



FCC TEST REPORT

According to

FCC Rules and Regulations

Part 15 Subpart E

Applicant : D-Link Corporation
Address : 17595 Mt. Herrmann Street, Fountain Valley,
CA 92708, USA
Equipment : SMB Wireless N Gigabit VPN Router
Model No. : DSR-1000N
FCC ID : KA2SR1000NA1
Trade Name : D-Link

Laboratory accreditation



- The test result refers exclusively to the test presented test model / sample.,
- The test result does not include DFS test for 5250 ~ 5350 MHz.
- Without written approval of **CerpPASS Technology Corp.**, the test report shall not be reproduced except in full.
- The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.



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CERTIFICATE OF COMPLIANCE

According to

FCC Rules and Regulations

Part 15 Subpart E

Applicant : D-Link Corporation
Address : 17595 Mt. Herrmann Street, Fountain Valley,
CA 92708, USA
Equipment : SMB Wireless N Gigabit VPN Router
Model No. : DSR-1000N
FCC ID : KA2SR1000NA1

I HEREBY CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.4** The equipment was **passed** the test performed according to **FCC Rules and Regulations Part 15 Subpart E (2008)**.

The test was carried out on Feb. 26, 2010 at CerpPASS Technology Corp.

Signature

Jonson Lee
EMC/RF B.U. Senior Manager



1. Report of Measurements and Examinations

1.1. List of Measurements and Examinations

For Frequency 5.15GHz ~ 5.25GHZ

Applied Standard : FCC Part 15, Subpart E (Section 15.407)		
FCC Rule	Description of Test	Result
15.407(b)(5)	. Conducted Emission	Pass
15.407(b)(1/2/3)(b)(5)	. Radiated Emission	Pass
15.407(a)(1/2/3)	. Peak Transmit Power	Pass
15.407(a)(6)	. Peak Power Excursion	Pass
15.407(a)(1/2/3)	. Peak Power Spectral Density	Pass
15.407(g)	. Frequency Stability	Pass



2. Test Configuration of Equipment under Test

2.1. Feature of Equipment under Test

WAN Interface:

- 2 10/100/1000 Mbps Gigabit Ethernet port for xDSL/Cable connection
- Complies with IEEE 802.3ab specification
- Support IEEE802.3x flow control in full duplex mode
- Support Auto Negotiation
- Support Auto MDI/MDIX

LAN Interface:

- Four ports 10/100/1000 Mbps Gigabit Ethernet switch
- Complies with IEEE 802.3ab specification
- Support IEEE802.3x flow control in full duplex mode
- Support Auto Negotiation
- Support Auto MDI/MDIX

Wireless Interface (2.4 GHz / 5 GHz):

- Follow IEEE 802.11n Draft 2.0 specification (TBD)
- Compatible with IEEE 802.11a specification
- Compatible with IEEE 802.11b specification
- Compatible with IEEE 802.11g specification

USB Interface:

- 2* Complies with USB 2.0 (High Speed) specification

Key Components:

- CPU: Cavium CN5010-500BG564-SCP
- Ethernet Switch: Broadcom BCM53115S
- Ethernet Transceiver: Broadcom B5081
- Flash: MXIC MX29GL256EHT2I-90Q
- DDR2: Samsung K4T1G164QE-HCE6
- USB Controller: NEC UPD720114GA-YEU-A
- RTC: Dallas/Maxim DS1337S+
- Clock Generator: IDT ICS8430S07AKILF

**2.2. RF Spec.**

Type of Modulation	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g: OFDM (64-QAM, 16-QAM, QPSK, BPSK) 802.11a: OFDM (64-QAM, 16-QAM, QPSK, BPSK) 802.11n draft 2.0: OFDM (64-QAM, 16-QAM, QPSK, BPSK)
Data Rate	802.11b (11, 5.5, 2, 1 Mbps) 802.11g (54, 48, 36, 24, 18, 12, 9, 6 Mbps) 802.11a (54, 48, 36, 24, 18, 12, 9, 6 Mbps) 802.11n draft 2.0, 20MHz (130, 117, 104, 78, 58.5, 52, 39, 26, 19.5, 6.5 Mbps) 802.11n draft 2.0, 40MHz (270, 243, 216, 162, 135, 121.5, 108, 81, 54, 40, 27, 13.5 Mbps)
Number of Channels	802.11b/g/n draft 2.0, 20MHz: -USA, Canada and Taiwan: CH 1 ~ 11 (11channels) -Most European Countries: CH 1 ~ 13 (13channels) -France: CH 1 ~ 7 (7channels) 802.11n draft 2.0, 40MHz: -USA, Canada and Taiwan: CH 3 ~ 9 (7channels) -Most European Countries: CH 1 ~ 13 (13channels) -France: CH 3 ~ 5 (3channels) 802.11a/n draft 2.0, 20MHz: -USA, Canada and Taiwan: CH 36,40,44,48 (4channels) -Most European Countries: CH 36,40,44,48 (4channels) -France: CH 36,40,44,48 (4channels) 802.11a/n draft 2.0, 40MHz: -USA, Canada and Taiwan: CH 38,42,46 (3channels) -Most European Countries: CH 38,42,46 (3channels) -France: CH 38,42,46 (3channels)
Frequency Band	FCC/IC: 2412 ~ 2462 MHz, 5150 ~ 5250 MHz, 5725 ~ 5850 MHz EU: 2412 ~ 2472 MHz, 5150 ~ 5250 MHz
Output Power	FCC/IC: 802.11b: 18.36 dBm, 802.11g: 16.30 dBm, 802.11n: 17.31 dBm 802.11a: 16.31 dBm, 802.11an: 13.89 dBm. CE: 802.11b: 18.81 dBm, 802.11g: 17.04 dBm, 802.11n: 17.66 dBm 802.11a: 16.38 dBm, 802.11an: 12.73 dBm
Antenna Type and Gain	Dipole antenna / Ant1: 2dBi; Ant2: 2dBi; Ant3: 2dBi



2.3. Carrier Frequency of Channels

802.11a, 802.11an HT20 (5150 ~ 5250MHz)

Channel	Frequency(MHz)	Channel	Frequency(MHz)
36	5180	48	5240
40	5200	---	---
44	5220	---	---

802.11 an HT40 (5150 ~ 5250MHz)

Channel	Frequency(MHz)	Channel	Frequency(MHz)
38	5190	46	5230
42	5210	---	---

2.4. Test Mode and Test Software

- During testing, the interface cables and equipment positions were varied according to ANSI C63.4.
- The complete test system included remote workstation, USB2.0 HDD, WAN Load and EUT for RF test. The remote workstation included Notebook.
- An executive program, ping.exe under WIN XP, which transmits and receives data to the remote workstation through LAN (1Gbps), WAN (1Gbps) and Wireless (270Mbps).
- The following test modes were performed for test:
 - 802.11a/an, HT20: CH 36: 5180MHz, CH 44: 5220MHz, CH 48: 5240MHz
 - 802.11an, HT40: CH 38: 5190MHz, CH 46: 5230MHz

2.5. Description of Test System

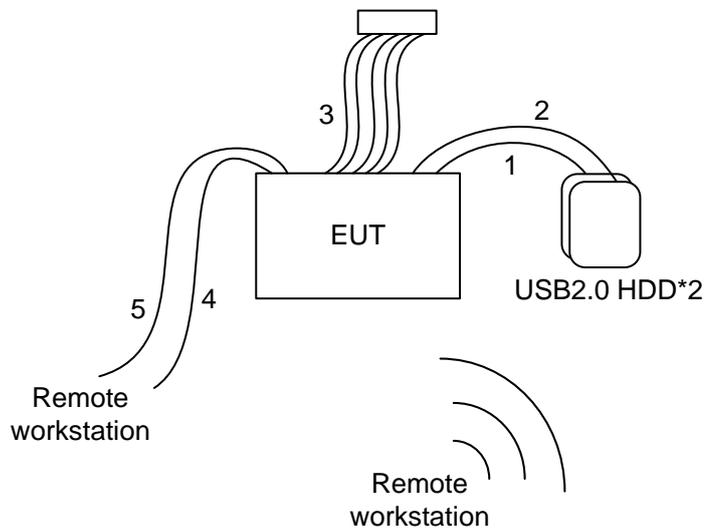
Device	Manufacturer	Model No.	Description
USB2.0 HDD*2	Terasys	F-12UF	USB Cable, Shielding 1.6 m
WAN Load	CAMEO	N/A	N/A
Remote Workstation			
Notebook	IBM	R40	Power Cable, Unshielding 1.8 m
Notebook	DELL	PP10L	Power Cable, Unshielding 1.8 m
Notebook	TOSHIBA	PSA50T-05M00C	Power Cable, Unshielding 1.8 m

Use Cable:

Cable	Quantity	Description
RJ45	5	Unshielding, 1.8m
RJ45	2	Unshielding, 10m



2.6. Connection Diagram of Test System



1. The USB cable is connected from EUT to the USB2.0 HDD.
 2. The USB cable is connected from EUT to the USB2.0 HDD.
 3. These RJ45 cables (*5) are connected from EUT to the WAN Load.
 4. The RJ45 cable (WAN) is connected from EUT to the Remote workstation.
 5. The RJ45 cable (LAN) is connected from EUT to the Remote workstation.
- * The EUT keeps to transmit and receive data to remote workstation by Wireless.



2.7. General Information of Test

Test Site:	CerpPASS Technology Corp. 2F-11, No. 3, Yuan Qu St. (Nankang Software Park), Taipei, Taiwan 115, R.O.C.
Test Site Location (OATS1-SD):	No. 7-2, Moshihkeng, Fongtian Village, Shihding Township, Taipei County, Taiwan, R.O.C.
FCC Registration Number:	TW1049, TW1056, 982971, 488071
IC Registration Number:	4934C-1, 4934D-1
VCCI Registration Number:	T-543 for Telecommunication Test C-3328 for Conducted emission test R-3013 for Radiated emission test
Test Voltage:	AC 120V / 60Hz
Test in Compliance with:	ANSI C63.4-2003 FCC Part 15 Subpart E
Frequency Range Investigated:	AC Power Conducted Emission : from 150kHz to 30 MHz Radiated and conducted Emission: from 30 MHz to 40 GHz
Test Distance:	The test distance of radiated emission from antenna to EUT is 3 M



3. Antenna Requirements

3.1. Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.407 (a), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

3.2. Antenna Construction and Directional Gain

Antenna 1, 2, 3: Dipole Antenna, 2 dBi (2.4GHz Band), 2 dBi (5GHz Band)

Note:

1. For the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or $4 \text{ dBm} + 10\log B$, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

2. For the band 5.725-5.825 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W or $17 \text{ dBm} + 10\log B$, where B is the 26-dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 17 dBm in any 1-MHz band.

If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain up to 23 dBi without any corresponding reduction in the transmitter peak output power or peak power spectral density.

For fixed, point-to-point U-NII transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in peak transmitter power and peak power spectral density for each 1 dB of antenna gain in excess of 23 dBi would be required.

Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.



4. Test of Conducted Emission

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-2003 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

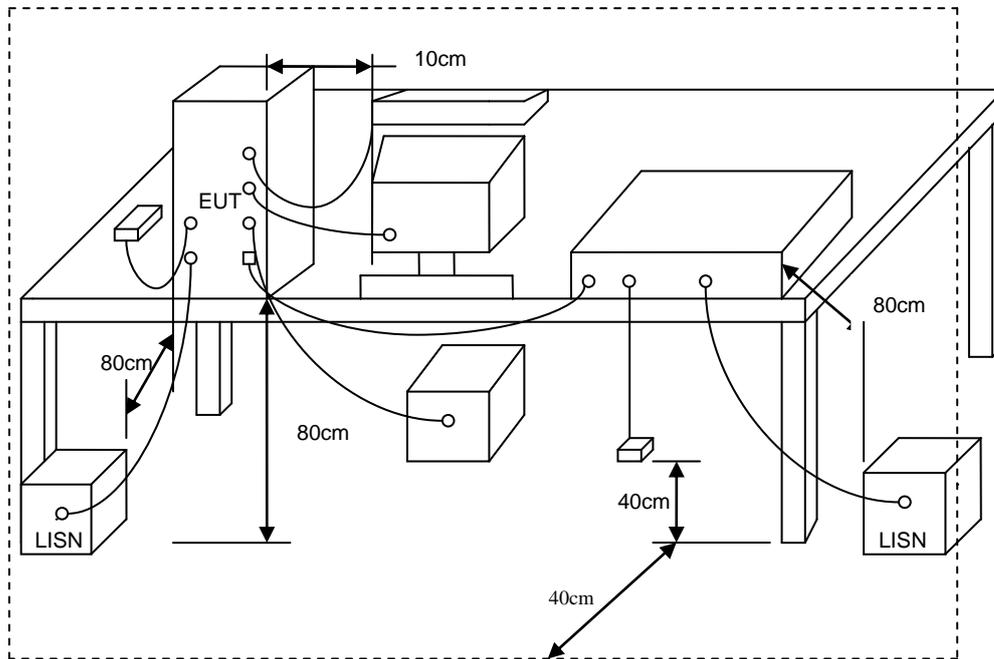
*Decreases with the logarithm of the frequency.

4.1. Test Procedures

- a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- c. All the support units are connecting to the other LISN.
- d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- e. The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
- f. Both sides of AC line were checked for maximum conducted interference.
- g. The frequency range from 150 kHz to 30 MHz was searched.
- h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.



4.2. Typical Test Setup Layout of Conducted Emission



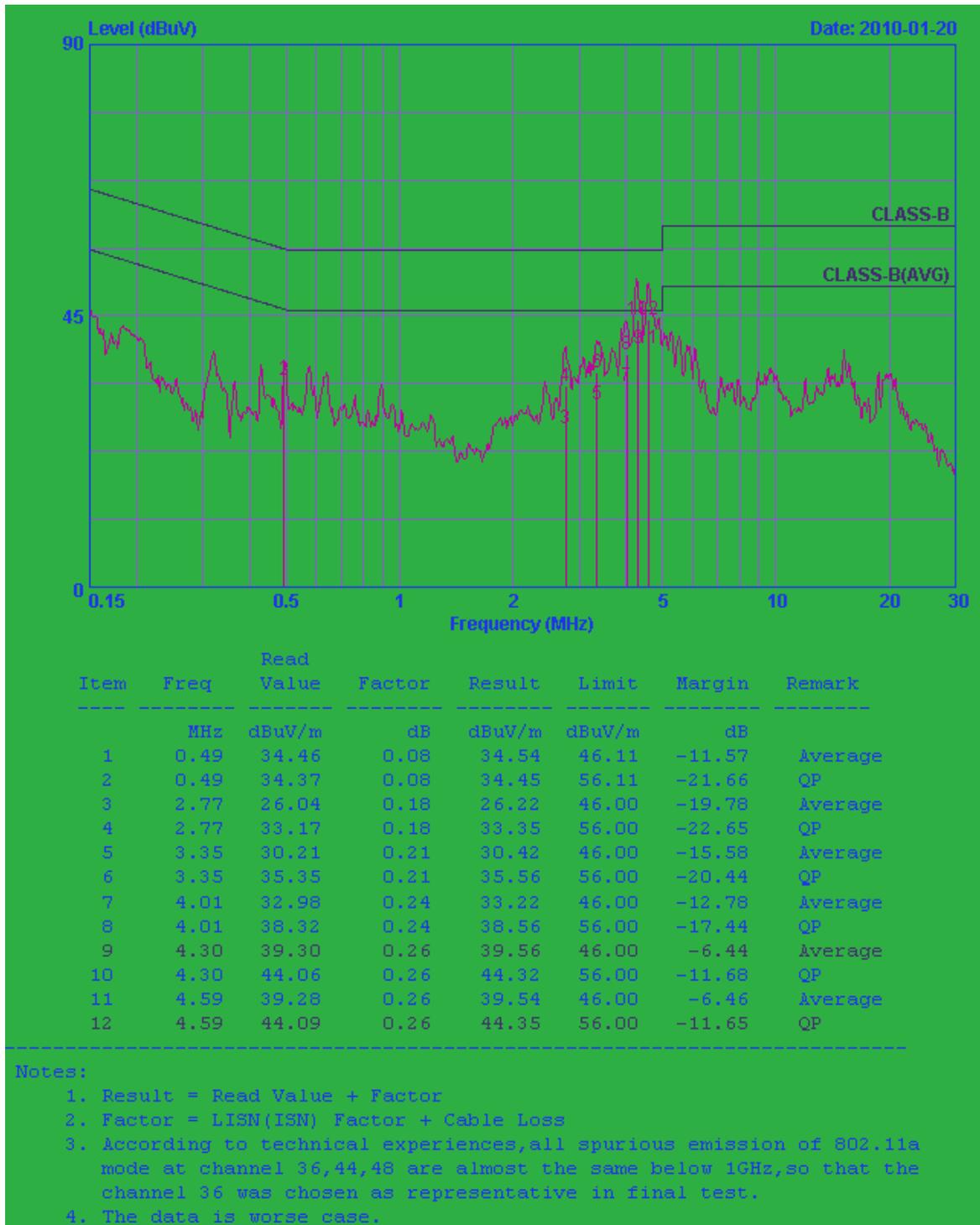
4.3. Measurement Equipment

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
EMI Receiver	R&S	ESCI	100821	2010/01/21	2011/01/20
LISN	Schwarzbeck	NSLK 8127	8127-516	2009/05/15	2010/05/14
LISN	ROLF HEINE	NNB-2/16Z	03/10058	2009/04/18	2010/04/17



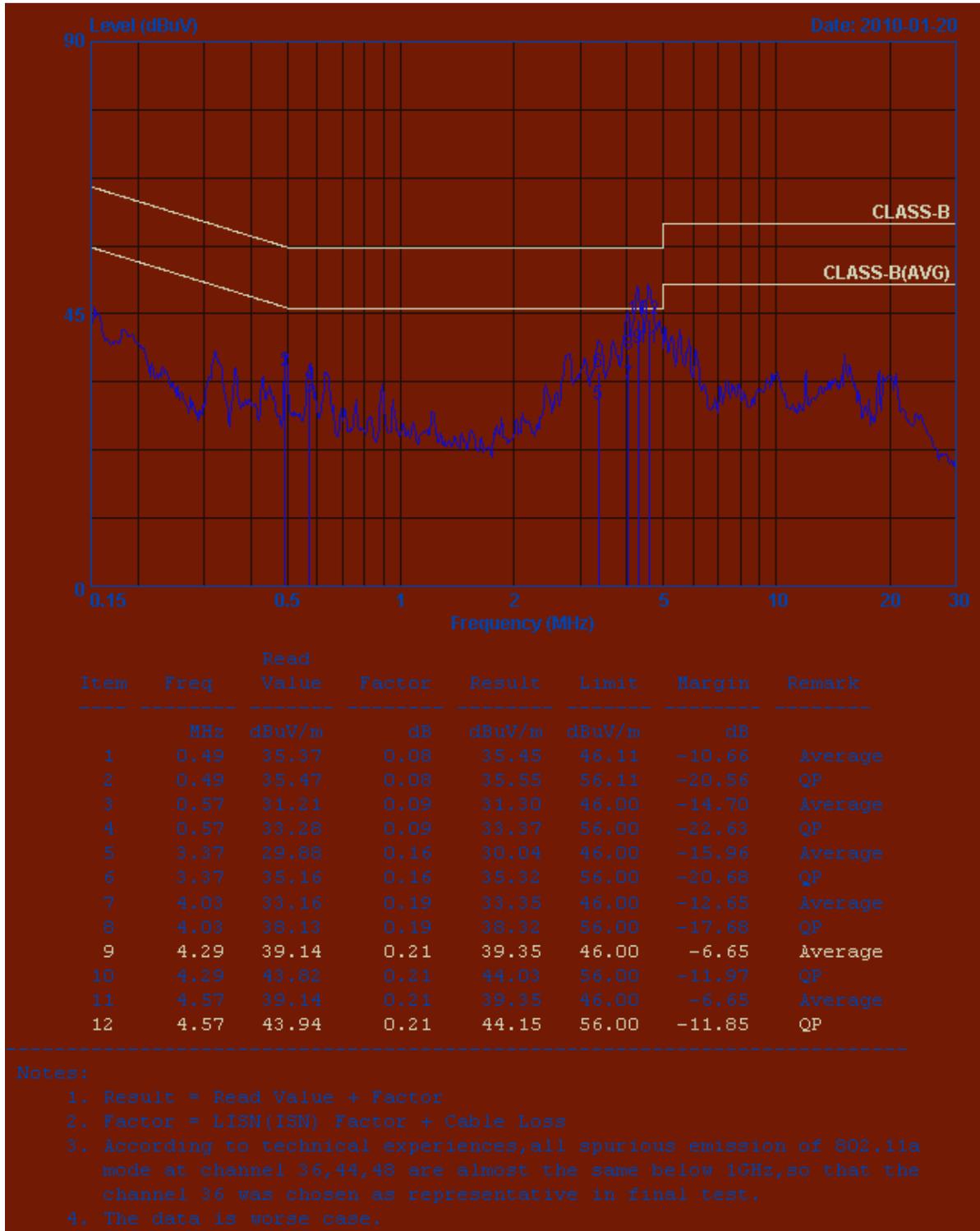
4.4. Test Result and Data

Power	: AC 120V	Pol/Phase	: LINE
Test Mode	: 802.11a, CH36	Temperature	: 24 °C
Memo	:	Humidity	: 70 %





Power	: AC 120V	Pol/Phase	: NEUTRAL
Test Mode	: 802.11a, CH36	Temperature	: 24 °C
Memo	:	Humidity	: 70 %



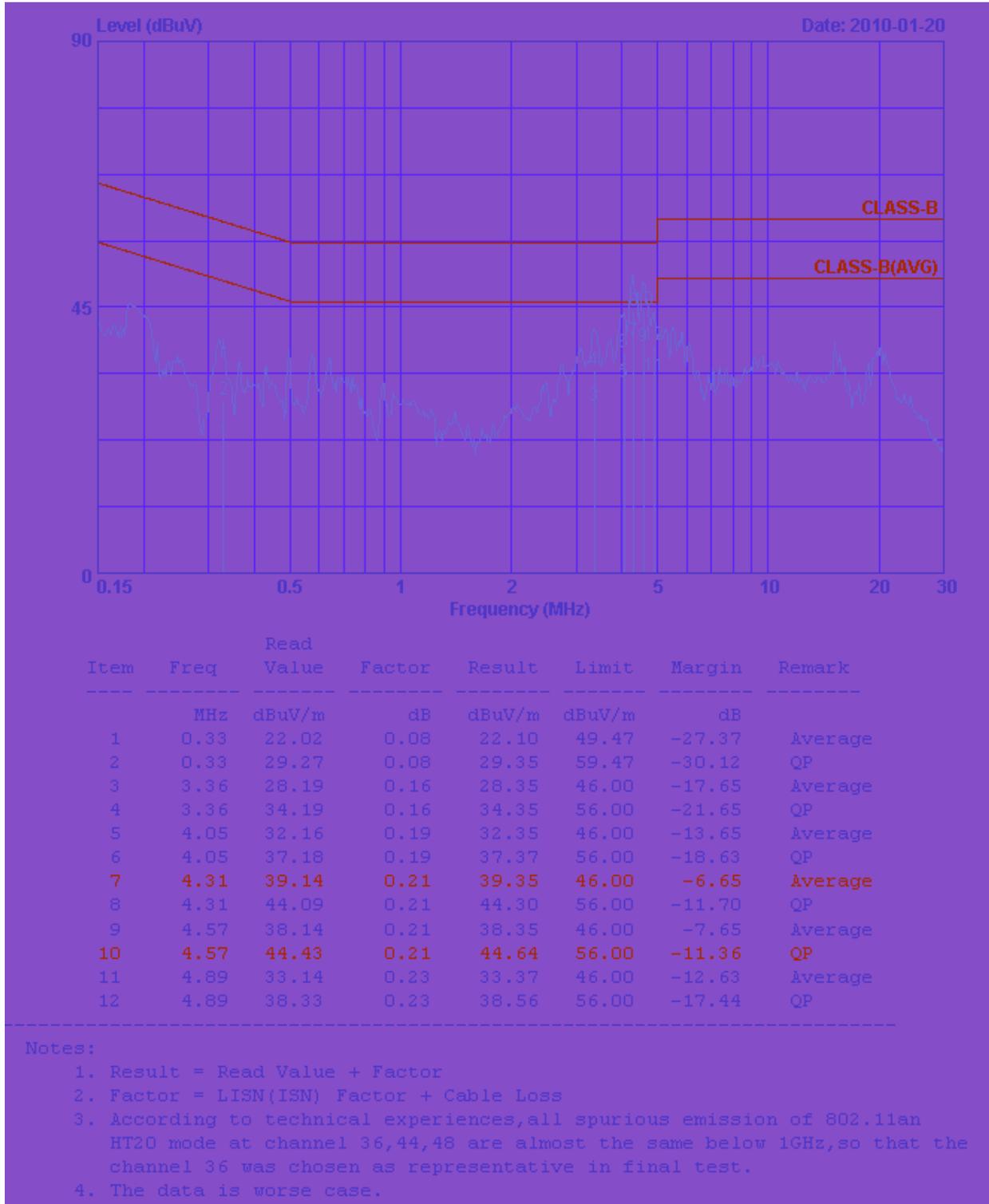


Power	: AC 120V	Pol/Phase	: LINE
Test Mode	: 802.11an HT20, CH36	Temperature	: 24 °C
Memo	:	Humidity	: 70 %



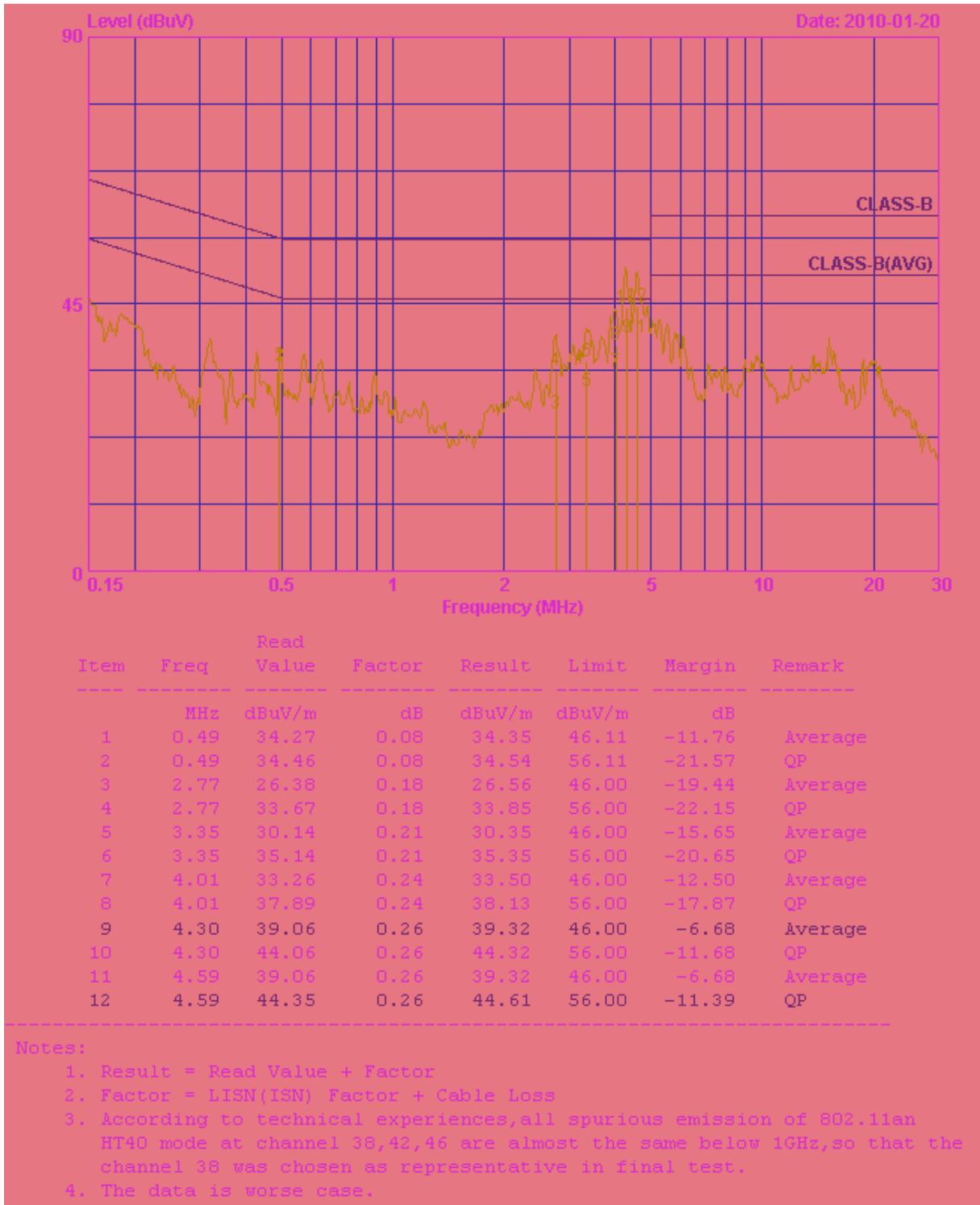


Power	: AC 120V	Pol/Phase	: NEUTRAL
Test Mode	: 802.11an HT20, CH36	Temperature	: 24 °C
Memo	:	Humidity	: 70 %





Power	: AC 120V	Pol/Phase	: LINE
Test Mode	: 802.11an HT40, CH38	Temperature	: 24 °C
Memo	:	Humidity	: 70 %





Power	: AC 120V	Pol/Phase	: NEUTRAL
Test Mode	: 802.11an HT40, CH38	Temperature	: 24 °C
Memo	:	Humidity	: 70 %

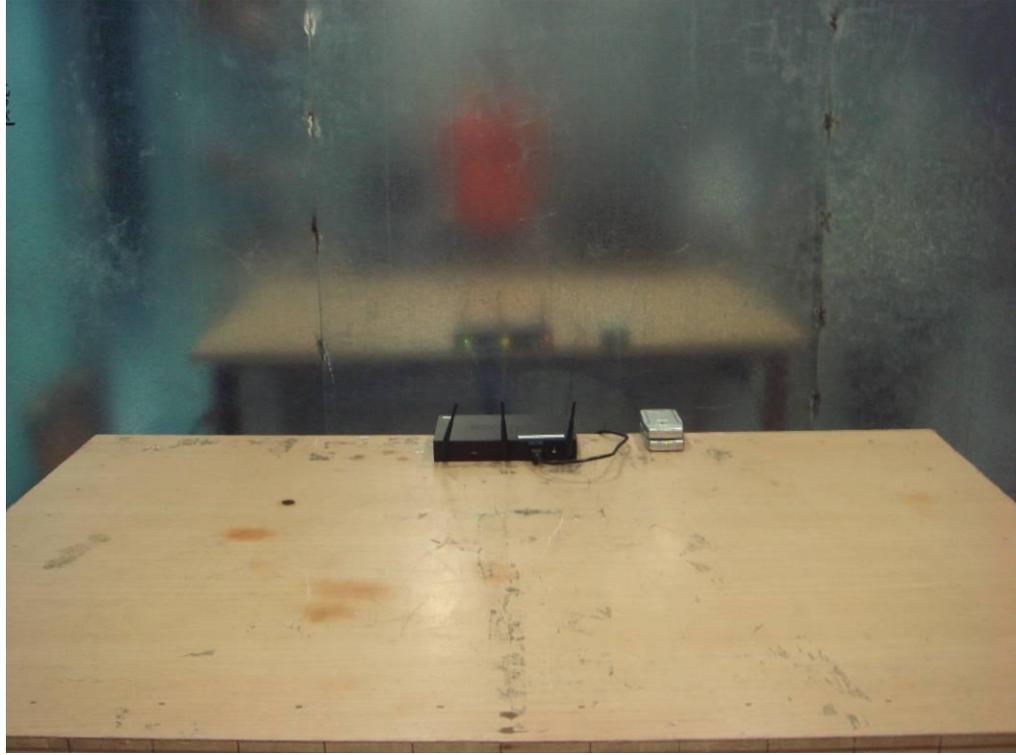


Test engineer: Ben

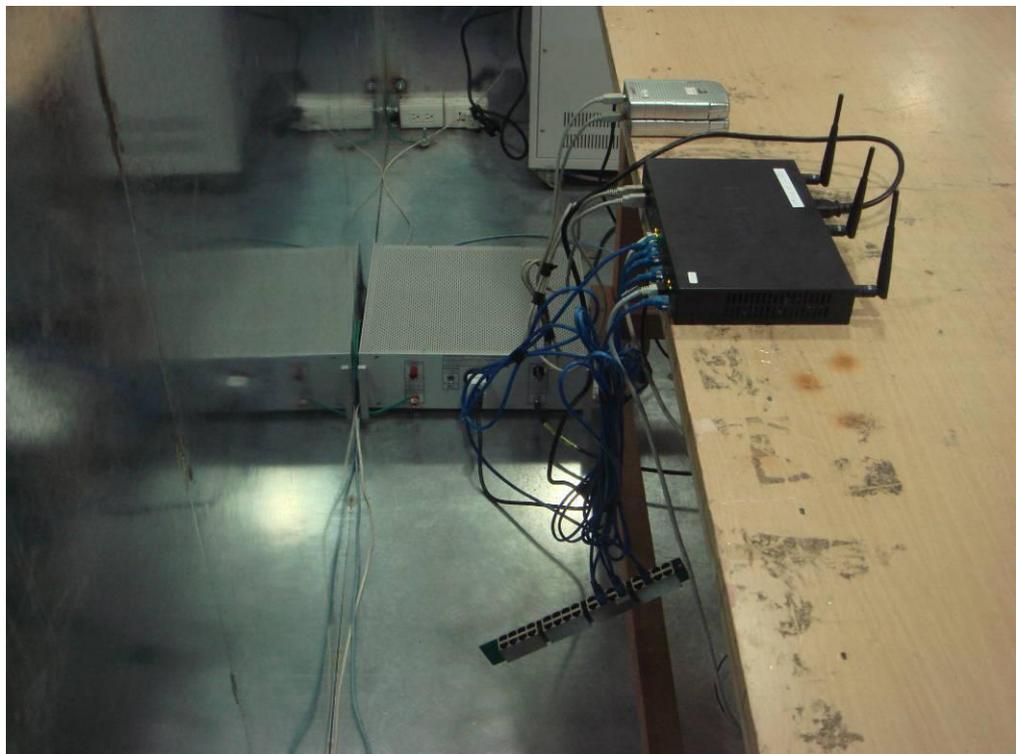


4.5. Test Photographs

Front View



Rear View





5. Test of Radiated Emission

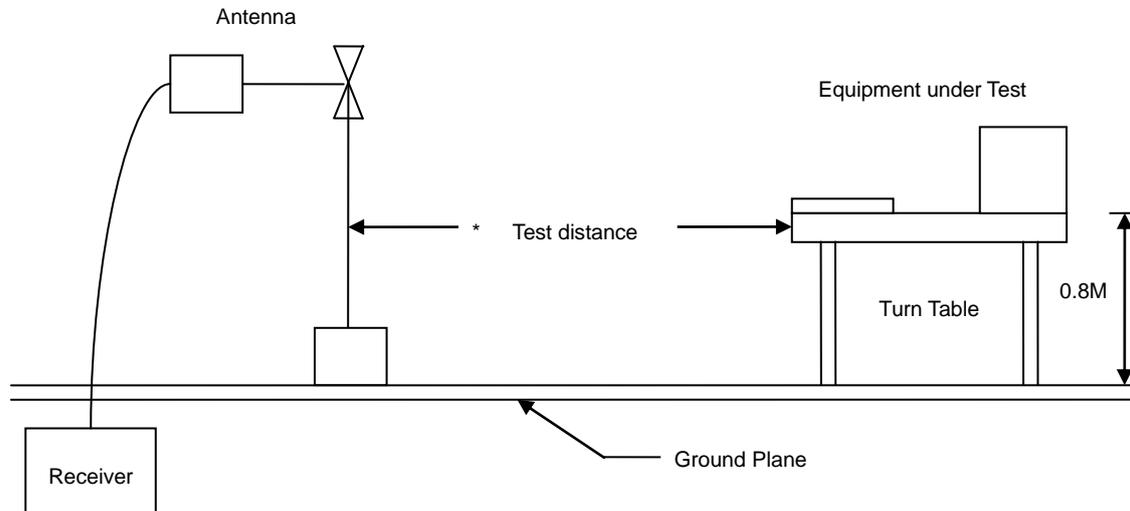
Radiated emissions from 30 MHz to 40 GHz were measured according to the methods defines in ANSI C63.4-2003. The EUT was placed, 0.8 meter above the ground plane, as shown in section 1.4.2. The interface cables and equipment positions were varied within limits of reasonable applications to determine the positions producing maximum radiated emissions

5.1. Test Procedures

- a. The EUT was placed on a rotatable table top 0.8 meter above ground.
- b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- c. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
- h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.



5.2. Typical Test Setup Layout of Radiated Emission



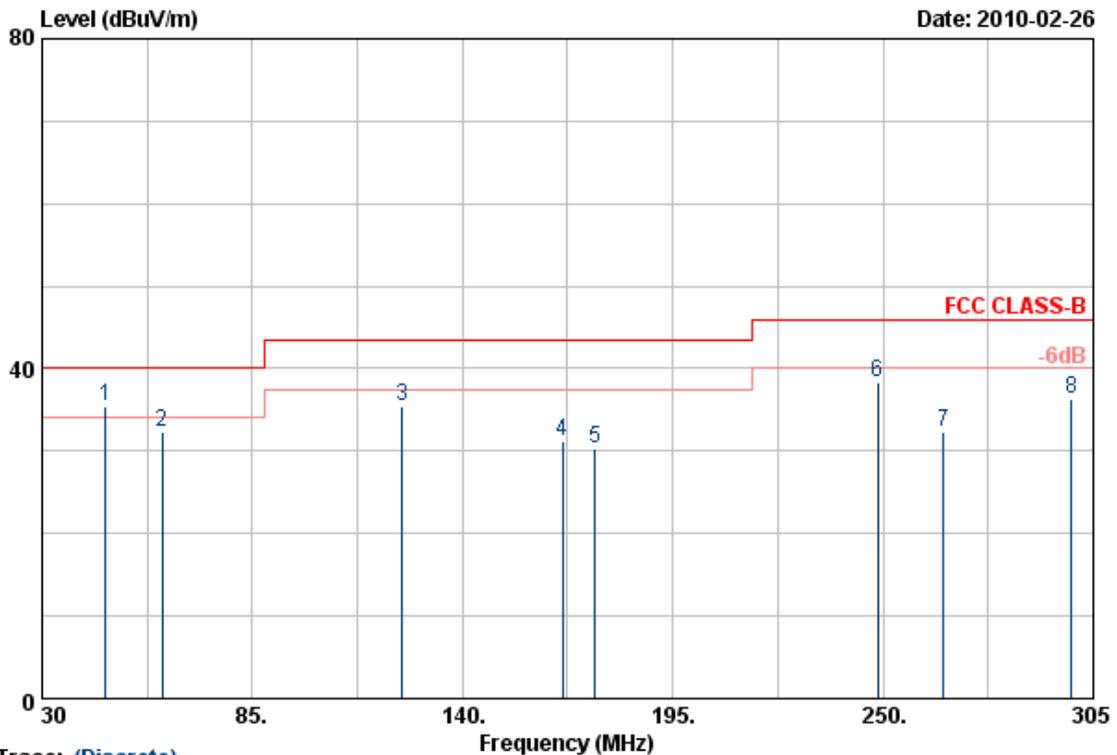
5.3. Measurement Equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
Bilog Antenna	Schaffner	CBL6112B	2840	2009/05/14	2010/05/13
Amplifier	Agilent	8447D	2944A10593	2009/05/21	2010/05/20
EMI Receiver	R&S	ESCI	100443	2010/01/14	2011/01/13
Spectrum Analyzer	R&S	FSP40	100047	2009/03/26	2010/03/25
Horn Antenna	EMCO	3115	31589	2009/05/04	2010/05/03
Preamplifier	EMCO	EMCO12635	980029	2009/11/06	2010/11/05



5.4. Test Result of Radiated Emission

Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: 802.11a, CH36	Temperature	: 20 °C
Memo	:	Humidity	: 65 %



Trace: (Discrete)

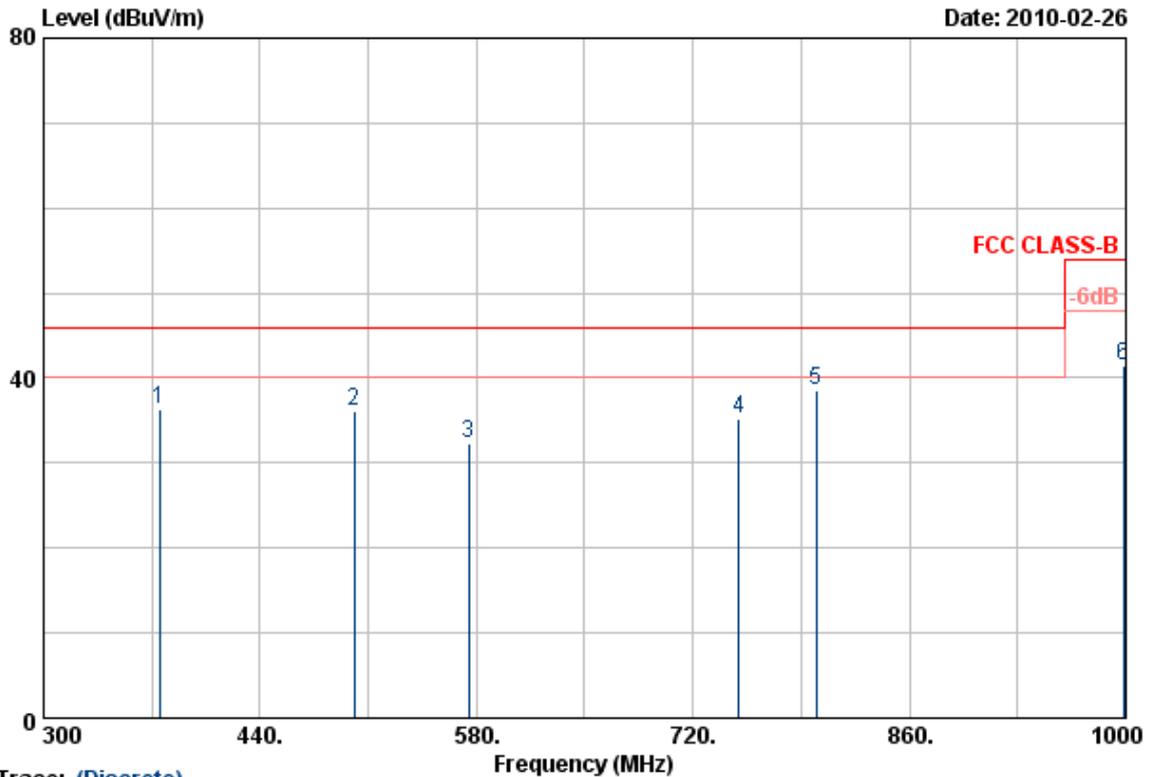
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	46.50	50.72	-15.38	35.34	40.00	-4.66	QP	100	46
2	61.35	54.40	-22.18	32.22	40.00	-7.78	QP	100	46
3	124.33	53.69	-18.36	35.33	43.50	-8.17	QP	100	88
4	166.13	49.77	-18.53	31.24	43.50	-12.26	Peak	100	88
5	174.65	49.65	-19.32	30.33	43.50	-13.17	QP	100	111
6	248.63	55.63	-17.30	38.33	46.00	-7.67	QP	100	111
7	265.95	49.12	-16.89	32.23	46.00	-13.77	QP	100	77
8	299.23	52.75	-16.38	36.37	46.00	-9.63	QP	100	77

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. According to technical experiences, all spurious emission of 802.11a/an mode at Band1~4 channel are almost the same below 1GHz, so that the channel 36 or 38(for HT40), channel 149 or 151(for HT40) was chosen as representative in final test.
5. The data is worse case.



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: 802.11a, CH36	Temperature	: 20 °C
Memo	:	Humidity	: 65 %



Trace: (Discrete)

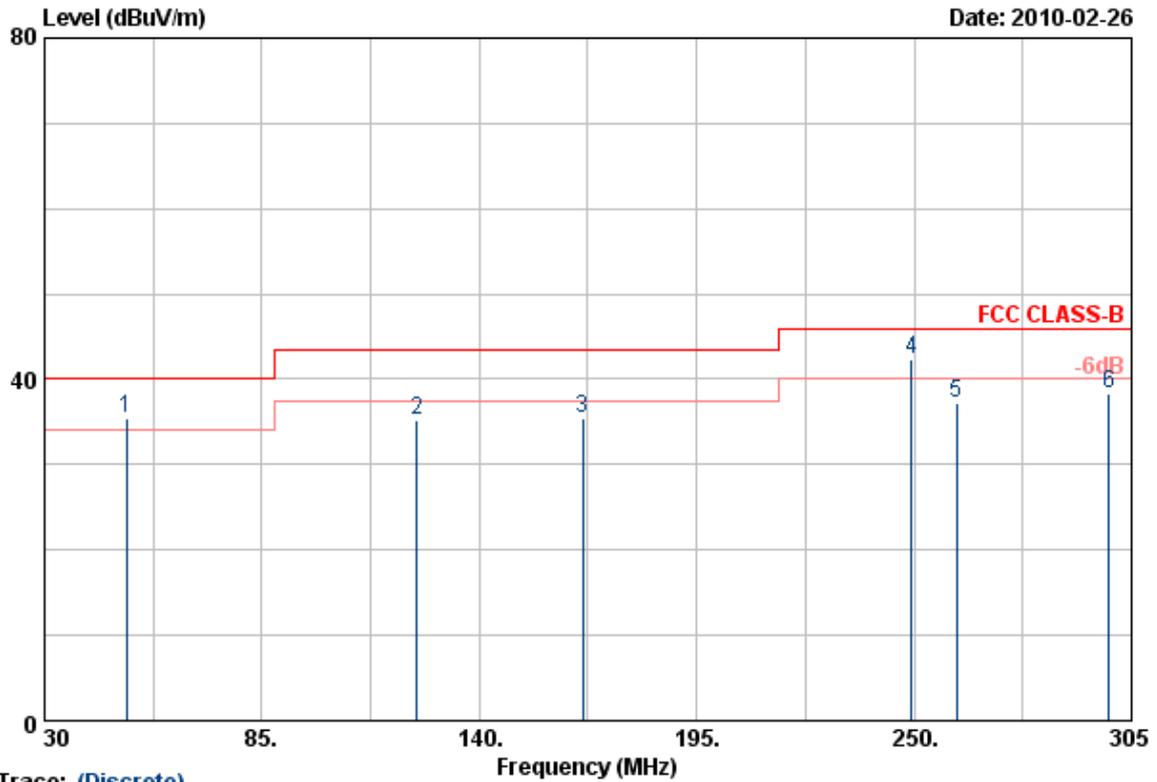
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	375.00	50.39	-14.06	36.33	46.00	-9.67	QP	100	98
2	500.90	47.37	-11.34	36.03	46.00	-9.97	QP	100	98
3	575.00	41.73	-9.51	32.22	46.00	-13.78	QP	100	98
4	749.40	41.63	-6.31	35.32	46.00	-10.68	QP	100	120
5	799.80	45.41	-6.77	38.64	46.00	-7.36	QP	100	103
6	998.60	44.66	-3.29	41.37	54.00	-12.63	QP	100	100

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. According to technical experiences, all spurious emission of 802.11a/an mode at Band1~4 channel are almost the same below 1GHz, so that the channel 36 or 38 (for HT40), channel 149 or 151 (for HT40) was chosen as representative in final test.
5. The data is worse case.



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11a, CH36	Temperature	: 20 °C
Memo	:	Humidity	: 65 %



Trace: (Discrete)

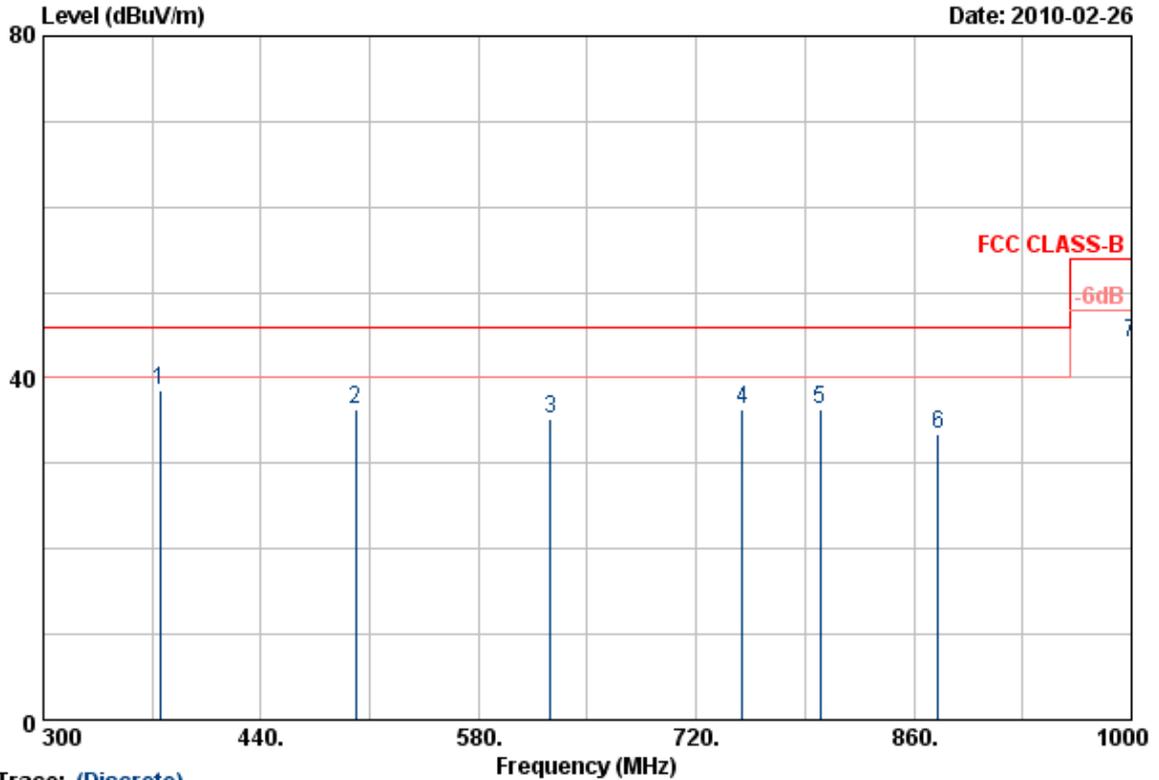
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	50.63	52.83	-17.46	35.37	40.00	-4.63	QP	100	77
2	124.33	53.57	-18.36	35.21	43.50	-8.29	Peak	100	98
3	166.13	53.90	-18.53	35.37	43.50	-8.13	Peak	100	98
4	249.45	59.56	-17.24	42.32	46.00	-3.68	QP	100	56
5	260.73	54.24	-16.91	37.33	46.00	-8.67	QP	100	56
6	299.23	54.71	-16.38	38.33	46.00	-7.67	QP	100	87

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. According to technical experiences, all spurious emission of 802.11a/an mode at Band1~4 channel are almost the same below 1GHz, so that the channel 36 or 38 (for HT40), channel 149 or 151 (for HT40) was chosen as representative in final test.
5. The data is worse case.



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11a, CH36	Temperature	: 20 °C
Memo	:	Humidity	: 65 %



Trace: (Discrete)

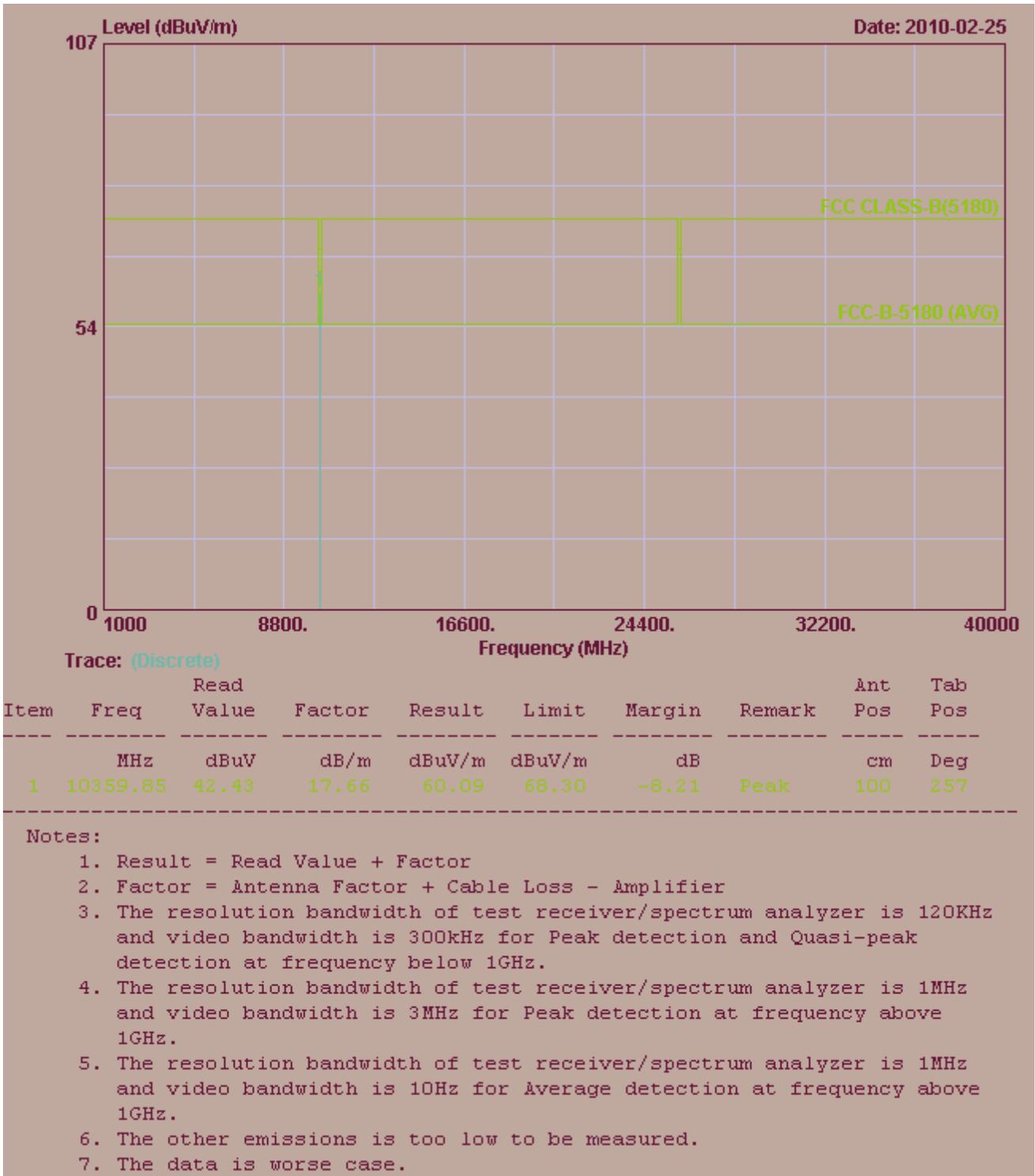
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	375.00	52.61	-14.06	38.55	46.00	-7.45	QP	100	99
2	500.90	47.66	-11.34	36.32	46.00	-9.68	QP	100	122
3	626.20	44.23	-9.00	35.23	46.00	-10.77	QP	100	177
4	749.40	42.64	-6.31	36.33	46.00	-9.67	QP	100	147
5	799.80	43.10	-6.77	36.33	46.00	-9.67	QP	100	147
6	875.40	39.38	-6.05	33.33	46.00	-12.67	QP	100	147
7	999.90	47.51	-3.28	44.23	54.00	-9.77	QP	100	147

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. According to technical experiences, all spurious emission of 802.11a/an mode at Band1~4 channel are almost the same below 1GHz, so that the channel 36 or 38 (for HT40), channel 149 or 151 (for HT40) was chosen as representative in final test.
5. The data is worse case.

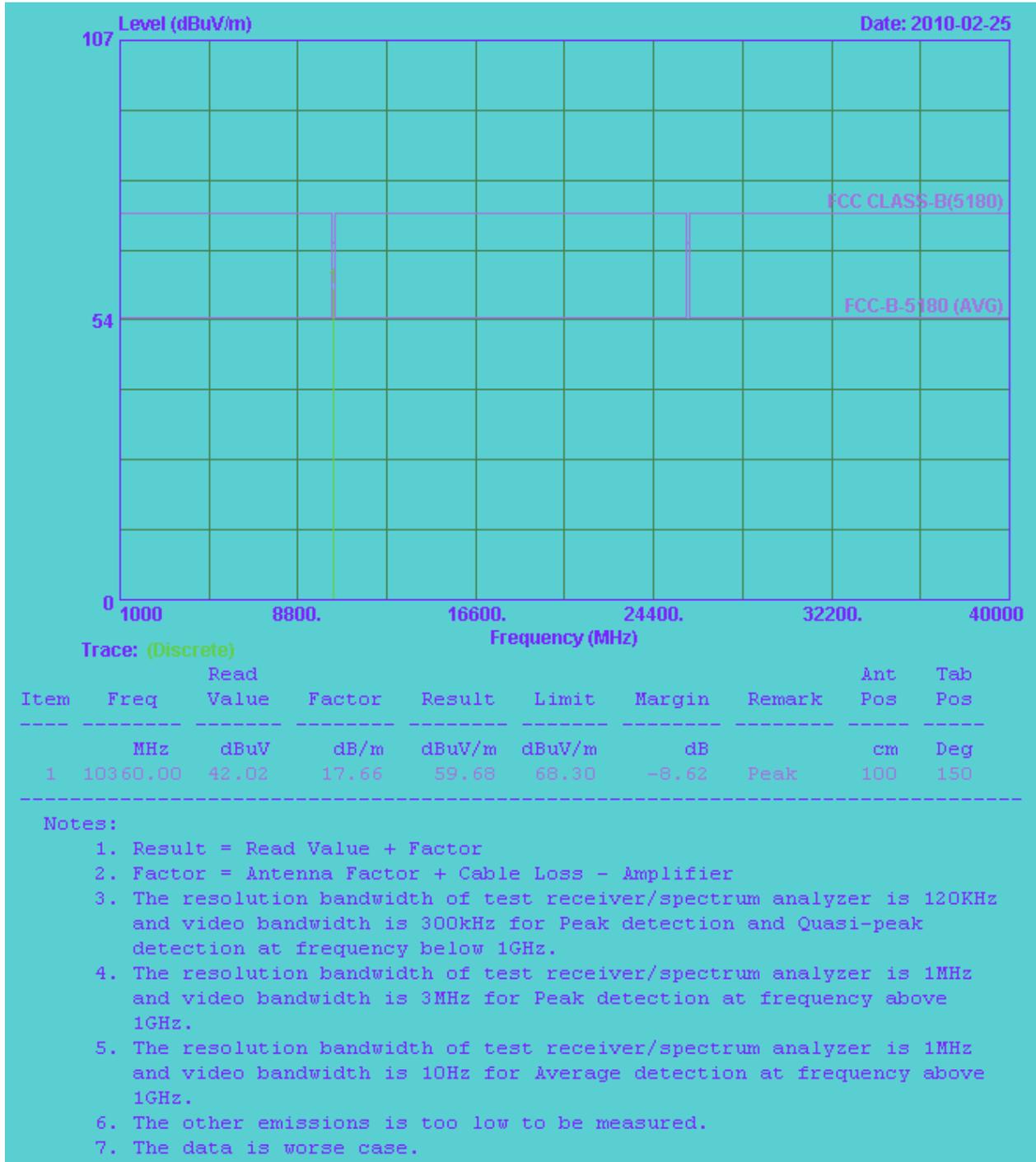


Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: 802.11a, CH36	Temperature	: 27 °C
Memo	:	Humidity	: 70 %



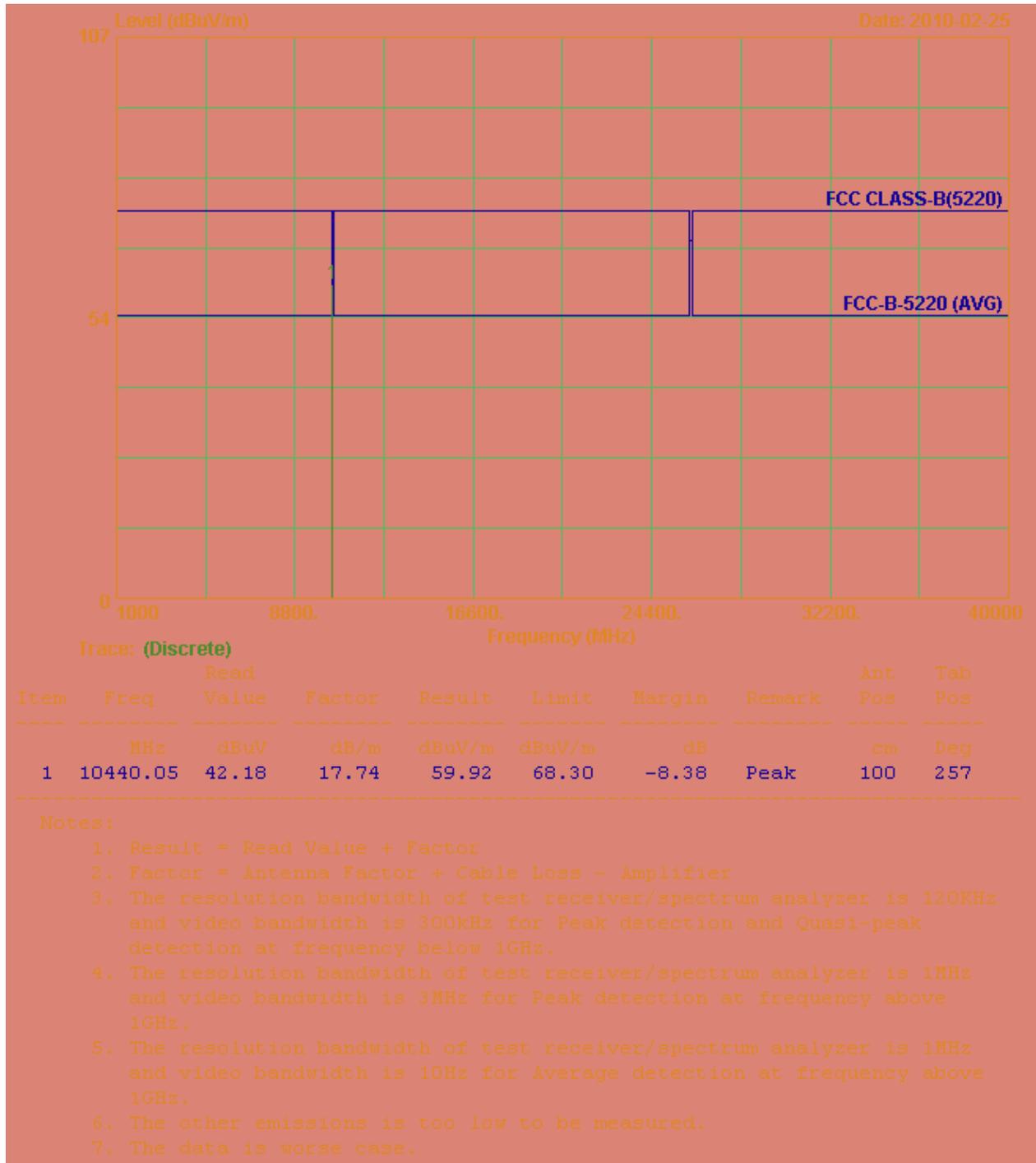


Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11a, CH36	Temperature	: 27 °C
Memo	:	Humidity	: 70 %



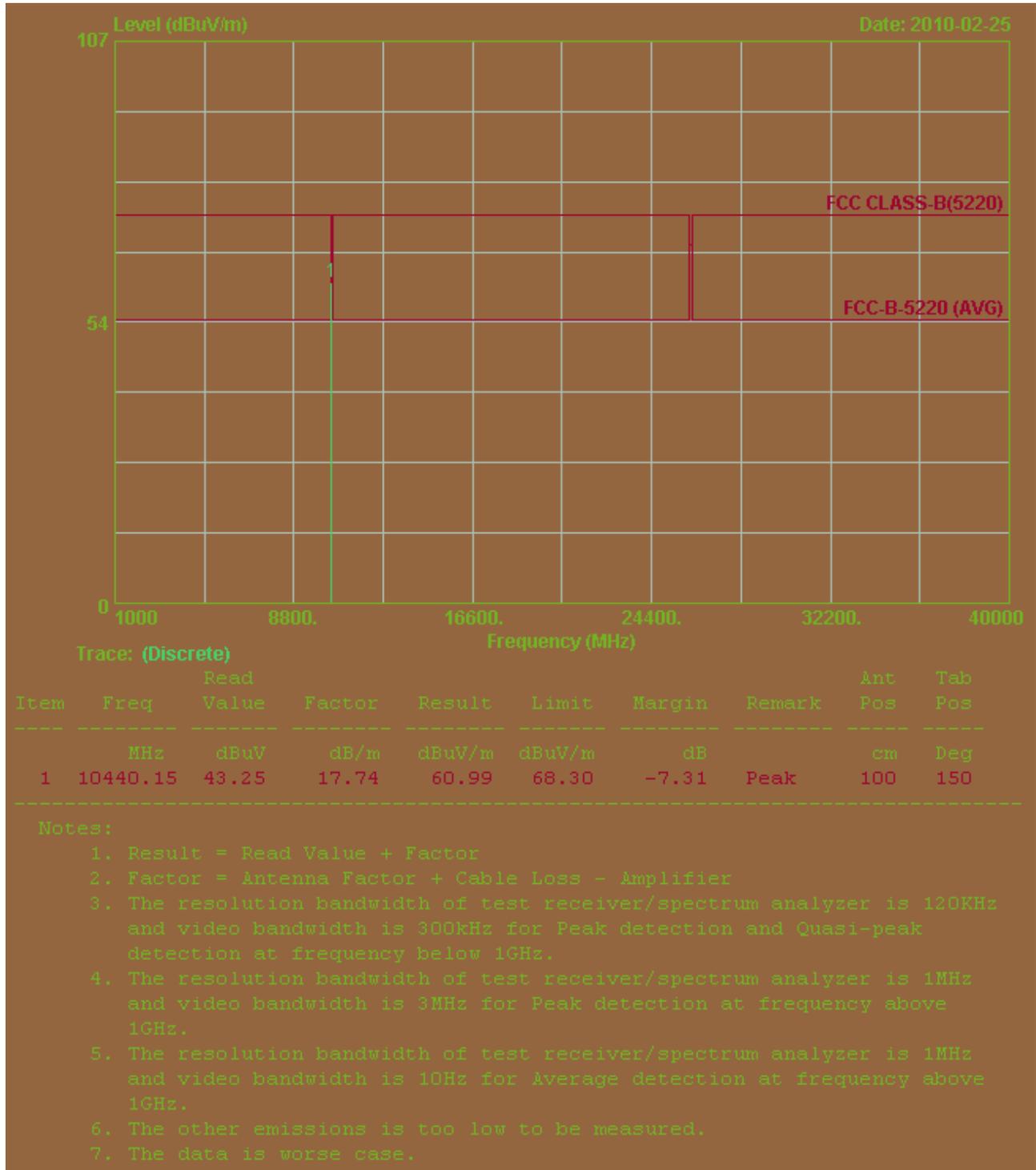


Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: 802.11a, CH44	Temperature	: 27 °C
Memo	:	Humidity	: 70 %



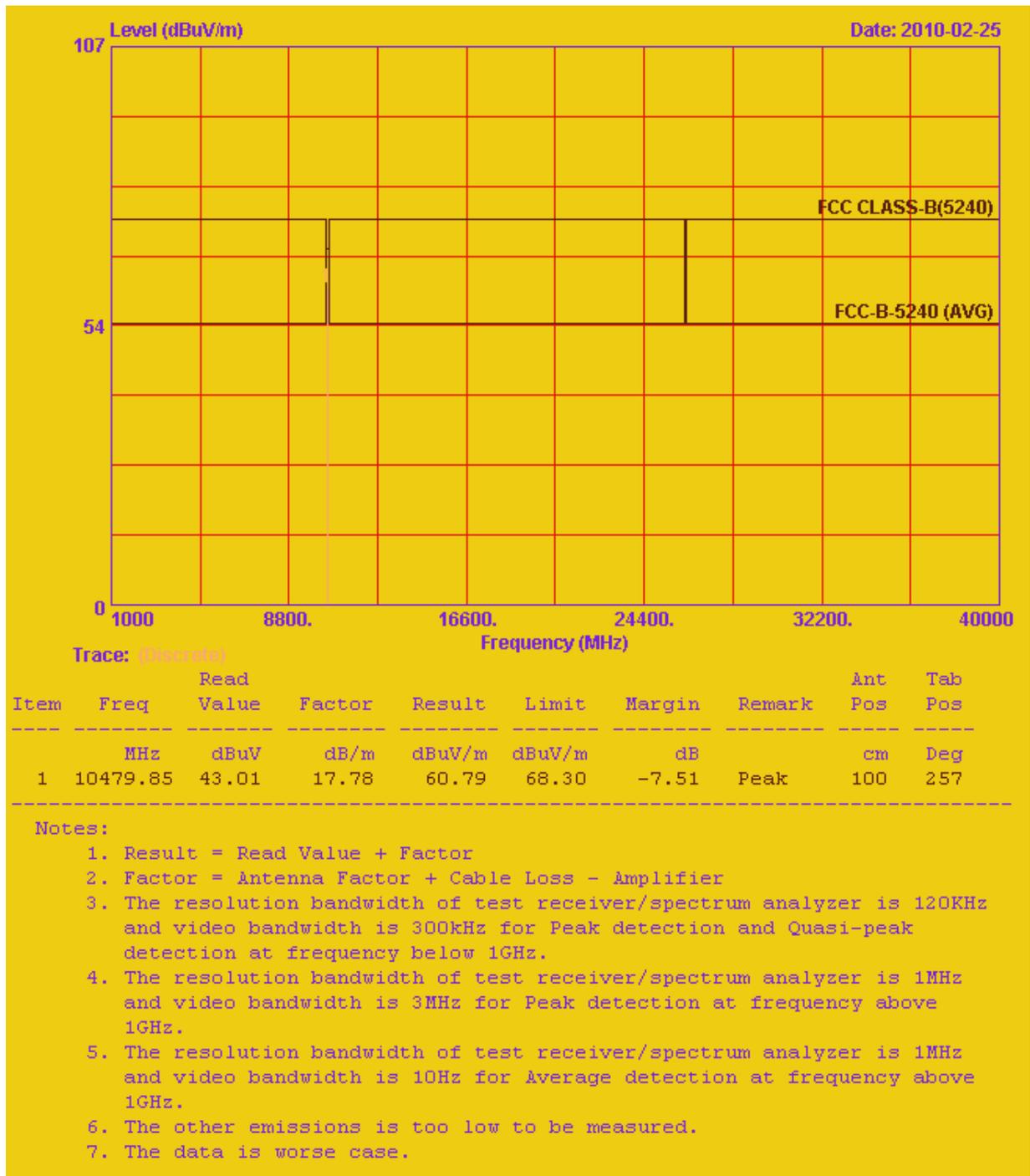


Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11a, CH44	Temperature	: 27 °C
Memo	:	Humidity	: 70 %



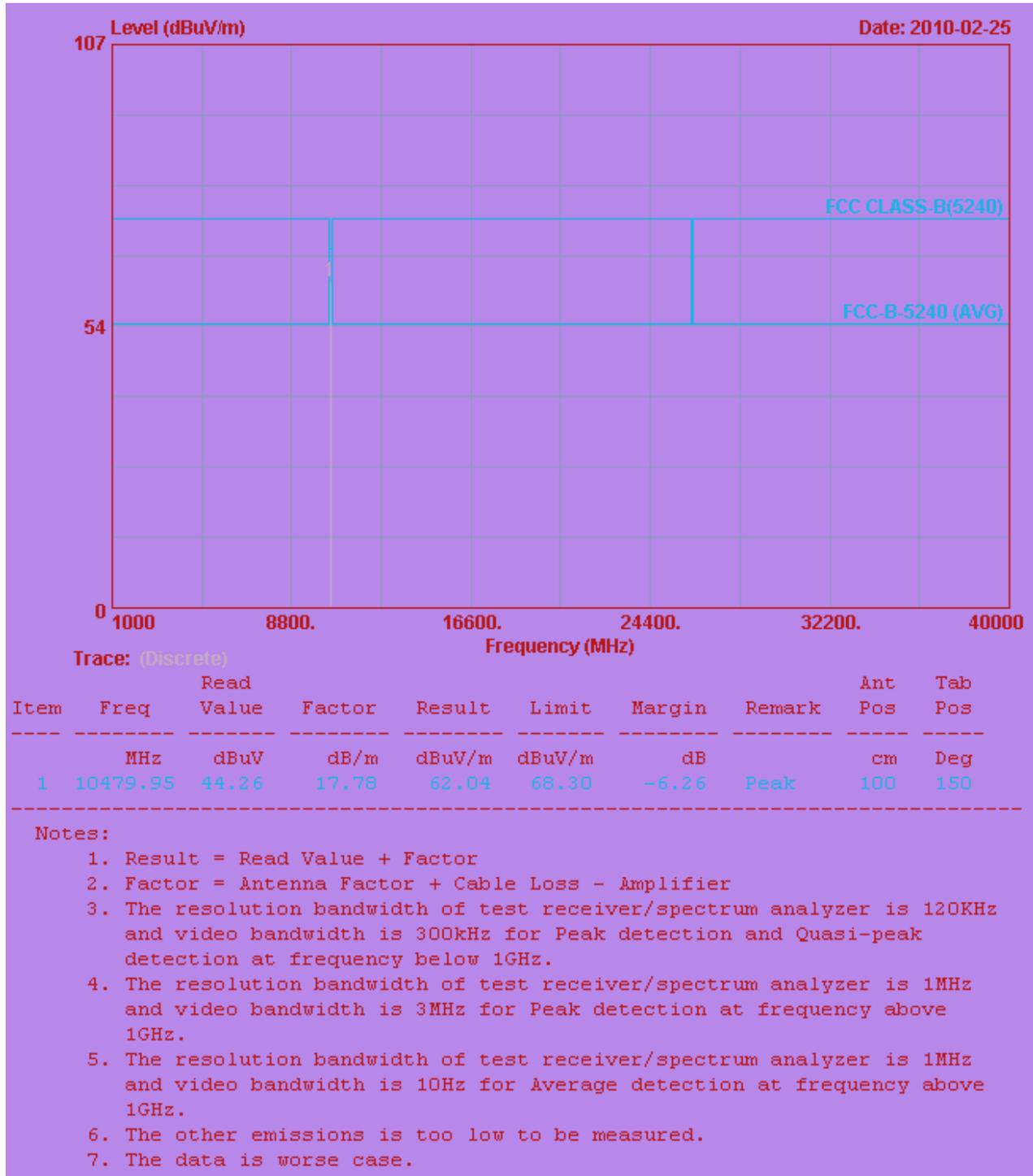


Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: 802.11a, CH48	Temperature	: 27 °C
Memo	:	Humidity	: 70 %



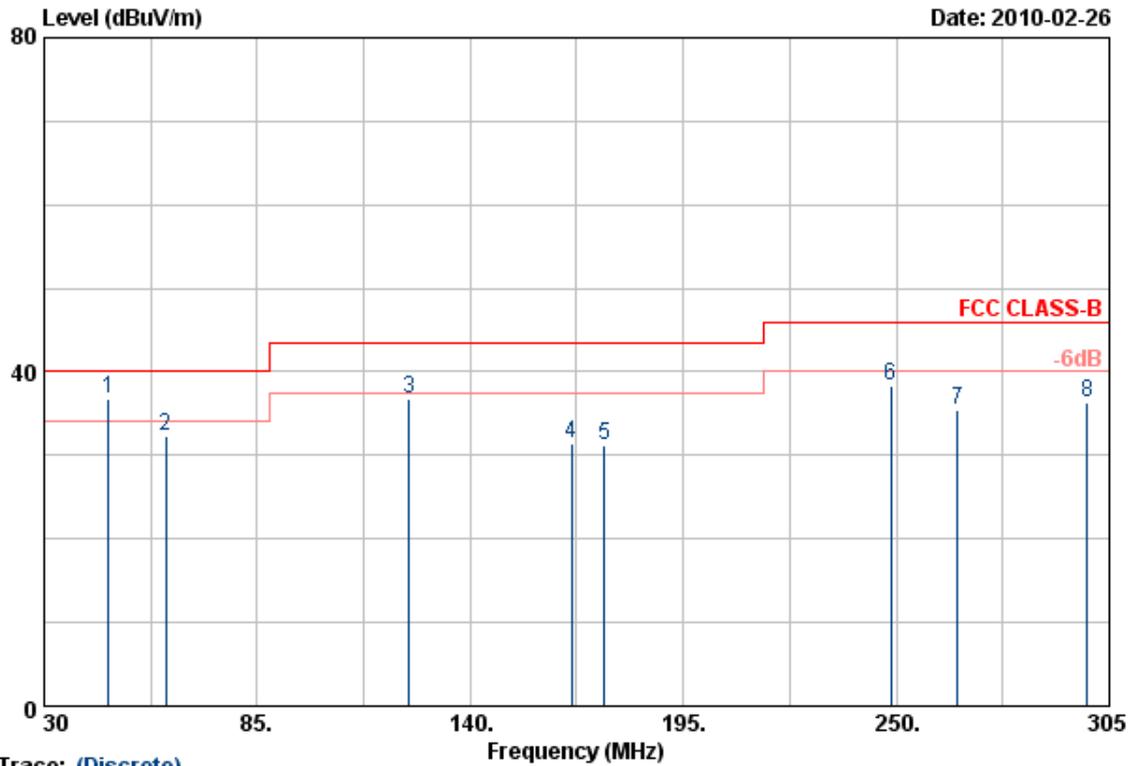


Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11a, CH48	Temperature	: 27 °C
Memo	:	Humidity	: 70 %





Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: 802.11an HT20, CH36	Temperature	: 20 °C
Memo	:	Humidity	: 65 %



Trace: (Discrete)

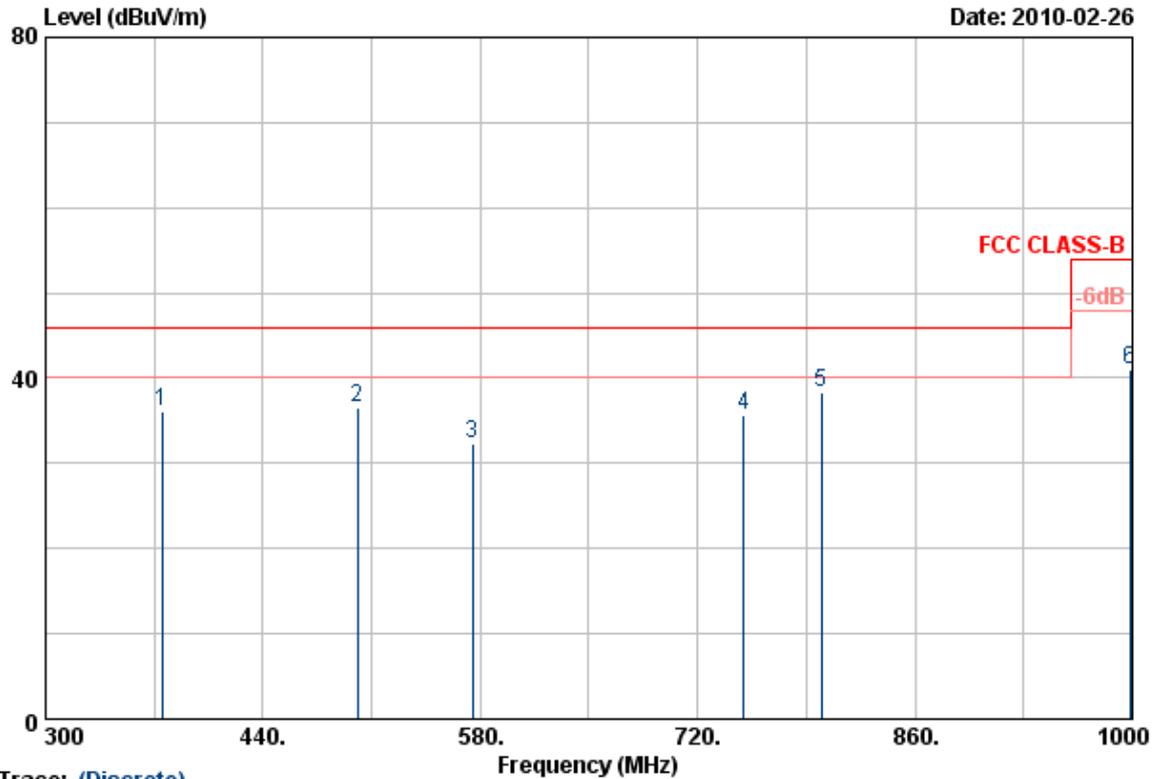
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	46.50	52.25	-15.38	36.87	40.00	-3.13	QP	100	46
2	61.35	54.51	-22.18	32.33	40.00	-7.67	QP	100	46
3	124.33	55.15	-18.36	36.79	43.50	-6.71	QP	100	88
4	166.13	49.86	-18.53	31.33	43.50	-12.17	Peak	100	88
5	174.65	50.57	-19.32	31.25	43.50	-12.25	QP	100	111
6	248.63	55.56	-17.30	38.26	46.00	-7.74	QP	100	111
7	265.95	52.26	-16.89	35.37	46.00	-10.63	QP	100	77
8	299.23	52.71	-16.38	36.33	46.00	-9.67	QP	100	77

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. According to technical experiences, all spurious emission of 802.11a/an mode at Band1~4 channel are almost the same below 1GHz, so that the channel 36 or 38 (for HT40), channel 149 or 151 (for HT40) was chosen as representative in final test.
5. The data is worse case.



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: 802.11an HT20, CH36	Temperature	: 20 °C
Memo	:	Humidity	: 65 %



Trace: (Discrete)

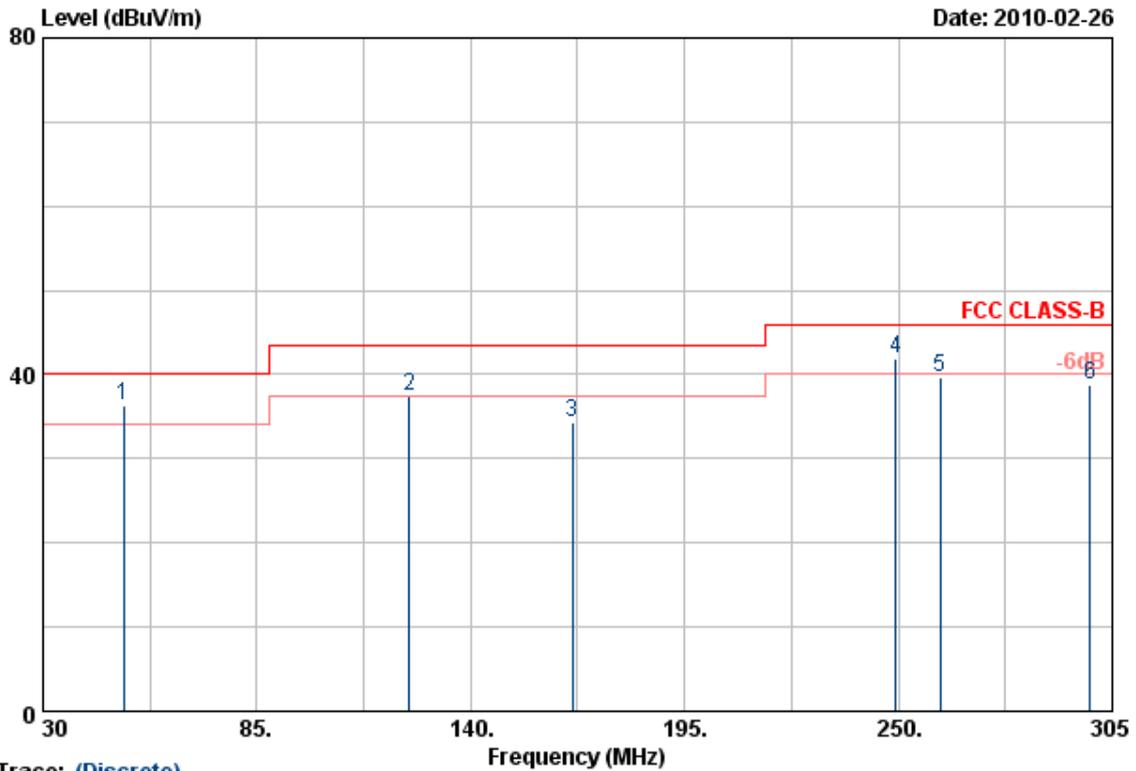
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	375.00	50.08	-14.06	36.02	46.00	-9.98	QP	100	98
2	500.90	48.00	-11.34	36.66	46.00	-9.34	QP	100	98
3	575.00	41.84	-9.51	32.33	46.00	-13.67	QP	100	98
4	749.40	41.96	-6.31	35.65	46.00	-10.35	QP	100	120
5	799.80	45.10	-6.77	38.33	46.00	-7.67	QP	100	103
6	998.60	44.32	-3.29	41.03	54.00	-12.97	QP	100	100

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. According to technical experiences, all spurious emission of 802.11a/an mode at Band1~4 channel are almost the same below 1GHz, so that the channel 36 or 38 (for HT40), channel 149 or 151 (for HT40) was chosen as representative in final test.
5. The data is worse case.



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11an HT20, CH36	Temperature	: 20 °C
Memo	:	Humidity	: 65 %



Trace: (Discrete)

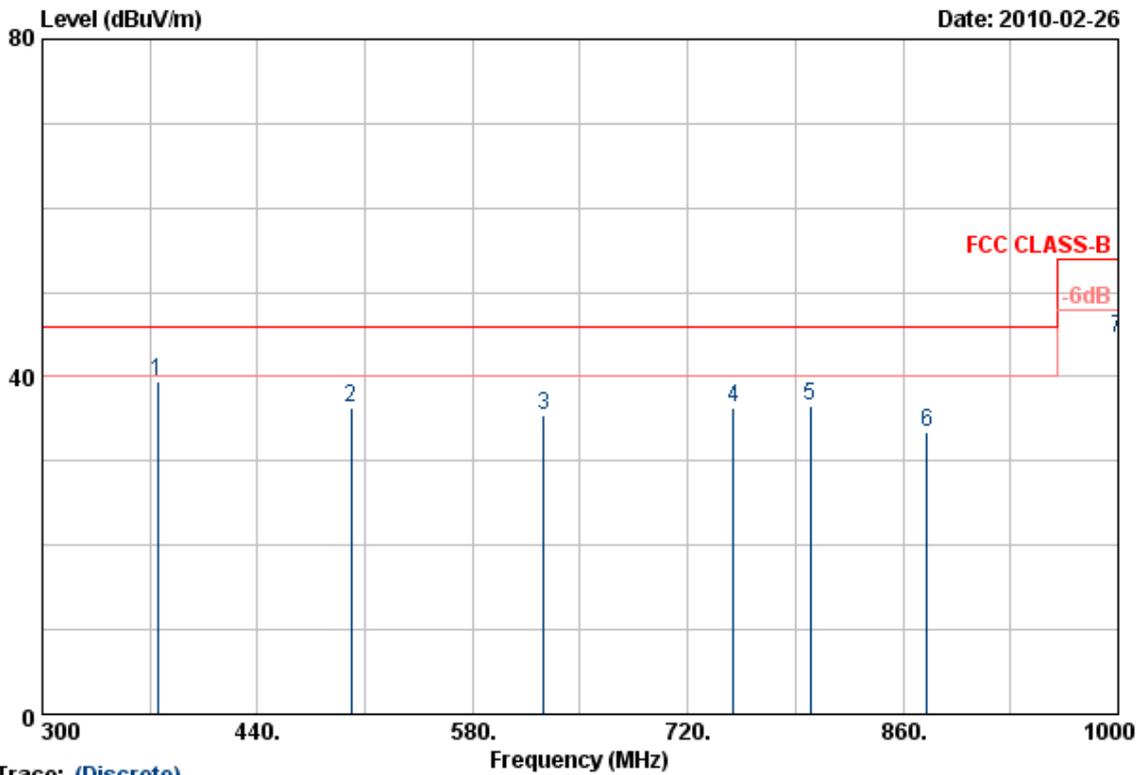
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	50.63	53.79	-17.46	36.33	40.00	-3.67	QP	100	77
2	124.33	55.73	-18.36	37.37	43.50	-6.13	Peak	100	98
3	166.13	52.90	-18.53	34.37	43.50	-9.13	Peak	100	98
4	249.45	59.23	-17.24	41.99	46.00	-4.01	QP	100	56
5	260.73	56.58	-16.91	39.67	46.00	-6.33	QP	100	56
6	299.23	55.05	-16.38	38.67	46.00	-7.33	QP	100	87

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. According to technical experiences, all spurious emission of 802.11a/an mode at Band1~4 channel are almost the same below 1GHz, so that the channel 36 or 38 (for HT40), channel 149 or 151 (for HT40) was chosen as representative in final test.
5. The data is worse case.



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11an HT20, CH36	Temperature	: 20 °C
Memo	:	Humidity	: 65 %



Trace: (Discrete)

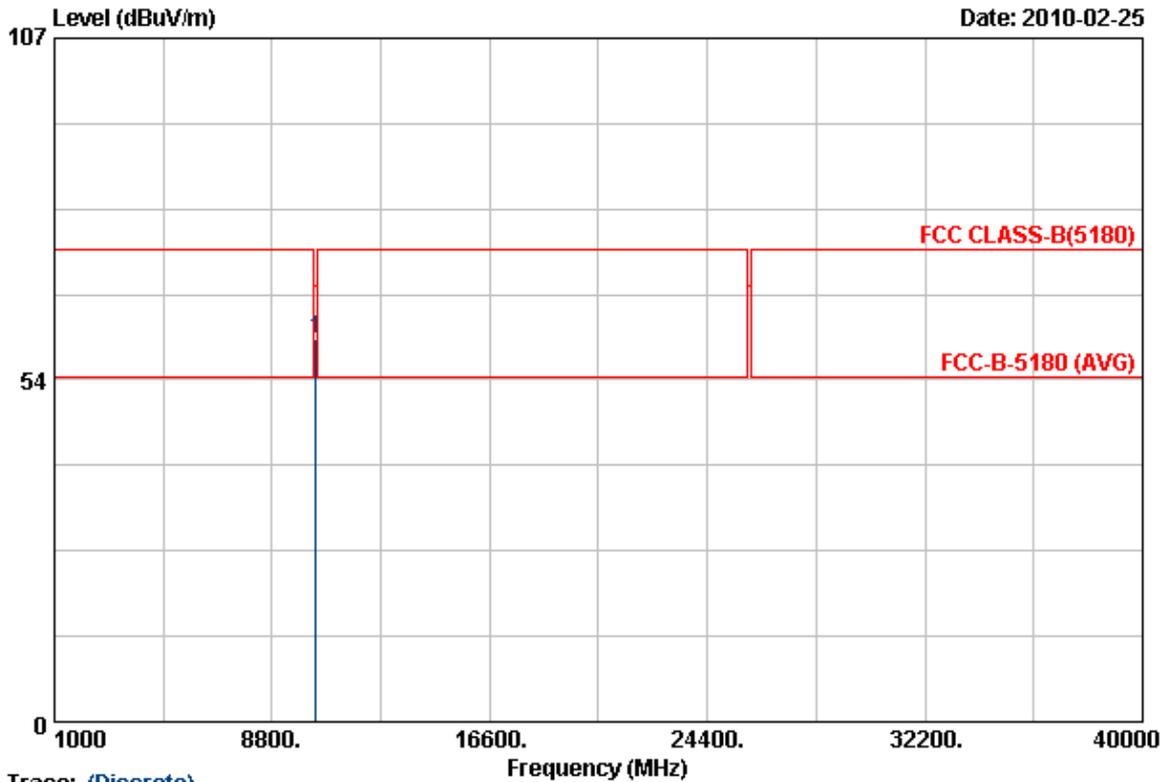
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	375.00	53.43	-14.06	39.37	46.00	-6.63	QP	100	99
2	500.90	47.55	-11.34	36.21	46.00	-9.79	QP	100	122
3	626.20	44.37	-9.00	35.37	46.00	-10.63	QP	100	177
4	749.40	42.64	-6.31	36.33	46.00	-9.67	QP	100	147
5	799.80	43.23	-6.77	36.46	46.00	-9.54	QP	100	147
6	875.40	39.38	-6.05	33.33	46.00	-12.67	QP	100	147
7	999.90	47.92	-3.28	44.64	54.00	-9.36	QP	100	147

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300KHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. According to technical experiences, all spurious emission of 802.11a/an mode at Band1~4 channel are almost the same below 1GHz, so that the channel 36 or 38 (for HT40), channel 149 or 151 (for HT40) was chosen as representative in final test.
5. The data is worse case.



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: 802.11an HT20, CH36	Temperature	: 27 °C
Memo	:	Humidity	: 70 %



Trace: (Discrete)

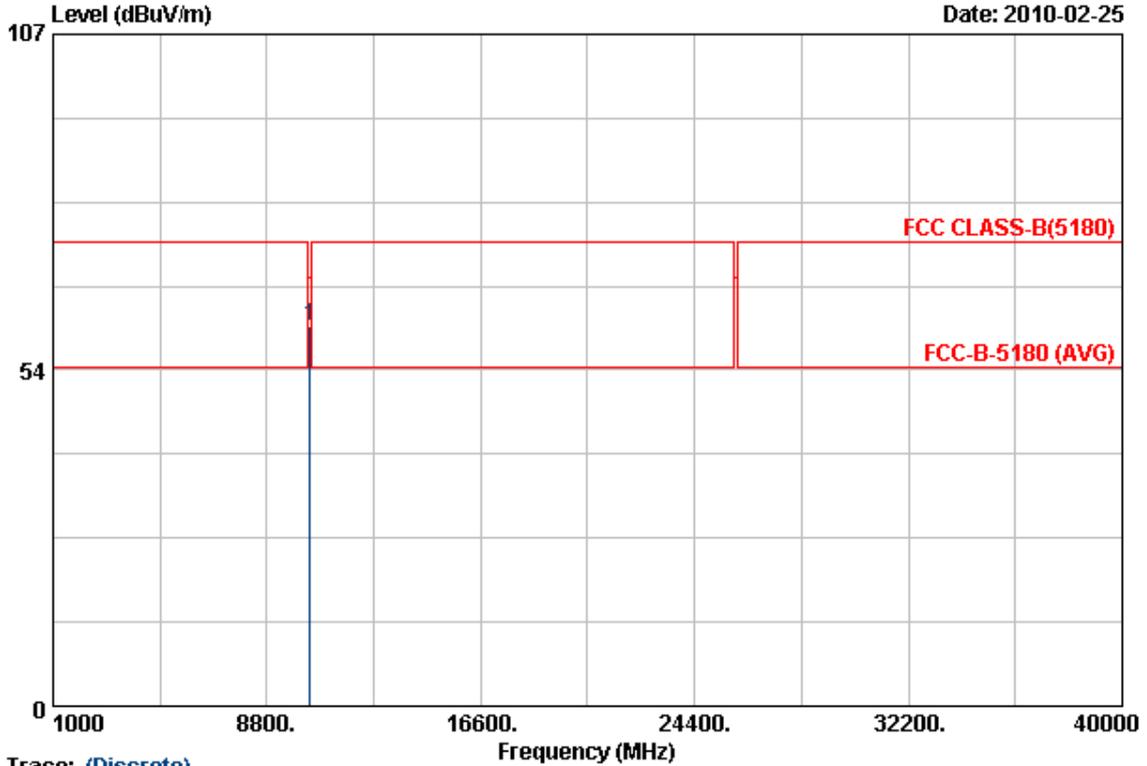
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg
1	10359.75	42.28	17.66	59.94	68.30	-8.36	Peak	100	257

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.
7. The data is worse case.



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11an HT20, CH36	Temperature	: 27 °C
Memo	:	Humidity	: 70 %



Trace: (Discrete)

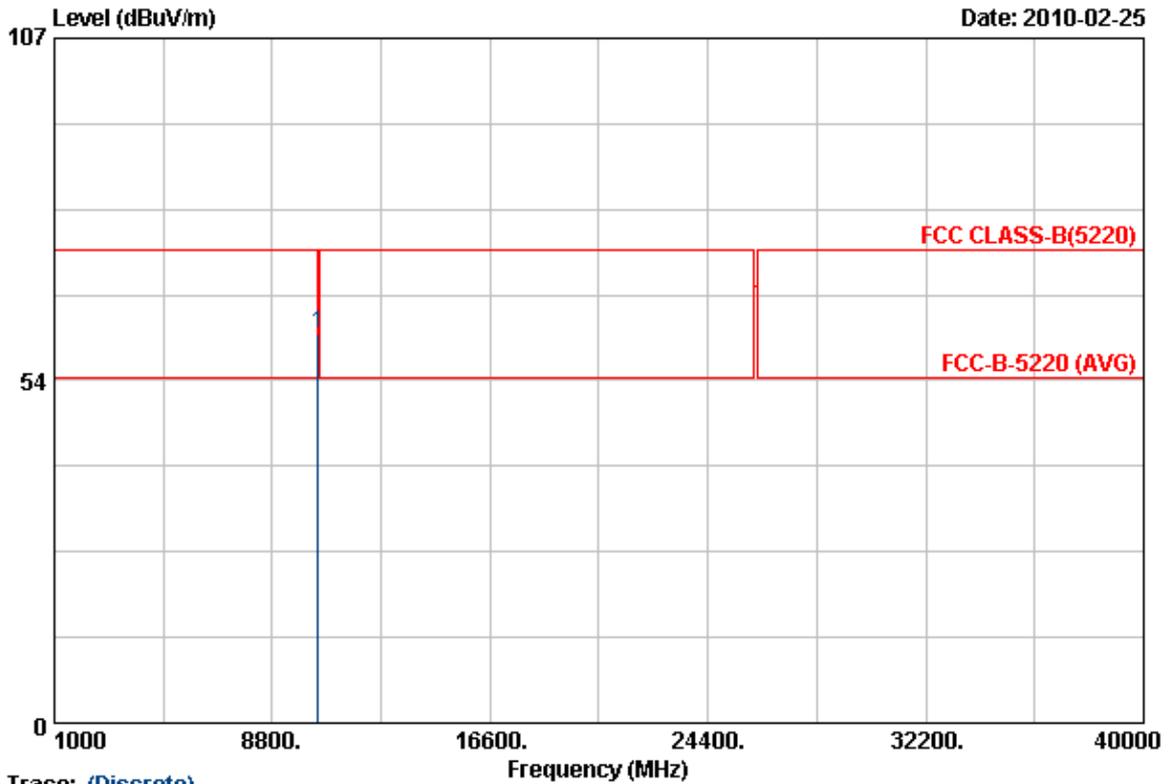
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg
1	10360.10	42.95	17.66	60.61	68.30	-7.69	Peak	100	150

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.
7. The data is worse case.



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: 802.11an HT20, CH44	Temperature	: 27 °C
Memo	:	Humidity	: 70 %



Trace: (Discrete)

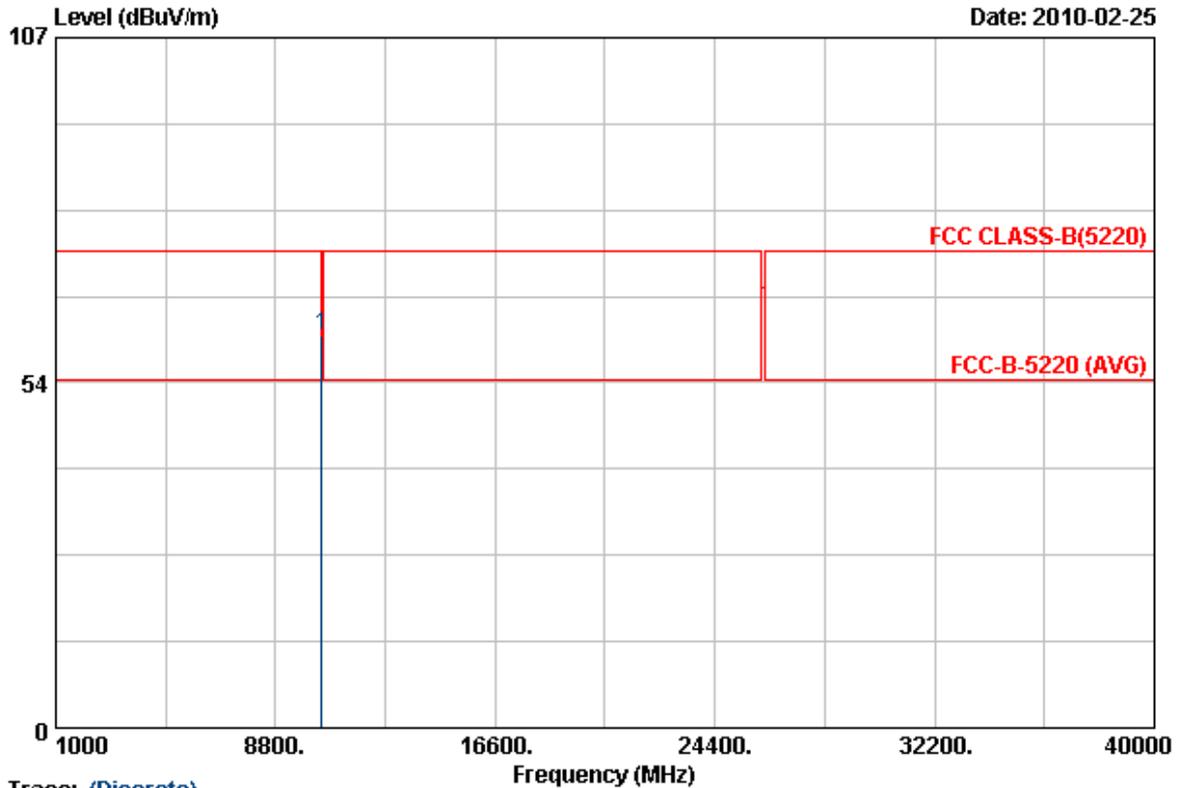
Item	Read Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg
1	10439.65	43.10	17.74	60.84	68.30	-7.46	Peak	100	257

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.
7. The data is worse case.



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11an HT20, CH44	Temperature	: 27 °C
Memo	:	Humidity	: 70 %



Trace: (Discrete)

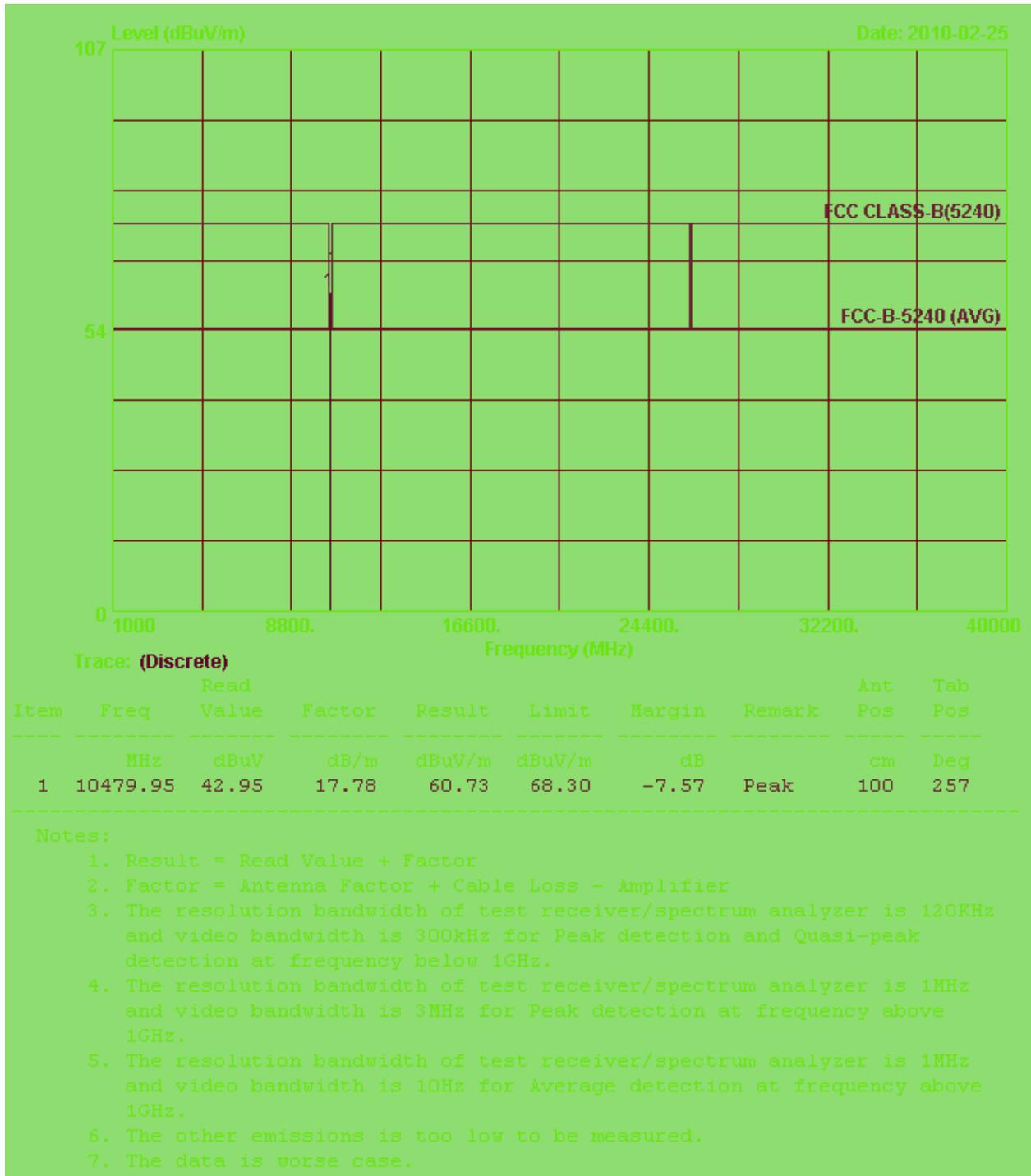
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	Deg
1	10440.05	43.15	17.74	60.89	68.30	-7.41	Peak	100	150

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
5. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average detection at frequency above 1GHz.
6. The other emissions is too low to be measured.
7. The data is worse case.

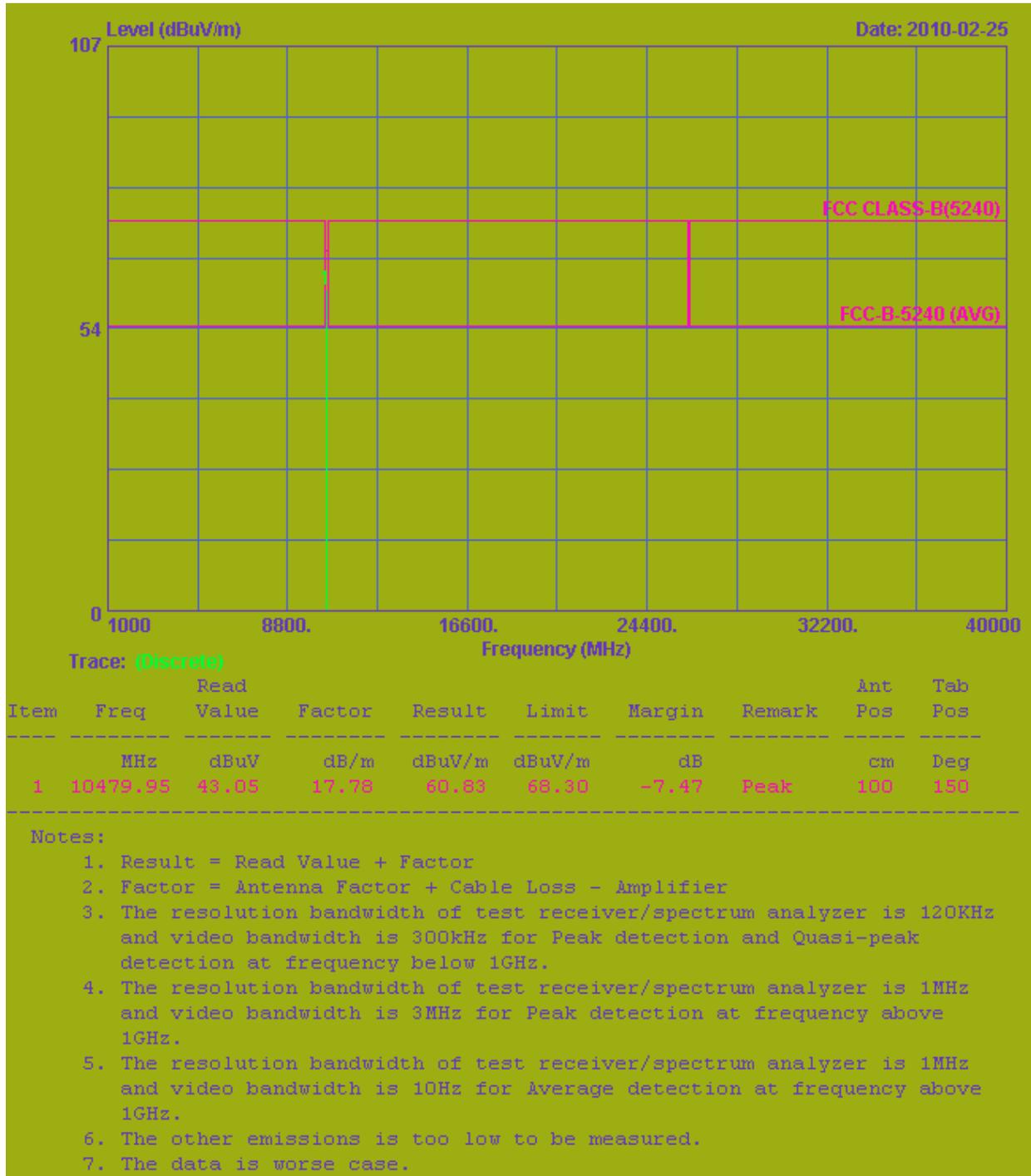


Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: 802.11an HT20, CH48	Temperature	: 27 °C
Memo	:	Humidity	: 70 %



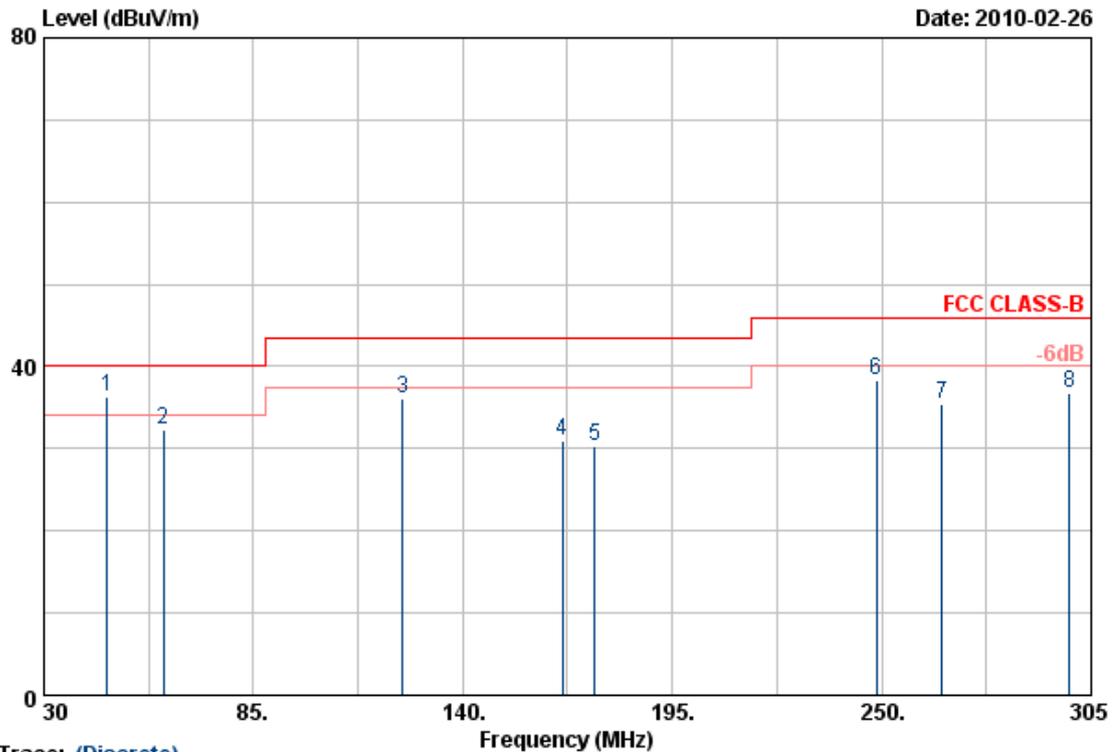


Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11an HT20, CH48	Temperature	: 27 °C
Memo	:	Humidity	: 70 %





Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: 802.11an HT40, CH38	Temperature	: 20 °C
Memo	:	Humidity	: 65 %



Trace: (Discrete)

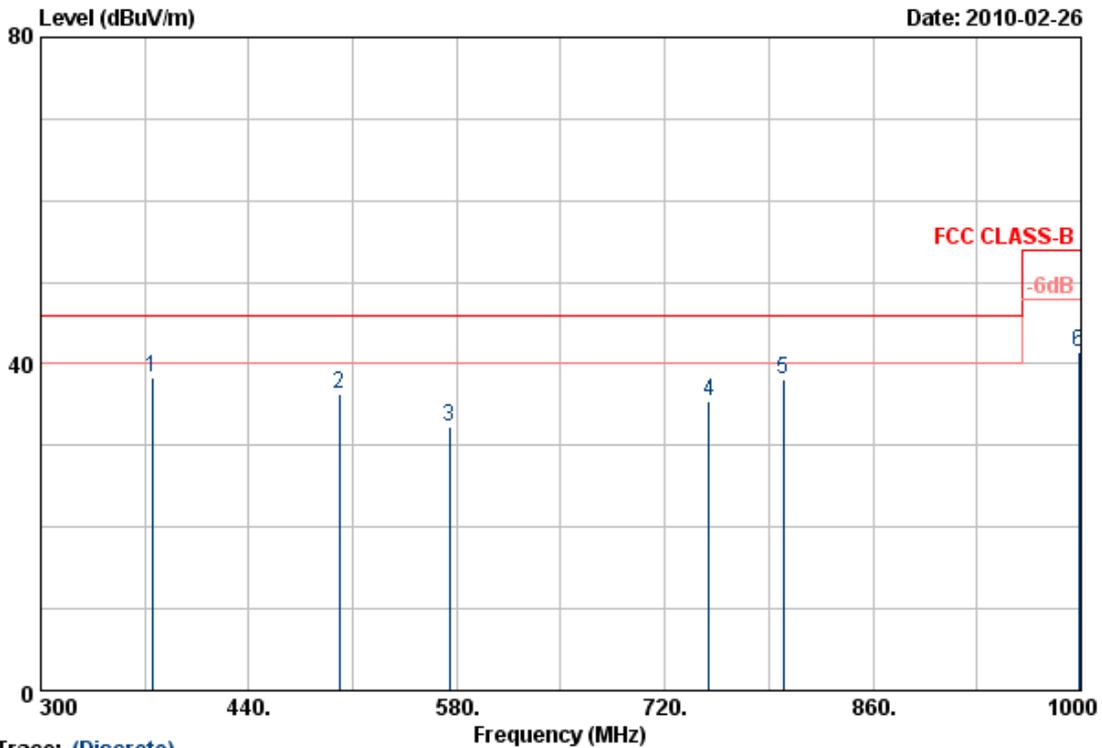
Item	Freq MHz	Read Value dBuV/m	Factor dB	Result dBuV/m	Limit dBuV/m	Margin dB	Remark	Ant Pos cm	Tab Pos Deg
1	46.50	51.70	-15.38	36.32	40.00	-3.68	QP	100	46
2	61.35	54.50	-22.18	32.32	40.00	-7.68	QP	100	46
3	124.33	54.39	-18.36	36.03	43.50	-7.47	QP	100	88
4	166.13	49.56	-18.53	31.03	43.50	-12.47	Peak	100	88
5	174.65	49.64	-19.32	30.32	43.50	-13.18	QP	100	111
6	248.63	55.67	-17.30	38.37	46.00	-7.63	QP	100	111
7	265.95	52.26	-16.89	35.37	46.00	-10.63	QP	100	77
8	299.23	53.07	-16.38	36.69	46.00	-9.31	QP	100	77

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. According to technical experiences, all spurious emission of 802.11a/an mode at Band1~4 channel are almost the same below 1GHz, so that the channel 36 or 38 (for HT40), channel 149 or 151 (for HT40) was chosen as representative in final test.
5. The data is worse case.



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: 802.11an HT40, CH38	Temperature	: 20 °C
Memo	:	Humidity	: 65 %



Trace: (Discrete)

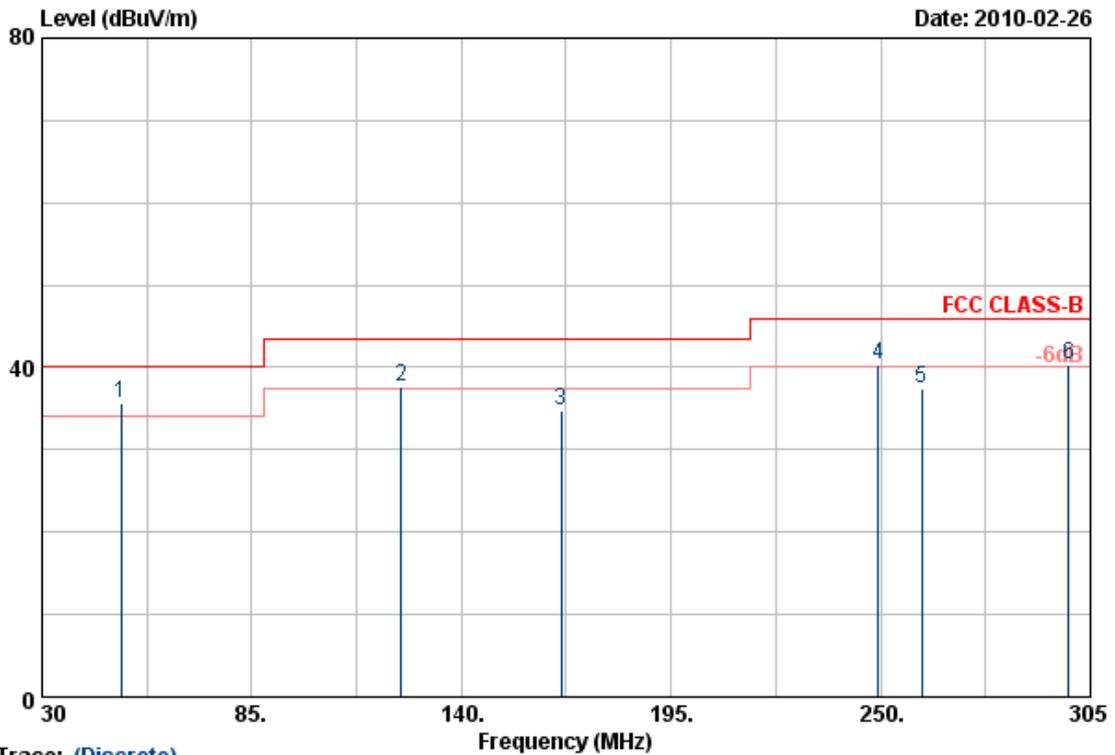
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	375.00	52.43	-14.06	38.37	46.00	-7.63	QP	100	98
2	500.90	47.71	-11.34	36.37	46.00	-9.63	QP	100	98
3	575.00	41.83	-9.51	32.32	46.00	-13.68	QP	100	98
4	749.40	41.64	-6.31	35.33	46.00	-10.67	QP	100	120
5	799.80	44.92	-6.77	38.15	46.00	-7.85	QP	100	103
6	998.60	44.66	-3.29	41.37	54.00	-12.63	QP	100	100

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. According to technical experiences, all spurious emission of 802.11a/an mode at Band1~4 channel are almost the same below 1GHz, so that the channel 36 or 38 (for HT40), channel 149 or 151 (for HT40) was chosen as representative in final test.
5. The data is worse case.



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11an HT40, CH38	Temperature	: 20 °C
Memo	:	Humidity	: 65 %



Trace: (Discrete)

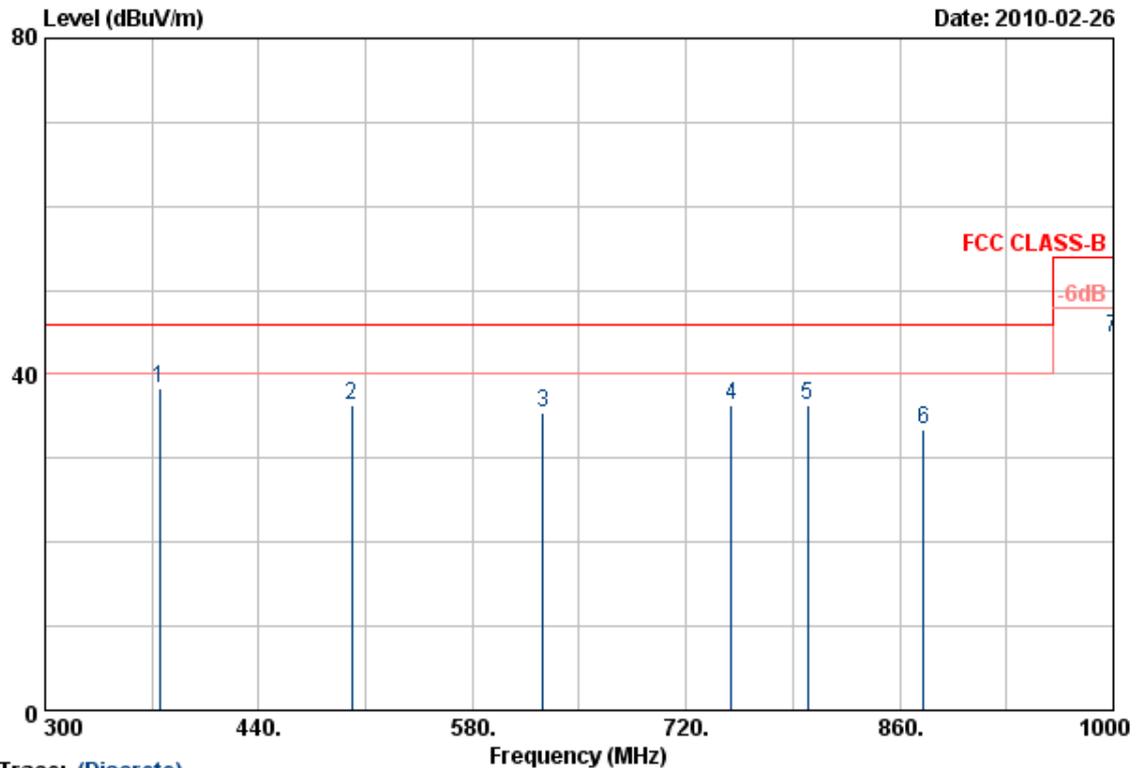
Item	Freq MHz	Read Value dBuV/m	Factor dB	Result dBuV/m	Limit dBuV/m	Margin dB	Remark	Ant Pos cm	Tab Pos Deg
1	50.63	53.13	-17.46	35.67	40.00	-4.33	QP	100	77
2	124.33	37.64	0.00	37.64	43.50	-5.86	QP	100	98
3	166.13	53.18	-18.53	34.65	43.50	-8.85	Peak	100	98
4	249.45	57.61	-17.24	40.37	46.00	-5.63	QP	100	56
5	260.73	54.28	-16.91	37.37	46.00	-8.63	QP	100	56
6	299.23	56.75	-16.38	40.37	46.00	-5.63	QP	100	87

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. According to technical experiences, all spurious emission of 802.11a/an mode at Band1~4 channel are almost the same below 1GHz, so that the channel 36 or 38 (for HT40), channel 149 or 151 (for HT40) was chosen as representative in final test.
5. The data is worse case.



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11an HT40, CH38	Temperature	: 20 °C
Memo	:	Humidity	: 65 %



Trace: (Discrete)

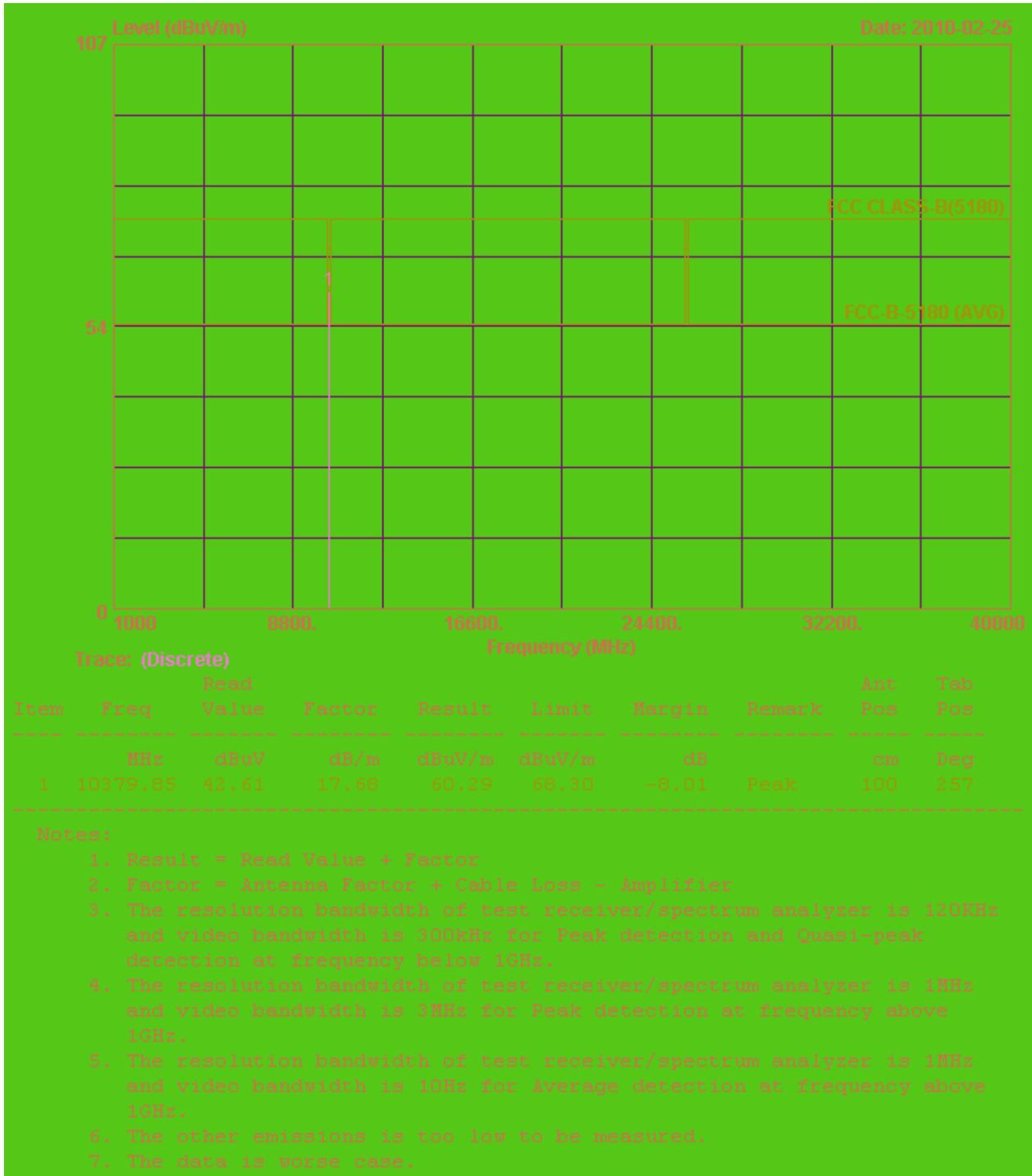
Item	Freq	Read Value	Factor	Result	Limit	Margin	Remark	Ant Pos	Tab Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		cm	Deg
1	375.00	52.28	-14.06	38.22	46.00	-7.78	QP	100	99
2	500.90	47.71	-11.34	36.37	46.00	-9.63	QP	100	122
3	626.20	44.35	-9.00	35.35	46.00	-10.65	QP	100	177
4	749.40	42.68	-6.31	36.37	46.00	-9.63	QP	100	147
5	799.80	43.14	-6.77	36.37	46.00	-9.63	QP	100	147
6	875.40	39.37	-6.05	33.32	46.00	-12.68	QP	100	147
7	999.90	47.65	-3.28	44.37	54.00	-9.63	QP	100	147

Notes:

1. Result = Read Value + Factor
2. Factor = Antenna Factor + Cable Loss - Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 120KHz and video bandwidth is 300kHz for Peak detection and Quasi-peak detection at frequency below 1GHz.
4. According to technical experiences, all spurious emission of 802.11a/an mode at Band1~4 channel are almost the same below 1GHz, so that the channel 36 or 38 (for HT40), channel 149 or 151 (for HT40) was chosen as representative in final test.
5. The data is worse case.

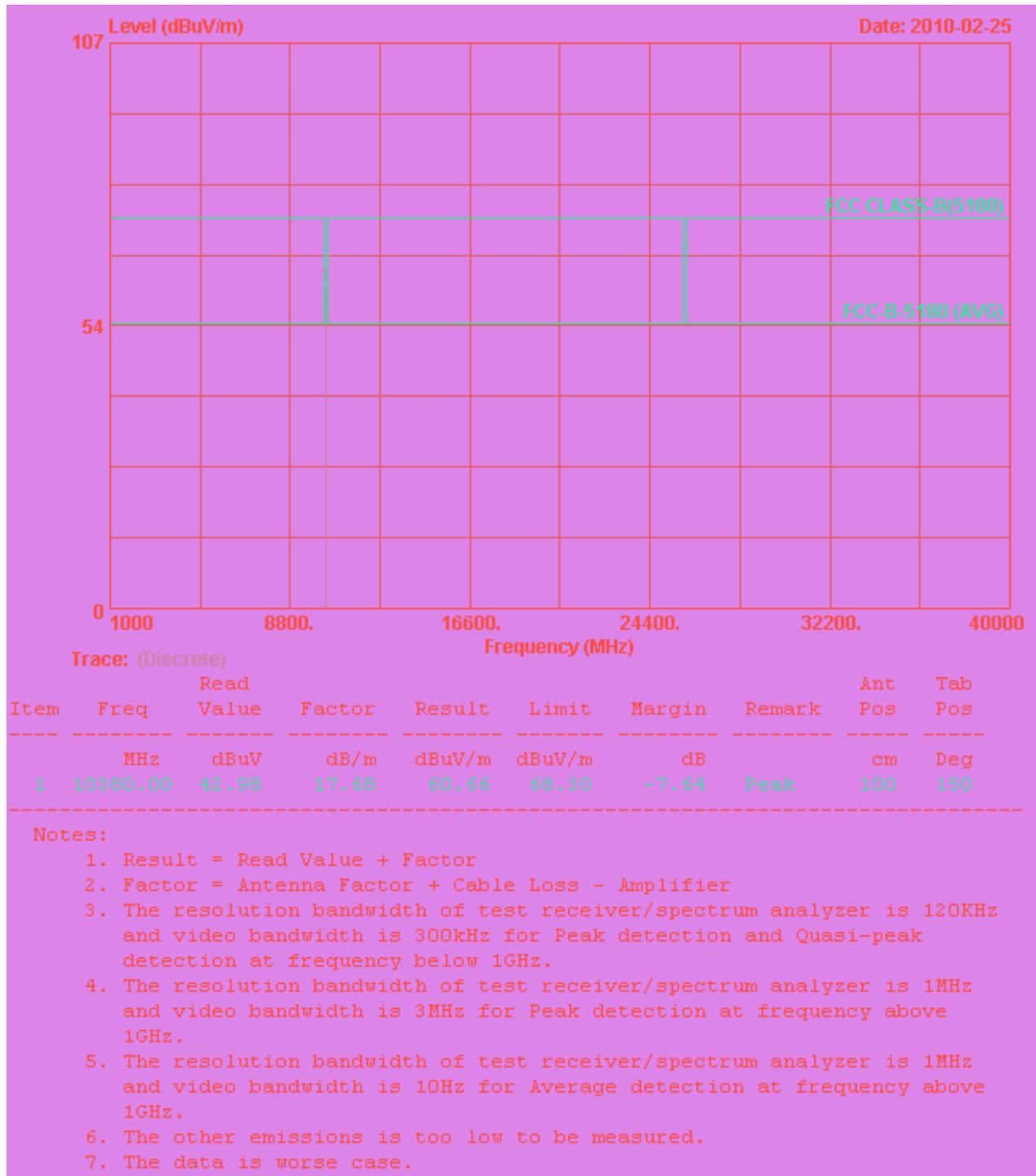


Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: 802.11an HT40, CH38	Temperature	: 27 °C
Memo	:	Humidity	: 70 %



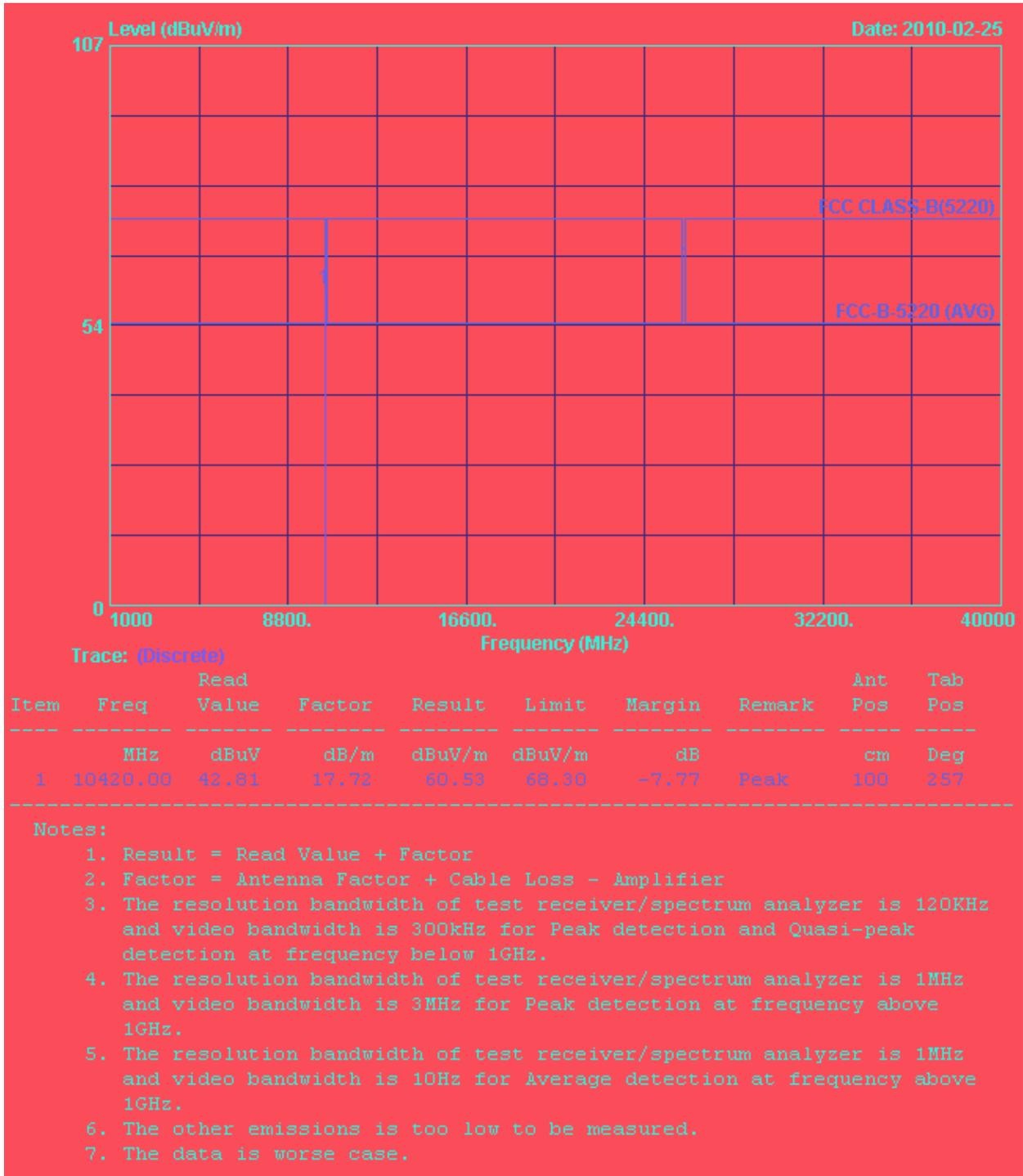


Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11an HT40, CH38	Temperature	: 27 °C
Memo	:	Humidity	: 70 %



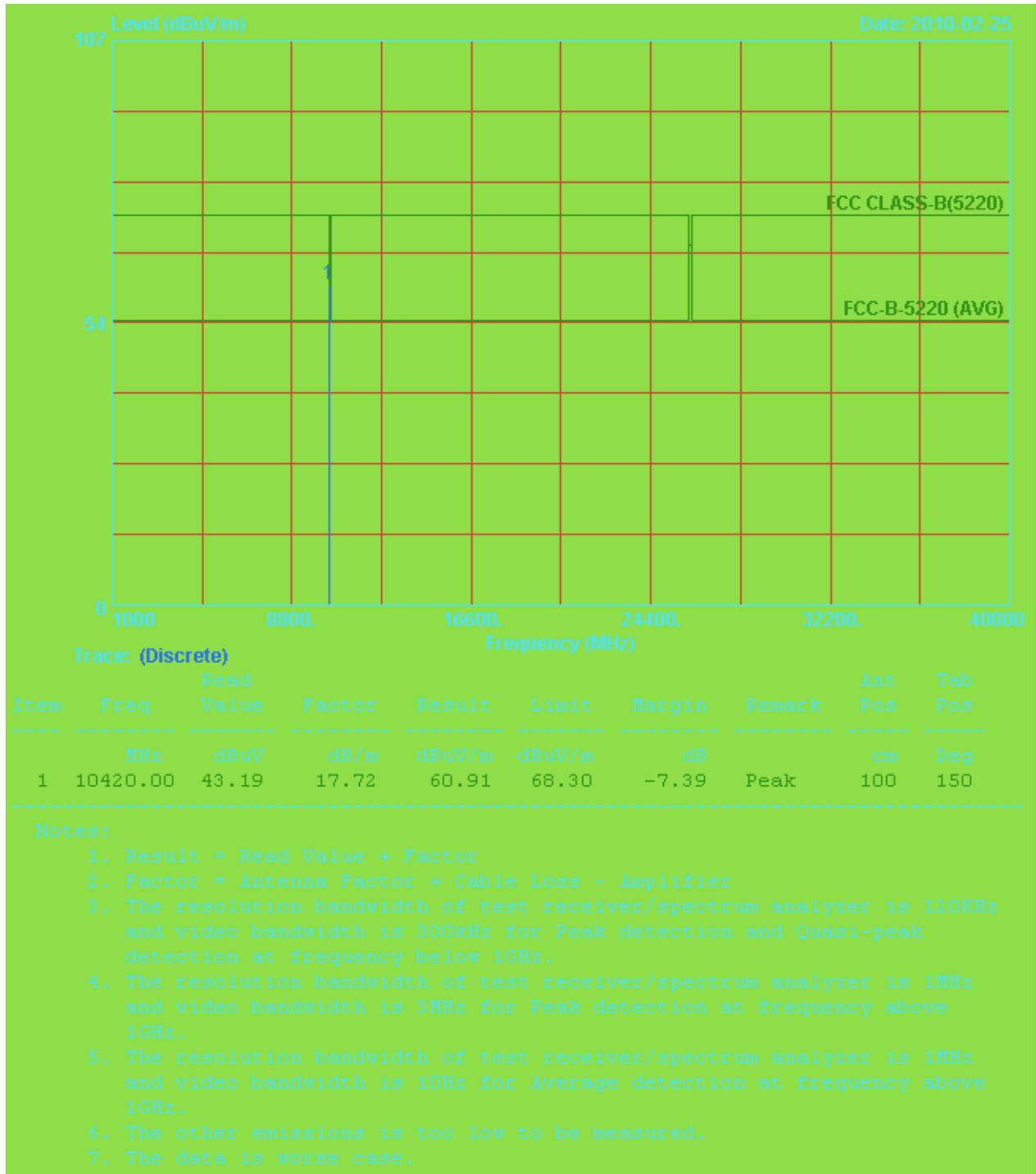


Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: 802.11an HT40, CH42	Temperature	: 27 °C
Memo	:	Humidity	: 70 %



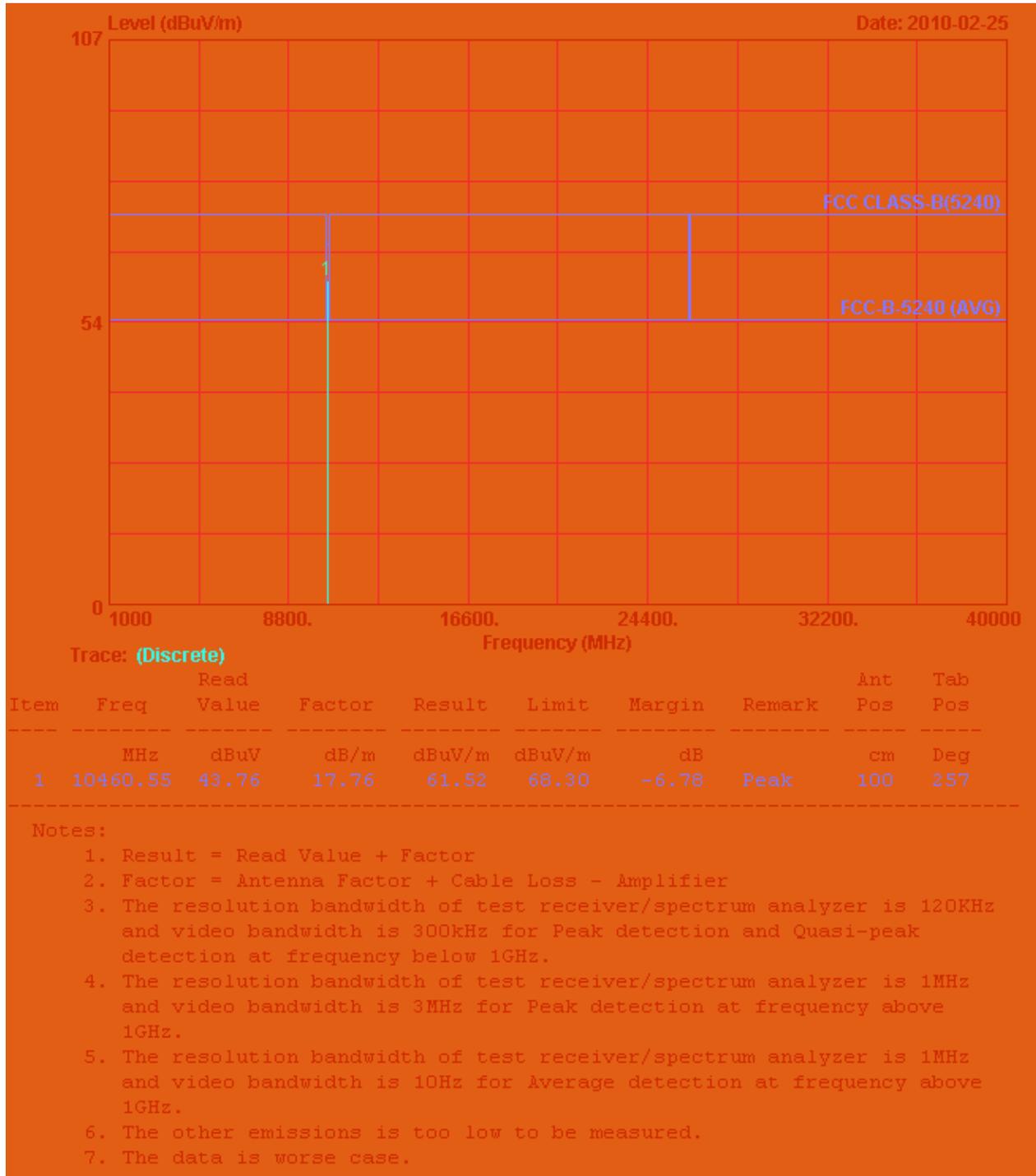


Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11an HT40, CH42	Temperature	: 27 °C
Memo	:	Humidity	: 70 %



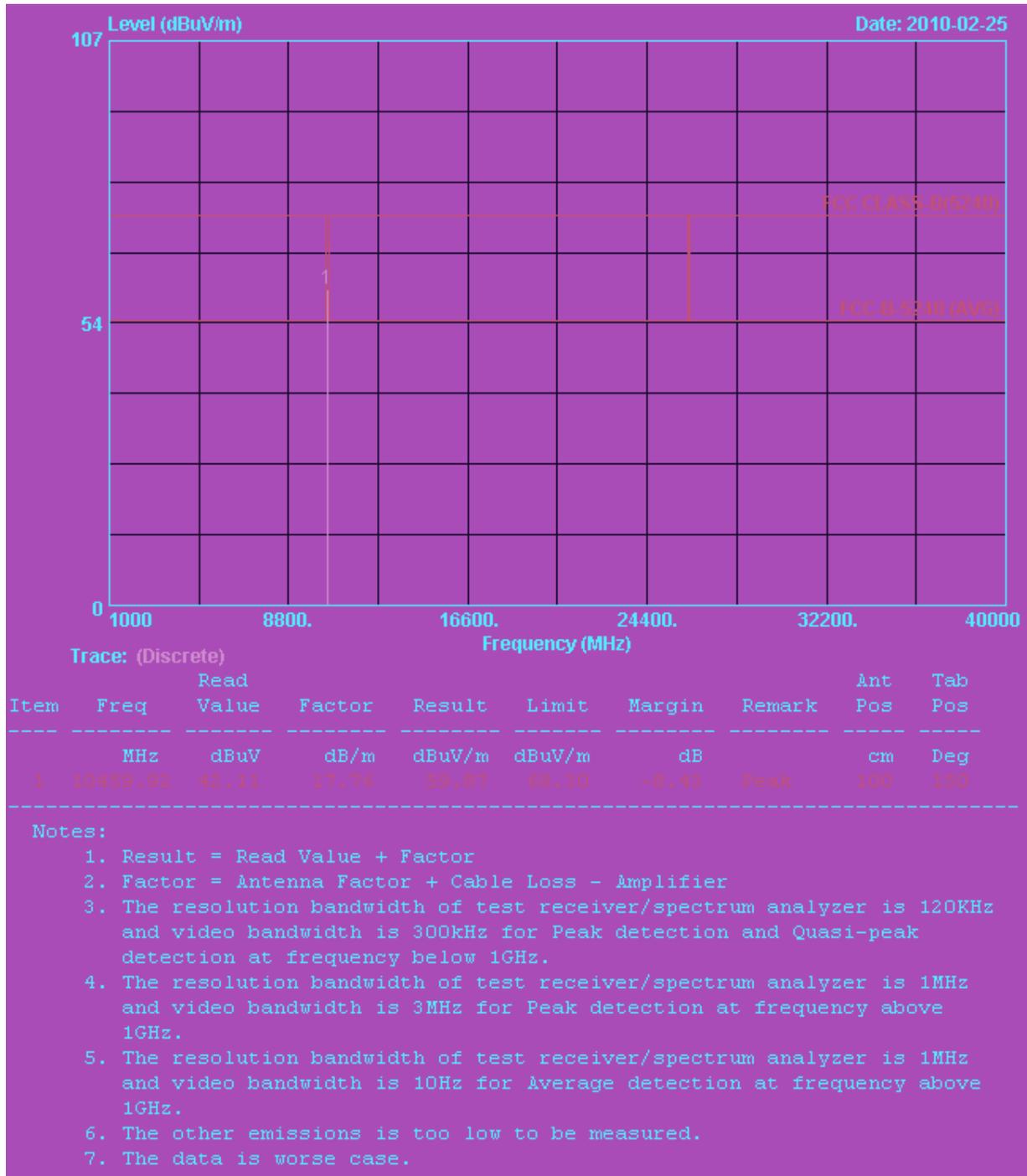


Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: 802.11an HT40, CH46	Temperature	: 27 °C
Memo	:	Humidity	: 70 %





Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11an HT40, CH46	Temperature	: 27 °C
Memo	:	Humidity	: 70 %



Test engineer: Ben



5.5. Photographs of Radiated Emission Test

Front View



Rear View



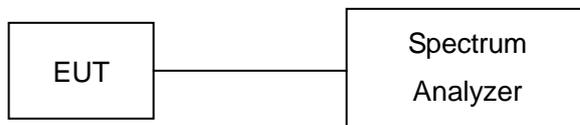


6. Peak Transmit Power

6.1. Test Procedure

The antenna port (RF output) of the EUT was connected to the input (RF input) of a spectrum analyzer. Power was read directly from the spectrum analyzer and cable loss connection was added to the reading to obtain power at the EUT antenna terminal. The EUT Output Power was set to maximum to produce the worse case test result.

6.2. Test Setup Layout



6.3. Measurement Equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	FSP40	R&S	10047	2009/03/26	2010/03/25



6.4. Test Result and Data

Test Date: Feb. 24, 2010

Temperature: 23°C

Atmospheric pressure: 1020 hPa

Humidity: 66%

Modulation Standard: IEEE 802.11a (54Mbps)

Channel	Frequency (MHz)	Peak Power Output (dBm)			Peak Power Output (mW)			26dB Occupied Bandwidth (MHz)		
		Ant 1	Ant 2	Ant 3	Ant 1	Ant 2	Ant 3	Ant 1	Ant 2	Ant 3
36	5180	16.05	16.22	16.20	40.3	41.9	41.7	22.5	22.8	23.7
44	5220	16.13	16.01	16.20	41.0	39.9	41.7	22.6	22.4	22.7
48	5240	16.12	16.00	16.16	40.9	39.8	41.3	22.6	22.6	22.9

Modulation Standard: IEEE 802.11an HT20 (130Mbps)

Channel	Frequency (MHz)	Peak Power Output (dBm)				Peak Power Output(mW)	26dB Occupied Bandwidth (MHz)		
		Ant 1	Ant 2	Ant 3	Total	Total	Ant 1	Ant 2	Ant 3
36	5180	9.53	6.57	6.12	12.46	17.61	23.7	23.2	23.4
44	5220	9.81	6.19	6.69	12.65	18.40	22.7	22.2	23.5
48	5240	9.50	7.17	6.64	12.73	18.74	23.8	22.5	22.7

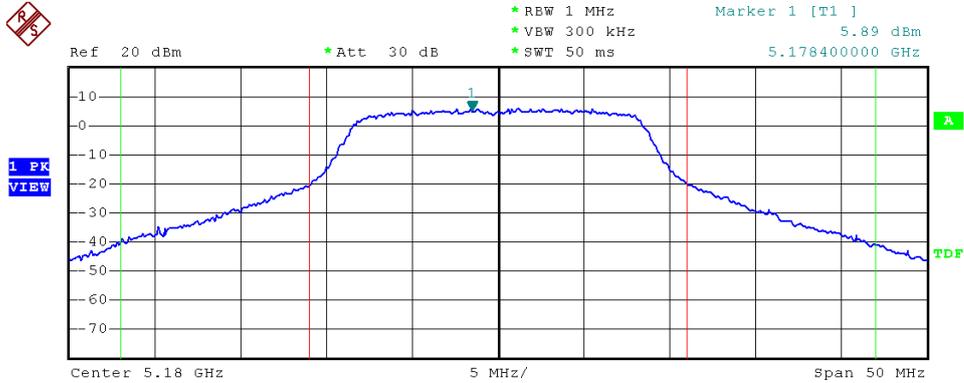
Modulation Standard: IEEE 802.11an HT40 (27Mbps)

Channel	Frequency (MHz)	Peak Power Output (dBm)				Peak Power Output(mW)	26dB Occupied Bandwidth (MHz)		
		Ant 1	Ant 2	Ant 3	Total	Total	Ant 1	Ant 2	Ant 3
38	5190	10.29	7.19	6.87	13.18	20.79	43.2	43.6	43.6
42	5210	10.44	7.06	7.14	13.29	21.32	44.4	44.0	43.4
46	5230	10.65	7.13	7.38	13.47	22.25	43.2	43.8	43.4



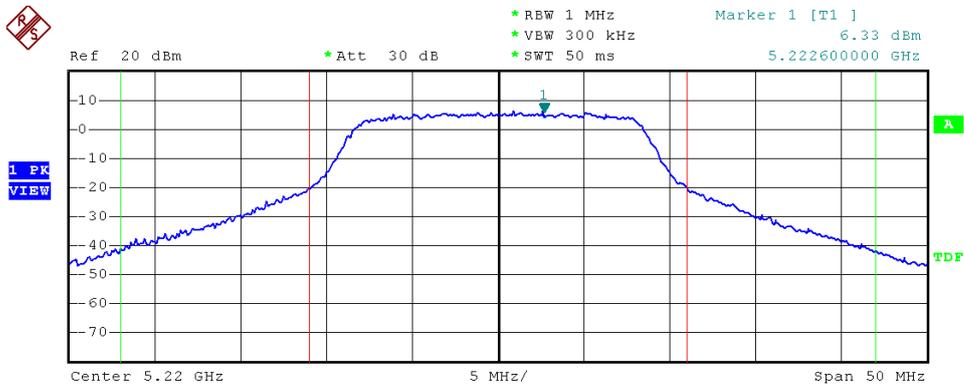
Peak Transmit Power

Modulation Standard: 802.11a (54Mbps), Ant 1
Channel: 36



Tx Channel			
Bandwidth	22 MHz	Power	16.05 dBm
Adjacent Channel			
Bandwidth	11 MHz	Lower	-34.04 dB
Spacing	16.5 MHz	Upper	-33.90 dB
Alternate Channel			
Bandwidth	11 MHz	Lower	-----
Spacing	27.5 MHz	Upper	-----

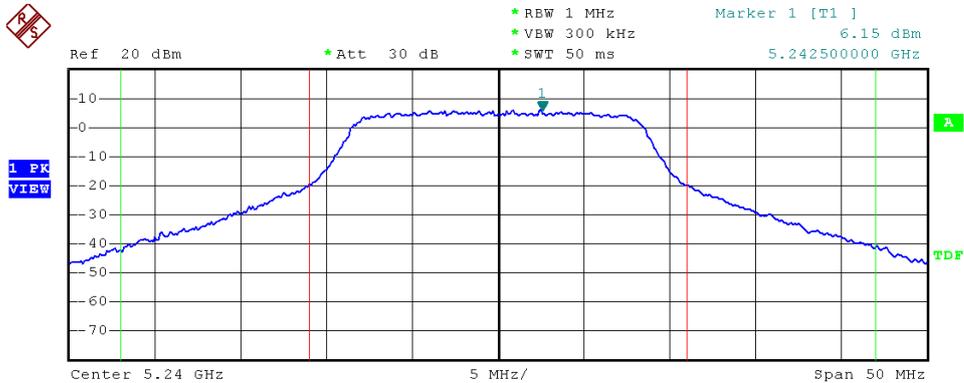
Modulation Standard: 802.11a (54Mbps), Ant 1
Channel: 44



Tx Channel			
Bandwidth	22 MHz	Power	16.13 dBm
Adjacent Channel			
Bandwidth	11 MHz	Lower	-34.73 dB
Spacing	16.5 MHz	Upper	-34.57 dB
Alternate Channel			
Bandwidth	11 MHz	Lower	-----
Spacing	27.5 MHz	Upper	-----

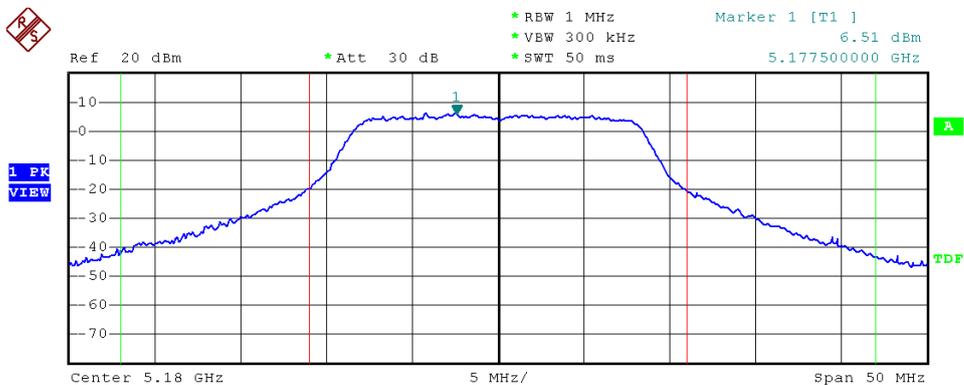


Modulation Standard: 802.11a (54Mbps), Ant 1
Channel: 48



Tx Channel		Bandwidth	22 MHz	Power	16.12 dBm
Adjacent Channel		Bandwidth	11 MHz	Lower	-34.19 dB
	Spacing	16.5 MHz	Upper	-34.17 dB	
Alternate Channel		Bandwidth	11 MHz	Lower	-----
	Spacing	27.5 MHz	Upper	-----	

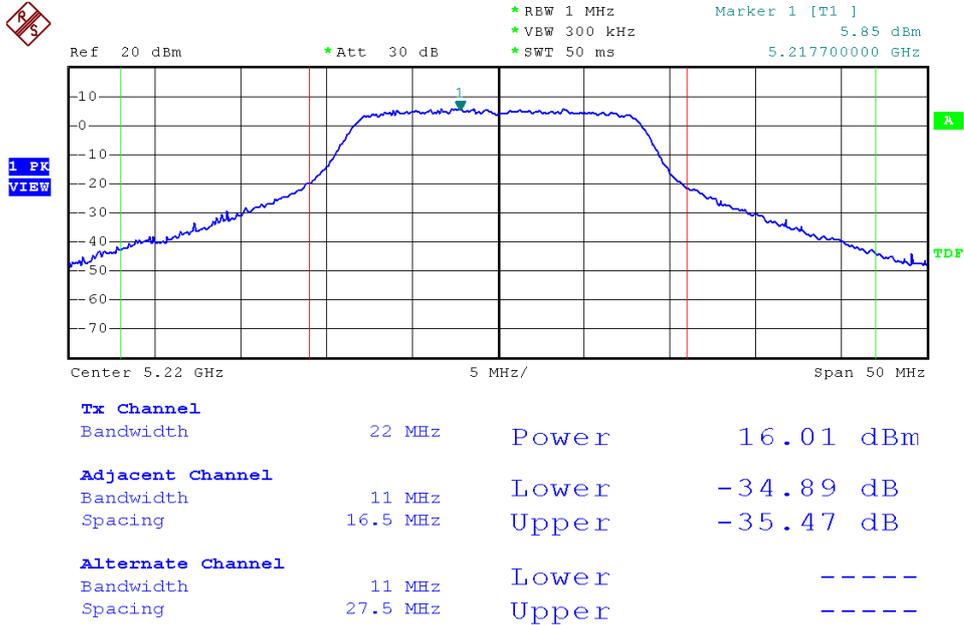
Modulation Standard: 802.11a (54Mbps), Ant 2
Channel: 36



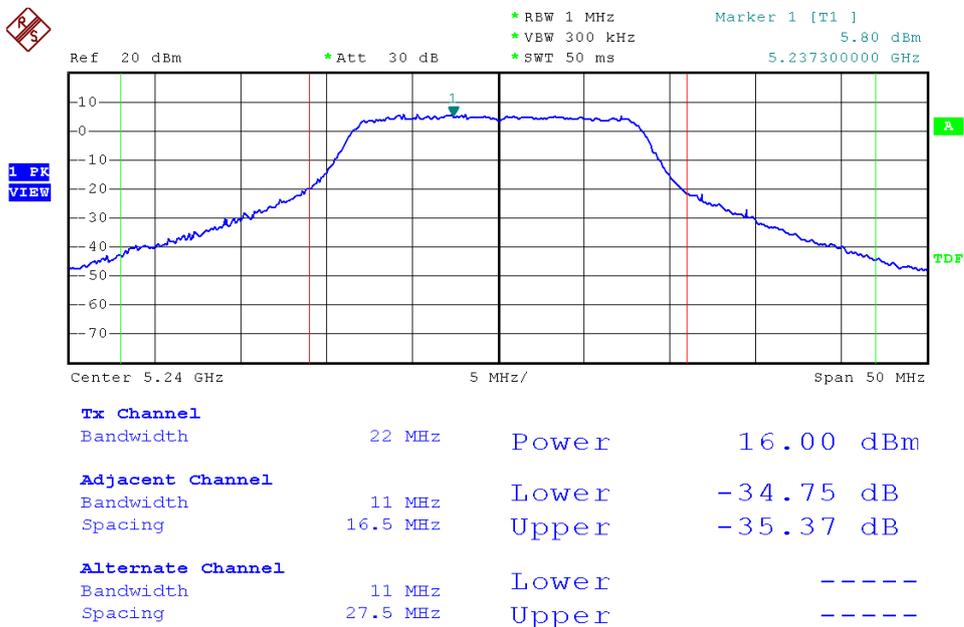
Tx Channel		Bandwidth	22 MHz	Power	16.22 dBm
Adjacent Channel		Bandwidth	11 MHz	Lower	-34.88 dB
	Spacing	16.5 MHz	Upper	-35.04 dB	
Alternate Channel		Bandwidth	11 MHz	Lower	-----
	Spacing	27.5 MHz	Upper	-----	



Modulation Standard: 802.11a (54Mbps), Ant 2
Channel: 44

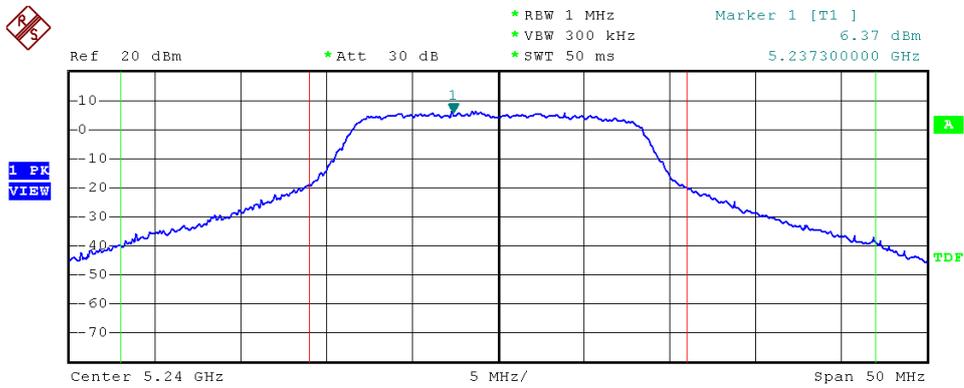


Modulation Standard: 802.11a (54Mbps), Ant 2
Channel: 48





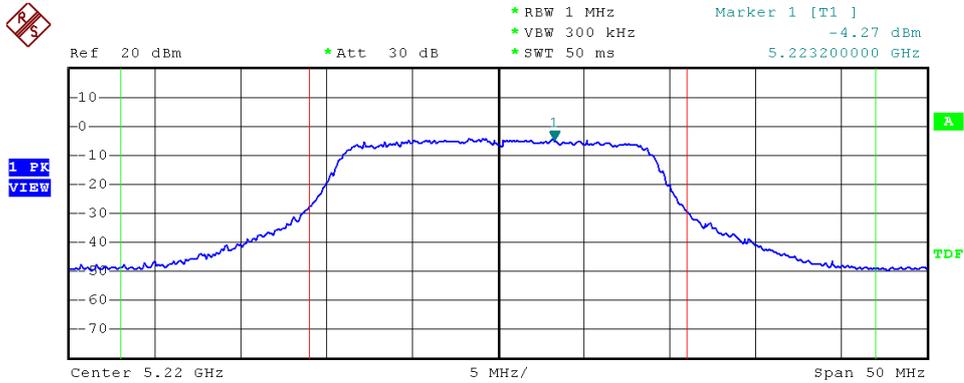
Modulation Standard: 802.11a (54Mbps), Ant 3
Channel: 48



Tx Channel			
Bandwidth	22 MHz	Power	16.16 dBm
Adjacent Channel			
Bandwidth	11 MHz	Lower	-33.21 dB
Spacing	16.5 MHz	Upper	-33.95 dB
Alternate Channel			
Bandwidth	11 MHz	Lower	-----
Spacing	27.5 MHz	Upper	-----

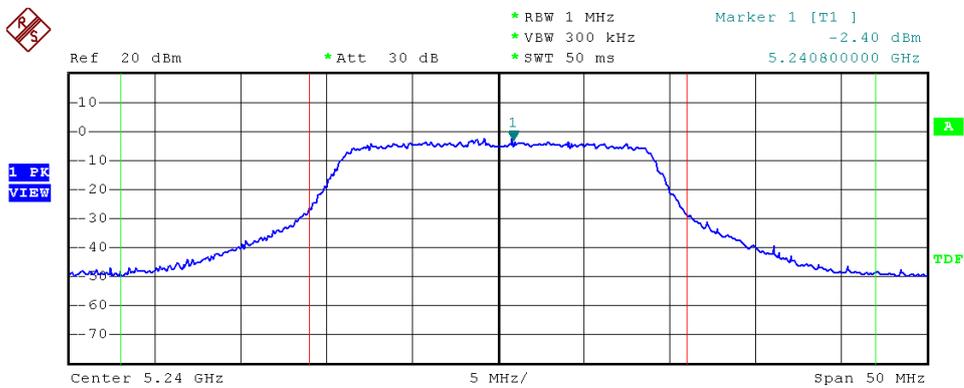


Modulation Standard: 802.11an HT20 (130Mbps), Ant 2
Channel: 44



Tx Channel			
Bandwidth	22 MHz	Power	6.19 dBm
Adjacent Channel			
Bandwidth	11 MHz	Lower	-34.49 dB
Spacing	16.5 MHz	Upper	-35.18 dB
Alternate Channel			
Bandwidth	11 MHz	Lower	-----
Spacing	27.5 MHz	Upper	-----

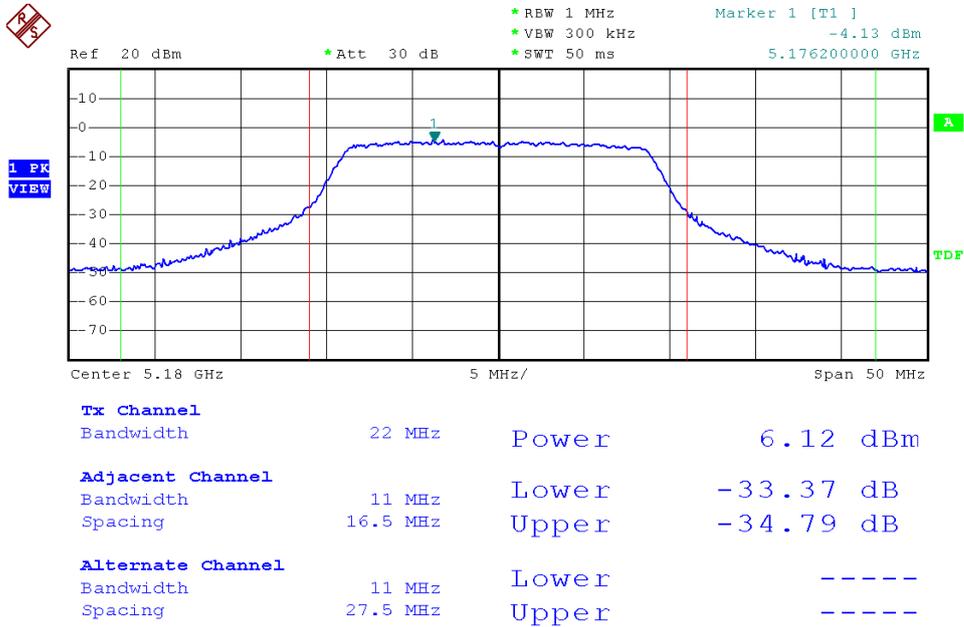
Modulation Standard: 802.11an HT20 (130Mbps), Ant 2
Channel: 48



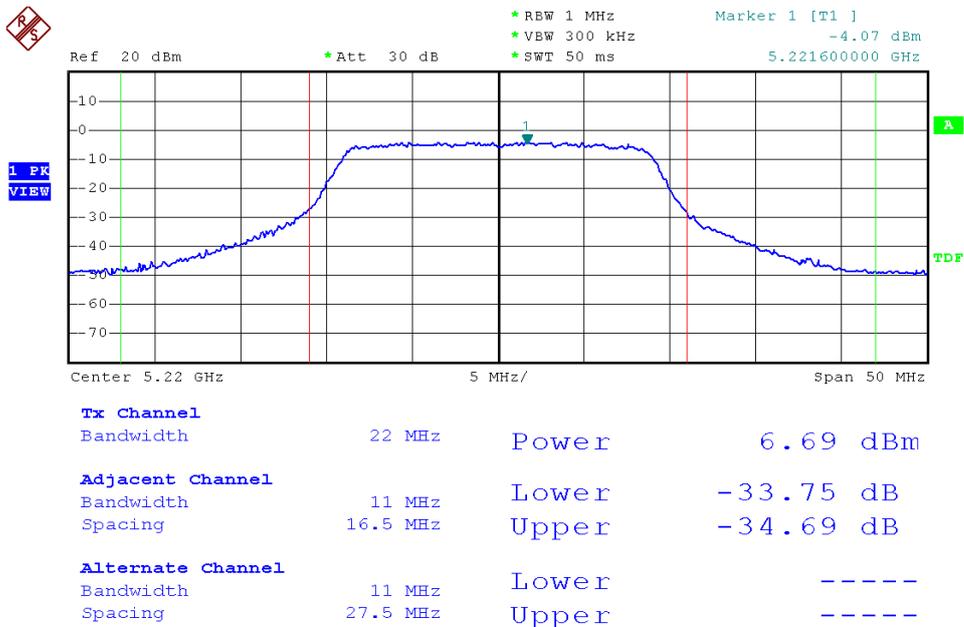
Tx Channel			
Bandwidth	22 MHz	Power	7.17 dBm
Adjacent Channel			
Bandwidth	11 MHz	Lower	-34.65 dB
Spacing	16.5 MHz	Upper	-35.02 dB
Alternate Channel			
Bandwidth	11 MHz	Lower	-----
Spacing	27.5 MHz	Upper	-----



Modulation Standard: 802.11an HT20 (130Mbps), Ant 3
Channel: 36

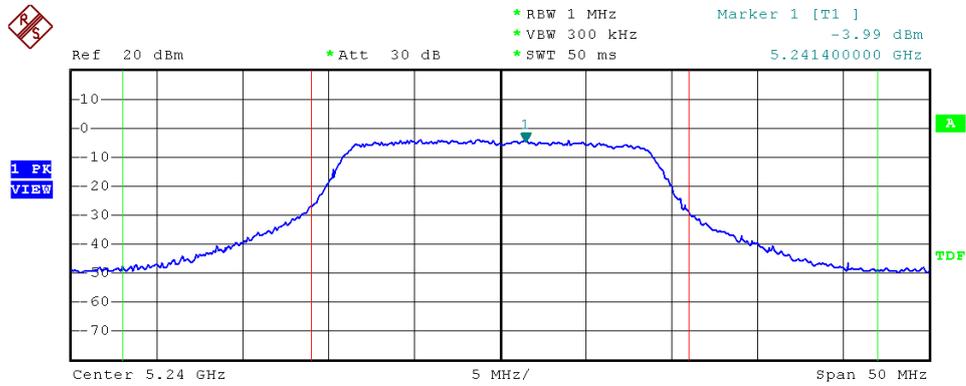


Modulation Standard: 802.11an HT20 (130Mbps), Ant 3
Channel: 44





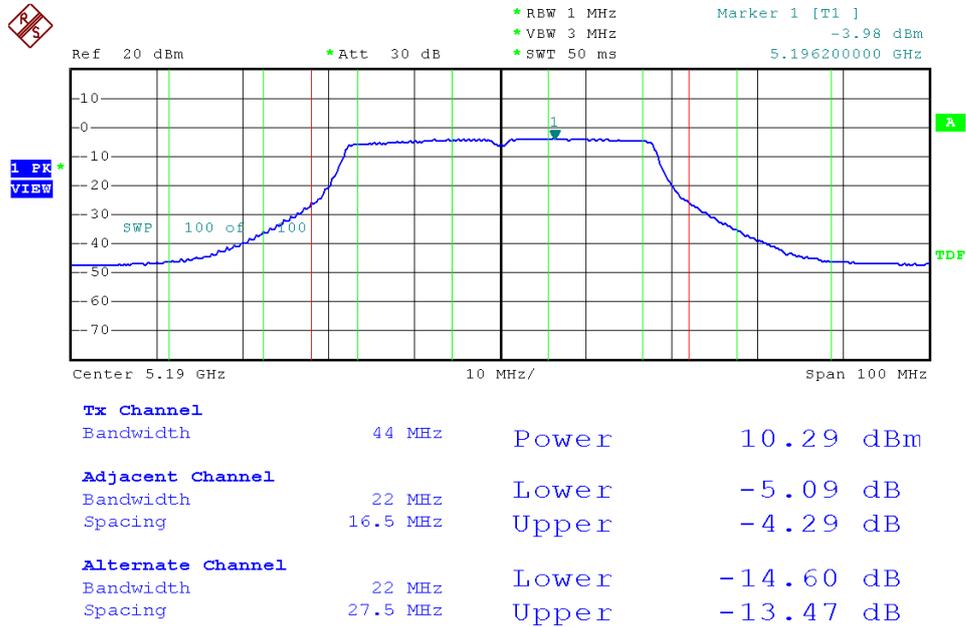
Modulation Standard: 802.11an HT20 (130Mbps), Ant 3
Channel: 48



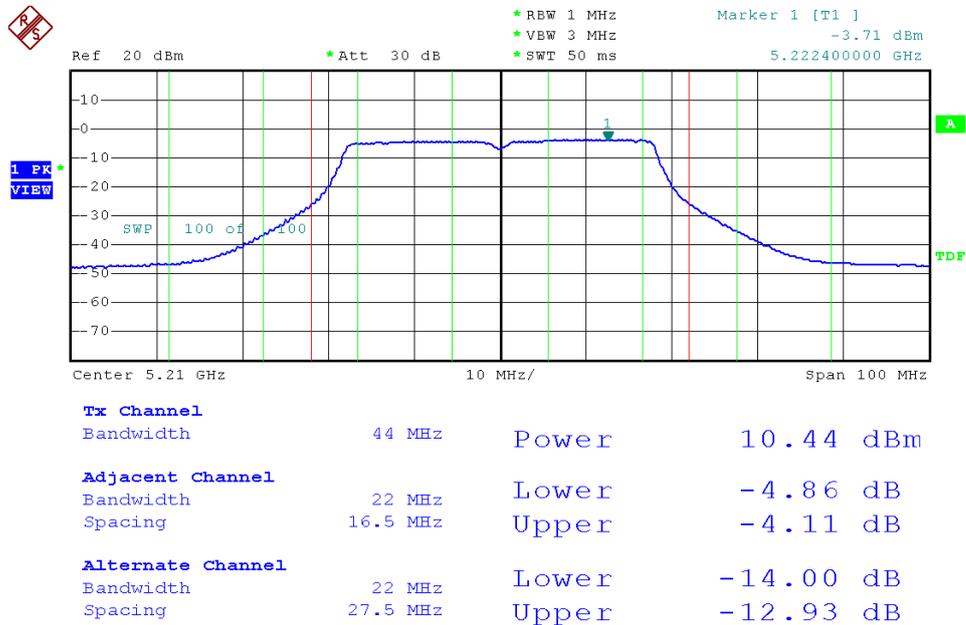
Tx Channel		Bandwidth	22 MHz	Power	6.64 dBm
Adjacent Channel		Bandwidth	11 MHz	Lower	-33.70 dB
	Spacing	16.5 MHz	Upper	-35.04 dB	
Alternate Channel		Bandwidth	11 MHz	Lower	-----
	Spacing	27.5 MHz	Upper	-----	



Modulation Standard: 802.11an HT40 (27Mbps), Ant 1
Channel: 38

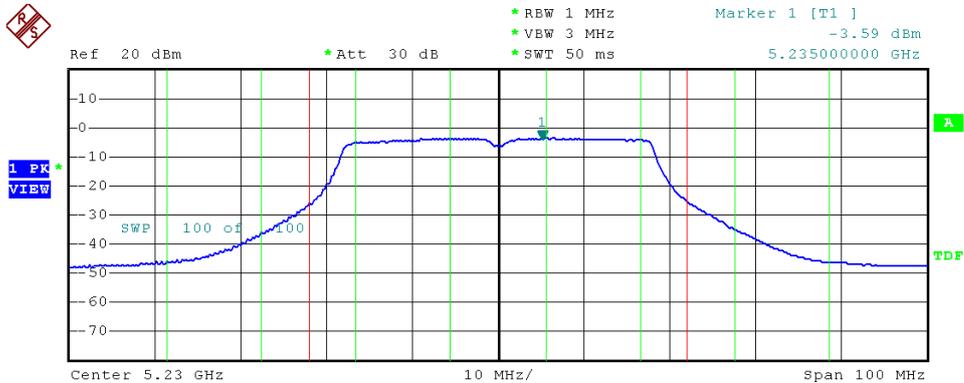


Modulation Standard: 802.11an HT40 (27Mbps), Ant 1
Channel: 42



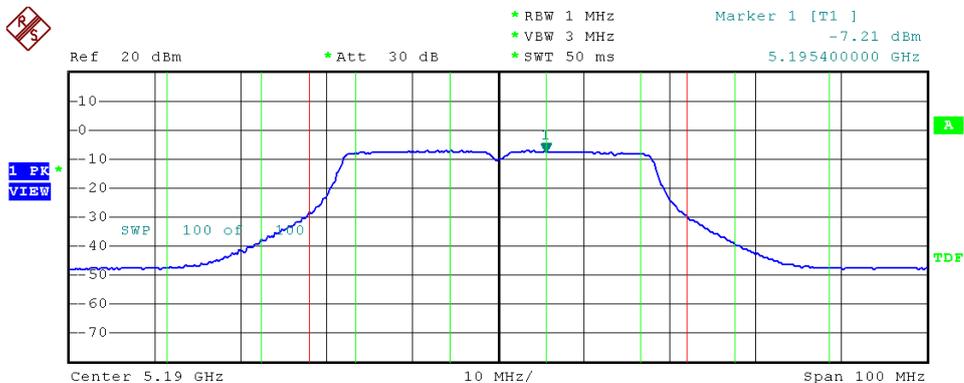


Modulation Standard: 802.11an HT40 (27Mbps), Ant 1
Channel: 46



Tx Channel		Bandwidth	44 MHz	Power	10.65 dBm
Adjacent Channel		Bandwidth	22 MHz	Lower	-4.89 dB
	Spacing	16.5 MHz	Upper	-4.36 dB	
Alternate Channel		Bandwidth	22 MHz	Lower	-14.45 dB
	Spacing	27.5 MHz	Upper	-13.28 dB	

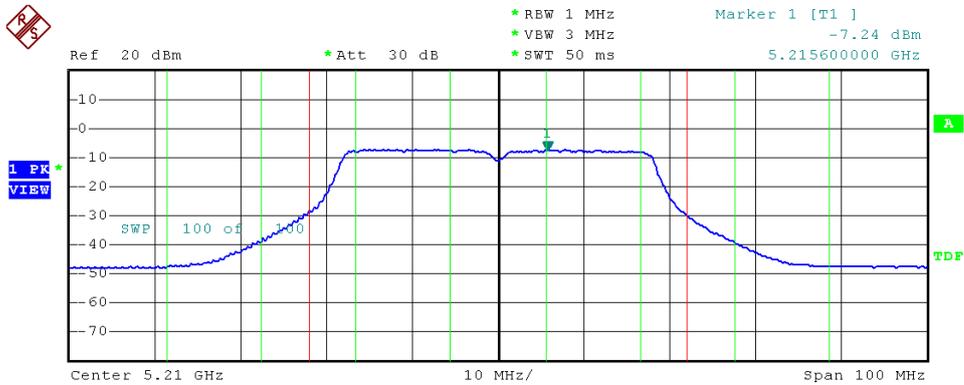
Modulation Standard: 802.11an HT40 (27Mbps), Ant 2
Channel: 38



Tx Channel		Bandwidth	44 MHz	Power	7.19 dBm
Adjacent Channel		Bandwidth	22 MHz	Lower	-4.45 dB
	Spacing	16.5 MHz	Upper	-4.72 dB	
Alternate Channel		Bandwidth	22 MHz	Lower	-13.47 dB
	Spacing	27.5 MHz	Upper	-13.71 dB	

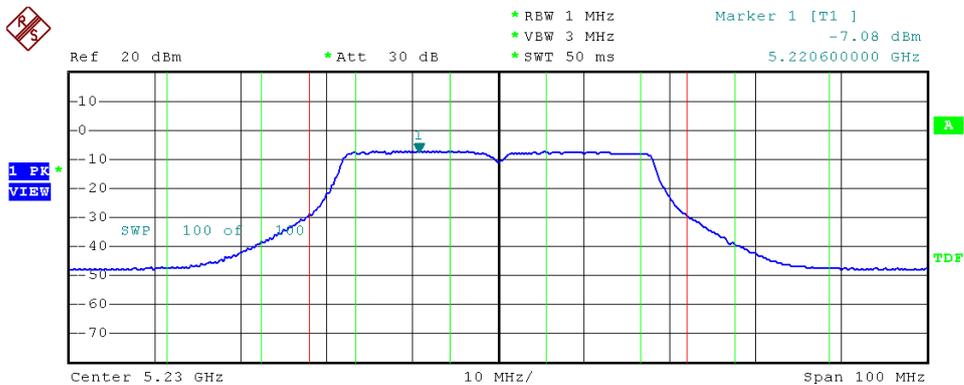


Modulation Standard: 802.11an HT40 (27Mbps), Ant 2
Channel: 42



Tx Channel			
Bandwidth	44 MHz	Power	7.06 dBm
Adjacent Channel			
Bandwidth	22 MHz	Lower	-4.33 dB
Spacing	16.5 MHz	Upper	-4.62 dB
Alternate Channel			
Bandwidth	22 MHz	Lower	-13.18 dB
Spacing	27.5 MHz	Upper	-13.63 dB

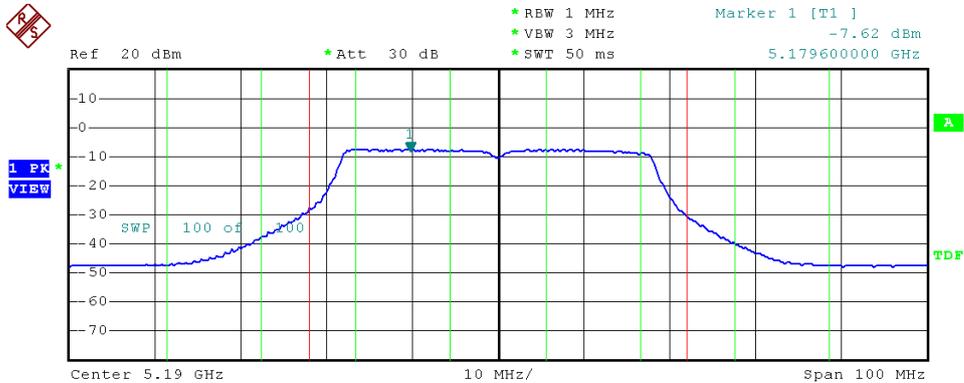
Modulation Standard: 802.11an HT40 (27Mbps), Ant 2
Channel: 46



Tx Channel			
Bandwidth	44 MHz	Power	7.13 dBm
Adjacent Channel			
Bandwidth	22 MHz	Lower	-4.34 dB
Spacing	16.5 MHz	Upper	-4.64 dB
Alternate Channel			
Bandwidth	22 MHz	Lower	-13.33 dB
Spacing	27.5 MHz	Upper	-13.54 dB

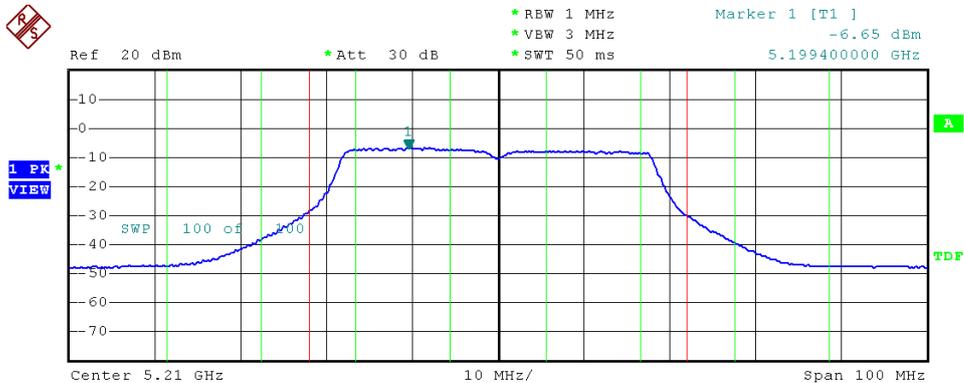


Modulation Standard: 802.11an HT40 (27Mbps), Ant 3
Channel: 38



Tx Channel			
Bandwidth	44 MHz	Power	6.87 dBm
Adjacent Channel			
Bandwidth	22 MHz	Lower	-4.26 dB
Spacing	16.5 MHz	Upper	-4.72 dB
Alternate Channel			
Bandwidth	22 MHz	Lower	-12.78 dB
Spacing	27.5 MHz	Upper	-14.08 dB

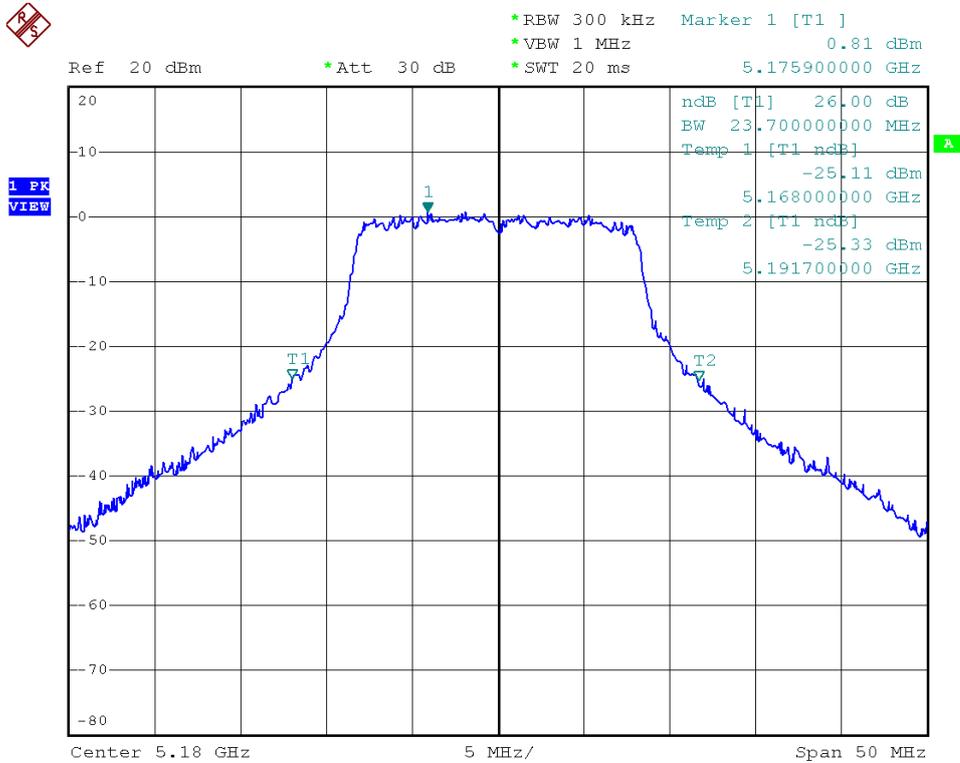
Modulation Standard: 802.11an HT40 (27Mbps), Ant 3
Channel: 42



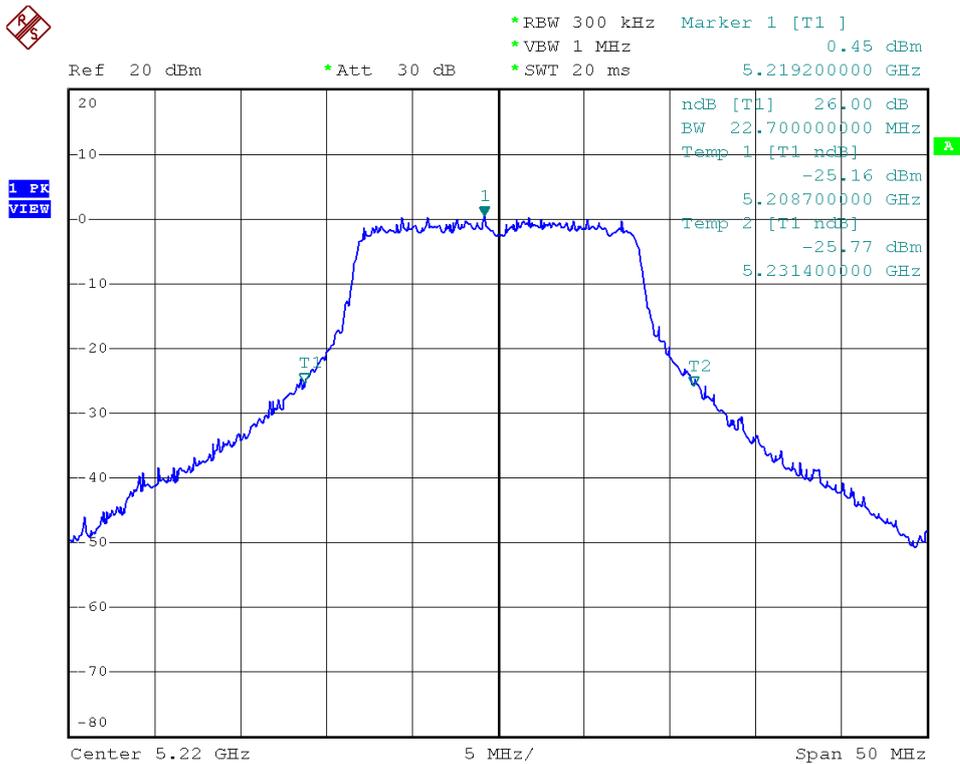
Tx Channel			
Bandwidth	44 MHz	Power	7.14 dBm
Adjacent Channel			
Bandwidth	22 MHz	Lower	-3.96 dB
Spacing	16.5 MHz	Upper	-4.96 dB
Alternate Channel			
Bandwidth	22 MHz	Lower	-12.76 dB
Spacing	27.5 MHz	Upper	-13.83 dB



Modulation Standard: 802.11a (54Mbps), Ant 3
Channel: 36

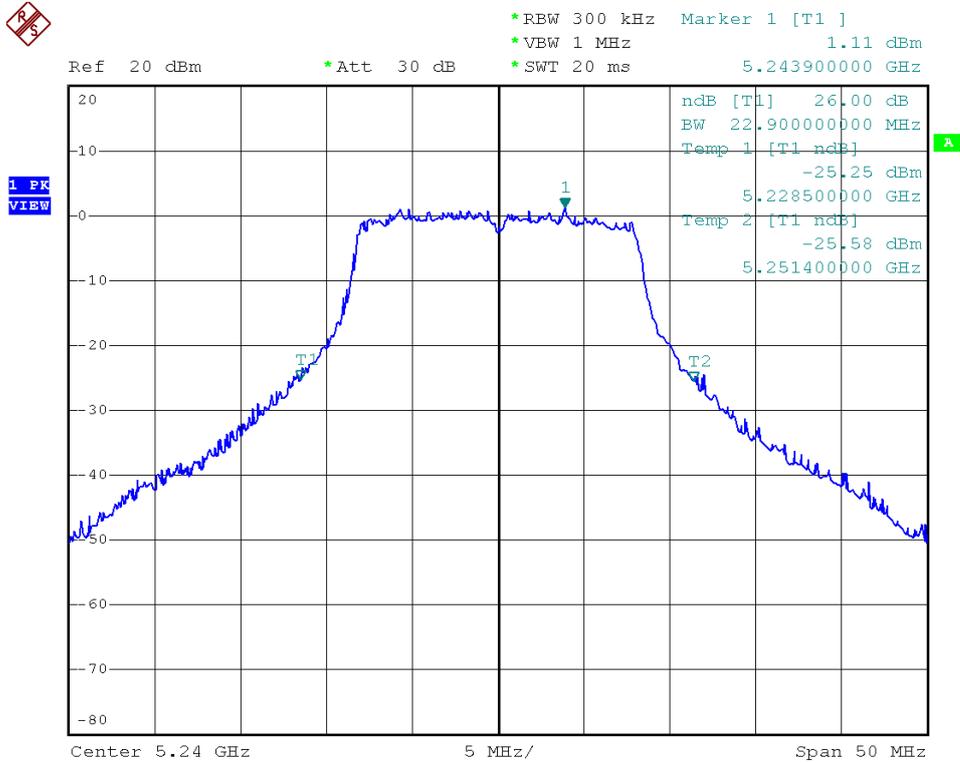


Modulation Standard: 802.11a (54Mbps), Ant 3
Channel: 44



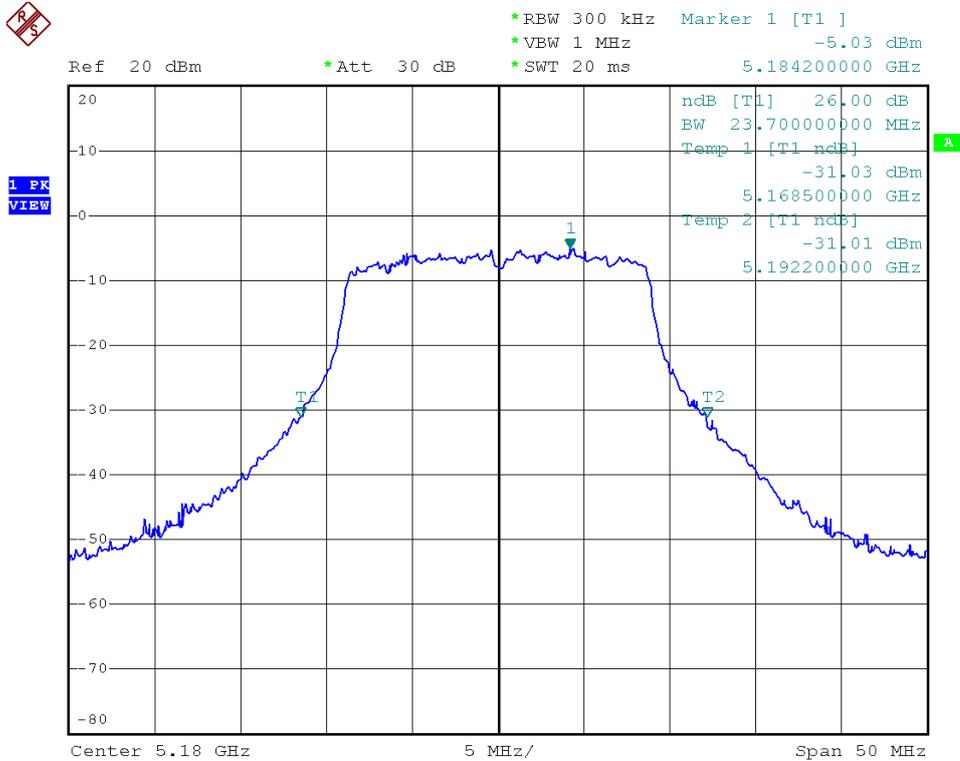


Modulation Standard: 802.11a (54Mbps), Ant 3
Channel: 48

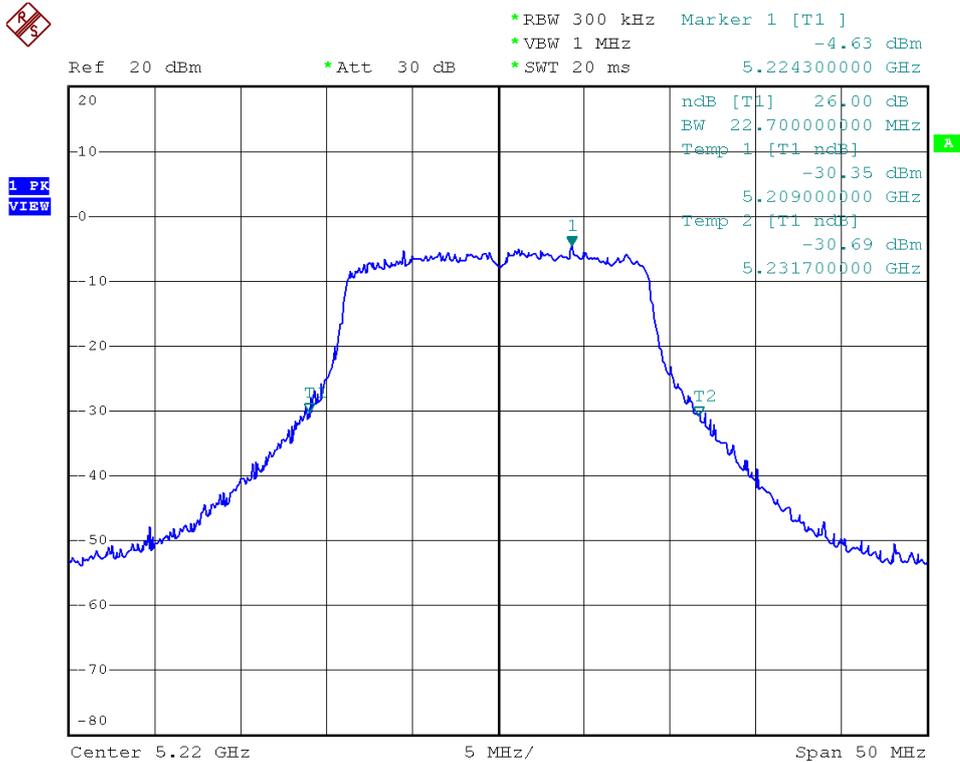




Modulation Standard: 802.11an HT20 (130Mbps), Ant 1
Channel: 36

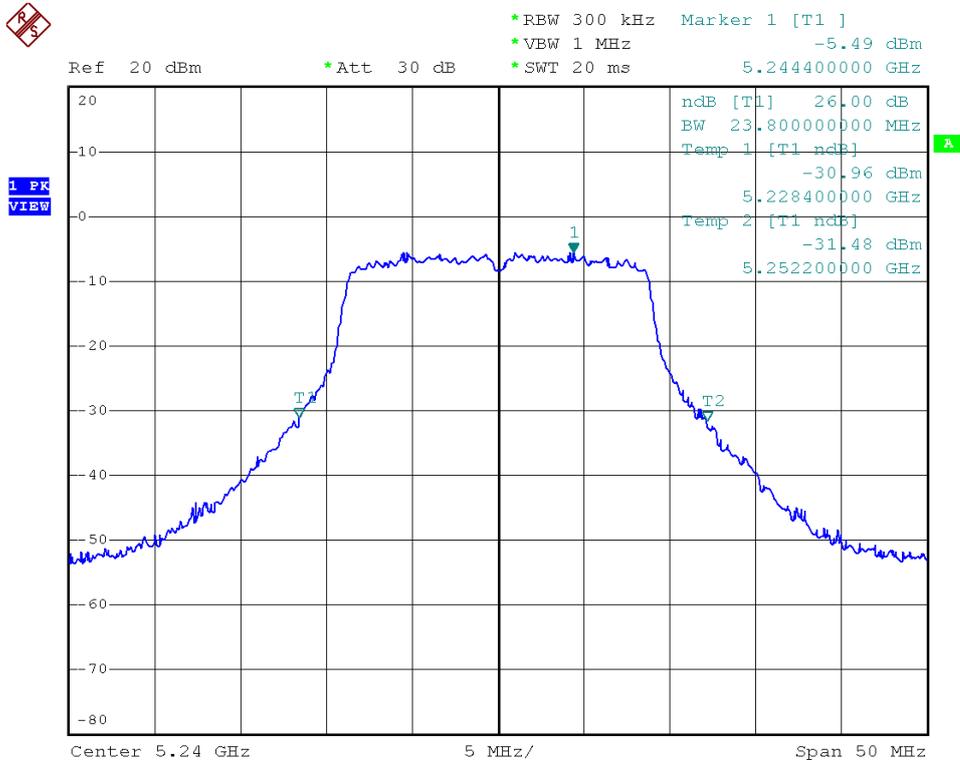


Modulation Standard: 802.11an HT20 (130Mbps), Ant 1
Channel: 44

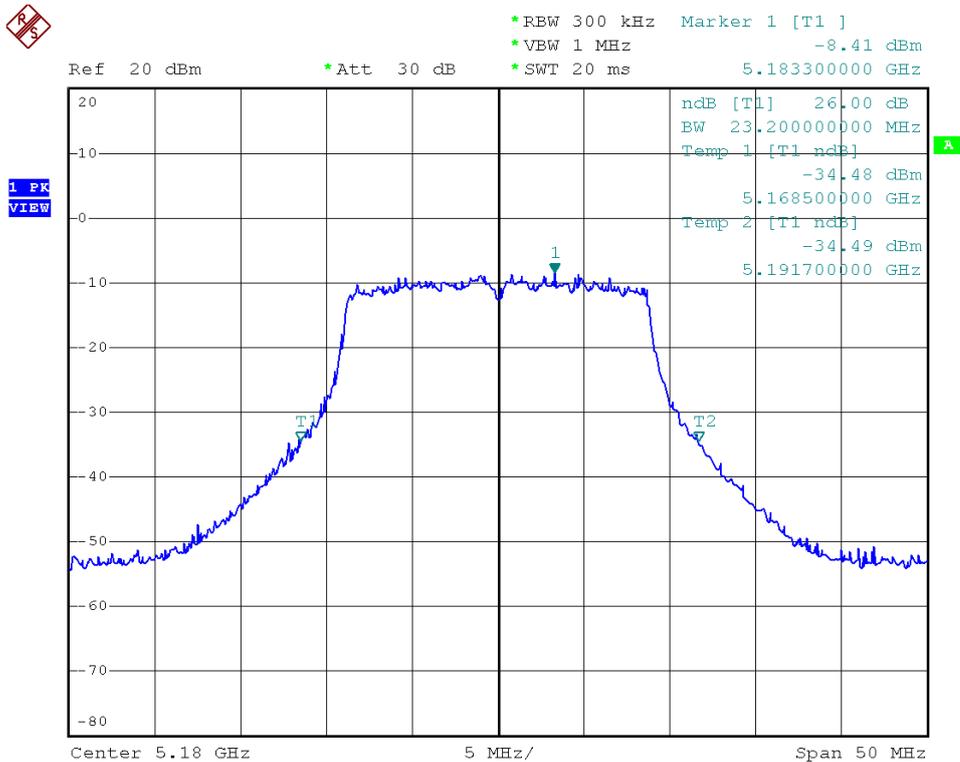




Modulation Standard: 802.11an HT20 (130Mbps), Ant 1
Channel: 48

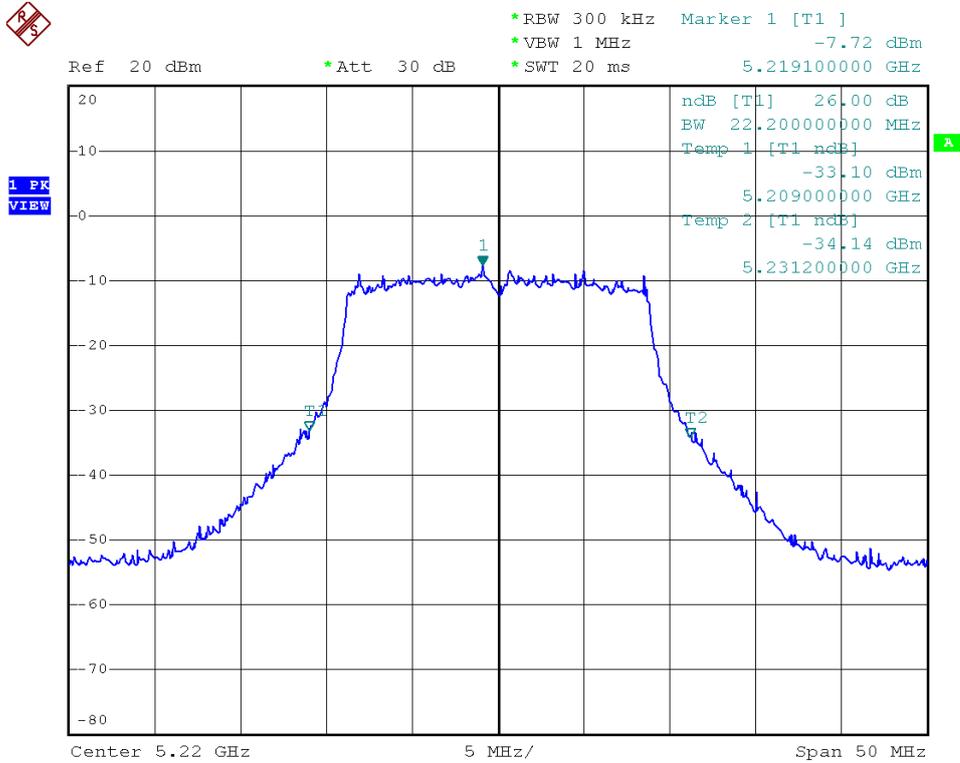


Modulation Standard: 802.11an HT20 (130Mbps), Ant 2
Channel: 36

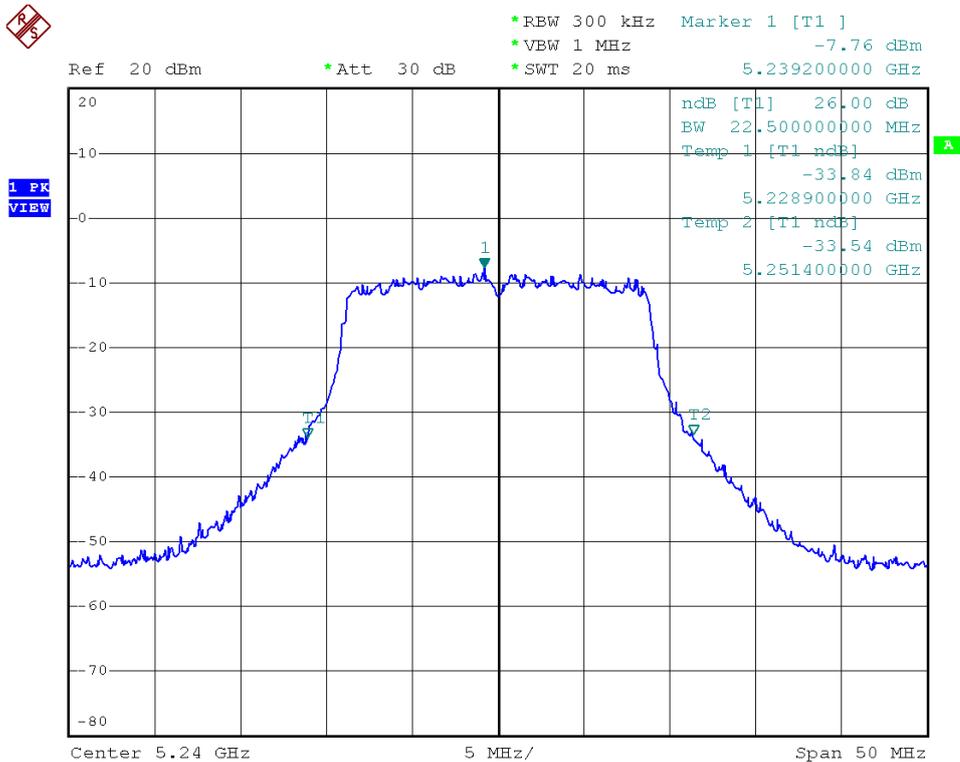




Modulation Standard: 802.11an HT20 (130Mbps), Ant 2
Channel: 44

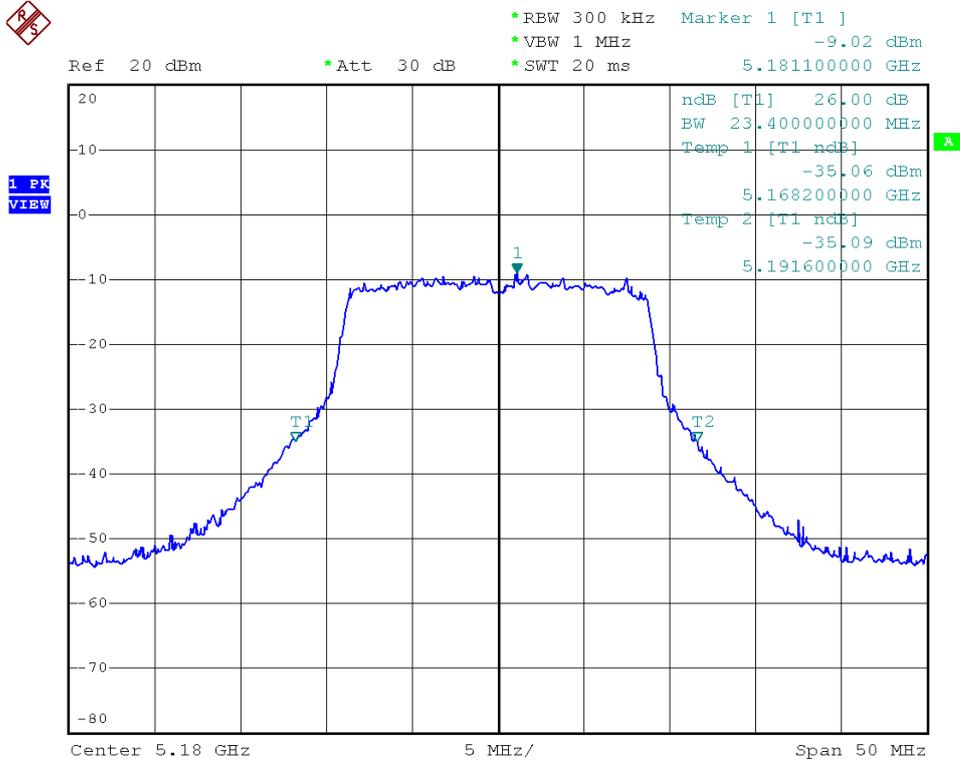


Modulation Standard: 802.11an HT20 (130Mbps), Ant 2
Channel: 48

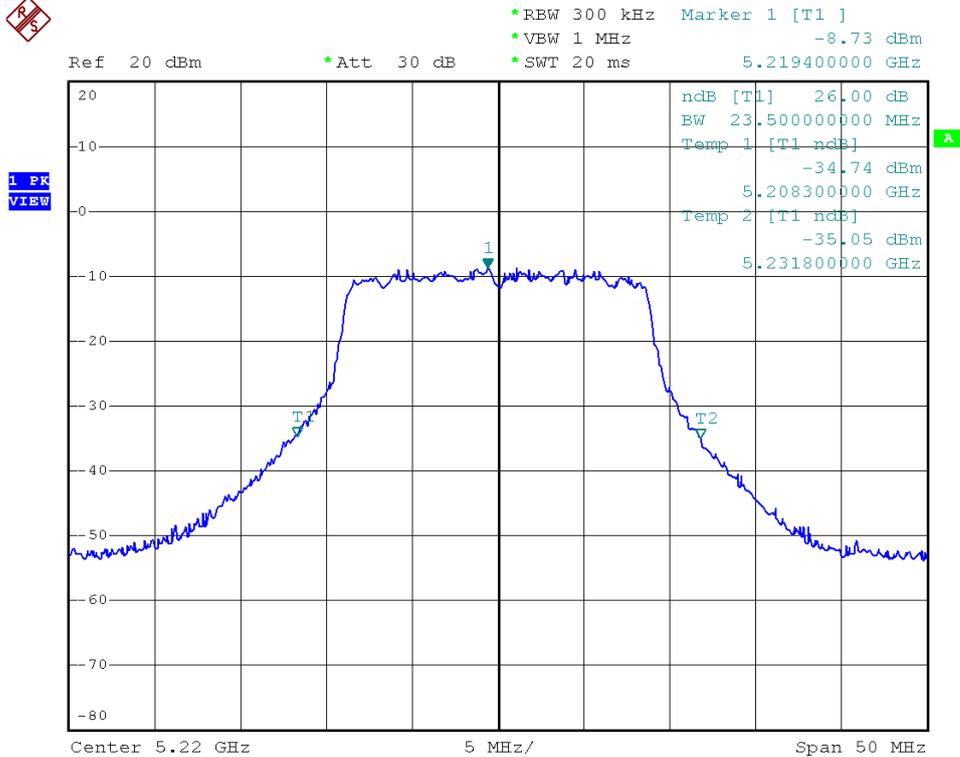




Modulation Standard: 802.11an HT20 (130Mbps), Ant 3
Channel: 36

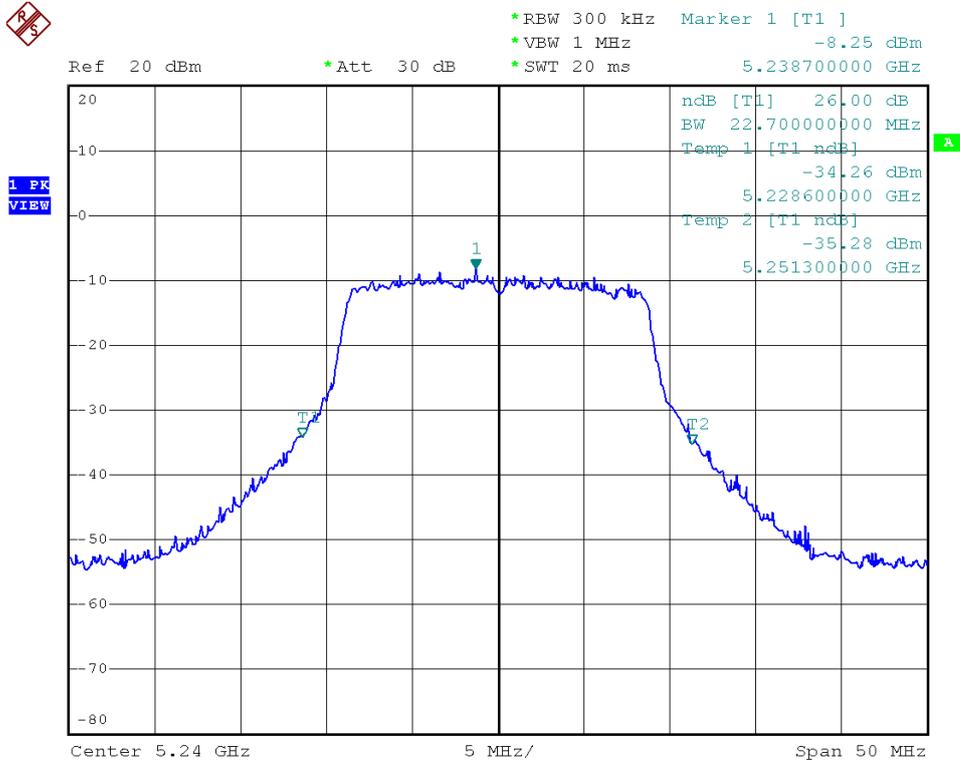


Modulation Standard: 802.11an HT20 (130Mbps), Ant 3
Channel: 44



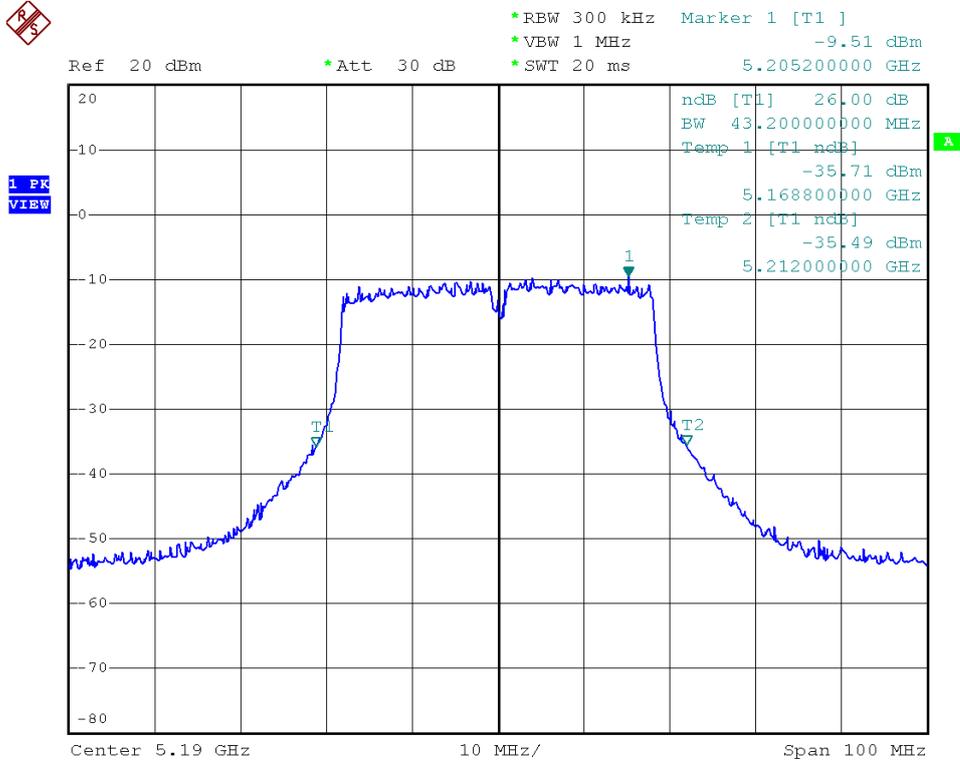


Modulation Standard: 802.11an HT20 (130Mbps), Ant 3
Channel: 48

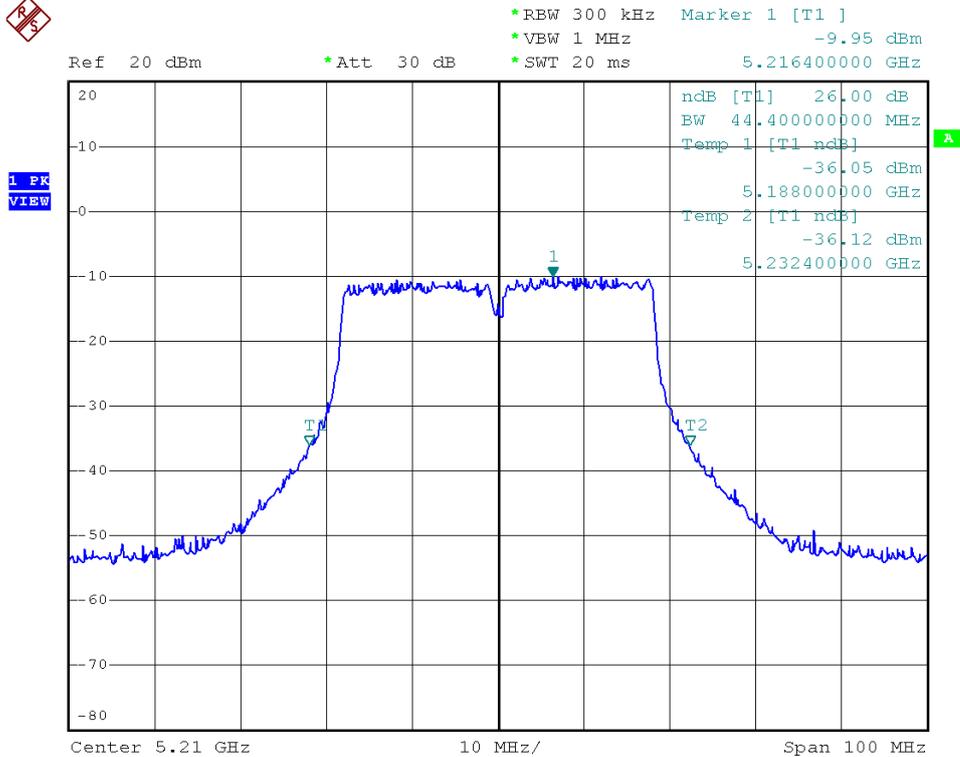




Modulation Standard: 802.11an HT40 (27Mbps), Ant 1
Channel: 38

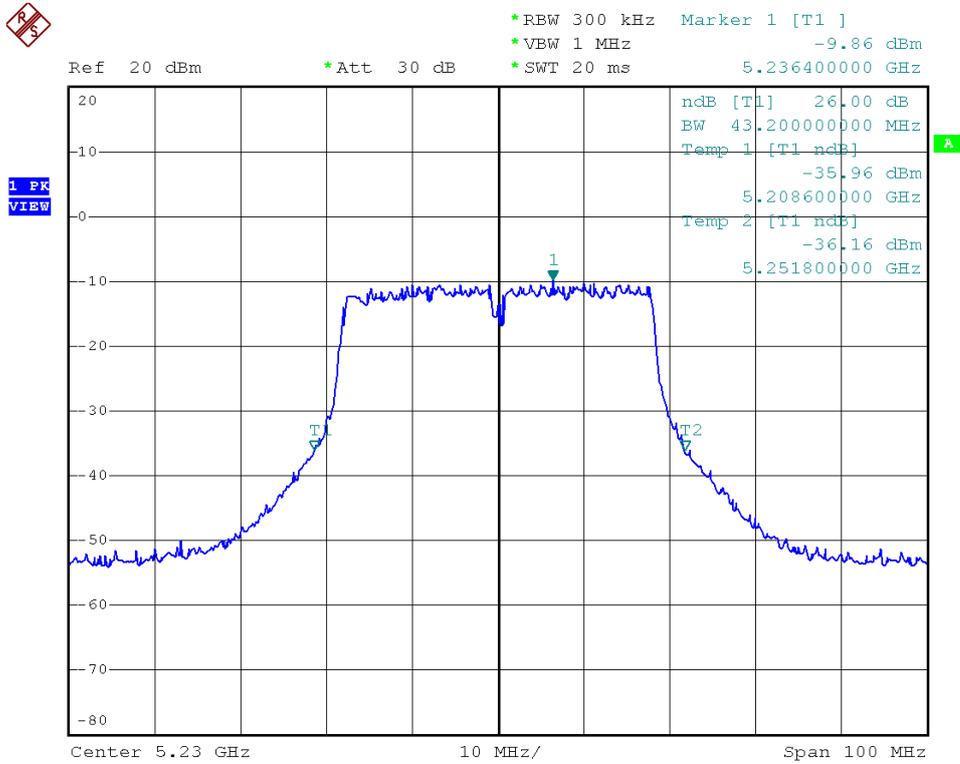


Modulation Standard: 802.11an HT40 (27Mbps), Ant 1
Channel: 42

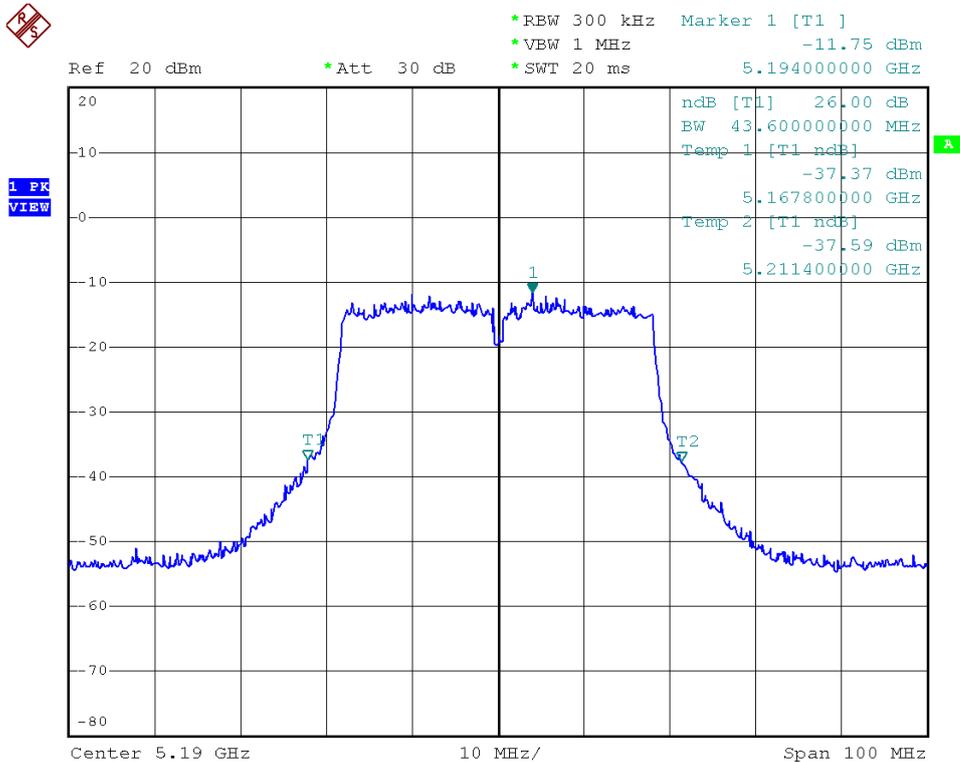




Modulation Standard: 802.11an HT40 (27Mbps), Ant 1
Channel: 46

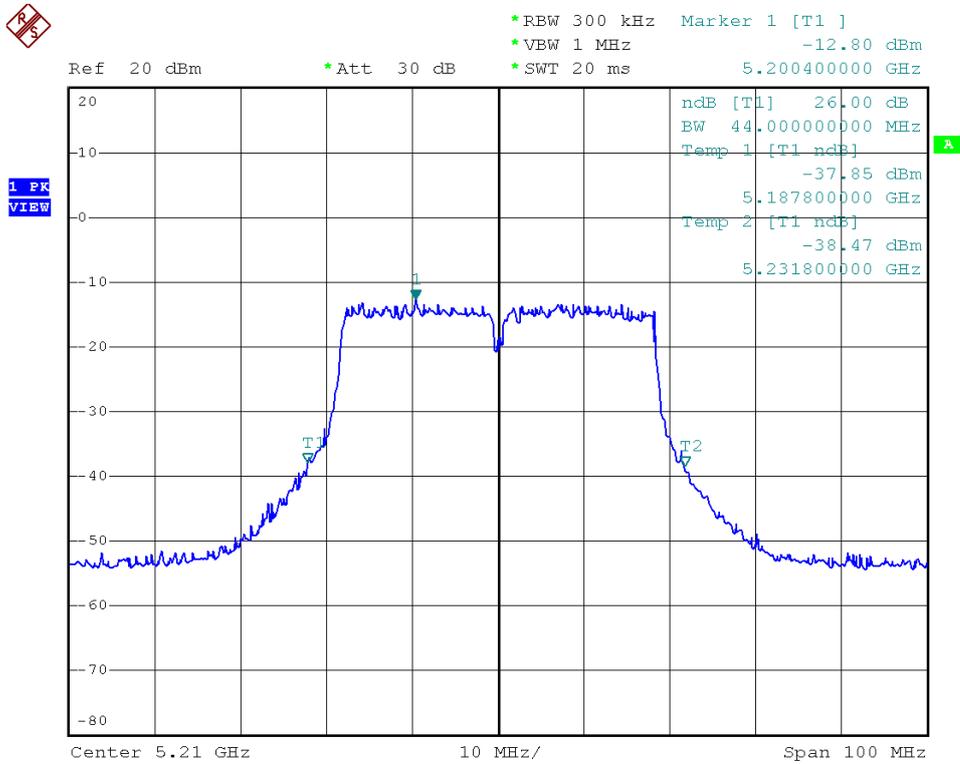


Modulation Standard: 802.11an HT40 (27Mbps), Ant 2
Channel: 38

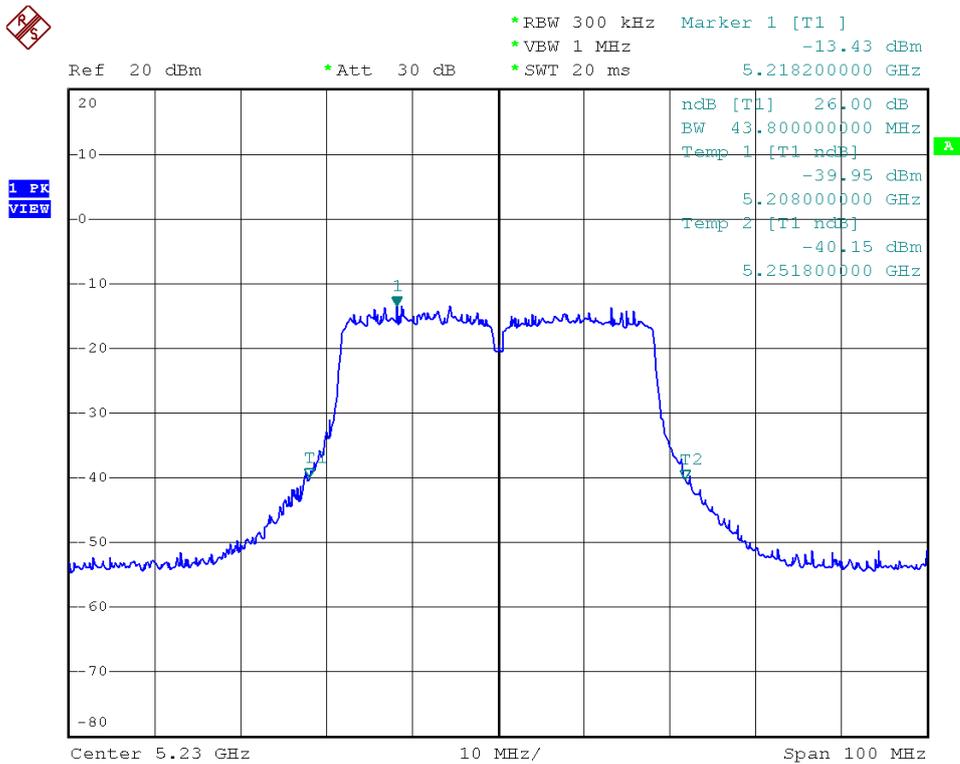




Modulation Standard: 802.11an HT40 (27Mbps), Ant 2
Channel: 42

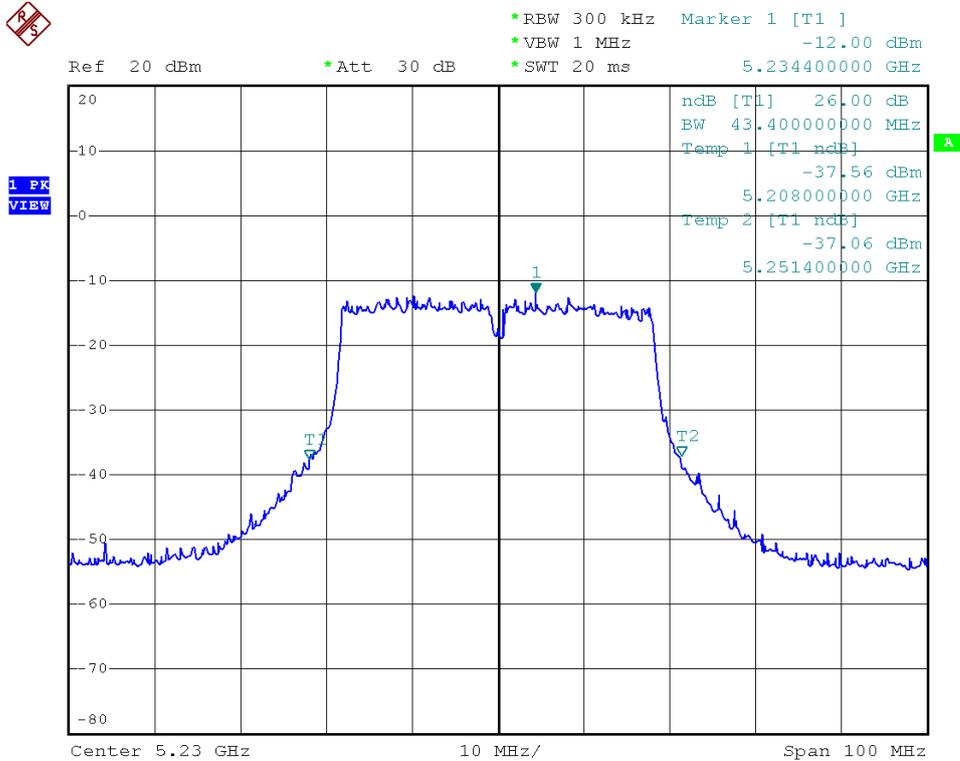


Modulation Standard: 802.11an HT40 (27Mbps), Ant 2
Channel: 46





Modulation Standard: 802.11an HT40 (27Mbps), Ant 3
Channel: 46



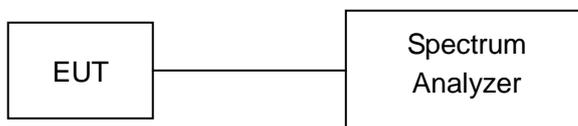


7. Peak Power Excursion

7.1. Test Procedure

1. The transmitter output was connected to the spectrum analyzer
2. Using Peak detector and max-hold function for Trace 1 MHz and VBW to 3 MHz for Trace 1. Using average detector for Trace 2.
3. Set RBW of spectrum analyzer to 1 MHz and VBW to 3 MHz for Trace 1.
4. Set RBW of spectrum analyzer to 1 MHz and VBW to 300 kHz for Trace 2.
5. The largest difference between Trace 1 and Trace 2 in any 1 MHz band on any frequency was recorded.

7.2. Test Setup Layout



7.3. Measurement Equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date.
Spectrum Analyzer	FSP40	R&S	10047	2009/03/26	2010/03/25

7.4. Test Result and Data

Test Date: Feb. 25, 2010

Temperature: 23°C

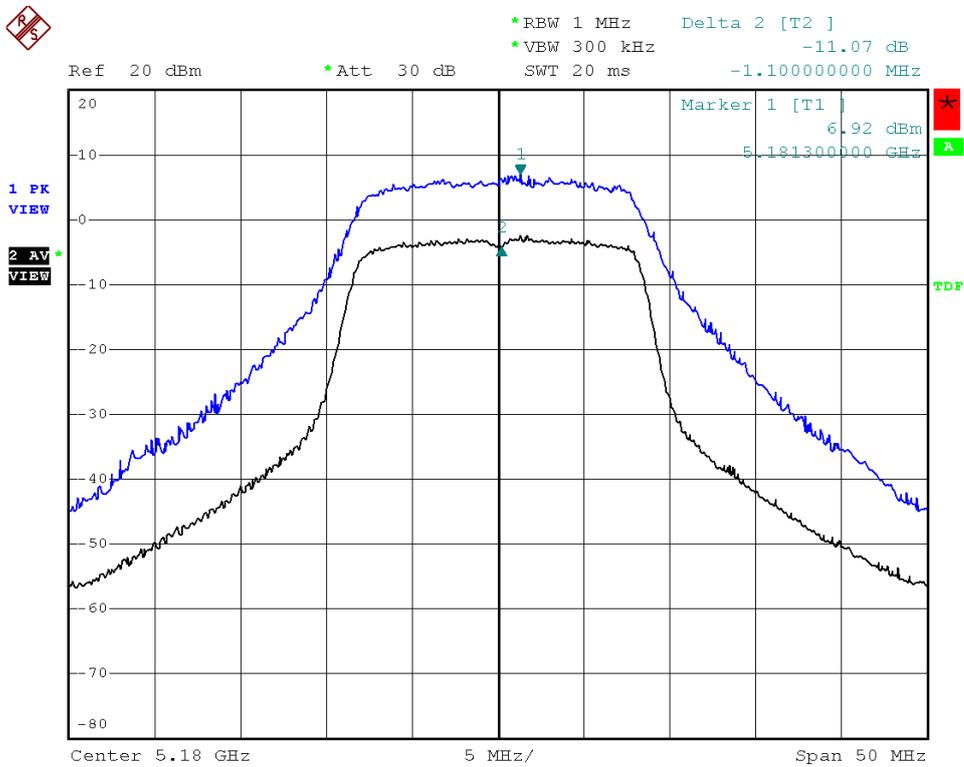
Atmospheric pressure: 1019 hPa

Humidity: 67%

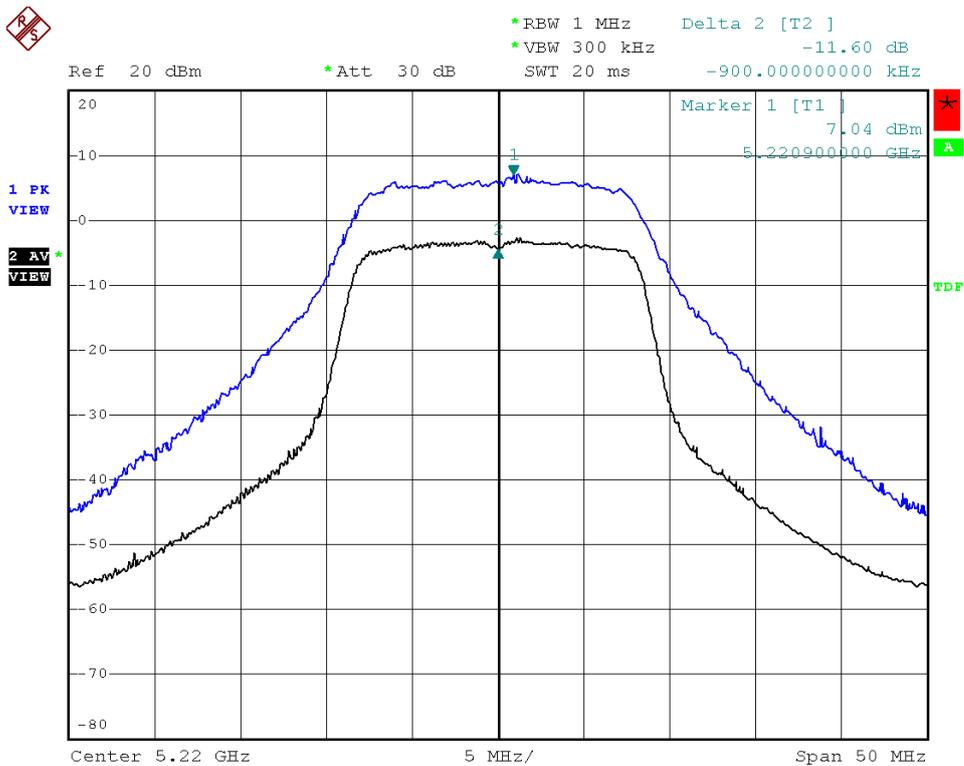
Modulation Standard	Channel	Frequency (MHz)	Peak Power Output (dBm)			Limit (dB)
			Ant 1	Ant 2	Ant 3	
802.11a (54Mbps)	36	5180	11.07	11.07	11.32	13
	44	5220	11.60	10.78	11.02	13
	48	5240	11.49	11.36	10.80	13
802.11an HT20 (130Mbps)	36	5180	11.10	11.44	11.05	13
	44	5220	11.45	12.07	11.45	13
	48	5240	11.09	11.67	10.88	13
802.11an HT40 (27Mbps)	38	5190	6.49	8.84	7.29	13
	42	5210	6.75	9.74	7.48	13
	46	5230	7.25	9.68	7.53	13



Modulation Standard: 802.11a (54Mbps), Ant 1
Channel: 36

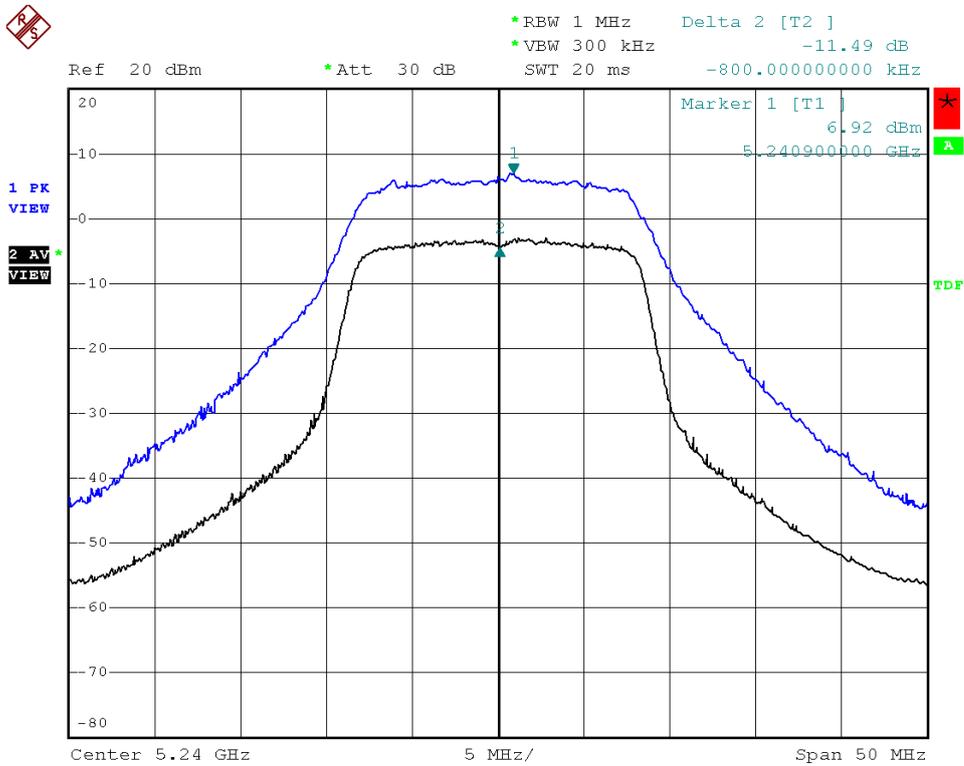


Modulation Standard: 802.11a (54Mbps), Ant 1
Channel: 44

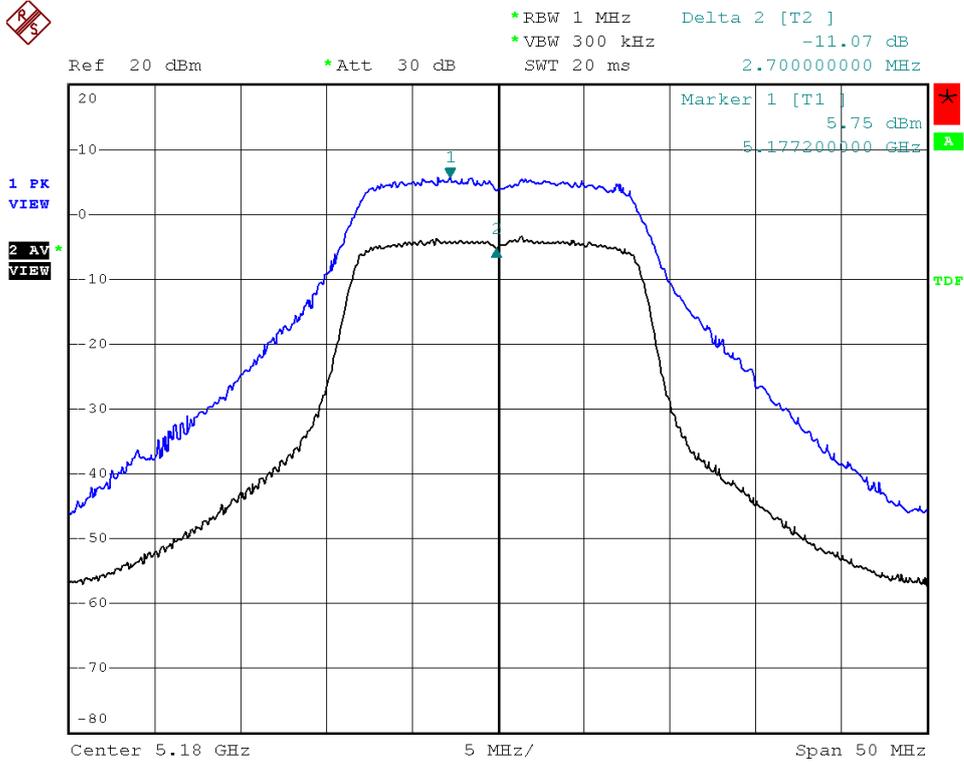




Modulation Standard: 802.11a (54Mbps), Ant 1
Channel: 48

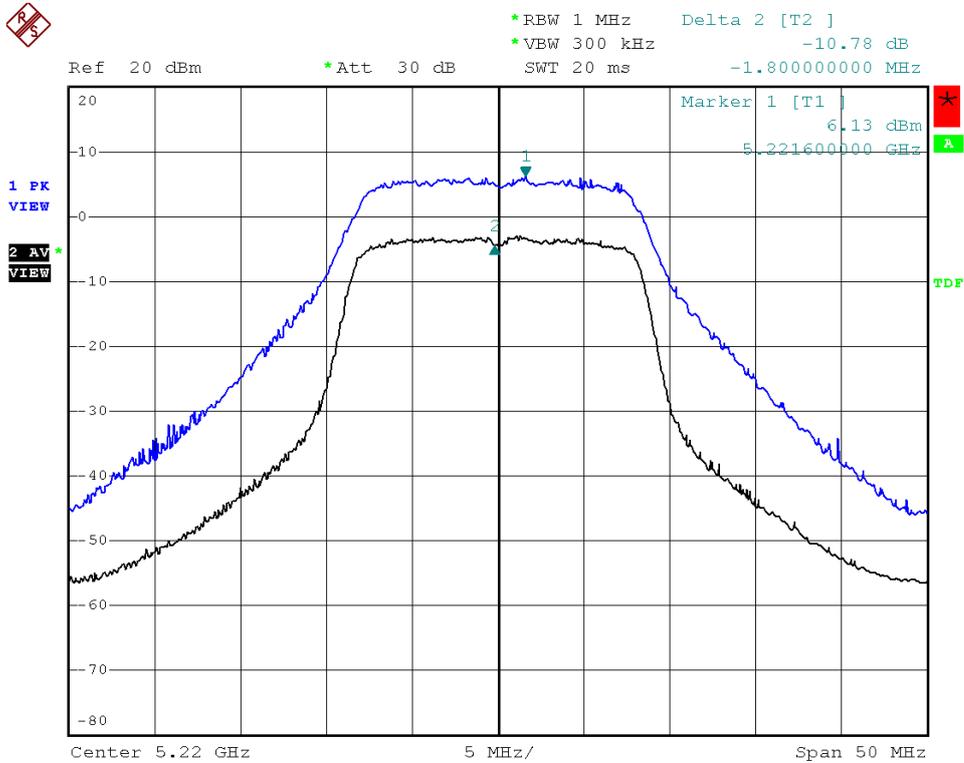


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Channel: 36

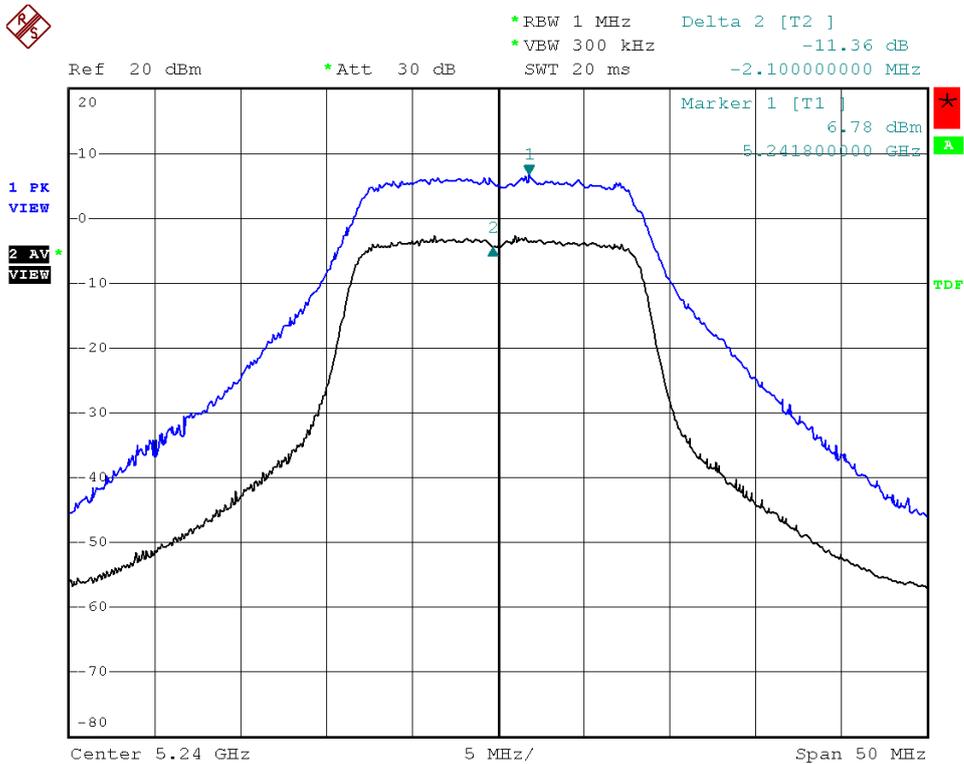




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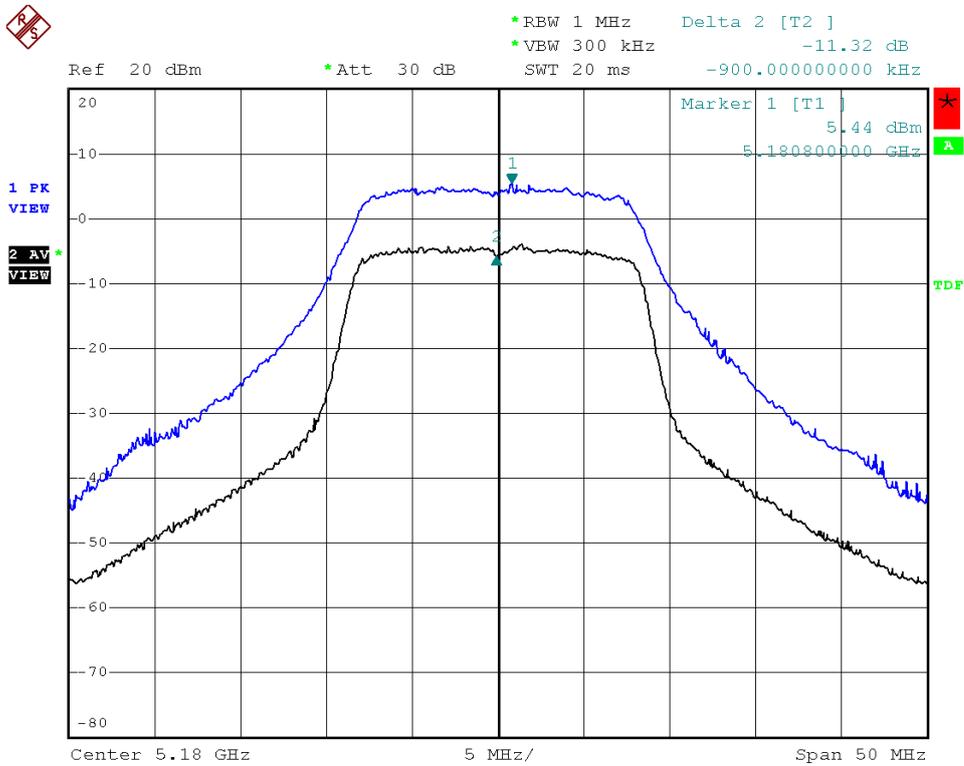


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Channel: 48

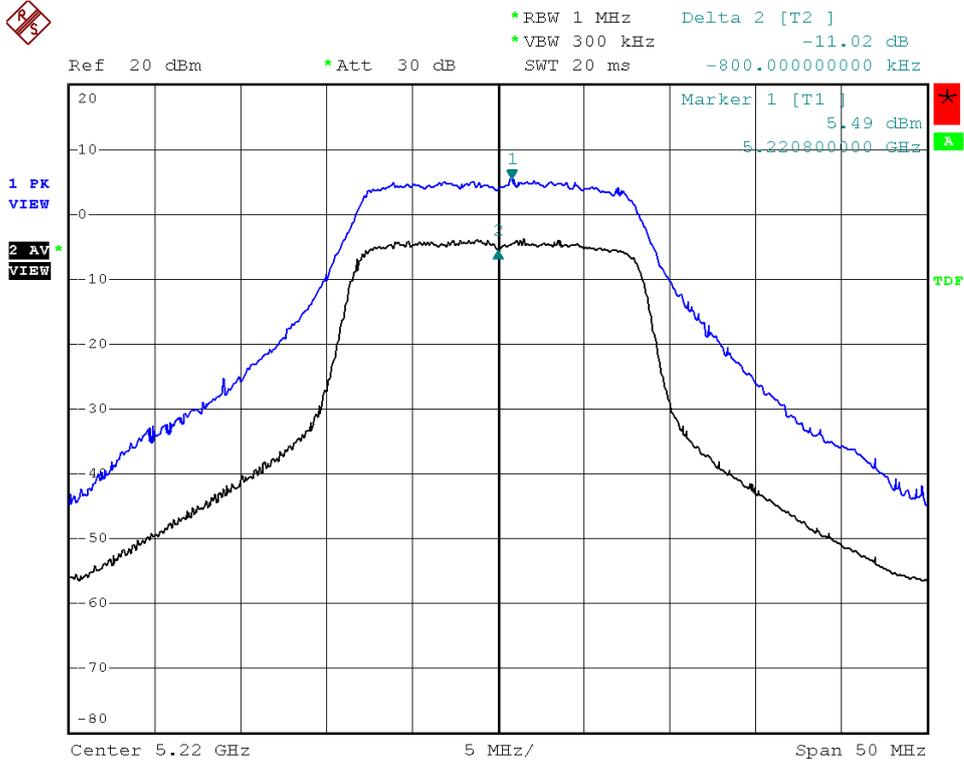




Modulation Standard: 802.11a (54Mbps), Ant 3
Channel: 36

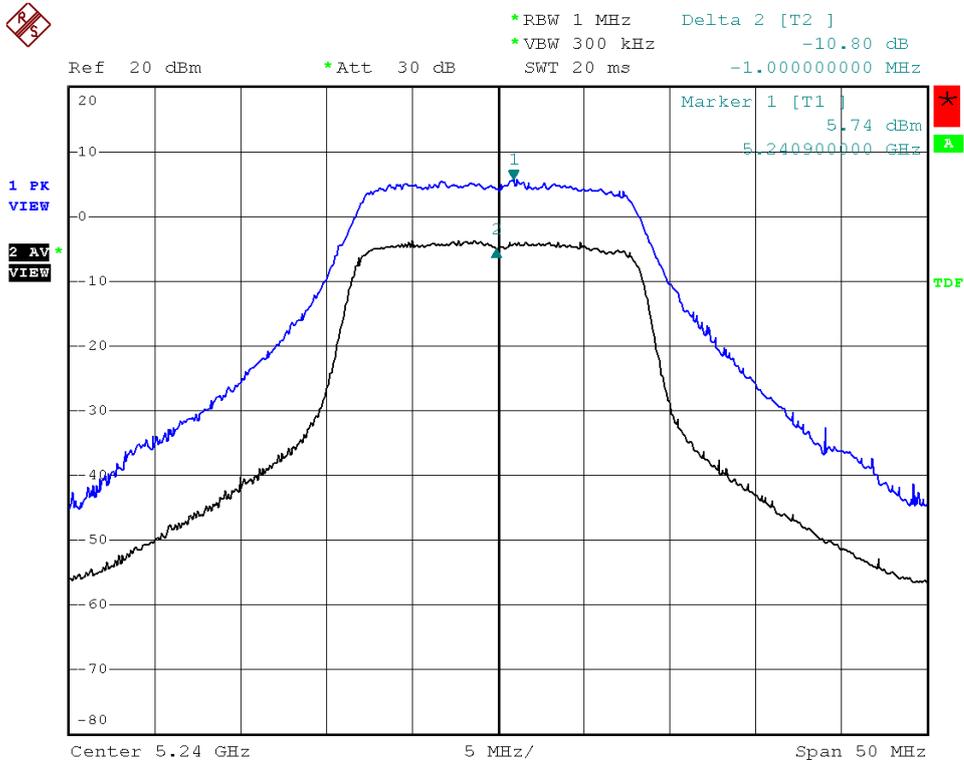


Modulation Standard: 802.11a (54Mbps), Ant 3
Channel: 44



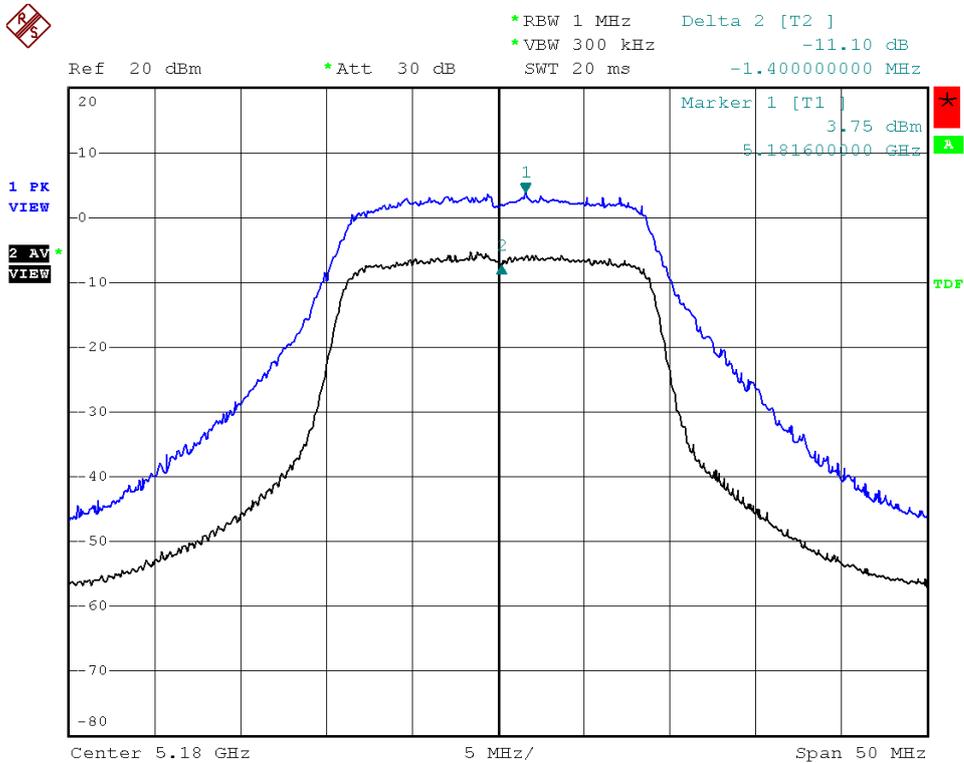


Modulation Standard: 802.11a (54Mbps), Ant 3
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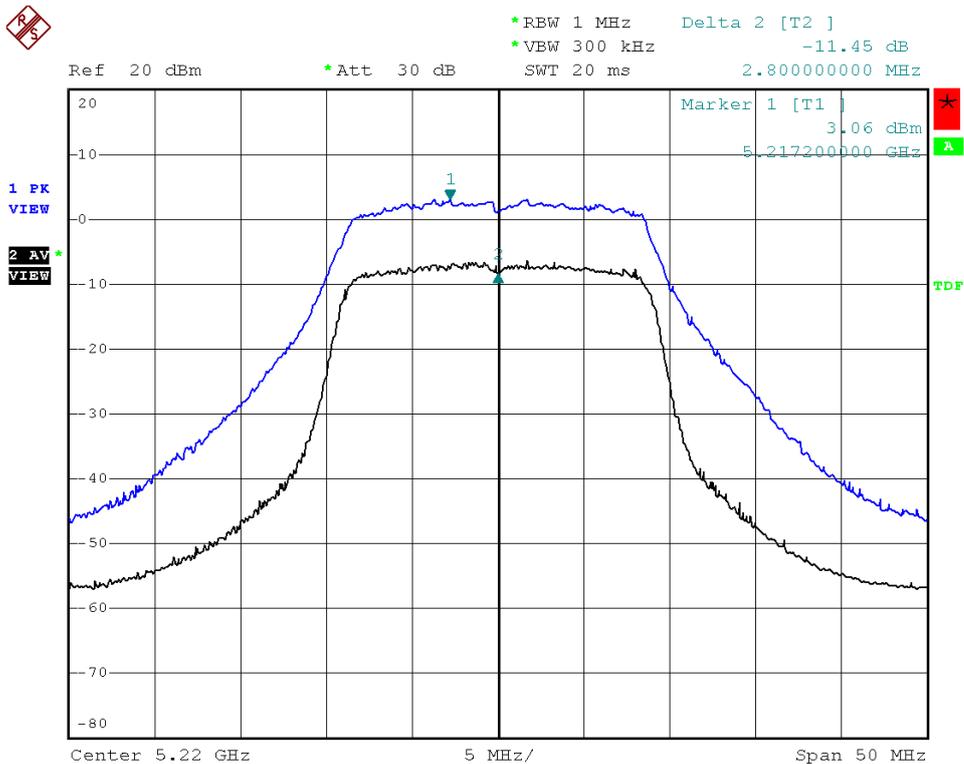




Modulation Standard: 802.11an HT20 (130Mbps), Ant 1
Channel: 36

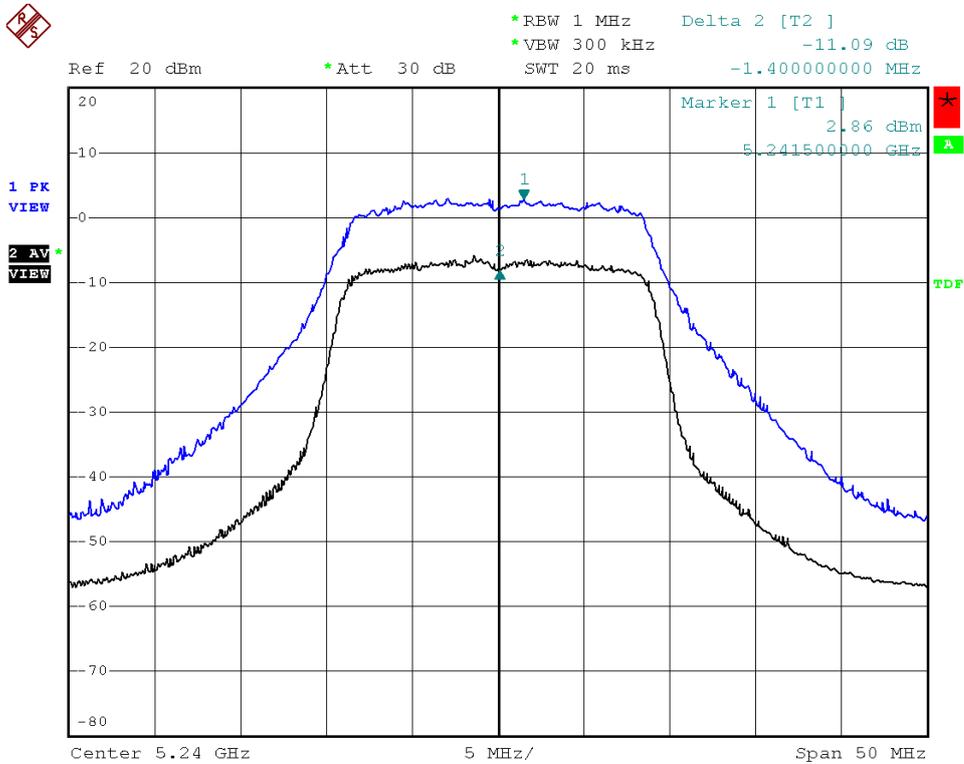


Modulation Standard: 802.11an HT20 (130Mbps), Ant 1
Channel: 44

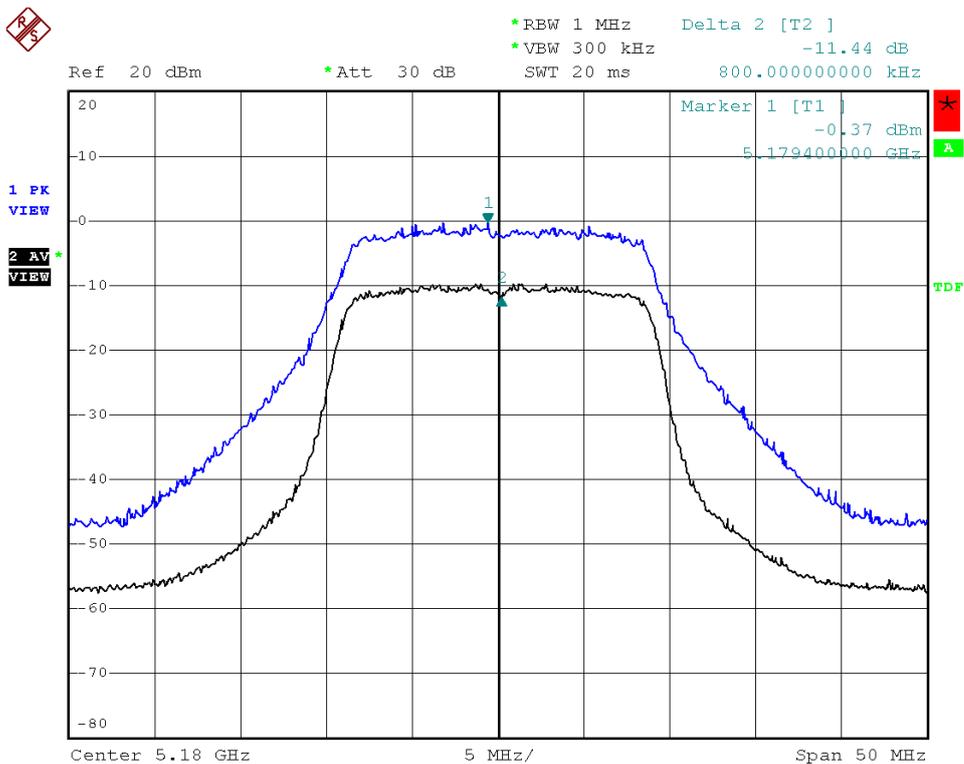




Modulation Standard: 802.11an HT20 (130Mbps), Ant 1
Channel: 48

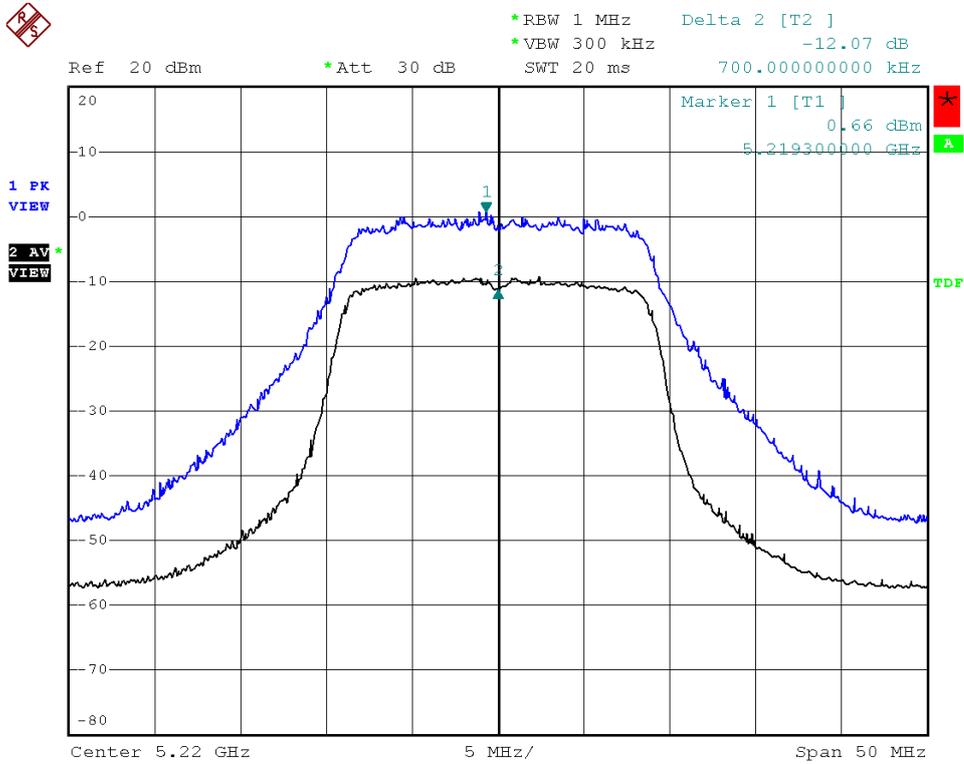


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Channel: 36

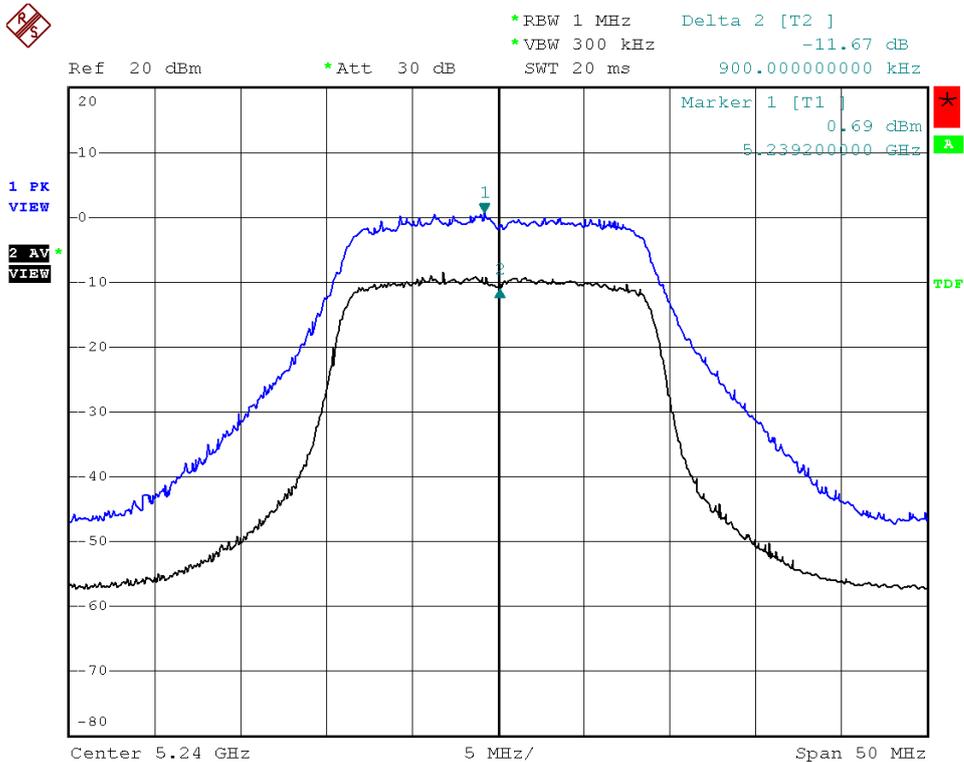




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Channel: 44

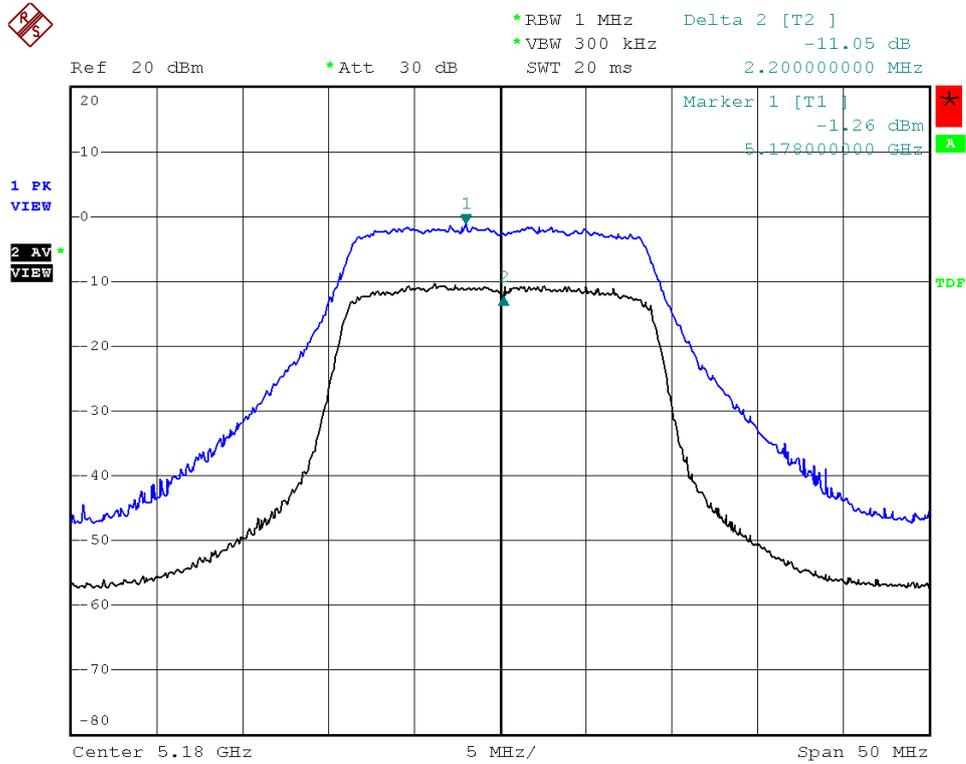


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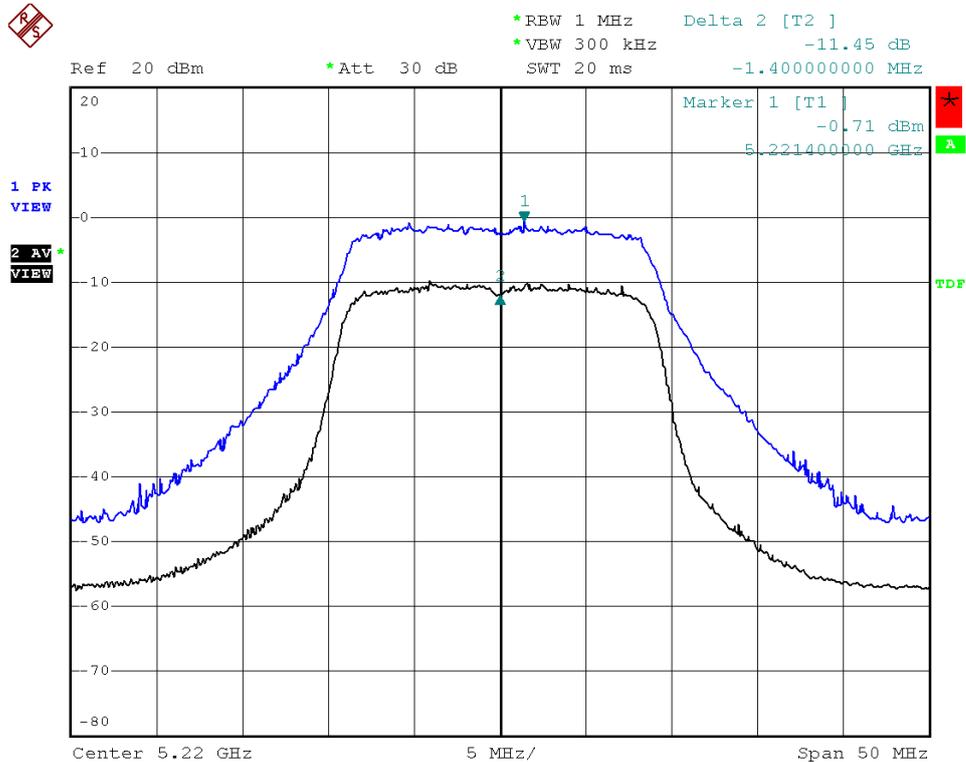




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Channel: 36

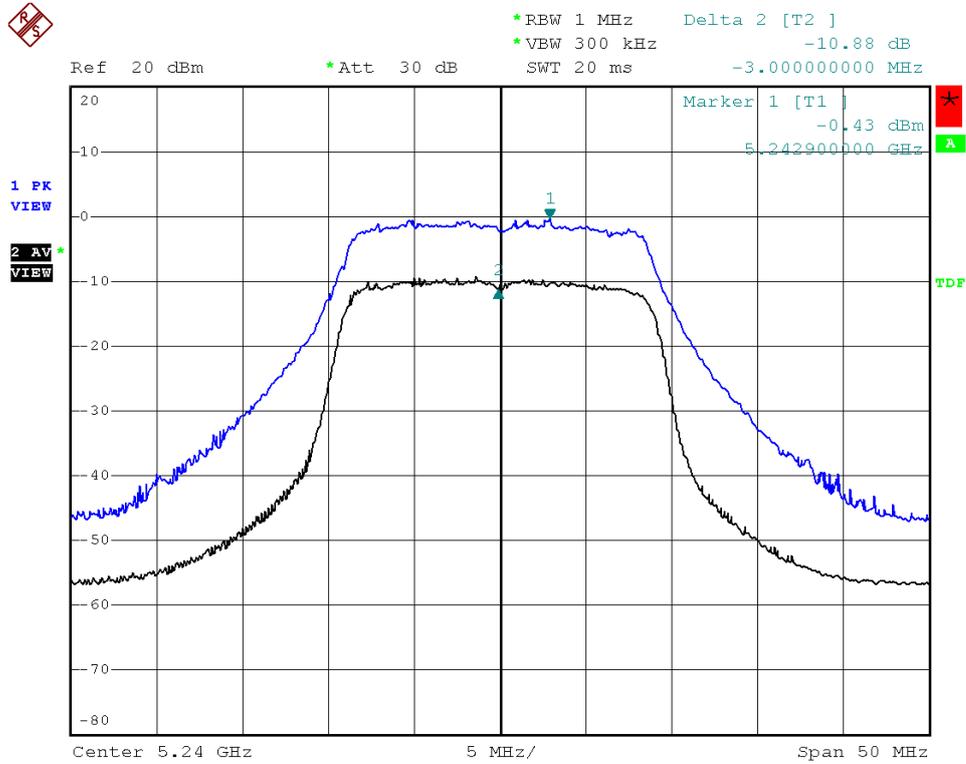


Modulation Standard: 802.11an HT20 (130Mbps), Ant 3
Channel: 44



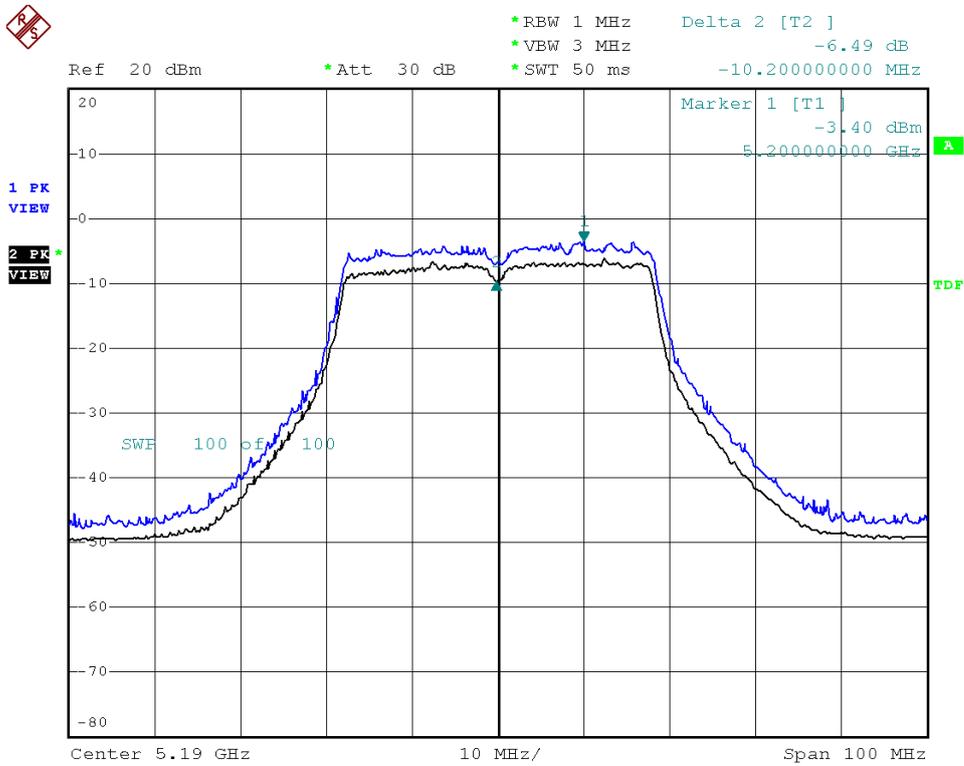


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Channel: 48

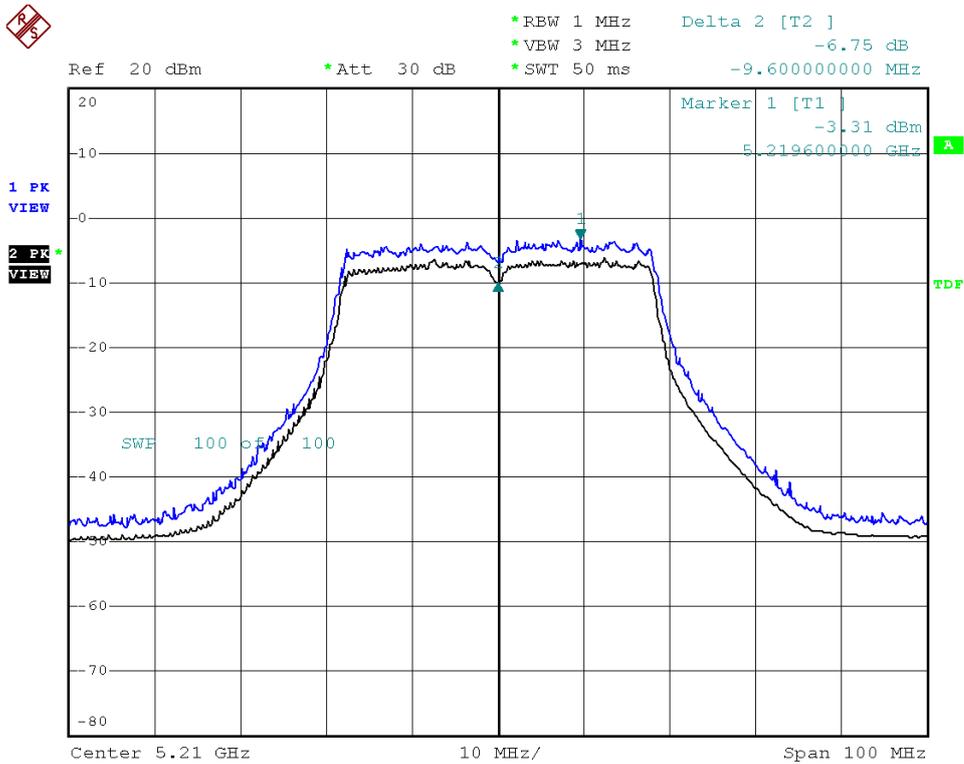




Modulation Standard: 802.11an HT40 (27Mbps), Ant 1
Channel: 38

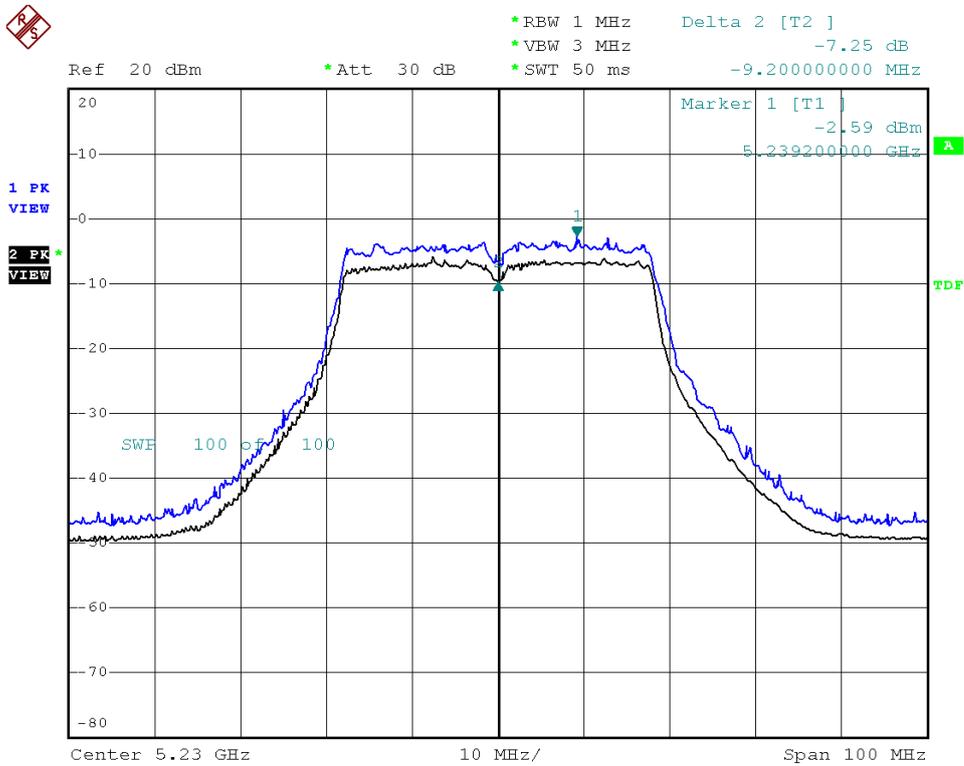


Modulation Standard: 802.11an HT40 (27Mbps), Ant 1
Channel: 42

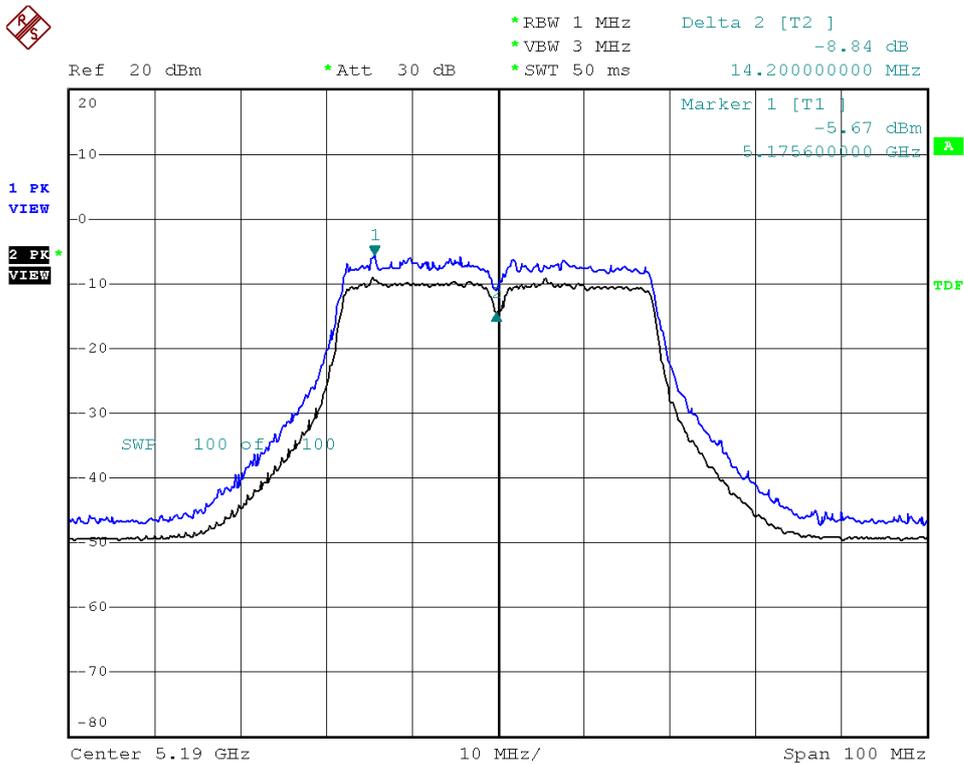




Modulation Standard: 802.11an HT40 (27Mbps), Ant 1
Channel: 46

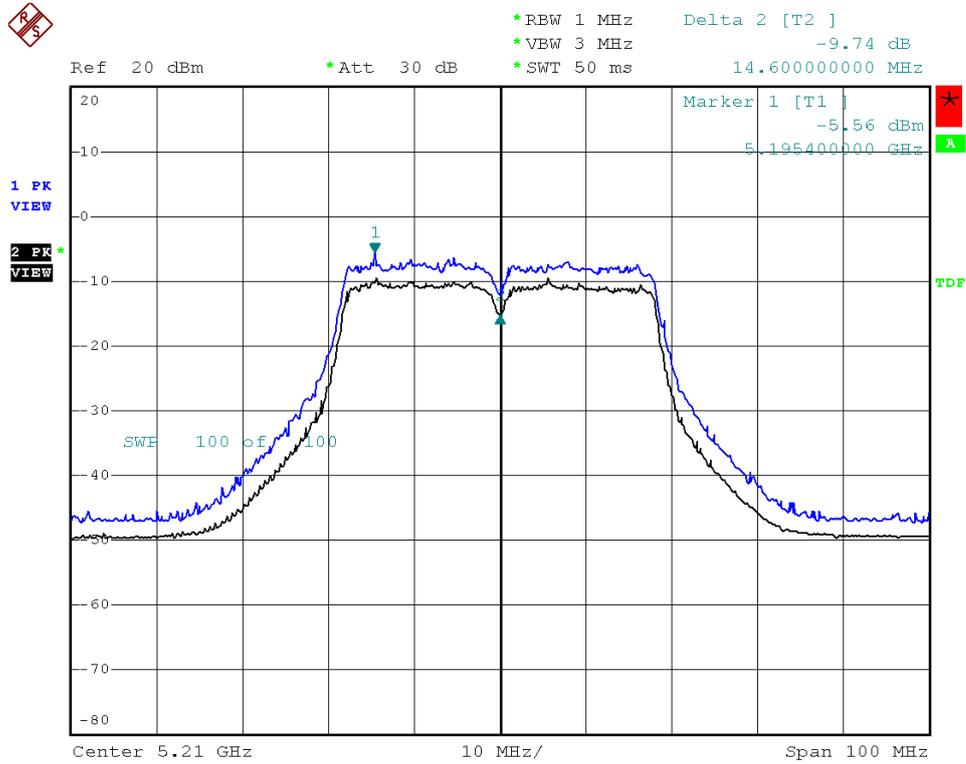


Modulation Standard: 802.11an HT40 (27Mbps), Ant 2
Channel: 38

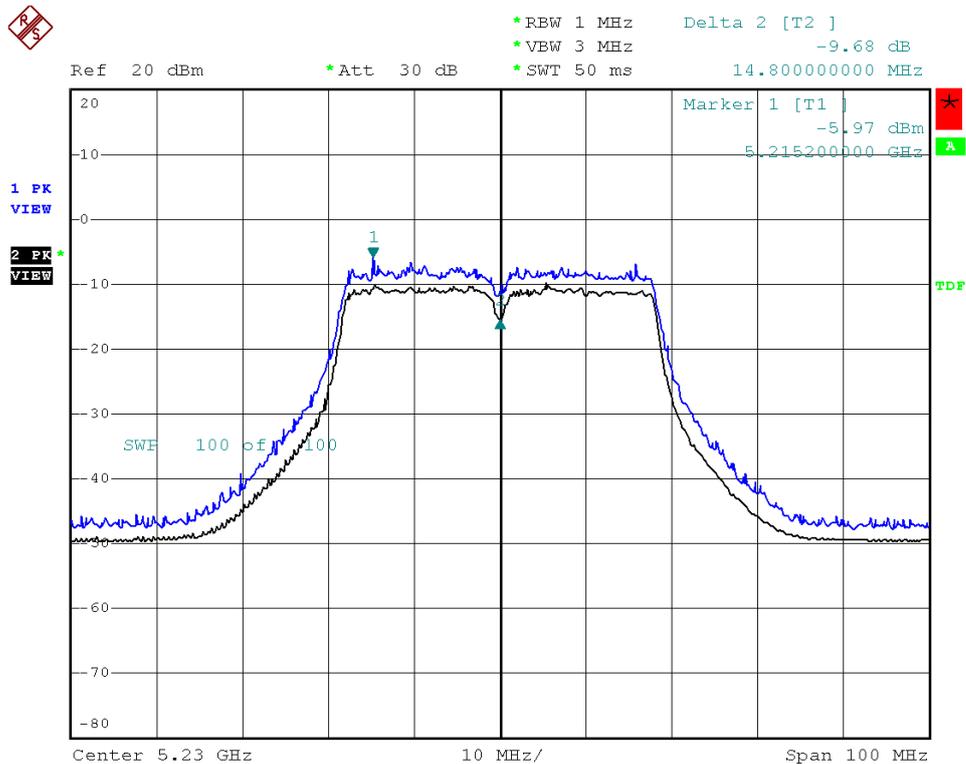




Modulation Standard: 802.11an HT40 (27Mbps), Ant 2
Channel: 42

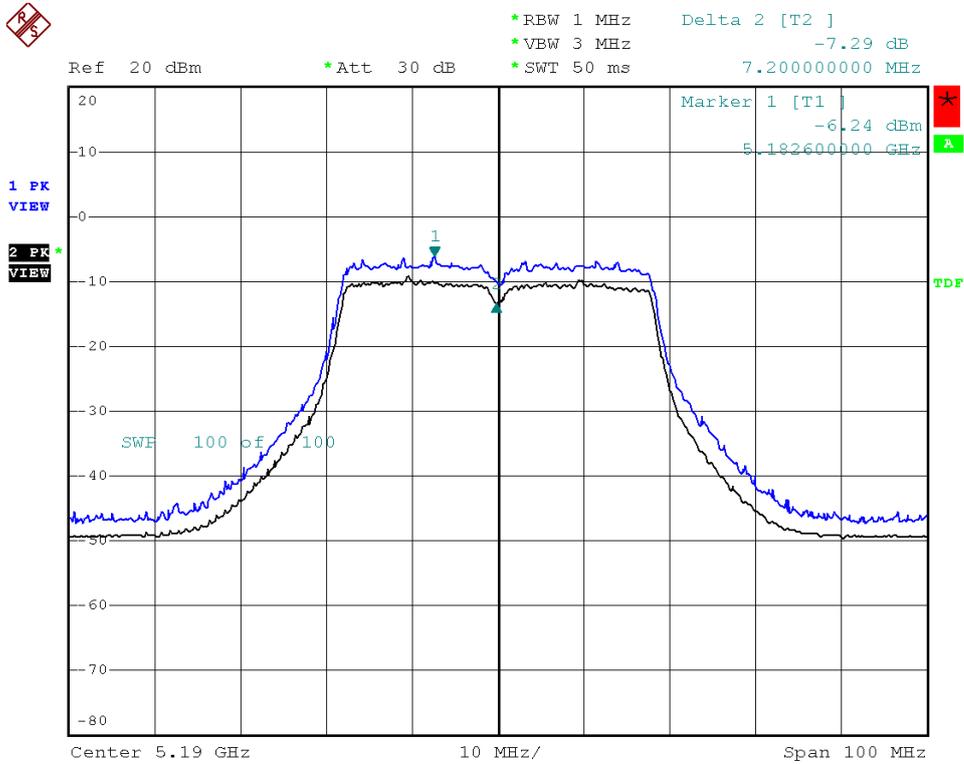


Modulation Standard: 802.11an HT40 (27Mbps), Ant 2
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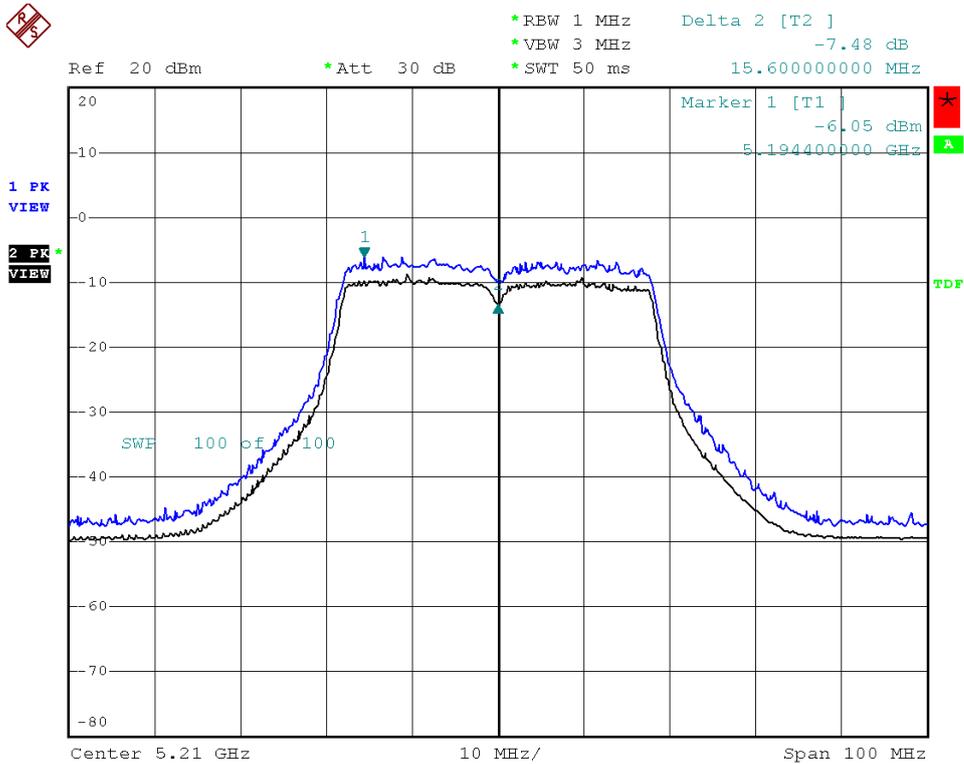




Modulation Standard: 802.11an HT40 (27Mbps), Ant 3
Channel: 38

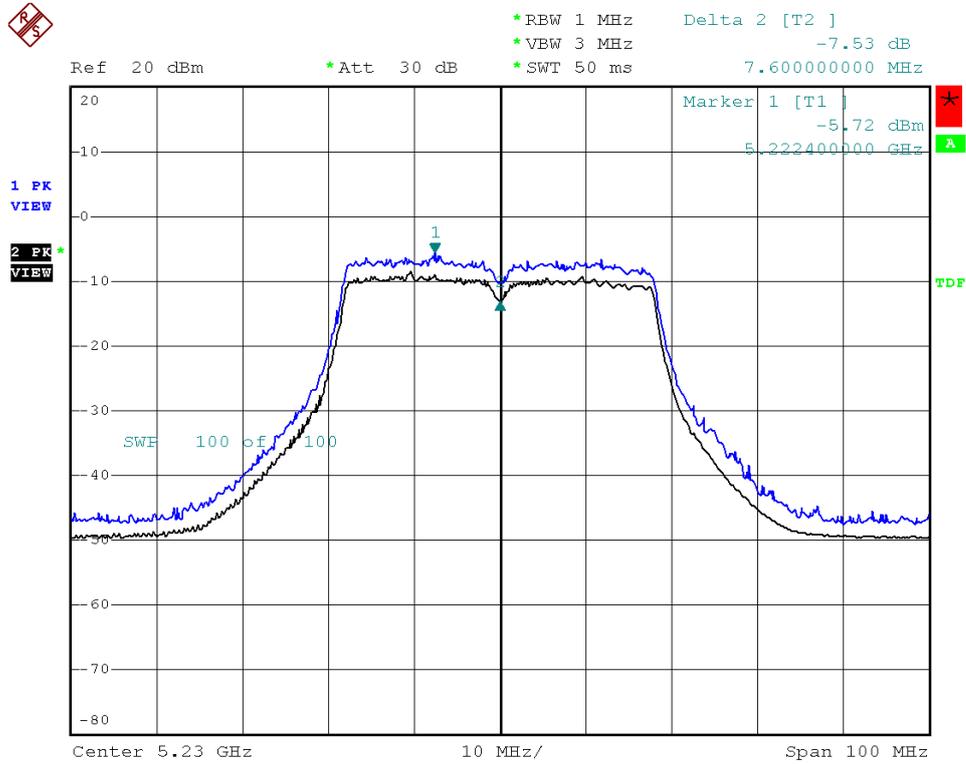


Modulation Standard: 802.11an HT40 (27Mbps), Ant 3
Channel: 42





Modulation Standard: 802.11an HT40 (27Mbps), Ant 3
Channel: 46



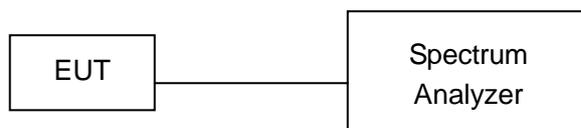


8. Peak Power Spectral Density

8.1. Test Procedure

1. The transmitter output was connected to spectrum analyzer.
2. Set RBW of spectrum analyzer to 1 MHz and VBW to 3 MHz
3. The Peak Power Spectral Density is the highest level found across the emission in any 1MHz Band

8.2. Test Setup Layout



8.3. Measurement Equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date.
Spectrum Analyzer	FSP40	R&S	10047	2009/03/26	2010/03/25

8.4. Test Result and Data

Test Date: Feb. 25, 2010

Temperature: 23°C

Atmospheric pressure: 1019 hPa

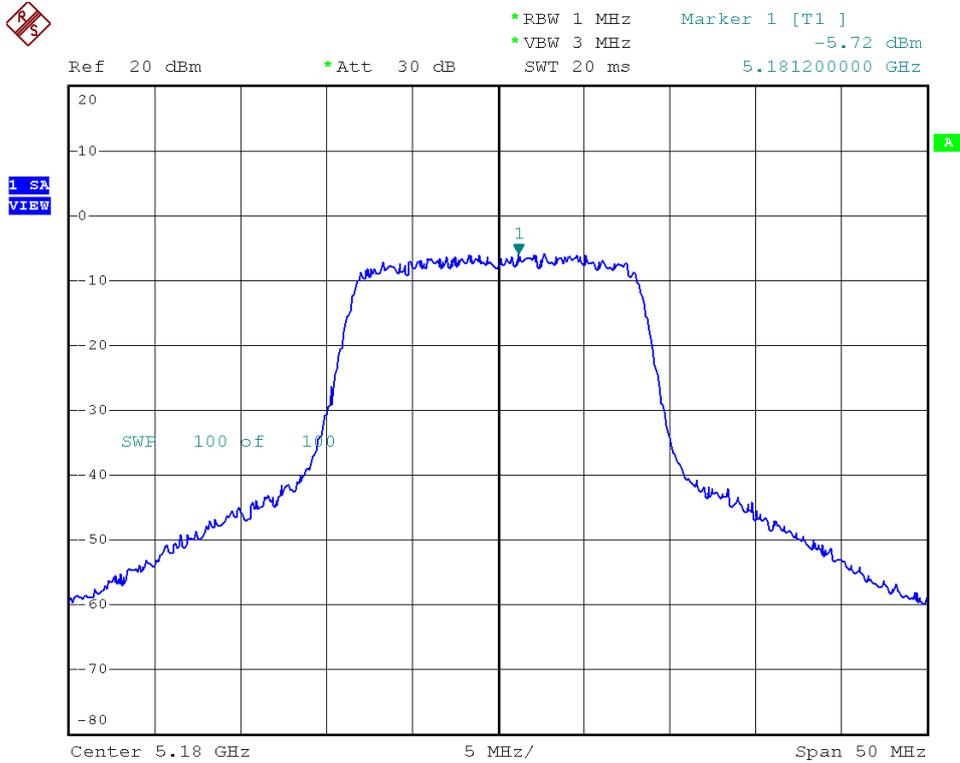
Humidity: 67%

Modulation Standard	Channel	Frequency (MHz)	RF Power Level In 1MHz BW (dBm)			Limit (dB)
			Ant 1	Ant 2	Ant 3	
802.11a (54Mbps)	36	5180	-5.72	-5.08	-5.48	4
	44	5220	-5.86	-5.76	-5.60	4
	48	5240	-5.47	-5.28	-5.13	4

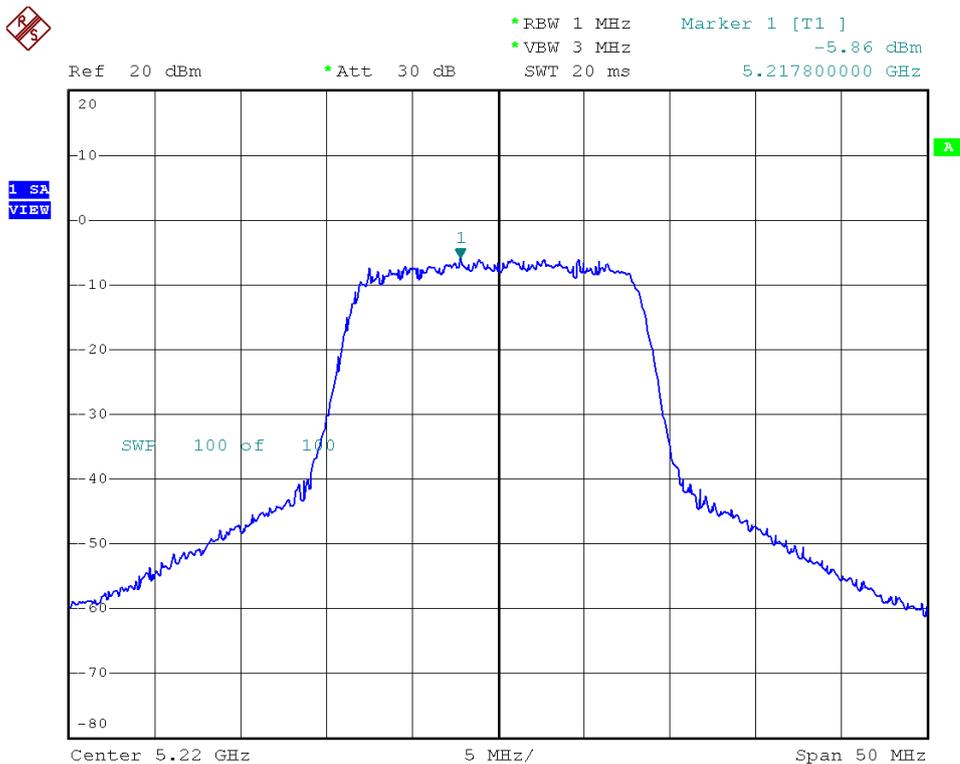
Modulation Standard	Channel	Frequency (MHz)	RF Power Level In 1MHz BW (dBm)				Limit (dB)
			Ant 1	Ant 2	Ant 3	Total	
802.11an HT20 (130Mbps)	36	5180	-11.52	-16.03	-15.54	-7.23	4
	44	5220	-11.56	-15.86	-14.31	-8.11	4
	48	5240	-11.95	-15.60	-14.66	-8.28	4
802.11an HT40 (27Mbps)	38	5190	-16.35	-19.40	-19.42	-14.52	4
	42	5210	-16.34	-19.73	-19.43	-14.78	4
	46	5230	-16.23	-19.44	-19.33	-14.20	4



Modulation Standard: 802.11a (54Mbps), Ant 1
Channel: 36

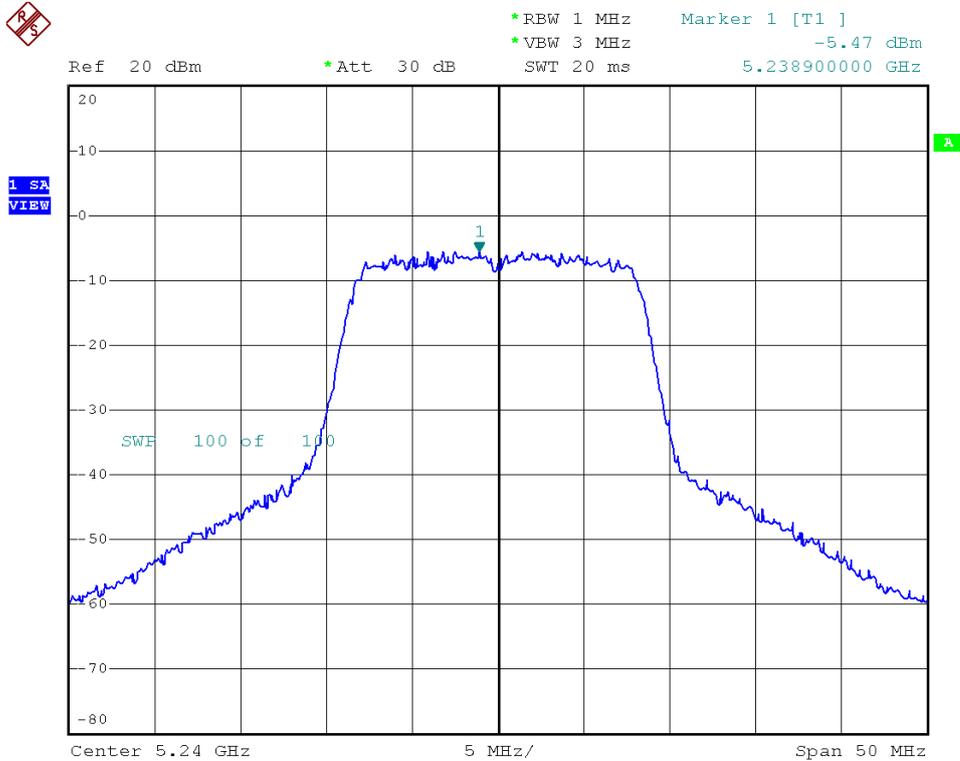


Modulation Standard: 802.11a (54Mbps), Ant 1
Channel: 44

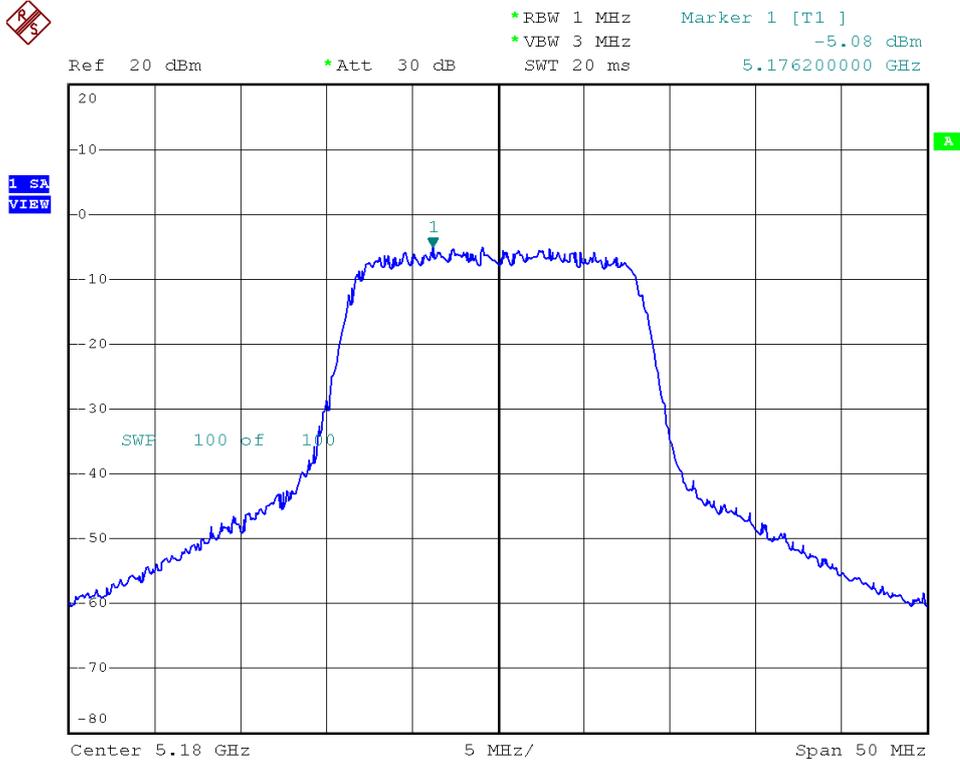




Modulation Standard: 802.11a (54Mbps), Ant 1
Channel: 48

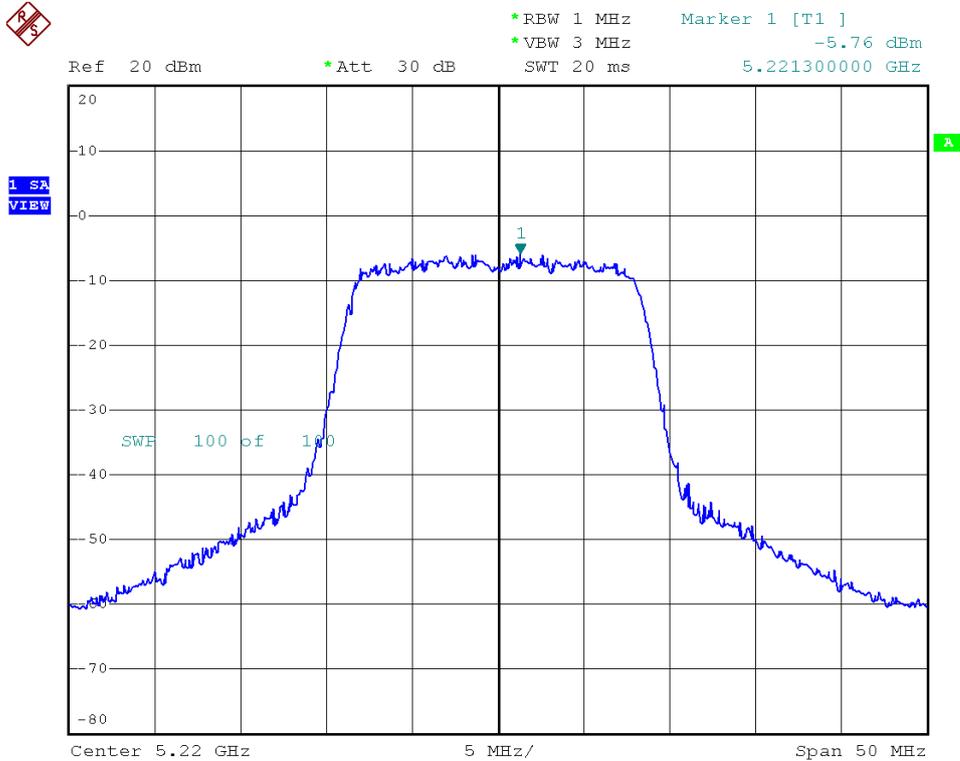


Modulation Standard: 802.11a (54Mbps), Ant 2
Channel: 36

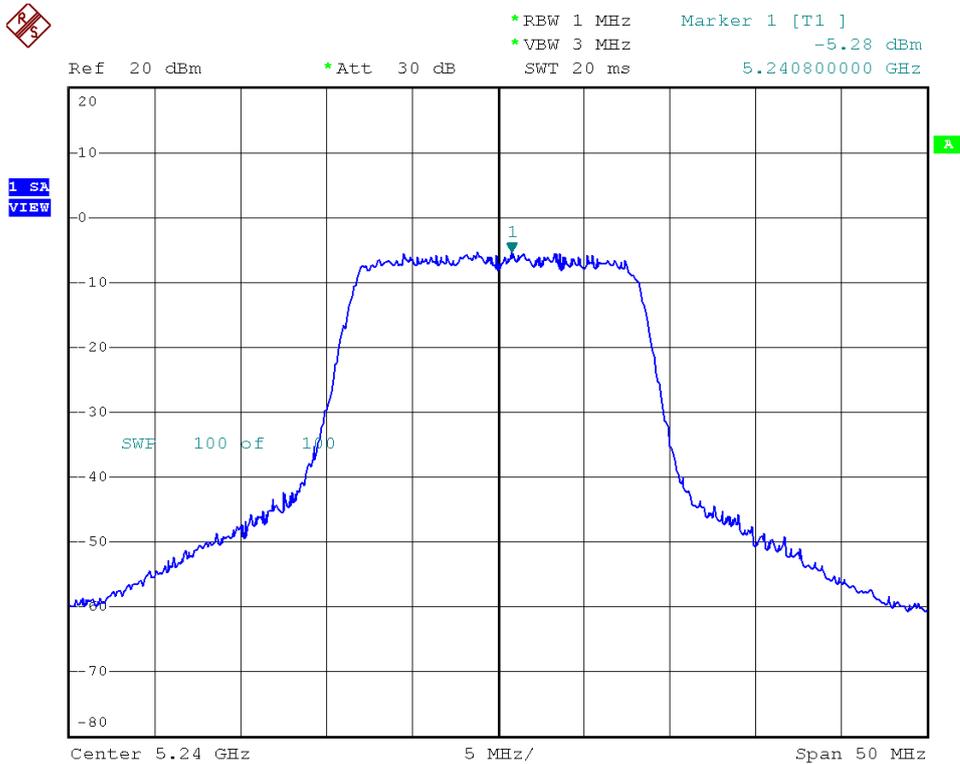




Modulation Standard: 802.11a (54Mbps), Ant 2
Channel: 44

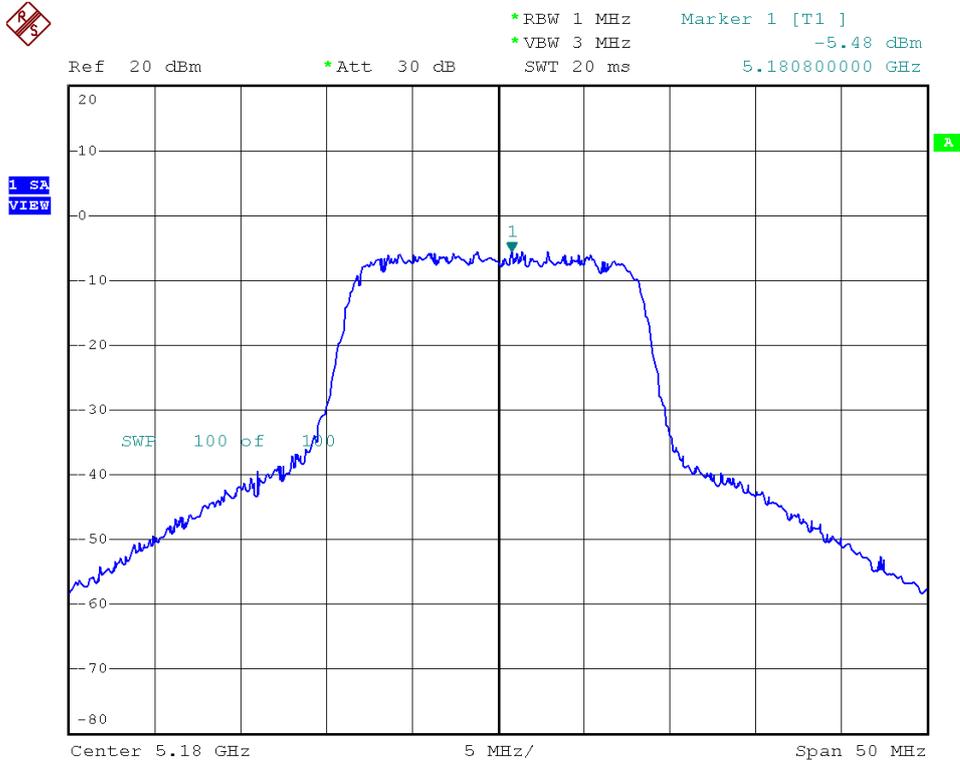


Modulation Standard: 802.11a (54Mbps), Ant 2
Channel: 48

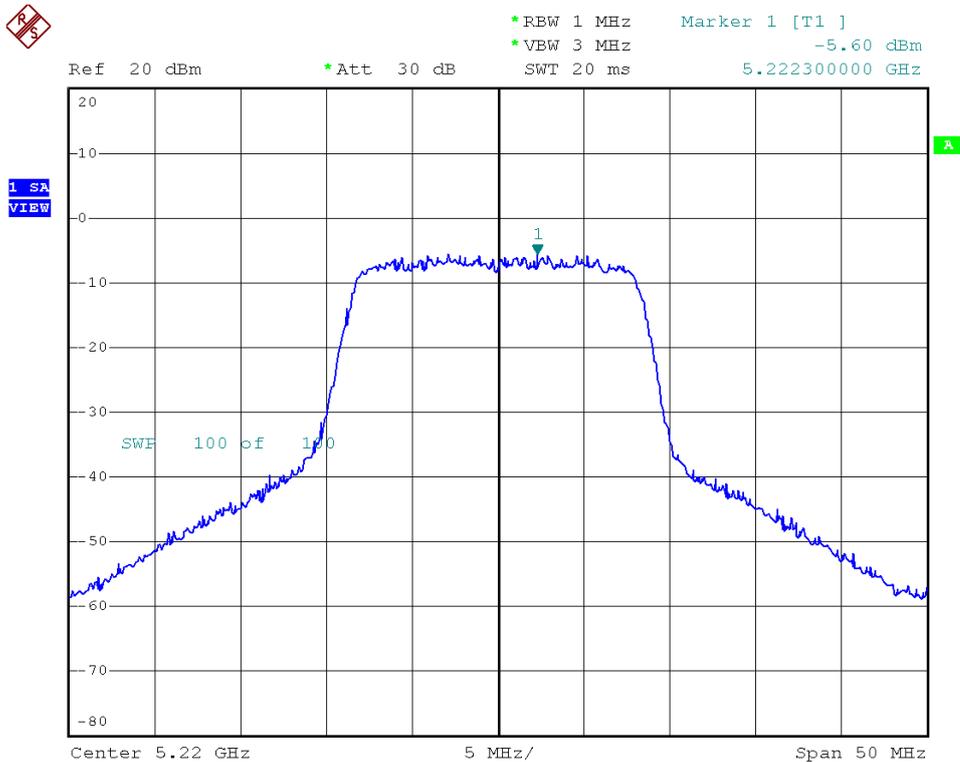




Modulation Standard: 802.11a (54Mbps), Ant 3
Channel: 36

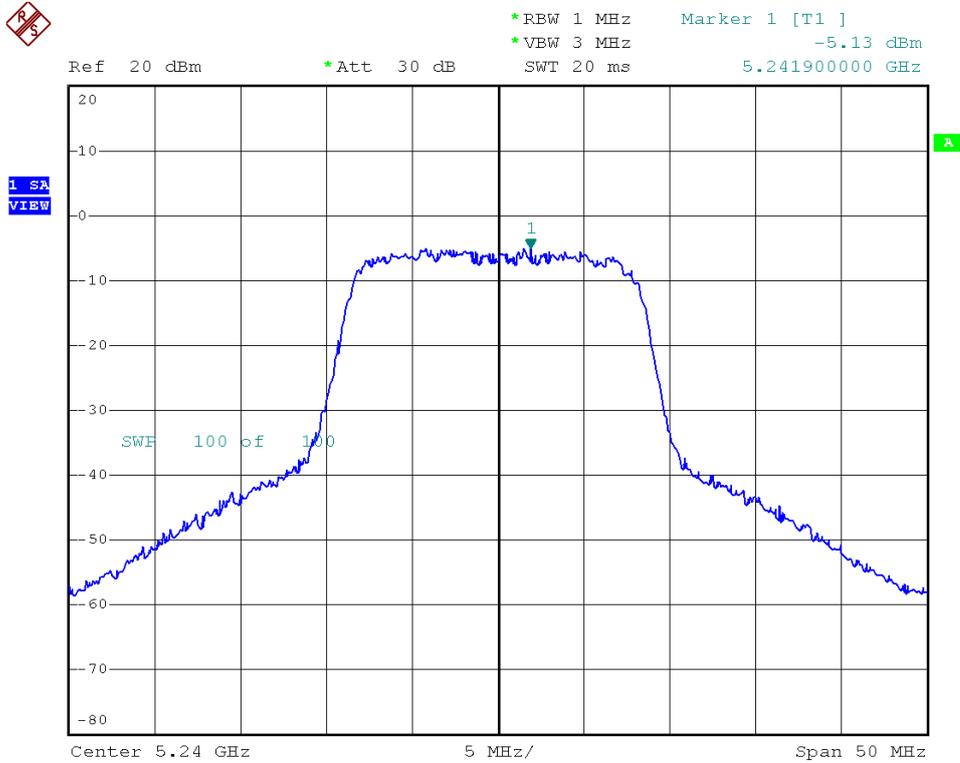


Modulation Standard: 802.11a (54Mbps), Ant 3
Channel: 44



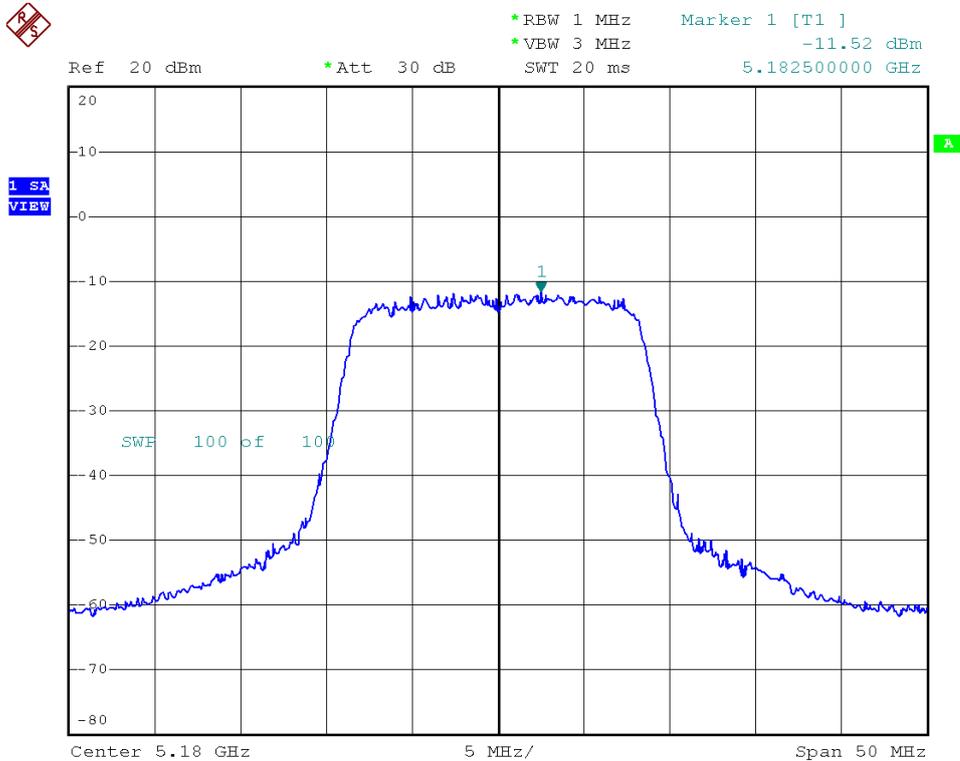


Modulation Standard: 802.11a (54Mbps), Ant 3
Channel: 48

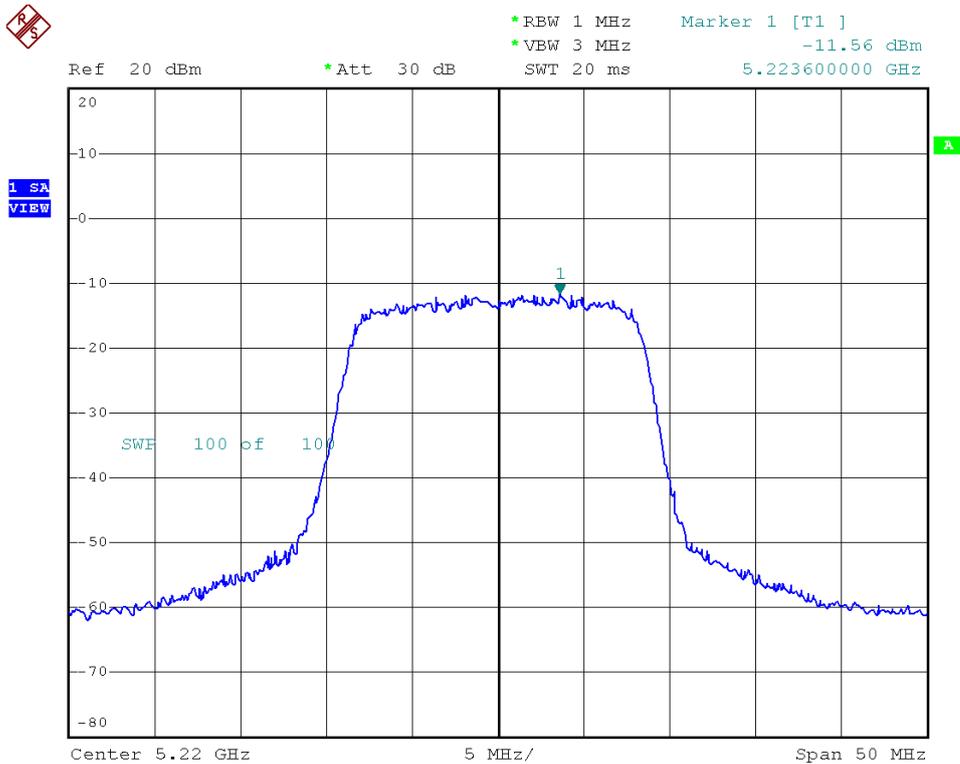




Modulation Standard: 802.11an HT20 (130Mbps), Ant 1
Channel: 36

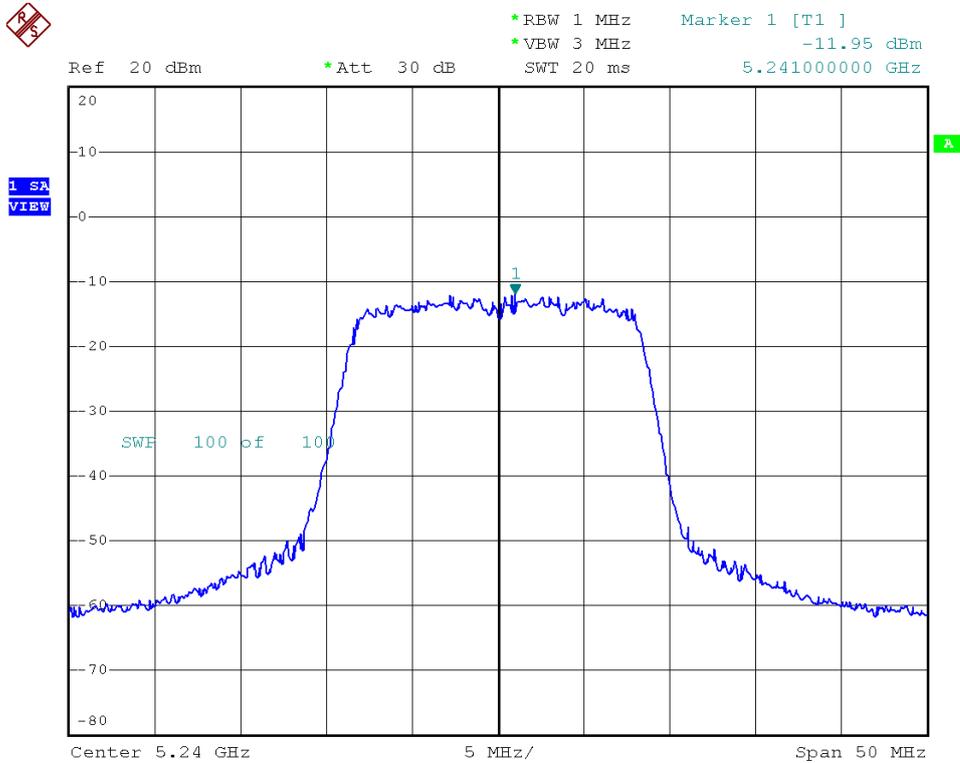


Modulation Standard: 802.11an HT20 (130Mbps), Ant 1
Channel: 44

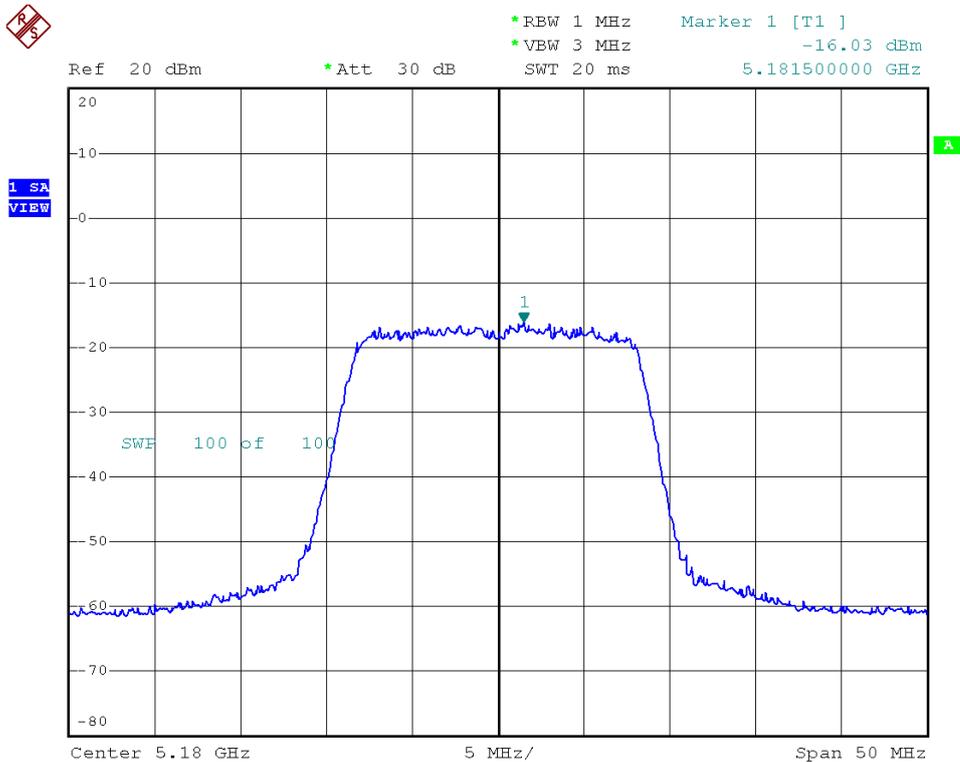




Modulation Standard: 802.11an HT20 (130Mbps), Ant 1
Channel: 48

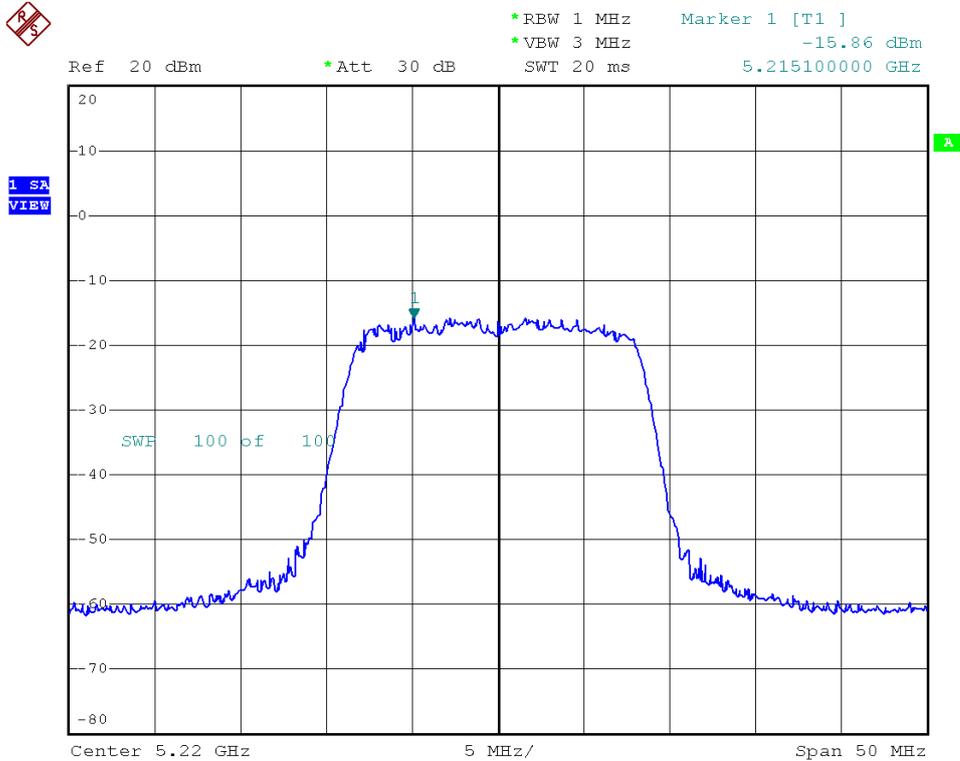


Modulation Standard: 802.11an HT20 (130Mbps), Ant 2
Channel: 36

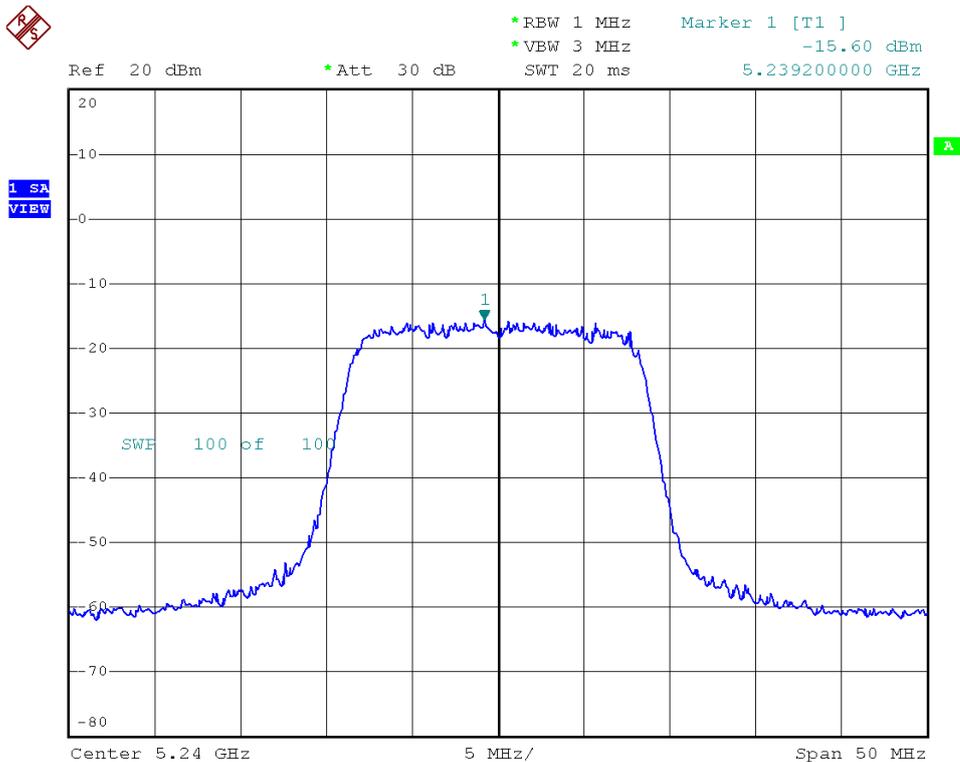




Modulation Standard: 802.11an HT20 (130Mbps), Ant 2
Channel: 44

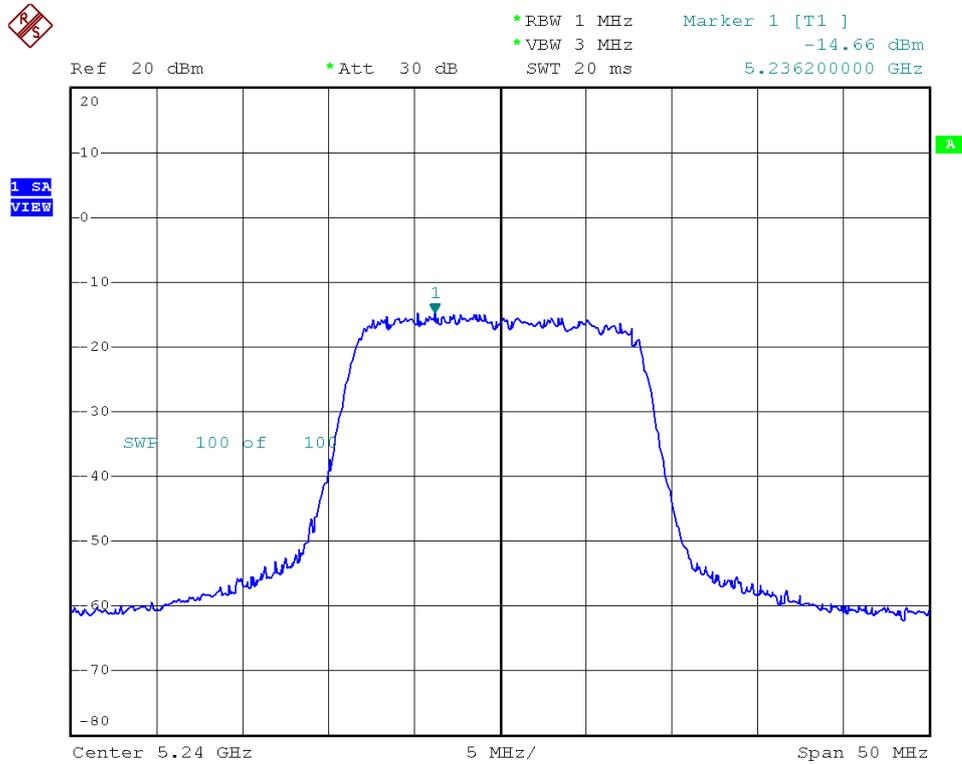


Modulation Standard: 802.11an HT20 (130Mbps), Ant 2
Channel: 48



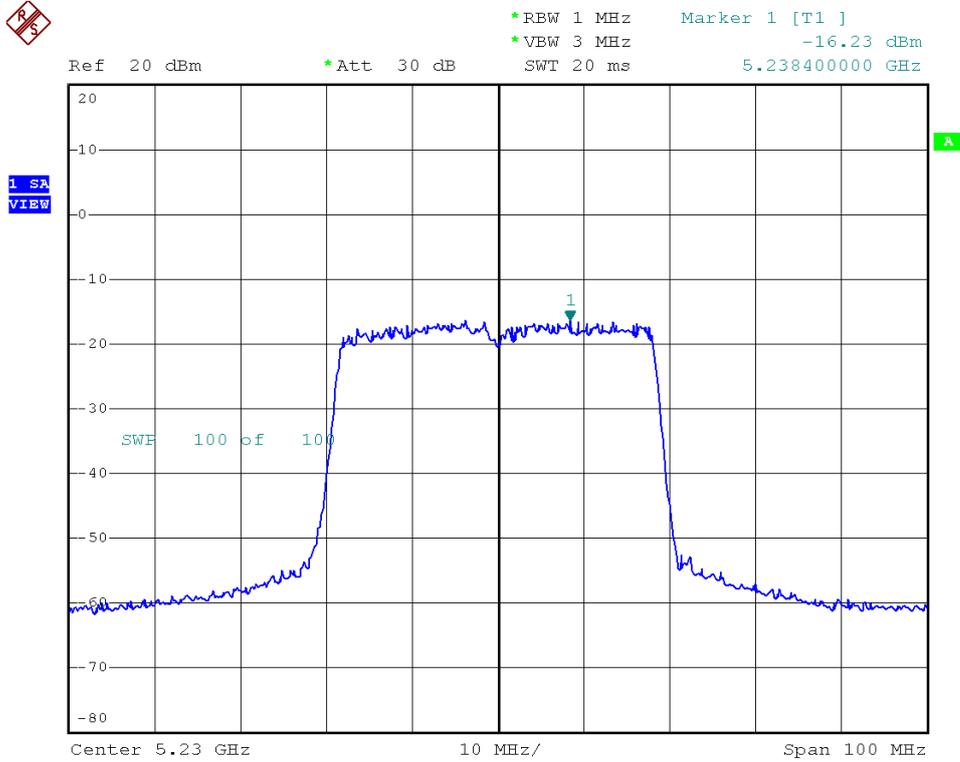


Modulation Standard: 802.11an HT20 (130Mbps), Ant 3
Channel: 48

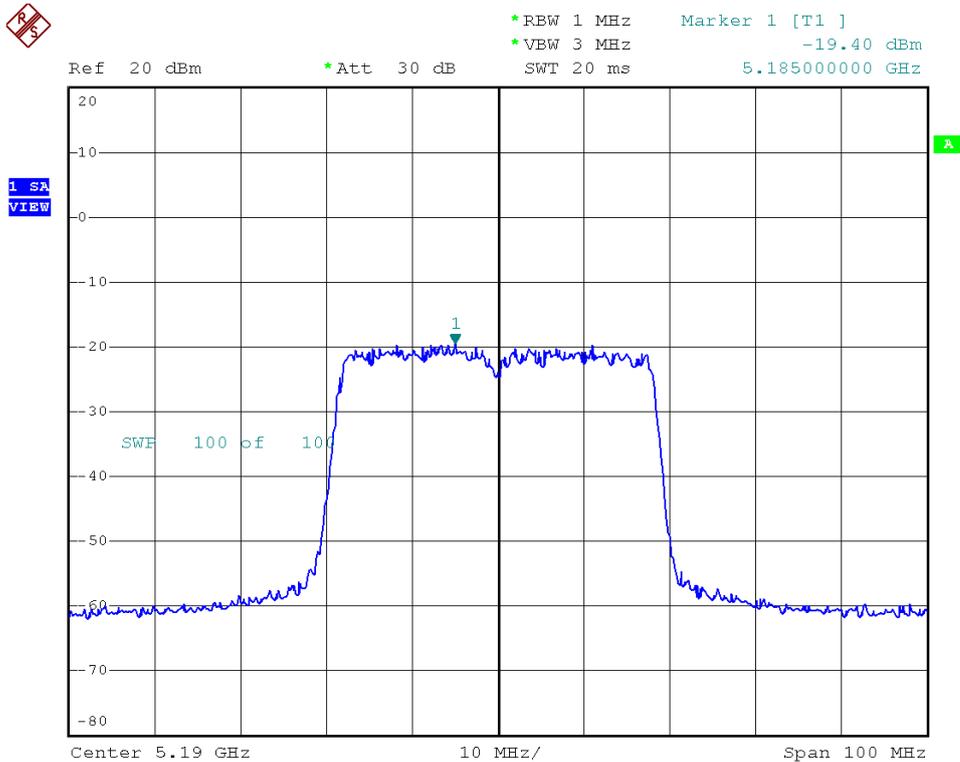




Modulation Standard: 802.11an HT40 (27Mbps), Ant 1
Channel: 46

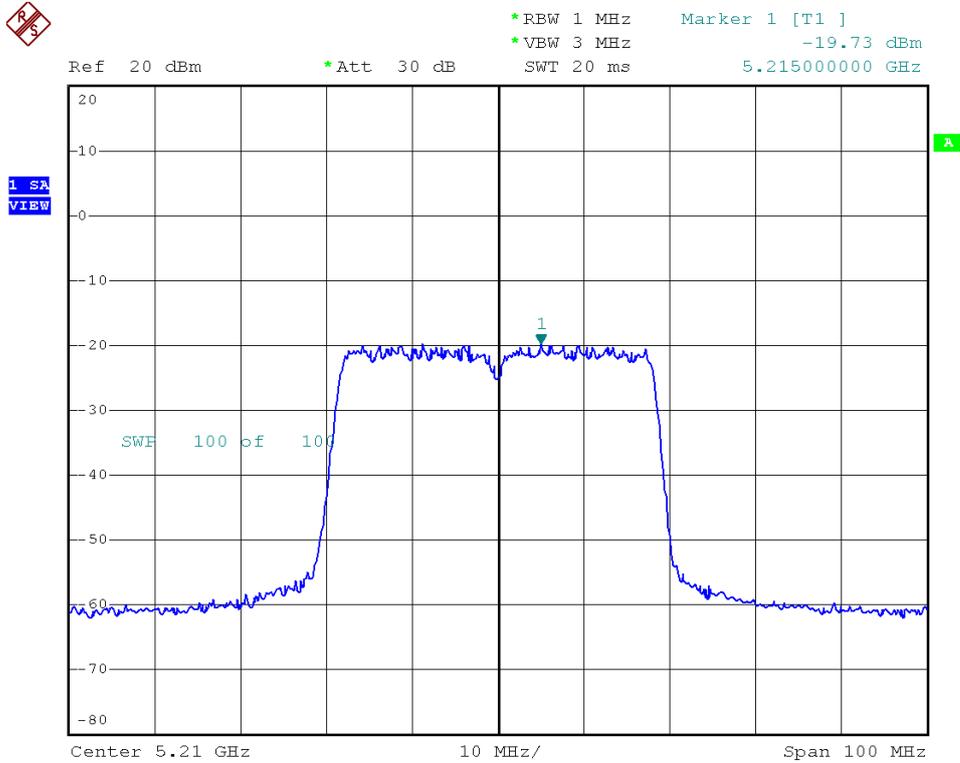


Modulation Standard: 802.11an HT40 (27Mbps), Ant 2
Channel: 38

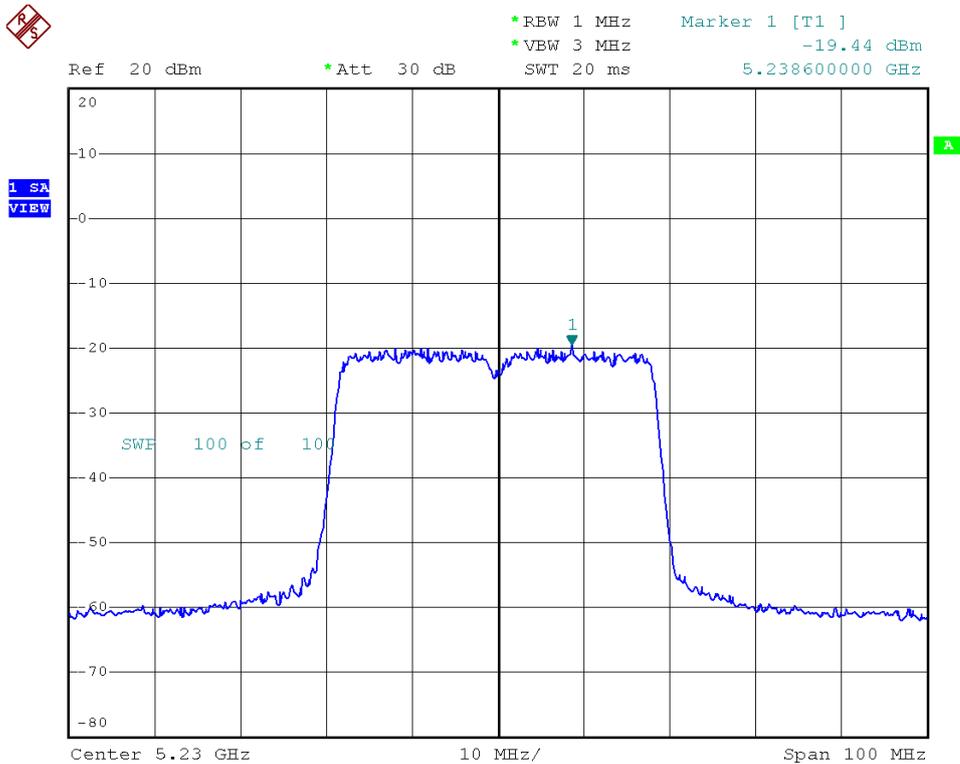




Modulation Standard: 802.11an HT40 (27Mbps), Ant 2
Channel: 42

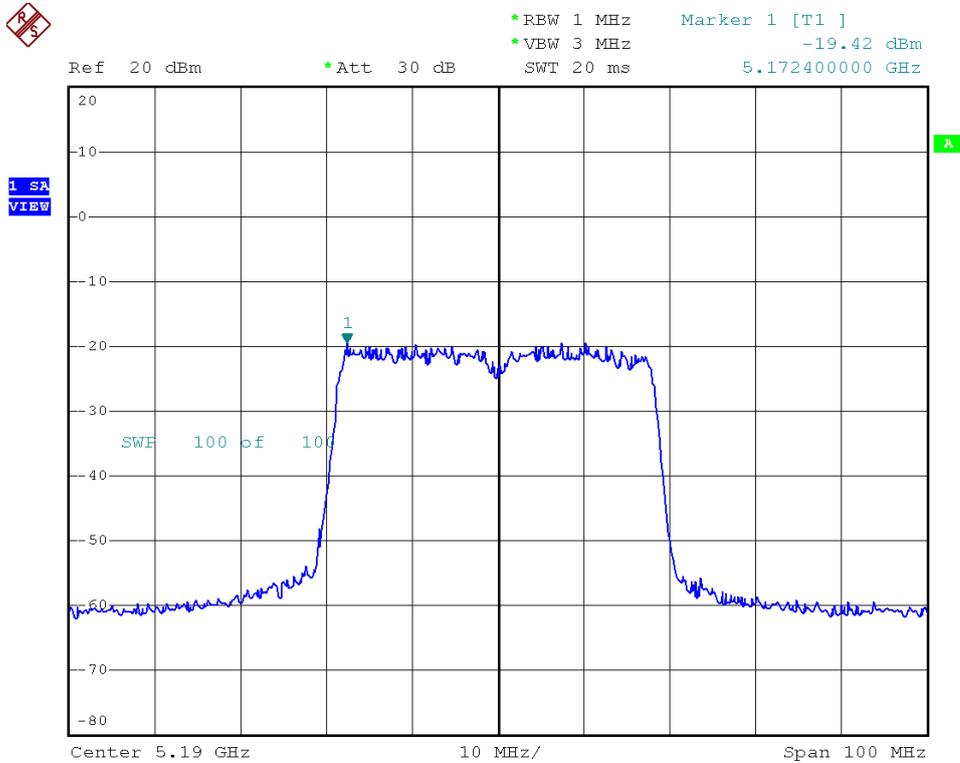


Modulation Standard: 802.11an HT40 (27Mbps), Ant 2
Channel: 46

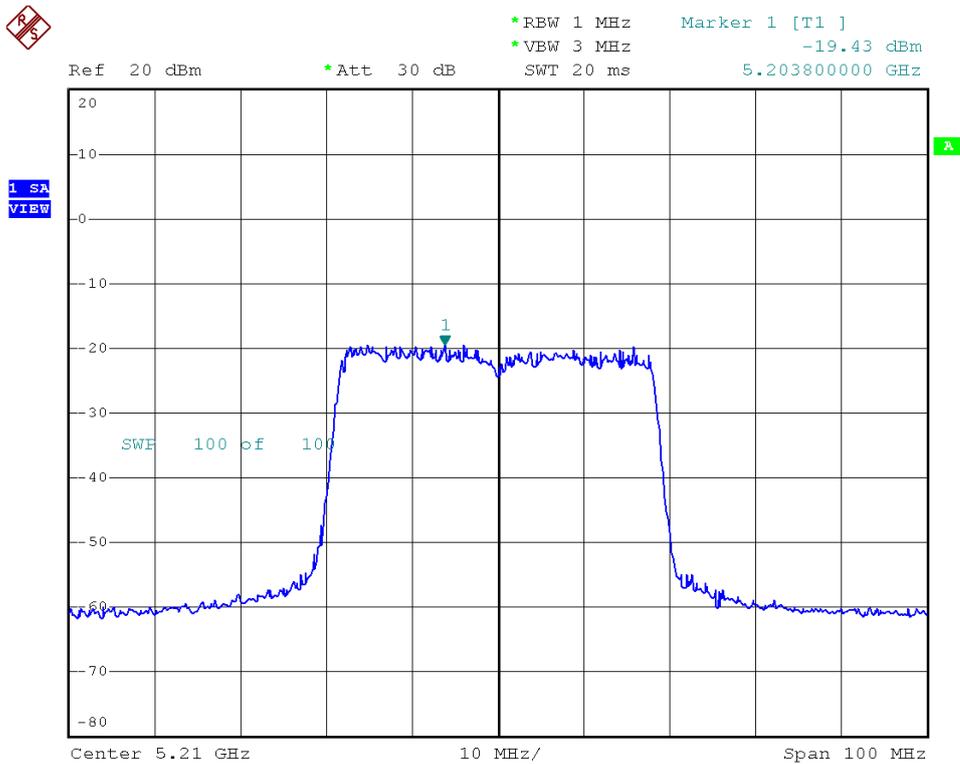




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Channel: 38

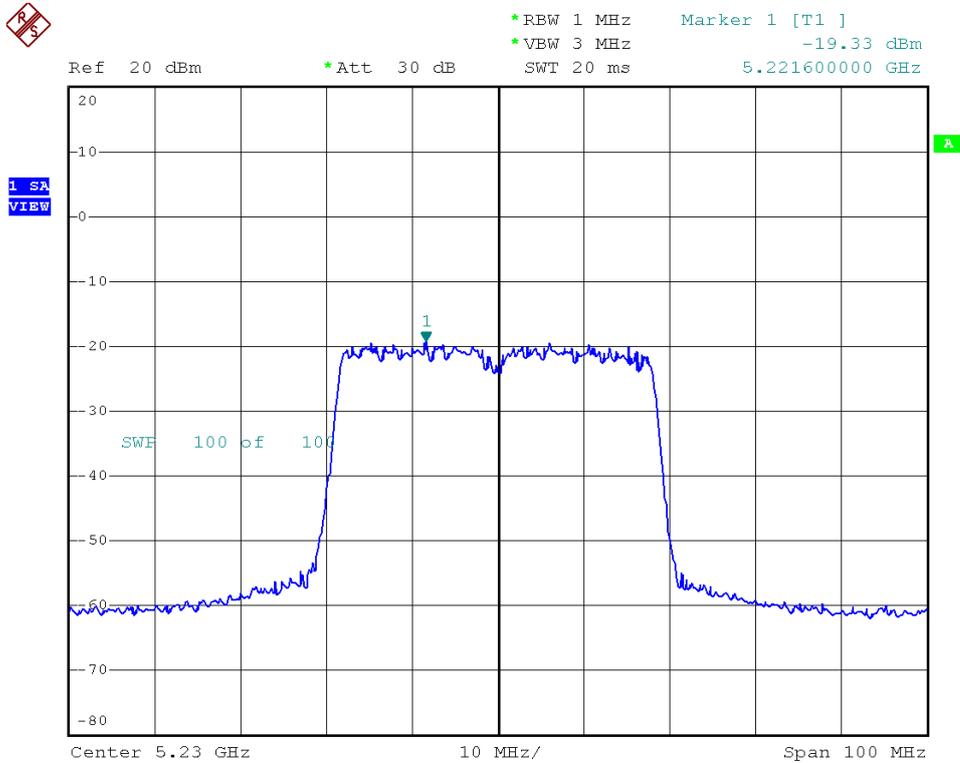


Modulation Standard: 802.11an HT40 (27Mbps), Ant 3
Channel: 42





Modulation Standard: 802.11an HT40 (27Mbps), Ant 3
Channel: 46



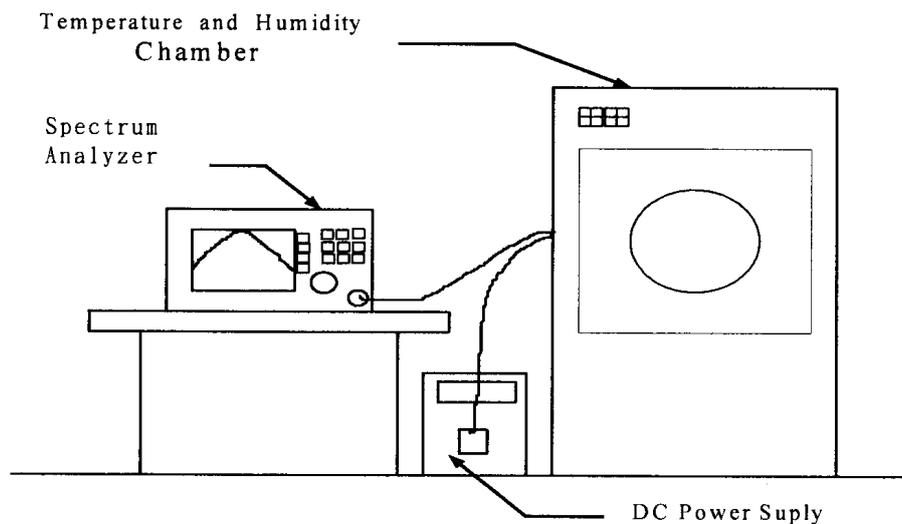


9. Frequency Stability

9.1. Test Procedure

1. The EUT was placed inside the Temperature and Humidity chamber.
2. The transmitter output was connected to spectrum analyzer.
3. Turn the EUT on and couple its output to a spectrum analyzer.
4. Turn the EUT off and set the chamber to the highest temperature specified.
5. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
6. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
7. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

9.2. Test Setup Layout



9.3. Measurement Equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	FSP40	R&S	10047	2009/03/26	2010/03/25
Temperature Chamber	T MACHINE	TMJ-9712	T-12-040111	2009/12/28	2010/12/27
DC Power Supply	GM	GPD-3030	7020936	N/A	N/A
AC Power Converter	APC	AFC-11005	F103120008	N/A	N/A

**9.4. Test Result and Data**

Modulation Standard: 802.11a (54Mbps), Ant 1

Operating frequency: 5240 MHz							
Temp (°C)	Power supply (V)	2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	93.5	5240.0097	0.000184	5239.9751	-0.000476	5240.0138	0.000263
	110	5240.0076	0.000145	5240.0005	0.000010	5239.9971	-0.000055
	126.5	5240.0020	0.000037	5239.9728	-0.000519	5239.9942	-0.000112
40	93.5	5239.9750	-0.000477	5239.9758	-0.000463	5239.9747	-0.000482
	110	5239.9849	-0.000289	5239.9654	-0.000661	5239.9841	-0.000304
	126.5	5239.9759	-0.000460	5239.9932	-0.000130	5239.9764	-0.000450
30	93.5	5240.0077	0.000147	5239.9683	-0.000606	5240.0175	0.000334
	110	5240.0198	0.000378	5240.0033	0.000063	5239.9818	-0.000348
	126.5	5239.9956	-0.000085	5240.0152	0.000289	5240.0003	0.000006
20	93.5	5240.0033	0.000063	5239.9602	-0.000760	5239.9747	-0.000483
	110	5240.0020	0.000039	5240.0053	0.000101	5239.9991	-0.000017
	126.5	5240.0163	0.000311	5240.0188	0.000359	5239.9816	-0.000352
10	93.5	5240.0044	0.000085	5240.0020	0.000038	5239.9752	-0.000472
	110	5239.9830	-0.000325	5239.9773	-0.000432	5240.0184	0.000351
	126.5	5239.9986	-0.000027	5239.9591	-0.000780	5239.9839	-0.000307
0	93.5	5240.0112	0.000213	5239.9846	-0.000295	5240.0073	0.000140
	110	5239.9847	-0.000293	5239.9947	-0.000102	5240.0103	0.000196
	126.5	5240.0011	0.000021	5240.0041	0.000078	5240.0132	0.000253
-10	93.5	5239.9777	-0.000426	5240.0009	0.000017	5240.0020	0.000038
	110	5239.9809	-0.000364	5240.0050	0.000096	5239.9857	-0.000273
	126.5	5239.9828	-0.000328	5240.0049	0.000093	5240.0083	0.000158
-20	93.5	5239.9610	-0.000745	5240.0060	0.000115	5240.0122	0.000233
	110	5239.9496	-0.000963	5240.0011	0.000021	5239.9840	-0.000304
	126.5	5239.9777	-0.000426	5240.0106	0.000203	5240.0248	0.000474
-30	93.5	5240.0286	0.000546	5240.0042	0.000081	5240.0119	0.000227
	110	5240.0214	0.000408	5239.9977	-0.000045	5240.0158	0.000302
	126.5	5239.9871	-0.000247	5240.0062	0.000118	5240.0034	0.000065

Limit :

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.