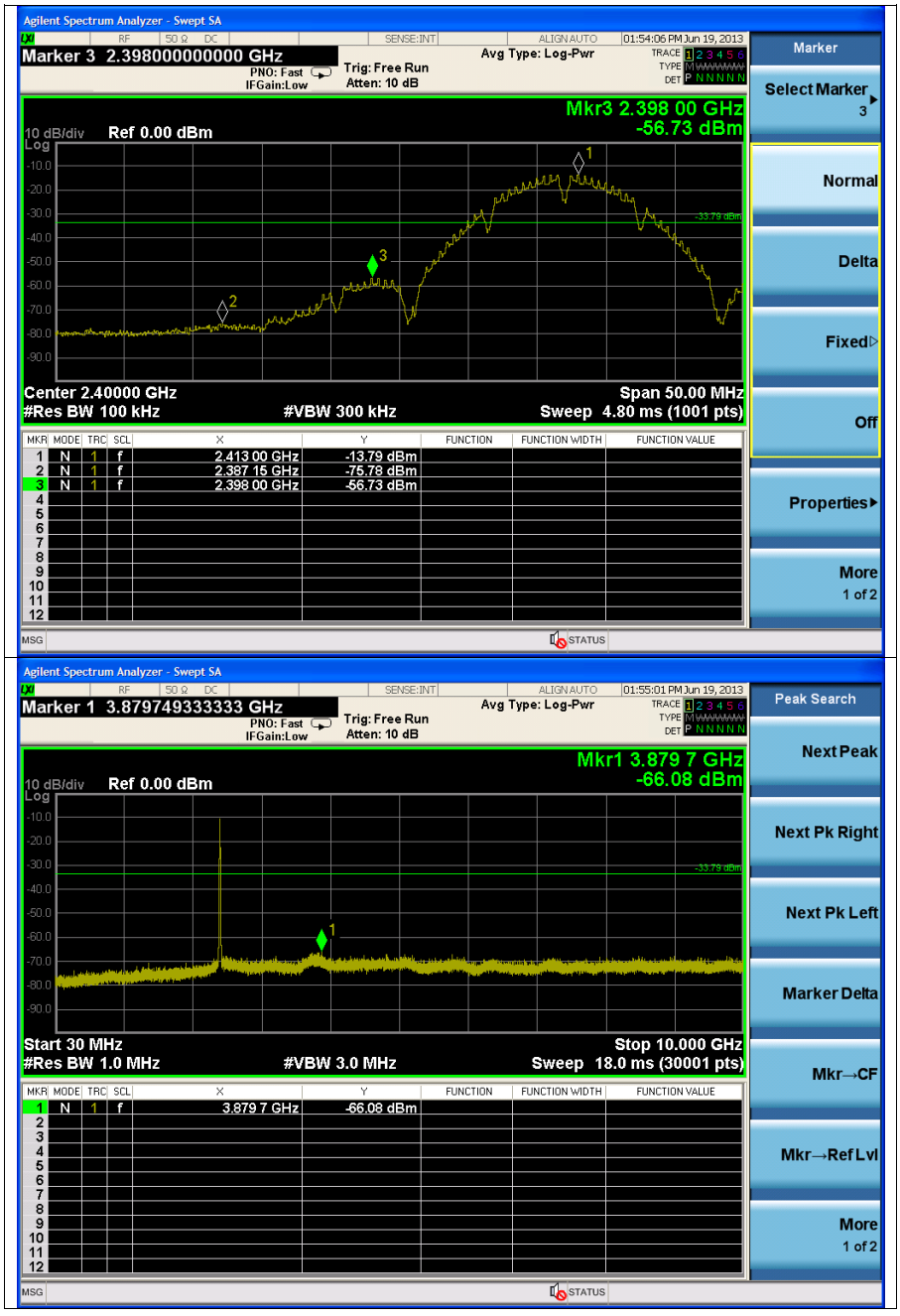
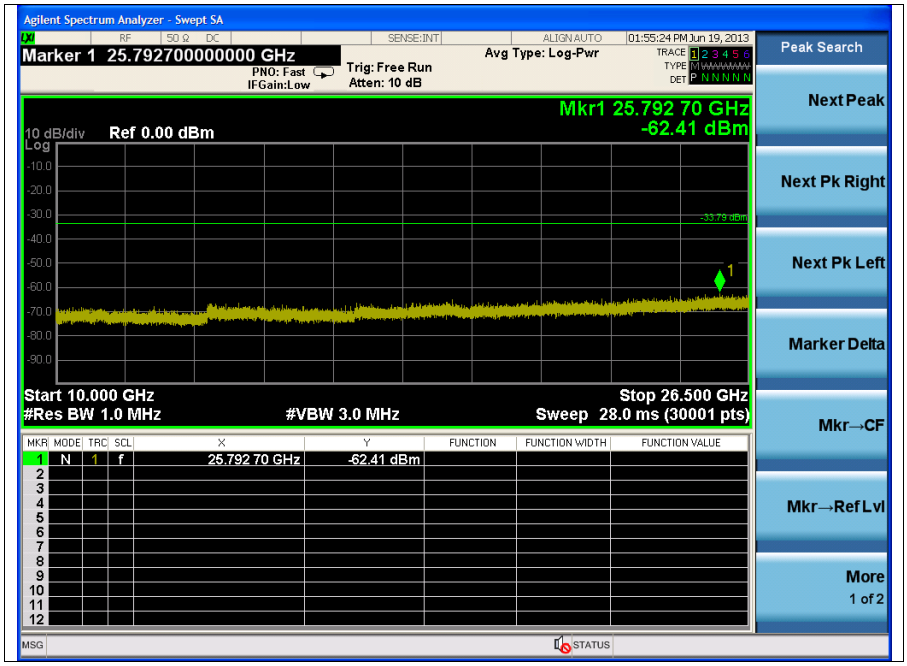
ANT1

2.4 ㎓

DSSS : 802.11b(1 Mbps)
Low Channel

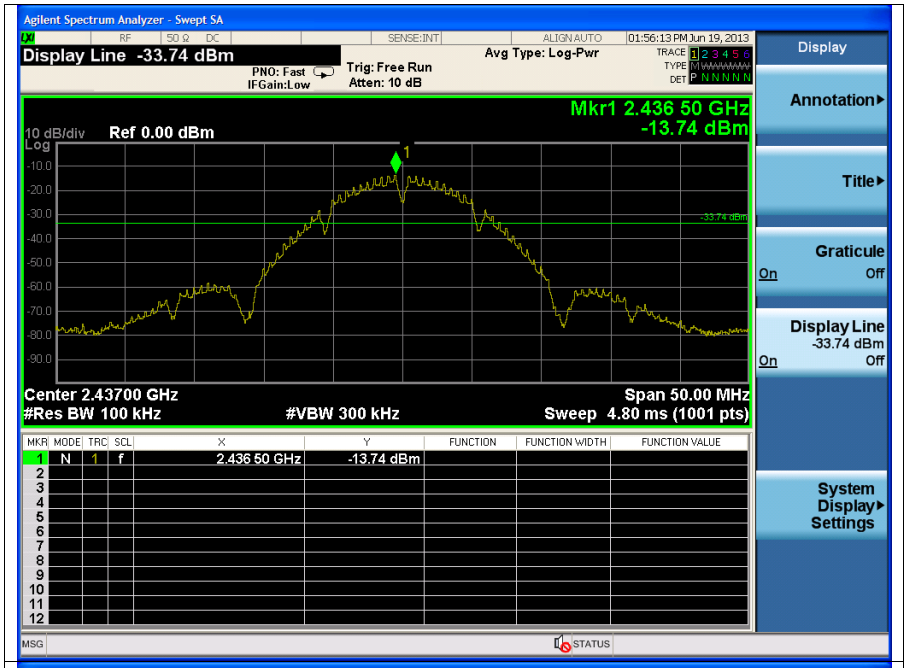


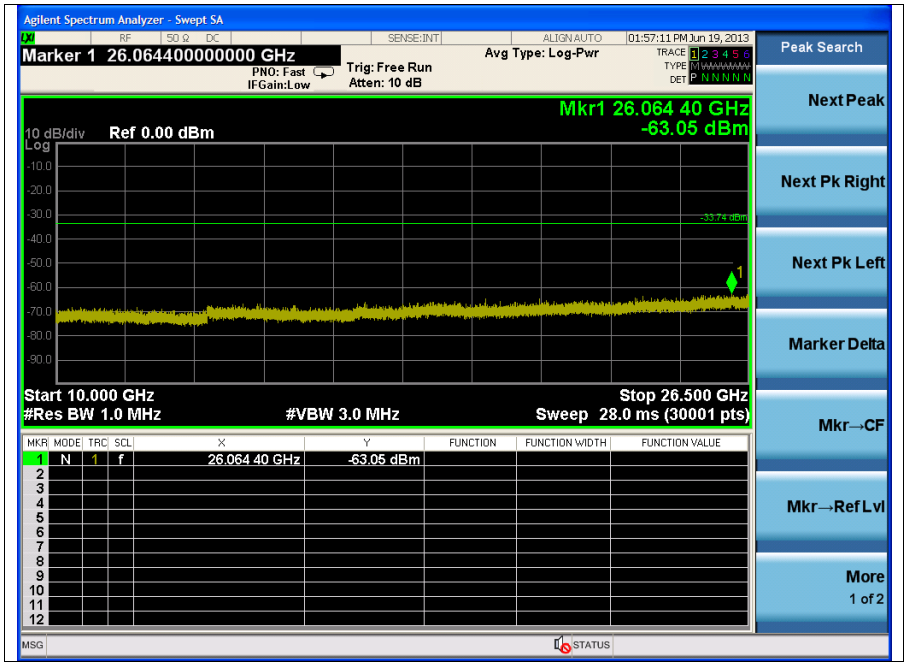


Note:
Offset (dB) = Attenuator (dB) + Cable loss (dB)
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	offset (dB)	Reading values (dB m)	Result (dB m)
2 387.15	20.44	-75.78	-55.34
2 398.00	20.44	-56.73	-36.29
3 879.70	-	Noise level	-
25 792.70	-	Noise level	-

Middle Channel

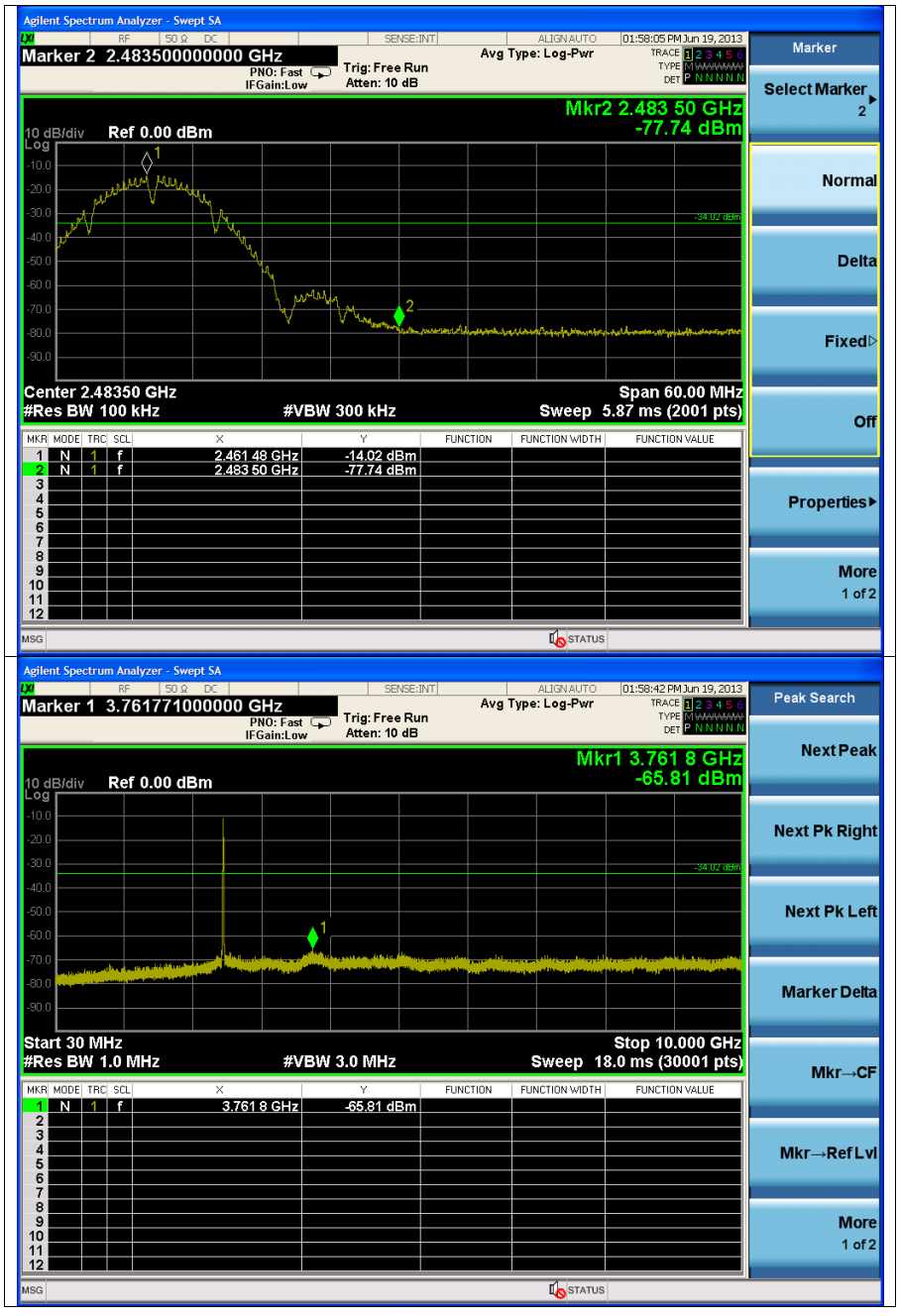


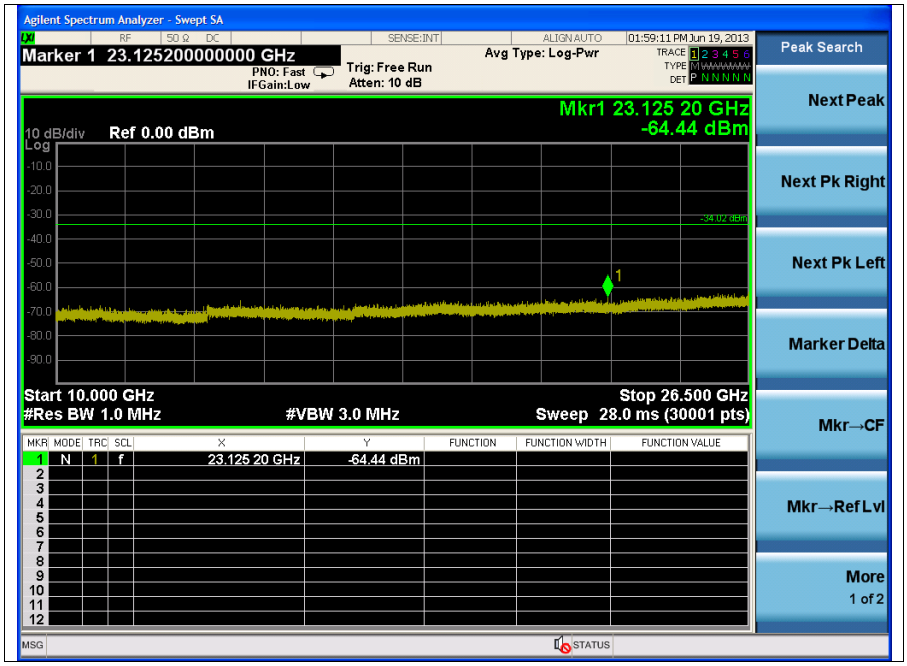


Note:
Offset (dB) = Attenuator (dB) + Cable loss (dB)
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	offset (dB)	Reading values (dB m)	Result (dB m)
3 748.10	-	Noise level	-
26 064.40	-	Noise level	-

High Channel



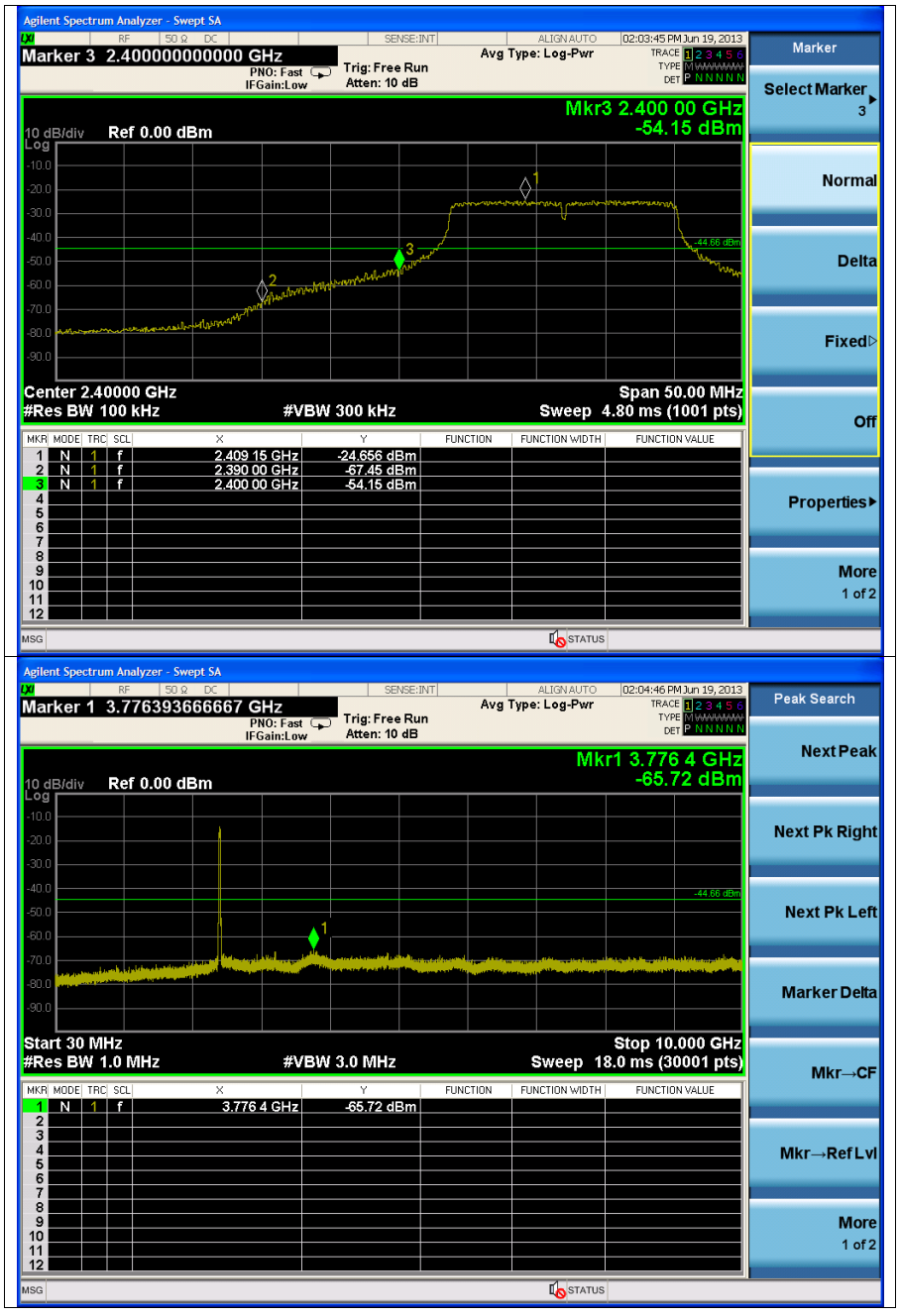


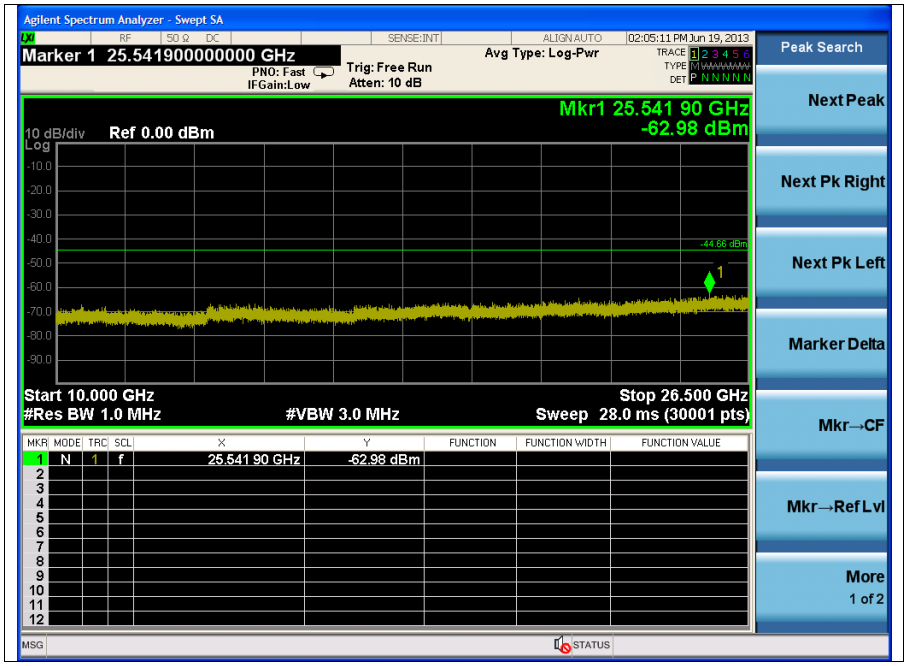
Note:
Offset (dB) = Attenuator (dB) + Cable loss (dB)
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	offset (dB)	Reading values (dB m)	Result (dB m)
2 483.50	20.49	-77.74	-57.25
3 761.80	-	Noise level	-
23 125.20	-	Noise level	-

OFDM : 802.11g(6 Mbps)

Low Channel

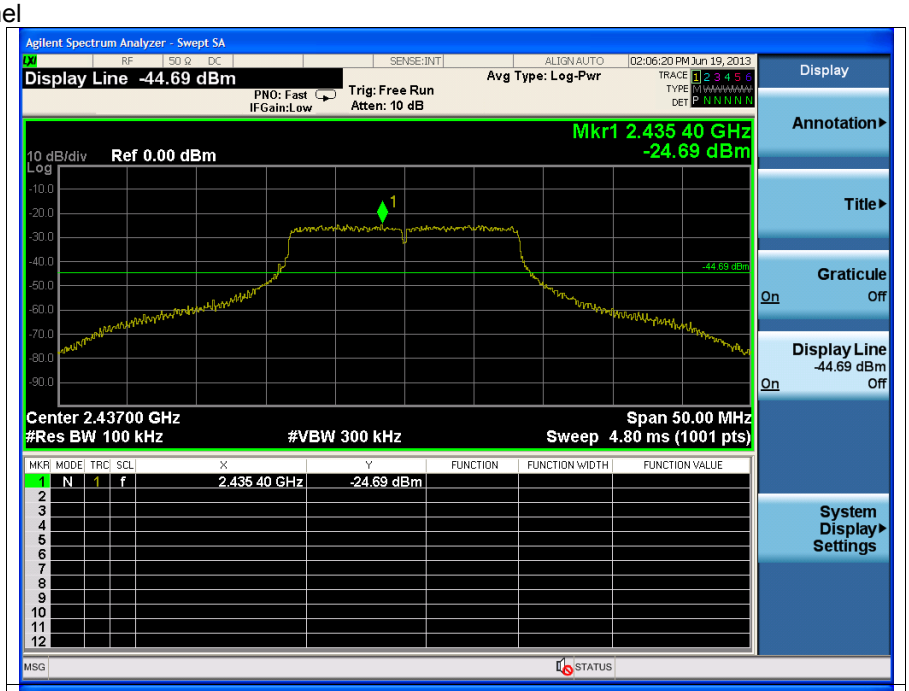


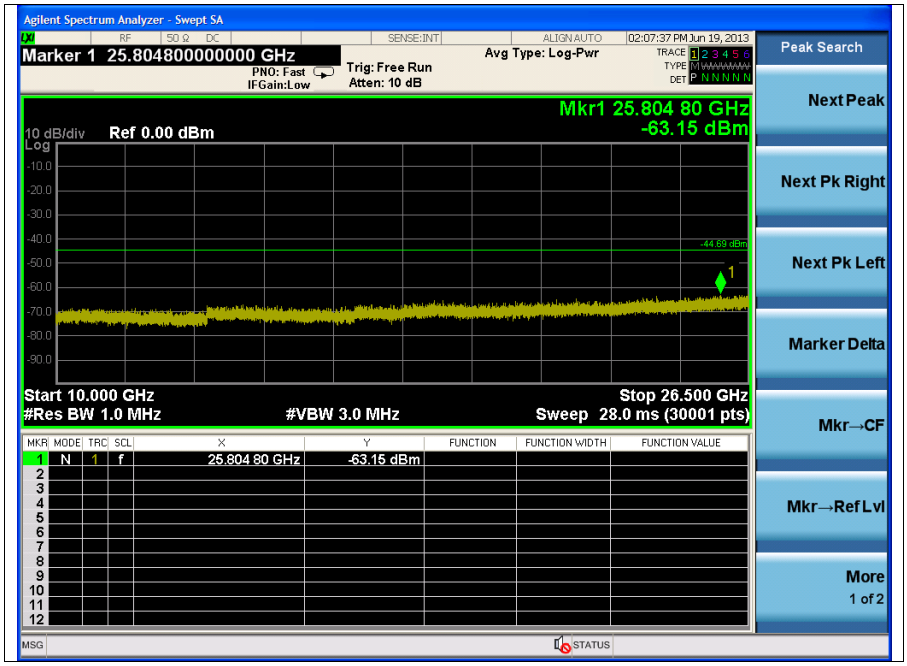


Note:
Offset (dB) = Attenuator (dB) + Cable loss (dB)
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (㎒)	offset (dB)	Reading values (dB m)	Result (dB m)
2 390.00	20.44	-67.45	-47.01
2 400.00	20.44	-54.15	-33.71
3 776.40	-	Noise level	-
25 541.90	-	Noise level	-

Middle Channel

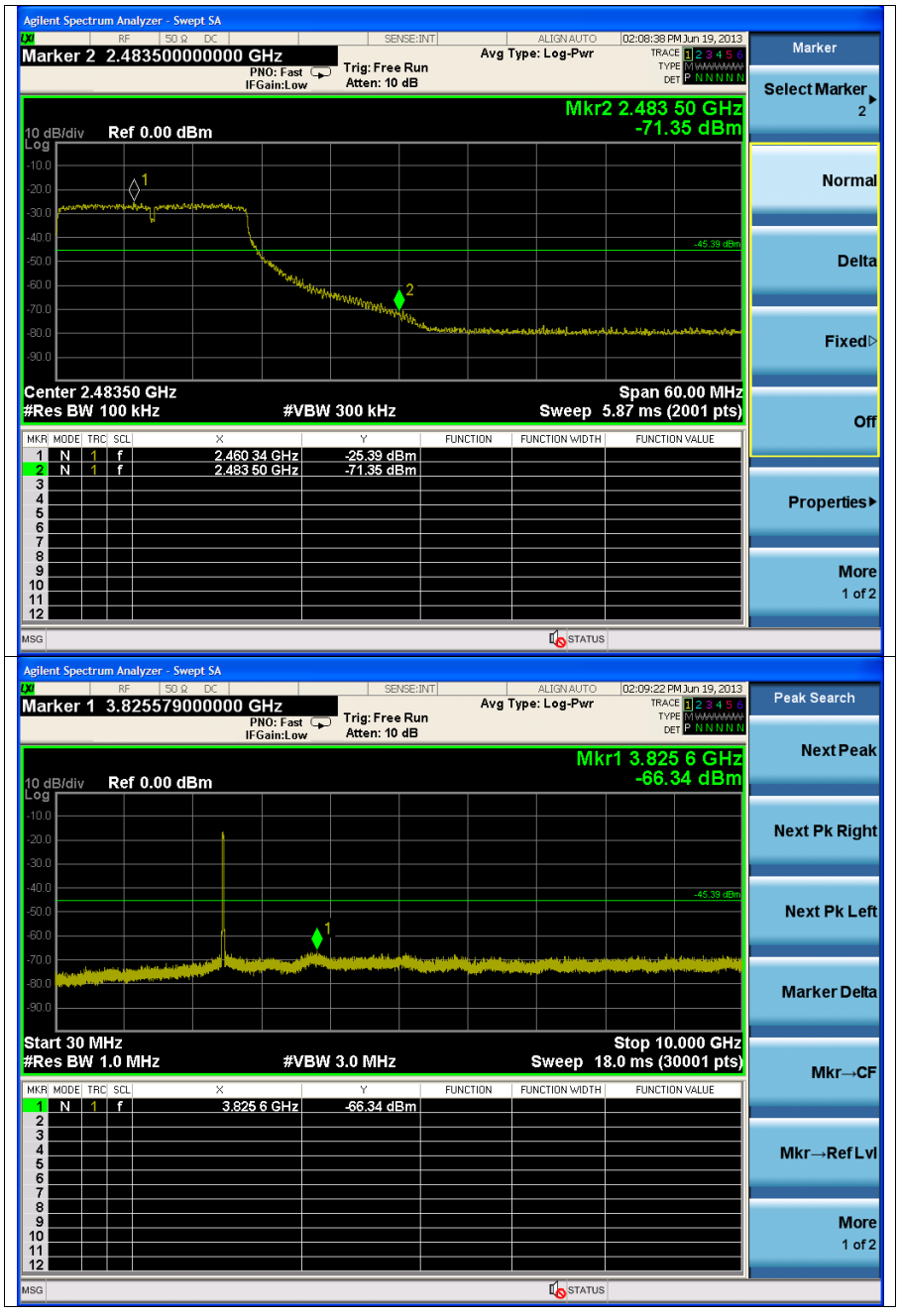


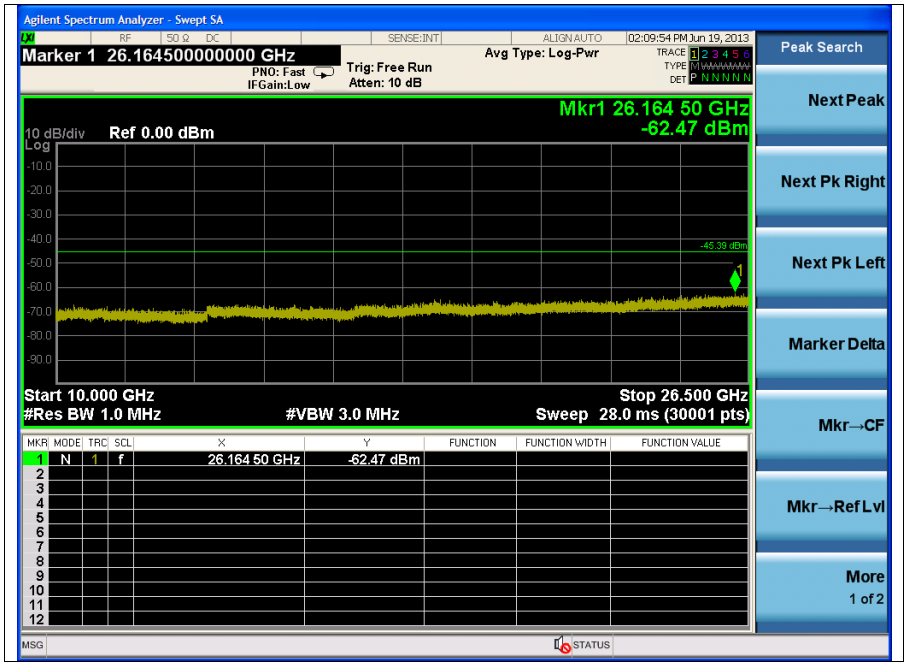


Note:
Offset (dB) = Attenuator (dB) + Cable loss (dB)
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	offset (dB)	Reading values (dB m)	Result (dB m)
3 788.00	-	Noise level	-
25 804.80	-	Noise level	-

High Channel



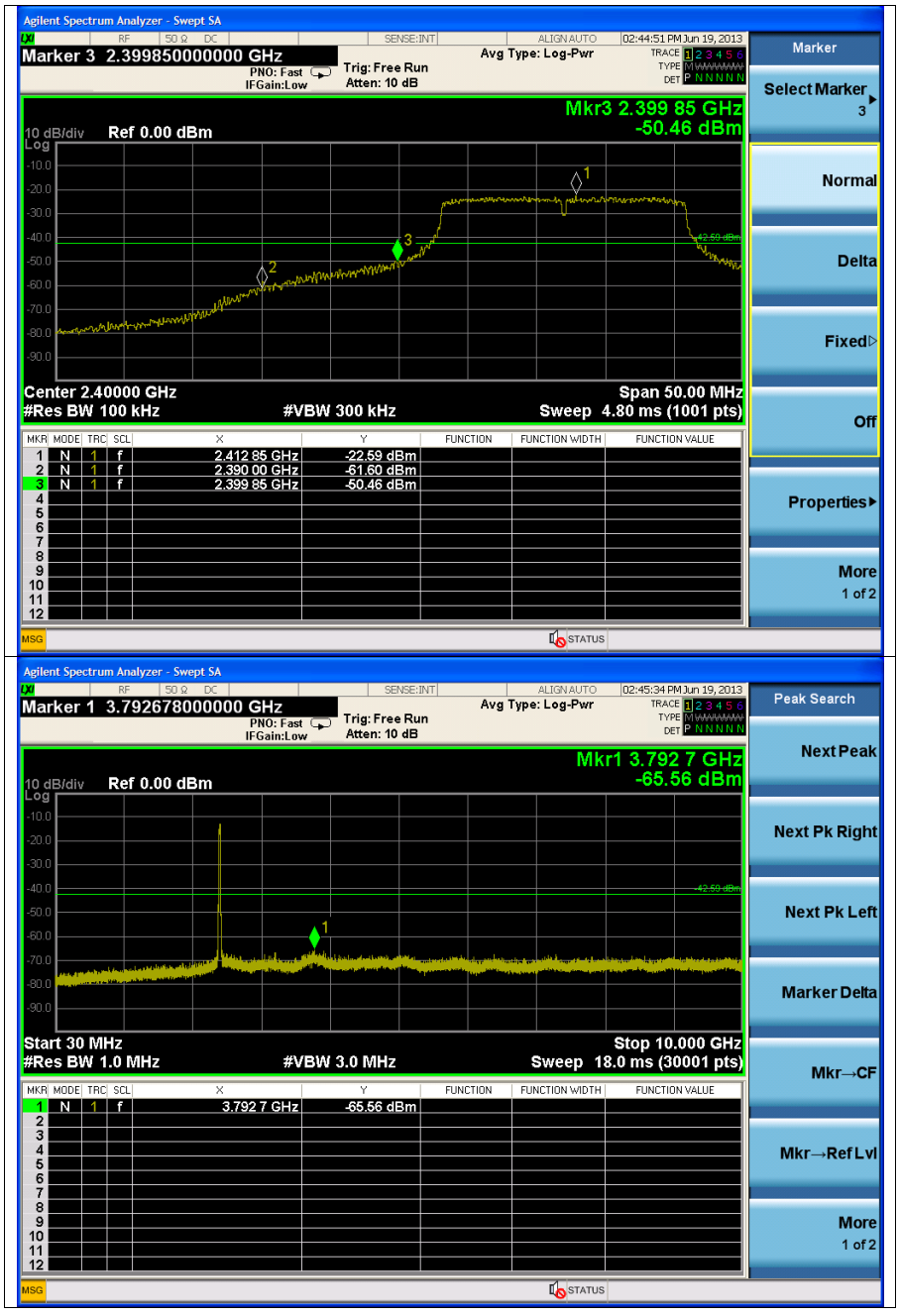


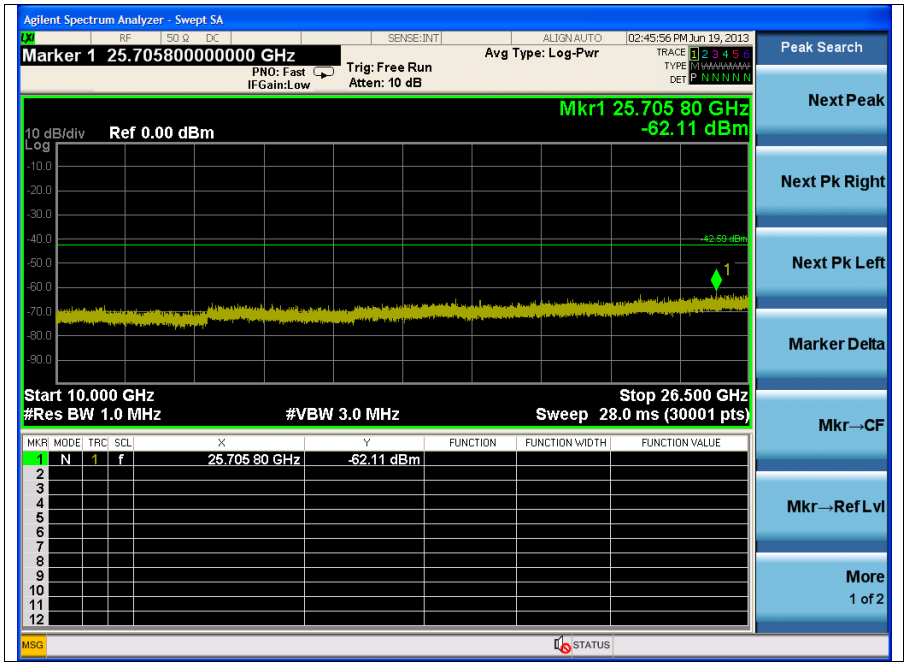
Note:
Offset (dB) = Attenuator (dB) + Cable loss (dB)
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (㎒)	offset (dB)	Reading values (dB m)	Result (dB m)
2 483.50	20.49	-71.35	-50.86
3 825.60	-	Noise level	-
26 164.50	-	Noise level	-

OFDM : 802.11n_HT20(MCS0)

Low Channel

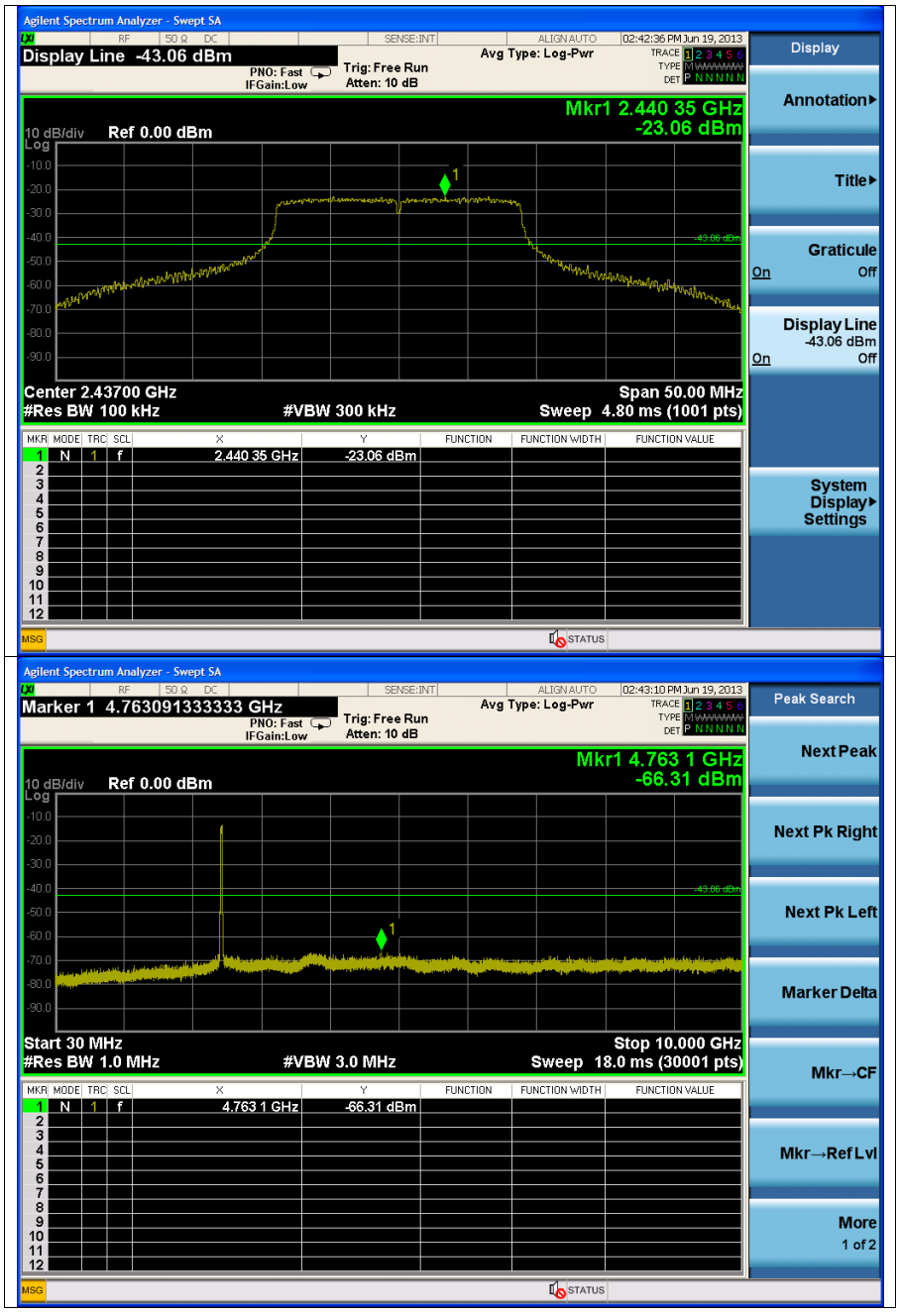


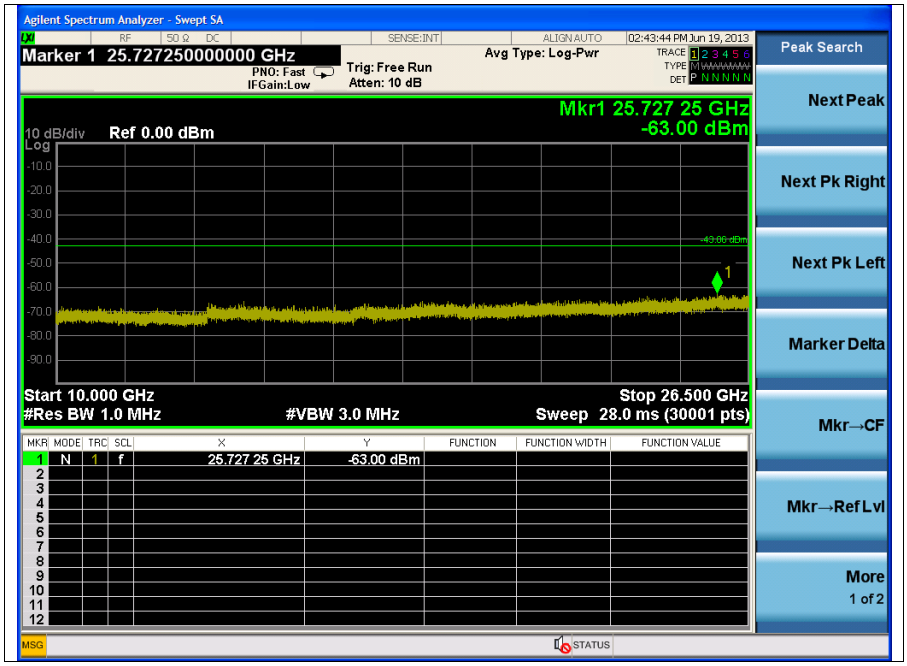


Note:
Offset (dB) = Attenuator (dB) + Cable loss (dB)
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	offset (dB)	Reading values (dB m)	Result (dB m)
2 390.00	20.44	-61.60	-41.16
2 399.85	20.44	-50.46	-30.02
3 792.70	-	Noise level	-
25 705.80	-	Noise level	-

Middle Channel

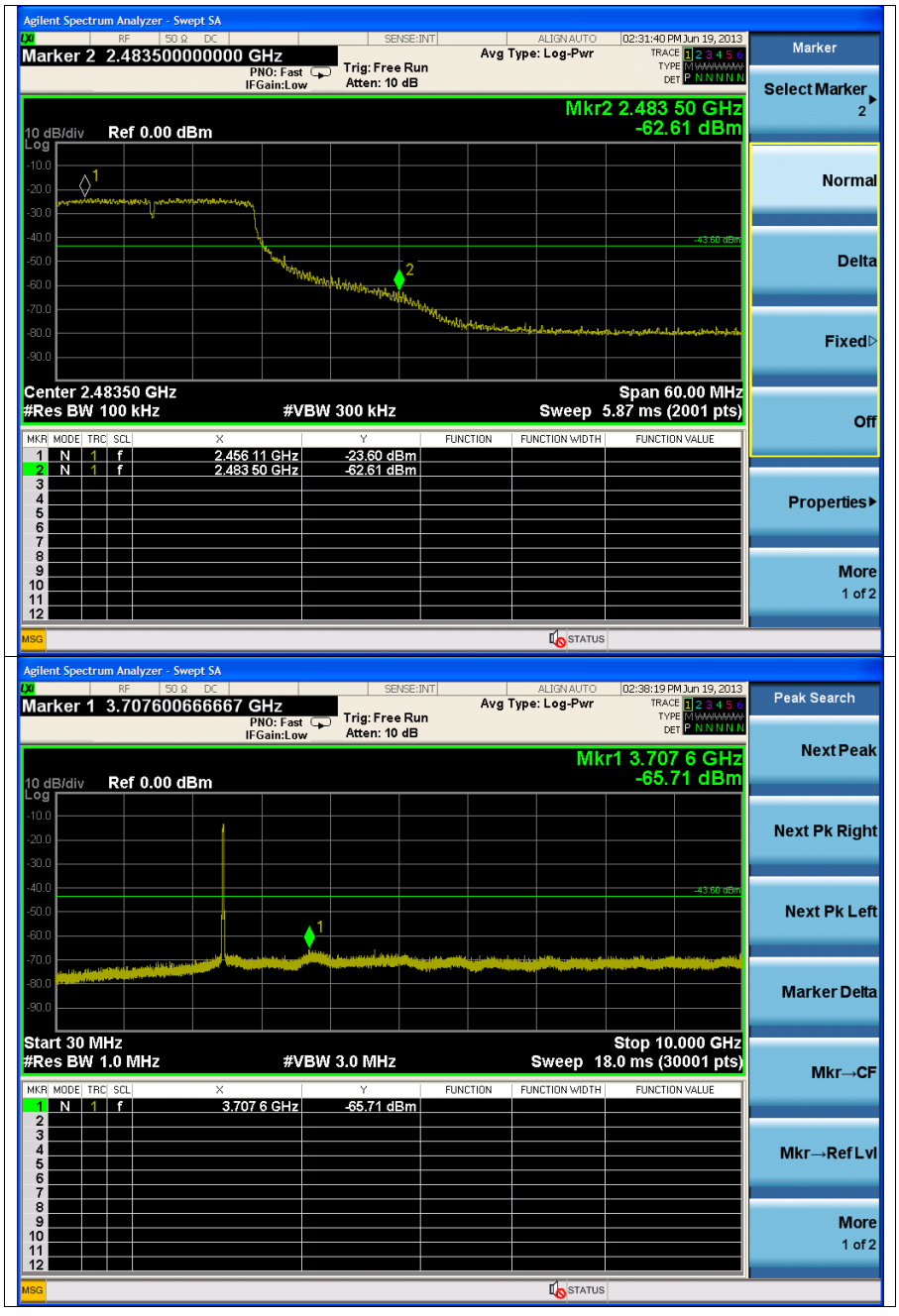


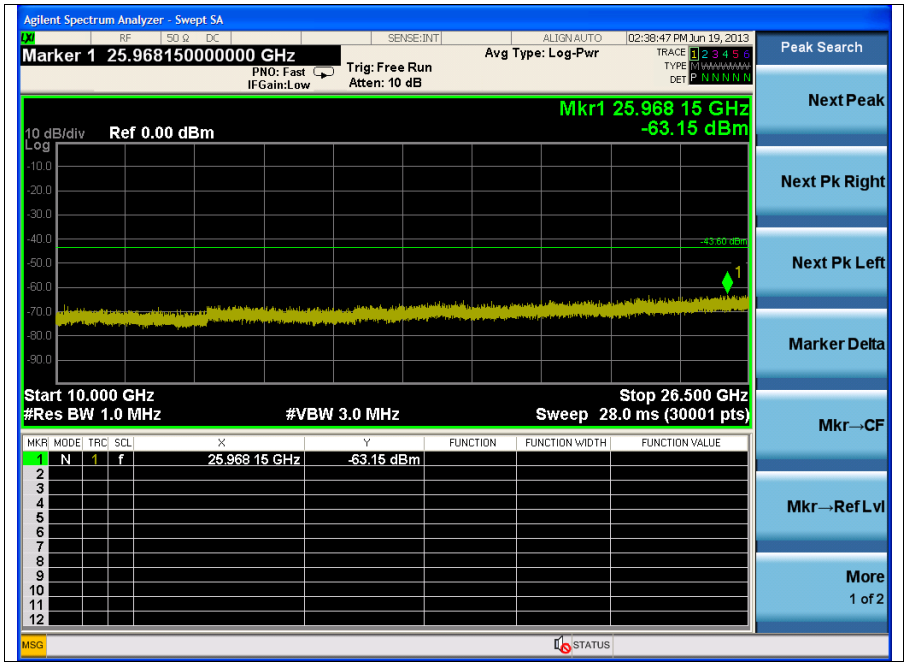


Note:
Offset (dB) = Attenuator (dB) + Cable loss (dB)
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	offset (dB)	Reading values (dB m)	Result (dB m)
4 763.10	-	Noise level	-
25 727.25	-	Noise level	-

High Channel



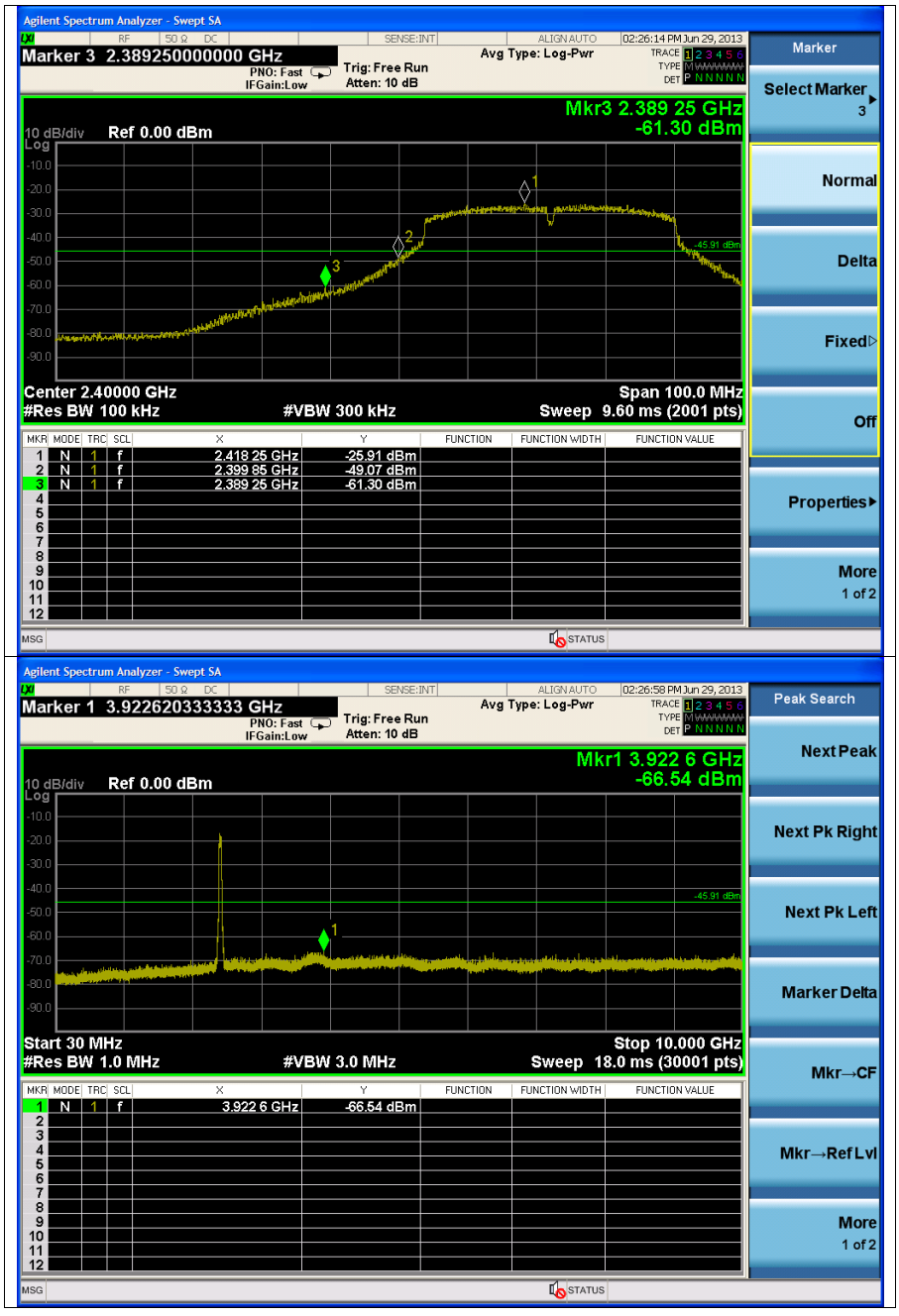


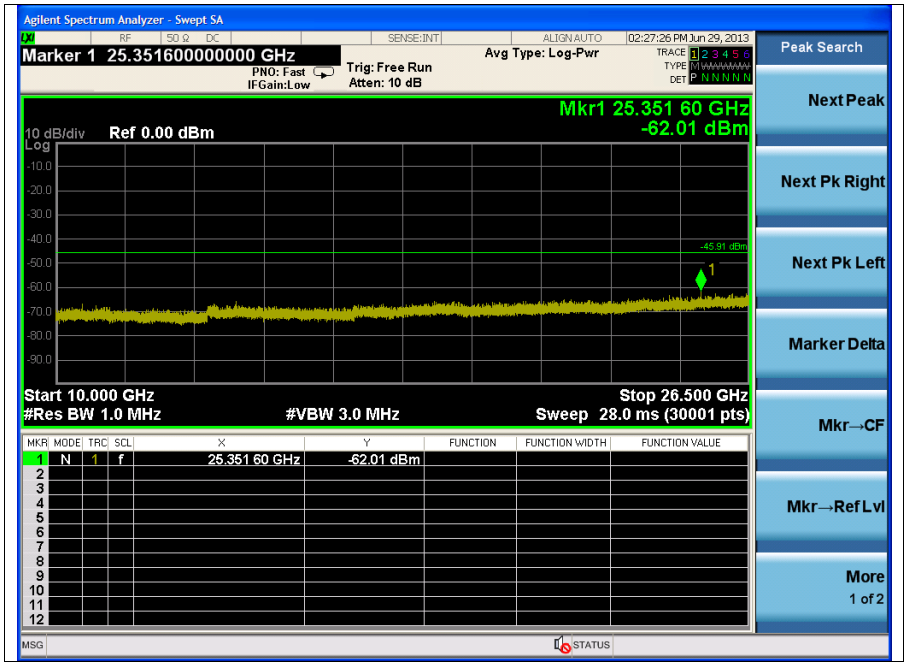
Note:
Offset (dB) = Attenuator (dB) + Cable loss (dB)
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	offset (dB)	Reading values (dB m)	Result (dB m)
2 483.50	20.49	-62.61	-42.12
3 707.60	-	Noise level	-
25 968.15	-	Noise level	-

OFDM : 802.11n_HT40(MCS0)

Low Channel

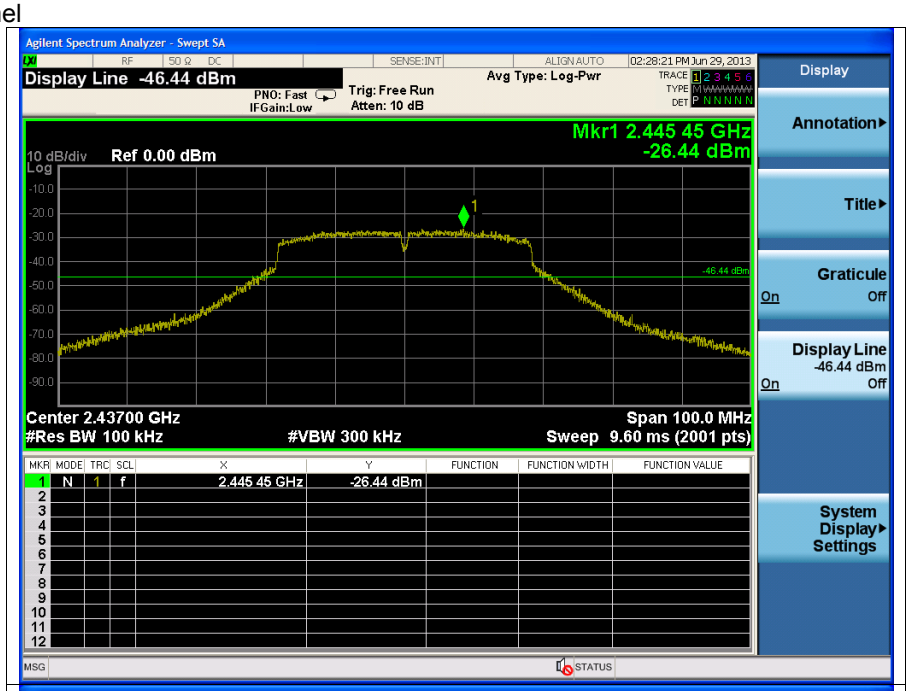


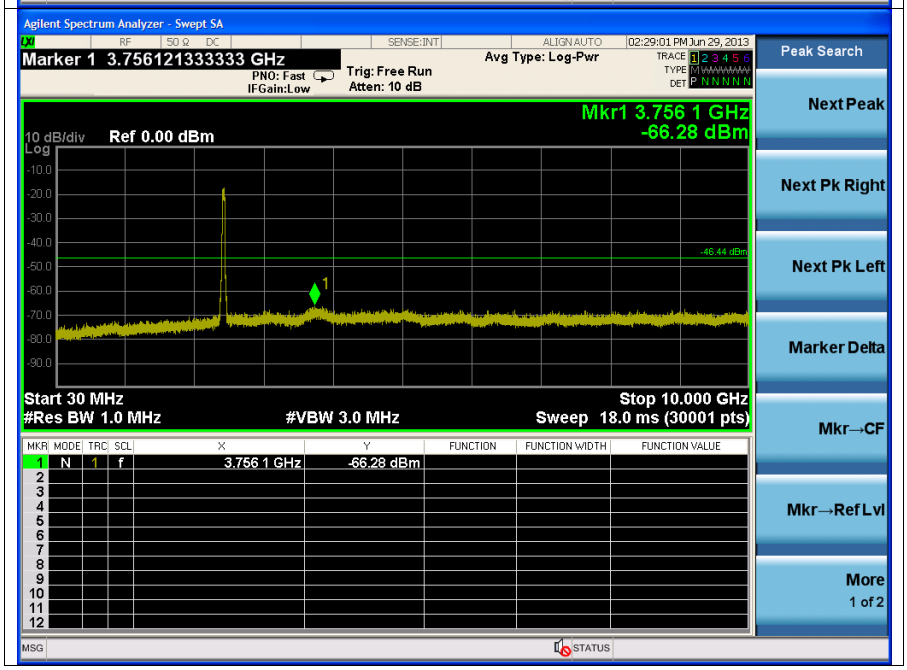


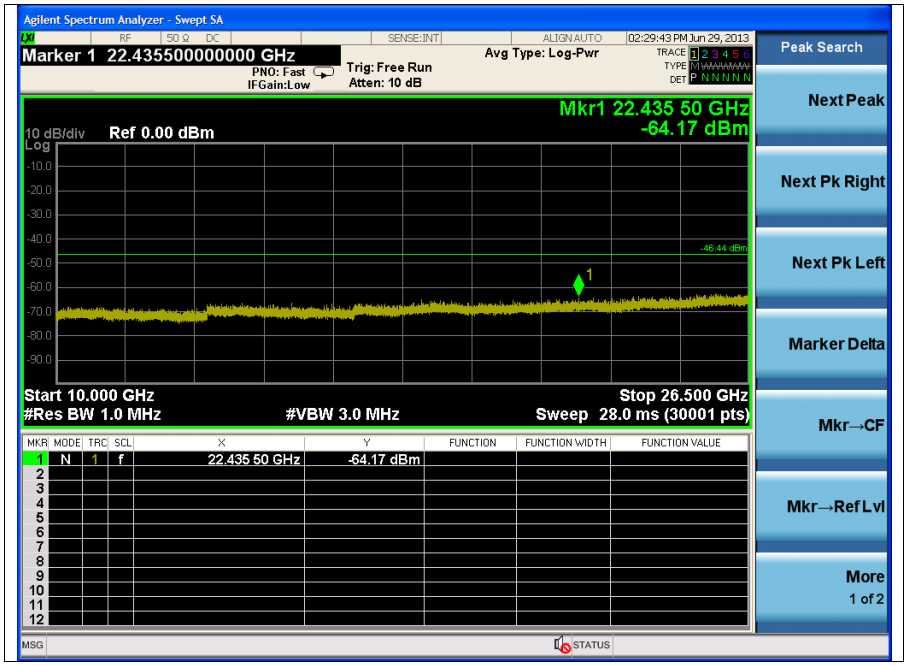
Note:
Offset (dB) = Attenuator (dB) + Cable loss (dB)
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	offset (dB)	Reading values (dB m)	Result (dB m)
2 389.25	20.44	-61.30	-40.86
2 399.85	20.44	-49.07	-28.63
3 922.60	-	Noise level	-
25 351.60	-	Noise level	-

Middle Channel



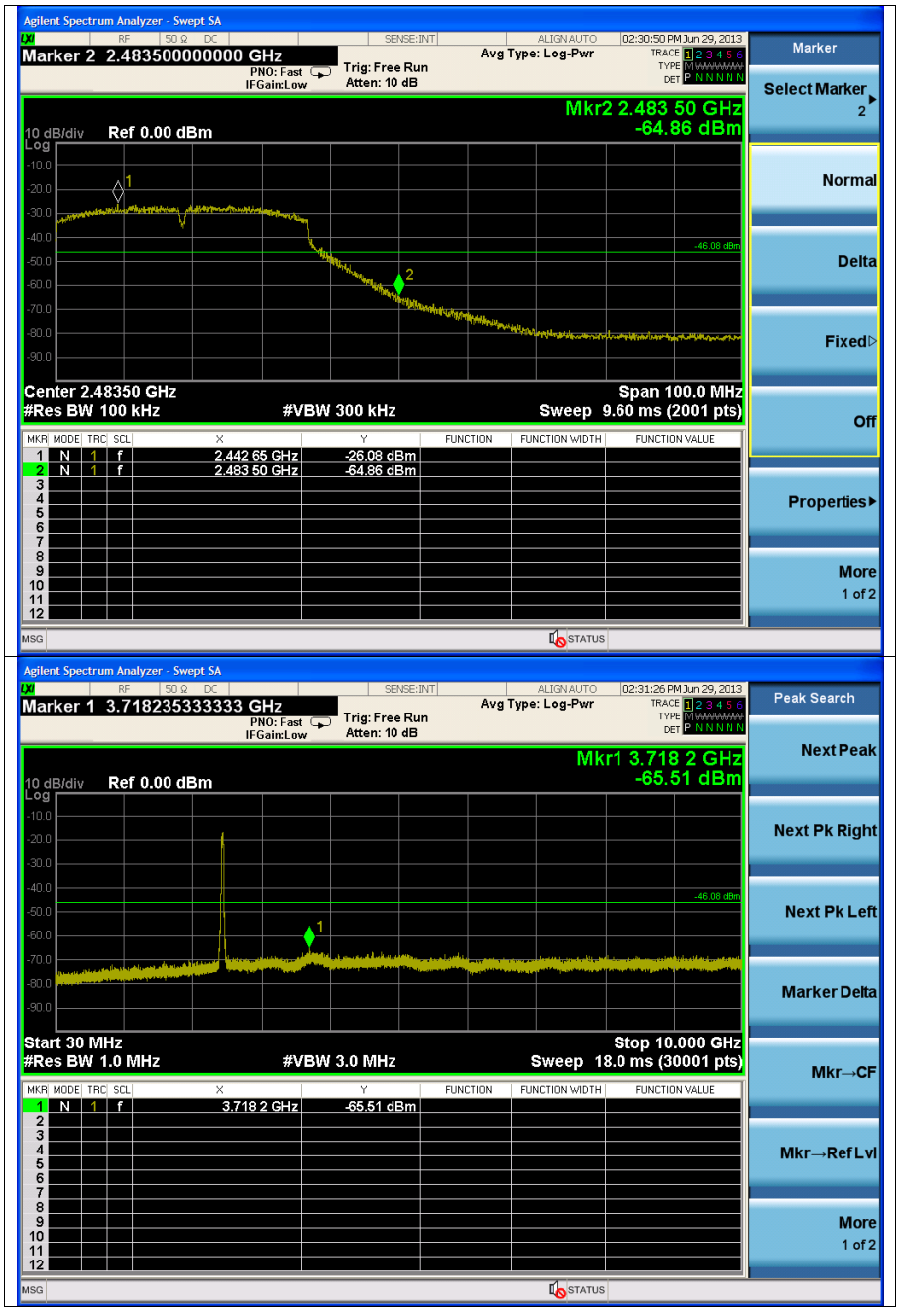


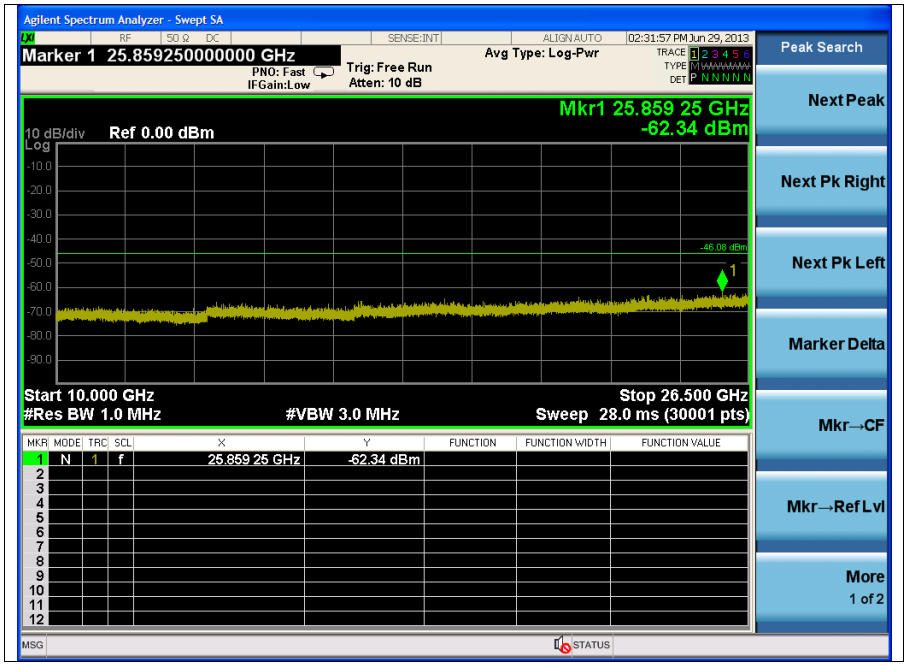


Note:
Offset (dB) = Attenuator (dB) + Cable loss (dB)
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	offset (dB)	Reading values (dB m)	Result (dB m)
3 756.10	-	Noise level	-
22 435.50	-	Noise level	-

High Channel



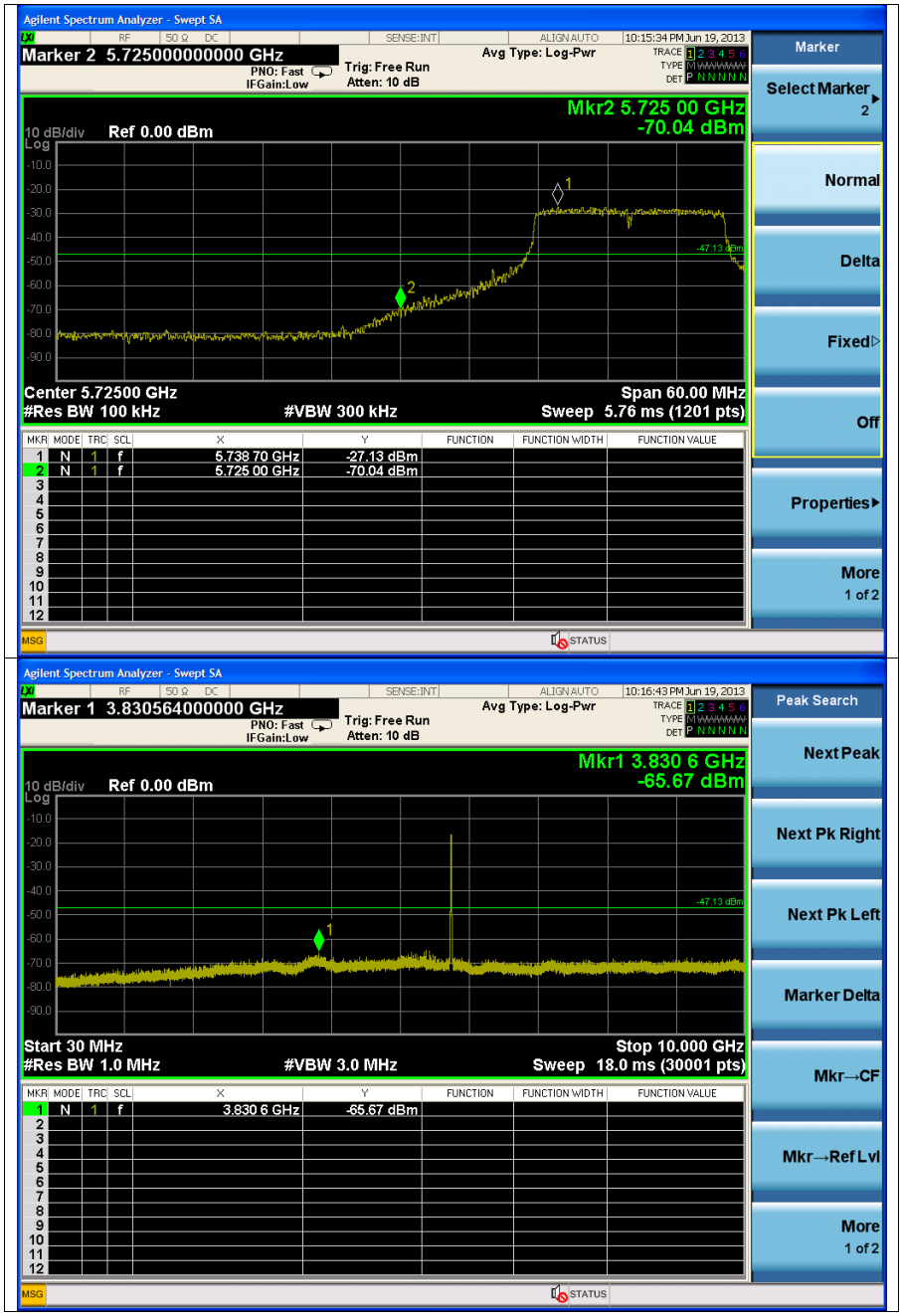


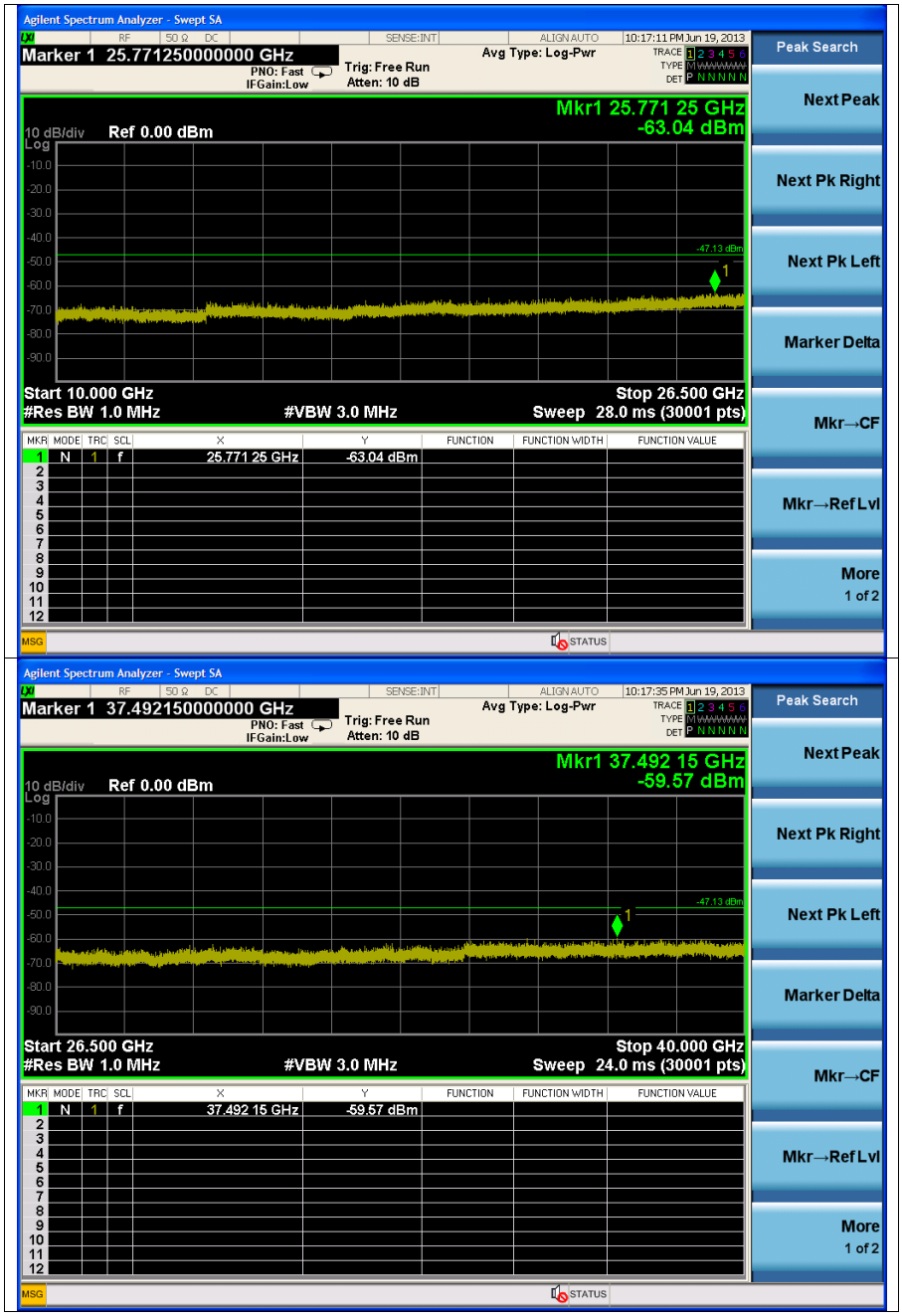
Note:
Offset (dB) = Attenuator (dB) + Cable loss (dB)
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	offset (dB)	Reading values (dB m)	Result (dB m)
2483.50	20.49	-64.86	-44.37
3718.20	-	Noise level	-
25859.25	-	Noise level	-

5.8 ㎓

OFDM : 802.11a(6 Mbps)
Low Channel

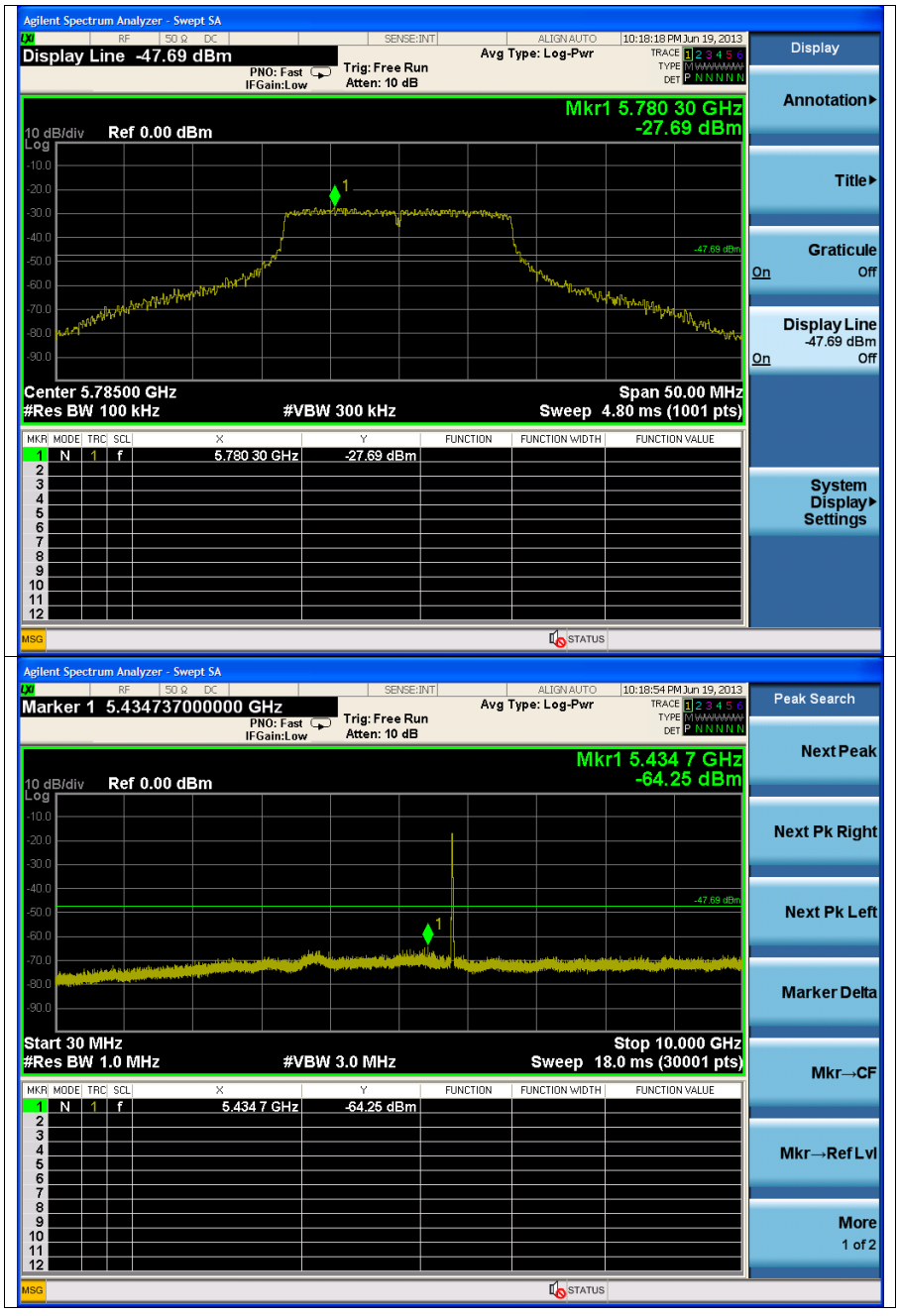


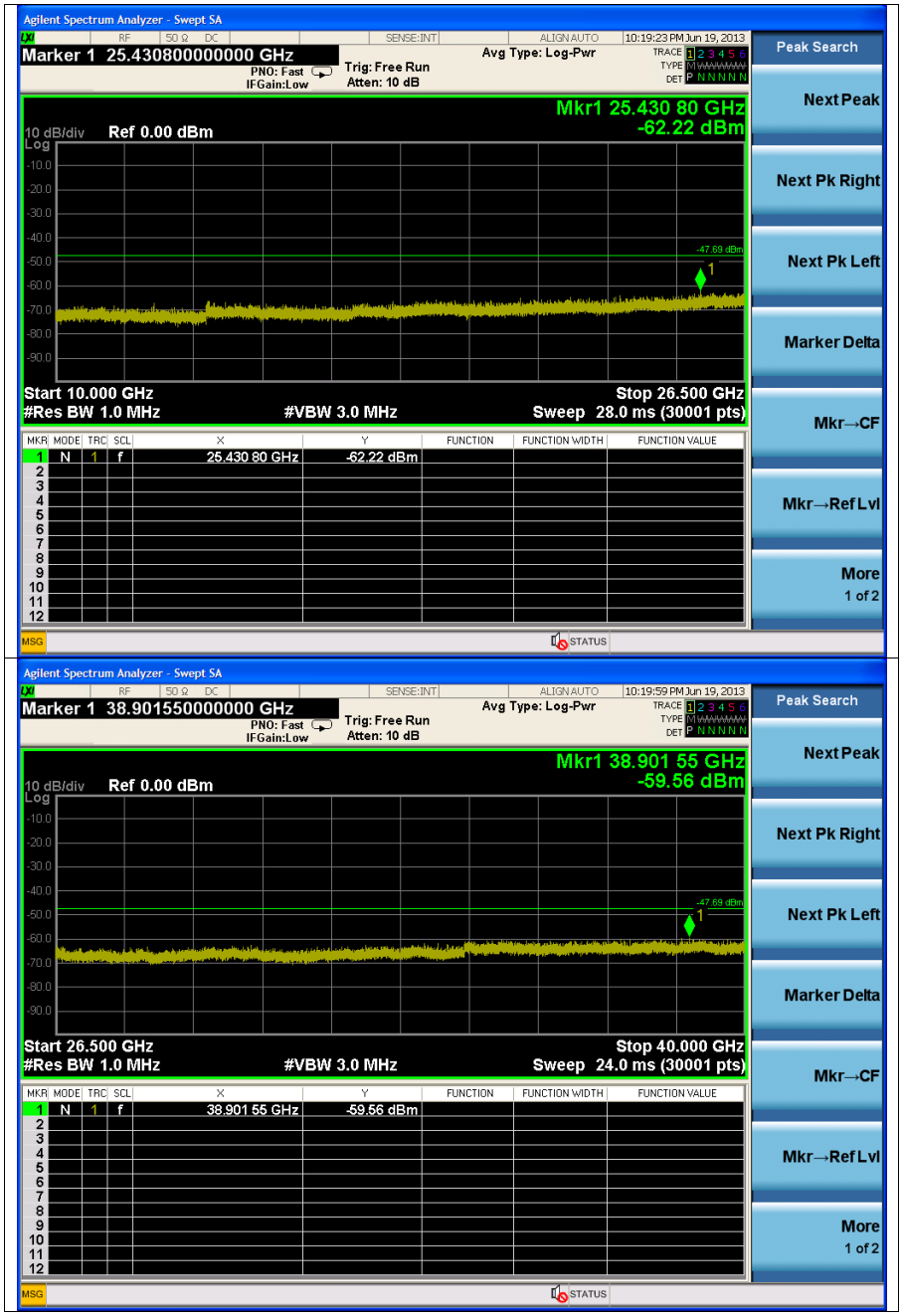


Note:
Offset (dB) = Attenuator (dB) + Cable loss (dB)
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (㎒)	offset (dB)	Reading values (dB m)	Result (dB m)
3 830.60	-	Noise level	-
5 725.00	21.25	-70.04	-48.79
25 771.25	-	Noise level	-
37 492.15	-	Noise level	-

Middle Channel

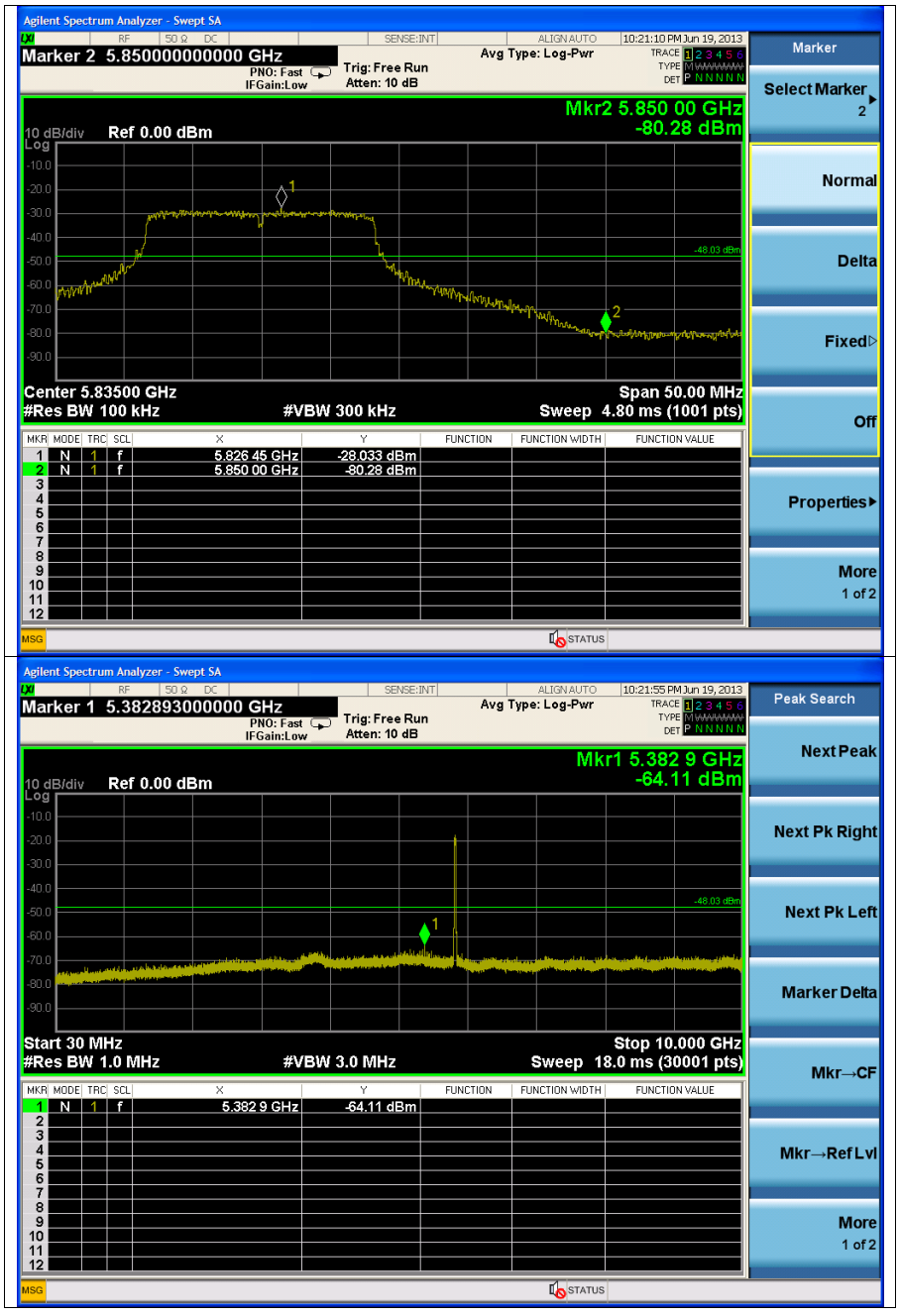


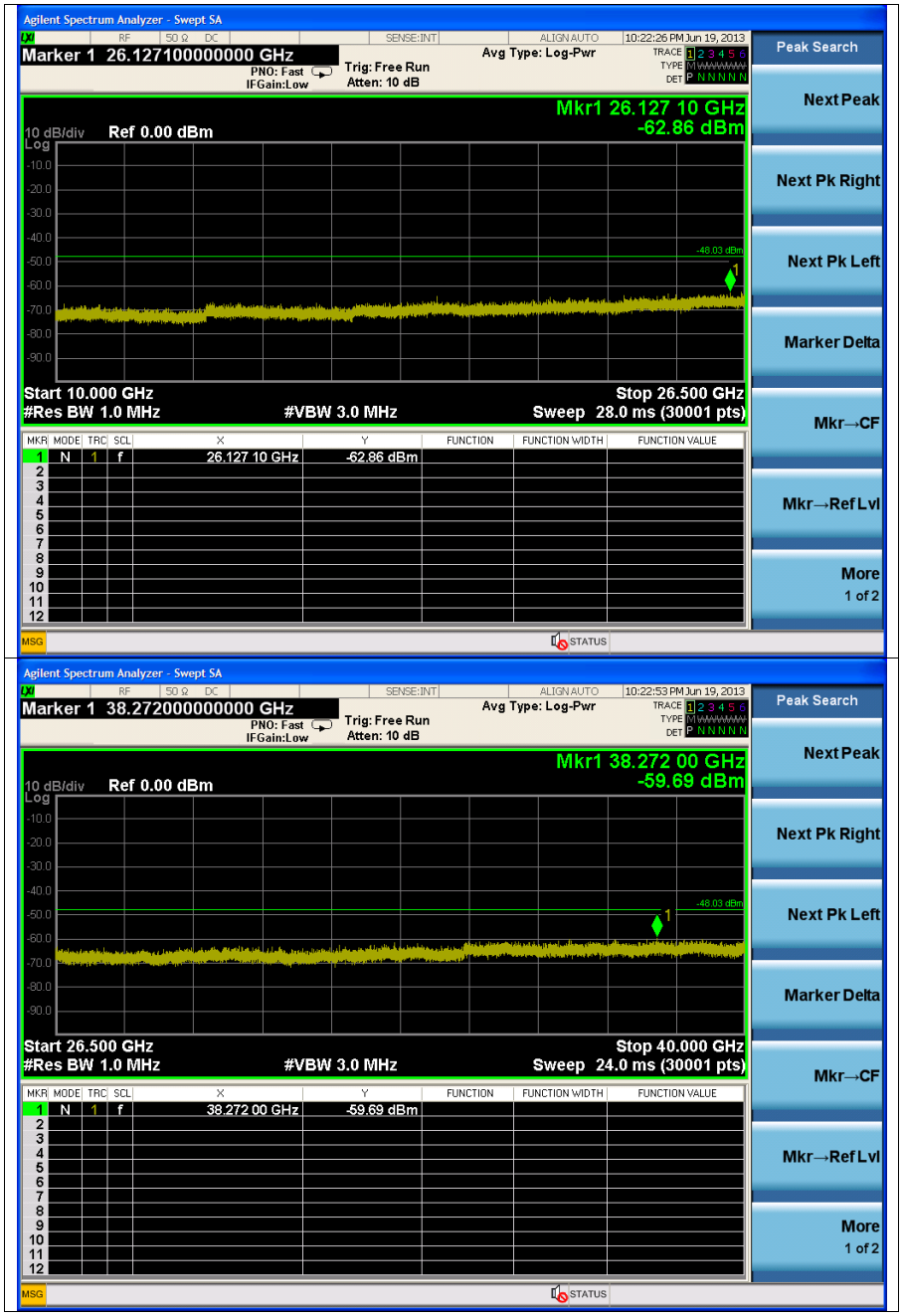


Note:
Offset (dB) = Attenuator (dB) + Cable loss (dB)
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	offset (dB)	Reading values (dB m)	Result (dB m)
5 434.70	21.33	-64.25	-42.92
25 430.80	-	Noise level	-
38 901.55	-	Noise level	-

High Channel



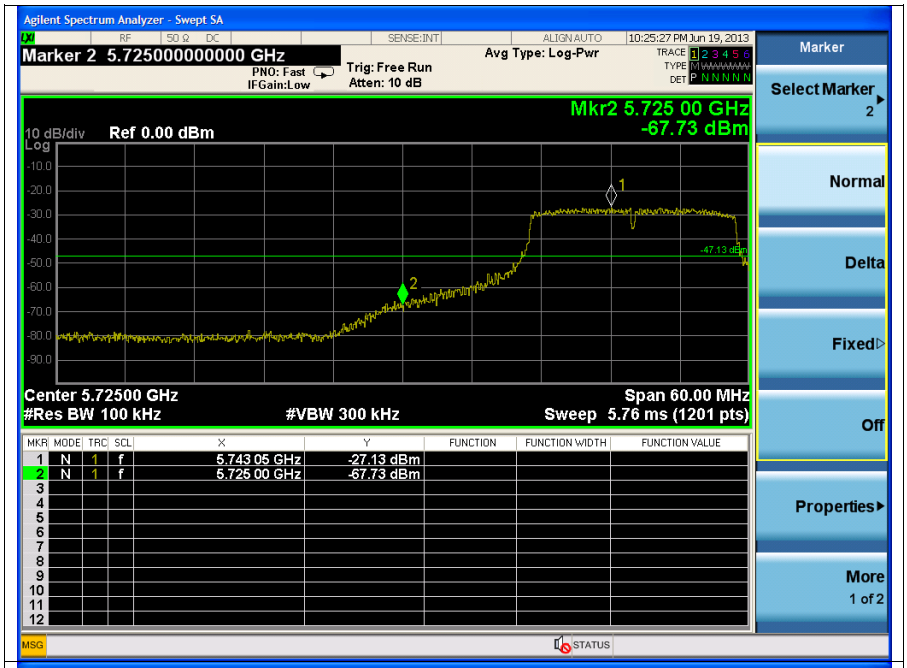


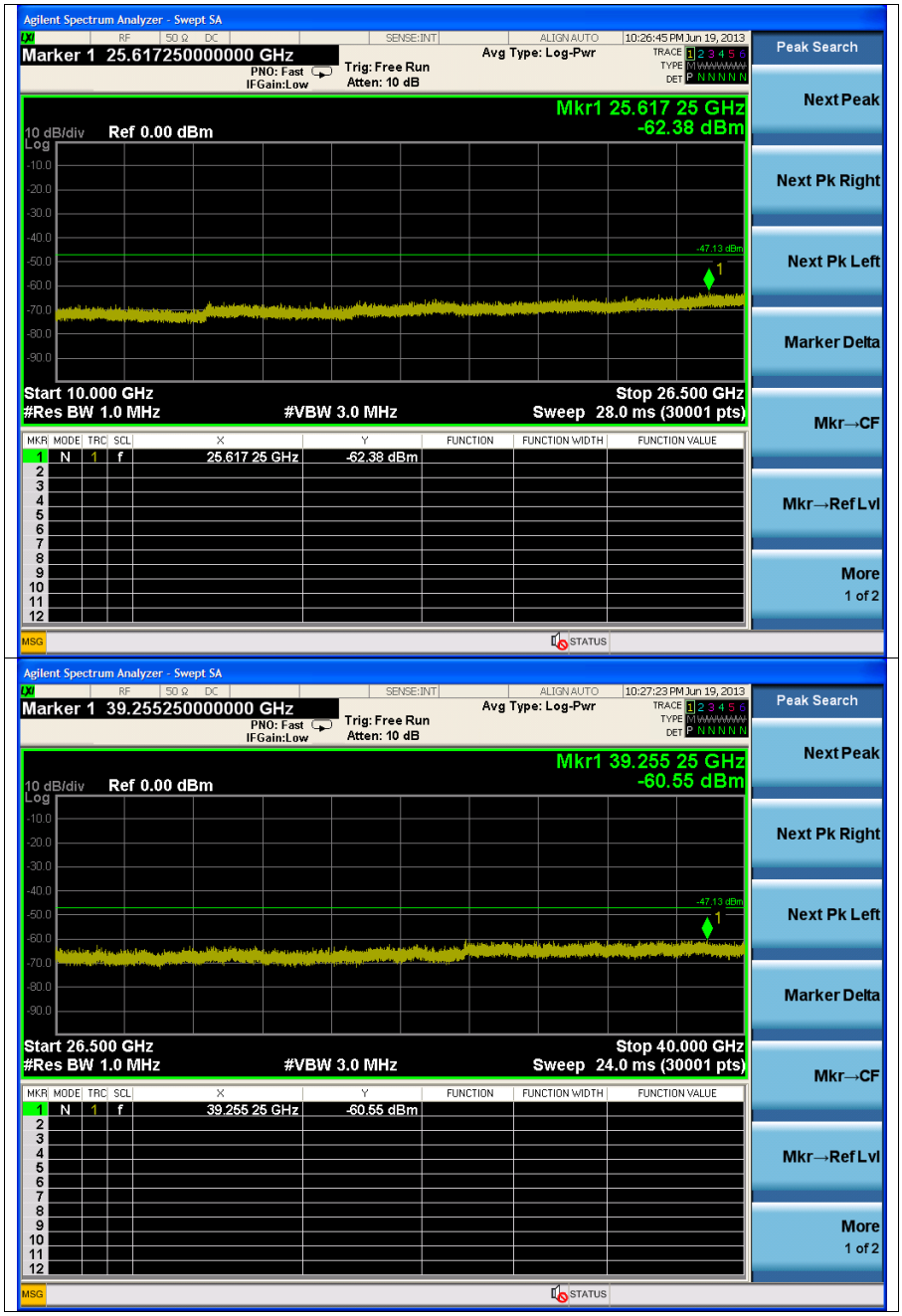
Note:
Offset (dB) = Attenuator (dB) + Cable loss (dB)
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	offset (dB)	Reading values (dB m)	Result (dB m)
5 382.90	21.33	-64.11	-42.78
5 850.00	21.39	-80.28	-58.89
26 127.10	-	Noise level	-
38 272.00	-	Noise level	-

OFDM : 802.11n_HT20(MCS0)

Low Channel

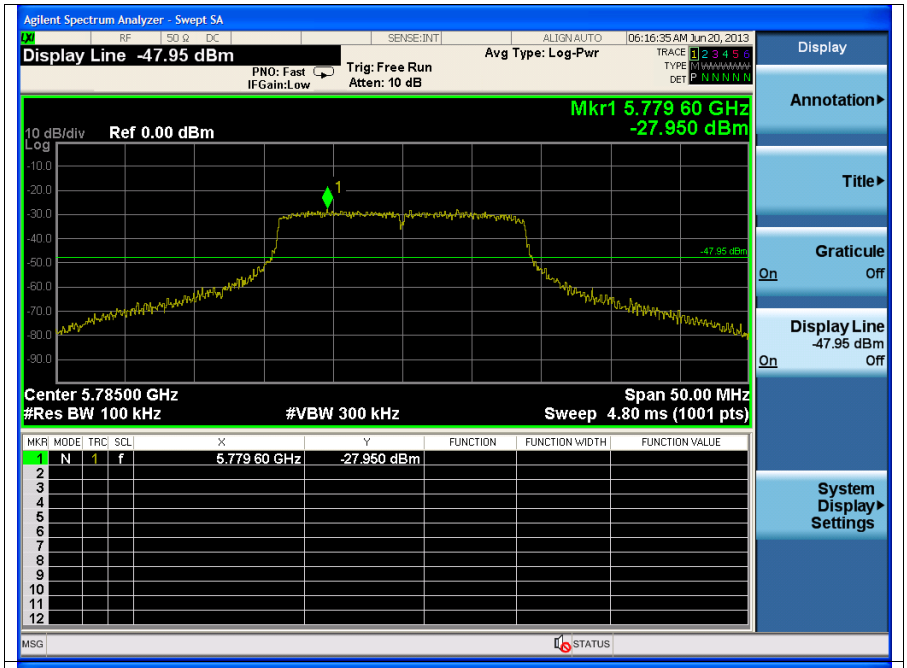


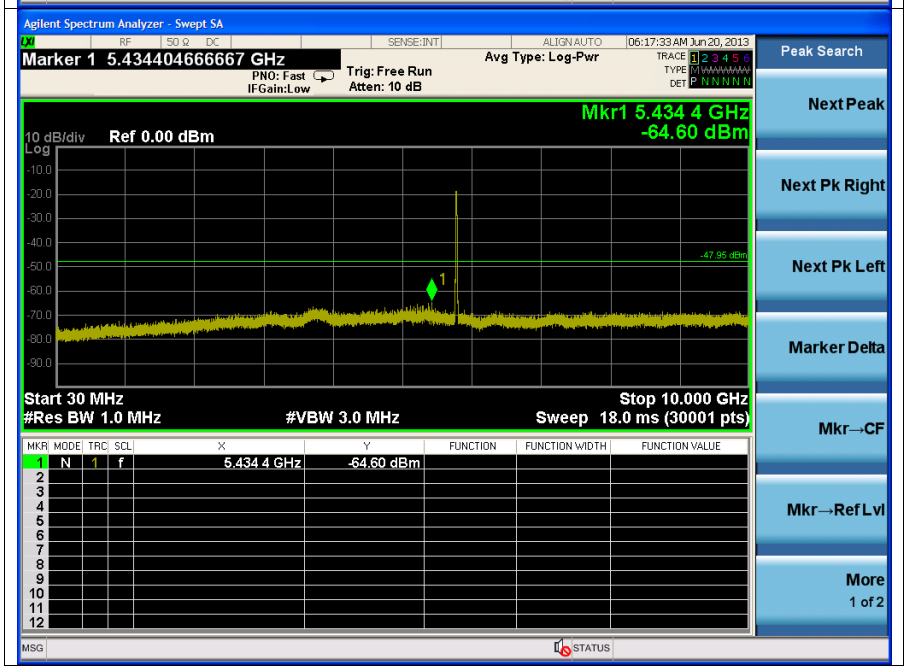


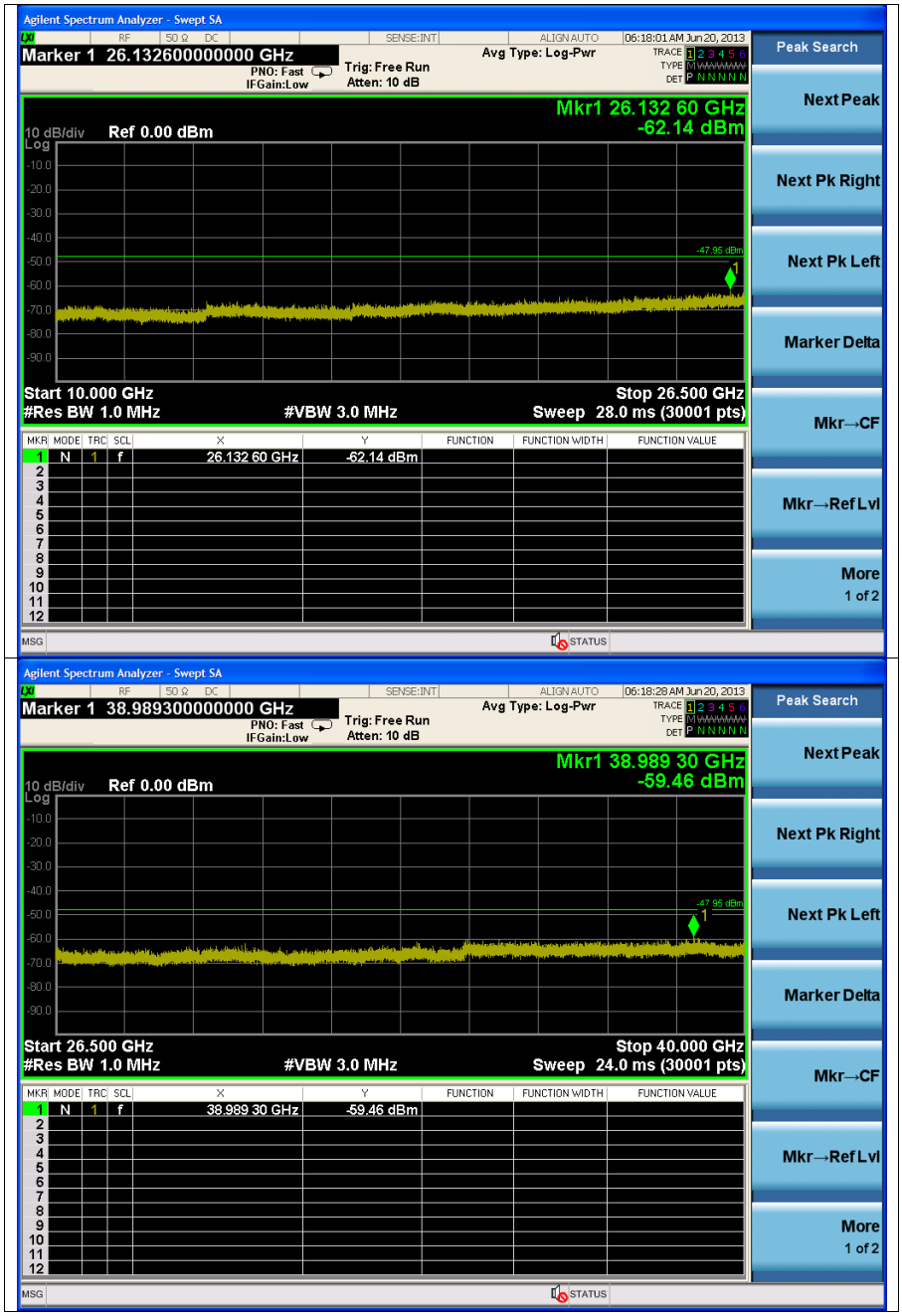
Note:
Offset (dB) = Attenuator (dB) + Cable loss (dB)
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (㎒)	offset (dB)	Reading values (dB m)	Result (dB m)
3 783.40	-	Noise level	-
5 725.00	21.25	-67.73	-46.48
25 617.25	-	Noise level	-
39 255.25	-	Noise level	-

Middle Channel



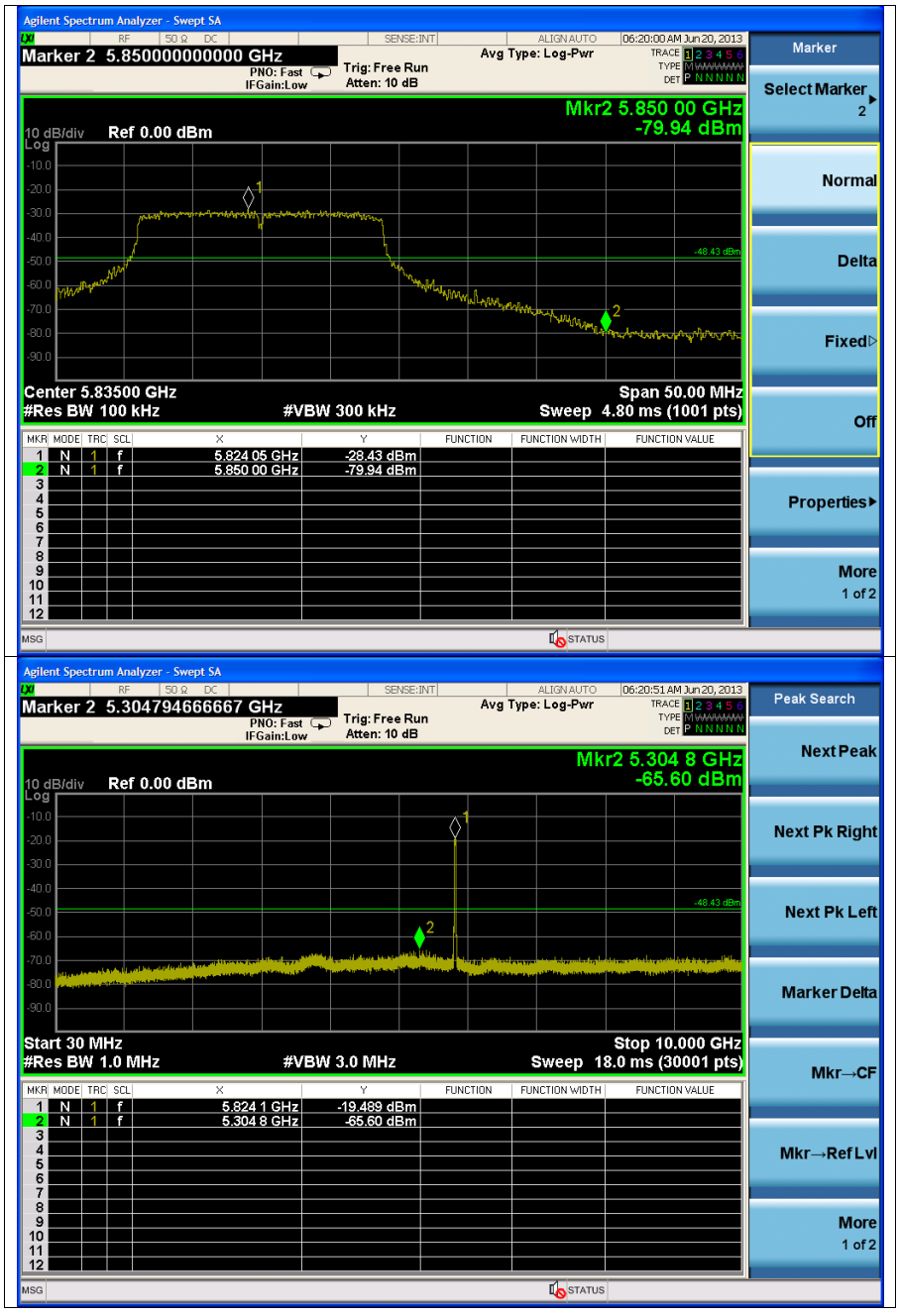


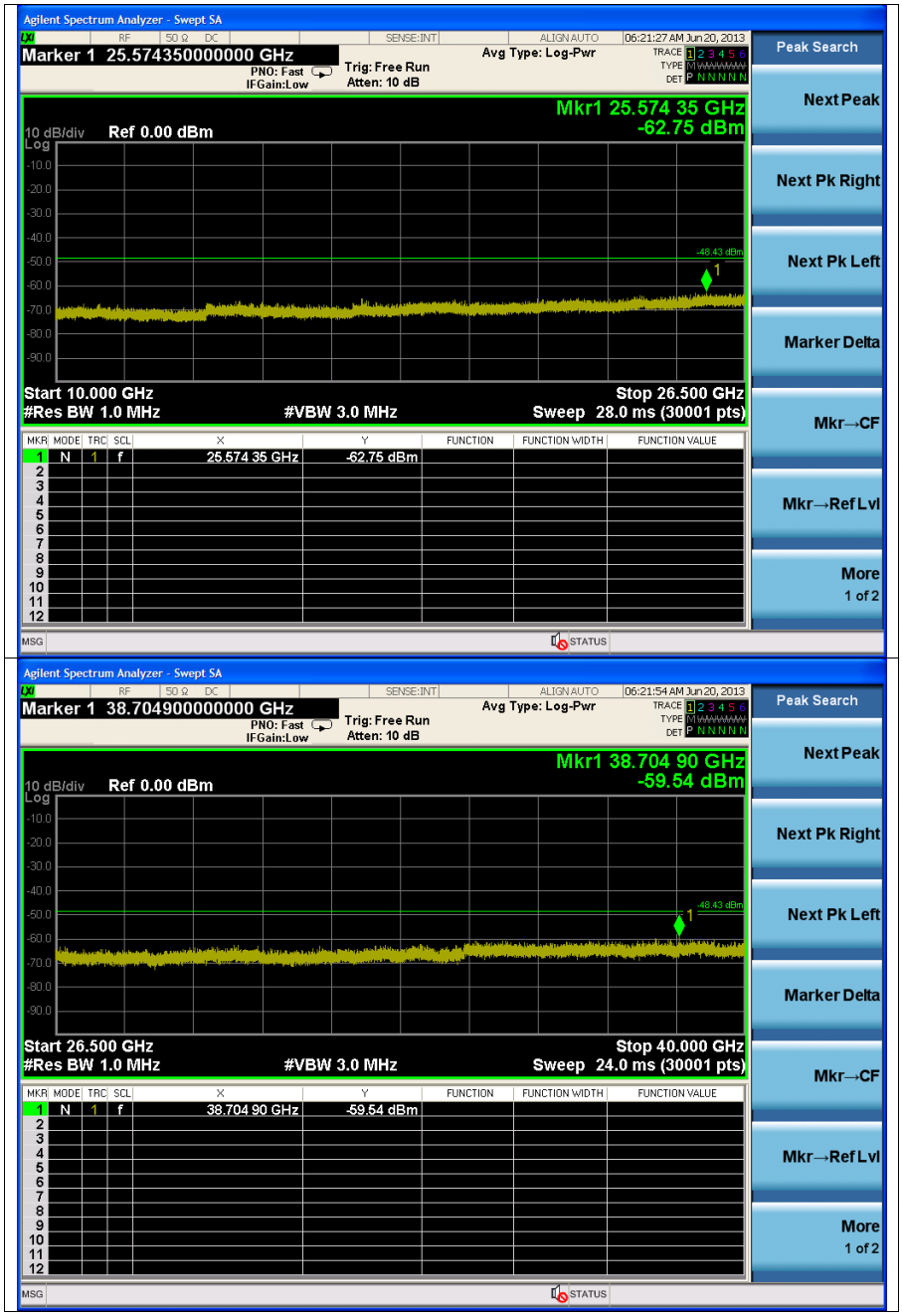


Note:
Offset (dB) = Attenuator (dB) + Cable loss (dB)
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	offset (dB)	Reading values (dB m)	Result (dB m)
5 434.40	21.33	-64.60	-43.27
26 132.60	-	Noise level	-
38 989.30	-	Noise level	-

High Channel



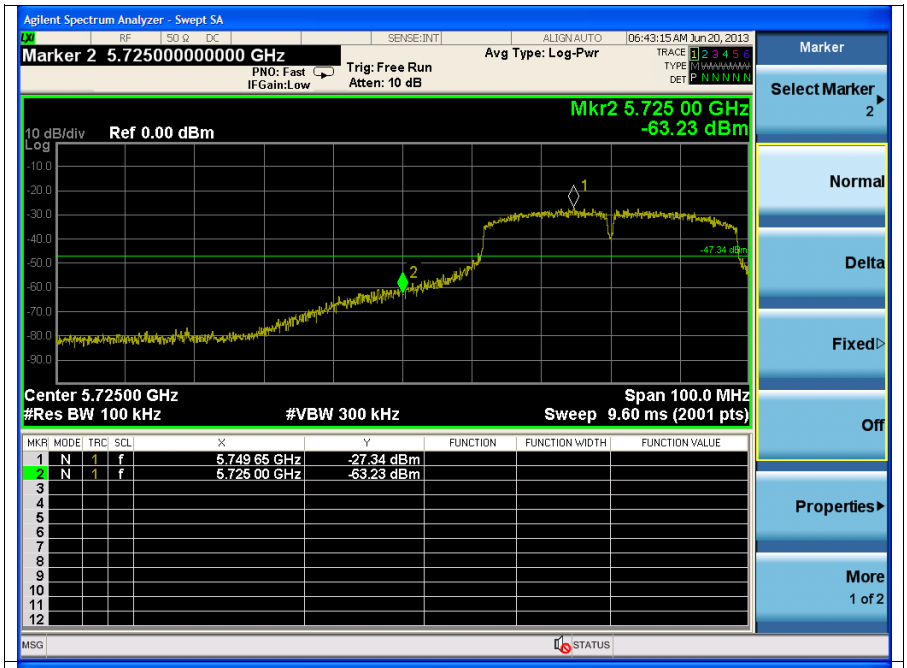


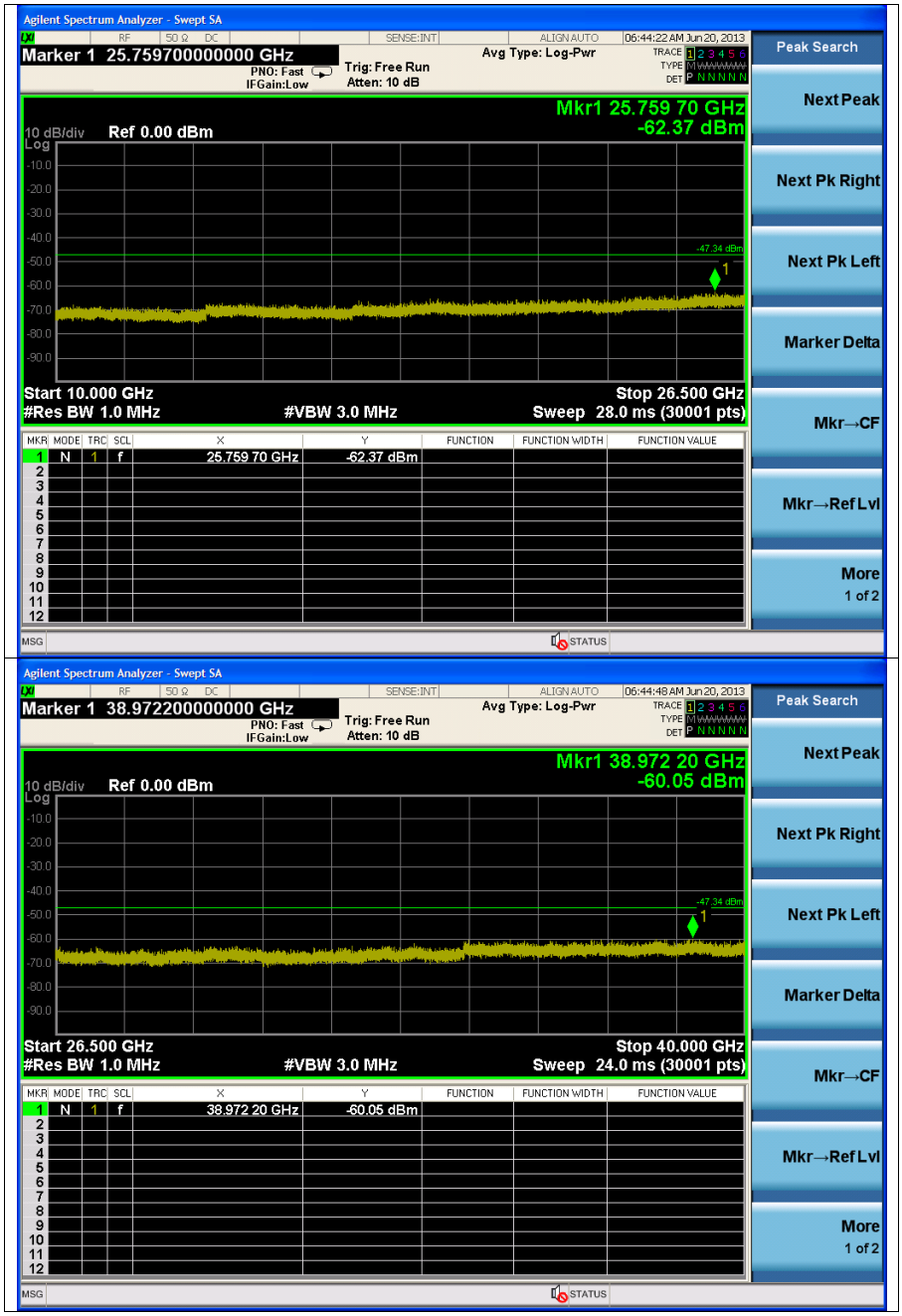
Note:
Offset (dB) = Attenuator (dB) + Cable loss (dB)
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	offset (dB)	Reading values (dB m)	Result (dB m)
5 304.80	21.33	-65.6	-44.27
5 850.00	21.39	-79.94	-58.55
25 574.35	-	Noise level	-
38 704.90	-	Noise level	-

OFDM : 802.11n_HT40(MCS0)

Low Channel

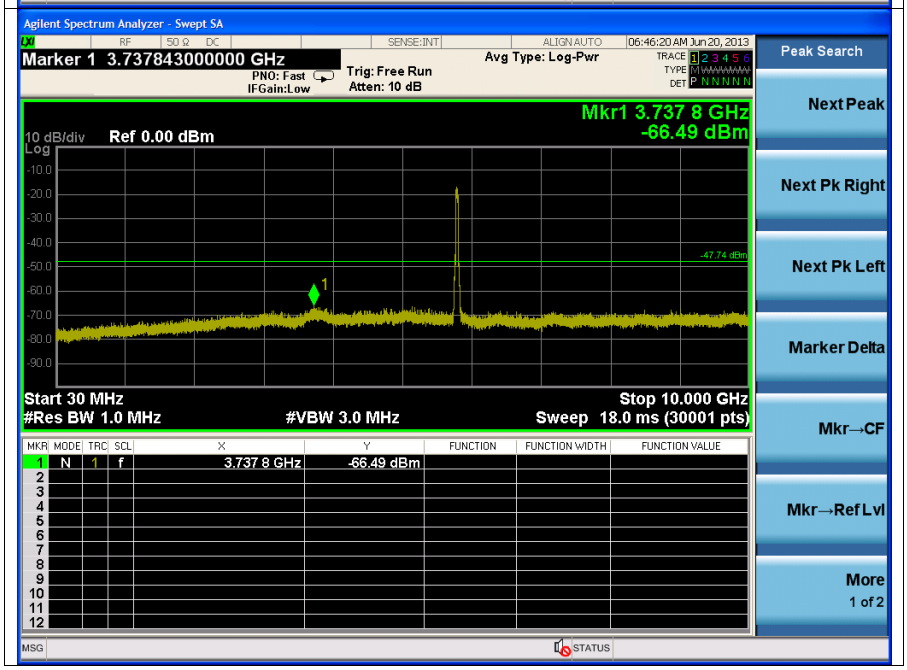


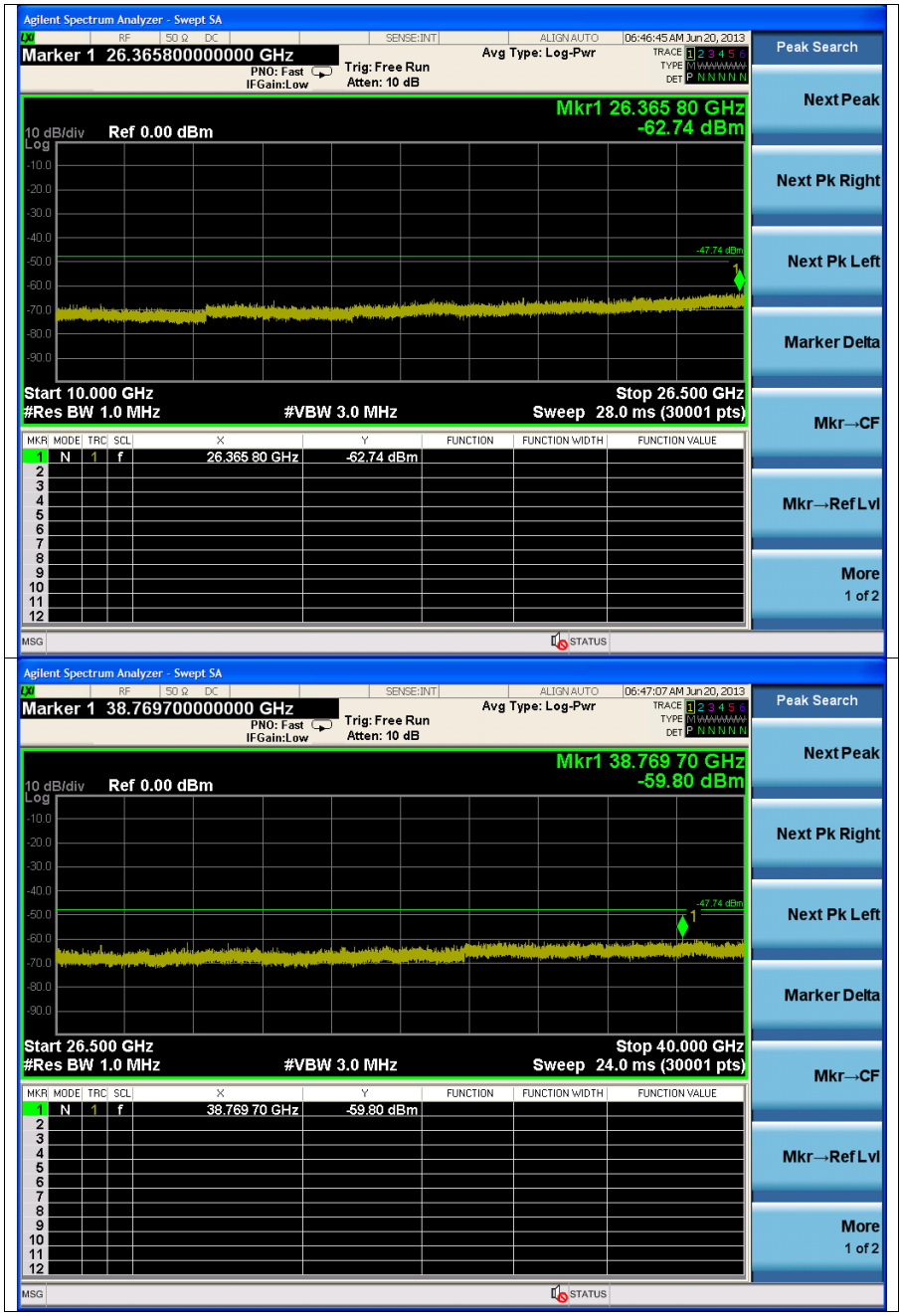


Note:
Offset (dB) = Attenuator (dB) + Cable loss (dB)
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	offset (dB)	Reading values (dB m)	Result (dB m)
3 761.10	-	Noise level	-
5 725.00	21.25	-63.23	-41.98
25 759.70	-	Noise level	-
38 972.20	-	Noise level	-

High Channel



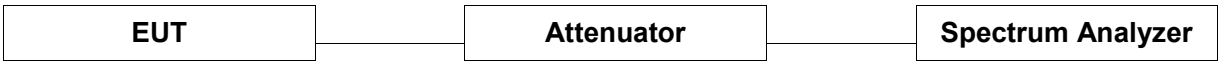


Note:
Offset (dB) = Attenuator (dB) + Cable loss (dB)
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (㎒)	offset (dB)	Reading values (dB m)	Result (dB m)
3 737.80	-	Noise level	-
5 850.00	21.39	-79.90	-58.51
26 365.80	-	Noise level	-
38 769.70	-	Noise level	-

3. 6 dB Bandwidth and 99% Bandwidth measurement

3.1. Test Setup



3.2. Limit

According to §15.247(a)(2), systems using digital modulation techniques may operate in the 902 ~928 ㎒, 2 400 ~ 2 483.5 ㎒, and 5 725 ~ 5 825 ㎒ bands. The minimum of 6 ㏈ Bandwidth shall be at least 500 ㎑

3.3. Test Procedure

3.3.1. 6 dB Bandwidth

All data rates and modes were investigated for this test. The full data for the worst case data rate are reported in this section.
The test follows section 8.0 of FCC KDB Publication 558074
Tests performed using section 8.1 Option 2.

- Option 2:
The automatic bandwidth measurement capability of the spectrum analyzer was used to perform the X dB bandwidth mod with X set to 6 ㏈, if the functionality described above(I.e., RBW = 100 ㎑, VBW ≥ 3 x RBW, peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be ≥ 6 ㏈

3.3.2. 99% bandwidth

1. Set the spectrum analyzer as SPAN = 2 or 3 times necessary bandwidth, RBW = approximately 1 % of the SPAN, VBW is set to 3 times RBW, Detector = peak, Trace mode = max hold.
2. Measure lowest and highest frequencies are placed in a running sum until 0.5 % and 99.5 % of the total is reached.
3. Record the SPAN between the lowest and the highest frequencies for the 99 % occupied bandwidth.
4. Repeat until all the test channels are investigated.

3.4. Test Results

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

- ANT0

Operation Mode	Data Rate (Mbps)	Channel	Channel Frequency (㎒)	6 ㏈ Bandwidth (㎒)	99 % Bandwidth (㎒)
DSSS (802.11b)	1	Low	2 412	7.59	12.35
		Middle	2 437	7.14	12.35
		High	2 462	7.05	12.22
OFDM (802.11g)	6	Low	2 412	16.58	16.47
		Middle	2 437	16.53	16.48
		High	2 462	16.50	16.45
OFDM (802.11n_HT20)	MCS0	Low	2 412	17.71	17.64
		Middle	2 437	17.73	17.65
		High	2 462	17.70	17.65
OFDM (802.11n_HT40)	MCS0	Low	2 422	35.43	36.12
		Middle	2 437	35.42	36.28
		High	2 452	35.43	36.18
OFDM (802.11a)	6	Low	5 745	16.47	16.40
		Middle	5 785	16.46	16.40
		High	5 825	16.46	16.40
OFDM (802.11n_HT20)	MCS0	Low	5 745	17.68	17.60
		Middle	5 785	17.66	17.61
		High	5 825	17.71	17.62
OFDM (802.11n_HT40)	MCS0	Low	5 755	34.04	35.58
		High	5 795	33.79	35.65

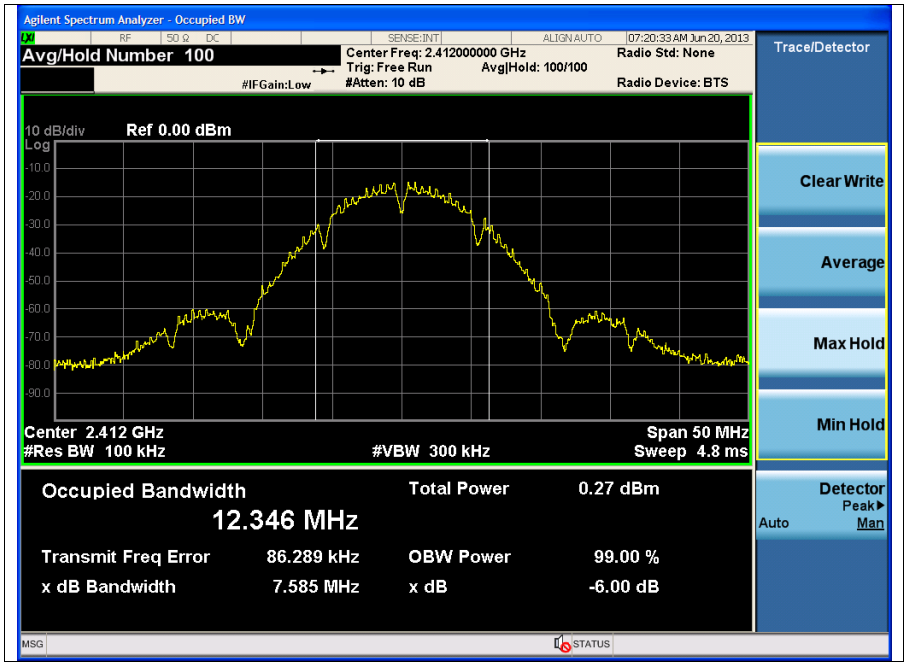
- ANT1

Operation Mode	Data Rate (Mbps)	Channel	Channel Frequency (㎒)	6 ㏈ Bandwidth (㎒)	99 % Bandwidth (㎒)
DSSS (802.11b)	1	Low	2 412	7.59	12.31
		Middle	2 437	7.62	12.20
		High	2 462	7.14	12.19
OFDM (802.11g)	6	Low	2 412	16.50	16.46
		Middle	2 437	16.52	16.46
		High	2 462	16.49	16.47
OFDM (802.11n_HT20)	MCS0	Low	2 412	17.78	17.67
		Middle	2 437	17.80	17.68
		High	2 462	17.72	17.65
OFDM (802.11n_HT40)	MCS0	Low	2 422	35.21	36.15
		Middle	2 437	36.11	36.27
		High	2 452	35.39	36.14
OFDM (802.11a)	6	Low	5 745	16.53	16.40
		Middle	5 785	16.46	16.40
		High	5 825	16.48	16.40
OFDM (802.11n_HT20)	MCS0	Low	5 745	17.75	17.60
		Middle	5 785	17.66	17.58
		High	5 825	17.67	17.60
OFDM (802.11n_HT40)	MCS0	Low	5 755	33.18	35.57
		High	5 795	33.68	35.61

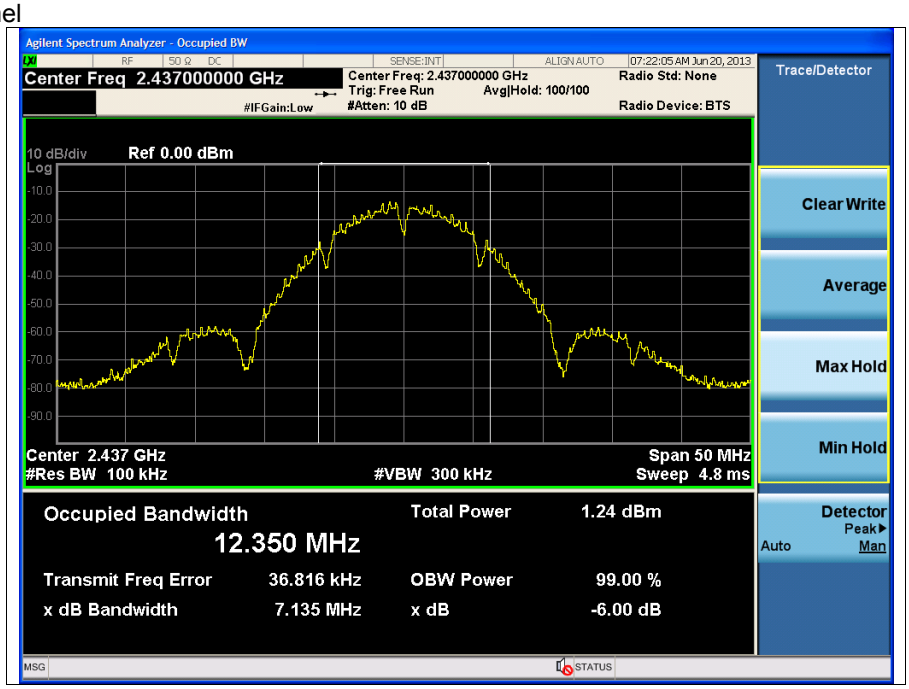
ANT0

DSSS : 802.11b

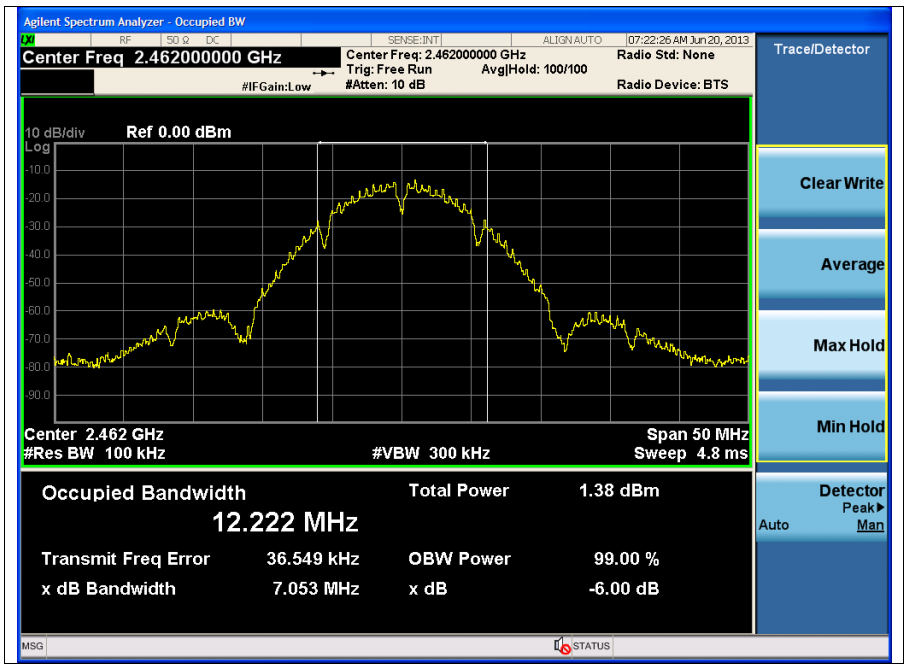
Low Channel



Middle Channel

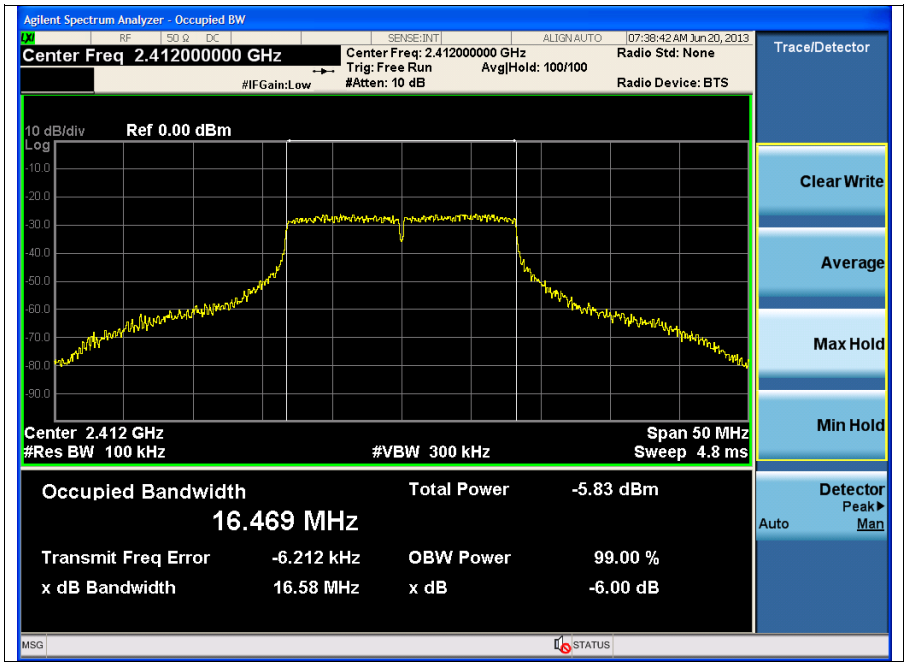


High Channel

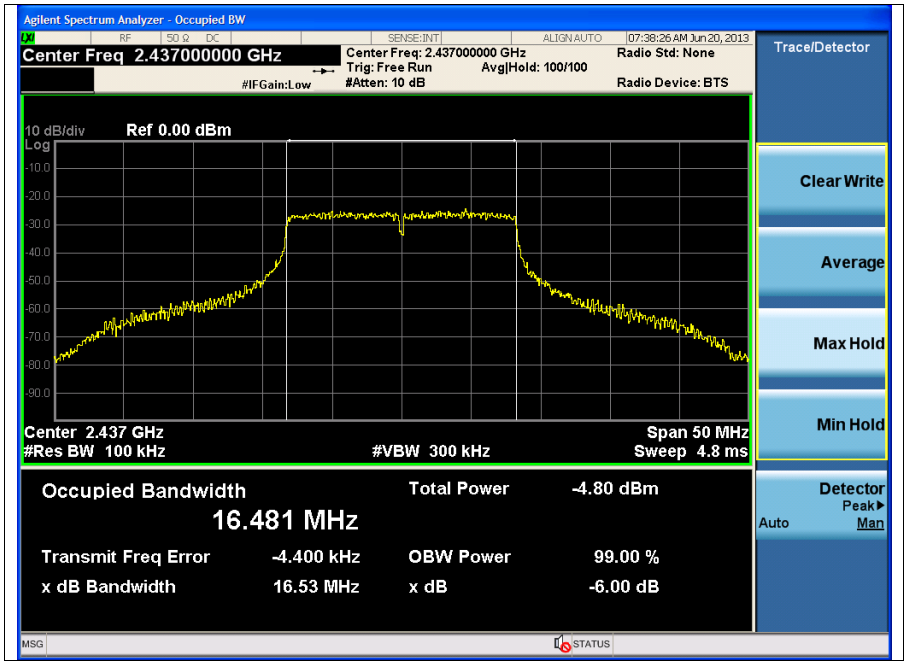


OFDM : 802.11g

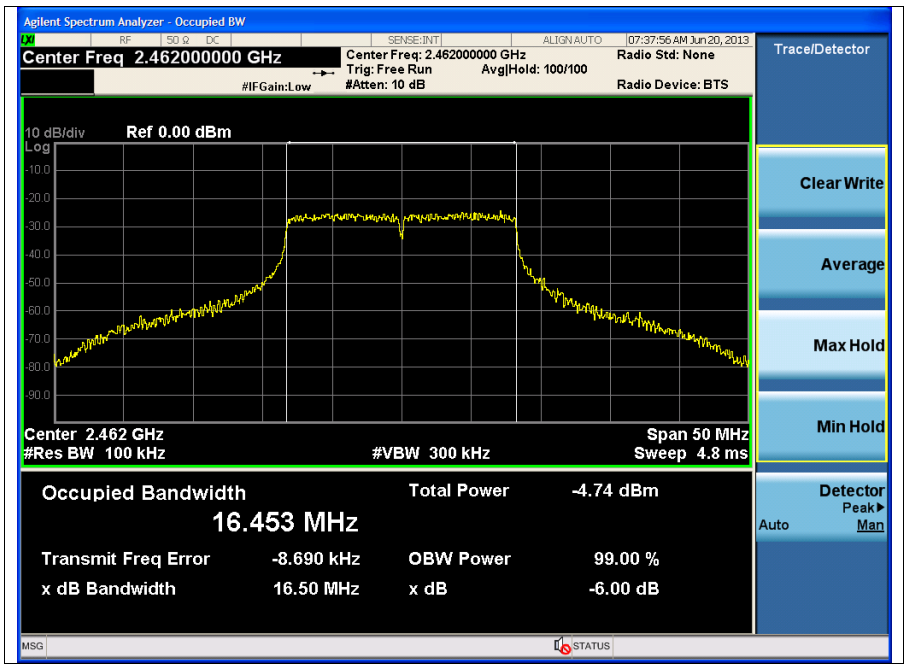
Low Channel



Middle Channel

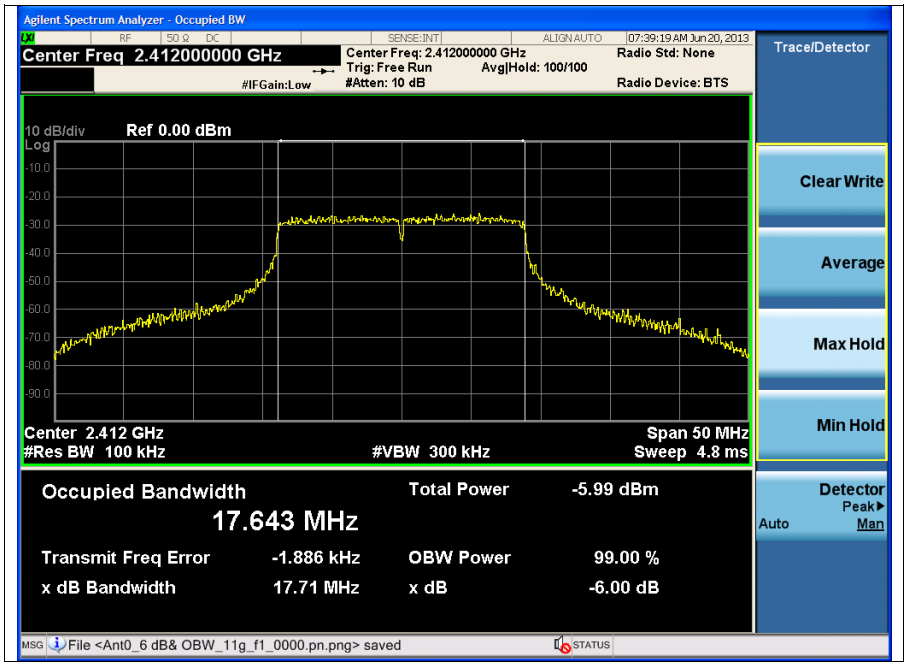


High Channel

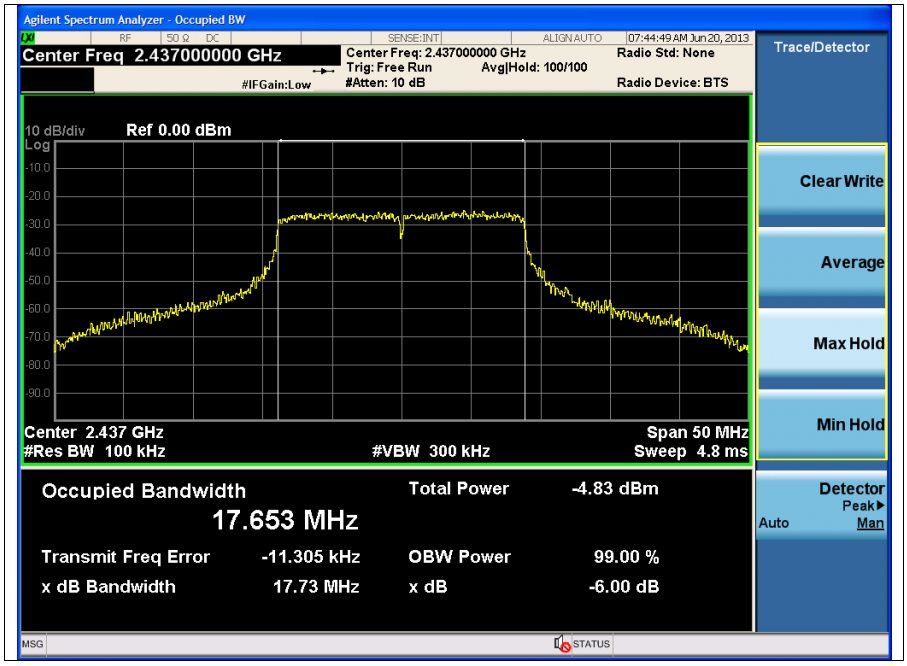


OFDM : 802.11n_HT20

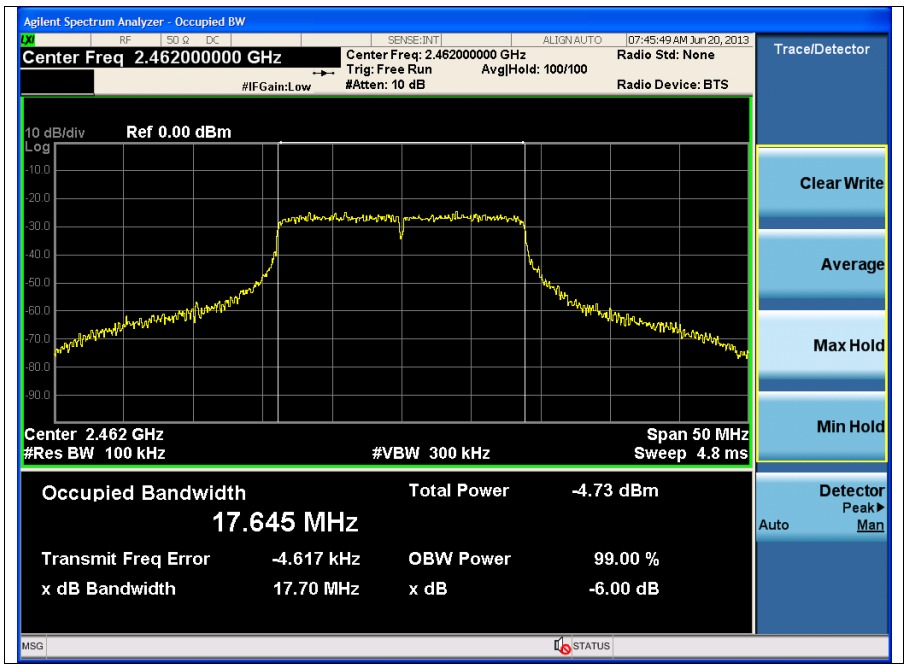
Low Channel



Middle Channel

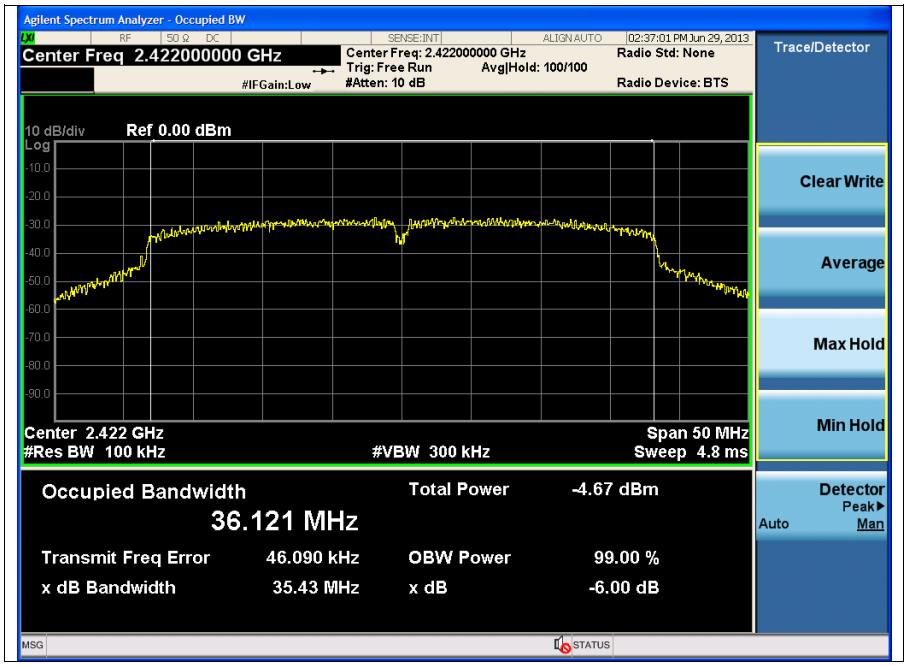


High Channel

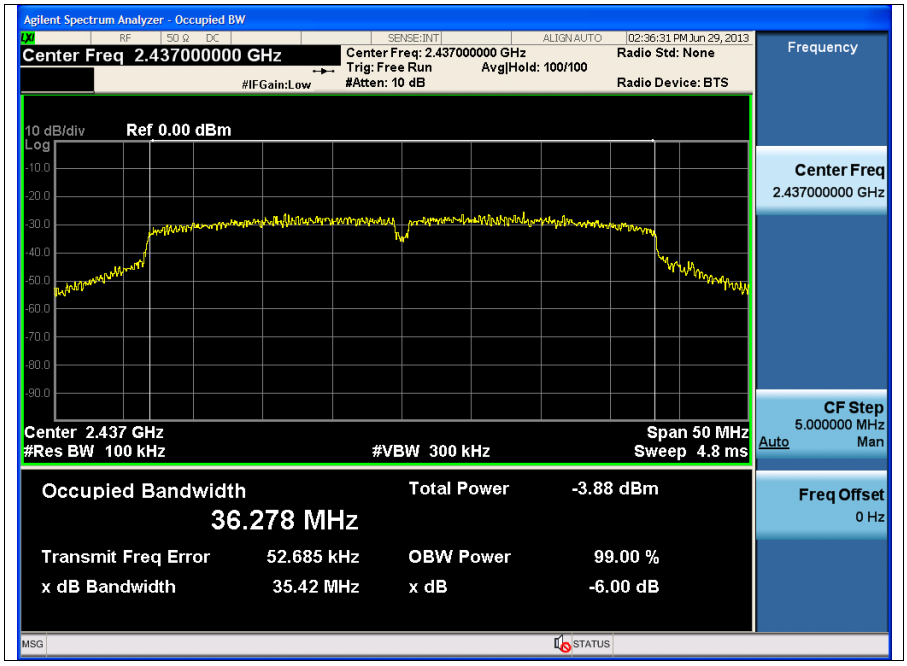


OFDM : 802.11n_HT40

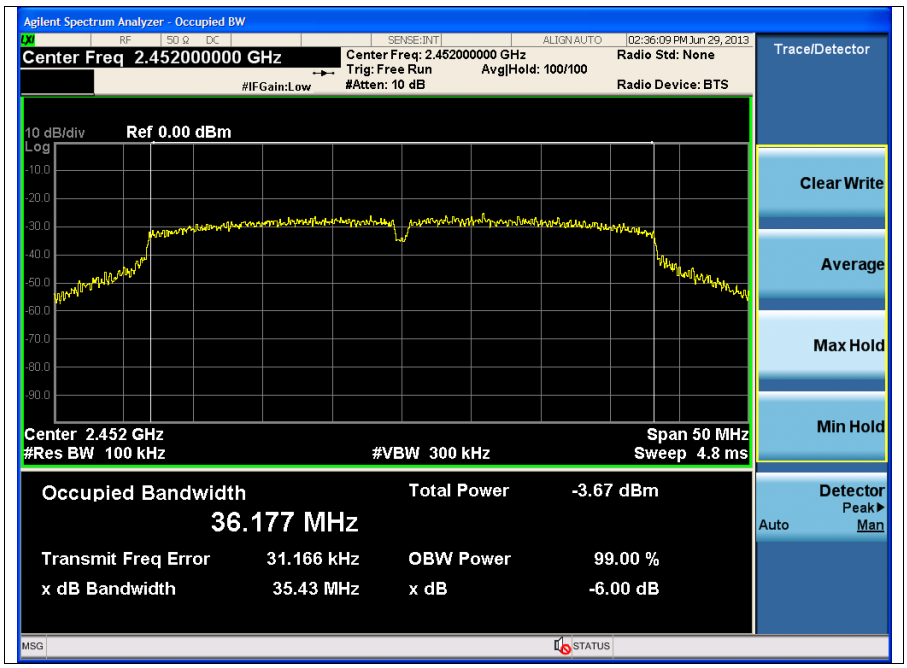
Low Channel



Middle Channel

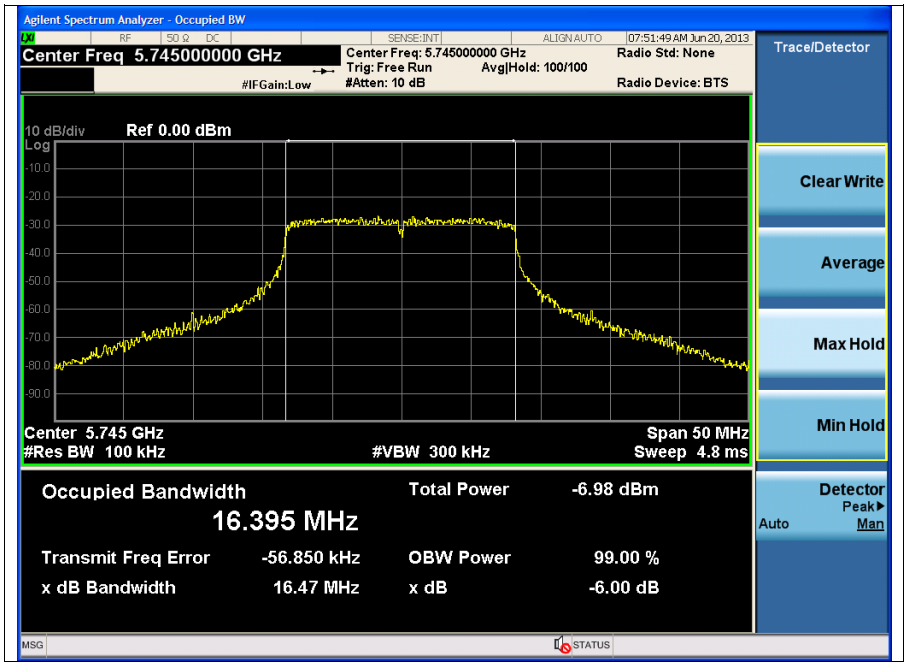


High Channel

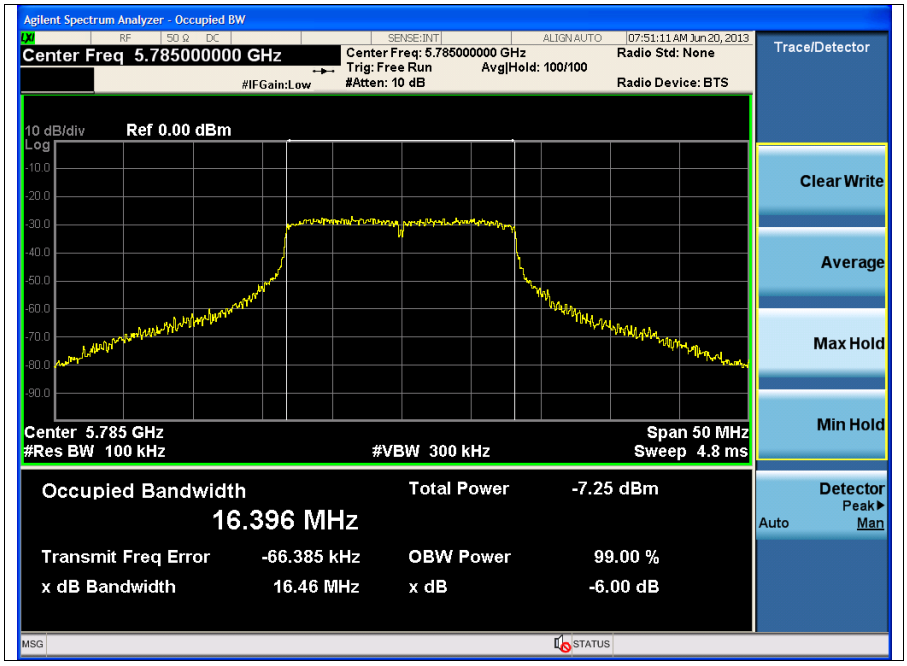


OFDM : 802.11a

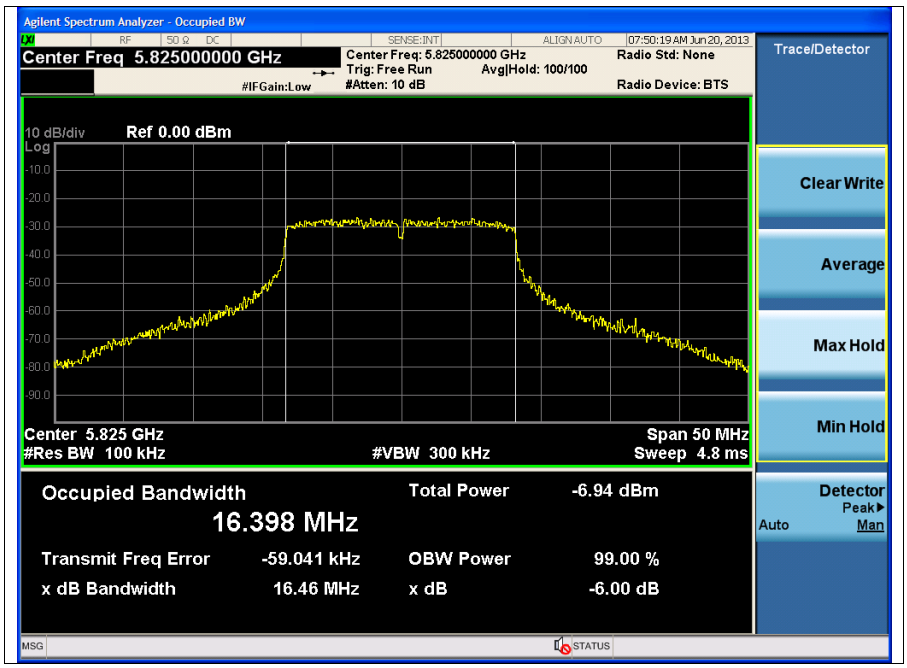
Low Channel



Middle Channel

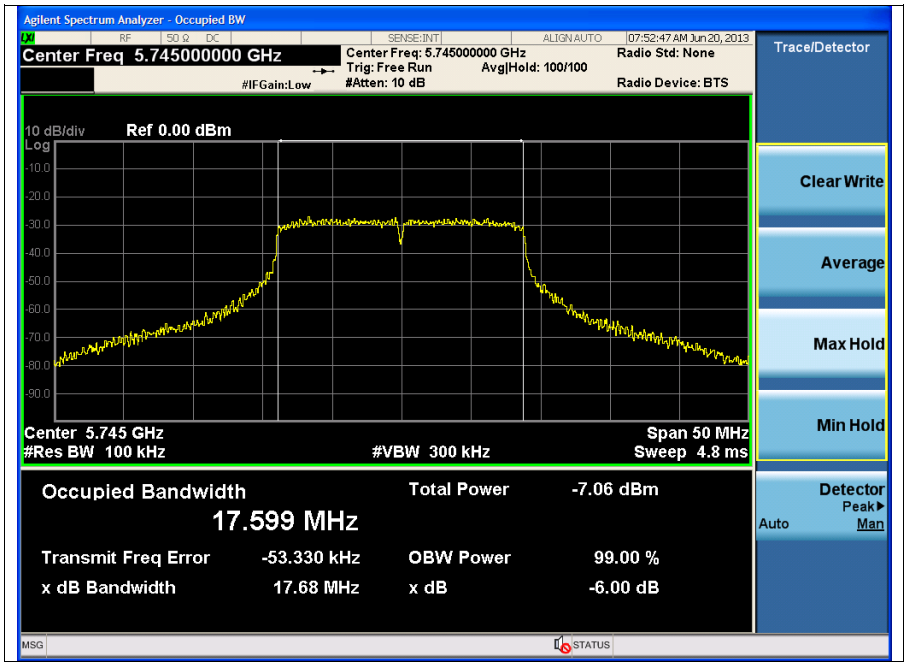


High Channel

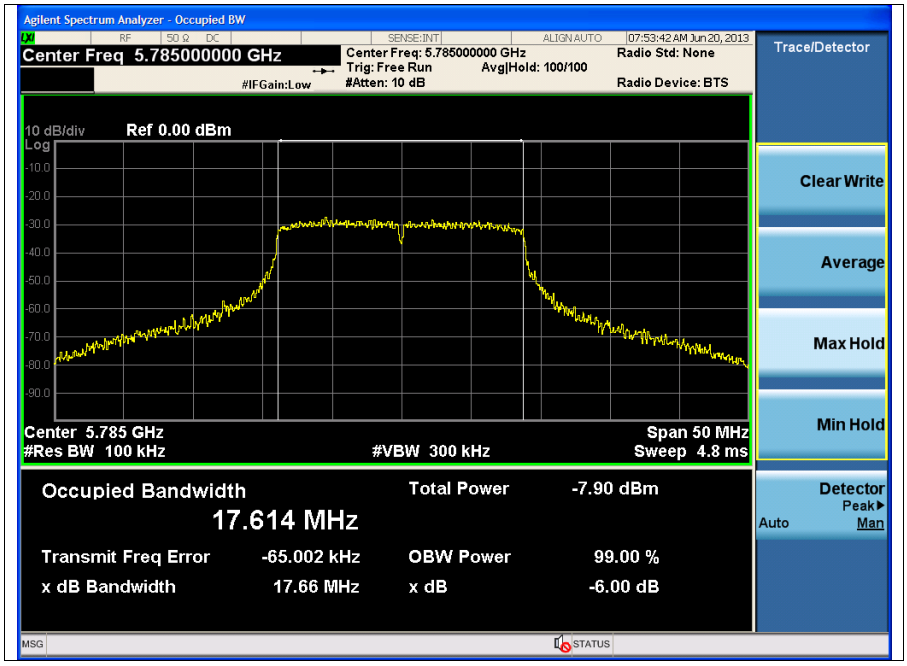


OFDM : 802.11n_HT20

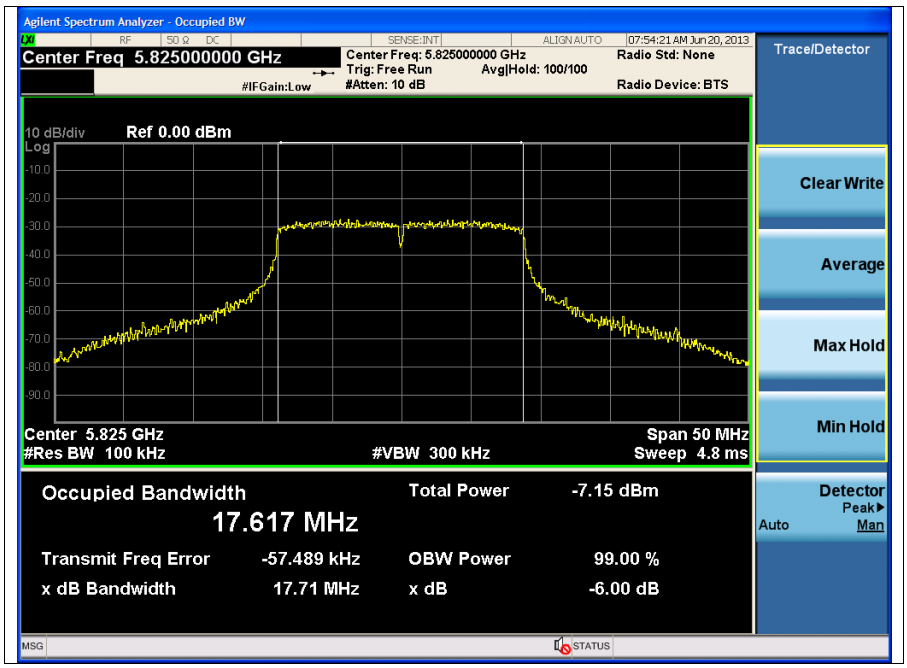
Low Channel



Middle Channel

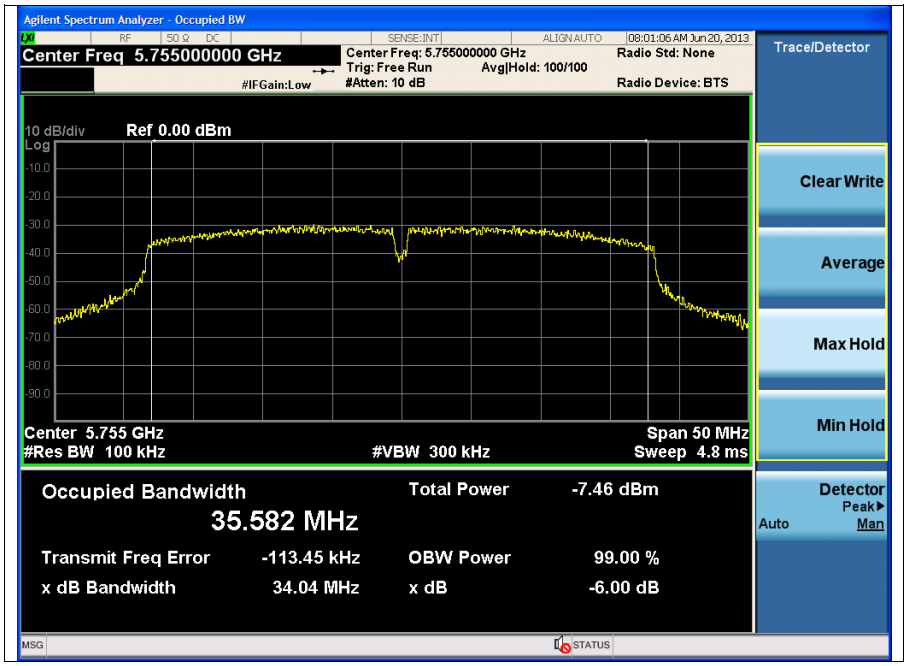


High Channel



OFDM : 802.11n_HT40

Low Channel



High Channel