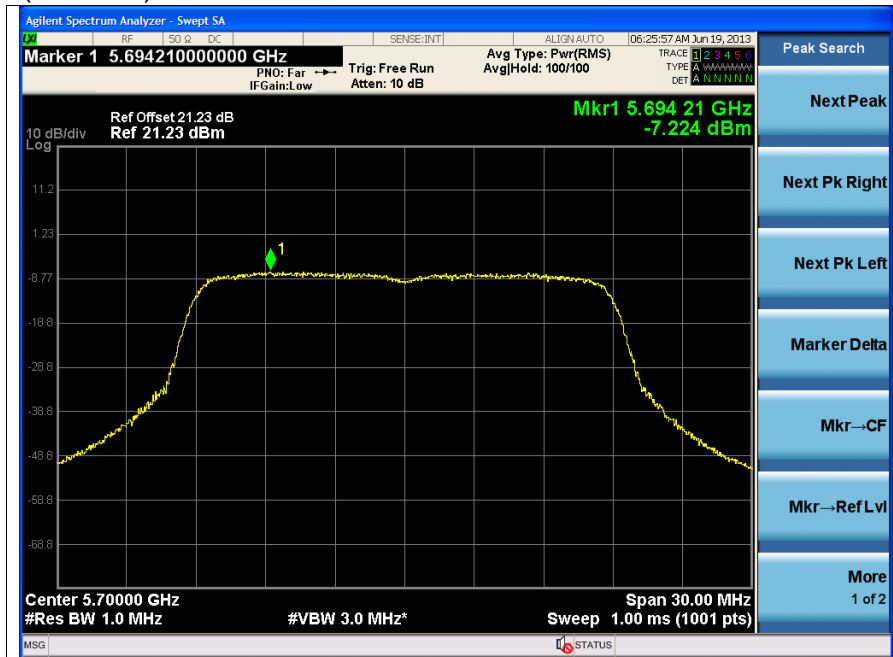


High Channel (5 700 MHz)



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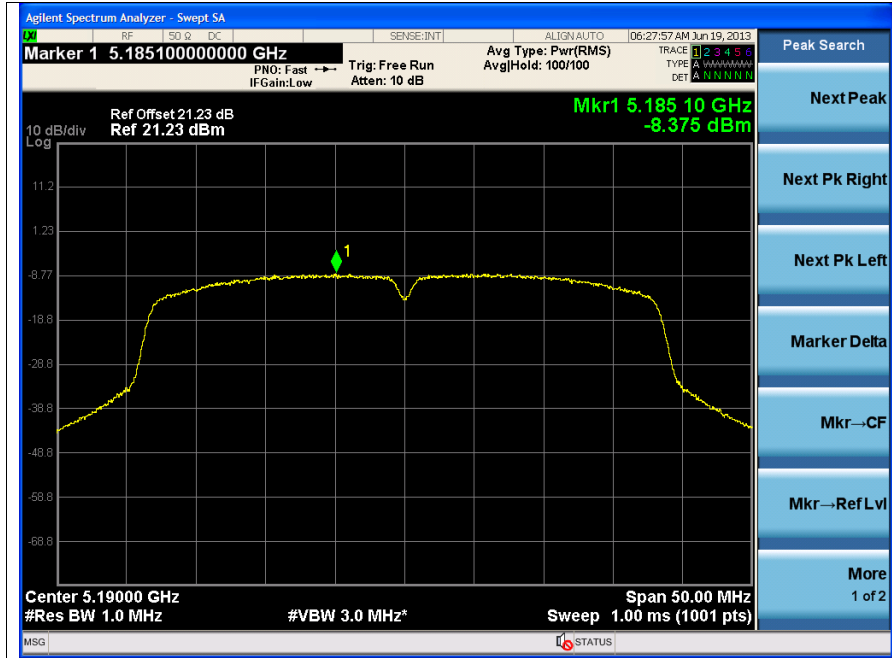
SGS Korea Co., Ltd. (Gunpo Laboratory) 18-34, Sanbon-dong, Gunpo-si, Gyeonggi-do, Korea, 435-040

Tel. +82 31 428 5700 / Fax. +82 31 427 2371

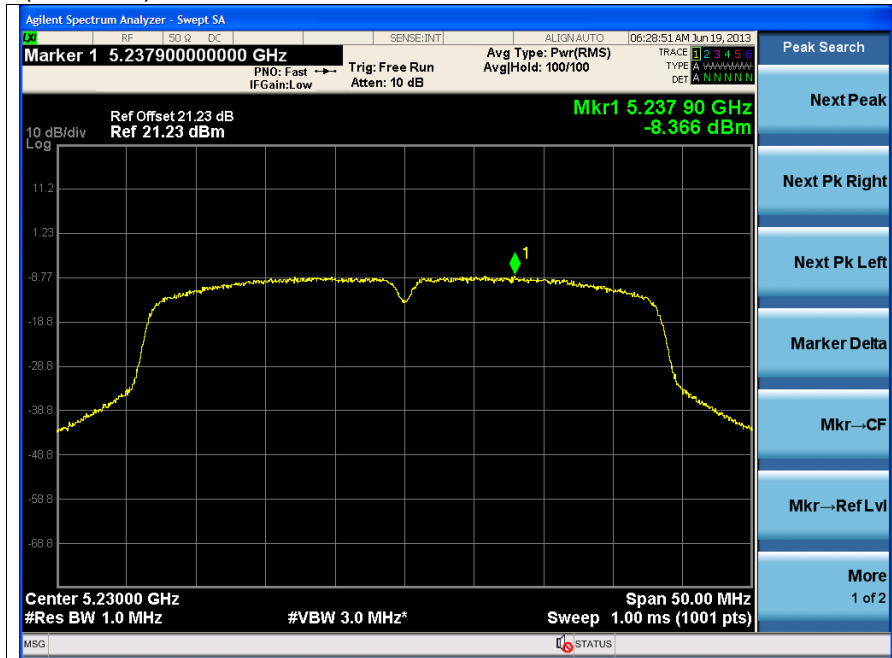
www.ee.sgs.com/korea

802.11n_HT40 (MCS8)

Low Channel (5 190 MHz)



High Channel (5 230 MHz)



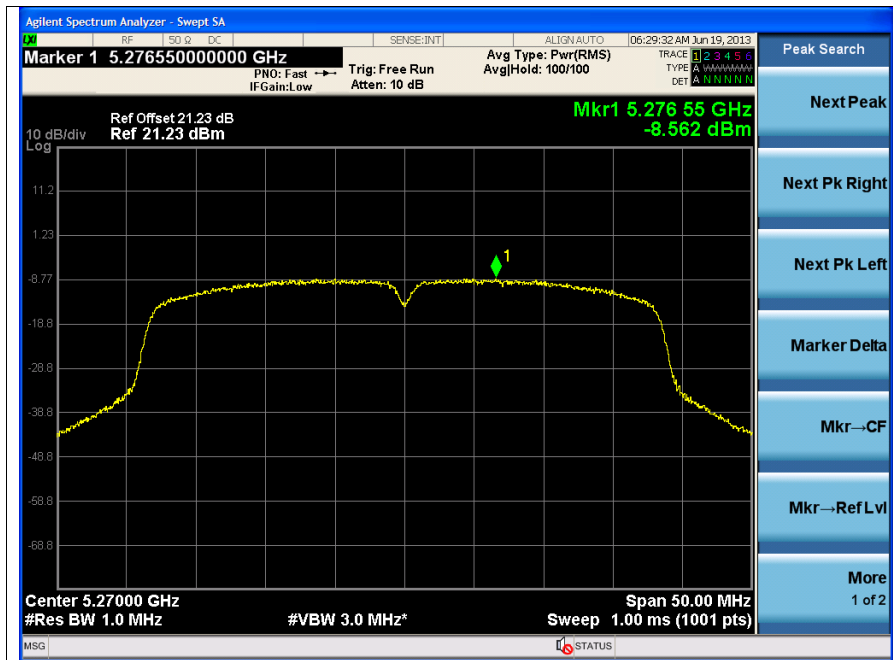
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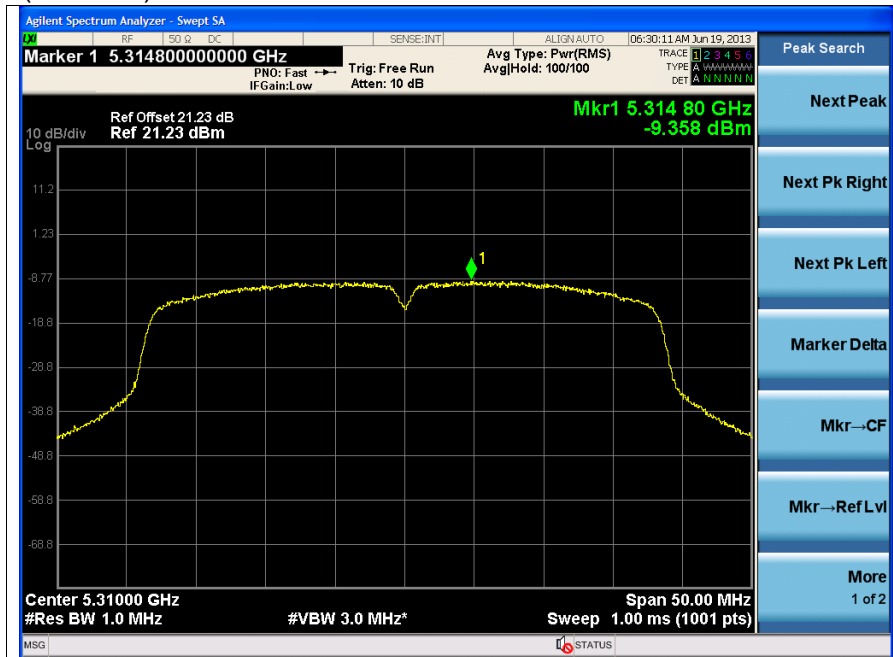
Tel. +82 31 428 5700 / Fax. +82 31 427 2371

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Low Channel (5 270 MHz)



High Channel (5 310 MHz)



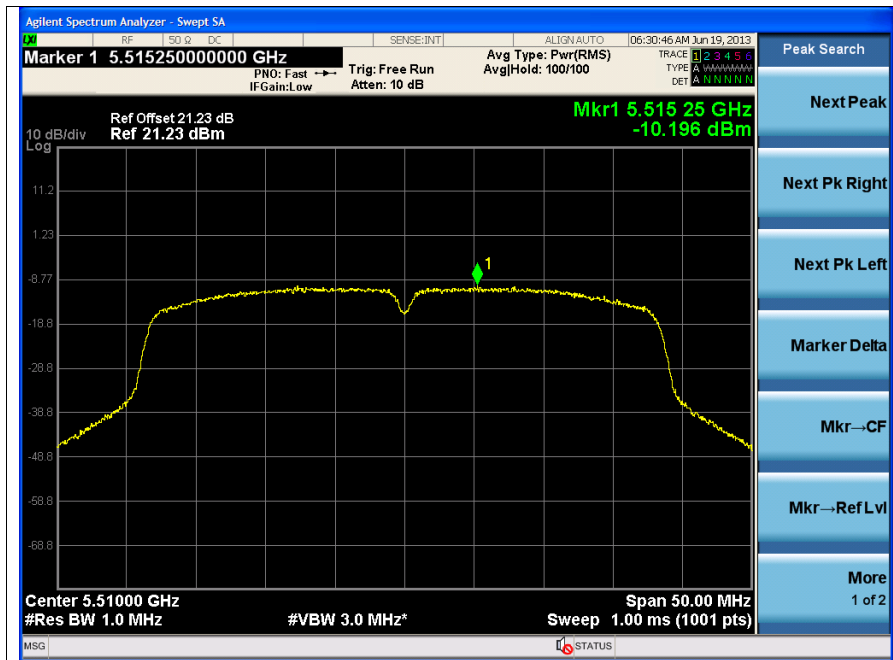
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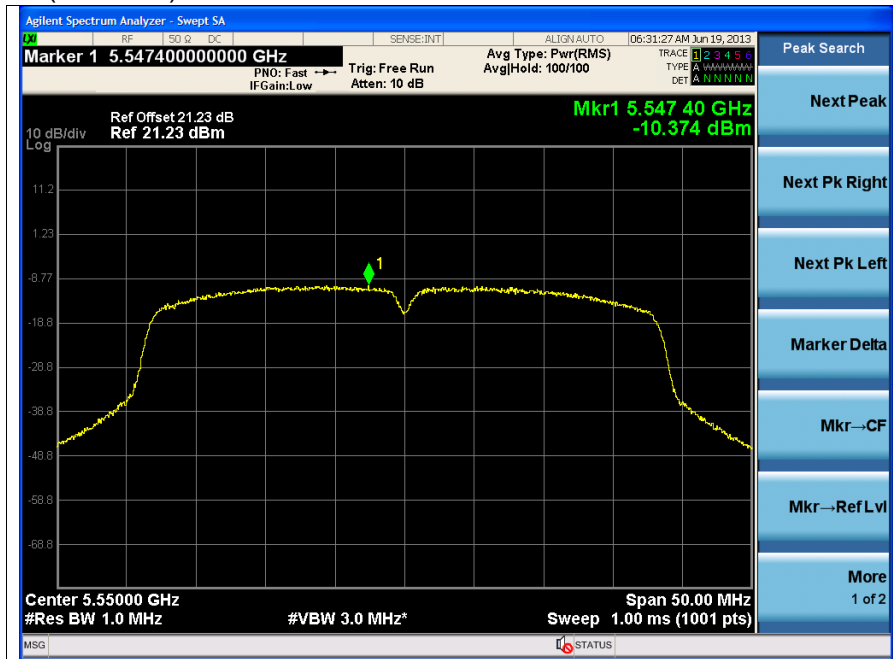
Tel. +82 31 428 5700 / Fax. +82 31 427 2371

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Low Channel (5 510 MHz)



Middle Channel (5 550 MHz)



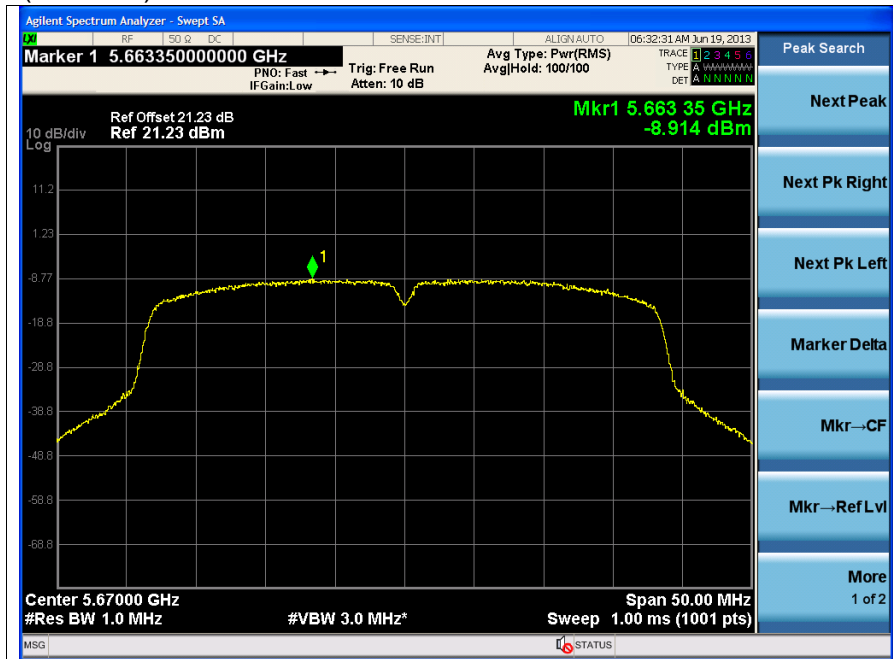
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High Channel (5 670 MHz)



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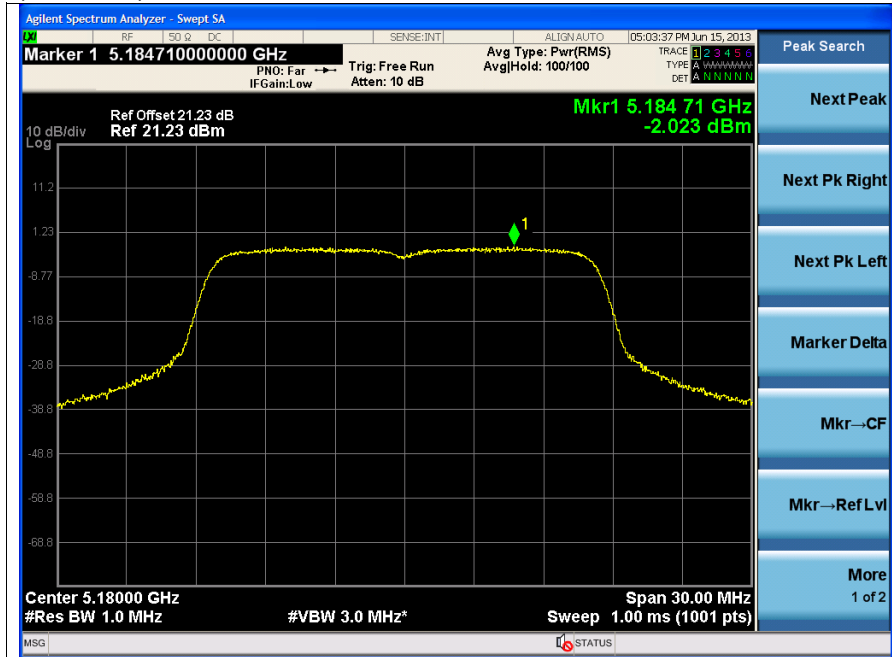
Tel. +82 31 428 5700 / Fax. +82 31 427 2371

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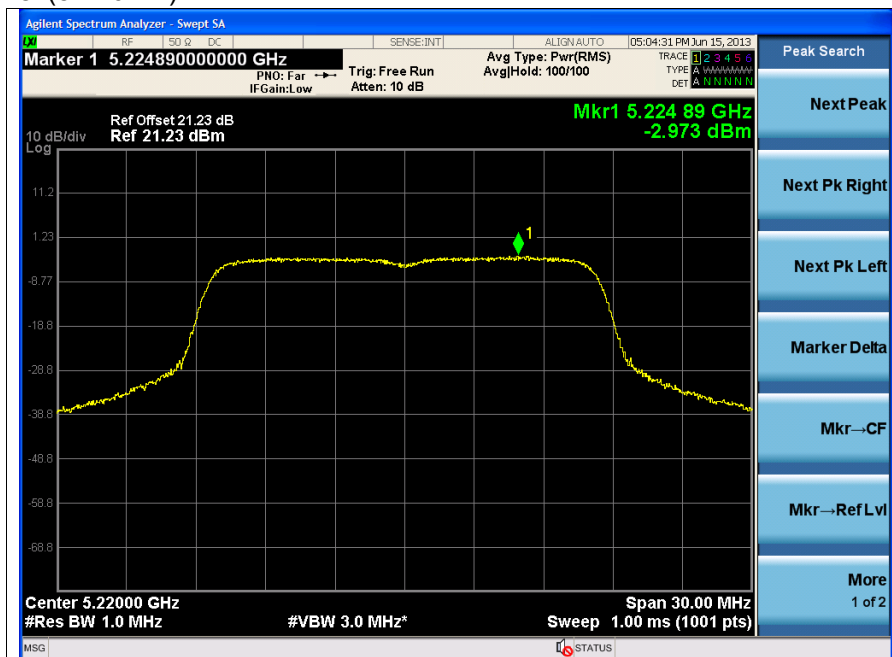
Ant 1

802.11a (6 Mbps)

Low Channel (5 180 MHz)



Middle Channel (5 220 MHz)



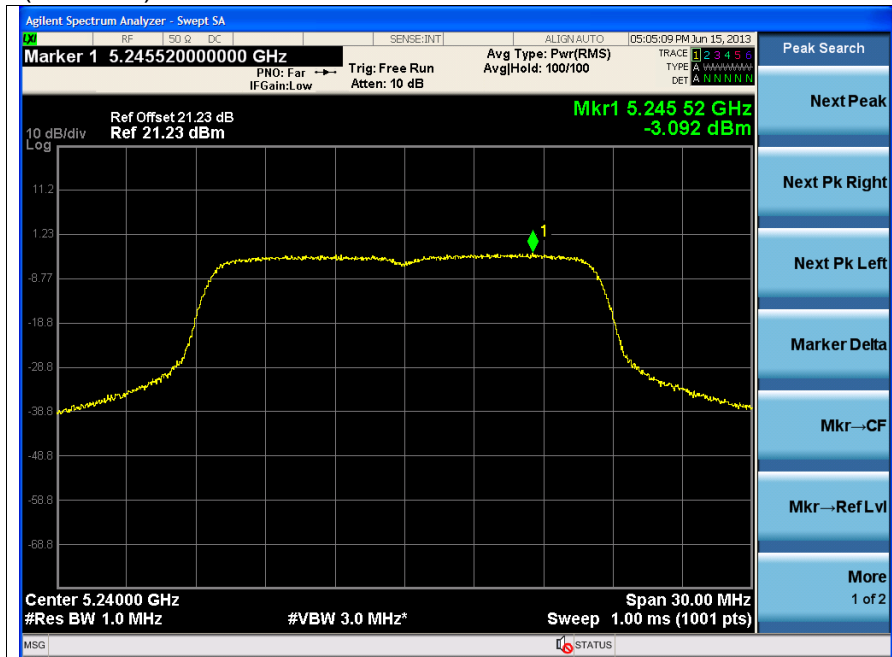
The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report cannot be reproduced, except in full, without prior written permission of the Company.

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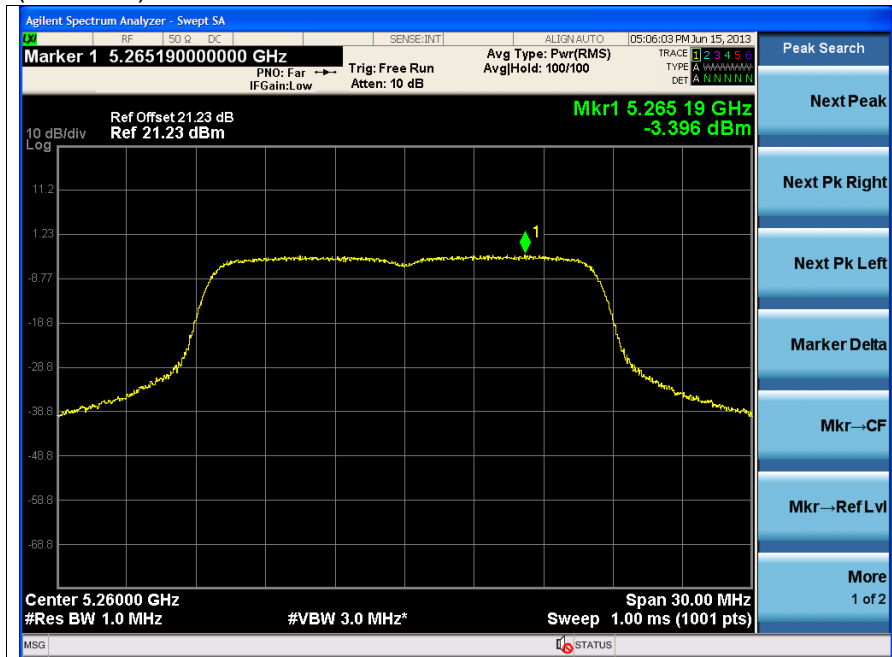
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High Channel (5 240 MHz)



Low Channel (5 260 MHz)



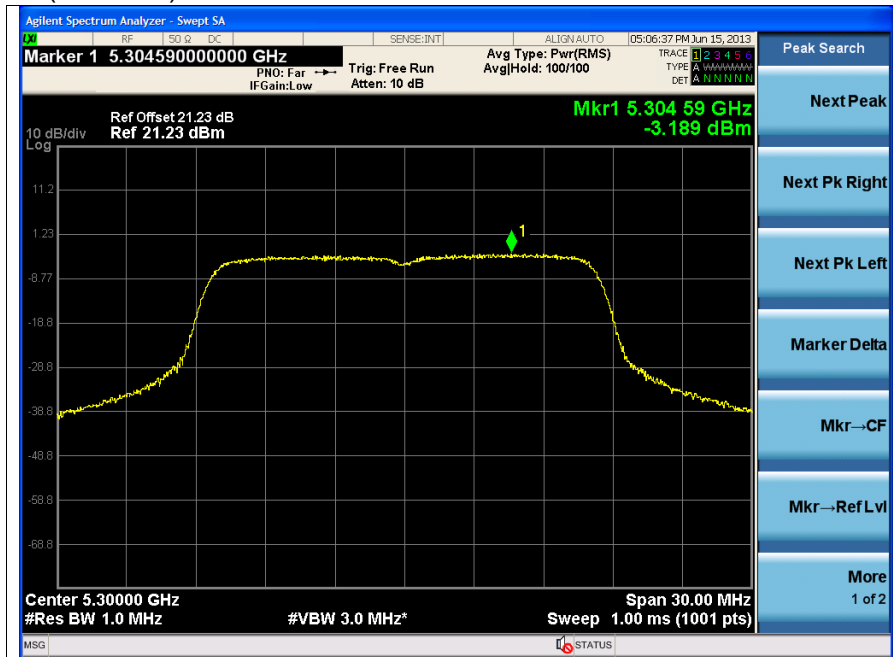
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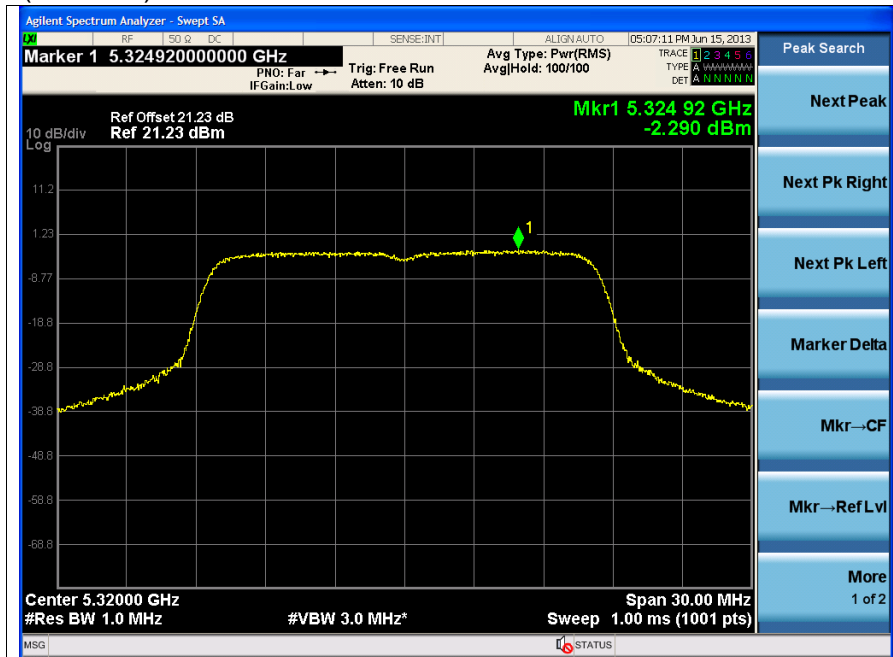
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Middle Channel (5 300 MHz)



High Channel (5 320 MHz)



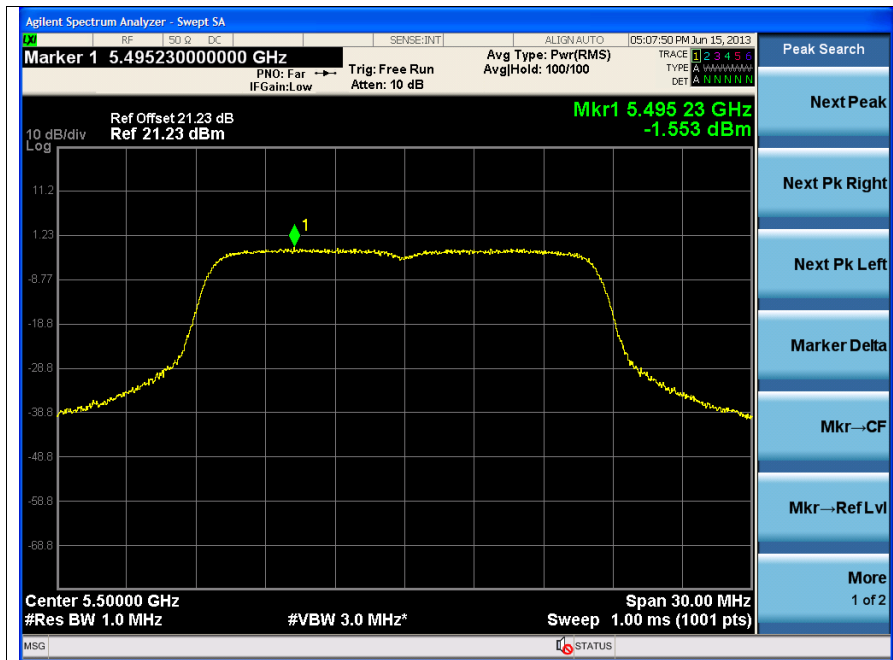
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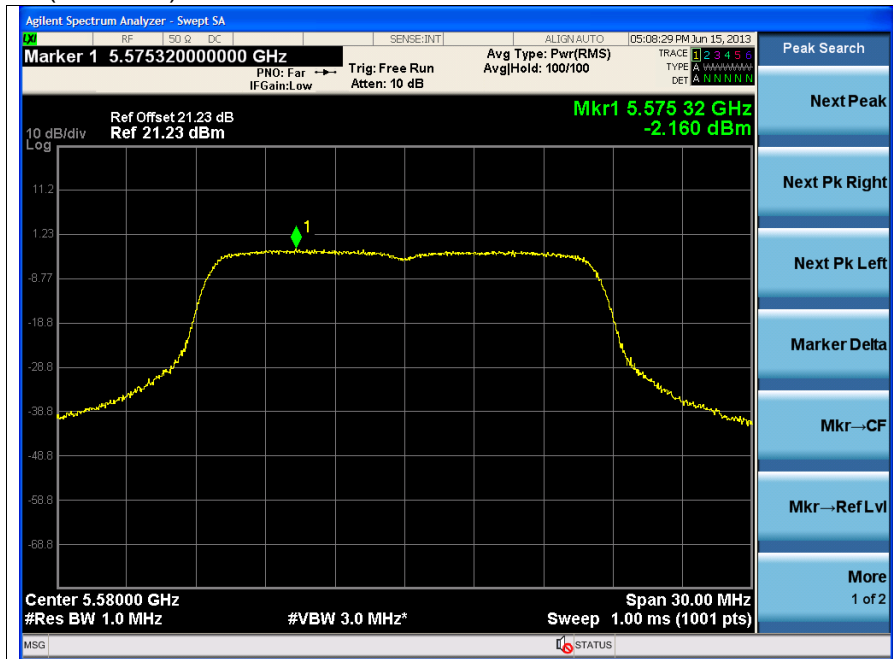
Tel. +82 31 428 5700 / Fax. +82 31 427 2371

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Low Channel (5 500 MHz)



Middle Channel (5 580 MHz)



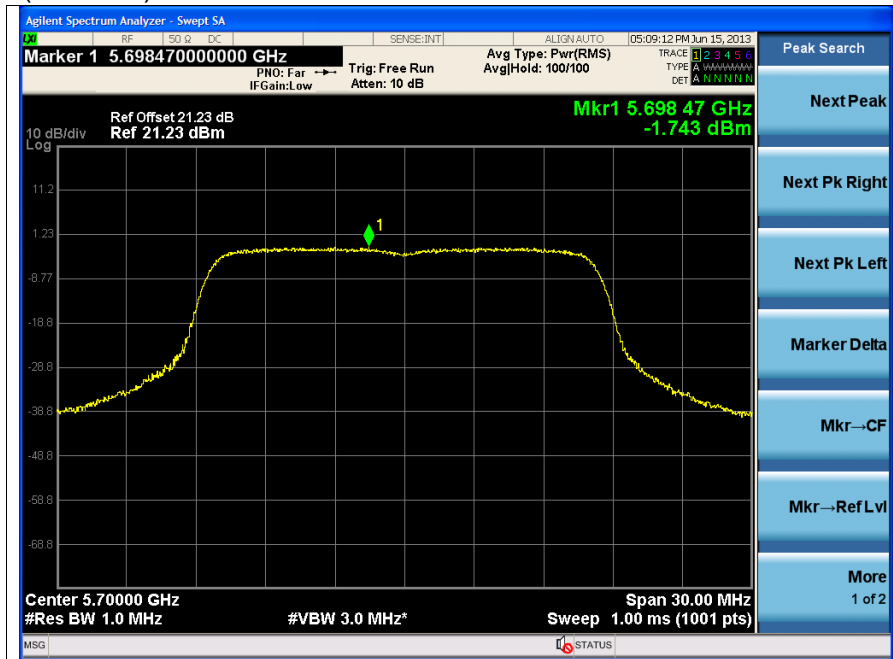
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High Channel (5 700 MHz)



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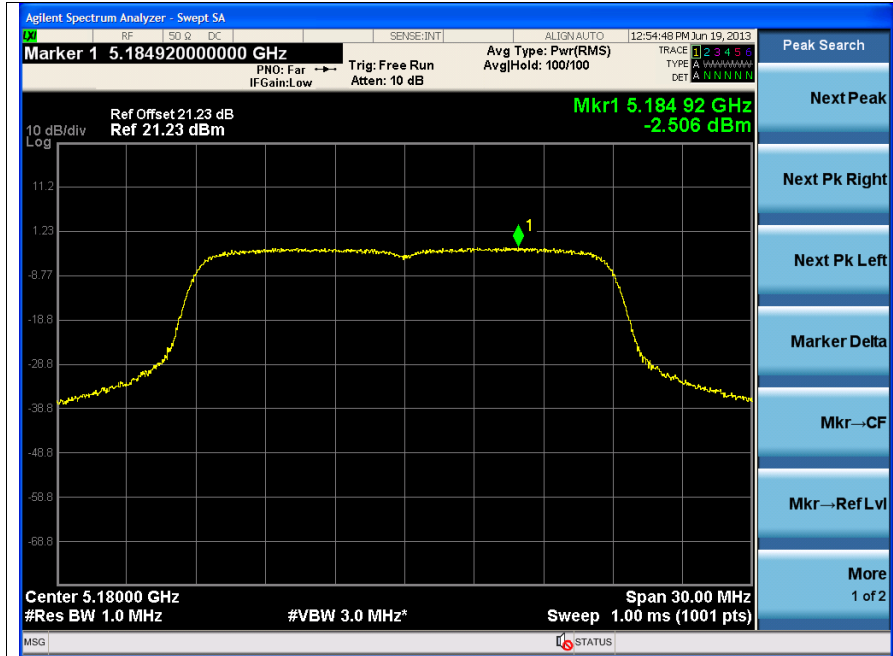
SGS Korea Co., Ltd. (Gunpo Laboratory) 18-34, Sanbon-dong, Gunpo-si, Gyeonggi-do, Korea, 435-040

Tel. +82 31 428 5700 / Fax. +82 31 427 2371

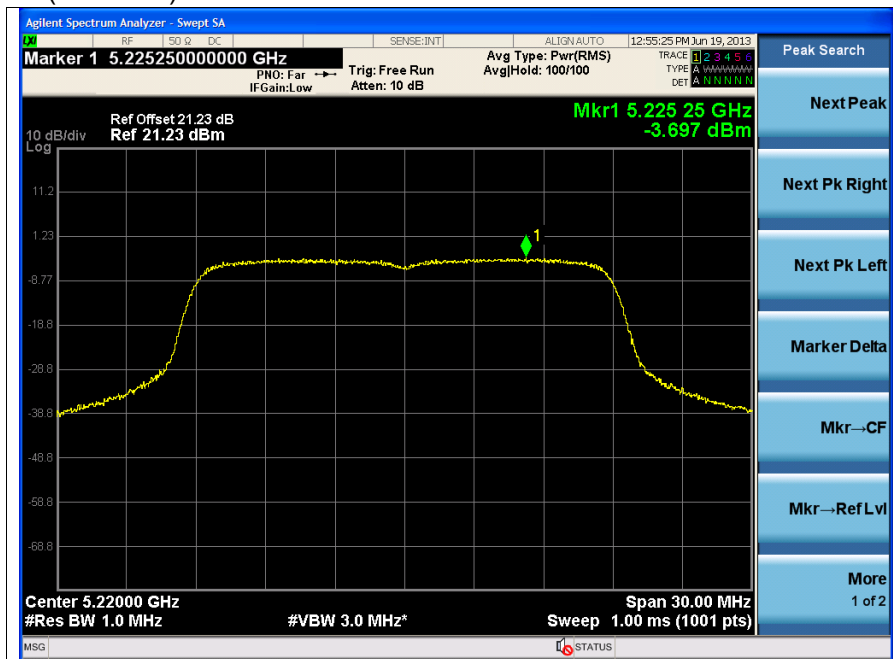
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802.11n_HT20 (MCS0)

Low Channel (5 180 MHz)



Middle Channel (5 220 MHz)



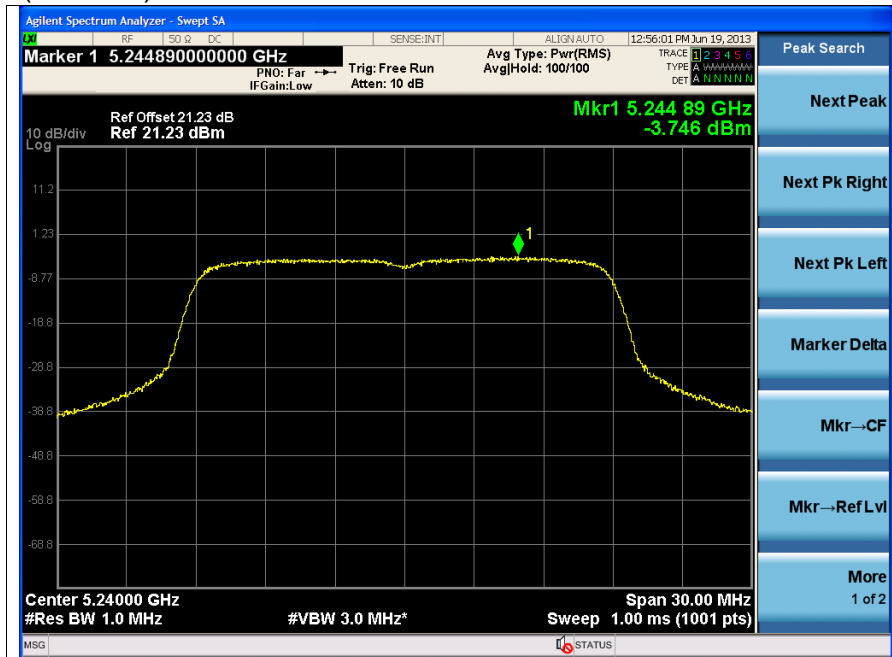
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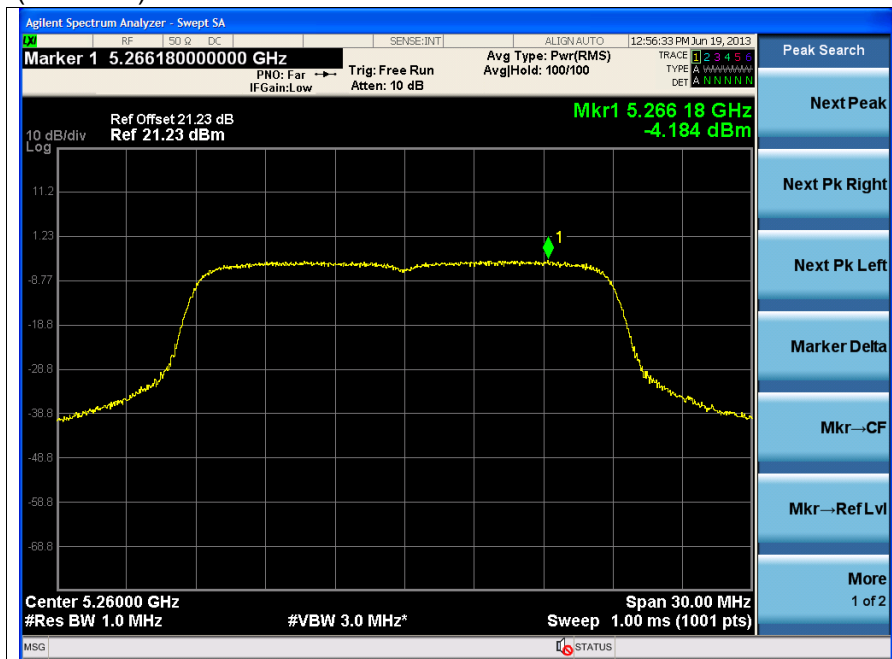
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High Channel (5 240 MHz)



Low Channel (5 260 MHz)



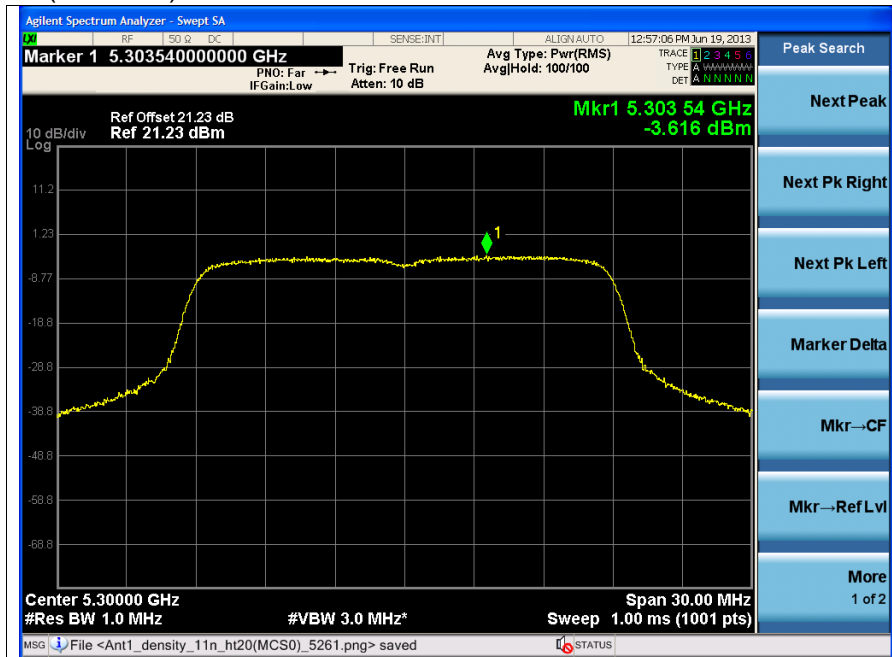
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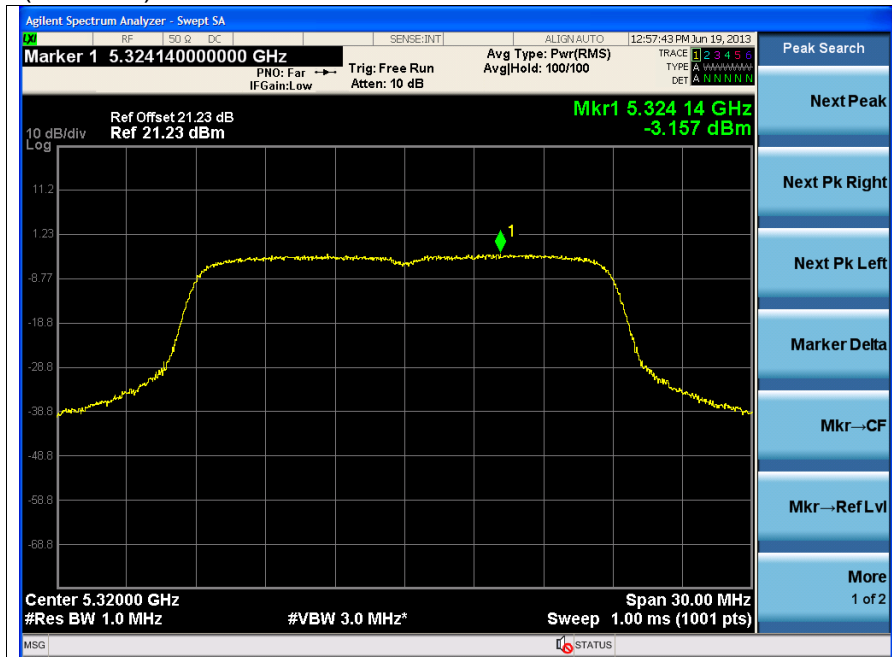
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Middle Channel (5 300 MHz)



High Channel (5 320 MHz)



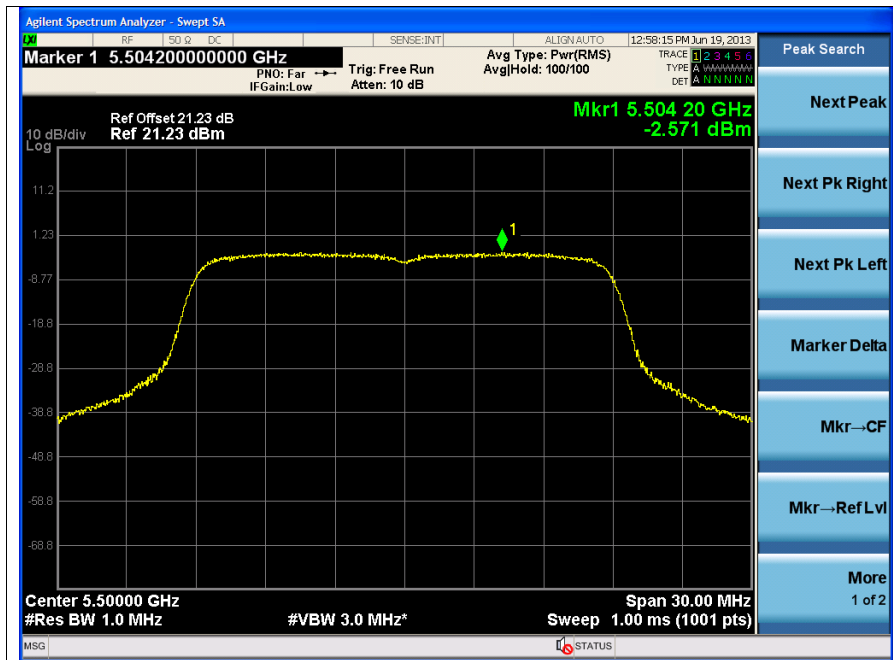
The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report cannot be reproduced, except in full, without prior written permission of the Company.

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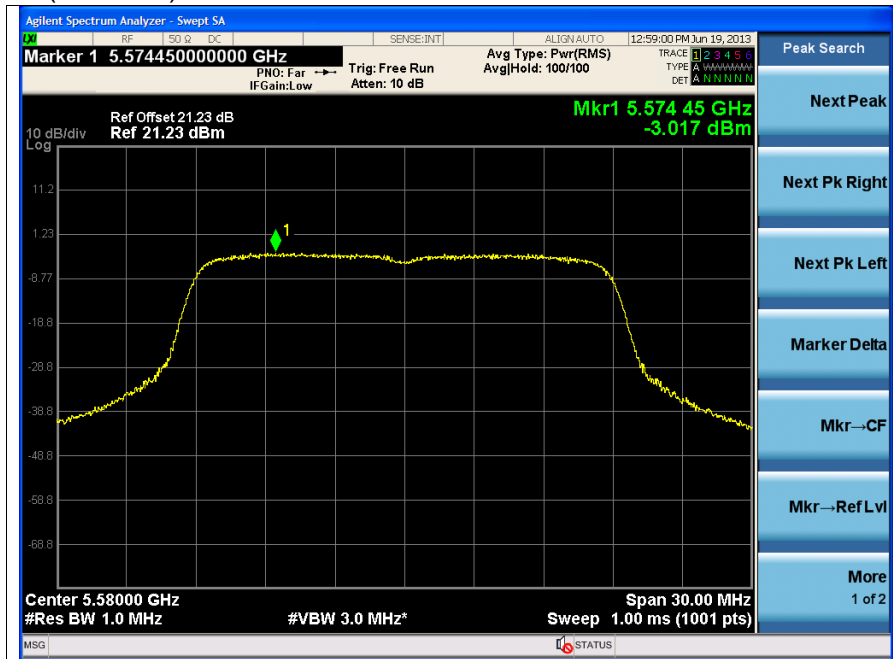
Tel. +82 31 428 5700 / Fax. +82 31 427 2371

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Low Channel (5 500 MHz)



Middle Channel (5 580 MHz)



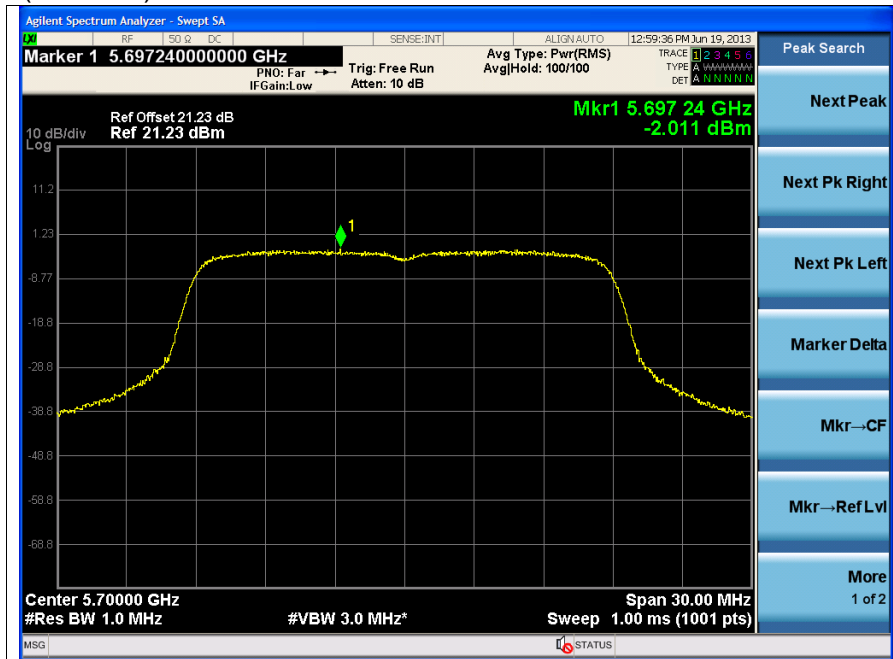
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High Channel (5 700 MHz)



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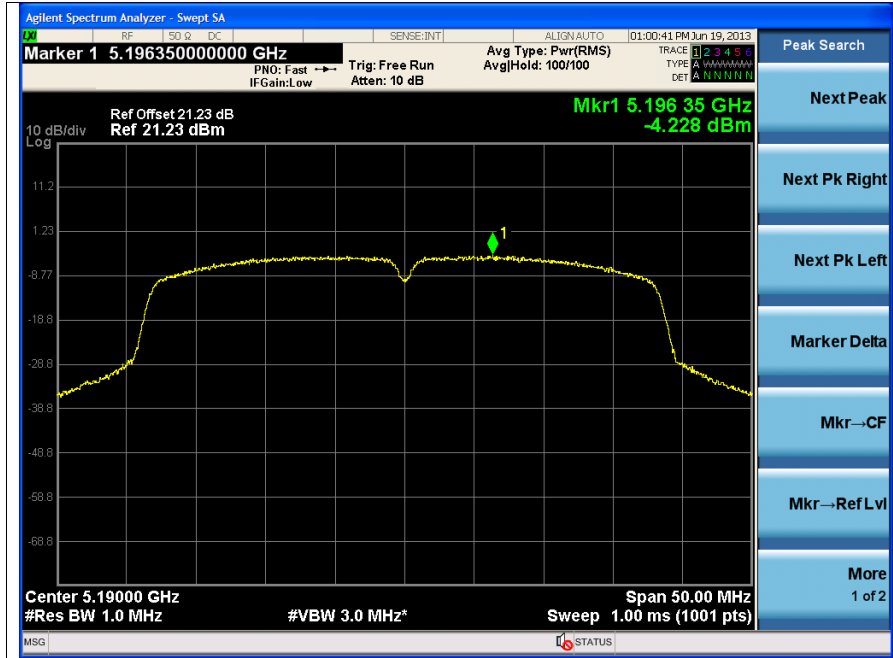
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Tel. +82 31 428 5700 / Fax. +82 31 427 2371

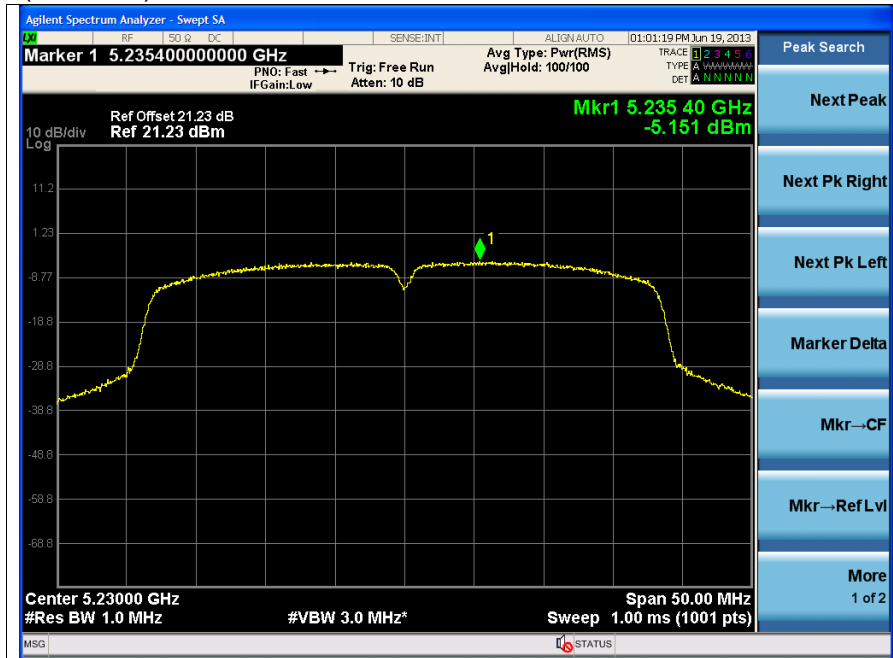
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802.11n_HT40 (MCS0)

Low Channel (5 190 MHz)



High Channel (5 230 MHz)



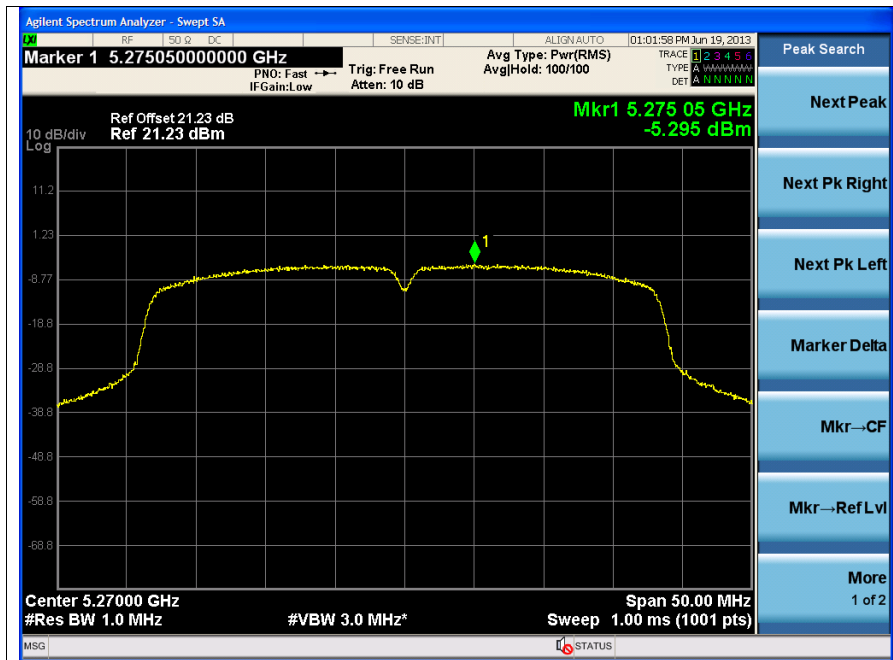
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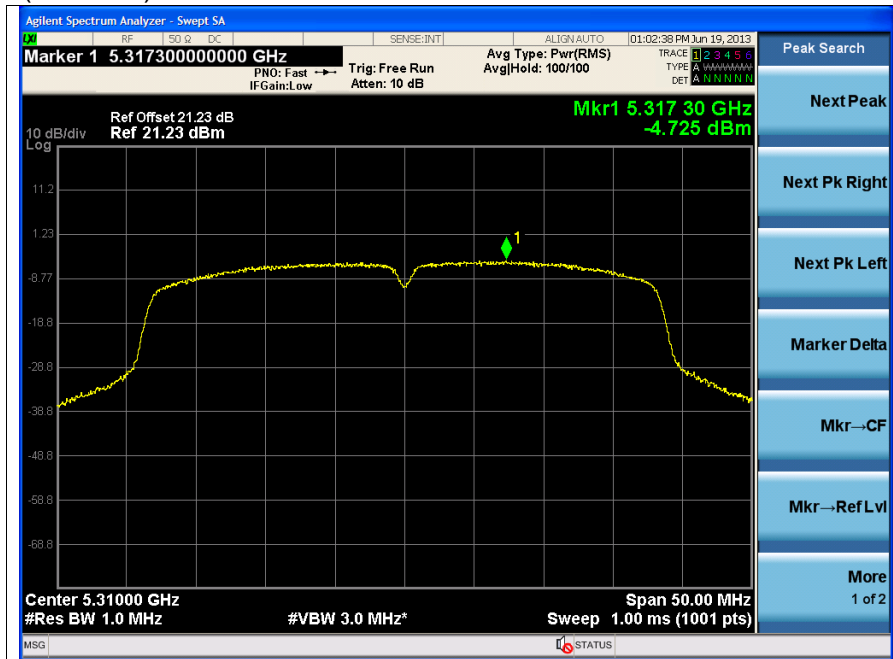
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Low Channel (5 270 MHz)



High Channel (5 310 MHz)



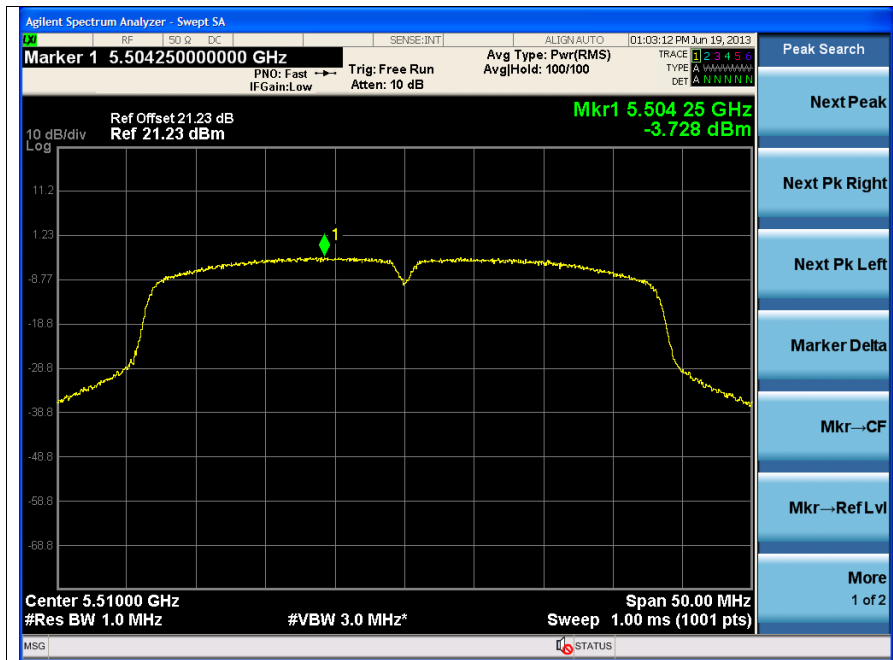
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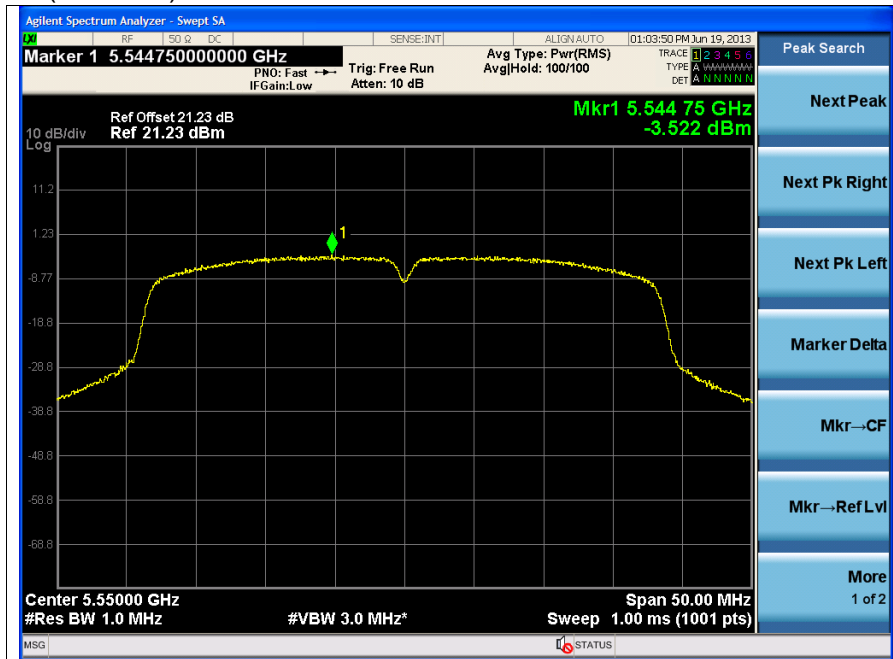
Tel. +82 31 428 5700 / Fax. +82 31 427 2371

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Low Channel (5 510 MHz)



Middle Channel (5 550 MHz)



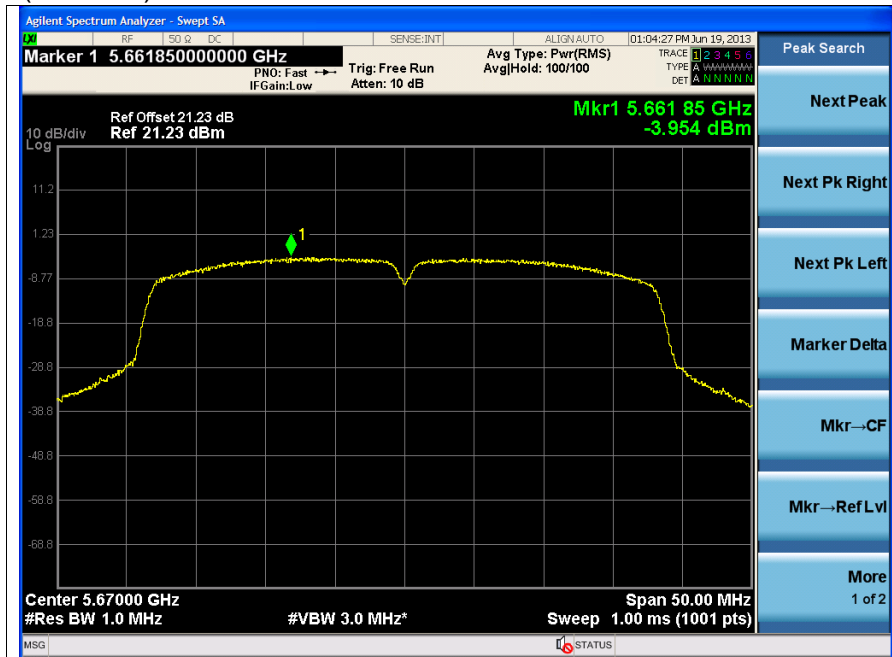
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High Channel (5 670 MHz)



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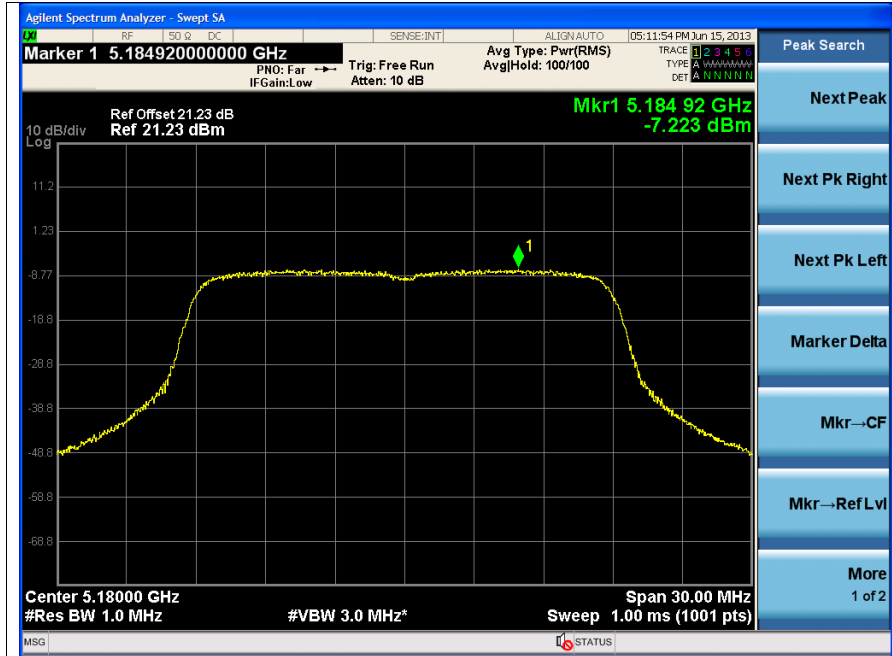
SGS Korea Co., Ltd. (Gunpo Laboratory) 18-34, Sanbon-dong, Gunpo-si, Gyeonggi-do, Korea, 435-040

Tel. +82 31 428 5700 / Fax. +82 31 427 2371

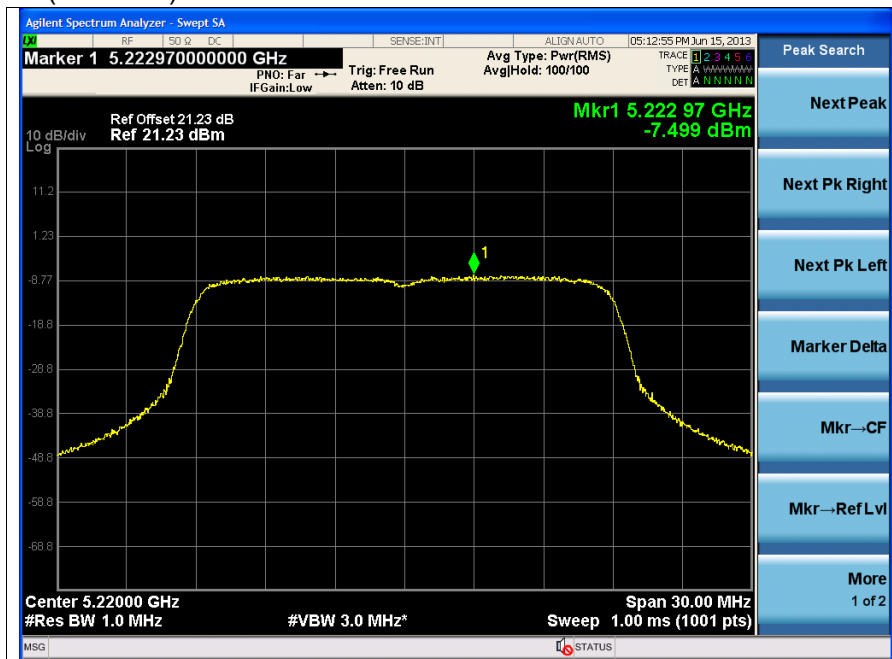
www.ee.sgs.com/korea

802.11n_HT20 (MCS8)

Low Channel (5 180 MHz)



Middle Channel (5 220 MHz)



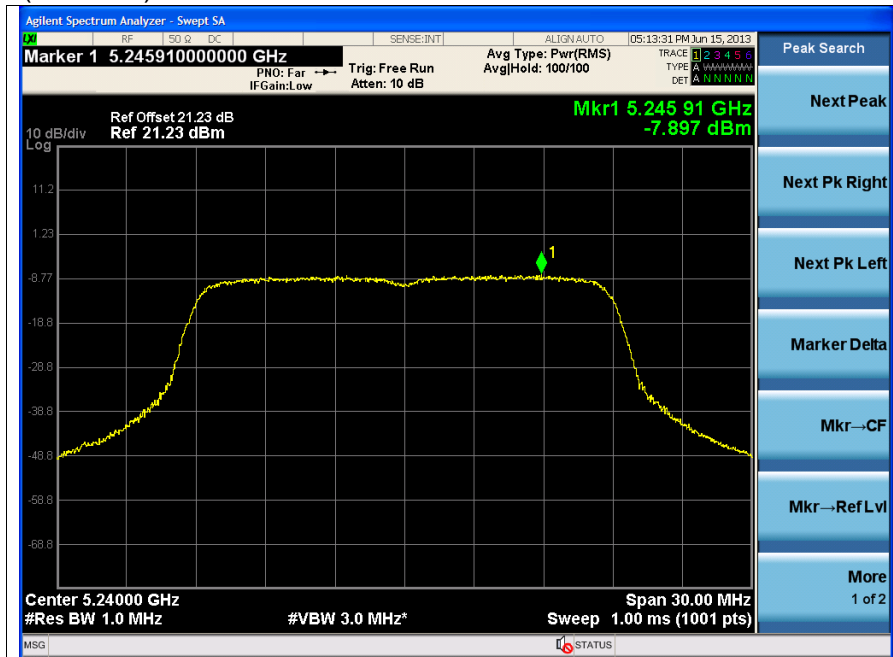
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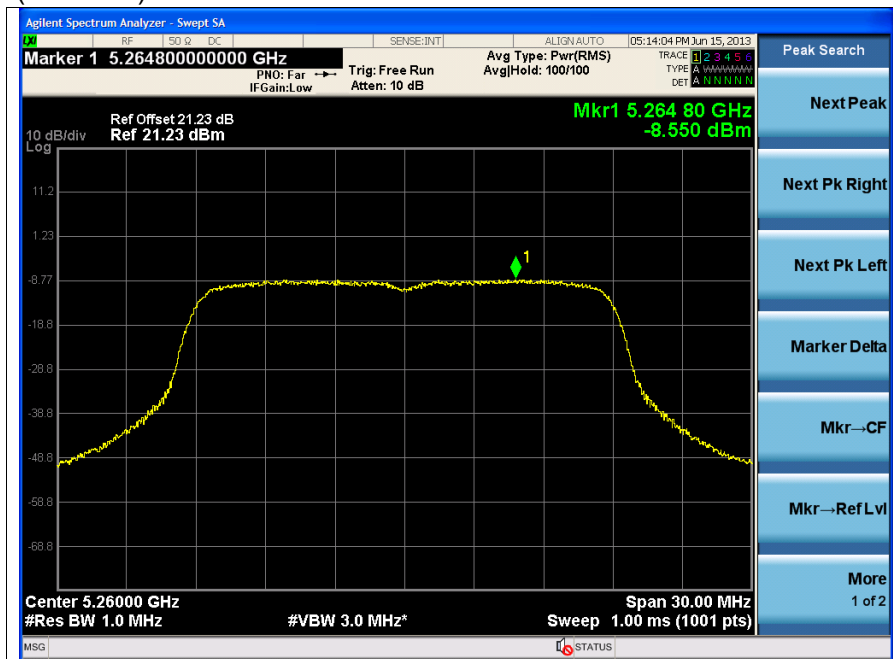
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High Channel (5 240 MHz)



Low Channel (5 260 MHz)



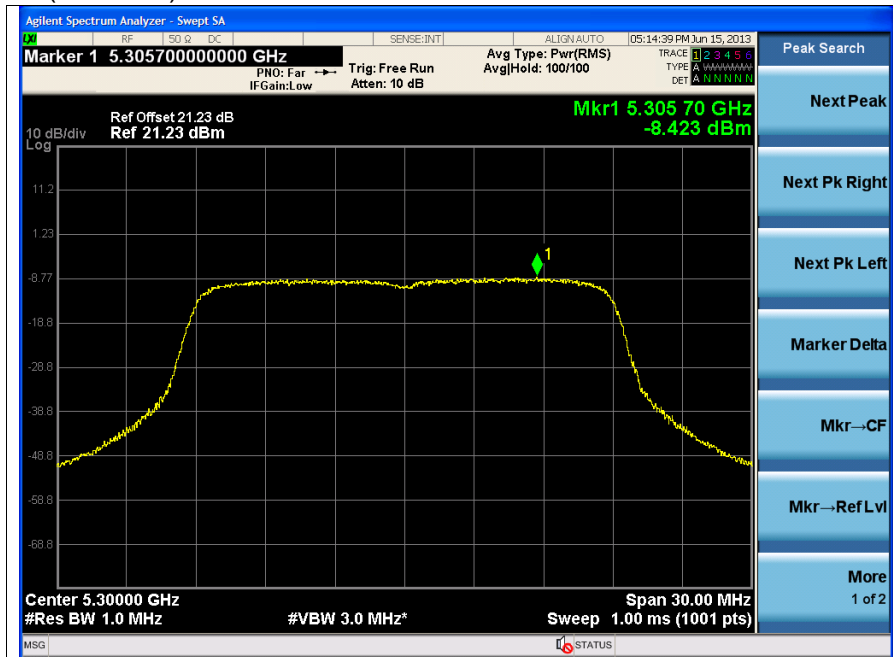
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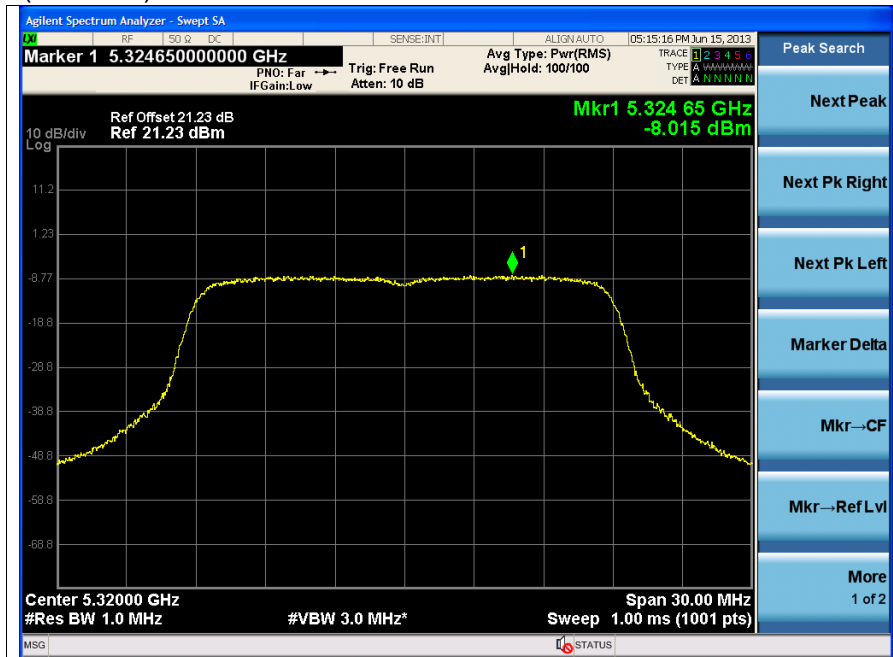
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Middle Channel (5 300 MHz)



High Channel (5 320 MHz)



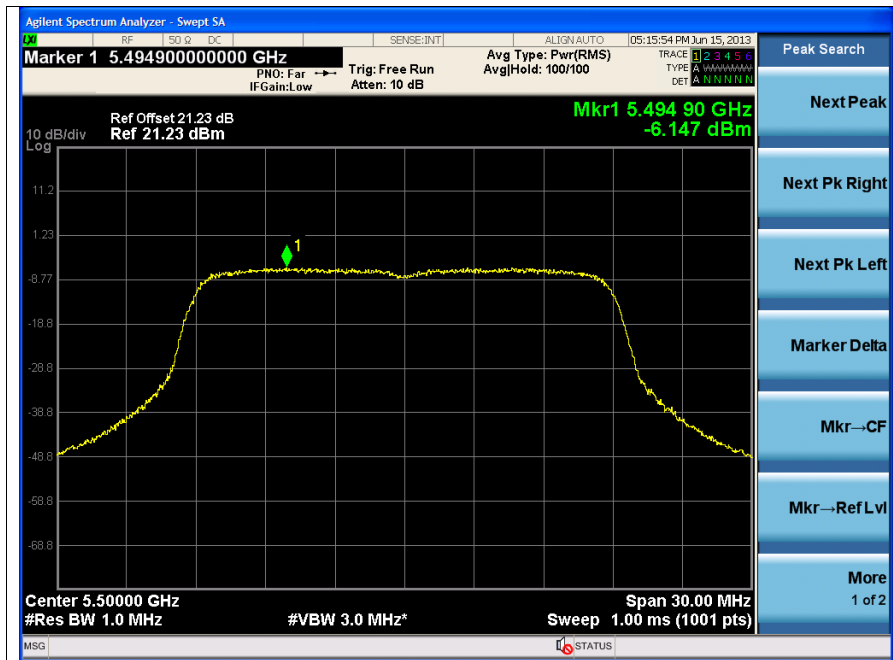
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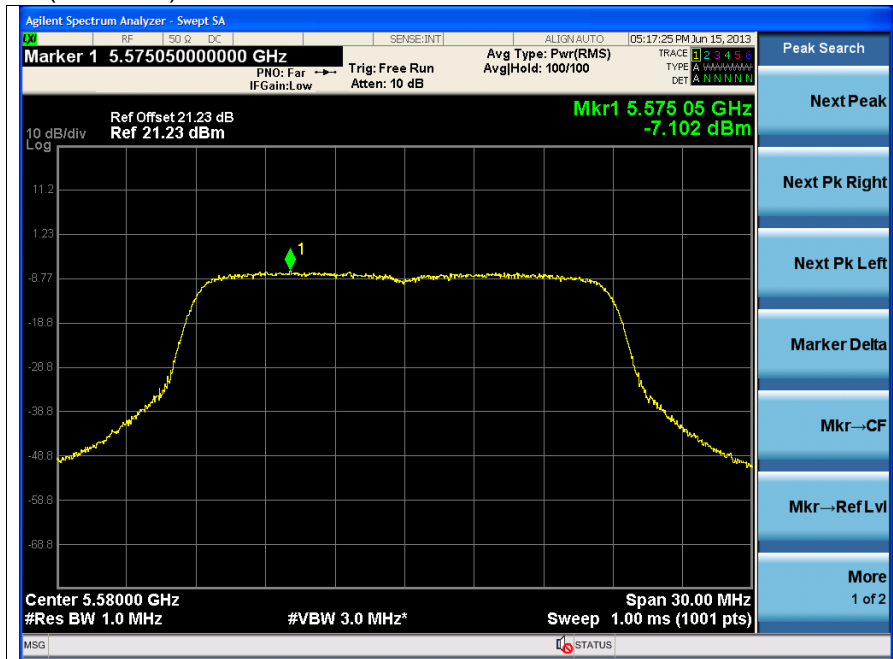
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Low Channel (5 500 MHz)



Middle Channel (5 580 MHz)



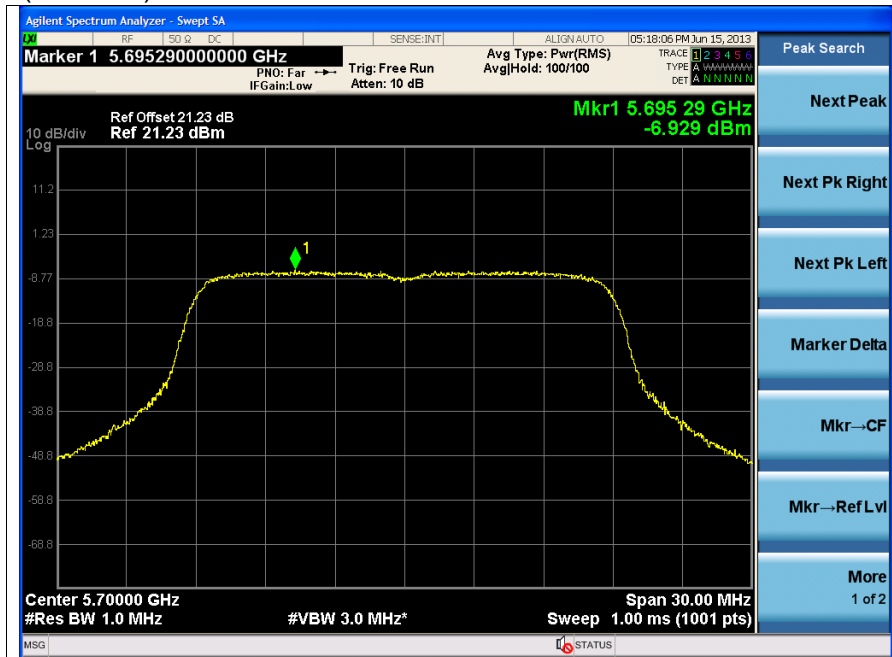
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High Channel (5 700 MHz)



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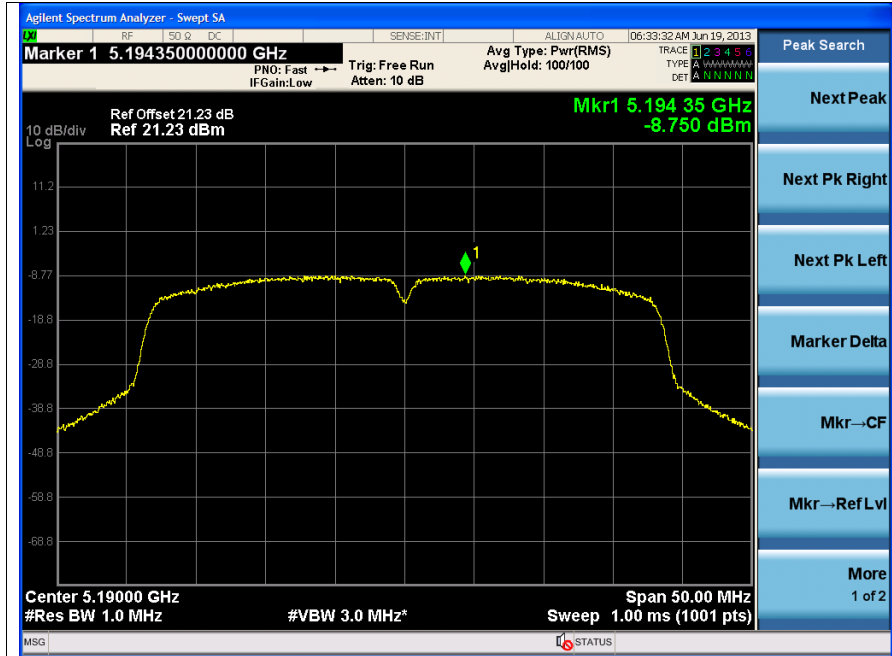
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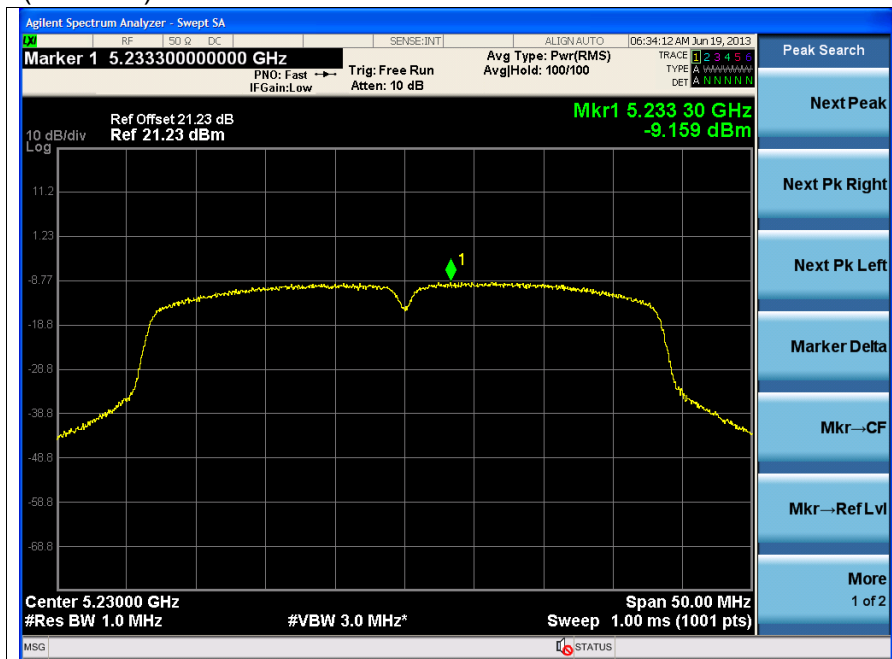
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802.11n_HT40 (MCS8)

Low Channel (5 190 MHz)



High Channel (5 230 MHz)



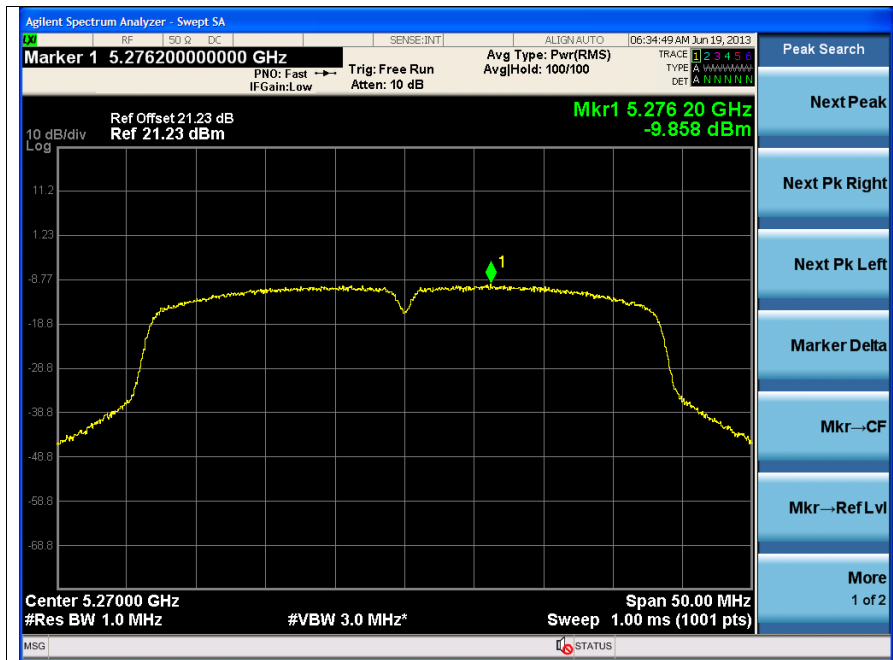
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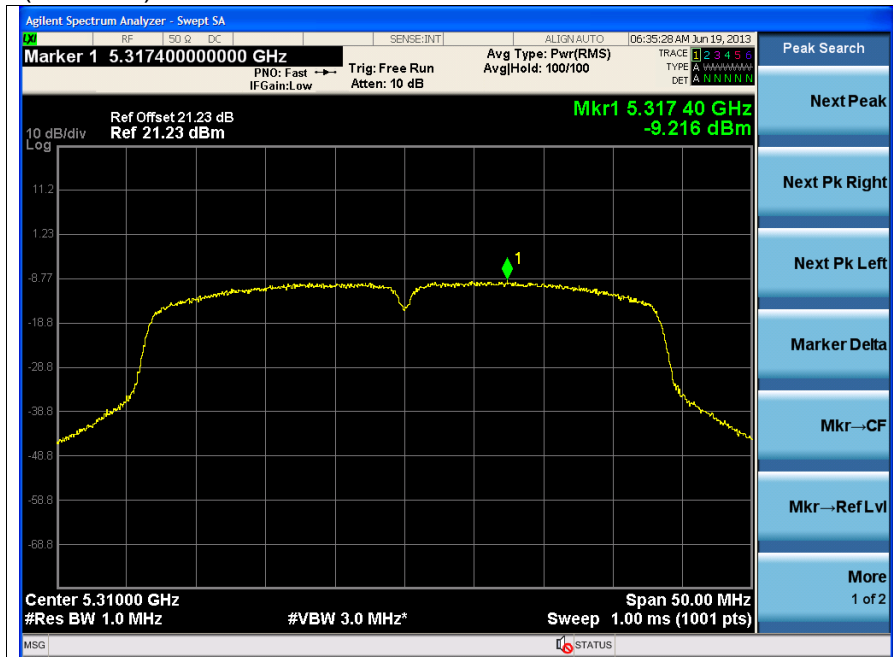
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Low Channel (5 270 MHz)



High Channel (5 310 MHz)



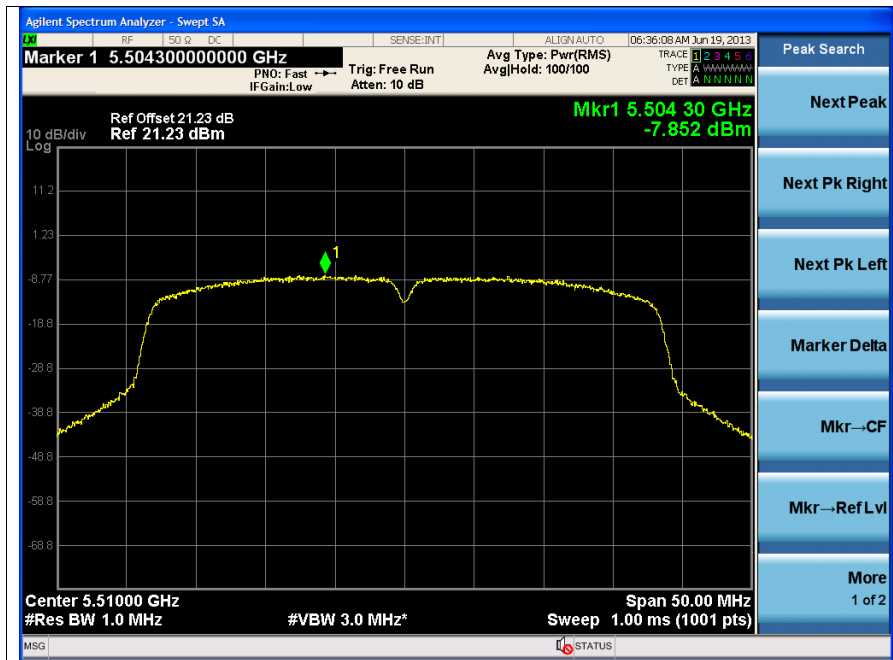
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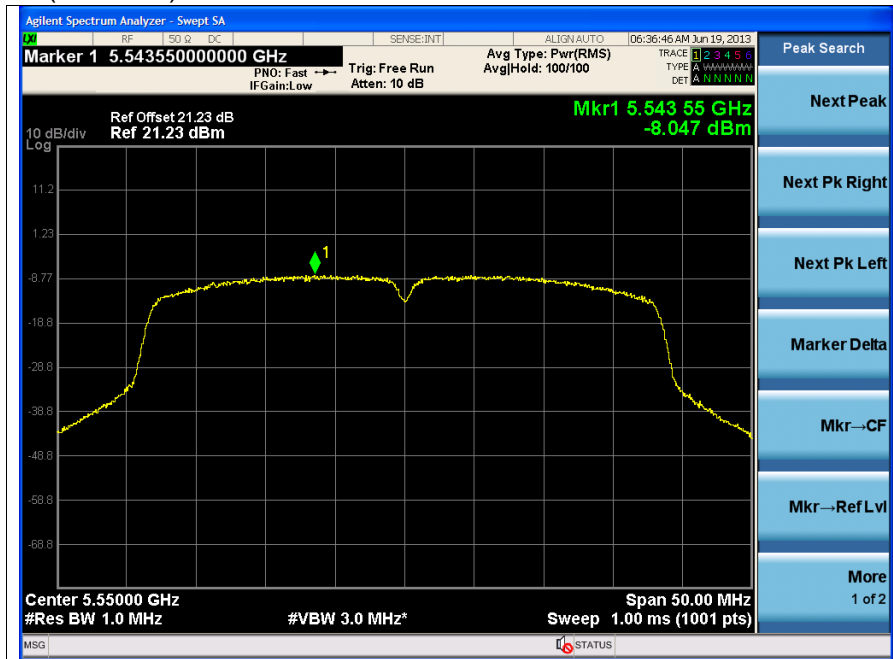
Tel. +82 31 428 5700 / Fax. +82 31 427 2371

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Low Channel (5 510 MHz)



Middle Channel (5 550 MHz)



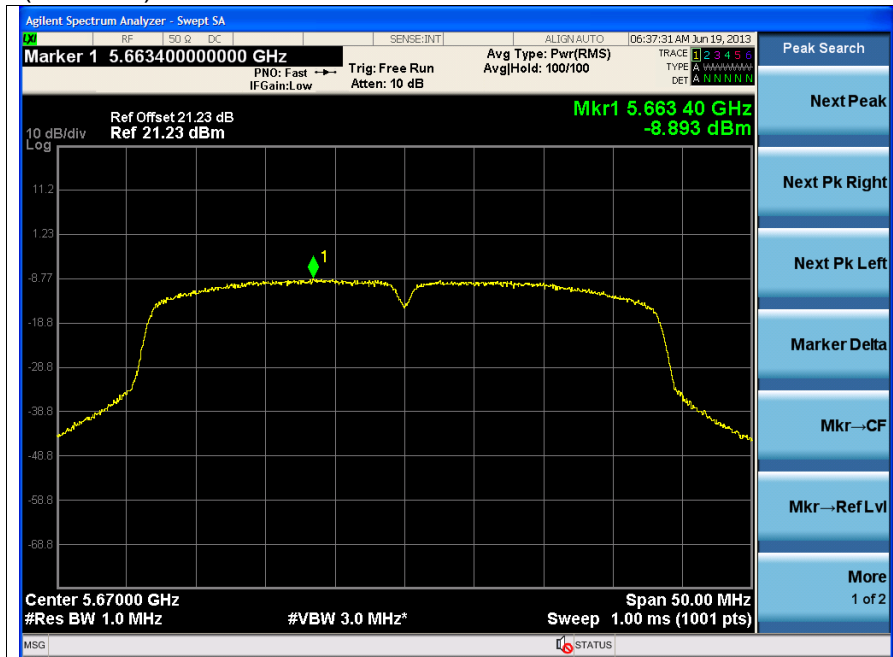
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High Channel (5 670 MHz)



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6. Peak excursion

6.1. Test setup



6.2. Limit

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

6.3. 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.

1. This measurement settings are specified in section G of KDB 789033.
2. Set the spectrum analyzer or EMI receiver span to view the entire emission bandwidth.
3. Find the maximum of the peak-max-hold spectrum.
4. Set RBW = 1 MHz.
5. Set VBW \geq 3 MHz.
6. Detector = Peak.
7. Trace mode = max-hold.
8. Allow the sweeps to continue until the trace stabilizes.
9. Use the peak search function to find the peak of the spectrum.
10. Compute the ratio of the maximum of the peak-max-hold spectrum to the PPSD.
 - Testing each modulation mode on a single channel in a single operating band is sufficient to demonstrate compliance with the peak excursion requirement.
 - Tests performed all signal types, all modulation types, all bandwidth modes, all variations in signal parameters.

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6.4. Test result

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

- 11a

Channel No.	Frequency (MHz)	Data Rate (Mbps)	Peak excursion (dB)	Limit (dB)
36	5 180	6	7.971	13
		9	8.436	
		12	8.855	
		18	8.600	
		24	8.644	
		36	8.427	
		48	8.807	
		54	8.423	

- 11n_HT20

Channel No.	Frequency (MHz)	Data Rate (Mbps)	Peak excursion (dB)	Limit (dB)
36	5 180	MCS0	8.017	13
		MCS1	8.910	
		MCS2	8.217	
		MCS3	8.525	
		MCS4	8.761	
		MCS5	9.004	
		MCS6	8.733	
		MCS7	8.511	
		MCS8	9.132	
		MCS9	8.308	
		MCS10	8.790	
		MCS11	9.943	
		MCS12	9.032	
		MCS13	8.790	
		MCS14	9.546	
MCS15	9.119			

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- 11n_HT40

Channel No.	Frequency (MHz)	Data Rate (Mbps)	Peak excursion (dB)	Limit (dB)
38	5 190	MCS0	8.506	13
		MCS1	8.192	
		MCS2	8.101	
		MCS3	9.683	
		MCS4	8.803	
		MCS5	9.565	
		MCS6	10.149	
		MCS7	9.793	
		MCS8	8.946	
		MCS9	9.052	
		MCS10	9.393	
		MCS11	8.975	
		MCS12	9.042	
		MCS13	9.316	
		MCS14	9.374	
MCS15	9.108			

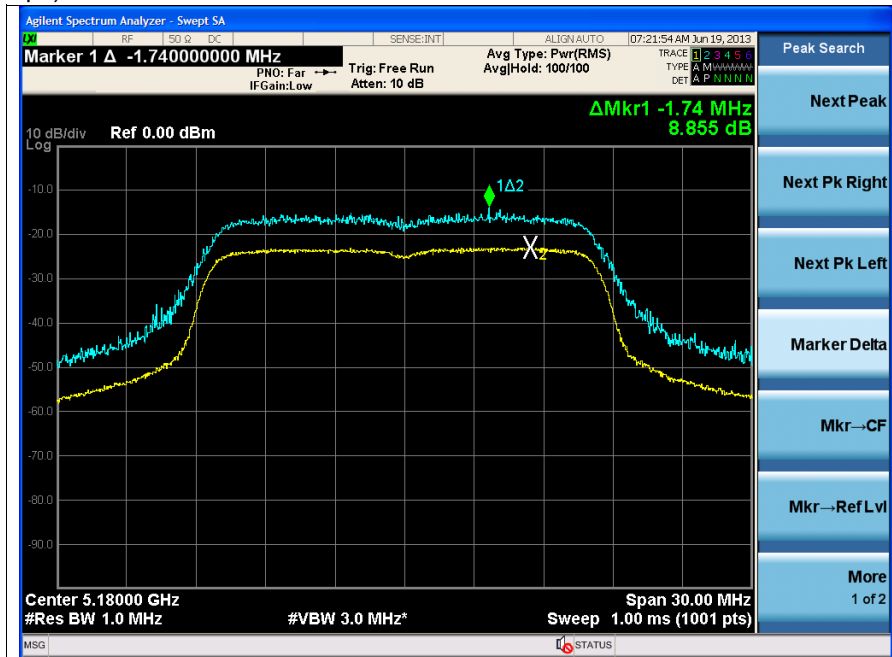
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5 180 MHz(12 Mbps)



5 180 MHz(18 Mbps)



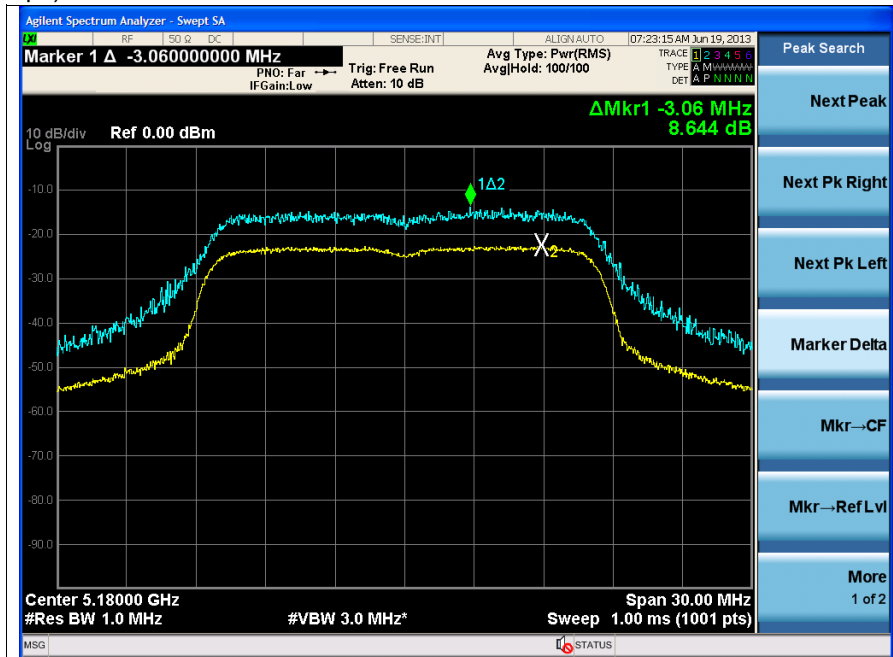
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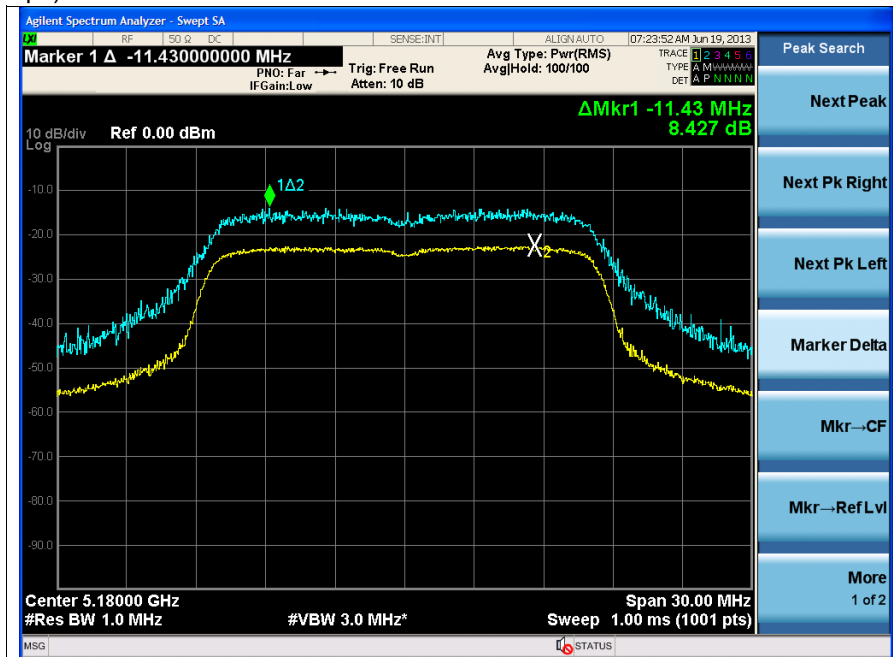
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5 180 MHz(24 Mbps)



5 180 MHz(36 Mbps)



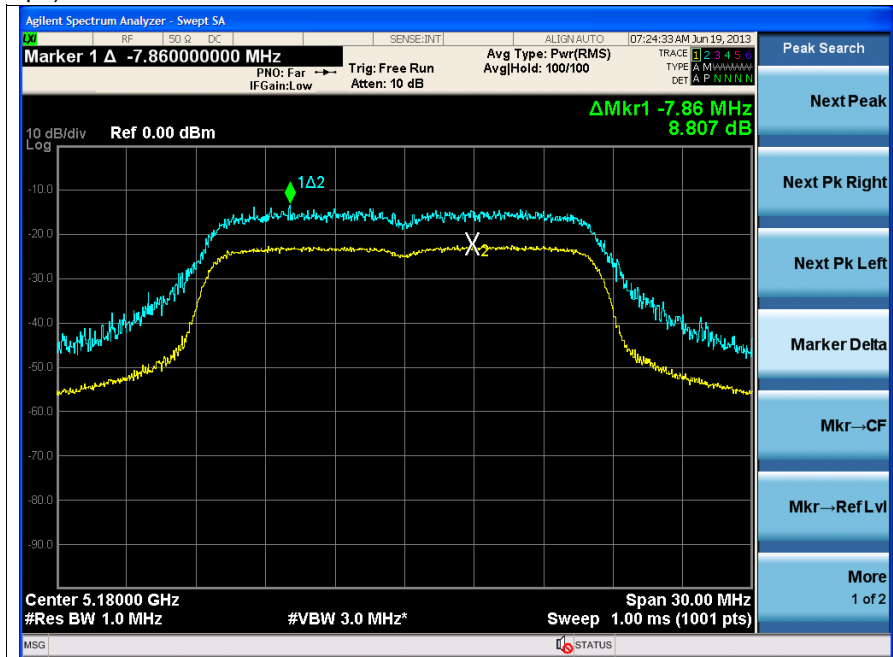
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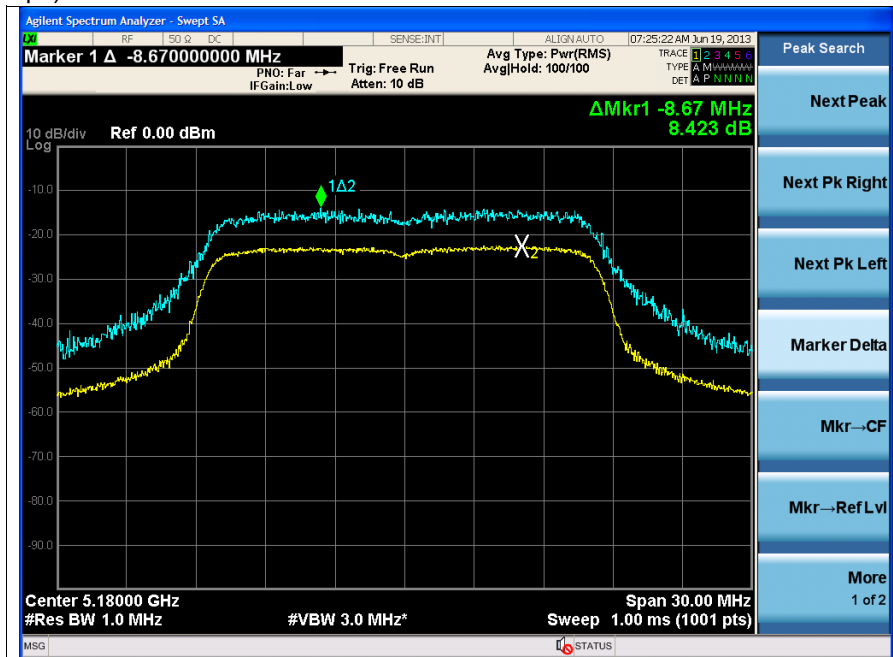
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5 180 MHz(48 Mbps)



5 180 MHz(54 Mbps)



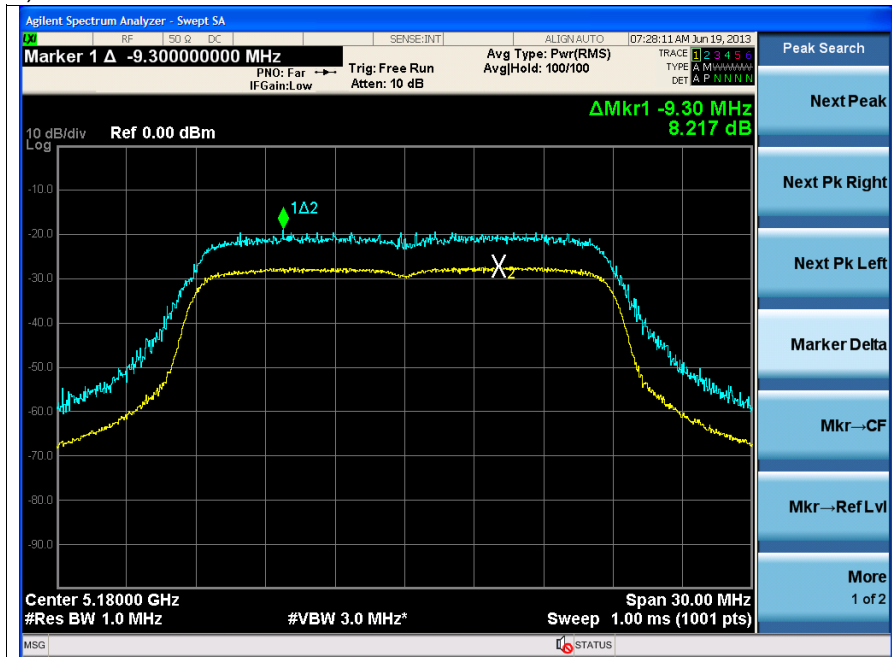
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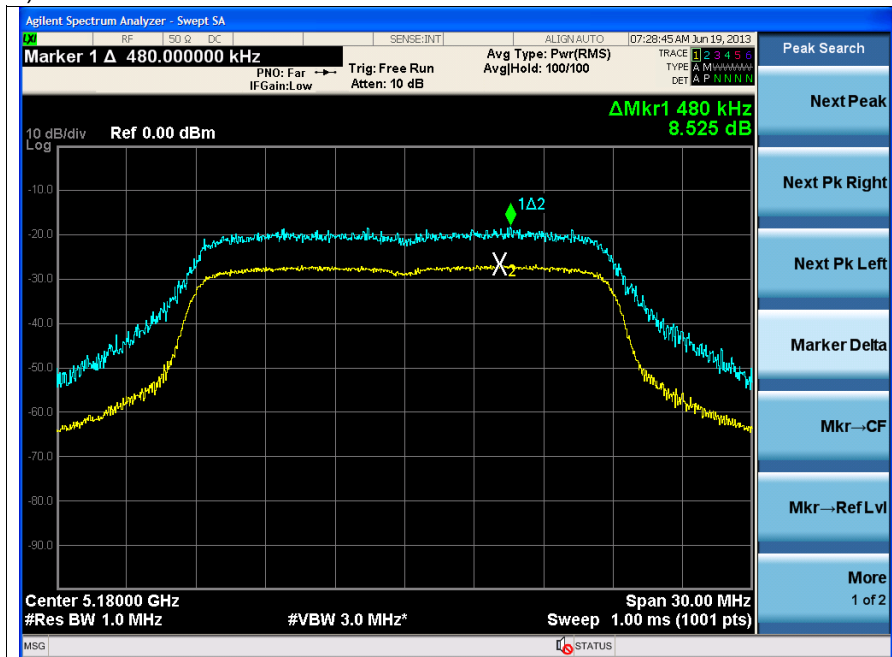
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5 180 MHz(MCS2)



5 180 MHz(MCS3)



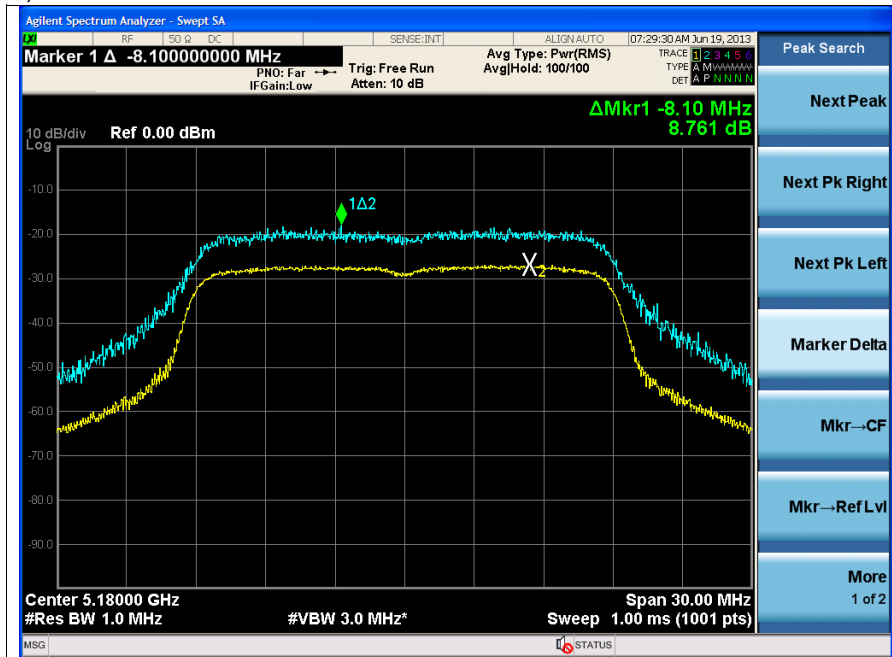
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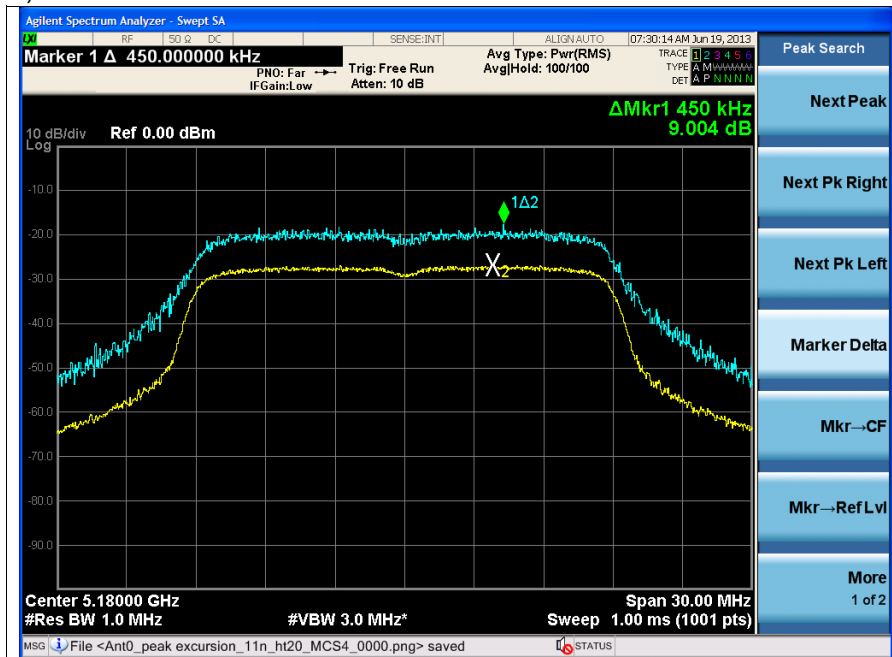
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5 180 MHz(MCS4)



5 180 MHz(MCS5)



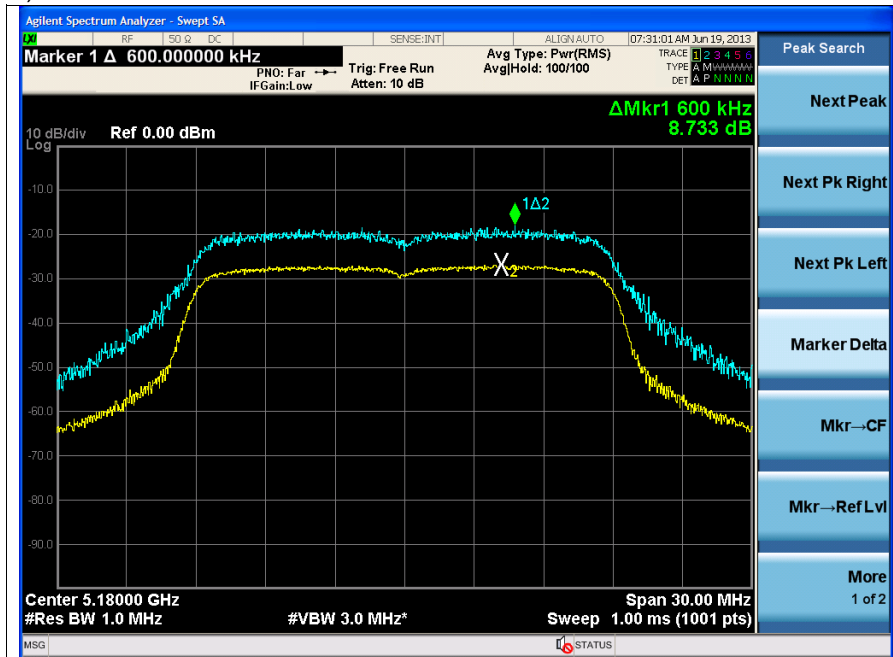
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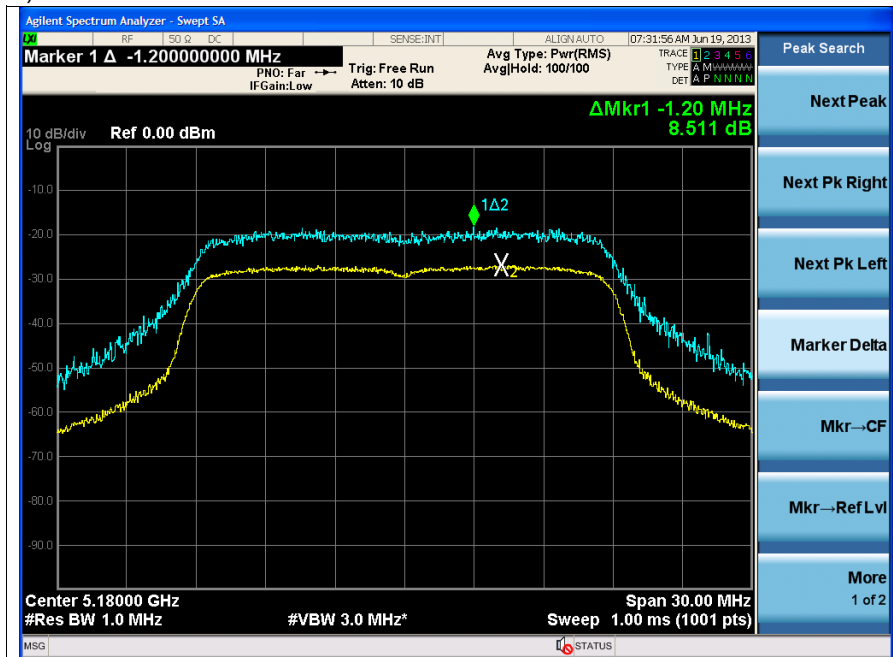
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5 180 MHz(MCS6)



5 180 MHz(MCS7)



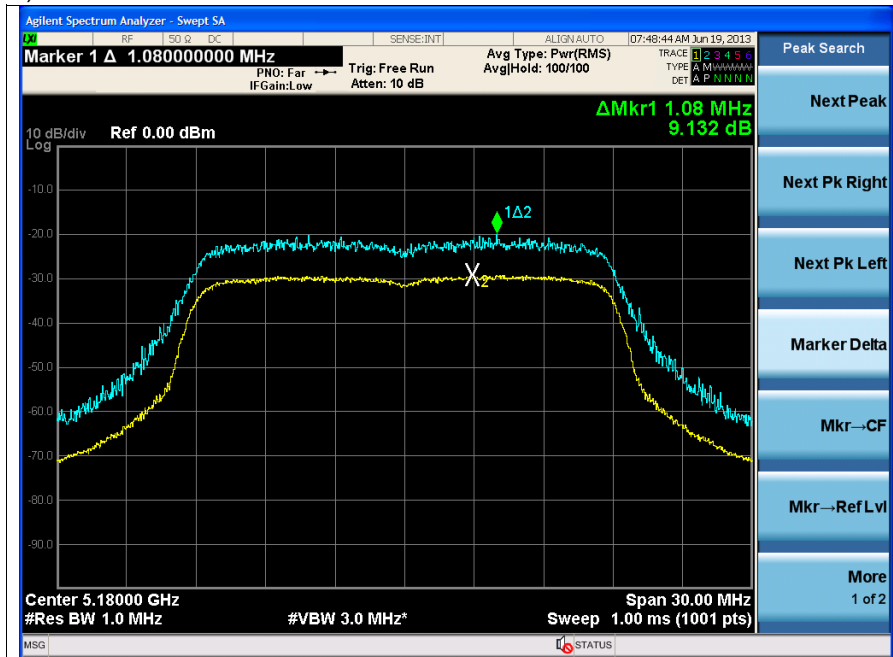
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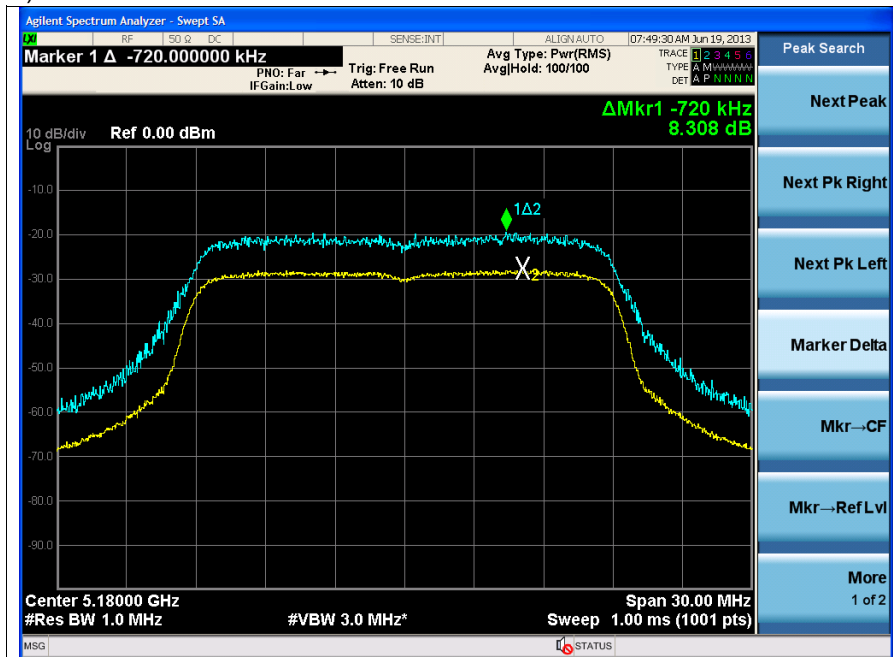
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5 180 MHz(MCS8)



5 180 MHz(MCS9)



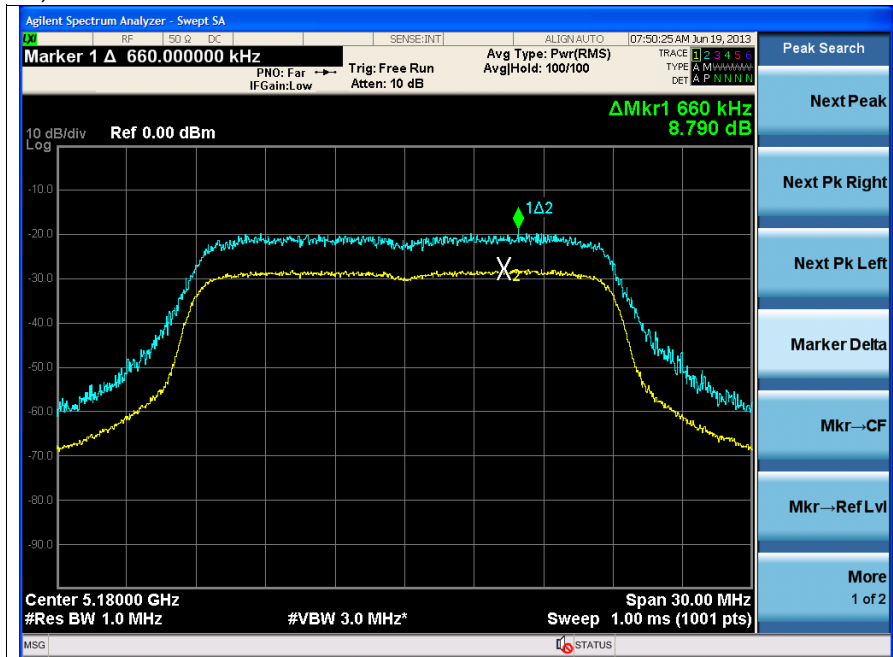
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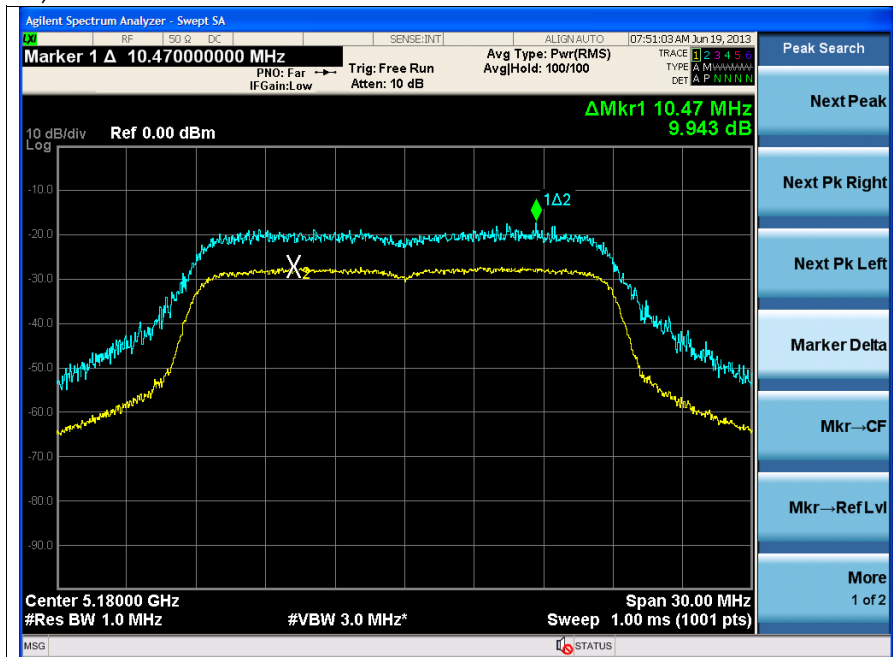
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5 180 MHz(MCS10)



5 180 MHz(MCS11)



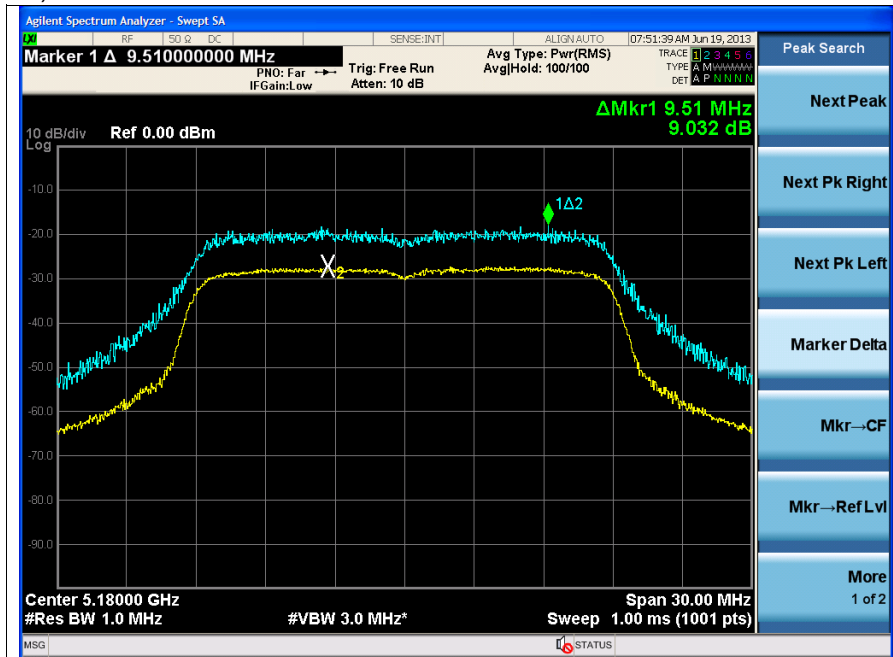
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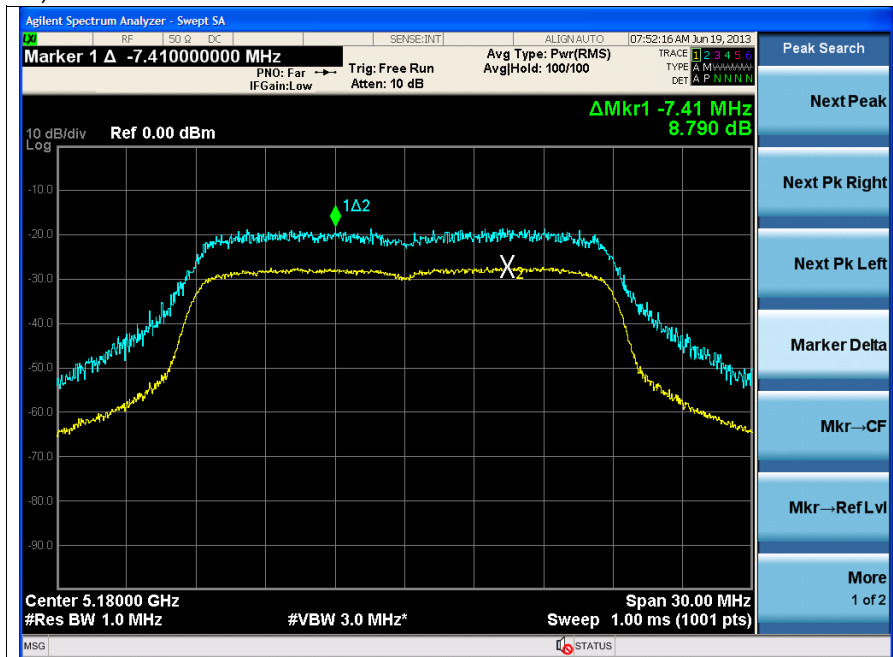
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5 180 MHz(MCS12)



5 180 MHz(MCS13)



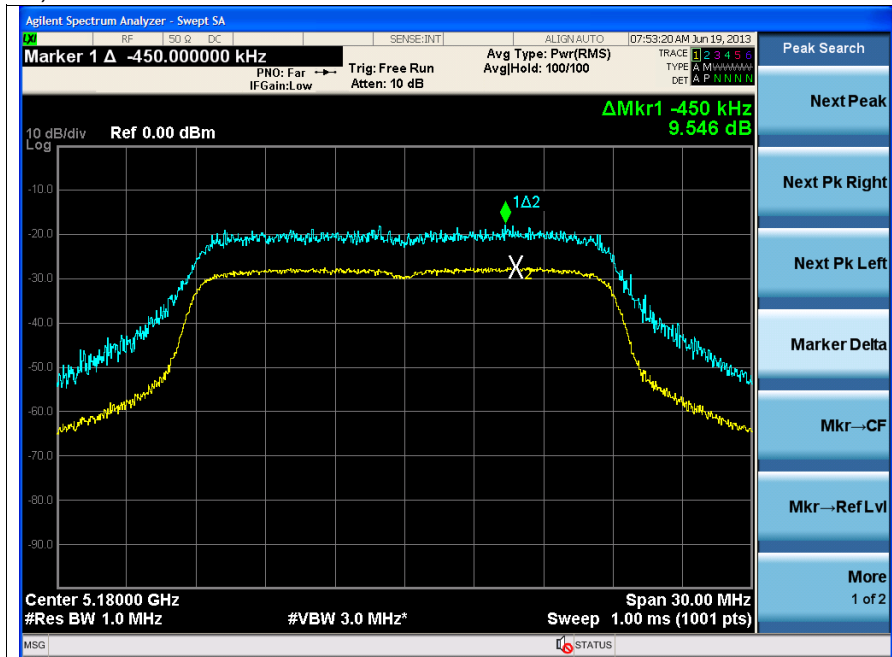
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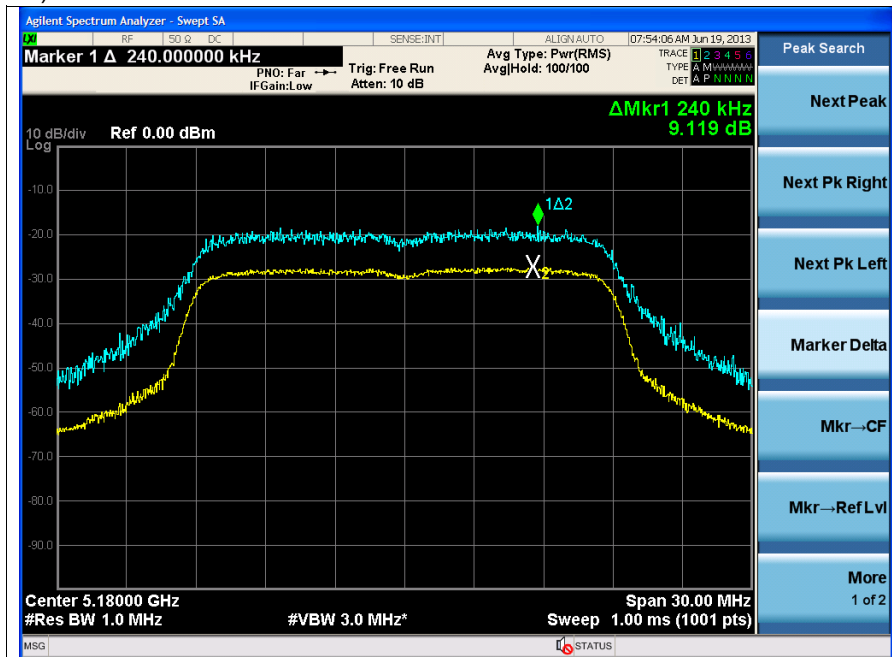
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5 180 MHz(MCS14)



5 180 MHz(MCS15)



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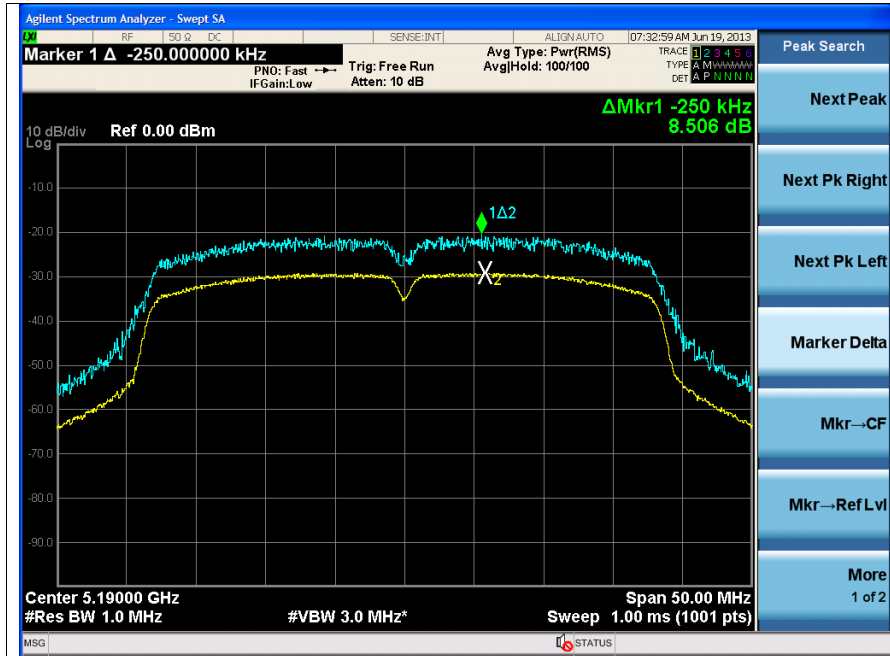
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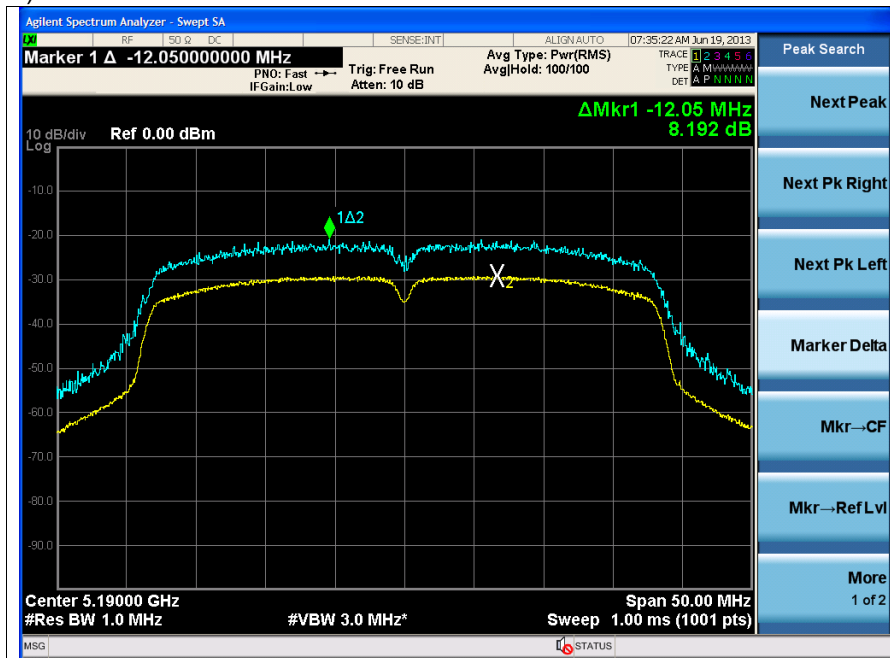
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- 11n_HT40

5 190 MHz(MCS0)



5 190 MHz(MCS1)



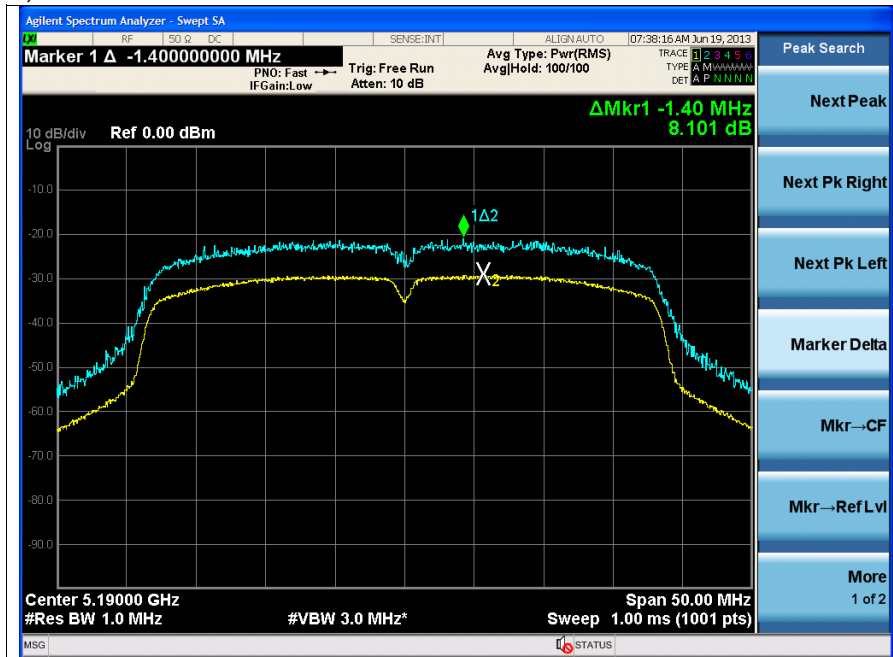
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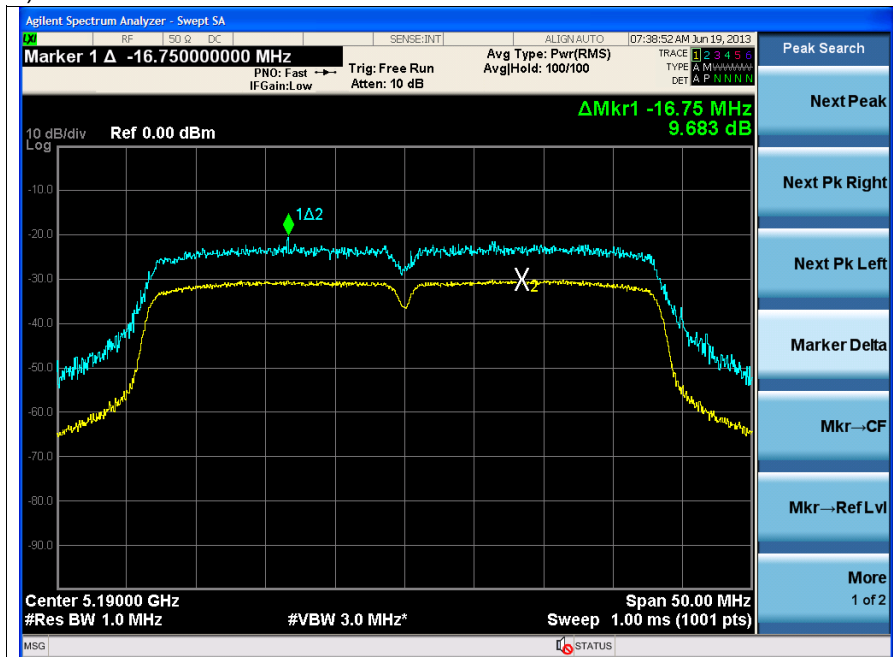
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5 190 MHz(MCS2)



5 190 MHz(MCS3)



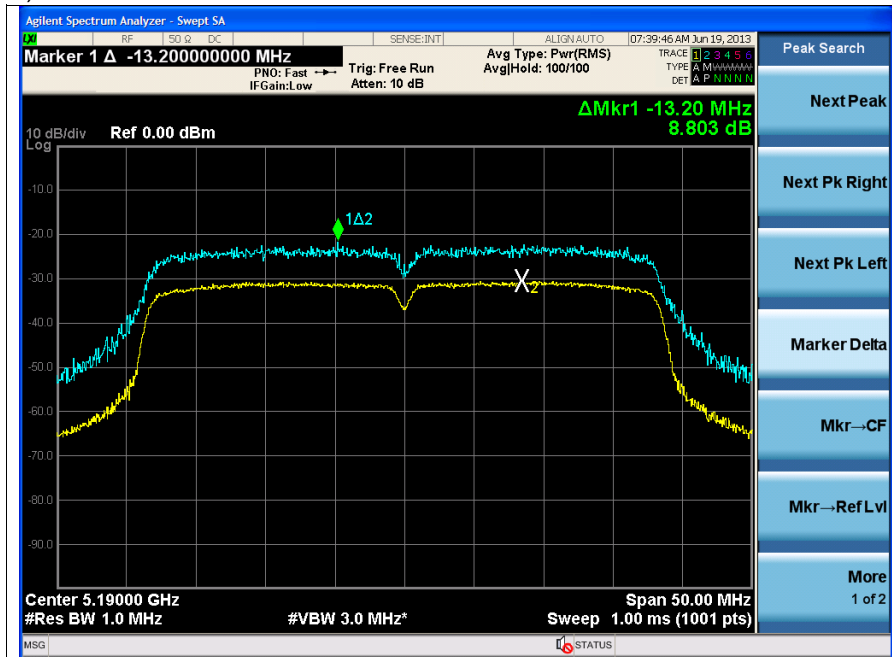
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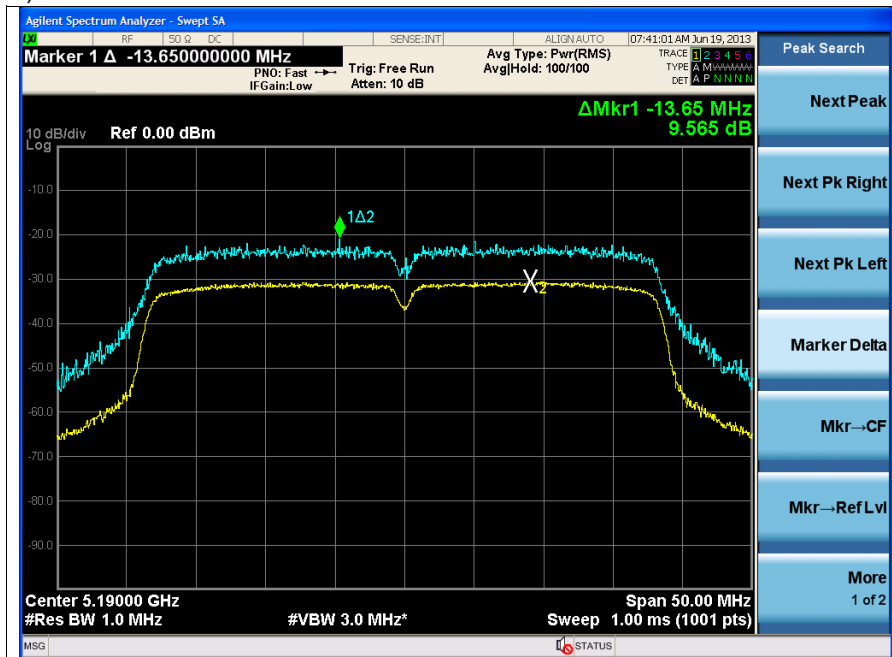
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5 190 MHz(MCS4)



5 190 MHz(MCS5)



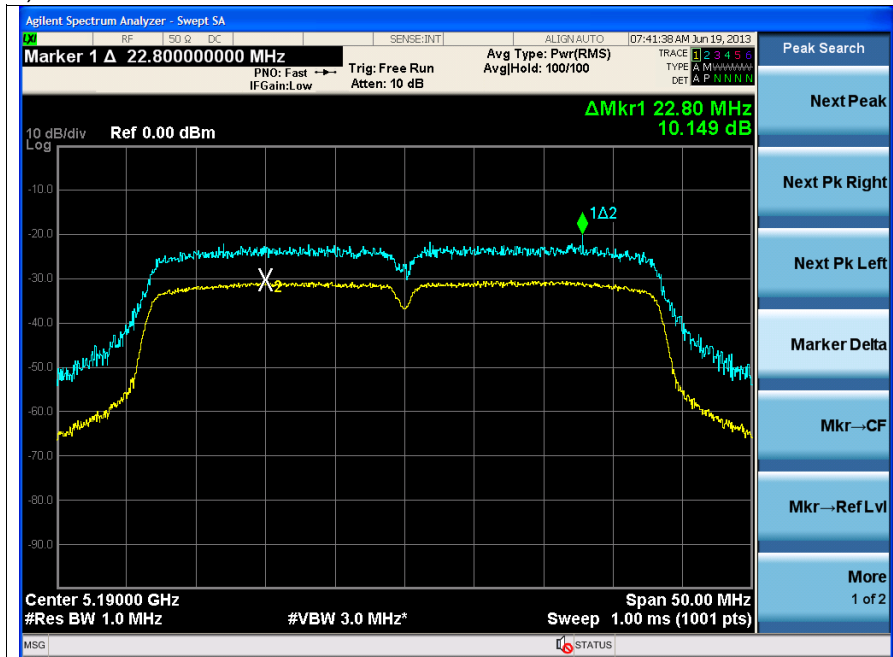
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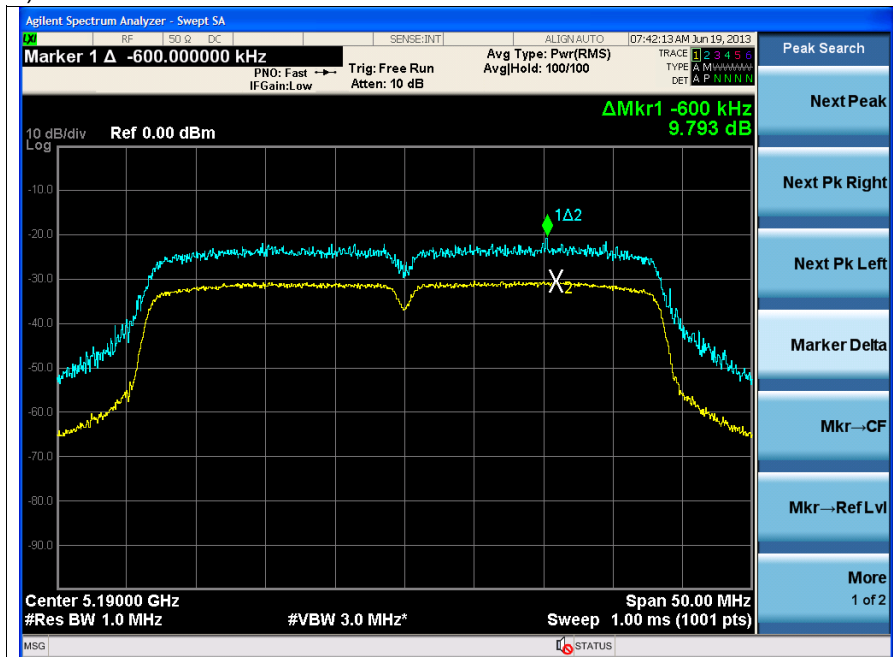
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5 190 MHz(MCS6)



5 190 MHz(MCS7)



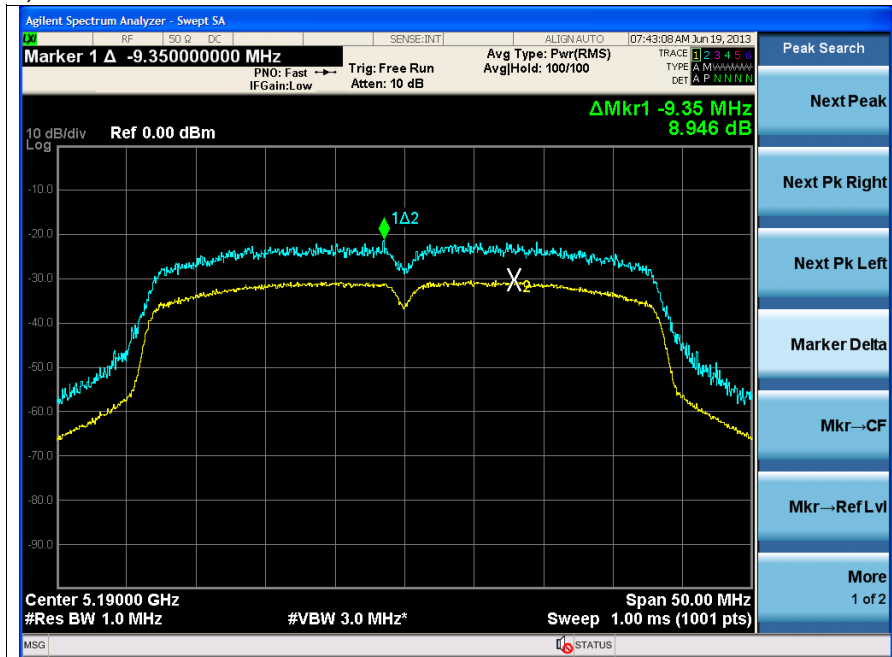
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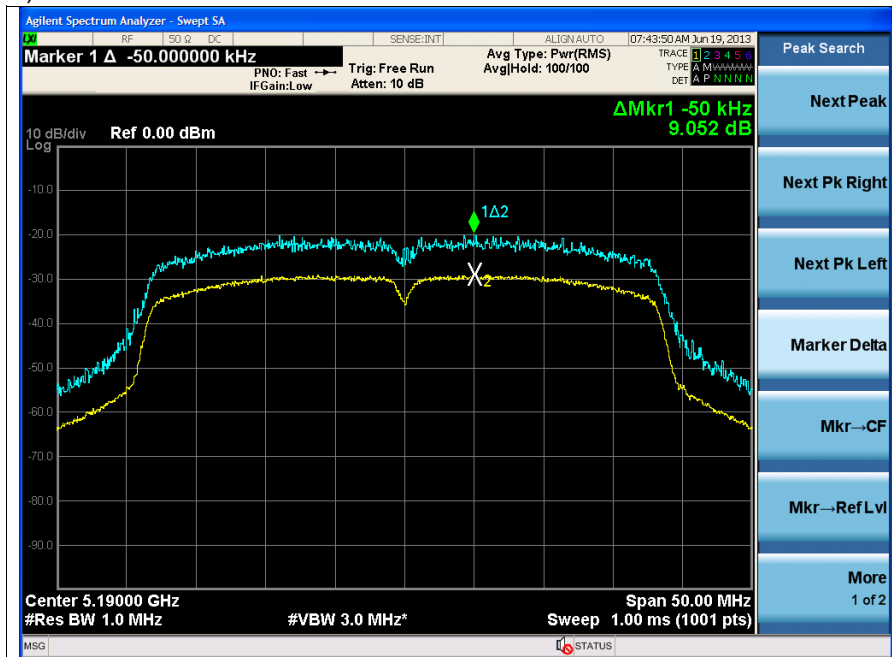
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5 190 MHz(MCS8)



5 190 MHz(MCS9)



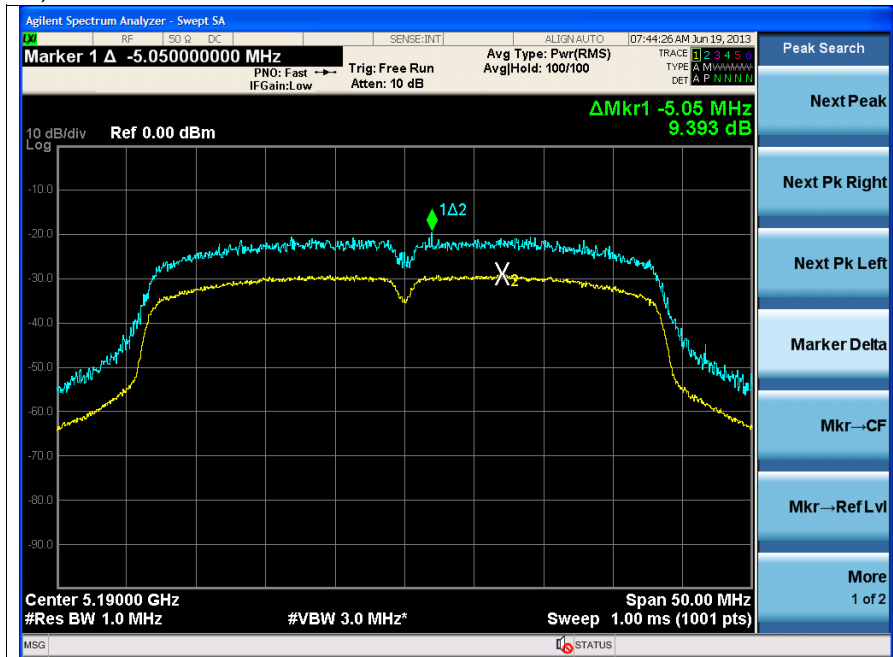
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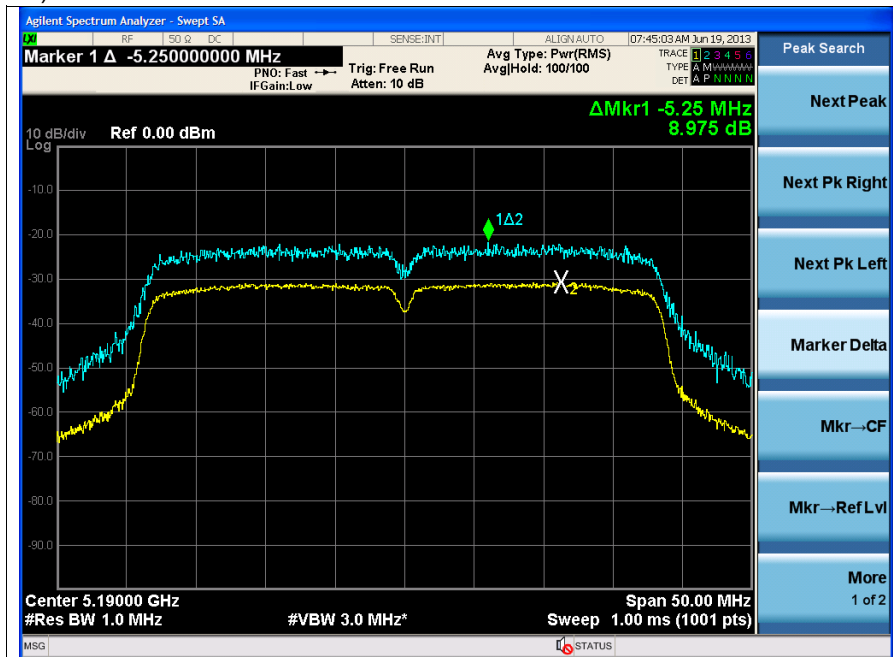
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5 190 MHz(MCS10)



5 190 MHz(MCS11)



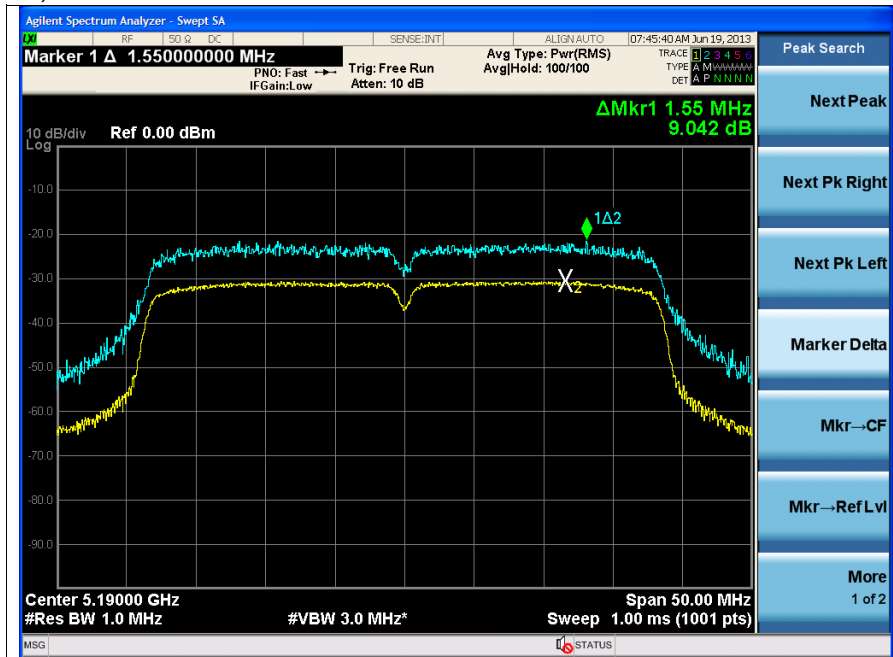
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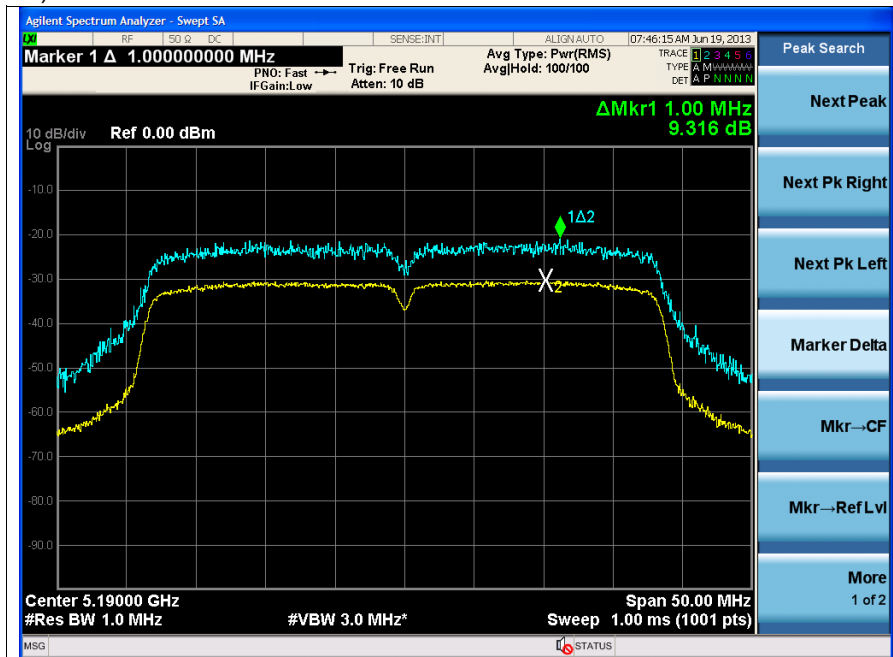
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5 190 MHz(MCS12)



5 190 MHz(MCS13)



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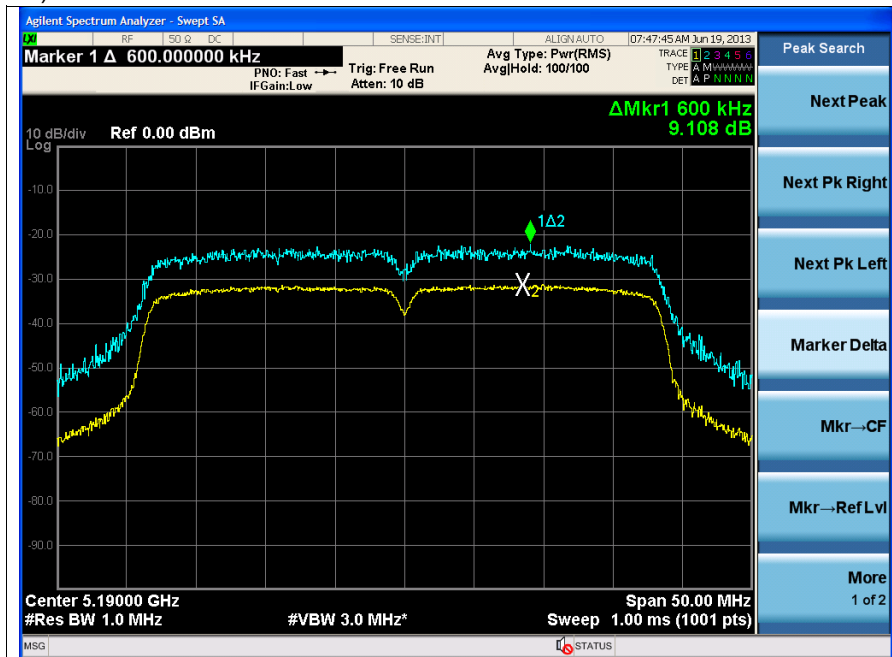
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5 190 MHz(MCS14)



5 190 MHz(MCS15)



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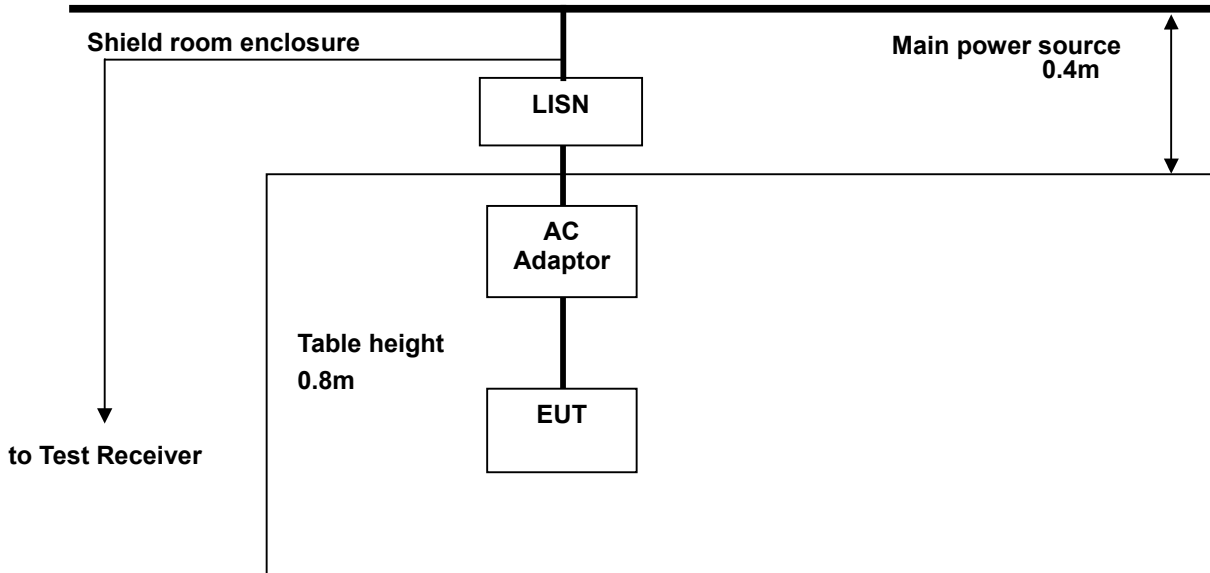
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7. Transmitter AC Power Line Conducted Emission

7.1. Test Setup



7.2. 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 kHz to 30 MHz, 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 (MHz)	Conducted limit (dB μ V)	
	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.

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7.3. 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.

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7.4. Test Results (Worst case configuration_ 11a mode_6Mbps)

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

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

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

FREQ. (MHz)	LEVEL(dB μ V)		LINE	LIMIT(dB μ V)		MARGIN(dB)	
	Q-Peak	Average		Q-Peak	Average	Q-Peak	Average
0.38	37.31	33.71	H	58.19	48.19	20.88	14.48
0.60	24.41	18.81	H	56.00	46.00	31.59	27.19
1.19	18.92	12.32	H	56.00	46.00	37.08	33.68
2.47	25.15	19.95	H	56.00	46.00	30.85	26.05
15.37	31.14	26.14	H	60.00	50.00	28.86	23.86
18.91	27.80	20.80	H	60.00	50.00	32.20	29.20
0.38	36.79	33.89	N	58.19	48.19	21.40	14.30
0.60	23.39	17.49	N	56.00	46.00	32.61	28.51
1.12	21.30	11.10	N	56.00	46.00	34.70	34.90
1.83	25.71	20.81	N	56.00	46.00	30.29	25.19
16.52	30.64	24.44	N	60.00	50.00	29.36	25.56
19.64	28.59	22.99	N	60.00	50.00	31.41	27.01

Note ;

1. Line (H): Hot, Line (N): Neutral
2. All modes of operation were investigated and the worst-case emissions are reported using 11a_6Mbps
3. The limit for Class B device(s) from 150 kHz to 30 MHz 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.

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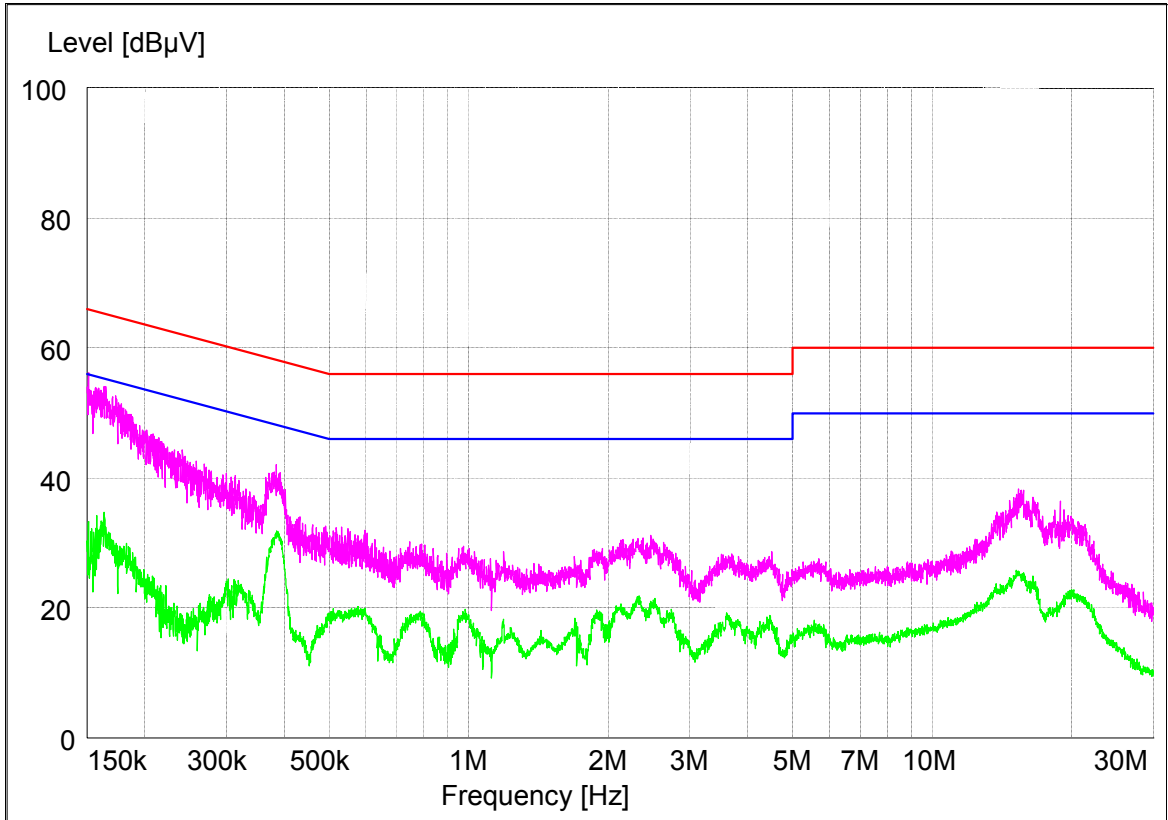
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Plot of Conducted Power line

Test mode : (Hot)



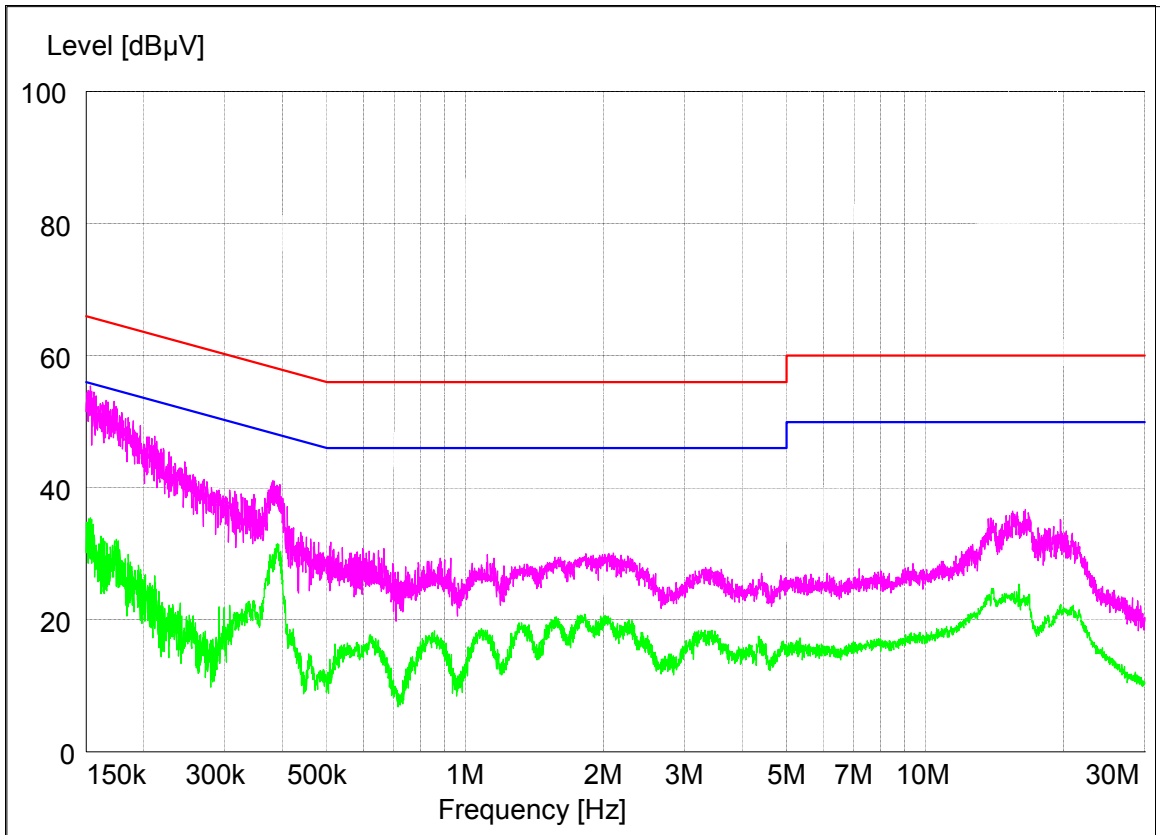
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Test mode : (Neutral)



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