# 10. PEAK POWER SPECTRUL DENSITY

## 10.1 Operating environment

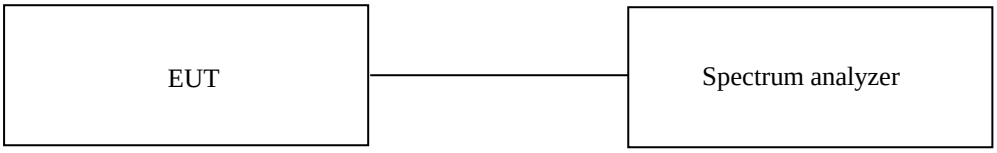
Temperature : 23 °C

Relative humidity : 45 % R.H.

## 10.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set to 1 MHz, the video bandwidth is set to 3 times the resolution bandwidth.(But, 5.8 GHz Measured : The resolution bandwidth is set to 500 kHz, the video bandwidth is set to 3 times the resolution bandwidth.)

The maximum level form the EUT in 1 MHz(But, 5.8 GHz in 500 kHz) bandwidth was measured with above condition.




## 10.3 Test Date

August 21, 2020 ~ September 08, 2020

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## 10.4 Test data for 802.11a RLAN Mode

### 10.4.1 Test data for Antenna 0

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

| FREQUENCY RANGE (MHz) | CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | Correction Factor (dB) | Result (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---|---|---|---|---|---|---|---|
| 5 150 ~ 5 250 | Low | 5 180.00 | 5.56 | 0.32 | 5.88 | 11.00 | 5.12 |
| | Middle | 5 220.00 | 5.91 | 0.32 | 6.23 | 11.00 | 4.77 |
| | High | 5 240.00 | 5.94 | 0.32 | 6.26 | 11.00 | 4.74 |
| 5 250 ~ 5 350 | Low | 5 260.00 | 6.92 | 0.29 | 7.21 | 11.00 | 3.79 |
| | Middle | 5 300.00 | 7.11 | 0.29 | 7.40 | 11.00 | 3.60 |
| | High | 5 320.00 | 7.10 | 0.29 | 7.39 | 11.00 | 3.61 |
| 5 470 ~ 5 725 | Low | 5 500.00 | 5.03 | 0.29 | 5.32 | 11.00 | 5.68 |
| | Middle | 5 580.00 | 4.94 | 0.29 | 5.23 | 11.00 | 5.77 |
| | High | 5 700.00 | 3.98 | 0.29 | 4.27 | 11.00 | 6.73 |
| 5 725 ~ 5 850 | Low | 5 745.00 | 2.61 | 0.29 | 2.90 | 30.00 | 27.10 |
| | Middle | 5 785.00 | 2.29 | 0.29 | 2.58 | 30.00 | 27.42 |
| | High | 5 825.00 | 1.93 | 0.29 | 2.22 | 30.00 | 27.78 |

Remark : Margin = Limit – Result(Measured Value + Correction Factor)

Remark: See next page for measurement data.

 

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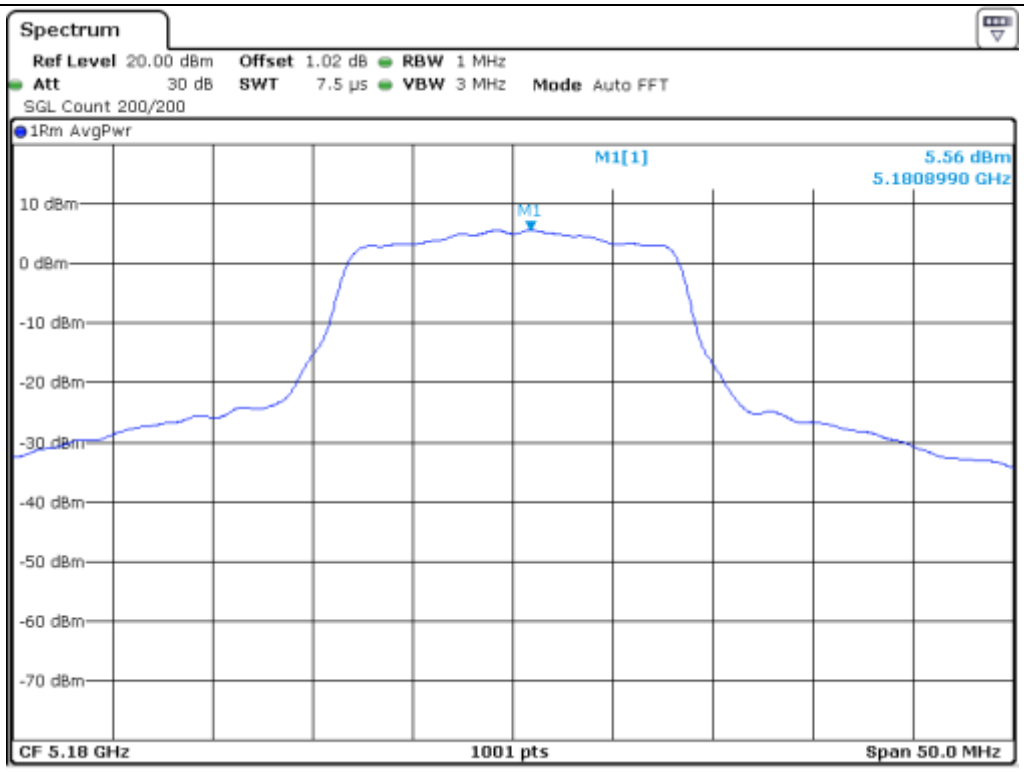
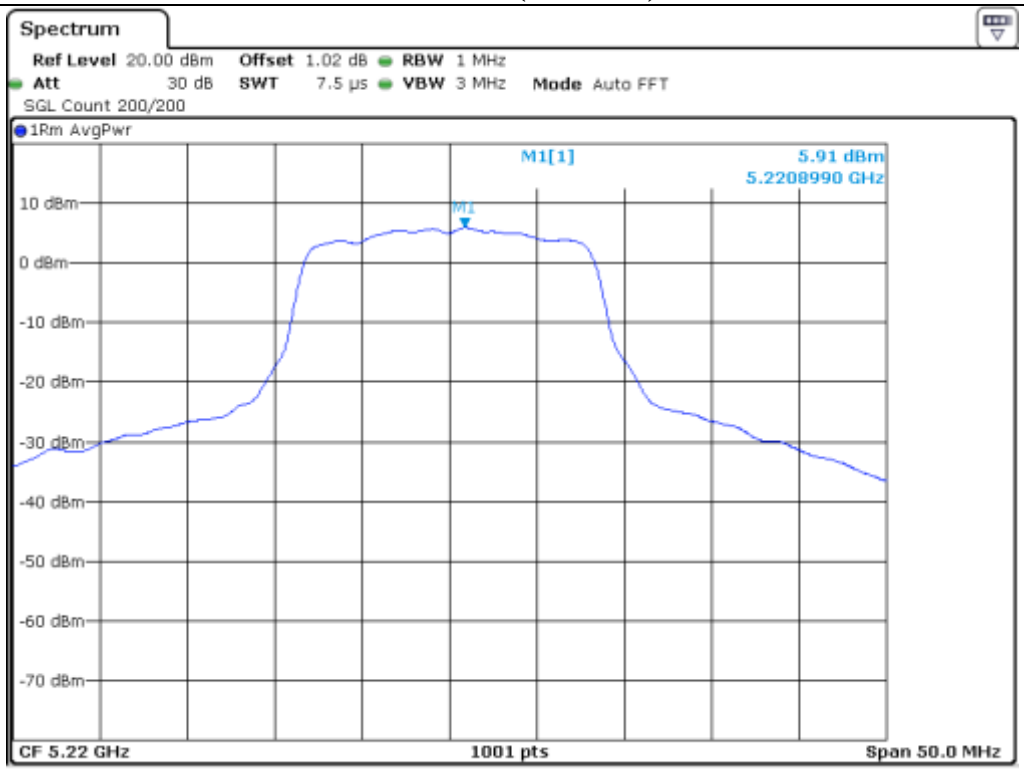


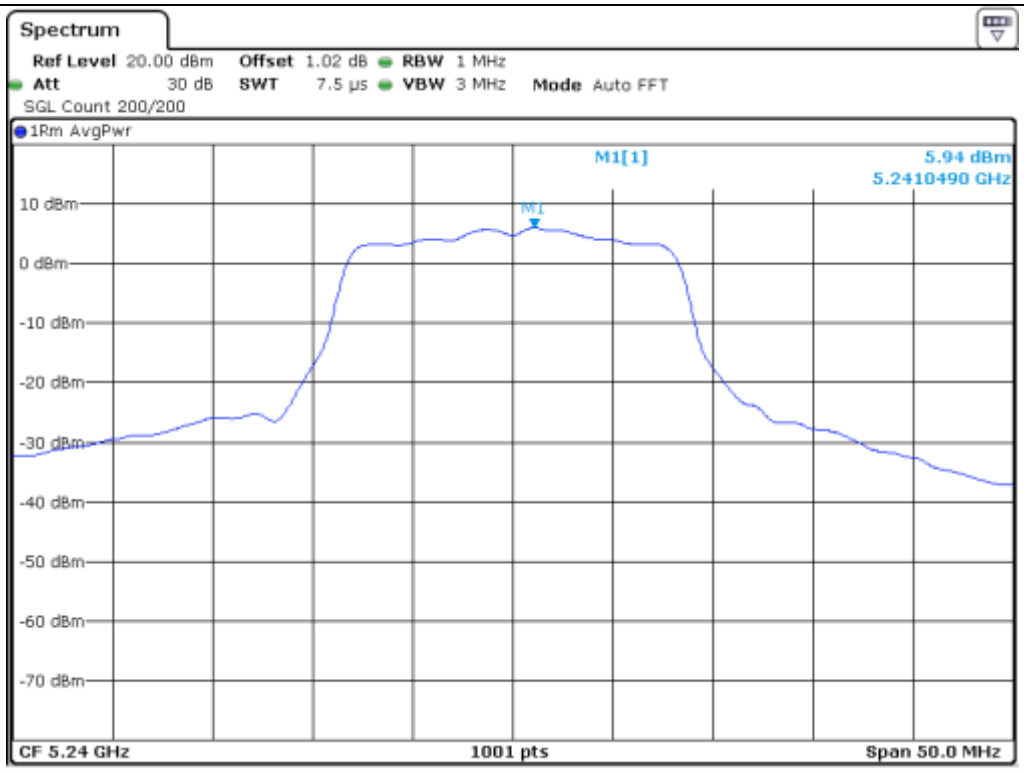

Low Channel (5 180 MHz)




Middle Channel (5 220 MHz)

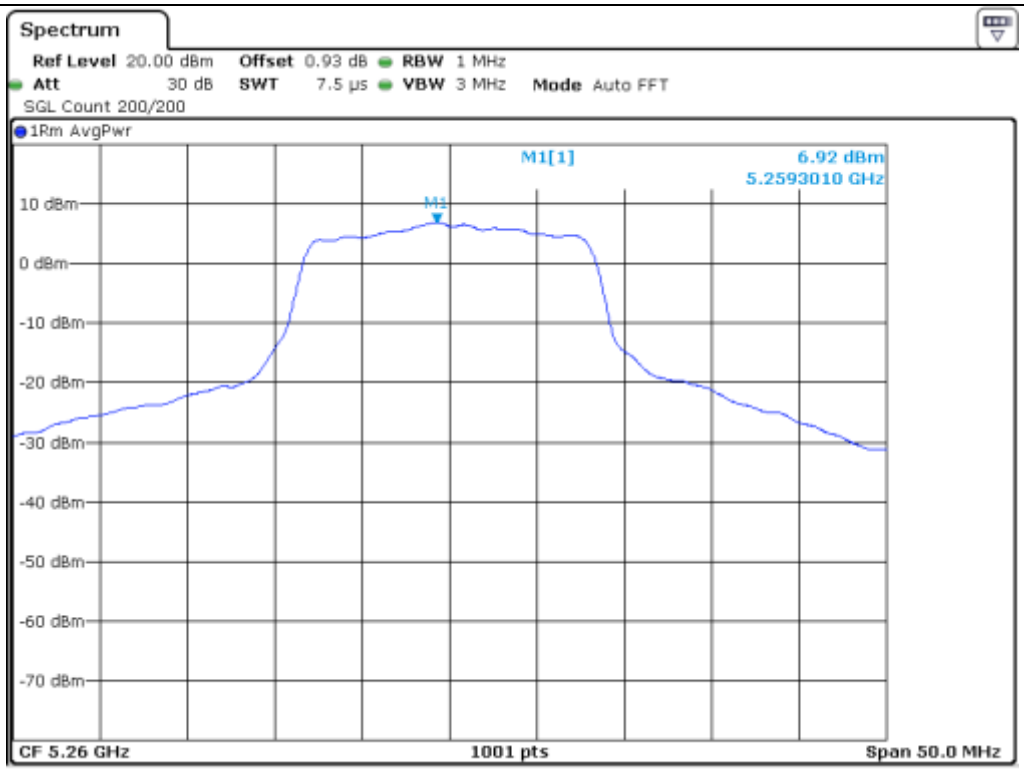
**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



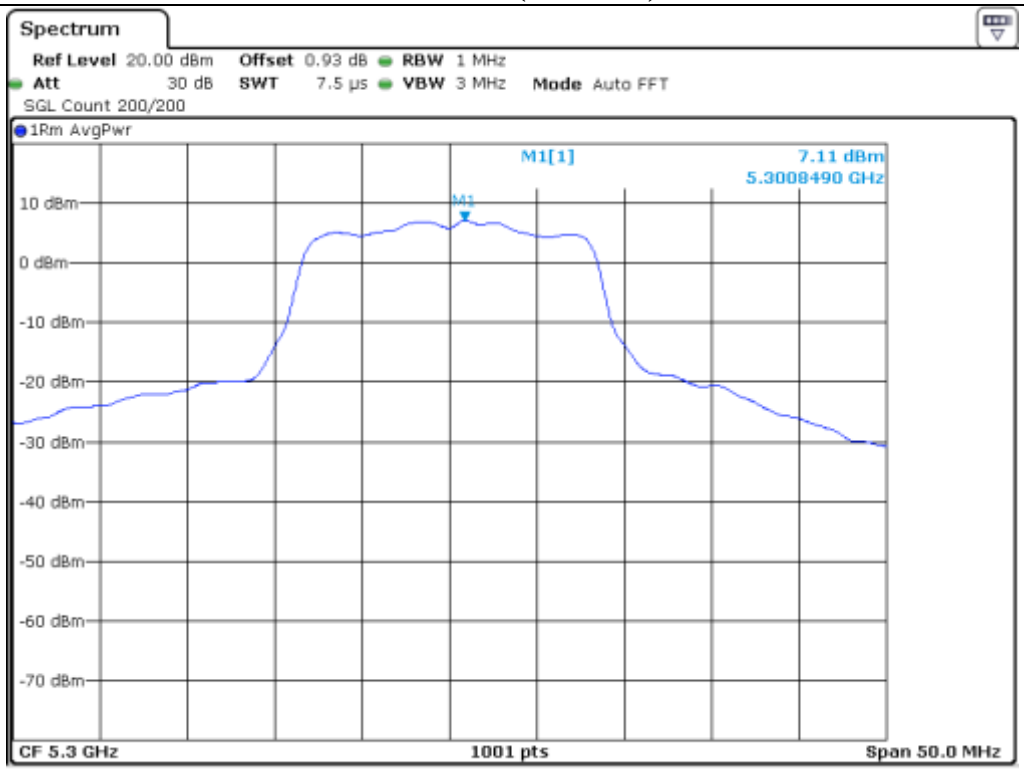

High Channel (5 240 MHz)

**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



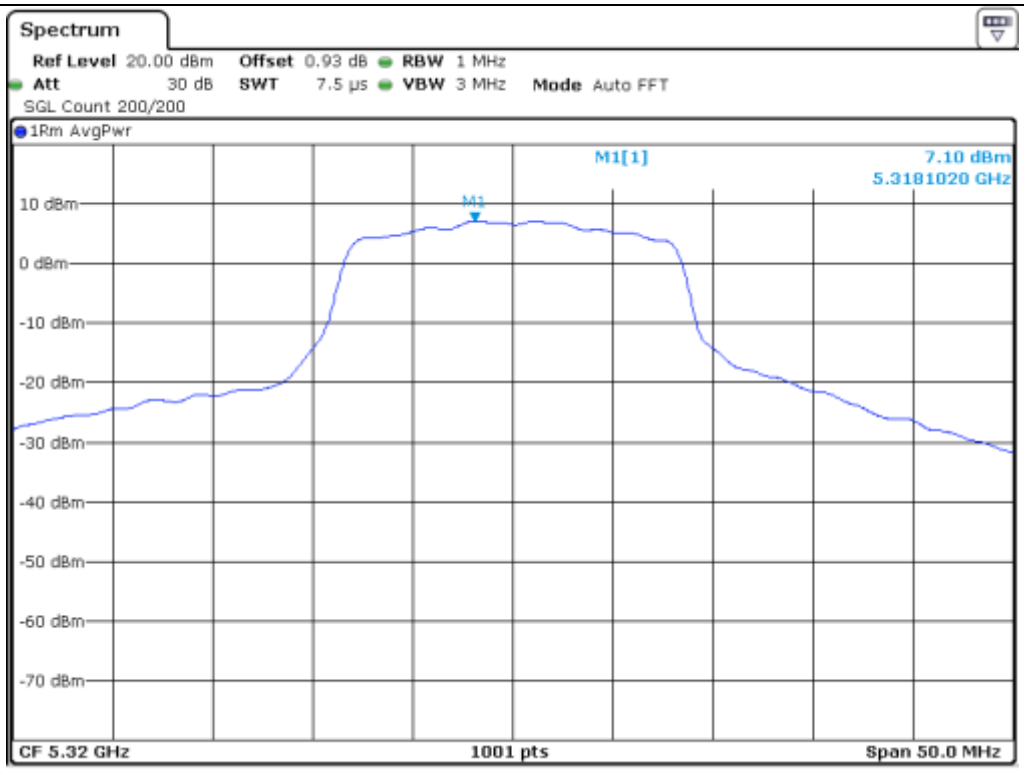

Low Channel (5 260 MHz)




Middle Channel (5 300 MHz)

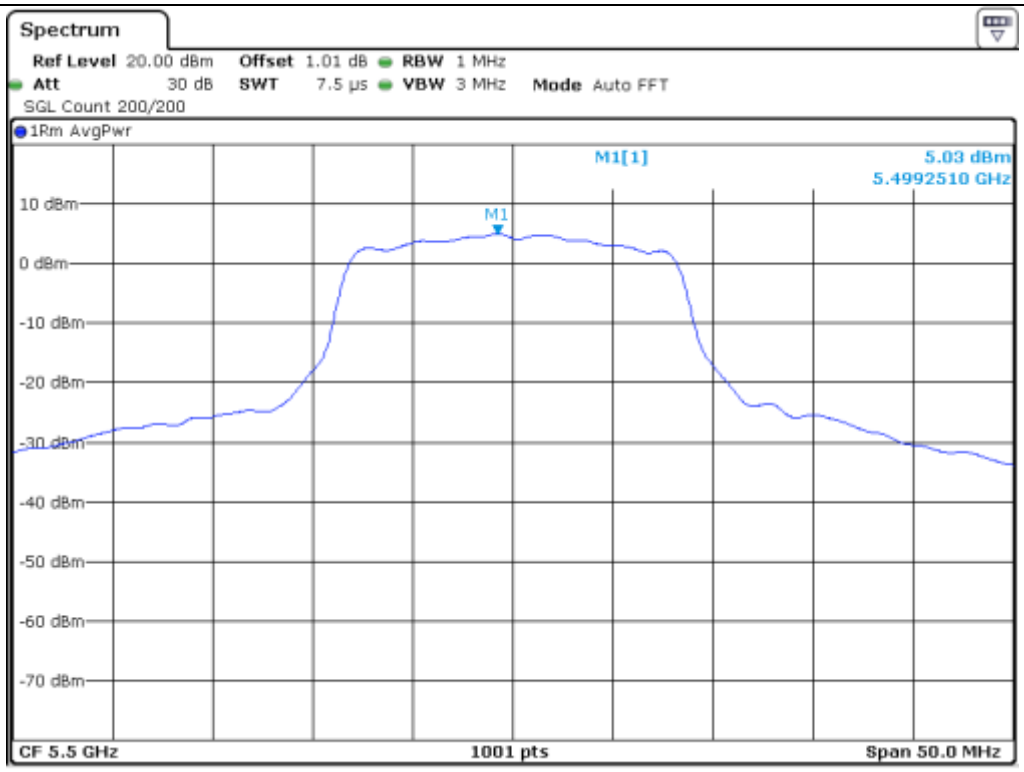
**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



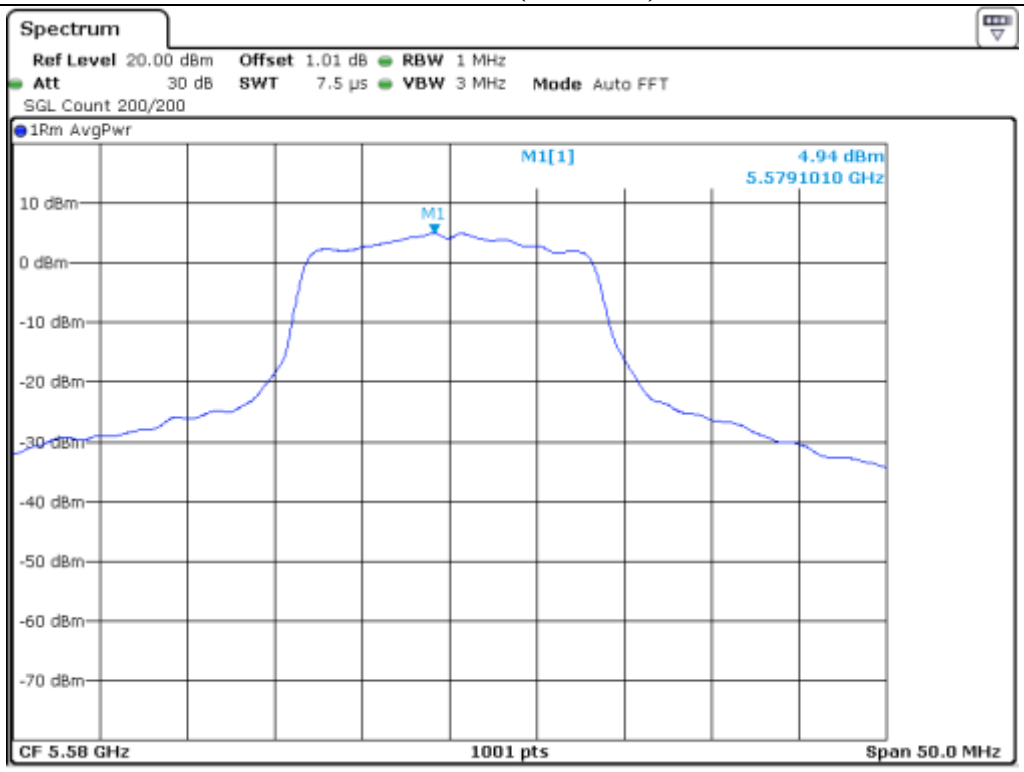

High Channel (5 320 MHz)

**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



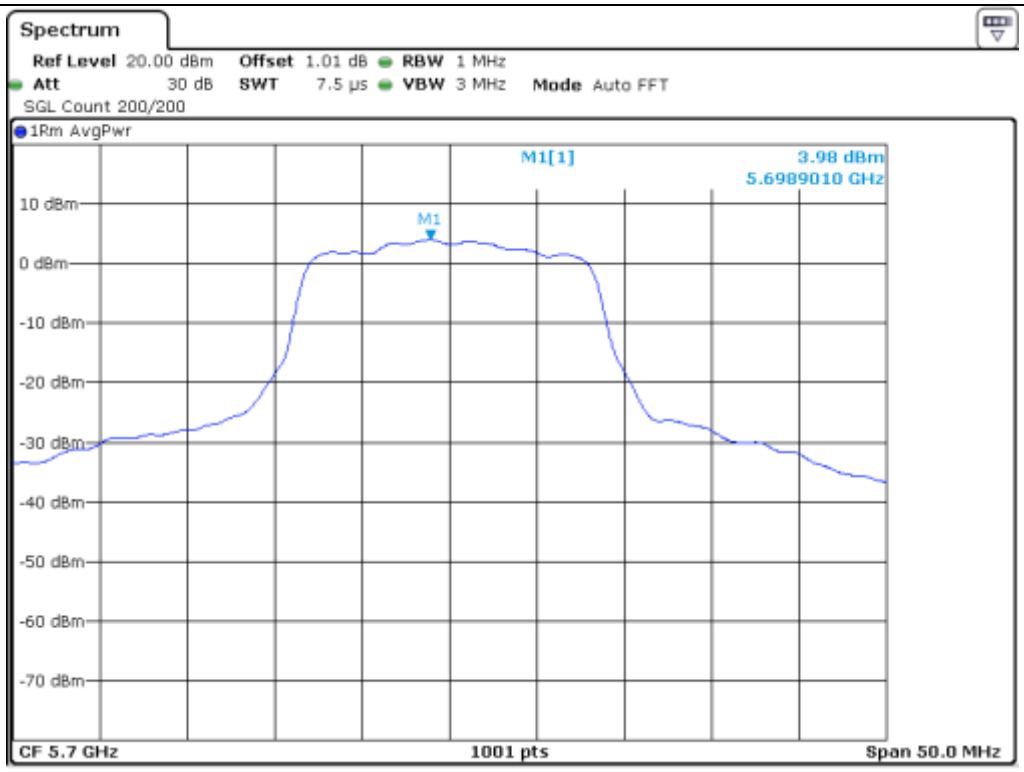

Low Channel (5 500 MHz)




Middle Channel (5 580 MHz)

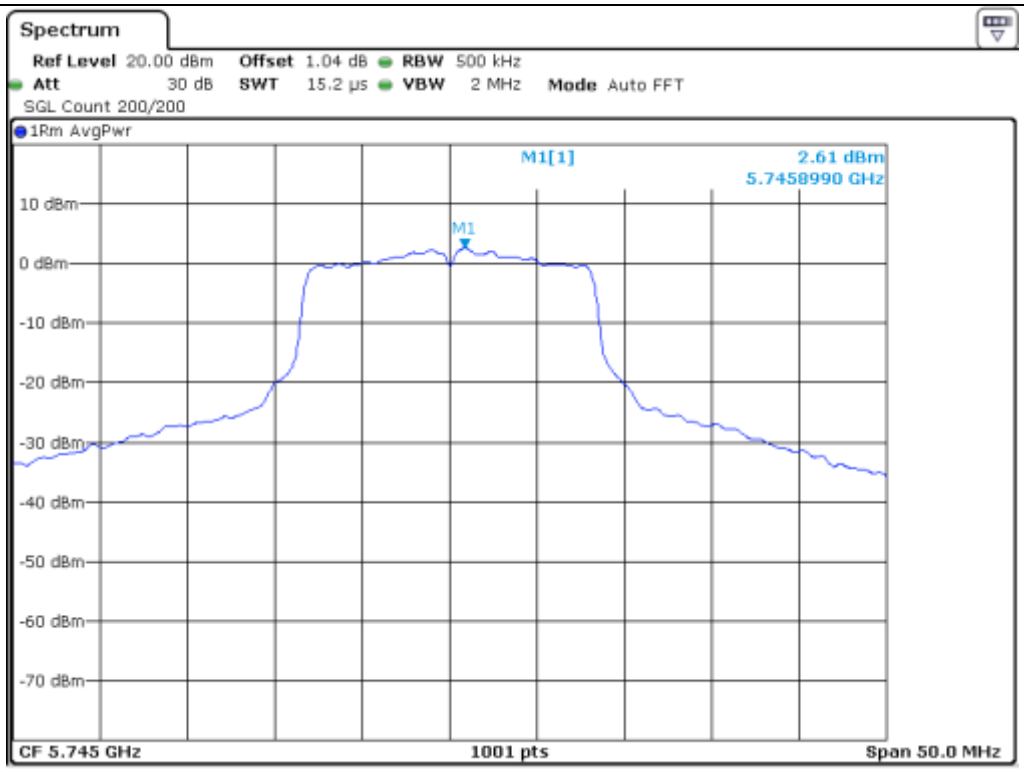
**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



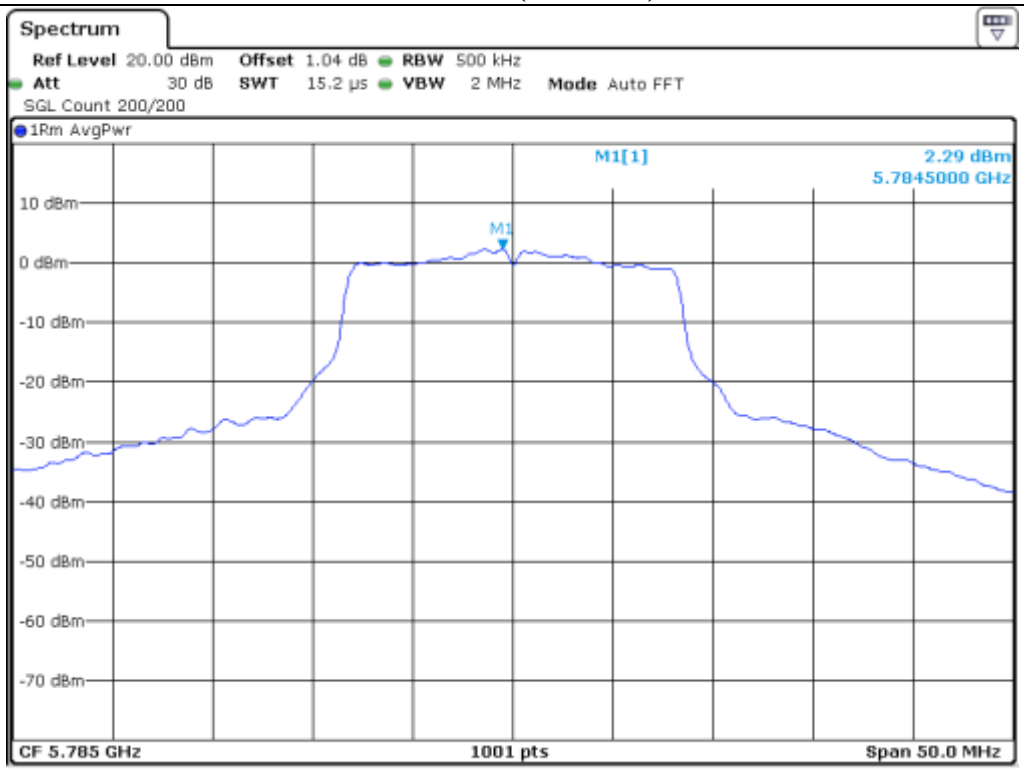

High Channel (5 700 MHz)

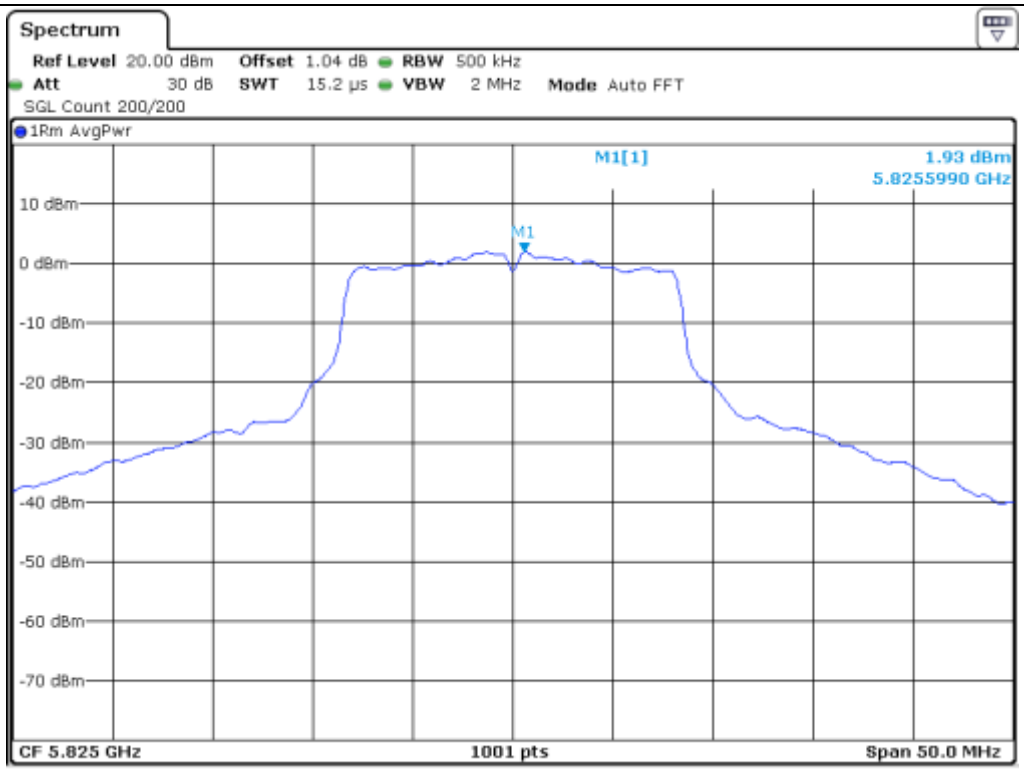
**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)




Low Channel (5 745 MHz)




Middle Channel (5 785 MHz)




High Channel (5 825 MHz)

**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

### 10.4.2 Test data for Antenna 1

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

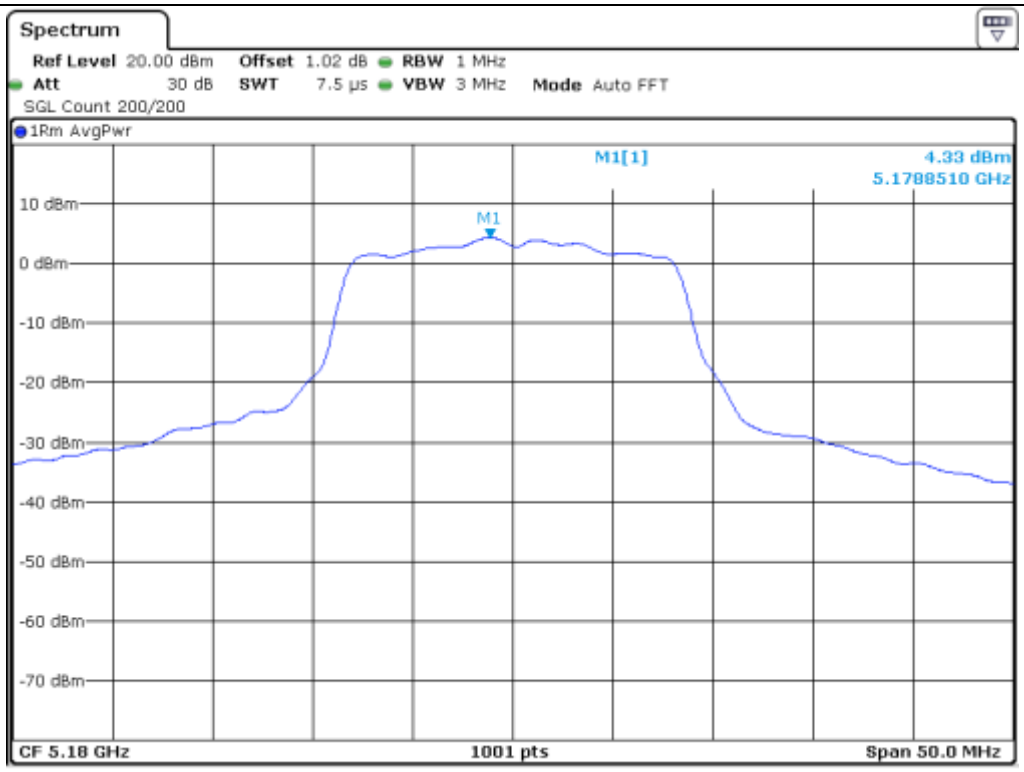
| FREQUENCY RANGE (MHz) | CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | Correction Factor (dB) | Result (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---|---|---|---|---|---|---|---|
| 5 150 ~ 5 250 | Low | 5 180.00 | 4.33 | 0.35 | 4.68 | 11.00 | 6.32 |
| | Middle | 5 220.00 | 4.25 | 0.35 | 4.60 | 11.00 | 6.40 |
| | High | 5 240.00 | 4.65 | 0.35 | 5.00 | 11.00 | 6.00 |
| 5 250 ~ 5 350 | Low | 5 260.00 | 3.76 | 0.32 | 4.08 | 11.00 | 6.92 |
| | Middle | 5 300.00 | 4.10 | 0.32 | 4.42 | 11.00 | 6.58 |
| | High | 5 320.00 | 4.21 | 0.32 | 4.53 | 11.00 | 6.47 |
| 5 470 ~ 5 725 | Low | 5 500.00 | 4.97 | 0.29 | 5.26 | 11.00 | 5.74 |
| | Middle | 5 580.00 | 4.93 | 0.29 | 5.22 | 11.00 | 5.78 |
| | High | 5 700.00 | 4.61 | 0.29 | 4.90 | 11.00 | 6.10 |
| 5 725 ~ 5 850 | Low | 5 745.00 | 2.07 | 0.31 | 2.38 | 30.00 | 27.62 |
| | Middle | 5 785.00 | 2.69 | 0.31 | 3.00 | 30.00 | 27.00 |
| | High | 5 825.00 | 2.12 | 0.31 | 2.43 | 30.00 | 27.57 |

Remark : Margin = Limit – Result(Measured Value + Correction Factor)

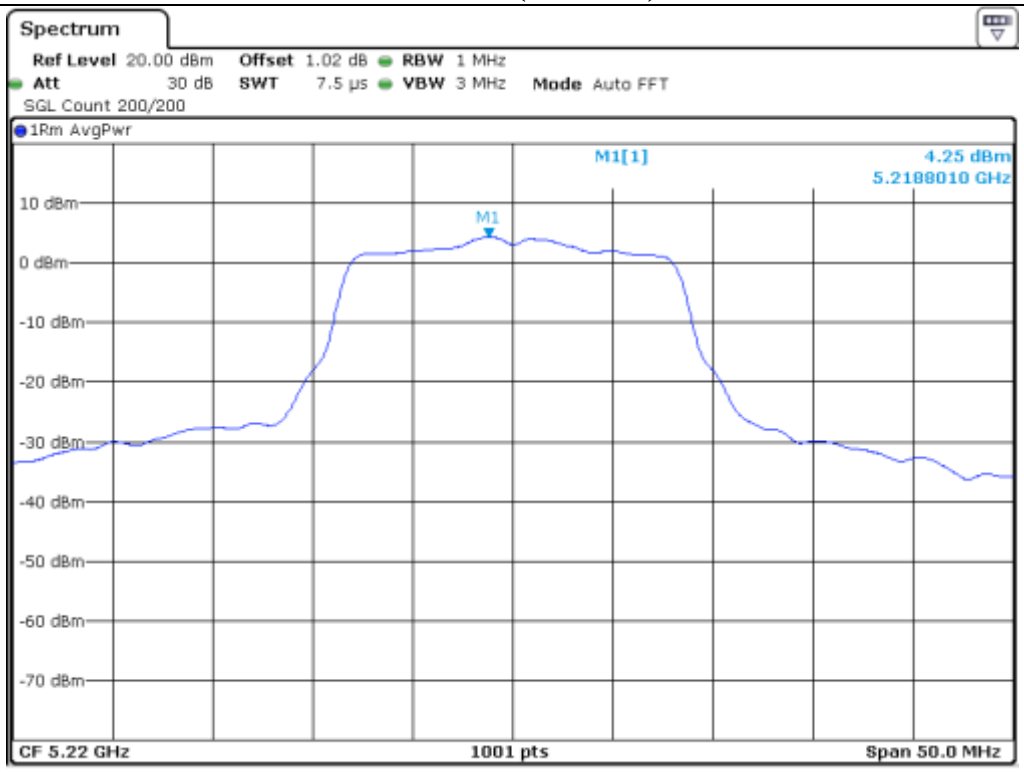
Remark: See next page for measurement data.

**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



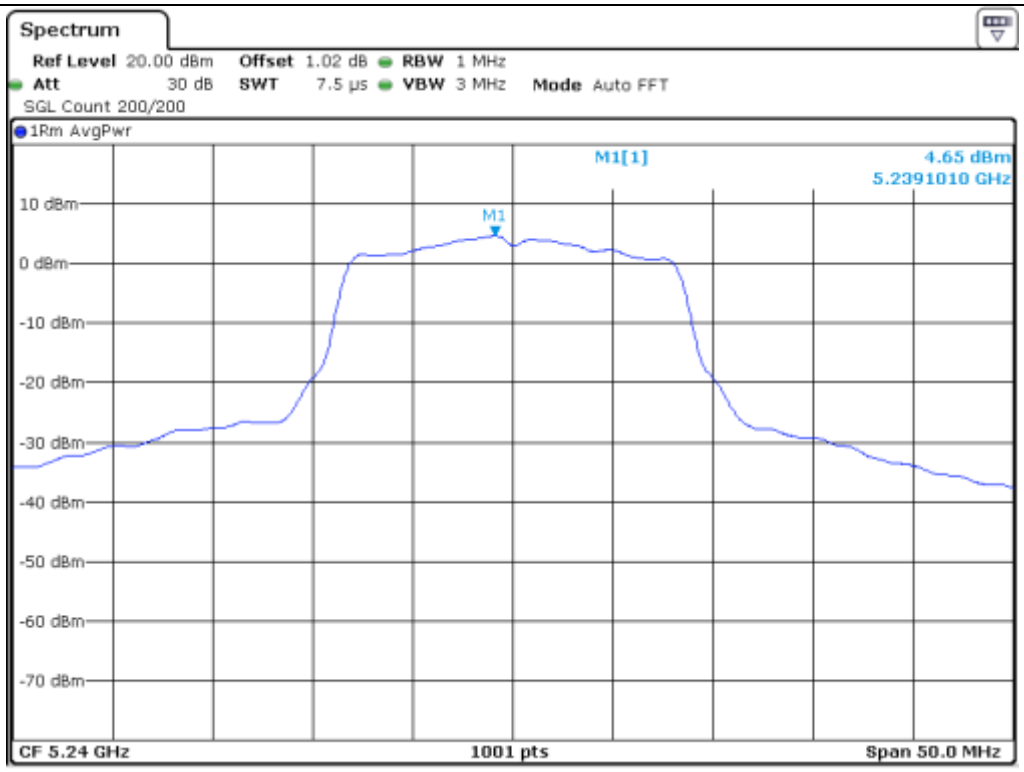

Low Channel (5 180 MHz)




Middle Channel (5 220 MHz)

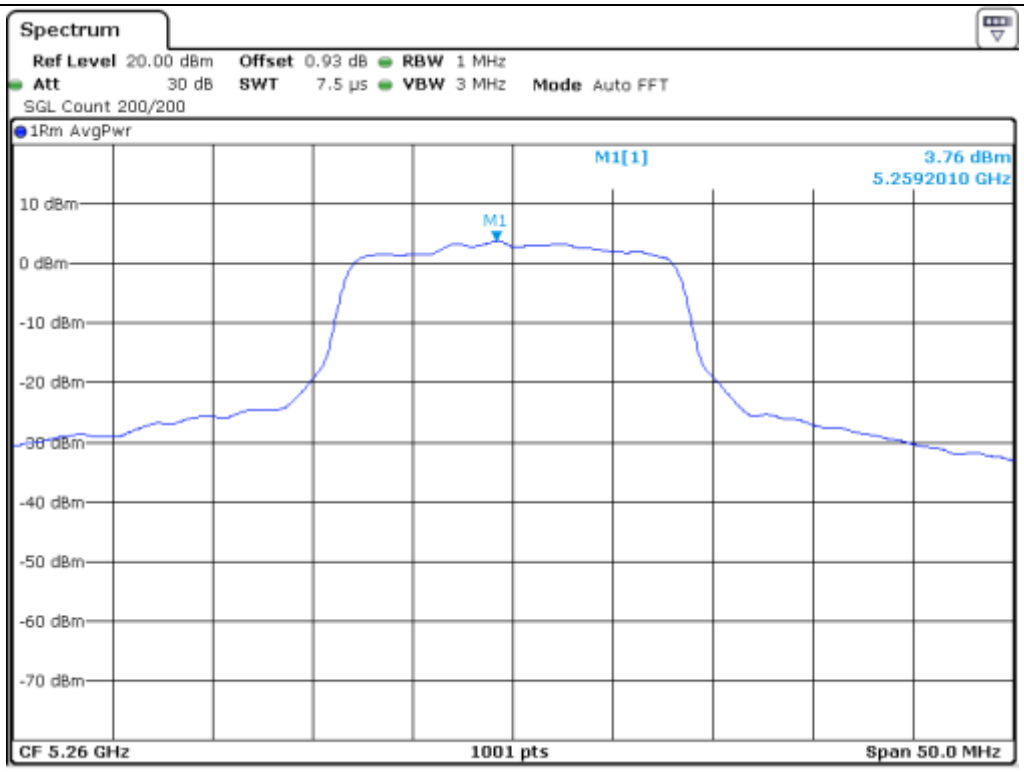
**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



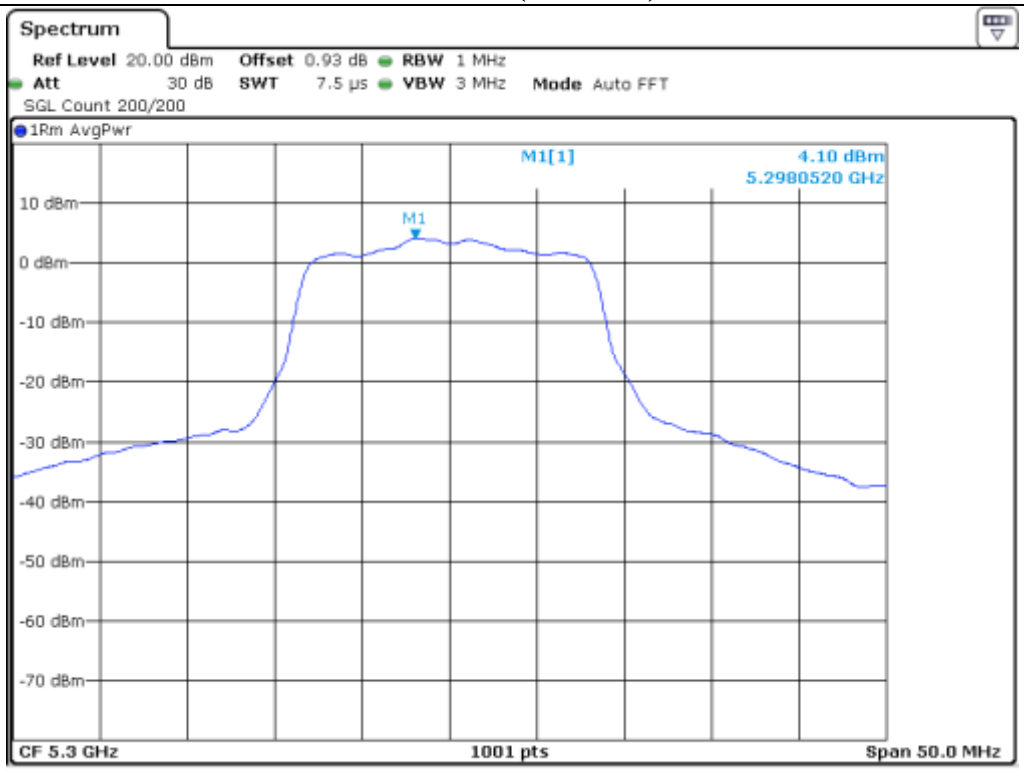

High Channel (5 240 MHz)

**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



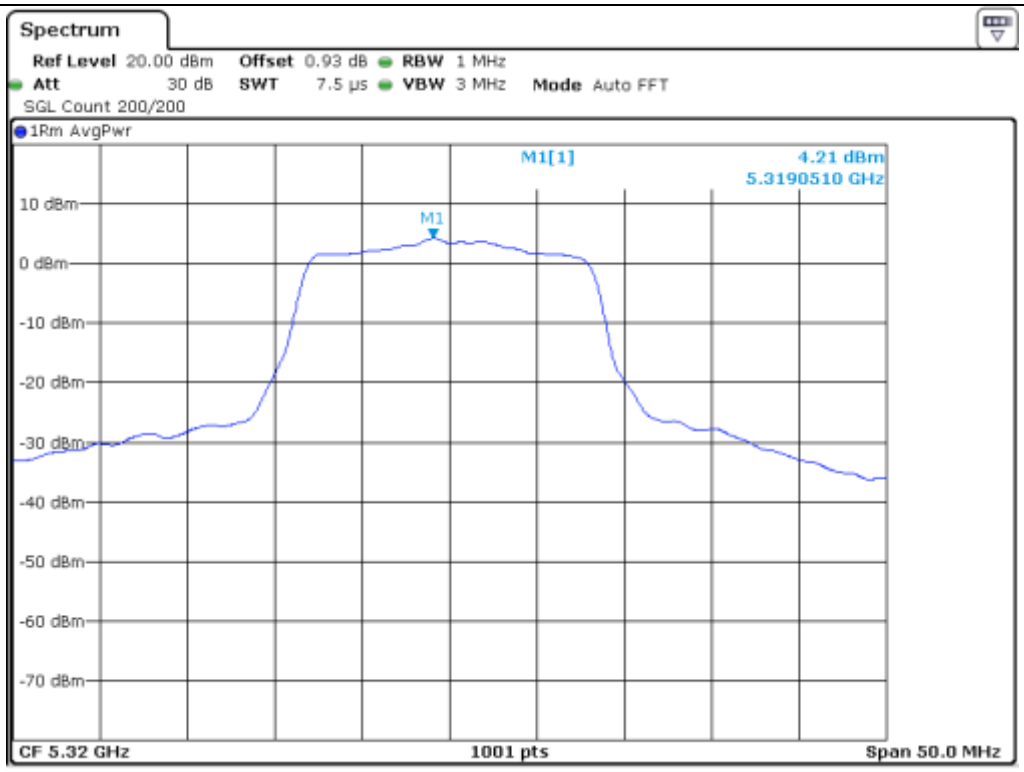

Low Channel (5 260 MHz)




Middle Channel (5 300 MHz)

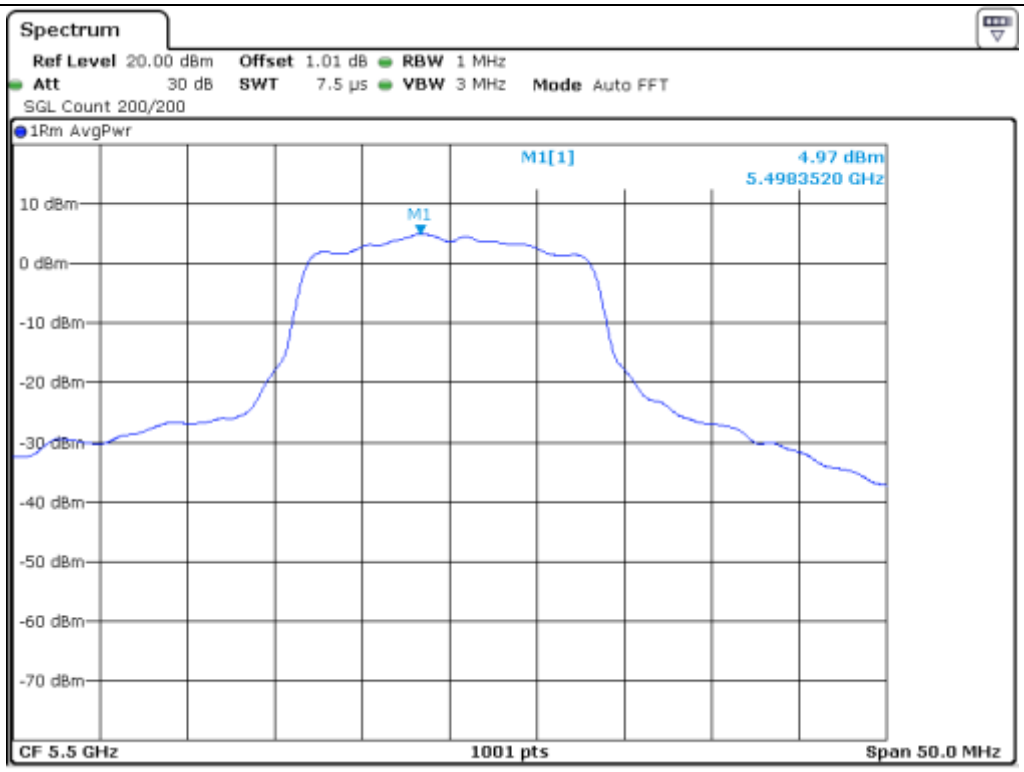
**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



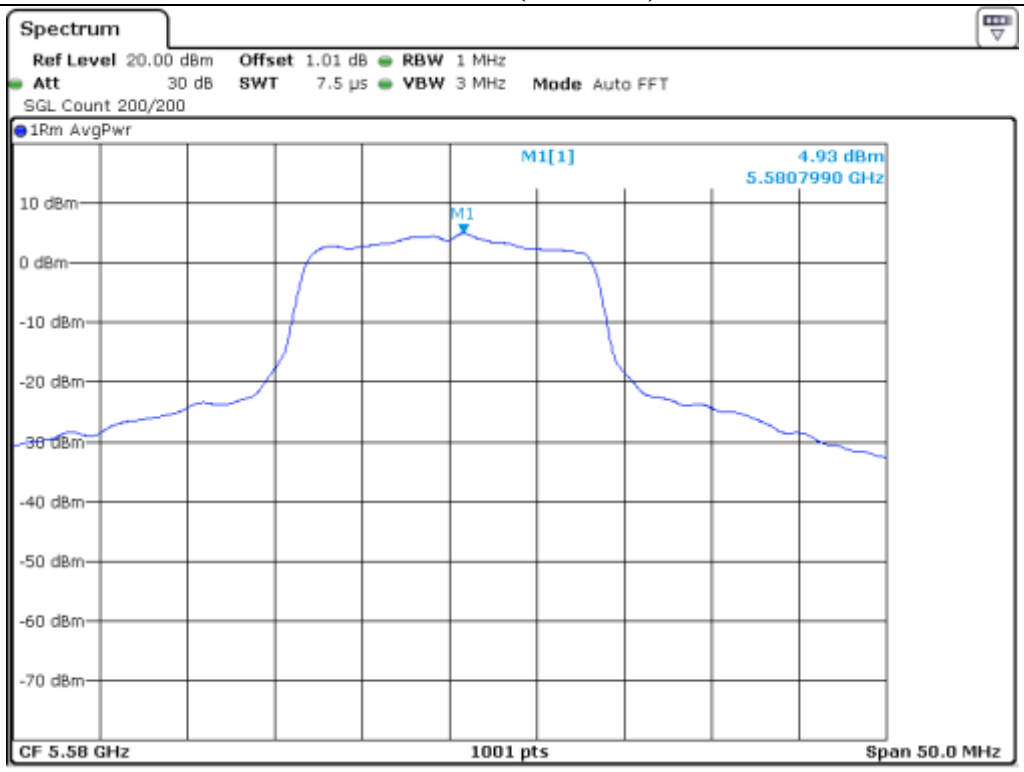

High Channel (5 320 MHz)

**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



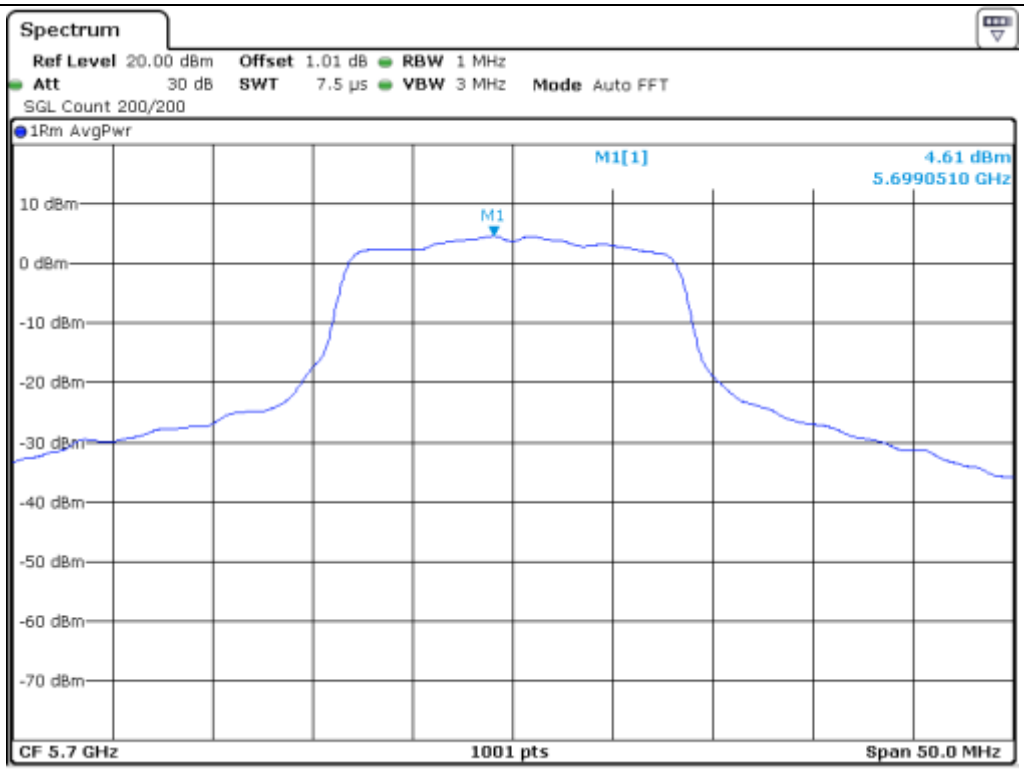

Low Channel (5 500 MHz)




Middle Channel (5 580 MHz)

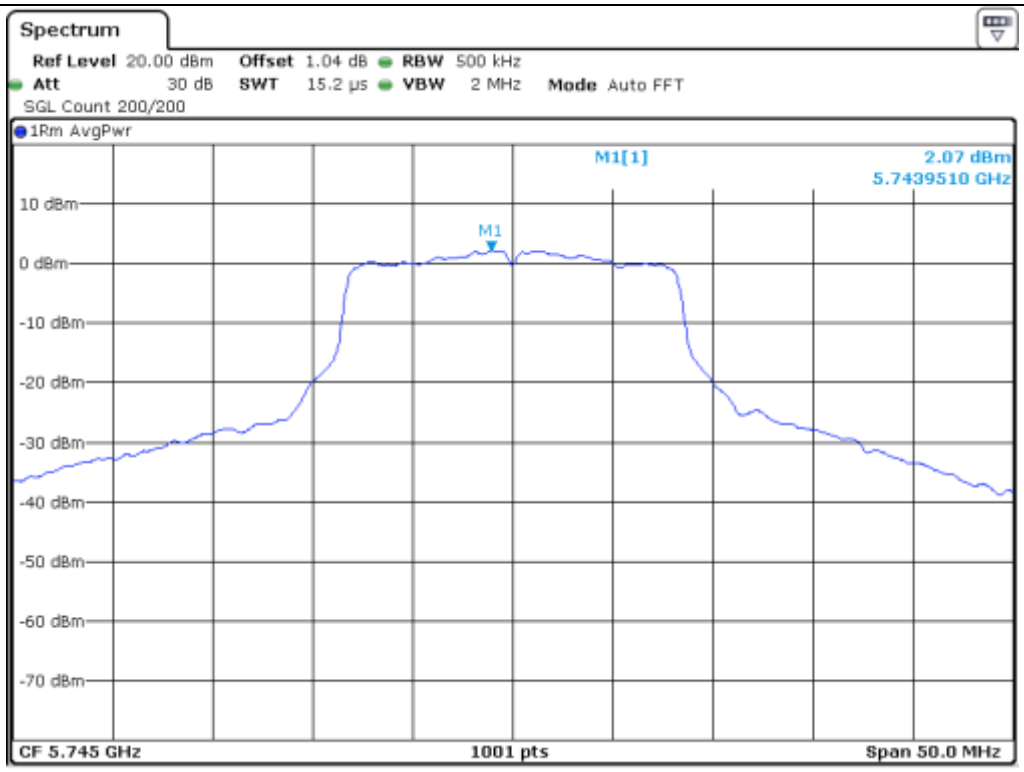
**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



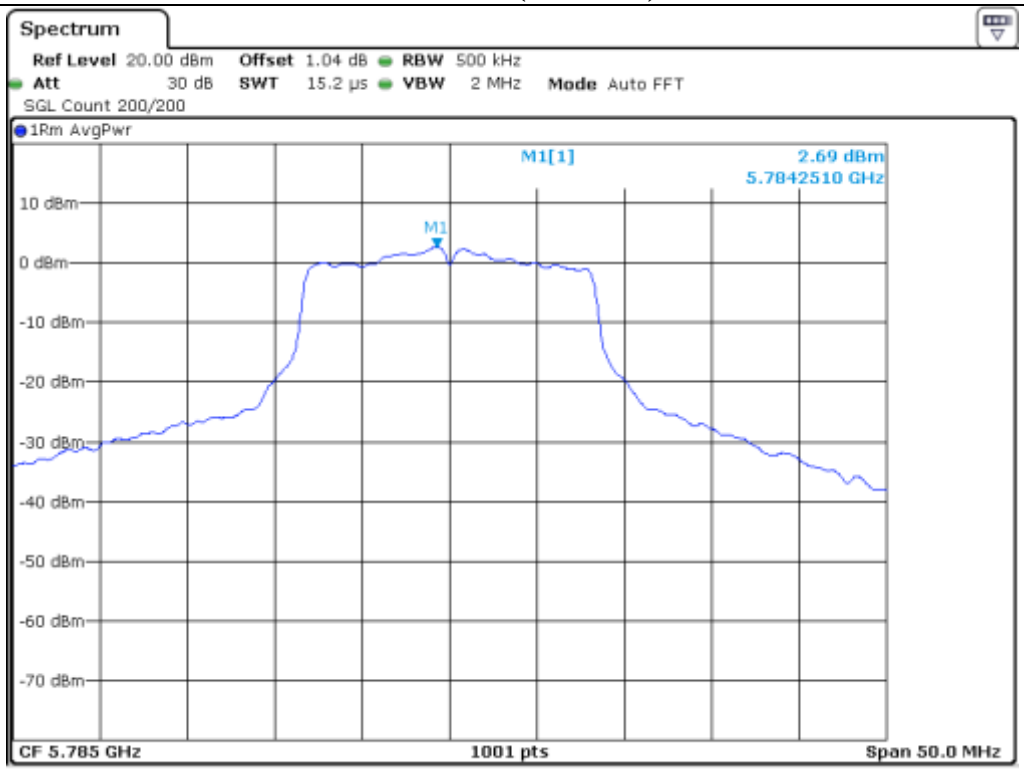

High Channel (5 700 MHz)

**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



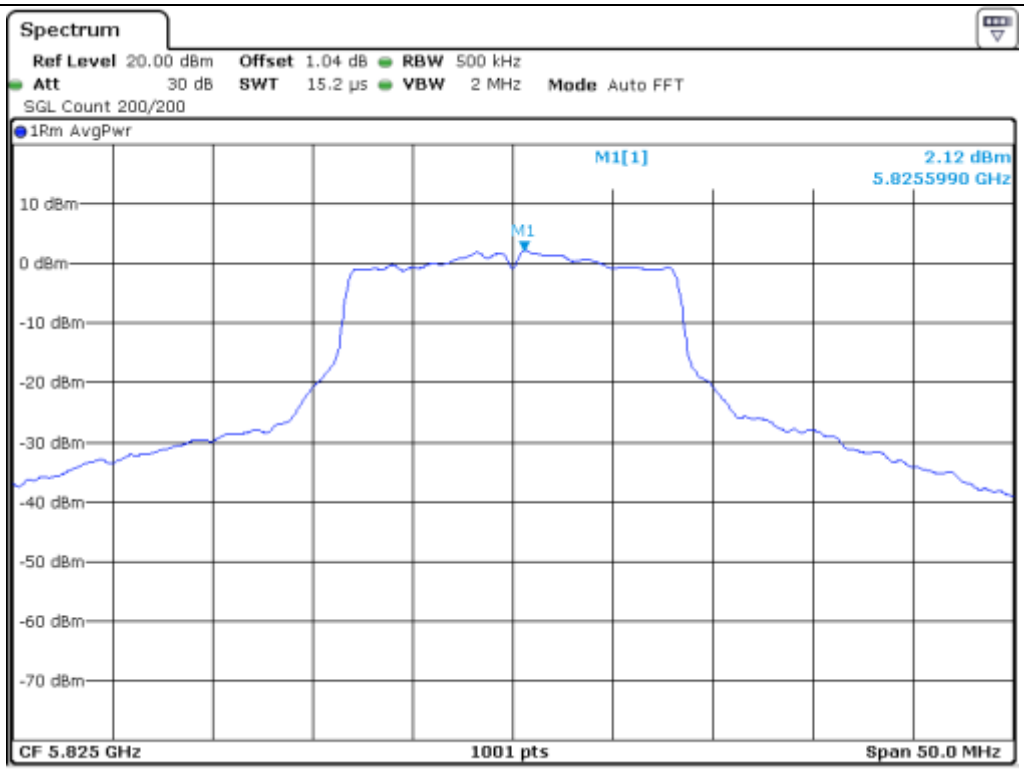

Low Channel (5 745 MHz)




Middle Channel (5 785 MHz)

**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)




High Channel (5 825 MHz)

**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

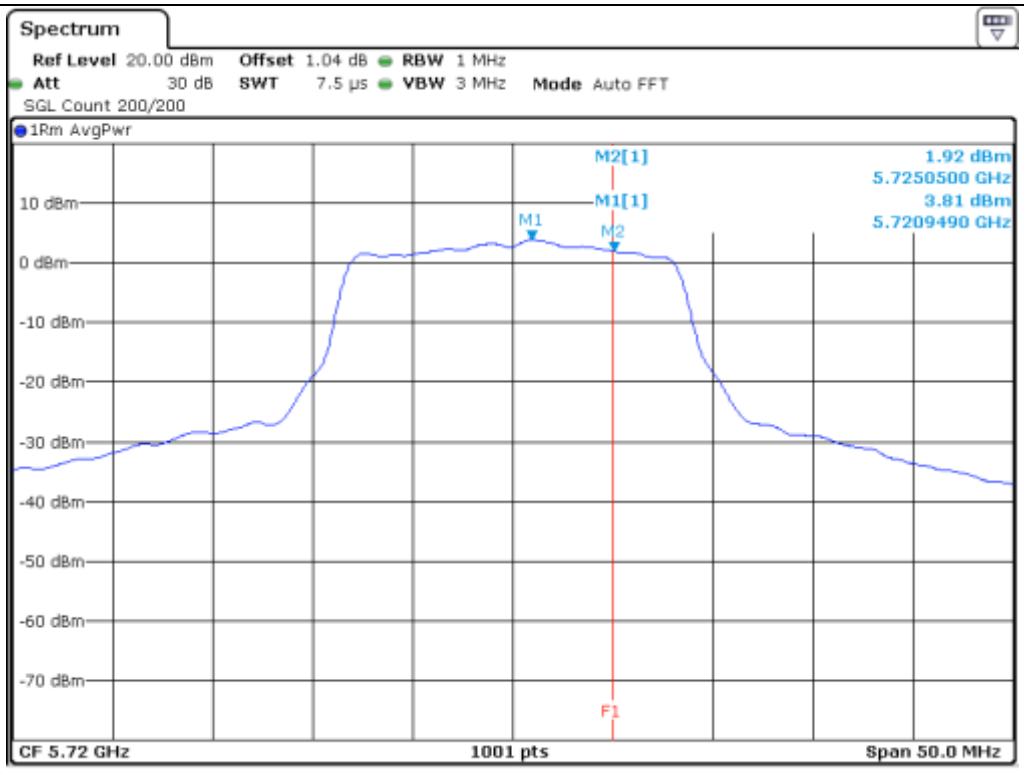
### 10.4.4 Test data for Straddle Channel_Antenna 0

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

| FREQUENCY RANGE (MHz) | FREQUENCY (MHz) | MEASURED VALUE (dBm) | Correction Factor (dB) | Result (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---|---|---|---|---|---|---|
| 5 470 ~ 5 725 | 5 720.00 | 3.81 | 0.29 | 4.10 | 11.00 | 6.90 |
| 5 725 ~ 5 850 | 5 720.00 | 1.92 | 0.29 | 2.21 | 30.00 | 27.79 |

Remark : Margin = Limit – Result(Measured Value + Correction Factor)



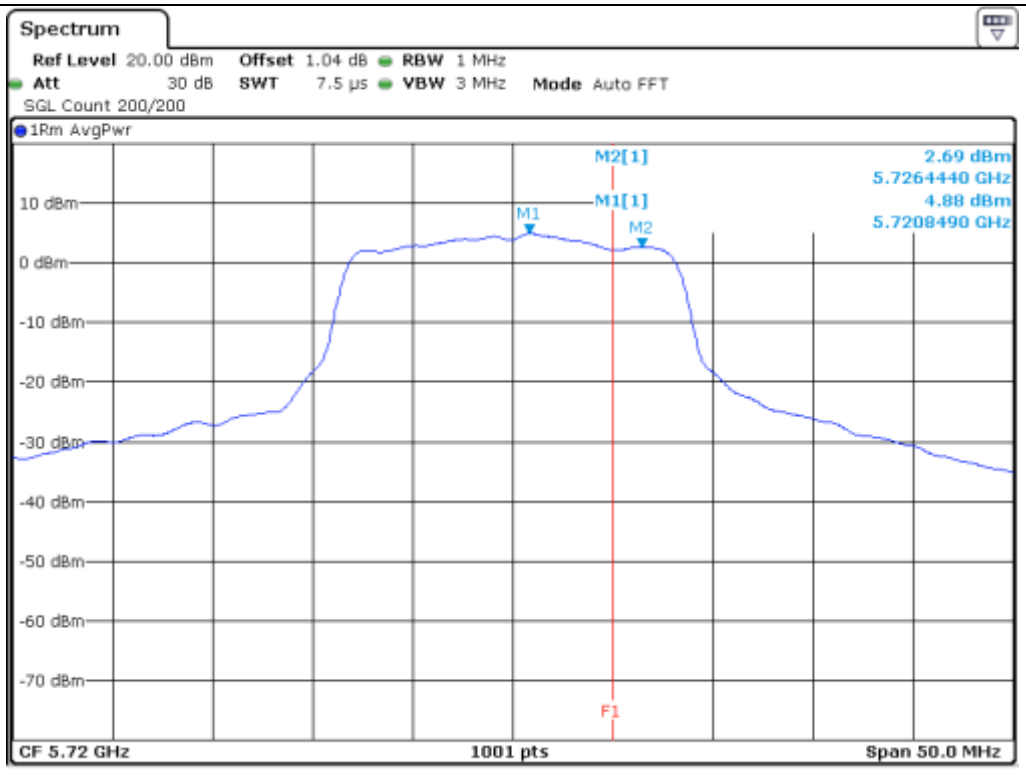
### 10.4.5 Test data for Straddle Channel_Antenna 1

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

| FREQUENCY RANGE (MHz) | FREQUENCY (MHz) | MEASURED VALUE (dBm) | Correction Factor (dB) | Result (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---|---|---|---|---|---|---|
| 5 470 ~ 5 725 | 5 720.00 | 4.88 | 0.29 | 5.17 | 11.00 | 5.83 |
| 5 725 ~ 5 850 | 5 720.00 | 2.69 | 0.31 | 3.00 | 30.00 | 27.00 |

Remark : Margin = Limit – Result(Measured Value + Correction Factor)



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## 10.5 Test data for 802.11n_HT20 RLAN Mode

### 10.5.1 Test data for Antenna 0

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

| FREQUENCY RANGE (MHz) | CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | Correction Factor (dB) | Result (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---|---|---|---|---|---|---|---|
| 5 150 ~ 5 250 | Low | 5 180.00 | 3.61 | 0.59 | 4.20 | 11.00 | 6.80 |
| | Middle | 5 220.00 | 3.62 | 0.59 | 4.21 | 11.00 | 6.79 |
| | High | 5 240.00 | 4.03 | 0.59 | 4.62 | 11.00 | 6.38 |
| 5 250 ~ 5 350 | Low | 5 260.00 | 4.65 | 0.59 | 5.24 | 11.00 | 5.76 |
| | Middle | 5 300.00 | 5.21 | 0.59 | 5.80 | 11.00 | 5.20 |
| | High | 5 320.00 | 5.23 | 0.59 | 5.82 | 11.00 | 5.18 |
| 5 470 ~ 5 725 | Low | 5 500.00 | 3.41 | 0.59 | 4.00 | 11.00 | 7.00 |
| | Middle | 5 580.00 | 3.60 | 0.59 | 4.19 | 11.00 | 6.81 |
| | High | 5 700.00 | 2.52 | 0.59 | 3.11 | 11.00 | 7.89 |
| 5 725 ~ 5 850 | Low | 5 745.00 | 0.67 | 0.65 | 1.32 | 30.00 | 28.68 |
| | Middle | 5 785.00 | 0.28 | 0.65 | 0.93 | 30.00 | 29.07 |
| | High | 5 825.00 | 0.18 | 0.65 | 0.83 | 30.00 | 29.17 |

Remark : Margin = Limit – Result(Measured Value + Correction Factor)

Remark: See next page for measurement data.

 

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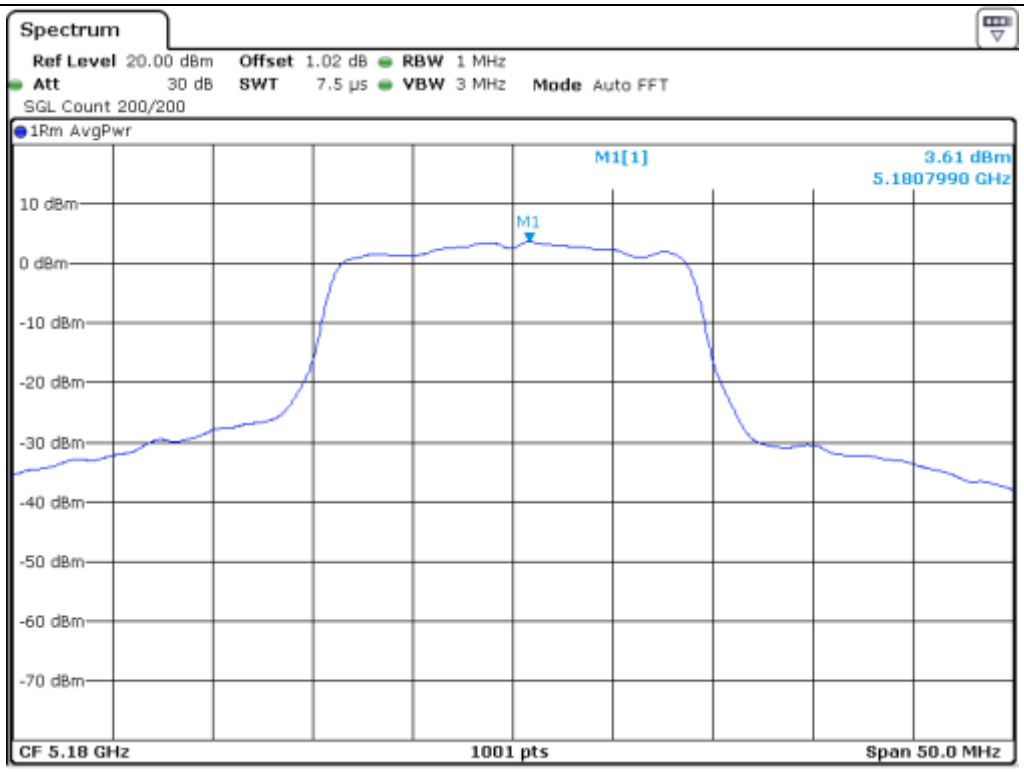
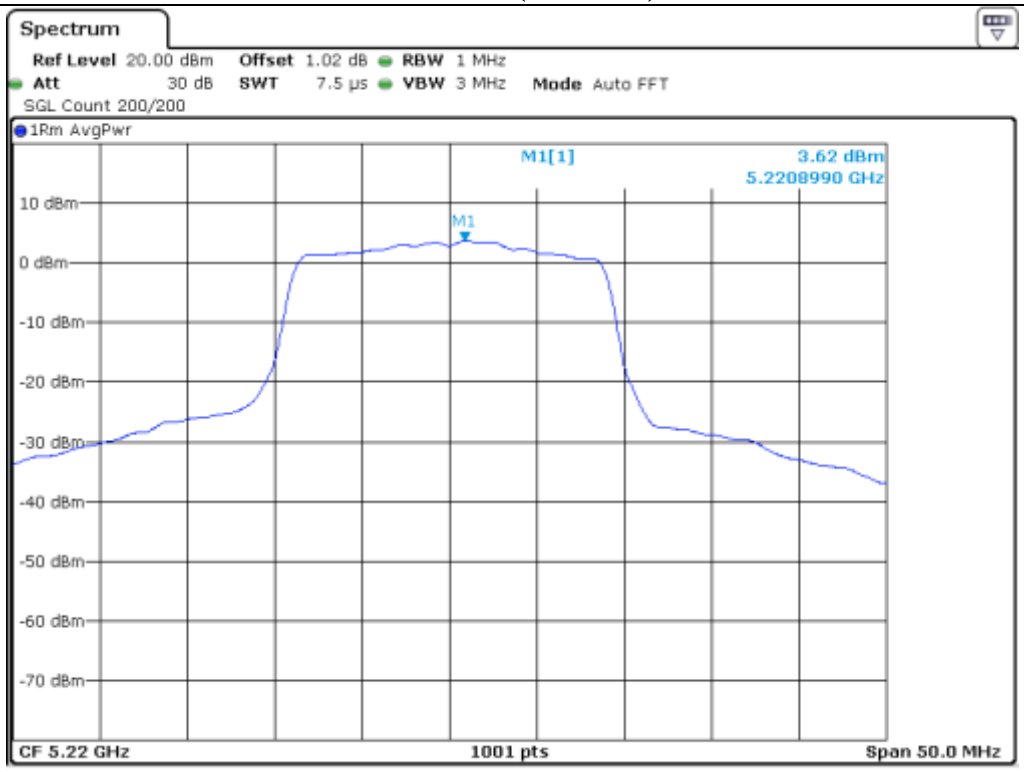


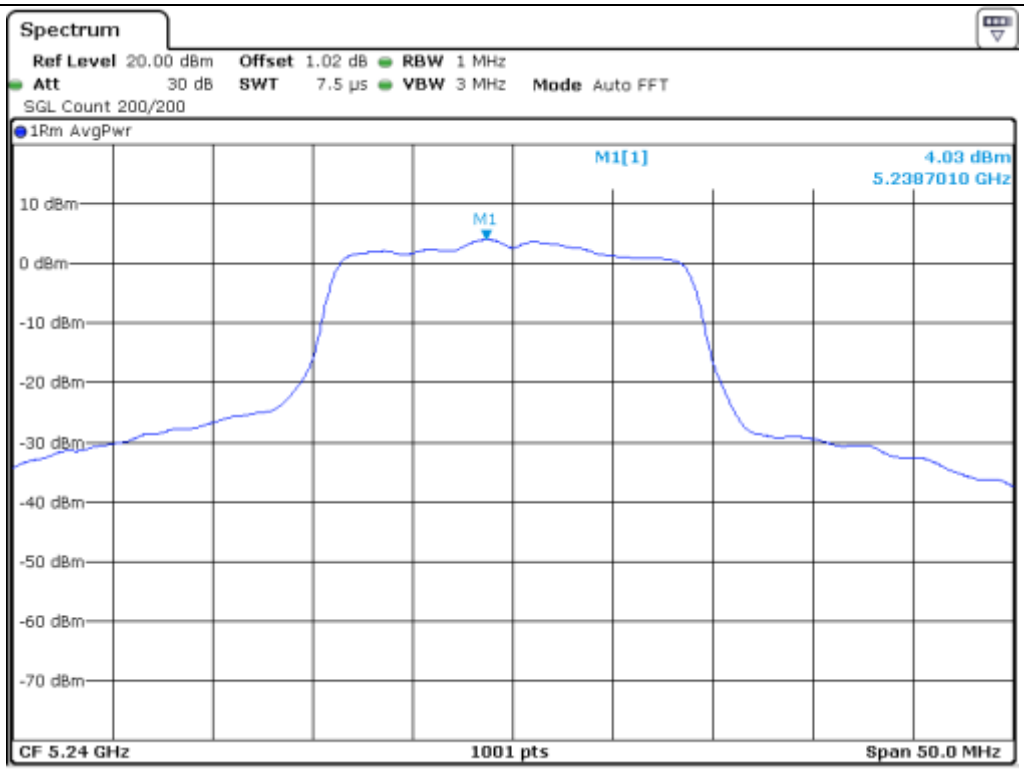

Low Channel (5 180 MHz)




Middle Channel (5 220 MHz)

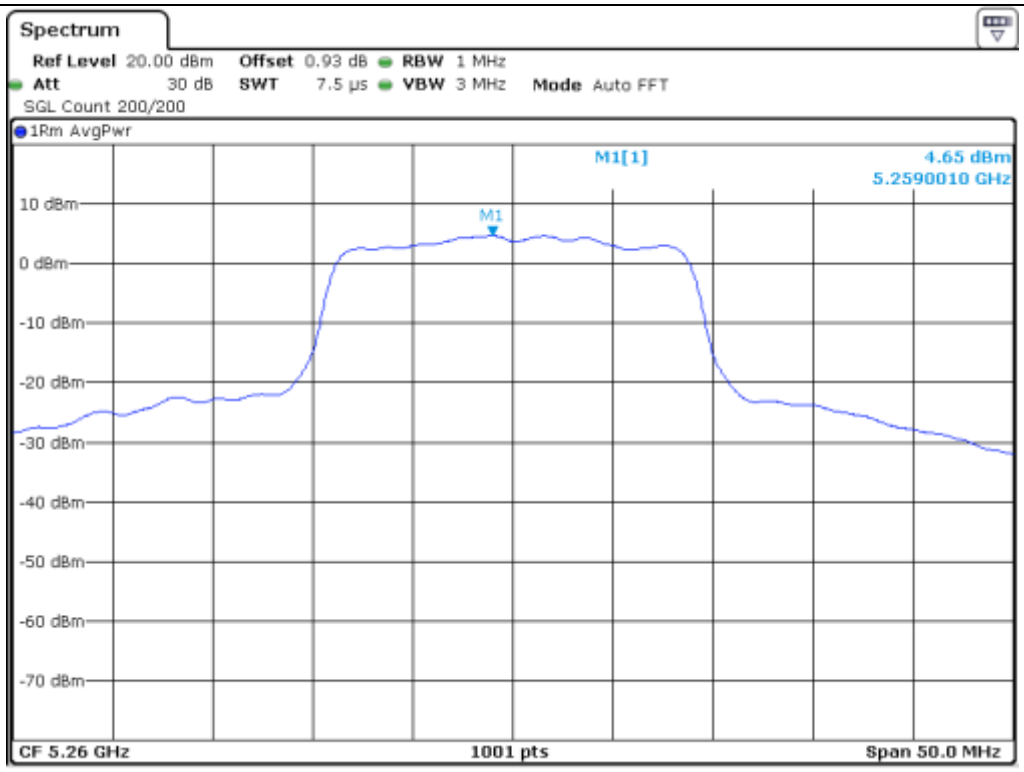
**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



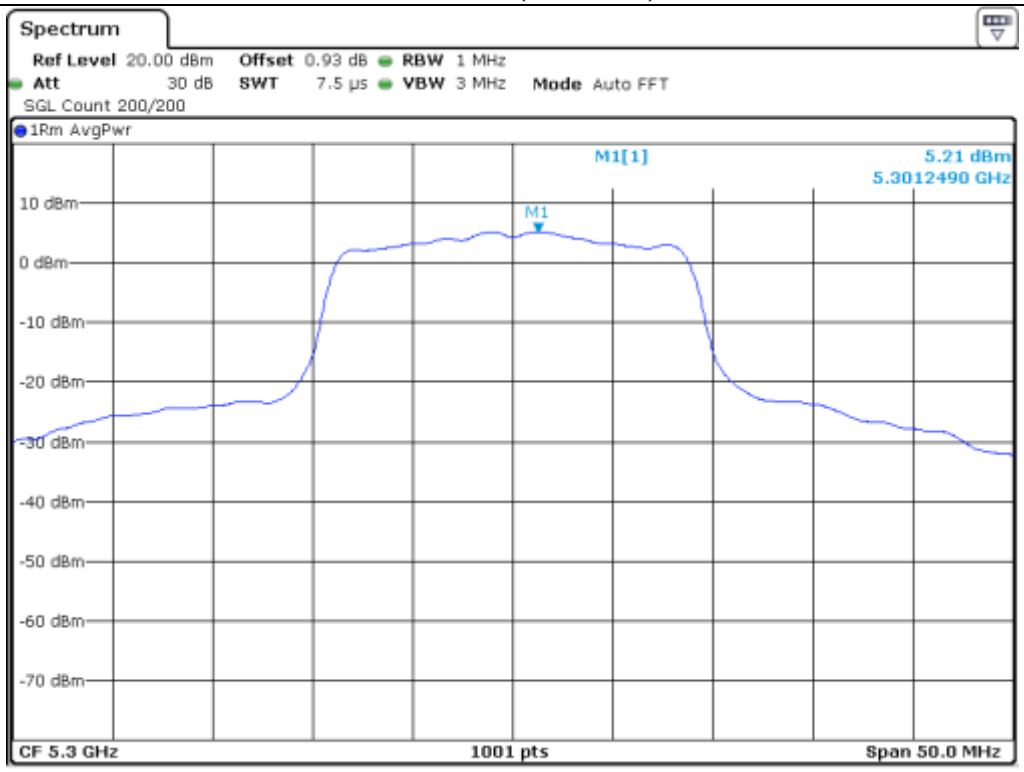

High Channel (5 240 MHz)

**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



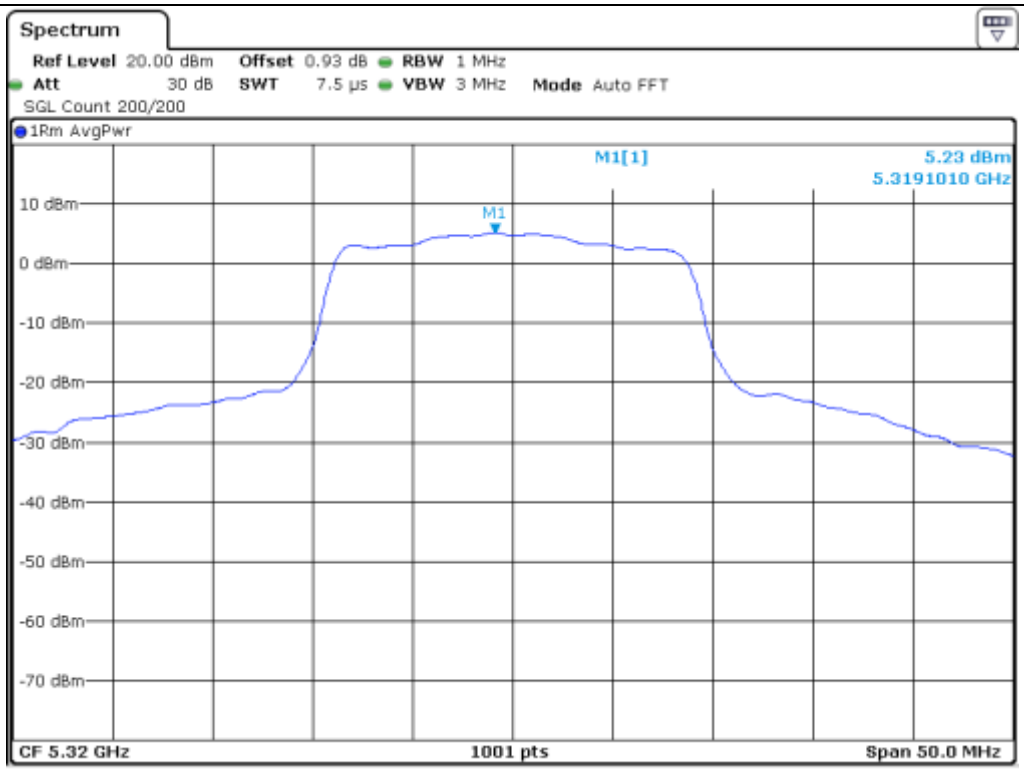

Low Channel (5 260 MHz)




Middle Channel (5 300 MHz)

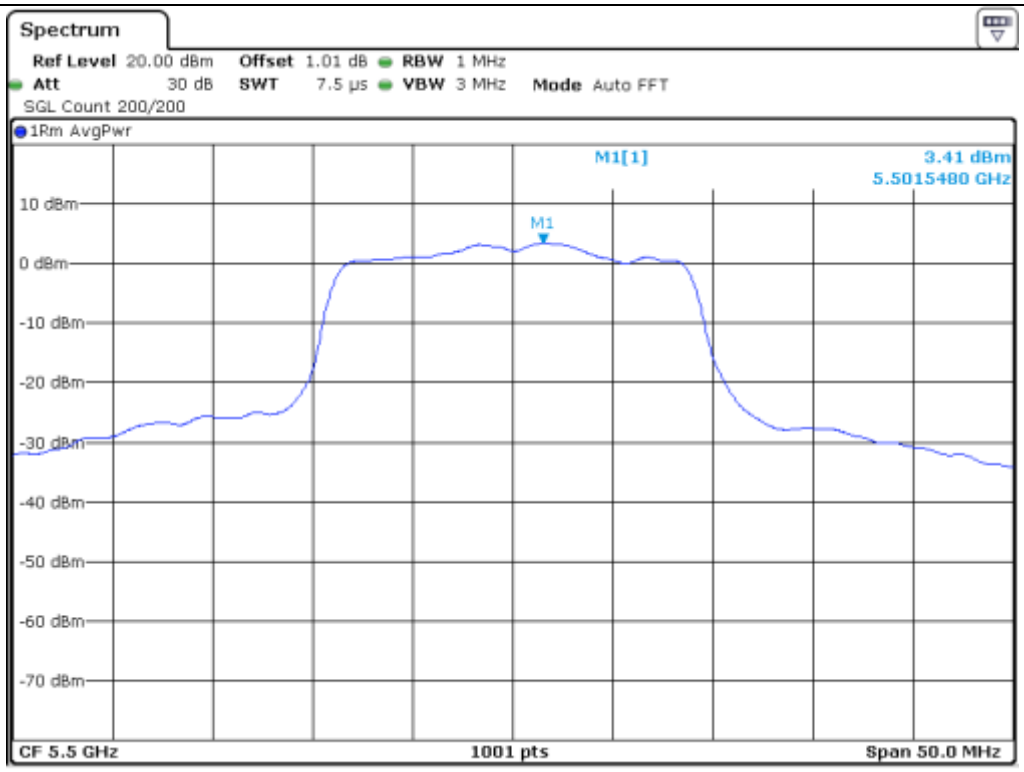
**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



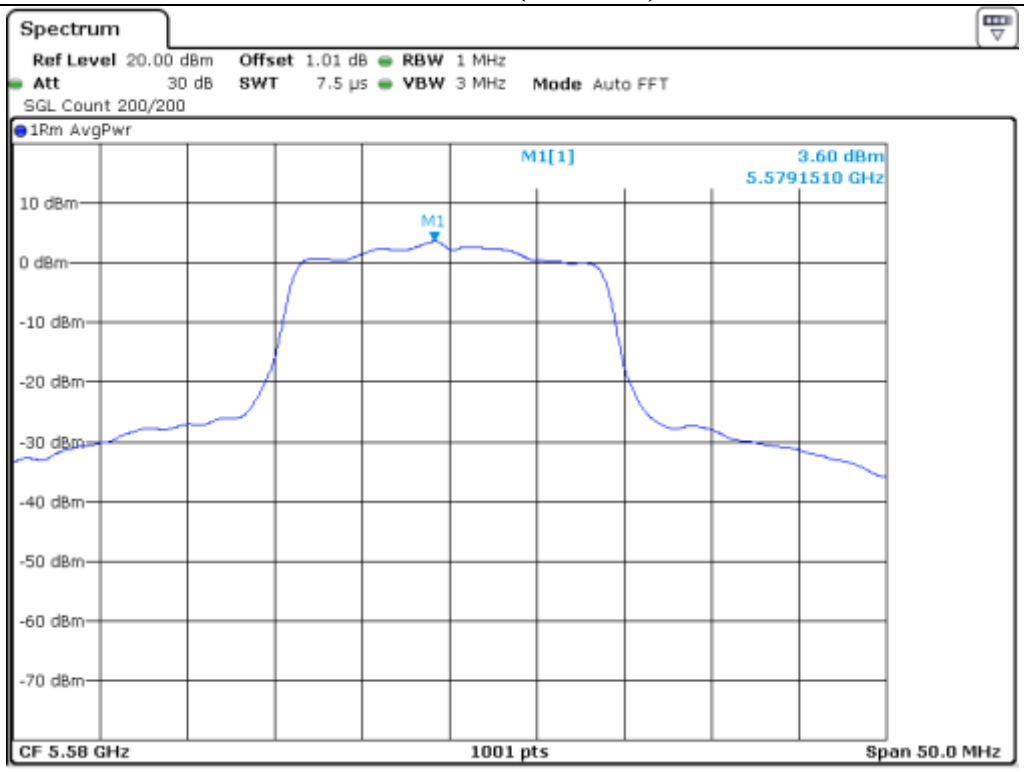

High Channel (5 320 MHz)

**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



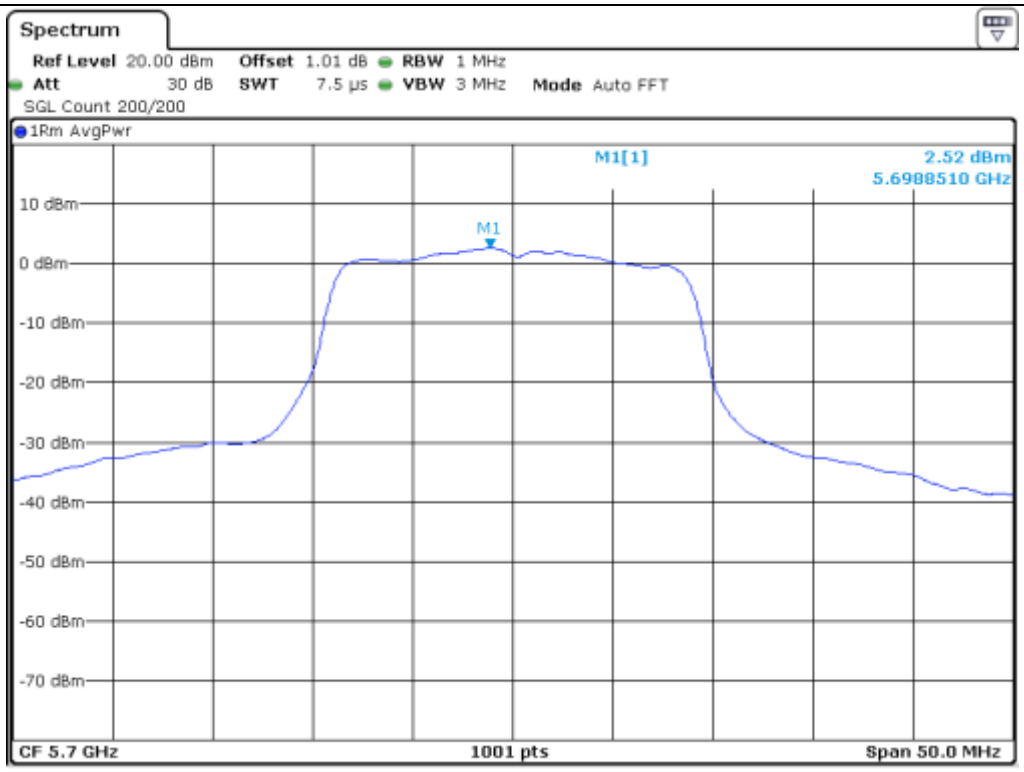

Low Channel (5 500 MHz)




Middle Channel (5 580 MHz)

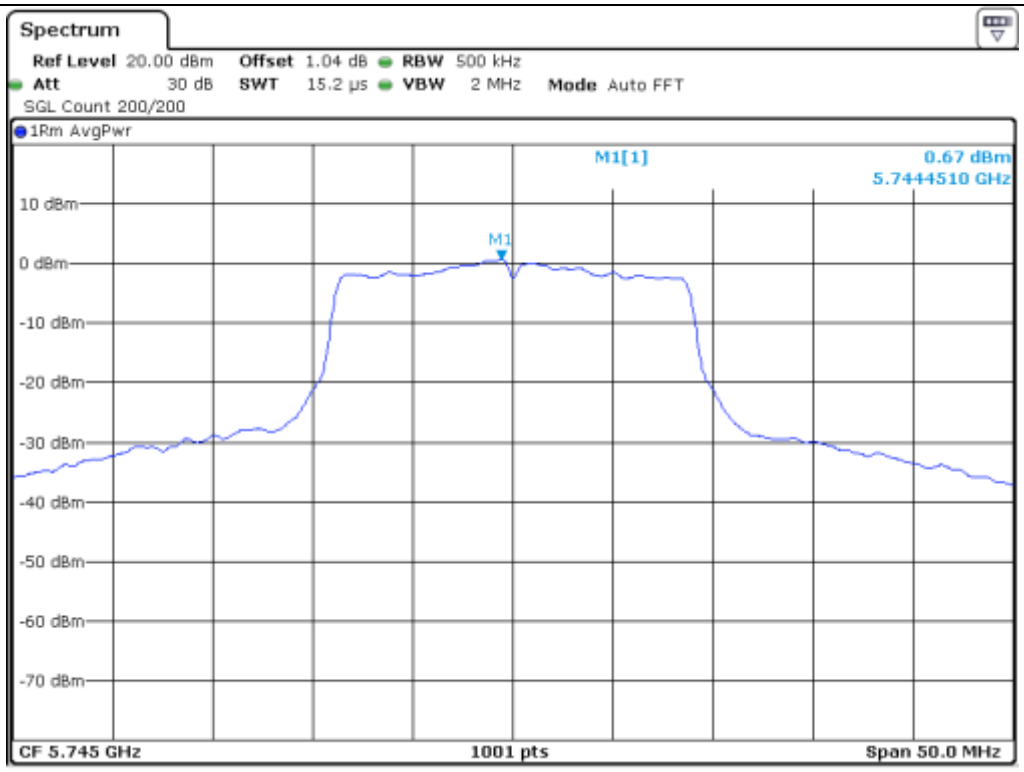
**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



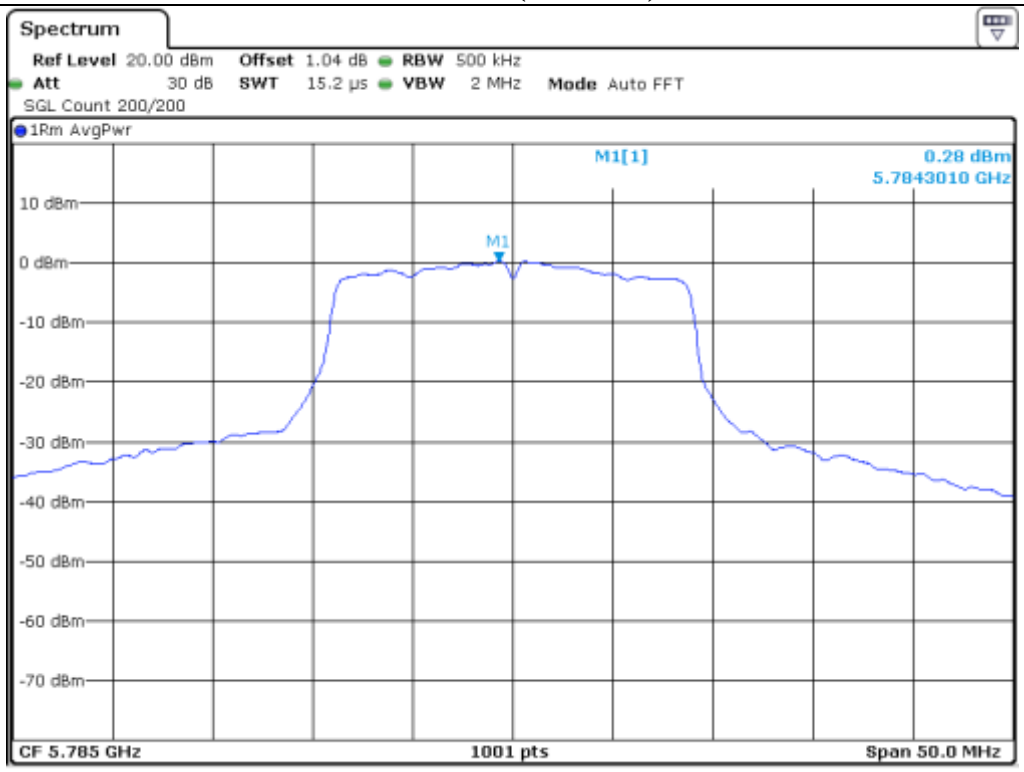

High Channel (5 700 MHz)

**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



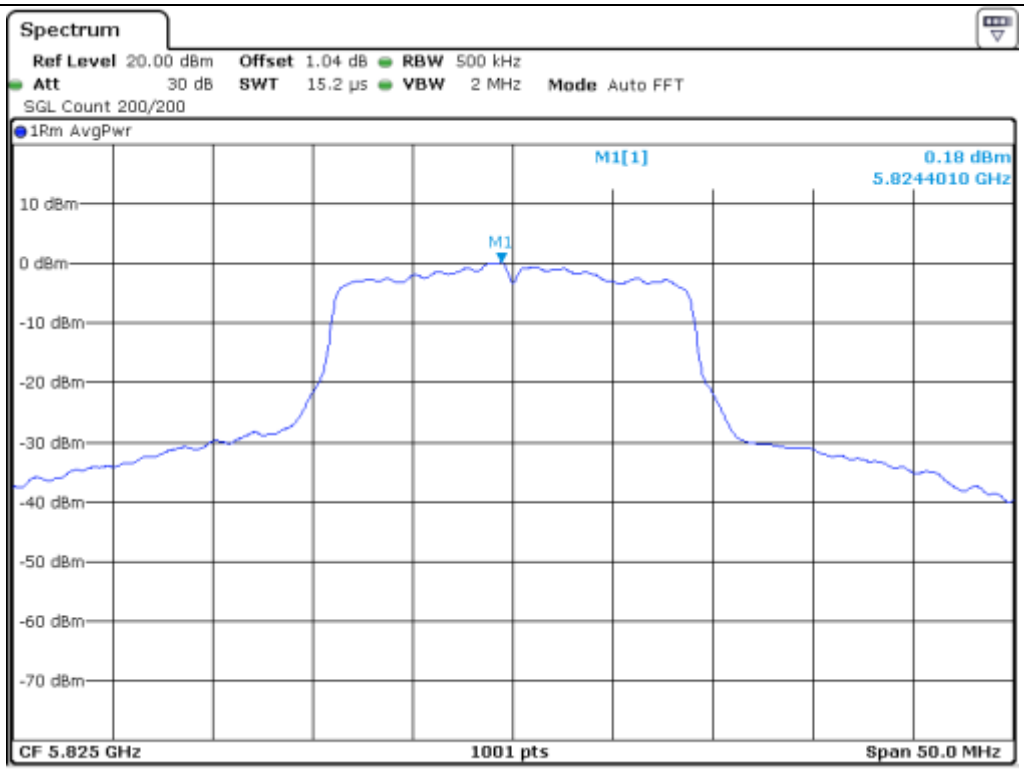

Low Channel (5 745 MHz)




Middle Channel (5 785 MHz)

**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)




High Channel (5 825 MHz)

**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

### 10.5.2 Test data for Antenna 1

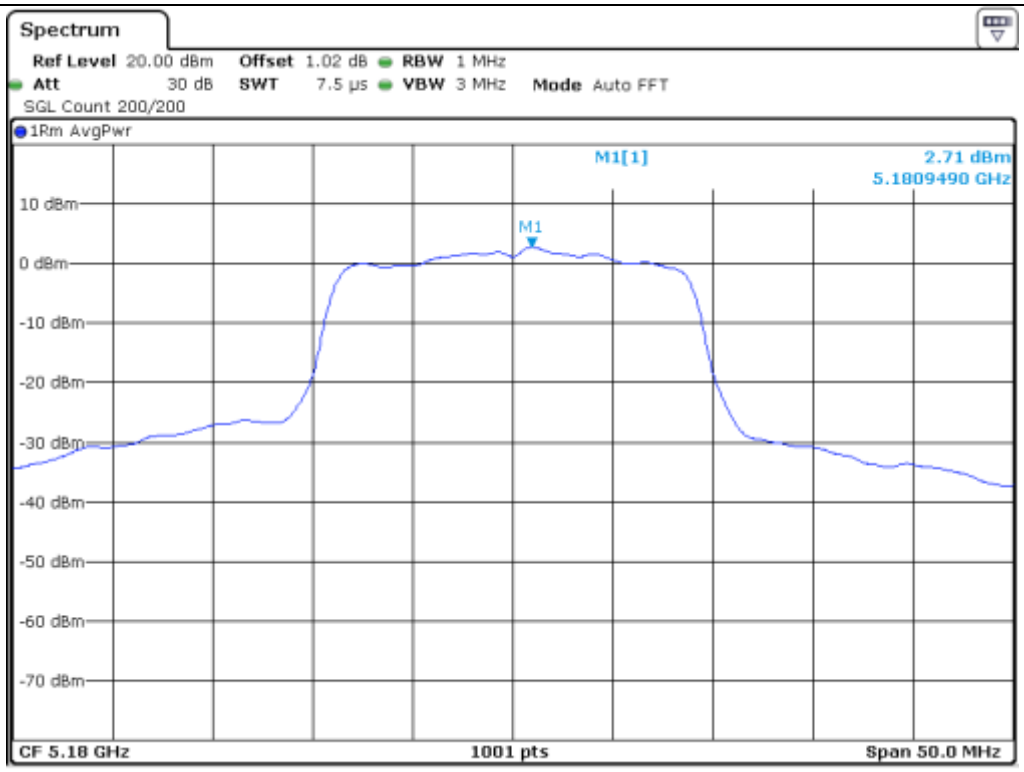
-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

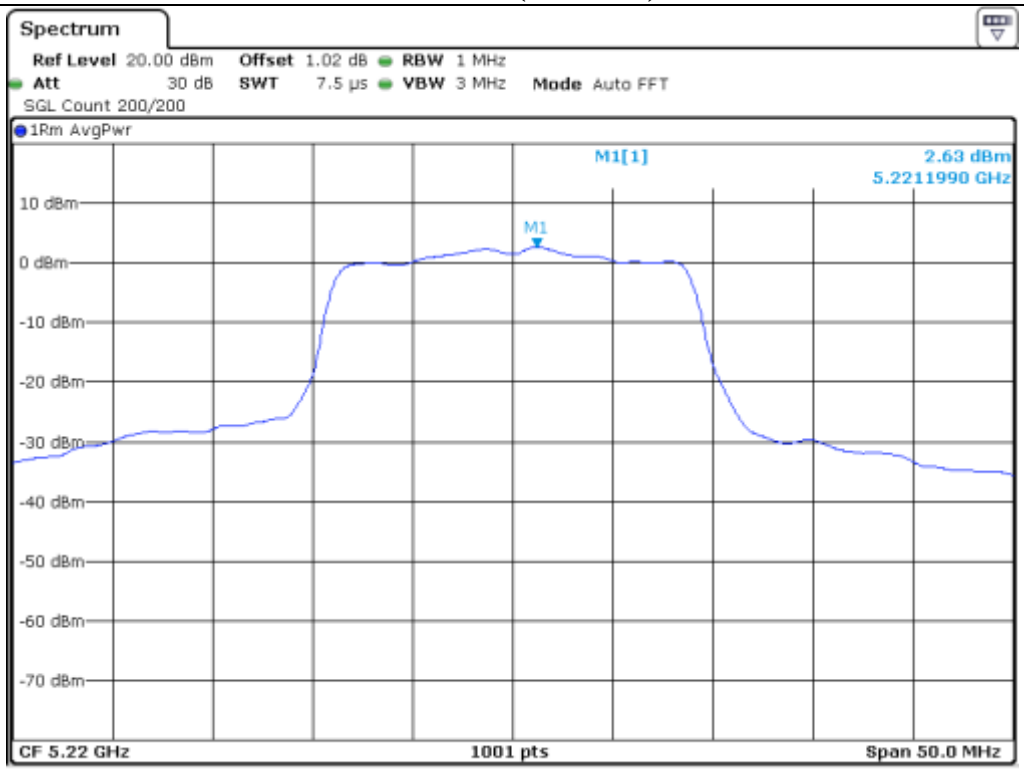
| FREQUENCY RANGE (MHz) | CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | Correction Factor (dB) | Result (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---|---|---|---|---|---|---|---|
| 5 150 ~ 5 250 | Low | 5 180.00 | 2.71 | 0.72 | 3.43 | 11.00 | 7.57 |
| | Middle | 5 220.00 | 2.63 | 0.72 | 3.35 | 11.00 | 7.65 |
| | High | 5 240.00 | 2.52 | 0.72 | 3.24 | 11.00 | 7.76 |
| 5 250 ~ 5 350 | Low | 5 260.00 | 2.05 | 0.65 | 2.70 | 11.00 | 8.30 |
| | Middle | 5 300.00 | 2.56 | 0.65 | 3.21 | 11.00 | 7.79 |
| | High | 5 320.00 | 2.30 | 0.65 | 2.95 | 11.00 | 8.05 |
| 5 470 ~ 5 725 | Low | 5 500.00 | 3.28 | 0.65 | 3.93 | 11.00 | 7.07 |
| | Middle | 5 580.00 | 3.55 | 0.65 | 4.20 | 11.00 | 6.80 |
| | High | 5 700.00 | 3.35 | 0.65 | 4.00 | 11.00 | 7.00 |
| 5 725 ~ 5 850 | Low | 5 745.00 | 0.67 | 0.60 | 1.27 | 30.00 | 28.73 |
| | Middle | 5 785.00 | 0.65 | 0.6 | 1.25 | 30.00 | 28.75 |
| | High | 5 825.00 | 0.24 | 0.6 | 0.84 | 30.00 | 29.16 |

Remark : Margin = Limit – Result(Measured Value + Correction Factor)

Remark: See next page for measurement data.



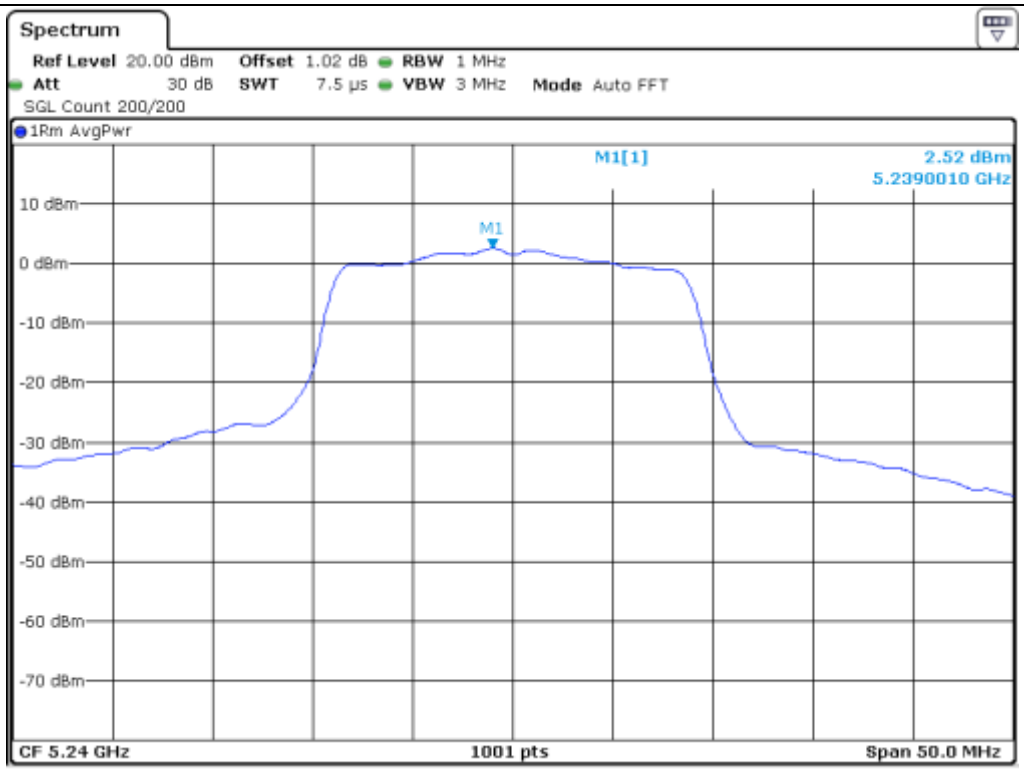

Low Channel (5 180 MHz)




Middle Channel (5 220 MHz)

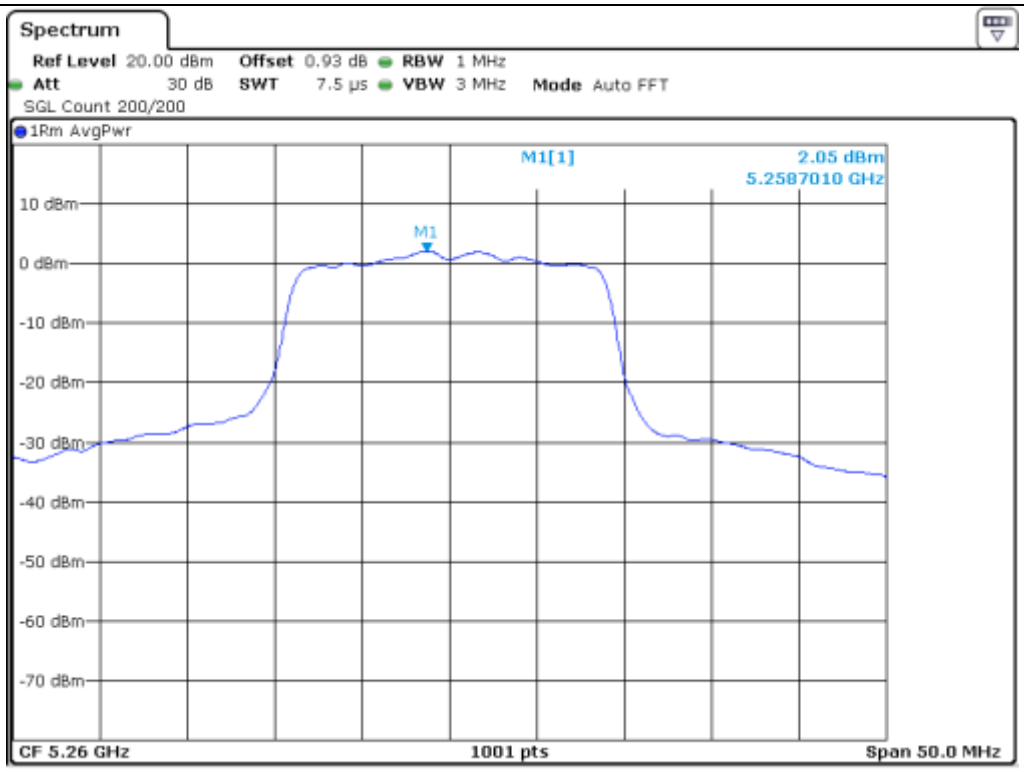
**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



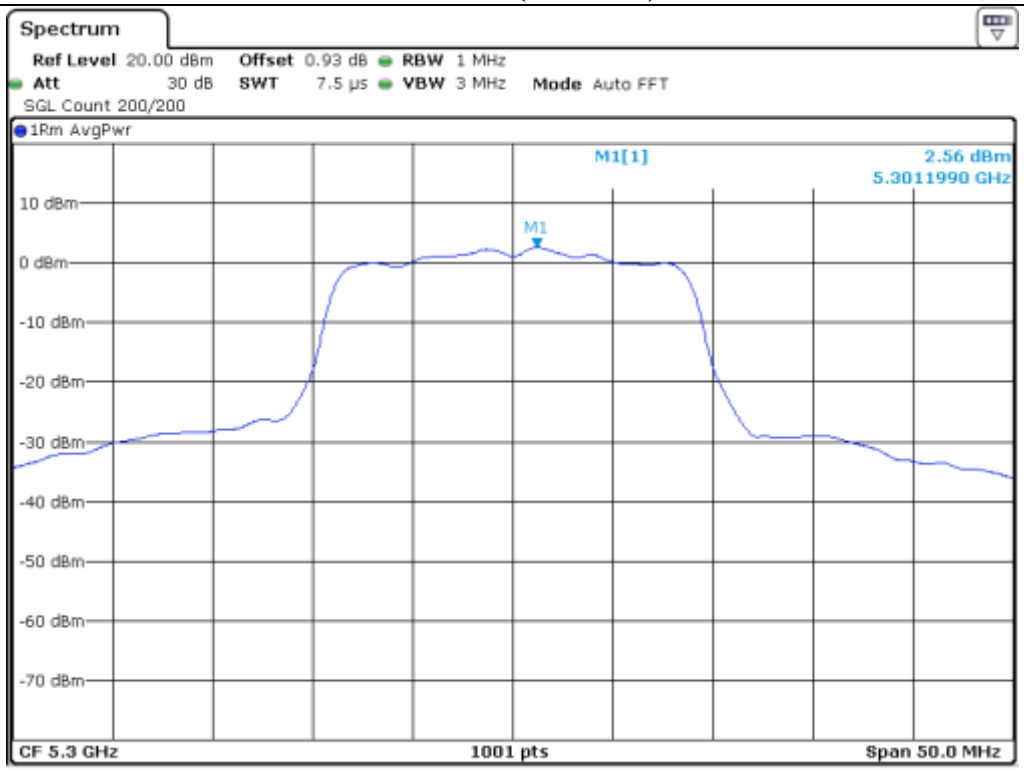

High Channel (5 240 MHz)

**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



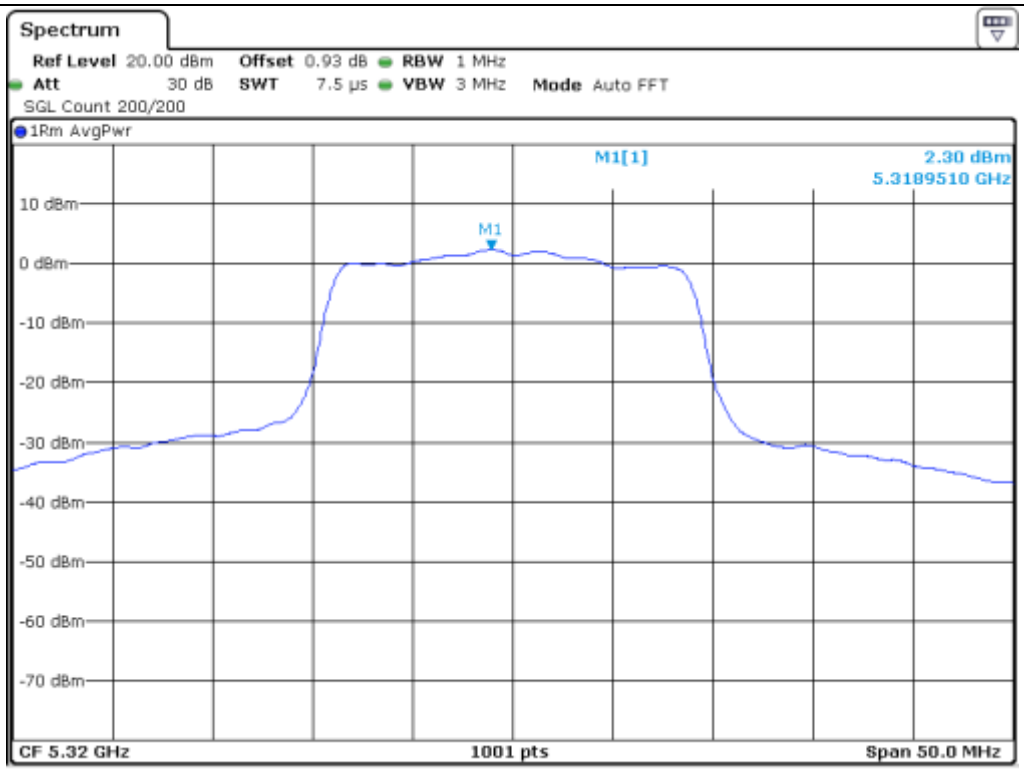

Low Channel (5 260 MHz)




Middle Channel (5 300 MHz)

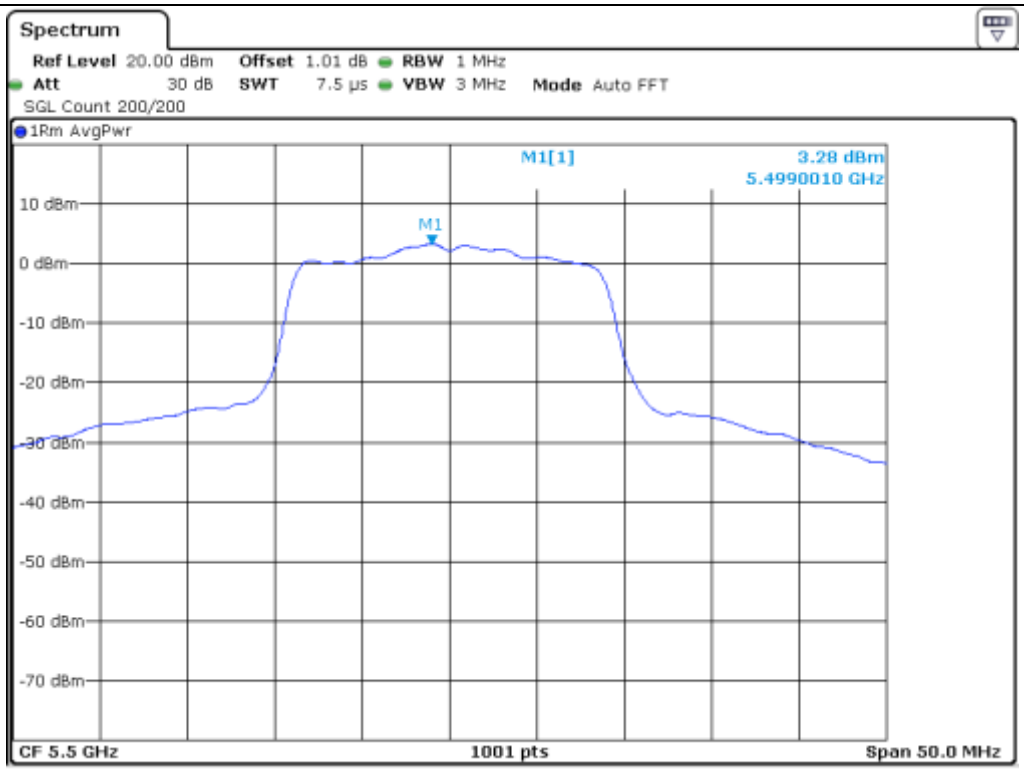
**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



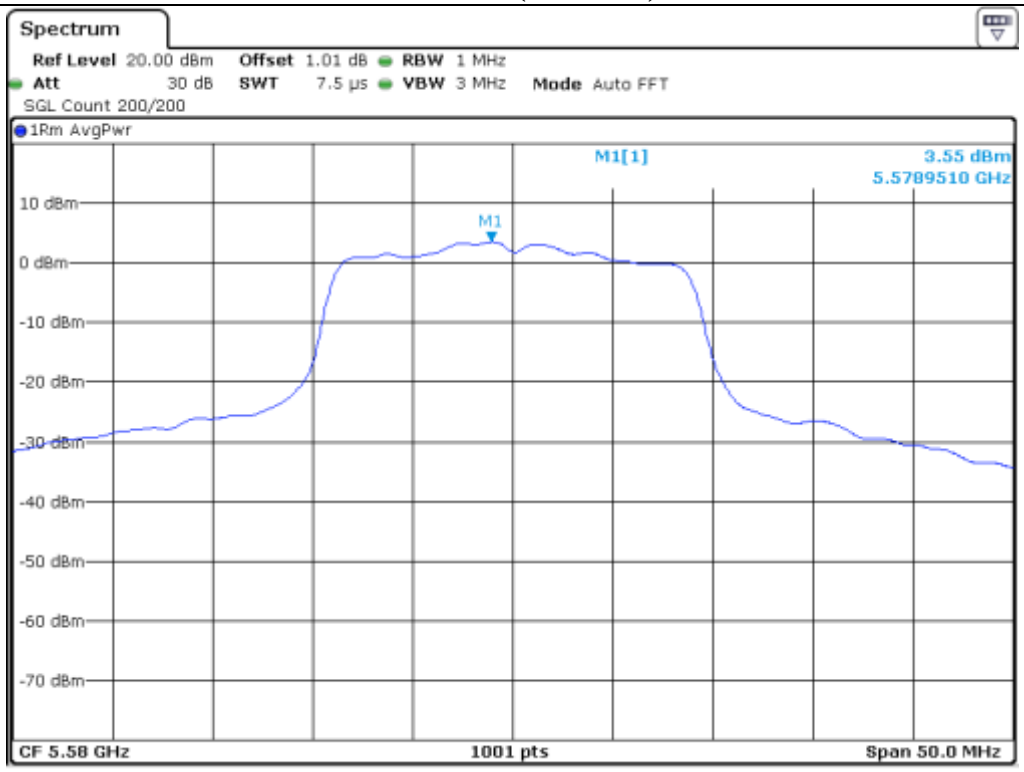

High Channel (5 320 MHz)

**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



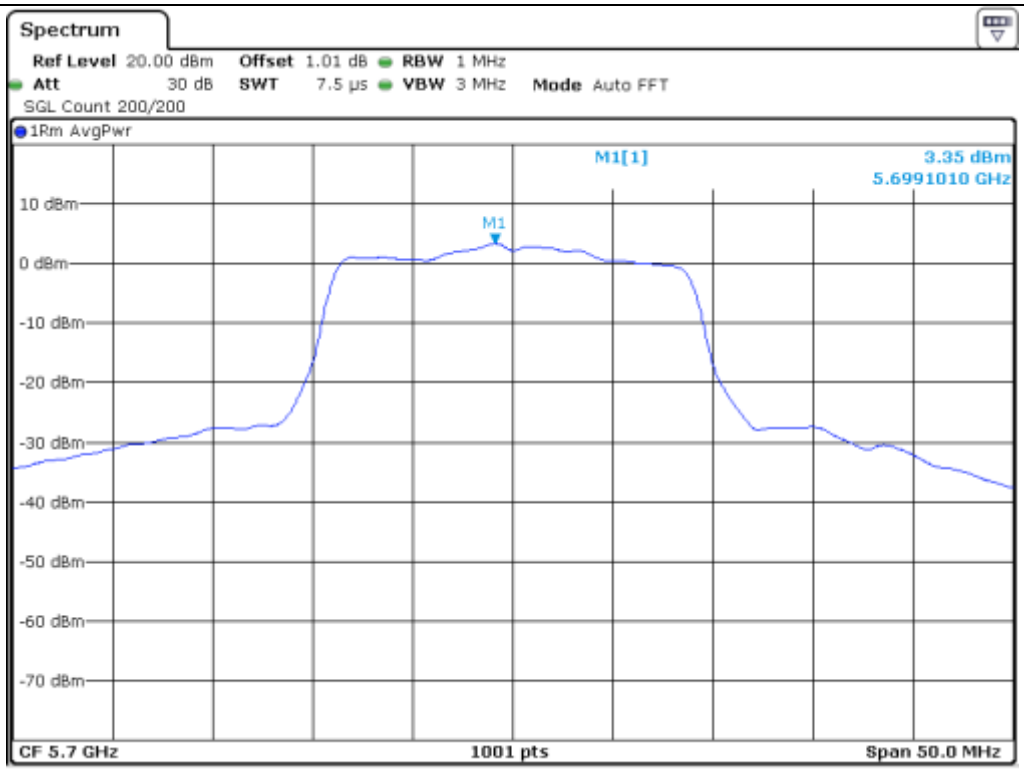

Low Channel (5 500 MHz)




Middle Channel (5 580 MHz)

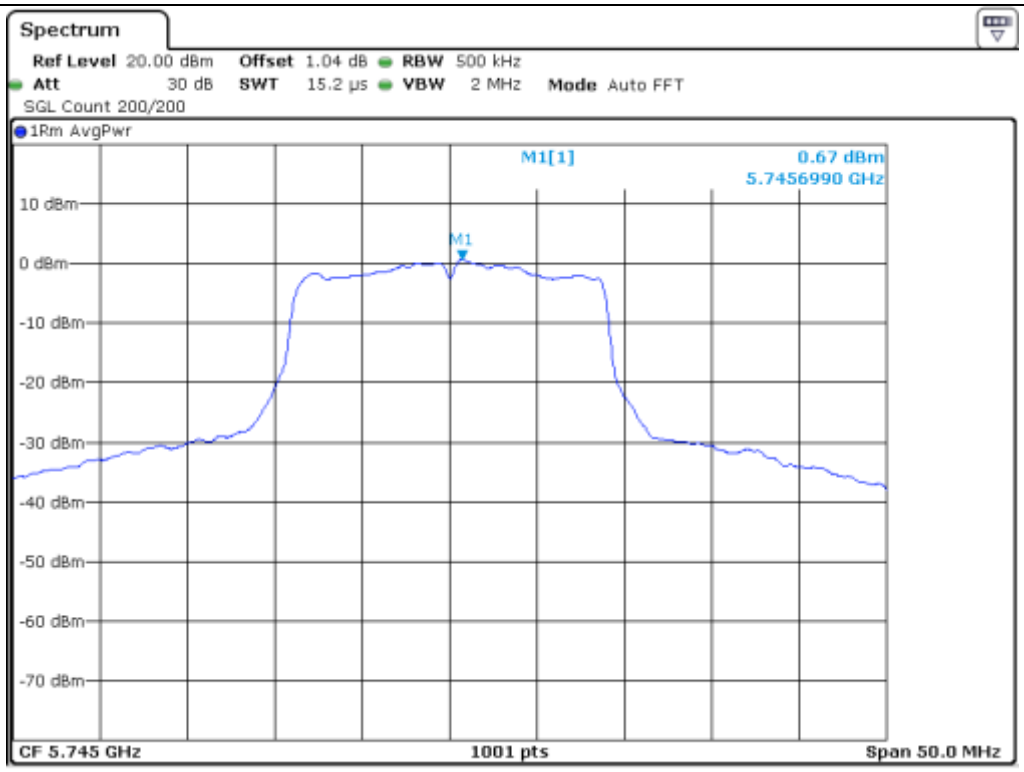
**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



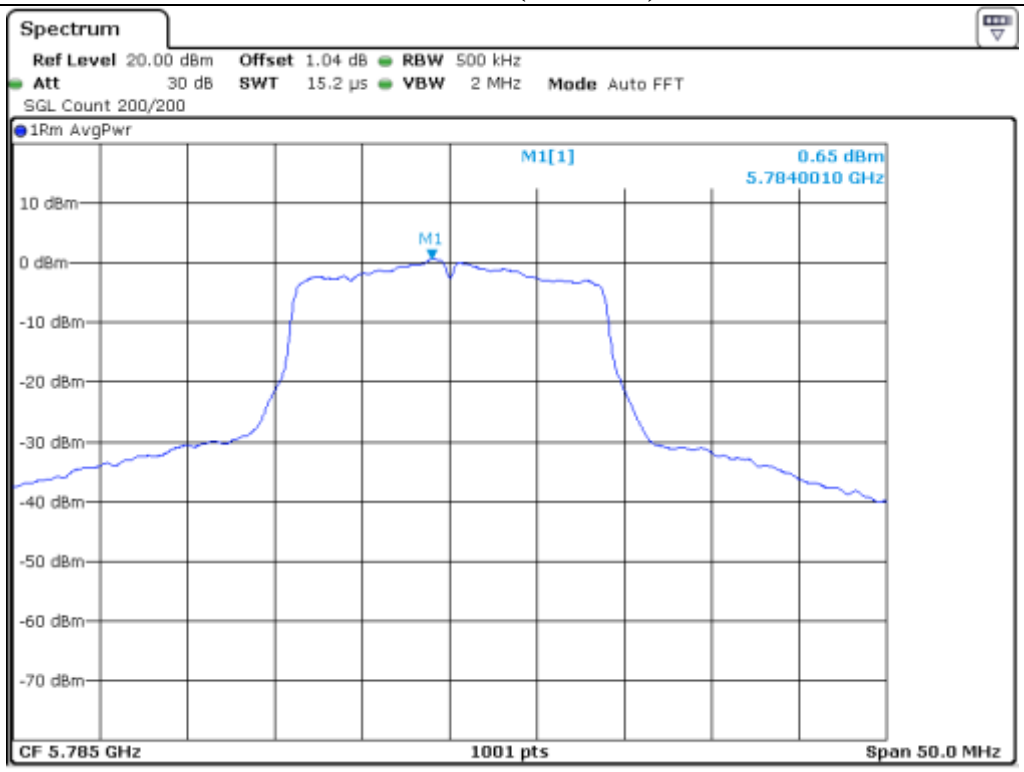

High Channel (5 700 MHz)

**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)



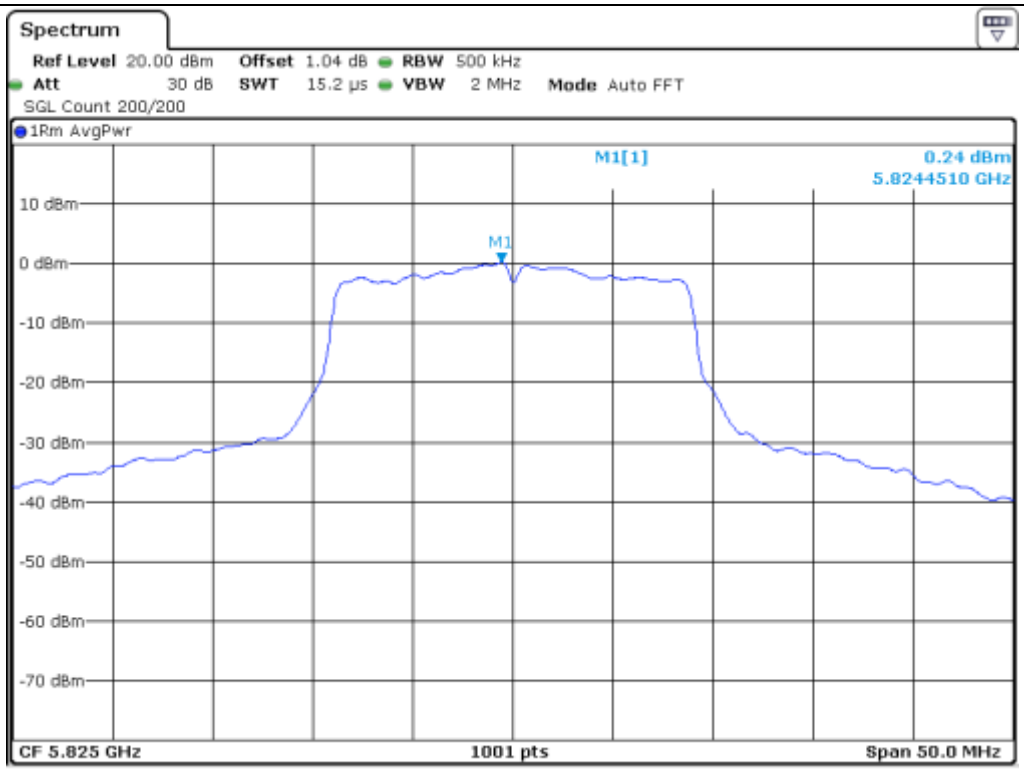

Low Channel (5 745 MHz)




Middle Channel (5 785 MHz)

**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)




High Channel (5 825 MHz)

**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

### 10.5.3 Test data for Multiple Transmit

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

| FREQUENCY RANGE (MHz) | CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | Correction Factor (dB) | Result (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---|---|---|---|---|---|---|---|
| 5 150 ~ 5 250 | Low | 5 180.00 | 6.19 | 0.72 | 6.91 | 11.00 | 4.09 |
| | Middle | 5 220.00 | 6.16 | 0.72 | 6.88 | 11.00 | 4.12 |
| | High | 5 240.00 | 6.35 | 0.72 | 7.07 | 11.00 | 3.93 |
| 5 250 ~ 5 350 | Low | 5 260.00 | 6.55 | 0.65 | 7.20 | 11.00 | 3.80 |
| | Middle | 5 300.00 | 7.09 | 0.65 | 7.74 | 11.00 | 3.26 |
| | High | 5 320.00 | 7.02 | 0.65 | 7.67 | 11.00 | 3.33 |
| 5 470 ~ 5 725 | Low | 5 500.00 | 6.36 | 0.65 | 7.01 | 11.00 | 3.99 |
| | Middle | 5 580.00 | 6.59 | 0.65 | 7.24 | 11.00 | 3.76 |
| | High | 5 700.00 | 5.97 | 0.65 | 6.62 | 11.00 | 4.38 |
| 5 725 ~ 5 850 | Low | 5 745.00 | 3.68 | 0.60 | 4.28 | 30.00 | 25.72 |
| | Middle | 5 785.00 | 3.48 | 0.6 | 4.08 | 30.00 | 25.92 |
| | High | 5 825.00 | 3.22 | 0.6 | 3.82 | 30.00 | 26.18 |

Remark 1 : Margin = Limit – Result(Measured Value + Correction Factor)

Remark 2 : Calculated Output Power= $10\log (10^{(\text{Antenna1 Output Power}/10)}+10^{(\text{Antenna2 Output Power}/10)})$

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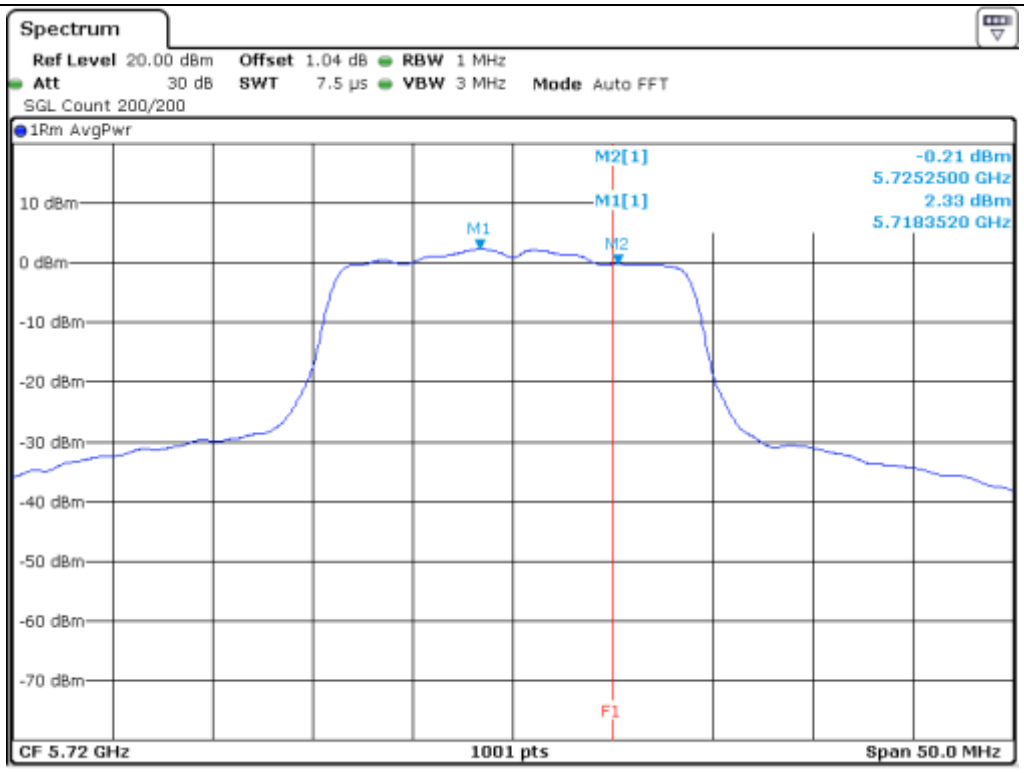
### 10.5.4 Test data for Straddle Channel_Antenna 0

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

| FREQUENCY RANGE (MHz) | FREQUENCY (MHz) | MEASURED VALUE (dBm) | Correction Factor (dB) | Result (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---|---|---|---|---|---|---|
| 5 470 ~ 5 725 | 5 720.00 | 2.33 | 0.59 | 2.92 | 11.00 | 8.08 |
| 5 725 ~ 5 850 | 5 720.00 | -0.21 | 0.65 | 0.44 | 30.00 | 29.56 |

Remark : Margin = Limit – Result(Measured Value + Correction Factor)



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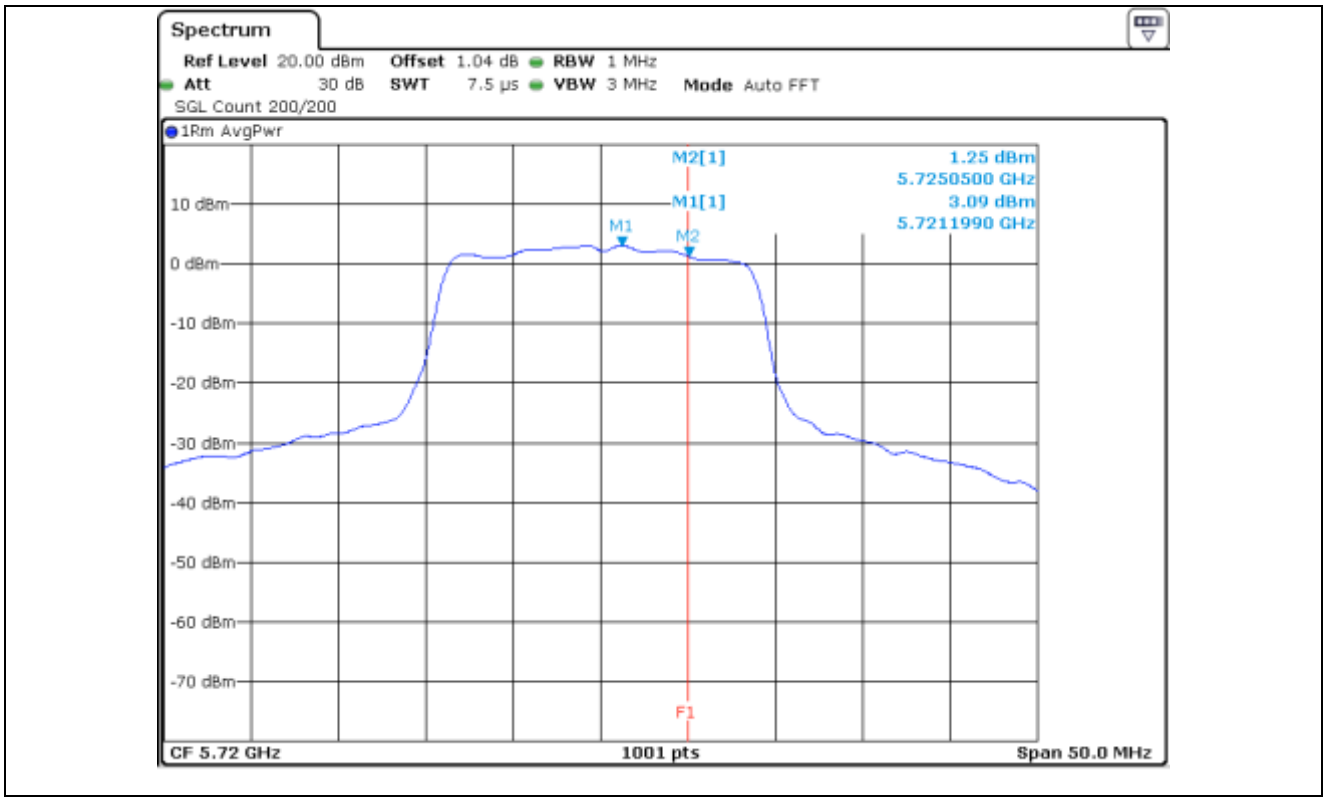
### 10.5.5 Test data for Straddle Channel_Antenna 1

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

| FREQUENCY RANGE (MHz) | FREQUENCY (MHz) | MEASURED VALUE (dBm) | Correction Factor (dB) | Result (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---|---|---|---|---|---|---|
| 5 470 ~ 5 725 | 5 720.00 | 3.09 | 0.65 | 3.74 | 11.00 | 7.26 |
| 5 725 ~ 5 850 | 5 720.00 | 1.25 | 0.60 | 1.85 | 30.00 | 28.15 |

Remark : Margin = Limit – Result(Measured Value + Correction Factor)



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### 10.5.6 Test data for Straddle Channel_Multiple Transmit

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

| FREQUENCY RANGE (MHz) | FREQUENCY (MHz) | MEASURED VALUE (dBm) | Correction Factor (dB) | Result (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---|---|---|---|---|---|---|
| 5 470 ~ 5 725 | 5 720.00 | 5.74 | 0.65 | 6.39 | 11.00 | 4.61 |
| 5 725 ~ 5 850 | 5 720.00 | 3.59 | 0.60 | 4.19 | 30.00 | 25.81 |

Remark 1 : Margin = Limit – Result(Measured Value + Correction Factor)

Remark 2 : Calculated Output Power= $10\log(10^{(\text{Antenna1 Output Power}/10)}+10^{(\text{Antenna2 Output Power}/10)})$

## 10.6 Test data for 802.11n_HT40 RLAN Mode

### 10.6.1 Test data for Antenna 0

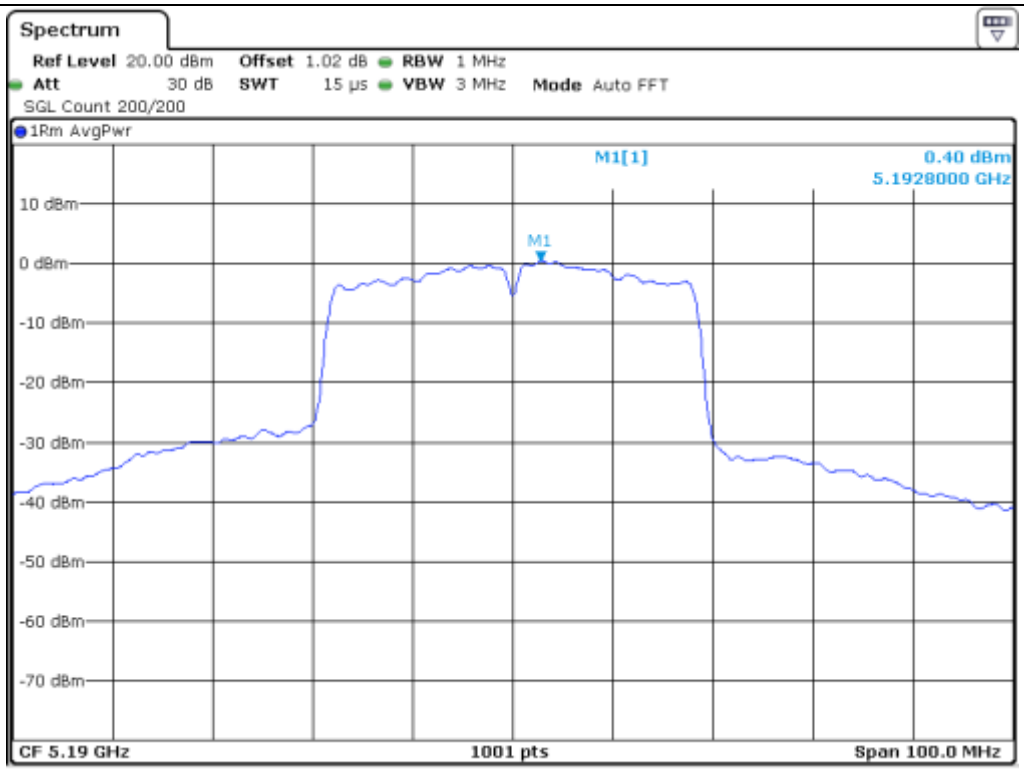
-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

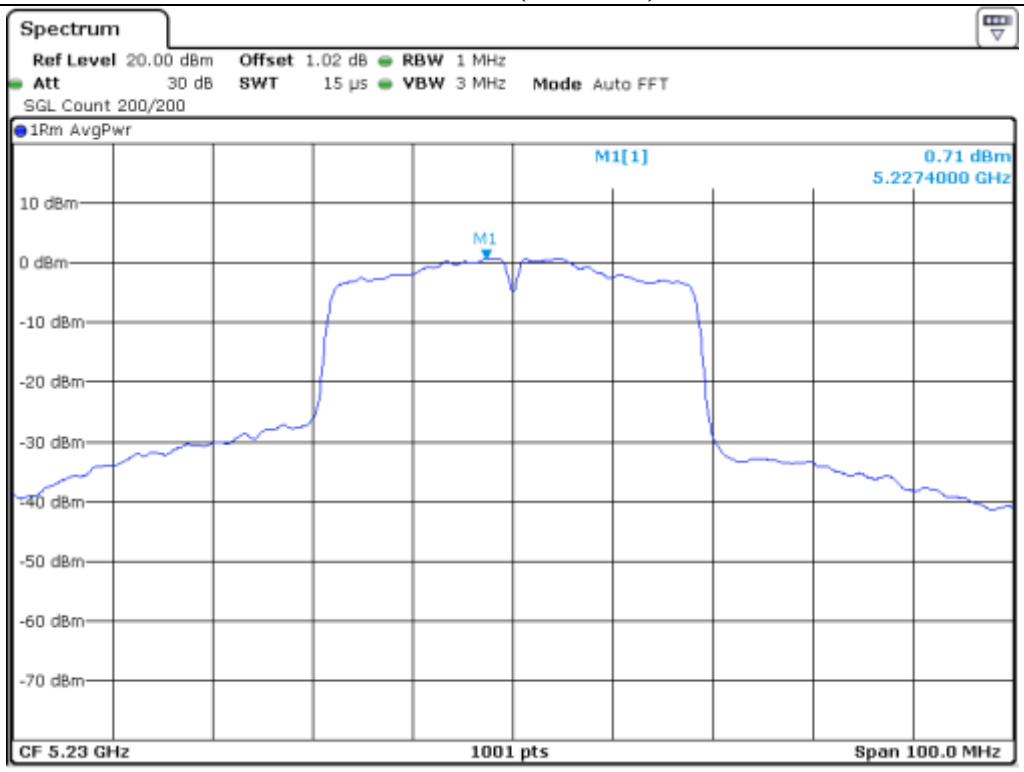
| FREQUENCY RANGE (MHz) | CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | Correction Factor (dB) | Result (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---|---|---|---|---|---|---|---|
| 5 150 ~ 5 250 | Low | 5 190.00 | 0.40 | 1.11 | 1.51 | 11.00 | 9.49 |
| | High | 5 230.00 | 0.71 | 1.11 | 1.82 | 11.00 | 9.18 |
| 5 250 ~ 5 350 | Low | 5 270.00 | 1.53 | 1.11 | 2.64 | 11.00 | 8.36 |
| | High | 5 310.00 | 1.49 | 1.11 | 2.6 | 11.00 | 8.40 |
| 5 470 ~ 5 725 | Low | 5 510.00 | 1.63 | 1.09 | 2.72 | 11.00 | 8.28 |
| | Middle | 5 550.00 | 1.83 | 1.09 | 2.92 | 11.00 | 8.08 |
| | High | 5 670.00 | 1.66 | 1.09 | 2.75 | 11.00 | 8.25 |
| 5 725 ~ 5 850 | Low | 5 755.00 | -1.85 | 1.08 | -0.77 | 30.00 | 30.77 |
| | High | 5 795.00 | -2.05 | 1.08 | -0.97 | 30.00 | 30.97 |

Remark : Margin = Limit – Result(Measured Value + Correction Factor)

Remark: See next page for measurement data.




Low Channel (5 190 MHz)




High Channel (5 230 MHz)

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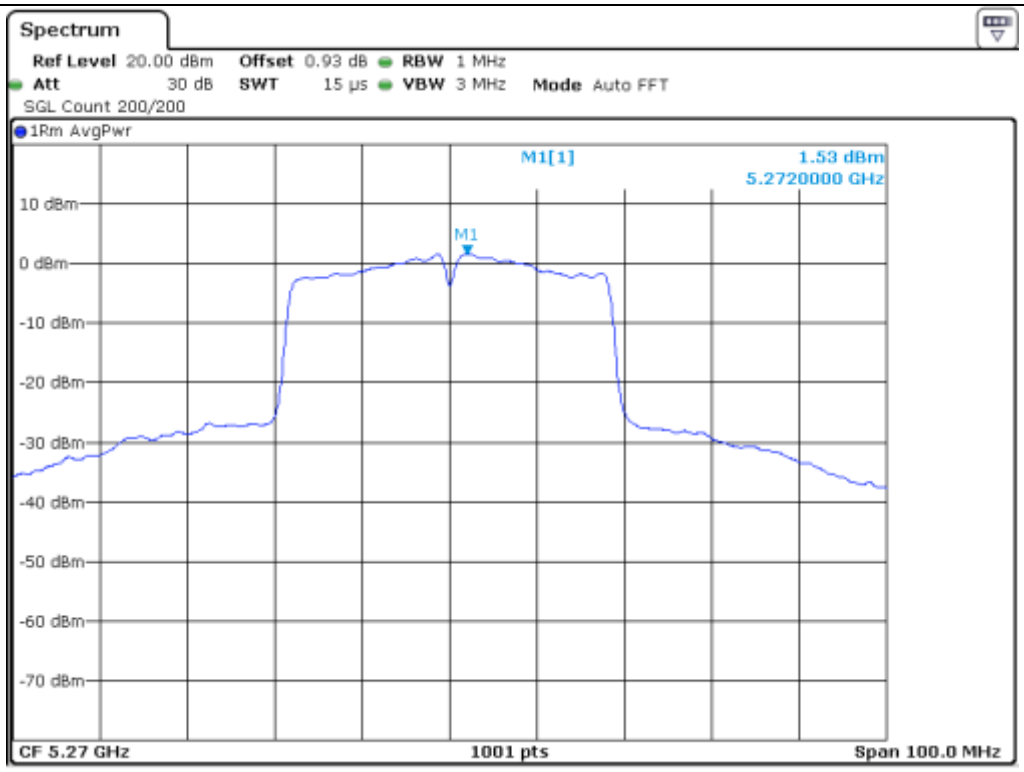
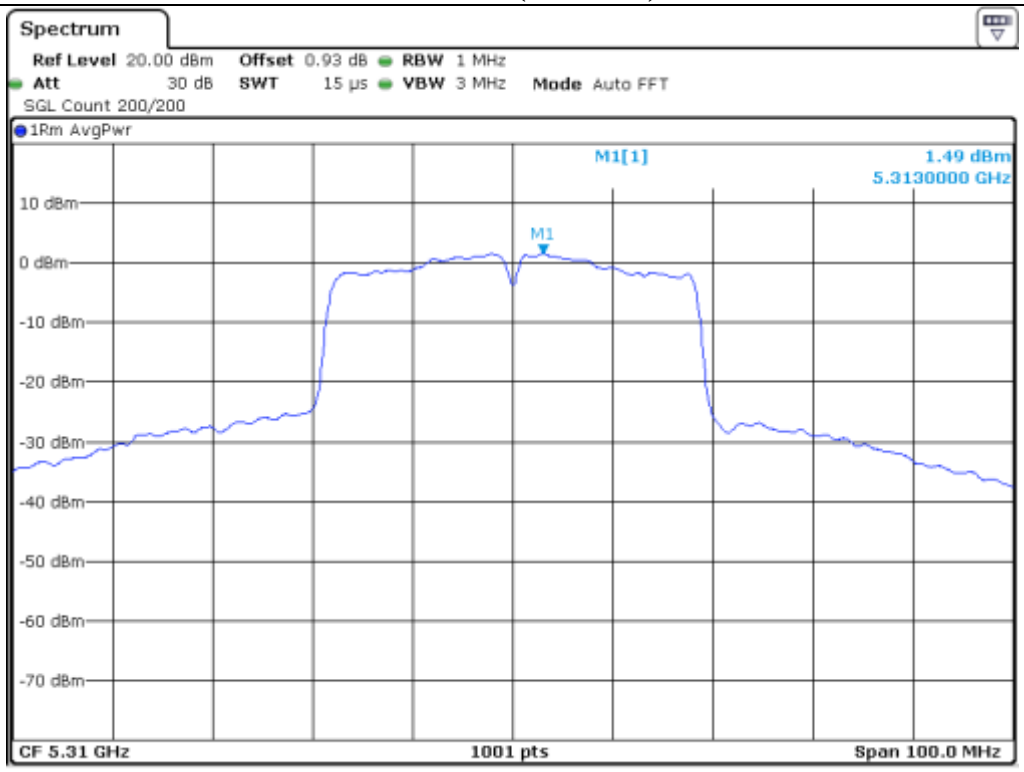


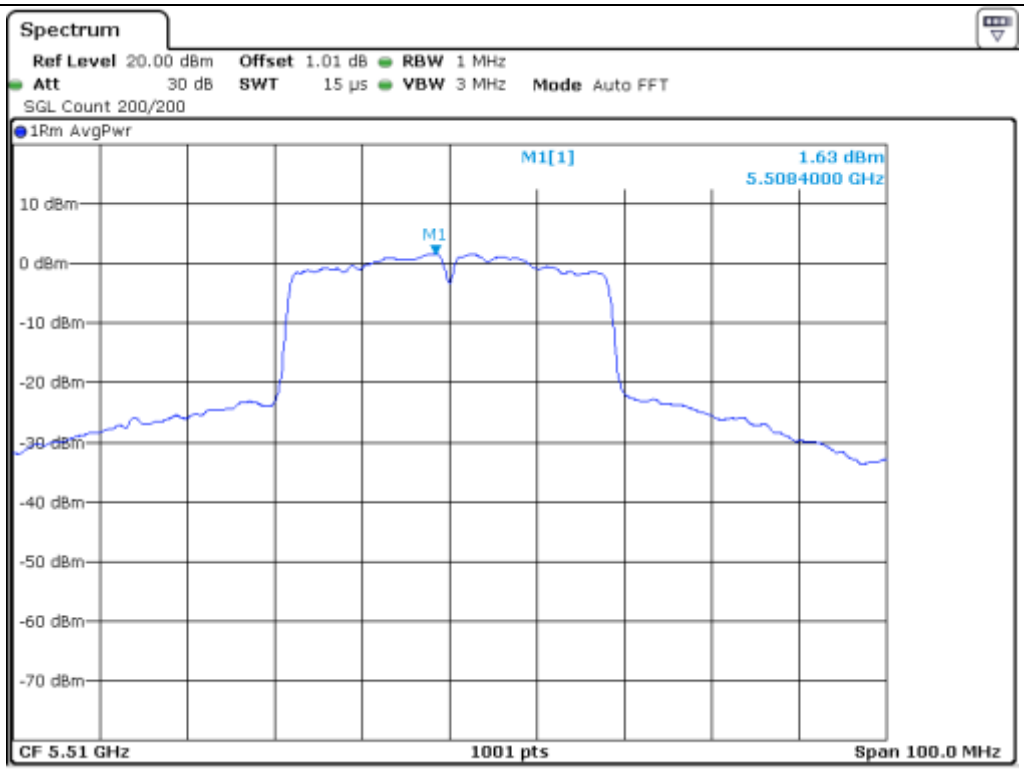

Low Channel (5 270 MHz)



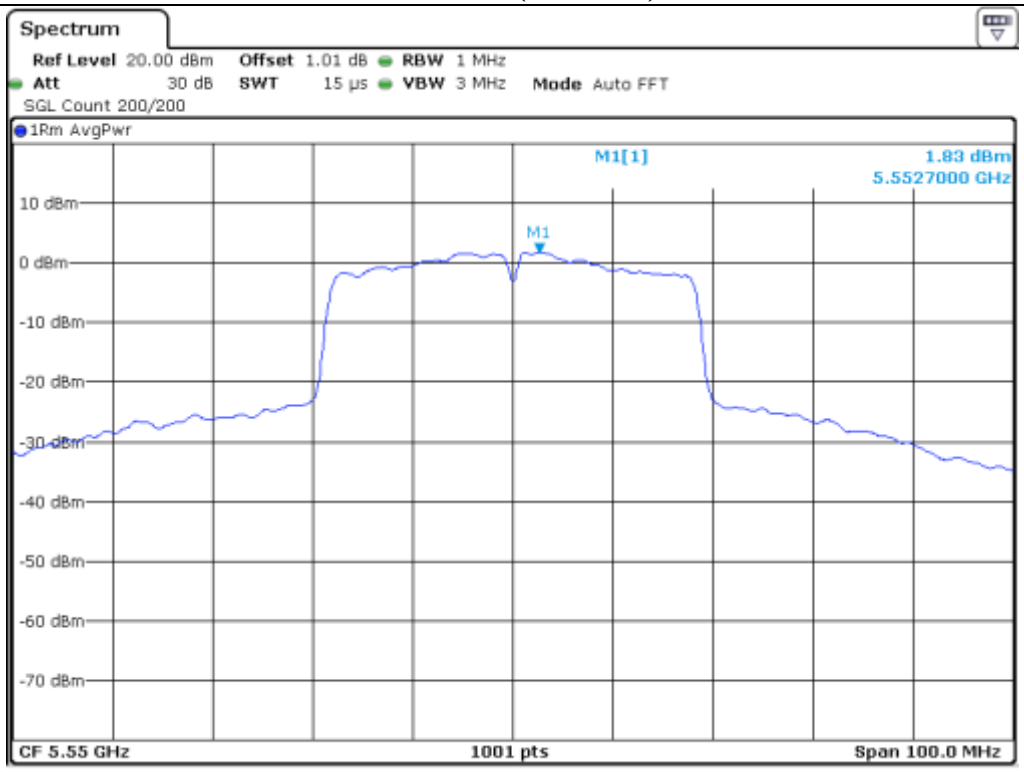

High Channel (5 310 MHz)

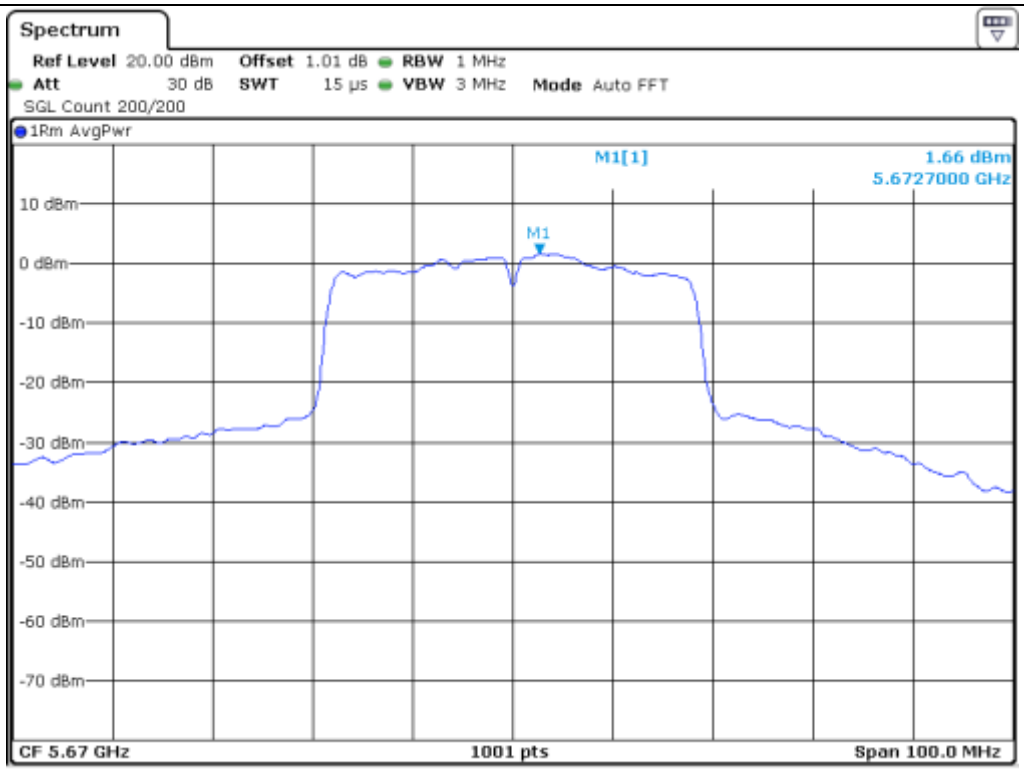
**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)




Low Channel (5 510 MHz)



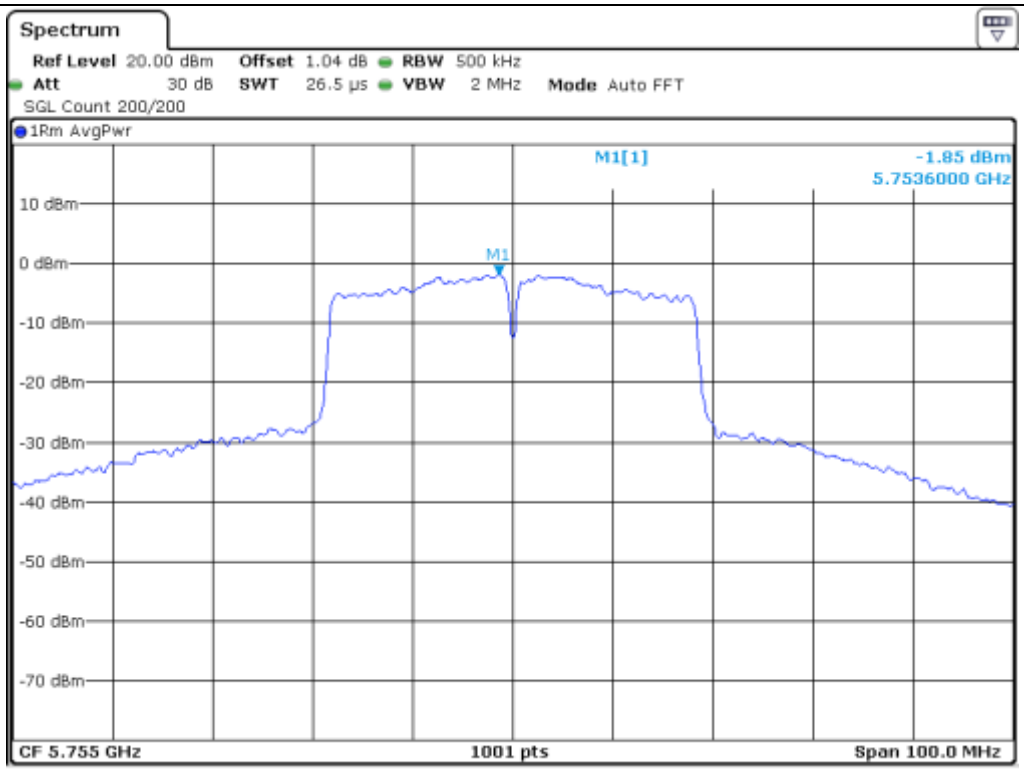

Middle Channel (5 550 MHz)



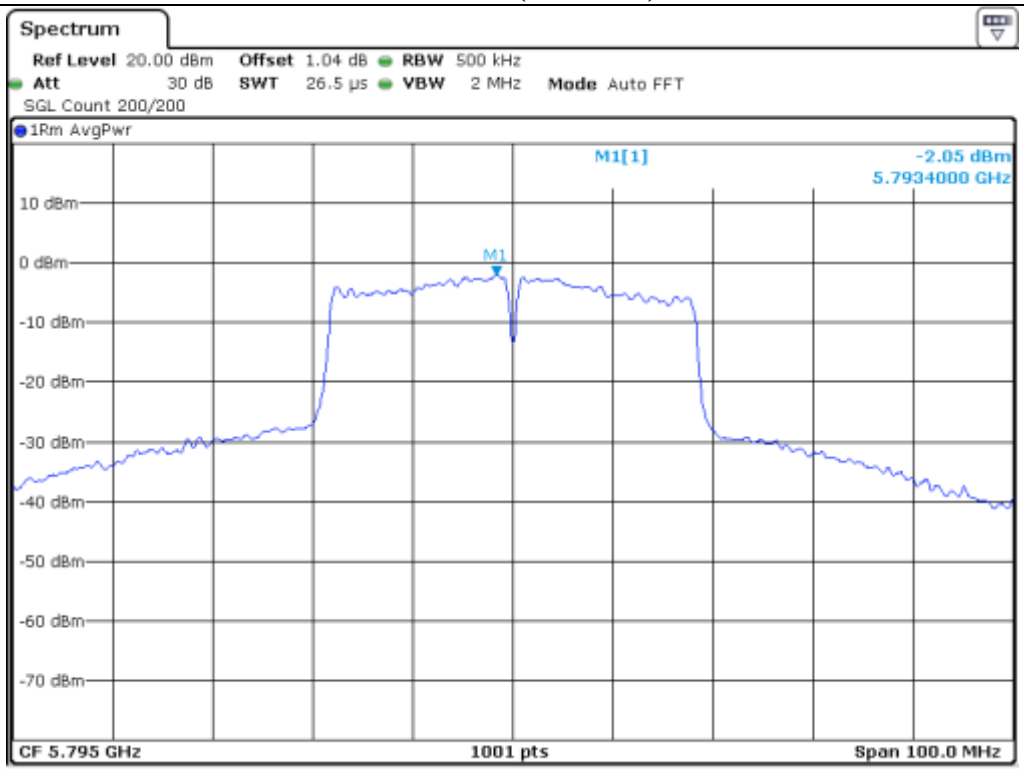

High Channel (5 670 MHz)

**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)




Low Channel (5 755 MHz)




High Channel (5 795 MHz)

**ONETECH Corp.**: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

### 10.6.2 Test data for Antenna 1

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

| FREQUENCY RANGE (MHz) | CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | Correction Factor (dB) | Result (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---|---|---|---|---|---|---|---|
| 5 150 ~ 5 250 | Low | 5 190.00 | -1.08 | 1.08 | 0.00 | 11.00 | 11.00 |
| | High | 5 230.00 | -0.85 | 1.08 | 0.23 | 11.00 | 10.77 |
| 5 250 ~ 5 350 | Low | 5 270.00 | -0.47 | 1.11 | 0.64 | 11.00 | 10.36 |
| | High | 5 310.00 | -0.63 | 1.11 | 0.48 | 11.00 | 10.52 |
| 5 470 ~ 5 725 | Low | 5 510.00 | -0.44 | 1.11 | 0.67 | 11.00 | 10.33 |
| | Middle | 5 550.00 | 0.23 | 1.11 | 1.34 | 11.00 | 9.66 |
| | High | 5 670.00 | 0.99 | 1.11 | 2.10 | 11.00 | 8.90 |
| 5 725 ~ 5 850 | Low | 5 755.00 | -2.89 | 1.11 | -1.78 | 30.00 | 31.78 |
| | High | 5 795.00 | -3.24 | 1.11 | -2.13 | 30.00 | 32.13 |

Remark : Margin = Limit – Result(Measured Value + Correction Factor)

Remark: See next page for measurement data.

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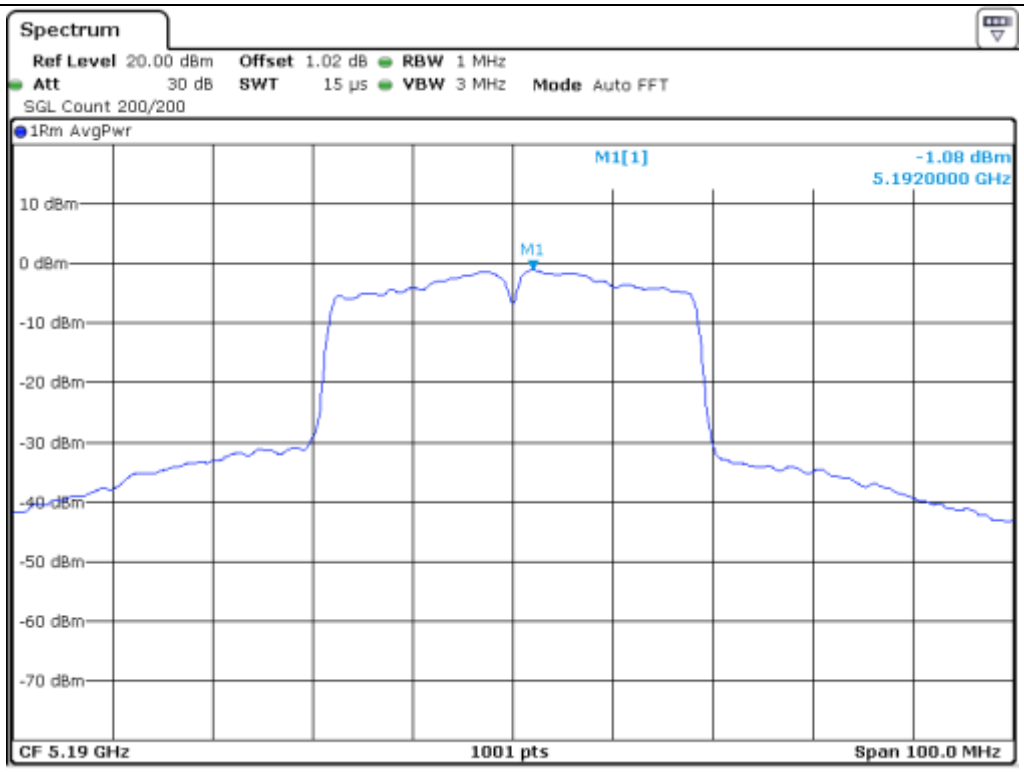
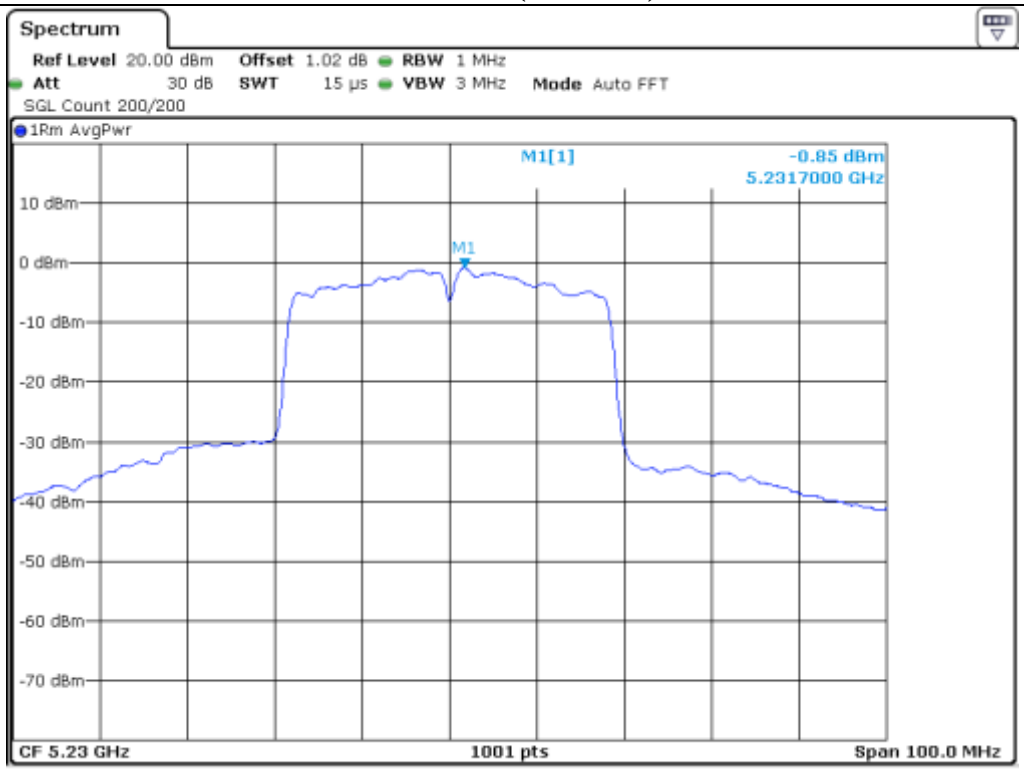



Low Channel (5 190 MHz)




High Channel (5 230 MHz)

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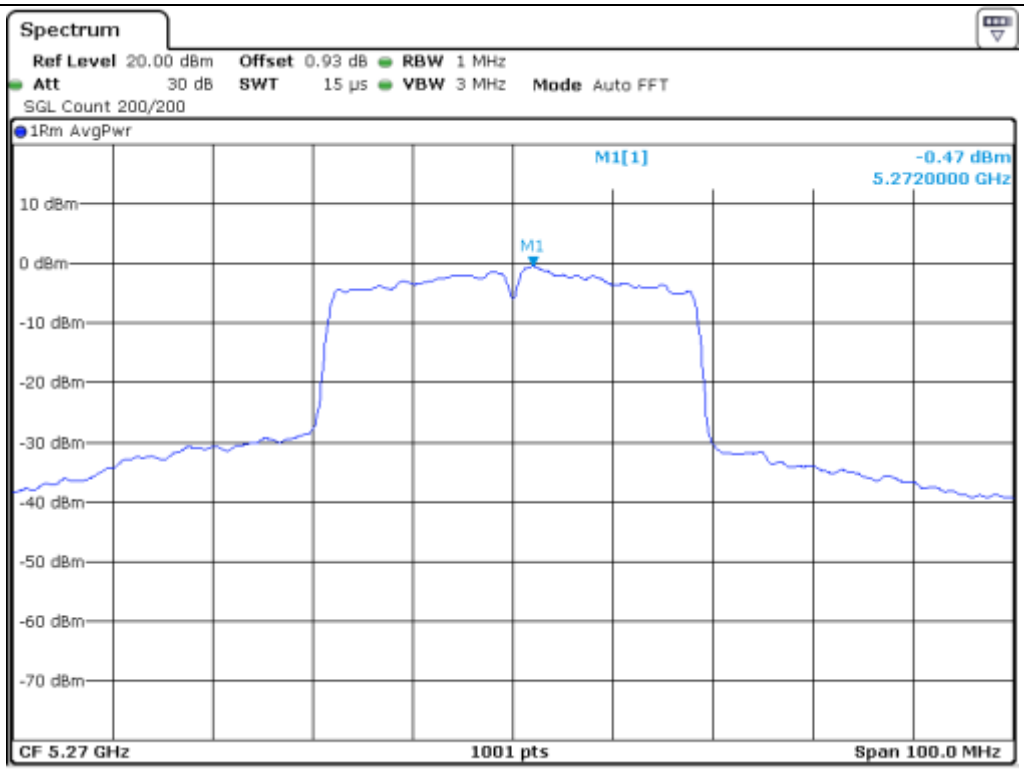
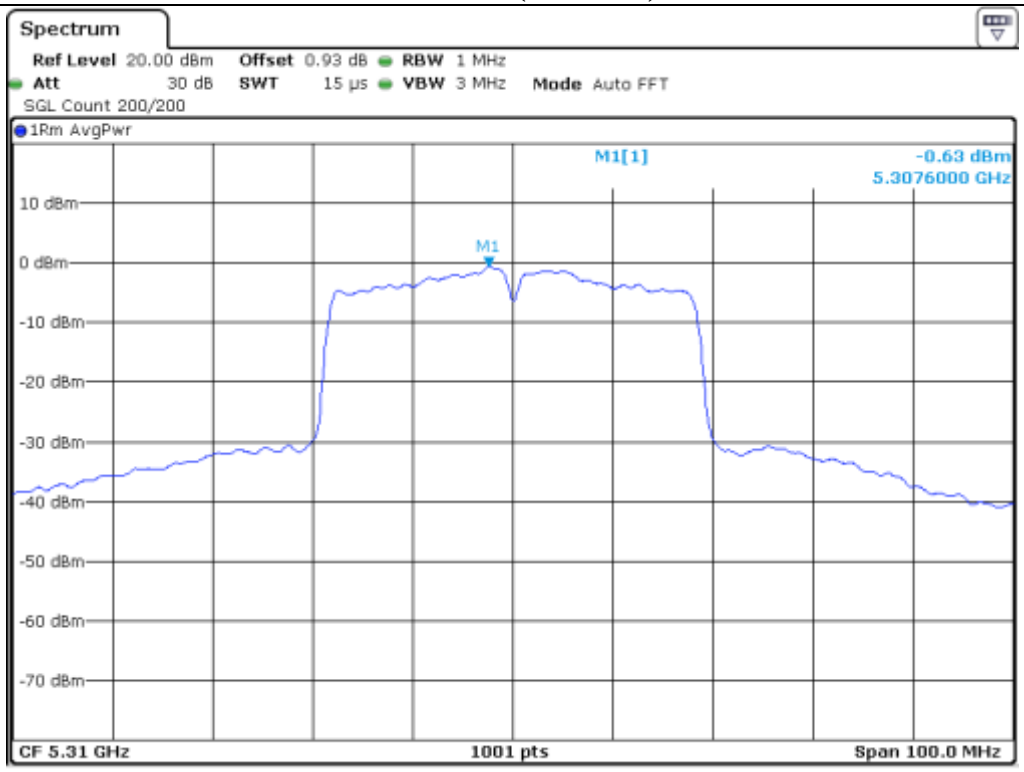



Low Channel (5 270 MHz)




High Channel (5 310 MHz)

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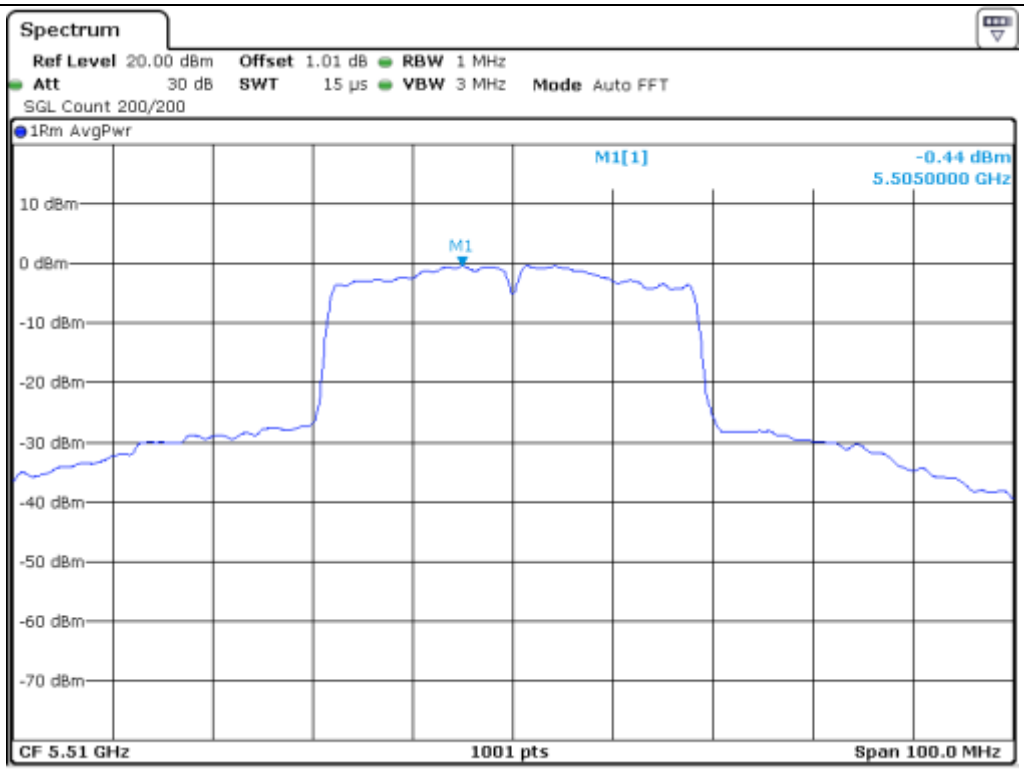
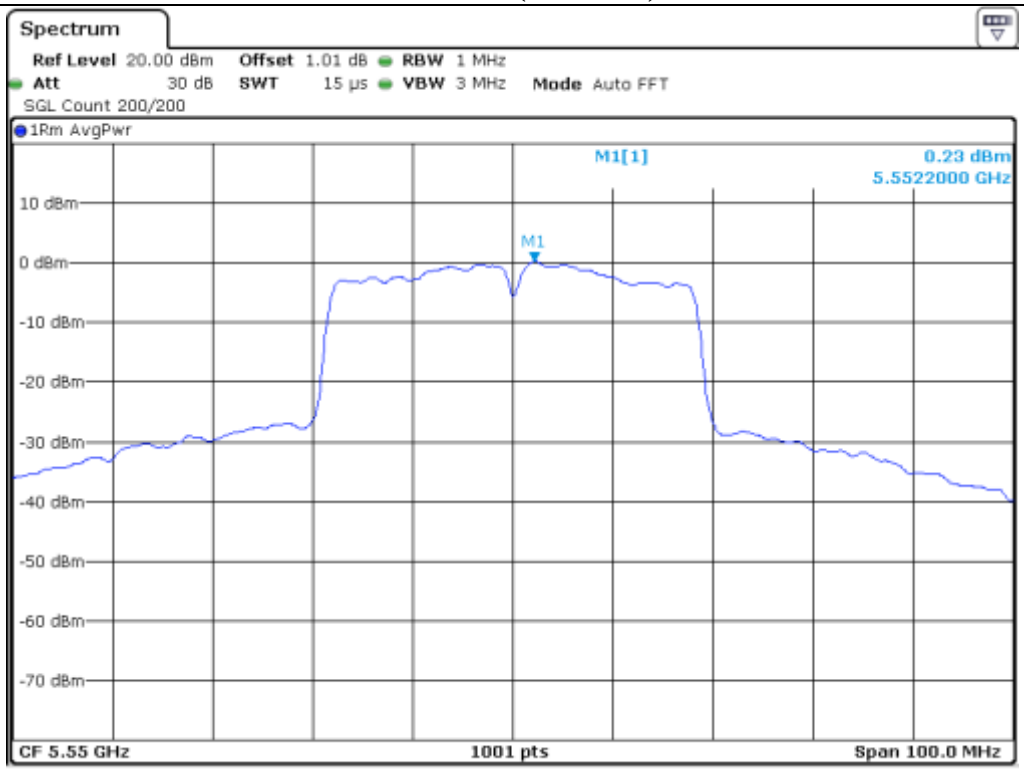



Low Channel (5 510 MHz)




Middle Channel (5 550 MHz)

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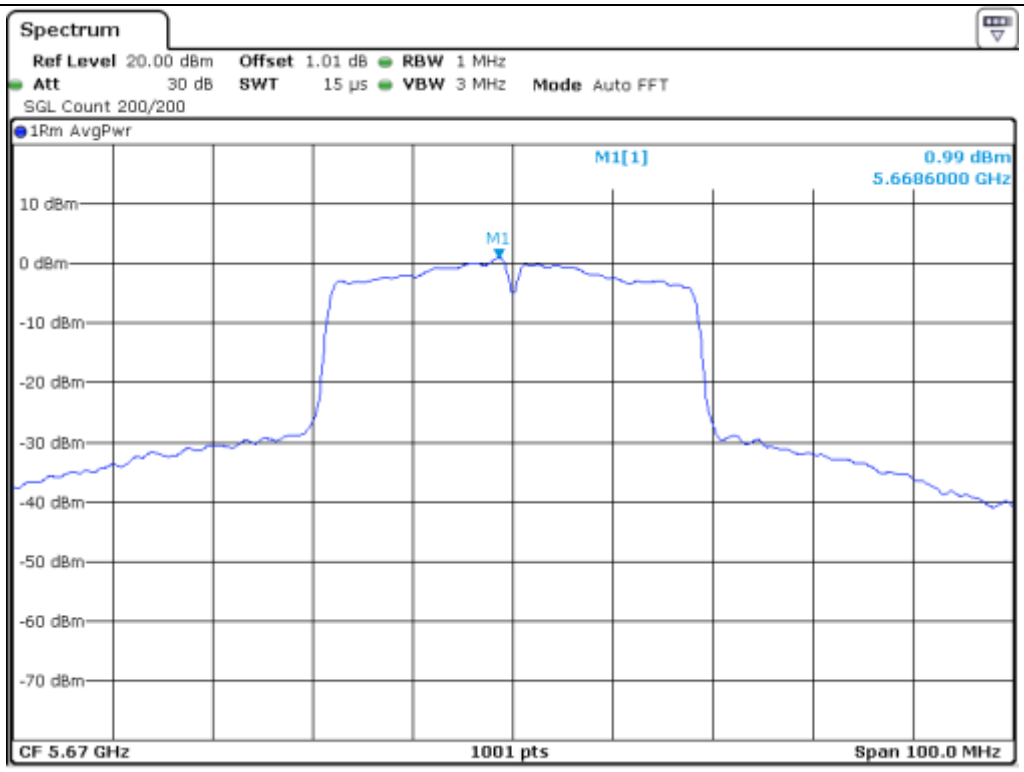


High Channel (5 670 MHz)

 

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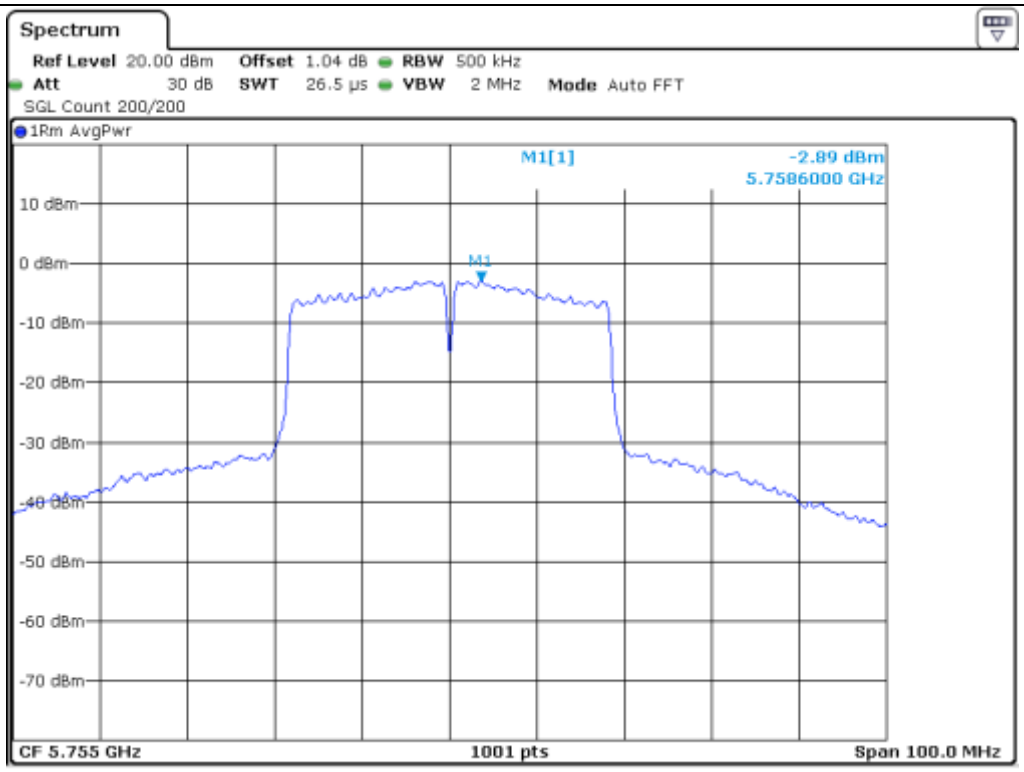
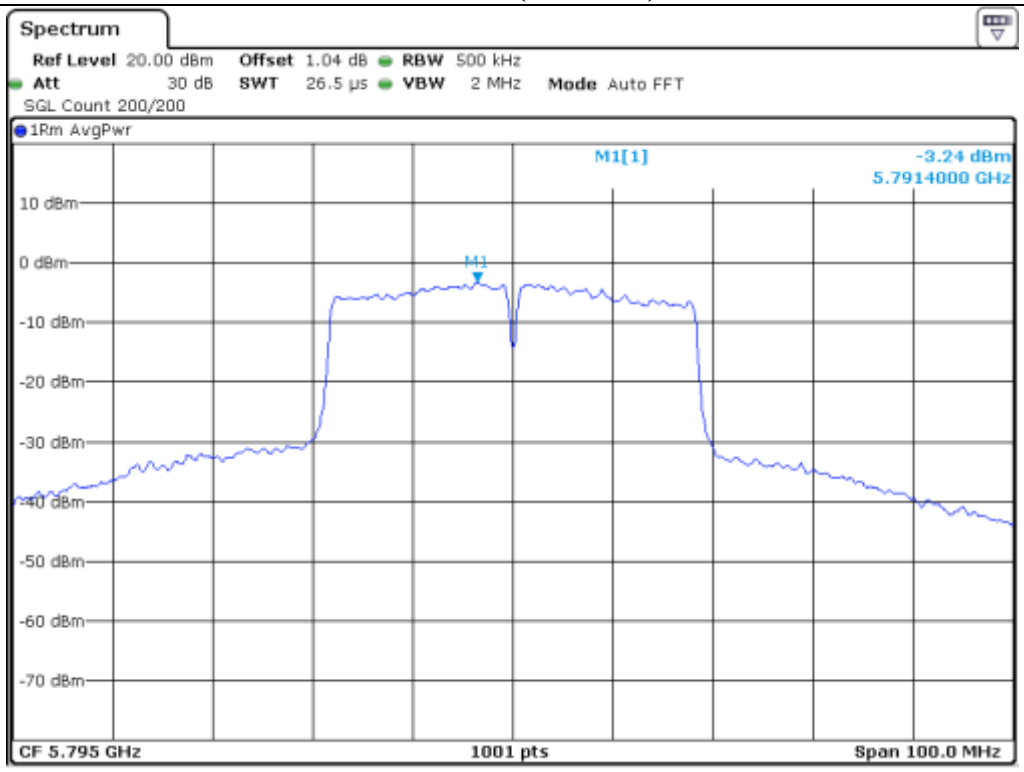



Low Channel (5 755 MHz)




High Channel (5 795 MHz)

### 10.6.3 Test data for Multiple Transmit

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

| FREQUENCY RANGE (MHz) | CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | Correction Factor (dB) | Result (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---|---|---|---|---|---|---|---|
| 5 150 ~ 5 250 | Low | 5 190.00 | 2.73 | 1.08 | 3.81 | 11.00 | 7.19 |
| | High | 5 230.00 | 3.01 | 1.08 | 4.09 | 11.00 | 6.91 |
| 5 250 ~ 5 350 | Low | 5 270.00 | 3.65 | 1.11 | 4.76 | 11.00 | 6.24 |
| | High | 5 310.00 | 3.57 | 1.11 | 4.68 | 11.00 | 6.32 |
| 5 470 ~ 5 725 | Low | 5 510.00 | 3.73 | 1.11 | 4.84 | 11.00 | 6.16 |
| | Middle | 5 550.00 | 4.11 | 1.11 | 5.22 | 11.00 | 5.78 |
| | High | 5 670.00 | 4.35 | 1.11 | 5.46 | 11.00 | 5.54 |
| 5 725 ~ 5 850 | Low | 5 755.00 | 0.67 | 1.11 | 1.78 | 30.00 | 28.22 |
| | High | 5 795.00 | 0.41 | 1.11 | 1.52 | 30.00 | 28.48 |

Remark 1 : Margin = Limit – Result(Measured Value + Correction Factor)

Remark 2 : Calculated Output Power= $10\log(10^{(\text{Antenna1 Output Power}/10)}+10^{(\text{Antenna2 Output Power}/10)})$

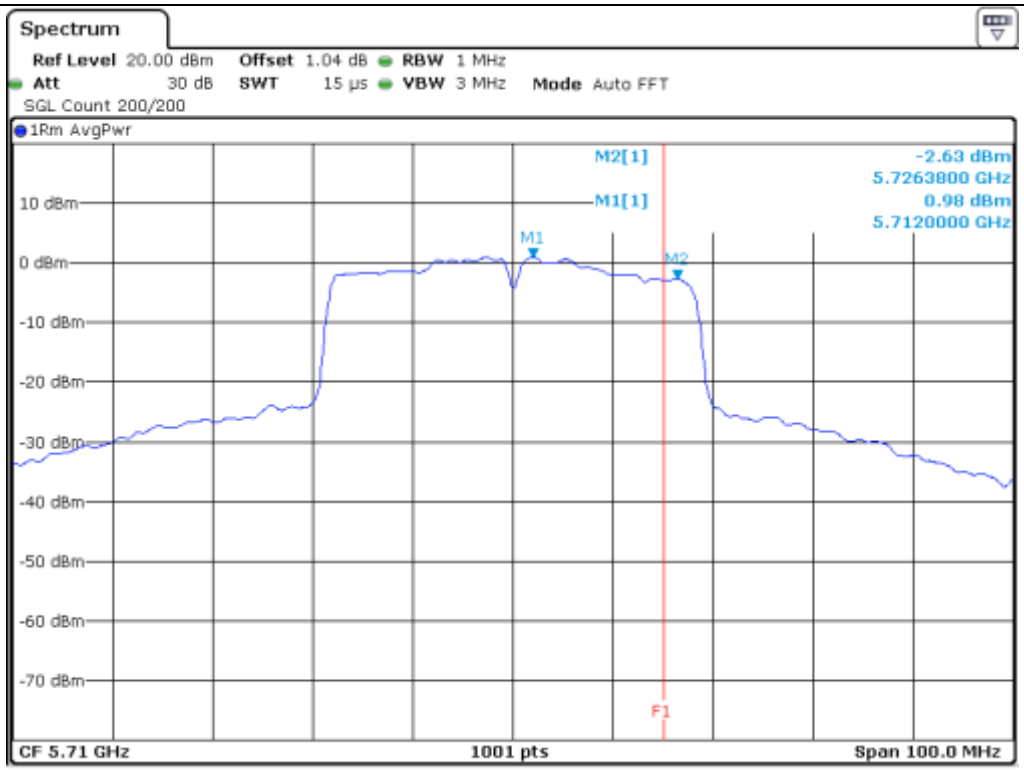
### 10.6.4 Test data for Straddle Channel_Antenna 0

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

| FREQUENCY RANGE (MHz) | FREQUENCY (MHz) | MEASURED VALUE (dBm) | Correction Factor (dB) | Result (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---|---|---|---|---|---|---|
| 5 470 ~ 5 725 | 5 710.00 | 0.98 | 1.09 | 2.07 | 11.00 | 8.93 |
| 5 725 ~ 5 850 | 5 710.00 | -2.63 | 1.08 | -1.55 | 30.00 | 31.55 |

Remark : Margin = Limit – Result(Measured Value + Correction Factor)



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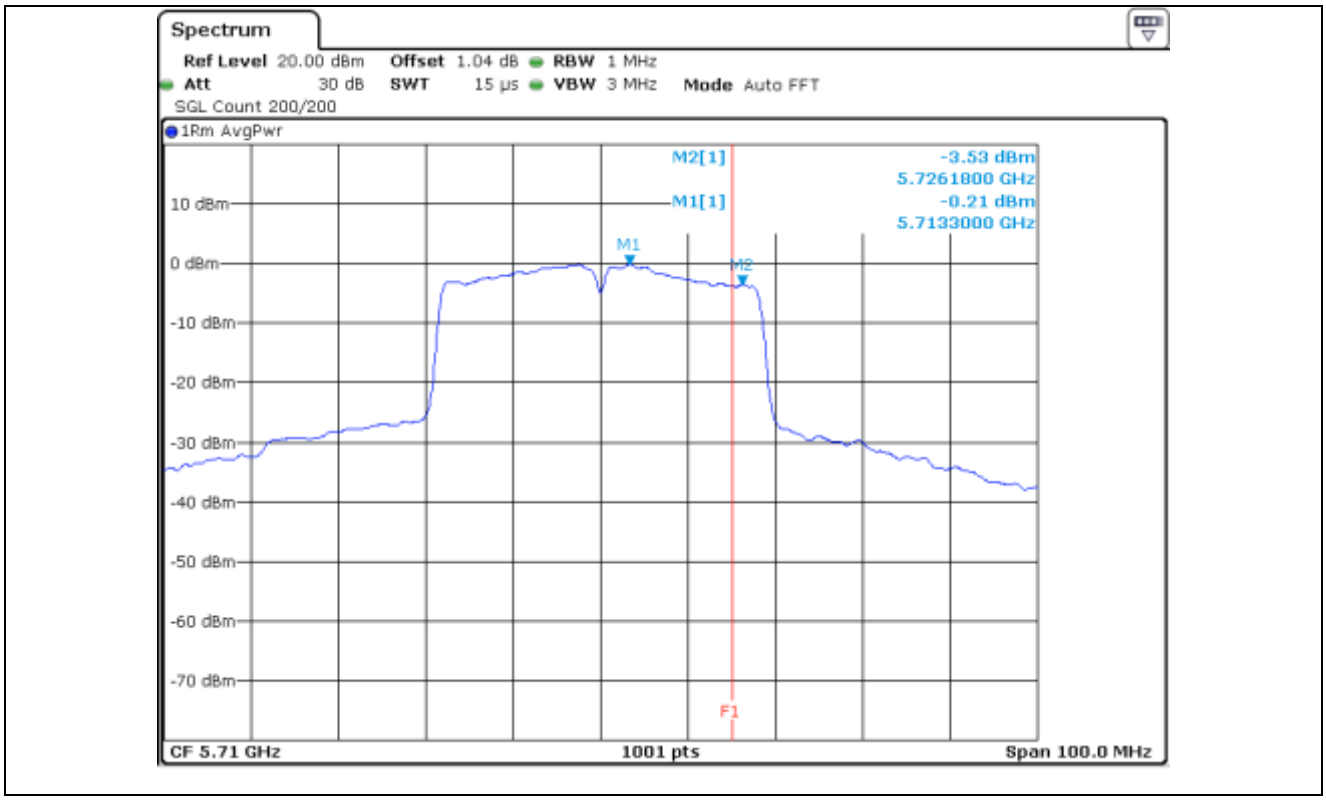
### 10.6.5 Test data for Straddle Channel_Antenna 1

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

| FREQUENCY RANGE (MHz) | FREQUENCY (MHz) | MEASURED VALUE (dBm) | Correction Factor (dB) | Result (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---|---|---|---|---|---|---|
| 5 470 ~ 5 725 | 5 710.00 | -0.21 | 1.11 | 0.90 | 11.00 | 10.10 |
| 5 725 ~ 5 850 | 5 710.00 | -3.53 | 1.11 | -2.42 | 30.00 | 32.42 |

Remark : Margin = Limit – Result(Measured Value + Correction Factor)



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### 10.6.6 Test data for Straddle Channel_Multiple Transmit

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

| FREQUENCY RANGE (MHz) | FREQUENCY (MHz) | MEASURED VALUE (dBm) | Correction Factor (dB) | Result (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---|---|---|---|---|---|---|
| 5 470 ~ 5 725 | 5 710.00 | 3.44 | 1.11 | 4.55 | 11.00 | 6.45 |
| 5 725 ~ 5 850 | 5 710.00 | -0.05 | 1.11 | 1.06 | 30.00 | 28.94 |

Remark 1 : Margin = Limit – Result(Measured Value + Correction Factor)

Remark 2 : Calculated Output Power= $10\log(10^{(\text{Antenna1 Output Power}/10)}+10^{(\text{Antenna2 Output Power}/10)})$

## 10.7 Test data for 802.11ac_HT80 RLAN Mode

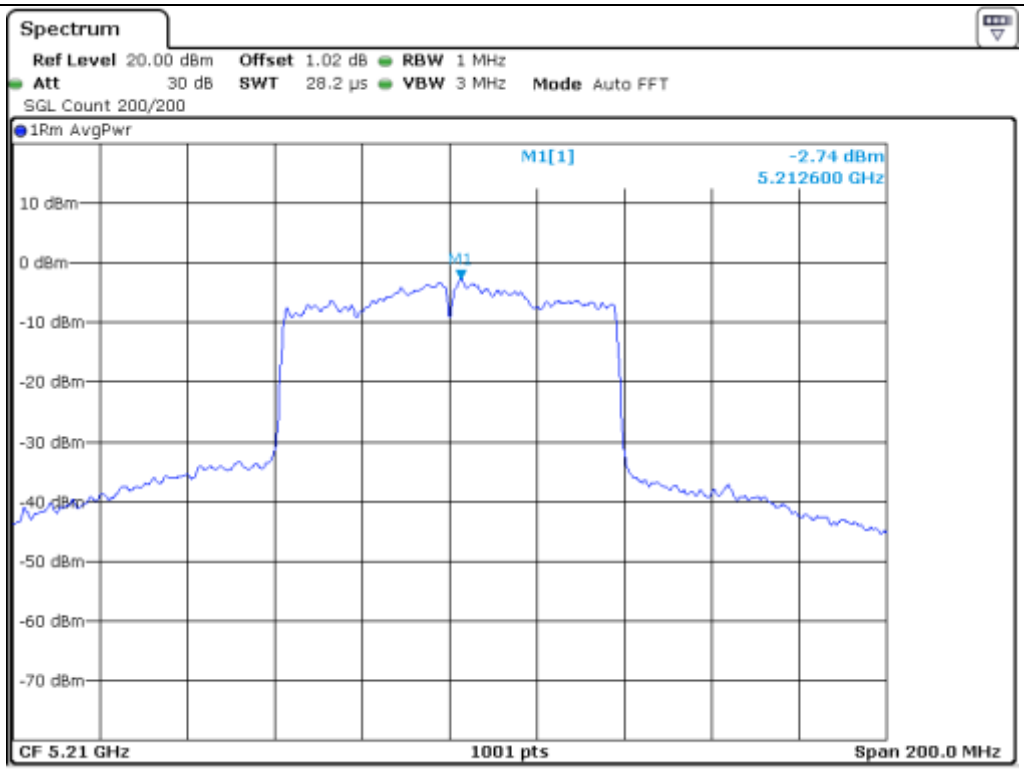
### 10.7.1 Test data for Antenna 0

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

| FREQUENCY RANGE (MHz) | CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | Correction Factor (dB) | Result (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---|---|---|---|---|---|---|---|
| 5 150 ~ 5 250 | Middle | 5 210.00 | -2.74 | 1.88 | -0.86 | 11.00 | 11.86 |
| 5 250 ~ 5 350 | Middle | 5 290.00 | -2.37 | 1.87 | -0.5 | 11.00 | 11.50 |
| 5 470 ~ 5 725 | Low | 5 530.00 | -1.96 | 1.87 | -0.09 | 11.00 | 11.09 |
| | High | 5 690.00 | -2.99 | 1.87 | -1.12 | 11.00 | 12.12 |
| 5 725 ~ 5 850 | Middle | 5 775.00 | -6.26 | 1.88 | -4.38 | 30.00 | 34.38 |

Remark : Margin = Limit – Result(Measured Value + Correction Factor)




Middle Channel (5 210 MHz)

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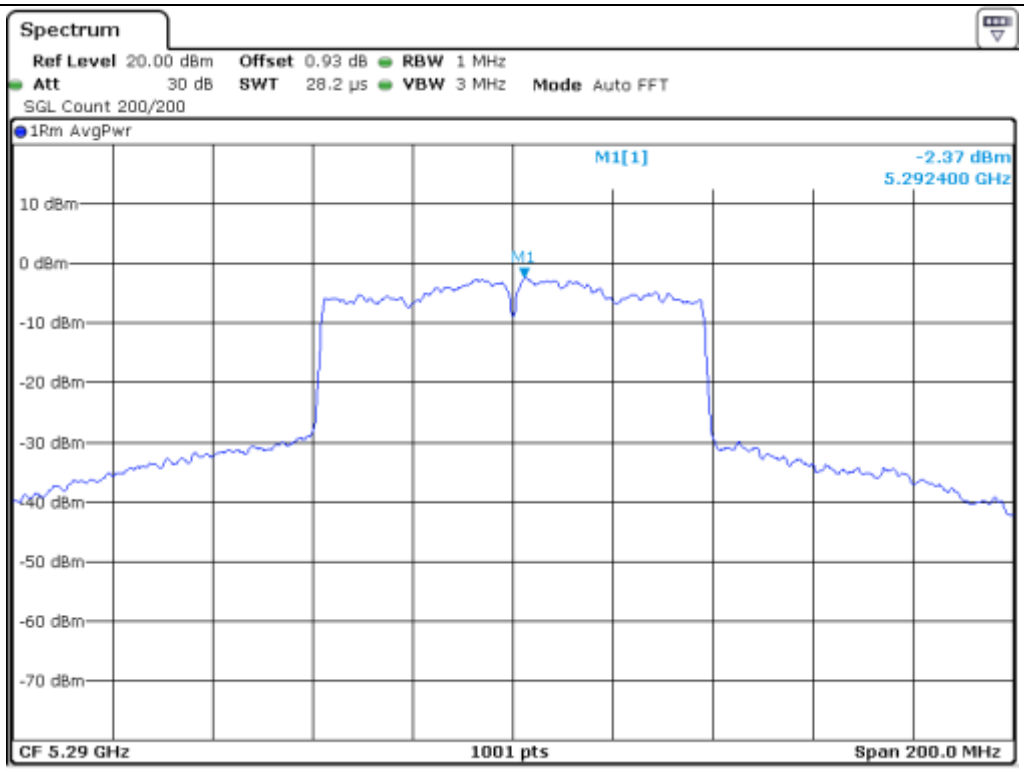
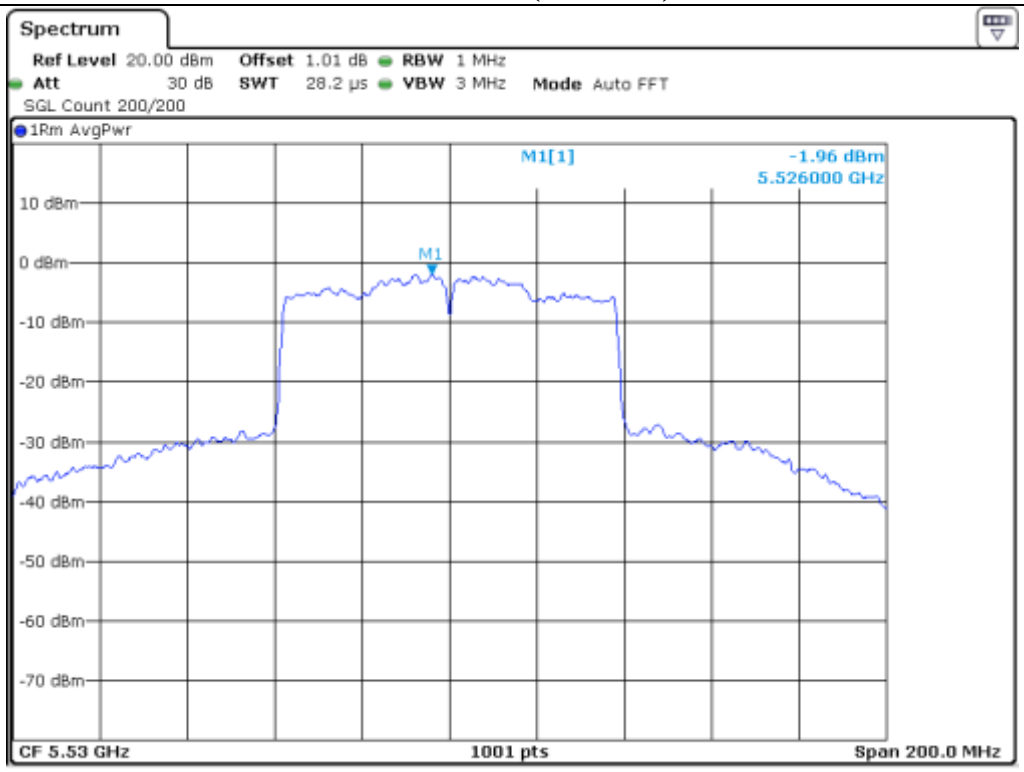



Middle Channel (5 290 MHz)




Low Channel (5 530 MHz)

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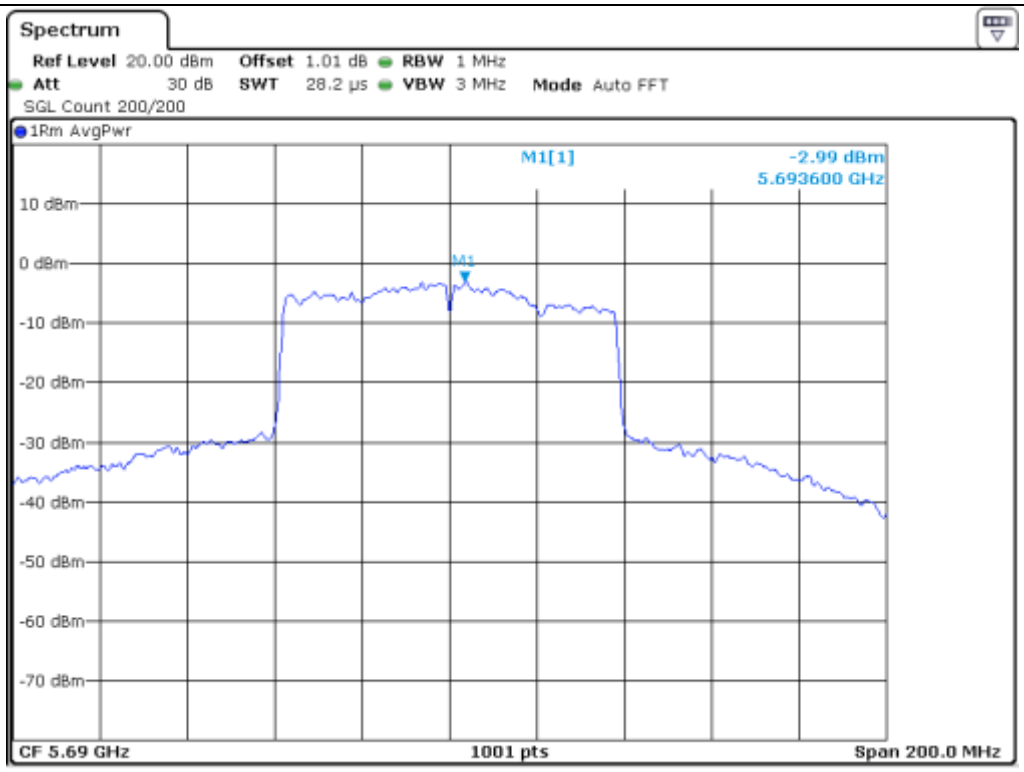
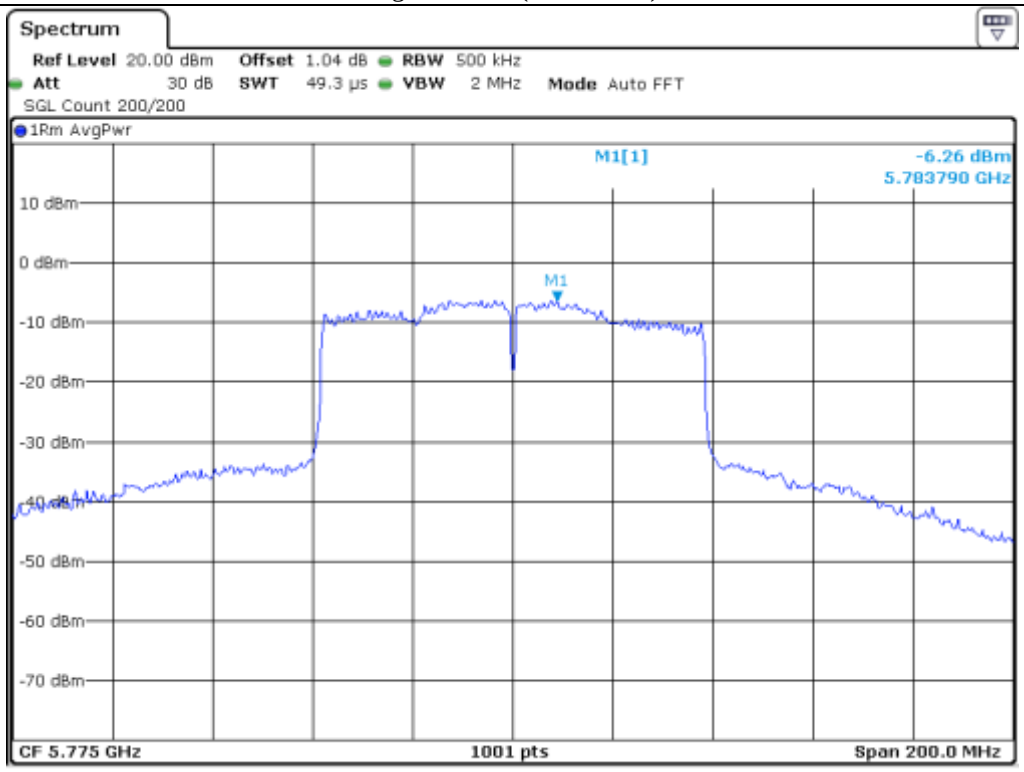



High Channel (5 690 MHz)




Middle Channel (5 775 MHz)

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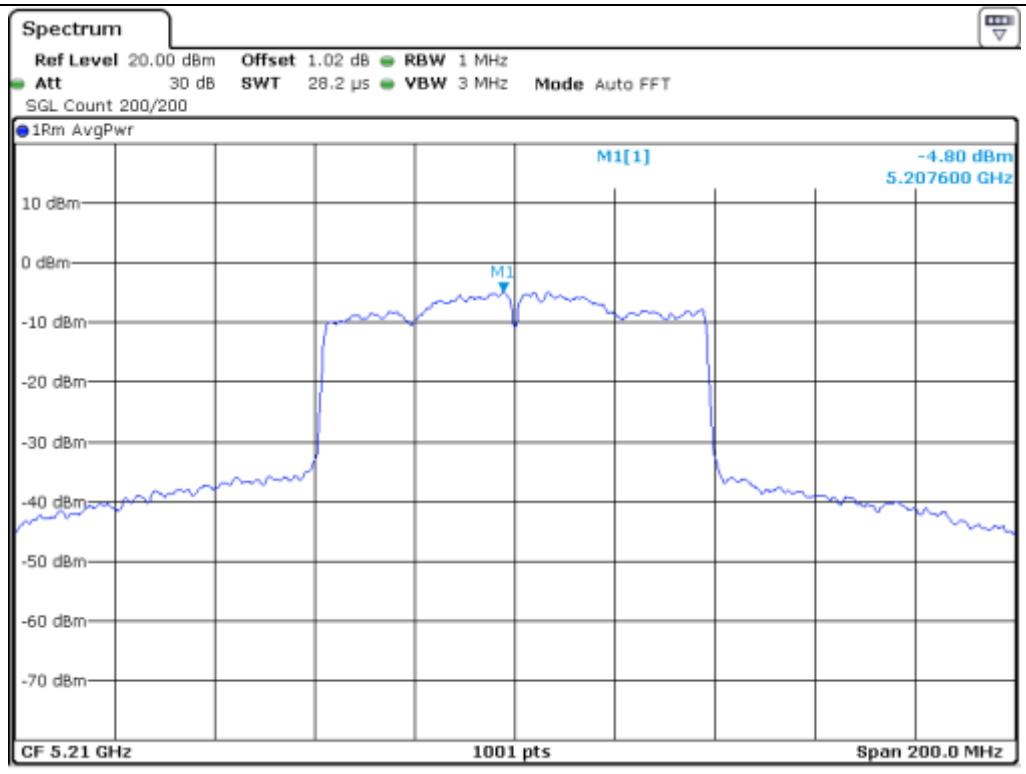
### 10.7.2 Test data for Antenna 1

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

| FREQUENCY RANGE (MHz) | CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | Correction Factor (dB) | Result (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---|---|---|---|---|---|---|---|
| 5 150 ~ 5 250 | Middle | 5 210.00 | -4.80 | 1.87 | -2.93 | 11.00 | 13.93 |
| 5 250 ~ 5 350 | Middle | 5 290.00 | -3.80 | 1.88 | -1.92 | 11.00 | 12.92 |
| 5 470 ~ 5 725 | Low | 5 530.00 | -4.18 | 1.89 | -2.29 | 11.00 | 13.29 |
| | High | 5 690.00 | -4.26 | 1.89 | -2.37 | 11.00 | 13.37 |
| 5 725 ~ 5 850 | Middle | 5 775.00 | -6.93 | 1.89 | -5.04 | 30.00 | 35.04 |

Remark : Margin = Limit – Result(Measured Value + Correction Factor)




Middle Channel (5 210 MHz)

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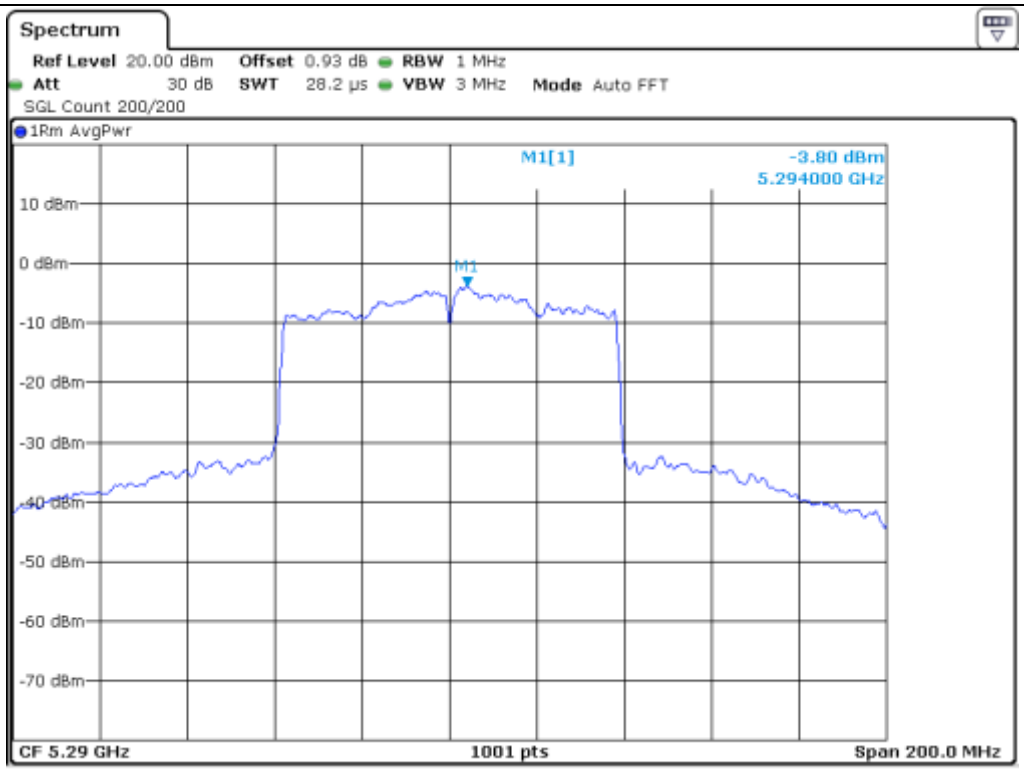
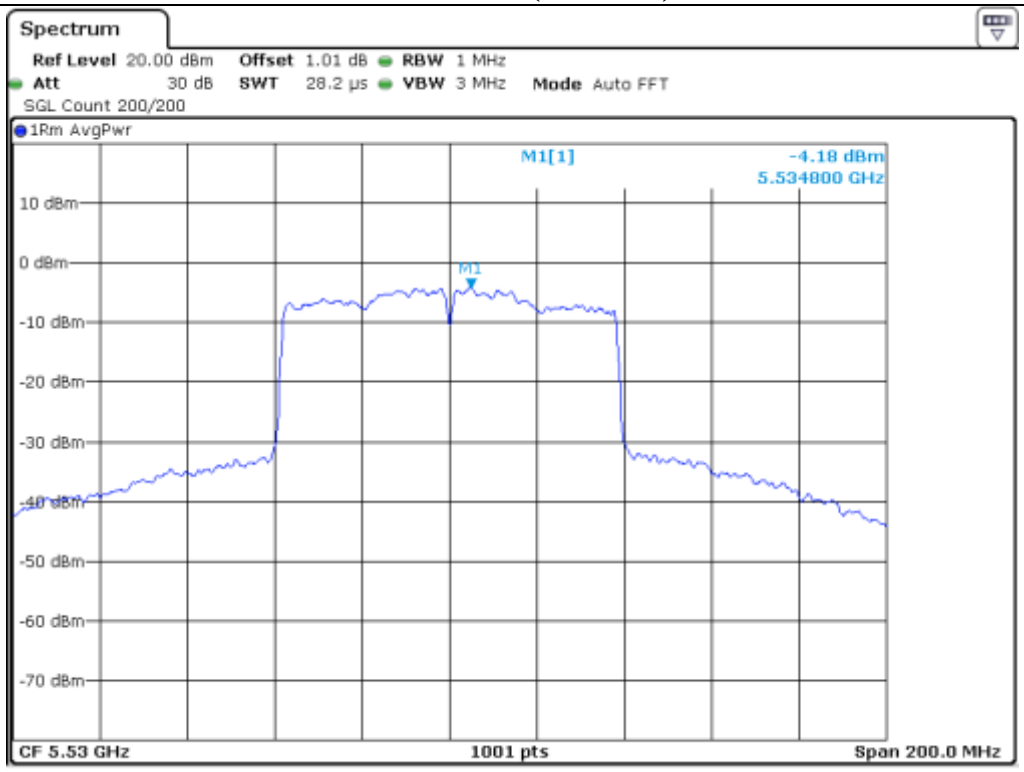



Middle Channel (5 290 MHz)




Low Channel (5 530 MHz)

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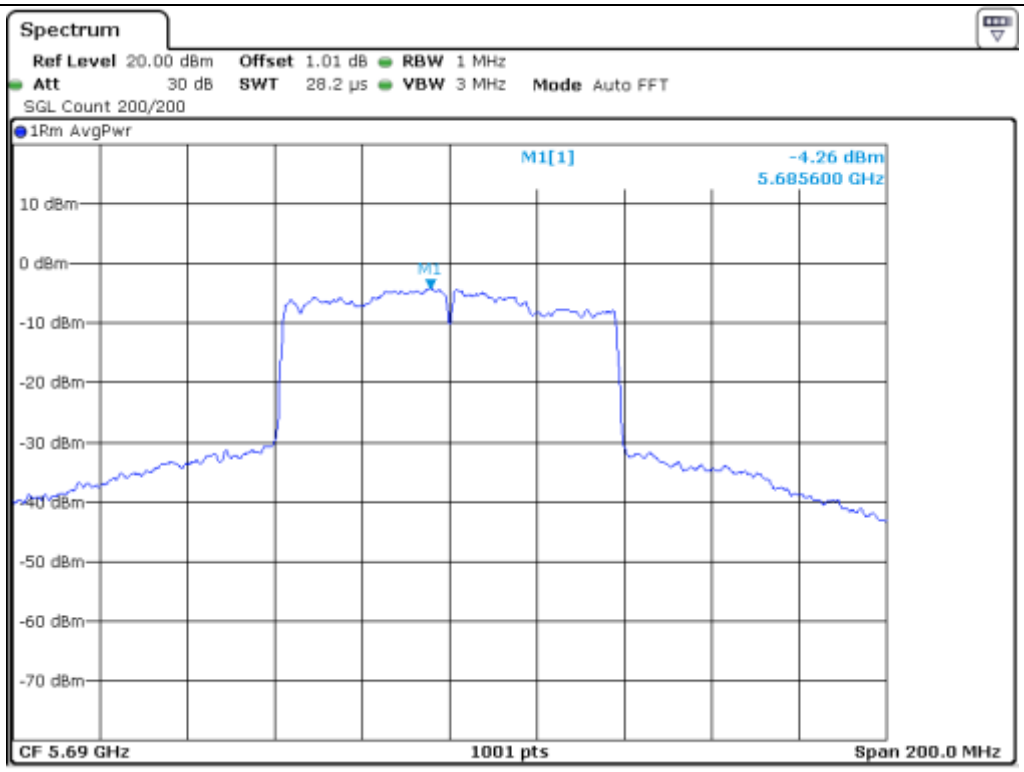
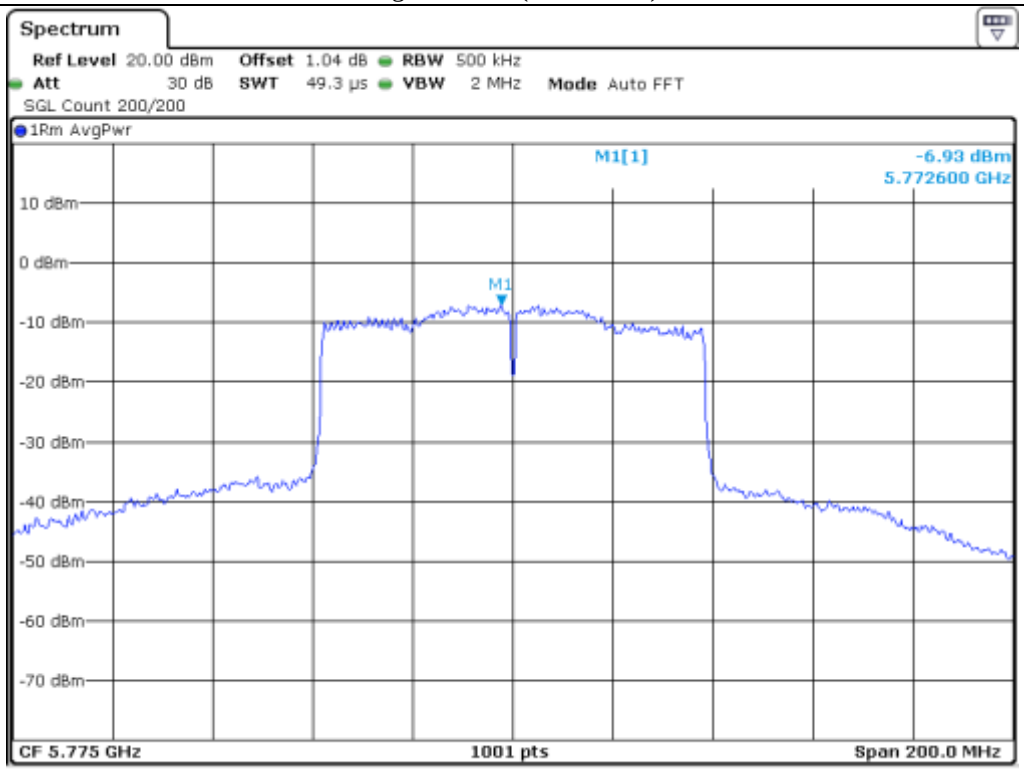



High Channel (5 690 MHz)




Middle Channel (5 775 MHz)

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### 10.7.3 Test data for Multiple Transmit

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

| FREQUENCY RANGE (MHz) | CHANNEL | FREQUENCY (MHz) | MEASURED VALUE (dBm) | Correction Factor (dB) | Result (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---|---|---|---|---|---|---|---|
| 5 150 ~ 5 250 | Middle | 5 210.00 | -0.64 | 1.87 | 1.23 | 11.00 | 9.77 |
| 5 250 ~ 5 350 | Middle | 5 290.00 | -0.02 | 1.88 | 1.86 | 11.00 | 9.14 |
| 5 470 ~ 5 725 | Low | 5 530.00 | 0.08 | 1.89 | 1.97 | 11.00 | 9.03 |
| | High | 5 690.00 | -0.57 | 1.89 | 1.32 | 11.00 | 9.68 |
| 5 725 ~ 5 850 | Middle | 5 775.00 | -3.57 | 1.89 | -1.68 | 30.00 | 31.68 |

Remark 1 : Margin = Limit – Result(Measured Value + Correction Factor)

Remark 2 : Calculated Output Power= $10\log(10^{(\text{Antenna1 Output Power}/10)}+10^{(\text{Antenna2 Output Power}/10)})$

 

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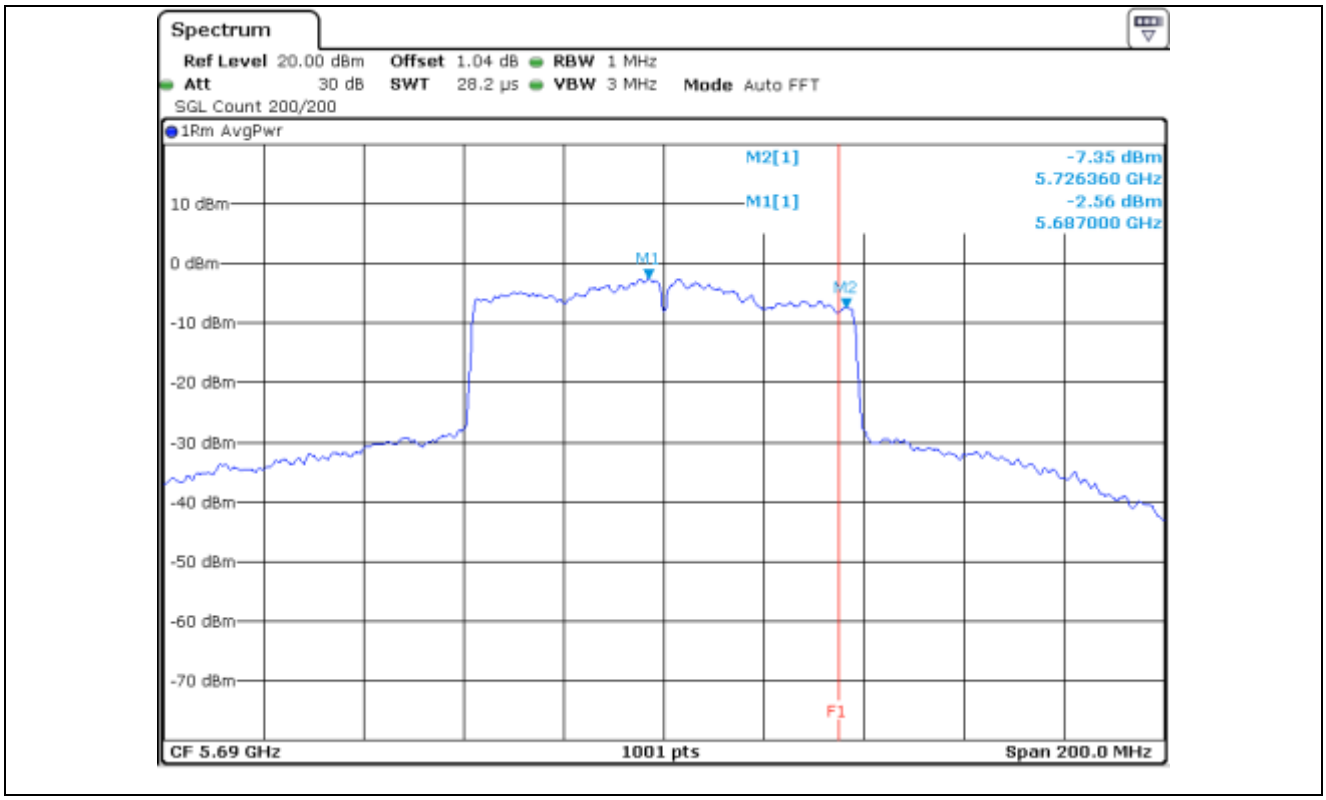
### 10.7.4 Test data for Straddle Channel_Antenna 0

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

| FREQUENCY RANGE (MHz) | FREQUENCY (MHz) | MEASURED VALUE (dBm) | Correction Factor (dB) | Result (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---|---|---|---|---|---|---|
| 5 470 ~ 5 725 | 5 690.00 | -2.56 | 1.87 | -0.69 | 11.00 | 11.69 |
| 5 725 ~ 5 850 | 5 690.00 | -7.35 | 1.88 | -5.47 | 30.00 | 35.47 |

Remark : Margin = Limit – Result(Measured Value + Correction Factor)



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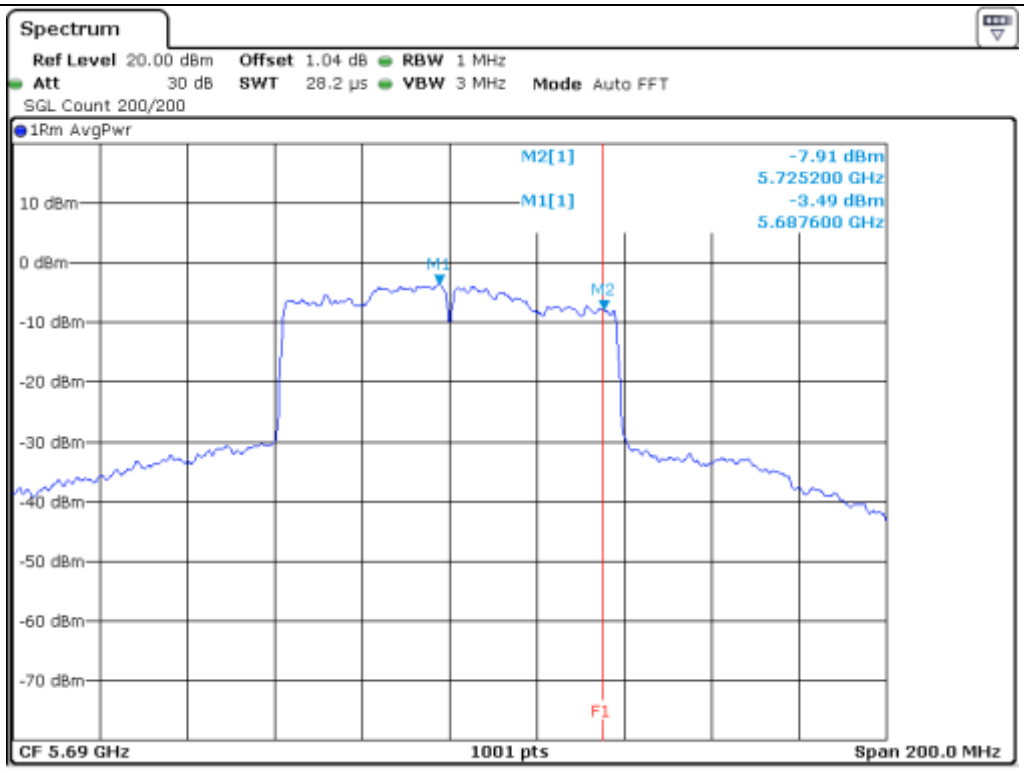
### 10.7.5 Test data for Straddle Channel_Antenna 1

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

| FREQUENCY RANGE (MHz) | FREQUENCY (MHz) | MEASURED VALUE (dBm) | Correction Factor (dB) | Result (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---|---|---|---|---|---|---|
| 5 470 ~ 5 725 | 5 690.00 | -3.49 | 1.89 | -1.60 | 11.00 | 12.60 |
| 5 725 ~ 5 850 | 5 690.00 | -7.91 | 1.89 | -6.02 | 30.00 | 36.02 |

Remark : Margin = Limit – Result(Measured Value + Correction Factor)



### 10.7.6 Test data for Straddle Channel_Multiple Transmit

-. Operating condition : Highest Output Power Transmitting Mode

-. Test Result : Pass

| FREQUENCY RANGE (MHz) | FREQUENCY (MHz) | MEASURED VALUE (dBm) | Correction Factor (dB) | Result (dBm) | LIMIT (dBm) | MARGIN (dB) |
|---|---|---|---|---|---|---|
| 5 470 ~ 5 725 | 5 690.00 | 0.01 | 1.89 | 1.90 | 11.00 | 9.10 |
| 5 725 ~ 5 850 | 5 690.00 | -4.61 | 1.89 | -2.72 | 30.00 | 32.72 |

Remark 1 : Margin = Limit – Result(Measured Value + Correction Factor)

Remark 2 : Calculated Output Power= $10\log(10^{(\text{Antenna1 Output Power}/10)}+10^{(\text{Antenna2 Output Power}/10)})$

# 11. FREQUENCY STABILITY WITH TEMPERATURE VARIATION

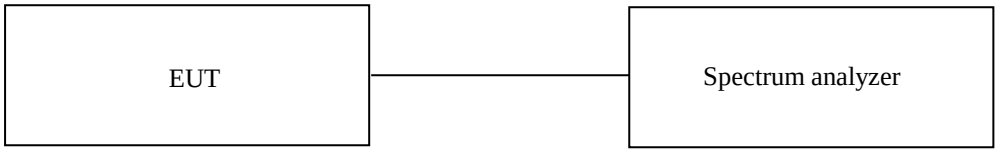
## 11.1 Operating environment

Temperature : 23 °C

Relative humidity : 45 % R.H.

## 11.2 Test set-up

Turn EUT off and set chamber temperature to -40 °C and then allow sufficient time (approximately 20 min to 30 min after chamber reach the assigned temperature) for EUT to stabilize. Turn on the EUT and measure the EUT operating frequency and then turn off the EUT after the measurement. The temperature in the chamber was raised 10 °C step from -40 °C to +85 °C. Repeat above method for frequency measurements every 10 °C step and then record all measured frequencies on each temperature step.




## 11.3 Test Date

September 07, 2020 ~ September 11, 2020

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## 11.4 Test Data for U-NII-1

-. Result : Pass

| Temperature (˚C) | Carrier Freq. (Hz) | Measured Freq. (Hz) | Frequency Error (Hz) |
|---|---|---|---|
| -40 | 5 180 000 000 | 5 180 003 276 | 3 276 |
| -30 | | 5 179 998 519 | -1 481 |
| -20 | | 5 179 993 733 | -6 267 |
| -10 | | 5 179 982 820 | -17 180 |
| 0 | | 5 179 981 843 | -18 157 |
| 10 | | 5 179 980 107 | -19 893 |
| 20 | | 5 179 977 286 | -22 714 |
| 30 | | 5 179 999 719 | -281 |
| 40 | | 5 180 021 316 | 21 316 |
| 50 | | 5 180 040 593 | 40 593 |
| 60 | | 5 180 048 863 | 48 863 |
| 70 | | 5 180 051 572 | 51 572 |
| 85 | | 5 180 056 483 | 56 483 |
| -40 | 5 220 000 000 | 5 220 003 340 | 3 340 |
| -30 | | 5 219 998 559 | -1 441 |
| -20 | | 5 219 993 625 | -6 375 |
| -10 | | 5 219 982 870 | -17 130 |
| 0 | | 5 219 981 736 | -18 264 |
| 10 | | 5 219 980 922 | -19 078 |
| 20 | | 5 219 978 267 | -21 733 |
| 30 | | 5 220 000 151 | 151 |
| 40 | | 5 220 020 660 | 20 660 |
| 50 | | 5 220 043 104 | 43 104 |
| 60 | | 5 220 048 426 | 48 426 |
| 70 | | 5 220 050 360 | 50 360 |
| 85 | | 5 220 056 258 | 56 258 |

 

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| | | | |
|---|---|---|---|
| -40 | 5 240 000 000 | 5 240 003 537 | 3 537 |
| -30 | | 5 239 998 570 | -1 430 |
| -20 | | 5 239 993 802 | -6 198 |
| -10 | | 5 239 981 889 | -18 111 |
| 0 | | 5 239 981 621 | -18 379 |
| 10 | | 5 239 980 875 | -19 125 |
| 20 | | 5 239 977 807 | -22 193 |
| 30 | | 5 239 999 610 | -390 |
| 40 | | 5 240 020 796 | 20 796 |
| 50 | | 5 240 041 260 | 41 260 |
| 60 | | 5 240 047 813 | 47 813 |
| 70 | | 5 240 051 778 | 51 778 |
| 85 | | 5 240 056 380 | 56 380 |

Note : While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized. Four measurements in total are made.(ANSI C63.10-2013)

## 11.5 Test Data for U-NII-2A

-. Result : Pass

| Temperature (˚C) | Carrier Freq. (Hz) | Measured Freq. (Hz) | Frequency Error (kHz) |
|---|---|---|---|
| -40 | 5 260 000 000 | 5 260 003 077 | 3 077 |
| -30 | | 5 259 998 629 | -1 371 |
| -20 | | 5 259 993 754 | -6 246 |
| -10 | | 5 259 981 960 | -18 040 |
| 0 | | 5 259 981 190 | -18 810 |
| 10 | | 5 259 980 021 | -19 979 |
| 20 | | 5 259 978 726 | -21 274 |
| 30 | | 5 260 000 032 | 32 |
| 40 | | 5 260 021 182 | 21 182 |
| 50 | | 5 260 042 535 | 42 535 |
| 60 | | 5 260 048 796 | 48 796 |
| 70 | | 5 260 049 322 | 49 322 |
| 85 | | 5 260 057 783 | 57 783 |
| -40 | 5 300 000 000 | 5 300 003 497 | 3 497 |
| -30 | | 5 299 998 526 | -1 474 |
| -20 | | 5 299 993 731 | -6 269 |
| -10 | | 5 299 982 999 | -17 001 |
| 0 | | 5 299 980 950 | -19 050 |
| 10 | | 5 299 980 769 | -19 231 |
| 20 | | 5 299 977 664 | -22 336 |
| 30 | | 5 299 999 681 | -319 |
| 40 | | 5 300 022 022 | 22 022 |
| 50 | | 5 300 044 587 | 44 587 |
| 60 | | 5 300 047 269 | 47 269 |
| 70 | | 5 300 053 460 | 53 460 |
| 85 | | 5 300 057 332 | 57 332 |

 

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| | | | |
|---|---|---|---|
| -40 | 5 320 000 000 | 5 320 003 318 | 3 318 |
| -30 | | 5 319 998 609 | -1 391 |
| -20 | | 5 319 993 953 | -6 047 |
| -10 | | 5 319 982 577 | -17 423 |
| 0 | | 5 319 981 479 | -18 521 |
| 10 | | 5 319 980 192 | -19 808 |
| 20 | | 5 319 979 077 | -20 923 |
| 30 | | 5 319 999 749 | -251 |
| 40 | | 5 320 021 036 | 21 036 |
| 50 | | 5 320 042 426 | 42 426 |
| 60 | | 5 320 047 711 | 47 711 |
| 70 | | 5 320 049 583 | 49 583 |
| 85 | | 5 320 056 843 | 56 843 |

Note : While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized. Four measurements in total are made.(ANSI C63.10-2013)

## 11.6 Test Data for U-NII-2C

-. Result : Pass

| Temperature (˚C) | Carrier Freq. (Hz) | Measured Freq. (Hz) | Frequency Error (kHz) |
|---|---|---|---|
| -40 | 5 500 000 000 | 5 500 003 168 | 3 168 |
| -30 | | 5 499 998 652 | -1 348 |
| -20 | | 5 499 993 935 | -6 065 |
| -10 | | 5 499 982 553 | -17 447 |
| 0 | | 5 499 981 818 | -18 182 |
| 10 | | 5 499 980 516 | -19 484 |
| 20 | | 5 499 977 115 | -22 885 |
| 30 | | 5 499 999 819 | -181 |
| 40 | | 5 500 022 033 | 22 033 |
| 50 | | 5 500 042 035 | 42 035 |
| 60 | | 5 500 047 542 | 47 542 |
| 70 | | 5 500 050 488 | 50 488 |
| 85 | | 5 500 057 195 | 57 195 |
| -40 | 5 580 000 000 | 5 580 003 323 | 3 323 |
| -30 | | 5 579 998 666 | -1 334 |
| -20 | | 5 579 993 740 | -6 260 |
| -10 | | 5 579 982 787 | -17 213 |
| 0 | | 5 579 981 280 | -18 720 |
| 10 | | 5 579 980 325 | -19 675 |
| 20 | | 5 579 978 869 | -21 131 |
| 30 | | 5 579 999 995 | -5 |
| 40 | | 5 580 020 658 | 20 658 |
| 50 | | 5 580 041 630 | 41 630 |
| 60 | | 5 580 048 764 | 48 764 |
| 70 | | 5 580 053 041 | 53 041 |
| 85 | | 5 580 057 626 | 57 626 |

 

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| | | | |
|---|---|---|---|
| -40 | 5 700 000 000 | 5 700 003 715 | 3 715 |
| -30 | | 5 699 998 583 | -1 417 |
| -20 | | 5 699 993 867 | -6 133 |
| -10 | | 5 699 982 507 | -17 493 |
| 0 | | 5 699 980 683 | -19 317 |
| 10 | | 5 699 980 909 | -19 091 |
| 20 | | 5 699 979 658 | -20 342 |
| 30 | | 5 699 999 954 | -46 |
| 40 | | 5 700 020 348 | 20 348 |
| 50 | | 5 700 040 445 | 40 445 |
| 60 | | 5 700 047 545 | 47 545 |
| 70 | | 5 700 053 719 | 53 719 |
| 85 | | 5 700 057 939 | 57 939 |

Note : While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized. Four measurements in total are made.(ANSI C63.10-2013)

## 11.7 Test Data for U-NII-3

-. Result : Pass

| Temperature (˚C) | Carrier Freq. (Hz) | Measured Freq. (Hz) | Frequency Error (kHz) |
|---|---|---|---|
| -40 | 5 745 000 000 | 5 745 003 354 | 3 354 |
| -30 | | 5 744 998 597 | -1 403 |
| -20 | | 5 744 993 787 | -6 213 |
| -10 | | 5 744 982 283 | -17 717 |
| 0 | | 5 744 981 787 | -18 213 |
| 10 | | 5 744 980 618 | -19 382 |
| 20 | | 5 744 979 634 | -20 366 |
| 30 | | 5 745 000 090 | 90 |
| 40 | | 5 745 021 413 | 21 413 |
| 50 | | 5 745 041 682 | 41 682 |
| 60 | | 5 745 048 212 | 48 212 |
| 70 | | 5 745 049 218 | 49 218 |
| 85 | | 5 745 056 128 | 56 128 |
| -40 | 5 785 000 000 | 5 785 003 796 | 3 796 |
| -30 | | 5 784 998 660 | -1 340 |
| -20 | | 5 784 993 938 | -6 062 |
| -10 | | 5 784 982 124 | -17 876 |
| 0 | | 5 784 981 314 | -18 686 |
| 10 | | 5 784 980 251 | -19 749 |
| 20 | | 5 784 979 338 | -20 662 |
| 30 | | 5 785 000 098 | 98 |
| 40 | | 5 785 022 604 | 22 604 |
| 50 | | 5 785 040 241 | 40 241 |
| 60 | | 5 785 048 123 | 48 123 |
| 70 | | 5 785 052 903 | 52 903 |
| 85 | | 5 785 057 250 | 57 250 |

 

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| | | | |
|---|---|---|---|
| -40 | 5 825 000 000 | 5 825 003 645 | 3 645 |
| -30 | | 5 824 998 663 | -1 337 |
| -20 | | 5 824 993 716 | -6 284 |
| -10 | | 5 824 982 023 | -17 977 |
| 0 | | 5 824 980 842 | -19 158 |
| 10 | | 5 824 980 020 | -19 980 |
| 20 | | 5 824 977 542 | -22 458 |
| 30 | | 5 824 999 863 | -137 |
| 40 | | 5 825 020 358 | 20 358 |
| 50 | | 5 825 043 645 | 43 645 |
| 60 | | 5 825 047 886 | 47 886 |
| 70 | | 5 825 052 008 | 52 008 |
| 85 | | 5 825 056 175 | 56 175 |

Note : While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized. Four measurements in total are made.(ANSI C63.10-2013)

 

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# 12. FREQUENCY STABILITY WITH VOLTAGE VARIATION

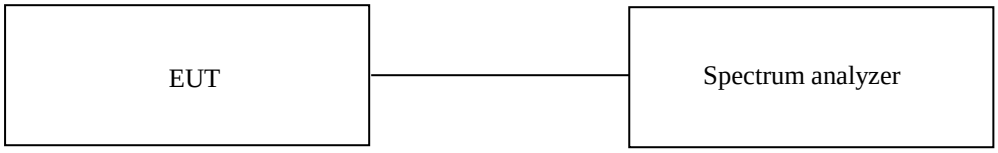
## 12.1 Operating environment

Temperature : 23 °C

Relative humidity : 45 % R.H.

## 12.2 Test set-up

An external DC power supply was connected to the input of the EUT. The voltage of EUT set to 109.0 % of the nominal value and then was reduced to 97.0 % of nominal voltage. The output frequency was recorded at each step.




## 12.3 Test Date

September 07, 2020 ~ September 11, 2020

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## 12.4 Test Data for U-NII-1

-. Result : Pass

| Voltage (VDC) | Carrier Freq. (Hz) | Measured Freq. (Hz) | Frequency Error (Hz) |
|---|---|---|---|
| 3.6 | 5 180 000 000 | 5 180 003 150 | 3 150 |
| 3.3 | | 5 179 978 824 | -21 176 |
| 3.2 | | 5 180 056 210 | 56 210 |
| 3.6 | 5 220 000 000 | 5 220 003 135 | 3 135 |
| 3.3 | | 5 219 978 967 | -21 033 |
| 3.2 | | 5 220 056 300 | 56 300 |
| 3.6 | 5 240 000 000 | 5 240 003 047 | 3 047 |
| 3.3 | | 5 239 977 688 | -22 312 |
| 3.2 | | 5 240 056 988 | 56 988 |

## 12.5 Test Data for U-NII-2A

-. Result : Pass

| Voltage (VDC) | Carrier Freq. (Hz) | Measured Freq. (Hz) | Frequency Error (kHz) |
|---|---|---|---|
| 3.6 | 5 260 000 000 | 5 260 003 163 | 3 163 |
| 3.3 | | 5 259 978 100 | -21 900 |
| 3.2 | | 5 260 057 329 | 57 329 |
| 3.6 | 5 300 000 000 | 5 300 003 259 | 3 259 |
| 3.3 | | 5 299 978 268 | -21 732 |
| 3.2 | | 5 300 056 524 | 56 524 |
| 3.6 | 5 320 000 000 | 5 320 003 237 | 3 237 |
| 3.3 | | 5 319 979 552 | -20 448 |
| 3.2 | | 5 320 057 696 | 57 696 |

## 12.6 Test Data for U-NII-2C

-. Result : Pass

| Voltage (VDC) | Carrier Freq. (Hz) | Measured Freq. (Hz) | Frequency Error (kHz) |
|---|---|---|---|
| 3.6 | 5 500 000 000 | 5 500 003 713 | 3 713 |
| 3.3 | | 5 499 979 274 | -20 726 |
| 3.2 | | 5 500 056 124 | 56 124 |
| 3.6 | 5 580 000 000 | 5 580 003 822 | 3 822 |
| 3.3 | | 5 579 979 206 | -20 794 |
| 3.2 | | 5 580 057 648 | 57 648 |
| 3.6 | 5 700 000 000 | 5 700 003 244 | 3 244 |
| 3.3 | | 5 699 979 875 | -20 125 |
| 3.2 | | 5 700 056 793 | 56 793 |

## 12.7 Test Data for U-NII-3

-. Result : Pass

| Voltage (VDC) | Carrier Freq. (Hz) | Measured Freq. (Hz) | Frequency Error (kHz) |
|---|---|---|---|
| 3.6 | 5 745 000 000 | 5 745 003 608 | 3 608 |
| 3.3 | | 5 744 978 605 | -21 395 |
| 3.2 | | 5 745 056 954 | 56 954 |
| 3.6 | 5 785 000 000 | 5 785 003 401 | 3 401 |
| 3.3 | | 5 784 977 401 | -22 599 |
| 3.2 | | 5 785 057 997 | 57 997 |
| 3.6 | 5 825 000 000 | 5 825 003 240 | 3 240 |
| 3.3 | | 5 824 978 355 | -21 645 |
| 3.2 | | 5 825 056 845 | 56 845 |

# 13. RADIATED SPURIOUS EMISSIONS

## 13.1 Operating environment

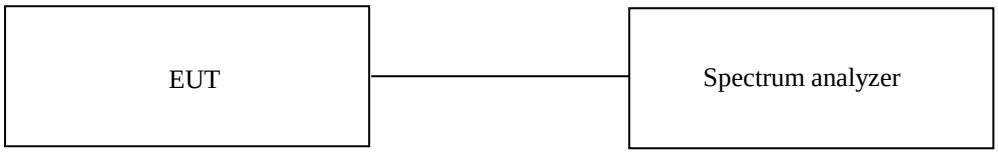
Temperature : 23 °C

Relative humidity : 45 % R.H.

## 13.2 Test set-up for conducted measurement

The radiated emissions measurements were on the 3 m semi anechoic chamber. The EUT and other support equipment were placed on a non-conductive turntable above the ground plane. The interconnecting cables from outside test site were inserted into ferrite clamps at the point where the cables reach the turntable.

The frequency spectrum from 30 MHz to 40 GHz was scanned and maximum emission levels at each frequency recorded. The system was rotated 360°, and the antenna was varied in the height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for horizontal and vertical polarization of the receiving antenna.




## 13.3 Test Date

September 07, 2020 ~ September 11, 2020

## 13.4 Test data for Below 30 MHz

-. Resolution bandwidth : 200 Hz (from 9 kHz to 0.15 MHz), 9 kHz (from 0.15 MHz to 30 MHz)

-. Frequency range : 9 kHz ~ 30 MHz

-. Measurement distance : 3 m

-.Operating mode : Transmitting mode

| Frequency (MHz) | Reading (dBµV) | Ant. Pol. (H/V) | Ant. Height (m) | Angle (°) | Ant. Factor (dB/m) | Cable Loss | Emission Level(dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| Emission from the EUT more than 20 dB below the limit in each frequency range. | | | | | | | | | |

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## 13.5 Test data for 30 MHz ~ 1 GHz

### 13.5.1 Test data for WLAN 5 GHz

Humidity Level : 45 % R.H. Temperature: 23 °C

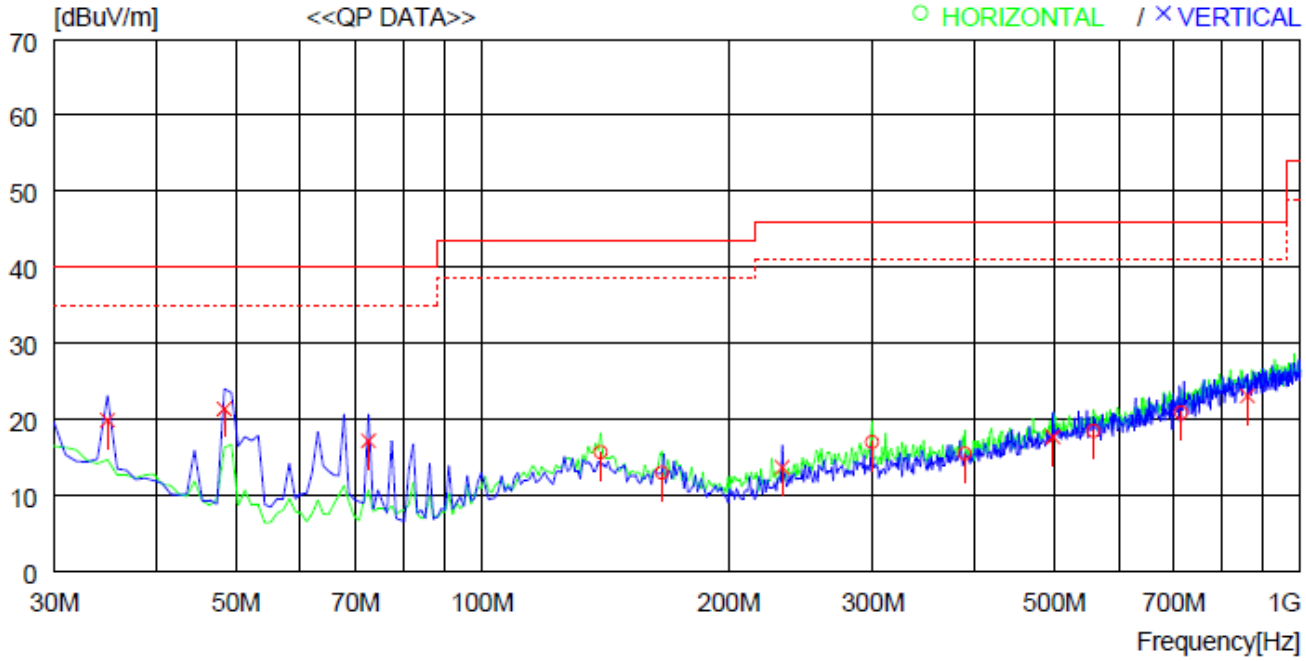
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.247

Result : PASSED

EUT : RF Module

Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)

-.Antenna 0, Antenna 1 and Multiple transmit tested, but the worst data were recorded.




| No. | FREQ [MHz] | READING QP [dBuV] | ANT FACTOR [dB] | LOSS [dB] | GAIN [dB] | RESULT [dBuV/m] | LIMIT [dBuV/m] | MARGIN [dB] | ANTENNA [cm] | TABLE [DEG] |
|---|---|---|---|---|---|---|---|---|---|---|
| ----- Horizontal ------ | | | | | | | | | | |
| 1 | 139.610 | 36.5 | 10.8 | 1.1 | 32.7 | 15.7 | 43.5 | 27.8 | 400 | 272 |
| 2 | 165.800 | 31.6 | 12.8 | 1.2 | 32.6 | 13.0 | 43.5 | 30.5 | 400 | 266 |
| 3 | 299.660 | 34.4 | 13.6 | 1.7 | 32.7 | 17.0 | 46.0 | 29.0 | 400 | 272 |
| 4 | 388.900 | 30.2 | 16.1 | 1.9 | 32.7 | 15.5 | 46.0 | 30.5 | 400 | 272 |
| 5 | 558.649 | 30.2 | 19.0 | 2.3 | 33.0 | 18.5 | 46.0 | 27.5 | 400 | 165 |
| 6 | 714.815 | 30.2 | 21.1 | 2.5 | 32.9 | 20.9 | 46.0 | 25.1 | 400 | 165 |
| ----- Vertical ------ | | | | | | | | | | |
| 7 | 34.850 | 40.9 | 11.1 | 0.5 | 32.6 | 19.9 | 40.0 | 20.1 | 400 | 270 |
| 8 | 48.430 | 43.5 | 10.0 | 0.6 | 32.7 | 21.4 | 40.0 | 18.6 | 400 | 297 |
| 9 | 72.680 | 40.5 | 8.6 | 0.8 | 32.7 | 17.2 | 40.0 | 22.8 | 400 | 270 |
| 10 | 232.730 | 33.9 | 10.9 | 1.5 | 32.6 | 13.7 | 46.0 | 32.3 | 400 | 270 |
| 11 | 498.511 | 30.6 | 17.8 | 2.2 | 32.9 | 17.7 | 46.0 | 28.3 | 400 | 270 |
| 12 | 861.280 | 29.9 | 22.8 | 2.6 | 32.2 | 23.1 | 46.0 | 22.9 | 400 | 286 |

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### 13.5.2 Test data for Intermodulation Mode(Bluetooth + WLAN 5 GHz)

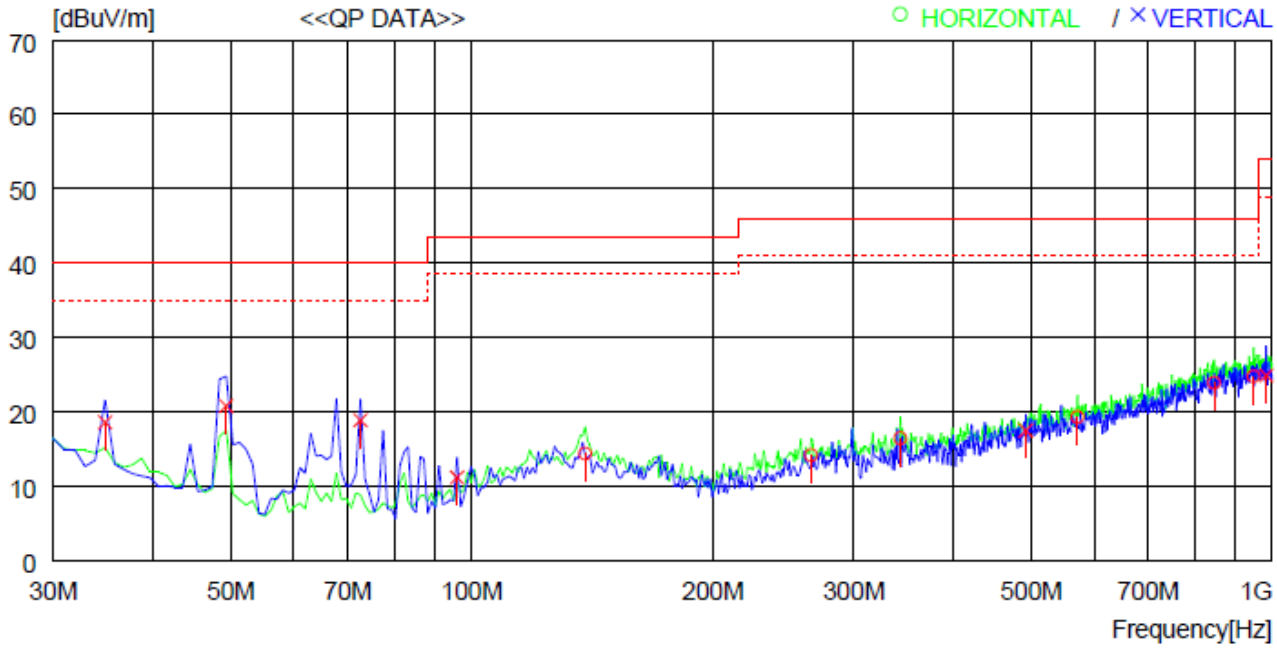
Humidity Level : 45 % R.H. Temperature: 23 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.247

Result : PASSED

EUT : RF Module

Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)




| No. | FREQ [MHz] | READING QP [dBuV] | ANT FACTOR [dB] | LOSS [dB] | GAIN [dB] | RESULT [dBuV/m] | LIMIT [dBuV/m] | MARGIN [dB] | ANTENNA [cm] | TABLE [DEG] |
|---|---|---|---|---|---|---|---|---|---|---|
| ----- Horizontal ------ | | | | | | | | | | |
| 1 | 138.640 | 35.2 | 10.8 | 1.1 | 32.7 | 14.4 | 43.5 | 29.1 | 400 | 232 |
| 2 | 265.710 | 34.1 | 11.2 | 1.6 | 32.7 | 14.2 | 46.0 | 31.8 | 400 | 142 |
| 3 | 343.310 | 32.6 | 14.8 | 1.8 | 32.7 | 16.5 | 46.0 | 29.5 | 400 | 158 |
| 4 | 571.259 | 30.8 | 19.2 | 2.3 | 33.0 | 19.3 | 46.0 | 26.7 | 400 | 149 |
| 5 | 846.731 | 31.2 | 22.6 | 2.4 | 32.3 | 23.9 | 46.0 | 22.1 | 400 | 142 |
| 6 | 948.577 | 30.1 | 23.5 | 3.0 | 31.8 | 24.8 | 46.0 | 21.2 | 400 | 158 |
| ----- Vertical ------ | | | | | | | | | | |
| 7 | 34.850 | 39.6 | 11.1 | 0.5 | 32.6 | 18.6 | 40.0 | 21.4 | 400 | 121 |
| 8 | 49.400 | 43.0 | 9.9 | 0.6 | 32.7 | 20.8 | 40.0 | 19.2 | 400 | 117 |
| 9 | 72.680 | 42.2 | 8.6 | 0.8 | 32.7 | 18.9 | 40.0 | 21.1 | 400 | 114 |
| 10 | 95.960 | 34.2 | 8.8 | 0.9 | 32.7 | 11.2 | 43.5 | 32.3 | 400 | 121 |
| 11 | 492.691 | 30.5 | 17.7 | 2.2 | 32.9 | 17.5 | 46.0 | 28.5 | 400 | 114 |
| 12 | 983.496 | 29.8 | 23.7 | 3.0 | 31.6 | 24.9 | 54.0 | 29.1 | 400 | 121 |

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## 13.6 Test data for Above 1 GHz

### 13.6.1 Test data for Frequency UNII I

#### 13.6.1.1 Test data for 802.11a RLAN Mode

##### 13.6.1.1.1 Test data for Antenna 0

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 92.86 %

-. Operating mode : Transmitting mode

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| **Low Channel** | | | | | | | | |
| 10 360.00 | 13.79 | Peak | H | 36.70 | 7.84 | 58.33 | 68.20 | 9.87 |
| 10 360.00 | 12.35 | Peak | V | 36.70 | 7.84 | 56.89 | 68.20 | 11.31 |
| **Middle Channel** | | | | | | | | |
| 10 440.00 | 13.99 | Peak | H | 36.80 | 7.78 | 58.57 | 68.20 | 9.63 |
| 10 440.00 | 11.55 | Peak | V | 36.80 | 7.78 | 56.13 | 68.20 | 12.07 |
| **High Channel** | | | | | | | | |
| 10 480.00 | 13.80 | Peak | H | 36.90 | 7.93 | 58.63 | 68.20 | 9.57 |
| 10 480.00 | 12.60 | Peak | V | 36.90 | 7.93 | 57.43 | 68.20 | 10.77 |

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss

 

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**13.6.1.1.2 Test data for Antenna 1**

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 92.16 %

-. Operating mode : Transmitting mode

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| **Low Channel** | | | | | | | | |
| 10 360.00 | 13.55 | Peak | H | 36.70 | 7.84 | 58.09 | 68.20 | 10.11 |
| 10 360.00 | 11.83 | Peak | V | 36.70 | 7.84 | 56.37 | 68.20 | 11.83 |
| **Middle Channel** | | | | | | | | |
| 10 440.00 | 13.68 | Peak | H | 36.80 | 7.78 | 58.26 | 68.20 | 9.94 |
| 10 440.00 | 11.45 | Peak | V | 36.80 | 7.78 | 56.03 | 68.20 | 12.17 |
| **High Channel** | | | | | | | | |
| 10 480.00 | 13.87 | Peak | H | 36.90 | 7.93 | 58.70 | 68.20 | 9.50 |
| 10 480.00 | 12.12 | Peak | V | 36.90 | 7.93 | 56.95 | 68.20 | 11.25 |

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss

 

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**13.6.1.2 Test data for 802.11n_HT20 RLAN Mode**

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 87.34 %

-. Operating mode : Transmitting mode

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| **Low Channel** | | | | | | | | |
| 10 360.00 | 13.25 | Peak | H | 36.70 | 7.84 | 57.79 | 68.20 | 10.41 |
| 10 360.00 | 12.20 | Peak | V | 36.70 | 7.84 | 56.74 | 68.20 | 11.46 |
| **Middle Channel** | | | | | | | | |
| 10 440.00 | 13.85 | Peak | H | 36.80 | 7.78 | 58.43 | 68.20 | 9.77 |
| 10 440.00 | 11.68 | Peak | V | 36.80 | 7.78 | 56.26 | 68.20 | 11.94 |
| **High Channel** | | | | | | | | |
| 10 480.00 | 12.81 | Peak | H | 36.90 | 7.93 | 57.64 | 68.20 | 10.56 |
| 10 480.00 | 11.58 | Peak | V | 36.90 | 7.93 | 56.41 | 68.20 | 11.79 |

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss

 

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**13.6.1.3 Test data for 802.11n_HT40 RLAN Mode**

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 77.78 %

-. Operating mode : Transmitting mode

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| **Low Channel** | | | | | | | | |
| 10 380.00 | 13.94 | Peak | H | 36.70 | 7.84 | 58.48 | 68.20 | 9.72 |
| 10 380.00 | 11.79 | Peak | V | 36.70 | 7.84 | 56.33 | 68.20 | 11.87 |
| **High Channel** | | | | | | | | |
| 10 460.00 | 12.81 | Peak | H | 36.90 | 7.93 | 57.64 | 68.20 | 10.56 |
| 10 460.00 | 11.43 | Peak | V | 36.90 | 7.93 | 56.26 | 68.20 | 11.94 |

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss

 

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**13.6.1.4 Test data for 802.11ac_HT80 RLAN Mode**

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 65.52 %

-. Operating mode : Transmitting mode

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| **Middle Channel** | | | | | | | | |
| 10 420.00 | 13.99 | Peak | H | 36.80 | 7.87 | 58.66 | 68.20 | 9.54 |
| 10 420.00 | 12.01 | Peak | V | 36.80 | 7.87 | 56.68 | 68.20 | 11.52 |

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss

 

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### 13.6.2 Test data for Frequency UNII 2A

#### 13.6.2.1 Test data for 802.11a RLAN Mode

##### 13.6.2.1.1 Test data for Antenna 0

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 93.46 %

-. Operating mode : Transmitting mode

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F. (dB) | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| **Low Channel** | | | | | | | | | |
| 10 520.00 | 14.20 | Peak | H | 36.90 | 7.93 | - | 59.03 | 68.20 | 9.17 |
| 10 520.00 | 12.09 | Peak | V | 36.90 | 7.93 | - | 56.92 | 68.20 | 11.28 |
| **Middle Channel** | | | | | | | | | |
| 10 600.00 | 14.54 | Peak | H | 36.90 | 7.75 | - | 59.19 | 74.00 | 14.81 |
| 10 600.00 | 2.59 | Average | H | 36.90 | 7.75 | 0.29 | 47.53 | 54.00 | 6.47 |
| 10 600.00 | 14.14 | Peak | V | 36.90 | 7.75 | - | 58.79 | 74.00 | 15.21 |
| 10 600.00 | 2.99 | Average | V | 36.90 | 7.75 | 0.29 | 47.93 | 54.00 | 6.07 |
| **High Channel** | | | | | | | | | |
| 10 640.00 | 14.84 | Peak | H | 36.90 | 7.77 | - | 59.51 | 74.00 | 14.49 |
| 10 640.00 | 2.77 | Average | H | 36.90 | 7.77 | 0.29 | 47.73 | 54.00 | 6.27 |
| 10 640.00 | 13.45 | Peak | V | 36.90 | 7.77 | - | 58.12 | 74.00 | 15.88 |
| 10 640.00 | 3.65 | Average | V | 36.90 | 7.77 | 0.29 | 48.61 | 54.00 | 5.39 |

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total Level (dBµV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

**13.6.2.1.2 Test data for Antenna 1**

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 92.86 %

-. Operating mode : Transmitting mode

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F. (dB) | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| **Low Channel** | | | | | | | | | |
| 10 520.00 | 12.86 | Peak | H | 36.90 | 7.93 | - | 57.69 | 68.20 | 10.51 |
| 10 520.00 | 11.62 | Peak | V | 36.90 | 7.93 | - | 56.45 | 68.20 | 11.75 |
| **Middle Channel** | | | | | | | | | |
| 10 600.00 | 13.51 | Peak | H | 36.90 | 7.75 | - | 58.16 | 74.00 | 15.84 |
| 10 600.00 | 2.71 | Average | H | 36.90 | 7.75 | 0.32 | 47.68 | 54.00 | 6.32 |
| 10 600.00 | 13.15 | Peak | V | 36.90 | 7.75 | - | 57.80 | 74.00 | 16.20 |
| 10 600.00 | 3.54 | Average | V | 36.90 | 7.75 | 0.32 | 48.51 | 54.00 | 5.49 |
| **High Channel** | | | | | | | | | |
| 10 640.00 | 13.79 | Peak | H | 36.90 | 7.77 | - | 58.46 | 74.00 | 15.54 |
| 10 640.00 | 2.49 | Average | H | 36.90 | 7.77 | 0.32 | 47.48 | 54.00 | 6.52 |
| 10 640.00 | 13.42 | Peak | V | 36.90 | 7.77 | - | 58.09 | 74.00 | 15.91 |
| 10 640.00 | 3.38 | Average | V | 36.90 | 7.77 | 0.32 | 48.37 | 54.00 | 5.63 |

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total Level (dBµV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

 

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**13.6.2.2 Test data for 802.11n_HT20 RLAN Mode**

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 87.34 %

-. Operating mode : Transmitting mode

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F. (dB) | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| **Low Channel** | | | | | | | | | |
| 10 520.00 | 14.11 | Peak | H | 36.90 | 7.93 | | 58.94 | 68.20 | 9.26 |
| 10 520.00 | 12.73 | Peak | V | 36.90 | 7.93 | | 57.56 | 68.20 | 10.64 |
| **Middle Channel** | | | | | | | | | |
| 10 600.00 | 14.74 | Peak | H | 36.90 | 7.75 | | 59.39 | 74.00 | 14.61 |
| 10 600.00 | 3.50 | Average | H | 36.90 | 7.75 | 0.59 | 48.74 | 54.00 | 5.26 |
| 10 600.00 | 13.40 | Peak | V | 36.90 | 7.75 | | 58.05 | 74.00 | 15.95 |
| 10 600.00 | 2.58 | Average | V | 36.90 | 7.75 | 0.59 | 47.82 | 54.00 | 6.18 |
| **High Channel** | | | | | | | | | |
| 10 640.00 | 14.32 | Peak | H | 36.90 | 7.77 | | 58.99 | 74.00 | 15.01 |
| 10 640.00 | 3.65 | Average | H | 36.90 | 7.77 | 0.59 | 48.91 | 54.00 | 5.09 |
| 10 640.00 | 13.40 | Peak | V | 36.90 | 7.77 | | 58.07 | 74.00 | 15.93 |
| 10 640.00 | 4.10 | Average | V | 36.90 | 7.77 | 0.59 | 49.36 | 54.00 | 4.64 |

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total Level (dBµV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

 

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**13.6.2.3 Test data for 802.11n_HT40 RLAN Mode**

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 77.78 %

-. Operating mode : Transmitting mode

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F. (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| **Low Channel** | | | | | | | | | |
| 10 540.00 | 14.10 | Peak | H | 36.90 | 7.97 | - | 58.97 | 68.20 | 9.23 |
| 10 540.00 | 12.15 | Peak | V | 36.90 | 7.97 | - | 57.02 | 68.20 | 11.18 |
| **High Channel** | | | | | | | | | |
| 10 620.00 | 14.00 | Peak | H | 36.90 | 7.77 | - | 58.67 | 74.00 | 15.33 |
| 10 620.00 | 3.27 | Average | H | 36.90 | 7.77 | 1.09 | 49.03 | 54.00 | 4.97 |
| 10 620.00 | 13.90 | Peak | V | 36.90 | 7.77 | - | 58.57 | 74.00 | 15.43 |
| 10 620.00 | 2.34 | Average | V | 36.90 | 7.77 | 1.09 | 48.10 | 54.00 | 5.90 |

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

 

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**13.6.2.4 Test data for 802.11ac_HT80 RLAN Mode**

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 65.52 %

-. Operating mode : Transmitting mode

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| **Middle Channel** | | | | | | | | |
| 10 580.00 | 14.10 | Peak | H | 36.90 | 7.84 | 58.84 | 68.20 | 9.36 |
| 10 580.00 | 11.61 | Peak | V | 36.90 | 7.84 | 56.35 | 68.20 | 11.85 |

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Emission Level (dBμV/m)

### 13.6.3 Test data for Frequency UNII 2C

#### 13.6.3.1 Test data for 802.11a RLAN Mode

#### 13.6.3.1.1 Test data for Antenna 0

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 93.46 %

-. Operating mode : Transmitting mode

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F. (dB) | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| **Low Channel** | | | | | | | | | |
| 11 000.00 | 13.23 | Peak | H | 37.40 | 7.90 | - | 58.53 | 74.00 | 15.47 |
| 11 000.00 | 2.51 | Average | H | 37.40 | 7.90 | 0.29 | 48.10 | 54.00 | 5.90 |
| 11 000.00 | 14.33 | Peak | V | 37.40 | 7.90 | - | 59.63 | 74.00 | 14.37 |
| 11 000.00 | 3.37 | Average | V | 37.40 | 7.90 | 0.29 | 48.96 | 54.00 | 5.04 |
| **Middle Channel** | | | | | | | | | |
| 11 160.00 | 12.93 | Peak | H | 36.90 | 8.16 | - | 57.99 | 74.00 | 16.01 |
| 11 160.00 | 2.77 | Average | H | 36.90 | 8.16 | 0.29 | 48.12 | 54.00 | 5.88 |
| 11 160.00 | 15.78 | Peak | V | 36.90 | 8.16 | - | 60.84 | 74.00 | 13.16 |
| 11 160.00 | 3.17 | Average | V | 36.90 | 8.16 | 0.29 | 48.52 | 54.00 | 5.48 |
| **High Channel** | | | | | | | | | |
| 11 400.00 | 12.79 | Peak | H | 37.10 | 8.14 | - | 58.03 | 74.00 | 15.97 |
| 11 400.00 | 2.56 | Average | H | 37.10 | 8.14 | 0.29 | 48.09 | 54.00 | 5.91 |
| 11 400.00 | 14.00 | Peak | V | 37.10 | 8.14 | - | 59.24 | 74.00 | 14.76 |
| 11 400.00 | 3.40 | Average | V | 37.10 | 8.14 | 0.29 | 48.93 | 54.00 | 5.07 |

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total Level (dBµV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

**13.6.3.1.2 Test data for Antenna 1**

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 93.46 %

-. Operating mode : Transmitting mode

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F. (dB) | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| **Low Channel** | | | | | | | | | |
| 11 000.00 | 14.25 | Peak | H | 37.40 | 7.90 | - | 59.55 | 74.00 | 14.45 |
| 11 000.00 | 2.54 | Average | H | 37.40 | 7.90 | 0.29 | 48.13 | 54.00 | 5.87 |
| 11 000.00 | 14.01 | Peak | V | 37.40 | 7.90 | - | 59.31 | 74.00 | 14.69 |
| 11 000.00 | 3.14 | Average | V | 37.40 | 7.90 | 0.29 | 48.73 | 54.00 | 5.27 |
| **Middle Channel** | | | | | | | | | |
| 11 160.00 | 13.67 | Peak | H | 36.90 | 8.16 | - | 58.73 | 74.00 | 15.27 |
| 11 160.00 | 2.26 | Average | H | 36.90 | 8.16 | 0.29 | 47.61 | 54.00 | 6.39 |
| 11 160.00 | 16.30 | Peak | V | 36.90 | 8.16 | - | 61.36 | 74.00 | 12.64 |
| 11 160.00 | 3.13 | Average | V | 36.90 | 8.16 | 0.29 | 48.48 | 54.00 | 5.52 |
| **High Channel** | | | | | | | | | |
| 11 400.00 | 13.49 | Peak | H | 37.10 | 8.14 | - | 58.73 | 74.00 | 15.27 |
| 11 400.00 | 2.69 | Average | H | 37.10 | 8.14 | 0.29 | 48.22 | 54.00 | 5.78 |
| 11 400.00 | 14.29 | Peak | V | 37.10 | 8.14 | - | 59.53 | 74.00 | 14.47 |
| 11 400.00 | 2.34 | Average | V | 37.10 | 8.14 | 0.29 | 47.87 | 54.00 | 6.13 |

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total Level (dBµV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

 

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**13.6.3.2 Test data for 802.11n_HT20 RLAN Mode**

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 87.34 %

-. Operating mode : Transmitting mode

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F. (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| **Low Channel** | | | | | | | | | |
| 11 000.00 | 13.33 | Peak | H | 37.40 | 7.90 | - | 58.63 | 74.00 | 15.37 |
| 11 000.00 | 2.47 | Average | H | 37.40 | 7.90 | 0.59 | 48.36 | 54.00 | 5.64 |
| 11 000.00 | 15.29 | Peak | V | 37.40 | 7.90 | - | 60.59 | 74.00 | 13.41 |
| 11 000.00 | 3.65 | Average | V | 37.40 | 7.90 | 0.59 | 49.54 | 54.00 | 4.46 |
| **Middle Channel** | | | | | | | | | |
| 11 160.00 | 12.28 | Peak | H | 36.90 | 8.16 | - | 57.34 | 74.00 | 16.66 |
| 11 160.00 | 2.81 | Average | H | 36.90 | 8.16 | 0.59 | 48.46 | 54.00 | 5.54 |
| 11 160.00 | 14.94 | Peak | V | 36.90 | 8.16 | - | 60.00 | 74.00 | 14.00 |
| 11 160.00 | 3.67 | Average | V | 36.90 | 8.16 | 0.59 | 49.32 | 54.00 | 4.68 |
| **High Channel** | | | | | | | | | |
| 11 400.00 | 13.00 | Peak | H | 37.10 | 8.14 | - | 58.24 | 74.00 | 15.76 |
| 11 400.00 | 2.38 | Average | H | 37.10 | 8.14 | 0.59 | 48.21 | 54.00 | 5.79 |
| 11 400.00 | 14.05 | Peak | V | 37.10 | 8.14 | - | 59.29 | 74.00 | 14.71 |
| 11 400.00 | 2.92 | Average | V | 37.10 | 8.14 | 0.59 | 48.75 | 54.00 | 5.25 |

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

 

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**13.6.3.3 Test data for 802.11n_HT40 RLAN Mode**

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 77.78 %

-. Operating mode : Transmitting mode

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F. (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| **Low Channel** | | | | | | | | | |
| 11 020.00 | 13.77 | Peak | H | 37.40 | 7.90 | - | 59.07 | 74.00 | 14.93 |
| 11 020.00 | 3.10 | Average | H | 37.40 | 7.90 | 1.09 | 49.49 | 54.00 | 4.51 |
| 11 020.00 | 15.22 | Peak | V | 37.40 | 7.90 | - | 60.52 | 74.00 | 13.48 |
| 11 020.00 | 3.85 | Average | V | 37.40 | 7.90 | 1.09 | 50.24 | 54.00 | 3.76 |
| **Middle Channel** | | | | | | | | | |
| 11 100.00 | 12.61 | Peak | H | 36.90 | 8.16 | - | 57.67 | 74.00 | 16.33 |
| 11 100.00 | 2.81 | Average | H | 36.90 | 8.16 | 1.09 | 48.96 | 54.00 | 5.04 |
| 11 100.00 | 15.87 | Peak | V | 36.90 | 8.16 | - | 60.93 | 74.00 | 13.07 |
| 11 100.00 | 3.59 | Average | V | 36.90 | 8.16 | 1.09 | 49.74 | 54.00 | 4.26 |
| **High Channel** | | | | | | | | | |
| 11 340.00 | 13.09 | Peak | H | 37.10 | 8.14 | - | 58.33 | 74.00 | 15.67 |
| 11 340.00 | 3.02 | Average | H | 37.10 | 8.14 | 1.09 | 49.35 | 54.00 | 4.65 |
| 11 340.00 | 13.81 | Peak | V | 37.10 | 8.14 | - | 59.05 | 74.00 | 14.95 |
| 11 340.00 | 3.45 | Average | V | 37.10 | 8.14 | 1.09 | 49.78 | 54.00 | 4.22 |

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

 

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**13.6.3.4 Test data for 802.11ac_HT80 RLAN Mode**

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 65.52 %

-. Operating mode : Transmitting mode

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F. (dB) | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| **Low Channel** | | | | | | | | | |
| 11 060.00 | 13.89 | Peak | H | 36.90 | 8.16 | - | 58.95 | 74.00 | 15.05 |
| 11 060.00 | 3.45 | Average | H | 36.90 | 8.16 | 1.84 | 50.35 | 54.00 | 3.65 |
| 11 060.00 | 15.30 | Peak | V | 36.90 | 8.16 | - | 60.36 | 74.00 | 13.64 |
| 11 060.00 | 2.60 | Average | V | 36.90 | 8.16 | 1.84 | 49.50 | 54.00 | 4.50 |
| **High Channel** | | | | | | | | | |
| 11 380.00 | 12.82 | Peak | H | 37.10 | 8.14 | - | 58.06 | 74.00 | 15.94 |
| 11 380.00 | 2.66 | Average | H | 37.10 | 8.14 | 1.84 | 49.74 | 54.00 | 4.26 |
| 11 380.00 | 15.37 | Peak | V | 37.10 | 8.14 | - | 60.61 | 74.00 | 13.39 |
| 11 380.00 | 3.22 | Average | V | 37.10 | 8.14 | 1.84 | 50.30 | 54.00 | 3.70 |

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total Level (dBµV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

 

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### 13.6.4 Test data for Frequency UNII 3

#### 13.6.4.1 Test data for 802.11a RLAN Mode

##### 13.6.4.1.1 Test data for Antenna 0

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 93.46 %

-. Operating mode : Transmitting mode

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F. (dB) | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| **Low Channel** | | | | | | | | | |
| 11 490.00 | 13.85 | Peak | H | 37.20 | 8.32 | - | 59.37 | 74.00 | 14.63 |
| 11 490.00 | 3.09 | Average | H | 37.20 | 8.32 | 0.29 | 48.90 | 54.00 | 5.10 |
| 11 490.00 | 12.55 | Peak | V | 37.20 | 8.32 | - | 58.07 | 74.00 | 15.93 |
| 11 490.00 | 2.49 | Average | V | 37.20 | 8.32 | 0.29 | 48.30 | 54.00 | 5.70 |
| **Middle Channel** | | | | | | | | | |
| 11 570.00 | 14.75 | Peak | H | 37.00 | 8.17 | - | 59.92 | 74.00 | 14.08 |
| 11 570.00 | 5.22 | Average | H | 37.00 | 8.17 | 0.29 | 50.68 | 54.00 | 3.32 |
| 11 570.00 | 13.90 | Peak | V | 37.00 | 8.17 | - | 59.07 | 74.00 | 14.93 |
| 11 570.00 | 3.22 | Average | V | 37.00 | 8.17 | 0.29 | 48.68 | 54.00 | 5.32 |
| **High Channel** | | | | | | | | | |
| 11 650.00 | 14.32 | Peak | H | 36.90 | 8.20 | - | 59.42 | 74.00 | 14.58 |
| 11 650.00 | 4.07 | Average | H | 36.90 | 8.20 | 0.29 | 49.46 | 54.00 | 4.54 |
| 11 650.00 | 14.89 | Peak | V | 36.90 | 8.20 | - | 59.99 | 74.00 | 14.01 |
| 11 650.00 | 2.47 | Average | V | 36.90 | 8.20 | 0.29 | 47.86 | 54.00 | 6.14 |

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total Level (dBµV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

 

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**13.6.4.1.2 Test data for Antenna 1**

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 93.46 %

-. Operating mode : Transmitting mode

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F. (dB) | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| **Low Channel** | | | | | | | | | |
| 11 490.00 | 13.48 | Peak | H | 37.20 | 8.32 | - | 59.00 | 74.00 | 15.00 |
| 11 490.00 | 3.30 | Average | H | 37.20 | 8.32 | 0.29 | 49.11 | 54.00 | 4.89 |
| 11 490.00 | 13.83 | Peak | V | 37.20 | 8.32 | - | 59.35 | 74.00 | 14.65 |
| 11 490.00 | 1.80 | Average | V | 37.20 | 8.32 | 0.29 | 47.61 | 54.00 | 6.39 |
| **Middle Channel** | | | | | | | | | |
| 11 570.00 | 13.93 | Peak | H | 37.00 | 8.17 | - | 59.10 | 74.00 | 14.90 |
| 11 570.00 | 5.23 | Average | H | 37.00 | 8.17 | 0.29 | 50.69 | 54.00 | 3.31 |
| 11 570.00 | 12.64 | Peak | V | 37.00 | 8.17 | - | 57.81 | 74.00 | 16.19 |
| 11 570.00 | 2.78 | Average | V | 37.00 | 8.17 | 0.29 | 48.24 | 54.00 | 5.76 |
| **High Channel** | | | | | | | | | |
| 11 650.00 | 13.98 | Peak | H | 36.90 | 8.20 | - | 59.08 | 74.00 | 14.92 |
| 11 650.00 | 3.74 | Average | H | 36.90 | 8.20 | 0.29 | 49.13 | 54.00 | 4.87 |
| 11 650.00 | 14.96 | Peak | V | 36.90 | 8.20 | - | 60.06 | 74.00 | 13.94 |
| 11 650.00 | 3.20 | Average | V | 36.90 | 8.20 | 0.29 | 48.59 | 54.00 | 5.41 |

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total Level (dBµV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

 

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**13.6.4.2 Test data for 802.11n_HT20 RLAN Mode**

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 86.08 %

-. Operating mode : Transmitting mode

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F. (dB) | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| **Low Channel** | | | | | | | | | |
| 11 490.00 | 13.21 | Peak | H | 37.20 | 8.32 | - | 58.73 | 74.00 | 15.27 |
| 11 490.00 | 3.69 | Average | H | 37.20 | 8.32 | 0.65 | 49.86 | 54.00 | 4.14 |
| 11 490.00 | 12.86 | Peak | V | 37.20 | 8.32 | - | 58.38 | 74.00 | 15.62 |
| 11 490.00 | 2.29 | Average | V | 37.20 | 8.32 | 0.65 | 48.46 | 54.00 | 5.54 |
| **Middle Channel** | | | | | | | | | |
| 11 570.00 | 14.80 | Peak | H | 37.00 | 8.17 | - | 59.97 | 74.00 | 14.03 |
| 11 570.00 | 4.07 | Average | H | 37.00 | 8.17 | 0.65 | 49.89 | 54.00 | 4.11 |
| 11 570.00 | 13.37 | Peak | V | 37.00 | 8.17 | - | 58.54 | 74.00 | 15.46 |
| 11 570.00 | 3.32 | Average | V | 37.00 | 8.17 | 0.65 | 49.14 | 54.00 | 4.86 |
| **High Channel** | | | | | | | | | |
| 11 650.00 | 14.80 | Peak | H | 36.90 | 8.20 | - | 59.90 | 74.00 | 14.10 |
| 11 650.00 | 2.90 | Average | H | 36.90 | 8.20 | 0.65 | 48.65 | 54.00 | 5.35 |
| 11 650.00 | 14.65 | Peak | V | 36.90 | 8.20 | - | 59.75 | 74.00 | 14.25 |
| 11 650.00 | 2.86 | Average | V | 36.90 | 8.20 | 0.65 | 48.61 | 54.00 | 5.39 |

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total Level (dBµV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

**13.6.4.3 Test data for 802.11n_HT40 RLAN Mode**

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 77.78 %

-. Operating mode : Transmitting mode

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F. (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| **Low Channel** | | | | | | | | | |
| 11 510.00 | 14.00 | Peak | H | 37.20 | 8.32 | - | 59.52 | 74.00 | 14.48 |
| 11 510.00 | 4.11 | Average | H | 37.20 | 8.32 | 1.09 | 50.72 | 54.00 | 3.28 |
| 11 510.00 | 13.49 | Peak | V | 37.20 | 8.32 | - | 59.01 | 74.00 | 14.99 |
| 11 510.00 | 1.32 | Average | V | 37.20 | 8.32 | 1.09 | 47.93 | 54.00 | 6.07 |
| **High Channel** | | | | | | | | | |
| 11 590.00 | 14.23 | Peak | H | 36.60 | 8.20 | - | 59.03 | 74.00 | 14.97 |
| 11 590.00 | 4.51 | Average | H | 36.60 | 8.20 | 1.09 | 50.40 | 54.00 | 3.60 |
| 11 590.00 | 13.87 | Peak | V | 36.60 | 8.20 | - | 58.67 | 74.00 | 15.33 |
| 11 590.00 | 2.73 | Average | V | 36.60 | 8.20 | 1.09 | 48.62 | 54.00 | 5.38 |

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

 

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**13.6.4.4 Test data for 802.11ac_HT80 RLAN Mode**

**13.6.4.4.1 Test data for Multiple Transmit**

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode for the emissions fall in restricted band,
1 MHz and RMS Detector for Average Mode for the emissions fall in restricted band
100 kHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 40 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 65.52 %

-. Operating mode : Transmitting mode

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F. (dB) | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| **Middle Channel** | | | | | | | | | |
| 11 550.00 | 14.35 | Peak | H | 36.80 | 8.25 | - | 59.40 | 74.00 | 14.60 |
| 11 550.00 | 3.48 | Average | H | 36.80 | 8.25 | 1.84 | 50.37 | 54.00 | 3.63 |
| 11 550.00 | 12.59 | Peak | V | 36.80 | 8.25 | - | 57.64 | 74.00 | 16.36 |
| 11 550.00 | 2.00 | Average | V | 36.80 | 8.25 | 1.84 | 48.89 | 54.00 | 5.11 |

Remark: “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total Level (dBµV/m)

Total Level = Reading + Antenna Factor + Cable Loss + C.F.

 

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# 14. RADIATED RESTRICTED BAND EDGE MEASUREMENTS

## 14.1 Operating environment

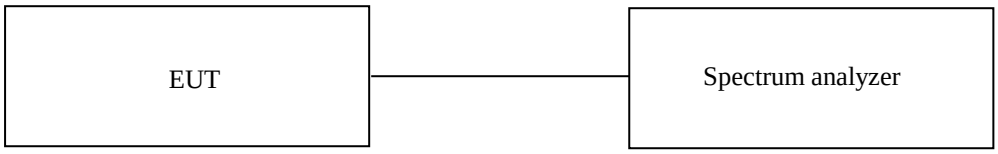
Temperature : 23 °C

Relative humidity : 45 % R.H.

## 14.2 Test set-up for conducted measurement

The radiated emissions measurements were performed on the 3 m, open-field test site. The EUT was placed on a non-conductive turntable above the ground plane.

The system was rotated 360°, and the antenna was varied in the height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for horizontal and vertical polarization of the receiving antenna.




## 14.3 Test Date

September 07, 2020 ~ September 11, 2020

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## 14.4 Test data for Frequency UNII I

### 14.4.1 Test data for 802.11a RLAN Mode

#### 14.4.1.1 Test data for Antenna 0

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 92.86 %

-. Result : Pass

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F (dB) | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 4 899.26 | 18.56 | Peak | H | 28.90 | 4.98 | - | 52.44 | 74.00 | 21.56 |
| 4 970.76 | 11.22 | Average | H | 28.90 | 4.98 | 0.32 | 45.42 | 54.00 | 8.58 |
| 5 054.44 | 19.32 | Peak | V | 28.90 | 4.98 | - | 53.20 | 74.00 | 20.80 |
| 4 743.29 | 10.48 | Average | V | 28.90 | 4.98 | 0.32 | 44.68 | 54.00 | 9.32 |

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total (dBµV/m)

#### 14.4.1.2 Test data for Antenna 1

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 92.16 %

-. Result : Pass

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F (dB) | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 4 899.92 | 18.72 | Peak | H | 28.90 | 4.98 | - | 52.60 | 74.00 | 21.40 |
| 4 970.22 | 10.21 | Average | H | 28.90 | 4.98 | 0.35 | 44.44 | 54.00 | 9.56 |
| 5 053.83 | 18.85 | Peak | V | 28.90 | 4.98 | - | 52.73 | 74.00 | 21.27 |
| 4 743.15 | 10.14 | Average | V | 28.90 | 4.98 | 0.35 | 44.37 | 54.00 | 9.63 |

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total (dBµV/m)

### 14.4.2 Test data for 802.11n_HT20 RLAN Mode

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 87.34 %

-. Result : Pass

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F (dB) | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 5 149.83 | 26.07 | Peak | H | 28.90 | 4.98 | - | 59.95 | 74.00 | 14.05 |
| 5 149.83 | 16.85 | Average | H | 28.90 | 4.98 | 0.59 | 51.32 | 54.00 | 2.68 |
| 5 149.79 | 25.61 | Peak | V | 28.90 | 4.98 | - | 59.49 | 74.00 | 14.51 |
| 5 149.88 | 15.69 | Average | V | 28.90 | 4.98 | 0.59 | 50.16 | 54.00 | 3.84 |

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBµV/m) - Total (dBµV/m)

### 14.4.3 Test data for 802.11n_HT40 RLAN Mode

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 77.78 %

-. Result : Pass

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F (dB) | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 5 149.43 | 25.86 | Peak | H | 28.90 | 4.98 | - | 59.74 | 74.00 | 14.26 |
| 5 149.08 | 16.26 | Average | H | 28.90 | 4.98 | 1.09 | 51.23 | 54.00 | 2.77 |
| 5 149.43 | 25.03 | Peak | V | 28.90 | 4.98 | - | 58.91 | 74.00 | 15.09 |
| 5 149.03 | 15.22 | Average | V | 28.90 | 4.98 | 1.09 | 50.19 | 54.00 | 3.81 |

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dBµV/m) - Total (dBµV/m)

 

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### 14.4.4 Test data for 802.11ac_HT80 RLAN Mode

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 65.52 %

-. Result : Pass

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 5 146.43 | 24.79 | Peak | H | 28.90 | 4.98 | - | 58.67 | 74.00 | 15.33 |
| 5 147.75 | 15.69 | Average | H | 28.90 | 4.98 | 1.84 | 51.41 | 54.00 | 2.59 |
| 5 146.46 | 24.86 | Peak | V | 28.90 | 4.98 | - | 58.74 | 74.00 | 15.26 |
| 5 147.77 | 14.90 | Average | V | 28.90 | 4.98 | 1.84 | 50.62 | 54.00 | 3.38 |

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Total (dBμV/m)

 

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## 14.5 Test data for Frequency UNII 2A

### 14.5.1 Test data for 802.11a RLAN Mode

#### 14.5.1.1 Test data for Antenna 0

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 93.46 %

-. Result : Pass

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F (dB) | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 5 453.02 | 23.55 | Peak | H | 28.40 | 5.24 | - | 57.19 | 74.00 | 16.81 |
| 5 350.05 | 12.66 | Average | H | 28.40 | 5.24 | 0.29 | 46.59 | 54.00 | 7.41 |
| 5 457.53 | 21.25 | Peak | V | 28.40 | 5.24 | - | 54.89 | 74.00 | 19.11 |
| 5 453.24 | 10.03 | Average | V | 28.40 | 5.24 | 0.29 | 43.96 | 54.00 | 10.04 |

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total (dBµV/m)

#### 14.5.1.2 Test data for Antenna 1

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 92.86 %

-. Result : Pass

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F (dB) | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 5 452.93 | 21.68 | Peak | H | 28.40 | 5.24 | - | 55.32 | 74.00 | 18.68 |
| 5 349.61 | 11.40 | Average | H | 28.40 | 5.24 | 0.32 | 45.36 | 54.00 | 8.64 |
| 5 457.63 | 19.72 | Peak | V | 28.40 | 5.24 | - | 53.36 | 74.00 | 20.64 |
| 5 452.85 | 9.58 | Average | V | 28.40 | 5.24 | 0.32 | 43.54 | 54.00 | 10.46 |

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total (dBµV/m)

### 14.5.2 Test data for 802.11n_HT20 RLAN Mode

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 87.34 %

-. Result : Pass

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F (dB) | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 5 350.05 | 28.30 | Peak | H | 28.40 | 5.24 | - | 61.94 | 74.00 | 12.06 |
| 5 350.05 | 17.46 | Average | H | 28.40 | 5.24 | 0.59 | 51.69 | 54.00 | 2.31 |
| 5 351.27 | 25.54 | Peak | V | 28.40 | 5.24 | - | 59.18 | 74.00 | 14.82 |
| 5 350.05 | 14.51 | Average | V | 28.40 | 5.24 | 0.59 | 48.74 | 54.00 | 5.26 |

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical
Margin (dB) = Limits (dBµV/m) - Total (dBµV/m)

### 14.5.3 Test data for 802.11n_HT40 RLAN Mode

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 77.78 %

-. Result : Pass

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F (dB) | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 5 350.18 | 28.13 | Peak | H | 28.40 | 5.24 | - | 61.77 | 74.00 | 12.23 |
| 5 350.06 | 16.98 | Average | H | 28.40 | 5.24 | 1.09 | 51.71 | 54.00 | 2.29 |
| 5 350.05 | 26.15 | Peak | V | 28.40 | 5.24 | - | 59.79 | 74.00 | 14.21 |
| 5 350.05 | 14.04 | Average | V | 28.40 | 5.24 | 1.09 | 48.77 | 54.00 | 5.23 |

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical
Margin (dB) = Limits (dBµV/m) - Total (dBµV/m)

 

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### 14.5.4 Test data for 802.11ac_HT80 RLAN Mode

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 65.52 %

-. Result : Pass

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F (dB) | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 5 350.16 | 27.59 | Peak | H | 28.40 | 5.24 | - | 61.23 | 74.00 | 12.77 |
| 5 350.16 | 15.80 | Average | H | 28.40 | 5.24 | 1.84 | 51.28 | 54.00 | 2.72 |
| 5 350.06 | 24.27 | Peak | V | 28.40 | 5.24 | - | 57.91 | 74.00 | 16.09 |
| 5 350.06 | 13.10 | Average | V | 28.40 | 5.24 | 1.84 | 48.58 | 54.00 | 5.42 |

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total (dBµV/m)

 

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## 14.6 Test data for Frequency UNII 2C

### 14.6.1 Test data for 802.11a RLAN Mode

#### 14.6.1.1 Test data for Antenna 0

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 93.46 %

-. Result : Pass

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 5 394.13 | 23.40 | Peak | H | 28.40 | 5.24 | - | 57.04 | 74.00 | 16.96 |
| 5 452.58 | 12.12 | Average | H | 28.40 | 5.24 | 0.29 | 46.05 | 54.00 | 7.95 |
| 5 358.67 | 20.91 | Peak | V | 28.40 | 5.24 | - | 54.55 | 74.00 | 19.45 |
| 5 450.99 | 9.45 | Average | V | 28.40 | 5.24 | 0.29 | 43.38 | 54.00 | 10.62 |

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Total (dBμV/m)

#### 14.6.1.2 Test data for Antenna 1

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 93.46 %

-. Result : Pass

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F (dB) | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 5 393.74 | 23.20 | Peak | H | 28.40 | 5.24 | - | 56.84 | 74.00 | 17.16 |
| 5 452.69 | 12.24 | Average | H | 28.40 | 5.24 | 0.29 | 46.17 | 54.00 | 7.83 |
| 5 358.76 | 21.04 | Peak | V | 28.40 | 5.24 | - | 54.68 | 74.00 | 19.32 |
| 5 450.14 | 10.06 | Average | V | 28.40 | 5.24 | 0.29 | 43.99 | 54.00 | 10.01 |

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Total (dBμV/m)

 

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### 14.6.2 Test data for 802.11n_HT20 RLAN Mode

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 87.34 %

-. Result : Pass

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F (dB) | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 5 458.88 | 27.89 | Peak | H | 28.40 | 5.24 | - | 61.53 | 74.00 | 12.47 |
| 5 459.02 | 17.49 | Average | H | 28.40 | 5.24 | 0.59 | 51.72 | 54.00 | 2.28 |
| 5 459.56 | 25.25 | Peak | V | 28.40 | 5.24 | - | 58.89 | 74.00 | 15.11 |
| 5 459.76 | 15.80 | Average | V | 28.40 | 5.24 | 0.59 | 50.03 | 54.00 | 3.97 |

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical
Margin (dB) = Limits (dBµV/m) - Total (dBµV/m)

### 14.6.3 Test data for 802.11n_HT40 RLAN Mode

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 77.78 %

-. Result : Pass

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F (dB) | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 5 458.57 | 27.54 | Peak | H | 28.40 | 5.24 | - | 61.18 | 74.00 | 12.82 |
| 5 458.96 | 16.77 | Average | H | 28.40 | 5.24 | 1.09 | 51.50 | 54.00 | 2.50 |
| 5 459.32 | 25.77 | Peak | V | 28.40 | 5.24 | - | 59.41 | 74.00 | 14.59 |
| 5 459.32 | 15.31 | Average | V | 28.40 | 5.24 | 1.09 | 50.04 | 54.00 | 3.96 |

Tabulated test data for Restricted Band

Remark - "H": Horizontal, "V": Vertical
Margin (dB) = Limits (dBµV/m) - Total (dBµV/m)

### 14.6.4 Test data for 802.11ac_HT80 RLAN Mode

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 65.52 %

-. Result : Pass

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | C.F (dB) | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| 5 458.74 | 26.58 | Peak | H | 28.40 | 5.24 | - | 60.22 | 74.00 | 13.78 |
| 5 459.37 | 16.32 | Average | V | 28.40 | 5.24 | 1.84 | 51.80 | 54.00 | 2.20 |
| 5 459.68 | 24.11 | Peak | V | 28.40 | 5.24 | - | 57.75 | 74.00 | 16.25 |
| 5 459.59 | 15.01 | Average | V | 28.40 | 5.24 | 1.84 | 50.49 | 54.00 | 3.51 |

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBµV/m) - Total (dBµV/m)

 

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## 14.7 Test data for Frequency U-NII-3

### 14.7.1 Test data for 802.11a RLAN Mode

#### 14.7.1.1 Test data for Antenna 0

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 93.46 %

-. Result : Pass

| Frequency (MHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| **Low Channel** | | | | | | | | |
| 5 650.00 | 30.18 | Peak | H | 28.80 | 5.39 | 64.37 | 80.00 | 15.63 |
| 5 710.00 | 29.52 | Peak | H | 28.80 | 5.39 | 63.71 | 119.80 | 56.09 |
| 5 715.00 | 33.87 | Peak | H | 28.80 | 5.39 | 68.06 | 121.20 | 53.14 |
| 5 725.00 | 31.50 | Peak | H | 28.80 | 5.39 | 65.69 | 134.00 | 68.31 |
| 5 724.65 | 31.37 | Peak | H | 28.80 | 5.39 | 65.56 | 133.20 | 67.64 |
| 5 650.00 | 27.56 | Peak | V | 28.80 | 5.39 | 61.75 | 80.00 | 18.25 |
| 5 710.00 | 33.77 | Peak | V | 28.80 | 5.39 | 67.96 | 119.80 | 51.84 |
| 5 715.00 | 29.95 | Peak | V | 28.80 | 5.39 | 64.14 | 121.20 | 57.06 |
| 5 725.00 | 29.89 | Peak | V | 28.80 | 5.39 | 64.08 | 134.00 | 69.92 |
| 5 724.71 | 31.75 | Peak | V | 28.80 | 5.39 | 65.94 | 133.34 | 67.40 |

 

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| High Channel | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 5 850.00 | 30.07 | Peak | H | 29.30 | 5.55 | 64.92 | 134.00 | 69.08 |
| 5 855.00 | 32.86 | Peak | H | 29.30 | 5.55 | 67.71 | 122.60 | 54.89 |
| 5 875.00 | 33.12 | Peak | H | 29.30 | 5.55 | 67.97 | 117.00 | 49.03 |
| 5 925.00 | 31.18 | Peak | H | 29.30 | 5.55 | 66.03 | 80.00 | 13.97 |
| 5 889.24 | 31.75 | Peak | H | 29.30 | 5.55 | 66.60 | 106.46 | 39.86 |
| 5 850.00 | 33.95 | Peak | V | 29.30 | 5.55 | 68.80 | 134.00 | 65.20 |
| 5 855.00 | 29.87 | Peak | V | 29.30 | 5.55 | 64.72 | 122.60 | 57.88 |
| 5 875.00 | 30.27 | Peak | V | 29.30 | 5.55 | 65.12 | 117.00 | 51.88 |
| 5 925.00 | 29.81 | Peak | V | 29.30 | 5.55 | 64.66 | 80.00 | 15.34 |
| 5 921.29 | 33.71 | Peak | V | 29.30 | 5.55 | 68.56 | 82.75 | 14.19 |

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Total (dBμV/m)

 

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**14.7.1.2 Test data for Antenna 1**

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 93.46 %

-. Result : Pass

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| **Low Channel** | | | | | | | | |
| 5 650.00 | 33.02 | Peak | H | 28.80 | 5.39 | 67.21 | 80.00 | 12.79 |
| 5 710.00 | 29.96 | Peak | H | 28.80 | 5.39 | 64.15 | 119.80 | 55.65 |
| 5 715.00 | 32.84 | Peak | H | 28.80 | 5.39 | 67.03 | 121.20 | 54.17 |
| 5 725.00 | 30.50 | Peak | H | 28.80 | 5.39 | 64.69 | 134.00 | 69.31 |
| 5 724.57 | 32.05 | Peak | H | 28.80 | 5.39 | 66.24 | 133.02 | 66.78 |
| 5 650.00 | 27.06 | Peak | V | 28.80 | 5.39 | 61.25 | 80.00 | 18.75 |
| 5 710.00 | 33.78 | Peak | V | 28.80 | 5.39 | 67.97 | 119.80 | 51.83 |
| 5 715.00 | 31.61 | Peak | V | 28.80 | 5.39 | 65.80 | 121.20 | 55.40 |
| 5 725.00 | 31.46 | Peak | V | 28.80 | 5.39 | 65.65 | 134.00 | 68.35 |
| 5 720.00 | 33.10 | Peak | V | 28.80 | 5.39 | 67.29 | 122.60 | 55.31 |
| **High Channel** | | | | | | | | |
| 5 850.00 | 31.97 | Peak | H | 29.30 | 5.55 | 66.82 | 134.00 | 67.18 |
| 5 855.00 | 31.27 | Peak | H | 29.30 | 5.55 | 66.12 | 122.60 | 56.48 |
| 5 875.00 | 32.76 | Peak | H | 29.30 | 5.55 | 67.61 | 117.00 | 49.39 |
| 5 925.00 | 33.18 | Peak | H | 29.30 | 5.55 | 68.03 | 80.00 | 11.97 |
| 5 889.25 | 31.89 | Peak | H | 29.30 | 5.55 | 66.74 | 106.45 | 39.71 |
| 5 850.00 | 32.88 | Peak | V | 29.30 | 5.55 | 67.73 | 134.00 | 66.27 |
| 5 855.00 | 28.64 | Peak | V | 29.30 | 5.55 | 63.49 | 122.60 | 59.11 |
| 5 875.00 | 29.33 | Peak | V | 29.30 | 5.55 | 64.18 | 117.00 | 52.82 |
| 5 925.00 | 29.44 | Peak | V | 29.30 | 5.55 | 64.29 | 80.00 | 15.71 |
| 5 917.71 | 33.22 | Peak | V | 29.30 | 5.55 | 68.07 | 85.39 | 17.32 |

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Total (dBμV/m)

 

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### 14.7.2 Test data for 802.11n_HT20 RLAN Mode

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 86.08 %

-. Result : Pass

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| **Low Channel** | | | | | | | | |
| 5 650.00 | 32.06 | Peak | H | 28.80 | 5.39 | 66.25 | 80.00 | 13.75 |
| 5 710.00 | 31.80 | Peak | H | 28.80 | 5.39 | 65.99 | 119.80 | 53.81 |
| 5 715.00 | 33.86 | Peak | H | 28.80 | 5.39 | 68.05 | 121.20 | 53.15 |
| 5 725.00 | 28.24 | Peak | H | 28.80 | 5.39 | 62.43 | 134.00 | 71.57 |
| 5 723.09 | 33.87 | Peak | H | 28.80 | 5.39 | 68.06 | 129.65 | 61.59 |
| 5 650.00 | 27.94 | Peak | V | 28.80 | 5.39 | 62.13 | 80.00 | 17.87 |
| 5 710.00 | 33.64 | Peak | V | 28.80 | 5.39 | 67.83 | 119.80 | 51.97 |
| 5 715.00 | 33.09 | Peak | V | 28.80 | 5.39 | 67.28 | 121.20 | 53.92 |
| 5 725.00 | 30.53 | Peak | V | 28.80 | 5.39 | 64.72 | 134.00 | 69.28 |
| 5 724.53 | 35.20 | Peak | V | 28.80 | 5.39 | 69.39 | 132.93 | 63.54 |
| **High Channel** | | | | | | | | |
| 5 850.00 | 30.28 | Peak | H | 29.30 | 5.55 | 65.13 | 134.00 | 68.87 |
| 5 855.00 | 31.85 | Peak | H | 29.30 | 5.55 | 66.70 | 122.60 | 55.90 |
| 5 875.00 | 31.14 | Peak | H | 29.30 | 5.55 | 65.99 | 117.00 | 51.01 |
| 5 925.00 | 33.89 | Peak | H | 29.30 | 5.55 | 68.74 | 80.00 | 11.26 |
| 5 889.59 | 33.00 | Peak | H | 29.30 | 5.55 | 67.85 | 106.20 | 38.35 |
| 5 850.00 | 33.20 | Peak | V | 29.30 | 5.55 | 68.05 | 134.00 | 65.95 |
| 5 855.00 | 29.76 | Peak | V | 29.30 | 5.55 | 64.61 | 122.60 | 57.99 |
| 5 875.00 | 30.19 | Peak | V | 29.30 | 5.55 | 65.04 | 117.00 | 51.96 |
| 5 925.00 | 31.04 | Peak | V | 29.30 | 5.55 | 65.89 | 80.00 | 14.11 |
| 5 903.10 | 31.52 | Peak | V | 29.30 | 5.55 | 66.37 | 96.21 | 29.84 |

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Total (dBμV/m)

 

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### 14.7.3 Test data for 802.11n_HT40 RLAN Mode

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 77.78 %

-. Result : Pass

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| **Low Channel** | | | | | | | | |
| 5 650.00 | 32.35 | Peak | H | 28.80 | 5.39 | 66.54 | 80.00 | 13.46 |
| 5 710.00 | 30.51 | Peak | H | 28.80 | 5.39 | 64.70 | 119.80 | 55.10 |
| 5 715.00 | 31.00 | Peak | H | 28.80 | 5.39 | 65.19 | 121.20 | 56.01 |
| 5 725.00 | 27.93 | Peak | H | 28.80 | 5.39 | 62.12 | 134.00 | 71.88 |
| 5 724.73 | 32.92 | Peak | H | 28.80 | 5.39 | 67.11 | 133.38 | 66.27 |
| 5 650.00 | 28.69 | Peak | V | 28.80 | 5.39 | 62.88 | 80.00 | 17.12 |
| 5 710.00 | 33.48 | Peak | V | 28.80 | 5.39 | 67.67 | 119.80 | 52.13 |
| 5 715.00 | 31.27 | Peak | V | 28.80 | 5.39 | 65.46 | 121.20 | 55.74 |
| 5 725.00 | 31.01 | Peak | V | 28.80 | 5.39 | 65.20 | 134.00 | 68.80 |
| 5 723.11 | 33.21 | Peak | V | 28.80 | 5.39 | 67.40 | 129.69 | 62.29 |
| **High Channel** | | | | | | | | |
| 5 850.00 | 30.89 | Peak | H | 29.30 | 5.55 | 65.74 | 134.00 | 68.26 |
| 5 855.00 | 33.53 | Peak | H | 29.30 | 5.55 | 68.38 | 122.60 | 54.22 |
| 5 875.00 | 31.15 | Peak | H | 29.30 | 5.55 | 66.00 | 117.00 | 51.00 |
| 5 925.00 | 31.05 | Peak | H | 29.30 | 5.55 | 65.90 | 80.00 | 14.10 |
| 5 889.21 | 33.04 | Peak | H | 29.30 | 5.55 | 67.89 | 106.48 | 38.59 |
| 5 850.00 | 33.59 | Peak | V | 29.30 | 5.55 | 68.44 | 134.00 | 65.56 |
| 5 855.00 | 30.66 | Peak | V | 29.30 | 5.55 | 65.51 | 122.60 | 57.09 |
| 5 875.00 | 31.86 | Peak | V | 29.30 | 5.55 | 66.71 | 117.00 | 50.29 |
| 5 925.00 | 29.55 | Peak | V | 29.30 | 5.55 | 64.40 | 80.00 | 15.60 |
| 5 923.48 | 30.42 | Peak | V | 29.30 | 5.55 | 65.27 | 81.12 | 15.85 |

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Total (dBμV/m)

 

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### 14.7.4 Test data for 802.11ac_HT80 RLAN Mode

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode
1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 65.52 %

-. Result : Pass

| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| **Middle Channel** | | | | | | | | |
| 5 650.00 | 32.77 | Peak | H | 28.80 | 5.39 | 66.96 | 80.00 | 13.04 |
| 5 710.00 | 28.32 | Peak | H | 28.80 | 5.39 | 62.51 | 119.80 | 57.29 |
| 5 715.00 | 33.60 | Peak | H | 28.80 | 5.39 | 67.79 | 121.20 | 53.41 |
| 5 725.00 | 31.13 | Peak | H | 28.80 | 5.39 | 65.32 | 134.00 | 68.68 |
| 5 724.53 | 33.38 | Peak | H | 28.80 | 5.39 | 67.57 | 132.93 | 65.36 |
| 5 650.00 | 28.82 | Peak | V | 28.80 | 5.39 | 63.01 | 80.00 | 16.99 |
| 5 710.00 | 30.52 | Peak | V | 28.80 | 5.39 | 64.71 | 119.80 | 55.09 |
| 5 715.00 | 29.93 | Peak | V | 28.80 | 5.39 | 64.12 | 121.20 | 57.08 |
| 5 725.00 | 31.83 | Peak | V | 28.80 | 5.39 | 66.02 | 134.00 | 67.98 |
| 5 724.76 | 33.11 | Peak | V | 28.80 | 5.39 | 67.30 | 133.45 | 66.15 |
| **Middle Channel** | | | | | | | | |
| 5 850.00 | 30.69 | Peak | H | 29.30 | 5.55 | 65.54 | 134.00 | 68.46 |
| 5 855.00 | 32.20 | Peak | H | 29.30 | 5.55 | 67.05 | 122.60 | 55.55 |
| 5 875.00 | 32.43 | Peak | H | 29.30 | 5.55 | 67.28 | 117.00 | 49.72 |
| 5 925.00 | 34.29 | Peak | H | 29.30 | 5.55 | 69.14 | 80.00 | 10.86 |
| 5 889.39 | 32.00 | Peak | H | 29.30 | 5.55 | 66.85 | 106.35 | 39.50 |
| 5 850.00 | 30.55 | Peak | V | 29.30 | 5.55 | 65.40 | 134.00 | 68.60 |
| 5 855.00 | 30.74 | Peak | V | 29.30 | 5.55 | 65.59 | 122.60 | 57.01 |
| 5 875.00 | 30.94 | Peak | V | 29.30 | 5.55 | 65.79 | 117.00 | 51.21 |
| 5 925.00 | 31.76 | Peak | V | 29.30 | 5.55 | 66.61 | 80.00 | 13.39 |
| 5 890.97 | 33.03 | Peak | V | 29.30 | 5.55 | 67.88 | 105.18 | 37.30 |

Tabulated test data for Restricted Band

Remark - “H”: Horizontal, “V”: Vertical

Margin (dB) = Limits (dBμV/m) - Total (dBμV/m)

 

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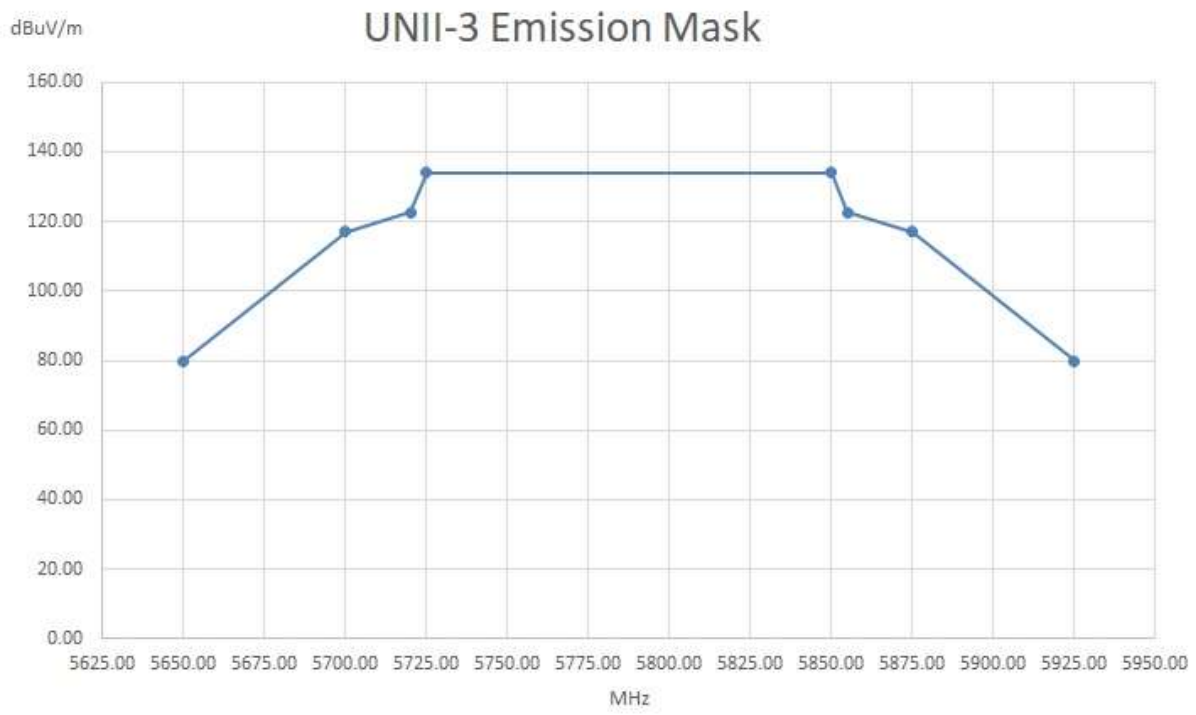
### 14.7.5 U-NII-3 Emission Limits

#### 14.7.5.1 Emission Mask Plots




Remark.

-. Title 47 → Part 15 → Subpart E—UNLICENSED NATIONAL INFORMATION INFRASTRUCTURE DEVICES

§ 15.407 General technical requirements.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

# 15. DYNAMIC FREQUENCY SELECTION (DFS)

## 15.1 Operating environment

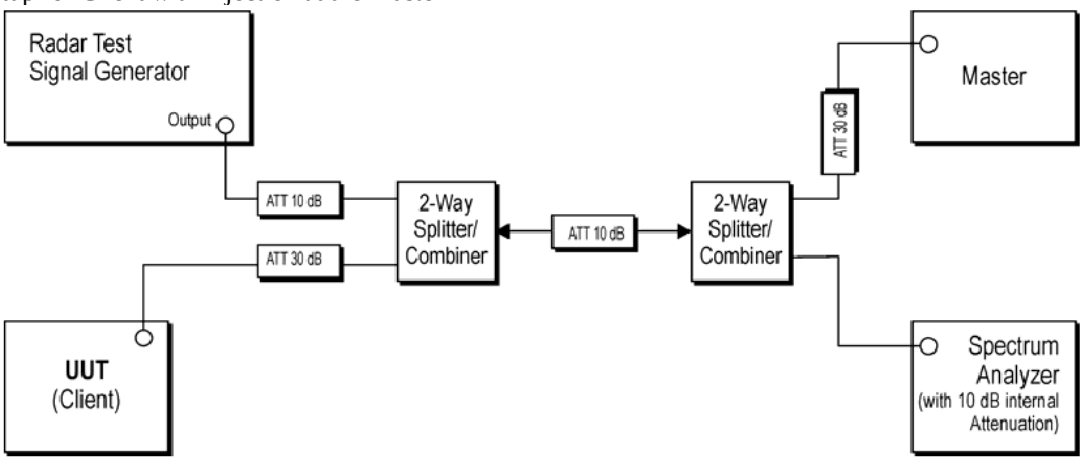
Temperature : 23 °C

Relative humidity : 45 % R.H.

## 15.2 Test set-ups

The FCC 06-96 and RSS-210 A9.3 describes a conducted test setup. A conducted test setup was user this testing. Figure 1 shows the typical test setup. Each one channel selected between 5 250 MHz and 5 350 MHz, 5 470 MHz and 5 725 MHz is chosen for the testing.

Figure 1. Setup for Client with injection at the Master




The operational behavior and individual DFS requirements that are associated with these modes are as follows:

<Master Devices>

a) The Master Device will use DFS in order to detect Radar Waveforms with received signal strength above the DFS Detection Threshold in the 5 250 – 5 350 MHz and 5 470 – 5 725 MHz bands. DFS is not required in the 5 150 – 5 250 MHz or 5 725 – 5 825 MHz bands.

b) Before initiating a network on a Channel, the Master Device will perform a Channel Availability Check for a specified time duration (Channel Availability Check Time) to ensure that there is no radar system operating on the Channel, using DFS described under subsection a) above.

c) The Master Device initiates a U-NII network by transmitting control signals that will enable other U-NII devices to Associate with the Master Device.

d) During normal operation, the Master Device will monitor the Channel (In-Service Monitoring) to ensure that there is no radar system operating on the Channel, using DFS described under a).

e) If the Master Device has detected a Radar Waveform during In-Service Monitoring as described under d), the Operating Channel of the U-NII network is no longer an Available Channel. The Master Device will instruct all associated Client Device(s) to stop transmitting on this Channel within the Channel Move Time. The transmissions during the Channel Move Time will be limited to the Channel Closing Transmission Time.

f) Once the Master Device has detected a Radar Waveform it will not utilize the Channel for the duration of the Non-Occupancy Period. 3

g) If the Master Device delegates the In-Service Monitoring to a Client Device, then the combination will be tested to the requirements described under d) through f) above.

<Client Devices>

a) A Client Device will not transmit before having received appropriate control signals from a Master Device.

b) A Client Device will stop all its transmissions whenever instructed by a Master Device to which it is associated and will meet the Channel Move Time and Channel Closing Transmission Time requirements. The Client Device will not resume any transmissions until it has again received control signals from a Master Device.

c) If a Client Device is performing In-Service Monitoring and detects a Radar Waveform above the DFS Detection Threshold, it will inform the Master Device. This is equivalent to the Master Device detecting the Radar Waveform and d) through f) of section 5.1.1 apply.

d) Irrespective of Client Device or Master Device detection the Channel Move Time and Channel Closing Transmission Time requirements remain the same.

e) The client test frequency must be monitored to ensure no transmission of any type has occurred for 30 minutes. Note: If the client moves with the master, the device is considered compliant if nothing appears in the client non-occupancy period test. For devices that shut down (rather than moving channels), no beacons should appear.

<Channel Connection Information>

a) Master Devices : RF-AX88U

b) Client(=EUT) Devices : WCT731

c) Connect to test channel : See next page for measurement data.

### 15.3 DFS Test Signals

**Table 5 – Short Pulse Radar Test Waveforms**

| Radar Type | Pulse Width (µsec) | PRI (µsec) | Number of Pulses | Minimum Percentage of Successful Detection | Minimum Number of Trials |
|---|---|---|---|---|---|
| 0 | 1 | 1428 | 18 | See Note 1 | See Note 1 |
| 1 | 1 | Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a | Roundup $\left\{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot 10^6}{PRI_{\mu sec}}\right)\right\}$ | 60% | 30 |
| | | Test B: 15 unique PRI values randomly selected within the range of 518-3066 µ sec, with a minimum increment of 1 µ sec, excluding PRI values selected in Test A | | | |
| 2 | 1-5 | 150-230 | 23-29 | 60% | 30 |
| 3 | 6-10 | 200-500 | 16-18 | 60% | 30 |
| 4 | 11-20 | 200-500 | 12-16 | 60% | 30 |
| Aggregate (Radar Types 1-4) | | | | 80% | 120 |

**Table 6 – Long Pulse Radar Test Waveform**

| Radar Type | Pulse Width (µsec) | Chirp Width (MHz) | PRI (µsec) | Number of Pulses per *Burst* | Number of *Bursts* | Minimum Percentage of Successful Detection | Minimum Number of Trials |
|---|---|---|---|---|---|---|---|
| 5 | 50-100 | 5-20 | 1000-2000 | 1-3 | 8-20 | 80% | 30 |

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## 15.4 Technical Requirement Specification

**Table 1: Applicability of DFS Requirements Prior to Use of a Channel**

| Requirement | Operational Mode | | |
|---|---|---|---|
| | Master | Client (without DFS ) | Client (with DFS ) |
| *Non-Occupancy Period* | Yes | Not required | Yes |
| *DFS Detection Threshold* | Yes | Not required | Yes |
| *Channel Availability Check Time* | Yes | Not required | Not required |
| *Uniform Spreading* | Yes | Not required | Not required |
| *U-NII Detection Bandwidth* | Yes | Not required | Yes |

**Table 2: Applicability of DFS requirements during normal operation**

| Requirement | Operational Mode | | |
|---|---|---|---|
| | Master | Client (without DFS) | Client (with DFS) |
| *DFS Detection Threshold* | Yes | Not required | Yes |
| *Channel Closing Transmission Time* | Yes | Yes | Yes |
| *Channel Move Time* | Yes | Yes | Yes |
| *U-NII Detection Bandwidth* | Yes | Not required | Yes |

## 15.5 Test Date

September 07, 2020 ~ September 11, 2020

## 15.6 Test data

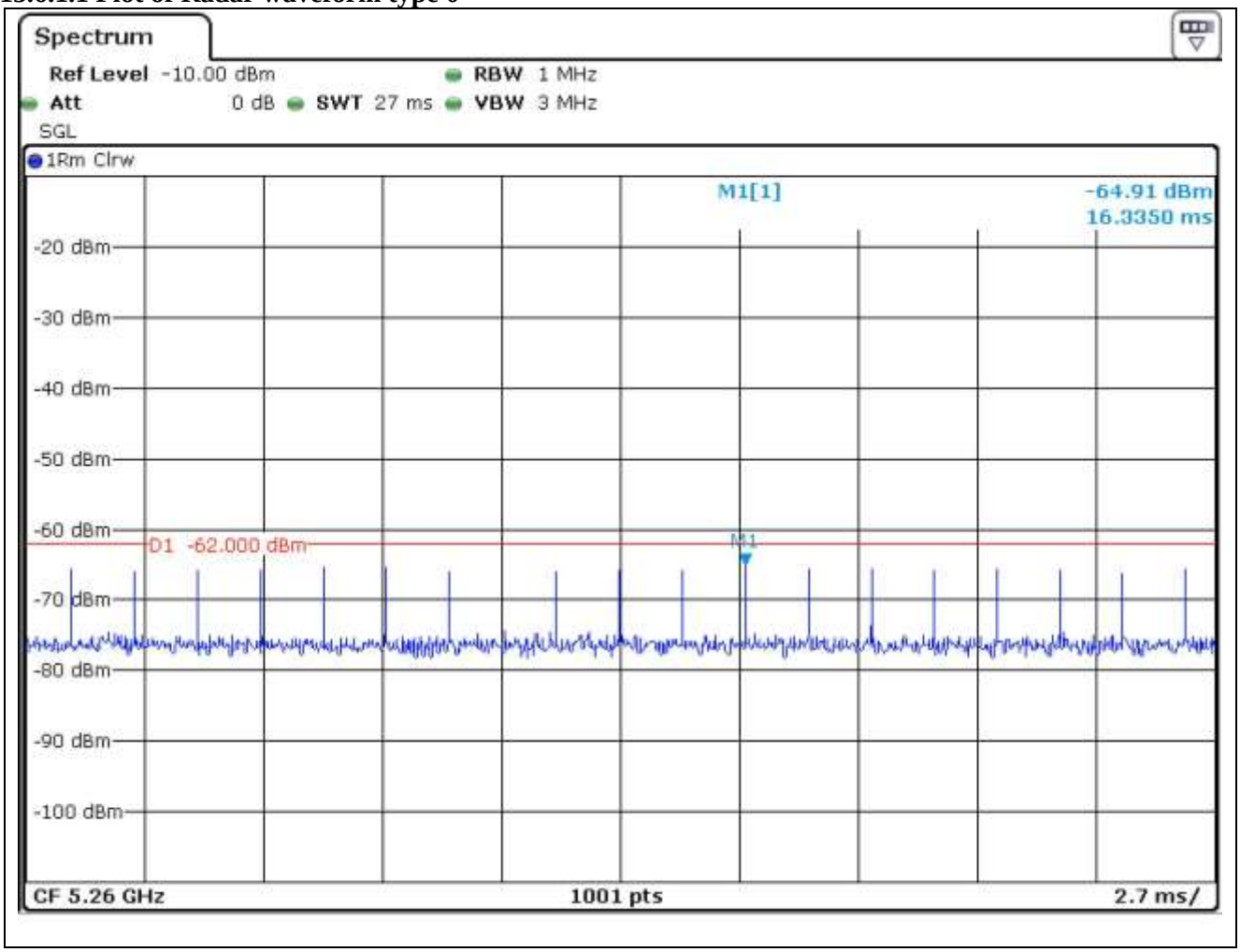
| Band | Frequency (MHz) | Channel move time(s) | | Channel closing transmission time(ms) | |
|---|---|---|---|---|---|
| | | Measured | Limit | Measured | Limit |
| UNII 2A | 5 260.00 | 0.070 | 10.00 | 0.40 | 200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. |
| UNII 2C | 5 500.00 | 0.140 | | 0.60 | |

Note. Channel closing transmission time: 2 * 0.2 ms = 0.40 ms, 3 * 0.2 ms = 0.60 ms

Note. This device is not Support TPC.

### 15.6.1 UNII 2A

#### 15.6.1.1 Plot of Radar waveform type 0




**Note: The calibrated conducted DFS detection threshold level is set to -64.91 dBm (-62+1-2.10=-63.10 dBm)**

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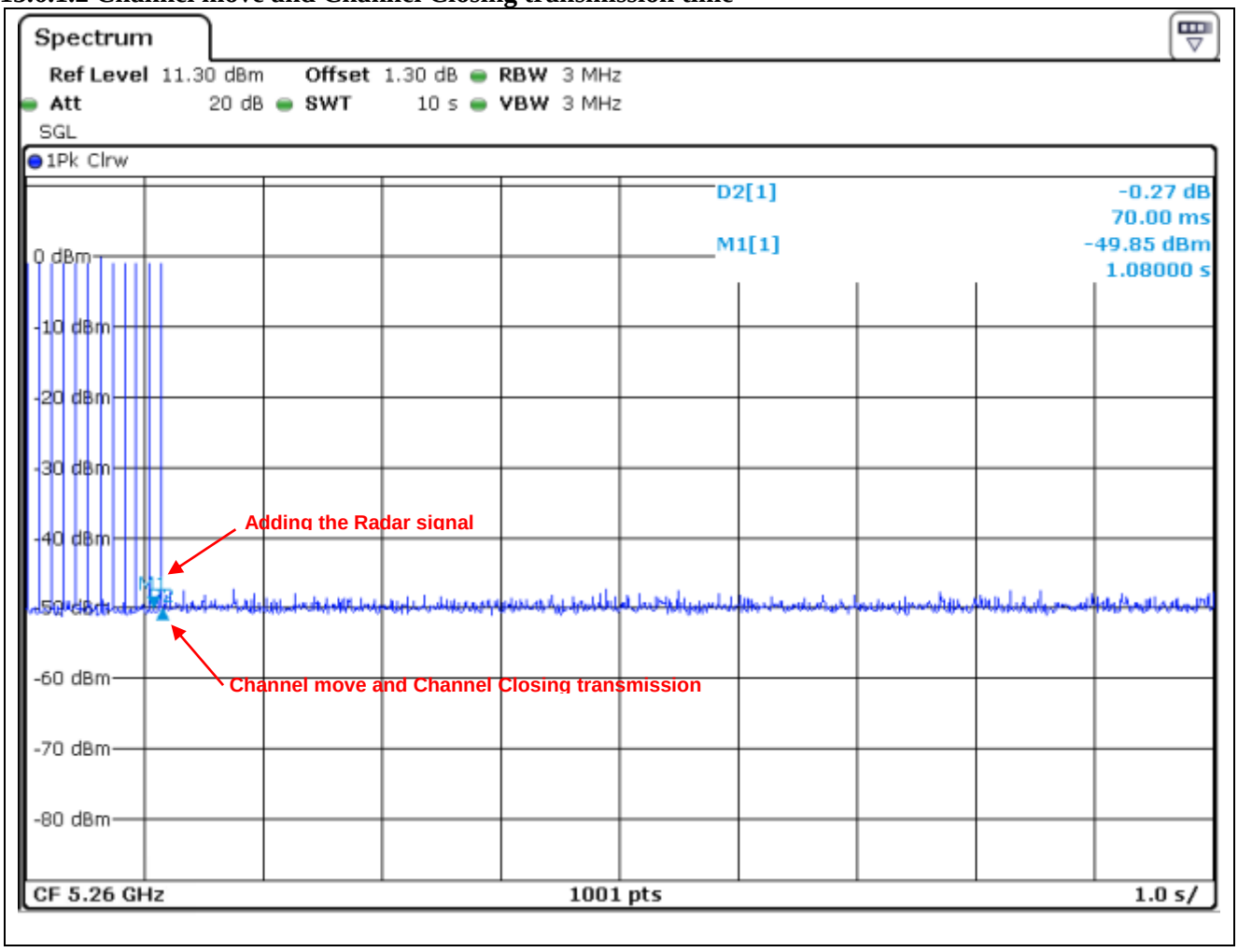
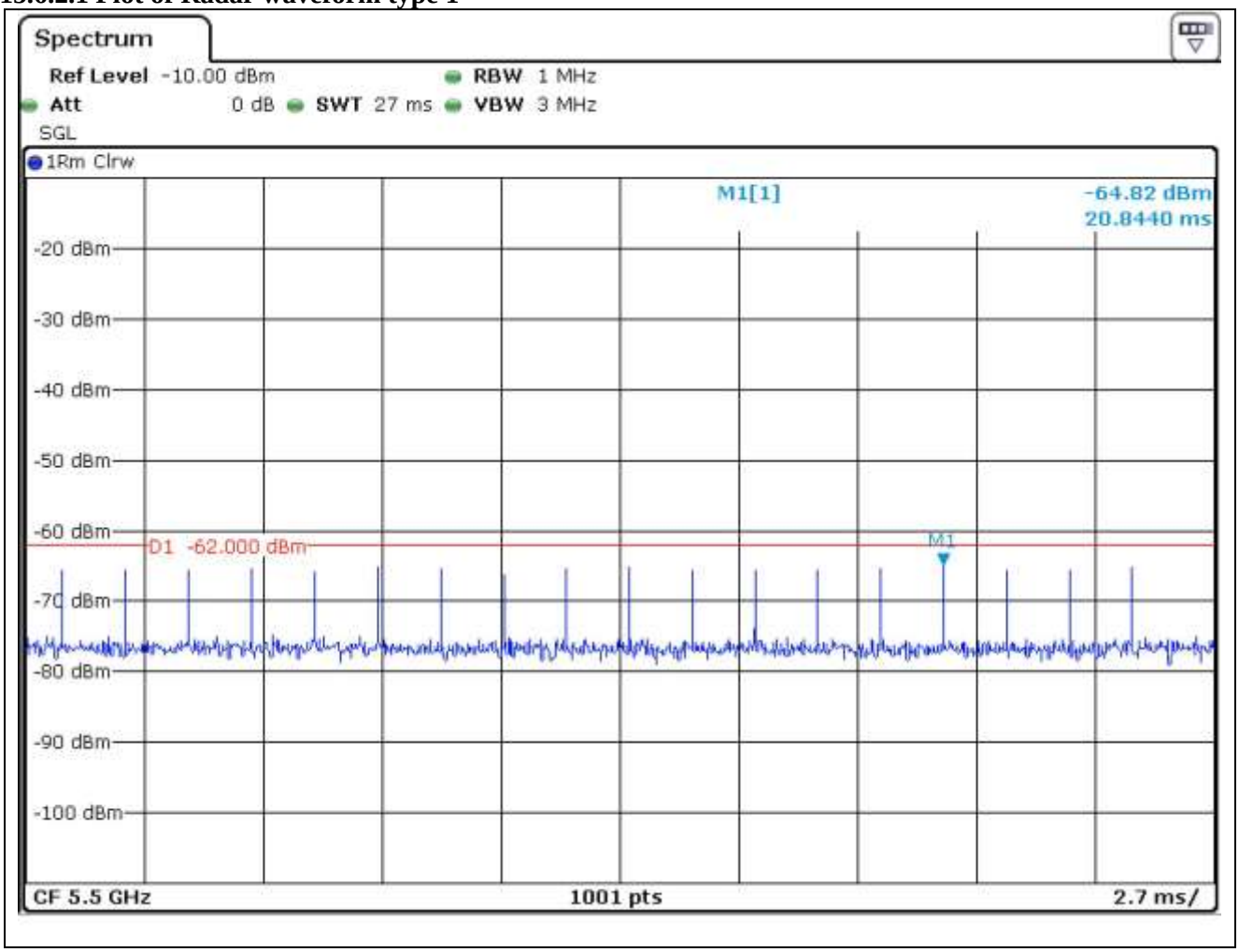
### 15.6.1.2 Channel move and Channel Closing transmission time



### 15.6.2 UNII 3

#### 15.6.2.1 Plot of Radar waveform type 1




**Note: The calibrated conducted DFS detection threshold level is set to -64.82 dBm (-62+1-2.64=-63.64 dBm)**

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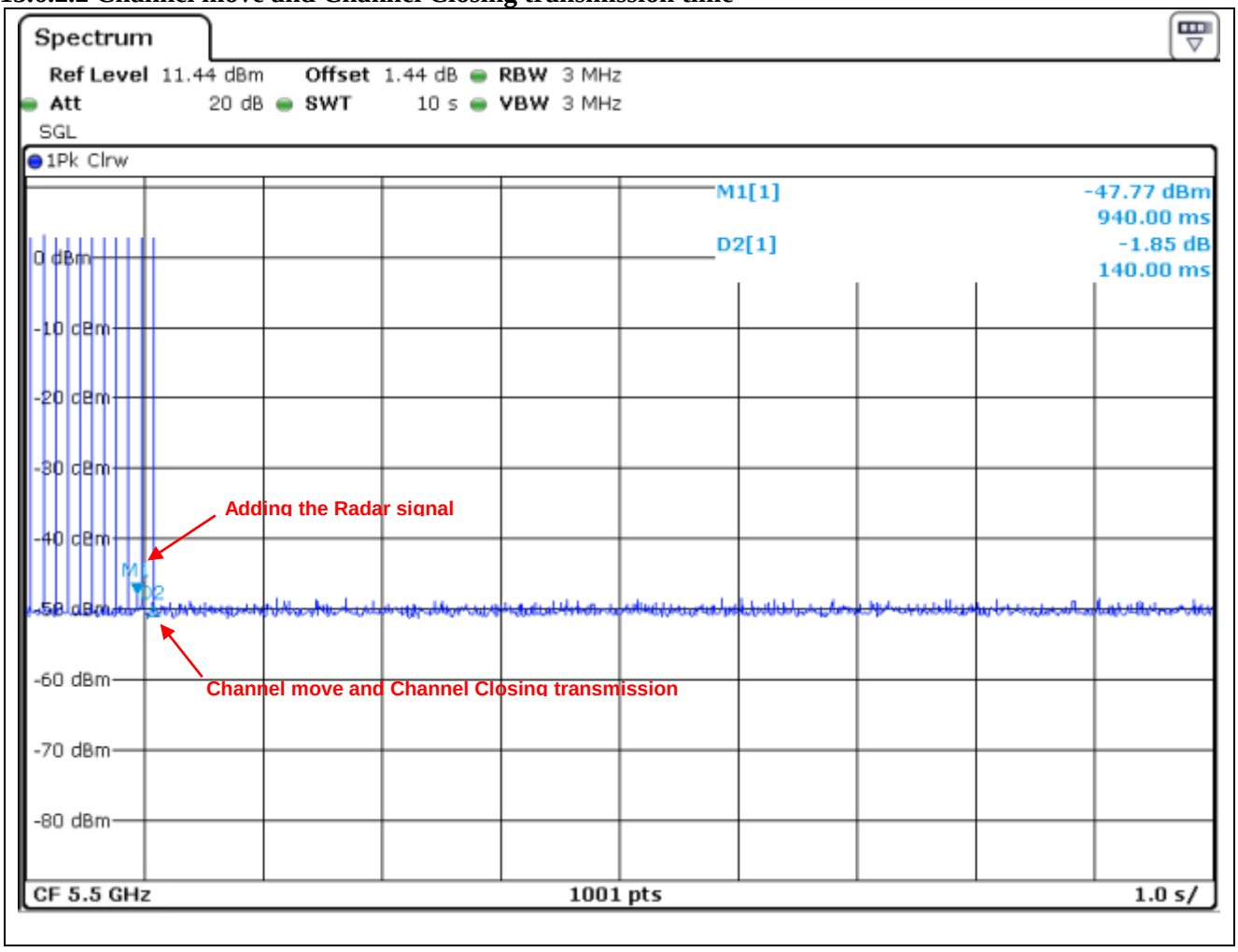
### 15.6.2.2 Channel move and Channel Closing transmission time



## 16. LIST OF TEST EQUIPMENT

| Model Number | Manufacturer | Description | Serial Number | Last Cal.(Interval) |
|---|---|---|---|---|
| FSV40-N | Rohde & Schwarz | Signal Analyzer | 102177 | Apr. 20, 2020 (1Y) |
| NRP-Z81 | Rohde & Schwarz | Wide band Sensor | 101975 | Feb. 19, 2020 (1Y) |
| SSE-43CI-A | Samkun Tech | Humidity Chamber | 60712 | Feb. 21, 2020 (1Y) |
| E3632A | FinePower | DC Power supply | MY50370016 | Feb. 19, 2020 (1Y) |
| ESW | Rohde & Schwarz | EMI Test Receiver | 101851 | Mar. 27, 2020 (1Y) |
| 310N | Sonoma Instrument | Pre-Amplifier | 312544 | Mar. 16, 2020 (1Y) |
| BBV 9718 B | Schwarzbeck | Broadband Preamplifier | 00009 | Mar. 16, 2020 (1Y) |
| SCU40A | Rohde & Schwarz | Signal Conditioning unit | 100436 | Feb. 20, 2020 (1Y) |
| SCU18 | Rohde & Schwarz | Signal Conditioning unit | 102266 | Jul. 15, 2020 (1Y) |
| DT3000-3t | Innco System | Turn Table | DT3000/093 | N/A |
| MA-4000XPET | Innco System | Antenna Master | MA4000/509 | N/A |
| VULB9163 | Schwarzbeck | TRILOG Broadband Antenna | 777 | Apr. 08, 2020 (2Y) |
| BBHA 9120D | Schwarzbeck | Horn Antenna | 9120D-1366 | Jul. 23, 2020 (1Y) |
| BBHA9170 | Schwarzbeck | Horn Antenna | BBHA9170178 | Jan. 07, 2020(1Y) |
| ESCI | Rohde & Schwarz | Test Receiver | 101012 | Oct. 22, 2019 (1Y) |
| NSLK8126 | Schwarzbeck | AMN | 8126-404 | Mar. 16, 2020 (1Y) |
| 3825/2 | EMCO | AMN | 9109-1869 | Mar. 16, 2020 (1Y) |
| D-05180-2 | RLC Electronis Inc. | Combiner | 0813 | N/A |
| 11636B | Hewlett Packard | Combiner | 12268 | N/A |
| SMBV100A | R/S | Signal Generator | 260423 | Feb. 21, 2020 (1Y) |
| RF-AX88U | ASUS | Dual Band Gigabit Router | NA | N/A |

Note. Dual Band Gigabit Router(Model : RF-AX88U) Information.

; FCC ID : MSQ-RTAXHP00, IC ID : 3568A-RTAXHP00

Note. This Device not support TPC Function.

All test equipment used is calibrated on a regular basis.