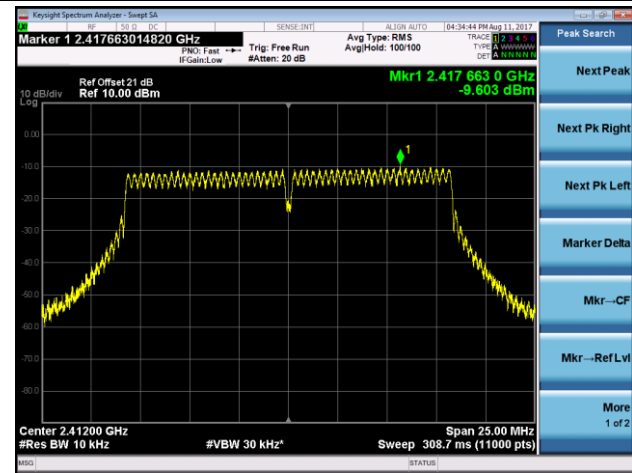
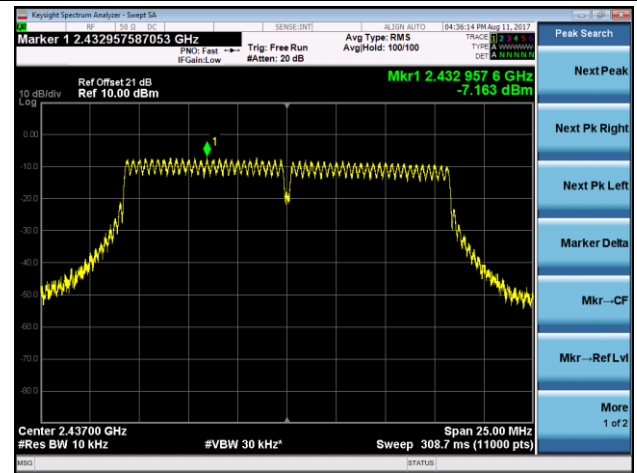


## 802.11g AVGPDS - Ant 2

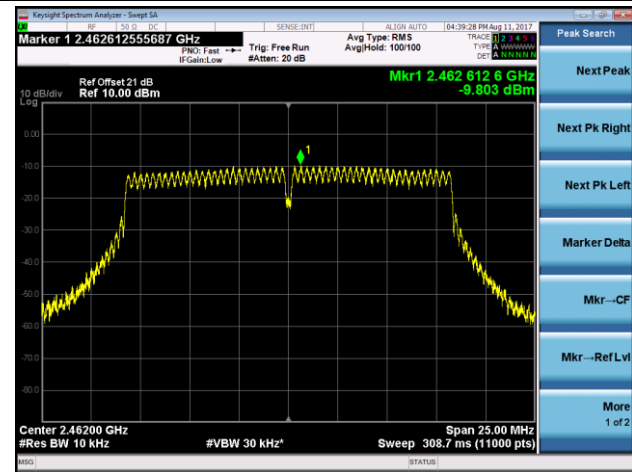
### Channel 01 (2412MHz)



### Channel 06 (2437MHz)

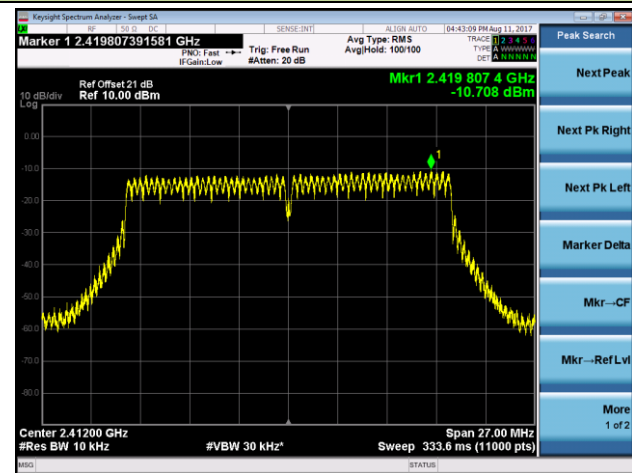


### Channel 11 (2462MHz)

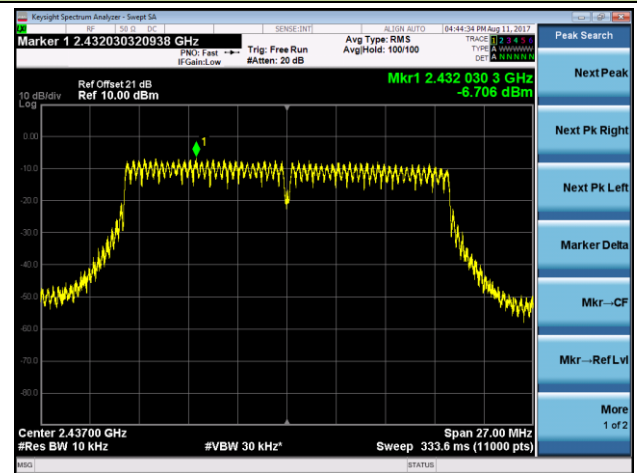


## 802.11n-HT20 AVGPSD - Ant 2

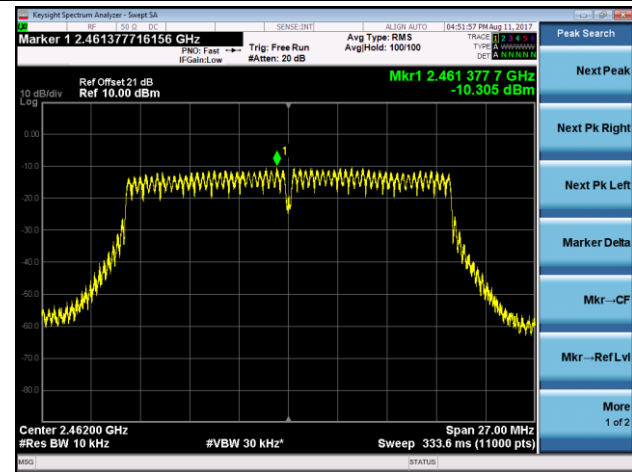
## Channel 01 (2412MHz)



## Channel 06 (2437MHz)

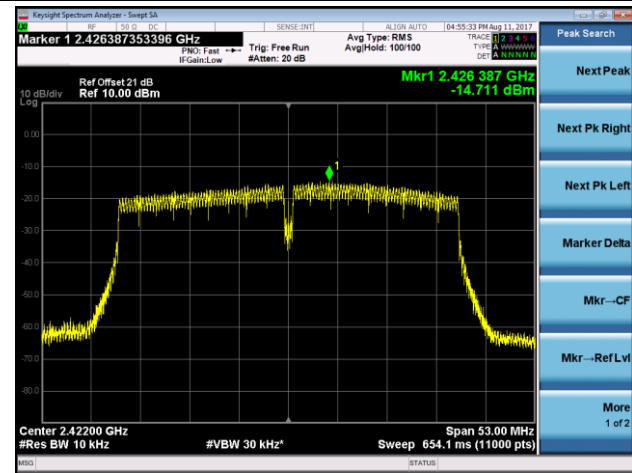


## Channel 11 (2462MHz)

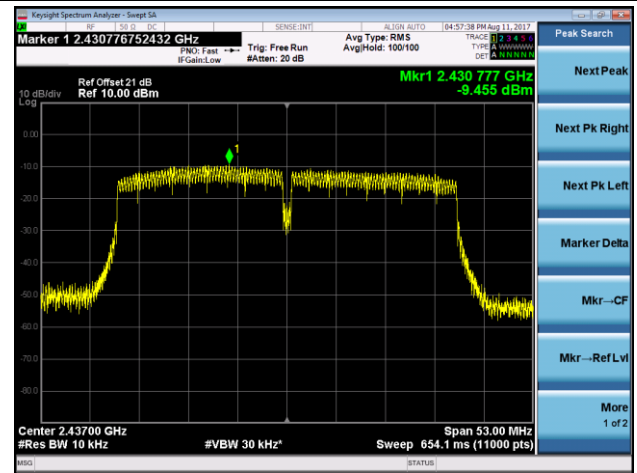


## 802.11n-HT40 AVGPSD - Ant 2

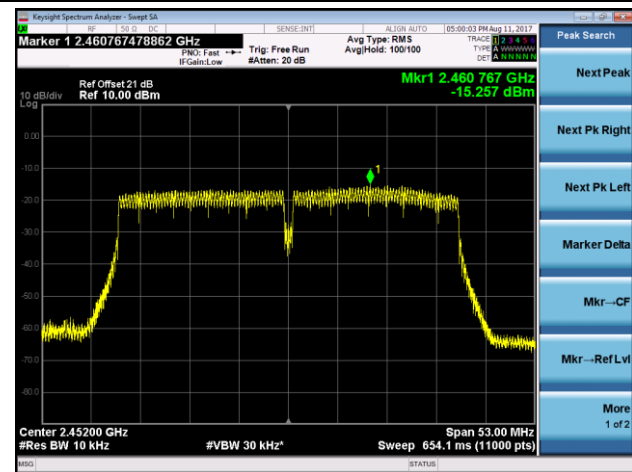
### Channel 03 (2422MHz)



### Channel 06 (2437MHz)

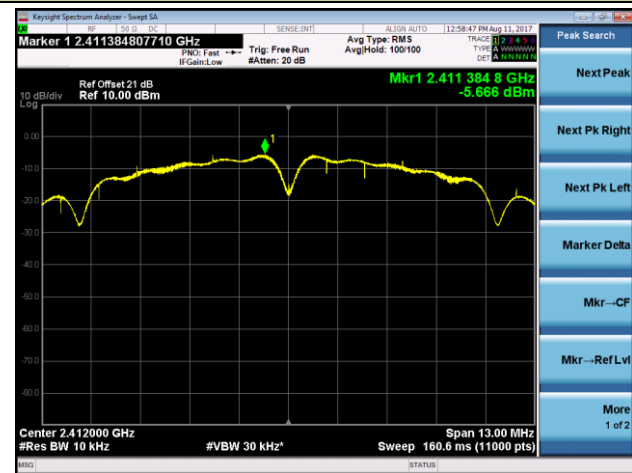


### Channel 09 (2452MHz)

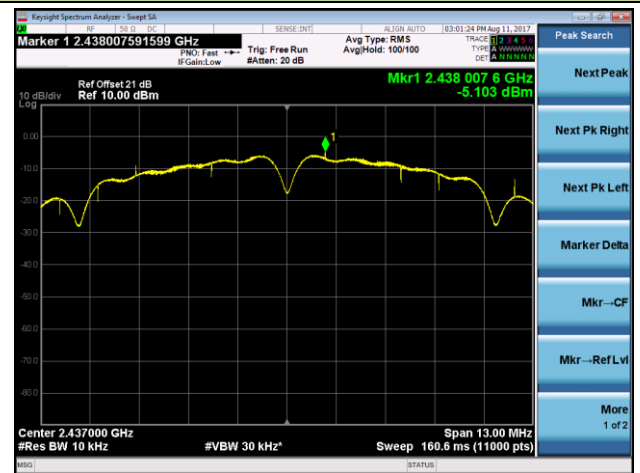


## 802.11b AVGPDS - Ant 1 / Ant 1 + 2 (CDD Mode)

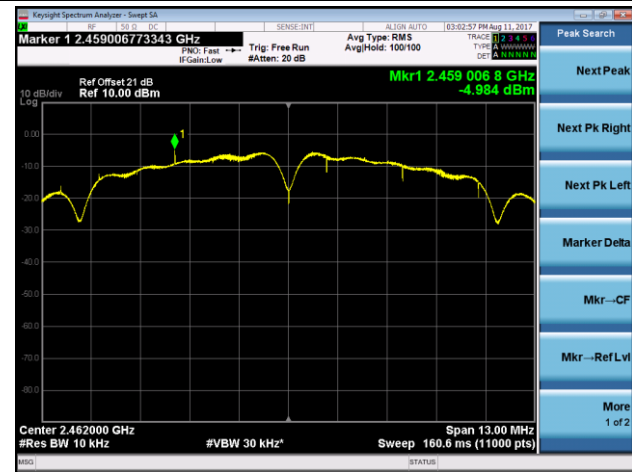
## Channel 01 (2412MHz)



## Channel 06 (2437MHz)

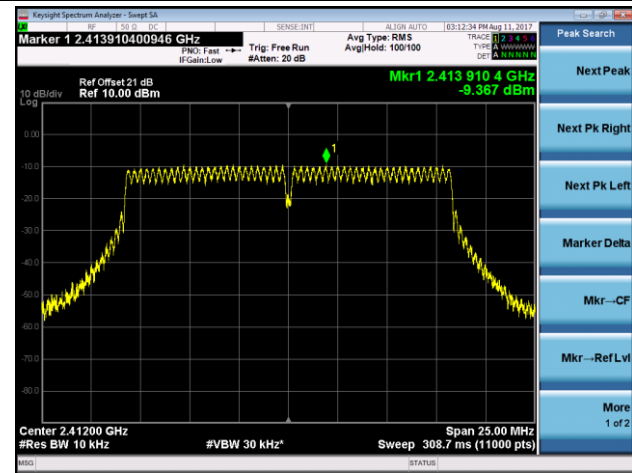


## Channel 11 (2462MHz)

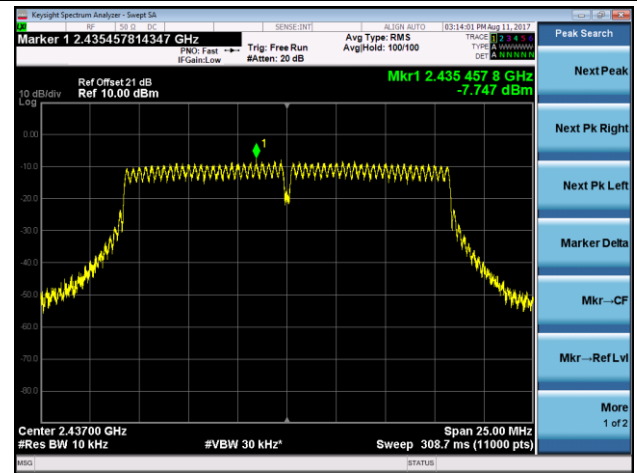


## 802.11g AVGPDS - Ant 1 / Ant 1 + 2 (CDD Mode)

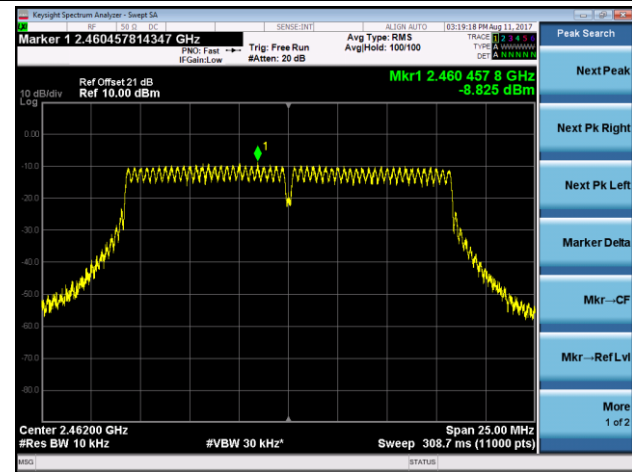
## Channel 01 (2412MHz)



## Channel 06 (2437MHz)

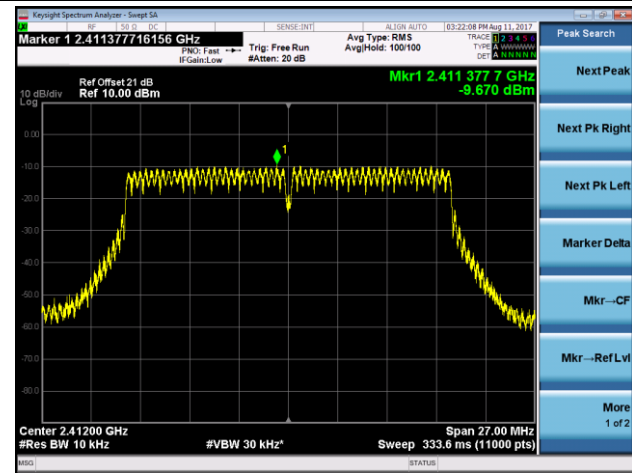


## Channel 11 (2462MHz)

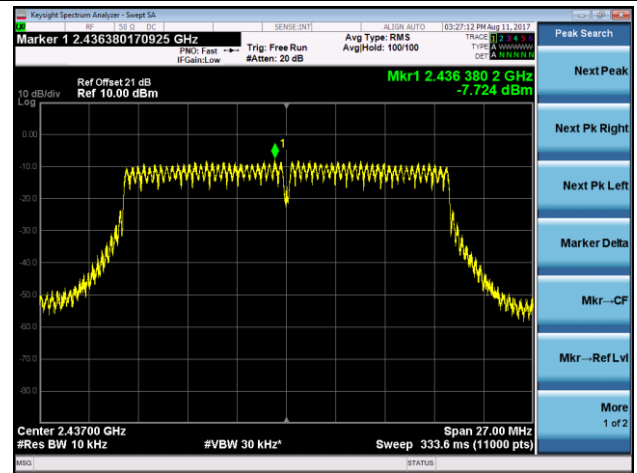


## 802.11n-HT20 AVGPDS - Ant 1 / Ant 1 + 2 (CDD Mode)

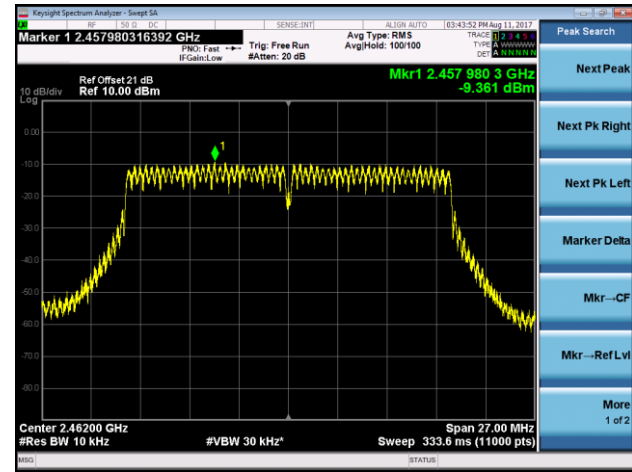
## Channel 01 (2412MHz)



## Channel 06 (2437MHz)

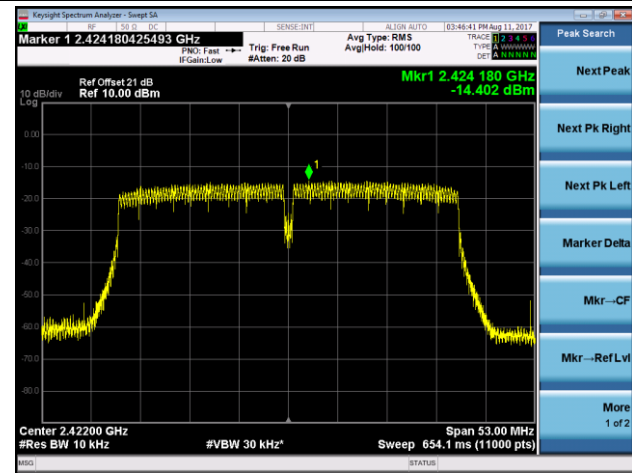


## Channel 11 (2462MHz)

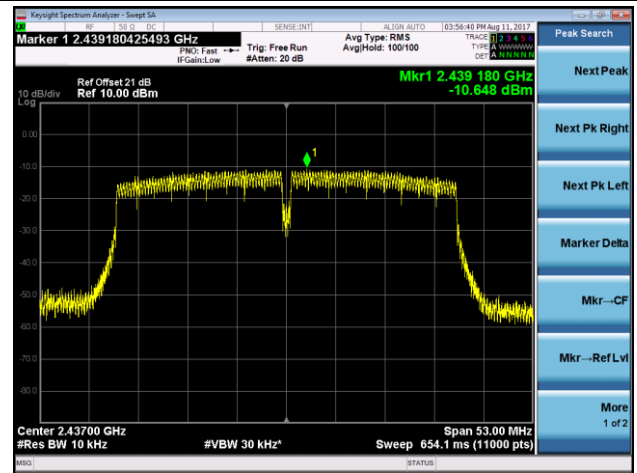


## 802.11n-HT40 AVGPSPD - Ant 1 / Ant 1 + 2 (CDD Mode)

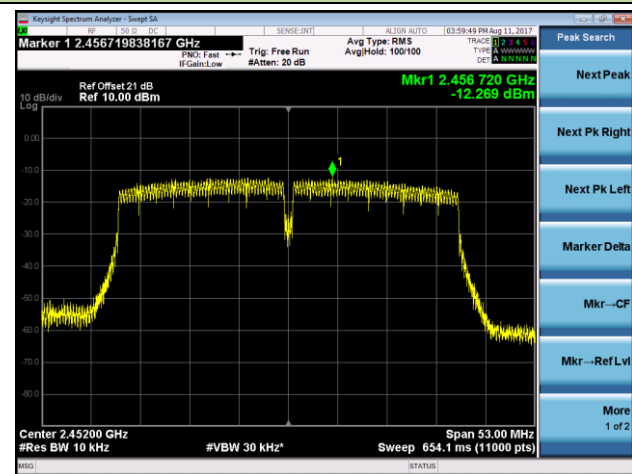
## Channel 03 (2422MHz)



## Channel 06 (2437MHz)



## Channel 09 (2452MHz)

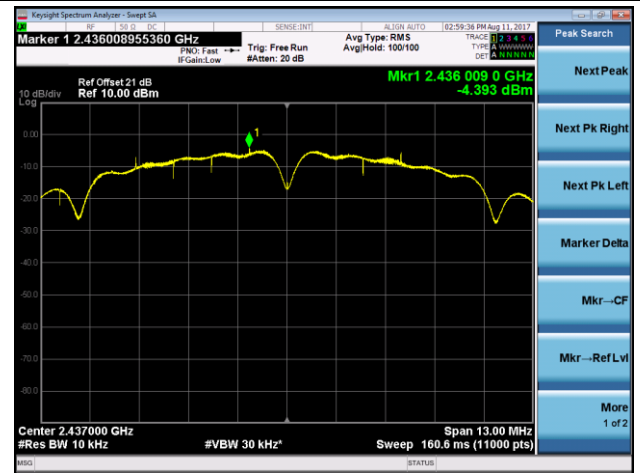


## 802.11b AVGPDS - Ant 2 / Ant 1 + 2 (CDD Mode)

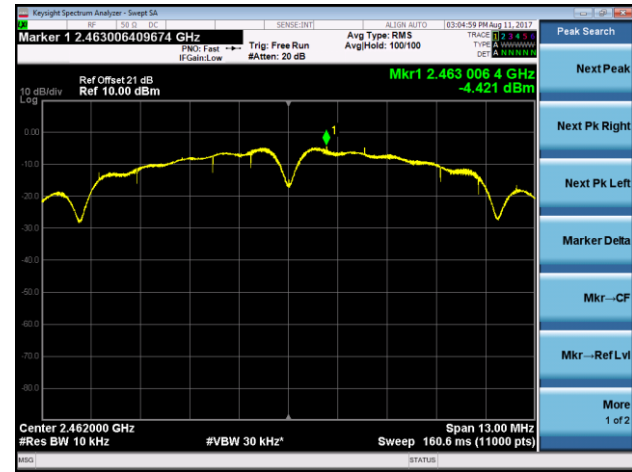
### Channel 01 (2412MHz)



### Channel 06 (2437MHz)

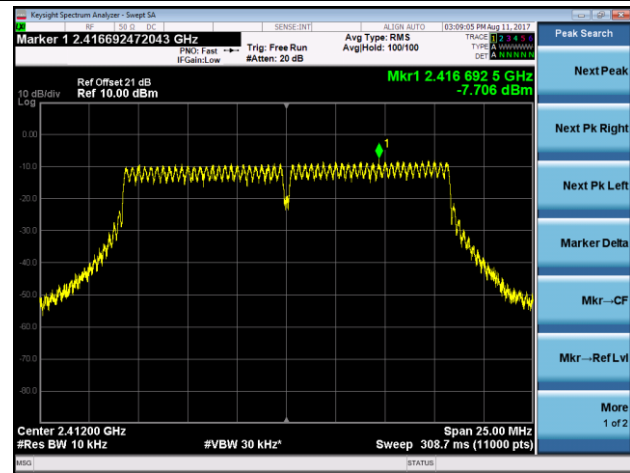


### Channel 11 (2462MHz)

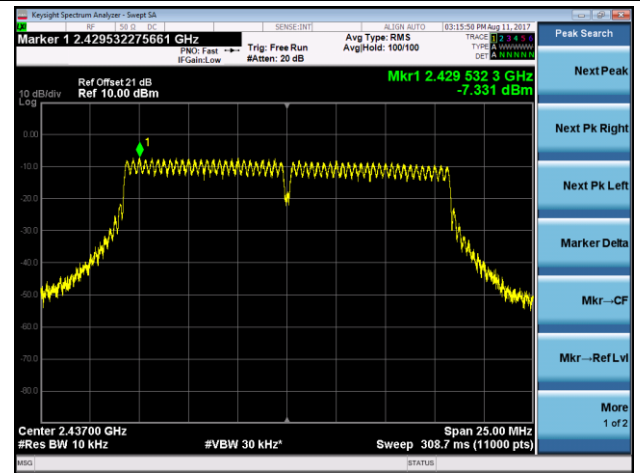


## 802.11g AVGPSD - Ant 2 / Ant 1 + 2 (CDD Mode)

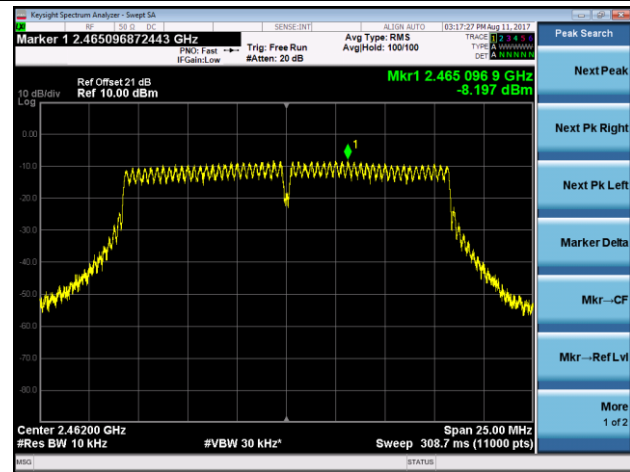
## Channel 01 (2412MHz)



## Channel 06 (2437MHz)

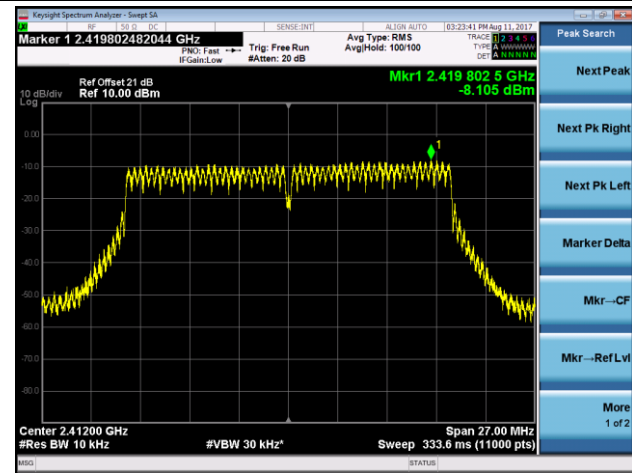


## Channel 11 (2462MHz)

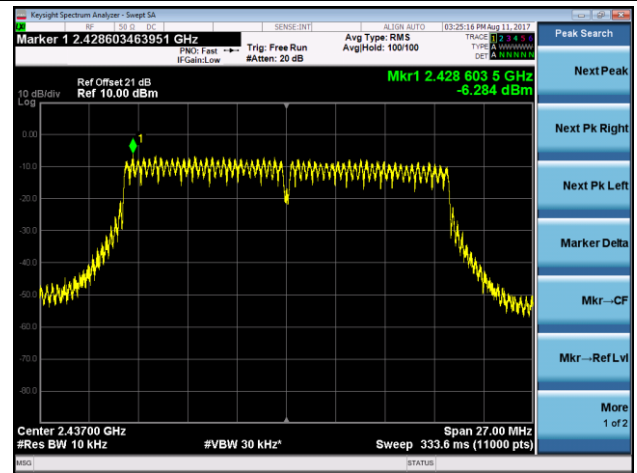


## 802.11n-HT20 AVGPSD - Ant 2 / Ant 1 + 2 (CDD Mode)

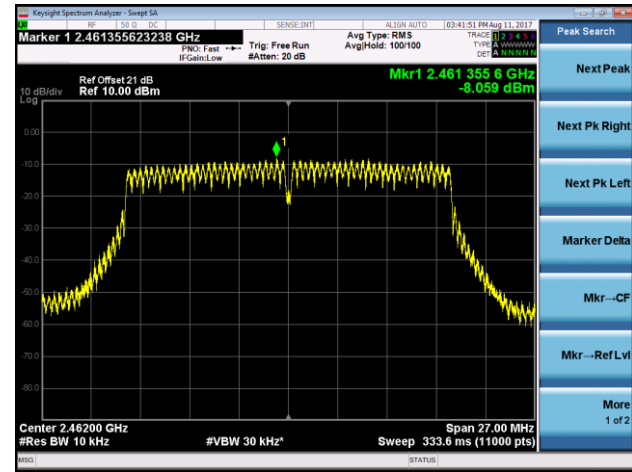
## Channel 01 (2412MHz)



## Channel 06 (2437MHz)

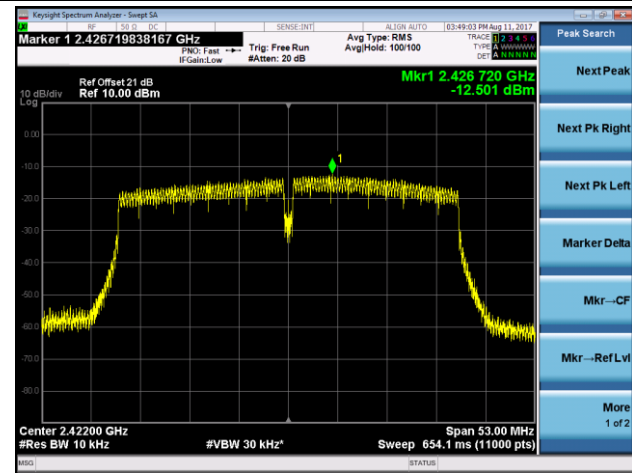


## Channel 11 (2462MHz)

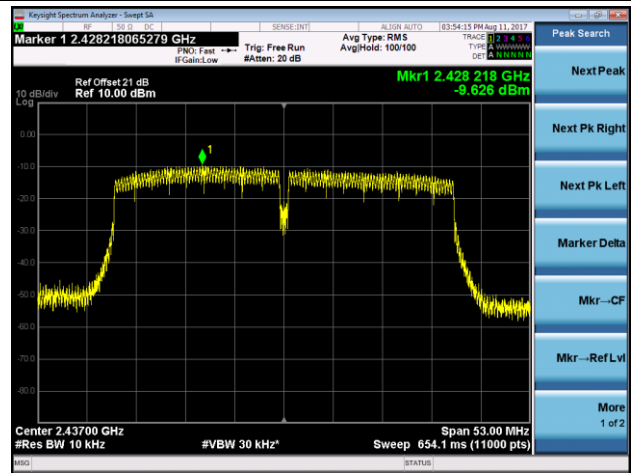


## 802.11n-HT40 AVGPSPD - Ant 2 / Ant 1 + 2 (CDD Mode)

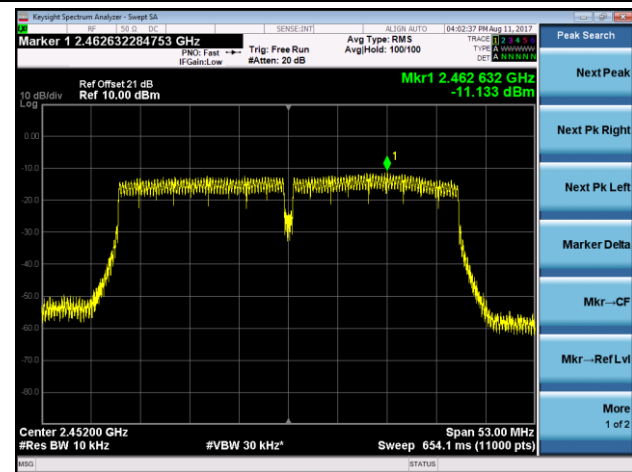
## Channel 03 (2422MHz)



## Channel 06 (2437MHz)

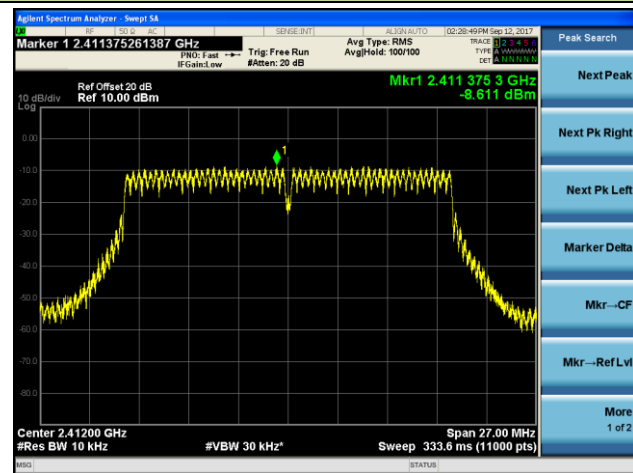


## Channel 09 (2452MHz)

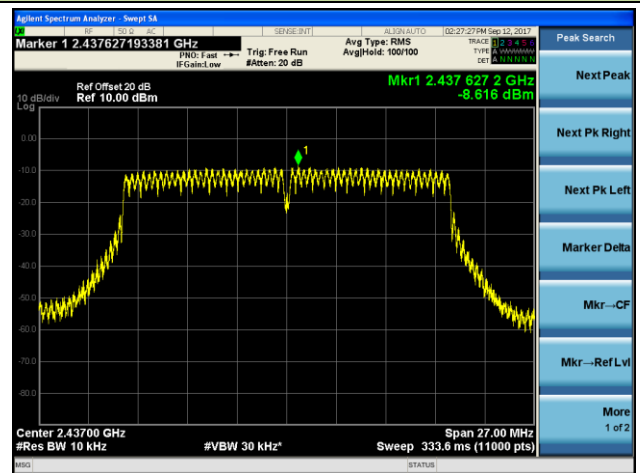


## 802.11n-HT20 AVGPSD - Ant 1 / Ant 1 + 2 (Beam-Forming Mode)

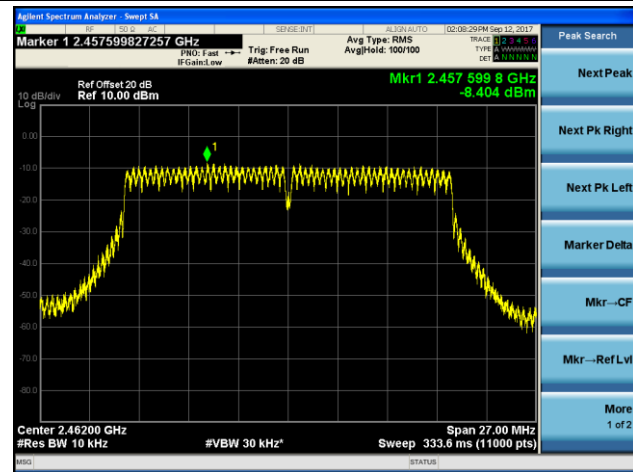
### Channel 01 (2412MHz)



### Channel 06 (2437MHz)

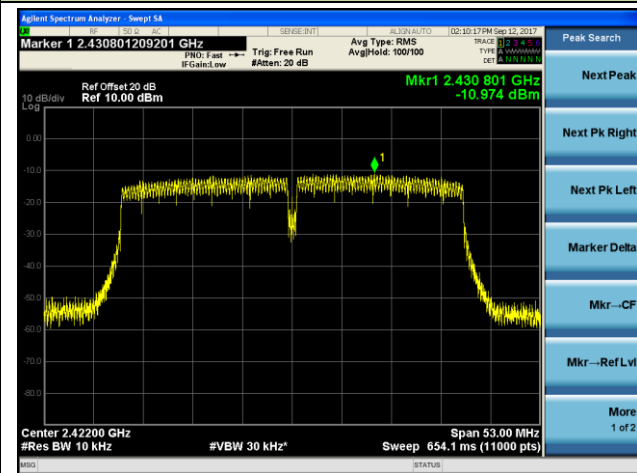


### Channel 11 (2462MHz)

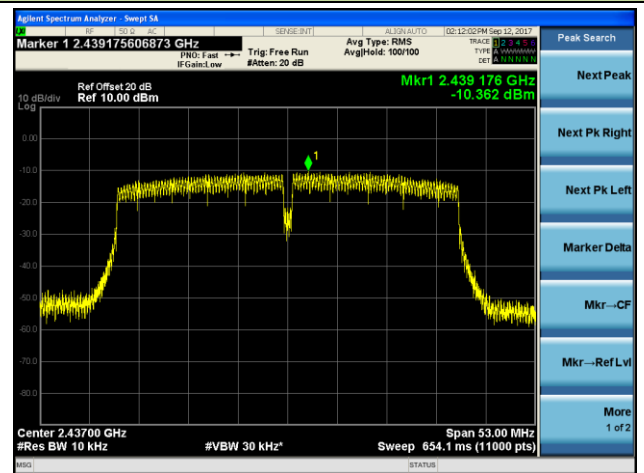


## 802.11n-HT40 AVGPSD - Ant 1 / Ant 1 + 2 (Beam-Forming Mode)

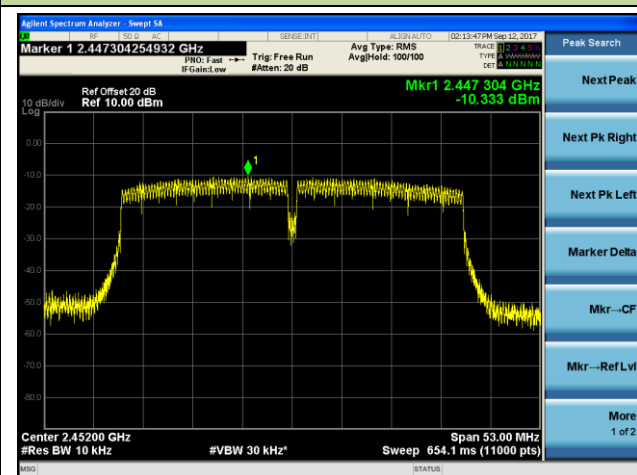
### Channel 03 (2422MHz)



### Channel 06 (2437MHz)

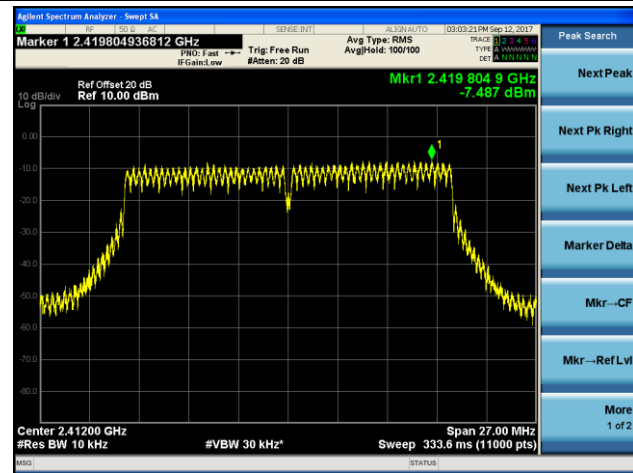


### Channel 09 (2452MHz)

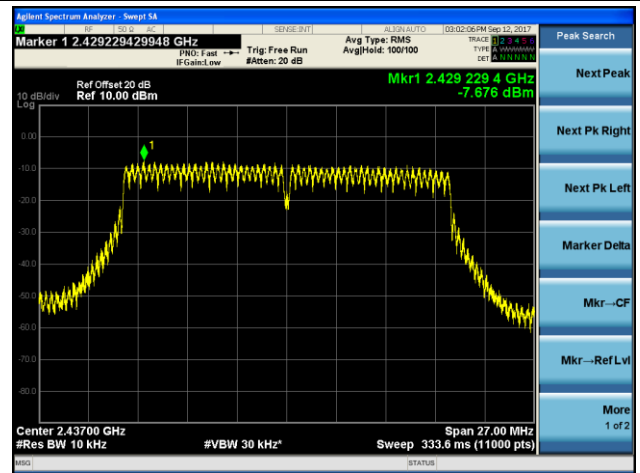


# 802.11n-HT20 AVGPSD - Ant 2 / Ant 1 + 2 (Beam-Forming Mode)

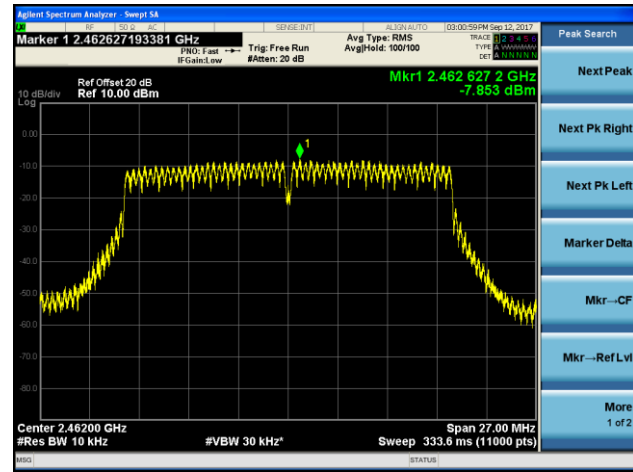
## Channel 01 (2412MHz)



## Channel 06 (2437MHz)

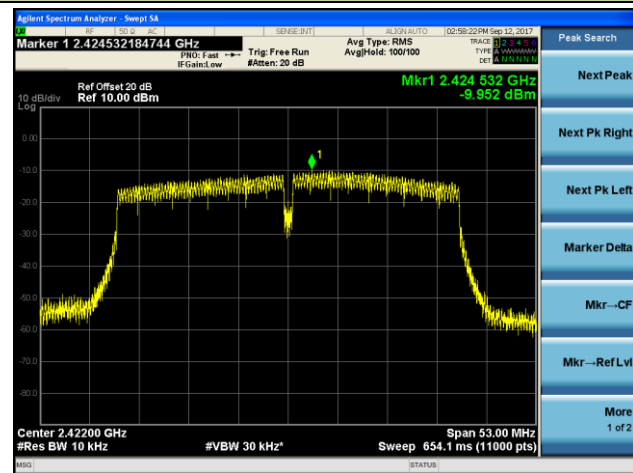


## Channel 11 (2462MHz)

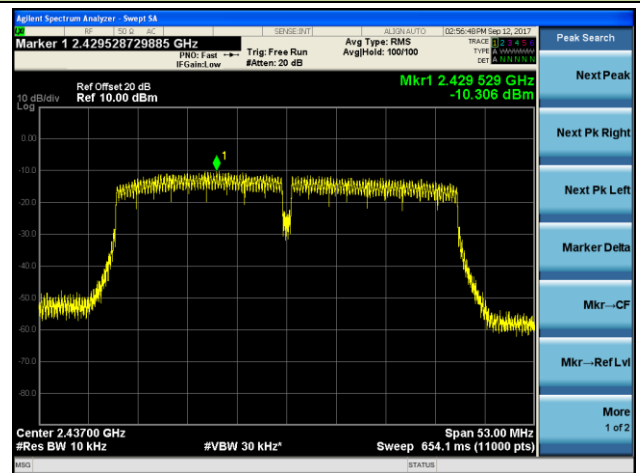


## 802.11n-HT40 AVGPSD - Ant 2 / Ant 1 + 2 (Beam-Forming Mode)

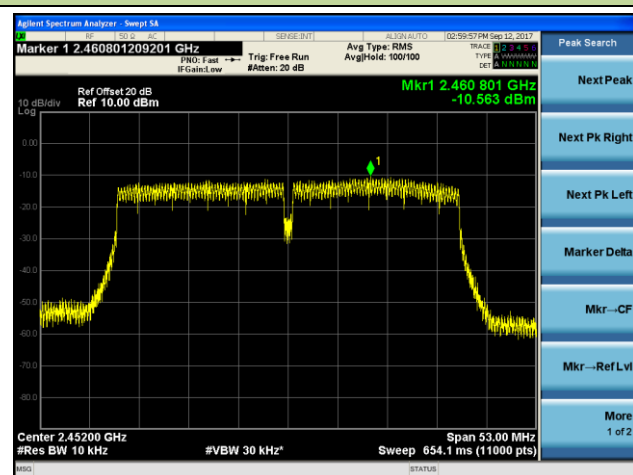
### Channel 03 (2422MHz)



### Channel 06 (2437MHz)



### Channel 09 (2452MHz)



|               |                                       |                   |            |
|---------------|---------------------------------------|-------------------|------------|
| Product       | AC220 Wi-Fi AP OD external antenna US | Temperature       | 27°C       |
| Test Engineer | Kevin Ker                             | Relative Humidity | 65%        |
| Test Site     | SR2                                   | Test Date         | 2017/07/29 |

| Test Mode    | Data Rate/<br>MCS | Channel No. | Frequency (MHz) | AVG PSD (dBm / 10kHz) | Duty Cycle (%) | Constant Factor | Final PSD (dBm / 3kHz) | Limit (dBm / 3kHz) | Result |
|--------------|-------------------|-------------|-----------------|-----------------------|----------------|-----------------|------------------------|--------------------|--------|
| Ant 1        |                   |             |                 |                       |                |                 |                        |                    |        |
| 802.11b      | 1Mbps             | 01          | 2412            | -4.91                 | 98.96          | -5.23           | -10.09                 | ≤ 8.00             | Pass   |
| 802.11b      | 1Mbps             | 06          | 2437            | -5.49                 | 98.96          | -5.23           | -10.67                 | ≤ 8.00             | Pass   |
| 802.11b      | 1Mbps             | 11          | 2462            | -5.04                 | 98.96          | -5.23           | -10.22                 | ≤ 8.00             | Pass   |
| 802.11g      | 6Mbps             | 01          | 2412            | -8.16                 | 96.04          | -5.23           | -13.21                 | ≤ 8.00             | Pass   |
| 802.11g      | 6Mbps             | 06          | 2437            | -7.96                 | 96.04          | -5.23           | -13.01                 | ≤ 8.00             | Pass   |
| 802.11g      | 6Mbps             | 11          | 2462            | -7.04                 | 96.04          | -5.23           | -12.09                 | ≤ 8.00             | Pass   |
| 802.11n-HT20 | MCS0              | 01          | 2412            | -8.11                 | 98.23          | -5.23           | -13.26                 | ≤ 8.00             | Pass   |
| 802.11n-HT20 | MCS0              | 06          | 2437            | -7.89                 | 98.23          | -5.23           | -13.04                 | ≤ 8.00             | Pass   |
| 802.11n-HT20 | MCS0              | 11          | 2462            | -7.69                 | 98.23          | -5.23           | -12.84                 | ≤ 8.00             | Pass   |
| 802.11n-HT40 | MCS0              | 03          | 2422            | -13.06                | 96.41          | -5.23           | -18.13                 | ≤ 8.00             | Pass   |
| 802.11n-HT40 | MCS0              | 06          | 2437            | -10.30                | 96.41          | -5.23           | -15.37                 | ≤ 8.00             | Pass   |
| 802.11n-HT40 | MCS0              | 09          | 2452            | -11.18                | 96.41          | -5.23           | -16.25                 | ≤ 8.00             | Pass   |
| Ant 2        |                   |             |                 |                       |                |                 |                        |                    |        |
| 802.11b      | 1Mbps             | 01          | 2412            | -4.46                 | 98.96          | -5.23           | -9.65                  | ≤ 8.00             | Pass   |
| 802.11b      | 1Mbps             | 06          | 2437            | -3.77                 | 98.96          | -5.23           | -8.95                  | ≤ 8.00             | Pass   |
| 802.11b      | 1Mbps             | 11          | 2462            | -4.15                 | 98.96          | -5.23           | -9.33                  | ≤ 8.00             | Pass   |
| 802.11g      | 6Mbps             | 01          | 2412            | -7.00                 | 96.04          | -5.23           | -12.05                 | ≤ 8.00             | Pass   |
| 802.11g      | 6Mbps             | 06          | 2437            | -6.90                 | 96.04          | -5.23           | -11.95                 | ≤ 8.00             | Pass   |
| 802.11g      | 6Mbps             | 11          | 2462            | -7.43                 | 96.04          | -5.23           | -12.48                 | ≤ 8.00             | Pass   |
| 802.11n-HT20 | MCS0              | 01          | 2412            | -6.96                 | 98.23          | -5.23           | -12.11                 | ≤ 8.00             | Pass   |
| 802.11n-HT20 | MCS0              | 06          | 2437            | -6.53                 | 98.23          | -5.23           | -11.68                 | ≤ 8.00             | Pass   |
| 802.11n-HT20 | MCS0              | 11          | 2462            | -7.11                 | 98.23          | -5.23           | -12.26                 | ≤ 8.00             | Pass   |
| 802.11n-HT40 | MCS0              | 03          | 2422            | -10.96                | 96.41          | -5.23           | -16.03                 | ≤ 8.00             | Pass   |
| 802.11n-HT40 | MCS0              | 06          | 2437            | -9.37                 | 96.41          | -5.23           | -14.44                 | ≤ 8.00             | Pass   |
| 802.11n-HT40 | MCS0              | 09          | 2452            | -11.11                | 96.41          | -5.23           | -16.18                 | ≤ 8.00             | Pass   |

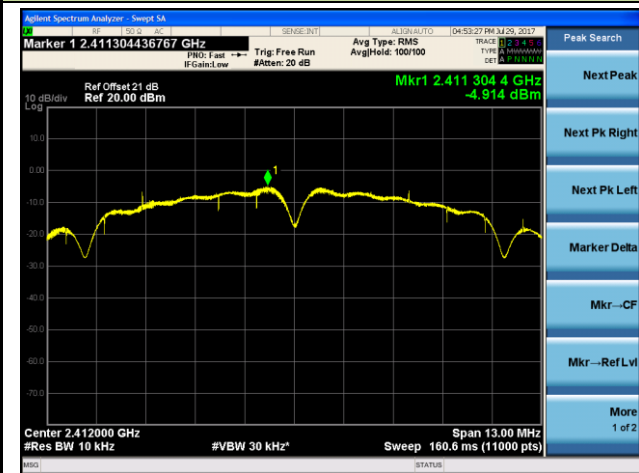
Note: The Final PSD = AVG PSD + 10\*log(1/duty cycle) + Constant Factor.

| Test Mode                     | Data Rate/<br>MCS | Channel No. | Freq. (MHz) | Ant 1<br>AVGPSD<br>(dBm /<br>10kHz) | Ant 2<br>AVGPSD<br>(dBm /<br>10kHz) | Duty Cycle (%) | Constant Factor | Total<br>AVGPSD<br>(dBm /<br>3kHz) | Limit<br>(dBm /<br>3kHz) | Result |
|-------------------------------|-------------------|-------------|-------------|-------------------------------------|-------------------------------------|----------------|-----------------|------------------------------------|--------------------------|--------|
| Ant 1 + 2 (CDD Mode)          |                   |             |             |                                     |                                     |                |                 |                                    |                          |        |
| 11b                           | 1Mbps             | 1           | 2412        | -4.70                               | -3.24                               | 98.96          | -5.23           | -6.08                              | ≤ 4.99                   | Pass   |
| 11b                           | 1Mbps             | 6           | 2437        | -3.70                               | -3.08                               | 98.96          | -5.23           | -5.55                              | ≤ 4.99                   | Pass   |
| 11b                           | 1Mbps             | 11          | 2462        | -4.43                               | -2.99                               | 98.96          | -5.23           | -5.82                              | ≤ 4.99                   | Pass   |
| 11g                           | 6Mbps             | 1           | 2412        | -9.28                               | -8.24                               | 96.04          | -5.23           | -10.77                             | ≤ 4.99                   | Pass   |
| 11g                           | 6Mbps             | 6           | 2437        | -7.64                               | -6.62                               | 96.04          | -5.23           | -9.14                              | ≤ 4.99                   | Pass   |
| 11g                           | 6Mbps             | 11          | 2462        | -9.22                               | -8.49                               | 96.04          | -5.23           | -10.89                             | ≤ 4.99                   | Pass   |
| 11n-HT20                      | MCS0              | 1           | 2412        | -10.15                              | -9.11                               | 98.23          | -5.23           | -11.74                             | ≤ 4.99                   | Pass   |
| 11n-HT20                      | MCS0              | 6           | 2437        | -7.78                               | -6.69                               | 98.23          | -5.23           | -9.34                              | ≤ 4.99                   | Pass   |
| 11n-HT20                      | MCS0              | 11          | 2462        | -9.29                               | -8.32                               | 98.23          | -5.23           | -10.92                             | ≤ 4.99                   | Pass   |
| 11n-HT40                      | MCS0              | 3           | 2422        | -15.63                              | -13.58                              | 96.41          | -5.23           | -16.55                             | ≤ 4.99                   | Pass   |
| 11n-HT40                      | MCS0              | 6           | 2437        | -9.98                               | -9.31                               | 96.41          | -5.23           | -11.69                             | ≤ 4.99                   | Pass   |
| 11n-HT40                      | MCS0              | 9           | 2452        | -13.01                              | -11.57                              | 96.41          | -5.23           | -14.29                             | ≤ 4.99                   | Pass   |
| Ant 1 + 2 (Beam-Forming Mode) |                   |             |             |                                     |                                     |                |                 |                                    |                          |        |
| 11n-HT20                      | MCS0              | 1           | 2412        | -11.28                              | -10.01                              | 98.23          | -5.23           | -12.74                             | ≤ 4.99                   | Pass   |
| 11n-HT20                      | MCS0              | 6           | 2437        | -7.83                               | -6.67                               | 98.23          | -5.23           | -9.35                              | ≤ 4.99                   | Pass   |
| 11n-HT20                      | MCS0              | 11          | 2462        | -9.55                               | -9.26                               | 98.23          | -5.23           | -11.54                             | ≤ 4.99                   | Pass   |
| 11n-HT40                      | MCS0              | 3           | 2422        | -14.56                              | -13.08                              | 96.41          | -5.23           | -15.82                             | ≤ 4.99                   | Pass   |
| 11n-HT40                      | MCS0              | 6           | 2437        | -10.25                              | -9.35                               | 96.41          | -5.23           | -11.84                             | ≤ 4.99                   | Pass   |
| 11n-HT40                      | MCS0              | 9           | 2452        | -12.62                              | -12.02                              | 96.41          | -5.23           | -14.37                             | ≤ 4.99                   | Pass   |

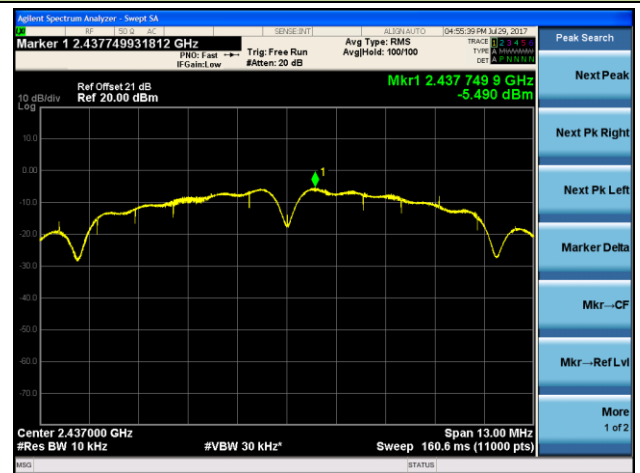
Note: The total AVGPSD =  $10 \cdot \log\{10^{(\text{Ant 1 AVGPSD}/10)} + 10^{(\text{Ant 2 AVGPSD}/10)}\} + 10 \cdot \log(1/\text{duty cycle}) + \text{Constant Factor}$ .

## 802.11b AVGPDS - Ant 1

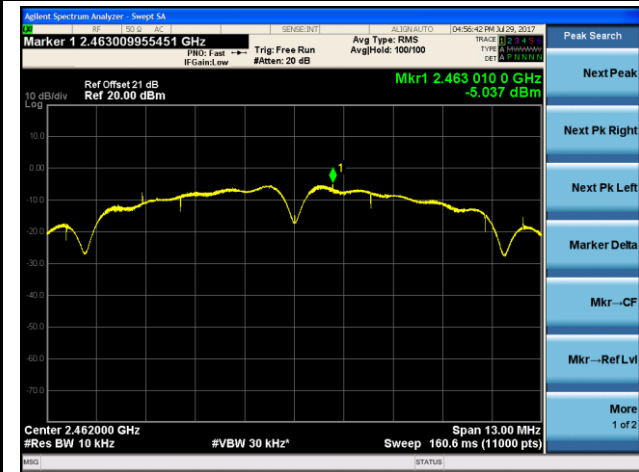
### Channel 01 (2412MHz)



### Channel 06 (2437MHz)

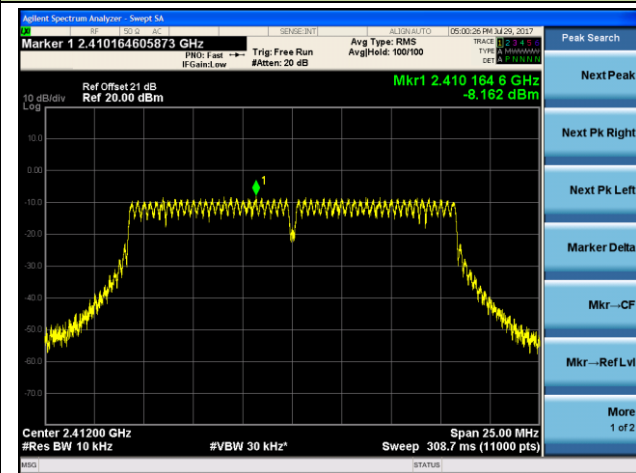


### Channel 11 (2462MHz)

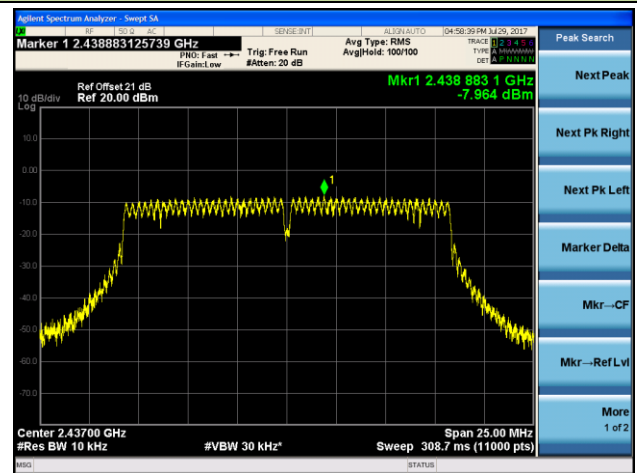


## 802.11g AVGPDS - Ant 1

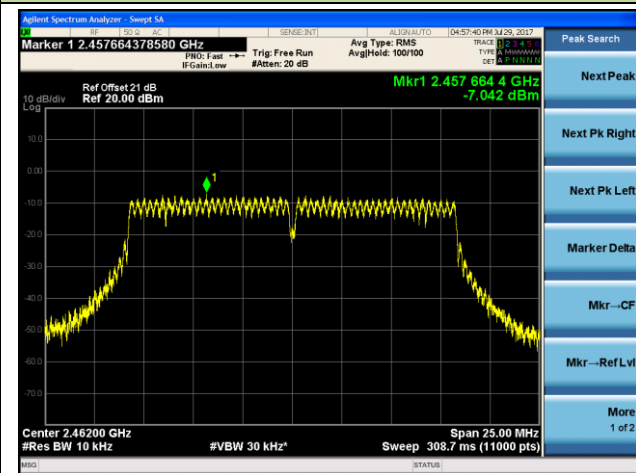
### Channel 01 (2412MHz)



### Channel 06 (2437MHz)

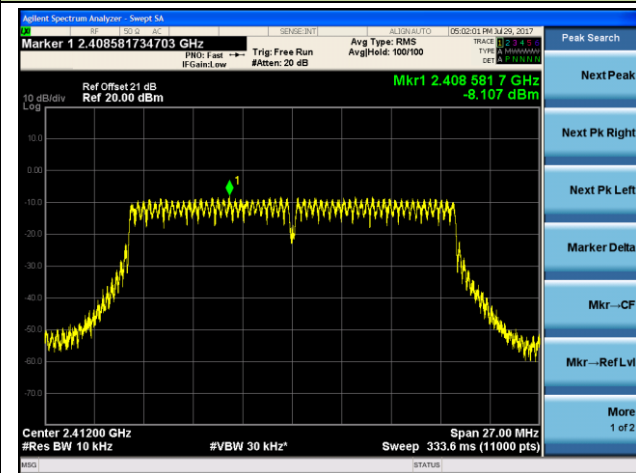


### Channel 11 (2462MHz)

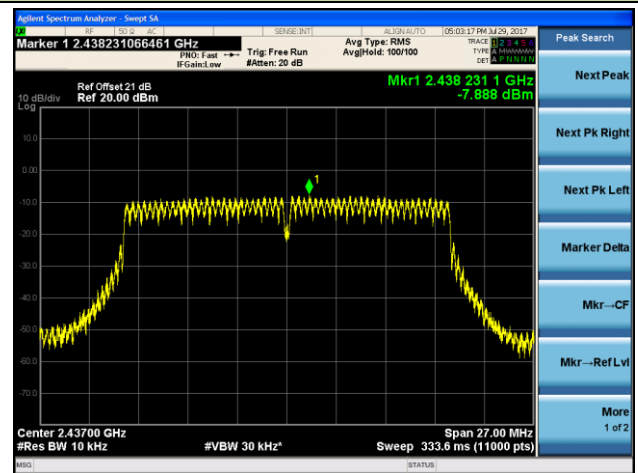


## 802.11n-HT20 AVGPSD - Ant 1

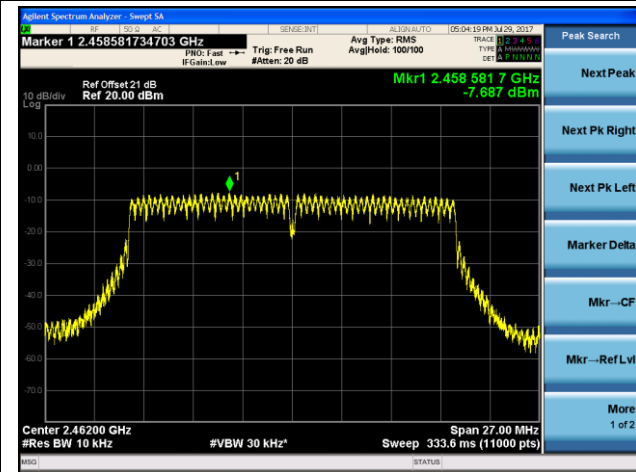
## Channel 01 (2412MHz)



## Channel 06 (2437MHz)

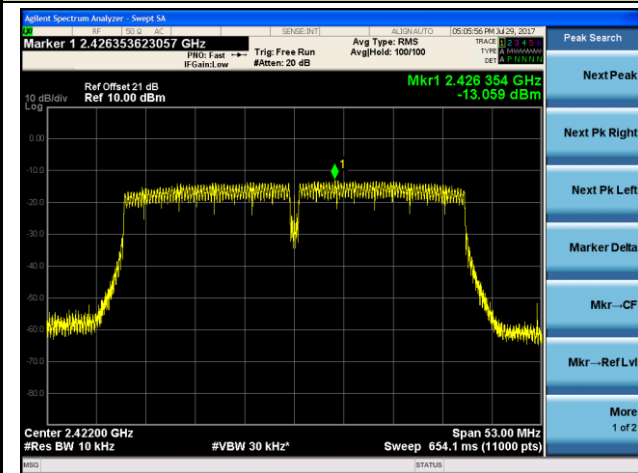


## Channel 11 (2462MHz)

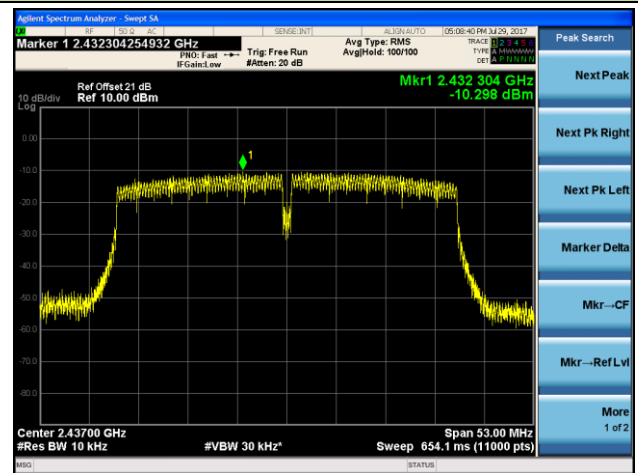


## 802.11n-HT40 AVGPSD - Ant 1

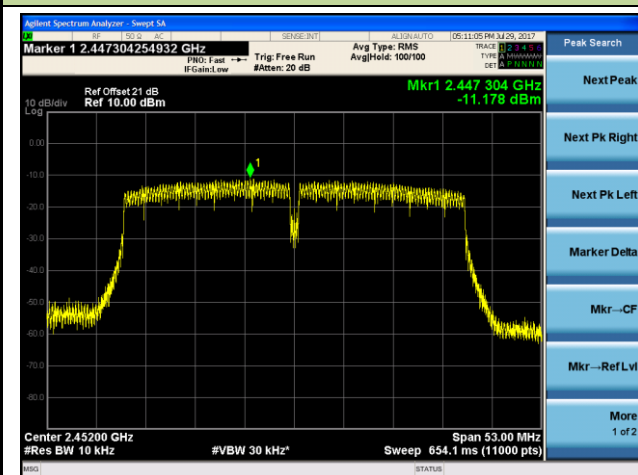
## Channel 03 (2422MHz)



## Channel 06 (2437MHz)

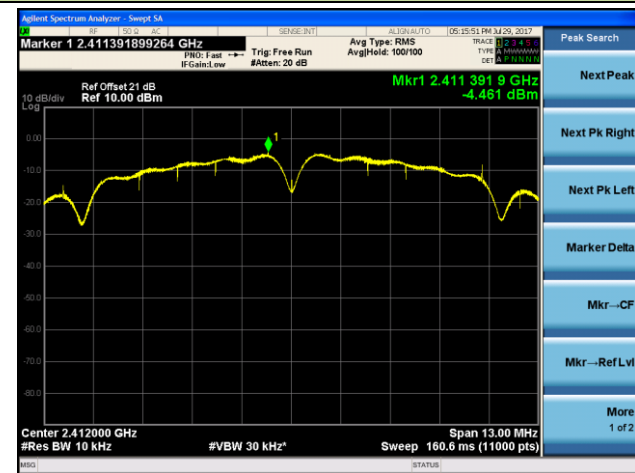


## Channel 09 (2452MHz)

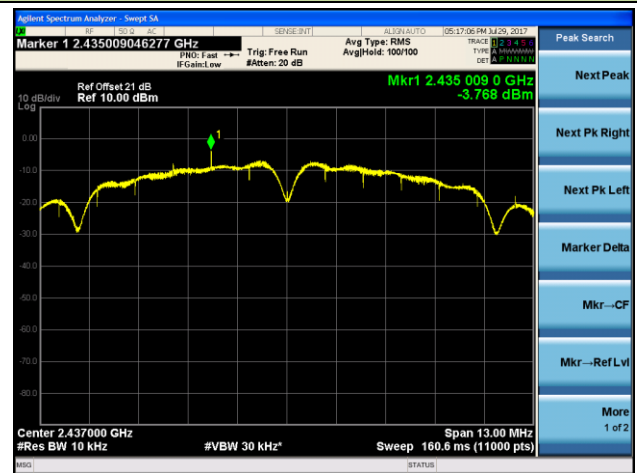


## 802.11b AVGPDS - Ant 2

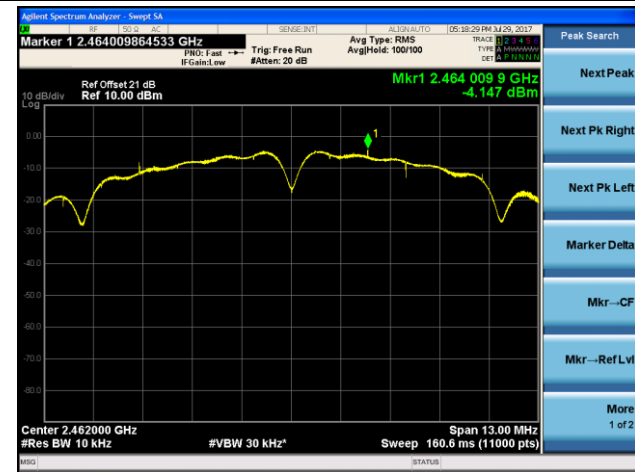
### Channel 01 (2412MHz)



### Channel 06 (2437MHz)

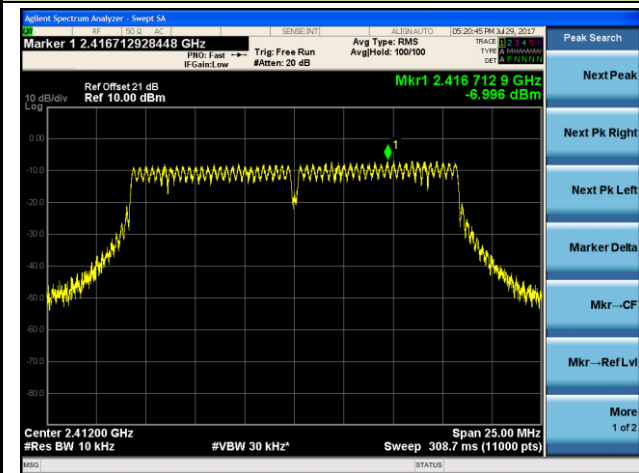


### Channel 11 (2462MHz)

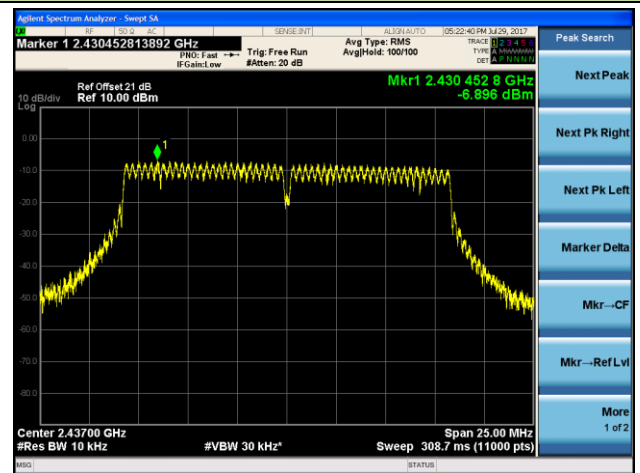


## 802.11g AVGPDS - Ant 2

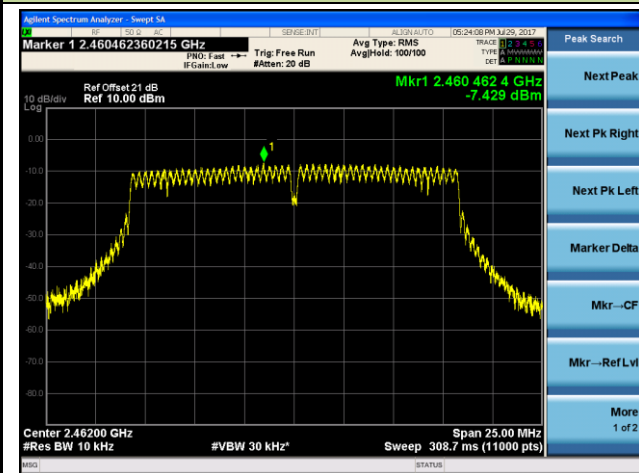
### Channel 01 (2412MHz)



### Channel 06 (2437MHz)

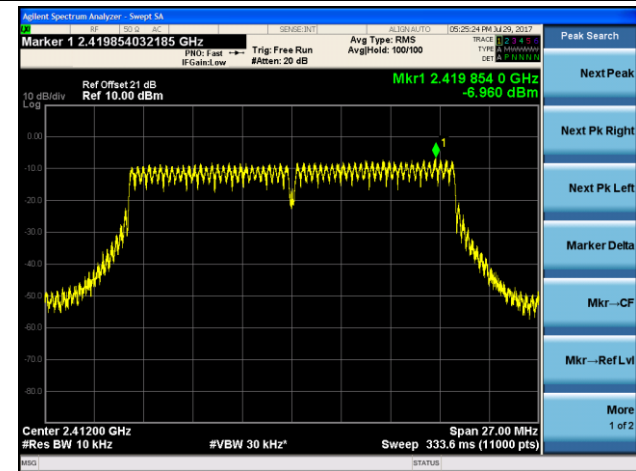


### Channel 11 (2462MHz)

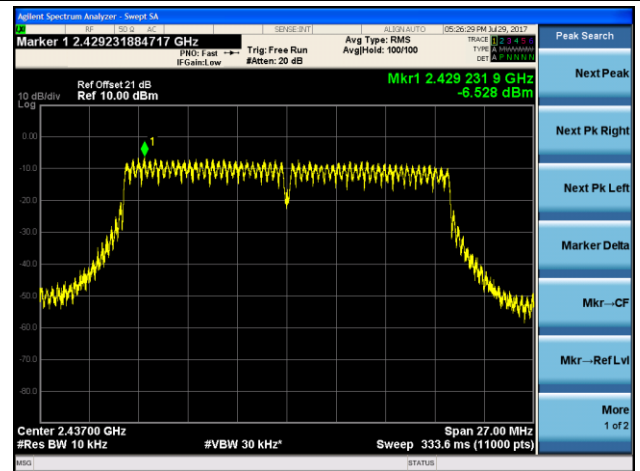


## 802.11n-HT20 AVGPSD - Ant 2

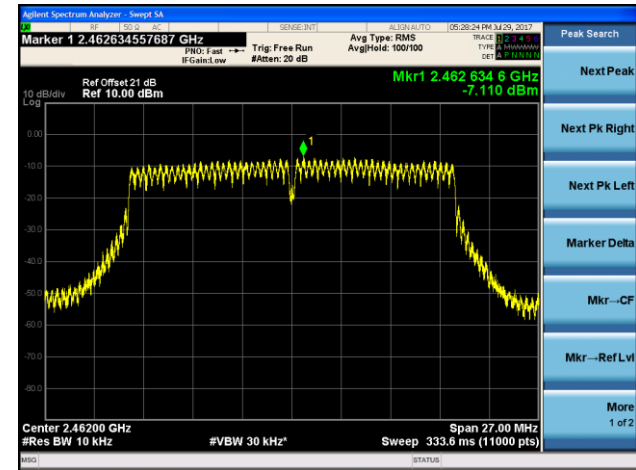
## Channel 01 (2412MHz)



## Channel 06 (2437MHz)

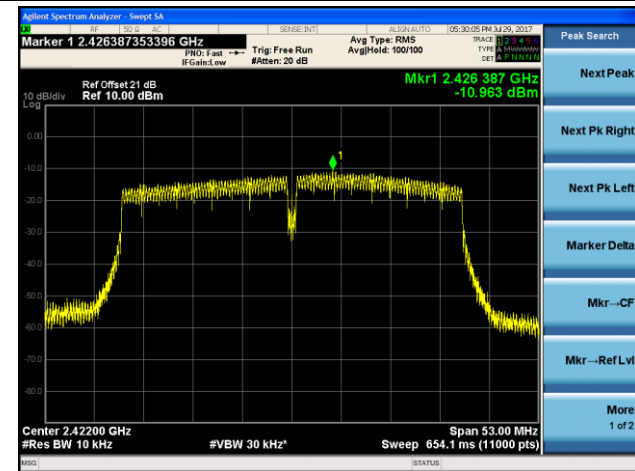


## Channel 11 (2462MHz)

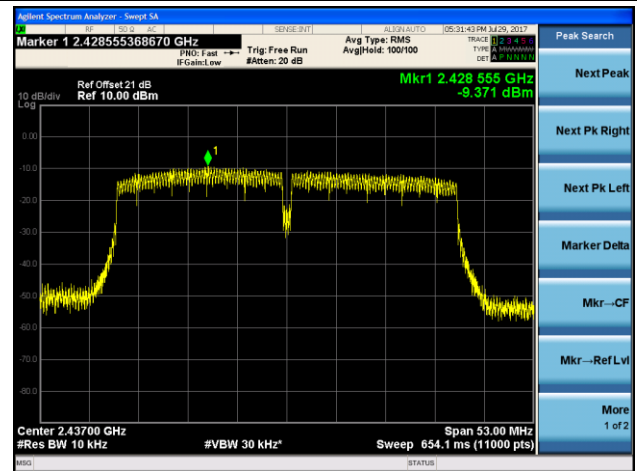


## 802.11n-HT40 AVGPSD - Ant 2

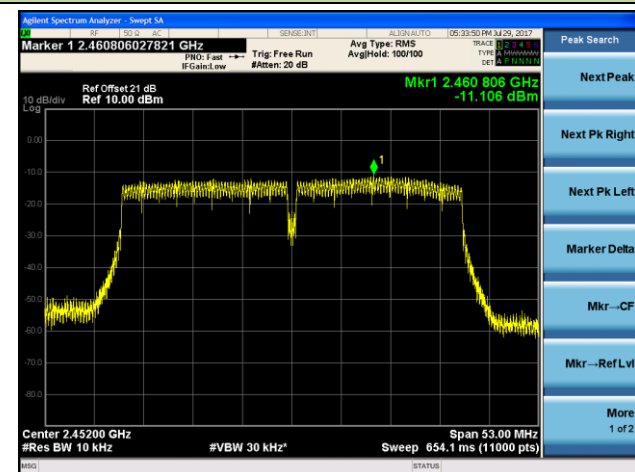
## Channel 03 (2422MHz)



## Channel 06 (2437MHz)

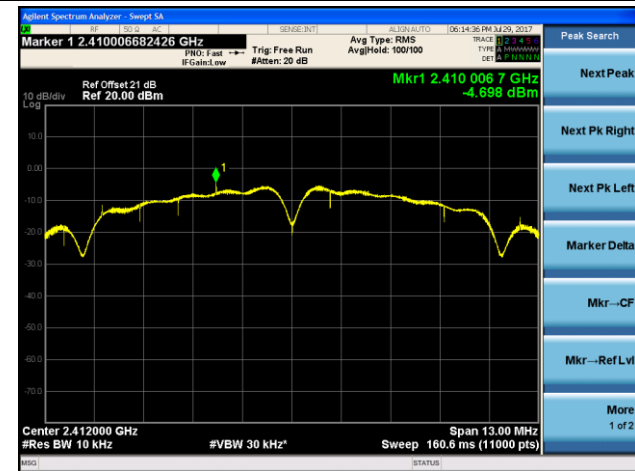


## Channel 09 (2452MHz)

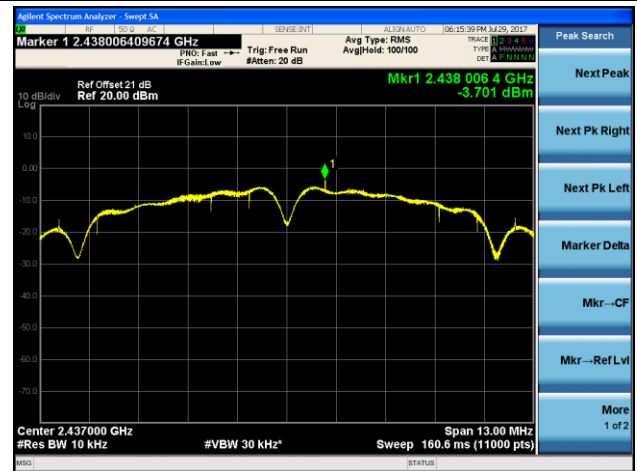


## 802.11b AVGPDS - Ant 1 / Ant 1 + 2 (CDD Mode)

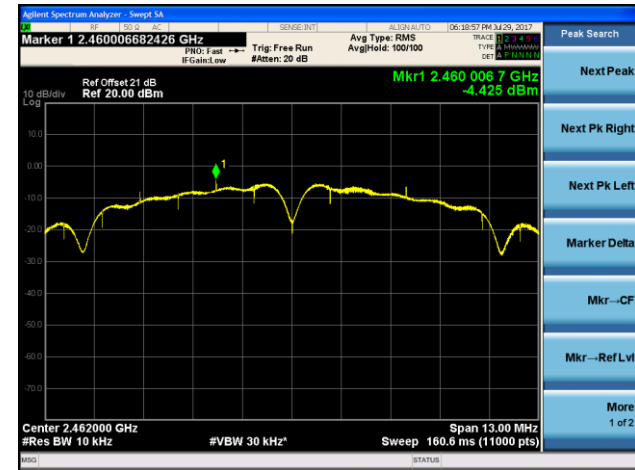
### Channel 01 (2412MHz)



### Channel 06 (2437MHz)

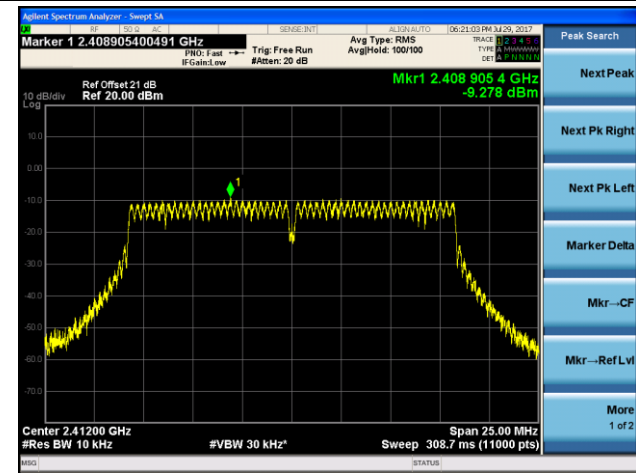


### Channel 11 (2462MHz)

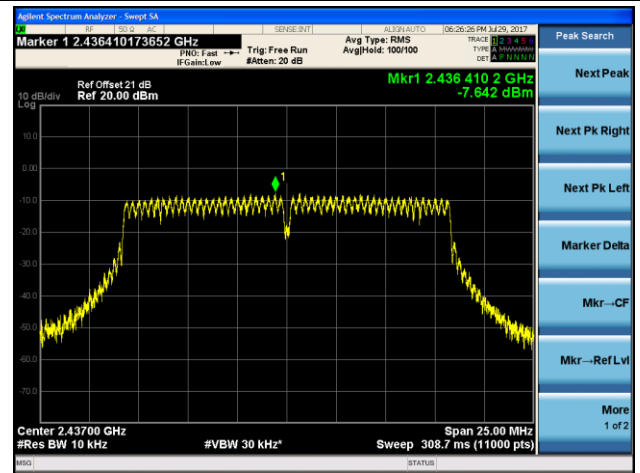


## 802.11g AVGPDS - Ant 1 / Ant 1 + 2 (CDD Mode)

## Channel 01 (2412MHz)



## Channel 06 (2437MHz)



## Channel 11 (2462MHz)

