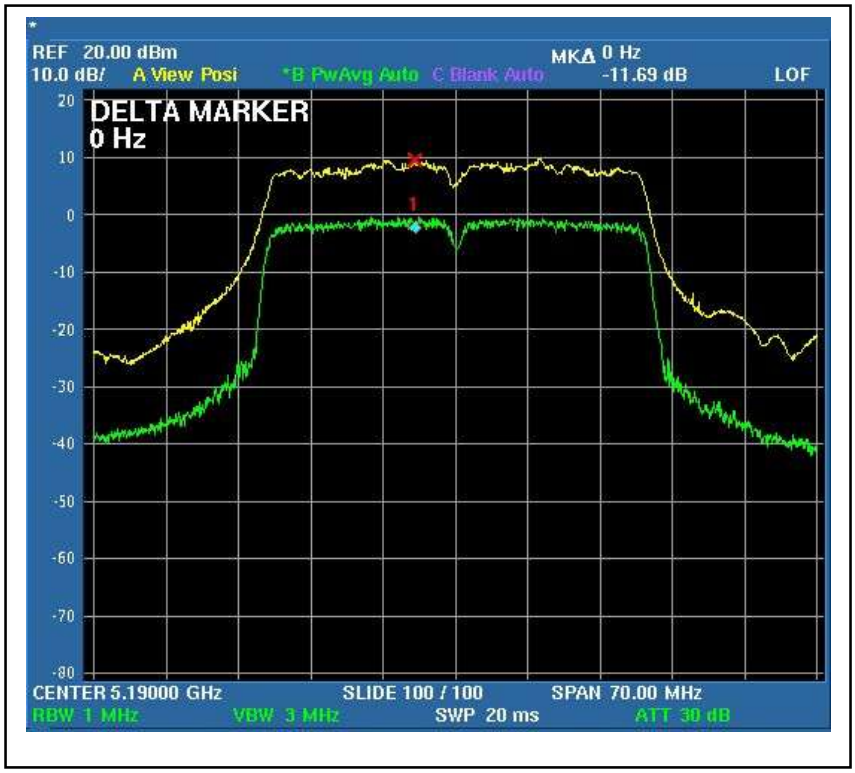
## DRAFT 802.11n (40MHz) OFDM MODULATION:

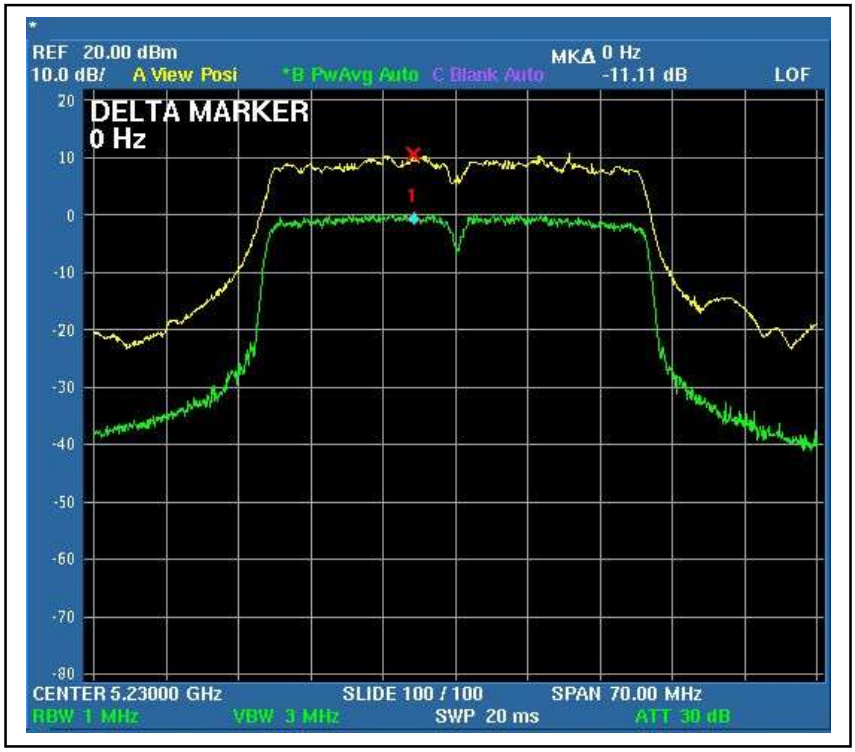
| | | | |
|---|---|---|---|
| **MODULATION TYPE** | BPSK | **TRANSFER RATE** | 27Mbps |
| **INPUT POWER (SYSTEM)** | 120Vac, 60 Hz | **ENVIRONMENTAL CONDITIONS** | 20deg.C, 60%RH, 971hPa |
| **TESTED BY** | Rex Huang | | |

| CHANNEL | CHANNEL FREQUENCY (MHz) | PEAK POWER EXCURSION (dB) | | PEAK to AVERAGE EXCURSION LIMIT (dB) | PASS/FAIL |
|---|---|---|---|---|---|
| | | Chain (0) | Chain(1) | | |
| 1 | 5190 | 11.69 | 11.3 | 13 | PASS |
| 2 | 5230 | 11.11 | 11.42 | 13 | PASS |
| 3 | 5270 | 12.41 | 11.66 | 13 | PASS |
| 4 | 5310 | 10.76 | 11.36 | 13 | PASS |
| 5 | 5510 | 11.57 | 11.28 | 13 | PASS |
| 7 | 5590 | 11.47 | 10.89 | 13 | PASS |
| 9 | 5670 | 12.09 | 11.2 | 13 | PASS |
| 10 | 5755 | 10.66 | 9.58 | 13 | PASS |
| 12 | 5795 | 10.82 | 10.55 | 13 | PASS |

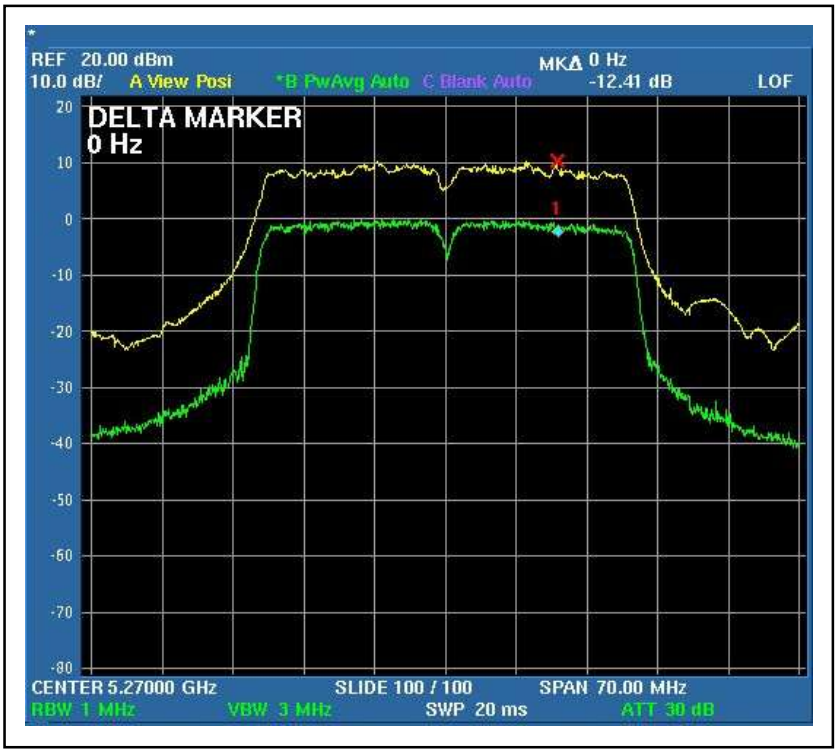
For Chain (0) : CH1



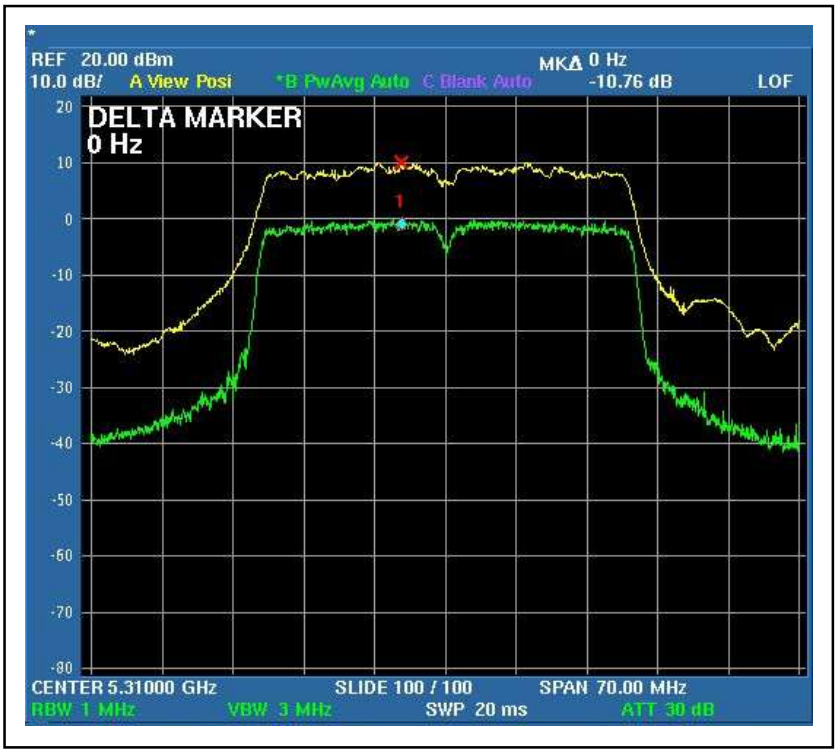

CH2



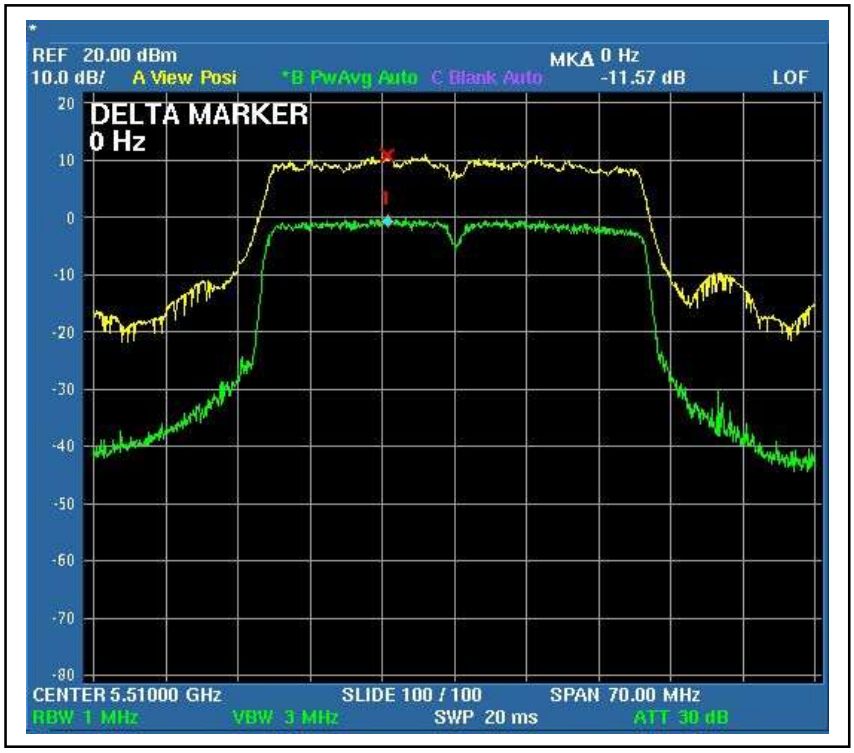
CH3


REF 20.00 dBm
MKΔ 0 Hz
10.0 dB/ A View Posi *B PwAvg Auto C Blank Auto -12.41 dB LOF
DELTA MARKER
0 Hz
CENTER 5.27000 GHz SLIDE 100 / 100 SPAN 70.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

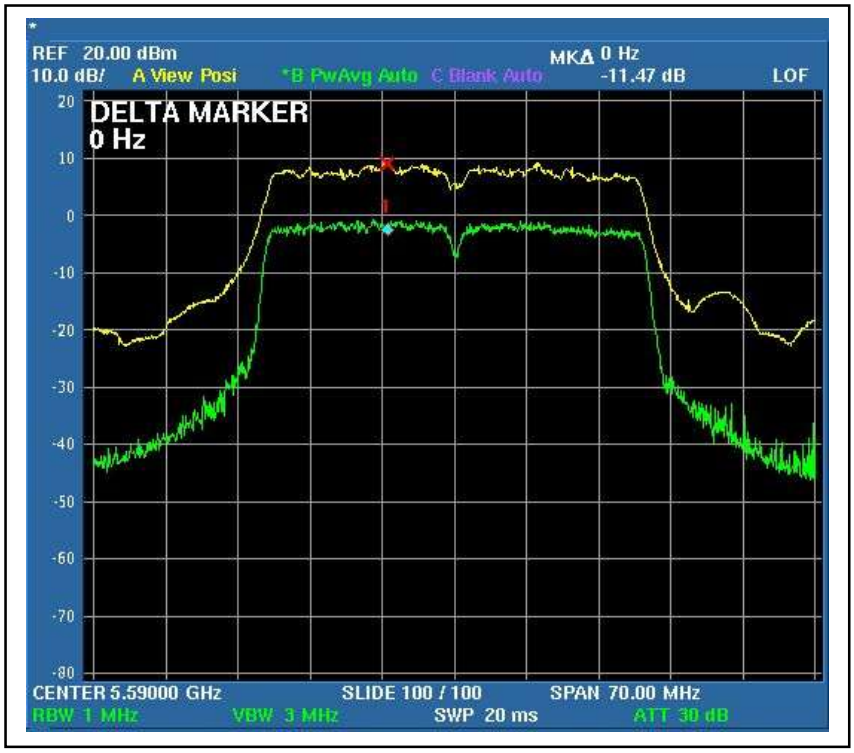
CH4


REF 20.00 dBm
MKΔ 0 Hz
10.0 dB/ A View Posi *B PwAvg Auto C Blank Auto -10.76 dB LOF
DELTA MARKER
0 Hz
CENTER 5.31000 GHz SLIDE 100 / 100 SPAN 70.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

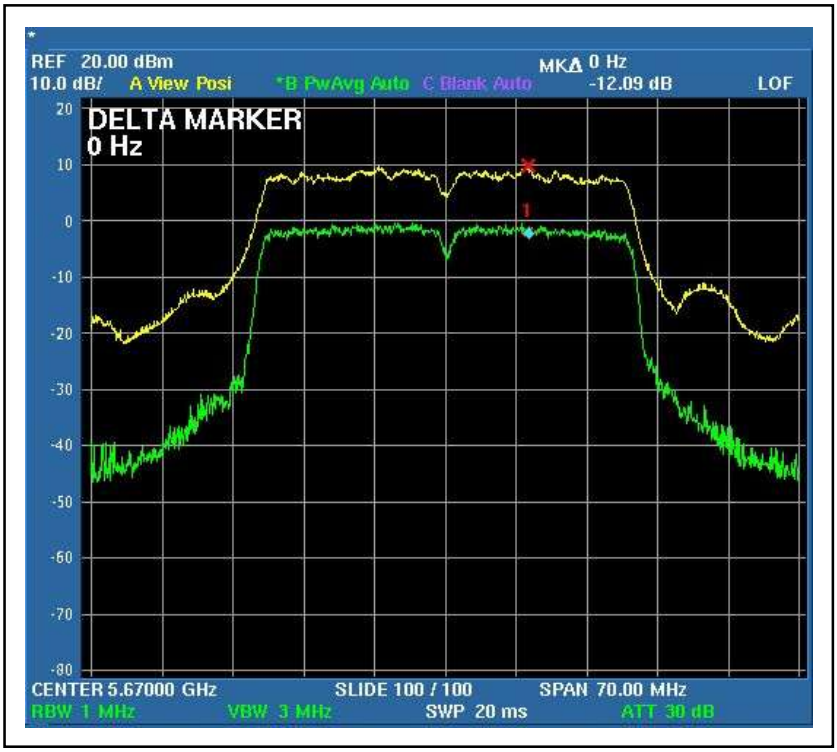
CH5


REF 20.00 dBm
MKΔ 0 Hz
10.0 dB/ A View Posi *B PwAvg Auto C Blank Auto -11.57 dB LOF
DELTA MARKER
0 Hz
CENTER 5.51000 GHz SLIDE 100 / 100 SPAN 70.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

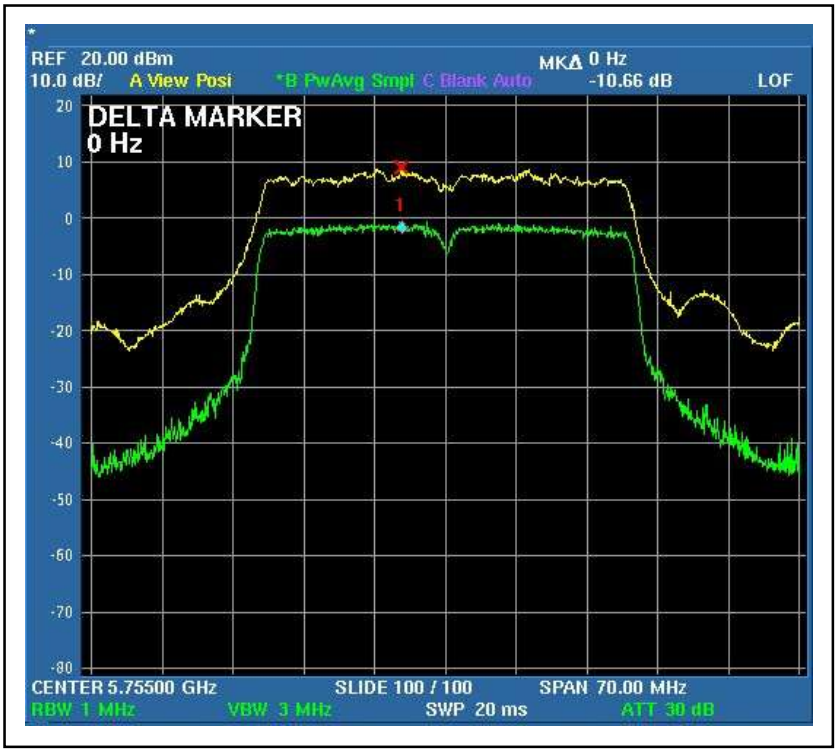
CH7


REF 20.00 dBm
MKΔ 0 Hz
10.0 dB/ A View Posi *B PwAvg Auto C Blank Auto -11.47 dB LOF
DELTA MARKER
0 Hz
CENTER 5.59000 GHz SLIDE 100 / 100 SPAN 70.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

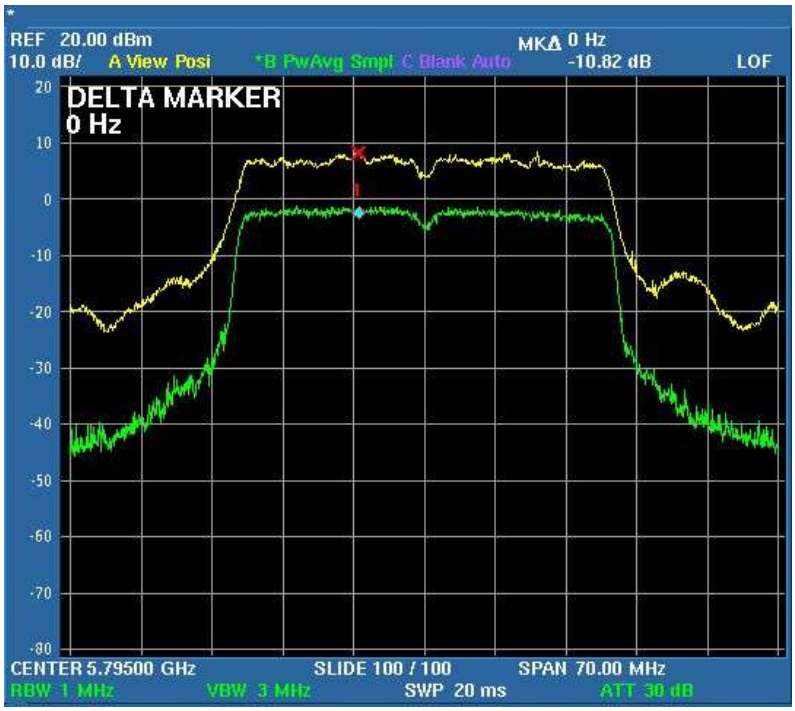
CH9


REF 20.00 dBm
MKΔ 0 Hz
10.0 dB/ A View Posi *B PwAvg Auto C Blank Auto -12.09 dB LOF
DELTA MARKER
0 Hz
CENTER 5.67000 GHz SLIDE 100 / 100 SPAN 70.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

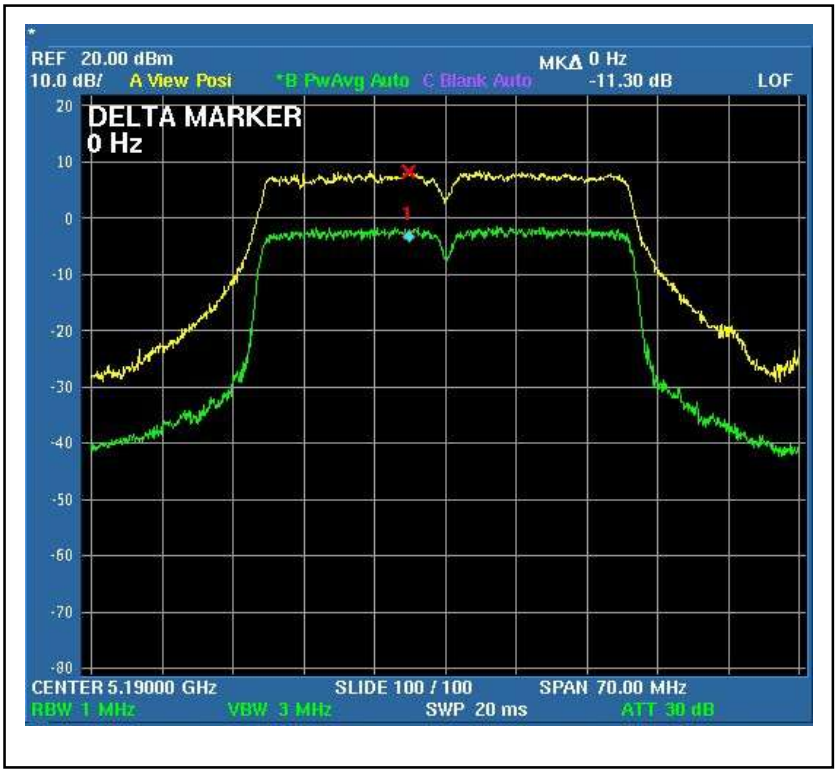
CH10


REF 20.00 dBm
MKΔ 0 Hz
10.0 dB/ A View Posi *B PwAvg Smpl C Blank Auto -10.66 dB LOF
DELTA MARKER
0 Hz
CENTER 5.75500 GHz SLIDE 100 / 100 SPAN 70.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

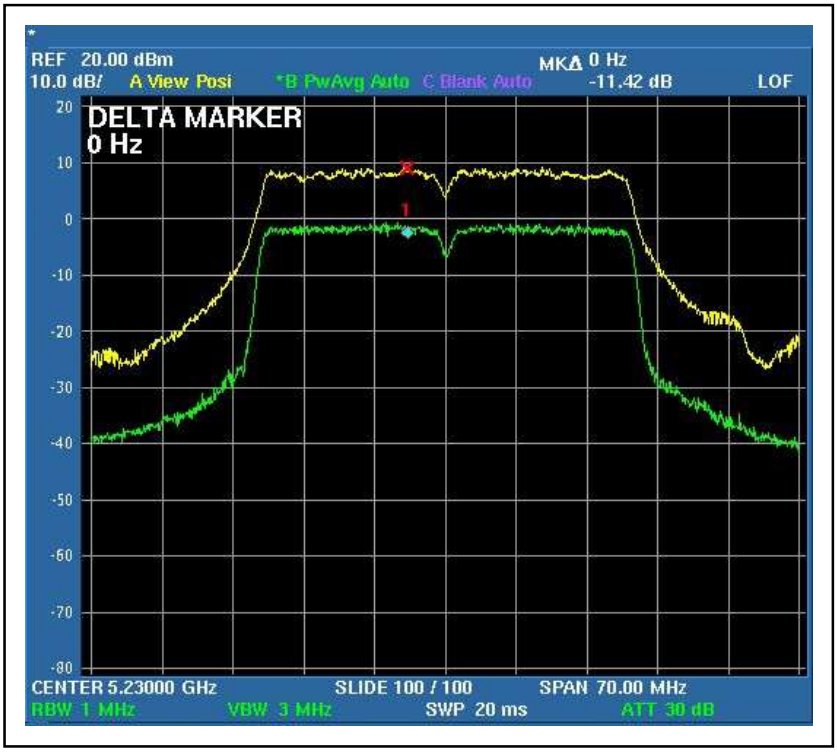
CH12


REF 20.00 dBm
MKΔ 0 Hz
10.0 dB/ A View Posi *B PwAvg Smpl C Blank Auto -10.82 dB LOF
DELTA MARKER
0 Hz
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
CENTER 5.79500 GHz SLIDE 100 / 100 SPAN 70.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

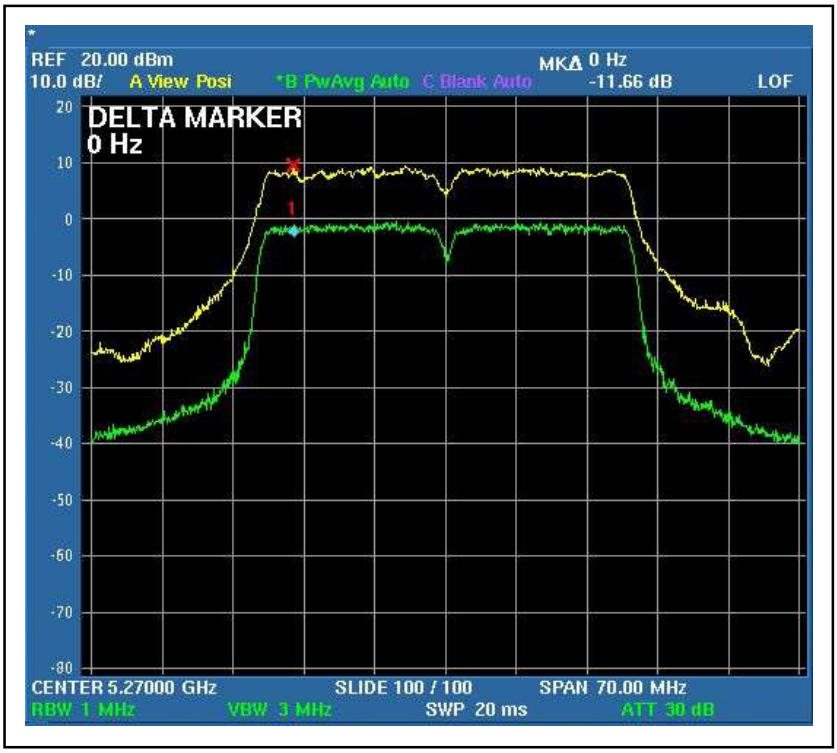
For Chain (1) : CH1



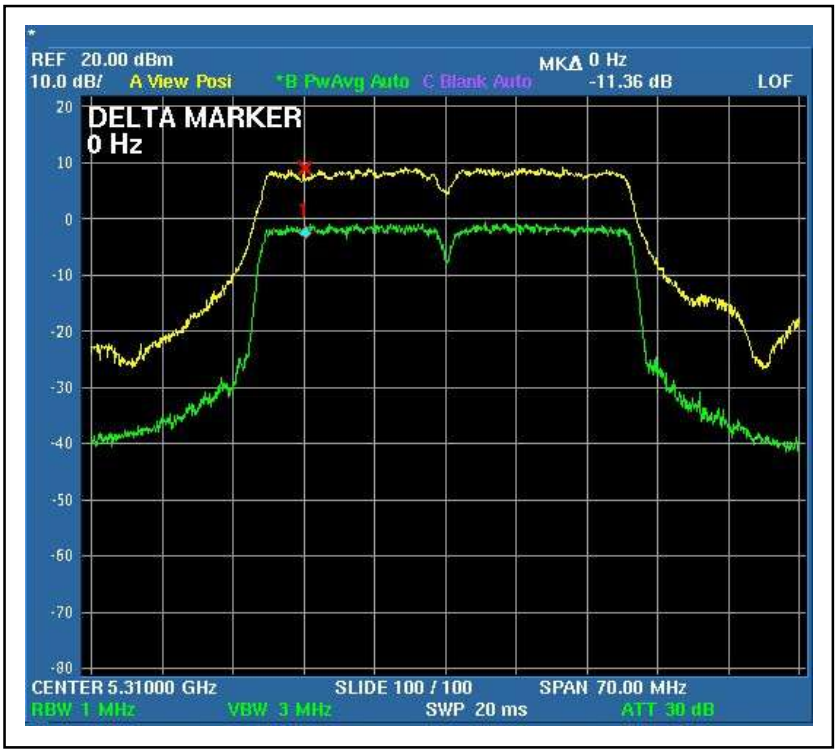

CH2



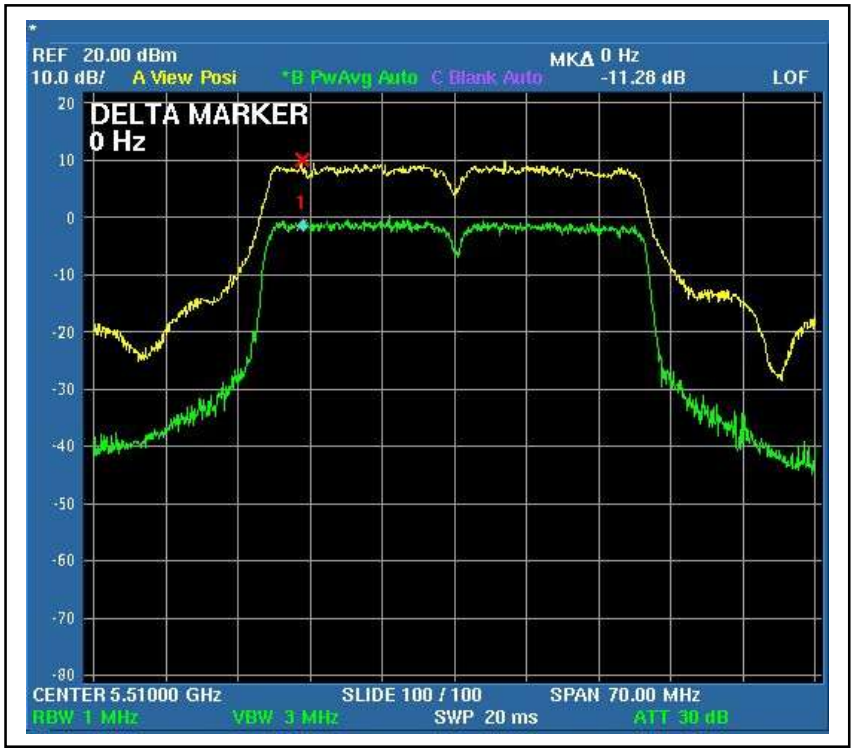
CH3


REF 20.00 dBm
MKΔ 0 Hz
10.0 dB/ A View Posi *B PwAvg Auto C Blank Auto -11.66 dB LOF
DELTA MARKER
0 Hz
CENTER 5.27000 GHz SLIDE 100 / 100 SPAN 70.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

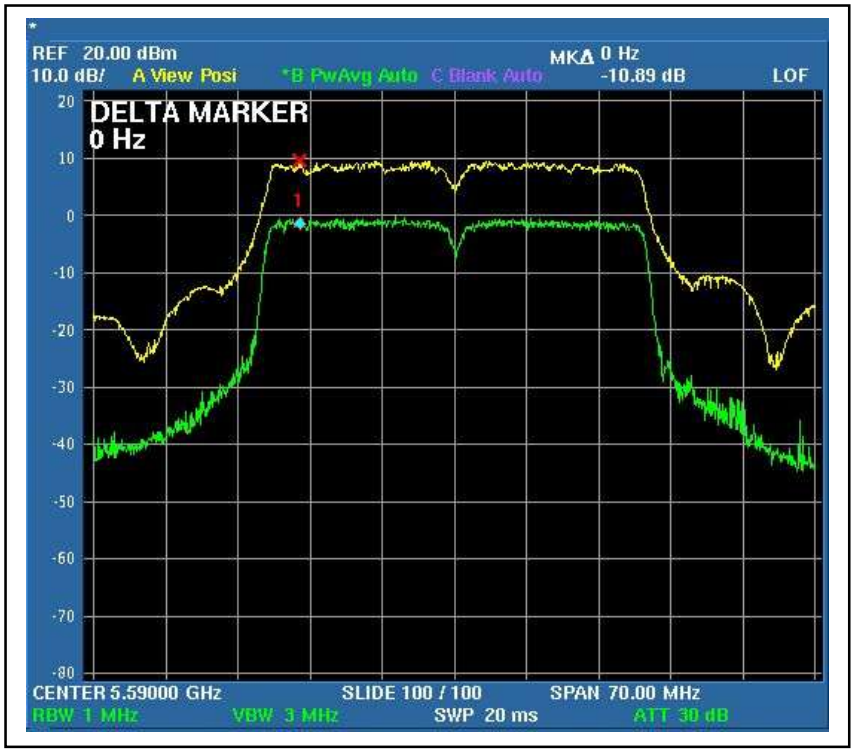
CH4


REF 20.00 dBm
MKΔ 0 Hz
10.0 dB/ A View Posi *B PwAvg Auto C Blank Auto -11.36 dB LOF
DELTA MARKER
0 Hz
CENTER 5.31000 GHz SLIDE 100 / 100 SPAN 70.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

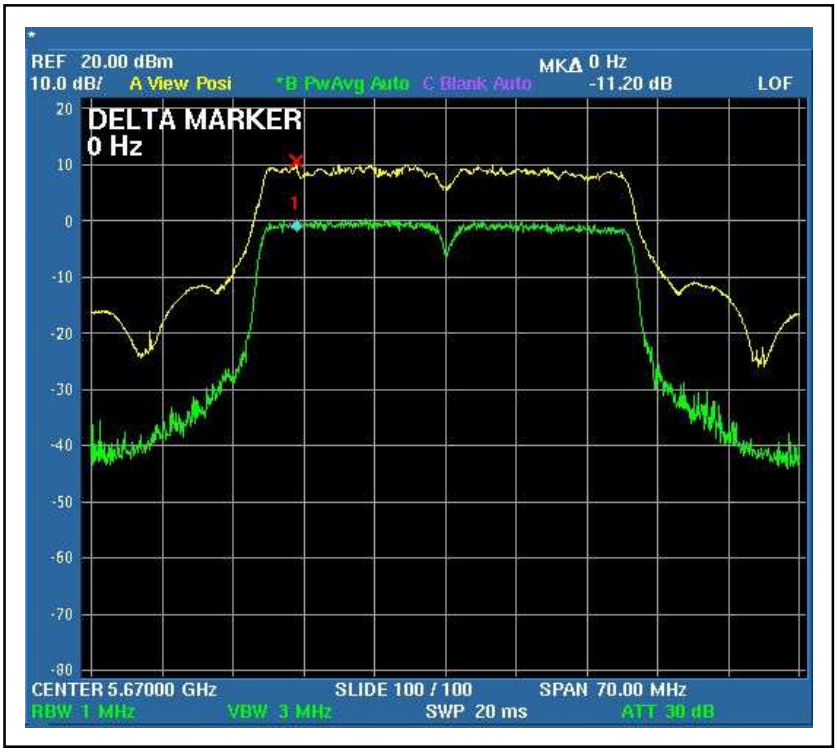
CH5


REF 20.00 dBm
MKΔ 0 Hz
10.0 dB/ A View Posi *B PwAvg Auto C Blank Auto -11.28 dB LOF
DELTA MARKER
0 Hz
CENTER 5.51000 GHz SLIDE 100 / 100 SPAN 70.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

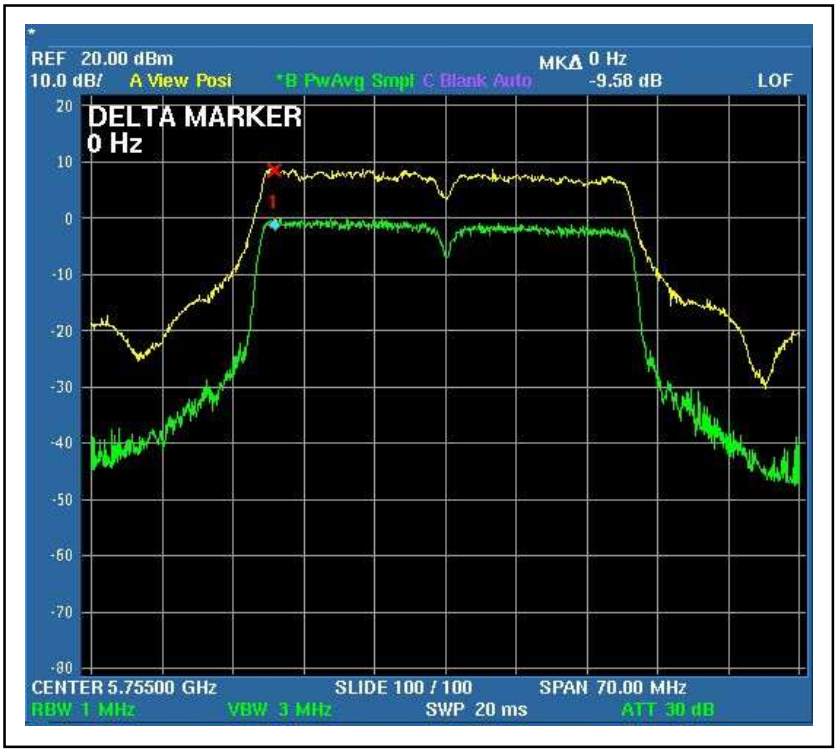
CH7


REF 20.00 dBm
MKΔ 0 Hz
10.0 dB/ A View Posi *B PwAvg Auto C Blank Auto -10.89 dB LOF
DELTA MARKER
0 Hz
CENTER 5.59000 GHz SLIDE 100 / 100 SPAN 70.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

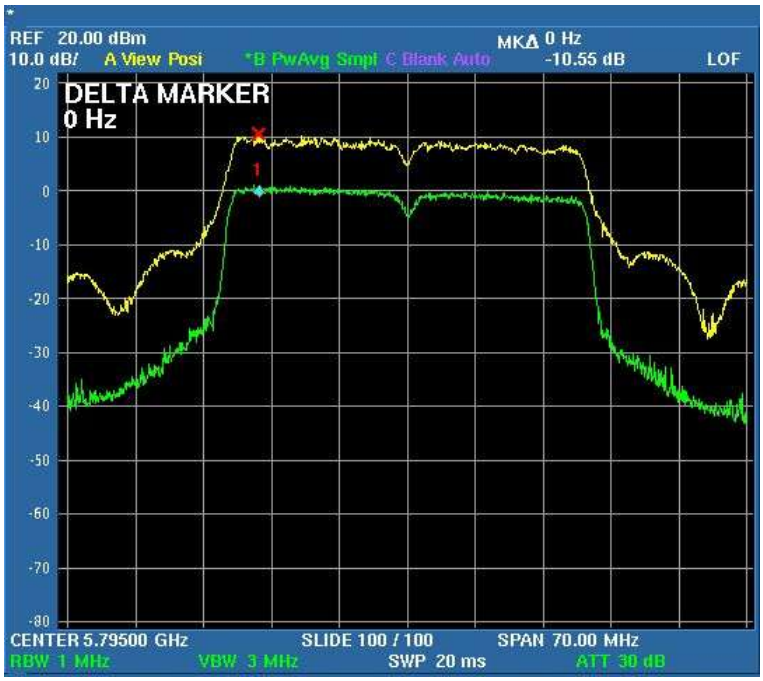
CH9


REF 20.00 dBm
MKΔ 0 Hz
10.0 dB/ A View Posi *B PwAvg Auto C Blank Auto -11.20 dB LOF
DELTA MARKER
0 Hz
CENTER 5.67000 GHz SLIDE 100 / 100 SPAN 70.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

CH10


REF 20.00 dBm
MKΔ 0 Hz
10.0 dB/ A View Posi *B PwAvg Smpl C Blank Auto -9.58 dB LOF
DELTA MARKER
0 Hz
CENTER 5.75500 GHz SLIDE 100 / 100 SPAN 70.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

CH12


REF 20.00 dBm
MKΔ 0 Hz
10.0 dB/ A View Posi *B PwAvg Smpl C Blank Auto -10.55 dB LOF
DELTA MARKER
0 Hz
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
CENTER 5.79500 GHz SLIDE 100 / 100 SPAN 70.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

## 4.5 PEAK POWER SPECTRAL DENSITY MEASUREMENT

### 4.5.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

| Frequency Band | Limit |
|---|---|
| 5.15 ~ 5.25GHz | 4dBm |
| 5.25 ~ 5.35GHz | 11dBm |
| 5.47 – 5.725GHz | 11dBm |
| 5.725 ~ 5.825GHz | 17dBm |

### 4.5.2 TEST INSTRUMENTS

| Description & Manufacturer | Model No. | Serial No. | Calibrated Until |
|---|---|---|---|
| ADVANTEST SPECTRUM ANALYZER | U3772 | 160100280 | April 10, 2008 |

**NOTE:**

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

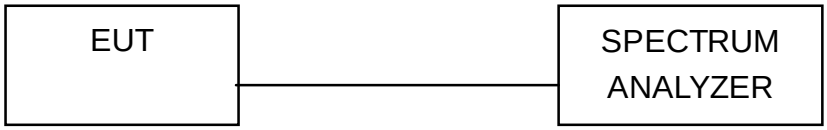
### 4.5.3 TEST PROCEDURES

1. The transmitter output was connected to the spectrum analyzer.
2. Set RBW=1MHz, VBW=3MHz. The PPSD is the highest level found across the emission in any 1MHz band.

### 4.5.4 DEVIATION FROM TEST STANDARD

No deviation

### 4.5.5 TEST SETUP




### 4.5.6 EUT OPERATING CONDITIONS

Same as 4.3.6

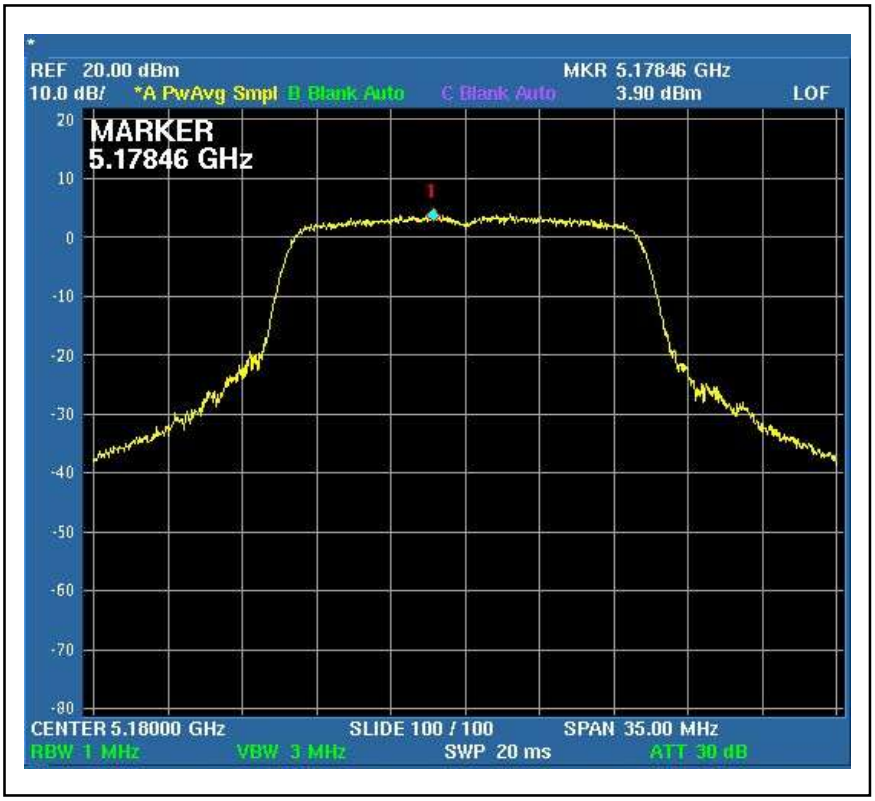
4.5.7 TEST RESULTS

## 802.11a OFDM modulation

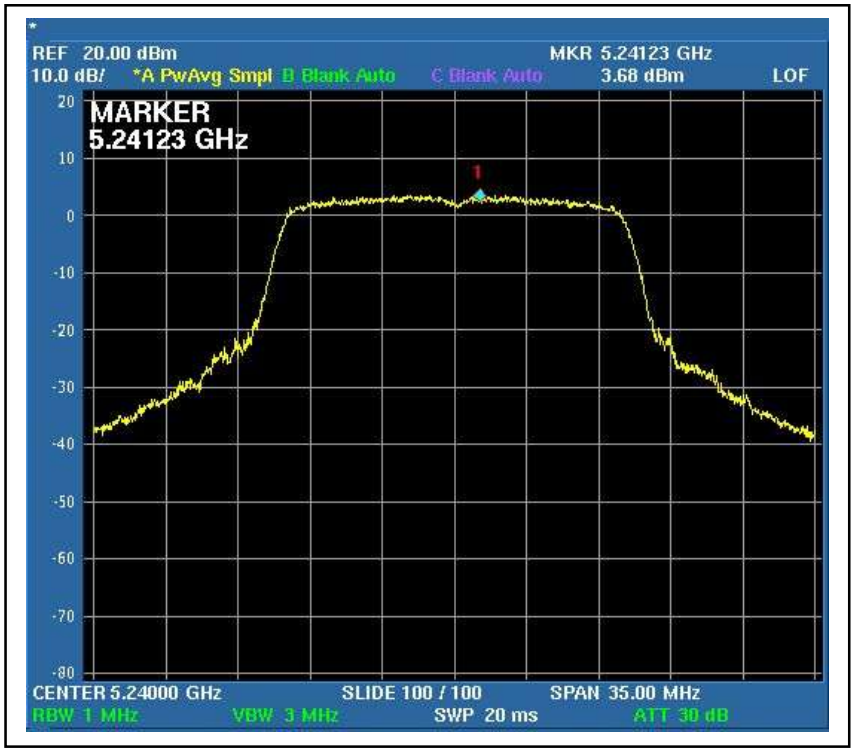
| | | | |
|---|---|---|---|
| **MODULATION TYPE** | BPSK | **TRANSFER RATE** | 6Mbps |
| **INPUT POWER (SYSTEM)** | 120Vac, 60 Hz | **ENVIRONMENTAL CONDITIONS** | 20deg.C, 60%RH, 971hPa |
| **TESTED BY** | Rex Huang | | |

| CHANNEL | CHANNEL FREQUENCY (MHz ) | RF POWER LEVEL IN 1MHz BW (dBm) | MAXIMUM LIMIT (dBm) | PASS/FAIL |
|---|---|---|---|---|
| 1 | 5180 | 3.90 | 4 | PASS |
| 4 | 5240 | 3.68 | 4 | PASS |
| 5 | 5260 | 5.06 | 11 | PASS |
| 8 | 5320 | 5.07 | 11 | PASS |
| 9 | 5500 | 5.71 | 11 | PASS |
| 14 | 5600 | 4.22 | 11 | PASS |
| 19 | 5700 | 5.01 | 11 | PASS |
| 20 | 5745 | 4.69 | 17 | PASS |
| 22 | 5785 | 3.64 | 17 | PASS |
| 23 | 5805 | 3.61 | 17 | PASS |

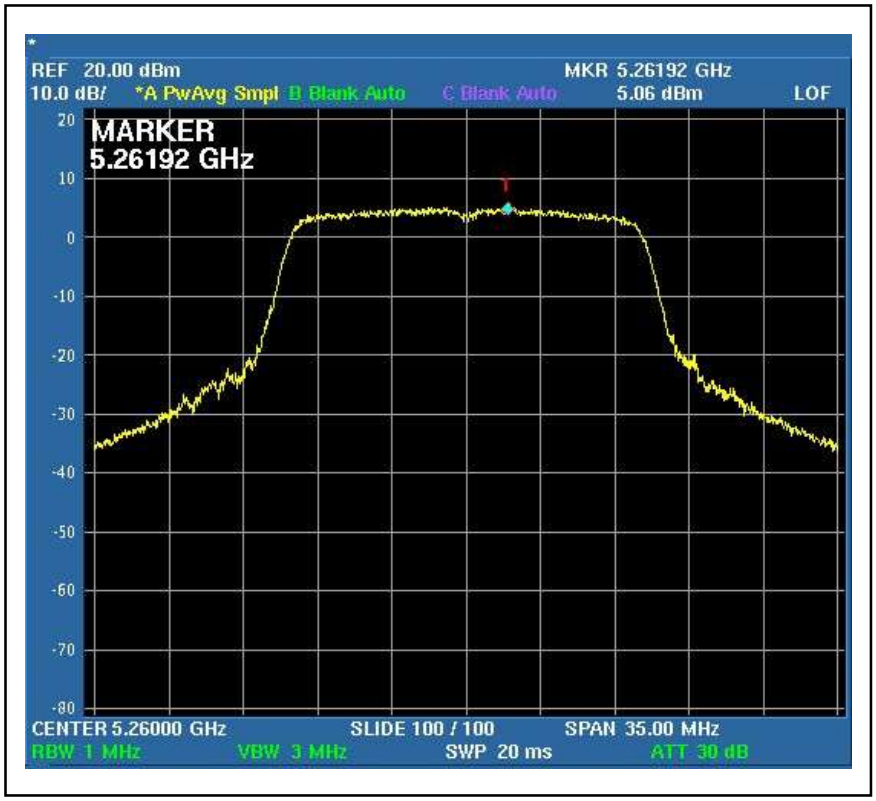
CH1


REF 20.00 dBm
MKR 5.17846 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto 3.90 dBm LOF
MARKER
5.17846 GHz
CENTER 5.18000 GHz
SLIDE 100 / 100
SPAN 35.00 MHz
RBW 1 MHz
VBW 3 MHz
SWP 20 ms
ATT 30 dB

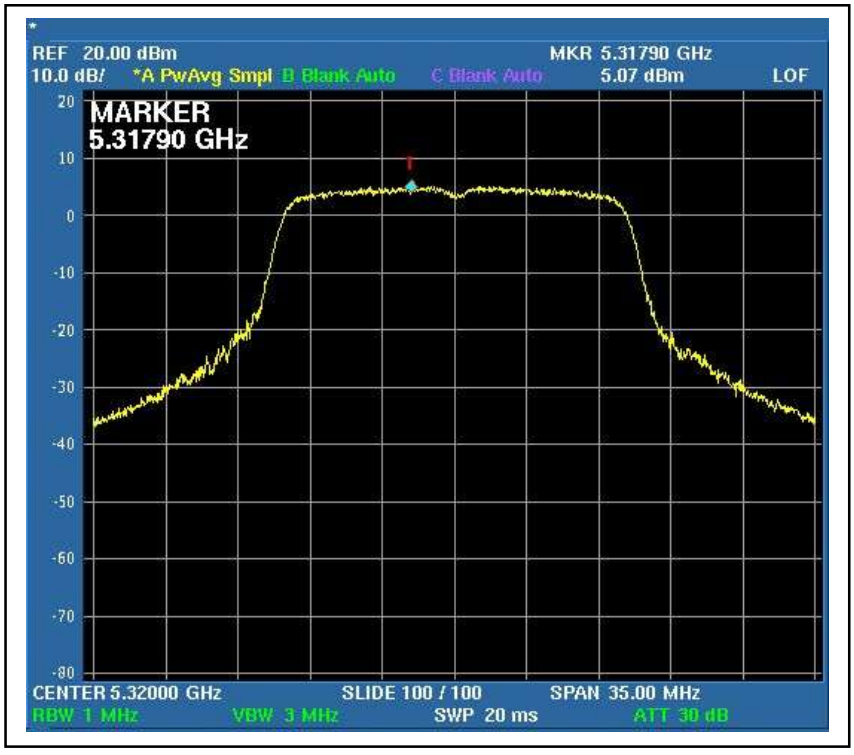
CH4


REF 20.00 dBm
MKR 5.24123 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto 3.68 dBm LOF
MARKER
5.24123 GHz
CENTER 5.24000 GHz
SLIDE 100 / 100
SPAN 35.00 MHz
RBW 1 MHz
VBW 3 MHz
SWP 20 ms
ATT 30 dB

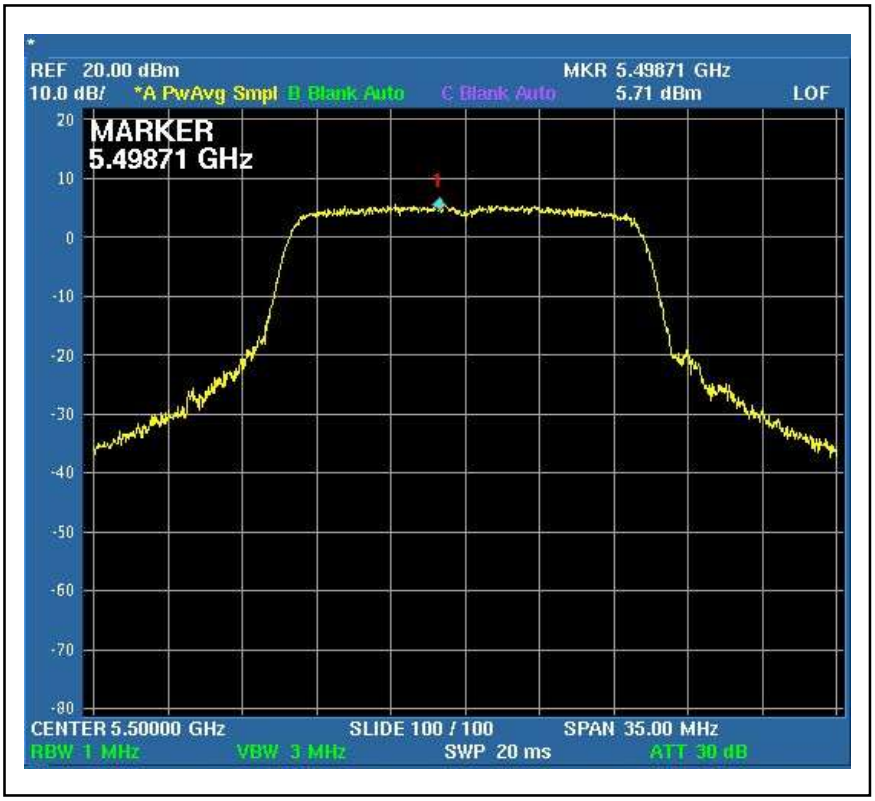
CH5


REF 20.00 dBm
MKR 5.26192 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto 5.06 dBm LOF
MARKER
5.26192 GHz
CENTER 5.26000 GHz SLIDE 100 / 100 SPAN 35.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

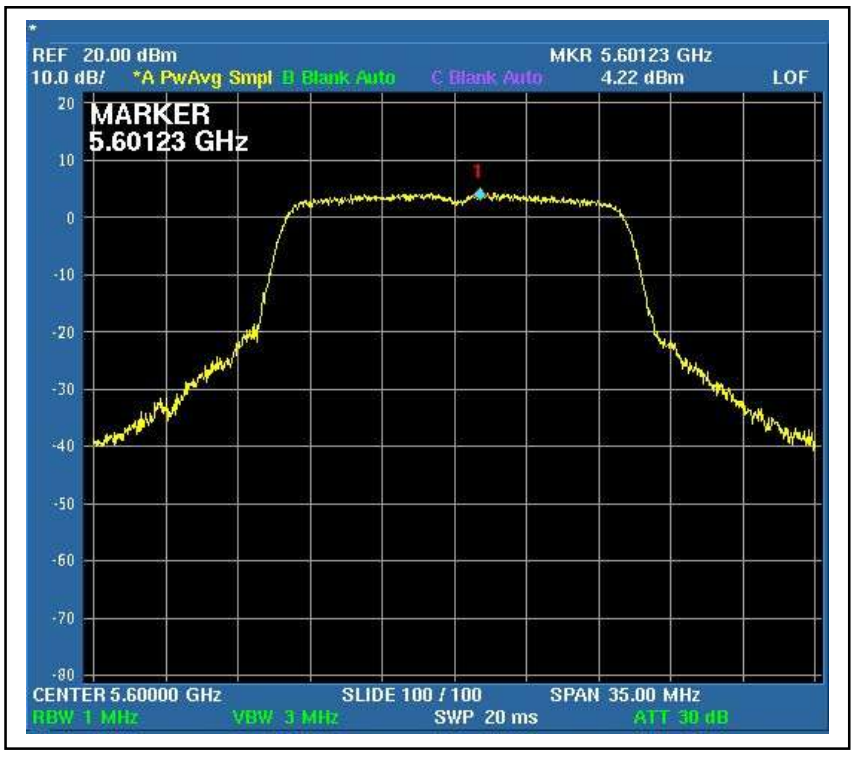
CH8


REF 20.00 dBm
MKR 5.31790 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto 5.07 dBm LOF
MARKER
5.31790 GHz
CENTER 5.32000 GHz SLIDE 100 / 100 SPAN 35.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

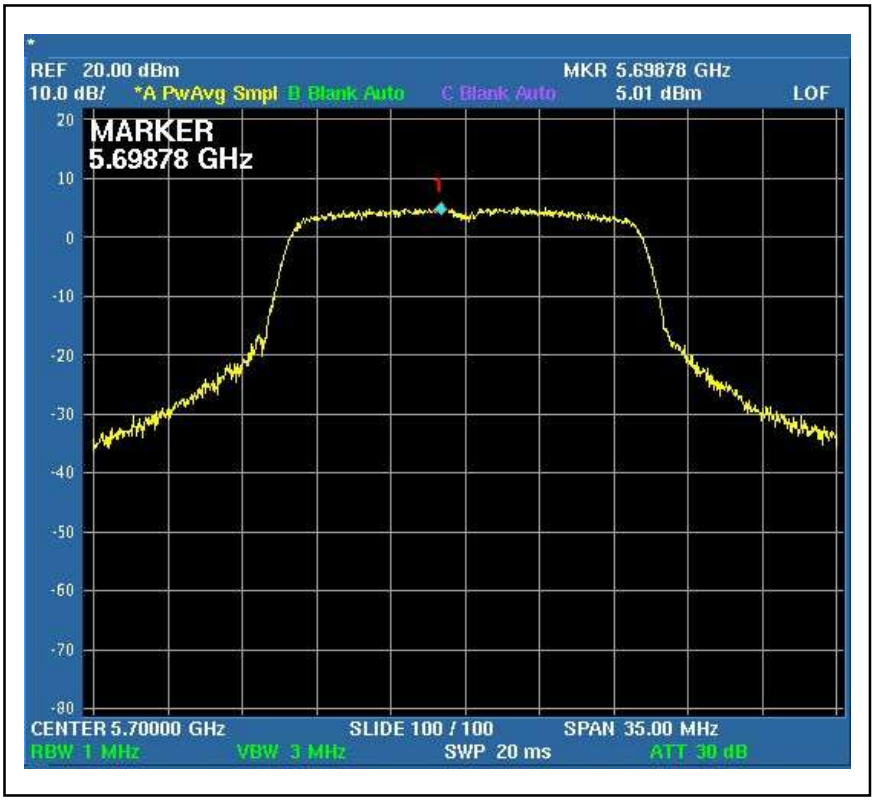
CH9


REF 20.00 dBm
MKR 5.49871 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto 5.71 dBm LOF
MARKER
5.49871 GHz
CENTER 5.50000 GHz SLIDE 100 / 100 SPAN 35.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

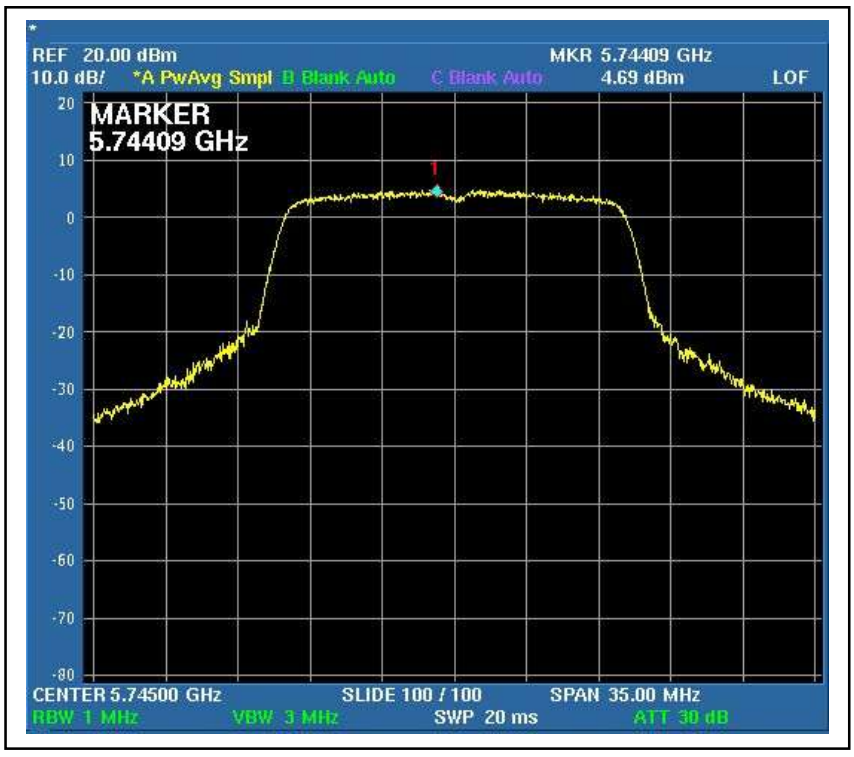
CH14


REF 20.00 dBm
MKR 5.60123 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto 4.22 dBm LOF
MARKER
5.60123 GHz
CENTER 5.60000 GHz SLIDE 100 / 100 SPAN 35.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

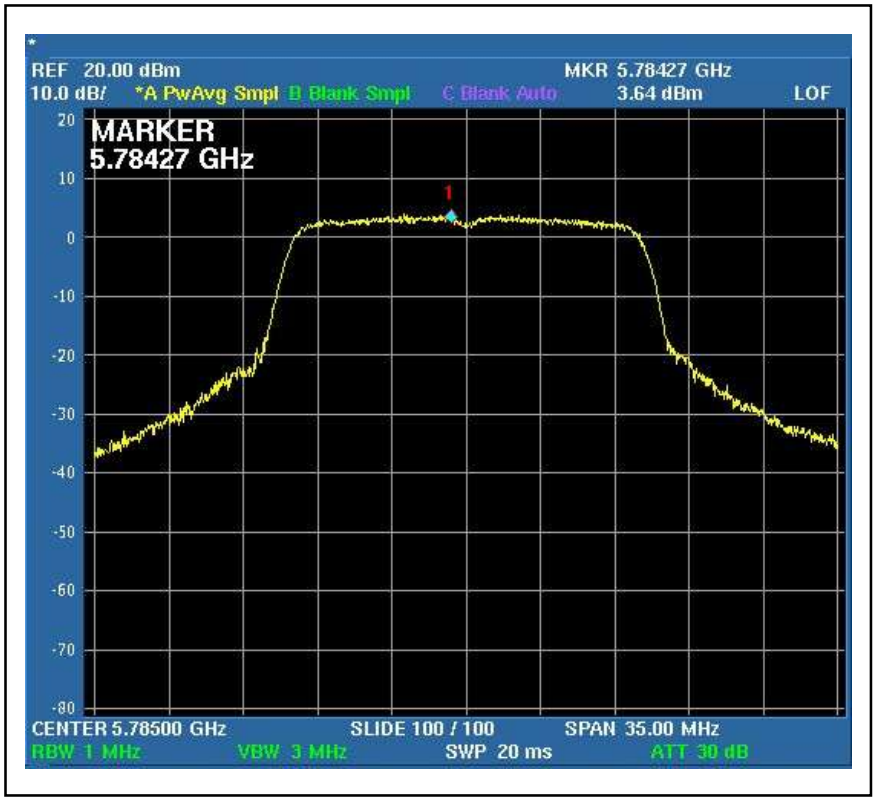
CH19


REF 20.00 dBm
MKR 5.69878 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto 5.01 dBm LOF
MARKER
5.69878 GHz
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
CENTER 5.70000 GHz SLIDE 100 / 100 SPAN 35.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

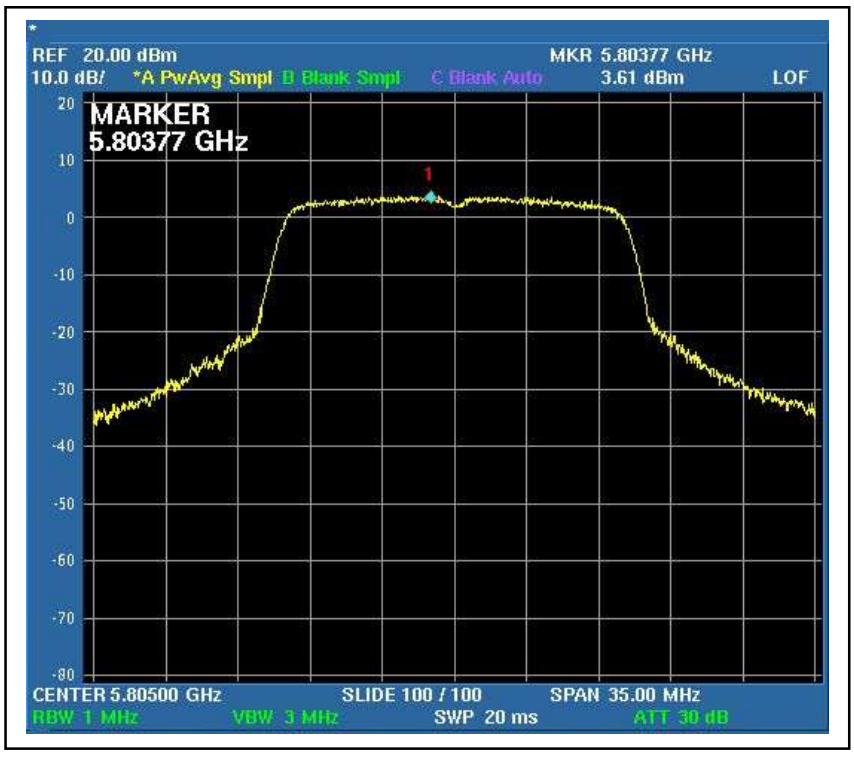
CH20


REF 20.00 dBm
MKR 5.74409 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto 4.69 dBm LOF
MARKER
5.74409 GHz
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
CENTER 5.74500 GHz SLIDE 100 / 100 SPAN 35.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

CH22


REF 20.00 dBm
MKR 5.78427 GHz
10.0 dB/ *A PwAvg Smpl B Blank Smpl C Blank Auto 3.64 dBm LOF
MARKER
5.78427 GHz
CENTER 5.78500 GHz
SLIDE 100 / 100
SPAN 35.00 MHz
RBW 1 MHz
VBW 3 MHz
SWP 20 ms
ATT 30 dB

CH23

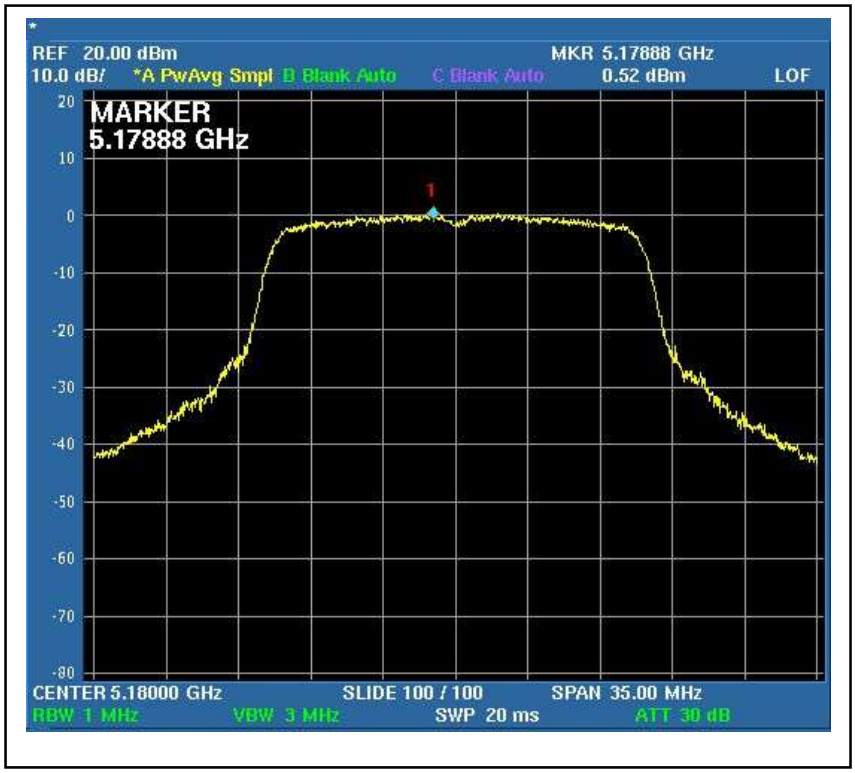

REF 20.00 dBm
MKR 5.80377 GHz
10.0 dB/ *A PwAvg Smpl B Blank Smpl C Blank Auto 3.61 dBm LOF
MARKER
5.80377 GHz
CENTER 5.80500 GHz
SLIDE 100 / 100
SPAN 35.00 MHz
RBW 1 MHz
VBW 3 MHz
SWP 20 ms
ATT 30 dB

## DRAFT 802.11n (20MHz) OFDM MODULATION:

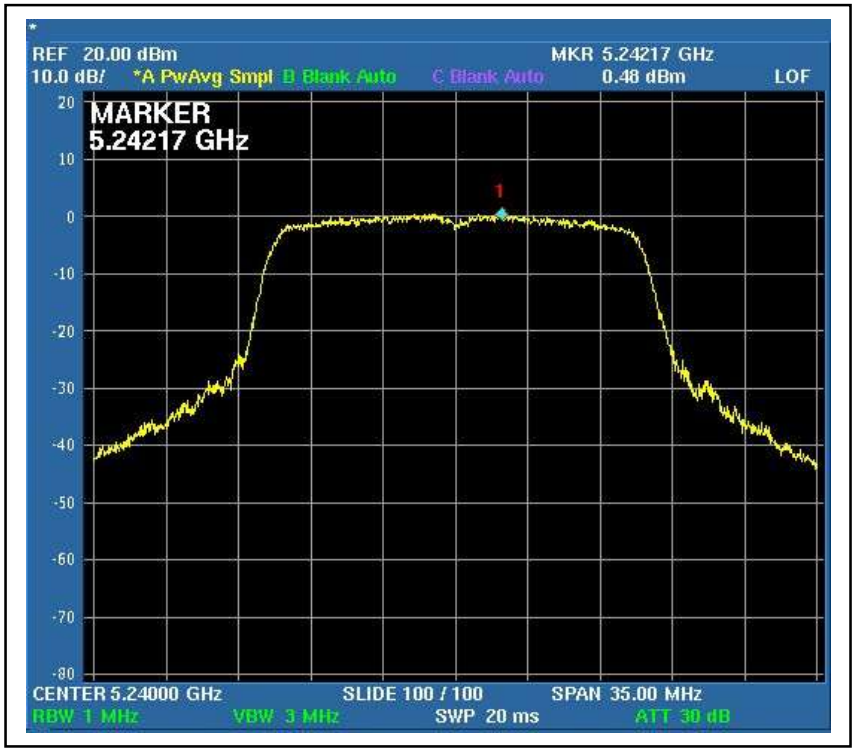
| | | | |
|---|---|---|---|
| **MODULATION TYPE** | BPSK | **TRANSFER RATE** | 13Mbps |
| **INPUT POWER (SYSTEM)** | 120Vac, 60 Hz | **ENVIRONMENTAL CONDITIONS** | 20deg.C, 60%RH, 971hPa |
| **TESTED BY** | Rex Huang | | |

| CHANNEL | CHANNEL FREQUENCY (MHz) | RF POWER LEVEL IN 1MHz BW (dBm) | | TOTAL OUTPUT POWER DENSITY (dBm) | MAXIMUM LIMIT (dBm) | PASS/FAIL |
|---|---|---|---|---|---|---|
| | | Chain (0) | Chain(1) | | | |
| 1 | 5180 | 0.52 | 0.35 | 3.446 | 4 | PASS |
| 4 | 5240 | 0.48 | 0.51 | 3.505 | 4 | PASS |
| 5 | 5260 | 3.33 | 3.47 | 6.411 | 11 | PASS |
| 8 | 5320 | 3.35 | 3.19 | 6.281 | 11 | PASS |
| 9 | 5500 | 3.14 | 3.43 | 6.298 | 11 | PASS |
| 14 | 5600 | 3.38 | 3.51 | 6.456 | 11 | PASS |
| 19 | 5700 | 3.40 | 3.19 | 6.307 | 11 | PASS |
| 20 | 5745 | 3.38 | 3.54 | 6.471 | 17 | PASS |
| 22 | 5785 | 2.43 | 4.61 | 6.666 | 17 | PASS |
| 23 | 5805 | 2.51 | 4.71 | 6.758 | 17 | PASS |

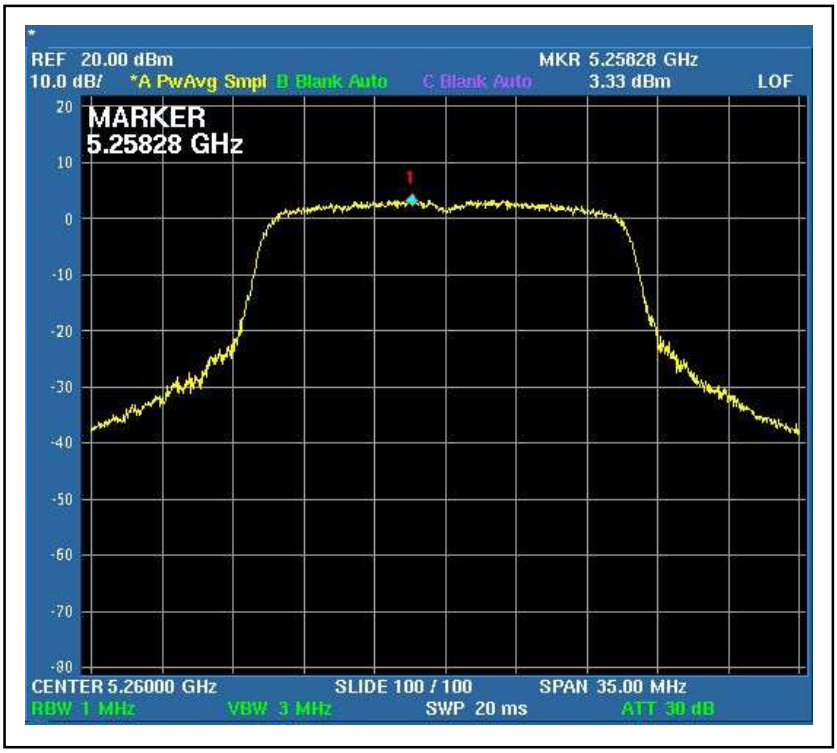
For Chain (0) : CH1



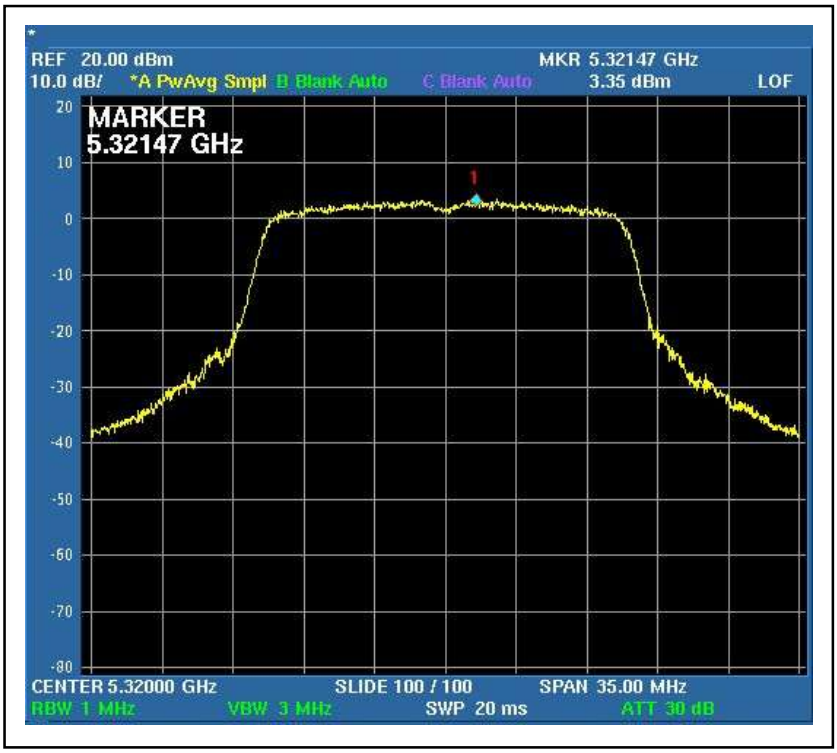

CH4



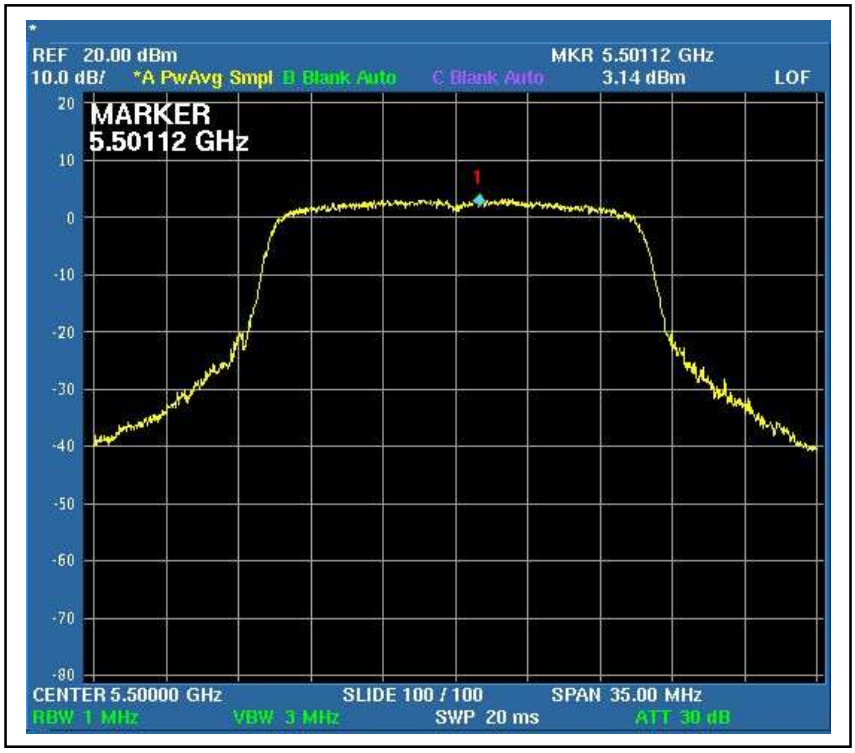
CH5


REF 20.00 dBm
MKR 5.25828 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto 3.33 dBm LOF
MARKER
5.25828 GHz
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
CENTER 5.26000 GHz SLIDE 100 / 100 SPAN 35.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

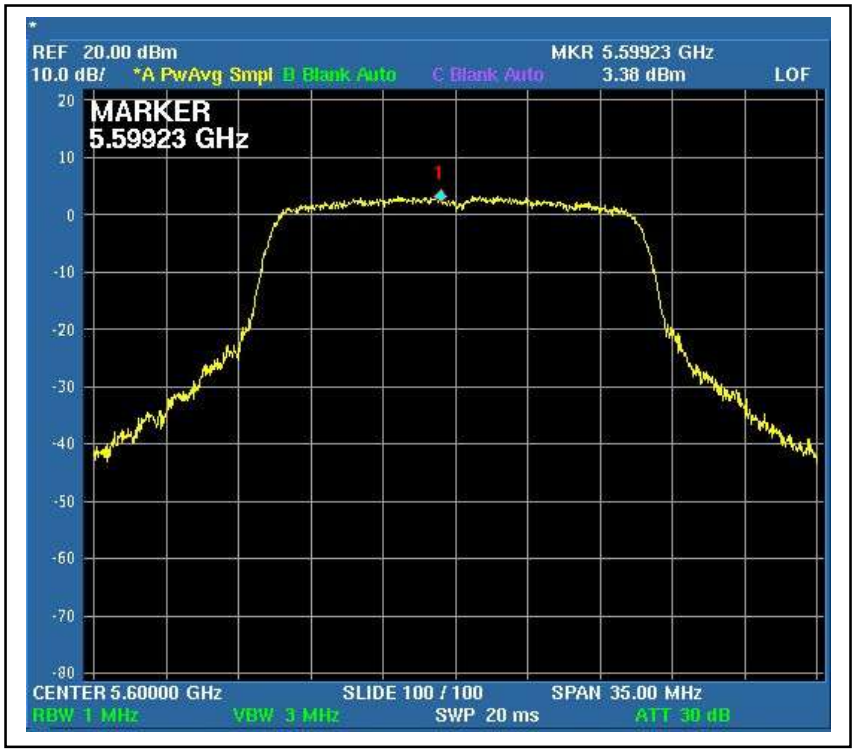
CH8


REF 20.00 dBm
MKR 5.32147 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto 3.35 dBm LOF
MARKER
5.32147 GHz
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
CENTER 5.32000 GHz SLIDE 100 / 100 SPAN 35.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

CH9


REF 20.00 dBm
MKR 5.50112 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto 3.14 dBm LOF
MARKER
5.50112 GHz
CENTER 5.50000 GHz SLIDE 100 / 100 SPAN 35.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

CH14


REF 20.00 dBm
MKR 5.59923 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto 3.38 dBm LOF
MARKER
5.59923 GHz
CENTER 5.60000 GHz SLIDE 100 / 100 SPAN 35.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

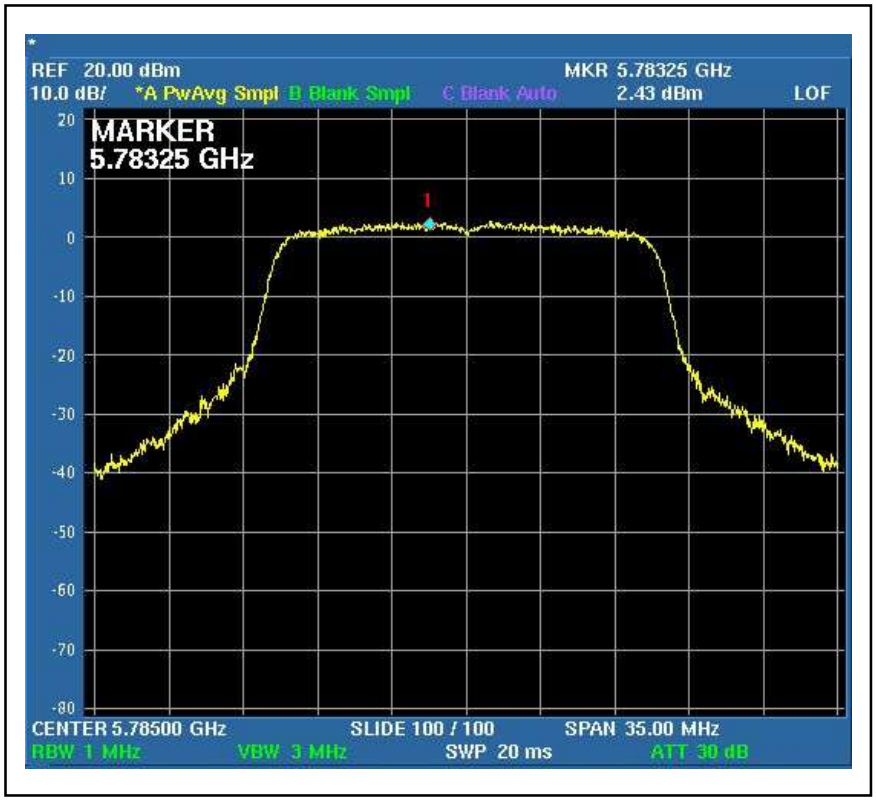
CH19


REF 20.00 dBm
MKR 5.69909 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto 3.40 dBm LOF
MARKER
5.69909 GHz
CENTER 5.70000 GHz SLIDE 100 / 100 SPAN 35.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

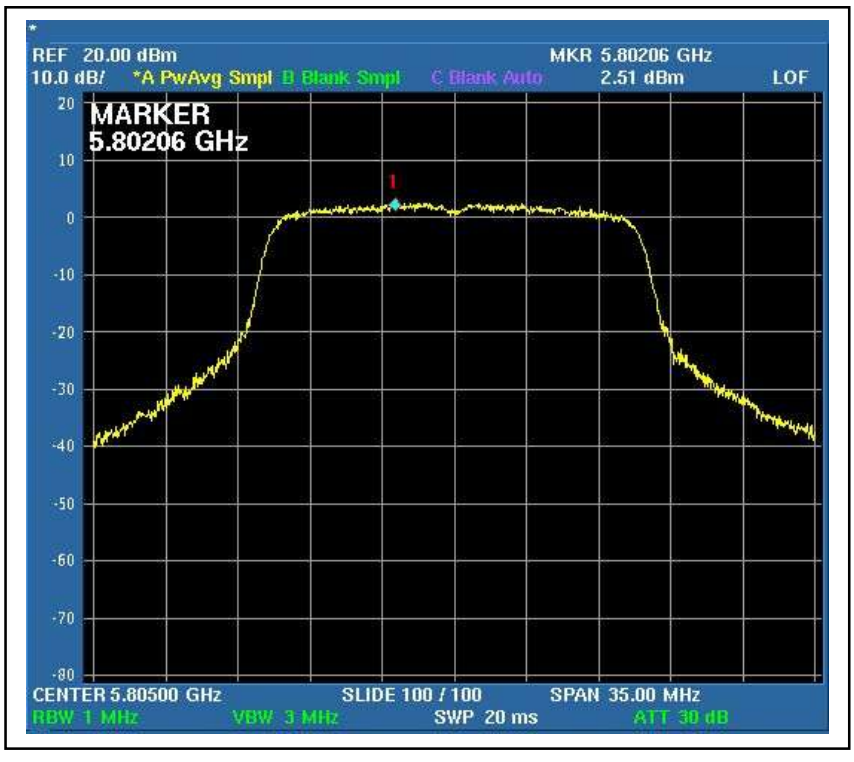
CH20


REF 20.00 dBm
MKR 5.74332 GHz
10.0 dB/ *A PwAvg Smpl B Blank Smpl C Blank Auto 3.38 dBm LOF
MARKER
5.74332 GHz
CENTER 5.74500 GHz SLIDE 100 / 100 SPAN 35.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

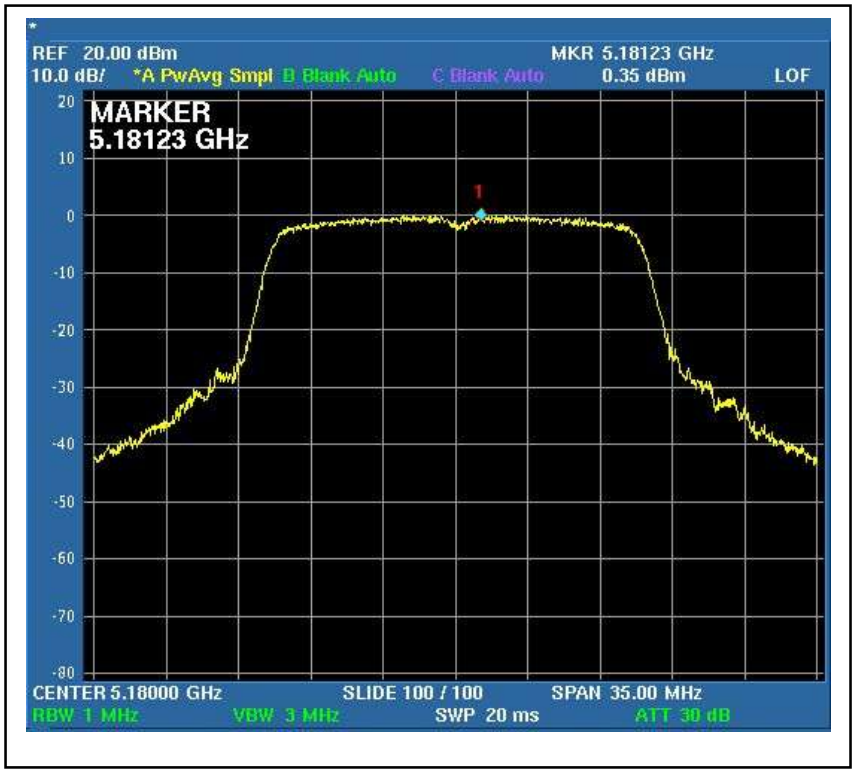
CH22


REF 20.00 dBm
MKR 5.78325 GHz
10.0 dB/ *A PwAvg Smpl B Blank Smpl C Blank Auto 2.43 dBm LOF
MARKER
5.78325 GHz
CENTER 5.78500 GHz SLIDE 100 / 100 SPAN 35.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

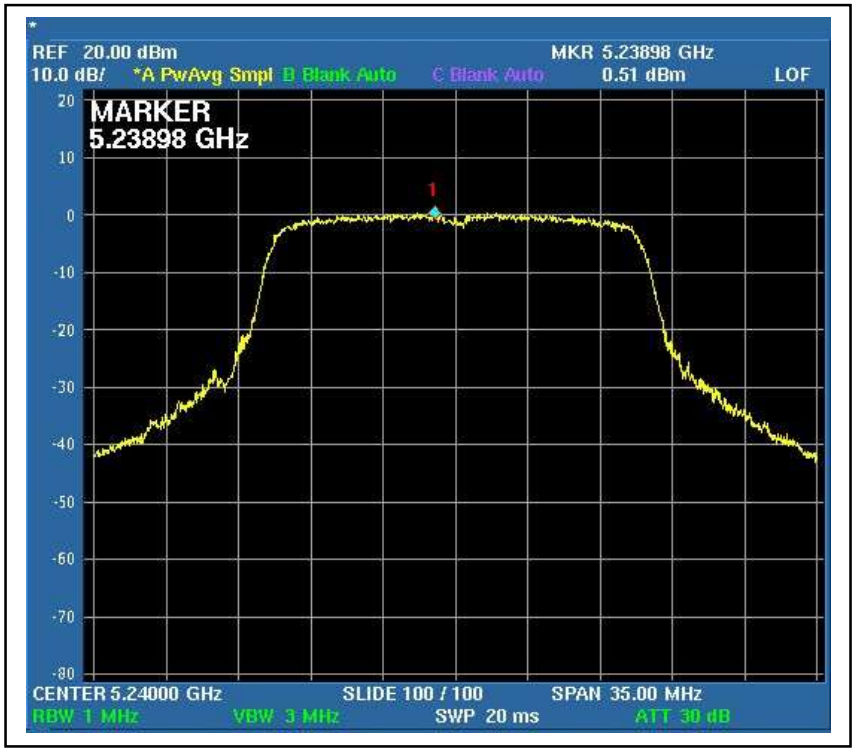
CH23


REF 20.00 dBm
MKR 5.80206 GHz
10.0 dB/ *A PwAvg Smpl B Blank Smpl C Blank Auto 2.51 dBm LOF
MARKER
5.80206 GHz
CENTER 5.80500 GHz SLIDE 100 / 100 SPAN 35.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

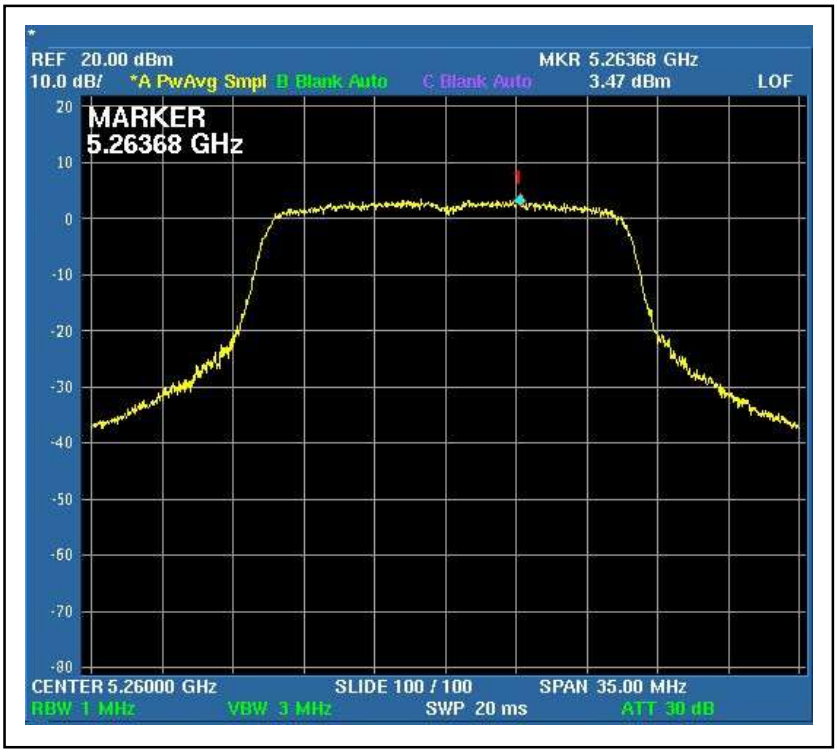
For Chain (1) : CH1



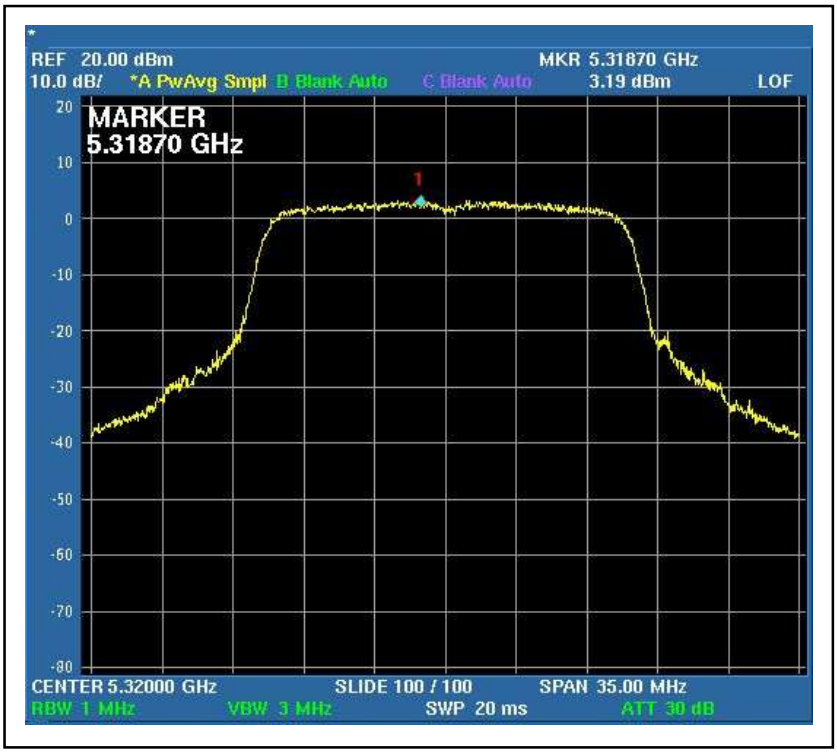

CH4



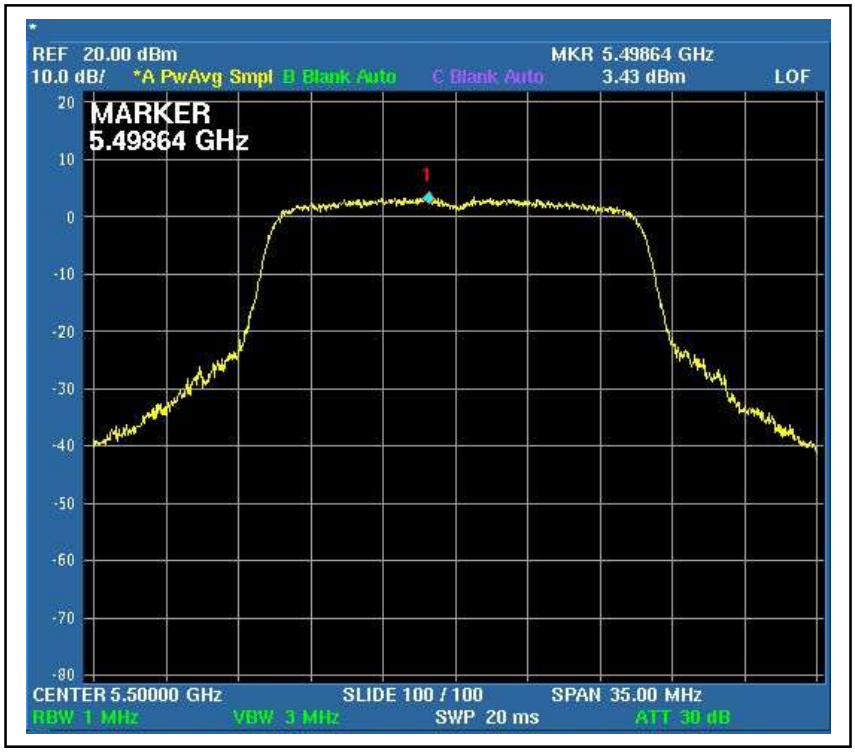
CH5


REF 20.00 dBm
MKR 5.26368 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto 3.47 dBm LOF
MARKER
5.26368 GHz
CENTER 5.26000 GHz
SLIDE 100 / 100
SPAN 35.00 MHz
RBW 1 MHz
VBW 3 MHz
SWP 20 ms
ATT 30 dB

CH8


REF 20.00 dBm
MKR 5.31870 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto 3.19 dBm LOF
MARKER
5.31870 GHz
CENTER 5.32000 GHz
SLIDE 100 / 100
SPAN 35.00 MHz
RBW 1 MHz
VBW 3 MHz
SWP 20 ms
ATT 30 dB

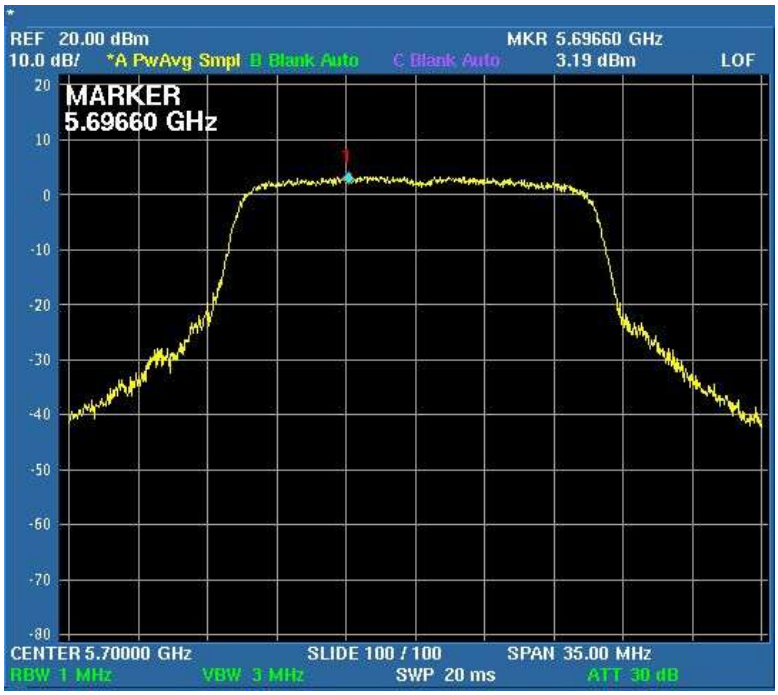
CH9


REF 20.00 dBm
MKR 5.49864 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto 3.43 dBm LOF
MARKER
5.49864 GHz
CENTER 5.50000 GHz SLIDE 100 / 100 SPAN 35.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

CH14


REF 20.00 dBm
MKR 5.59797 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto 3.51 dBm LOF
MARKER
5.59797 GHz
CENTER 5.60000 GHz SLIDE 100 / 100 SPAN 35.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

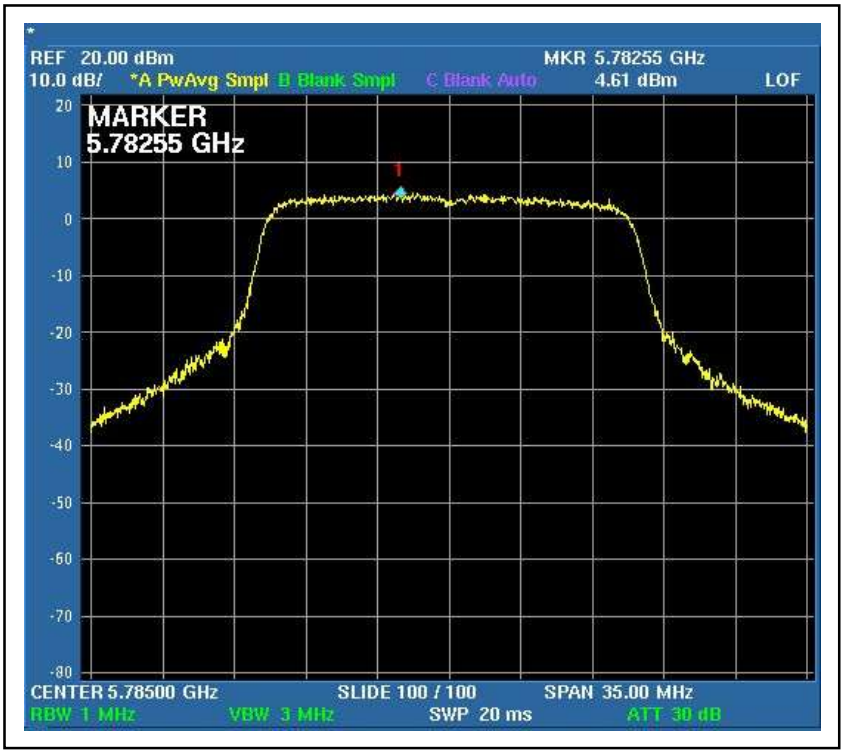
CH19


REF 20.00 dBm
MKR 5.69660 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto 3.19 dBm LOF
MARKER
5.69660 GHz
CENTER 5.70000 GHz SLIDE 100 / 100 SPAN 35.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

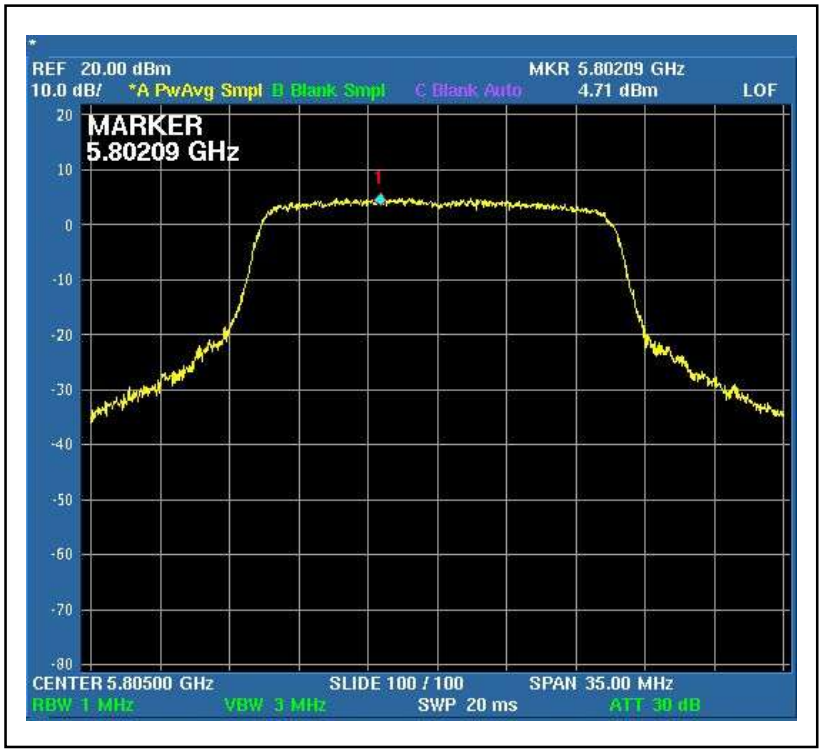
CH20


REF 20.00 dBm
MKR 5.74276 GHz
10.0 dB/ *A PwAvg Smpl B Blank Smpl C Blank Auto 3.54 dBm LOF
MARKER
5.74276 GHz
CENTER 5.74500 GHz SLIDE 100 / 100 SPAN 35.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

CH22


REF 20.00 dBm
MKR 5.78255 GHz
10.0 dB/ *A PwAvg Smpl B Blank Smpl C Blank Auto 4.61 dBm LOF
MARKER
5.78255 GHz
CENTER 5.78500 GHz
SLIDE 100 / 100
SPAN 35.00 MHz
RBW 1 MHz
VBW 3 MHz
SWP 20 ms
ATT 30 dB

CH23

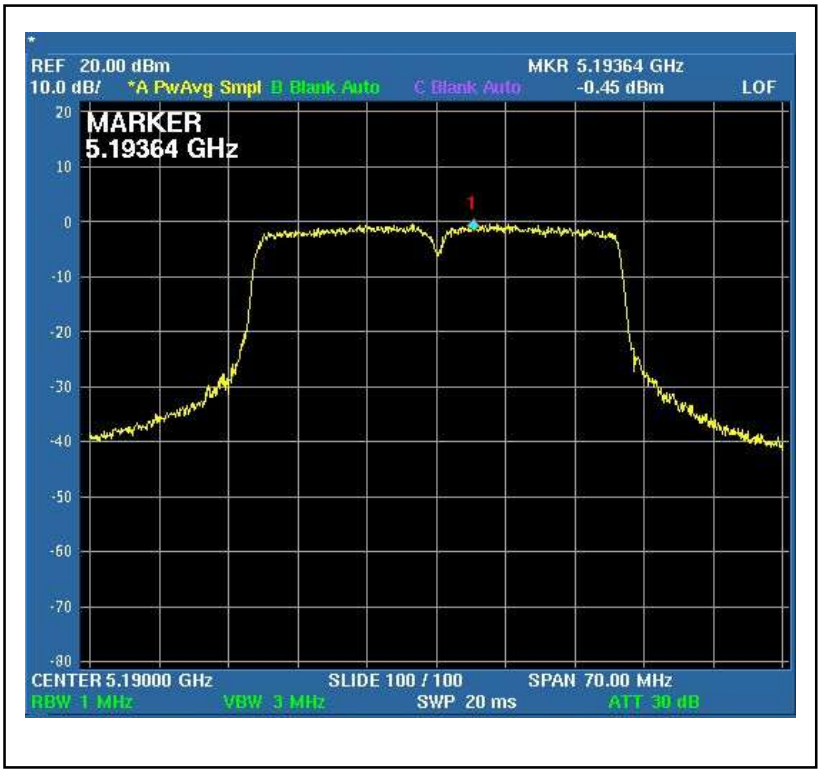

REF 20.00 dBm
MKR 5.80209 GHz
10.0 dB/ *A PwAvg Smpl B Blank Smpl C Blank Auto 4.71 dBm LOF
MARKER
5.80209 GHz
CENTER 5.80500 GHz
SLIDE 100 / 100
SPAN 35.00 MHz
RBW 1 MHz
VBW 3 MHz
SWP 20 ms
ATT 30 dB

## DRAFT 802.11n (40MHz) OFDM MODULATION:

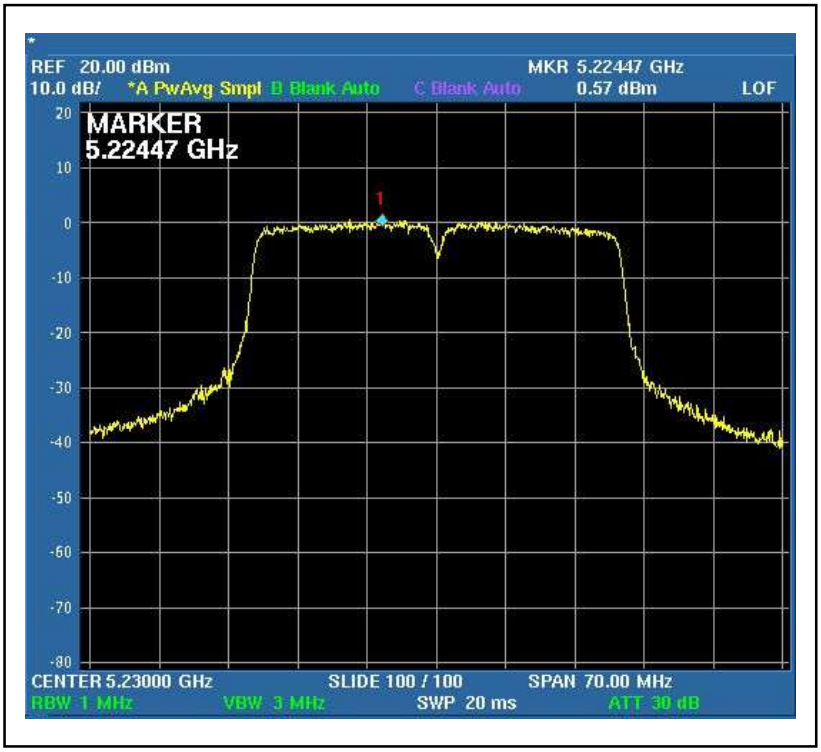
| | | | |
|---|---|---|---|
| **MODULATION TYPE** | BPSK | **TRANSFER RATE** | 27Mbps |
| **INPUT POWER (SYSTEM)** | 120Vac, 60 Hz | **ENVIRONMENTAL CONDITIONS** | 20deg.C, 60%RH, 971hPa |
| **TESTED BY** | Rex Huang | | |

| CHANNEL | CHANNEL FREQUENCY (MHz) | RF POWER LEVEL IN 1MHz BW (dBm) | | TOTAL OUTPUT POWER DENSITY (dBm) | MAXIMUM LIMIT (dBm) | PASS/FAIL |
|---|---|---|---|---|---|---|
| | | Chain (0) | Chain(1) | | | |
| 1 | 5190 | -0.45 | -1.67 | 1.993 | 4 | PASS |
| 2 | 5230 | 0.57 | -0.71 | 2.987 | 4 | PASS |
| 3 | 5270 | 0.23 | -0.60 | 2.845 | 11 | PASS |
| 4 | 5310 | -0.21 | -1.01 | 2.419 | 11 | PASS |
| 5 | 5510 | -0.01 | -0.56 | 2.734 | 11 | PASS |
| 7 | 5590 | -0.32 | -0.49 | 2.606 | 11 | PASS |
| 9 | 5670 | -0.51 | 0.39 | 2.974 | 11 | PASS |
| 10 | 5755 | -1.17 | -0.29 | 2.303 | 17 | PASS |
| 12 | 5795 | -1.32 | 0.76 | 2.854 | 17 | PASS |

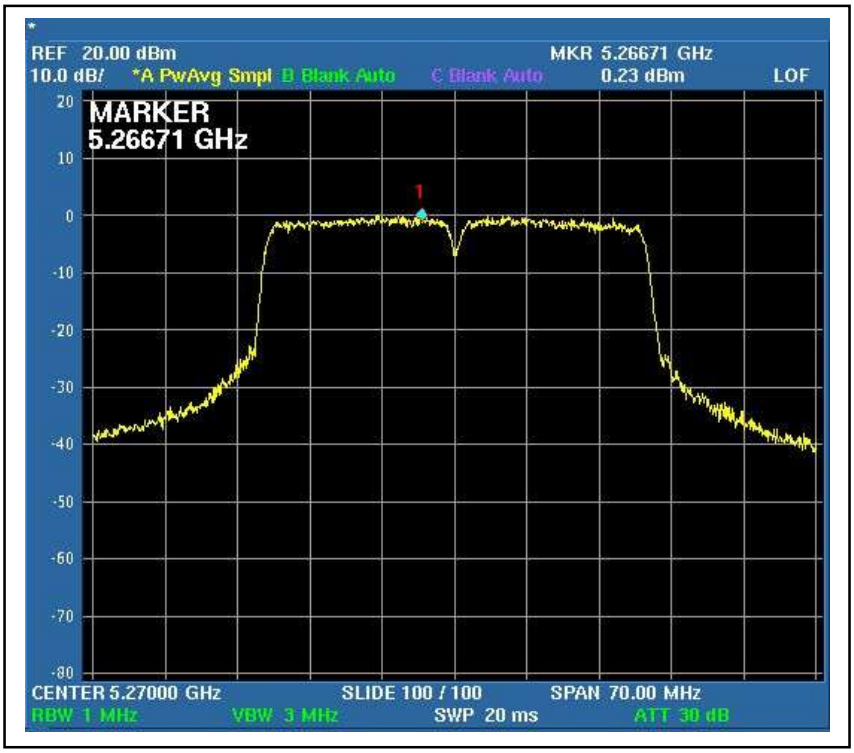
For Chain (0) : CH1



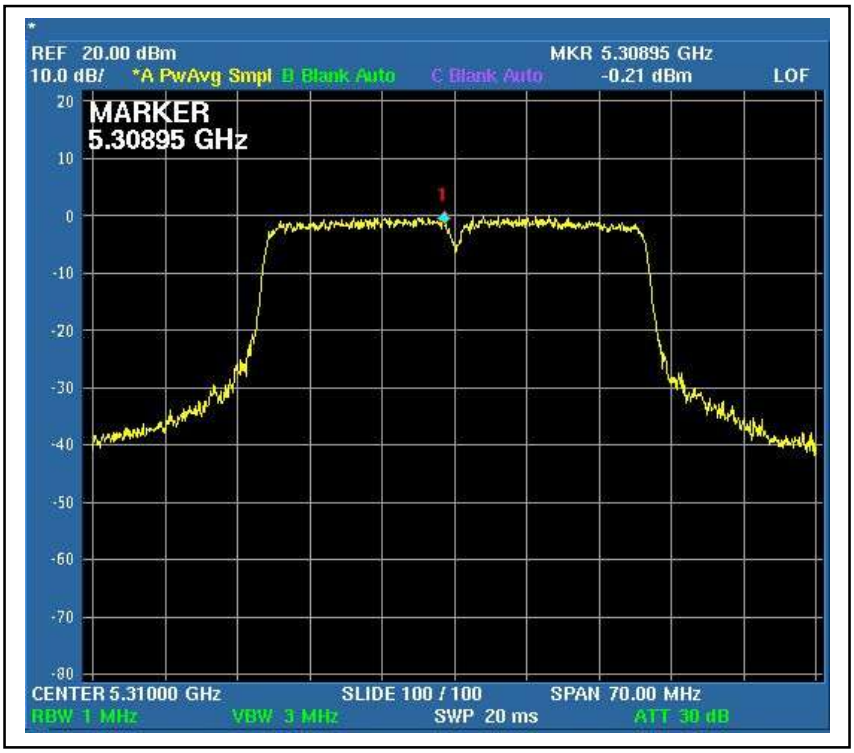

CH2



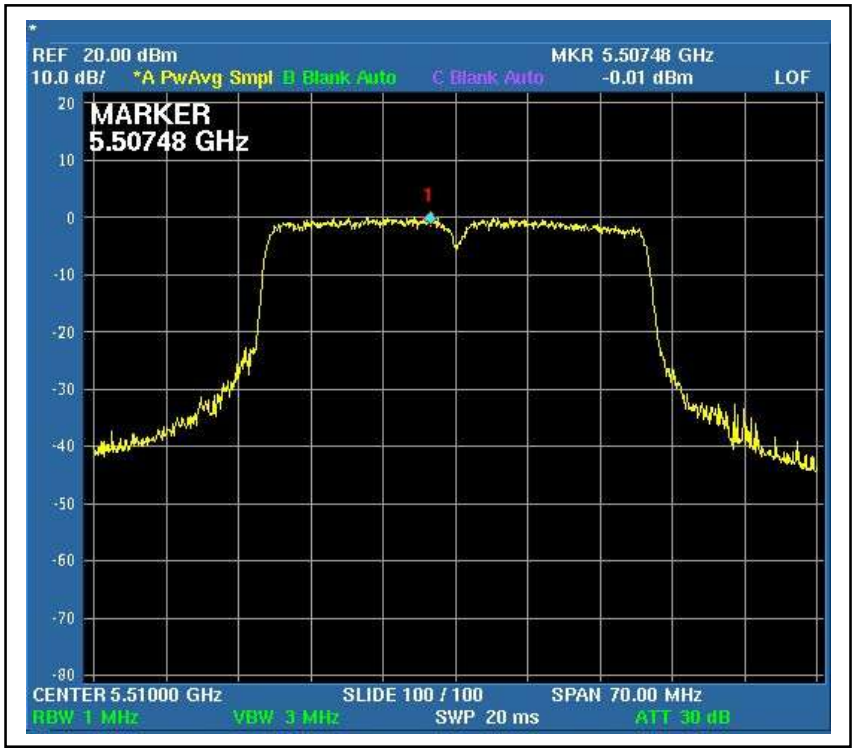
CH3


REF 20.00 dBm
MKR 5.26671 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto 0.23 dBm LOF
MARKER
5.26671 GHz
CENTER 5.27000 GHz SLIDE 100 / 100 SPAN 70.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

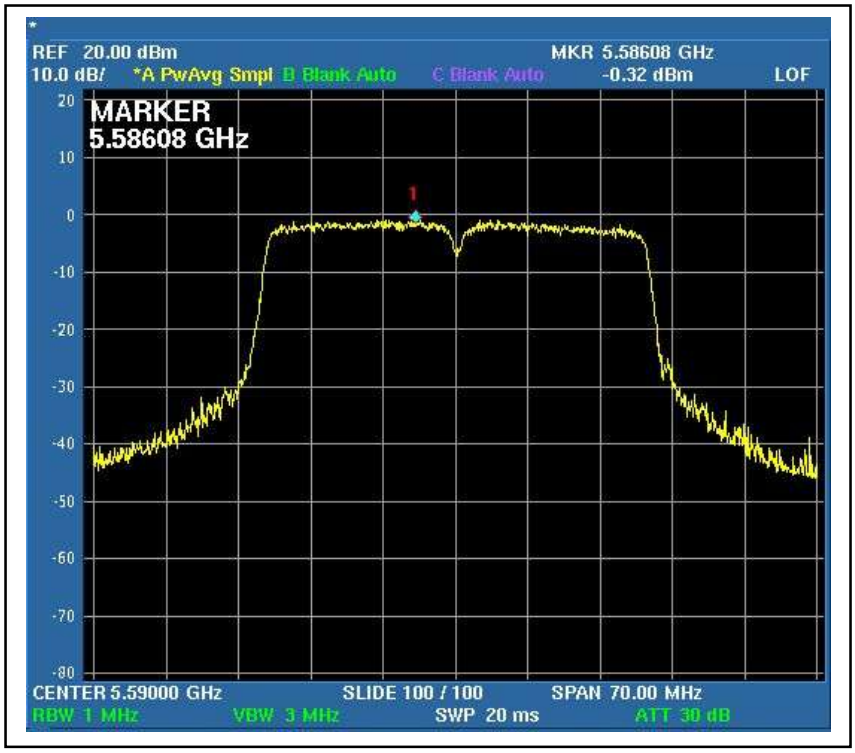
CH4


REF 20.00 dBm
MKR 5.30895 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto -0.21 dBm LOF
MARKER
5.30895 GHz
CENTER 5.31000 GHz SLIDE 100 / 100 SPAN 70.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

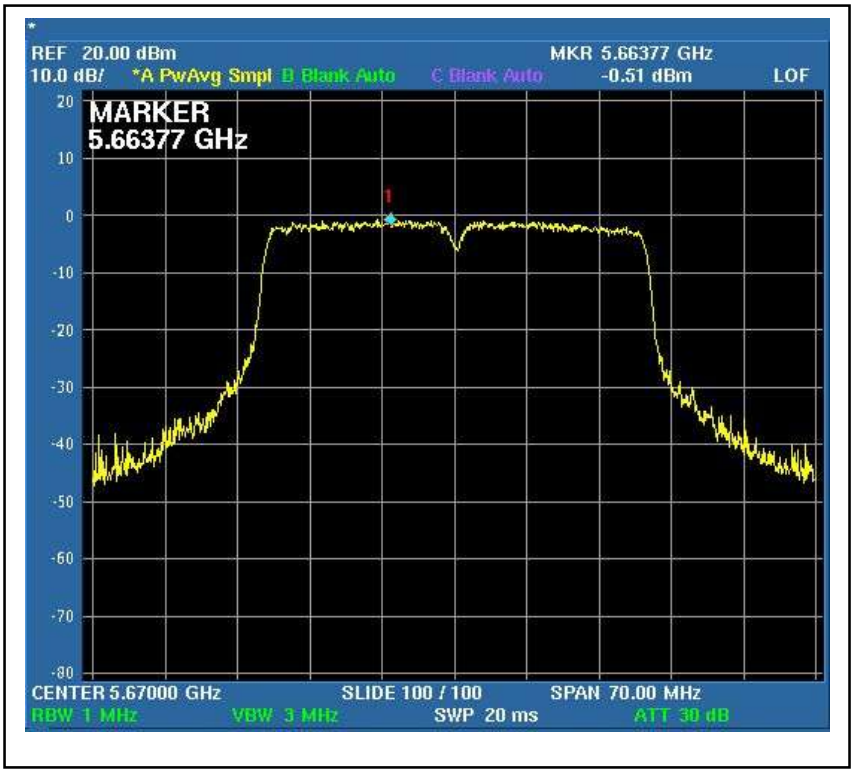
CH5


REF 20.00 dBm
MKR 5.50748 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto -0.01 dBm LOF
MARKER
5.50748 GHz
CENTER 5.51000 GHz
SLIDE 100 / 100
SPAN 70.00 MHz
RBW 1 MHz
VBW 3 MHz
SWP 20 ms
ATT 30 dB

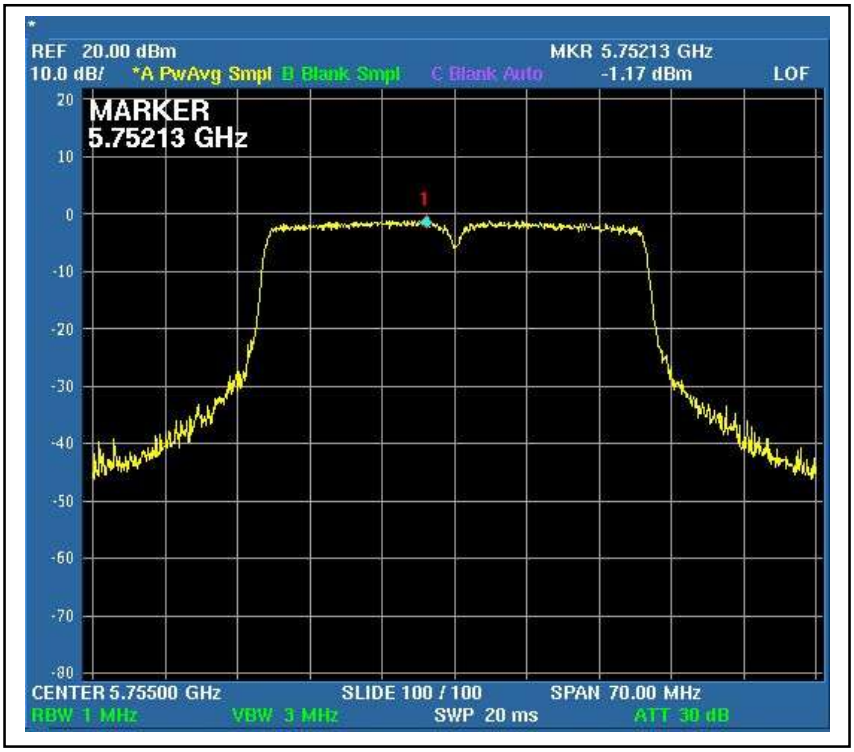
CH7


REF 20.00 dBm
MKR 5.58608 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto -0.32 dBm LOF
MARKER
5.58608 GHz
CENTER 5.59000 GHz
SLIDE 100 / 100
SPAN 70.00 MHz
RBW 1 MHz
VBW 3 MHz
SWP 20 ms
ATT 30 dB

CH9


REF 20.00 dBm
MKR 5.66377 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto -0.51 dBm LOF
MARKER
5.66377 GHz
CENTER 5.67000 GHz
SLIDE 100 / 100
SPAN 70.00 MHz
RBW 1 MHz
VBW 3 MHz
SWP 20 ms
ATT 30 dB

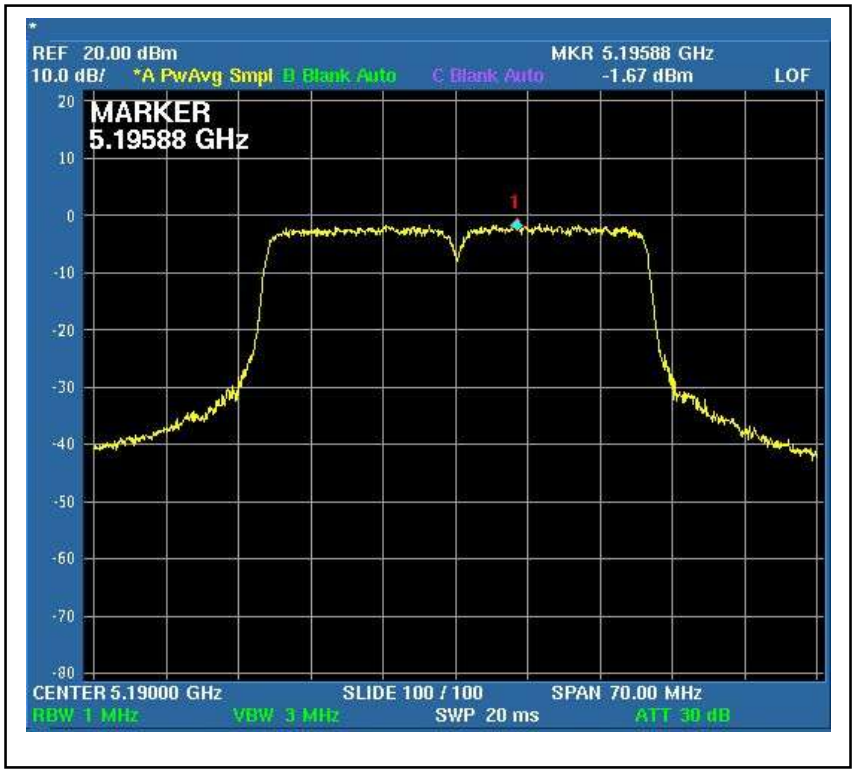
CH10


REF 20.00 dBm
MKR 5.75213 GHz
10.0 dB/ *A PwAvg Smpl B Blank Smpl C Blank Auto -1.17 dBm LOF
MARKER
5.75213 GHz
CENTER 5.75500 GHz
SLIDE 100 / 100
SPAN 70.00 MHz
RBW 1 MHz
VBW 3 MHz
SWP 20 ms
ATT 30 dB

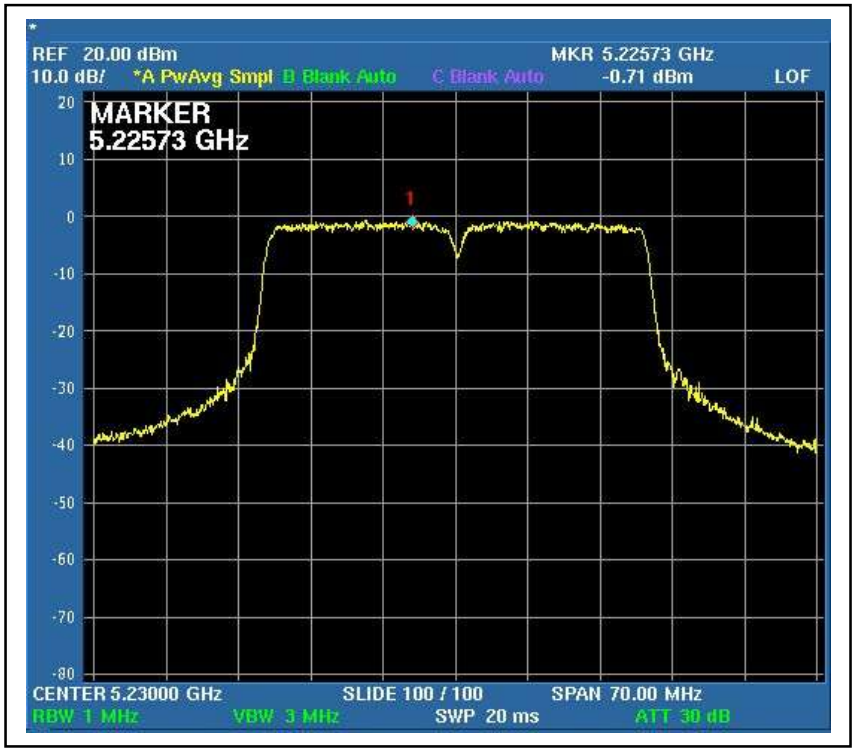
CH12


REF 20.00 dBm
MKR 5.78709 GHz
10.0 dB/ *A PwAvg Smpl B Blank Smpl C Blank Auto -1.32 dBm LOF
MARKER
5.78709 GHz
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
CENTER 5.79500 GHz SLIDE 100 / 100 SPAN 70.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

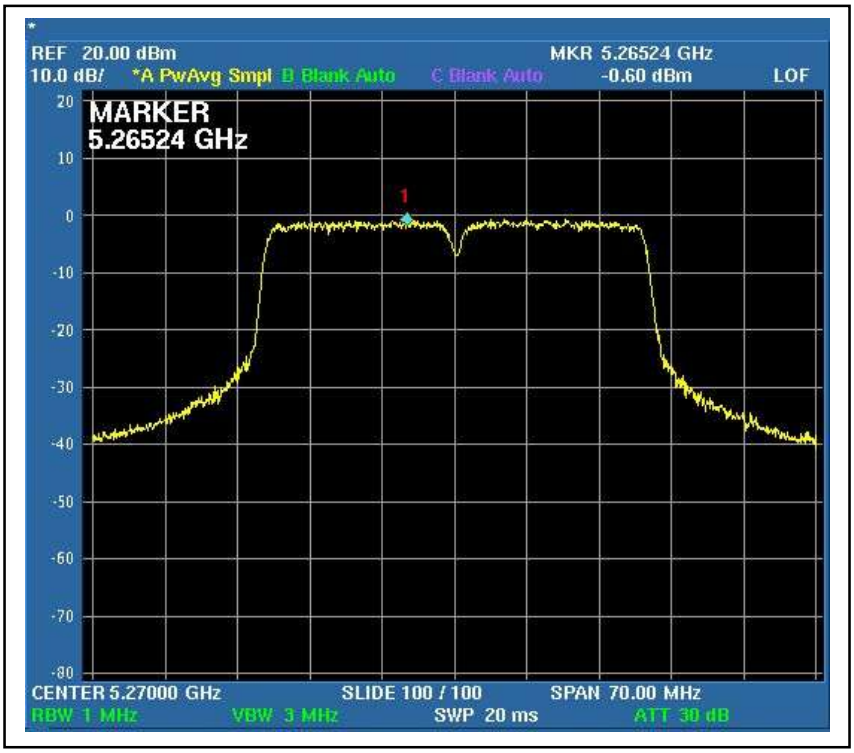
For Chain (1) : CH1



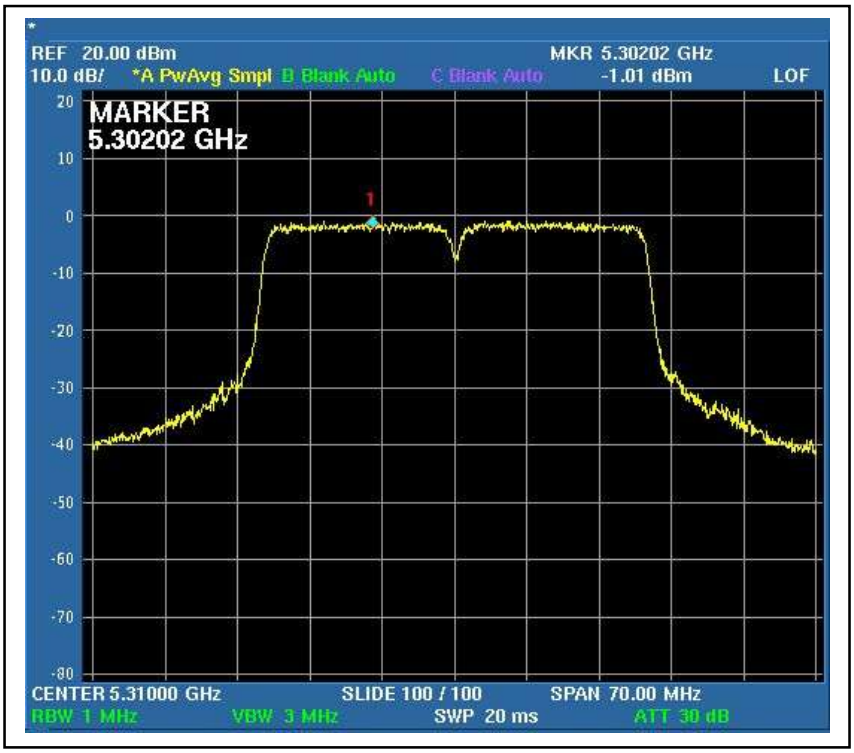

CH2



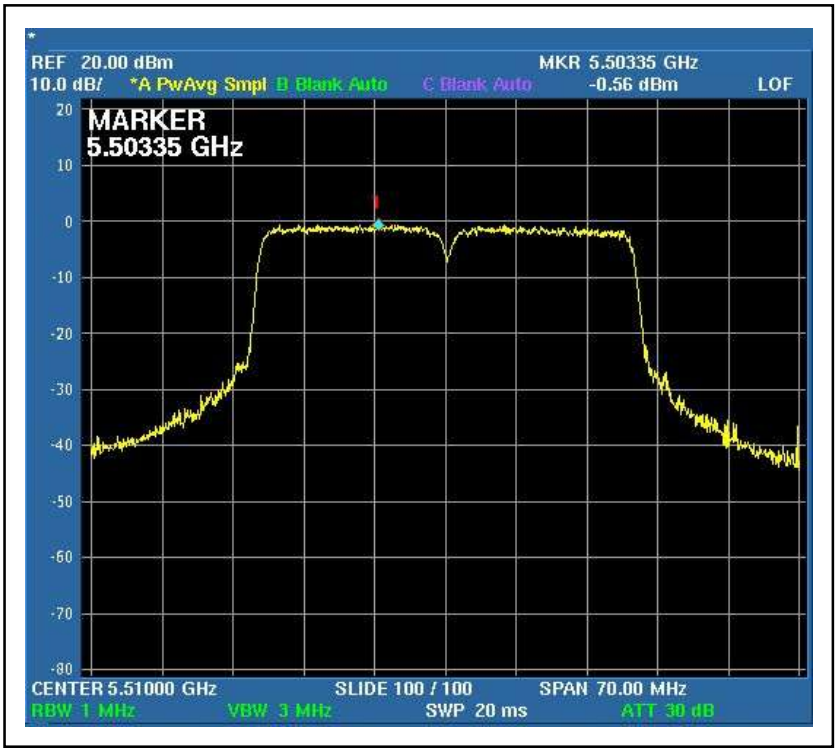
CH3


REF 20.00 dBm
MKR 5.26524 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto -0.60 dBm LOF
MARKER
5.26524 GHz
CENTER 5.27000 GHz
SLIDE 100 / 100
SPAN 70.00 MHz
RBW 1 MHz
VBW 3 MHz
SWP 20 ms
ATT 30 dB

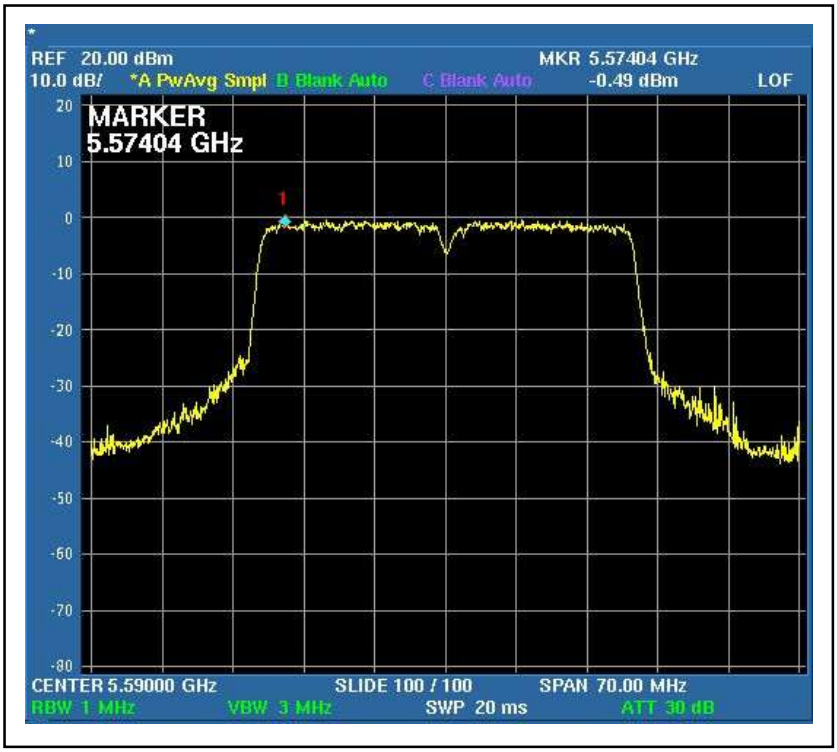
CH4


REF 20.00 dBm
MKR 5.30202 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto -1.01 dBm LOF
MARKER
5.30202 GHz
CENTER 5.31000 GHz
SLIDE 100 / 100
SPAN 70.00 MHz
RBW 1 MHz
VBW 3 MHz
SWP 20 ms
ATT 30 dB

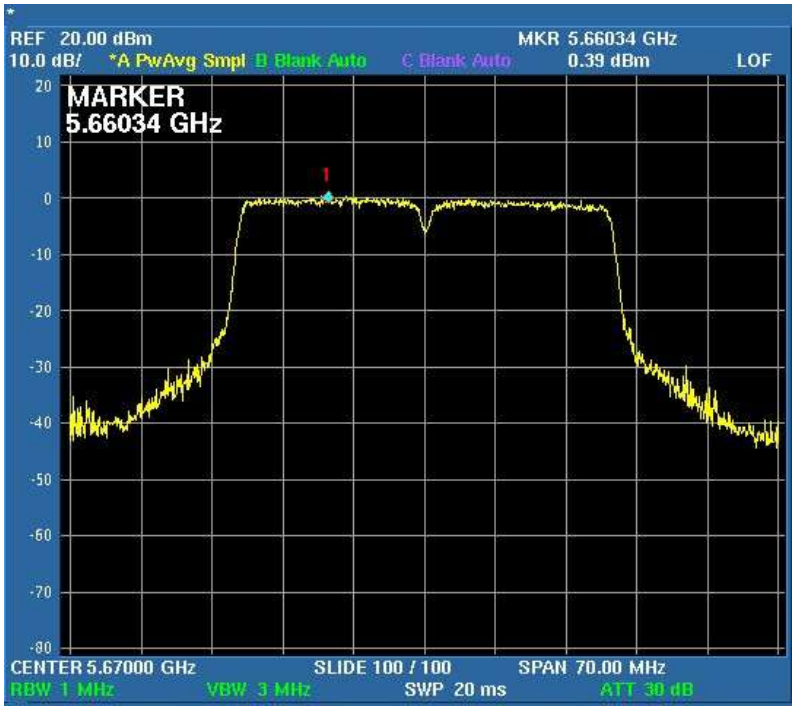
CH5


REF 20.00 dBm
MKR 5.50335 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto -0.56 dBm LOF
MARKER
5.50335 GHz
CENTER 5.51000 GHz SLIDE 100 / 100 SPAN 70.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

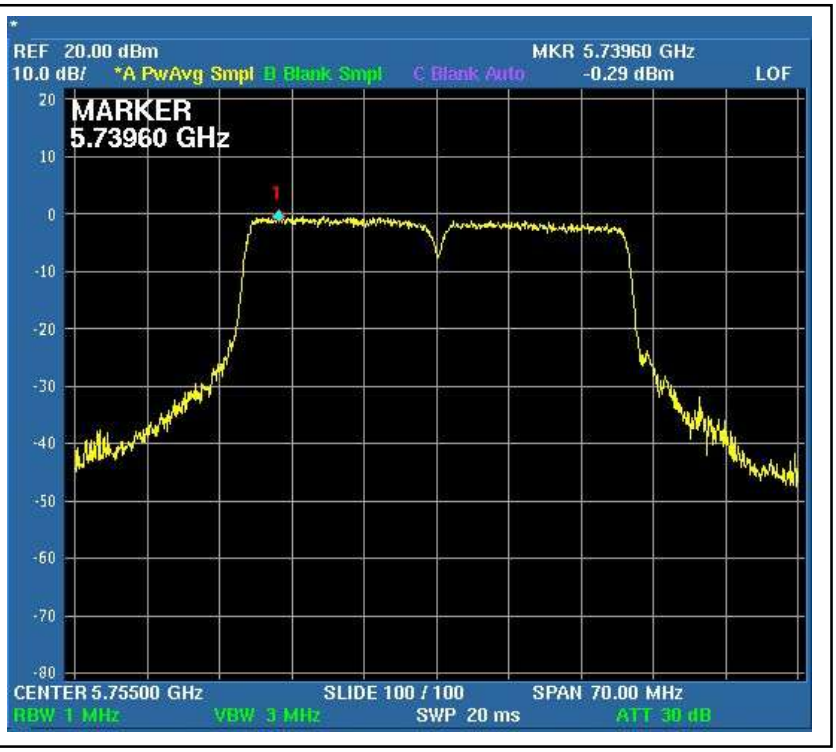
CH7


REF 20.00 dBm
MKR 5.57404 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto -0.49 dBm LOF
MARKER
5.57404 GHz
CENTER 5.59000 GHz SLIDE 100 / 100 SPAN 70.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

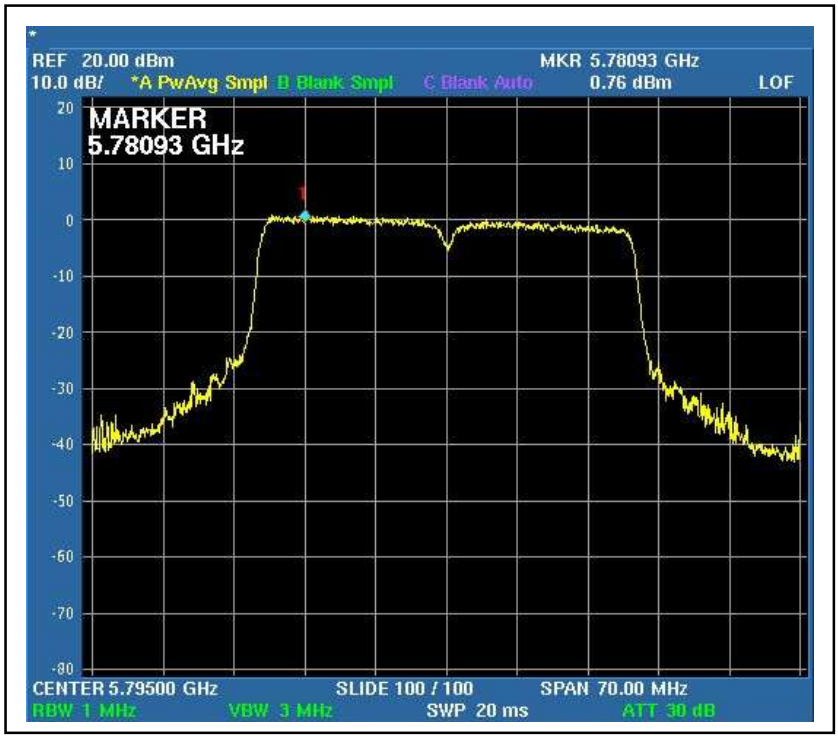
CH9


REF 20.00 dBm
MKR 5.66034 GHz
10.0 dB/ *A PwAvg Smpl B Blank Auto C Blank Auto 0.39 dBm LOF
MARKER
5.66034 GHz
CENTER 5.67000 GHz SLIDE 100 / 100 SPAN 70.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

CH10


REF 20.00 dBm
MKR 5.73960 GHz
10.0 dB/ *A PwAvg Smpl B Blank Smpl C Blank Auto -0.29 dBm LOF
MARKER
5.73960 GHz
CENTER 5.75500 GHz SLIDE 100 / 100 SPAN 70.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

CH12


REF 20.00 dBm
MKR 5.78093 GHz
10.0 dB/ *A PwAvg Smpl B Blank Smpl C Blank Auto 0.76 dBm LOF
MARKER
5.78093 GHz
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
CENTER 5.79500 GHz SLIDE 100 / 100 SPAN 70.00 MHz
RBW 1 MHz VBW 3 MHz SWP 20 ms ATT 30 dB

## 4.6 FREQUENCY STABILITY

### 4.6.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency tolerance of the carrier signal shall be maintained within +/- 0.02% of the operating frequency over a temperature variation of –30 degrees to 50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.

### 4.6.2 TEST INSTRUMENTS

| Description & Manufacturer | Model No. | Serial No. | Calibrated Until |
|---|---|---|---|
| R&S SPECTRUM ANALYZER | FSP40 | 100037 | Aug. 12, 2008 |

**NOTE:**

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

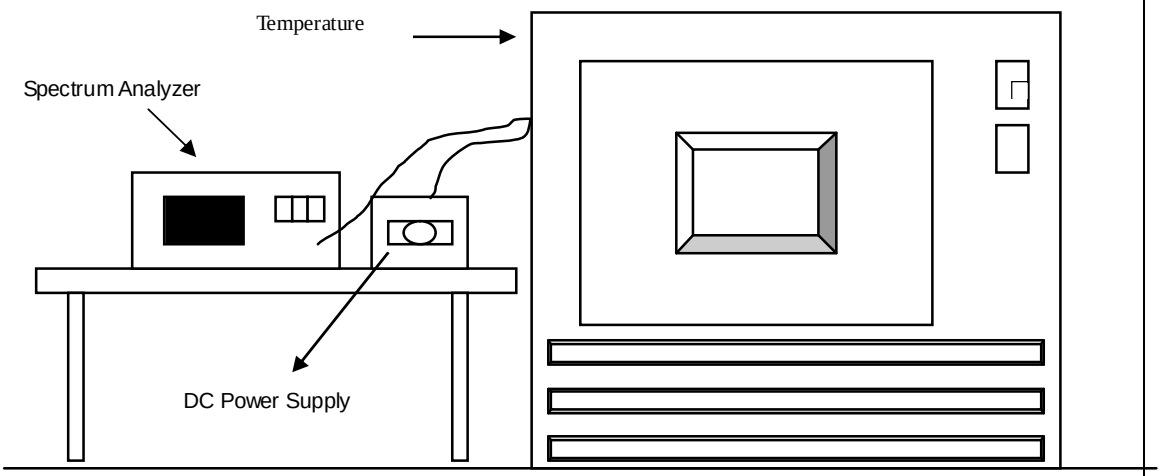
### 4.6.3 TEST PROCEDURE

1. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
2. Turn the EUT on and couple its output to a spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

### 4.6.4 DEVIATION FROM TEST STANDARD

No deviation

### 4.6.5 TEST SETUP




### 4.6.6 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

## 4.6.7 TEST RESULTS

| Operating frequency: 5320MHz | | | | Limit : ± 0.02% | | | |
|---|---|---|---|---|---|---|---|
| Temp. (℃) | Power supply (VAC) | 2 minute | | 5 minute | | 10 minute | |
| | | (MHz) | (%) | (MHz) | (%) | (MHz) | (%) |
| 50 | 126.5 | 5319.9774 | 0.000425 | 5319.9777 | 0.000419 | 5319.9787 | 0.000400 |
| | 110 | 5319.9774 | 0.000425 | 5319.9779 | 0.000415 | 5319.9788 | 0.000398 |
| | 93.5 | 5319.9774 | 0.000425 | 5319.9777 | 0.000419 | 5319.9786 | 0.000402 |
| 40 | 126.5 | 5319.9968 | 0.000060 | 5319.9969 | 0.000058 | 5319.9978 | 0.000041 |
| | 110 | 5319.9968 | 0.000060 | 5319.9971 | 0.000055 | 5319.9981 | 0.000036 |
| | 93.5 | 5319.9968 | 0.000060 | 5319.9969 | 0.000058 | 5319.9978 | 0.000041 |
| 30 | 126.5 | 5320.0216 | 0.000406 | 5320.0225 | 0.000423 | 5320.0238 | 0.000447 |
| | 110 | 5320.0216 | 0.000406 | 5320.0224 | 0.000421 | 5320.0238 | 0.000447 |
| | 93.5 | 5320.0218 | 0.000410 | 5320.0222 | 0.000417 | 5320.0238 | 0.000447 |
| 20 | 126.5 | 5320.0158 | 0.000297 | 5320.0148 | 0.000278 | 5320.0140 | 0.000263 |
| | 110 | 5320.0156 | 0.000293 | 5320.0168 | 0.000316 | 5320.0160 | 0.000301 |
| | 93.5 | 5320.0156 | 0.000293 | 5320.0138 | 0.000259 | 5320.0140 | 0.000263 |
| 10 | 126.5 | 5319.9976 | 0.000045 | 5319.998 | 0.000038 | 5319.9989 | 0.000021 |
| | 110 | 5319.9976 | 0.000045 | 5319.998 | 0.000038 | 5319.9991 | 0.000017 |
| | 93.5 | 5319.9976 | 0.000045 | 5319.9979 | 0.000039 | 5319.9988 | 0.000023 |
| 0 | 126.5 | 5320.0082 | 0.000154 | 5320.0038 | 0.000071 | 5320.0050 | 0.000094 |
| | 110 | 5320.0082 | 0.000154 | 5320.0068 | 0.000128 | 5320.0060 | 0.000113 |
| | 93.5 | 5320.0062 | 0.000117 | 5320.0038 | 0.000071 | 5320.0050 | 0.000094 |
| -10 | 126.5 | 5319.9923 | 0.000145 | 5319.9926 | 0.000139 | 5319.9935 | 0.000122 |
| | 110 | 5319.9924 | 0.000143 | 5319.993 | 0.000132 | 5319.9939 | 0.000115 |
| | 93.5 | 5319.9923 | 0.000145 | 5319.9926 | 0.000139 | 5319.9935 | 0.000122 |
| -20 | 126.5 | 5320.0152 | 0.000286 | 5320.0108 | 0.000203 | 5320.0080 | 0.000150 |
| | 110 | 5320.0152 | 0.000286 | 5320.0138 | 0.000259 | 5320.0110 | 0.000207 |
| | 93.5 | 5320.0152 | 0.000286 | 5320.0098 | 0.000184 | 5320.0090 | 0.000169 |
| -30 | 126.5 | 5319.9733 | 0.000502 | 5319.9834 | 0.000312 | 5319.9843 | 0.000295 |
| | 110 | 5319.9734 | 0.000500 | 5319.9834 | 0.000312 | 5319.9845 | 0.000291 |
| | 93.5 | 5319.9833 | 0.000314 | 5319.9837 | 0.000306 | 5319.9842 | 0.000297 |

## 4.7 BAND EDGES MEASUREMENT

### 4.7.1 TEST INSTRUMENTS

| Description & Manufacturer | Model No. | Serial No. | Calibrated Until |
|---|---|---|---|
| R&S SPECTRUM ANALYZER | FSP40 | 100037 | Aug. 12, 2008 |

**NOTE:**

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

### 4.7.2 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set RBW of spectrum analyzer to 1MHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.

### 4.7.3 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

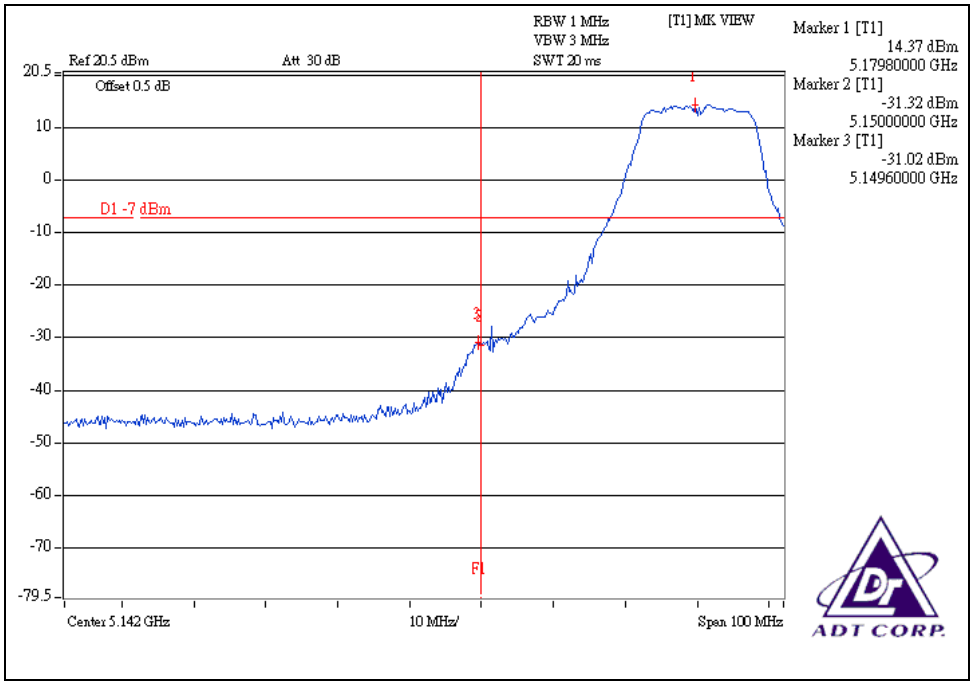
### 4.7.4 TEST RESULTS

For 5.15 to 5.35GHz band:

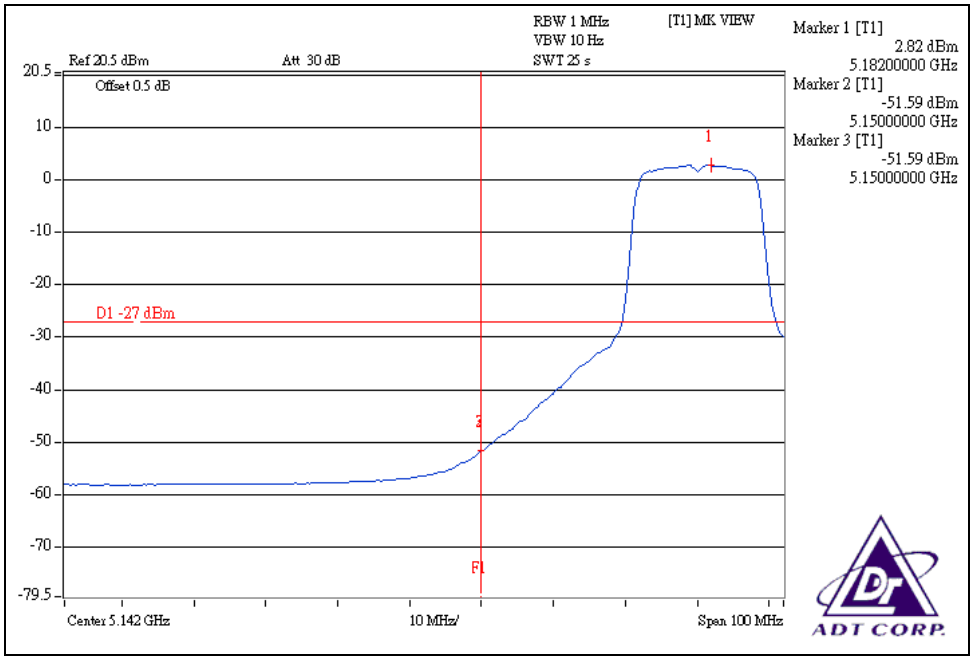
The spectrum plots (Peak RBW=1MHz, VBW=3MHz; Average RBW=1MHz, VBW=10Hz) are attached on the following pages.

## 802.11a OFDM modulation

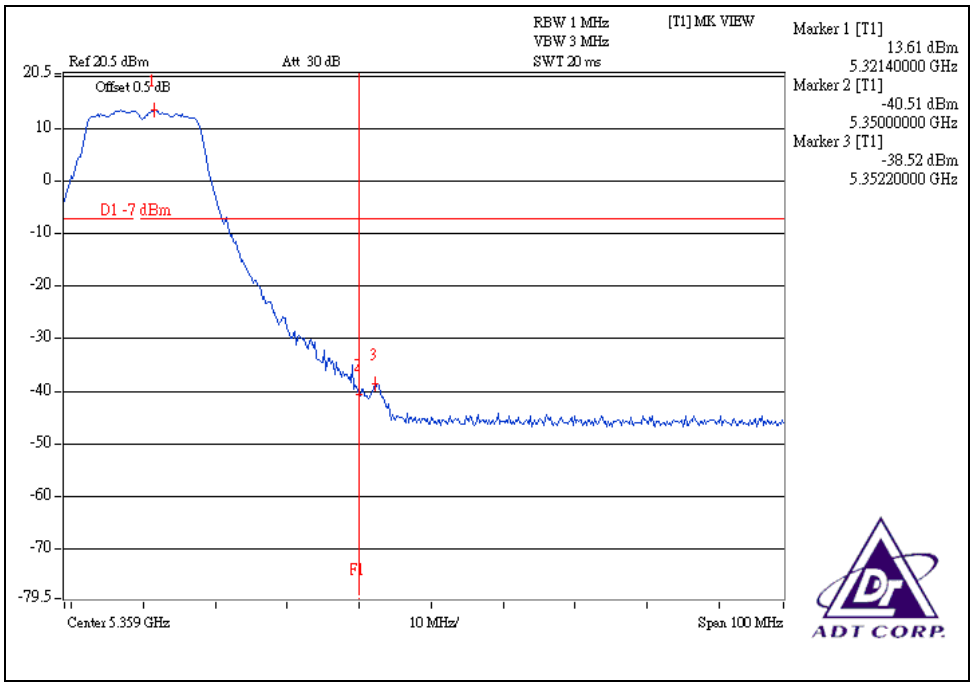
### CH 1



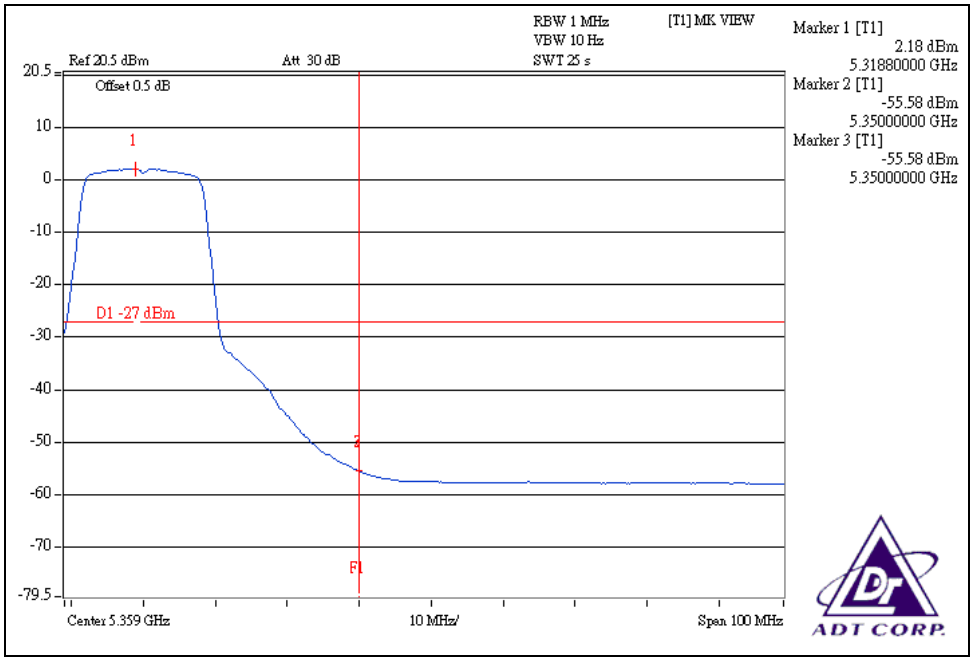

### CH 1



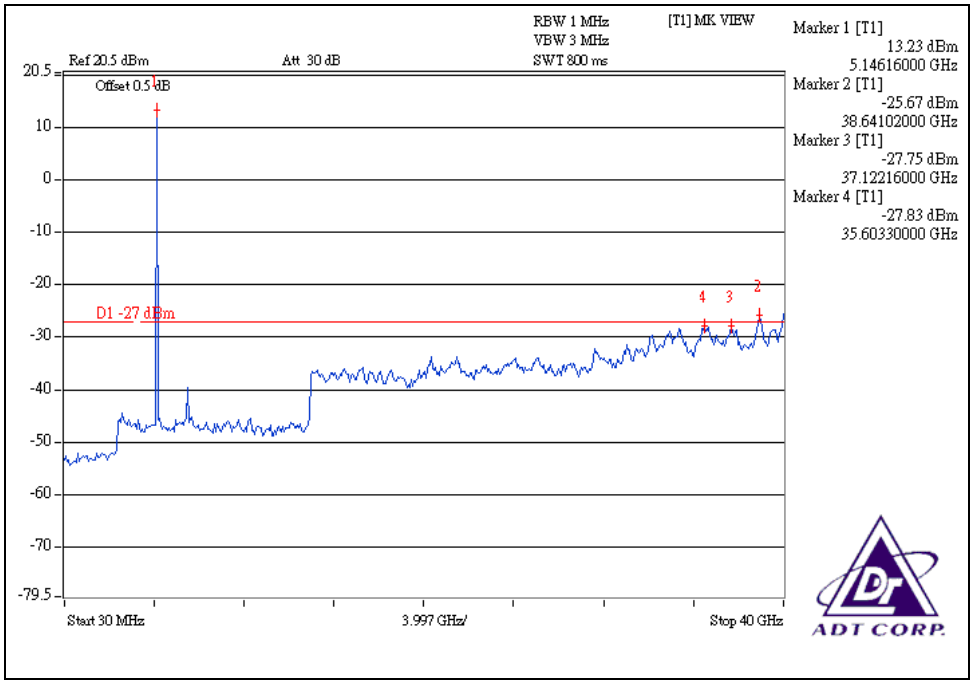
## CH 8


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -7 dBm
Marker 1 [T1]
13.61 dBm
5.32140000 GHz
Marker 2 [T1]
-40.51 dBm
5.35000000 GHz
Marker 3 [T1]
-38.52 dBm
5.35220000 GHz
Center 5.359 GHz
10 MHz/
Span 100 MHz

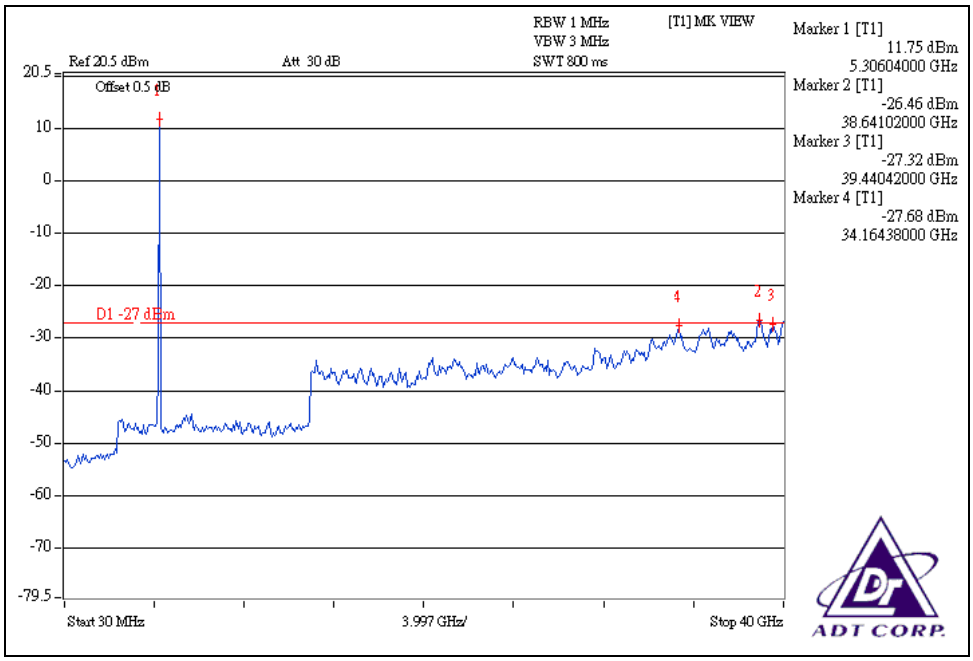
## CH 8


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -27 dBm
Marker 1 [T1]
2.18 dBm
5.31880000 GHz
Marker 2 [T1]
-55.58 dBm
5.35000000 GHz
Marker 3 [T1]
-55.58 dBm
5.35000000 GHz
Center 5.359 GHz
10 MHz/
Span 100 MHz

## CH 1


RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -27 dBm
Marker 1 [T1]
13.23 dBm
5.14616000 GHz
Marker 2 [T1]
-25.67 dBm
38.64102000 GHz
Marker 3 [T1]
-27.75 dBm
37.12216000 GHz
Marker 4 [T1]
-27.83 dBm
35.60330000 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz
ADT CORP.

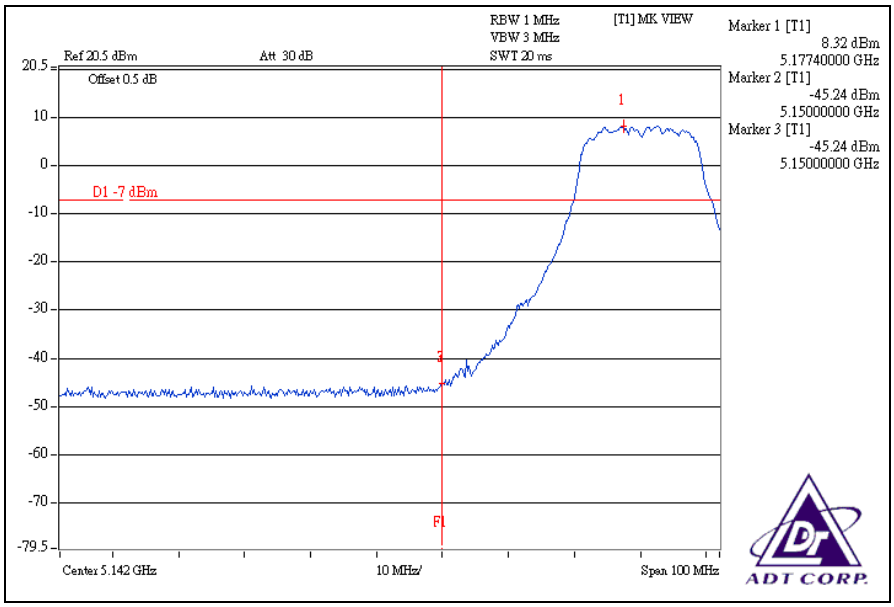
## CH 8


RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -27 dBm
Marker 1 [T1]
11.75 dBm
5.30604000 GHz
Marker 2 [T1]
-26.46 dBm
38.64102000 GHz
Marker 3 [T1]
-27.32 dBm
39.44042000 GHz
Marker 4 [T1]
-27.68 dBm
34.16438000 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz
ADT CORP.

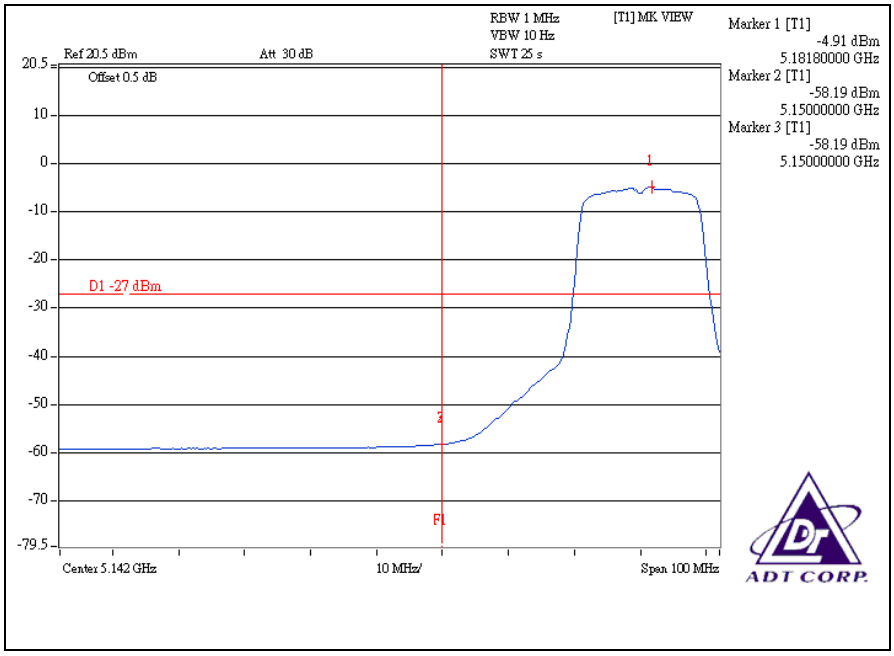
## DRAFT 802.11n (20MHz) OFDM MODULATION:

### For chain (0):

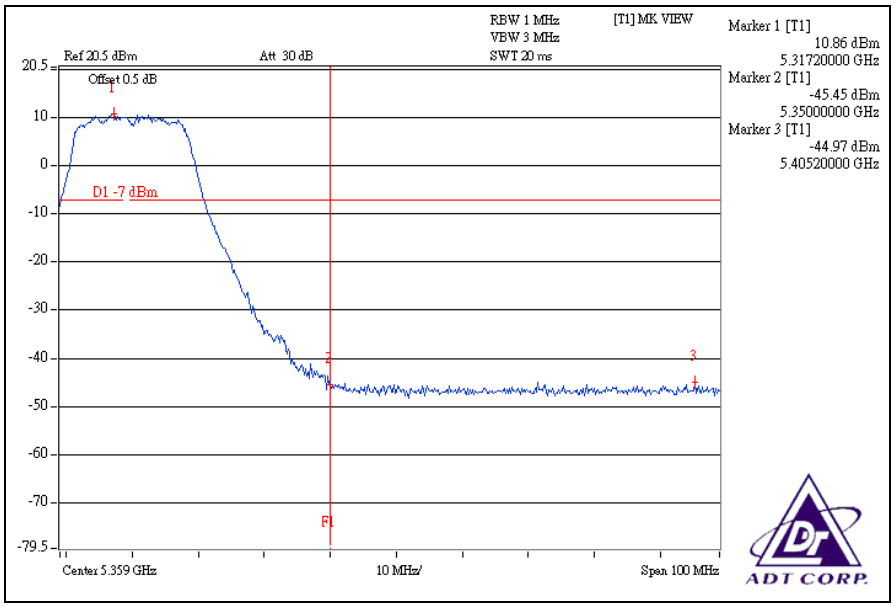
CH1



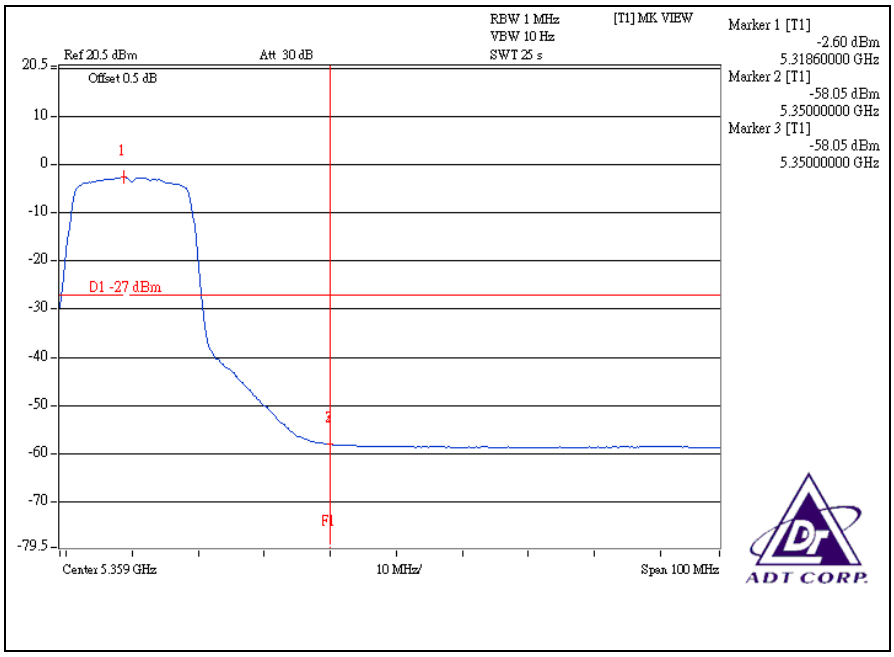

CH1



CH8

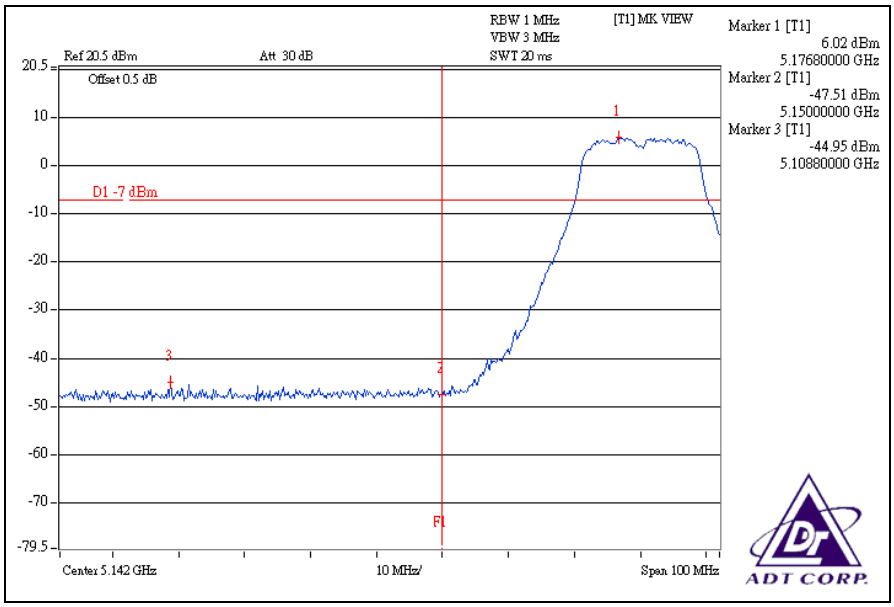

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -7 dBm
Marker 1 [T1]
10.86 dBm
5.31720000 GHz
Marker 2 [T1]
-45.45 dBm
5.35000000 GHz
Marker 3 [T1]
-44.97 dBm
5.40520000 GHz
Center 5.359 GHz
10 MHz/
Span 100 MHz

CH8

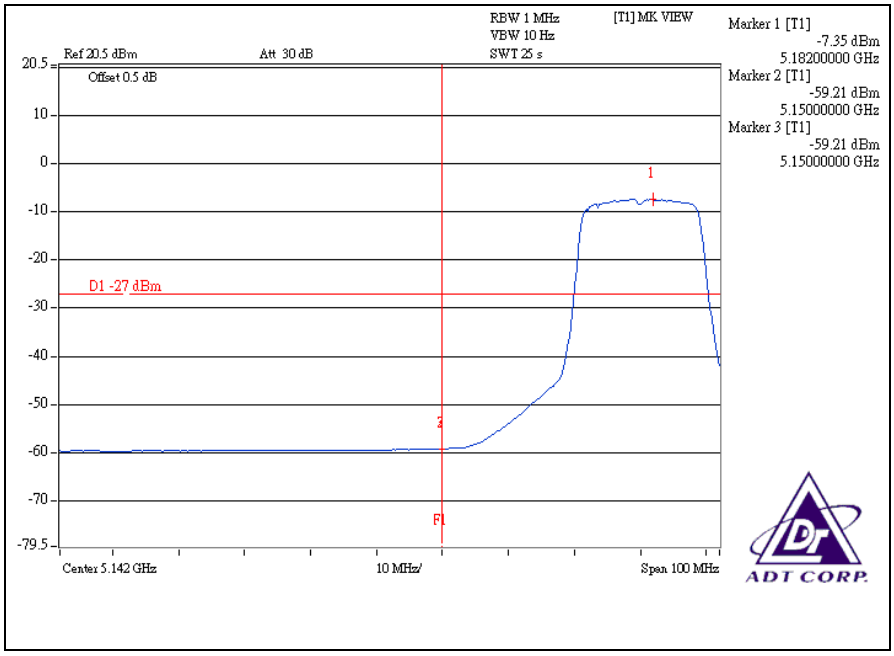

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -27 dBm
Marker 1 [T1]
-2.60 dBm
5.31860000 GHz
Marker 2 [T1]
-58.05 dBm
5.35000000 GHz
Marker 3 [T1]
-58.05 dBm
5.35000000 GHz
Center 5.359 GHz
10 MHz/
Span 100 MHz

**For chain (1):**

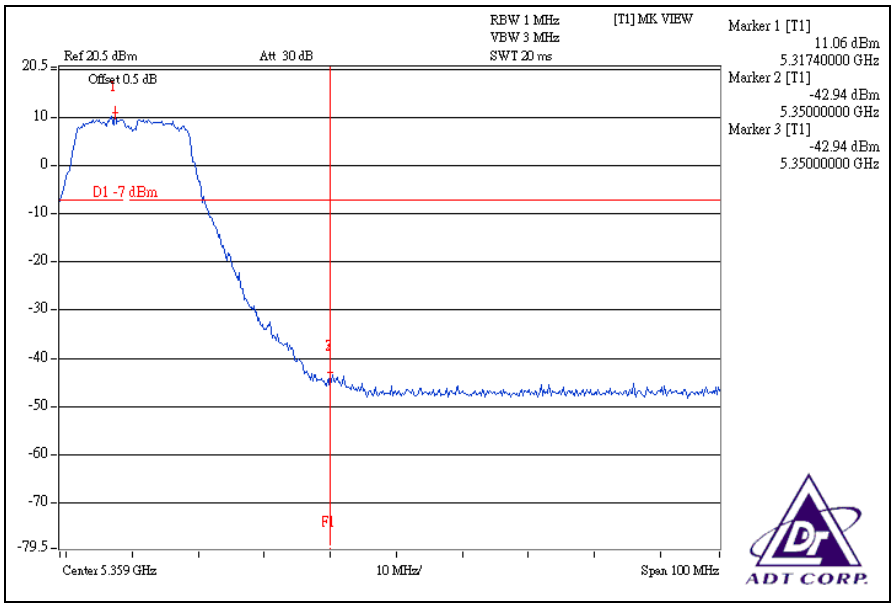
CH1



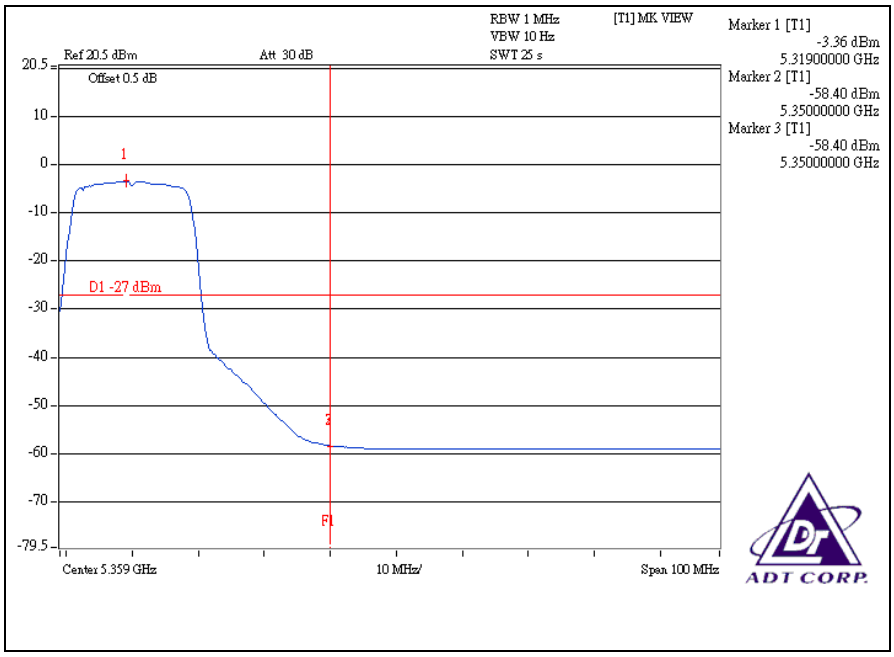

CH1



CH8

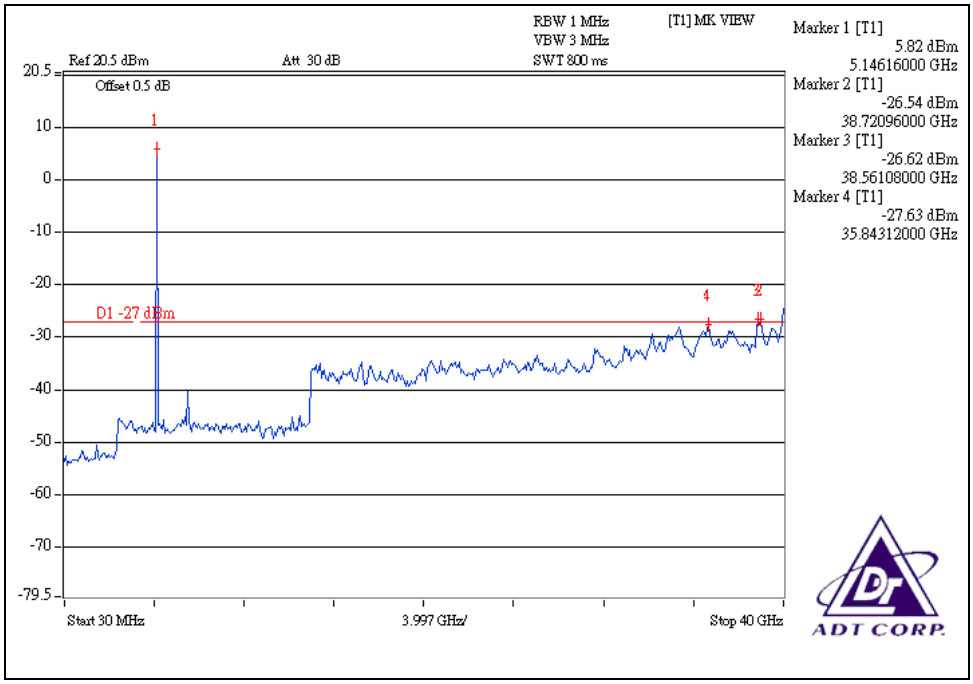

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
11.06 dBm
5.31740000 GHz
Marker 2 [T1]
-42.94 dBm
5.35000000 GHz
Marker 3 [T1]
-42.94 dBm
5.35000000 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -7 dBm
Center 5.359 GHz
10 MHz/
Span 100 MHz

CH8

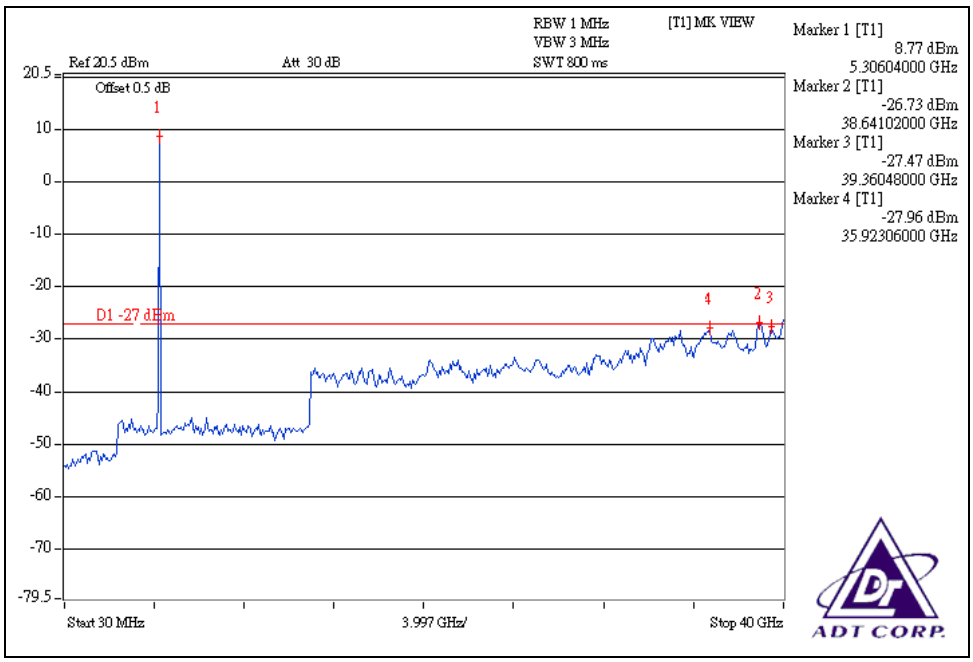

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Marker 1 [T1]
-3.36 dBm
5.31900000 GHz
Marker 2 [T1]
-58.40 dBm
5.35000000 GHz
Marker 3 [T1]
-58.40 dBm
5.35000000 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -27 dBm
Center 5.359 GHz
10 MHz/
Span 100 MHz

**For chain (0):**

CH1

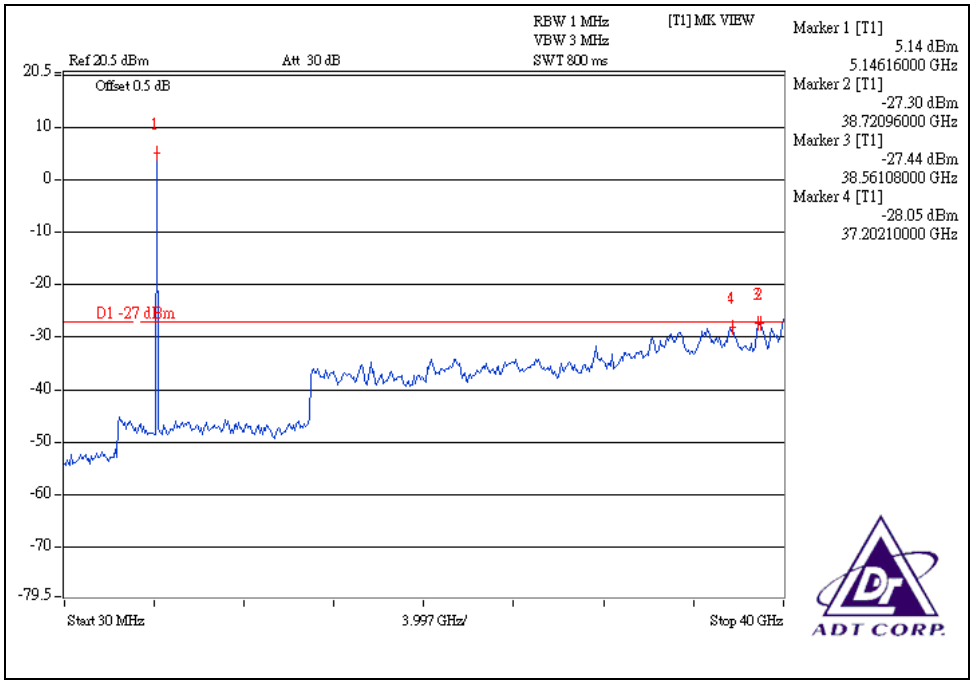



CH8

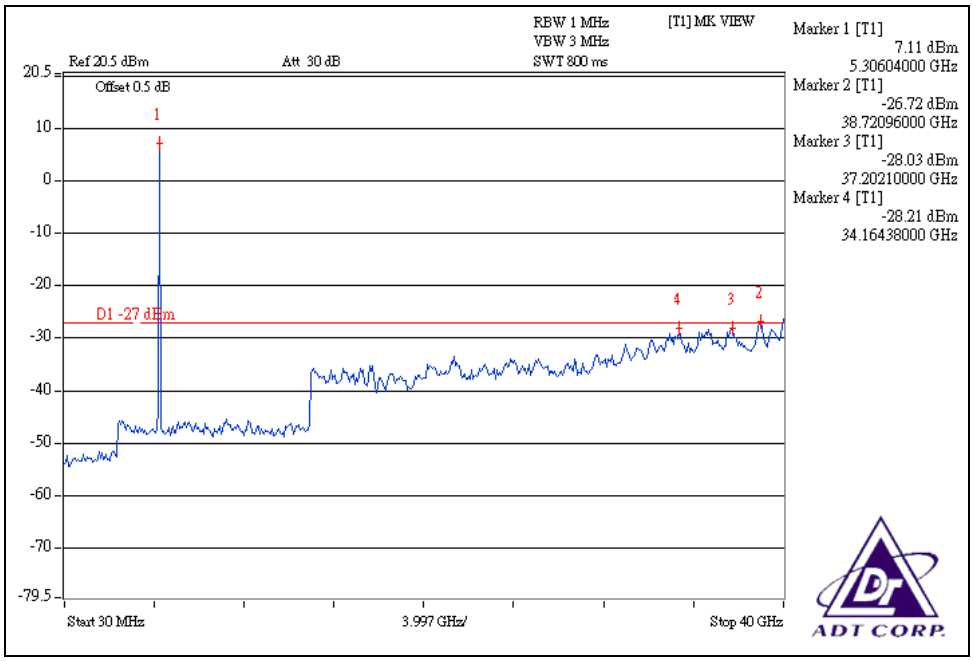


## For chain (1):

CH1



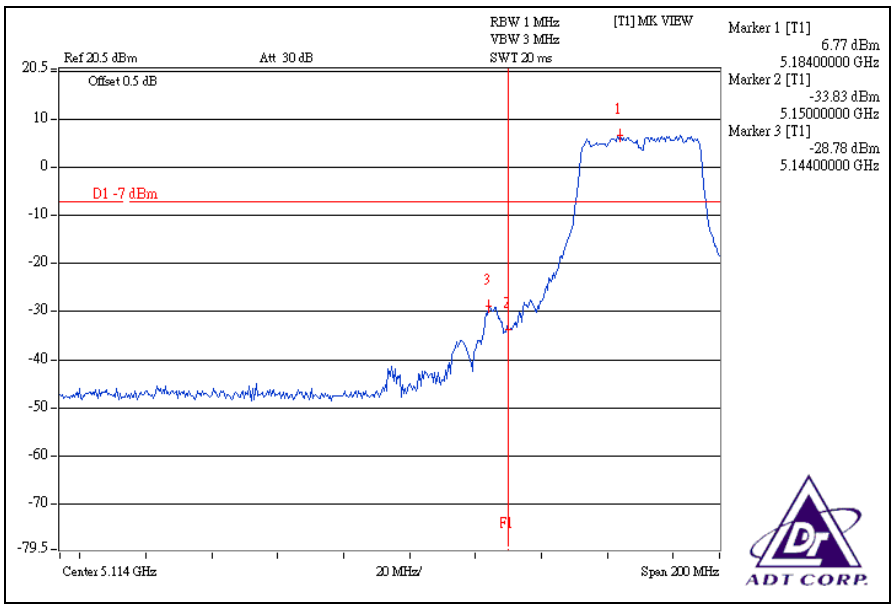

CH8



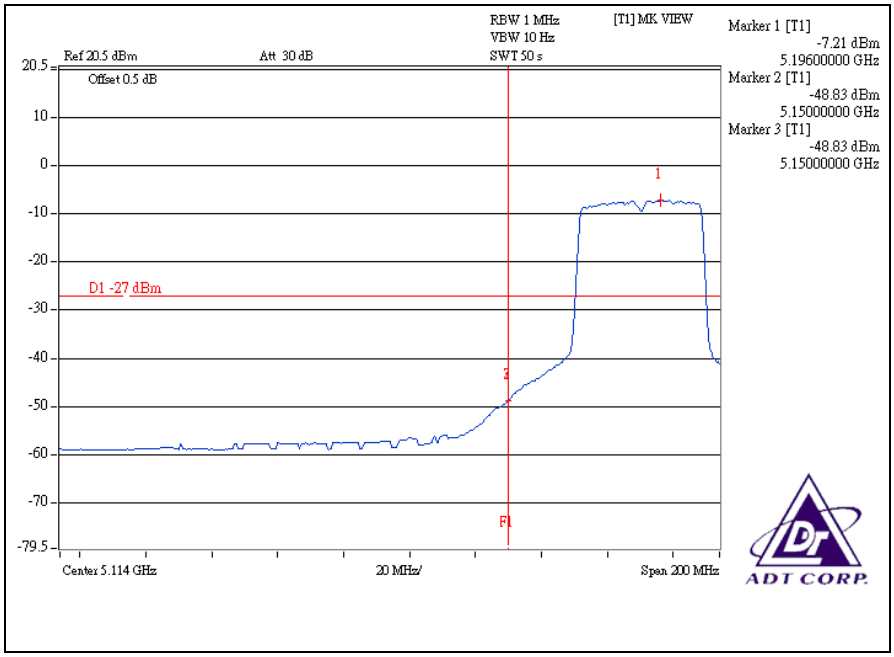
## DRAFT 802.11n (40MHz) OFDM MODULATION:

### For chain (0):

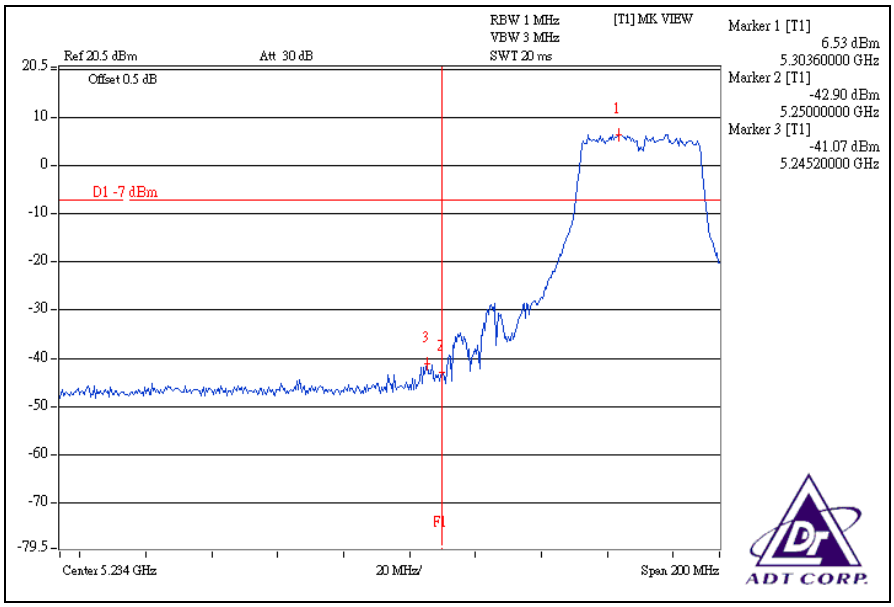
CH1



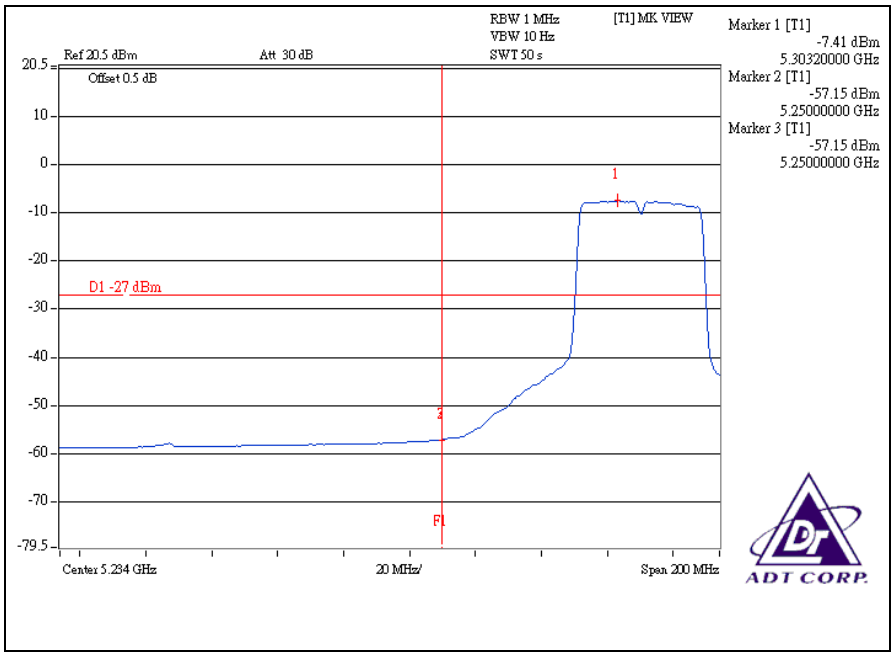

CH1



CH4

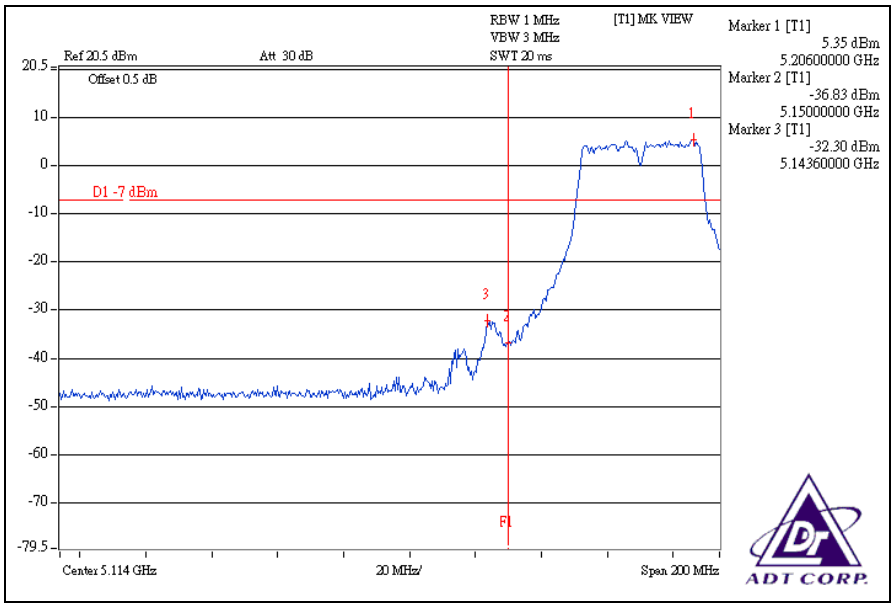

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
6.53 dBm
5.30360000 GHz
Marker 2 [T1]
-42.90 dBm
5.25000000 GHz
Marker 3 [T1]
-41.07 dBm
5.24520000 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -7 dBm
Center 5.234 GHz
20 MHz/
Span 200 MHz
ADT CORP.

CH4

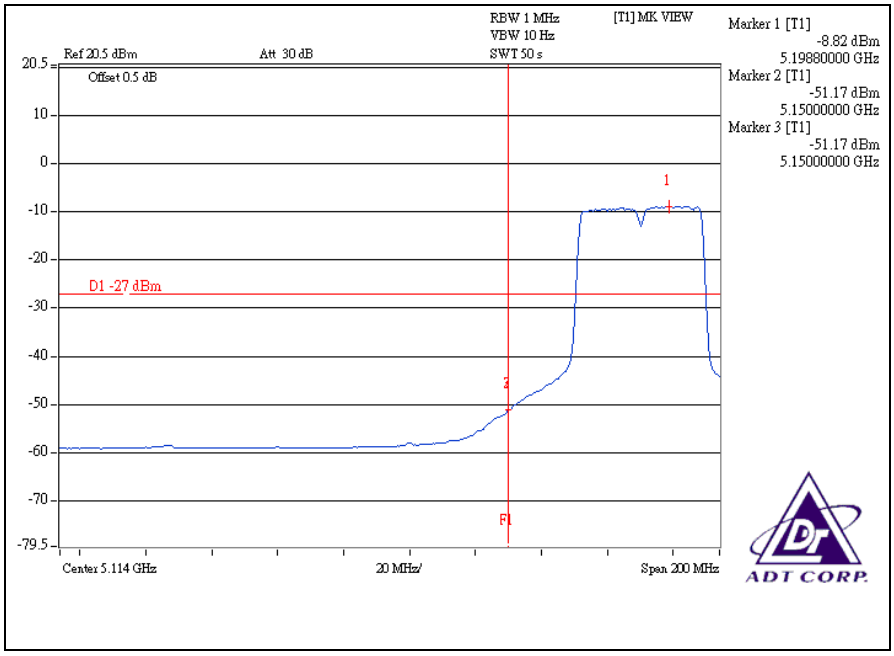

RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Marker 1 [T1]
-7.41 dBm
5.30320000 GHz
Marker 2 [T1]
-57.15 dBm
5.25000000 GHz
Marker 3 [T1]
-57.15 dBm
5.25000000 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -27 dBm
Center 5.234 GHz
20 MHz/
Span 200 MHz
ADT CORP.

## For chain (1):

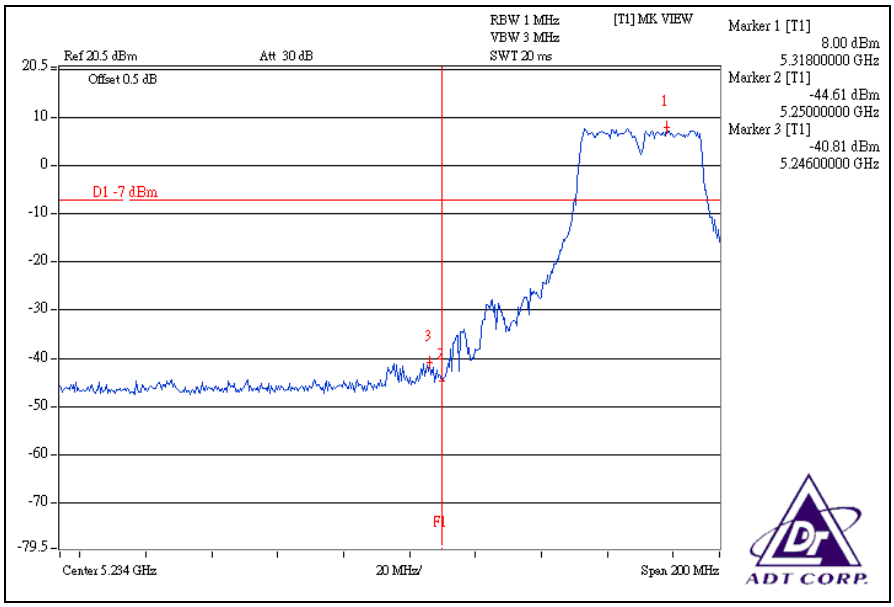
CH1



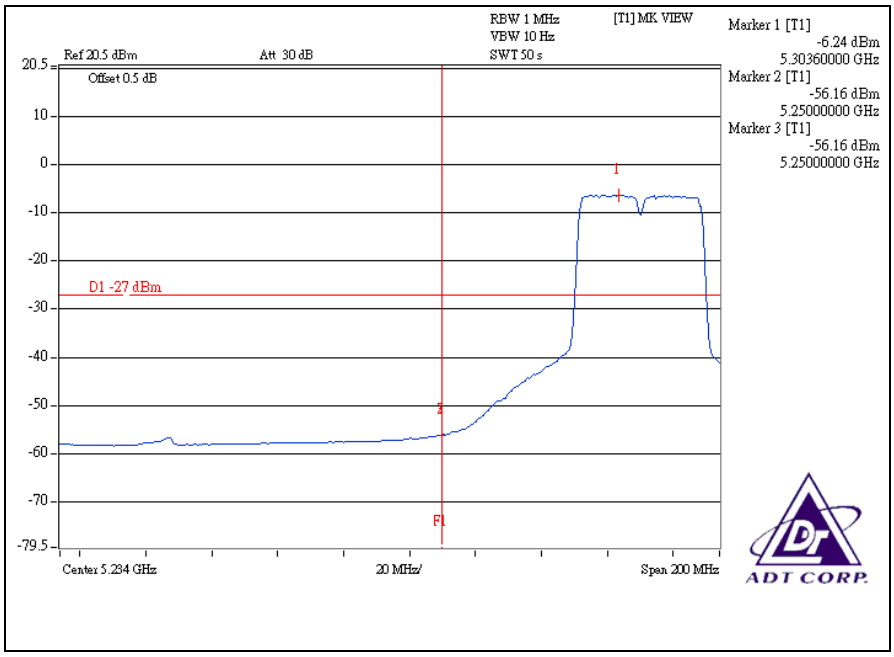

CH1



CH4

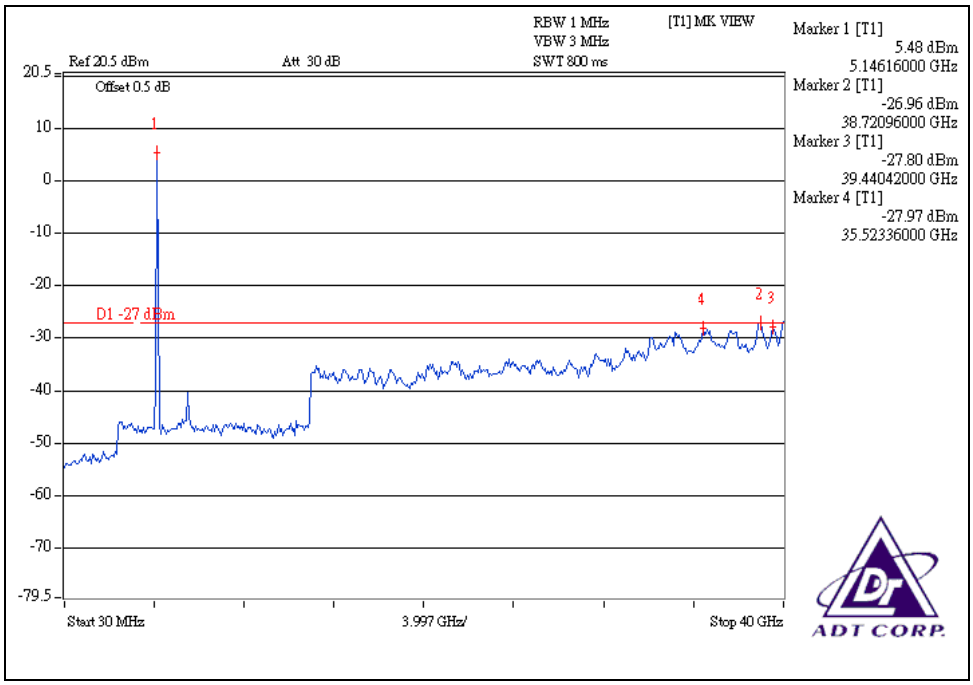

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -7 dBm
Marker 1 [T1]
8.00 dBm
5.31800000 GHz
Marker 2 [T1]
-44.61 dBm
5.25000000 GHz
Marker 3 [T1]
-40.81 dBm
5.24600000 GHz
Center 5.234 GHz
20 MHz/
Span 200 MHz

CH4

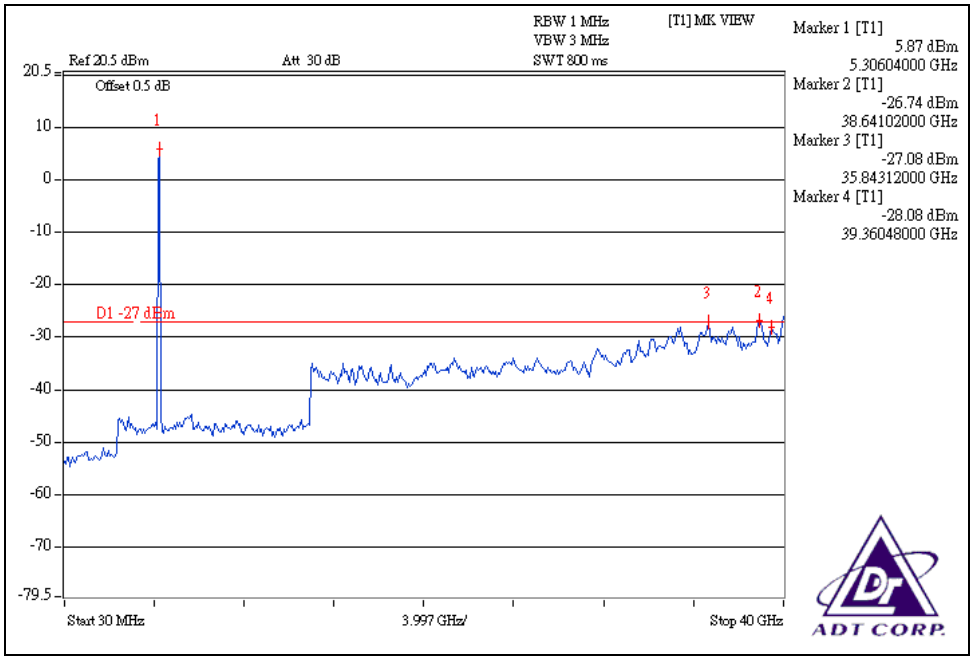

RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -27 dBm
Marker 1 [T1]
-6.24 dBm
5.30360000 GHz
Marker 2 [T1]
-56.16 dBm
5.25000000 GHz
Marker 3 [T1]
-56.16 dBm
5.25000000 GHz
Center 5.234 GHz
20 MHz/
Span 200 MHz

## For chain (0):

CH1

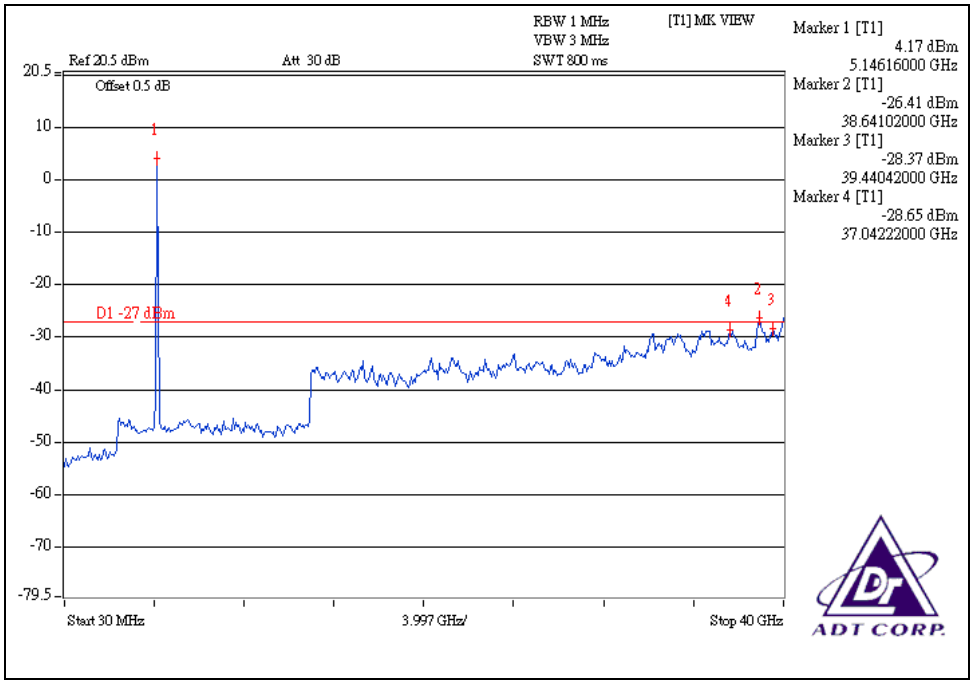



CH4

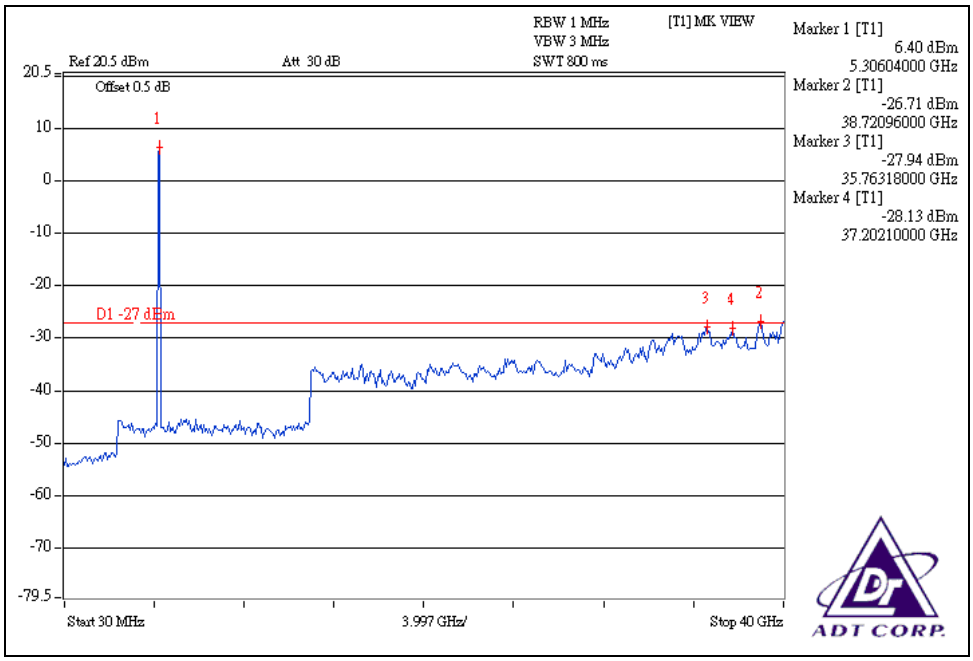


## For chain (1):

CH1




CH4

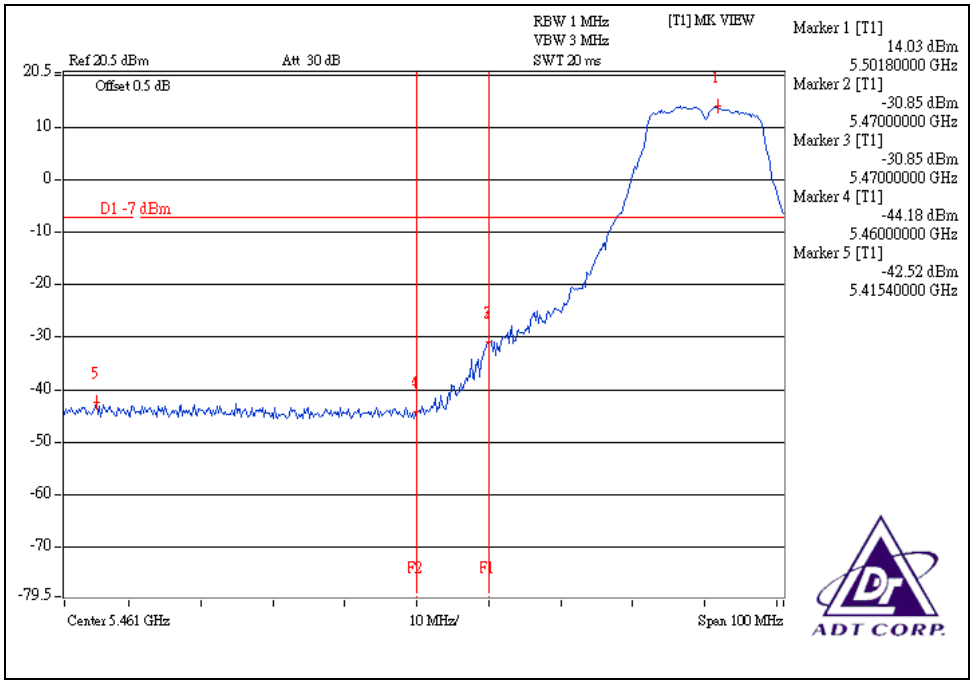


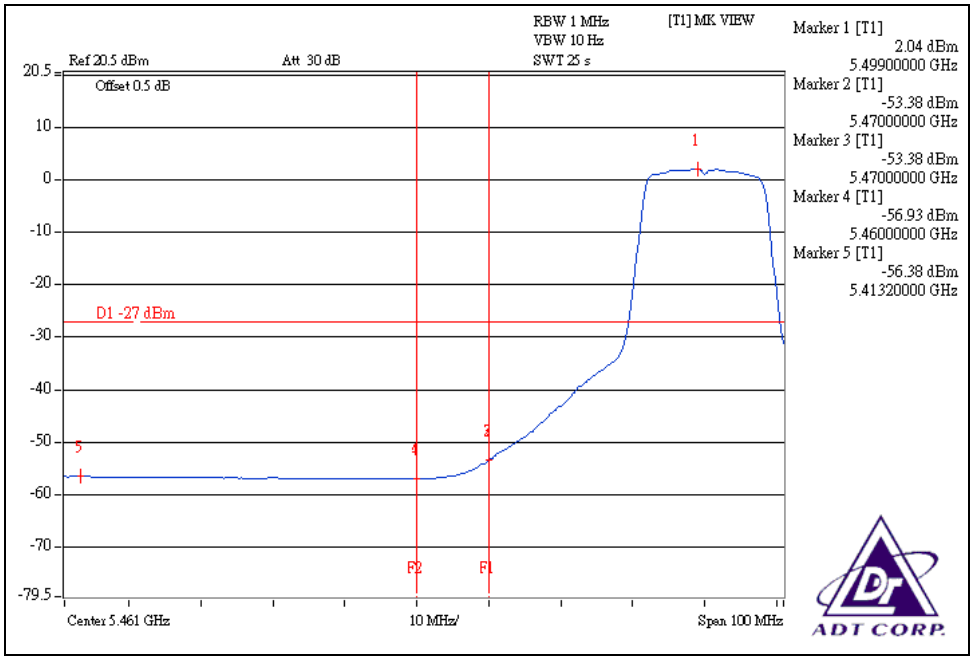
For 5.47 to 5.725GHz band:

The spectrum plots (Peak RBW=1MHz, VBW=3MHz; Average RBW=1MHz, VBW=10Hz) are attached on the following pages.

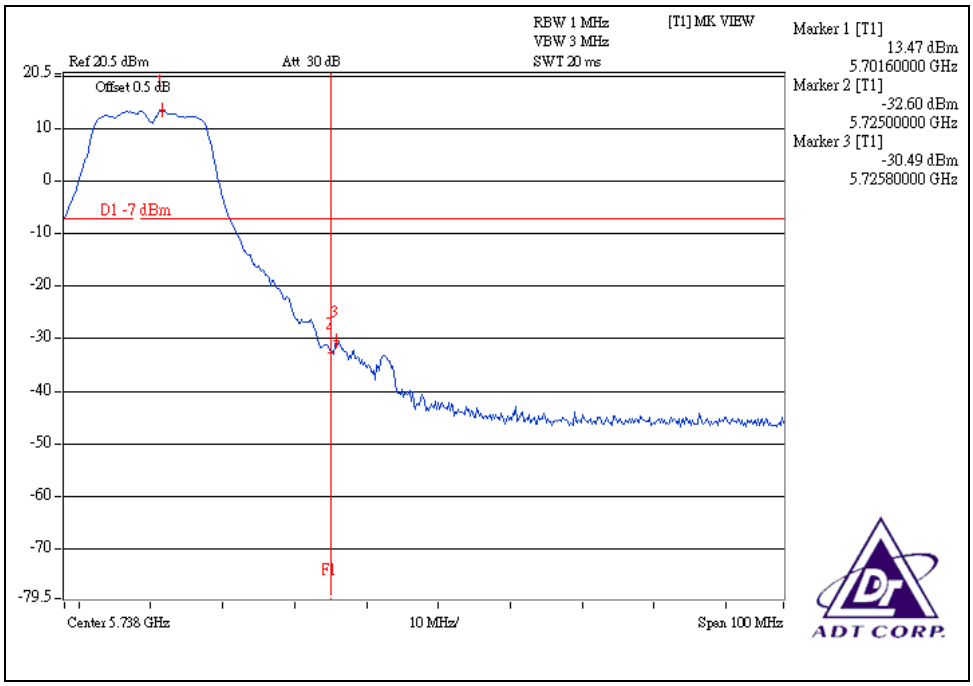
## 802.11a OFDM modulation

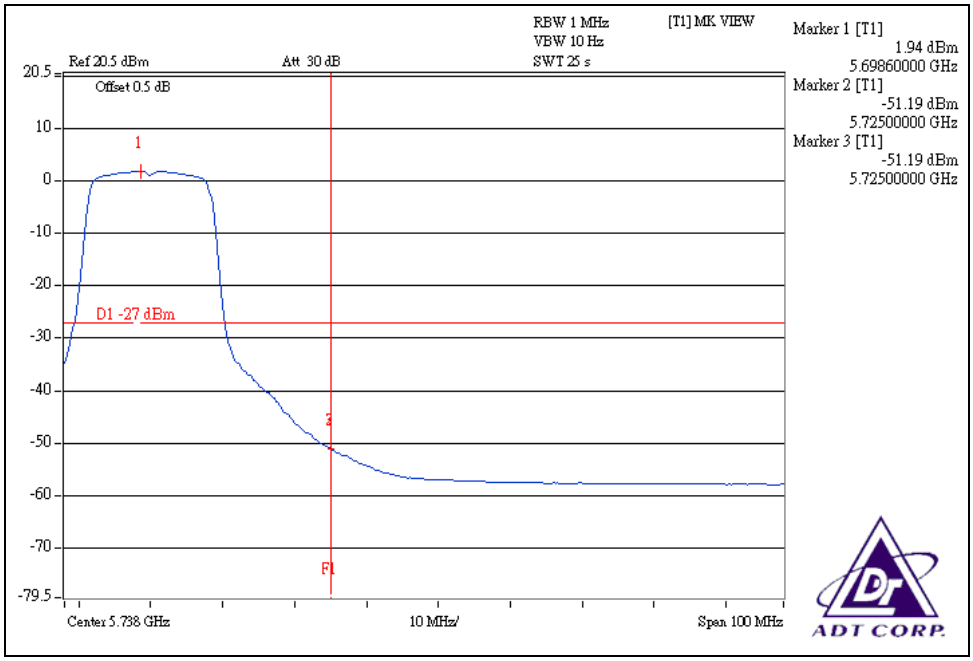
### CH 9



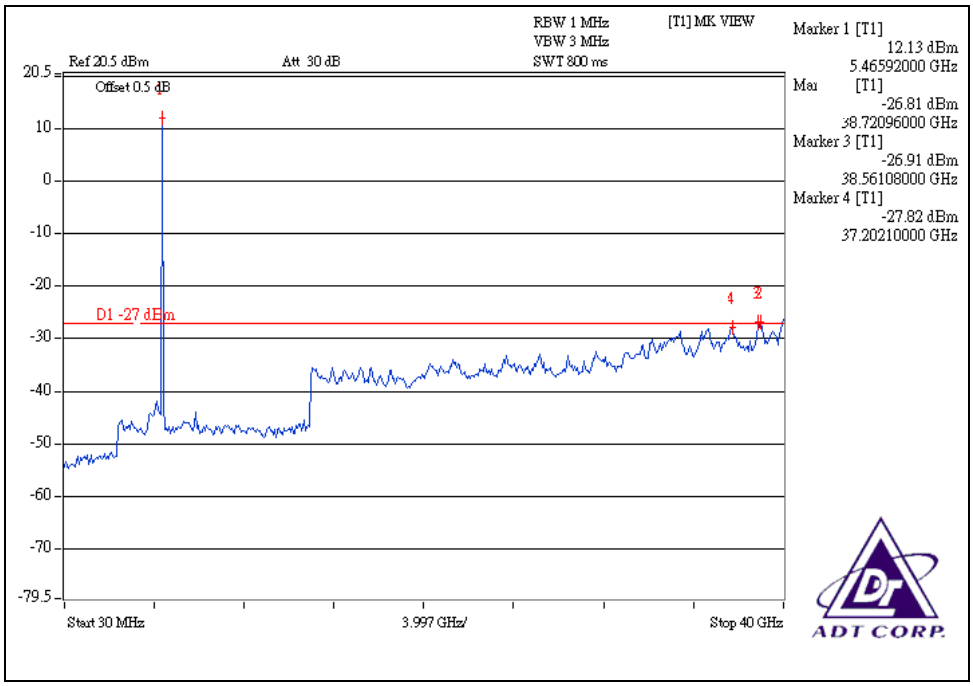



## CH 19

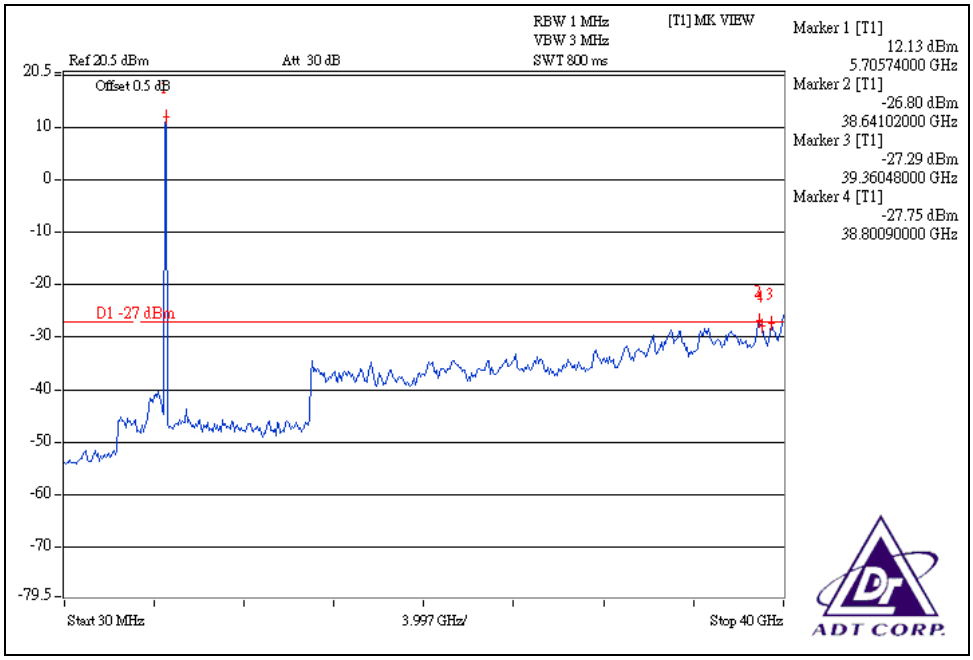

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -7 dBm
Marker 1 [T1]
13.47 dBm
5.70160000 GHz
Marker 2 [T1]
-32.60 dBm
5.72500000 GHz
Marker 3 [T1]
-30.49 dBm
5.72580000 GHz
Center 5.738 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -27 dBm
Marker 1 [T1]
1.94 dBm
5.69860000 GHz
Marker 2 [T1]
-51.19 dBm
5.72500000 GHz
Marker 3 [T1]
-51.19 dBm
5.72500000 GHz
Center 5.738 GHz
10 MHz/
Span 100 MHz

## CH 9


RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -27 dBm
Marker 1 [T1]
12.13 dBm
5.46592000 GHz
Mar [T1]
-26.81 dBm
38.72096000 GHz
Marker 3 [T1]
-26.91 dBm
38.56108000 GHz
Marker 4 [T1]
-27.82 dBm
37.20210000 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz

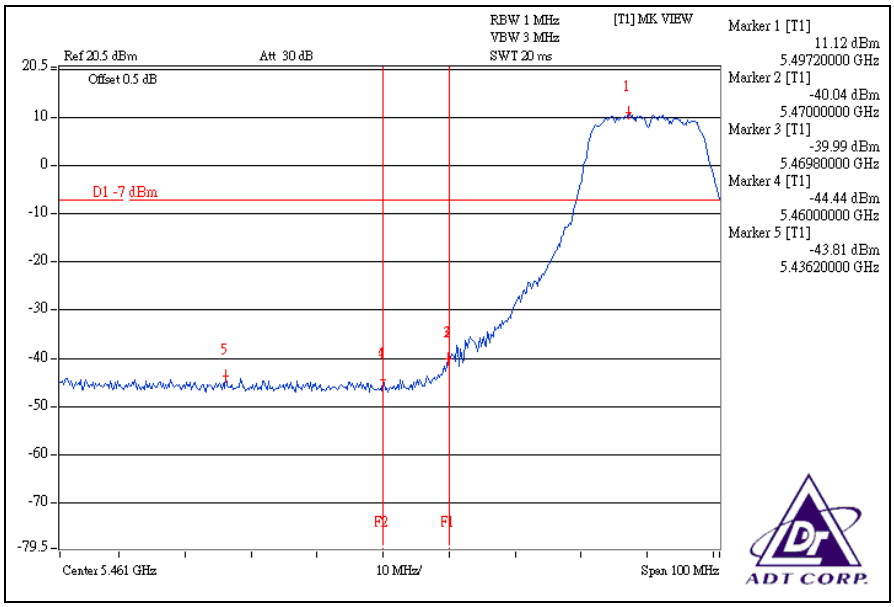
## CH 19


RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -27 dBm
Marker 1 [T1]
12.13 dBm
5.70574000 GHz
Marker 2 [T1]
-26.80 dBm
38.64102000 GHz
Marker 3 [T1]
-27.29 dBm
39.36048000 GHz
Marker 4 [T1]
-27.75 dBm
38.80090000 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz

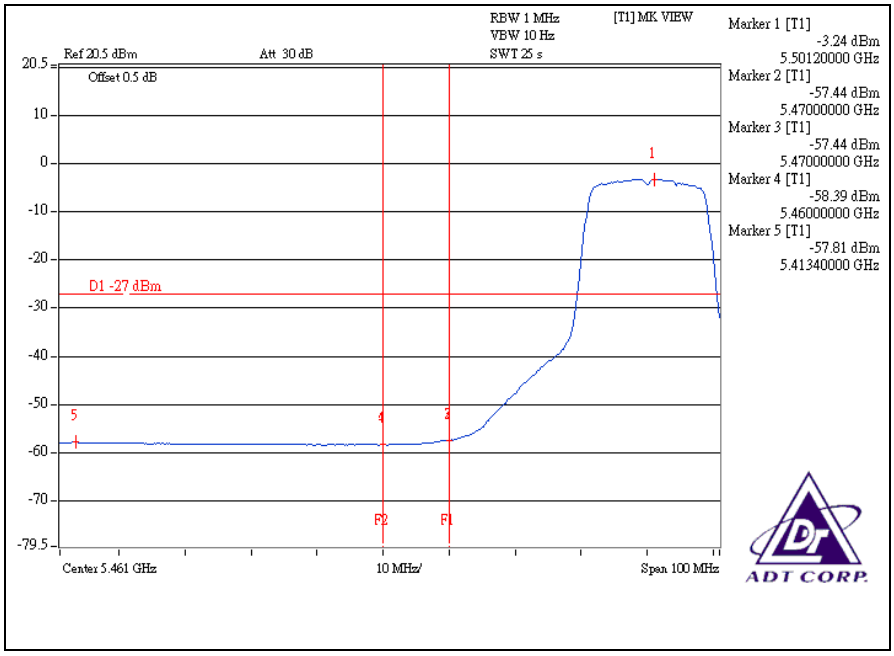
## DRAFT 802.11n (20MHz) OFDM MODULATION:

### For chain (0):

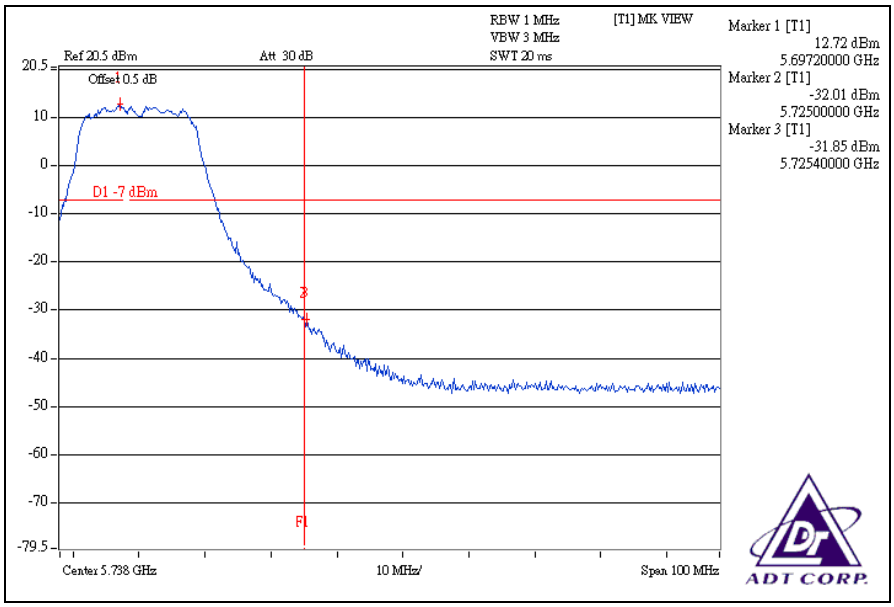
CH9



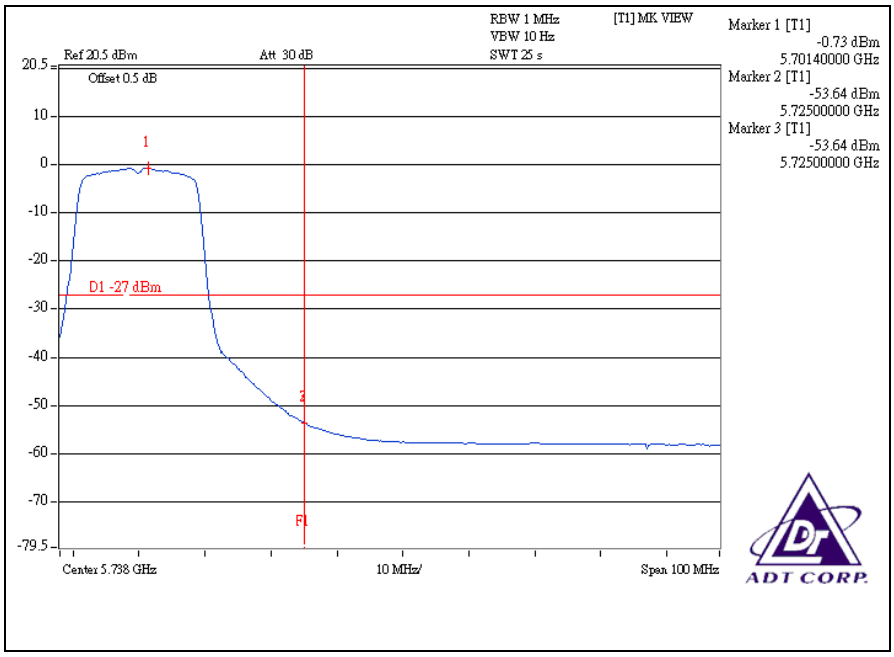

CH9



CH19

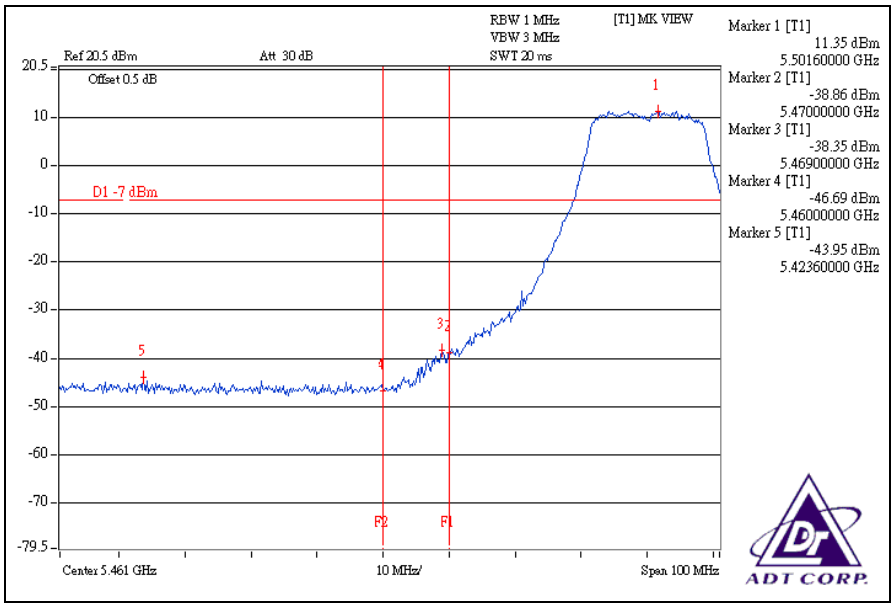

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -7 dBm
Marker 1 [T1]
12.72 dBm
5.69720000 GHz
Marker 2 [T1]
-32.01 dBm
5.72500000 GHz
Marker 3 [T1]
-31.85 dBm
5.72540000 GHz
Center 5.738 GHz
10 MHz/
Span 100 MHz

CH19

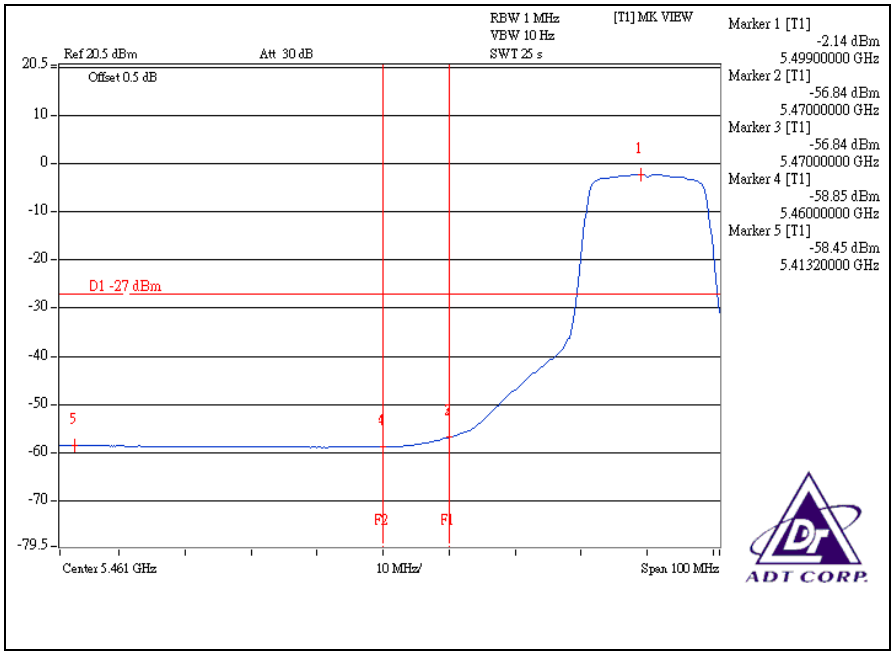

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -27 dBm
Marker 1 [T1]
-0.73 dBm
5.70140000 GHz
Marker 2 [T1]
-53.64 dBm
5.72500000 GHz
Marker 3 [T1]
-53.64 dBm
5.72500000 GHz
Center 5.738 GHz
10 MHz/
Span 100 MHz

## For chain (1):

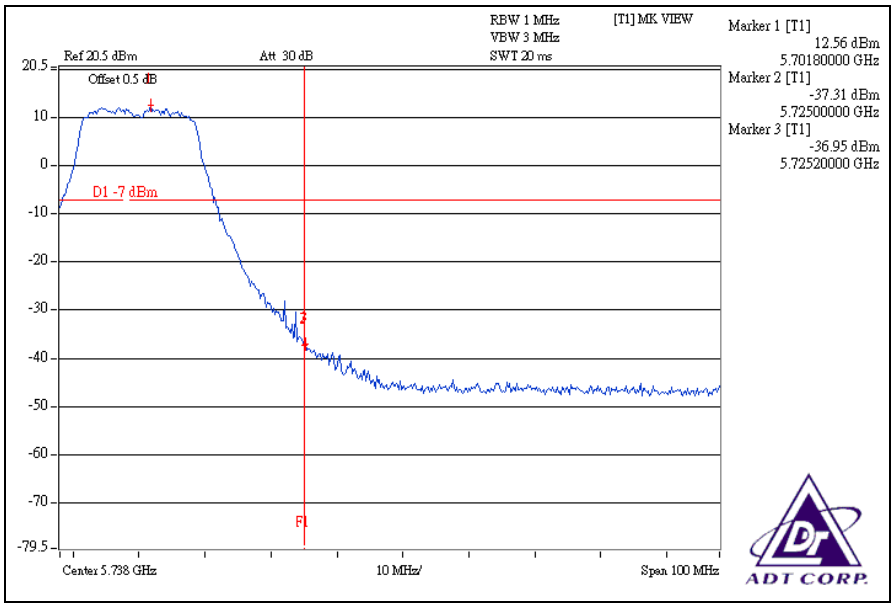
CH9



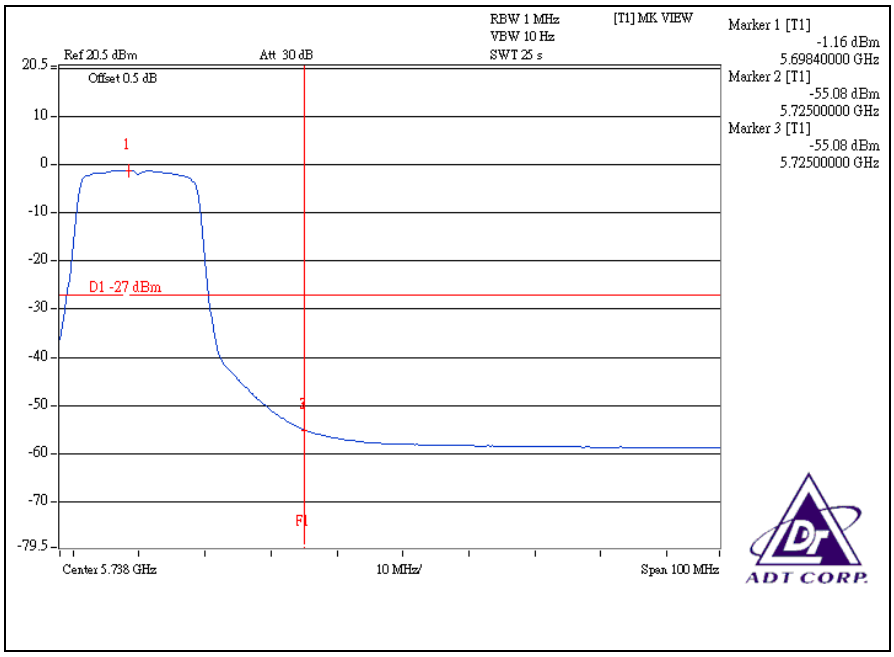

CH9



CH19

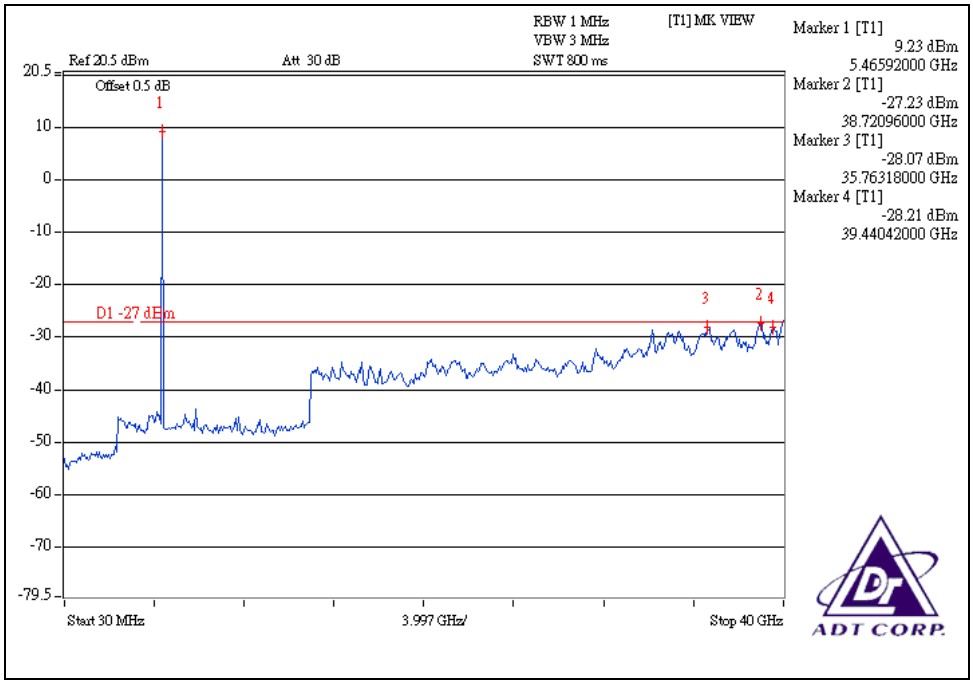

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
12.56 dBm
5.70180000 GHz
Marker 2 [T1]
-37.31 dBm
5.72500000 GHz
Marker 3 [T1]
-36.95 dBm
5.72520000 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -7 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.738 GHz
10 MHz/
Span 100 MHz

CH19

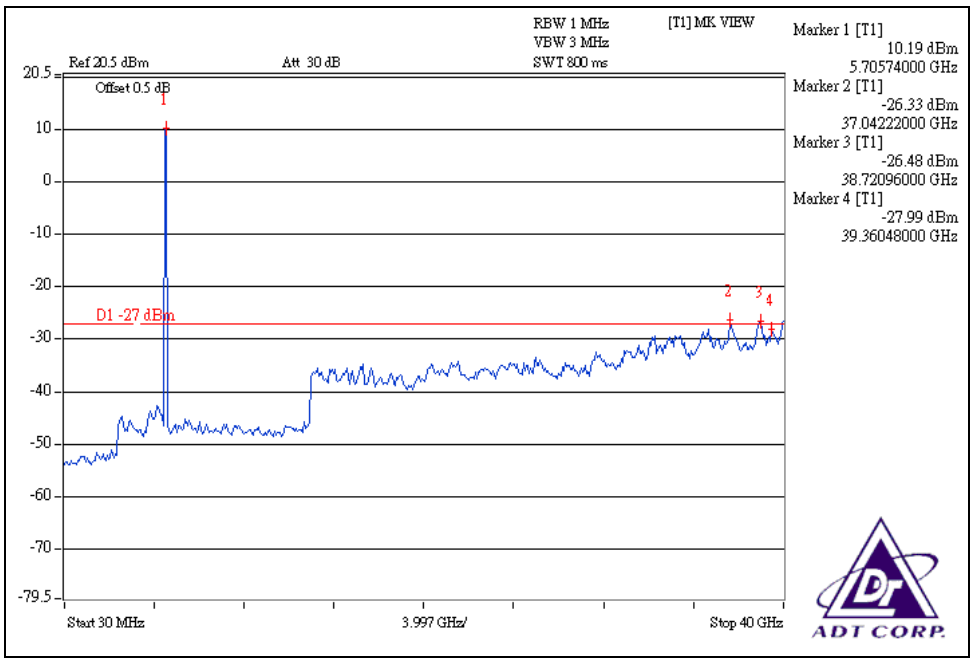

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Marker 1 [T1]
-1.16 dBm
5.69840000 GHz
Marker 2 [T1]
-55.08 dBm
5.72500000 GHz
Marker 3 [T1]
-55.08 dBm
5.72500000 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -27 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.738 GHz
10 MHz/
Span 100 MHz

**For chain (0):**

CH9

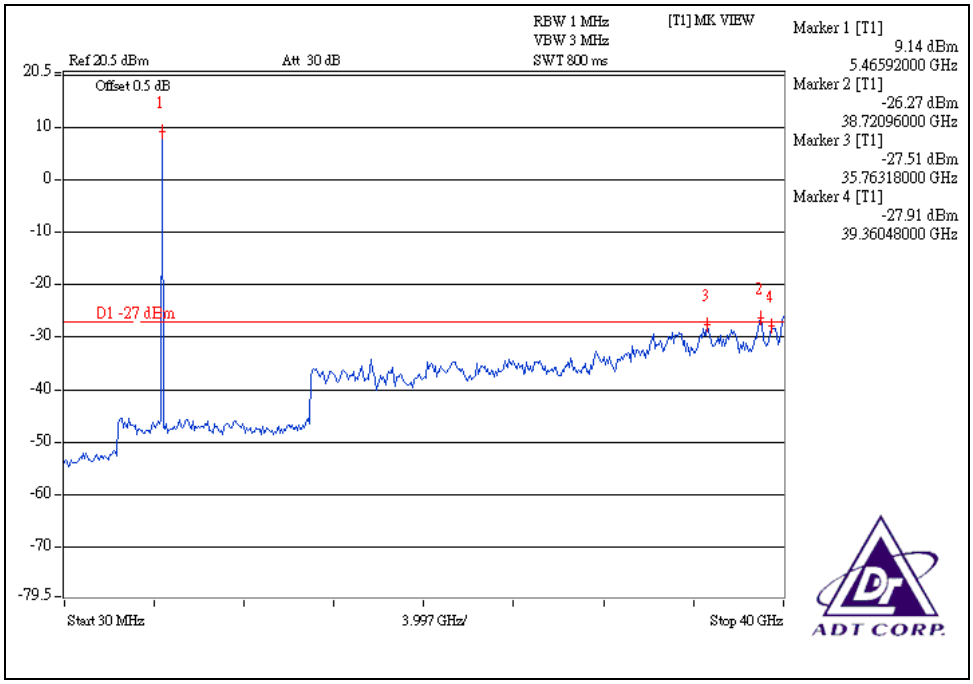



CH19

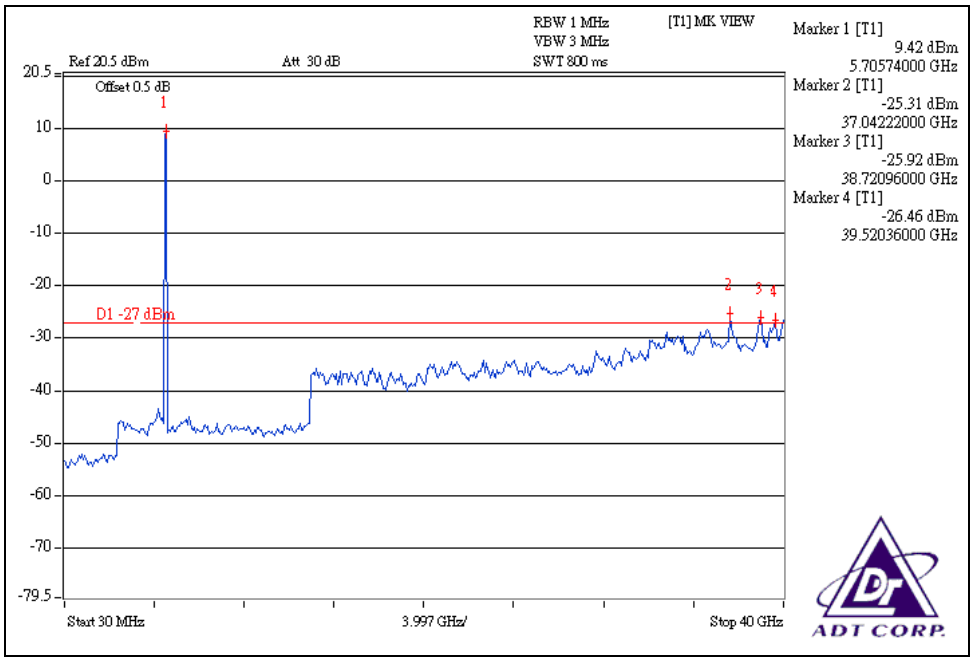


**For chain (1):**

CH9



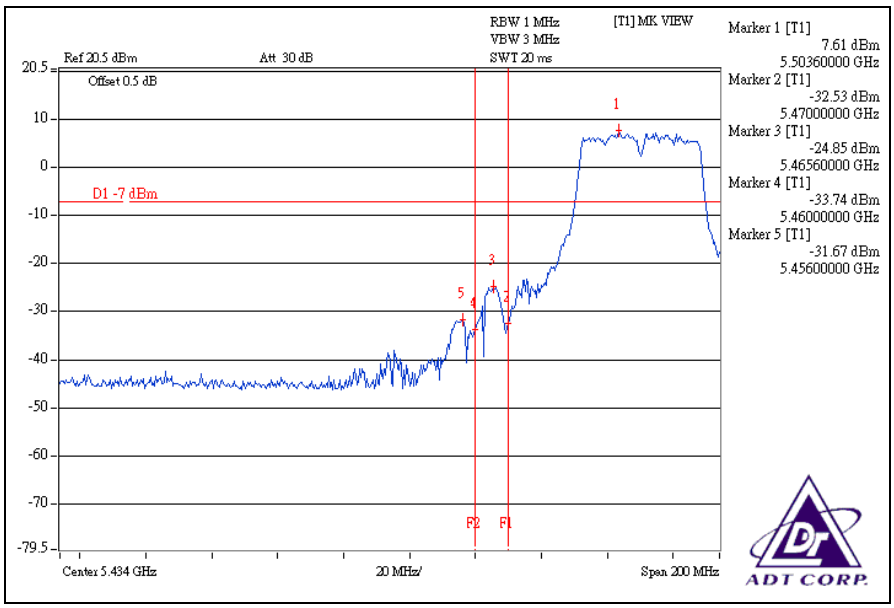

CH19



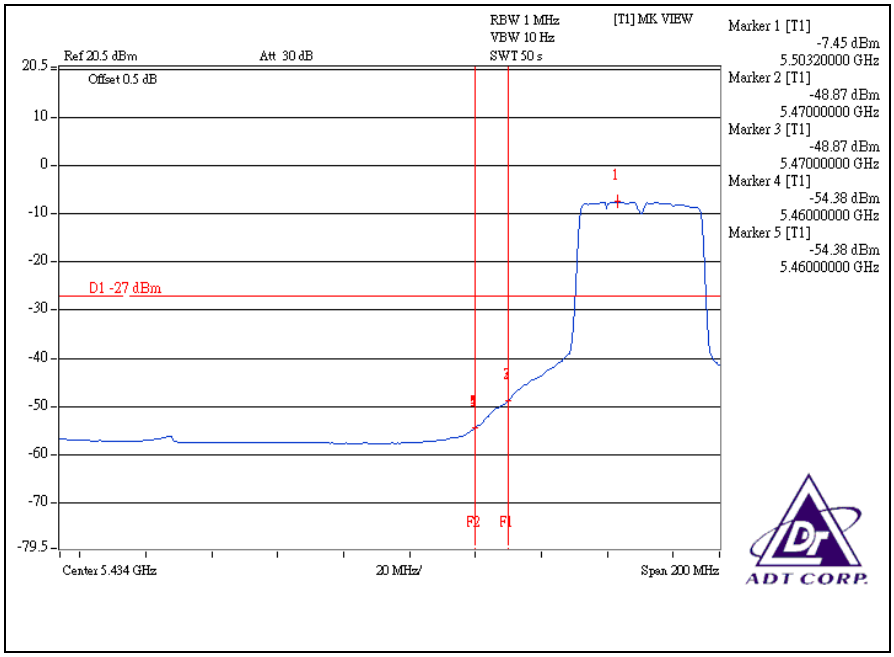
## DRAFT 802.11n (40MHz) OFDM MODULATION:

### For chain (0):

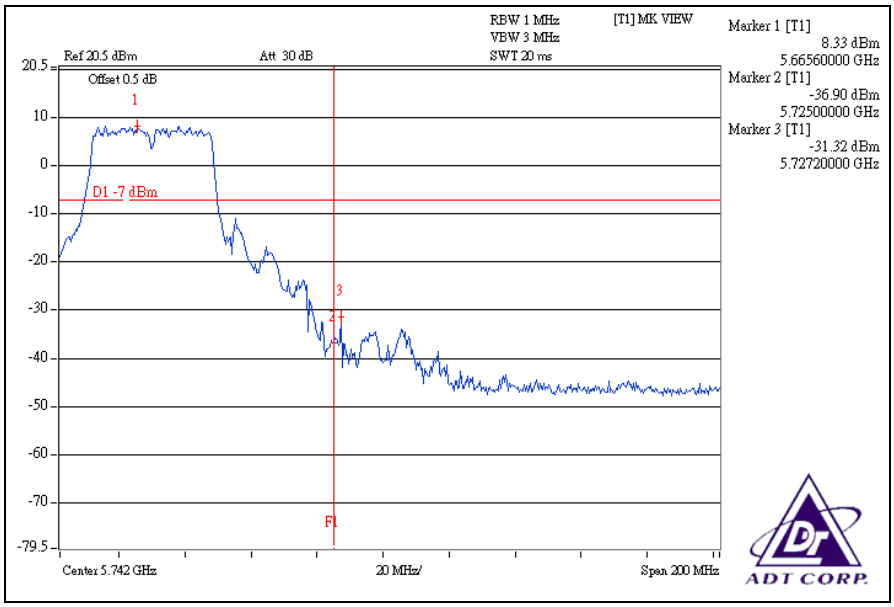
CH5



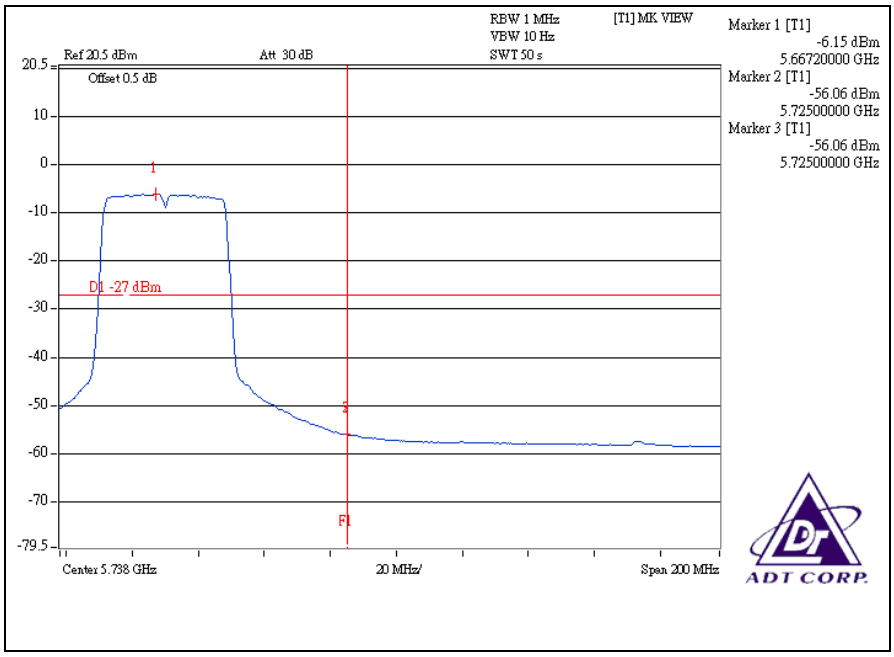

CH5



CH9

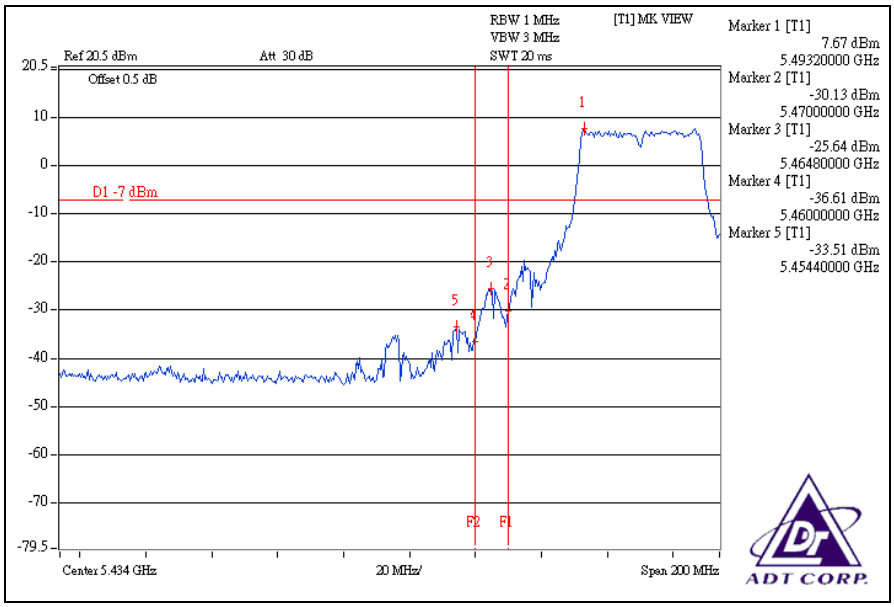

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
8.33 dBm
5.66560000 GHz
Marker 2 [T1]
-36.90 dBm
5.72500000 GHz
Marker 3 [T1]
-31.32 dBm
5.72720000 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -7 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.742 GHz
20 MHz/
Span 200 MHz
ADT CORP.

CH9

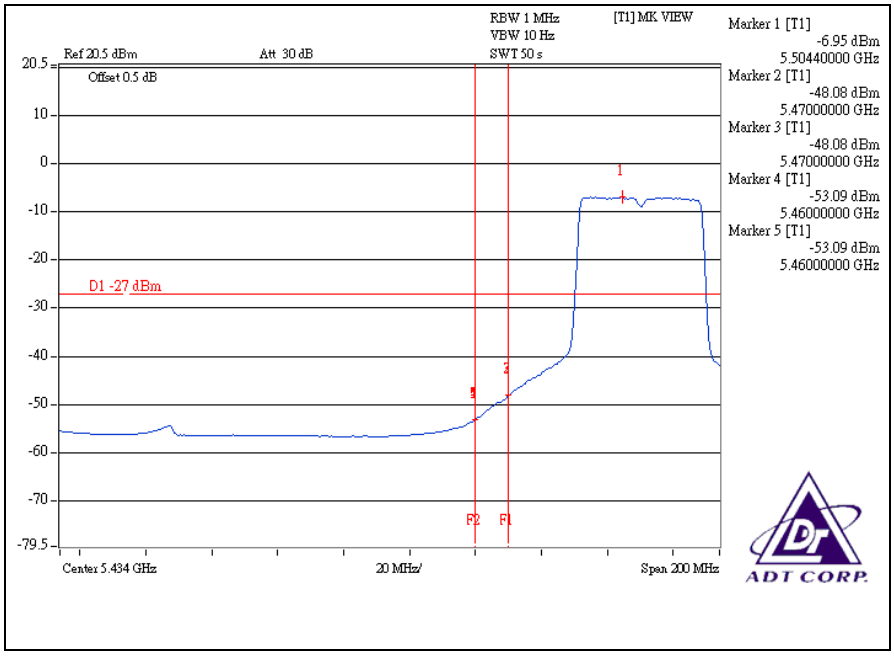

RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Marker 1 [T1]
-6.15 dBm
5.66720000 GHz
Marker 2 [T1]
-56.06 dBm
5.72500000 GHz
Marker 3 [T1]
-56.06 dBm
5.72500000 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -27 dBm
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.738 GHz
20 MHz/
Span 200 MHz
ADT CORP.

**For chain (1):**

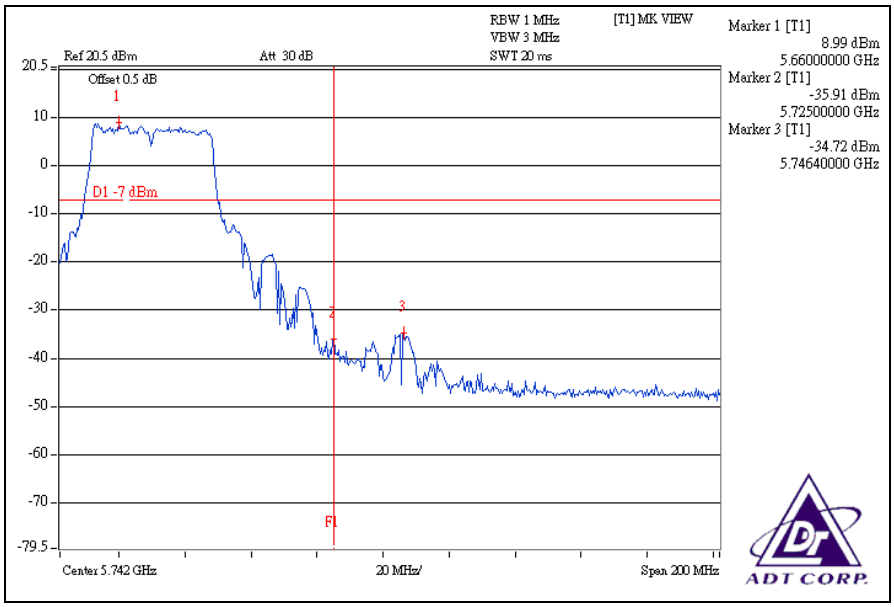
CH5



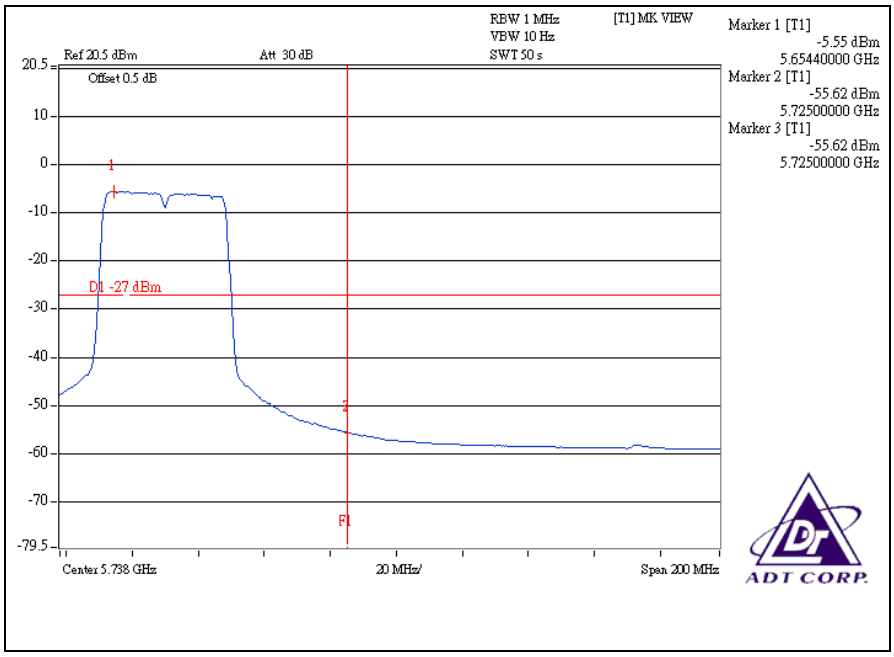

CH5



CH9

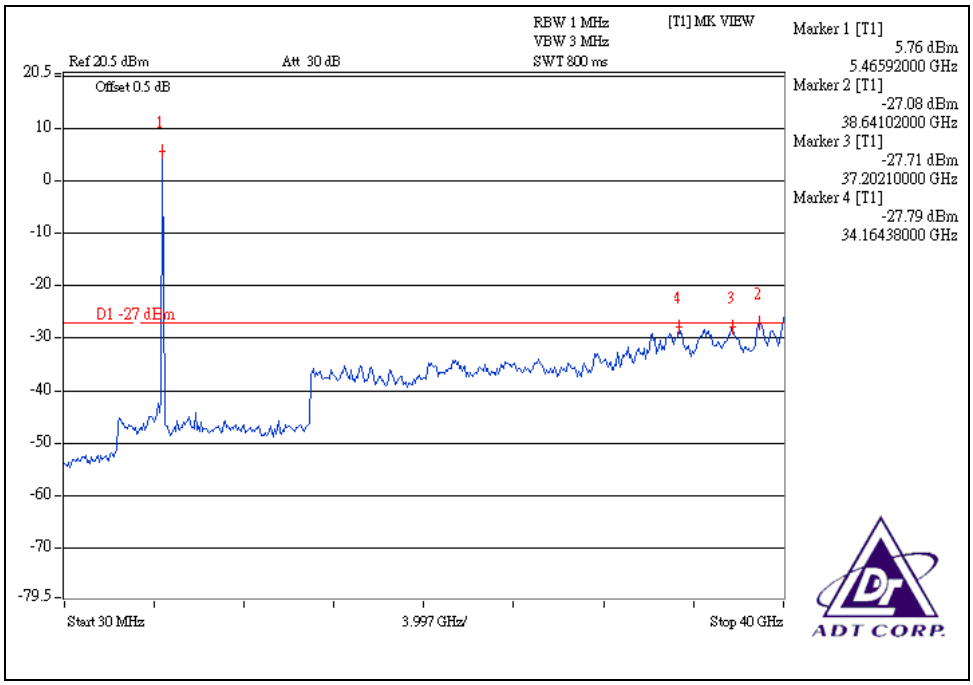

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -7 dBm
Marker 1 [T1]
8.99 dBm
5.66000000 GHz
Marker 2 [T1]
-35.91 dBm
5.72500000 GHz
Marker 3 [T1]
-34.72 dBm
5.74640000 GHz
Center 5.742 GHz
20 MHz/
Span 200 MHz

CH9

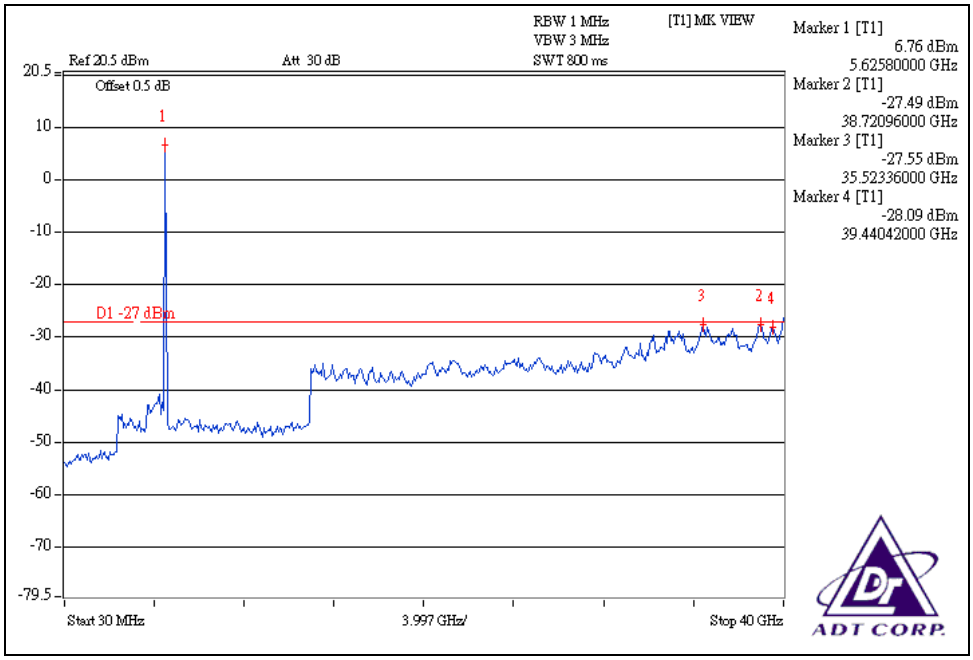

RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -27 dBm
Marker 1 [T1]
-5.55 dBm
5.65440000 GHz
Marker 2 [T1]
-55.62 dBm
5.72500000 GHz
Marker 3 [T1]
-55.62 dBm
5.72500000 GHz
Center 5.738 GHz
20 MHz/
Span 200 MHz

**For chain (0):**

CH5

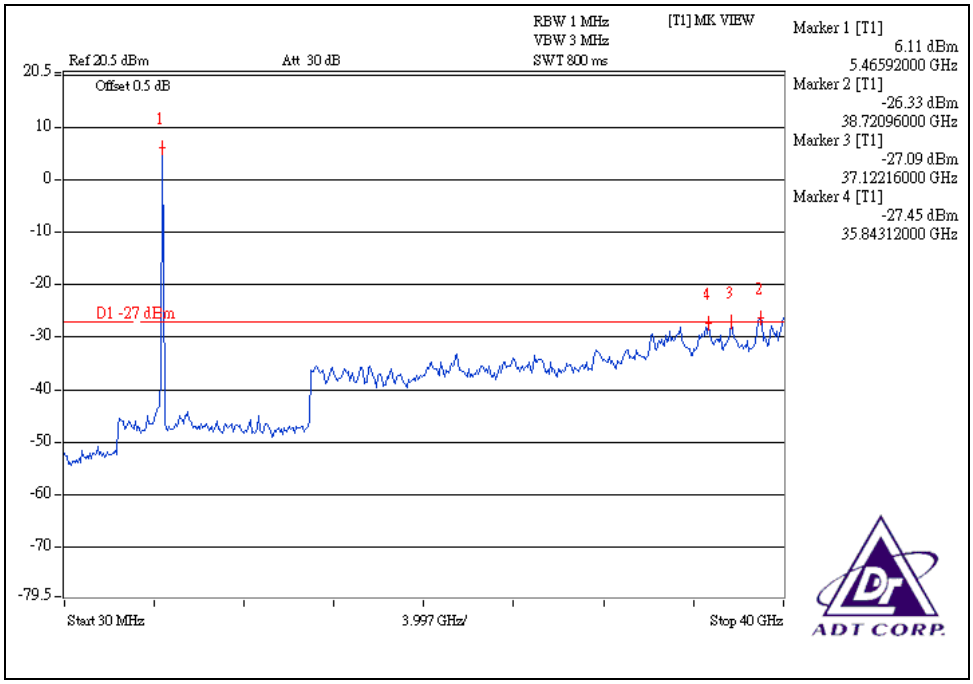



CH9

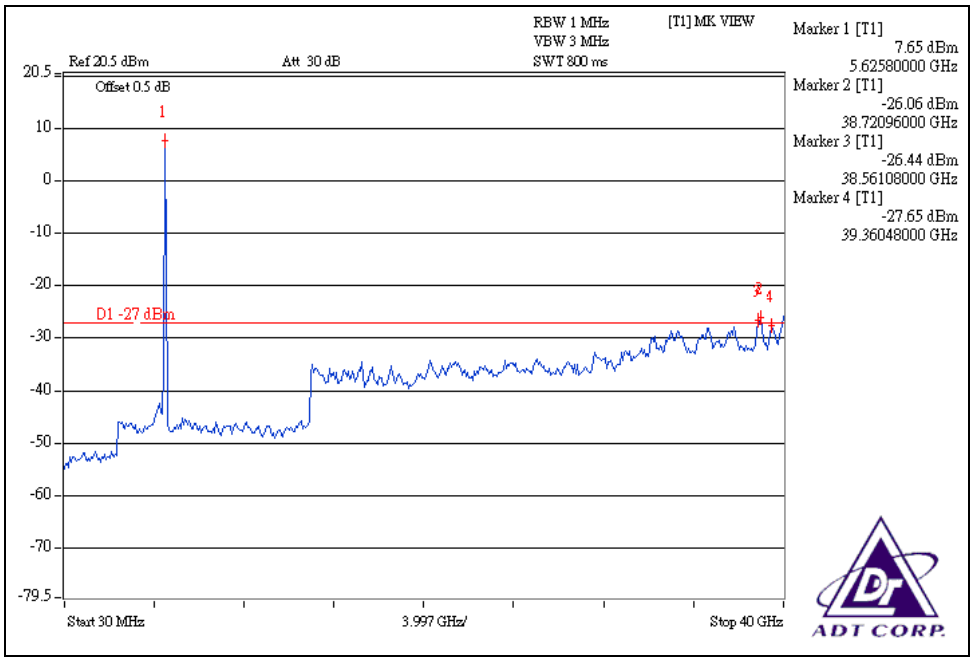


## For chain (1):

CH5




CH9

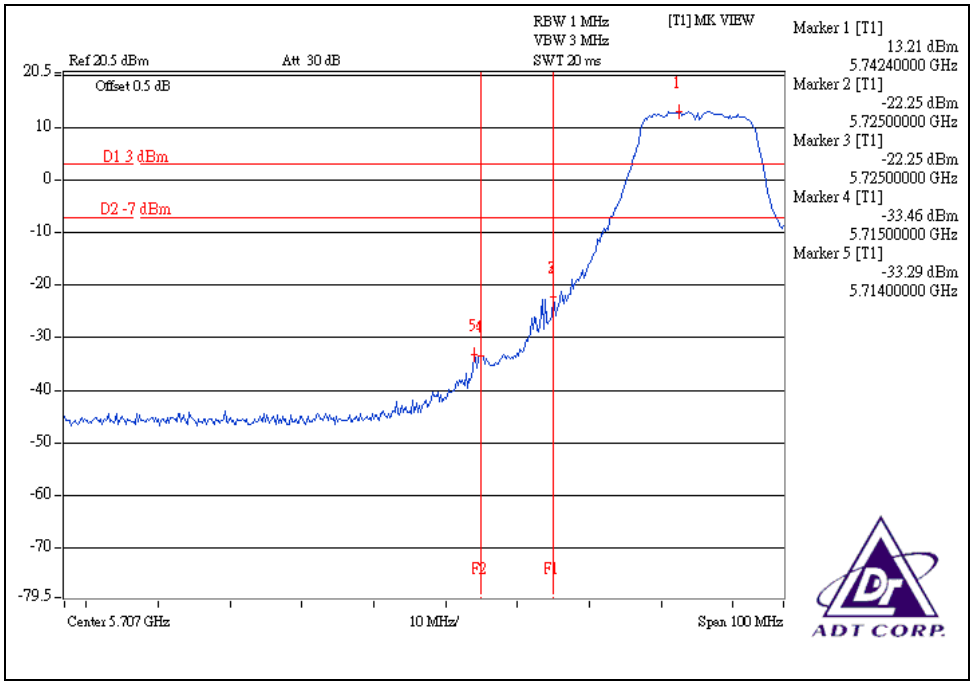


For 5.725 to 5.825GHz band:

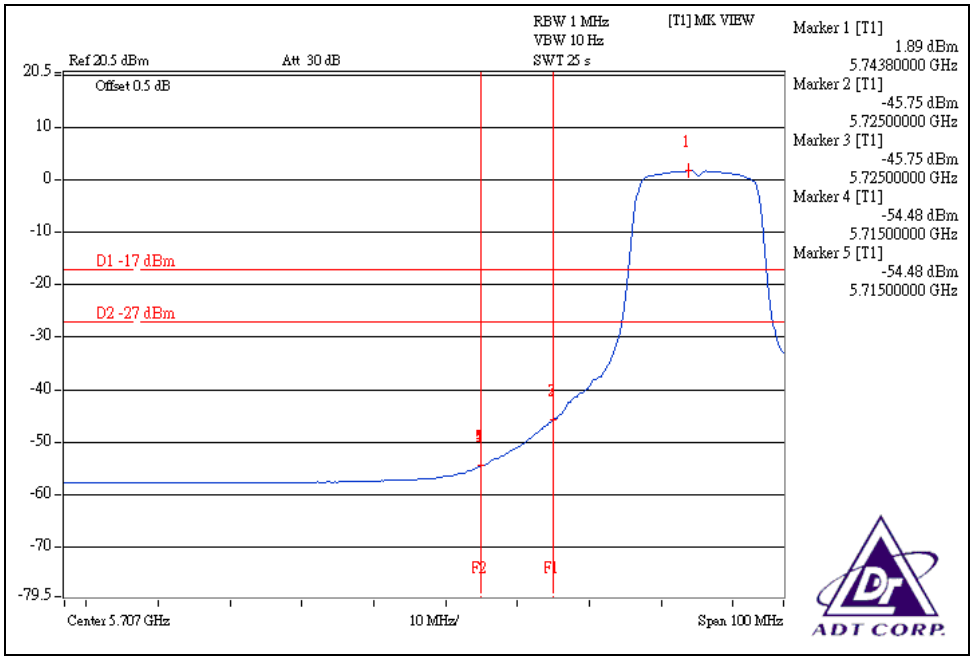
The spectrum plots (Peak RBW=1MHz, VBW=3MHz; Average RBW=1MHz, VBW=10Hz) are attached on the following pages.

## 802.11a OFDM modulation

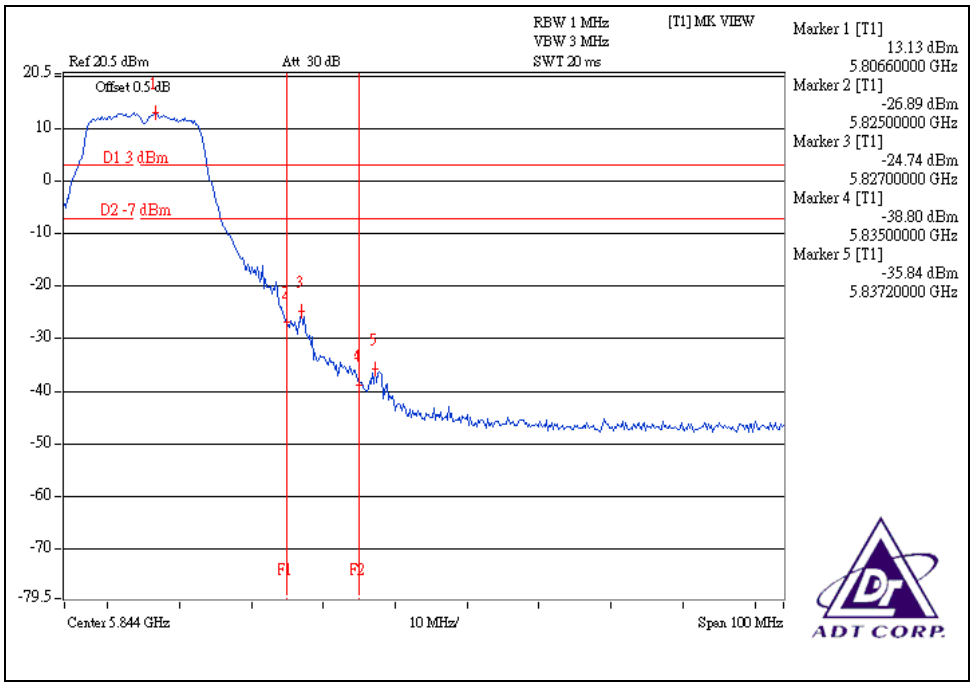
### CH 20



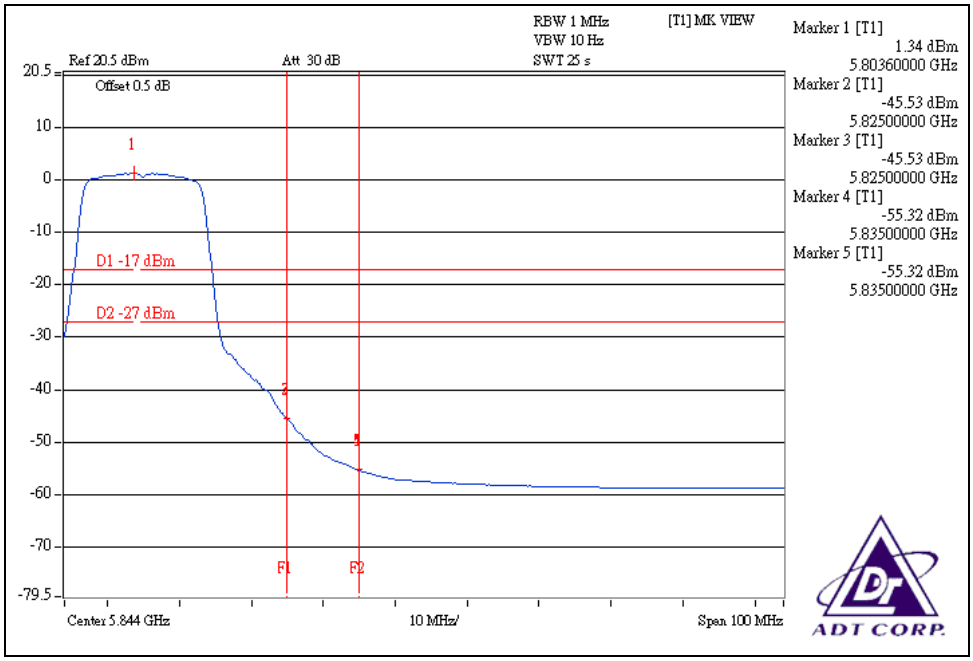

### CH 20



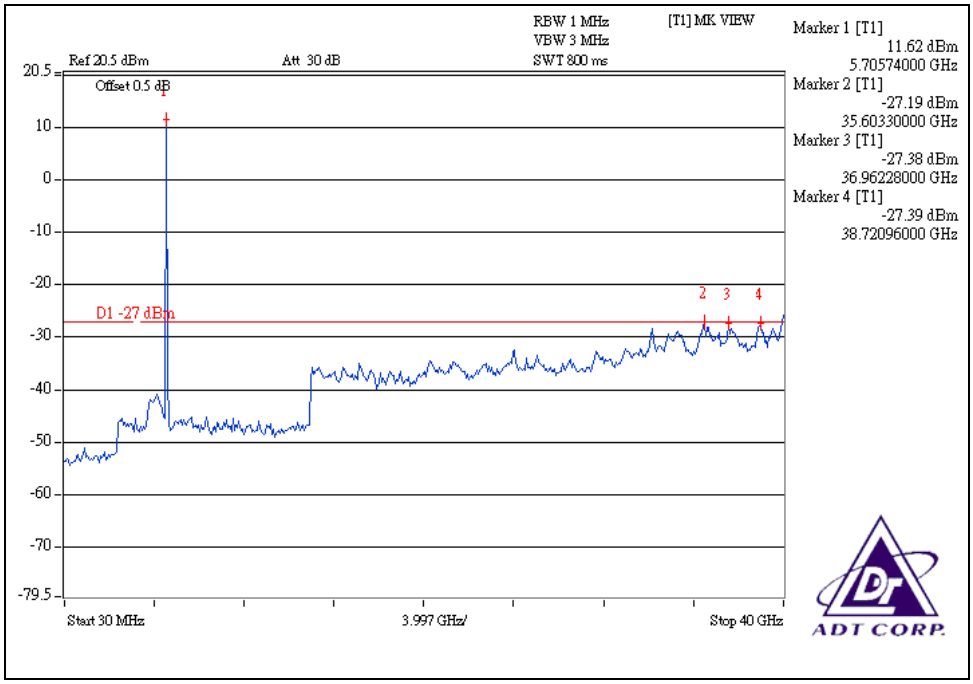
## CH 23


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 3 dBm
D2 -7 dBm
Marker 1 [T1]
13.13 dBm
5.80660000 GHz
Marker 2 [T1]
-26.89 dBm
5.82500000 GHz
Marker 3 [T1]
-24.74 dBm
5.82700000 GHz
Marker 4 [T1]
-38.80 dBm
5.83500000 GHz
Marker 5 [T1]
-35.84 dBm
5.83720000 GHz
F1
F2
Center 5.844 GHz
10 MHz/
Span 100 MHz
ADT CORP.

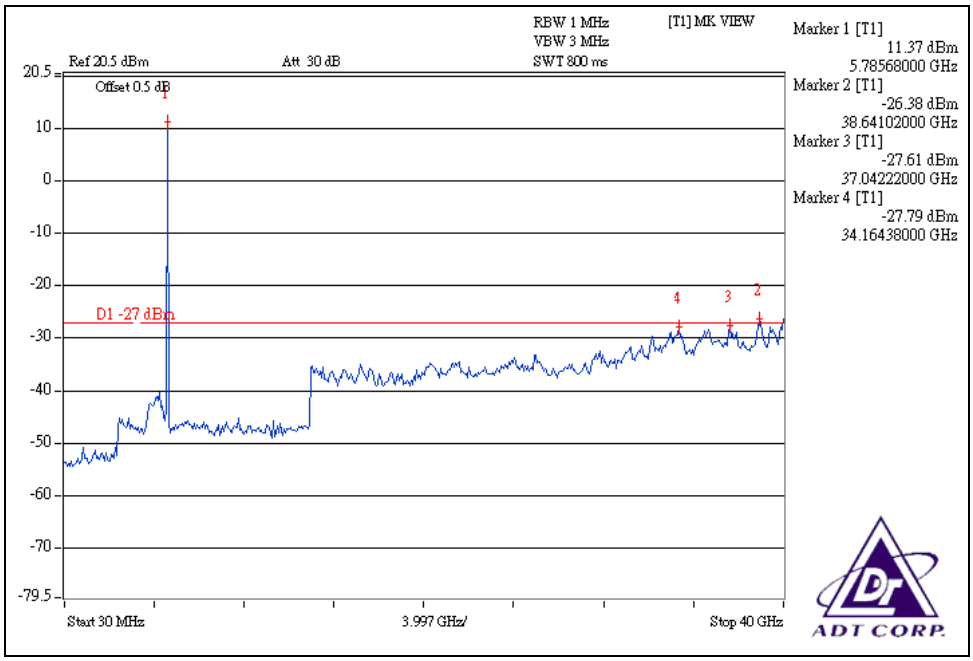
## CH 23


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -17 dBm
D2 -27 dBm
Marker 1 [T1]
1.34 dBm
5.80360000 GHz
Marker 2 [T1]
-45.53 dBm
5.82500000 GHz
Marker 3 [T1]
-45.53 dBm
5.82500000 GHz
Marker 4 [T1]
-55.32 dBm
5.83500000 GHz
Marker 5 [T1]
-55.32 dBm
5.83500000 GHz
F1
F2
Center 5.844 GHz
10 MHz/
Span 100 MHz
ADT CORP.

## CH 20


RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -27 dBm
Marker 1 [T1]
11.62 dBm
5.70574000 GHz
Marker 2 [T1]
-27.19 dBm
35.60330000 GHz
Marker 3 [T1]
-27.38 dBm
36.96228000 GHz
Marker 4 [T1]
-27.39 dBm
38.72096000 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz
ADT CORP.

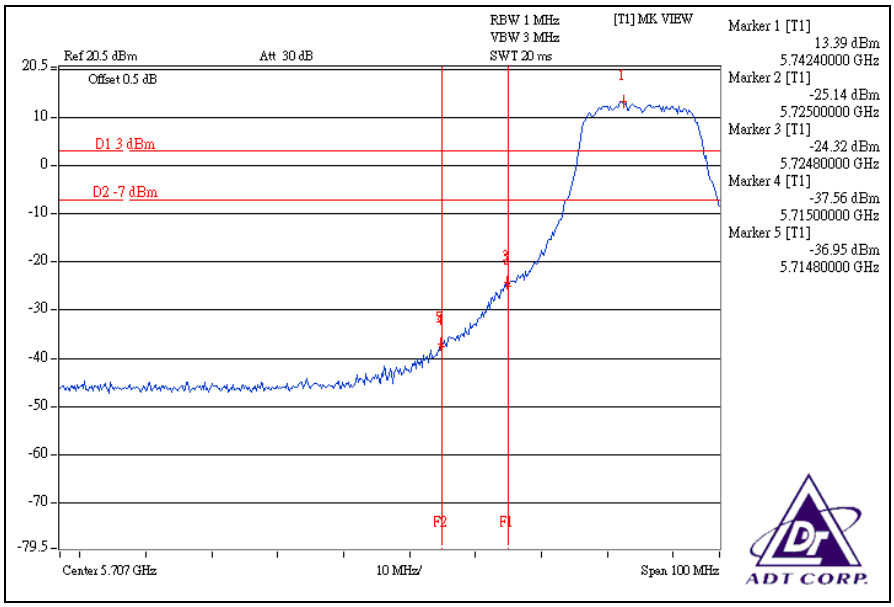
## CH 23


RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -27 dBm
Marker 1 [T1]
11.37 dBm
5.78568000 GHz
Marker 2 [T1]
-26.38 dBm
38.64102000 GHz
Marker 3 [T1]
-27.61 dBm
37.04222000 GHz
Marker 4 [T1]
-27.79 dBm
34.16438000 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz
ADT CORP.

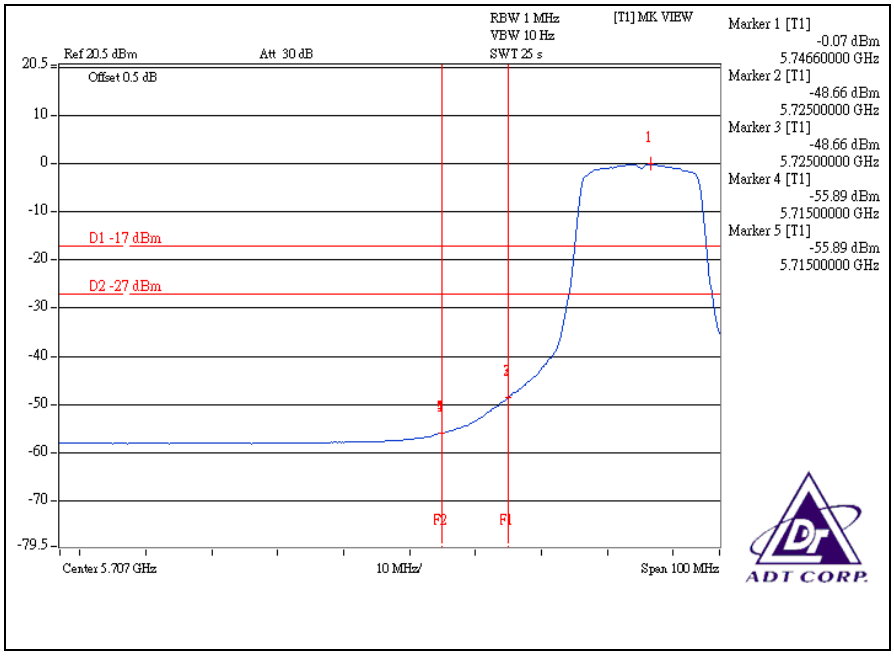
## DRAFT 802.11n (20MHz) OFDM MODULATION:

### For chain (0):

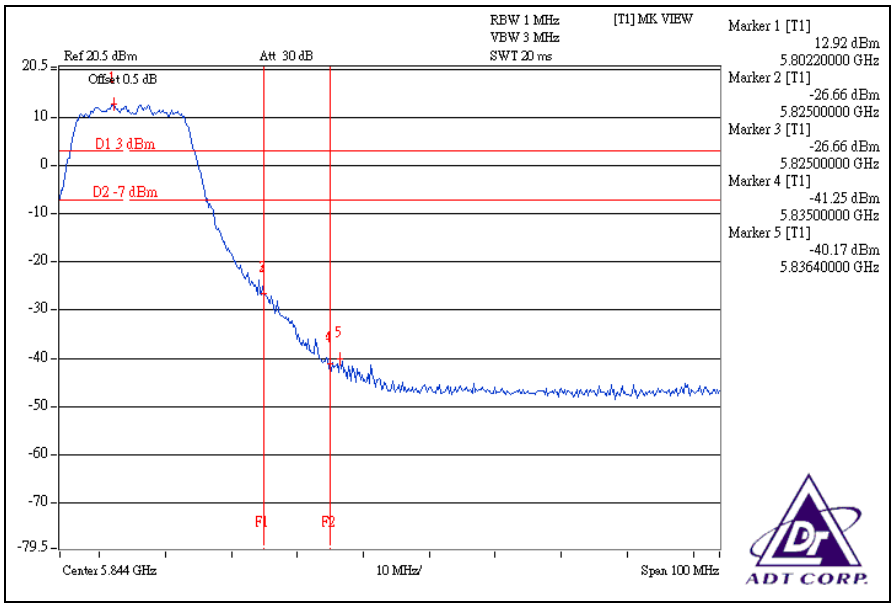
CH20



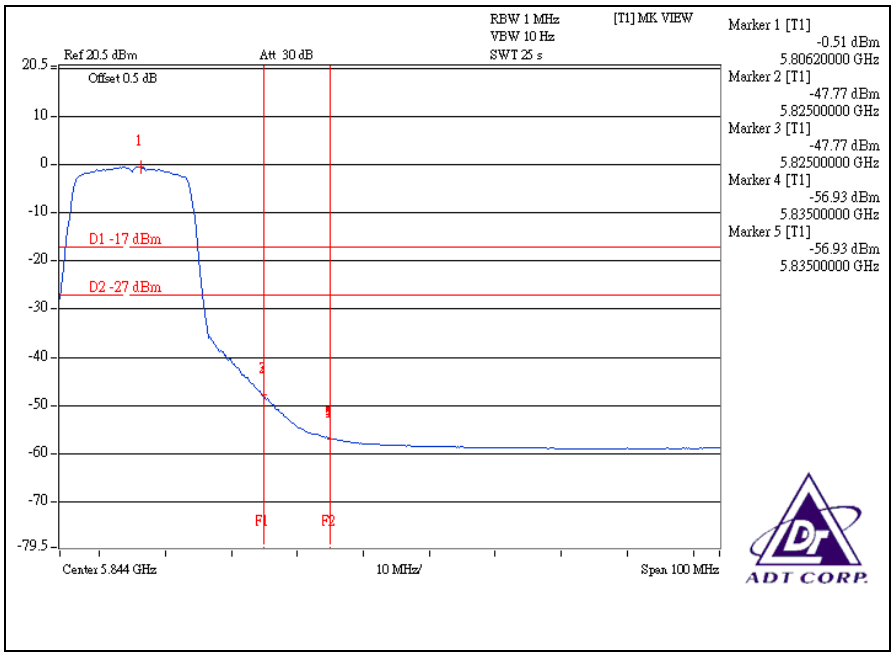

CH20



CH23

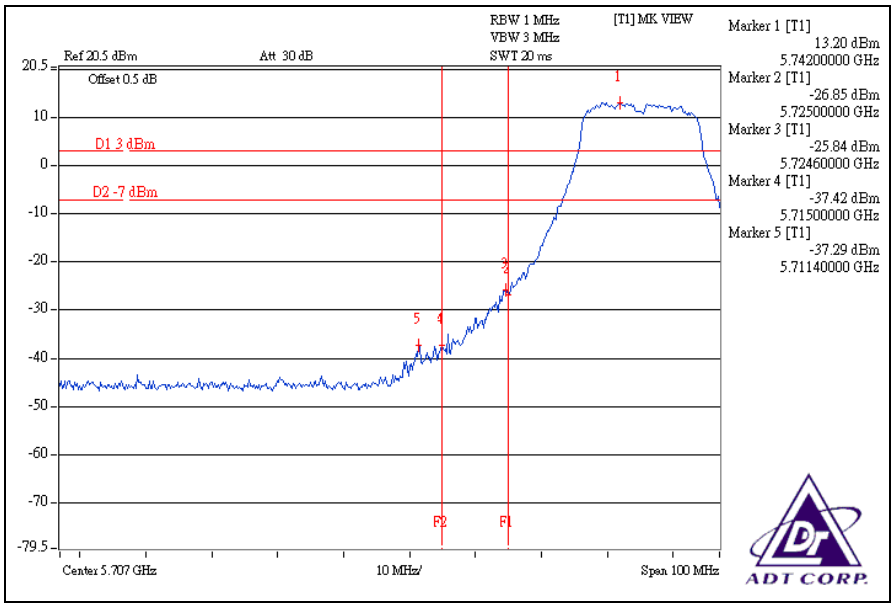

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 3 dBm
D2 -7 dBm
Marker 1 [T1]
12.92 dBm
5.80220000 GHz
Marker 2 [T1]
-26.66 dBm
5.82500000 GHz
Marker 3 [T1]
-26.66 dBm
5.82500000 GHz
Marker 4 [T1]
-41.25 dBm
5.83500000 GHz
Marker 5 [T1]
-40.17 dBm
5.83640000 GHz
F1
F2
Center 5.844 GHz
10 MHz/
Span 100 MHz

CH23

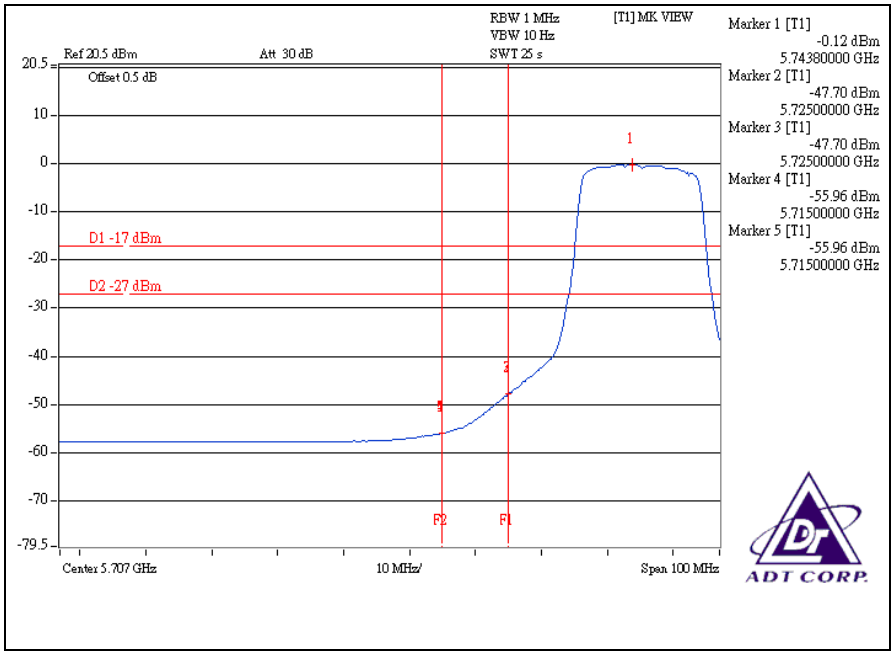

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -17 dBm
D2 -27 dBm
Marker 1 [T1]
-0.51 dBm
5.80620000 GHz
Marker 2 [T1]
-47.77 dBm
5.82500000 GHz
Marker 3 [T1]
-47.77 dBm
5.82500000 GHz
Marker 4 [T1]
-56.93 dBm
5.83500000 GHz
Marker 5 [T1]
-56.93 dBm
5.83500000 GHz
F1
F2
Center 5.844 GHz
10 MHz/
Span 100 MHz

**For chain (1):**

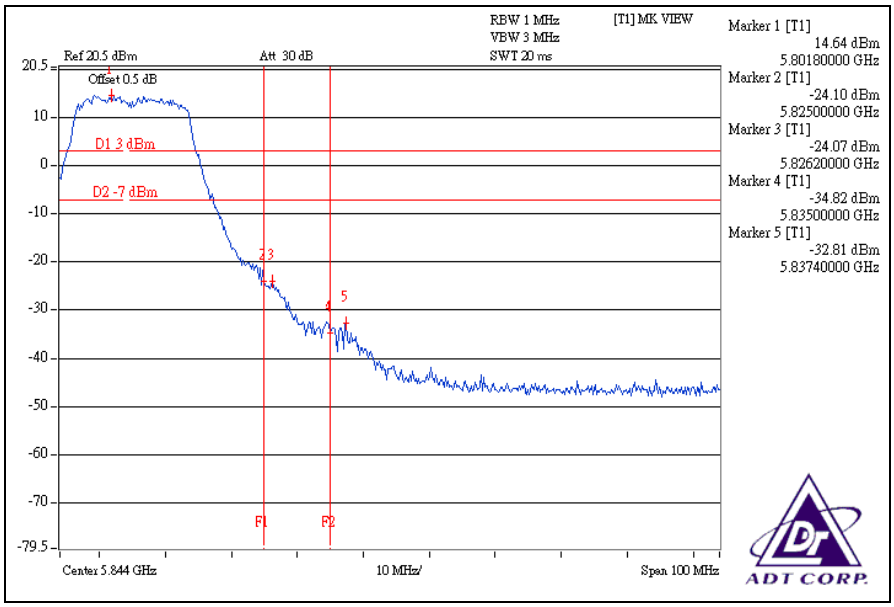
CH20



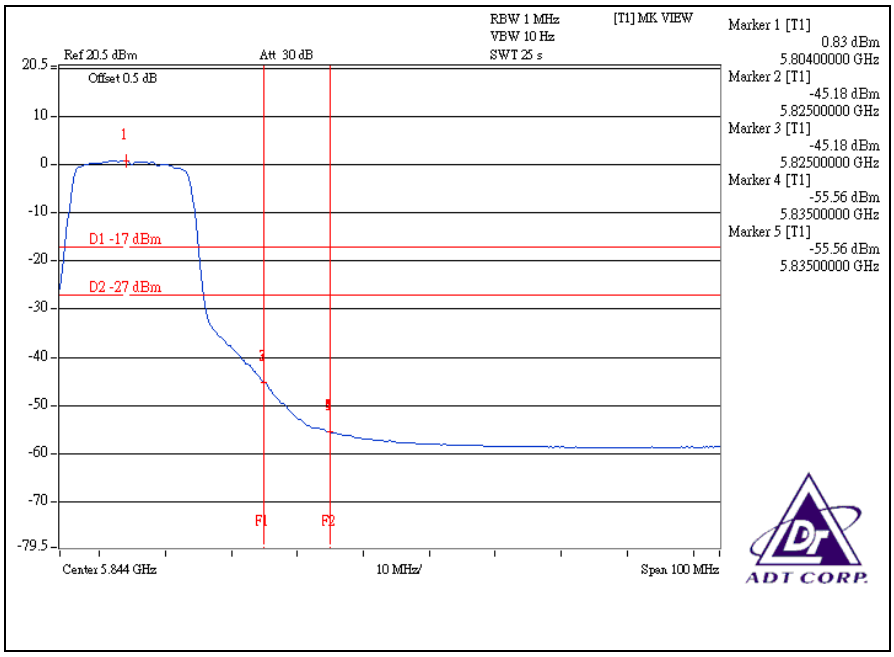

CH20



CH23

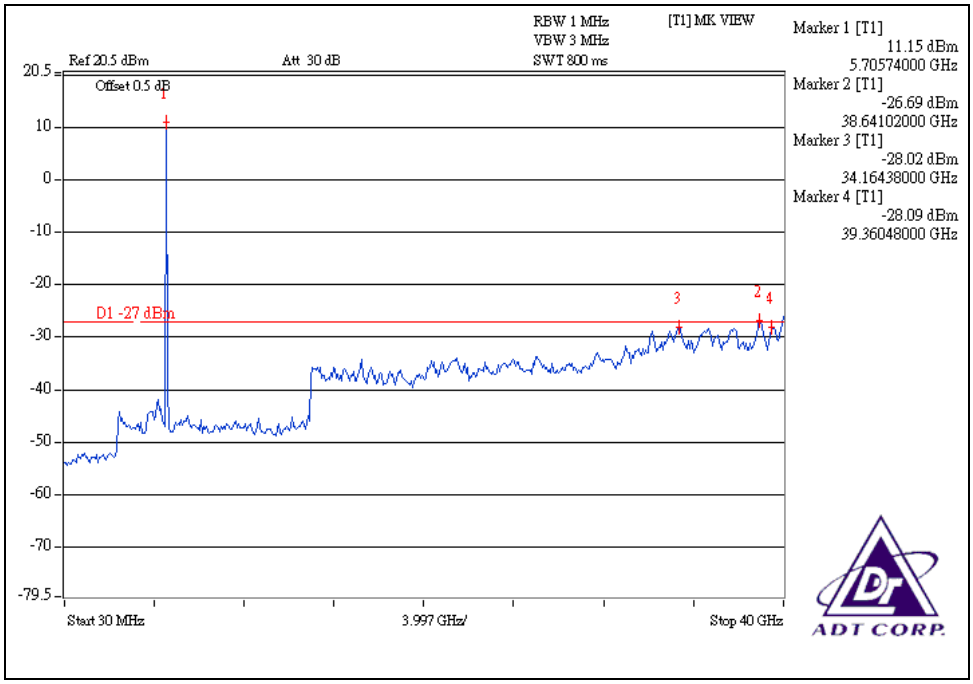

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -3 dBm
D2 -7 dBm
Marker 1 [T1]
14.64 dBm
5.80180000 GHz
Marker 2 [T1]
-24.10 dBm
5.82500000 GHz
Marker 3 [T1]
-24.07 dBm
5.82620000 GHz
Marker 4 [T1]
-34.82 dBm
5.83500000 GHz
Marker 5 [T1]
-32.81 dBm
5.83740000 GHz
Center 5.844 GHz
10 MHz/
Span 100 MHz

CH23

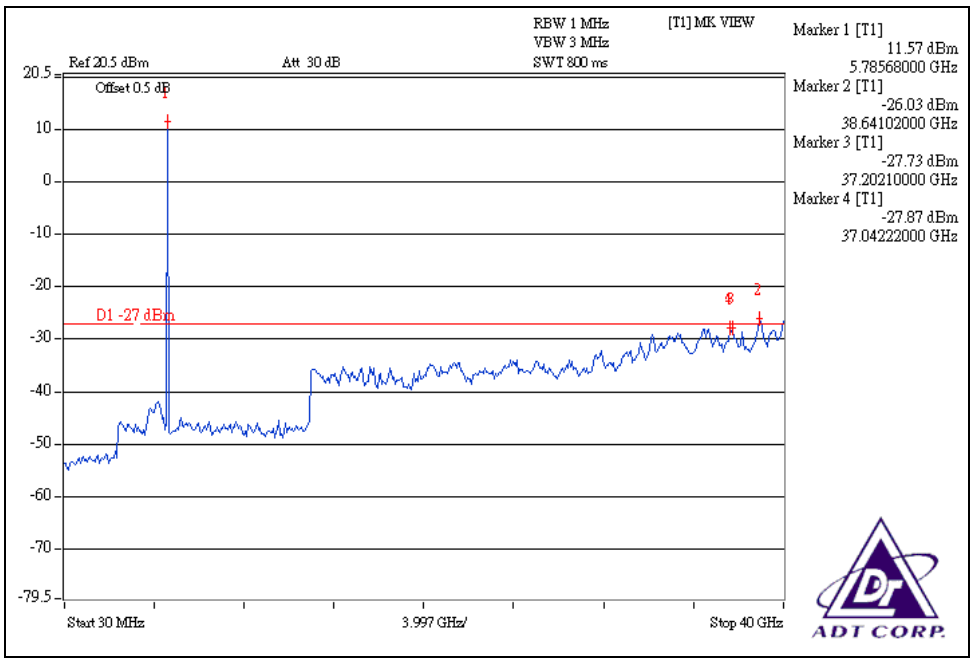

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -17 dBm
D2 -27 dBm
Marker 1 [T1]
0.83 dBm
5.80400000 GHz
Marker 2 [T1]
-45.18 dBm
5.82500000 GHz
Marker 3 [T1]
-45.18 dBm
5.82500000 GHz
Marker 4 [T1]
-55.56 dBm
5.83500000 GHz
Marker 5 [T1]
-55.56 dBm
5.83500000 GHz
Center 5.844 GHz
10 MHz/
Span 100 MHz

**For chain (0):**

CH20

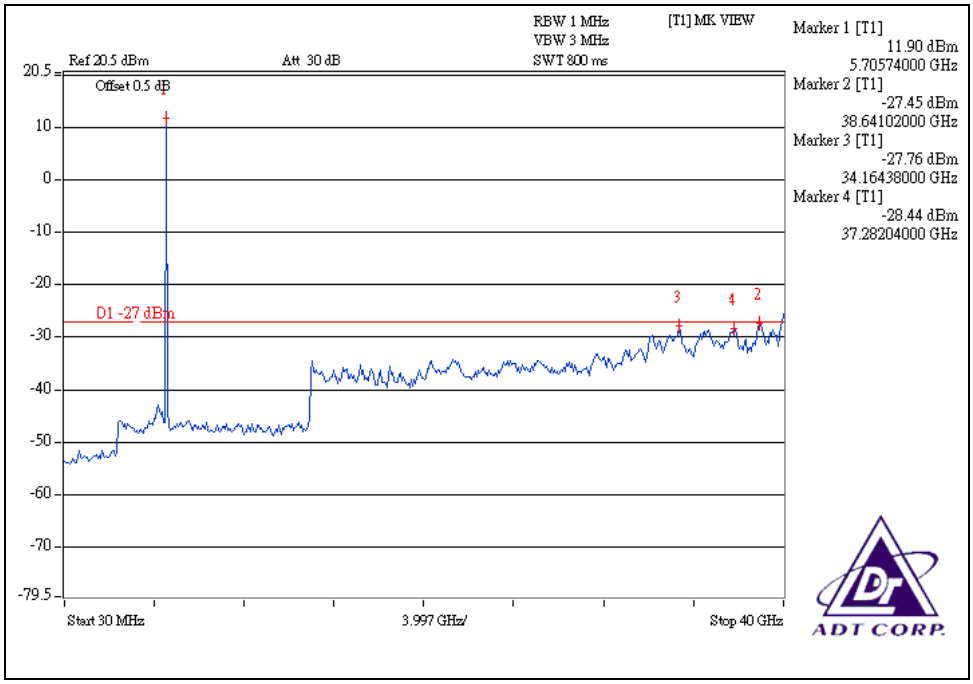



CH23

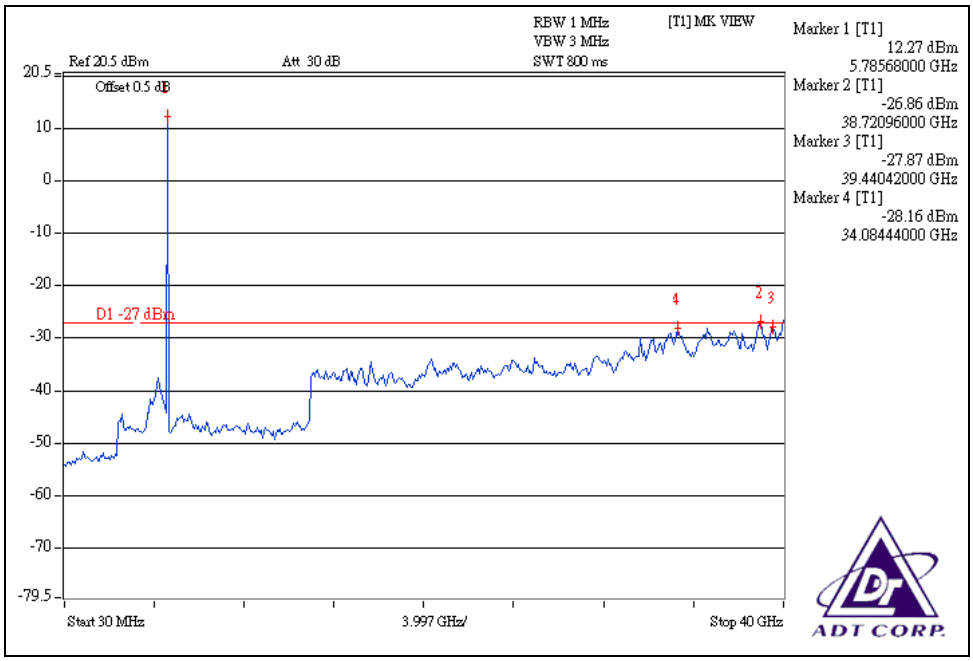


**For chain (1):**

CH20



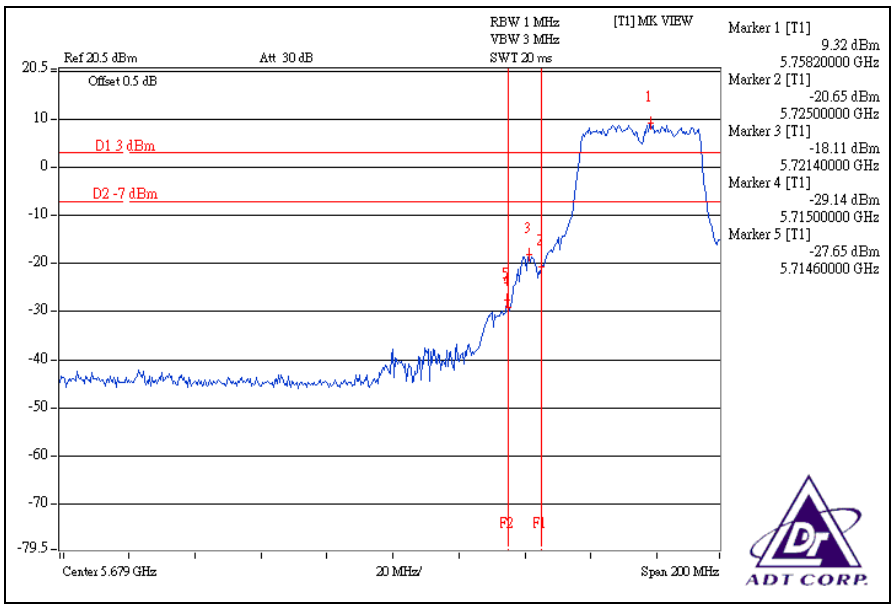

CH23



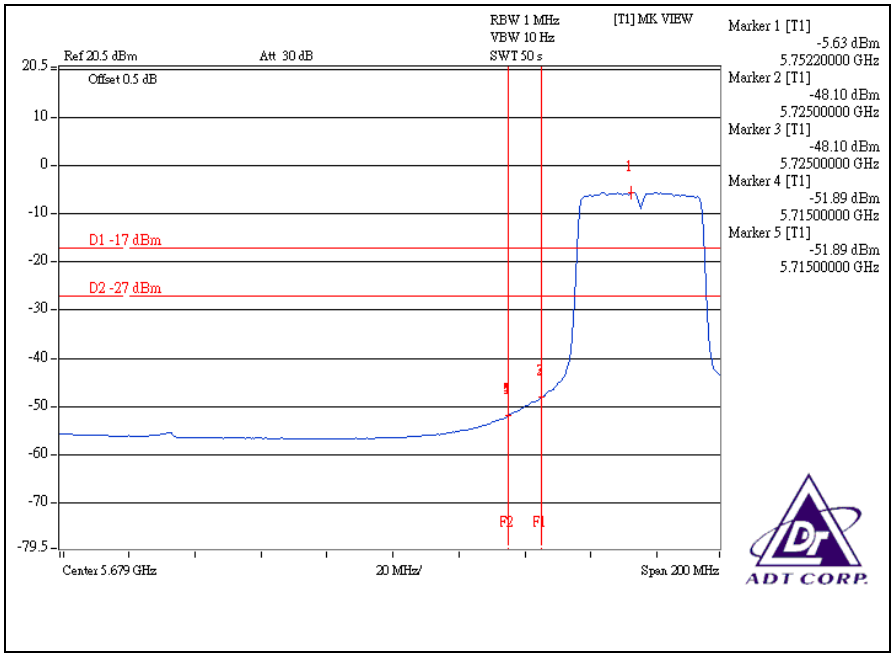
## DRAFT 802.11n (40MHz) OFDM MODULATION:

### For chain (0):

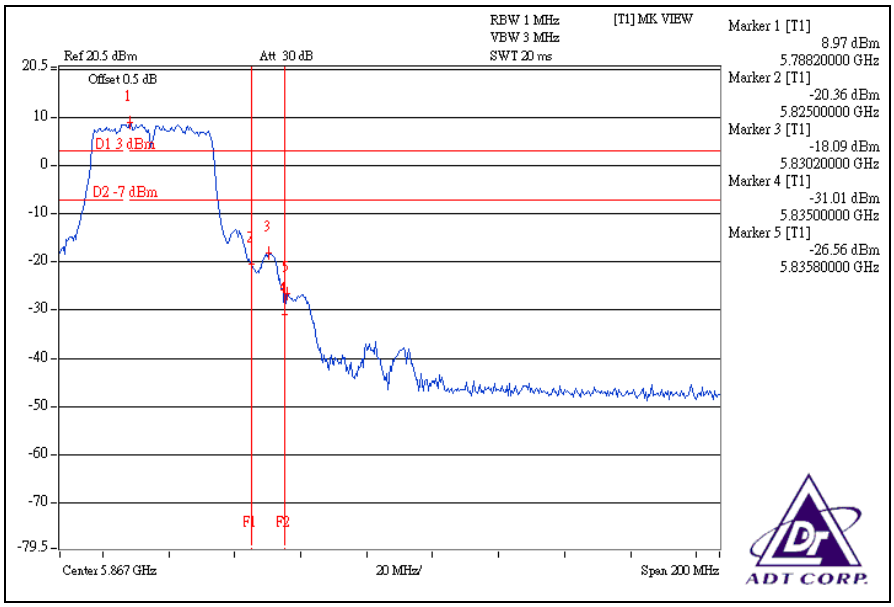
CH10



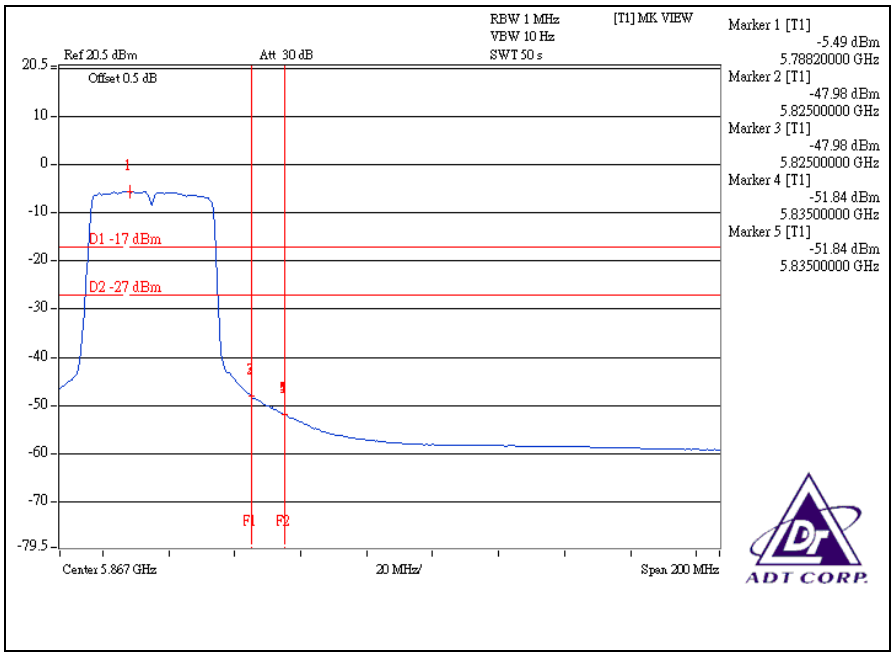

CH10



CH12

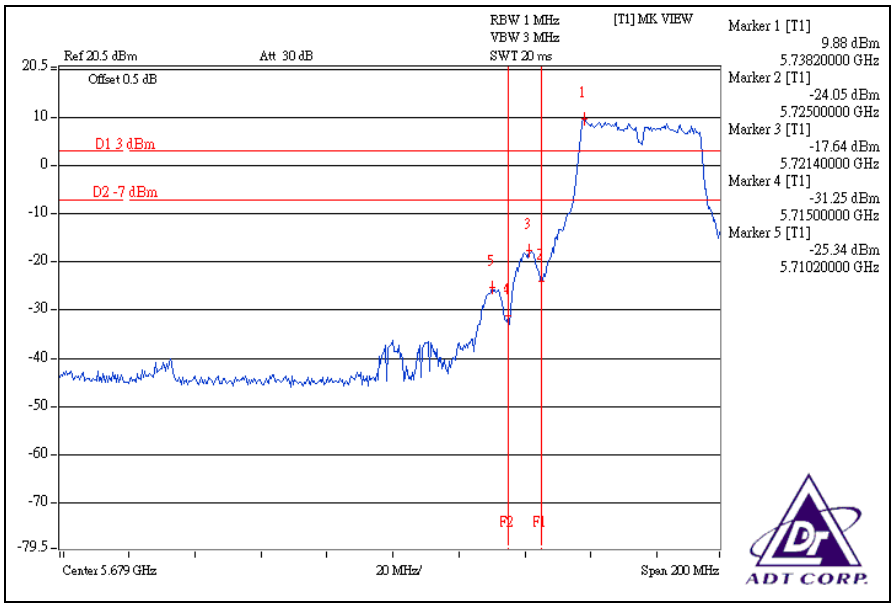

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 3 dBm
D2 -7 dBm
Marker 1 [T1]
8.97 dBm
5.78820000 GHz
Marker 2 [T1]
-20.36 dBm
5.82500000 GHz
Marker 3 [T1]
-18.09 dBm
5.83020000 GHz
Marker 4 [T1]
-31.01 dBm
5.83500000 GHz
Marker 5 [T1]
-26.56 dBm
5.83580000 GHz
Center 5.867 GHz
20 MHz/
Span 200 MHz

CH12

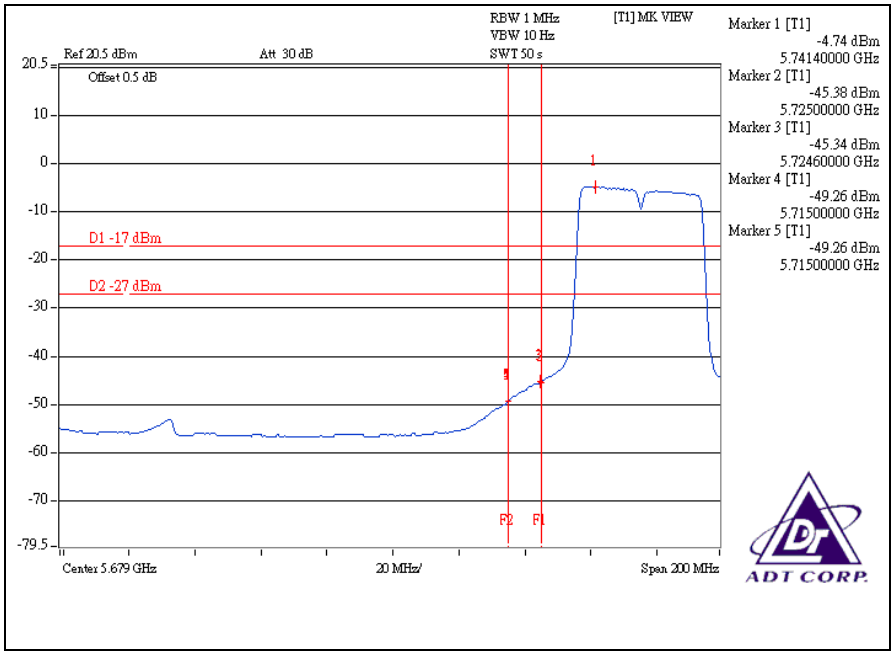

RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -17 dBm
D2 -27 dBm
Marker 1 [T1]
-5.49 dBm
5.78820000 GHz
Marker 2 [T1]
-47.98 dBm
5.82500000 GHz
Marker 3 [T1]
-47.98 dBm
5.82500000 GHz
Marker 4 [T1]
-51.84 dBm
5.83500000 GHz
Marker 5 [T1]
-51.84 dBm
5.83500000 GHz
Center 5.867 GHz
20 MHz/
Span 200 MHz

**For chain (1):**

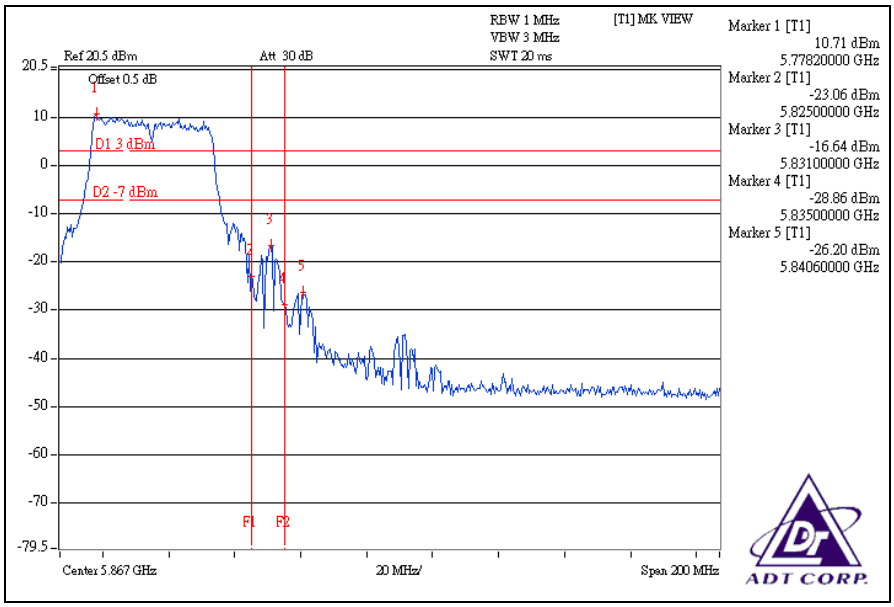
CH10



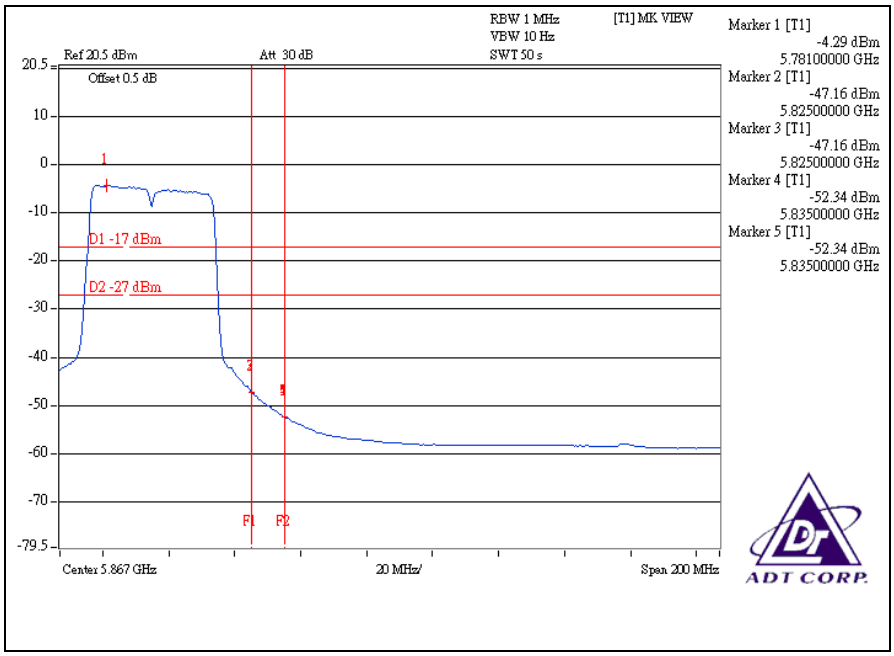

CH10



CH12

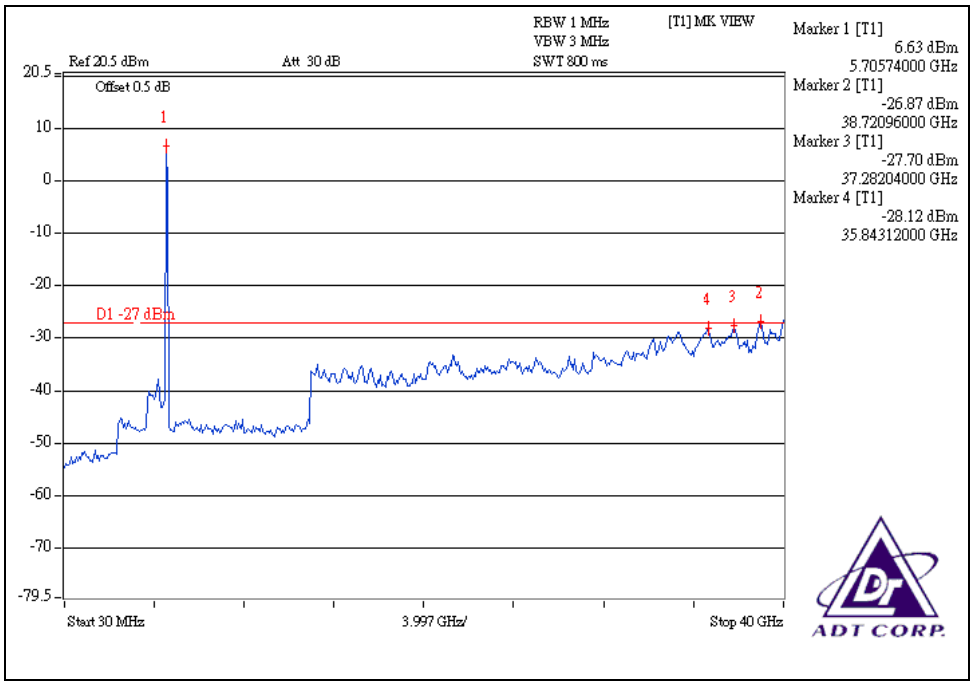

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 3 dBm
D2 -7 dBm
Marker 1 [T1]
10.71 dBm
5.77820000 GHz
Marker 2 [T1]
-23.06 dBm
5.82500000 GHz
Marker 3 [T1]
-16.64 dBm
5.83100000 GHz
Marker 4 [T1]
-28.86 dBm
5.83500000 GHz
Marker 5 [T1]
-26.20 dBm
5.84060000 GHz
Center 5.867 GHz
20 MHz/
Span 200 MHz
ADT CORP.

CH12

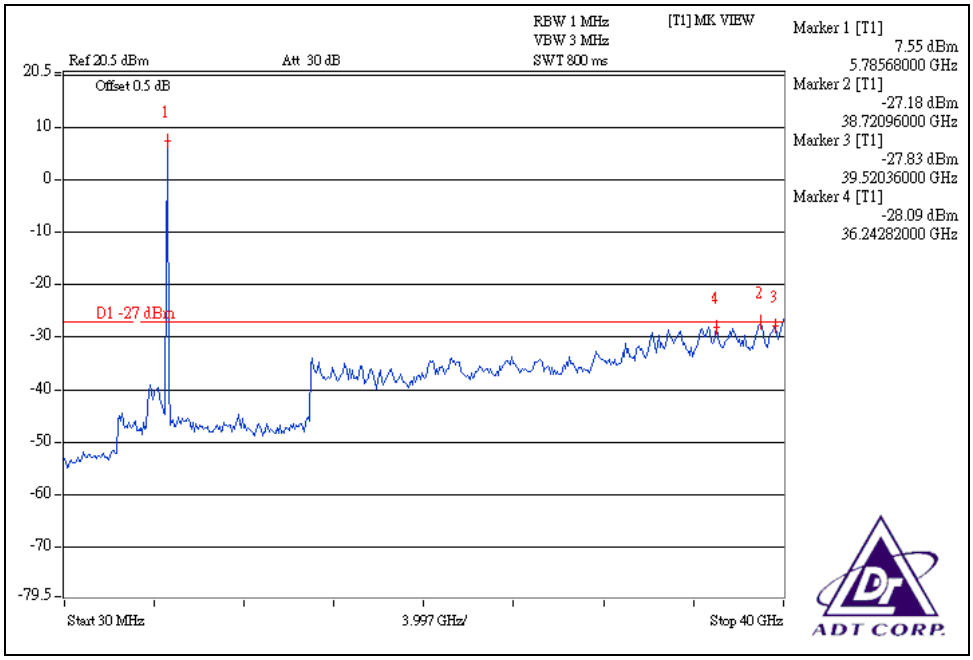

RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -17 dBm
D2 -27 dBm
Marker 1 [T1]
-4.29 dBm
5.78100000 GHz
Marker 2 [T1]
-47.16 dBm
5.82500000 GHz
Marker 3 [T1]
-47.16 dBm
5.82500000 GHz
Marker 4 [T1]
-52.34 dBm
5.83500000 GHz
Marker 5 [T1]
-52.34 dBm
5.83500000 GHz
Center 5.867 GHz
20 MHz/
Span 200 MHz
ADT CORP.

**For chain (0):**

CH10

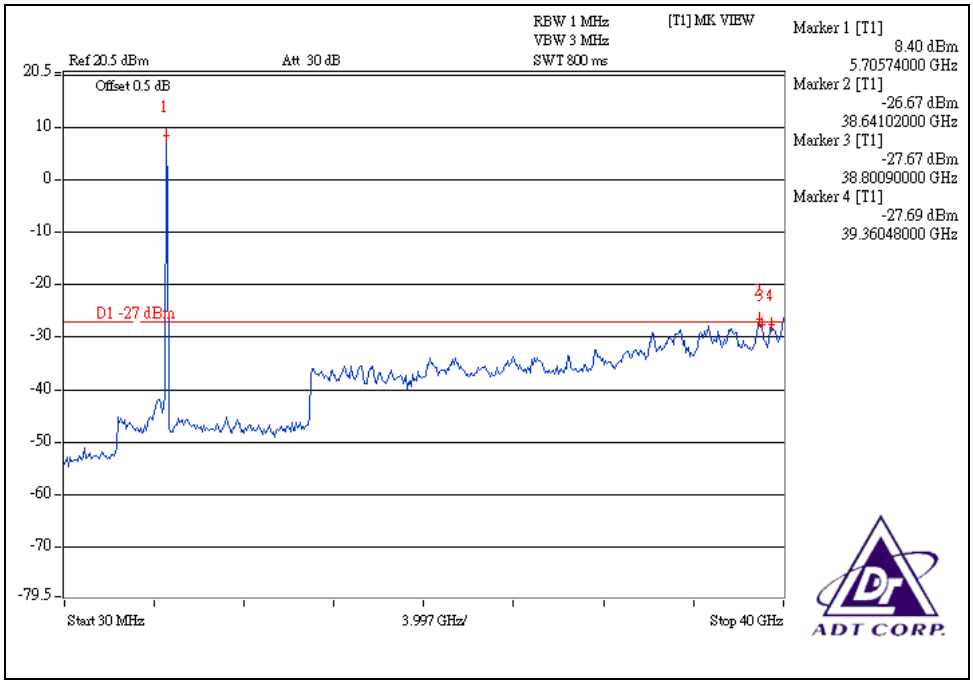



CH12

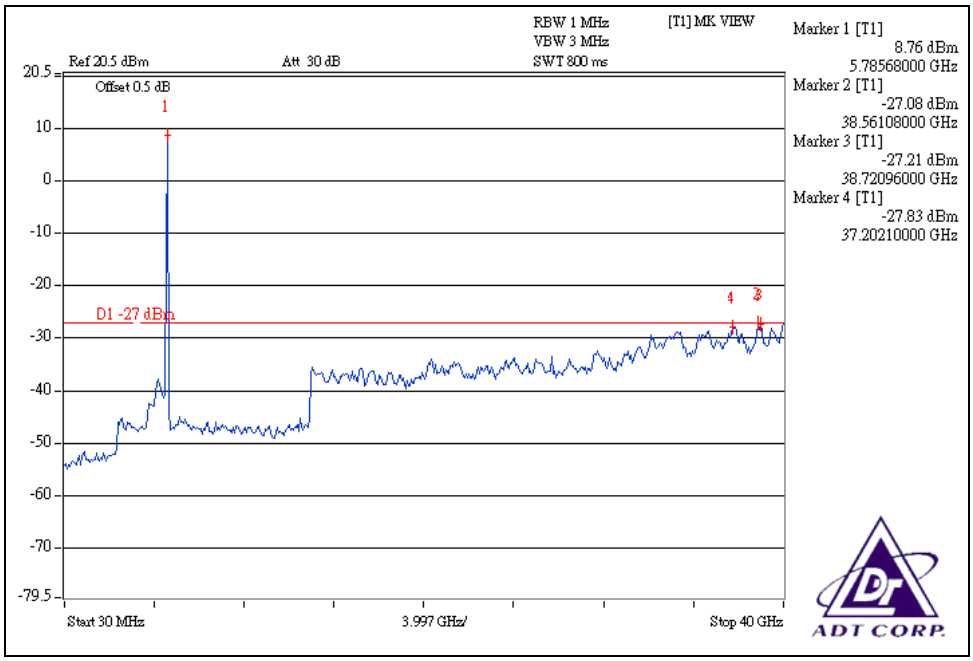


**For chain (1):**

CH10




CH12



## 4.8 ANTENNA REQUIREMENT

### 4.8.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.407(a), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

### 4.8.2 ANTENNA CONNECTED CONSTRUCTION

There are two antennas provided to this EUT, please refer to the following table:

| No. | Antenna Type | For 5GHz / Gain (dBi) | Antenna Connector |
|---|---|---|---|
| 1 | PCB Print | 0.5 | NA |
| 2 | PCB Print | 0.5 | NA |

# 5. INFORMATION ON THE TESTING LABORATORIES

We, ADT Corp., were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

| | |
|---|---|
| **USA** | FCC, UL, A2LA |
| **Germany** | TUV Rheinland |
| **Japan** | VCCI |
| **Norway** | NEMKO |
| **Canada** | INDUSTRY CANADA , CSA |
| **R.O.C.** | TAF, BSMI, NCC |
| **Netherlands** | Telefication |
| **Singapore** | GOST-ASIA(MOU) |
| **Russia** | CERTIS(MOU) |

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml. If you have any comments, please feel free to contact us at the following:

**Linko EMC/RF Lab**:
Tel: 886-2-26052180
Fax: 886-2-26052943

**Hsin Chu EMC/RF Lab**:
Tel: 886-3-5935343
Fax: 886-3-5935342

**Hwa Ya EMC/RF/Safety Telecom Lab**:
Tel: 886-3-3183232
Fax: 886-3-3185050

**Web Site**: www.adt.com.tw

The address and road map of all our labs can be found in our web site also

# 6. APPENDIX-A- MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.