

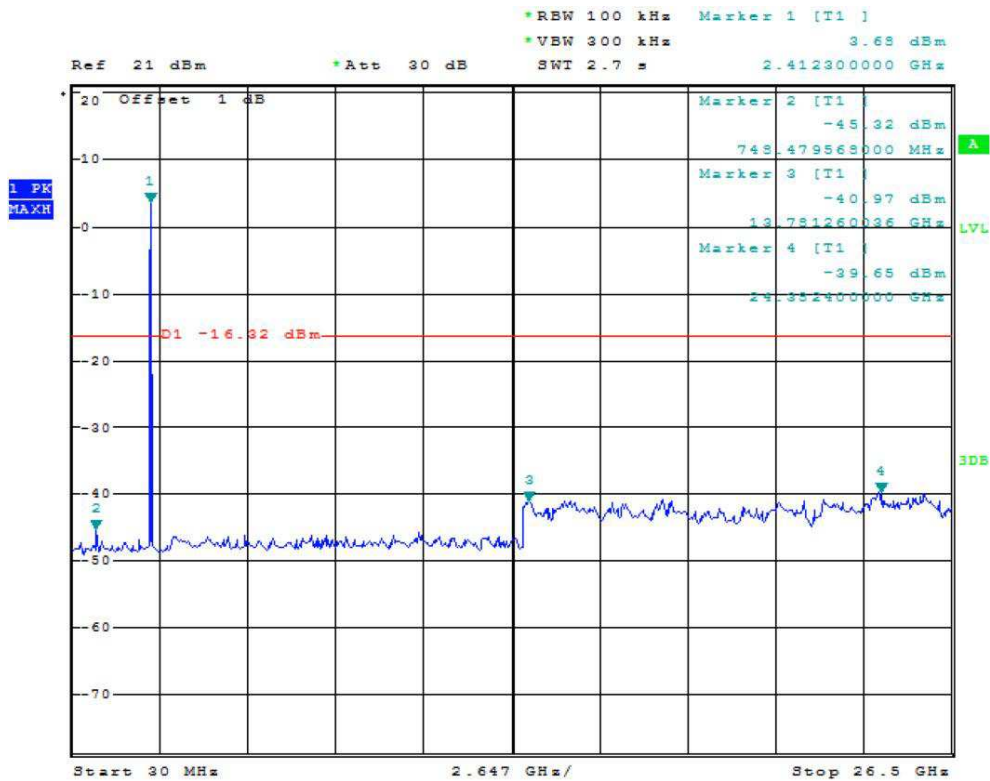
Appendix B: Test Results of Wi-Fi 802.11 b/g/n

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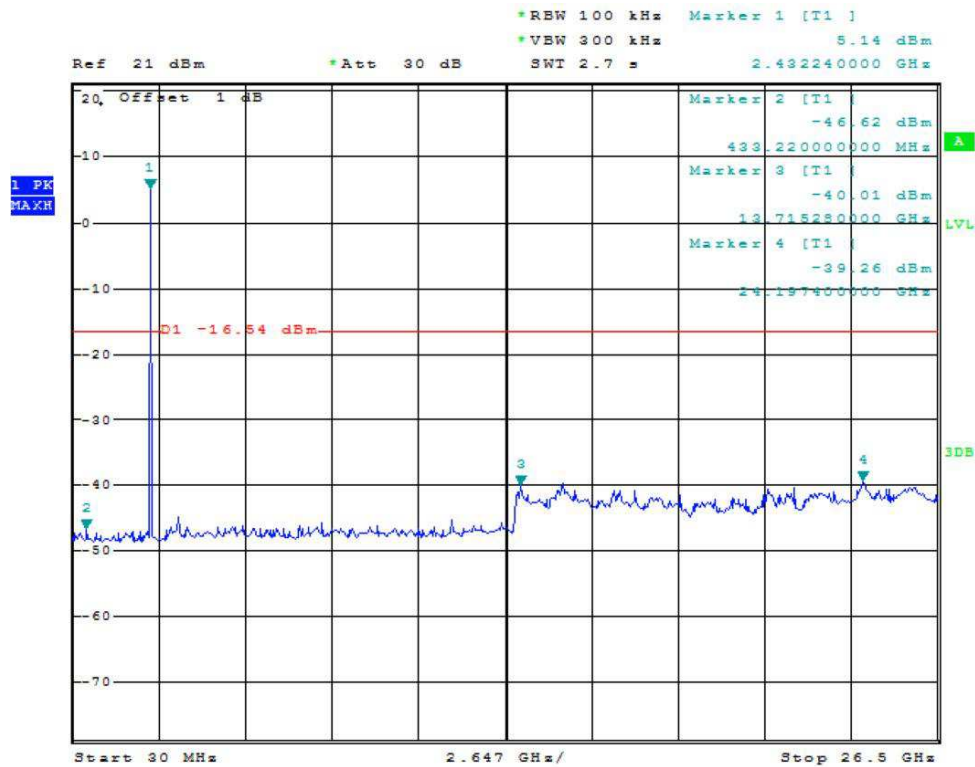
Appendix B.1: Conducted Spurious Emissions Measured in 100 kHz Bandwidth

Wi-Fi 802.11 b mode, 1 Mbps

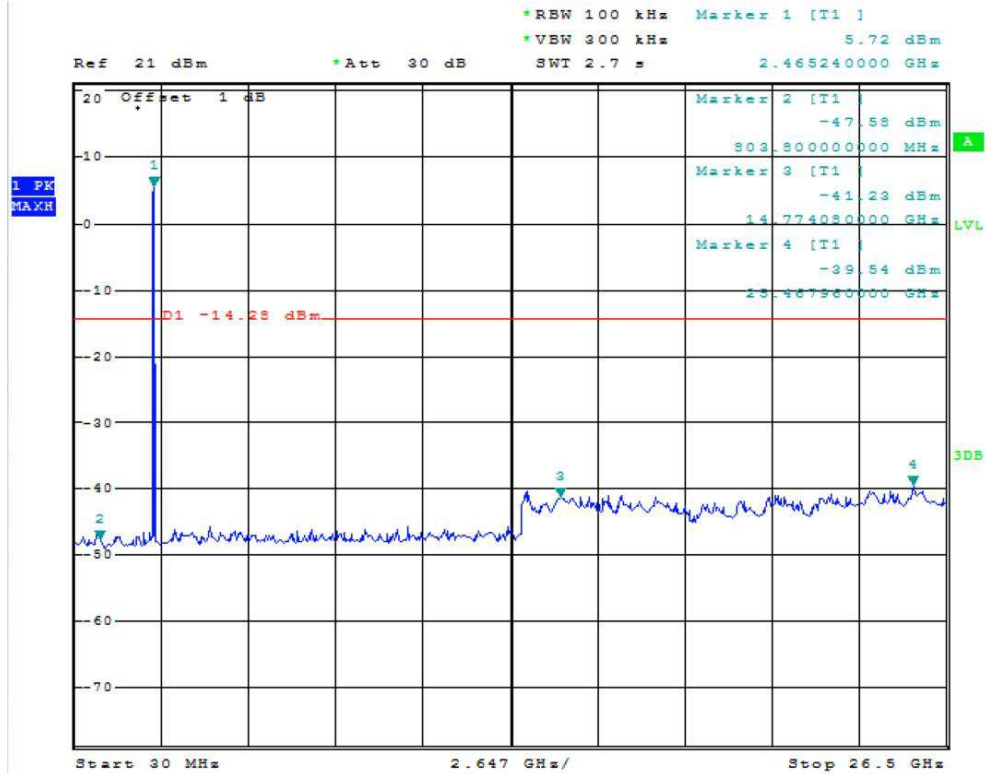
Low Channel



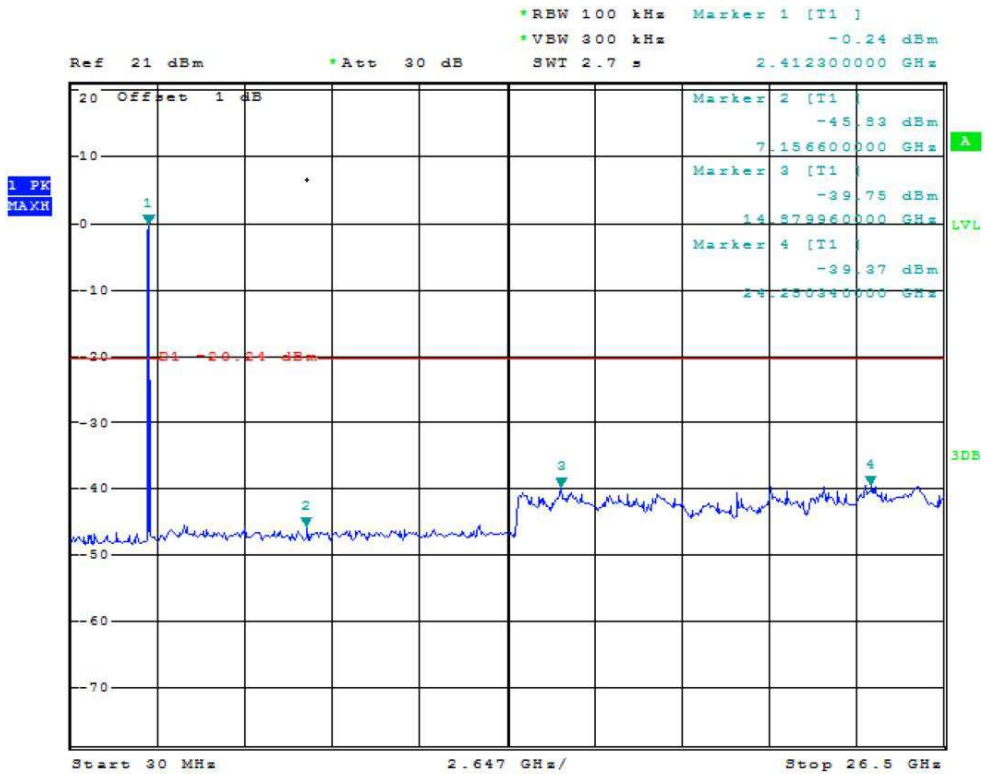
Middle Channel



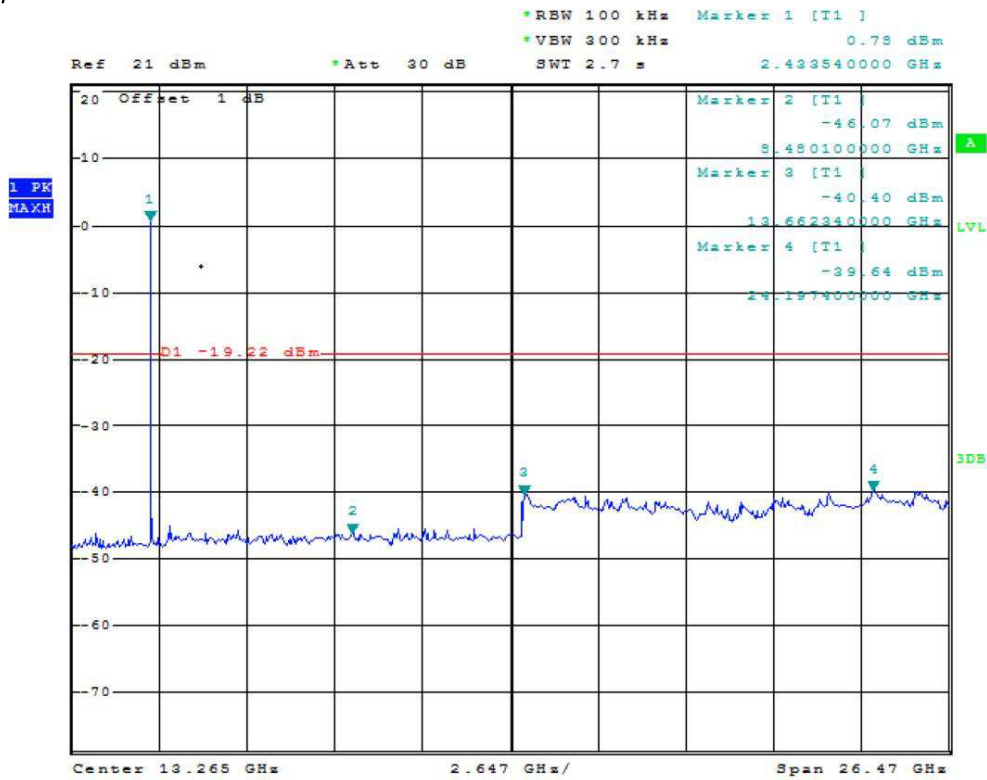
High Channel



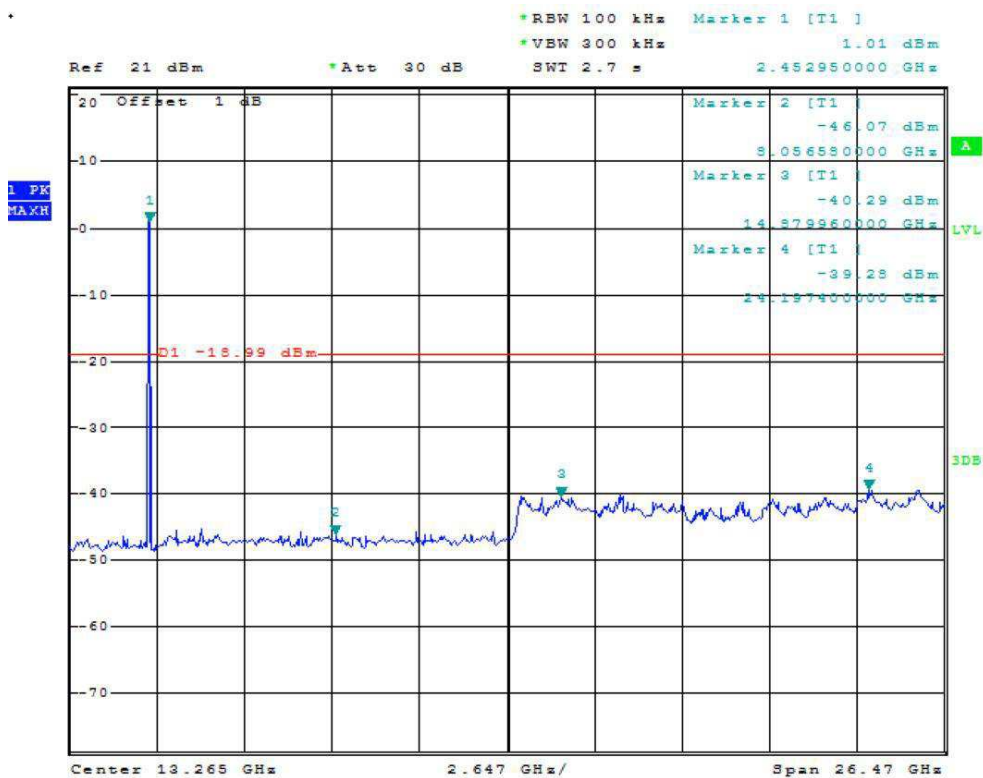
Wi-Fi 802.11 g mode, 6 Mbps Low Channel



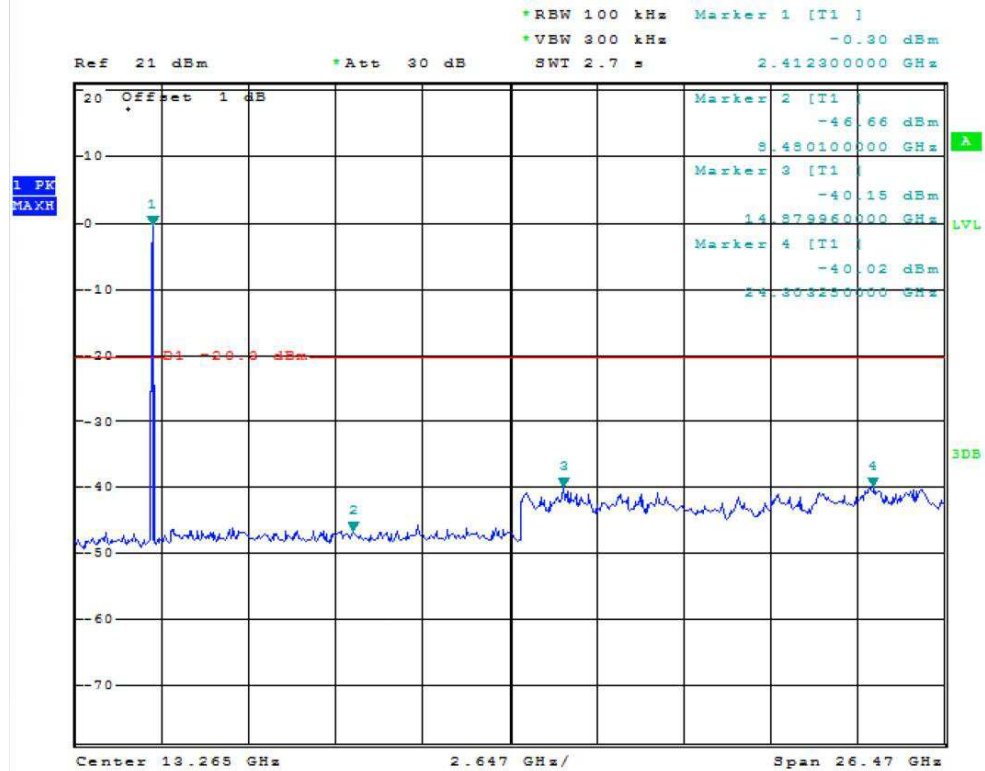
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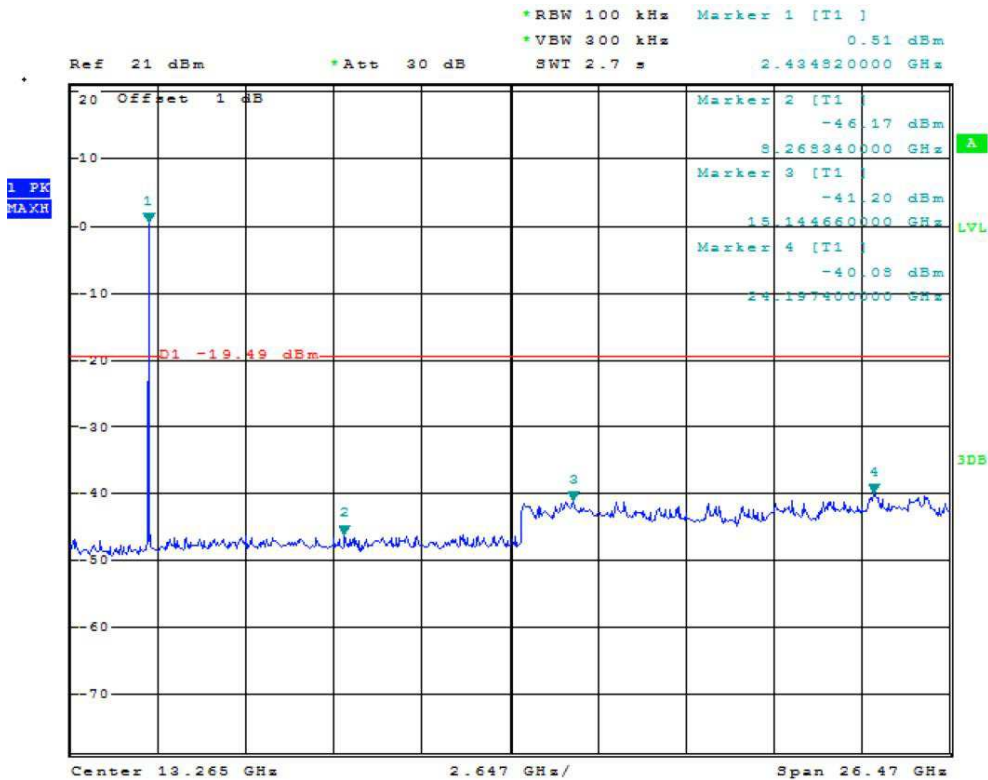
High Channel



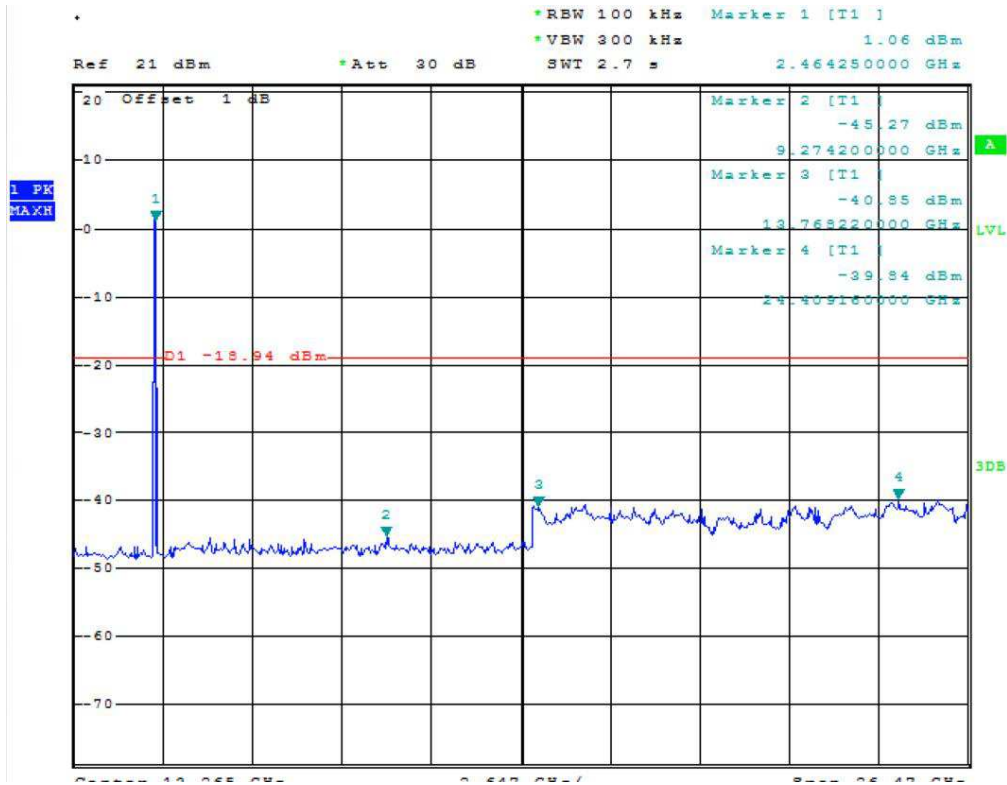
Wi-Fi 802.11 n(HT20) mode, MCS0
Low Channel



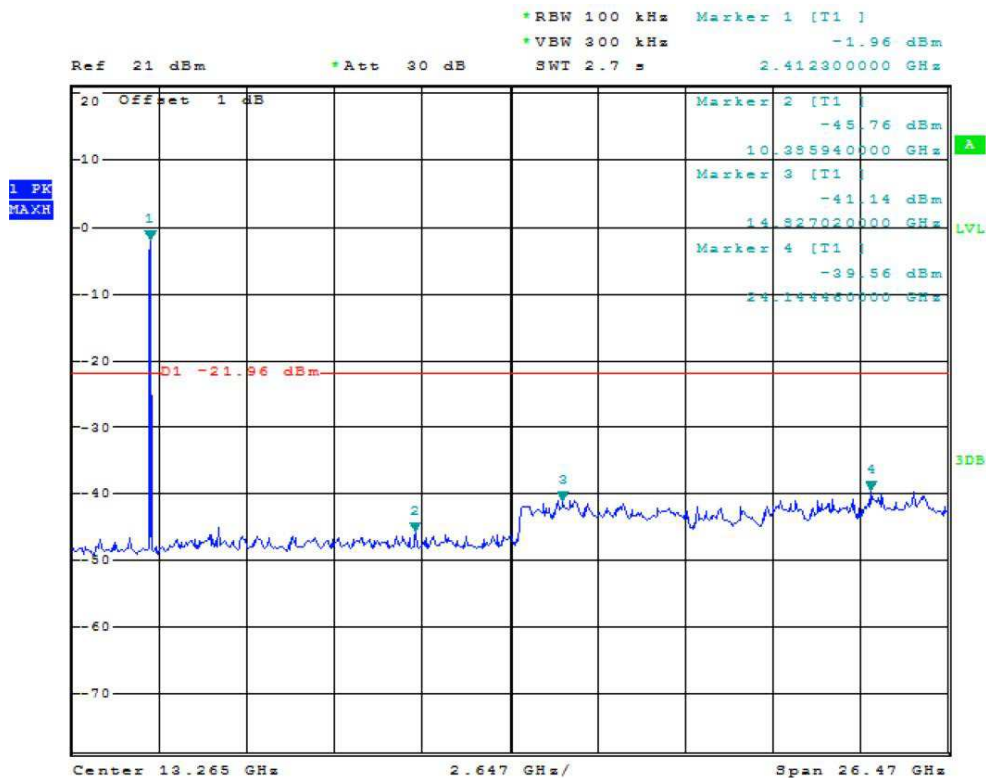
Middle Channel



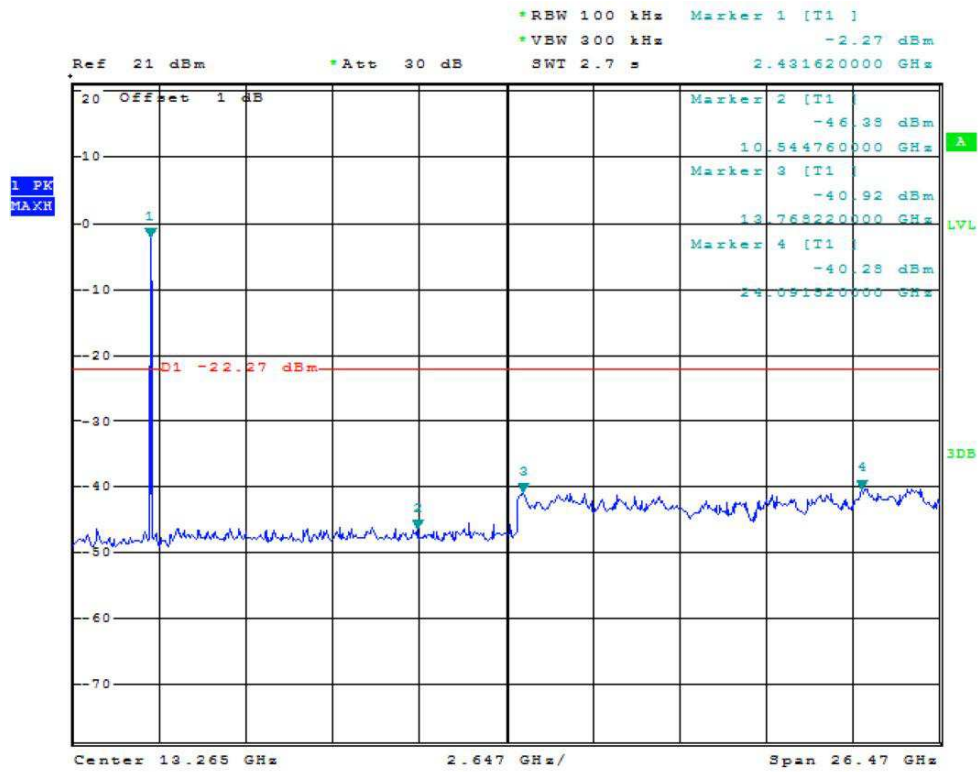
High Channel



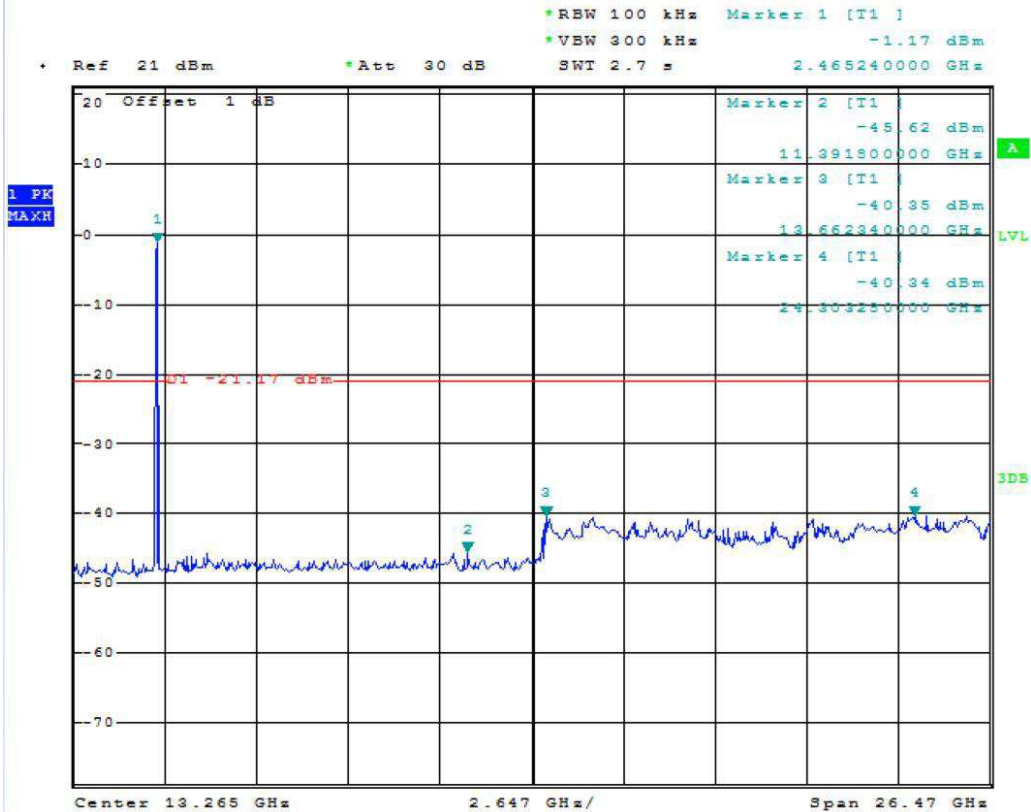
Wi-Fi 802.11 n(HT40) mode, MCS0 Low Channel



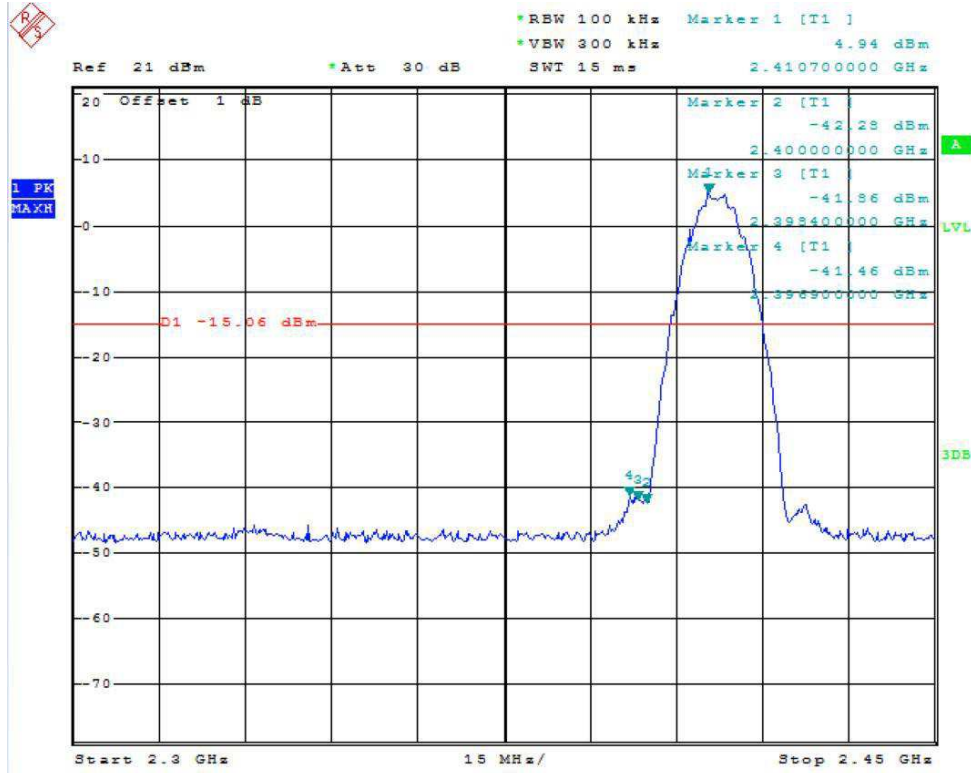
Middle Channel



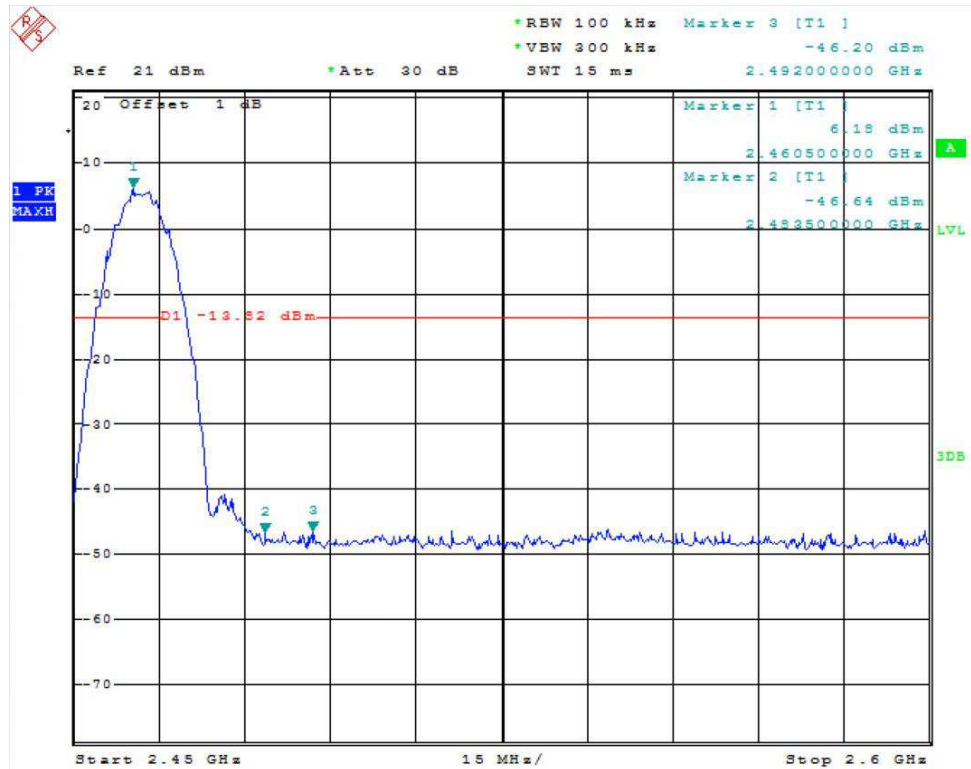
High Channel



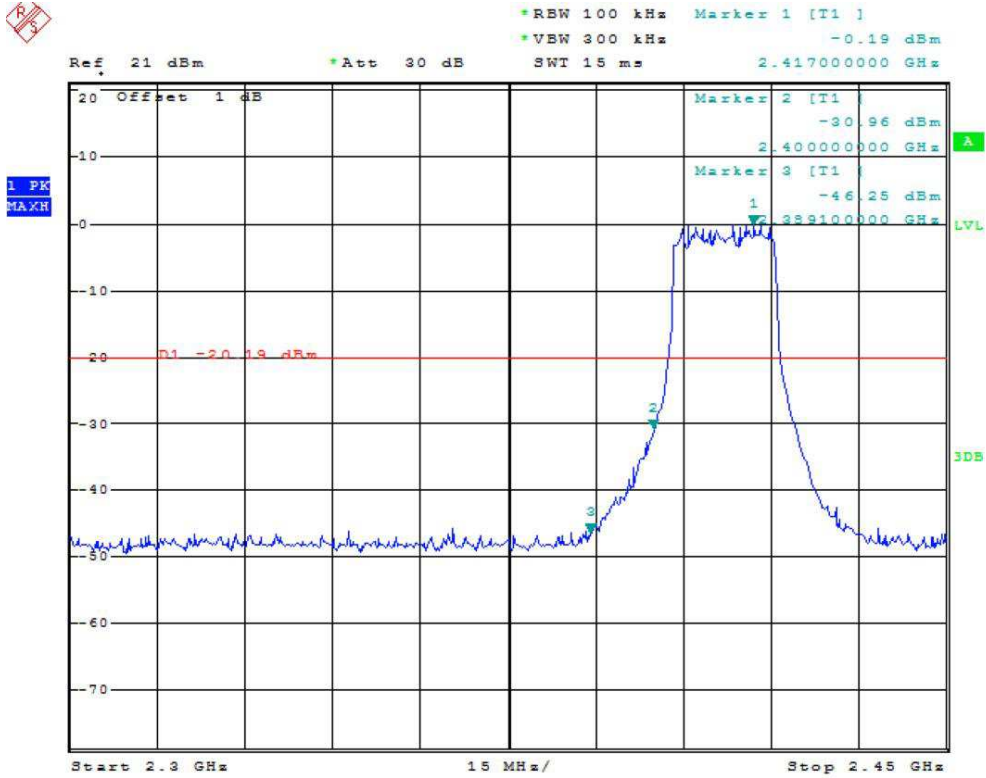
Wi-Fi 802.11 b mode, Band Edge Low Channel



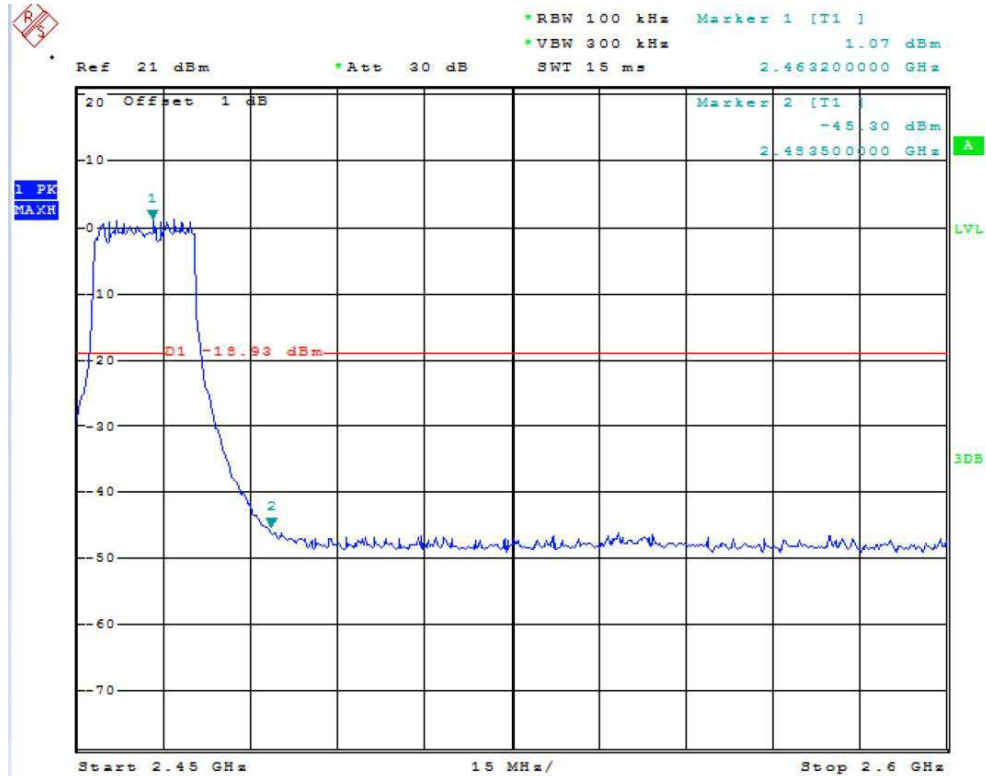
High Channel



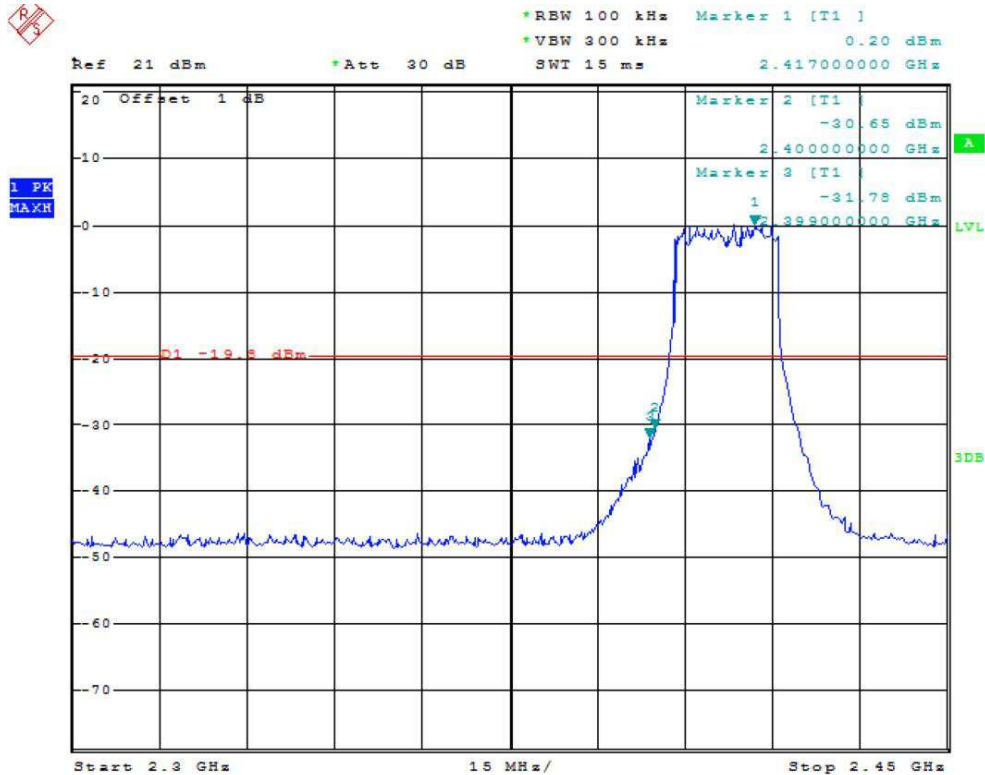
Wi-Fi 802.11 g mode, Band Edge Low Channel



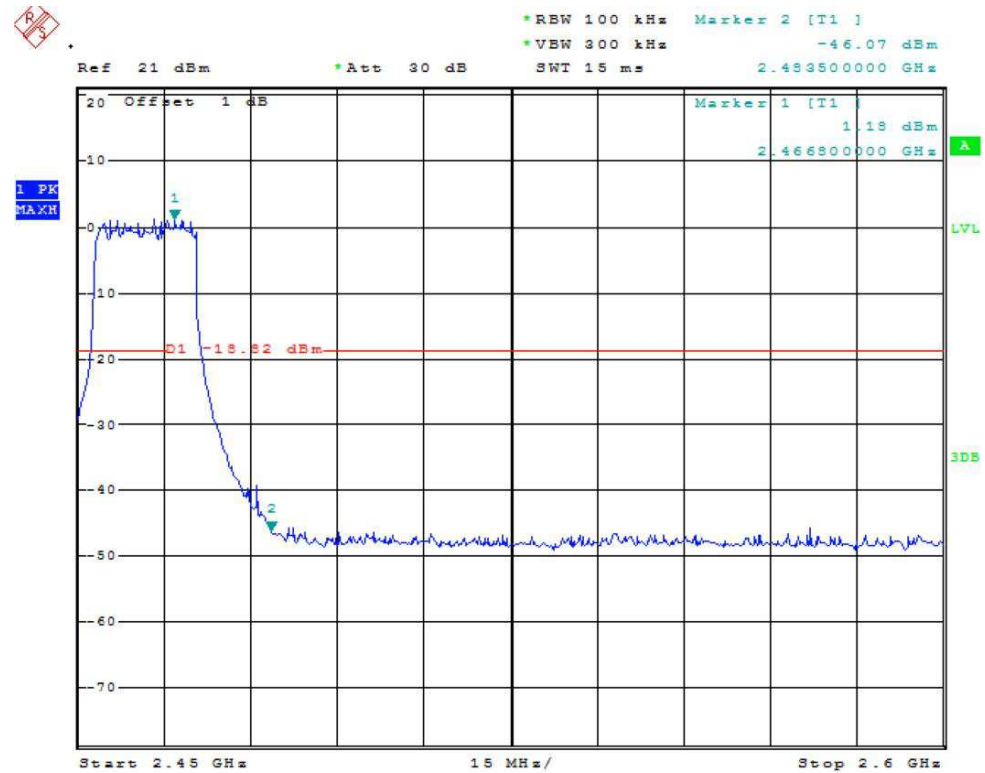
High Channel



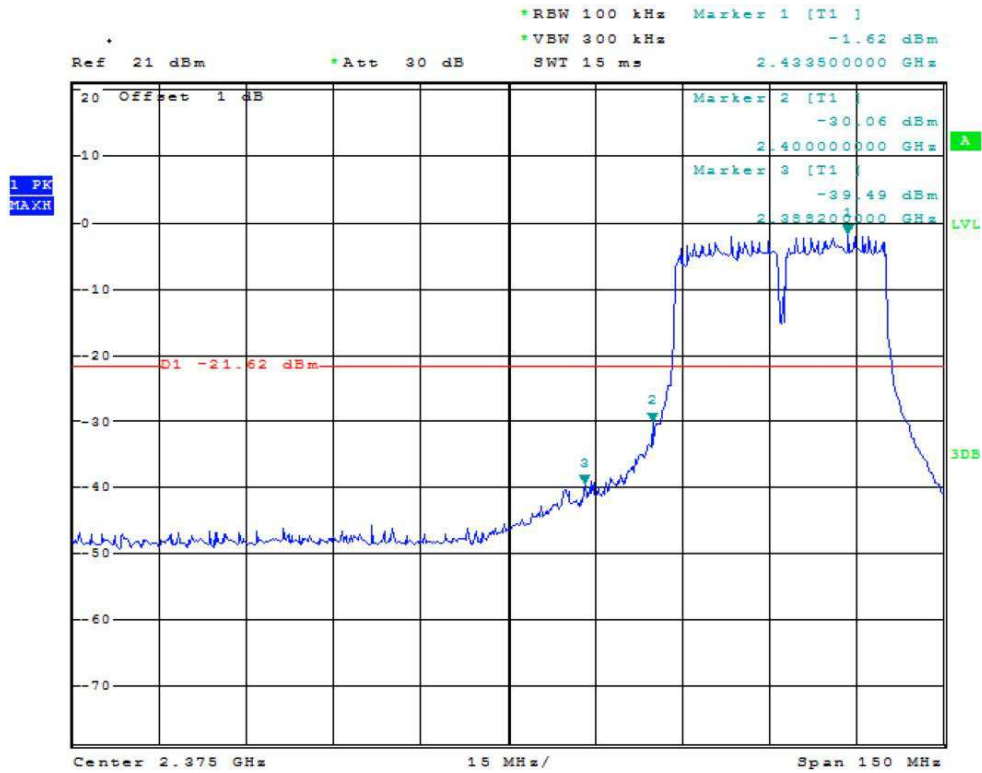
Wi-Fi 802.11 n(HT20) mode, Band Edge
Low Channel



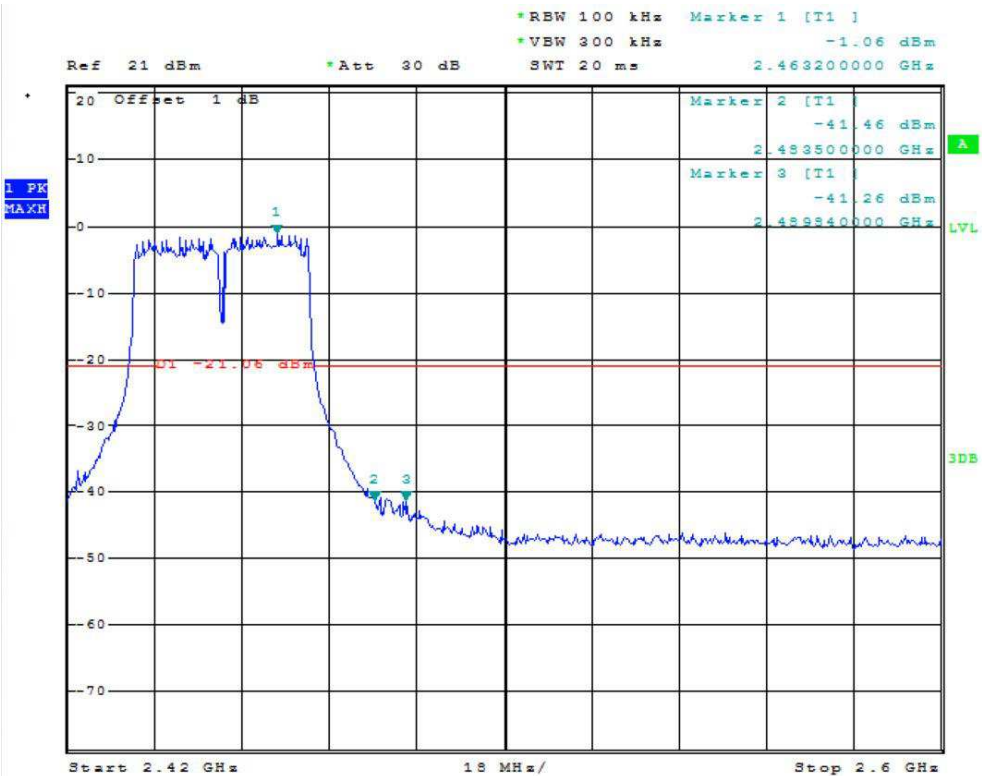
High Channel



Wi-Fi 802.11 n(HT40) mode, Band Edge
Low Channel



High Channel



Note: Testing was carried out within frequency range 9kHz to the tenth harmonics.

Appendix B.2: Test Results of Radiated Spurious Emissions 9KHz - 1GHz

TUV Rheinland (Guangdong) Ltd.

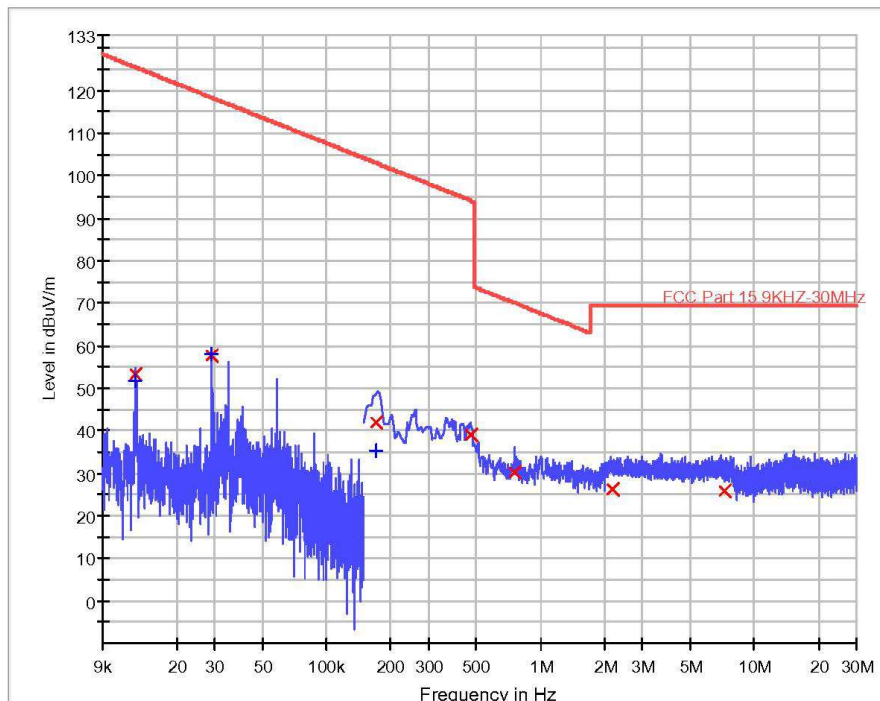
EMC Test Service Hotline: +86-20-28391188

EMC Test Record (Emission)

Common Information

Manufacturer:	Midea
Test Item:	Wi-Fi Module
Identification:	QCA4004SIP
Test Standard:	FCC Part 15
Test Detail:	Radiated Emission
Operation Mode:	Transmitting
Climate Condition:	20 °C, 50 %, 100 k Pa
Test Voltage/ Freq:	DC 5V
Receipt No:	170109196
Report No:	/
Result:	Pass
Comment:	

Subrange 1	
Frequency range:	9K-30MHz
Receiver:	ESCI 3
Transducer:	HFH2-Z2



Tested by *Chris Liang*
20190624

Reviewed by *Jacky Chen*
20190628

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

Limit and Margin QP

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
0.471000	39.0	1000.0	9.000	20.4	55.1	94.1
0.754000	30.3	1000.0	9.000	20.6	39.8	70.1
2.184000	26.3	1000.0	9.000	21.4	43.2	69.5
7.210000	26.0	1000.0	9.000	21.5	43.5	69.5

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBuV/m)
0.012800	51.8	1000.0	0.200	22.5	73.6	125.4
0.029200	57.9	1000.0	0.200	22.7	60.4	118.3
0.172000	35.5	1000.0	9.000	20.9	67.4	102.9

Tested by

Chris Liang

20190624

Reviewed by

Jacky Chen

20190628

TUV Rheinland (Guangdong) Ltd.

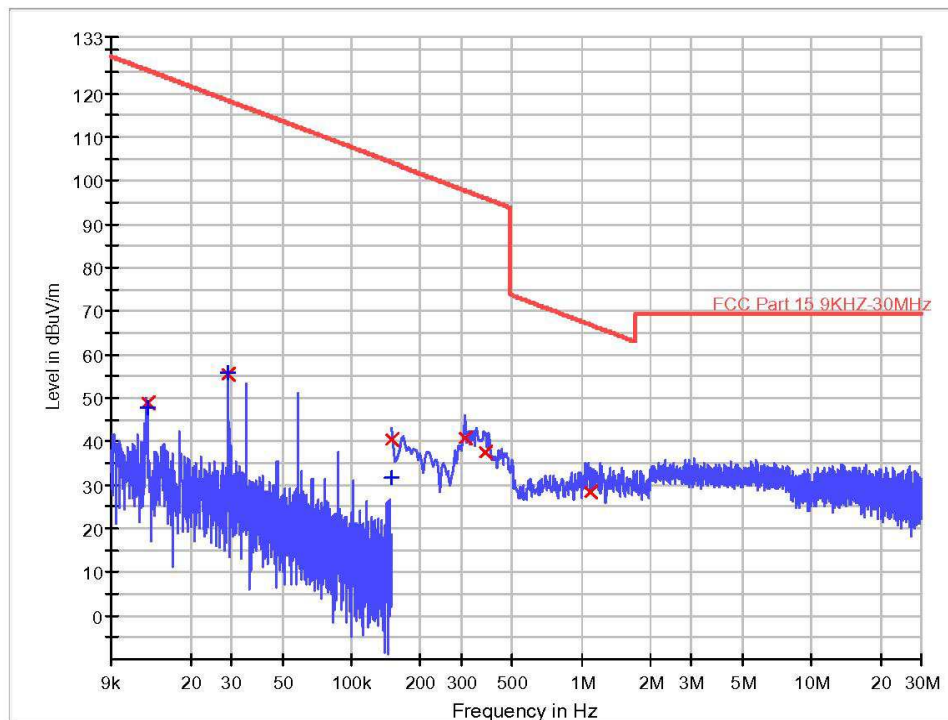
EMC Test Service Hotline: +86-20-28391188

EMC Test Record (Emission)

Common Information

Manufacturer:	Midea
Test Item:	Wi-Fi Module
Identification:	QCA4004SIP
Test Standard:	FCC Part 15
Test Detail:	Spurious Emission
Operation Mode:	Receiver (802.11 b-Mid)
Climate Condition:	20 °C, 50 %, 100 k Pa
Test Voltage/ Freq:	DC 5V
Receipt No:	170109196
Report No:	/
Result:	Pass
Comment:	Test distance is 3m;

Subrange 1	
Frequency range:	9K-30MHz
Receiver:	ESCI 3
Transducer:	HFH2-Z2



Tested by

Chris Liang

20190624

Reviewed by

Jacky Chen

20190628

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EMC Test Service Hotline: +86-20-28391188

Limit and Margin QP

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)
0.310000	41.0	1000.0	9.000	20.2	56.8	97.8
0.381000	37.7	1000.0	9.000	20.3	58.3	96.0
1.098000	28.4	1000.0	9.000	21.3	38.5	66.8

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBuV/m)
0.012900	47.9	1000.0	0.200	22.5	77.4	125.4
0.029100	55.7	1000.0	0.200	22.7	62.6	118.3
0.150000	31.8	1000.0	9.000	21.2	72.3	104.1

Tested by

Chris Liang

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Reviewed by

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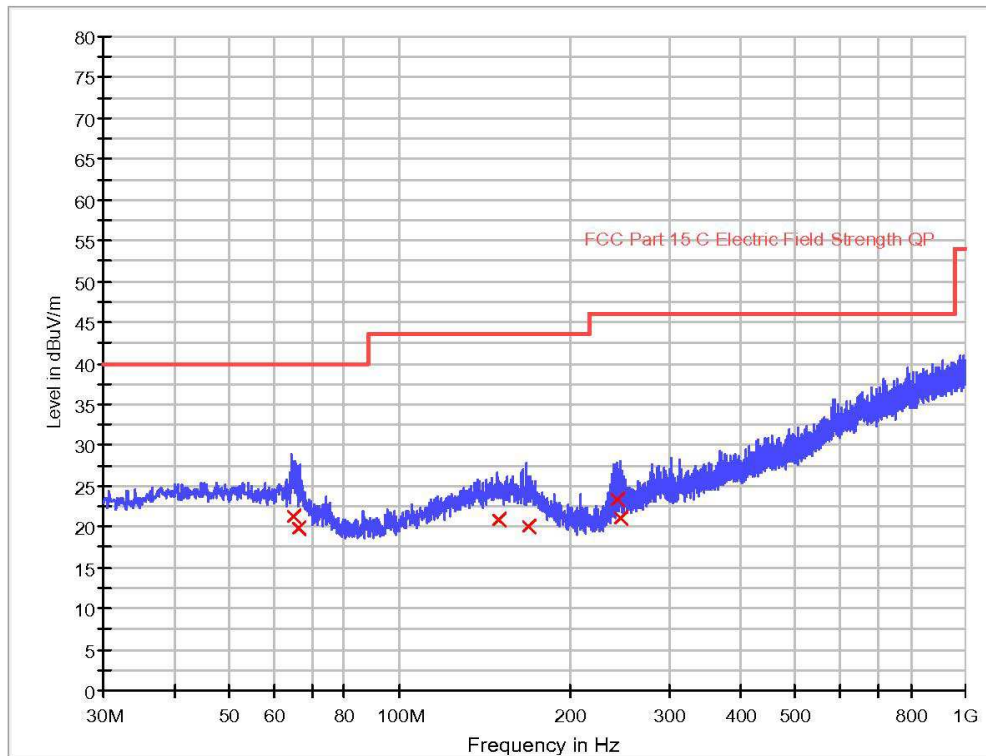
EMC Test Service Hotline: +86-20-28391188

EMC Test Record (Emission)

Common Information

Manufacturer:	Midea
Test Item:	Wi-Fi Module
Identification:	QCA4004SIP
Test Standard:	FCC Part 15
Test Detail:	Spurious Emission
Operation Mode:	Transmitting
Climate Condition:	20 °C, 50 %, 100 kPa
Test Voltage/ Freq:	DC 5.0V
Receipt No:	170109196
Report No:	/
Result:	Pass
Comment:	Test distance is 3m; Vertical

Subrange 1	
Frequency range:	30-1000MHz
Receiver:	ESCI 3
Transducer:	VULB9168



Tested by

Chris Liang

20190624

Reviewed by

Jacky Chen

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EMC Test Service Hotline: +86-20-28391188

Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)	Comment
65.160000	21.2	1000.0	120.000	V	19.3	18.8	40.0	
66.240000	19.9	1000.0	120.000	V	19.1	20.1	40.0	
150.160000	20.9	1000.0	120.000	V	21.1	22.6	43.5	
168.840000	20.1	1000.0	120.000	V	21.0	23.4	43.5	
242.200000	23.3	1000.0	120.000	V	19.4	22.8	46.0	
246.680000	21.0	1000.0	120.000	V	19.6	25.0	46.0	

Tested by

Chris Liang

20190624

Reviewed by

Jacky Chen

20190628

TUV Rheinland (Guangdong) Ltd.

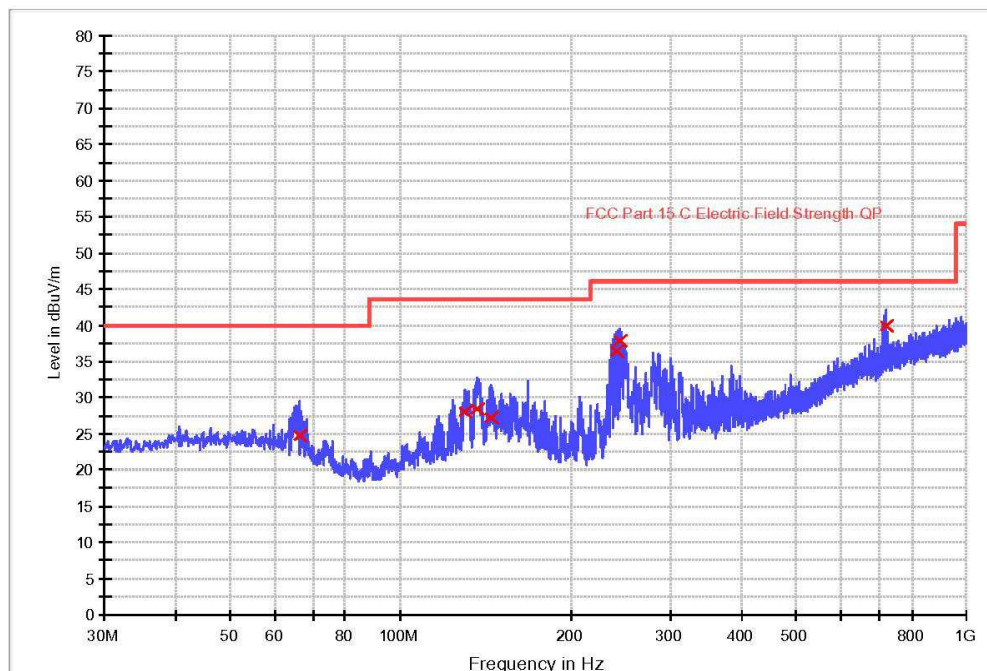
EMC Test Service Hotline: +86-20-28391188

EMC Test Record (Emission)

Common Information

Manufacturer:	Midea
Test Item:	Wi-Fi Module
Identification:	QCA4004SIP
Test Standard:	FCC Part 15
Test Detail:	Spurious Emission
Operation Mode:	Transmitting
Climate Condition:	20 °C, 50 %, 100 kPa
Test Voltage/ Freq:	DC 5.0V
Receipt No:	170109196
Report No:	/
Result:	Pass
Comment:	Test distance is 3m; Horizontal

Subrange 1	
Frequency range:	30-1000MHz
Receiver:	ESCI 3
Transducer:	VULB9168



Tested by

Chris Liang

20190624

Reviewed by

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TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)	Comment
66.240000	24.9	1000.0	120.000	H	19.1	15.2	40.0	
130.400000	28.0	1000.0	120.000	H	19.8	15.5	43.5	
136.200000	28.5	1000.0	120.000	H	20.2	15.0	43.5	
144.080000	27.3	1000.0	120.000	H	20.6	16.2	43.5	
240.000000	36.5	1000.0	120.000	H	19.3	9.5	46.0	
243.760000	37.8	1000.0	120.000	H	19.4	8.2	46.0	
721.840000	39.8	1000.0	120.000	H	31.9	6.2	46.0	

Tested by

Chris Liang

20190624

Reviewed by

Jacky Chen

20190628

1GHz - 18GHz

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EMC Test Service Hotline: +86-20-28391188

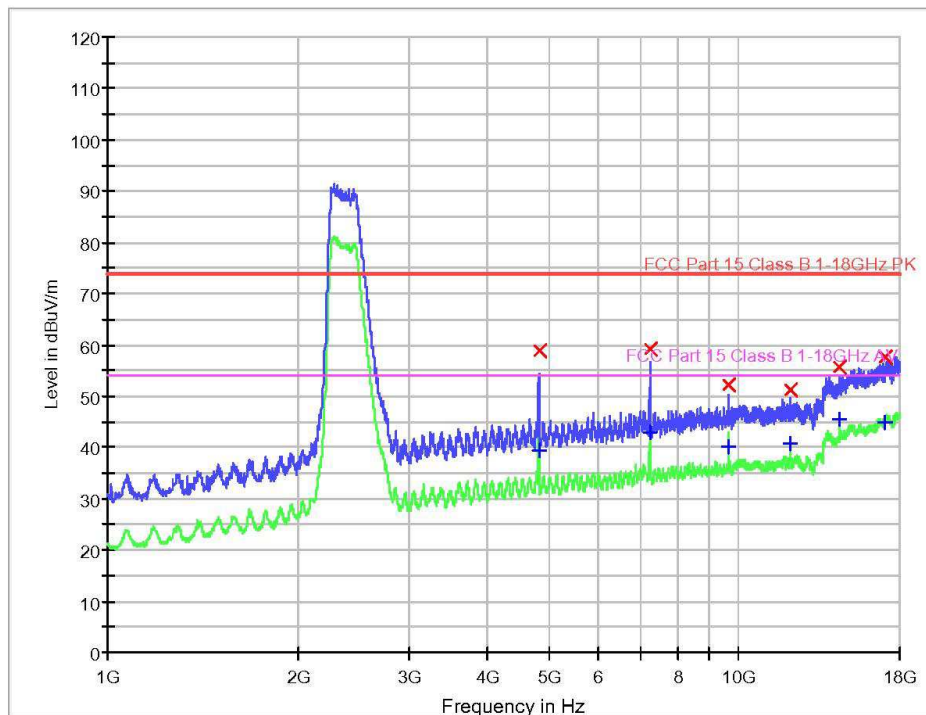
EMC Test Record (Emission)

Common Information

Manufacturer:	Midea
Test Item:	Wi-Fi Module
Identification:	QCA4004SIP
Test Standard:	FCC Part 15
Test Detail:	Spurious Emission
Operation Mode:	Transmitting (802.11b-low)
Climate Condition:	20 °C, 50 %, 101 kPa
Test Voltage/ Freq:	DC 5.0V
Receipt No:	170109196
Report No:	/
Result:	Pass
Comment:	Vertical

Subrange 1	
Frequency Range:	1GHz-18GHz
Receiver:	TUV FSP30
Transducer:	TUV SAC Horn 3160-09

EMCTT_EREFO11-A02-07_1GHz-18GHz_With PreAMP EXT& Notch filter



Tested by: *Chris Liang*

20190612

Reviewed by: *Jacky Chen*

20190624

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
4825.000000	58.8	1000.0	1000.000	V	-4.7	15.2	74.0
7235.000000	59.1	1000.0	1000.000	V	-1.1	14.9	74.0
9649.000000	52.4	1000.0	1000.000	V	2.7	21.6	74.0
12061.000000	51.4	1000.0	1000.000	V	4.1	22.6	74.0
14475.000000	55.8	1000.0	1000.000	V	6.5	18.2	74.0
17050.000000	57.7	1000.0	1000.000	V	11.2	16.3	74.0

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBuV/m)
4825.000000	39.4	1000.0	1000.000	V	-4.7	14.6	54.0
7235.000000	43.0	1000.0	1000.000	V	-1.1	11.0	54.0
9649.000000	40.2	1000.0	1000.000	V	2.7	13.8	54.0
12061.000000	40.7	1000.0	1000.000	V	4.1	13.3	54.0
14475.000000	45.4	1000.0	1000.000	V	6.5	8.6	54.0
17050.000000	44.8	1000.0	1000.000	V	11.2	9.2	54.0

Tested by: *Chris Liang*
20190612

Reviewed by: *Jacky Chen*
20190624

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

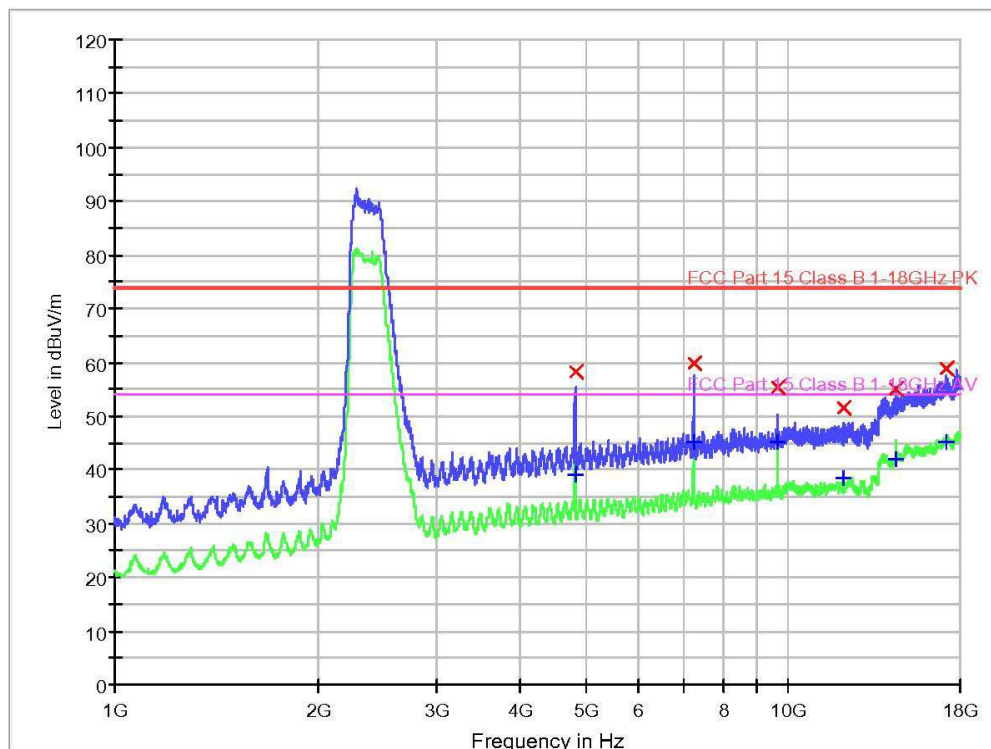
EMC Test Record (Emission)

Common Information

Manufacturer:	Midea
Test Item:	Wi-Fi Module
Identification:	QCA4004SIP
Test Standard:	FCC Part 15
Test Detail:	Spurious Emission
Operation Mode:	Transmitting (802.11b-low)
Climate Condition:	20 °C, 50 %, 101 k Pa
Test Voltage/ Freq:	DC 5.0V
Receipt No:	170109196
Report No:	/
Result:	Pass
Comment:	Horizontal

Subrange 1	
Frequency Range:	1GHz-18GHz
Receiver:	TUV FSP30
Transducer:	TUV SAC Horn 3160-09

EMCTT_EREFO11-A02-07_1GHz-18GHz_With PreAMP EXT& Notch filter



Tested by: *Chris Liang*

20190612

Reviewed by: *Jacky Chen*

20190624

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
4823.000000	58.4	1000.0	1000.000	H	-4.7	15.6	74.0
7235.000000	59.9	1000.0	1000.000	H	-1.1	14.1	74.0
9647.000000	55.3	1000.0	1000.000	H	2.7	18.8	74.0
12061.000000	51.5	1000.0	1000.000	H	4.1	22.5	74.0
14475.000000	55.0	1000.0	1000.000	H	6.5	19.1	74.0
17120.000000	58.8	1000.0	1000.000	H	11.4	15.3	74.0

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBuV/m)
4823.000000	39.2	1000.0	1000.000	H	-4.7	14.9	54.0
7235.000000	45.2	1000.0	1000.000	H	-1.1	8.8	54.0
9647.000000	45.2	1000.0	1000.000	H	2.7	8.9	54.0
12061.000000	38.5	1000.0	1000.000	H	4.1	15.5	54.0
14475.000000	42.0	1000.0	1000.000	H	6.5	12.1	54.0
17120.000000	45.2	1000.0	1000.000	H	11.4	8.8	54.0

Tested by: *Chris Liang*

20190612

Reviewed by:

Jacky Chen

20190624

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

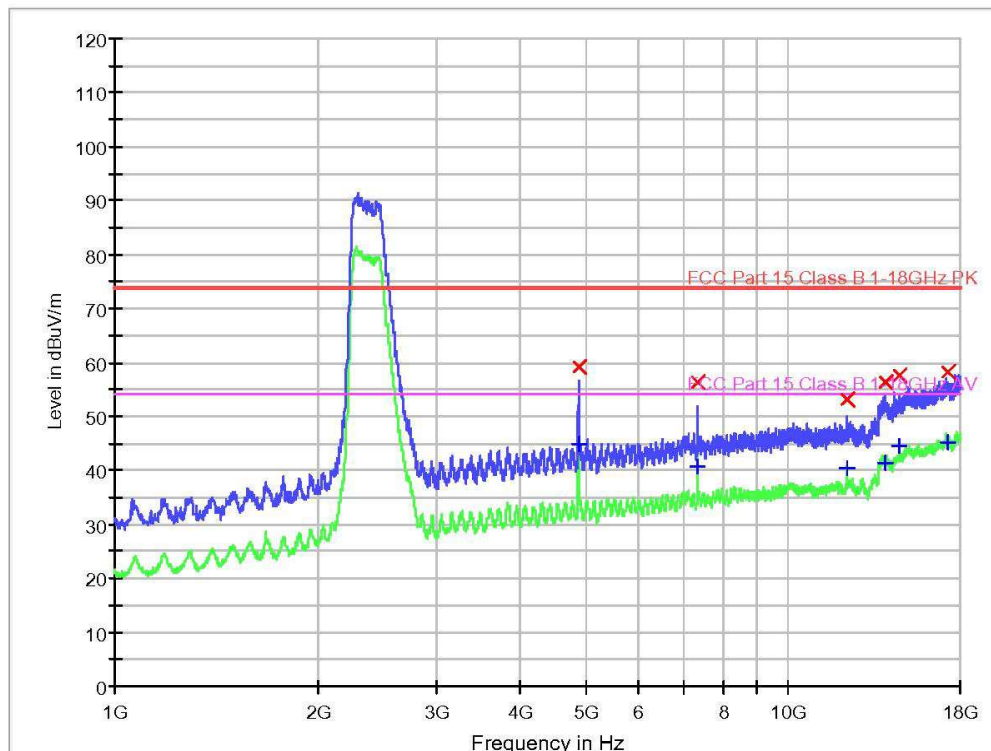
EMC Test Record (Emission)

Common Information

Manufacturer:	Midea
Test Item:	Wi-Fi Module
Identification:	QCA4004SIP
Test Standard:	FCC Part 15
Test Detail:	Spurious Emission
Operation Mode:	Transmitting (802.11b-Middle)
Climate Condition:	20 °C, 50 %, 101 k Pa
Test Voltage/ Freq:	DC 5.0V
Receipt No:	170109196
Report No:	/
Result:	Pass
Comment:	Vertical

Subrange 1	
Frequency Range:	1GHz-18GHz
Receiver:	TUV FSP30
Transducer:	TUV SAC Horn 3160-09

EMCTT_EREFO11-A02-07_1GHz-18GHz_With PreAMP EXT& Notch filter



Tested by: *Chris Liang*

20190612

Reviewed by: *Jacky Chen*

20190624

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
4884.000000	59.1	1000.0	1000.000	V	-4.4	14.9	74.0
7330.000000	56.4	1000.0	1000.000	V	-1.2	17.6	74.0
12211.000000	53.1	1000.0	1000.000	V	4.9	20.9	74.0
13950.000000	56.4	1000.0	1000.000	V	5.9	17.7	74.0
14653.000000	57.5	1000.0	1000.000	V	6.5	16.5	74.0
17226.000000	58.3	1000.0	1000.000	V	11.6	15.7	74.0

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBuV/m)
4884.000000	44.8	1000.0	1000.000	V	-4.4	9.2	54.0
7330.000000	40.8	1000.0	1000.000	V	-1.2	13.2	54.0
12211.000000	40.5	1000.0	1000.000	V	4.9	13.5	54.0
13950.000000	41.4	1000.0	1000.000	V	5.9	12.6	54.0
14653.000000	44.4	1000.0	1000.000	V	6.5	9.6	54.0
17226.000000	45.3	1000.0	1000.000	V	11.6	8.7	54.0

Tested by:

Chris Liang

20190612

Reviewed by:

Jacky Chen

20190624

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

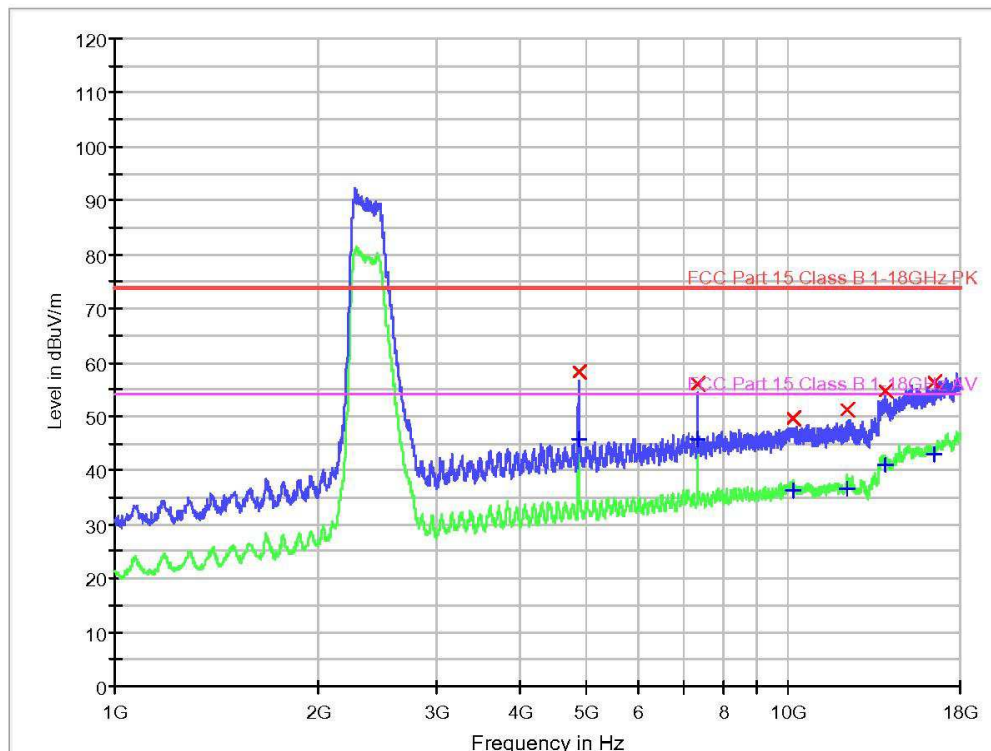
EMC Test Record (Emission)

Common Information

Manufacturer:	Midea
Test Item:	Wi-Fi Module
Identification:	QCA4004SIP
Test Standard:	FCC Part 15
Test Detail:	Spurious Emission
Operation Mode:	Transmitting (802.11b-Middle)
Climate Condition:	20 °C, 50 %, 101 k Pa
Test Voltage/ Freq:	DC 5.0V
Receipt No:	170109196
Report No:	/
Result:	Pass
Comment:	Horizontal

Subrange 1	
Frequency Range:	1GHz-18GHz
Receiver:	TUV FSP30
Transducer:	TUV SAC Horn 3160-09

EMCTT_EREFO11-A02-07_1GHz-18GHz_With PreAMP EXT& Notch filter



Tested by: *Chris Liang*

20190612

Reviewed by: *Jacky Chen*

20190624

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Limit and Margin PK

Frequency (MHz)	MaxPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB/m)	Margin - PK+ (dB)	Limit - PK+ (dBuV/m)
4884.000000	58.4	1000.0	1000.000	H	-4.4	15.6	74.0
7324.000000	56.1	1000.0	1000.000	H	-1.3	17.9	74.0
10157.000000	49.5	1000.0	1000.000	H	3.7	24.5	74.0
12233.000000	51.1	1000.0	1000.000	H	5.0	22.9	74.0
13937.000000	54.8	1000.0	1000.000	H	5.9	19.2	74.0
16427.000000	56.5	1000.0	1000.000	H	9.2	17.6	74.0

Limit and Margin AV

Frequency (MHz)	Average (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB/m)	Margin - AVG (dB)	Limit - AVG (dBuV/m)
4884.000000	46.0	1000.0	1000.000	H	-4.4	8.0	54.0
7324.000000	45.9	1000.0	1000.000	H	-1.3	8.1	54.0
10157.000000	36.2	1000.0	1000.000	H	3.7	17.8	54.0
12233.000000	36.7	1000.0	1000.000	H	5.0	17.3	54.0
13937.000000	41.1	1000.0	1000.000	H	5.9	12.9	54.0
16427.000000	43.1	1000.0	1000.000	H	9.2	10.9	54.0

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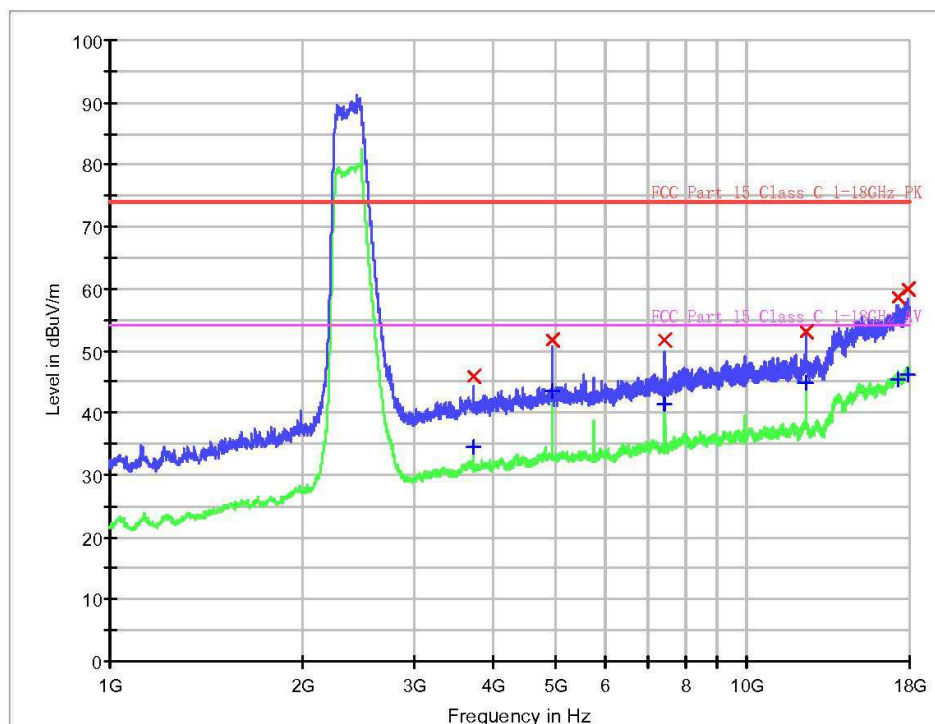
EMC Test Record (Emission)

Common Information

Manufacturer:	Midea
Test Item:	Wi-Fi Module
Identification:	QCA4004SIP
Test Standard:	FCC Part 15
Test Detail:	Spurious Emission
Operation Mode:	Transmitting (802.11b-High)
Climate Condition:	20 °C, 50 %, 101 k Pa
Test Voltage/ Freq:	DC 5.0V
Receipt No:	170109196
Report No:	/
Result:	Pass
Comment:	Vertical

Subrange 1	
Frequency Range:	1GHz-18GHz
Receiver:	TUV FSP30
Transducer:	TUV SAC Horn 3160-09

EMCTT_EREFO11-A02-07_1GHz-18GHz_With PreAMP EXT& Notch filter



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