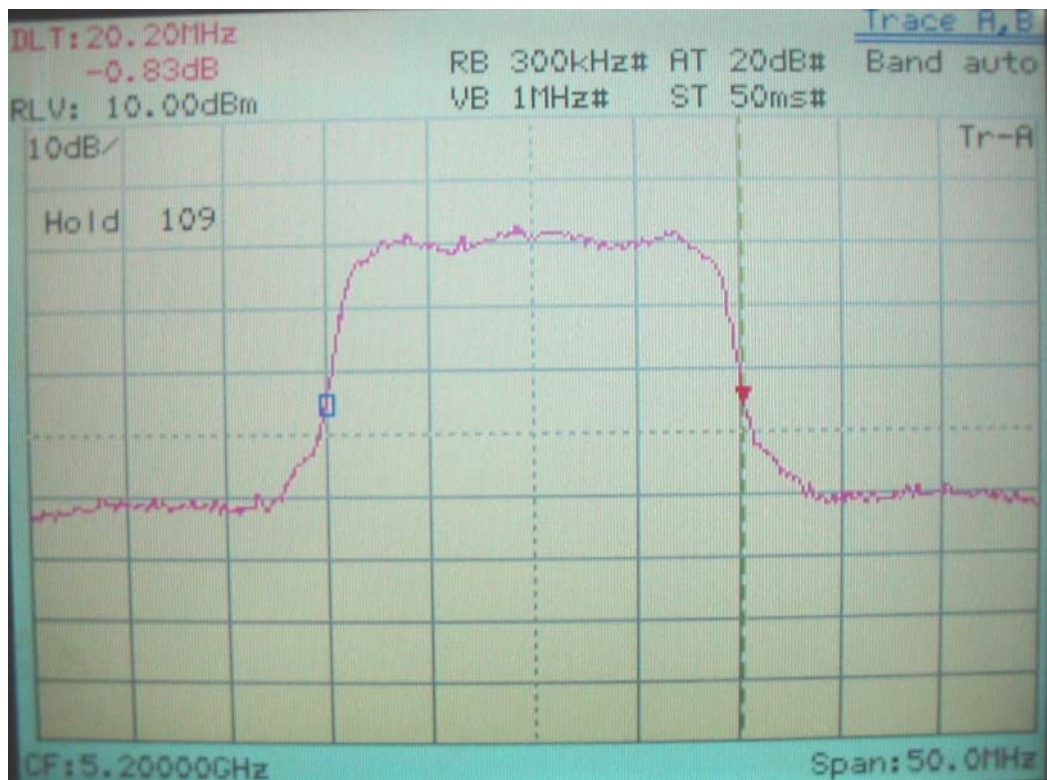


Ant#2

26dB Bandwidth for IEEE 802.11a 20M, 5200MHz



Ant#1

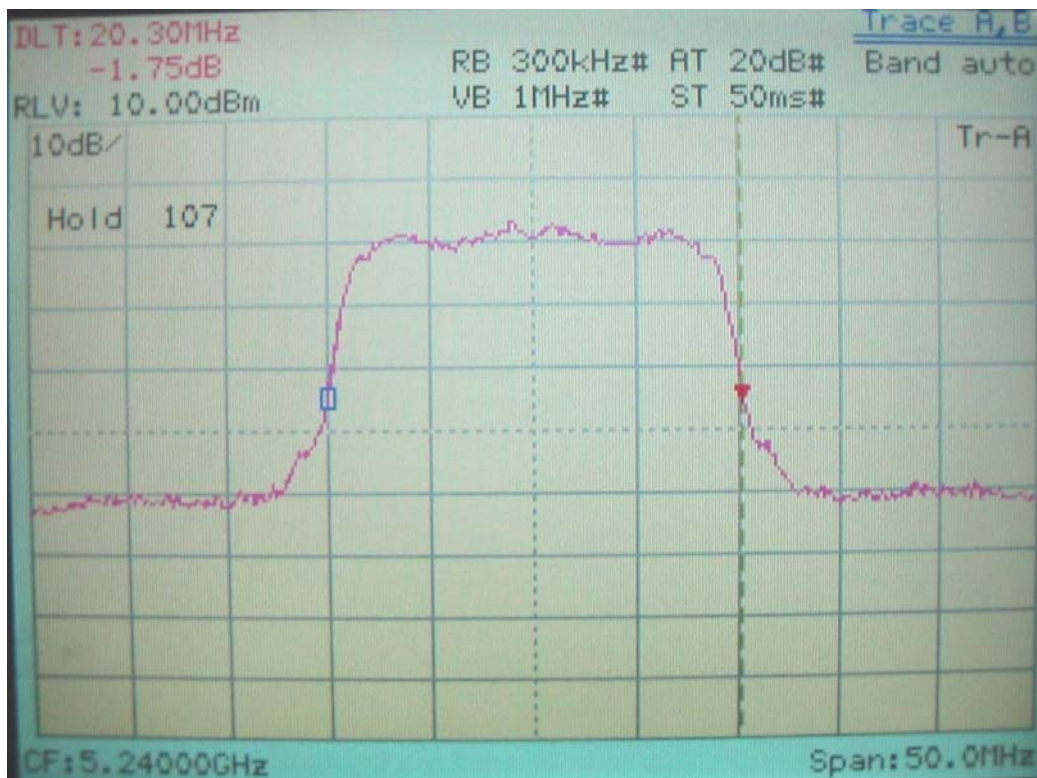


Ant#2

26dB Bandwidth for IEEE 802.11a 20M, 5240MHz



Ant#1

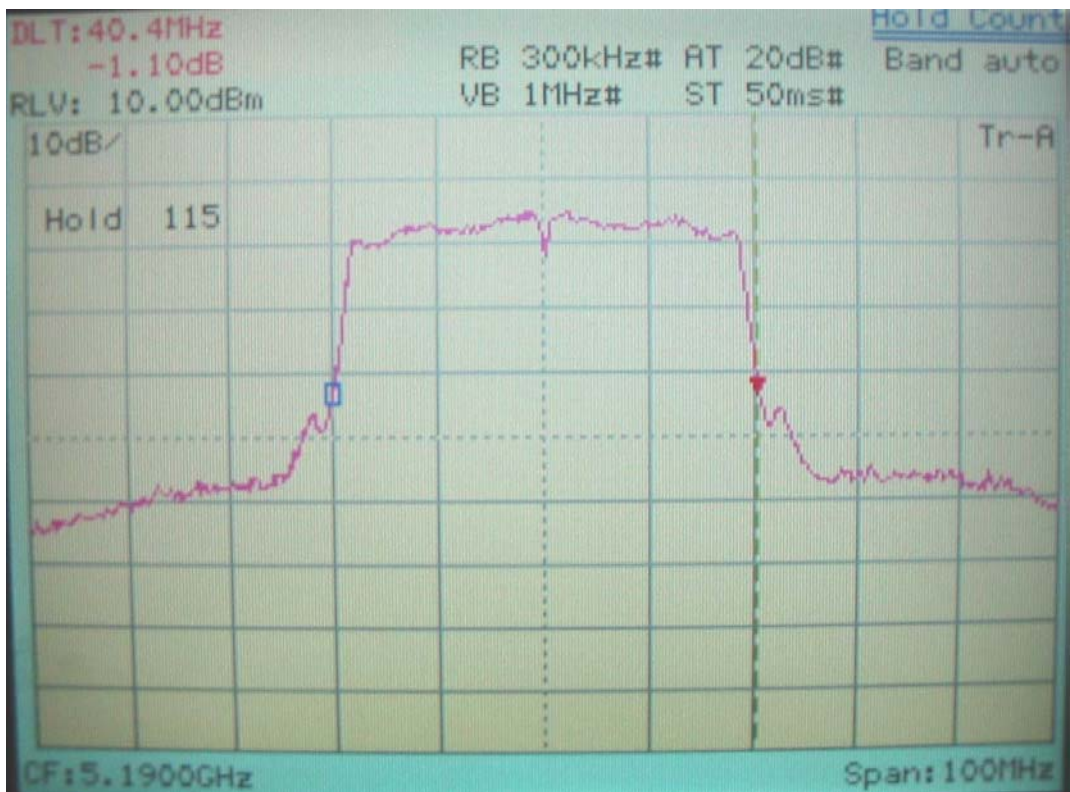


Ant#2

26dB Bandwidth for IEEE 802.11a 40M, 5190MHz

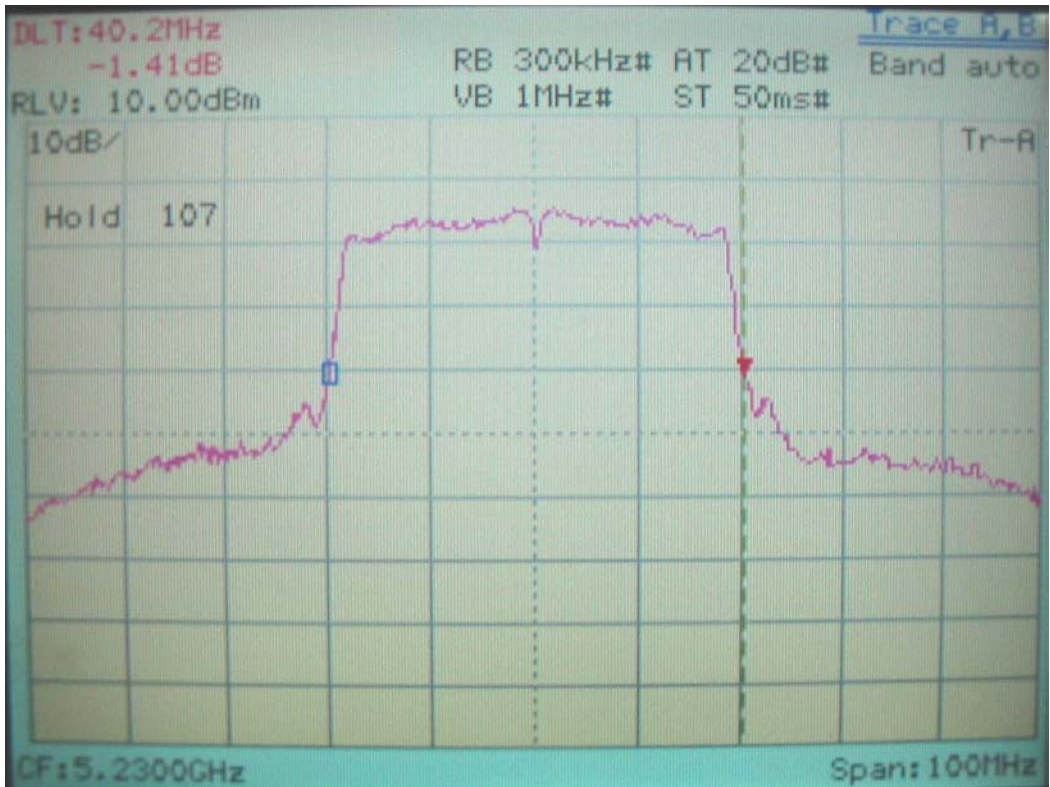


Ant#1



Ant#2

26dB Bandwidth for IEEE 802.11a 40M, 5230MHz

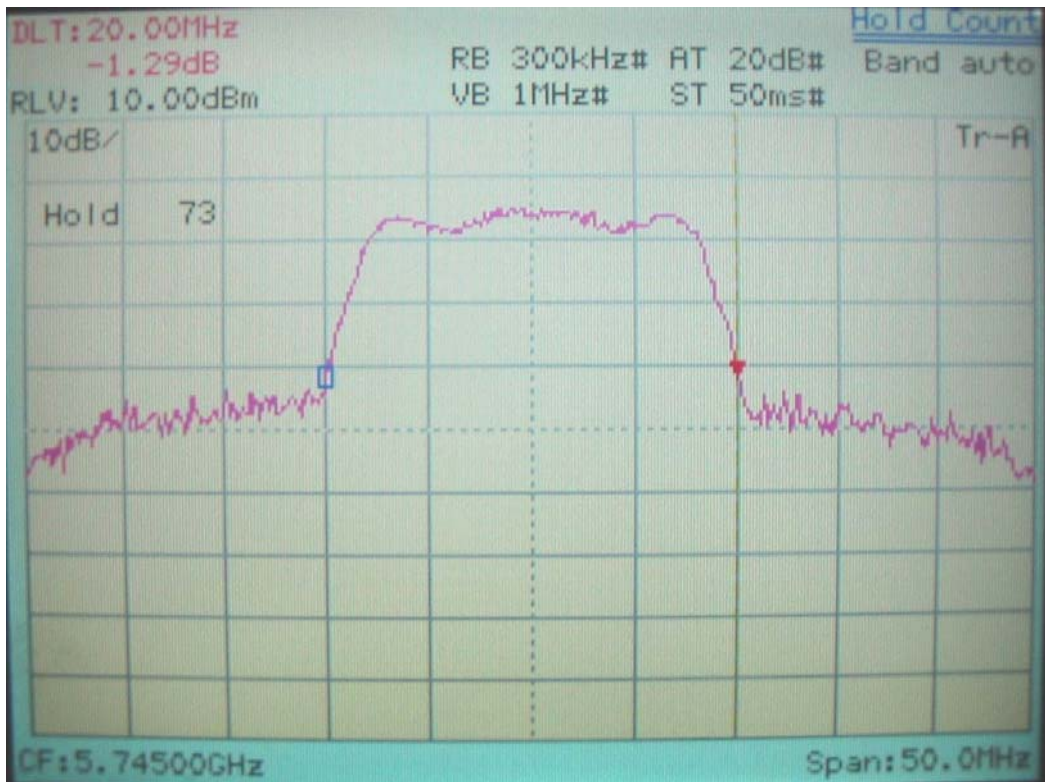


Ant#1



Ant#2

26dB Bandwidth for IEEE 802.11a, 5745MHz



Ant#1

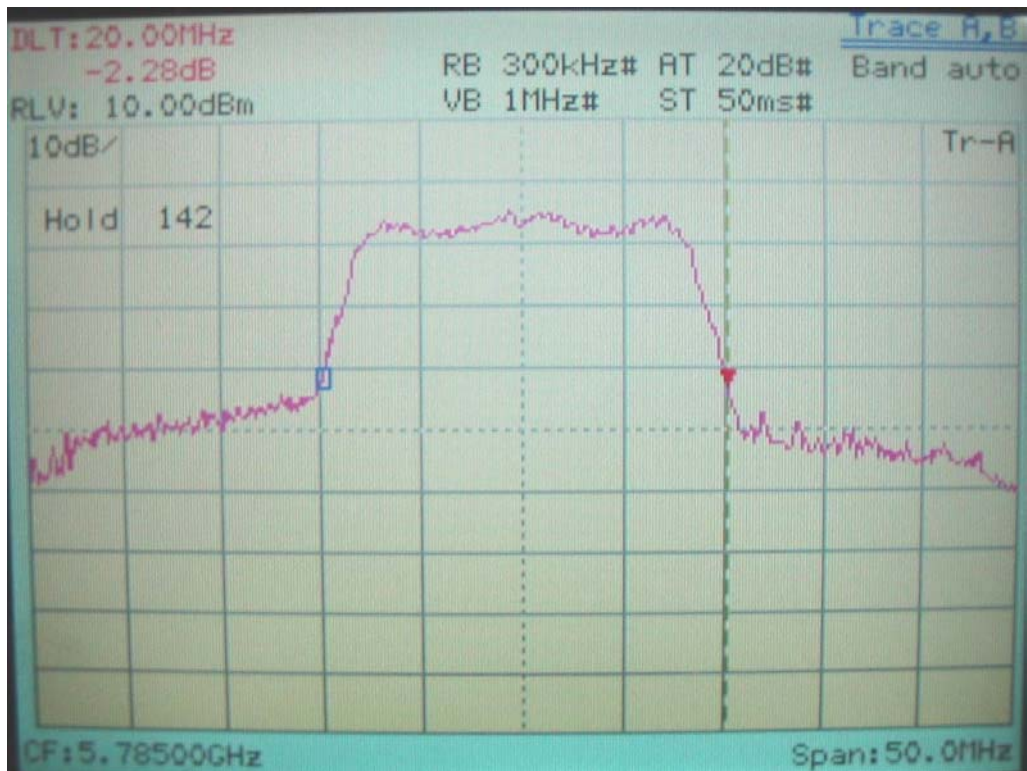


Ant#2

26dB Bandwidth for IEEE 802.11a, 5785MHz

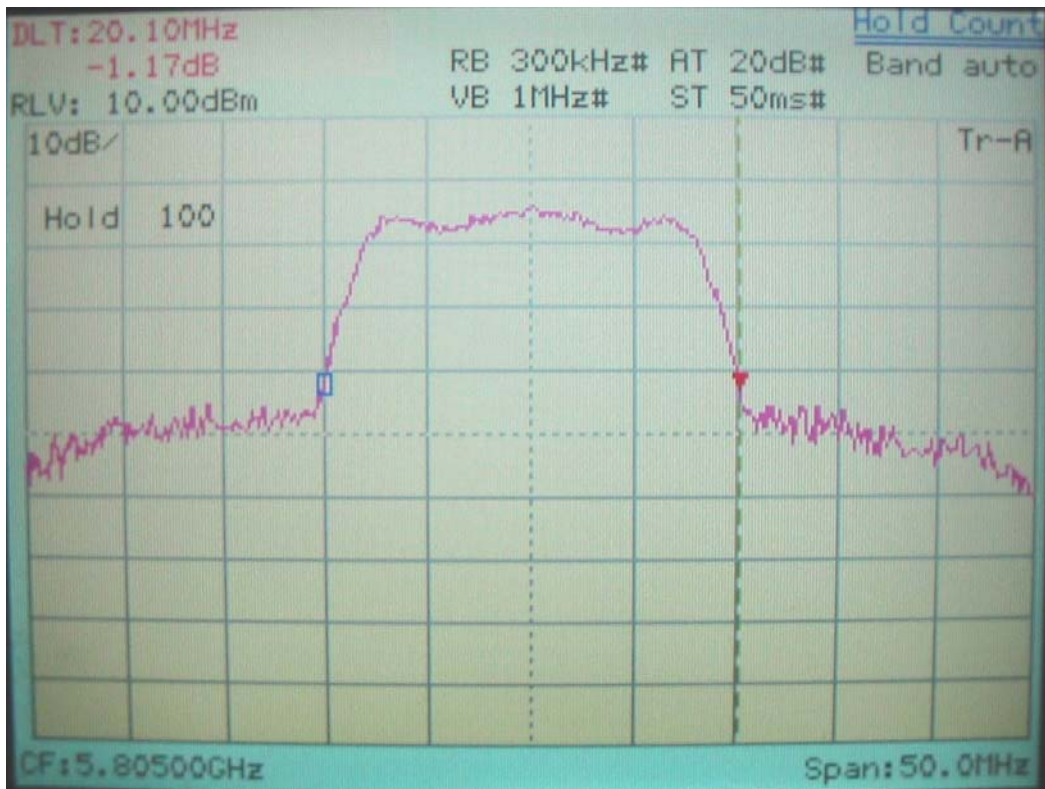


Ant#1



Ant#2

26dB Bandwidth for IEEE 802.11a, 5805MHz



Ant#1

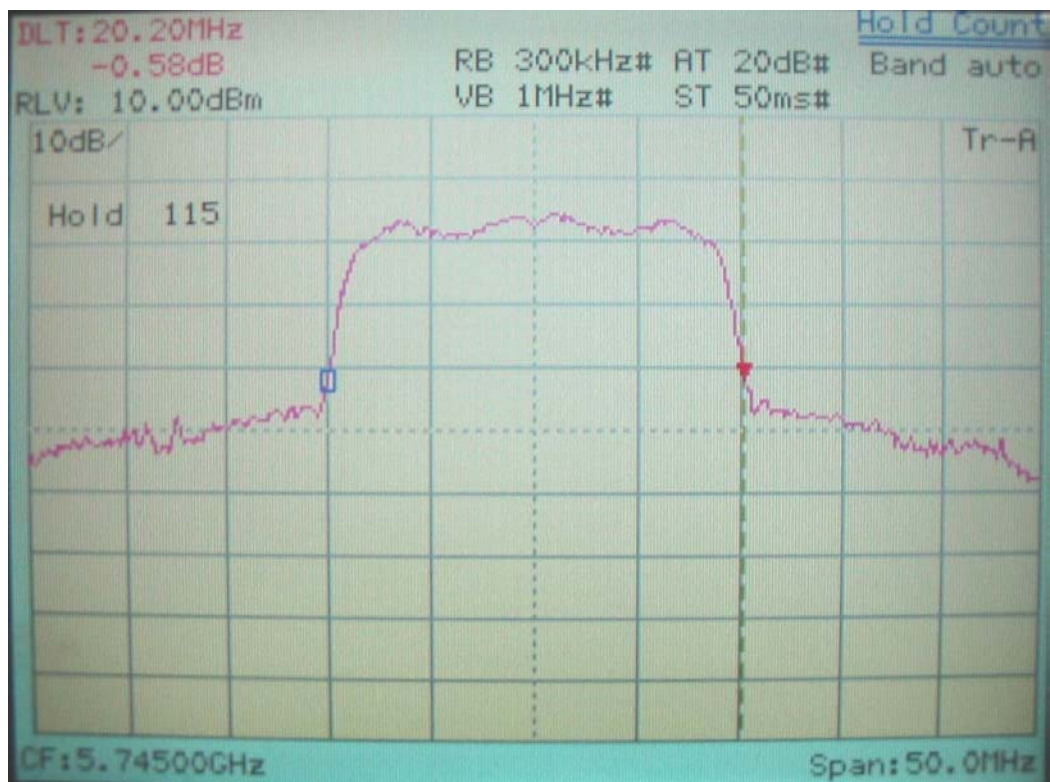


Ant#2

26dB Bandwidth for IEEE 802.11a 20M, 5745MHz



Ant#1

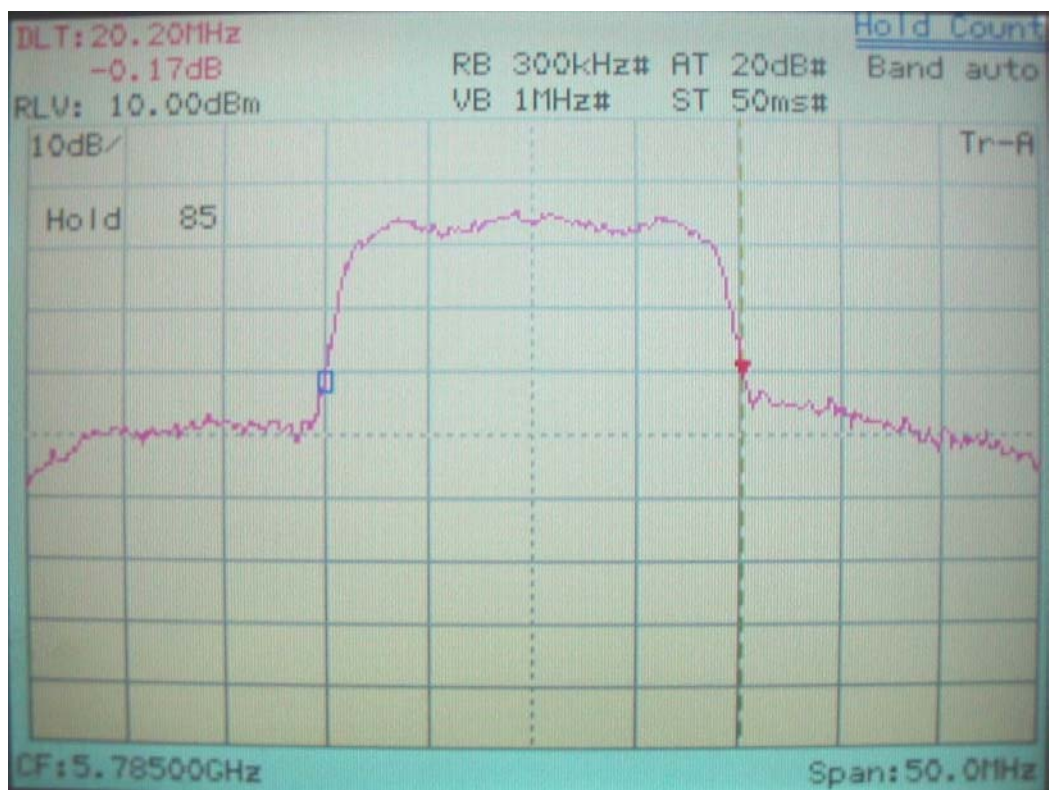


Ant#2

26dB Bandwidth for IEEE 802.11a 20M, 5785MHz



Ant#1

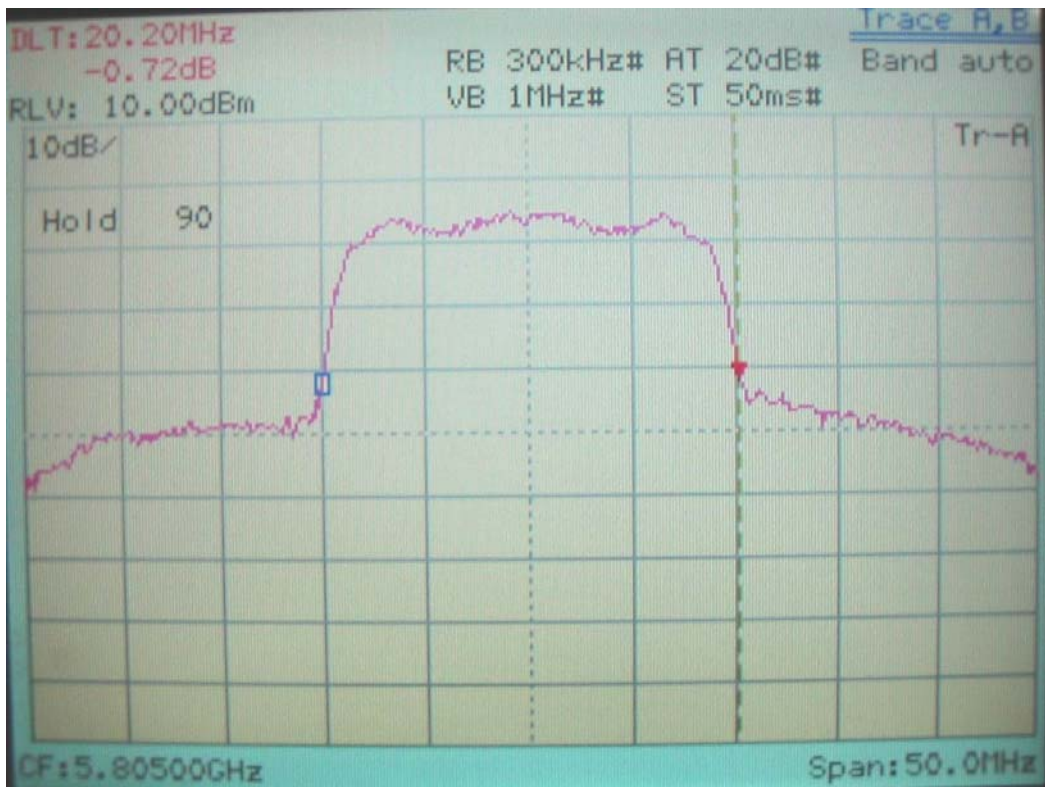


Ant#2

26dB Bandwidth for IEEE 802.11a 20M, 5805MHz

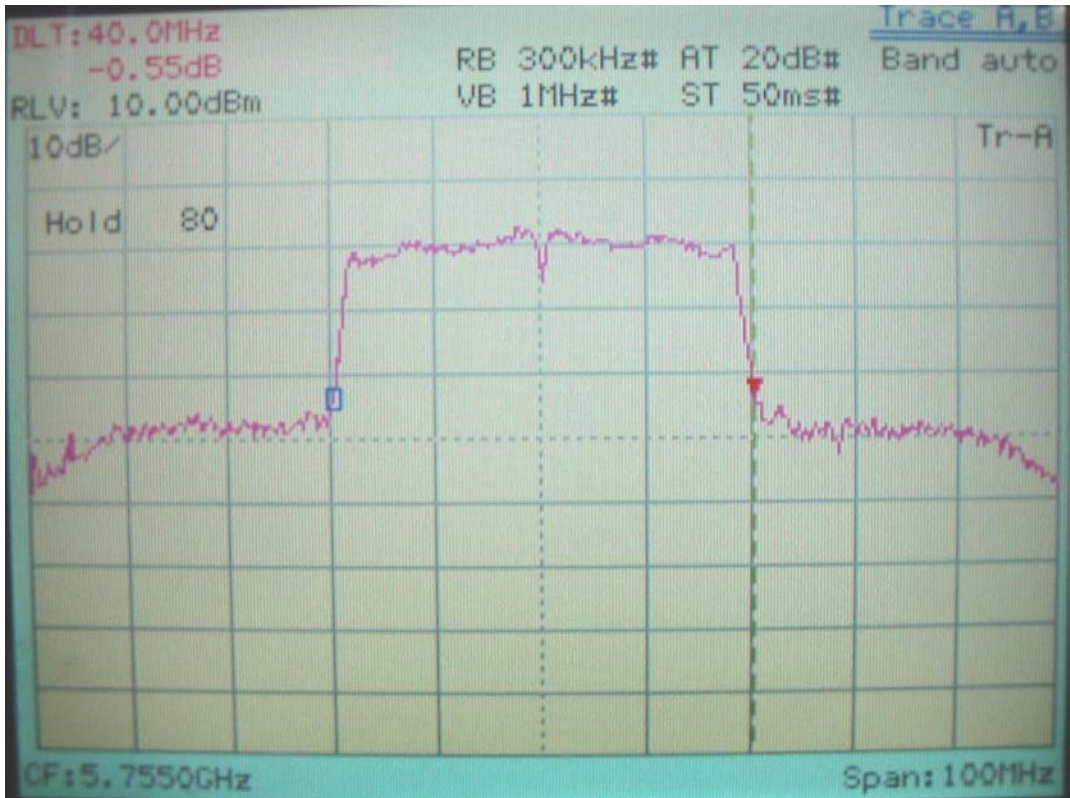


Ant#1



Ant#2

26dB Bandwidth for IEEE 802.11a 40M, 5755MHz

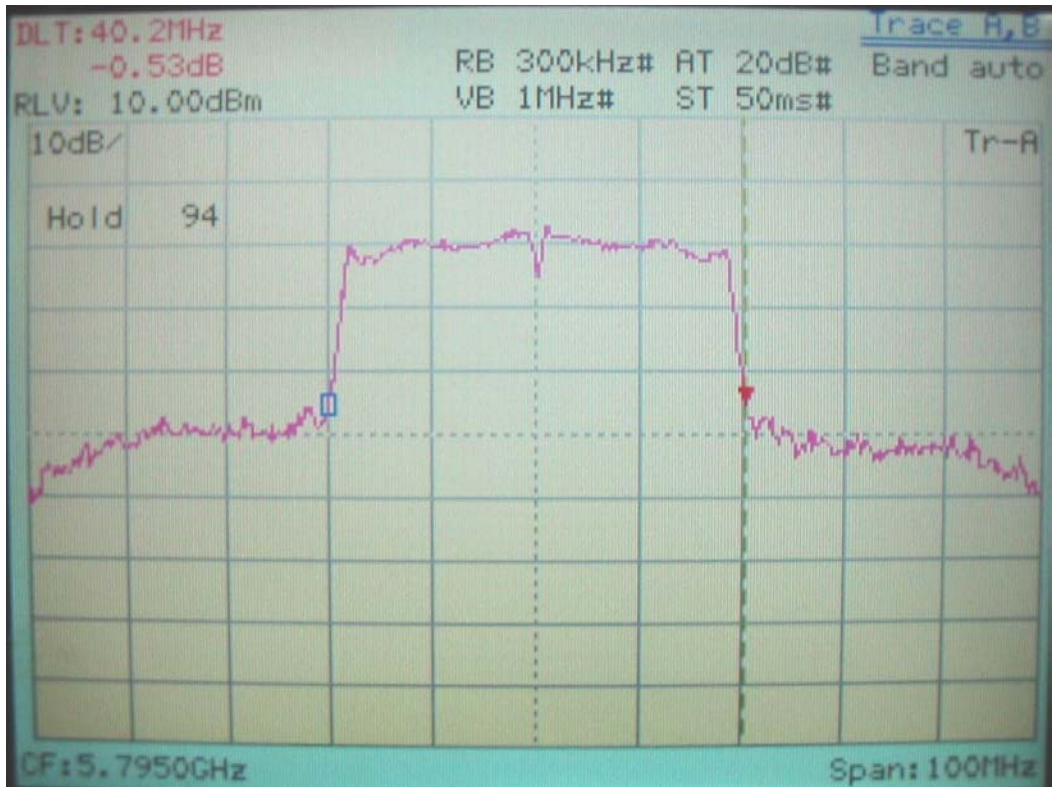


Ant#1

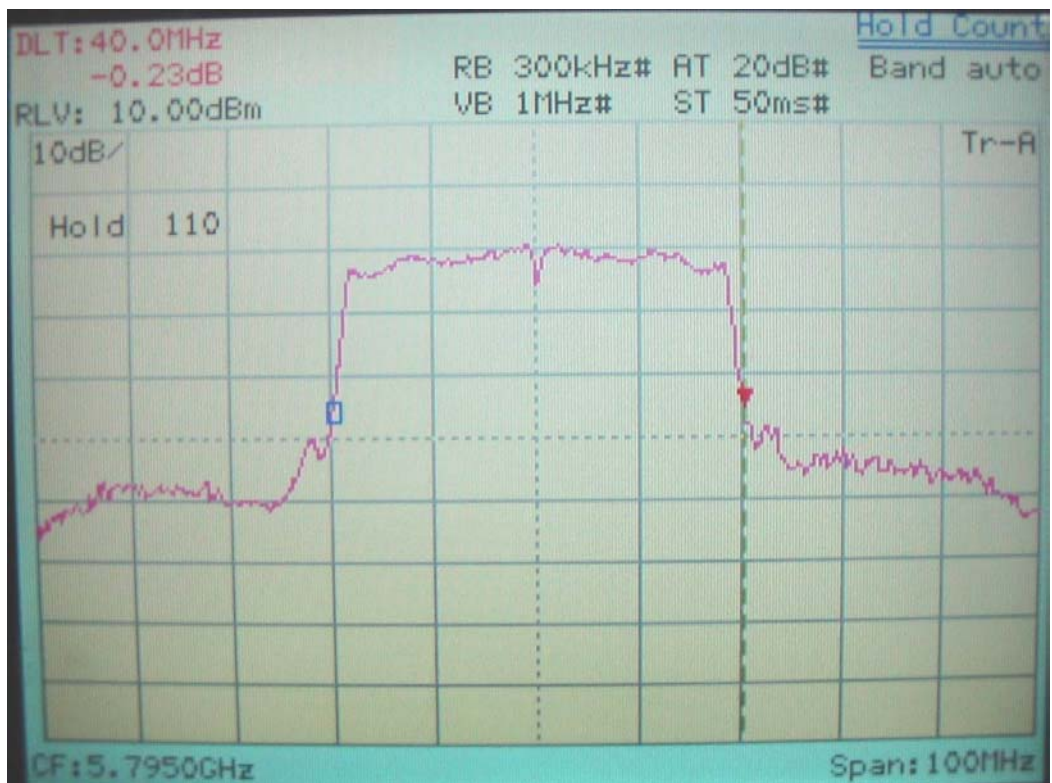


Ant#2

26dB Bandwidth for IEEE 802.11a 40M, 5795MHz



Ant#1

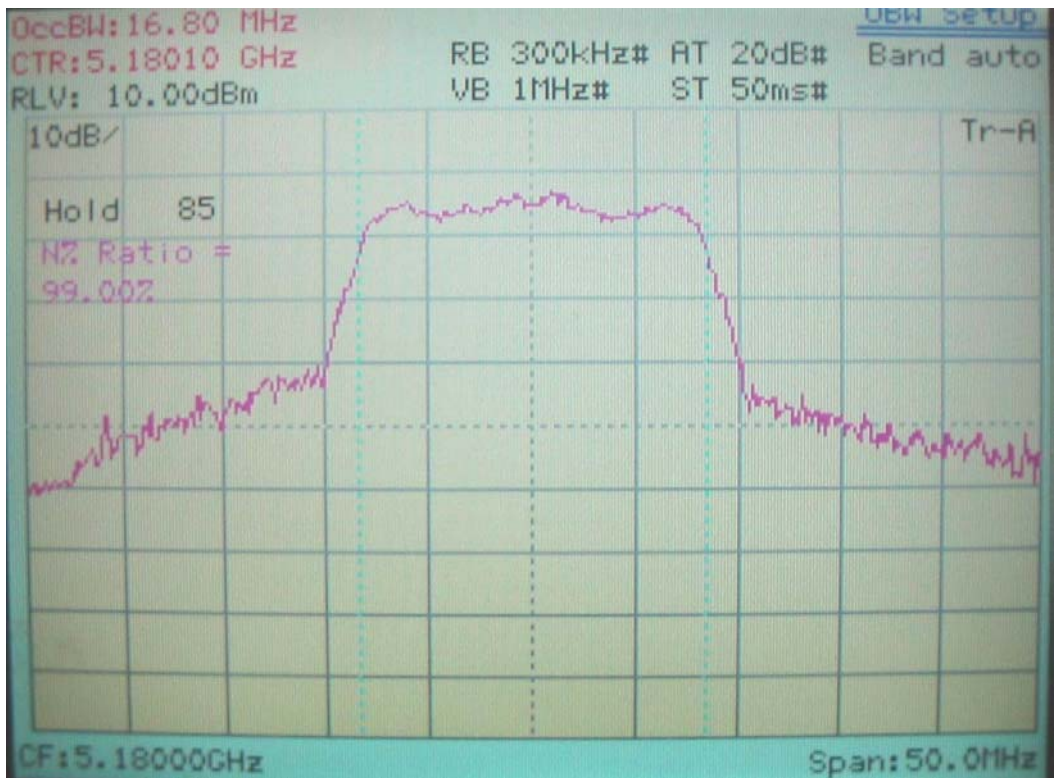


Ant#2

99% Occupied Bandwidth for IEEE 802.11a, 5180MHz



Ant#1

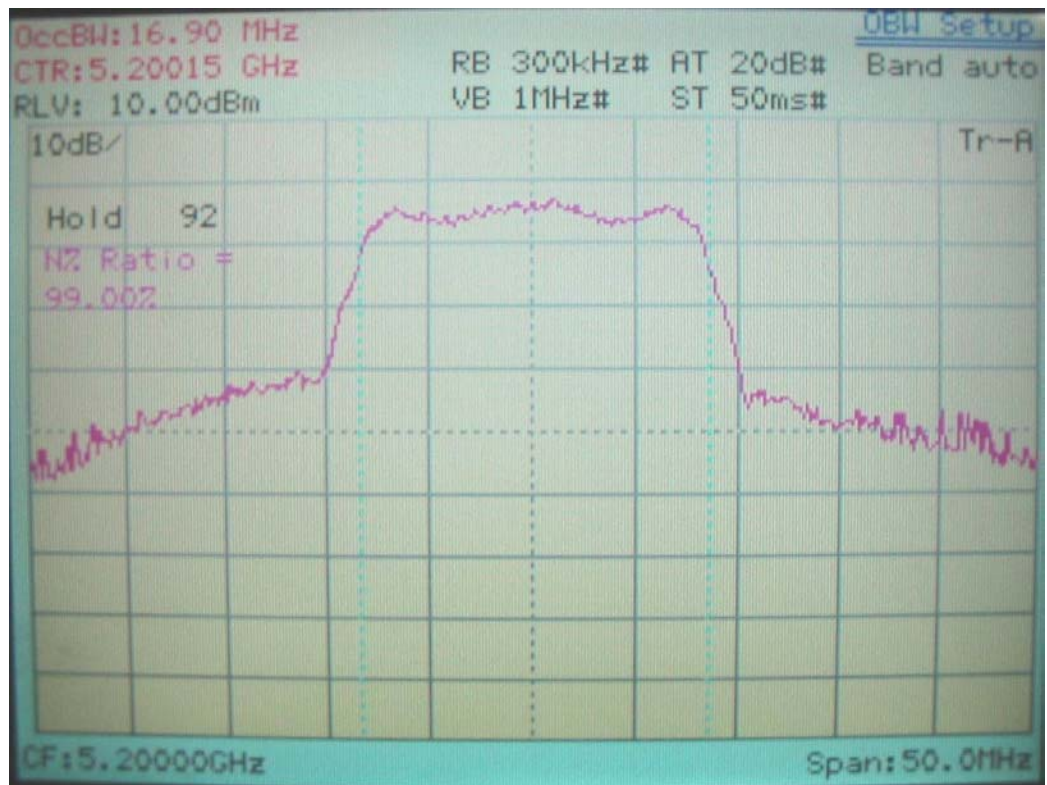


Ant#2

99% Occupied Bandwidth for IEEE 802.11a, 5200MHz

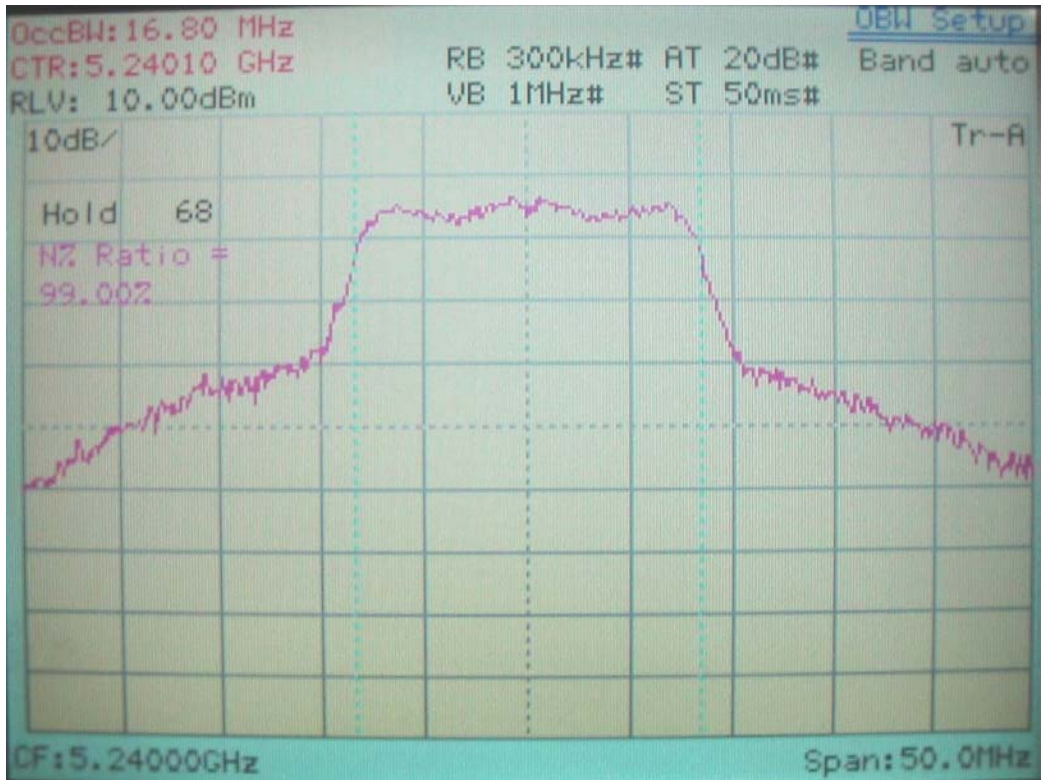


Ant#1

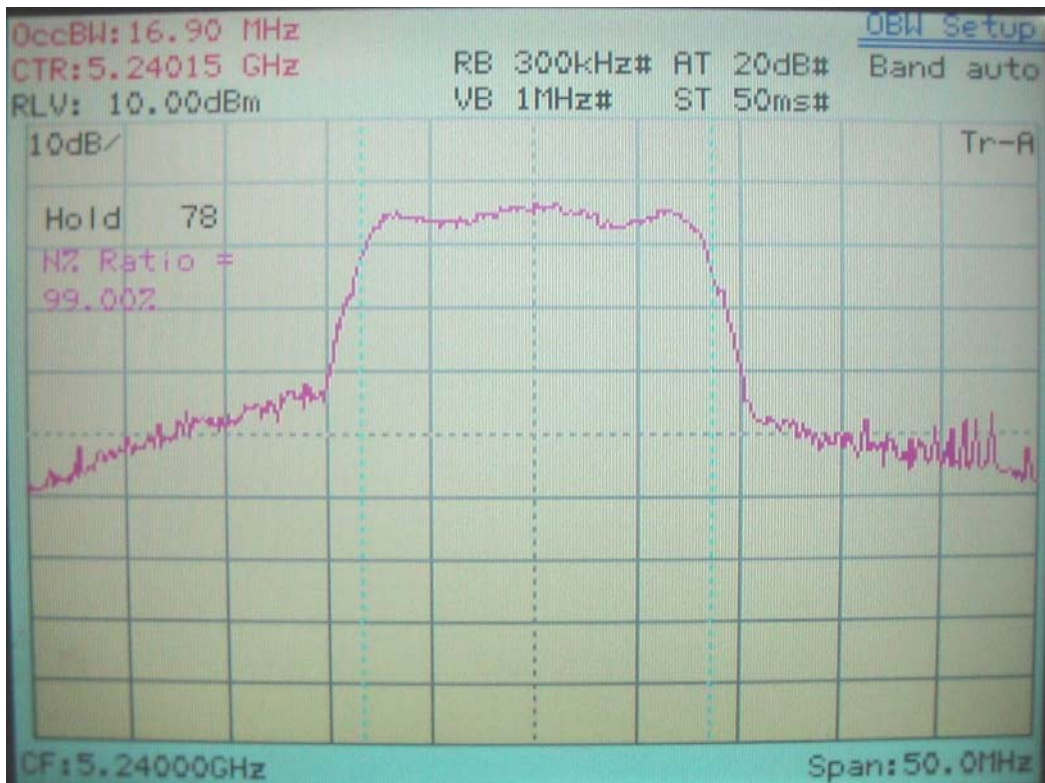


Ant#2

99% Occupied Bandwidth for IEEE 802.11a, 5240MHz

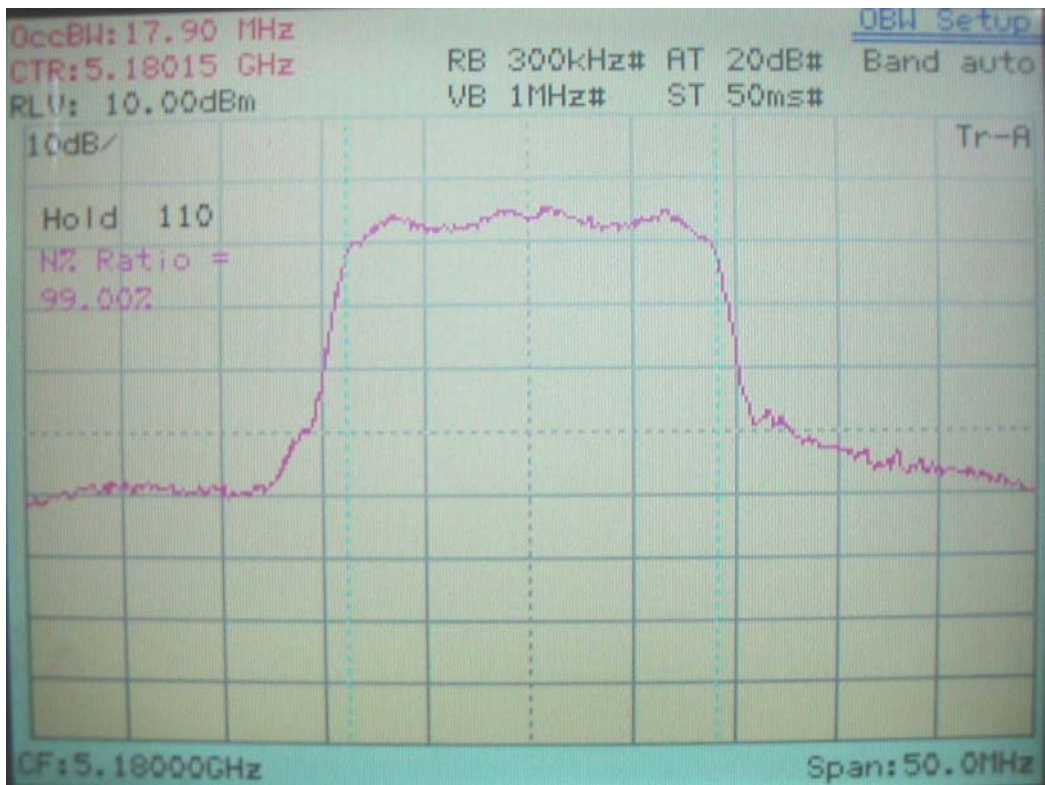


Ant#1

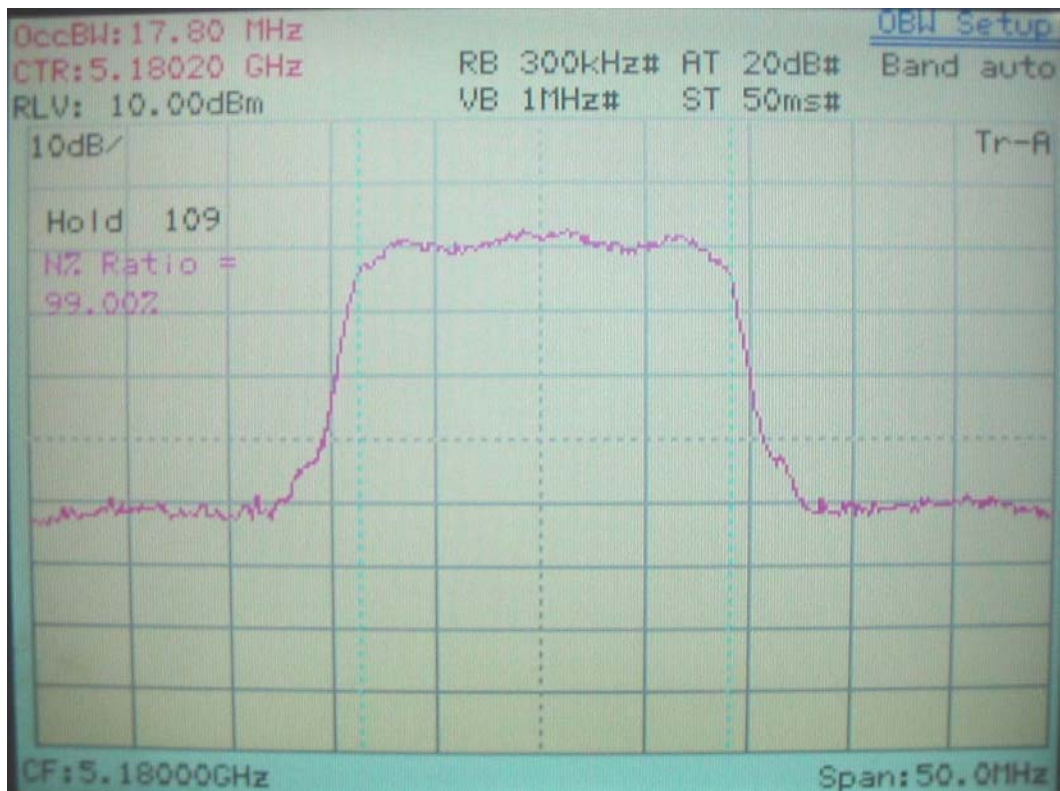


Ant#2

99% Occupied Bandwidth for IEEE 802.11a 20M, 5180MHz

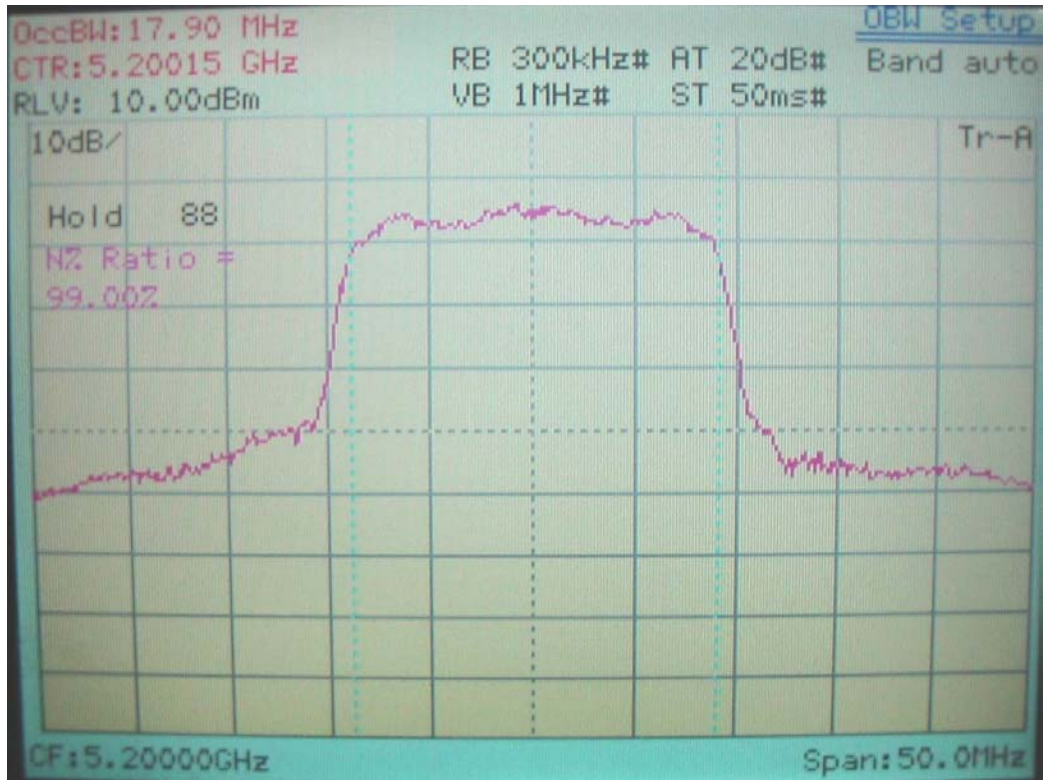


Ant#1

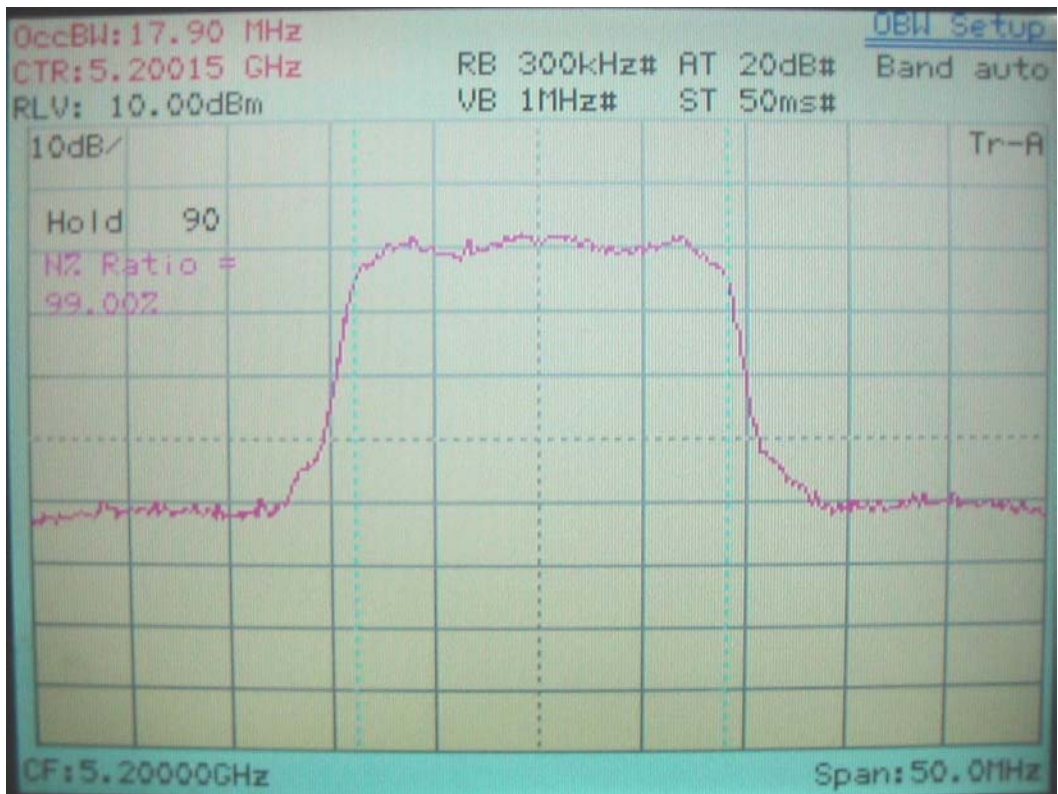


Ant#2

99% Occupied Bandwidth for IEEE 802.11a 20M, 5200MHz



Ant#1

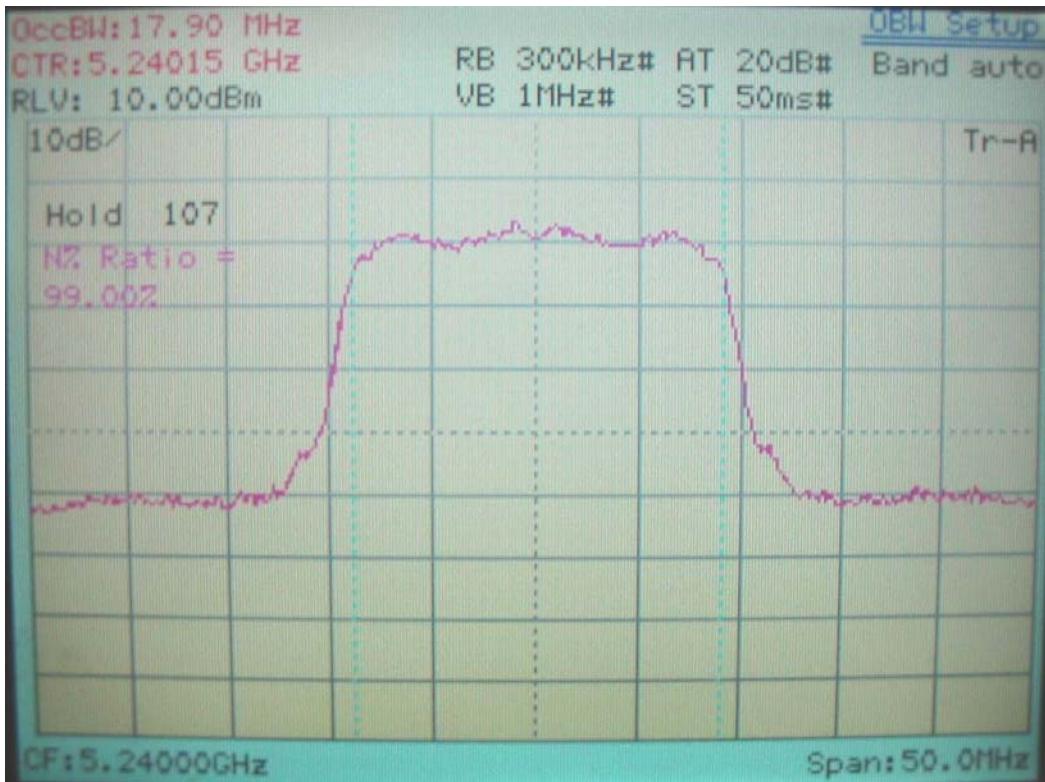


Ant#2

99% Occupied Bandwidth for IEEE 802.11a 20M, 5240MHz

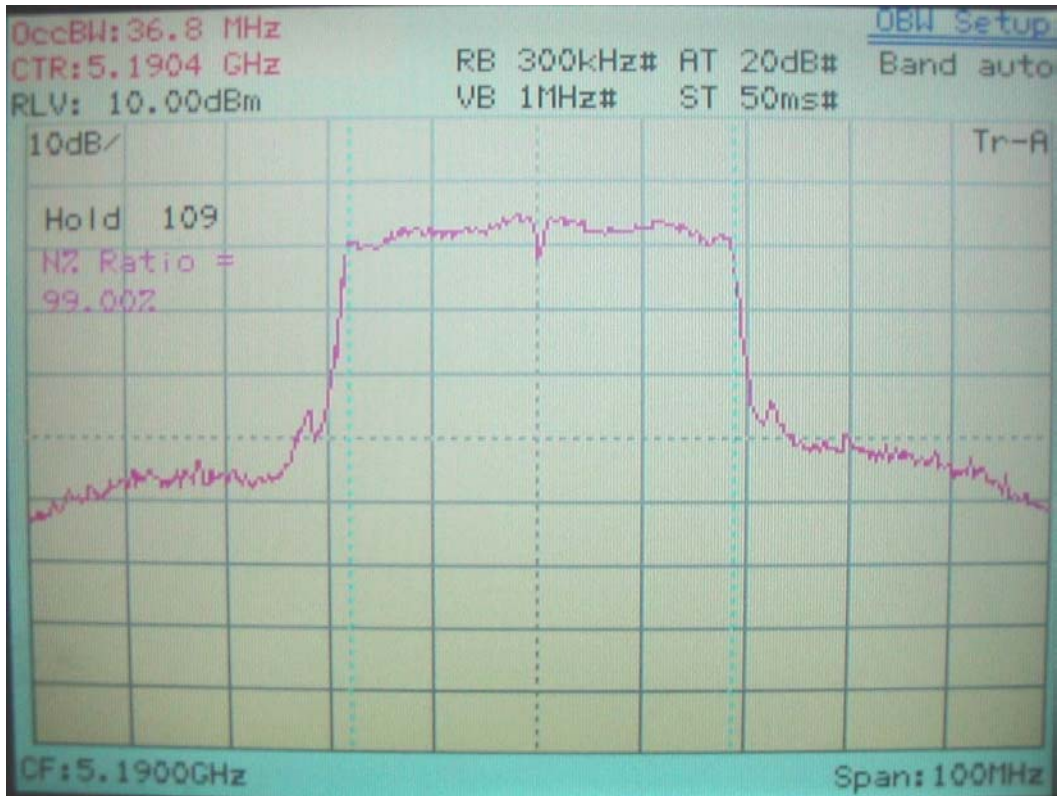


Ant#1

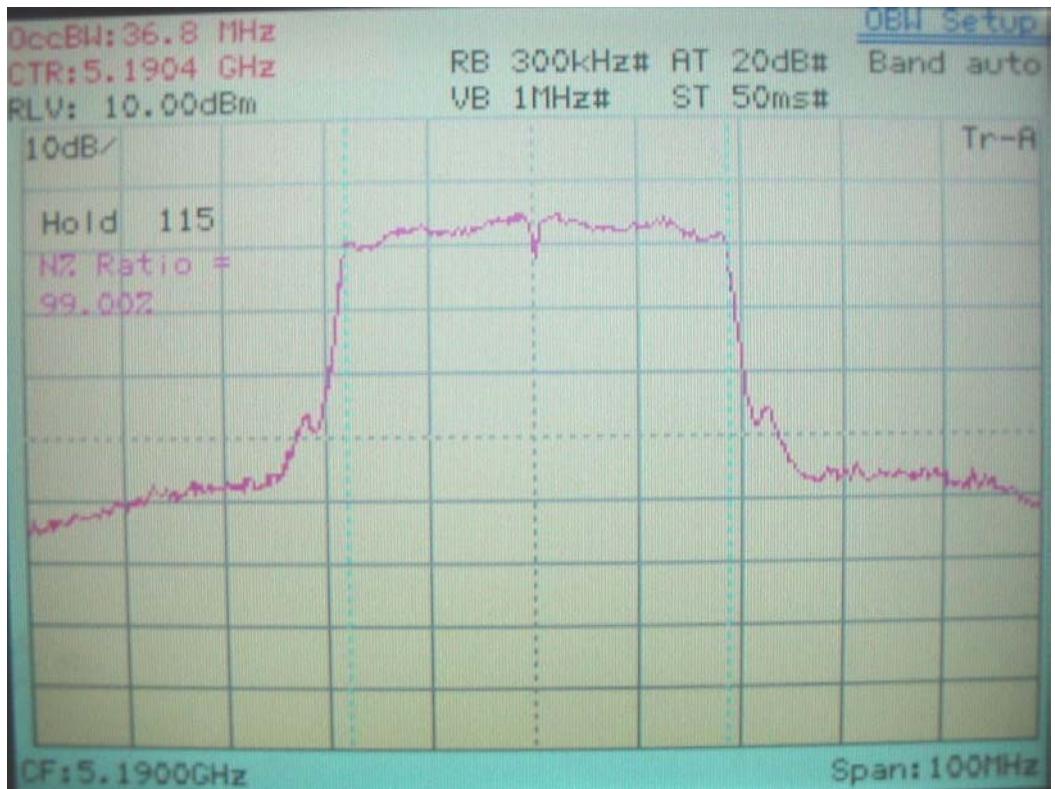


Ant#2

99% Occupied Bandwidth for IEEE 802.11a 40M, 5190MHz



Ant#1

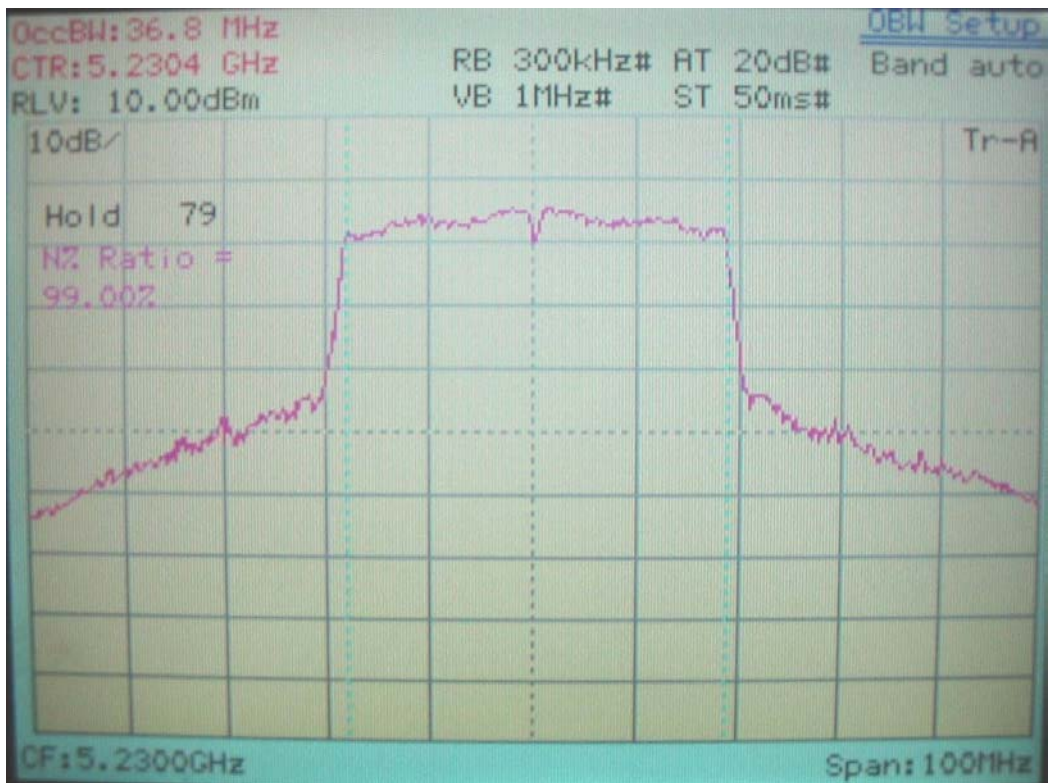


Ant#2

99% Occupied Bandwidth for IEEE 802.11a 40M, 5230MHz

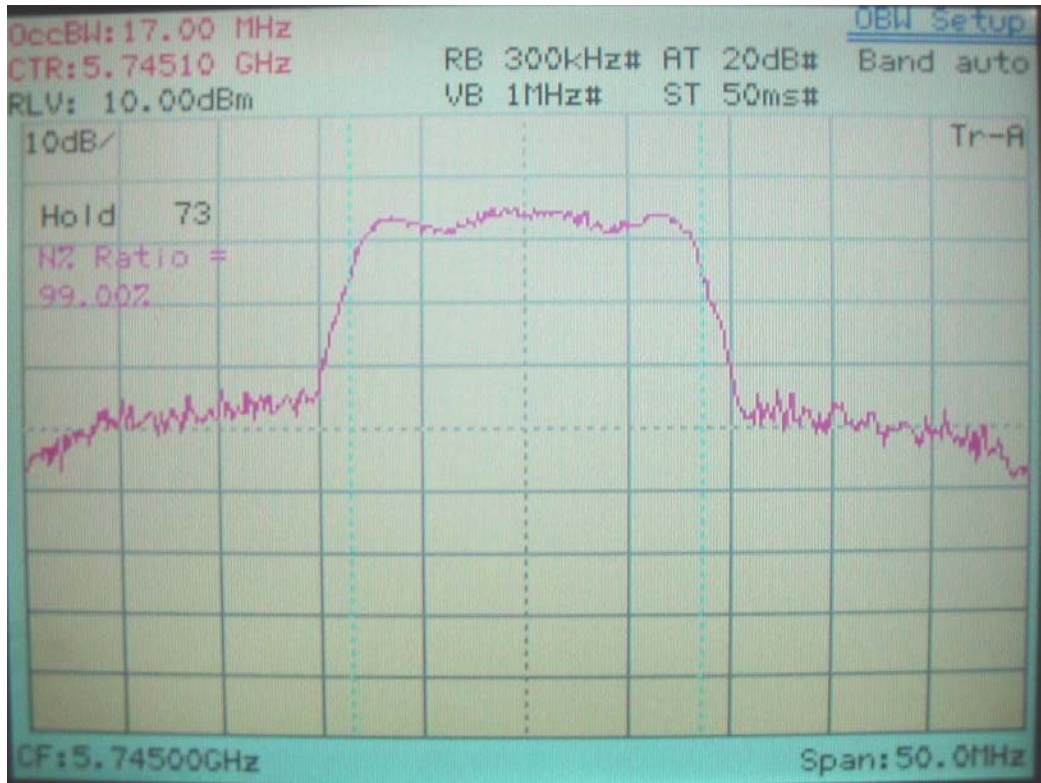


Ant#1

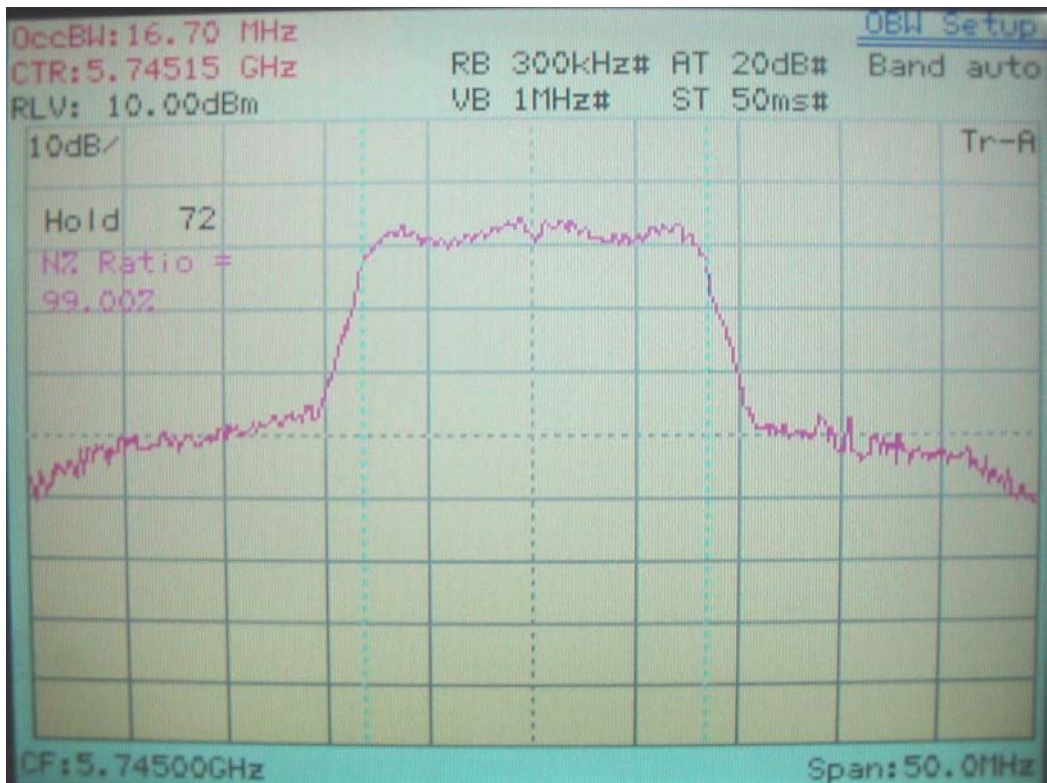


Ant#2

99% Occupied Bandwidth for IEEE 802.11a, 5745MHz

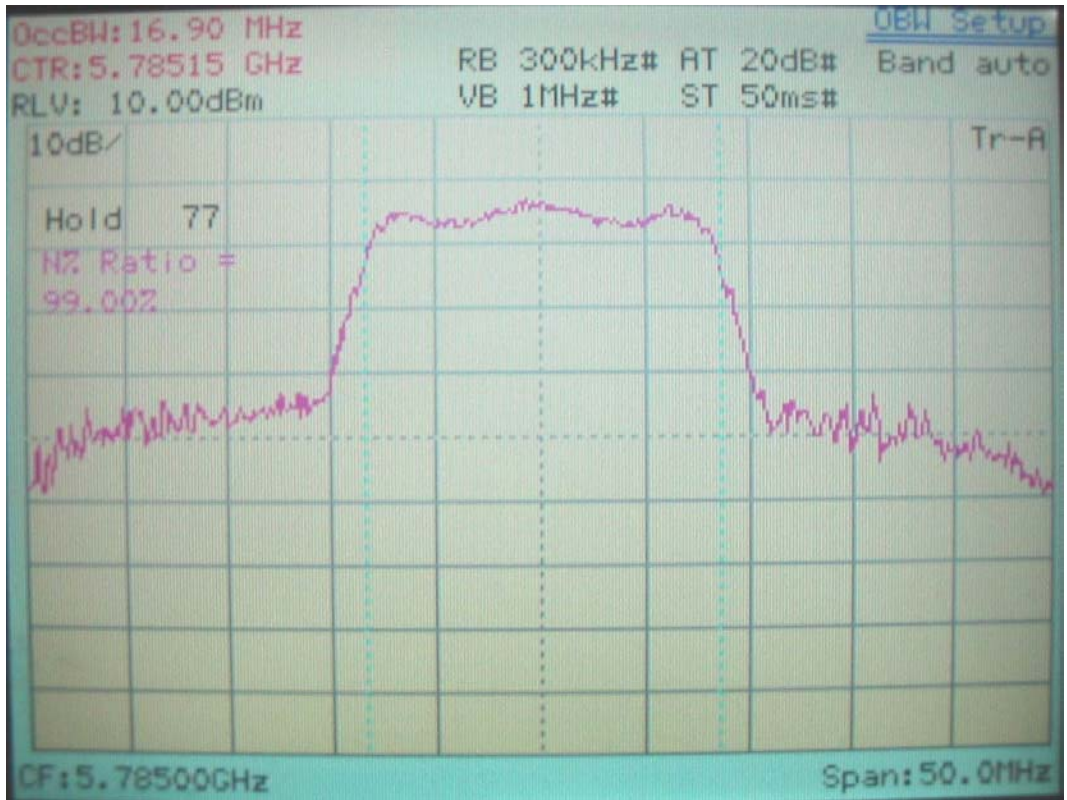


Ant#1

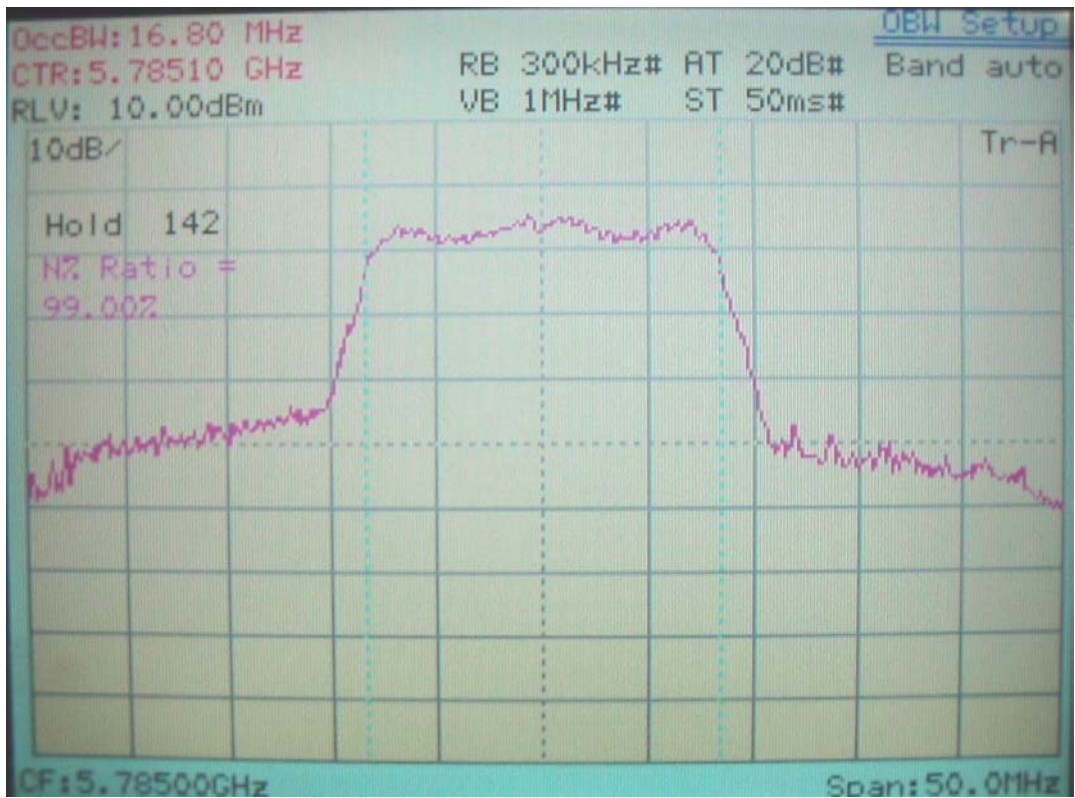


Ant#2

99% Occupied Bandwidth for IEEE 802.11a, 5785MHz

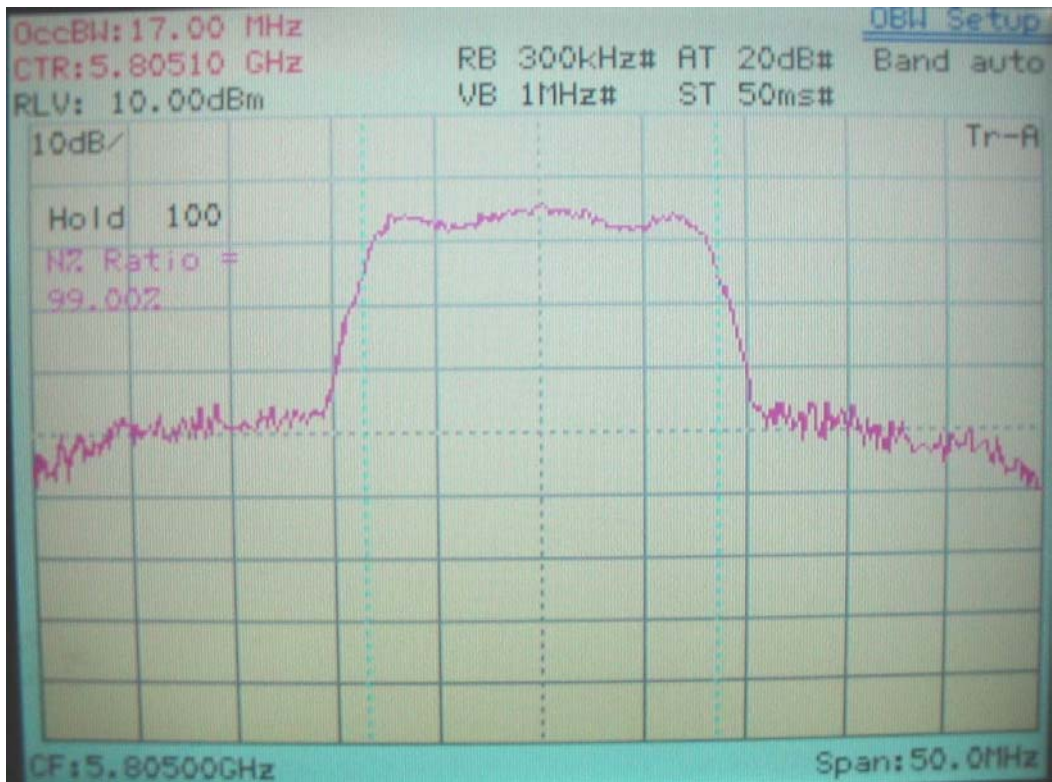


Ant#1

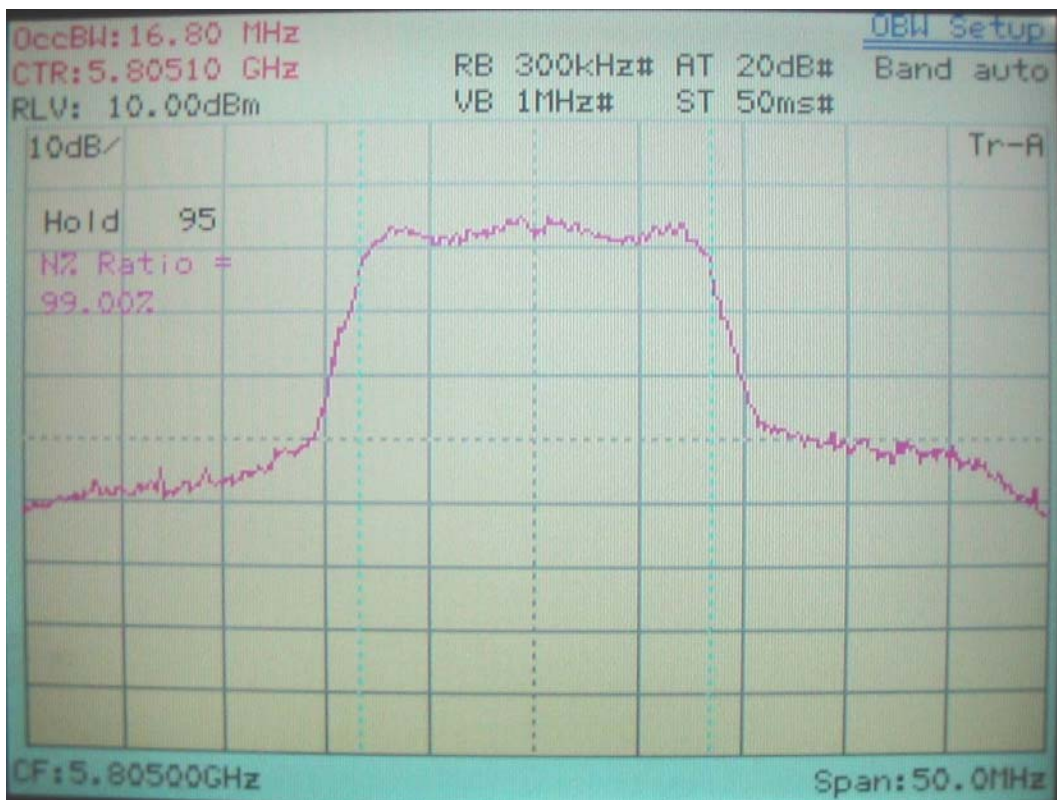


Ant#2

99% Occupied Bandwidth for IEEE 802.11a, 5805MHz



Ant#1

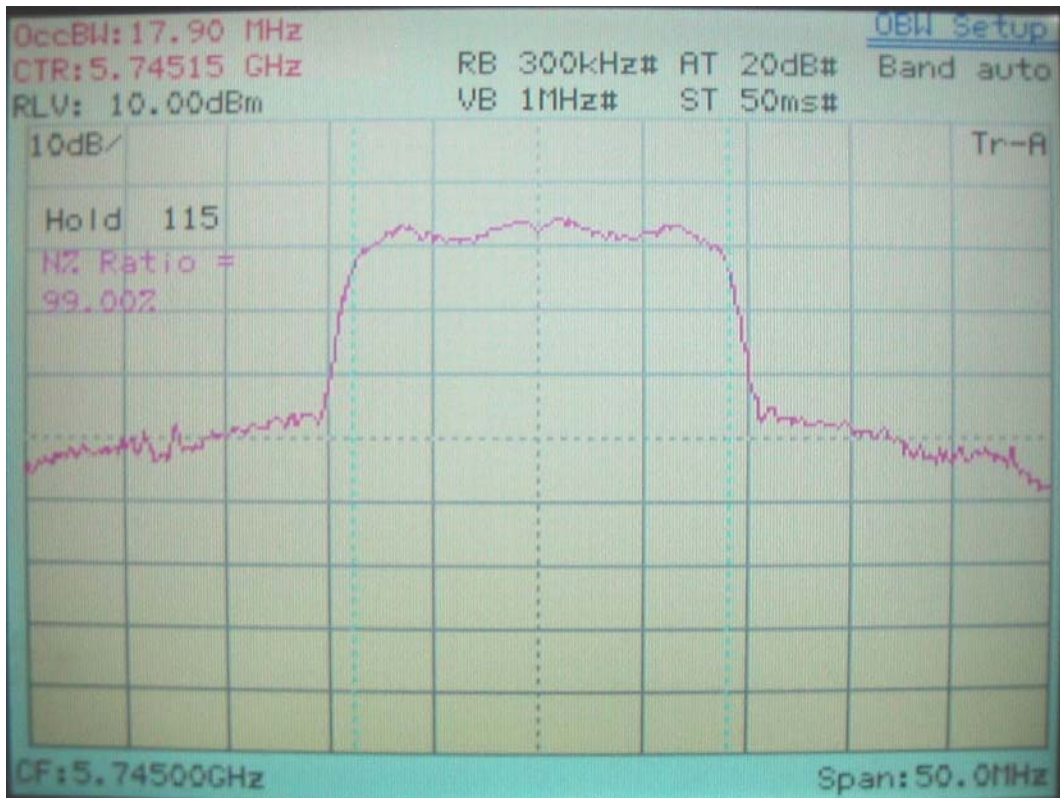


Ant#2

99% Occupied Bandwidth for IEEE 802.11a 20M, 5745MHz

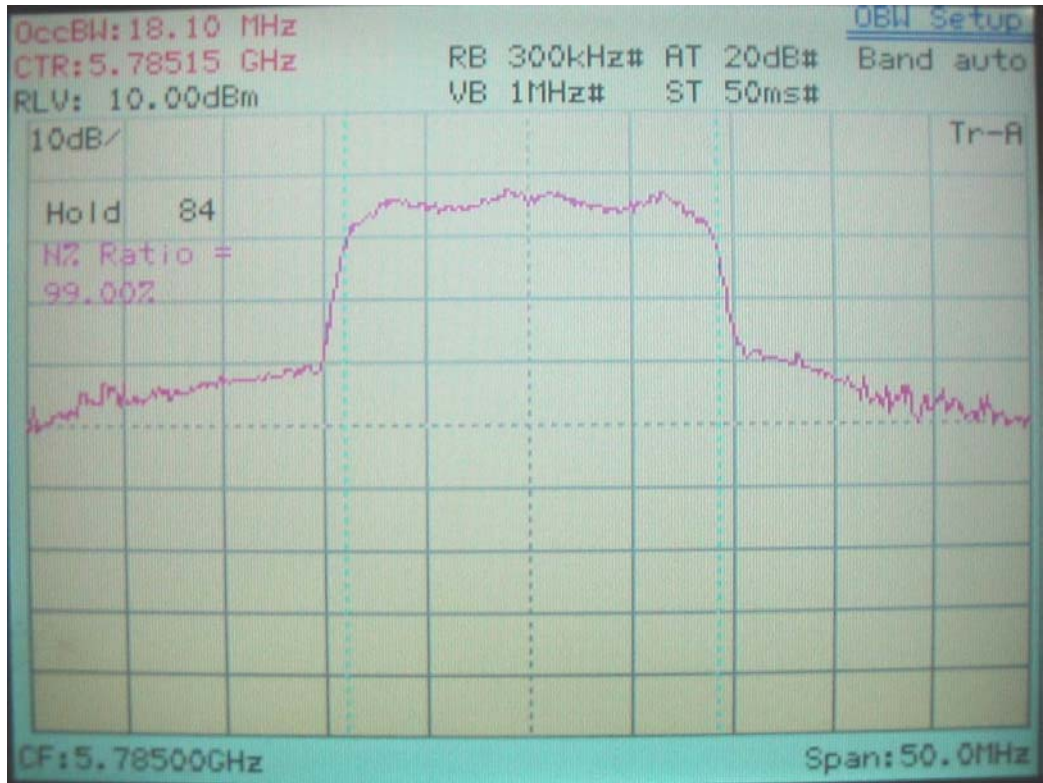


Ant#1

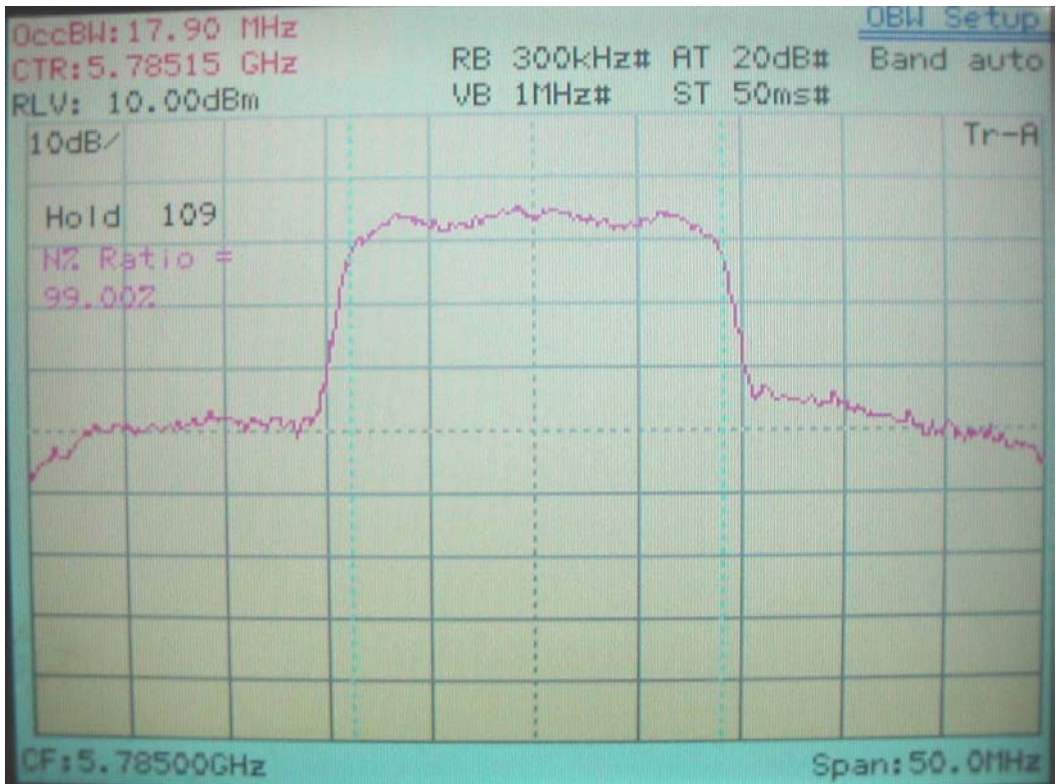


Ant#2

99% Occupied Bandwidth for IEEE 802.11a 20M, 5785MHz



Ant#1

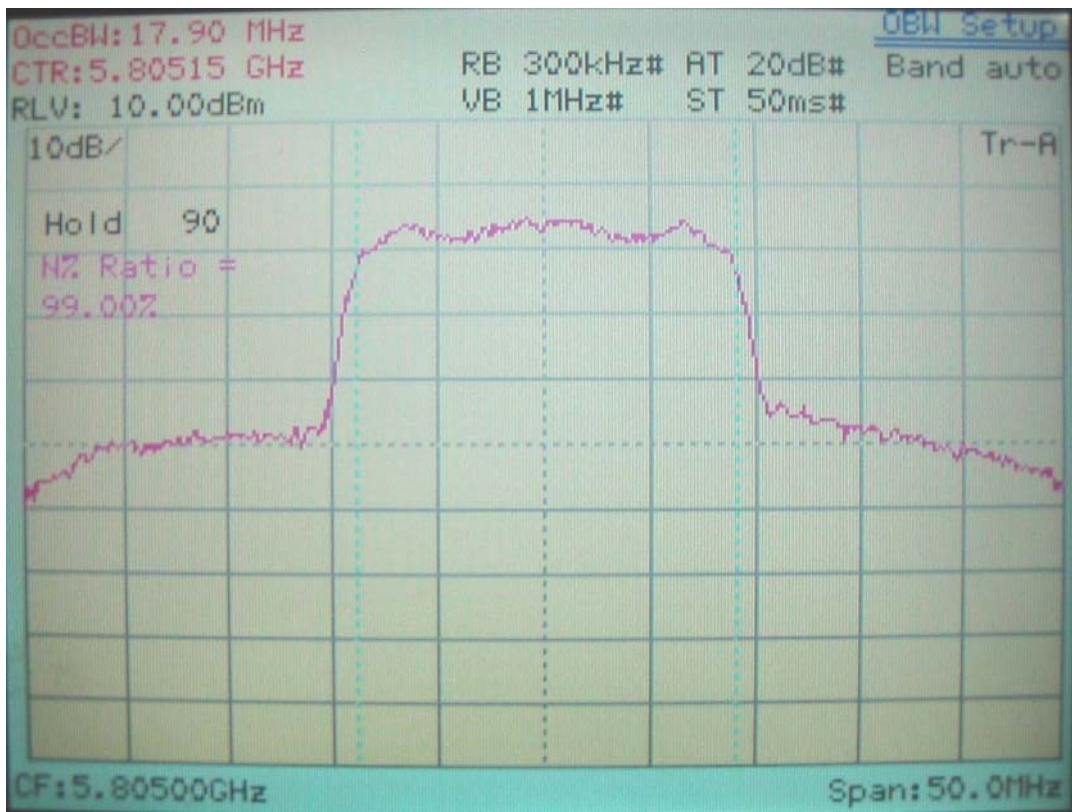


Ant#2

99% Occupied Bandwidth for IEEE 802.11a 20M, 5805MHz

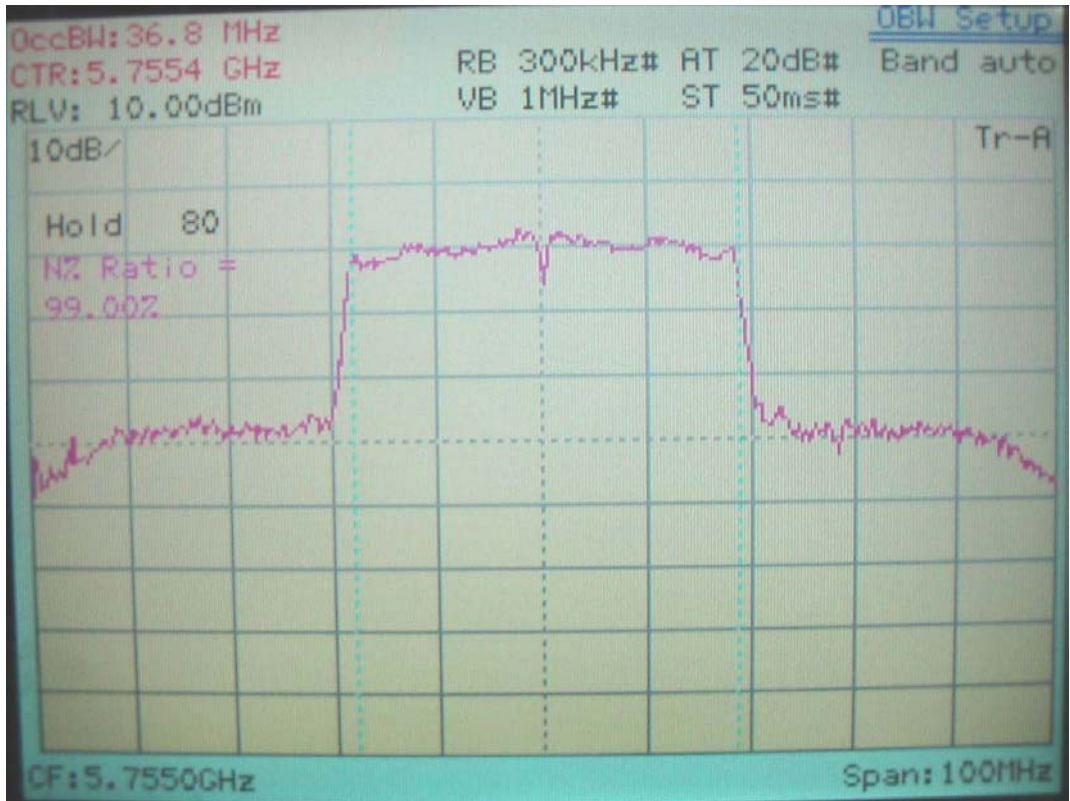


Ant#1

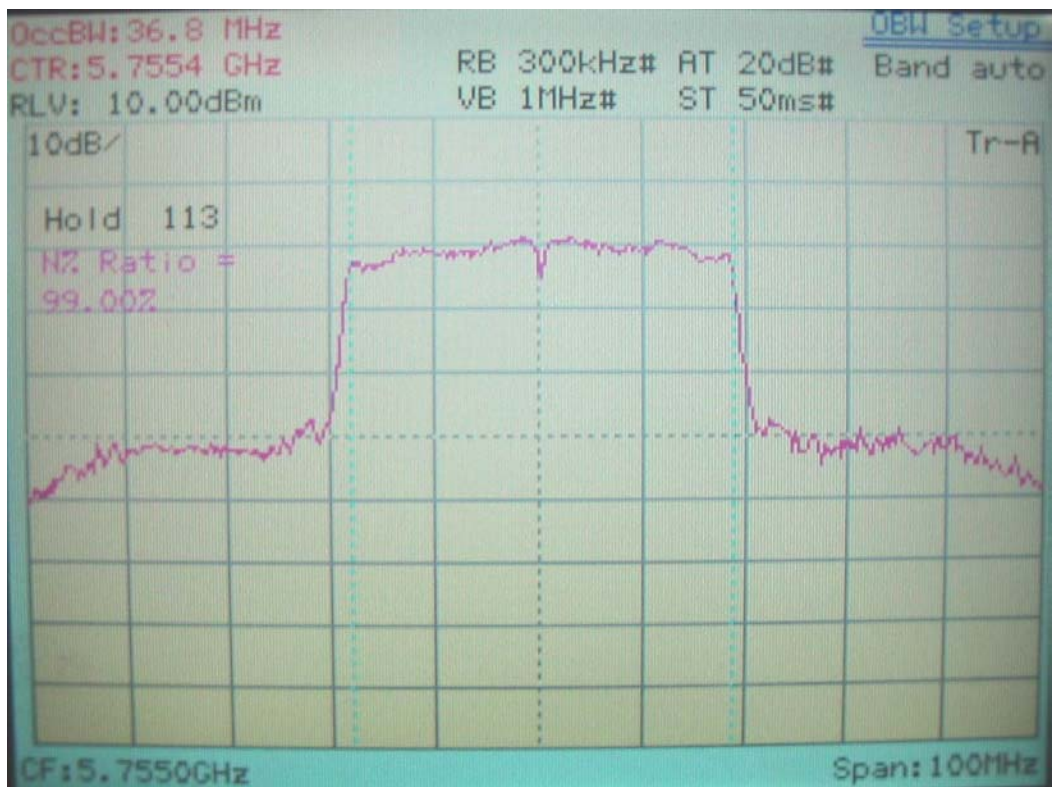


Ant#2

99% Occupied Bandwidth for IEEE 802.11a 40M, 5755MHz

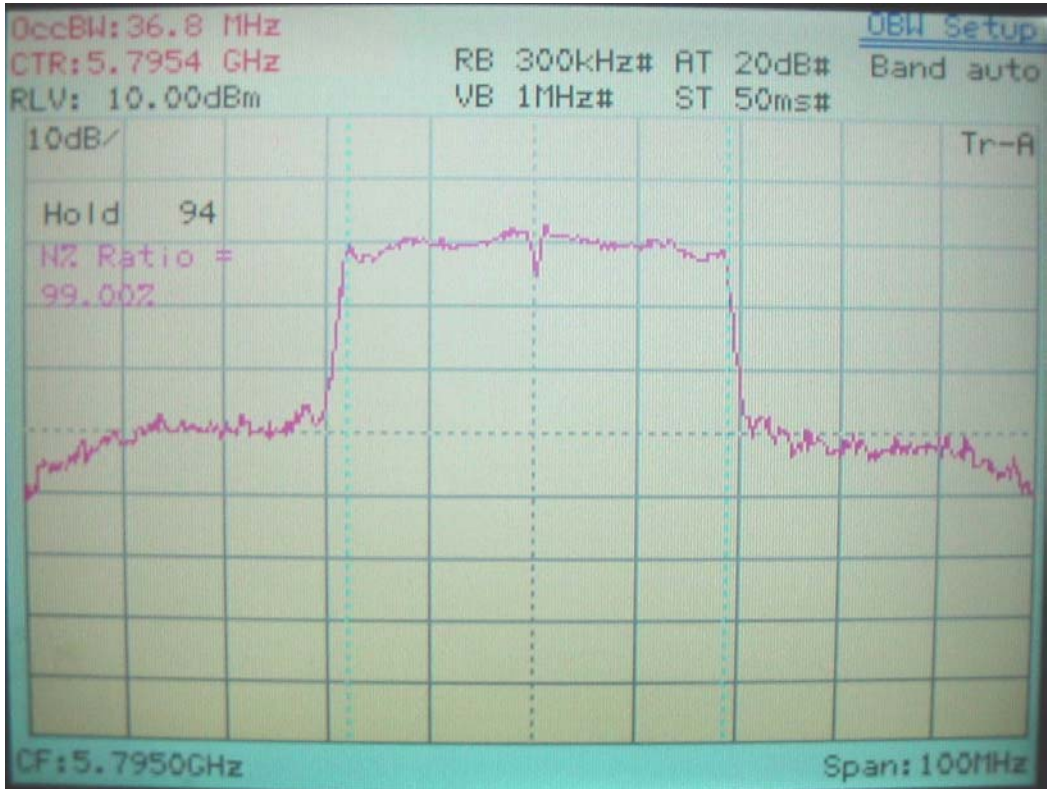


Ant#1

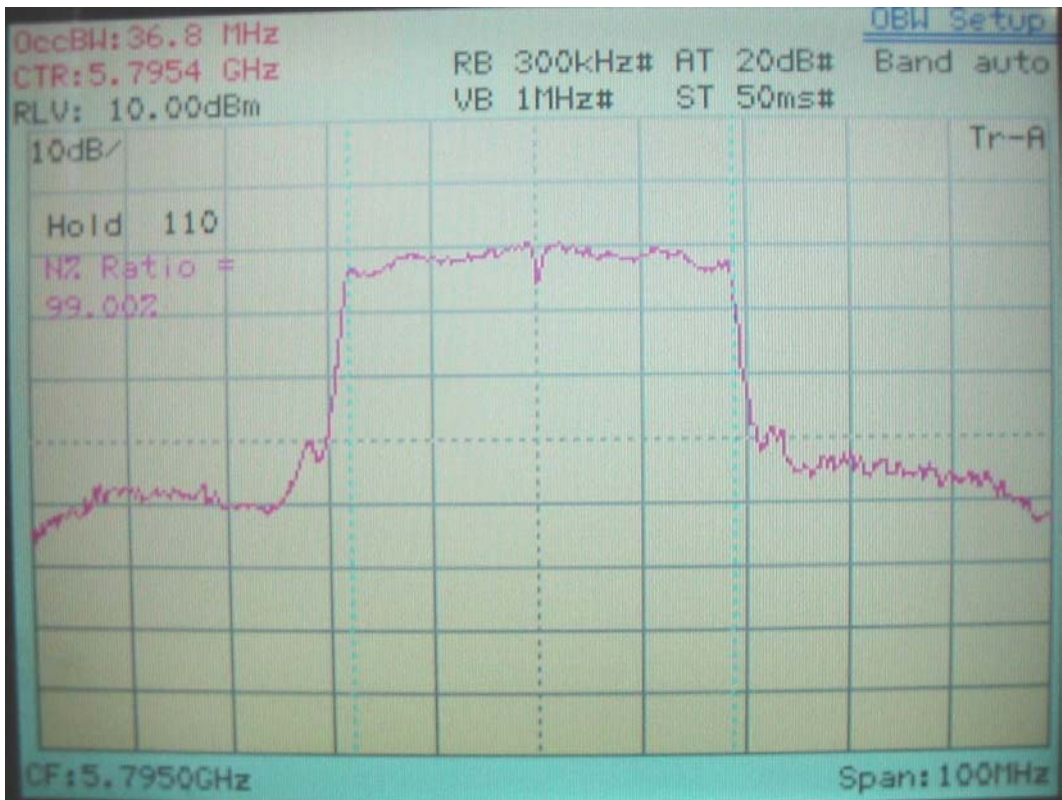


Ant#2

99% Occupied Bandwidth for IEEE 802.11a 40M, 5795MHz



Ant#1



Ant#2