

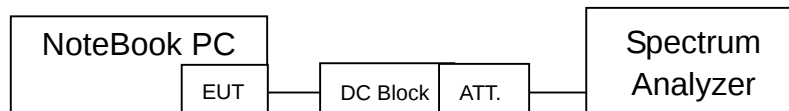
7 Power spectral density

7.1 Limit

According to FCC Part15.247 (e) requirement :

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

7.2 Configuration of Measurement



7.3 Test Procedure

The EUT was setup to ANSI C63.4, 2003; tested to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The power spectrum density was measured from the antenna port of the EUT using a 50ohm spectrum analyzer with the resolution bandwidth set at 3kHz, video bandwidth set at 10kHz, span of 1.5MHz, and sweep time set at 500 seconds. Power Density was read directly correction was added to the reading to obtain power at the EUT antenna terminals. The test was performed at 3 channels (lowest, middle and highest).

7.4 Test Result

PASS.

The final test data is shown on as following pages.

Power spectral density

Single Tx

2.4GHz

802.11b Chain A				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
1	22	-7.99	8	-15.99
6	22	-7.92	8	-15.92
11	22	-8.08	8	-16.08

802.11b Chain B				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
1	22	-7.45	8	-15.45
6	22	-7.80	8	-15.80
11	22	-8.23	8	-16.23

802.11b Chain C				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
1	22	-7.66	8	-15.66
6	22	-9.26	8	-17.26
11	22	-7.58	8	-15.58

802.11g Chain A				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
1	22	-12.52	8	-20.52
6	22	-12.06	8	-20.06
11	22	-12.91	8	-20.91

802.11g Chain B				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
1	22	-11.13	8	-19.13
6	22	-12.37	8	-20.37
11	22	-13.07	8	-21.07

802.11g Chain C				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
1	22	-10.11	8	-18.11
6	22	-10.70	8	-18.70
11	22	-12.18	8	-20.18

802.11n (HT20) Chain A				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
1	22	-12.39	8	-20.39
6	22	-13.31	8	-21.31
11	22	-13.34	8	-21.34

802.11n (HT20) Chain B				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
1	22	-12.39	8	-20.39
6	22	-14.05	8	-22.05
11	22	-14.46	8	-22.46

802.11n (HT20) Chain C				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
1	22	-12.75	8	-20.75
6	22	-13.82	8	-21.82
11	22	-14.40	8	-22.40

802.11n (HT40) Chain A				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
3	22	-16.02	8	-24.02
6	22	-16.15	8	-24.15
9	22	-17.68	8	-25.68

802.11n (HT40) Chain B				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
3	22	-17.22	8	-25.22
6	22	-16.04	8	-24.04
9	22	-16.59	8	-24.59

802.11n (HT40) Chain C				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
3	22	-15.38	8	-23.38
6	22	-16.70	8	-24.70
9	22	-15.62	8	-23.62

Single Tx

5GHz

802.11a Chain A				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
149	22	-9.42	8	-17.42
157	22	-9.83	8	-17.83
165	22	-10.45	8	-18.45

802.11a Chain B				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
149	22	-10.48	8	-18.48
157	22	-8.96	8	-16.96
165	22	-10.60	8	-18.60

802.11a Chain C				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
149	22	-10.33	8	-18.33
157	22	-9.19	8	-17.19
165	22	-11.95	8	-19.95

802.11n (HT20) Chain A				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
149	22	-9.87	8	-17.87
157	22	-10.37	8	-18.37
165	22	-10.67	8	-18.67

802.11n (HT20) Chain B				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
149	22	-10.97	8	-18.97
157	22	-10.35	8	-18.35
165	22	-11.00	8	-19.00

802.11n (HT20) Chain C				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
149	22	-11.95	8	-19.95
157	22	-9.95	8	-17.95
165	22	-12.54	8	-20.54

802.11n (HT40) Chain A				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
151	22	-11.58	8	-19.58
159	22	-13.35	8	-21.35

802.11n (HT40) Chain B				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
151	22	-12.24	8	-20.24
159	22	-12.31	8	-20.31

802.11n (HT40) Chain C				
CH	Temp. (°C)	Power Spectral Density (dBm)	Limit (dBm)	Margin (dB)
151	22	-11.02	8	-19.02
159	22	-10.45	8	-18.45

Dual Tx

2.4GHz

802.11n (HT20) Chain A+B						
CH	Temp. (°C)	Power Spectral Density (dBm)		Total Spectral Density (dBm)	Limit (dBm)	Margin (dB)
		Chain A	Chain B			
1	22	-12.88	-13.50	-10.17	8	-18.17
6	22	-13.34	-13.76	-10.53	8	-18.53
11	22	-13.82	-14.51	-11.14	8	-19.14

802.11n (HT20) Chain B+C						
CH	Temp. (°C)	Power Spectral Density (dBm)		Total Spectral Density (dBm)	Limit (dBm)	Margin (dB)
		Chain B	Chain C			
1	22	-13.00	-13.16	-10.07	8	-18.07
6	22	-13.12	-13.64	-10.36	8	-18.36
11	22	-14.18	-13.31	-10.71	8	-18.71

802.11n (HT20) Chain A+C						
CH	Temp. (°C)	Power Spectral Density (dBm)		Total Spectral Density (dBm)	Limit (dBm)	Margin (dB)
		Chain A	Chain C			
1	22	-13.63	-12.35	-9.93	8	-17.93
6	22	-14.52	-12.87	-10.61	8	-18.61
11	22	-13.68	-12.78	-10.20	8	-18.20

802.11n (HT40) Chain A+B						
CH	Temp. (°C)	Power Spectral Density (dBm)		Total Spectral Density (dBm)	Limit (dBm)	Margin (dB)
		Chain A	Chain B			
3	22	-17.63	-19.17	-15.32	8	-23.32
6	22	-17.78	-18.03	-14.89	8	-22.89
9	22	-20.09	-18.22	-16.04	8	-24.04

802.11n (HT40) Chain B+C						
CH	Temp. (°C)	Power Spectral Density (dBm)		Total Spectral Density (dBm)	Limit (dBm)	Margin (dB)
		Chain B	Chain C			
3	22	-17.11	-15.84	-13.42	8	-21.42
6	22	-16.67	-17.64	-14.12	8	-22.12
9	22	-16.81	-17.15	-13.97	8	-21.97

802.11n (HT40) Chain A+C						
CH	Temp. (°C)	Power Spectral Density (dBm)		Total Spectral Density (dBm)	Limit (dBm)	Margin (dB)
		Chain A	Chain C			
3	22	-16.95	-15.27	-13.02	8	-21.02
6	22	-16.88	-17.13	-13.99	8	-21.99
9	22	-17.11	-16.59	-13.83	8	-21.83

Dual Tx

5GHz

802.11n (HT20) Chain A+B						
CH	Temp. (°C)	Power Spectral Density (dBm)		Total Spectral Density (dBm)	Limit (dBm)	Margin (dB)
		Chain A	Chain B			
149	22	-9.19	-11.00	-6.99	8	-14.99
157	22	-12.81	-10.67	-8.60	8	-16.60
165	22	-10.85	-9.79	-7.28	8	-15.28

802.11n (HT20) Chain B+C						
CH	Temp. (°C)	Power Spectral Density (dBm)		Total Spectral Density (dBm)	Limit (dBm)	Margin (dB)
		Chain B	Chain C			
149	22	-10.07	-11.93	-7.89	8	-15.89
157	22	-9.85	-9.95	-6.89	8	-14.89
165	22	-9.39	-13.37	-7.93	8	-15.93

802.11n (HT20) Chain A+C						
CH	Temp. (°C)	Power Spectral Density (dBm)		Total Spectral Density (dBm)	Limit (dBm)	Margin (dB)
		Chain A	Chain C			
149	22	-10.01	-13.18	-8.30	8	-16.30
157	22	-9.98	-9.99	-6.97	8	-14.97
165	22	-11.12	-13.77	-9.24	8	-17.24

802.11n (HT40) Chain A+B						
CH	Temp. (°C)	Power Spectral Density (dBm)		Total Spectral Density (dBm)	Limit (dBm)	Margin (dB)
		Chain A	Chain B			
151	22	-11.22	-12.63	-8.86	8	-16.86
159	22	-12.21	-13.03	-9.59	8	-17.59

802.11n (HT40) Chain B+C						
CH	Temp. (°C)	Power Spectral Density (dBm)		Total Spectral Density (dBm)	Limit (dBm)	Margin (dB)
		Chain B	Chain C			
151	22	-11.87	-13.52	-9.61	8	-17.61
159	22	-12.46	-11.53	-8.96	8	-16.96

802.11n (HT40) Chain A+C						
CH	Temp. (°C)	Power Spectral Density (dBm)		Total Spectral Density (dBm)	Limit (dBm)	Margin (dB)
		Chain A	Chain C			
151	22	-12.64	-12.94	-9.78	8	-17.78
159	22	-11.26	-11.17	-8.20	8	-16.20

Triple Tx

2.4GHz

802.11n (HT20) Chain A+B+C							
CH	Temp. (°C)	Power Spectral Density (dBm)			Total Spectral Density (dBm)	Limit (dBm)	Margin (dB)
		Chain A	Chain B	Chain C			
1	22	-15.98	-15.78	-14.58	-10.63	8	-18.63
6	22	-16.66	-15.71	-14.35	-10.70	8	-18.70
11	22	-16.03	-16.52	-16.62	-11.61	8	-19.61

802.11n (HT40) Chain A+B+C							
CH	Temp. (°C)	Power Spectral Density (dBm)			Total Spectral Density (dBm)	Limit (dBm)	Margin (dB)
		Chain A	Chain B	Chain C			
3	22	-17.78	-16.61	-16.07	-11.99	8	-19.99
6	22	-16.98	-16.60	-17.62	-12.28	8	-20.28
9	22	-18.68	-17.40	-17.13	-12.91	8	-20.91

Triple Tx

5 GHz

802.11n (HT20) Chain A+B+C							
CH	Temp. (°C)	Power Spectral Density (dBm)			Total Spectral Density (dBm)	Limit (dBm)	Margin (dB)
		Chain A	Chain B	Chain C			
149	22	-12.55	-11.21	-14.99	-7.88	8	-15.88
157	22	-12.00	-11.15	-12.35	-7.03	8	-15.03
165	22	-12.33	-13.19	-14.50	-8.48	8	-16.48

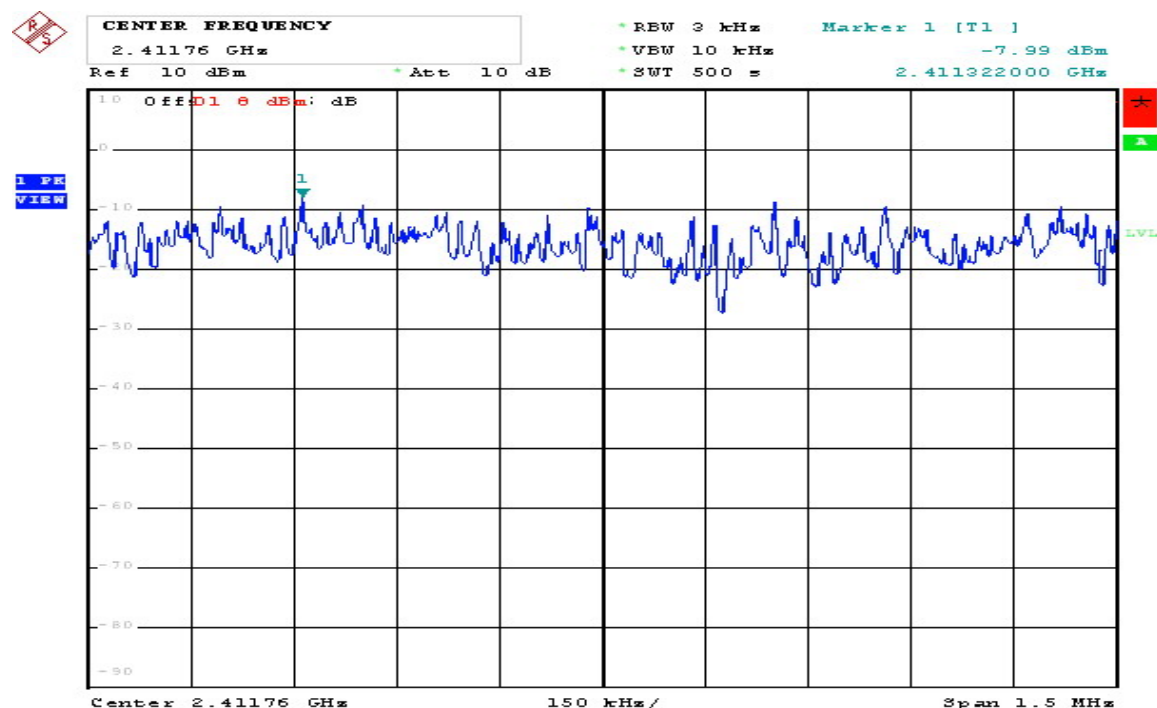
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CH	Temp. (°C)	Power Spectral Density (dBm)			Total Spectral Density (dBm)	Limit (dBm)	Margin (dB)
		Chain A	Chain B	Chain C			
151	22	-16.94	-15.96	-16.74	-11.75	8	-19.75
159	22	-16.67	-14.50	-13.88	-10.09	8	-18.09

Power spectral density

Single Tx

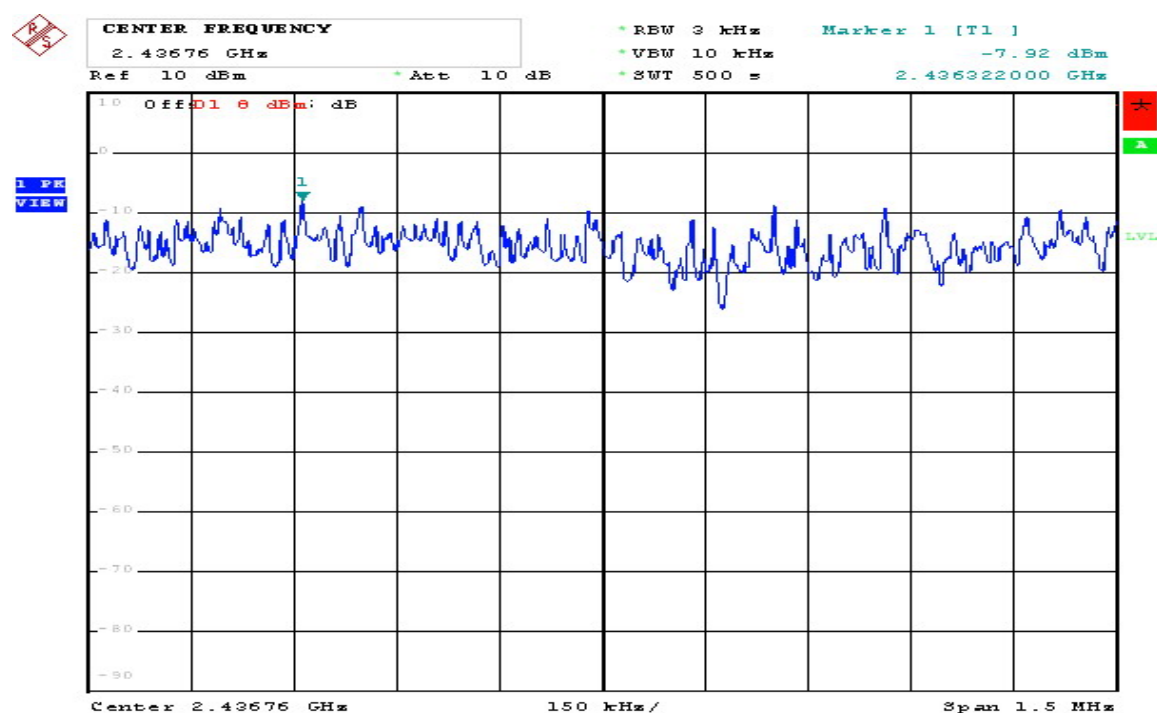
2.4GHz

802.11b CH1 2412MHz Chain A



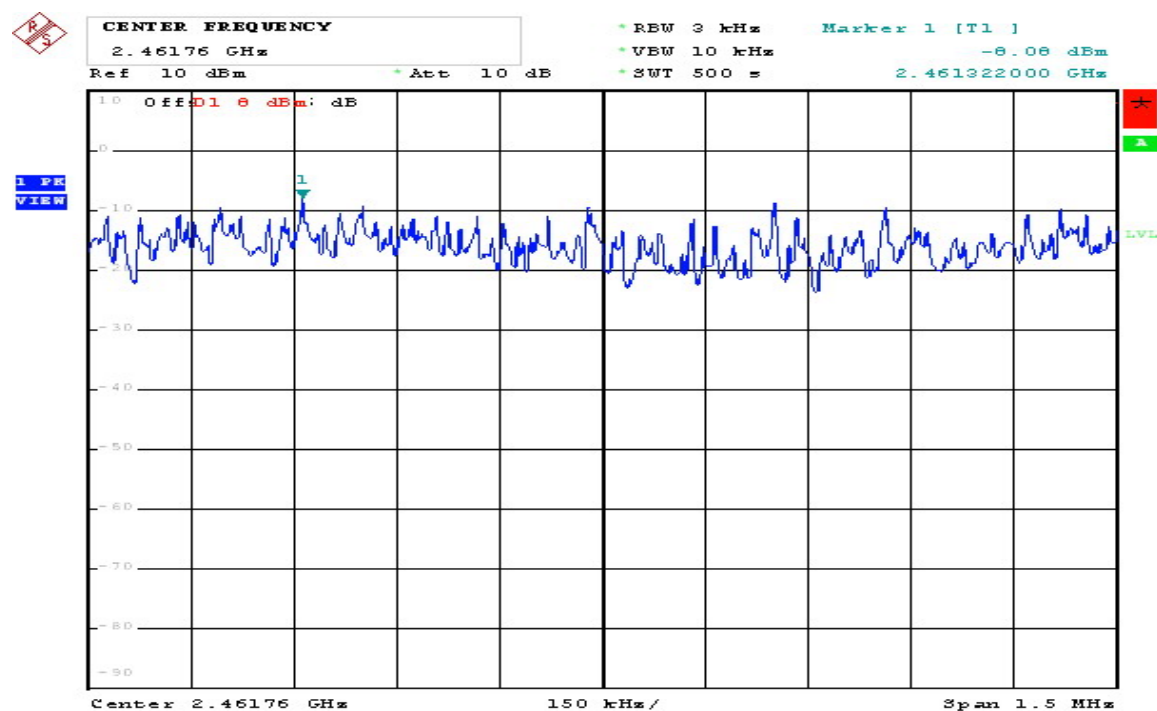
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802.11b CH6 2437MHz Chain A



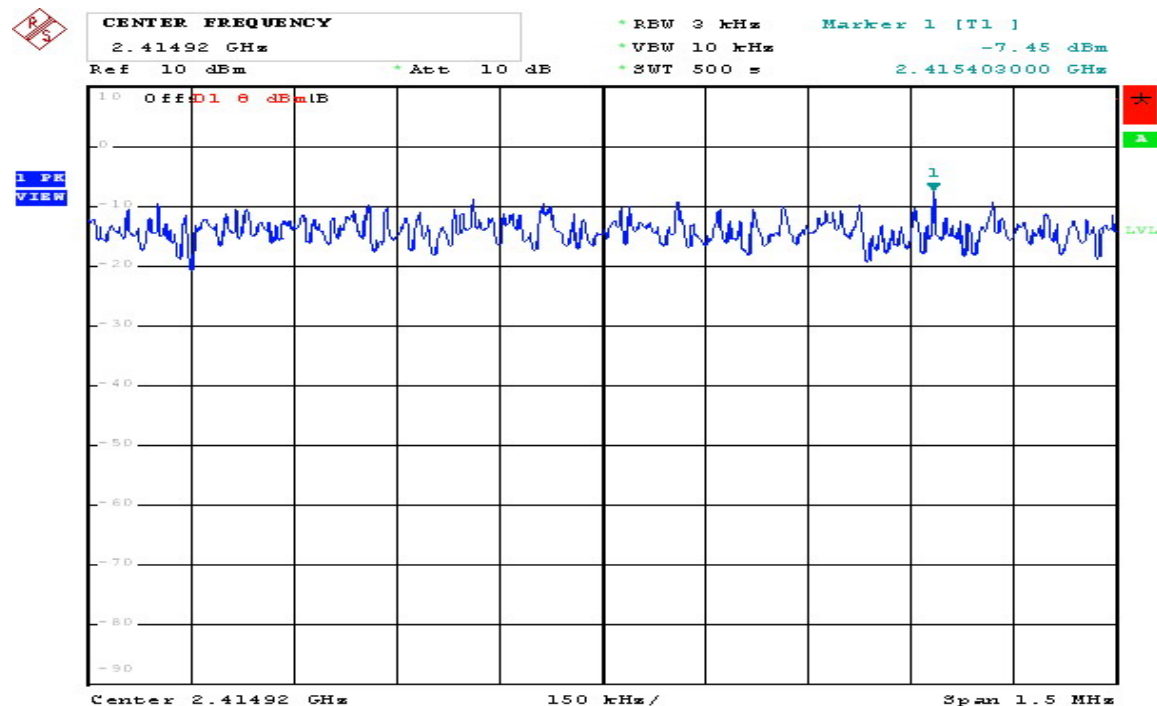
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802.11b CH11 2462MHz Chain A



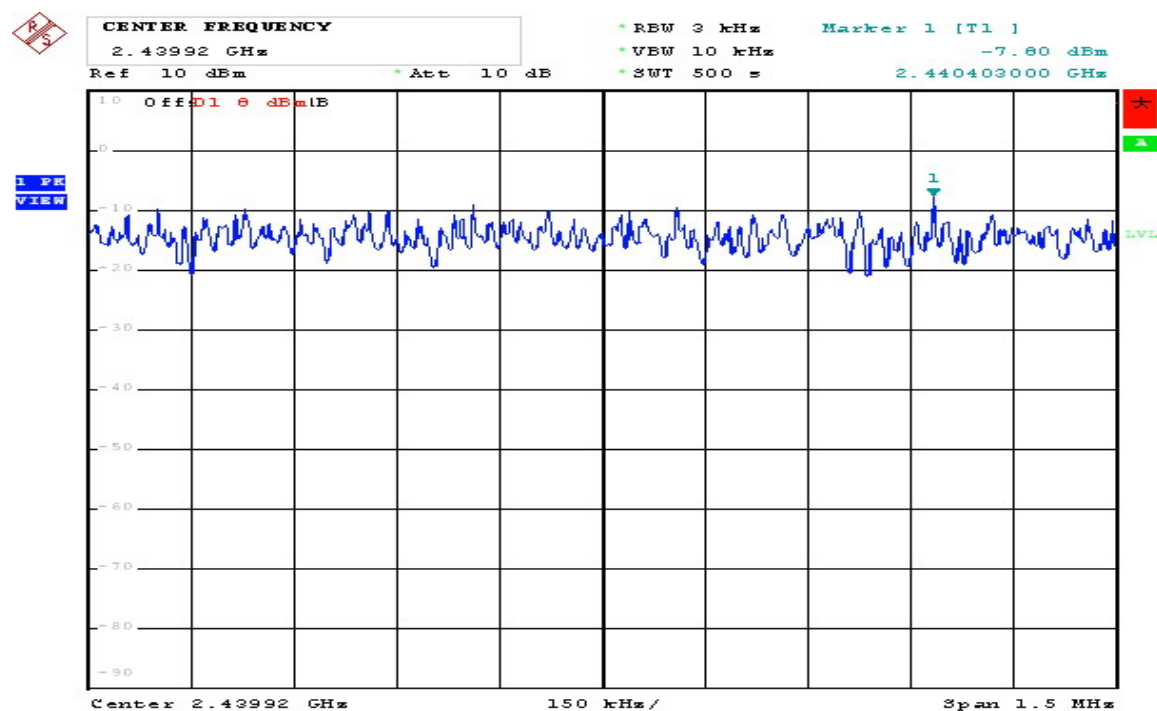
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802.11b CH1 2412MHz Chain B



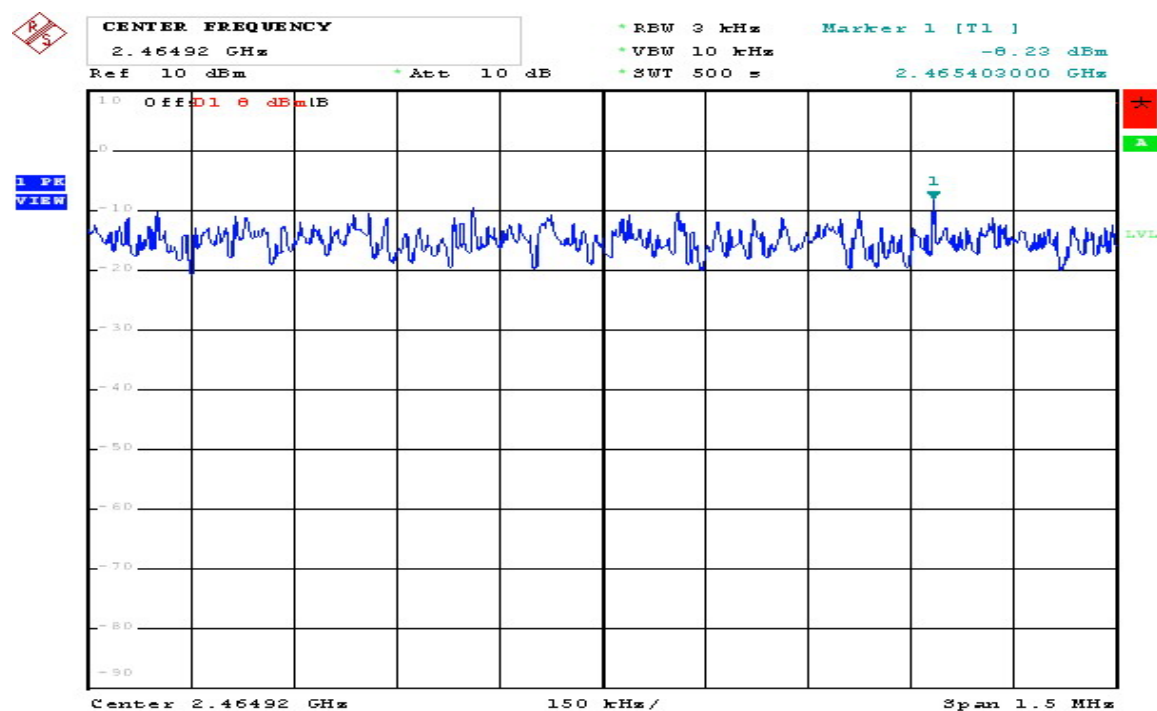
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802.11b CH6 2437MHz Chain B



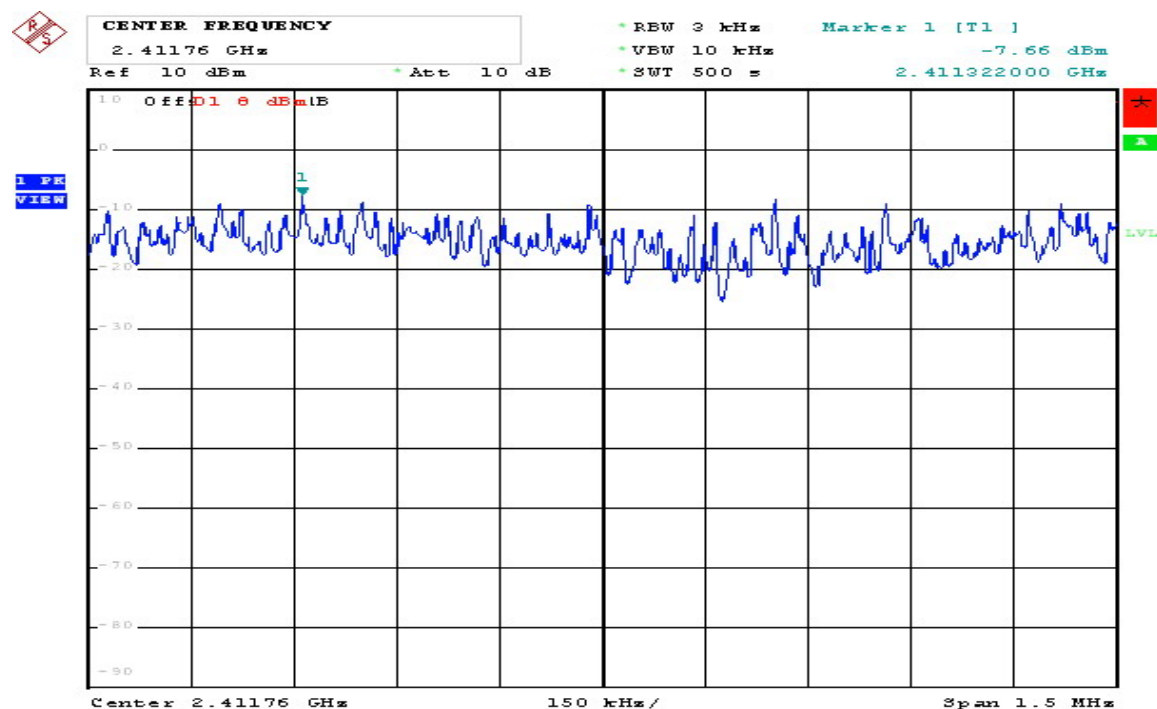
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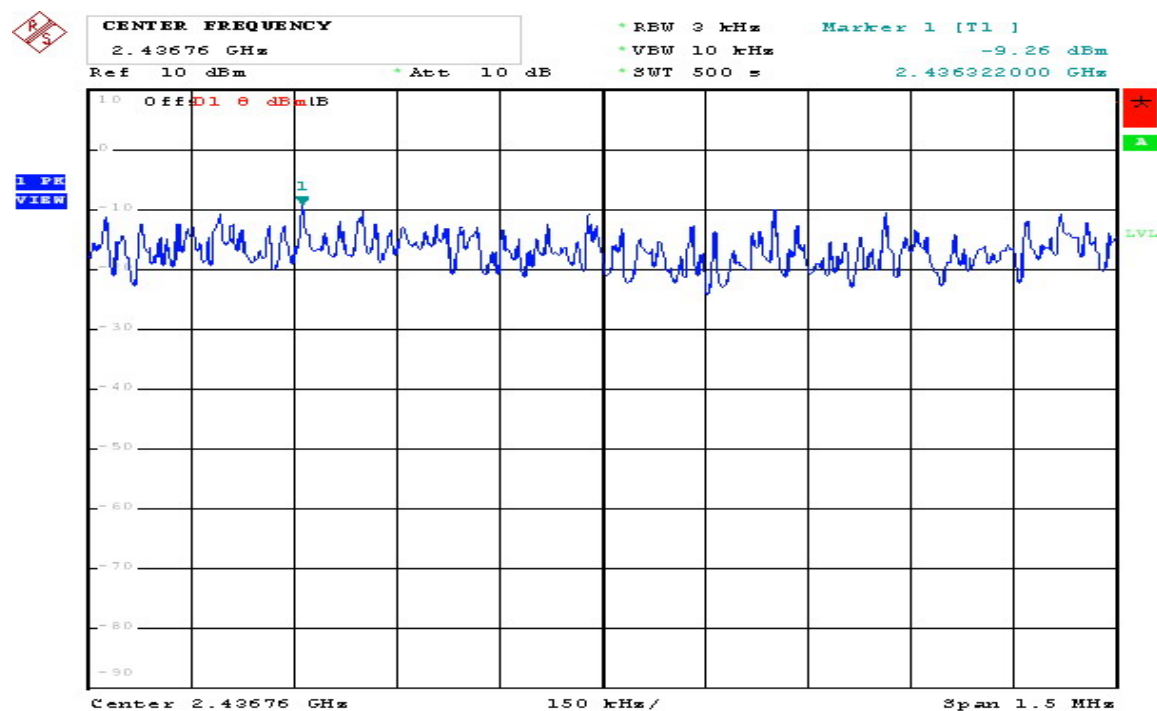
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802.11b CH1 2412MHz Chain C



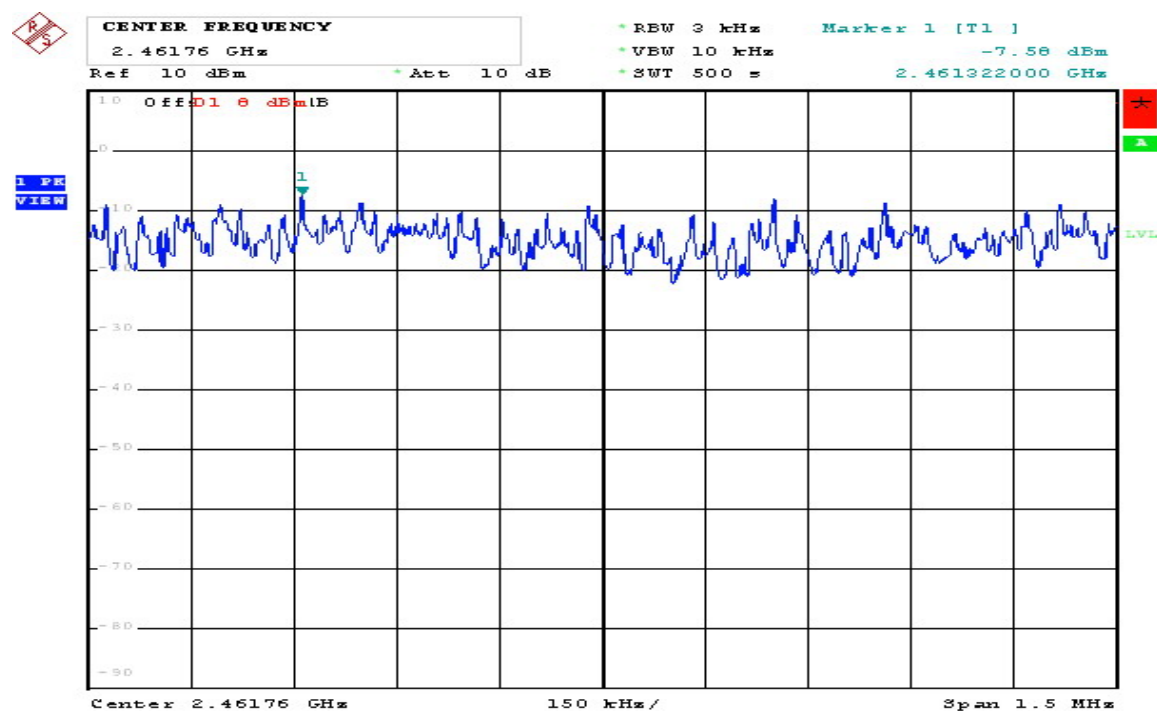
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802.11b CH6 2437MHz Chain C



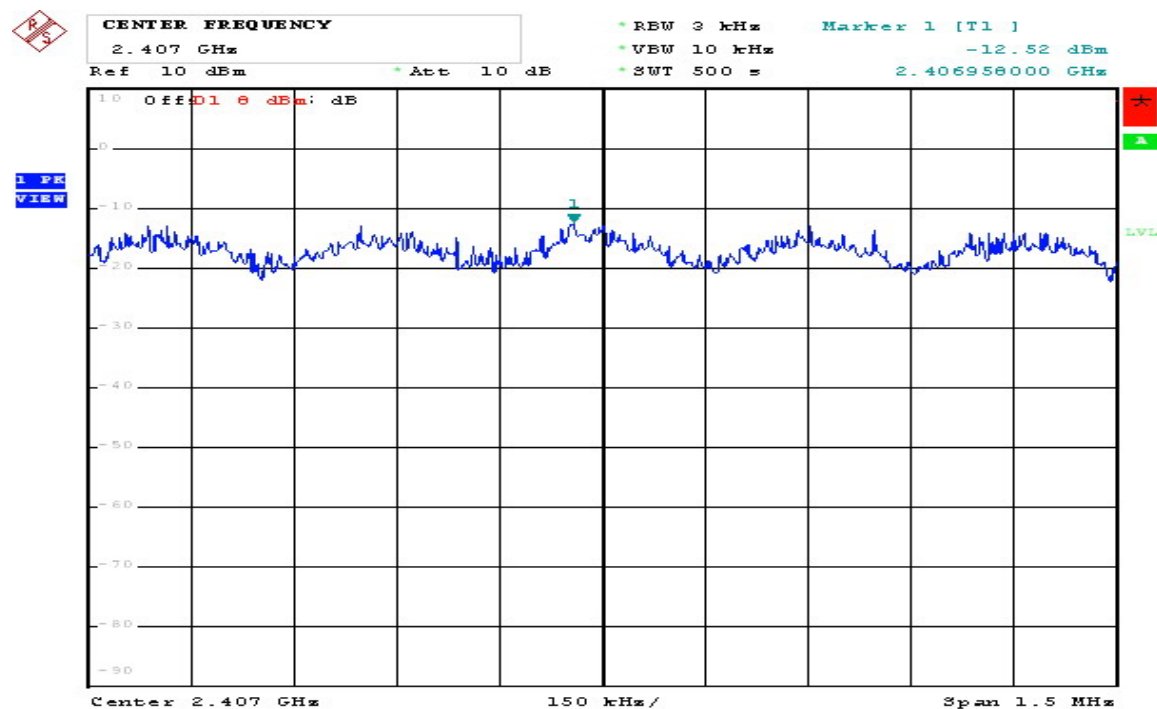
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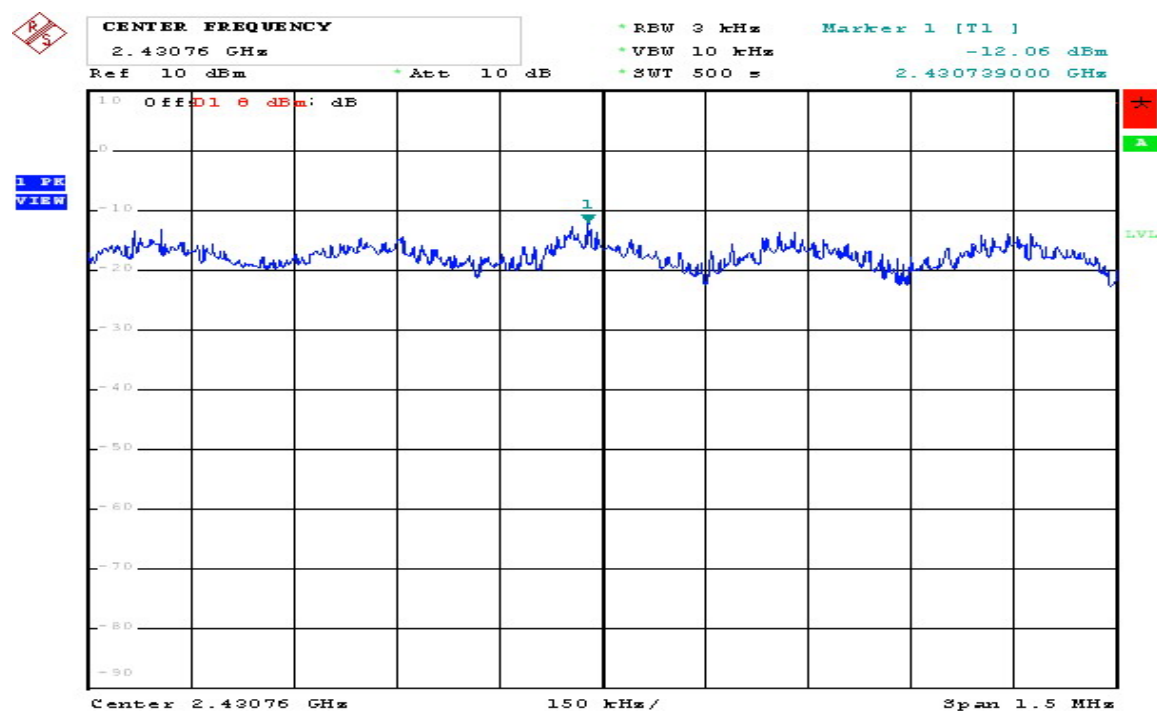
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802.11g CH1 2412MHz Chain A



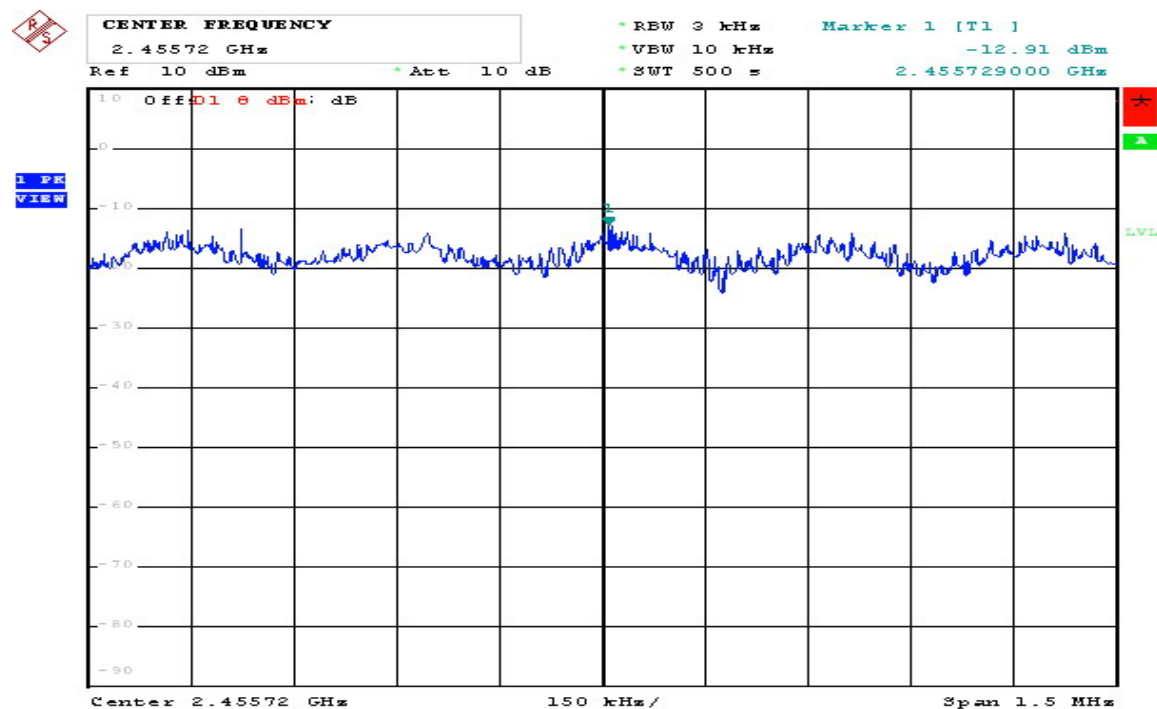
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802.11g CH6 2437MHz Chain A



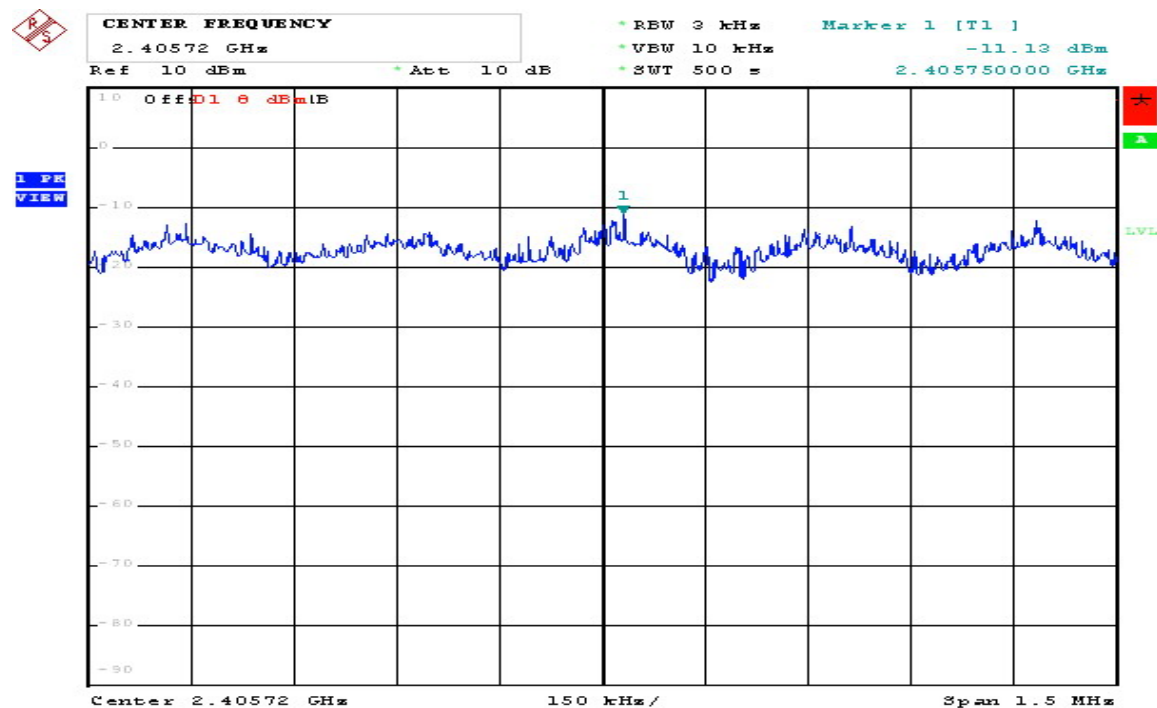
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802.11g CH11 2462MHz Chain A

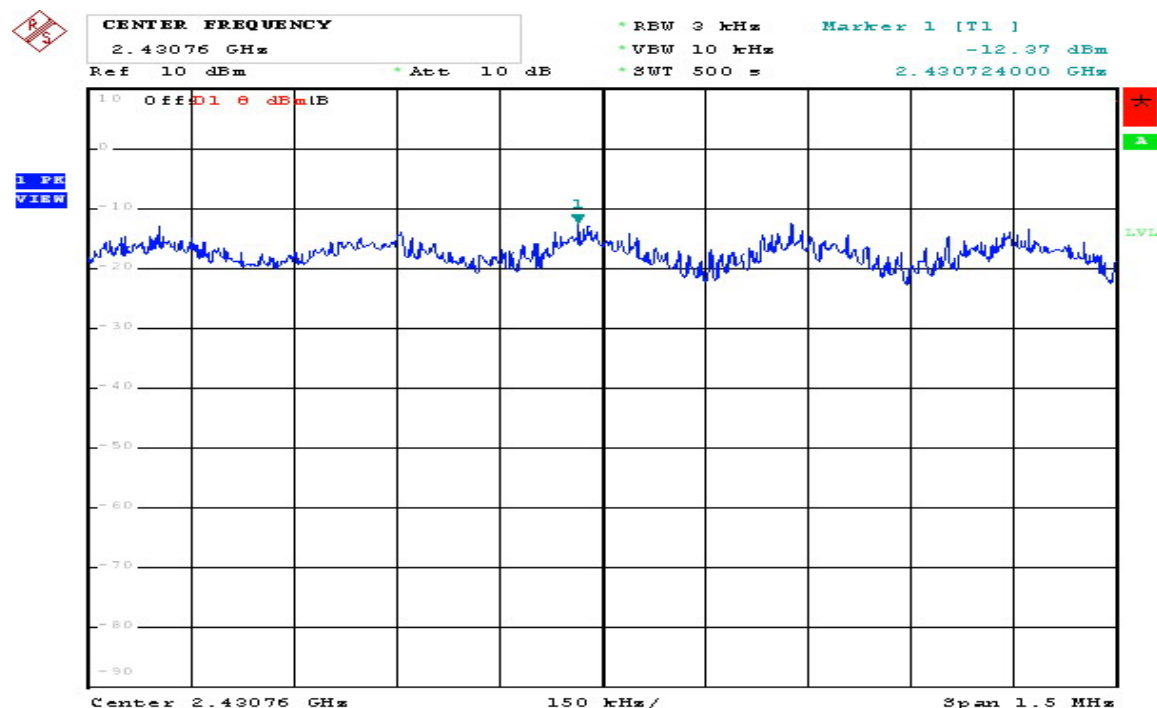


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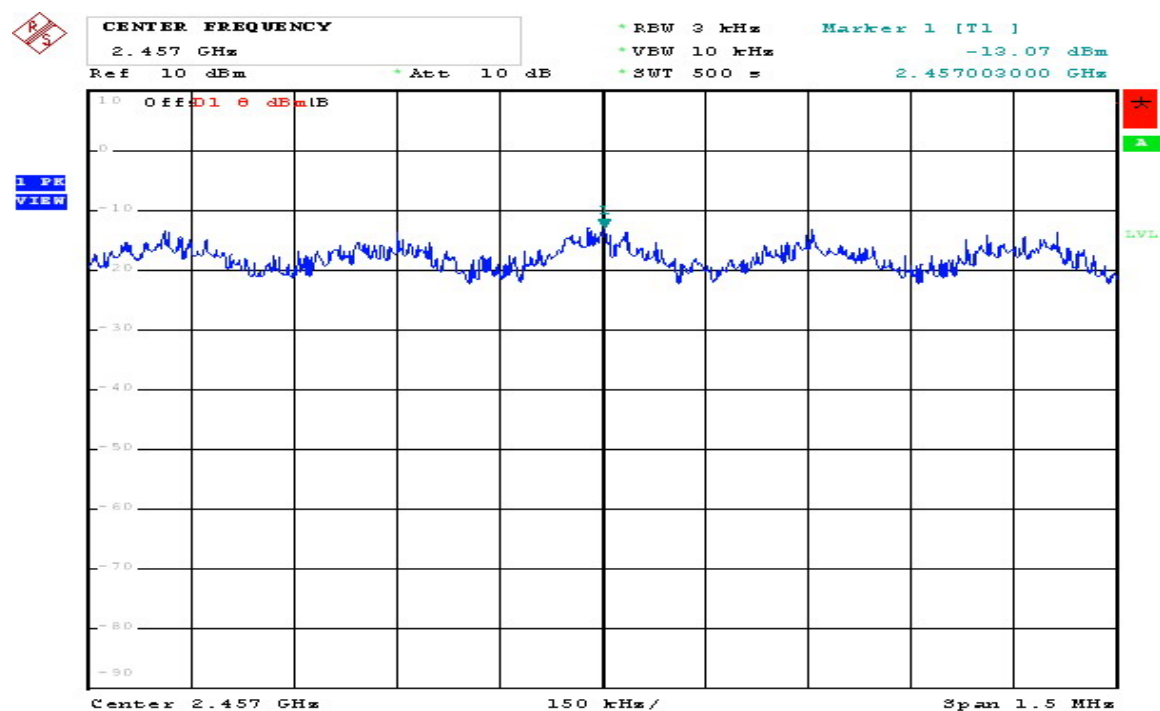
802.11g CH1 2412MHz Chain B



802.11g CH6 2437MHz Chain B

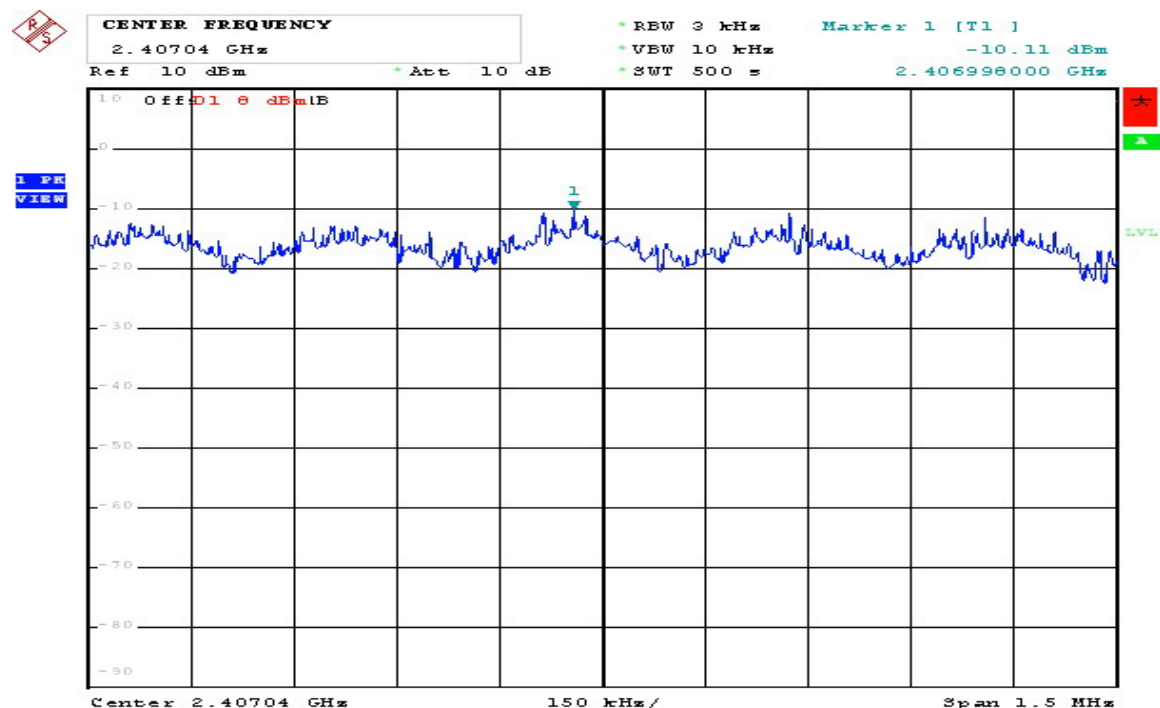


802.11g CH11 2462MHz Chain B



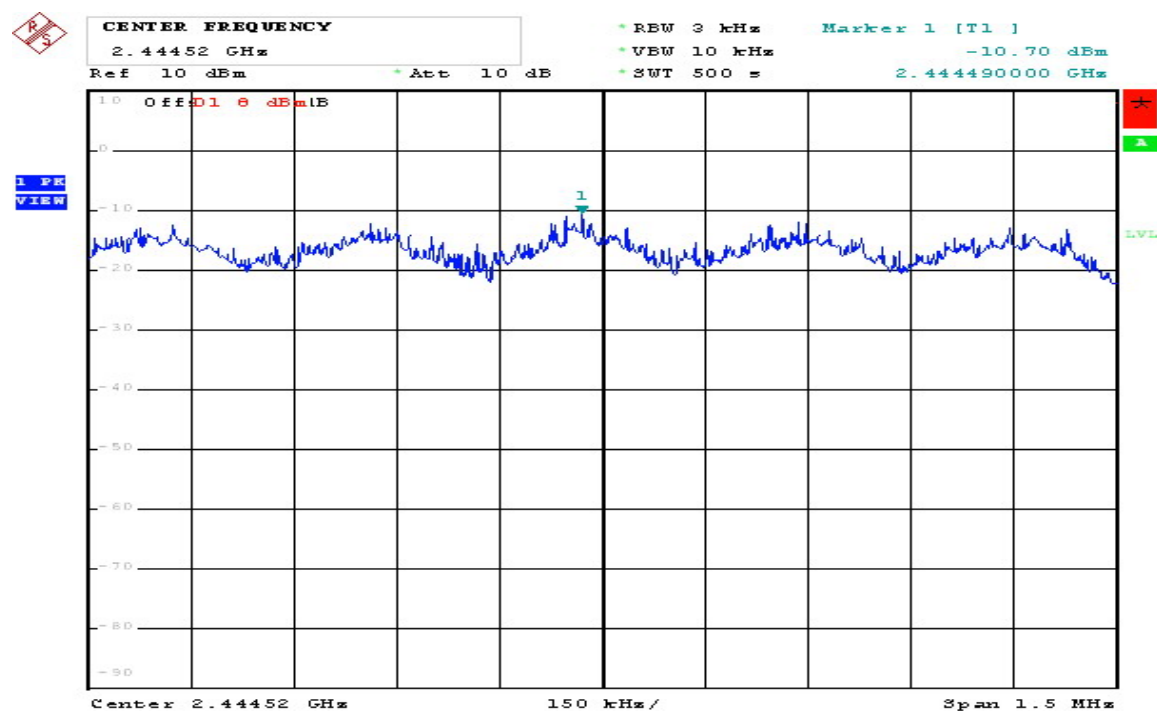
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802.11g CH1 2412MHz Chain C



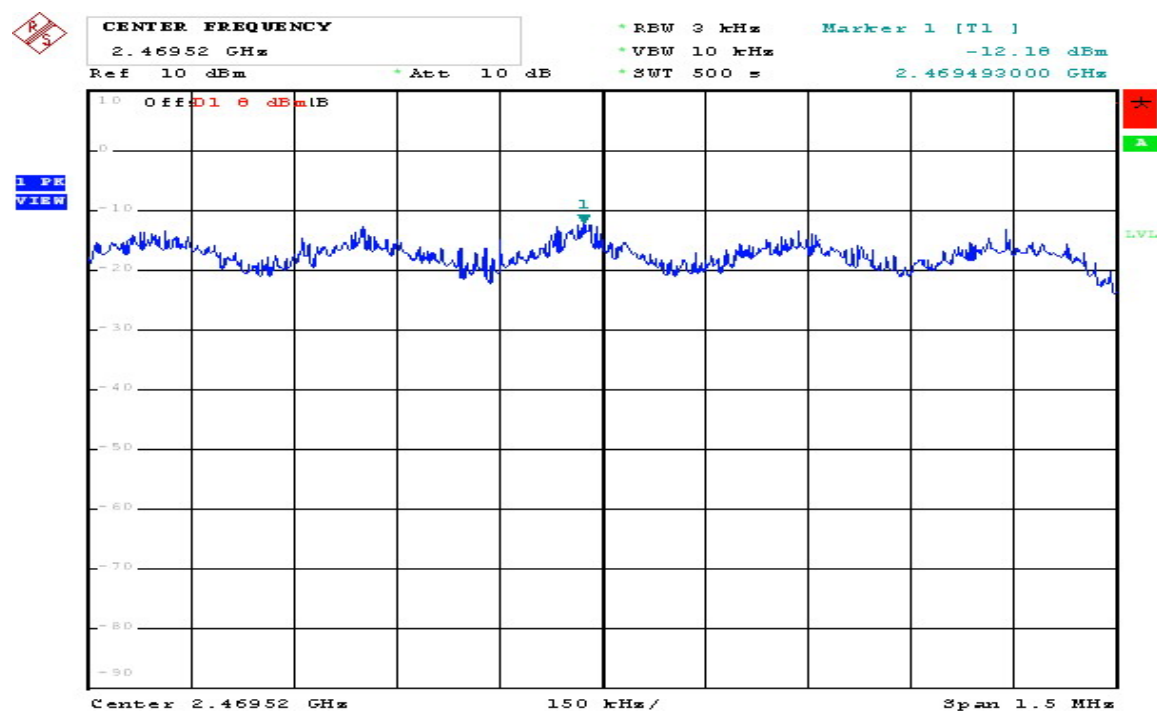
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802.11g CH6 2437MHz Chain C



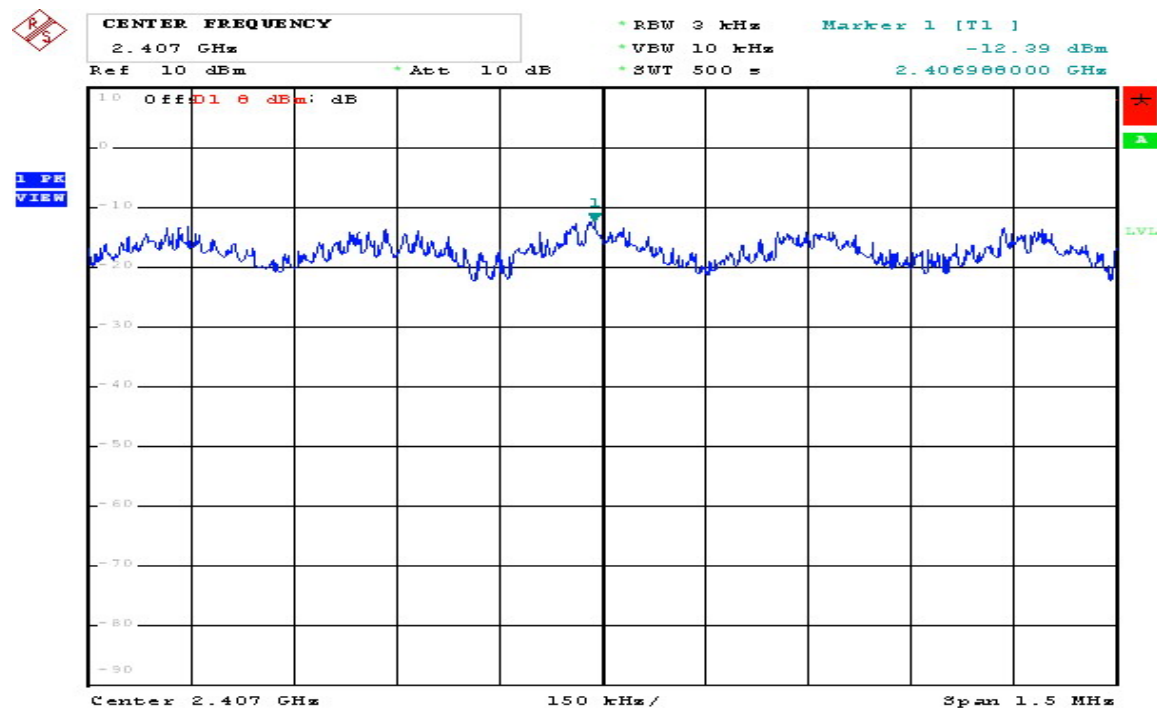
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802.11g CH11 2462MHz Chain C



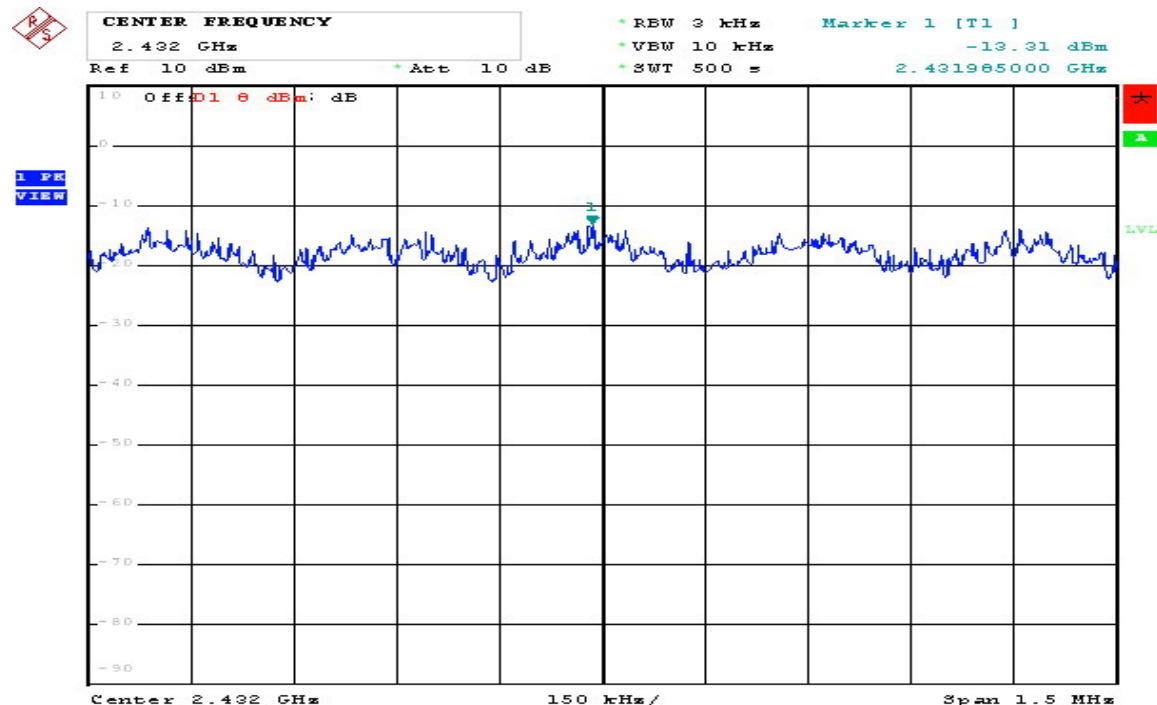
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802.11n (HT20) CH1 2412MHz Chain A



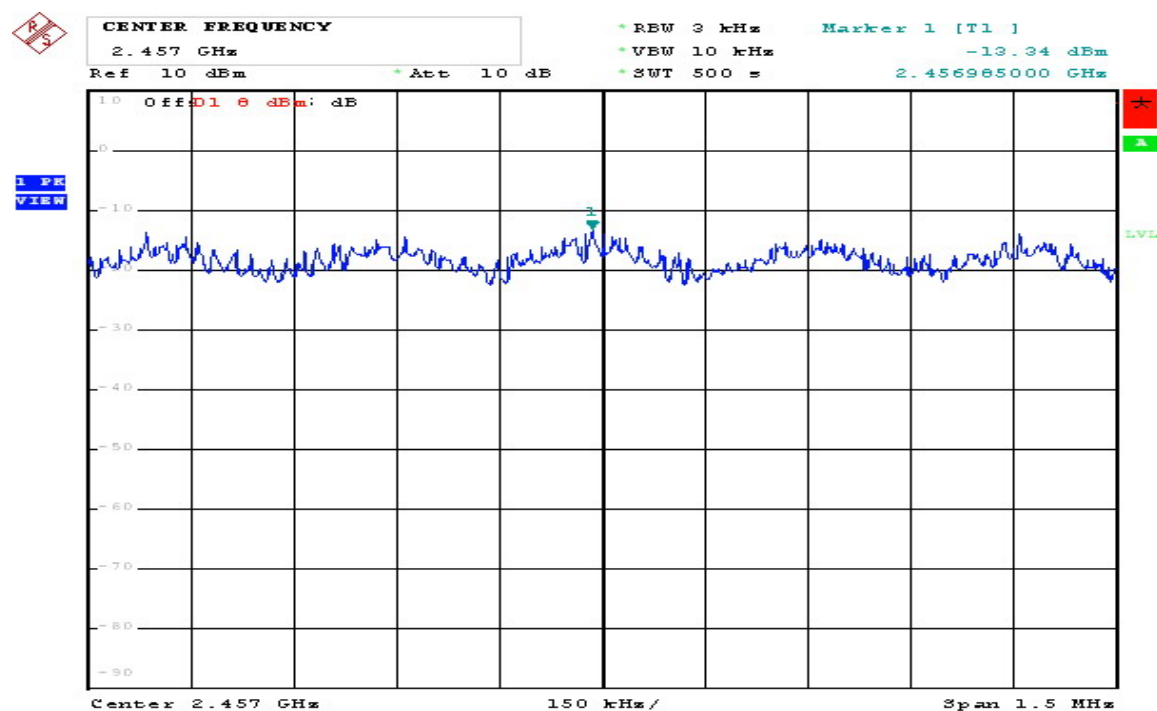
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802.11n (HT20) CH6 2437MHz Chain A



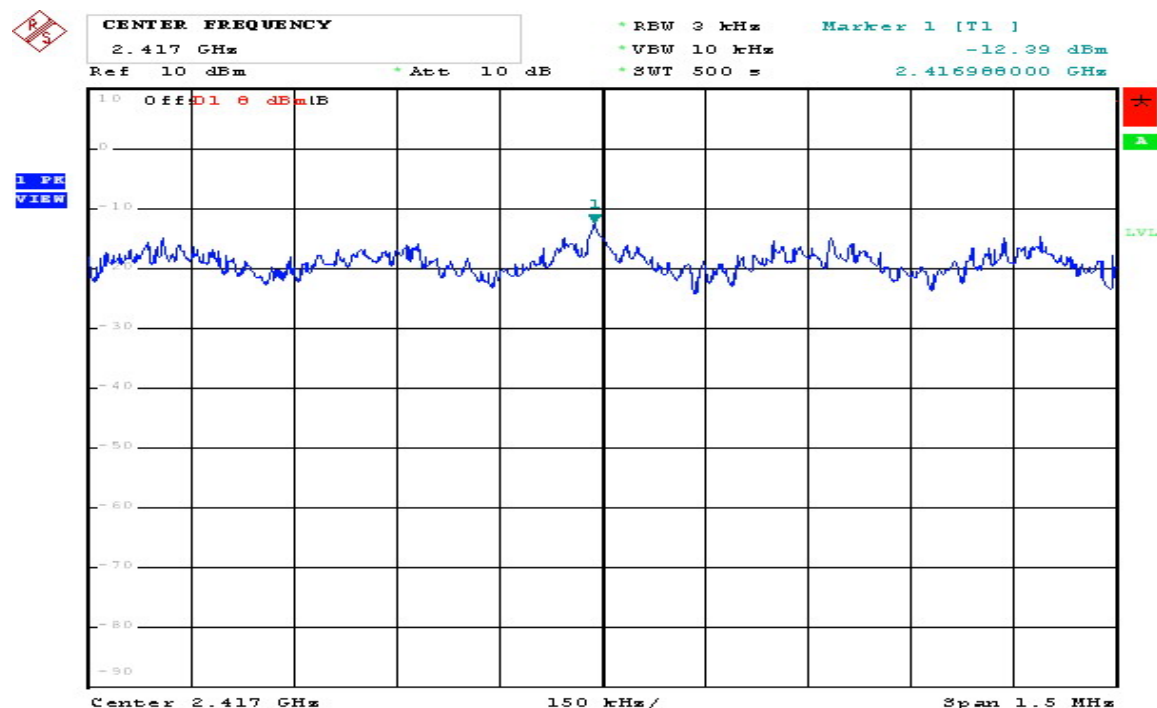
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802.11n (HT20) CH11 2462MHz Chain A



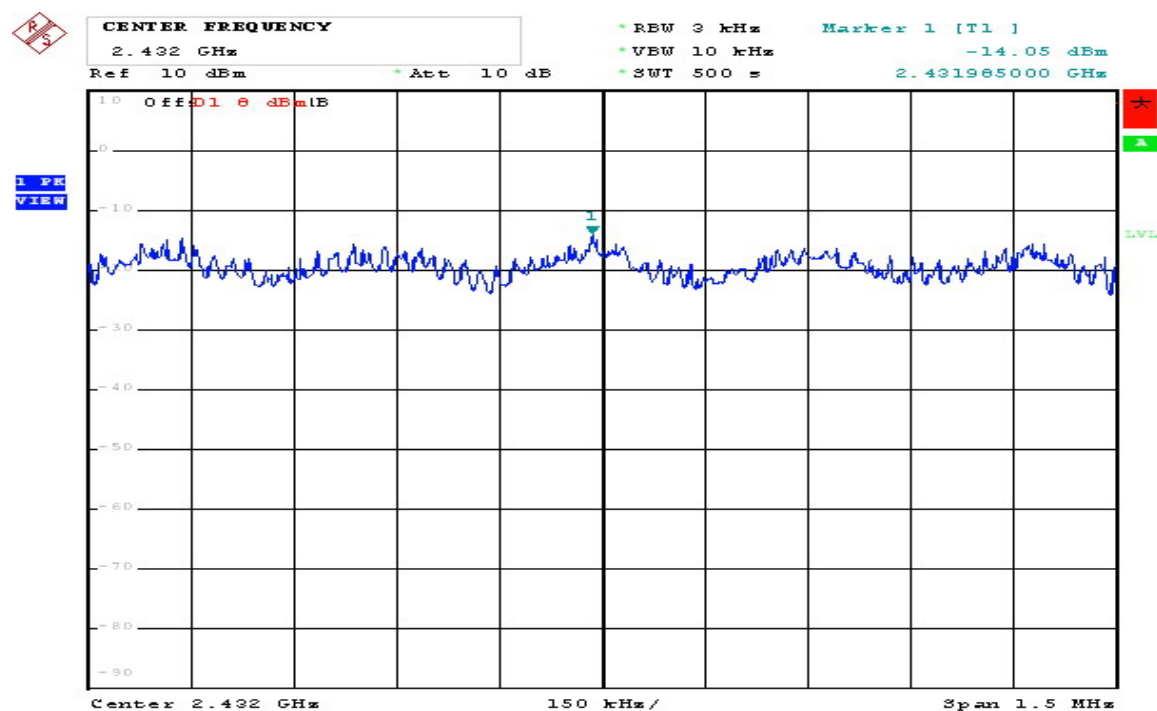
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802.11n (HT20) CH1 2412MHz Chain B



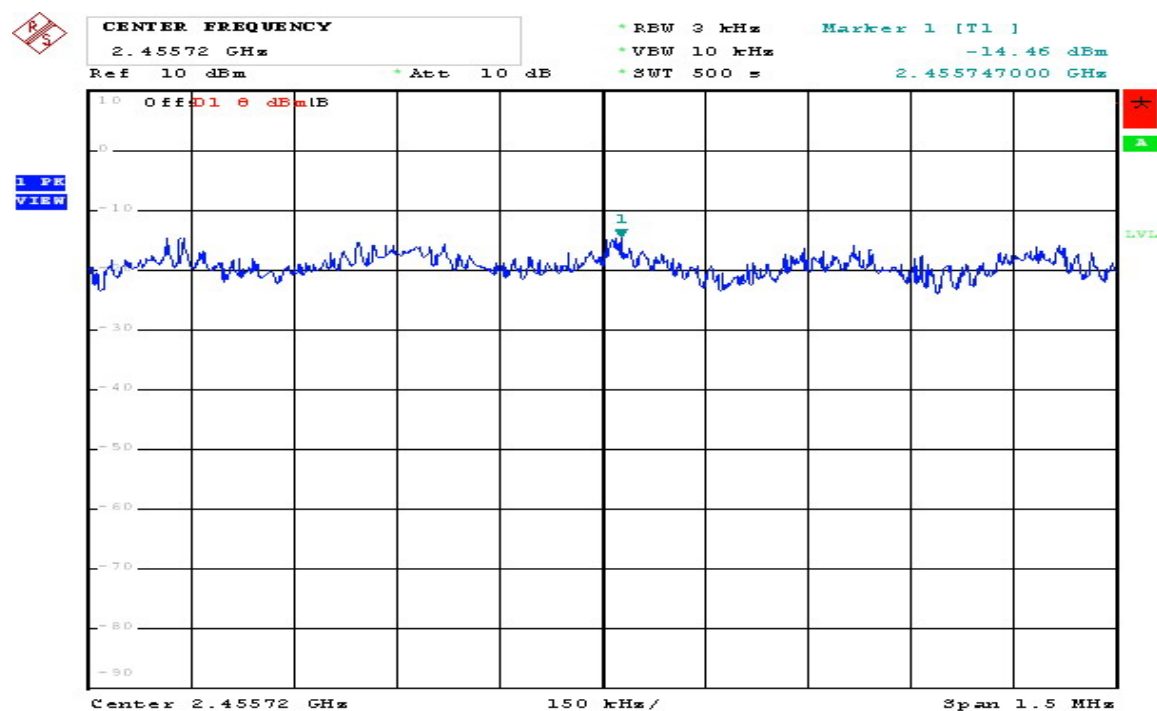
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802.11n (HT20) CH6 2437MHz Chain B



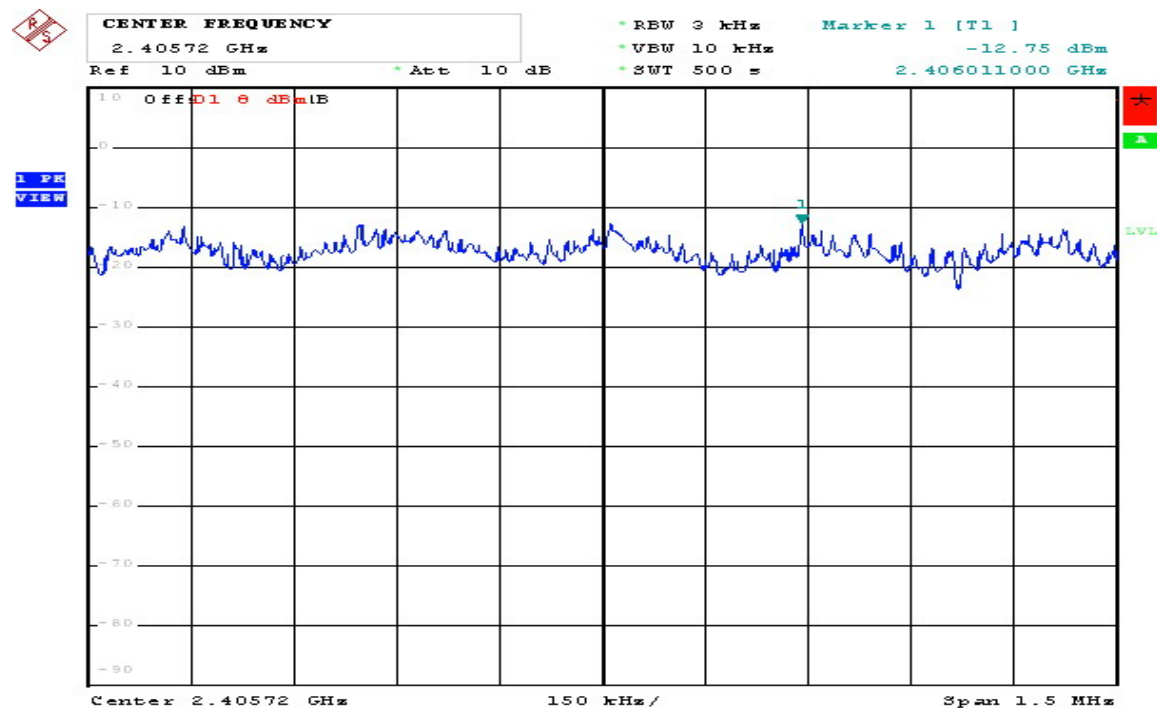
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802.11n (HT20) CH11 2462MHz Chain B



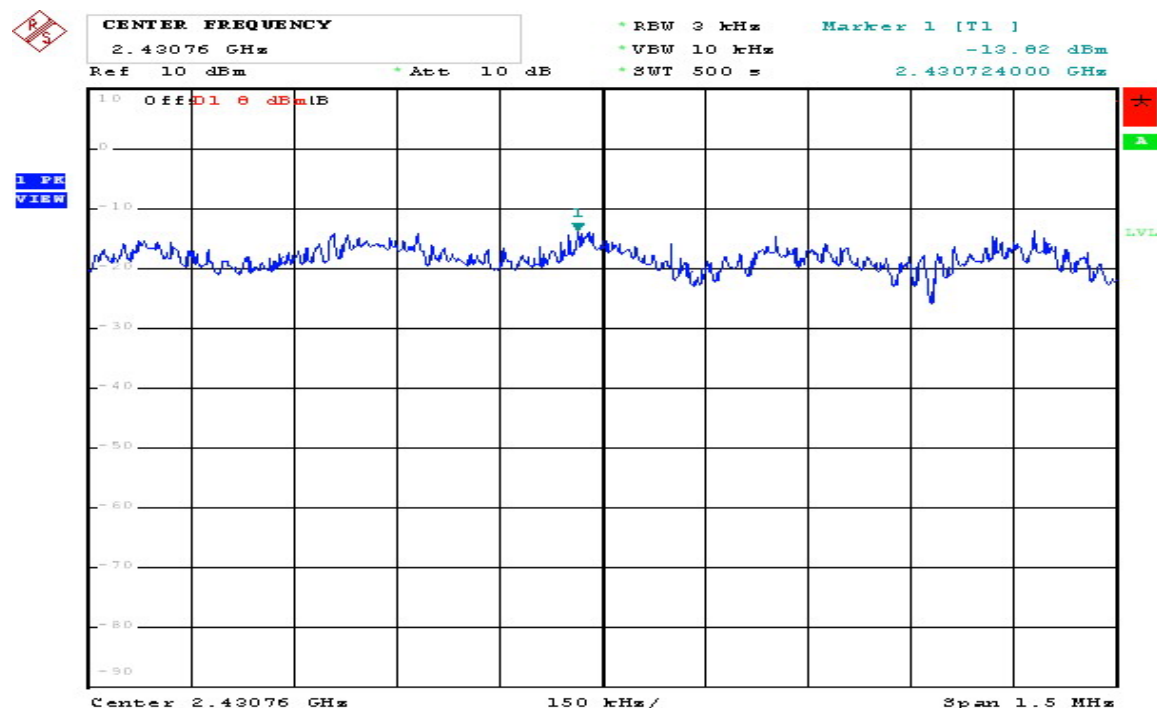
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802.11n (HT20) CH1 2412MHz Chain C



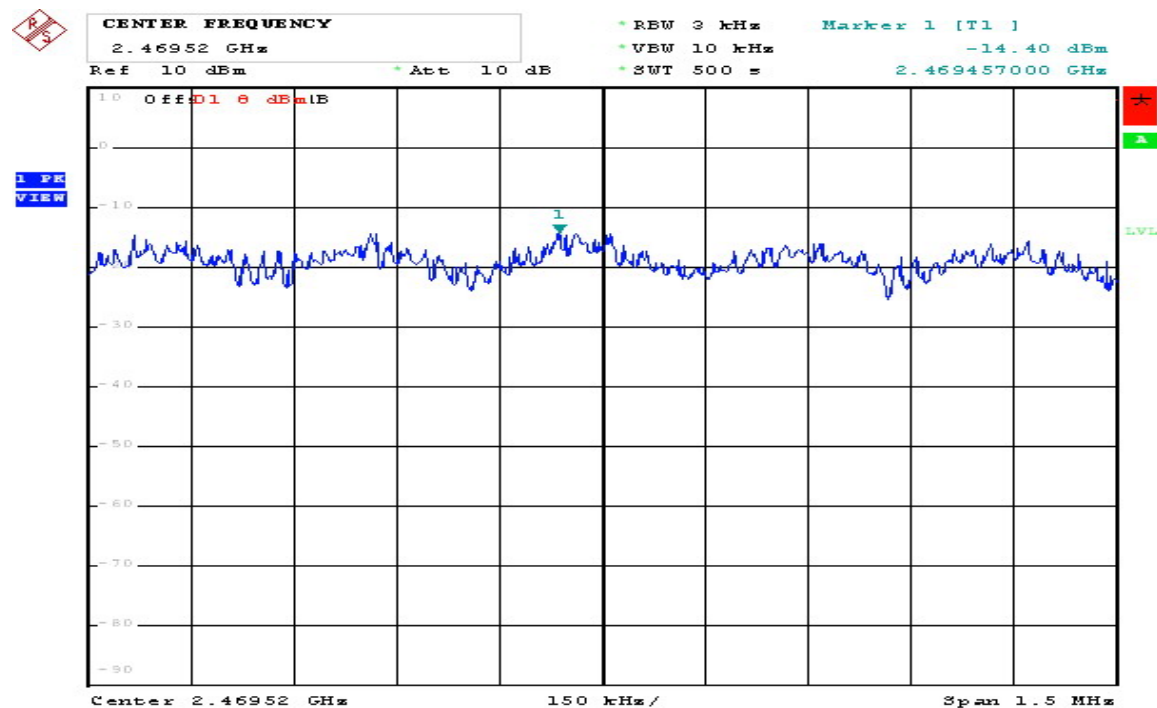
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802.11n (HT20) CH6 2437MHz Chain C



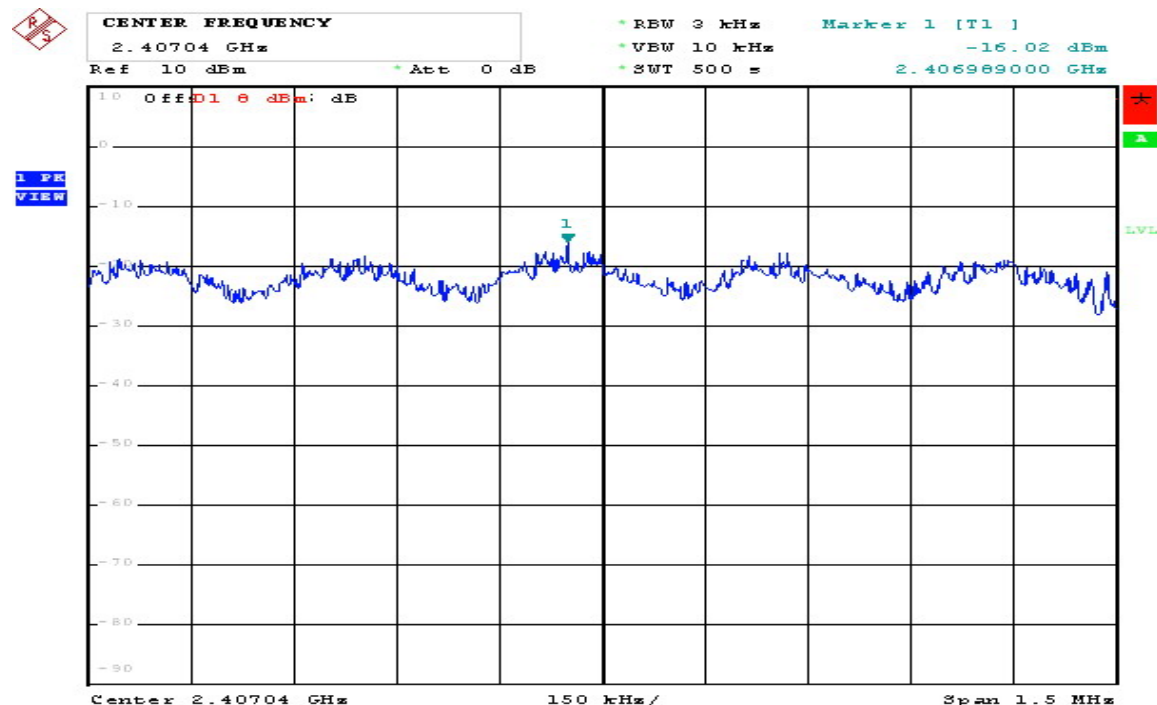
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Date: 11.NOV.2008 16:16:56

802.11n (HT20) CH11 2462MHz Chain C



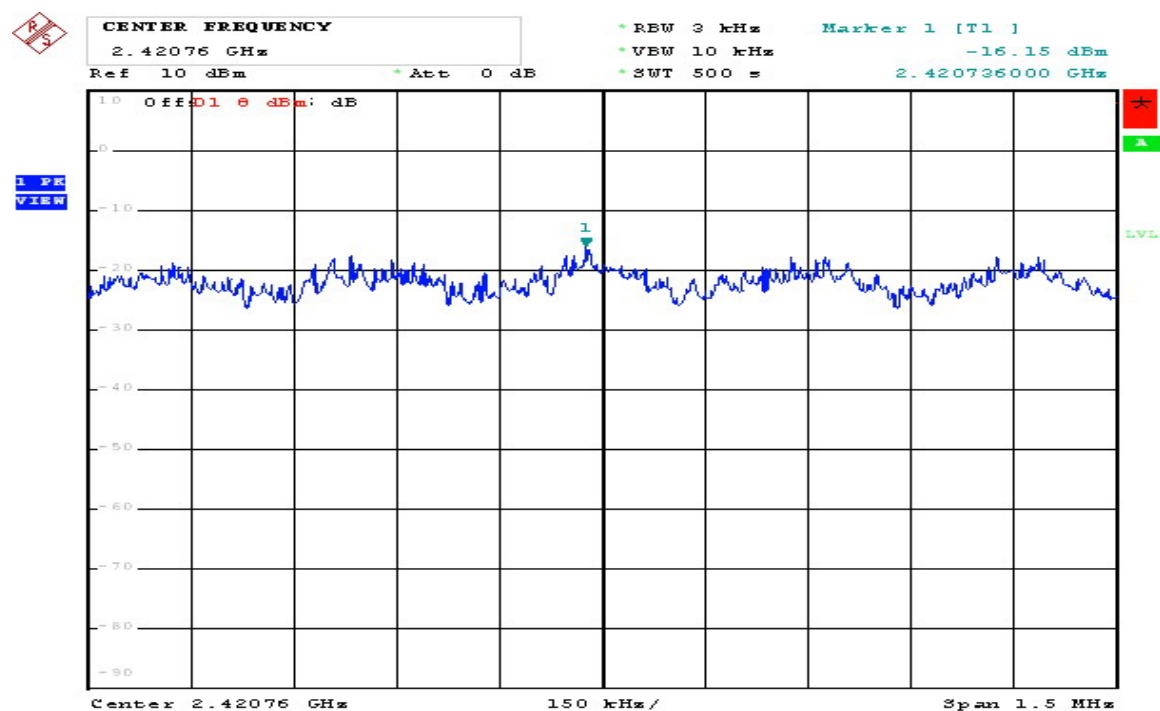
Comment: 802.11n(20) 2462MHz
Date: 11.NOV.2008 16:18:52

802.11n (HT40) CH3 2422MHz Chain A



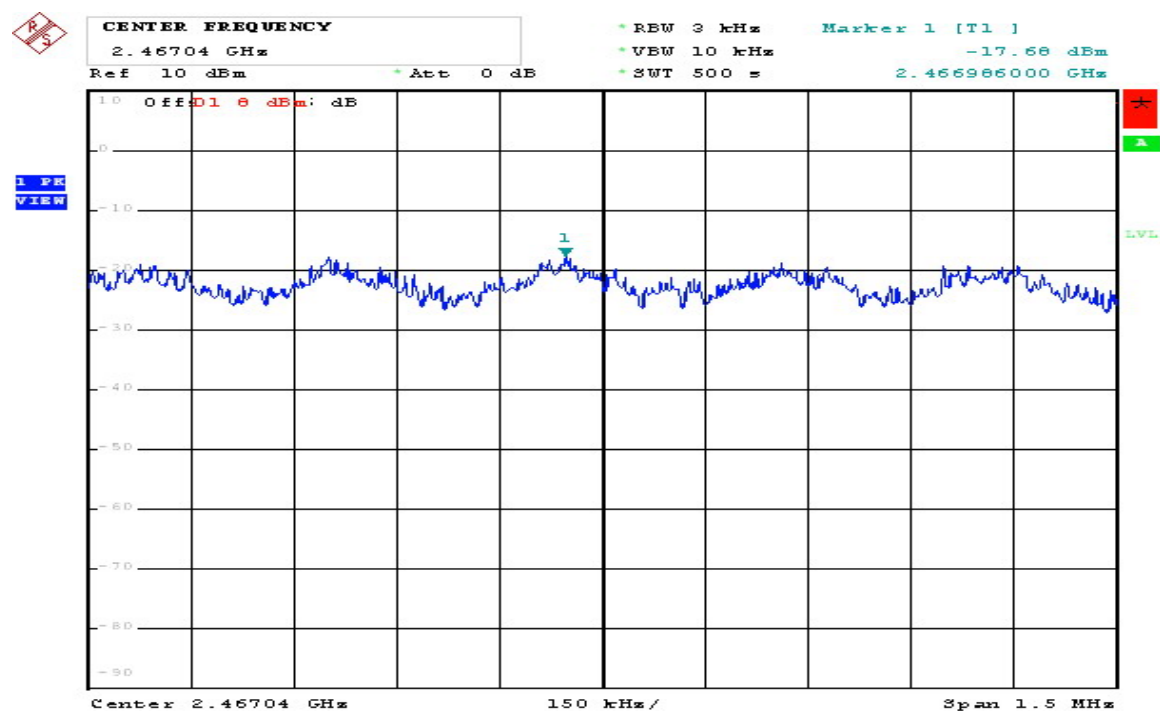
Comment: 802.11n(40) 2422MHz
Date: 11.NOV.2008 16:24:50

802.11n (HT40) CH6 2437MHz Chain A



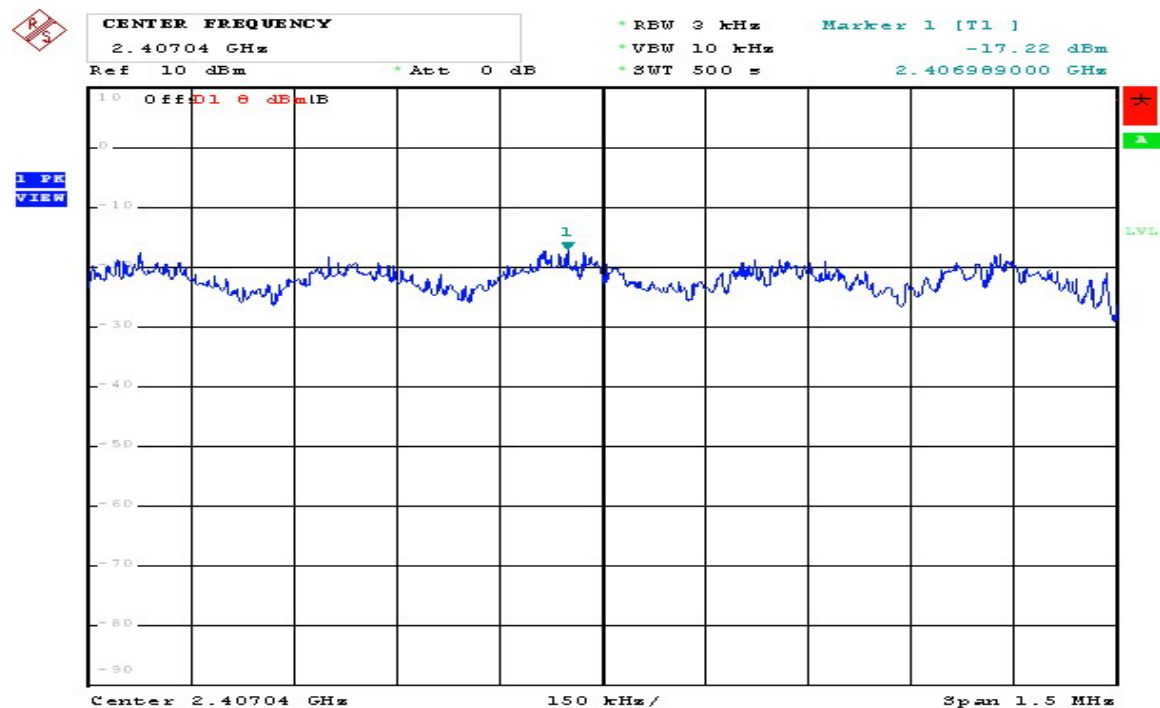
Comment: 802.11n(40) 2437MHz
Date: 11.NOV.2008 16:26:52

802.11n (HT40) CH9 2452MHz Chain A



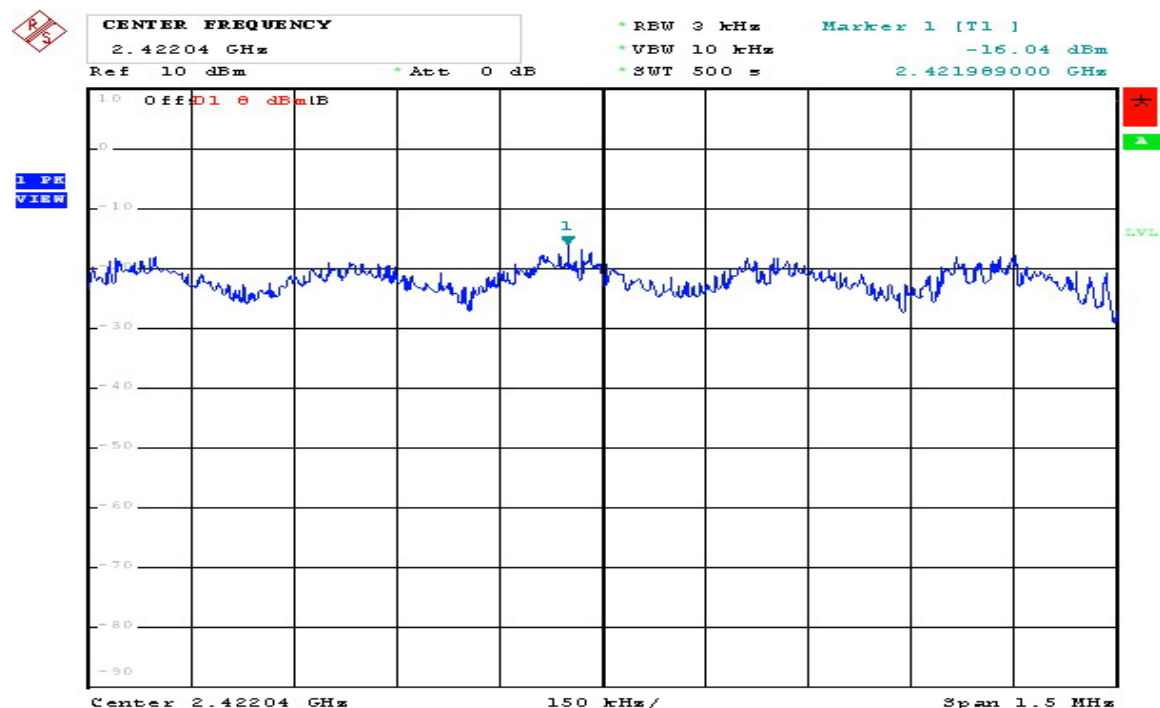
Comment: 802.11n(40) 2452MHz
Date: 11.NOV.2008 16:28:47

802.11n (HT40) CH3 2422MHz Chain B



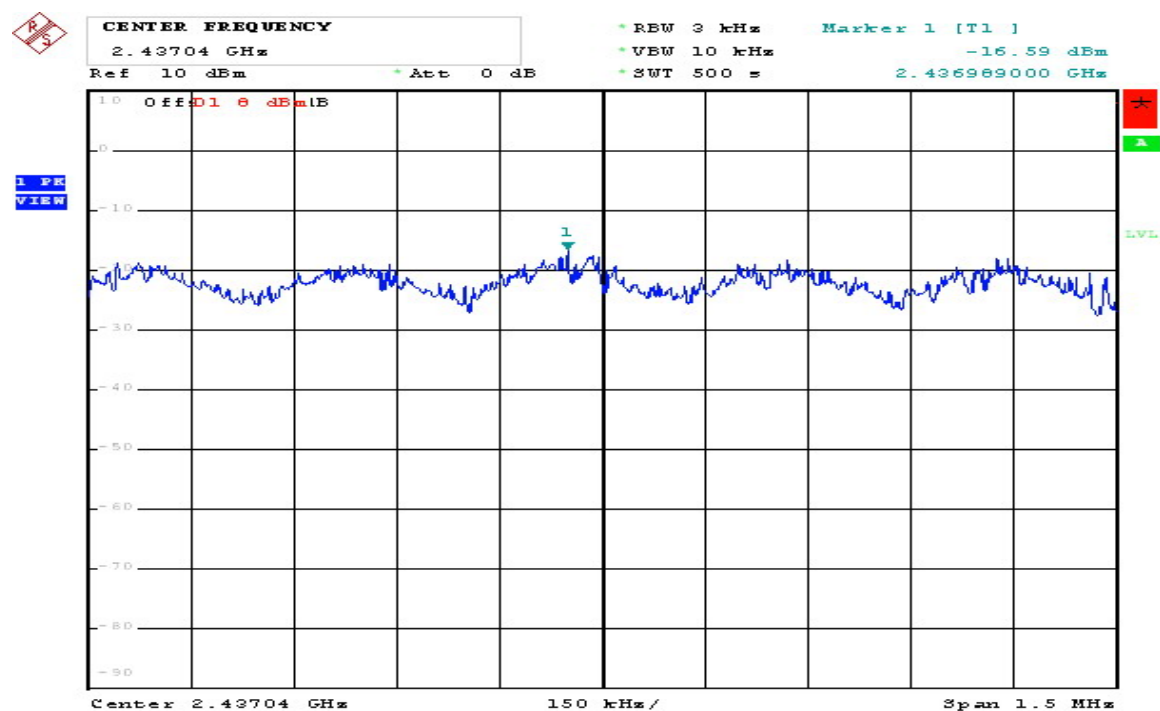
Comment: 802.11n(40) 2422MHz
Date: 11.NOV.2008 16:33:53

802.11n (HT40) CH6 2437MHz Chain B



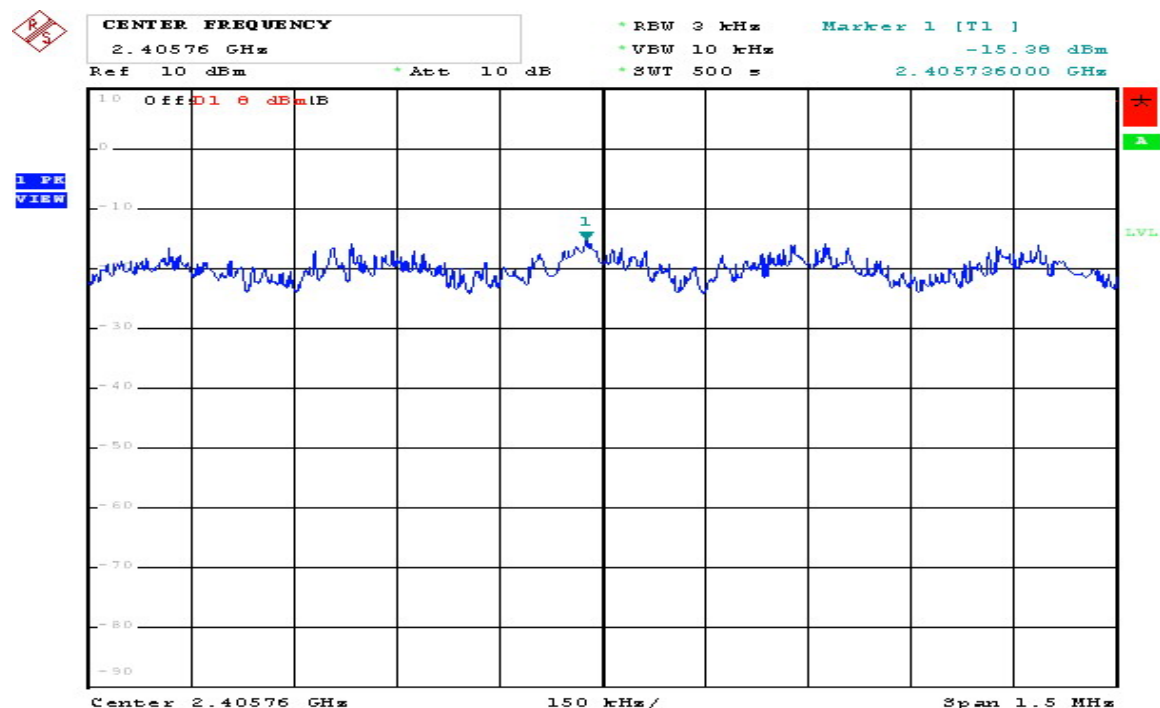
Comment: 802.11n(40) 2437MHz
Date: 11.NOV.2008 16:35:58

802.11n (HT40) CH9 2452MHz Chain B



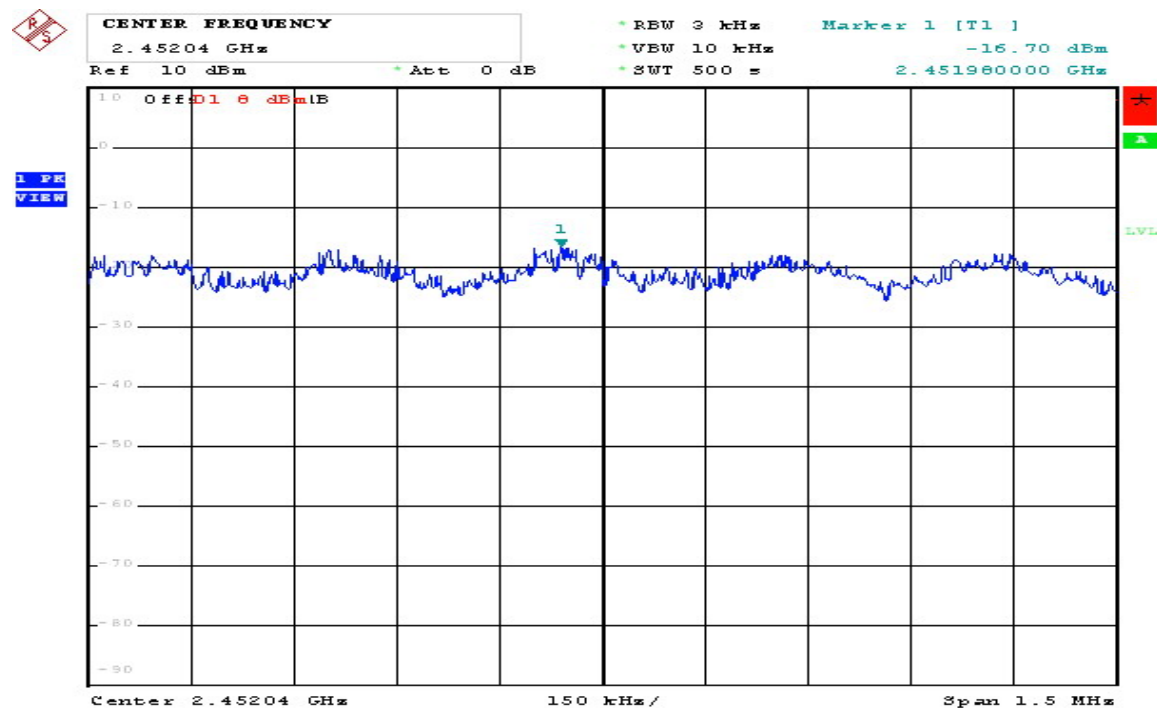
Comment: 802.11n(40) 2452MHz
Date: 11.NOV.2008 16:37:47

802.11n (HT40) CH3 2422MHz Chain C



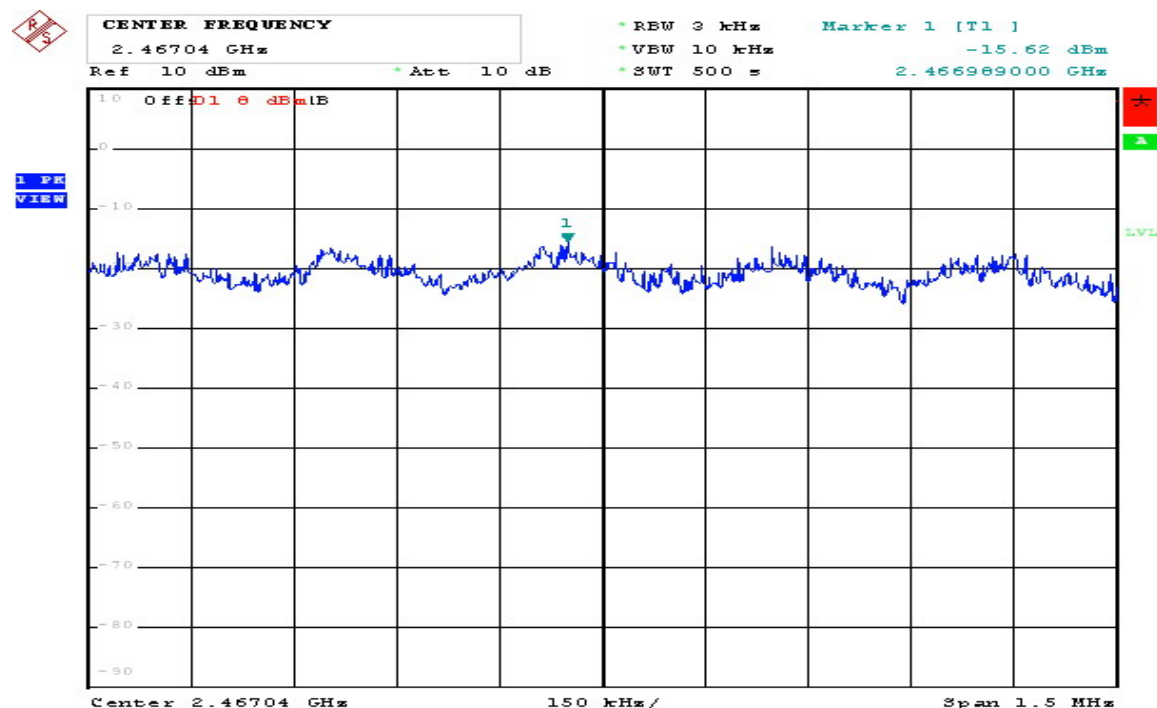
Comment: 802.11n(40) 2422MHz
Date: 11.NOV.2008 16:42:20

802.11n (HT40) CH6 2437MHz Chain C



Comment: 802.11n(40) 2437MHz
Date: 11.NOV.2008 16:44:17

802.11n (HT40) CH9 2452MHz Chain C

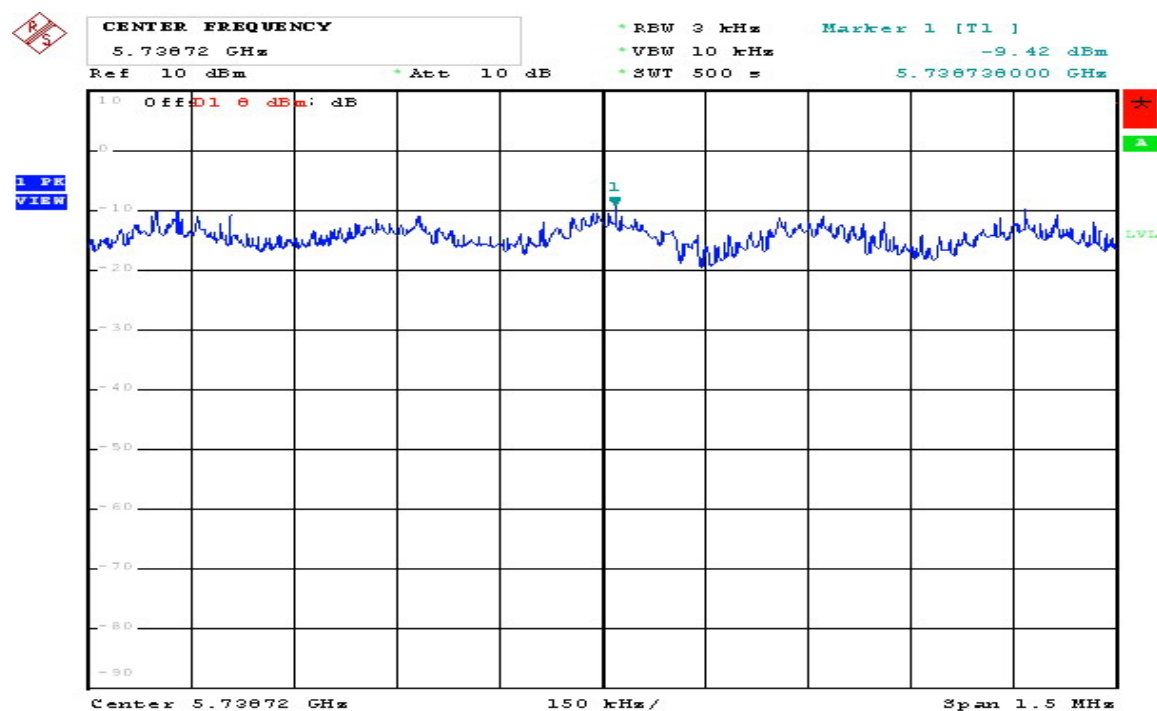


Comment: 802.11n(40) 2452MHz
Date: 11.NOV.2008 16:49:31

Single Tx

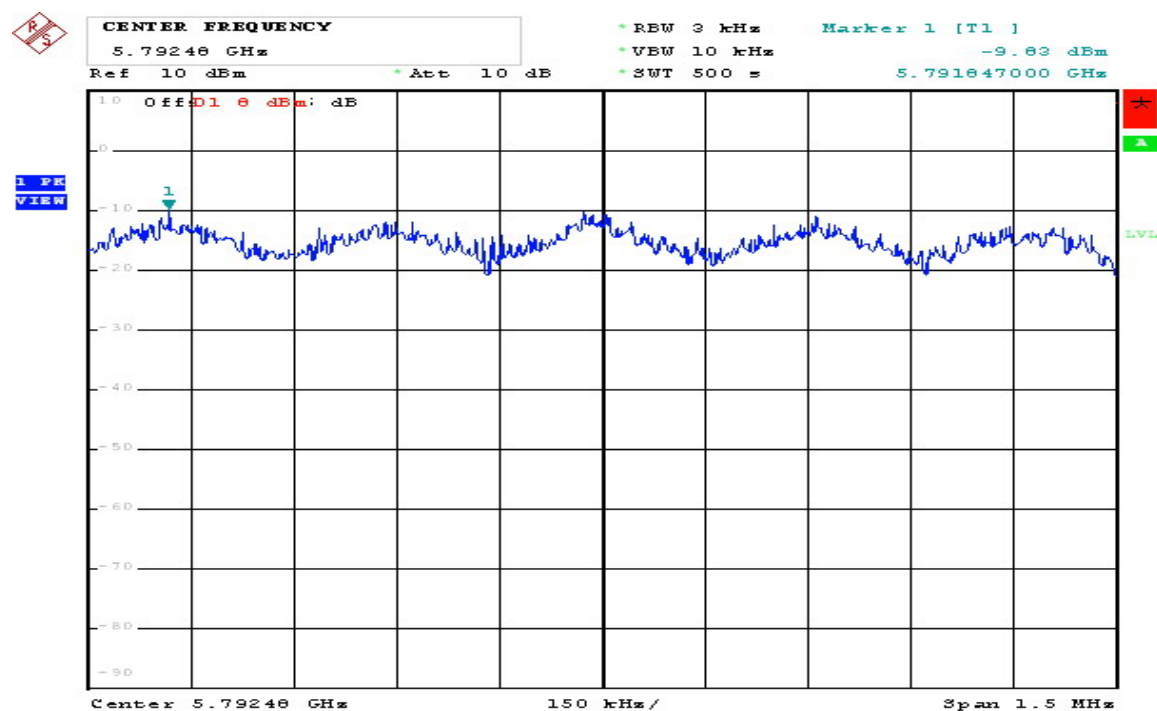
5GHz

802.11a CH149 5745MHz Chain A



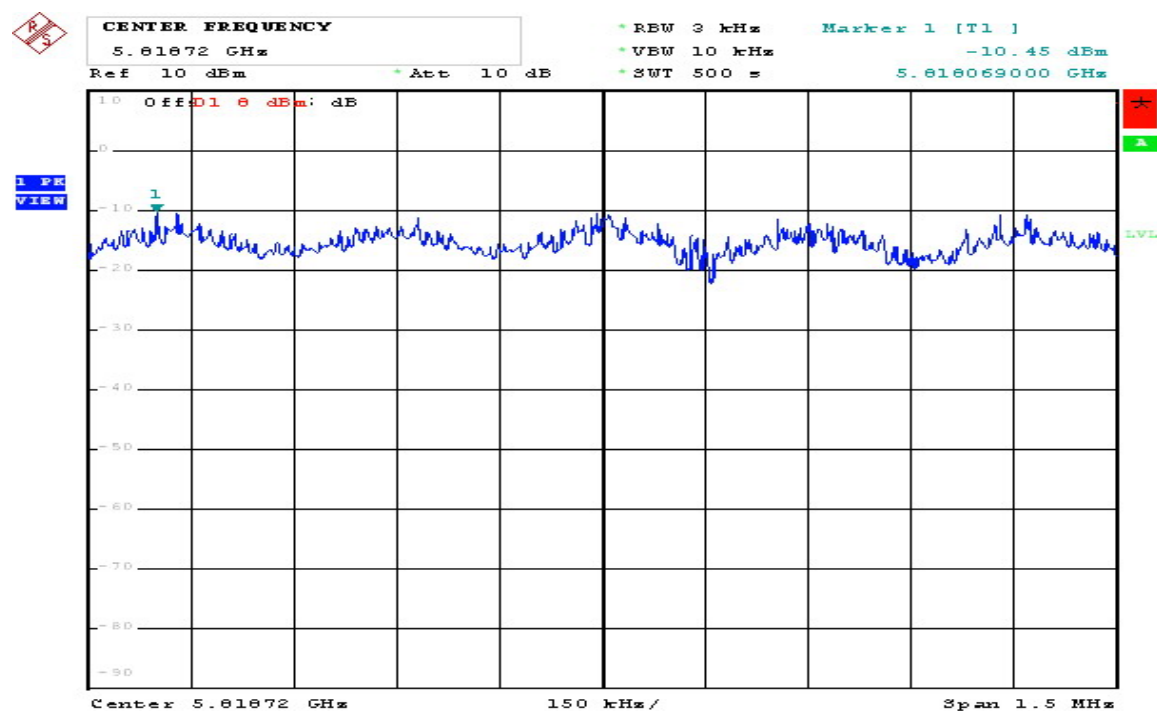
Comment: 802.11a 5745MHz
Date: 11.NOV.2008 17:05:14

802.11a CH157 5785MHz Chain A



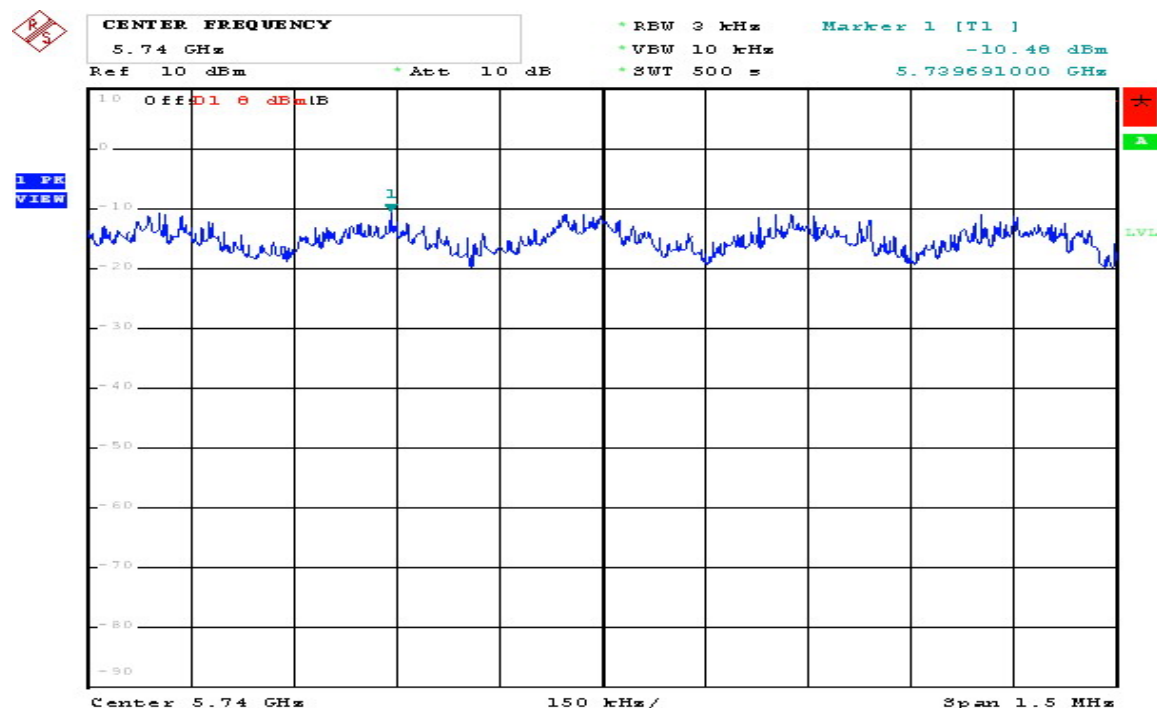
Comment: 802.11a 5785MHz
Date: 11.NOV.2008 17:07:13

802.11a CH165 5825MHz Chain A



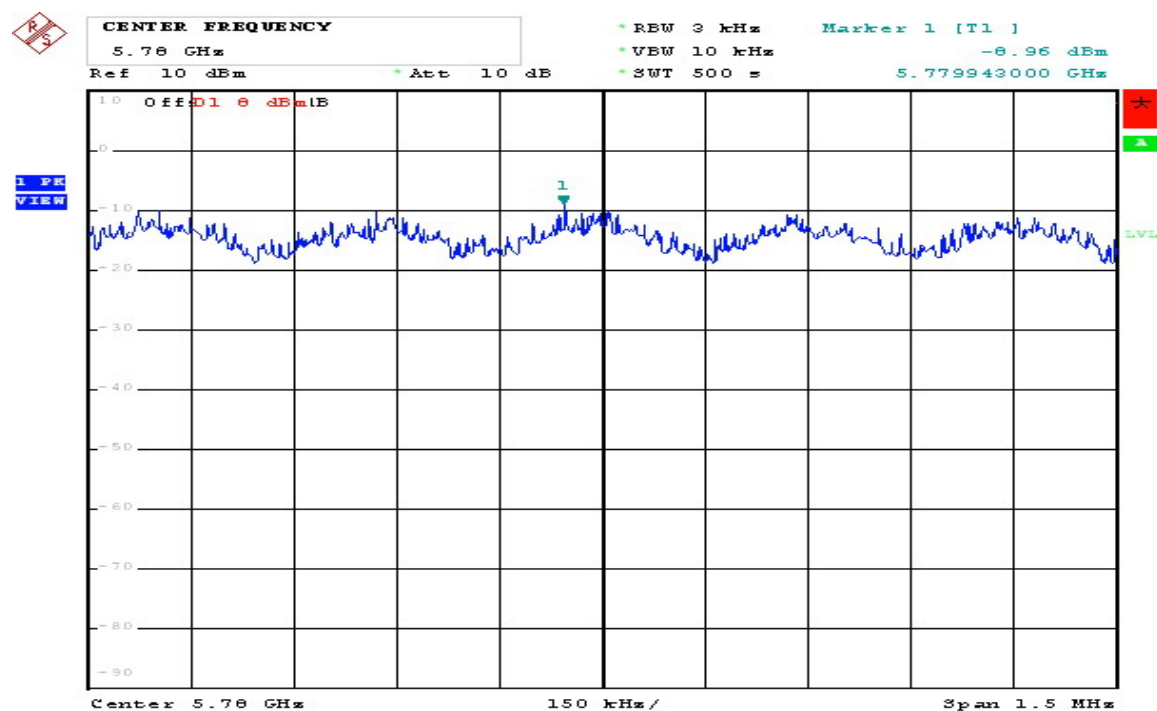
Comment: 802.11a 5825MHz
Date: 11.NOV.2008 17:09:08

802.11a CH149 5745MHz Chain B



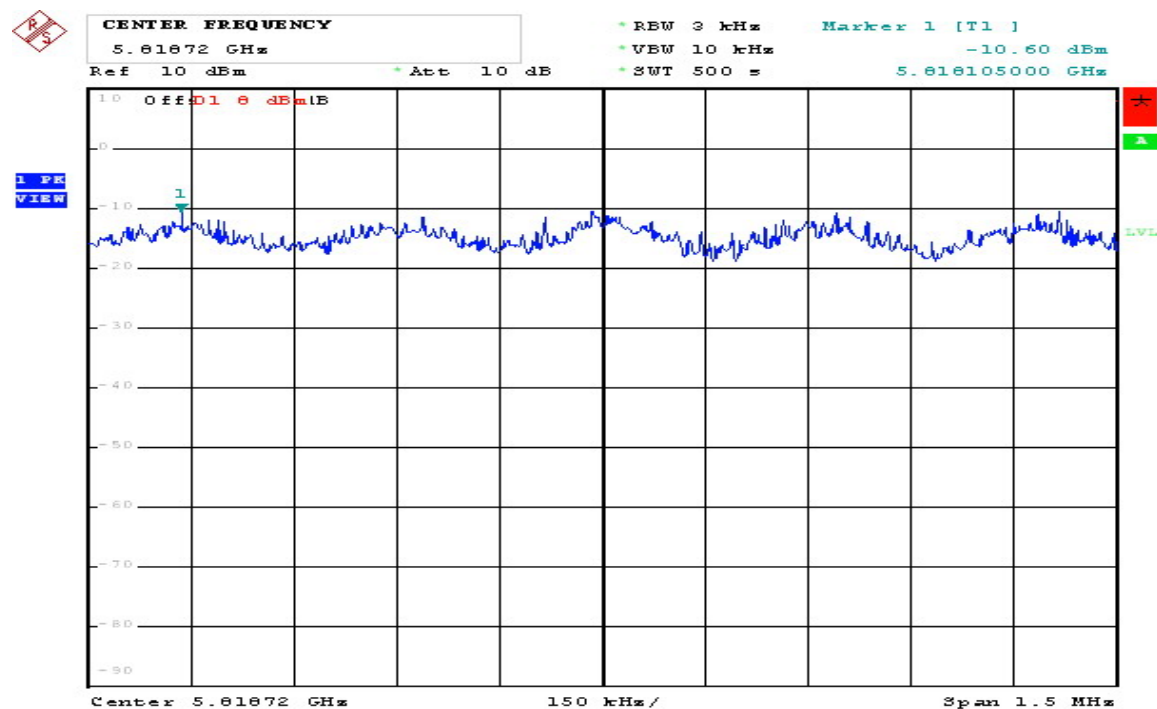
Comment: 802.11a 5745MHz
Date: 11.NOV.2008 17:17:34

802.11a CH157 5785MHz Chain B



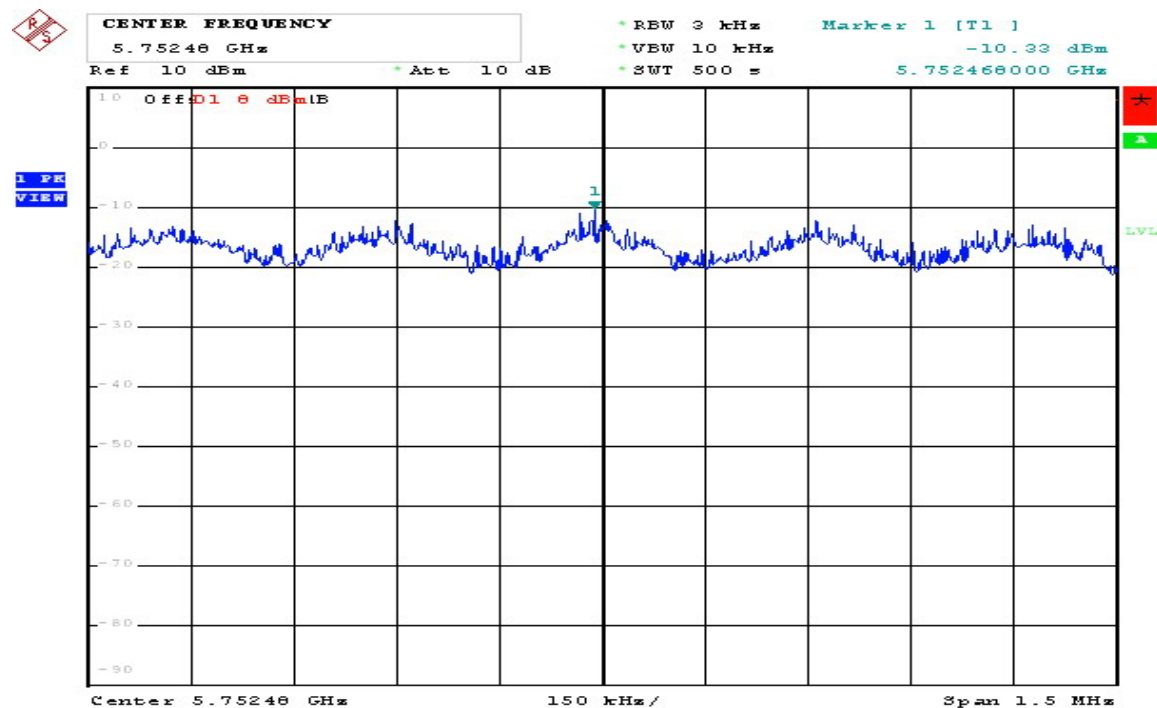
Comment: 802.11a 5785MHz
Date: 11.NOV.2008 17:15:37

802.11a CH165 5825MHz Chain B



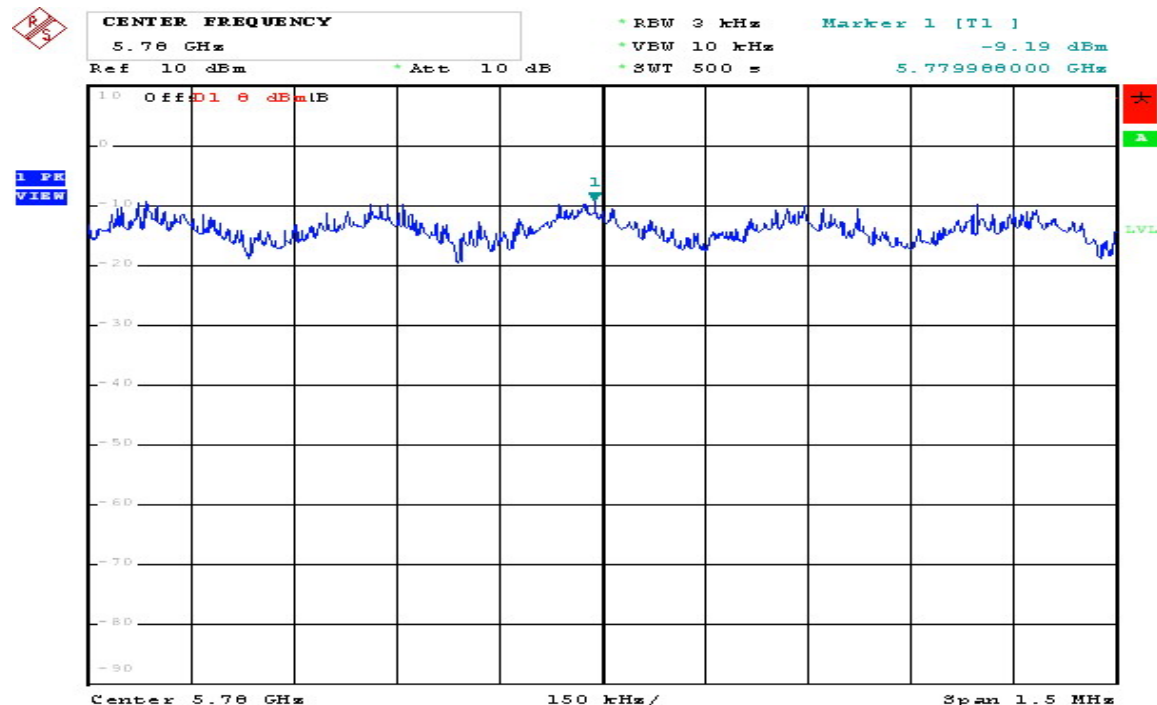
Comment: 802.11a 5825MHz
Date: 11.NOV.2008 17:13:13

802.11a CH149 5745MHz Chain C



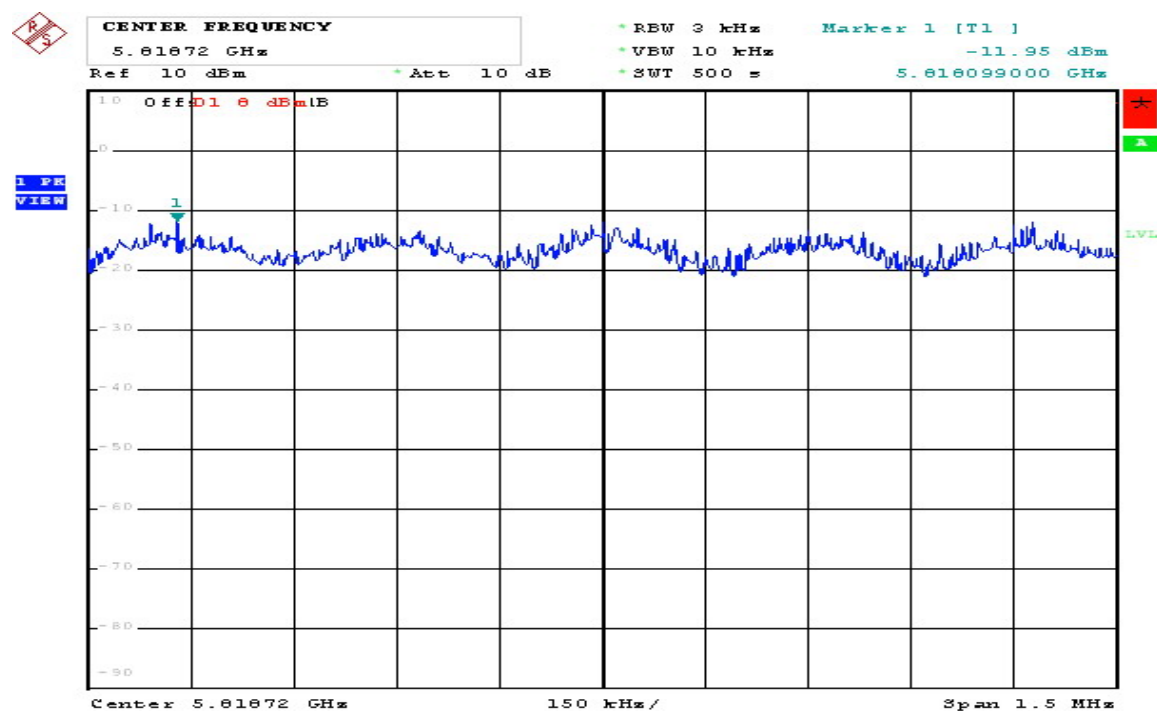
Comment: 802.11a 5745MHz
Date: 11.NOV.2008 17:21:50

802.11a CH157 5785MHz Chain C



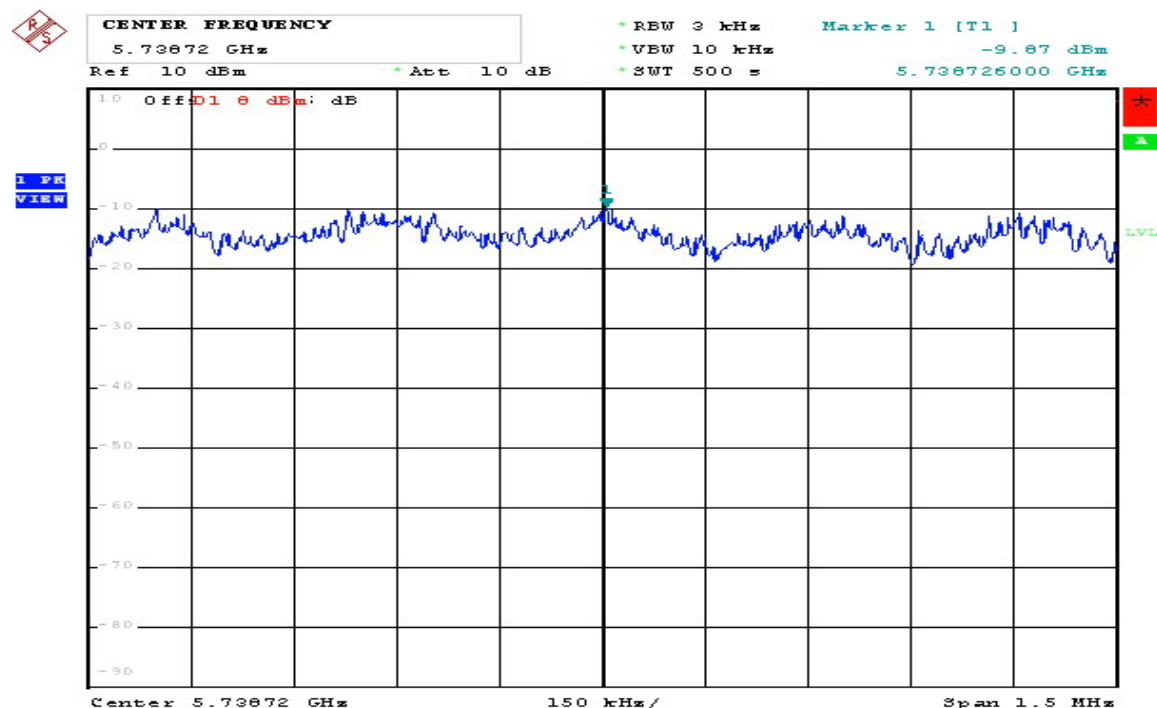
Comment: 802.11a 5785MHz
Date: 11.NOV.2008 17:23:42

802.11a CH165 5825MHz Chain C



Comment: 802.11a 5825MHz
Date: 11.NOV.2008 17:26:22

802.11n (HT20) CH149 5745MHz Chain A



Comment: 802.11n(20) 5745MHz
Date: 11.NOV.2008 17:36:24