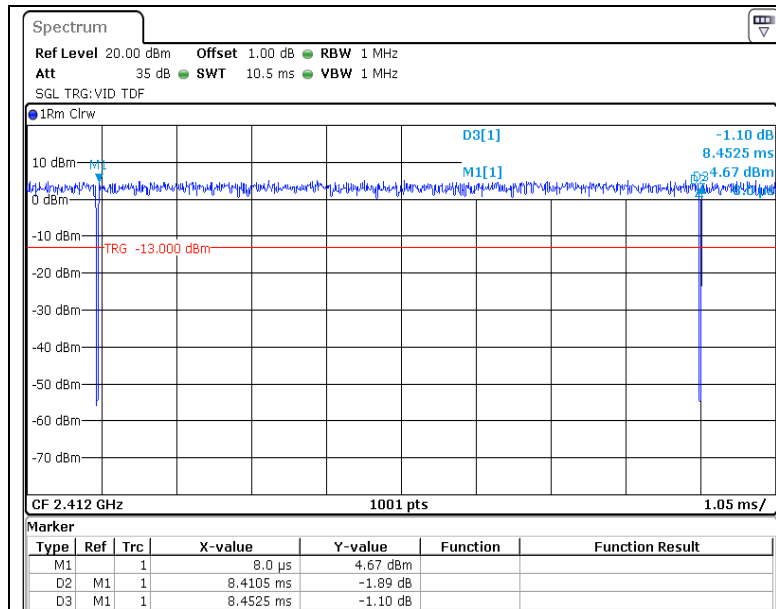


- DC 12 V

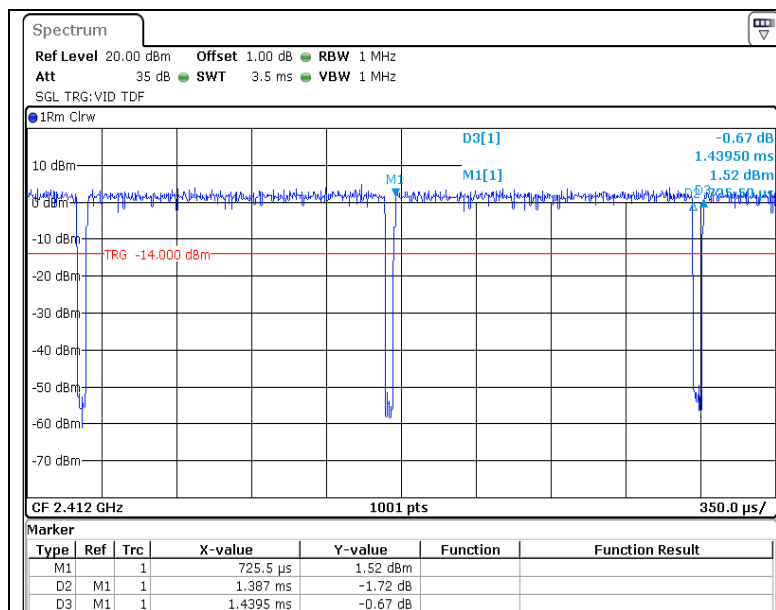
- 802.11b



- Note<sub>1</sub>) : period : 8.453 ms, On time : 8.411 ms

- Note<sub>2</sub>) : DCCF =  $10 \log(1 / x) = 10 \log(8.453 / 8.411) = 0.02$

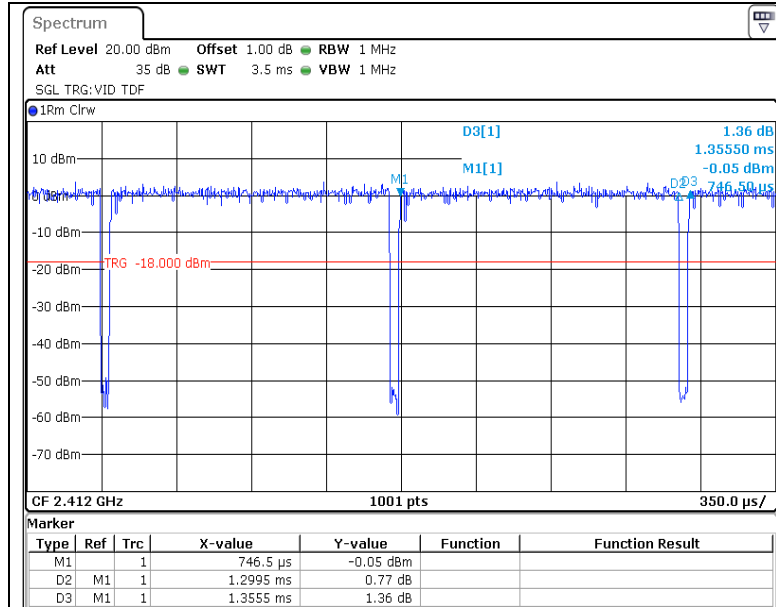
- 802.11g



- Note<sub>1</sub>) : period : 1.440 ms, On time : 1.387 ms

- Note<sub>2</sub>) : DCCF =  $10 \log(1 / x) = 10 \log(1.440 / 1.387) = 0.16$

- 802.11n HT20



- Note<sub>1</sub>) : period : 1.356 ms, On time : 1.300 ms

- Note<sub>2</sub>) : DCCF =  $10 \log(1 / x) = 10 \log(1.356 / 1.300) = 0.18$

## 5.5.3 Test Result

### - Complied

- Band edge & Conducted Spurious Emissions was shown in figure 3 & 4.  
Note: We took the insertion loss of the cable into consideration within the measuring instrument.
  - Measured value of the Field strength of spurious Emissions (Radiated)
  - It tested x,y and z – 3 axis each, mentioned only worst case data at this report.
- ※ Noise was not measured. (Margin was more than 20 dB) Worst value of noise floor was recorded.

### - DC 5 V

#### - Below 1 GHz data (worst-case: 802.11n HT20)

##### Middle channel (2 437 MHz)

Frequency [MHz]	Receiver Bandwidth [kHz]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
<b>Quasi-Peak DATA. Emissions below 30 MHz</b>							
Below 30.00	Not Detected	-	-	-	-	-	-
<b>Quasi-Peak DATA. Emissions below 1 GHz</b>							
44.31	120	V	47.10	-11.70	35.40	40.00	4.60
85.17	120	V	32.80	-16.10	16.70	40.00	23.30
127.12	120	V	28.40	-12.10	16.30	43.50	27.20
Above 200.00	Not Detected	-	-	-	-	-	-

### - DC 12 V

#### - Below 1 GHz data (worst-case: 802.11g)

##### Middle channel (2 437 MHz)

Frequency [MHz]	Receiver Bandwidth [kHz]	Pol. [V/H]	Reading [dB(μV)]	Factor [dB]	Result [dB(μV/m)]	Limit [dB(μV/m)]	Margin [dB]
<b>Quasi-Peak DATA. Emissions below 30 MHz</b>							
Below 30.00	Not Detected	-	-	-	-	-	-
<b>Quasi-Peak DATA. Emissions below 1 GHz</b>							
45.40	120	V	45.80	-11.60	34.20	40.00	5.80
85.90	120	V	33.90	-16.20	17.70	40.00	22.30
124.21	120	V	27.70	-12.40	15.30	43.50	28.20
Above 200.00	Not Detected	-	-	-	-	-	-

- DC 5 V

- Above 1 GHz data

**802.11b\_Lowest channel (2 412 MHz)**

Frequency [MHz]	Receiver Bandwidth [kHz]	Pol. [V/H]	Reading [dB( $\mu$ V)]	Factor [dB]	DCCF [dB]	Result [dB( $\mu$ V/m)]	Limit [dB( $\mu$ V/m)]	Margin [dB]
<b>Peak DATA. Emissions above 1 GHz</b>								
2 388.75 <sup>1)</sup>	1 000	H	49.30	3.50	-	52.80	74.00	21.20
3 236.25	1 000	H	37.30	5.50	-	42.80	74.00	31.20
4 824.38	1 000	H	36.60	9.40	-	46.00	74.00	28.00
6 984.38	1 000	V	35.50	13.80	-	49.30	74.00	24.70
8 598.75	1 000	V	34.20	16.10	-	50.30	74.00	23.70
10 520.62	1 000	H	33.60	18.70	-	52.30	74.00	21.70
Above 11 000.00	Not Detected	-	-	-	-	-	-	-
<b>Average DATA. Emissions above 1 GHz</b>								
2 388.75 <sup>1)</sup>	1 000	H	39.50	3.50	0.02	43.02	54.00	10.98
3 236.25	1 000	H	32.50	5.50	0.02	38.02	54.00	15.98
4 824.38	1 000	H	31.30	9.40	0.02	40.72	54.00	13.28
6 984.38	1 000	V	30.70	13.80	0.02	44.52	54.00	9.48
8 598.75	1 000	V	28.70	16.10	0.02	44.82	54.00	9.18
10 520.62	1 000	H	28.10	18.70	0.02	46.82	54.00	7.18
Above 11 000.00	Not Detected	-	-	-	-	-	-	-

<sup>1)</sup> restricted band.

**802.11b\_Middle channel (2 437 MHz)**

Frequency [MHz]	Receiver Bandwidth [kHz]	Pol. [V/H]	Reading [dB( $\mu$ V)]	Factor [dB]	DCCF [dB]	Result [dB( $\mu$ V/m)]	Limit [dB( $\mu$ V/m)]	Margin [dB]
<b>Peak DATA. Emissions above 1 GHz</b>								
3 035.63	1 000	H	37.70	4.70	-	42.40	74.00	31.60
4 873.13	1 000	H	35.60	9.20	-	44.80	74.00	29.20
5 919.38	1 000	H	35.00	12.40	-	47.40	74.00	26.60
7 768.13	1 000	V	34.60	14.80	-	49.40	74.00	24.60
9 223.12	1 000	H	34.00	16.60	-	50.60	74.00	23.40
10 644.37	1 000	H	35.10	19.00	-	54.10	74.00	19.90
Above 11 000.00	Not Detected	-	-	-	-	-	-	-
<b>Average DATA. Emissions above 1 GHz</b>								
3 035.63	1 000	H	31.50	4.70	0.02	36.22	54.00	17.78
4 873.13	1 000	H	30.10	9.20	0.02	39.32	54.00	14.68
5 919.38	1 000	H	29.80	12.40	0.02	42.22	54.00	11.78
7 768.13	1 000	V	28.40	14.80	0.02	43.22	54.00	10.78
9 223.12	1 000	H	28.10	16.60	0.02	44.72	54.00	9.28
10 644.37	1 000	H	29.50	19.00	0.02	48.52	54.00	5.48
Above 11 000.00	Not Detected	-	-	-	-	-	-	-

**802.11b\_Highest channel (2 462 MHz)**

Frequency [MHz]	Receiver Bandwidth [kHz]	Pol. [V/H]	Reading [dB( $\mu$ V)]	Factor [dB]	DCCF [dB]	Result [dB( $\mu$ V/m)]	Limit [dB( $\mu$ V/m)]	Margin [dB]
<b>Peak DATA. Emissions above 1 GHz</b>								
2 488.25 <sup>1)</sup>	1 000	H	47.10	3.60	-	50.70	74.00	23.30
3 296.25	1 000	H	36.30	6.10	-	42.40	74.00	31.60
4 479.38	1 000	V	35.50	8.70	-	44.20	74.00	29.80
5 863.13	1 000	H	34.40	12.20	-	46.60	74.00	27.40
7 170.00	1 000	V	35.50	14.20	-	49.70	74.00	24.30
9 150.00	1 000	H	34.70	16.70	-	51.40	74.00	22.60
Above 10 000.00	Not Detected	-	-	-	-	-	-	-
<b>Average DATA. Emissions above 1 GHz</b>								
2 488.25 <sup>1)</sup>	1 000	H	37.70	3.60	0.02	41.32	54.00	12.68
3 296.25	1 000	H	31.40	6.10	0.02	37.52	54.00	16.48
4 479.38	1 000	V	30.70	8.70	0.02	39.42	54.00	14.58
5 863.13	1 000	H	29.80	12.20	0.02	42.02	54.00	11.98
7 170.00	1 000	V	30.20	14.20	0.02	44.42	54.00	9.58
9 150.00	1 000	H	29.50	16.70	0.02	46.22	54.00	7.78
Above 10 000.00	Not Detected	-	-	-	-	-	-	-

<sup>1)</sup> restricted band.

**802.11g\_Lowest channel (2 412 MHz)**

Frequency [MHz]	Receiver Bandwidth [kHz]	Pol. [V/H]	Reading [dB( $\mu$ V)]	Factor [dB]	DCCF [dB]	Result [dB( $\mu$ V/m)]	Limit [dB( $\mu$ V/m)]	Margin [dB]
<b>Peak DATA. Emissions above 1 GHz</b>								
2 388.25 <sup>1)</sup>	1 000	H	59.30	3.50	-	62.80	74.00	11.20
3 264.38	1 000	H	36.40	5.90	-	42.30	74.00	31.70
4 740.00	1 000	V	35.40	9.80	-	45.20	74.00	28.80
6 341.25	1 000	V	34.20	12.60	-	46.80	74.00	27.20
7 599.38	1 000	H	34.70	14.70	-	49.40	74.00	24.60
10 078.12	1 000	H	35.00	17.80	-	52.80	74.00	21.20
Above 11 000.00	Not Detected	-	-	-	-	-	-	-
<b>Average DATA. Emissions above 1 GHz</b>								
2 388.25 <sup>1)</sup>	1 000	H	46.60	3.50	0.17	50.27	54.00	3.73
3 264.38	1 000	H	31.40	5.90	0.17	37.47	54.00	16.53
4 740.00	1 000	V	30.60	9.80	0.17	40.57	54.00	13.43
6 341.25	1 000	V	29.80	12.60	0.17	42.57	54.00	11.43
7 599.38	1 000	H	29.10	14.70	0.17	43.97	54.00	10.03
10 078.12	1 000	H	28.70	17.80	0.17	46.67	54.00	7.33
Above 11 000.00	Not Detected	-	-	-	-	-	-	-

<sup>1)</sup> restricted band.

**802.11g\_Middle channel (2 437 MHz)**

Frequency [MHz]	Receiver Bandwidth [kHz]	Pol. [V/H]	Reading [dB( $\mu$ V)]	Factor [dB]	DCCF [dB]	Result [dB( $\mu$ V/m)]	Limit [dB( $\mu$ V/m)]	Margin [dB]
<b>Peak DATA. Emissions above 1 GHz</b>								
3 048.75	1 000	V	38.00	4.60	-	42.60	74.00	31.40
4 308.75	1 000	V	35.50	8.00	-	43.50	74.00	30.50
4 923.75	1 000	H	37.80	9.20	-	47.00	74.00	27.00
6 688.13	1 000	H	35.00	13.10	-	48.10	74.00	25.90
8 004.38	1 000	H	35.20	15.10	-	50.30	74.00	23.70
10 207.50	1 000	H	34.40	18.10	-	52.50	74.00	21.50
Above 11 000.00	Not Detected	-	-	-	-	-	-	-
<b>Average DATA. Emissions above 1 GHz</b>								
3 048.75	1 000	V	32.70	4.60	0.17	37.47	54.00	16.53
4 308.75	1 000	V	30.60	8.00	0.17	38.77	54.00	15.23
4 923.75	1 000	H	31.20	9.20	0.17	40.57	54.00	13.43
6 688.13	1 000	H	28.60	13.10	0.17	41.87	54.00	12.13
8 004.38	1 000	H	29.70	15.10	0.17	44.97	54.00	9.03
10 207.50	1 000	H	27.90	18.10	0.17	46.17	54.00	7.83
Above 11 000.00	Not Detected	-	-	-	-	-	-	-

**802.11g\_Highest channel (2 462 MHz)**

Frequency [MHz]	Receiver Bandwidth [kHz]	Pol. [V/H]	Reading [dB( $\mu$ V)]	Factor [dB]	DCCF [dB]	Result [dB( $\mu$ V/m)]	Limit [dB( $\mu$ V/m)]	Margin [dB]
<b>Peak DATA. Emissions above 1 GHz</b>								
2 483.50 <sup>1)</sup>	1 000	H	55.70	3.60	-	59.30	74.00	14.70
3 645.00	1 000	H	36.50	6.30	-	42.80	74.00	31.20
4 775.63	1 000	H	35.10	9.70	-	44.80	74.00	29.20
5 906.25	1 000	H	34.90	12.40	-	47.30	74.00	26.70
7 987.50	1 000	H	34.70	15.00	-	49.70	74.00	24.30
10 261.87	1 000	H	34.10	18.20	-	52.30	74.00	21.70
Above 11 000.00	Not Detected	-	-	-	-	-	-	-
<b>Average DATA. Emissions above 1 GHz</b>								
2 483.50 <sup>1)</sup>	1 000	H	43.80	3.60	0.17	47.57	54.00	6.43
3 645.00	1 000	H	31.40	6.30	0.17	37.87	54.00	16.13
4 775.63	1 000	H	29.60	9.70	0.17	39.47	54.00	14.53
5 906.25	1 000	H	28.70	12.40	0.17	41.27	54.00	12.73
7 987.50	1 000	H	28.40	15.00	0.17	43.57	54.00	10.43
10 261.87	1 000	H	27.90	18.20	0.17	46.27	54.00	7.73
Above 11 000.00	Not Detected	-	-	-	-	-	-	-

<sup>1)</sup> restricted band.

**802.11n HT20\_Lowest channel (2 412 MHz)**

Frequency [MHz]	Receiver Bandwidth [kHz]	Pol. [V/H]	Reading [dB( $\mu$ V)]	Factor [dB]	DCCF [dB]	Result [dB( $\mu$ V/m)]	Limit [dB( $\mu$ V/m)]	Margin [dB]
<b>Peak DATA. Emissions above 1 GHz</b>								
2 388.75 <sup>1)</sup>	1 000	H	59.10	3.50	-	62.60	74.00	11.40
3 335.63	1 000	H	37.20	6.00	-	43.20	74.00	30.80
4 297.50	1 000	V	34.90	8.00	-	42.90	74.00	31.10
6 168.75	1 000	H	35.20	12.40	-	47.60	74.00	26.40
8 199.38	1 000	V	33.70	15.40	-	49.10	74.00	24.90
10 186.87	1 000	H	34.20	18.00	-	52.20	74.00	21.80
Above 11 000.00	Not Detected	-	-	-	-	-	-	-
<b>Average DATA. Emissions above 1 GHz</b>								
2 388.75 <sup>1)</sup>	1 000	H	47.10	3.50	0.19	50.79	54.00	3.21
3 335.63	1 000	H	31.70	6.00	0.19	37.89	54.00	16.11
4 297.50	1 000	V	28.40	8.00	0.19	36.59	54.00	17.41
6 168.75	1 000	H	29.20	12.40	0.19	41.79	54.00	12.21
8 199.38	1 000	V	26.70	15.40	0.19	42.29	54.00	11.71
10 186.87	1 000	H	27.50	18.00	0.19	45.69	54.00	8.31
Above 11 000.00	Not Detected	-	-	-	-	-	-	-

<sup>1)</sup> restricted band.

**802. 11n HT20\_Middle channel (2 437 MHz)**

Frequency [MHz]	Receiver Bandwidth [kHz]	Pol. [V/H]	Reading [dB( $\mu$ V)]	Factor [dB]	DCCF [dB]	Result [dB( $\mu$ V/m)]	Limit [dB( $\mu$ V/m)]	Margin [dB]
<b>Peak DATA. Emissions above 1 GHz</b>								
3 288.75	1 000	V	36.70	6.00	-	42.70	74.00	31.30
4 591.88	1 000	H	34.80	9.10	-	43.90	74.00	30.10
5 686.88	1 000	H	34.40	11.30	-	45.70	74.00	28.30
6 412.50	1 000	H	34.50	12.70	-	47.20	74.00	26.80
9 031.87	1 000	V	33.50	16.90	-	50.40	74.00	23.60
10 209.37	1 000	H	34.20	18.10	-	52.30	74.00	21.70
Above 11 000.00	Not Detected	-	-	-	-	-	-	-
<b>Average DATA. Emissions above 1 GHz</b>								
3 288.75	1 000	V	31.20	6.00	0.19	37.39	54.00	16.61
4 591.88	1 000	H	28.50	9.10	0.19	37.79	54.00	16.21
5 686.88	1 000	H	28.10	11.30	0.19	39.59	54.00	14.41
6 412.50	1 000	H	29.10	12.70	0.19	41.99	54.00	12.01
9 031.87	1 000	V	27.60	16.90	0.19	44.69	54.00	9.31
10 209.37	1 000	H	28.30	18.10	0.19	46.59	54.00	7.41
Above 11 000.00	Not Detected	-	-	-	-	-	-	-

**802.11n HT20\_Highest channel (2 462 MHz)**

Frequency [MHz]	Receiver Bandwidth [kHz]	Pol. [V/H]	Reading [dB( $\mu$ V)]	Factor [dB]	DCCF [dB]	Result [dB( $\mu$ V/m)]	Limit [dB( $\mu$ V/m)]	Margin [dB]
<b>Peak DATA. Emissions above 1 GHz</b>								
2 484.75 <sup>1)</sup>	1 000	H	60.10	3.60	-	63.70	74.00	10.30
3 046.88	1 000	H	38.70	4.60	-	43.30	74.00	30.70
4 725.00	1 000	H	34.70	9.80	-	44.50	74.00	29.50
5 930.63	1 000	V	34.20	12.30	-	46.50	74.00	27.50
6 990.00	1 000	H	34.10	13.90	-	48.00	74.00	26.00
9 189.37	1 000	H	34.90	16.60	-	51.50	74.00	22.50
Above 10 000.00	Not Detected	-	-	-	-	-	-	-
<b>Average DATA. Emissions above 1 GHz</b>								
2 484.75 <sup>1)</sup>	1 000	H	47.20	3.60	0.19	50.99	54.00	3.01
3 046.88	1 000	H	33.70	4.60	0.19	38.49	54.00	15.51
4 725.00	1 000	H	28.10	9.80	0.19	38.09	54.00	15.91
5 930.63	1 000	V	27.80	12.30	0.19	40.29	54.00	13.71
6 990.00	1 000	H	28.60	13.90	0.19	42.69	54.00	11.31
9 189.37	1 000	H	27.70	16.60	0.19	44.49	54.00	9.51
Above 10 000.00	Not Detected	-	-	-	-	-	-	-

<sup>1)</sup> restricted band.

- DC 12 V

**802.11b\_Lowest channel (2 412 MHz)**

Frequency [MHz]	Receiver Bandwidth [kHz]	Pol. [V/H]	Reading [dB( $\mu$ V)]	Factor [dB]	DCCF [dB]	Result [dB( $\mu$ V/m)]	Limit [dB( $\mu$ V/m)]	Margin [dB]
<b>Peak DATA. Emissions above 1 GHz</b>								
2 382.00 <sup>1)</sup>	1 000	H	49.90	3.50	-	53.40	74.00	20.60
3 528.75	1 000	H	36.70	6.10	-	42.80	74.00	31.20
5 199.38	1 000	H	35.00	9.90	-	44.90	74.00	29.10
6 495.00	1 000	V	34.40	12.70	-	47.10	74.00	26.90
7 320.00	1 000	H	34.20	14.40	-	48.60	74.00	25.40
10 012.50	1 000	H	33.90	17.60	-	51.50	74.00	22.50
Above 11 000.00	Not Detected	-	-	-	-	-	-	-
<b>Average DATA. Emissions above 1 GHz</b>								
2 382.00 <sup>1)</sup>	1 000	H	39.80	3.50	0.02	43.32	54.00	10.68
3 528.75	1 000	H	31.70	6.10	0.02	37.82	54.00	16.18
5 199.38	1 000	H	29.50	9.90	0.02	39.42	54.00	14.58
6 495.00	1 000	V	27.40	12.70	0.02	40.12	54.00	13.88
7 320.00	1 000	H	28.10	14.40	0.02	42.52	54.00	11.48
10 012.50	1 000	H	27.00	17.60	0.02	44.62	54.00	9.38
Above 11 000.00	Not Detected	-	-	-	-	-	-	-

<sup>1)</sup> restricted band.

**802.11b\_Middle channel (2 437 MHz)**

Frequency [MHz]	Receiver Bandwidth [kHz]	Pol. [V/H]	Reading [dB( $\mu$ V)]	Factor [dB]	DCCF [dB]	Result [dB( $\mu$ V/m)]	Limit [dB( $\mu$ V/m)]	Margin [dB]
<b>Peak DATA. Emissions above 1 GHz</b>								
3 037.50	1 000	H	38.50	4.70	-	43.20	74.00	30.80
4 108.13	1 000	V	35.40	7.60	-	43.00	74.00	31.00
5 638.13	1 000	H	34.80	10.90	-	45.70	74.00	28.30
7 246.88	1 000	V	33.60	14.30	-	47.90	74.00	26.10
9 033.75	1 000	H	34.00	16.90	-	50.90	74.00	23.10
10 548.75	1 000	V	34.00	18.80	-	52.80	74.00	21.20
Above 11 000.00	Not Detected	-	-	-	-	-	-	-
<b>Average DATA. Emissions above 1 GHz</b>								
3 037.50	1 000	H	32.40	4.70	0.02	37.12	54.00	16.88
4 108.13	1 000	V	29.70	7.60	0.02	37.32	54.00	16.68
5 638.13	1 000	H	28.10	10.90	0.02	39.02	54.00	14.98
7 246.88	1 000	V	27.70	14.30	0.02	42.02	54.00	11.98
9 033.75	1 000	H	27.80	16.90	0.02	44.72	54.00	9.28
10 548.75	1 000	V	27.30	18.80	0.02	46.12	54.00	7.88
Above 11 000.00	Not Detected	-	-	-	-	-	-	-

**802.11b\_Highest channel (2 462 MHz)**

Frequency [MHz]	Receiver Bandwidth [kHz]	Pol. [V/H]	Reading [dB( $\mu$ V)]	Factor [dB]	DCCF [dB]	Result [dB( $\mu$ V/m)]	Limit [dB( $\mu$ V/m)]	Margin [dB]
<b>Peak DATA. Emissions above 1 GHz</b>								
2 487.75 <sup>1)</sup>	1 000	H	46.90	3.60	-	50.50	74.00	23.50
3 050.63	1 000	V	38.80	4.60	-	43.40	74.00	30.60
4 845.00	1 000	H	35.70	9.30	-	45.00	74.00	29.00
6 956.25	1 000	H	34.30	13.80	-	48.10	74.00	25.90
9 082.50	1 000	V	34.10	16.90	-	51.00	74.00	23.00
10 683.75	1 000	H	35.00	19.10	-	54.10	74.00	19.90
Above 11 000.00	Not Detected	-	-	-	-	-	-	-
<b>Average DATA. Emissions above 1 GHz</b>								
2 487.75 <sup>1)</sup>	1 000	H	38.00	3.60	0.02	41.62	54.00	12.38
3 050.63	1 000	V	32.60	4.60	0.02	37.22	54.00	16.78
4 845.00	1 000	H	29.50	9.30	0.02	38.82	54.00	15.18
6 956.25	1 000	H	27.70	13.80	0.02	41.52	54.00	12.48
9 082.50	1 000	V	27.50	16.90	0.02	44.42	54.00	9.58
10 683.75	1 000	H	28.10	19.10	0.02	47.22	54.00	6.78
Above 11 000.00	Not Detected	-	-	-	-	-	-	-

<sup>1)</sup> restricted band.

**802.11g\_Lowest channel (2 412 MHz)**

Frequency [MHz]	Receiver Bandwidth [kHz]	Pol. [V/H]	Reading [dB( $\mu$ V)]	Factor [dB]	DCCF [dB]	Result [dB( $\mu$ V/m)]	Limit [dB( $\mu$ V/m)]	Margin [dB]
<b>Peak DATA. Emissions above 1 GHz</b>								
2 388.25 <sup>1)</sup>	1 000	H	58.10	3.50	-	61.60	74.00	12.40
3 279.38	1 000	H	37.10	6.00	-	43.10	74.00	30.90
4 451.25	1 000	V	35.60	8.60	-	44.20	74.00	29.80
5 885.63	1 000	H	34.50	12.30	-	46.80	74.00	27.20
8 006.25	1 000	H	34.80	15.10	-	49.90	74.00	24.10
10 038.75	1 000	V	33.70	17.70	-	51.40	74.00	22.60
Above 11 000.00	Not Detected	-	-	-	-	-	-	-
<b>Average DATA. Emissions above 1 GHz</b>								
2 388.25 <sup>1)</sup>	1 000	H	46.70	3.50	0.16	50.36	54.00	3.64
3 279.38	1 000	H	31.90	6.00	0.16	38.06	54.00	15.94
4 451.25	1 000	V	29.40	8.60	0.16	38.16	54.00	15.84
5 885.63	1 000	H	28.80	12.30	0.16	41.26	54.00	12.74
8 006.25	1 000	H	28.20	15.10	0.16	43.46	54.00	10.54
10 038.75	1 000	V	27.60	17.70	0.16	45.46	54.00	8.54
Above 11 000.00	Not Detected	-	-	-	-	-	-	-

<sup>1)</sup> restricted band.

**802.11g\_Middle channel (2 437 MHz)**

Frequency [MHz]	Receiver Bandwidth [kHz]	Pol. [V/H]	Reading [dB( $\mu$ V)]	Factor [dB]	DCCF [dB]	Result [dB( $\mu$ V/m)]	Limit [dB( $\mu$ V/m)]	Margin [dB]
<b>Peak DATA. Emissions above 1 GHz</b>								
3 215.63	1 000	H	37.60	5.30	-	42.90	74.00	31.10
4 276.88	1 000	V	35.60	7.90	-	43.50	74.00	30.50
4 923.75	1 000	H	36.80	9.20	-	46.00	74.00	28.00
6 506.25	1 000	V	34.90	12.70	-	47.60	74.00	26.40
9 195.00	1 000	H	34.50	16.60	-	51.10	74.00	22.90
10 203.75	1 000	V	34.10	18.10	-	52.20	74.00	21.80
Above 11 000.00	Not Detected	-	-	-	-	-	-	-
<b>Average DATA. Emissions above 1 GHz</b>								
3 215.63	1 000	H	31.70	5.30	0.16	37.16	54.00	16.84
4 276.88	1 000	V	30.40	7.90	0.16	38.46	54.00	15.54
4 923.75	1 000	H	32.10	9.20	0.16	41.46	54.00	12.54
6 506.25	1 000	V	29.40	12.70	0.16	42.26	54.00	11.74
9 195.00	1 000	H	28.50	16.60	0.16	45.26	54.00	8.74
10 203.75	1 000	V	27.90	18.10	0.16	46.16	54.00	7.84
Above 11 000.00	Not Detected	-	-	-	-	-	-	-

**802.11g\_Highest channel (2 462 MHz)**

Frequency [MHz]	Receiver Bandwidth [kHz]	Pol. [V/H]	Reading [dB( $\mu$ V)]	Factor [dB]	DCCF [dB]	Result [dB( $\mu$ V/m)]	Limit [dB( $\mu$ V/m)]	Margin [dB]
<b>Peak DATA. Emissions above 1 GHz</b>								
2 483.75 <sup>1)</sup>	1 000	H	56.00	3.60	-	59.60	74.00	14.40
3 046.88	1 000	H	37.20	6.40	-	43.60	74.00	30.40
4 725.00	1 000	V	34.60	9.80	-	44.40	74.00	29.60
5 930.63	1 000	H	34.30	12.40	-	46.70	74.00	27.30
6 990.00	1 000	V	34.60	14.60	-	49.20	74.00	24.80
9 189.37	1 000	H	34.70	16.80	-	51.50	74.00	22.50
Above 10 000.00	Not Detected	-	-	-	-	-	-	-
<b>Average DATA. Emissions above 1 GHz</b>								
2 483.75 <sup>1)</sup>	1 000	H	44.10	3.60	0.16	47.86	54.00	6.14
3 046.88	1 000	H	31.60	6.40	0.16	38.16	54.00	15.84
4 725.00	1 000	V	28.10	9.80	0.16	38.06	54.00	15.94
5 930.63	1 000	H	27.90	12.40	0.16	40.46	54.00	13.54
6 990.00	1 000	V	27.30	14.60	0.16	42.06	54.00	11.94
9 189.37	1 000	H	27.50	16.80	0.16	44.46	54.00	9.54
Above 10 000.00	Not Detected	-	-	-	-	-	-	-

<sup>1)</sup> restricted band.

**802.11n HT20\_Lowest channel (2 412 MHz)**

Frequency [MHz]	Receiver Bandwidth [kHz]	Pol. [V/H]	Reading [dB( $\mu$ V)]	Factor [dB]	DCCF [dB]	Result [dB( $\mu$ V/m)]	Limit [dB( $\mu$ V/m)]	Margin [dB]
<b>Peak DATA. Emissions above 1 GHz</b>								
2 389.50 <sup>1)</sup>	1 000	H	60.30	3.50	-	63.80	74.00	10.20
3 211.88	1 000	V	37.90	5.20	-	43.10	74.00	30.90
4 207.50	1 000	H	36.40	7.80	-	44.20	74.00	29.80
6 232.50	1 000	H	35.10	12.50	-	47.60	74.00	26.40
6 954.38	1 000	V	35.30	13.80	-	49.10	74.00	24.90
9 080.62	1 000	V	35.10	16.90	-	52.00	74.00	22.00
Above 10 000.00	Not Detected	-	-	-	-	-	-	-
<b>Average DATA. Emissions above 1 GHz</b>								
2 389.50 <sup>1)</sup>	1 000	H	46.60	3.50	0.18	50.28	54.00	3.72
3 211.88	1 000	V	31.70	5.20	0.18	37.08	54.00	16.92
4 207.50	1 000	H	30.60	7.80	0.18	38.58	54.00	15.42
6 232.50	1 000	H	29.40	12.50	0.18	42.08	54.00	11.92
6 954.38	1 000	V	28.50	13.80	0.18	42.48	54.00	11.52
9 080.62	1 000	V	28.30	16.90	0.18	45.38	54.00	8.62
Above 10 000.00	Not Detected	-	-	-	-	-	-	-

<sup>1)</sup> restricted band.

**802.11n HT20\_Middle channel (2 437 MHz)**

Frequency [MHz]	Receiver Bandwidth [kHz]	Pol. [V/H]	Reading [dB( $\mu$ V)]	Factor [dB]	DCCF [dB]	Result [dB( $\mu$ V/m)]	Limit [dB( $\mu$ V/m)]	Margin [dB]
<b>Peak DATA. Emissions above 1 GHz</b>								
3 056.25	1 000	H	38.40	4.60	-	43.00	74.00	31.00
3 819.38	1 000	H	36.90	7.00	-	43.90	74.00	30.10
5 268.75	1 000	V	35.80	9.80	-	45.60	74.00	28.40
6 376.88	1 000	H	34.50	12.60	-	47.10	74.00	26.90
7 445.63	1 000	V	33.80	14.60	-	48.40	74.00	25.60
10 020.00	1 000	V	34.80	17.60	-	52.40	74.00	21.60
Above 11 000.00	Not Detected	-	-	-	-	-	-	-
<b>Average DATA. Emissions above 1 GHz</b>								
3 056.25	1 000	H	32.80	4.60	0.18	37.58	54.00	16.42
3 819.38	1 000	H	31.10	7.00	0.18	38.28	54.00	15.72
5 268.75	1 000	V	29.80	9.80	0.18	39.78	54.00	14.22
6 376.88	1 000	H	27.90	12.60	0.18	40.68	54.00	13.32
7 445.63	1 000	V	26.50	14.60	0.18	41.28	54.00	12.72
10 020.00	1 000	V	27.10	17.60	0.18	44.88	54.00	9.12
Above 11 000.00	Not Detected	-	-	-	-	-	-	-

**802.11n HT20\_Highest channel (2 462 MHz)**

Frequency [MHz]	Receiver Bandwidth [kHz]	Pol. [V/H]	Reading [dB( $\mu$ V)]	Factor [dB]	DCCF [dB]	Result [dB( $\mu$ V/m)]	Limit [dB( $\mu$ V/m)]	Margin [dB]
<b>Peak DATA. Emissions above 1 GHz</b>								
2 483.75 <sup>1)</sup>	1 000	H	59.40	3.60	-	63.00	74.00	11.00
3 037.50	1 000	H	38.30	4.70	-	43.00	74.00	31.00
4 185.00	1 000	V	35.20	7.80	-	43.00	74.00	31.00
5 190.00	1 000	V	35.40	9.90	-	45.30	74.00	28.70
6 982.50	1 000	H	34.80	13.80	-	48.60	74.00	25.40
10 515.00	1 000	V	33.90	18.70	-	52.60	74.00	21.40
Above 11 000.00	Not Detected	-	-	-	-	-	-	-
<b>Average DATA. Emissions above 1 GHz</b>								
2 483.75 <sup>1)</sup>	1 000	H	47.10	3.60	0.18	50.88	54.00	3.12
3 037.50	1 000	H	32.40	4.70	0.18	37.28	54.00	16.72
4 185.00	1 000	V	30.40	7.80	0.18	38.38	54.00	15.62
5 190.00	1 000	V	29.80	9.90	0.18	39.88	54.00	14.12
6 982.50	1 000	H	28.20	13.80	0.18	42.18	54.00	11.82
10 515.00	1 000	V	26.90	18.70	0.18	45.78	54.00	8.22
Above 11 000.00	Not Detected	-	-	-	-	-	-	-

<sup>1)</sup> restricted band.

### 5.7.4 Test Plot

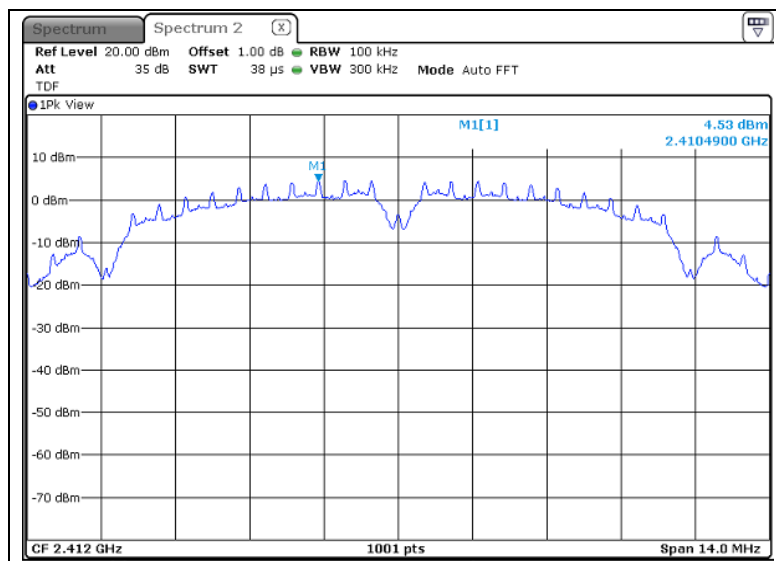
Figure 3. Plot of the Band-edge & Conducted Spurious Emissions

- DC 5 V

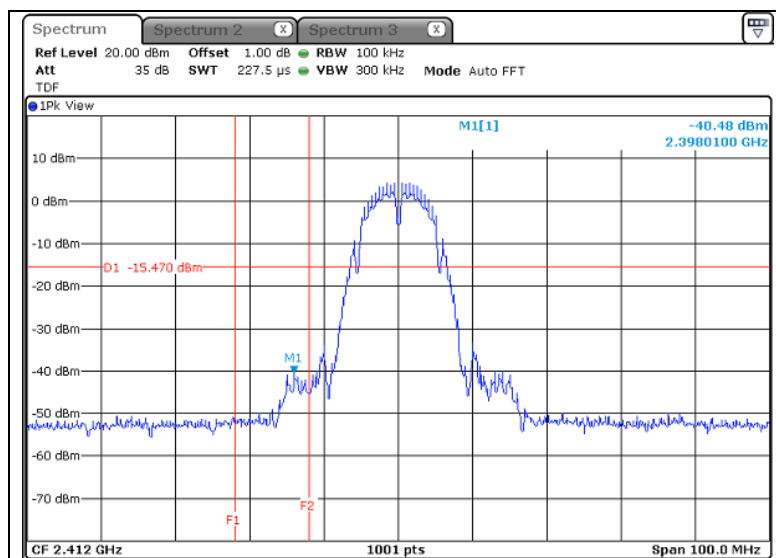
- 802.11b

Lowest Channel (2 412 MHz)

#### Reference

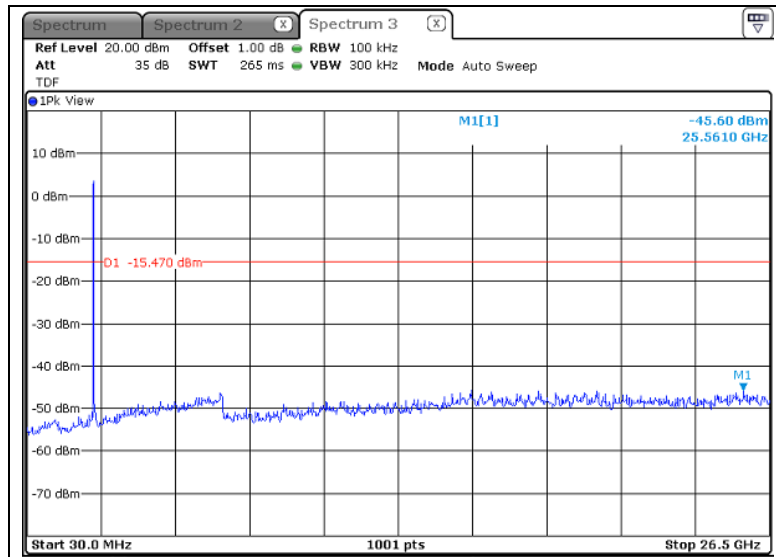


#### Band-edge



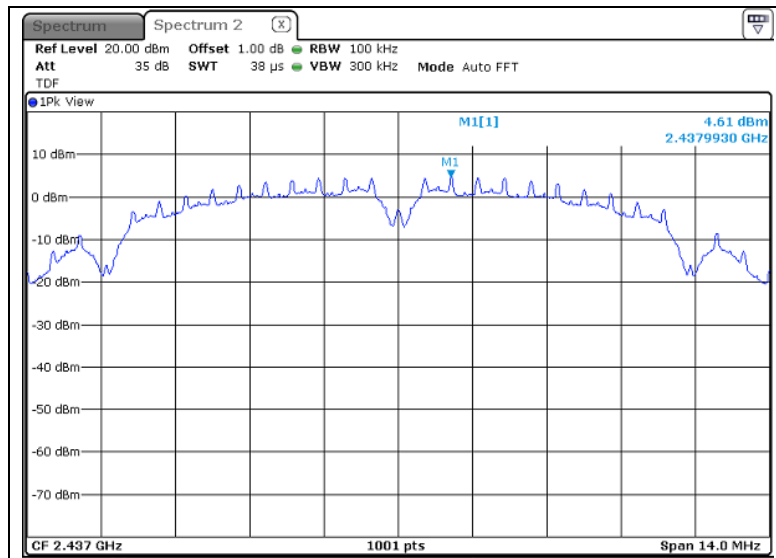
- Result of 2 400.0 MHz

## Conducted Spurious Emissions

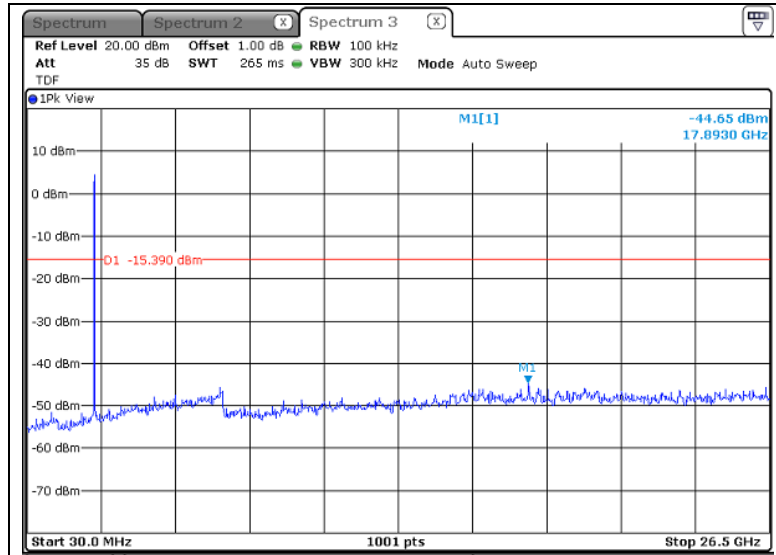


Middle Channel (2 437 MHz)

## Reference

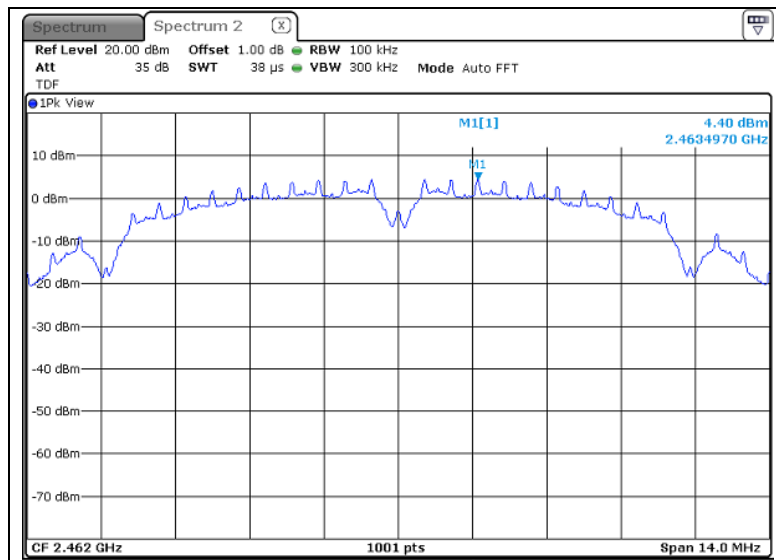


## Conducted Spurious Emissions

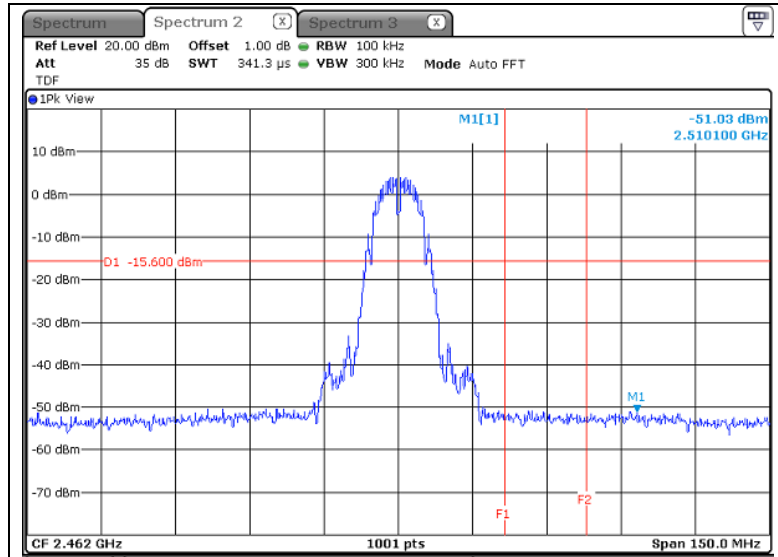


Highest Channel (2 462 MHz)

## Reference

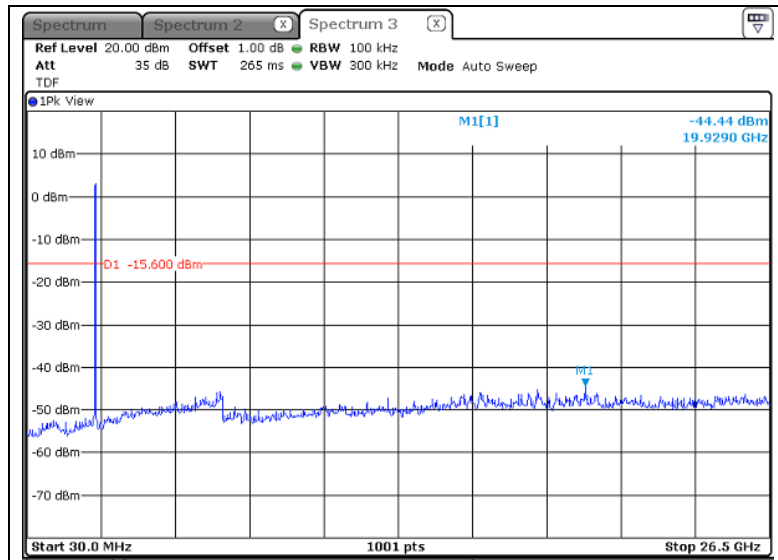


## Band-edge



- Result of 2 483.5 MHz

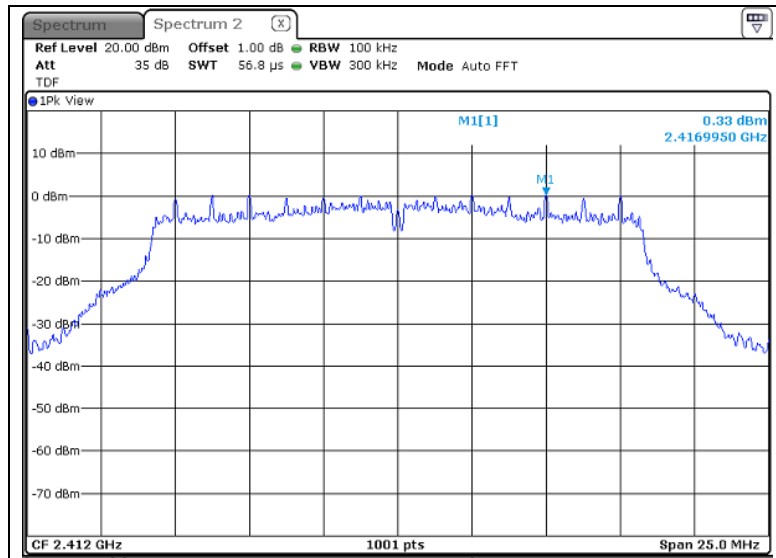
## Conducted Spurious Emissions



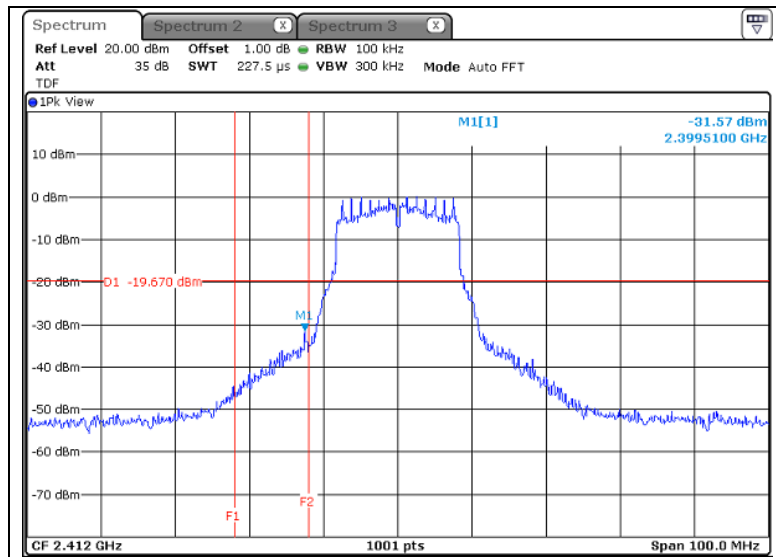
## - 802.11g

Lowest Channel (2 412 MHz)

### Reference

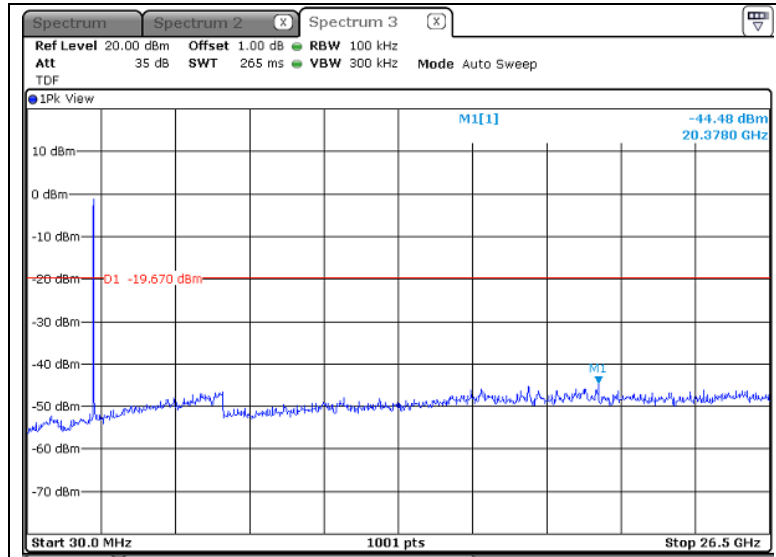


### Band-edge



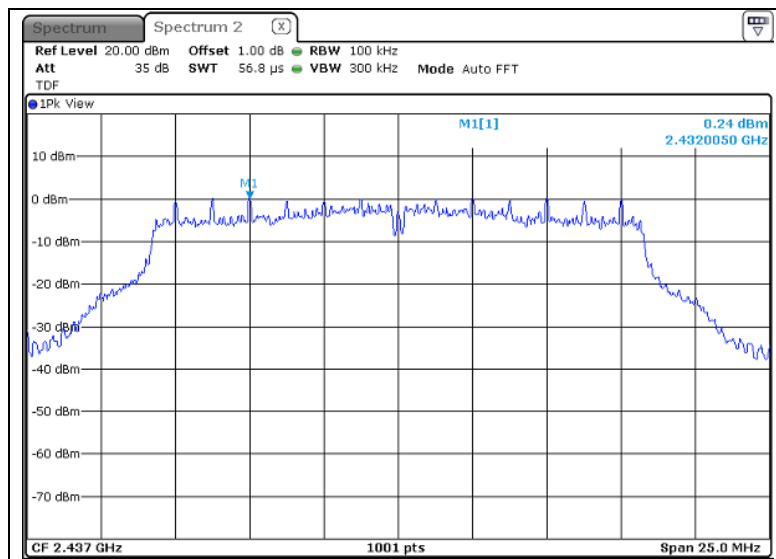
- Result of 2 400.0 MHz

## Conducted Spurious Emissions

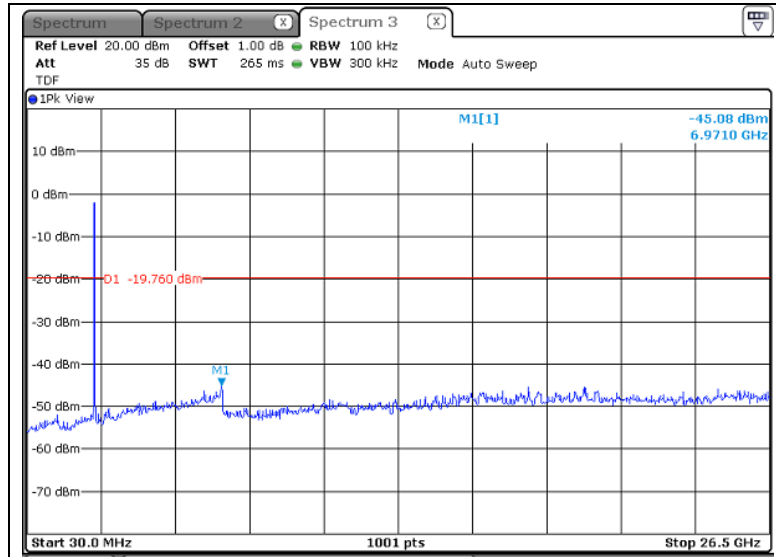


Middle Channel (2 437 MHz)

## Reference

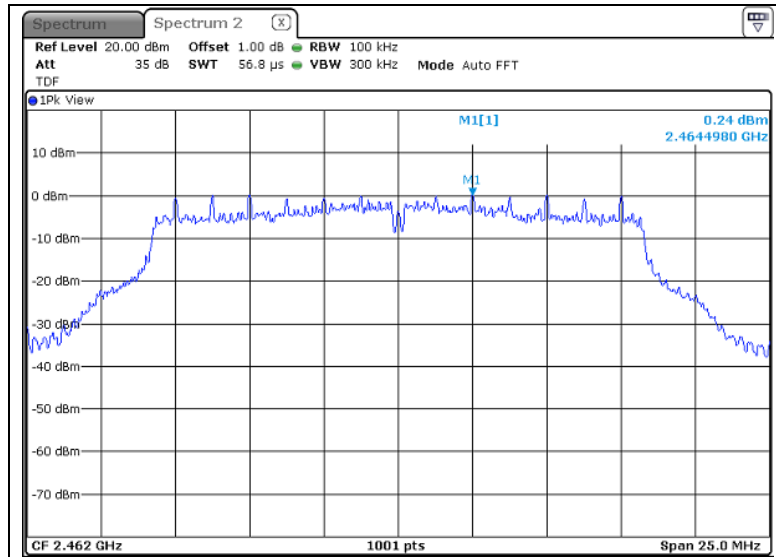


**Conducted Spurious Emissions**

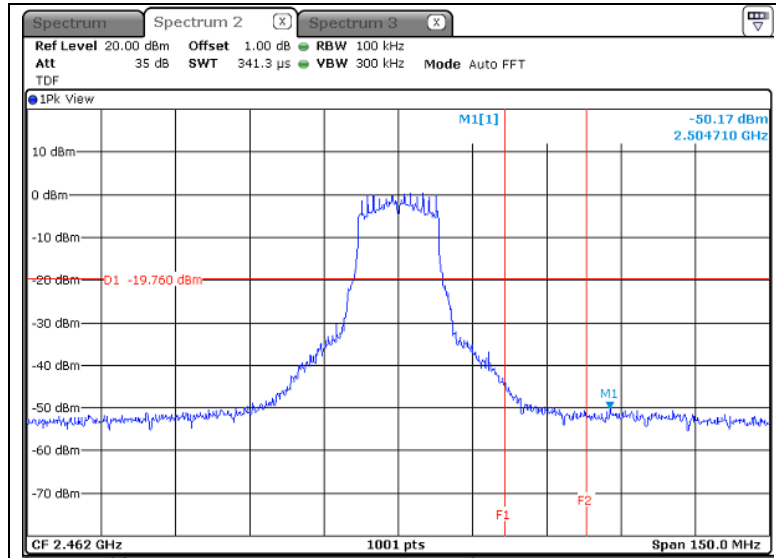


Highest Channel (2 462 MHz)

**Reference**

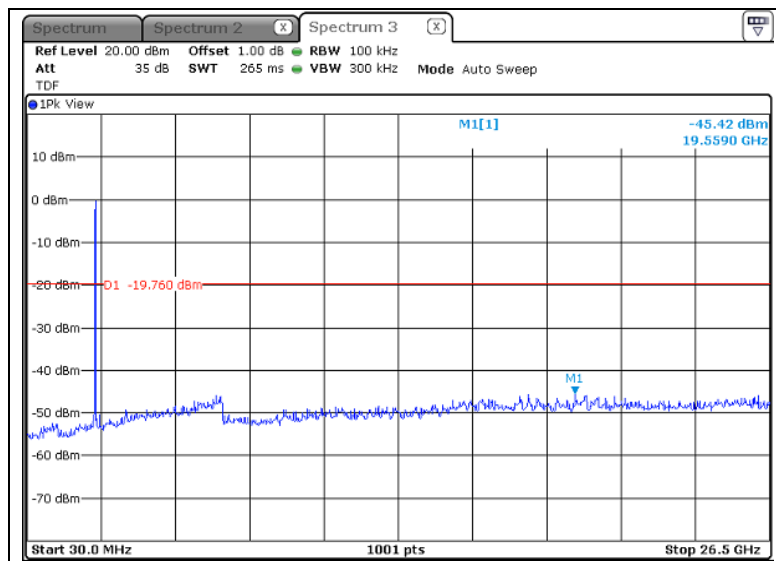


**Band-edge**



- Result of 2 483.5 MHz

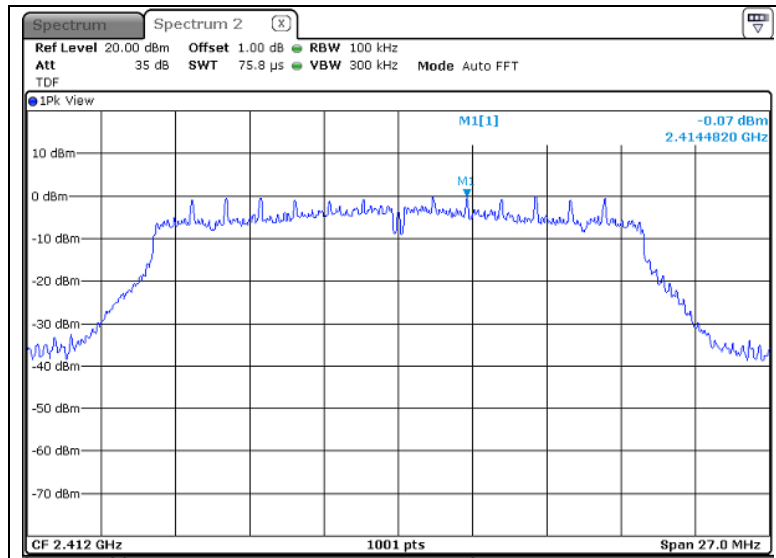
**Conducted Spurious Emissions**



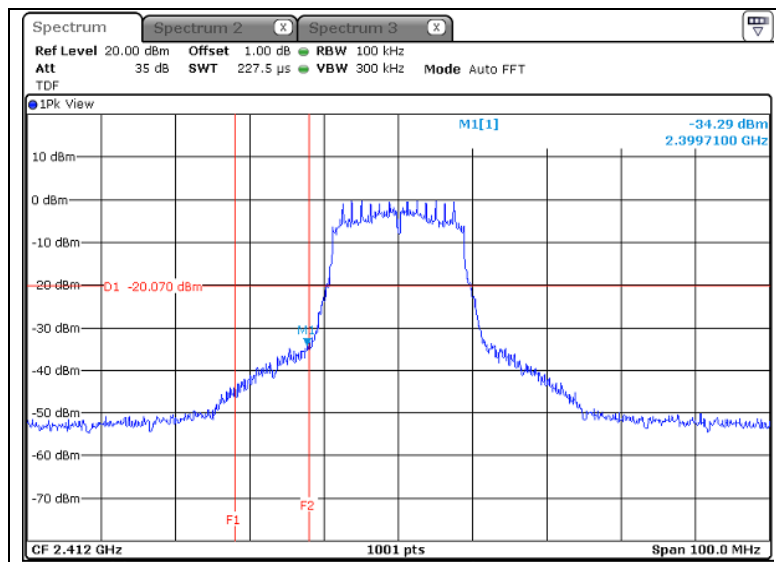
**- 802.11n HT20**

Lowest Channel (2 412 MHz)

Reference

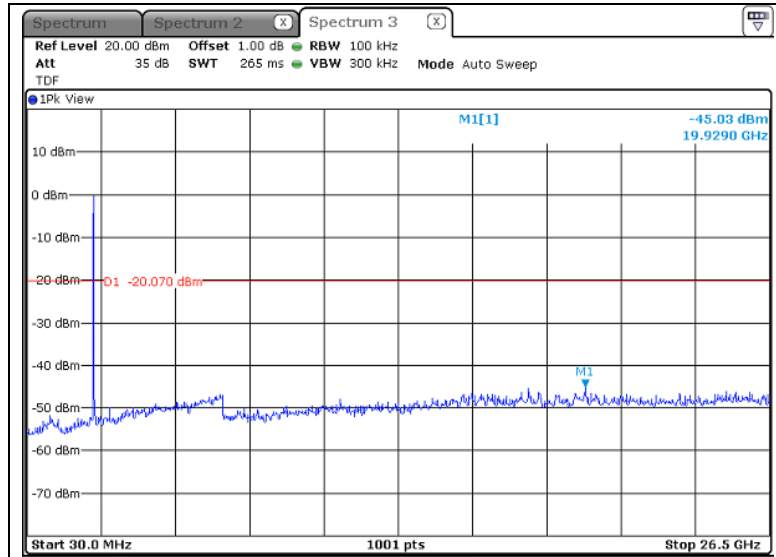


Band-edge



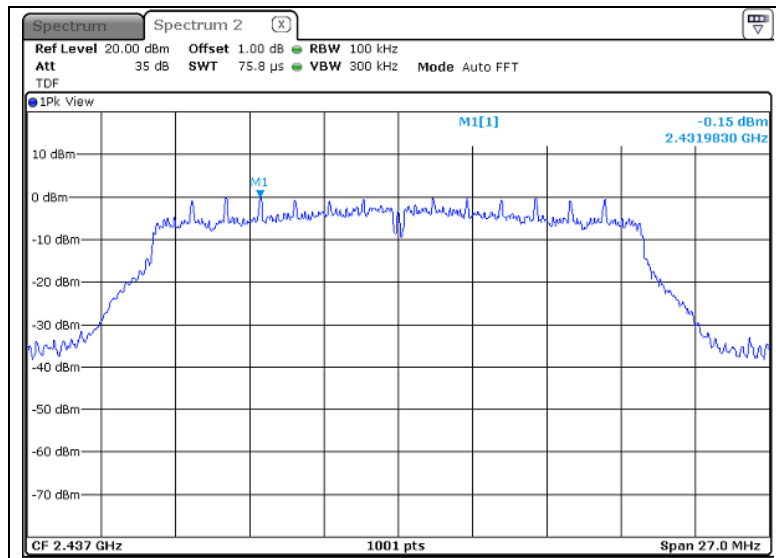
- Result of 2 400.0 MHz

## Conducted Spurious Emissions

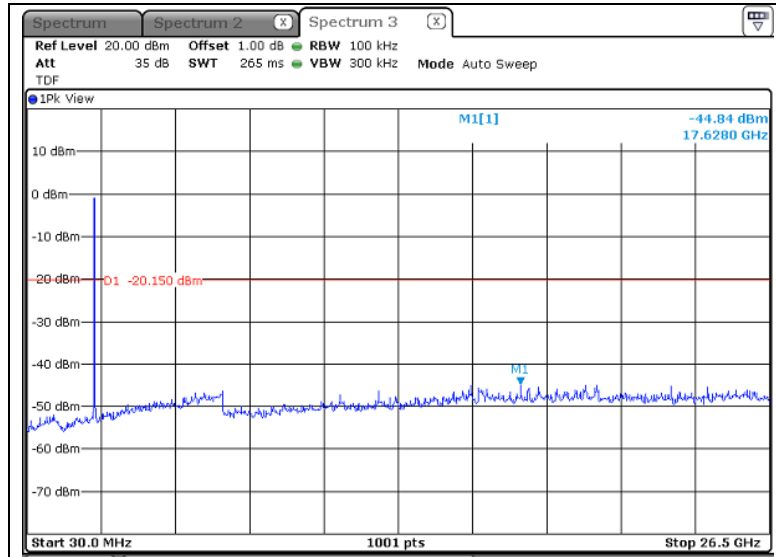


Middle Channel (2 437 MHz)

## Reference

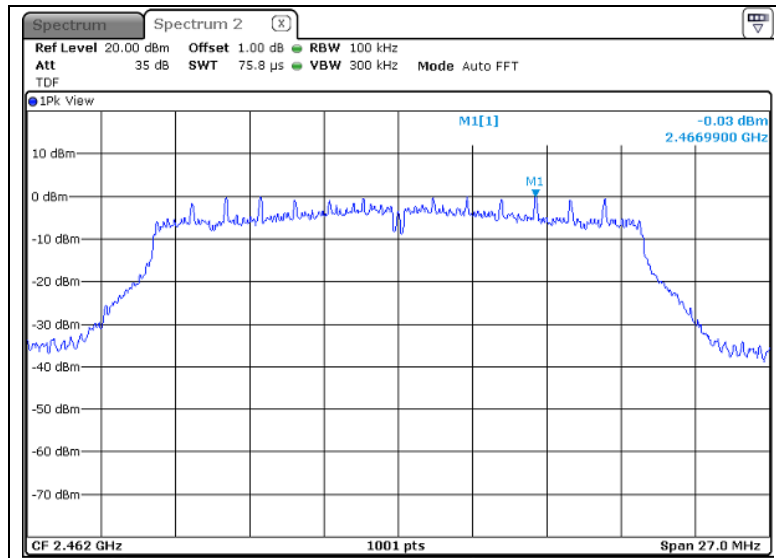


**Conducted Spurious Emissions**

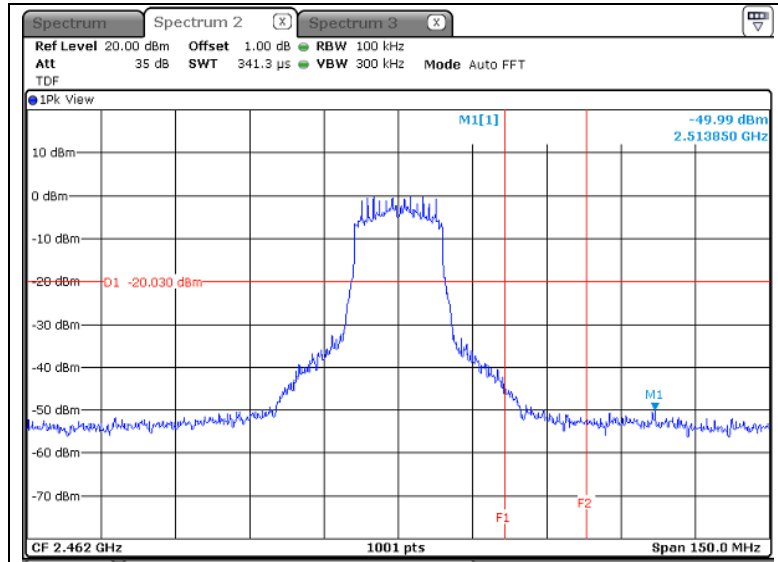


Highest Channel (2 462 MHz)

**Reference**

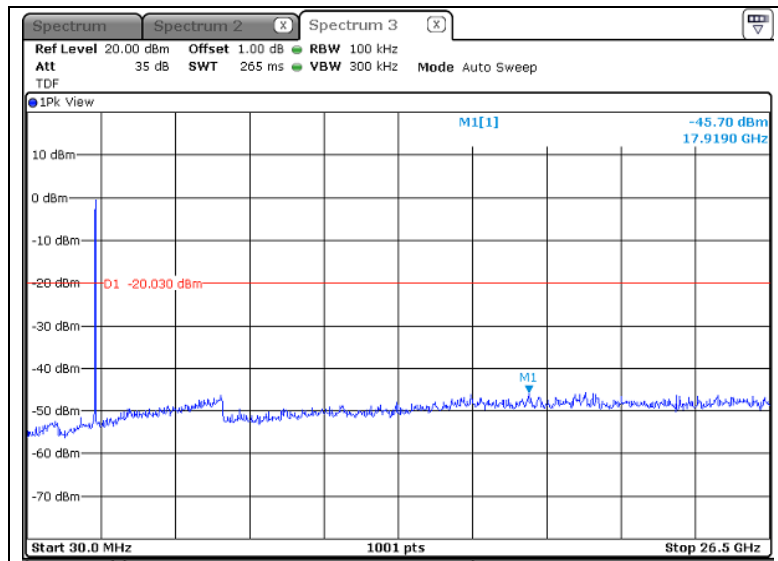


## Band-edge



- Result of 2 483.5 MHz

## Conducted Spurious Emissions

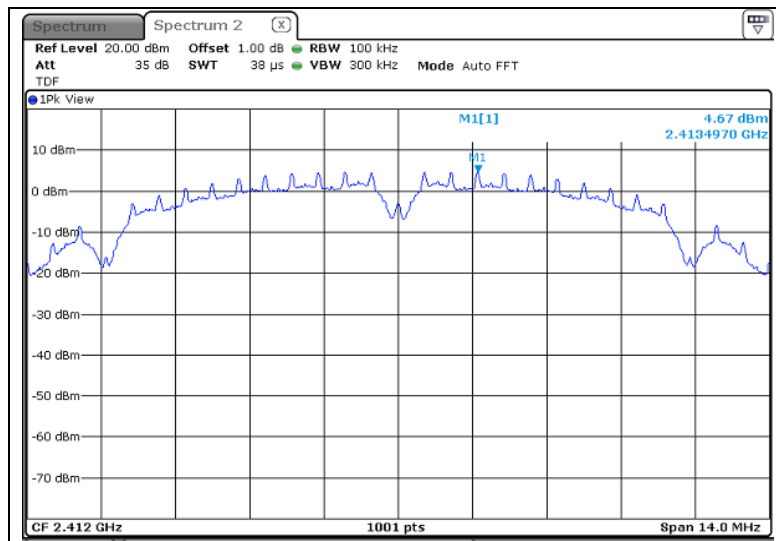


- DC 12 V

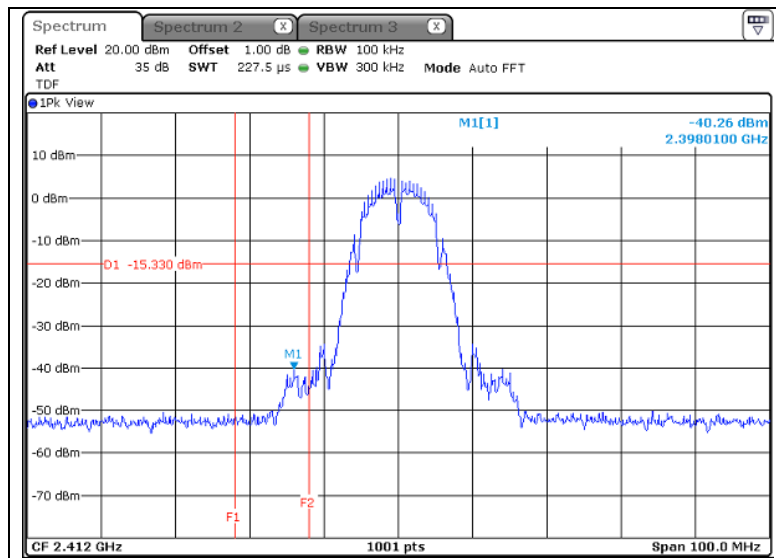
- 802.11b

Lowest Channel (2 412 MHz)

### Reference

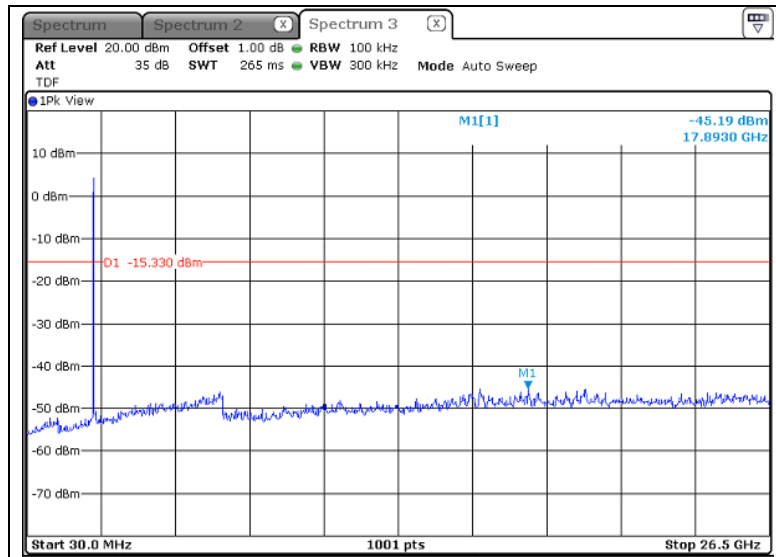


### Band-edge



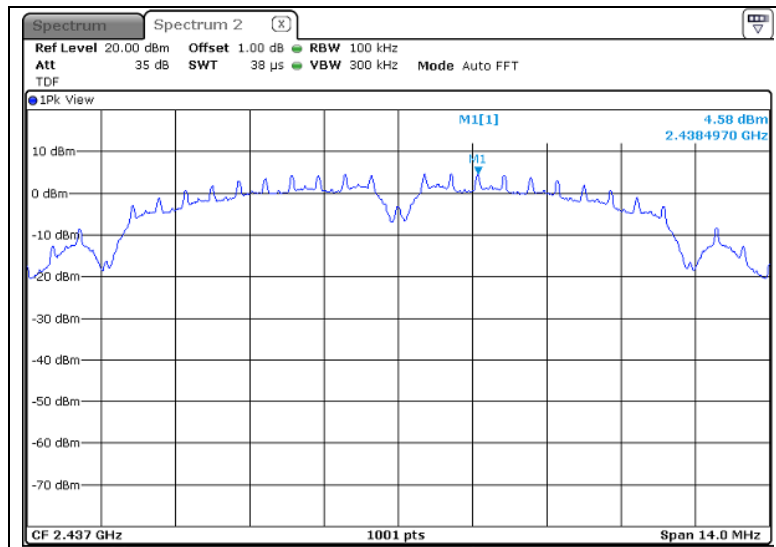
- Result of 2 400.0 MHz

**Conducted Spurious Emissions**

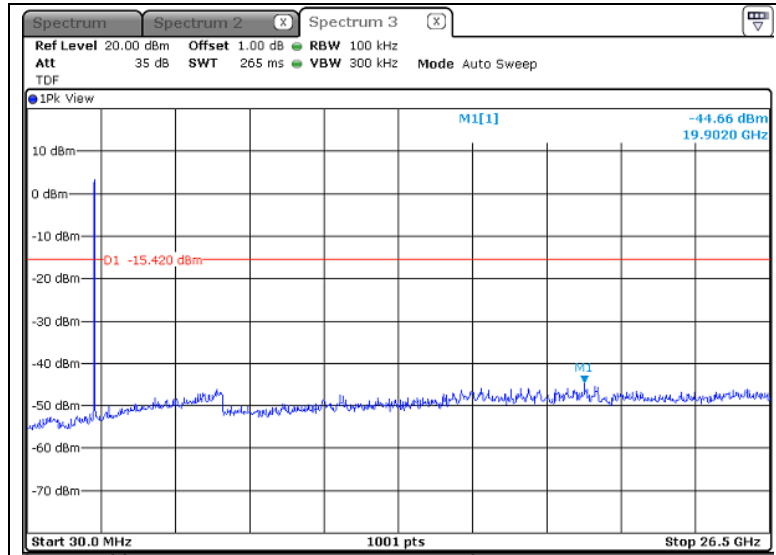


Middle Channel (2 437 MHz)

**Reference**

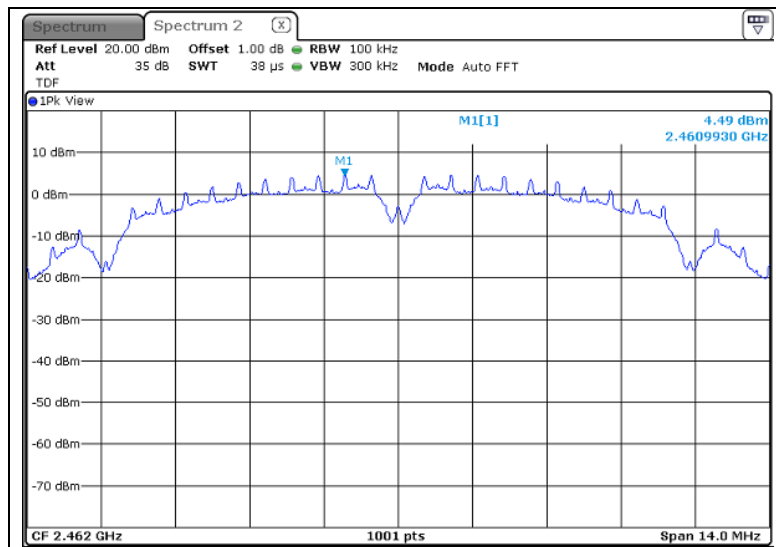


**Conducted Spurious Emissions**

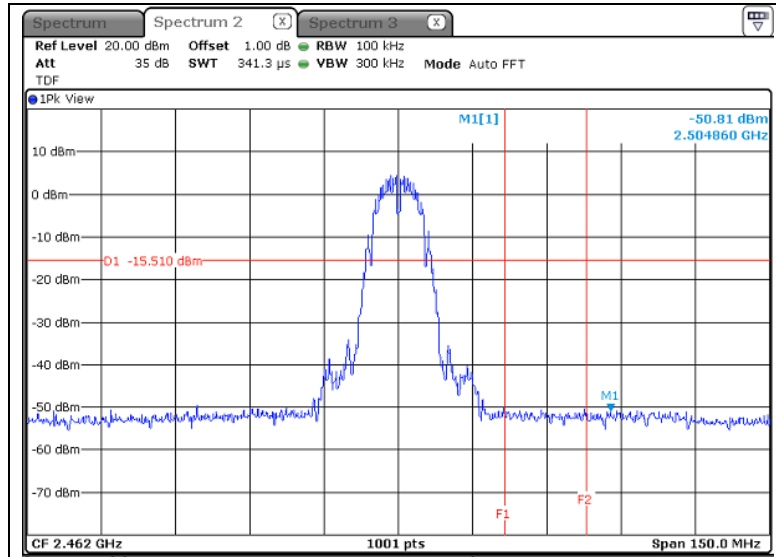


Highest Channel (2 462 MHz)

**Reference**

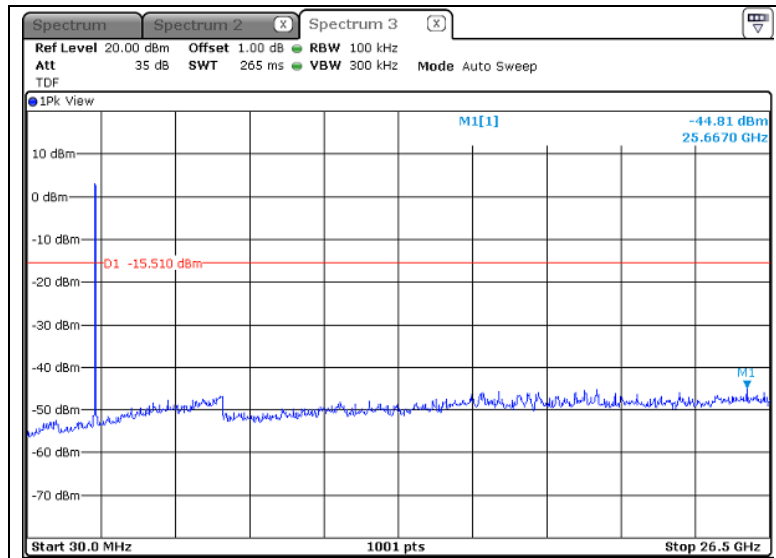


## Band-edge



- Result of 2 483.5 MHz

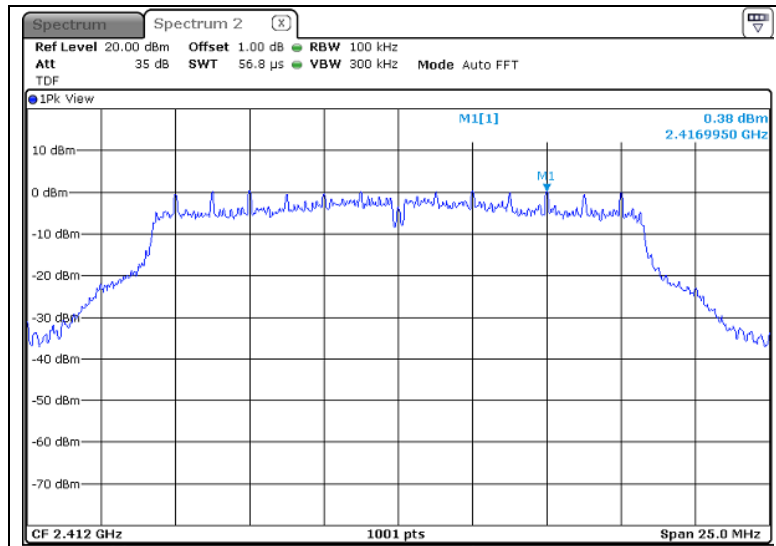
## Conducted Spurious Emissions



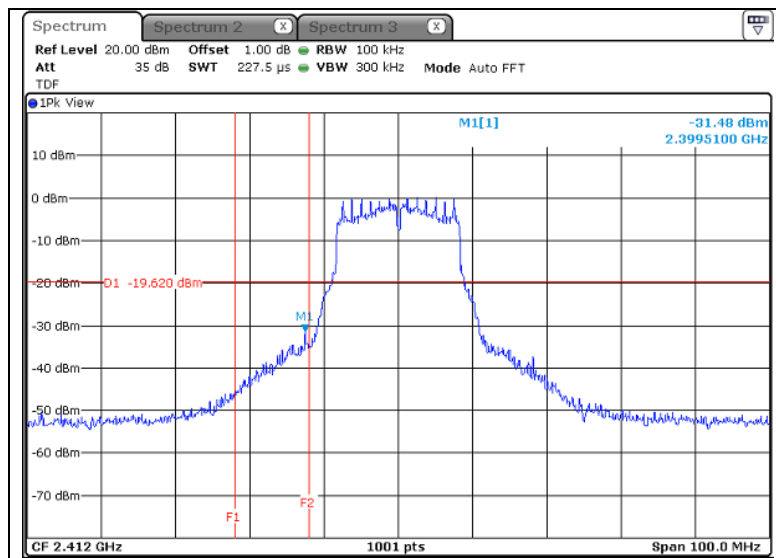
## - 802.11g

Lowest Channel (2 412 MHz)

### Reference

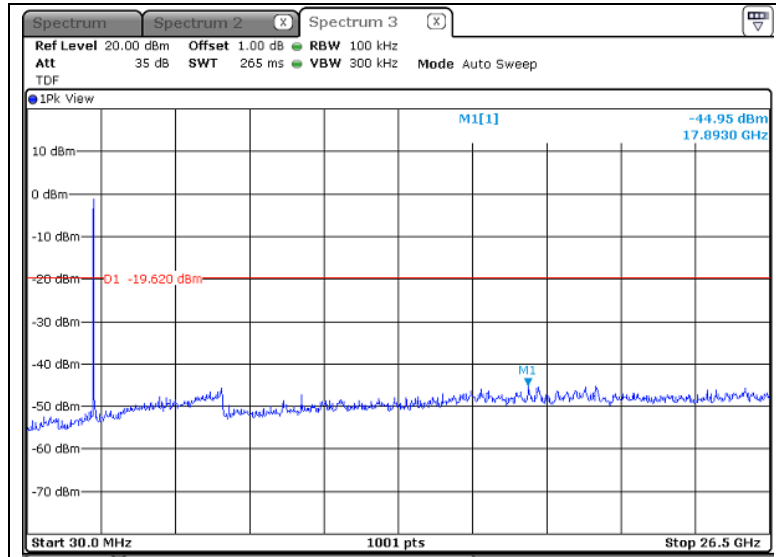


### Band-edge



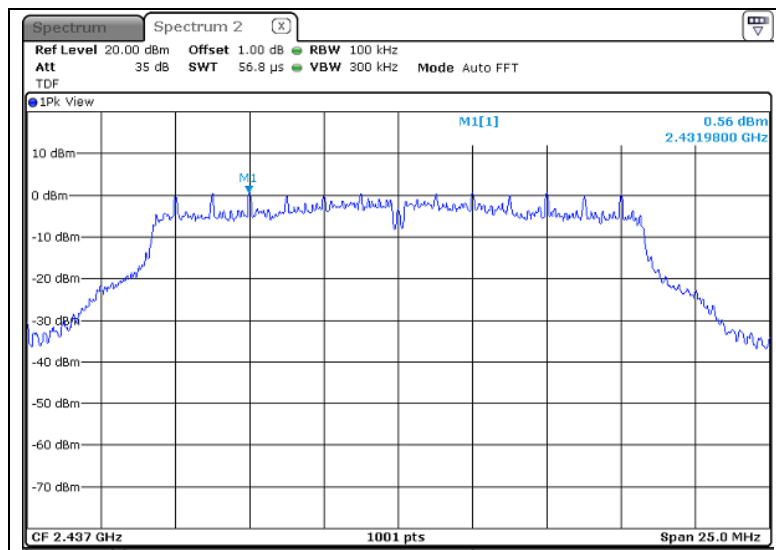
- Result of 2 400.0 MHz

**Conducted Spurious Emissions**

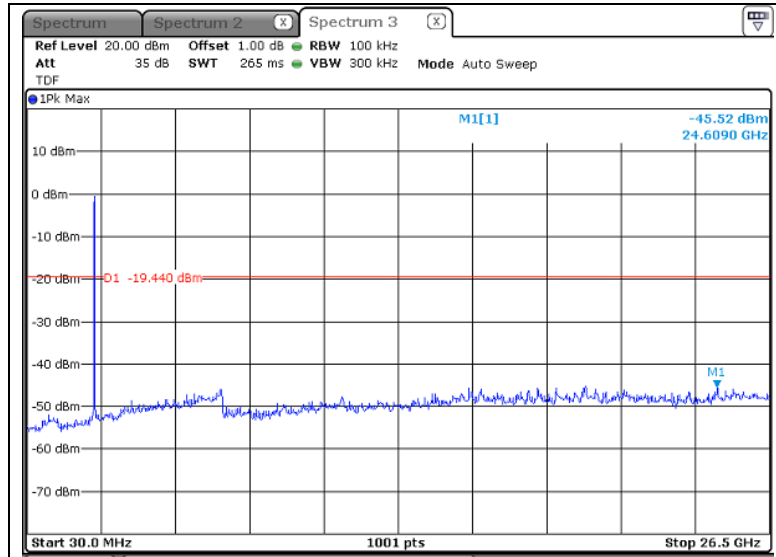


Middle Channel (2 437 MHz)

**Reference**

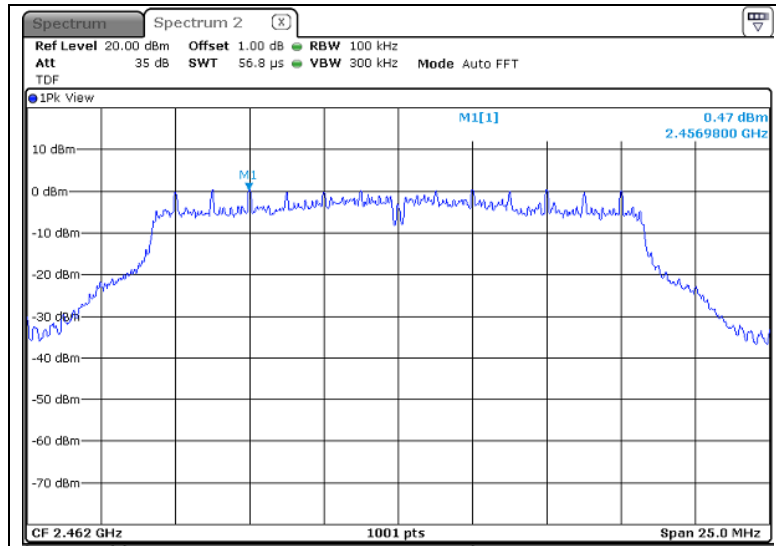


**Conducted Spurious Emissions**

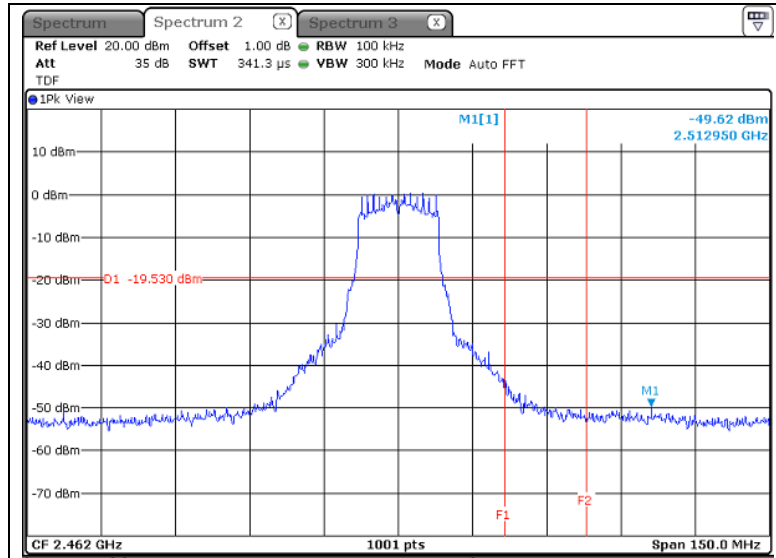


Highest Channel (2 462 MHz)

**Reference**

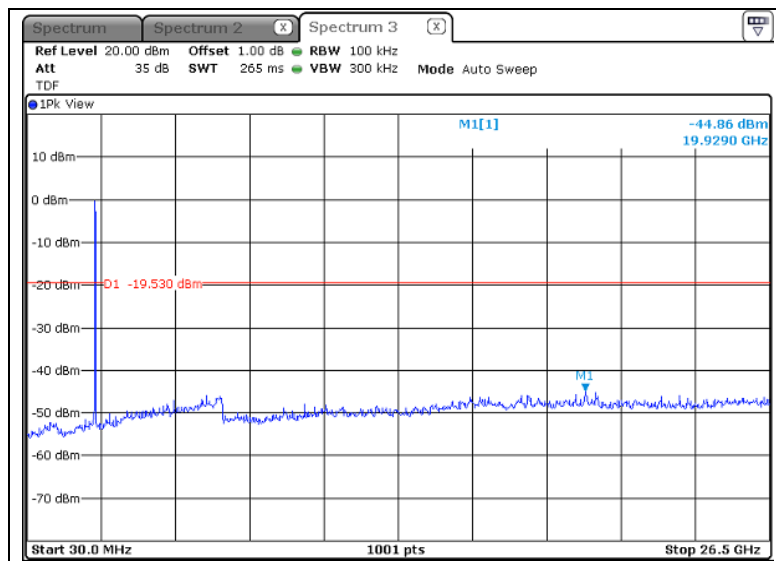


**Band-edge**



- Result of 2 483.5 MHz

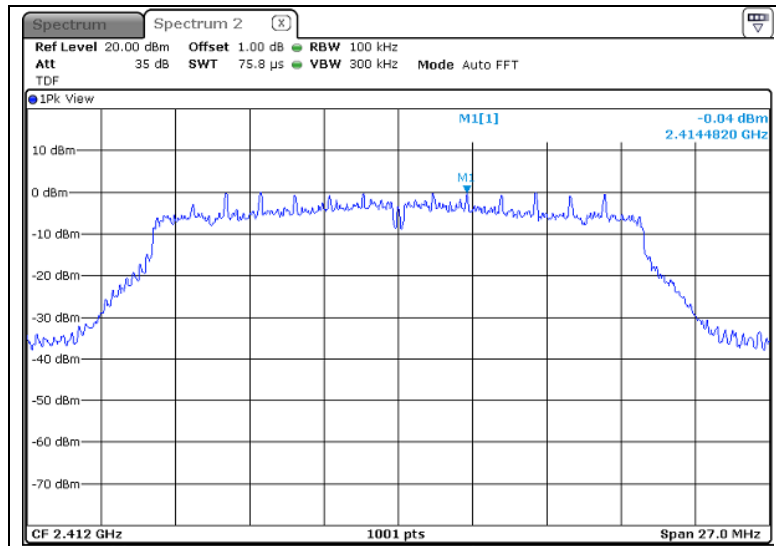
**Conducted Spurious Emissions**



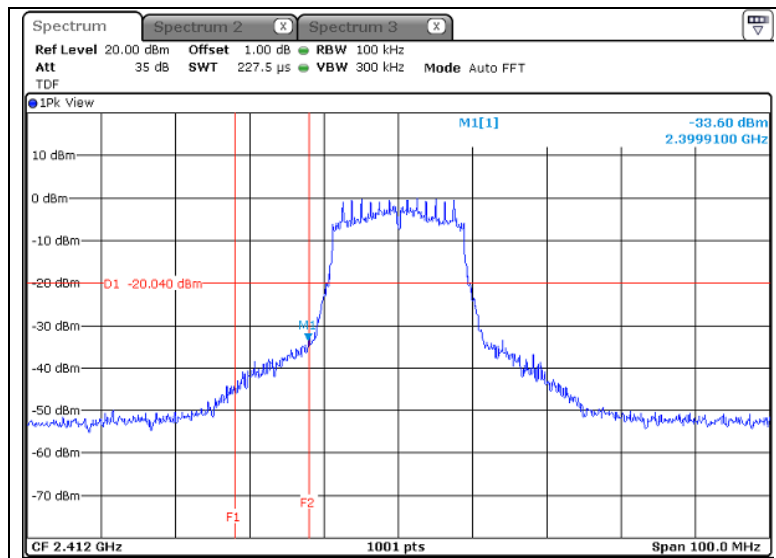
## - 802.11n HT20

Lowest Channel (2 412 MHz)

### Reference

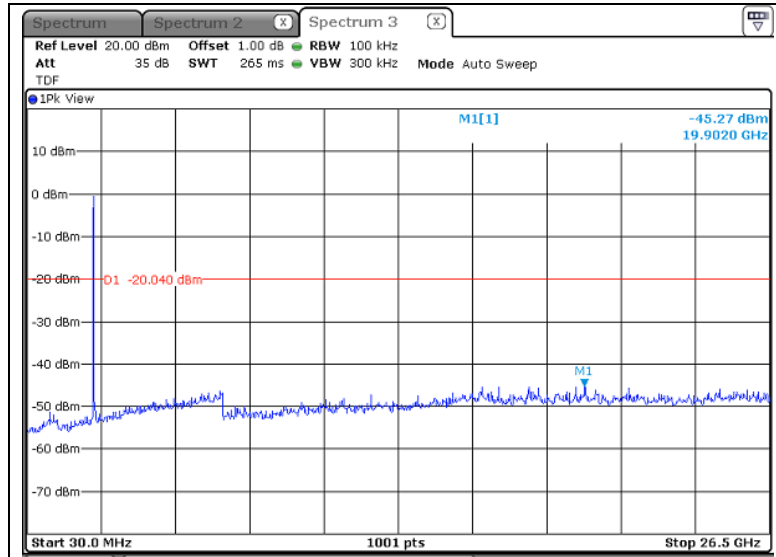


### Band-edge



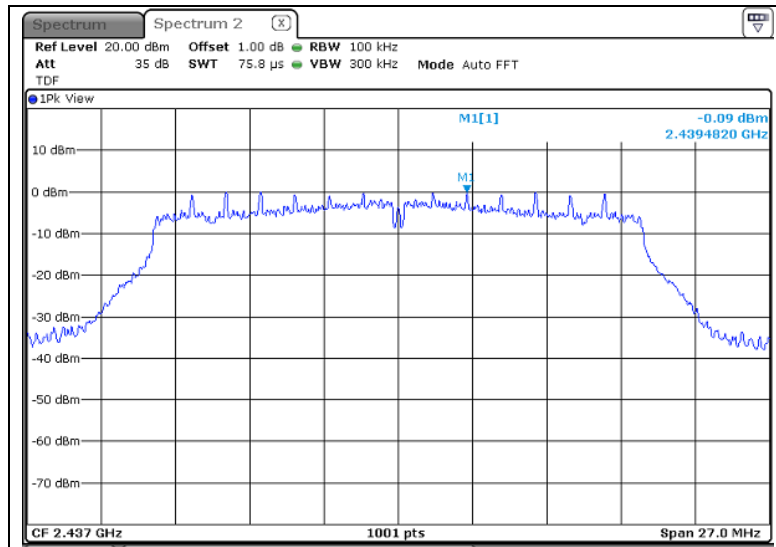
- Result of 2 400.0 MHz

**Conducted Spurious Emissions**

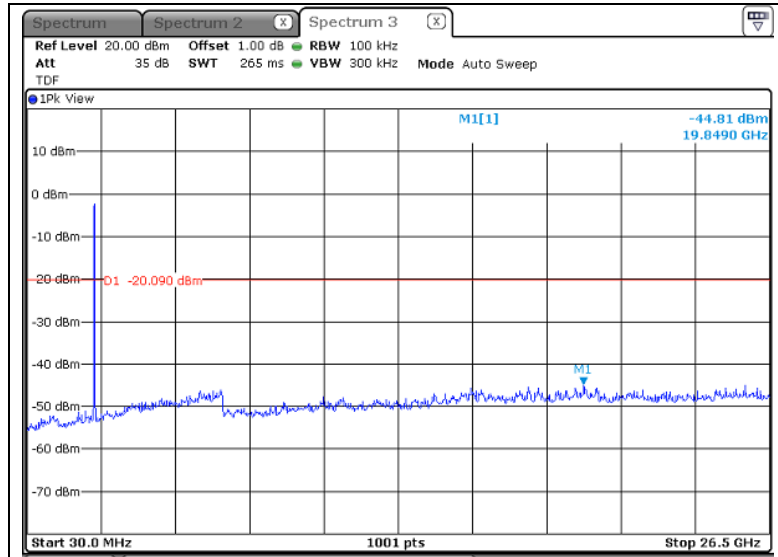


Middle Channel (2 437 MHz)

**Reference**

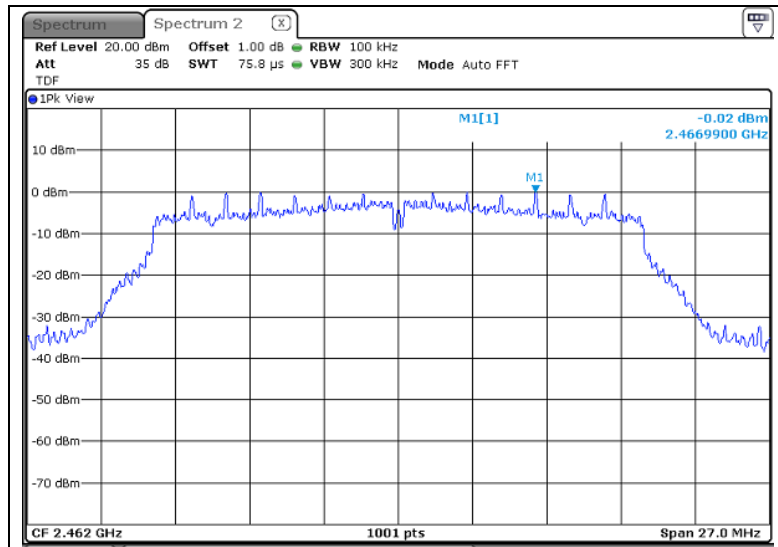


## Conducted Spurious Emissions

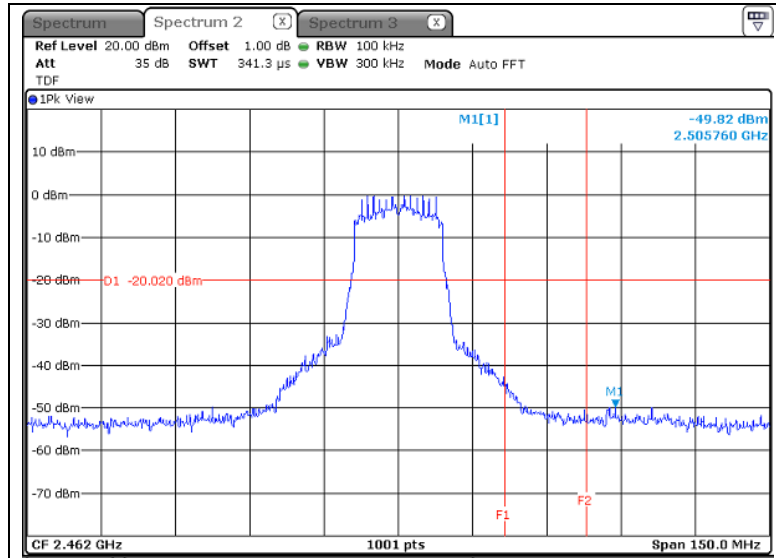


Highest Channel (2 462 MHz)

## Reference

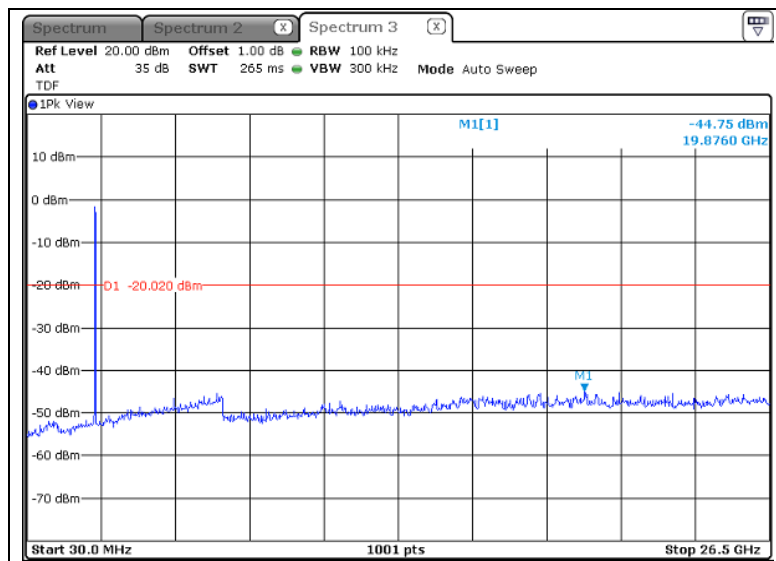


**Band-edge**



- Result of 2 483.5 MHz

**Conducted Spurious Emissions**



## 5.6 Conducted Emission

### 5.6.1 Regulation

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  $\mu$ H/50  $\Omega$  line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency of emission (MHz)	Conducted limit (dB $\mu$ V)	
	Quasi-peak	Average
0.15 – 0.5	66 to 56 *	56 to 46 *
0.5 – 5	56	46
5 – 30	60	50

\* Decreases with the logarithm of the frequency.

According to §15.107(a), for unintentional device, except for Class A digital devices, line conducted emission limits are the same as the above table.

### 5.6.2 Measurement Procedure

- 1) The EUT was placed on a wooden table of size, 1 m by 1.5 m, raised 80 cm in which is located 40 cm away from the vertical wall and 1.5m away from the side wall of the shielded room.
- 2) Each current-carrying conductor of the EUT power cord was individually connected through a 50 $\Omega$ /50 $\mu$ H LISN, which is an input transducer to a Spectrum Analyzer or an EMI/Field Intensity Meter, to the input power source.
- 3) Exploratory measurements were made to identify the frequency of the emission that had the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, cable position, and with a typical system equipment configuration and arrangement. Based on the exploratory tests of the EUT, the one EUT cable configuration and arrangement and mode of operation that had produced the emission with the highest amplitude relative to the limit was selected for the final measurement.
- 4) The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment is the system) was then performed over the frequency range of 0.15 MHz to 30 MHz.
- 5) The measurements were made with the detector set to PEAK amplitude within a bandwidth of 10 kHz or to QUASI-PEAK and AVERAGE within a bandwidth of 9 kHz. The EUT was in transmitting mode during the measurements.

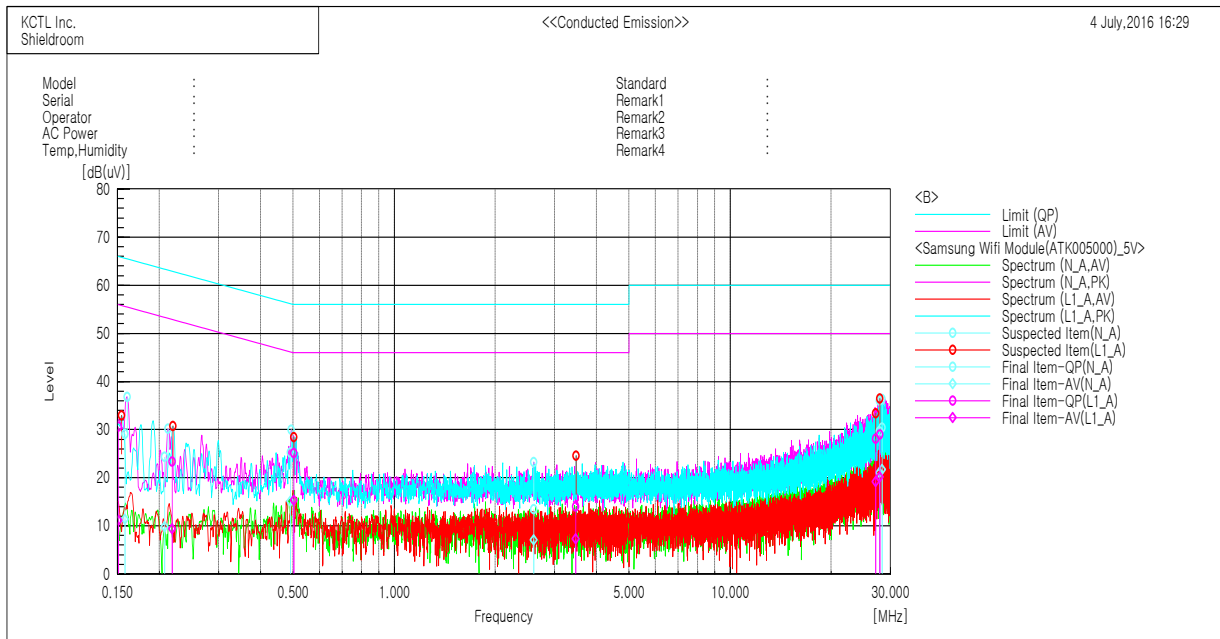
### 5.6.3 Test Result

- Complied

- DC 5 V

Figure 6. plot of Conducted Emission

- Conducted worst-case data : 802.11n HT20\_Middle channel (2 437 MHz)



#### Final Result

##### --- N\_A Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.15784	19.2	1.4	9.9	29.1	11.3	65.6	55.6	36.5	44.3
2	0.20756	14.4	-0.2	10.0	24.4	9.8	63.3	53.3	38.9	43.5
3	0.49127	15.1	4.9	10.1	25.2	15.0	56.1	46.1	30.9	31.1
4	2.6001	3.1	-3.3	10.3	13.4	7.0	56.0	46.0	42.6	39.0
5	27.83146	12.9	4.3	16.7	29.6	21.0	60.0	50.0	30.4	29.0
6	28.31418	13.6	4.9	16.8	30.4	21.7	60.0	50.0	29.6	28.3

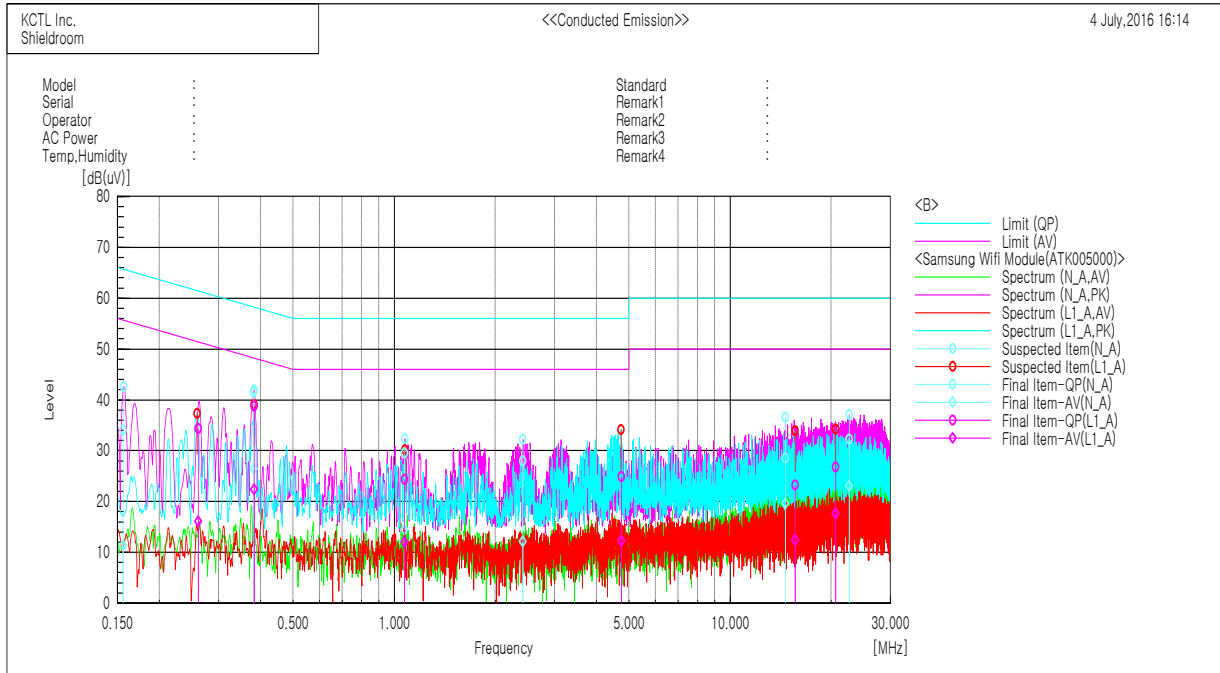
##### --- L1\_A Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.15101	20.7	1.2	9.9	30.6	11.1	65.9	55.9	35.3	44.8
2	0.21863	13.3	-0.6	10.0	23.3	9.4	62.9	52.9	39.6	43.5
3	0.5024	15.0	5.2	10.1	25.1	15.3	56.0	46.0	30.9	30.7
4	3.47095	3.2	-3.6	10.8	14.0	7.2	56.0	46.0	42.0	38.8
5	27.10634	12.3	3.4	15.7	28.0	19.1	60.0	50.0	32.0	30.9
6	27.9177	13.2	4.4	15.8	29.0	20.2	60.0	50.0	31.0	29.8

- DC 12 V

Figure 6. plot of Conducted Emission

- Conducted worst-case data : 802.11g\_Middle channel (2 437 MHz)



Final Result

--- N\_A Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.15608	24.1	1.4	9.9	34.0	11.3	65.7	55.7	31.7	44.4
2	0.38169	31.3	16.3	10.1	41.4	26.4	58.2	48.2	16.8	21.8
3	1.07371	19.4	4.3	10.1	29.5	14.4	56.0	46.0	26.5	31.6
4	2.41259	17.6	1.8	10.3	27.9	12.1	56.0	46.0	28.1	33.9
5	14.59984	14.7	5.8	13.8	28.5	19.6	60.0	50.0	31.5	30.4
6	22.59724	16.3	7.1	15.9	32.2	23.0	60.0	50.0	27.8	27.0

--- L1\_A Phase ---

No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.26132	24.4	6.1	9.9	34.3	16.0	61.4	51.4	27.1	35.4
2	0.38255	28.6	12.2	10.1	38.7	22.3	58.2	48.2	19.5	25.9
3	1.07376	14.0	1.7	10.3	24.3	12.0	56.0	46.0	31.7	34.0
4	4.74425	13.9	1.3	10.9	24.8	12.2	56.0	46.0	31.2	33.8
5	15.61855	10.2	-0.5	13.0	23.2	12.5	60.0	50.0	36.8	37.5
6	20.62628	12.3	3.2	14.4	26.7	17.6	60.0	50.0	33.3	32.4

## 6. Test equipment used for test

	Equipment Name	Manufacturer	Model No.	Serial No.	Next Cal. Date
■	Spectrum Analyzer	R & S	FSV40	100988	17.01.07
■	Wideband Power Sensor	R & S	NRP-Z81	102398	17.02.11
■	DC Power Supply	AGILENT	E3632A	MY40004399	17.01.07
■	Signal Generator	R & S	SMB100A	176206	17.03.14
■	ATTENUATOR	R & S	DNF	0004	17.06.02
■	Test Receiver	ESR	ESR	101078	16.09.02
■	Bi-Log Antenna	SCHWARZBECK	VULB 9163	552	16.07.10
■	Test Receiver	R & S	ESC17	100732	16.09.02
■	Amplifier	SONOMA INSTRUMENT	310N	344922	16.09.02
■	Attenuator	SCHWARZBECK	DGA9552N	BU2404	17.04.08
■	Horn antenna	ETS.lindgren	3117	155787	16.11.25
■	Horn antenna	ETS.lindgren	3116	00086632	16.12.03
■	Broadband Preamplifier	SCHWARZBECK	BBV9718	9718-233	17.01.09
■	Broadband Preamplifier	SCHWARZBECK	BBV9721	2	17.05.03
■	LOOP Antenna	R & S	HFH2-Z2	100355	18.03.03
■	Highpass Filter	Wainwright Instruments GmbH	WHKX3.0/ 18G-12SS	44	17.02.01
■	Antenna Mast	MATURO	AM4.0	079/3440509	-
■	Turn Table	MATURO	CO2000-SOFT	-	-
■	Antenna Mast	Innco Systems	MA4000-EP	-	-
■	Turn Table	Innco Systems	DT2000	-	-
■	Cable Assembly	HUER+SUHNER	SUCOFLEX 102	MY3565/2	-
■	Cable Assembly	HUER+SUHNER	SUCOFLEX 104	MY4342/4	-