TEST REPORT

of

FCC Part 15 Subpart B&C §15.247 / RSS-210 Issue 8, RSS-Gen Issue 3

FCC ID/IC ID Certification : A3LXE503C32 / 649E-XE503C32

Equipment Under Test	:	SAMSUNG NOTE PC
Model Name	:	XE503C32
Applicant	:	SAMSUNG ELECTRONICS CO., LTD.
Manufacturer	:	SAMSUNG ELECTRONICS CO., LTD.
Date of Test(s)	:	2014. 02. 14 ~ 2014. 03. 07
Date of Issue	:	2014. 03. 11

In the configuration tested, the EUT complied with the standards specified above.

Tested By:  **Date** **2014. 03. 11**

Wonjun Sim

Approved By:  **Date** **2014. 03. 11**

Feel Jeong

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1. General Information

1.1. Testing Laboratory

SGS Korea Co., Ltd. (Gunpo Laboratory)
- Wireless Div. 3FL, 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, Korea, 435-040

All SGS services are rendered in accordance with the applicable SGS conditions of service available on request and accessible at http://www.sgs.com/en/Terms-and-Conditions.aspx.
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1.2. Details of Applicant

Applicant : SAMSUNG ELECTRONICS CO., LTD.
Address : 129, Samsung-Ro, Yeongtong-Gu, Suwon-Si, Gyeonggi-Do, Korea
Contact Person : Lee, Sang-Cheong
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1.3. Description of EUT

Kind of Product		SAMGSUNG NOTE PC
Model Name		XE503C32
Power Supply		DC 7.6 V
Frequency Range		2 402 ㎒ ~ 2 480 ㎒ (BT, BT LE), 2 412 ㎒ ~ 2 462 ㎒ (11b/g/n_HT20), 2 422 ㎒ ~ 2 452 ㎒ (11n_HT40), 5 745 ㎒ ~ 5 825 ㎒ (11a/n_HT20, 11ac_VHT20), 5 755 ㎒ ~ 5 795 ㎒ (11n_HT40, 11ac_VHT40), 5 775 ㎒ (11ac_VHT80), 5 180 ㎒ ~ 5 240 ㎒ (11a/n_HT20 – Non DFS, 11ac_VHT20 – Non DFS), 5 190 ㎒ ~ 5 230 ㎒ (11n_HT40 – Non DFS, 11ac_VHT40 – Non DFS), 5 210 ㎒ (11ac_VHT80 – Non DFS), 5 260 ㎒ ~ 5 320 ㎒ (11a/n_HT20 – DFS, 11ac_VHT20 – DFS), 5 270 ㎒ ~ 5 310 ㎒ (11n_HT40 – DFS, 11ac_VHT40 – DFS), 5 290 ㎒ (11ac_VHT80 – DFS), 5 500 ㎒ ~ 5 720 ㎒ (11a/n_HT20 – DFS, 11ac_VHT20 – DFS), 5 510 ㎒ ~ 5 710 ㎒ (11n_HT40 – DFS, 11ac_VHT40 – DFS), 5 530 ㎒ ~ 5 690 ㎒ (11ac_VHT80 – DFS)
Modulation Technique		DSSS, OFDM, GFSK, π/4DQPSK, 8DPSK
Number of Channels		11 channel (11b/g/n_HT20), 7 channel (11n_HT40), 5 channel (11a/n_HT20, 11ac_VHT20), 2 channel (11n_HT40, 11ac_VHT40), 1 channel (11ac_VHT80), 4 channel (11a/n_HT20–Non DFS, 11ac_VHT20–Non DFS), 2 channel (11n_HT40 – Non DFS, 11ac_VHT40–Non DFS), 1 channel (11ac_VHT80–Non DFS), 13 channel (11a/n_HT20 – DFS, 11ac_VHT20 – DFS), 6 channel (11n_HT40 – DFS, 11ac_VHT40 – DFS), 3 channel (11ac_VHT80 – DFS), 79 channel (BT,), 40 channel (BT LE)
Antenna Type		Internal type (MIMO)
Antenna Gain	**ANT0 (Main)**	2 402 ㎒ ~ 2 480 ㎒, 2 412 ㎒ ~ 2 472 ㎒: -2.60 ㏈i, 5 180 ㎒ ~ 5 320 ㎒: -1.88 ㏈i,5 500 ㎒ ~ 5 700 ㎒: -3.55 ㏈i, 5 745 ㎒ ~ 5 805 ㎒: -3.99 ㏈i
	ANT1 (Aux)	2 402 ㎒ ~ 2 480 ㎒, 2 412 ㎒ ~ 2 472 ㎒: -3.08 ㏈i, 5 180 ㎒ ~ 5 320 ㎒: -3.29 ㏈i,5 500 ㎒ ~ 5 700 ㎒: -3.77 ㏈i, 5 745 ㎒ ~ 5 805 ㎒: -3.97 ㏈i

1.4. Declaration by the manufacturer

- Duty Cycle ≥ 98 percent.
- All mode operate only 2x2 mode

1.5. Test Equipment List

Equipment	Manufacturer	Model	S/N	Cal Date	Cal Interval	Cal Due.
Signal Generator	R&S	SMR40	100272	Aug. 23, 2013	Annual	Aug. 23, 2014
Signal Generator	R&S	8648D	3847M00534	Mar. 28, 2013	Annual	Mar. 28, 2014
Spectrum Analyzer	Agilent	N9030A	US51350132	Oct. 08, 2013	Annual	Oct. 08, 2014
Spectrum Analyzer	Anritsu	MS2803A	62008714137	Nov. 08, 2013	Annual	Nov. 08, 2014
Attenuator	AEROFLEX / INMET	18N-20dB	3	Apr. 01, 2013	Annual	Apr. 01, 2014
Power Divider	KRYTAR	6005265	144967	May 29, 2013	Annual	May 29, 2014
High Pass Filter	Wainwright	WHK3.0/18G-6SS	344	Jun. 08, 2013	Annual	Jun. 08, 2014
High Pass Filter	Wainwright	WHK7.5/26.5G-6SS	11	Jun. 08, 2013	Annual	Jun. 08, 2014
Low Pass Filter	Mini circuits	NLP-1200+	V8979400903-2	Mar. 30, 2013	Annual	Mar. 30, 2014
Power Sensor	R&S	NRP-Z81	100669	Apr. 05. 2013	Annual	Apr. 05. 2014
DC Power Supply	Agilent	U8002A	MY50060028	Mar. 28, 2013	Annual	Mar. 28, 2014
Preamplifier	H.P.	8447F	2944A03909	Jun. 28, 2013	Annual	Jun. 28, 2014
Preamplifier	R&S	SCU 18	1391123	Sep. 30, 2013	Annual	Sep. 30, 2014
Preamplifier	MITEQ Inc.	JS44-18004000-35-8P	1546891	Jun. 13, 2013	Annual	Jun. 13, 2014
Test Receiver	R&S	ESU26	100109	Mar. 04, 2014	Annual	Mar. 04, 2015
Bilog Antenna	SCHWARZBECK MESSELEKTRONIK	VULB9163	390	Apr. 19, 2012	Biennial	Apr. 19, 2014
Horn Antenna	R&S	HF906	100326	Nov. 01, 2013	Biennial	Nov. 01, 2015
Horn Antenna	SCHWARZBECK MESSELEKTRONIK	BBHA9170	BBHA9170431	Aug. 24, 2012	Biennial	Aug. 24, 2014
Antenna Master	INNCO	MM4000	N/A	N.C.R.	N/A	N.C.R.
Turn Table	INNCO	DS 1200S	N/A	N.C.R.	N/A	N.C.R.
Anechoic Chamber	SY Corporation	L × W × H (6.5 m × 3.5 m × 3.5 m)	N/A	N.C.R.	N/A	N.C.R.
EMI Test Receiver	R&S	ESHSI0	863365/018	Jun, 27. 2013	Annual	Jun, 27. 2014
Two-Line V-Network	R&S	ENV216	100190	Jan. 04, 2013	Annual	Jan. 04, 2014
Anechoic Chamber	SY Corporation	L × W × H (9.6 m × 6.4 m × 6.4 m)	N/A	N.C.R.	N/A	N.C.R.

▶ Support equipment

Description	Manufacturer	Model	Serial Number
N/A	-	-	-

1.6. Summary of Test Results

The EUT has been tested according to the following specifications:

APPLIED STANDARD:FCC Part15 subpart B&C § 15.247, RSS-210 Issue8, RSS-Gen Issue3			
Standard section		**Test Item**	**Result**
15.205(a) 15.209 15.247(d)	A8.5	Transmitter Radiated Spurious Emissions Conducted Spurious Emission	Complied
15.247(a)(2)	A8.2(a)	6 dB Bandwidth and 99% Bandwidth	Complied
15.247(b)(3)	A8.4(4)	Maximum Peak Output Power	Complied
15.247(e)	A8.3(2)	Power Spectral Density	Complied
15.207	RSS-Gen 7.2.4	Transmitter AC Power Line Conducted Emission	Complied

1.7. Test Procedure(s)

The measurement procedures described in the American National Standard for Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 9 ㎑ to 40 ㎓ (ANSI C63.4-2003) and the guidance provided in KDB 558074_v03r01 were used in the measurement of the DUT.

1.8. Sample calculation

Where relevant, the following sample calculation is provided:

1.8.1. Conducted test

Offset value (dB) = Attenuator (dB) + Cable loss (dB)

1.8.2. Radiation test

Field strength level (dBμV/m) = Measured level (dBμV) + Antenna factor (dB) + Cable loss (dB) - amplifier gain(dB)

1.9. Test report revision

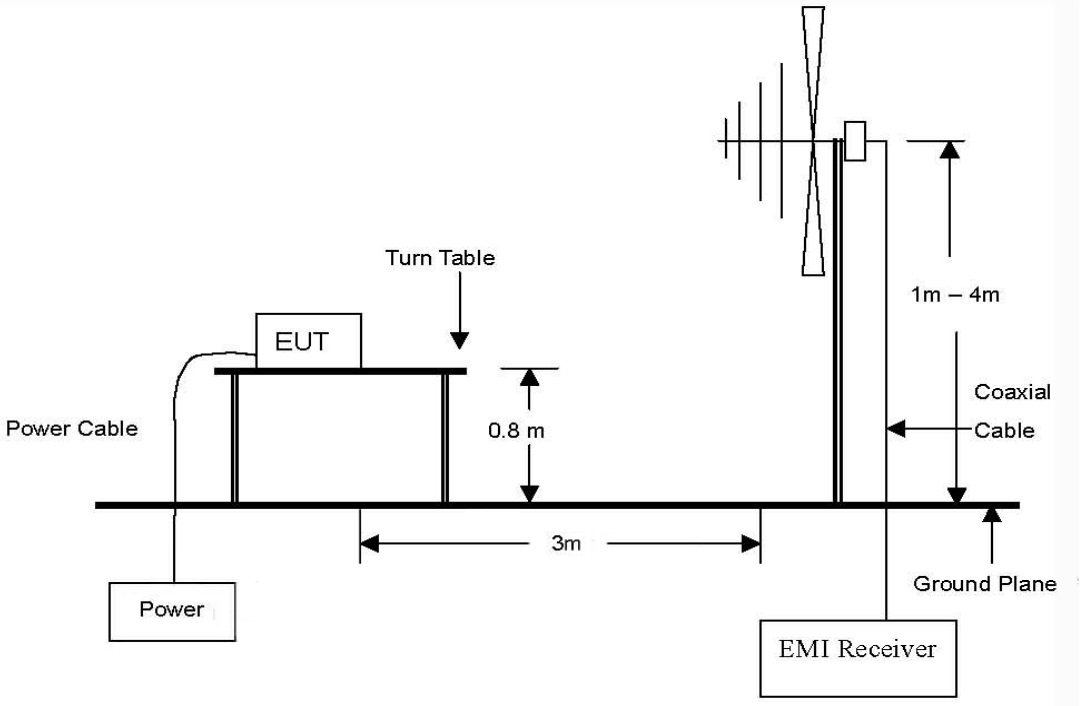
Revision	Report number	Description
0	F690501/RF-RTL007478	Initial

2. Transmitter Radiated Spurious Emissions and Conducted Spurious Emission

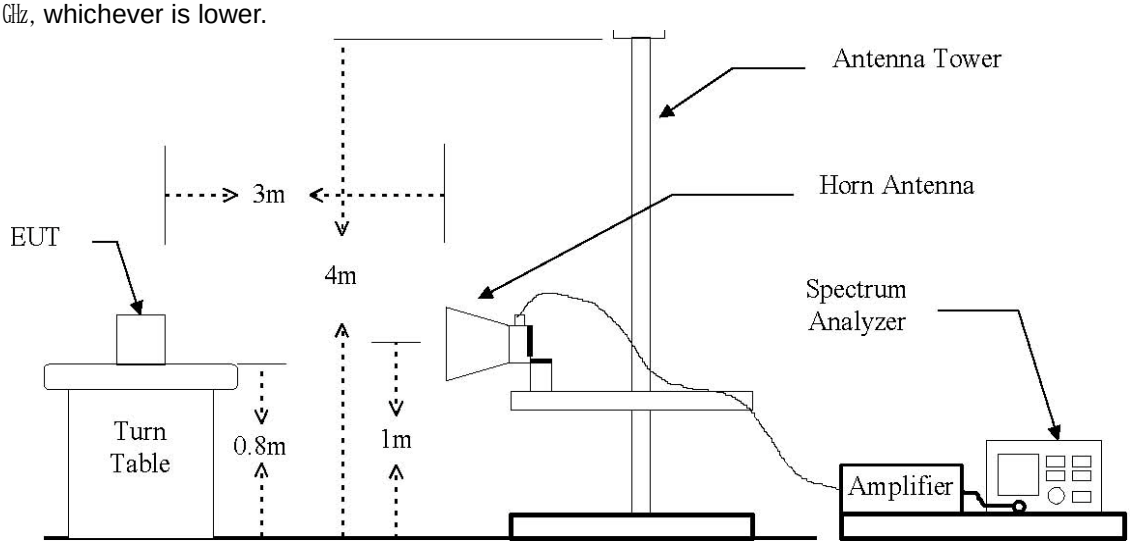
2.1. Test Setup

2.1.1. Transmitter Radiated Spurious Emissions

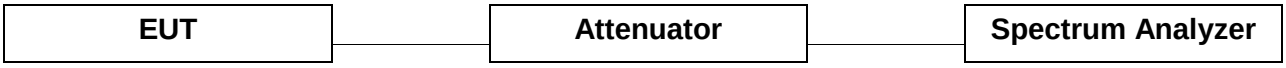
The diagram below shows the test setup that is utilized to make the measurements for emission from 30 ㎒ to 1 ㎓ Emissions.



The diagram below shows the test setup that is utilized to make the measurements for emission .The spurious emissions were investigated form 1 ㎓ to the 10th harmonic of the highest fundamental frequency or 40 ㎓, whichever is lower.



2.1.2. Conducted Spurious Emission



2.2. Limit

According to §15.247(d), in any 100 ㎑ bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 ㏈ below that in the 100 ㎑ bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement , provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval , as permitted under paragraph(b)(3) of this section , the attenuation required under this paragraph shall be 30 ㏈ instead of 20 ㏈. Attenuation below the general limits specified in section §15.209(a) is not required. In addition, radiated emission which in the restricted band, as define in section §15.205(a), must also comply the radiated emission limits specified in section §15.209(a) (see section §15.205(c))

According to § 15.209(a), Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table：

Frequency (㎒)	Distance (Meters)	Field Strength (㏈㎶/m)	Field Strength (㎶/m)
30 - 88	3	40.0	100
88 – 216	3	43.5	150
216 – 960	3	46.0	200
Above 960	3	54.0	500

2.3. Test Procedures

Radiated emissions from the EUT were measured according to the dictates in section 11.0 & 12.0 of KDB 558074_v03r01

2.3.1. Test Procedures for Radiated Spurious Emissions

1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation.
2. During performing radiated emission below 1 ㎓, the EUT was set 3 meters away from the interference receiving antenna, which was mounted on the top of a variable-height antenna tower. During performing radiated emission above 1 ㎓, the EUT was set 3 meter away from the interference-receiving antenna.
3. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10 ㏈ lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 ㏈ margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE;

All data rates and modes were investigated for radiated spurious emissions. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

1. Unwanted Emissions into Non-Restricted Frequency Bands
 - The Reference Level Measurement refer to section 11.2
 Set analyzer center frequency to DTS channel center frequency, SPAN ≥ 1.5 times the DTS channel bandwidth, the RBW = 100 ㎑ and VBW ≥ 3 x RBW, Detector = Peak, Sweep time = Auto couple, Trace = Max hold

 - Unwanted Emissions Level Measurement refer to section 11.3
 Set the center frequency and span to encompass frequency range to be measured, the RBW = 100 ㎑ and VBW ≥ 3 x RBW, Detector = Peak, Ensure that the number of measurement points ≥span/RBW, Sweep time = Auto couple, Trace = Max hold

2. Unwanted Emissions into Restricted Frequency Bands
 - Peak Power measurement procedure refer to section 12.2.4
 Set RBW = 1 ㎒, VBW ≥ 3 x RBW, SPAN ≥ RBW, Detector = Peak, Sweep time = Auto couple, Trace = Max hold

 -Average Power measurements procedure refer to section 12.2.5.1
 The EUT shall be configured to operate at the maximum achievable duty cycle.
 Set RBW = 1 ㎒, VBW ≥ 3 x RBW, Detector = RMS, if span/(# of points in sweep) ≤(RBW/2). Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this condition cannot be satisfied then the detector mode shall be set to peak,

Averaging type = power(i.e., RMS).
1) As an alternative the detector and averaging type may be set for linear voltage averaging.
2) Some instruments require linear display mode in order to use linear voltage averaging. Log or dB averaging shall not be used. Sweep time = auto, Perform a trace average of at least 100 traces.
Sweep time = auto, perform a trace average of at least 100 traces.

3. To get a maximum emission level from the EUT, the EUT is manipulated through three orthogonal planes.

2.3.2. Test Procedures for Conducted Spurious Emissions

All data rates and modes were investigated for conducted spurious emissions. Only the conducted emissions of the configuration that produced the worst case emissions are reported in this section.

Per the guidance of KDB 558074_v03r01, section 11.1 & 11.2, the reference level for out of band emissions is established from the plots of this section since the band edge emissions are measured with a RBW of 100 ㎑. This reference level is then used as the limit in subsequent plots for out of band spurious emissions shown in section 2.4.3. The limit for out of band spurious emission at the band edge is 20 dB below the fundamental emission level measured in a 100 ㎑ bandwidth.

2.4. Test Results

Ambient temperature : (24 ± 2) ℃
Relative humidity : 47 % R.H.

2.4.1. Radiated Spurious Emission (Worst case configuration_11g mode_6Mbps_Middle channel)

The frequency spectrum from 30 ㎒ to 1 000 ㎒ was investigated. Emission levels are not reported much lower than the limits by over 30 ㏈.

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (㏈㎶)	Detect Mode	Pol.	AF (㏈/m)	AMP + CL (㏈)	Actual (㏈㎶/m)	Limit (㏈㎶/m)	Margin (㏈)
162.32	40.10	Peak	H	8.44	-25.64	22.90	43.50	20.60
202.78	37.20	Peak	H	11.81	-25.31	23.70	43.50	19.80
243.36	46.47	Peak	H	13.58	-25.05	35.00	46.00	11.00
284.06	37.46	Peak	H	14.76	-24.82	27.40	46.00	18.60
400.02	44.06	Peak	H	16.78	-25.14	35.70	46.00	10.30
Above 500.00	Not detected	-	-	-	-	-	-	-

Remark:

1. All spurious emission at channels are almost the same below 1 ㎓, so that the middle channel was chosen at representative in final test.
2. Actual = Reading + AF + AMP + CL

2.4.2. Spurious Radiated Emission

The frequency spectrum above 1000 ㎒ was investigated. Emission levels are not reported much lower than the limits by over 30 ㏈.

ANT0+ANT1

DSSS : 802.11b(1 Mbps)
Low Channel (2 412 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (㏈㎶)	Detect Mode	Pol.	AF (㏈/m)	CL (㏈)	Actual (㏈㎶/m)	Limit (㏈㎶/m)	Margin (㏈)
*2 390.00	24.85	Peak	H	28.05	6.25	59.15	74.00	14.85
*2 390.00	15.23	Average	H	28.05	6.25	49.53	54.00	4.47

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (㏈㎶)	Detect Mode	Pol.	AF (㏈/m)	AMP+CL (㏈)	Actual (㏈㎶/m)	Limit (㏈㎶/m)	Margin (㏈)
*4 824.12	47.98	Peak	V	32.31	-27.89	52.40	74.00	21.60
*4 824.12	44.80	Average	V	32.31	-27.89	49.22	54.00	4.78
Above 4 900.00	Not Detected	-	-	-	-	-	-	-

Middle Channel (2 437 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (㏈㎶)	Detect Mode	Pol.	AF (㏈/m)	AMP+CL (㏈)	Actual (㏈㎶/m)	Limit (㏈㎶/m)	Margin (㏈)
*4 874.69	46.75	Peak	V	32.79	-27.42	52.12	74.00	21.88
*4 874.69	43.13	Average	V	32.79	-27.42	48.50	54.00	5.50
Above 4 900.00	Not Detected	-	-	-	-	-	-	-

High Channel (2 462 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*2 483.50	25.20	Peak	H	28.31	6.27	59.78	74.00	14.22
*2 483.50	14.93	Average	H	28.31	6.27	49.51	54.00	4.49

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*4 923.90	47.64	Peak	V	33.10	-27.39	53.35	74.00	20.65
*4 923.90	44.33	Average	V	33.10	-27.39	50.04	54.00	3.96
Above 5 000.00	Not Detected	-	-	-	-	-	-	-

ANT0+ANT1

OFDM : 802.11g(6 Mbps)
Low Channel (2 412 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*2 390.00	25.29	Peak	H	28.05	6.25	59.59	74.00	14.41
*2 390.00	15.81	Average	H	28.05	6.25	50.11	54.00	3.90

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*4 824.25	47.12	Peak	V	32.31	-27.89	51.54	74.00	22.46
*4 824.25	44.71	Average	V	32.31	-27.89	49.13	54.00	4.87
Above 4 900.00	Not Detected	-	-	-	-	-	-	-

Middle Channel (2 437 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*4 873.62	46.64	Peak	V	32.79	-27.45	51.98	74.00	22.02
*4 873.62	45.17	Average	V	32.79	-27.45	50.51	54.00	3.49
Above 4 900.00	Not Detected	-	-	-	-	-	-	-

High Channel (2 462 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*2 483.50	27.90	Peak	H	28.31	6.27	62.48	74.00	11.52
*2 483.50	15.74	Average	H	28.31	6.27	50.32	54.00	3.69

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*4 923.56	46.80	Peak	V	33.10	-27.39	52.51	74.00	21.49
*4 923.56	45.19	Average	V	33.10	-27.39	50.90	54.00	3.10
Above 5 000.00	Not Detected	-	-	-	-	-	-	-

ANT0+ANT1

OFDM : 802.11n_HT20(MCS8)
Low Channel (2 412 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*2 390.00	28.22	Peak	H	28.05	6.25	62.52	74.00	11.48
*2 390.00	16.40	Average	H	28.05	6.25	50.70	54.00	3.30

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*4 822.15	44.35	Peak	V	32.28	-27.92	48.71	74.00	25.29
*4 822.15	40.86	Average	V	32.28	-27.92	45.22	54.00	8.78
Above 4 900.00	Not Detected	-	-	-	-	-	-	-

Middle Channel (2 437 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*4 872.96	43.67	Peak	V	32.78	-27.47	48.98	74.00	25.02
*4 872.96	41.79	Average	V	32.78	-27.47	47.10	54.00	6.90
Above 4 900.00	Not Detected	-	-	-	-	-	-	-

High Channel (2 462 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*2 483.50	28.55	Peak	H	28.31	6.27	63.13	74.00	10.87
*2 483.50	15.41	Average	H	28.31	6.27	49.99	54.00	4.01

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*4 922.79	44.46	Peak	V	33.09	-27.39	50.16	74.00	23.84
*4 922.79	41.23	Average	V	33.09	-27.39	46.93	54.00	7.07
Above 5 000.00	Not Detected	-	-	-	-	-	-	-

ANT0+ANT1

OFDM : 802.11n_HT40(MCS8)
Low Channel (2 422 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*2 390.00	26.00	Peak	H	28.05	6.25	60.30	74.00	13.71
*2 390.00	15.38	Average	H	28.05	6.25	49.68	54.00	4.32

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*4 843.15	45.18	Peak	V	32.55	-28.08	49.65	74.00	24.35
*4 843.15	40.71	Average	V	32.55	-28.08	45.18	54.00	8.82
Above 4 900.00	Not Detected	-	-	-	-	-	-	-

Middle Channel (2 437 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*4 875.32	45.66	Peak	V	32.80	-27.41	51.05	74.00	22.95
*4 875.32	40.93	Average	V	32.80	-27.41	46.32	54.00	7.68
Above 4 900.00	Not Detected	-	-	-	-	-	-	-

High Channel (2 452 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*2 483.50	25.30	Peak	H	28.31	6.27	59.88	74.00	14.13
*2 483.50	15.71	Average	H	28.31	6.27	50.29	54.00	3.71

Radiated Emissions			Ant	Correction Factors		Total	FCC Limit	
Frequency (㎒)	Reading (dB㎶)	Detect Mode	Pol.	AF (dB/m)	AMP+CL (dB)	Actual (dB㎶/m)	Limit (dB㎶/m)	Margin (dB)
*4 804.15	45.37	Peak	V	32.28	-28.16	49.49	74.00	24.51
*4 804.15	41.74	Average	V	32.28	-28.16	45.86	54.00	8.14
Above 5 000.00	Not Detected	-	-	-	-	-	-	-

ANT0+ANT1

802.11a (6 Mbps)

Low Channel (5 745 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
5 745.00	59.46	Peak	H	34.16	9.56	103.18	-	-

Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	Amp Gain +CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
*11 498.68	36.57	Peak	V	38.46	-25.30	49.73	74.00	24.27
*11 498.68	26.75	Average	V	38.46	-25.30	39.91	54.00	14.09
Above 11 500.00	Not Detected	-	-	-	-	-	-	-

Middle Channel (5 785 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
5 785.00	58.97	Peak	H	34.08	9.61	102.66	-	-

Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	Amp Gain +CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
*11 570.16	34.89	Peak	V	38.42	-26.29	47.02	74.00	26.98
*11 570.16	25.16	Average	V	38.42	-26.29	37.29	54.00	16.71
Above 11 600.00	Not Detected	-	-	-	-	-	-	-

High Channel (5 825 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (㏈uV)	Detect Mode	Pol.	AF (㏈/m)	CL (㏈)	Actual (㏈uV/m)	Limit (㏈uV/m)	Margin (㏈)
5 825.00	59.73	Peak	H	34.10	9.58	103.41	-	-

Frequency (㎒)	Reading (㏈uV)	Detect Mode	Pol.	AF (㏈/m)	Amp Gain +CL (㏈)	Actual (㏈uV/m)	Limit (㏈uV/m)	Margin (㏈)
*11 650.84	36.11	Peak	V	38.36	-26.49	47.98	74.00	26.02
*11 650.84	25.63	Average	V	38.36	-26.49	37.50	54.00	16.50
Above 11 700.00	Not Detected	-	-	-	-	-	-	-

ANT0+ANT1

802.11n-HT20 (MCS8)

Low Channel (5 745 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
5 745.00	58.32	Peak	H	34.16	9.56	102.04	-	-

Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	Amp Gain +CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
*11 498.95	36.30	Peak	V	38.46	-25.30	49.46	74.00	24.54
*11 498.95	25.73	Average	V	38.46	-25.30	38.89	54.00	15.11
Above 11 500.00	Not Detected	-	-	-	-	-	-	-

Middle Channel (5 785 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
5 785.00	57.49	Peak	H	34.08	9.61	101.18	-	-

Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	Amp Gain +CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
*11 571.23	35.46	Peak	V	38.42	-26.30	47.58	74.00	26.42
*11 571.23	25.80	Average	V	38.42	-26.30	37.92	54.00	16.08
Above 11 600.00	Not Detected	-	-	-	-	-	-	-

High Channel (5 825 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
5 825.00	57.85	Peak	H	34.10	9.58	101.53	-	-

Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	Amp Gain +CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
*11 652.34	35.28	Peak	V	38.36	-26.49	47.15	74.00	26.85
*11 652.34	26.98	Average	V	38.36	-26.49	38.85	54.00	15.15
Above 11 700.00	Not Detected	-	-	-	-	-	-	-

ANT0+ANT1

802.11n_HT40(MCS8)

Low Channel (5 755 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
5 755.00	59.13	Peak	H	34.11	9.59	102.83	-	-

Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	Amp Gain +CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
*11 510.46	35.28	Peak	V	38.47	-25.46	48.29	74.00	25.71
*11 510.46	25.38	Average	V	38.47	-25.46	38.39	54.00	15.61
Above 11 600.00	Not Detected	-	-	-	-	-	-	-

High Channel (5 795 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
5 795.00	57.53	Peak	H	34.03	9.62	101.18	-	-

Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	Amp Gain +CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
*11 590.38	35.31	Peak	V	38.40	-26.57	47.14	74.00	26.86
*11 590.38	26.48	Average	V	38.40	-26.57	38.31	54.00	15.69
Above 11 600.00	Not Detected	-	-	-	-	-	-	-

ANT0+ANT1

802.11ac-VHT20 (MCS0)

Low Channel (5 745 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
5 745.00	56.03	Peak	H	34.16	9.56	99.75	-	-

Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	Amp Gain +CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
*11 490.21	35.41	Peak	V	38.39	-25.17	48.63	74.00	25.37
*11 490.21	25.83	Average	V	38.39	-25.17	39.05	54.00	14.95
Above 11 500.00	Not Detected	-	-	-	-	-	-	-

Middle Channel (5 785 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
5 785.00	56.87	Peak	H	34.08	9.61	100.56	-	-

Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	Amp Gain +CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
*11 567.89	36.07	Peak	V	38.43	-26.26	48.24	74.00	25.76
*11 567.89	27.05	Average	V	38.43	-26.26	39.22	54.00	14.78
Above 11 600.00	Not Detected	-	-	-	-	-	-	-

High Channel (5 825 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
5 825.00	56.36	Peak	H	34.10	9.58	100.04	-	-

Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	Amp Gain +CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
*11 653.24	36.81	Peak	V	38.36	-26.48	48.69	74.00	25.31
*11 653.24	26.61	Average	V	38.36	-26.48	38.49	54.00	15.51
Above 11 700.00	Not Detected	-	-	-	-	-	-	-

ANT0+ANT1

802.11ac_VHT40(MCS0)

Low Channel (5 755 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
5 755.00	56.34	Peak	H	34.11	9.59	100.04	-	-

Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	Amp Gain +CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
*11 512.32	37.07	Peak	V	38.47	-25.49	50.05	74.00	23.95
*11 512.32	25.74	Average	V	38.47	-25.49	38.72	54.00	15.28
Above 11 600.00	Not Detected	-	-	-	-	-	-	-

High Channel (5 795 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
5 795.00	56.78	Peak	H	34.03	9.62	100.43	-	-

Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	Amp Gain +CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
*11 589.32	36.03	Peak	V	38.40	-26.55	47.88	74.00	26.12
*11 589.32	26.71	Average	V	38.40	-26.55	38.56	54.00	15.44
Above 11 600.00	Not Detected	-	-	-	-	-	-	-

ANT0+ANT1

802.11ac_VHT80(MCS0)

Low Channel (5 775 ㎒)

Radiated Emissions			Ant	Correction Factors		Total	Limit	
Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
5 775.00	46.27	Peak	H	34.10	9.61	89.98	-	-

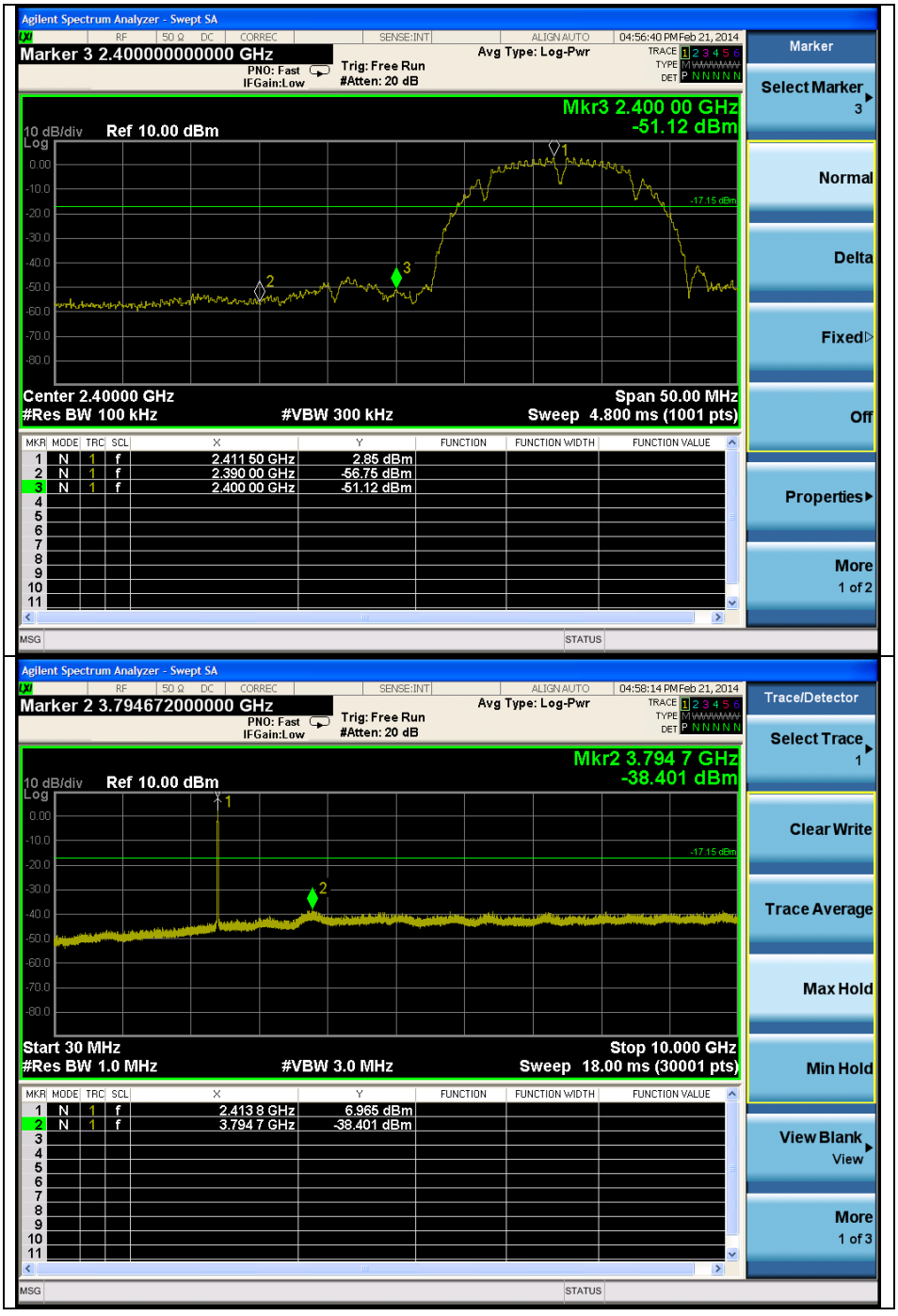
Frequency (㎒)	Reading (dB uV)	Detect Mode	Pol.	AF (dB/m)	Amp Gain +CL (dB)	Actual (dB uV/m)	Limit (dB uV/m)	Margin (dB)
*11 551.64	36.04	Peak	V	38.47	-26.03	48.48	74.00	25.52
*11 551.64	26.65	Average	V	38.47	-26.03	39.09	54.00	14.91
Above 11 600.00	Not Detected	-	-	-	-	-	-	-

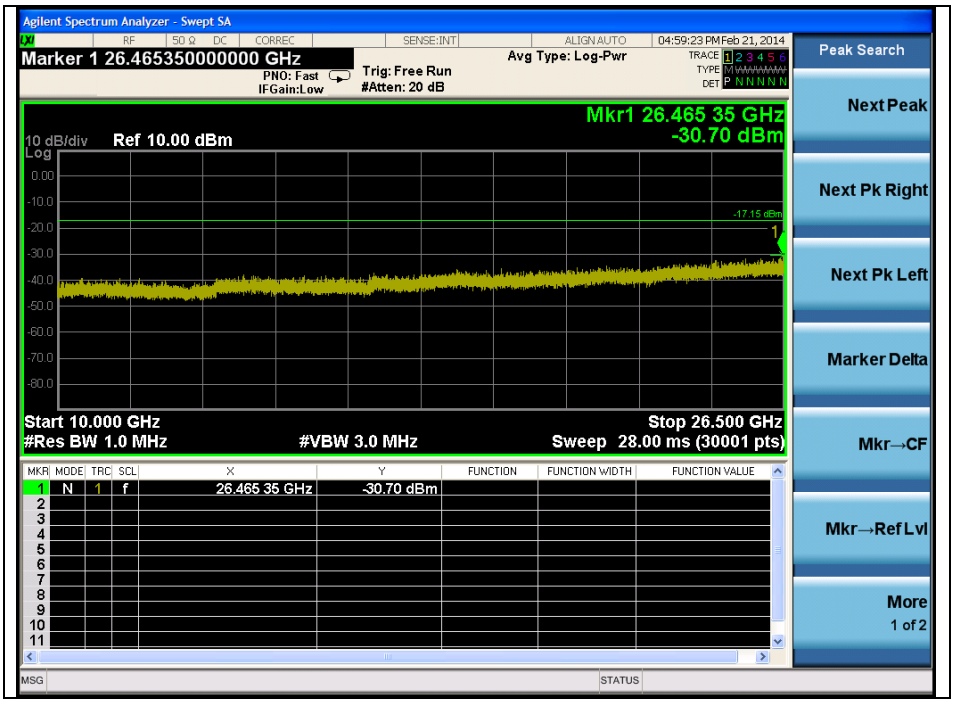
Remarks :

1. "*" means the restricted band.
2. Radiated emissions measured in frequency above 1 000 ㎒ were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit.
4. Actual = Reading + AF + AMP + CL

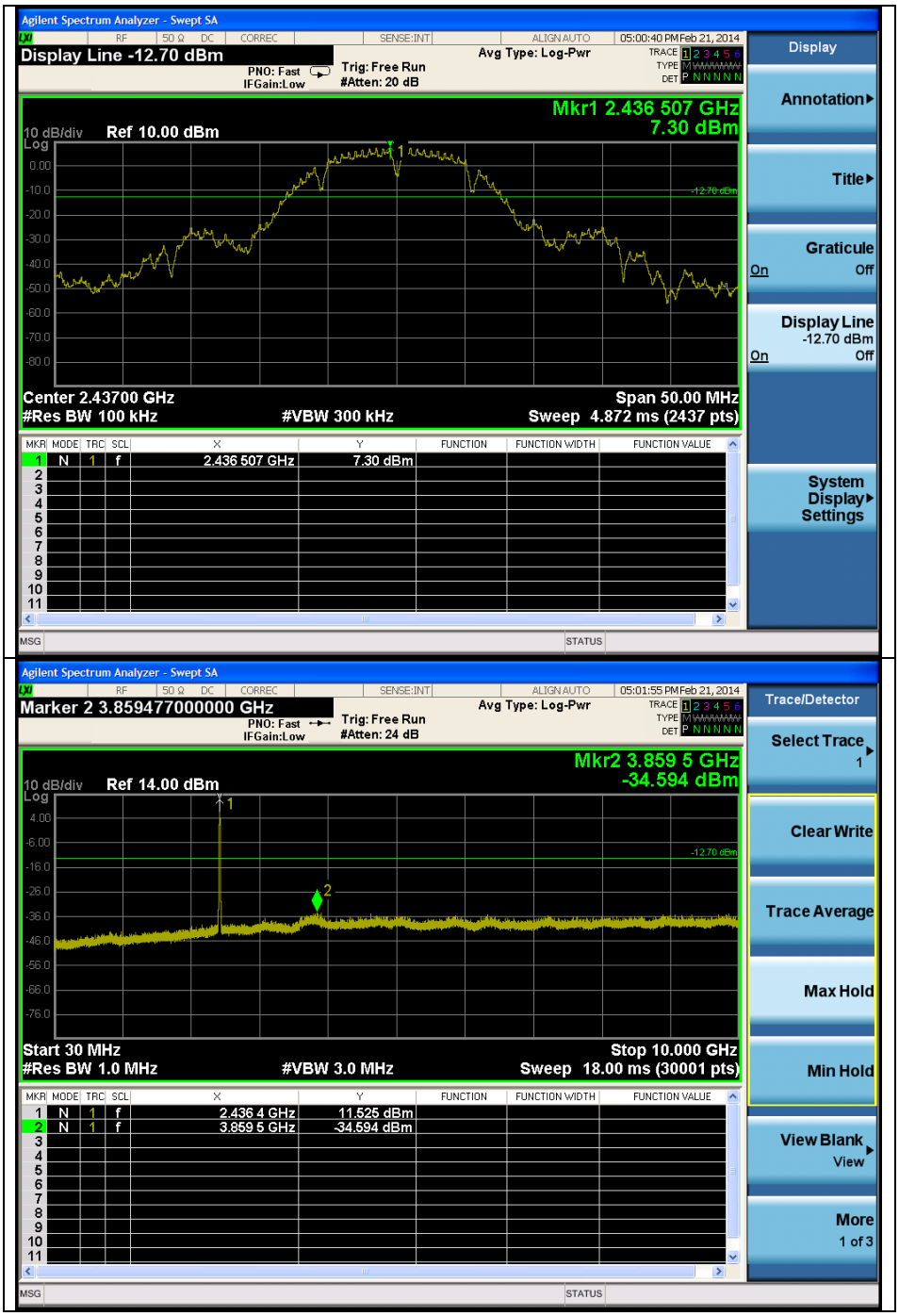
2.4.3. Spurious RF Conducted Emissions: Plot of Spurious RF Conducted Emission

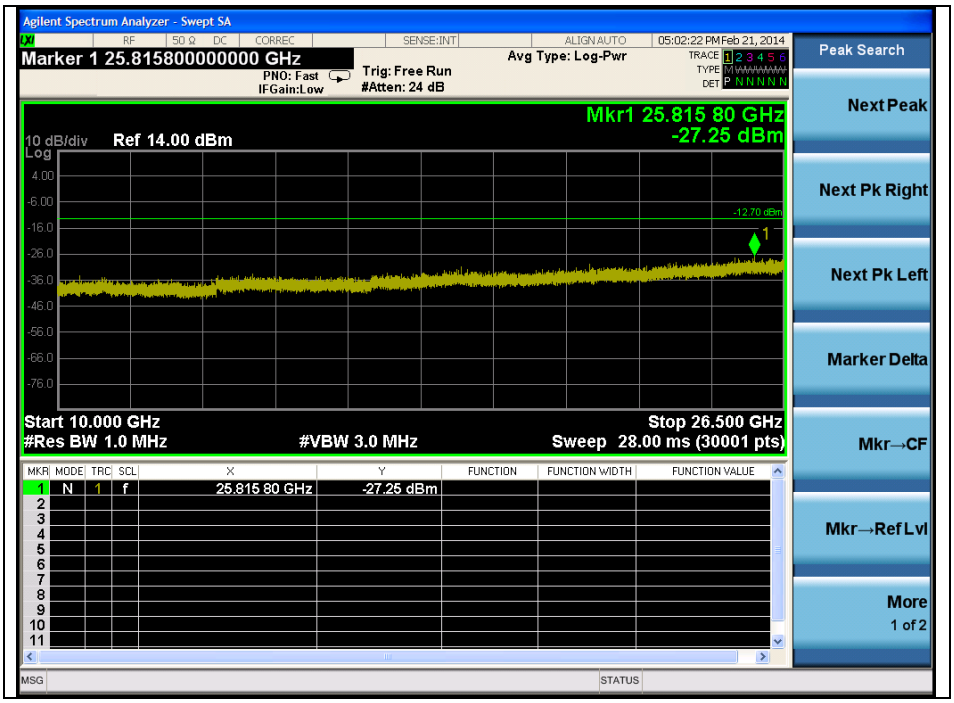
ANT0
DSSS : 802.11b(1 Mbps)
Low Channel



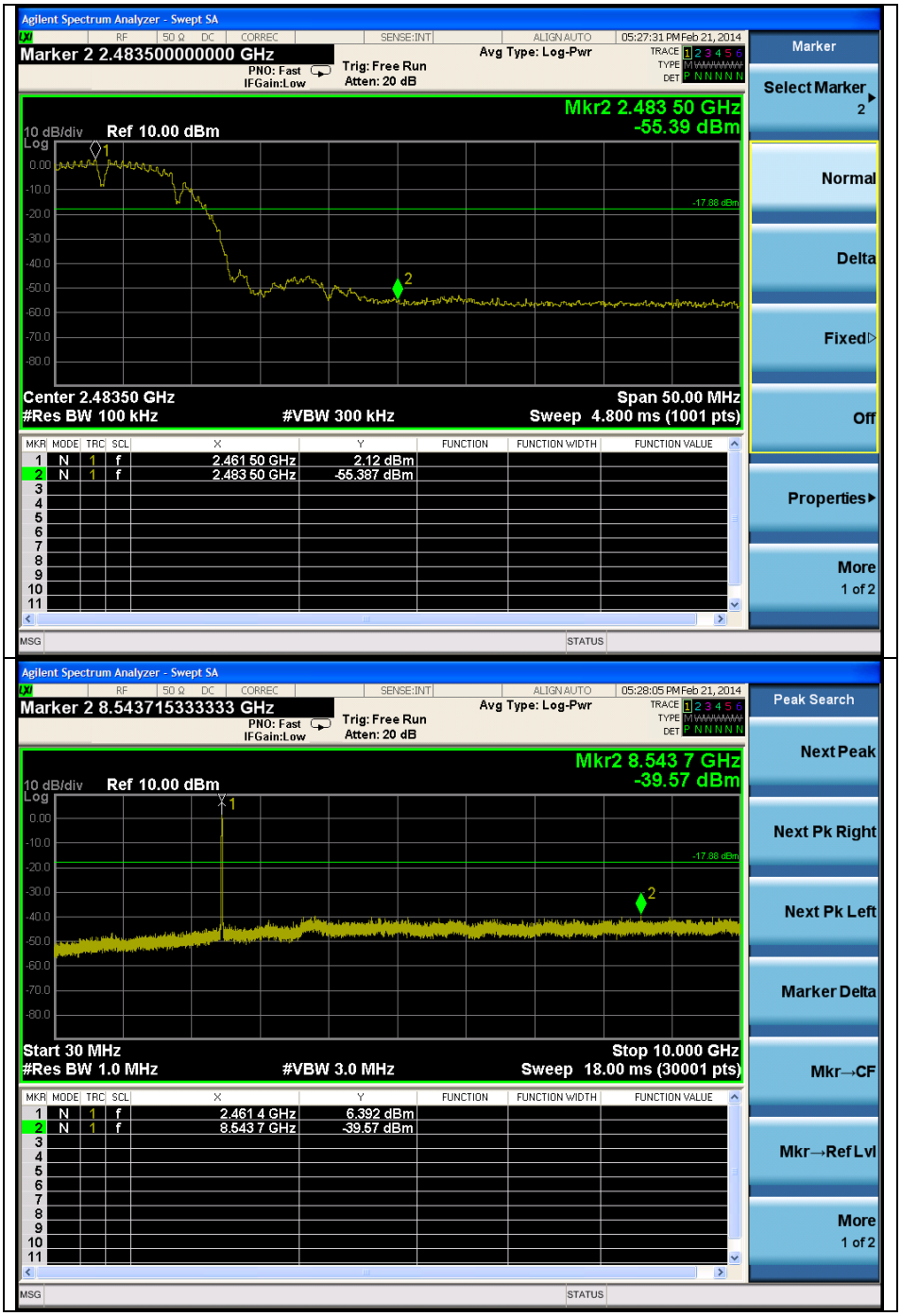


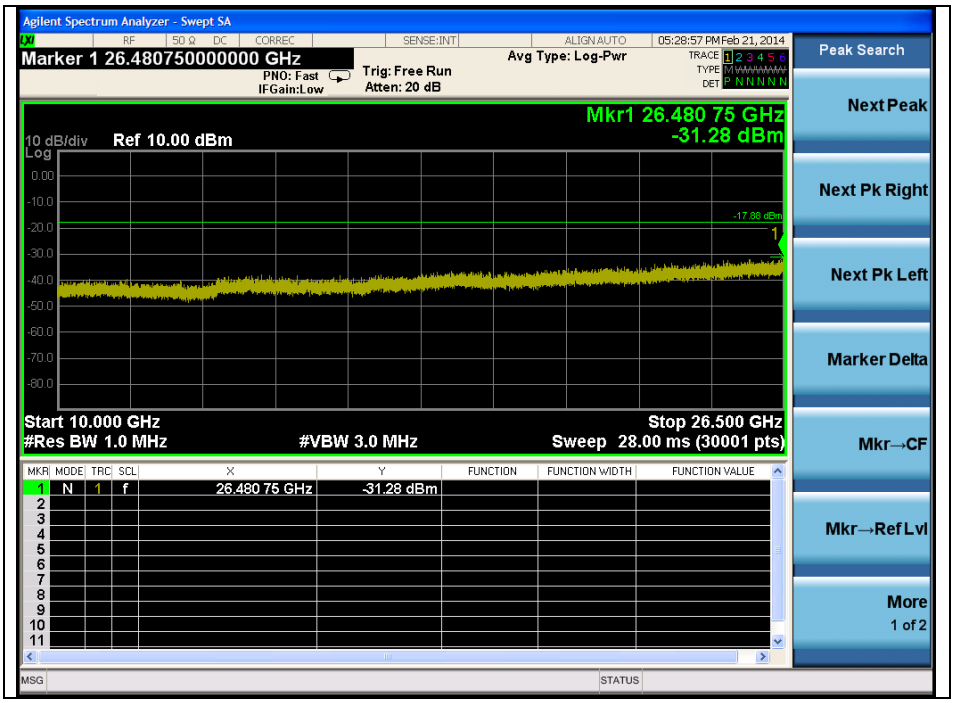
Middle Channel





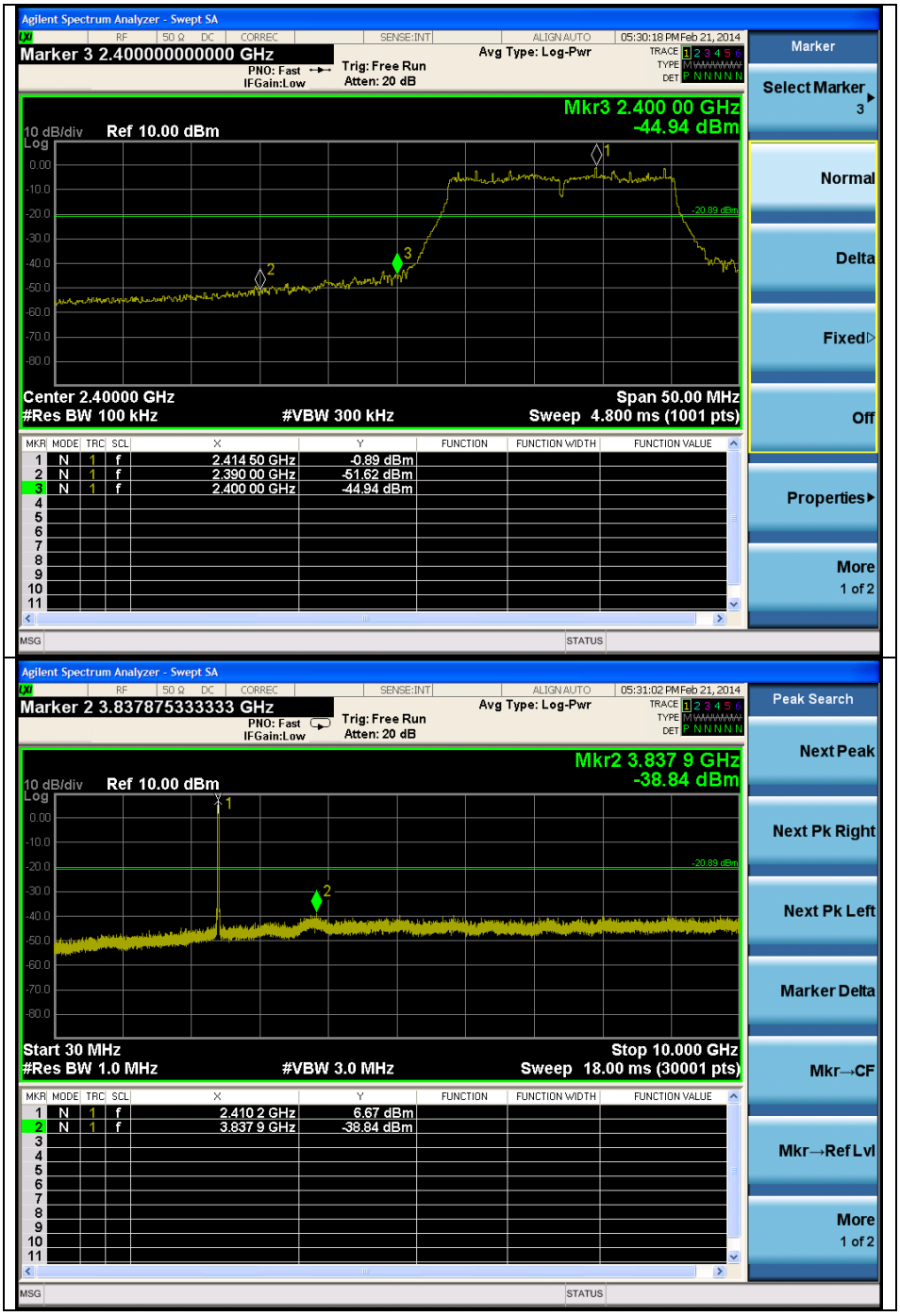
High Channel

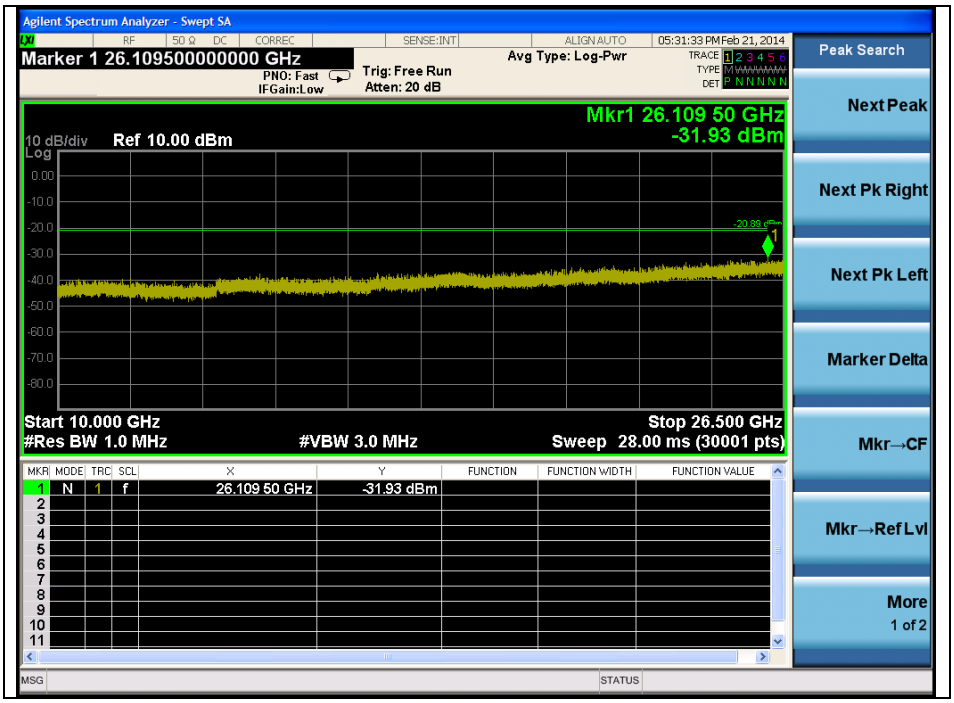




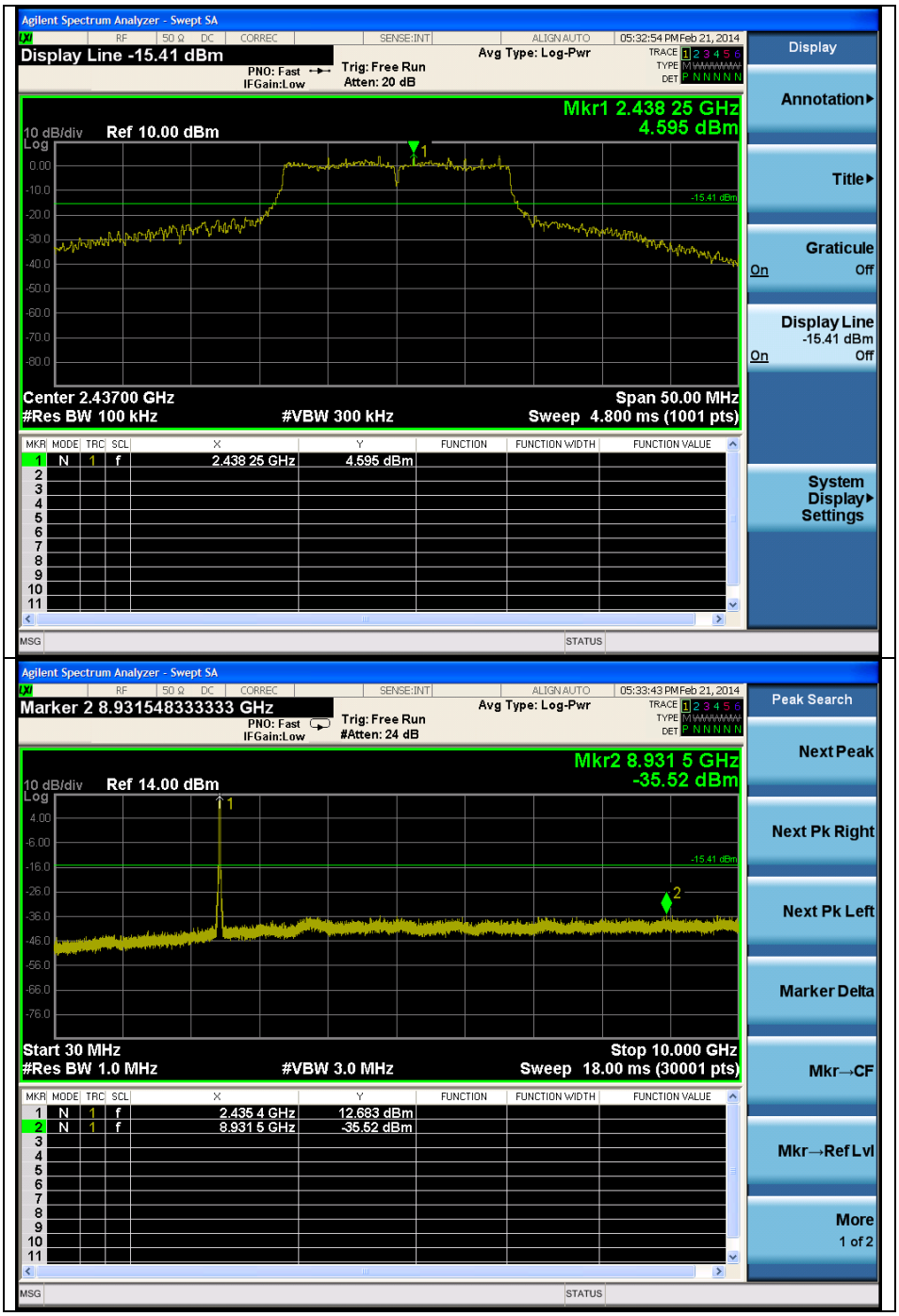
OFDM : 802.11g(6 Mbps)

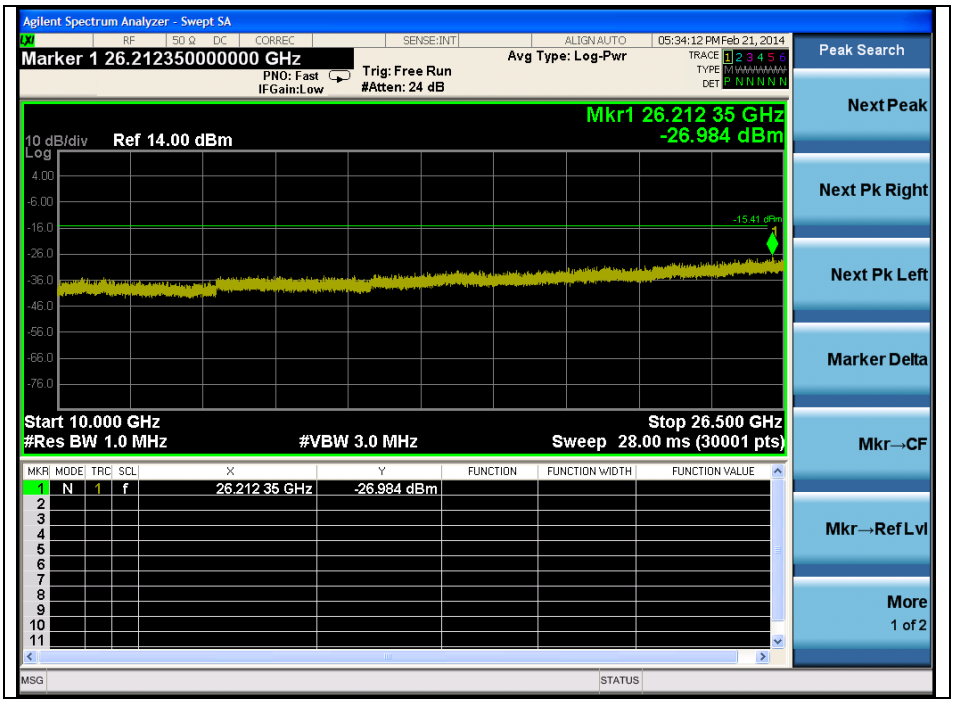
Low Channel



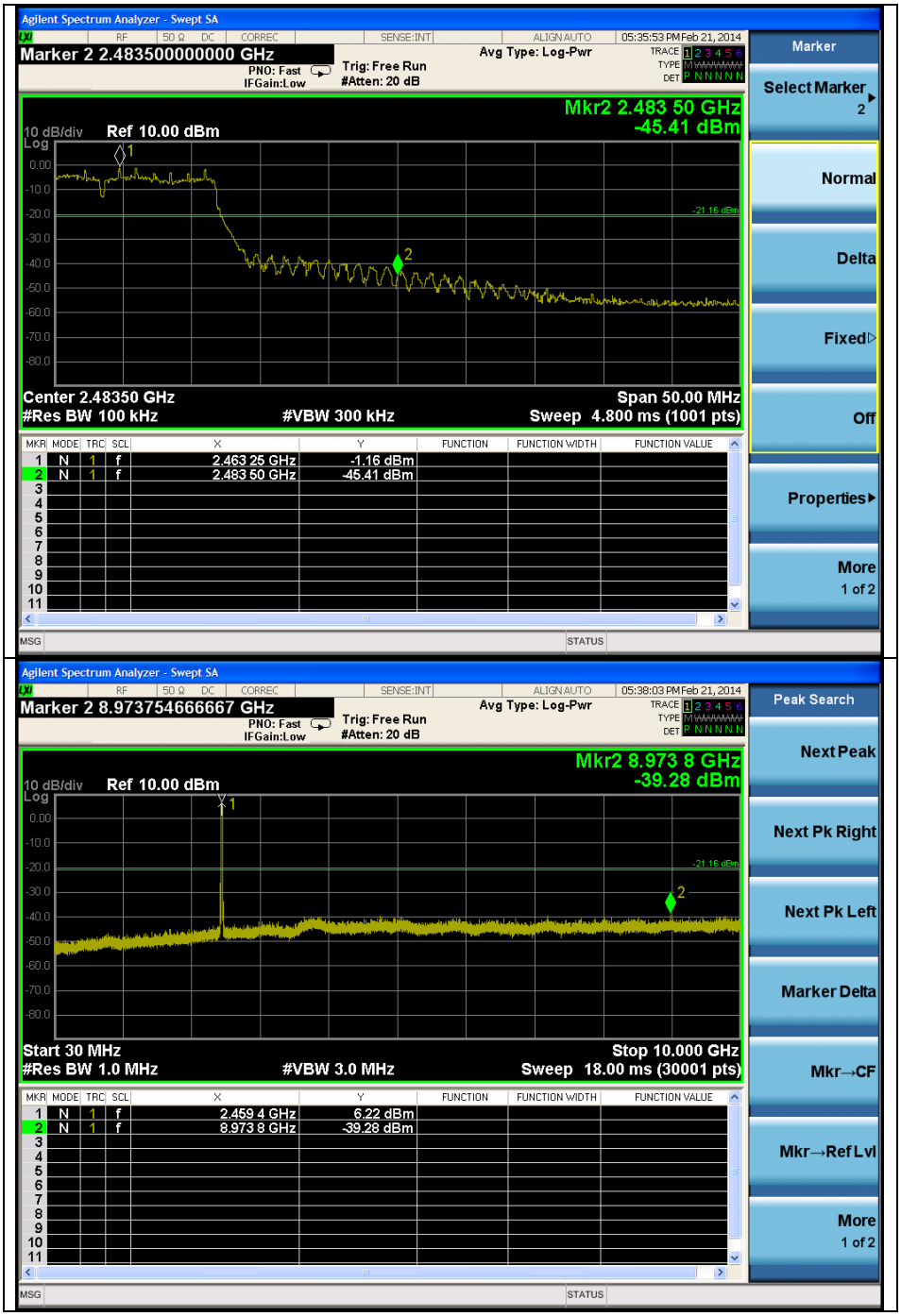


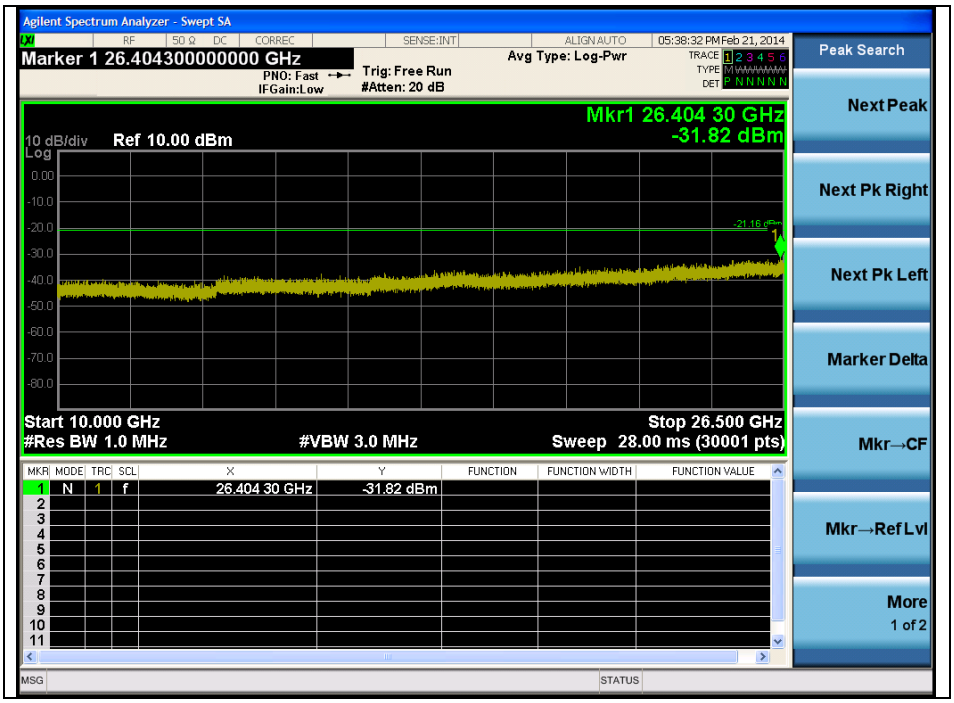
Middle Channel





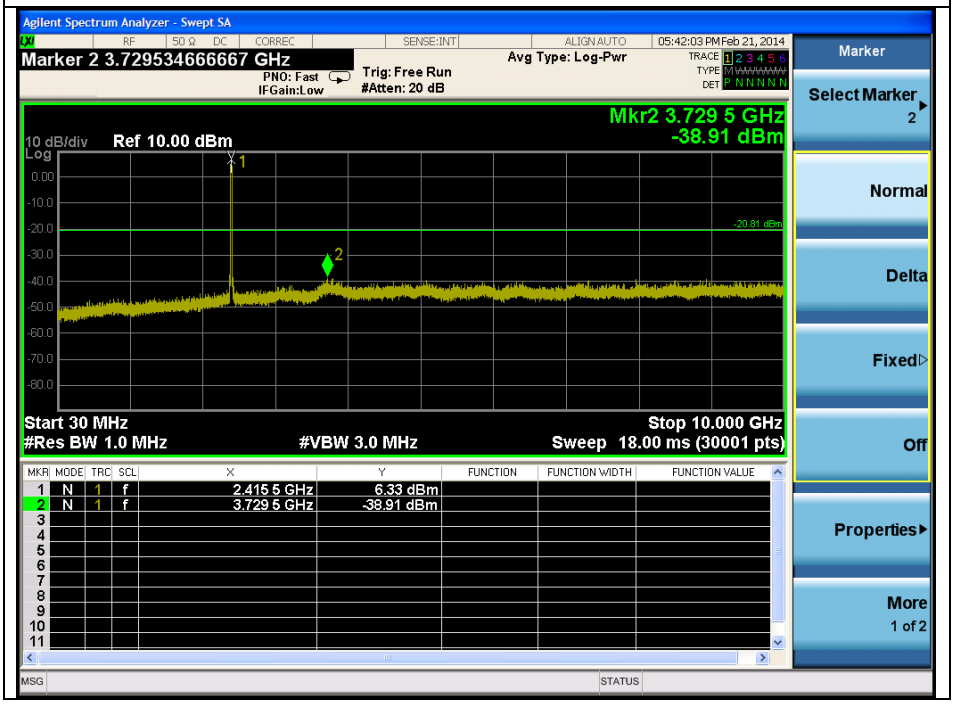
High Channel

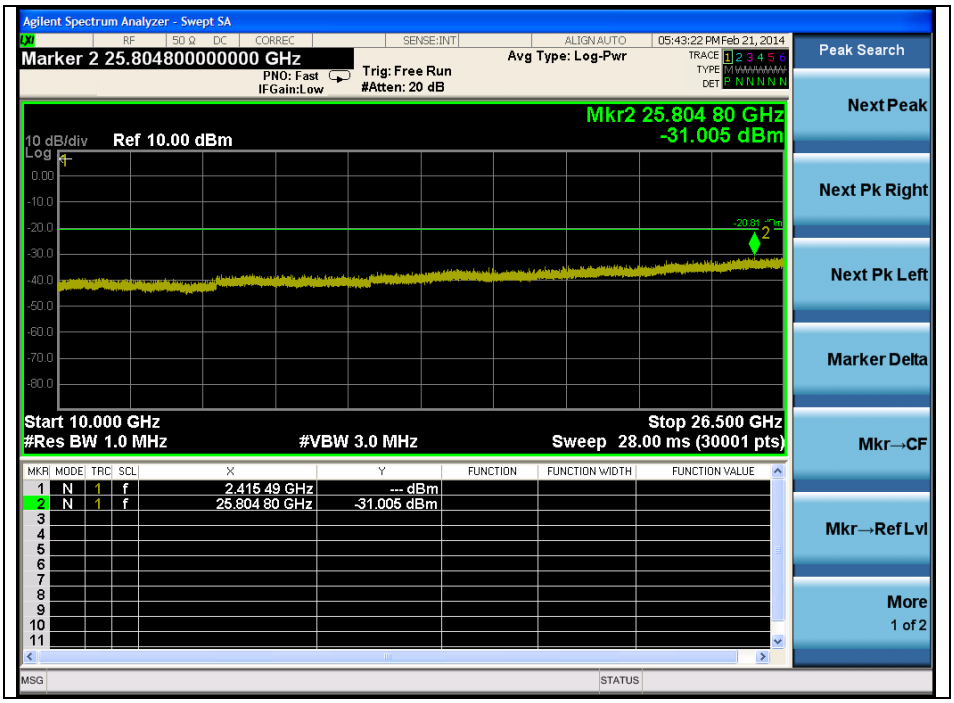




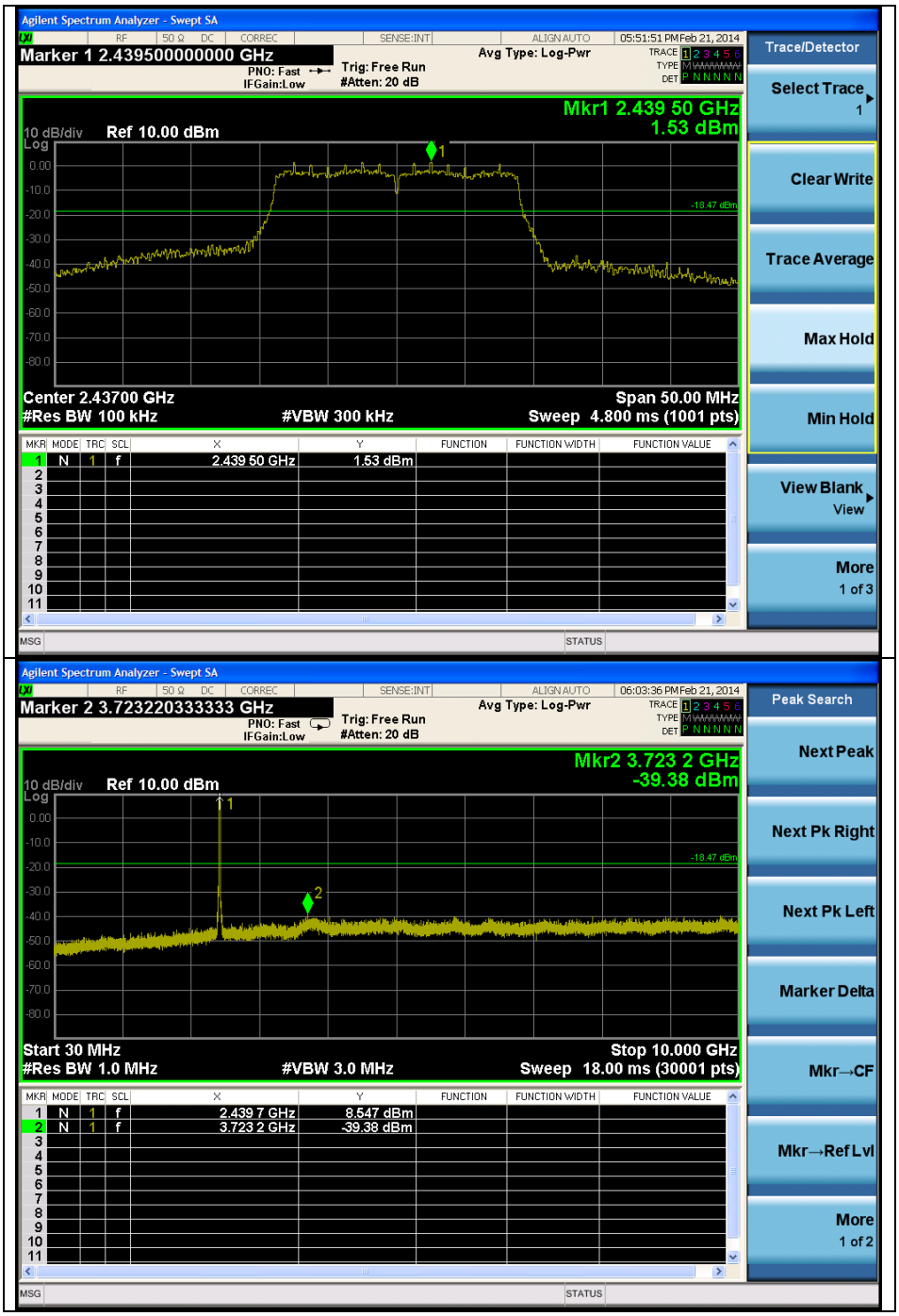
OFDM : 802.11n_HT20(MCS8)

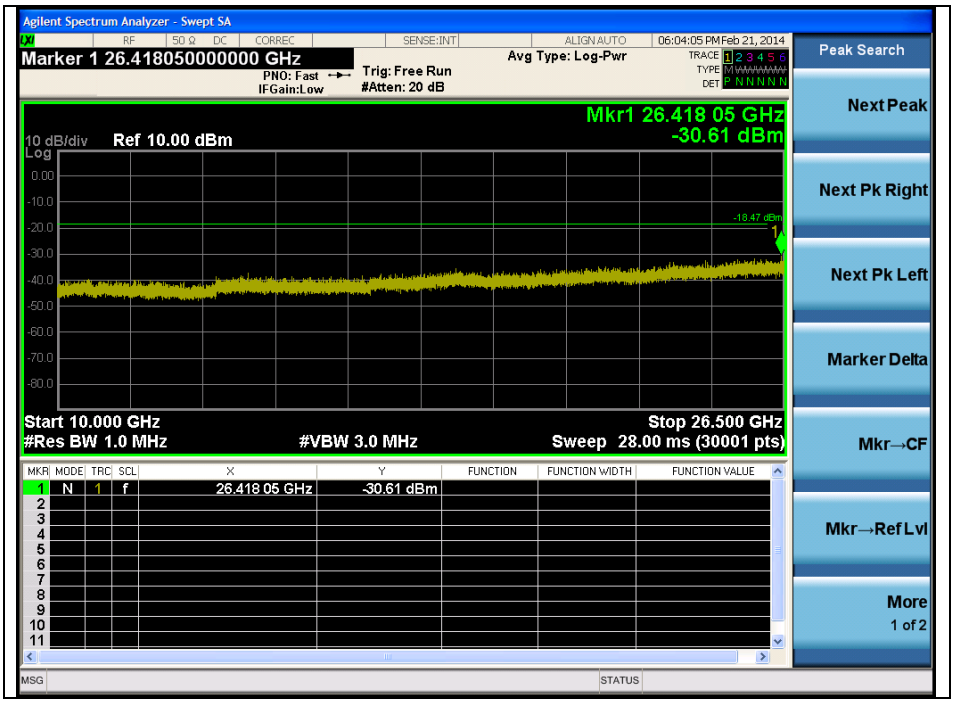
Low Channel



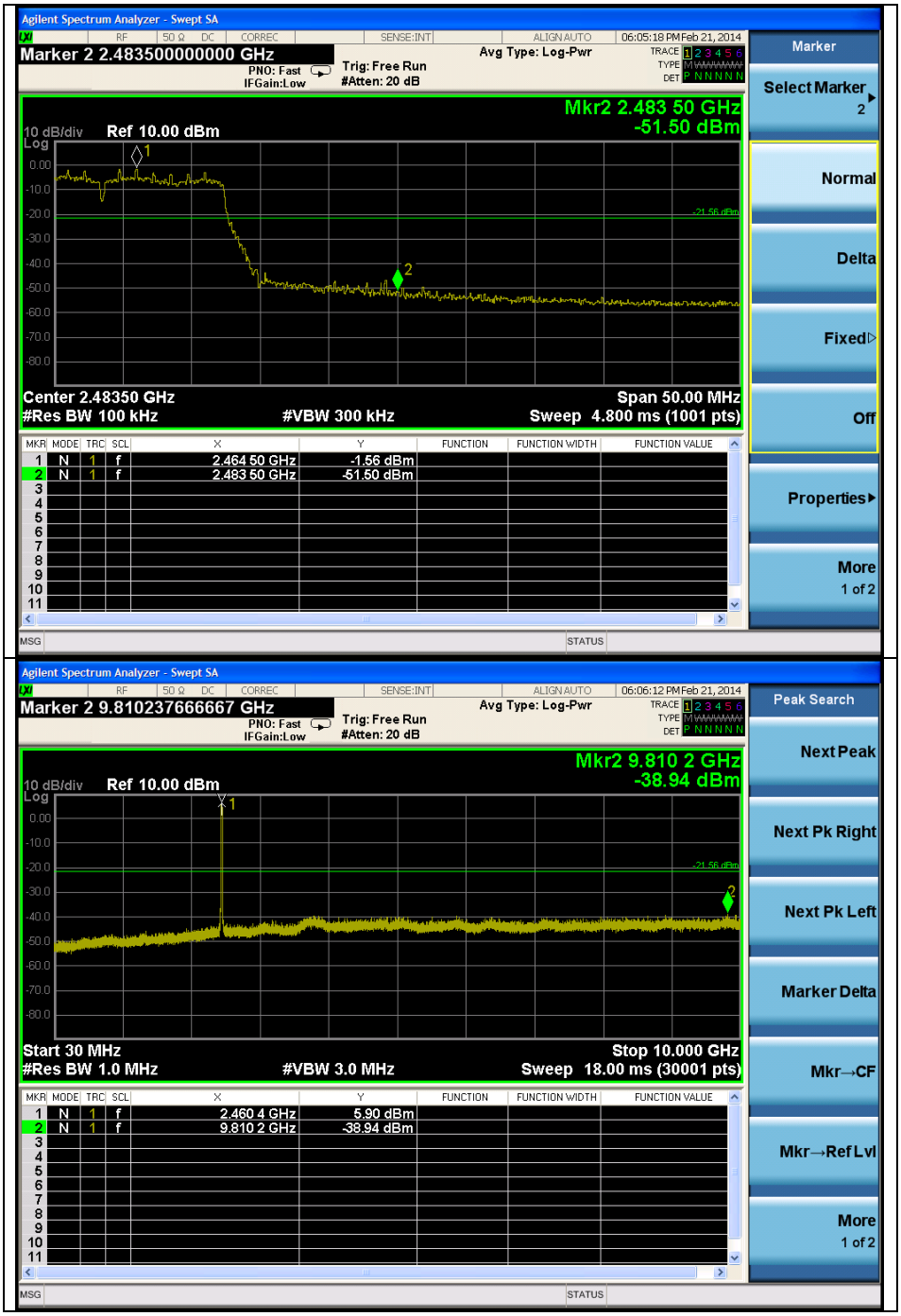


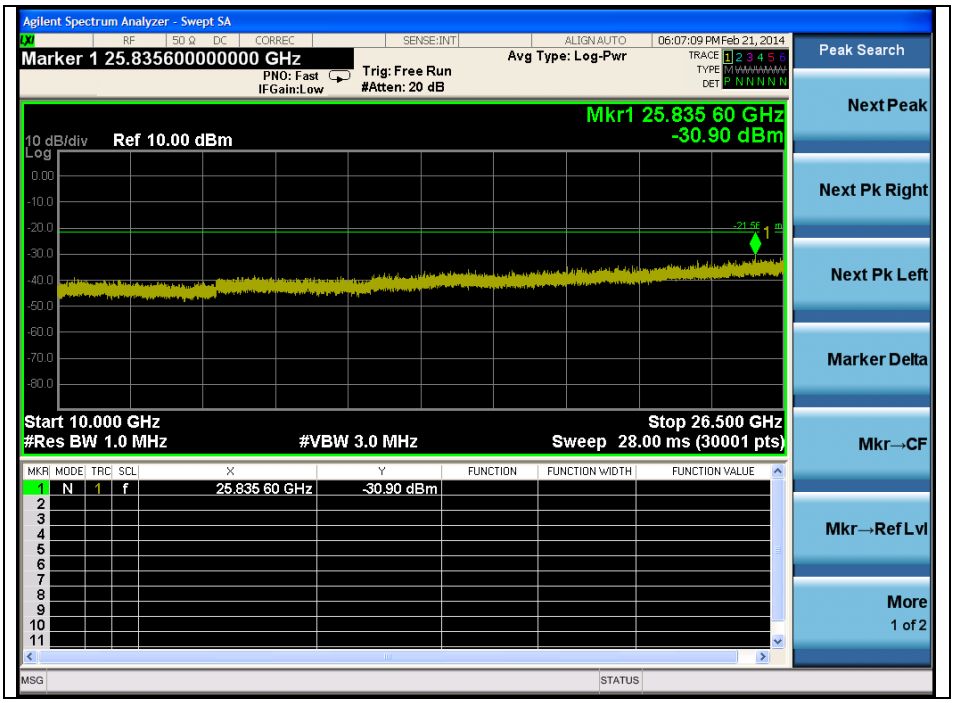
Middle Channel





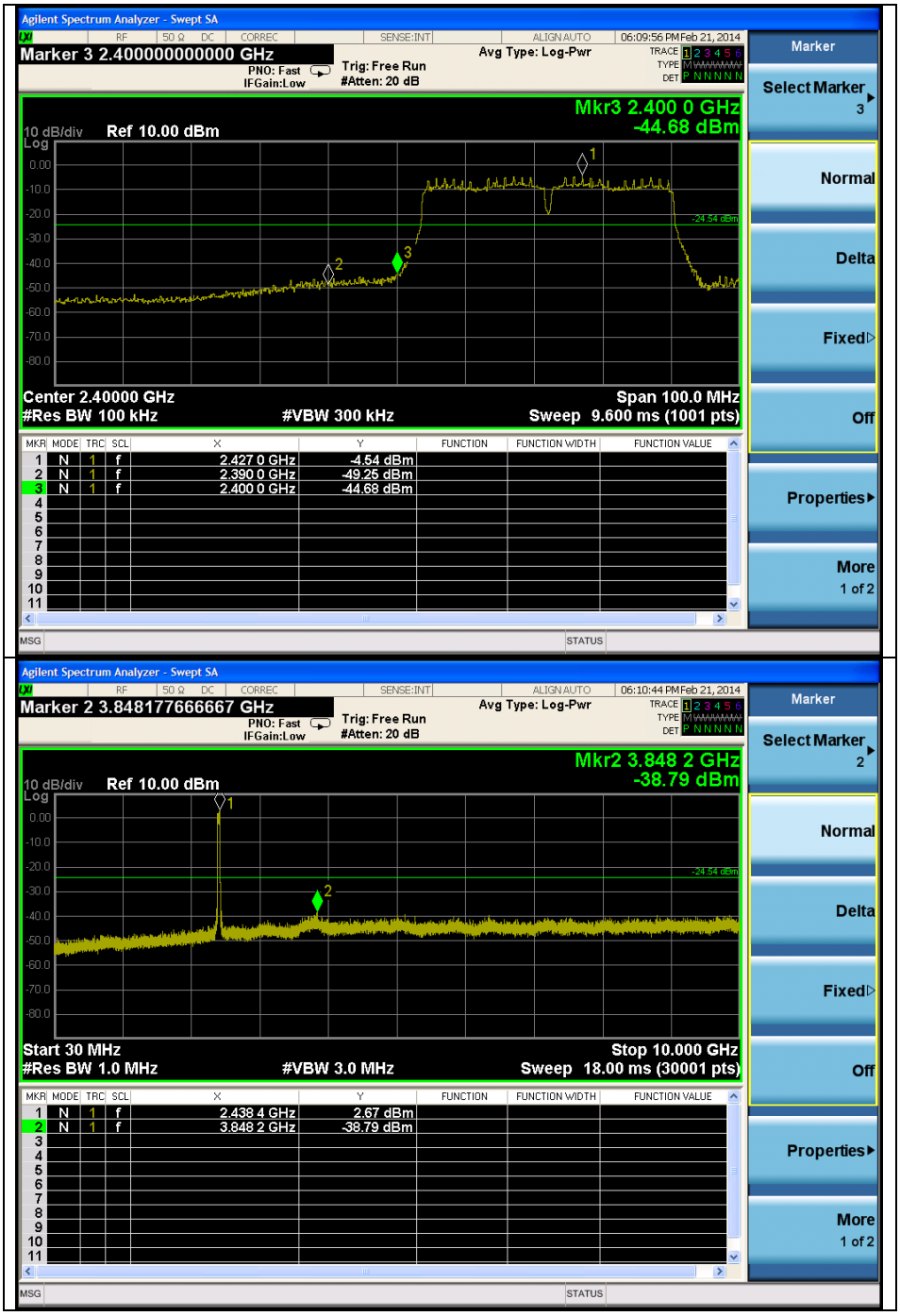
High Channel

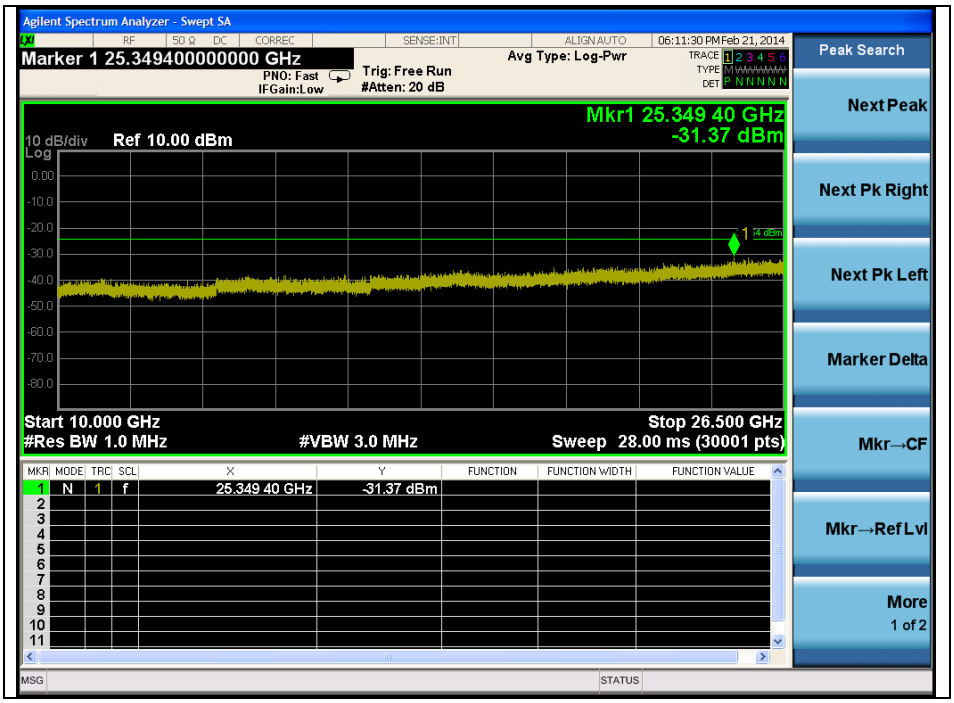




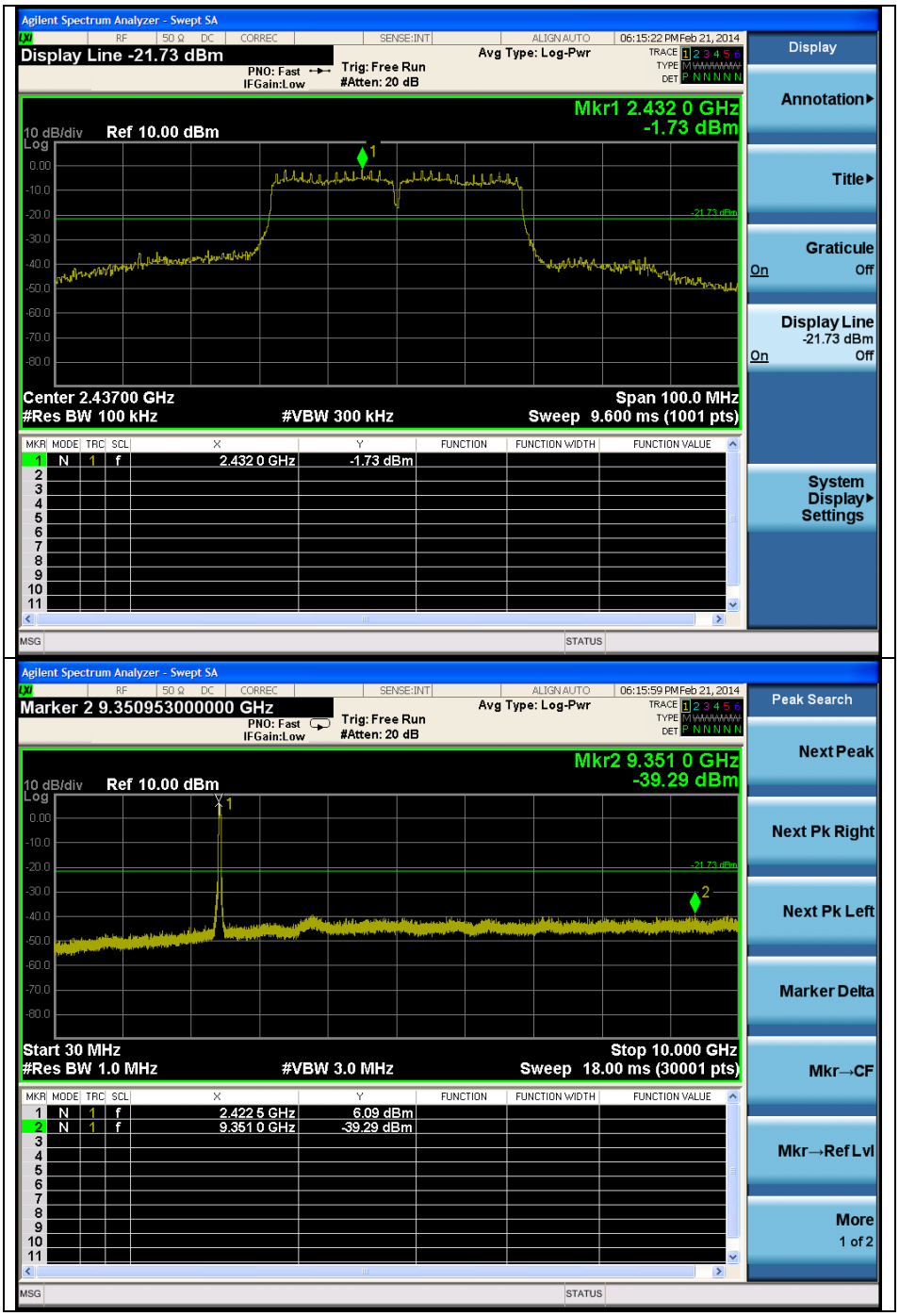
OFDM : 802.11n_HT40(MCS8)

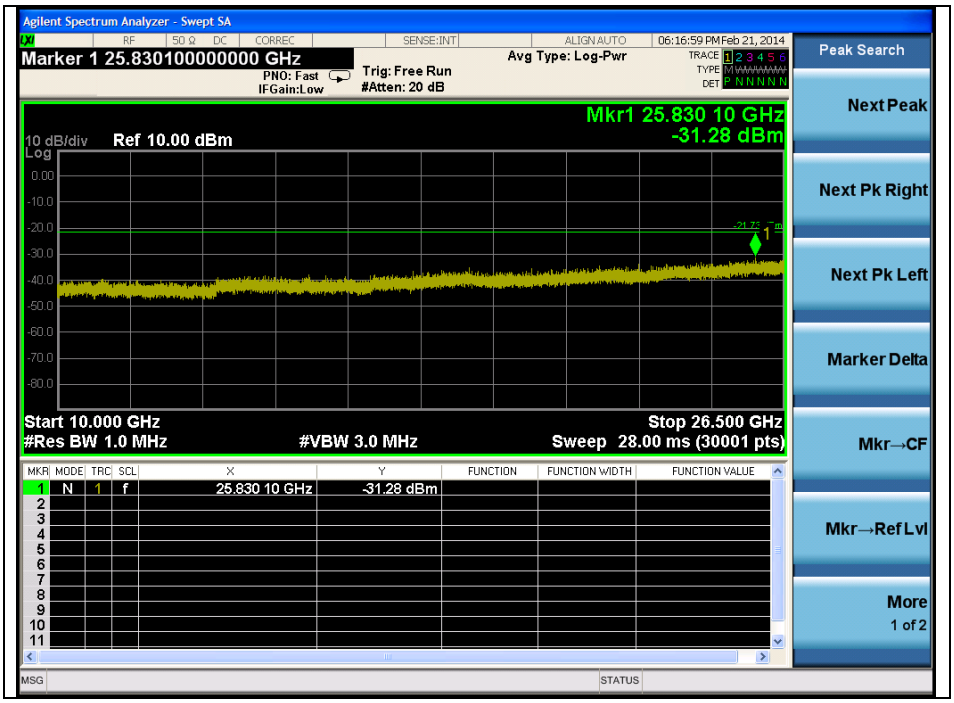
Low Channel



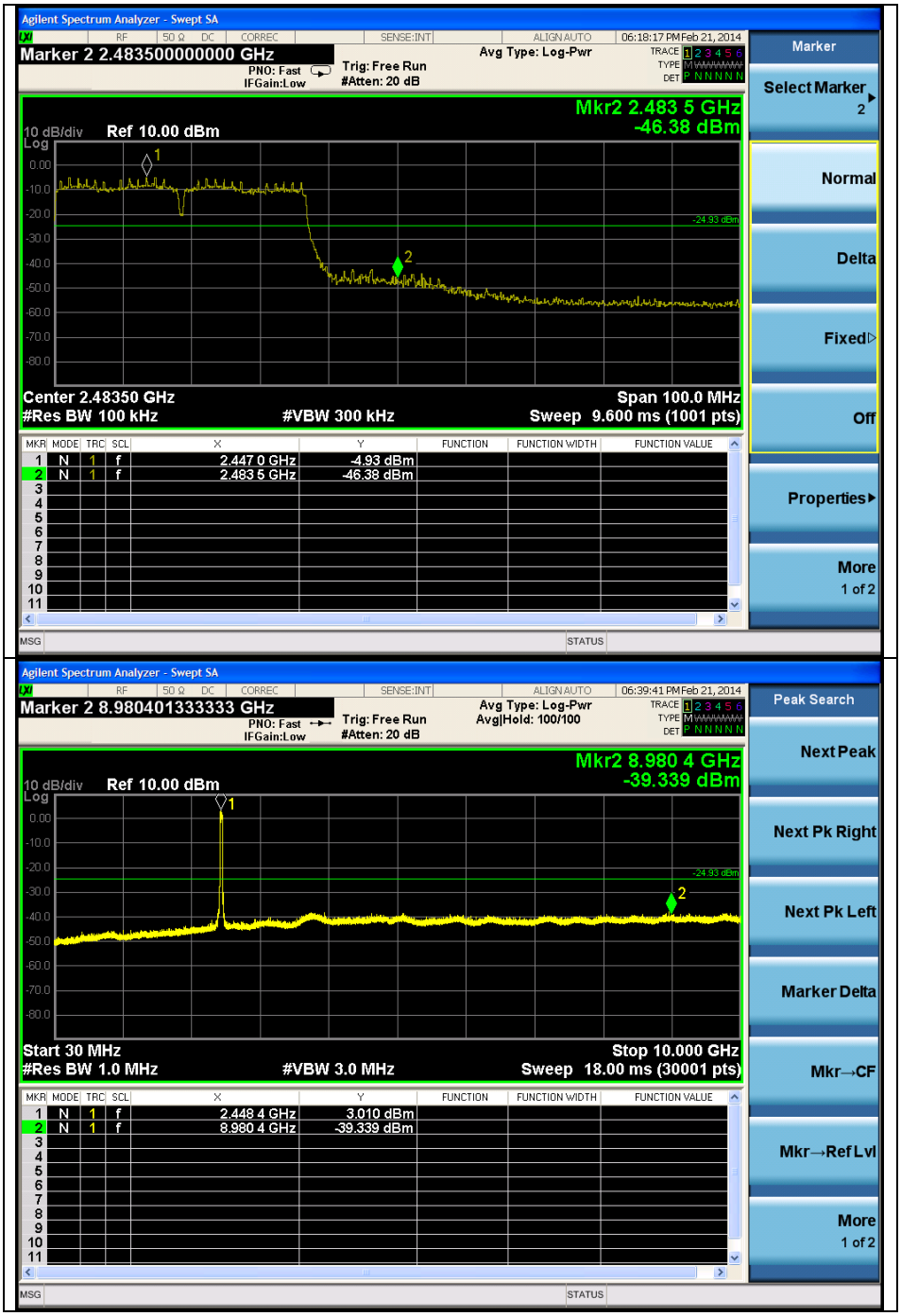


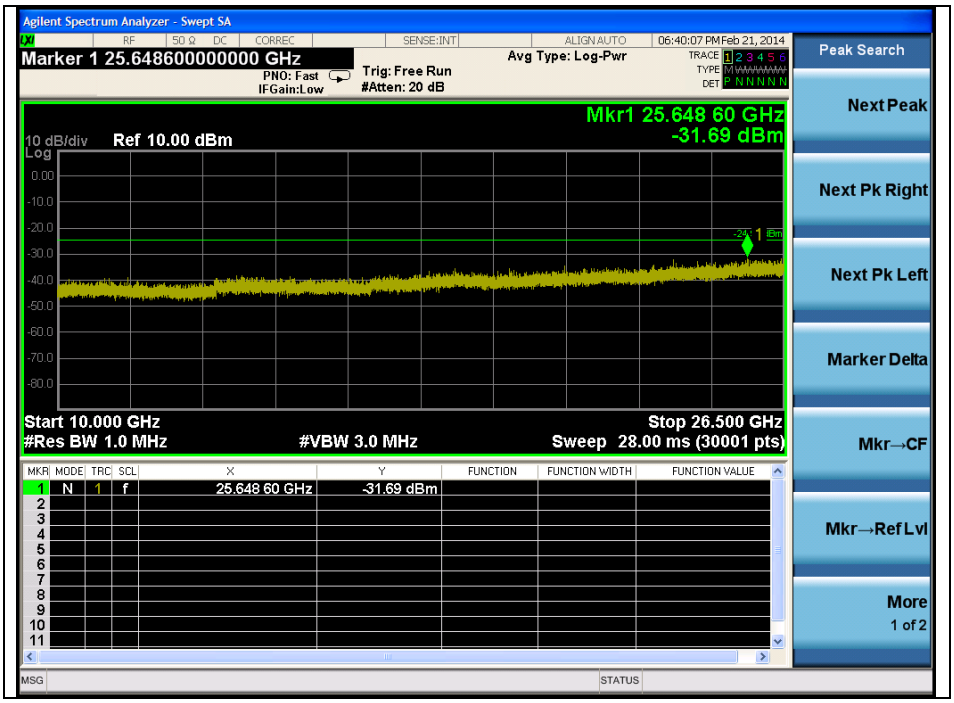
Middle Channel



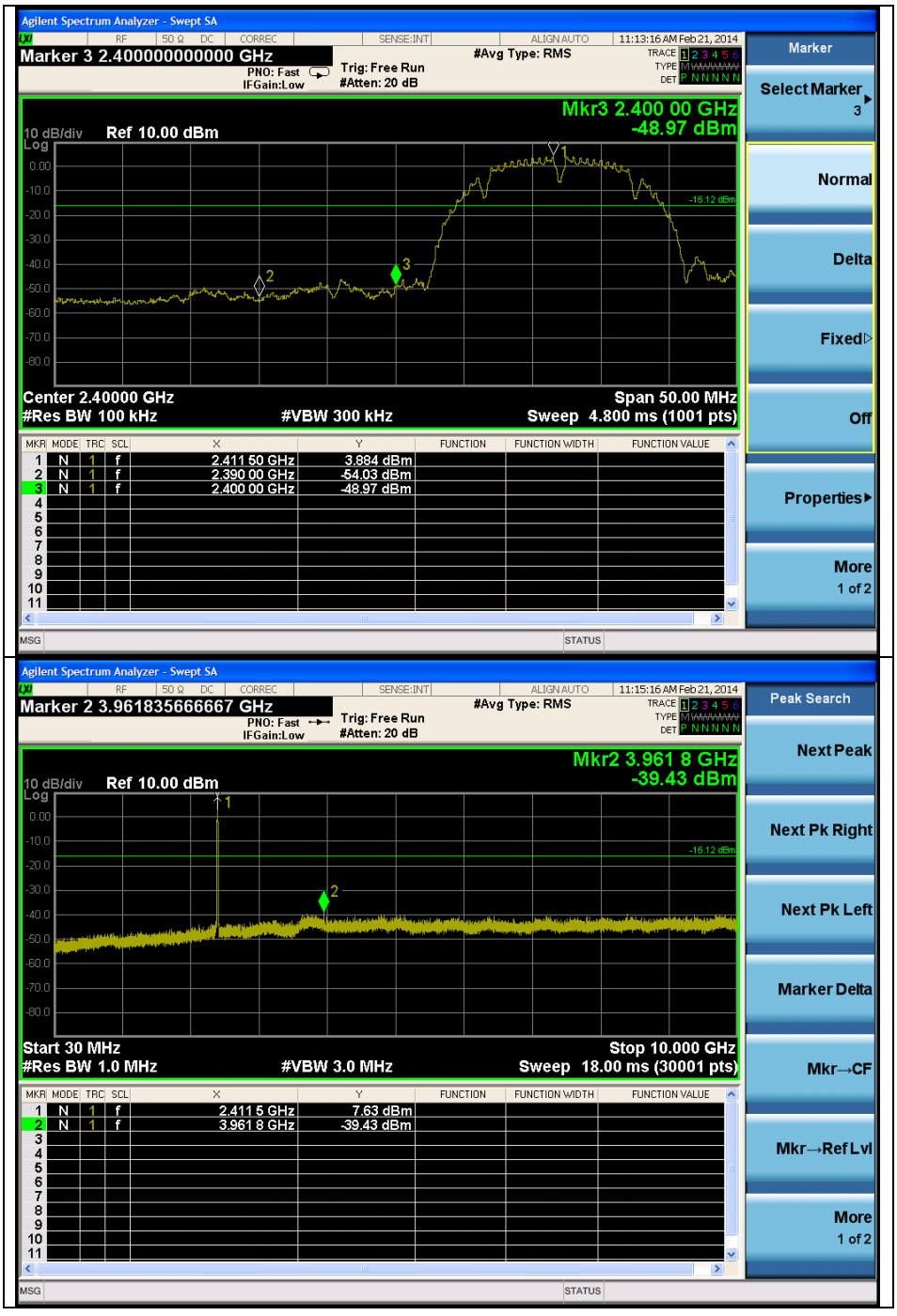


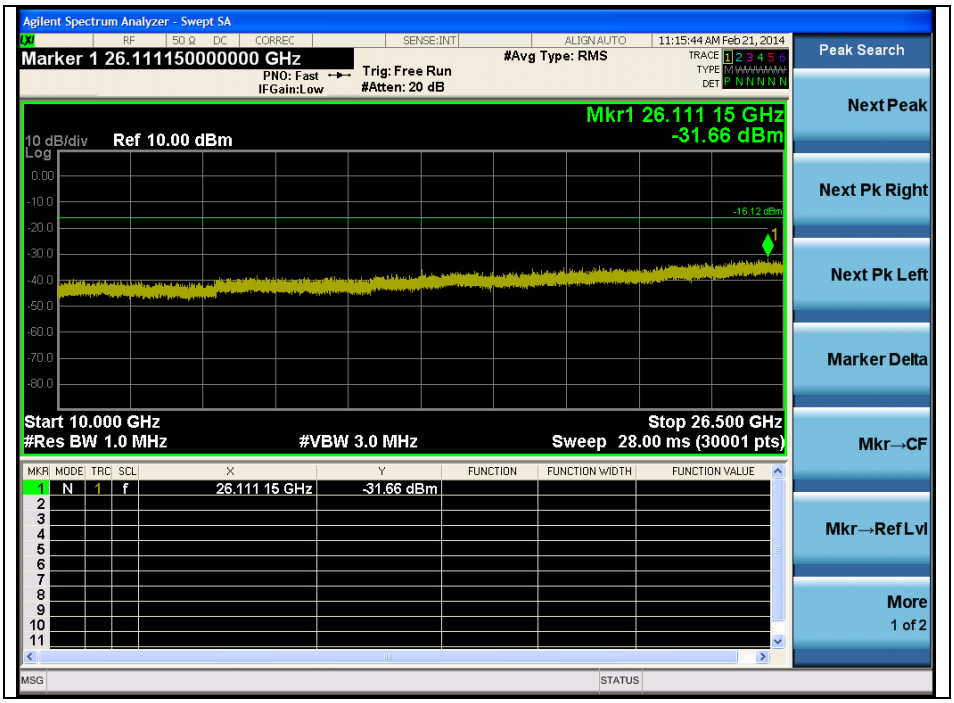
High Channel



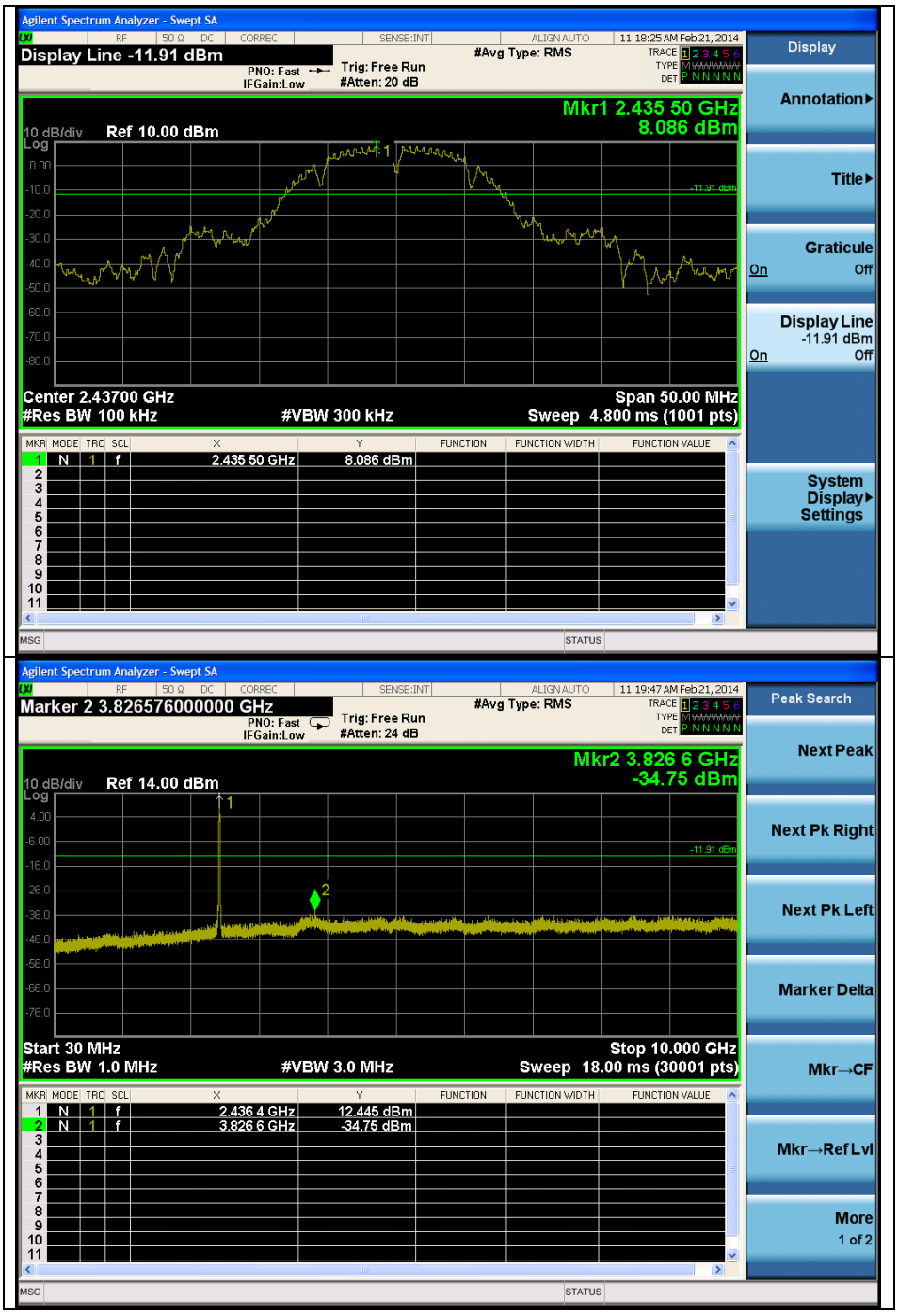


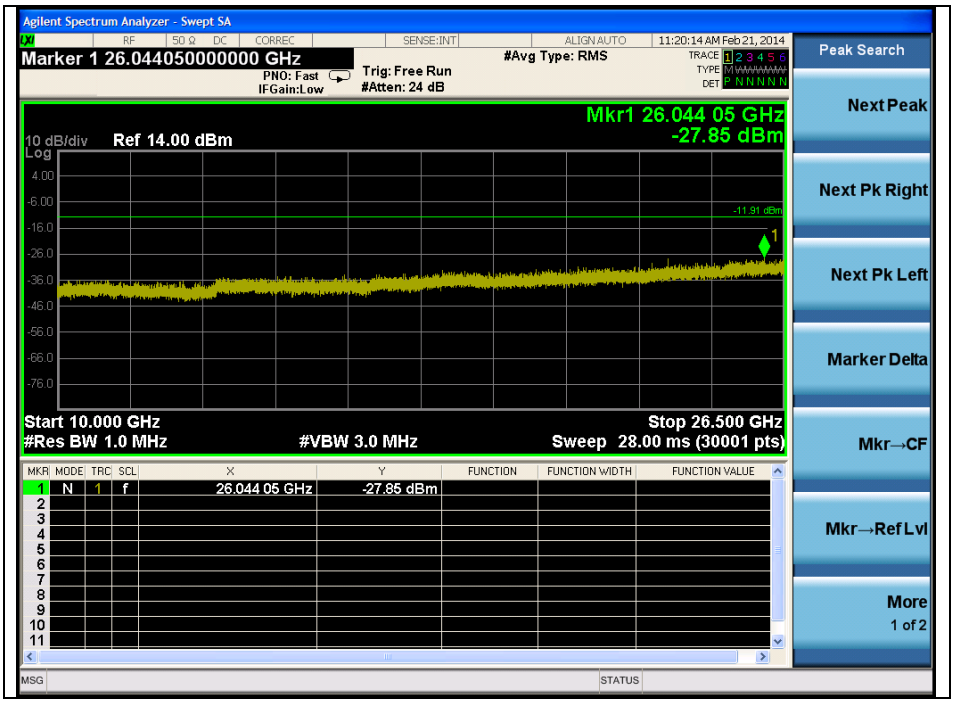
ANT1
DSSS : 802.11b(1 Mbps)
Low Channel



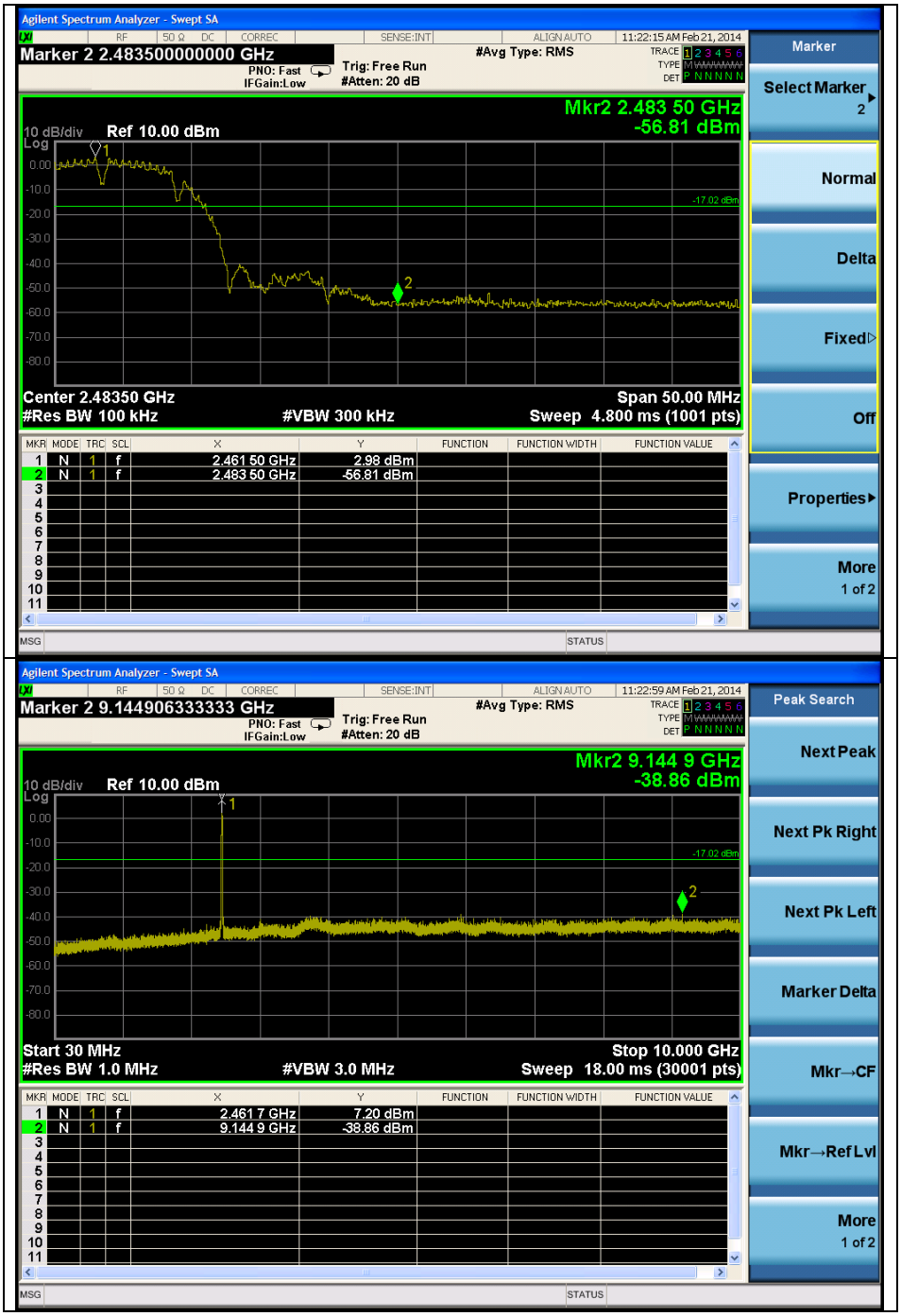

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω DC CORREC SENSE:INT ALIGN AUTO 11:15:44 AM Feb 21, 2014
Marker 1 26.111150000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Mkr1 26.111 15 GHz
-31.66 dBm
10 dB/div
Log
Ref 10.00 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-16.12 dBm
Start 10.000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 26.500 GHz
Sweep 28.00 ms (30001 pts)
MKR MODE TRC SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE
1 N 1 f 26.111 15 GHz -31.66 dBm
2
3
4
5
6
7
8
9
10
11
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

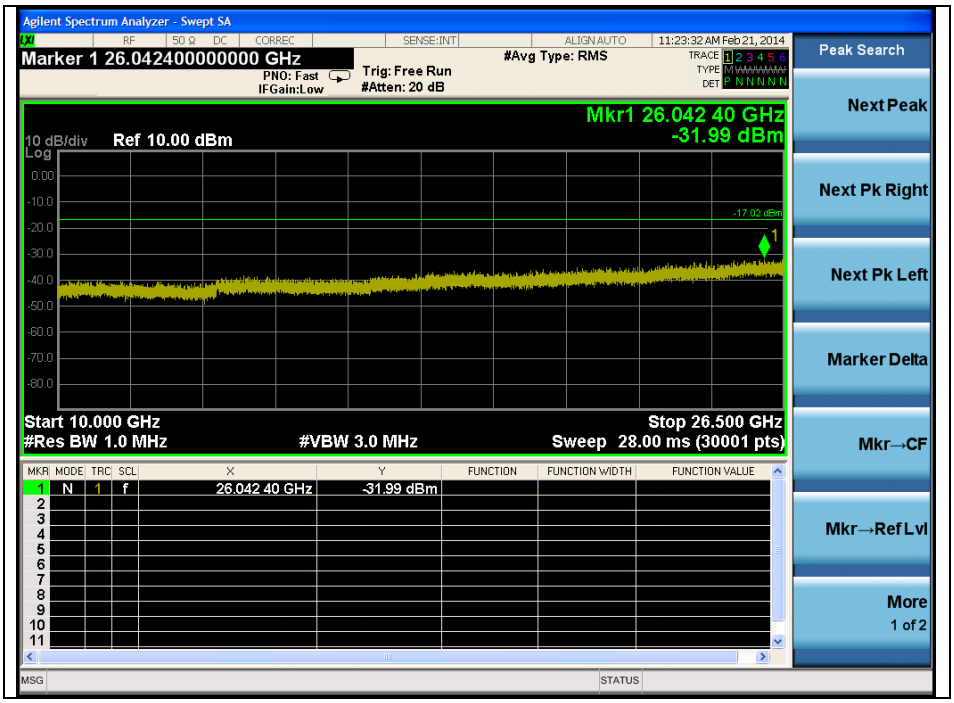
Middle Channel





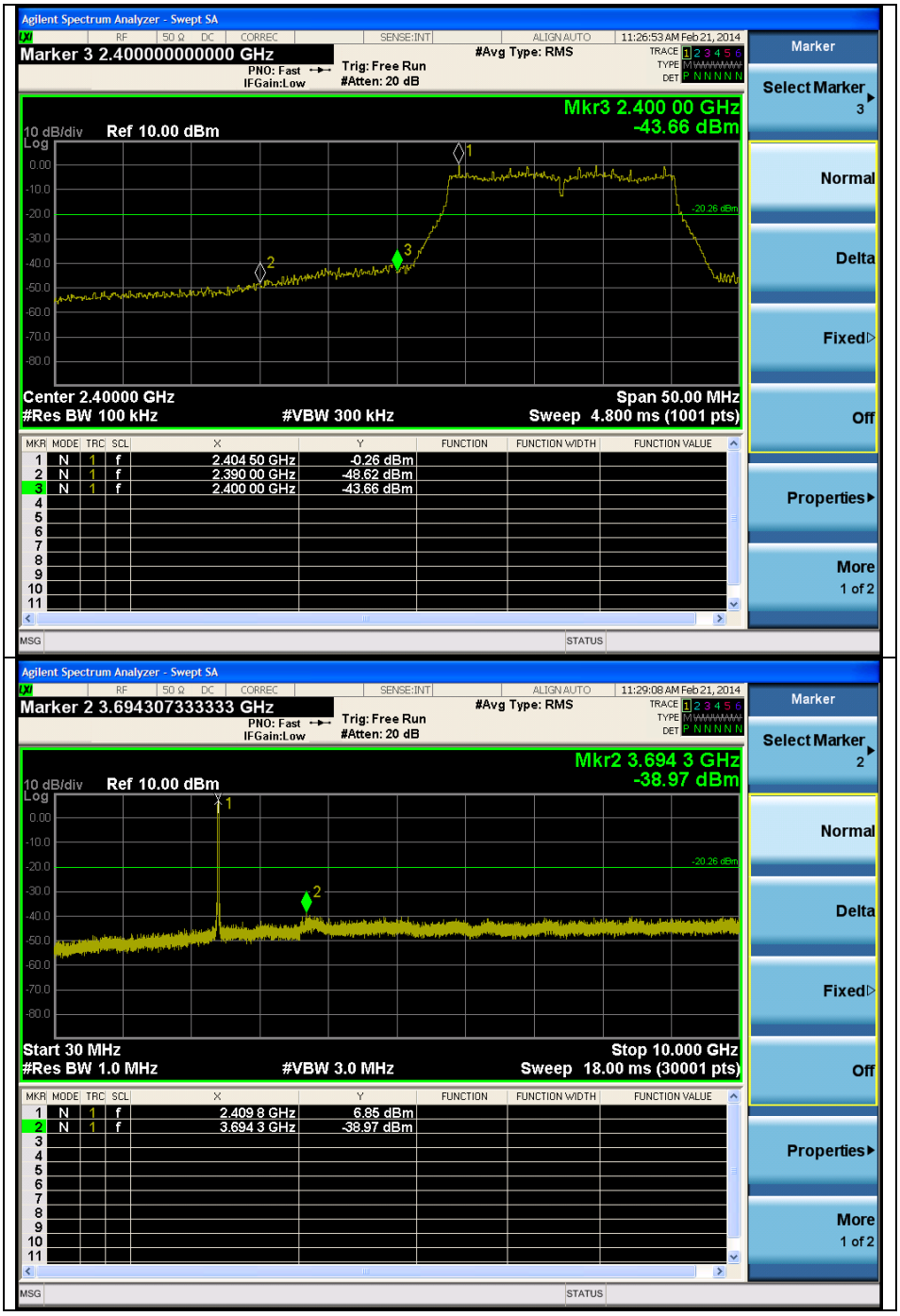
High Channel

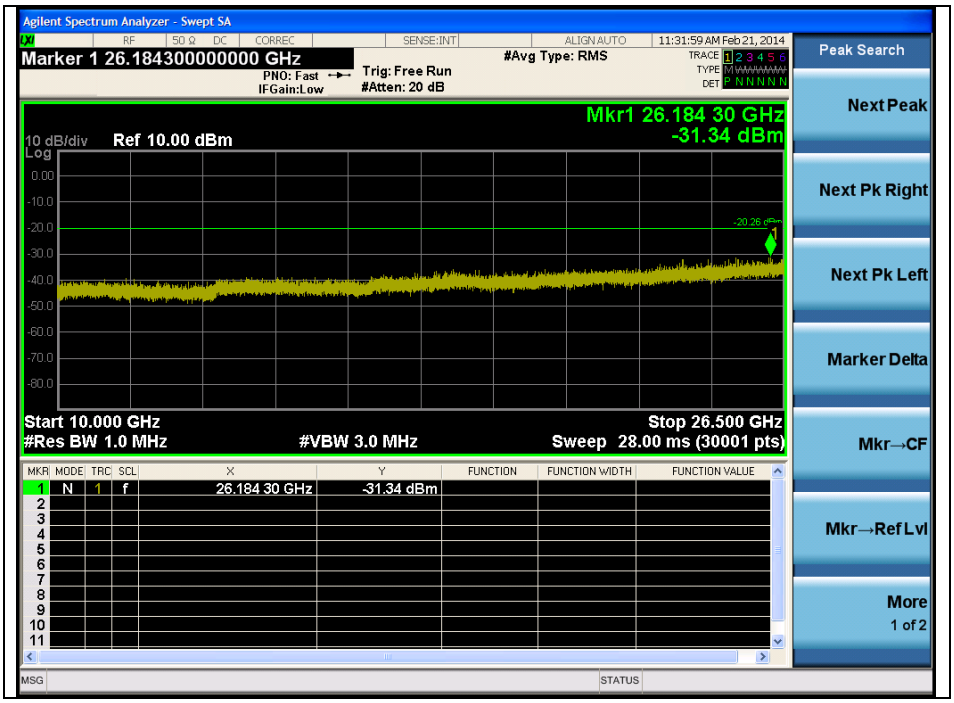




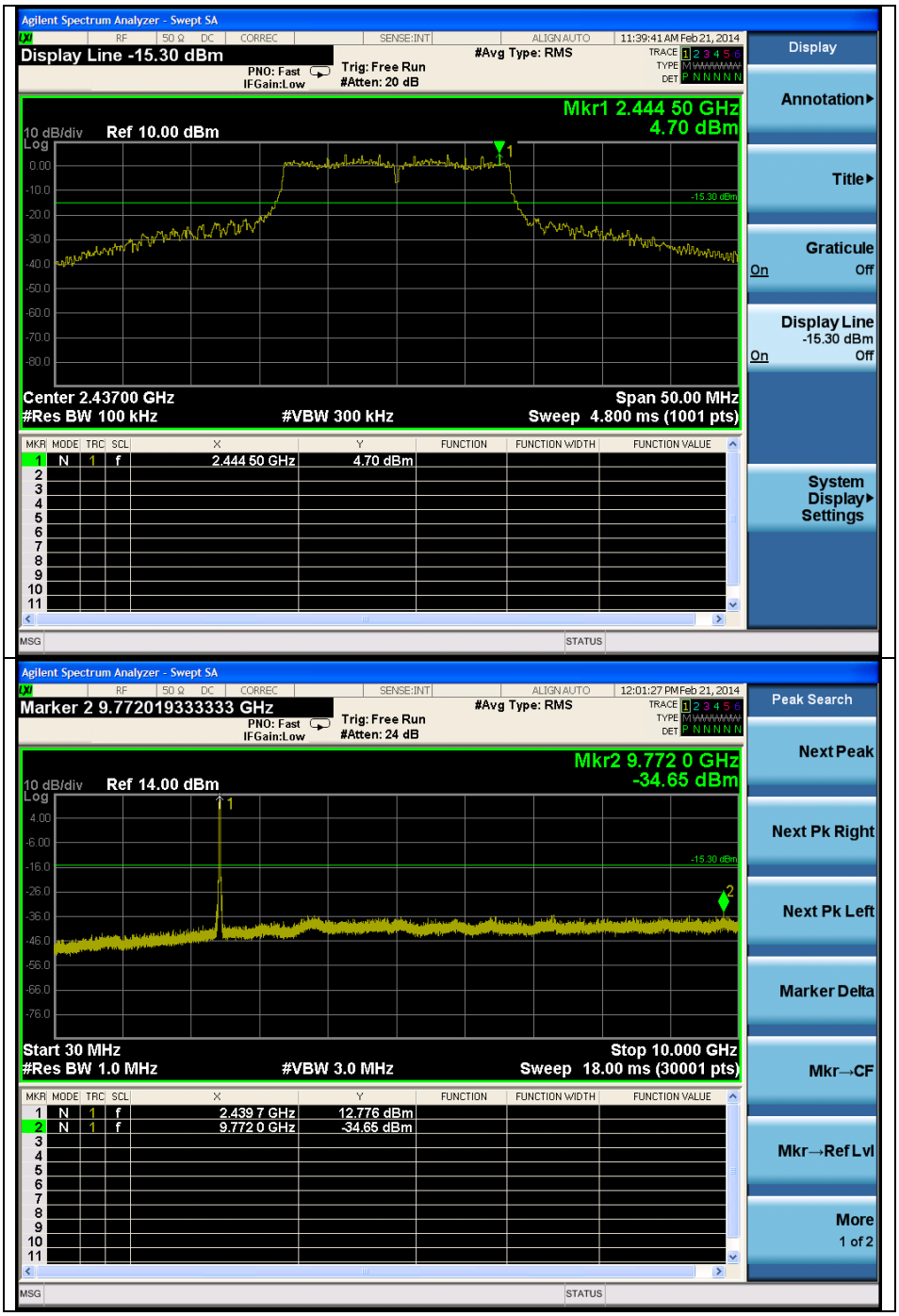
OFDM : 802.11g(6 Mbps)

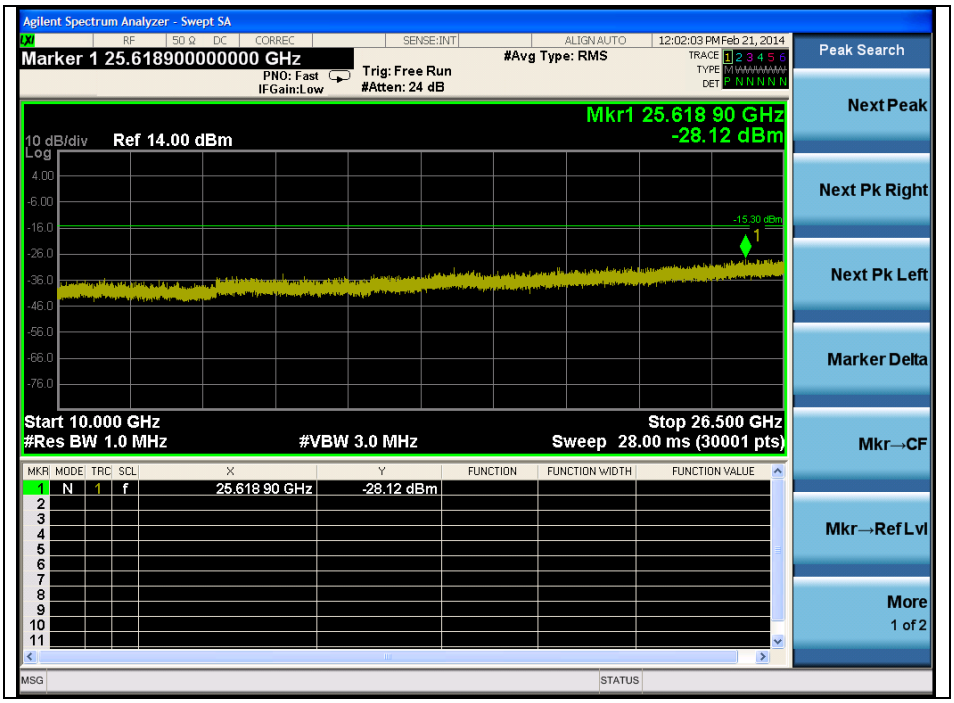
Low Channel



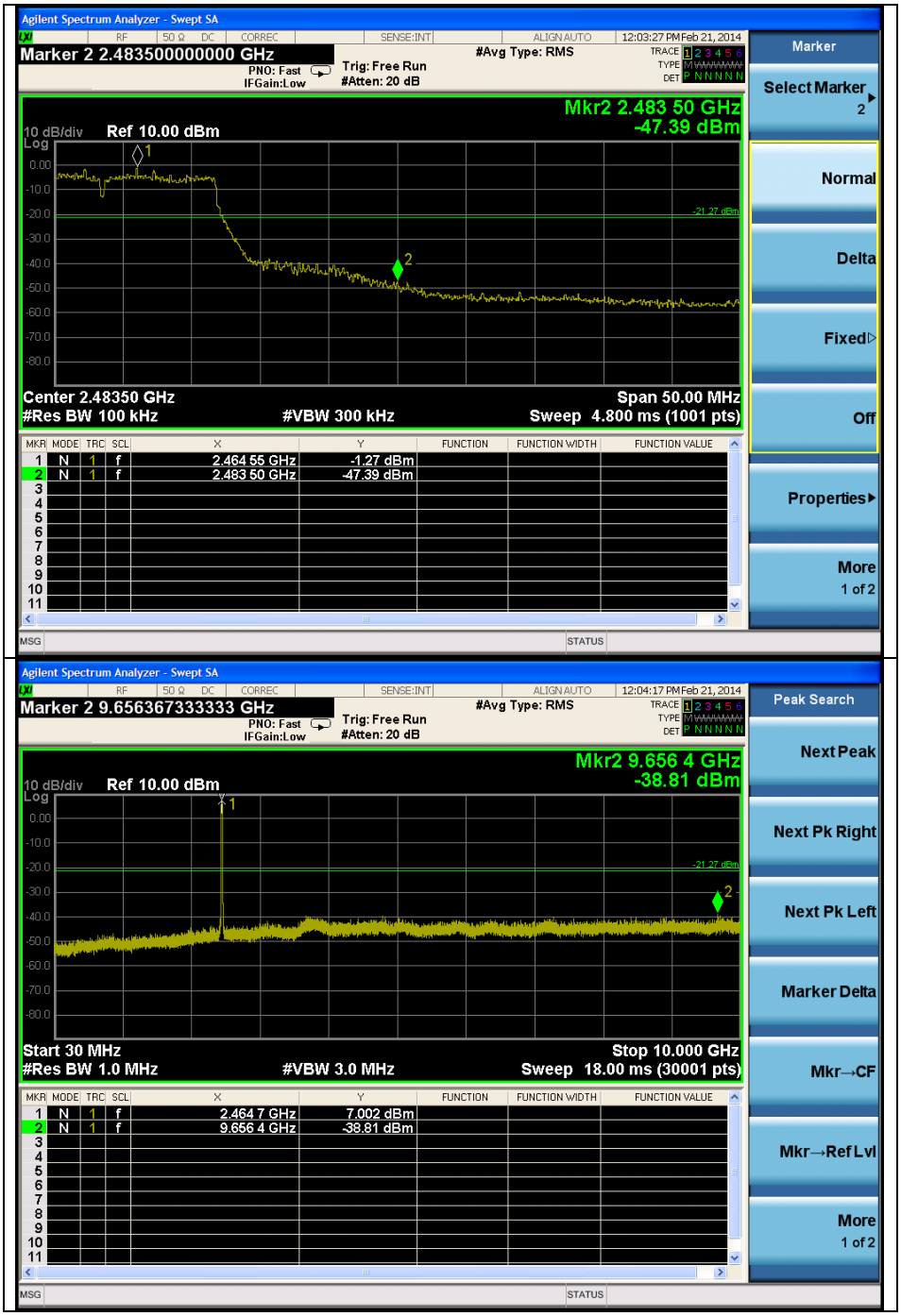

Agilent Spectrum Analyzer - Swept SA
Marker 1 26.184300000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
11:31:59 AM Feb 21, 2014
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Mkr1 26.184 30 GHz
-31.34 dBm
10 dB/div
Log
Ref 10.00 dBm
Start 10.000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 26.500 GHz
Sweep 28.00 ms (30001 pts)
1 N 1 f 26.184 30 GHz -31.34 dBm

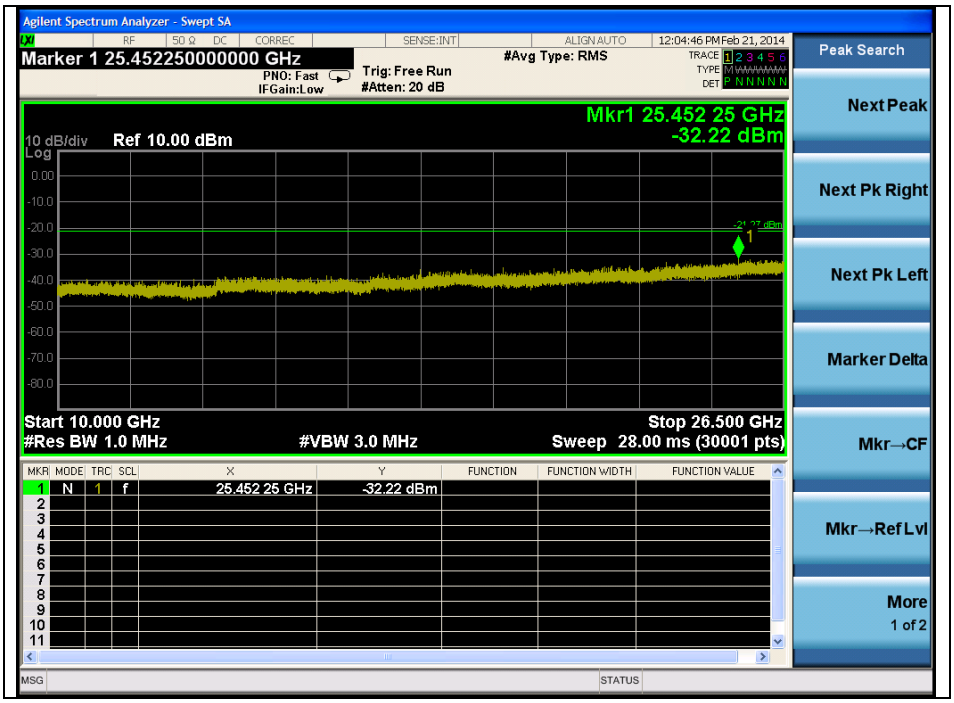
Middle Channel





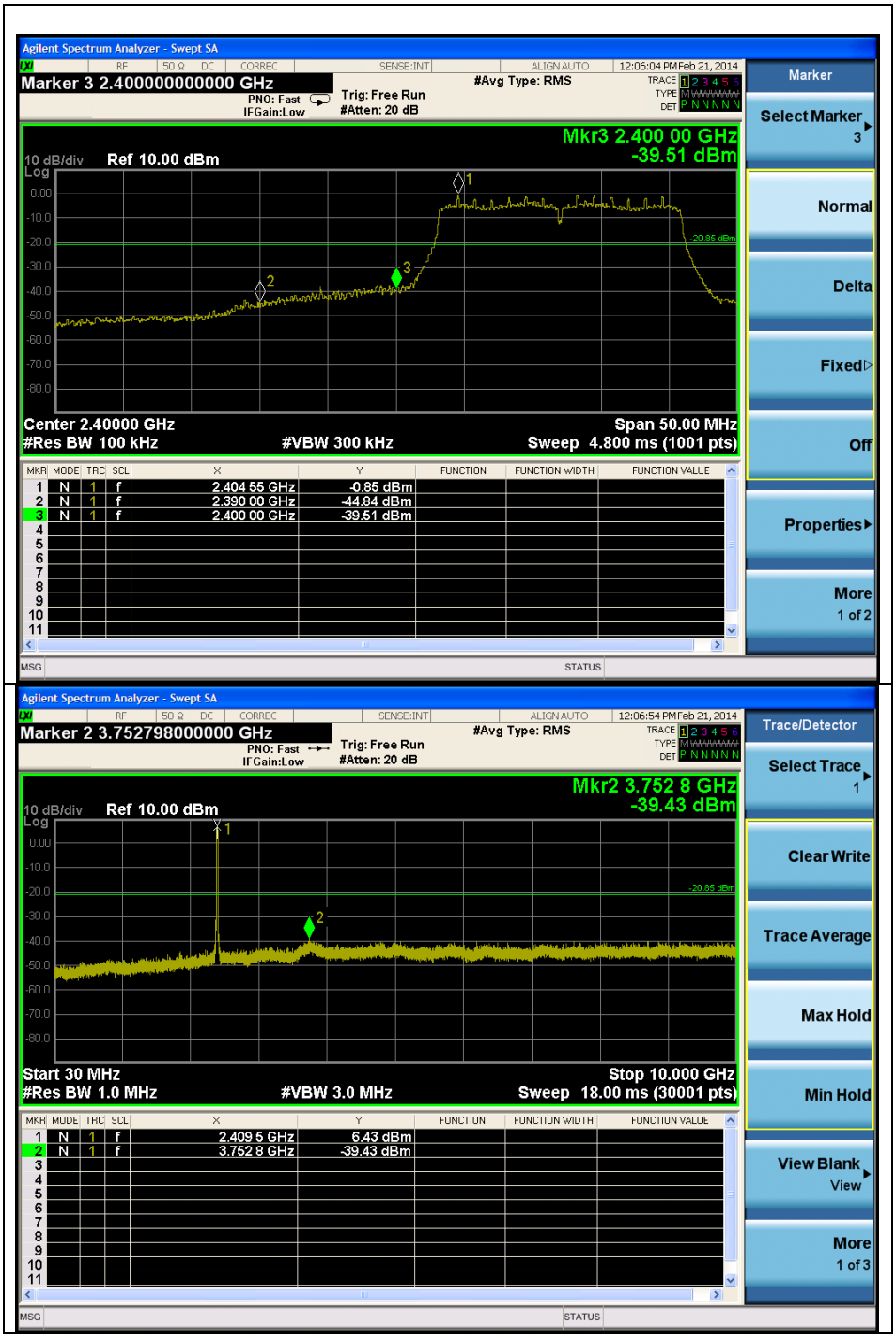
High Channel

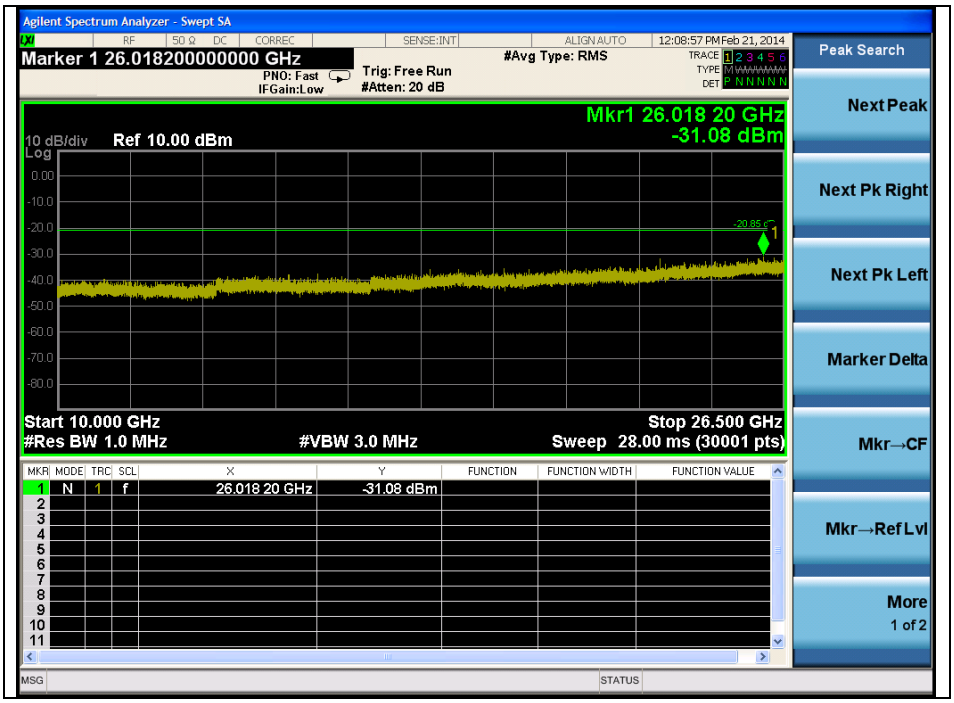




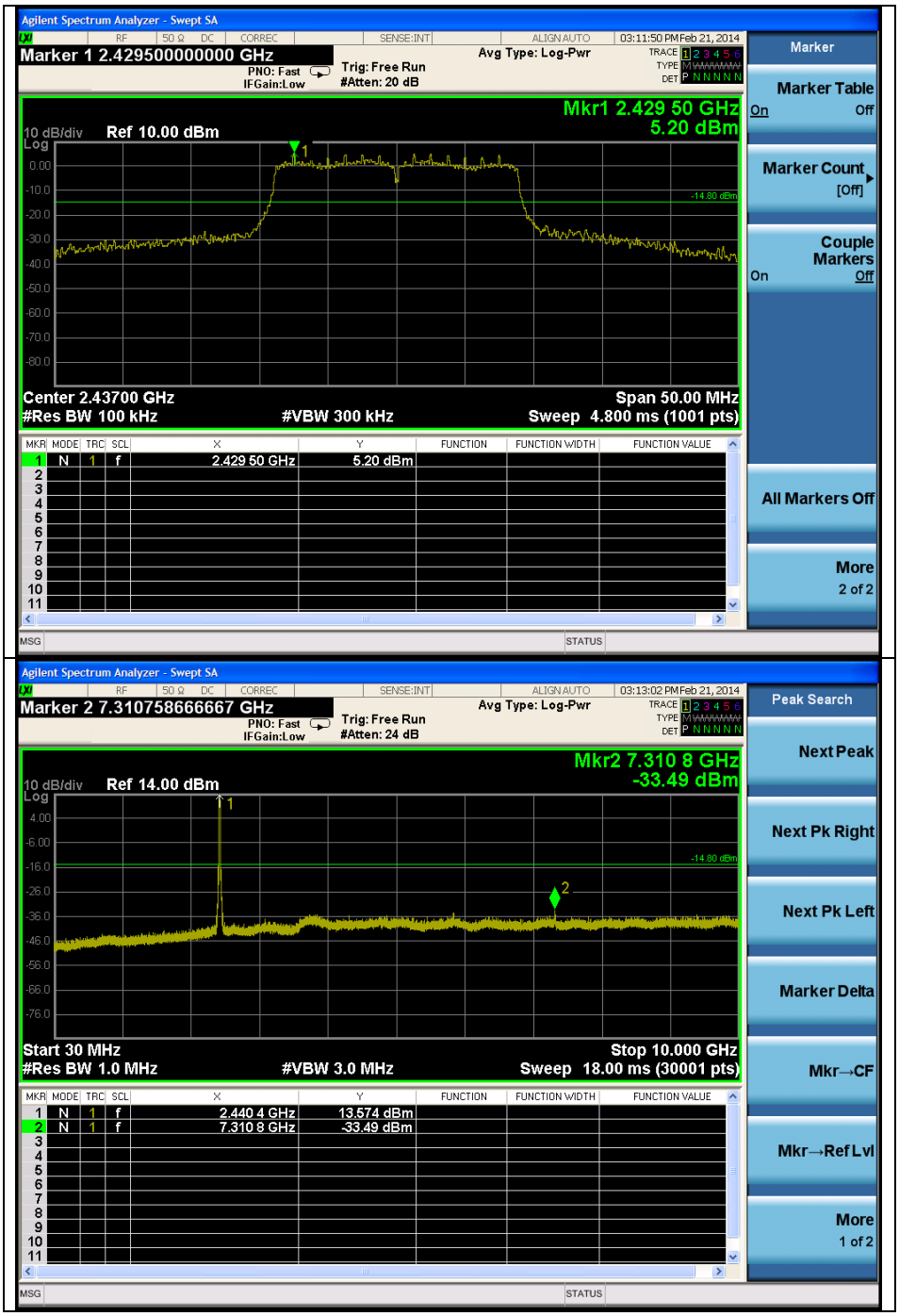
OFDM : 802.11n_HT20(MCS8)

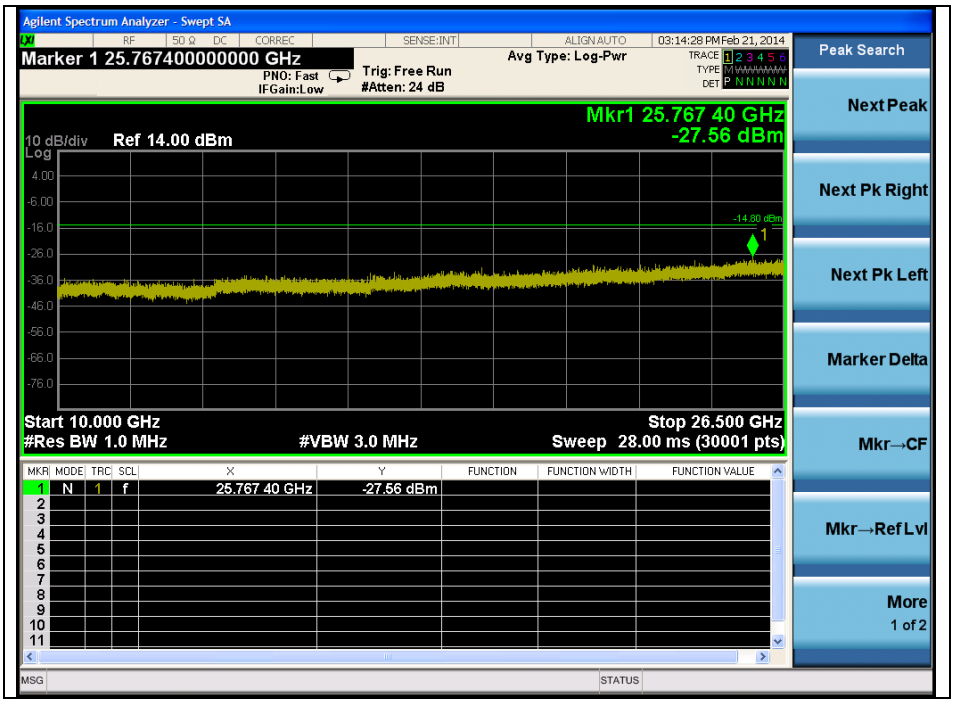
Low Channel



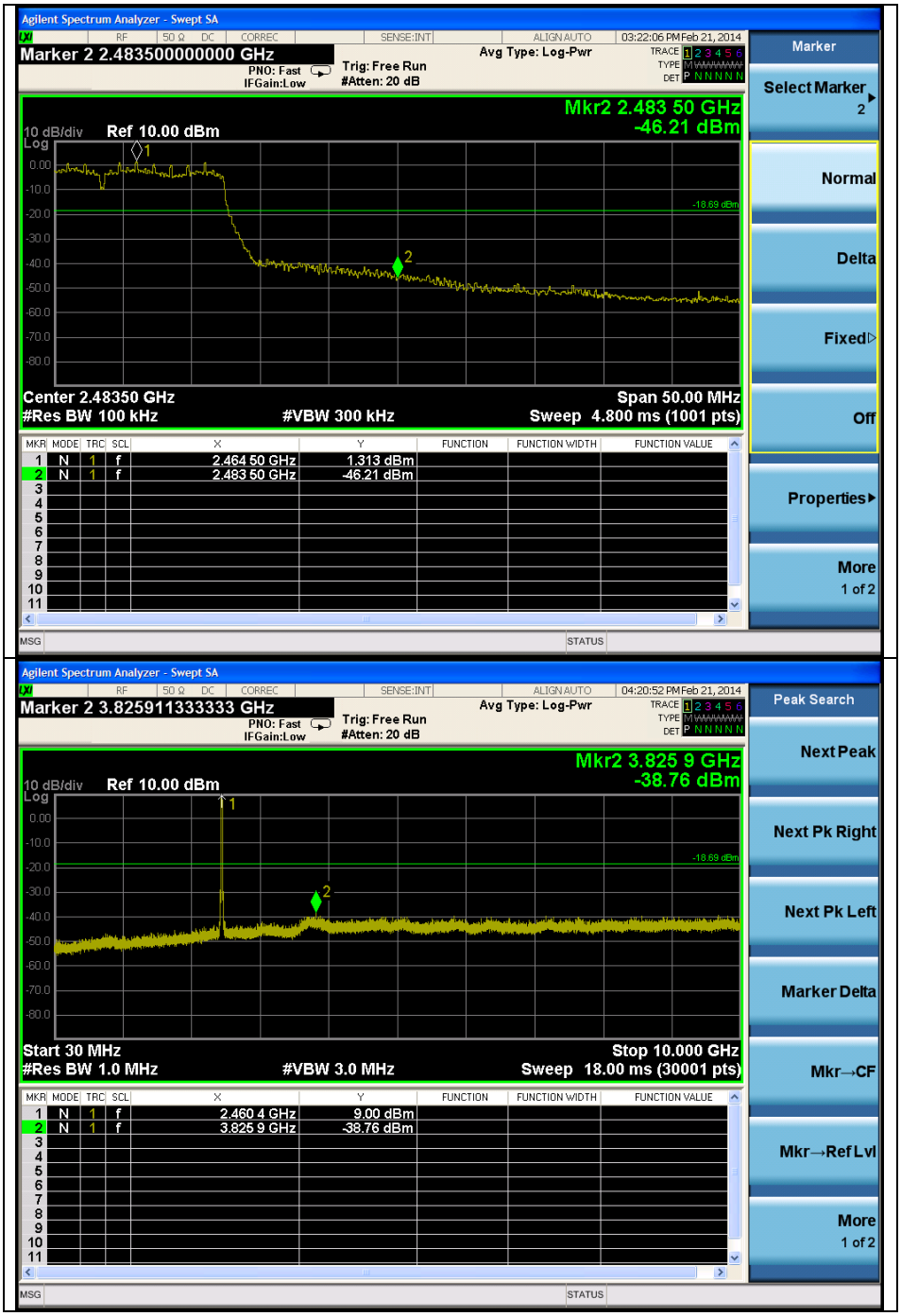

Agilent Spectrum Analyzer - Swept SA
Marker 1 26.018200000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
#Avg Type: RMS
12:08:57 PM Feb 21, 2014
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Mkr1 26.018 20 GHz
-31.08 dBm
10 dB/div
Log
Ref 10.00 dBm
Start 10.000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 26.500 GHz
Sweep 28.00 ms (30001 pts)
1 N 1 f 26.018 20 GHz -31.08 dBm

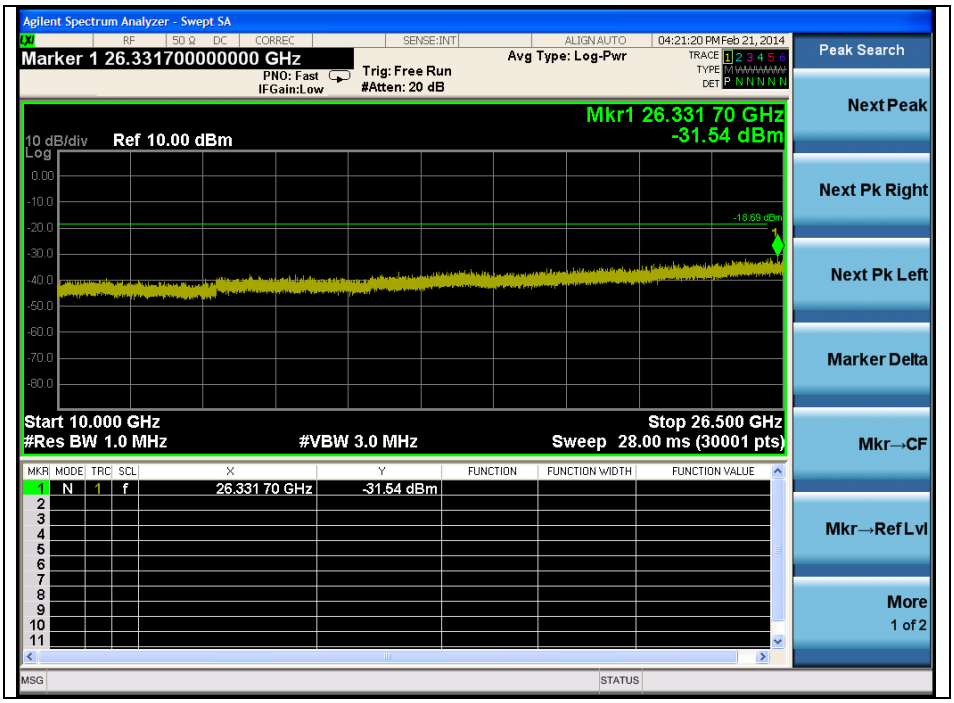
Middle Channel





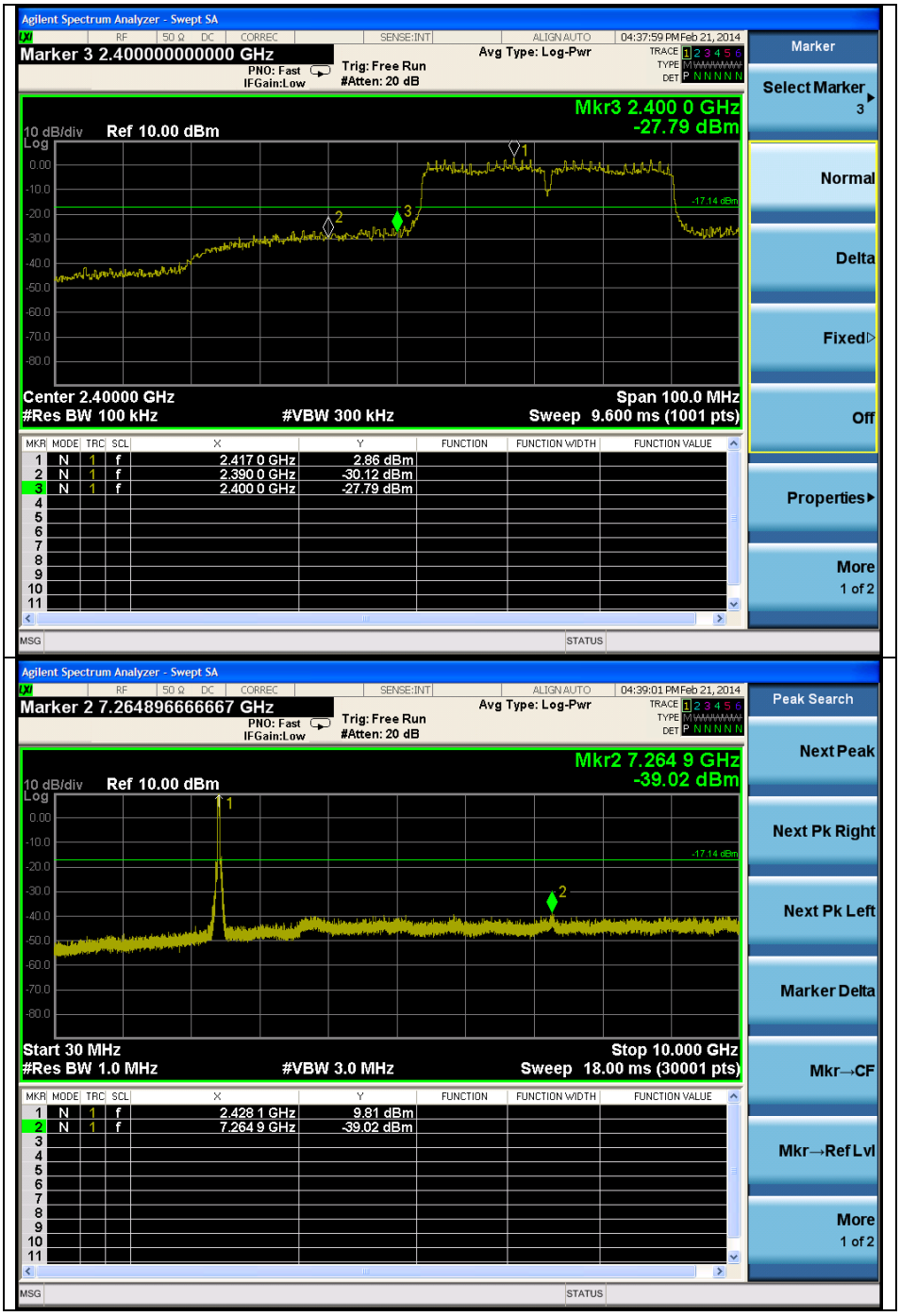
High Channel

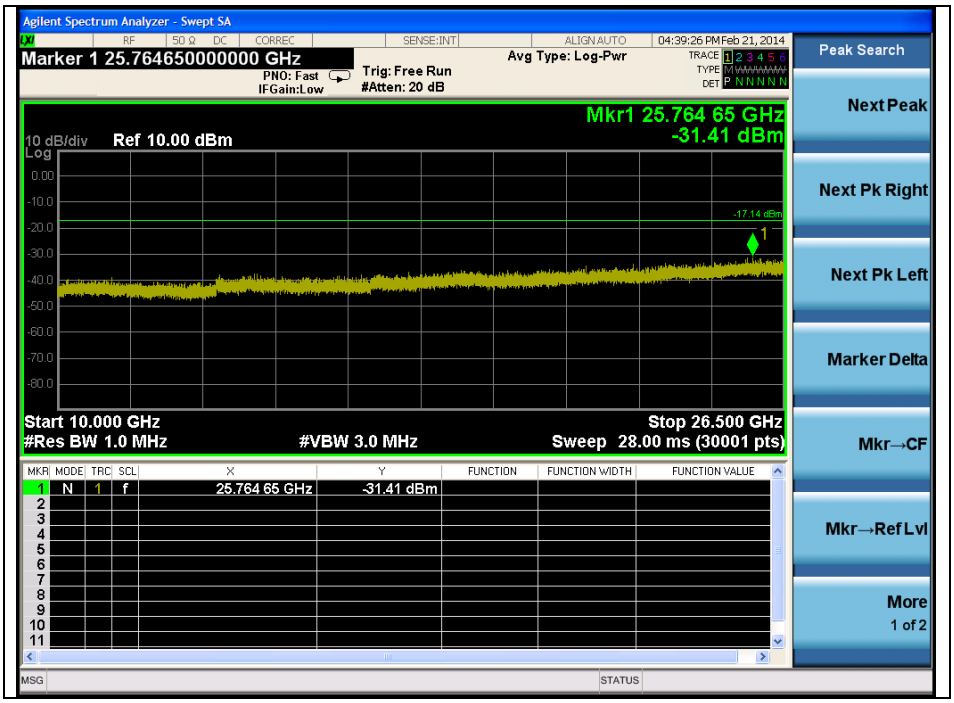




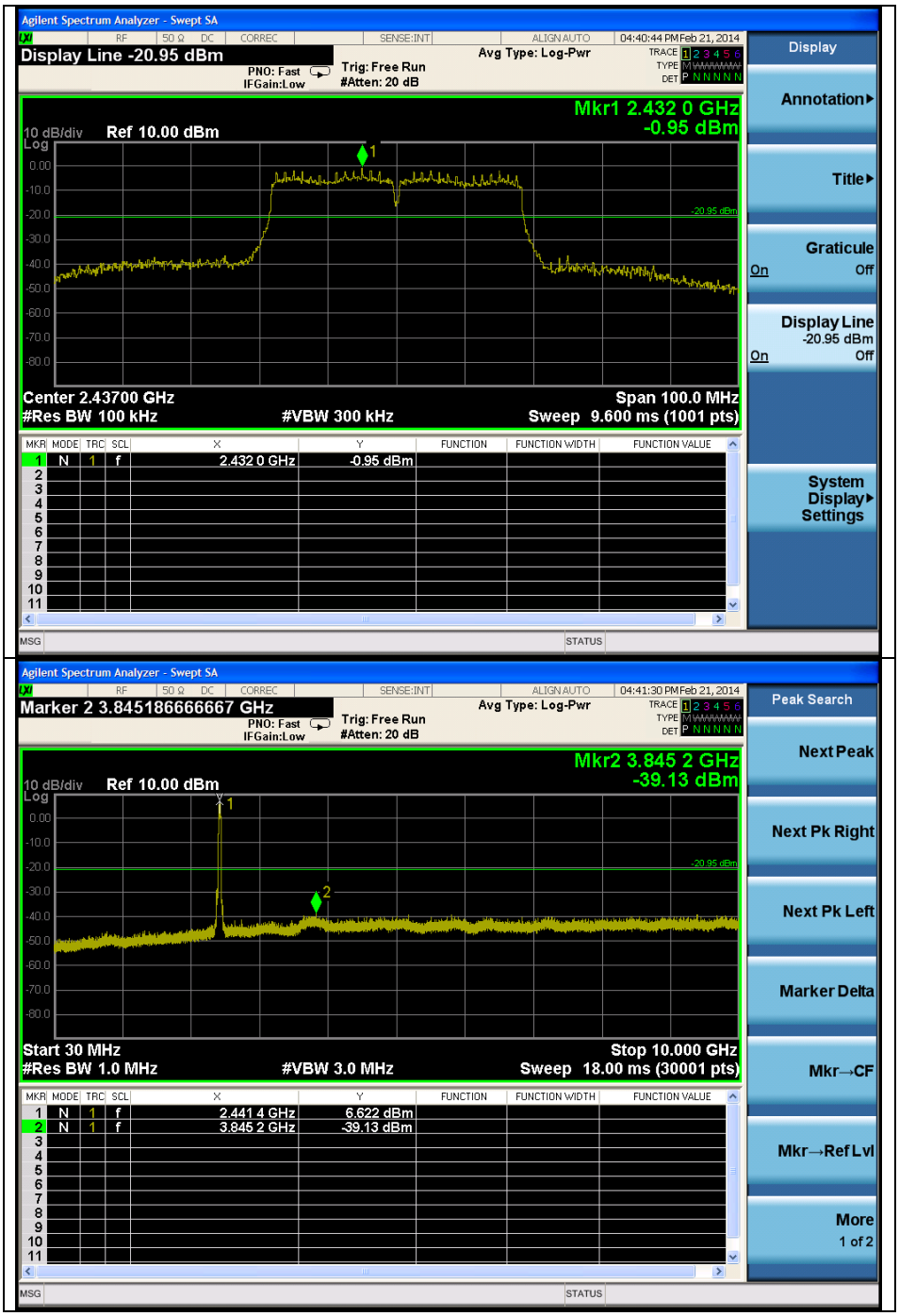
OFDM : 802.11n_HT40(MCS8)

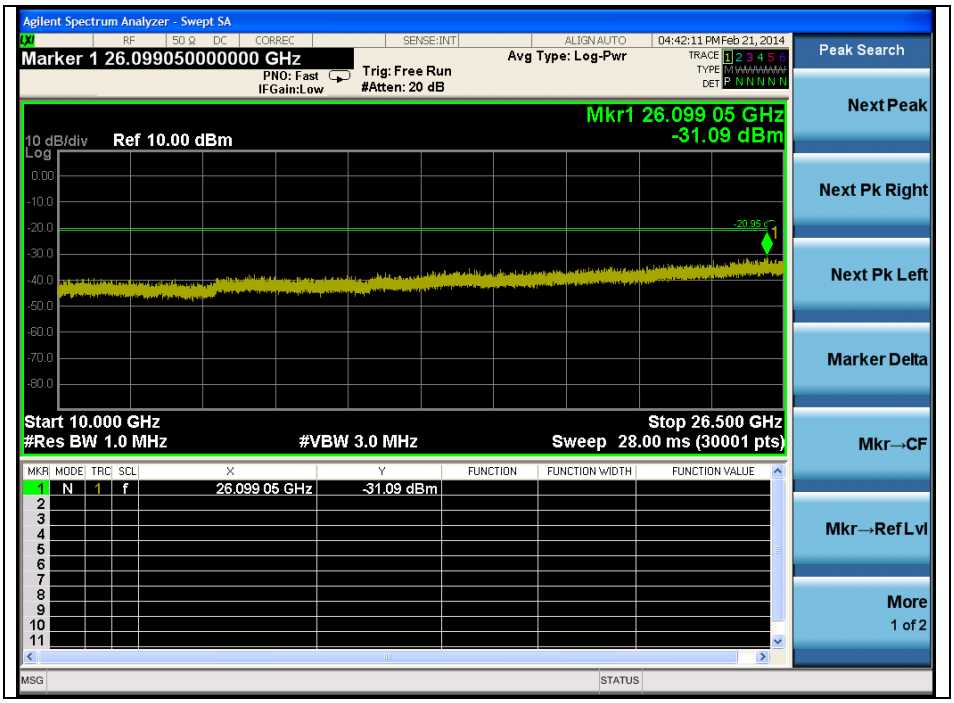
Low Channel





Middle Channel





High Channel