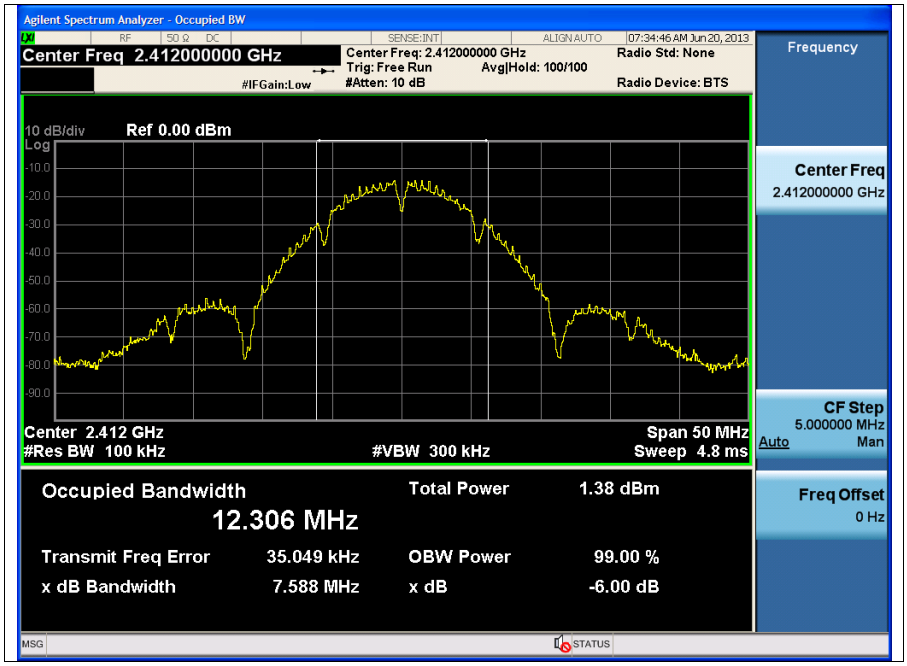
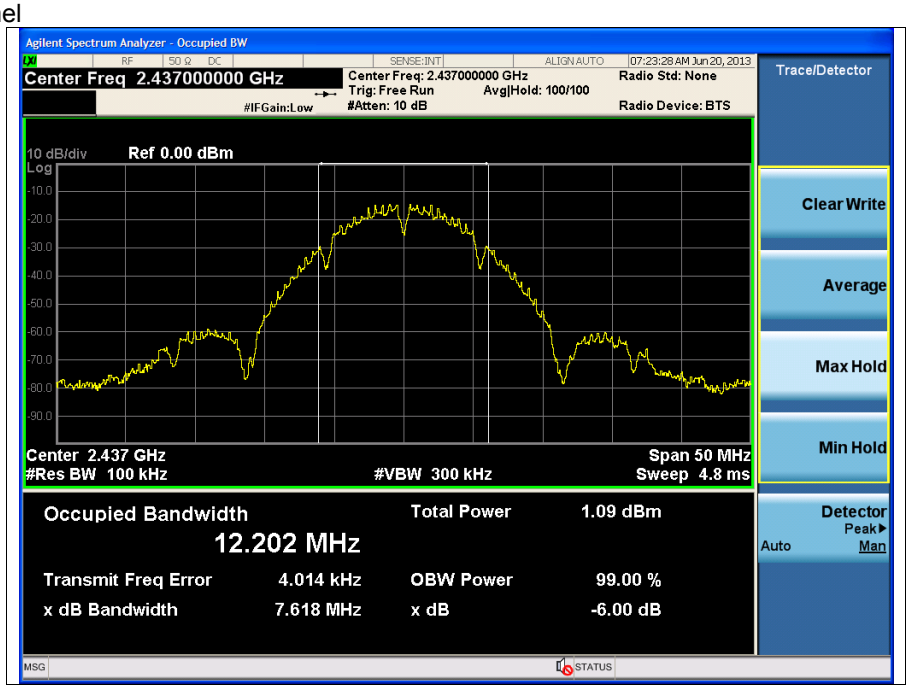
ANT1

DSSS : 802.11b

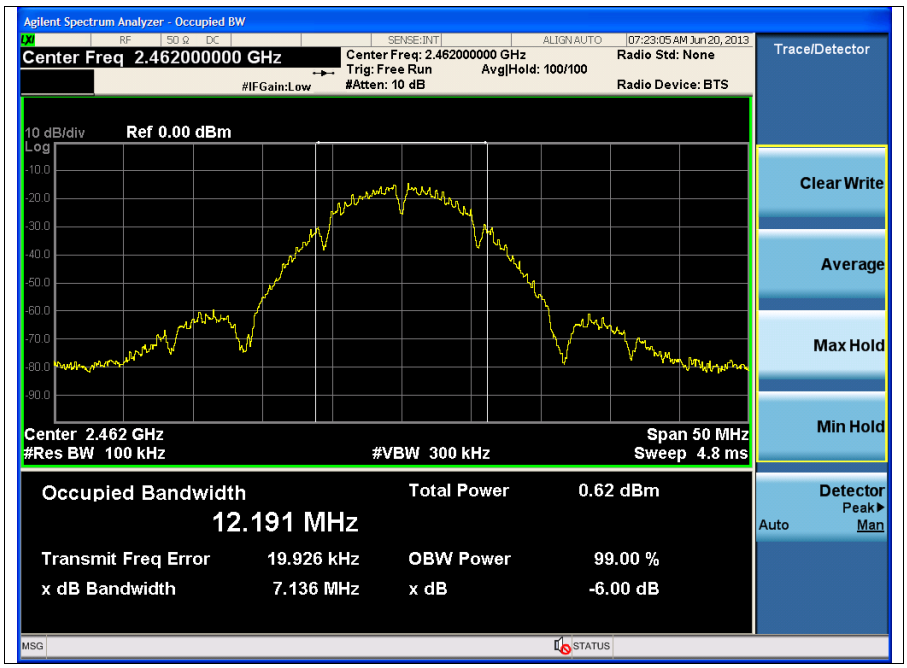
Low Channel



Middle Channel

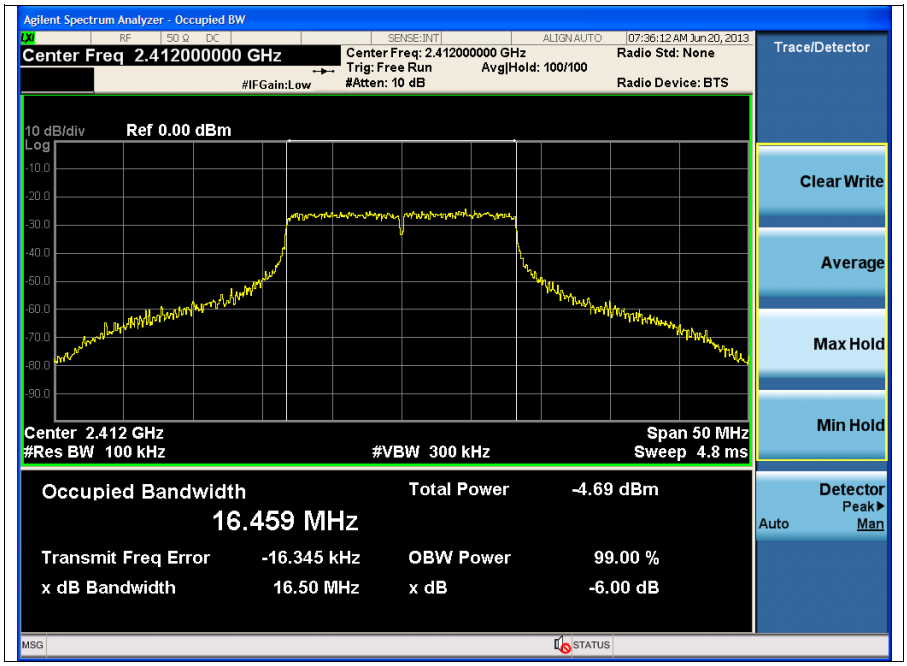


High Channel

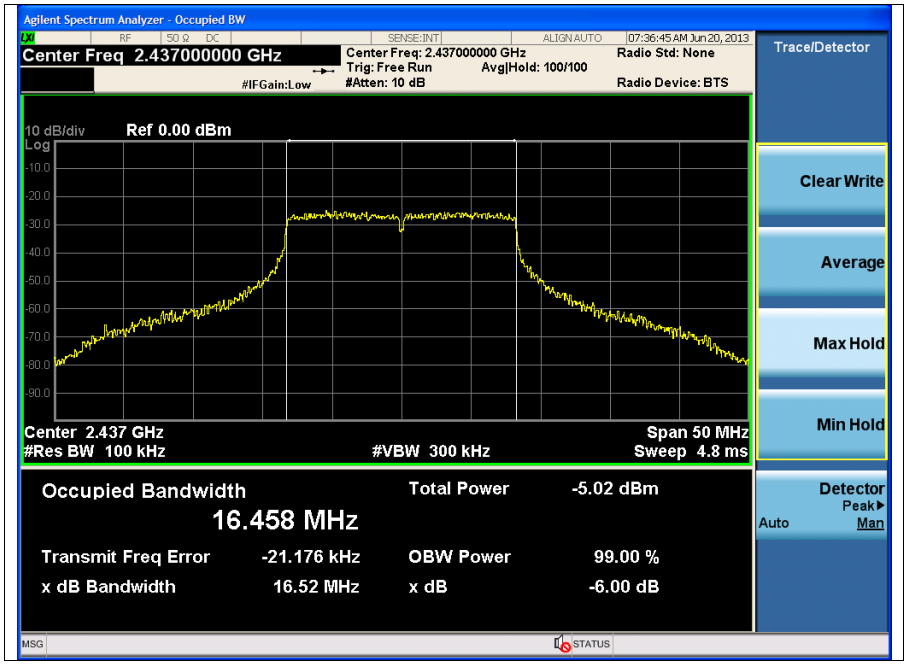


OFDM : 802.11g

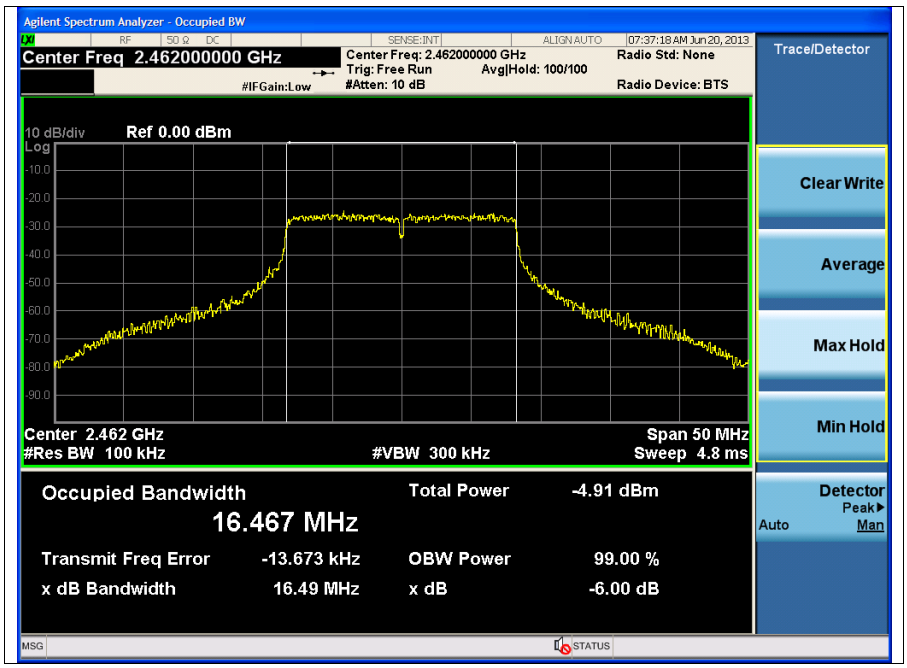
Low Channel



Middle Channel

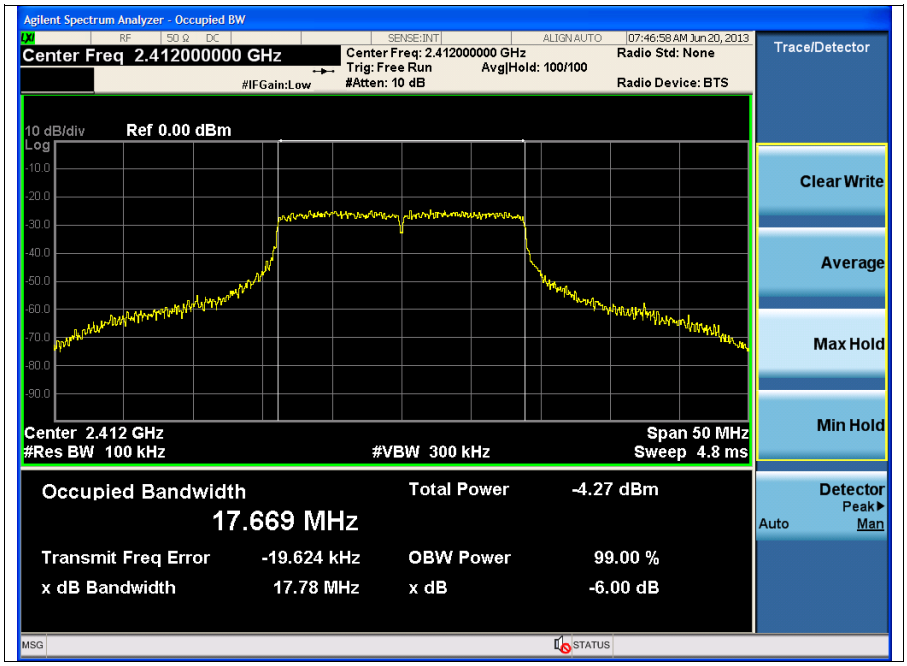


High Channel

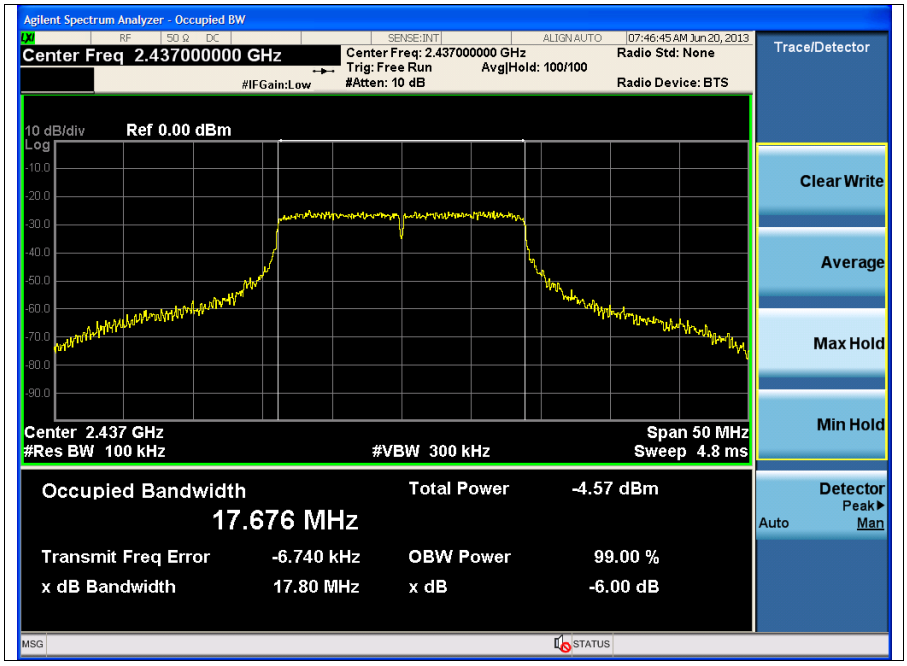


OFDM : 802.11n_HT20

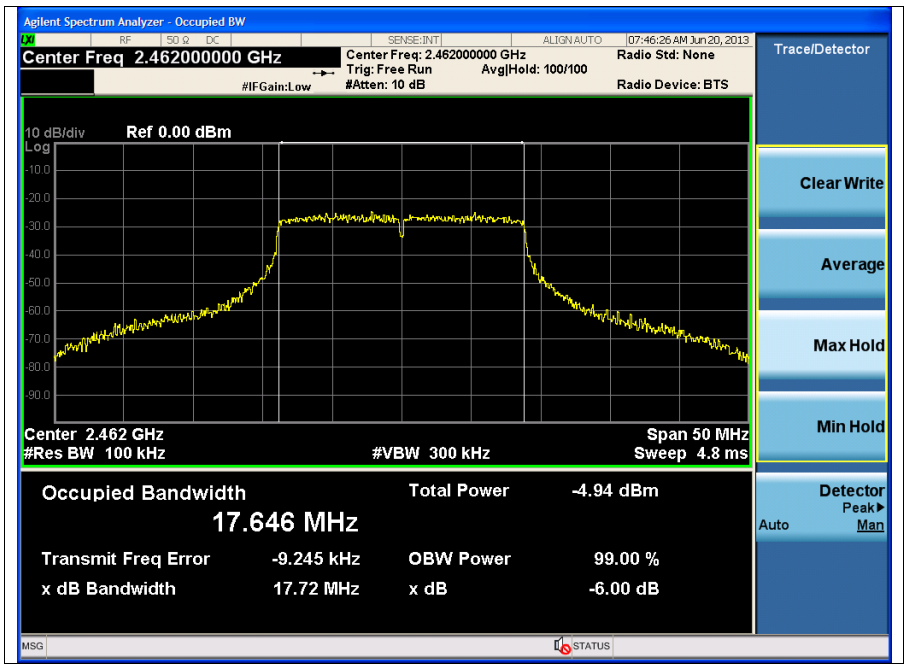
Low Channel



Middle Channel

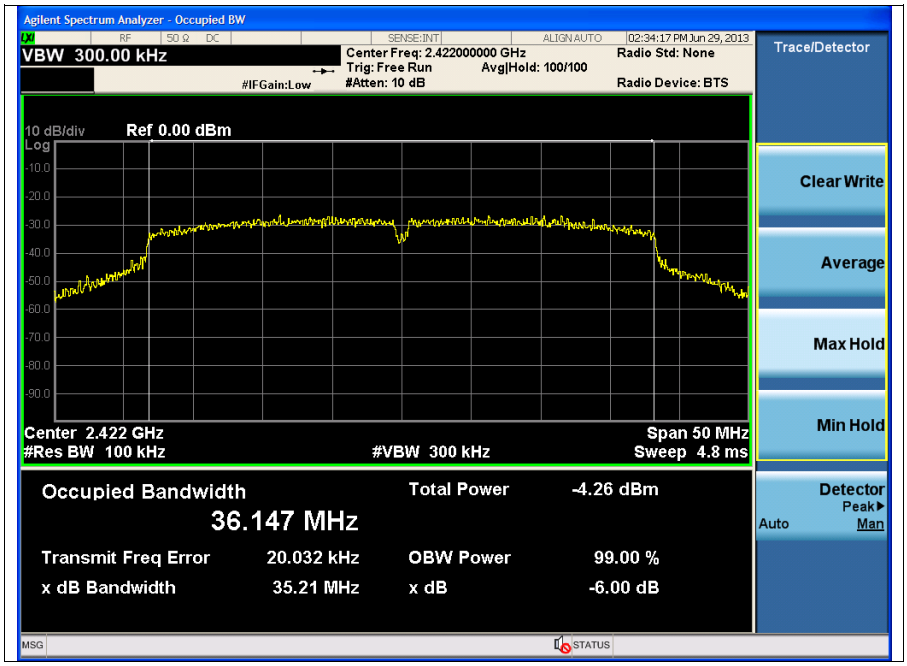


High Channel

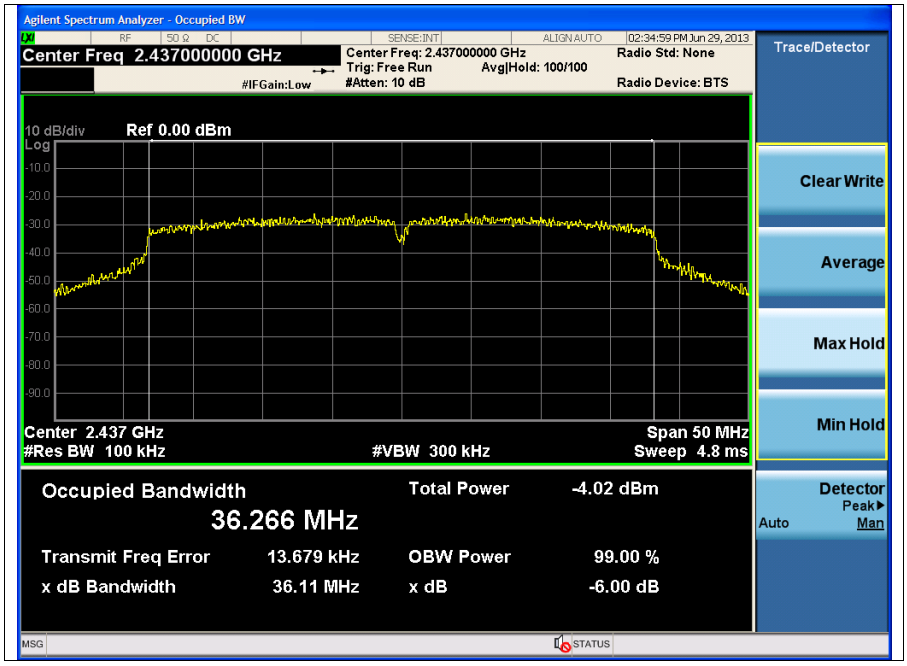


OFDM : 802.11n_HT40

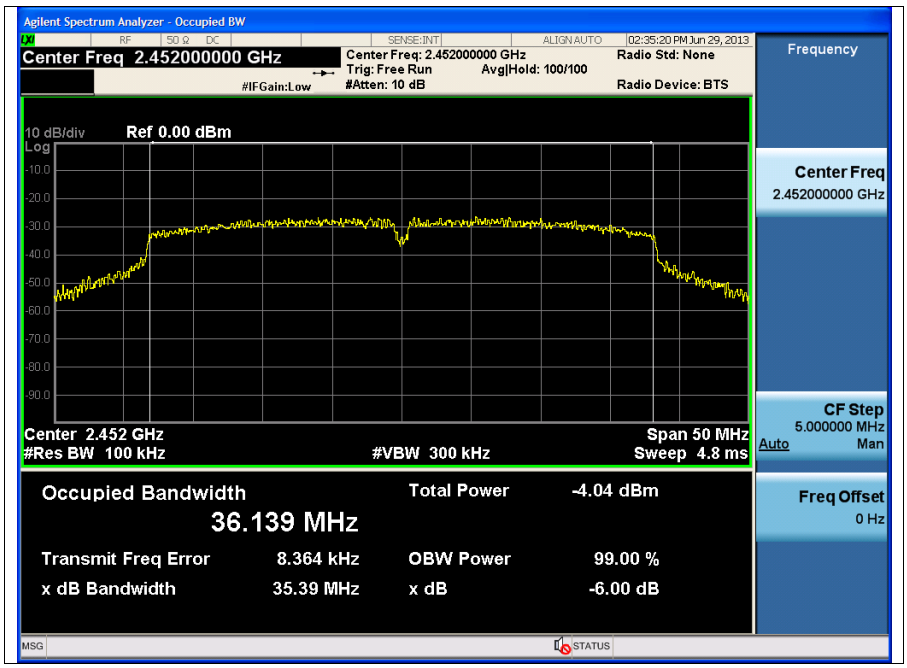
Low Channel



Middle Channel

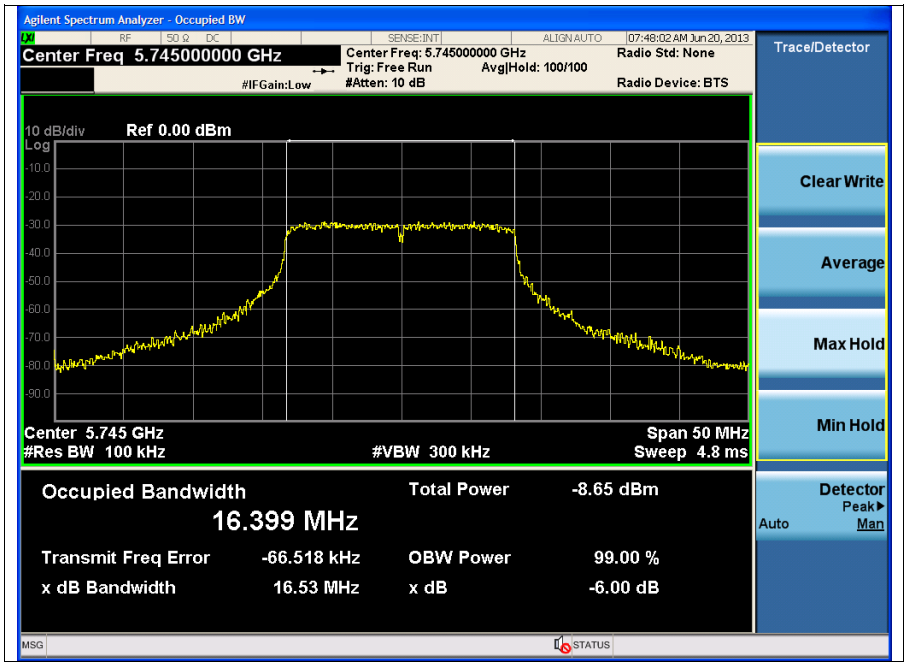


High Channel

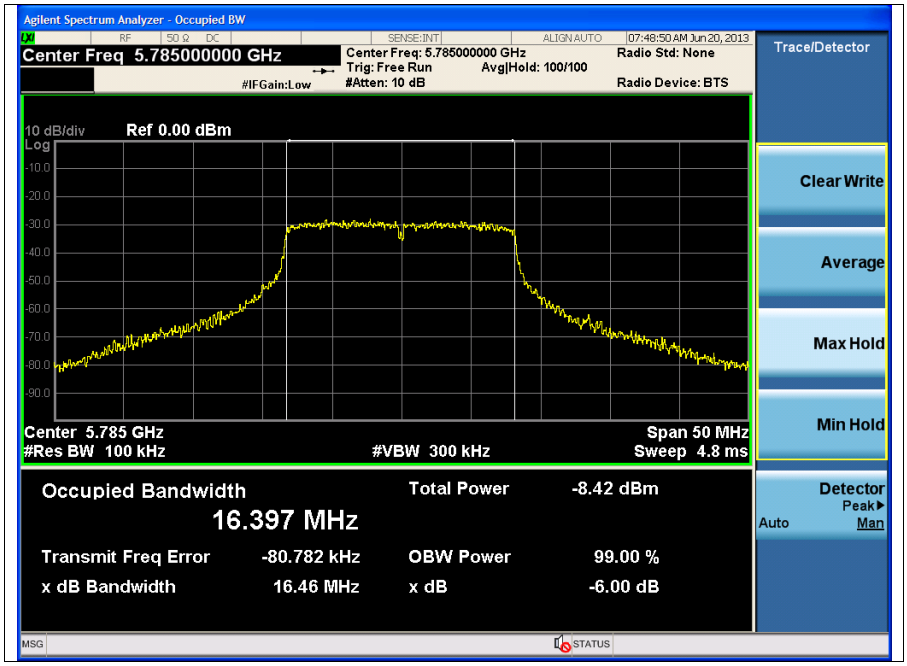


OFDM : 802.11a

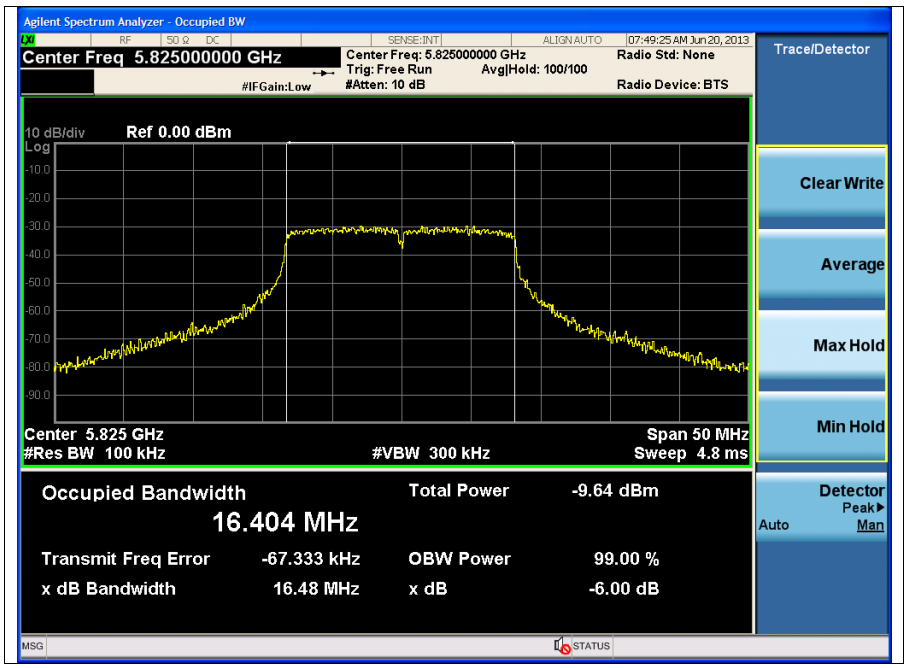
Low Channel



Middle Channel

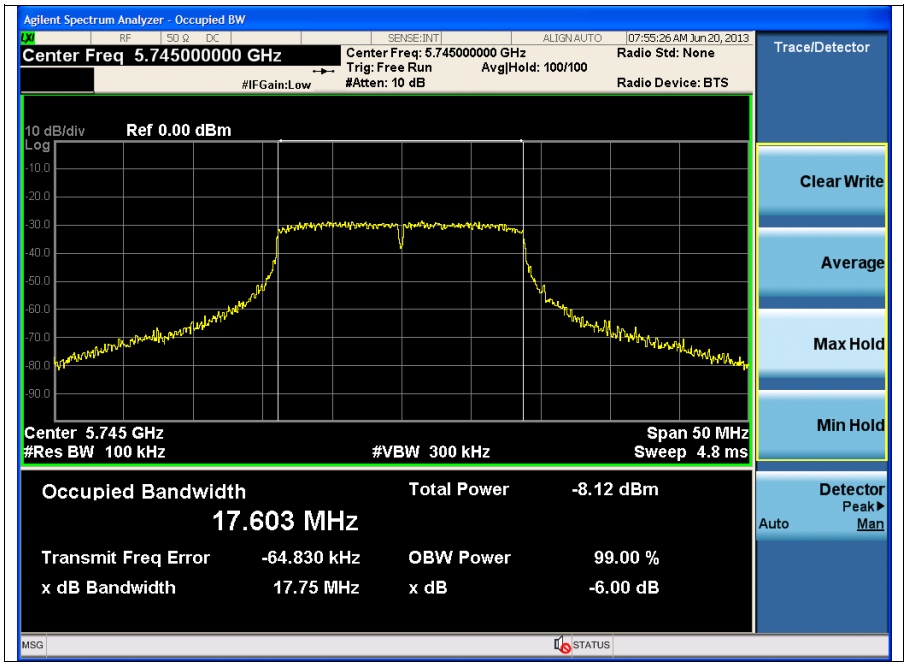


High Channel

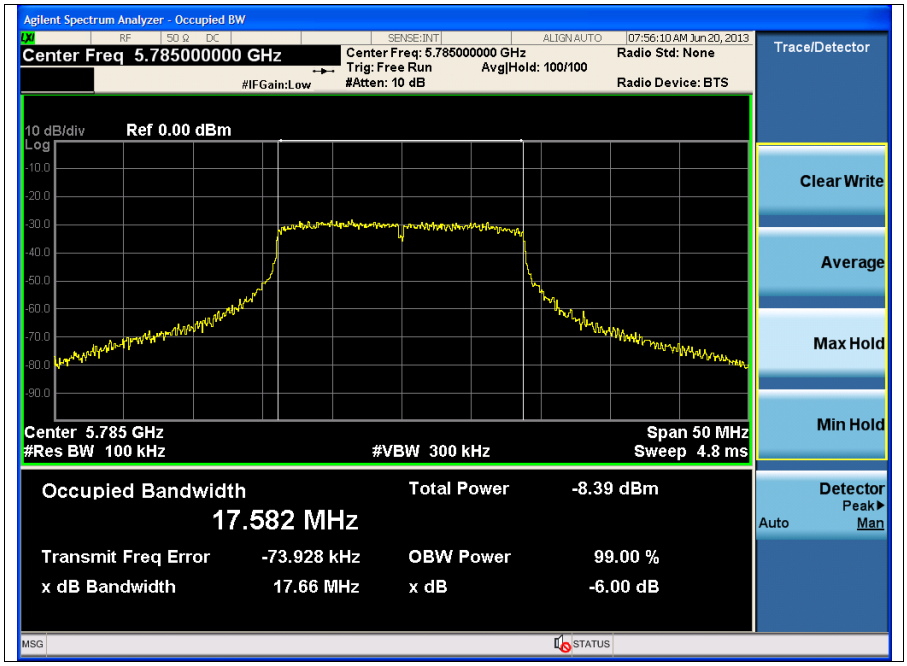


OFDM : 802.11n_HT20

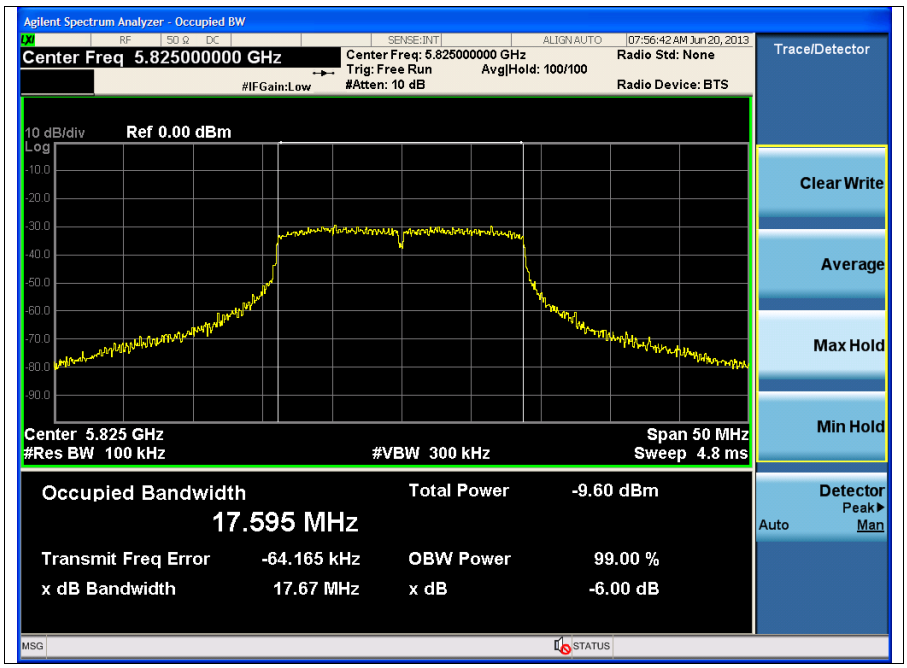
Low Channel



Middle Channel

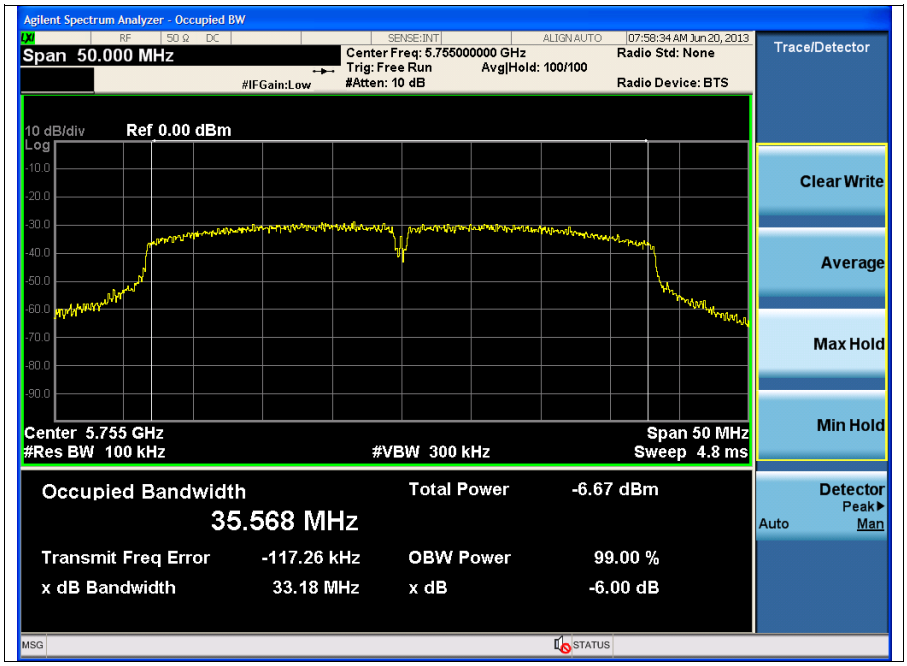


High Channel

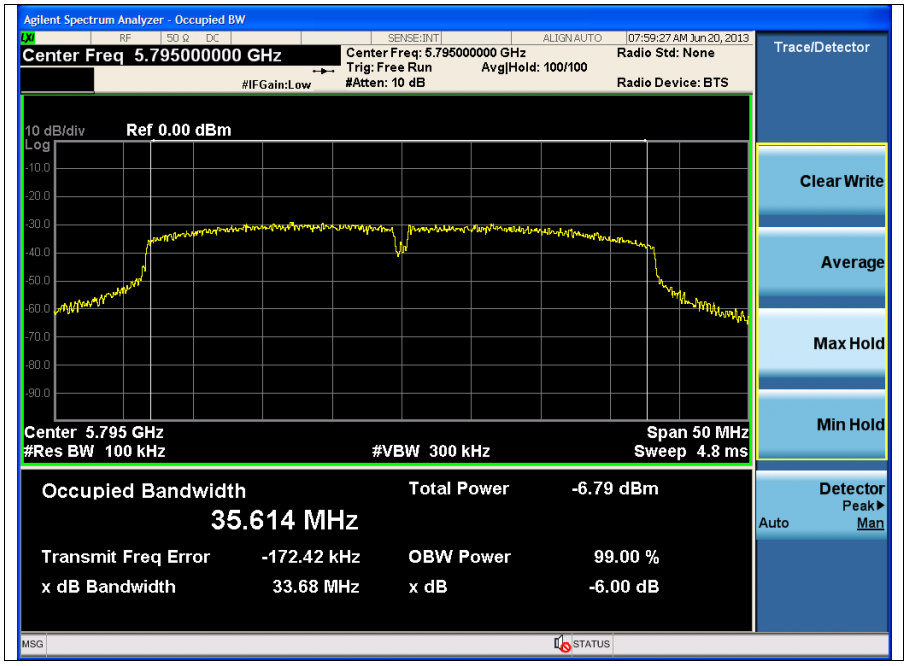


OFDM : 802.11n_HT40

Low Channel

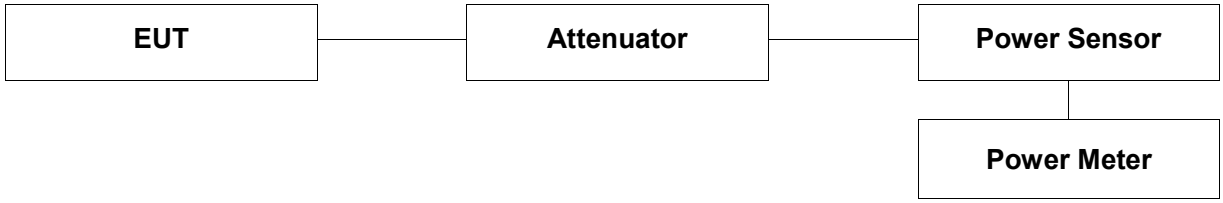


High Channel



4. Maximum Peak Output Power Measurement

4.1. Test Setup



4.2. Limit

According to §15.247(b)(3), for systems using digital modulation in the 902 ~ 928 ㎒, 2 400 ~2 483.5 ㎒, and 5 725 ~ 5 850 ㎒ band: 1 Watt. As an alternative to a peak power measurement, compliance with the one watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antenna elements. The average must not include any intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

According to §15.247(b)(4), the conducted output power limit specified in paragraph(b) of this section is based on the use of antenna with directional gains that do not exceed 6 ㏈i. Except as shown in paragraph(c) of this section, if transmitting antenna of directional gain greater than 6 ㏈i are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraph (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in ㏈ that the directional gain of the antenna exceeds 6㏈i.

4.3. Test Procedure

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 9.1.3 & 9.2.3 of FCC KDB Publication 558074

- Peak power meter method

-The maximum peak conducted output power can be measured using a broad band peak RF power meter. The power meter must have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast, average-responding diode type detector.

- Average power meter method

- Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied.

1) The EUT is configured to transmit continuously, of to transmit with a constant duty factor.
2) At all times when the EUT is transmitting, it shall be transmitting at its maximum power control level.
3) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.

If the transmitter does not transmit continuously, measure the duty cycle (x) of the transmitter output signal as described in Section 6.0 of KDB 558074.

Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.

1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the broadband power meter and power sensor. The power sensor employs a VBW = 65 ㎒ which is greater than the DTS bandwidth
3. Measure peak & average power each channel.

4.4. Test Results

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

- 802.11b

Channel Frequency (㎒)	Channel No.	Data Rate (Mbps)	Measured Power (Ant 0)		Measured Power (Ant 1)		Combined Power (Ant 0 + Ant 1)	
			Average Power (dBm)	Peak Power (dBm)	Average Power (dBm)	Peak Power (dBm)	Average Power (dBm)	Peak Power (dBm)
2412	1	1	14.58	17.73	14.42	17.34	-	-
		2	14.53	17.66	14.41	17.21	-	-
		5.5	14.55	17.67	14.31	16.99	-	-
		11	14.51	17.70	14.24	17.30	-	-
2437	6	1	14.52	17.56	13.78	16.72	-	-
		2	14.51	17.42	13.51	16.67	-	-
		5.5	14.48	17.30	13.61	16.54	-	-
		11	14.49	17.51	13.52	16.45	-	-
2462	11	1	13.86	16.73	13.51	16.48	-	-
		2	13.82	16.71	13.29	16.36	-	-
		5.5	13.85	16.67	13.38	16.37	-	-
		11	13.83	16.68	13.44	16.20	-	-

- 802.11g

Channel Frequency (㎒)	Channel No.	Data Rate (Mbps)	Measured Power (Ant 0)		Measured Power (Ant 1)		Combined Power (Ant 0 + Ant 1)	
			Average Power (dBm)	Peak Power (dBm)	Average Power (dBm)	Peak Power (dBm)	Average Power (dBm)	Peak Power (dBm)
2412	1	6	7.55	13.96	8.95	15.29	-	-
		9	7.41	13.91	8.88	15.12	-	-
		12	7.35	13.94	8.92	15.05	-	-
		18	7.33	13.90	8.75	15.25	-	-
		24	7.55	13.89	8.73	15.26	-	-
		36	7.32	13.66	8.90	15.00	-	-
		48	7.43	13.71	8.79	15.27	-	-
		54	7.37	13.86	8.92	15.11	-	-
2437	6	6	13.66	19.68	13.06	19.25	-	-
		9	13.49	19.56	12.88	19.03	-	-
		12	13.45	19.52	12.78	19.24	-	-
		18	13.49	19.67	12.94	19.07	-	-
		24	13.47	19.52	12.93	19.11	-	-
		36	13.46	19.66	12.85	19.07	-	-
		48	13.44	19.41	13.03	18.95	-	-
		54	13.50	19.39	12.90	19.10	-	-
2462	11	6	8.02	14.59	7.89	14.52	-	-
		9	7.91	14.58	7.71	14.44	-	-
		12	7.78	14.53	7.73	14.45	-	-
		18	7.74	14.54	7.68	14.45	-	-
		24	8.01	14.36	7.59	14.49	-	-
		36	7.78	14.58	7.74	14.22	-	-
		48	7.97	14.50	7.82	14.35	-	-
		54	7.90	14.56	7.63	14.34	-	-

- 802.11n_HT20

Channel Frequency (㎒)	Channel No.	Data Rate (Mbps)	Measured Power (Ant 0)		Measured Power (Ant 1)		Combined Power (Ant 0 + Ant 1)	
			Average Power (dBm)	Peak Power (dBm)	Average Power (dBm)	Peak Power (dBm)	Average Power (dBm)	Peak Power (dBm)
2412	1	MCS0	5.17	11.91	6.71	13.68	-	-
		MCS1	4.92	11.78	6.55	13.39	-	-
		MCS2	5.03	11.83	6.56	13.49	-	-
		MCS3	5.15	11.81	6.68	13.63	-	-
		MCS4	5.12	11.70	6.48	13.65	-	-
		MCS5	5.02	11.71	6.53	13.48	-	-
		MCS6	4.94	11.81	6.64	13.60	-	-
		MCS7	4.93	11.67	6.44	13.64	-	-
2437	6	MCS0	11.27	17.89	10.81	17.35	-	-
		MCS1	11.23	17.83	10.70	17.09	-	-
		MCS2	11.05	17.73	10.70	17.13	-	-
		MCS3	11.01	17.68	10.80	17.05	-	-
		MCS4	11.21	17.61	10.52	17.22	-	-
		MCS5	11.17	17.77	10.77	17.26	-	-
		MCS6	11.14	17.81	10.70	17.27	-	-
		MCS7	11.06	17.69	10.63	17.16	-	-
2462	11	MCS0	5.61	12.36	5.11	11.94	-	-
		MCS1	5.54	12.19	5.11	11.94	-	-
		MCS2	5.57	12.32	5.10	11.88	-	-
		MCS3	5.36	12.28	5.04	11.65	-	-
		MCS4	5.33	12.17	5.06	11.67	-	-
		MCS5	5.37	12.12	4.90	11.64	-	-
		MCS6	5.56	12.33	5.05	11.80	-	-
		MCS7	5.51	12.25	4.82	11.67	-	-

- 802.11n_HT20

Channel Frequency (㎒)	Channel No.	Data Rate (Mbps)	Measured Power (Ant 0)		Measured Power (Ant 1)		Combined Power (Ant 0 + Ant 1)	
			Average Power (dBm)	Peak Power (dBm)	Average Power (dBm)	Peak Power (dBm)	Average Power (dBm)	Peak Power (dBm)
2412	1	MCS8	5.12	11.75	6.64	13.33	8.96	15.62
		MCS9	5.00	11.56	6.40	13.10	8.77	15.41
		MCS10	5.11	11.75	6.55	13.31	8.90	15.61
		MCS11	4.99	11.45	6.64	13.12	8.90	15.37
		MCS12	5.06	11.71	6.46	13.12	8.83	15.48
		MCS13	4.96	11.58	6.56	13.32	8.84	15.54
		MCS14	5.00	11.67	6.53	13.19	8.84	15.51
		MCS15	5.06	11.70	6.50	13.31	8.85	15.59
2437	6	MCS8	10.77	17.21	10.34	16.89	13.57	20.06
		MCS9	10.64	17.13	10.06	16.84	13.37	20.00
		MCS10	10.68	16.98	10.29	16.87	13.50	19.93
		MCS11	10.64	17.12	10.20	16.76	13.44	19.95
		MCS12	10.61	17.07	10.14	16.85	13.39	19.97
		MCS13	10.51	17.00	10.30	16.70	13.42	19.86
		MCS14	10.74	17.14	10.09	16.76	13.44	19.97
		MCS15	10.75	17.06	10.15	16.88	13.47	19.98
2462	11	MCS8	5.23	12.16	4.88	11.63	8.07	14.91
		MCS9	4.98	11.88	4.80	11.34	7.90	14.63
		MCS10	4.93	11.88	4.64	11.37	7.80	14.64
		MCS11	4.94	11.98	4.69	11.37	7.82	14.70
		MCS12	5.06	12.11	4.62	11.51	7.86	14.83
		MCS13	5.03	12.08	4.65	11.54	7.85	14.83
		MCS14	4.97	12.14	4.67	11.34	7.83	14.77
		MCS15	5.07	12.05	4.76	11.44	7.93	14.77

- 802.11n_HT40

Channel Frequency (㎒)	Channel No.	Data Rate (Mbps)	Measured Power (Ant 0)		Measured Power (Ant 1)		Combined Power (Ant 0 + Ant 1)	
			Average Power (dBm)	Peak Power (dBm)	Average Power (dBm)	Peak Power (dBm)	Average Power (dBm)	Peak Power (dBm)
2422	3	MCS0	8.86	12.72	9.36	13.10	-	-
		MCS1	8.41	12.52	9.30	12.89	-	-
		MCS2	8.53	12.64	9.26	12.83	-	-
		MCS3	8.66	12.60	9.12	13.07	-	-
		MCS4	8.85	12.53	9.25	12.99	-	-
		MCS5	8.83	12.46	9.18	12.95	-	-
		MCS6	8.47	12.33	9.23	13.08	-	-
		MCS7	8.53	12.65	9.21	12.92	-	-
2437	6	MCS0	9.75	13.24	9.59	13.16	-	-
		MCS1	9.34	13.08	9.37	12.92	-	-
		MCS2	9.73	13.02	9.42	12.87	-	-
		MCS3	9.55	13.14	9.51	13.08	-	-
		MCS4	9.64	13.15	9.46	12.97	-	-
		MCS5	9.75	13.20	9.40	12.95	-	-
		MCS6	9.45	12.79	9.48	13.06	-	-
		MCS7	9.72	13.14	9.44	13.10	-	-
2452	9	MCS0	9.91	13.65	9.61	13.32	-	-
		MCS1	9.74	13.43	9.19	13.09	-	-
		MCS2	9.53	13.36	9.57	13.27	-	-
		MCS3	9.72	13.61	9.37	13.17	-	-
		MCS4	9.83	13.50	9.52	13.17	-	-
		MCS5	9.91	13.61	9.58	13.28	-	-
		MCS6	9.44	13.60	9.59	13.12	-	-
		MCS7	9.58	13.59	9.48	13.14	-	-

- 802.11n_HT40

Channel Frequency (㎒)	Channel No.	Data Rate (Mbps)	Measured Power (Ant 0)		Measured Power (Ant 1)		Combined Power (Ant 0 + Ant 1)	
			Average Power (dBm)	Peak Power (dBm)	Average Power (dBm)	Peak Power (dBm)	Average Power (dBm)	Peak Power (dBm)
2422	3	MCS8	8.84	12.57	8.96	12.67	11.91	15.63
		MCS9	8.47	12.30	8.91	12.62	11.70	15.48
		MCS10	8.50	12.45	8.56	12.56	11.54	15.51
		MCS11	8.83	12.57	8.76	12.61	11.81	15.60
		MCS12	8.71	12.51	8.94	12.49	11.84	15.51
		MCS13	8.80	12.50	8.84	12.55	11.83	15.53
		MCS14	8.45	12.36	8.82	12.59	11.65	15.49
		MCS15	8.51	12.46	8.62	12.53	11.58	15.50
2437	6	MCS8	9.73	13.24	9.04	12.54	12.41	15.91
		MCS9	9.56	13.07	8.62	12.47	12.13	15.79
		MCS10	9.63	13.08	8.69	12.30	12.20	15.71
		MCS11	9.44	13.14	9.00	12.39	12.23	15.79
		MCS12	9.56	13.15	8.90	12.43	12.25	15.82
		MCS13	9.54	13.16	9.01	12.42	12.29	15.81
		MCS14	9.54	13.14	8.74	12.46	12.17	15.82
		MCS15	9.56	13.13	8.61	12.38	12.12	15.78
2452	9	MCS8	9.94	13.69	9.05	12.66	12.53	16.22
		MCS9	9.80	13.33	8.70	12.41	12.30	15.91
		MCS10	9.61	13.64	9.02	12.48	12.33	16.11
		MCS11	9.90	13.50	8.77	12.50	12.38	16.04
		MCS12	9.91	13.67	9.04	12.53	12.51	16.15
		MCS13	9.94	13.59	8.94	12.54	12.48	16.11
		MCS14	9.59	13.64	8.80	12.54	12.22	16.14
		MCS15	9.65	13.50	8.60	12.63	12.16	16.10

- 802.11a

Channel Frequency (㎒)	Channel No.	Data Rate (Mbps)	Measured Power (Ant 0)		Measured Power (Ant 1)		Combined Power (Ant 0 + Ant 1)	
			Average Power (dBm)	Peak Power (dBm)	Average Power (dBm)	Peak Power (dBm)	Average Power (dBm)	Peak Power (dBm)
5745	149	6	11.75	18.29	12.09	18.59	-	-
		9	11.67	18.06	11.80	18.35	-	-
		12	11.39	18.00	11.72	18.36	-	-
		18	11.55	18.20	12.01	18.54	-	-
		24	11.55	18.25	12.08	18.46	-	-
		36	11.61	18.02	11.91	18.31	-	-
		48	11.74	18.09	11.74	18.42	-	-
		54	11.71	18.21	12.00	18.43	-	-
5785	157	6	11.86	18.89	11.73	18.73	-	-
		9	11.75	18.64	11.69	18.50	-	-
		12	11.52	18.86	11.44	18.46	-	-
		18	11.63	18.87	11.59	18.54	-	-
		24	11.84	18.81	11.55	18.72	-	-
		36	11.66	18.82	11.65	18.56	-	-
		48	11.47	18.70	11.37	18.45	-	-
		54	11.60	18.88	11.70	18.70	-	-
5825	165	6	11.92	18.72	10.76	17.05	-	-
		9	11.62	18.69	10.63	16.96	-	-
		12	11.59	18.70	10.67	16.95	-	-
		18	11.64	18.63	10.58	16.89	-	-
		24	11.81	18.56	10.57	16.93	-	-
		36	11.74	18.64	10.74	16.94	-	-
		48	11.57	18.64	10.37	17.04	-	-
		54	11.78	18.66	10.76	16.92	-	-

- 802.11n_HT20

Channel Frequency (㎒)	Channel No.	Data Rate (Mbps)	Measured Power (Ant 0)		Measured Power (Ant 1)		Combined Power (Ant 0 + Ant 1)	
			Average Power (dBm)	Peak Power (dBm)	Average Power (dBm)	Peak Power (dBm)	Average Power (dBm)	Peak Power (dBm)
5745	149	MCS0	11.06	17.74	11.22	18.06	-	-
		MCS1	10.78	17.58	10.99	17.94	-	-
		MCS2	10.73	17.65	10.85	18.04	-	-
		MCS3	10.79	17.69	11.20	17.94	-	-
		MCS4	10.92	17.73	11.22	17.95	-	-
		MCS5	10.86	17.45	11.15	17.81	-	-
		MCS6	11.02	17.47	11.09	17.89	-	-
		MCS7	10.88	17.54	10.93	17.96	-	-
5785	157	MCS0	11.13	18.49	10.92	17.62	-	-
		MCS1	11.13	18.26	10.73	17.38	-	-
		MCS2	11.03	18.34	10.59	17.45	-	-
		MCS3	10.95	18.32	10.78	17.47	-	-
		MCS4	11.04	18.34	10.76	17.56	-	-
		MCS5	11.11	18.25	10.76	17.60	-	-
		MCS6	11.04	18.25	10.65	17.33	-	-
		MCS7	10.97	18.34	10.66	17.57	-	-
5825	165	MCS0	10.87	18.06	10.03	16.72	-	-
		MCS1	10.81	17.91	9.95	16.67	-	-
		MCS2	10.86	18.04	9.86	16.51	-	-
		MCS3	10.86	17.99	9.91	16.69	-	-
		MCS4	10.82	18.02	9.83	16.53	-	-
		MCS5	10.75	17.89	9.98	16.61	-	-
		MCS6	10.54	17.99	10.01	16.43	-	-
		MCS7	10.66	17.93	9.80	16.63	-	-

- 802.11n_HT40

Channel Frequency (㎒)	Channel No.	Data Rate (Mbps)	Measured Power (Ant 0)		Measured Power (Ant 1)		Combined Power (Ant 0 + Ant 1)	
			Average Power (dBm)	Peak Power (dBm)	Average Power (dBm)	Peak Power (dBm)	Average Power (dBm)	Peak Power (dBm)
5755	151	MCS0	8.45	14.37	8.91	14.85	-	-
		MCS1	8.24	14.27	8.71	14.74	-	-
		MCS2	8.39	14.30	8.64	14.72	-	-
		MCS3	8.37	14.35	8.80	14.80	-	-
		MCS4	8.39	14.34	8.86	14.66	-	-
		MCS5	8.28	14.25	8.86	14.56	-	-
		MCS6	8.43	14.29	8.58	14.79	-	-
		MCS7	8.42	14.18	8.90	14.74	-	-
5795	159	MCS0	9.19	15.26	8.28	14.39	-	-
		MCS1	9.01	15.06	8.12	14.38	-	-
		MCS2	8.80	15.23	8.04	14.14	-	-
		MCS3	8.90	15.23	8.25	14.27	-	-
		MCS4	9.17	15.19	8.17	14.38	-	-
		MCS5	9.02	15.14	8.24	14.32	-	-
		MCS6	9.02	15.00	8.05	14.24	-	-
		MCS7	9.15	15.06	8.07	14.31	-	-

- 802.11n_HT20

Channel Frequency (㎒)	Channel No.	Data Rate (Mbps)	Measured Power (Ant 0)		Measured Power (Ant 1)		Combined Power (Ant 0 + Ant 1)	
			Average Power (dBm)	Peak Power (dBm)	Average Power (dBm)	Peak Power (dBm)	Average Power (dBm)	Peak Power (dBm)
5745	149	MCS8	7.98	15.01	9.02	15.93	11.54	18.50
		MCS9	7.82	15.01	8.81	15.88	11.36	18.48
		MCS10	7.60	14.85	8.88	15.67	11.30	18.29
		MCS11	7.82	14.93	8.91	15.77	11.41	18.38
		MCS12	7.92	14.99	8.95	15.81	11.48	18.43
		MCS13	7.88	14.81	8.84	15.68	11.39	18.28
		MCS14	7.67	14.84	8.73	15.66	11.25	18.28
		MCS15	7.75	14.97	8.94	15.83	11.39	18.43
5785	157	MCS8	8.71	15.77	8.58	15.55	11.66	18.67
		MCS9	8.58	15.61	8.42	15.33	11.51	18.48
		MCS10	8.36	15.75	8.33	15.41	11.35	18.59
		MCS11	8.56	15.73	8.55	15.50	11.57	18.63
		MCS12	8.54	15.65	8.39	15.47	11.47	18.57
		MCS13	8.60	15.59	8.57	15.37	11.60	18.49
		MCS14	8.37	15.73	8.49	15.52	11.44	18.64
		MCS15	8.41	15.66	8.54	15.54	11.48	18.61
5825	165	MCS8	9.15	16.31	7.47	14.67	11.40	18.58
		MCS9	8.97	16.06	7.40	14.54	11.27	18.38
		MCS10	9.05	16.08	7.30	14.49	11.27	18.37
		MCS11	9.05	16.25	7.42	14.47	11.32	18.46
		MCS12	9.03	16.30	7.35	14.59	11.28	18.54
		MCS13	9.10	16.25	7.47	14.43	11.37	18.44
		MCS14	9.10	16.07	7.42	14.57	11.35	18.39
		MCS15	8.87	16.13	7.37	14.59	11.19	18.44

- 802.11n_HT40

Channel Frequency (㎒)	Channel No.	Data Rate (Mbps)	Measured Power (Ant 0)		Measured Power (Ant 1)		Combined Power (Ant 0 + Ant 1)	
			Average Power (dBm)	Peak Power (dBm)	Average Power (dBm)	Peak Power (dBm)	Average Power (dBm)	Peak Power (dBm)
5755	151	MCS8	8.48	15.04	9.85	16.12	12.23	18.62
		MCS9	8.24	14.97	9.59	15.88	11.98	18.46
		MCS10	8.17	14.94	9.74	16.02	12.03	18.52
		MCS11	8.28	14.95	9.70	15.98	12.06	18.51
		MCS12	8.41	14.88	9.68	16.00	12.10	18.49
		MCS13	8.30	15.03	9.70	16.05	12.07	18.58
		MCS14	8.15	14.96	9.48	15.91	11.88	18.47
		MCS15	8.18	14.93	9.78	15.95	12.06	18.48
5795	159	MCS8	9.38	15.71	9.12	15.34	12.26	18.54
		MCS9	9.15	15.61	8.84	15.09	12.01	18.36
		MCS10	9.27	15.66	8.94	15.10	12.12	18.40
		MCS11	9.08	15.64	8.95	15.28	12.03	18.47
		MCS12	9.36	15.58	8.98	15.18	12.19	18.39
		MCS13	9.31	15.69	9.00	15.30	12.17	18.51
		MCS14	9.10	15.65	8.91	15.07	12.01	18.38
		MCS15	9.19	15.64	8.99	15.31	12.10	18.49

Remark

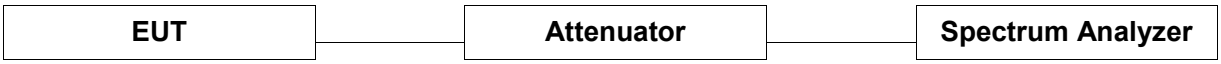
According to KDB662911, peak power of each port (ANT0 and ANT1) was combined by using below calculation.

ANT0+ANT1 (Calculated)
Power: 10log{10^(Ant0_Average Power/10)+10^(Ant1_Average Power/10)}

In case of the Data Rate, record the Data Rate of the worst case

5. Power Spectral Density Measurement

5.1. Test Setup



5.2. Limit

§15.247(e) For digitally modulated system, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 ㏈ m in any 3 ㎑ band any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

5.3. Test Procedure

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 measurements are recorded using the PKPSD measurement procedure in section 10.2 of KDB 558074.

1. Use this procedure when the maximum conducted output power in the fundamental emission is used to demonstrate compliance. The EUT must be configured to transmit continuously at full power over the measurement duration.

2. Set analyzer center frequency to DTS channel center frequency.
3. Set the span to at least 1.5 times the DTS channel bandwidth.
4. Set the RBW to : 3 ㎑ ≤ RBW ≤ 100 ㎑
5. Set the VBW ≥ 3 x RBW
6. Detector = Peak
7. Sweep time = auto couple.
8. Trace mode = max hold.
9. Allow trace to fully stabilize.
10. Use the peak marker function to determine the maximum amplitude level within the RBW.
11. If measured value exceeds limit, reduce RBW (no less than 3 ㎑) and repeat.

5.4. Test Results

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

- ANT0

Operation Mode	Data Rate (Mbps)	Channel	Frequency (㎒)	Measured PSD (㏈ m)	Maximum Limit (㏈ m)
DSSS (802.11b)	1	Low	2 412	-0.325	8
		Middle	2 437	-0.569	8
		High	2 462	-0.360	8
OFDM (802.11g)	6	Low	2 412	-9.927	8
		Middle	2 437	-4.980	8
		High	2 462	-10.699	8
OFDM (802.11n_HT20)	MCS0	Low	2 412	-13.629	8
		Middle	2 437	-8.664	8
		High	2 462	-13.549	8
OFDM (802.11n_HT40)	MCS0	Low	2 422	-9.262	8
		Middle	2 437	-8.365	8
		High	2 452	-8.286	8
OFDM (802.11a)	6	Low	5 745	-9.671	8
		Middle	5 785	-9.046	8
		High	5 825	-9.387	8
OFDM (802.11n_HT20)	MCS0	Low	5 745	-9.962	8
		Middle	5 785	-10.900	8
		High	5 825	-9.716	8
OFDM (802.11n_HT40)	MCS0	Low	5 755	-7.660	8
		High	5 795	-8.413	8

- ANT1

Operation Mode	Data Rate (Mbps)	Channel	Frequency (㎒)	Measured PSD (㏈ m)	Maximum Limit (㏈ m)
DSSS (802.11b)	1	Low	2 412	-1.593	8
		Middle	2 437	-2.014	8
		High	2 462	-2.017	8
OFDM (802.11g)	6	Low	2 412	-9.028	8
		Middle	2 437	-5.672	8
		High	2 462	-11.640	8
OFDM (802.11n_HT20)	MCS0	Low	2 412	-13.165	8
		Middle	2 437	-8.633	8
		High	2 462	-14.215	8
OFDM (802.11n_HT40)	MCS0	Low	2 422	-8.372	8
		Middle	2 437	-8.901	8
		High	2 452	-9.583	8
OFDM (802.11a)	6	Low	5 745	-10.514	8
		Middle	5 785	-9.550	8
		High	5 825	-11.908	8
OFDM (802.11n_HT20)	MCS0	Low	5 745	-10.864	8
		Middle	5 785	-11.128	8
		High	5 825	-12.022	8
OFDM (802.11n_HT40)	MCS0	Low	5 755	-8.221	8
		High	5 795	-7.963	8

- ANT0 + ANT1(Calculated)

Operation Mode	Data Rate (Mbps)	Channel	Frequency (㎒)	Ant0_PSD (㏈m)	Ant1_PSD (㏈m)	Ant0 +Ant1 Result (㏈m)	Limit (㏈m)
OFDM (802.11n_HT20)	MCS8	Low	2 412	-14.074	-13.608	-10.824	8
		Middle	2 437	-9.061	-8.746	-5.890	8
		High	2 462	-13.259	-14.492	-10.822	8
OFDM (802.11n_HT40)	MCS8	Low	2 422	-8.333	-8.097	-5.203	8
		Middle	2 437	-8.072	-8.553	-5.296	8
		High	2 452	-8.351	-8.482	-5.406	8
OFDM (802.11n_HT20)	MCS8	Low	5 745	-14.786	-15.671	-12.196	8
		Middle	5 785	-14.439	-15.732	-12.027	8
		High	5 825	-14.773	-17.129	-12.783	8
OFDM (802.11n_HT40)	MCS8	Low	5 755	-12.085	-11.531	-8.789	8
		High	5 795	-11.756	-12.137	-8.932	8

Note;
- Ant0+Ant1 (Calculated)
- Result PSD : 10*log{10^(Ant0_Measured PSD/10)+10^(Ant1_Measured PSD/10)}
- In case of the Data Rate, record the Data Rate of the worst case

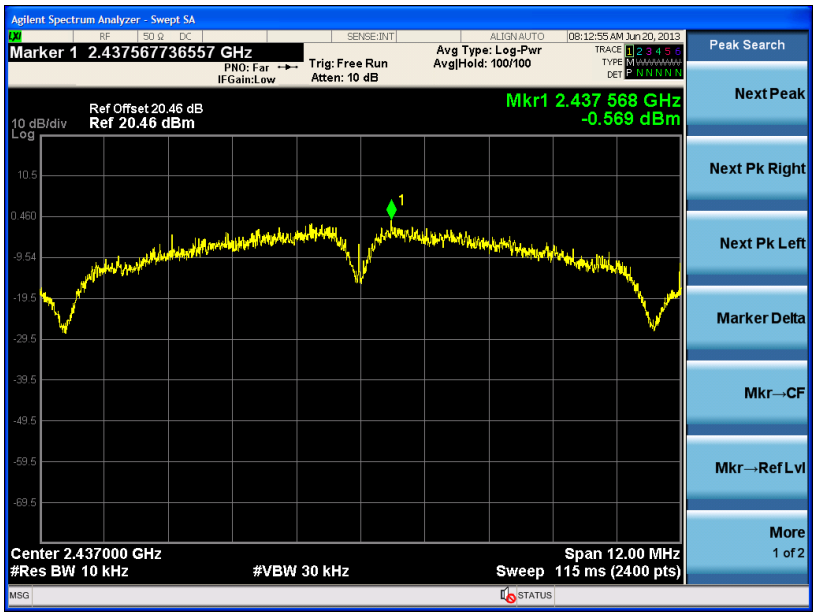
ANT0

2.4 GHz

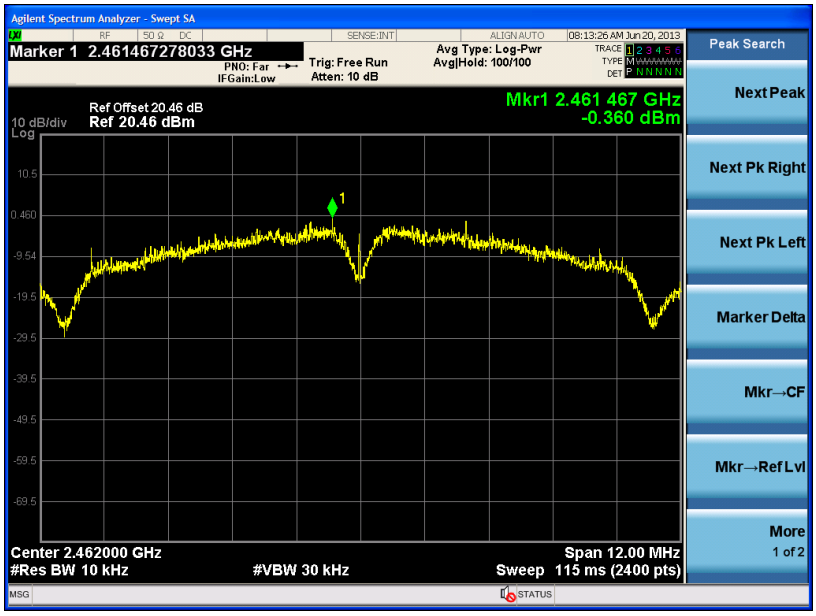
802.11b

Low channel

Middle channel

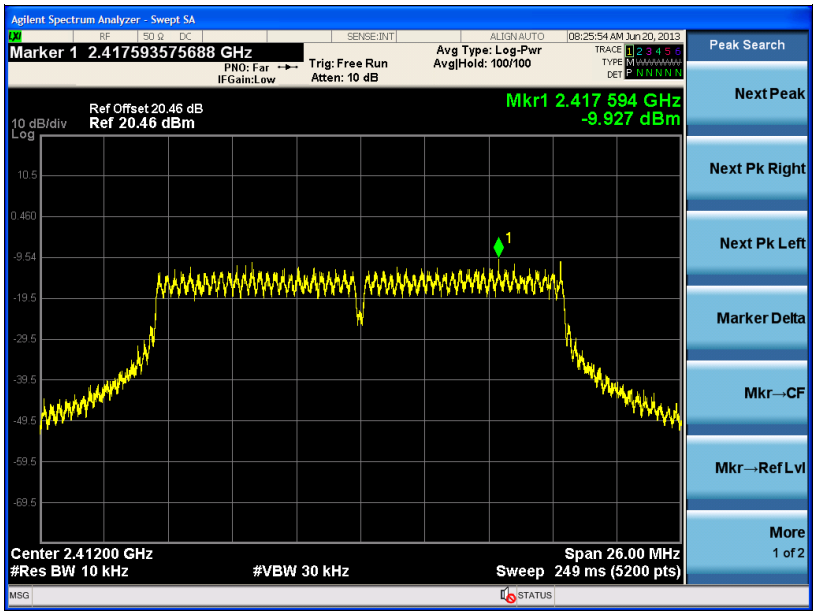


High channel

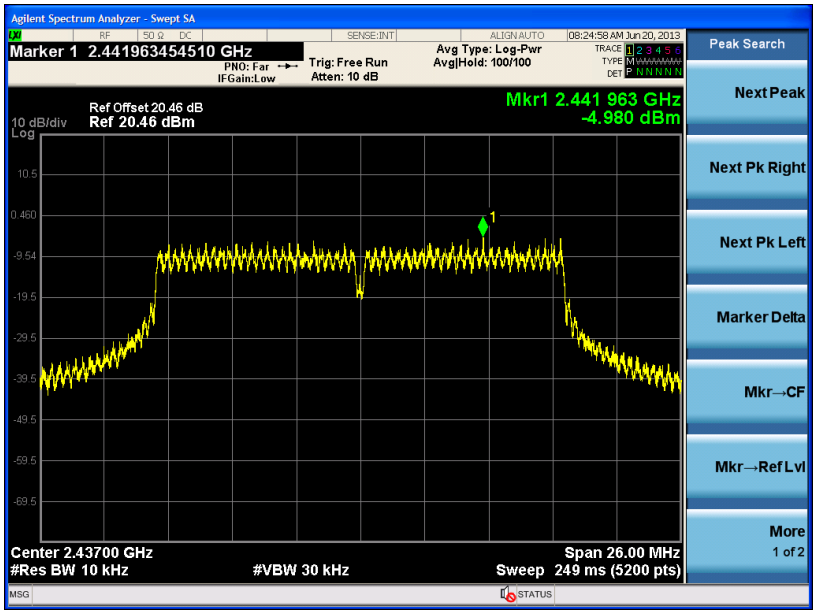


802.11g

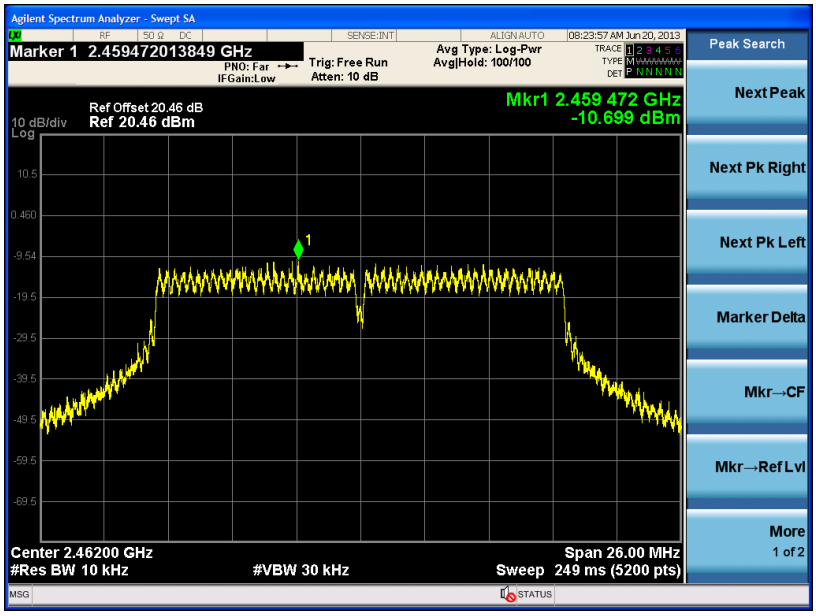
Low channel



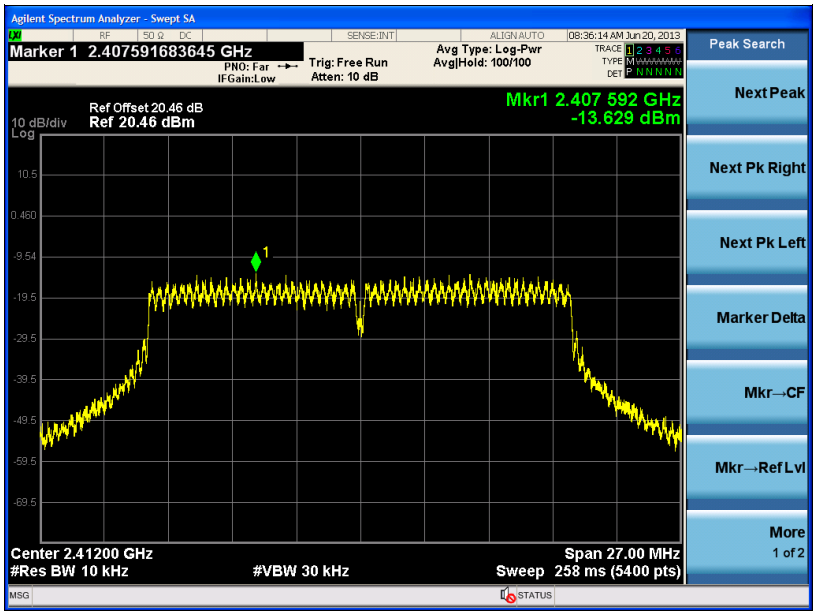
Middle channel



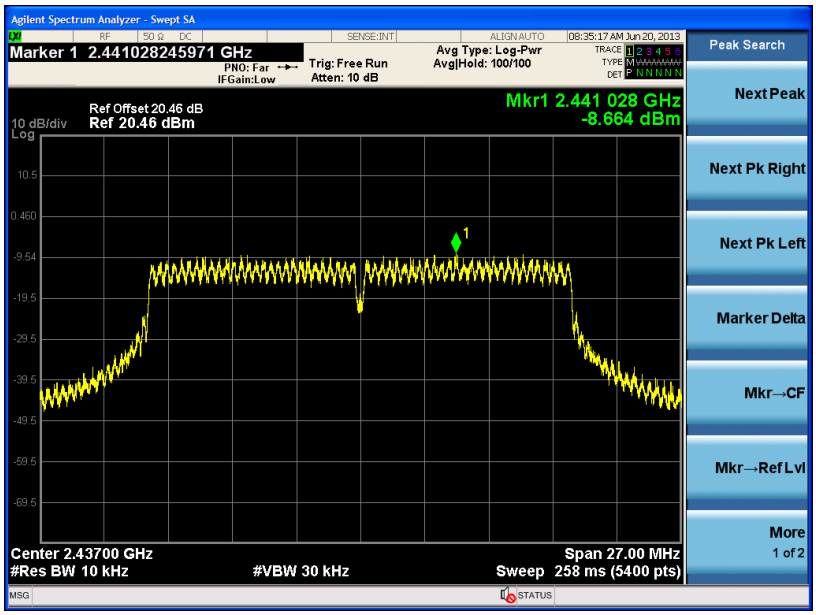
High channel



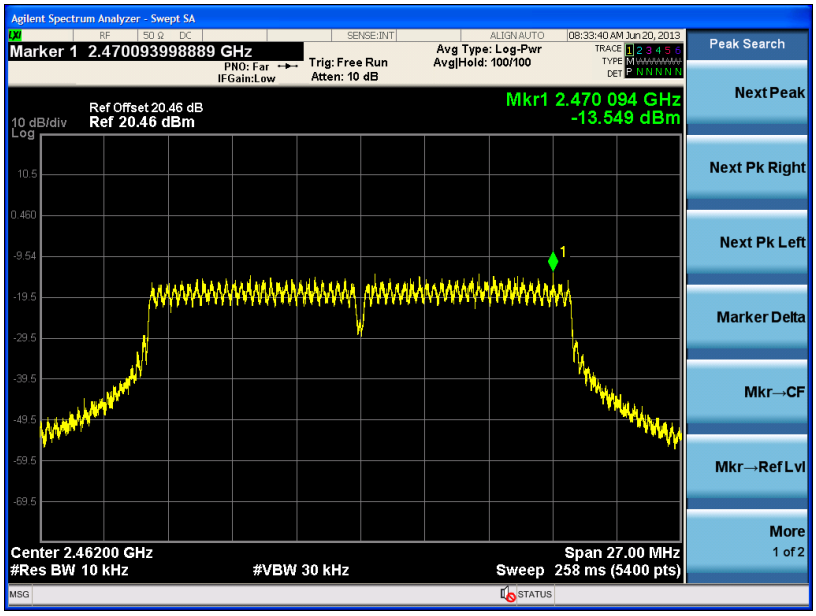
802.11n_HT20(MCS0)
Low channel



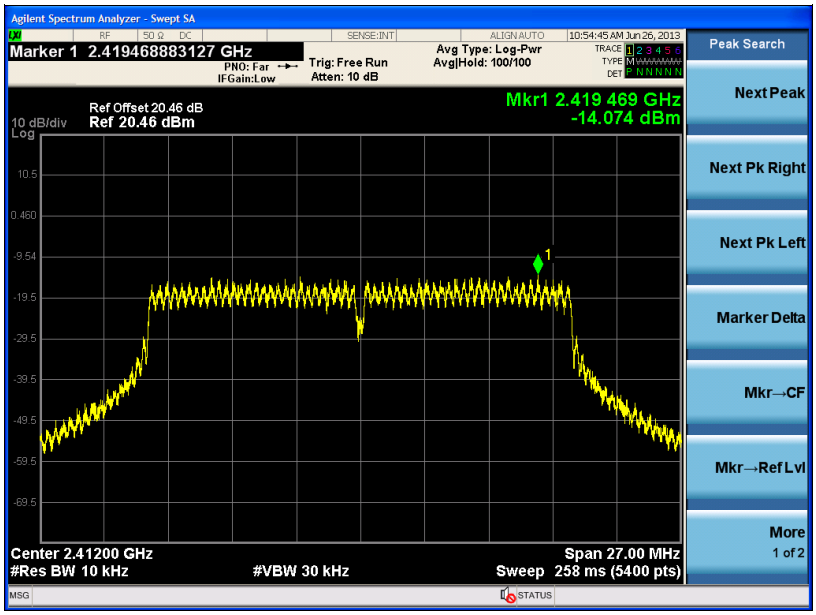
Middle channel



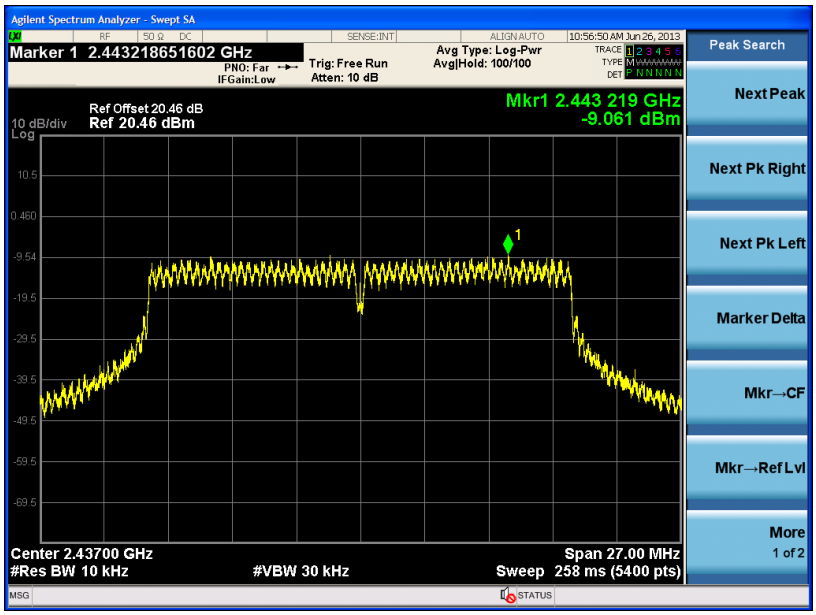
High channel



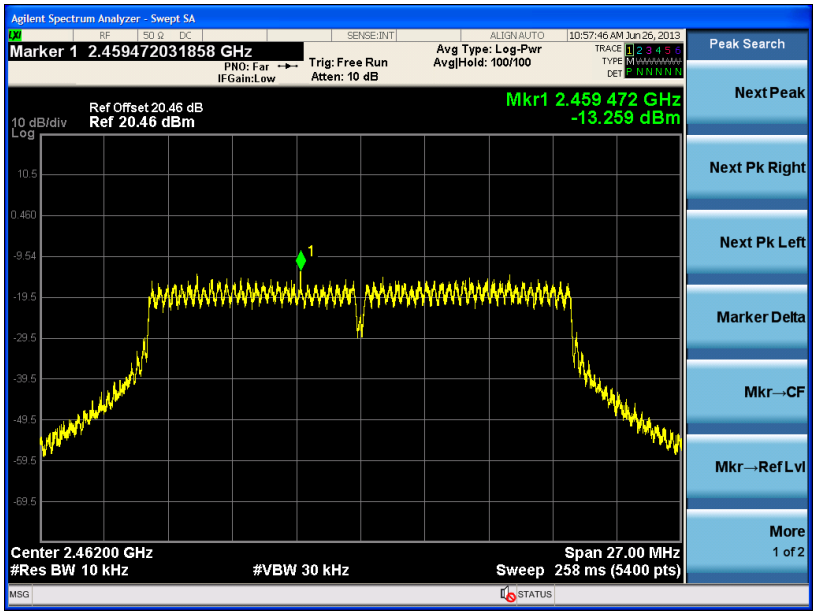
802.11n_HT20(MCS8)
Low channel



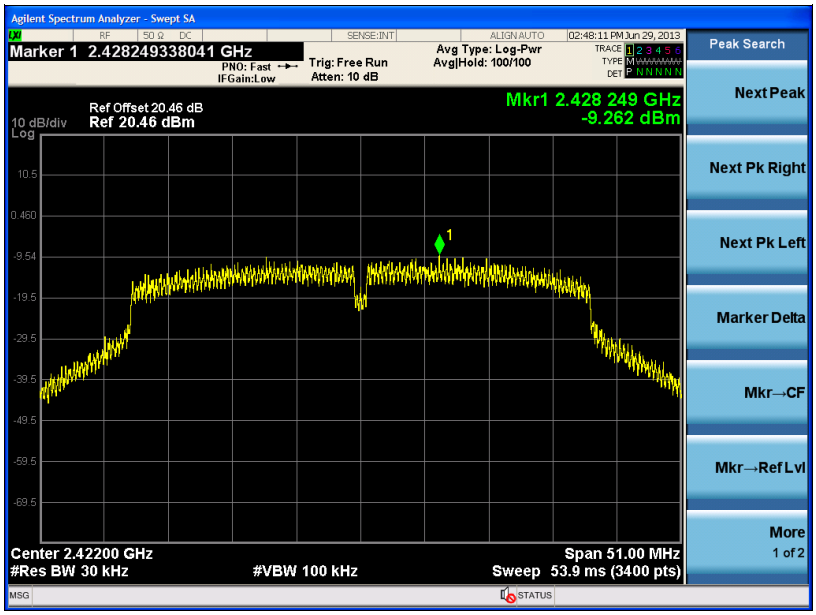
Middle channel



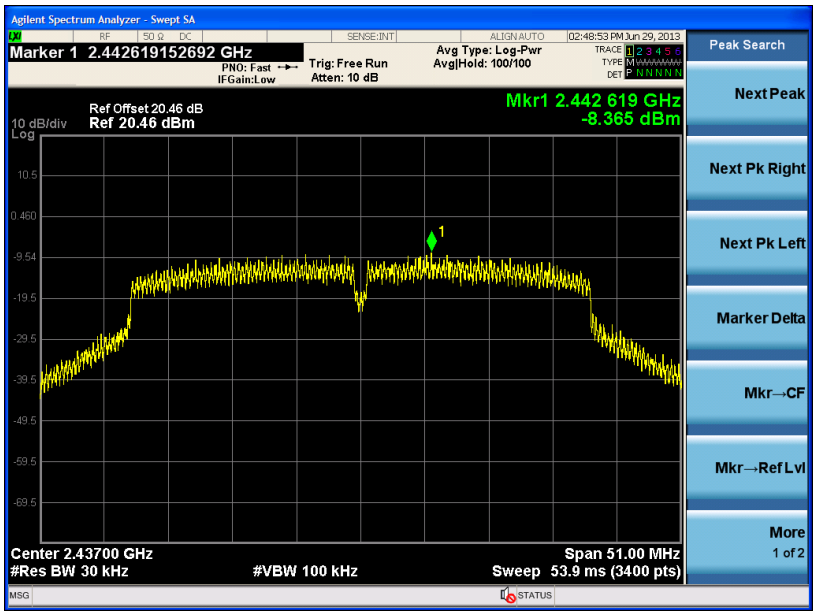
High channel



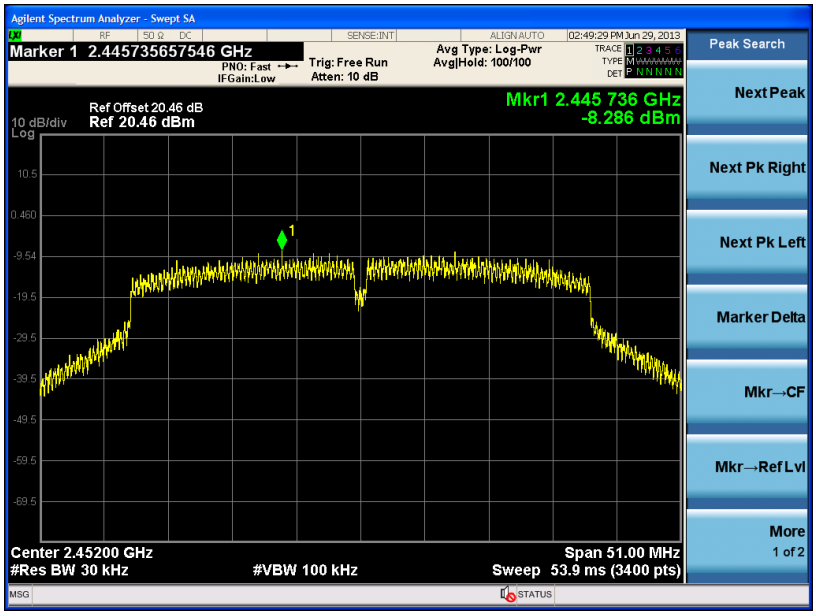
802.11n_HT40(MCS0)
Low channel



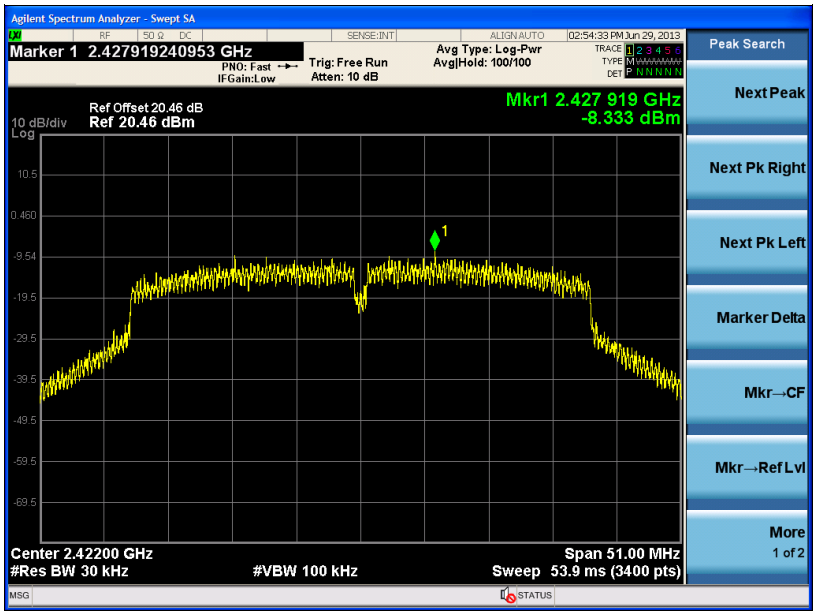
Middle channel



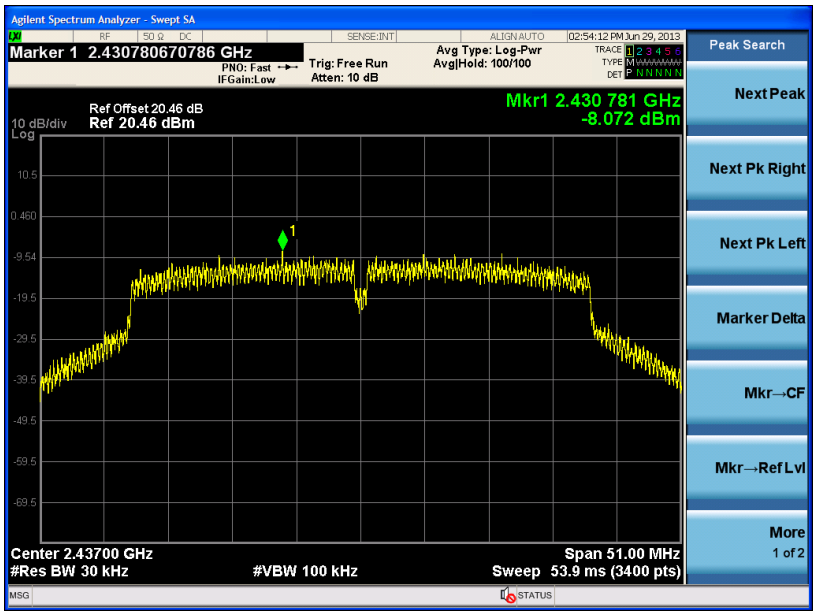
High channel



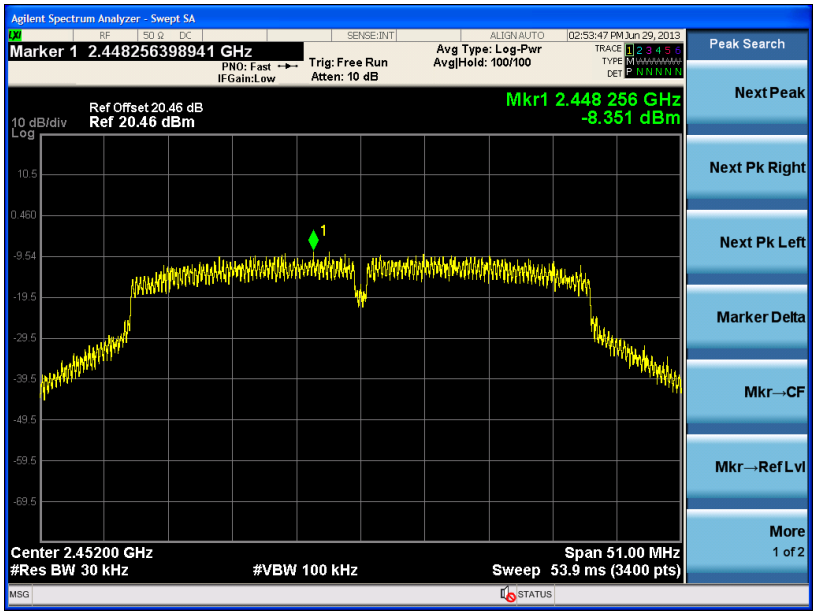
802.11n_HT40(MCS8)
Low channel



Middle channel



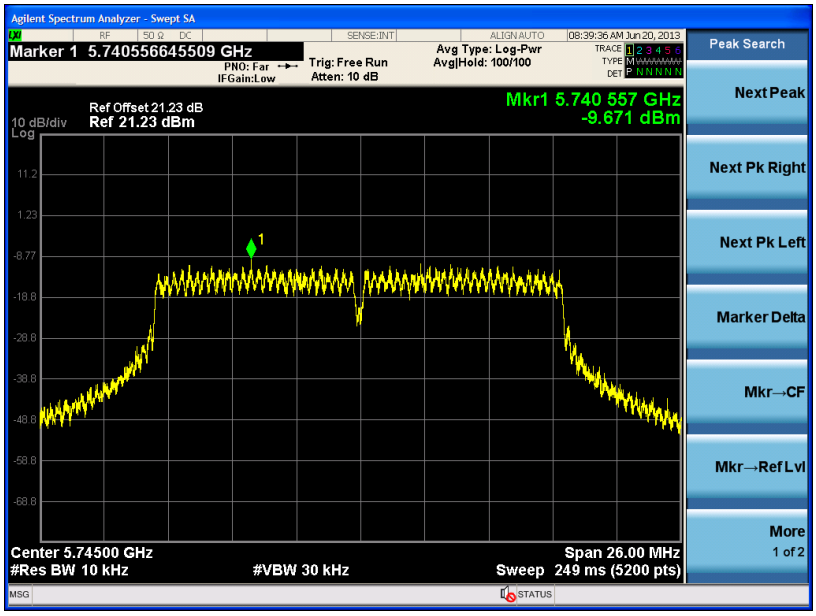
High channel



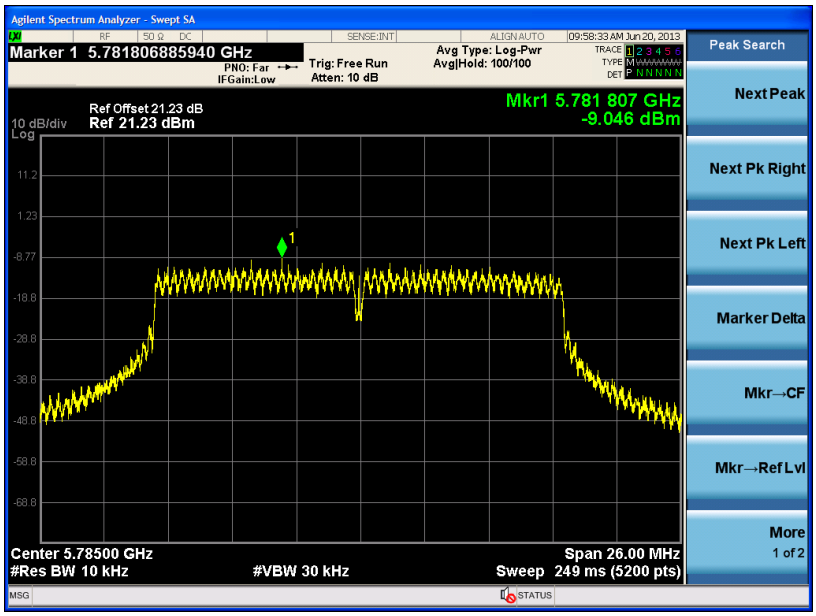
5.8GHz

802.11a

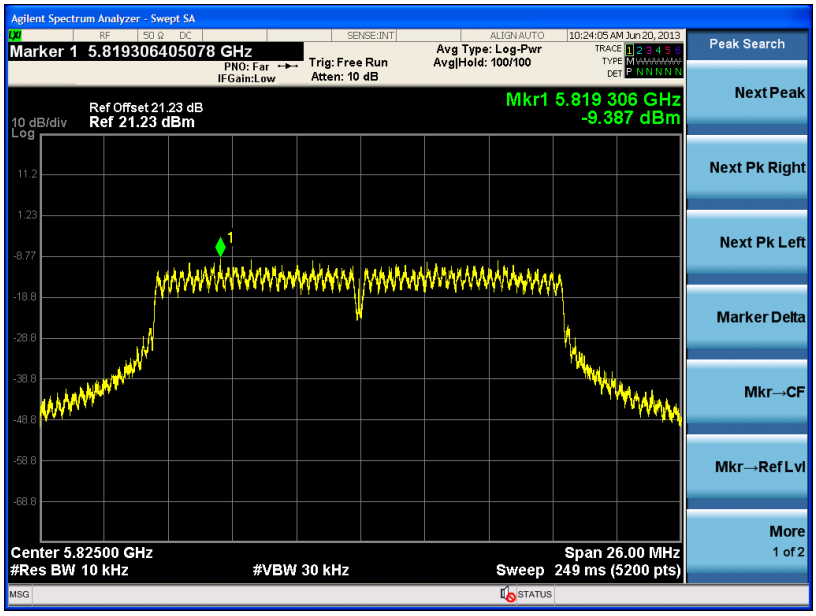
Low channel



Middle channel

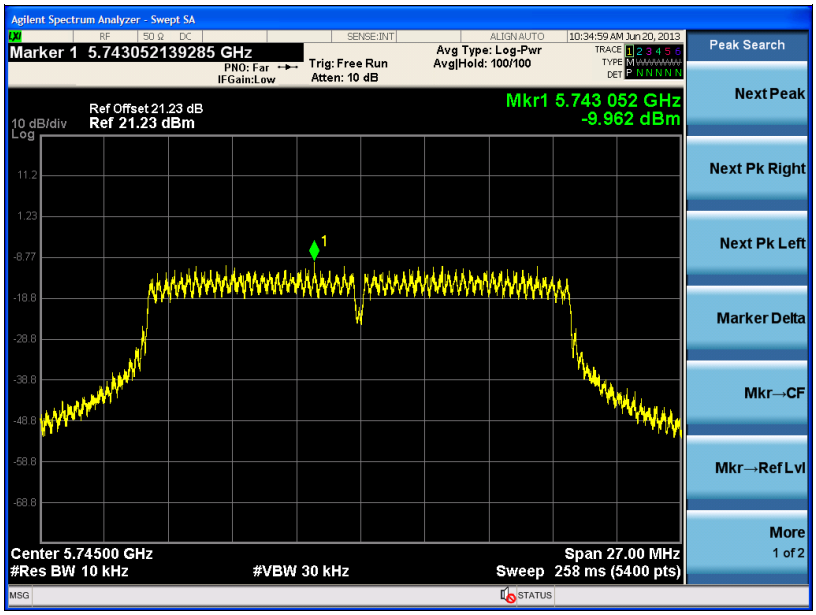


High channel

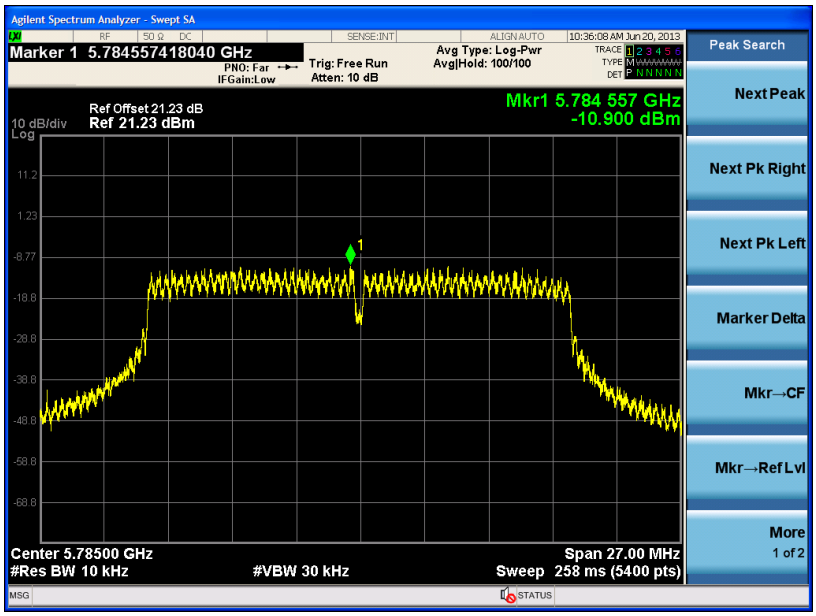


802.11n_HT20(MCS0)

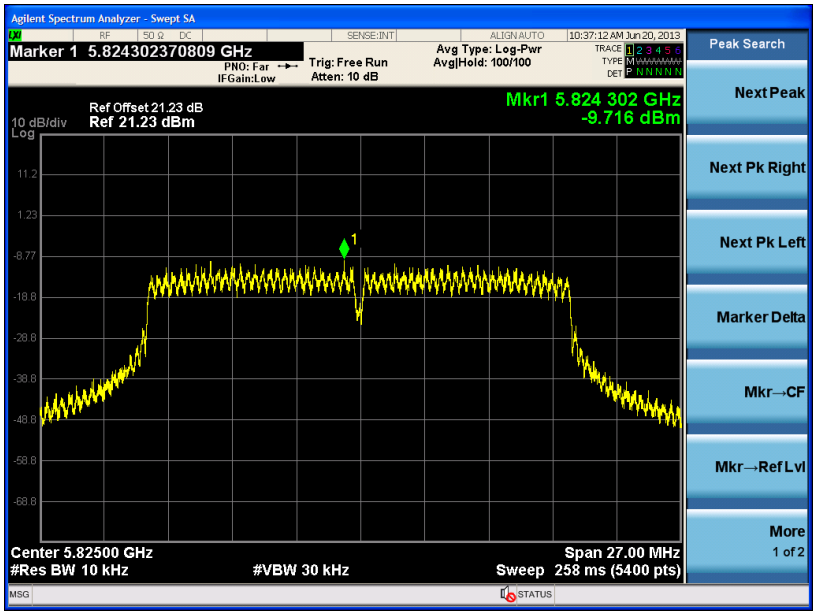
Low channel



Middle channel

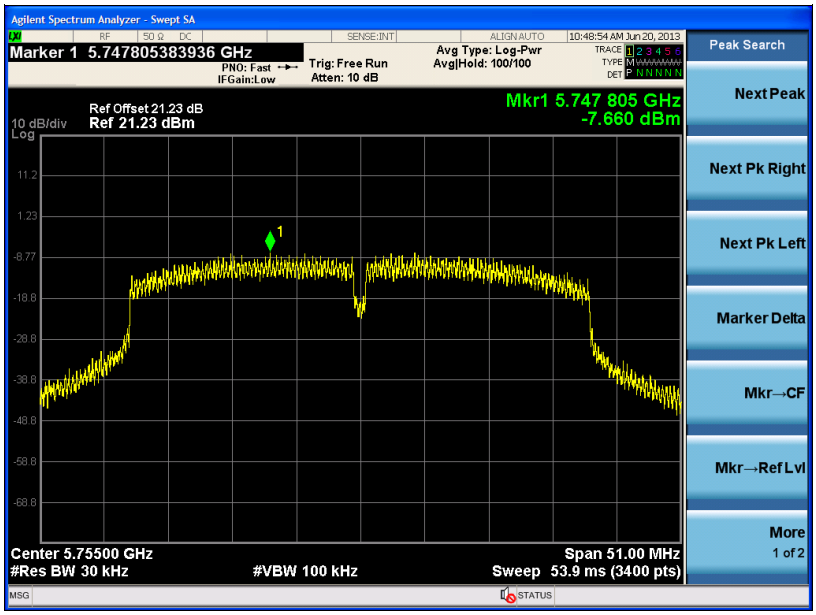


High channel

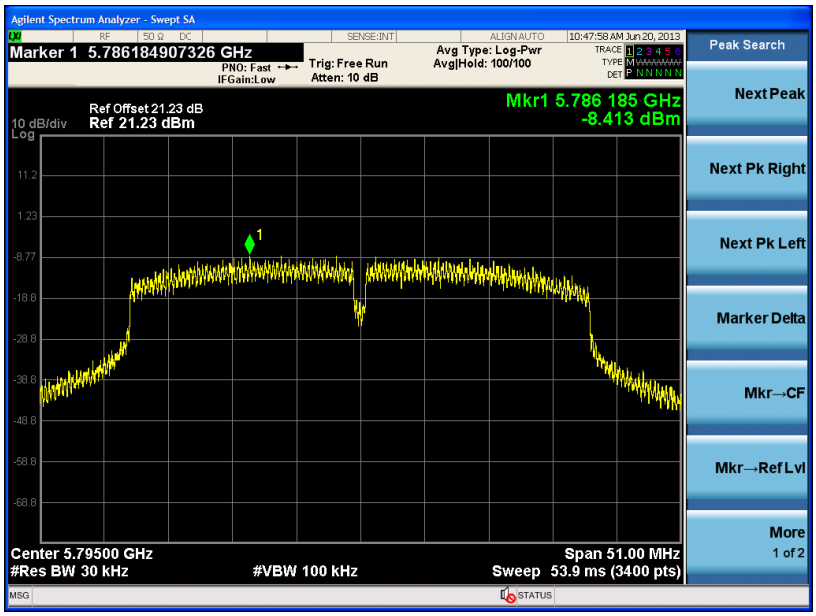


802.11n_HT40(MCS0)

Low channel

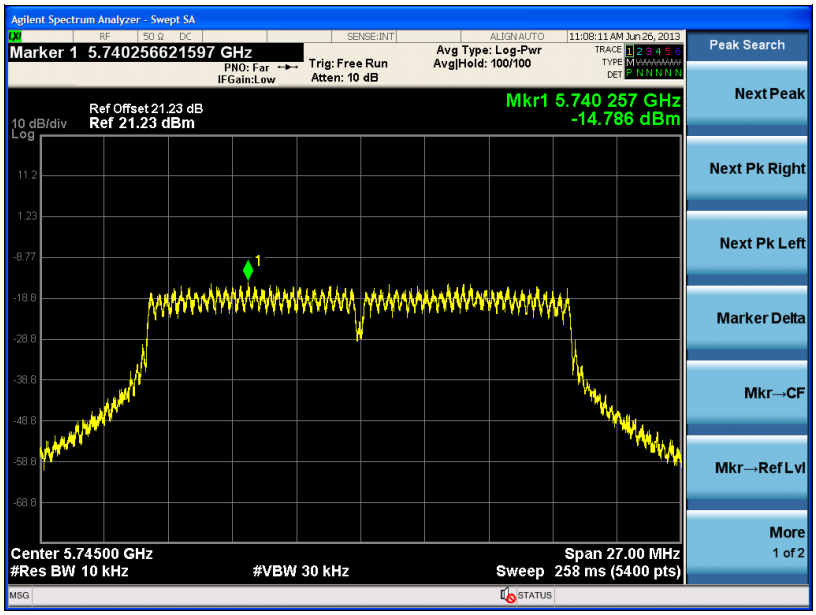


High channel

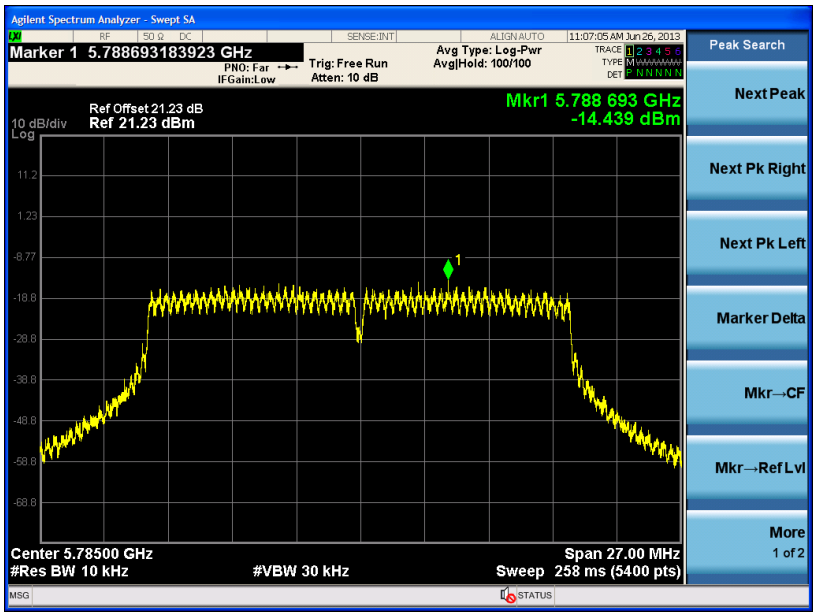


802.11n_HT20(MCS8)

Low channel



Middle channel



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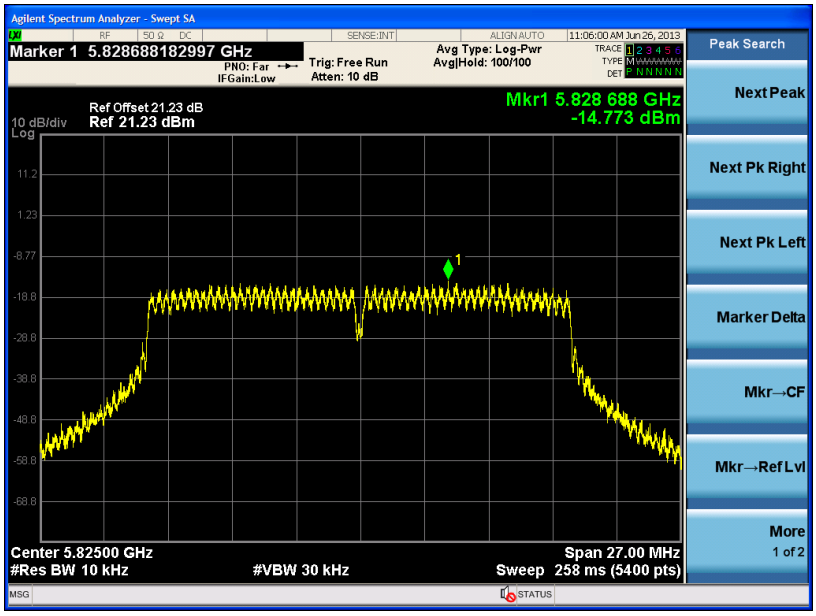
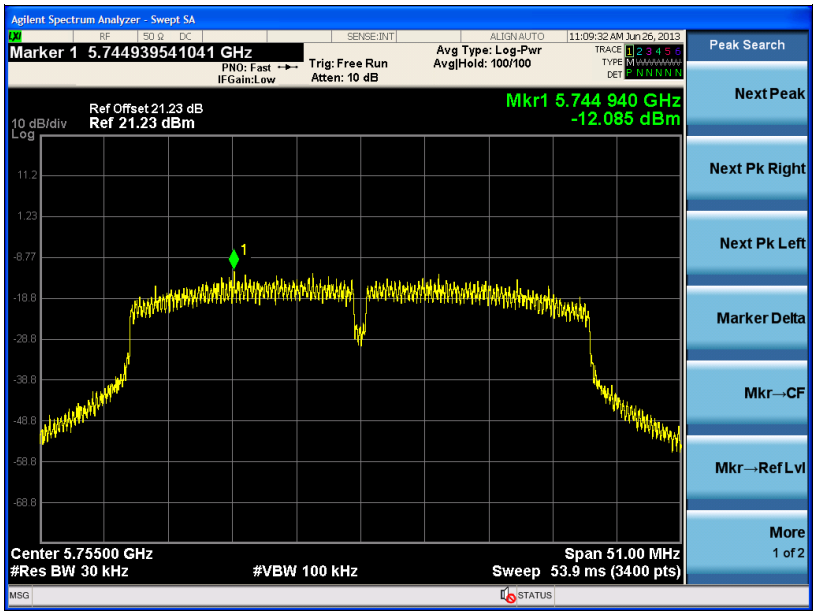
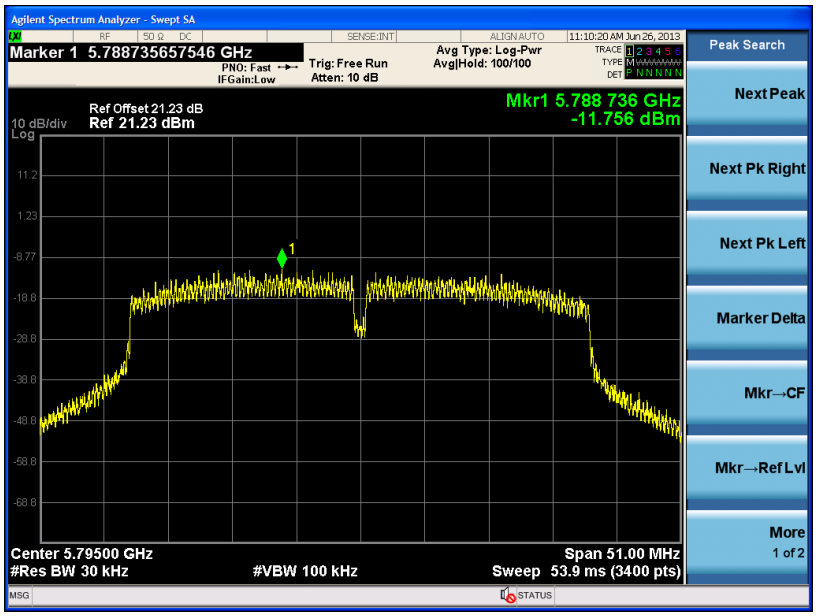


802.11n_HT40(MCS8)

Low channel



High channel

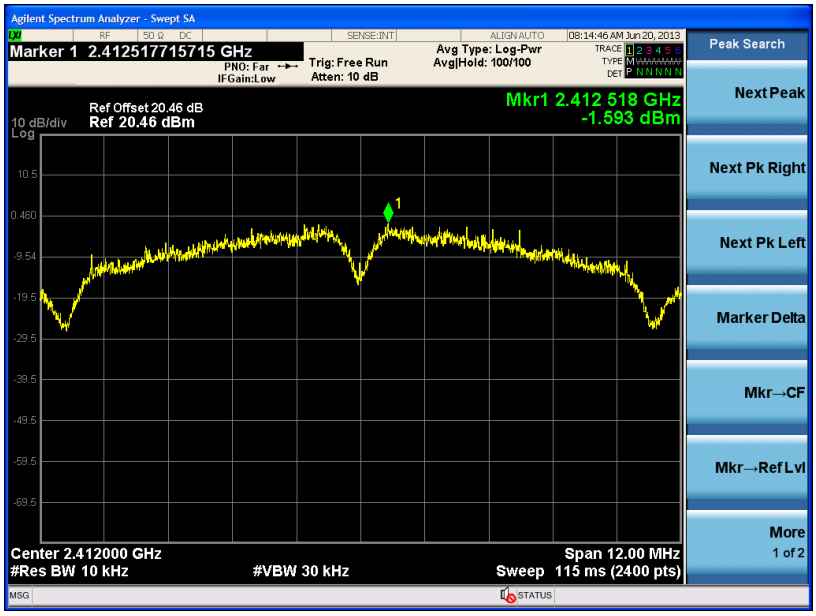


ANT1

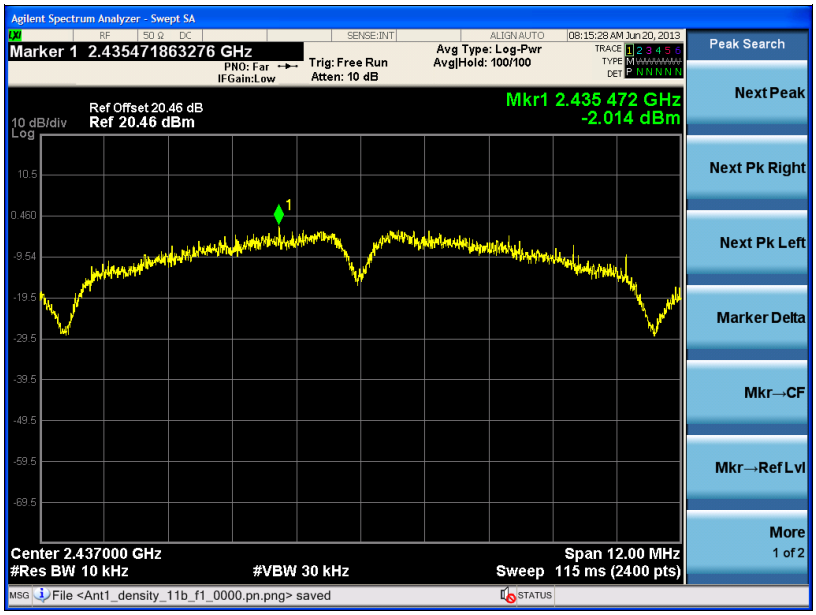
2.4 GHz

DSSS : 802.11b

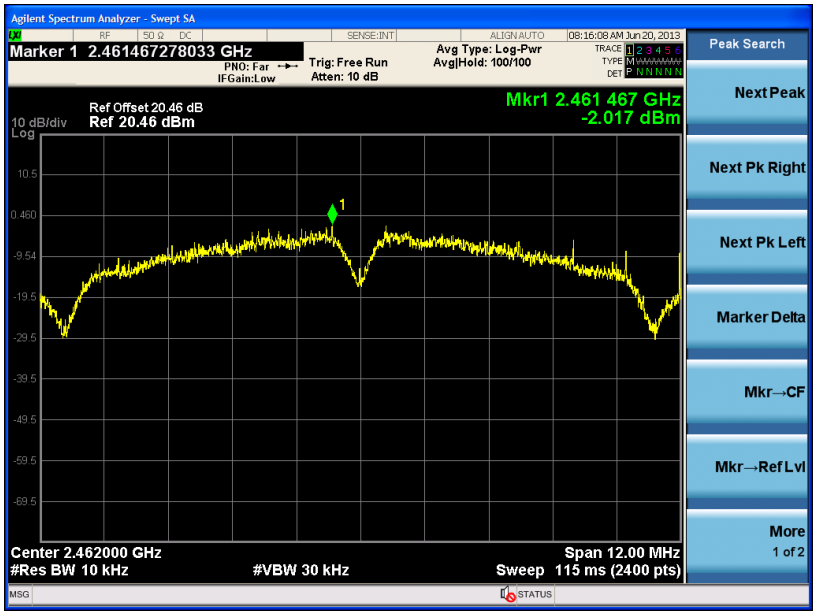
Low channel



Middle channel

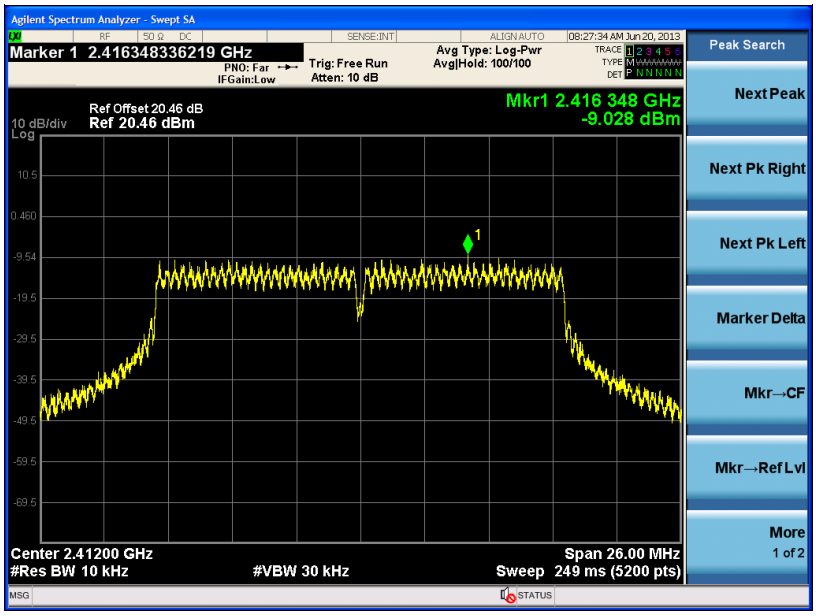


High channel

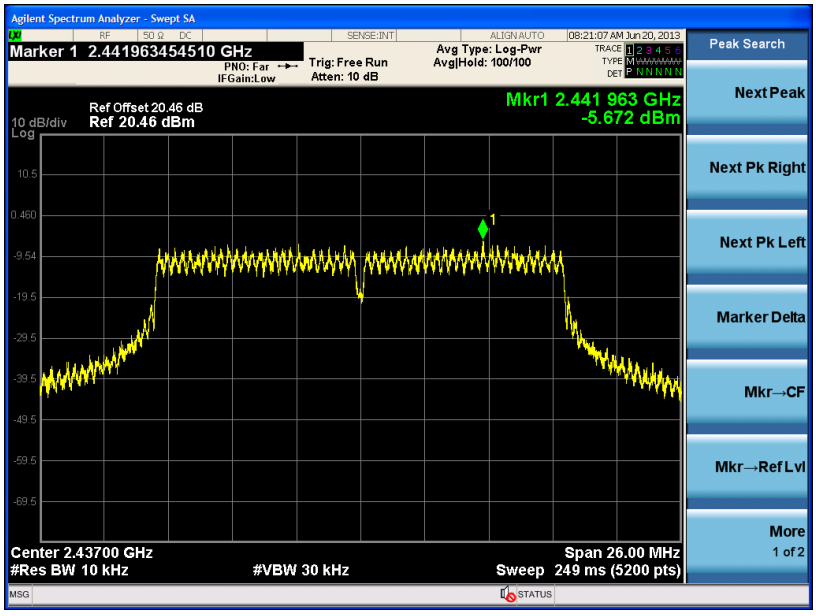


802.11g

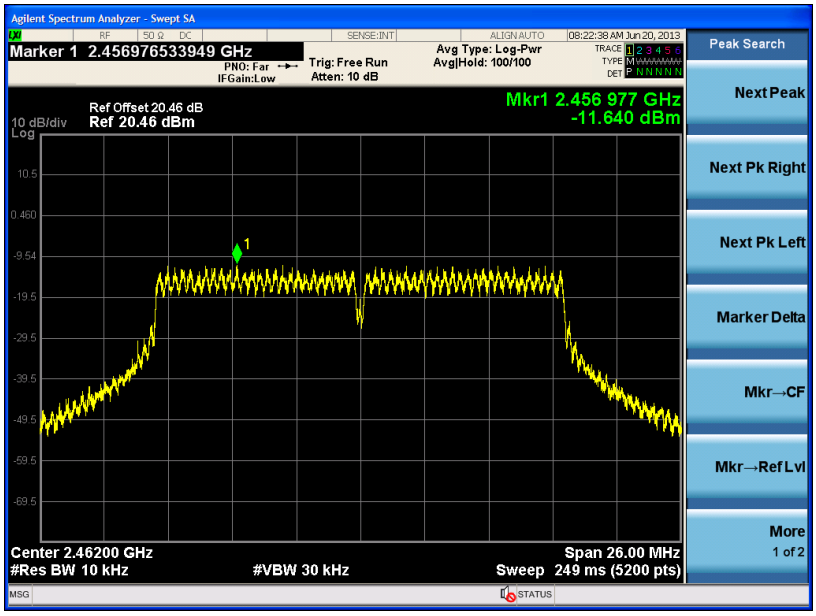
Low channel



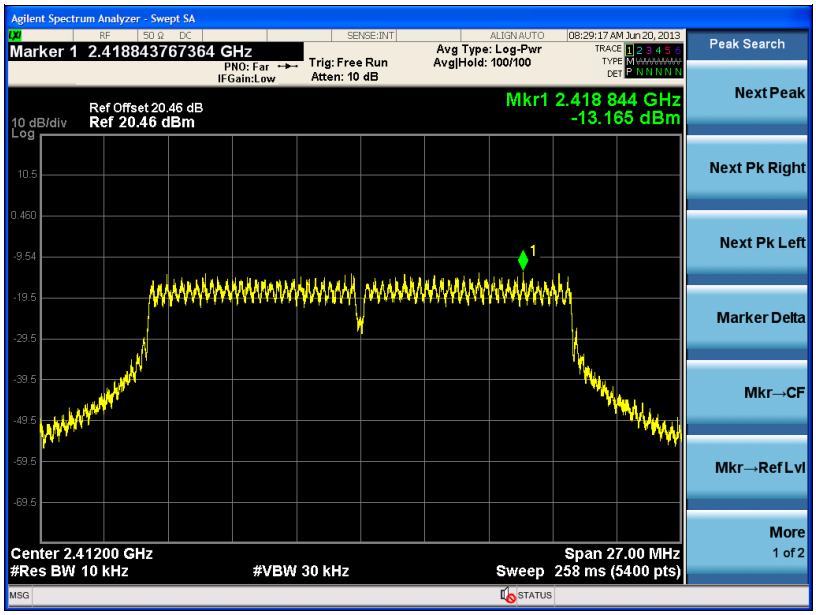
Middle channel



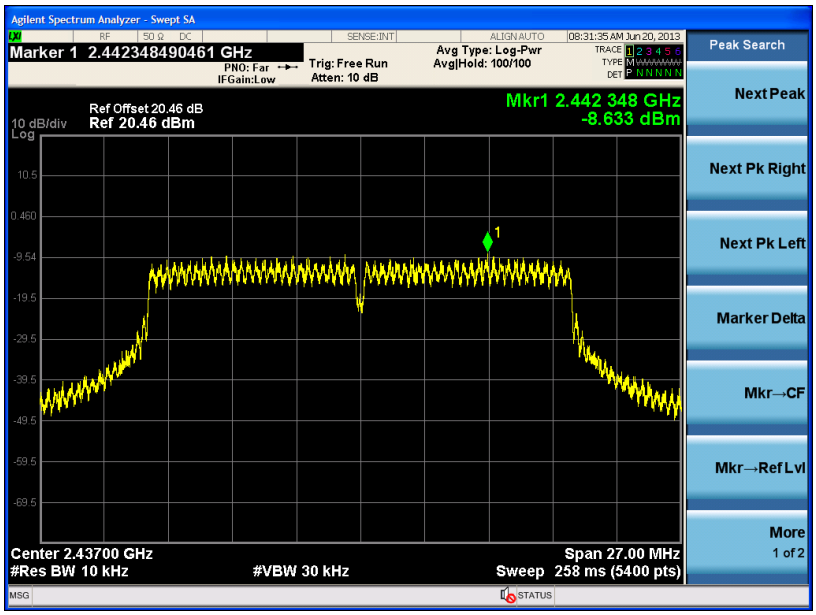
High channel



802.11n_HT20(MCS0)
Low channel



Middle channel



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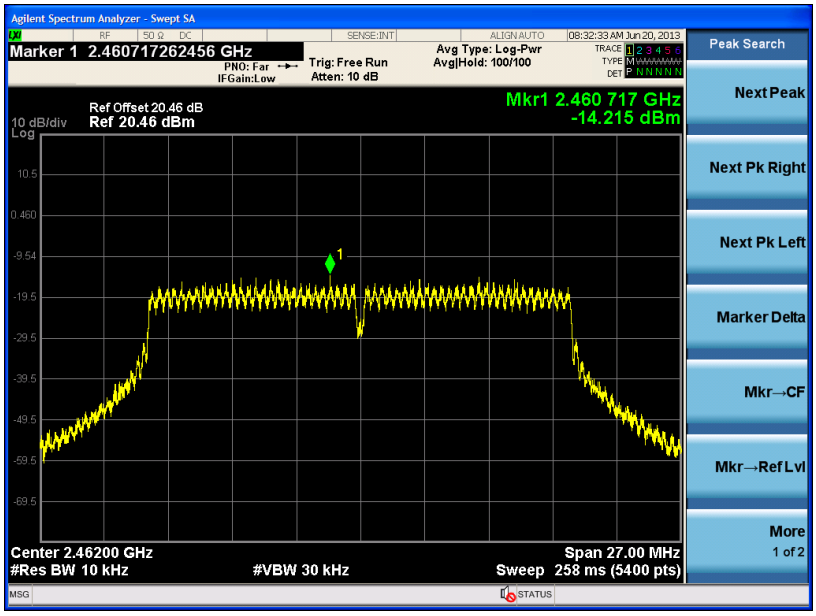
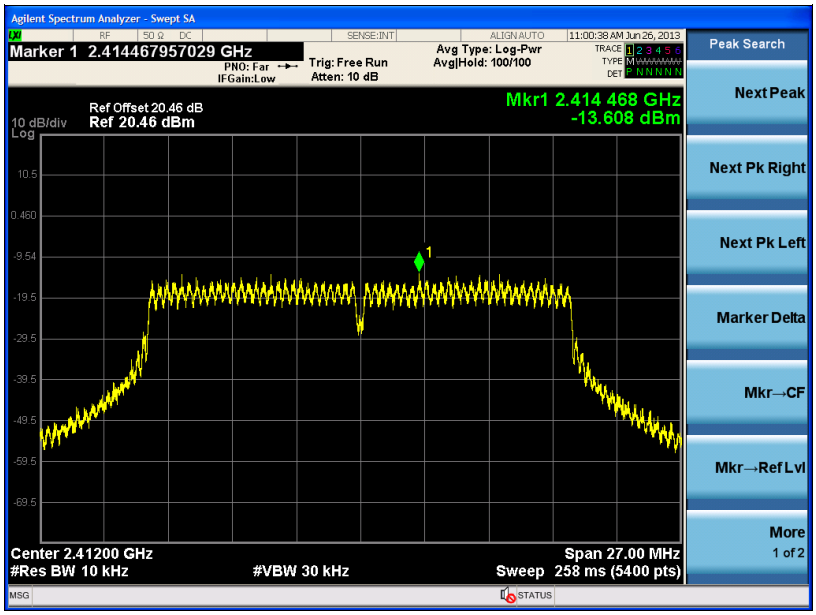
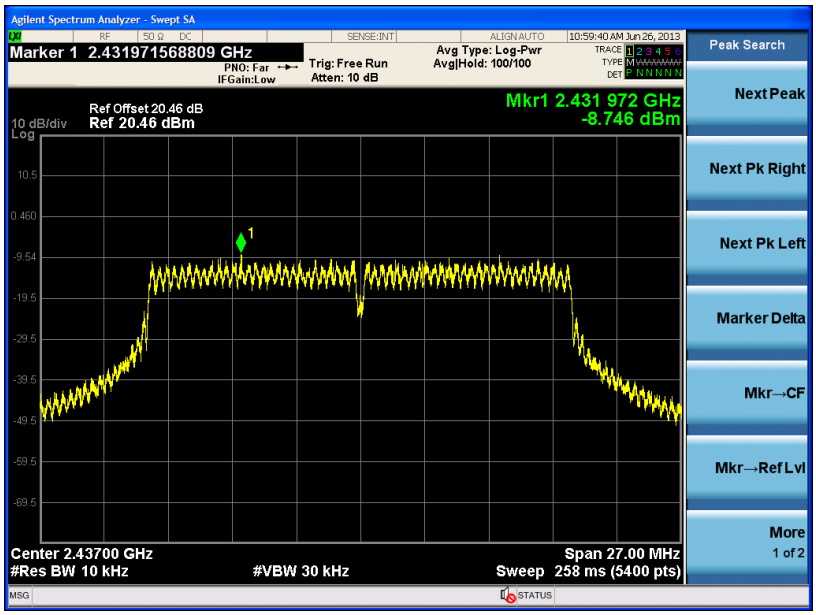


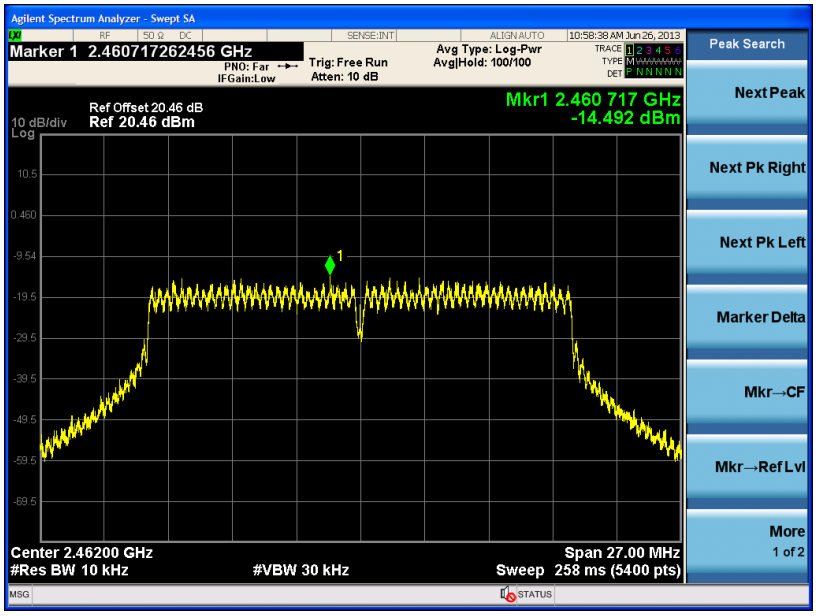
802.11n_HT20(MCS8)
Low channel



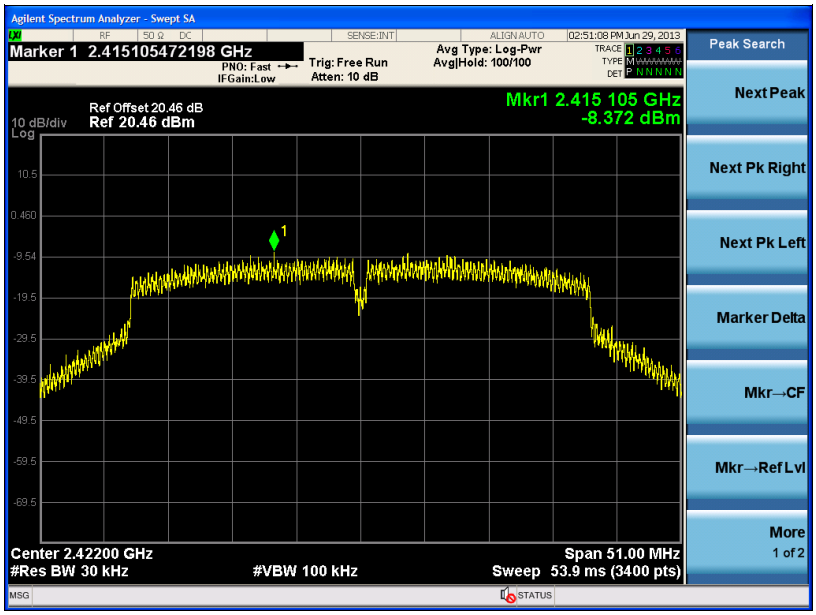
Middle channel



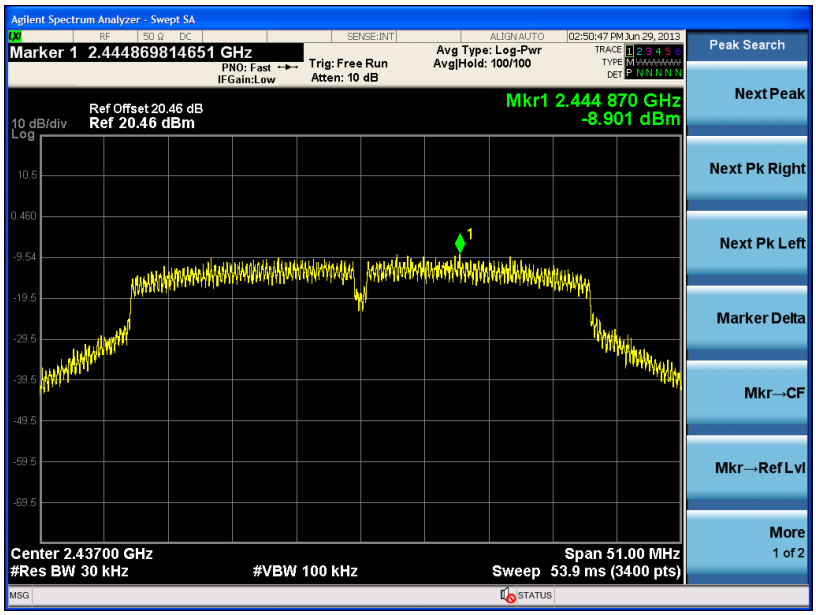
High channel



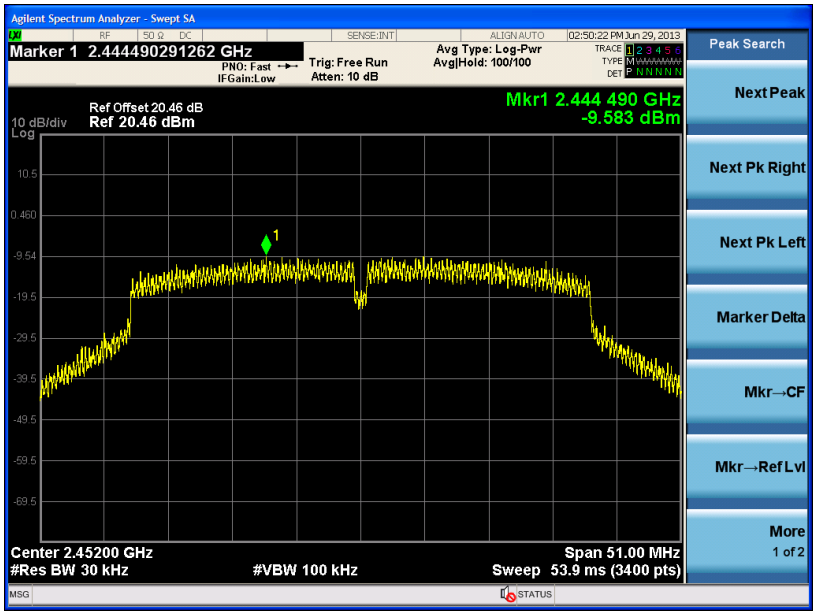
802.11n_HT40(MCS0)
Low channel



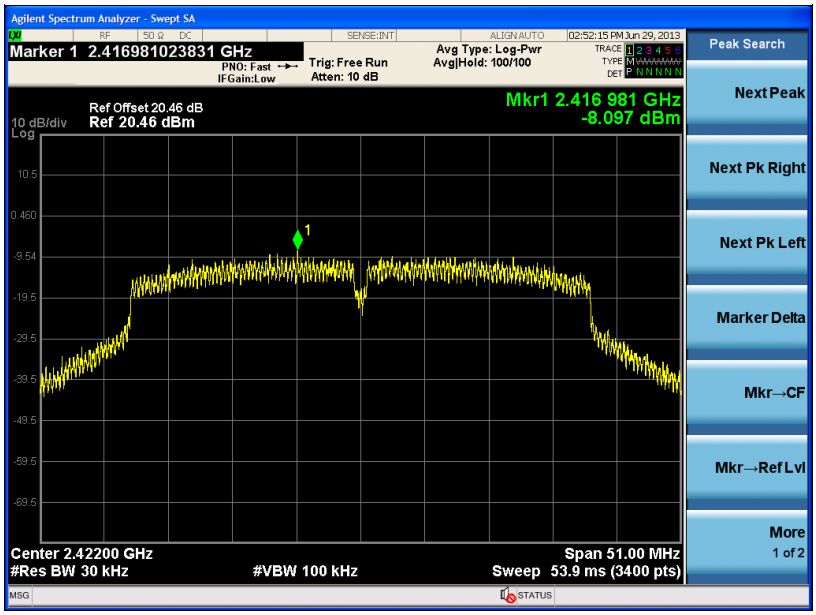
Middle channel



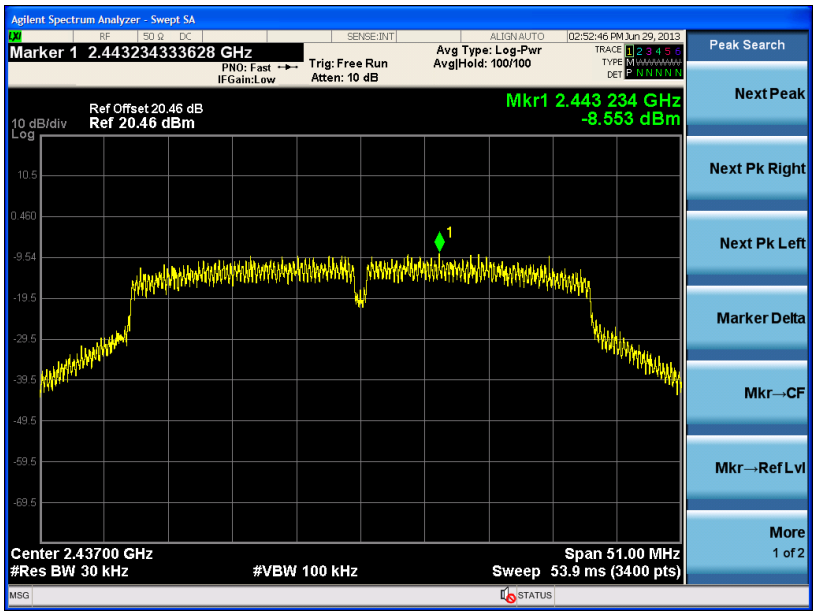
High channel



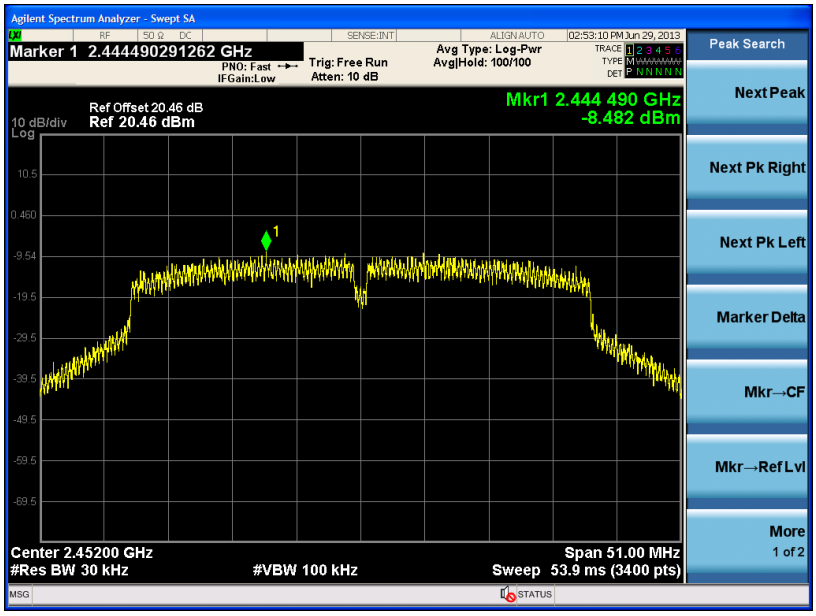
802.11n_HT40(MCS8)
Low channel



Middle channel



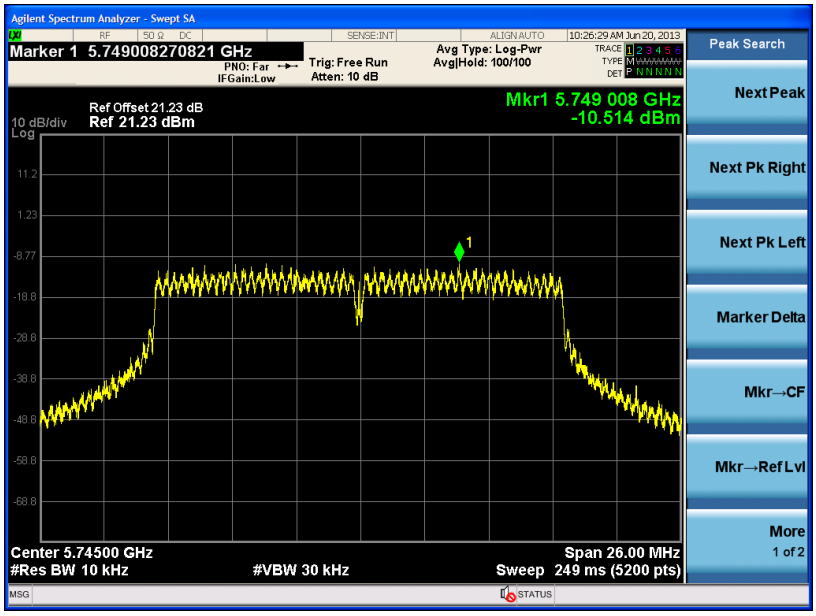
High channel



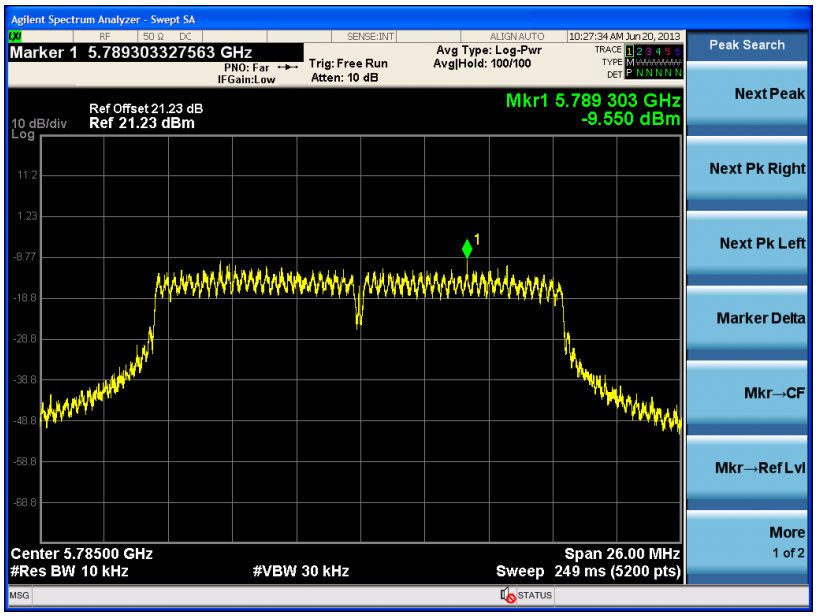
5.8GHz

802.11a

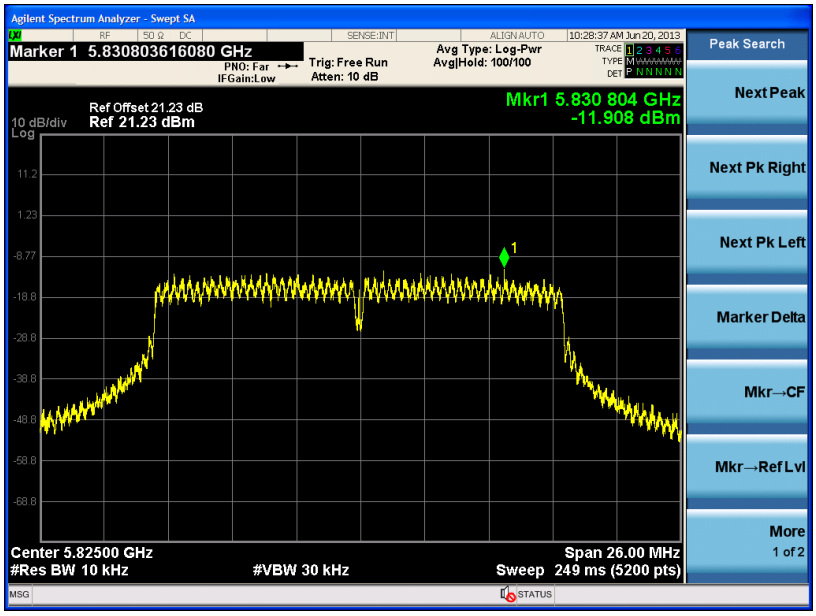
Low channel



Middle channel

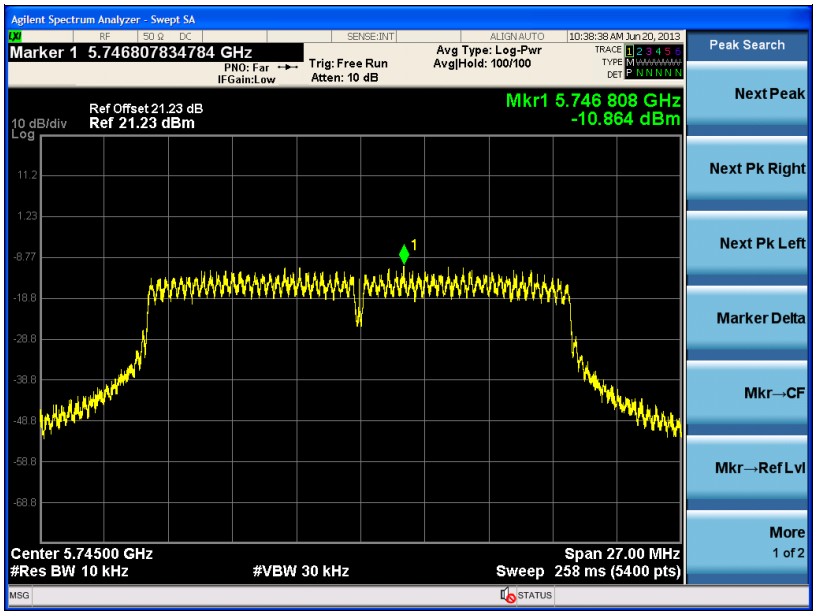


High channel

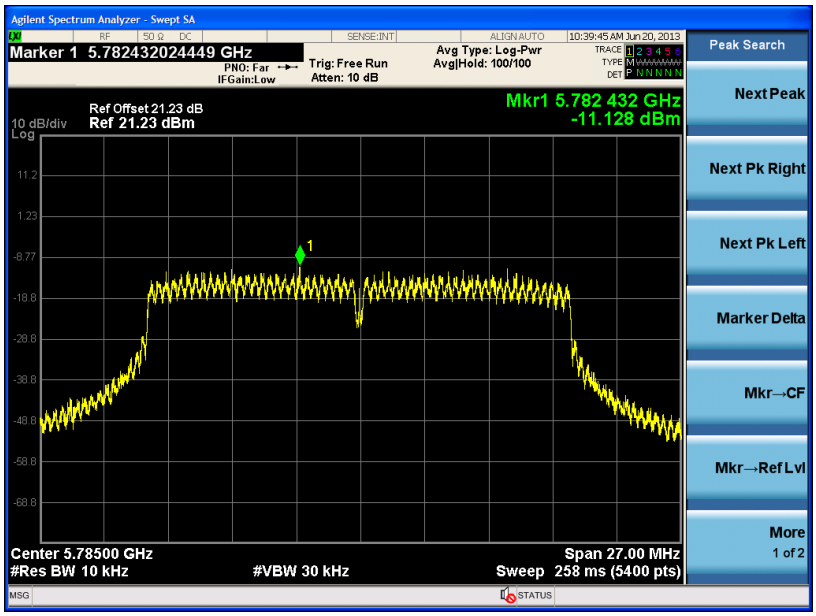


802.11n_HT20(MCS0)

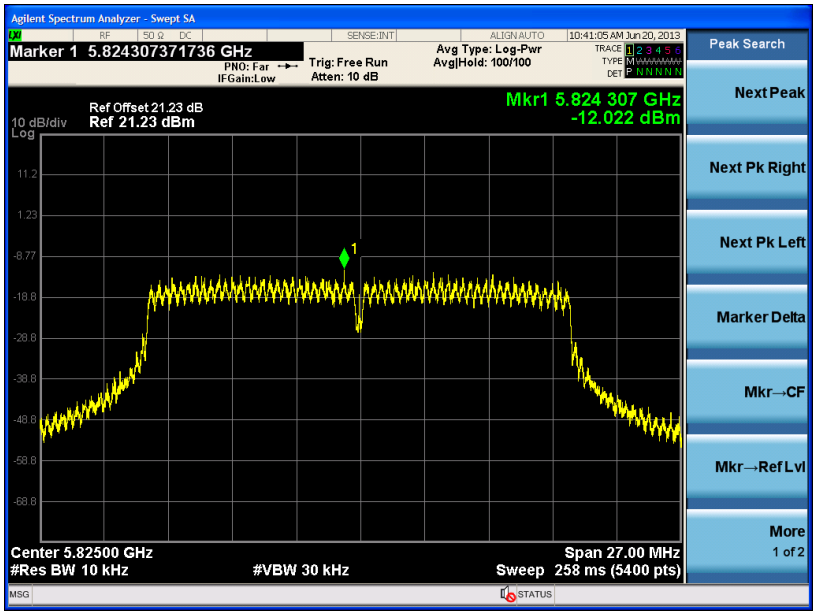
Low channel



Middle channel

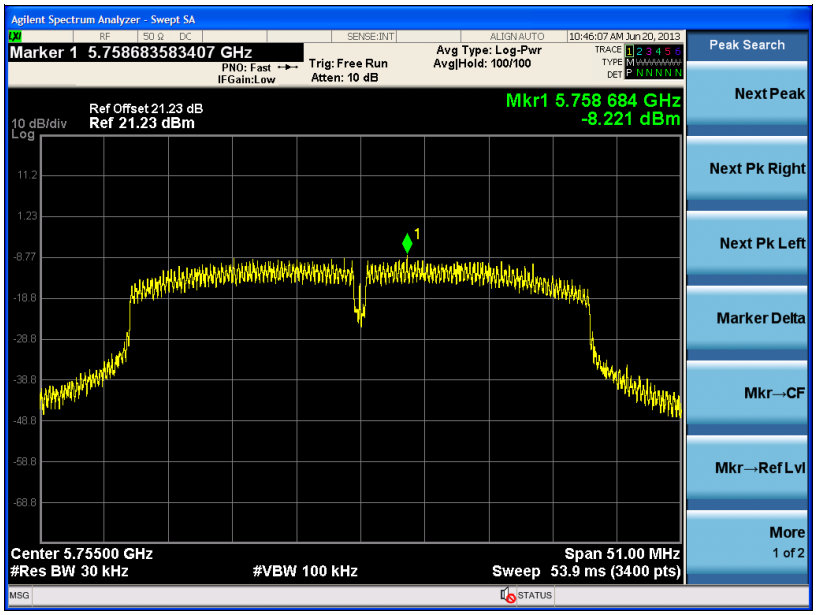


High channel



802.11n_HT40(MCS0)

Low channel



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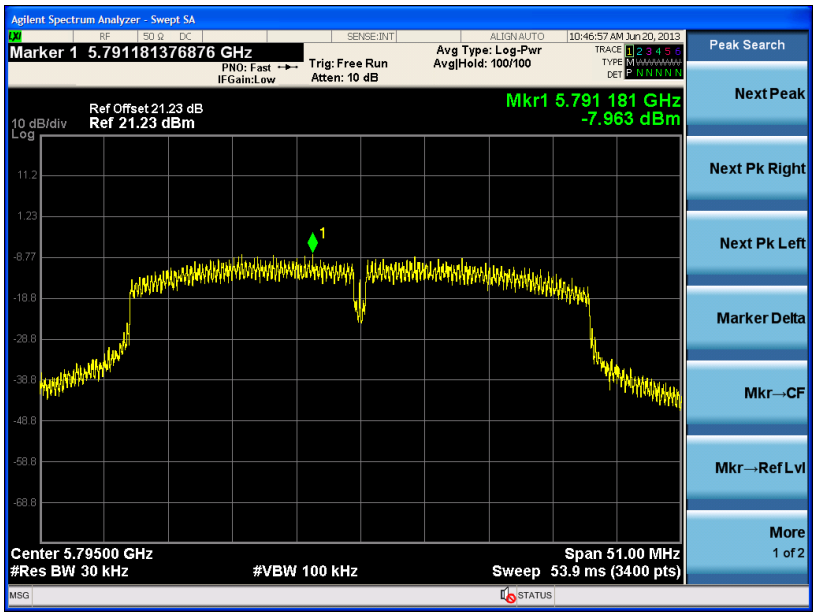
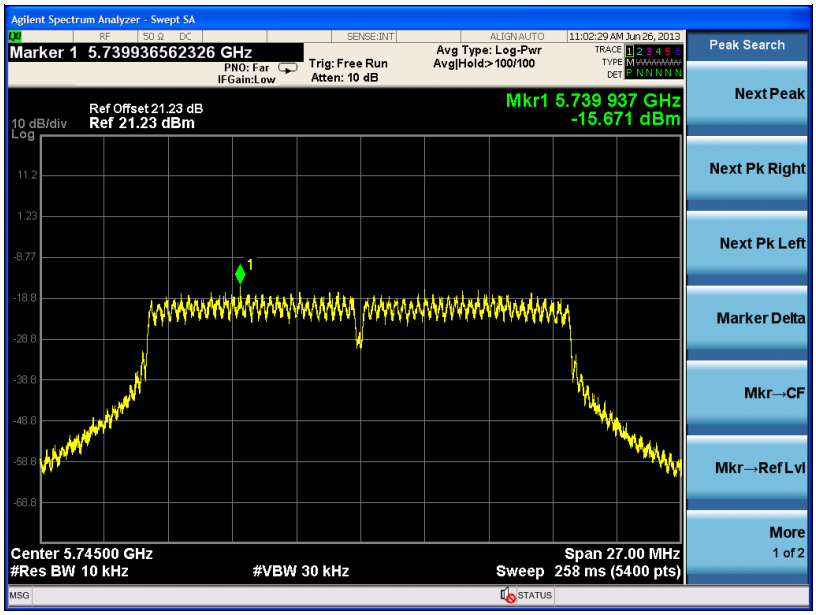
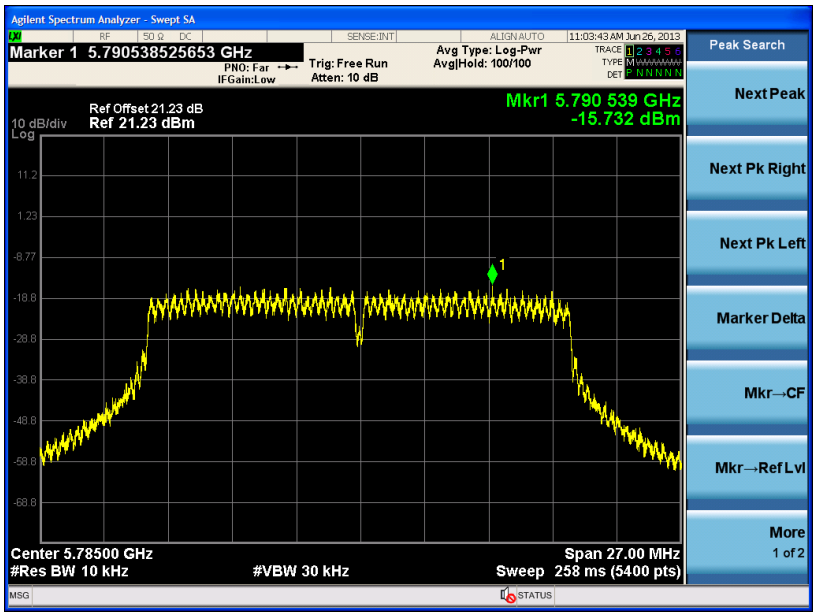


802.11n_HT20(MCS8)

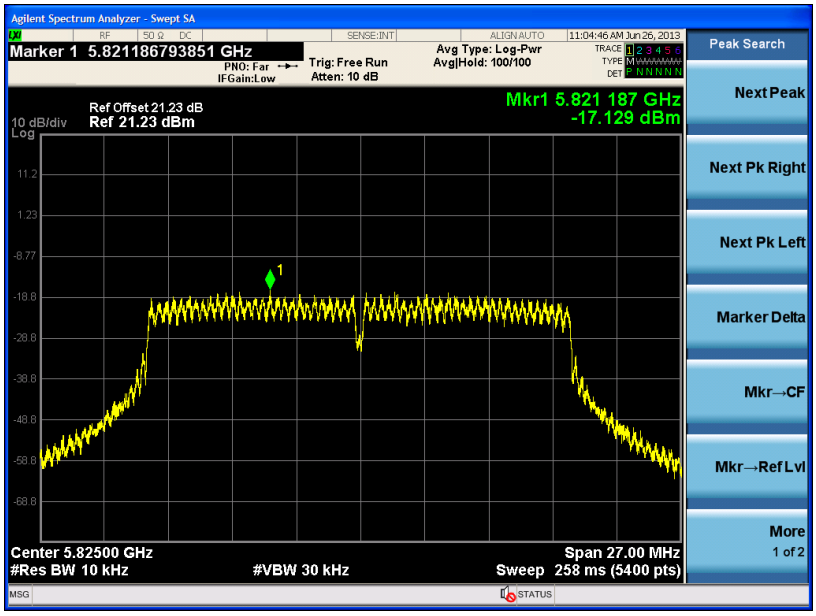
Low channel



Middle channel

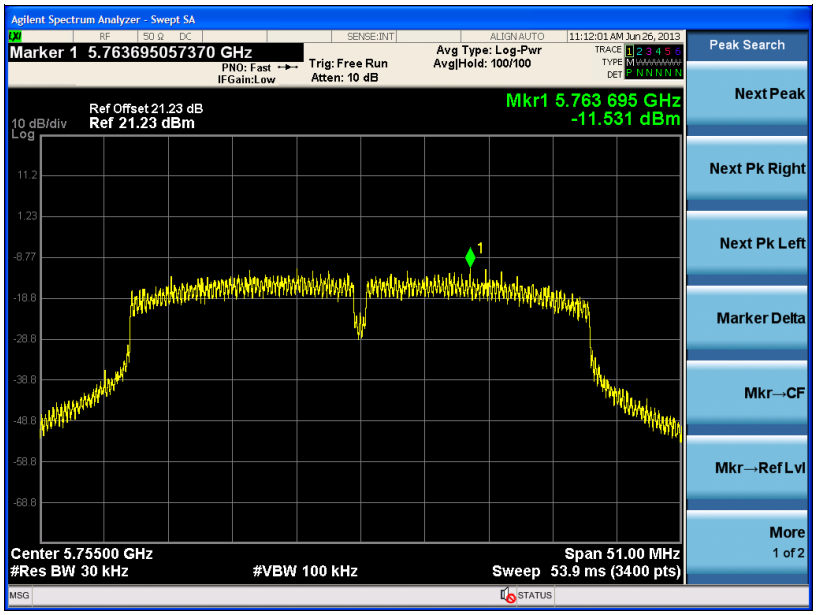


High channel

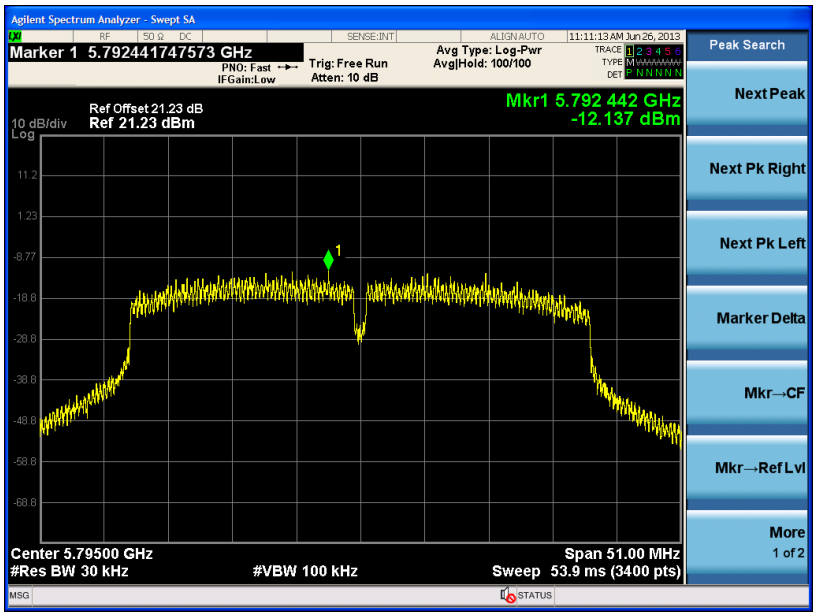


802.11n_HT40(MCS8)

Low channel

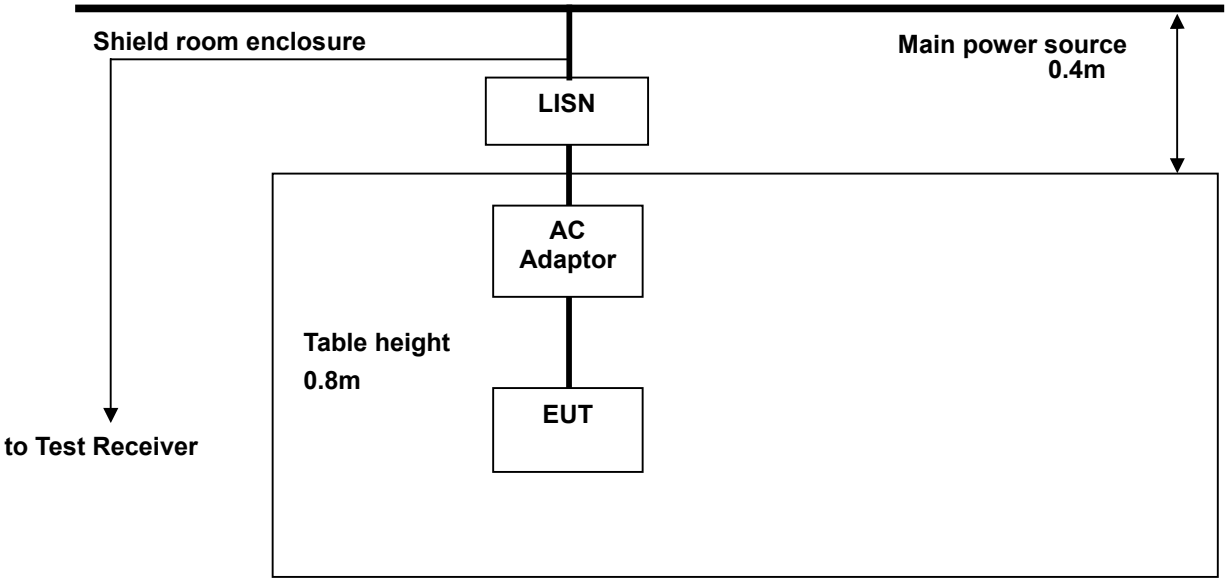


High channel



6. Transmitter AC Power Line Conducted Emission

6.1. Test Setup



6.2. Limit

According to §15.207(a) for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 ㎑ to 30 ㎒, shall not exceed the limits in the following table, as measured using a 50 uH/50 ohm line impedance stabilization network(LISN).
Compliance with the provision of this paragraph shall on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower applies at the boundary between the frequency ranges.

Frequency of Emission (㎒)	Conducted limit (dB㎶)	
	Quasi-peak	Average
0.15 – 0.50	66 - 56*	56 - 46*
0.50 – 5.00	56	46
5.00 – 30.0	60	50

* Decreases with the logarithm of the frequency.

6.3. Test Procedures

All data rates and modes were investigated for this test. The full data for the worst case data rate are reported in this section.
AC line conducted emissions from the EUT were measured according to the dictates of ANSI C63.4-2003

1. The test procedure is performed in a 6.5m × 3.6m× 3.6m (L × W × H) shielded room. The EUT along with its peripherals were placed on a 1.0 m(W)× 1.5 m(L) and 0.8 m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane.
2. The EUT was connected to power mains through a line impedance stabilization network (LISN) which provides 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room.
3. The excess power cable between the EUT and the LISN was bundled. All connecting cables of EUT were moved to find the maximum emission.

6.4. Test Results (Worst case configuration_11n mode_MCS0)

The following table shows the highest levels of conducted emissions on both phase of Hot and Neutral line.

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

Frequency range : 0.15 ㎒ – 30 ㎒
Measured Bandwidth : 9 ㎑

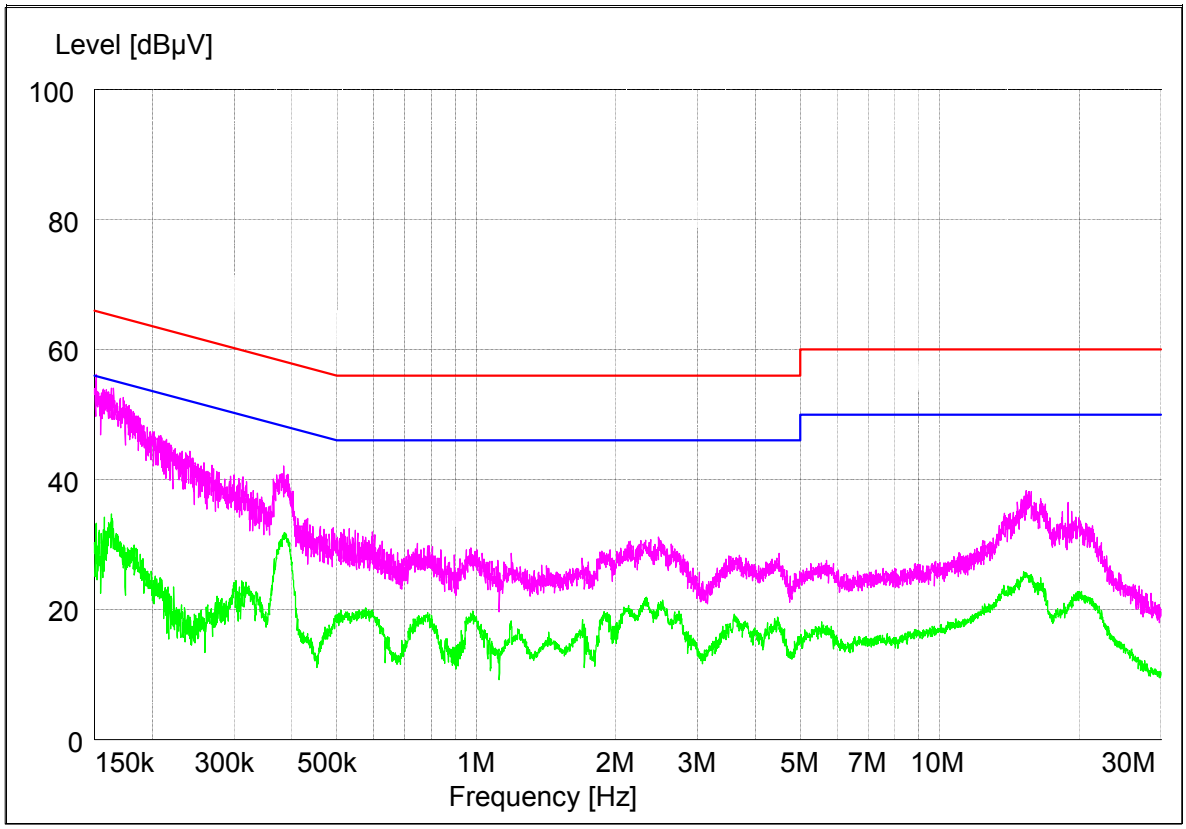
FREQ.	LEVEL(dB㎶)		LINE	LIMIT(dB㎶)		MARGIN(dB)	
(㎒)	Q-Peak	Average		Q-Peak	Average	Q-Peak	Average
0.39	35.61	30.31	H	58.02	48.02	22.41	17.71
0.80	24.51	19.51	H	56.00	46.00	31.49	26.49
2.34	26.45	21.45	H	56.00	46.00	29.55	24.55
5.82	22.41	17.11	H	60.00	50.00	37.59	32.89
15.97	30.75	24.25	H	60.00	50.00	29.25	25.75
19.97	28.71	22.81	H	60.00	50.00	31.29	27.19
0.38	37.49	33.29	N	58.18	48.18	20.69	14.89
0.54	22.59	16.09	N	56.00	46.00	33.41	29.91
1.04	23.20	18.50	N	56.00	46.00	32.80	27.50
3.47	23.63	19.13	N	56.00	46.00	32.37	26.87
15.43	31.02	24.82	N	60.00	50.00	28.98	25.18
16.82	30.55	24.15	N	60.00	50.00	29.45	25.85

Note ;

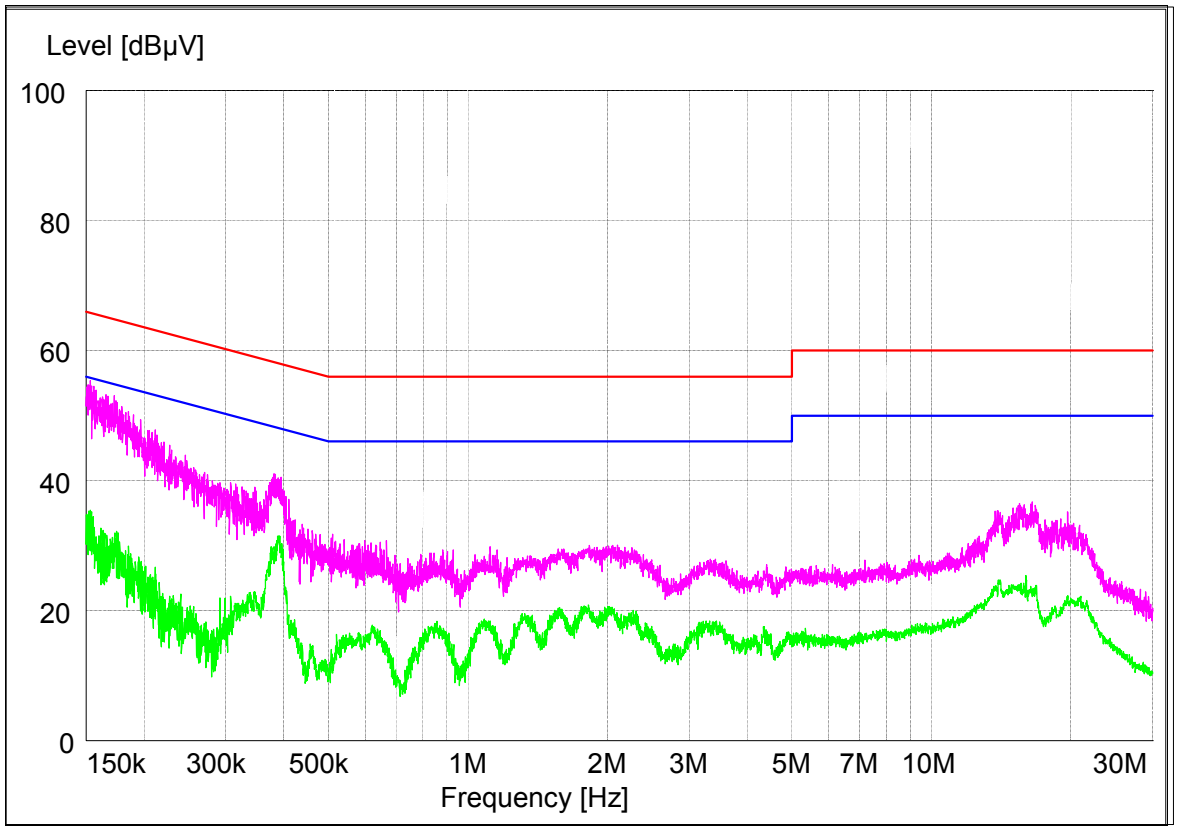
1. Line (H): Hot, Line (N): Neutral
2. All modes of operation were investigated and the worst-case emissions are reported using 11n_MCS0
3. The limit for Class B device(s) from 150 ㎑ to 30 ㎒ are specified in Section of the Title 47 CFR.
4. Traces shown in plot mad using a peak detector and average detector
5. Deviations to the Specifications: None.

Plots of Conducted Power line

Test mode : (Hot)



Test mode : (Neutral)



7. Antenna Requirement

7.1. 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 §15.247 (b) if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the gain of the antenna exceeds 6 dBi.

7.2. Antenna Connected Construction

The antenna used of this product is the internal antenna and peak max gain of each antennas as below .

The peak max gain of each antennas ANT0 & ANT1 and calculated antenna gain of ANT0+ANT1 are as below :

Antenna	11b/g/n	11a/n
ANT0	-1.82	-4.06
ANT1	-3.78	-1.42
ANT0+ANT1 (Calculated)	0.32	0.47

Formula

- ANT0+ANT1 (Calculated) = 10log [{10^(ANTB/20)+10^(ANTC/20)}^{2}/2]