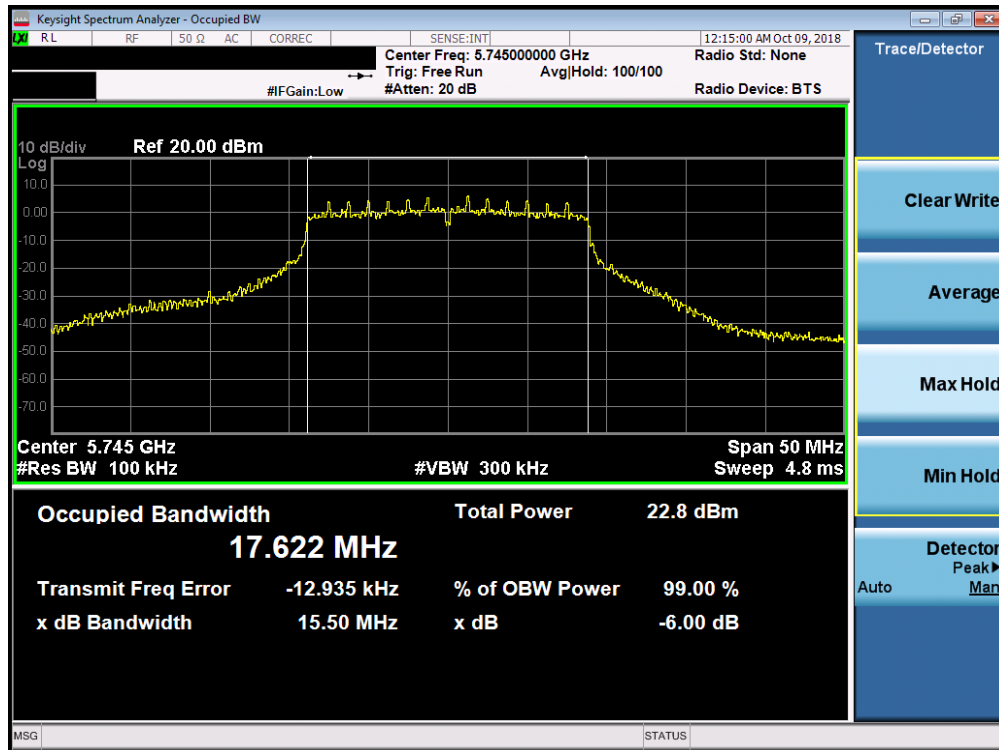
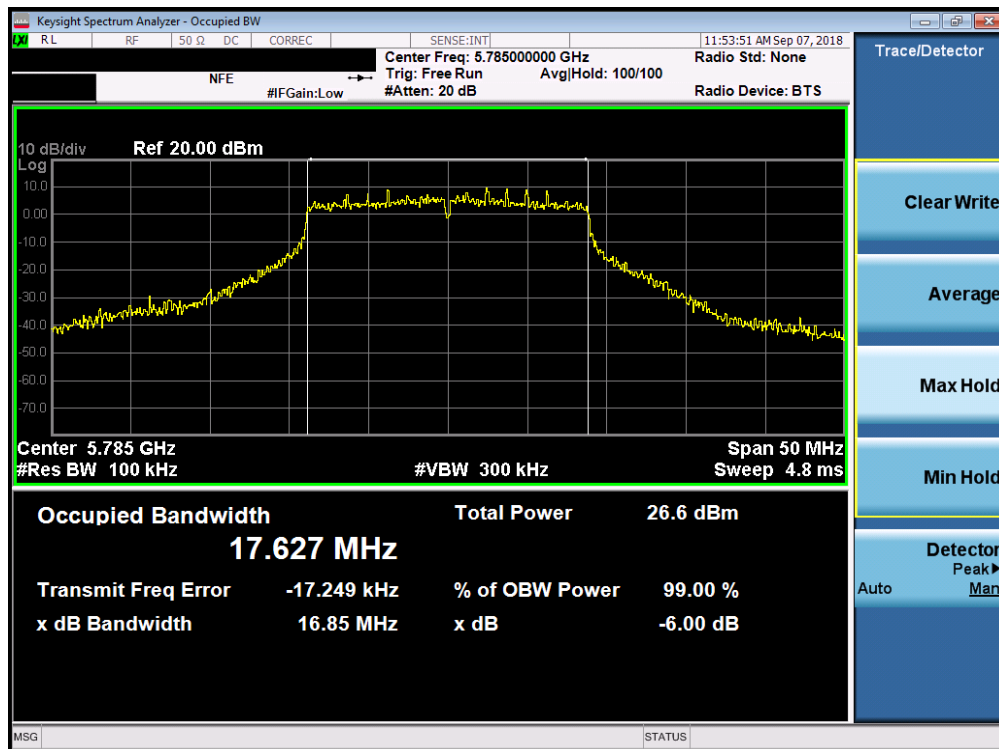


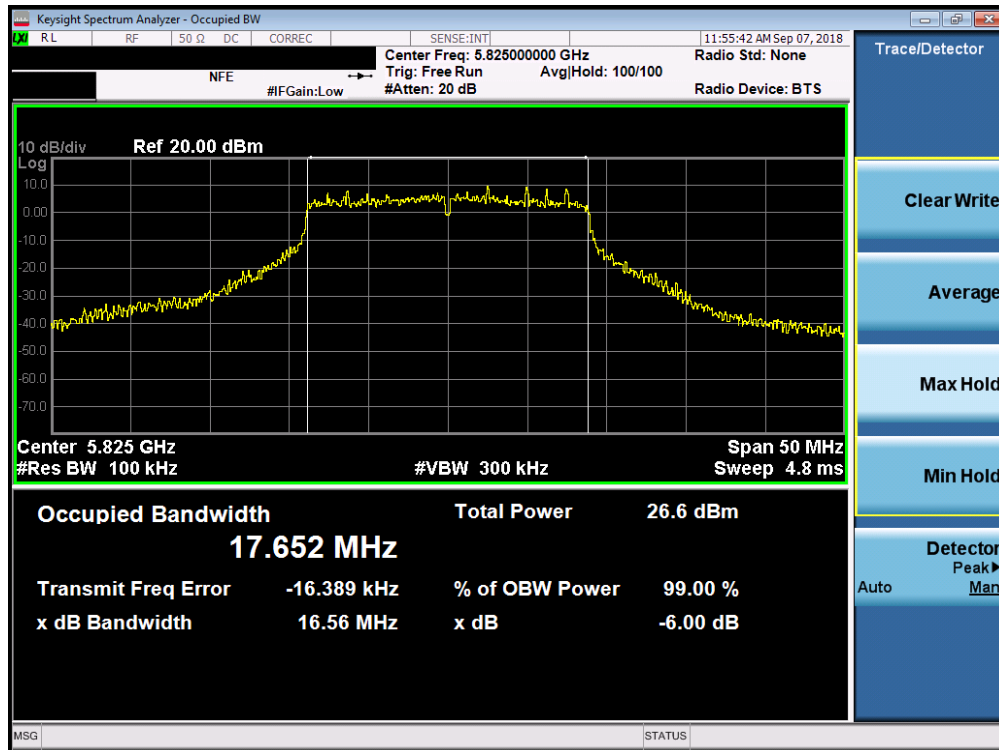


Plot 7-73. 6dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 149)

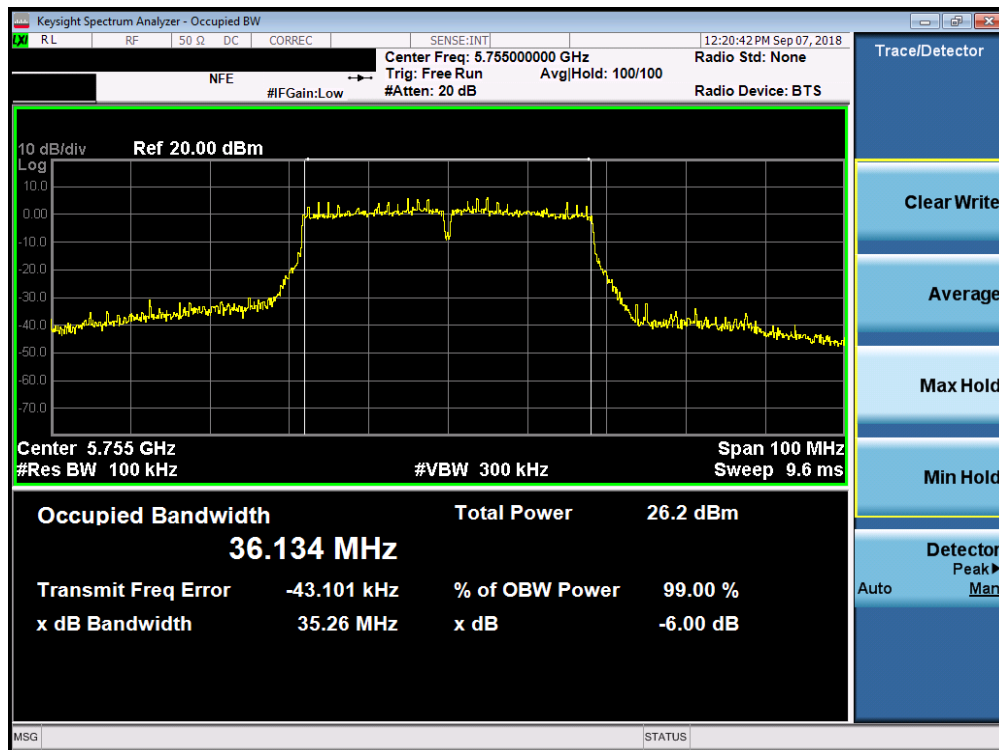


Plot 7-74. 6dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 157)

|                                         |                                                                                                                                  |                               |                                                                                                                                 |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| FCC ID: A3LSMA9200                      |  <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               | <br><b>Approved by:</b><br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018                                                                                                 | EUT Type:<br>Portable Handset | Page 55 of 171                                                                                                                  |

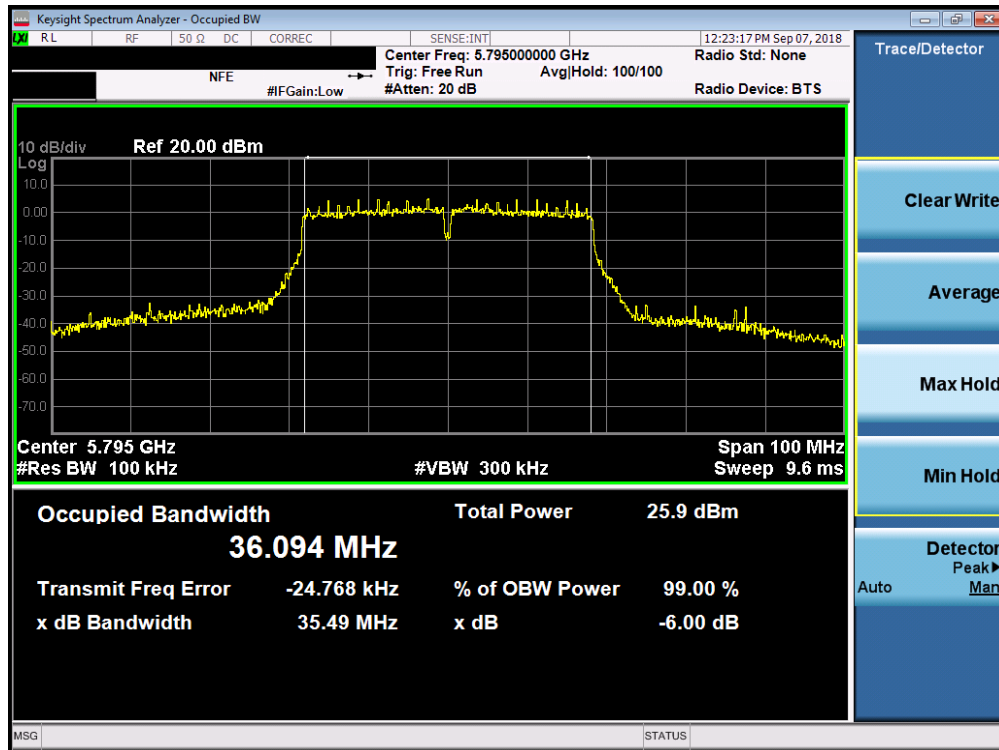


Plot 7-75. 6dB Bandwidth Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 3) – Ch. 165)

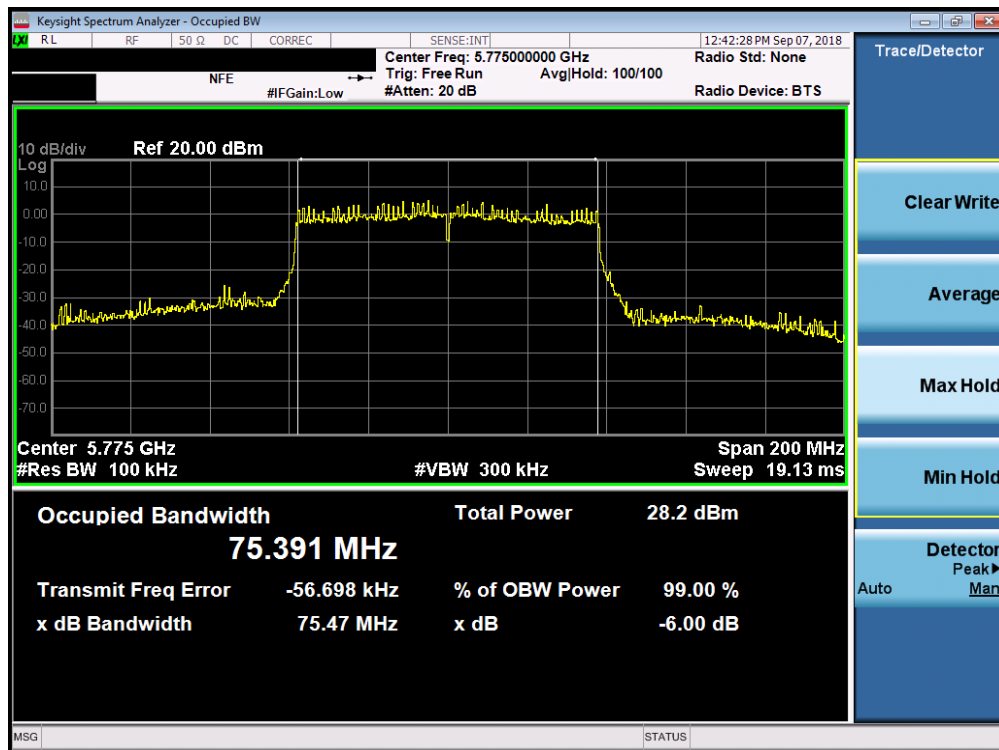


Plot 7-76. 6dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 3) – Ch. 151)

|                                         |                                               |                                              |                |                                 |
|-----------------------------------------|-----------------------------------------------|----------------------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>PCTEST</b><br>ENGINEERING LABORATORY, INC. | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) | <b>SAMSUNG</b> | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018              | EUT Type:<br>Portable Handset                |                | Page 56 of 171                  |



Plot 7-77. 6dB Bandwidth Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 3) – Ch. 159)



Plot 7-78. 6dB Bandwidth Plot SISO ANT2 (80MHz BW 802.11ac (UNII Band 3) – Ch. 155)

|                                         |                                              |                               |                |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |                | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset | Page 57 of 171 |                                 |

## 7.4 UNII Output Power Measurement – 802.11a/n/ac §15.407(a.1.iv) §15.407(a.2) §15.407(a.3); RSS-247 [6.2]

### Test Overview and Limits

A transmitter antenna terminal of the EUT is connected to the input of an RF pulse power sensor. Measurement is made using a broadband average power meter while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies.

***In the 5.15 – 5.25GHz band, the maximum permissible conducted output power is 250mW (23.98dBm). The maximum e.i.r.p. shall not exceed the lesser of 200 mW or  $10 + 10 \log_{10}B$ , dBm.***

***In the 5.25 – 5.35GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) and  $11 \text{ dBm} + 10\log_{10}(26\text{dB BW}) = 11 \text{ dBm} + 10\log_{10}(21.29) = 24.28\text{dBm}$ . The maximum e.i.r.p. shall not exceed the lesser of 1.0 W or  $17 + 10 \log_{10}B$ , dBm.***

***In the 5.47 – 5.725GHz band, the maximum permissible conducted output power is the lesser of 250mW (23.98dBm) and  $11 \text{ dBm} + 10\log_{10}(26\text{dB BW}) = 11 \text{ dBm} + 10\log_{10}(20.93) = 24.21\text{dBm}$ . The maximum e.i.r.p. shall not exceed the lesser of 1.0 W or  $17 + 10 \log_{10}B$ , dBm.***

***In the 5.725 – 5.850GHz band, the maximum permissible conducted output power is 1W (30dBm). The maximum e.i.r.p. is 36 dBm.***

### Test Procedure Used

ANSI C63.10-2013 – Section 12.3.3.2 Method PM-G  
KDB 789033 D02 v02r01 – Section E)3)b) Method PM-G  
ANSI C63.10-2013 – Section 14.2 Measure-and-Sum Technique  
KDB 662911 v02r01 – Section E)1) Measure-and-Sum Technique

### Test Settings

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.

### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



**Figure 7-3. Test Instrument & Measurement Setup**

|                                         |                                                                                                                                                                                                                         |                               |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: A3LSMA9200                      |  <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018                                                                                                                                                                                        | EUT Type:<br>Portable Handset | Page 58 of 171                  |

## SISO Antenna-1 Conducted Output Power Measurements

| 5GHz (20MHz Bandwidth) | Freq [MHz] | Channel | Detector | IEEE Transmission Mode |         |          | Conducted Power Limit [dBm] | Conducted Power Margin [dB] |
|------------------------|------------|---------|----------|------------------------|---------|----------|-----------------------------|-----------------------------|
|                        |            |         |          | 802.11a                | 802.11n | 802.11ac |                             |                             |
|                        | 5180       | 36      | AVG      | 14.29                  | 13.17   | 13.20    | 23.98                       | -9.69                       |
|                        | 5200       | 40      | AVG      | 16.37                  | 15.38   | 15.37    | 23.98                       | -7.61                       |
|                        | 5220       | 44      | AVG      | 16.62                  | 15.54   | 15.51    | 23.98                       | -7.36                       |
|                        | 5240       | 48      | AVG      | 16.61                  | 15.55   | 15.62    | 23.98                       | -7.37                       |
|                        | 5260       | 52      | AVG      | 16.40                  | 15.37   | 15.35    | 23.98                       | -7.58                       |
|                        | 5280       | 56      | AVG      | 16.98                  | 15.84   | 15.78    | 23.98                       | -7.00                       |
|                        | 5300       | 60      | AVG      | 16.92                  | 15.78   | 15.89    | 23.98                       | -7.06                       |
|                        | 5320       | 64      | AVG      | 15.97                  | 13.96   | 13.93    | 23.98                       | -8.01                       |
|                        | 5500       | 100     | AVG      | 16.92                  | 15.65   | 15.68    | 23.98                       | -7.06                       |
|                        | 5600       | 120     | AVG      | 16.90                  | 15.75   | 15.73    | 23.98                       | -7.08                       |
|                        | 5620       | 124     | AVG      | 16.11                  | 15.82   | 15.83    | 23.98                       | -7.87                       |
|                        | 5720       | 144     | AVG      | 15.77                  | 15.48   | 15.58    | 23.98                       | -8.21                       |
|                        | 5745       | 149     | AVG      | 16.03                  | 15.86   | 15.86    | 30.00                       | -13.97                      |
|                        | 5785       | 157     | AVG      | 16.12                  | 15.19   | 15.13    | 30.00                       | -13.88                      |
|                        | 5825       | 165     | AVG      | 15.99                  | 14.95   | 14.95    | 30.00                       | -14.01                      |

Table 7-6. SISO ANT1 20MHz BW (UNII) Maximum Conducted Output Power

| 5GHz (40MHz Bandwidth) | Freq [MHz] | Channel | Detector | IEEE Transmission Mode |          | Conducted Power Limit [dBm] | Conducted Power Margin [dB] |
|------------------------|------------|---------|----------|------------------------|----------|-----------------------------|-----------------------------|
|                        |            |         |          | 802.11n                | 802.11ac |                             |                             |
|                        | 5190       | 38      | AVG      | 11.13                  | 11.03    | 23.98                       | -12.85                      |
|                        | 5230       | 46      | AVG      | 14.27                  | 14.25    | 23.98                       | -9.71                       |
|                        | 5270       | 54      | AVG      | 14.32                  | 14.30    | 23.98                       | -9.66                       |
|                        | 5310       | 62      | AVG      | 12.04                  | 11.99    | 23.98                       | -11.94                      |
|                        | 5510       | 102     | AVG      | 14.46                  | 14.53    | 23.98                       | -9.45                       |
|                        | 5590       | 118     | AVG      | 14.91                  | 14.91    | 23.98                       | -9.07                       |
|                        | 5630       | 126     | AVG      | 14.76                  | 14.73    | 23.98                       | -9.22                       |
|                        | 5710       | 142     | AVG      | 14.22                  | 14.20    | 23.98                       | -9.76                       |
|                        | 5755       | 151     | AVG      | 14.24                  | 14.17    | 30.00                       | -15.76                      |
|                        | 5795       | 159     | AVG      | 14.80                  | 14.10    | 30.00                       | -15.20                      |

Table 7-7. SISO ANT1 40MHz BW (UNII) Maximum Conducted Output Power

|                                         |                                                                                                                                                                                                                     |                               |                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: A3LSMA9200                      |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018                                                                                                                                                                                    | EUT Type:<br>Portable Handset | Page 59 of 171                  |

| 5GHz (80MHz Bandwidth) | Freq [MHz] | Channel | Detector | IEEE<br>Transmission<br>Mode | Conducted<br>Power Limit<br>[dBm] | Conducted<br>Power<br>Margin [dB] |
|------------------------|------------|---------|----------|------------------------------|-----------------------------------|-----------------------------------|
|                        |            |         |          | 802.11ac                     |                                   |                                   |
|                        | 5210       | 42      | AVG      | 10.14                        | 23.98                             | -13.84                            |
|                        | 5290       | 58      | AVG      | 10.54                        | 23.98                             | -13.44                            |
|                        | 5530       | 106     | AVG      | 11.70                        | 23.98                             | -12.28                            |
|                        | 5610       | 122     | AVG      | 14.34                        | 23.98                             | -9.64                             |
|                        | 5690       | 138     | AVG      | 14.08                        | 23.98                             | -9.90                             |
|                        | 5775       | 155     | AVG      | 14.58                        | 30.00                             | -15.42                            |

Table 7-8. SISO ANT1 80MHz BW (UNII) Maximum Conducted Output Power

|                                         |                                                                                                                                                                                                                         |                               |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: A3LSMA9200                      |  <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018                                                                                                                                                                                        | EUT Type:<br>Portable Handset | Page 60 of 171                  |

## SISO Antenna-2 Conducted Output Power Measurements

| 5GHz (20MHz Bandwidth) | Freq [MHz] | Channel | Detector | IEEE Transmission Mode |         |          | Conducted Power Limit [dBm] | Conducted Power Margin [dB] |
|------------------------|------------|---------|----------|------------------------|---------|----------|-----------------------------|-----------------------------|
|                        |            |         |          | 802.11a                | 802.11n | 802.11ac |                             |                             |
|                        | 5180       | 36      | AVG      | 14.10                  | 13.47   | 13.51    | 23.98                       | -9.88                       |
|                        | 5200       | 40      | AVG      | 16.00                  | 14.87   | 14.92    | 23.98                       | -7.98                       |
|                        | 5220       | 44      | AVG      | 16.12                  | 15.00   | 15.04    | 23.98                       | -7.86                       |
|                        | 5240       | 48      | AVG      | 16.32                  | 15.14   | 15.25    | 23.98                       | -7.66                       |
|                        | 5260       | 52      | AVG      | 16.25                  | 14.99   | 15.11    | 23.98                       | -7.73                       |
|                        | 5280       | 56      | AVG      | 16.24                  | 15.08   | 15.14    | 23.98                       | -7.74                       |
|                        | 5300       | 60      | AVG      | 15.84                  | 14.60   | 14.97    | 23.98                       | -8.14                       |
|                        | 5320       | 64      | AVG      | 16.48                  | 12.95   | 13.04    | 23.98                       | -7.50                       |
|                        | 5500       | 100     | AVG      | 15.97                  | 15.54   | 15.85    | 23.98                       | -8.01                       |
|                        | 5600       | 120     | AVG      | 15.98                  | 15.73   | 15.84    | 23.98                       | -8.00                       |
|                        | 5620       | 124     | AVG      | 16.23                  | 15.97   | 14.95    | 23.98                       | -7.75                       |
|                        | 5720       | 144     | AVG      | 16.64                  | 15.09   | 15.34    | 23.98                       | -7.34                       |
|                        | 5745       | 149     | AVG      | 16.95                  | 15.41   | 15.64    | 30.00                       | -13.05                      |
|                        | 5785       | 157     | AVG      | 16.99                  | 15.57   | 15.71    | 30.00                       | -13.01                      |
|                        | 5825       | 165     | AVG      | 15.95                  | 15.78   | 15.84    | 30.00                       | -14.05                      |

Table 7-9. SISO ANT2 20MHz BW (UNII) Maximum Conducted Output Power

| 5GHz (40MHz Bandwidth) | Freq [MHz] | Channel | Detector | IEEE Transmission Mode |          | Conducted Power Limit [dBm] | Conducted Power Margin [dB] |
|------------------------|------------|---------|----------|------------------------|----------|-----------------------------|-----------------------------|
|                        |            |         |          | 802.11n                | 802.11ac |                             |                             |
|                        | 5190       | 38      | AVG      | 11.08                  | 11.01    | 23.98                       | -12.90                      |
|                        | 5230       | 46      | AVG      | 13.84                  | 14.21    | 23.98                       | -9.77                       |
|                        | 5270       | 54      | AVG      | 14.62                  | 14.23    | 23.98                       | -9.36                       |
|                        | 5310       | 62      | AVG      | 12.67                  | 12.70    | 23.98                       | -11.28                      |
|                        | 5510       | 102     | AVG      | 14.72                  | 14.18    | 23.98                       | -9.26                       |
|                        | 5590       | 118     | AVG      | 14.81                  | 14.46    | 23.98                       | -9.17                       |
|                        | 5630       | 126     | AVG      | 14.23                  | 14.56    | 23.98                       | -9.42                       |
|                        | 5710       | 142     | AVG      | 14.24                  | 14.62    | 23.98                       | -9.36                       |
|                        | 5755       | 151     | AVG      | 14.35                  | 14.81    | 30.00                       | -15.19                      |
|                        | 5795       | 159     | AVG      | 14.11                  | 14.40    | 30.00                       | -15.60                      |

Table 7-10. SISO ANT2 40MHz BW (UNII) Maximum Conducted Output Power

|                                         |                                                                                                                                                                                                                     |                               |                                 |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: A3LSMA9200                      |  <b>MEASUREMENT REPORT (CERTIFICATION)</b>  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018                                                                                                                                                                                    | EUT Type:<br>Portable Handset | Page 61 of 171                  |

| 5GHz (80MHz Bandwidth) | Freq [MHz] | Channel | Detector | IEEE<br>Transmission<br>Mode | Conducted<br>Power Limit<br>[dBm] | Conducted<br>Power<br>Margin [dB] |
|------------------------|------------|---------|----------|------------------------------|-----------------------------------|-----------------------------------|
|                        |            |         |          | 802.11ac                     |                                   |                                   |
|                        | 5210       | 42      | AVG      | 10.62                        | 23.98                             | -13.36                            |
|                        | 5290       | 58      | AVG      | 10.36                        | 23.98                             | -13.62                            |
|                        | 5530       | 106     | AVG      | 11.51                        | 23.98                             | -12.47                            |
|                        | 5610       | 122     | AVG      | 14.13                        | 23.98                             | -9.85                             |
|                        | 5690       | 138     | AVG      | 14.26                        | 23.98                             | -9.72                             |
|                        | 5775       | 155     | AVG      | 14.57                        | 30.00                             | -15.43                            |

Table 7-11. SISO ANT2 80MHz BW (UNII) Maximum Conducted Output Power

|                                         |                                                                                                                                                                                                                         |                               |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: A3LSMA9200                      |  <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018                                                                                                                                                                                        | EUT Type:<br>Portable Handset | Page 62 of 171                  |

## MIMO Maximum Conducted Output Power Measurements

| 5GHz (20MHz Bandwidth) | Freq [MHz] | Channel | Detector | Conducted Power [dBm] |       |       | Conducted Power Limit [dBm] | Conducted Power Margin [dB] |
|------------------------|------------|---------|----------|-----------------------|-------|-------|-----------------------------|-----------------------------|
|                        |            |         |          | ANT1                  | ANT2  | MIMO  |                             |                             |
|                        | 5180       | 36      | AVG      | 14.29                 | 14.10 | 17.21 | 23.98                       | -6.77                       |
|                        | 5200       | 40      | AVG      | 16.37                 | 16.00 | 19.20 | 23.98                       | -4.78                       |
|                        | 5220       | 44      | AVG      | 16.62                 | 16.12 | 19.39 | 23.98                       | -4.59                       |
|                        | 5240       | 48      | AVG      | 16.61                 | 16.32 | 19.48 | 23.98                       | -4.50                       |
|                        | 5260       | 52      | AVG      | 16.40                 | 16.25 | 19.34 | 23.98                       | -4.64                       |
|                        | 5280       | 56      | AVG      | 16.98                 | 16.24 | 19.64 | 23.98                       | -4.34                       |
|                        | 5300       | 60      | AVG      | 16.92                 | 15.84 | 19.42 | 23.98                       | -4.56                       |
|                        | 5320       | 64      | AVG      | 15.97                 | 16.48 | 19.24 | 23.98                       | -4.74                       |
|                        | 5500       | 100     | AVG      | 16.92                 | 15.97 | 19.48 | 23.98                       | -4.50                       |
|                        | 5600       | 120     | AVG      | 16.90                 | 15.98 | 19.47 | 23.98                       | -4.50                       |
|                        | 5620       | 124     | AVG      | 16.11                 | 16.23 | 19.18 | 23.98                       | -4.80                       |
|                        | 5720       | 144     | AVG      | 15.77                 | 16.64 | 19.24 | 23.98                       | -4.74                       |
|                        | 5745       | 149     | AVG      | 16.03                 | 16.95 | 19.52 | 30.00                       | -10.48                      |
|                        | 5785       | 157     | AVG      | 16.12                 | 16.99 | 19.59 | 30.00                       | -10.41                      |
|                        | 5825       | 165     | AVG      | 15.99                 | 15.95 | 18.98 | 30.00                       | -11.02                      |

Table 7-12. CDD 20MHz BW 802.11a (UNII) Maximum Conducted Output Power

| 5GHz (20MHz Bandwidth) | Freq [MHz] | Channel | Detector | Conducted Power [dBm] |       |       | Conducted Power Limit [dBm] | Conducted Power Margin [dB] |
|------------------------|------------|---------|----------|-----------------------|-------|-------|-----------------------------|-----------------------------|
|                        |            |         |          | ANT1                  | ANT2  | MIMO  |                             |                             |
|                        | 5180       | 36      | AVG      | 13.17                 | 13.47 | 16.33 | 23.98                       | -7.65                       |
|                        | 5200       | 40      | AVG      | 15.38                 | 14.87 | 18.14 | 23.98                       | -5.84                       |
|                        | 5220       | 44      | AVG      | 15.54                 | 15.00 | 18.29 | 23.98                       | -5.69                       |
|                        | 5240       | 48      | AVG      | 15.55                 | 15.14 | 18.36 | 23.98                       | -5.62                       |
|                        | 5260       | 52      | AVG      | 15.37                 | 14.99 | 18.19 | 23.98                       | -5.78                       |
|                        | 5280       | 56      | AVG      | 15.84                 | 15.08 | 18.49 | 23.98                       | -5.49                       |
|                        | 5300       | 60      | AVG      | 15.78                 | 14.60 | 18.24 | 23.98                       | -5.74                       |
|                        | 5320       | 64      | AVG      | 13.96                 | 12.95 | 16.49 | 23.98                       | -7.49                       |
|                        | 5500       | 100     | AVG      | 15.65                 | 15.54 | 18.61 | 23.98                       | -5.37                       |
|                        | 5600       | 120     | AVG      | 15.75                 | 15.73 | 18.75 | 23.98                       | -5.23                       |
|                        | 5620       | 124     | AVG      | 15.82                 | 15.97 | 18.91 | 23.98                       | -5.07                       |
|                        | 5720       | 144     | AVG      | 15.48                 | 15.09 | 18.30 | 23.98                       | -5.68                       |
|                        | 5745       | 149     | AVG      | 15.86                 | 15.41 | 18.65 | 30.00                       | -11.35                      |
|                        | 5785       | 157     | AVG      | 15.19                 | 15.57 | 18.39 | 30.00                       | -11.61                      |
|                        | 5825       | 165     | AVG      | 14.95                 | 15.78 | 18.40 | 30.00                       | -11.60                      |

Table 7-13. MIMO 20MHz BW 802.11n (UNII) Maximum Conducted Output Power

|                                         |                                                                                     |                               |                                       |                                                                                       |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------|-------------------------------|---------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMA9200                      |  |                               | MEASUREMENT REPORT<br>(CERTIFICATION) |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018                                                    | EUT Type:<br>Portable Handset | Page 63 of 171                        |                                                                                       |                                 |

| 5GHz (20MHz Bandwidth) | Freq [MHz] | Channel | Detector | Conducted Power [dBm] |       |       | Conducted Power Limit [dBm] | Conducted Power Margin [dB] |
|------------------------|------------|---------|----------|-----------------------|-------|-------|-----------------------------|-----------------------------|
|                        |            |         |          | ANT1                  | ANT2  | MIMO  |                             |                             |
|                        | 5180       | 36      | AVG      | 13.20                 | 13.51 | 16.37 | 23.98                       | -7.61                       |
|                        | 5200       | 40      | AVG      | 15.37                 | 14.92 | 18.16 | 23.98                       | -5.82                       |
|                        | 5220       | 44      | AVG      | 15.51                 | 15.04 | 18.29 | 23.98                       | -5.69                       |
|                        | 5240       | 48      | AVG      | 15.62                 | 15.25 | 18.45 | 23.98                       | -5.53                       |
|                        | 5260       | 52      | AVG      | 15.35                 | 15.11 | 18.24 | 23.98                       | -5.74                       |
|                        | 5280       | 56      | AVG      | 15.78                 | 15.14 | 18.48 | 23.98                       | -5.50                       |
|                        | 5300       | 60      | AVG      | 15.89                 | 14.97 | 18.46 | 23.98                       | -5.51                       |
|                        | 5320       | 64      | AVG      | 13.93                 | 13.04 | 16.52 | 23.98                       | -7.46                       |
|                        | 5500       | 100     | AVG      | 15.68                 | 15.85 | 18.78 | 23.98                       | -5.20                       |
|                        | 5600       | 120     | AVG      | 15.73                 | 15.84 | 18.80 | 23.98                       | -5.18                       |
|                        | 5620       | 124     | AVG      | 15.83                 | 14.95 | 18.42 | 23.98                       | -5.56                       |
|                        | 5720       | 144     | AVG      | 15.58                 | 15.34 | 18.47 | 23.98                       | -5.51                       |
|                        | 5745       | 149     | AVG      | 15.86                 | 15.64 | 18.76 | 30.00                       | -11.24                      |
|                        | 5785       | 157     | AVG      | 15.13                 | 15.71 | 18.44 | 30.00                       | -11.56                      |
|                        | 5825       | 165     | AVG      | 14.95                 | 15.84 | 18.43 | 30.00                       | -11.57                      |

Table 7-14. MIMO 20MHz BW 802.11ac (UNII) Maximum Conducted Output Power

| 5GHz (40MHz Bandwidth) | Freq [MHz] | Channel | Detector | Conducted Power [dBm] |       |       | Conducted Power Limit [dBm] | Conducted Power Margin [dB] |
|------------------------|------------|---------|----------|-----------------------|-------|-------|-----------------------------|-----------------------------|
|                        |            |         |          | ANT1                  | ANT2  | MIMO  |                             |                             |
|                        | 5190       | 38      | AVG      | 11.13                 | 11.08 | 14.12 | 23.98                       | -9.86                       |
|                        | 5230       | 46      | AVG      | 14.27                 | 13.84 | 17.07 | 23.98                       | -6.91                       |
|                        | 5270       | 54      | AVG      | 14.32                 | 14.62 | 17.48 | 23.98                       | -6.50                       |
|                        | 5310       | 62      | AVG      | 12.04                 | 12.67 | 15.38 | 23.98                       | -8.60                       |
|                        | 5510       | 102     | AVG      | 14.46                 | 14.72 | 17.60 | 23.98                       | -6.38                       |
|                        | 5590       | 118     | AVG      | 14.91                 | 14.81 | 17.87 | 23.98                       | -6.11                       |
|                        | 5630       | 126     | AVG      | 14.76                 | 14.23 | 17.51 | 23.98                       | -6.47                       |
|                        | 5710       | 142     | AVG      | 14.22                 | 14.24 | 17.24 | 23.98                       | -6.74                       |
|                        | 5755       | 151     | AVG      | 14.24                 | 14.35 | 17.31 | 30.00                       | -12.69                      |
|                        | 5795       | 159     | AVG      | 14.80                 | 14.11 | 17.48 | 30.00                       | -12.52                      |

Table 7-15. MIMO 40MHz BW 802.11n (UNII) Maximum Conducted Output Power

|                                         |                                                                                     |                               |                                       |                                                                                       |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------|-------------------------------|---------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMA9200                      |  |                               | MEASUREMENT REPORT<br>(CERTIFICATION) |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018                                                    | EUT Type:<br>Portable Handset |                                       |                                                                                       | Page 64 of 171                  |

| 5GHz (40MHz Bandwidth) | Freq [MHz] | Channel | Detector | Conducted Power [dBm] |       |       | Conducted Power Limit [dBm] | Conducted Power Margin [dB] |
|------------------------|------------|---------|----------|-----------------------|-------|-------|-----------------------------|-----------------------------|
|                        |            |         |          | ANT1                  | ANT2  | MIMO  |                             |                             |
|                        | 5190       | 38      | AVG      | 11.03                 | 11.01 | 14.03 | 23.98                       | -9.95                       |
|                        | 5230       | 46      | AVG      | 14.25                 | 14.21 | 17.24 | 23.98                       | -6.74                       |
|                        | 5270       | 54      | AVG      | 14.30                 | 14.23 | 17.28 | 23.98                       | -6.70                       |
|                        | 5310       | 62      | AVG      | 11.99                 | 12.70 | 15.37 | 23.98                       | -8.61                       |
|                        | 5510       | 102     | AVG      | 14.53                 | 14.18 | 17.37 | 23.98                       | -6.61                       |
|                        | 5590       | 118     | AVG      | 14.91                 | 14.46 | 17.70 | 23.98                       | -6.28                       |
|                        | 5630       | 126     | AVG      | 14.73                 | 14.56 | 17.66 | 23.98                       | -6.32                       |
|                        | 5710       | 142     | AVG      | 14.20                 | 14.62 | 17.43 | 23.98                       | -6.55                       |
|                        | 5755       | 151     | AVG      | 14.17                 | 14.81 | 17.51 | 30.00                       | -12.49                      |
|                        | 5795       | 159     | AVG      | 14.10                 | 14.40 | 17.26 | 30.00                       | -12.74                      |

Table 7-16. MIMO 40MHz BW 802.11ac (UNII) Maximum Conducted Output Power

| 5GHz (80MHz Bandwidth) | Freq [MHz] | Channel | Detector | Conducted Power [dBm] |       |       | Conducted Power Limit [dBm] | Conducted Power Margin [dB] |
|------------------------|------------|---------|----------|-----------------------|-------|-------|-----------------------------|-----------------------------|
|                        |            |         |          | ANT1                  | ANT2  | MIMO  |                             |                             |
|                        | 5210       | 42      | AVG      | 10.14                 | 10.62 | 13.40 | 23.98                       | -10.58                      |
|                        | 5290       | 58      | AVG      | 10.54                 | 10.36 | 13.46 | 23.98                       | -10.52                      |
|                        | 5530       | 106     | AVG      | 11.70                 | 11.51 | 14.62 | 23.98                       | -9.36                       |
|                        | 5610       | 122     | AVG      | 14.34                 | 14.13 | 17.25 | 23.98                       | -6.73                       |
|                        | 5690       | 138     | AVG      | 14.08                 | 14.26 | 17.18 | 23.98                       | -6.80                       |
|                        | 5775       | 155     | AVG      | 14.58                 | 14.57 | 17.59 | 30.00                       | -12.41                      |

Table 7-17. MIMO 80MHz BW 802.11ac (UNII) Maximum Conducted Output Power

|                                         |                                                                                     |                               |                                       |                                                                                       |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------|-------------------------------|---------------------------------------|---------------------------------------------------------------------------------------|---------------------------------|
| FCC ID: A3LSMA9200                      |  |                               | MEASUREMENT REPORT<br>(CERTIFICATION) |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018                                                    | EUT Type:<br>Portable Handset |                                       |                                                                                       | Page 65 of 171                  |

**Note:**

Per ANSI C63.10-2013 and KDB 662911 v02r01 Section E1), the conducted powers at Antenna 1 and Antenna 2 were first measured separately during MIMO transmission as shown in the section above. The measured values were then summed in linear power units then converted back to dBm.

**Sample MIMO Calculation:**

At 5180MHz in 802.11n (20MHz BW) mode, the average conducted output power was measured to be 13.17 dBm for Antenna-1 and 13.47 dBm for Antenna-2.

Antenna 1 + Antenna 2 = MIMO

$$(13.17 \text{ dBm} + 13.47 \text{ dBm}) = (20.75 \text{ mW} + 22.23 \text{ mW}) = 42.98 \text{ mW} = 16.33 \text{ dBm}$$

|                                         |                                                                                                                                                                                                                         |                               |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: A3LSMA9200                      |  <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018                                                                                                                                                                                        | EUT Type:<br>Portable Handset | Page 66 of 171                  |

## 7.5 Maximum Power Spectral Density – 802.11a/n/ac §15.407(a.1.iv) §15.407(a.2) §15.407(a.3); RSS-247 [6.2]

### Test Overview and Limit

The spectrum analyzer was connected to the antenna terminal while the EUT was operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, and at the appropriate frequencies. Method SA-1, as defined in ANSI C63.10-2013 and KDB 789033 D02 v02r01, was used to measure the power spectral density.

***In the 5.15 – 5.25GHz, 5.25 – 5.35GHz, 5.47 – 5.725GHz bands, the maximum permissible power spectral density is 11dBm/MHz.***

***In the 5.725 – 5.850GHz band, the maximum permissible power spectral density is 30dBm/500kHz.***

### Test Procedure Used

ANSI C63.10-2013 – Section 12.3.2.2

KDB 789033 D02 v02r01 – Section F

ANSI C63.10-2013 – Section 14.3.2.2 Measure-and-Sum Technique

KDB 662911 v02r01 – Section E)2) Measure-and-Sum Technique

### Test Settings

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire emission bandwidth of the signal
3. RBW = 1MHz
4. VBW = 3MHz
5. Number of sweep points  $\geq 2 \times (\text{span/RBW})$
6. Sweep time = auto
7. Detector = power averaging (RMS)
8. Trigger was set to free run for all modes
9. Trace was averaged over 100 sweeps
10. The peak search function of the spectrum analyzer was used to find the peak of the spectrum.

### Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



**Figure 7-4. Test Instrument & Measurement Setup**

### Test Notes

None

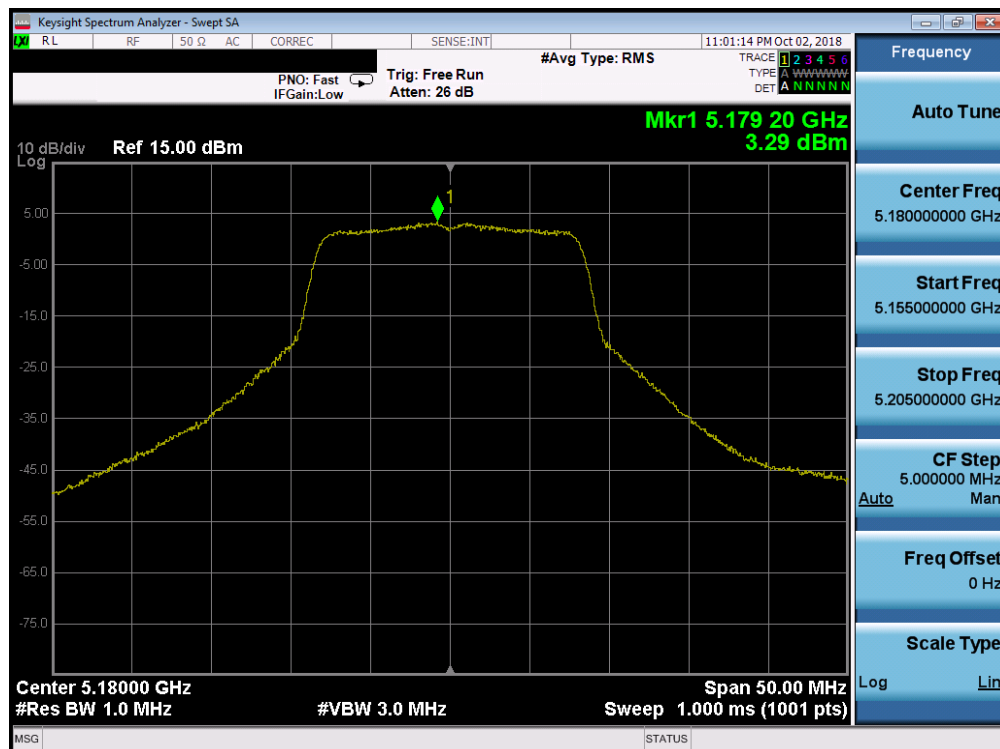
|                                         |                                                                                                                                                                                                                         |                               |                                 |
|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: A3LSMA9200                      |  <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b>  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018                                                                                                                                                                                        | EUT Type:<br>Portable Handset | Page 67 of 171                  |

## SISO Antenna-1 Power Spectral Density Measurements

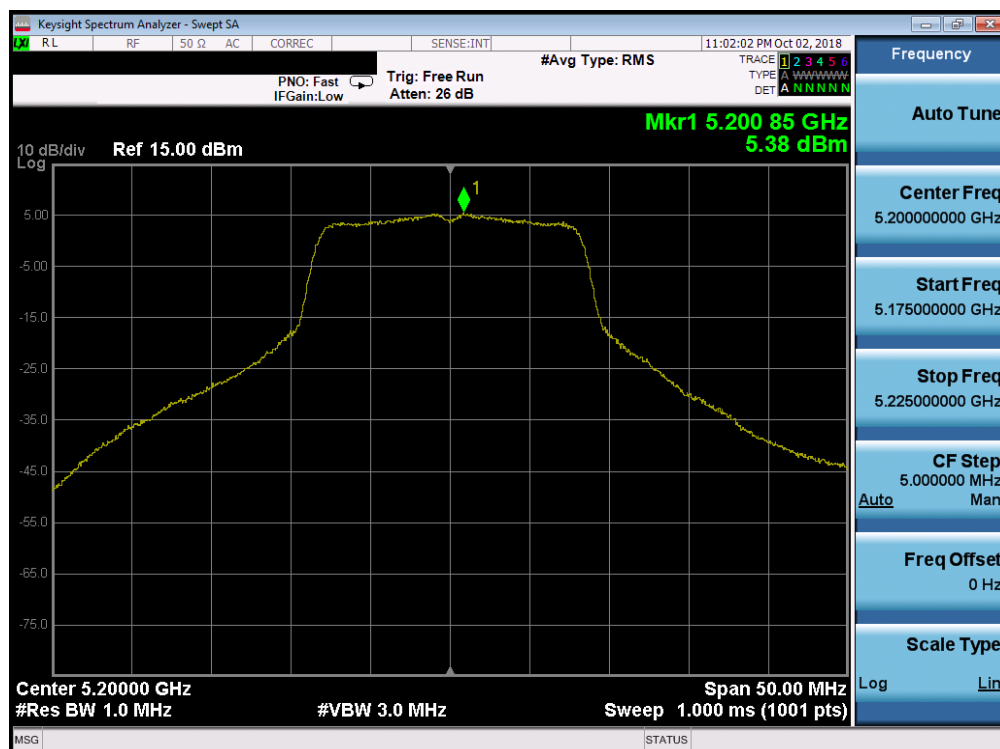
|         | Frequency [MHz] | Channel No. | 802.11 Mode | Data Rate [Mbps] | Measured Power Density [dBm] | Max Power Density [dBm/MHz] | Margin [dB] |
|---------|-----------------|-------------|-------------|------------------|------------------------------|-----------------------------|-------------|
| Band 1  | 5180            | 36          | a           | 6                | 3.29                         | 11.0                        | -7.71       |
|         | 5200            | 40          | a           | 6                | 5.38                         | 11.0                        | -5.62       |
|         | 5240            | 48          | a           | 6                | 5.54                         | 11.0                        | -5.46       |
|         | 5180            | 36          | n (20MHz)   | 6.5/7.2 (MCS0)   | 3.01                         | 11.0                        | -7.99       |
|         | 5200            | 40          | n (20MHz)   | 6.5/7.2 (MCS0)   | 3.66                         | 11.0                        | -7.34       |
|         | 5240            | 48          | n (20MHz)   | 6.5/7.2 (MCS0)   | 4.50                         | 11.0                        | -6.50       |
|         | 5190            | 38          | n (40MHz)   | 13.5/15 (MCS0)   | -3.55                        | 11.0                        | -14.55      |
|         | 5230            | 46          | n (40MHz)   | 13.5/15 (MCS0)   | 0.20                         | 11.0                        | -10.80      |
|         | 5210            | 42          | ac (80MHz)  | 29.3/32.5 (MCS0) | -7.89                        | 11.0                        | -18.89      |
| Band 2A | 5260            | 52          | a           | 6                | 5.54                         | 11.0                        | -5.46       |
|         | 5280            | 56          | a           | 6                | 5.81                         | 11.0                        | -5.19       |
|         | 5320            | 64          | a           | 6                | 6.13                         | 11.0                        | -4.87       |
|         | 5260            | 52          | n (20MHz)   | 6.5/7.2 (MCS0)   | 4.23                         | 11.0                        | -6.77       |
|         | 5280            | 56          | n (20MHz)   | 6.5/7.2 (MCS0)   | 4.42                         | 11.0                        | -6.58       |
|         | 5320            | 64          | n (20MHz)   | 6.5/7.2 (MCS0)   | 4.31                         | 11.0                        | -6.69       |
|         | 5270            | 54          | n (40MHz)   | 13.5/15 (MCS0)   | 0.10                         | 11.0                        | -10.90      |
|         | 5310            | 62          | n (40MHz)   | 13.5/15 (MCS0)   | -2.56                        | 11.0                        | -13.56      |
|         | 5290            | 58          | ac (80MHz)  | 29.3/32.5 (MCS0) | -7.23                        | 11.0                        | -18.23      |
| Band 2C | 5500            | 100         | a           | 6                | 6.24                         | 11.0                        | -4.76       |
|         | 5600            | 120         | a           | 6                | 5.94                         | 11.0                        | -5.06       |
|         | 5720            | 144         | a           | 6                | 5.64                         | 11.0                        | -5.36       |
|         | 5500            | 100         | n (20MHz)   | 6.5/7.2 (MCS0)   | 5.87                         | 11.0                        | -5.13       |
|         | 5600            | 120         | n (20MHz)   | 6.5/7.2 (MCS0)   | 5.50                         | 11.0                        | -5.50       |
|         | 5720            | 144         | n (20MHz)   | 6.5/7.2 (MCS0)   | 5.44                         | 11.0                        | -5.56       |
|         | 5510            | 102         | n (40MHz)   | 13.5/15 (MCS0)   | 0.25                         | 11.0                        | -10.75      |
|         | 5590            | 118         | n (40MHz)   | 13.5/15 (MCS0)   | 0.69                         | 11.0                        | -10.31      |
|         | 5710            | 142         | n (40MHz)   | 13.5/15 (MCS0)   | -0.78                        | 11.0                        | -11.78      |
|         | 5530            | 106         | ac (80MHz)  | 29.3/32.5 (MCS0) | -4.38                        | 11.0                        | -15.38      |
|         | 5610            | 122         | ac (80MHz)  | 29.3/32.5 (MCS0) | -1.73                        | 11.0                        | -12.73      |
|         | 5690            | 138         | ac (80MHz)  | 29.3/32.5 (MCS0) | -6.45                        | 11.0                        | -17.45      |

Table 7-18. Bands 1, 2A, 2C Conducted Power Spectral Density Measurements SISO ANT1

|                                         |                                                                                                                                                                                                                        |                               |                                 |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: A3LSMA9200                      |  <b>MEASUREMENT REPORT</b><br>(CERTIFICATION)  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018                                                                                                                                                                                       | EUT Type:<br>Portable Handset | Page 68 of 171                  |

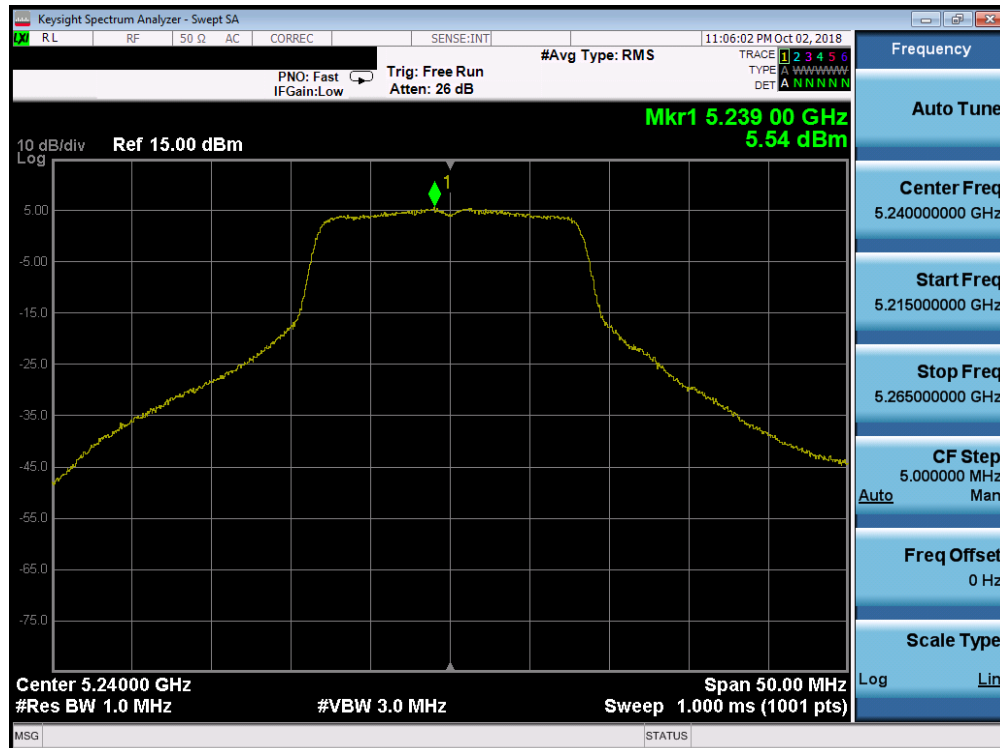


Plot 7-79. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 1) – Ch. 36)

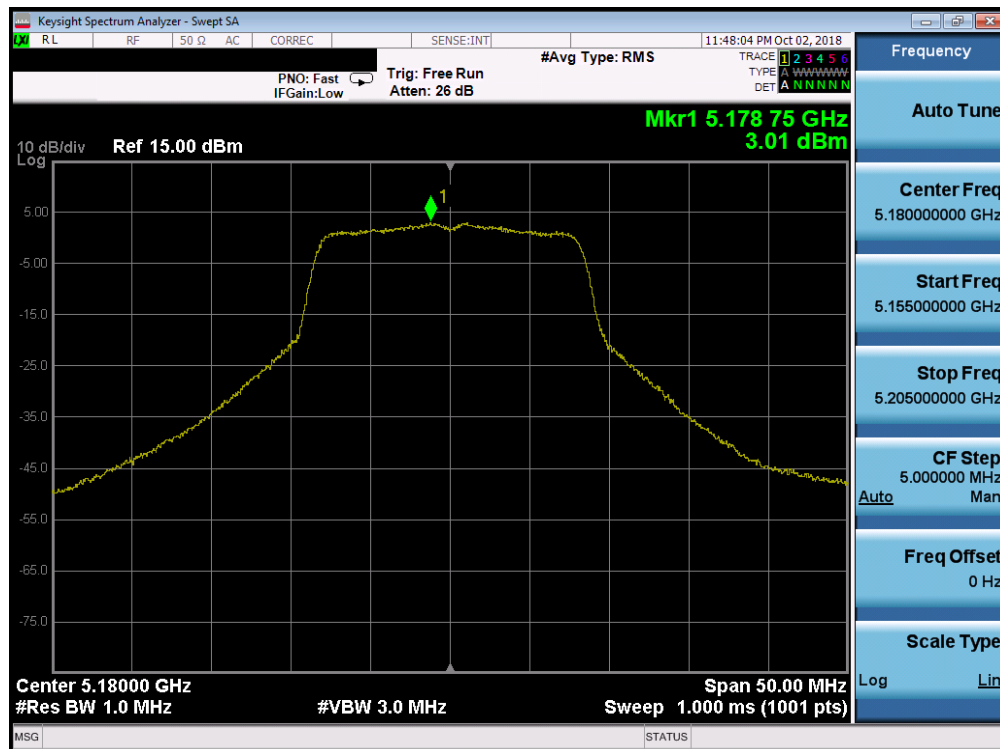


Plot 7-80. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 1) – Ch. 40)

|                                         |                                              |                               |  |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|--|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset |  | Page 69 of 171                  |

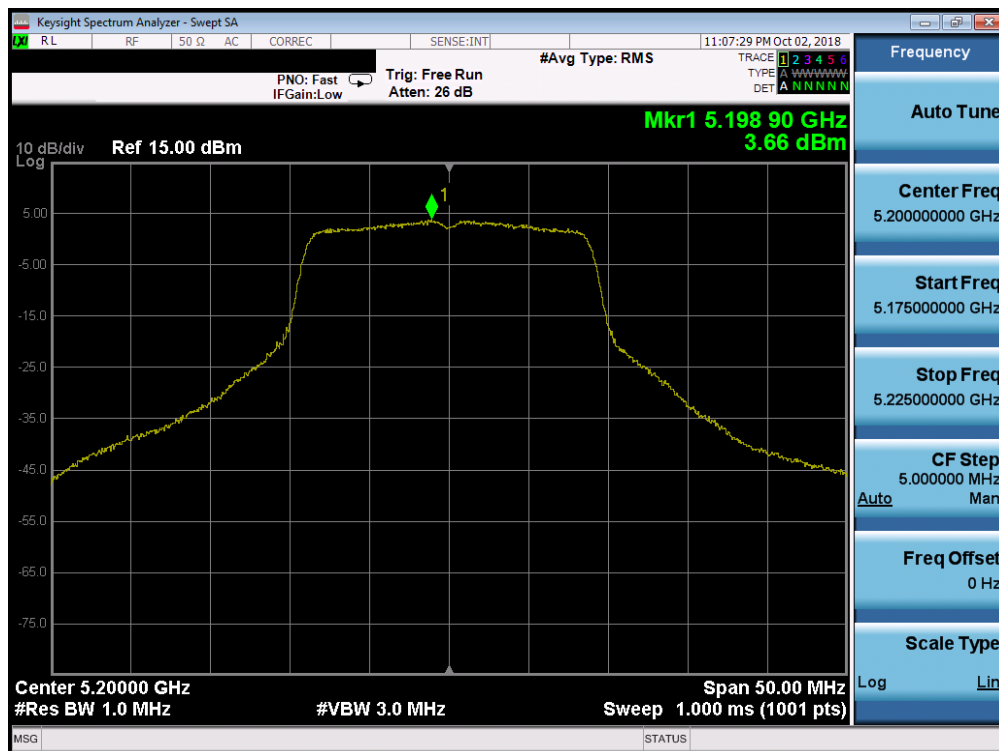


Plot 7-81. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 1) – Ch. 48)

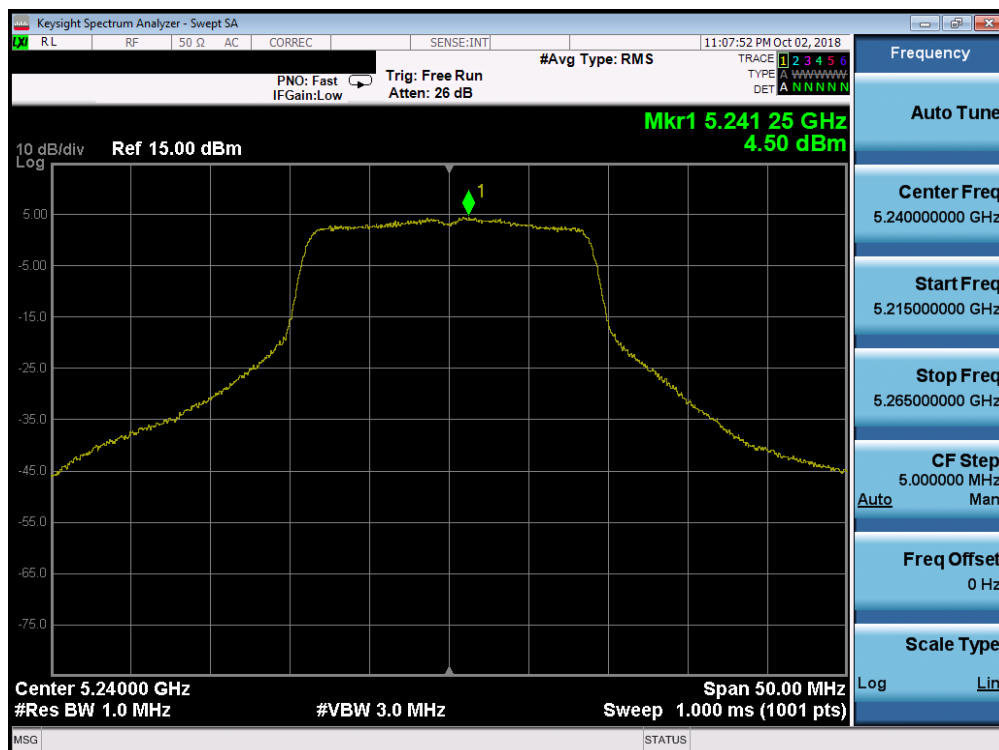


Plot 7-82. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 1) – Ch. 36)

|                                         |                                              |                               |                |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |                | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset | Page 70 of 171 |                                 |

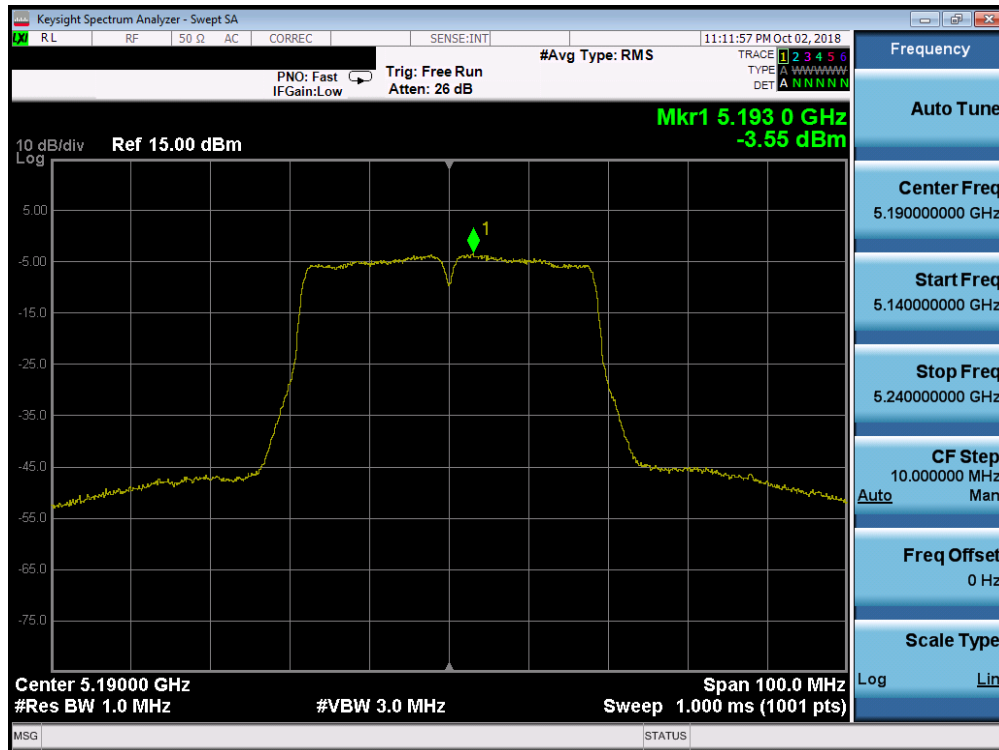


Plot 7-83. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 1) – Ch. 40)

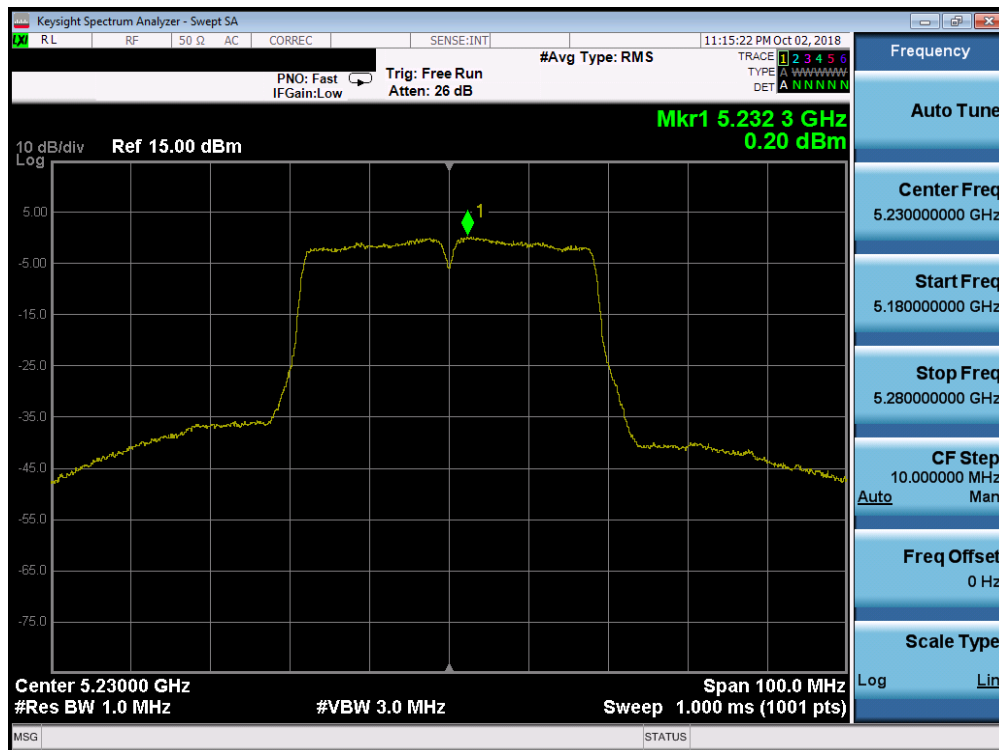


Plot 7-84. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 1) – Ch. 48)

|                                         |                                              |                               |  |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|--|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset |  | Page 71 of 171                  |

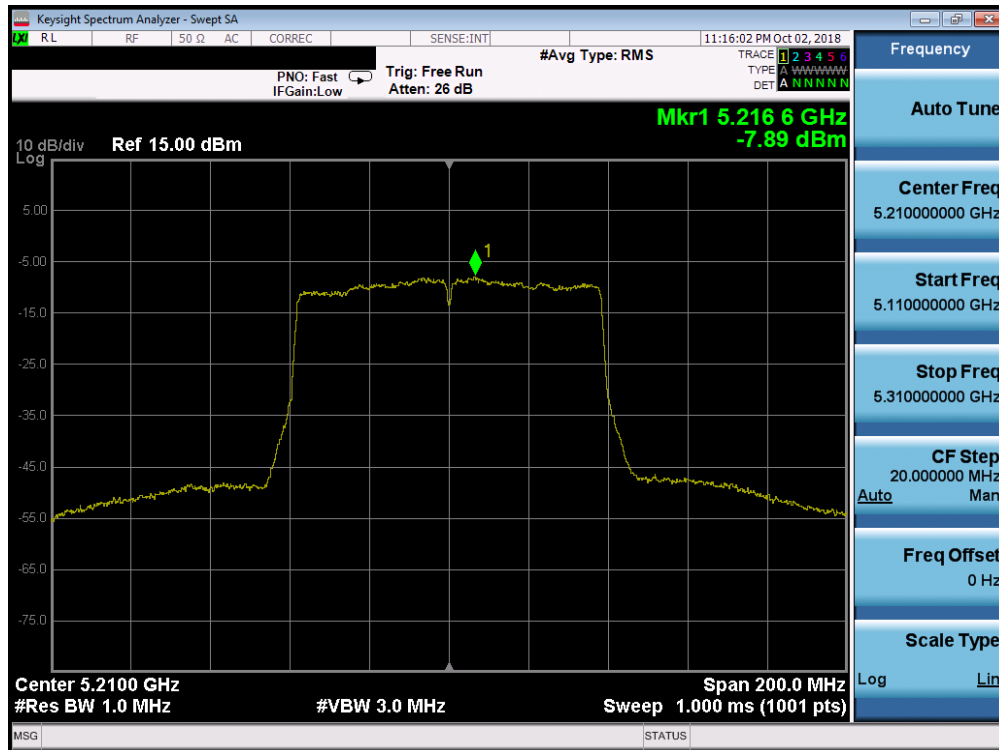


Plot 7-85. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11n (UNII Band 1) – Ch. 38)

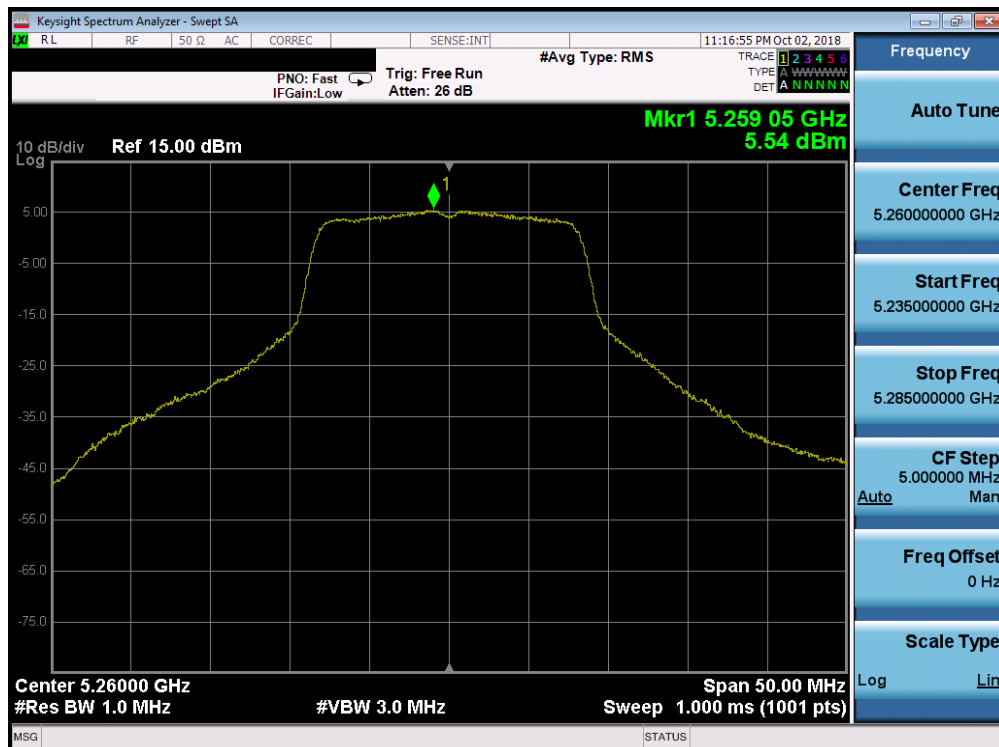


Plot 7-86. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11n (UNII Band 1) – Ch. 46)

|                                         |                                              |                               |  |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|--|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset |  | Page 72 of 171                  |

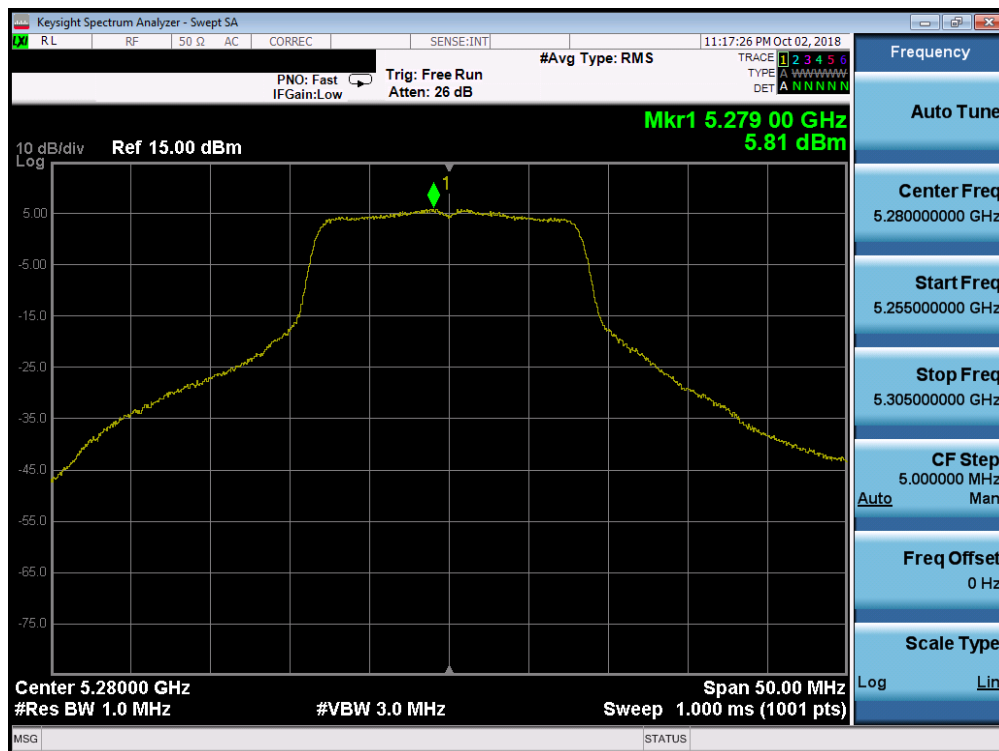


Plot 7-87. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ac (UNII Band 1) – Ch. 42)

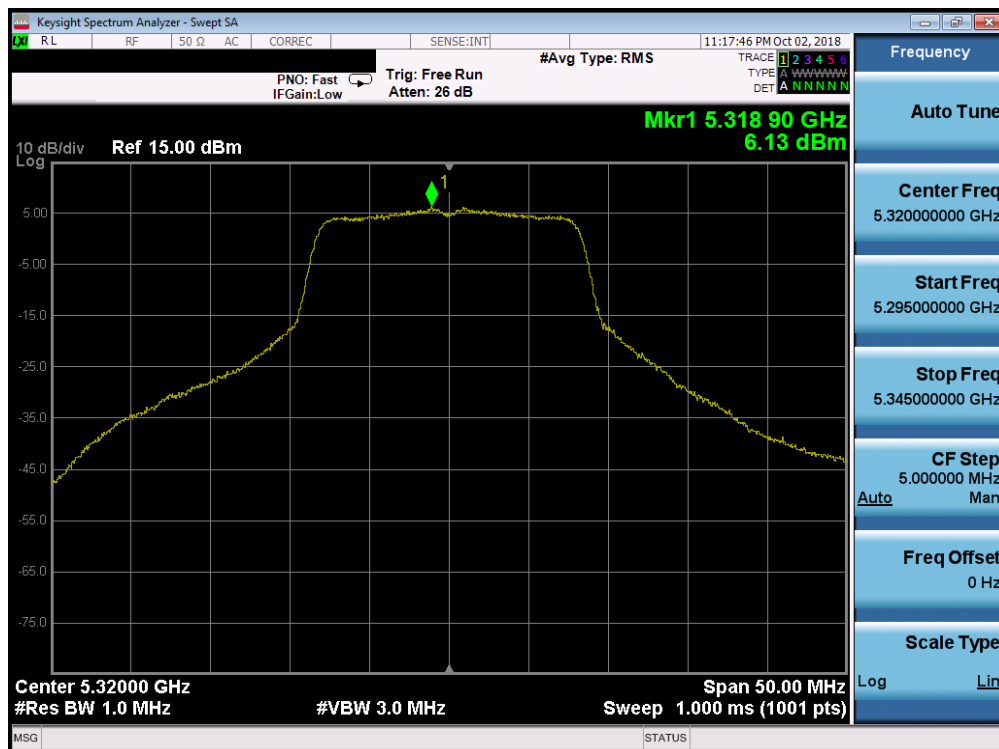


Plot 7-88. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 2A) – Ch. 52)

|                                         |                                              |                               |  |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|--|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset |  | Page 73 of 171                  |

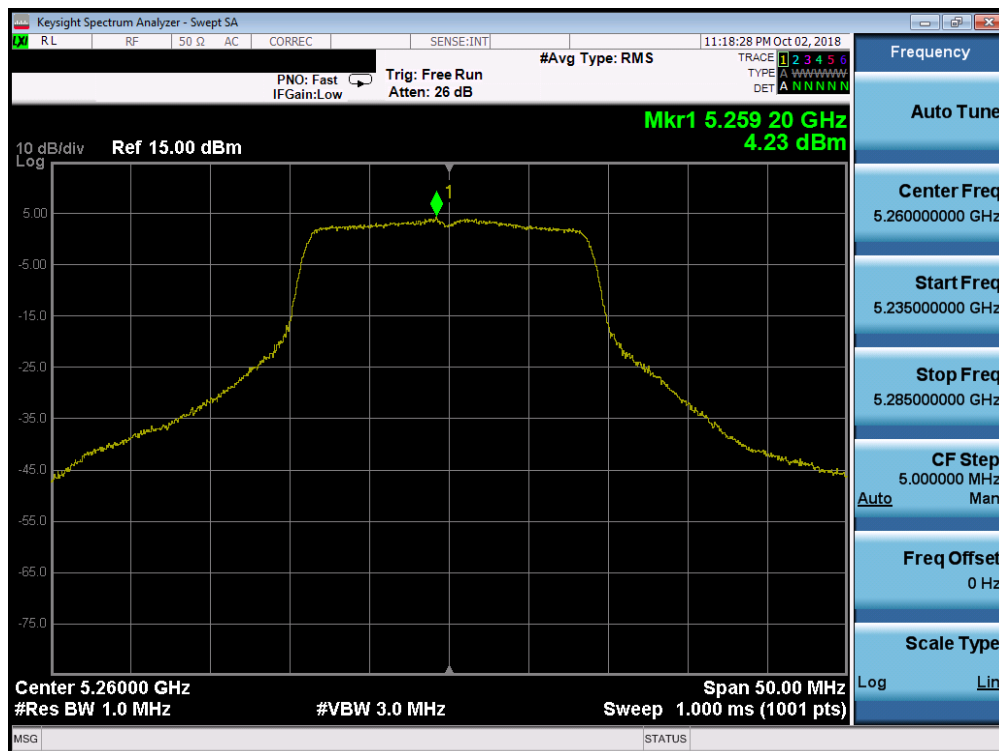


Plot 7-89. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 2A) – Ch. 56)

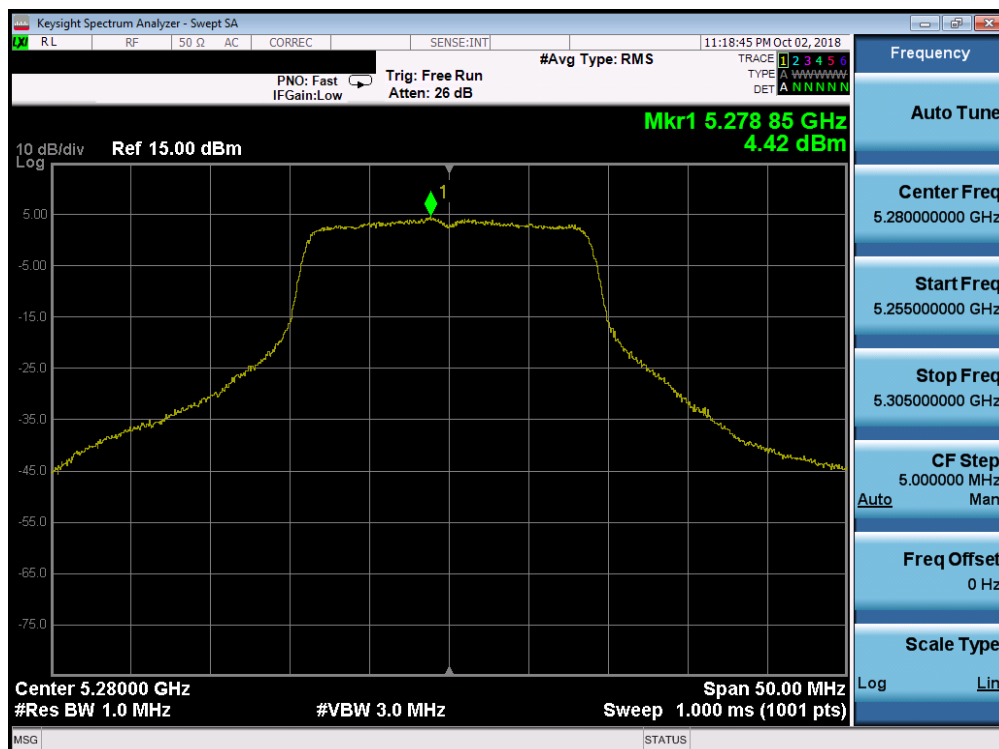


Plot 7-90. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 2A) – Ch. 64)

|                                         |                                              |                               |  |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|--|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset |  | Page 74 of 171                  |

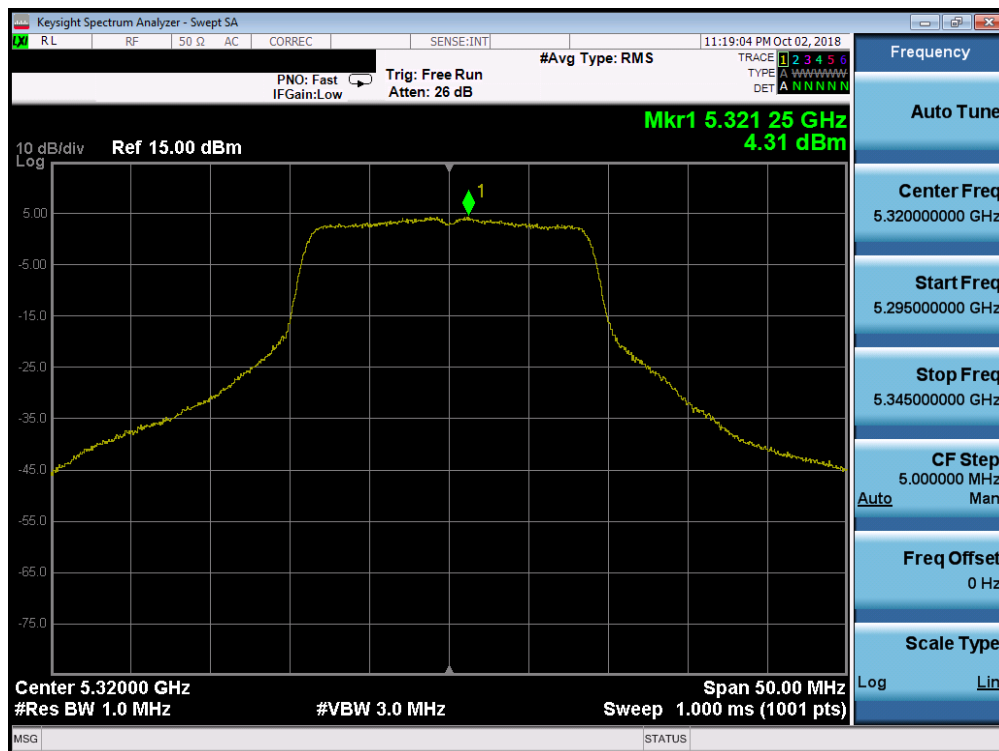


Plot 7-91. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 2A) – Ch. 52)

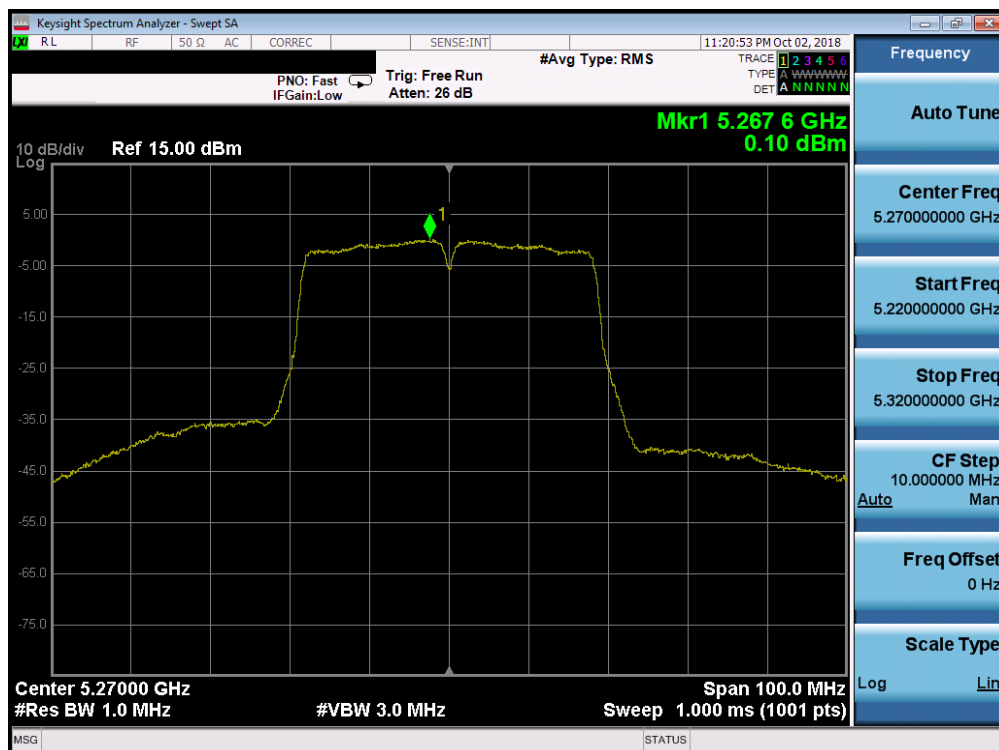


Plot 7-92. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 2A) – Ch. 56)

|                                         |                                              |                               |  |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|--|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset |  | Page 75 of 171                  |

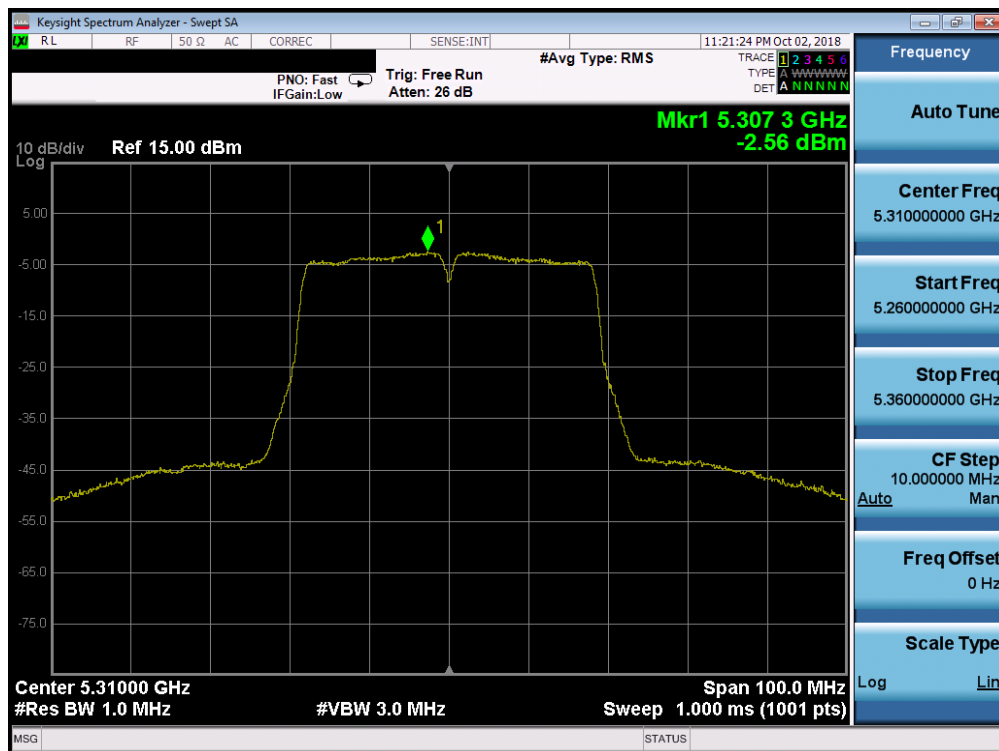


Plot 7-93. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 2A) – Ch. 64)

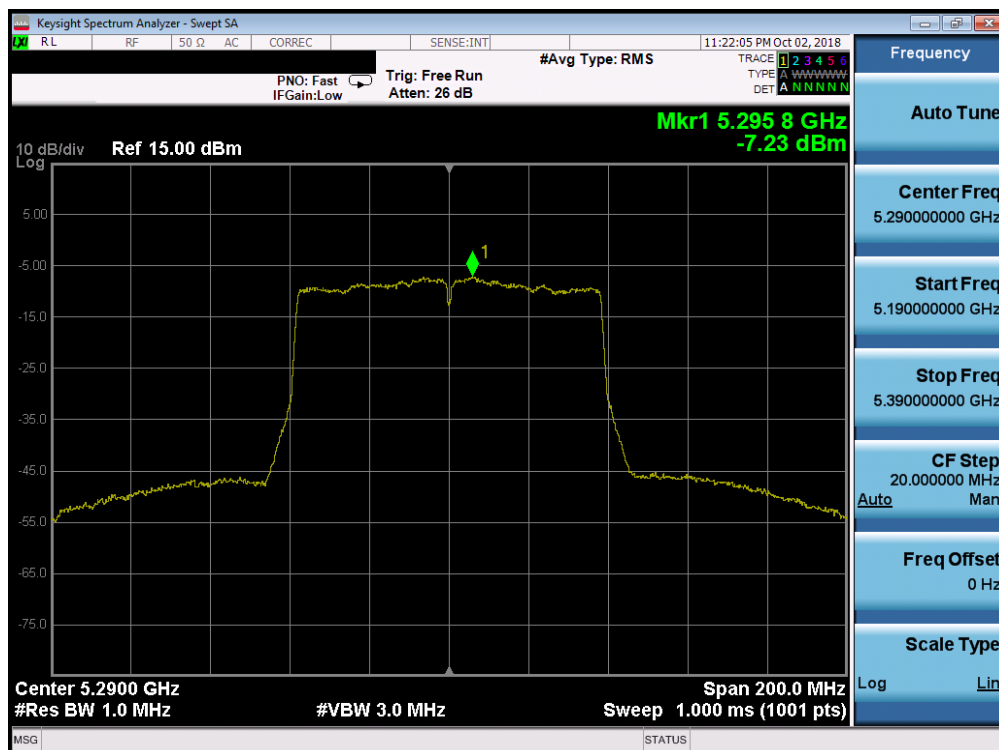


Plot 7-94. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11n (UNII Band 2A) – Ch. 54)

|                                         |                                              |                               |  |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|--|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset |  | Page 76 of 171                  |

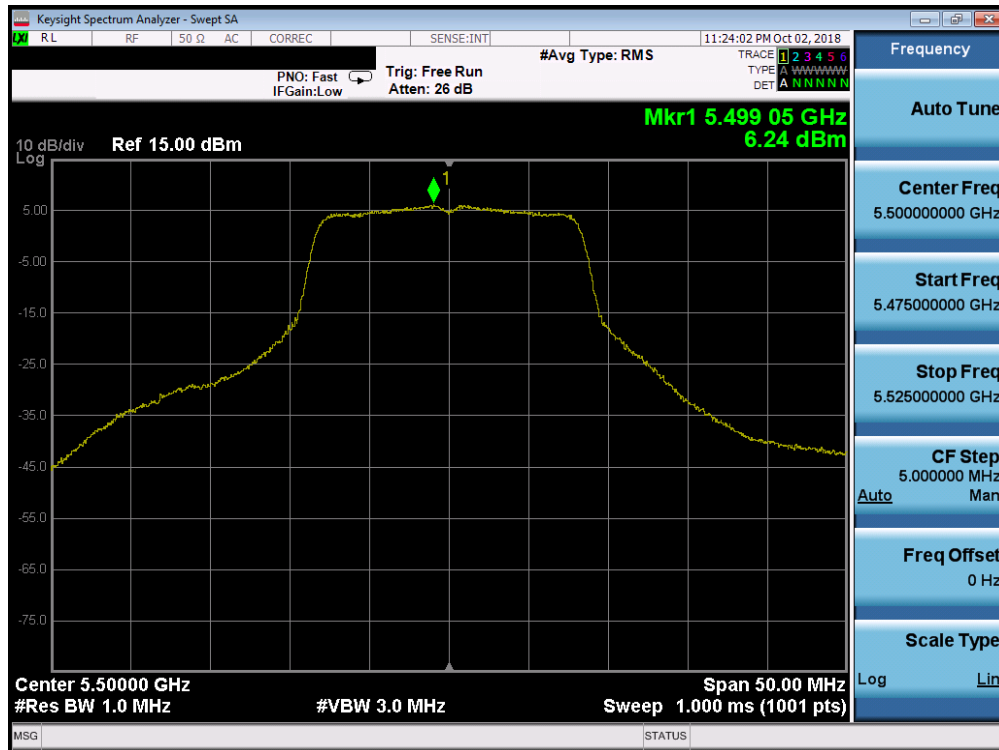


Plot 7-95. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11n (UNII Band 2A) – Ch. 62)

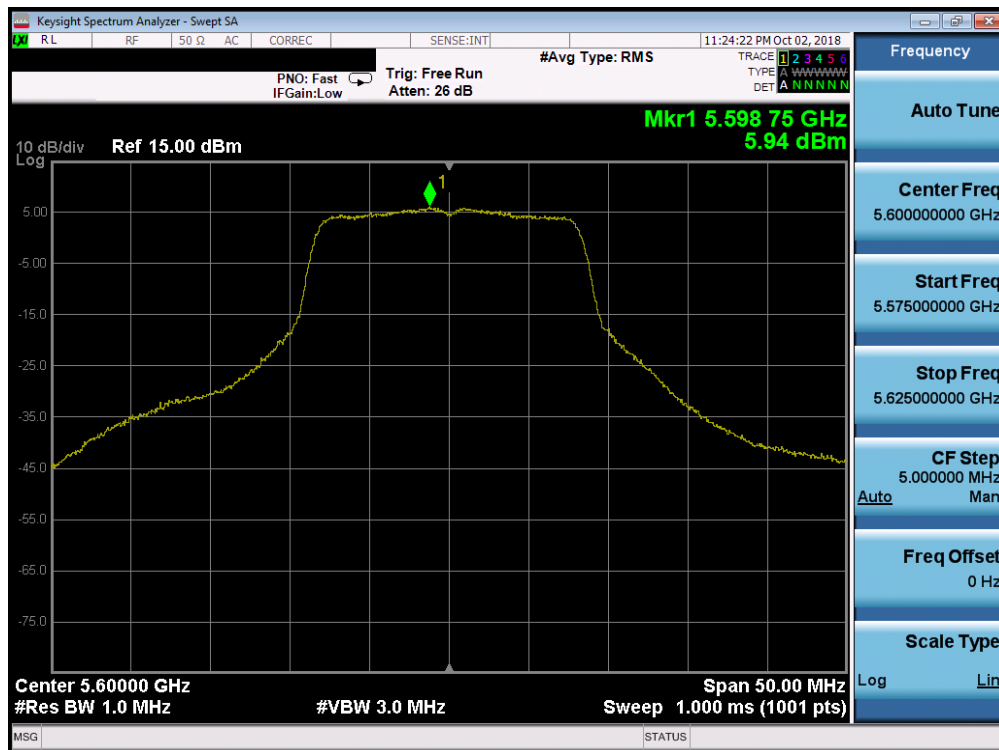


Plot 7-96. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ac (UNII Band 2A) – Ch. 58)

|                                         |                                              |                               |  |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|--|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset |  | Page 77 of 171                  |

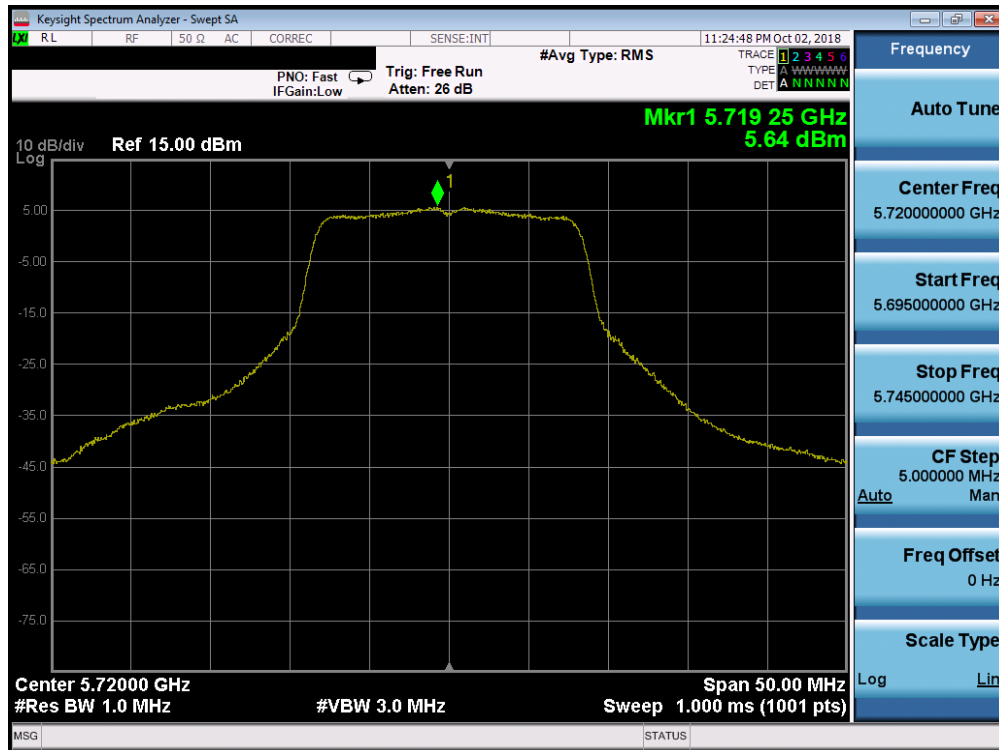


Plot 7-97. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 2C) – Ch. 100)

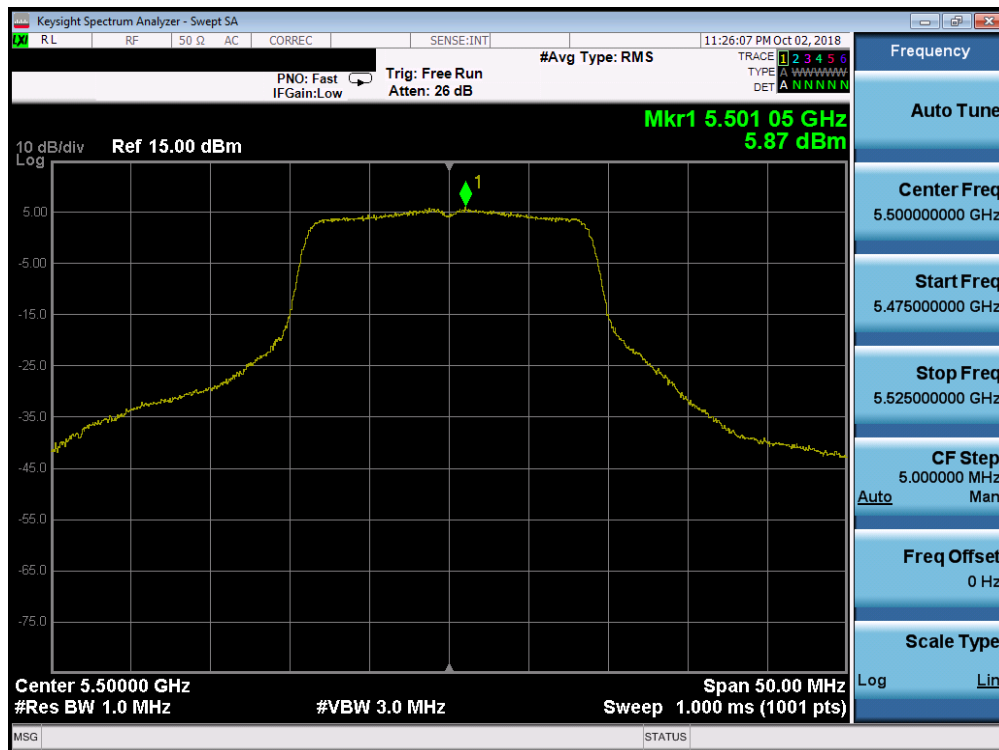


Plot 7-98. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 2C) – Ch. 120)

|                                         |                                              |                               |                |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |                | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset | Page 78 of 171 |                                 |

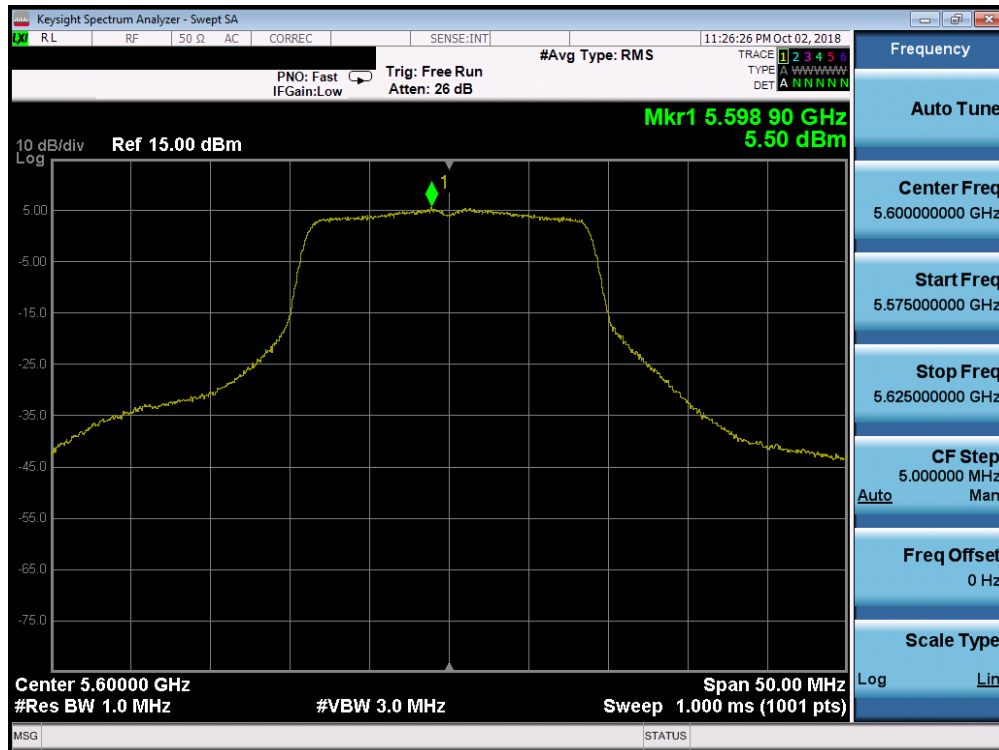


Plot 7-99. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 2C) – Ch. 144)

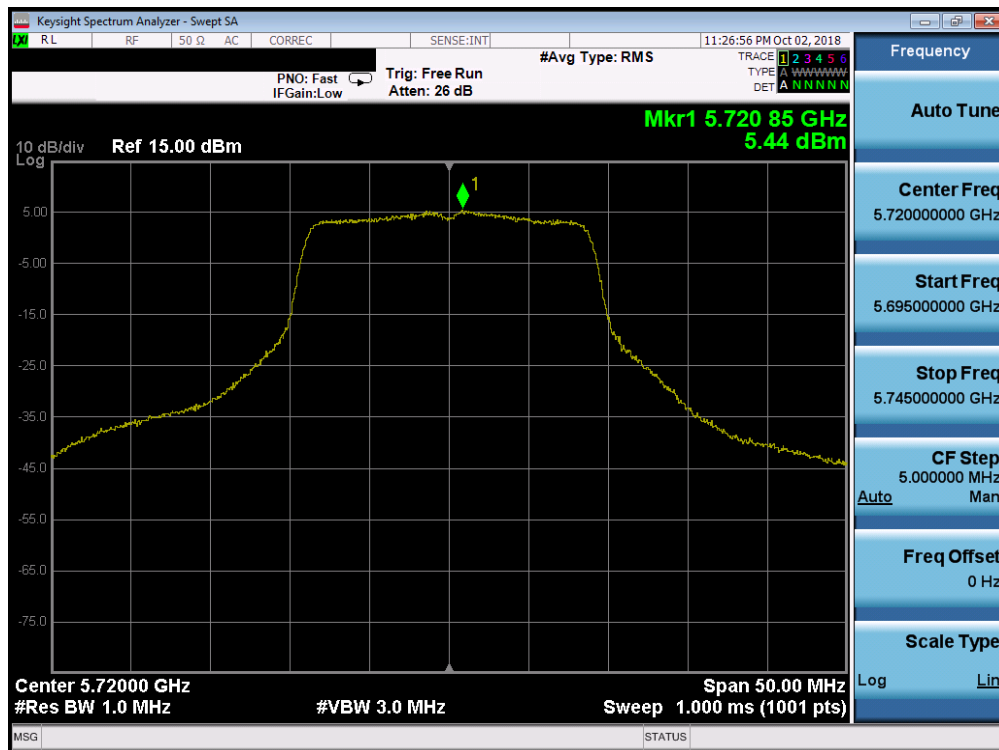


Plot 7-100. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 2C) – Ch. 100)

|                                         |                                              |                               |                |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |                | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset | Page 79 of 171 |                                 |

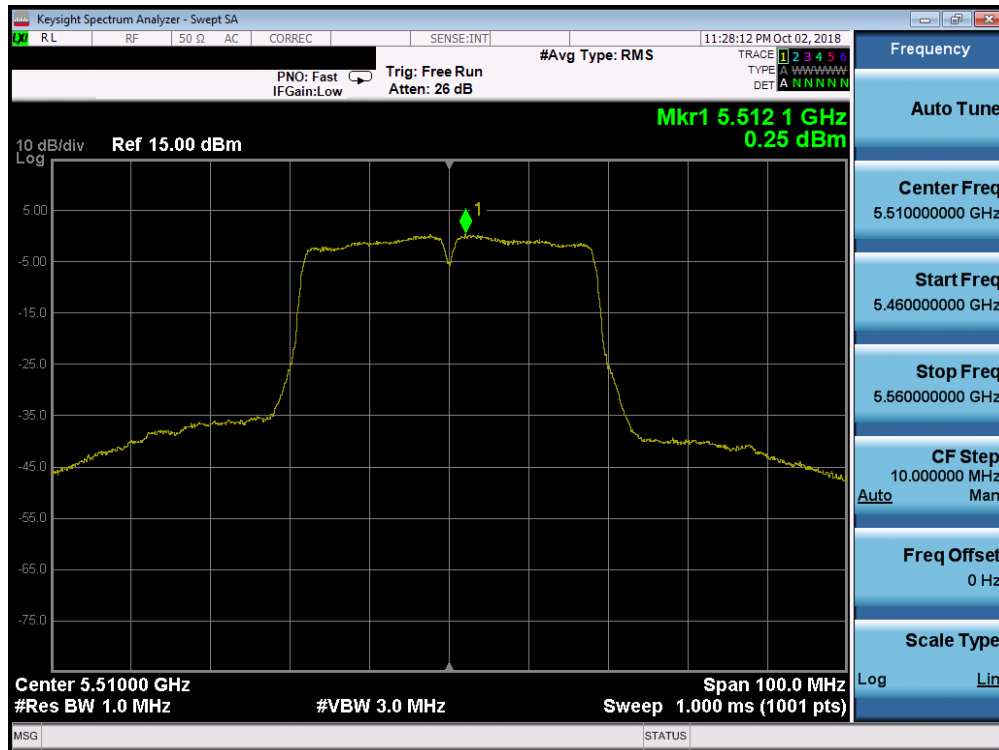


Plot 7-101. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 2C) – Ch. 120)

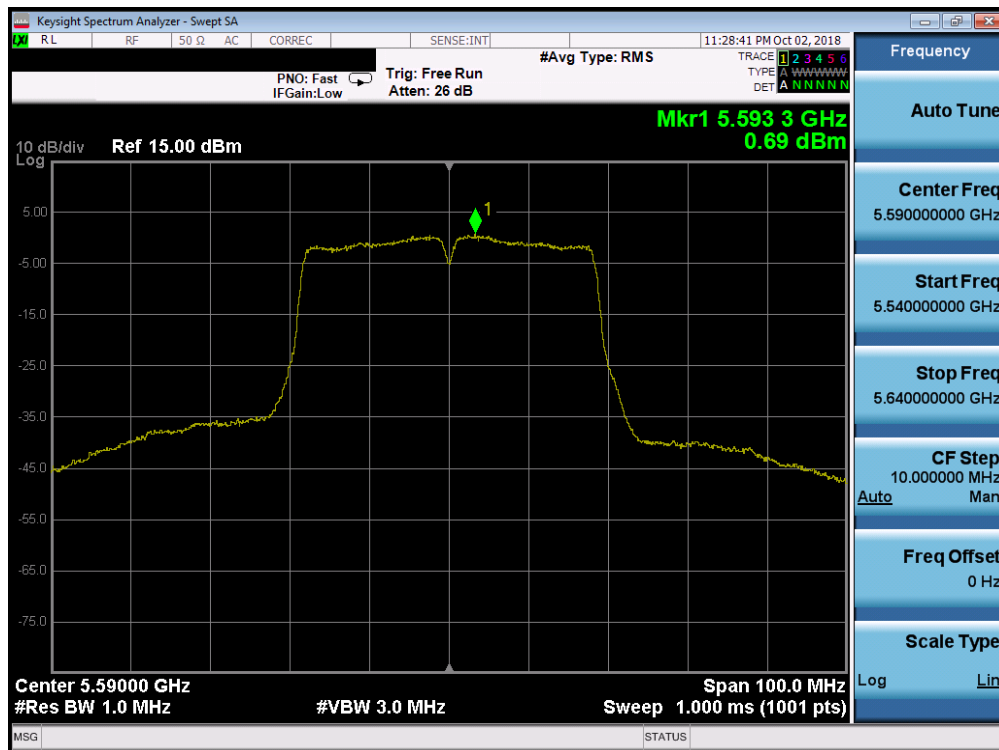


Plot 7-102. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 2C) – Ch. 144)

|                                         |                                              |                               |                |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |                | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset | Page 80 of 171 |                                 |

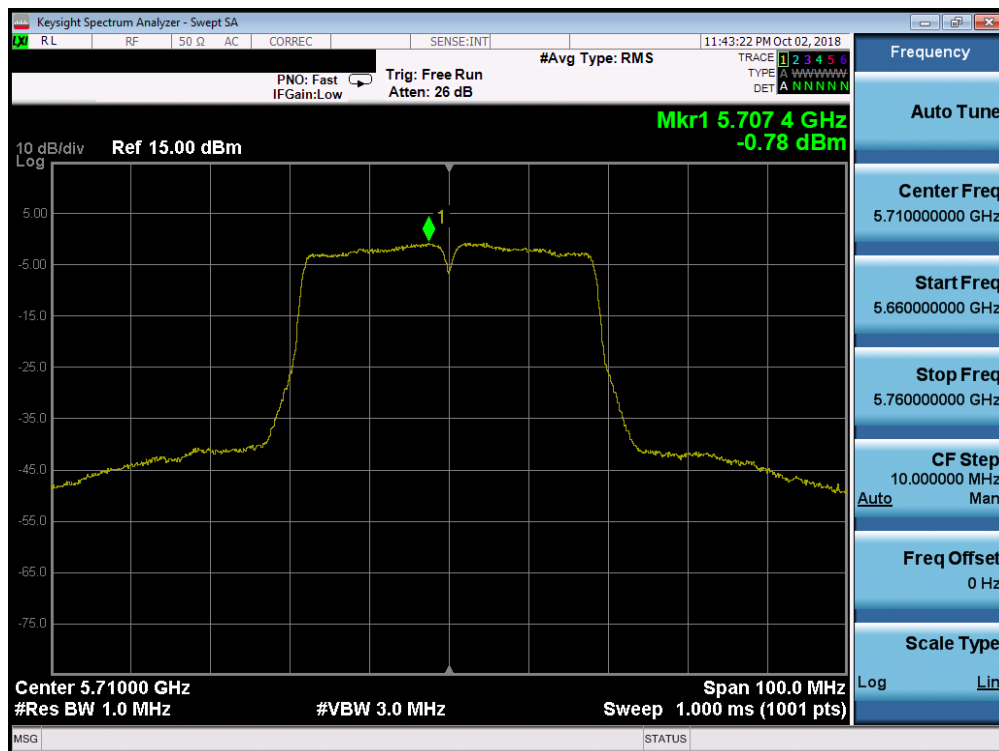


Plot 7-103. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11n (UNII Band 2C) – Ch. 102)

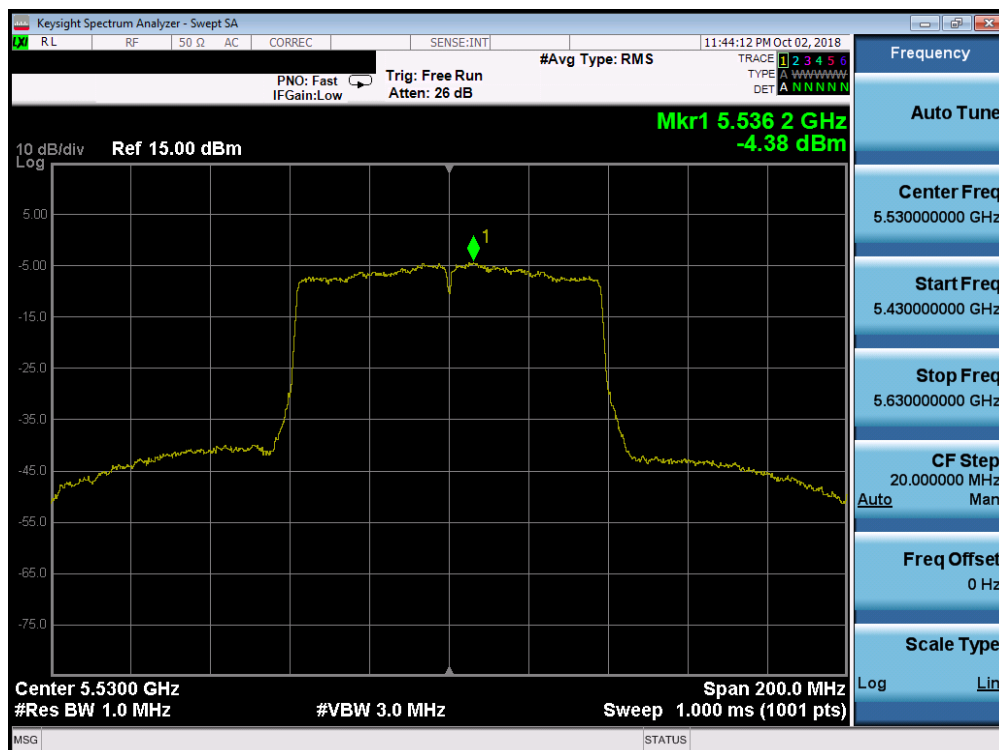


Plot 7-104. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11n (UNII Band 2C) – Ch. 118)

|                                         |                                              |                               |                |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |                | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset | Page 81 of 171 |                                 |

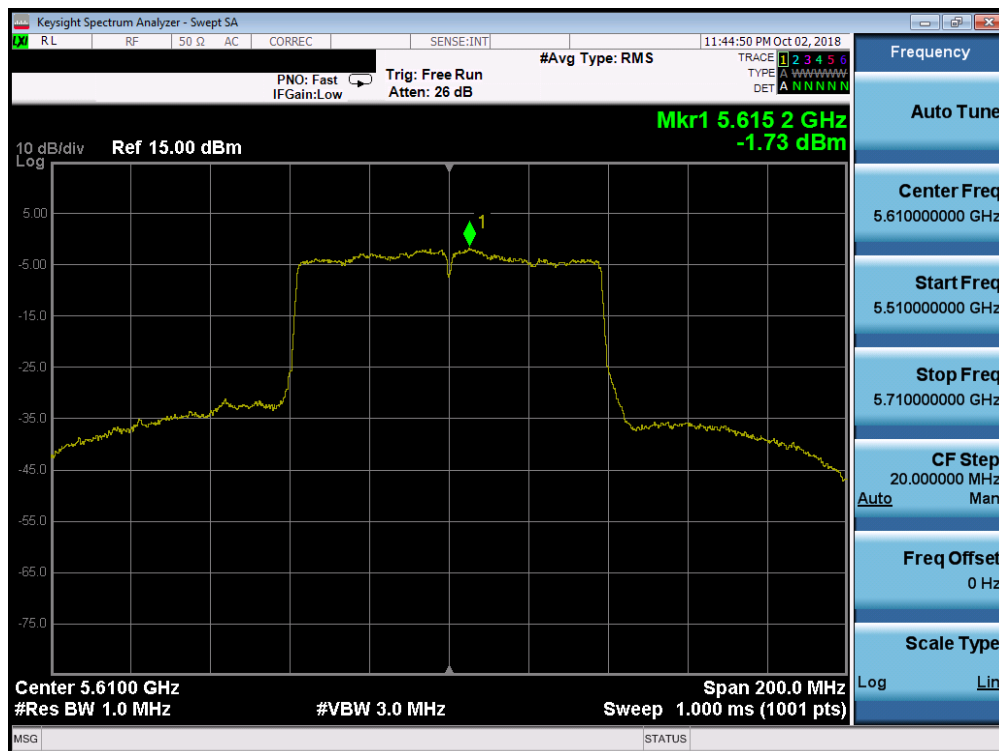


Plot 7-105. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11n (UNII Band 2C) – Ch. 142)

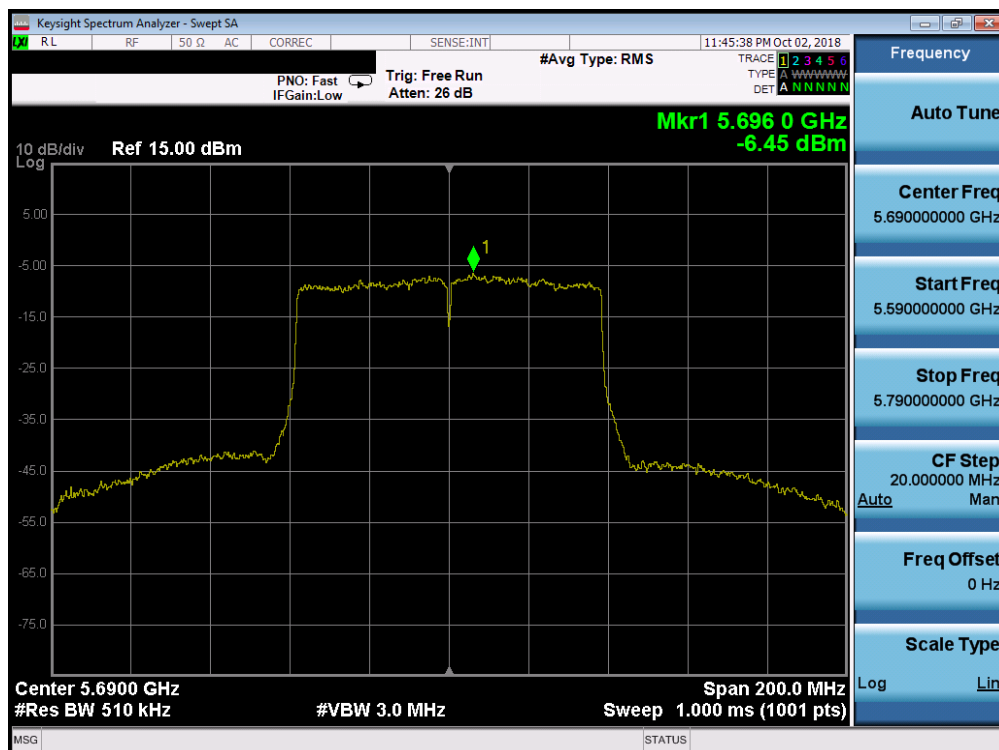


Plot 7-106. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 106)

|                                         |                                                                                                                                                                                                                        |                               |                                 |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: A3LSMA9200                      |  <b>MEASUREMENT REPORT</b><br>(CERTIFICATION)  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018                                                                                                                                                                                       | EUT Type:<br>Portable Handset | Page 82 of 171                  |



Plot 7-107. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 122)

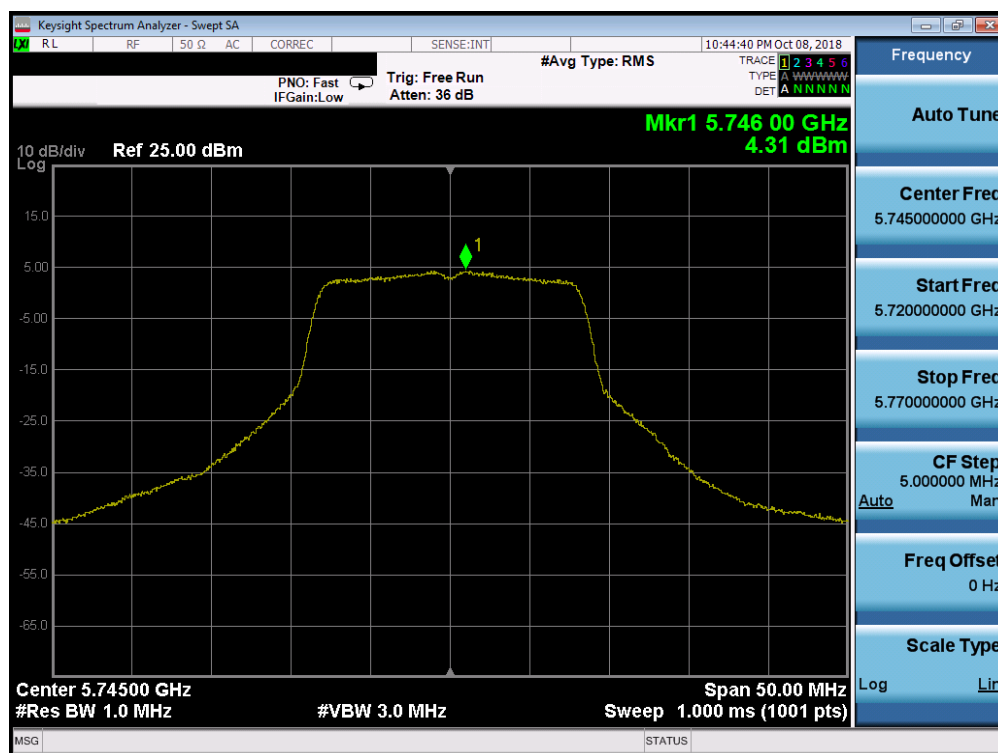


Plot 7-108. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 138)

|                                         |                                               |                               |  |                                 |
|-----------------------------------------|-----------------------------------------------|-------------------------------|--|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b> |                               |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018              | EUT Type:<br>Portable Handset |  | Page 83 of 171                  |

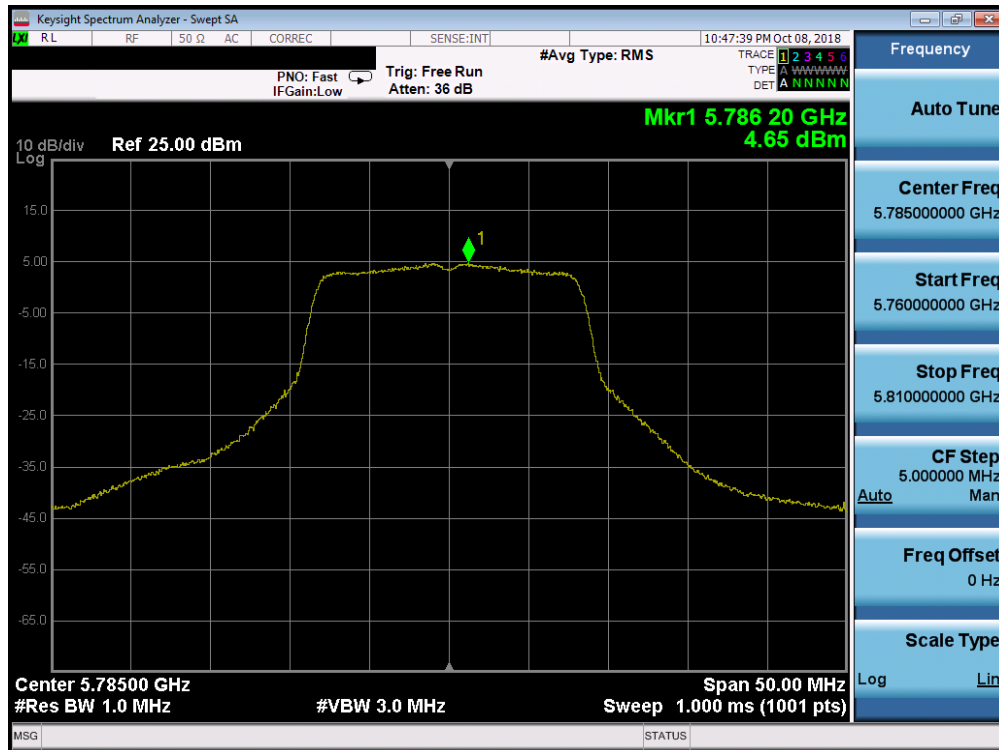
|        | Frequency [MHz] | Channel No. | 802.11 Mode | Data Rate [Mbps] | Measured Power Density [dBm] | Max Permissible Power Density [dBm/500kHz] | Margin [dB] |
|--------|-----------------|-------------|-------------|------------------|------------------------------|--------------------------------------------|-------------|
| Band 3 | 5745            | 149         | a           | 6                | 4.31                         | 30.0                                       | -25.69      |
|        | 5785            | 157         | a           | 6                | 4.65                         | 30.0                                       | -25.35      |
|        | 5825            | 165         | a           | 6                | 4.99                         | 30.0                                       | -25.01      |
|        | 5745            | 149         | n (20MHz)   | 6.5/7.2 (MCS0)   | 4.11                         | 30.0                                       | -25.89      |
|        | 5785            | 157         | n (20MHz)   | 6.5/7.2 (MCS0)   | 3.47                         | 30.0                                       | -26.53      |
|        | 5825            | 165         | n (20MHz)   | 6.5/7.2 (MCS0)   | 3.29                         | 30.0                                       | -26.71      |
|        | 5755            | 151         | n (40MHz)   | 13.5/15 (MCS0)   | -0.70                        | 30.0                                       | -30.70      |
|        | 5795            | 159         | n (40MHz)   | 13.5/15 (MCS0)   | 0.12                         | 30.0                                       | -29.88      |
|        | 5775            | 155         | ac (80MHz)  | 29.3/32.5 (MCS0) | -3.43                        | 30.0                                       | -33.43      |

**Table 7-19. Band 3 Conducted Power Spectral Density Measurements SISO ANT1**

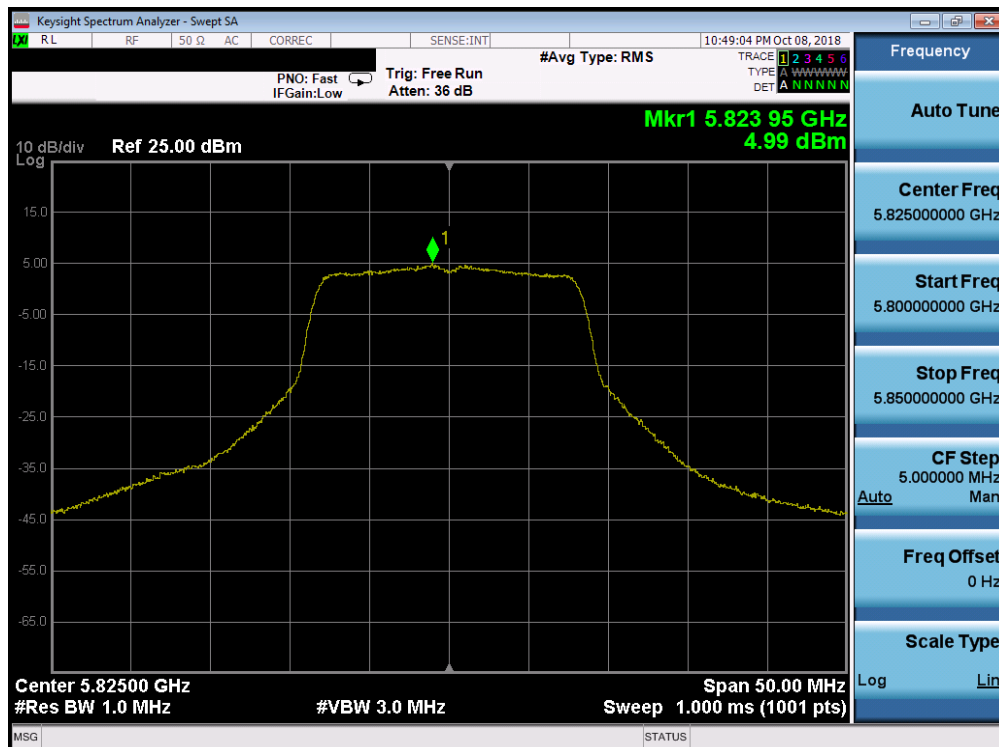


**Plot 7-109. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 3) – Ch. 149)**

|                                         |                                              |                               |  |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|--|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset |  | Page 84 of 171                  |

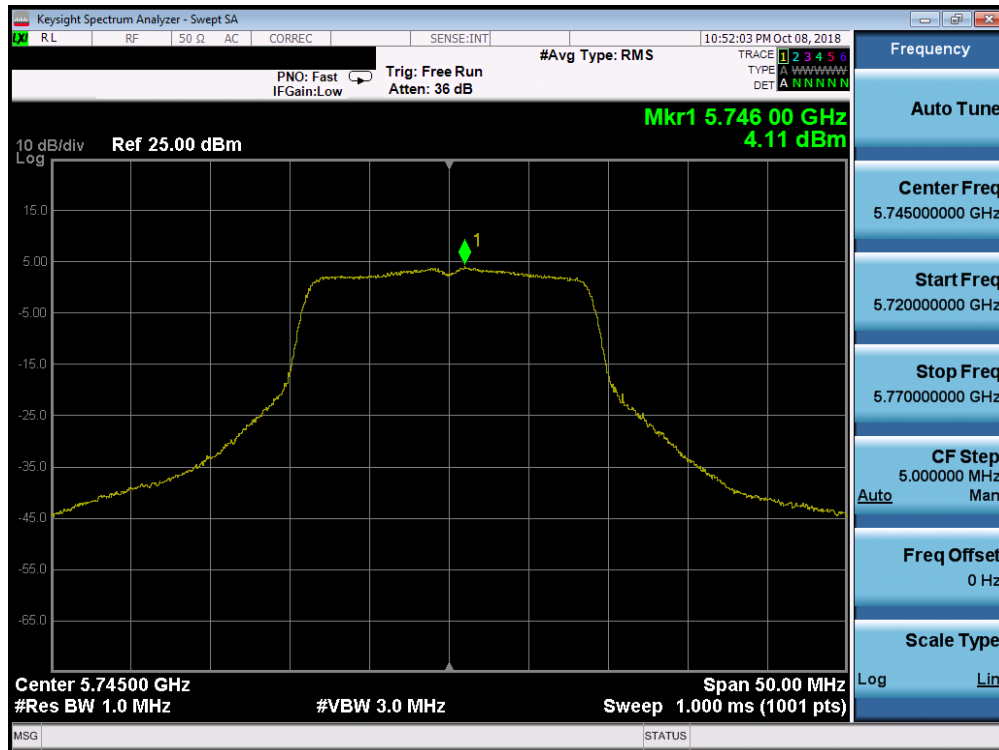


Plot 7-110. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 3) – Ch. 157)

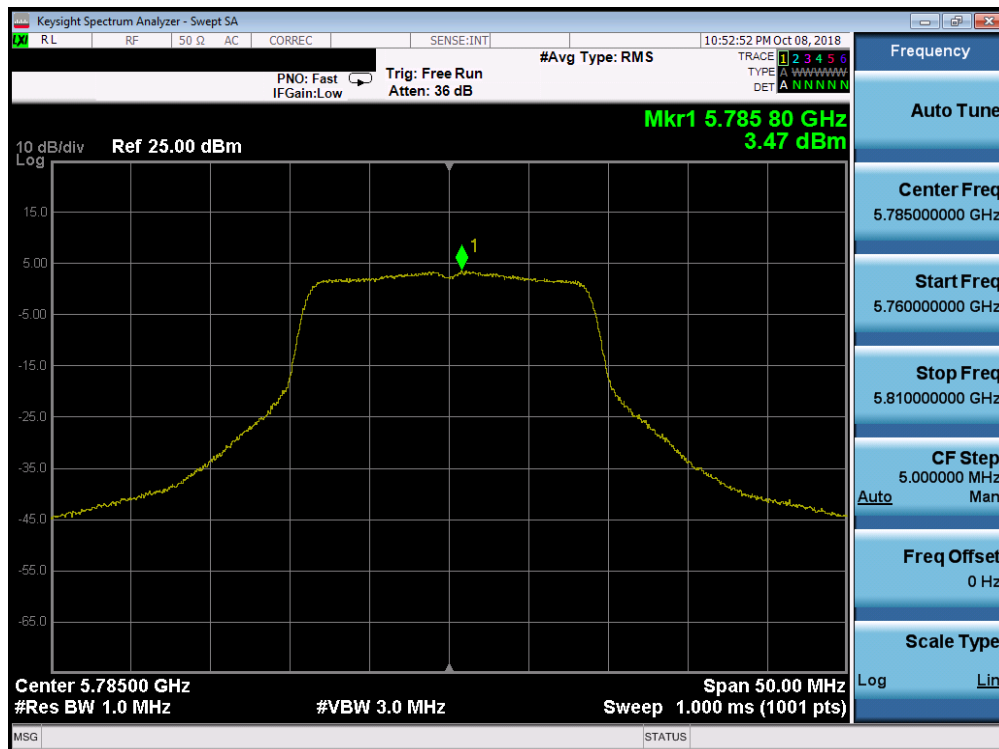


Plot 7-111. Power Spectral Density Plot SISO ANT1 (802.11a (UNII Band 3) – Ch. 165)

|                                         |                                              |                               |                |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |                | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset | Page 85 of 171 |                                 |

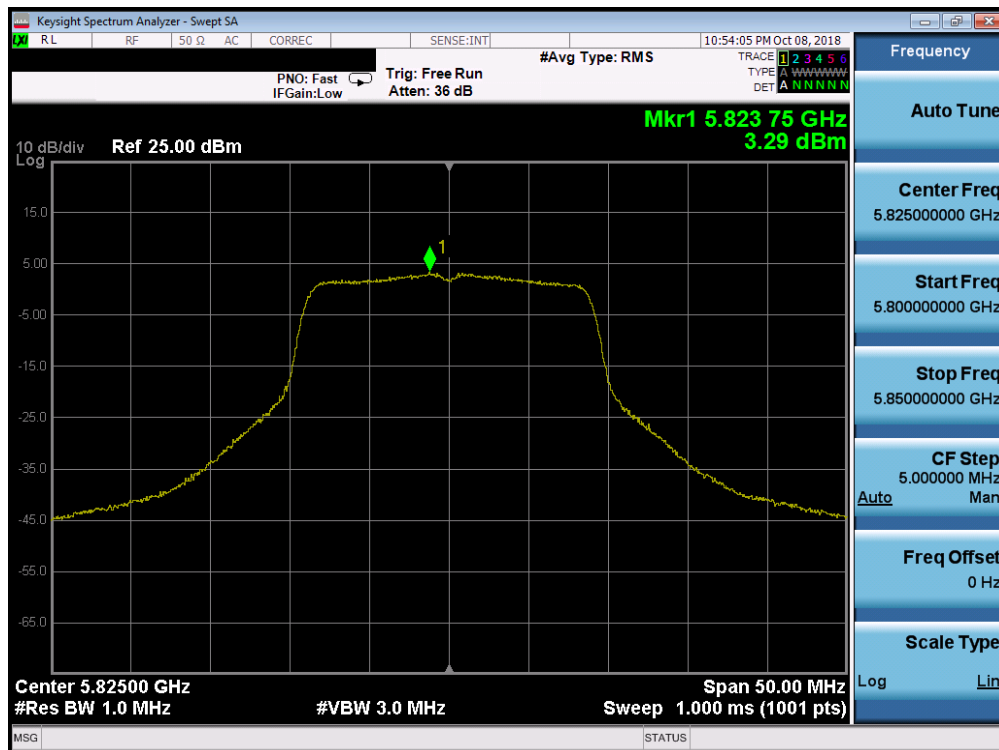


Plot 7-112. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 3) – Ch. 149)

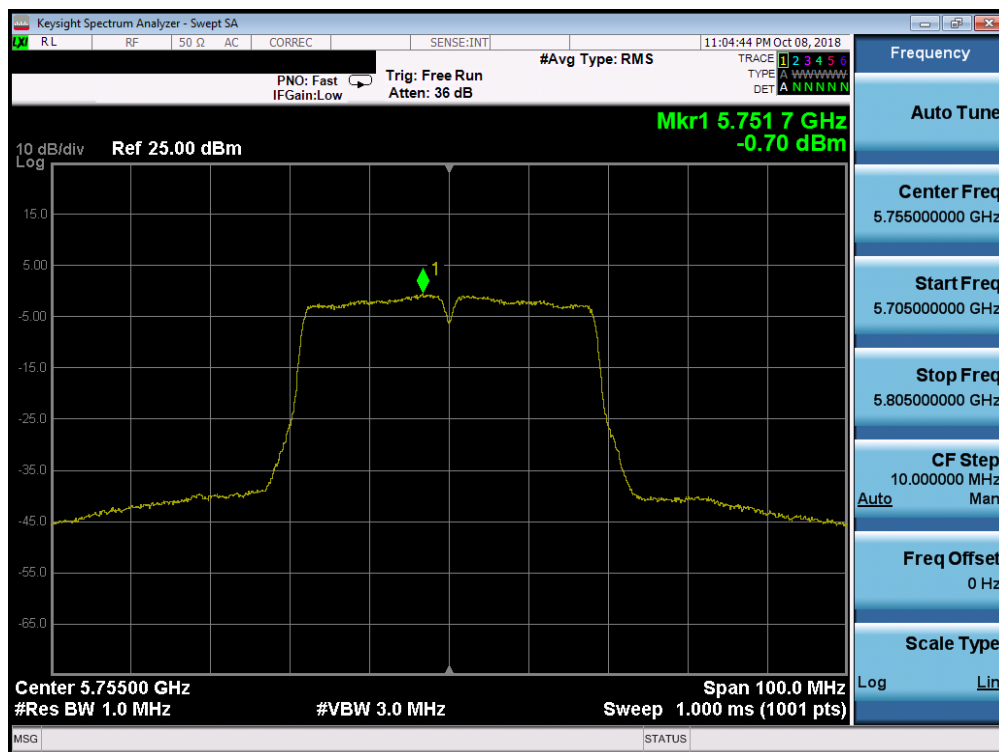


Plot 7-113. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 3) – Ch. 157)

|                                         |                                              |                               |  |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|--|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset |  | Page 86 of 171                  |

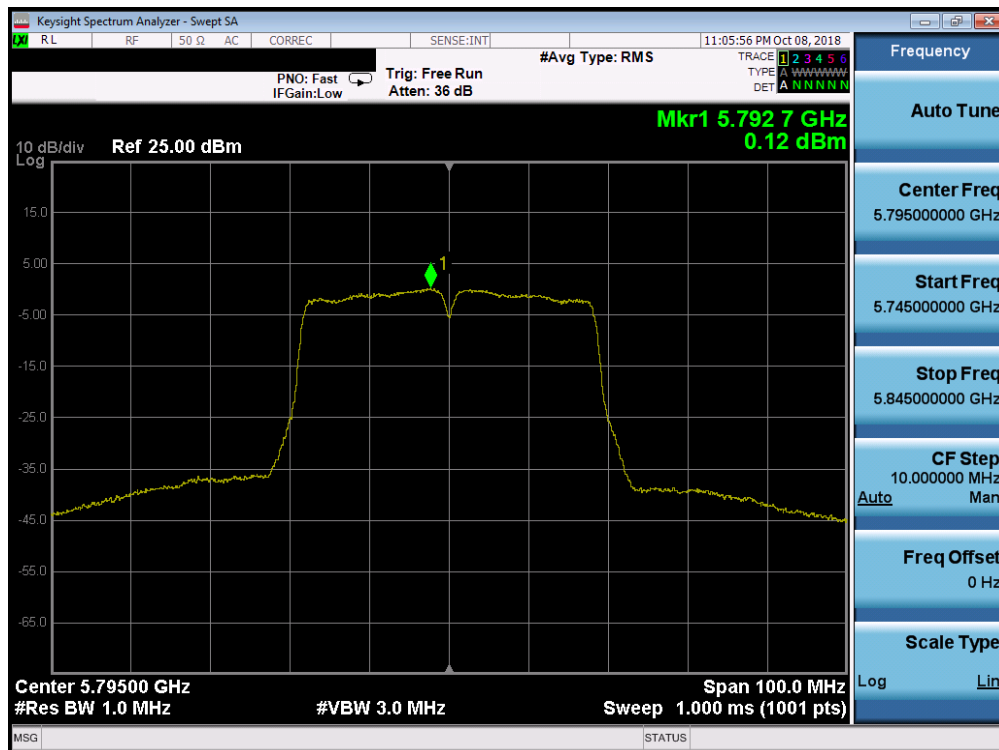


Plot 7-114. Power Spectral Density Plot SISO ANT1 (20MHz BW 802.11n (UNII Band 3) – Ch. 165)

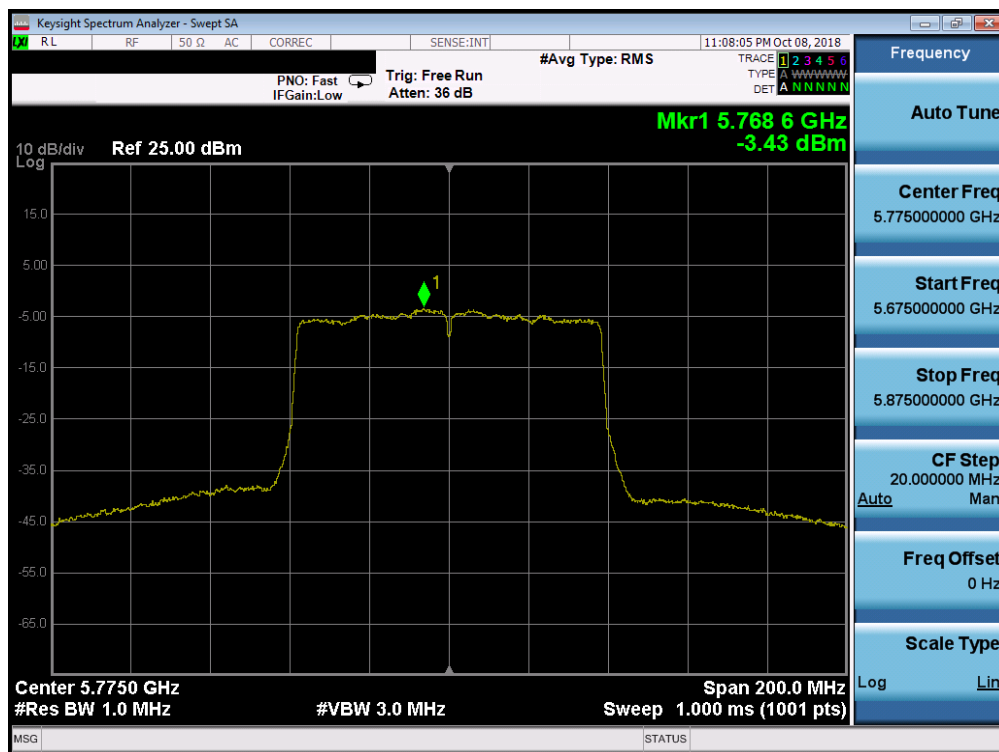


Plot 7-115. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11n (UNII Band 3) – Ch. 151)

|                                         |                                              |                               |  |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|--|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset |  | Page 87 of 171                  |



Plot 7-116. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11n (UNII Band 3) – Ch. 159)



Plot 7-117. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ac (UNII Band 3) – Ch. 155)

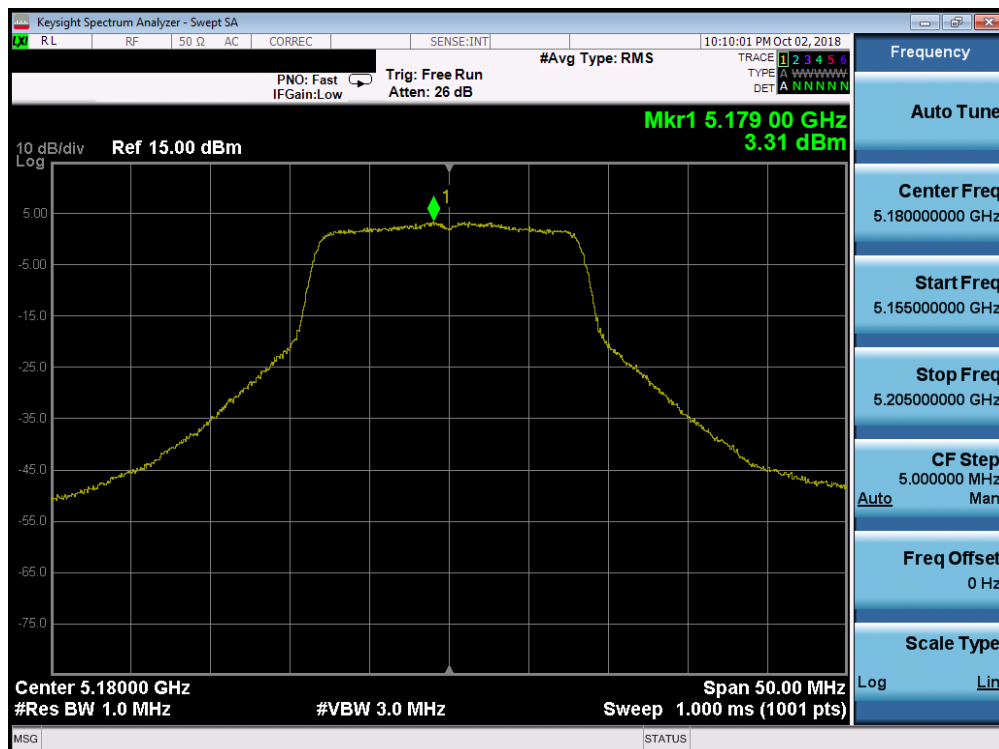
|                                         |                                              |                               |                |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |                | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset | Page 88 of 171 |                                 |

## SISO Antenna-2 Power Spectral Density Measurements

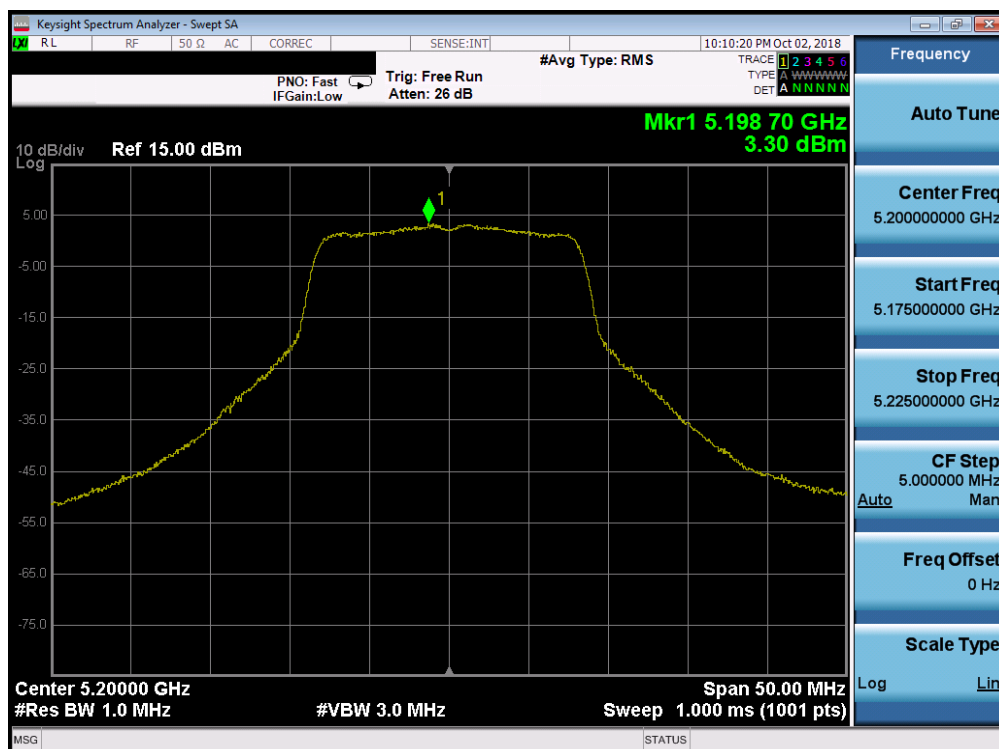
|         | Frequency [MHz] | Channel No. | 802.11 Mode | Data Rate [Mbps] | Measured Power Density [dBm] | Max Power Density [dBm/MHz] | Margin [dB] |
|---------|-----------------|-------------|-------------|------------------|------------------------------|-----------------------------|-------------|
| Band 1  | 5180            | 36          | a           | 6                | 3.31                         | 11.0                        | -7.69       |
|         | 5200            | 40          | a           | 6                | 3.30                         | 11.0                        | -7.70       |
|         | 5240            | 48          | a           | 6                | 3.16                         | 11.0                        | -7.84       |
|         | 5180            | 36          | n (20MHz)   | 6.5/7.2 (MCS0)   | 4.50                         | 11.0                        | -6.50       |
|         | 5200            | 40          | n (20MHz)   | 6.5/7.2 (MCS0)   | 3.86                         | 11.0                        | -7.14       |
|         | 5240            | 48          | n (20MHz)   | 6.5/7.2 (MCS0)   | 4.75                         | 11.0                        | -6.25       |
|         | 5190            | 38          | n (40MHz)   | 13.5/15 (MCS0)   | -3.56                        | 11.0                        | -14.56      |
|         | 5230            | 46          | n (40MHz)   | 13.5/15 (MCS0)   | -0.21                        | 11.0                        | -11.21      |
|         | 5210            | 42          | ac (80MHz)  | 29.3/32.5 (MCS0) | -7.66                        | 11.0                        | -18.66      |
| Band 2A | 5260            | 52          | a           | 6                | 5.10                         | 11.0                        | -5.90       |
|         | 5280            | 56          | a           | 6                | 4.71                         | 11.0                        | -6.29       |
|         | 5320            | 64          | a           | 6                | 4.37                         | 11.0                        | -6.63       |
|         | 5260            | 52          | n (20MHz)   | 6.5/7.2 (MCS0)   | 3.56                         | 11.0                        | -7.44       |
|         | 5280            | 56          | n (20MHz)   | 6.5/7.2 (MCS0)   | 3.29                         | 11.0                        | -7.71       |
|         | 5320            | 64          | n (20MHz)   | 6.5/7.2 (MCS0)   | 3.43                         | 11.0                        | -7.57       |
|         | 5270            | 54          | n (40MHz)   | 13.5/15 (MCS0)   | 0.53                         | 11.0                        | -10.47      |
|         | 5310            | 62          | n (40MHz)   | 13.5/15 (MCS0)   | 0.34                         | 11.0                        | -10.66      |
|         | 5290            | 58          | ac (80MHz)  | 29.3/32.5 (MCS0) | -7.64                        | 11.0                        | -18.64      |
| Band 2C | 5500            | 100         | a           | 6                | 4.90                         | 11.0                        | -6.10       |
|         | 5600            | 120         | a           | 6                | 4.52                         | 11.0                        | -6.48       |
|         | 5720            | 144         | a           | 6                | 5.16                         | 11.0                        | -5.84       |
|         | 5500            | 100         | n (20MHz)   | 6.5/7.2 (MCS0)   | 4.22                         | 11.0                        | -6.78       |
|         | 5600            | 120         | n (20MHz)   | 6.5/7.2 (MCS0)   | 4.06                         | 11.0                        | -6.94       |
|         | 5720            | 144         | n (20MHz)   | 6.5/7.2 (MCS0)   | 3.40                         | 11.0                        | -7.60       |
|         | 5510            | 102         | n (40MHz)   | 13.5/15 (MCS0)   | 0.54                         | 11.0                        | -10.46      |
|         | 5590            | 118         | n (40MHz)   | 13.5/15 (MCS0)   | 0.69                         | 11.0                        | -10.31      |
|         | 5710            | 142         | n (40MHz)   | 13.5/15 (MCS0)   | 0.42                         | 11.0                        | -10.58      |
|         | 5530            | 106         | ac (80MHz)  | 29.3/32.5 (MCS0) | -7.19                        | 11.0                        | -18.19      |
|         | 5610            | 122         | ac (80MHz)  | 29.3/32.5 (MCS0) | -4.18                        | 11.0                        | -15.18      |
|         | 5690            | 138         | ac (80MHz)  | 29.3/32.5 (MCS0) | -6.36                        | 11.0                        | -17.36      |

Table 7-20. Conducted Power Spectral Density Measurements SISO ANT2

|                                         |                                                                                                                                                                                                                        |                               |                                 |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: A3LSMA9200                      |  <b>MEASUREMENT REPORT</b><br>(CERTIFICATION)  |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018                                                                                                                                                                                       | EUT Type:<br>Portable Handset | Page 89 of 171                  |

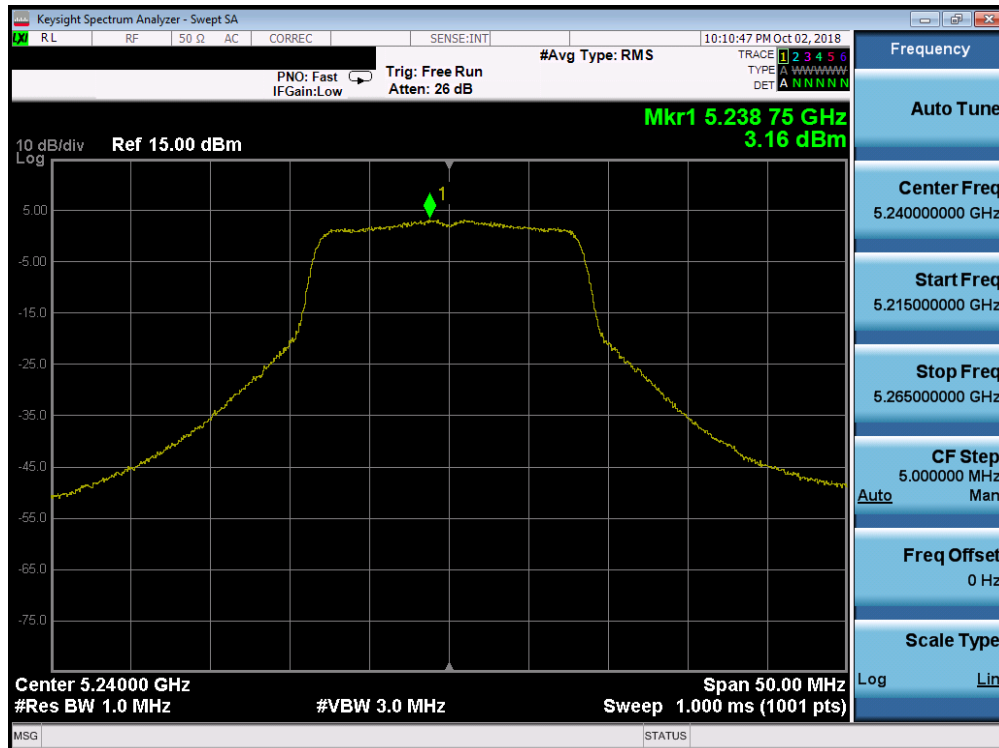


Plot 7-118. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 1) – Ch. 36)

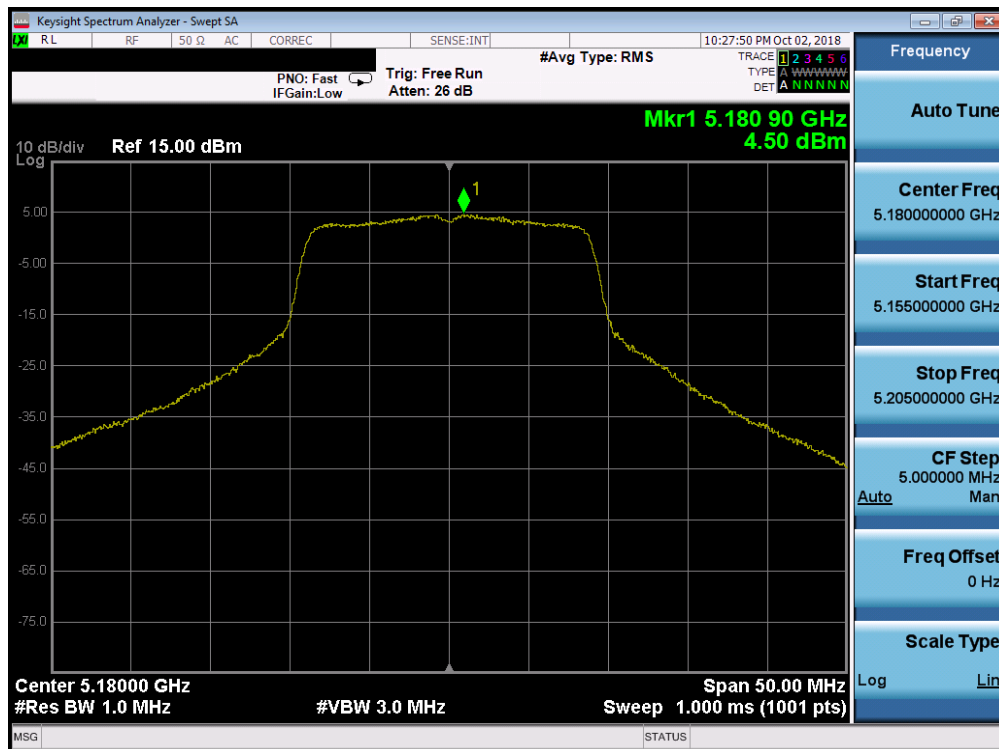


Plot 7-119. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 1) – Ch. 40)

|                                         |                                              |                               |  |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|--|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset |  | Page 90 of 171                  |

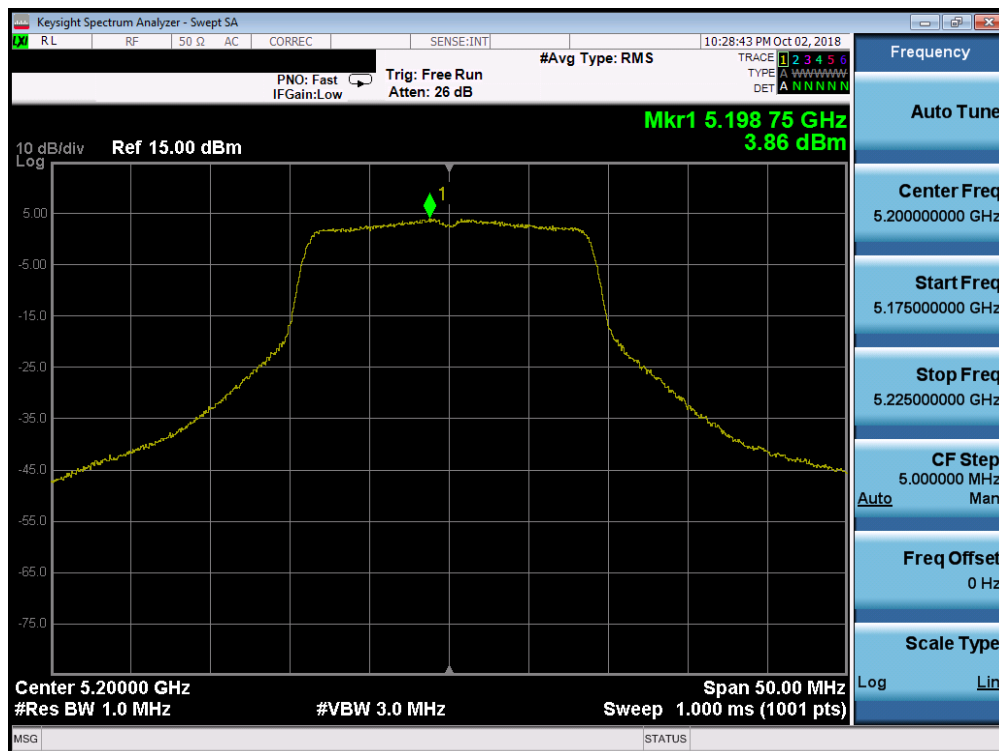


Plot 7-120. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 1) – Ch. 48)

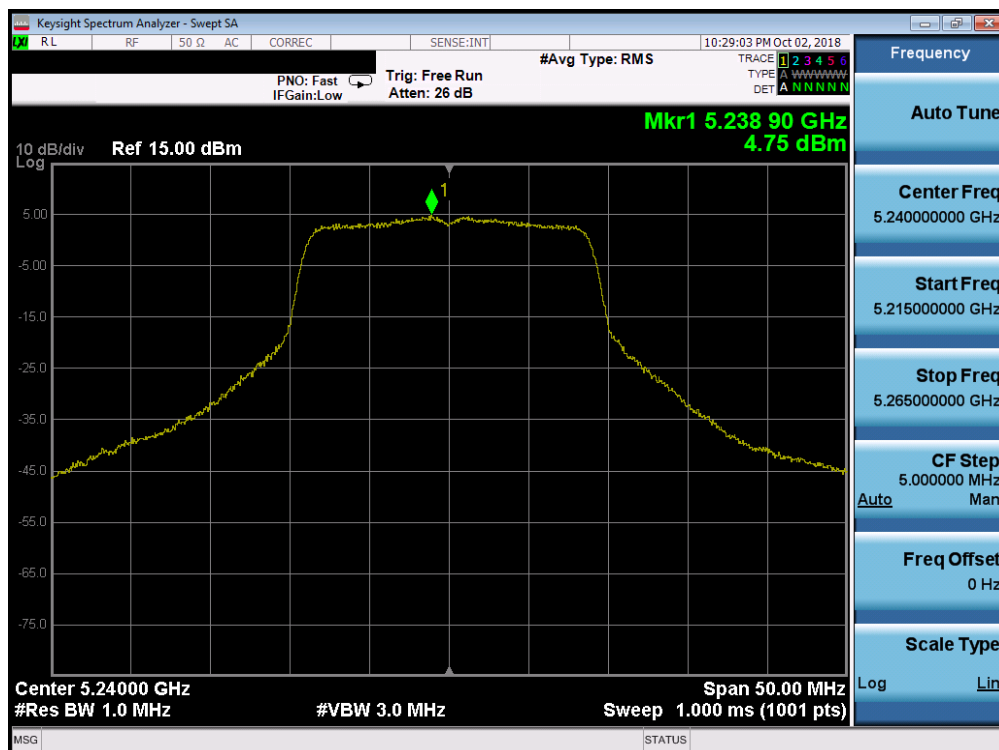


Plot 7-121. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 1) – Ch. 36)

|                                         |                                              |                               |  |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|--|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset |  | Page 91 of 171                  |

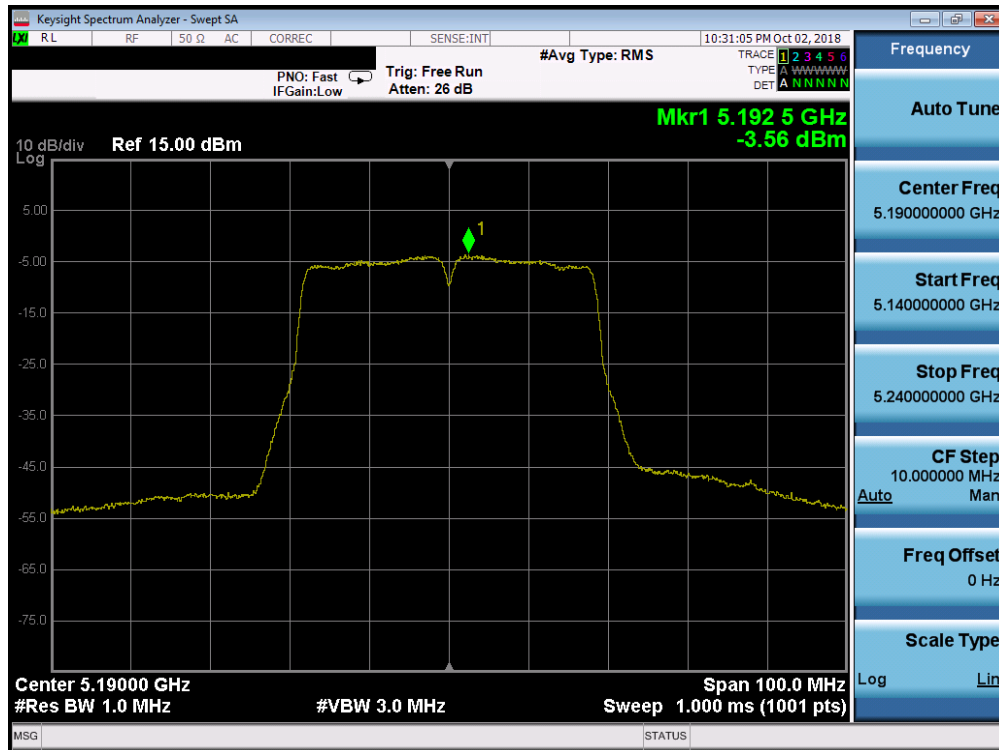


Plot 7-122. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 1) – Ch. 40)

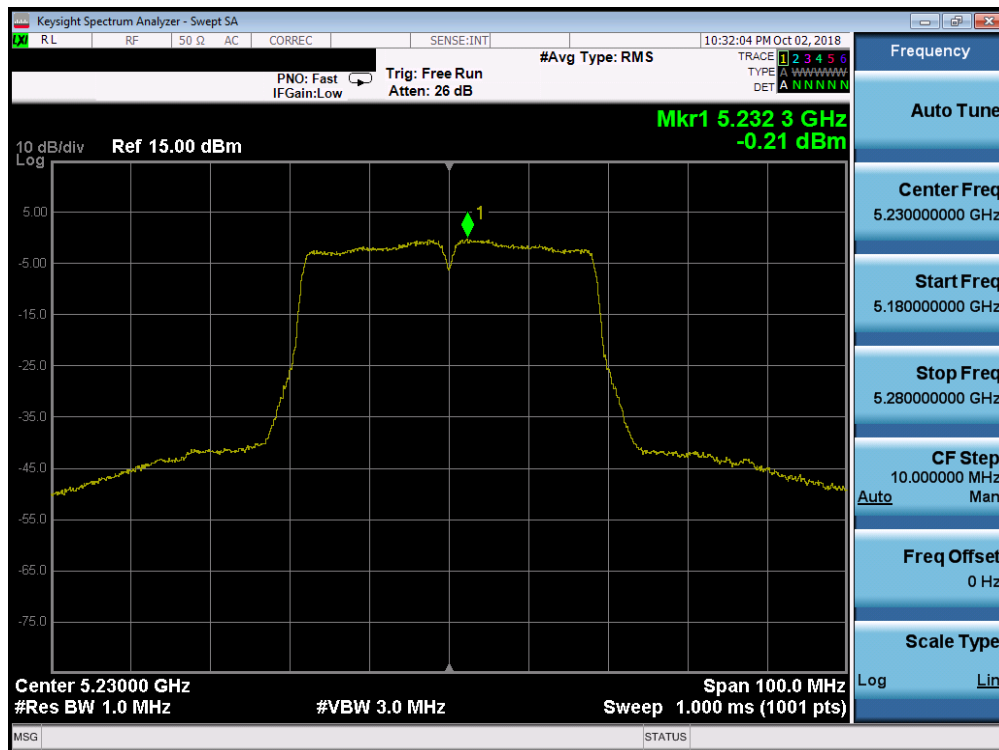


Plot 7-123. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 1) – Ch. 48)

|                                         |                                              |                               |  |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|--|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset |  | Page 92 of 171                  |

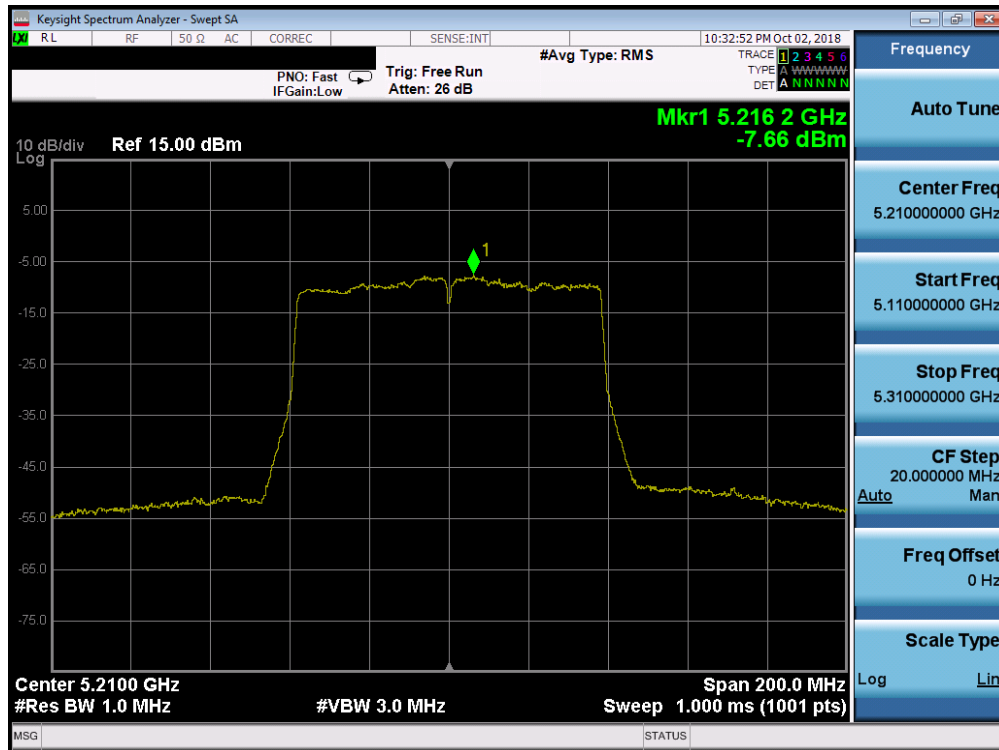


Plot 7-124. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 1) – Ch. 38)

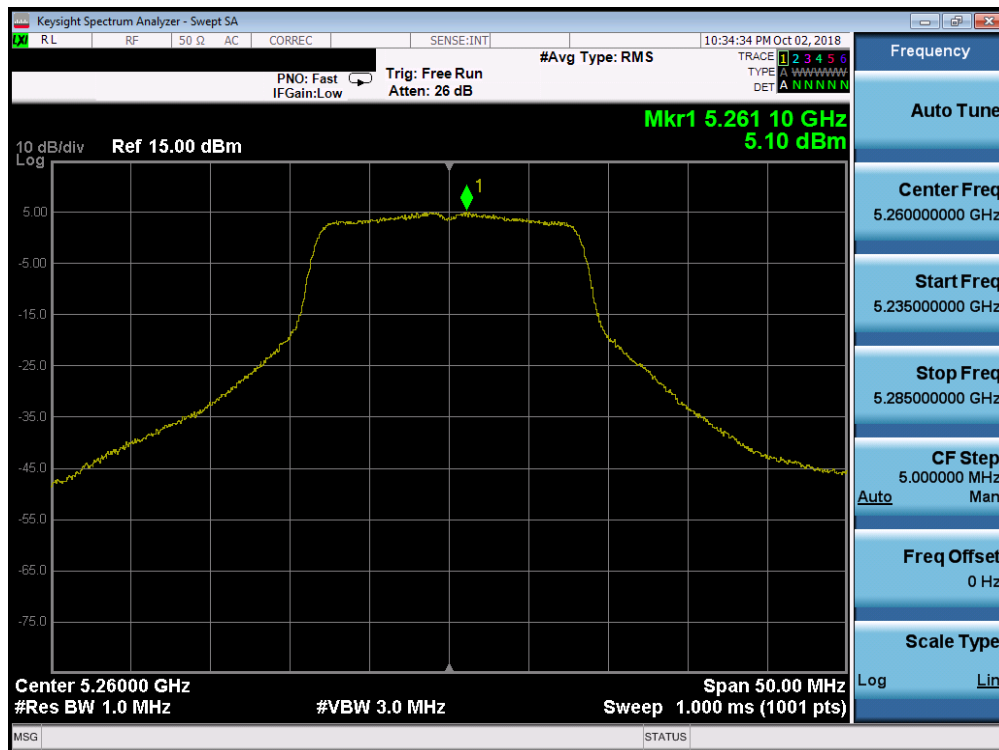


Plot 7-125. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 1) – Ch. 46)

|                                         |                                              |                               |                |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |                | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset | Page 93 of 171 |                                 |

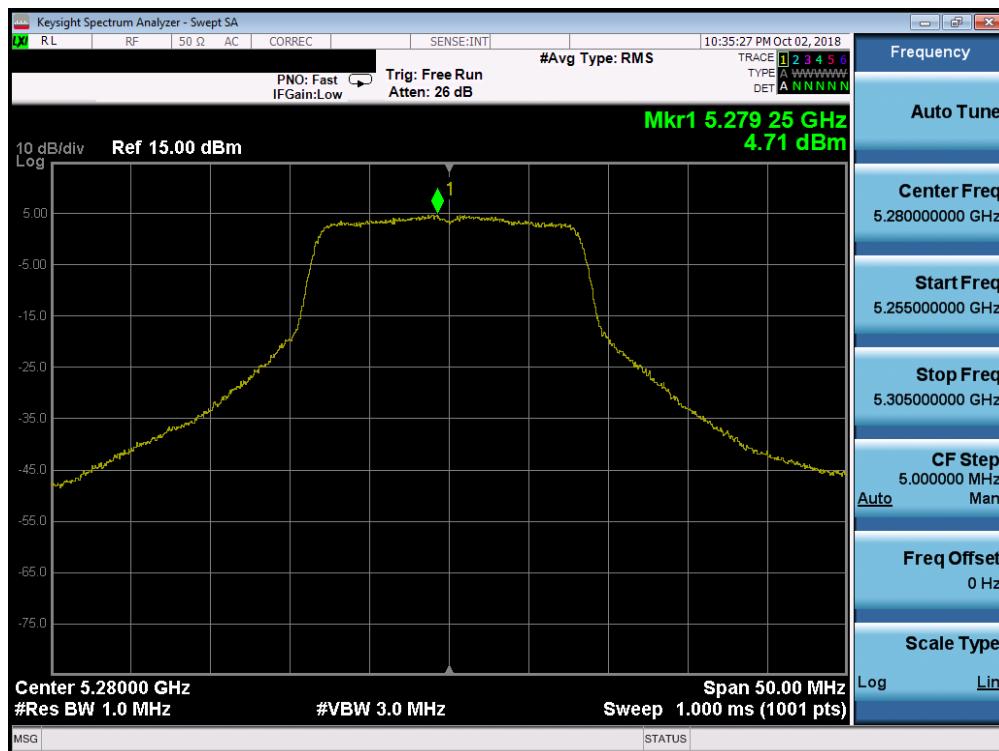


Plot 7-126. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ac (UNII Band 1) – Ch. 42)

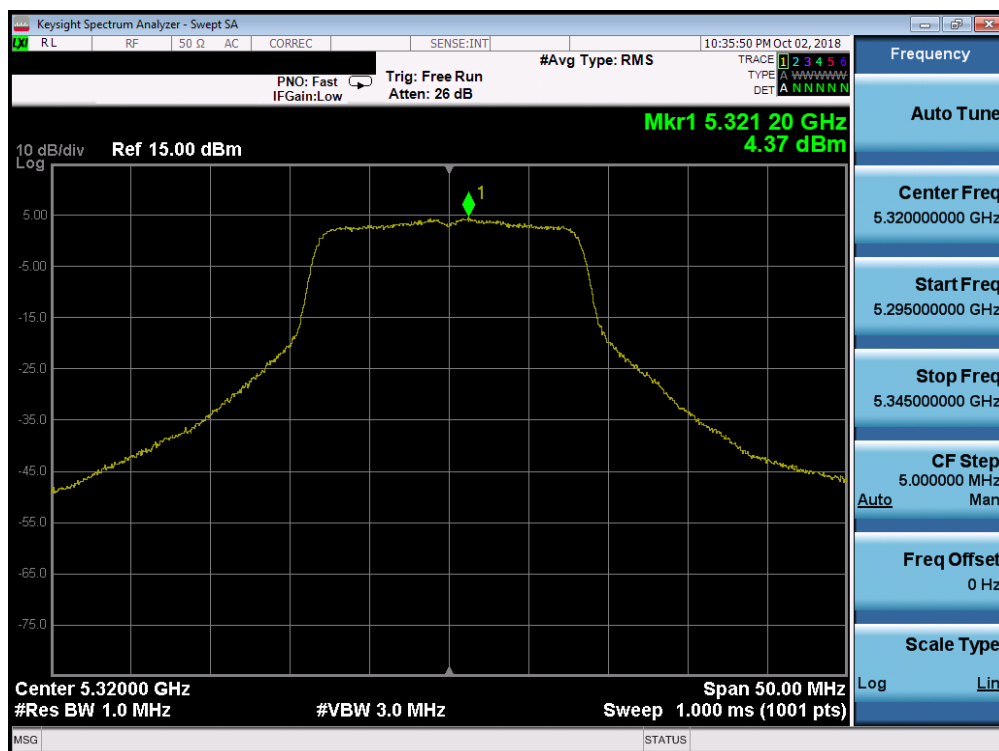


Plot 7-127. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 2A) – Ch. 52)

|                                         |                                              |                               |                |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |                | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset | Page 94 of 171 |                                 |

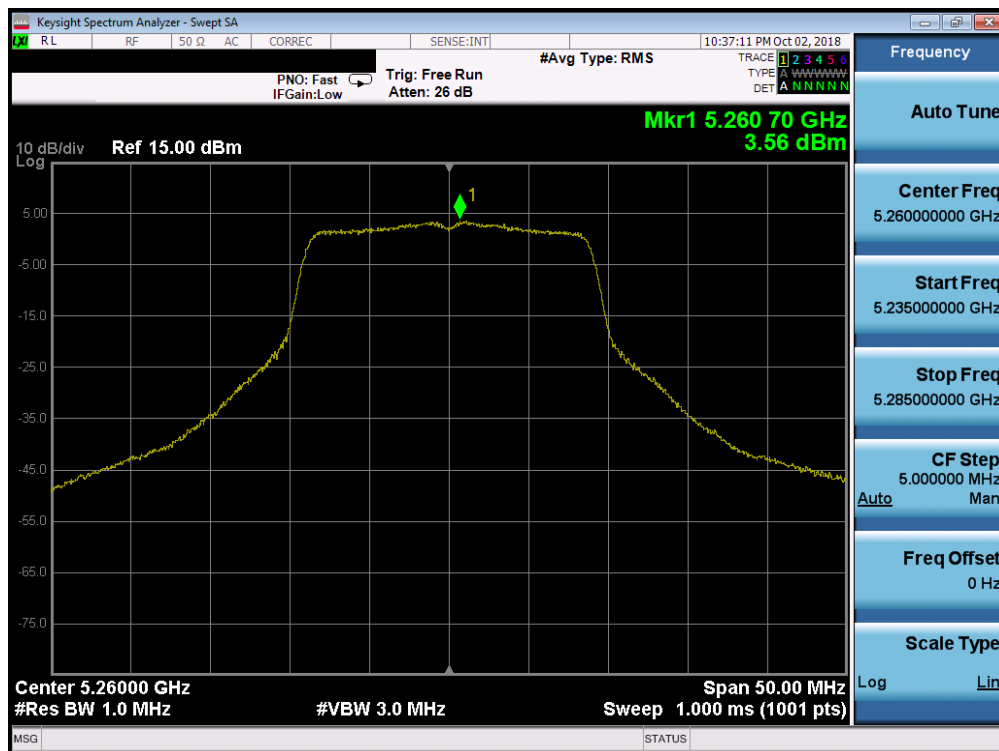


Plot 7-128. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 2A) – Ch. 56)

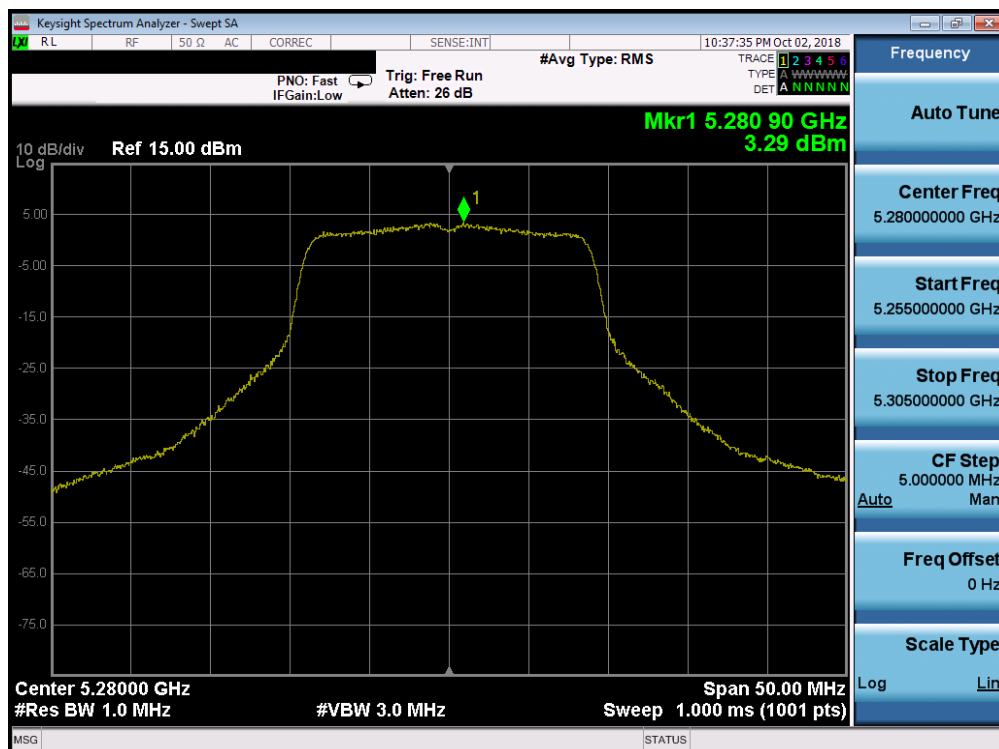


Plot 7-129. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 2A) – Ch. 64)

|                                         |                                              |                               |  |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|--|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset |  | Page 95 of 171                  |

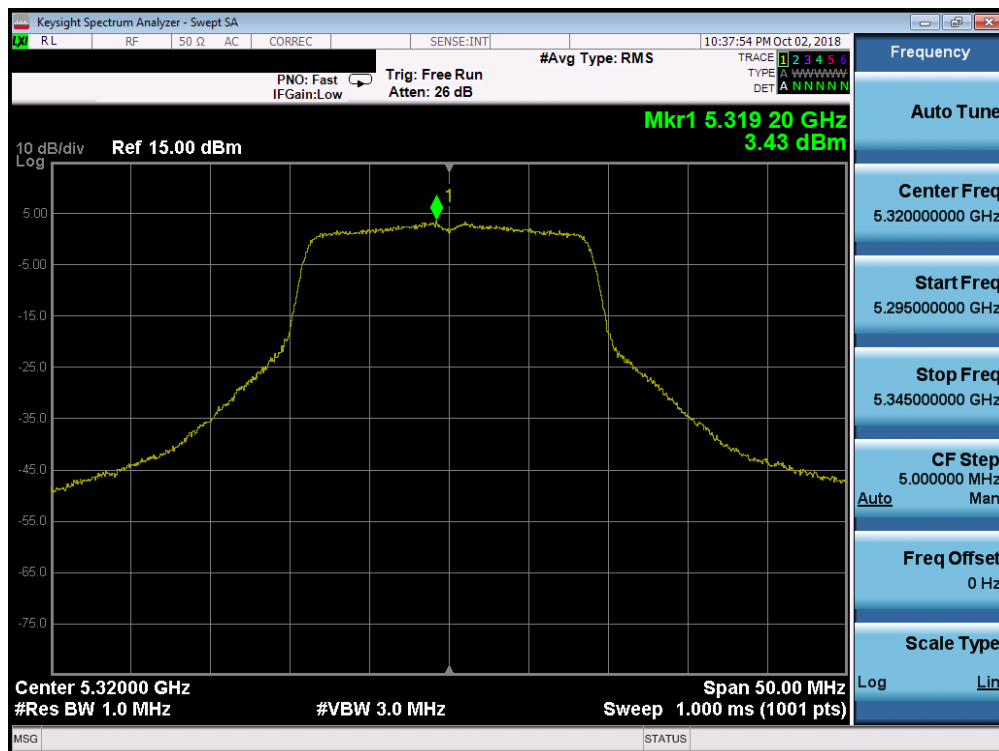


Plot 7-130. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2A) – Ch. 52)

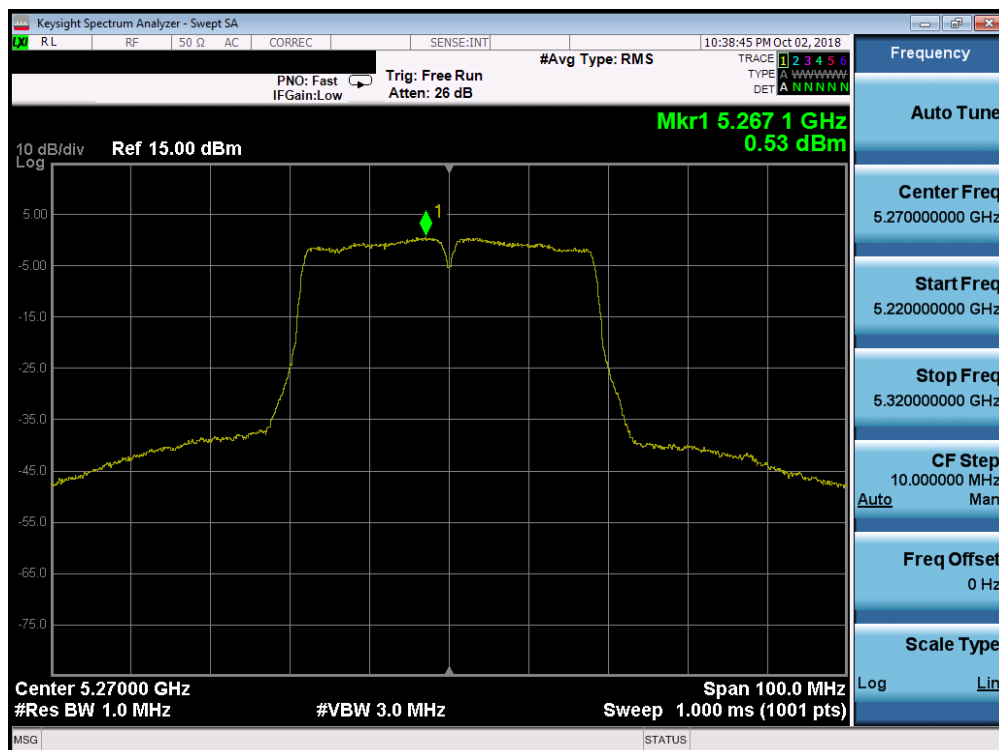


Plot 7-131. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2A) – Ch. 56)

|                                         |                                              |                               |  |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|--|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset |  | Page 96 of 171                  |

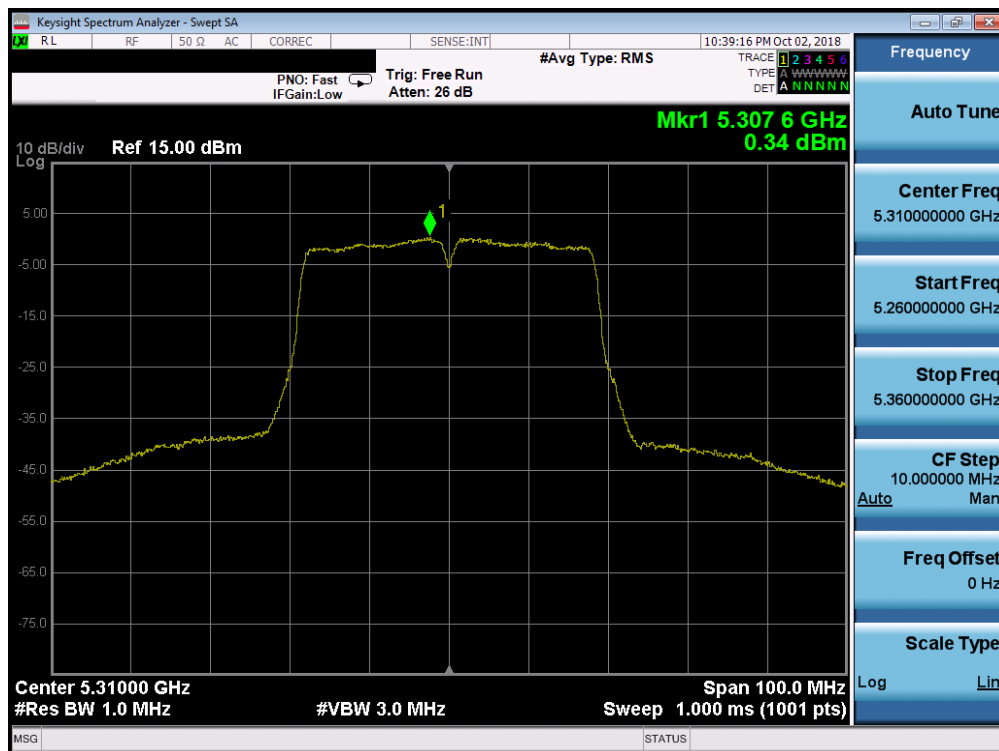


Plot 7-132. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2A) – Ch. 64)

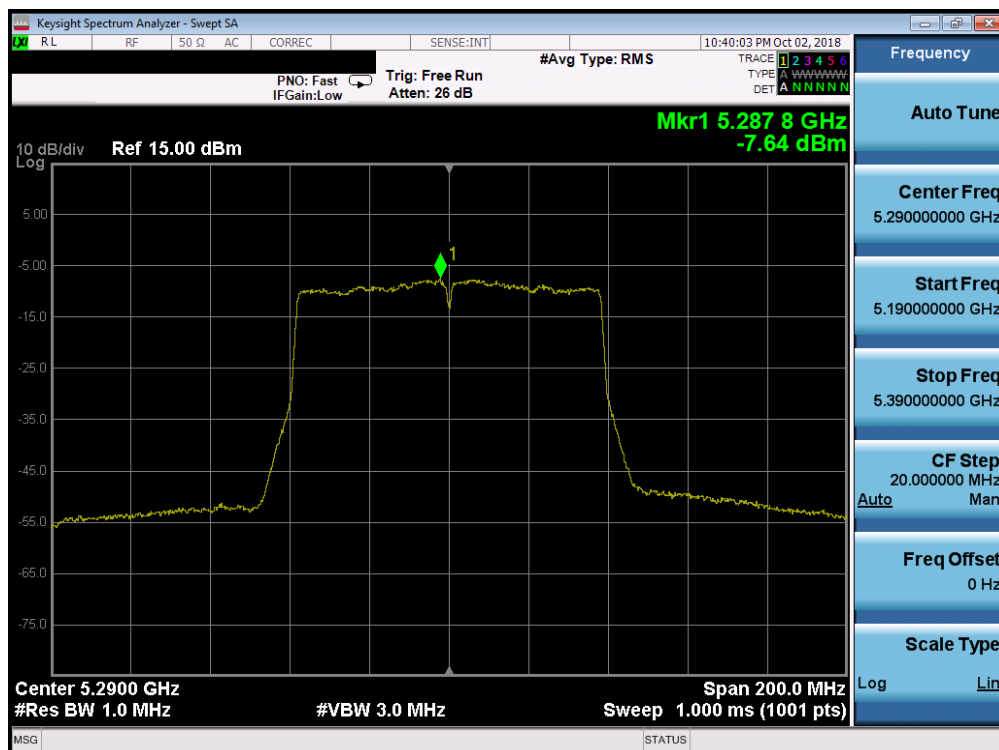


Plot 7-133. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 2A) – Ch. 54)

|                                         |                                               |                               |                                 |
|-----------------------------------------|-----------------------------------------------|-------------------------------|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT<br/>(CERTIFICATION)</b> |                               | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018              | EUT Type:<br>Portable Handset | Page 97 of 171                  |

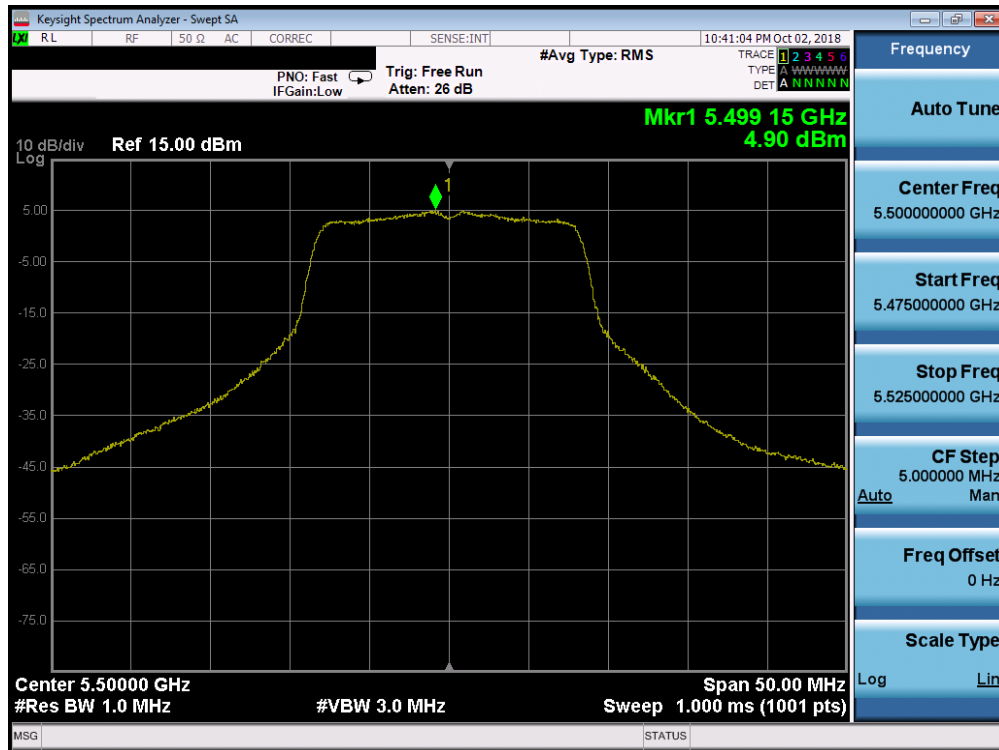


Plot 7-134. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 2A) – Ch. 62)

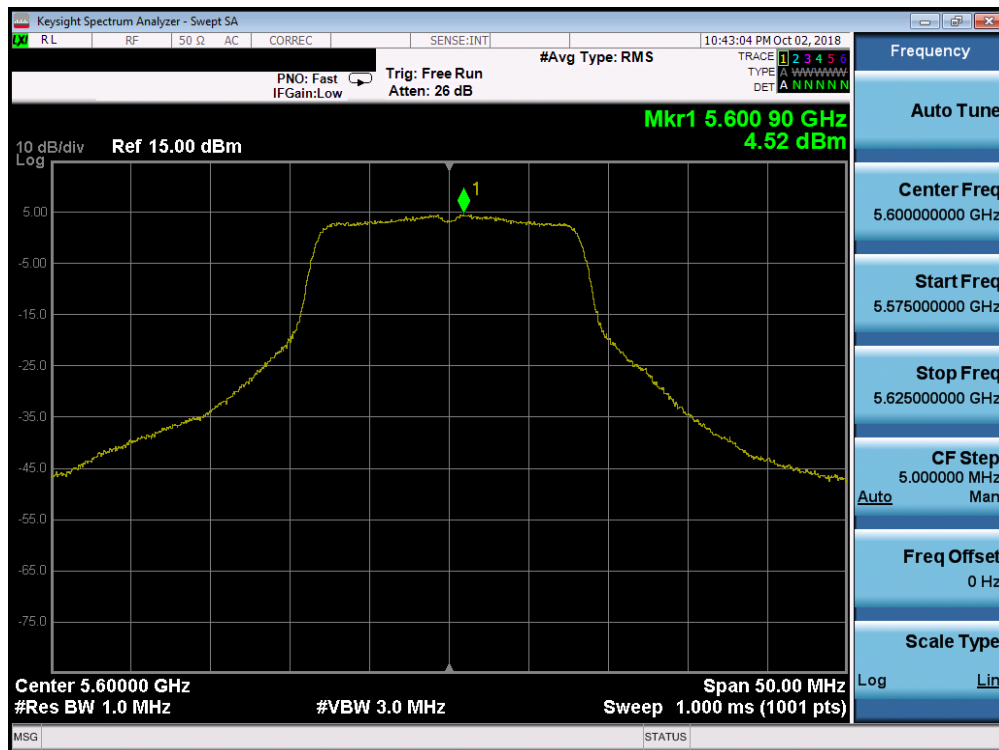


Plot 7-135. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ac (UNII Band 2A) – Ch. 58)

|                                         |                                              |                               |  |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|--|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset |  | Page 98 of 171                  |

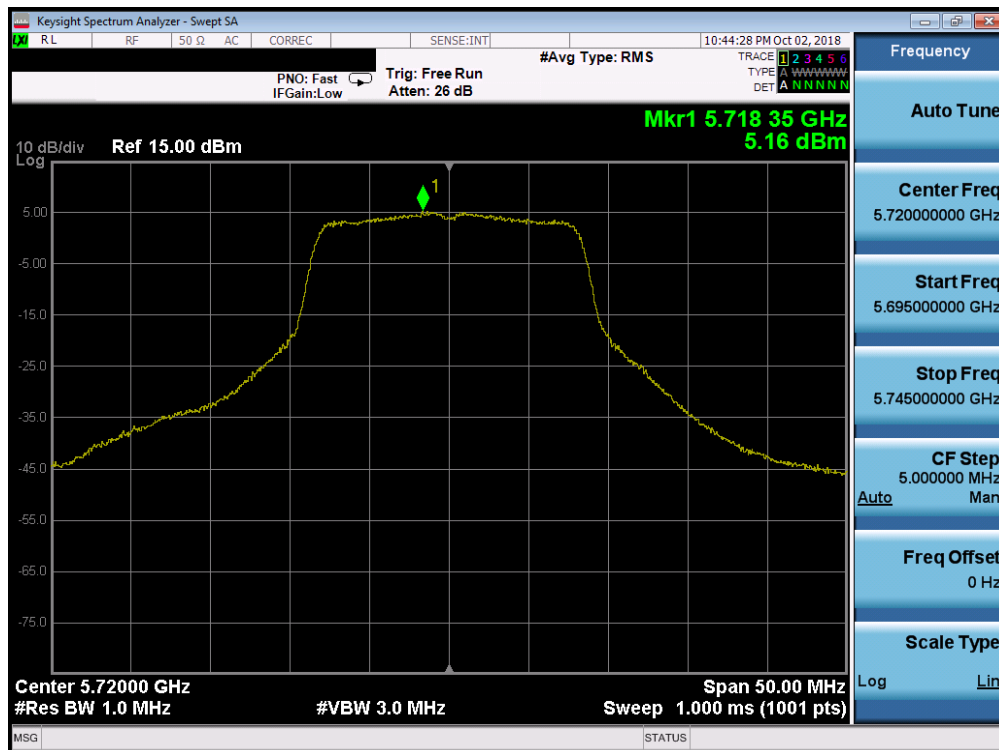


Plot 7-136. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 2C) – Ch. 100)

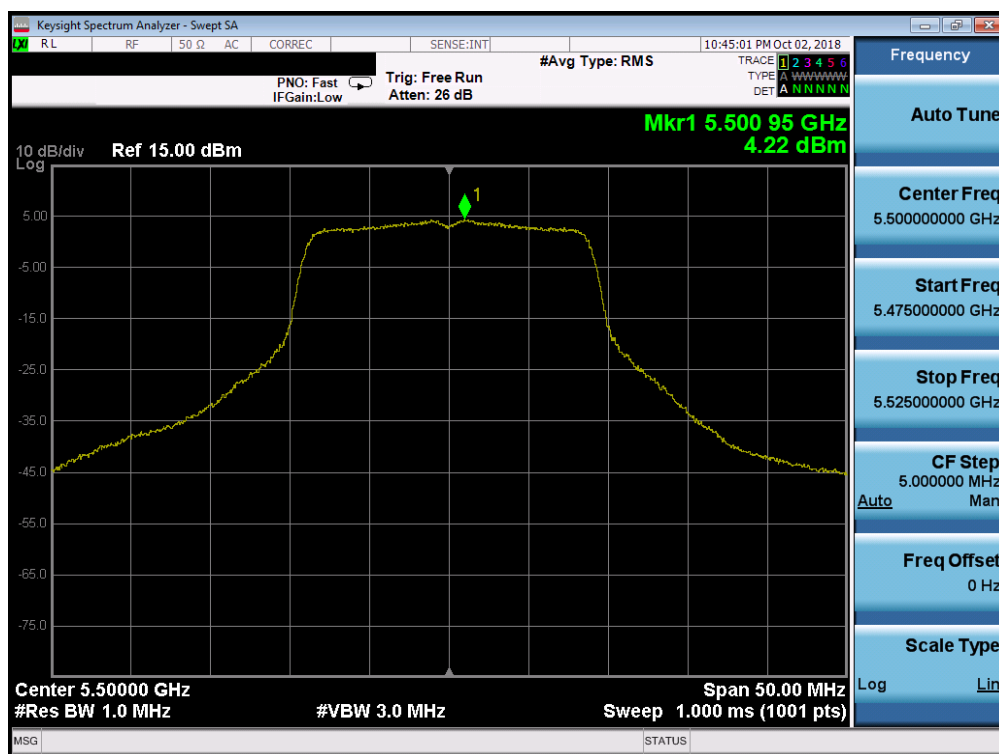


Plot 7-137. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 2C) – Ch. 120)

|                                         |                                              |                               |                |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|----------------|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |                | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset | Page 99 of 171 |                                 |

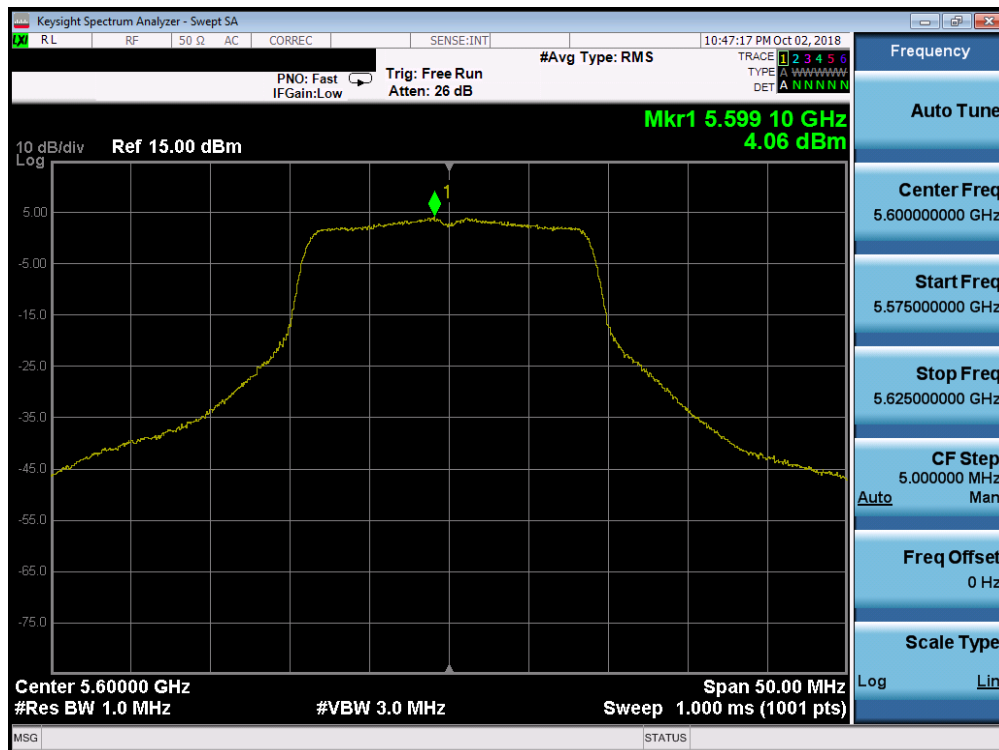


Plot 7-138. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 2C) – Ch. 144)

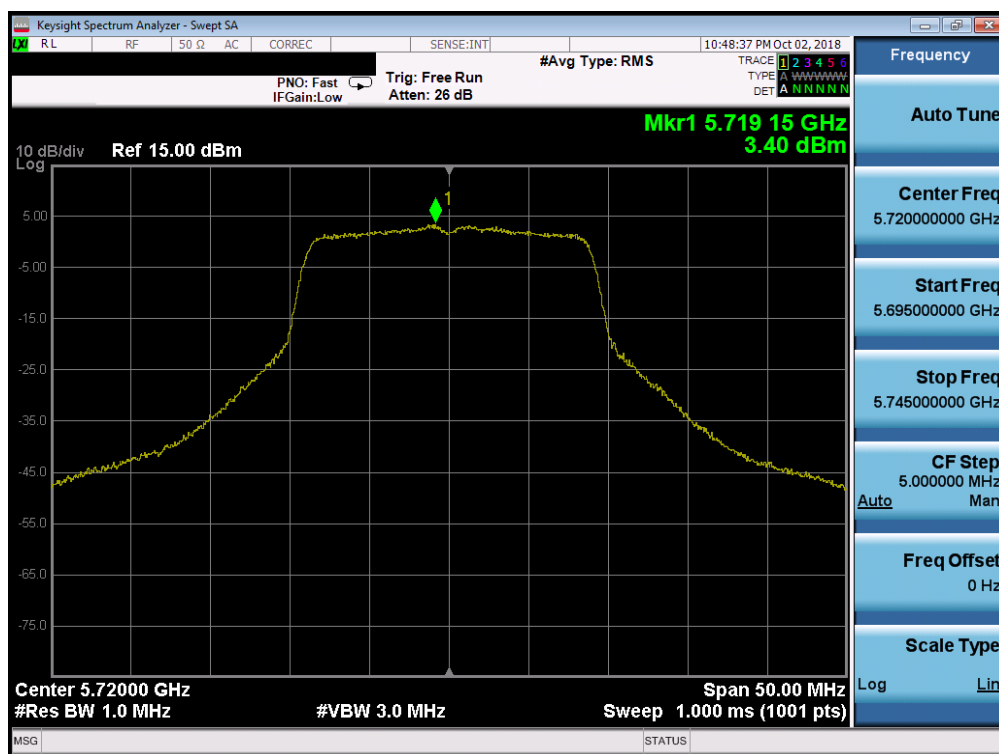


Plot 7-139. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2C) – Ch. 100)

|                                         |                                              |                               |  |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|--|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset |  | Page 100 of 171                 |

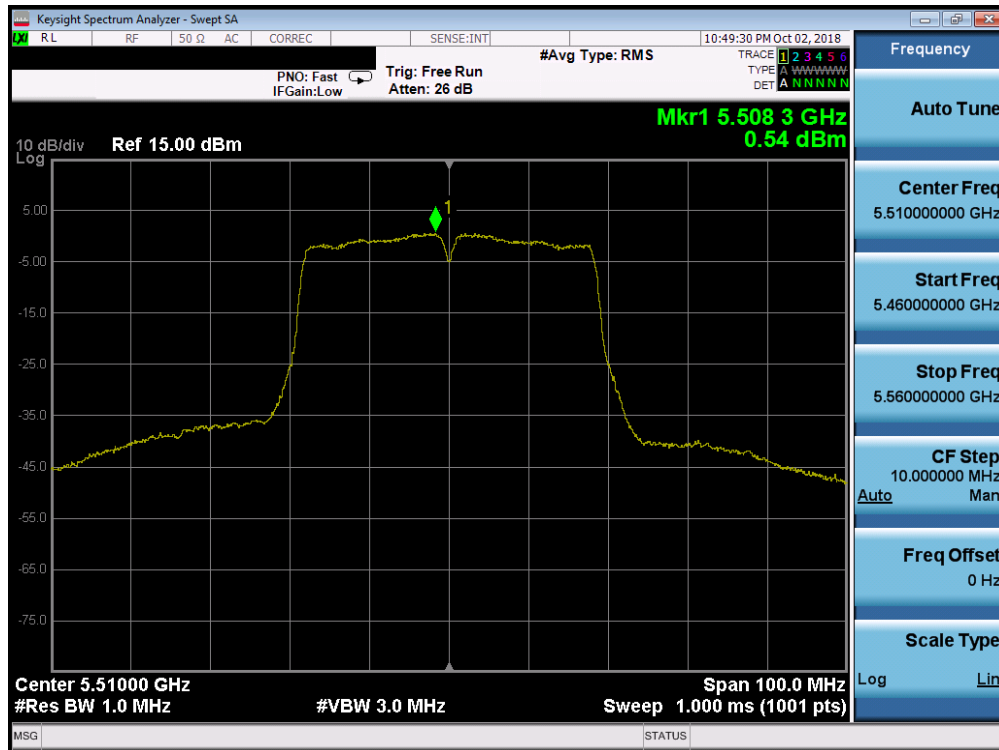


Plot 7-140. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2C) – Ch. 120)

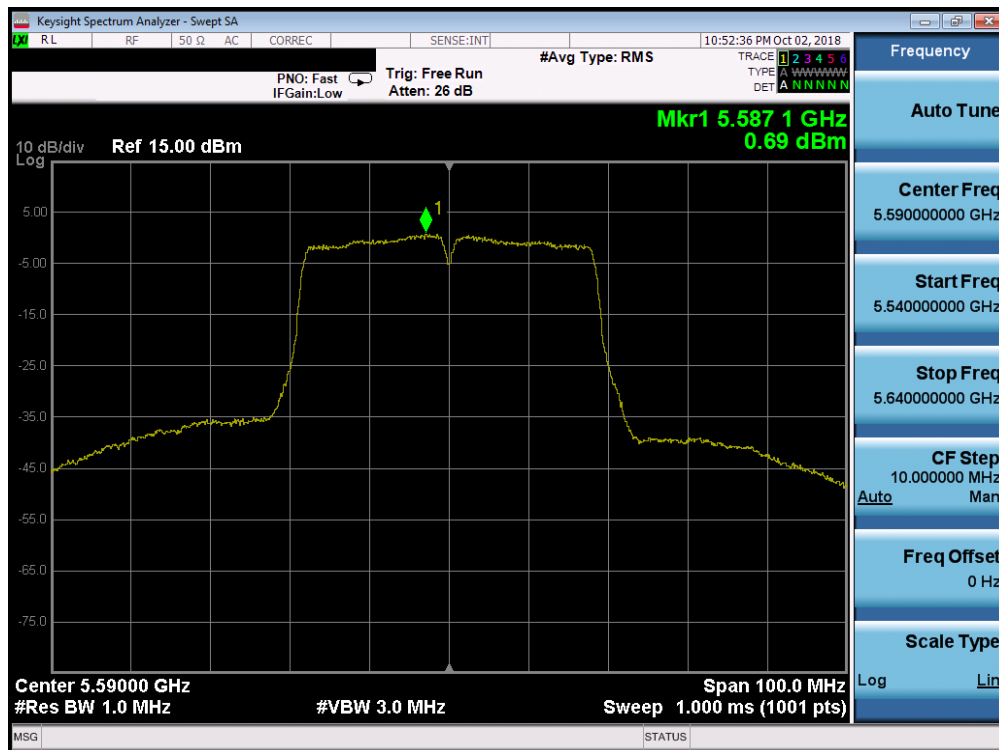


Plot 7-141. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11n (UNII Band 2C) – Ch. 144)

|                                         |                                              |                               |  |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|--|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset |  | Page 101 of 171                 |

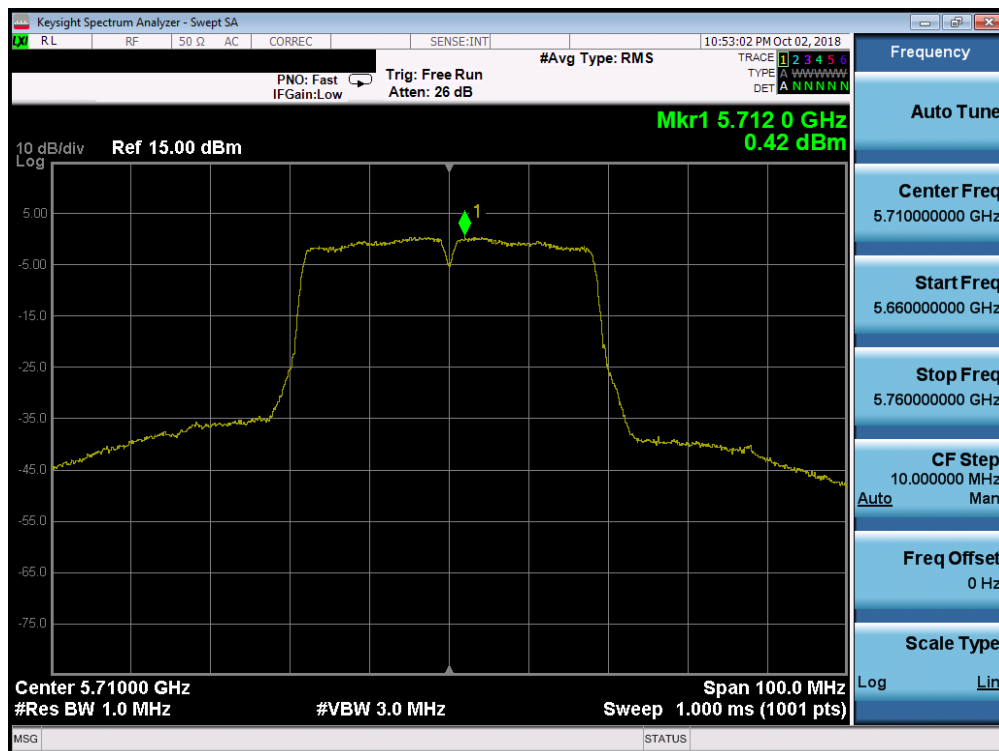


Plot 7-142. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 2C) – Ch. 102)

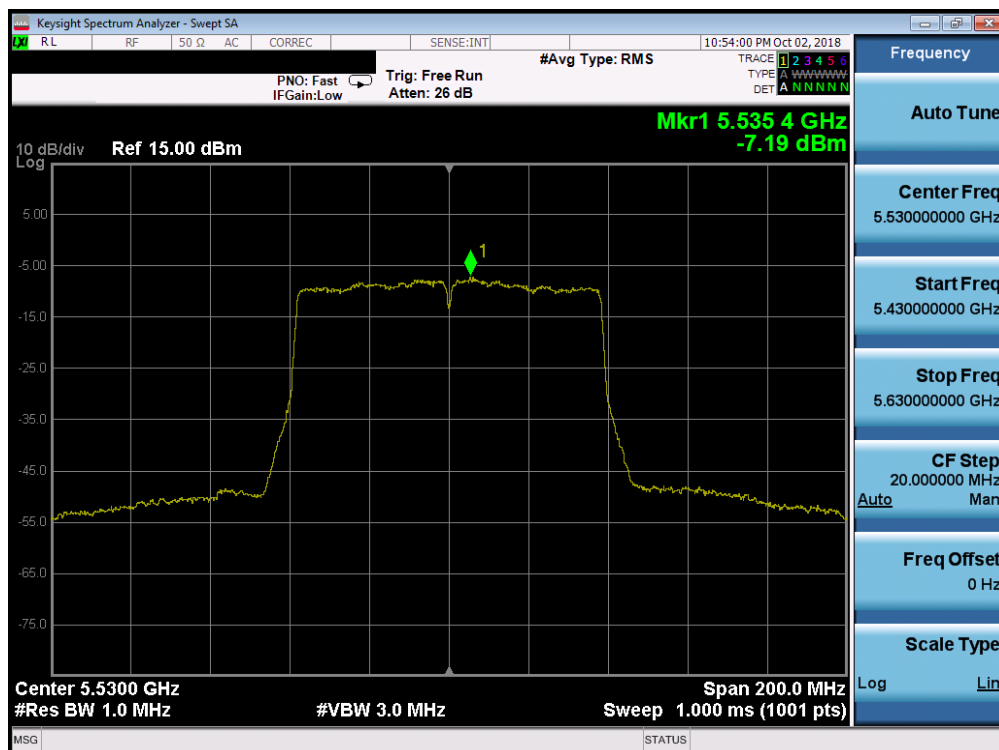


Plot 7-143. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 2C) – Ch. 118)

|                                         |                                              |                               |                 |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|-----------------|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |                 | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset | Page 102 of 171 |                                 |

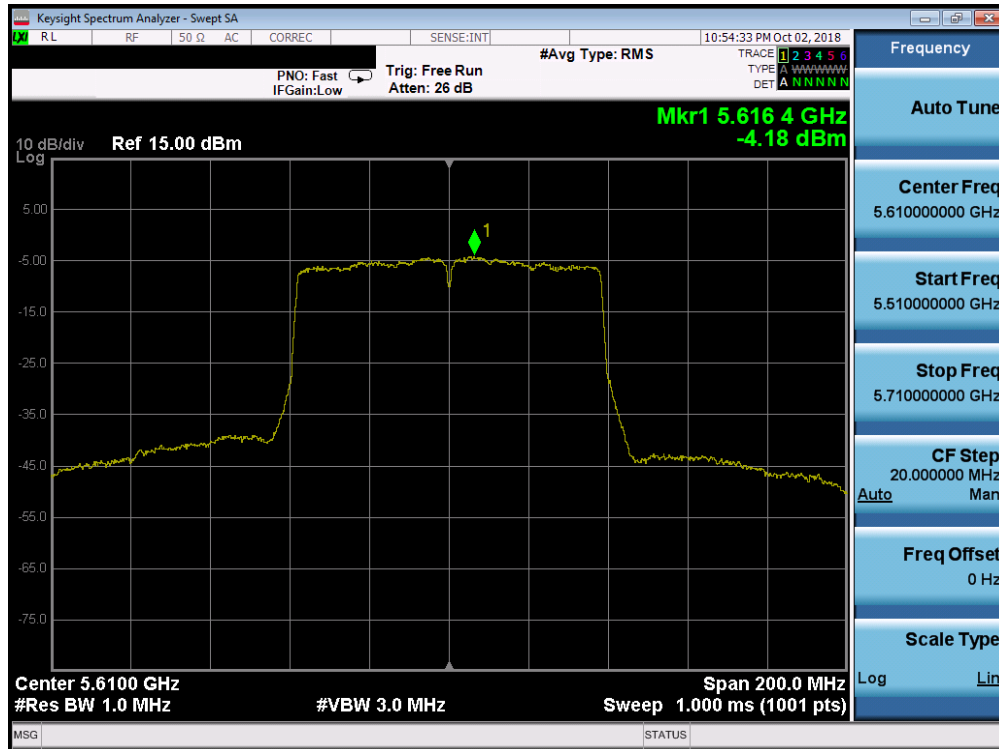


Plot 7-144. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11n (UNII Band 2C) – Ch. 142)

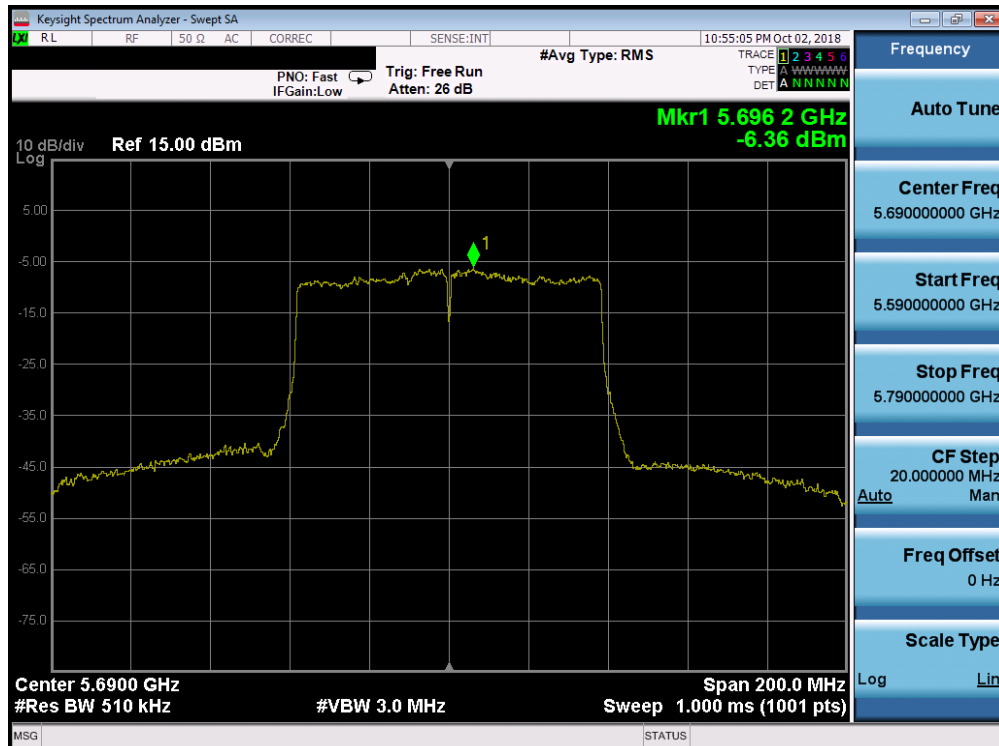


Plot 7-145. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 106)

|                                         |                                              |                               |  |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|--|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset |  | Page 103 of 171                 |



Plot 7-146. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 122)

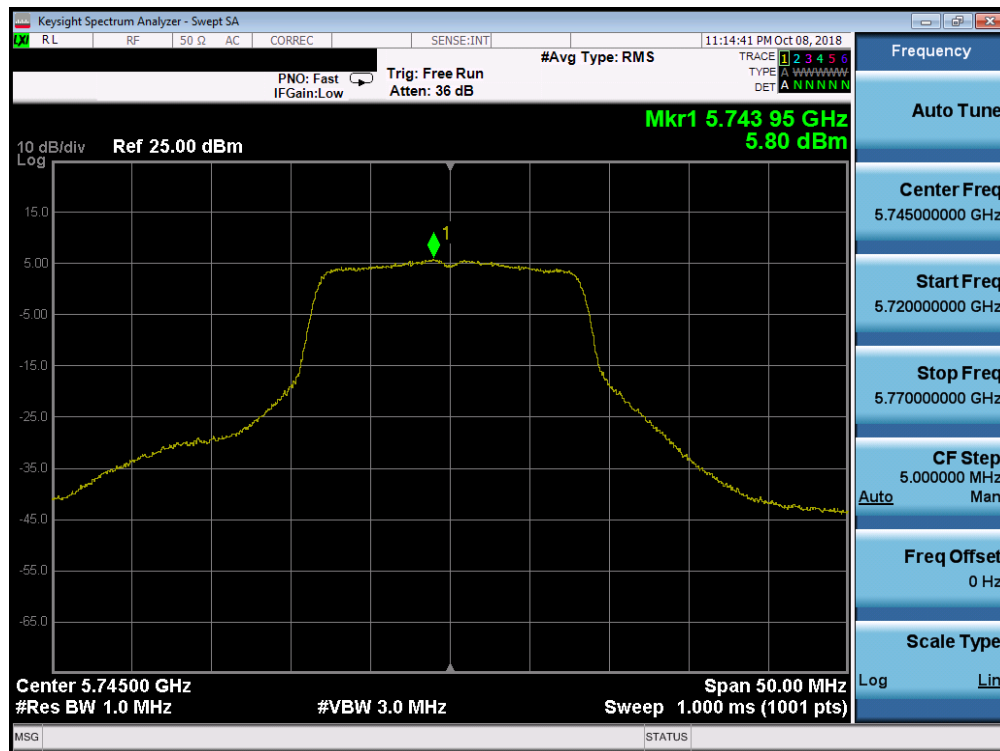


Plot 7-147. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ac (UNII Band 2C) – Ch. 138)

|                                         |                                              |                               |  |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|--|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset |  | Page 104 of 171                 |

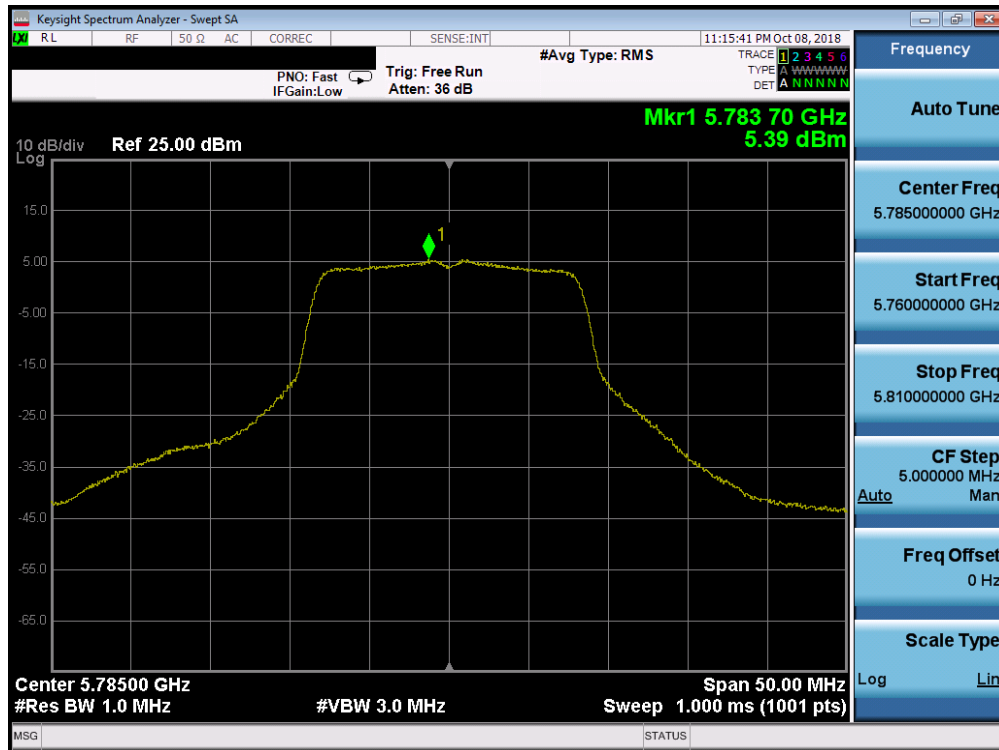
|        | Frequency [MHz] | Channel No. | 802.11 Mode | Data Rate [Mbps] | Measured Power Density [dBm] | Max Permissible Power Density [dBm/500kHz] | Margin [dB] |
|--------|-----------------|-------------|-------------|------------------|------------------------------|--------------------------------------------|-------------|
| Band 3 | 5745            | 149         | a           | 6                | 5.80                         | 30.0                                       | -24.20      |
|        | 5785            | 157         | a           | 6                | 5.39                         | 30.0                                       | -24.61      |
|        | 5825            | 165         | a           | 6                | 5.45                         | 30.0                                       | -24.55      |
|        | 5745            | 149         | n (20MHz)   | 6.5/7.2 (MCS0)   | 5.40                         | 30.0                                       | -24.60      |
|        | 5785            | 157         | n (20MHz)   | 6.5/7.2 (MCS0)   | 4.72                         | 30.0                                       | -25.28      |
|        | 5825            | 165         | n (20MHz)   | 6.5/7.2 (MCS0)   | 4.87                         | 30.0                                       | -25.13      |
|        | 5755            | 151         | n (40MHz)   | 13.5/15 (MCS0)   | 0.02                         | 30.0                                       | -29.98      |
|        | 5795            | 159         | n (40MHz)   | 13.5/15 (MCS0)   | -0.61                        | 30.0                                       | -30.61      |
|        | 5775            | 155         | ac (80MHz)  | 29.3/32.5 (MCS0) | -2.24                        | 30.0                                       | -32.24      |

**Table 7-21. Band 3 Conducted Power Spectral Density Measurements SISO ANT2**

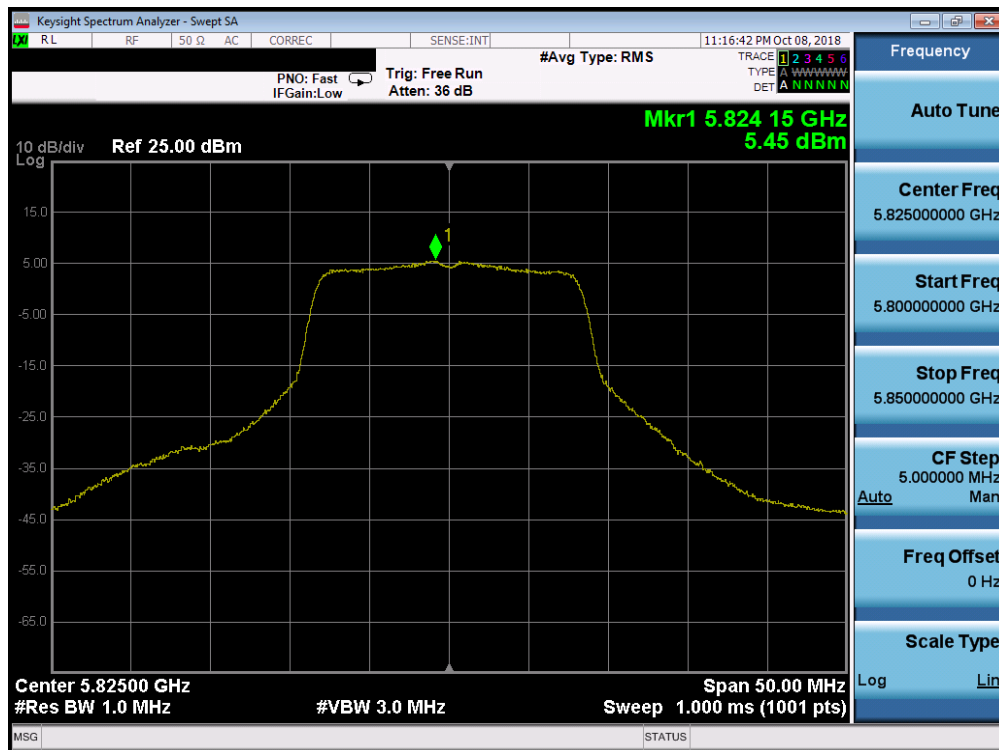


**Plot 7-148. Power Spectral Density Plot SISO ANT2 (802.11a) (UNII Band 3) – Ch. 149)**

|                                         |                                              |                               |  |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|--|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |  | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset |  | Page 105 of 171                 |



Plot 7-149. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 3) – Ch. 157)



Plot 7-150. Power Spectral Density Plot SISO ANT2 (802.11a (UNII Band 3) – Ch. 165)

|                                         |                                              |                               |                 |                                 |
|-----------------------------------------|----------------------------------------------|-------------------------------|-----------------|---------------------------------|
| FCC ID: A3LSMA9200                      | <b>MEASUREMENT REPORT</b><br>(CERTIFICATION) |                               |                 | Approved by:<br>Quality Manager |
| Test Report S/N:<br>1M1809140179-05.A3L | Test Dates:<br>8/30 - 10/13/2018             | EUT Type:<br>Portable Handset | Page 106 of 171 |                                 |