

# CFR 47 FCC Part 15.407

## TEST REPORT

Product : **NoteBook PC**  
Trade Name : MTC; Getac  
Model Number : 9213XY (X=0~9, Y=A~Z)  
FCC ID : MAU9213H

Prepared for

### **MiTAC Technology Corp.**

4F, No.1, R&D Road 2, Hsinchu Science-Based Industrial Park,  
Hsinchu, Taiwan, R.O.C.

TEL. : +886 2 2501 8231

FAX. : +886 2 2509 5887

Prepared by

### **Interocean EMC Technology Corp.**

244 No.5-2, Lin 1, Tin-Fu Tsun, Lin-Kou Hsiang,  
Taipei County, Taiwan, R.O.C.

TEL.: +886 2 2600 6861

FAX.: +886 2 2600 6859

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The test results in the report only to the tested sample.

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## Statement of Compliance

**Applicant:** MiTAC Technology Corp.  
**Manufacturer:** Getac Technology (Kunshan) Co., Ltd.  
**Product:** Notebook PC  
**Model No.:** 9213XY (X=0~9, Y=A~Z)  
**Tested Power Supply:** 120Vac, 60Hz  
**Date of Final Test:** Sep. 23, 2008

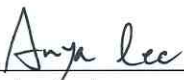
**Configuration of Measurements and Standards Used :**

FCC Rules and Regulations Part 15 Subpart E

I HEREBY CERTIFY THAT: The data shown in this report were made in accordance with the procedures given in ANSI C63.4, and the energy emitted by the device was founded to be within the limits applicable. I assume full responsibility for accuracy and completeness of these data.

- Note:** 1. The result of the testing report relate only to the item tested.
2. The testing report shall not be reproduced expect in full, without the written approval of IETC

Report Issued: 2008/09/25

Project Engineer:   
Anya Lee

Approved:   
Jerry Liu

# 1 General Information

## 1.1 Description of Equipment Under Test

- Product** : Notebook PC
- Model Number** : 9213XY (X=0~9, Y=A~Z)
- Applicant** : **MiTAC Technology Corp.**  
 4F, No.1, R&D Road 2, Hsinchu Science-Based Industrial Park,  
 Hsinchu, Taiwan, R.O.C.
- Manufacturer** : **Getac Technology (Kunshan) Co., Ltd.**  
 Kunshan Export Processing Zone, 215300 Jiangsu, P.R.China
- Power Supply** : Manufacturer: Delta, M/N: SADP-65KB BBVF  
 Input: 100-240Vac, 50-60Hz, 1.5A  
 Power cord: Non-shielded Detachable, 1.8 m w/o core  
 Output: 19Vdc, 3.42A  
 Power cable: Non-shielded Un-detachable, 1.8m with core
- Operating Frequency** : 5180MHz ~ 5240MHz; 5260MHz ~ 5320MHz; 5500MHz ~ 5700MHz
- Channel Number** : Refer to section 1.3
- Type of Modulation** : OFDM
- Antenna description** : This device uses PIFA antenna.

Antenna Gain		5180MHz-5320MHz	5500MHz-5700MHz
Chain A	:	1.26 dBi	0.32 dBi
Chain B	:	1.08 dBi	1.99 dBi
Chain C	:	1.39 dBi	1.23 dBi
Connector type	:	U.FL	U.FL

- Sample Receive date** : Aug. 28, 2008
- Date of Test** : Aug. 28 ~ Sep. 23, 2008
- Additional Description** : 1) The EUT is **NoteBook PC**.  
 2) All model included in this report, the difference is for different market; the rest parts are identical.  
 3) The Model Number "**9213XY**" is representative selected in the test and included in this report.

**Remark :**

The imbedded wireless module (Intel Wi-Fi Link 5300 Minicard 533AN MMW) is designed for 802.11a/b/g/n applications with a PCI Express Minicard interface. It has three receive chains and three transmit chains (3x3 configuration).

## 1.2 Technical Specifications

Key parts	SKU A
CPU	Intel, U9400, 1.4G
Memory	QIMONDA, HYS64T256020EDL-2.5-C2, 2GB
DDR2 on Board	Hynix, HYSPS1G831C FP-S6*8, 1G
LCD Monitor	Toshiba, PI-LTD133EWDA (LED)-V02
HDD	SATA, Fujitsu, MHZ2160BH, 160GB
ODD	Panasonic, Ultra light, UJ-862A
Bluetooth	AW-BT252, 2.1VERSION
Wireless LAN	Intel® Wi-Fi Link 5300 Minicard 533AN MMW
3G	Sierra 8790
Webcam	Azurewave w/z Mic Arry
AC/DC Adapter	Delta, SADP-65KB BBVF
Battery	6 cell

## WIRELESS Module Information (Intel Wi-Fi Link 5300 Minicard 533AN MMW)

- Design based on the PCI Express MiniCard Electromechanical Rev. 1.1 Specification
- Form Factors: PCIe Half Mini Card (double sided) / PCIe Mini Card v1.1 (single sided)
- MIMO (Multiple Input, Multiple Output) Support 802.11n with 3x3 MIMO and 1x2 MIMO
- Dual-Band/Quad-Mode support (IEEE 802.11a/b/g/n), compatible with IEEE 802.11d /e (Quality of Service [QoS]), 802.11h, and European Telecommunication Standards Institute [ETSI] specifications), and IEEE 802.11i (pre-authentication)
- Support for new standards IEEE 802.11 k and 802.11r<sup>1</sup>
- Reduced Power consumption in idle associated (10-15mW)
- Intel® AMT v4.0 for enterprise networks in S0/H0 and S0/Hx modes (requires MCH9/ICH9)
- EIT v4.0 support
- Uses the 5.170 to 5.825-GHz Industrial, Scientific, and Medical (ISM) frequency band as defined by the IEEE 802.11a specification
- Intel® WiFi Link 5100/5300 can operate on a 40MHz wide channel
- Uses the 2.412- to 2.497-GHz ISM frequency band defined by the IEEE 802.11b/g specifications
- Supports data rates 1, 2, 5.5, and 11 Mbps in CCK mode
- Supports data rates 6, 9, 12, 18, 24, 36, 48, and 54 in OFDM mode
- Supports the 1x2,2x2 and 3x3 combinations of GI, MCS and BW defined in 802.11n (see section 6 Rates)
- Supports channels 34,36, 38, 40, 42, 44, 46, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 120, 124, 128, 132, 136, 140, 149, 153, 157, 161, 165 (IEEE 802.11a specification); channel support is regulatory Stock-Keeping Unit (SKU)-dependent and subject to change
- Supports channels 1 through 13 (IEEE 802.11b/g specifications); channel support is regulatory SKU-dependent and subject to change
- Intel® WiFi Link 5100/5300 shall Support 40MHz channels of the .11n spec:
  - (1,1) (5,-1); (2,1) (6,-1); (3,1) (7,-1); (4,1) (8,-1); (5,1) (9,-1); (6,1) (10,-1); (7,1) (11,-1)
  - (36,1) (40,-1); (44,1) (48,-1); (52,1) (56,-1); (60,1) (64,-1); (100,1) (104,-1); (108,1) (112,-1); (116,1) (120,-1); (124,1) (128,-1); (132,1) (136,-1); (149,1) (153,-1); (157,1) (161,-1)
- Provides 128- and 64-bit WEP encryption, hardware AES (support for key sizes of 128 bits, 192 bits, and 256 bits)
- Hardware capability to support Cisco\* Compatible Extensions v1/2/3/4/5
- Supports IEEE 802.11 Power Save Protocol (PSP)
- Supports Basic Service Set (BSS) (AP) and Independent Basic Service Set (IBSS) (peer-to-peer) modes
- Supports Intel® Wireless Coexistence System (WCS) Phase II for Bluetooth devices
- Supports WiFi-WiMAX coordination
- Supports Radio On/Off control by hardware and/or software
- Supports product SKUs to support regulatory variations in different geographical regions. Support is subject to change.
- Automatic switching between the two bands (2.4 GHz and 5.0 GHz)
- Wake on WLAN (WoWLAN) support
- Supports Cliffside (Dual MAC Peer-to-Peer Wi-Fi)

### 1.3 Table for Carrier Frequencies

#### 802.11a / 802.11n (HT20)

CH No.	36	40	44	48	52	56	60	64
CF (MHz)	5180	5200	5220	5240	5260	5280	5300	5320

CH No.	100	104	108	112	116	120	124	128	132	136	140
CF (MHz)	5500	5520	5540	5560	5580	5600	5620	5640	5660	5680	5700

#### 802.11n (HT40)

CH No.	38	46	54	62
CF (MHz)	5190	5230	5270	5310

CH No.	102	110	118	126	134
CF (MHz)	5510	5550	5590	5630	5670



## 1.4 Test Facility

- Site Description** : ☑RF Test Room    ☑OATS 2
- Name of Firm** : Interocean EMC Technology Corp.
- Company web** : <http://www.ietc.com.tw>
- Site 1, 2 Location** : No.5-2, Lin 1, Tin-Fu Tsun, Lin-Kou Hsiang, Taipei County, Taiwan, R.O.C.
- Site 3, 4 Location** : No. 12, Ruei-Shu Valley, Ruei-Ping Tsun, Lin-Kou Hsiang, Taipei County, Taiwan, R.O.C.
- Site Filing** :
- Federal Communication Commissions – USA  
Registration No.: 96399 (OATS 1 & 2)  
Registration No.: 518958 (OATS 3 & 4)
  - Voluntary Control Council for Interference by Information Technology Equipment (VCCI) – Japan  
Registration No. (Conducted Room): C-1094  
Registration No. (Conducted Room): T-271  
Registration No. (OATS 1): R-1040  
Registration No. (OATS 2): R-1041
  - Industry Canada (IC)  
Submission: 113543
  - Japan Electrical Safety & Environment Technology Laboratories (JET)  
Registration No.: 04S03-01
- Site Accreditation** :
- Bureau of Standards and Metrology and Inspection (BSMI) – Taiwan, R.O.C.  
Accreditation No.:  
SL2-IN-E-0026 for CNS13438 / CISPR22  
SL2-R1-E-0026 for CNS13439 / CISPR13  
SL2-R2-E-0026 for CNS13439 / CISPR13  
SL2-A1-E-0026 for CNS13783-1 / CISPR14-1
  - TÜV NORD  
Certificate No: TNTW0801R
  - Taiwan Accreditation Foundation (TAF)  
Accrditation No.: 1113



## 1.5 Test Equipment

<b>Instrument</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Next Cal. Date</b>
Spectrum Analyzer	R&S	FSP30	2008/12/14
Spectrum Analyzer	Agilent	8564EC	2009/04/11
Preamplifier	Agilent	8449B	2009/03/31
Preamplifier	SCHAFFNER	CA30100	2008/10/21
Horn Antenna	COM-POWER	AH-118	2010/05/12
Horn Antenna	Schwarzbeck	BBHA 9120	2008/12/17
Horn Antenna	Schwarzbeck	BBHA 9170	2010/06/08
Wide Bandwidth Sensor	Anritsu	MA2491A	2008/10/18
Power Meter	Anritsu	ML2495A	2008/10/28
Temp & Humidity chamber	GIAN FORCE	GTH-150-40-2P-U	2009/05/14
Signal Generator	Agilent	E8254A	2009/05/21

Note: The above equipments are within the valid calibration period.

## 1.6 Summary of Measurement

Report Clause	Test Parameter	Reference Document CFR47 Part15	Results
2	26dB Bandwidth	§15.407 (a)	Pass
3	Peak output power test	§15.407 (a)	Pass
4	Power Spectrum Density test	§15.407 (a)	Pass
5	Peak excursion to average ratio test	§15.407(a)(6)	Pass
6	Radiated emission test (FCC Part 15.209)	§15.209	Pass
7	Band edge test	§15.209, 15.205	Pass
8	Radiated spurious emission test	§15.407(b), 15.209, 15.205	Pass
9	RF antenna conducted spurious emission test	§15.407(b)	Pass
10	AC Power Line Conducted Emission test	§15.407(b)(6), 15.207	Pass

## 1.7 Justification

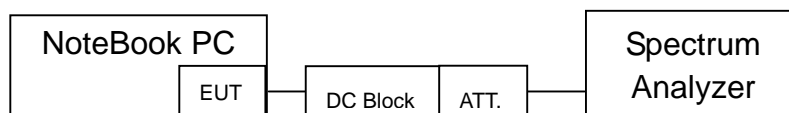
The test of radiated measurements according to FCC Part15 Section 15.33(a) had been conducted and the field strength of the frequency band were all reach limit requirement, thus we evaluate the EUT pass the specified test.

## 2 26dB bandwidth

### 2.1 Limits

No regulation limit, for reference purpose.

### 2.2 Configuration of Measurement



### 2.3 Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to UNII test procedure of Oct 2002 DA 02-2138 for compliance to FCC 47CFR 15.407 requirements.

### 2.4 Test Result

The final test data is shown on as following pages.

## 26dB Bandwidth

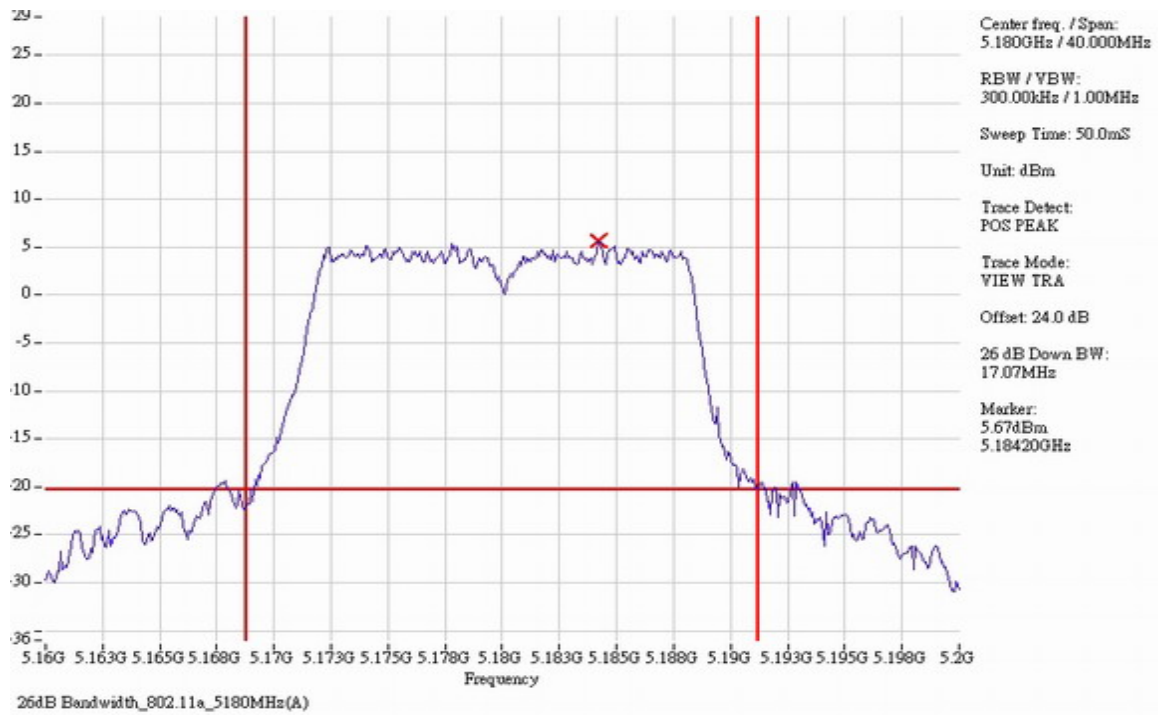
<b>Test Mode : 802.11a</b>				
<b>Test CH</b>		<b>26dB Bandwidth</b>		
<b>CH No.</b>	<b>Freq. (MHz)</b>	<b>(MHz)</b>		
		<b>Chain A</b>	<b>Chain B</b>	<b>Chain C</b>
36	5180	17.07	17.33	17.13
44	5220	17.00	17.13	16.93
48	5240	17.13	17.27	17.00
52	5260	16.93	17.47	17.00
60	5300	16.93	17.40	16.87
64	5320	16.93	17.47	16.87
100	5500	17.13	17.47	17.00
120	5600	16.93	17.20	16.67
140	5700	17.00	17.27	17.13

<b>Test Mode : 802.11n (HT20)</b>				
<b>Test CH</b>		<b>26dB Bandwidth</b>		
<b>CH No.</b>	<b>Freq. (MHz)</b>	<b>(MHz)</b>		
		<b>Chain A</b>	<b>Chain B</b>	<b>Chain C</b>
36	5180	18.07	18.07	18.27
44	5220	17.93	18.00	18.07
48	5240	18.00	18.00	18.13
52	5260	17.87	18.00	18.20
60	5300	17.87	18.00	17.93
64	5320	17.87	17.93	17.87
100	5500	18.13	18.13	18.07
120	5600	17.87	17.93	18.00
140	5700	17.93	17.93	18.13

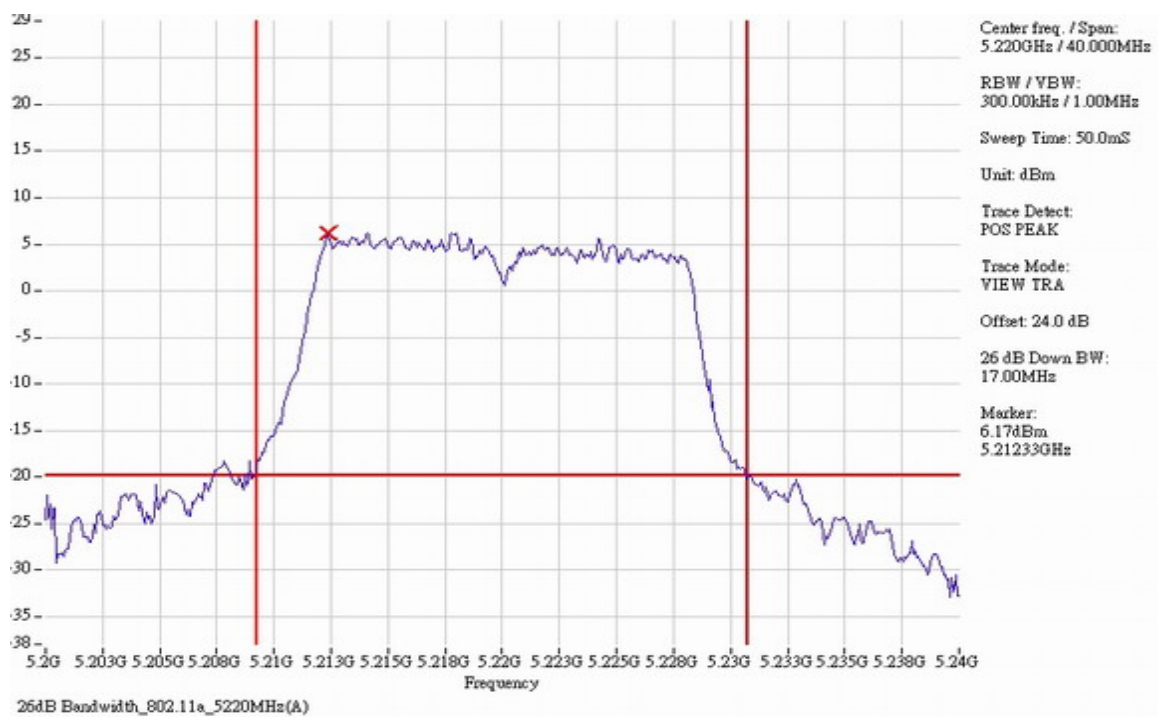
<b>Test Mode : 802.11n (HT40)</b>				
<b>Test CH</b>		<b>26dB Bandwidth</b>		
<b>CH No.</b>	<b>Freq. (MHz)</b>	<b>(MHz)</b>		
		<b>Chain A</b>	<b>Chain B</b>	<b>Chain C</b>
38	5190	36.10	36.10	36.10
46	5230	36.00	36.10	36.00
54	5270	35.70	35.80	36.00
62	5310	35.70	35.80	35.80
102	5510	36.10	36.20	36.00
118	5590	35.80	35.90	35.90
134	5670	35.90	35.90	35.80

## 26dB Bandwidth

### 802.11 a Chain A CH36 5180MHz

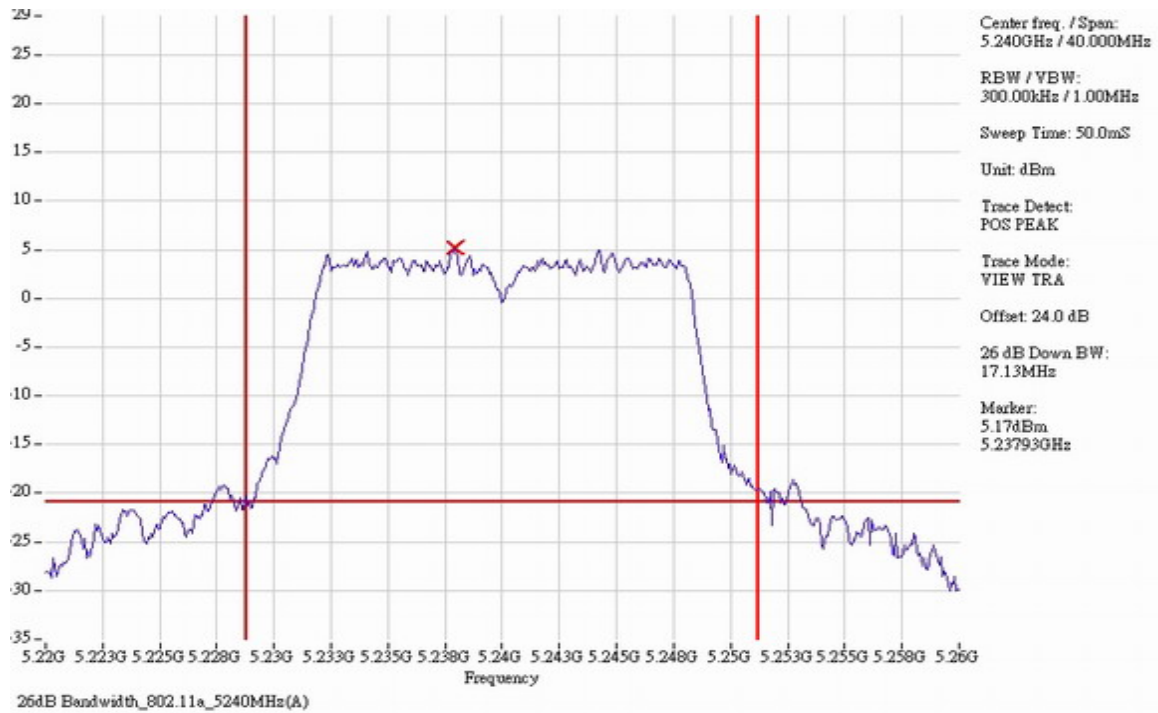


### 802.11 a Chain A CH44 5220MHz

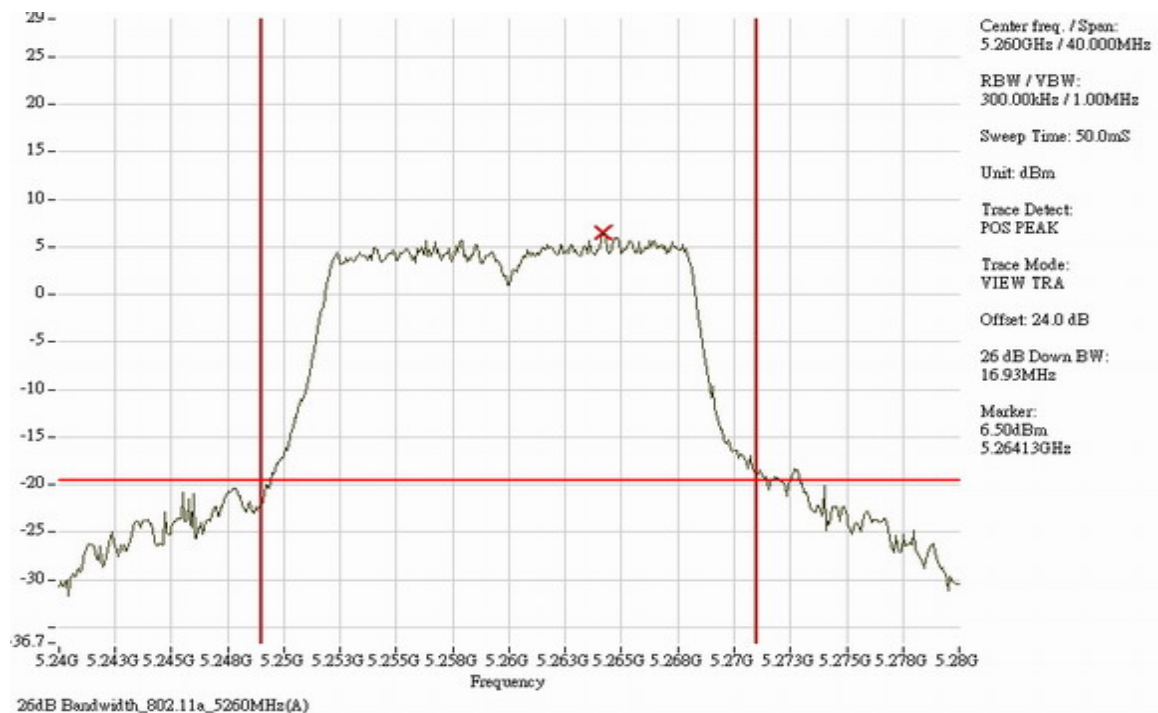




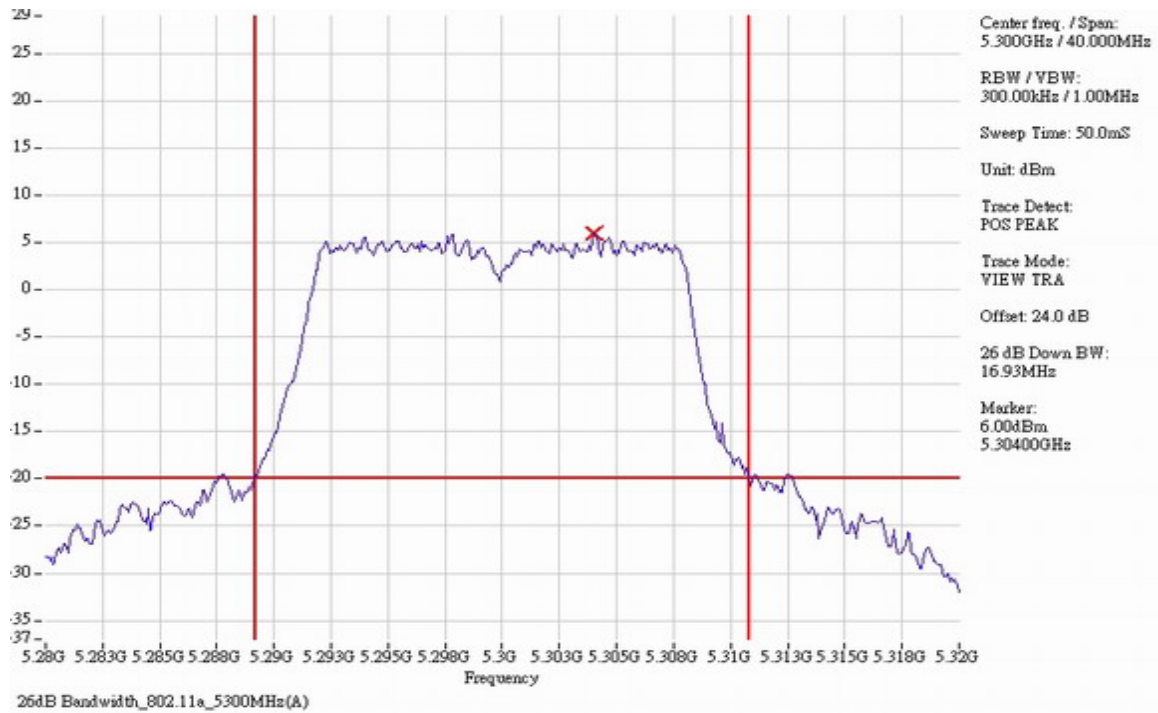
### 802.11 a Chain A CH48 5240MHz



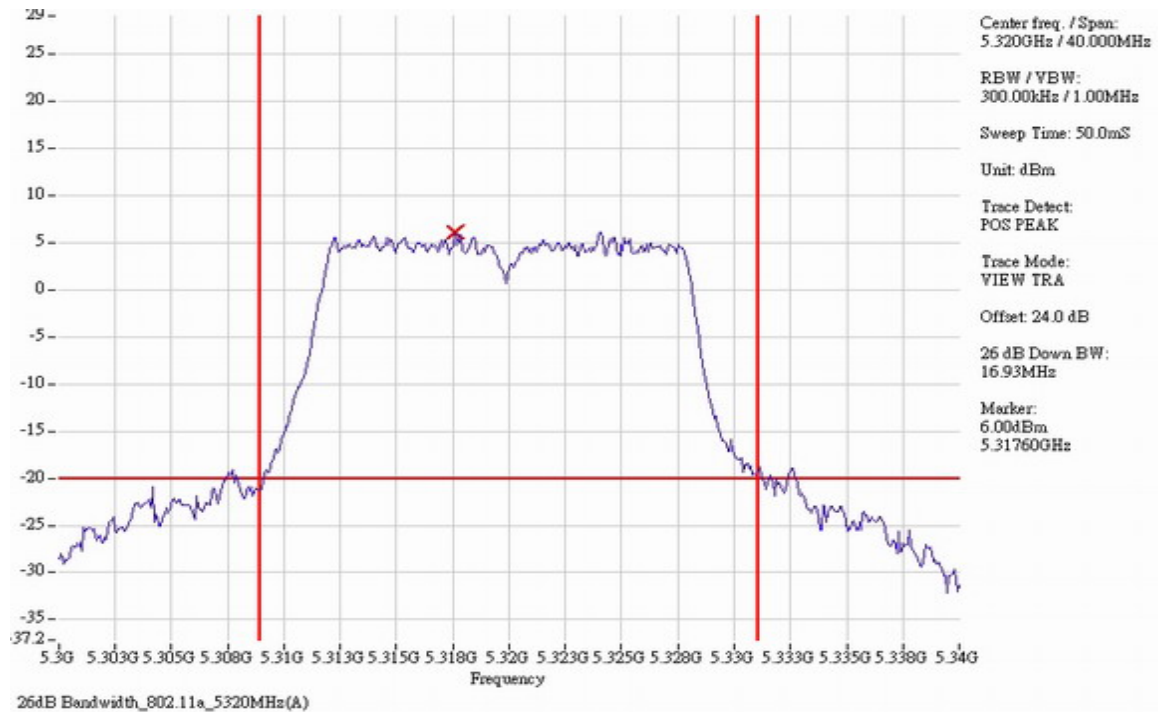
### 802.11 a Chain A CH52 5260MHz



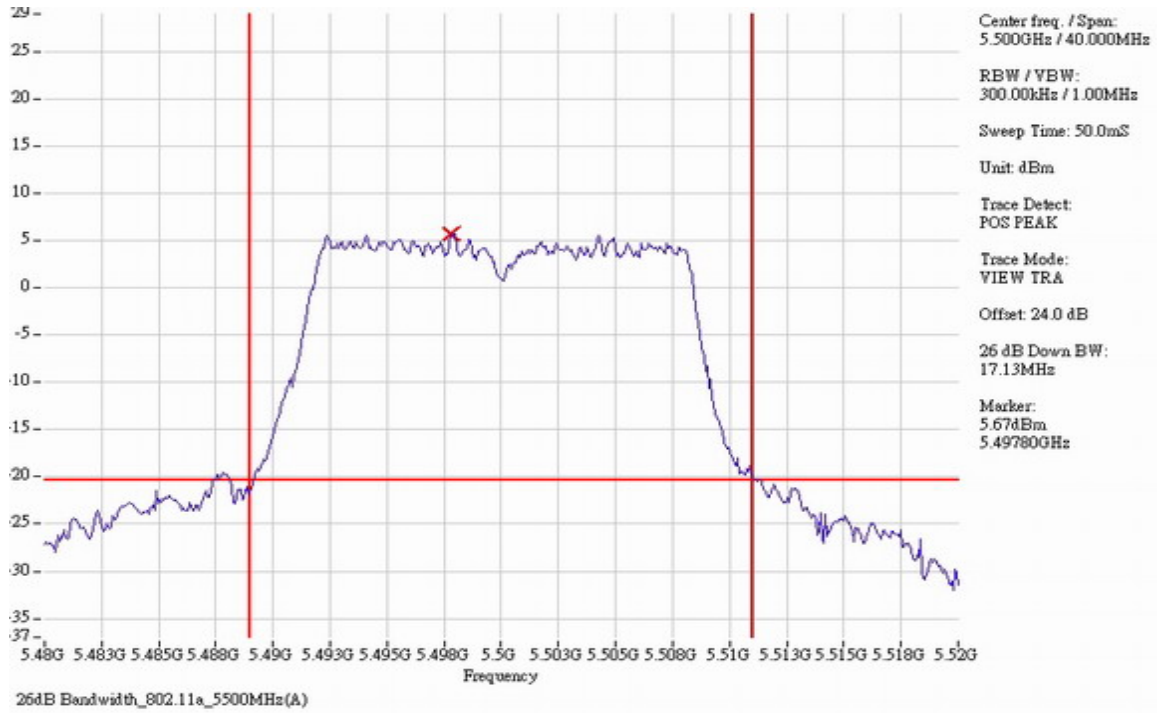
### 802.11 a Chain A CH60 5300MHz



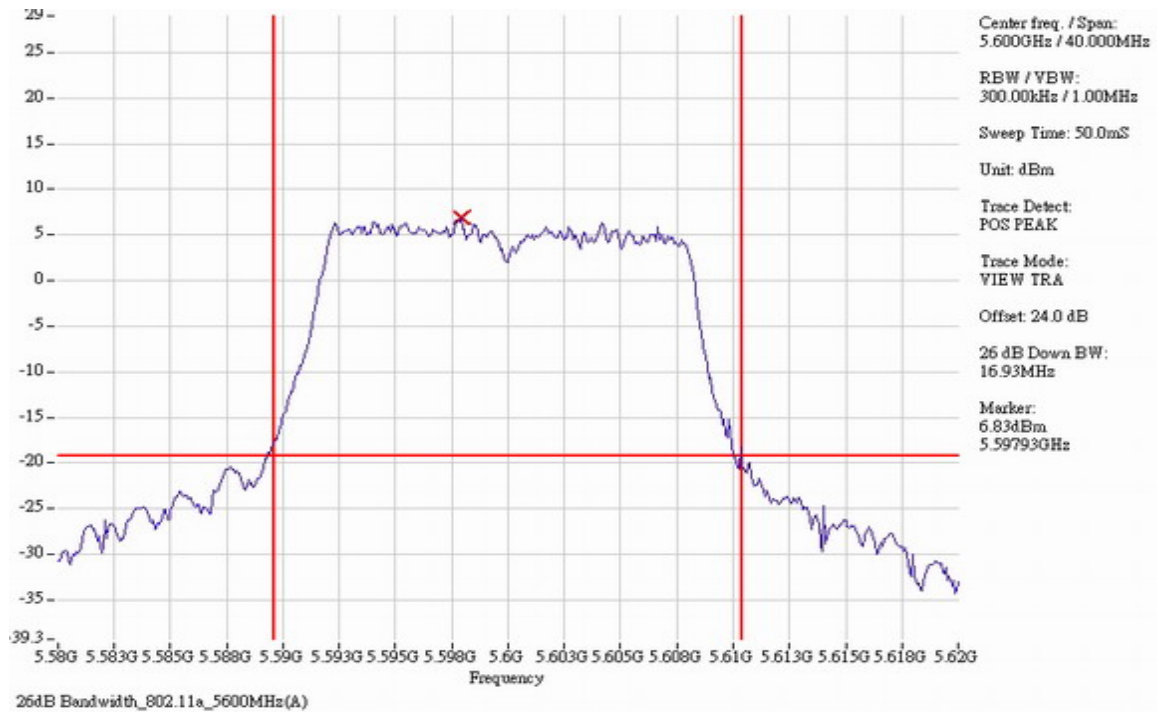
### 802.11 a Chain A CH64 5320MHz



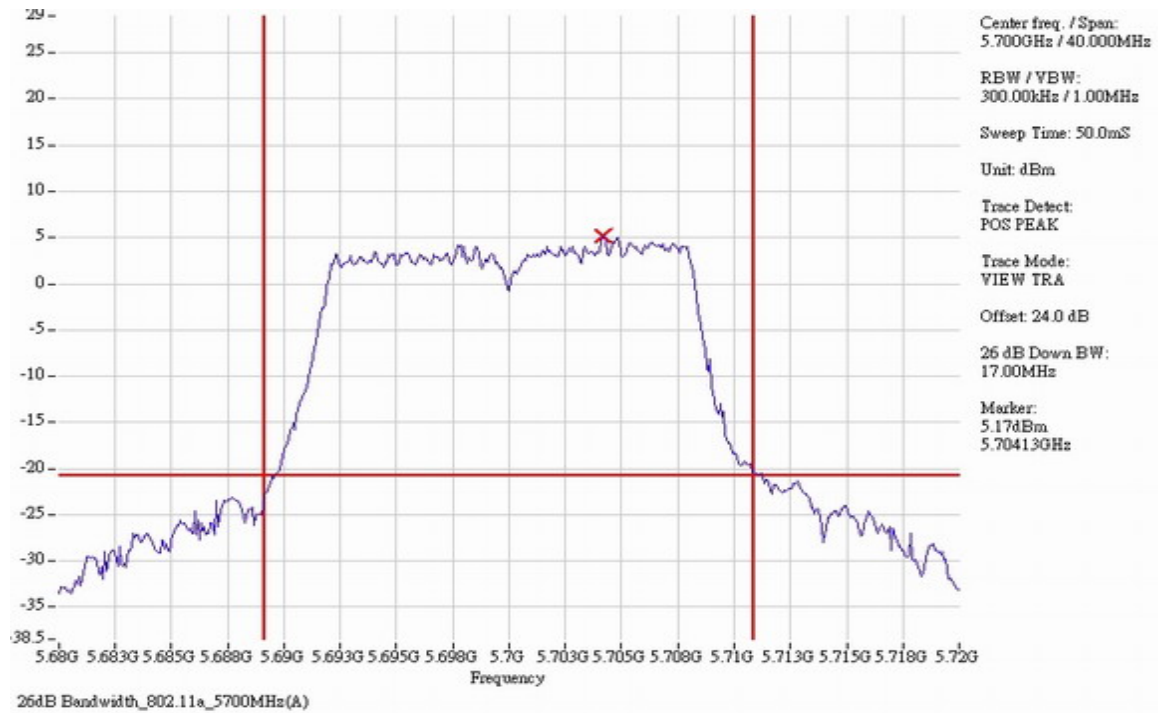
### 802.11 a Chain A CH100 5500MHz



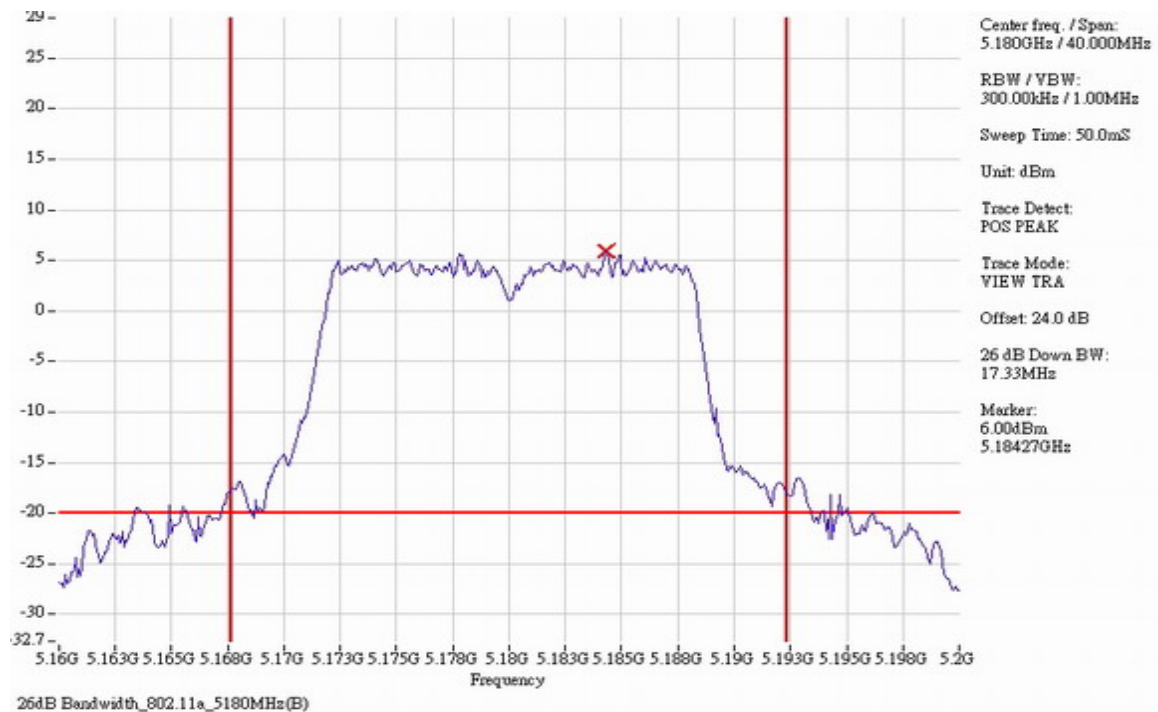
### 802.11 a Chain A CH120 5600MHz



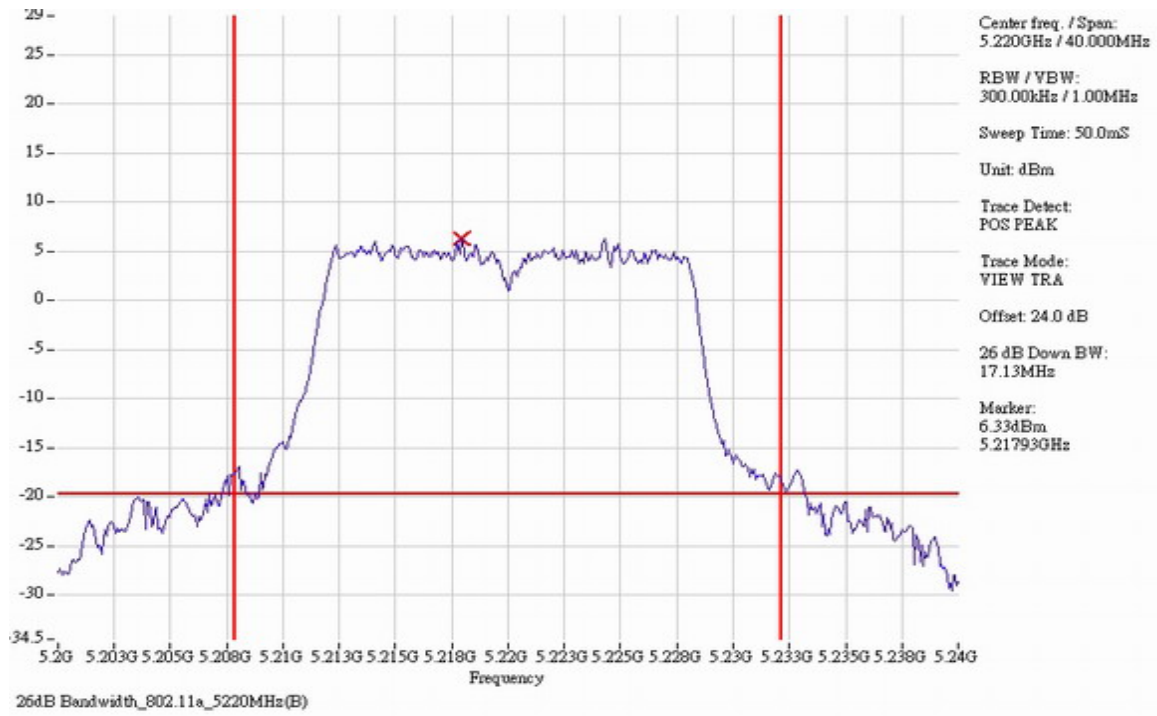
### 802.11 a Chain A CH140 5700MHz



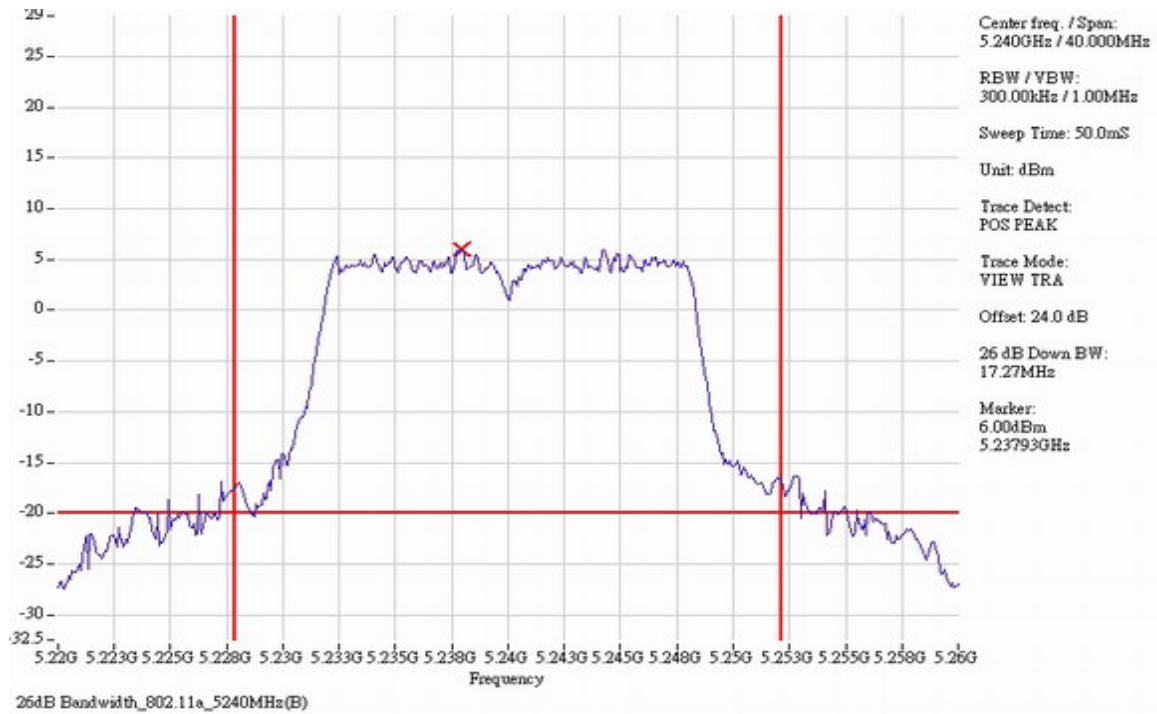
### 802.11 a Chain B CH36 5180MHz



### 802.11 a Chain B CH44 5220MHz

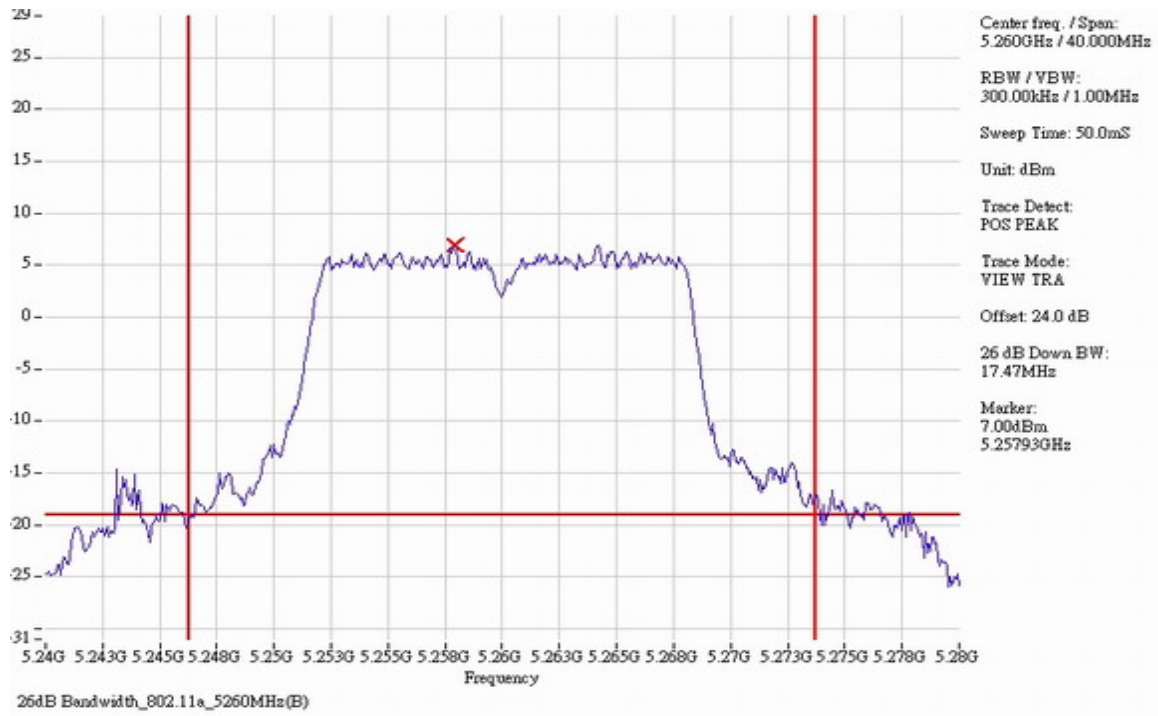


### 802.11 a Chain B CH48 5240MHz

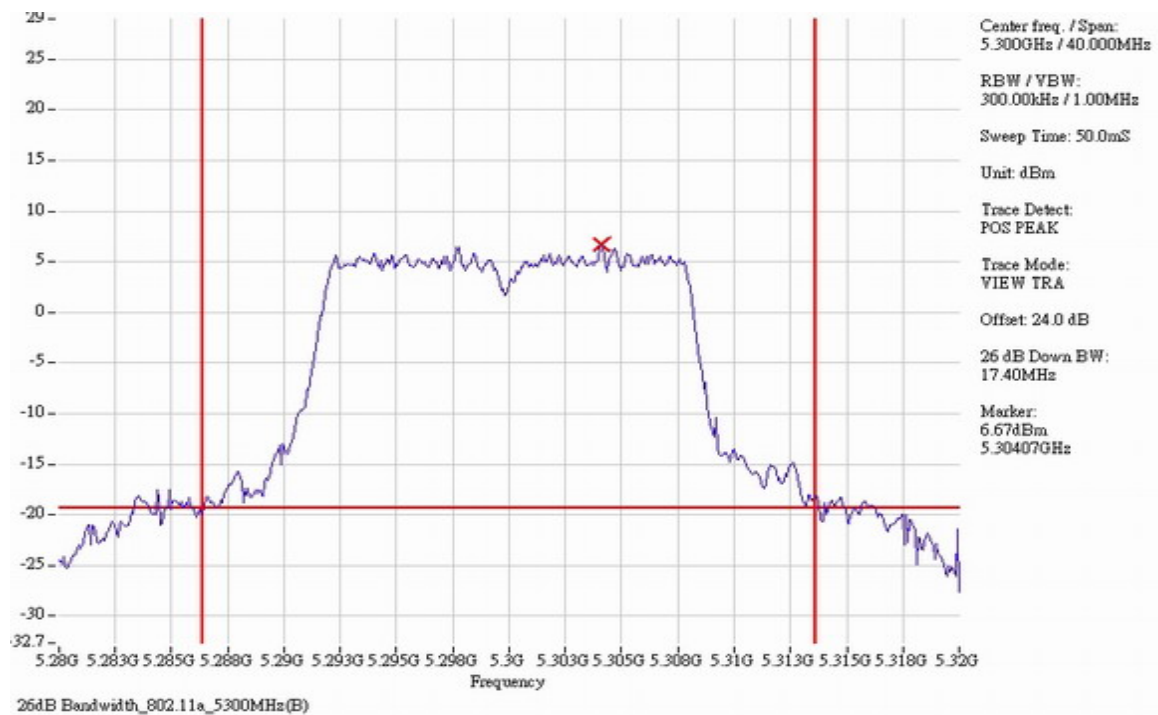




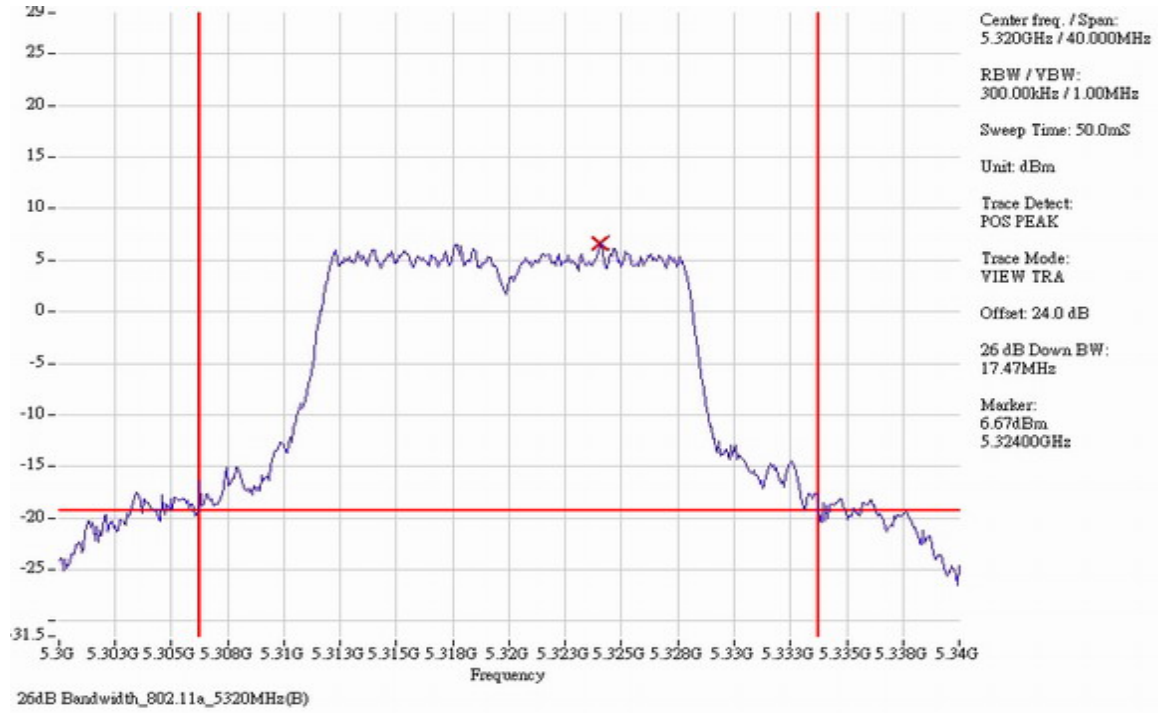
### 802.11 a Chain B CH52 5260MHz



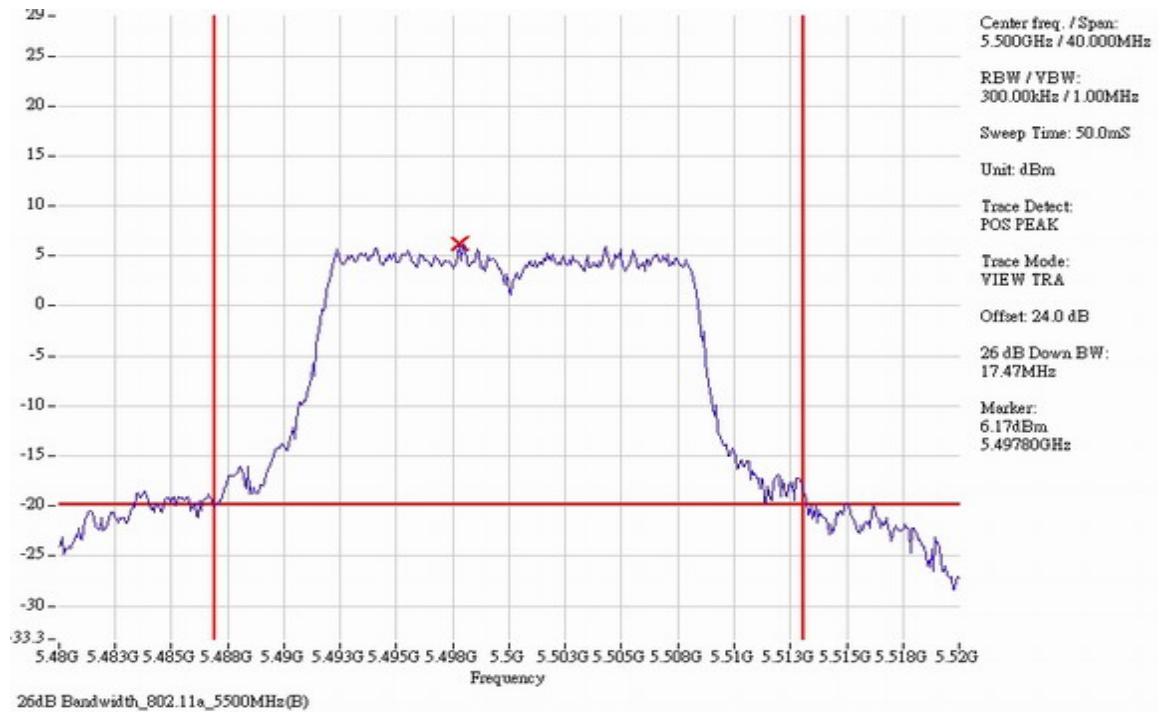
### 802.11 a Chain B CH60 5300MHz



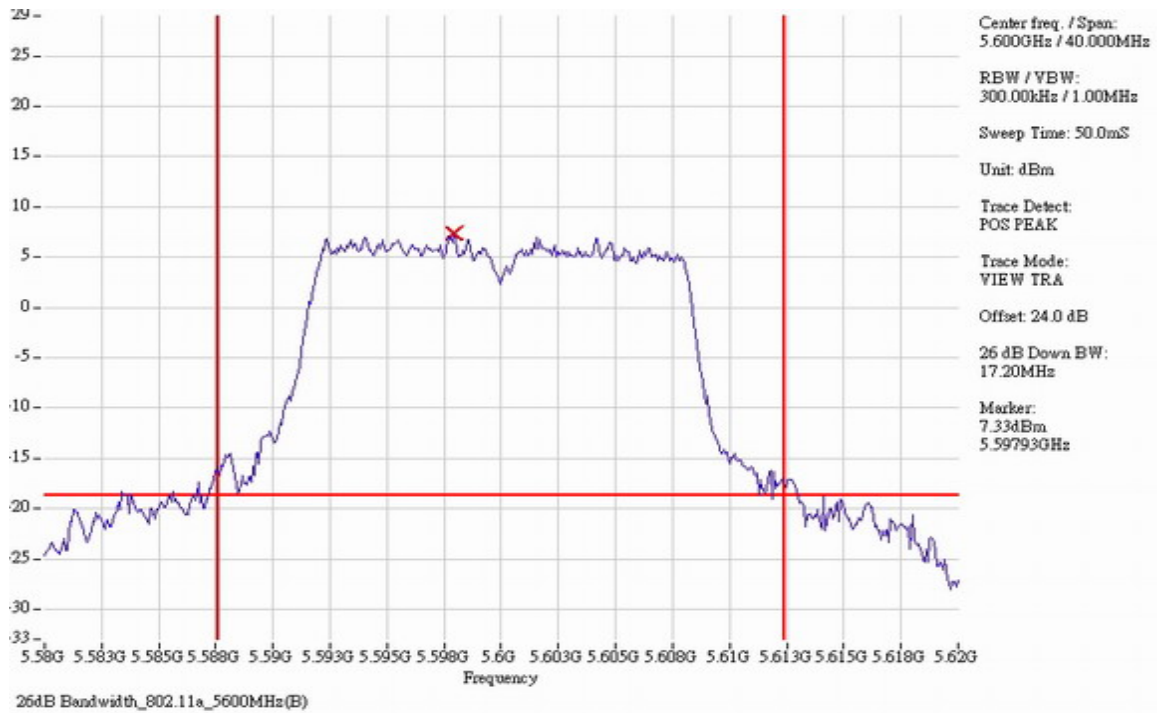
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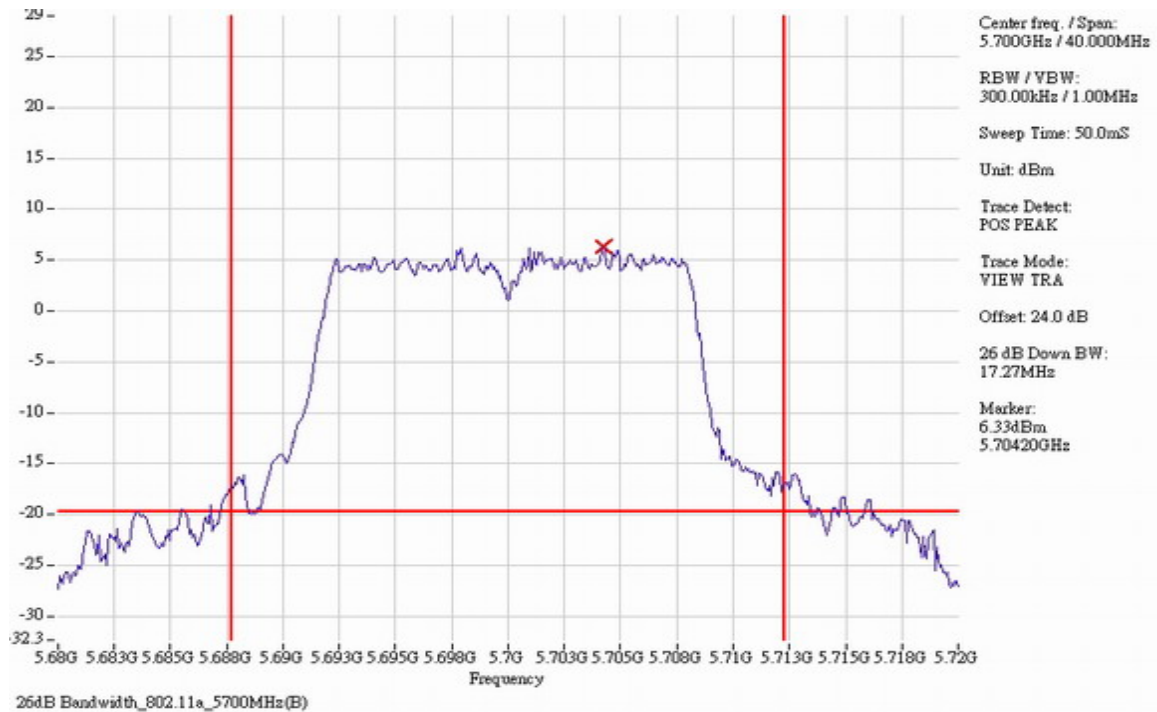
### 802.11 a Chain B CH100 5500MHz



### 802.11 a Chain B CH120 5600MHz

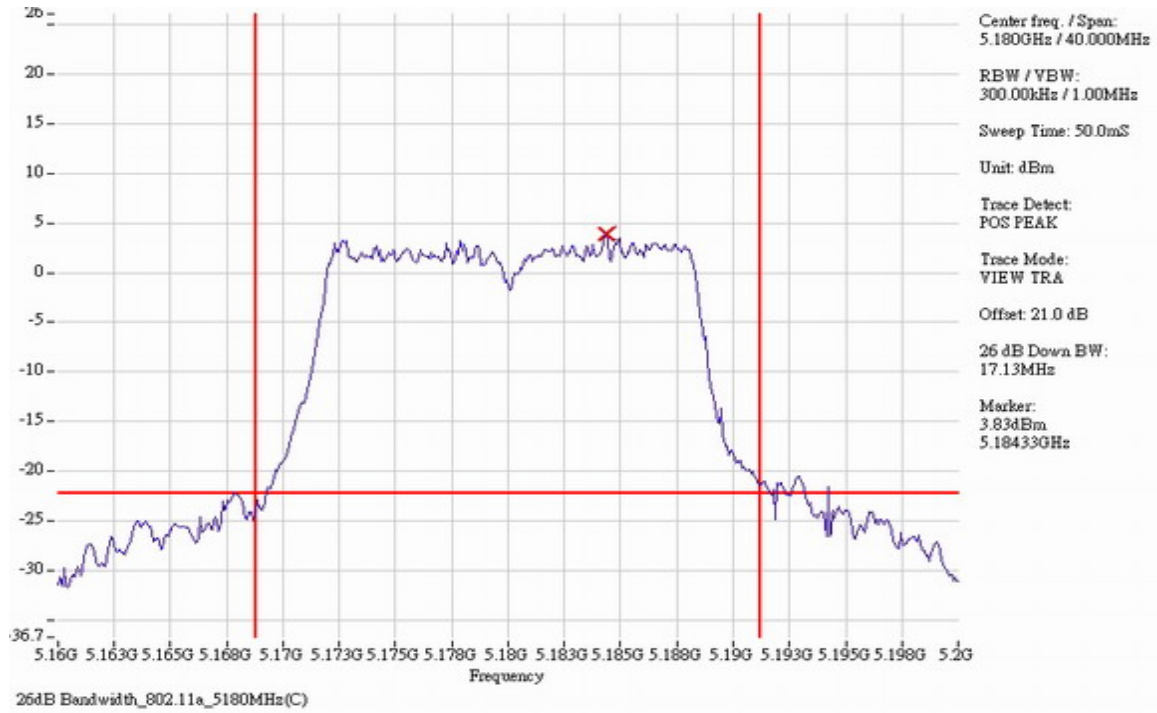


### 802.11 a Chain B CH140 5700MHz

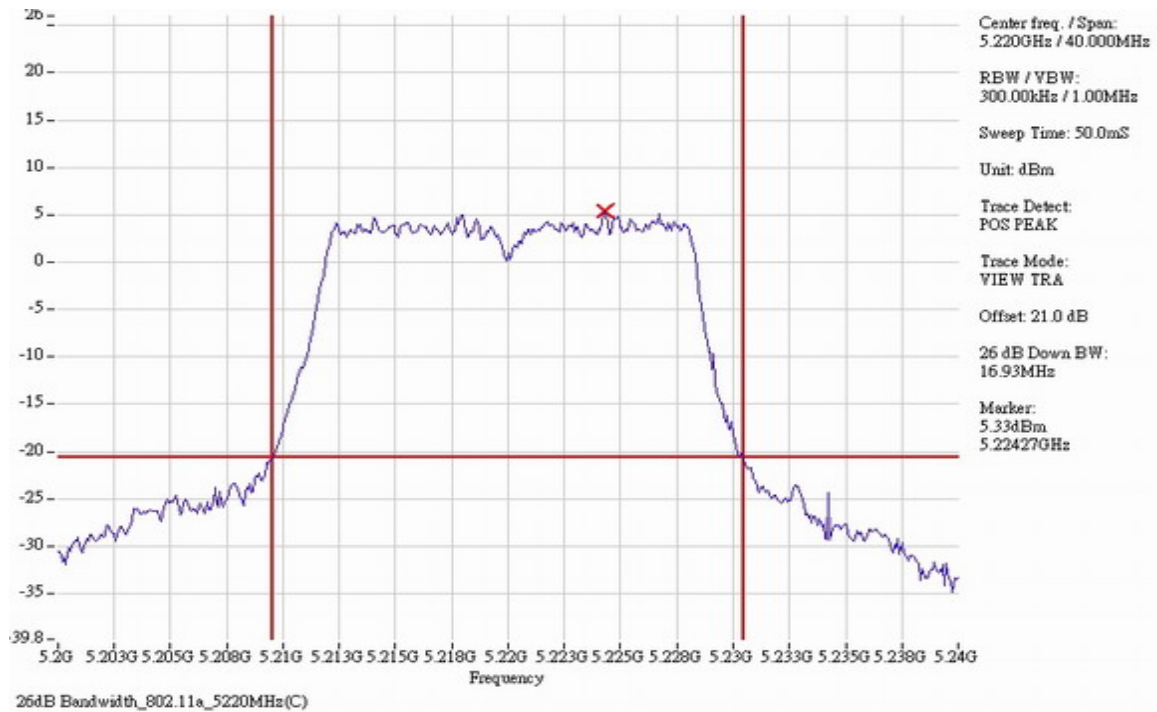




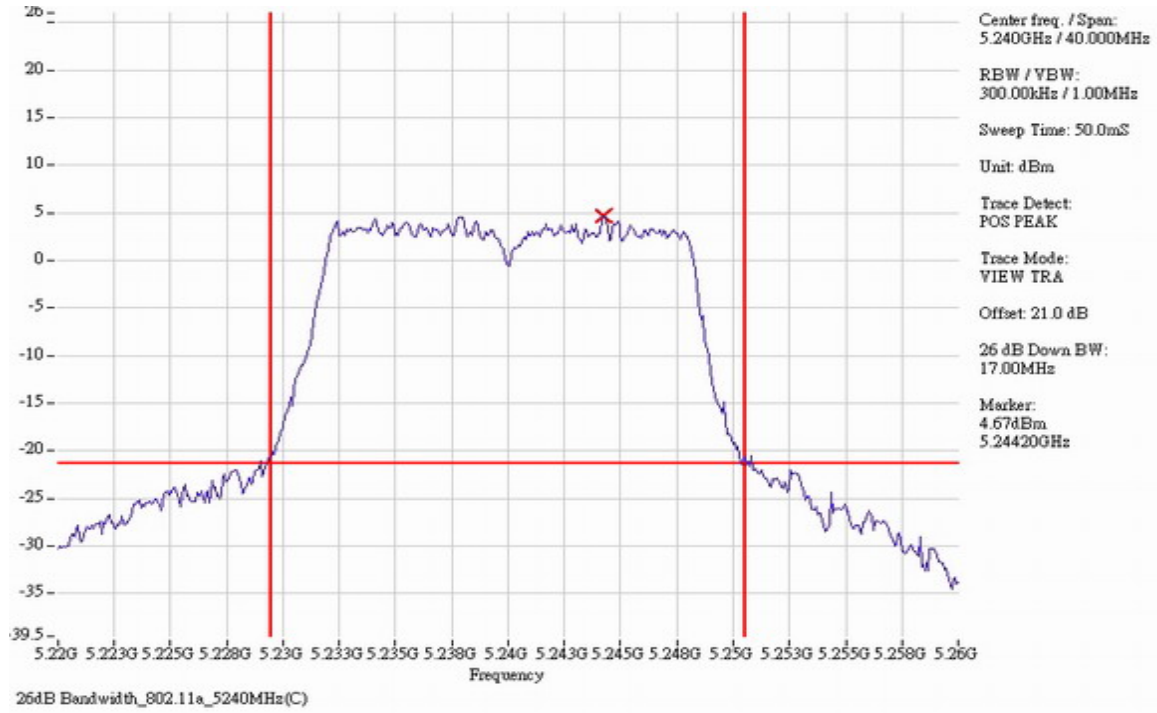
### 802.11 a Chain C CH36 5180MHz



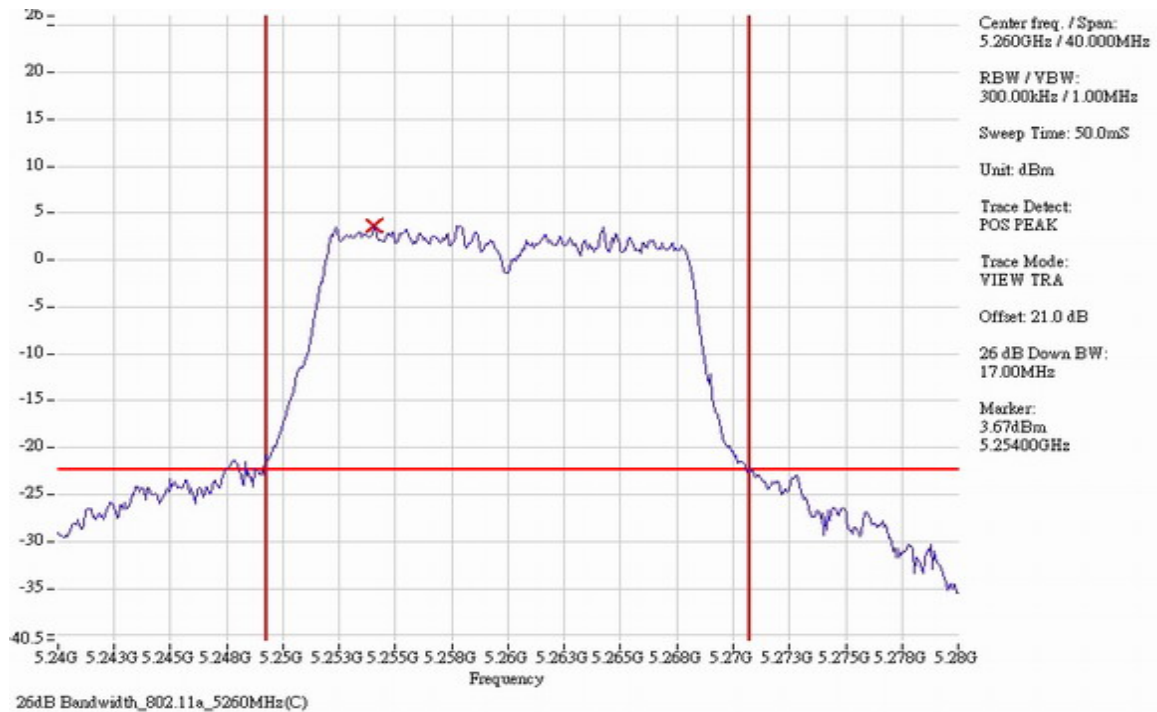
### 802.11 a Chain C CH44 5220MHz



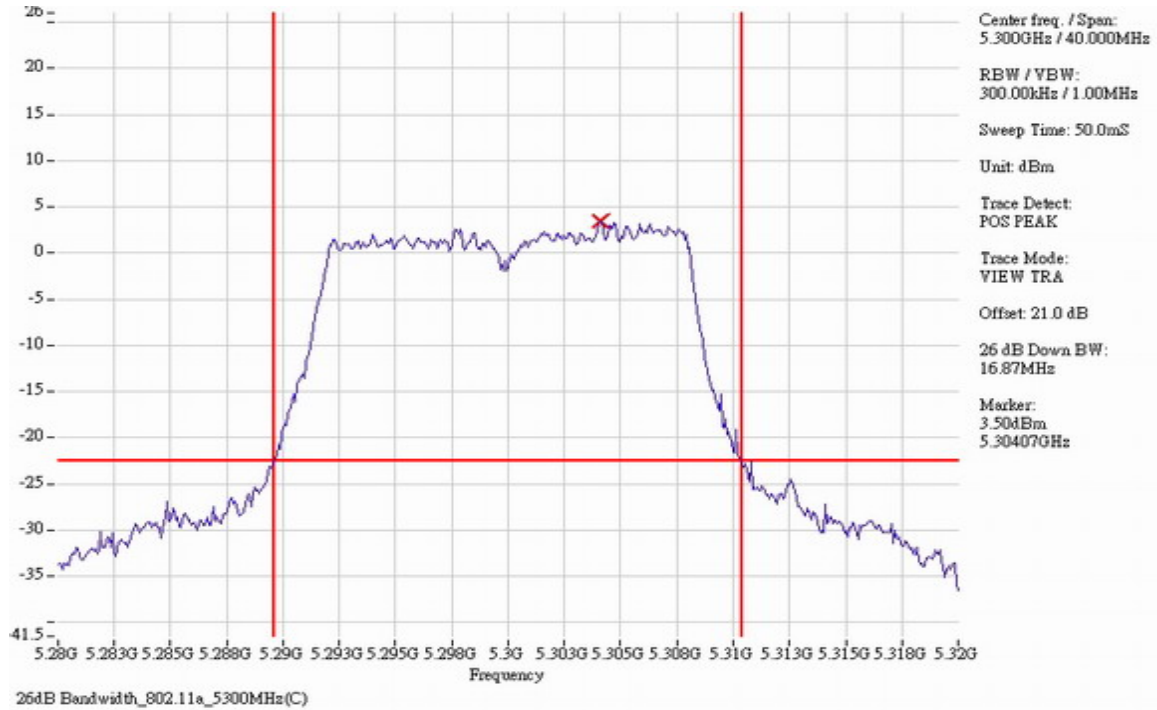
### 802.11 a Chain C CH48 5240MHz



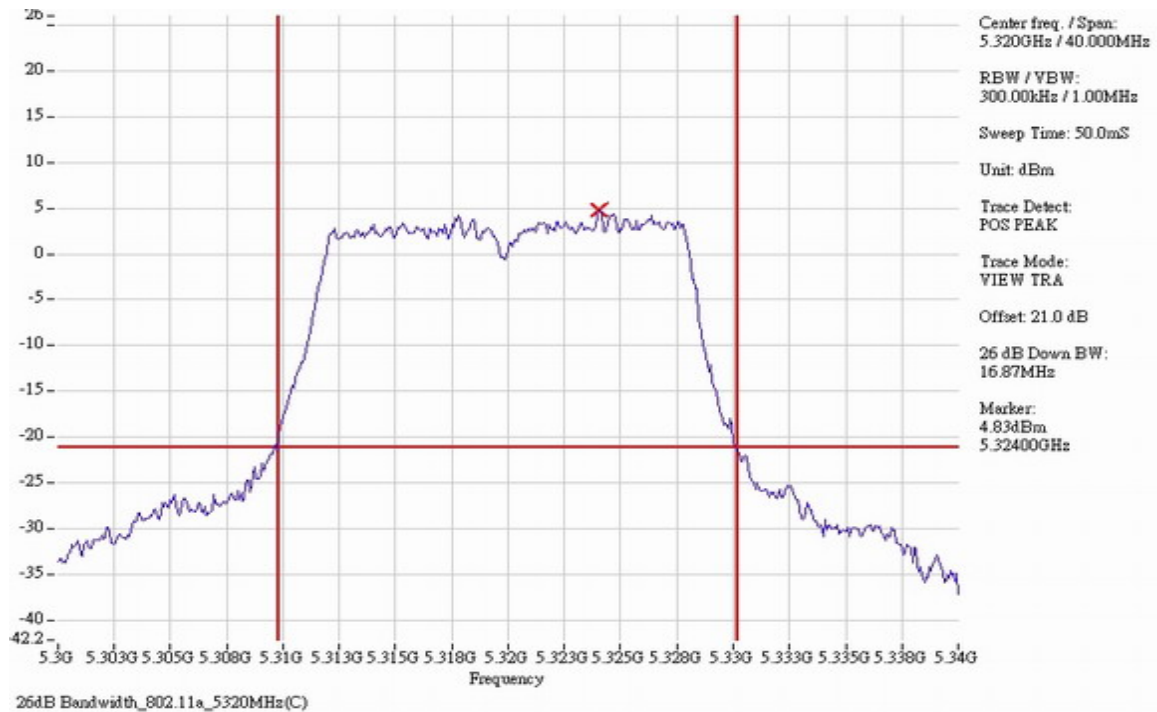
### 802.11 a Chain C CH52 5260MHz



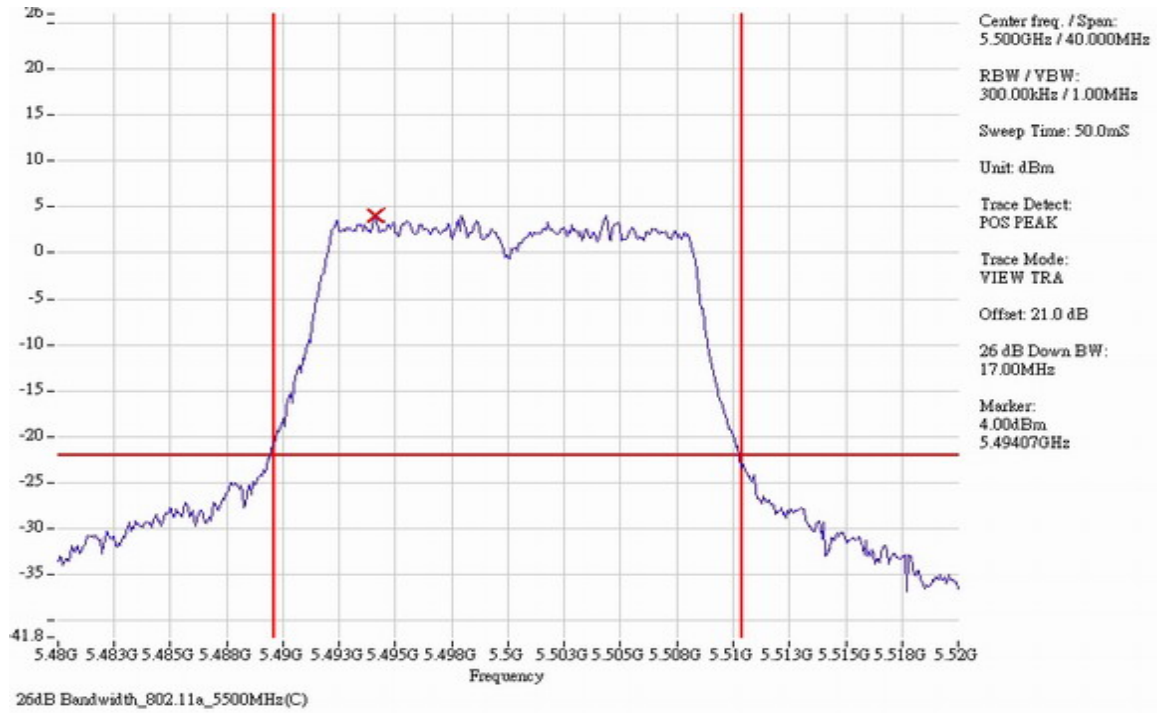
### 802.11 a Chain C CH60 5300MHz



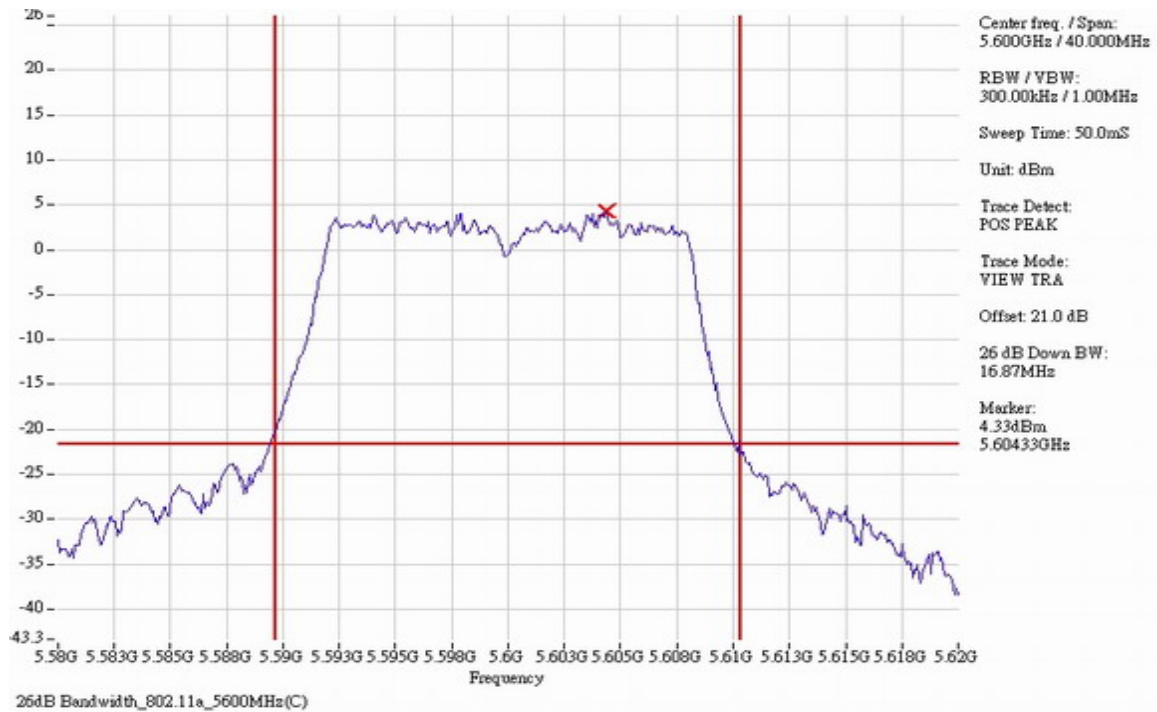
### 802.11 a Chain C CH64 5320MHz



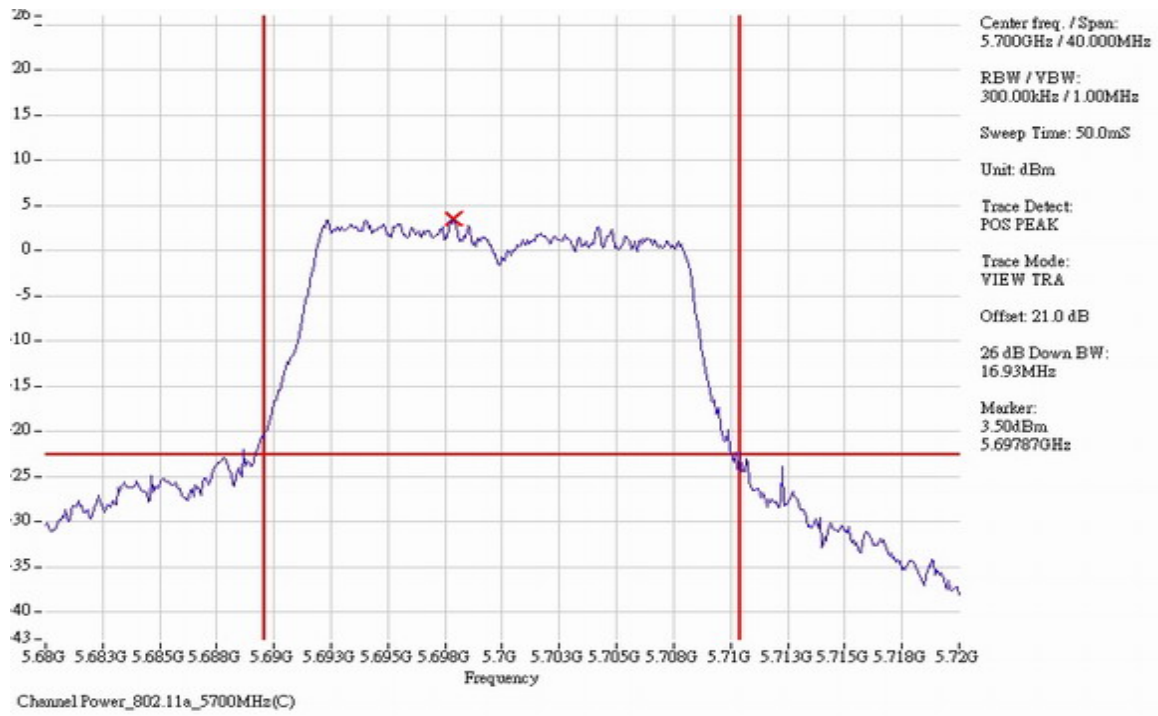
### 802.11 a Chain C CH100 5500MHz



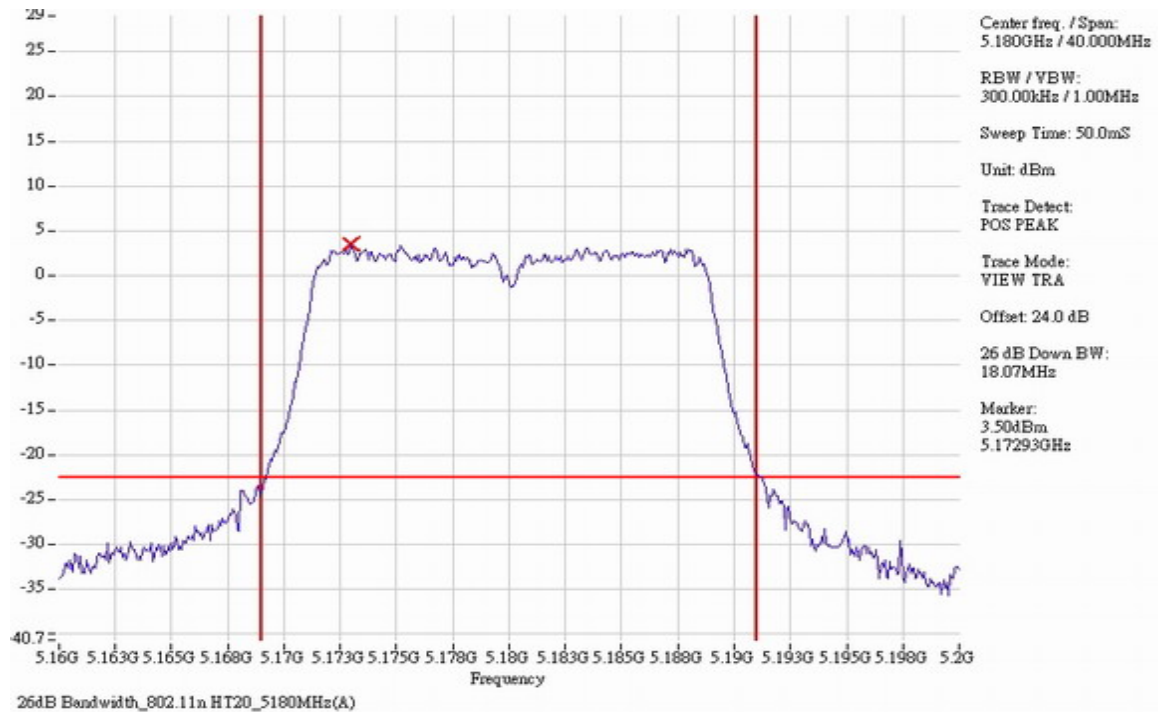
### 802.11 a Chain C CH120 5600MHz



### 802.11 a Chain C CH140 5700MHz

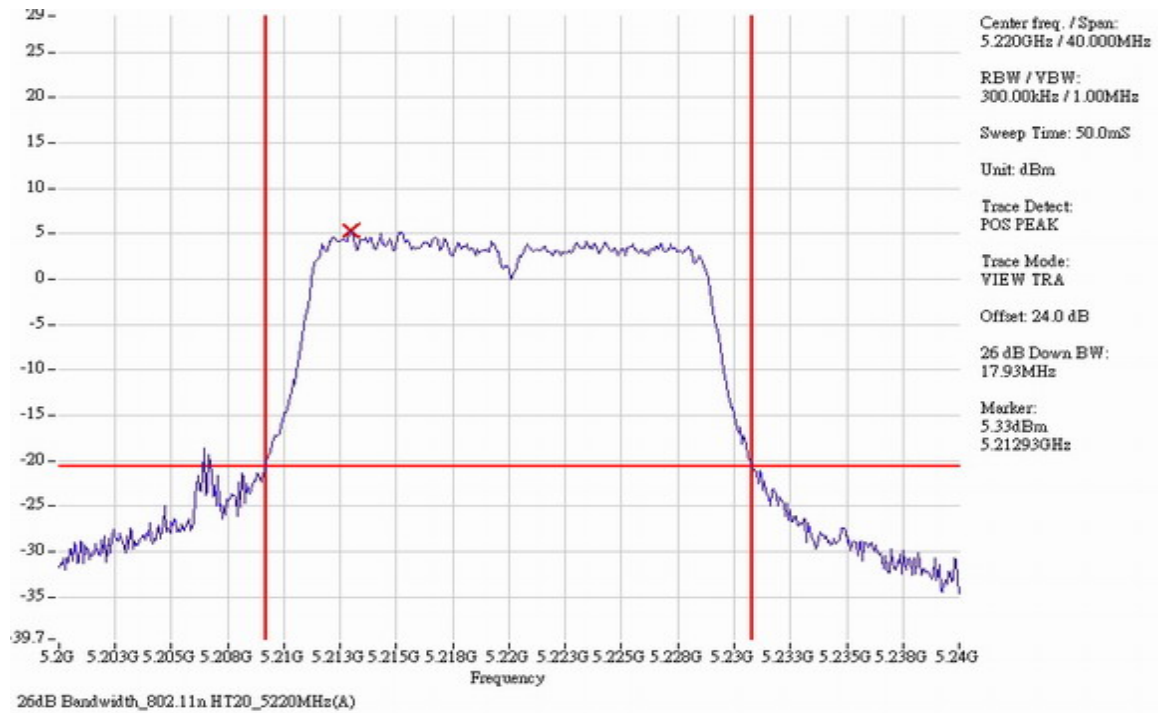


### 802.11 n (HT20) Chain A CH36 5180MHz

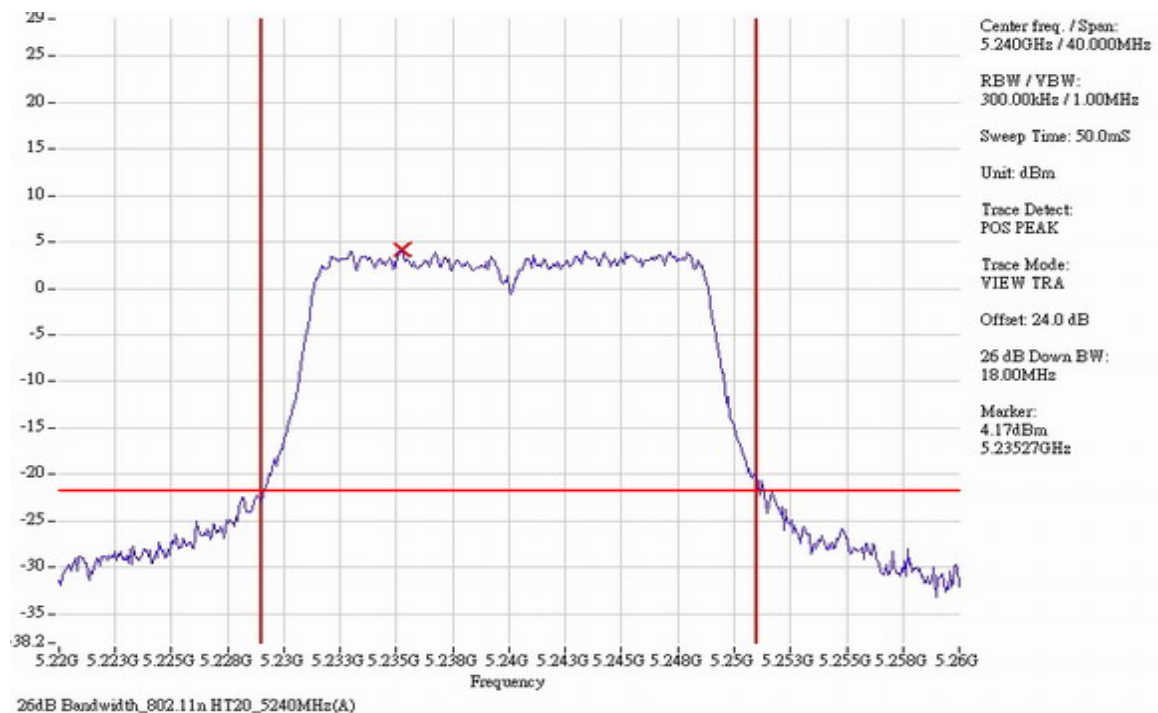




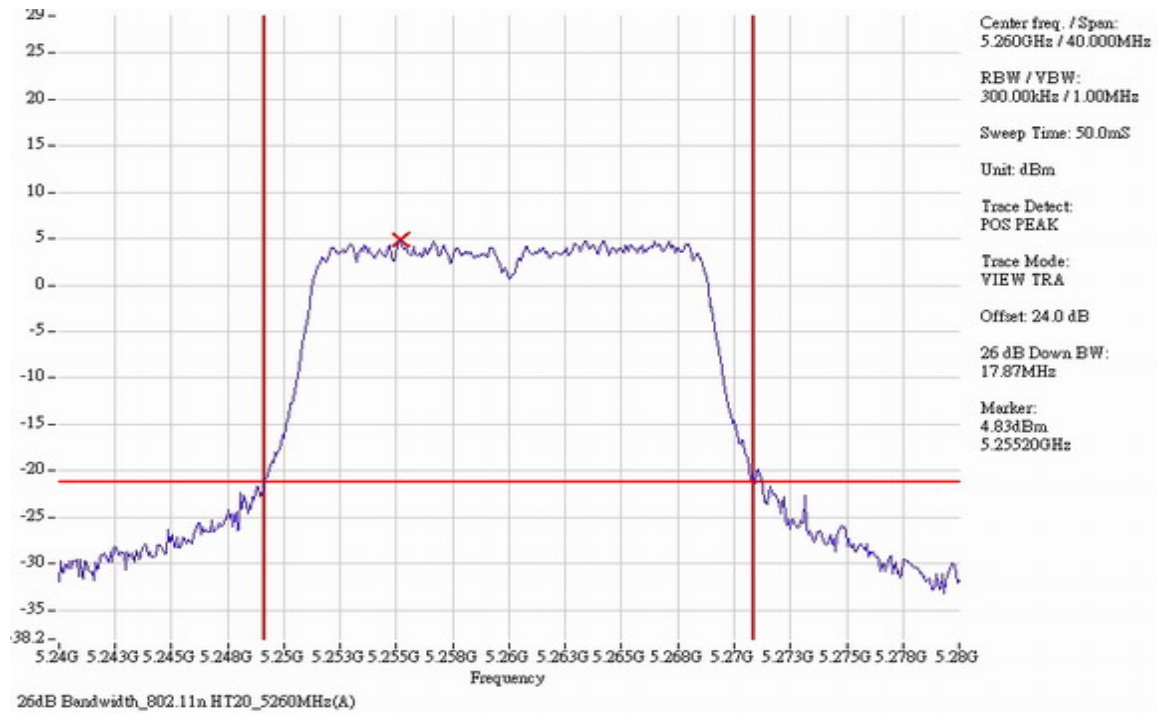
### 802.11 n (HT20) Chain A CH44 5220MHz



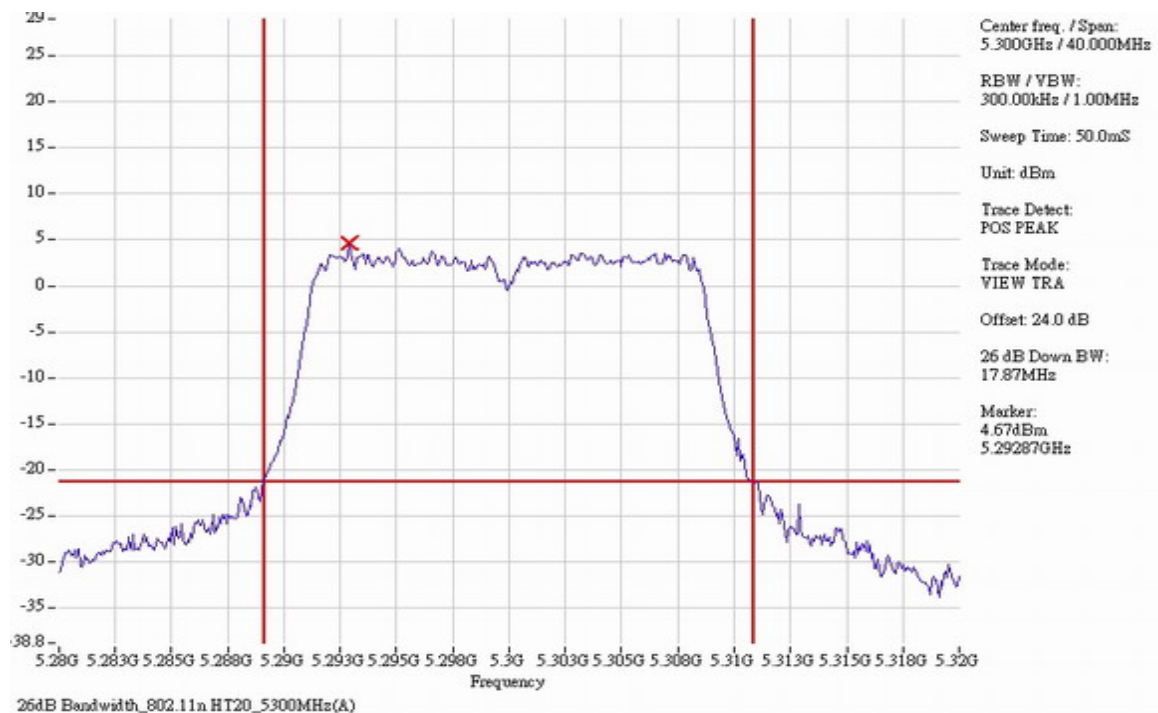
### 802.11 n (HT20) Chain A CH48 5240MHz



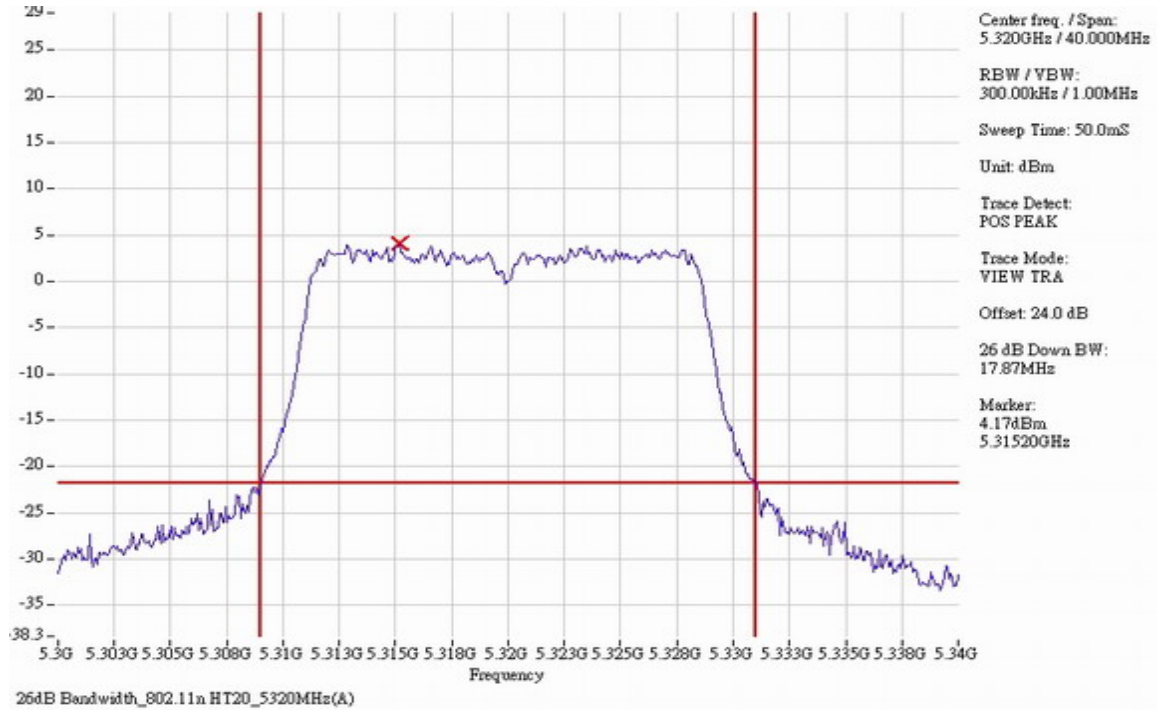
### 802.11 n (HT20) Chain A CH52 5260MHz



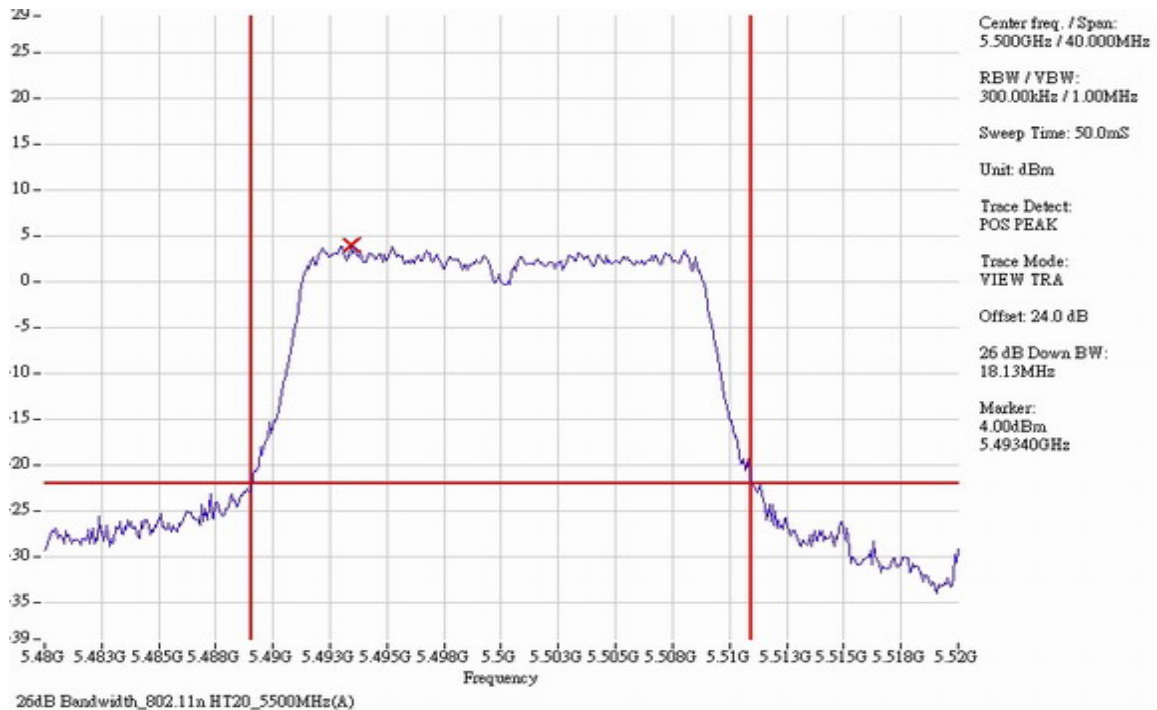
### 802.11 n (HT20) Chain A CH60 5300MHz



### 802.11 n (HT20) Chain A CH64 5320MHz

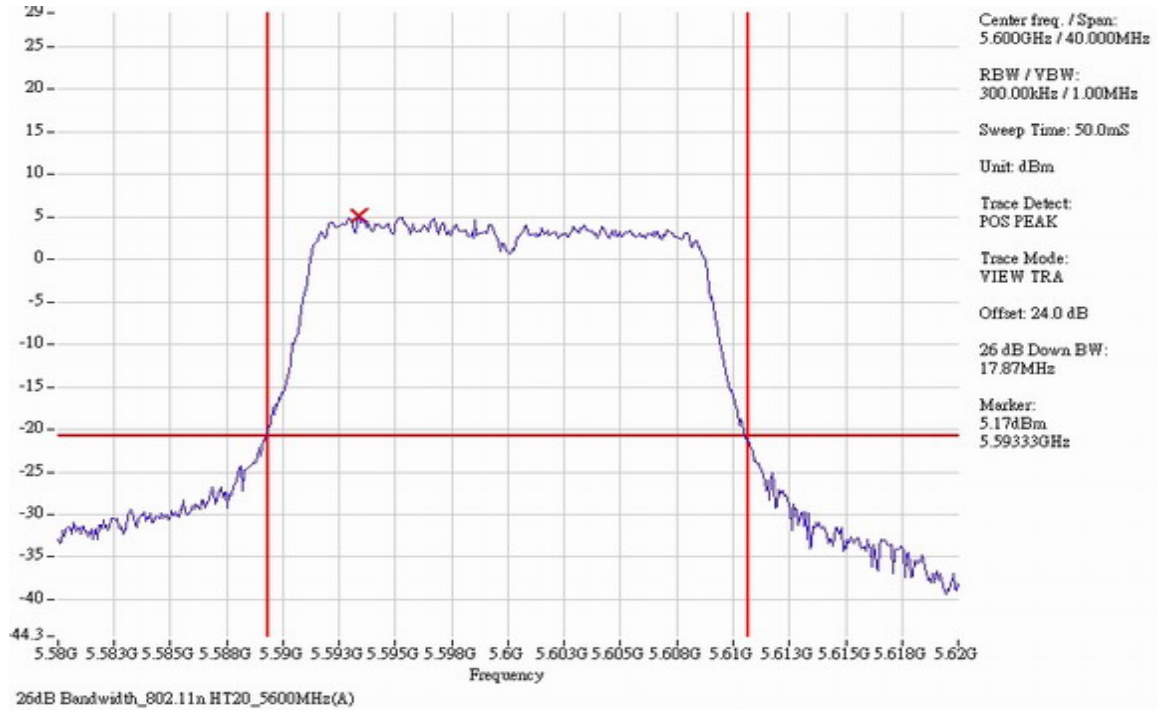


### 802.11 n (HT20) Chain A CH100 5500MHz

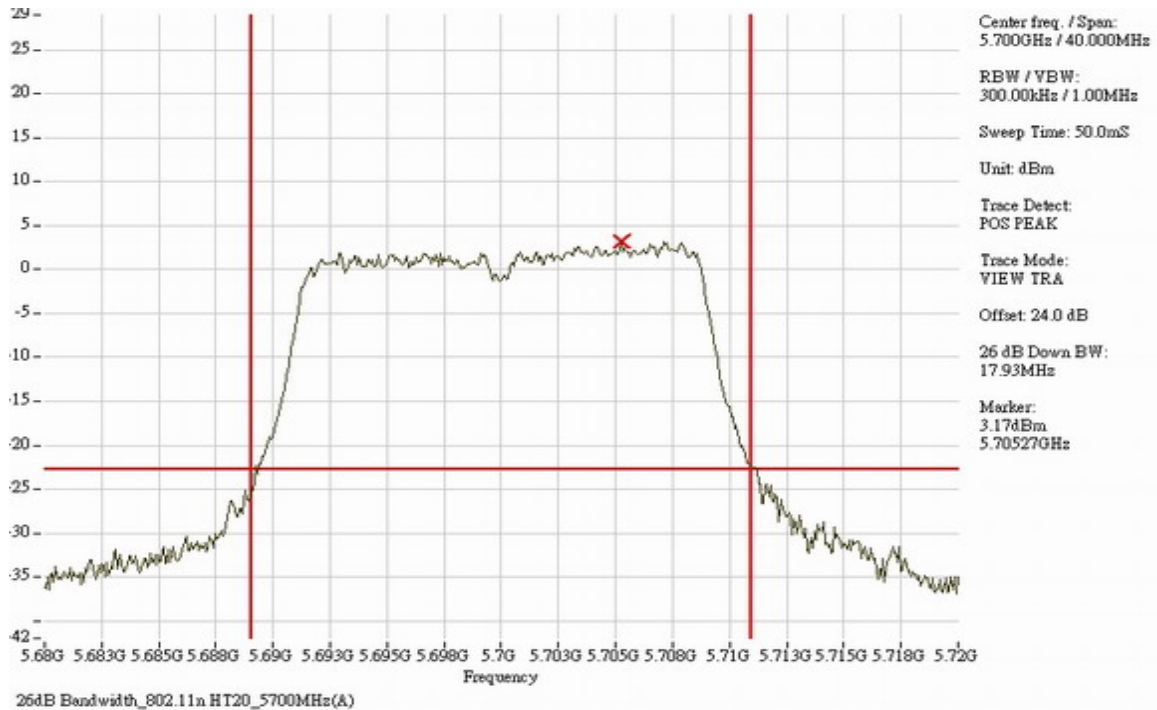




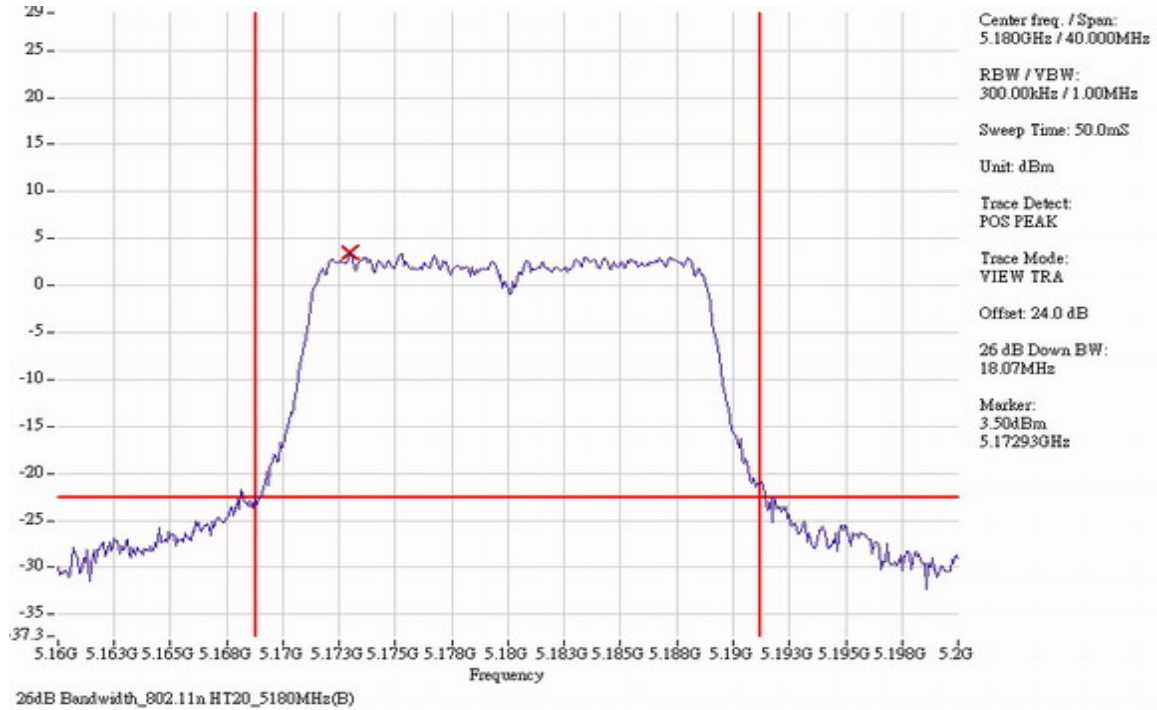
### 802.11 n (HT20) Chain A CH120 5600MHz



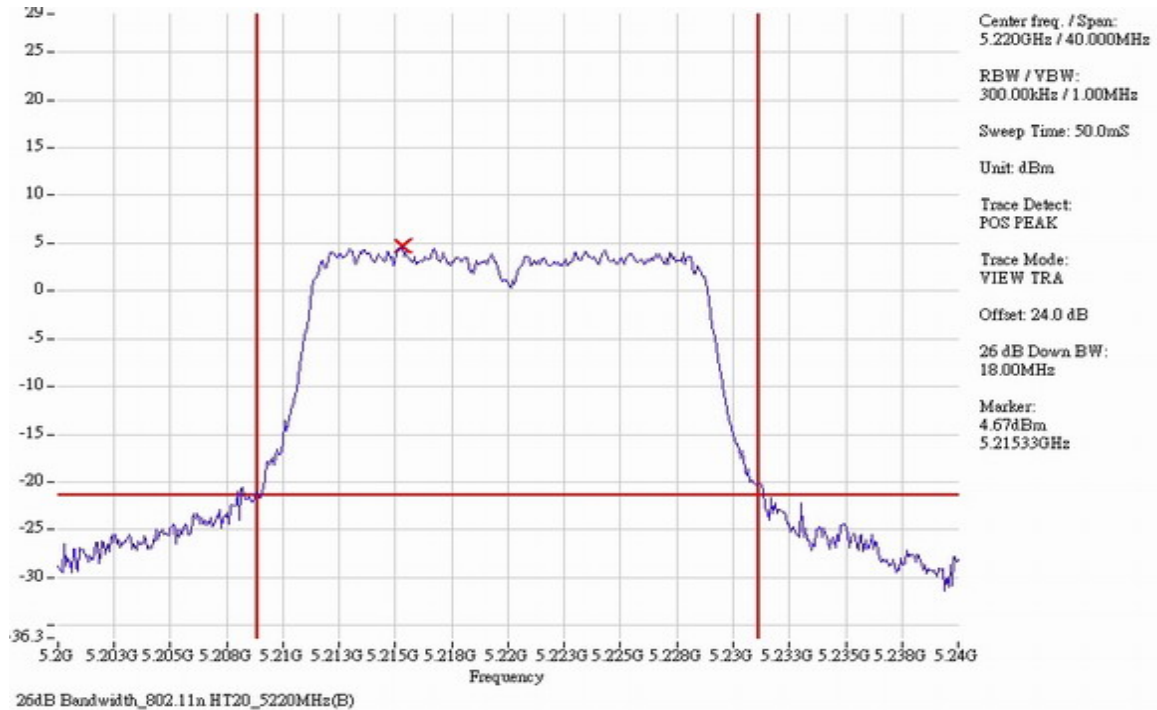
### 802.11 n (HT20) Chain A CH140 5700MHz



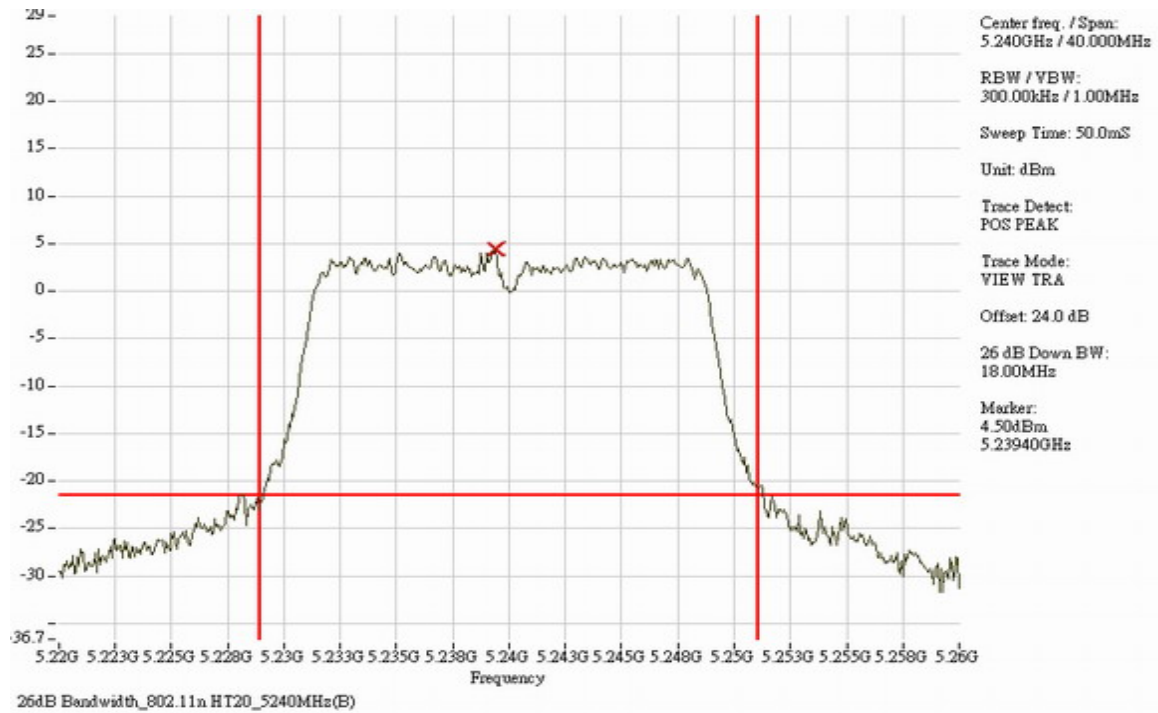
### 802.11 n (HT20) Chain B CH36 5180MHz



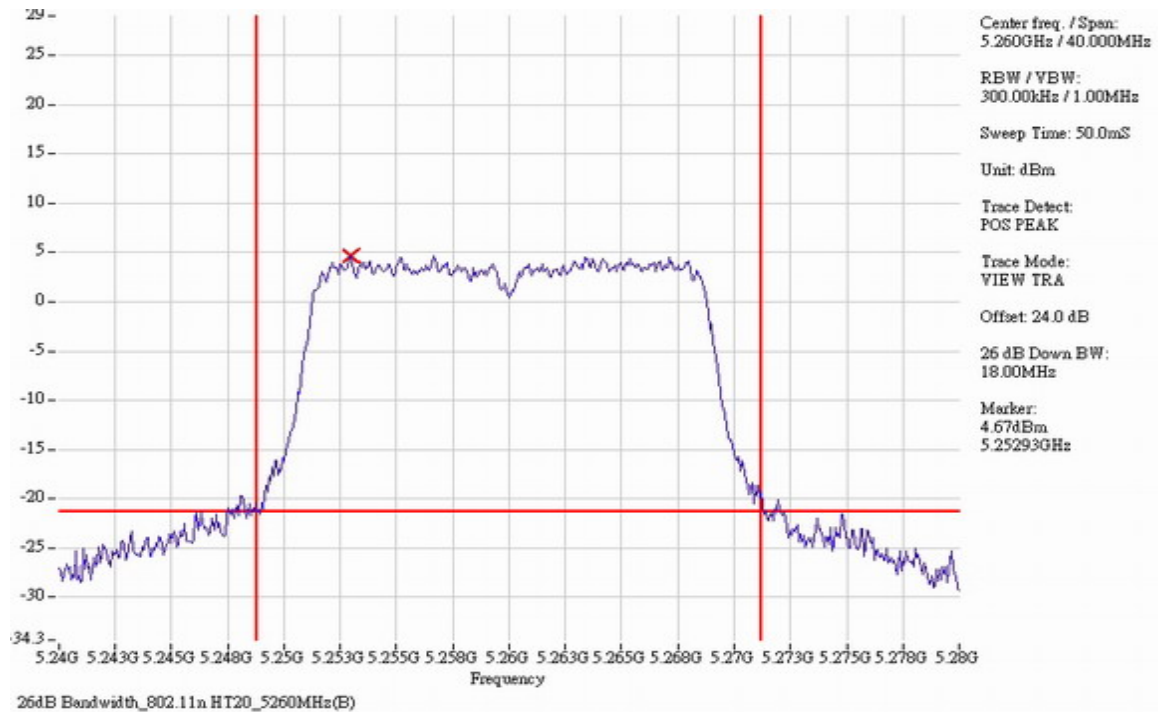
### 802.11 n (HT20) Chain B CH44 5220MHz



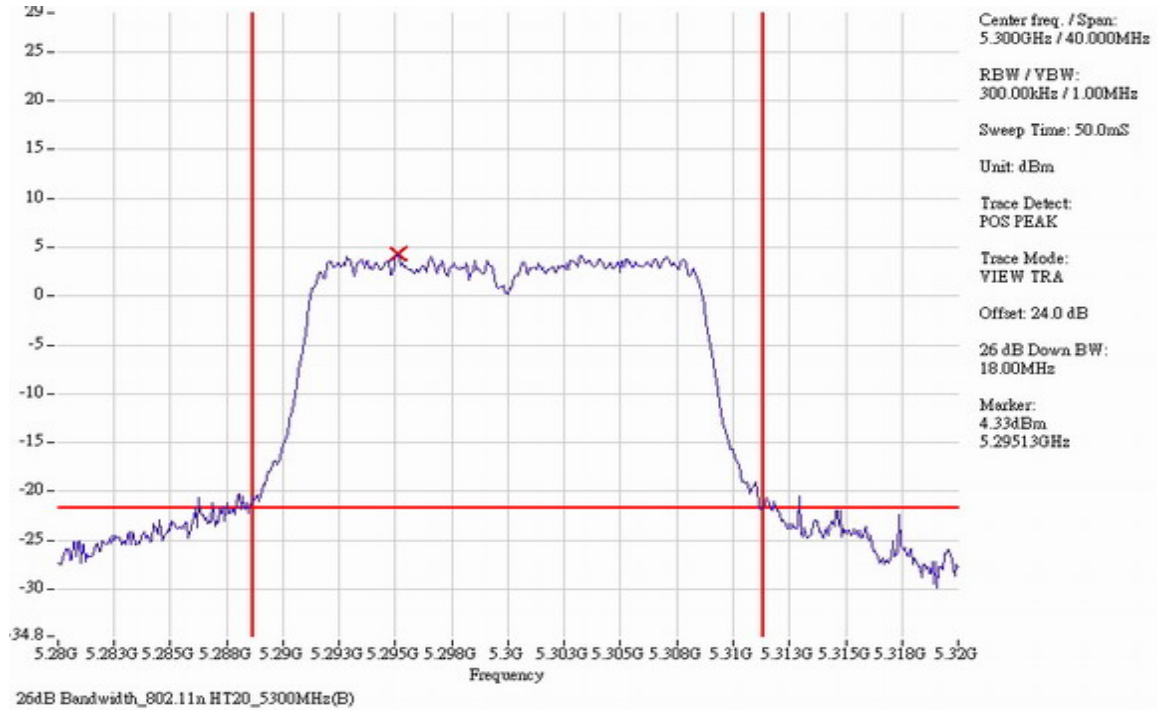
### 802.11 n (HT20) Chain B CH48 5240MHz



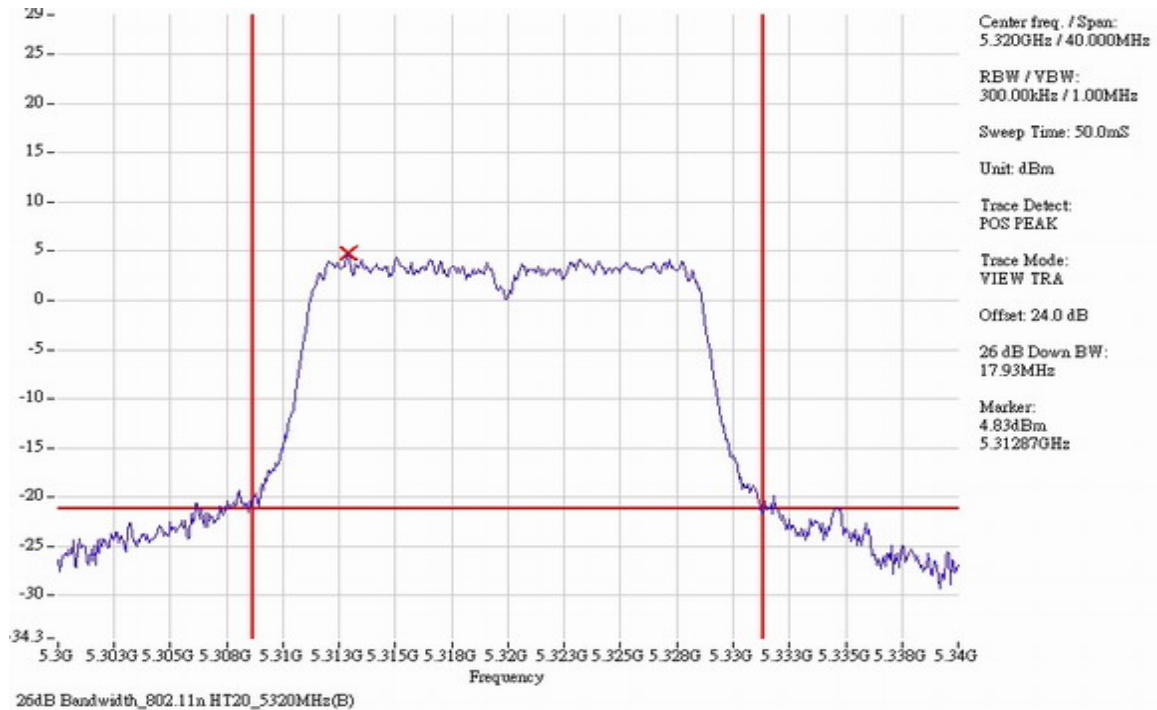
### 802.11 n (HT20) Chain B CH52 5260MHz



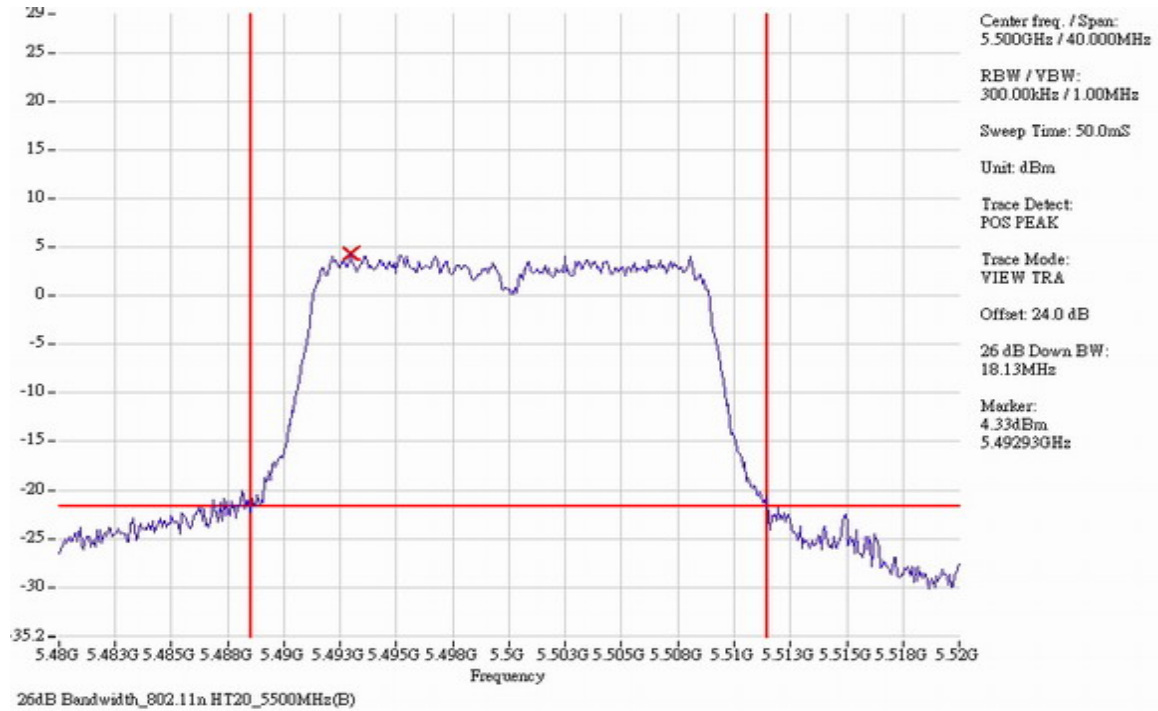
### 802.11 n (HT20) Chain B CH60 5300MHz



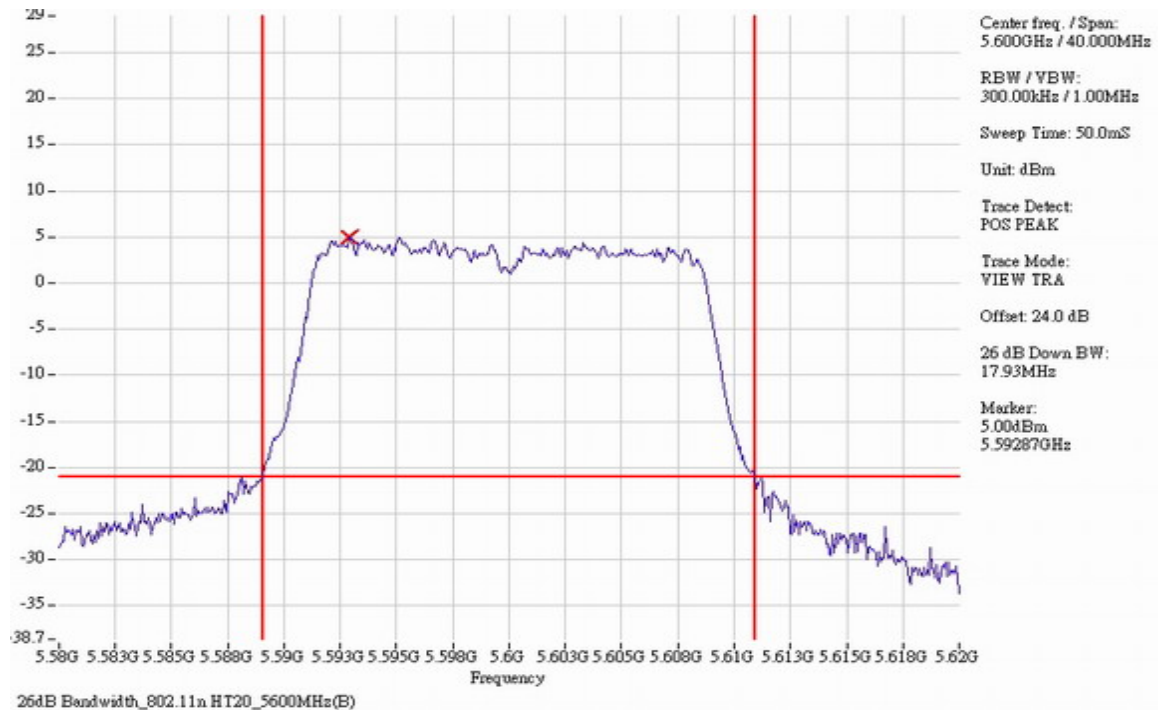
### 802.11 n (HT20) Chain B CH64 5320MHz



### 802.11 n (HT20) Chain B CH100 5500MHz

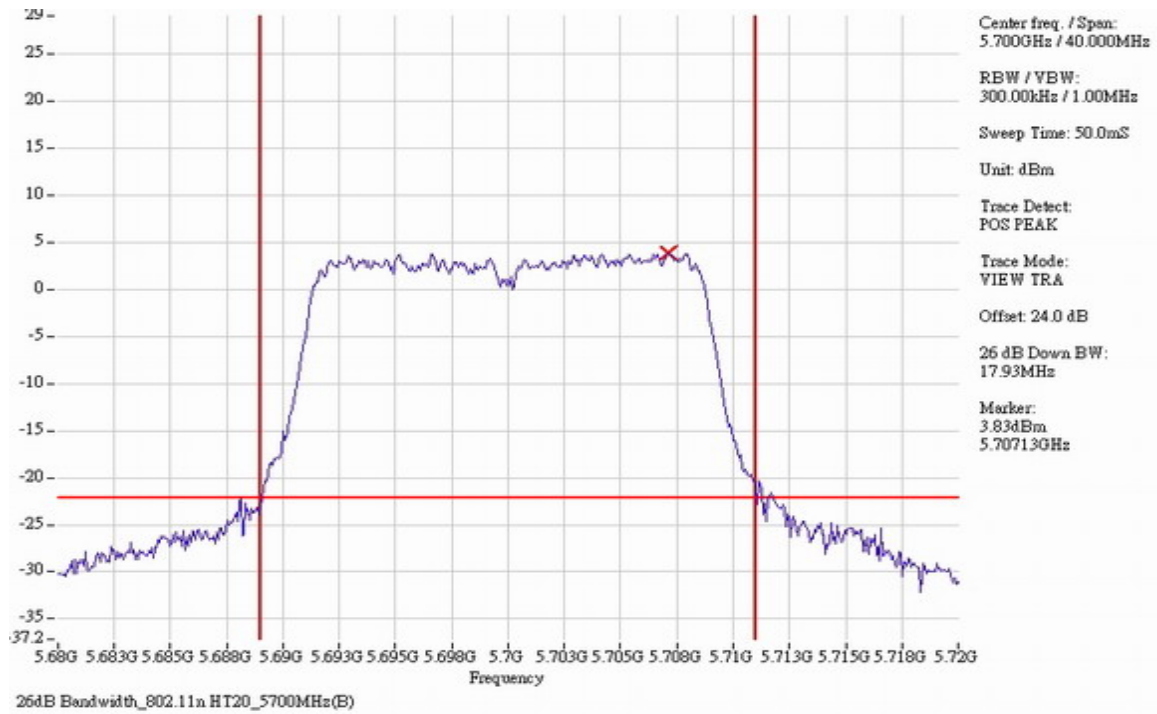


### 802.11 n (HT20) Chain B CH120 5600MHz

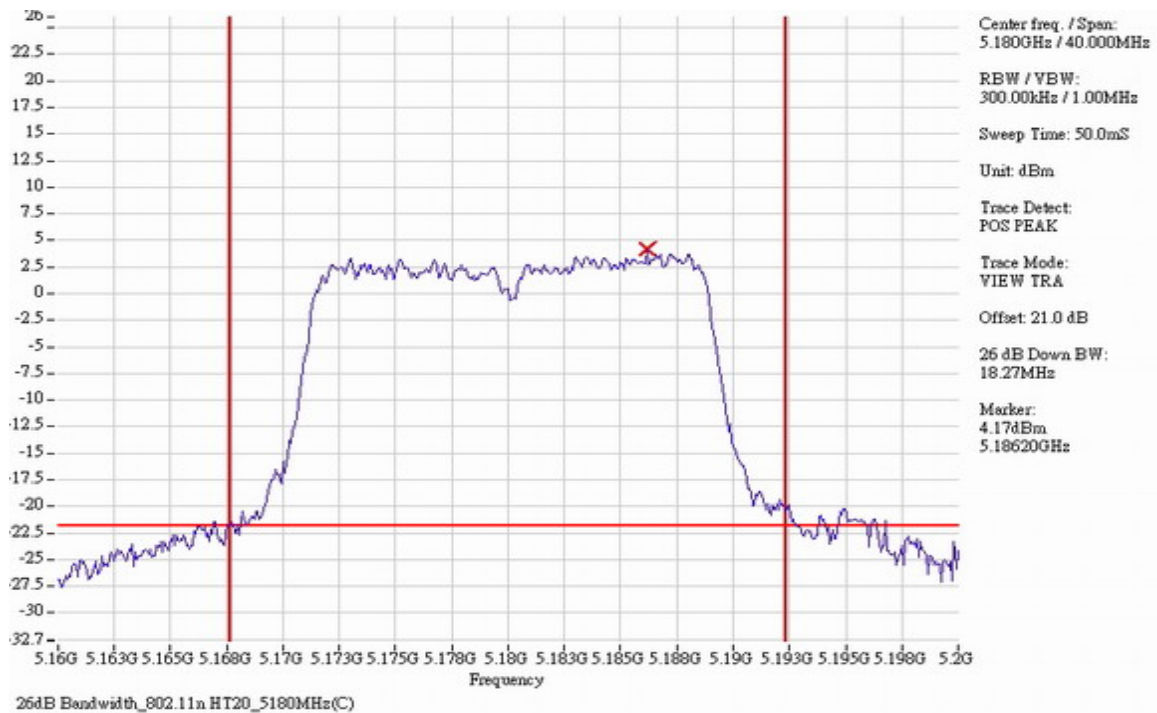




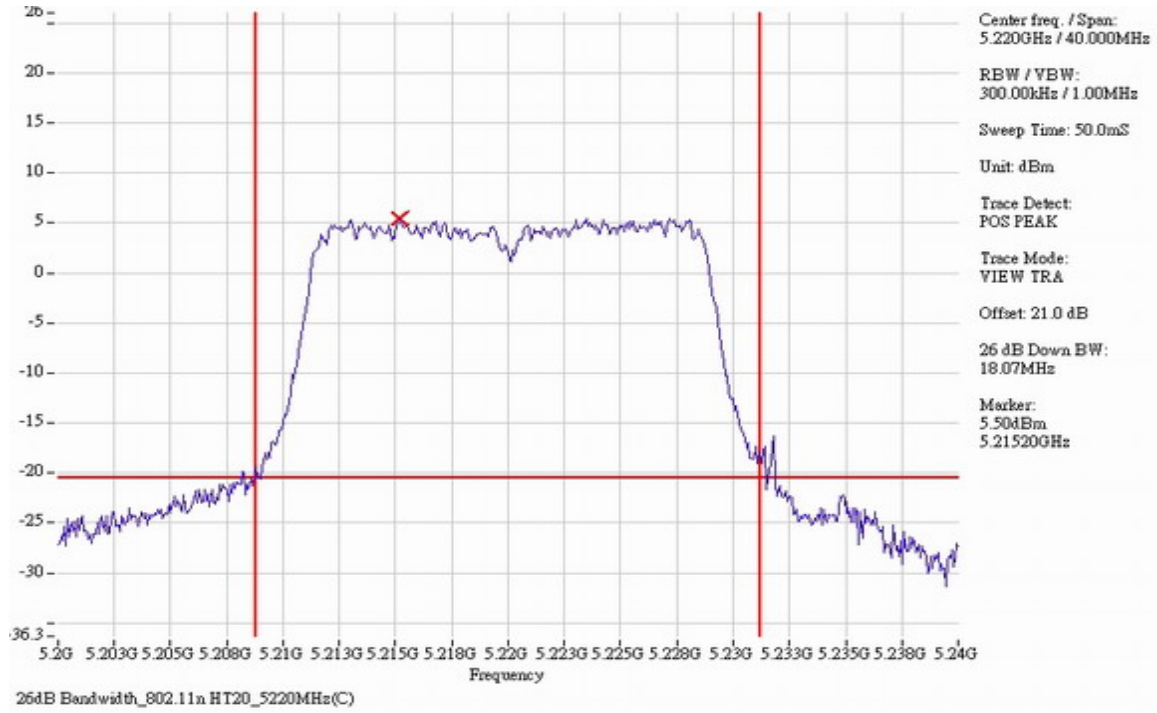
### 802.11 n (HT20) Chain B CH140 5700MHz



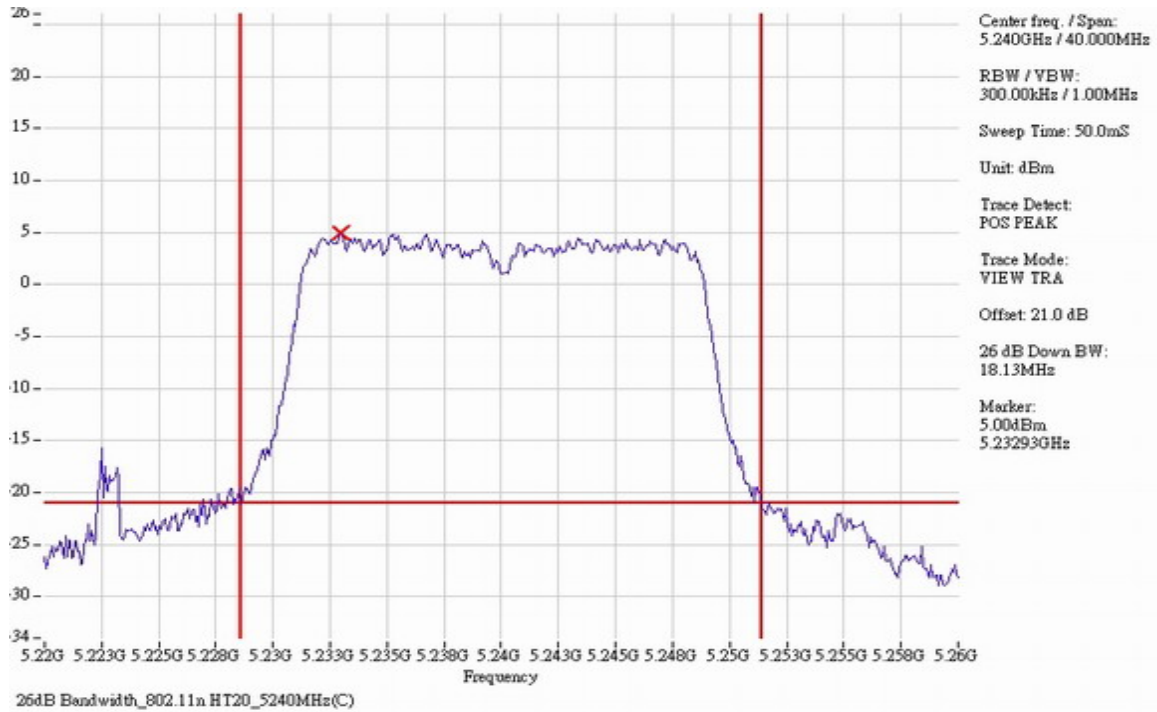
### 802.11 n (HT20) Chain C CH36 5180MHz



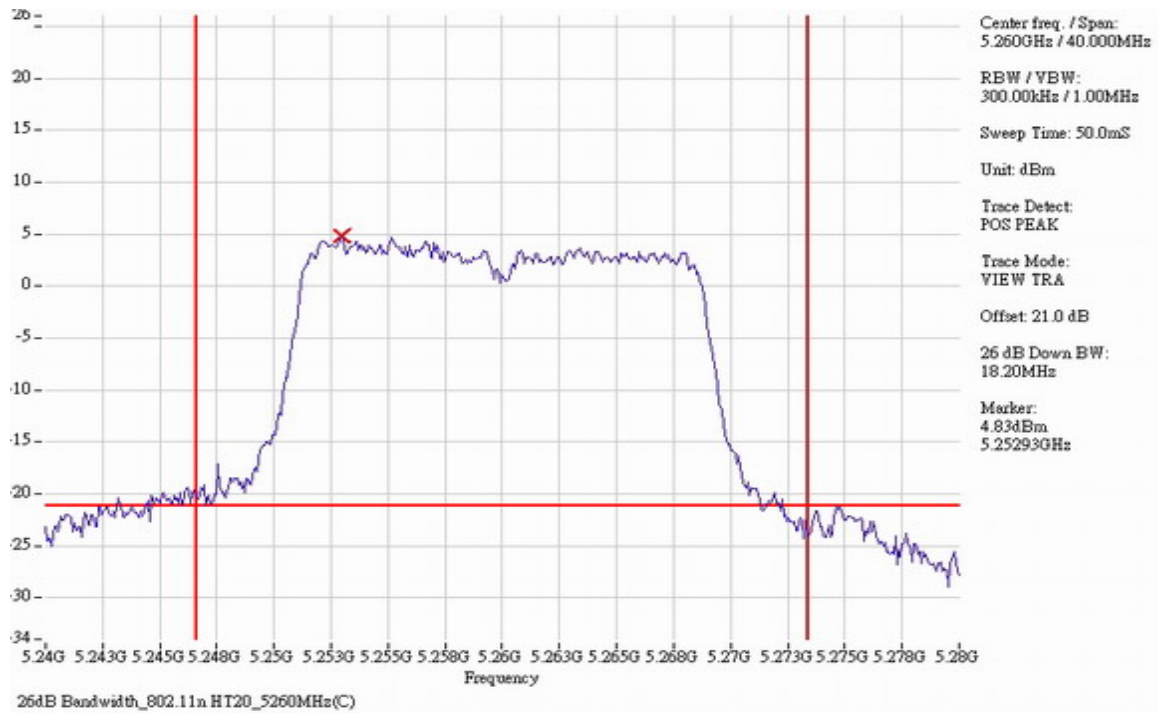
### 802.11 n (HT20) Chain C CH44 5220MHz



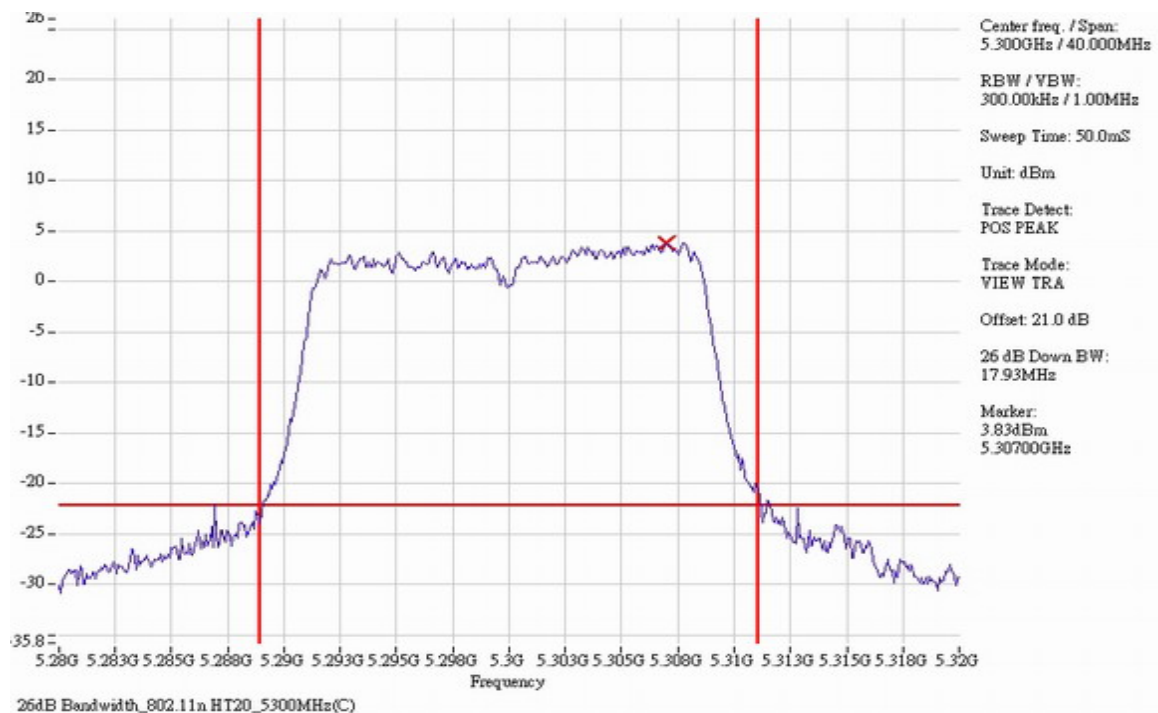
### 802.11 n (HT20) Chain C CH48 5240MHz



### 802.11 n (HT20) Chain C CH52 5260MHz

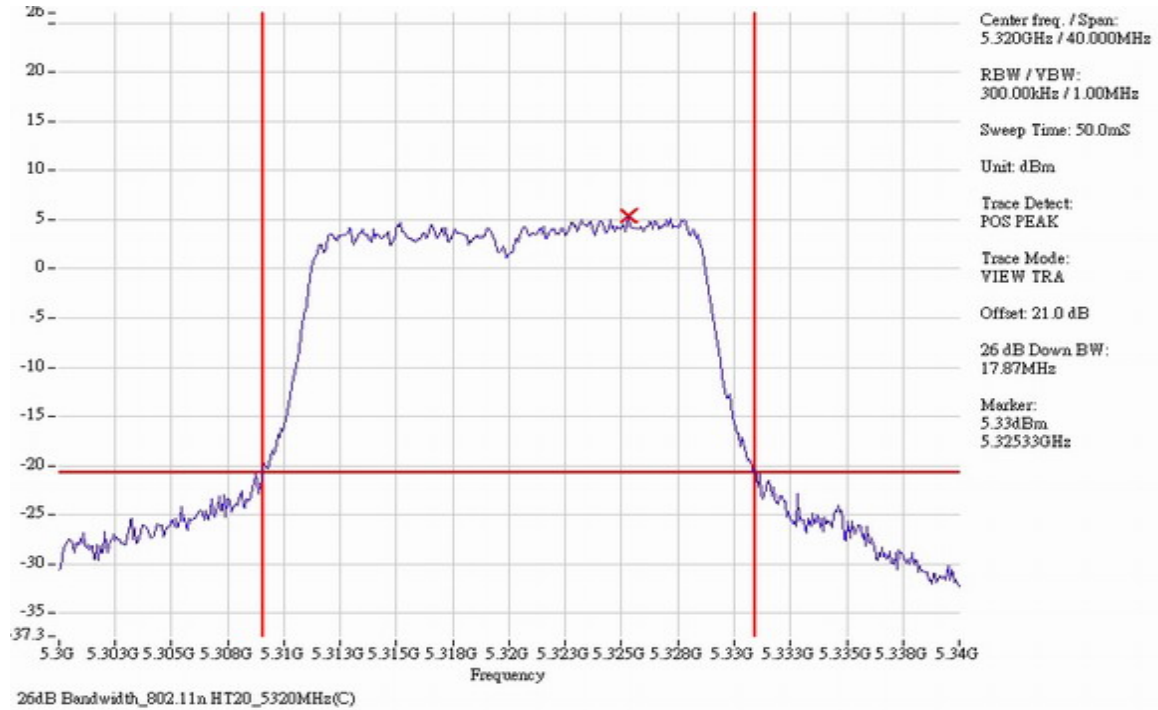


### 802.11 n (HT20) Chain C CH60 5300MHz

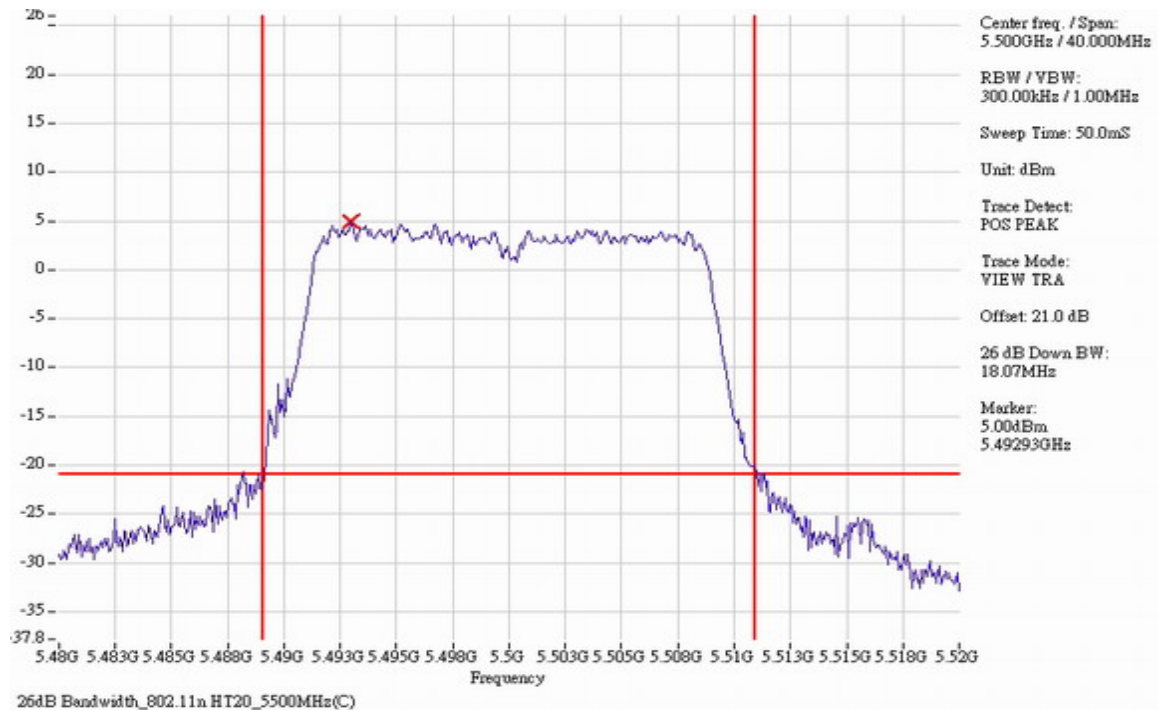




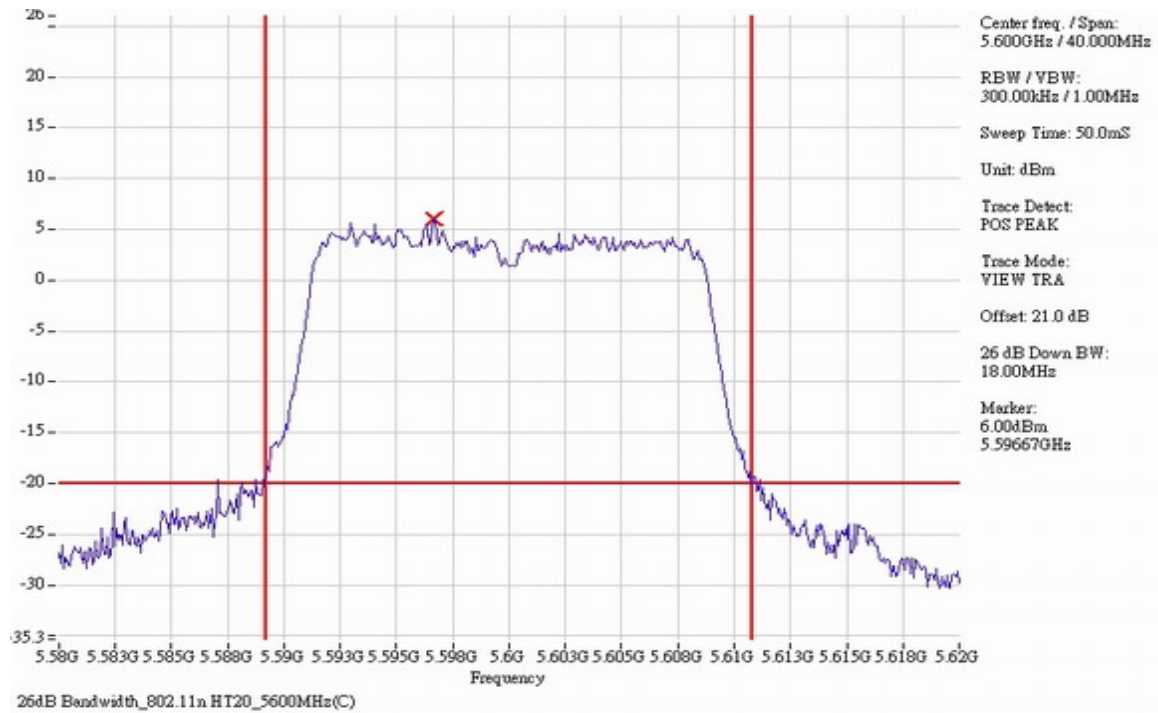
### 802.11 n (HT20) Chain C CH64 5320MHz



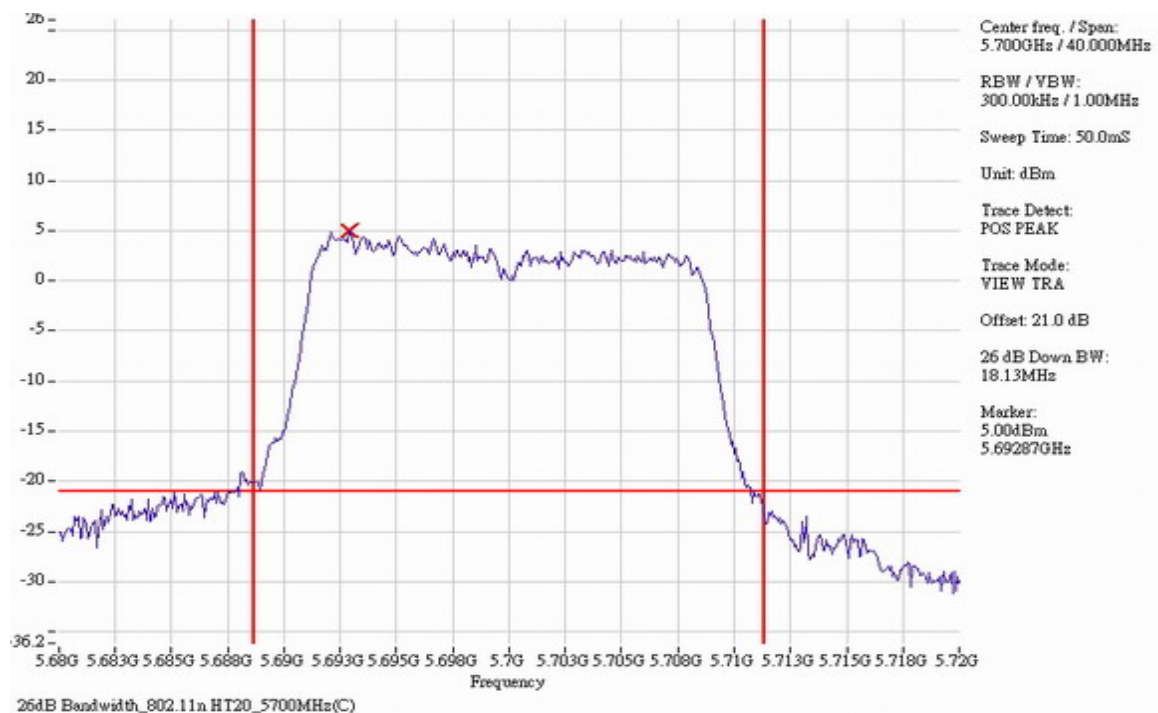
### 802.11 n (HT20) Chain C CH100 5500MHz



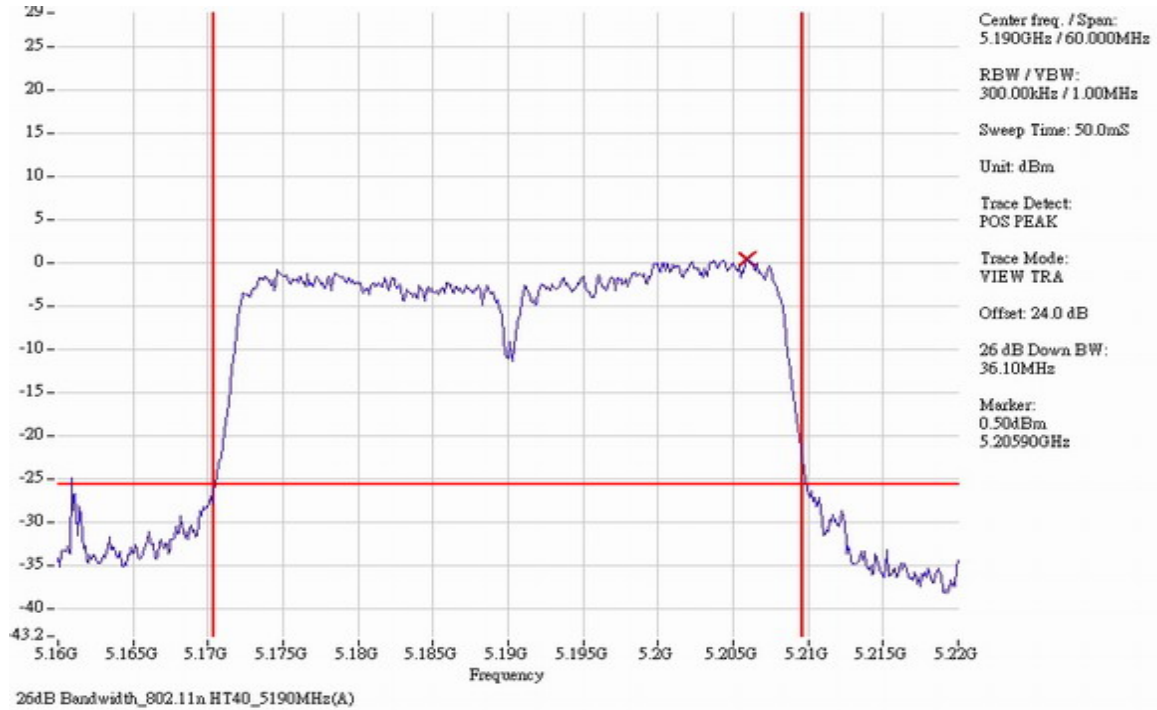
### 802.11 n (HT20) Chain C CH120 5600MHz



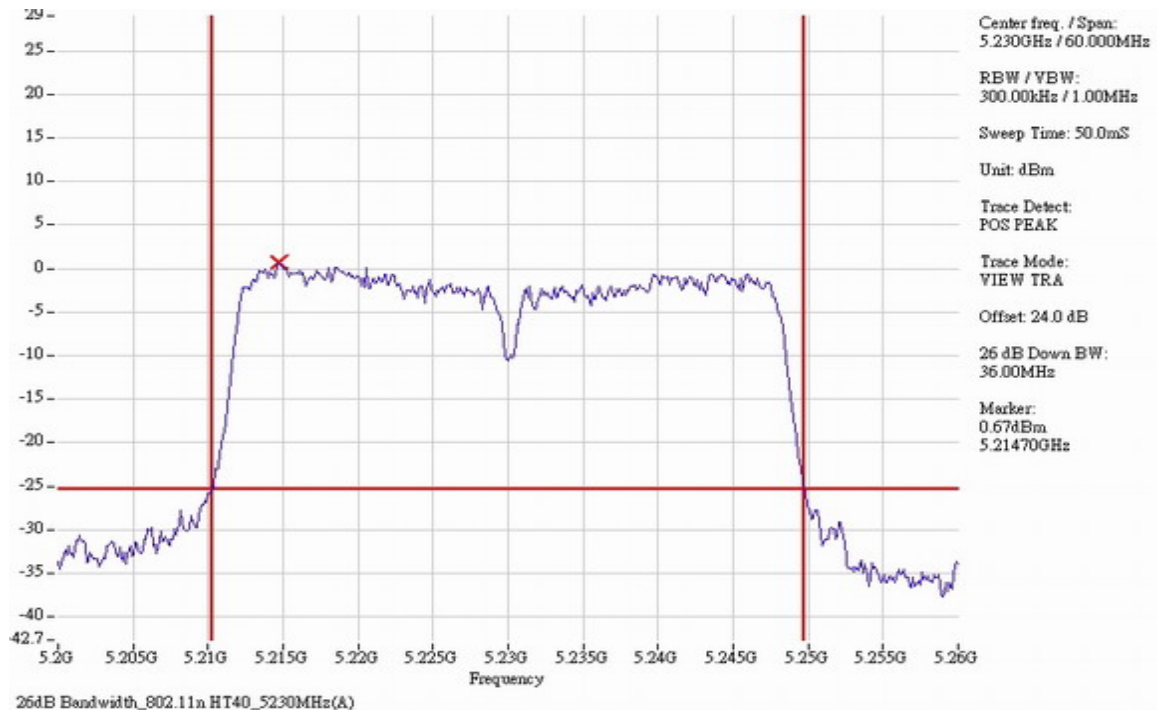
### 802.11 n (HT20) Chain C CH140 5700MHz



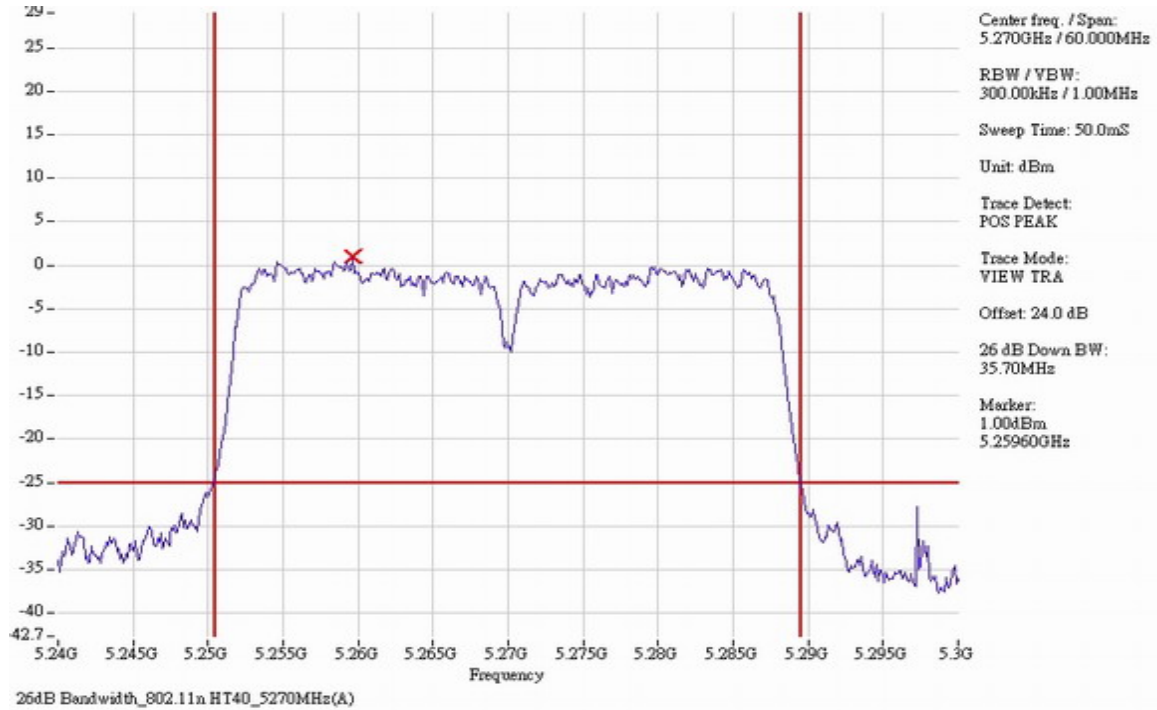
### 802.11 n (HT40) Chain A CH38 5190MHz



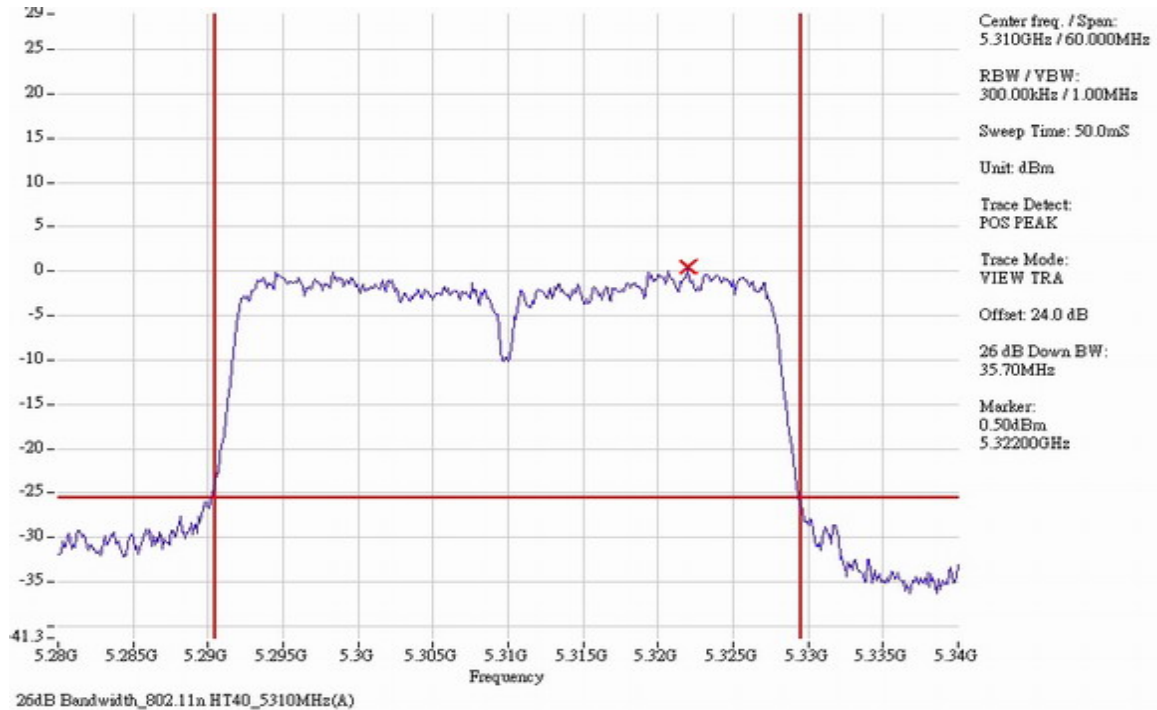
### 802.11 n (HT40) Chain A CH46 5230MHz



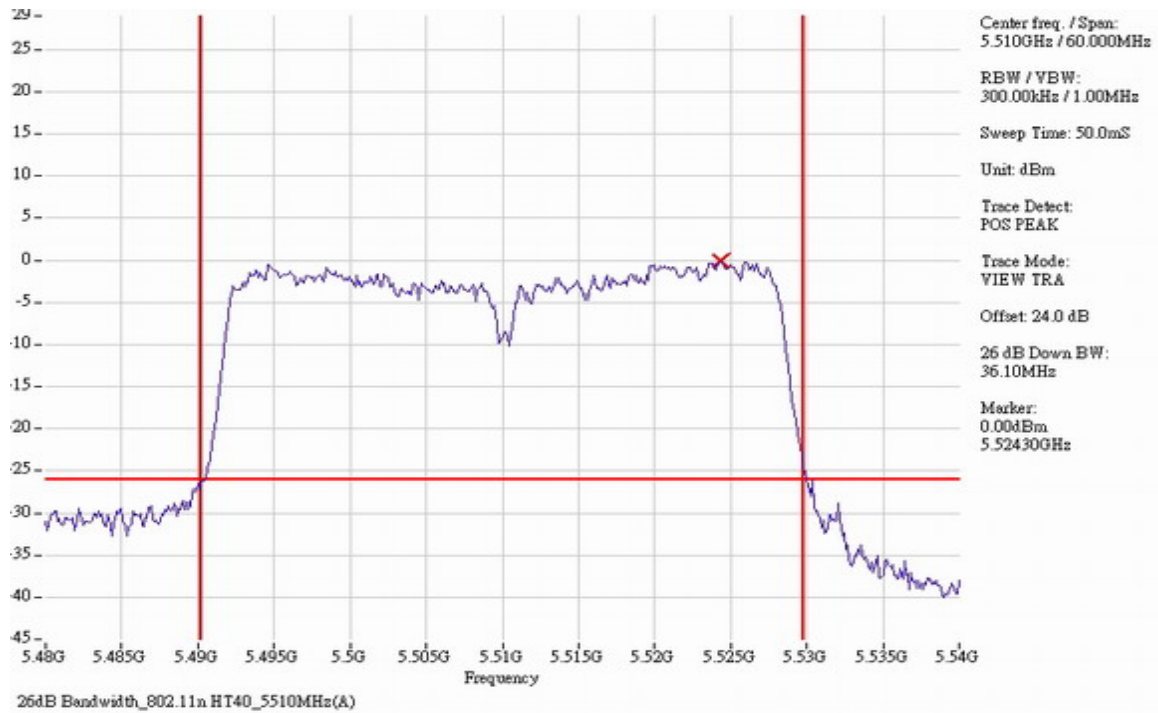
### 802.11 n (HT40) Chain A CH54 5270MHz



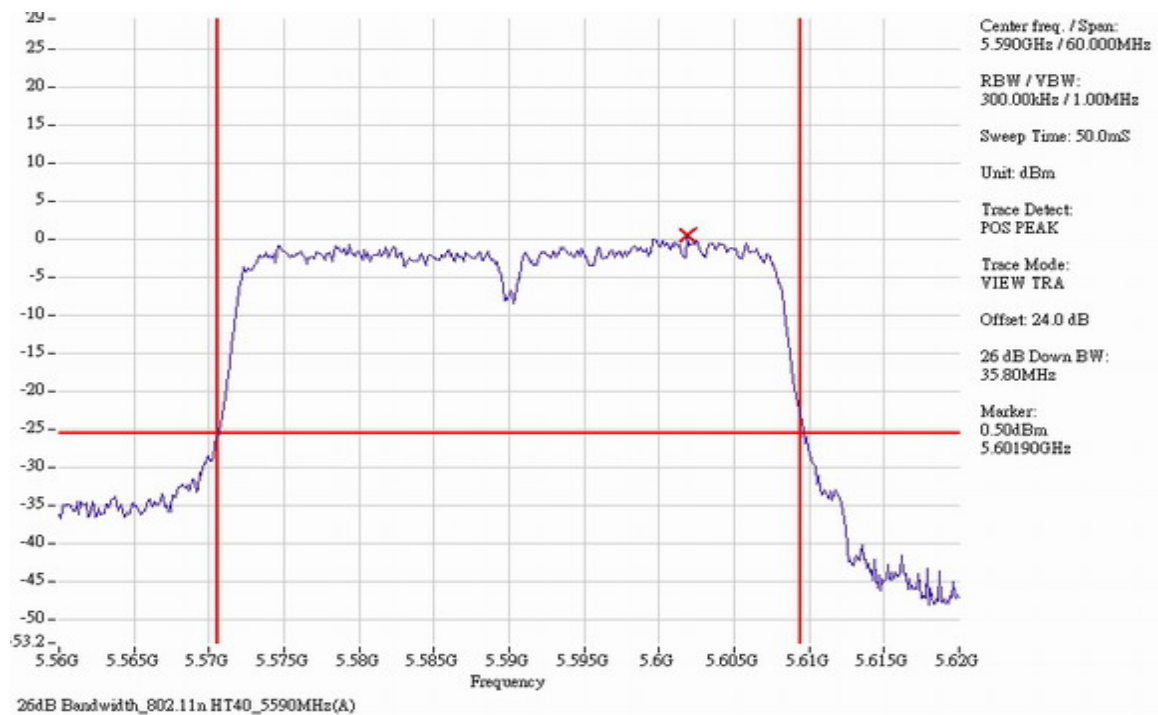
### 802.11 n (HT40) Chain A CH62 5310MHz



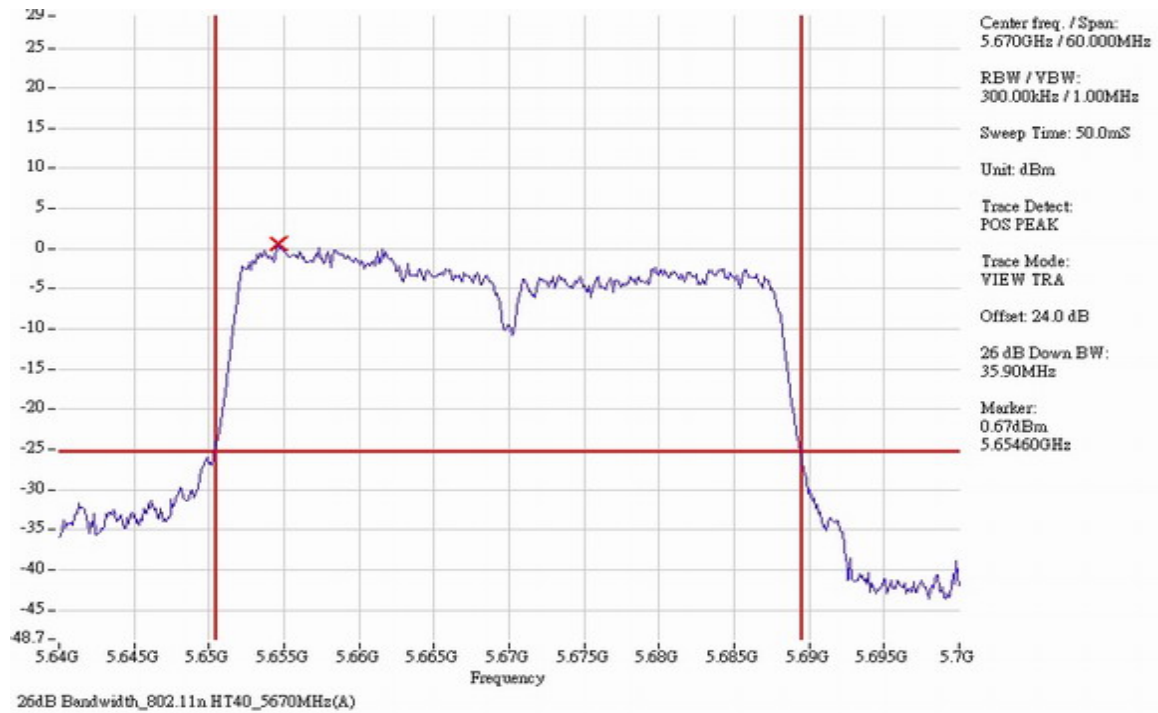
### 802.11 n (HT40) Chain A CH102 5510MHz



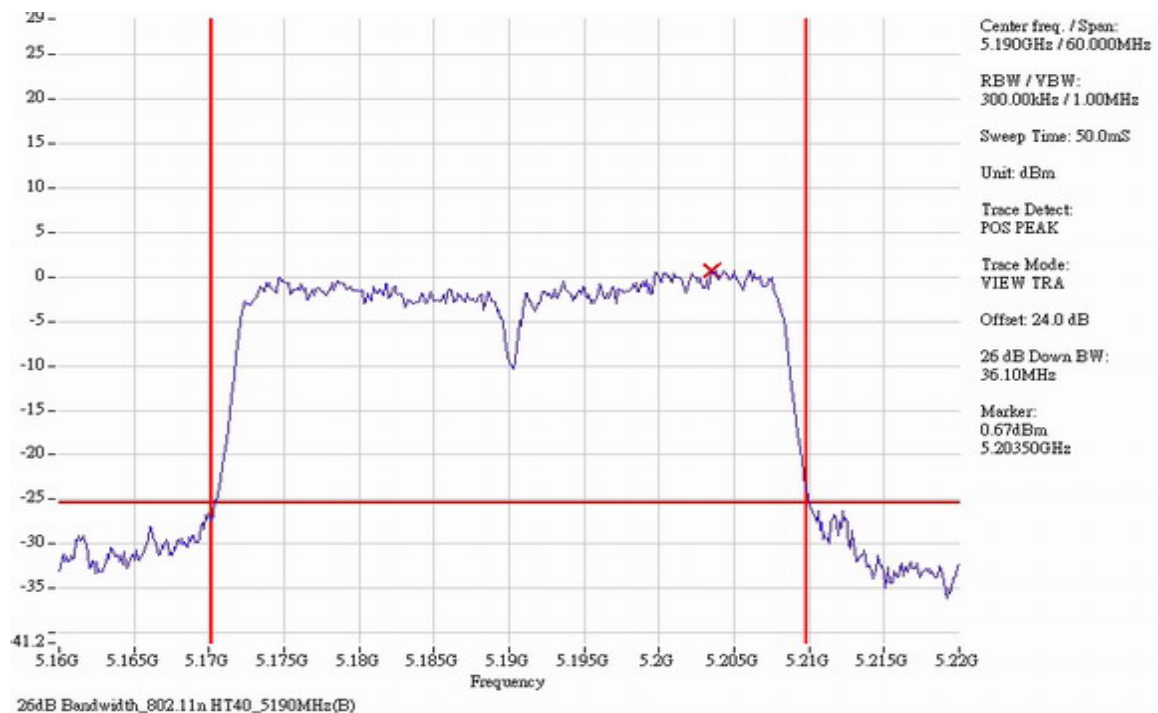
### 802.11 n (HT40) Chain A CH118 5590MHz



### 802.11 n (HT40) Chain A CH134 5670MHz

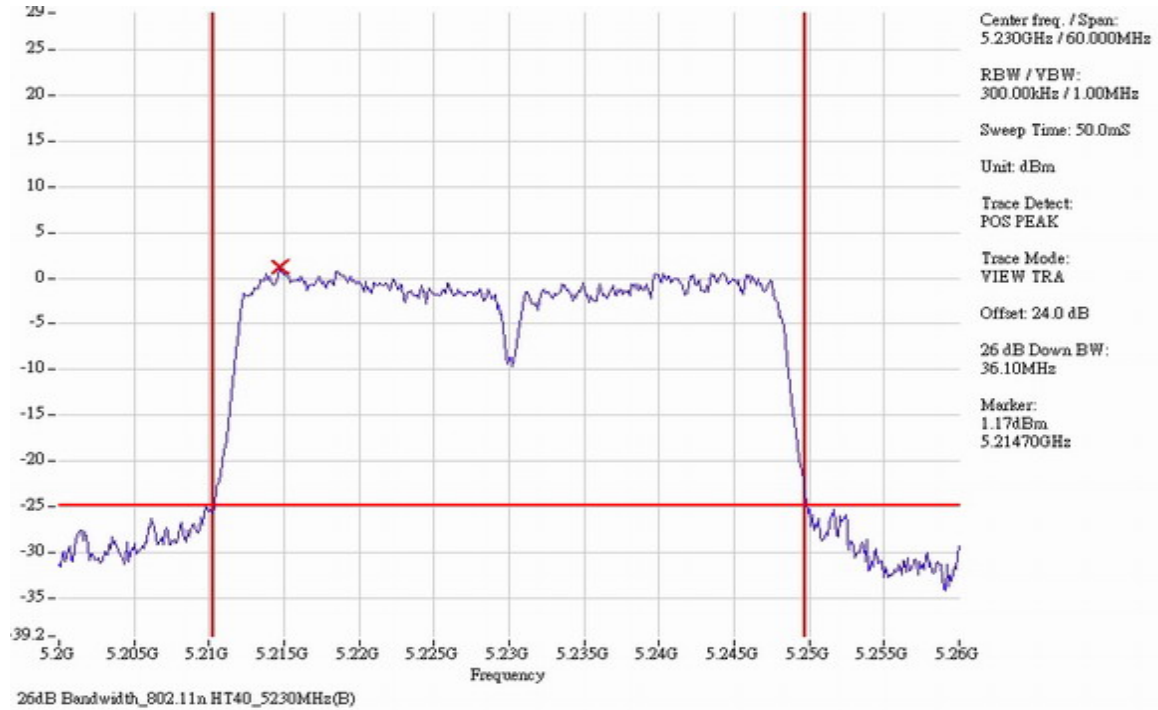


### 802.11 n (HT40) Chain B CH38 5190MHz

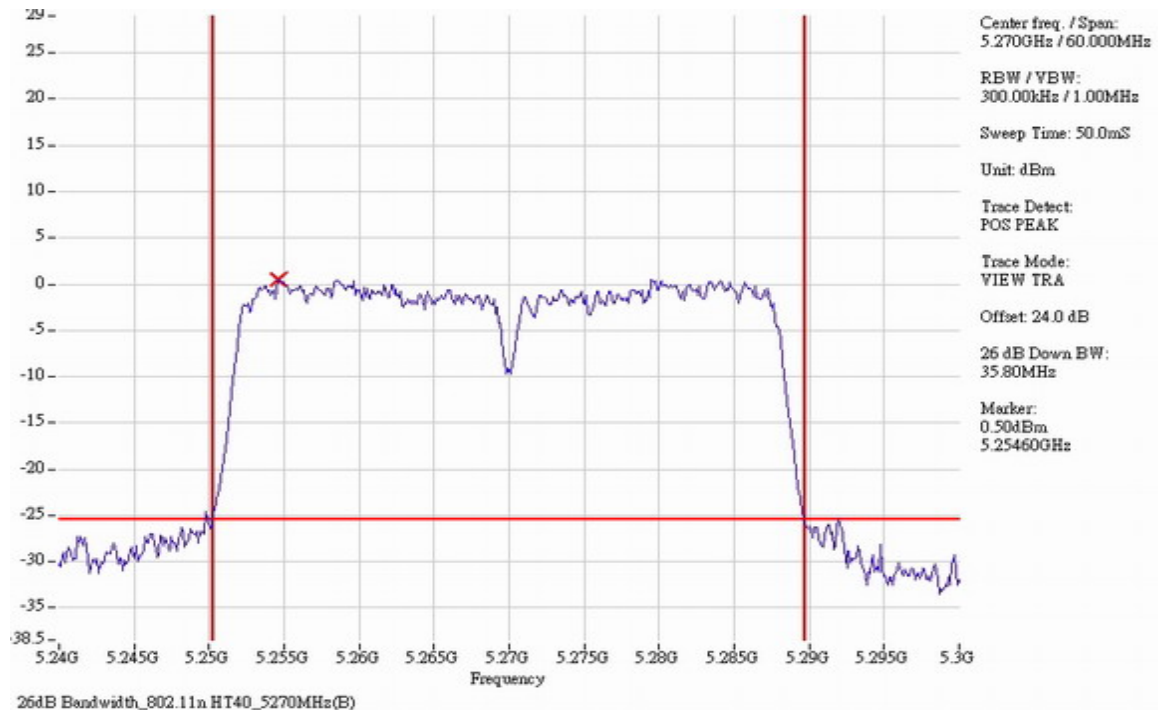




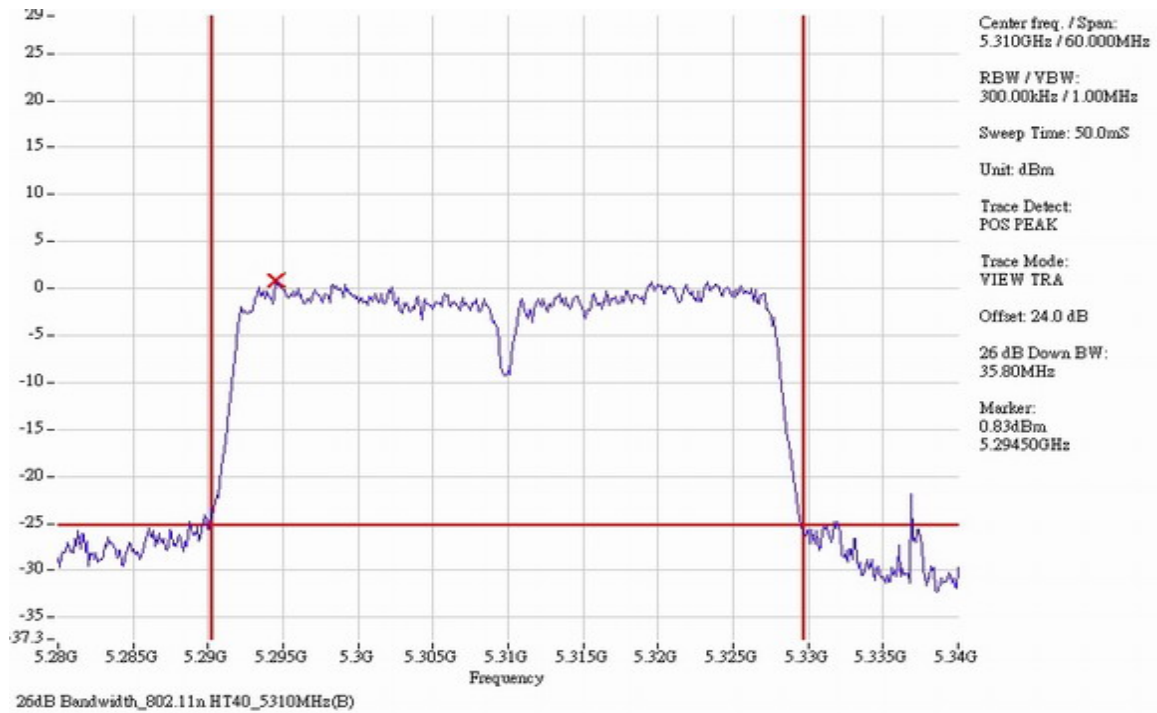
### 802.11 n (HT40) Chain B CH46 5230MHz



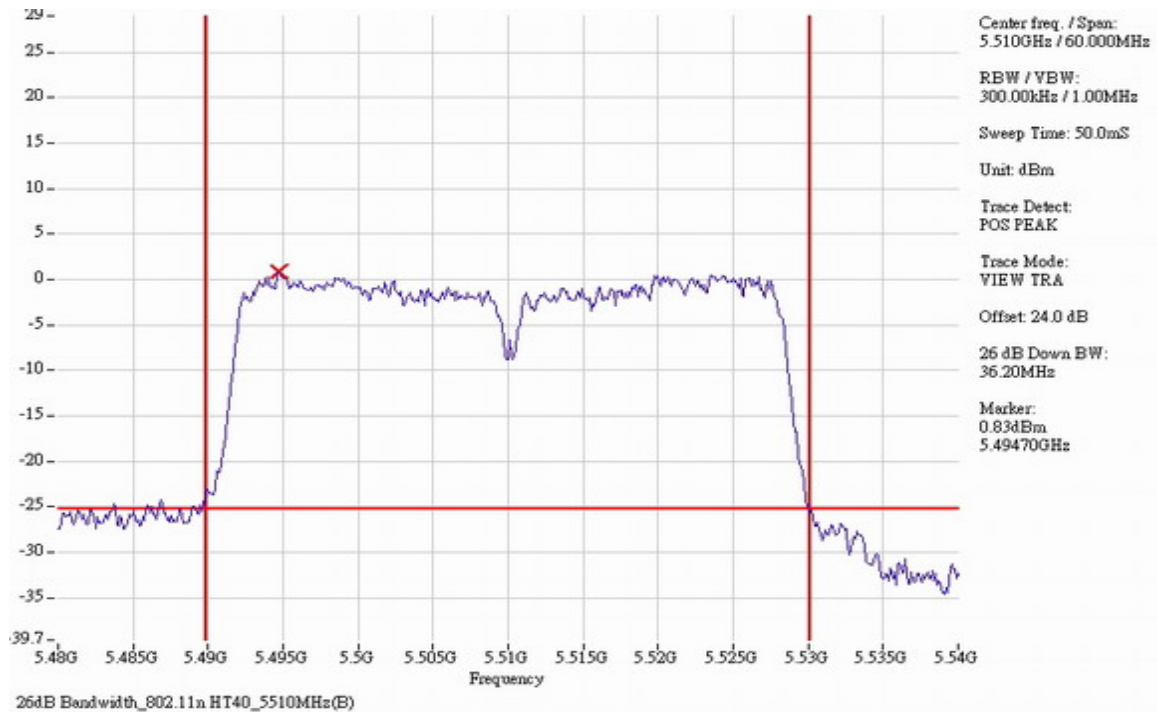
### 802.11 n (HT40) Chain B CH54 5270MHz



### 802.11 n (HT40) Chain B CH62 5310MHz

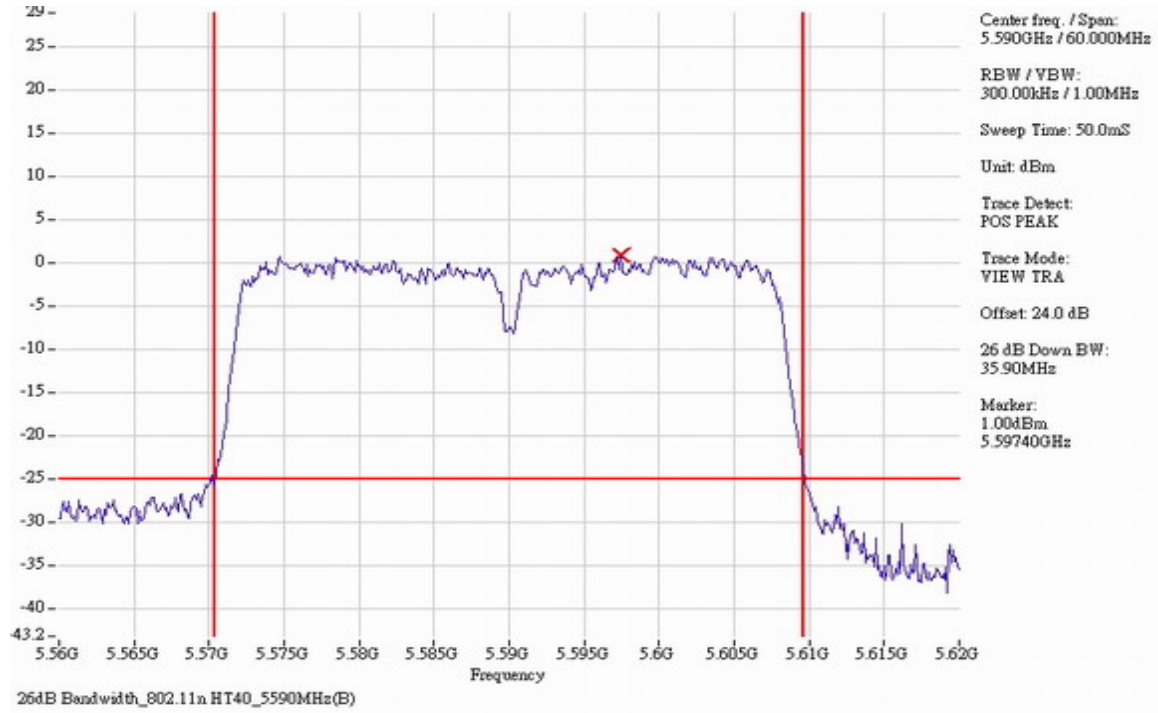


### 802.11 n (HT40) Chain B CH102 5510MHz

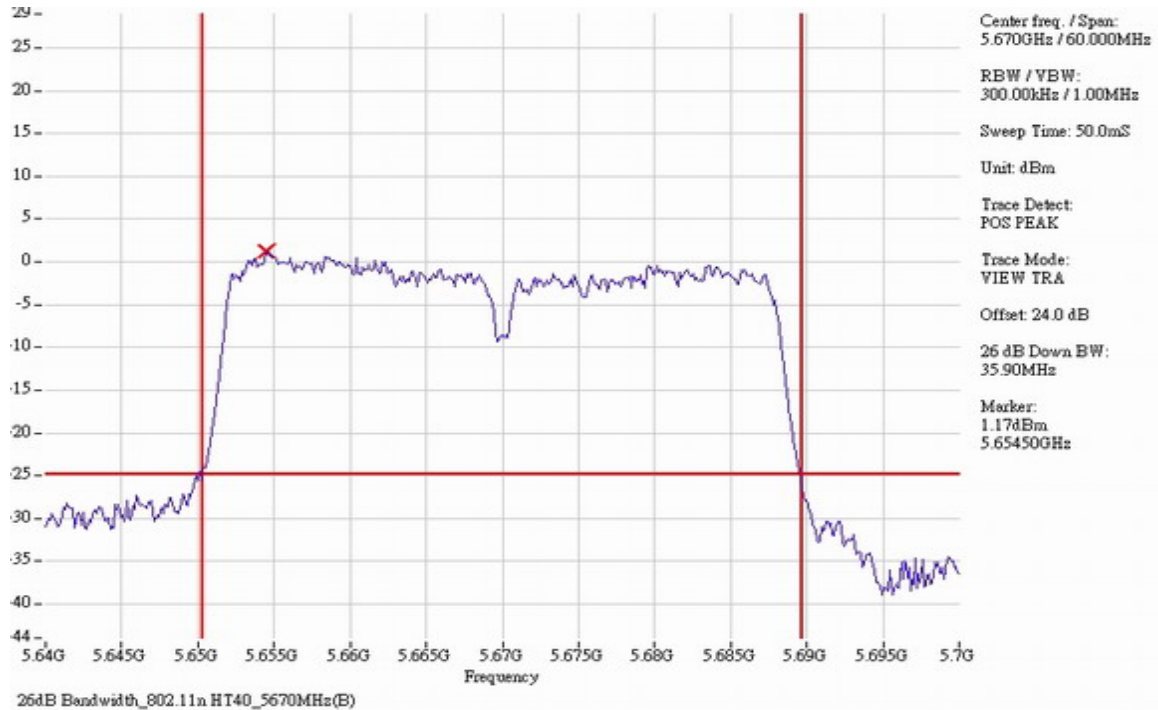




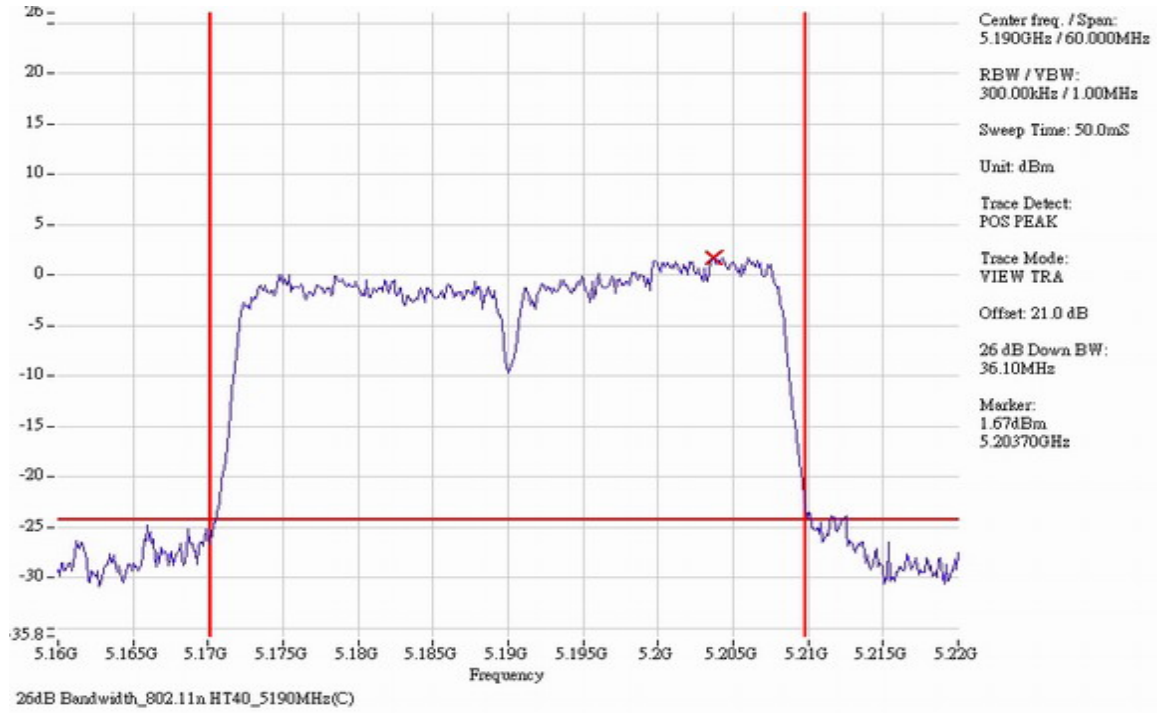
### 802.11 n (HT40) Chain B CH118 5590MHz



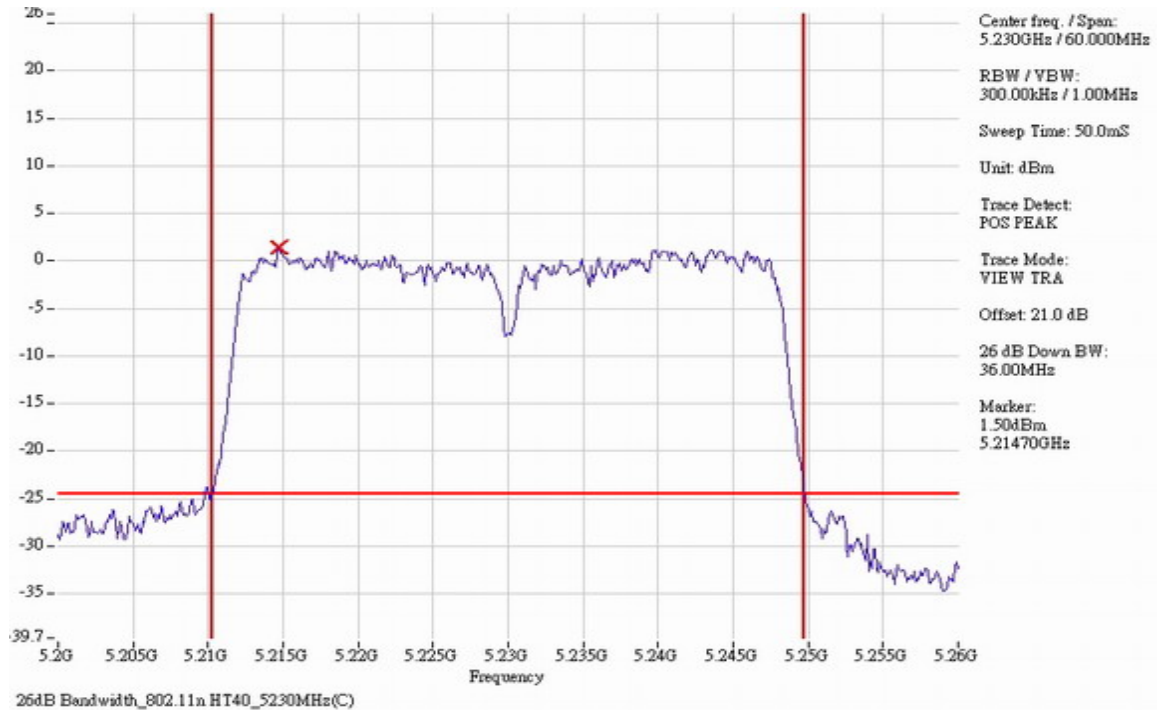
### 802.11 n (HT40) Chain B CH134 5670MHz



### 802.11 n (HT40) Chain C CH38 5190MHz



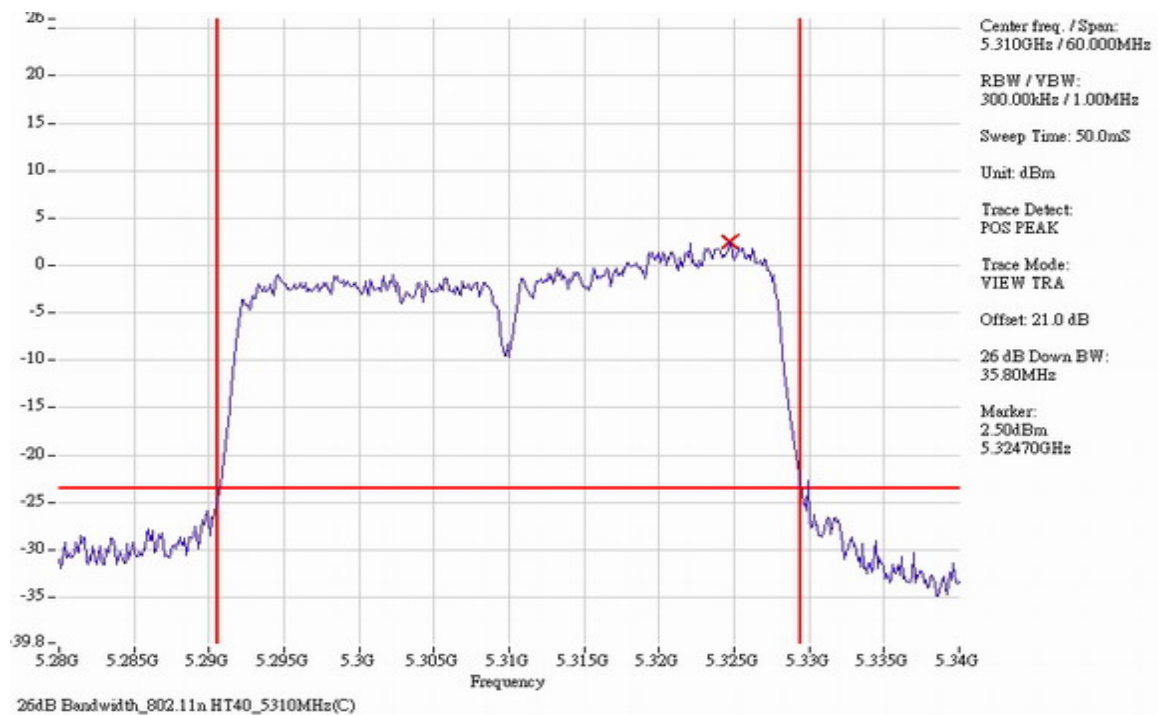
### 802.11 n (HT40) Chain C CH46 5230MHz



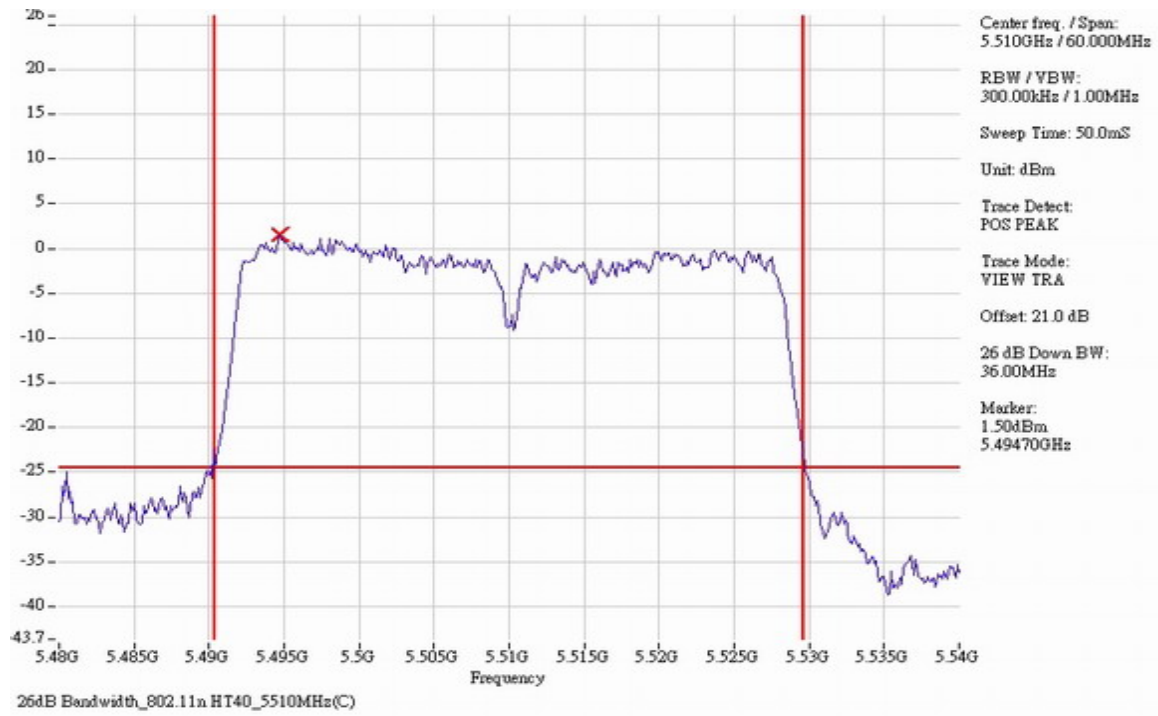
### 802.11 n (HT40) Chain C CH54 5270MHz



### 802.11 n (HT40) Chain C CH62 5310MHz



### 802.11 n (HT40) Chain C CH102 5510MHz



### 802.11 n (HT40) Chain C CH118 5590MHz

