

Note:

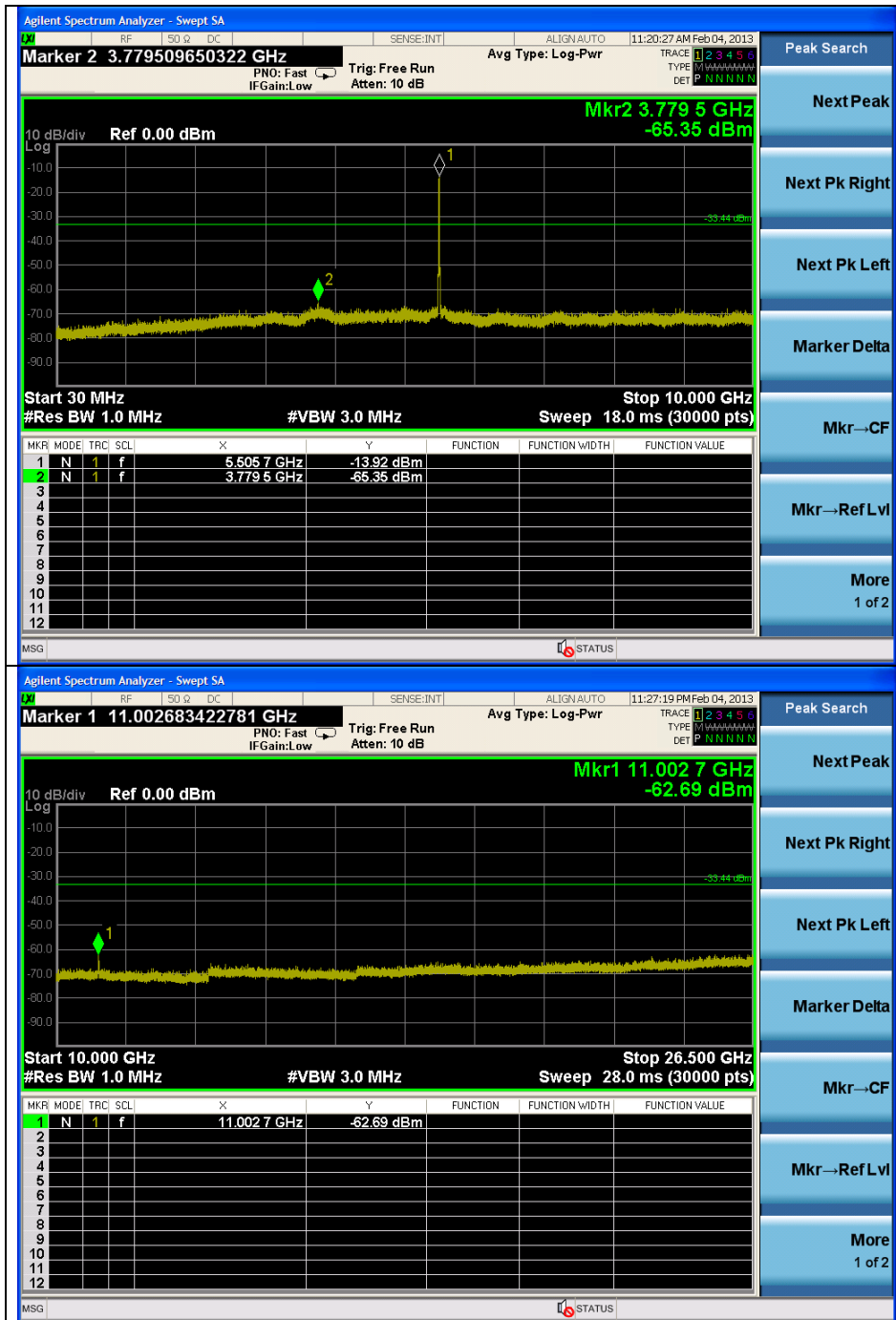
Offset (dB) = Attenuator(dB) + Cable loss (dB)

Result (dB m) = Spurious offset (dB) + Reading values (dB m)

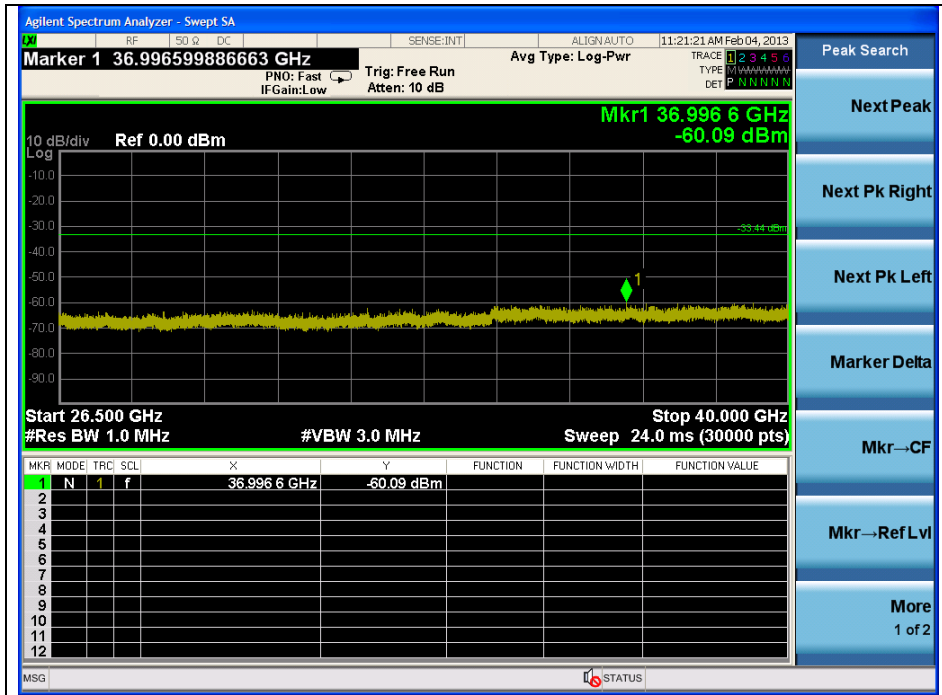
Frequency (MHz)	Reading values (dB m)	Spurious offset (dB)	Result (dB m)
3 817.10	Noise floor	-	-
10 628.70	-63.63	22.83	-40.80
39 110.80	Noise floor	-	-

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.

For 5.47 – 5.725 GHz, the antenna gain is 6.44 dB i, So the EIRP limit is -33.44 dB m/MHz  
 802.11a\_6 Mbps  
 5 500 MHz



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Note:

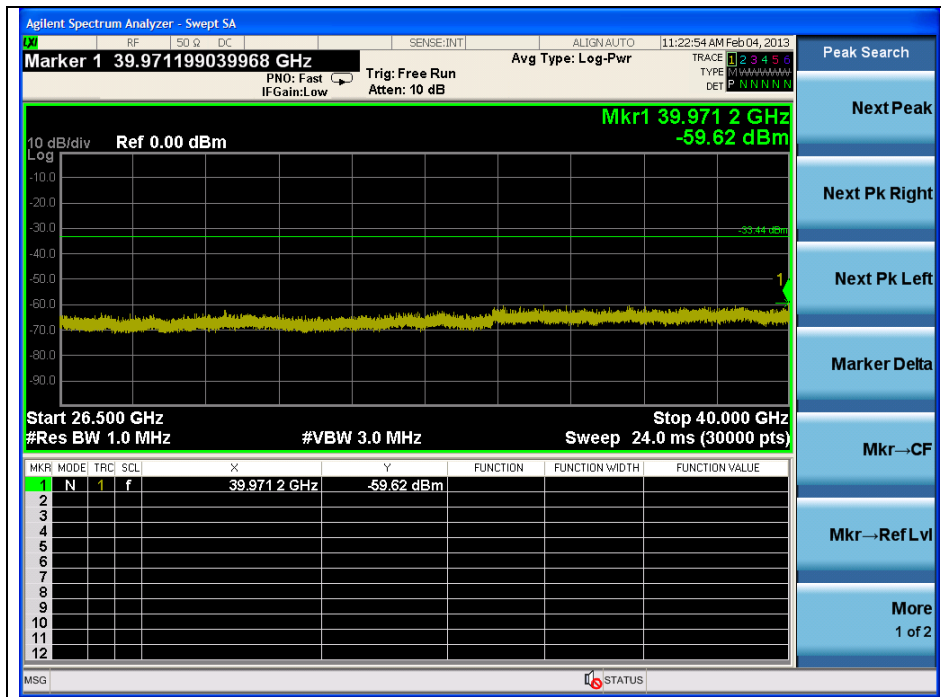
Offset (dB) = Attenuator(dB) + Cable loss (dB)

Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	Reading values (dB m)	Spurious offset (dB)	Result (dB m)
3 779.50	Noise floor	-	-
11 002.70	-62.69	22.51	-40.18
36 996.60	Noise floor	-	-

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Note:

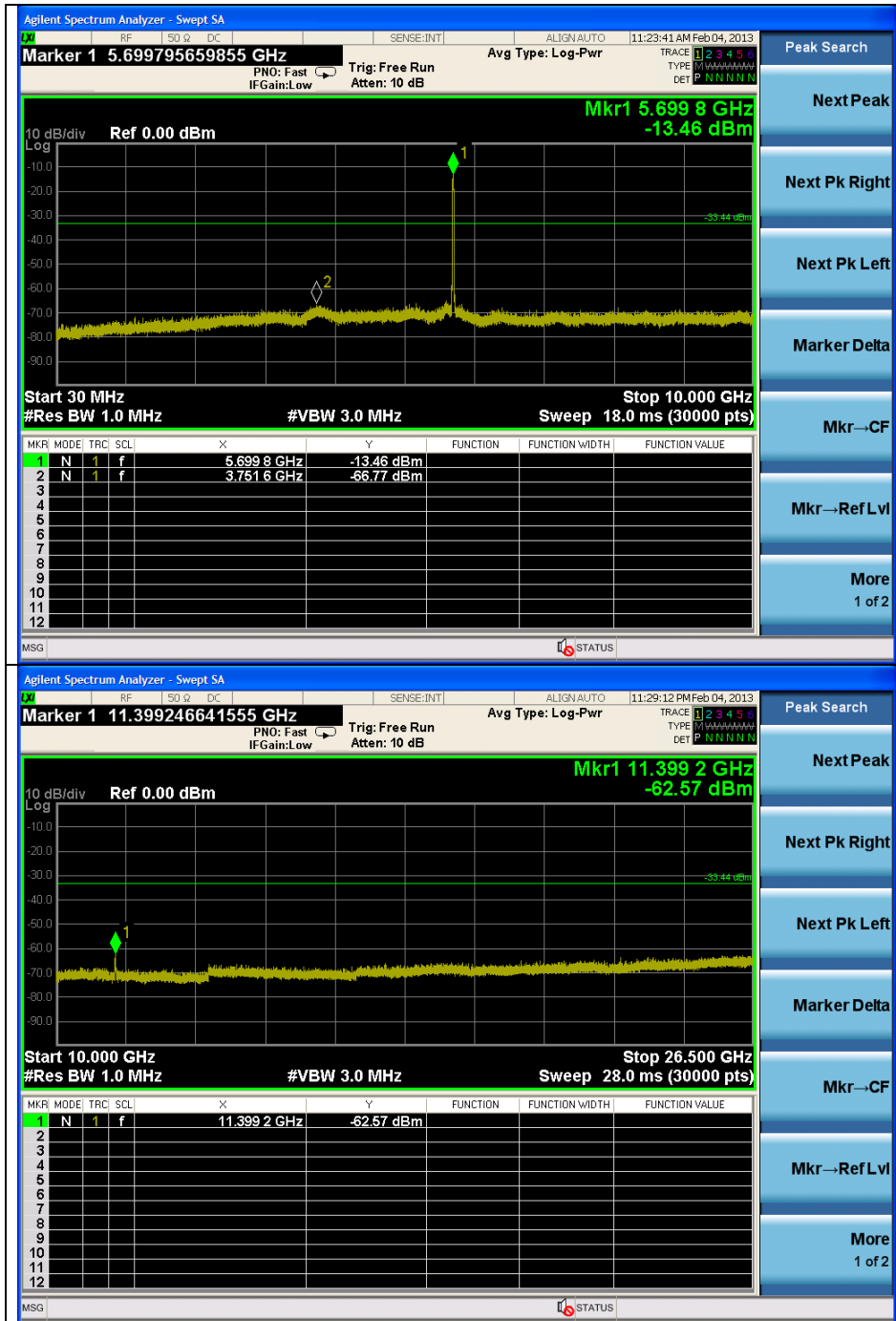
Offset (dB) = Attenuator(dB) + Cable loss (dB)

Result (dB m) = Spurious offset (dB) + Reading values (dB m)

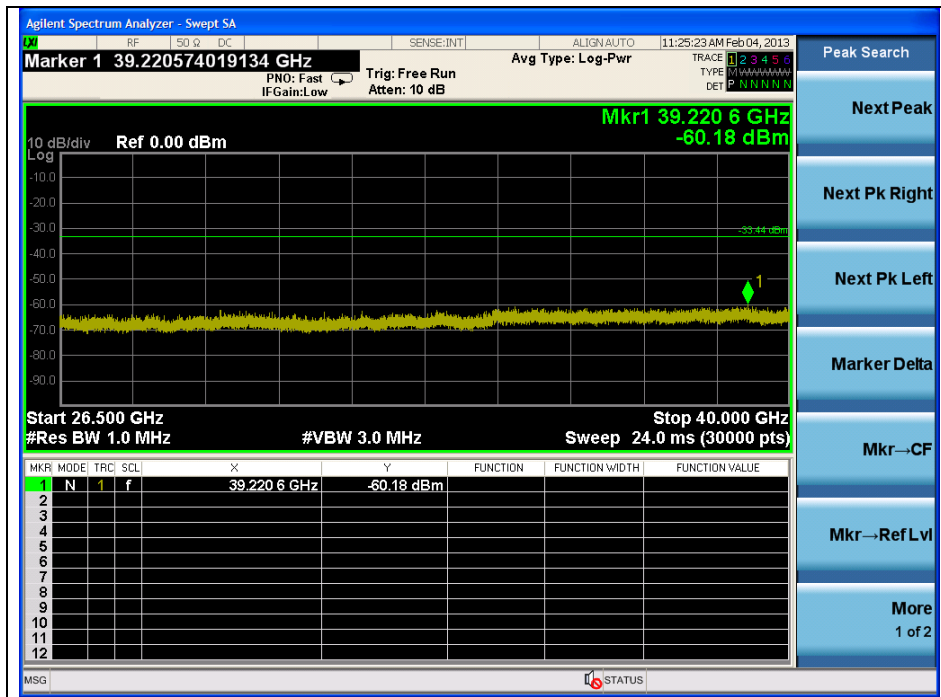
Frequency (MHz)	Reading values (dB m)	Spurious offset (dB)	Result (dB m)
3 853.60	Noise floor	-	-
11 164.40	-62.39	22.24	-40.15
39 971.20	Noise floor	-	-

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5 700 MHz



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Note:

Offset (dB) = Attenuator(dB) + Cable loss (dB)

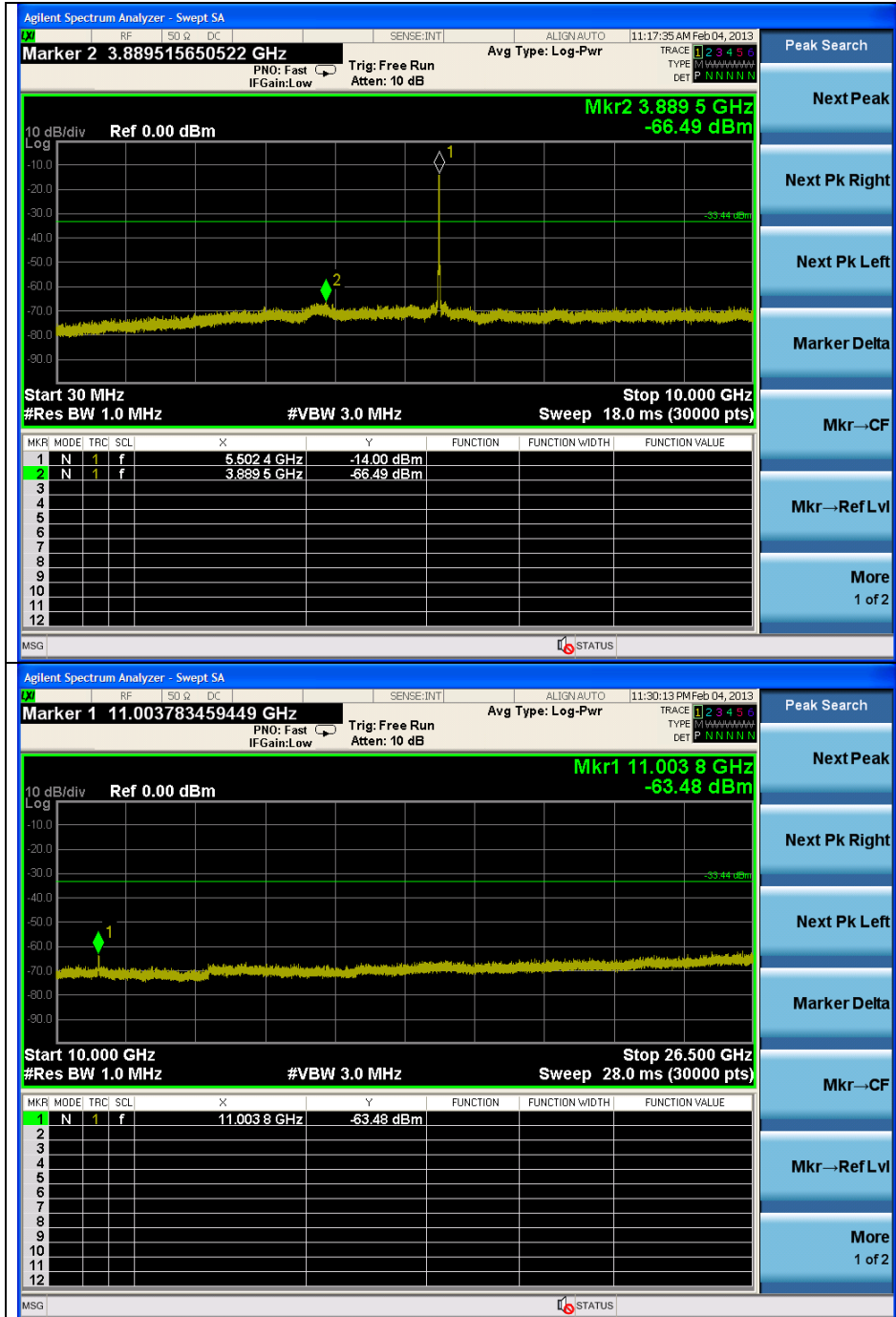
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	Reading values (dB m)	Spurious offset (dB)	Result (dB m)
3 751.60	Noise floor	-	-
11 399.20	-62.57	23.16	-39.41
39 220.60	Noise floor	-	-

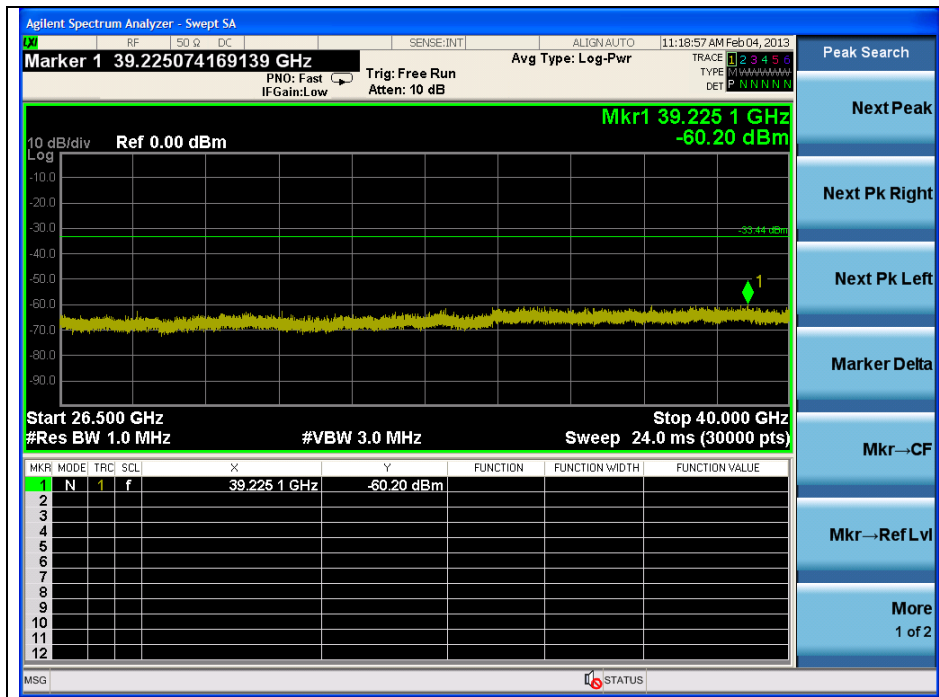
The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report cannot be reproduced, except in full, without prior written permission of the Company.

## 802.11n-HT20\_MCS0

5 500 MHz



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Note:

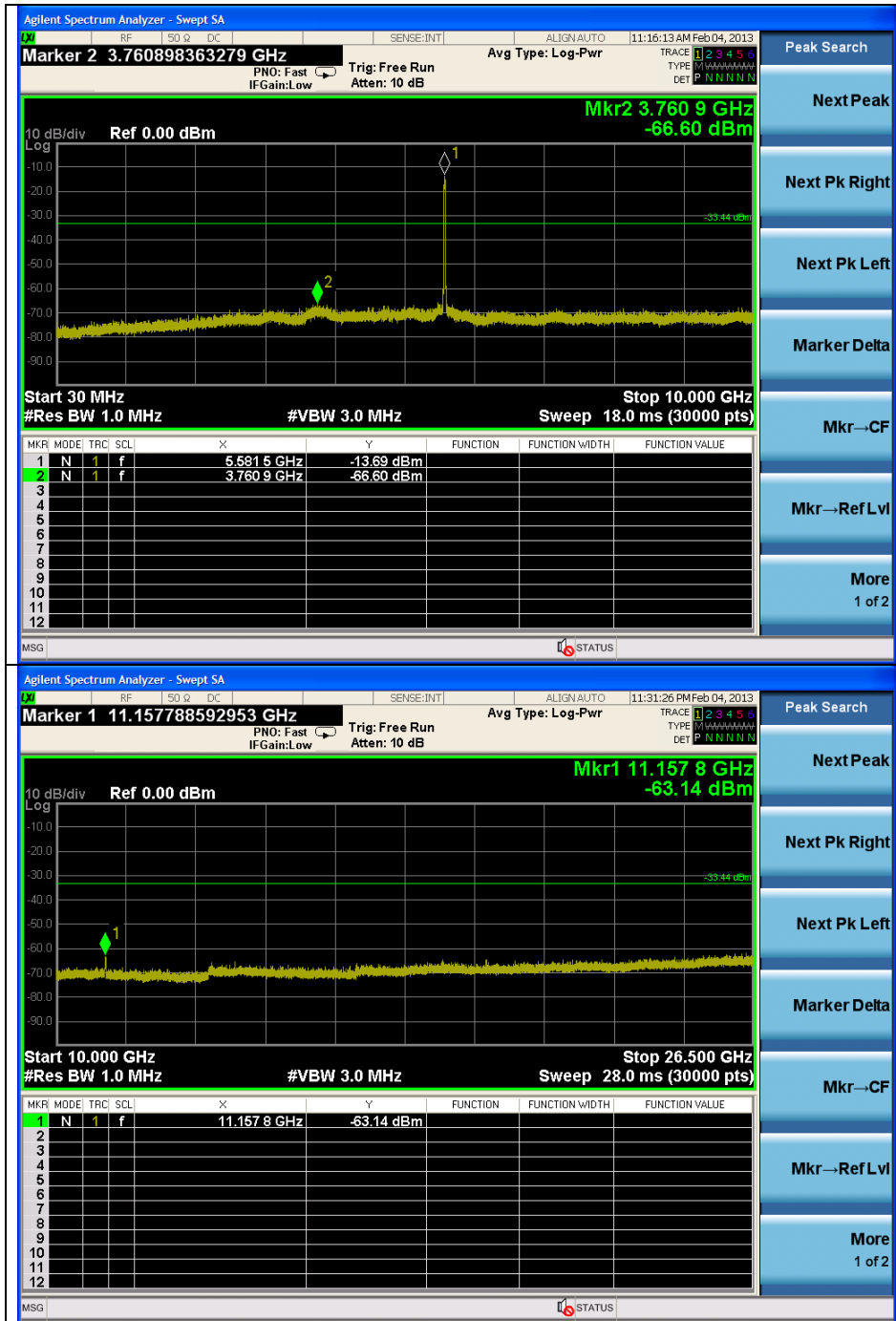
Offset (dB) = Attenuator(dB) + Cable loss (dB)

Result (dB m) = Spurious offset (dB) + Reading values (dB m)

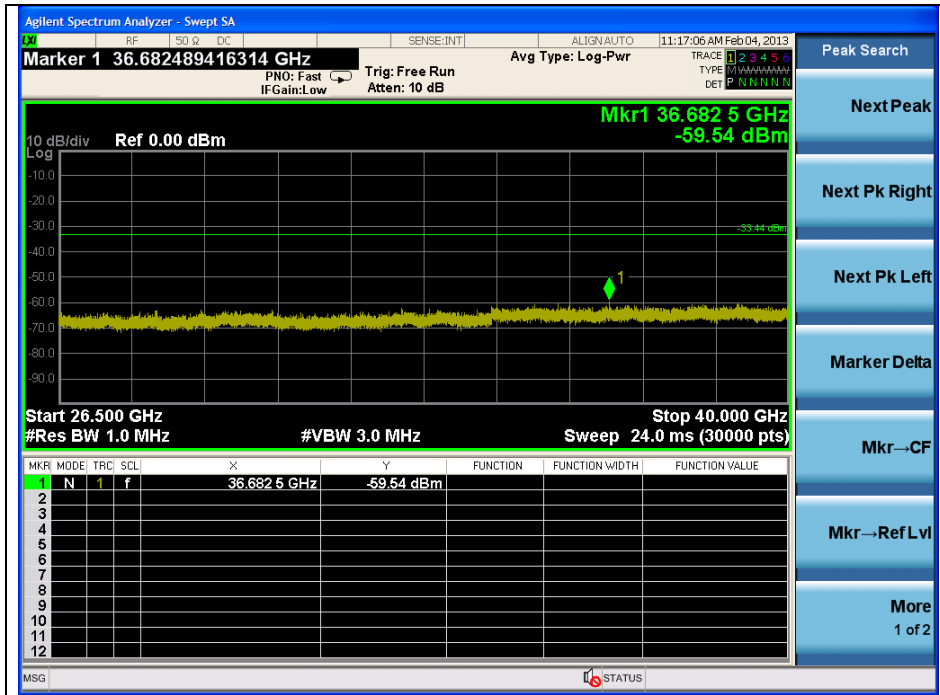
Frequency (MHz)	Reading values (dB m)	Spurious offset (dB)	Result (dB m)
3 889.50	Noise floor	-	-
11 003.80	-63.48	22.45	-41.03
39 225.10	Noise floor	-	-

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5 580 MHz



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Note:

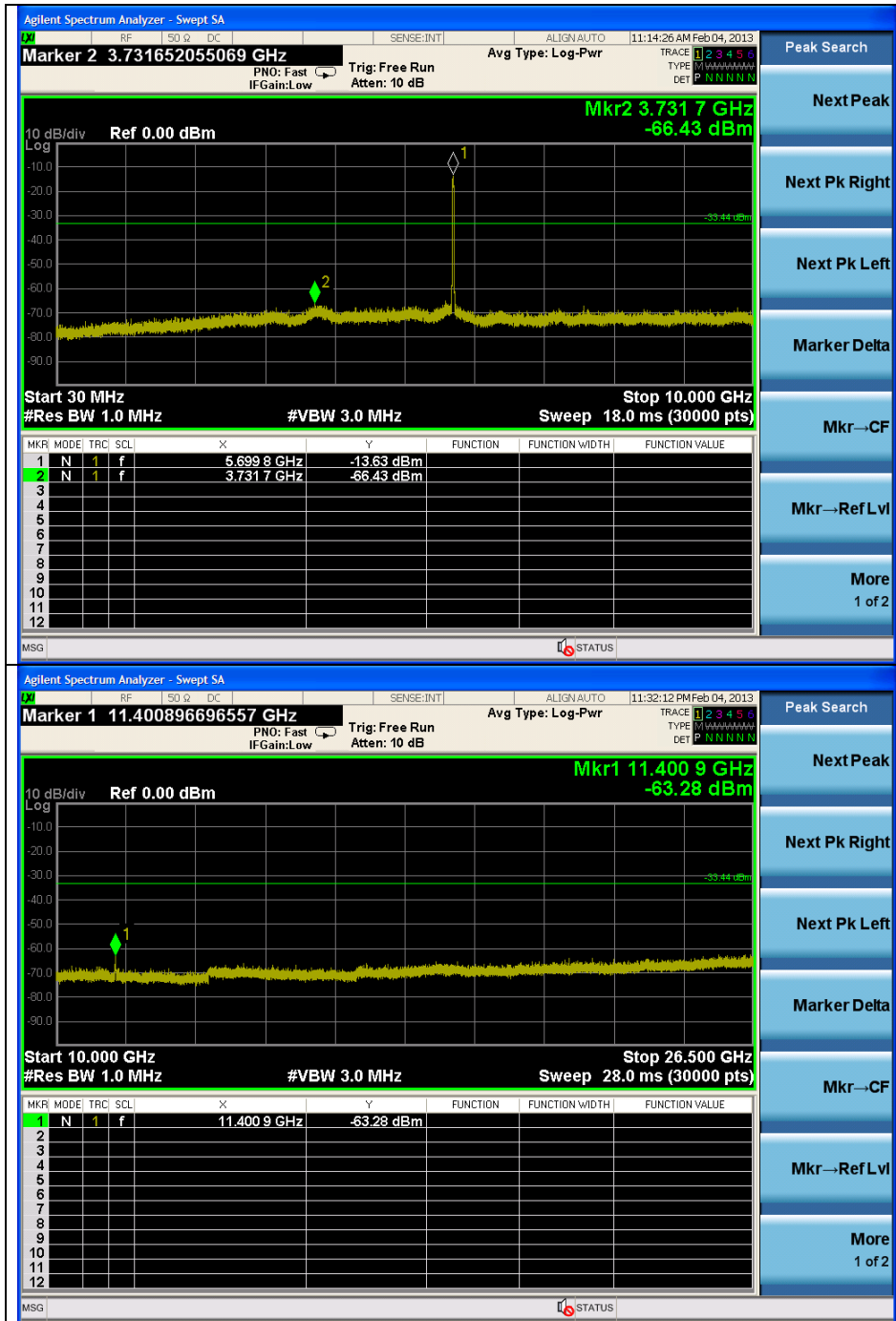
Offset (dB) = Attenuator(dB) + Cable loss (dB)

Result (dB m) = Spurious offset (dB) + Reading values (dB m)

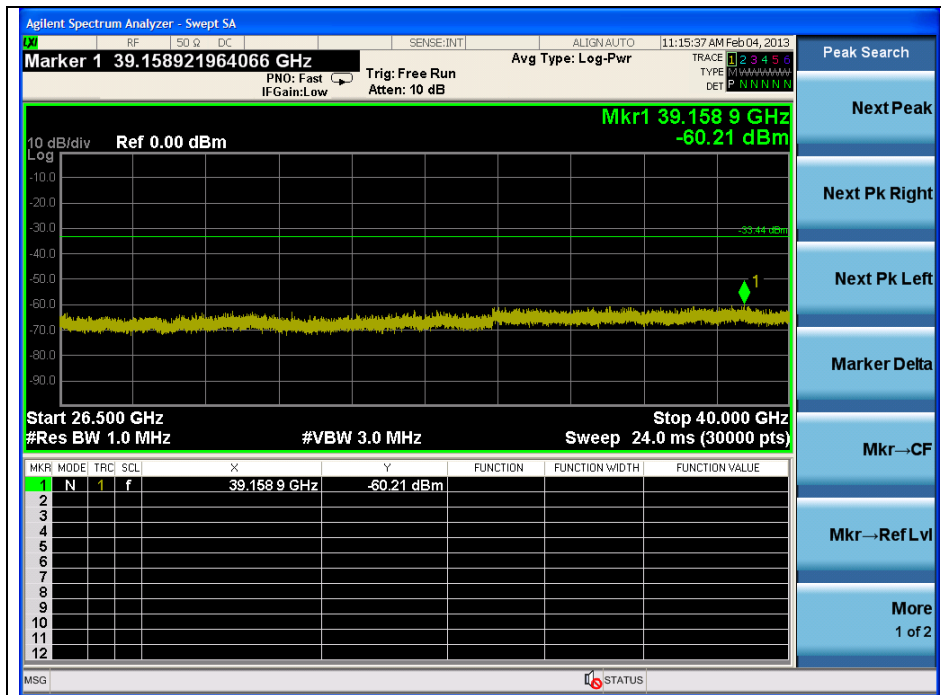
Frequency (MHz)	Reading values (dB m)	Spurious offset (dB)	Result (dB m)
3 760.90	Noise floor	-	-
11 157.80	-63.14	22.30	-40.84
36 682.50	Noise floor	-	-

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5 700 MHz



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Note:

Offset (dB) = Attenuator(dB) + Cable loss (dB)

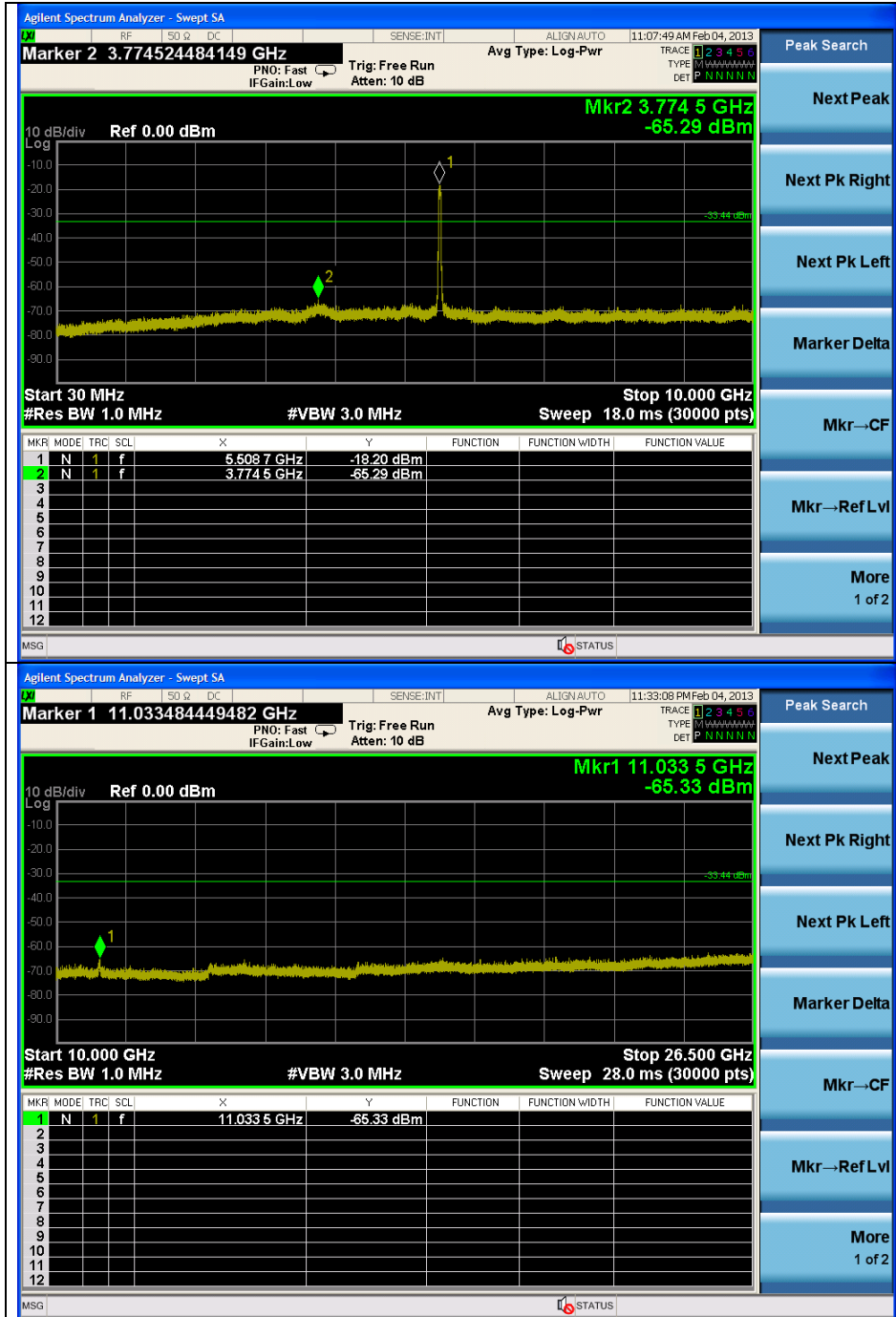
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	Reading values (dB m)	Spurious offset (dB)	Result (dB m)
3 731.70	Noise floor	-	-
11 400.90	-63.28	23.16	-40.12
39 158.90	Noise floor	-	-

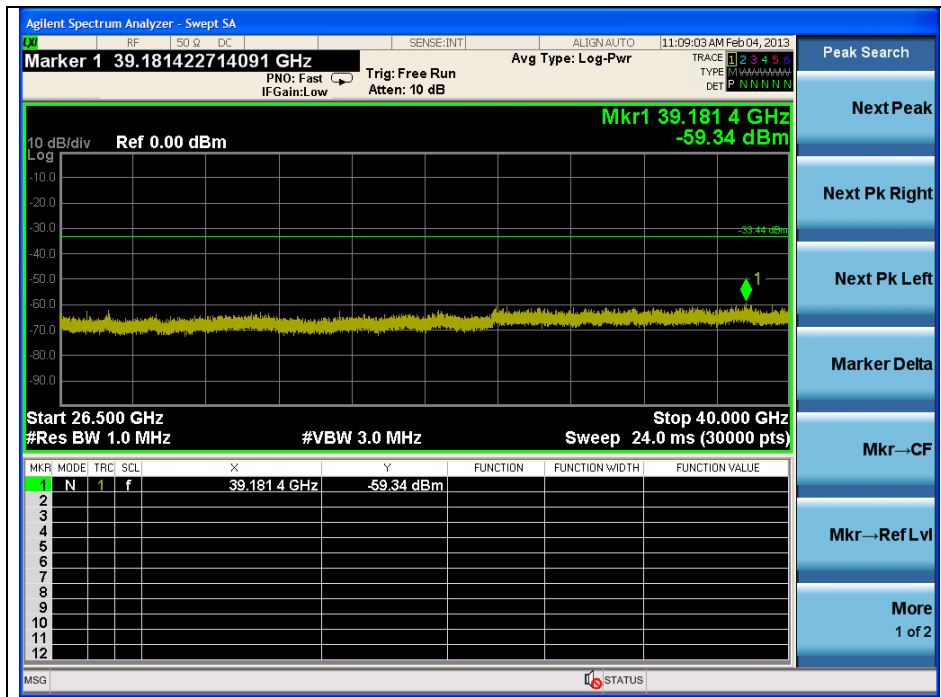
The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report cannot be reproduced, except in full, without prior written permission of the Company.

## 802.11n-HT40\_MCS0

5 510 MHz



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Note:

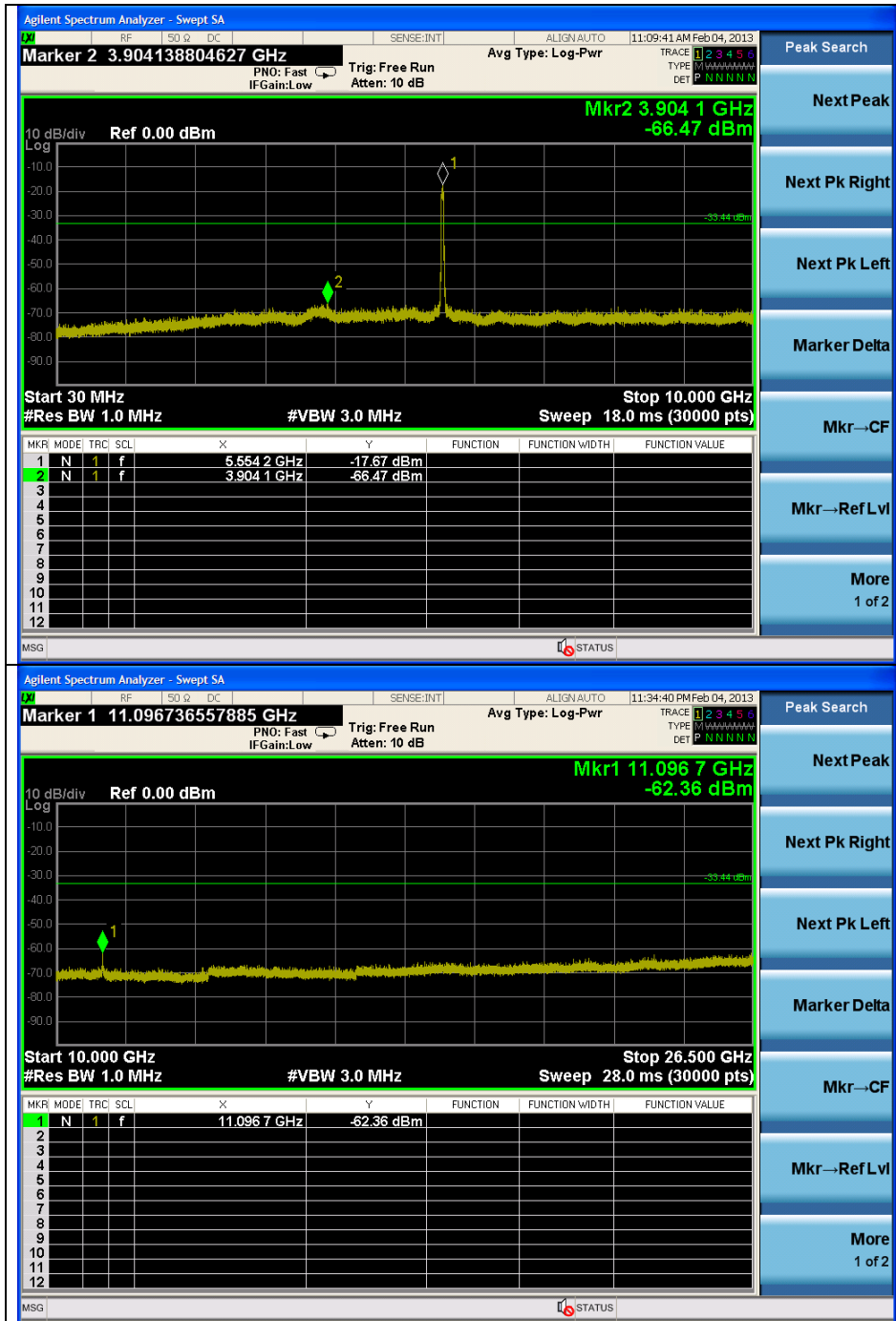
Offset (dB) = Attenuator(dB) + Cable loss (dB)

Result (dB m) = Spurious offset (dB) + Reading values (dB m)

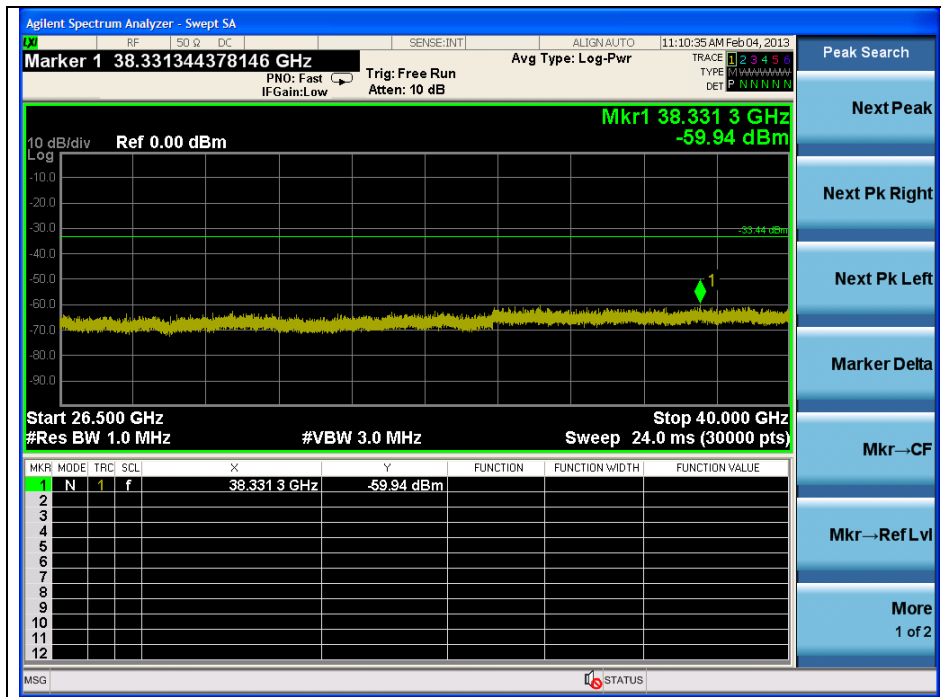
Frequency (MHz)	Reading values (dB m)	Spurious offset (dB)	Result (dB m)
3 774.50	Noise floor	-	-
11 033.50	-65.33	22.56	-42.77
39 181.40	Noise floor	-	-

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5 550 MHz



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Note:

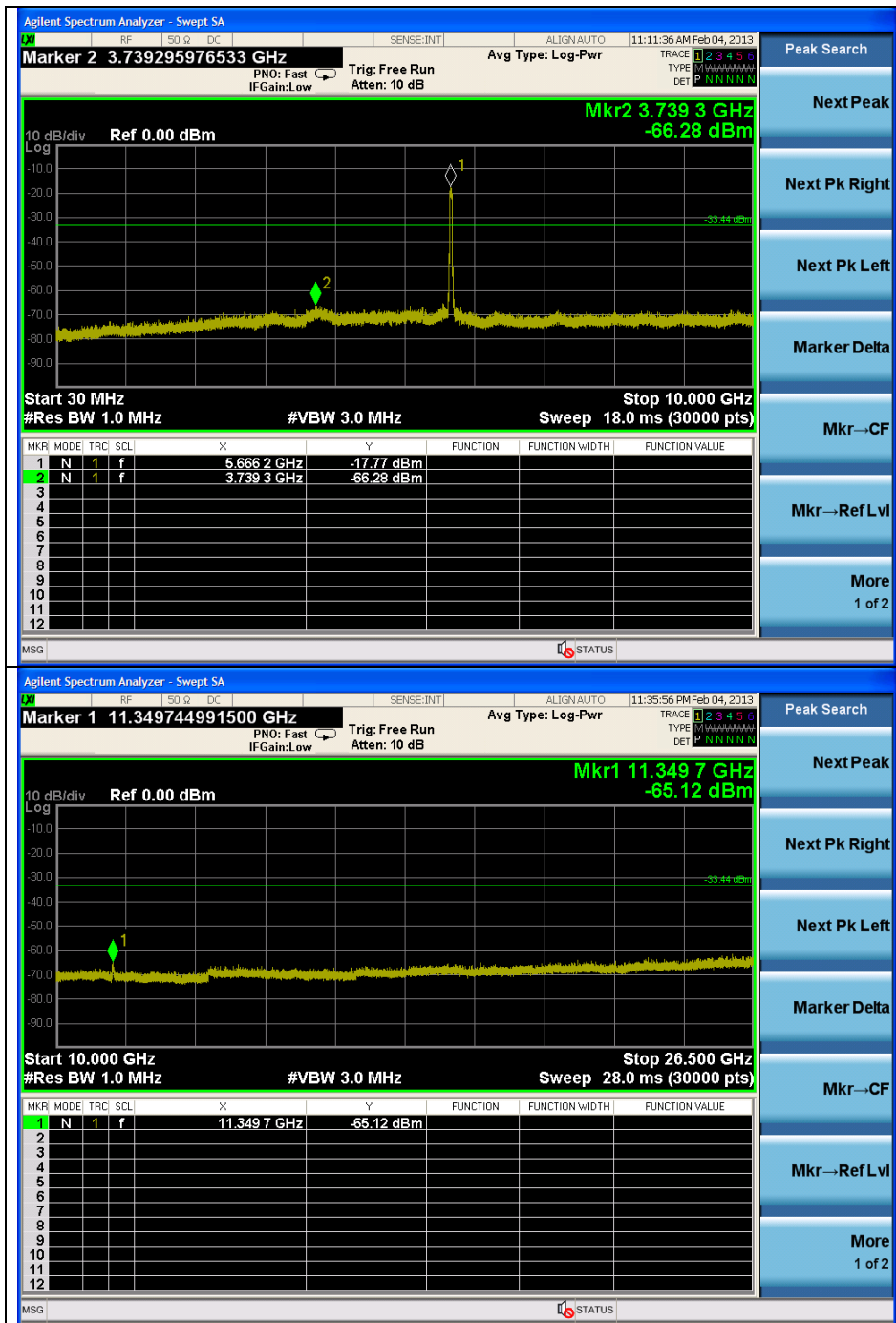
Offset (dB) = Attenuator(dB) + Cable loss (dB)

Result (dB m) = Spurious offset (dB) + Reading values (dB m)

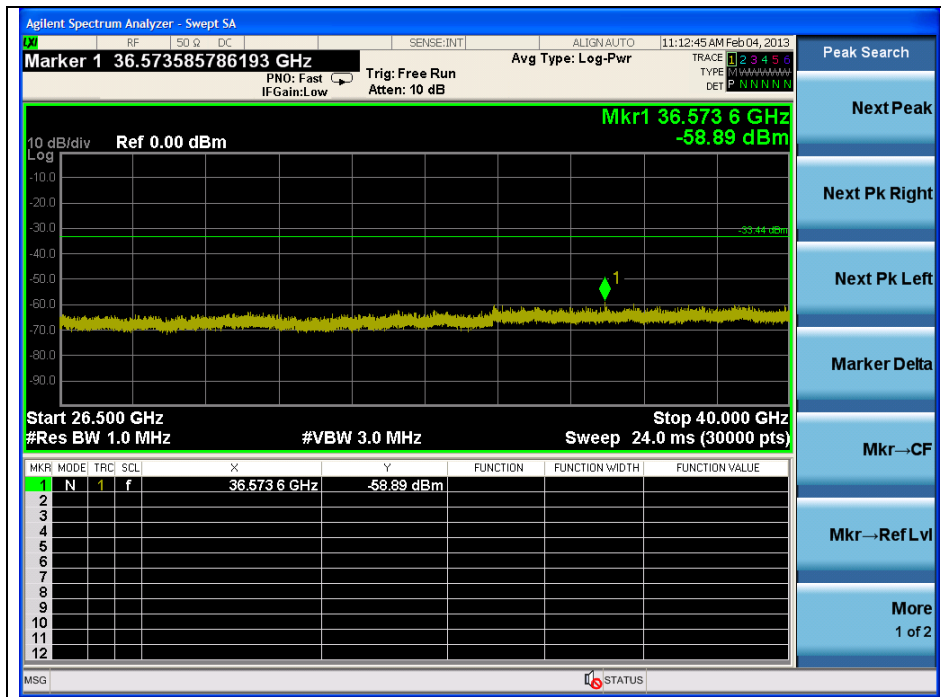
Frequency (MHz)	Reading values (dB m)	Spurious offset (dB)	Result (dB m)
3 904.10	Noise floor	-	-
11 096.70	-62.36	22.12	-40.24
38 331.30	Noise floor	-	-

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5 670 MHz



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Note:

Offset (dB) = Attenuator(dB) + Cable loss (dB)

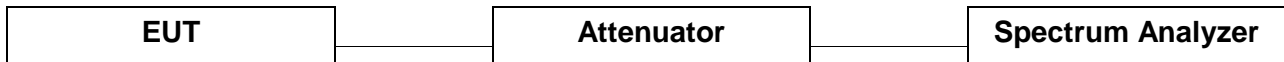
Result (dB m) = Spurious offset (dB) + Reading values (dB m)

Frequency (MHz)	Reading values (dB m)	Spurious offset (dB)	Result (dB m)
3 739.30	Noise floor	-	-
11 349.70	-65.12	23.06	-42.06
36 573.60	Noise floor	-	-

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### 3. 26 dB bandwidth

#### 3.1. Test setup



#### 3.2. Limit

None; for reporting purpose only

#### 3.3. 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 D of KDB 789033.
2. Set RBW: approximately 1% of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak
5. Trace mode = max hold.
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1 %

Note: The automatic bandwidth measurement capability of a spectrum analyzer may be employed if it implements the functionality described above.

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### 3.4. Test result

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

Mode: 11a

Operating mode	Data Rate (Mbps)	Frequency (MHz)	26 dB bandwidth (MHz)
Non - DFS	6	5 180	18.81
	6	5 220	18.74
	6	5 240	18.67
DFS	6	5 260	18.81
	6	5 300	18.81
	6	5 320	18.81
DFS	6	5 500	18.89
	6	5 580	18.60
	6	5 700	18.81

Mode: 11n\_HT20

Operating mode	Data Rate (Mbps)	Frequency (MHz)	26 dB bandwidth (MHz)
Non - DFS	MCS0	5 180	19.25
	MCS0	5 220	19.03
	MCS0	5 240	19.10
DFS	MCS0	5 260	19.18
	MCS0	5 300	19.03
	MCS0	5 320	19.10
DFS	MCS0	5 500	18.96
	MCS0	5 580	19.10
	MCS0	5 700	19.03

Mode: 11n\_HT40

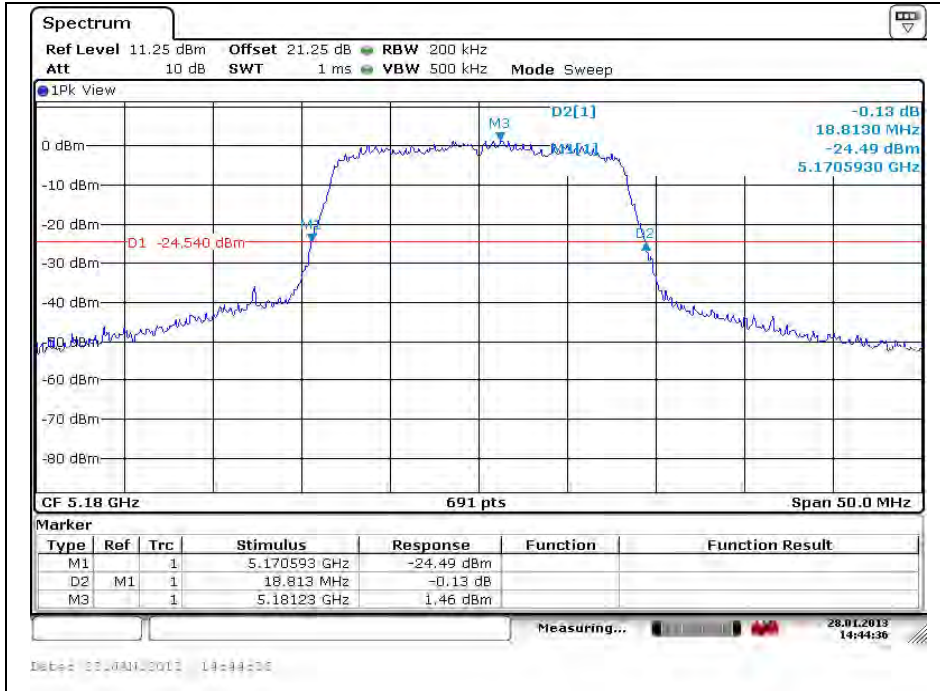
Operating mode	Data Rate (Mbps)	Frequency (MHz)	26 dB bandwidth (MHz)
Non - DFS	MCS0	5 190	44.43
	MCS0	5 230	45.15
DFS	MCS0	5 270	44.57
	MCS0	5 310	44.95
	MCS0	5 510	45.88
	MCS0	5 550	45.15
	MCS0	5 670	45.73

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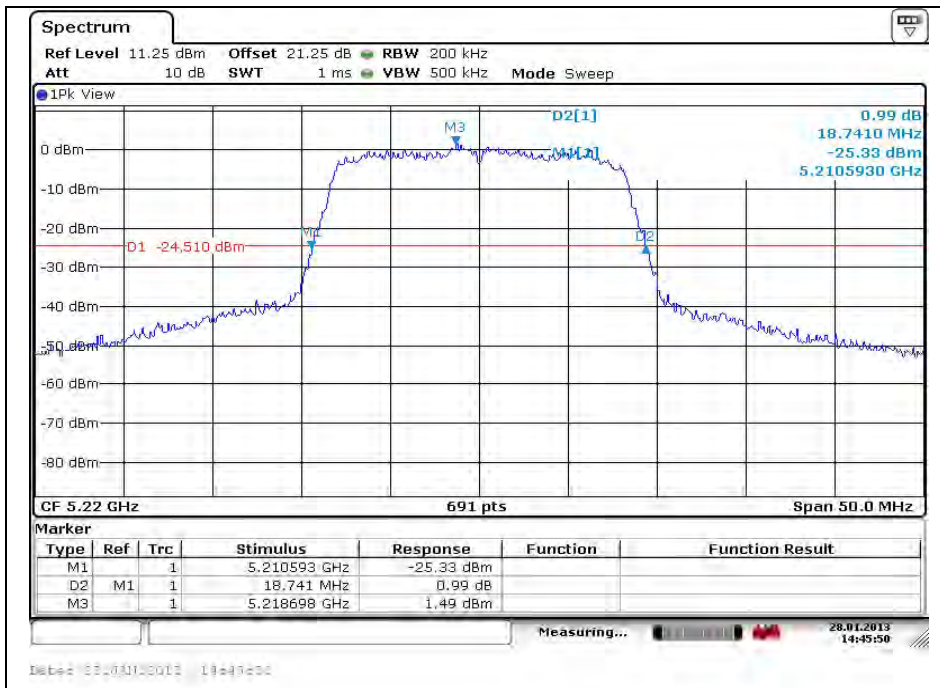
## 26 dB Bandwidth

### 802.11a (Non-DFS)

#### Low Channel (5 180 MHz)

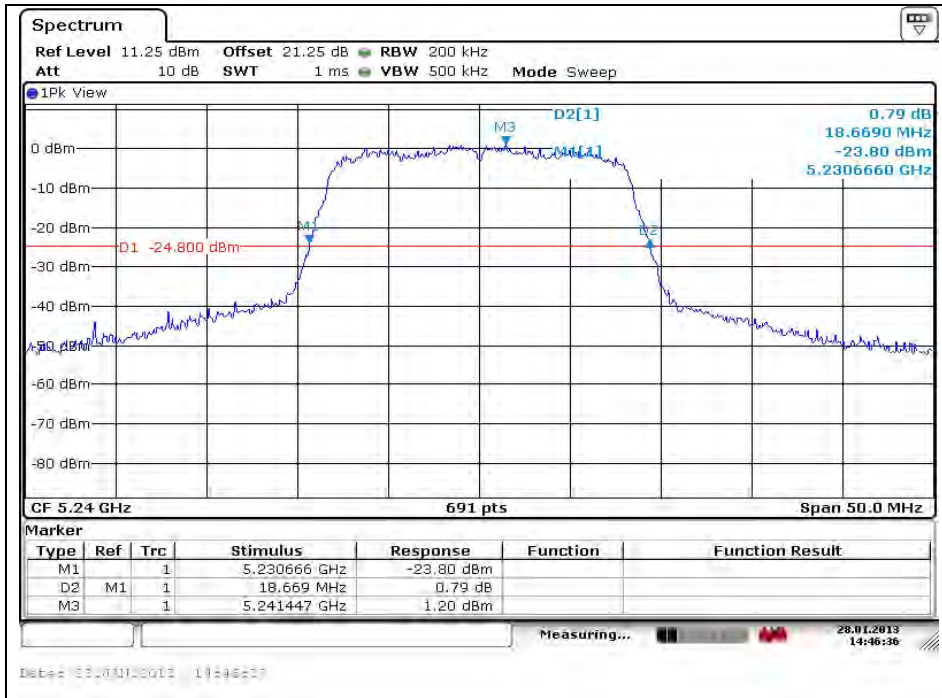


#### Middle Channel (5 220 MHz)



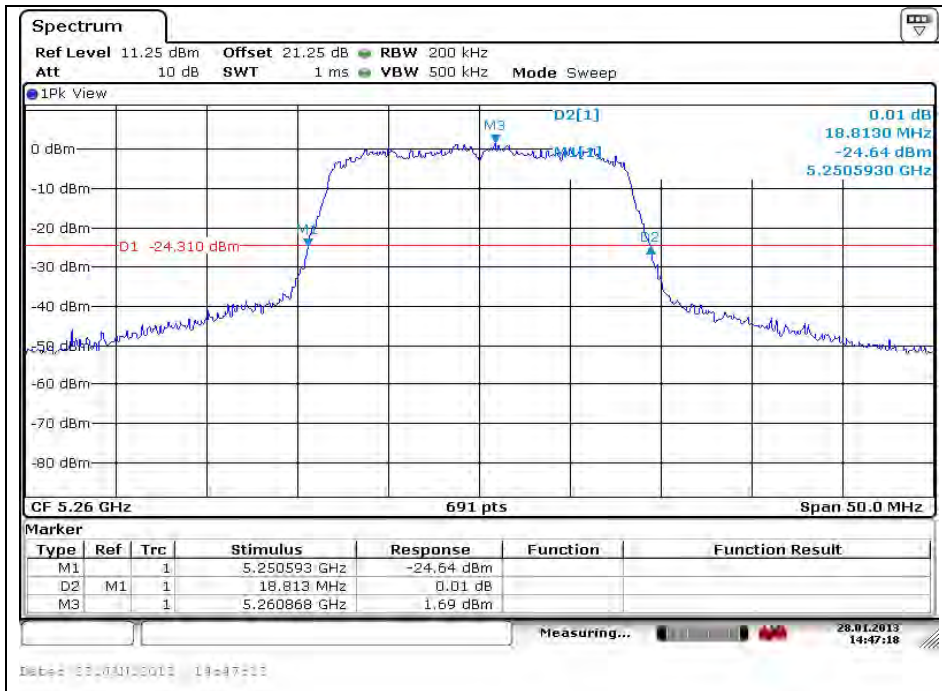
The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report cannot be reproduced, except in full, without prior written permission of the Company.

## High Channel (5 240 MHz)



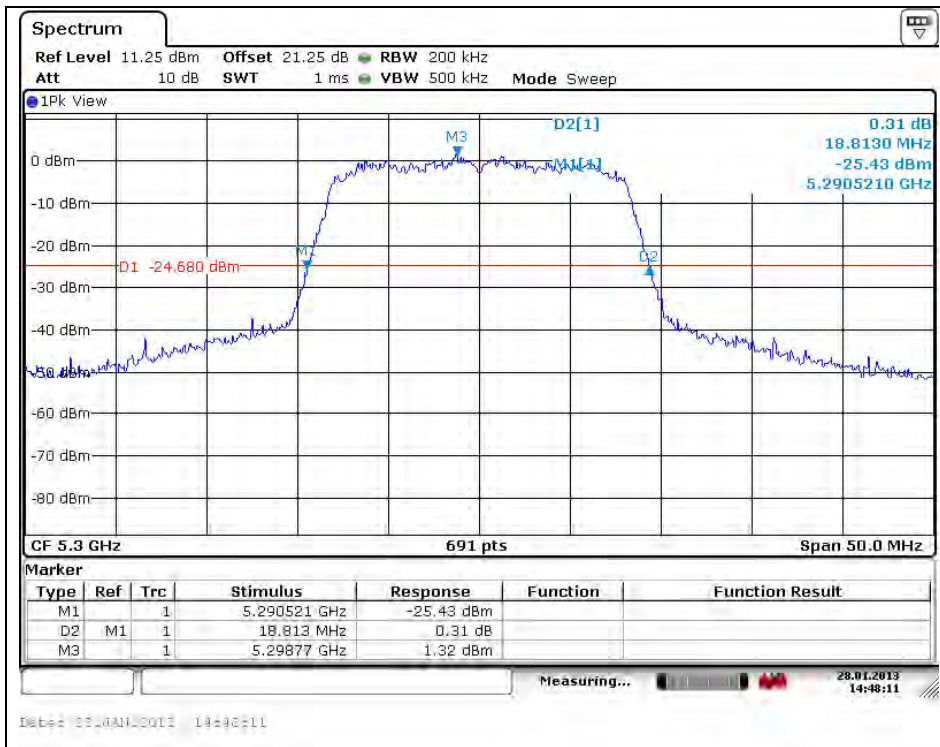
## 802.11a (DFS)

## Low Channel (5 260 MHz)

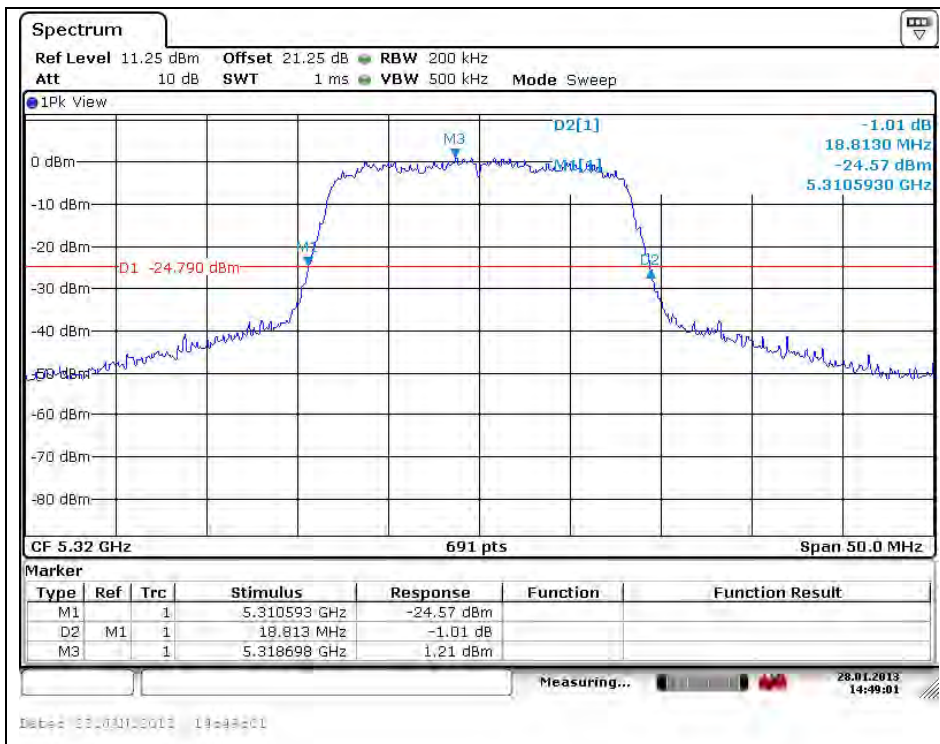


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### Middle Channel (5 300 MHz)



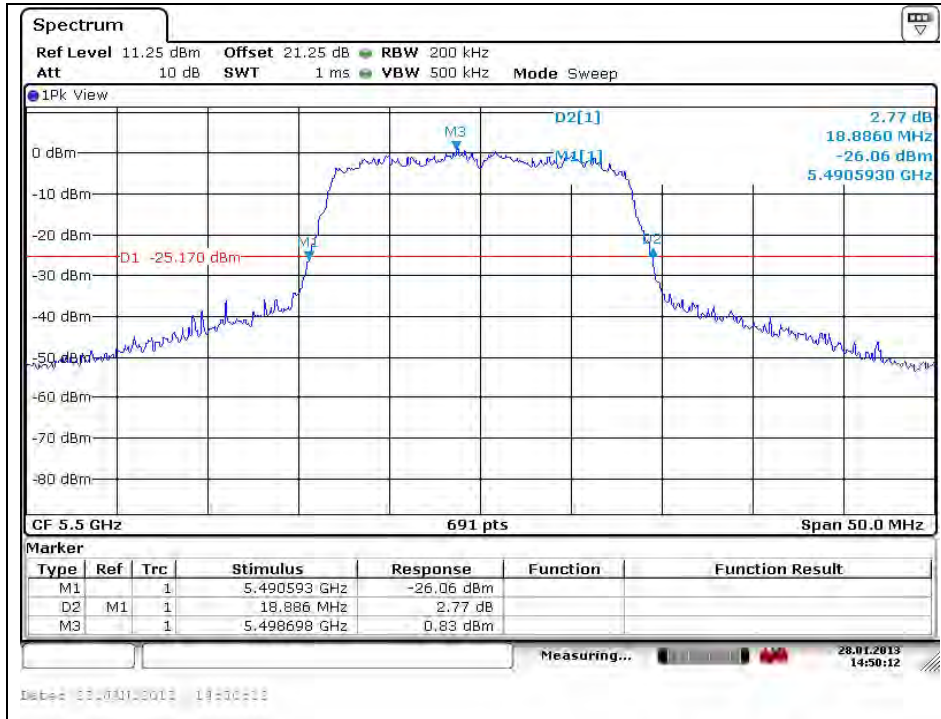
### High Channel (5 320 MHz)



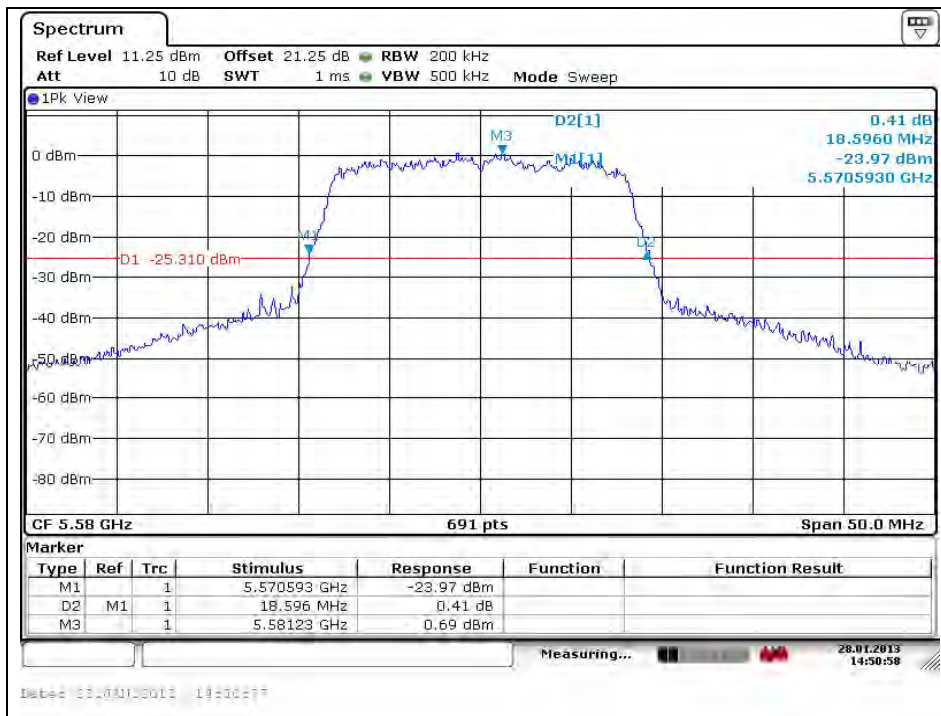
The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report cannot be reproduced, except in full, without prior written permission of the Company.

## 802.11a (DFS)

### Low Channel (5 500 MHz)

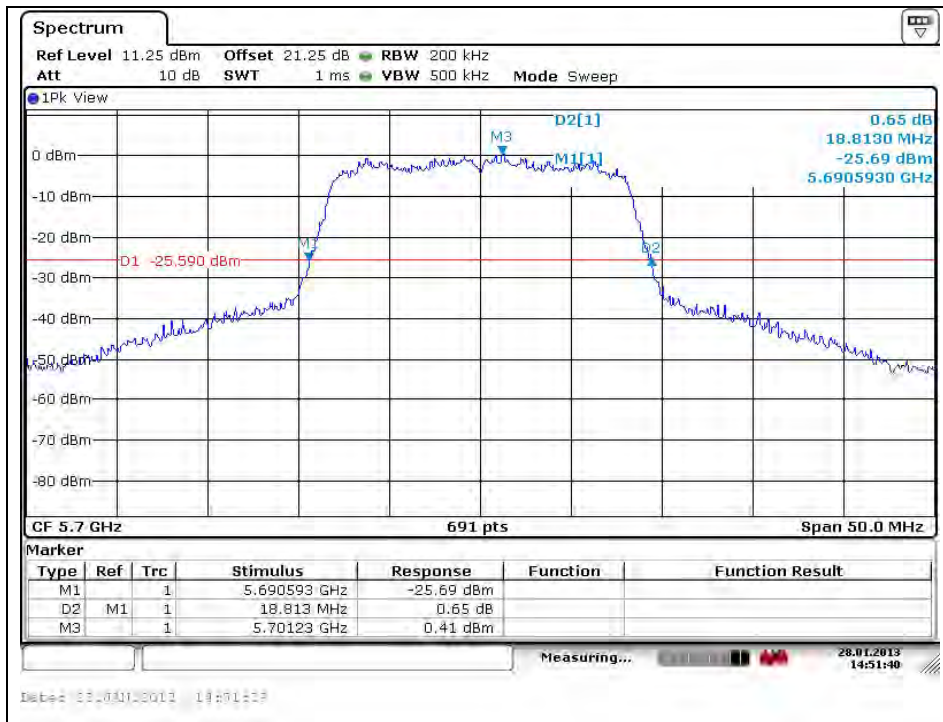


### Middle Channel (5 580 MHz)



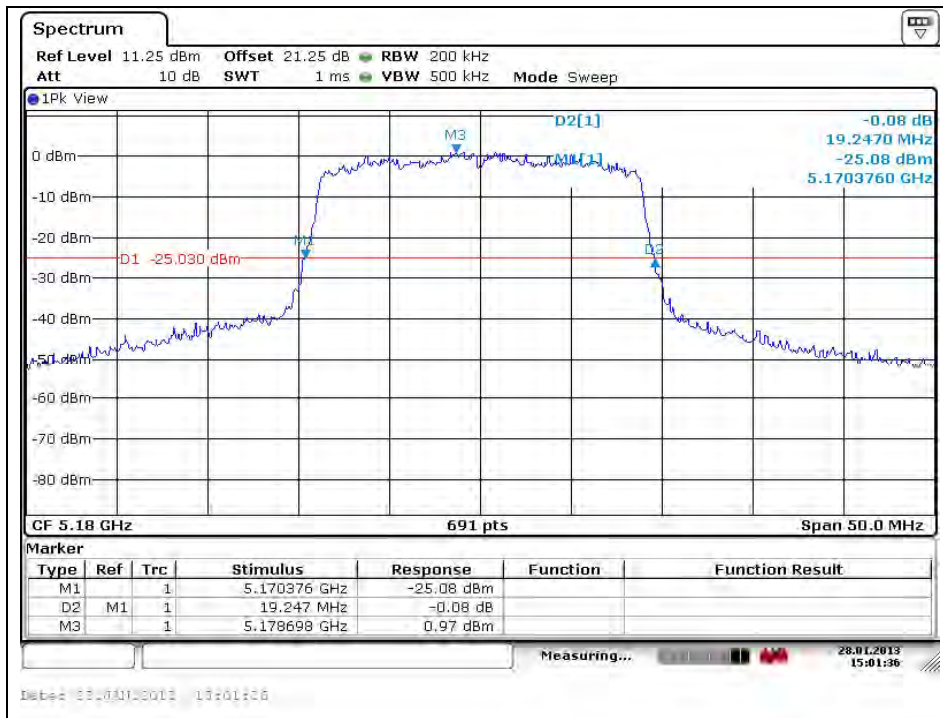
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## High Channel (5 700 MHz)



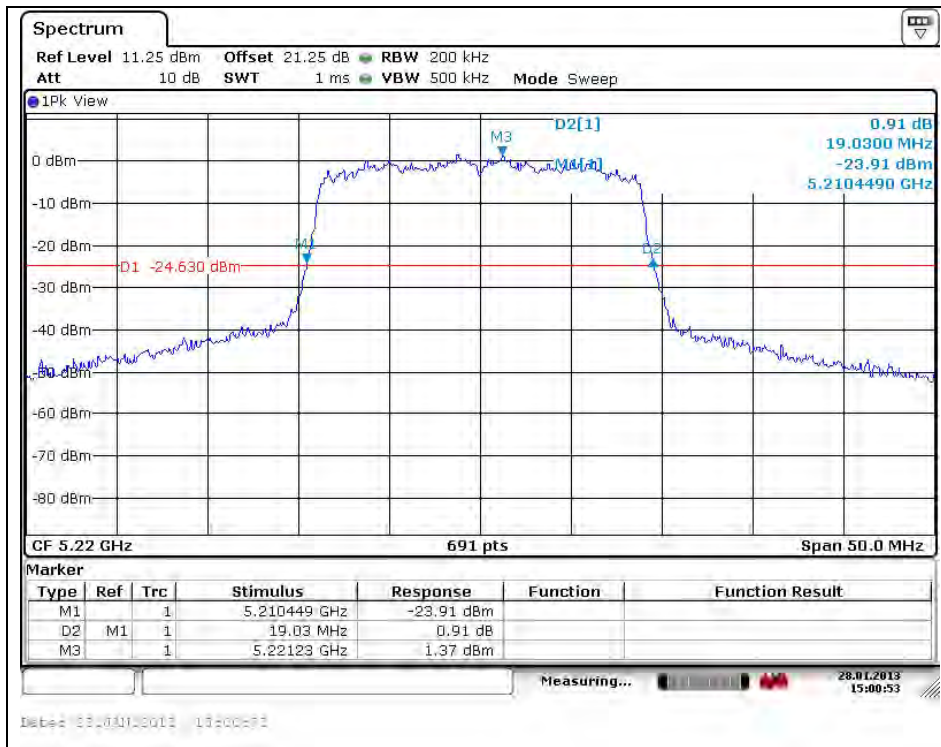
## 802.11n-HT20 (Non-DFS)

## Low Channel (5 180 MHz)

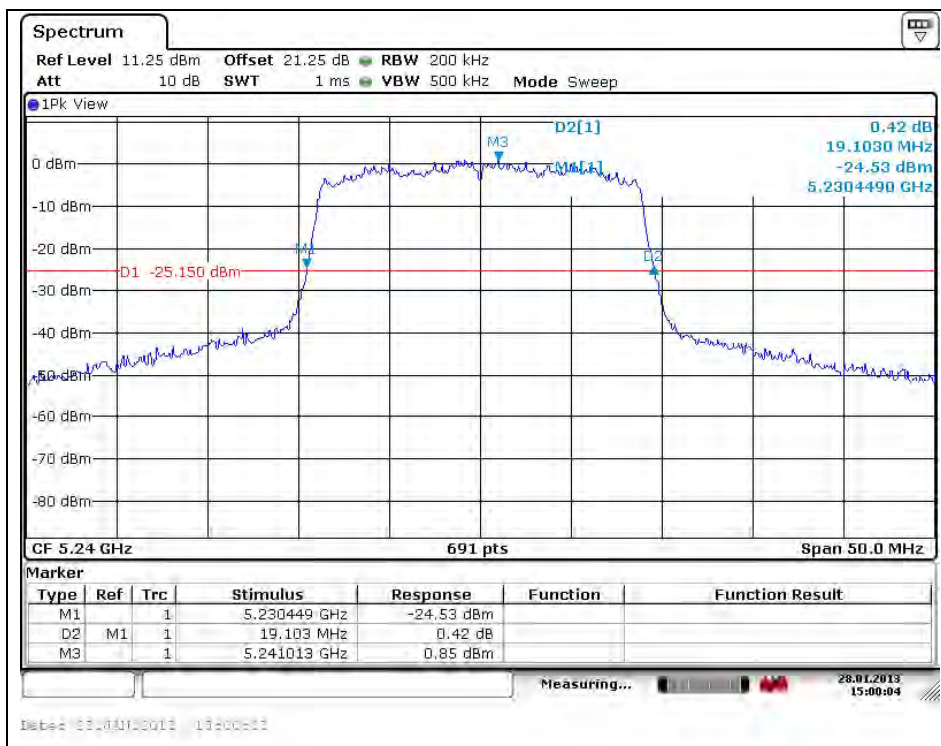


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### Middle Channel (5 220 MHz)



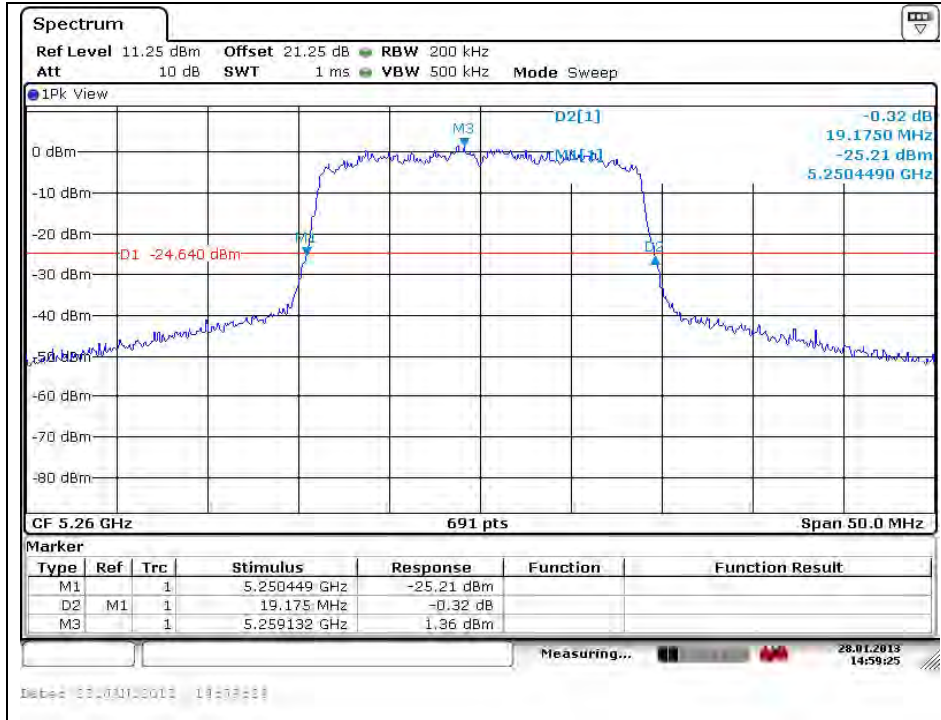
### High Channel (5 240 MHz)



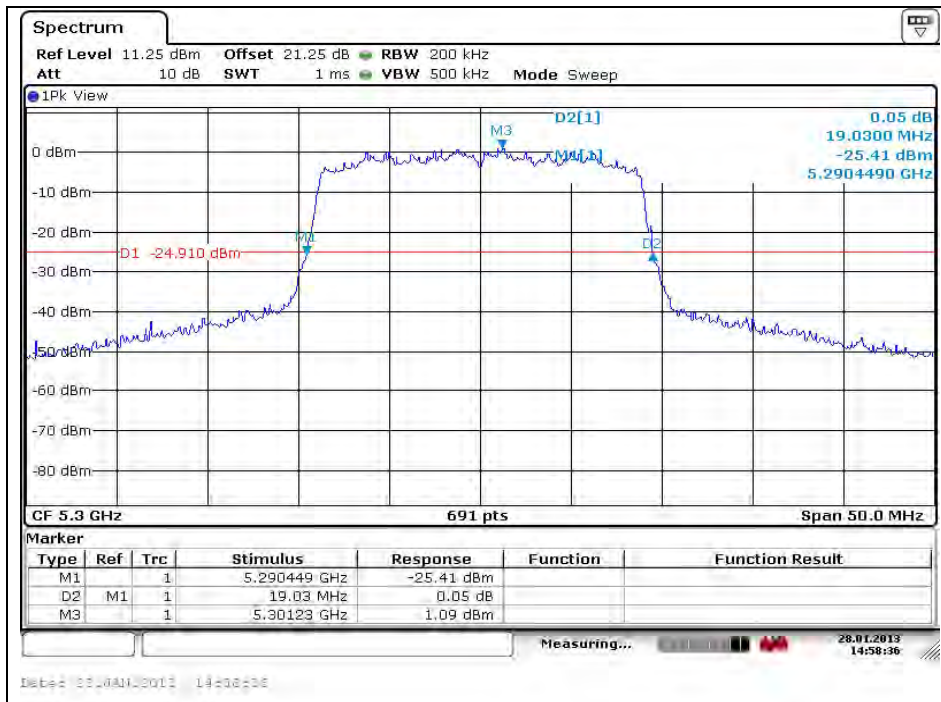
The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report cannot be reproduced, except in full, without prior written permission of the Company.

## 802.11n-HT20 (DFS)

### Low Channel (5 260 MHz)

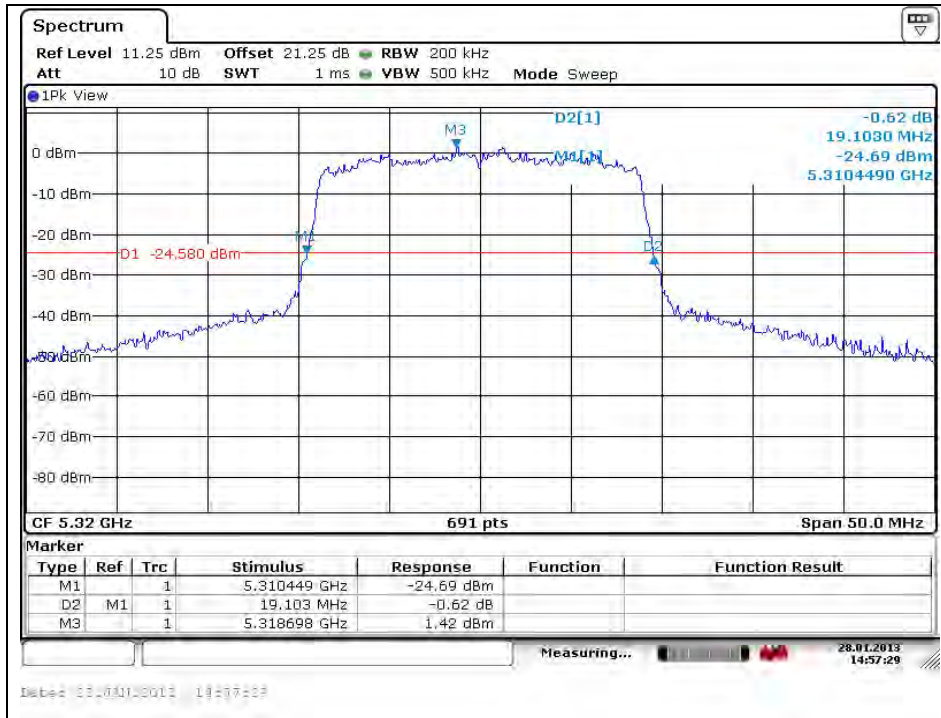


### Middle Channel (5 300 MHz)



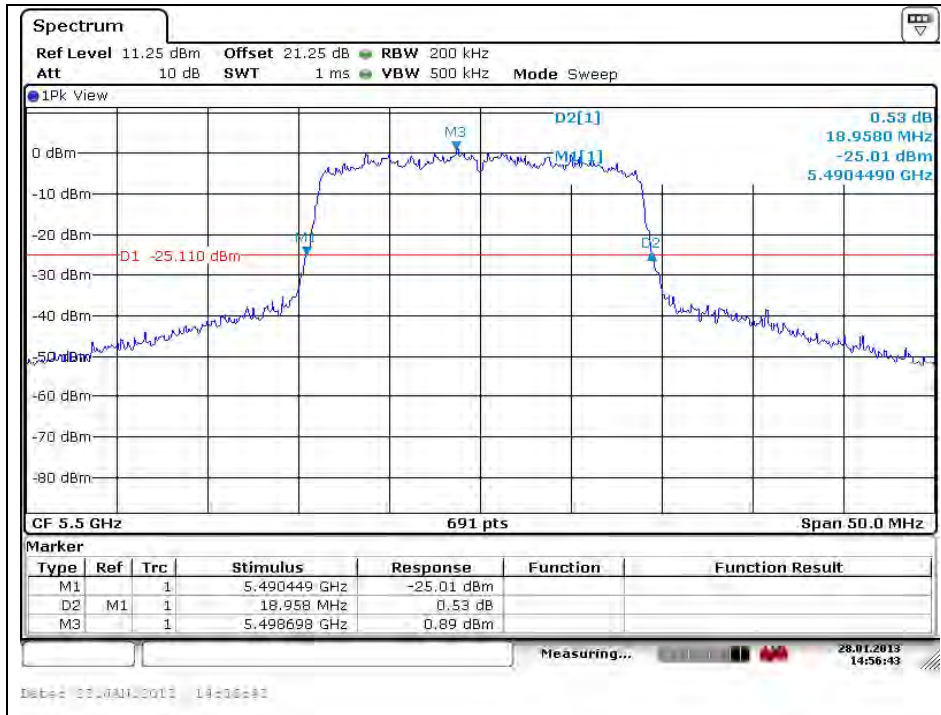
The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report cannot be reproduced, except in full, without prior written permission of the Company.

## High Channel (5 320 MHz)



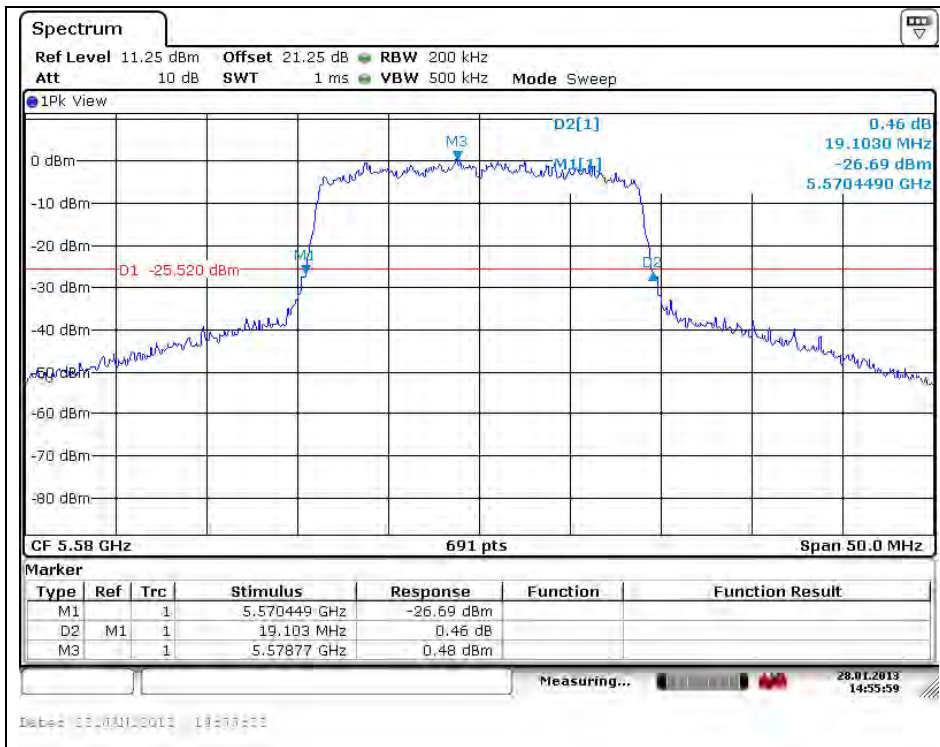
## 802.11n-HT20 (DFS)

## Low Channel (5 500 MHz)

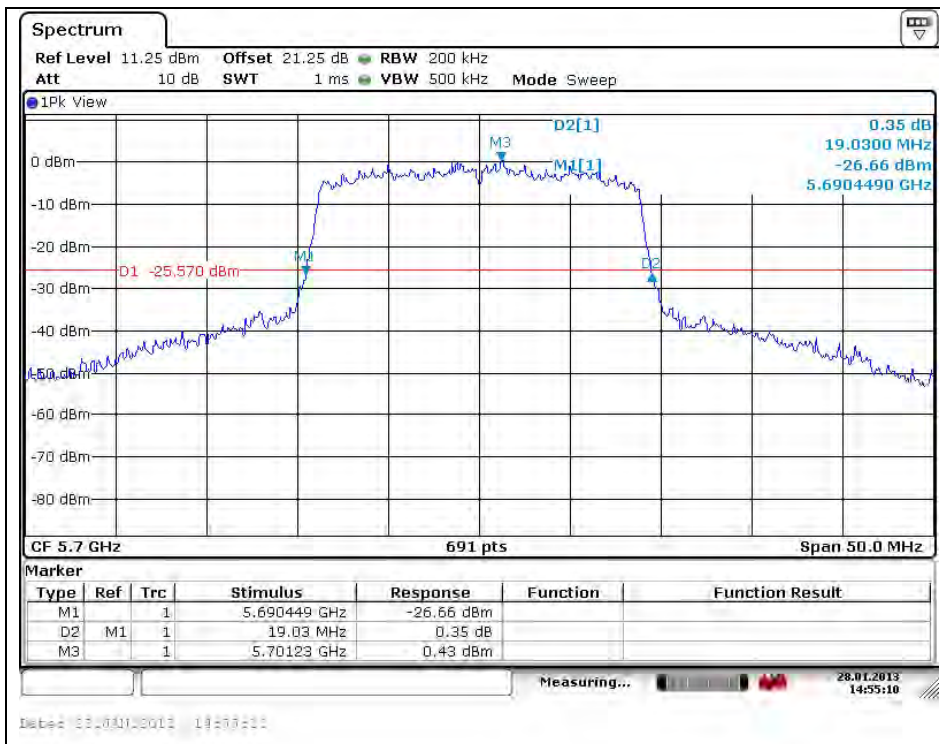


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### Middle Channel (5 580 MHz)



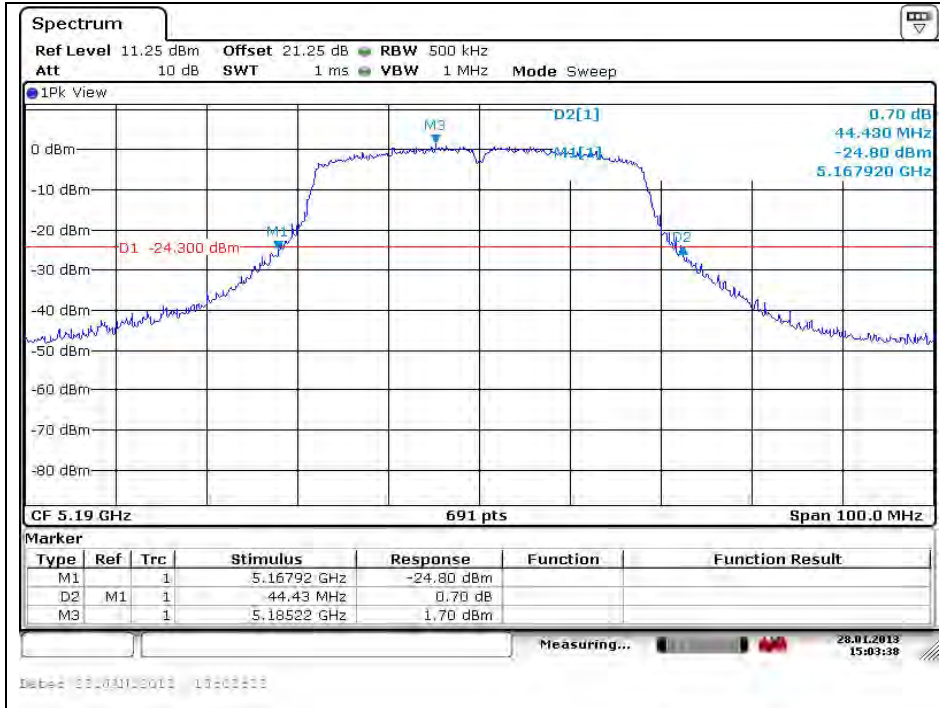
### High Channel (5 700 MHz)



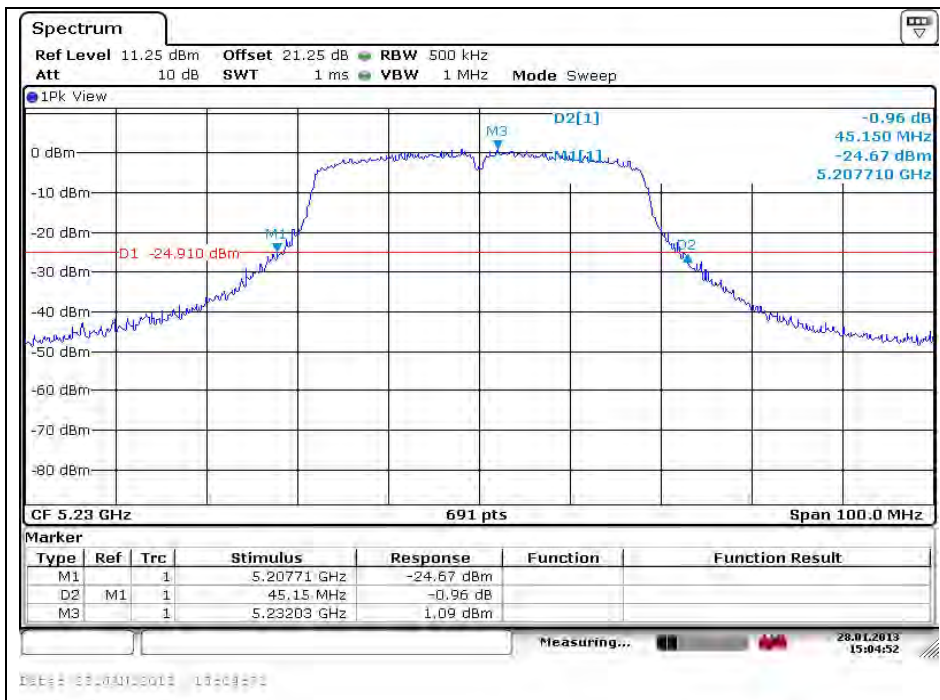
The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report cannot be reproduced, except in full, without prior written permission of the Company.

## 802.11n-HT40 (Non-DFS)

### Low Channel (5 190 MHz)



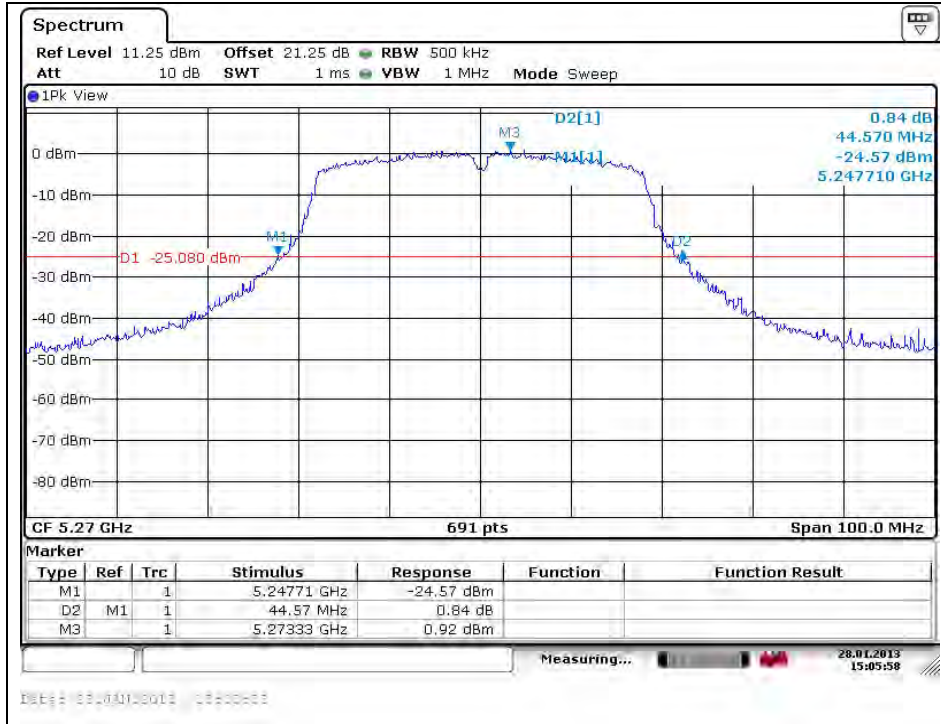
### High Channel (5 230 MHz)



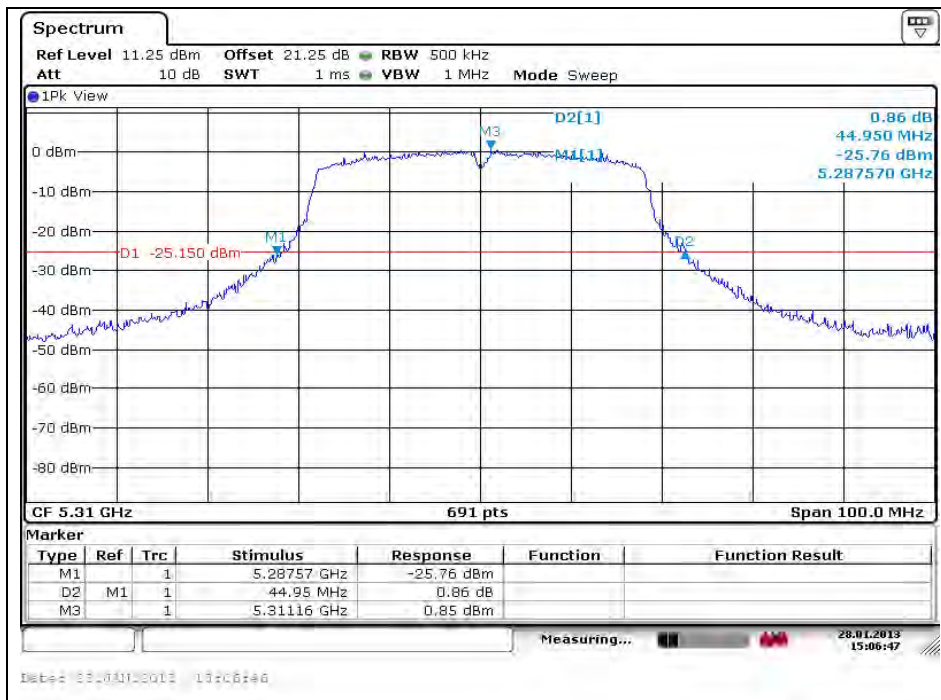
## 802.11n-HT40 (DFS)

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.

### Low Channel (5 270 MHz)



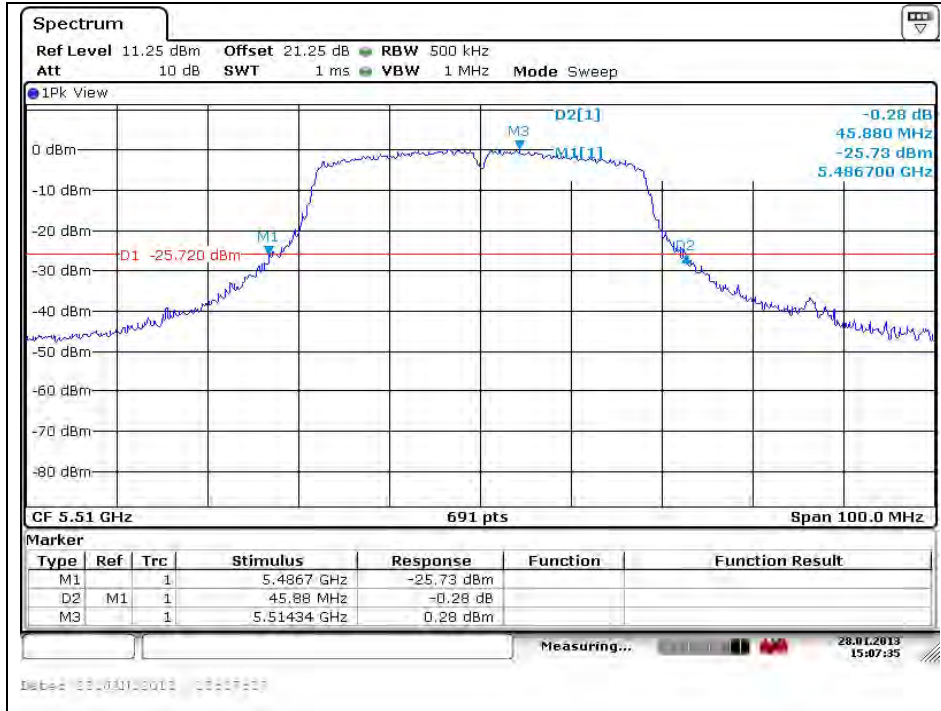
### High Channel (5 310 MHz)



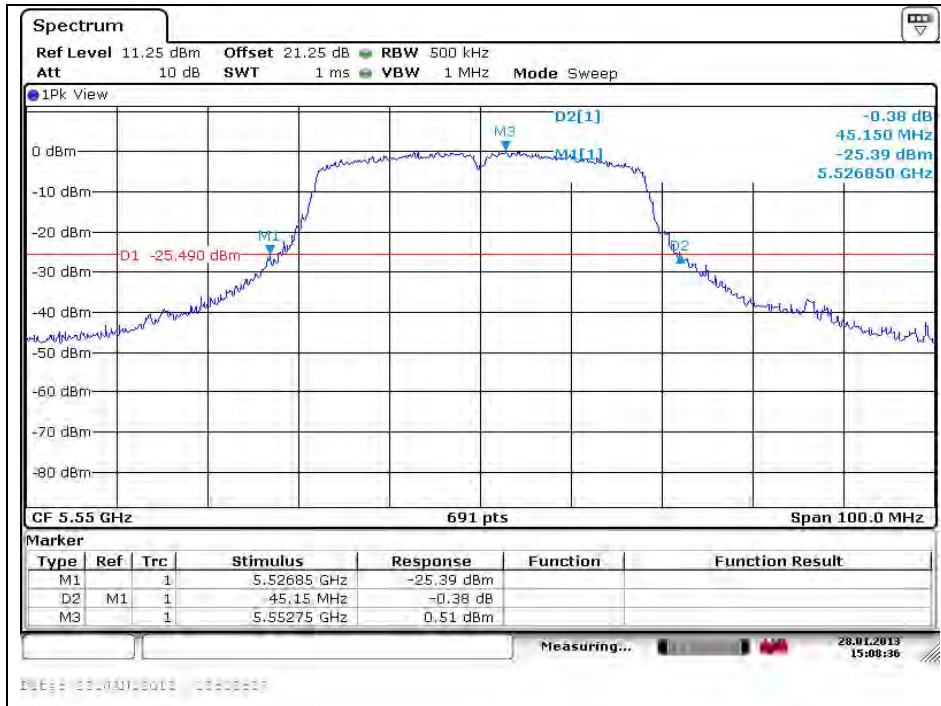
The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report cannot be reproduced, except in full, without prior written permission of the Company.

## 802.11n-HT40 (DFS)

### Low Channel (5 510 MHz)

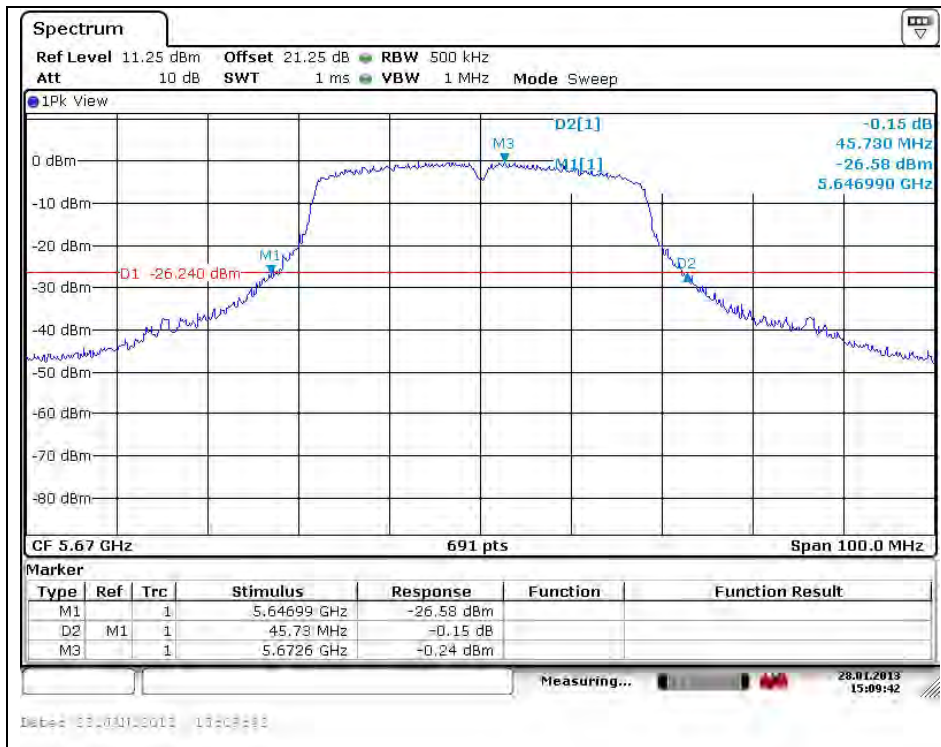


### Low Channel (5 550 MHz)



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.

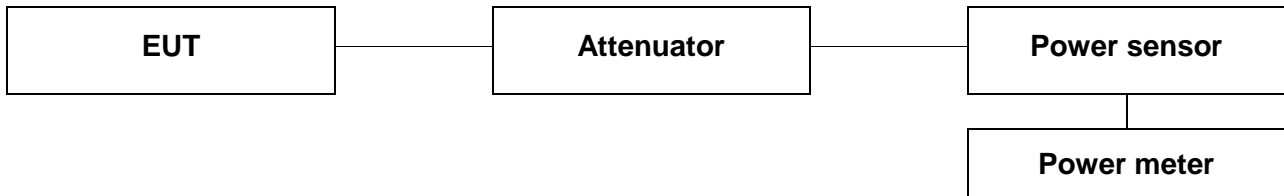
High Channel (5 670 MHz)



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.

## 4. Output power

### 4.1. Test setup



### 4.2. Limit

#### 4.2.1. FCC 15.407

##### (a)(1)

For the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or  $4 \text{ dBm} + 10 \log B$ , where B is the 26-dB emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

##### (a)(2)

For the 5.25–5.35 GHz and 5.47–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or  $11 \text{ dBm} + 10 \log B$ , where B is the 26 dB emission bandwidth in megahertz. In addition, the peak power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### 4.3. Test procedure

1. This measurement settings are specified in clause 4) of section C of KDB 789033.
2. As an alternative to spectrum analyzer measurements, 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.
  - The EUT is configured to transmit continuously or to transmit with a consistent duty factor.
  - At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.
  - The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five.
3. If the transmitter does not transmit continuously, measure the duty cycle, x, of the transmitter output signal as described in section B).
4. Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
5. Adjust the measurement in dBm by adding  $10 \log (1/x)$  where x is the duty cycle (e.g.,  $10 \log(1/0.25)$  if the duty cycle is 25 percent).

*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.*

#### 4.4. Test result

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

##### 4.4.1. Limit

###### -11a

Mode	Frequency (MHz)	Data Rate (Mbps)	Fixed Limit (dB m)	26 dB BW (MHz)	4+10LogB (dB m)	Antenna gain (dB i)	Limit (dB)
11a	5 180	6	17	18.81	16.74	6.49	16.25
	5 220	6	17	18.74	16.73	6.49	16.24
	5 240	6	17	18.67	16.71	6.49	16.22
Mode	Frequency (MHz)	Data Rate (Mbps)	Fixed Limit (dB m)	26 dB BW (MHz)	11+10LogB (dB m)	Antenna gain (dB i)	Limit (dB)
11a	5 260	6	24	18.81	23.74	6.49	23.25
	5 300	6	24	18.81	23.74	6.49	23.25
	5 320	6	24	18.81	23.74	6.49	23.25
	5 500	6	24	18.89	23.76	6.44	23.32
	5 580	6	24	18.60	23.70	6.44	23.26
	5 700	6	24	18.81	23.74	6.44	23.30

###### -11n\_HT20

Mode	Frequency (MHz)	Data Rate (Mbps)	Fixed Limit (dB m)	26 dB BW (MHz)	4+10LogB (dB m)	Antenna gain (dB i)	Limit (dB)
11n_HT20	5 180	MCS0	17	19.25	16.84	6.49	16.35
	5 220	MCS0	17	19.03	16.79	6.49	16.30
	5 240	MCS0	17	19.10	16.81	6.49	16.32
Mode	Frequency (MHz)	Data Rate (Mbps)	Fixed Limit (dB m)	26 dB B19.18W (MHz)	11+10LogB (dB m)	Antenna gain (dB i)	Limit (dB)
11n_HT20	5 260	MCS0	24	19.18	23.83	6.49	23.34
	5 300	MCS0	24	19.03	23.79	6.49	23.30
	5 320	MCS0	24	19.10	23.81	6.49	23.32
	5 500	MCS0	24	18.96	23.78	6.44	23.34
	5 580	MCS0	24	19.10	23.81	6.44	23.37
	5 700	MCS0	24	19.03	23.79	6.44	23.35

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**-11n\_HT40**

Mode	Frequency (MHz)	Data Rate (Mbps)	Fixed Limit (dB m)	26 dB BW (MHz)	4+10LogB (dB m)	Antenna gain (dB i)	Limit (dB)
11n_HT40	5 190	MCS0	17	44.43	20.48	6.49	16.51
	5 230	MCS0	17	45.15	20.55	6.49	16.51
Mode	Frequency (MHz)	Data Rate (Mbps)	Fixed Limit (dB m)	26 dB BW (MHz)	11+10LogB (dB m)	Antenna gain (dB i)	Limit (dB)
11n_HT40	5 270	MCS0	24	44.57	27.49	6.49	23.51
	5 310	MCS0	24	44.95	27.53	6.49	23.51
	5 510	MCS0	24	45.88	27.62	6.44	23.56
	5 550	MCS0	24	45.15	27.55	6.44	23.56
	5 670	MCS0	24	45.73	27.60	6.44	23.56

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.

#### 4.4.1. Result

-11a

Operation Mode	Channel	Data rate	Channel Frequency (MHz)	Result (dB m)	Limit (dB m)
Non DFS 11a	Low	6	5 180	<b>11.23</b>	16.25
		9		11.10	16.25
		12		11.00	16.25
		18		10.92	16.25
		24		10.62	16.25
		36		10.51	16.25
		48		10.25	16.25
		54		10.21	16.25
	Middle	6	5 220	<b>11.06</b>	16.24
		9		10.89	16.24
		12		10.77	16.24
		18		10.55	16.24
		24		10.47	16.24
		36		10.29	16.24
		48		10.05	16.24
		54		9.90	16.24
	High	6	5 240	<b>11.20</b>	16.22
		9		10.91	16.22
		12		10.84	16.22
		18		10.68	16.22
		24		10.50	16.22
		36		10.31	16.22
		48		10.08	16.22
		54		9.89	16.22

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Operation Mode	Channel	Data rate	Channel Frequency (MHz)	Result (dB m)	Limit (dB m)
DFS 11a	Lower Band	6	5 260	<b>11.32</b>	23.25
		9		11.15	23.25
		12		11.06	23.25
		18		10.84	23.25
		24		10.69	23.25
		36		10.50	23.25
		48		10.31	23.25
		54		10.17	23.25
		6		5 300	<b>11.02</b>
		9	10.84		23.25
		12	10.76		23.25
		18	10.47		23.25
		24	10.35		23.25
		36	10.21		23.25
		48	10.04		23.25
		54	9.88		23.25
		6	5 320		<b>11.17</b>
		9		10.87	23.25
		12		10.80	23.25
		18		10.55	23.25
		24		10.41	23.25
		36		10.26	23.25
		48		10.10	23.25
		54		9.99	23.25

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Operation Mode	Channel	Data rate	Channel Frequency (MHz)	Result (dB m)	Limit (dB m)
DFS 11a	Upper Band	6	5 500	<b>10.63</b>	23.32
		9		10.40	23.32
		12		10.34	23.32
		18		10.07	23.32
		24		9.90	23.32
		36		9.72	23.32
		48		9.60	23.32
		54		9.57	23.32
		6		5 580	<b>10.35</b>
		9	10.20		23.26
		12	10.10		23.26
		18	9.85		23.26
		24	9.70		23.26
		36	9.51		23.26
		48	9.30		23.26
		54	9.07		23.26
		6	5 700		<b>9.93</b>
		9		9.85	23.30
		12		9.70	23.30
		18		9.46	23.30
		24		9.20	23.30
		36		8.93	23.30
		48		8.53	23.30
		54		8.40	23.30

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**-11n\_HT20**

Operation Mode	Channel	Data rate	Channel Frequency (MHz)	Result (dB m)	Limit (dB m)
Non DFS 11n_HT20	Low	MCS0	5 180	<b>11.25</b>	16.35
		MCS1		10.94	16.35
		MCS2		10.68	16.35
		MCS3		10.49	16.35
		MCS4		10.30	16.35
		MCS5		10.11	16.35
		MCS6		10.02	16.35
		MCS7		9.77	16.35
	Middle	MCS0	5 220	<b>10.99</b>	16.30
		MCS1		10.71	16.30
		MCS2		10.38	16.30
		MCS3		10.21	16.30
		MCS4		10.00	16.30
		MCS5		9.81	16.30
		MCS6		9.72	16.30
		MCS7		9.48	16.30
	High	MCS0	5 240	<b>11.04</b>	16.32
		MCS1		10.82	16.32
		MCS2		10.44	16.32
		MCS3		10.25	16.32
		MCS4		10.08	16.32
		MCS5		9.92	16.32
		MCS6		9.76	16.32
		MCS7		9.39	16.32

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Operation Mode	Channel	Data rate	Channel Frequency (MHz)	Result (dB m)	Limit (dB m)
DFS 11n_HT20	Lower Band	MCS0	5 260	<b>11.16</b>	23.34
		MCS1		10.96	23.34
		MCS2		10.60	23.34
		MCS3		10.44	23.34
		MCS4		10.29	23.34
		MCS5		10.11	23.34
		MCS6		9.99	23.34
		MCS7		9.77	23.34
		MCS0	5 300	<b>10.93</b>	23.30
		MCS1		10.58	23.30
		MCS2		10.31	23.30
		MCS3		10.10	23.30
		MCS4		9.99	23.30
		MCS5		9.72	23.30
		MCS6		9.43	23.30
		MCS7		9.25	23.30
		MCS0	5 320	<b>10.99</b>	23.32
		MCS1		10.70	23.32
		MCS2		10.50	23.32
		MCS3		10.28	23.32
		MCS4		10.10	23.32
		MCS5		9.92	23.32
		MCS6		9.76	23.32
		MCS7		9.49	23.32

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Operation Mode	Channel	Data rate	Channel Frequency (MHz)	Result (dB m)	Limit (dB m)
DFS 11n_HT20	Upper Band	MCS0	5 500	<b>10.45</b>	23.34
		MCS1		10.16	23.34
		MCS2		9.96	23.34
		MCS3		9.88	23.34
		MCS4		9.60	23.34
		MCS5		9.43	23.34
		MCS6		9.21	23.34
		MCS7		9.05	23.34
		MCS0	5 580	<b>10.24</b>	23.37
		MCS1		9.97	23.37
		MCS2		9.62	23.37
		MCS3		9.49	23.37
		MCS4		9.33	23.37
		MCS5		9.10	23.37
		MCS6		8.99	23.37
		MCS7		8.82	23.37
		MCS0	5 700	<b>9.78</b>	23.35
		MCS1		9.55	23.35
		MCS2		9.37	23.35
		MCS3		9.22	23.35
		MCS4		9.01	23.35
		MCS5		8.77	23.35
		MCS6		8.60	23.35
		MCS7		8.44	23.35

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**-11n\_HT40**

Operation Mode	Channel	Data rate	Channel Frequency (MHz)	Result (dB m)	Limit (dB m)
Non DFS 11n_HT40	Low	MCS0	5 190	<b>9.80</b>	16.51
		MCS1		9.35	16.51
		MCS2		9.10	16.51
		MCS3		8.82	16.51
		MCS4		8.55	16.51
		MCS5		8.19	16.51
		MCS6		8.00	16.51
	MCS7	7.79	16.51		
	High	MCS0	5 230	<b>9.61</b>	16.51
		MCS1		9.21	16.51
		MCS2		9.00	16.51
		MCS3		8.76	16.51
		MCS4		8.48	16.51
		MCS5		8.20	16.51
MCS6		7.99		16.51	
MCS7	7.71	16.51			

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Operation Mode	Channel	Data rate	Channel Frequency (MHz)	Result (dB m)	Limit (dB m)
DFS 11n_HT40	Lower Band	MCS0	5 270	<b>9.79</b>	23.51
		MCS1		9.39	23.51
		MCS2		9.08	23.51
		MCS3		8.81	23.51
		MCS4		8.54	23.51
		MCS5		8.40	23.51
		MCS6		8.11	23.51
		MCS7	7.88	23.51	
		MCS0	5 310	<b>9.58</b>	23.51
		MCS1		9.12	23.51
		MCS2		8.85	23.51
		MCS3		8.61	23.51
		MCS4		8.33	23.51
		MCS5		8.10	23.51
MCS6	7.88	23.51			
MCS7	7.57	23.51			

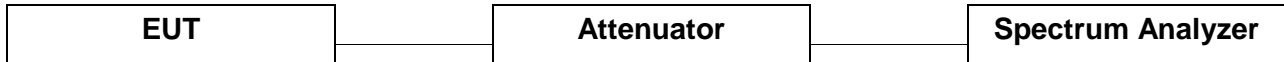
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Operation Mode	Channel	Data rate	Channel Frequency (MHz)	Result (dB m)	Limit (dB m)
DFS 11n_HT40	Upper Band	MCS0	5 510	<b>9.02</b>	23.56
		MCS1		8.58	23.56
		MCS2		8.29	23.56
		MCS3		8.01	23.56
		MCS4		7.84	23.56
		MCS5		7.55	23.56
		MCS6		7.21	23.56
		MCS7		7.00	23.56
		MCS0	5 550	<b>8.89</b>	23.56
		MCS1		8.45	23.56
		MCS2		8.18	23.56
		MCS3		8.02	23.56
		MCS4		7.80	23.56
		MCS5		7.51	23.56
		MCS6		7.20	23.56
		MCS7		7.01	23.56
		MCS0	5 670	<b>8.55</b>	23.56
		MCS1		8.10	23.56
		MCS2		7.82	23.56
		MCS3		7.47	23.56
		MCS4		7.12	23.56
		MCS5		7.00	23.56
		MCS6		6.76	23.56
		MCS7		6.52	23.56

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## 5. Peak power spectral density

### 5.1. Test setup



### 5.2. Limit

#### 5.2.1. FCC 15.407

##### (a)(1)

For the band 5.15-5.25 GHz band, the peak power spectral density shall not exceed 4 dBm in any 1 MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

##### (a)(2)

For the band 5.25–5.35 GHz and 5.47–5.725 GHz bands, the peak power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### 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.

1. This measurement settings are specified in clause b) of section C of KDB 789033.
2. Set span to encompass the entire emission bandwidth (EBW) of the signal.
3. Set RBW = 1 MHz
4. Set VBW  $\geq$  3 MHz
5. Number of points in sweep  $\geq$  2 Span / RBW. (This ensures that bin-to-bin spacing is  $\leq$  RBW/2, so that narrowband signals are not lost between frequency bins.)
6. Sweep time = auto.
7. Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
8. if transmit duty cycle < 98 percent, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle  $\geq$  98 percent, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run".
9. Trace average at least 100 traces in power averaging (i.e., RMS) mode.
10. Use the peak search function on the spectrum analyzer to find the peak of the spectrum.
11. The result is the PPSD.

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## 5.4. Test result

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

### 5.4.1. Non-DFS Band

Operation Mode	Channel	Data Rate (Mbps)	Channel Frequency (MHz)	Peak power spectral density (dB m)	Limit (dB m)
11a	Low	6	5 180	0.837	3.51
	Middle	6	5 220	0.747	
	High	6	5 240	0.842	
11n_HT20	Low	MCS0	5 180	0.721	
	Middle	MCS0	5 220	0.344	
	High	MCS0	5 240	0.296	
11n_HT40	Low	MCS0	5 190	-4.414	
	High	MCS0	5 230	-4.513	

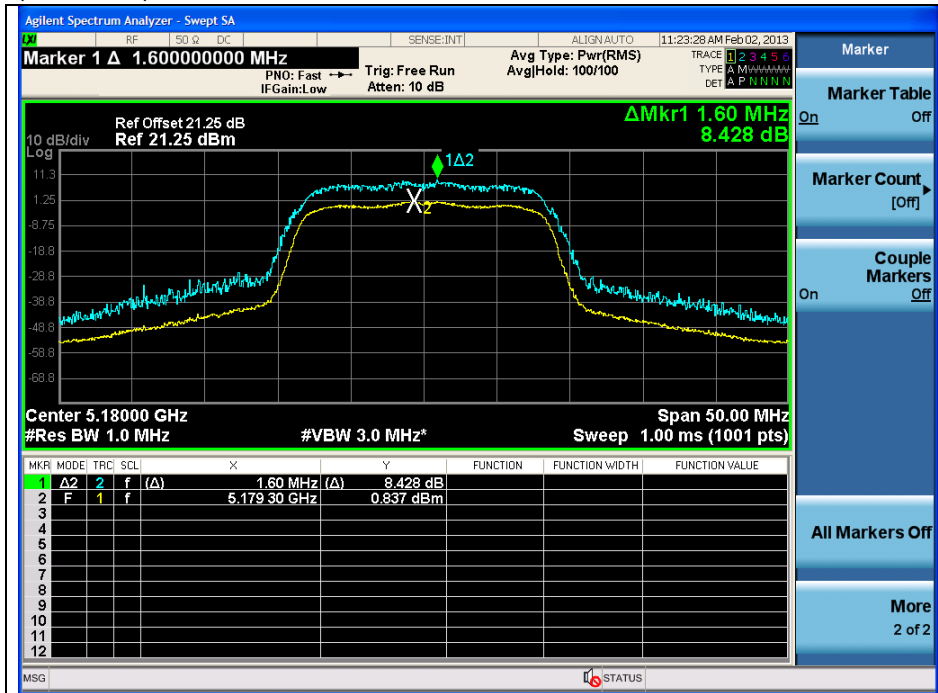
### 5.4.2. DFS Band

Operation Mode	Channel	Data Rate (Mbps)	Channel Frequency (MHz)	Peak power spectral density (dB m)	Limit (dB m)
11a	Lower Band	6	5 260	0.999	10.51
		6	5 300	0.467	
		6	5 320	0.472	
	Upper Band	6	5 500	-0.222	10.56
		6	5 580	0.068	
		6	5 700	0.556	
11n_HT20	Lower Band	MCS0	5 260	0.503	10.51
		MCS0	5 300	0.505	
		MCS0	5 320	-0.025	
	Upper Band	MCS0	5 500	-0.389	10.56
		MCS0	5 580	0.008	
		MCS0	5 700	0.284	
11n_HT40	Lower Band	MCS0	5 270	-4.785	10.51
		MCS0	5 310	-4.709	
	Upper Band	MCS0	5 510	-5.143	10.56
		MCS0	5 550	-5.029	
		MCS0	5 670	-4.650	
		MCS0	5 670	-4.650	

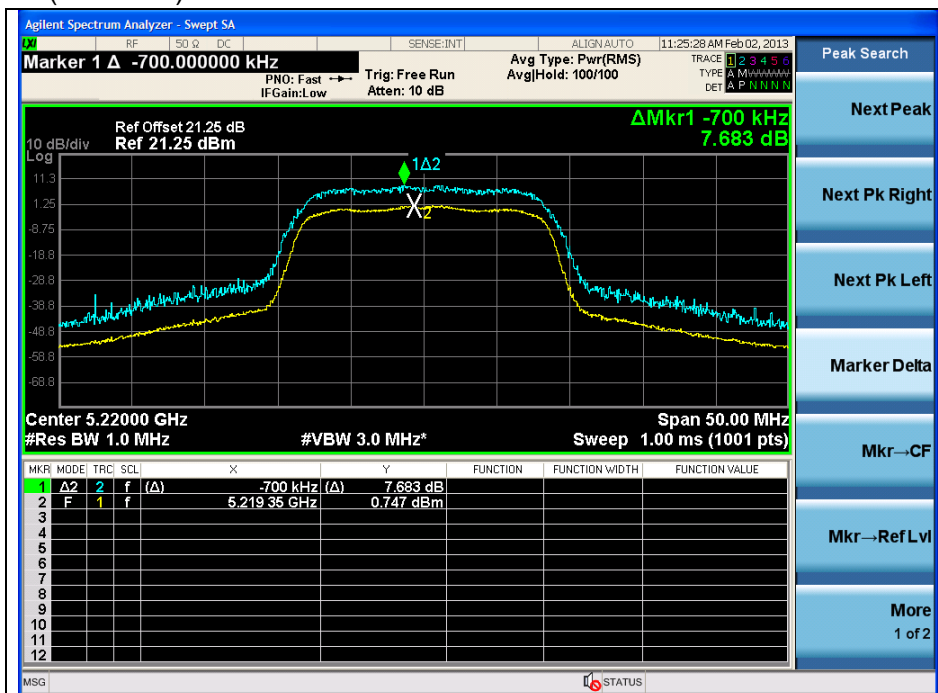
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## 802.11a (Non-DFS)

### Low Channel (5 180 MHz)

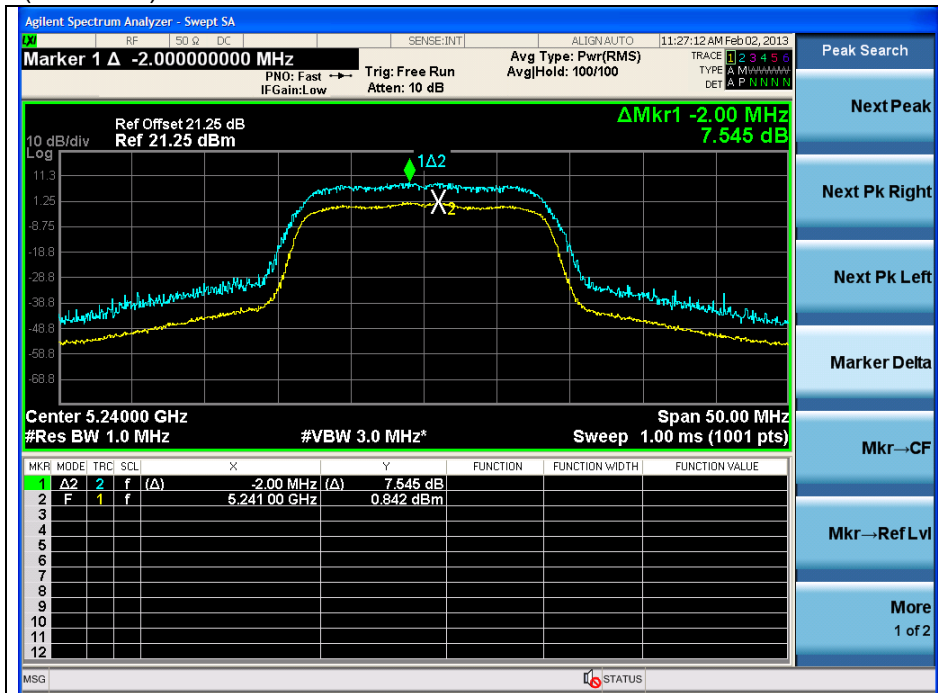


### Middle Channel (5 220 MHz)



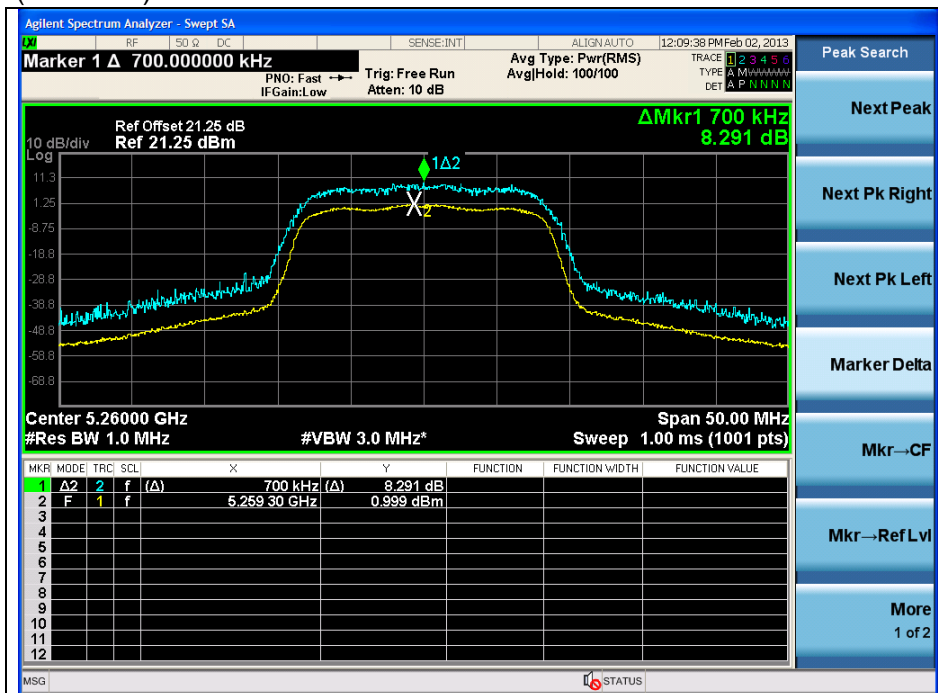
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### High Channel (5 240 MHz)



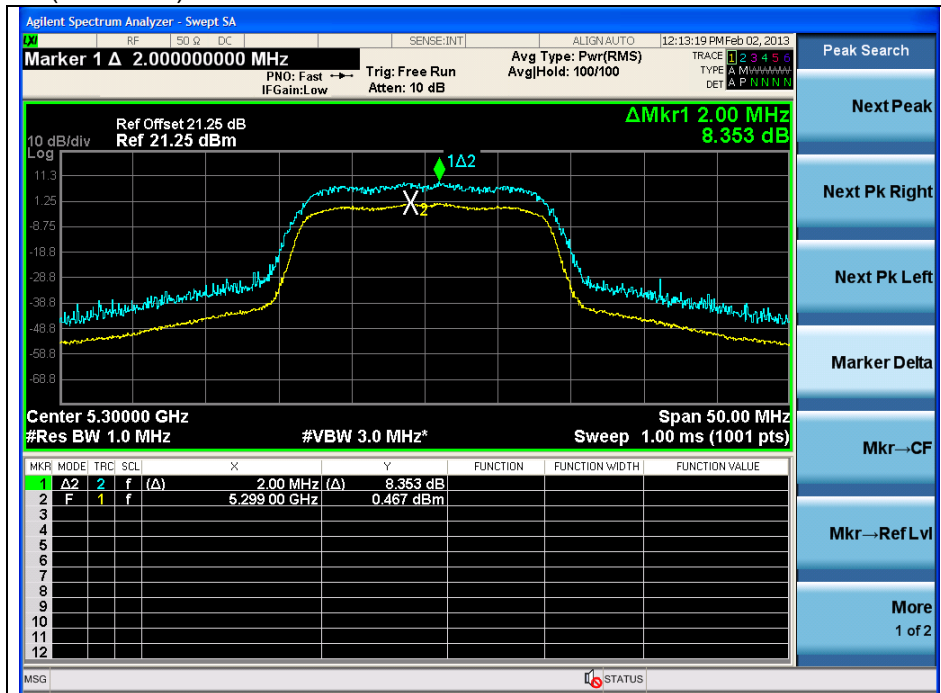
### 802.11a (DFS)

### Low Channel (5 260 MHz)

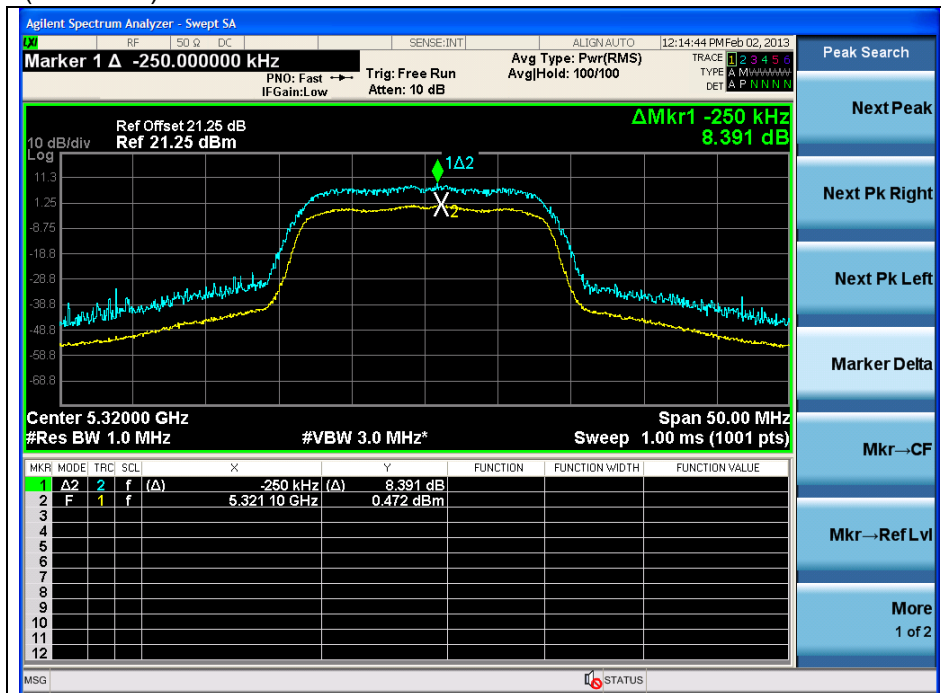


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### Middle Channel (5 300 MHz)



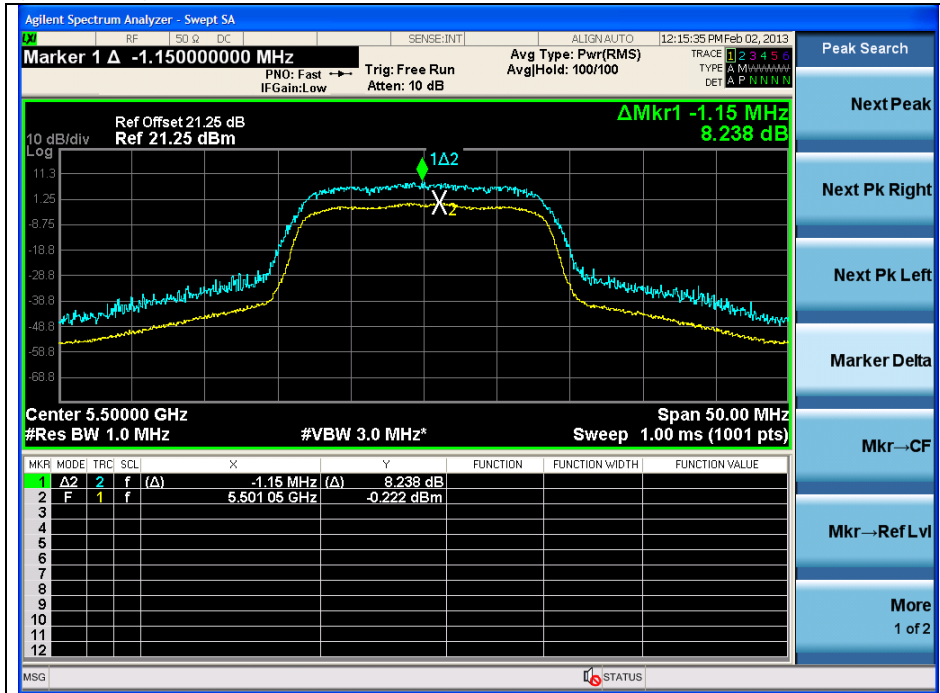
### High Channel (5 320 MHz)



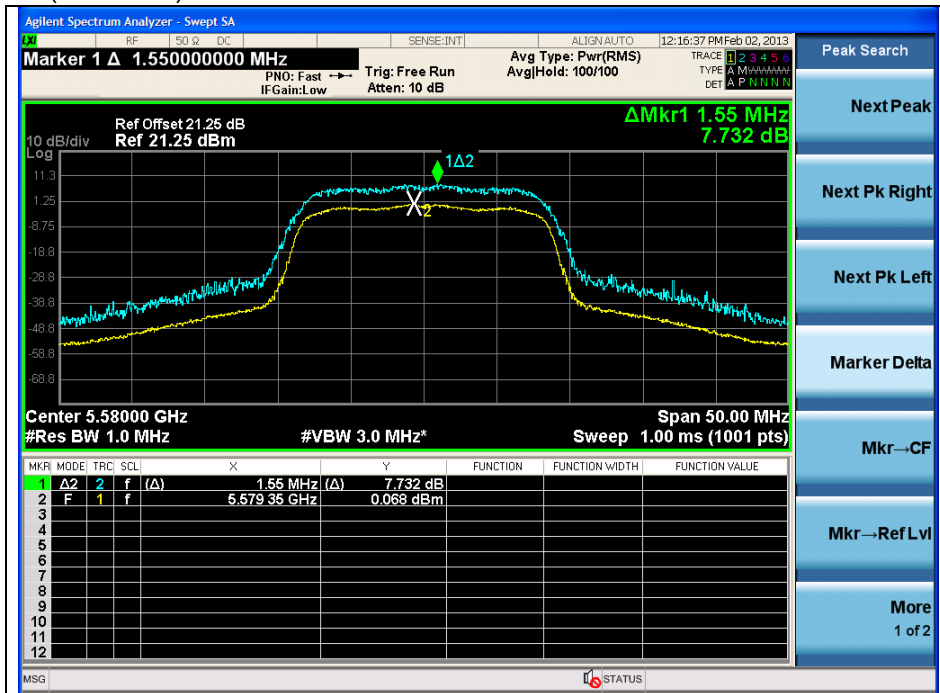
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## 802.11a (DFS)

### Low Channel (5 500 MHz)

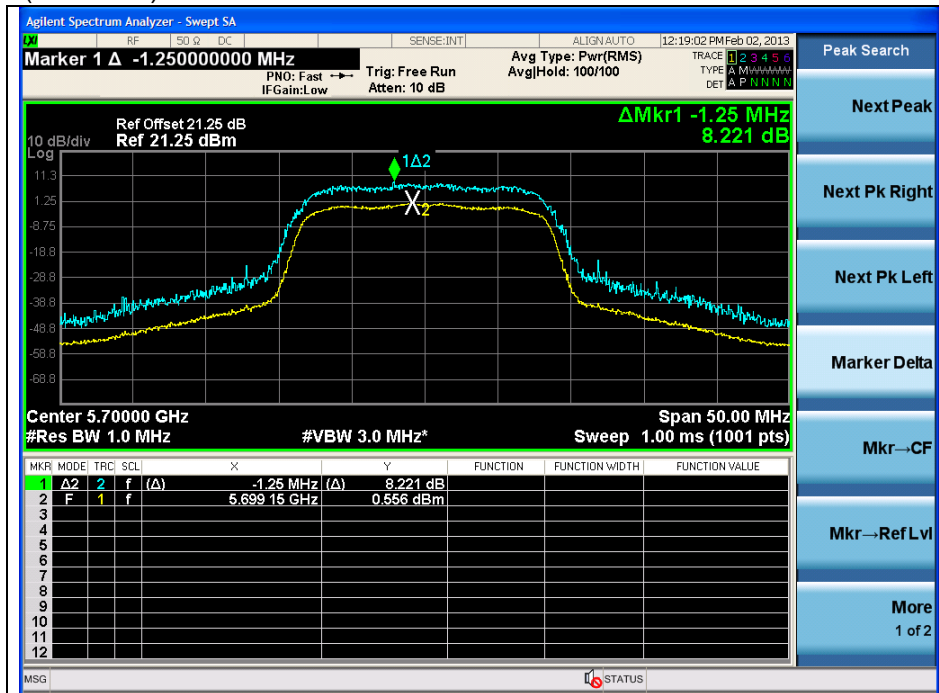


### Middle Channel (5 580 MHz)



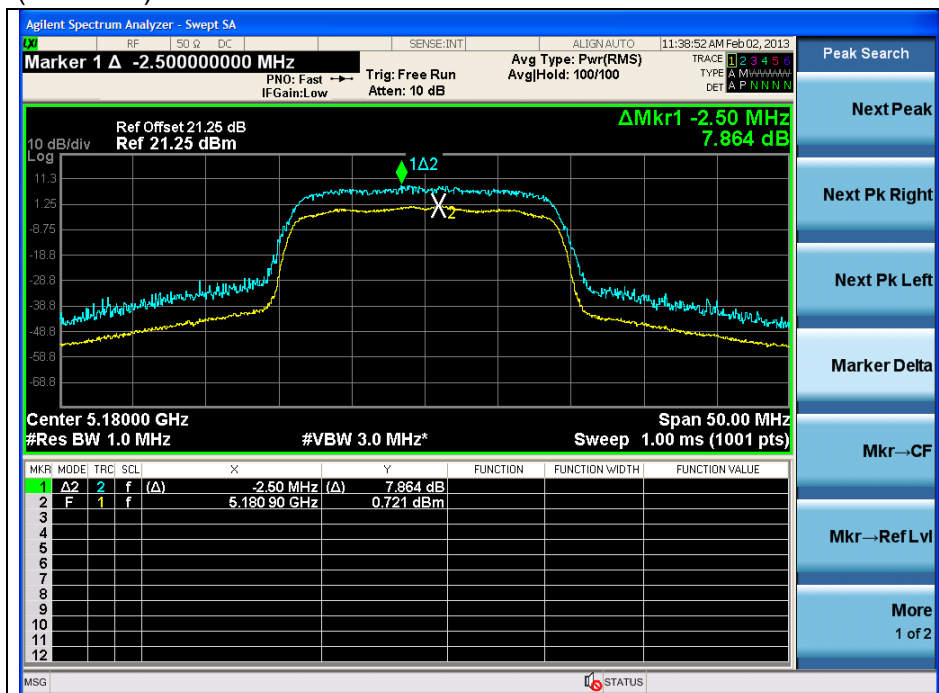
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### High Channel (5 700 MHz)



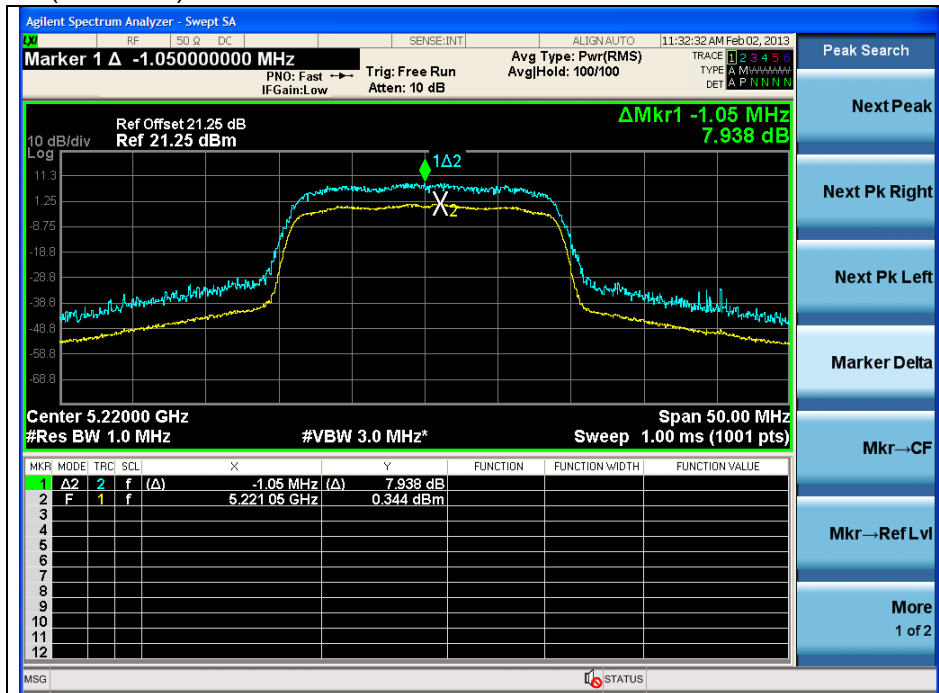
### 802.11n-HT20 (Non-DFS)

### Low Channel (5 180 MHz)

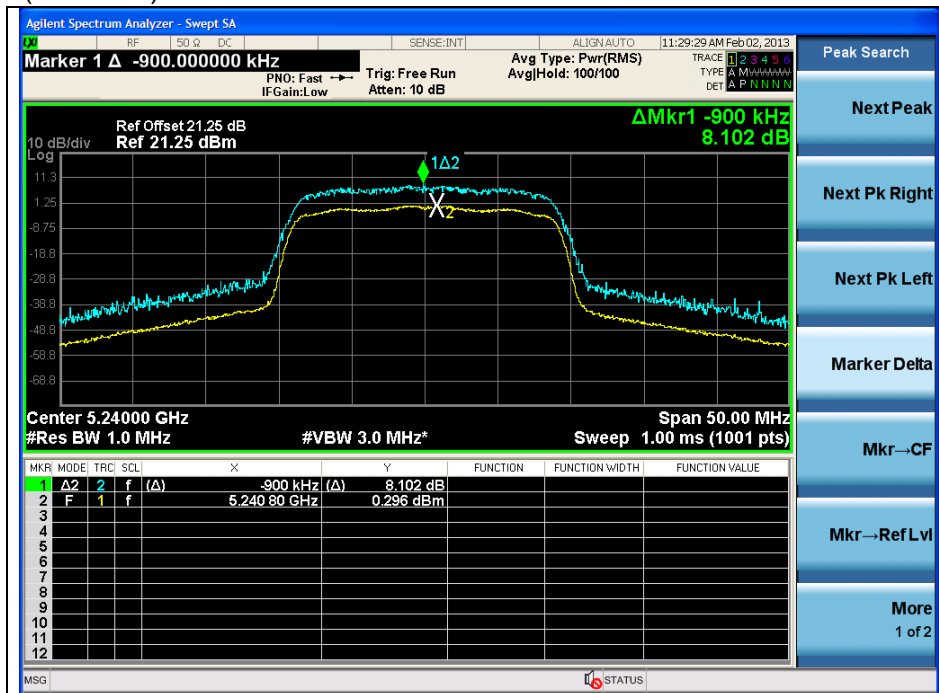


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### Middle Channel (5 220 MHz)



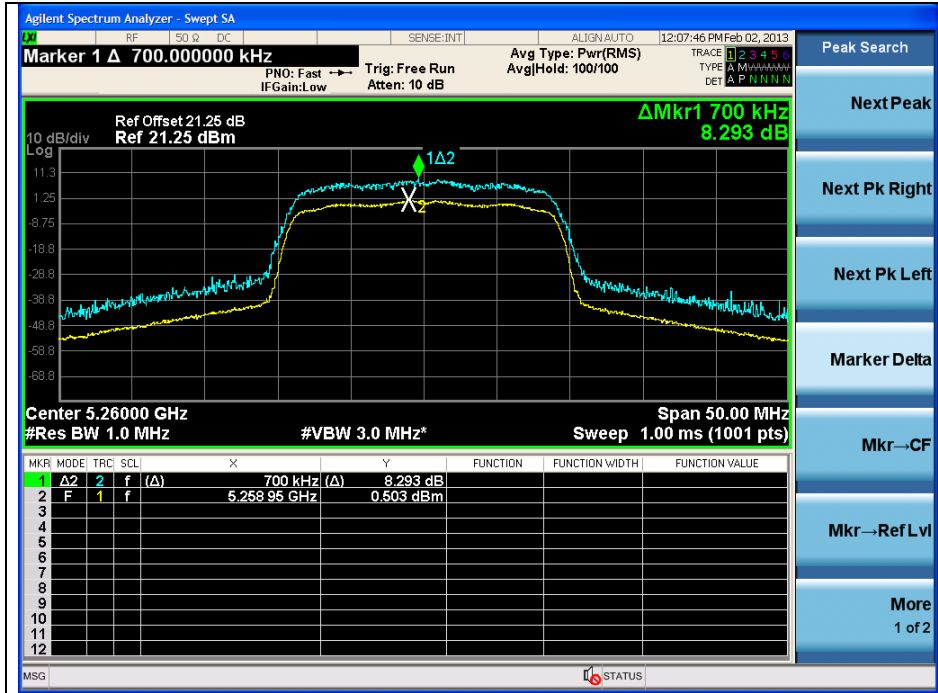
### High Channel (5 240 MHz)



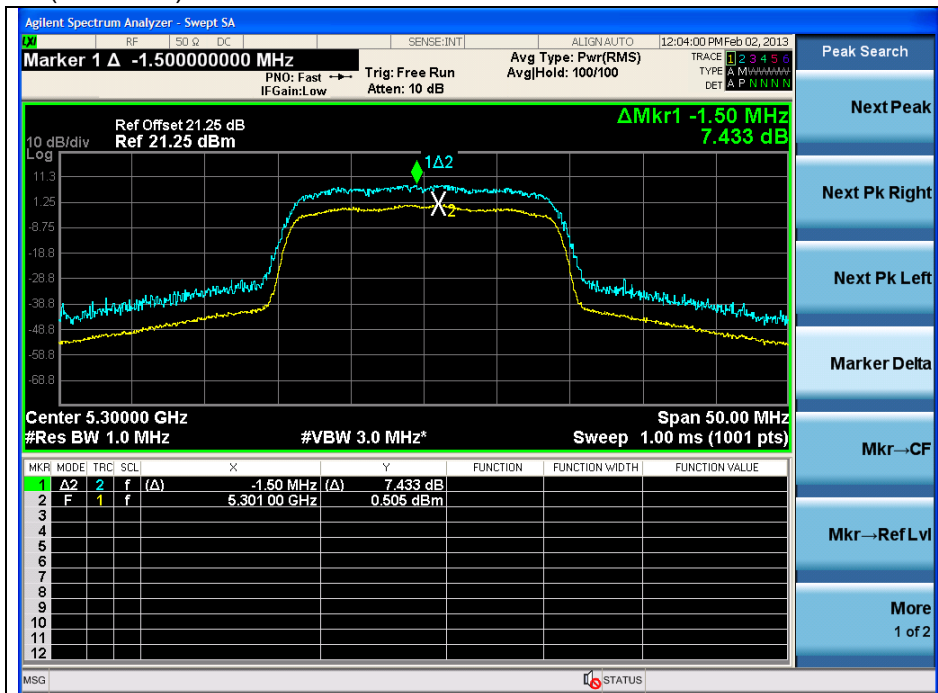
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## 802.11-HT20 (DFS)

### Low Channel (5 260 MHz)

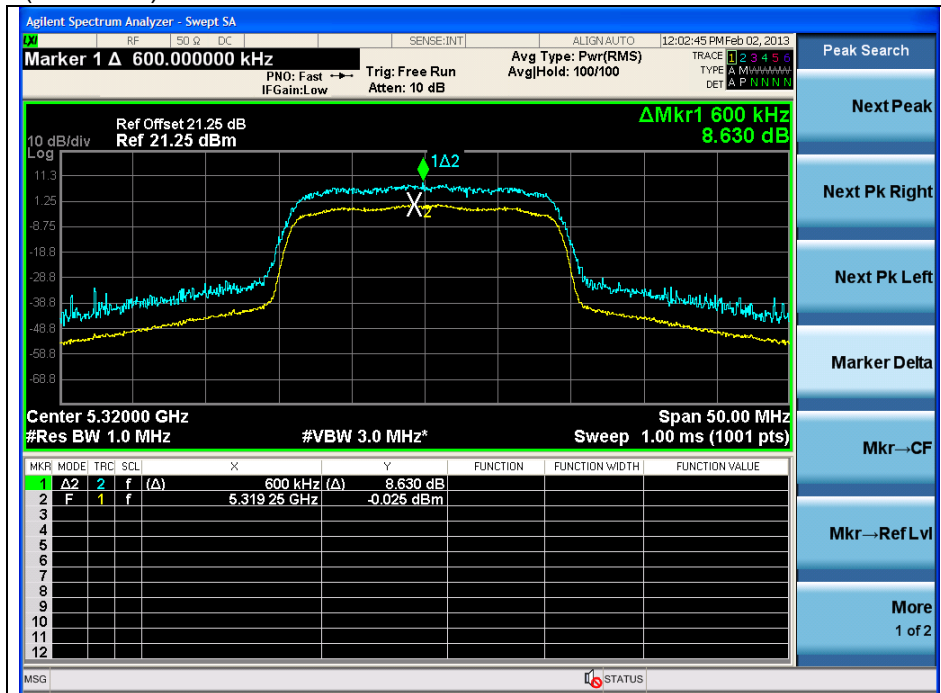


### Middle Channel (5 300 MHz)



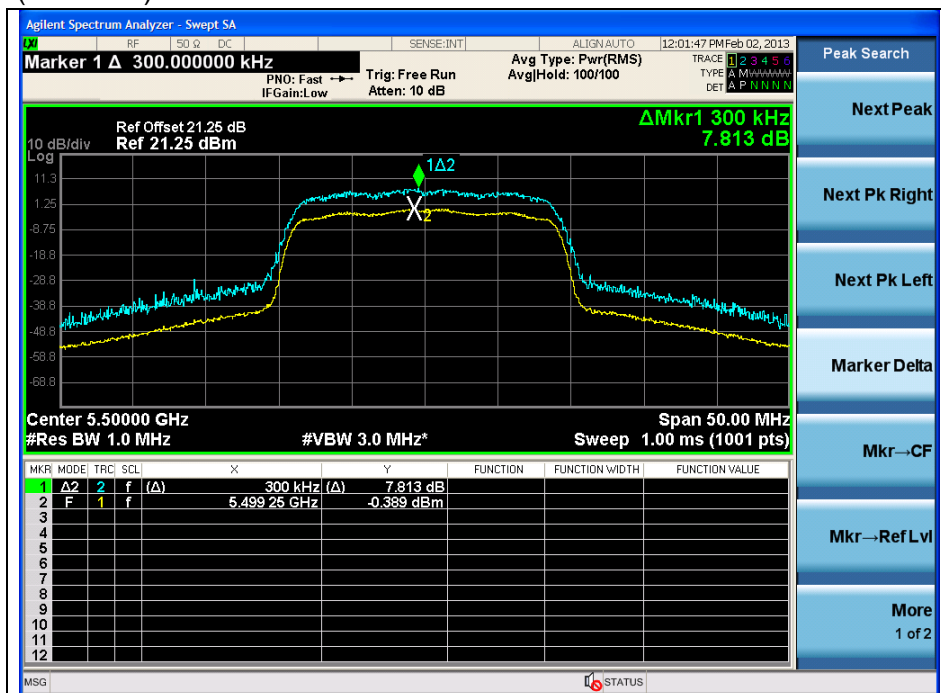
The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report cannot be reproduced, except in full, without prior written permission of the Company.

## High Channel (5 320 MHz)



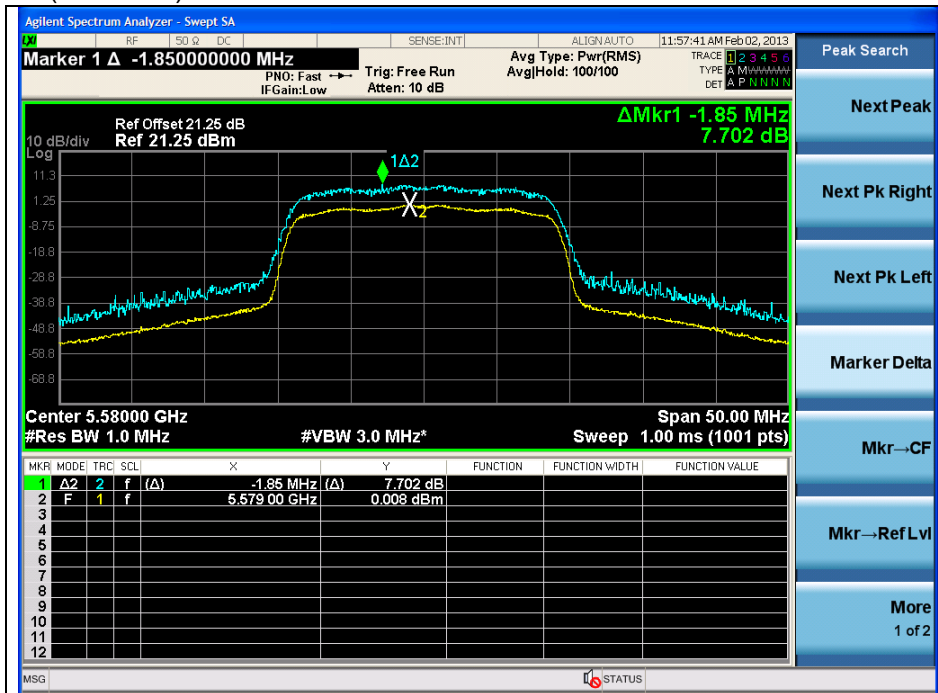
## 802.11-HT20 (DFS)

## Low Channel (5 500 MHz)

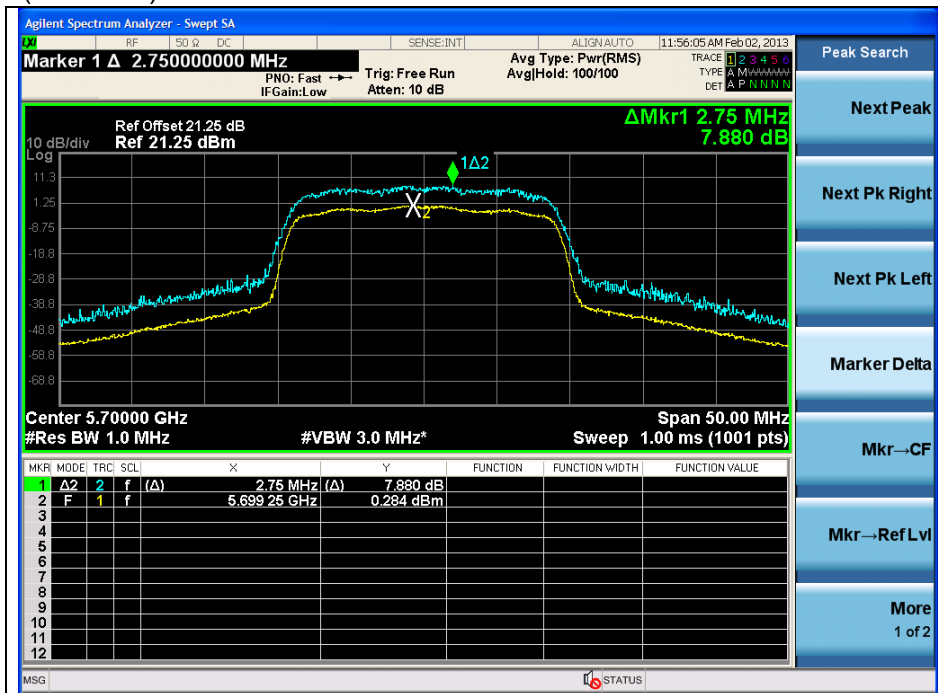


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### Middle Channel (5 580 MHz)



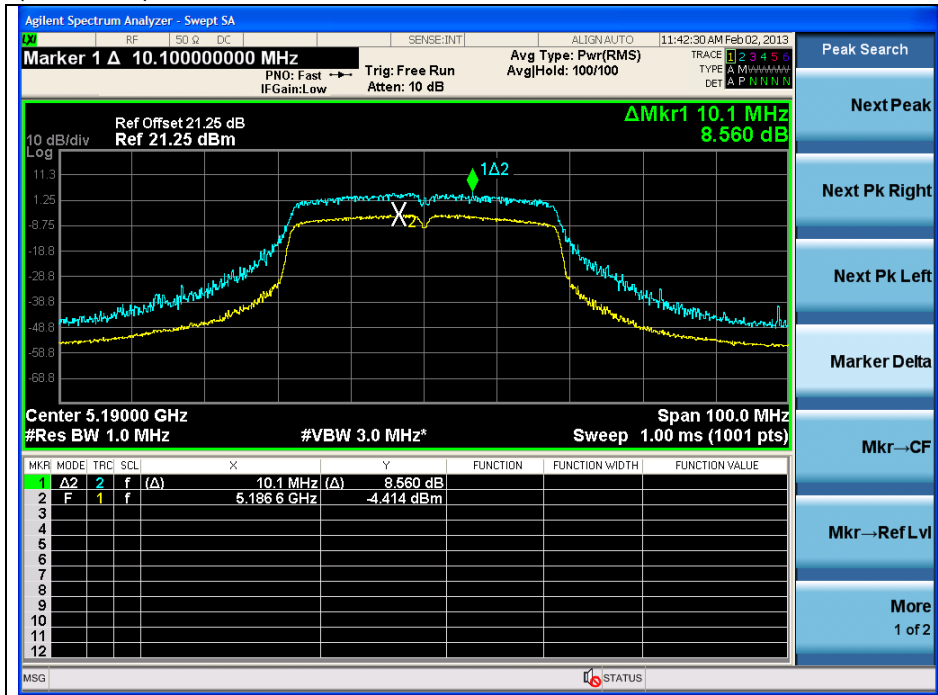
### High Channel (5 700 MHz)



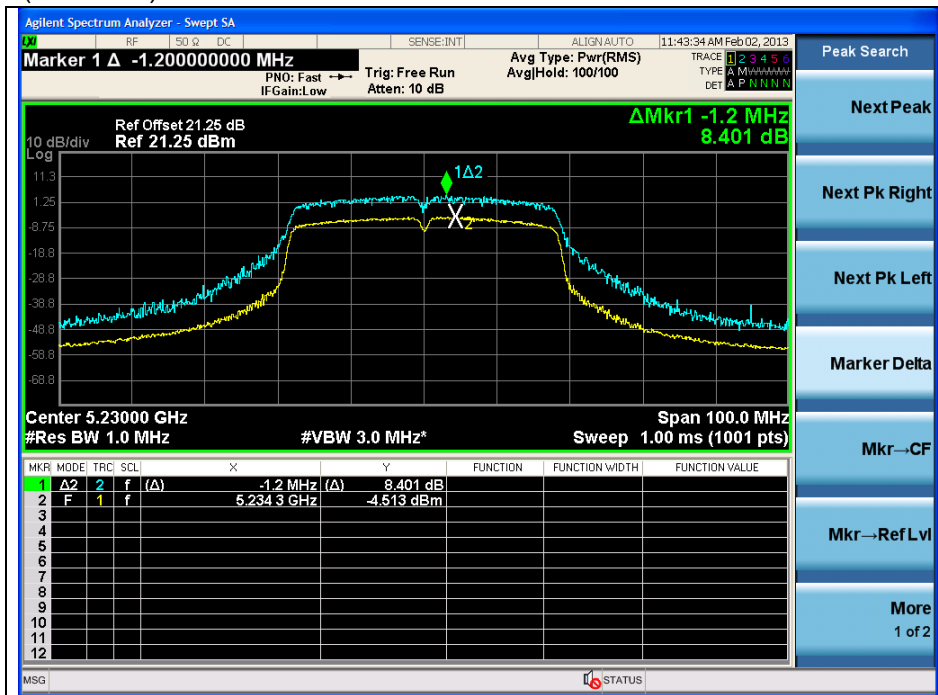
The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report cannot be reproduced, except in full, without prior written permission of the Company.

## 802.11n-HT40 (Non-DFS)

### Low Channel (5 190 MHz)



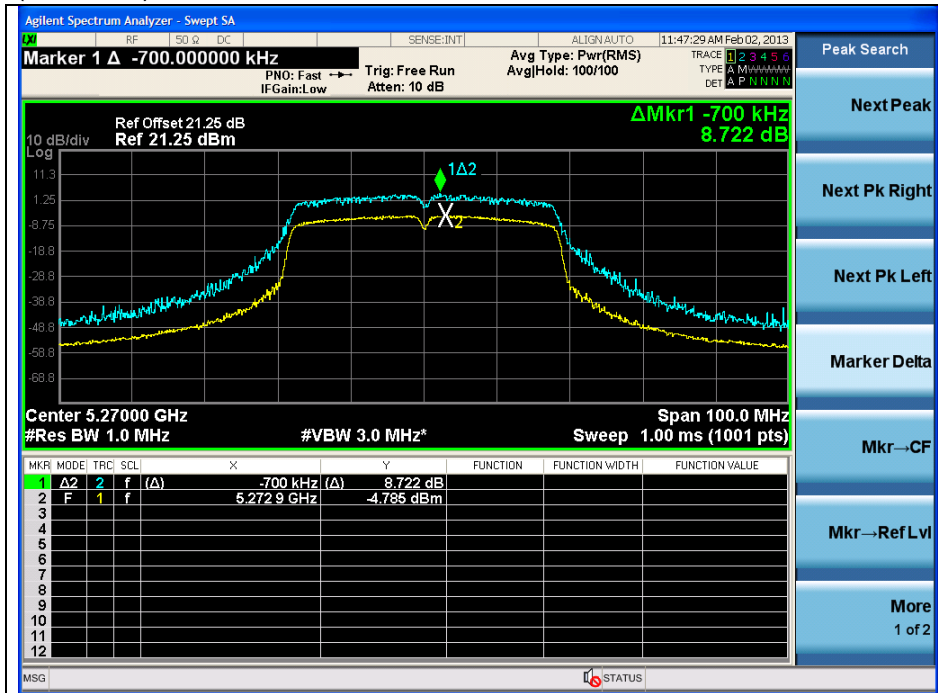
### High Channel (5 230 MHz)



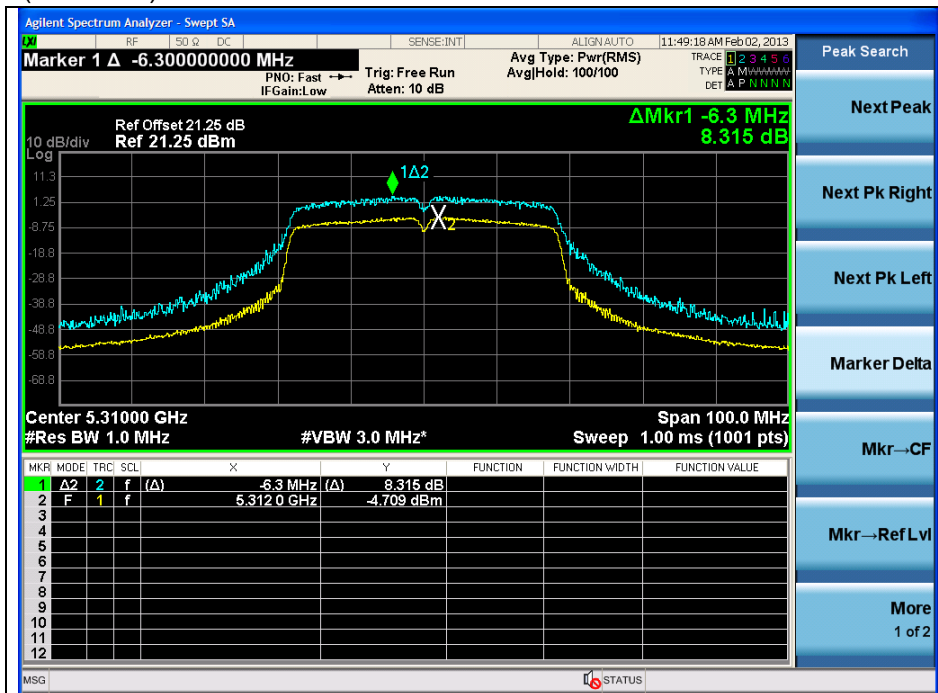
The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report cannot be reproduced, except in full, without prior written permission of the Company.

## 802.11-HT40 (DFS)

### Low Channel (5 270 MHz)



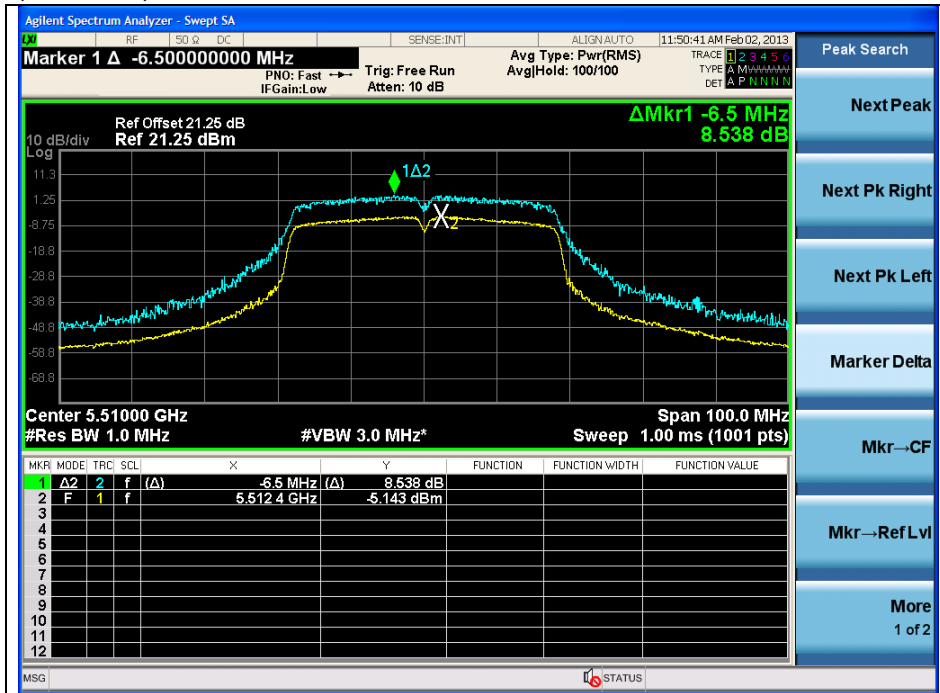
### High Channel (5 310 MHz)



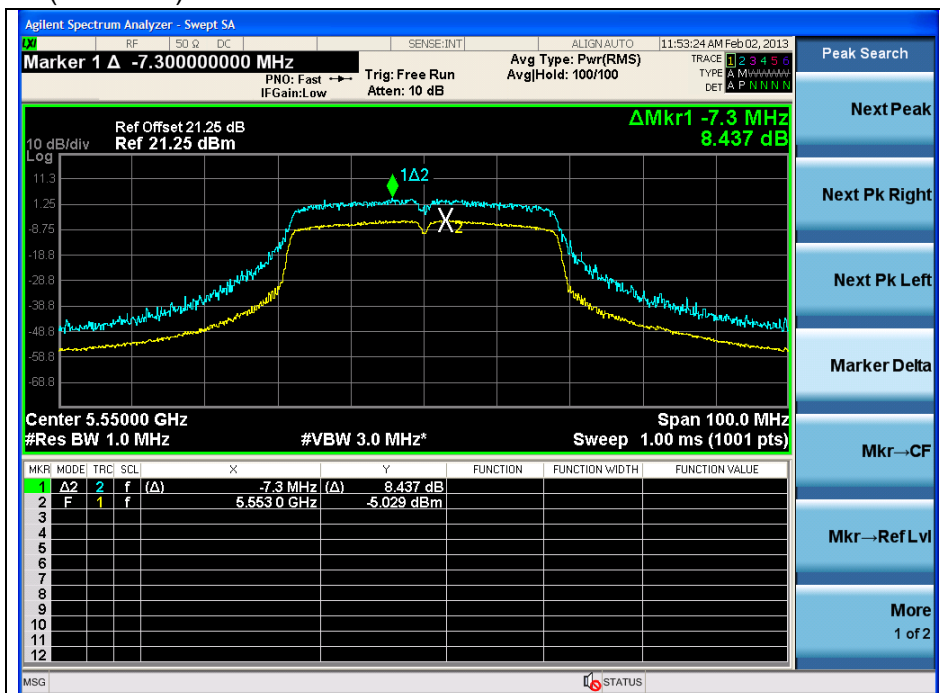
The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report cannot be reproduced, except in full, without prior written permission of the Company.

## 802.11-HT40 (DFS)

### Low Channel (5 510 MHz)

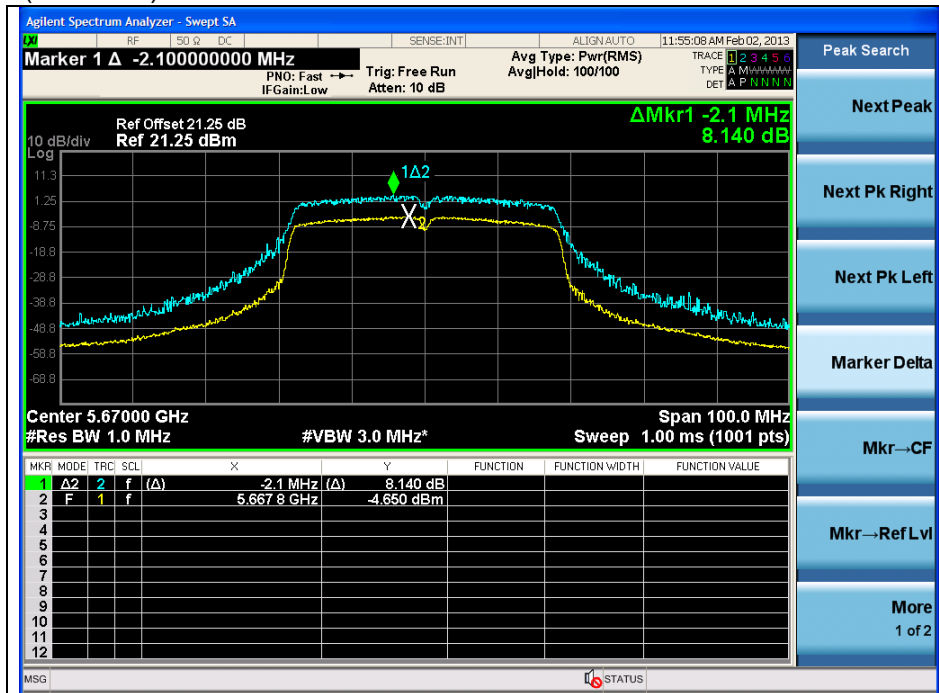


### Middle Channel (5 550 MHz)



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.

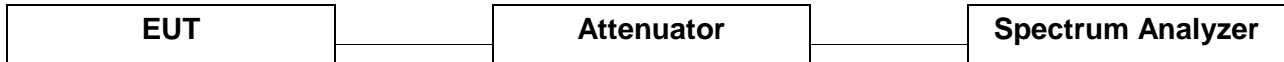
High Channel (5 670 MHz)



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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 F of KDB 789033.
2. Set the spectrum analyzer 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.

---

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## 6.4. Test result

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

### 6.4.1. Non-DFS Band

Operation Mode	Channel	Data Rate (Mbps)	Channel Frequency (MHz)	Peak excursion (dB)	Limit (dB)
11a	Low	6	5 180	8.428	13
	Middle	6	5 220	7.683	
	High	6	5 240	7.545	
11n_HT20	Low	MCS0	5 180	7.864	
	Middle	MCS0	5 220	7.938	
	High	MCS0	5 240	8.102	
11n_HT40	Low	MCS0	5 190	8.560	
	High	MCS0	5 230	8.401	

### 6.4.2. DFS Band

Operation Mode	Channel	Data Rate (Mbps)	Channel Frequency (MHz)	Peak excursion (dB)	Limit (dB)
11a	Lower Band	6	5 260	8.291	13
		6	5 300	8.353	
		6	5 320	8.391	
	Upper Band	6	5 500	8.238	
		6	5 580	7.732	
		6	5 700	8.221	
11n_HT20	Lower Band	MCS0	5 260	8.293	
		MCS0	5 300	7.433	
		MCS0	5 320	8.630	
	Upper Band	MCS0	5 500	7.813	
		MCS0	5 580	7.702	
		MCS0	5 700	7.880	
11n_HT40	Lower Band	MCS0	5 270	8.722	
		MCS0	5 310	8.315	
	Upper Band	MCS0	5 510	8.538	
		MCS0	5 550	8.437	
		MCS0	5 670	8.140	
		MCS0	5 670	8.140	

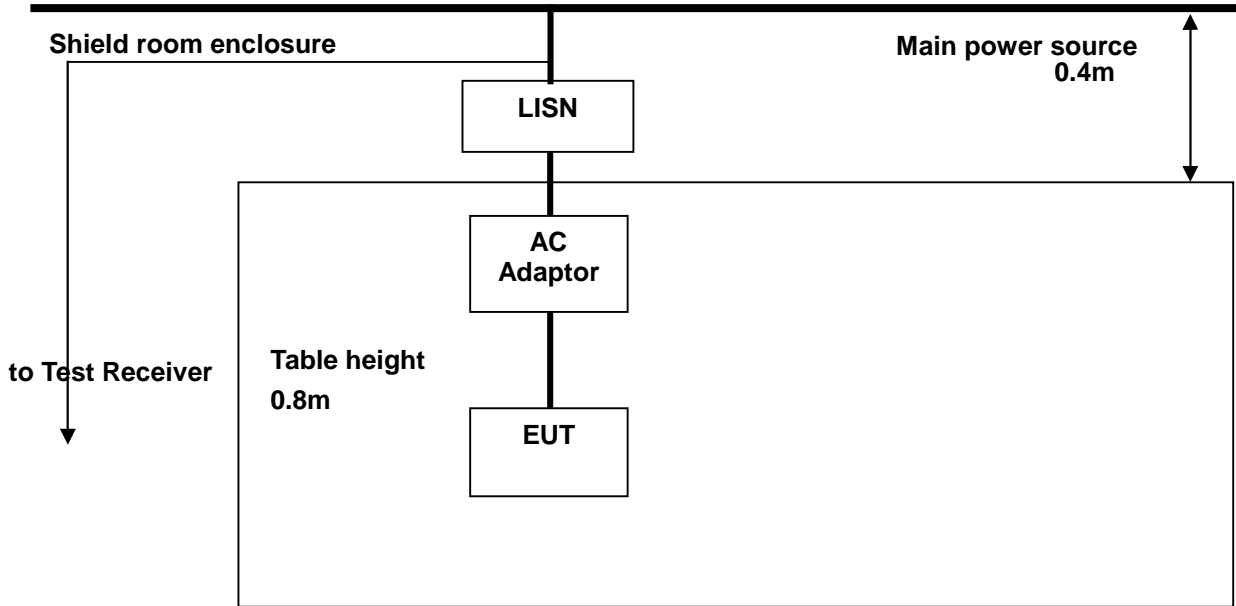
#### Captured images

Please refer to the PPSD captured image as above.

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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 $\mu$ 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\_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 $\mu$ V)		LINE	LIMIT(dB $\mu$ V)		MARGIN(dB)	
	Q-Peak	Average		Q-Peak	Average	Q-Peak	Average
0.51	37.48	31.28	N	56.00	46.00	18.52	14.72
1.51	35.61	29.61	N	56.00	46.00	20.39	16.39
2.09	37.11	30.91	N	56.00	46.00	18.89	15.09
2.88	40.41	34.61	N	56.00	46.00	15.59	11.39
3.49	42.91	37.31	N	56.00	46.00	13.09	8.69
7.89	32.58	25.38	N	60.00	50.00	27.42	24.62
0.64	40.40	31.00	H	56.00	46.00	15.60	15.00
1.36	39.72	31.92	H	56.00	46.00	16.28	14.08
2.21	43.14	33.54	H	56.00	46.00	12.86	12.46
3.35	48.75	40.95	H	56.00	46.00	7.25	5.05
3.90	48.06	40.46	H	56.00	46.00	7.94	5.54
8.84	38.75	30.95	H	60.00	50.00	21.25	19.05

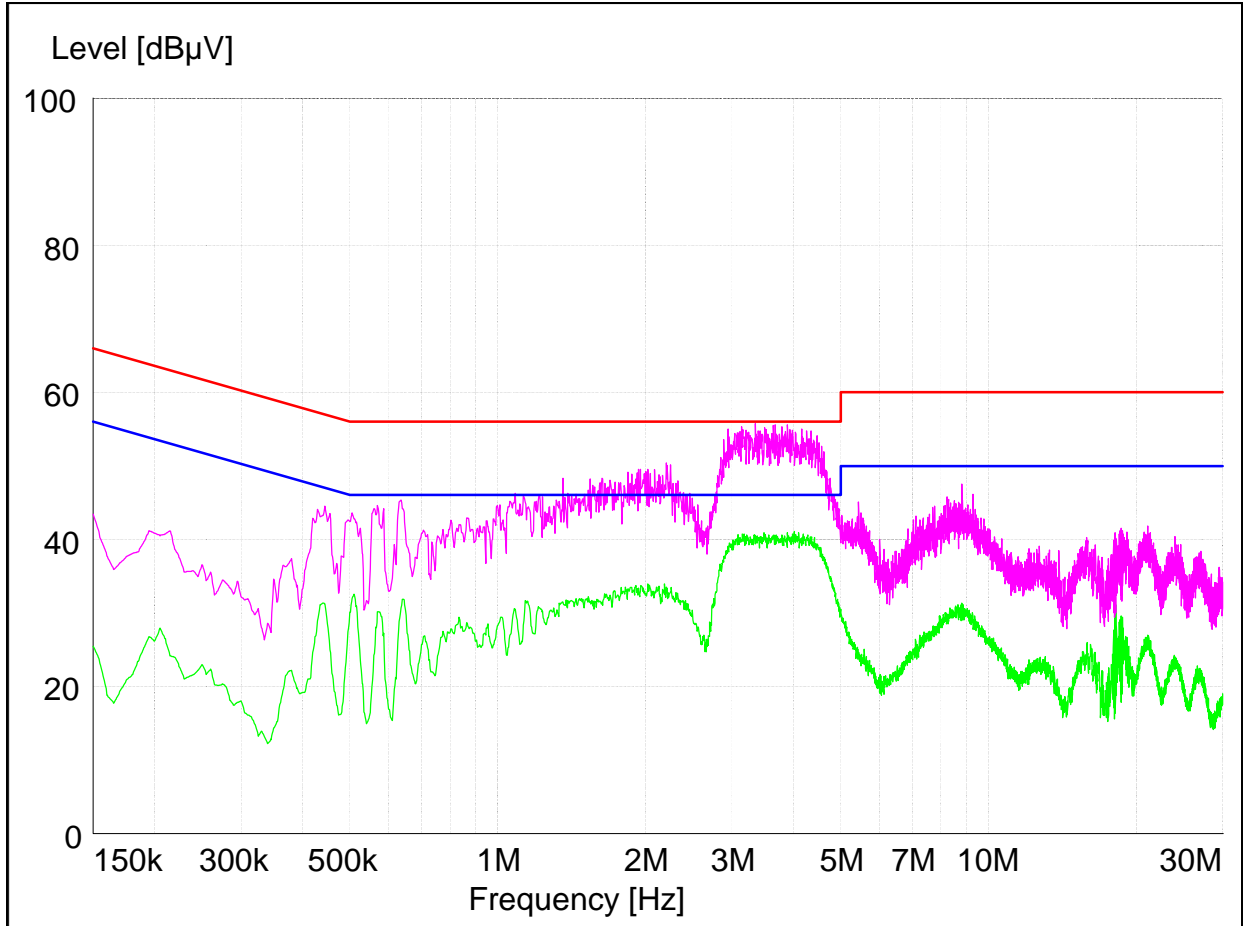
Note ;

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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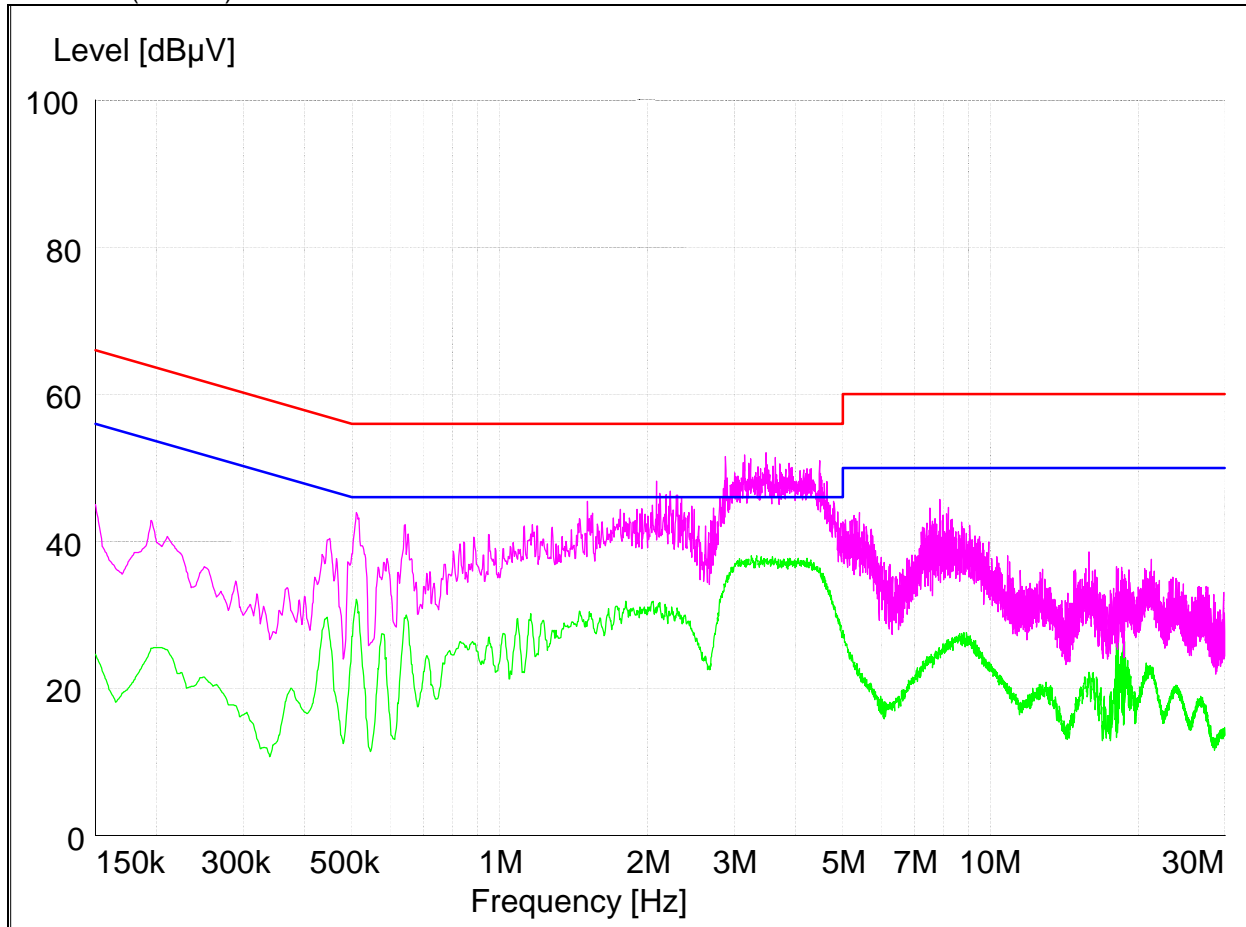
**Plot of Conducted Power line**

Test mode : (Hot)



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Test mode : (Neutral)



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