

4. 6 dB Bandwidth and 99% Bandwidth measurement

4.1. Test setup



4.2. Limit

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

4.3. Test procedure

4.3.1. 6 dB bandwidth

1. The 6 dB band width was measured with a spectrum analyzer connected to RF antenna connector(conducted measurement) while EUT was operating in transmit mode at the appropriate center frequency. The analyzer center frequency was set to the EUT carrier frequency, using the analyzer. Display Line and Marker Delta functions, the 6 dB band width of the emission was determined.
2. The bandwidth of the fundamental frequency was measured with the spectrum analyzer
 - 2 GHz: RBW = 100 kHz, VBW = 100 kHz, Span = 50 MHz, Sweep = sweep.
 - 5 GHz: RBW = 100 kHz, VBW = 100 kHz, Span = 50 MHz, Sweep = sweep.In case of 11n_HT40 mode, same to RBW and VBW except for Span = 100 MHz

4.3.2. 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 = sampling, 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.

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4.4. Test result

Ambient temperature : (24 ± 2) °C
Relative humidity : 49 % R.H.

Operation Mode	Frequency (MHz)	6 dB Bandwidth (MHz)	99% Bandwidth (MHz)
DSSS 802.11b	2 412	10.25	13.78
	2 437	10.20	13.79
	2 462	10.20	13.80
OFDM 802.11g	2 412	16.45	17.62
	2 437	16.45	17.56
	2 462	16.45	17.57
OFDM 802.11n_HT20	2 412	17.65	18.54
	2 437	17.50	18.52
	2 462	17.65	18.53
OFDM 802.11a	5 745	16.30	17.03
	5 785	16.40	17.00
	5 825	16.40	17.03
OFDM 802.11n_HT20	5 745	17.25	18.05
	5 785	17.55	18.05
	5 825	17.30	18.05
OFDM 802.11n_HT40	5 755	35.90	36.75
	5 795	35.90	36.67

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6 dB Bandwidth

2.4 GHz

802.11b

Low channel



Middle channel



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High channel



802.11g

Low channel



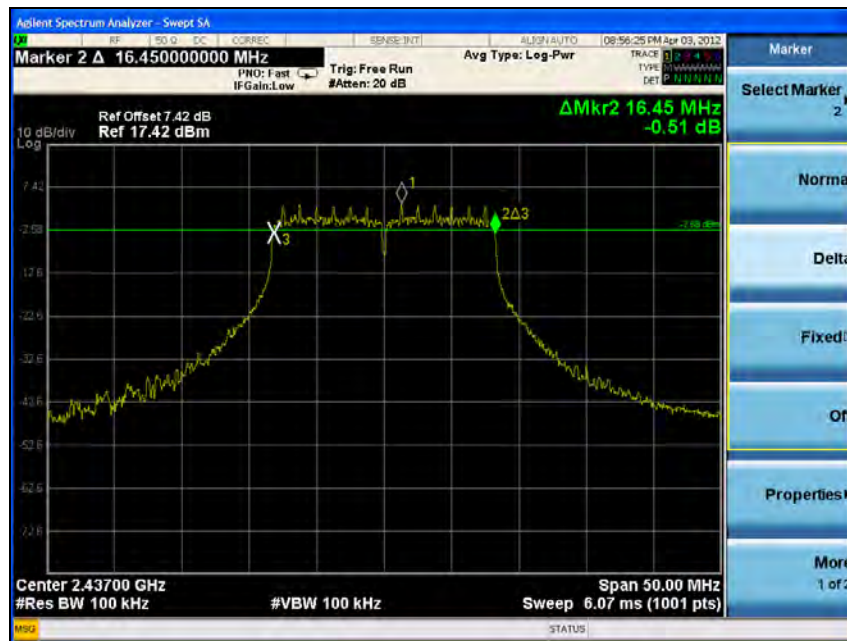
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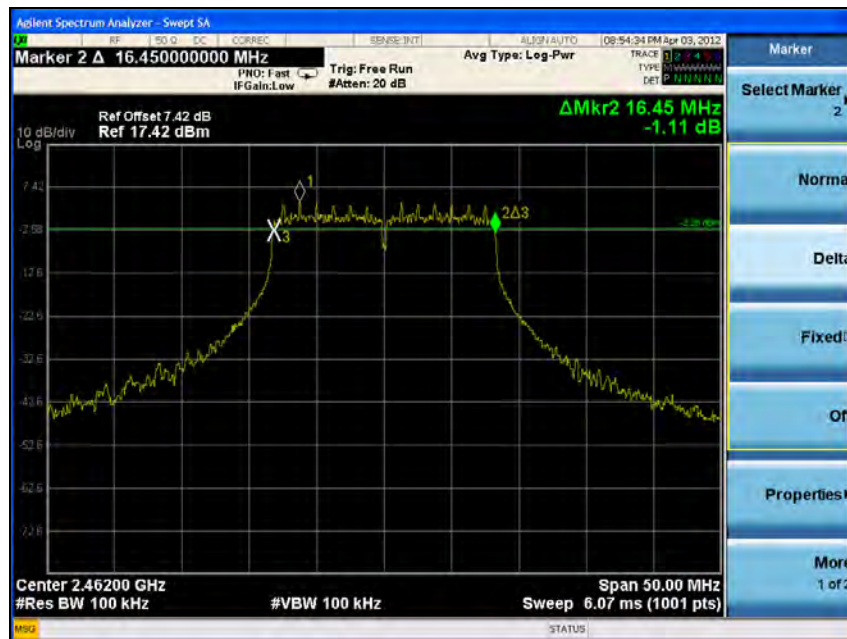
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Middle channel



High channel



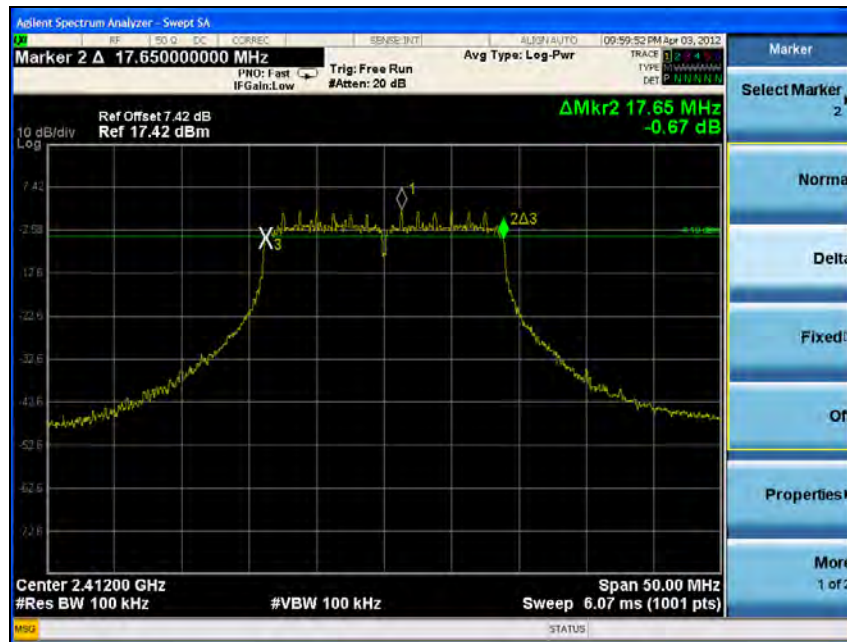
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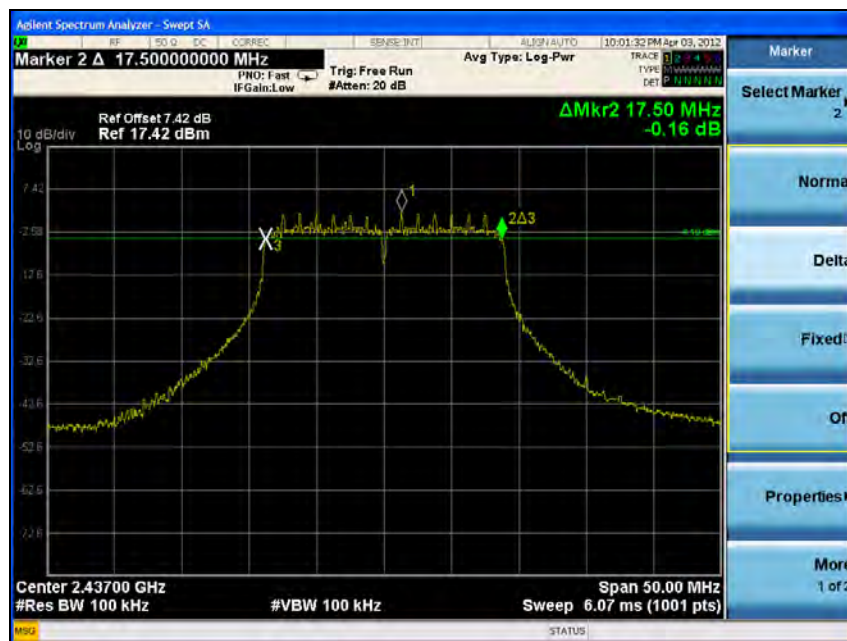
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802.11n_HT20 Low channel



Middle channel



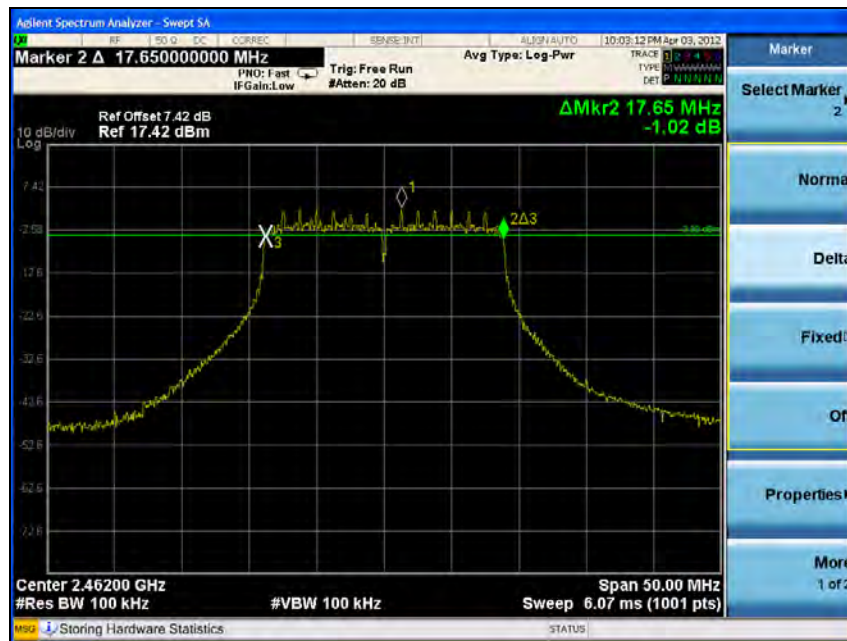
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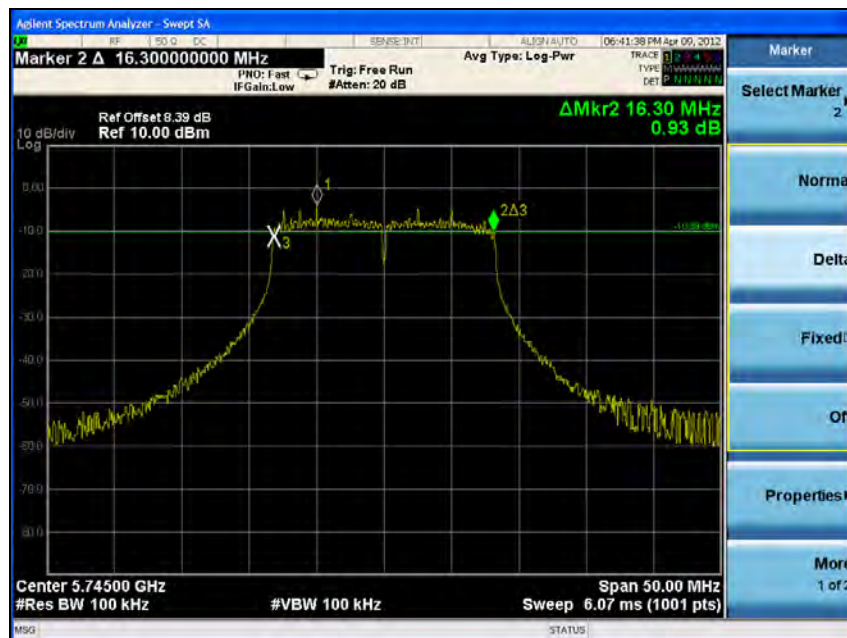
High channel



5.8GHz

802.11a

Low channel



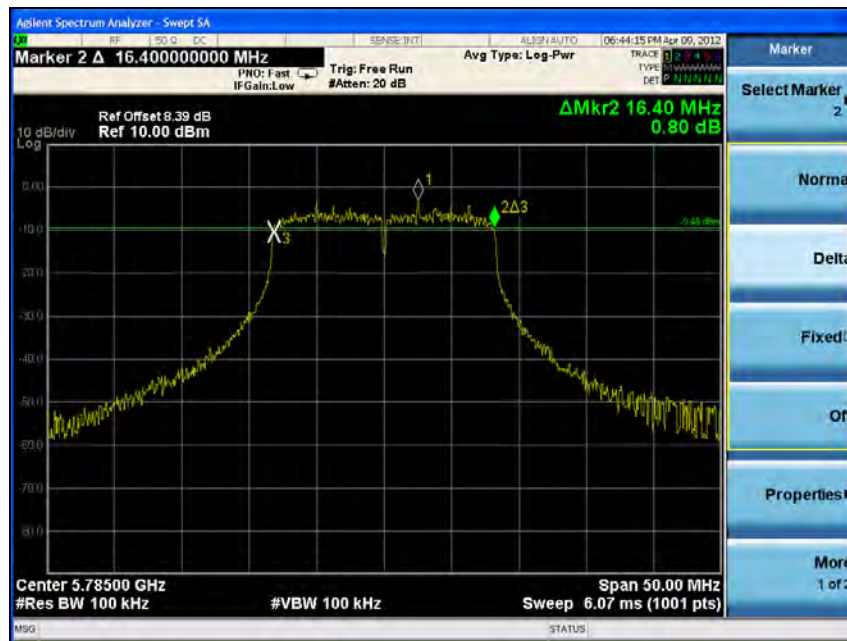
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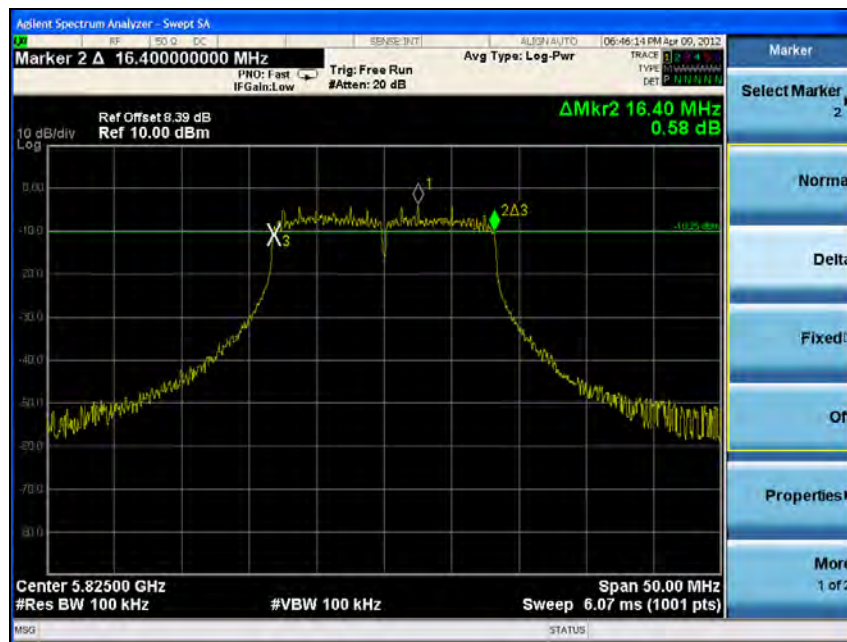
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Middle channel



High channel



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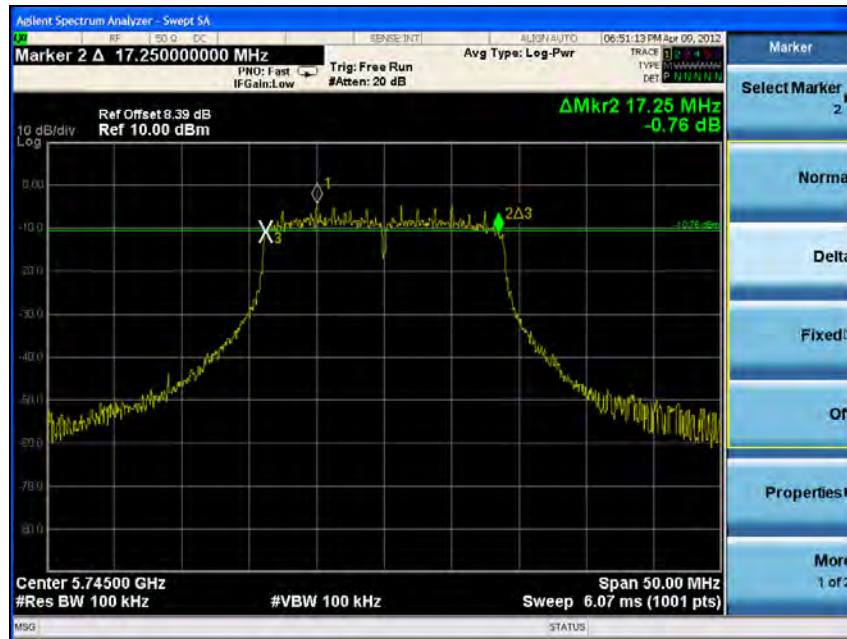
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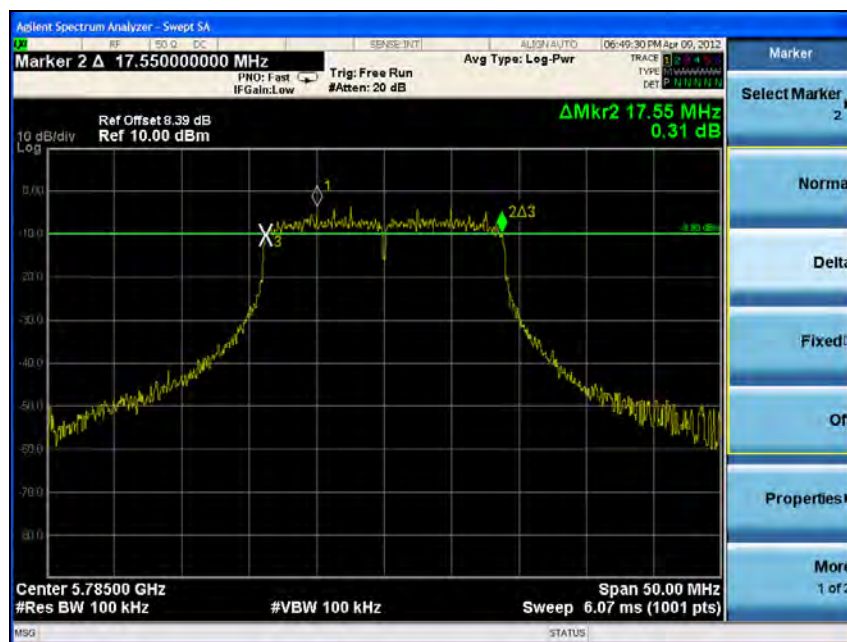
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802.11n_HT20

Low channel



Middle channel



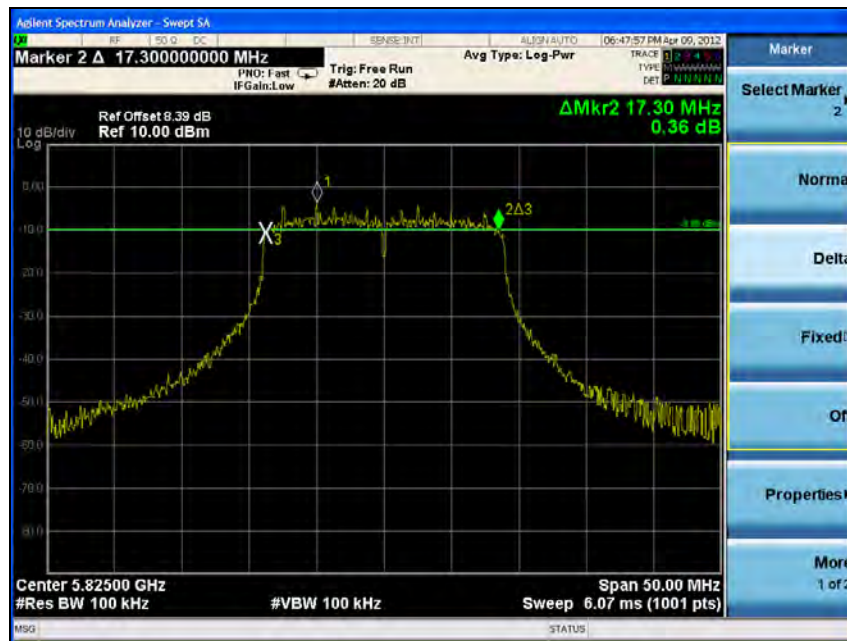
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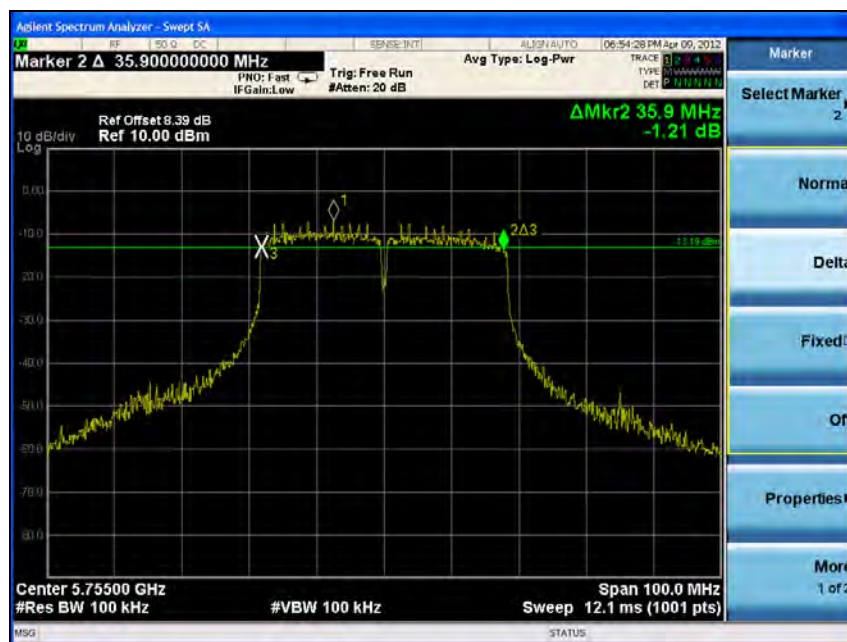
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High channel



802.11n_HT40

Low channel



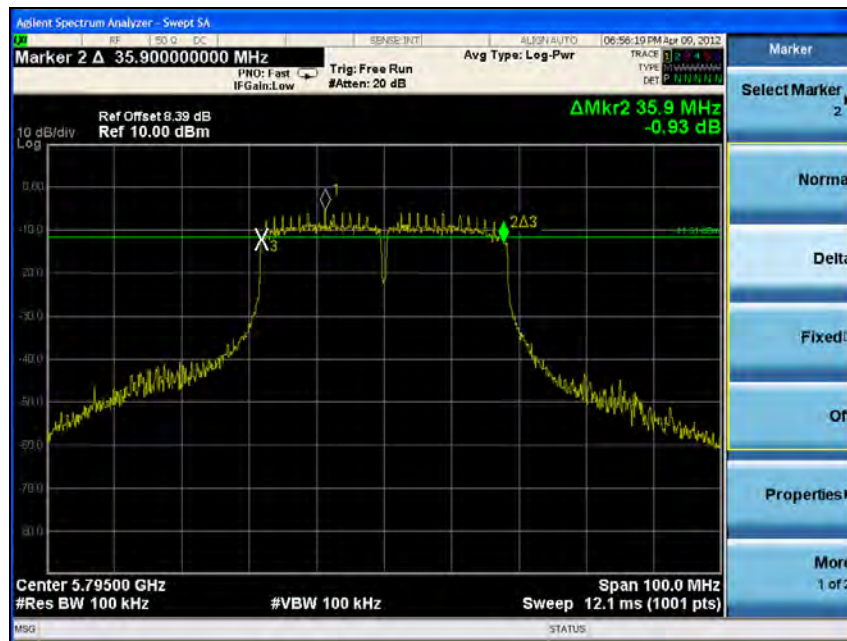
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High channel



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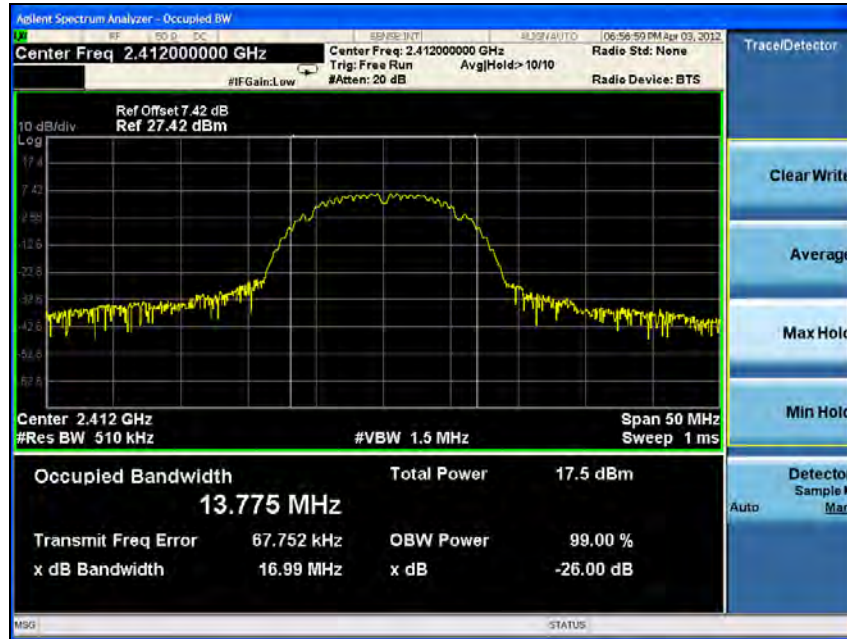
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99% Bandwidth

2.4 GHz

802.11b

Low channel



Middle channel



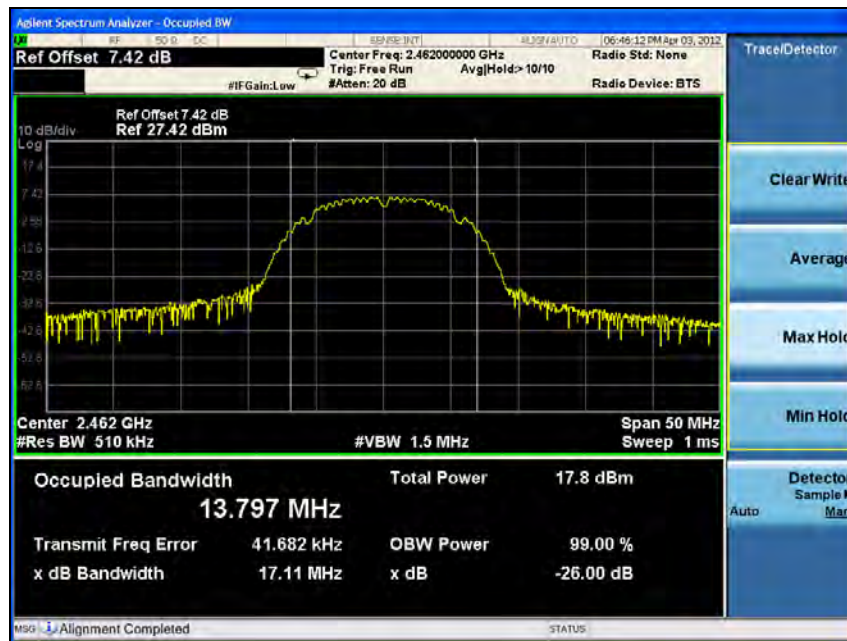
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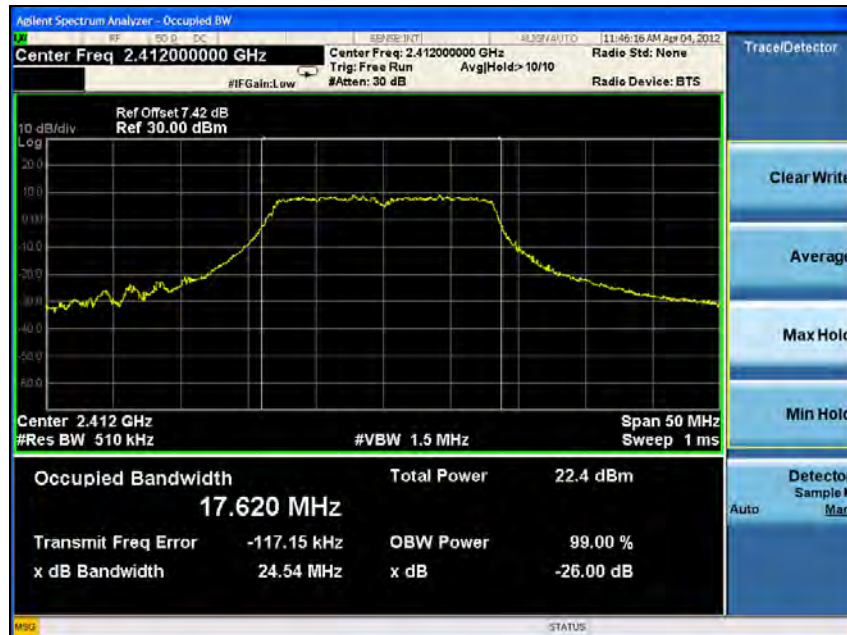
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High channel



802.11g

Low channel



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Middle channel



High channel



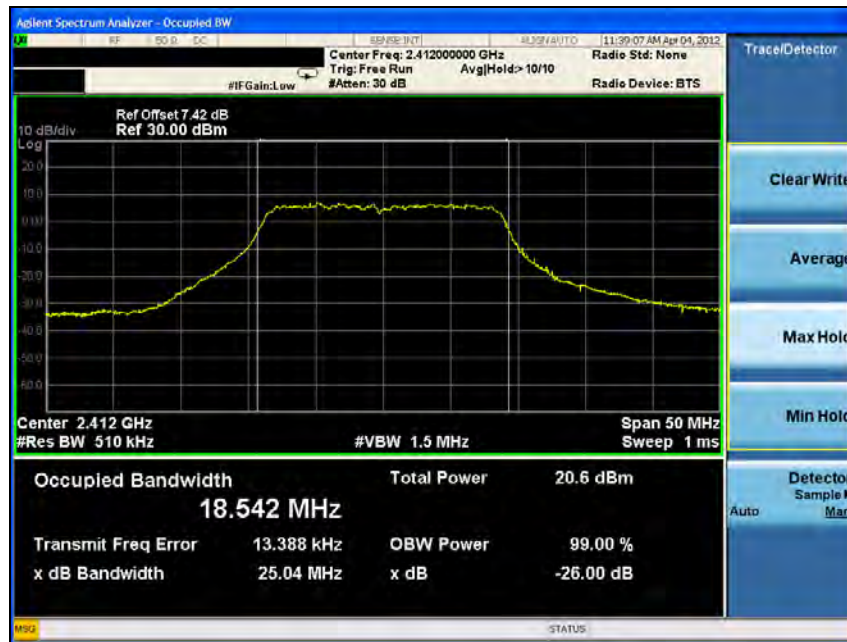
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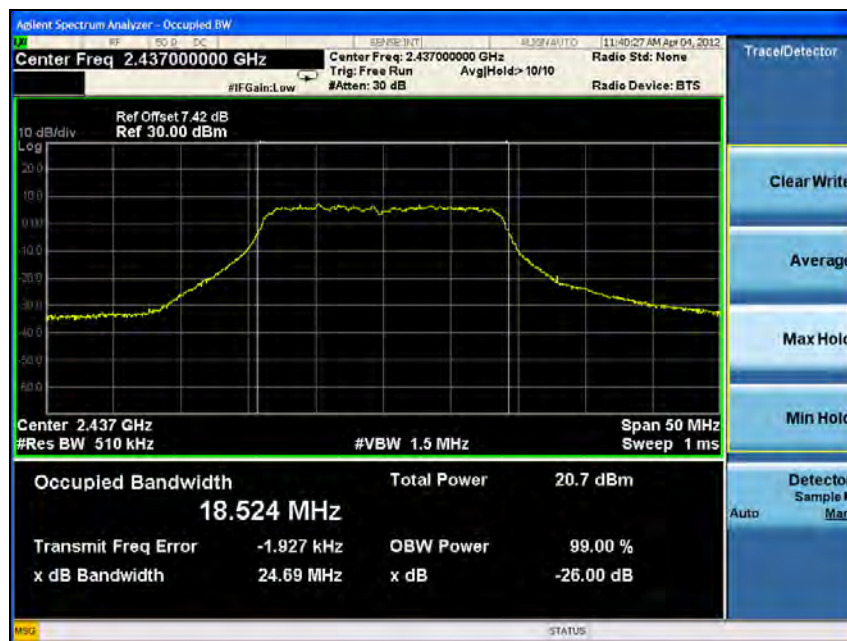
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802.11n_HT20 Low channel



Middle channel



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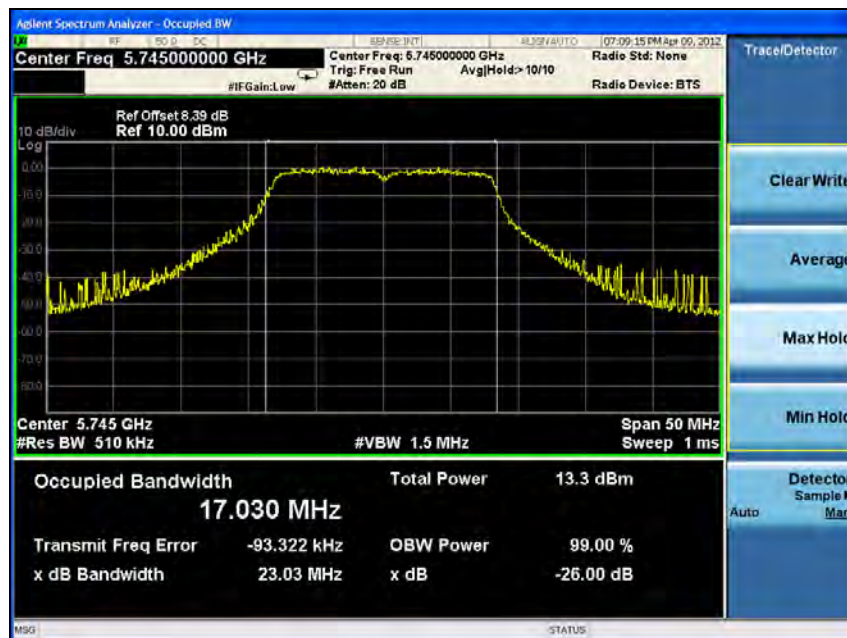
High channel



5.8GHz

802.11a

Low channel



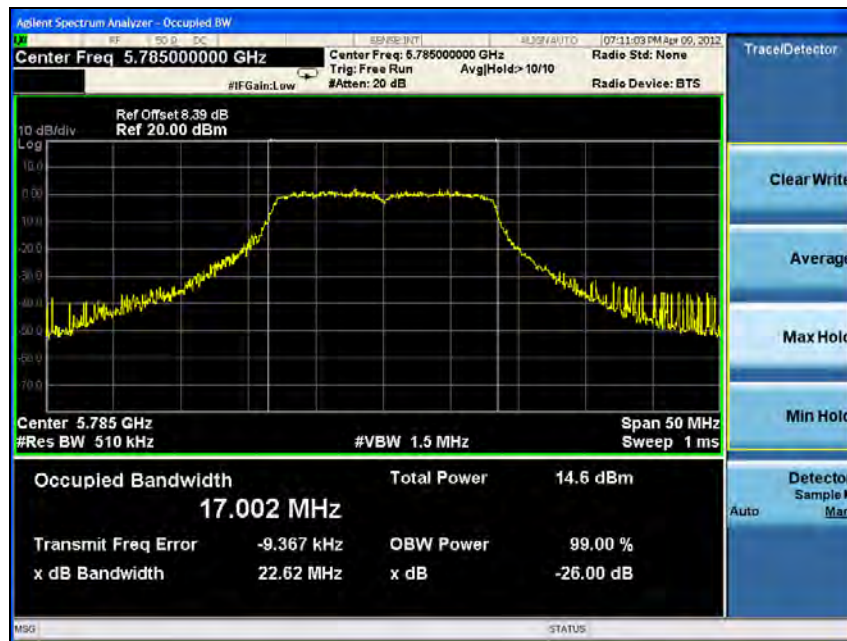
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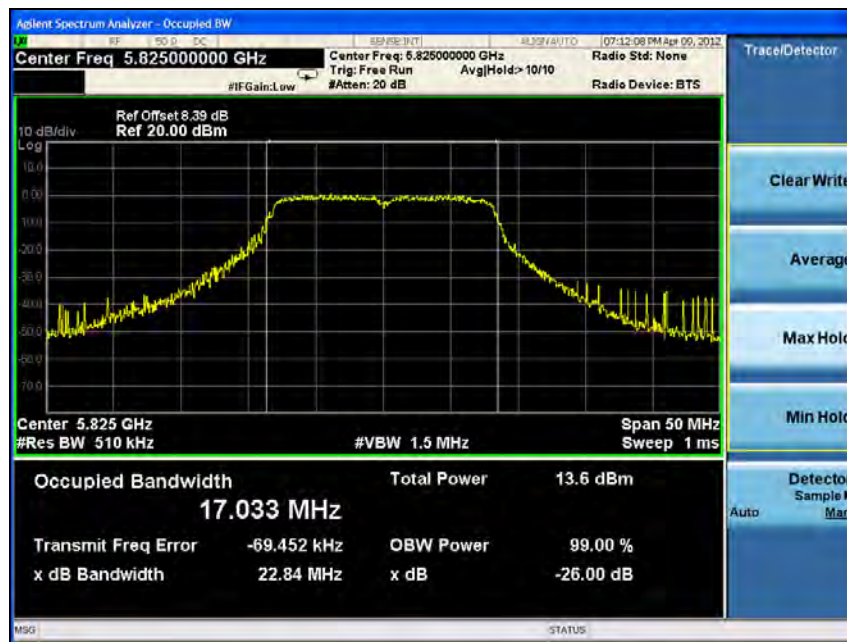
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Middle channel



High channel



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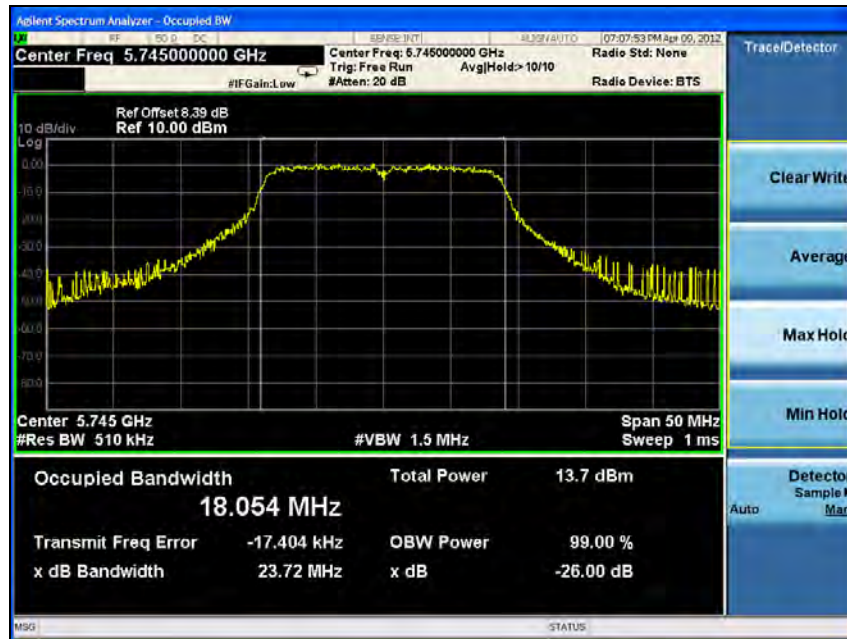
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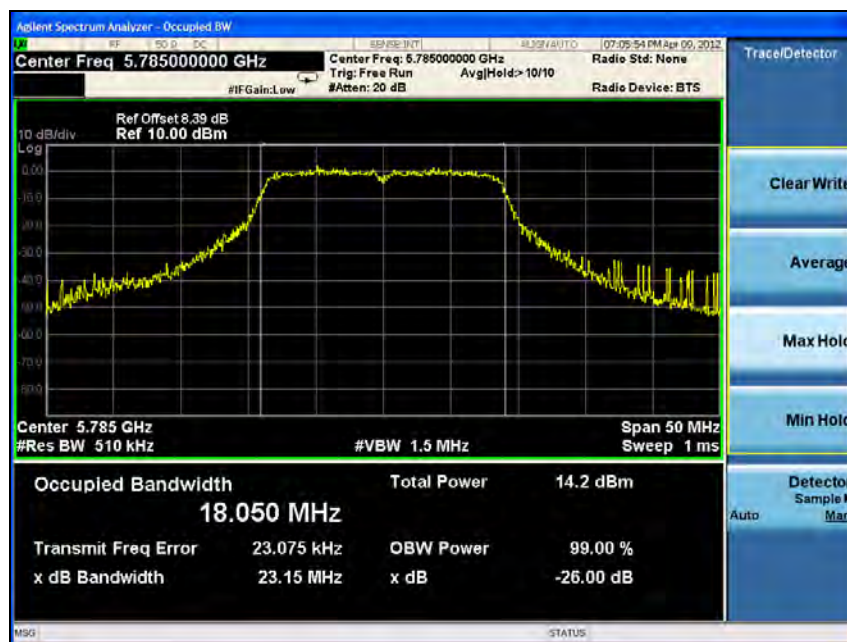
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802.11n_HT20

Low channel



Middle channel



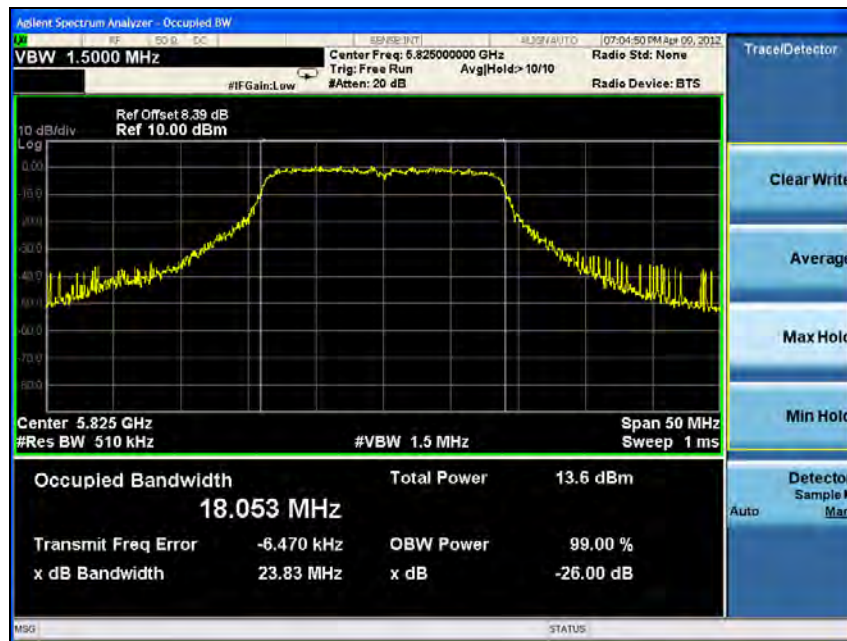
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High channel



802.11n_HT40

Low channel



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High channel



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