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## 4.2 PEAK POWER SPECTRAL DENSITY MEASUREMENT

### 4.2.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

| Operation Band | EUT Category |                                   | LIMIT         |
|----------------|--------------|-----------------------------------|---------------|
| U-NII-1        |              | Outdoor Access Point              | 17dBm/ MHz    |
|                |              | Fixed point-to-point Access Point |               |
|                |              | Indoor Access Point               |               |
|                | √            | Mobile and Portable client device | 11dBm/ MHz    |
| U-NII-2A       | ---          |                                   | 11dBm/ MHz    |
| U-NII-2C       | ---          |                                   | 11dBm/ MHz    |
| U-NII-3        | ---          |                                   | 30dBm/ 500kHz |

### 4.2.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | CALIBRATED DATE | CALIBRATED UNTIL |
|----------------------------|-----------|------------|-----------------|------------------|
| SPECTRUM ANALYZER R&S      | FSV 40    | 100964     | July 05, 2014   | July 04, 2015    |

**Note:**

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. Tested date : Aug. 25, 2014

#### 4.2.3 TEST PROCEDURES

For 802.11a, 802.11ac (VHT20) test

※For U-NII-1, U-NII-2A & U-NII-2C:

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW  $\geq$  3 MHz, Detector = RMS
3. Sweep time = auto, trigger set to “free run”.
4. Trace average at least 100 traces in power averaging mode.
5. Record the max value

※For U-NII-3:

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 300 kHz, Set VBW  $\geq$  1 MHz, Detector = RMS
3. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where  $BWCF = 10\log(500 \text{ kHz}/300\text{kHz})$
5. Sweep time = auto, trigger set to “free run”.
6. Trace average at least 100 traces in power averaging mode.
7. Record the max value

For 802.11ac (VHT40) , 802.11ac (VHT80) test

✖For U-NII-1, U-NII-2A & U-NII-2C:

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 1 MHz, Set VBW  $\geq$  3 MHz, Detector = RMS
3. Sweep time = auto, trigger set to “free run”.
4. Trace average at least 100 traces in power averaging mode.
5. Record the max value and for duty cycle of test signal is < 98% add 10 log (1/duty cycle)

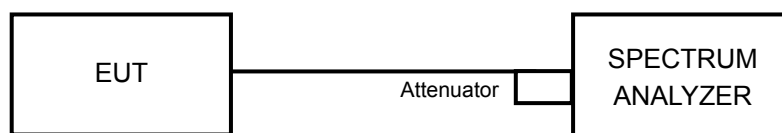
✖For U-NII-3:

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW = 300 kHz, Set VBW  $\geq$  1 MHz, Detector = RMS
3. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
4. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where  $BWCF = 10\log(500 \text{ kHz}/300\text{kHz})$
5. Sweep time = auto, trigger set to “free run”.
6. Trace average at least 100 traces in power averaging mode.
7. Record the max value and for duty cycle of test signal is < 98% add 10 log (1/duty cycle)

#### 4.2.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.2.5 TEST SETUP



#### 4.2.6 EUT OPERATING CONDITIONS

Same as 4.3.6

## 4.2.7 TEST RESULTS (MODE 1)

For U-NII-1, U-NII-2A & U-NII-2C:

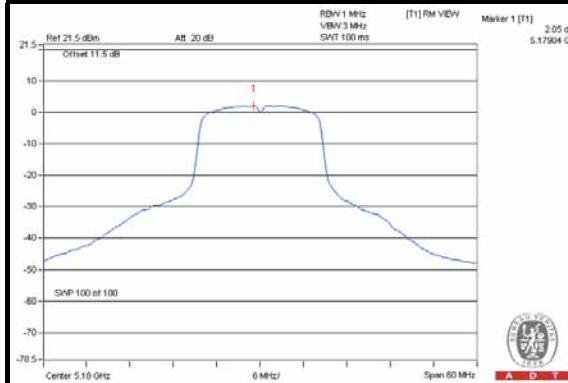
### 802.11a

| CHANNEL            | FREQUENCY (MHz) | PSD (dBm) | MAXIMUM LIMIT (dBm) | PASS/FAIL |
|--------------------|-----------------|-----------|---------------------|-----------|
| 36                 | 5180            | 2.05      | 11.00               | PASS      |
| 40                 | 5200            | 1.25      | 11.00               | PASS      |
| 48                 | 5240            | 1.34      | 11.00               | PASS      |
| 52                 | 5260            | 1.30      | 11.00               | PASS      |
| 60                 | 5300            | 1.79      | 11.00               | PASS      |
| 64                 | 5320            | 1.29      | 11.00               | PASS      |
| 100                | 5500            | 2.01      | 11.00               | PASS      |
| 120                | 5600            | 2.00      | 11.00               | PASS      |
| 140                | 5700            | 1.30      | 11.00               | PASS      |
| 144 (UNII-2c Band) | 5720            | 1.33      | 11.00               | PASS      |

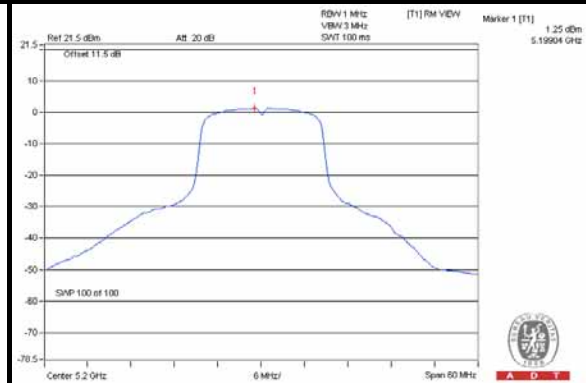
For U-NII-3:

| CHANNEL           | FREQUENCY (MHz) | PSD (dBm/300kHz) | PSD (dBm/500kHz) | LIMIT (dBm/500kHz) | PASS /FAIL |
|-------------------|-----------------|------------------|------------------|--------------------|------------|
| 144 (UNII-3 Band) | 5720            | -8.33            | -6.11            | 30                 | PASS       |

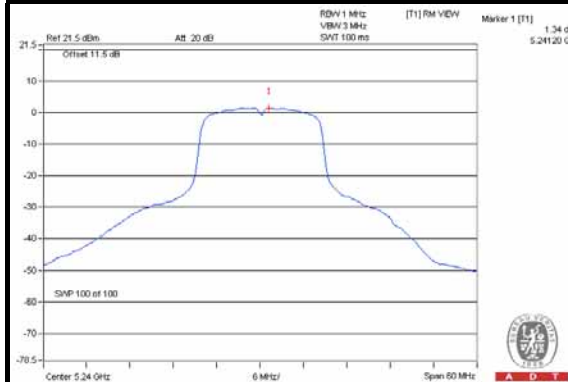
### CH36



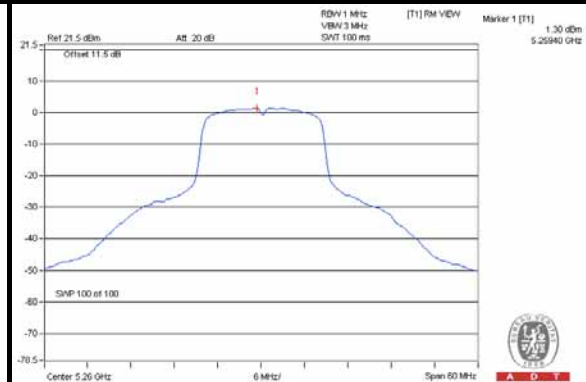
### CH40



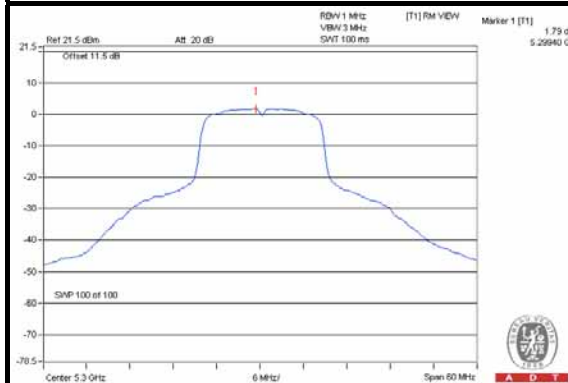
### CH48



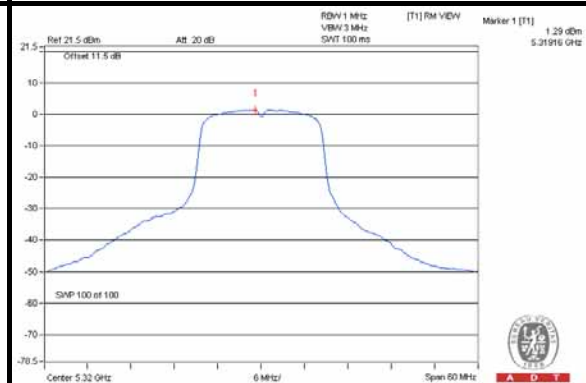
### CH52



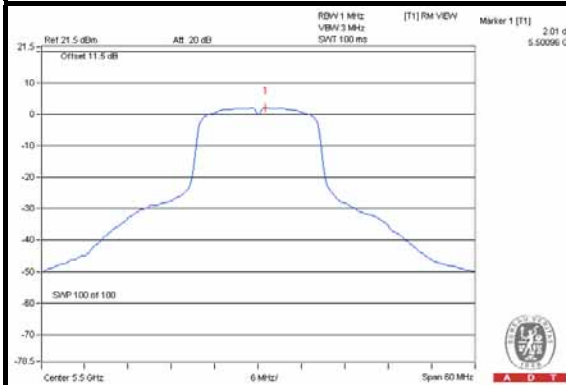
### CH60



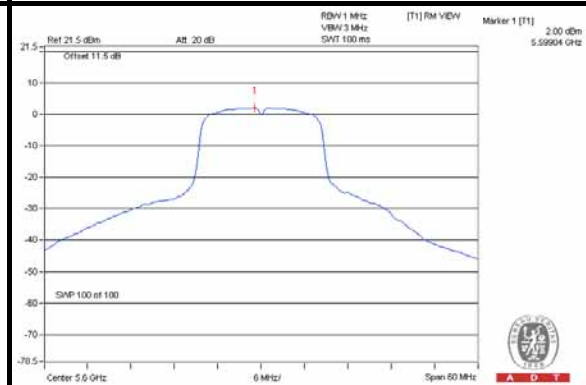
### CH64



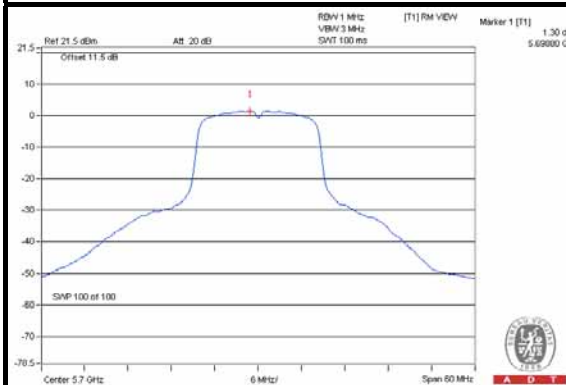
### CH100



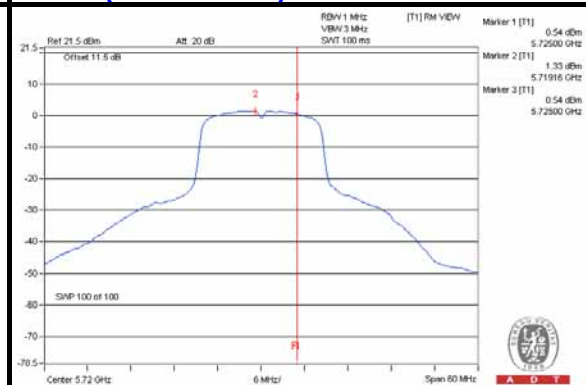
### CH120



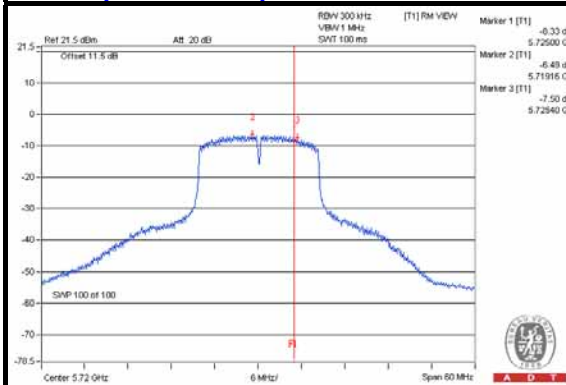
### CH140



### CH144 (UNII-2c Band)



### CH144 (UNII-3 Band)



For U-NII-1, U-NII-2A & U-NII-2C:

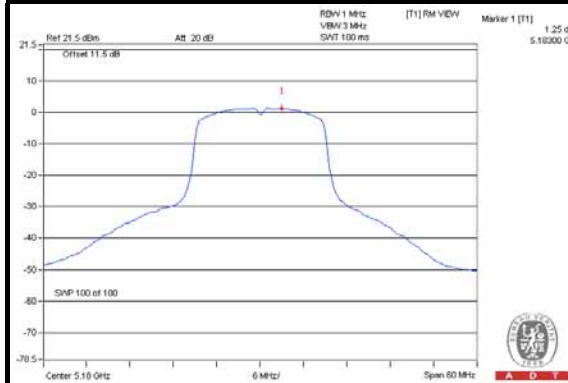
802.11ac (VHT20)

| CHANNEL            | FREQUENCY (MHz) | PSD (dBm) | MAXIMUM LIMIT (dBm) | PASS/FAIL |
|--------------------|-----------------|-----------|---------------------|-----------|
| 36                 | 5180            | 1.25      | 11.00               | PASS      |
| 40                 | 5200            | 1.62      | 11.00               | PASS      |
| 48                 | 5240            | 1.73      | 11.00               | PASS      |
| 52                 | 5260            | 1.55      | 11.00               | PASS      |
| 60                 | 5300            | 1.49      | 11.00               | PASS      |
| 64                 | 5320            | 1.49      | 11.00               | PASS      |
| 100                | 5500            | 2.54      | 11.00               | PASS      |
| 120                | 5600            | 0.85      | 11.00               | PASS      |
| 140                | 5700            | 0.38      | 11.00               | PASS      |
| 144 (UNII-2c Band) | 5720            | 0.57      | 11.00               | PASS      |
| 144 (UNII-3 Band)  | 5720            | 1.25      | 11.00               | PASS      |

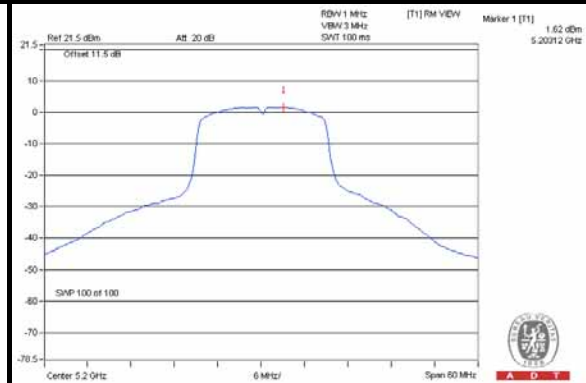
For U-NII-3:

| CHANNEL           | FREQUENCY (MHz) | PSD (dBm/300kHz) | PSD (dBm/500kHz) | LIMIT (dBm/500kHz) | PASS /FAIL |
|-------------------|-----------------|------------------|------------------|--------------------|------------|
| 144 (UNII-3 Band) | 5720            | -9.59            | -7.37            | 30                 | PASS       |

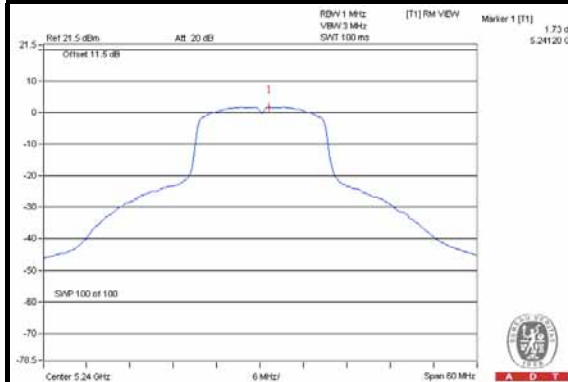
### CH36



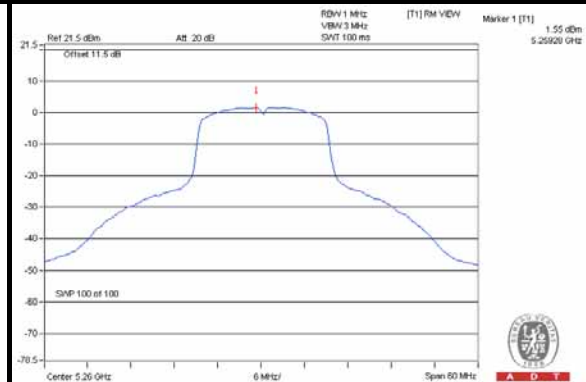
### CH40



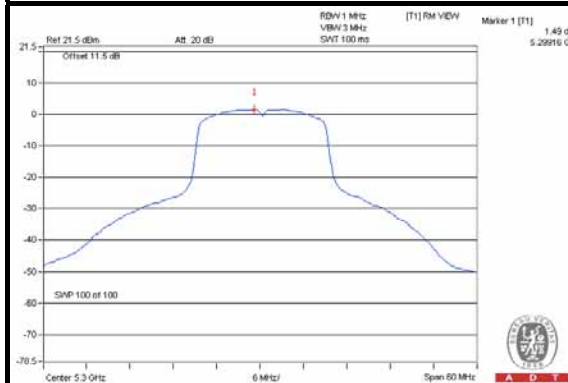
### CH48



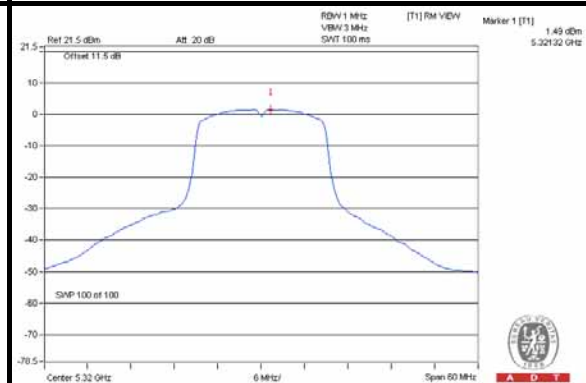
### CH52



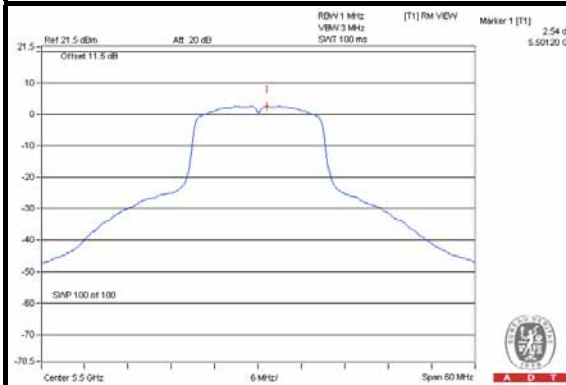
### CH60



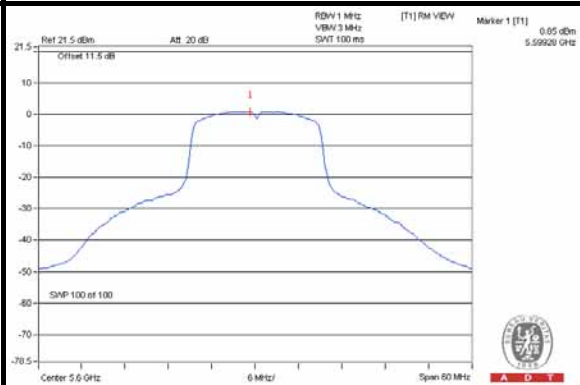
### CH64



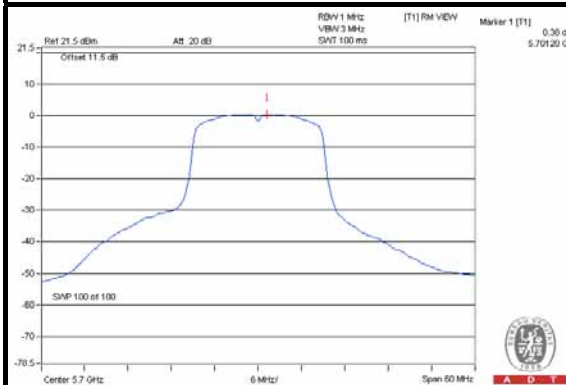
### CH100



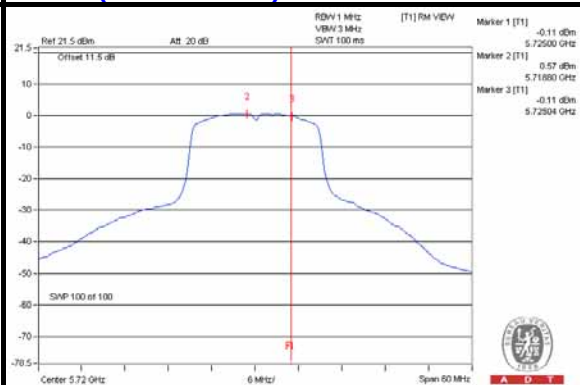
### CH120



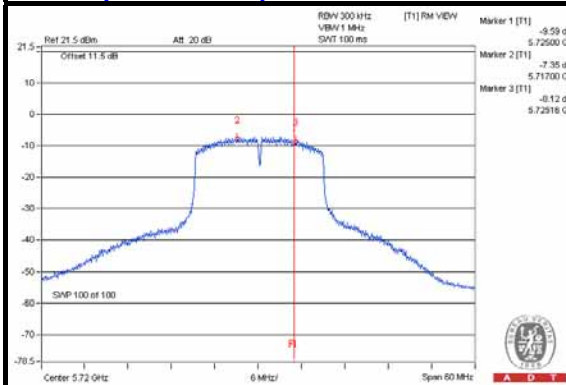
### CH140



### CH144 (UNII-2c Band)



### CH144 (UNII-3 Band)



For U-NII-1, U-NII-2A & U-NII-2C:

802.11ac (VHT40)

| CHANNEL                  | CHANNEL<br>FREQUENCY<br>(MHz) | PSD W/O DUTY<br>FACTOR<br>(dBm) | DUTY<br>FACTOR<br>(dB) | TOTAL PSD<br>WITH DUTY<br>FACTOR<br>(dBm) | MAX. LIMIT<br>(dBm) | PASS /<br>FAIL |
|--------------------------|-------------------------------|---------------------------------|------------------------|-------------------------------------------|---------------------|----------------|
| 38                       | 5190                          | -2.63                           | 0.09                   | -2.54                                     | 11.00               | PASS           |
| 46                       | 5230                          | -2.91                           | 0.09                   | -2.82                                     | 11.00               | PASS           |
| 54                       | 5270                          | -2.78                           | 0.09                   | -2.69                                     | 11.00               | PASS           |
| 62                       | 5310                          | -2.64                           | 0.09                   | -2.55                                     | 11.00               | PASS           |
| 102                      | 5510                          | -1.70                           | 0.09                   | -1.61                                     | 11.00               | PASS           |
| 118                      | 5590                          | -2.34                           | 0.09                   | -2.25                                     | 11.00               | PASS           |
| 134                      | 5670                          | -2.65                           | 0.09                   | -2.56                                     | 11.00               | PASS           |
| 142<br>(UNII-2c<br>Band) | 5710                          | -2.00                           | 0.09                   | -1.91                                     | 11.00               | PASS           |

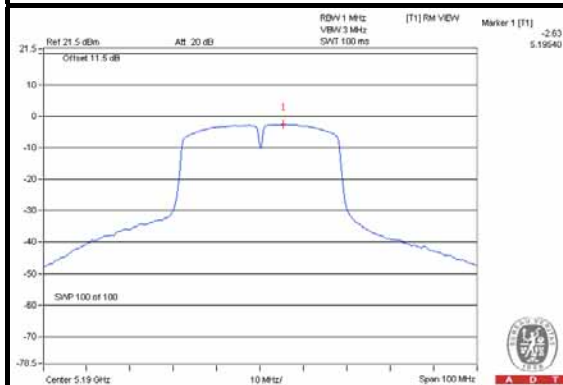
**NOTE:** 1. Refer to section 3.4 for duty cycle spectrum plot.

For U-NII-3:

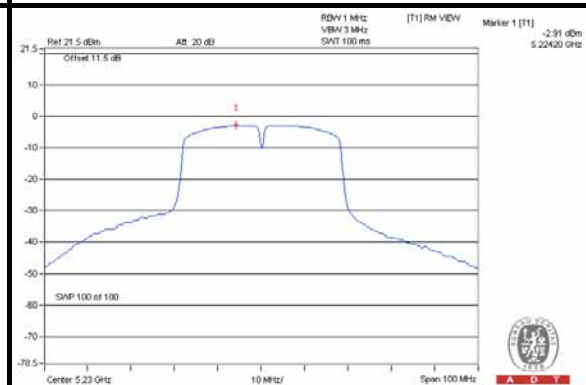
| CHANNEL           | FREQUENCY<br>(MHz) | PSD W/O DUTY FACTOR |              | DUTY<br>FACTOR<br>(dB) | TOTAL PSD<br>WITH DUTY<br>FACTOR<br>(dBm/500kHz) | LIMIT<br>(dBm/500kHz) | PASS<br>/FAIL |
|-------------------|--------------------|---------------------|--------------|------------------------|--------------------------------------------------|-----------------------|---------------|
|                   |                    | (dBm/300kHz)        | (dBm/500kHz) |                        |                                                  |                       |               |
| 142 (UNII-3 Band) | 5710               | -13.12              | -10.90       | 0.9                    | -10.81                                           | 30.00                 | PASS          |

**NOTE:** 1. Refer to section 3.4 for duty cycle spectrum plot.

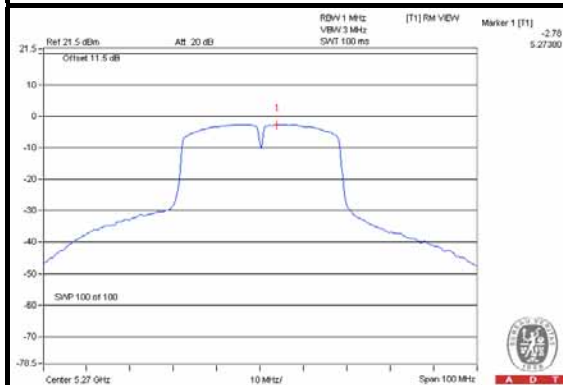
### CH38



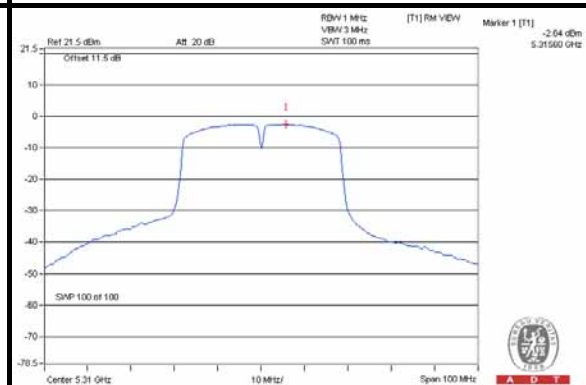
### CH46



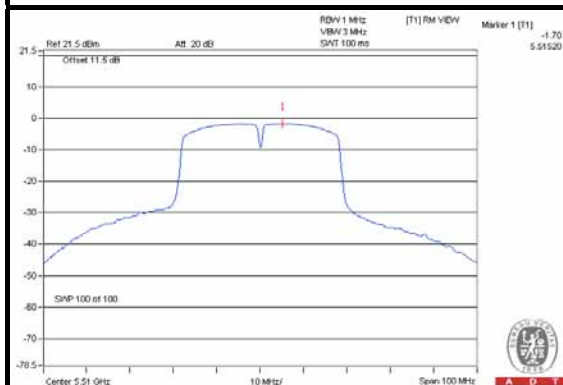
### CH54



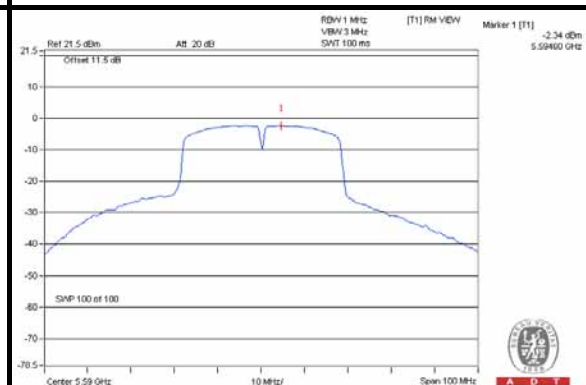
### CH62



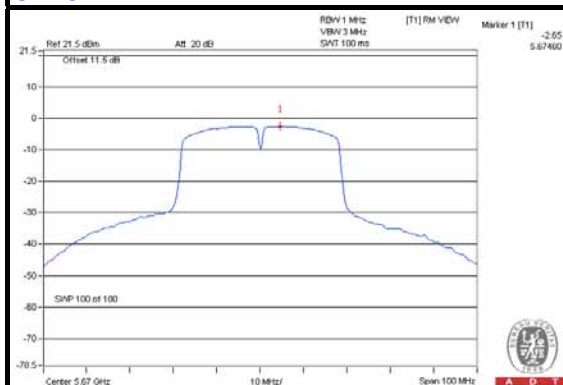
### CH102



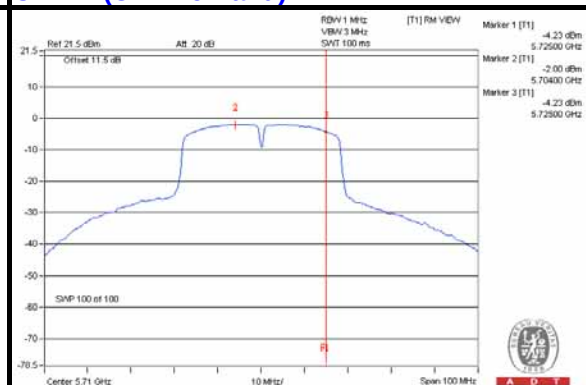
### CH118



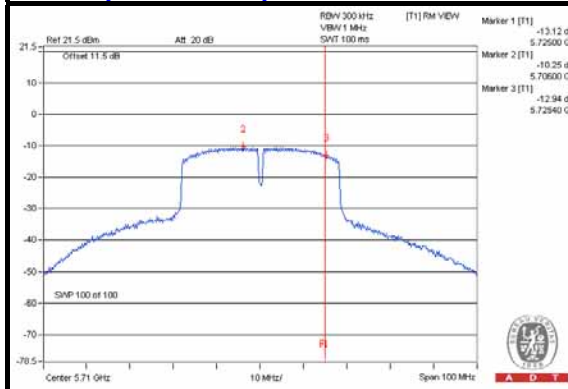
### CH134



### CH142 (UNII-2c Band)



## CH142 (UNII-3 Band)



For U-NII-1, U-NII-2A & U-NII-2C:  
802.11ac (VHT80)

| CHANNEL                  | CHANNEL<br>FREQUENCY<br>(MHz) | PSD W/O DUTY<br>FACTOR<br>(dBm) | DUTY<br>FACTOR<br>(dB) | TOTAL PSD<br>WITH DUTY<br>FACTOR<br>(dBm) | MAX. LIMIT<br>(dBm) | PASS /<br>FAIL |
|--------------------------|-------------------------------|---------------------------------|------------------------|-------------------------------------------|---------------------|----------------|
| 42                       | 5210                          | -9.52                           | 0.19                   | -9.33                                     | 11.00               | PASS           |
| 58                       | 5290                          | -7.71                           | 0.19                   | -7.52                                     | 11.00               | PASS           |
| 106                      | 5530                          | -10.98                          | 0.19                   | -10.79                                    | 11.00               | PASS           |
| 122                      | 5610                          | -5.72                           | 0.19                   | -5.53                                     | 11.00               | PASS           |
| 138<br>(UNII-2c<br>Band) | 5690                          | -6.26                           | 0.19                   | -6.07                                     | 11.00               | PASS           |

**NOTE:** 1. Refer to section 3.4 for duty cycle spectrum plot.

For U-NII-3:

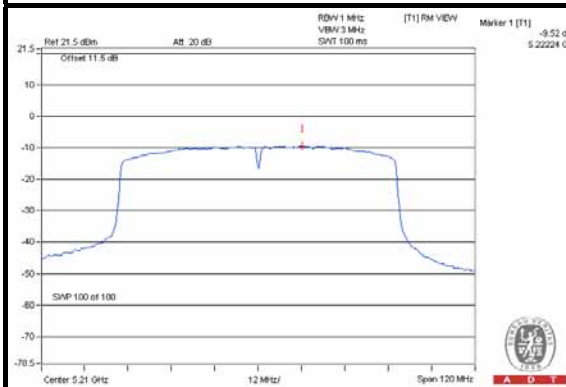
| CHANNEL           | FREQUENCY<br>(MHz) | PSD W/O DUTY FACTOR |              | DUTY<br>FACTOR<br>(dB) | TOTAL PSD<br>WITH DUTY<br>FACTOR<br>(dBm/500kHz) | LIMIT<br>(dBm/500kHz) | PASS<br>/FAIL |
|-------------------|--------------------|---------------------|--------------|------------------------|--------------------------------------------------|-----------------------|---------------|
|                   |                    | (dBm/300kHz)        | (dBm/500kHz) |                        |                                                  |                       |               |
| 138 (UNII-3 Band) | 5510               | -18.27              | -16.05       | 0.19                   | -15.86                                           | 30.00                 | PASS          |

**NOTE:** 1. Refer to section 3.4 for duty cycle spectrum plot.

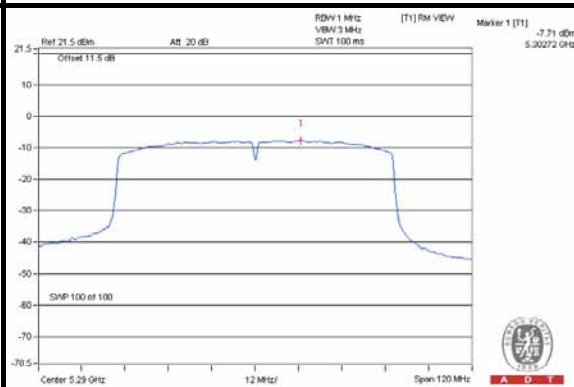


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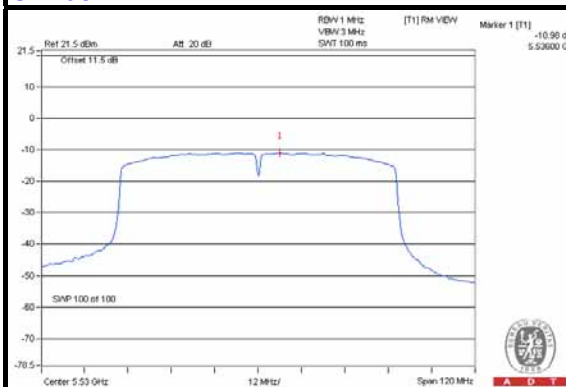
### CH42



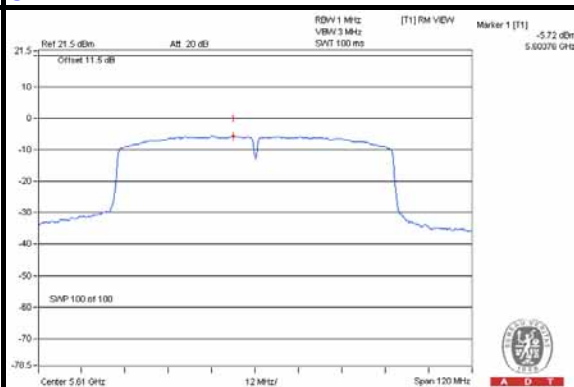
### CH58



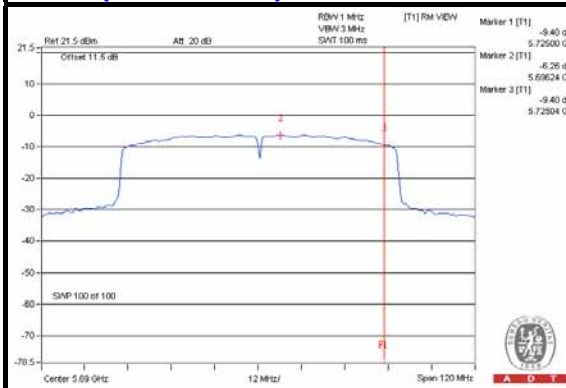
### CH106



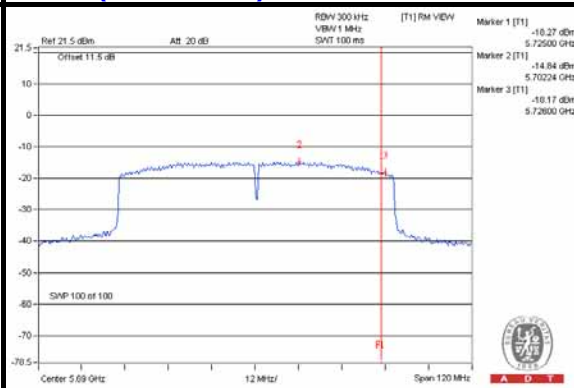
### CH122



### CH138 (UNII-2c Band)



### CH138 (UNII-3 Band)



## 4.2.8 TEST RESULTS (MODE 2)

For U-NII-1, U-NII-2A & U-NII-2C:  
802.11a

| CHANNEL            | CHANNEL FREQUENCY (MHz) | PSD (dBm) |         | TOTAL POWER DENSITY (dBm) | MAX. LIMIT (dBm) | PASS/FAIL |
|--------------------|-------------------------|-----------|---------|---------------------------|------------------|-----------|
|                    |                         | CHAIN 0   | CHAIN 1 |                           |                  |           |
| 36                 | 5180                    | -2.29     | -2.40   | 0.67                      | 10.91            | PASS      |
| 40                 | 5200                    | 1.25      | 1.62    | 4.45                      | 10.91            | PASS      |
| 48                 | 5240                    | 1.32      | 1.69    | 4.52                      | 10.91            | PASS      |
| 52                 | 5260                    | 1.28      | 1.32    | 4.31                      | 10.91            | PASS      |
| 60                 | 5300                    | 1.77      | 1.25    | 4.53                      | 10.91            | PASS      |
| 64                 | 5320                    | -2.59     | -3.09   | 0.18                      | 10.91            | PASS      |
| 100                | 5500                    | -4.22     | -4.12   | -1.16                     | 9.23             | PASS      |
| 120                | 5600                    | 2.00      | 1.41    | 4.73                      | 9.23             | PASS      |
| 140                | 5700                    | -5.76     | -5.65   | -2.69                     | 9.23             | PASS      |
| 144 (UNII-2c Band) | 5720                    | 1.33      | 1.12    | 4.24                      | 9.23             | PASS      |

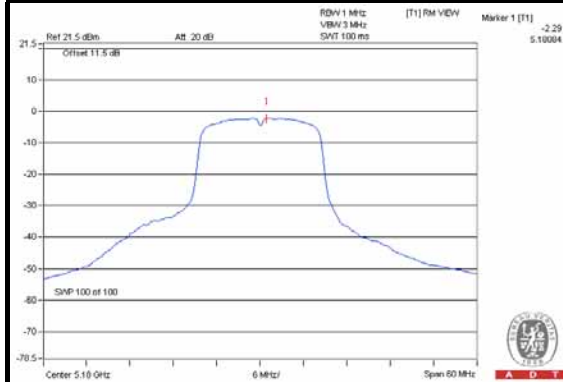
- NOTE:**
- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
  - 5150~5350MHz: Directional gain = 3.08dBi + 10log(2) = 6.09dBi > 6dBi, so the power density limit shall be reduced to 11-(6.09-6) = 10.91dBm.
  - 5470~5725MHz (Except for UNII-3 Band): Directional gain = 4.76dBi + 10log(2) = 7.77dBi > 6dB, so the power density limit shall be reduced to 11-(7.77-6) = 9.23dBm.
  - Refer to section 3.4 for duty cycle spectrum plot.

For U-NII-3:

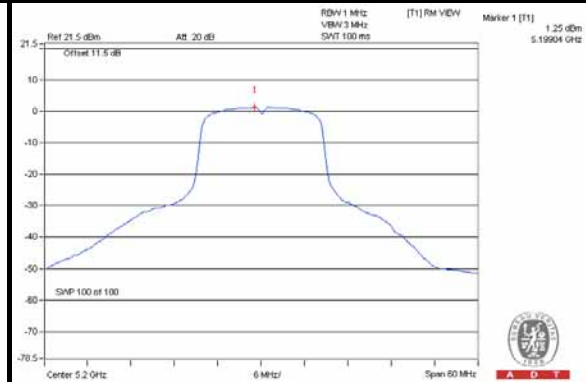
| TX CHAIN | CHANNEL           | FREQUENCY (MHz) | PSD (dBm/300kHz) | PSD (dBm/500kHz) | 10 log (N=2) dB | TOTAL PSD (dBm/500kHz) | LIMIT (dBm/500kHz) | PASS /FAIL |
|----------|-------------------|-----------------|------------------|------------------|-----------------|------------------------|--------------------|------------|
| 0        | 144 (UNII-3 Band) | 5720            | -8.33            | -6.11            | 3.01            | -3.10                  | 28.23              | PASS       |
| 1        | 144 (UNII-3 Band) | 5720            | -8.99            | -6.77            | 3.01            | -3.76                  | 28.23              | PASS       |

- 5725~5825MHz (For UNII-3 Band): Directional gain = 4.76dBi + 10log(2) = 7.77dBi > 6dB, so the power density limit shall be reduced to 30-(7.77-6) = 28.23dBm.
- Refer to section 3.4 for duty cycle spectrum plot.

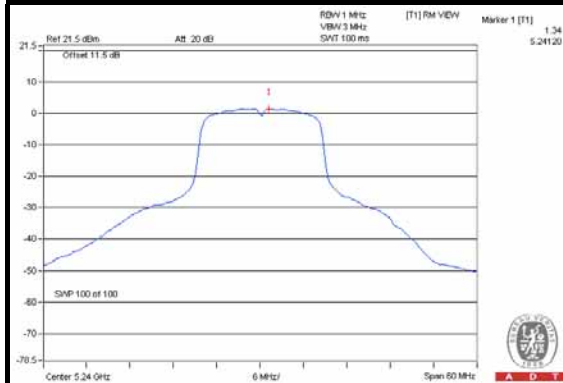
Chain(0) : CH36



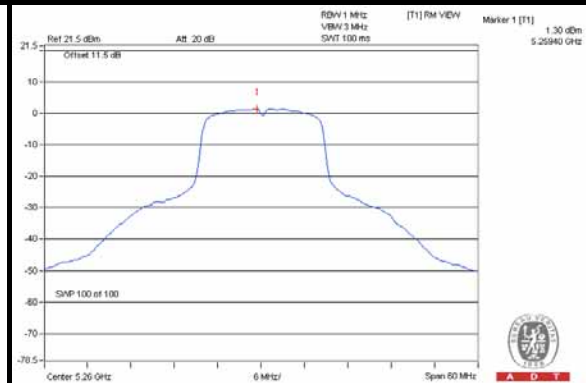
Chain(0) : CH40



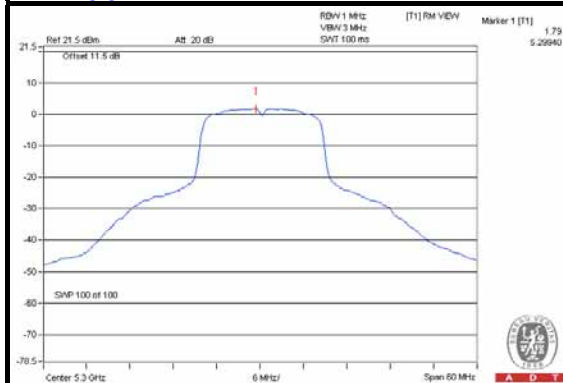
Chain(0) : CH48



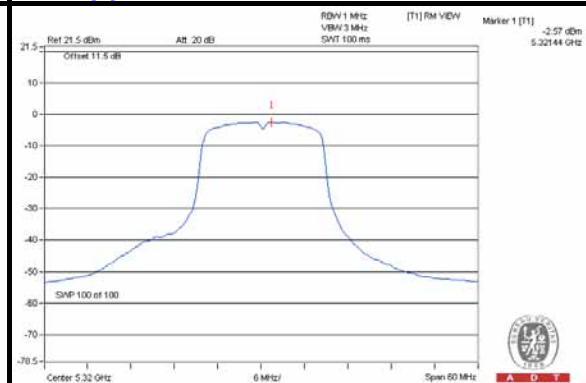
Chain(0) : CH52



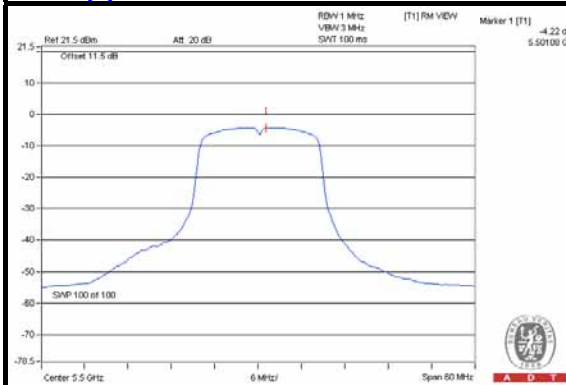
Chain(0) : CH60



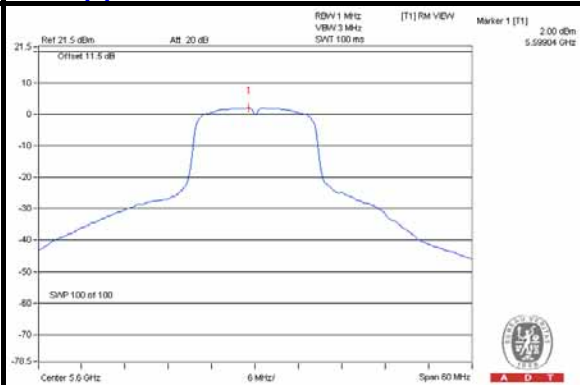
Chain(0) : CH64



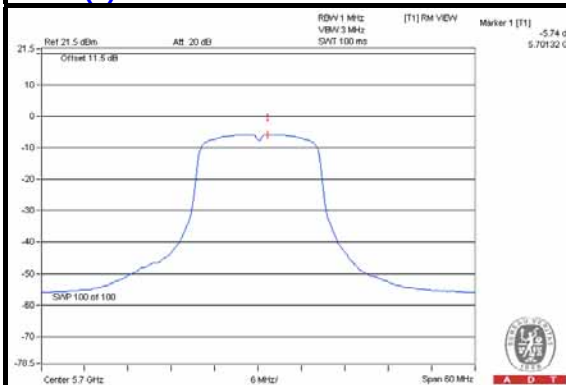
### Chain(0) : CH100



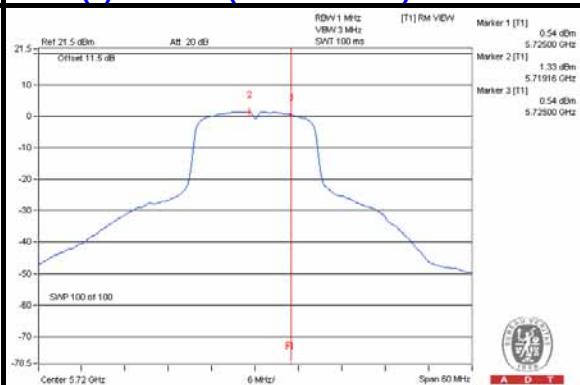
### Chain(0) : CH120



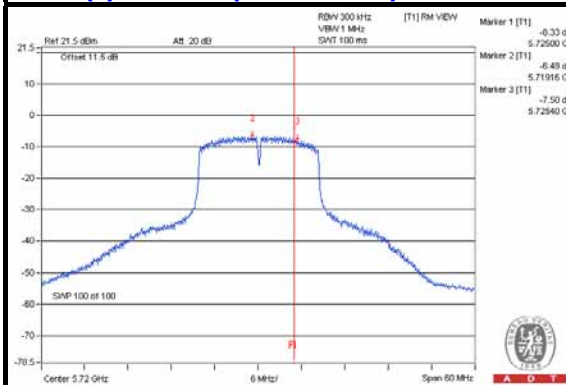
### Chain(0) : CH140



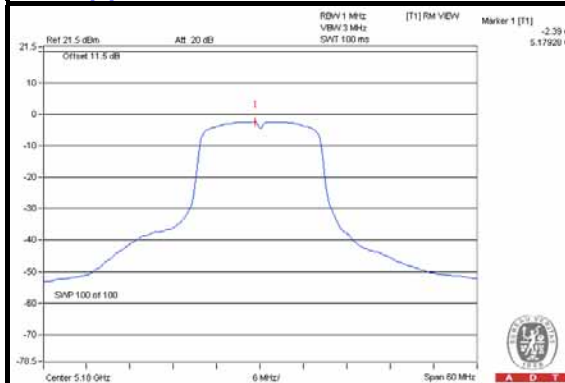
### Chain(0) : CH144 (UNII-2c Band)



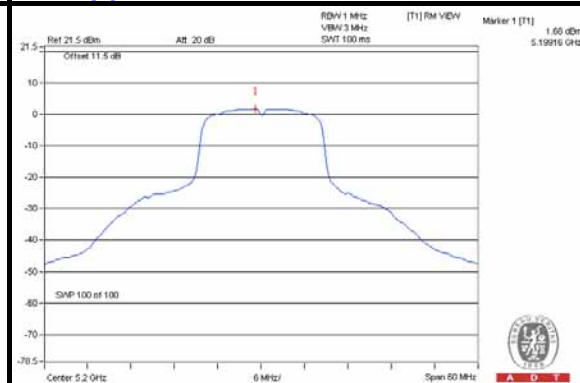
### Chain(0) : CH144 (UNII-3 Band)



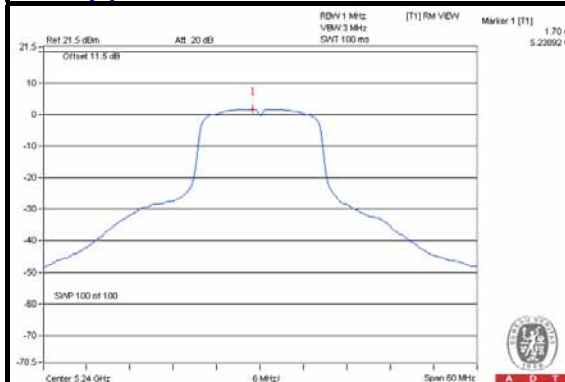
Chain(1) : CH36



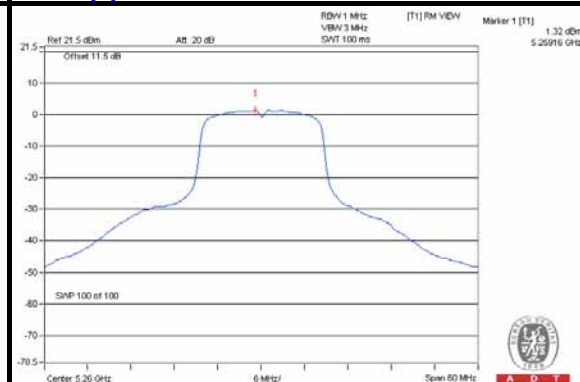
Chain(1) : CH40



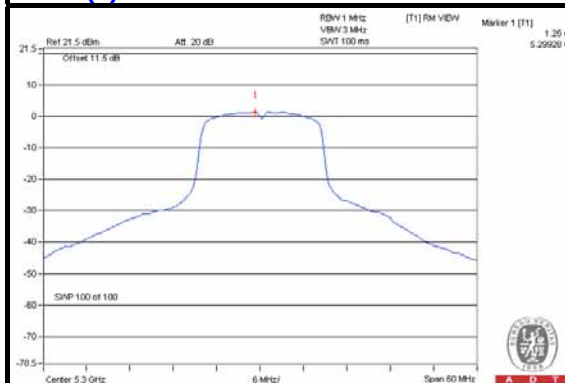
Chain(1) : CH48



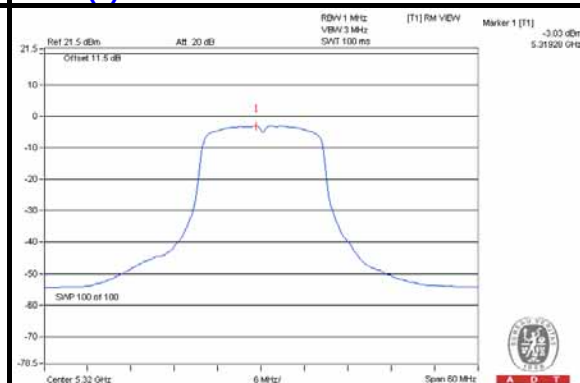
Chain(1) : CH52



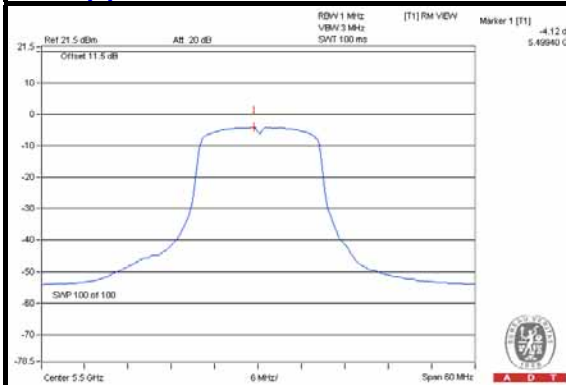
Chain(1) : CH60



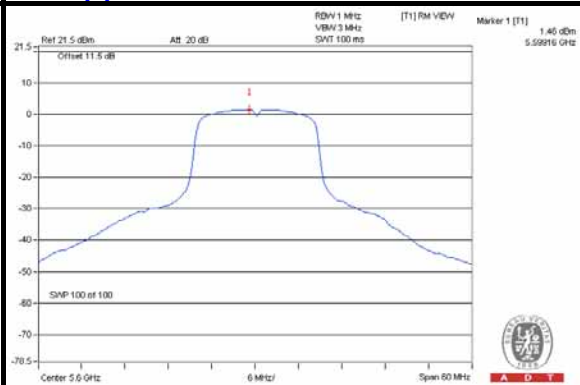
Chain(1) : CH64



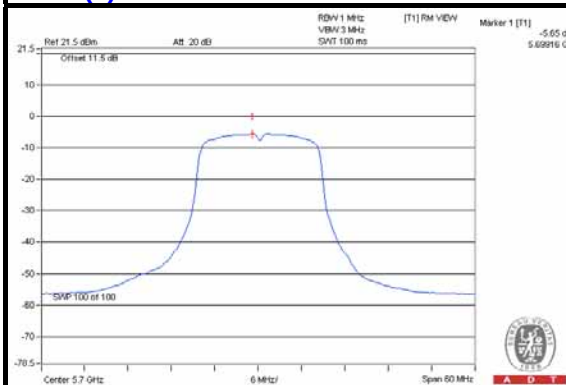
### Chain(1) : CH100



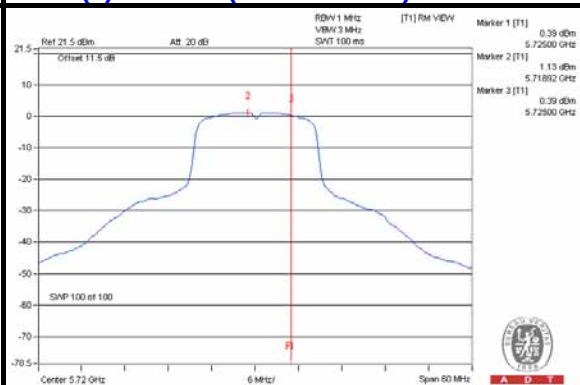
### Chain(1) : CH120



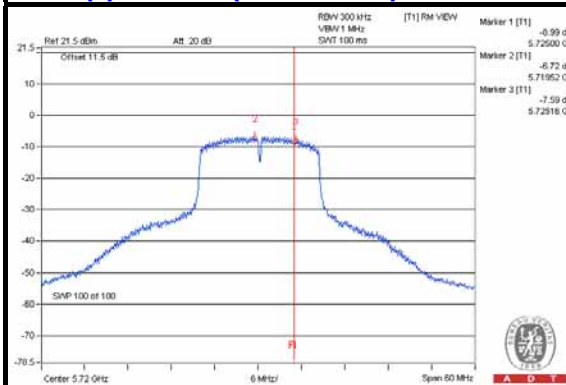
### Chain(1) : CH140



### Chain(1) : CH144 (UNII-2c Band)



### Chain(1) : CH144 (UNII-3 Band)



### 802.11ac (VHT20)

| CHANNEL            | CHANNEL FREQUENCY (MHz) | PSD (dBm) |         | TOTAL POWER DENSITY (dBm) | MAX. LIMIT (dBm) | PASS/FAIL |
|--------------------|-------------------------|-----------|---------|---------------------------|------------------|-----------|
|                    |                         | CHAIN 0   | CHAIN 1 |                           |                  |           |
| 36                 | 5180                    | -3.16     | -3.18   | -0.16                     | 10.91            | PASS      |
| 40                 | 5200                    | 1.55      | 1.60    | 4.59                      | 10.91            | PASS      |
| 48                 | 5240                    | 1.73      | 1.42    | 4.59                      | 10.91            | PASS      |
| 52                 | 5260                    | 1.48      | 1.49    | 4.50                      | 10.91            | PASS      |
| 60                 | 5300                    | 1.49      | 0.99    | 4.26                      | 10.91            | PASS      |
| 64                 | 5320                    | -4.07     | -4.19   | -1.12                     | 10.91            | PASS      |
| 100                | 5500                    | -5.60     | -5.23   | -2.40                     | 9.23             | PASS      |
| 120                | 5600                    | 0.78      | 1.05    | 3.93                      | 9.23             | PASS      |
| 140                | 5700                    | -6.30     | -5.94   | -3.11                     | 9.23             | PASS      |
| 144 (UNII-2c Band) | 5720                    | 0.54      | 0.90    | 3.73                      | 9.23             | PASS      |

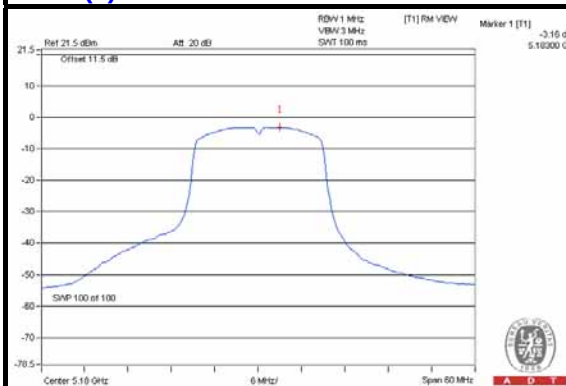
- NOTE:**
- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
  - 5150~5350MHz: Directional gain = 3.08dBi + 10log(2) = 6.09dBi > 6dBi, so the power density limit shall be reduced to 11-(6.09-6) = 10.91dBm.
  - 5470~5725MHz (Except for UNII-3 Band): Directional gain = 4.76dBi + 10log(2) = 7.77dBi > 6dB, so the power density limit shall be reduced to 11-(7.77-6) = 9.23dBm.
  - Refer to section 3.4 for duty cycle spectrum plot.

### For U-NII-3:

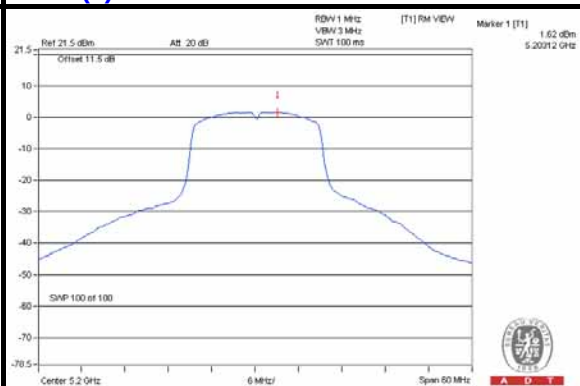
| TX CHAIN | CHANNEL           | FREQUENCY (MHz) | PSD (dBm/300kHz) | PSD (dBm/500kHz) | 10 log (N=2) dB | TOTAL PSD (dBm/500kHz) | LIMIT (dBm/500kHz) | PASS /FAIL |
|----------|-------------------|-----------------|------------------|------------------|-----------------|------------------------|--------------------|------------|
| 0        | 144 (UNII-3 Band) | 5720            | -9.59            | -7.37            | 3.01            | -4.36                  | 28.23              | PASS       |
| 1        | 144 (UNII-3 Band) | 5720            | -8.61            | -6.39            | 3.01            | -3.38                  | 28.23              | PASS       |

- 5725~5825MHz (For UNII-3 Band): Directional gain = 4.76dBi + 10log(2) = 7.77dBi > 6dB, so the power density limit shall be reduced to 30-(7.77-6) = 28.23dBm.
- Refer to section 3.4 for duty cycle spectrum plot.

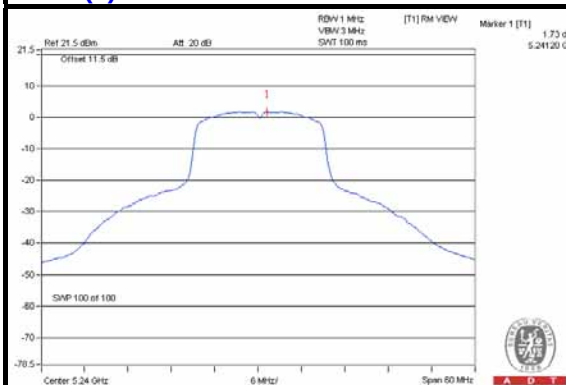
Chain(0) : CH36



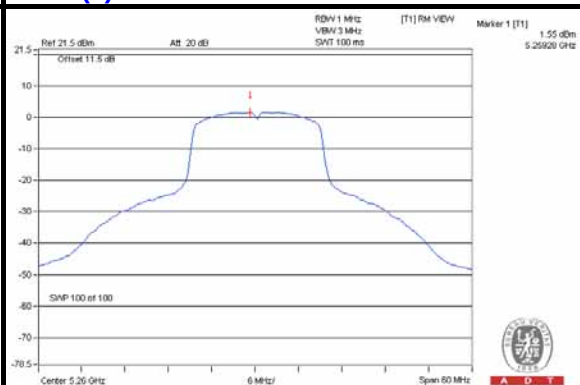
Chain(0) : CH40



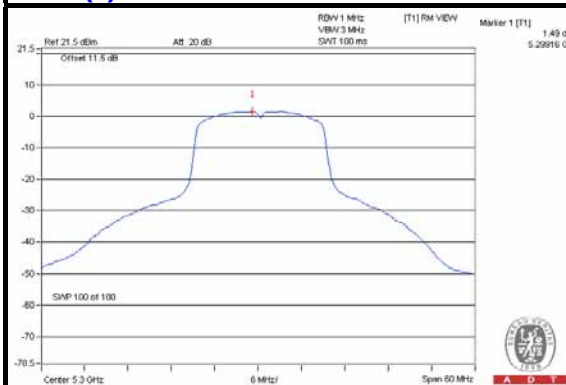
Chain(0) : CH48



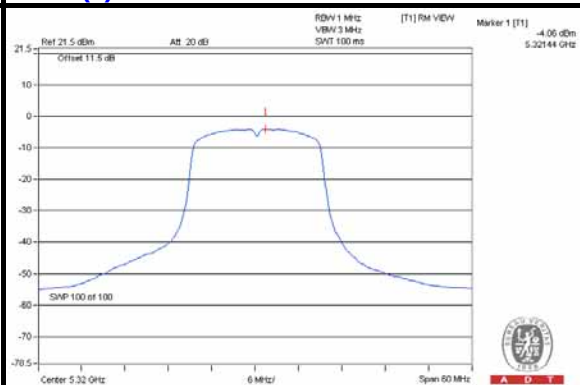
Chain(0) : CH52



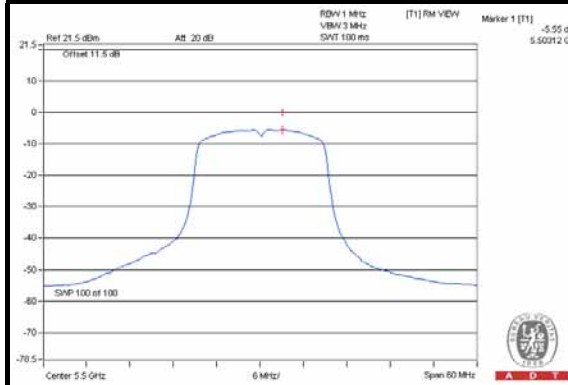
Chain(0) : CH60



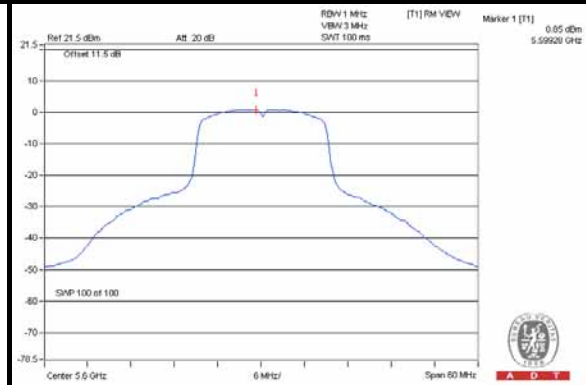
Chain(0) : CH64



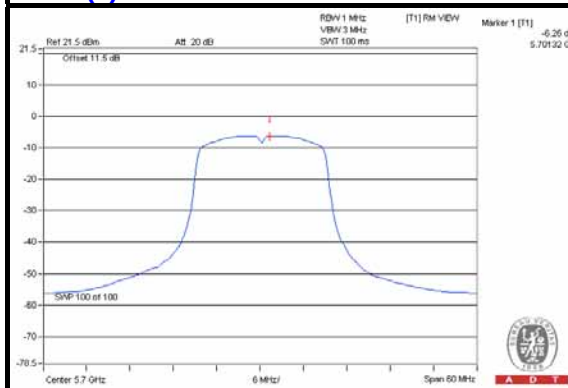
### Chain(0) : CH100



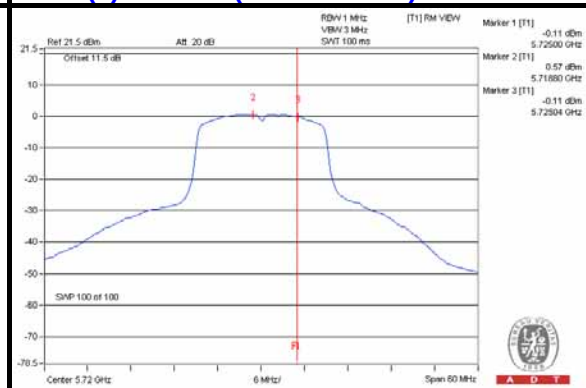
### Chain(0) : CH120



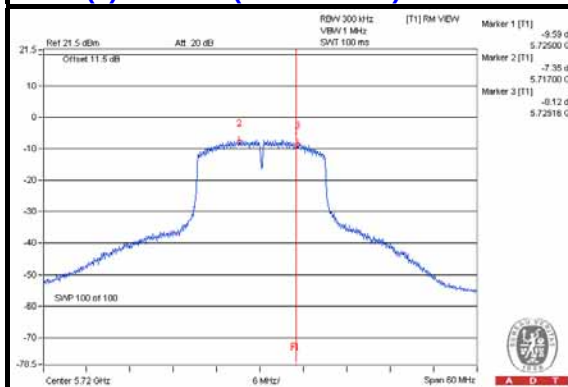
### Chain(0) : CH140



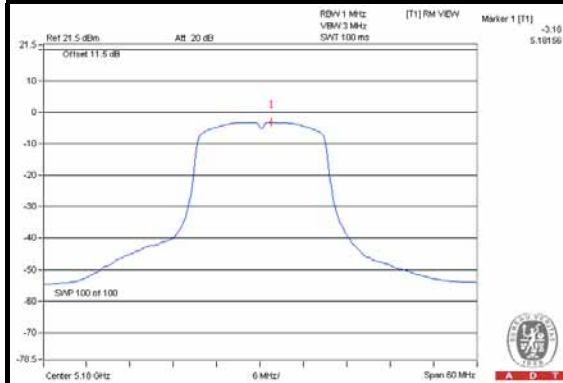
### Chain(0) : CH144 (UNII-2c Band)



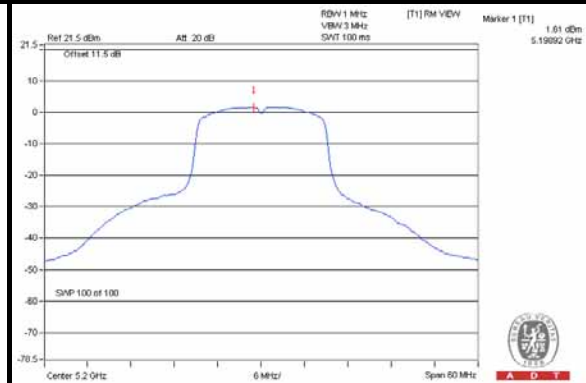
### Chain(0) : CH144 (UNII-3 Band)



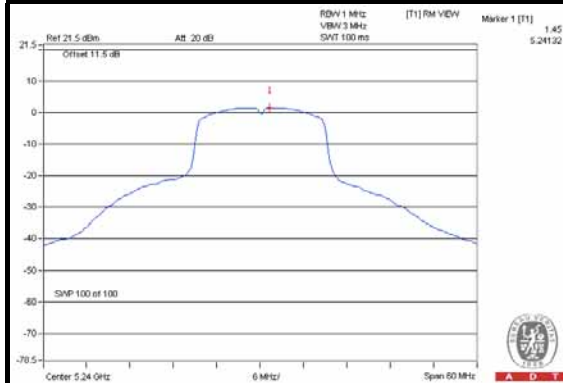
Chain(1) : CH36



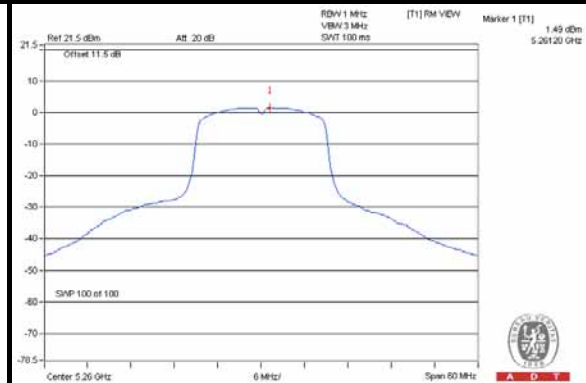
Chain(1) : CH40



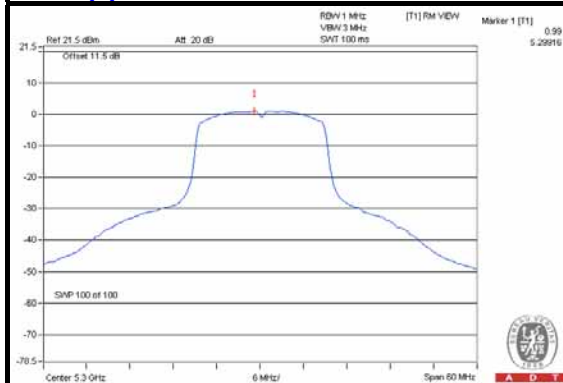
Chain(1) : CH48



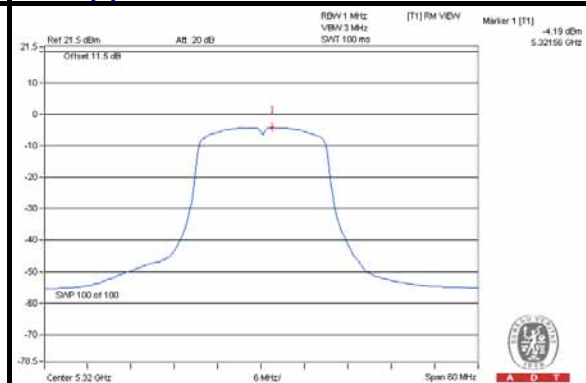
Chain(1) : CH52



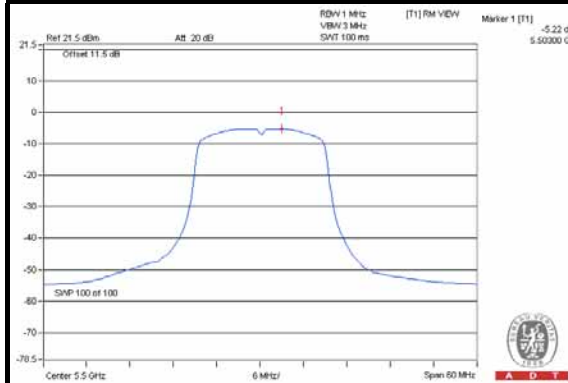
Chain(1) : CH60



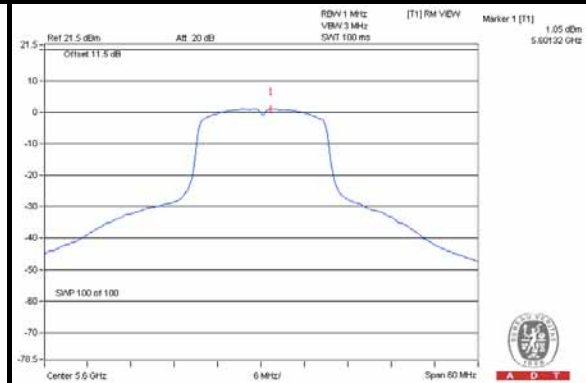
Chain(1) : CH64



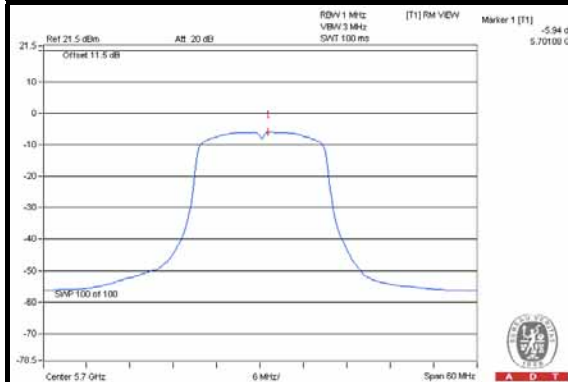
### Chain(1) : CH100



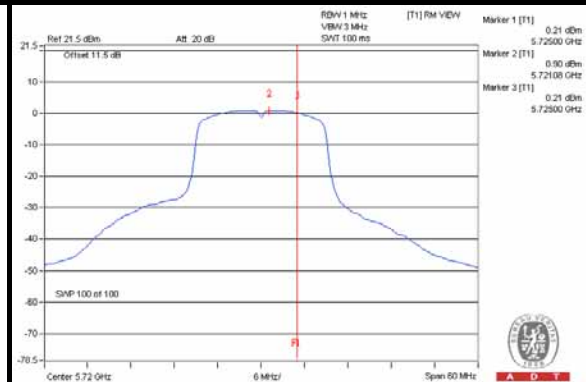
### Chain(1) : CH120



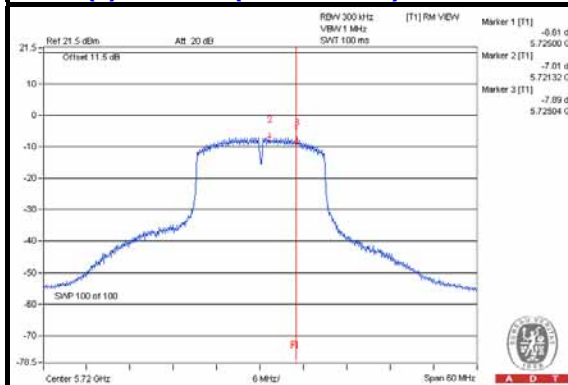
### Chain(1) : CH140



### Chain(1) : CH144 (UNII-2c Band)



### Chain(1) : CH144 (UNII-3 Band)



### 802.11ac (VHT40)

| CHANNEL                  | CHANNEL<br>FREQUENCY<br>(MHz) | PSD W/O DUTY<br>FACTOR<br>(dBm) |         | DUTY<br>FACTOR<br>(dB) | TOTAL PSD<br>WITH DUTY<br>FACTOR<br>(dBm) | MAX. LIMIT<br>(dBm) | PASS /<br>FAIL |
|--------------------------|-------------------------------|---------------------------------|---------|------------------------|-------------------------------------------|---------------------|----------------|
|                          |                               | CHAIN 0                         | CHAIN 1 |                        |                                           |                     |                |
| 38                       | 5190                          | -7.23                           | -7.07   | 0.09                   | -4.05                                     | 10.91               | PASS           |
| 46                       | 5230                          | -2.91                           | -3.14   | 0.09                   | 0.08                                      | 10.91               | PASS           |
| 54                       | 5270                          | -2.79                           | -3.30   | 0.09                   | 0.06                                      | 10.91               | PASS           |
| 62                       | 5310                          | -5.77                           | -6.74   | 0.09                   | -3.13                                     | 10.91               | PASS           |
| 102                      | 5510                          | -9.01                           | -8.50   | 0.09                   | -5.64                                     | 9.23                | PASS           |
| 118                      | 5590                          | -2.38                           | -2.09   | 0.09                   | 0.87                                      | 9.23                | PASS           |
| 134                      | 5670                          | -4.17                           | -4.13   | 0.09                   | -1.05                                     | 9.23                | PASS           |
| 142<br>(UNII-2c<br>Band) | 5710                          | -2.03                           | -2.55   | 0.09                   | 0.82                                      | 9.23                | PASS           |

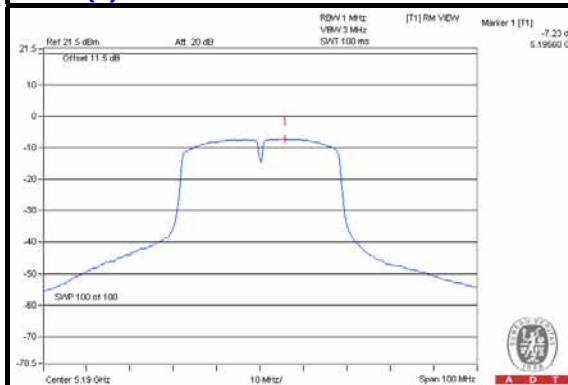
- NOTE:**
- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
  - 5150~5350MHz: Directional gain = 3.08dBi + 10log(2) = 6.09dBi > 6dBi, so the power density limit shall be reduced to 11-(6.09-6) = 10.91dBm.
  - 5470~5725MHz (Except for UNII-3 Band): Directional gain = 4.76dBi + 10log(2) = 7.77dBi > 6dB, so the power density limit shall be reduced to 11-(7.77-6) = 9.23dBm.
  - Refer to section 3.4 for duty cycle spectrum plot.

### For U-NII-3:

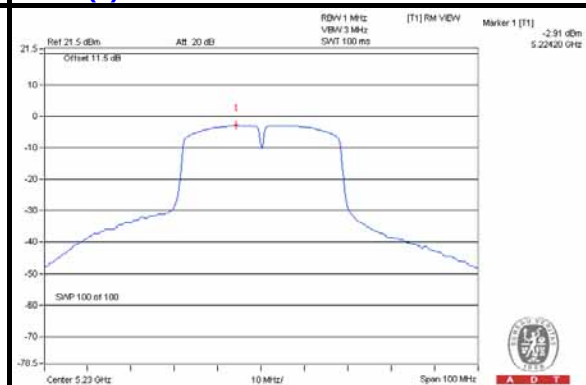
| TX<br>CHAIN | CHANNEL                 | FREQUENCY<br>(MHz) | PSD W/O DUTY FACTOR |              | 10 log<br>(N=2)<br>dB | DUTY<br>FACTOR<br>(dB) | TOTAL PSD<br>WITH DUTY<br>FACTOR<br>(dBm/500kHz) | LIMIT<br>(dBm/500kHz) | PASS<br>/FAIL |
|-------------|-------------------------|--------------------|---------------------|--------------|-----------------------|------------------------|--------------------------------------------------|-----------------------|---------------|
|             |                         |                    | (dBm/300kHz)        | (dBm/500kHz) |                       |                        |                                                  |                       |               |
| 0           | 142<br>(UNII-3<br>Band) | 5710               | -13.12              | -10.90       | 3.01                  | 0.09                   | -7.80                                            | 28.23                 | PASS          |
| 1           | 142<br>(UNII-3<br>Band) | 5710               | -13.99              | -11.77       | 3.01                  | 0.09                   | -8.67                                            | 28.23                 | PASS          |

- 5725~5825MHz (For UNII-3 Band): Directional gain = 4.76dBi + 10log(2) = 7.77dBi > 6dB, so the power density limit shall be reduced to 30-(7.77-6) = 28.23dBm.
- Refer to section 3.4 for duty cycle spectrum plot.

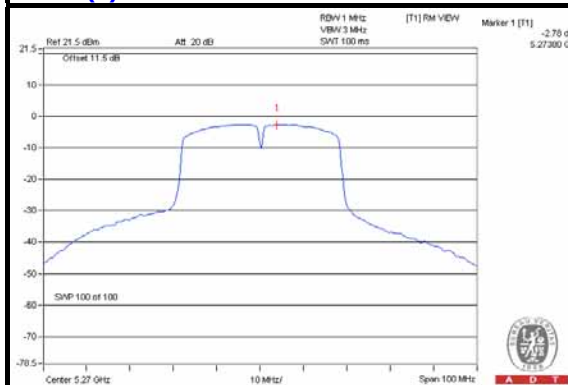
Chain(0) : CH38



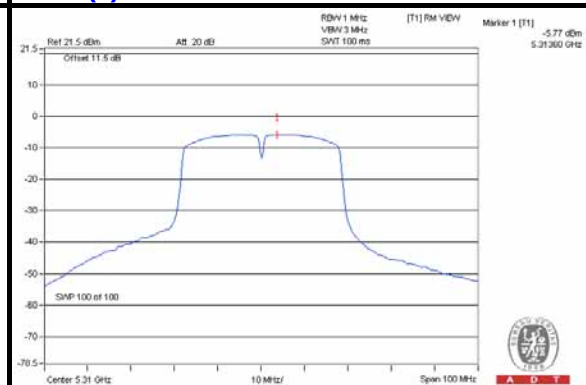
Chain(0) : CH46



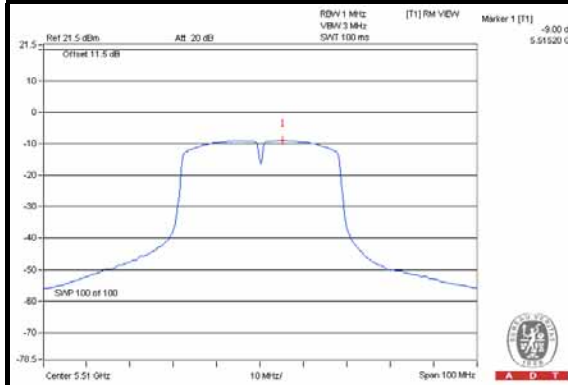
Chain(0) : CH54



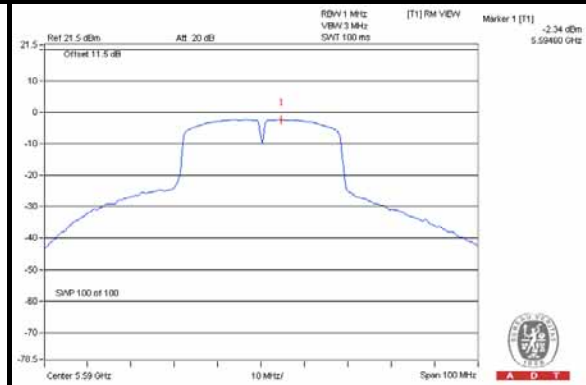
Chain(0) : CH62



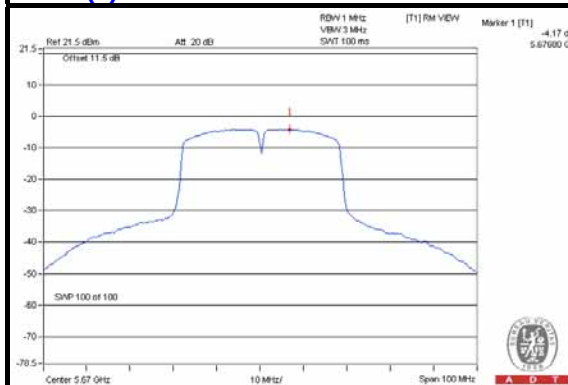
### Chain(0) : CH102



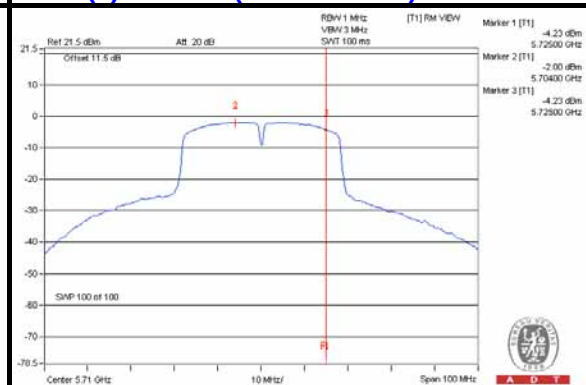
### Chain(0) : CH118



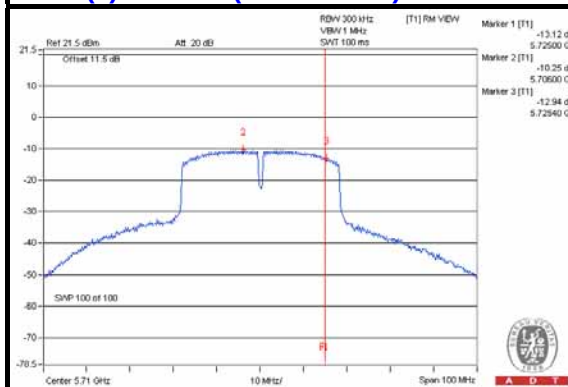
### Chain(0) : CH134



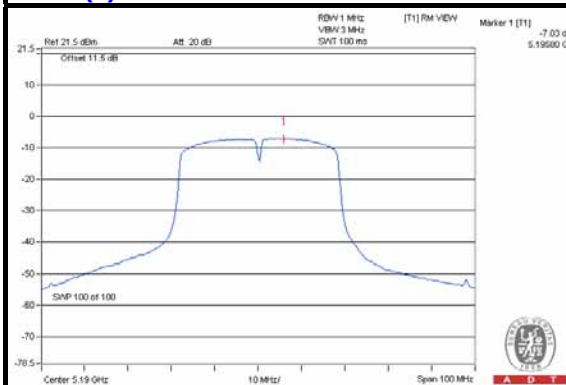
### Chain(0) : CH142 (UNII-2c Band)



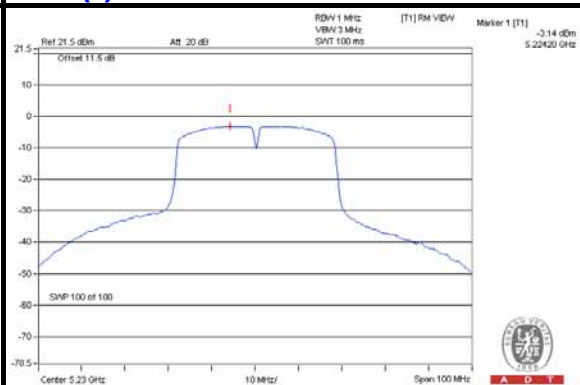
### Chain(0) : CH142 (UNII-3 Band)



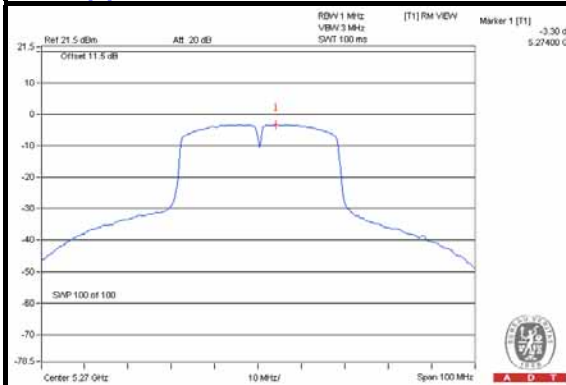
Chain(1) : CH38



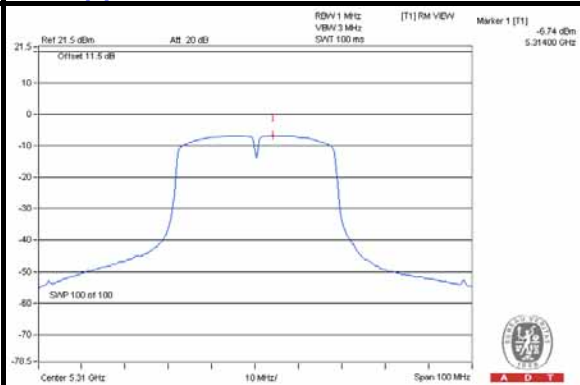
Chain(1) : CH46



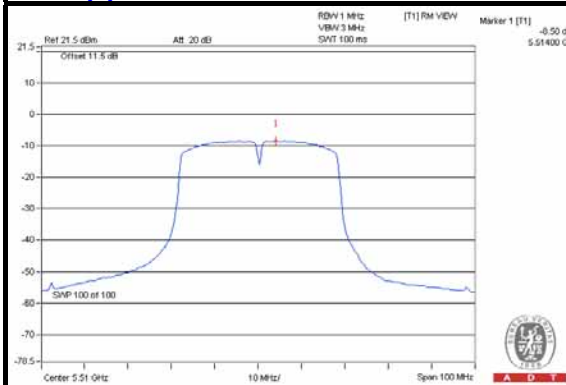
Chain(1) : CH54



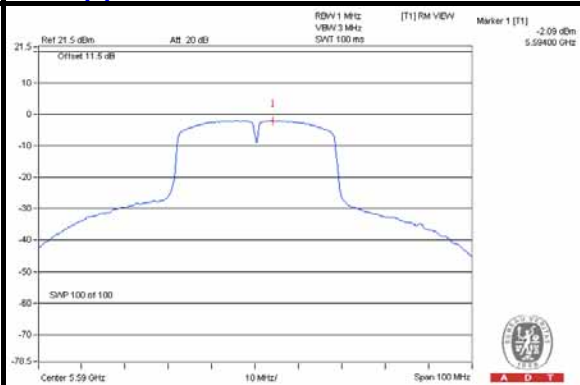
Chain(1) : CH62



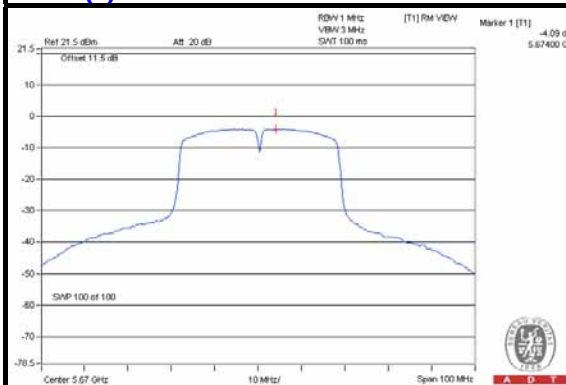
### Chain(1) : CH102



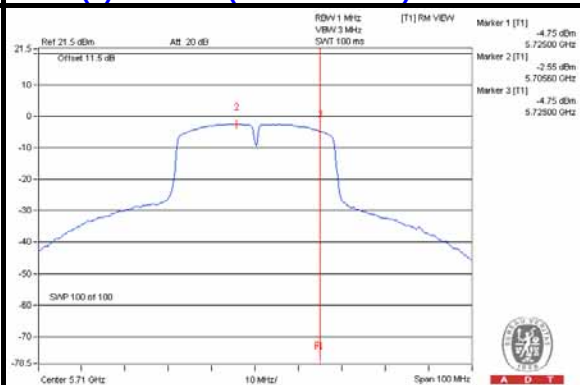
### Chain(1) : CH118



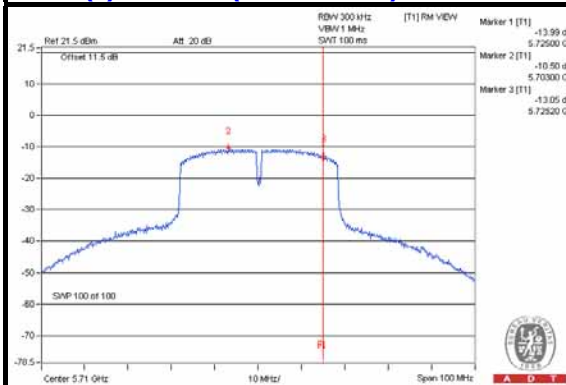
### Chain(1) : CH134



### Chain(1) : CH142 (UNII-2c Band)



### Chain(1) : CH142 (UNII-3 Band)



### 802.11ac (VHT80)

| CHANNEL            | CHANNEL FREQUENCY (MHz) | PSD W/O DUTY FACTOR (dBm) |         | DUTY FACTOR (dB) | TOTAL PSD WITH DUTY FACTOR (dBm) | MAX. LIMIT (dBm) | PASS / FAIL |
|--------------------|-------------------------|---------------------------|---------|------------------|----------------------------------|------------------|-------------|
|                    |                         | CHAIN 0                   | CHAIN 1 |                  |                                  |                  |             |
| 42                 | 5210                    | -11.36                    | -11.28  | 0.21             | -8.10                            | 10.91            | PASS        |
| 58                 | 5290                    | -9.14                     | -9.66   | 0.21             | -6.17                            | 10.91            | PASS        |
| 106                | 5530                    | -10.73                    | -10.16  | 0.21             | -7.22                            | 9.23             | PASS        |
| 122                | 5610                    | -5.95                     | -6.06   | 0.21             | -2.79                            | 9.23             | PASS        |
| 138 (UNII-2c Band) | 5690                    | -6.26                     | -6.01   | 0.21             | -2.91                            | 9.23             | PASS        |

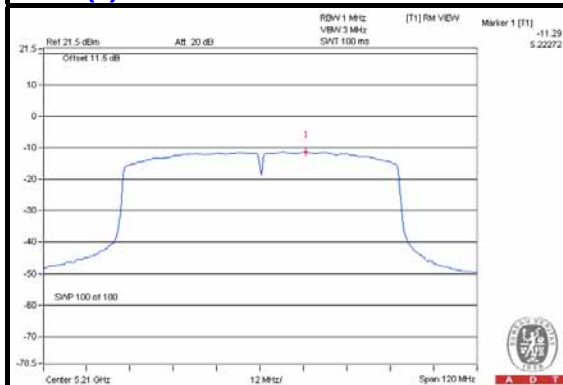
- NOTE:**
- Method 1 of power density measurement of KDB 662911 is using for calculating total power density. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
  - 5150~5350MHz: Directional gain =  $3.08\text{dBi} + 10\log(2) = 6.09\text{dBi} > 6\text{dBi}$ , so the power density limit shall be reduced to  $11-(6.09-6) = 10.91\text{dBm}$ .
  - 5470~5725MHz (Except for UNII-3 Band): Directional gain =  $4.76\text{dBi} + 10\log(2) = 7.77\text{dBi} > 6\text{dB}$ , so the power density limit shall be reduced to  $11-(7.77-6) = 9.23\text{dBm}$ .
  - Refer to section 3.4 for duty cycle spectrum plot.

### For U-NII-3:

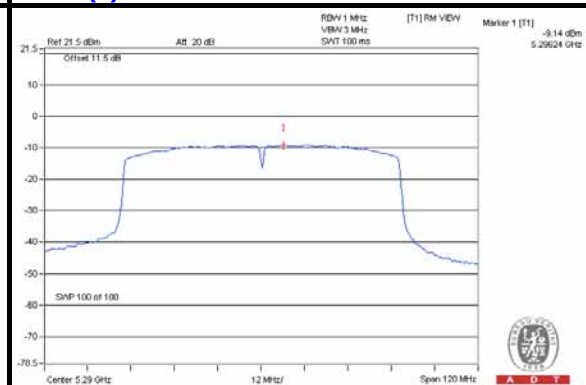
| TX CHAIN | CHANNEL           | FREQUENCY (MHz) | PSD W/O DUTY FACTOR |              | 10 log (N=2) dB | DUTY FACTOR (dB) | TOTAL PSD WITH DUTY FACTOR (dBm/500kHz) | LIMIT (dBm/500kHz) | PASS /FAIL |
|----------|-------------------|-----------------|---------------------|--------------|-----------------|------------------|-----------------------------------------|--------------------|------------|
|          |                   |                 | (dBm/300kHz)        | (dBm/500kHz) |                 |                  |                                         |                    |            |
| 0        | 138 (UNII-3 Band) | 5690            | -18.27              | -16.05       | 3.01            | 0.09             | -12.83                                  | 28.23              | PASS       |
| 1        | 138 (UNII-3 Band) | 5690            | -17.83              | -15.61       | 3.01            | 0.09             | -12.39                                  | 28.23              | PASS       |

- 5725~5825MHz (For UNII-3 Band): Directional gain =  $4.76\text{dBi} + 10\log(2) = 7.77\text{dBi} > 6\text{dB}$ , so the power density limit shall be reduced to  $30-(7.77-6) = 28.23\text{dBm}$ .
- Refer to section 3.4 for duty cycle spectrum plot.

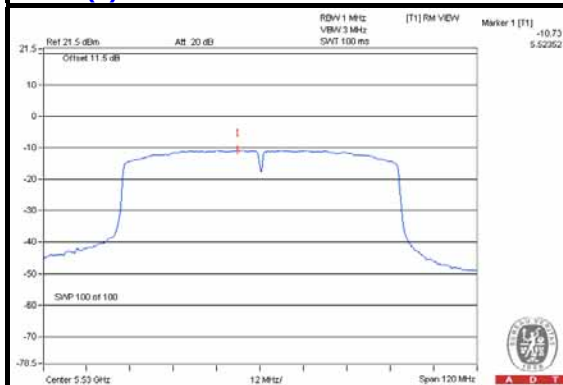
Chain(0) : CH42



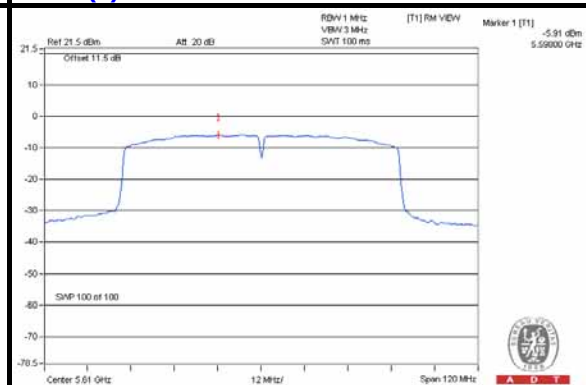
Chain(0) : CH58



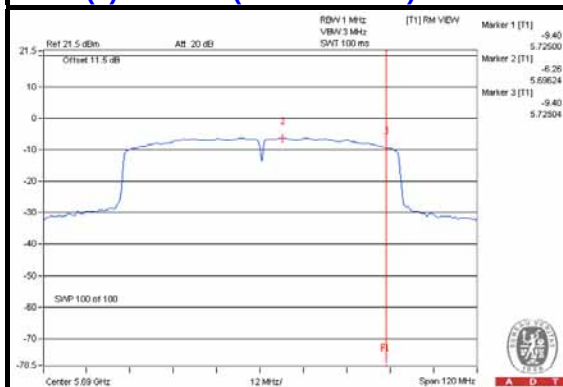
Chain(0) : CH106



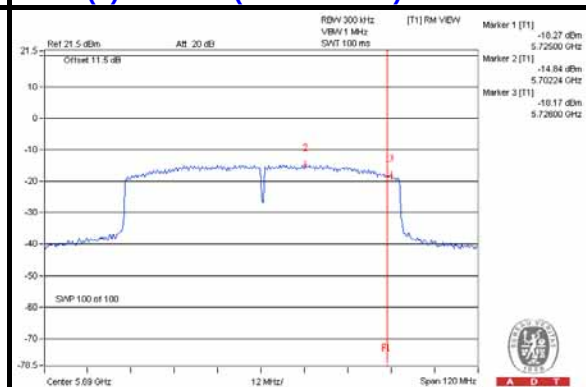
Chain(0) : CH122



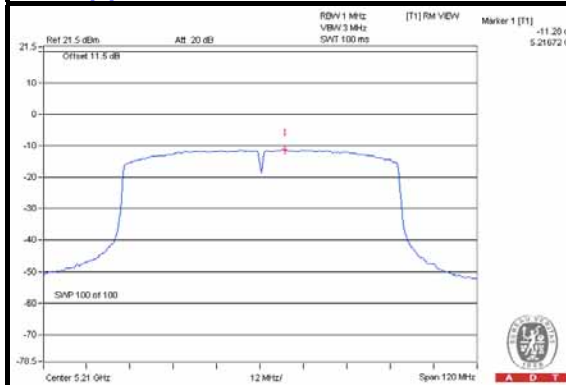
Chain(0) : CH138 (UNII-2c Band)



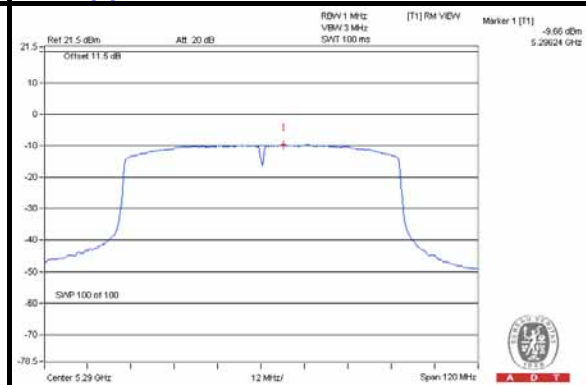
Chain(0) : CH138 (UNII-3 Band)



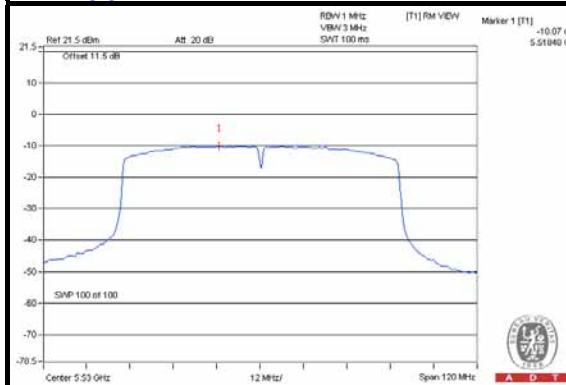
Chain(1) : CH42



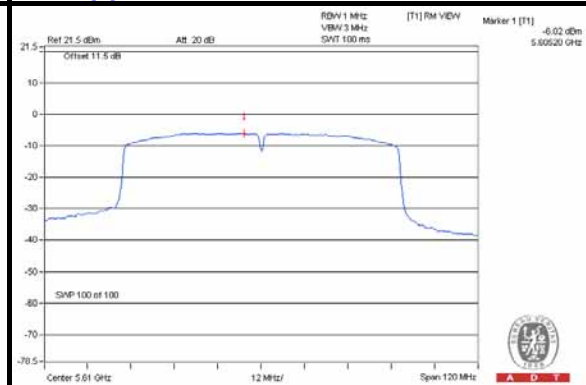
Chain(1) : CH58



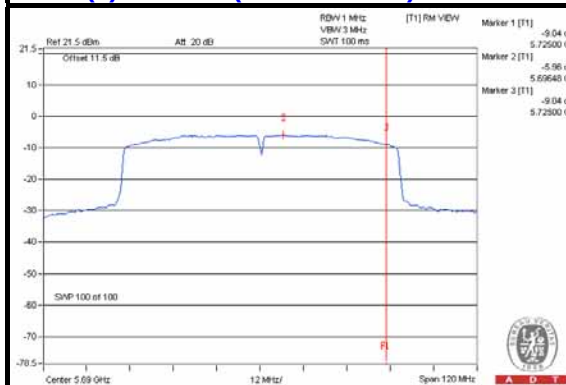
Chain(1) : CH106



Chain(0) : CH122



Chain(1) : CH138 (UNII-2c Band)



Chain(1) : CH138 (UNII-3 Band)

