# FCC TEST REPORT (15.247)

| | |
|---|---|
| **REPORT NO.:** | RF111012C14 |
| **MODEL NO.:** | DAP-1533 |
| **FCC ID:** | KA2AP1533A1 |
| **RECEIVED:** | Sep. 30, 2011 |
| **TESTED:** | Sep. 30 ~ Oct. 24, 2011 |
| **ISSUED:** | Oct. 26, 2011 |

| | |
|---|---|
| **APPLICANT:** | D-Link Corporation |
| **ADDRESS:** | 17595 Mt. Herrmann, Fountain Valley, CA 92708, U.S.A. |

| | |
|---|---|
| **ISSUED BY:** | Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch |
| **LAB ADDRESS:** | No. 47, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan ( R.O.C ) |
| **TEST LOCATION:** | No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C. |

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# RELEASE CONTROL RECORD

| ISSUE NO. | REASON FOR CHANGE | DATE ISSUED |
|---|---|---|
| Original release | N/A | Oct. 26, 2011 |

# 1. CERTIFICATION

| | |
|---|---|
| **PRODUCT:** | Wireless N450 MediaBridge®/Access Point |
| **MODEL:** | DAP-1533 |
| **BRAND:** | D-Link |
| **APPLICANT:** | D-Link Corporation |
| **TESTED:** | Sep. 30 ~ Oct. 24, 2011 |
| **TEST SAMPLE:** | ENGINEERING SAMPLE |
| **STANDARDS:** | **FCC Part 15, Subpart C (Section 15.247)** |
| | ANSI C63.4-2003 |
| | ANSI C63.10-2009 |

The above equipment (Model: DAP-1533) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch,** and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : _____ , DATE : Oct. 26, 2011
Andrea Hsia / Specialist

APPROVED BY : _____ , DATE : Oct. 26, 2011
Gary Chang / Technical Manager

# 2. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

| APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247) | | | |
|---|---|---|---|
| **STANDARD SECTION** | **TEST TYPE AND LIMIT** | **RESULT** | **REMARK** |
| 15.207 | AC Power Conducted Emission | PASS | Meet the requirement of limit. Minimum passing margin is -15.20dB at 0.150MHz. |
| 15.247(a)(2) | Spectrum Bandwidth of a Direct Sequence Spread Spectrum System<br>Limit: min. 500kHz | PASS | Meet the requirement of limit. |
| 15.247(b) | Maximum Output Power<br>Limit: max. 30dBm | PASS | Meet the requirement of limit. |
| 15.247(d) | Radiated Emissions<br>Limit: Table 15.209 | PASS | Meet the requirement of limit. Minimum passing margin is -1.0dB at2483.5 & 11570.00MHz. |
| 15.247(e) | Power Spectral Density<br>Limit: max. 8dBm | PASS | Meet the requirement of limit. |
| 15.247(d) | Band Edge Measurement<br>Limit: 20dB less than the peak value of fundamental frequency | PASS | Meet the requirement of limit. |
| 15.203 | Antenna Requirement | PASS | Antenna connector is UFL not a standard connector. |

## 2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

| MEASUREMENT | FREQUENCY | UNCERTAINTY |
|---|---|---|
| Conducted emissions | 9kHz~30MHz | 2.44 dB |
| Radiated emissions | 30MHz ~ 200MHz | 2.93 dB |
| | 200MHz ~1000MHz | 2.95 dB |
| | 1GHz ~ 18GHz | 2.26 dB |
| | 18GHz ~ 40GHz | 1.94 dB |

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

# 3. GENERAL INFORMATION

## 3.1 GENERAL DESCRIPTION OF EUT

| | |
|---|---|
| **EUT** | Wireless N450 MediaBridge®/Access Point |
| **MODEL NO.** | DAP-1533 |
| **FCC ID** | KA2AP1533A1 |
| **POWER SUPPLY** | 12Vdc |
| **MODULATION TYPE** | CCK, DQPSK, DBPSK for DSSS<br>64QAM, 16QAM, QPSK, BPSK for OFDM |
| **MODULATION TECHNOLOGY** | DSSS, OFDM |
| **TRANSFER RATE** | 802.11b:11.0/ 5.5/ 2.0/ 1.0Mbps<br>802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps<br>802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps<br>802.11n: up to 450.0Mbps |
| **OPERATING FREQUENCY** | **2.4GHz:** 2412 ~ 2462MHz<br>**5.0GHz:** 5745 ~ 5825MHz |
| **NUMBER OF CHANNEL** | **2.4GHz:**<br>11 for 802.11b, 802.11g, 802.11n (20MHz)<br>7 for 802.11n (40MHz)<br>**5.0GHz:**<br>5 for 802.11a, 802.11n (20MHz)<br>2 for 802.11n (40MHz) |
| **OUTPUT POWER** | 790.5mW for 2412 ~ 2462MHz<br>640.2mW for 5745 ~ 5825MHz |
| **ANTENNA TYPE** | **2.4GHz:** PIFA antenna with 2.0dBi gain<br>**5.0GHz:** PIFA antenna with 3.0dBi gain |
| **ANTENNA CONNECTOR** | UFL |
| **DATA CABLE** | NA |
| **I/O PORTS** | Refer to user's manual |
| **ACCESSORY DEVICES** | Adapter |

**NOTE:**

1. The frequency bands used in this EUT are listed as follows:

| Frequency Band (MHz) | 2412~2462 | 5180~5240 | 5745~5825 |
|---|---|---|---|
| 802.11b | √ | | |
| 802.11g | √ | | |
| 802.11a | | √ | √ |
| 802.11n (20MHz) | √ | √ | √ |
| 802.11n (40MHz) | √ | √ | √ |

2. The EUT consumes power from the following adapters:

| ADAPTER 1 | |
|---|---|
| **BRAND:** | D-Link |
| **MODEL:** | CG2412-B |
| **INPUT:** | 100-240Vac, 50-60Hz, 0.5A |
| **OUTPUT:** | 12Vdc, 2A |
| **POWER LINE:** | 1.8m non-shielded cable without core |

| ADAPTER 2 | |
|---|---|
| **BRAND:** | D-Link |
| **MODEL:** | CG2412-B IW |
| **INPUT:** | 100-240Vac, 50-60Hz, 0.6A |
| **OUTPUT:** | 12Vdc, 2A |
| **POWER LINE:** | 1.8m non-shielded cable without core |

**After pre-tested two of adapters found adapter was the worse, therefore Adapter 2 was chosen for the final test.

3. The EUT incorporates a MIMO function. Physically, the EUT provides three completed transmitters and three receivers.

| MODULATION MODE | TX FUNCTION |
|---|---|
| **802.11b** | 3TX |
| **802.11g** | 3TX |
| **802.11a** | 3TX |
| **802.11n (20MHz)** | 3TX |
| **802.11n (40MHz)** | 3TX |

4. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

## 3.2 DESCRIPTION OF TEST MODES

### FOR 2.4GHz:

11 channels are provided for 802.11b, 802.11g and 802.11n (20MHz):

| CHANNEL | FREQUENCY | CHANNEL | FREQUENCY |
|---|---|---|---|
| 1 | 2412MHz | 7 | 2442MHz |
| 2 | 2417MHz | 8 | 2447MHz |
| 3 | 2422MHz | 9 | 2452MHz |
| 4 | 2427MHz | 10 | 2457MHz |
| 5 | 2432MHz | 11 | 2462MHz |
| 6 | 2437MHz | | |

7 channels are provided for 802.11n (40MHz):

| CHANNEL | FREQUENCY | CHANNEL | FREQUENCY |
|---|---|---|---|
| 1 | 2422MHz | 5 | 2442MHz |
| 2 | 2427MHz | 6 | 2447MHz |
| 3 | 2432MHz | 7 | 2452MHz |
| 4 | 2437MHz | | |

### FOR 5.0GHz (5745 ~ 5825MHz):

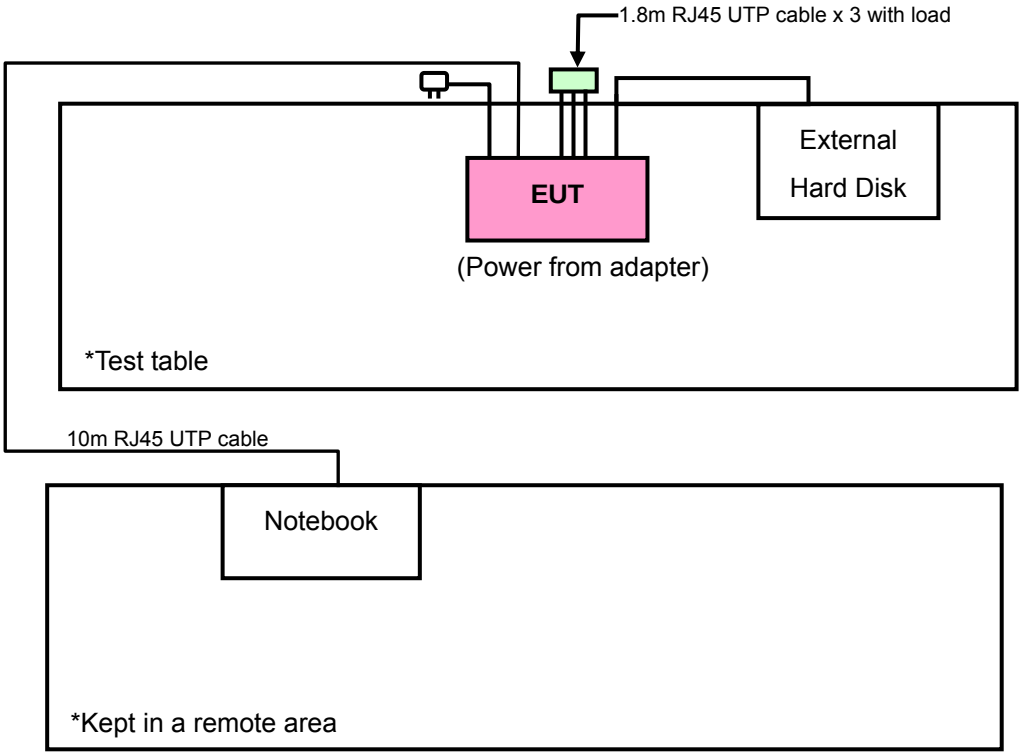
5 channels are provided for 802.11a, 802.11n (20MHz):

| CHANNEL | FREQUENCY | CHANNEL | FREQUENCY |
|---|---|---|---|
| 149 | 5745MHz | 161 | 5805MHz |
| 153 | 5765MHz | 165 | 5825MHz |
| 157 | 5785MHz | | |

2 channels are provided for 802.11n (40MHz):

| CHANNEL | FREQUENCY | CHANNEL | FREQUENCY |
|---|---|---|---|
| 151 | 5755MHz | 159 | 5795MHz |

### 3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



## 3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

**FOR 2.4GHz:**

| EUT CONFIGURE MODE | APPLICABLE TO | | | | DESCRIPTION |
|---|---|---|---|---|---|
| | RE≥1G | RE<1G | PLC | APCM | |
| - | √ | √ | √ | √ | - |

Where **RE≥1G:** Radiated Emission above 1GHz **RE<1G:** Radiated Emission below 1GHz
**PLC:** Power Line Conducted Emission **APCM:** Antenna Port Conducted Measurement

**RADIATED EMISSION TEST (ABOVE 1GHz):**

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

| MODE | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | DATA RATE (Mbps) |
|---|---|---|---|---|---|
| 802.11b | 1 to 11 | 1, 6, 11 | DSSS | DBPSK | 1.0 |
| 802.11g | 1 to 11 | 1, 6, 11 | OFDM | BPSK | 6.0 |
| 802.11n (20MHz) | 1 to 11 | 1, 6, 11 | OFDM | BPSK | 7.2 |
| 802.11n (40MHz) | 1 to 7 | 1, 4, 7 | OFDM | BPSK | 15.0 |

**RADIATED EMISSION TEST (BELOW 1GHz):**

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

| MODE | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | DATA RATE (Mbps) |
|---|---|---|---|---|---|
| 802.11g | 1 to 11 | 6 | OFDM | BPSK | 6.0 |

**POWER LINE CONDUCTED EMISSION TEST:**

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

| MODE | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | DATA RATE (Mbps) |
|---|---|---|---|---|---|
| 802.11g | 1 to 11 | 6 | OFDM | BPSK | 6.0 |

**BANDEDGE MEASUREMENT:**

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

| MODE | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | DATA RATE (Mbps) |
|---|---|---|---|---|---|
| 802.11b | 1 to 11 | 1, 11 | DSSS | DBPSK | 1.0 |
| 802.11g | 1 to 11 | 1, 11 | OFDM | BPSK | 6.0 |
| 802.11n (20MHz) | 1 to 11 | 1, 11 | OFDM | BPSK | 7.2 |
| 802.11n (40MHz) | 1 to 7 | 1, 7 | OFDM | BPSK | 15.0 |

**ANTENNA PORT CONDUCTED MEASUREMENT:**

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

| MODE | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | DATA RATE (Mbps) |
|---|---|---|---|---|---|
| 802.11b | 1 to 11 | 1, 6, 11 | DSSS | DBPSK | 1.0 |
| 802.11g | 1 to 11 | 1, 6, 11 | OFDM | BPSK | 6.0 |
| 802.11n (20MHz) | 1 to 11 | 1, 6, 11 | OFDM | BPSK | 7.2 |
| 802.11n (40MHz) | 1 to 7 | 1, 4, 7 | OFDM | BPSK | 15.0 |

**TEST CONDITION:**

| APPLICABLE TO | ENVIRONMENTAL CONDITIONS | INPUT POWER | TESTED BY |
|---|---|---|---|
| RE≥1G | 25deg. C, 68%RH | 120Vac, 60Hz | Sun Lin |
| RE<1G | 25deg. C, 68%RH | 120Vac, 60Hz | Sun Lin |
| PLC | 24deg. C, 64%RH | 120Vac, 60Hz | Match Tsui |
| APCM | 25deg. C, 68%RH | 120Vac, 60Hz | Sun Lin |

**FOR 5.745 ~ 5.825GHz:**

| EUT CONFIGURE MODE | APPLICABLE TO | | | | DESCRIPTION |
|---|---|---|---|---|---|
| | RE≥1G | RE<1G | PLC | APCM | |
| - | √ | √ | √ | √ | - |

Where **PLC:** Power Line Conducted Emission **RE<1G:** Radiated Emission below 1GHz
**RE≥1G:** Radiated Emission above 1GHz **APCM:** Antenna Port Conducted Measurement

## RADIATED EMISSION TEST (ABOVE 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

| MODE | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | DATA RATE (Mbps) |
|---|---|---|---|---|---|
| 802.11a | 149 to 165 | 149, 157, 165 | OFDM | BPSK | 6.0 |
| 802.11n (20MHz) | 149 to 165 | 149, 157, 165 | OFDM | BPSK | 7.2 |
| 802.11n (40MHz) | 151 to 159 | 151, 159 | OFDM | BPSK | 15.0 |

## RADIATED EMISSION TEST (BELOW 1GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

| MODE | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | DATA RATE (Mbps) |
|---|---|---|---|---|---|
| 802.11a | 149 to 165 | 149 | OFDM | BPSK | 6.0 |

## POWER LINE CONDUCTED EMISSION TEST:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
☒ Following channel(s) was (were) selected for the final test as listed below.

| MODE | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | DATA RATE (Mbps) |
|---|---|---|---|---|---|
| 802.11a | 149 to 165 | 149 | OFDM | BPSK | 6.0 |

**BANDEDGE MEASUREMENT:**

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

| MODE | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | DATA RATE (Mbps) |
|---|---|---|---|---|---|
| 802.11a | 149 to 165 | 149, 165 | OFDM | BPSK | 6.0 |
| 802.11n (20MHz) | 149 to 165 | 149, 165 | OFDM | BPSK | 7.2 |
| 802.11n (40MHz) | 151 to 159 | 151, 159 | OFDM | BPSK | 15.0 |

**ANTENNA PORT CONDUCTED MEASUREMENT:**

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

| MODE | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | DATA RATE (Mbps) |
|---|---|---|---|---|---|
| 802.11a | 149 to 165 | 149, 157, 165 | OFDM | BPSK | 6.0 |
| 802.11n (20MHz) | 149 to 165 | 149, 157, 165 | OFDM | BPSK | 7.2 |
| 802.11n (40MHz) | 151 to 159 | 151, 159 | OFDM | BPSK | 15.0 |

**TEST CONDITION:**

| APPLICABLE TO | ENVIRONMENTAL CONDITIONS | INPUT POWER | TESTED BY |
|---|---|---|---|
| RE≥1G | 25deg. C, 68%RH | 120Vac, 60Hz | Sun Lin |
| RE<1G | 25deg. C, 68%RH | 120Vac, 60Hz | Sun Lin |
| PLC | 24deg. C, 64%RH | 120Vac, 60Hz | Match Tsui |
| APCM | 25deg. C, 68%RH | 120Vac, 60Hz | Sun Lin |

## 3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**FCC Part 15, Subpart C (15.247)**
ANSI C63.4-2003
ANSI C63.10-2009

All test items have been performed and recorded as per the above standards.

**NOTE:** The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

## 3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| NO. | PRODUCT | BRAND | MODEL NO. | SERIAL NO. | FCC ID |
|---|---|---|---|---|---|
| 1 | NOTEBOOK | HP | NC6000 | CNU4110Y6Q | NA |
| 2 | EXTERNAL HARD DISK | Terasys | F12-UF | A0100222-4A60004 | FCC DoC Approved |

| NO. | SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS |
|---|---|
| 1 | 10m UTP RJ45 cable |
| 2 | 1.5 m shielded cable, terminated with USB connector, w/o core. |

**NOTE:** 1. All power cords of the above support units are non shielded (1.8m).
2. Item 1 acted as communication partner to transfer data.

# 4. TEST TYPES AND RESULTS (FOR 2.4GHz BAND)

## 4.1 RADIATED EMISSION MEASUREMENT

### 4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a). Other emissions shall be at least 20dB below the highest level of the desired power.

| FREQUENCIES (MHz) | FIELD STRENGTH (microvolts/meter) | MEASUREMENT DISTANCE (meters) |
|---|---|---|
| 0.009 ~ 0.490 | 2400/F(kHz) | 300 |
| 0.490 ~ 1.705 | 24000/F(kHz) | 30 |
| 1.705 ~ 30.0 | 30 | 30 |
| 30 ~ 88 | 100 | 3 |
| 88 ~ 216 | 150 | 3 |
| 216 ~ 960 | 200 | 3 |
| Above 960 | 500 | 3 |

**NOTE**:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

## 4.1.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | DATE OF CALIBRATION | DUE DATE OF CALIBRATION |
|---|---|---|---|---|
| Test Receiver ROHDE & SCHWARZ | ESCI | 100744 | Apr. 19, 2011 | Apr. 18, 2012 |
| Spectrum Analyzer ROHDE & SCHWARZ | FSP40 | 100269 | Jan. 06, 2011 | Jan. 05, 2012 |
| BILOG Antenna SCHWARZBECK | VULB9168 | 9168-156 | Apr. 12, 2011 | Apr. 11, 2012 |
| HORN Antenna SCHWARZBECK | BBHA 9120 D | 9120D-563 | Sep. 06, 2011 | Sep. 05, 2012 |
| HORN Antenna SCHWARZBECK | BBHA 9170 | BBHA9170243 | Dec. 27, 2010 | Dec. 26, 2011 |
| Preamplifier Agilent | 8449B | 3008A01911 | Nov. 03, 2010 | Nov. 02, 2011 |
| Preamplifier Agilent | 8447D | 2944A10638 | Nov. 03, 2010 | Nov. 02, 2011 |
| RF signal cable HUBER+SUHNNER | SUCOFLEX 104 | 295013/4 283403/4 | Aug. 19, 2011 | Aug. 18, 2012 |
| RF signal cable Worken | 8D-FB | Cable-HYCH9-01 | Aug. 13, 2011 | Aug. 12, 2012 |
| Software | ADT_Radiated_ V7.6.15.9.2 | NA | NA | NA |
| Antenna Tower EMCO | 2070/2080 | 512.835.4684 | NA | NA |
| Turn Table EMCO | 2087-2.03 | NA | NA | NA |
| Antenna Tower &Turn Table Controller EMCO | 2090 | NA | NA | NA |

**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. The test was performed in HwaYa Chamber 9.

3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

4. The FCC Site Registration No. is 460141.

5. The IC Site Registration No. is IC 7450F-4.

### 4.1.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

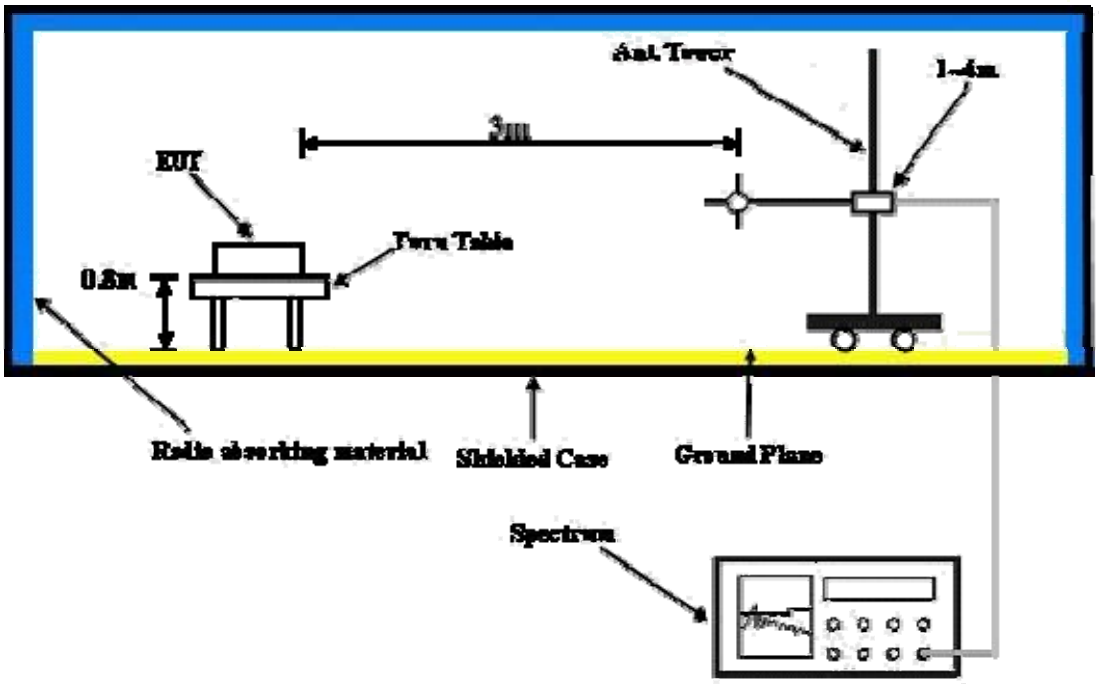
**NOTE:**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 100kHz and video bandwidth is 300kHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 1kHz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

### 4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

### 4.1.5 TEST SETUP




For the actual test configuration, please refer to the attached file (Test Setup Photo).

### 4.1.6 EUT OPERATING CONDITIONS

a. Placed the EUT on the testing table.

b. Prepared three notebook systems outside of testing area to act as communication partners.

c. The notebook system ran a test program (provided by manufacturer) to enable EUT under continuous communication link.

d. The communication partner sent data to EUT by command "PING"

## 4.1.7 TEST RESULTS

**ABOVE 1GHz:**

**802.11b**

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 1 | FREQUENCY RANGE | 1 ~ 25GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 68%RH | TESTED BY | Sun Lin |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 2386.00 | 59.8 PK | 74.0 | -14.2 | 1.18 H | 144 | 28.80 | 31.00 |
| 2 | 2386.00 | 52.6 AV | 54.0 | -1.4 | 1.18 H | 144 | 21.60 | 31.00 |
| 3 | *2412.00 | 112.3 PK | | | 1.20 H | 194 | 81.20 | 31.10 |
| 4 | *2412.00 | 108.1 AV | | | 1.20 H | 194 | 77.00 | 31.10 |
| 5 | 4824.00 | 52.6 PK | 74.0 | -21.4 | 1.15 H | 334 | 15.40 | 37.20 |
| 6 | 4824.00 | 49.2 AV | 54.0 | -4.8 | 1.15 H | 334 | 12.00 | 37.20 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 2386.00 | 59.1 PK | 74.0 | -14.9 | 1.58 V | 15 | 28.10 | 31.00 |
| 2 | 2386.00 | 52.5 AV | 54.0 | -1.5 | 1.58 V | 15 | 21.50 | 31.00 |
| 3 | *2412.00 | 109.7 PK | | | 1.59 V | 2 | 78.60 | 31.10 |
| 4 | *2412.00 | 105.8 AV | | | 1.59 V | 2 | 74.70 | 31.10 |
| 5 | 4824.00 | 52.5 PK | 74.0 | -21.5 | 1.12 V | 188 | 15.30 | 37.20 |
| 6 | 4824.00 | 49.4 AV | 54.0 | -4.6 | 1.12 V | 188 | 12.20 | 37.20 |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 6 | FREQUENCY RANGE | 1 ~ 25GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 68%RH | TESTED BY | Sun Lin |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *2437.00 | 113.7 PK | | | 1.00 H | 32 | 82.50 | 31.20 |
| 2 | *2437.00 | 109.6 AV | | | 1.00 H | 32 | 78.40 | 31.20 |
| 3 | 4874.00 | 52.8 PK | 74.0 | -21.2 | 1.00 H | 334 | 15.50 | 37.30 |
| 4 | 4874.00 | 49.7 AV | 54.0 | -4.3 | 1.00 H | 334 | 12.40 | 37.30 |
| 5 | 7311.00 | 50.4 PK | 74.0 | -23.6 | 1.22 H | 35 | 7.30 | 43.10 |
| 6 | 7311.00 | 40.1 AV | 54.0 | -13.9 | 1.22 H | 35 | -3.00 | 43.10 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *2437.00 | 111.4 PK | | | 1.23 V | 126 | 80.20 | 31.20 |
| 2 | *2437.00 | 107.2 AV | | | 1.23 V | 126 | 76.00 | 31.20 |
| 3 | 4874.00 | 54.4 PK | 74.0 | -19.6 | 1.18 V | 322 | 17.10 | 37.30 |
| 4 | 4874.00 | 52.6 AV | 54.0 | -1.4 | 1.18 V | 322 | 15.30 | 37.30 |
| 5 | 7311.00 | 50.8 PK | 74.0 | -23.2 | 1.65 V | 107 | 7.70 | 43.10 |
| 6 | 7311.00 | 39.8 AV | 54.0 | -14.2 | 1.65 V | 107 | -3.30 | 43.10 |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 11 | FREQUENCY RANGE | 1 ~ 25GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 68%RH | TESTED BY | Sun Lin |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *2462.00 | 112.7 PK | | | 1.17 H | 64 | 81.40 | 31.30 |
| 2 | *2462.00 | 108.8 AV | | | 1.17 H | 64 | 77.50 | 31.30 |
| 3 | 2488.00 | 59.9 PK | 74.0 | -14.1 | 1.16 H | 22 | 28.50 | 31.40 |
| 4 | 2488.00 | 52.5 AV | 54.0 | -1.5 | 1.16 H | 22 | 21.10 | 31.40 |
| 5 | 4924.00 | 50.5 PK | 74.0 | -23.5 | 1.01 H | 332 | 13.10 | 37.40 |
| 6 | 4924.00 | 46.9 AV | 54.0 | -7.1 | 1.01 H | 332 | 9.50 | 37.40 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *2462.00 | 110.7 PK | | | 1.51 V | 2 | 79.40 | 31.30 |
| 2 | *2462.00 | 106.2 AV | | | 1.51 V | 2 | 74.90 | 31.30 |
| 3 | 2488.00 | 59.7 PK | 74.0 | -14.3 | 1.00 V | 227 | 28.30 | 31.40 |
| 4 | 2488.00 | 52.2 AV | 54.0 | -1.8 | 1.00 V | 227 | 20.80 | 31.40 |
| 5 | 4924.00 | 52.2 PK | 74.0 | -21.8 | 1.48 V | 201 | 14.80 | 37.40 |
| 6 | 4924.00 | 49.1 AV | 54.0 | -4.9 | 1.48 V | 201 | 11.70 | 37.40 |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

## 802.11g

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 1 | FREQUENCY RANGE | 1 ~ 25GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 68%RH | TESTED BY | Sun Lin |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 2390.00 | 69.7 PK | 74.0 | -4.3 | 1.00 H | 207 | 38.20 | 31.50 |
| 2 | 2390.00 | 52.8 AV | 54.0 | -1.2 | 1.00 H | 207 | 21.30 | 31.50 |
| 3 | *2412.00 | 107.8 PK | | | 1.00 H | 10 | 76.20 | 31.60 |
| 4 | *2412.00 | 95.9 AV | | | 1.00 H | 10 | 64.30 | 31.60 |
| 5 | 4824.00 | 47.4 PK | 74.0 | -26.6 | 1.00 H | 185 | 9.70 | 37.70 |
| 6 | 4824.00 | 32.7 AV | 54.0 | -21.3 | 1.00 H | 185 | -5.00 | 37.70 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 2390.00 | 69.3 PK | 74.0 | -4.7 | 1.35 V | 39 | 37.80 | 31.50 |
| 2 | 2390.00 | 52.5 AV | 54.0 | -1.5 | 1.35 V | 39 | 21.00 | 31.50 |
| 3 | *2412.00 | 106.1 PK | | | 1.32 V | 45 | 74.50 | 31.60 |
| 4 | *2412.00 | 94.2 AV | | | 1.32 V | 45 | 62.60 | 31.60 |
| 5 | 4824.00 | 48.6 PK | 74.0 | -25.4 | 1.62 V | 96 | 10.90 | 37.70 |
| 6 | 4824.00 | 33.8 AV | 54.0 | -20.2 | 1.62 V | 96 | -3.90 | 37.70 |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 6 | FREQUENCY RANGE | 1 ~ 25GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 68%RH | TESTED BY | Sun Lin |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *2437.00 | 113.0 PK | | | 1.00 H | 11 | 81.30 | 31.70 |
| 2 | *2437.00 | 101.2 AV | | | 1.00 H | 11 | 69.50 | 31.70 |
| 3 | 4874.00 | 52.8 PK | 74.0 | -21.2 | 1.00 H | 189 | 15.00 | 37.80 |
| 4 | 4874.00 | 37.2 AV | 54.0 | -16.8 | 1.00 H | 189 | -0.60 | 37.80 |
| 5 | 7311.00 | 51.3 PK | 74.0 | -22.7 | 1.25 H | 39 | 7.40 | 43.90 |
| 6 | 7311.00 | 40.6 AV | 54.0 | -13.4 | 1.25 H | 39 | -3.30 | 43.90 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *2437.00 | 111.2 PK | | | 1.31 V | 179 | 79.50 | 31.70 |
| 2 | *2437.00 | 99.3 AV | | | 1.31 V | 179 | 67.60 | 31.70 |
| 3 | 4874.00 | 53.7 PK | 74.0 | -20.3 | 1.00 V | 293 | 15.90 | 37.80 |
| 4 | 4874.00 | 39.6 AV | 54.0 | -14.4 | 1.00 V | 293 | 1.80 | 37.80 |
| 5 | 7311.00 | 51.7 PK | 74.0 | -22.3 | 1.24 V | 37 | 7.80 | 43.90 |
| 6 | 7311.00 | 37.5 AV | 54.0 | -16.5 | 1.24 V | 37 | -6.40 | 43.90 |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 11 | FREQUENCY RANGE | 1 ~ 25GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 68%RH | TESTED BY | Sun Lin |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *2462.00 | 107.9 PK | | | 1.28 H | 153 | 76.10 | 31.80 |
| 2 | *2462.00 | 96.1 AV | | | 1.28 H | 153 | 64.30 | 31.80 |
| 3 | 2483.50 | 71.0 PK | 74.0 | -3.0 | 1.34 H | 122 | 39.10 | 31.90 |
| 4 | 2483.50 | 52.7 AV | 54.0 | -1.3 | 1.34 H | 122 | 20.80 | 31.90 |
| 5 | 4924.00 | 43.8 PK | 74.0 | -30.2 | 1.22 H | 328 | 5.90 | 37.90 |
| 6 | 4924.00 | 33.1 AV | 54.0 | -20.9 | 1.22 H | 328 | -4.80 | 37.90 |
| **ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M** | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *2462.00 | 106.4 PK | | | 1.61 V | 172 | 74.60 | 31.80 |
| 2 | *2462.00 | 94.3 AV | | | 1.61 V | 172 | 62.50 | 31.80 |
| 3 | 2483.50 | 71.3 PK | 74.0 | -2.7 | 1.01 V | 48 | 39.40 | 31.90 |
| **4** | **2483.50** | **53.0 AV** | **54.0** | **-1.0** | **1.01 V** | **48** | **21.10** | **31.90** |
| 5 | 4924.00 | 47.0 PK | 74.0 | -27.0 | 1.07 V | 188 | 9.10 | 37.90 |
| 6 | 4924.00 | 35.4 AV | 54.0 | -18.6 | 1.07 V | 188 | -2.50 | 37.90 |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

### 802.11n (20MHz)

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 1 | FREQUENCY RANGE | 1 ~ 25GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 68%RH | TESTED BY | Sun Lin |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 2390.00 | 69.4 PK | 74.0 | -4.6 | 1.00 H | 45 | 38.30 | 31.10 |
| 2 | 2390.00 | 51.3 AV | 54.0 | -2.7 | 1.00 H | 45 | 20.20 | 31.10 |
| 3 | *2412.00 | 106.3 PK | | | 1.20 H | 16 | 75.20 | 31.10 |
| 4 | *2412.00 | 94.8 AV | | | 1.20 H | 16 | 63.70 | 31.10 |
| 5 | 4824.00 | 47.2 PK | 74.0 | -26.8 | 1.52 H | 258 | 10.00 | 37.20 |
| 6 | 4824.00 | 33.1 AV | 54.0 | -20.9 | 1.52 H | 258 | -4.10 | 37.20 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 2390.00 | 70.2 PK | 74.0 | -3.8 | 1.00 V | 109 | 39.10 | 31.10 |
| 2 | 2390.00 | 52.3 AV | 54.0 | -1.7 | 1.00 V | 109 | 21.20 | 31.10 |
| 3 | *2412.00 | 104.5 PK | | | 1.26 V | 107 | 73.40 | 31.10 |
| 4 | *2412.00 | 92.8 AV | | | 1.26 V | 107 | 61.70 | 31.10 |
| 5 | 4824.00 | 48.4 PK | 74.0 | -25.6 | 1.51 V | 290 | 11.20 | 37.20 |
| 6 | 4824.00 | 34.6 AV | 54.0 | -19.4 | 1.51 V | 290 | -2.60 | 37.20 |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 6 | FREQUENCY RANGE | 1 ~ 25GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 68%RH | TESTED BY | Sun Lin |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 2390.00 | 55.7 PK | 74.0 | -18.3 | 1.00 H | 185 | 24.60 | 31.10 |
| 2 | 2390.00 | 46.9 AV | 54.0 | -7.1 | 1.00 H | 185 | 15.80 | 31.10 |
| 3 | *2437.00 | 112.5 PK | | | 1.00 H | 187 | 81.30 | 31.20 |
| 4 | *2437.00 | 100.6 AV | | | 1.00 H | 187 | 69.40 | 31.20 |
| 5 | 4874.00 | 50.2 PK | 74.0 | -23.8 | 1.42 H | 339 | 12.90 | 37.30 |
| 6 | 4874.00 | 37.7 AV | 54.0 | -16.3 | 1.42 H | 339 | 0.40 | 37.30 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 2390.00 | 56.8 PK | 74.0 | -17.2 | 1.23 V | 108 | 25.70 | 31.10 |
| 2 | 2390.00 | 45.3 AV | 54.0 | -8.7 | 1.23 V | 108 | 14.20 | 31.10 |
| 3 | *2437.00 | 110.5 PK | | | 1.23 V | 108 | 79.30 | 31.20 |
| 4 | *2437.00 | 98.7 AV | | | 1.23 V | 108 | 67.50 | 31.20 |
| 5 | 4874.00 | 52.8 PK | 74.0 | -21.2 | 1.12 V | 121 | 15.50 | 37.30 |
| 6 | 4874.00 | 39.6 AV | 54.0 | -14.4 | 1.12 V | 121 | 2.30 | 37.30 |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 11 | FREQUENCY RANGE | 1 ~ 25GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 68%RH | TESTED BY | Sun Lin |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *2462.00 | 107.1 PK | | | 1.00 H | 187 | 75.80 | 31.30 |
| 2 | *2462.00 | 95.2 AV | | | 1.00 H | 187 | 63.90 | 31.30 |
| 3 | 2483.50 | 67.5 PK | 74.0 | -6.5 | 1.00 H | 193 | 36.10 | 31.40 |
| 4 | 2483.50 | 52.2 AV | 54.0 | -1.8 | 1.00 H | 193 | 20.80 | 31.40 |
| 5 | 4924.00 | 42.8 PK | 74.0 | -31.2 | 1.35 H | 68 | 5.40 | 37.40 |
| 6 | 4924.00 | 34.6 AV | 54.0 | -19.4 | 1.35 H | 68 | -2.80 | 37.40 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *2462.00 | 105.5 PK | | | 1.20 V | 128 | 74.20 | 31.30 |
| 2 | *2462.00 | 93.6 AV | | | 1.20 V | 128 | 62.30 | 31.30 |
| 3 | 2483.50 | 71.5 PK | 74.0 | -2.5 | 1.20 V | 112 | 40.10 | 31.40 |
| 4 | 2483.50 | 52.7 AV | 54.0 | -1.3 | 1.20 V | 112 | 21.30 | 31.40 |
| 5 | 4924.00 | 45.8 PK | 74.0 | -28.2 | 1.46 V | 269 | 8.40 | 37.40 |
| 6 | 4924.00 | 32.8 AV | 54.0 | -21.2 | 1.46 V | 269 | -4.60 | 37.40 |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

### 802.11n (40MHz)

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 1 | FREQUENCY RANGE | 1 ~ 25GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 68%RH | TESTED BY | Sun Lin |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 2390.00 | 69.6 PK | 74.0 | -4.4 | 1.20 H | 225 | 38.50 | 31.10 |
| 2 | 2390.00 | 52.3 AV | 54.0 | -1.7 | 1.20 H | 225 | 21.20 | 31.10 |
| 3 | *2422.00 | 103.2 PK | | | 1.20 H | 225 | 72.00 | 31.20 |
| 4 | *2422.00 | 91.2 AV | | | 1.20 H | 225 | 60.00 | 31.20 |
| 5 | 4844.00 | 45.5 PK | 74.0 | -28.5 | 1.22 H | 57 | 8.20 | 37.30 |
| 6 | 4844.00 | 32.6 AV | 54.0 | -21.4 | 1.22 H | 57 | -4.70 | 37.30 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 2390.00 | 67.2 PK | 74.0 | -6.8 | 1.57 V | 155 | 36.10 | 31.10 |
| 2 | 2390.00 | 52.2 AV | 54.0 | -1.8 | 1.57 V | 155 | 21.10 | 31.10 |
| 3 | *2422.00 | 101.2 PK | | | 1.16 V | 176 | 70.00 | 31.20 |
| 4 | *2422.00 | 89.1 AV | | | 1.16 V | 176 | 57.90 | 31.20 |
| 5 | 4844.00 | 45.2 PK | 74.0 | -28.8 | 1.32 V | 85 | 7.90 | 37.30 |
| 6 | 4844.00 | 33.9 AV | 54.0 | -20.1 | 1.32 V | 85 | -3.40 | 37.30 |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 4 | FREQUENCY RANGE | 1 ~ 25GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 68%RH | TESTED BY | Sun Lin |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 2390.00 | 65.4 PK | 74.0 | -8.6 | 1.00 H | 16 | 34.30 | 31.10 |
| 2 | 2390.00 | 52.7 AV | 54.0 | -1.3 | 1.00 H | 16 | 21.60 | 31.10 |
| 3 | *2437.00 | 107.1 PK | | | 1.00 H | 190 | 75.90 | 31.20 |
| 4 | *2437.00 | 95.0 AV | | | 1.00 H | 190 | 63.80 | 31.20 |
| 5 | 2483.50 | 66.8 PK | 74.0 | -7.2 | 1.00 H | 189 | 35.40 | 31.40 |
| **6** | **2483.50** | **53.0 AV** | **54.0** | **-1.0** | **1.00 H** | **189** | **21.60** | **31.40** |
| 7 | 4874.00 | 42.8 PK | 74.0 | -31.2 | 1.42 H | 69 | 5.50 | 37.30 |
| 8 | 4874.00 | 33.8 AV | 54.0 | -20.2 | 1.42 H | 69 | -3.50 | 37.30 |
| **ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M** | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 2390.00 | 65.7 PK | 74.0 | -8.3 | 1.00 V | 104 | 34.60 | 31.10 |
| 2 | 2390.00 | 52.6 AV | 54.0 | -1.4 | 1.00 V | 104 | 21.50 | 31.10 |
| 3 | *2437.00 | 104.9 PK | | | 1.33 V | 162 | 73.70 | 31.20 |
| 4 | *2437.00 | 93.0 AV | | | 1.33 V | 162 | 61.80 | 31.20 |
| 5 | 2483.50 | 66.9 PK | 74.0 | -7.1 | 1.36 V | 165 | 35.50 | 31.40 |
| 6 | 2483.50 | 52.2 AV | 54.0 | -1.8 | 1.36 V | 165 | 20.80 | 31.40 |
| 7 | 4874.00 | 46.2 PK | 74.0 | -27.8 | 1.09 V | 134 | 8.90 | 37.30 |
| 8 | 4874.00 | 33.6 AV | 54.0 | -20.4 | 1.09 V | 134 | -3.70 | 37.30 |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 7 | FREQUENCY RANGE | 1 ~ 25GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 68%RH | TESTED BY | Sun Lin |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *2452.00 | 103.7 PK | | | 1.00 H | 189 | 72.40 | 31.30 |
| 2 | *2452.00 | 91.6 AV | | | 1.00 H | 189 | 60.30 | 31.30 |
| 3 | 2483.50 | 68.3 PK | 74.0 | -5.7 | 1.00 H | 189 | 36.90 | 31.40 |
| **4** | **2483.50** | **53.0 AV** | **54.0** | **-1.0** | **1.00 H** | **189** | **21.60** | **31.40** |
| 5 | 4904.00 | 45.5 PK | 74.0 | -28.5 | 1.22 H | 154 | 8.10 | 37.40 |
| 6 | 4904.00 | 33.9 AV | 54.0 | -20.1 | 1.22 H | 154 | -3.50 | 37.40 |
| **ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M** | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | *2452.00 | 101.6 PK | | | 1.48 V | 158 | 70.30 | 31.30 |
| 2 | *2452.00 | 89.4 AV | | | 1.48 V | 158 | 58.10 | 31.30 |
| 3 | 2483.50 | 66.0 PK | 74.0 | -8.0 | 1.29 V | 167 | 34.60 | 31.40 |
| 4 | 2483.50 | 52.5 AV | 54.0 | -1.5 | 1.29 V | 167 | 21.10 | 31.40 |
| 5 | 4904.00 | 43.5 PK | 74.0 | -30.5 | 1.47 V | 23 | 6.10 | 37.40 |
| 6 | 4904.00 | 32.6 AV | 54.0 | -21.4 | 1.47 V | 23 | -4.80 | 37.40 |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

## BELOW 1GHz WORST-CASE DATA：802.11g

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 6 | FREQUENCY RANGE | Below 1000MHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Quasi-Peak |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 68%RH | TESTED BY | Sun Lin |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 113.50 | 38.6 QP | 43.5 | -4.9 | 1.50 H | 82 | 28.20 | 10.40 |
| 2 | 125.00 | 42.2 QP | 43.5 | -1.3 | 1.69 H | 338 | 30.20 | 12.00 |
| 3 | 191.28 | 36.5 QP | 43.5 | -7.0 | 1.25 H | 67 | 25.80 | 10.70 |
| 4 | 360.43 | 41.1 QP | 46.0 | -4.9 | 1.00 H | 82 | 25.00 | 16.10 |
| 5 | 599.58 | 40.8 QP | 46.0 | -5.2 | 1.25 H | 49 | 18.70 | 22.10 |
| 6 | 624.85 | 39.8 QP | 46.0 | -6.2 | 1.25 H | 46 | 17.40 | 22.40 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 43.51 | 37.5 QP | 40.0 | -2.5 | 1.00 V | 274 | 24.50 | 13.00 |
| 2 | 125.17 | 40.1 QP | 43.5 | -3.4 | 1.00 V | 280 | 28.10 | 12.00 |
| 3 | 374.04 | 37.4 QP | 46.0 | -8.6 | 1.00 V | 7 | 21.00 | 16.40 |
| 4 | 599.58 | 38.1 QP | 46.0 | -7.9 | 1.50 V | 22 | 16.00 | 22.10 |
| 5 | 624.85 | 38.9 QP | 46.0 | -7.1 | 1.50 V | 145 | 16.50 | 22.40 |
| 6 | 902.89 | 40.6 QP | 46.0 | -5.4 | 1.00 V | 355 | 14.50 | 26.10 |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

## 4.2 CONDUCTED EMISSION MEASUREMENT

### 4.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

| FREQUENCY OF EMISSION (MHz) | CONDUCTED LIMIT (dBμV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15 ~ 0.5 | 66 to 56 | 56 to 46 |
| 0.5 ~ 5 | 56 | 46 |
| 5 ~ 30 | 60 | 50 |

**NOTE**: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

### 4.2.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | DATE OF CALIBRATION | DUE DATE OF CALIBRATION |
|---|---|---|---|---|
| Test Receiver ROHDE & SCHWARZ | ESCS30 | 100291 | Nov. 30, 2010 | Nov. 29, 2011 |
| RF signal cable Woken | 5D-FB | Cable-HYC01-01 | Dec. 30, 2010 | Dec. 29, 2011 |
| LISN ROHDE & SCHWARZ | ESH3-Z5 | 100312 | Jul. 07, 2011 | Jul. 06, 2012 |
| LISN ROHDE & SCHWARZ | ESH2-Z5 | 100100 | Jan. 06, 2011 | Jan. 05, 2012 |
| LISN ROHDE & SCHWARZ | ESH3-Z5 | 835239/001 | Feb. 22, 2011 | Feb. 21, 2012 |
| V-LISN SCHWARZBECK | NNBL 8226-2 | 8226-142 | Jun. 30, 2011 | Jun. 29, 2012 |
| LISN ROHDE & SCHWARZ | ENV216 | 100072 | Jun. 10, 2011 | Jun. 09, 2012 |
| Software ADT | ADT_Cond_ V7.3.7 | NA | NA | NA |

**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. The test was performed in HwaYa Shielded Room 1.

3. The VCCI Site Registration No. is C-2040.

### 4.2.3 TEST PROCEDURES

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

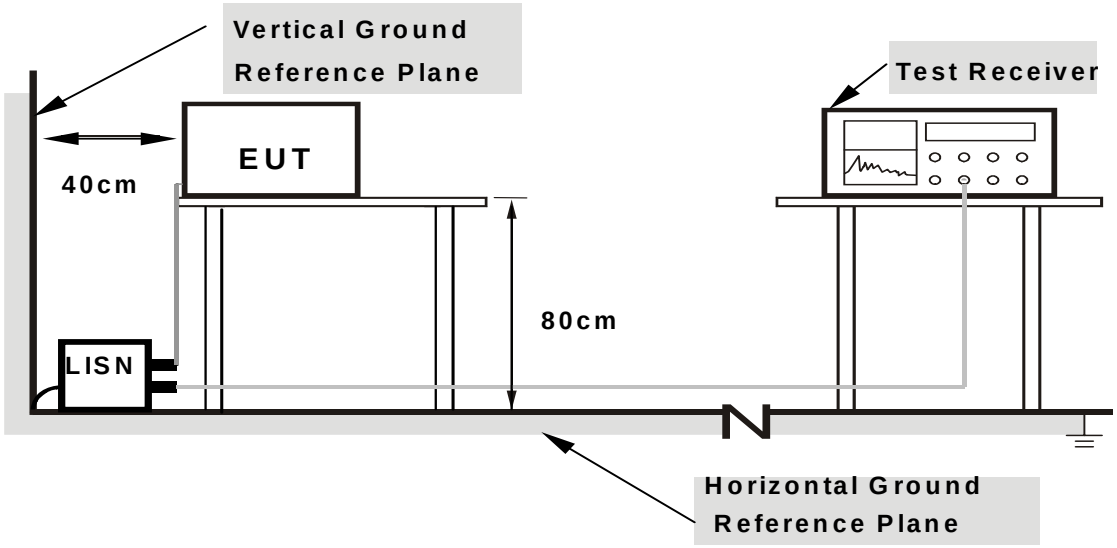
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

**NOTE:** All modes of operation were investigated and the worst-case emissions are reported.

### 4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

## 4.2.5 TEST SETUP




**Note: 1.Support units were connected to second LISN.**
**2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes**

For the actual test configuration, please refer to the attached file (Test Setup Photo).

## 4.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

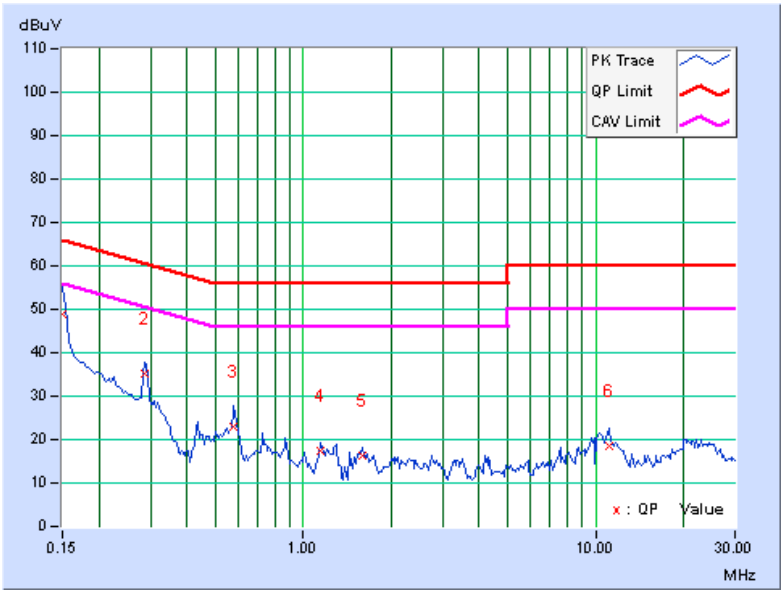
## 4.2.7 TEST RESULTS

**CONDUCTED WORST-CASE DATA：802.11a**

| PHASE | Line 1 | 6dB BANDWIDTH | 9kHz |
|---|---|---|---|

| | Freq. | Corr. | Reading Value | | Emission Level | | Limit | | Margin | |
|---|---|---|---|---|---|---|---|---|---|---|
| No | | Factor | [dB (uV)] | | [dB (uV)] | | [dB (uV)] | | (dB) | |
| | [MHz] | (dB) | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.150 | 0.11 | 48.85 | - | 48.97 | - | 66.00 | 56.00 | -17.03 | - |
| 2 | 0.287 | 0.12 | 34.92 | - | 35.04 | - | 60.62 | 50.62 | -25.58 | - |
| 3 | 0.580 | 0.13 | 22.93 | - | 23.06 | - | 56.00 | 46.00 | -32.94 | - |
| 4 | 1.152 | 0.16 | 17.39 | - | 17.55 | - | 56.00 | 46.00 | -38.45 | - |
| 5 | 1.602 | 0.18 | 16.17 | - | 16.35 | - | 56.00 | 46.00 | -39.65 | - |
| 6 | 11.078 | 0.71 | 17.73 | - | 18.44 | - | 60.00 | 50.00 | -41.56 | - |

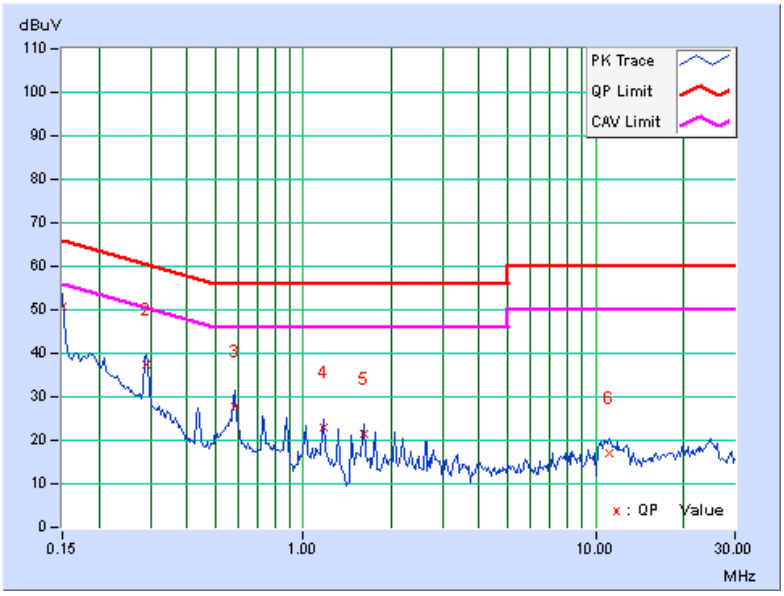
**REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



| PHASE | Line 2 | 6dB BANDWIDTH | 9kHz |
|---|---|---|---|

| | Freq. | Corr. | Reading Value | | Emission Level | | Limit | | Margin | |
|---|---|---|---|---|---|---|---|---|---|---|
| No | | Factor | [dB (uV)] | | [dB (uV)] | | [dB (uV)] | | (dB) | |
| | [MHz] | (dB) | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| **1** | **0.150** | **0.12** | **50.68** | **-** | **50.80** | **-** | **66.00** | **56.00** | **-15.20** | **-** |
| 2 | 0.291 | 0.13 | 37.20 | - | 37.33 | - | 60.51 | 50.51 | -23.17 | - |
| 3 | 0.584 | 0.15 | 27.60 | - | 27.75 | - | 56.00 | 46.00 | -28.25 | - |
| 4 | 1.176 | 0.18 | 22.74 | - | 22.92 | - | 56.00 | 46.00 | -33.08 | - |
| 5 | 1.609 | 0.19 | 21.15 | - | 21.34 | - | 56.00 | 46.00 | -34.66 | - |
| 6 | 11.164 | 0.64 | 16.51 | - | 17.15 | - | 60.00 | 50.00 | -42.85 | - |

**REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



## 4.3 6dB BANDWIDTH MEASUREMENT

### 4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

### 4.3.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | DATE OF CALIBRATION | DUE DATE OF CALIBRATION |
|---|---|---|---|---|
| SPECTRUM ANALYZER R&S | FSP40 | 100039 | Feb. 23, 2011 | Feb. 22, 2012 |

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

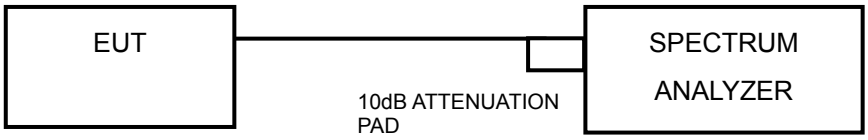
### 4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

### 4.3.4 DEVIATION FROM TEST STANDARD

No deviation.

### 4.3.5 TEST SETUP




### 4.3.6 EUT OPERATING CONDITIONS

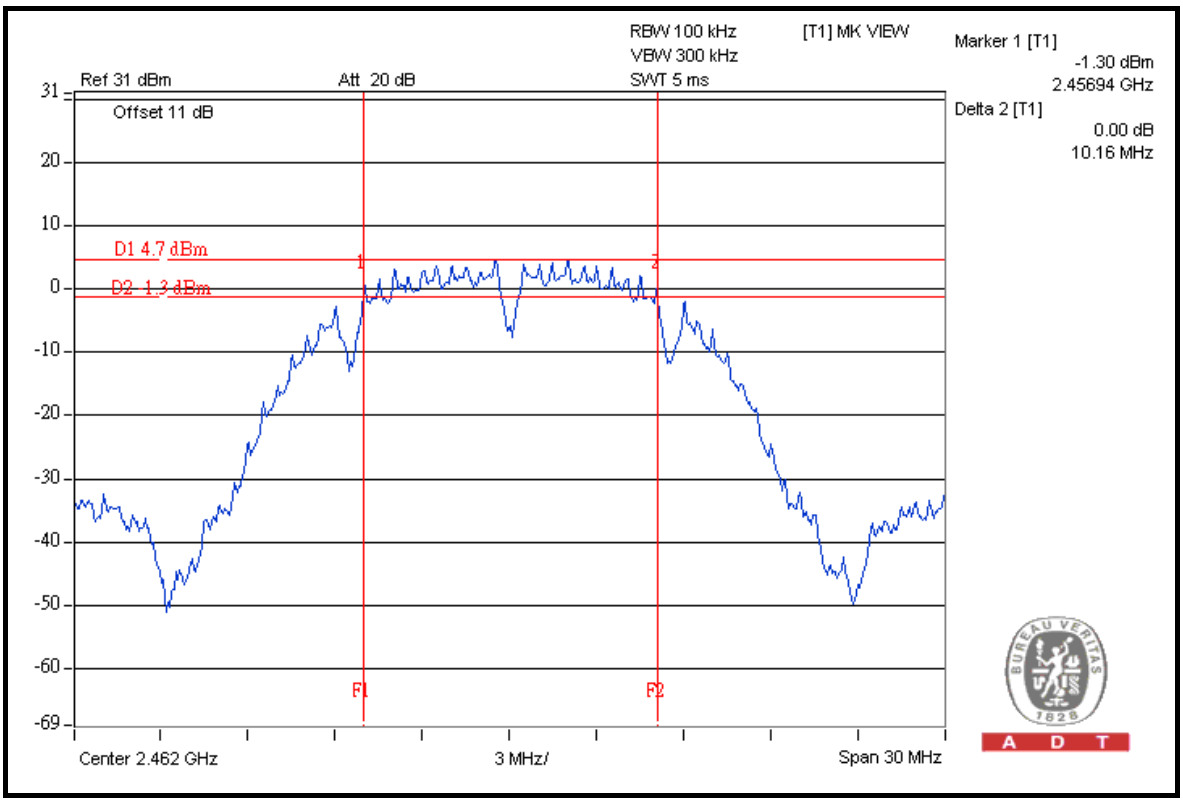
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

## 4.3.7 TEST RESULTS

**802.11b**

| CHANNEL | CHANNEL FREQUENCY (MHz) | 6dB BANDWIDTH (MHz) | | | MINIMUM LIMIT (MHz) | PASS / FAIL |
|---|---|---|---|---|---|---|
| | | CHAIN 0 | CHAIN 1 | CHAIN 2 | | |
| 1 | 2412 | 10.07 | 10.13 | 10.11 | 0.5 | PASS |
| 6 | 2437 | 10.11 | 10.09 | 10.11 | 0.5 | PASS |
| 11 | 2462 | 10.10 | 10.16 | 10.10 | 0.5 | PASS |

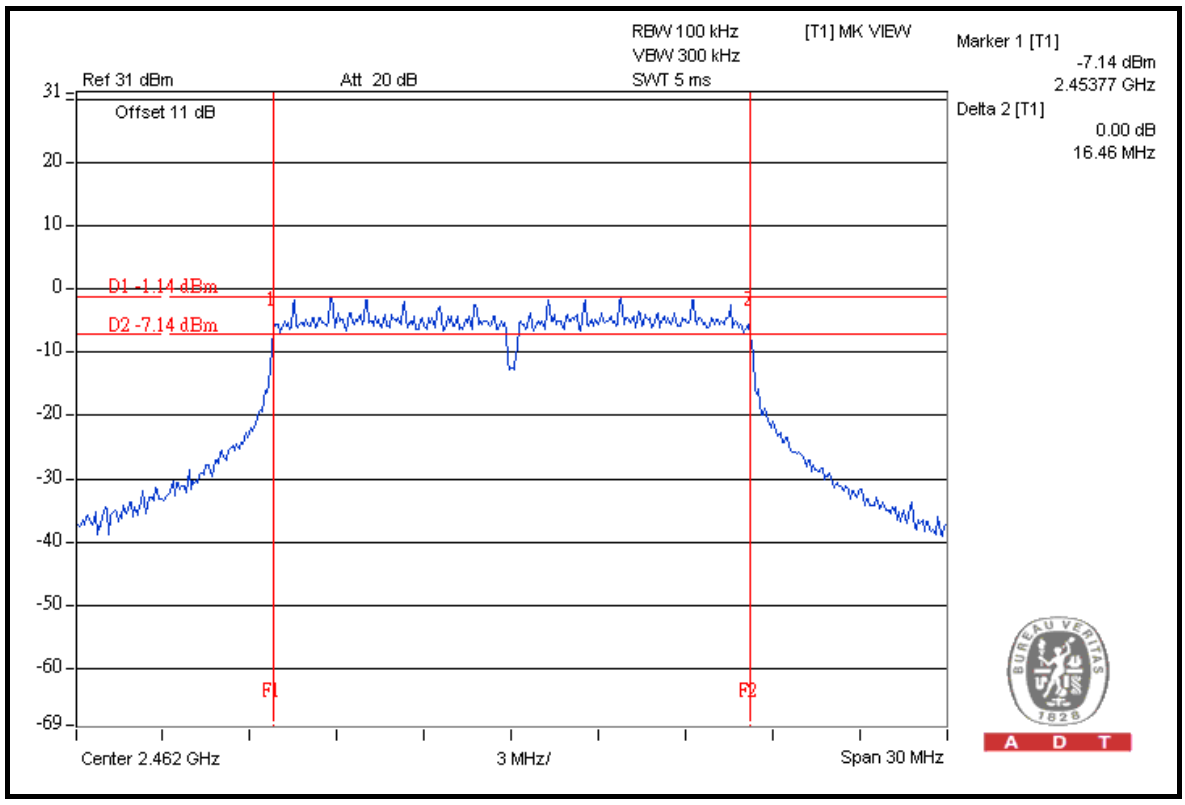
**FOR CHAIN 1: CH 11**



## 802.11g

| CHANNEL | CHANNEL FREQUENCY (MHz) | 6dB BANDWIDTH (MHz) | | | MINIMUM LIMIT (MHz) | PASS / FAIL |
|---|---|---|---|---|---|---|
| | | CHAIN 0 | CHAIN 1 | CHAIN 2 | | |
| 1 | 2412 | 16.40 | 16.43 | 16.41 | 0.5 | PASS |
| 6 | 2437 | 16.39 | 16.38 | 16.43 | 0.5 | PASS |
| 11 | 2462 | 16.44 | 16.46 | 16.40 | 0.5 | PASS |

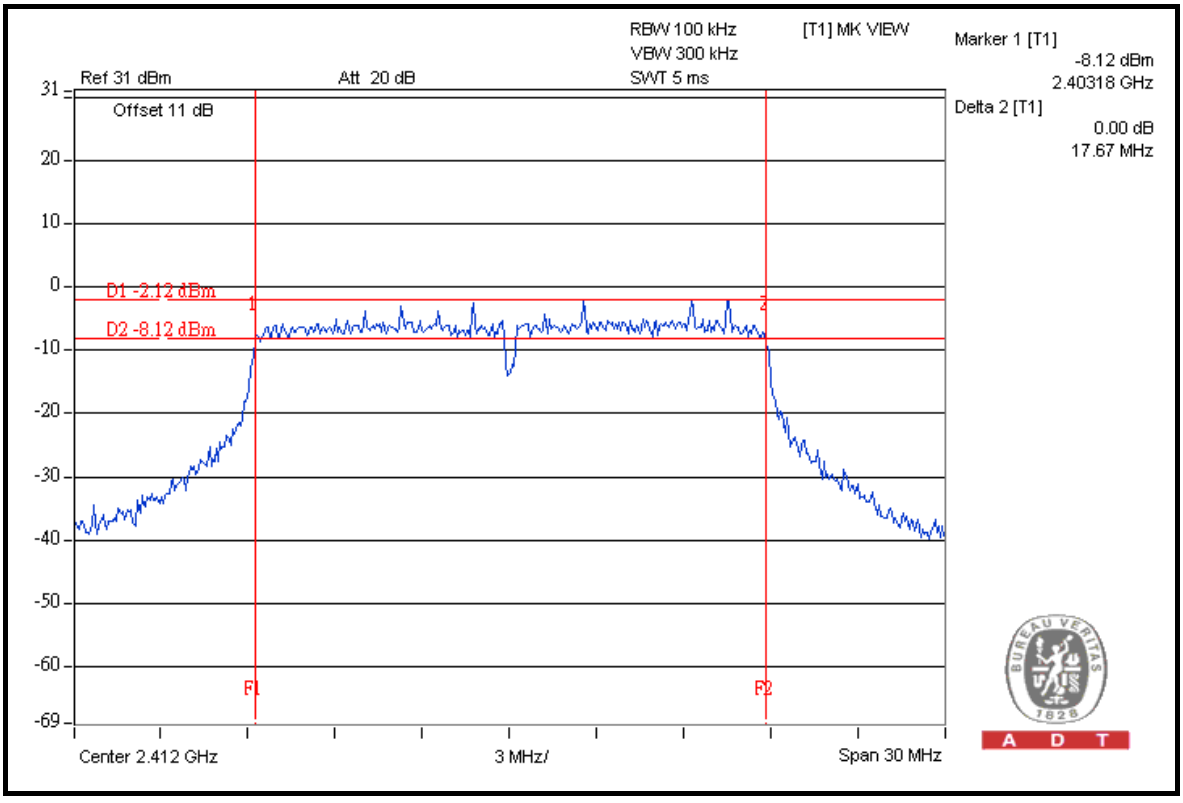
## FOR CHAIN 1: CH 11



### 802.11n (20MHz)

| CHANNEL | CHANNEL FREQUENCY (MHz) | 6dB BANDWIDTH (MHz) | | | MINIMUM LIMIT (MHz) | PASS / FAIL |
|---|---|---|---|---|---|---|
| | | CHAIN 0 | CHAIN 1 | CHAIN 2 | | |
| 1 | 2412 | 17.66 | 17.64 | 17.67 | 0.5 | PASS |
| 6 | 2437 | 17.65 | 17.64 | 17.63 | 0.5 | PASS |
| 11 | 2462 | 17.64 | 17.66 | 17.63 | 0.5 | PASS |

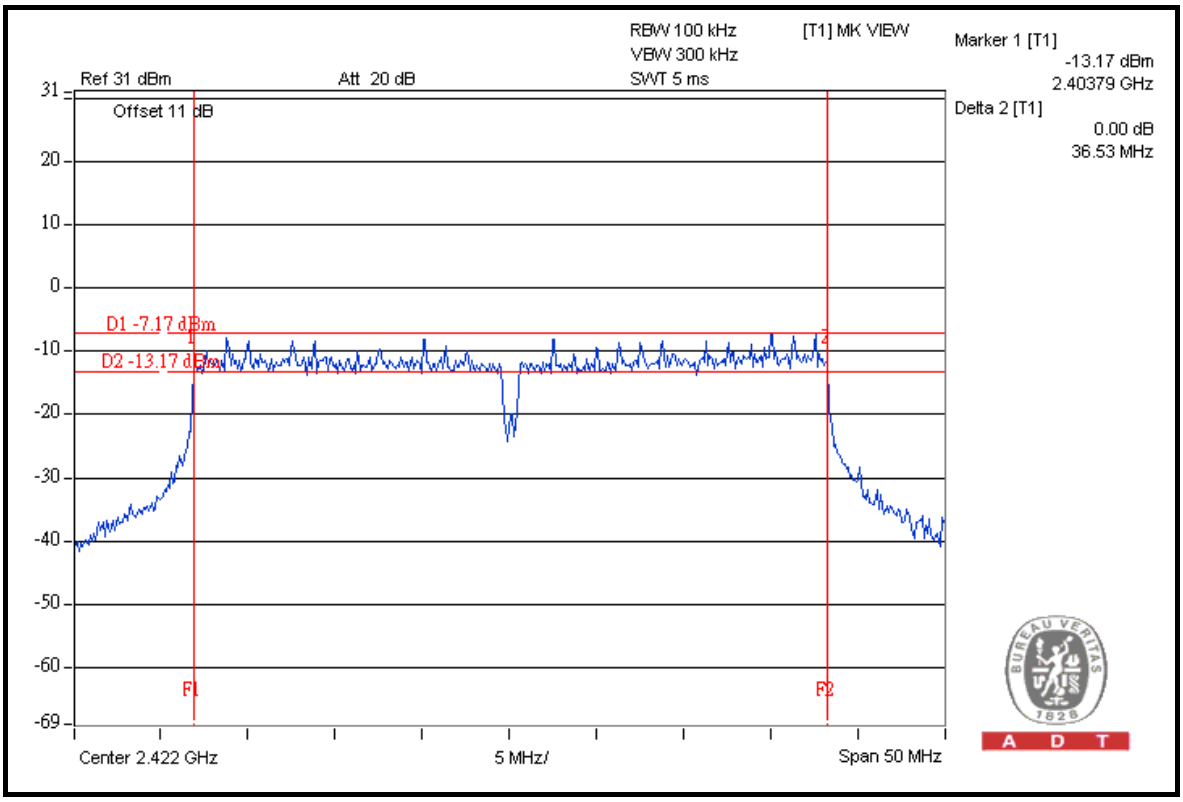
### FOR CHAIN 2: CH 1



### 802.11n (40MHz)

| CHANNEL | CHANNEL FREQUENCY (MHz) | 6dB BANDWIDTH (MHz) | | | MINIMUM LIMIT (MHz) | PASS / FAIL |
|---|---|---|---|---|---|---|
| | | CHAIN 0 | CHAIN 1 | CHAIN 2 | | |
| 1 | 2422 | 36.47 | 36.53 | 36.52 | 0.5 | PASS |
| 4 | 2437 | 36.47 | 36.52 | 36.51 | 0.5 | PASS |
| 7 | 2452 | 36.51 | 36.46 | 36.49 | 0.5 | PASS |

### FOR CHAIN 1: CH 1



## 4.4 MAXIMUM OUTPUT POWER

### 4.4.1 LIMITS OF MAXIMUM OUTPUT POWER MEASUREMENT

The Maximum Output Power Measurement is 30dBm.

### 4.4.2 INSTRUMENTS

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | DATE OF CALIBRATION | DUE DATE OF CALIBRATION |
|---|---|---|---|---|
| High Speed Peak Power Meter | ML2495A | 0842014 | Apr. 26, 2011 | Apr. 25, 2012 |
| Power Sensor | MA2411B | 0738404 | Apr. 26, 2011 | Apr. 25, 2012 |

**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. Measurement Bandwidth of ML2495A is 65MHz greater than 6dB bandwidth of emission.

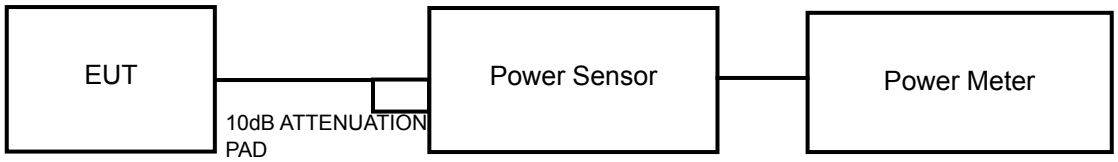
### 4.4.3 TEST PROCEDURES

A power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

### 4.4.4 DEVIATION FROM TEST STANDARD

No deviation.

### 4.4.5 TEST SETUP




### 4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6.

## 4.4.7 TEST RESULTS

**802.11b**

| CHAN. | CHAN. FREQ. (MHz) | POWER OUTPUT (dBm) | | | TOTAL POWER (mW) | TOTAL POWER (dBm) | POWER LIMIT (dBm) | PASS / FAIL |
|---|---|---|---|---|---|---|---|---|
| | | CHAIN 0 | CHAIN 1 | CHAIN 2 | | | | |
| 1 | 2412 | 18.3 | 16.7 | 17.2 | 166.9 | 22.2 | 29.2 | PASS |
| 6 | 2437 | 20.0 | 18.2 | 18.7 | 240.2 | 23.8 | 29.2 | PASS |
| 11 | 2462 | 19.2 | 17.2 | 18.2 | 201.7 | 23.0 | 29.2 | PASS |

Directional gain =2dBi + 10log(3)=6.8dBi > 6dBi , so the conducted power limit shall be reduced to 30-(6.8-6)=29.2dBm

**802.11g**

| CHAN. | CHAN. FREQ. (MHz) | POWER OUTPUT (dBm) | | | TOTAL POWER (mW) | TOTAL POWER (dBm) | POWER LIMIT (dBm) | PASS / FAIL |
|---|---|---|---|---|---|---|---|---|
| | | CHAIN 0 | CHAIN 1 | CHAIN 2 | | | | |
| 1 | 2412 | 22.2 | 20.7 | 20.9 | 406.5 | 26.1 | 29.2 | PASS |
| 6 | 2437 | 25.0 | 23.7 | 23.8 | 790.5 | 29.0 | 29.2 | PASS |
| 11 | 2462 | 22.0 | 20.2 | 20.5 | 375.4 | 25.7 | 29.2 | PASS |

Directional gain =2dBi + 10log(3)=6.8dBi > 6dBi , so the conducted power limit shall be reduced to 30-(6.8-6)=29.2dBm

**802.11n (20MHz)**

| CHAN. | CHAN. FREQ. (MHz) | POWER OUTPUT (dBm) | | | TOTAL POWER (mW) | TOTAL POWER (dBm) | POWER LIMIT (dBm) | PASS / FAIL |
|---|---|---|---|---|---|---|---|---|
| | | CHAIN 0 | CHAIN 1 | CHAIN 2 | | | | |
| 1 | 2412 | 21.1 | 19.1 | 18.7 | 284.2 | 24.5 | 29.2 | PASS |
| 6 | 2437 | 24.7 | 23.2 | 23.9 | 749.5 | 28.7 | 29.2 | PASS |
| 11 | 2462 | 20.5 | 19.8 | 20.1 | 310.0 | 24.9 | 29.2 | PASS |

Directional gain =2dBi + 10log(3)=6.8dBi > 6dBi , so the conducted power limit shall be reduced to 30-(6.8-6)=29.2dBm

**802.11n (40MHz)**

| CHAN. | CHAN. FREQ. (MHz) | POWER OUTPUT (dBm) | | | TOTAL POWER (mW) | TOTAL POWER (dBm) | POWER LIMIT (dBm) | PASS / FAIL |
|---|---|---|---|---|---|---|---|---|
| | | CHAIN 0 | CHAIN 1 | CHAIN 2 | | | | |
| 1 | 2422 | 19.1 | 17.0 | 16.9 | 180.4 | 22.6 | 29.2 | PASS |
| 4 | 2437 | 22.2 | 20.0 | 20.5 | 378.2 | 25.8 | 29.2 | PASS |
| 7 | 2452 | 19.5 | 16.8 | 17.7 | 195.9 | 22.9 | 29.2 | PASS |

Directional gain =2dBi + 10log(3)=6.8dBi > 6dBi , so the conducted power limit shall be reduced to 30-(6.8-6)=29.2dBm

## 4.5 POWER SPECTRAL DENSITY MEASUREMENT

### 4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

### 4.5.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | DATE OF CALIBRATION | DUE DATE OF CALIBRATION |
|---|---|---|---|---|
| SPECTRUM ANALYZER R&S | FSP40 | 100039 | Feb. 23, 2011 | Feb. 22, 2012 |

**NOTE:** 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 PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 10kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

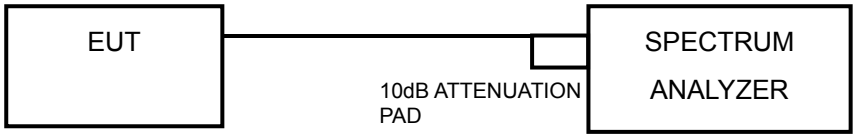
The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

Follow method 2 of KDB 662911 D01 Multiple Transmitter Output v01 to calculate total power density of 3 TX port.

## 4.5.4 DEVIATION FROM TEST STANDARD

No deviation

## 4.5.5 TEST SETUP




## 4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

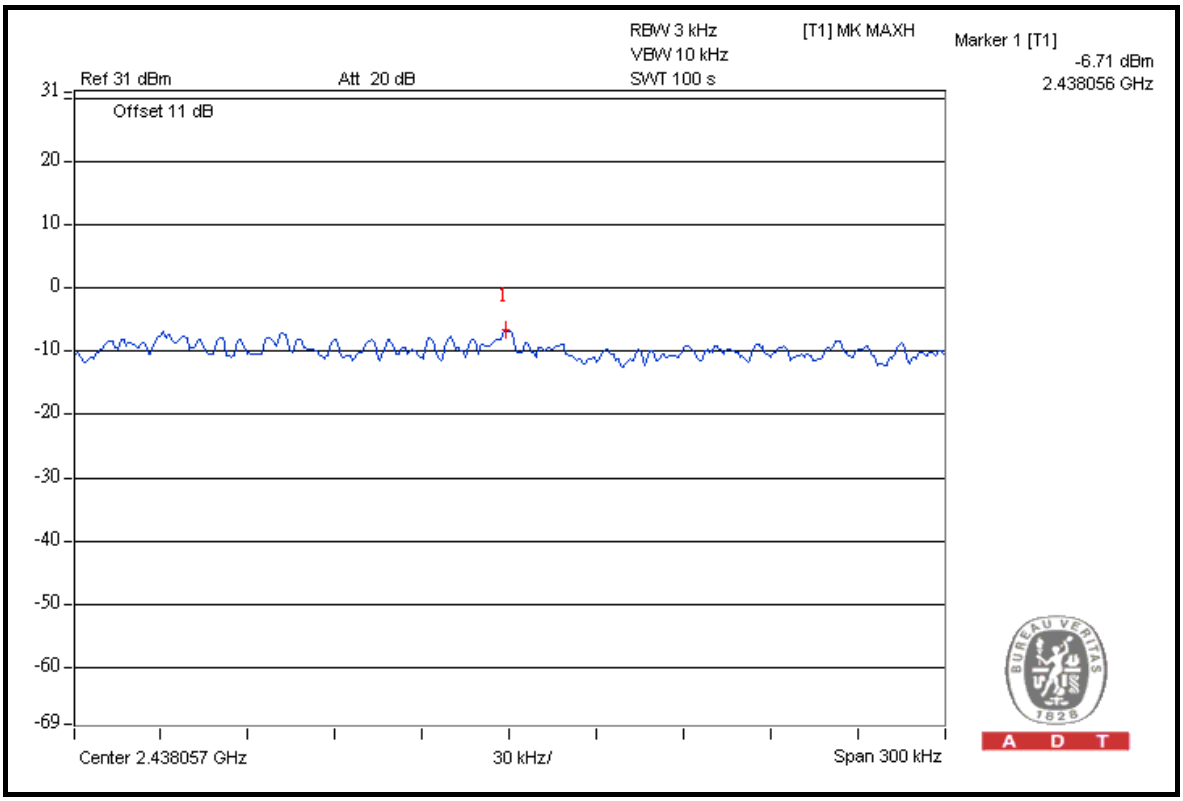
## 4.5.7 TEST RESULTS

### 802.11b

| CHAIN | CHAN. | CHAN. FREQ. (MHz) | RF POWER LEVEL IN 3kHz BW (dBm) | | TOTAL POWER DENSITY (dBm) | MAX. LIMIT (dBm) | PASS / FAIL |
|---|---|---|---|---|---|---|---|
| | | | MEASURED | 10 log (N=3) dB | | | |
| 0 | 1 | 2412 | -8.34 | 4.77 | -3.6 | 7.2 | PASS |
| | 6 | 2437 | -6.71 | 4.77 | -1.9 | 7.2 | PASS |
| | 11 | 2462 | -7.53 | 4.77 | -2.8 | 7.2 | PASS |
| 1 | 1 | 2412 | -10.56 | 4.77 | -5.8 | 7.2 | PASS |
| | 6 | 2437 | -8.99 | 4.77 | -4.2 | 7.2 | PASS |
| | 11 | 2462 | -9.82 | 4.77 | -5.1 | 7.2 | PASS |
| 2 | 1 | 2412 | -9.43 | 4.77 | -4.7 | 7.2 | PASS |
| | 6 | 2437 | -7.78 | 4.77 | -3.0 | 7.2 | PASS |
| | 11 | 2462 | -8.35 | 4.77 | -3.6 | 7.2 | PASS |

Directional gain =2dBi + 10log(3)=6.8dBi > 6dBi , so the conducted power limit shall be reduced to 8-(6.8-6)=7.2dBm

### FOR CHAIN 0: CH 6

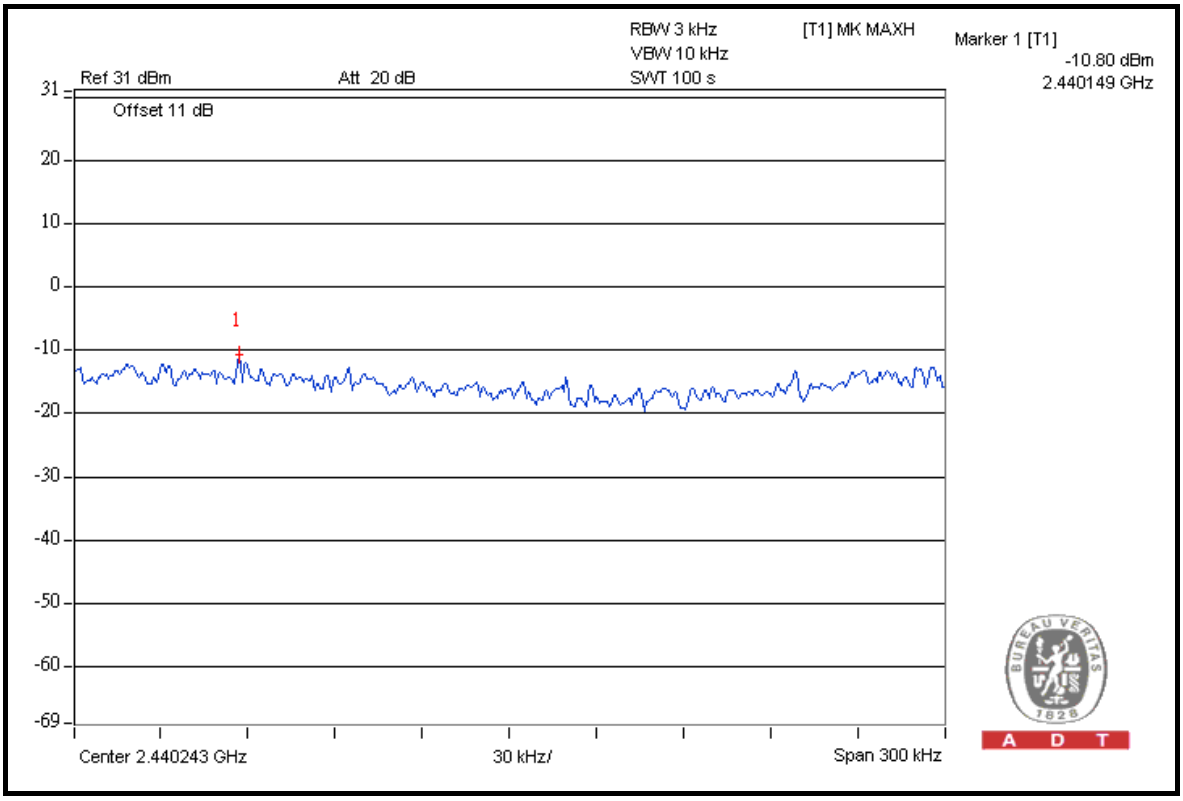


## 802.11g

| CHAIN | CHAN. | CHAN. FREQ. (MHz) | RF POWER LEVEL IN 3kHz BW (dBm) | | TOTAL POWER DENSITY (dBm) | MAX. LIMIT (dBm) | PASS / FAIL |
|---|---|---|---|---|---|---|---|
| | | | MEASURED | 10 log (N=3) dB | | | |
| 0 | 1 | 2412 | -14.09 | 4.77 | -9.3 | 7.2 | PASS |
| | 6 | 2437 | -11.37 | 4.77 | -6.6 | 7.2 | PASS |
| | 11 | 2462 | -14.12 | 4.77 | -9.4 | 7.2 | PASS |
| 1 | 1 | 2412 | -14.03 | 4.77 | -9.3 | 7.2 | PASS |
| | 6 | 2437 | -10.80 | 4.77 | -6.0 | 7.2 | PASS |
| | 11 | 2462 | -14.77 | 4.77 | -10.0 | 7.2 | PASS |
| 2 | 1 | 2412 | -14.84 | 4.77 | -10.1 | 7.2 | PASS |
| | 6 | 2437 | -12.00 | 4.77 | -7.2 | 7.2 | PASS |
| | 11 | 2462 | -15.32 | 4.77 | -10.6 | 7.2 | PASS |

Directional gain =2dBi + 10log(3)=6.8dBi > 6dBi , so the conducted power limit shall be reduced to 8-(6.8-6)=7.2dBm

## FOR CHAIN 1: CH 6

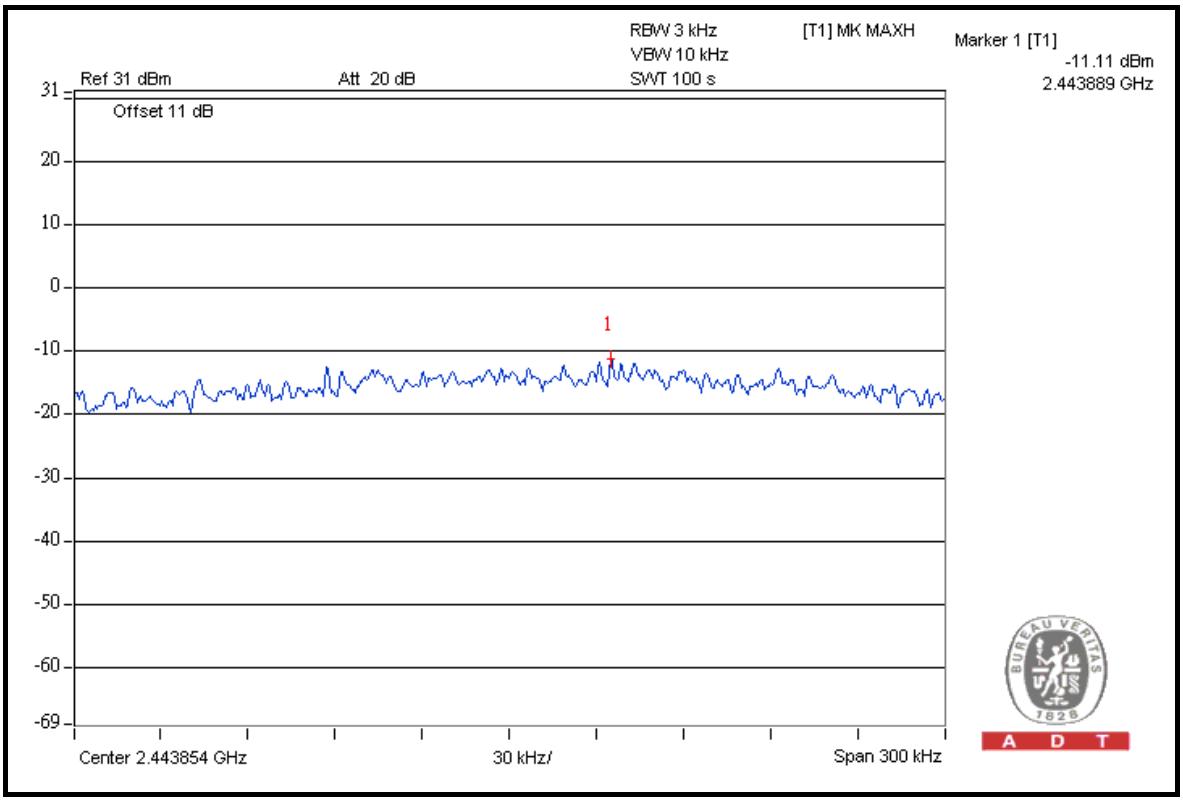


## 802.11n (20MHz)

| CHAIN | CHAN. | CHAN. FREQ. (MHz) | RF POWER LEVEL IN 3kHz BW (dBm) | | TOTAL POWER DENSITY (dBm) | MAX. LIMIT (dBm) | PASS / FAIL |
|---|---|---|---|---|---|---|---|
| | | | MEASURED | 10 log (N=3) dB | | | |
| 0 | 1 | 2412 | -14.70 | 4.77 | -9.9 | 7.2 | PASS |
| | 6 | 2437 | -11.25 | 4.77 | -6.5 | 7.2 | PASS |
| | 11 | 2462 | -15.41 | 4.77 | -10.6 | 7.2 | PASS |
| 1 | 1 | 2412 | -16.17 | 4.77 | -11.4 | 7.2 | PASS |
| | 6 | 2437 | -12.26 | 4.77 | -7.5 | 7.2 | PASS |
| | 11 | 2462 | -15.59 | 4.77 | -10.8 | 7.2 | PASS |
| 2 | 1 | 2412 | -16.39 | 4.77 | -11.6 | 7.2 | PASS |
| | 6 | 2437 | -11.11 | 4.77 | -6.3 | 7.2 | PASS |
| | 11 | 2462 | -14.94 | 4.77 | -10.2 | 7.2 | PASS |

Directional gain =2dBi + 10log(3)=6.8dBi > 6dBi , so the conducted power limit shall be reduced to 8-(6.8-6)=7.2dBm

## FOR CHAIN 2: CH 6

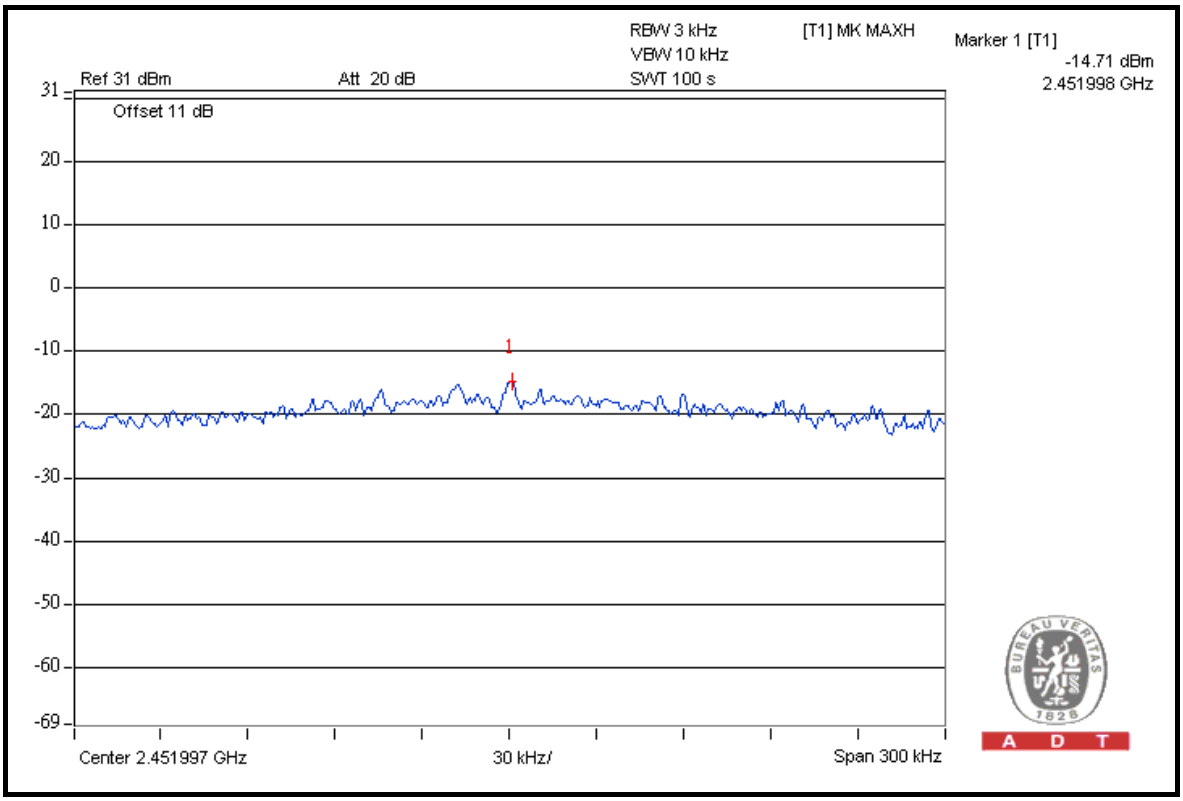


### 802.11n (40MHz)

| CHAIN | CHAN. | CHAN. FREQ. (MHz) | RF POWER LEVEL IN 3kHz BW (dBm) | | TOTAL POWER DENSITY (dBm) | MAX. LIMIT (dBm) | PASS / FAIL |
|---|---|---|---|---|---|---|---|
| | | | MEASURED | 10 log (N=3) dB | | | |
| 0 | 1 | 2422 | -17.97 | 4.77 | -13.2 | 7.2 | PASS |
| | 4 | 2437 | -14.71 | 4.77 | -9.9 | 7.2 | PASS |
| | 7 | 2452 | -17.48 | 4.77 | -12.7 | 7.2 | PASS |
| 1 | 1 | 2422 | -21.94 | 4.77 | -17.2 | 7.2 | PASS |
| | 4 | 2437 | -19.13 | 4.77 | -14.4 | 7.2 | PASS |
| | 7 | 2452 | -21.95 | 4.77 | -17.2 | 7.2 | PASS |
| 2 | 1 | 2422 | -20.60 | 4.77 | -15.8 | 7.2 | PASS |
| | 4 | 2437 | -16.80 | 4.77 | -12.0 | 7.2 | PASS |
| | 7 | 2452 | -19.81 | 4.77 | -15.0 | 7.2 | PASS |

Directional gain =2dBi + 10log(3)=6.8dBi > 6dBi , so the conducted power limit shall be reduced to 8-(6.8-6)=7.2dBm

### FOR CHAIN 0: CH 4



## 4.6 BAND EDGES MEASUREMENT

### 4.6.1 LIMITS OF BAND EDGES MEASUREMENT

Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

### 4.6.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | DATE OF CALIBRATION | DUE DATE OF CALIBRATION |
|---|---|---|---|---|
| **FOR CONDUCTED MEASUREMENT** | | | | |
| SPECTRUM ANALYZER R&S | FSP40 | 100039 | Feb. 23, 2011 | Feb. 22, 2012 |
| **FOR RADIATED MEASUREMENT** | | | | |
| Test Receiver ROHDE & SCHWARZ | ESCI | 100744 | Apr. 19, 2011 | Apr. 18, 2012 |
| Spectrum Analyzer ROHDE & SCHWARZ | FSP40 | 100269 | Jan. 06, 2011 | Jan. 05, 2012 |
| BILOG Antenna SCHWARZBECK | VULB9168 | 9168-156 | Apr. 12, 2011 | Apr. 11, 2012 |
| HORN Antenna SCHWARZBECK | BBHA 9120 D | 9120D-563 | Sep. 06, 2011 | Sep. 05, 2012 |
| HORN Antenna SCHWARZBECK | BBHA 9170 | BBHA9170243 | Dec. 27, 2010 | Dec. 26, 2011 |
| Preamplifier Agilent | 8449B | 3008A01911 | Nov. 03, 2010 | Nov. 02, 2011 |
| Preamplifier Agilent | 8447D | 2944A10638 | Nov. 03, 2010 | Nov. 02, 2011 |
| RF signal cable HUBER+SUHNNER | SUCOFLEX 104 | 295013/4 283403/4 | Aug. 19, 2011 | Aug. 18, 2012 |
| RF signal cable Worken | 8D-FB | Cable-HYCH9-01 | Aug. 13, 2011 | Aug. 12, 2012 |
| Software | ADT_Radiated_ V7.6.15.9.2 | NA | NA | NA |
| Antenna Tower EMCO | 2070/2080 | 512.835.4684 | NA | NA |
| Turn Table EMCO | 2087-2.03 | NA | NA | NA |
| Antenna Tower &Turn Table Controller EMCO | 2090 | NA | NA | NA |

**NOTE:** 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

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. Set both RBW and VBW of spectrum analyzer to 100kHz and 300kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

The spectrum plots (Peak RBW = 100kHz, VBW = 300kHz) are attached on the following pages.

**NOTE:** The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 1kHz for Average detection (AV) at frequency above 1GHz.

### 4.6.4 DEVIATION FROM TEST STANDARD

No deviation.

### 4.6.5 EUT OPERATING CONDITION

Same as Item 4.3.6.

## 4.6.6 TEST RESULTS

The spectrum plots are attached on the following pages. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

**802.11b**

**RESTRICT BAND (2310 ~ 2390 MHz)**

| FREQUENCY (MHz) | FUNDAMENTAL EMISSION (dBuV/m) | DELTA (dB) | MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m) | LIMIT (dBuV/m) |
|---|---|---|---|---|
| 2412.00 (PK) | 112.3 | 56.28 | 56.02 | 74.00 |
| 2412.00 (AV) | 108.1 | 57.61 | 50.49 | 54.00 |

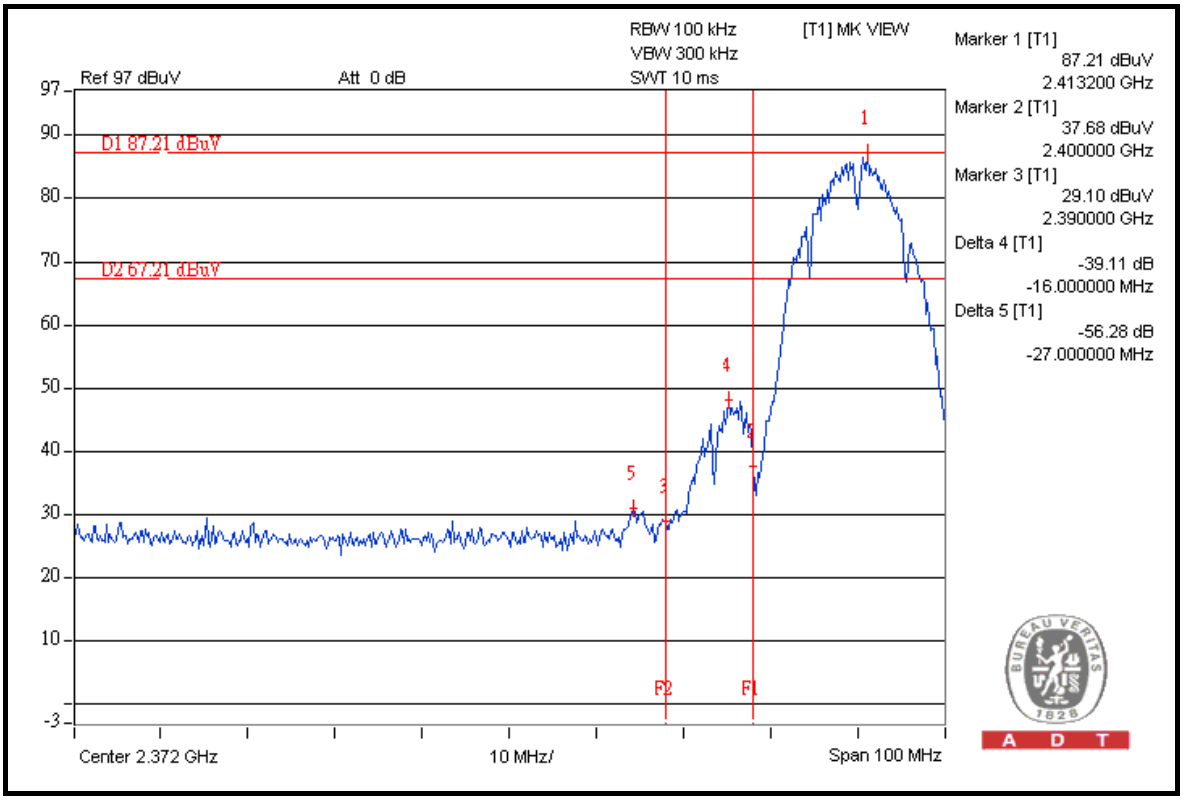
**RESTRICT BAND (2483.5 ~ 2500 MHz)**

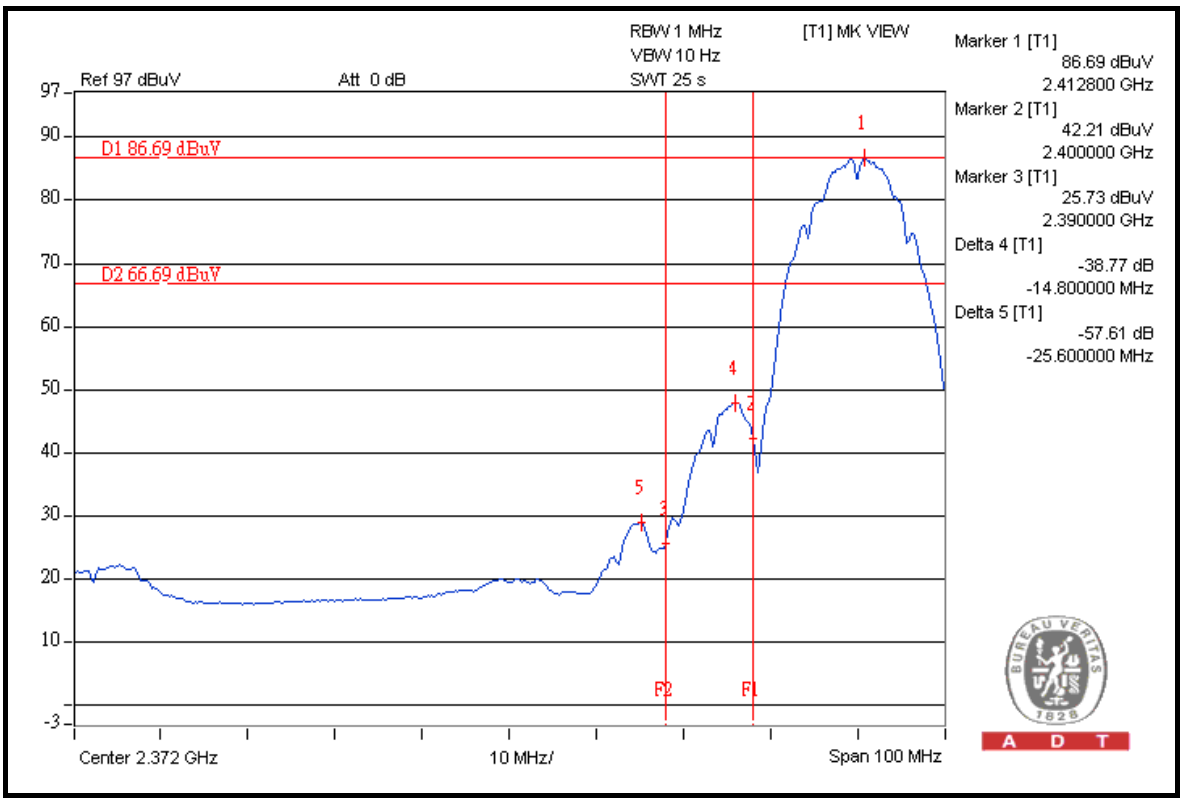
| FREQUENCY (MHz) | FUNDAMENTAL EMISSION (dBuV/m) | DELTA (dB) | MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m) | LIMIT (dBuV/m) |
|---|---|---|---|---|
| 2462.00 (PK) | 112.7 | 56.48 | 56.22 | 74.00 |
| 2462.00 (AV) | 108.8 | 56.98 | 51.82 | 54.00 |

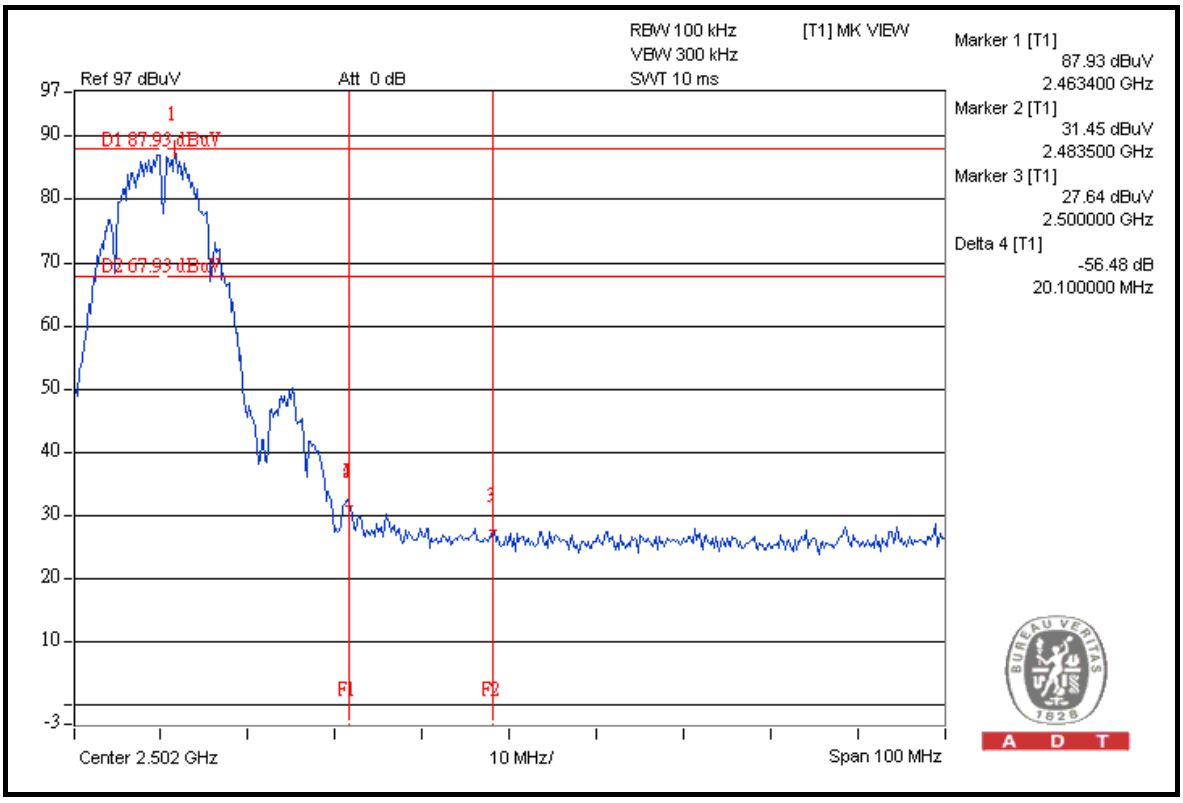
**NOTE:**

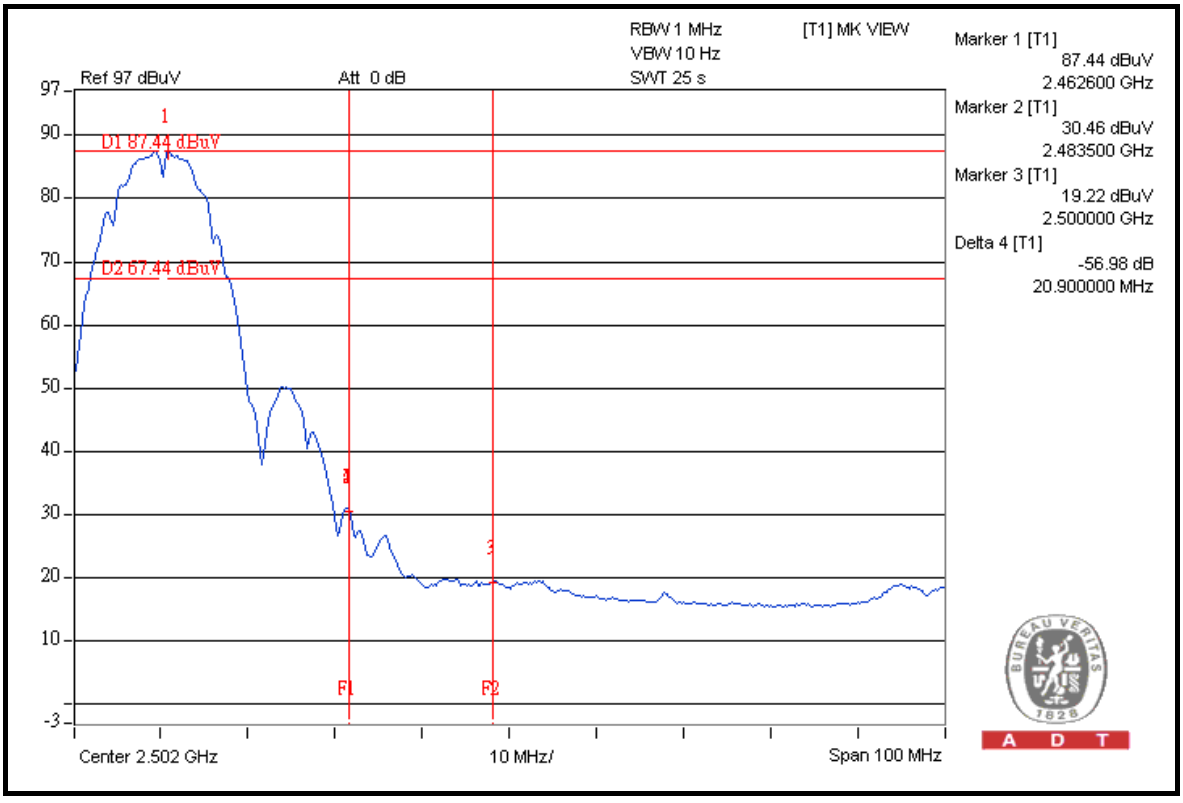
1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.

## FOR RADIATED MEASURED (THREE CHAINS ON)



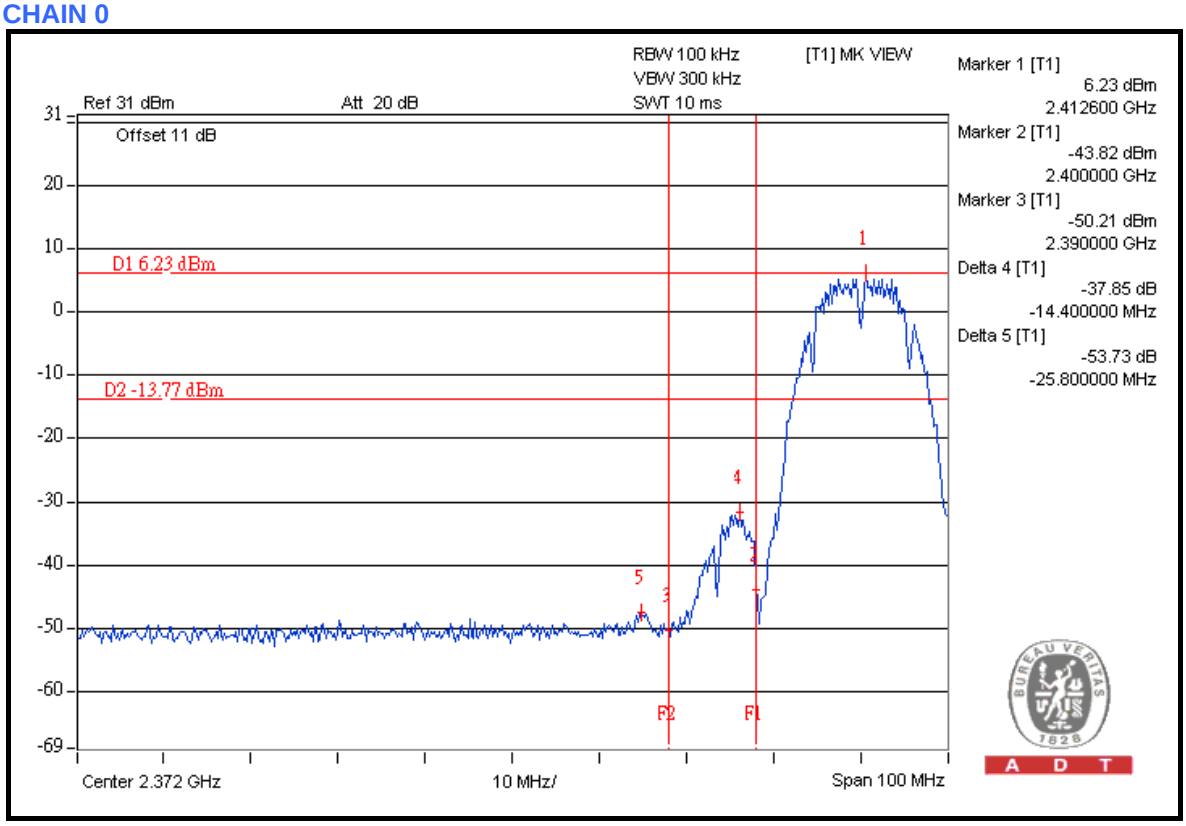



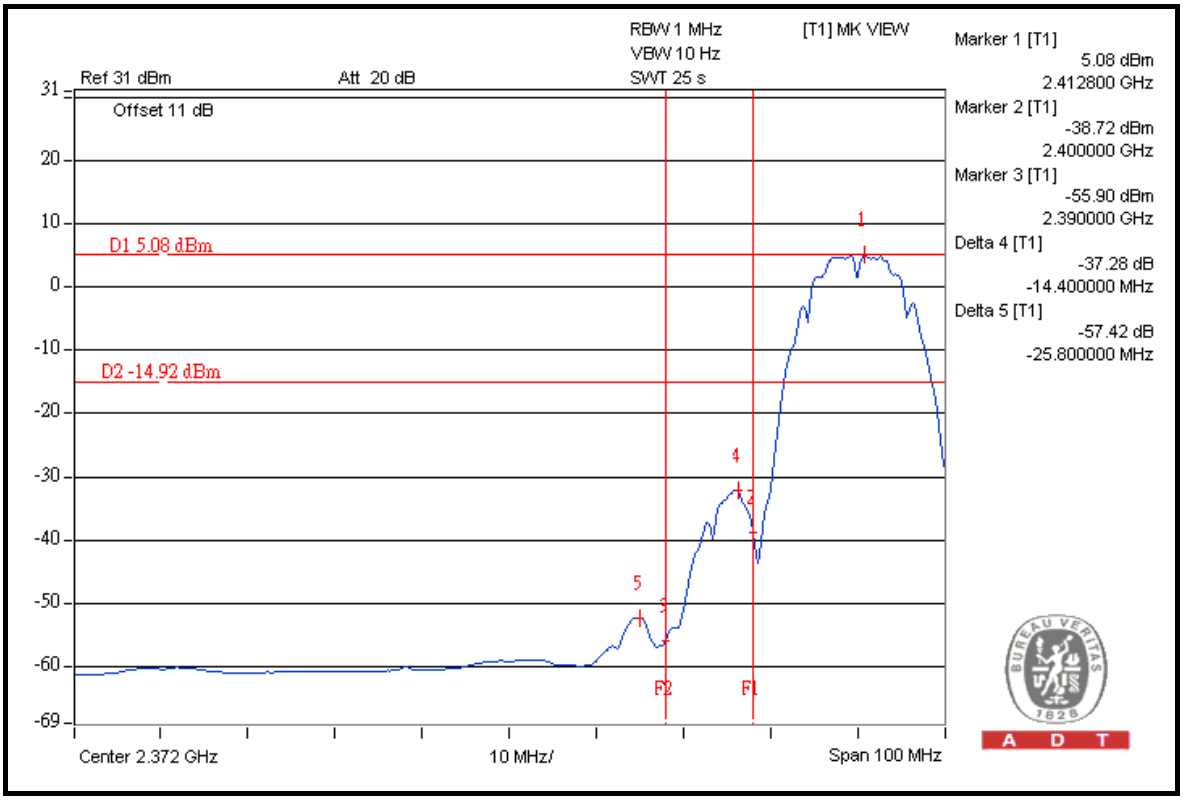

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 87.93 dBuV
D2 67.93 dBuV
Marker 1 [T1]
87.93 dBuV
2.463400 GHz
Marker 2 [T1]
31.45 dBuV
2.483500 GHz
Marker 3 [T1]
27.64 dBuV
2.500000 GHz
Delta 4 [T1]
-56.48 dB
20.100000 MHz
Center 2.502 GHz
10 MHz/
Span 100 MHz

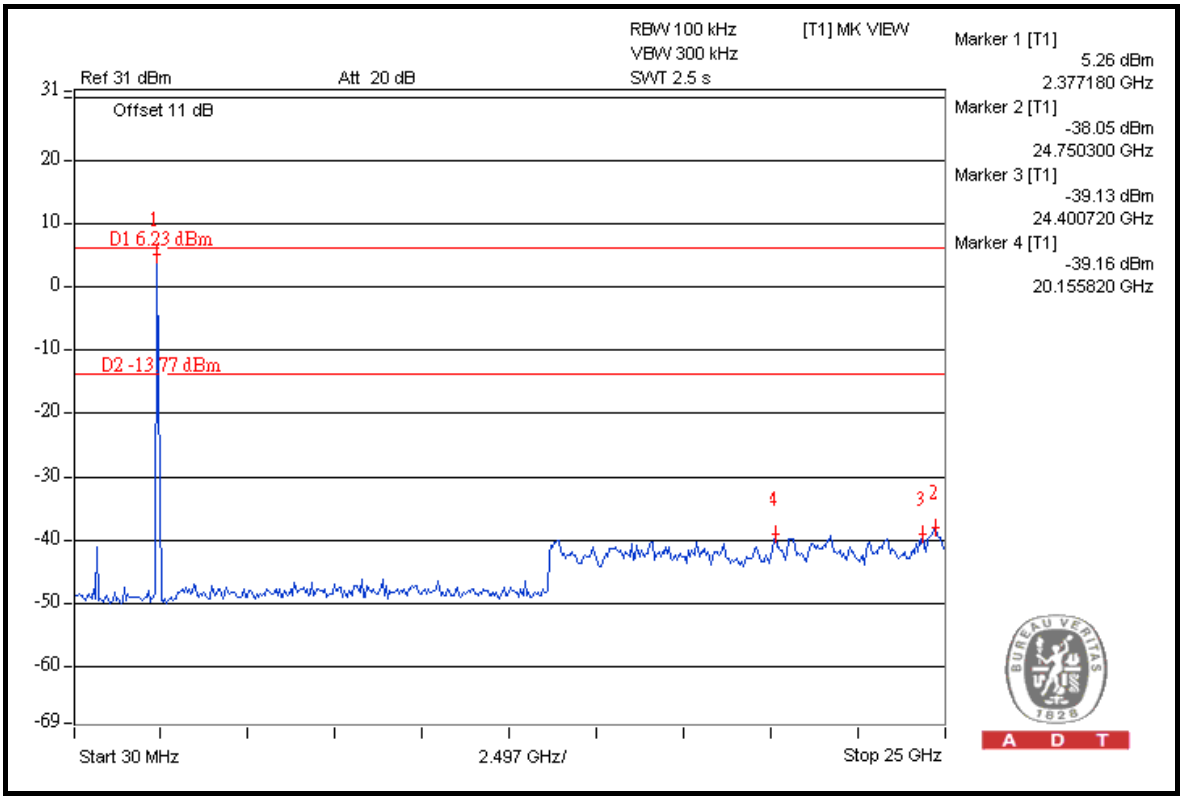

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
D1 87.44 dBuV
D2 67.44 dBuV
Marker 1 [T1]
87.44 dBuV
2.462600 GHz
Marker 2 [T1]
30.46 dBuV
2.483500 GHz
Marker 3 [T1]
19.22 dBuV
2.500000 GHz
Delta 4 [T1]
-56.98 dB
20.900000 MHz
Center 2.502 GHz
10 MHz/
Span 100 MHz

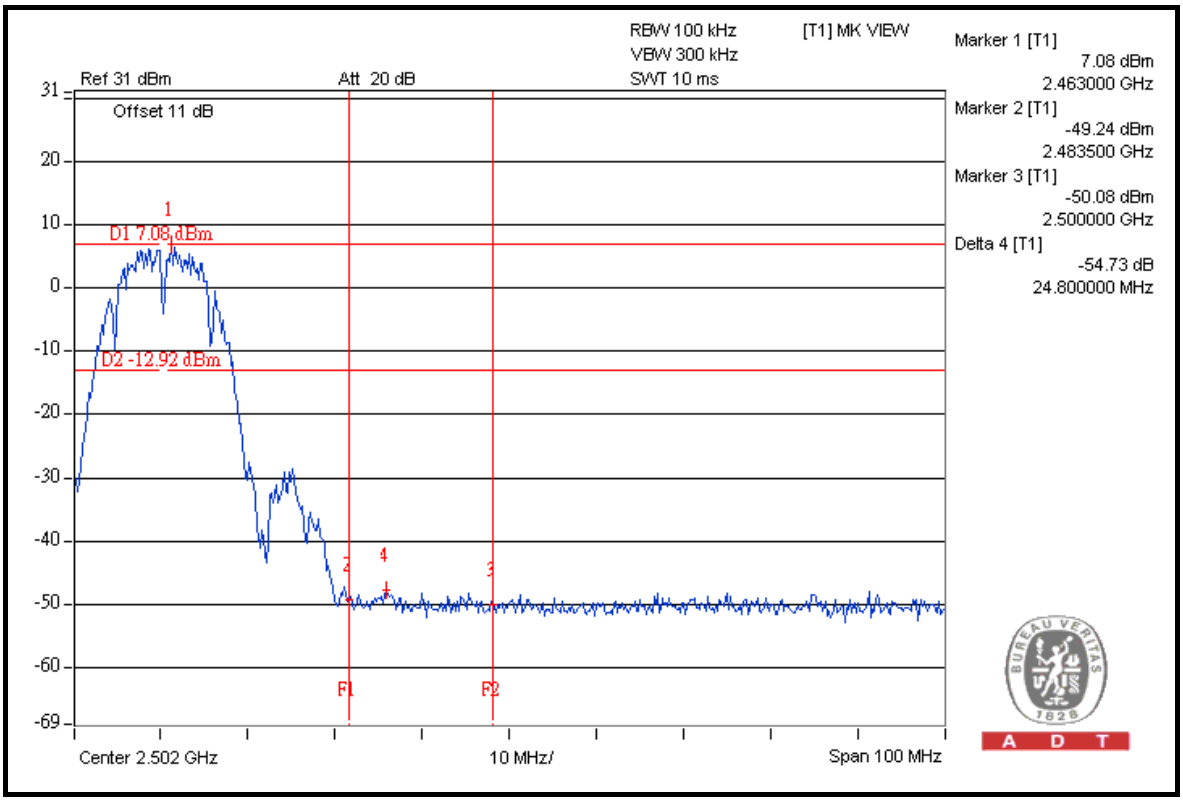
## FOR CONDUCTED MEASURED

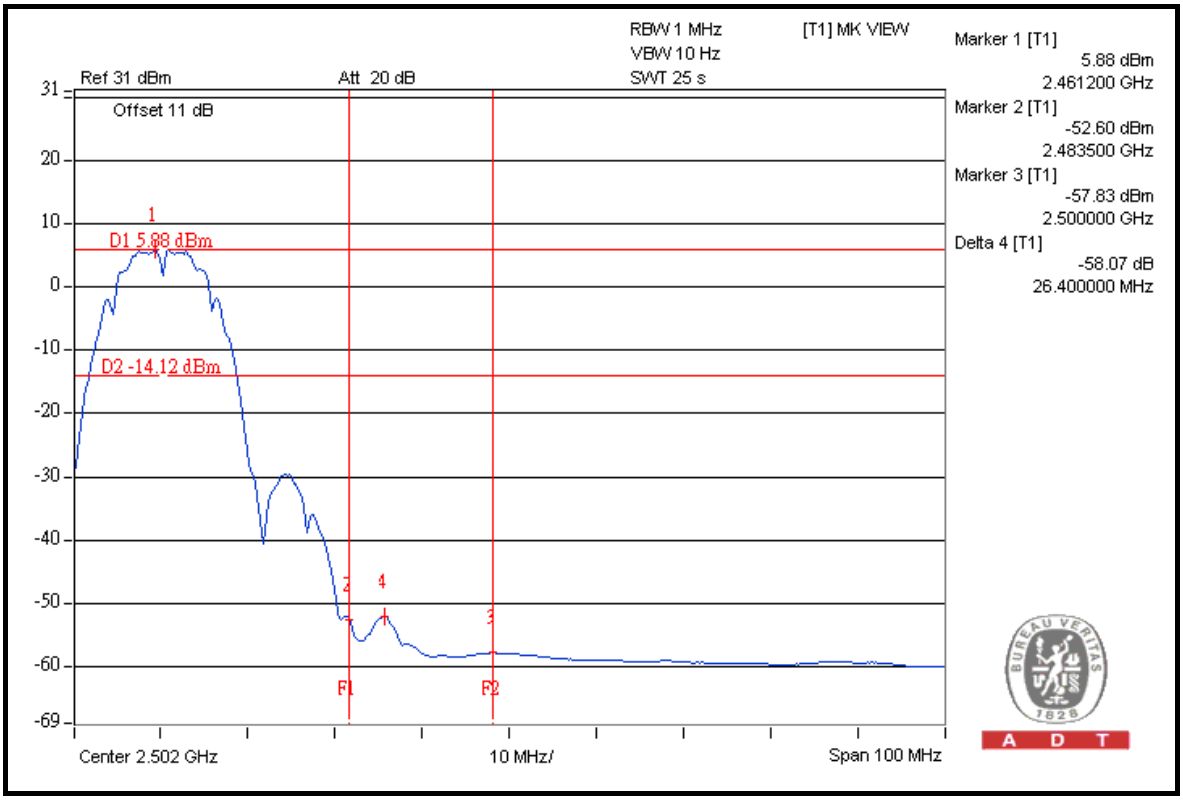
### CHAIN 0

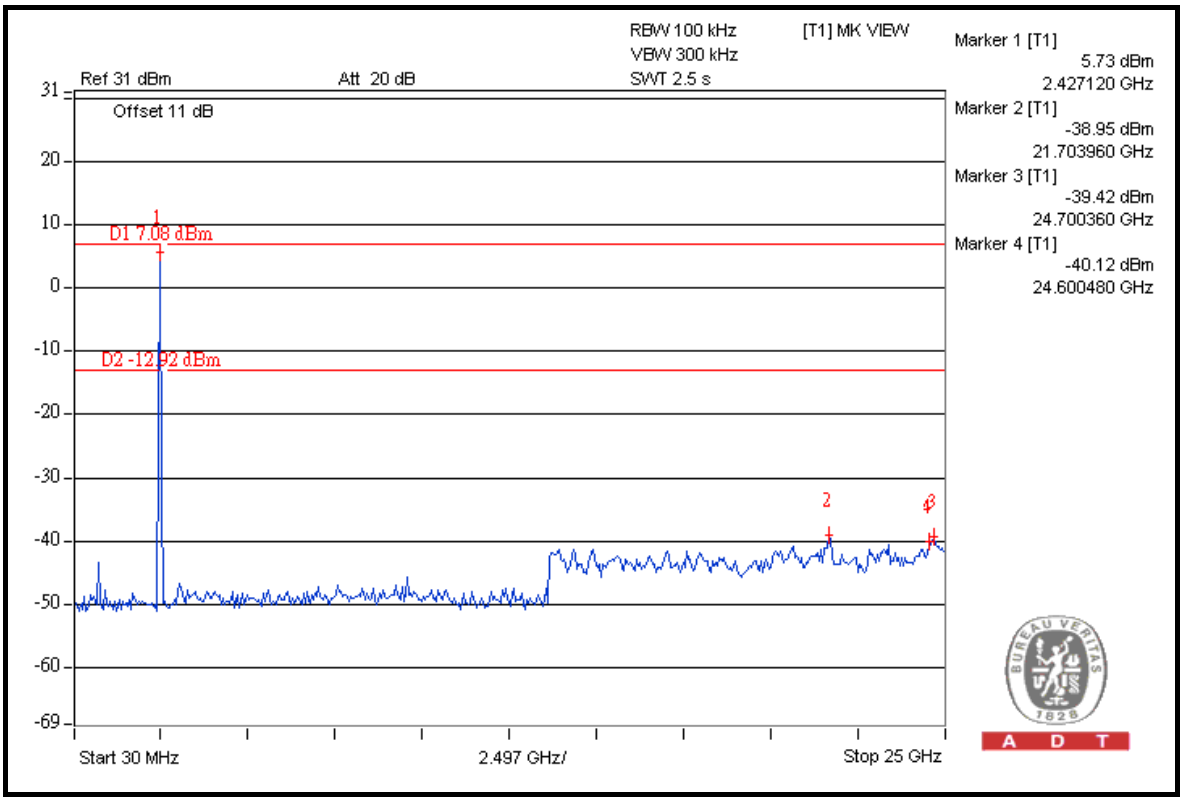


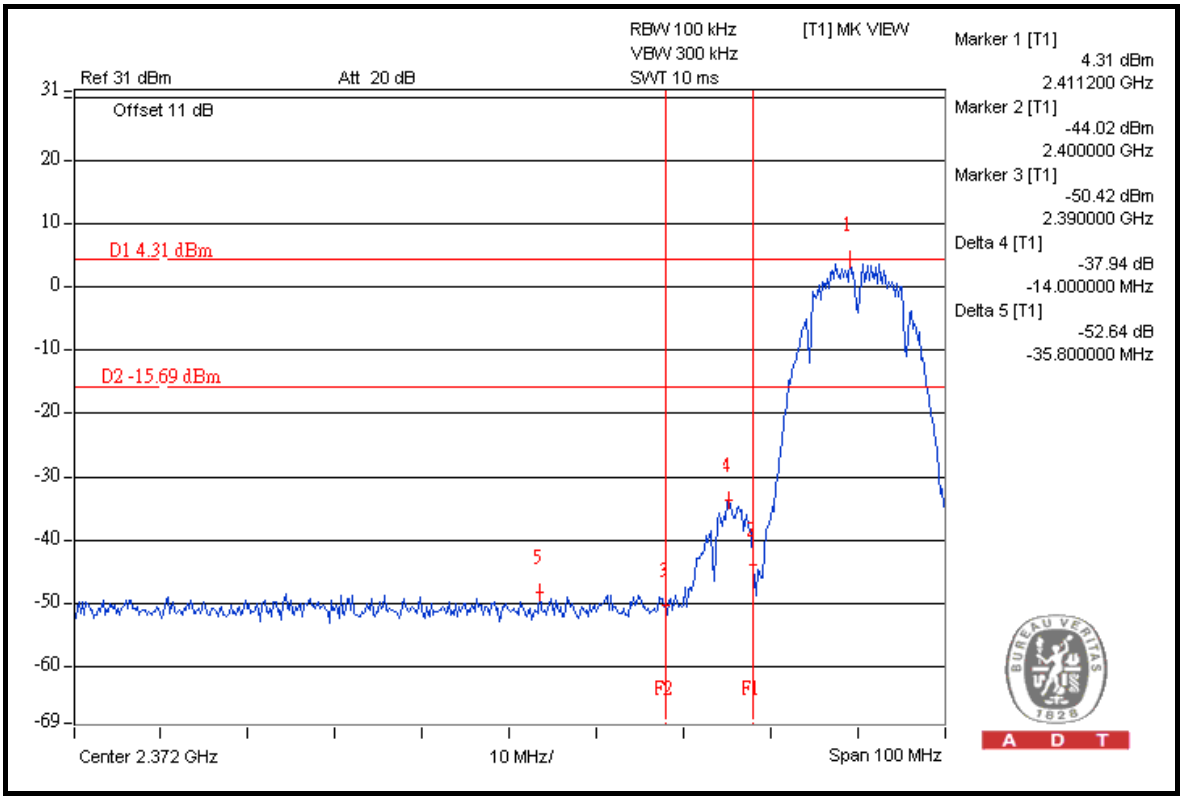

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 6.23 dBm
D2 -13.77 dBm
Marker 1 [T1]
5.26 dBm
2.377180 GHz
Marker 2 [T1]
-38.05 dBm
24.750300 GHz
Marker 3 [T1]
-39.13 dBm
24.400720 GHz
Marker 4 [T1]
-39.16 dBm
20.155820 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

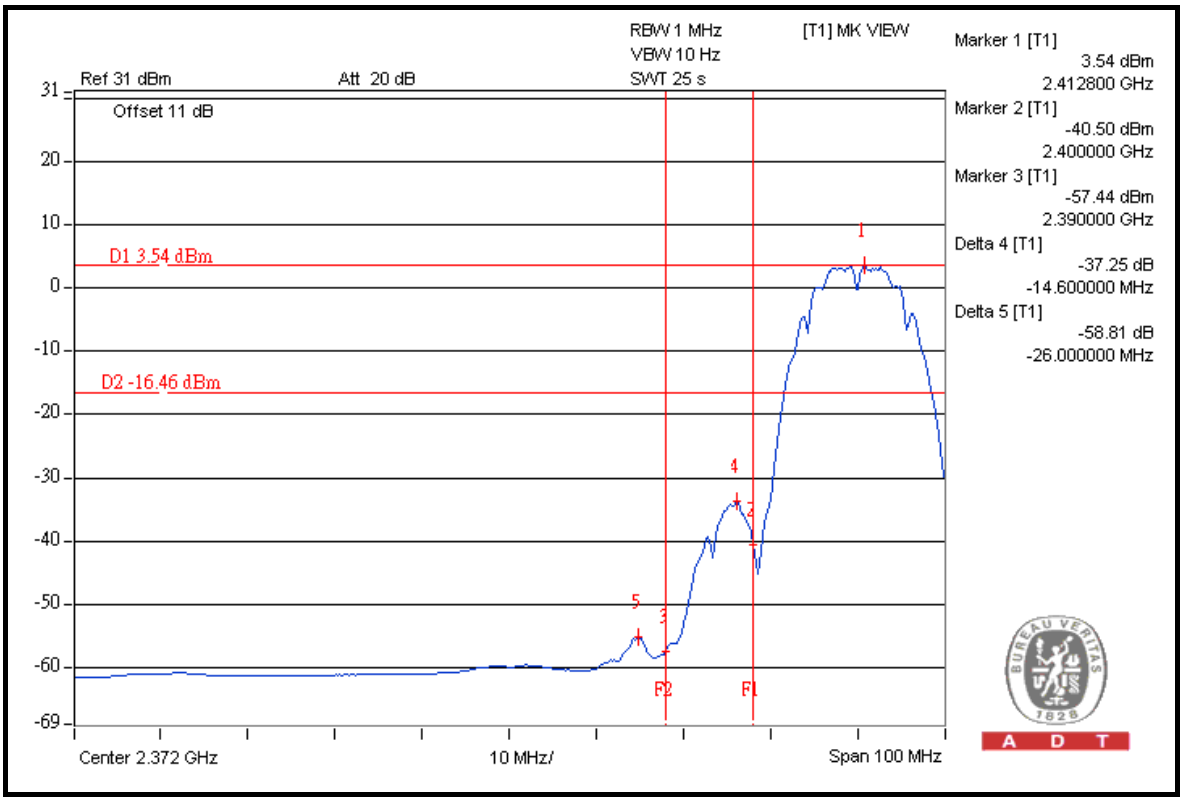

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 7.08 dBm
D2 -12.92 dBm
Marker 1 [T1]
7.08 dBm
2.463000 GHz
Marker 2 [T1]
-49.24 dBm
2.483500 GHz
Marker 3 [T1]
-50.08 dBm
2.500000 GHz
Delta 4 [T1]
-54.73 dB
24.800000 MHz
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz

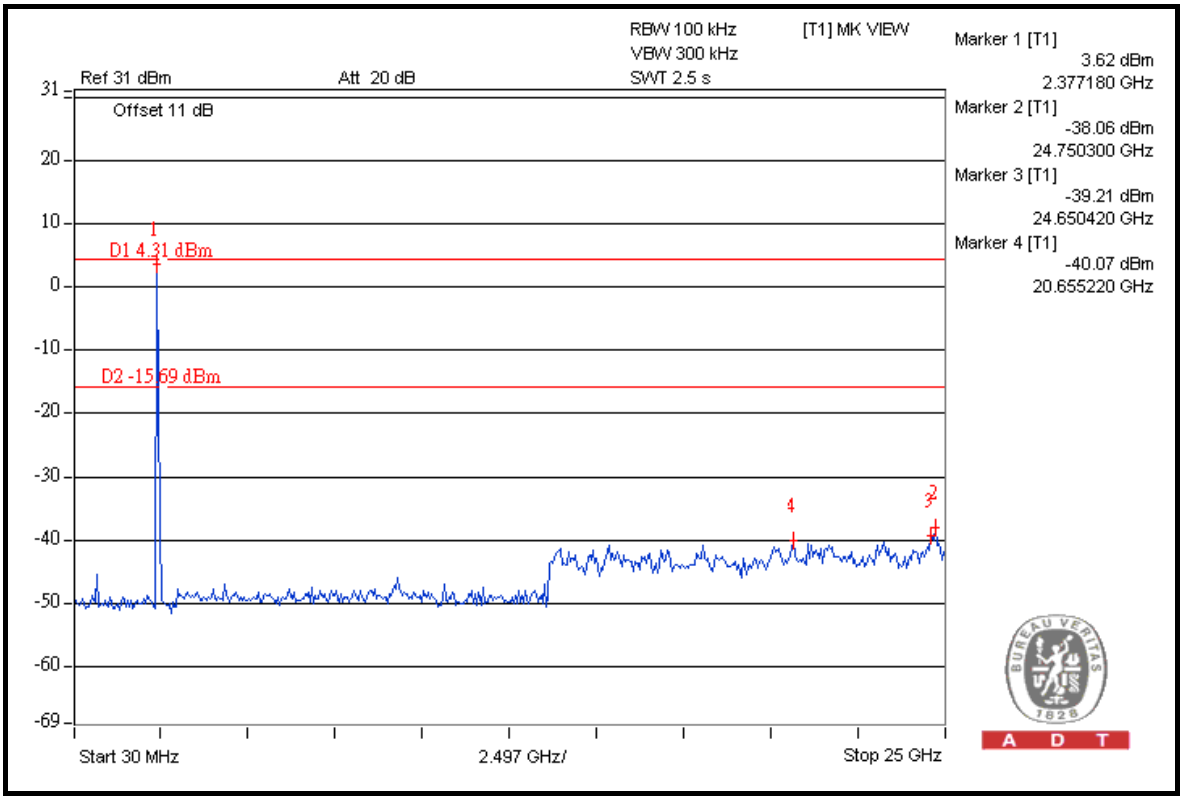

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 5.88 dBm
D2 -14.12 dBm
Marker 1 [T1]
5.88 dBm
2.461200 GHz
Marker 2 [T1]
-52.60 dBm
2.483500 GHz
Marker 3 [T1]
-57.83 dBm
2.500000 GHz
Delta 4 [T1]
-58.07 dB
26.400000 MHz
Center 2.502 GHz
10 MHz/
Span 100 MHz

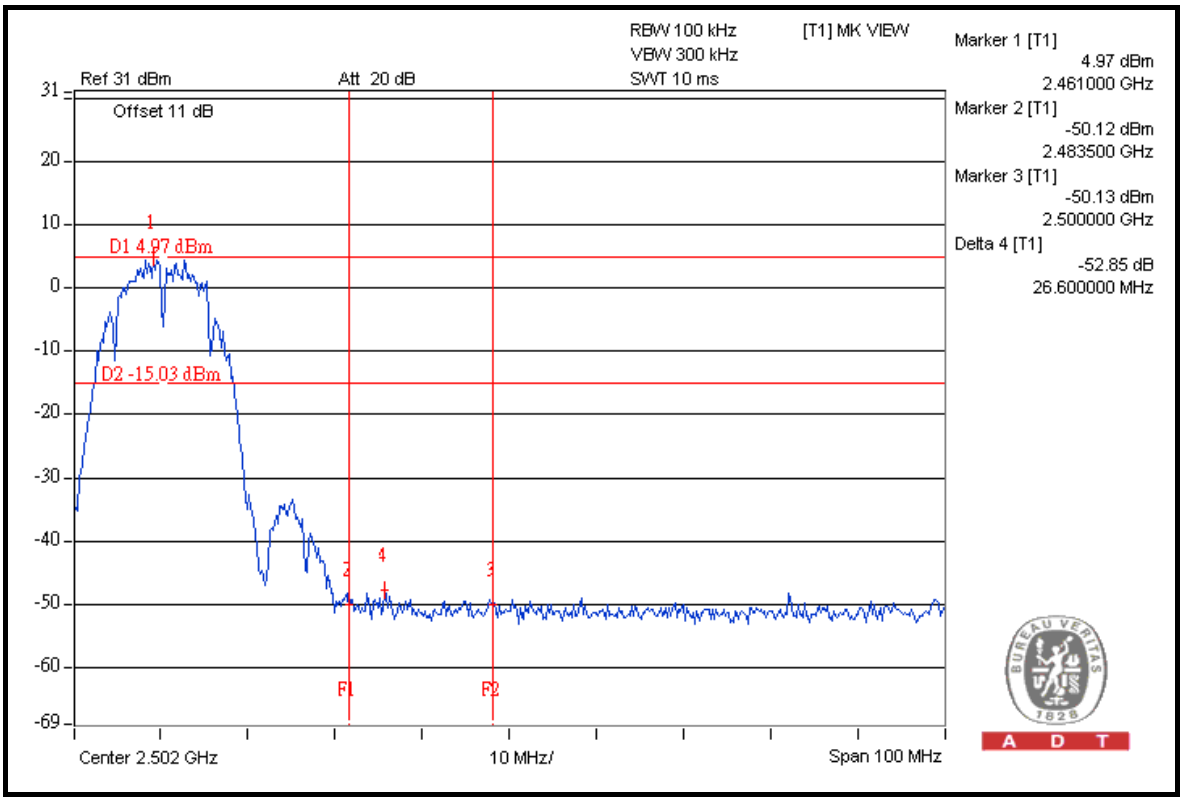

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 7.08 dBm
D2 -12.92 dBm
Marker 1 [T1]
5.73 dBm
2.427120 GHz
Marker 2 [T1]
-38.95 dBm
21.703960 GHz
Marker 3 [T1]
-39.42 dBm
24.700360 GHz
Marker 4 [T1]
-40.12 dBm
24.600480 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

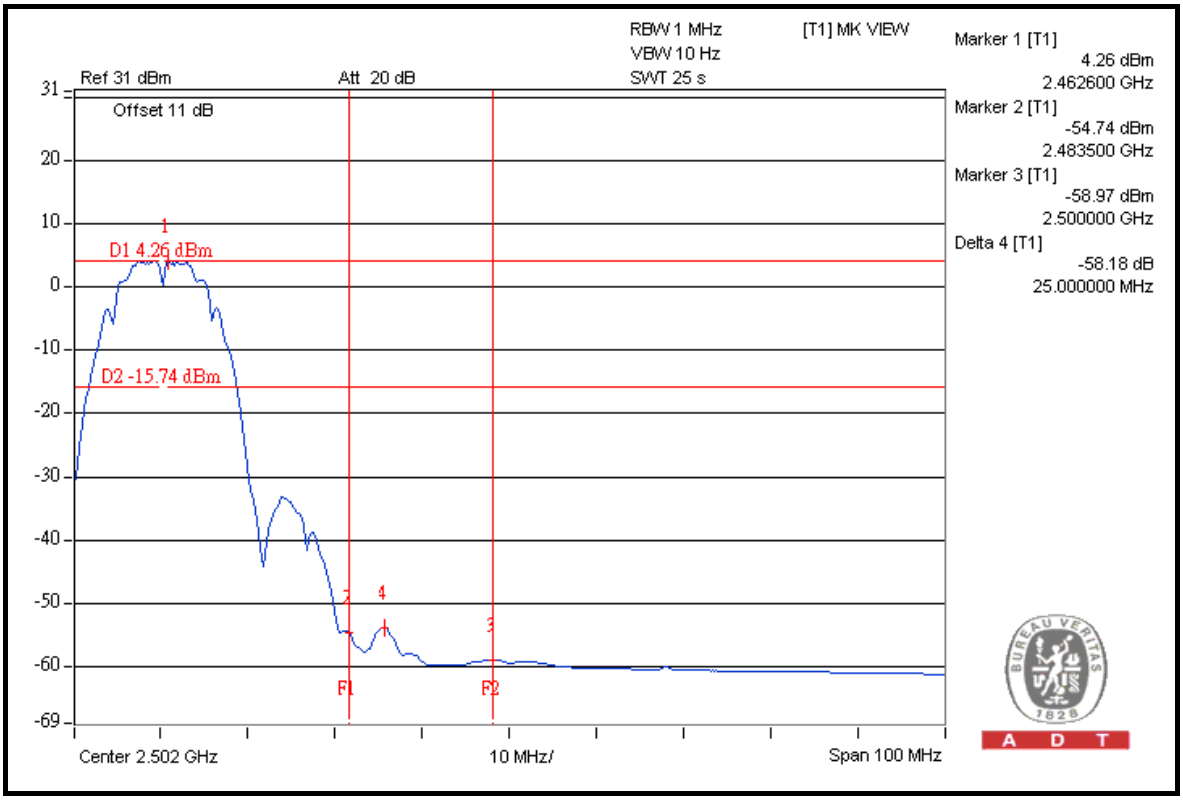
## CHAIN 1

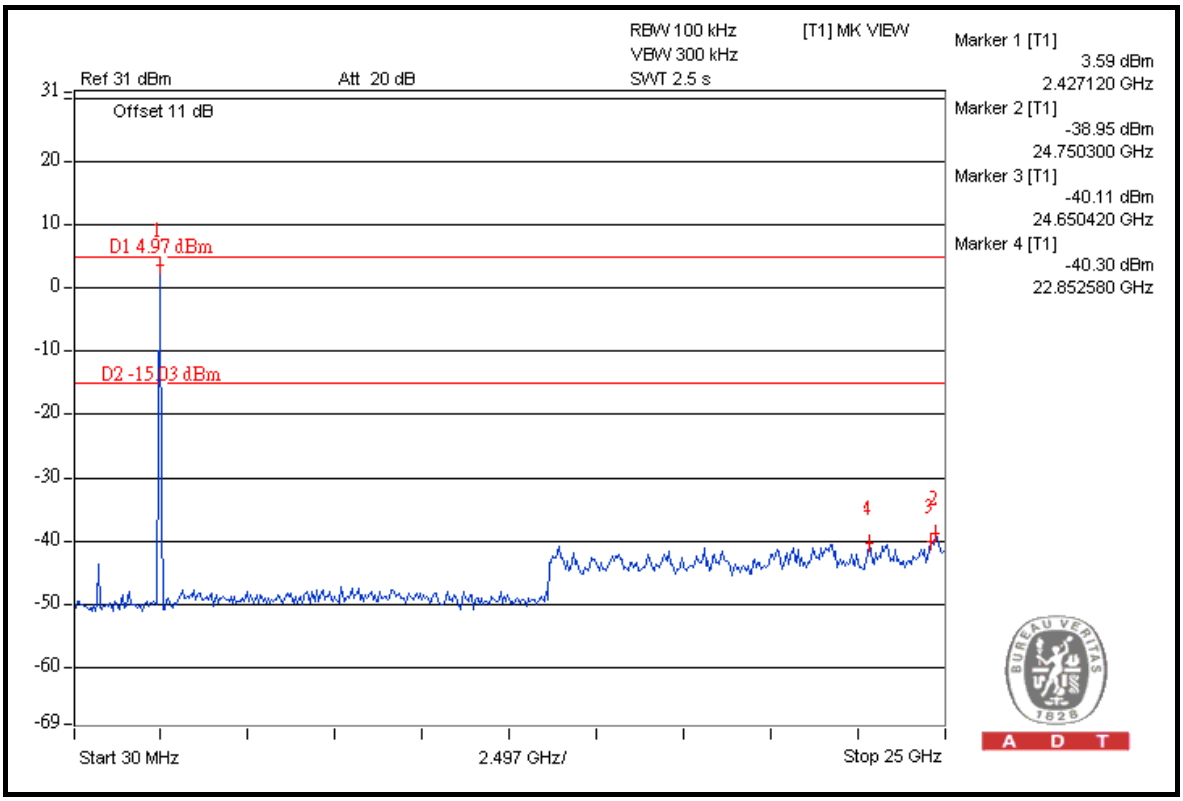

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 4.31 dBm
D2 -15.69 dBm
Marker 1 [T1]
4.31 dBm
2.411200 GHz
Marker 2 [T1]
-44.02 dBm
2.400000 GHz
Marker 3 [T1]
-50.42 dBm
2.390000 GHz
Delta 4 [T1]
-37.94 dB
-14.000000 MHz
Delta 5 [T1]
-52.64 dB
-35.800000 MHz
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 3.54 dBm
D2 -16.46 dBm
Marker 1 [T1]
3.54 dBm
2.412800 GHz
Marker 2 [T1]
-40.50 dBm
2.400000 GHz
Marker 3 [T1]
-57.44 dBm
2.390000 GHz
Delta 4 [T1]
-37.25 dB
-14.600000 MHz
Delta 5 [T1]
-58.81 dB
-26.000000 MHz
Center 2.372 GHz
10 MHz/
Span 100 MHz

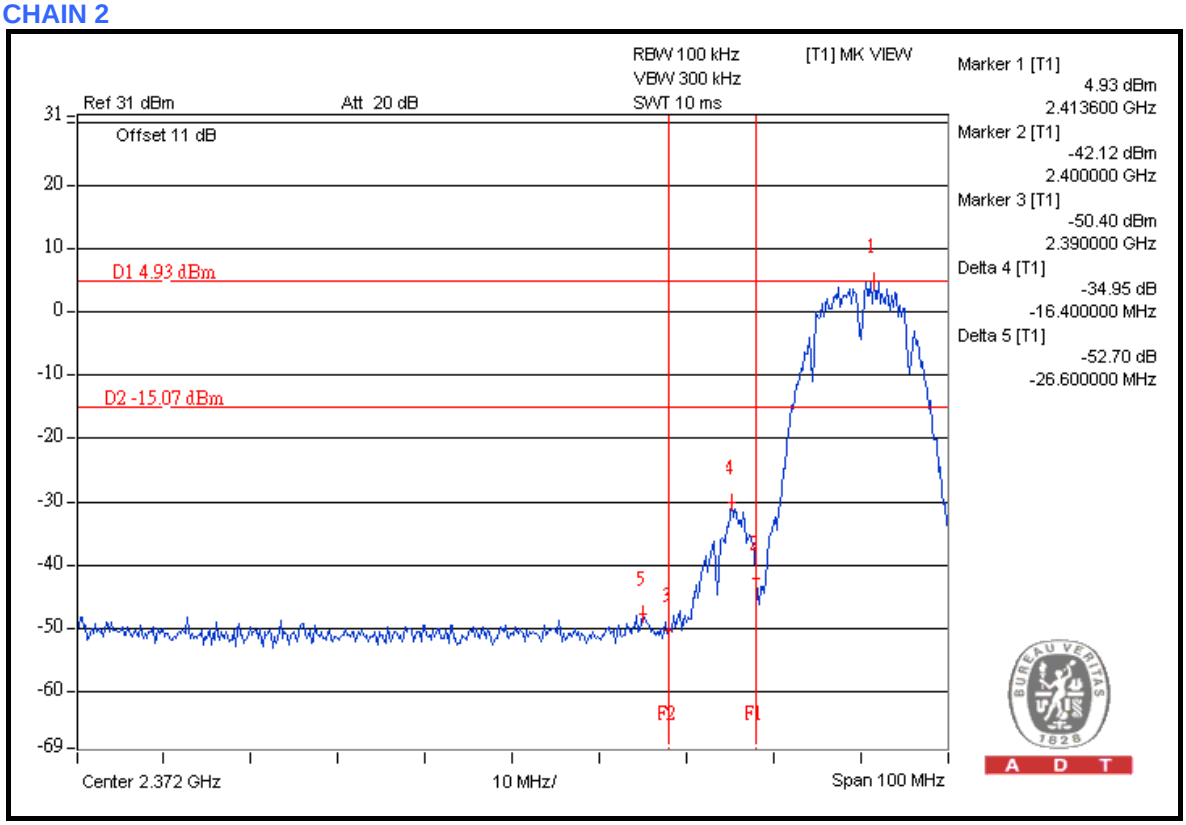

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 4.31 dBm
D2 -15.69 dBm
Marker 1 [T1]
3.62 dBm
2.377180 GHz
Marker 2 [T1]
-38.06 dBm
24.750300 GHz
Marker 3 [T1]
-39.21 dBm
24.650420 GHz
Marker 4 [T1]
-40.07 dBm
20.655220 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

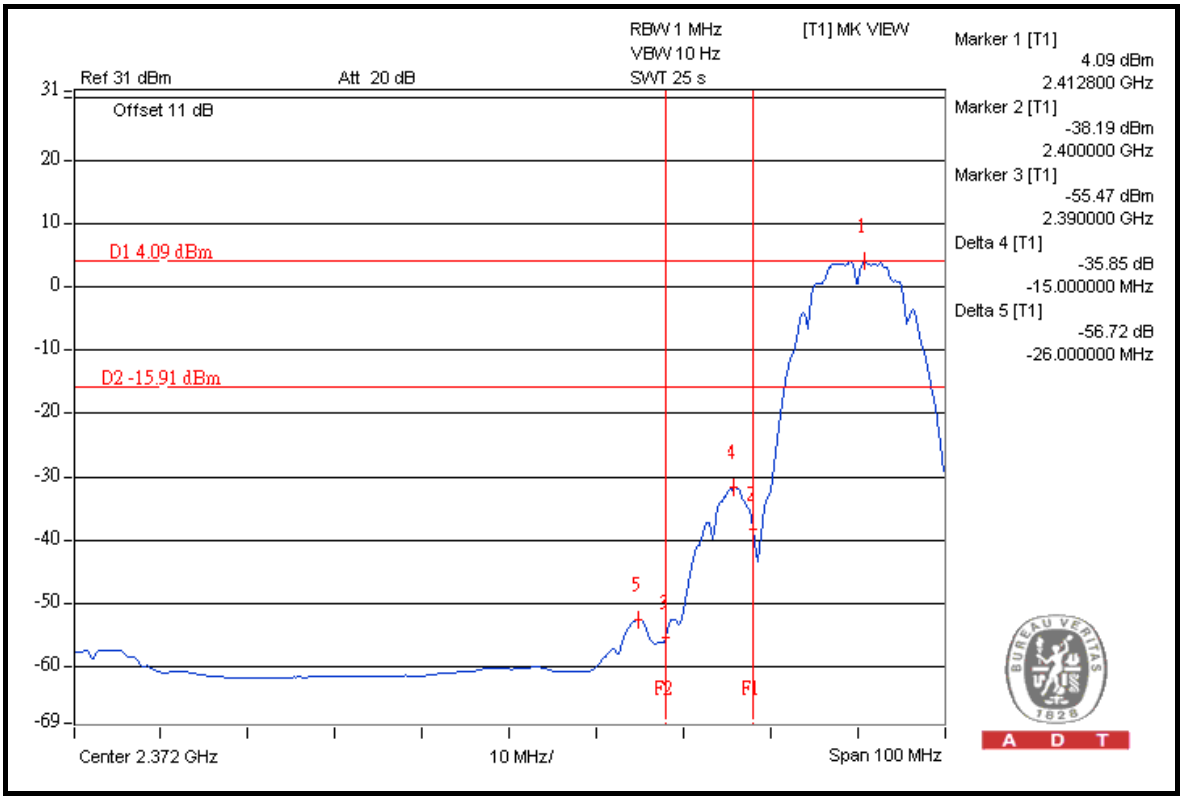

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 4.97 dBm
D2 -15.03 dBm
Marker 1 [T1]
4.97 dBm
2.461000 GHz
Marker 2 [T1]
-50.12 dBm
2.483500 GHz
Marker 3 [T1]
-50.13 dBm
2.500000 GHz
Delta 4 [T1]
-52.85 dB
26.600000 MHz
Center 2.502 GHz
10 MHz/
Span 100 MHz

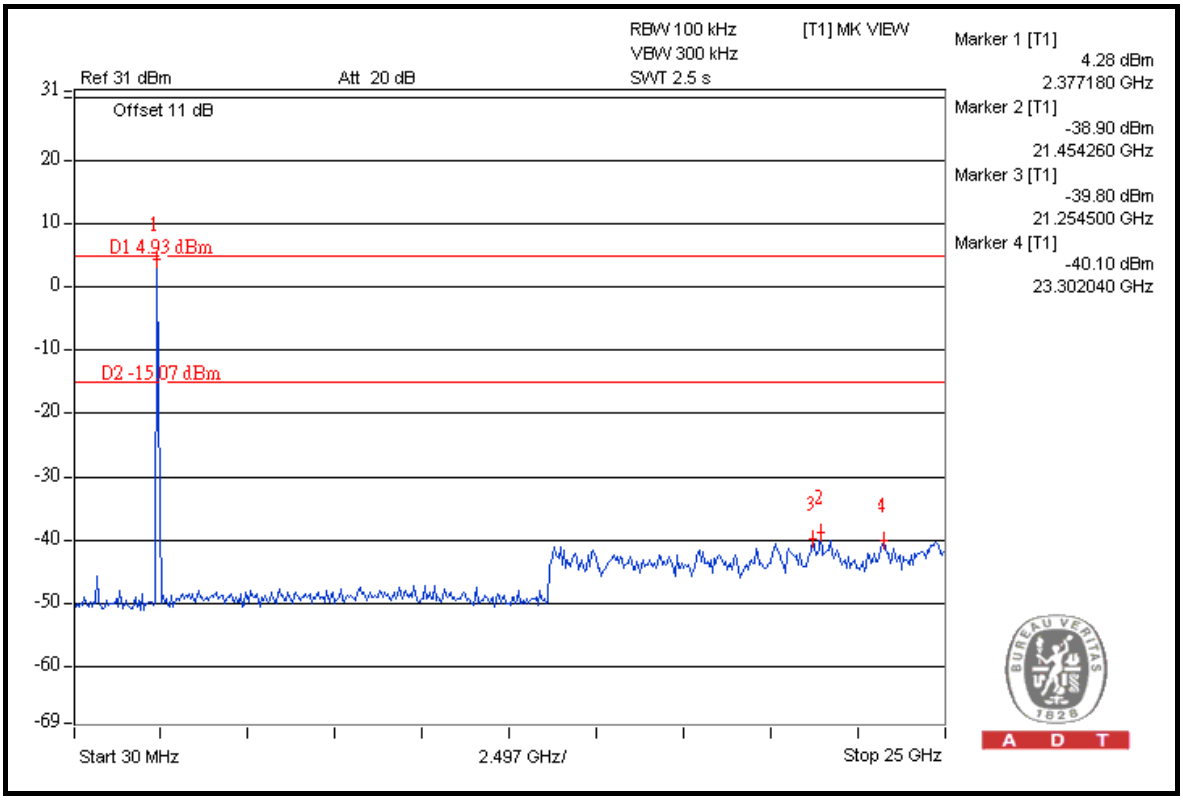

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 4.26 dBm
D2 -15.74 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
Marker 1 [T1]
4.26 dBm
2.462600 GHz
Marker 2 [T1]
-54.74 dBm
2.483500 GHz
Marker 3 [T1]
-58.97 dBm
2.500000 GHz
Delta 4 [T1]
-58.18 dB
25.000000 MHz

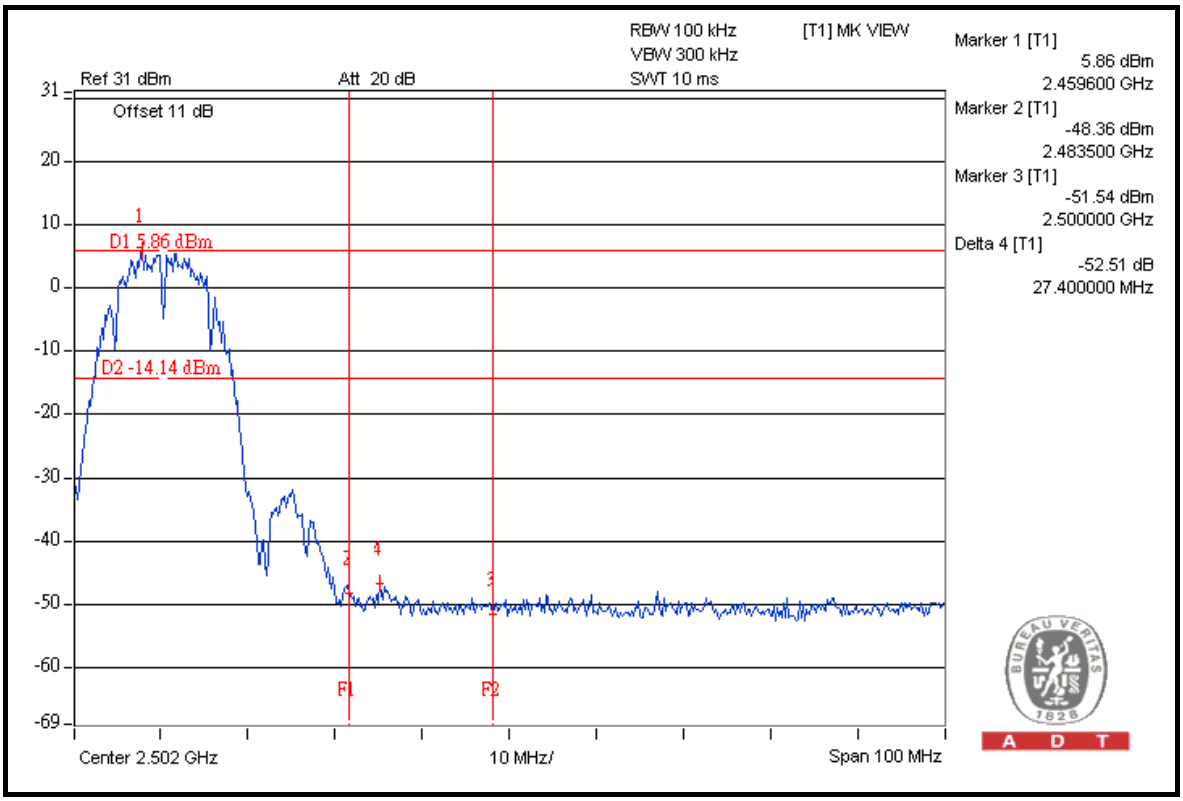

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 4.97 dBm
D2 -15.03 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz
Marker 1 [T1]
3.59 dBm
2.427120 GHz
Marker 2 [T1]
-38.95 dBm
24.750300 GHz
Marker 3 [T1]
-40.11 dBm
24.650420 GHz
Marker 4 [T1]
-40.30 dBm
22.852580 GHz

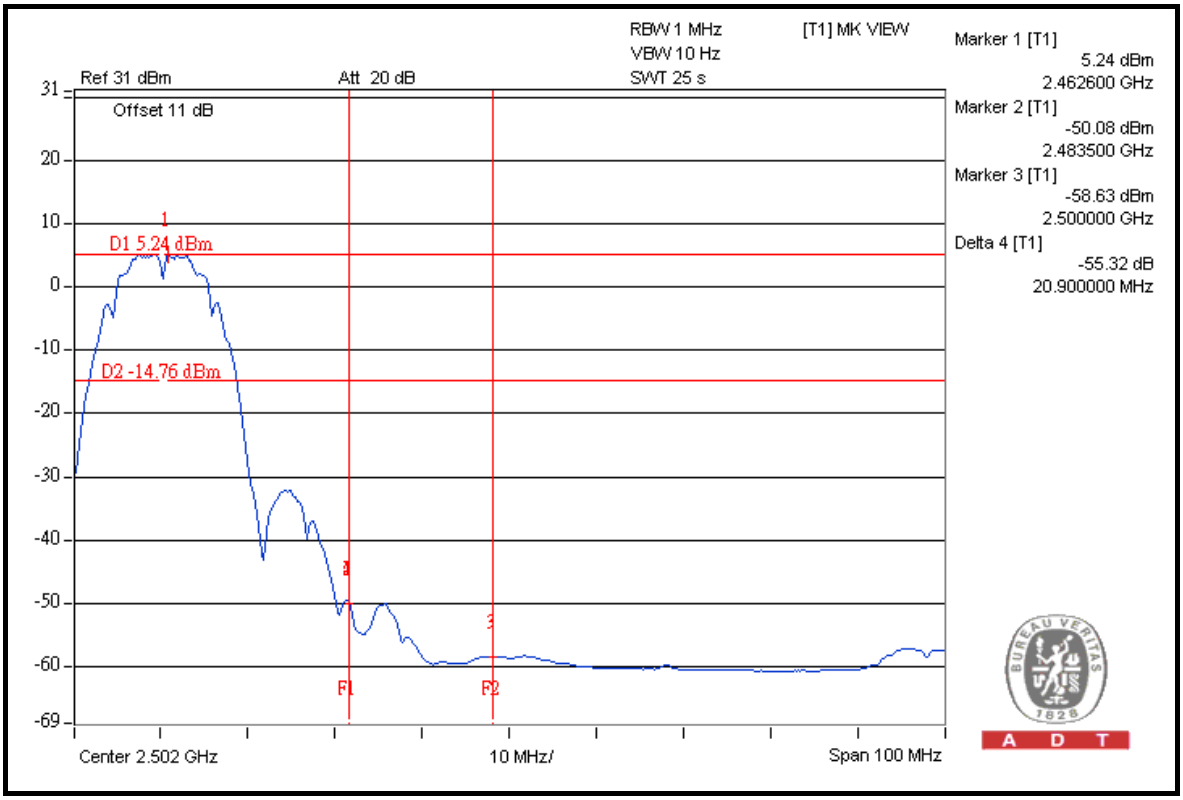
## CHAIN 2

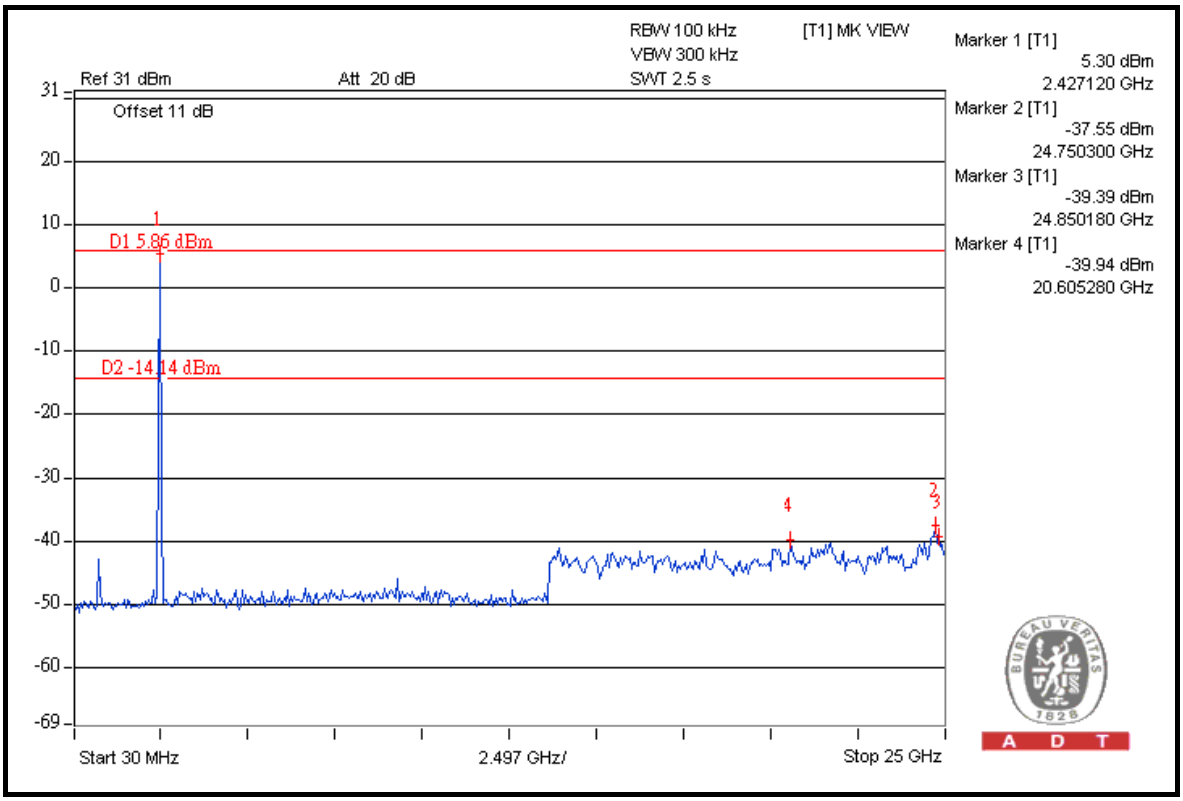

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 4.93 dBm
D2 -15.07 dBm
Marker 1 [T1]
4.93 dBm
2.413600 GHz
Marker 2 [T1]
-42.12 dBm
2.400000 GHz
Marker 3 [T1]
-50.40 dBm
2.390000 GHz
Delta 4 [T1]
-34.95 dB
-16.400000 MHz
Delta 5 [T1]
-52.70 dB
-26.600000 MHz
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 4.09 dBm
D2 -15.91 dBm
Marker 1 [T1]
4.09 dBm
2.412800 GHz
Marker 2 [T1]
-38.19 dBm
2.400000 GHz
Marker 3 [T1]
-55.47 dBm
2.390000 GHz
Delta 4 [T1]
-35.85 dB
-15.000000 MHz
Delta 5 [T1]
-56.72 dB
-26.000000 MHz
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 4.93 dBm
D2 -15.07 dBm
Marker 1 [T1]
4.28 dBm
2.377180 GHz
Marker 2 [T1]
-38.90 dBm
21.454260 GHz
Marker 3 [T1]
-39.80 dBm
21.254500 GHz
Marker 4 [T1]
-40.10 dBm
23.302040 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz


RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 5.86 dBm
D2 -14.14 dBm
Marker 1 [T1]
5.86 dBm
2.459600 GHz
Marker 2 [T1]
-48.36 dBm
2.483500 GHz
Marker 3 [T1]
-51.54 dBm
2.500000 GHz
Delta 4 [T1]
-52.51 dB
27.400000 MHz
Center 2.502 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 5.24 dBm
D2 -14.76 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
Marker 1 [T1]
5.24 dBm
2.462600 GHz
Marker 2 [T1]
-50.08 dBm
2.483500 GHz
Marker 3 [T1]
-58.63 dBm
2.500000 GHz
Delta 4 [T1]
-55.32 dB
20.900000 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 5.86 dBm
D2 -14.14 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz
Marker 1 [T1]
5.30 dBm
2.427120 GHz
Marker 2 [T1]
-37.55 dBm
24.750300 GHz
Marker 3 [T1]
-39.39 dBm
24.850180 GHz
Marker 4 [T1]
-39.94 dBm
20.605280 GHz

## 802.11g

**RESTRICT BAND (2310 ~ 2390 MHz)**

| FREQUENCY (MHz) | FUNDAMENTAL EMISSION (dBuV/m) | DELTA (dB) | MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m) | LIMIT (dBuV/m) |
|---|---|---|---|---|
| 2412.00 (PK) | 107.8 | 45.11 | 62.69 | 74.00 |
| 2412.00 (AV) | 95.9 | 45.90 | 50.00 | 54.00 |

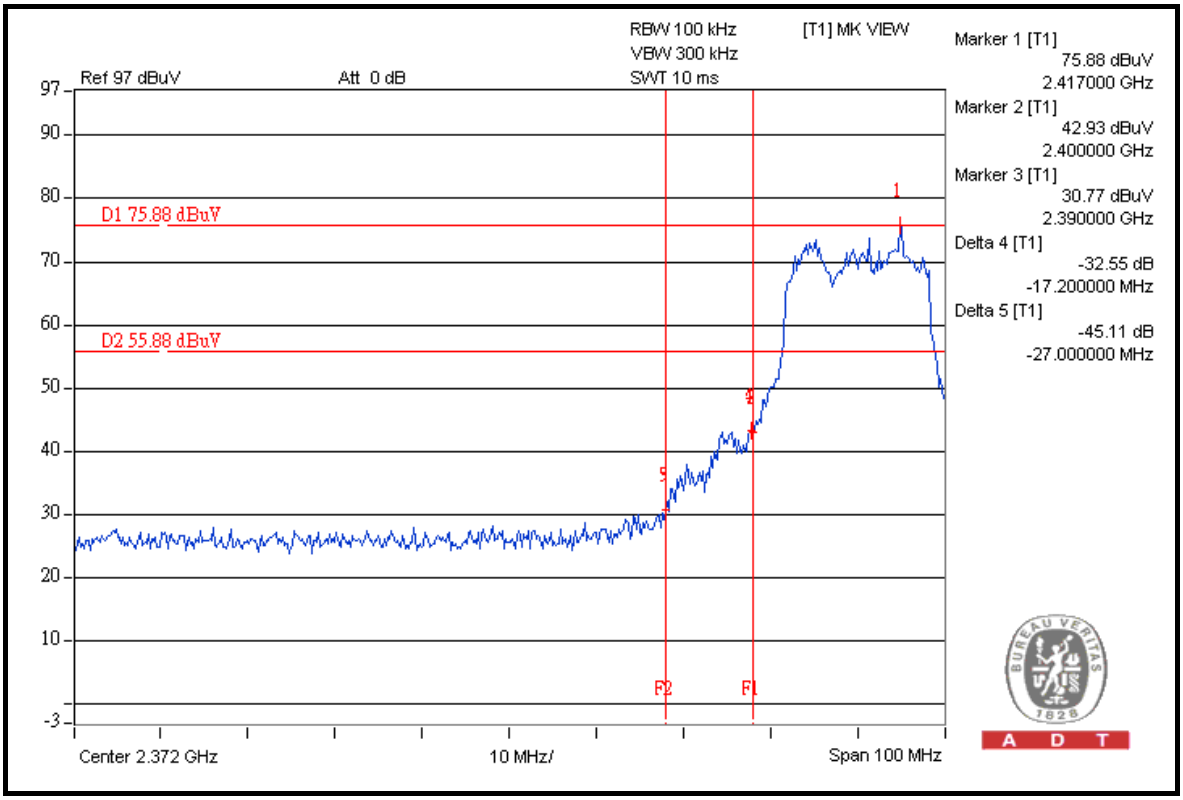
**RESTRICT BAND (2483.5 ~ 2500 MHz)**

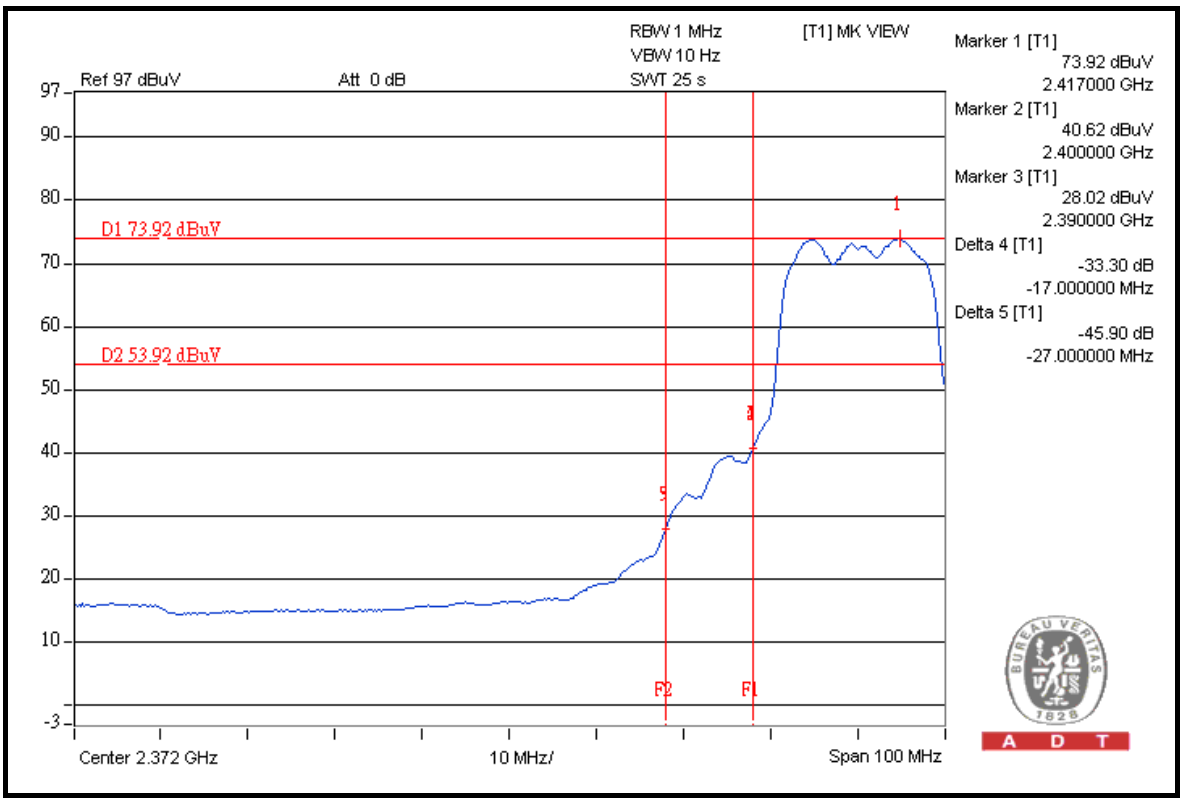
| FREQUENCY (MHz) | FUNDAMENTAL EMISSION (dBuV/m) | DELTA (dB) | MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m) | LIMIT (dBuV/m) |
|---|---|---|---|---|
| 2462.00 (PK) | 107.9 | 43.01 | 64.89 | 74.00 |
| 2462.00 (AV) | 96.1 | 45.55 | 50.55 | 54.00 |

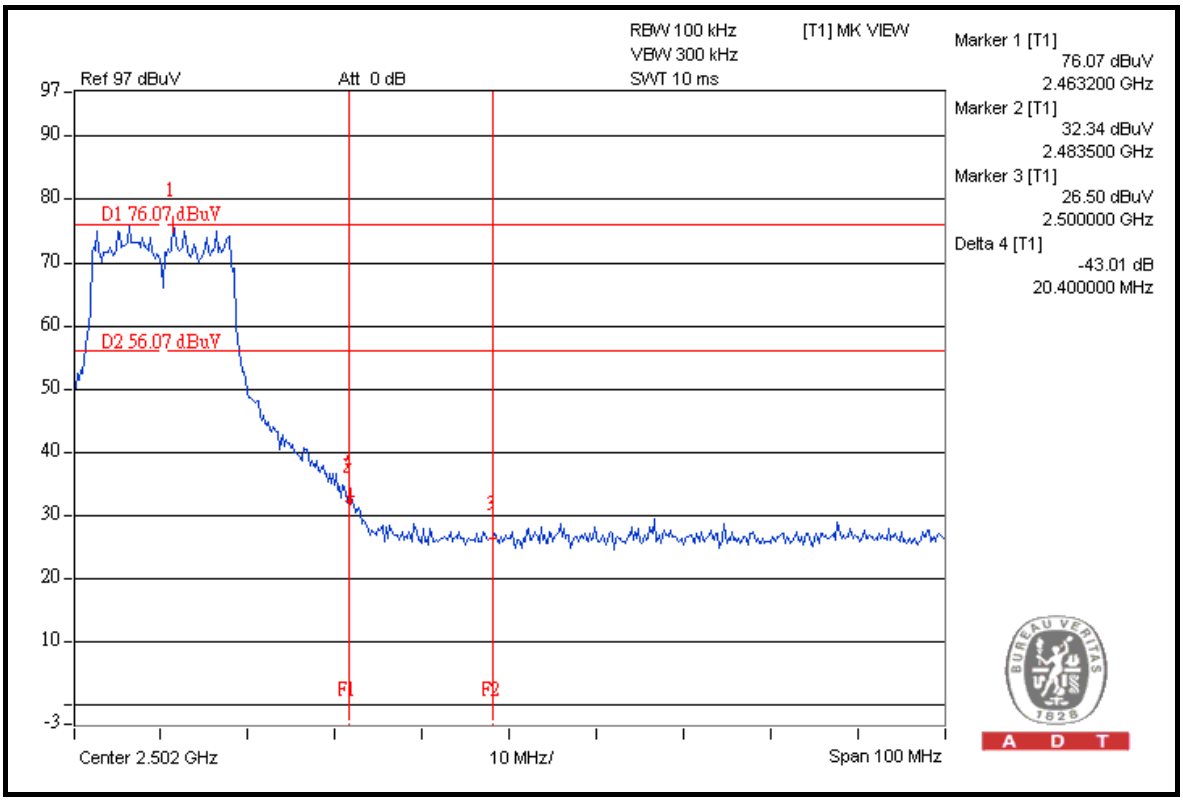
**NOTE:**

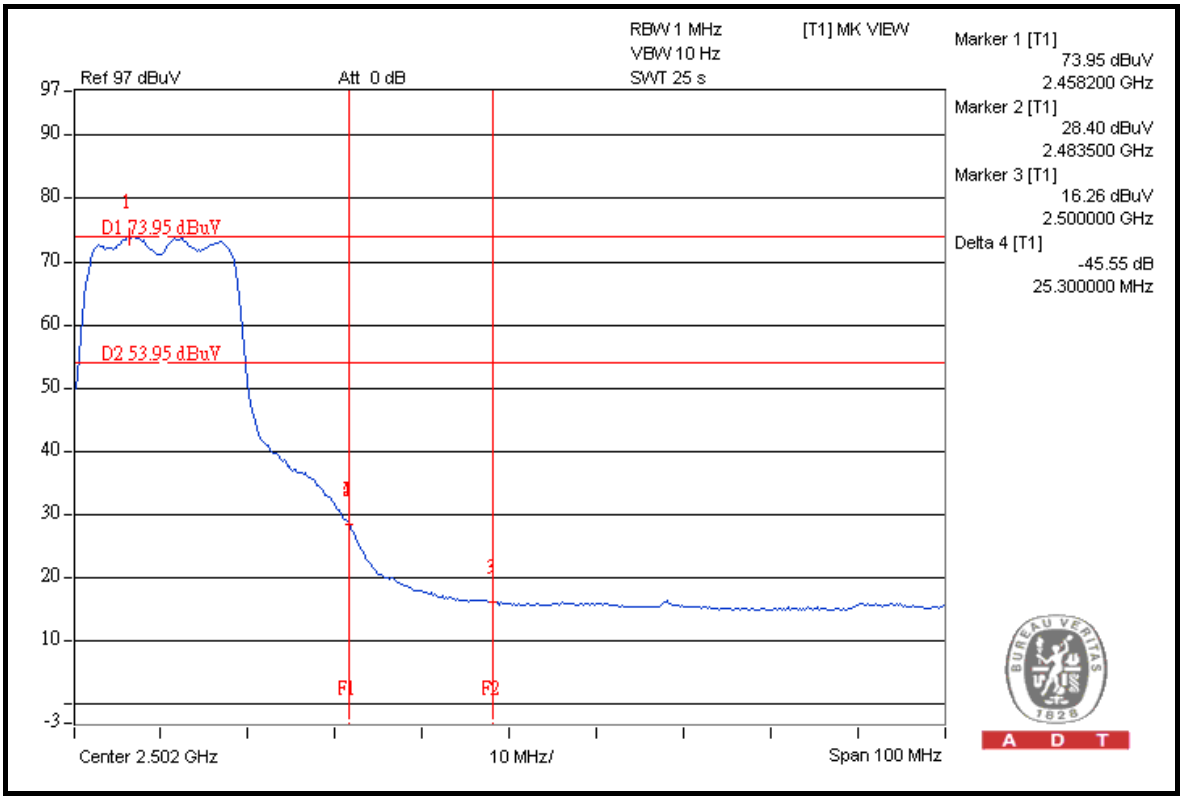
1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.

## FOR RADIATED MEASURED (THREE CHAINS ON)



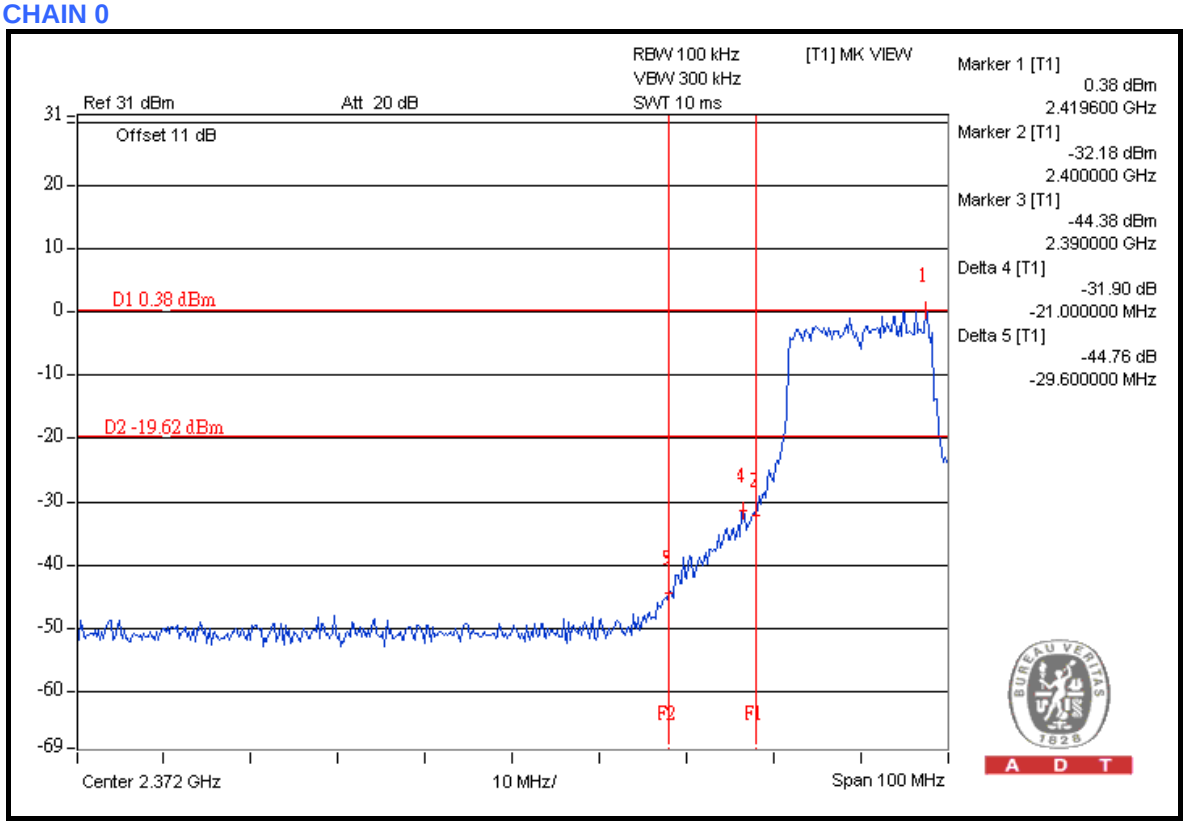



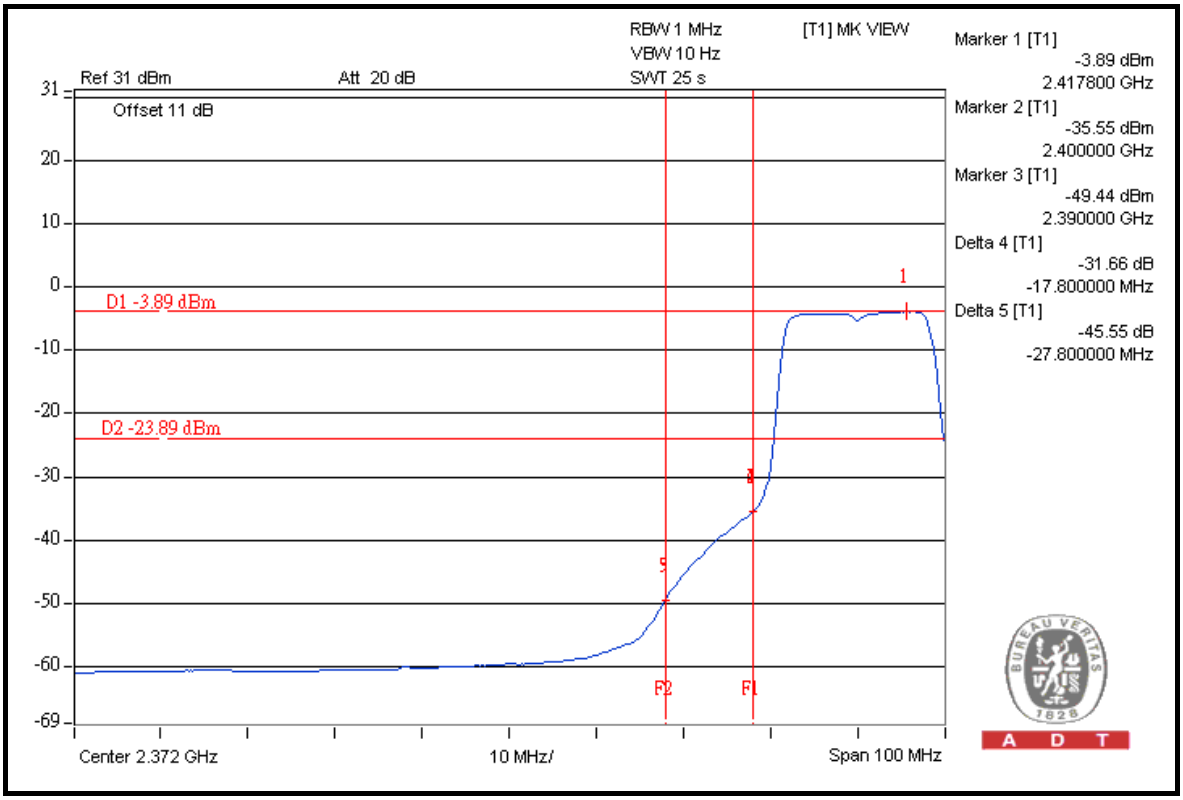

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
76.07 dBuV
2.463200 GHz
Marker 2 [T1]
32.34 dBuV
2.483500 GHz
Marker 3 [T1]
26.50 dBuV
2.500000 GHz
Delta 4 [T1]
-43.01 dB
20.400000 MHz
D1 76.07 dBuV
D2 56.07 dBuV
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz

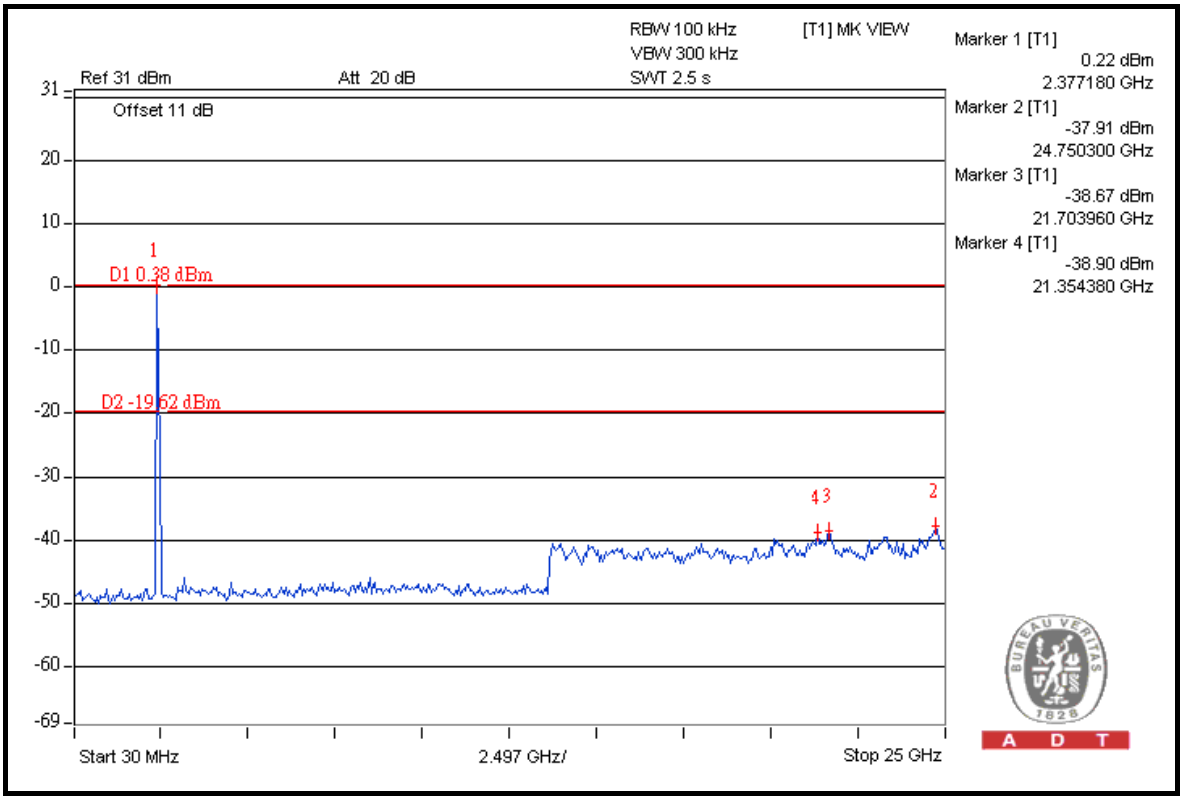

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
73.95 dBuV
2.458200 GHz
Marker 2 [T1]
28.40 dBuV
2.483500 GHz
Marker 3 [T1]
16.26 dBuV
2.500000 GHz
Delta 4 [T1]
-45.55 dB
25.300000 MHz
D1 73.95 dBuV
D2 53.95 dBuV
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz

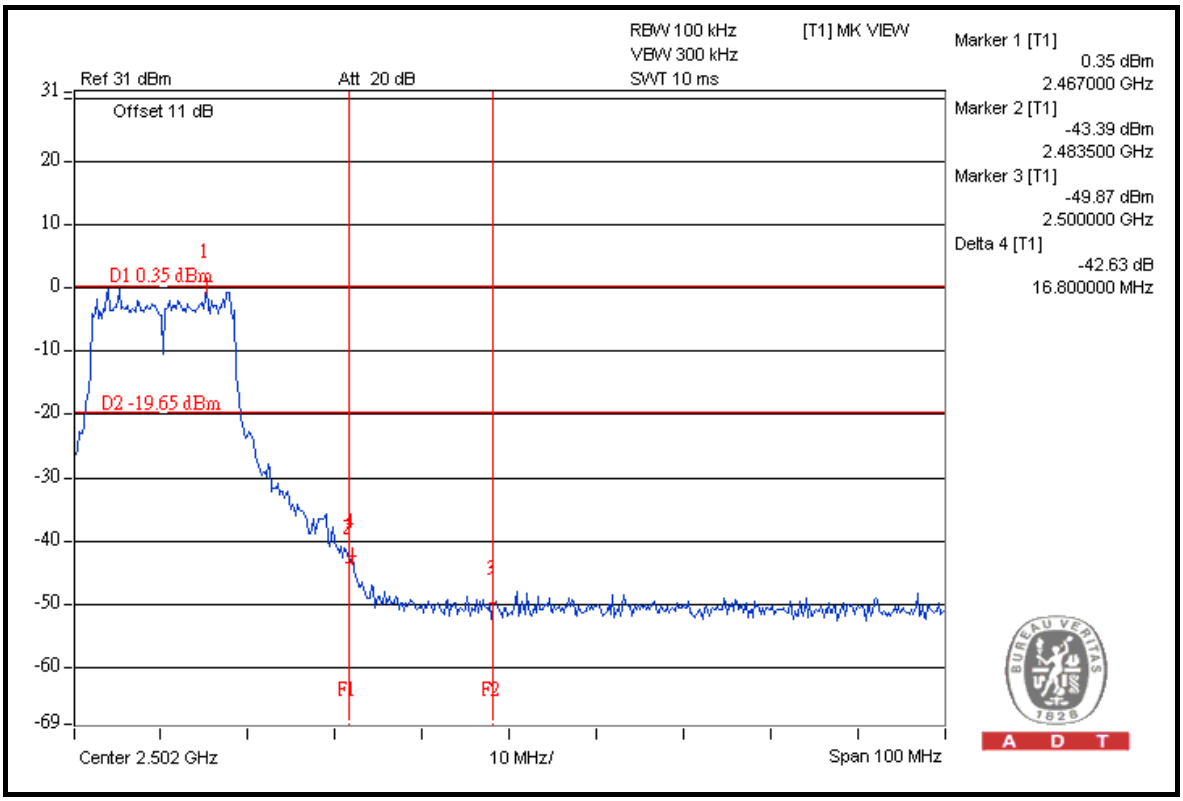
## FOR CONDUCTED MEASURED

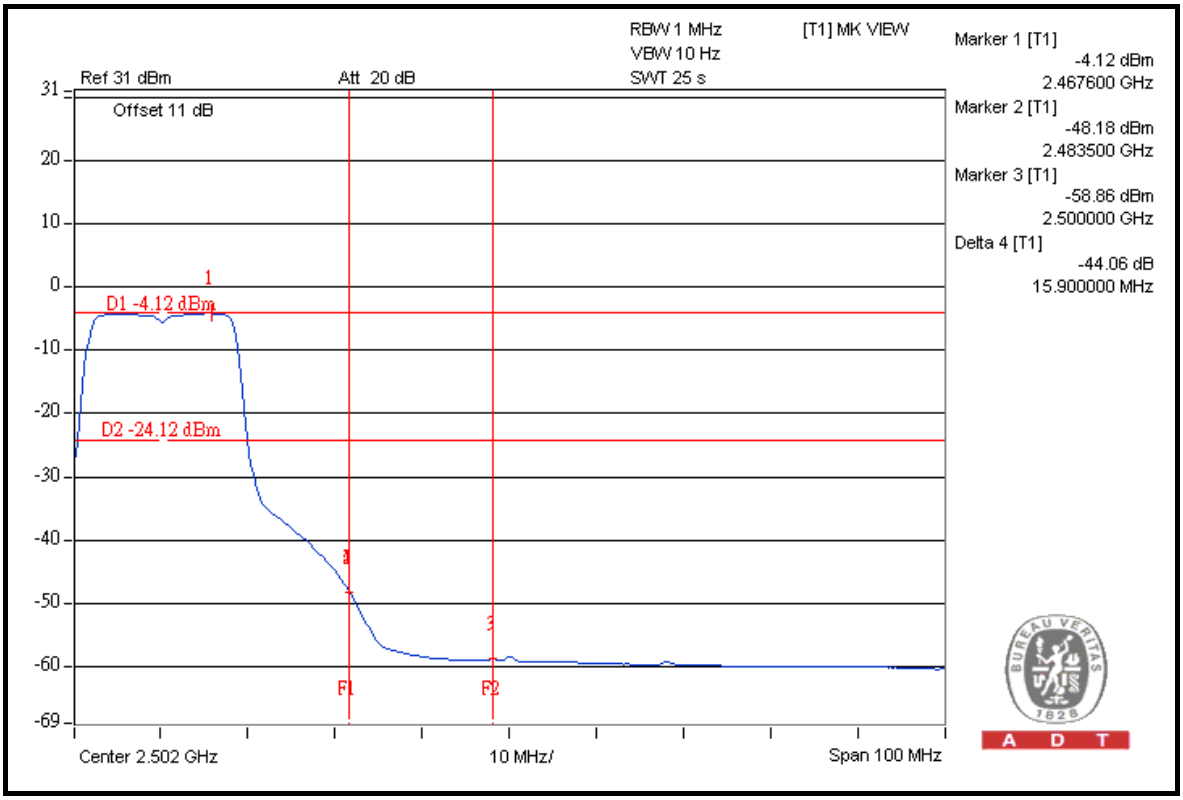
### CHAIN 0

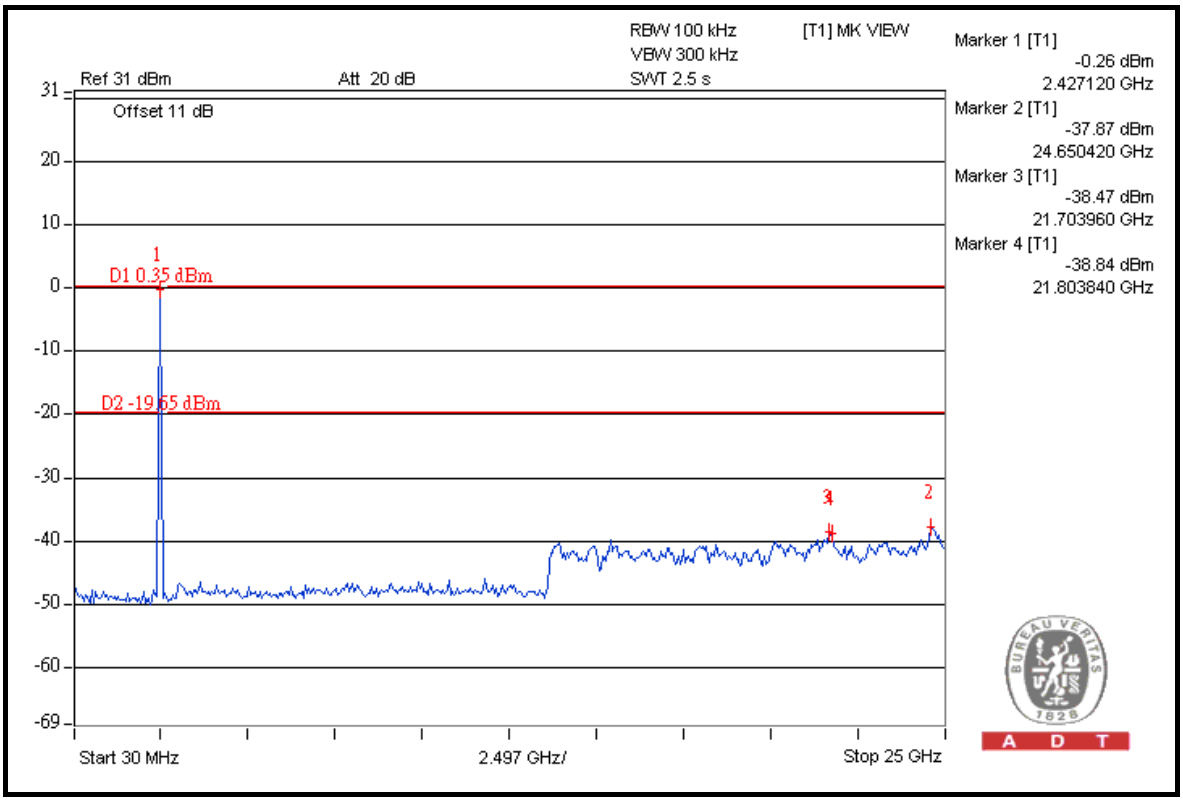


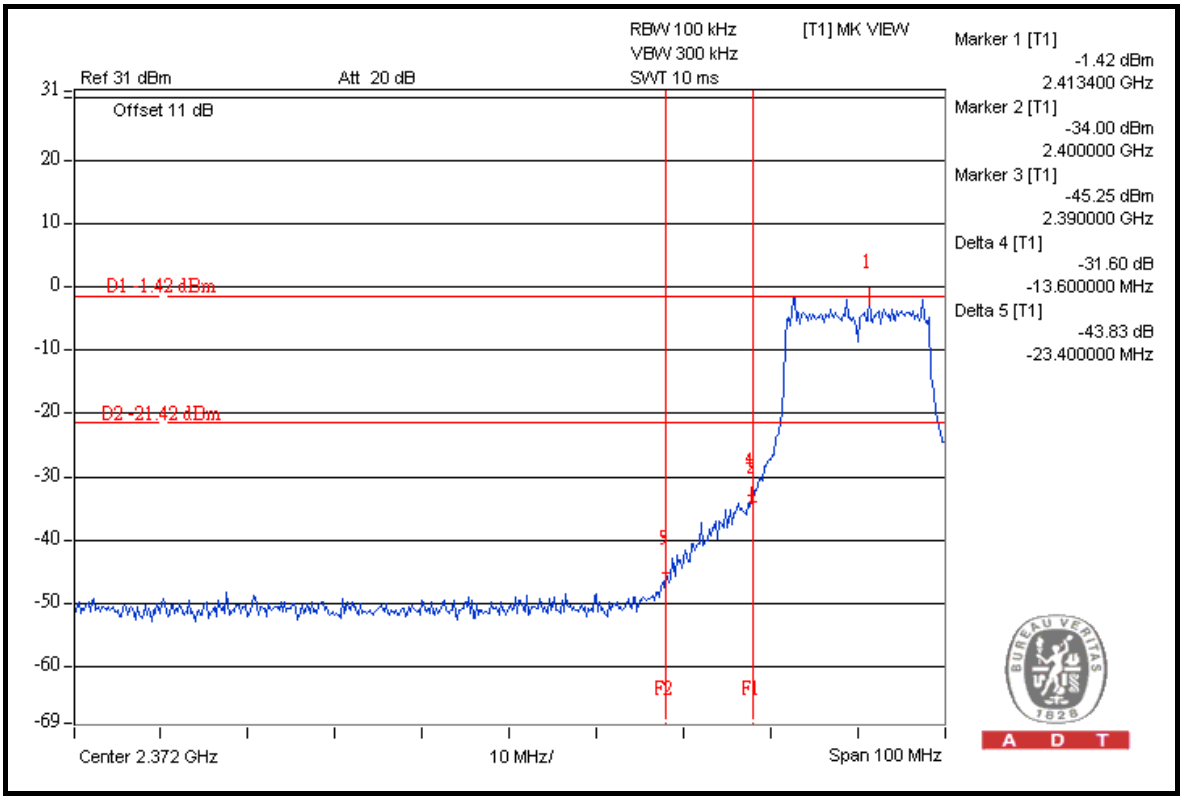

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 0.38 dBm
D2 -19.62 dBm
Marker 1 [T1]
0.22 dBm
2.377180 GHz
Marker 2 [T1]
-37.91 dBm
24.750300 GHz
Marker 3 [T1]
-38.67 dBm
21.703960 GHz
Marker 4 [T1]
-38.90 dBm
21.354380 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

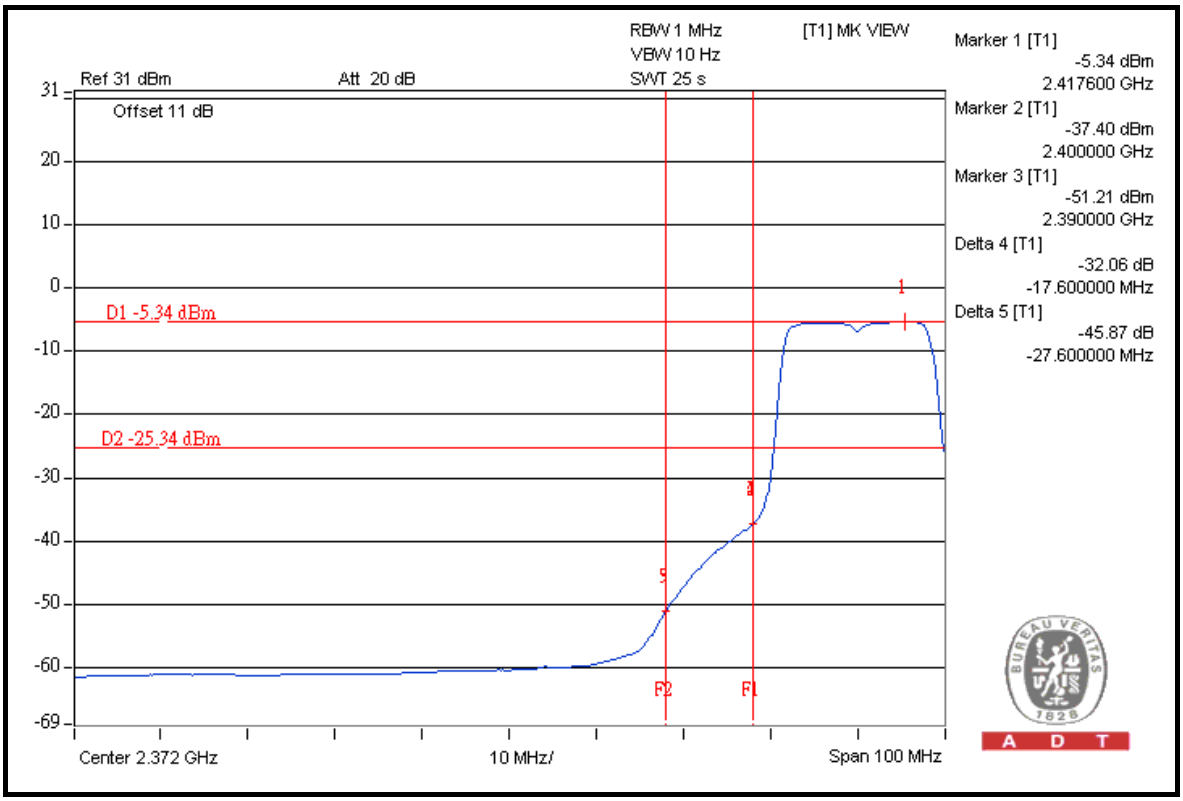

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 0.35 dBm
D2 -19.65 dBm
Marker 1 [T1]
0.35 dBm
2.467000 GHz
Marker 2 [T1]
-43.39 dBm
2.483500 GHz
Marker 3 [T1]
-49.87 dBm
2.500000 GHz
Delta 4 [T1]
-42.63 dB
16.800000 MHz
Center 2.502 GHz
10 MHz/
Span 100 MHz

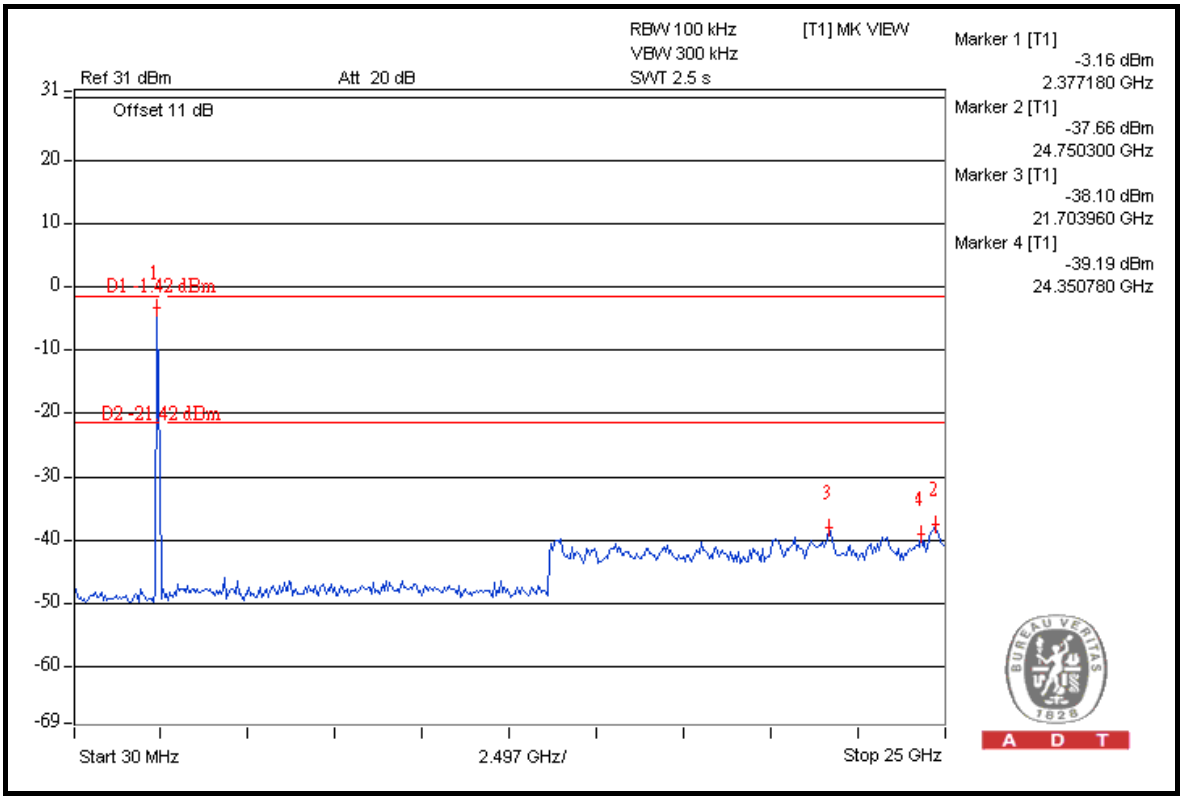

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -4.12 dBm
D2 -24.12 dBm
Marker 1 [T1]
-4.12 dBm
2.467600 GHz
Marker 2 [T1]
-48.18 dBm
2.483500 GHz
Marker 3 [T1]
-58.86 dBm
2.500000 GHz
Delta 4 [T1]
-44.06 dB
15.900000 MHz
Center 2.502 GHz
10 MHz/
Span 100 MHz

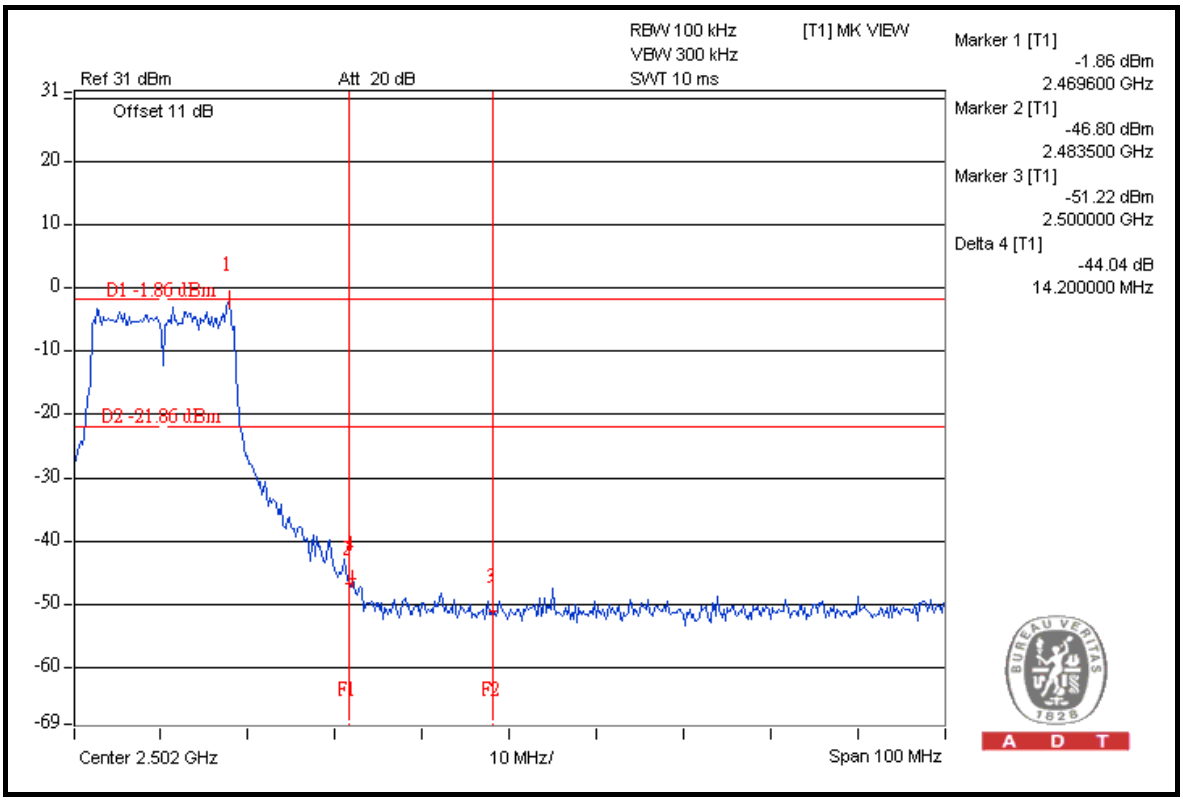

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 0.35 dBm
D2 -19.65 dBm
Marker 1 [T1]
-0.26 dBm
2.427120 GHz
Marker 2 [T1]
-37.87 dBm
24.650420 GHz
Marker 3 [T1]
-38.47 dBm
21.703960 GHz
Marker 4 [T1]
-38.84 dBm
21.803840 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

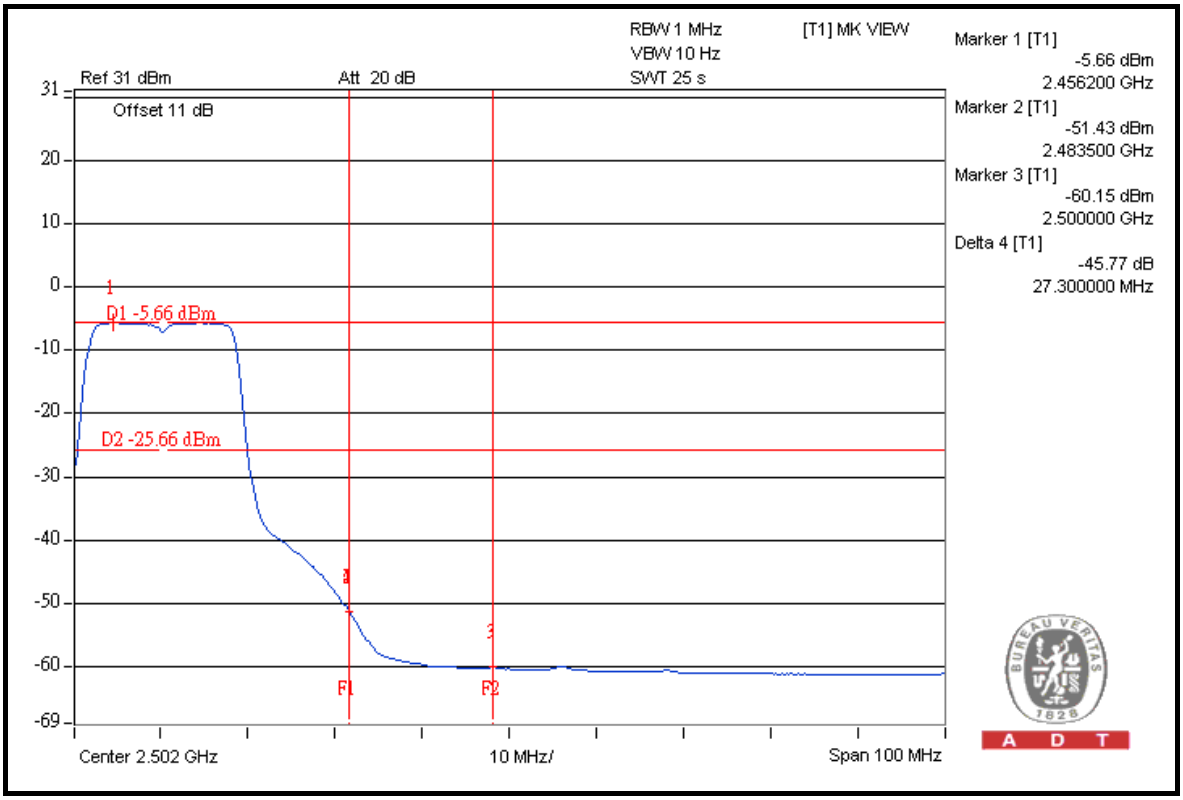
## CHAIN 1

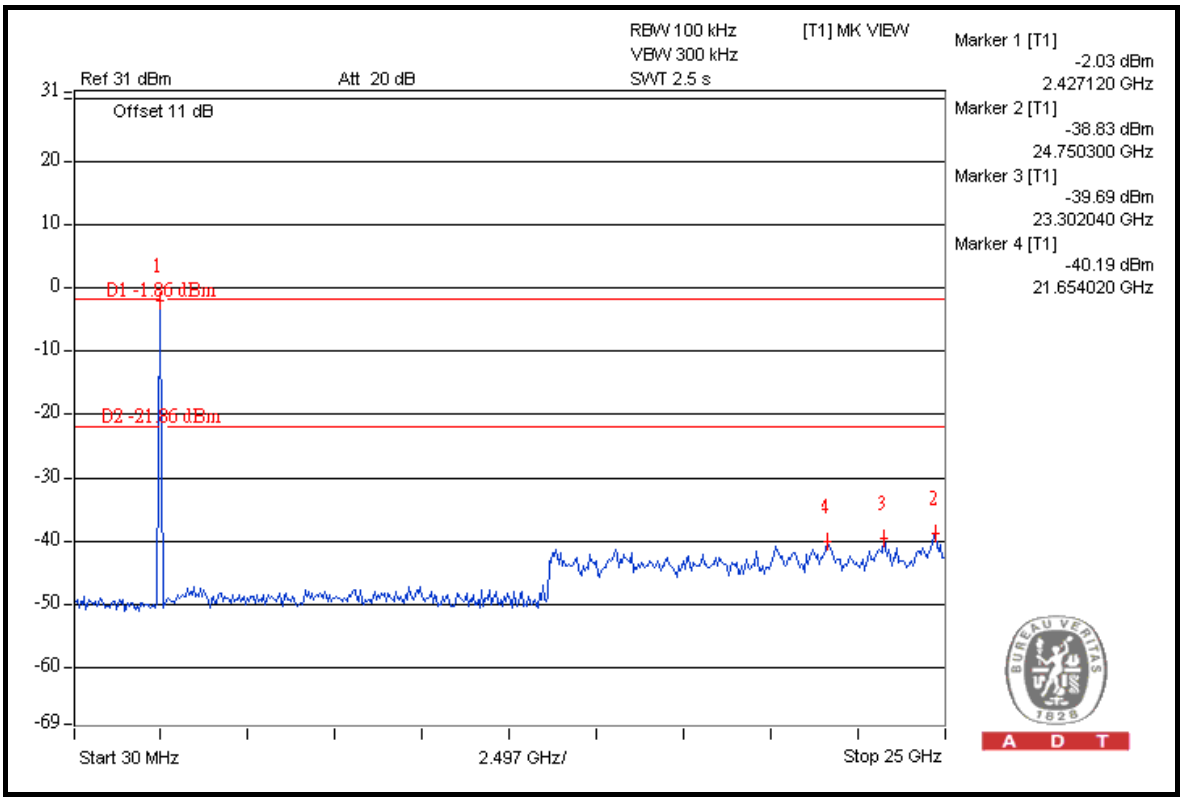

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -1.42 dBm
D2 -21.42 dBm
Marker 1 [T1]
-1.42 dBm
2.413400 GHz
Marker 2 [T1]
-34.00 dBm
2.400000 GHz
Marker 3 [T1]
-45.25 dBm
2.390000 GHz
Delta 4 [T1]
-31.60 dB
-13.600000 MHz
Delta 5 [T1]
-43.83 dB
-23.400000 MHz
F2
F1
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -5.34 dBm
D2 -25.34 dBm
Marker 1 [T1]
-5.34 dBm
2.417600 GHz
Marker 2 [T1]
-37.40 dBm
2.400000 GHz
Marker 3 [T1]
-51.21 dBm
2.390000 GHz
Delta 4 [T1]
-32.06 dB
-17.600000 MHz
Delta 5 [T1]
-45.87 dB
-27.600000 MHz
F2
F1
Center 2.372 GHz
10 MHz/
Span 100 MHz

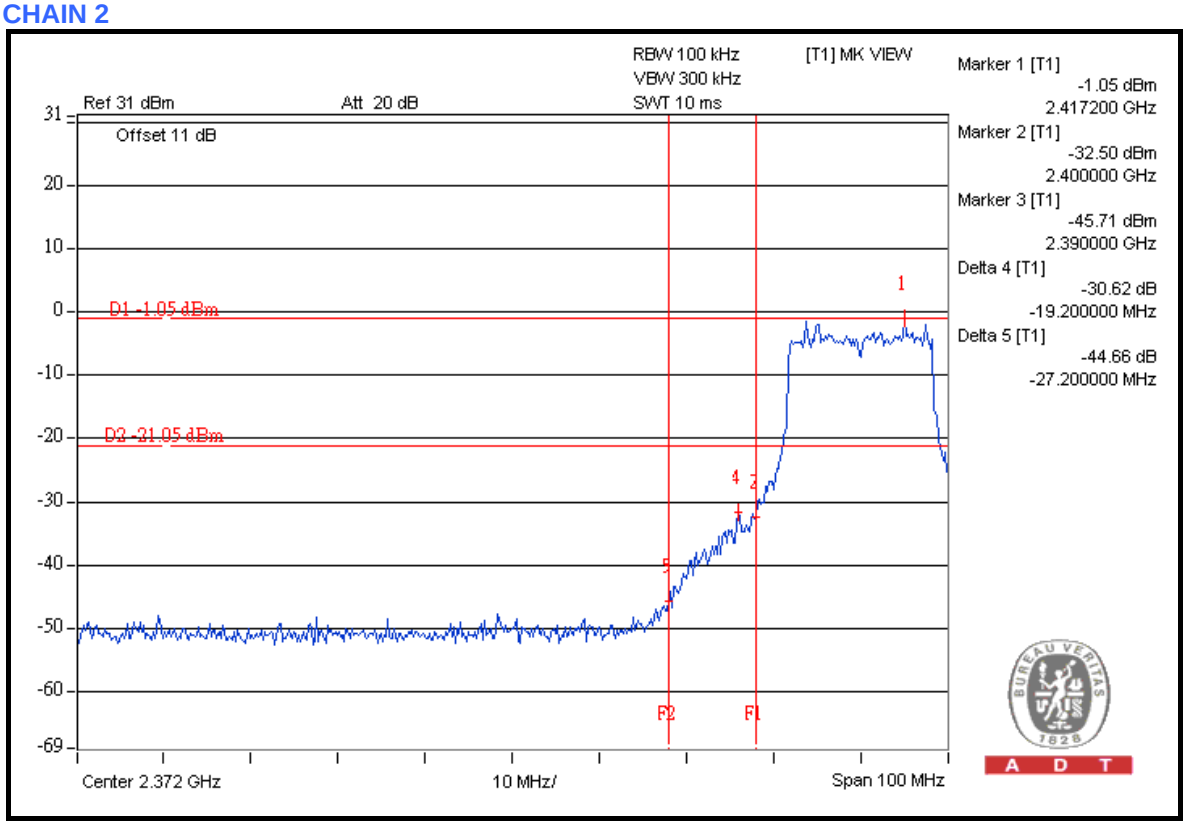

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 1.42 dBm
D2 -21.42 dBm
Marker 1 [T1]
-3.16 dBm
2.377180 GHz
Marker 2 [T1]
-37.66 dBm
24.750300 GHz
Marker 3 [T1]
-38.10 dBm
21.703960 GHz
Marker 4 [T1]
-39.19 dBm
24.350780 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

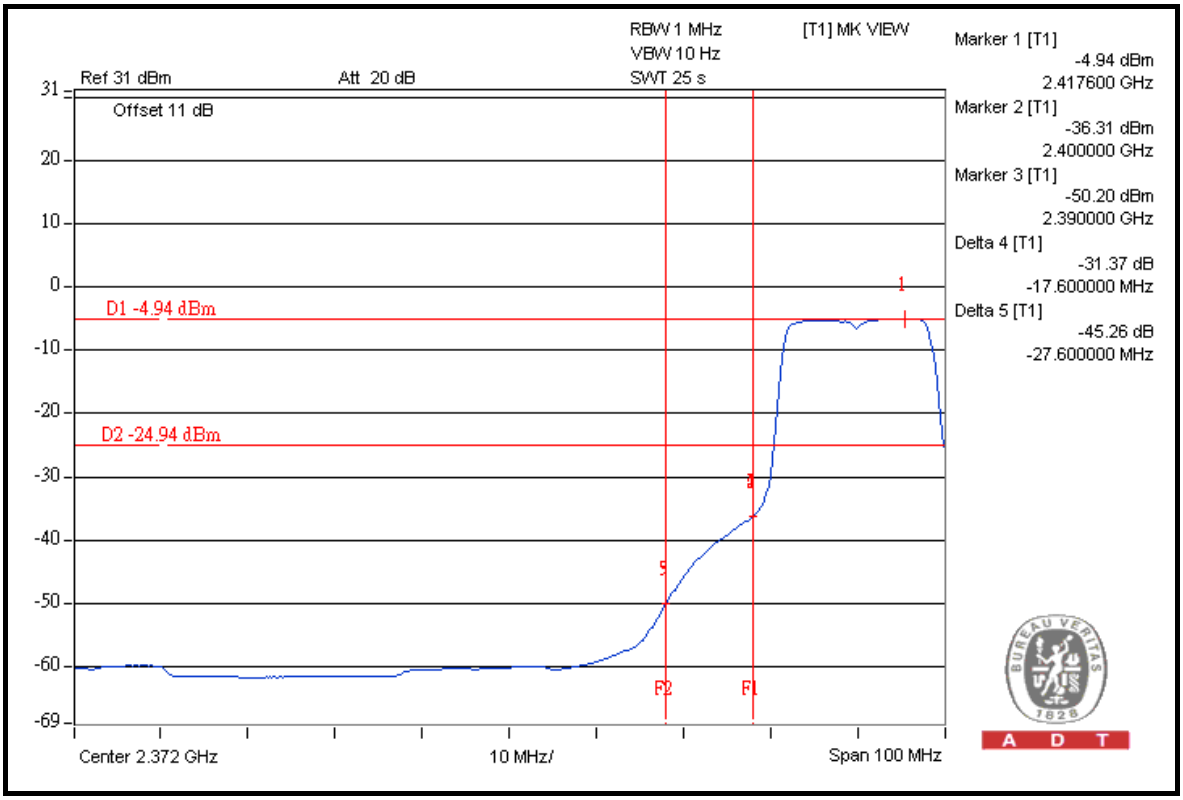

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -1.86 dBm
D2 -21.86 dBm
Marker 1 [T1]
-1.86 dBm
2.469600 GHz
Marker 2 [T1]
-46.80 dBm
2.483500 GHz
Marker 3 [T1]
-51.22 dBm
2.500000 GHz
Delta 4 [T1]
-44.04 dB
14.200000 MHz
Center 2.502 GHz
10 MHz/
Span 100 MHz

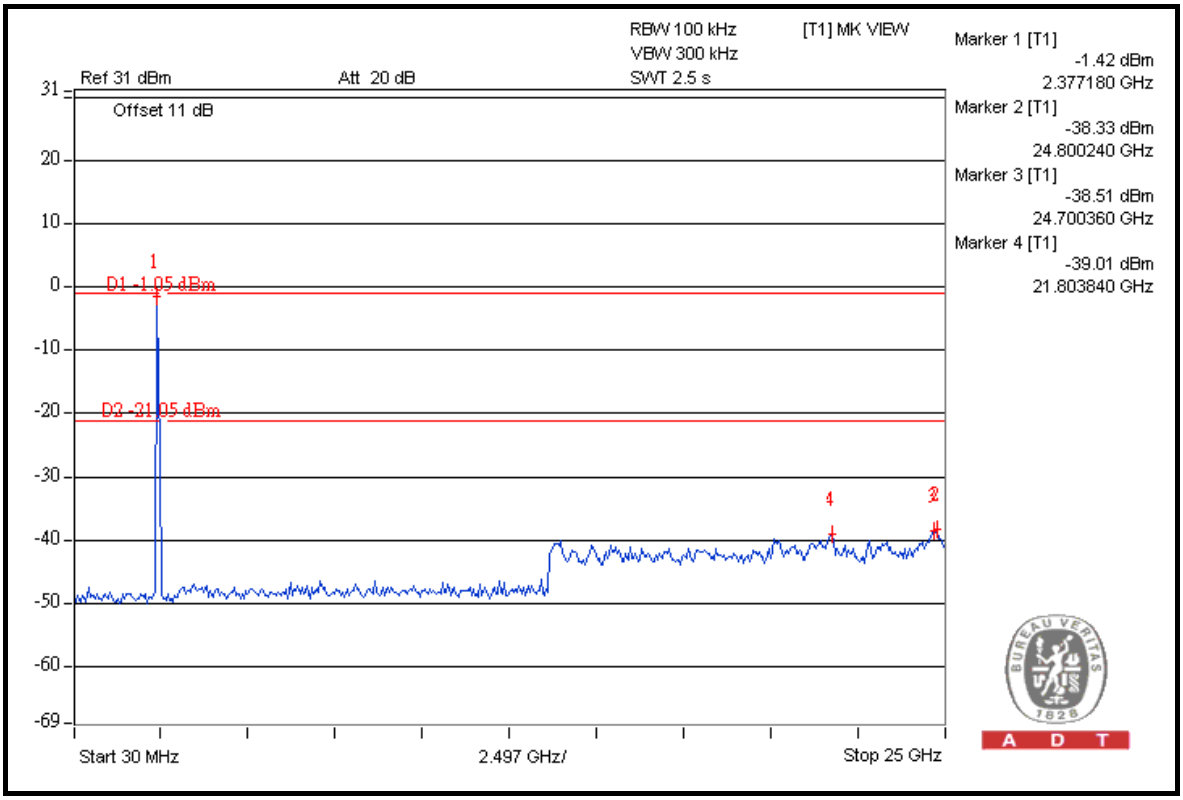

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -5.66 dBm
D2 -25.66 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
Marker 1 [T1]
-5.66 dBm
2.456200 GHz
Marker 2 [T1]
-51.43 dBm
2.483500 GHz
Marker 3 [T1]
-60.15 dBm
2.500000 GHz
Delta 4 [T1]
-45.77 dB
27.300000 MHz

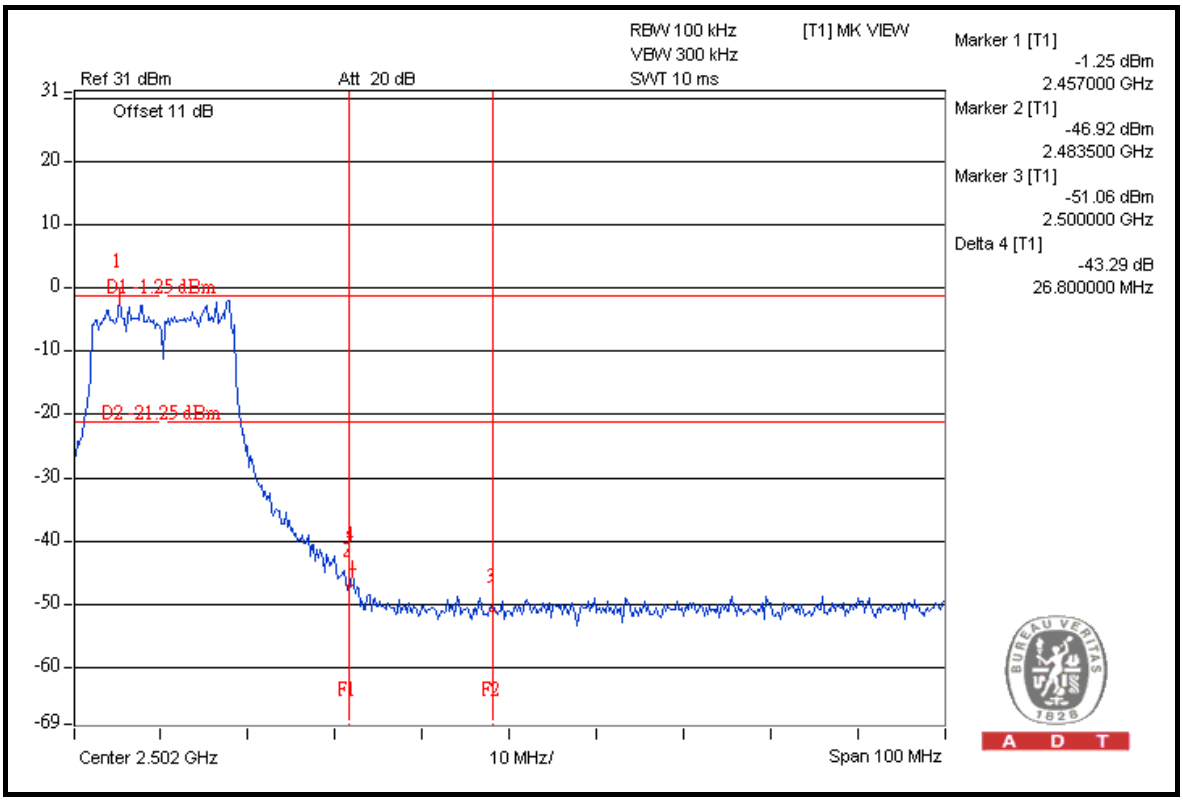

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -1.80 dBm
D2 -21.80 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz
Marker 1 [T1]
-2.03 dBm
2.427120 GHz
Marker 2 [T1]
-38.83 dBm
24.750300 GHz
Marker 3 [T1]
-39.69 dBm
23.302040 GHz
Marker 4 [T1]
-40.19 dBm
21.654020 GHz

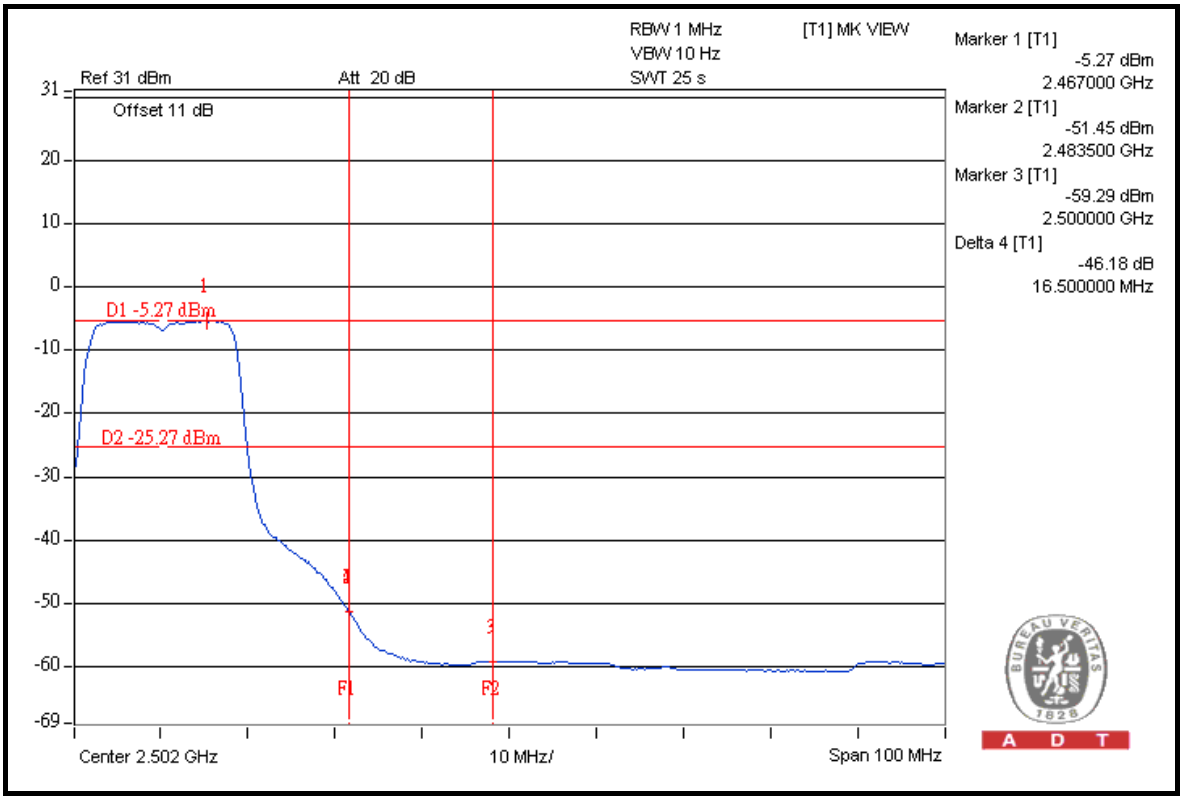
## CHAIN 2

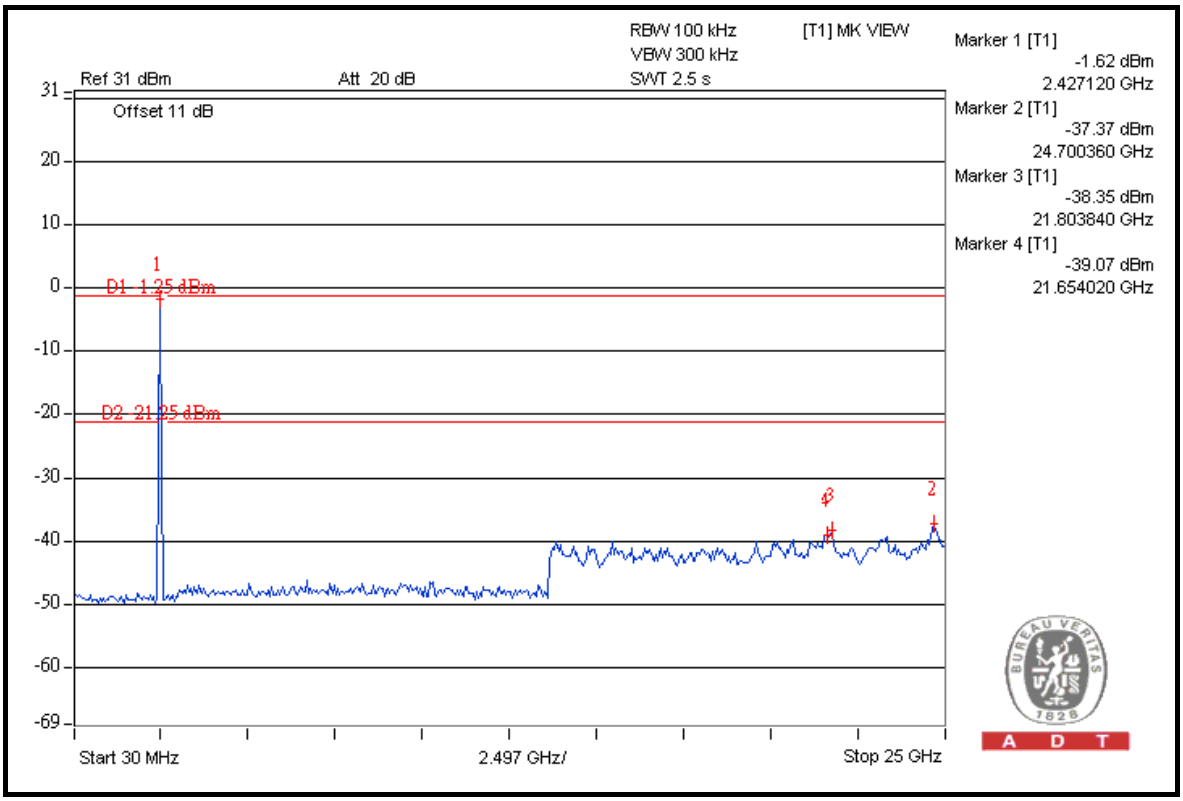

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -1.05 dBm
D2 -21.05 dBm
Marker 1 [T1]
-1.05 dBm
2.417200 GHz
Marker 2 [T1]
-32.50 dBm
2.400000 GHz
Marker 3 [T1]
-45.71 dBm
2.390000 GHz
Delta 4 [T1]
-30.62 dB
-19.200000 MHz
Delta 5 [T1]
-44.66 dB
-27.200000 MHz
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -4.94 dBm
D2 -24.94 dBm
Marker 1 [T1]
-4.94 dBm
2.417600 GHz
Marker 2 [T1]
-36.31 dBm
2.400000 GHz
Marker 3 [T1]
-50.20 dBm
2.390000 GHz
Delta 4 [T1]
-31.37 dB
-17.600000 MHz
Delta 5 [T1]
-45.26 dB
-27.600000 MHz
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -1.05 dBm
D2 -21.05 dBm
Marker 1 [T1]
-1.42 dBm
2.377180 GHz
Marker 2 [T1]
-38.33 dBm
24.800240 GHz
Marker 3 [T1]
-38.51 dBm
24.700360 GHz
Marker 4 [T1]
-39.01 dBm
21.803840 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz


RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -1.25 dBm
D2 -21.25 dBm
Marker 1 [T1]
-1.25 dBm
2.457000 GHz
Marker 2 [T1]
-46.92 dBm
2.483500 GHz
Marker 3 [T1]
-51.06 dBm
2.500000 GHz
Delta 4 [T1]
-43.29 dB
26.800000 MHz
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -5.27 dBm
D2 -25.27 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
Marker 1 [T1]
-5.27 dBm
2.467000 GHz
Marker 2 [T1]
-51.45 dBm
2.483500 GHz
Marker 3 [T1]
-59.29 dBm
2.500000 GHz
Delta 4 [T1]
-46.18 dB
16.500000 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -1.25 dBm
D2 -21.25 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz
Marker 1 [T1]
-1.62 dBm
2.427120 GHz
Marker 2 [T1]
-37.37 dBm
24.700360 GHz
Marker 3 [T1]
-38.35 dBm
21.803840 GHz
Marker 4 [T1]
-39.07 dBm
21.654020 GHz

## 802.11n (20MHz)

**RESTRICT BAND (2310 ~ 2390 MHz)**

| FREQUENCY (MHz) | FUNDAMENTAL EMISSION (dBuV/m) | DELTA (dB) | MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m) | LIMIT (dBuV/m) |
|---|---|---|---|---|
| 2412.00 (PK) | 106.3 | 40.36 | 65.94 | 74.00 |
| 2412.00 (AV) | 94.8 | 44.49 | 50.31 | 54.00 |

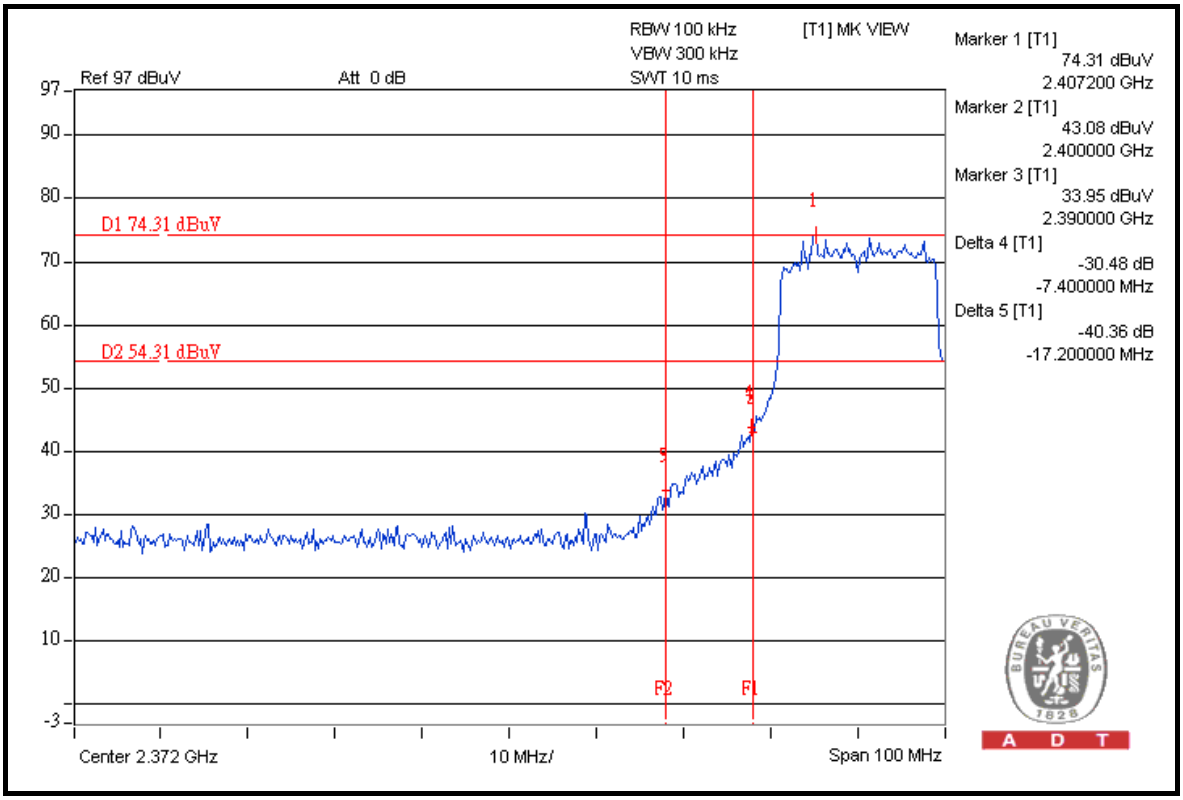
**RESTRICT BAND (2483.5 ~ 2500 MHz)**

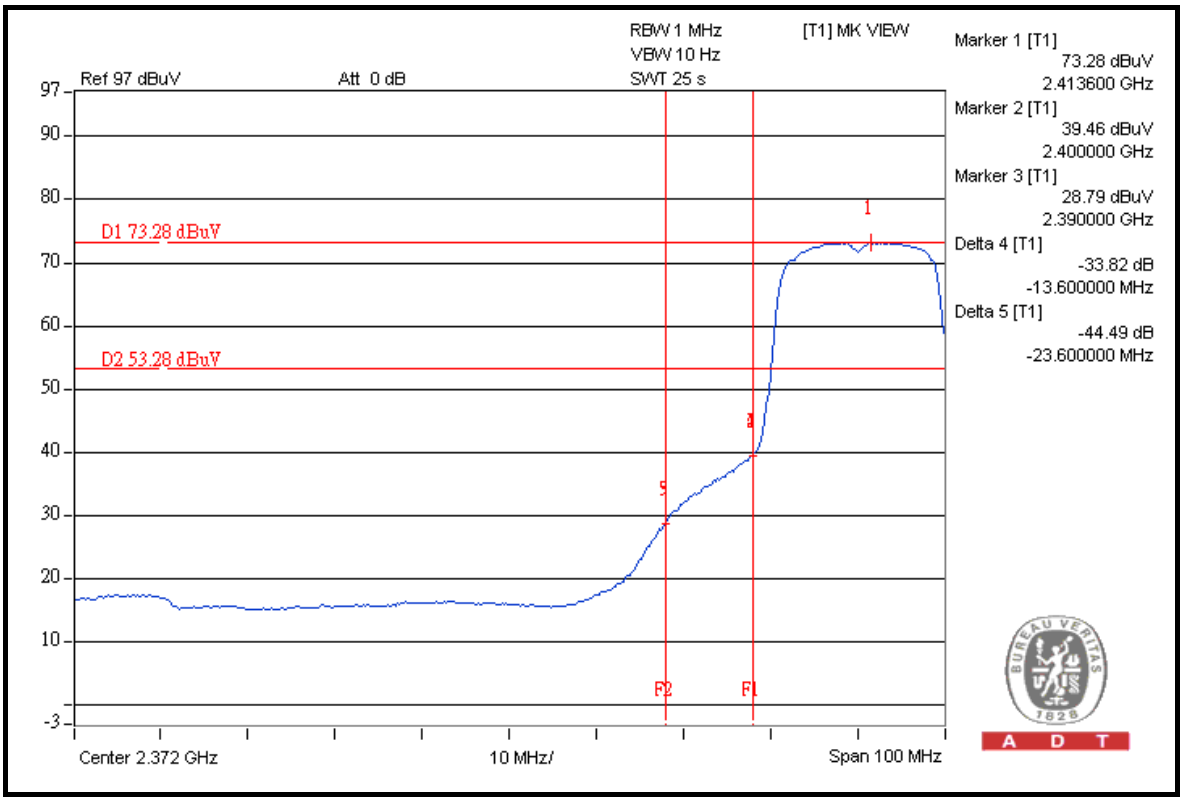
| FREQUENCY (MHz) | FUNDAMENTAL EMISSION (dBuV/m) | DELTA (dB) | MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m) | LIMIT (dBuV/m) |
|---|---|---|---|---|
| 2462.00 (PK) | 107.1 | 40.34 | 66.76 | 74.00 |
| 2462.00 (AV) | 95.2 | 43.91 | 51.29 | 54.00 |

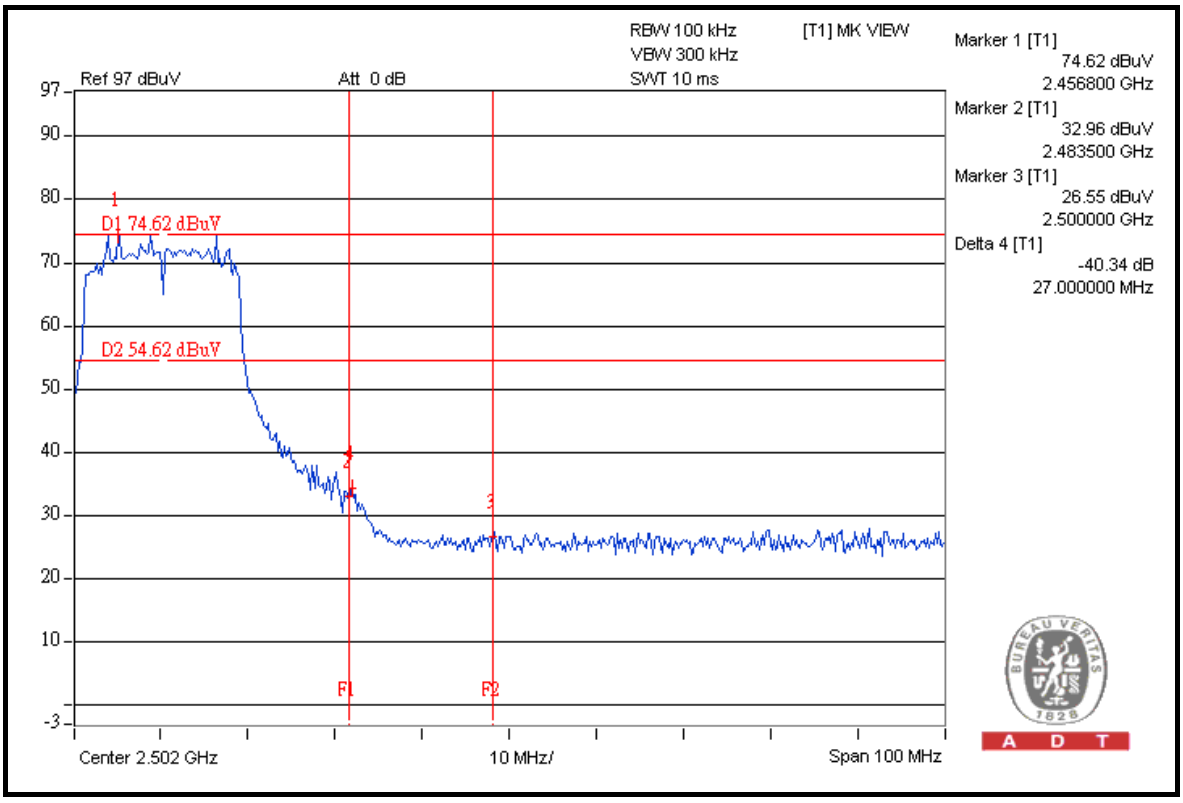
**NOTE:**

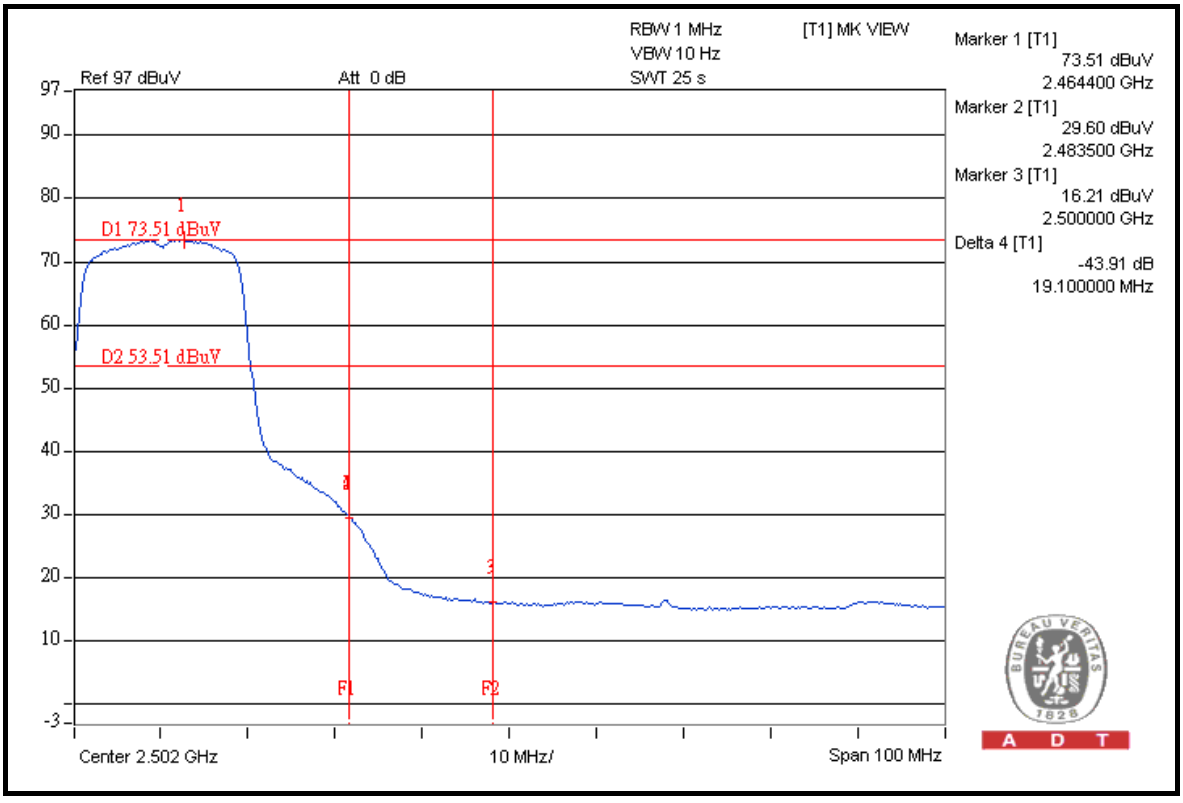
1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.

## FOR RADIATED MEASURED (THREE CHAINS ON)



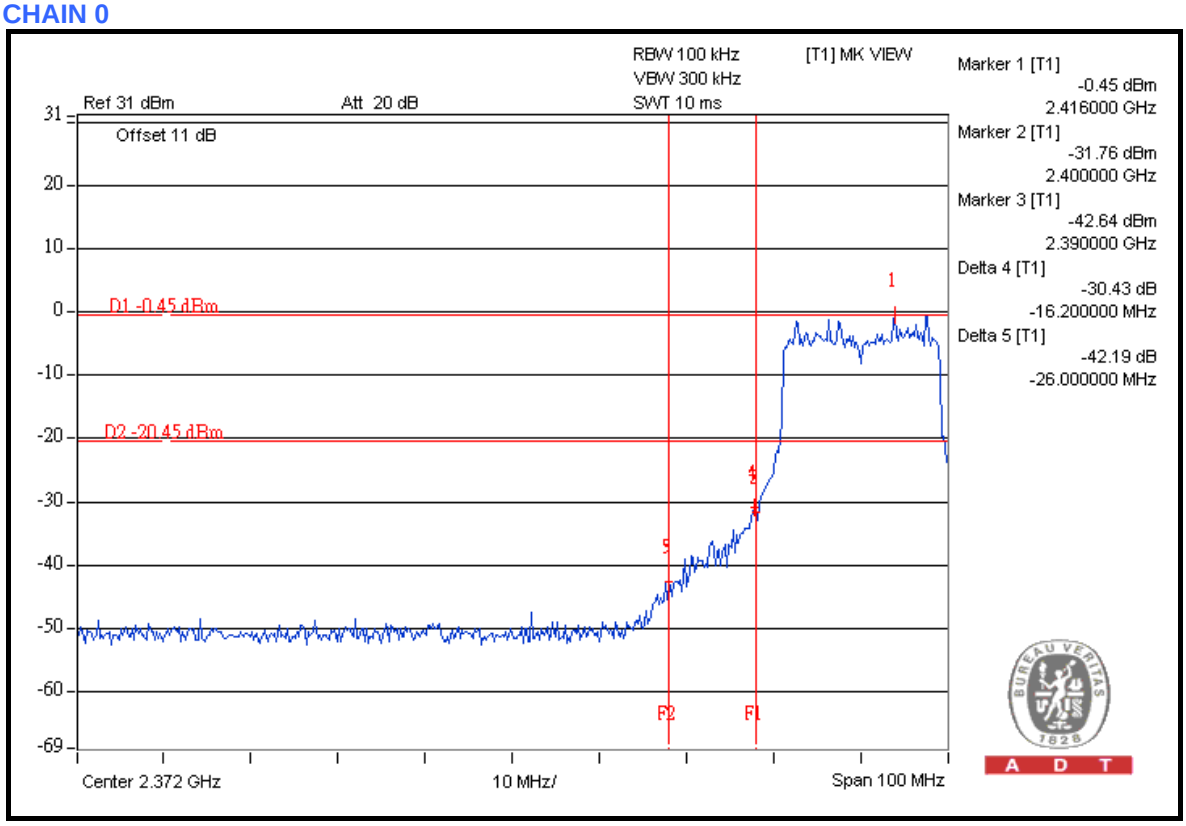



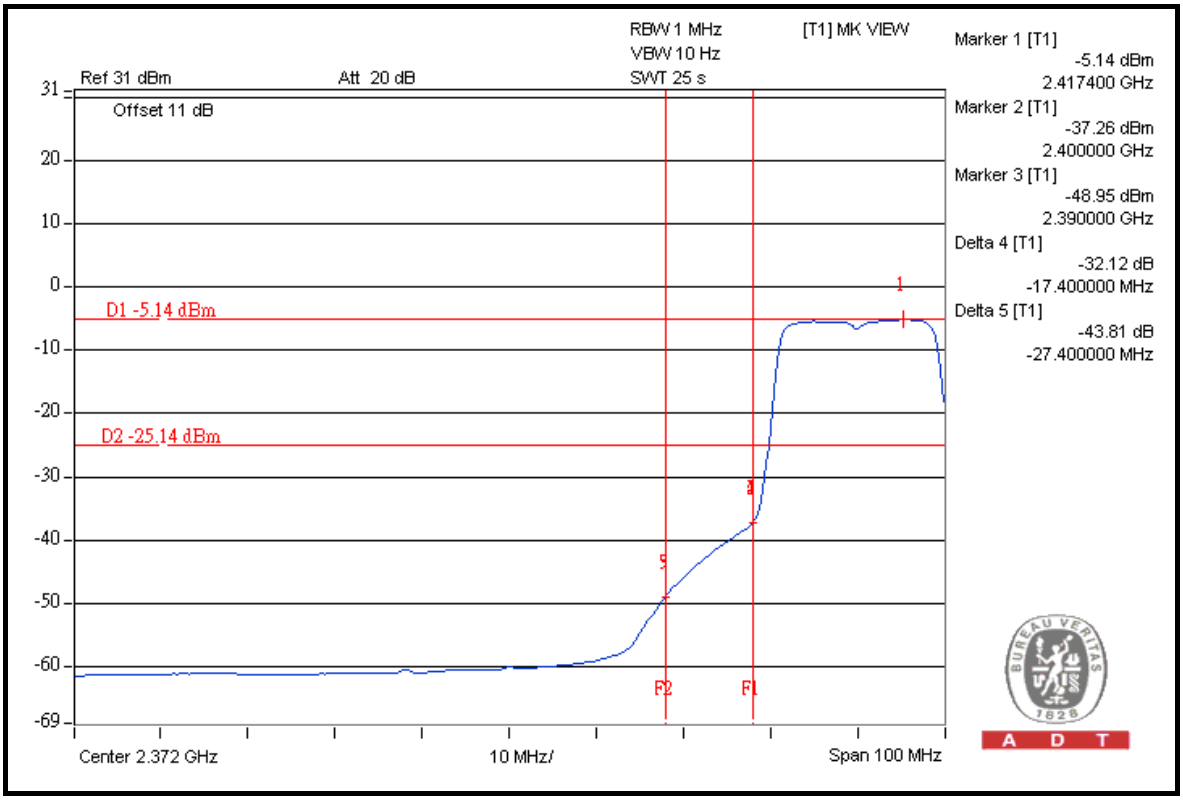

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
74.62 dBuV
2.456800 GHz
Marker 2 [T1]
32.96 dBuV
2.483500 GHz
Marker 3 [T1]
26.55 dBuV
2.500000 GHz
Delta 4 [T1]
-40.34 dB
27.000000 MHz
D1 74.62 dBuV
D2 54.62 dBuV
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz

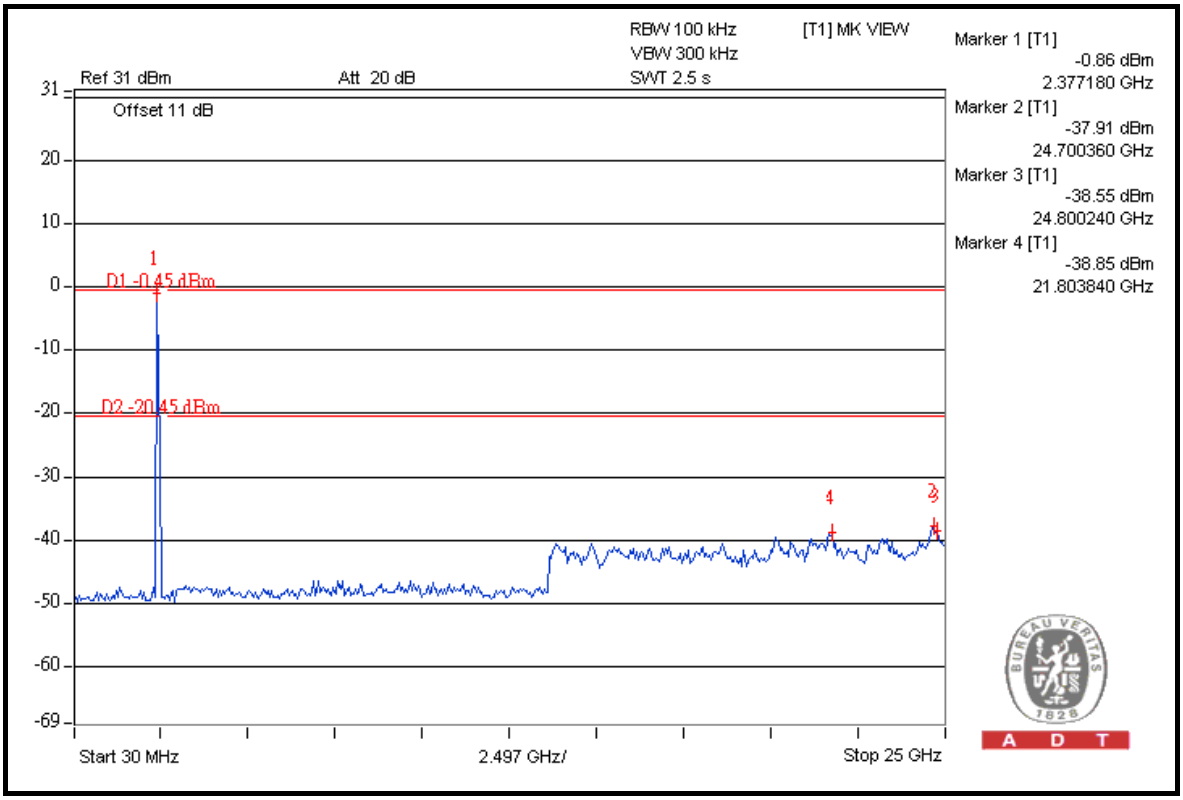

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
73.51 dBuV
2.464400 GHz
Marker 2 [T1]
29.60 dBuV
2.483500 GHz
Marker 3 [T1]
16.21 dBuV
2.500000 GHz
Delta 4 [T1]
-43.91 dB
19.100000 MHz
D1 73.51 dBuV
D2 53.51 dBuV
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz

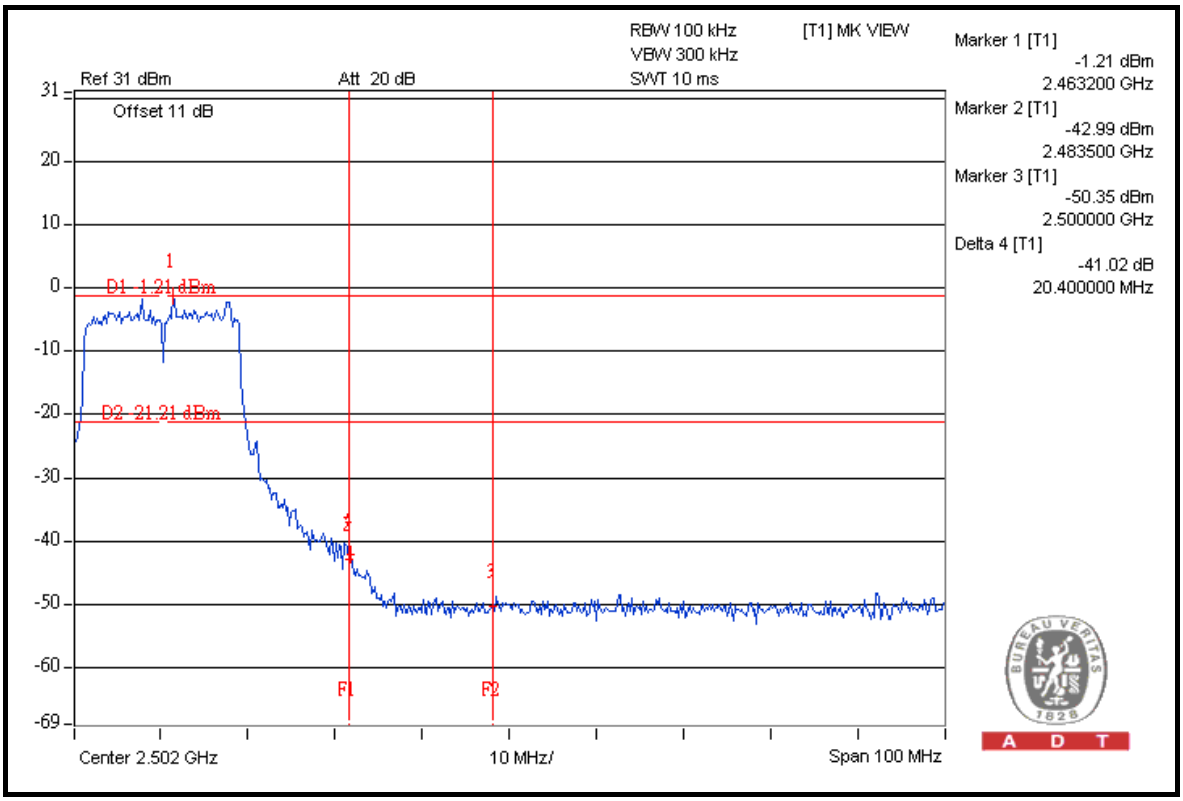
## FOR CONDUCTED MEASURED

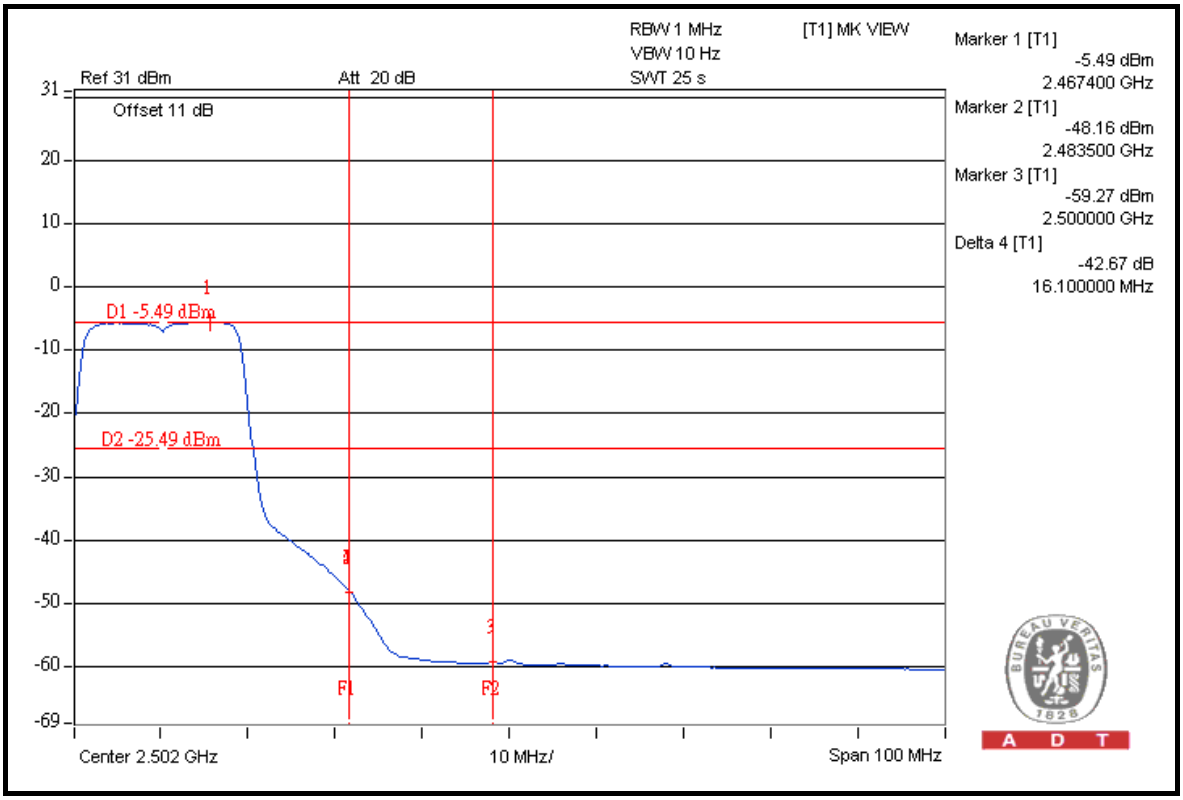
### CHAIN 0

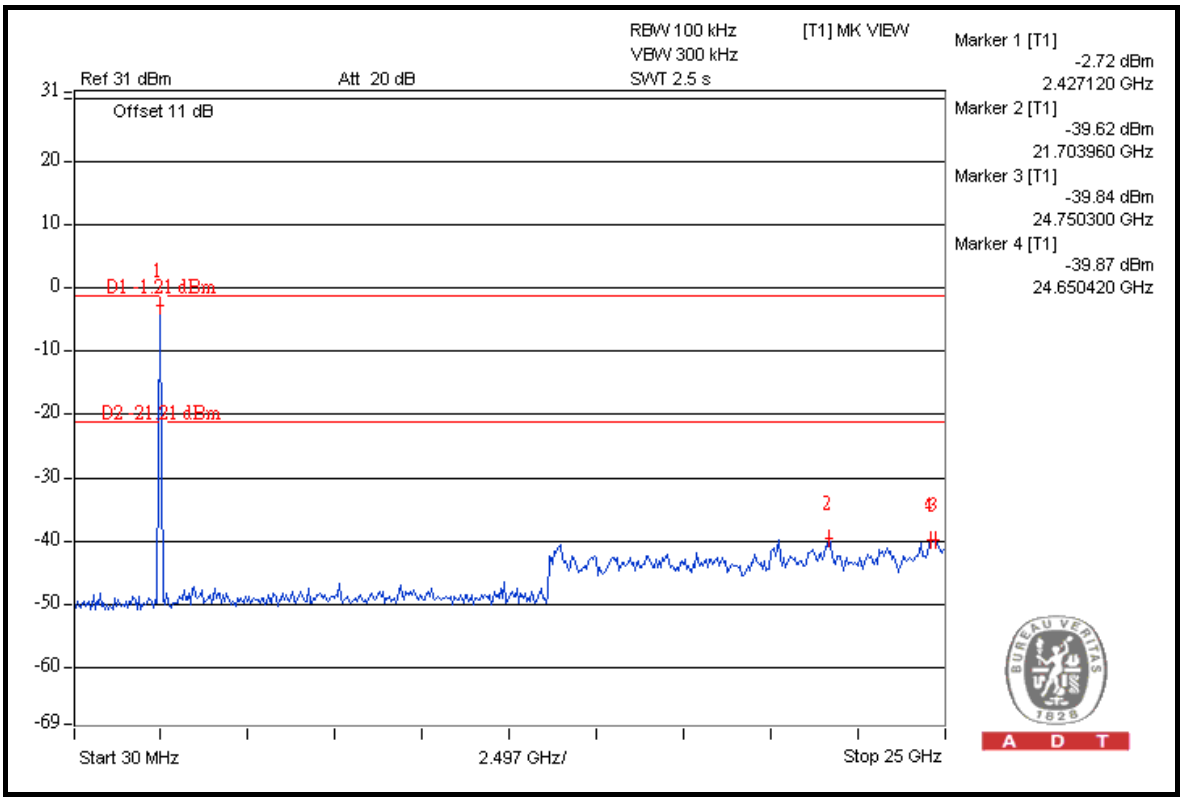


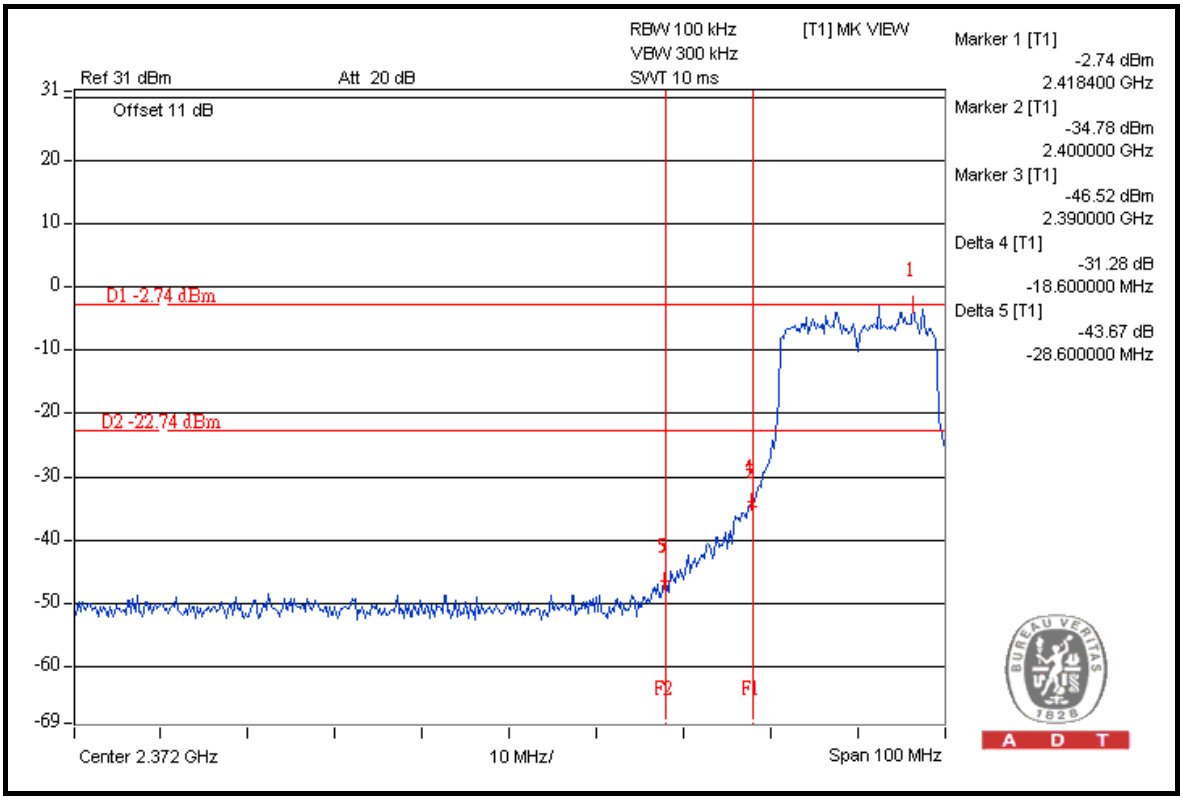

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -0.45 dBm
D2 -20.45 dBm
Marker 1 [T1]
-0.86 dBm
2.377180 GHz
Marker 2 [T1]
-37.91 dBm
24.700360 GHz
Marker 3 [T1]
-38.55 dBm
24.800240 GHz
Marker 4 [T1]
-38.85 dBm
21.803840 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

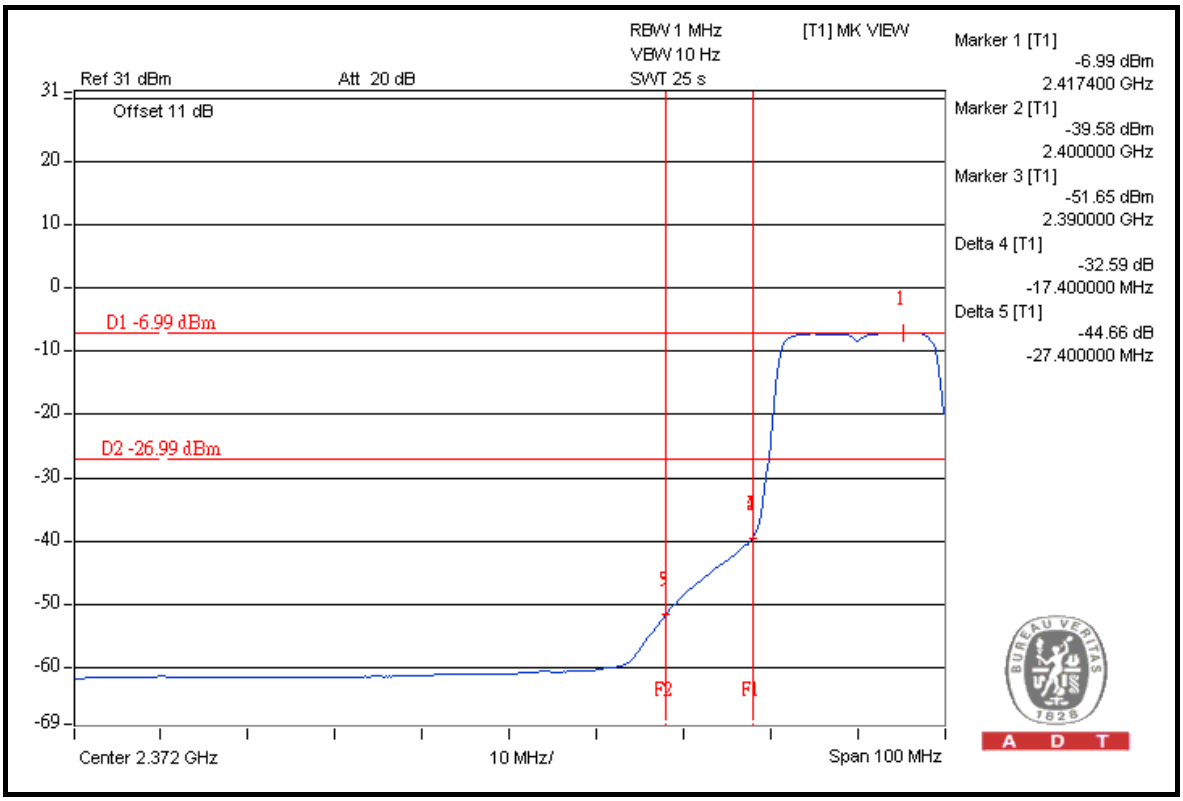

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 1.21 dBm
D2 -21.21 dBm
Marker 1 [T1]
-1.21 dBm
2.463200 GHz
Marker 2 [T1]
-42.99 dBm
2.483500 GHz
Marker 3 [T1]
-50.35 dBm
2.500000 GHz
Delta 4 [T1]
-41.02 dB
20.400000 MHz
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz

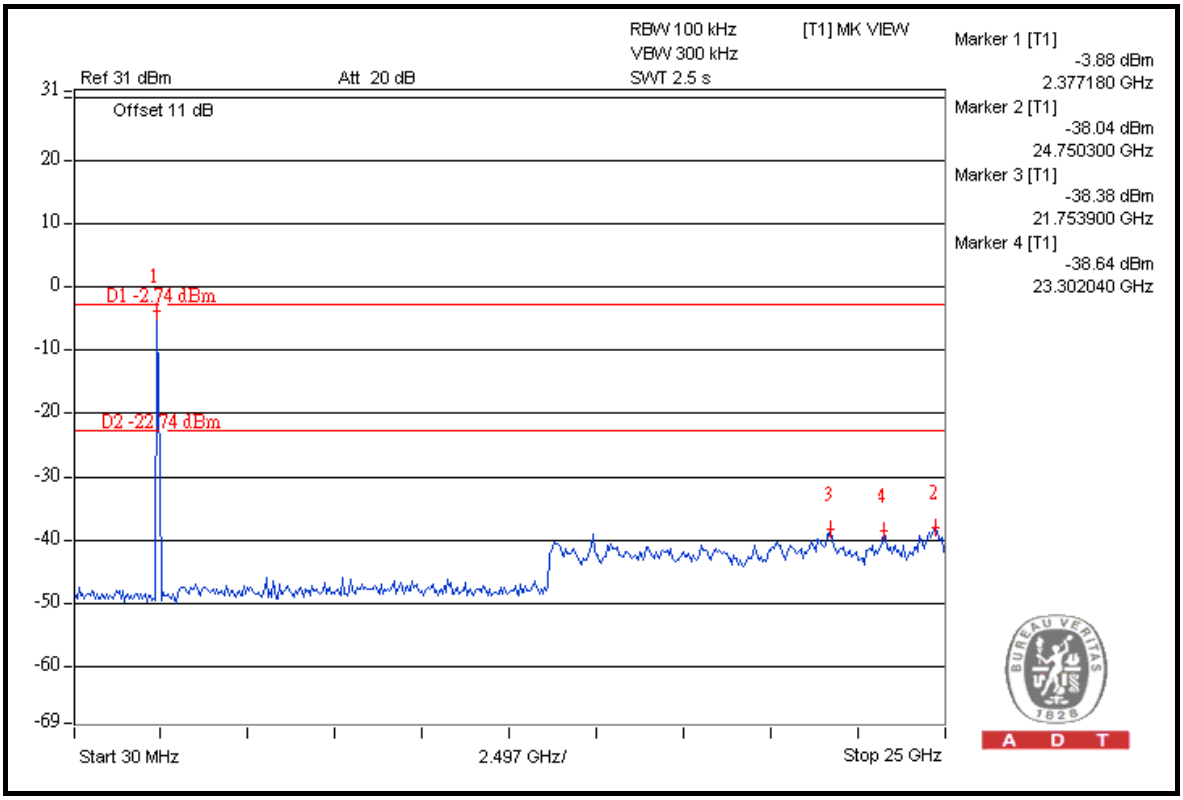

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -5.49 dBm
D2 -25.49 dBm
Marker 1 [T1]
-5.49 dBm
2.467400 GHz
Marker 2 [T1]
-48.16 dBm
2.483500 GHz
Marker 3 [T1]
-59.27 dBm
2.500000 GHz
Delta 4 [T1]
-42.67 dB
16.100000 MHz
Center 2.502 GHz
10 MHz/
Span 100 MHz

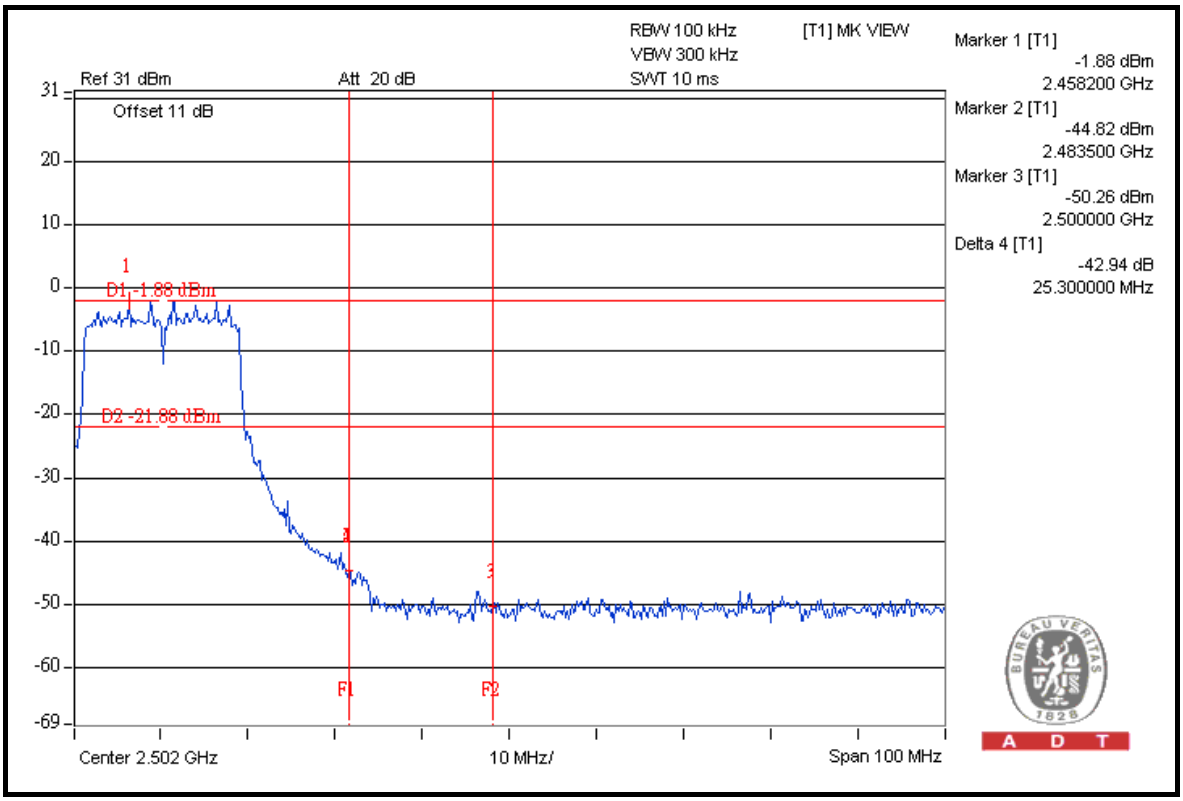

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 1.21 dBm
D2 21.21 dBm
Marker 1 [T1]
-2.72 dBm
2.427120 GHz
Marker 2 [T1]
-39.62 dBm
21.703960 GHz
Marker 3 [T1]
-39.84 dBm
24.750300 GHz
Marker 4 [T1]
-39.87 dBm
24.650420 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

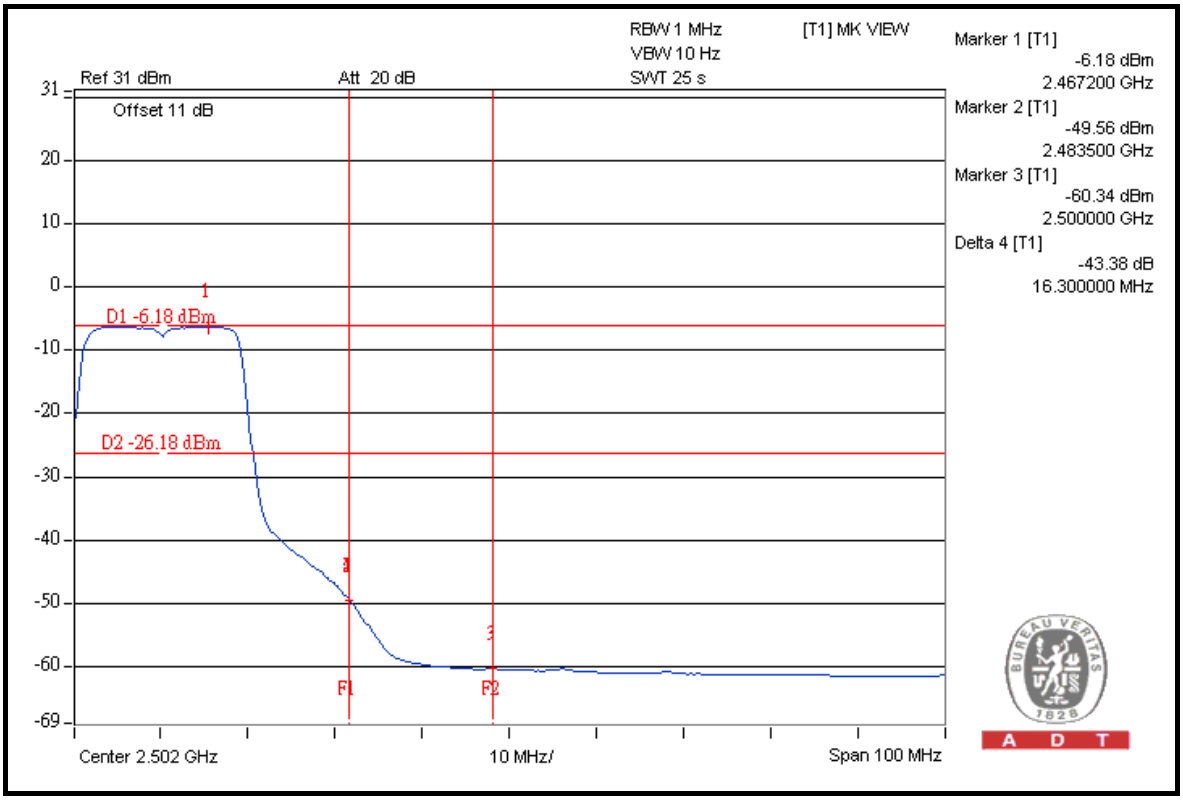
## CHAIN 1

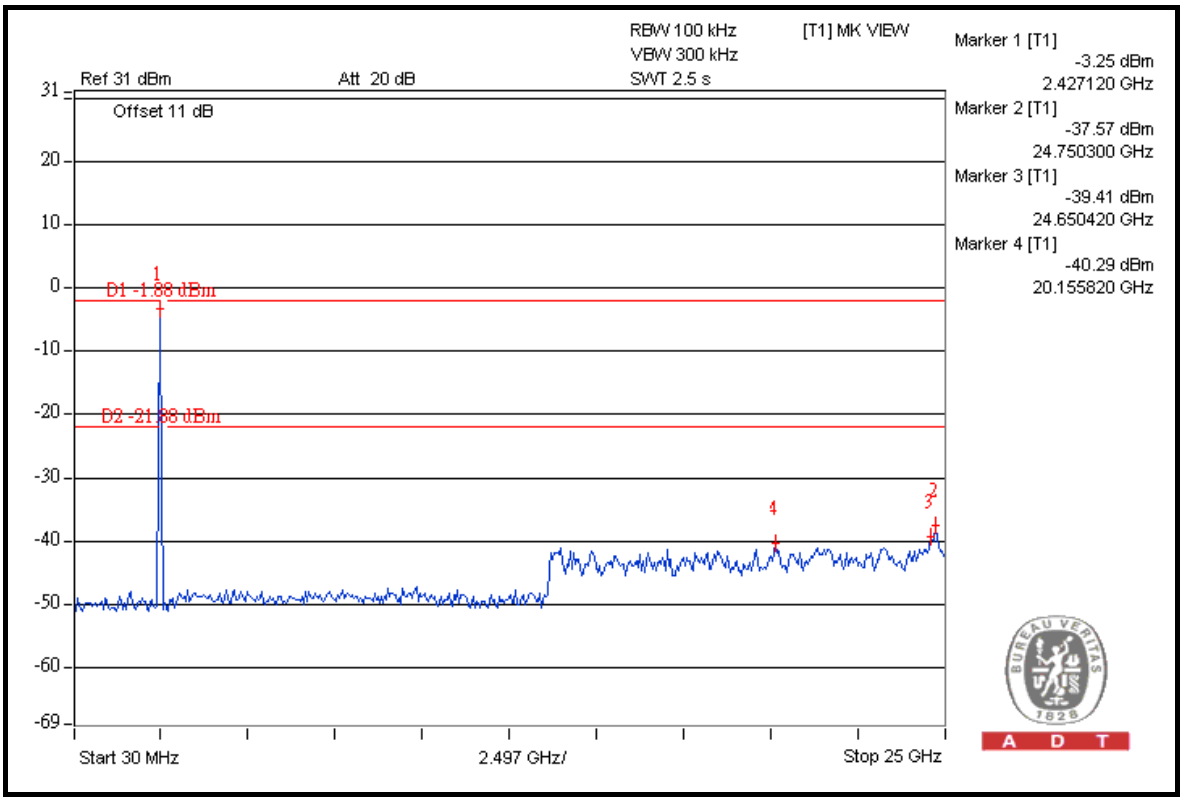

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -2.74 dBm
D2 -22.74 dBm
Marker 1 [T1]
-2.74 dBm
2.418400 GHz
Marker 2 [T1]
-34.78 dBm
2.400000 GHz
Marker 3 [T1]
-46.52 dBm
2.390000 GHz
Delta 4 [T1]
-31.28 dB
-18.600000 MHz
Delta 5 [T1]
-43.67 dB
-28.600000 MHz
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -6.99 dBm
D2 -26.99 dBm
Marker 1 [T1]
-6.99 dBm
2.417400 GHz
Marker 2 [T1]
-39.58 dBm
2.400000 GHz
Marker 3 [T1]
-51.65 dBm
2.390000 GHz
Delta 4 [T1]
-32.59 dB
-17.400000 MHz
Delta 5 [T1]
-44.66 dB
-27.400000 MHz
Center 2.372 GHz
10 MHz/
Span 100 MHz

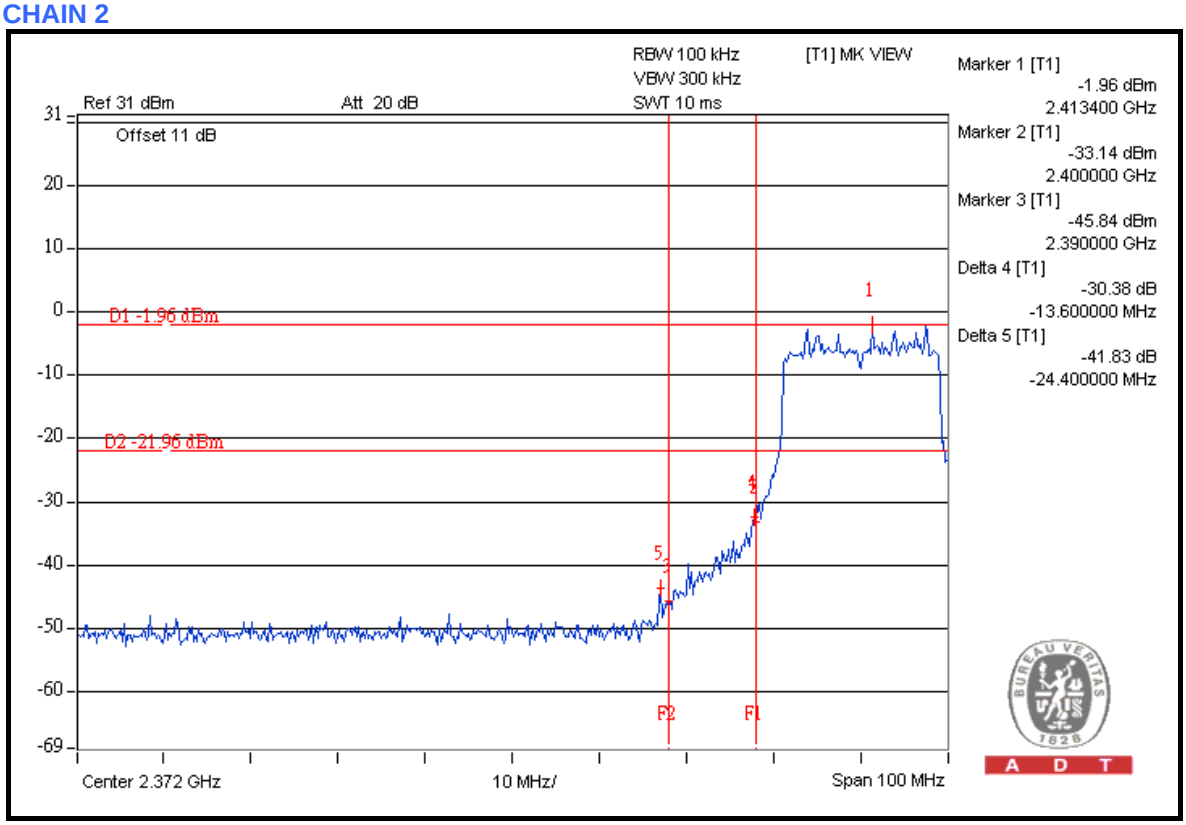

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -2.74 dBm
D2 -22.74 dBm
Marker 1 [T1]
-3.88 dBm
2.377180 GHz
Marker 2 [T1]
-38.04 dBm
24.750300 GHz
Marker 3 [T1]
-38.38 dBm
21.753900 GHz
Marker 4 [T1]
-38.64 dBm
23.302040 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

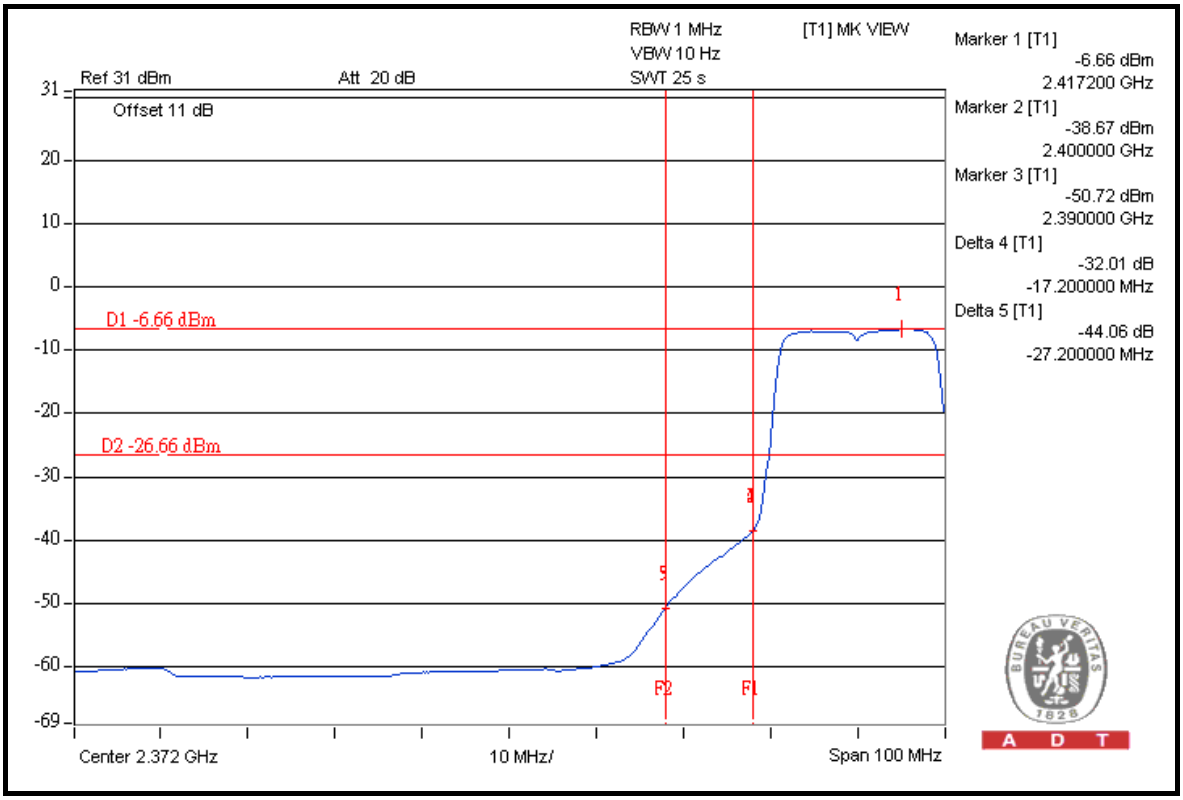

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -1.88 dBm
D2 -21.88 dBm
Marker 1 [T1]
-1.88 dBm
2.458200 GHz
Marker 2 [T1]
-44.82 dBm
2.483500 GHz
Marker 3 [T1]
-50.26 dBm
2.500000 GHz
Delta 4 [T1]
-42.94 dB
25.300000 MHz
Center 2.502 GHz
10 MHz/
Span 100 MHz

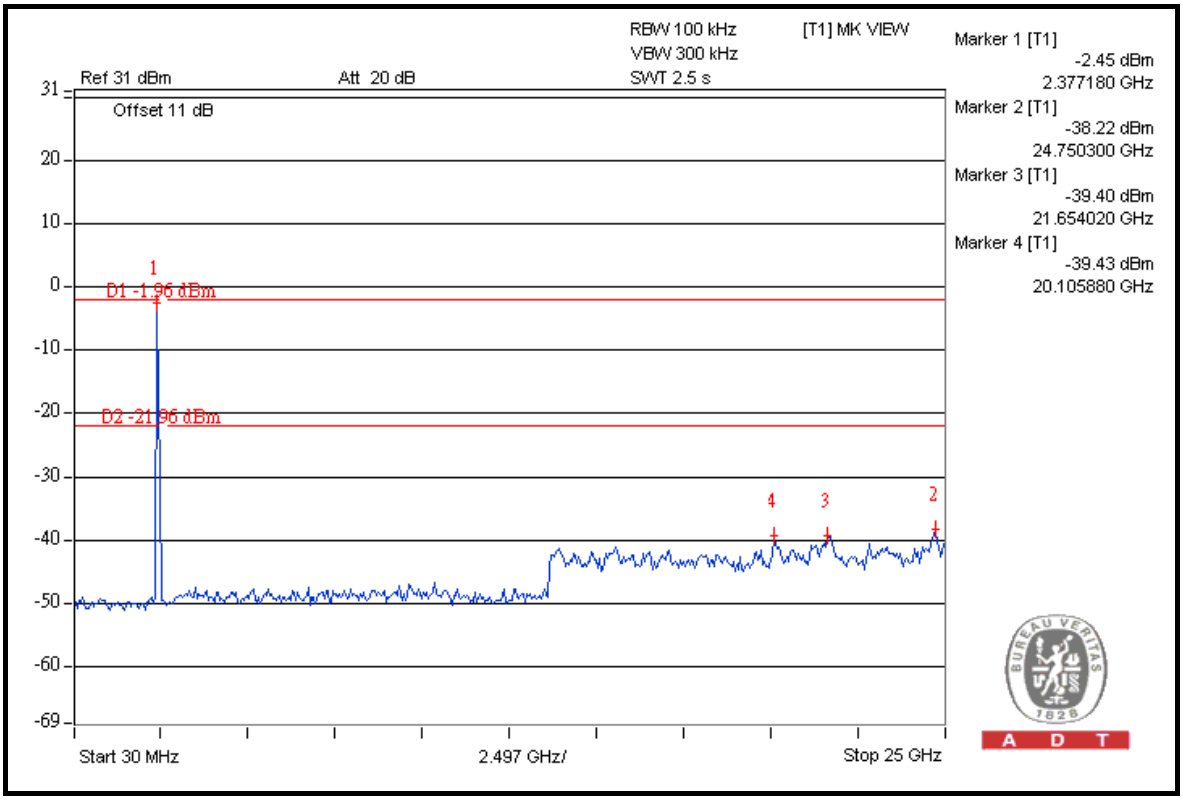

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -6.18 dBm
D2 -26.18 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
Marker 1 [T1]
-6.18 dBm
2.467200 GHz
Marker 2 [T1]
-49.56 dBm
2.483500 GHz
Marker 3 [T1]
-60.34 dBm
2.500000 GHz
Delta 4 [T1]
-43.38 dB
16.300000 MHz

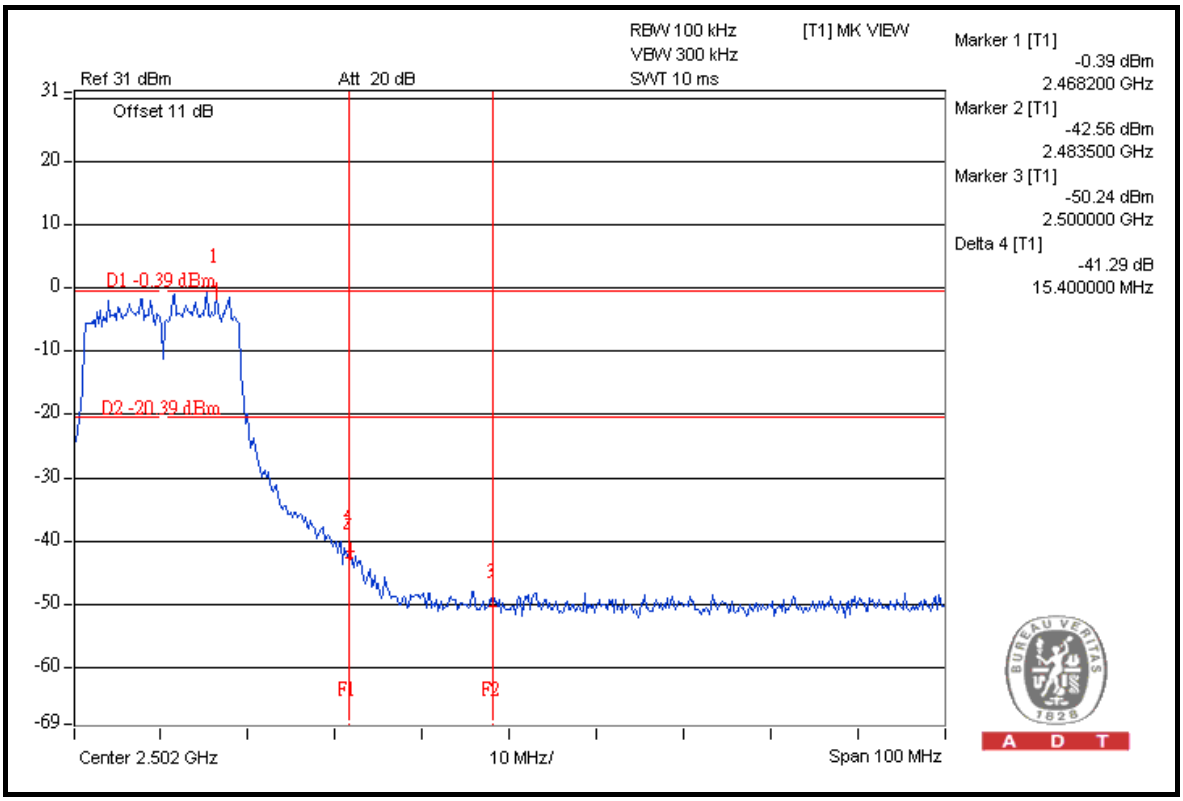

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -1.88 dBm
D2 -21.88 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz
Marker 1 [T1]
-3.25 dBm
2.427120 GHz
Marker 2 [T1]
-37.57 dBm
24.750300 GHz
Marker 3 [T1]
-39.41 dBm
24.650420 GHz
Marker 4 [T1]
-40.29 dBm
20.155820 GHz

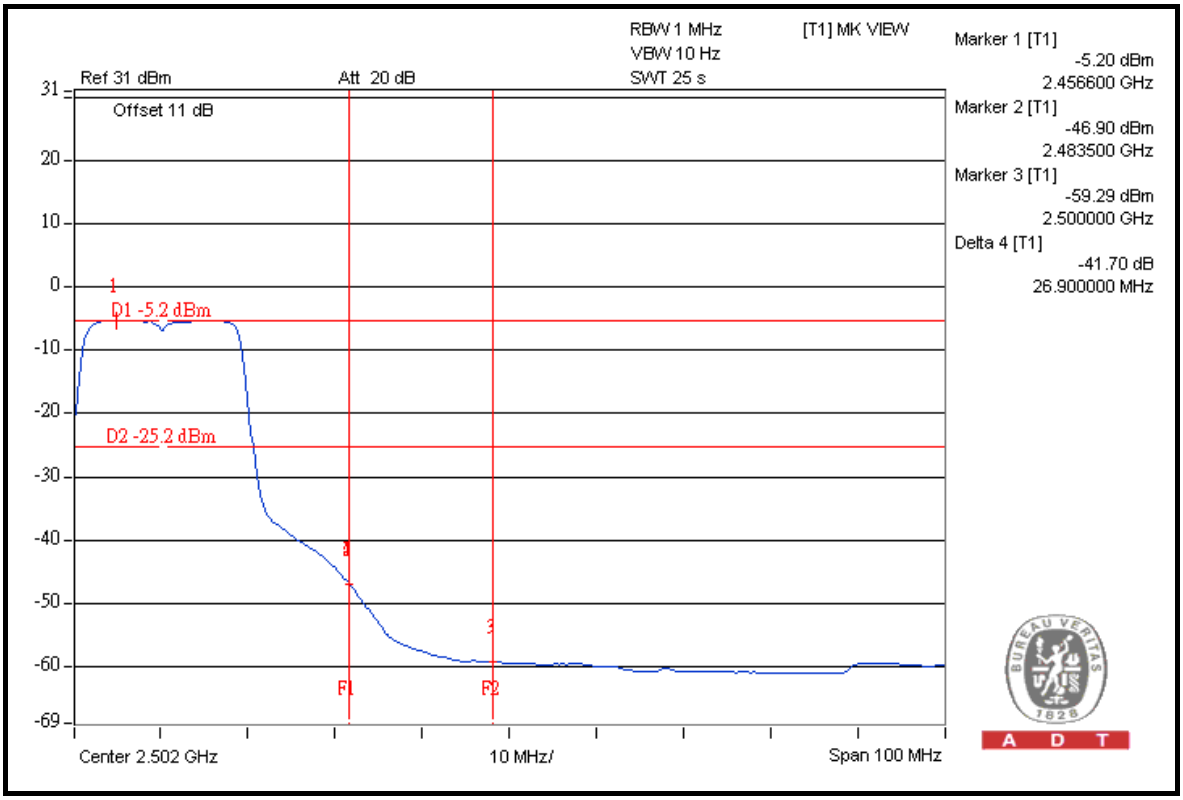
## CHAIN 2

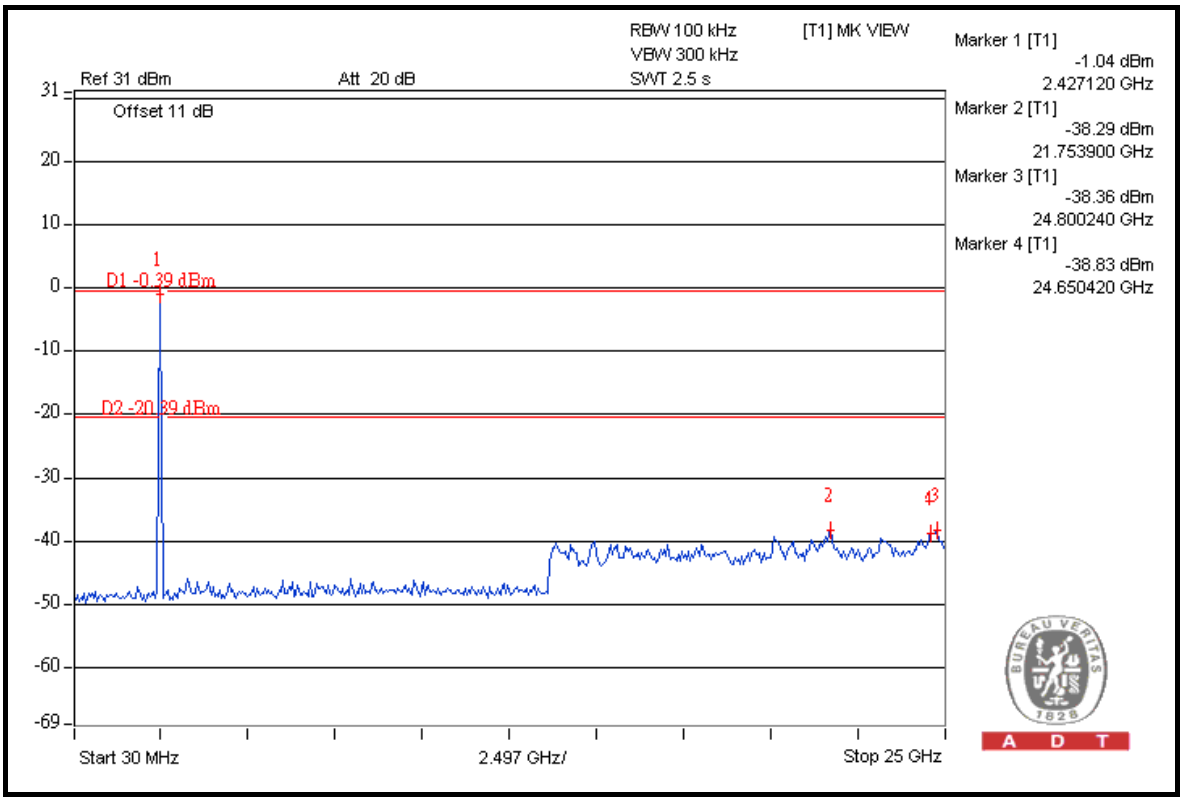

RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -1.96 dBm
D2 -21.96 dBm
Marker 1 [T1]
-1.96 dBm
2.413400 GHz
Marker 2 [T1]
-33.14 dBm
2.400000 GHz
Marker 3 [T1]
-45.84 dBm
2.390000 GHz
Delta 4 [T1]
-30.38 dB
-13.600000 MHz
Delta 5 [T1]
-41.83 dB
-24.400000 MHz
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -6.66 dBm
D2 -26.66 dBm
Marker 1 [T1]
-6.66 dBm
2.417200 GHz
Marker 2 [T1]
-38.67 dBm
2.400000 GHz
Marker 3 [T1]
-50.72 dBm
2.390000 GHz
Delta 4 [T1]
-32.01 dB
-17.200000 MHz
Delta 5 [T1]
-44.06 dB
-27.200000 MHz
Center 2.372 GHz
10 MHz/
Span 100 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -1.96 dBm
D2 -21.96 dBm
Marker 1 [T1]
-2.45 dBm
2.377180 GHz
Marker 2 [T1]
-38.22 dBm
24.750300 GHz
Marker 3 [T1]
-39.40 dBm
21.654020 GHz
Marker 4 [T1]
-39.43 dBm
20.105880 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz


RBW 100 kHz
VBW 300 kHz
SWT 10 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -0.39 dBm
D2 -20.39 dBm
Marker 1 [T1]
-0.39 dBm
2.468200 GHz
Marker 2 [T1]
-42.56 dBm
2.483500 GHz
Marker 3 [T1]
-50.24 dBm
2.500000 GHz
Delta 4 [T1]
-41.29 dB
15.400000 MHz
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -5.2 dBm
D2 -25.2 dBm
F1
F2
Center 2.502 GHz
10 MHz/
Span 100 MHz
Marker 1 [T1]
-5.20 dBm
2.456600 GHz
Marker 2 [T1]
-46.90 dBm
2.483500 GHz
Marker 3 [T1]
-59.29 dBm
2.500000 GHz
Delta 4 [T1]
-41.70 dB
26.900000 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -0.39 dBm
D2 -20.39 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz
Marker 1 [T1]
-1.04 dBm
2.427120 GHz
Marker 2 [T1]
-38.29 dBm
21.753900 GHz
Marker 3 [T1]
-38.36 dBm
24.800240 GHz
Marker 4 [T1]
-38.83 dBm
24.650420 GHz

## 802.11n (40MHz)

**RESTRICT BAND (2310 ~ 2390 MHz)**

| FREQUENCY (MHz) | FUNDAMENTAL EMISSION (dBuV/m) | DELTA (dB) | MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m) | LIMIT (dBuV/m) |
|---|---|---|---|---|
| 2422.00 (PK) | 103.2 | 38.08 | 65.12 | 74.00 |
| 2422.00 (AV) | 91.2 | 39.31 | 51.89 | 54.00 |

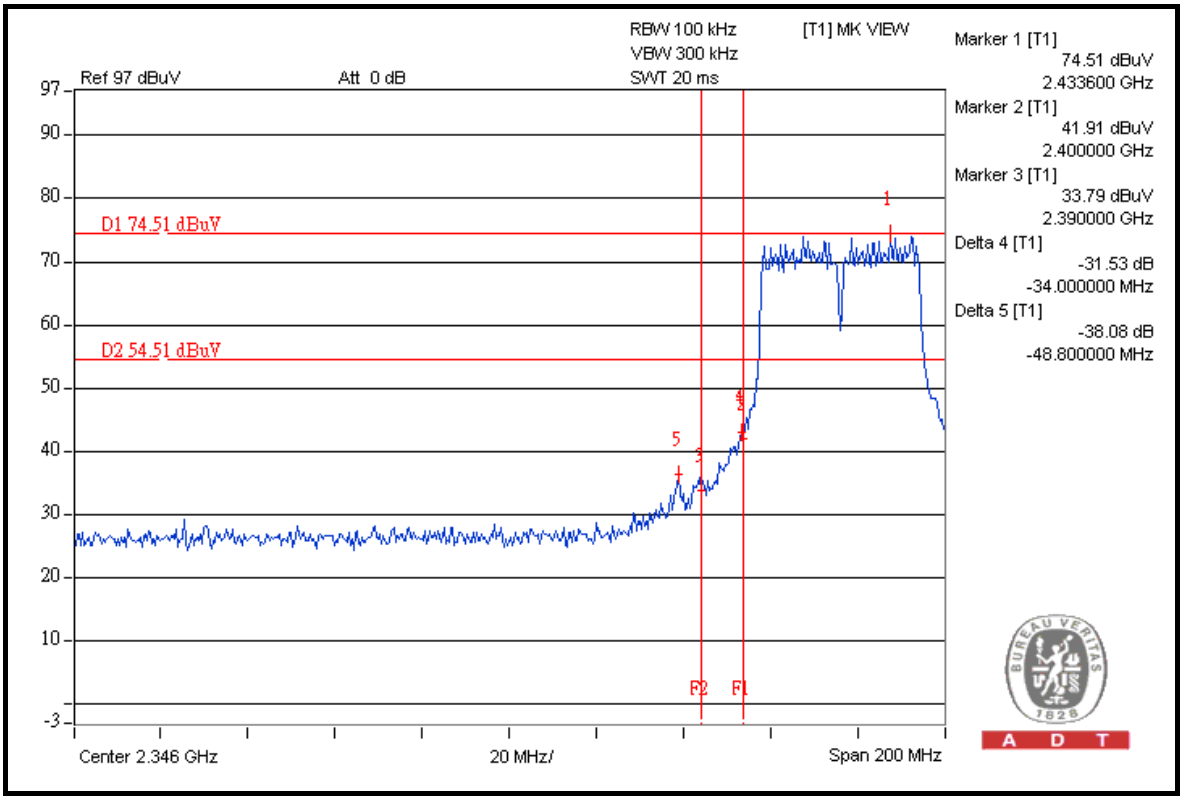
**RESTRICT BAND (2483.5 ~ 2500 MHz)**

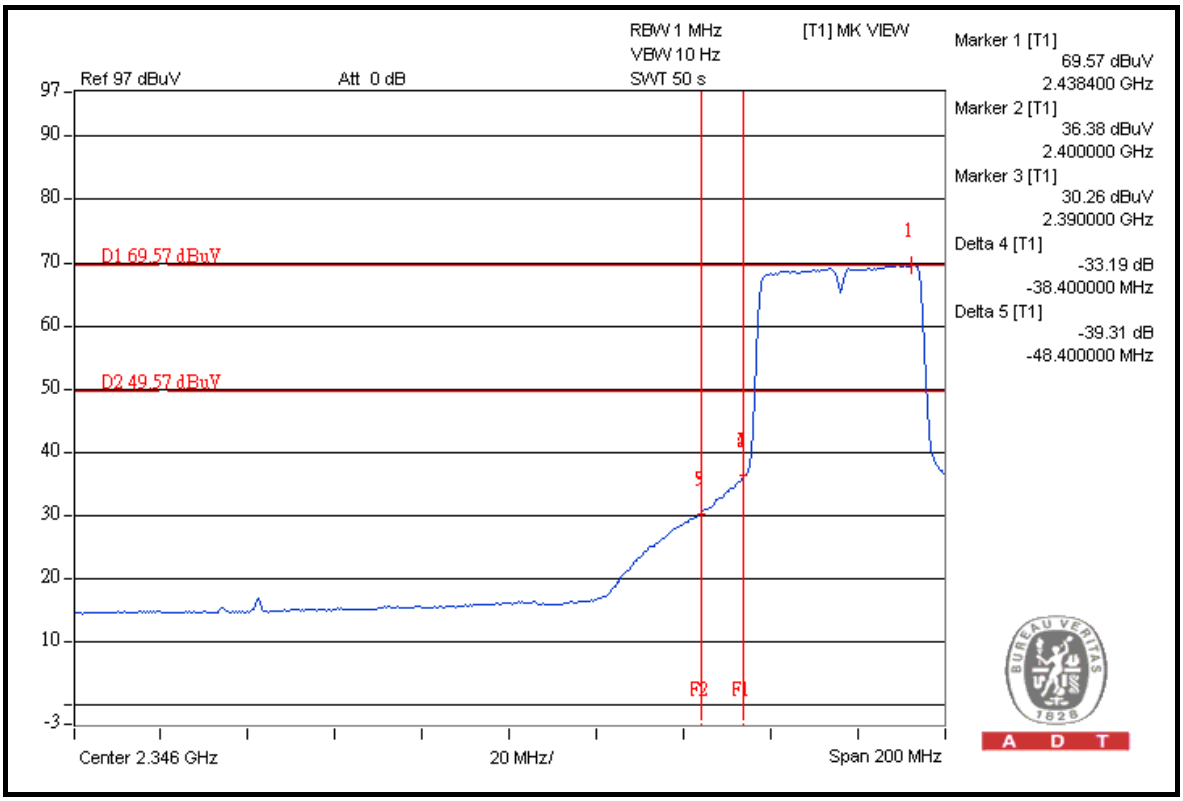
| FREQUENCY (MHz) | FUNDAMENTAL EMISSION (dBuV/m) | DELTA (dB) | MAXIMUM FIELD STRENGTH IN RESTRICT BAND (dBuV/m) | LIMIT (dBuV/m) |
|---|---|---|---|---|
| 2452.00 (PK) | 103.7 | 37.77 | 65.93 | 74.00 |
| 2452.00 (AV) | 91.6 | 39.06 | 52.54 | 54.00 |

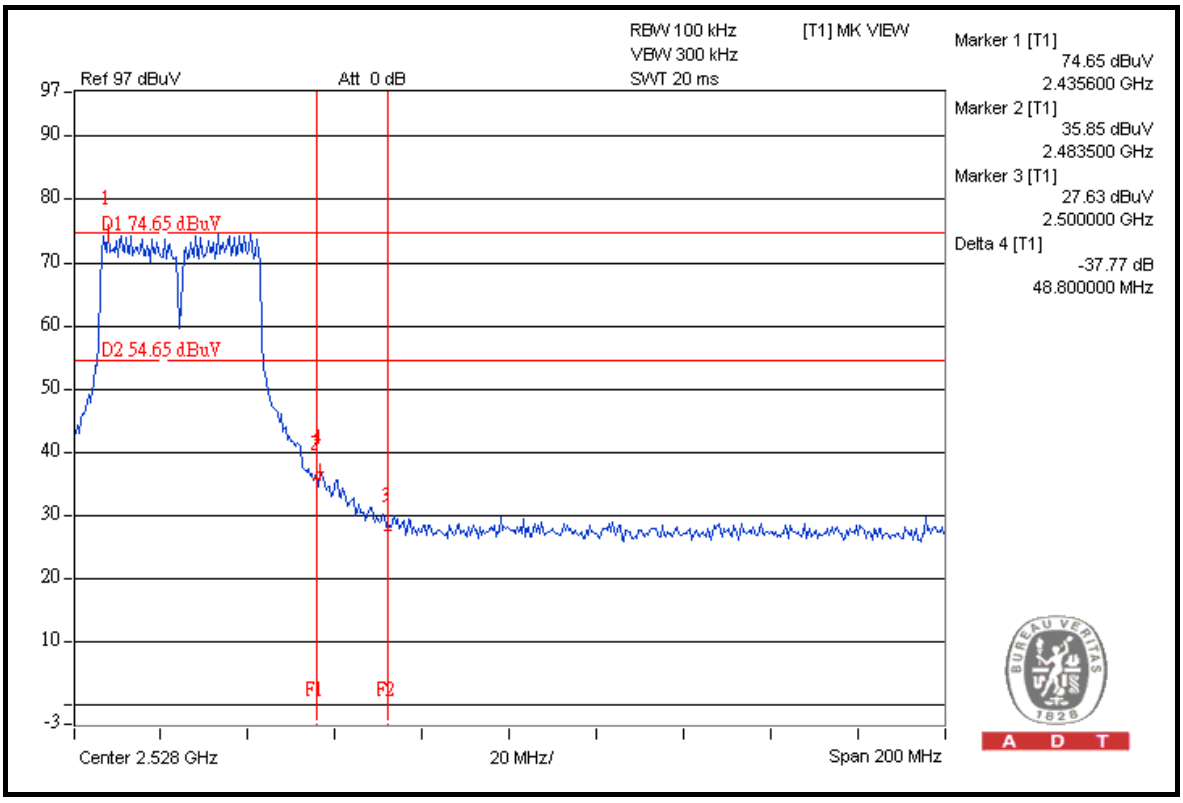
**NOTE:**

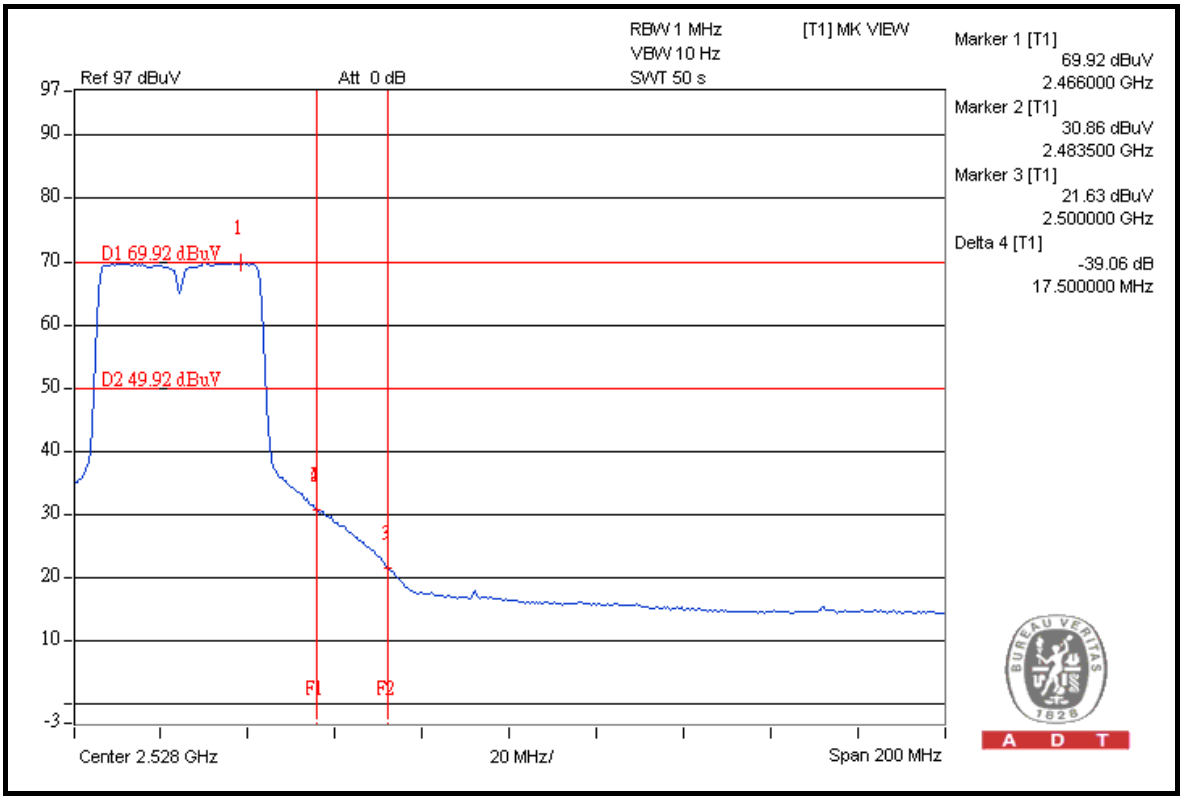
1. Delta = Amplitude between the peak of the fundamental and the peak of the band edge emission. Please check following 3 pages.
2. Maximum field strength in restrict band = Fundamental emission – Delta.

## FOR RADIATED MEASURED (THREE CHAINS ON)



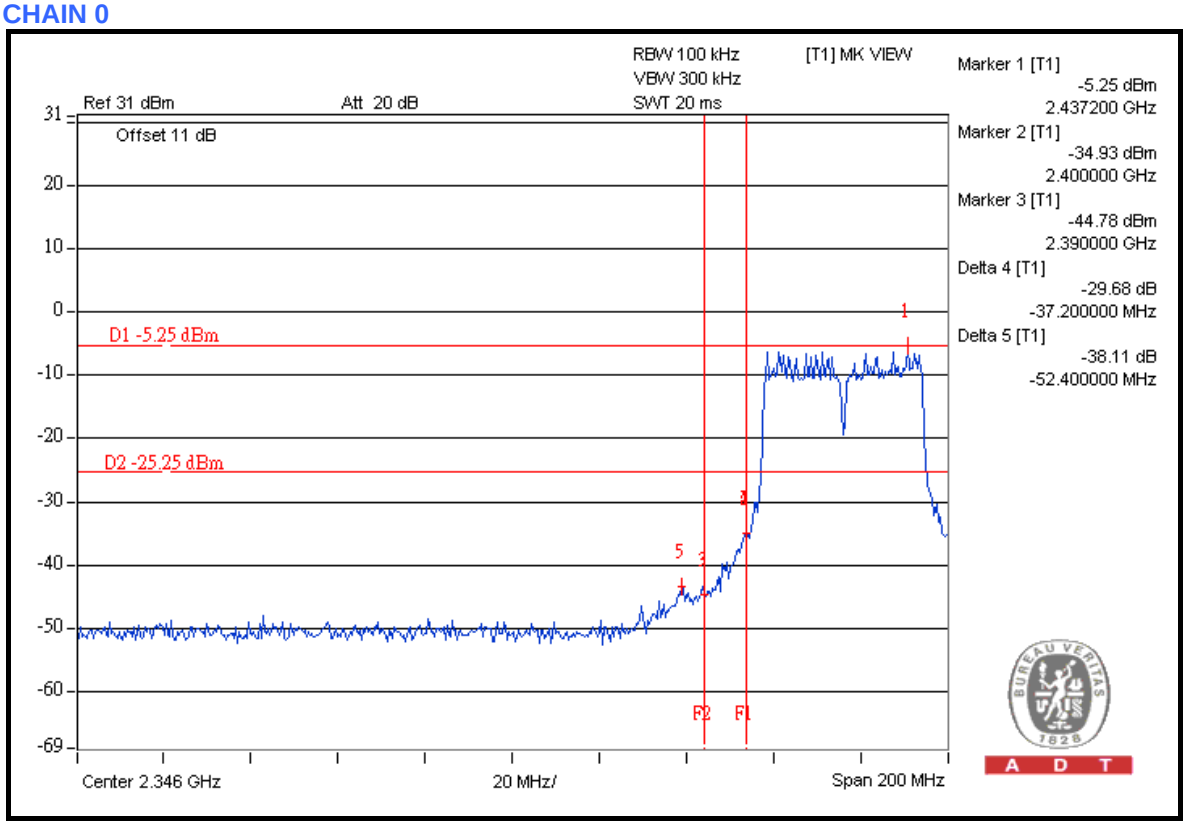



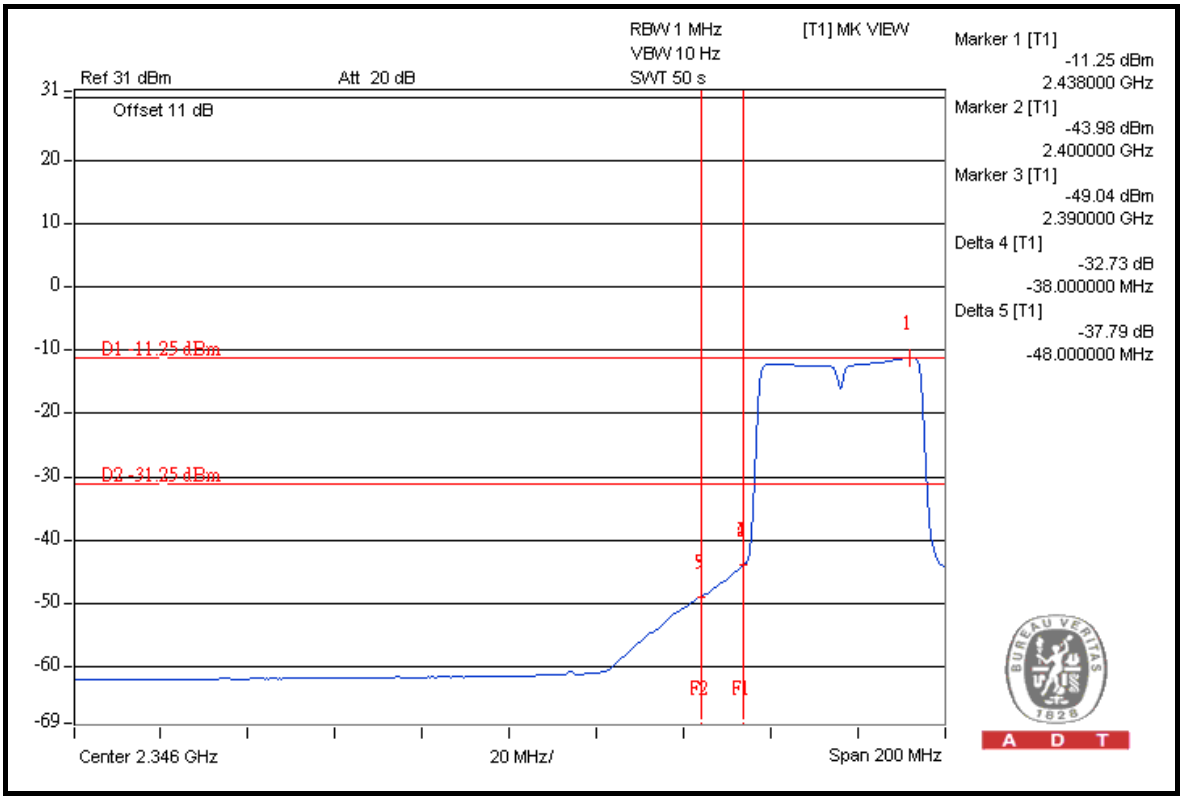

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
74.65 dBuV
2.435600 GHz
Marker 2 [T1]
35.85 dBuV
2.483500 GHz
Marker 3 [T1]
27.63 dBuV
2.500000 GHz
Delta 4 [T1]
-37.77 dB
48.800000 MHz
D1 74.65 dBuV
D2 54.65 dBuV
F1
F2
Center 2.528 GHz
20 MHz/
Span 200 MHz

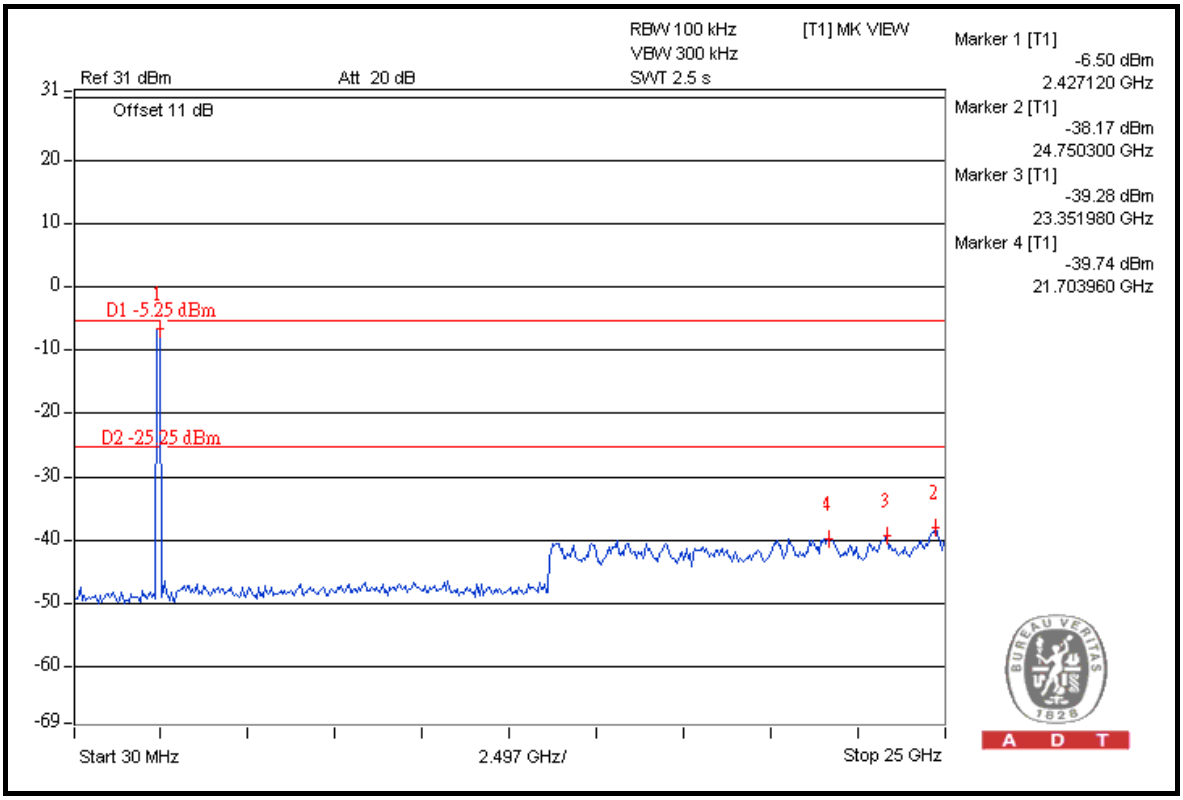

RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
69.92 dBuV
2.466000 GHz
Marker 2 [T1]
30.86 dBuV
2.483500 GHz
Marker 3 [T1]
21.63 dBuV
2.500000 GHz
Delta 4 [T1]
-39.06 dB
17.500000 MHz
D1 69.92 dBuV
D2 49.92 dBuV
F1
F2
Center 2.528 GHz
20 MHz/
Span 200 MHz

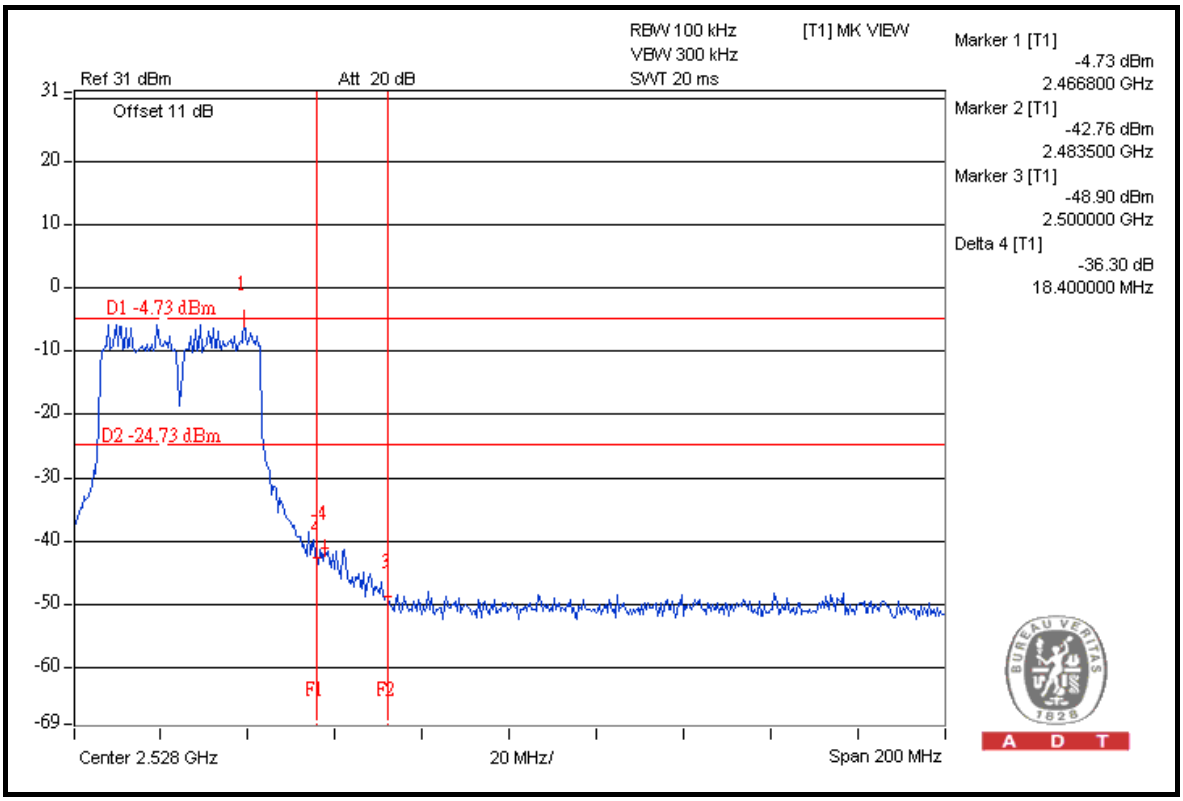
## FOR CONDUCTED MEASURED

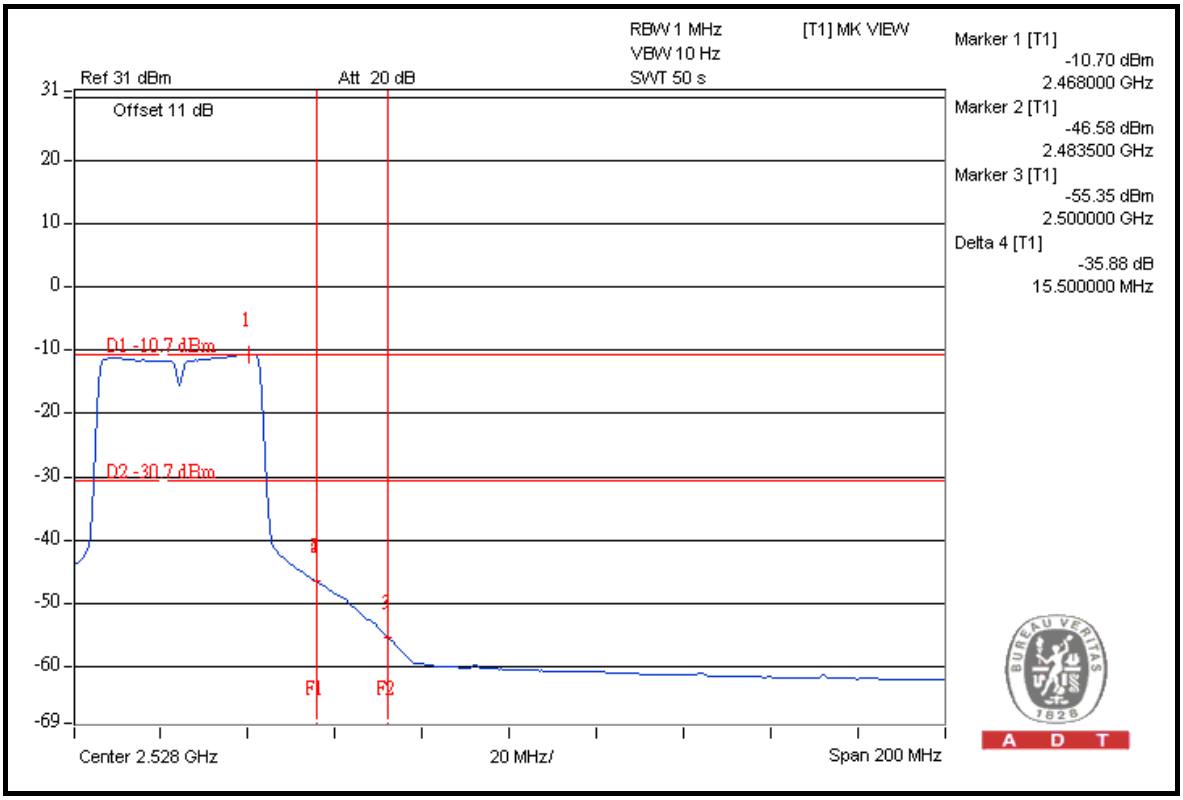
### CHAIN 0

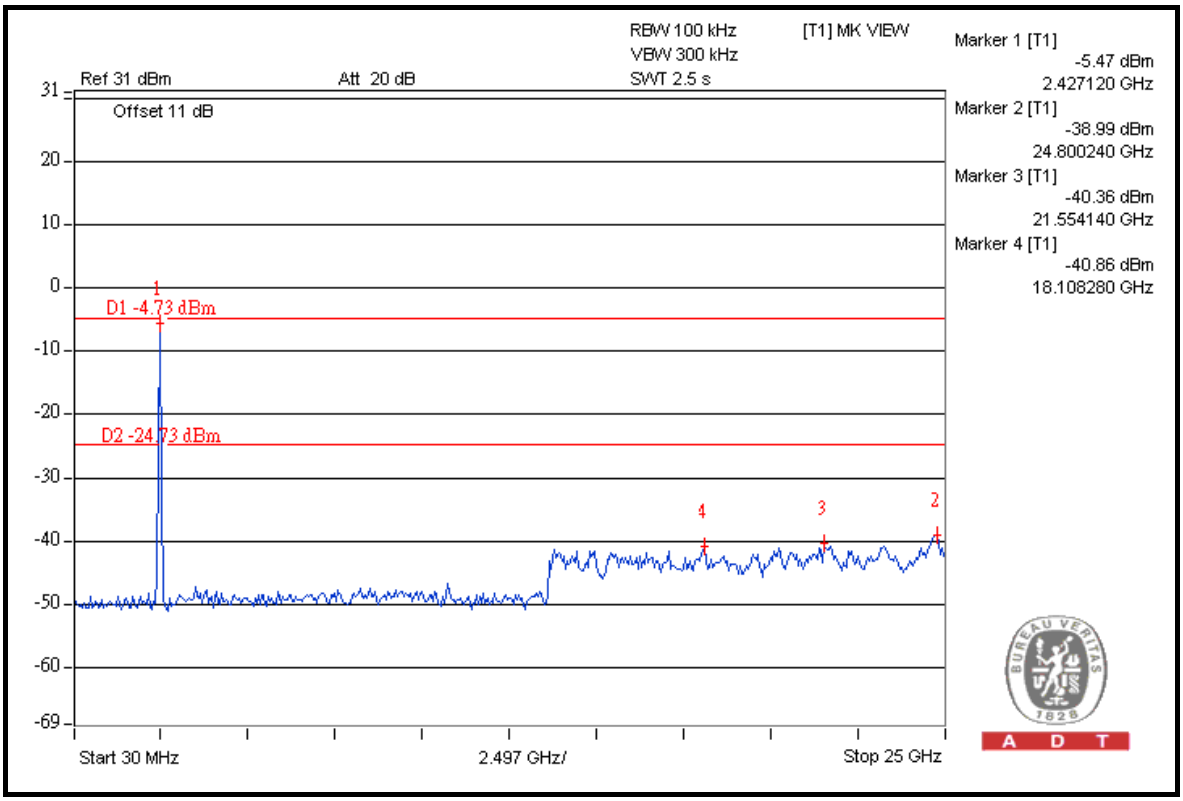


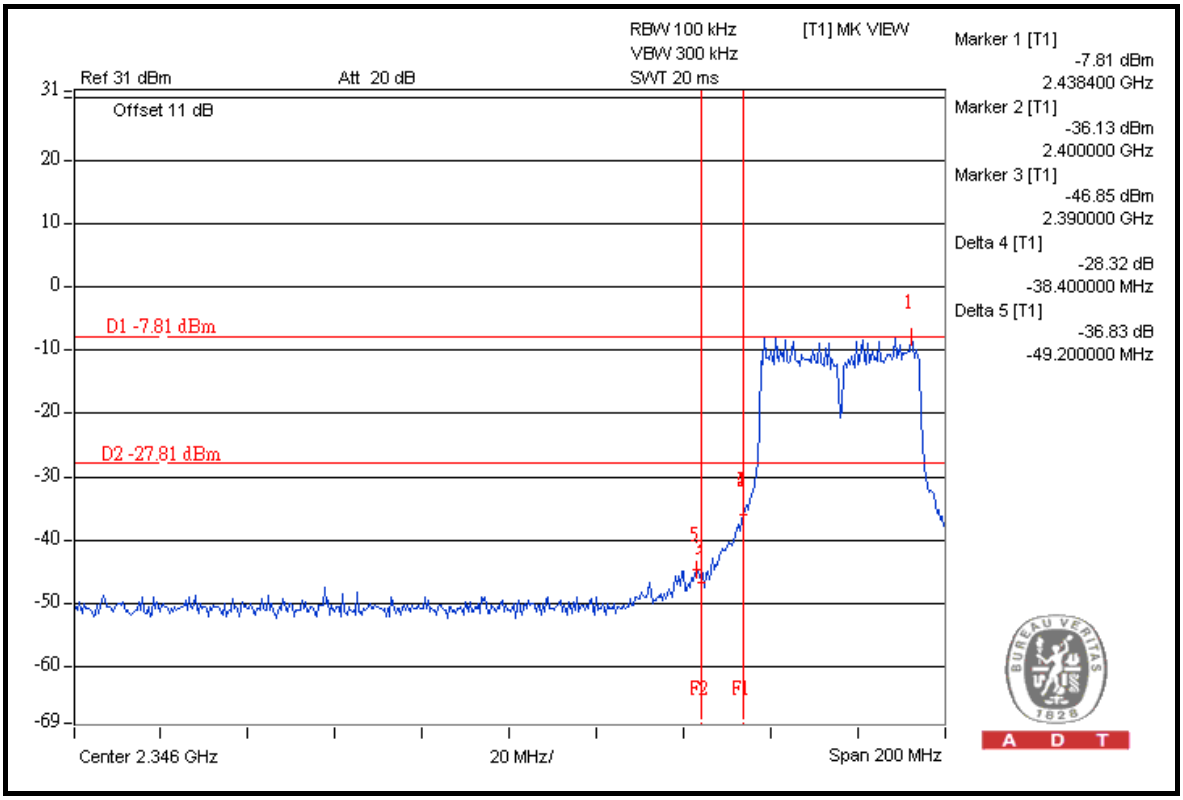

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -5.25 dBm
D2 -25.25 dBm
Marker 1 [T1]
-6.50 dBm
2.427120 GHz
Marker 2 [T1]
-38.17 dBm
24.750300 GHz
Marker 3 [T1]
-39.28 dBm
23.351980 GHz
Marker 4 [T1]
-39.74 dBm
21.703960 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

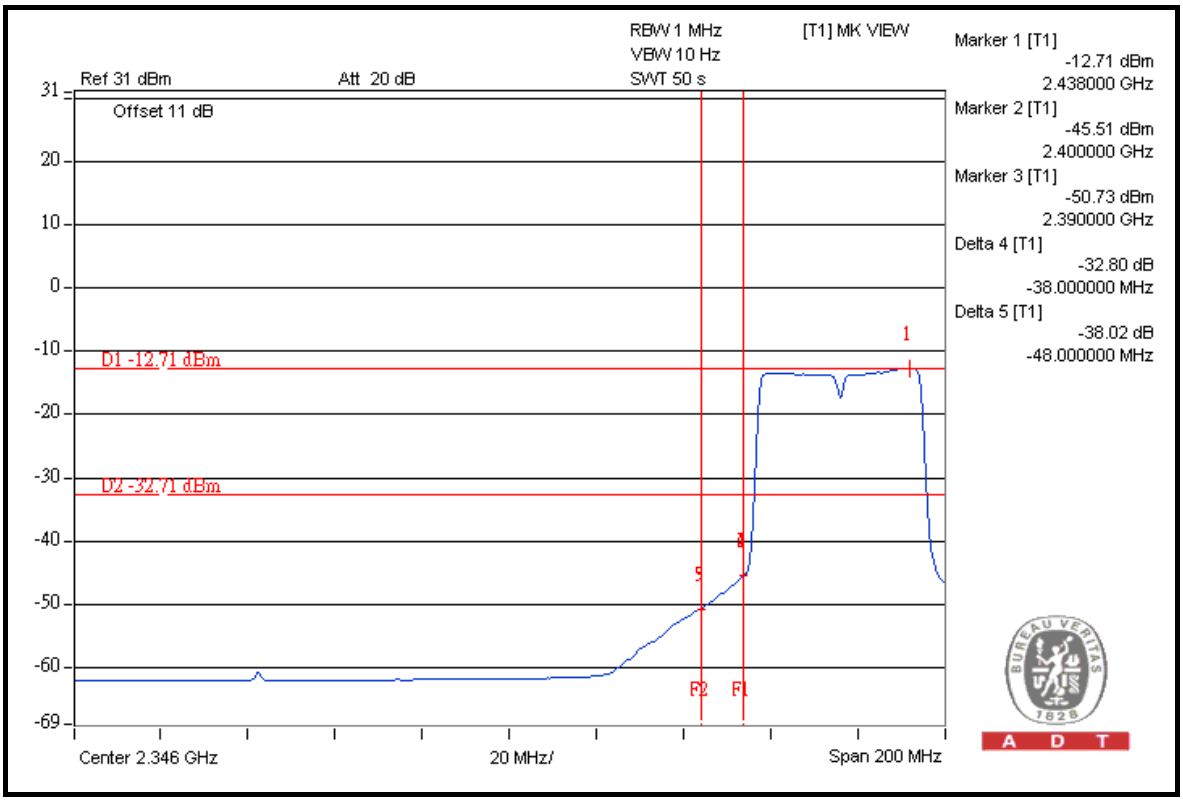

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -4.73 dBm
D2 -24.73 dBm
Marker 1 [T1]
-4.73 dBm
2.466800 GHz
Marker 2 [T1]
-42.76 dBm
2.483500 GHz
Marker 3 [T1]
-48.90 dBm
2.500000 GHz
Delta 4 [T1]
-36.30 dB
18.400000 MHz
F1
F2
Center 2.528 GHz
20 MHz/
Span 200 MHz

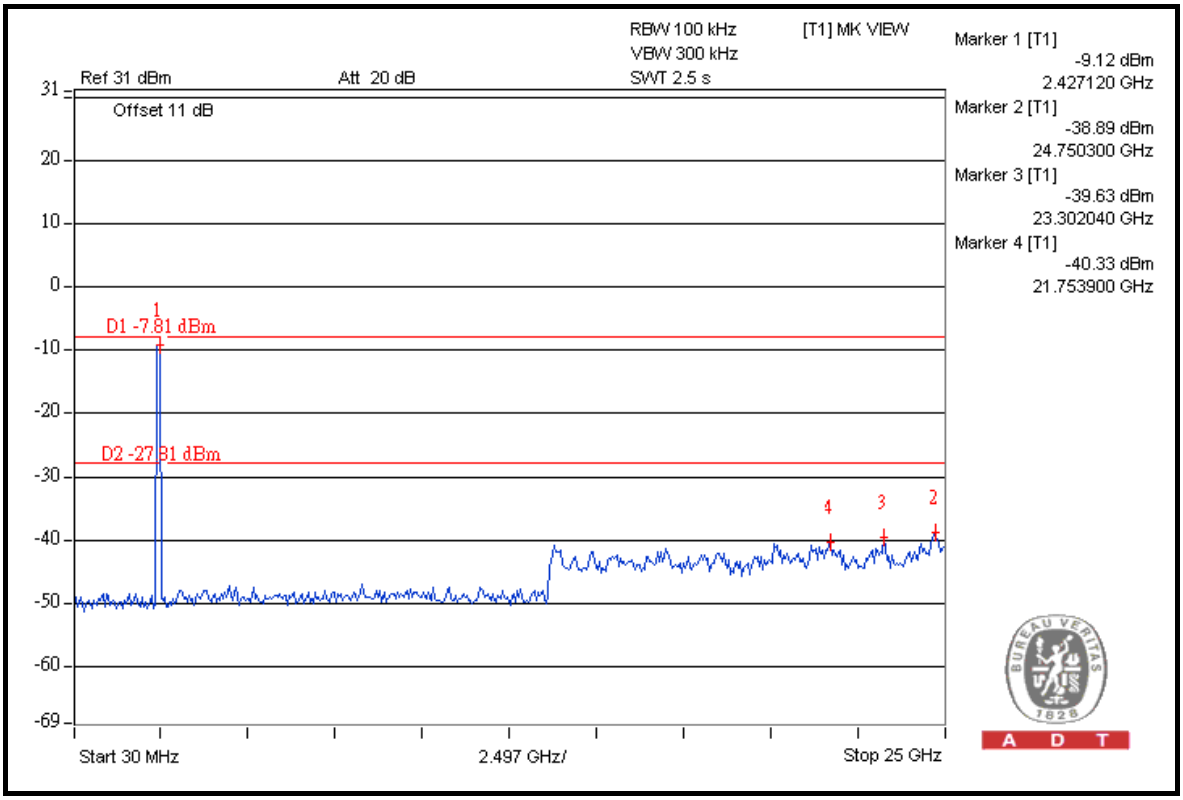

RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -10.7 dBm
D2 -30.7 dBm
F1
F2
Center 2.528 GHz
20 MHz/
Span 200 MHz
Marker 1 [T1]
-10.70 dBm
2.468000 GHz
Marker 2 [T1]
-46.58 dBm
2.483500 GHz
Marker 3 [T1]
-55.35 dBm
2.500000 GHz
Delta 4 [T1]
-35.88 dB
15.500000 MHz

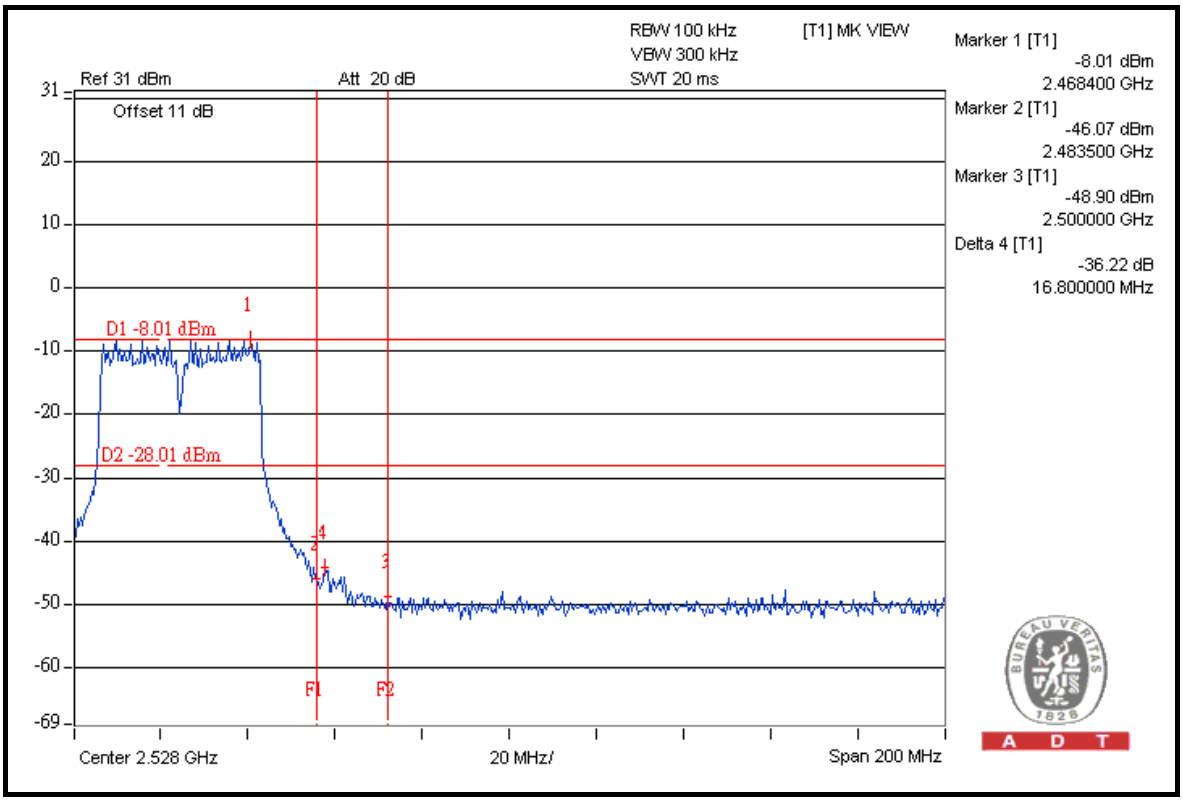

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -4.73 dBm
D2 -24.73 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz
Marker 1 [T1]
-5.47 dBm
2.427120 GHz
Marker 2 [T1]
-38.99 dBm
24.800240 GHz
Marker 3 [T1]
-40.36 dBm
21.554140 GHz
Marker 4 [T1]
-40.86 dBm
18.108280 GHz

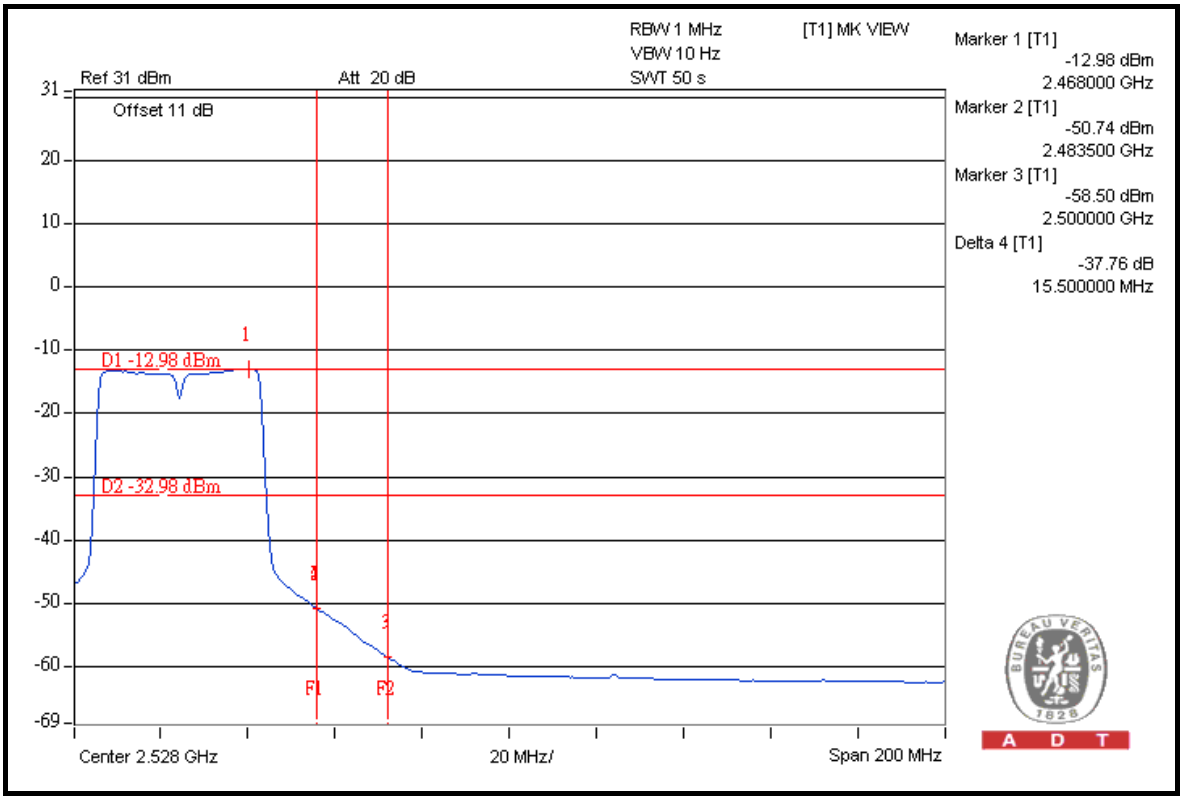
## CHAIN 1

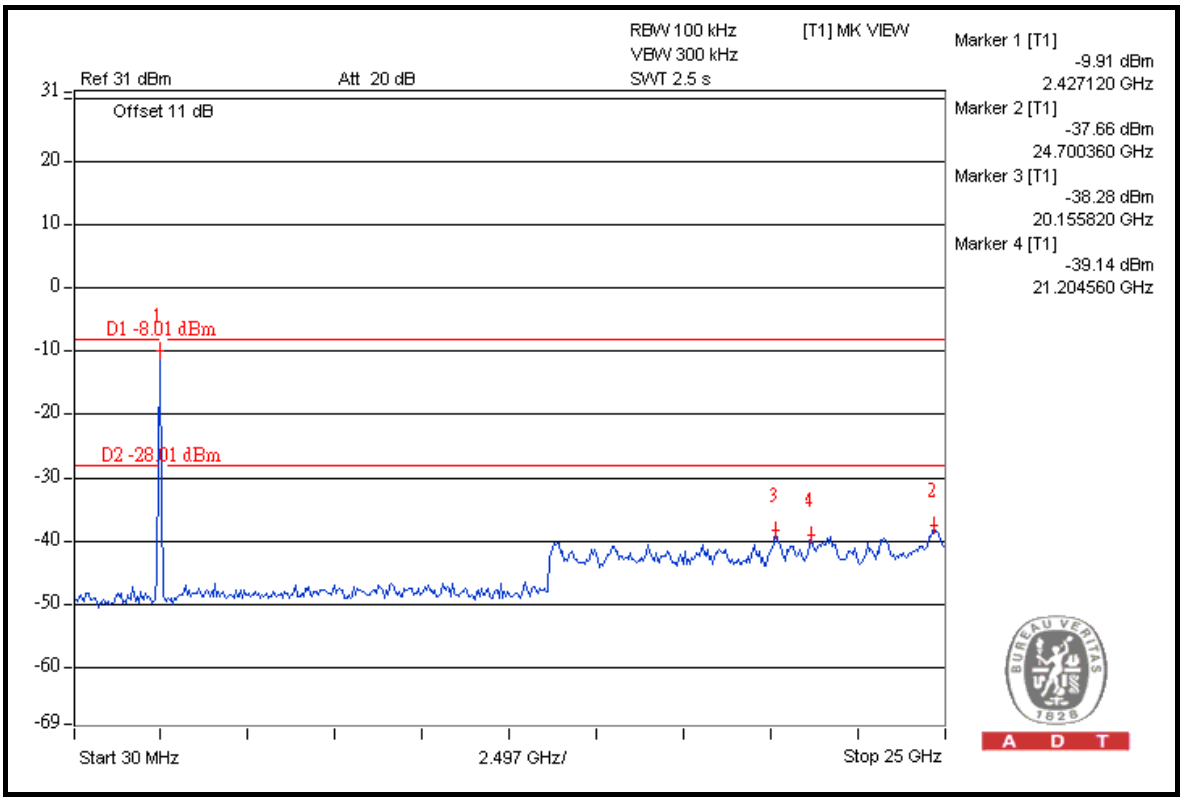

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -7.81 dBm
D2 -27.81 dBm
Marker 1 [T1]
-7.81 dBm
2.438400 GHz
Marker 2 [T1]
-36.13 dBm
2.400000 GHz
Marker 3 [T1]
-46.85 dBm
2.390000 GHz
Delta 4 [T1]
-28.32 dB
-38.400000 MHz
Delta 5 [T1]
-36.83 dB
-49.200000 MHz
Center 2.346 GHz
20 MHz/
Span 200 MHz


RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -12.71 dBm
D2 -32.71 dBm
Marker 1 [T1]
-12.71 dBm
2.438000 GHz
Marker 2 [T1]
-45.51 dBm
2.400000 GHz
Marker 3 [T1]
-50.73 dBm
2.390000 GHz
Delta 4 [T1]
-32.80 dB
-38.000000 MHz
Delta 5 [T1]
-38.02 dB
-48.000000 MHz
Center 2.346 GHz
20 MHz/
Span 200 MHz

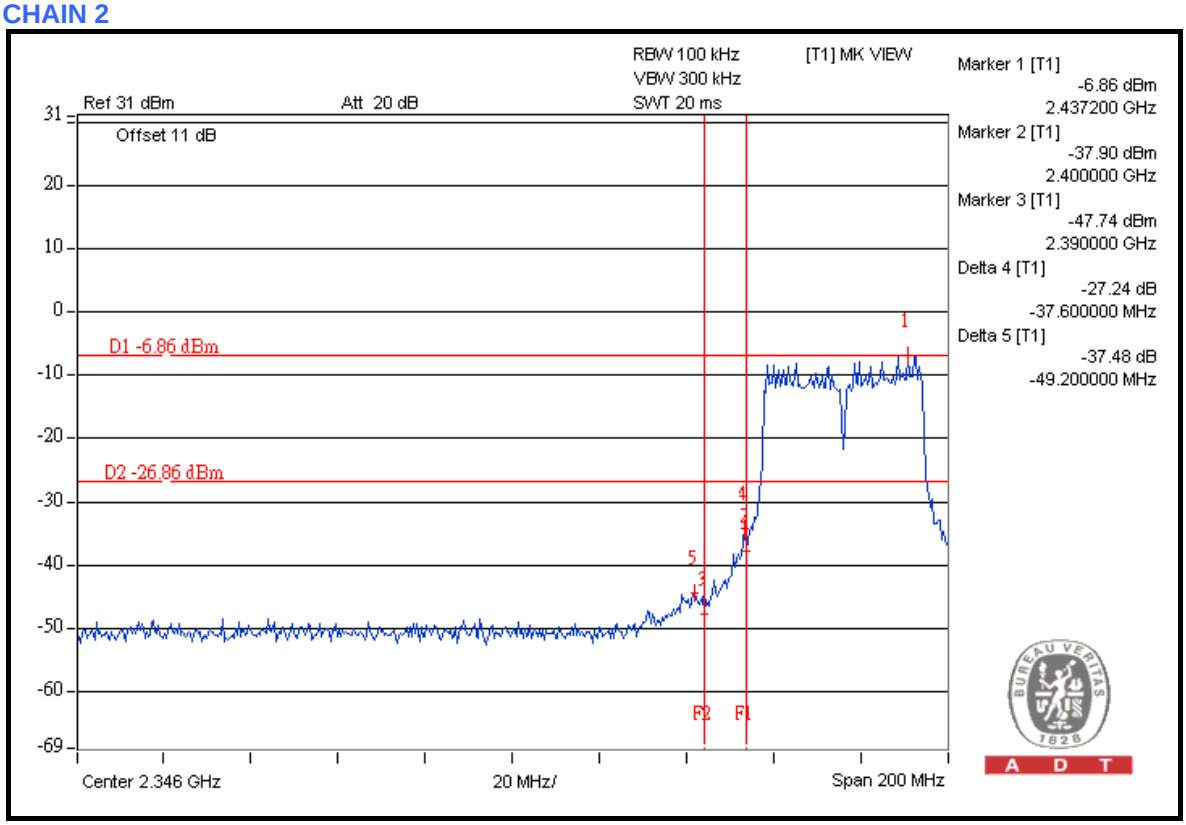

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -7.81 dBm
D2 -27.81 dBm
Marker 1 [T1]
-9.12 dBm
2.427120 GHz
Marker 2 [T1]
-38.89 dBm
24.750300 GHz
Marker 3 [T1]
-39.63 dBm
23.302040 GHz
Marker 4 [T1]
-40.33 dBm
21.753900 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz

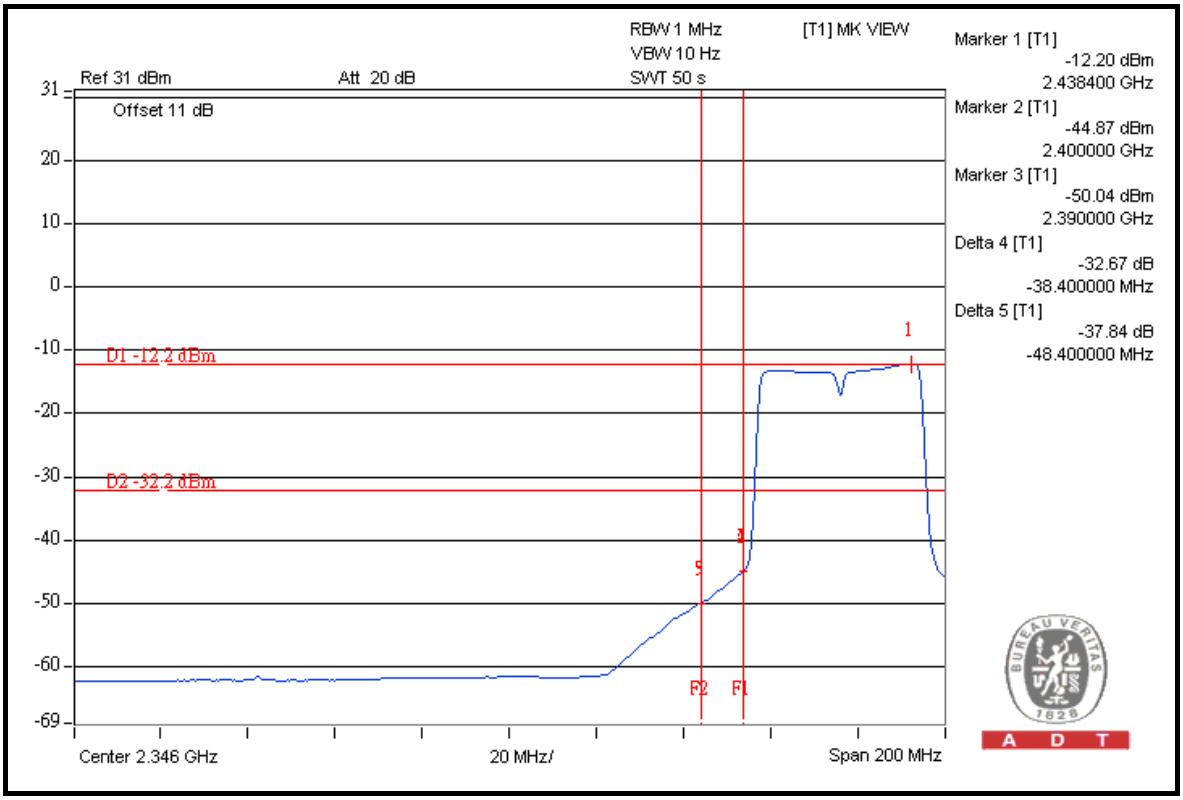

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -8.01 dBm
D2 -28.01 dBm
Marker 1 [T1]
-8.01 dBm
2.468400 GHz
Marker 2 [T1]
-46.07 dBm
2.483500 GHz
Marker 3 [T1]
-48.90 dBm
2.500000 GHz
Delta 4 [T1]
-36.22 dB
16.800000 MHz
Center 2.528 GHz
20 MHz/
Span 200 MHz

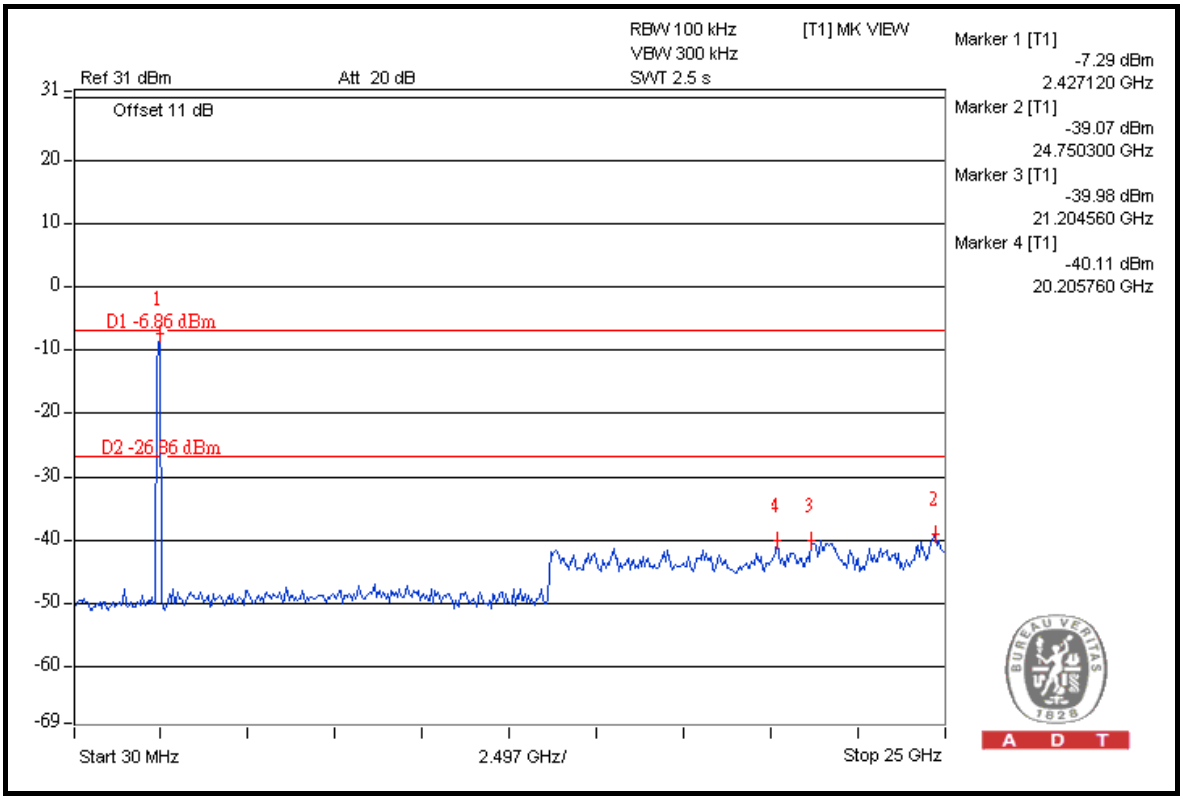

RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -12.98 dBm
D2 -32.98 dBm
F1
F2
Center 2.528 GHz
20 MHz/
Span 200 MHz
Marker 1 [T1]
-12.98 dBm
2.468000 GHz
Marker 2 [T1]
-50.74 dBm
2.483500 GHz
Marker 3 [T1]
-58.50 dBm
2.500000 GHz
Delta 4 [T1]
-37.76 dB
15.500000 MHz

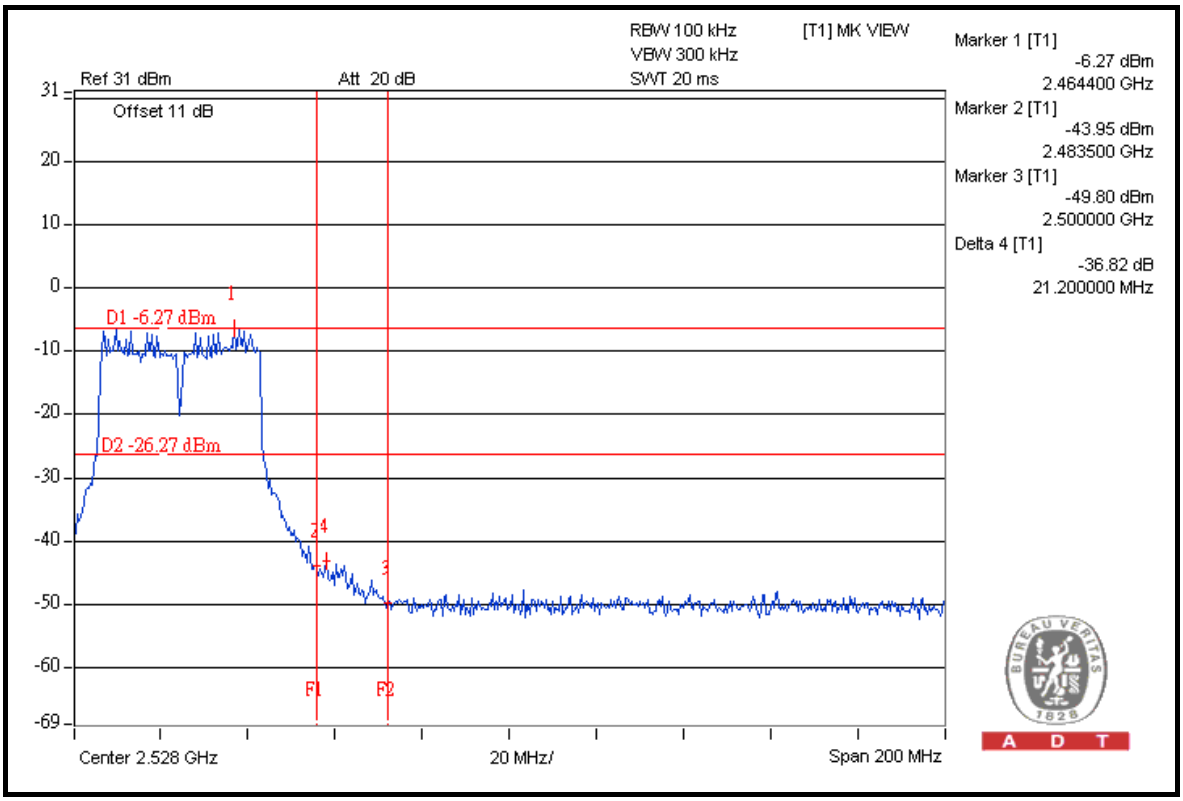

RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -8.01 dBm
D2 -28.01 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz
Marker 1 [T1]
-9.91 dBm
2.427120 GHz
Marker 2 [T1]
-37.66 dBm
24.700360 GHz
Marker 3 [T1]
-38.28 dBm
20.155820 GHz
Marker 4 [T1]
-39.14 dBm
21.204560 GHz

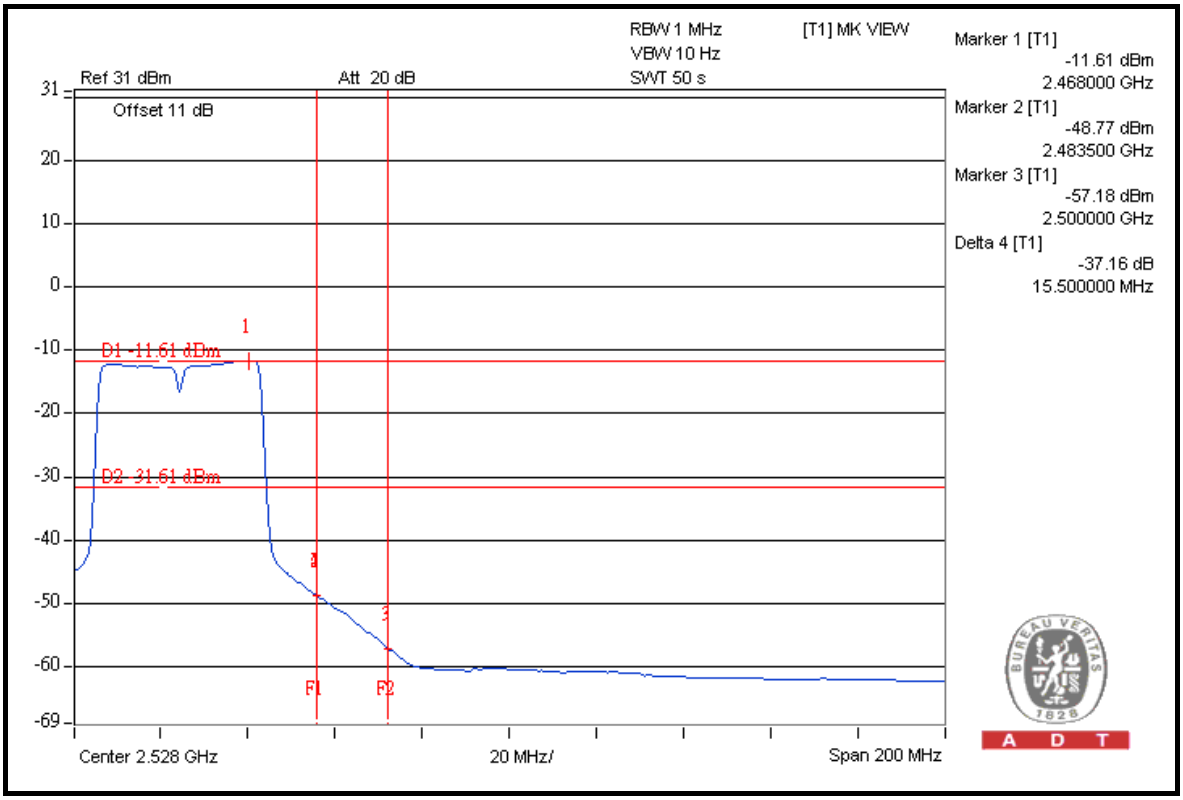
## CHAIN 2

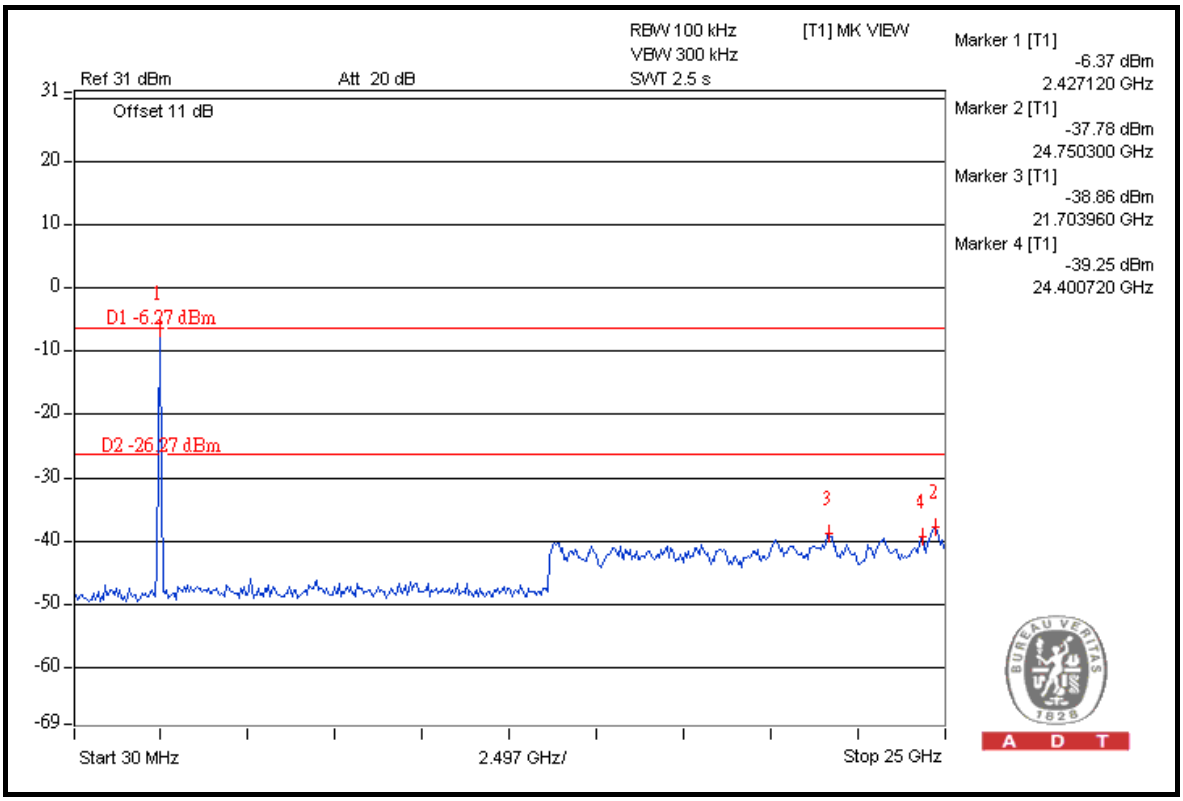

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -6.86 dBm
D2 -26.86 dBm
Center 2.346 GHz
20 MHz/
Span 200 MHz
Marker 1 [T1]
-6.86 dBm
2.437200 GHz
Marker 2 [T1]
-37.90 dBm
2.400000 GHz
Marker 3 [T1]
-47.74 dBm
2.390000 GHz
Delta 4 [T1]
-27.24 dB
-37.600000 MHz
Delta 5 [T1]
-37.48 dB
-49.200000 MHz


RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -12.2 dBm
D2 -32.2 dBm
Center 2.346 GHz
20 MHz/
Span 200 MHz
Marker 1 [T1]
-12.20 dBm
2.438400 GHz
Marker 2 [T1]
-44.87 dBm
2.400000 GHz
Marker 3 [T1]
-50.04 dBm
2.390000 GHz
Delta 4 [T1]
-32.67 dB
-38.400000 MHz
Delta 5 [T1]
-37.84 dB
-48.400000 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -6.86 dBm
D2 -26.86 dBm
Marker 1 [T1]
-7.29 dBm
2.427120 GHz
Marker 2 [T1]
-39.07 dBm
24.750300 GHz
Marker 3 [T1]
-39.98 dBm
21.204560 GHz
Marker 4 [T1]
-40.11 dBm
20.205760 GHz
Start 30 MHz
2.497 GHz/
Stop 25 GHz


RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -6.27 dBm
D2 -26.27 dBm
Marker 1 [T1]
-6.27 dBm
2.464400 GHz
Marker 2 [T1]
-43.95 dBm
2.483500 GHz
Marker 3 [T1]
-49.80 dBm
2.500000 GHz
Delta 4 [T1]
-36.82 dB
21.200000 MHz
Center 2.528 GHz
20 MHz/
Span 200 MHz


RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -11.61 dBm
D2 -31.61 dBm
F1
F2
Center 2.528 GHz
20 MHz/
Span 200 MHz
Marker 1 [T1]
-11.61 dBm
2.468000 GHz
Marker 2 [T1]
-48.77 dBm
2.483500 GHz
Marker 3 [T1]
-57.18 dBm
2.500000 GHz
Delta 4 [T1]
-37.16 dB
15.500000 MHz


RBW 100 kHz
VBW 300 kHz
SWT 2.5 s
[T1] MK VIEW
Ref 31 dBm
Att 20 dB
Offset 11 dB
D1 -6.27 dBm
D2 -26.27 dBm
Start 30 MHz
2.497 GHz/
Stop 25 GHz
Marker 1 [T1]
-6.37 dBm
2.427120 GHz
Marker 2 [T1]
-37.78 dBm
24.750300 GHz
Marker 3 [T1]
-38.86 dBm
21.703960 GHz
Marker 4 [T1]
-39.25 dBm
24.400720 GHz

# 5. TEST TYPES AND RESULTS (FOR 5.0GHz BAND)

## 5.1 RADIATED EMISSION MEASUREMENT

### 5.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a). Other emissions shall be at least 20dB below the highest level of the desired power.

| FREQUENCIES (MHz) | FIELD STRENGTH (microvolts/meter) | MEASUREMENT DISTANCE (meters) |
|---|---|---|
| 0.009 ~ 0.490 | 2400/F(kHz) | 300 |
| 0.490 ~ 1.705 | 24000/F(kHz) | 30 |
| 1.705 ~ 30.0 | 30 | 30 |
| 30 ~ 88 | 100 | 3 |
| 88 ~ 216 | 150 | 3 |
| 216 ~ 960 | 200 | 3 |
| Above 960 | 500 | 3 |

**NOTE**:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

## 5.1.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | DATE OF CALIBRATION | DUE DATE OF CALIBRATION |
|---|---|---|---|---|
| Test Receiver<br>ROHDE & SCHWARZ | ESCI | 100744 | Apr. 19, 2011 | Apr. 18, 2012 |
| Spectrum Analyzer<br>ROHDE & SCHWARZ | FSP40 | 100269 | Jan. 06, 2011 | Jan. 05, 2012 |
| BILOG Antenna<br>SCHWARZBECK | VULB9168 | 9168-156 | Apr. 12, 2011 | Apr. 11, 2012 |
| HORN Antenna<br>SCHWARZBECK | BBHA 9120 D | 9120D-563 | Sep. 06, 2011 | Sep. 05, 2012 |
| HORN Antenna<br>SCHWARZBECK | BBHA 9170 | BBHA9170243 | Dec. 27, 2010 | Dec. 26, 2011 |
| Preamplifier<br>Agilent | 8449B | 3008A01911 | Nov. 03, 2010 | Nov. 02, 2011 |
| Preamplifier<br>Agilent | 8447D | 2944A10638 | Nov. 03, 2010 | Nov. 02, 2011 |
| RF signal cable<br>HUBER+SUHNNER | SUCOFLEX 104 | 295013/4<br>283403/4 | Aug. 19, 2011 | Aug. 18, 2012 |
| RF signal cable<br>Worken | 8D-FB | Cable-HYCH9-01 | Aug. 13, 2011 | Aug. 12, 2012 |
| Software | ADT_Radiated_<br>V7.6.15.9.2 | NA | NA | NA |
| Antenna Tower<br>EMCO | 2070/2080 | 512.835.4684 | NA | NA |
| Turn Table<br>EMCO | 2087-2.03 | NA | NA | NA |
| Antenna Tower &Turn Table Controller EMCO | 2090 | NA | NA | NA |
| 26GHz ~ 40GHz Amplifier | EM26400 | 815221 | Nov. 03, 2010 | Nov. 02, 2011 |

**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. The test was performed in HwaYa Chamber 9.

3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.

4. The FCC Site Registration No. is 460141.

5. The IC Site Registration No. is IC 7450F-4.

### 5.1.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

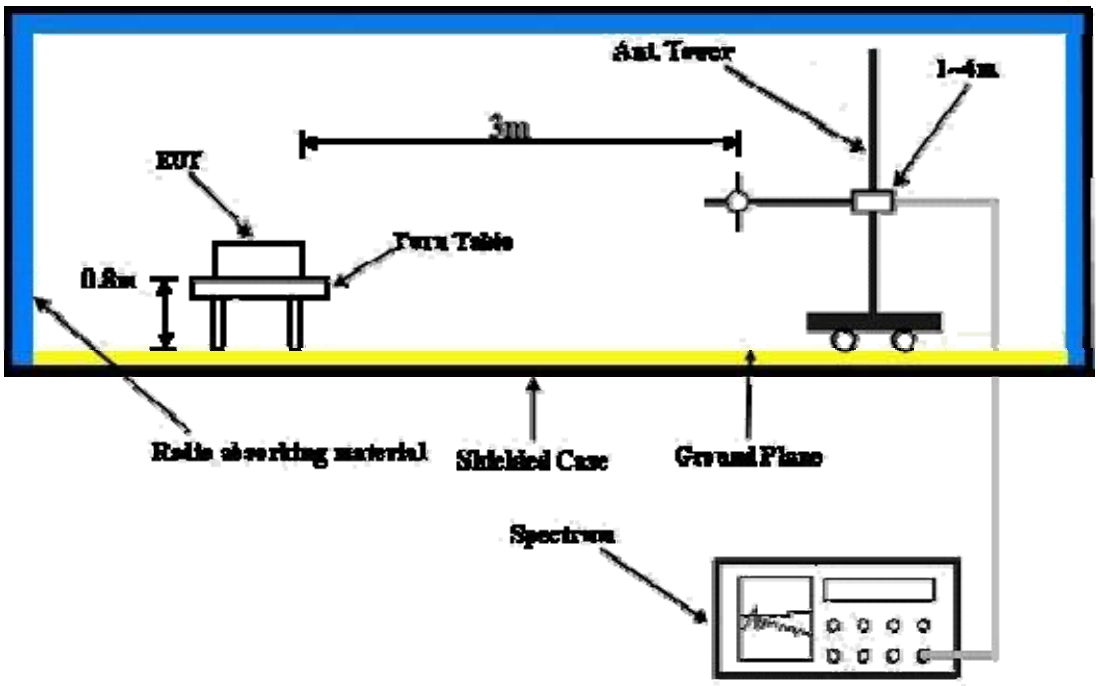
**NOTE:**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 100kHz and video bandwidth is 300kHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 1kHz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

### 5.1.4 DEVIATION FROM TEST STANDARD

No deviation.

5.1.5 TEST SETUP




For the actual test configuration, please refer to the attached file (Test Setup Photo).

5.1.6 EUT OPERATING CONDITIONS

Same as 4.1.6.

## 5.1.7 TEST RESULTS

**ABOVE 1GHz: 802.11a**

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 149 | FREQUENCY RANGE | 1 ~ 40GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 68%RH | TESTED BY | Sun Lin |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 5120.00 | 58.3 PK | 74.0 | -15.7 | 1.09 H | 68 | 20.00 | 38.30 |
| 2 | 5120.00 | 50.1 AV | 54.0 | -3.9 | 1.09 H | 68 | 11.80 | 38.30 |
| 3 | #5725.00 | 79.5 PK | 87.5 | -8.0 | 1.00 H | 75 | 40.10 | 39.40 |
| 4 | #5725.00 | 56.3 AV | 76.7 | -20.4 | 1.00 H | 75 | 16.90 | 39.40 |
| 5 | *5745.00 | 107.5 PK | | | 1.00 H | 75 | 68.00 | 39.50 |
| 6 | *5745.00 | 96.7 AV | | | 1.00 H | 75 | 57.20 | 39.50 |
| 7 | 11490.00 | 61.2 PK | 74.0 | -12.8 | 1.00 H | 306 | 11.50 | 49.70 |
| 8 | 11490.00 | 45.5 AV | 54.0 | -8.5 | 1.00 H | 306 | -4.20 | 49.70 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 5120.00 | 57.9 PK | 74.0 | -16.1 | 1.00 V | 89 | 19.60 | 38.30 |
| 2 | 5120.00 | 51.6 AV | 54.0 | -2.4 | 1.00 V | 89 | 13.30 | 38.30 |
| 3 | #5725.00 | 83.6 PK | 92.7 | -9.1 | 1.00 V | 70 | 44.20 | 39.40 |
| 4 | #5725.00 | 61.1 AV | 81.2 | -20.1 | 1.00 V | 70 | 21.70 | 39.40 |
| 5 | *5745.00 | 112.7 PK | | | 1.00 V | 139 | 73.20 | 39.50 |
| 6 | *5745.00 | 101.2 AV | | | 1.00 V | 139 | 61.70 | 39.50 |
| 7 | 11490.00 | 67.8 PK | 74.0 | -6.2 | 1.61 V | 261 | 18.10 | 49.70 |
| 8 | 11490.00 | 52.6 AV | 54.0 | -1.4 | 1.61 V | 261 | 2.90 | 49.70 |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. The limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 157 | FREQUENCY RANGE | 1 ~ 40GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 68%RH | TESTED BY | Sun Lin |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | #5160.00 | 58.9 PK | 87.2 | -28.3 | 1.18 H | 182 | 20.50 | 38.40 |
| 2 | #5160.00 | 50.9 AV | 76.2 | -25.3 | 1.18 H | 182 | 12.50 | 38.40 |
| 3 | *5785.00 | 107.2 PK | | | 1.45 H | 278 | 67.60 | 39.60 |
| 4 | *5785.00 | 96.2 AV | | | 1.45 H | 278 | 56.60 | 39.60 |
| 5 | 11570.00 | 59.7 PK | 74.0 | -14.3 | 1.05 H | 67 | 10.20 | 49.50 |
| 6 | 11570.00 | 47.1 AV | 54.0 | -6.9 | 1.05 H | 67 | -2.40 | 49.50 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | #5160.00 | 59.7 PK | 92.0 | -32.3 | 1.25 V | 246 | 21.30 | 38.40 |
| 2 | #5160.00 | 50.6 AV | 80.5 | -29.9 | 1.25 V | 246 | 12.20 | 38.40 |
| 3 | *5785.00 | 112.0 PK | | | 1.08 V | 78 | 72.40 | 39.60 |
| 4 | *5785.00 | 100.5 AV | | | 1.08 V | 78 | 60.90 | 39.60 |
| 5 | 11570.00 | 68.2 PK | 74.0 | -5.8 | 1.50 V | 255 | 18.70 | 49.50 |
| **6** | **11570.00** | **53.0 AV** | **54.0** | **-1.0** | **1.50 V** | **255** | **3.50** | **49.50** |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

6. The limit value is defined as per 15.247.

7. "#":The radiated frequency is out the restricted band.

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 165 | FREQUENCY RANGE | 1 ~ 40GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 68%RH | TESTED BY | Sun Lin |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | #5160.00 | 58.8 PK | 86.5 | -27.7 | 1.00 H | 276 | 20.40 | 38.40 |
| 2 | #5160.00 | 50.4 AV | 75.5 | -25.1 | 1.00 H | 276 | 12.00 | 38.40 |
| 3 | *5825.00 | 106.5 PK | | | 1.47 H | 235 | 66.80 | 39.70 |
| 4 | *5825.00 | 95.5 AV | | | 1.47 H | 235 | 55.80 | 39.70 |
| 5 | #5850.00 | 70.0 PK | 86.5 | -16.5 | 1.00 H | 57 | 30.30 | 39.70 |
| 6 | #5850.00 | 52.7 AV | 75.5 | -22.8 | 1.00 H | 57 | 13.00 | 39.70 |
| 7 | 11650.00 | 60.2 PK | 74.0 | -13.8 | 1.08 H | 78 | 10.80 | 49.40 |
| 8 | 11650.00 | 47.5 AV | 54.0 | -6.5 | 1.08 H | 78 | -1.90 | 49.40 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | #5160.00 | 60.8 PK | 91.4 | -30.6 | 1.00 V | 245 | 22.40 | 38.40 |
| 2 | #5160.00 | 51.9 AV | 80.0 | -28.1 | 1.00 V | 245 | 13.50 | 38.40 |
| 3 | *5825.00 | 111.4 PK | | | 1.12 V | 102 | 71.70 | 39.70 |
| 4 | *5825.00 | 100.0 AV | | | 1.12 V | 102 | 60.30 | 39.70 |
| 5 | #5850.00 | 80.1 PK | 91.4 | -11.3 | 1.47 V | 263 | 40.40 | 39.70 |
| 6 | #5850.00 | 57.4 AV | 80.0 | -22.6 | 1.47 V | 263 | 17.70 | 39.70 |
| 7 | 11650.00 | 68.7 PK | 74.0 | -5.3 | 1.40 V | 276 | 19.30 | 49.40 |
| 8 | 11650.00 | 52.7 AV | 54.0 | -1.3 | 1.40 V | 276 | 3.30 | 49.40 |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

6. The limit value is defined as per 15.247.

7. "#":The radiated frequency is out the restricted band.

### 802.11n (20MHz)

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 149 | FREQUENCY RANGE | 1 ~ 40GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 68%RH | TESTED BY | Sun Lin |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | #5160.00 | 58.6 PK | 87.0 | -28.4 | 1.00 H | 276 | 20.20 | 38.40 |
| 2 | #5160.00 | 49.6 AV | 76.1 | -26.5 | 1.00 H | 276 | 11.20 | 38.40 |
| 3 | #5725.00 | 79.5 PK | 87.0 | -7.5 | 1.00 H | 280 | 40.10 | 39.40 |
| 4 | #5725.00 | 56.9 AV | 76.1 | -19.2 | 1.00 H | 280 | 17.50 | 39.40 |
| 5 | *5745.00 | 107.0 PK | | | 1.02 H | 220 | 67.50 | 39.50 |
| 6 | *5745.00 | 96.1 AV | | | 1.02 H | 220 | 56.60 | 39.50 |
| 7 | 11490.00 | 59.3 PK | 74.0 | -14.7 | 1.00 H | 80 | 9.60 | 49.70 |
| 8 | 11490.00 | 46.5 AV | 54.0 | -7.5 | 1.00 H | 80 | -3.20 | 49.70 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | #5160.00 | 59.1 PK | 92.2 | -33.1 | 1.24 V | 244 | 20.70 | 38.40 |
| 2 | #5160.00 | 50.4 AV | 80.6 | -30.2 | 1.24 V | 244 | 12.00 | 38.40 |
| 3 | #5725.00 | 85.7 PK | 92.2 | -6.5 | 1.24 V | 265 | 46.30 | 39.40 |
| 4 | #5725.00 | 62.6 AV | 80.6 | -18.0 | 1.24 V | 265 | 23.20 | 39.40 |
| 5 | *5745.00 | 112.2 PK | | | 1.00 V | 145 | 72.70 | 39.50 |
| 6 | *5745.00 | 100.6 AV | | | 1.00 V | 145 | 61.10 | 39.50 |
| 7 | 11490.00 | 67.4 PK | 74.0 | -6.6 | 1.64 V | 256 | 17.70 | 49.70 |
| 8 | 11490.00 | 52.0 AV | 54.0 | -2.0 | 1.64 V | 256 | 2.30 | 49.70 |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. The limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 157 | FREQUENCY RANGE | 1 ~ 40GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 68%RH | TESTED BY | Sun Lin |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | #5160.00 | 59.0 PK | 86.8 | -27.8 | 1.00 H | 275 | 20.60 | 38.40 |
| 2 | #5160.00 | 49.3 AV | 75.8 | -26.5 | 1.00 H | 275 | 10.90 | 38.40 |
| 3 | *5785.00 | 106.8 PK | | | 1.45 H | 256 | 67.20 | 39.60 |
| 4 | *5785.00 | 95.8 AV | | | 1.45 H | 256 | 56.20 | 39.60 |
| 5 | 11570.00 | 60.7 PK | 74.0 | -13.3 | 1.00 H | 43 | 11.20 | 49.50 |
| 6 | 11570.00 | 47.8 AV | 54.0 | -6.2 | 1.00 H | 43 | -1.70 | 49.50 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | #5160.00 | 59.9 PK | 92.0 | -32.1 | 1.00 V | 242 | 21.50 | 38.40 |
| 2 | #5160.00 | 50.4 AV | 80.2 | -29.8 | 1.00 V | 242 | 12.00 | 38.40 |
| 3 | *5785.00 | 112.0 PK | | | 1.30 V | 265 | 72.40 | 39.60 |
| 4 | *5785.00 | 100.2 AV | | | 1.30 V | 265 | 60.60 | 39.60 |
| 5 | 11570.00 | 68.1 PK | 74.0 | -5.9 | 1.42 V | 240 | 18.60 | 49.50 |
| 6 | 11570.00 | 52.8 AV | 54.0 | -1.2 | 1.42 V | 240 | 3.30 | 49.50 |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. The limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 165 | FREQUENCY RANGE | 1 ~ 40GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 68%RH | TESTED BY | Sun Lin |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | #5160.00 | 59.9 PK | 86.2 | -26.3 | 1.02 H | 274 | 21.50 | 38.40 |
| 2 | #5160.00 | 48.7 AV | 75.1 | -26.4 | 1.02 H | 274 | 10.30 | 38.40 |
| 3 | *5825.00 | 106.2 PK | | | 1.50 H | 283 | 66.50 | 39.70 |
| 4 | *5825.00 | 95.1 AV | | | 1.50 H | 283 | 55.40 | 39.70 |
| 5 | #5850.00 | 74.6 PK | 86.2 | -11.6 | 1.00 H | 279 | 34.90 | 39.70 |
| 6 | #5850.00 | 51.7 AV | 75.1 | -23.4 | 1.00 H | 279 | 12.00 | 39.70 |
| 7 | 11650.00 | 59.2 PK | 74.0 | -14.8 | 1.24 H | 316 | 9.80 | 49.40 |
| 8 | 11650.00 | 48.7 AV | 54.0 | -5.3 | 1.24 H | 316 | -0.70 | 49.40 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | #5160.00 | 60.5 PK | 91.6 | -31.1 | 1.00 V | 91 | 22.10 | 38.40 |
| 2 | #5160.00 | 51.5 AV | 79.8 | -28.3 | 1.00 V | 91 | 13.10 | 38.40 |
| 3 | *5825.00 | 111.6 PK | | | 1.52 V | 265 | 71.90 | 39.70 |
| 4 | *5825.00 | 99.8 AV | | | 1.52 V | 265 | 60.10 | 39.70 |
| 5 | #5850.00 | 80.1 PK | 91.6 | -11.5 | 1.00 V | 281 | 40.40 | 39.70 |
| 6 | #5850.00 | 56.7 AV | 79.8 | -23.1 | 1.00 V | 281 | 17.00 | 39.70 |
| 7 | 11650.00 | 66.9 PK | 74.0 | -7.1 | 1.21 V | 318 | 17.50 | 49.40 |
| 8 | 11650.00 | 51.6 AV | 54.0 | -2.4 | 1.21 V | 318 | 2.20 | 49.40 |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

6. The limit value is defined as per 15.247.

7. "#":The radiated frequency is out the restricted band.

### 802.11n (40MHz)

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 151 | FREQUENCY RANGE | 1 ~ 40GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 68%RH | TESTED BY | Sun Lin |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 5120.00 | 58.6 PK | 74.0 | -15.4 | 1.00 H | 52 | 20.30 | 38.30 |
| 2 | 5120.00 | 48.6 AV | 54.0 | -5.4 | 1.00 H | 52 | 10.30 | 38.30 |
| 3 | #5725.00 | 78.5 PK | 85.6 | -7.1 | 1.27 H | 73 | 39.10 | 39.40 |
| 4 | #5725.00 | 62.6 AV | 74.3 | -11.7 | 1.27 H | 73 | 23.20 | 39.40 |
| 5 | *5755.00 | 105.6 PK | | | 1.00 H | 67 | 66.10 | 39.50 |
| 6 | *5755.00 | 94.3 AV | | | 1.00 H | 67 | 54.80 | 39.50 |
| 7 | 11510.00 | 59.0 PK | 74.0 | -15.0 | 1.28 H | 253 | 9.40 | 49.60 |
| 8 | 11510.00 | 44.5 AV | 54.0 | -9.5 | 1.28 H | 253 | -5.10 | 49.60 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 5120.00 | 61.0 PK | 74.0 | -13.0 | 1.00 V | 88 | 22.70 | 38.30 |
| 2 | 5120.00 | 52.6 AV | 54.0 | -1.4 | 1.00 V | 88 | 14.30 | 38.30 |
| 3 | #5725.00 | 84.6 PK | 88.6 | -4.0 | 1.00 V | 154 | 45.20 | 39.40 |
| 4 | #5725.00 | 68.4 AV | 77.2 | -8.8 | 1.00 V | 154 | 29.00 | 39.40 |
| 5 | *5755.00 | 108.6 PK | | | 1.36 V | 126 | 69.10 | 39.50 |
| 6 | *5755.00 | 97.2 AV | | | 1.36 V | 126 | 57.70 | 39.50 |
| 7 | 11510.00 | 66.2 PK | 74.0 | -7.8 | 1.68 V | 261 | 16.60 | 49.60 |
| 8 | 11510.00 | 50.1 AV | 54.0 | -3.9 | 1.68 V | 261 | 0.50 | 49.60 |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. The limit value is defined as per 15.247.
7. "#":The radiated frequency is out the restricted band.

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 159 | FREQUENCY RANGE | 1 ~ 40GHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 68%RH | TESTED BY | Sun Lin |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 5120.00 | 58.2 PK | 74.0 | -15.8 | 1.00 H | 53 | 19.90 | 38.30 |
| 2 | 5120.00 | 48.8 AV | 54.0 | -5.2 | 1.00 H | 53 | 10.50 | 38.30 |
| 3 | *5795.00 | 104.8 PK | | | 1.00 H | 65 | 65.20 | 39.60 |
| 4 | *5795.00 | 93.8 AV | | | 1.00 H | 65 | 54.20 | 39.60 |
| 5 | #5850.00 | 66.7 PK | 84.8 | -18.1 | 1.50 H | 280 | 27.00 | 39.70 |
| 6 | #5850.00 | 46.6 AV | 73.8 | -27.2 | 1.50 H | 280 | 6.90 | 39.70 |
| 7 | 11590.00 | 58.6 PK | 74.0 | -15.4 | 1.00 H | 64 | 9.10 | 49.50 |
| 8 | 11590.00 | 44.4 AV | 54.0 | -9.6 | 1.00 H | 64 | -5.10 | 49.50 |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 5120.00 | 60.5 PK | 74.0 | -13.5 | 1.00 V | 90 | 22.20 | 38.30 |
| 2 | 5120.00 | 52.7 AV | 54.0 | -1.3 | 1.00 V | 90 | 14.40 | 38.30 |
| 3 | *5795.00 | 108.0 PK | | | 1.00 V | 67 | 68.40 | 39.60 |
| 4 | *5795.00 | 96.5 AV | | | 1.00 V | 67 | 56.90 | 39.60 |
| 5 | #5850.00 | 69.8 PK | 88.0 | -18.2 | 1.00 V | 251 | 30.10 | 39.70 |
| 6 | #5850.00 | 51.0 AV | 76.5 | -25.5 | 1.00 V | 251 | 11.30 | 39.70 |
| 7 | 11590.00 | 65.2 PK | 74.0 | -8.8 | 1.60 V | 252 | 15.70 | 49.50 |
| 8 | 11590.00 | 50.1 AV | 54.0 | -3.9 | 1.60 V | 252 | 0.60 | 49.50 |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The other emission levels were very low against the limit.

4. Margin value = Emission level – Limit value.

5. " * ": Fundamental frequency.

6. The limit value is defined as per 15.247.

7. "#":The radiated frequency is out the restricted band.

## BELOW 1GHz WORST-CASE DATA：802.11a

| EUT TEST CONDITION | | MEASUREMENT DETAIL | |
|---|---|---|---|
| CHANNEL | Channel 149 | FREQUENCY RANGE | Below 1000MHz |
| INPUT POWER (SYSTEM) | 120Vac, 60 Hz | DETECTOR FUNCTION | Quasi-Peak |
| ENVIRONMENTAL CONDITIONS | 25deg. C, 68%RH | TESTED BY | Sun Lin |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 125.17 | 42.2 QP | 43.5 | -1.3 | 1.50 H | 316 | 30.20 | 12.00 |
| 2 | 183.50 | 36.7 QP | 43.5 | -6.8 | 1.25 H | 76 | 25.60 | 11.10 |
| 3 | 360.43 | 40.9 QP | 46.0 | -5.1 | 1.00 H | 88 | 24.80 | 16.10 |
| 4 | 479.03 | 34.8 QP | 46.0 | -11.2 | 1.50 H | 157 | 15.70 | 19.10 |
| 5 | 599.58 | 40.5 QP | 46.0 | -5.5 | 1.25 H | 49 | 18.40 | 22.10 |
| 6 | 624.85 | 39.4 QP | 46.0 | -6.6 | 1.25 H | 49 | 17.00 | 22.40 |
| **ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M** | | | | | | | | |
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 43.51 | 37.4 QP | 40.0 | -2.6 | 1.00 V | 283 | 24.40 | 13.00 |
| 2 | 107.67 | 39.6 QP | 43.5 | -3.9 | 1.00 V | 19 | 30.00 | 9.60 |
| 3 | 125.17 | 39.2 QP | 43.5 | -4.3 | 1.25 V | 295 | 27.20 | 12.00 |
| 4 | 187.39 | 34.8 QP | 43.5 | -8.7 | 1.00 V | 10 | 23.90 | 10.90 |
| 5 | 374.04 | 37.4 QP | 46.0 | -8.6 | 1.25 V | 358 | 21.00 | 16.40 |
| 6 | 599.58 | 38.5 QP | 46.0 | -7.5 | 1.50 V | 16 | 16.40 | 22.10 |

**REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

## 5.2 CONDUCTED EMISSION MEASUREMENT

### 5.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

| FREQUENCY OF EMISSION (MHz) | CONDUCTED LIMIT (dBμV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15 ~ 0.5 | 66 to 56 | 56 to 46 |
| 0.5 ~ 5 | 56 | 46 |
| 5 ~ 30 | 60 | 50 |

**NOTE**: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

### 5.2.2 T EST INSTRUMENTS

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | DATE OF CALIBRATION | DUE DATE OF CALIBRATION |
|---|---|---|---|---|
| Test Receiver ROHDE & SCHWARZ | ESCS30 | 100291 | Nov. 30, 2010 | Nov. 29, 2011 |
| RF signal cable Woken | 5D-FB | Cable-HYC01-01 | Dec. 30, 2010 | Dec. 29, 2011 |
| LISN ROHDE & SCHWARZ | ESH3-Z5 | 100312 | Jul. 07, 2011 | Jul. 06, 2012 |
| LISN ROHDE & SCHWARZ | ESH2-Z5 | 100100 | Jan. 06, 2011 | Jan. 05, 2012 |
| LISN ROHDE & SCHWARZ | ESH3-Z5 | 835239/001 | Feb. 22, 2011 | Feb. 21, 2012 |
| V-LISN SCHWARZBECK | NNBL 8226-2 | 8226-142 | Jun. 30, 2011 | Jun. 29, 2012 |
| LISN ROHDE & SCHWARZ | ENV216 | 100072 | Jun. 10, 2011 | Jun. 09, 2012 |
| Software ADT | ADT_Cond_ V7.3.7 | NA | NA | NA |

**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. The test was performed in HwaYa Shielded Room 1.

3. The VCCI Site Registration No. is C-2040.

### 5.2.3 TEST PROCEDURES

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

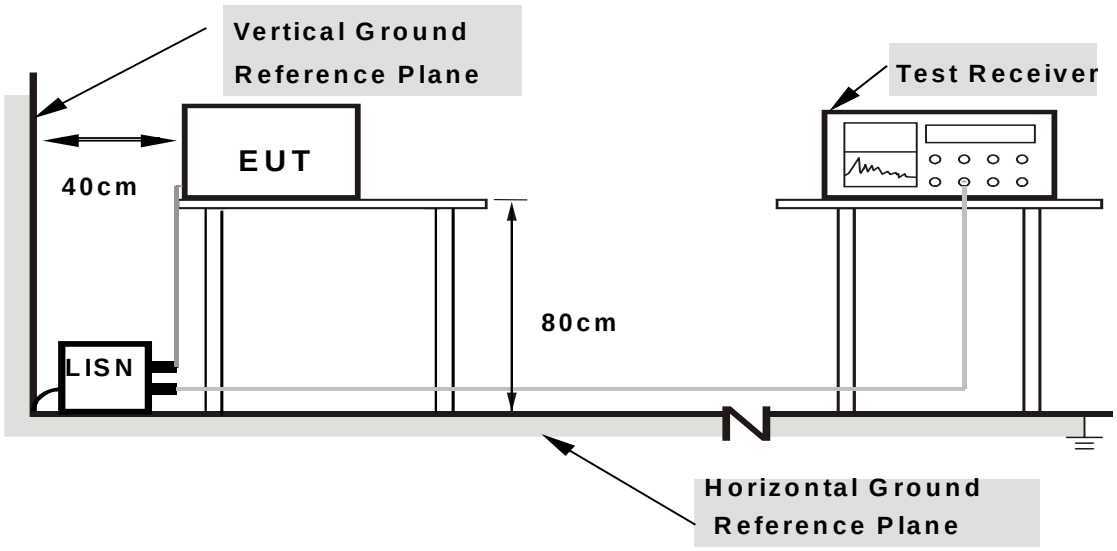
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

**NOTE:** All modes of operation were investigated and the worst-case emissions are reported.

### 5.2.4 DEVIATION FROM TEST STANDARD

No deviation.

## 5.2.5 TEST SETUP




**Note: 1.Support units were connected to second LISN.**
**2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes**

For the actual test configuration, please refer to the attached file (Test Setup Photo).

## 5.2.6 EUT OPERATING CONDITIONS

Same as 4.1.6

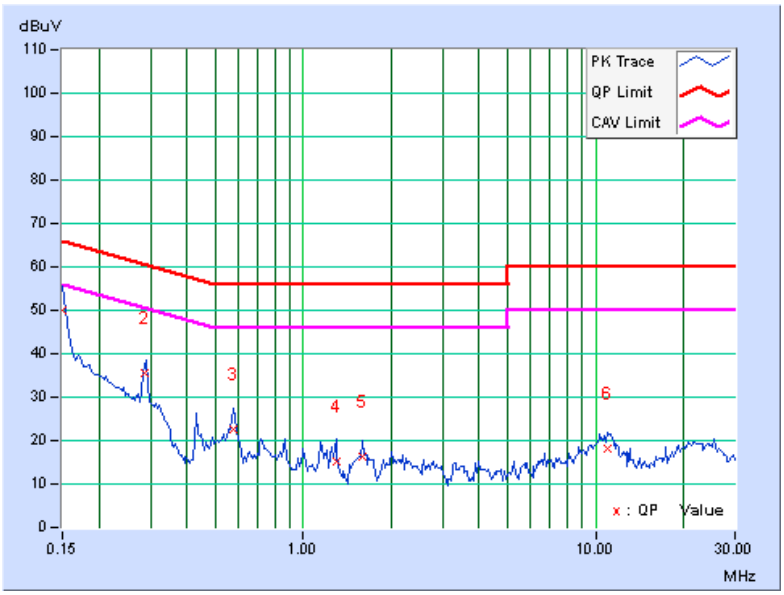
## 5.2.7 TEST RESULTS

**CONDUCTED WORST-CASE DATA：802.11a**

| PHASE | Line 1 | 6dB BANDWIDTH | 9kHz |
|---|---|---|---|

| | Freq. | Corr. | Reading Value | | Emission Level | | Limit | | Margin | |
|---|---|---|---|---|---|---|---|---|---|---|
| No | | Factor | [dB (uV)] | | [dB (uV)] | | [dB (uV)] | | (dB) | |
| | [MHz] | (dB) | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.150 | 0.11 | 49.90 | - | 50.02 | - | 66.00 | 56.00 | -15.98 | - |
| 2 | 0.287 | 0.12 | 35.26 | - | 35.38 | - | 60.62 | 50.62 | -25.24 | - |
| 3 | 0.576 | 0.13 | 22.50 | - | 22.63 | - | 56.00 | 46.00 | -33.37 | - |
| 4 | 1.293 | 0.17 | 14.85 | - | 15.02 | - | 56.00 | 46.00 | -40.98 | - |
| 5 | 1.586 | 0.18 | 16.00 | - | 16.18 | - | 56.00 | 46.00 | -39.82 | - |
| 6 | 11.031 | 0.70 | 17.62 | - | 18.32 | - | 60.00 | 50.00 | -41.68 | - |

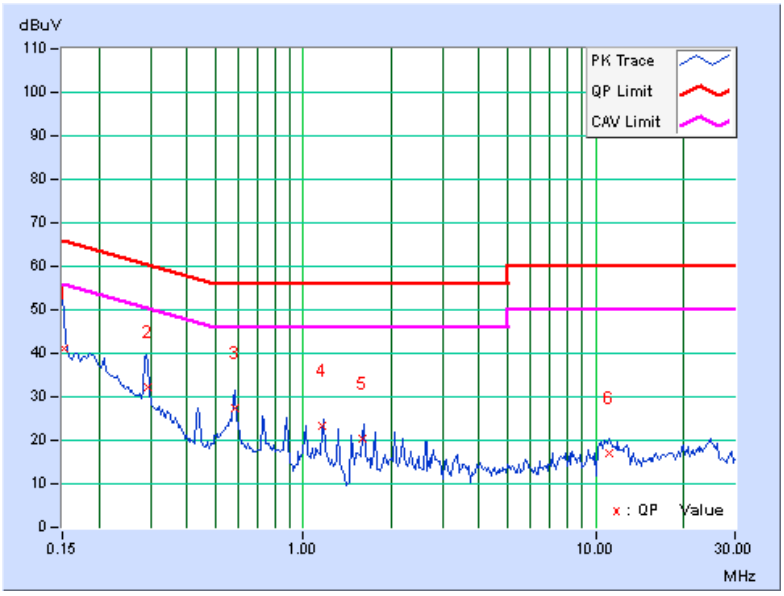
**REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



| PHASE | Line 2 | 6dB BANDWIDTH | 9kHz |
|---|---|---|---|

| | Freq. | Corr. | Reading Value | | Emission Level | | Limit | | Margin | |
|---|---|---|---|---|---|---|---|---|---|---|
| No | | Factor | [dB (uV)] | | [dB (uV)] | | [dB (uV)] | | (dB) | |
| | [MHz] | (dB) | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.153 | 0.13 | 41.02 | - | 41.15 | - | 65.86 | 55.86 | -24.71 | - |
| 2 | 0.294 | 0.13 | 31.94 | - | 32.07 | - | 60.40 | 50.40 | -28.32 | - |
| 3 | 0.586 | 0.15 | 27.44 | - | 27.59 | - | 56.00 | 46.00 | -28.41 | - |
| 4 | 1.163 | 0.18 | 23.20 | - | 23.38 | - | 56.00 | 46.00 | -32.62 | - |
| 5 | 1.597 | 0.19 | 20.34 | - | 20.53 | - | 56.00 | 46.00 | -35.47 | - |
| 6 | 11.164 | 0.64 | 16.55 | - | 17.19 | - | 60.00 | 50.00 | -42.81 | - |

**REMARKS:** 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



## 5.3 6dB BANDWIDTH MEASUREMENT

### 5.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

### 5.3.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | DATE OF CALIBRATION | DUE DATE OF CALIBRATION |
|---|---|---|---|---|
| SPECTRUM ANALYZER R&S | FSP40 | 100039 | Feb. 23, 2011 | Feb. 22, 2012 |

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

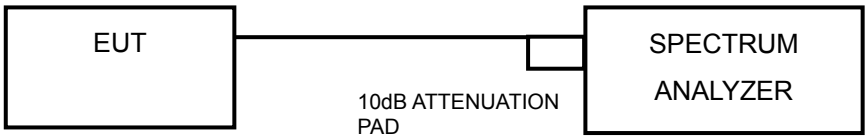
### 5.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

### 5.3.4 DEVIATION FROM TEST STANDARD

No deviation.

### 5.3.5 TEST SETUP




### 5.3.6 EUT OPERATING CONDITIONS

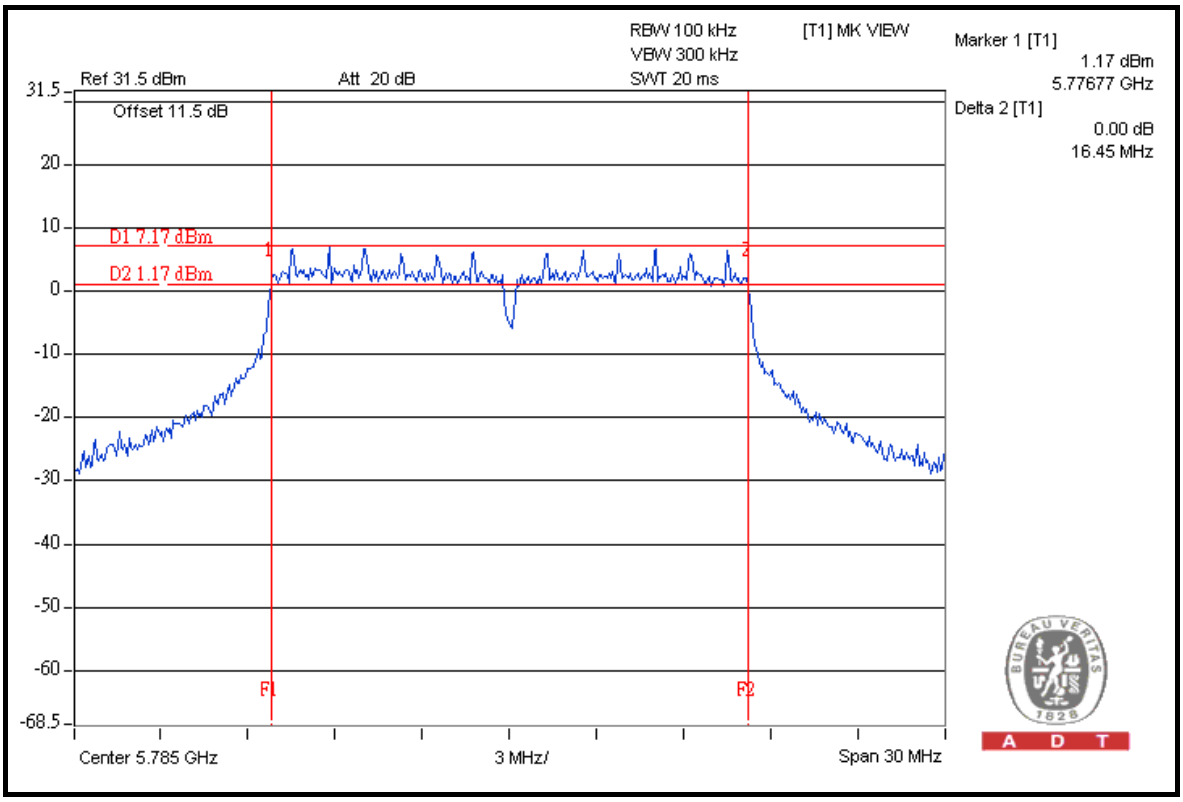
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

## 5.3.7 TEST RESULTS

### 802.11a

| CHANNEL | CHANNEL FREQUENCY (MHz) | 6dB BANDWIDTH (MHz) | | | MINIMUM LIMIT (MHz) | PASS / FAIL |
|---|---|---|---|---|---|---|
| | | CHAIN 0 | CHAIN 1 | CHAIN 2 | | |
| 149 | 5745 | 16.41 | 16.41 | 16.43 | 0.5 | PASS |
| 157 | 5785 | 16.45 | 16.38 | 16.41 | 0.5 | PASS |
| 165 | 5825 | 16.37 | 16.39 | 16.42 | 0.5 | PASS |

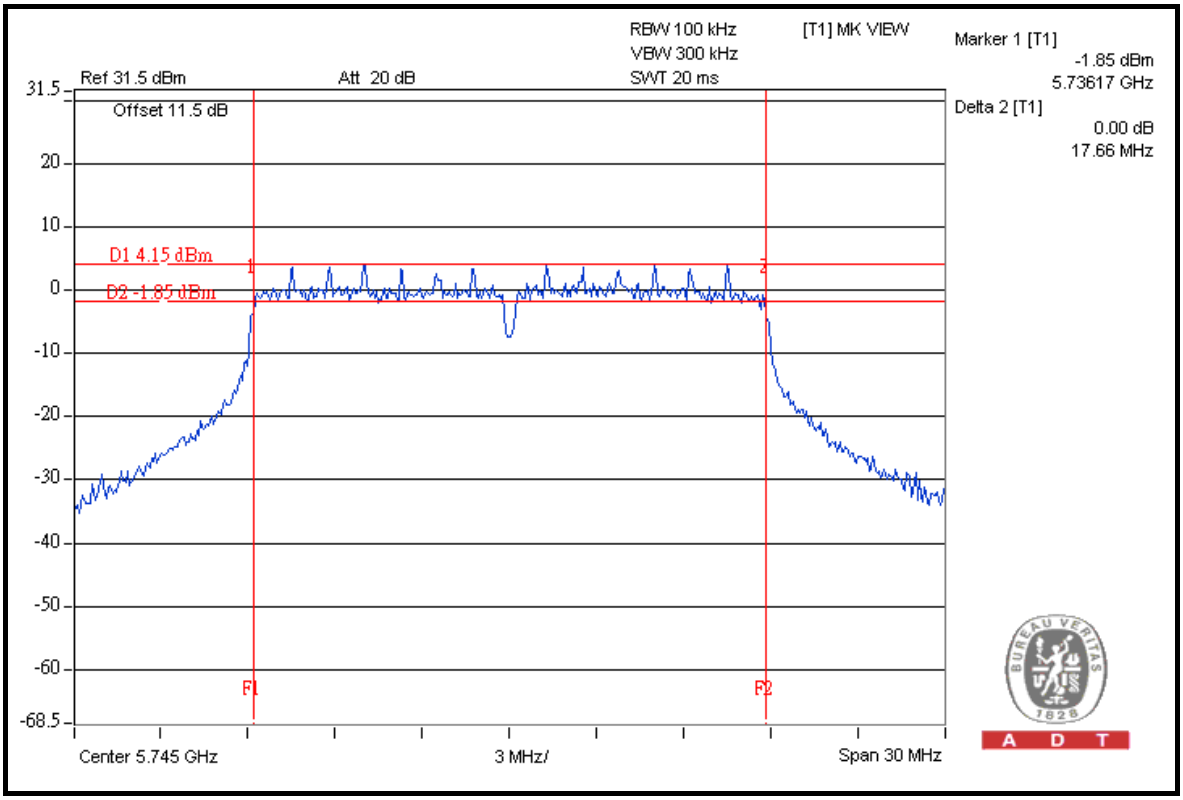
### FOR CHAIN 0: CH 157



### 802.11n (20MHz)

| CHANNEL | CHANNEL FREQUENCY (MHz) | 6dB BANDWIDTH (MHz) | | | MINIMUM LIMIT (MHz) | PASS / FAIL |
|---|---|---|---|---|---|---|
| | | CHAIN 0 | CHAIN 1 | CHAIN 2 | | |
| 149 | 5745 | 17.65 | 17.63 | 17.66 | 0.5 | PASS |
| 157 | 5785 | 17.60 | 17.55 | 17.66 | 0.5 | PASS |
| 165 | 5825 | 17.59 | 17.57 | 17.61 | 0.5 | PASS |

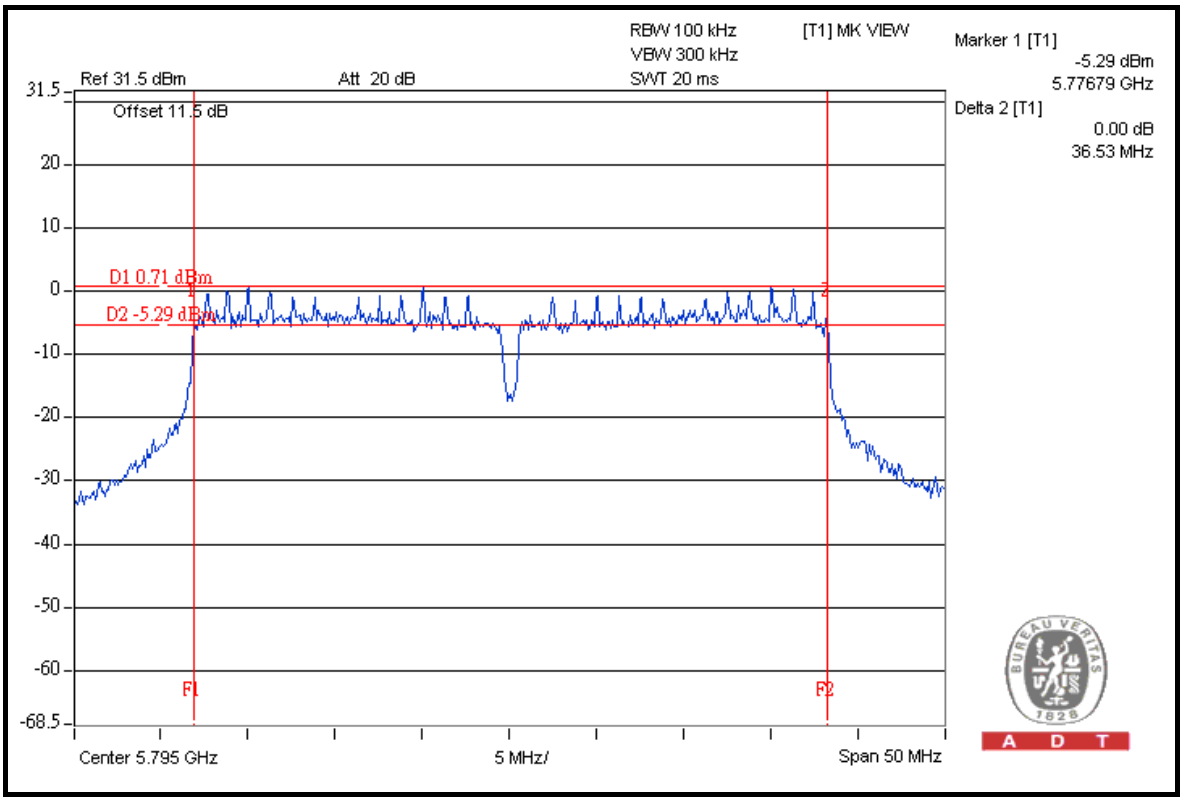
### FOR CHAIN 2: CH 149



## 802.11n (40MHz)

| CHANNEL | CHANNEL FREQUENCY (MHz) | 6dB BANDWIDTH (MHz) | | | MINIMUM LIMIT (MHz) | PASS / FAIL |
|---|---|---|---|---|---|---|
| | | CHAIN 0 | CHAIN 1 | CHAIN 2 | | |
| 151 | 5755 | 36.13 | 36.46 | 36.48 | 0.5 | PASS |
| 159 | 5795 | 36.49 | 36.44 | 36.53 | 0.5 | PASS |

## FOR CHAIN 2: CH 159



## 5.4 MAXIMUM OUTPUT POWER

### 5.4.1 LIMITS OF MAXIMUM OUTPUT POWER MEASUREMENT

The Maximum Output Power Measurement is 30dBm.

### 5.4.2 INSTRUMENTS

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | DATE OF CALIBRATION | DUE DATE OF CALIBRATION |
|---|---|---|---|---|
| High Speed Peak Power Meter | ML2495A | 0842014 | Apr. 26, 2011 | Apr. 25, 2012 |
| Power Sensor | MA2411B | 0738404 | Apr. 26, 2011 | Apr. 25, 2012 |

**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. Measurement Bandwidth of ML2495A is 65MHz greater than 6dB bandwidth of emission.

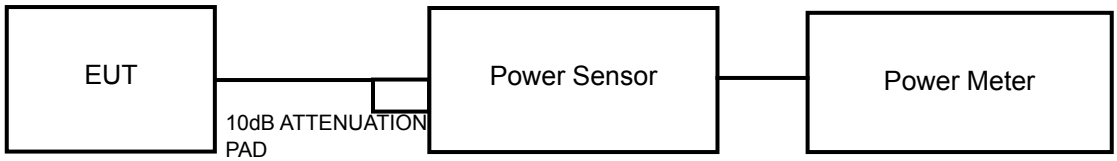
### 5.4.3 TEST PROCEDURES

A power sensor was used on the output port of the EUT. A power meter was used to read the response of the power sensor. Record the power level.

## 5.4.4 DEVIATION FROM TEST STANDARD

No deviation.

## 5.4.5 TEST SETUP




## 5.4.6 EUT OPERATING CONDITIONS

Same as Item 5.3.6

## 5.4.7 TEST RESULTS

### 802.11a

| CHAN. | CHAN. FREQ. (MHz) | POWER OUTPUT (dBm) | | | TOTAL POWER (mW) | TOTAL POWER (dBm) | POWER LIMIT (dBm) | PASS / FAIL |
|---|---|---|---|---|---|---|---|---|
| | | CHAIN 0 | CHAIN 1 | CHAIN 2 | | | | |
| 149 | 5745 | 24.5 | 20.3 | 24.0 | 640.2 | 28.1 | 28.2 | PASS |
| 157 | 5785 | 24.1 | 19.8 | 23.5 | 576.4 | 27.6 | 28.2 | PASS |
| 165 | 5825 | 24.2 | 19.5 | 23.3 | 565.9 | 27.5 | 28.2 | PASS |

Directional gain =3dBi + 10log(3)=7.8dBi > 6dBi , so the conducted power limit shall be reduced to 30-(7.8-6)=28.2dBm

### 802.11n (20MHz)

| CHAN. | CHAN. FREQ. (MHz) | POWER OUTPUT (dBm) | | | TOTAL POWER (mW) | TOTAL POWER (dBm) | POWER LIMIT (dBm) | PASS / FAIL |
|---|---|---|---|---|---|---|---|---|
| | | CHAIN 0 | CHAIN 1 | CHAIN 2 | | | | |
| 149 | 5745 | 24.3 | 20.4 | 23.6 | 607.9 | 27.8 | 28.2 | PASS |
| 157 | 5785 | 24.0 | 20.2 | 23.8 | 595.8 | 27.8 | 28.2 | PASS |
| 165 | 5825 | 23.8 | 20.5 | 23.7 | 586.5 | 27.7 | 28.2 | PASS |

Directional gain =3dBi + 10log(3)=7.8dBi > 6dBi , so the conducted power limit shall be reduced to 30-(7.8-6)=28.2dBm

### 802.11n (40MHz)

| CHAN. | CHAN. FREQ. (MHz) | POWER OUTPUT (dBm) | | | TOTAL POWER (mW) | TOTAL POWER (dBm) | POWER LIMIT (dBm) | PASS / FAIL |
|---|---|---|---|---|---|---|---|---|
| | | CHAIN 0 | CHAIN 1 | CHAIN 2 | | | | |
| 151 | 5755 | 24.5 | 20.1 | 23.2 | 593.1 | 27.7 | 28.2 | PASS |
| 159 | 5795 | 24.0 | 20.3 | 22.3 | 528.2 | 27.2 | 28.2 | PASS |

Directional gain =3dBi + 10log(3)=7.8dBi > 6dBi , so the conducted power limit shall be reduced to 30-(7.8-6)=28.2dBm

## 5.5 POWER SPECTRAL DENSITY MEASUREMENT

### 5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

### 5.5.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | DATE OF CALIBRATION | DUE DATE OF CALIBRATION |
|---|---|---|---|---|
| SPECTRUM ANALYZER R&S | FSP40 | 100039 | Feb. 23, 2011 | Feb. 22, 2012 |

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

### 5.5.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 10kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

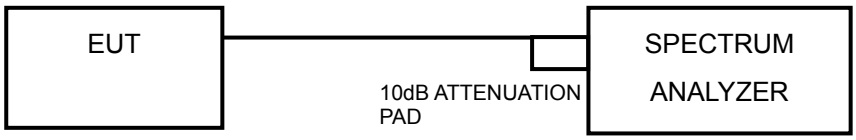
The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

Follow method 2 of KDB 662911 D01 Multiple Transmitter Output v01 to calculate total power density of 3 TX port.

### 5.5.4 DEVIATION FROM TEST STANDARD

No deviation.

### 5.5.5 TEST SETUP




### 5.5.6 EUT OPERATING CONDITION

Same as Item 5.3.6.

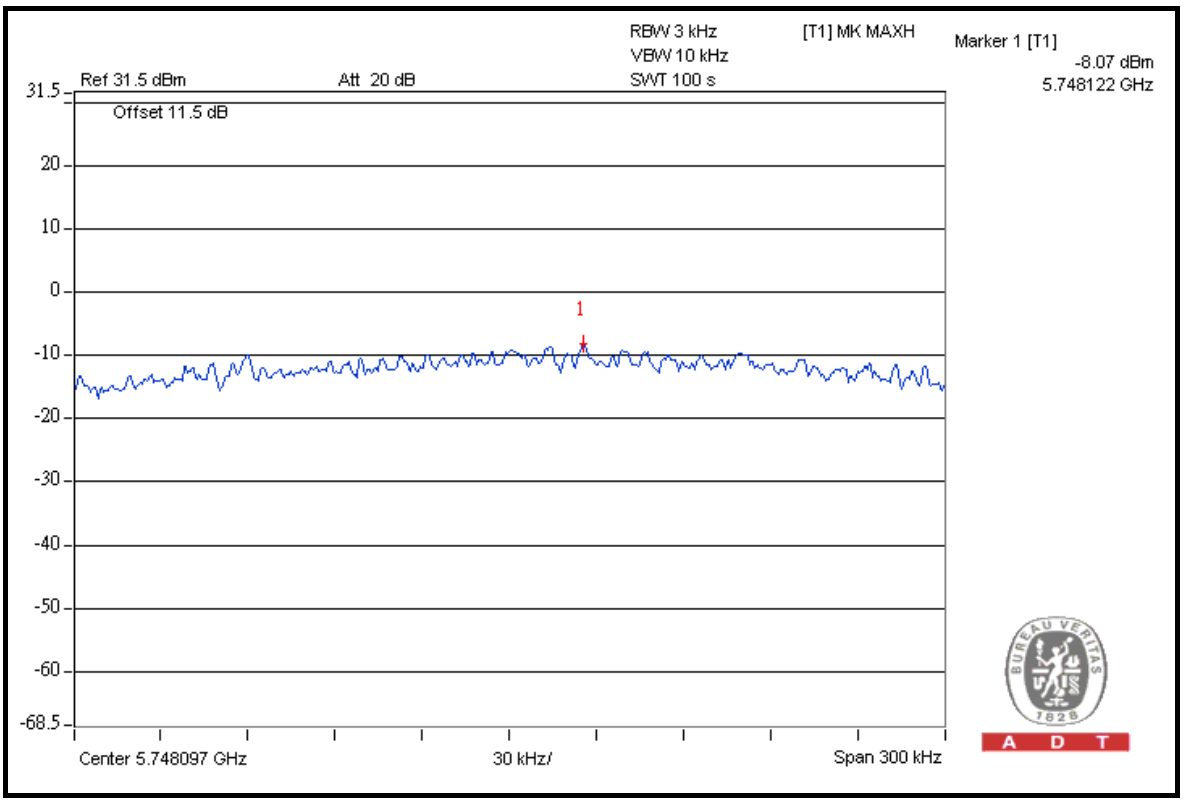
## 5.5.7 TEST RESULTS

### 802.11a

| CHAIN | CHAN. | CHAN. FREQ. (MHz) | RF POWER LEVEL IN 3kHz BW (dBm) | | TOTAL POWER DENSITY (dBm) | MAX. LIMIT (dBm) | PASS / FAIL |
|---|---|---|---|---|---|---|---|
| | | | MEASURED | 10 log (N=3) dB | | | |
| 0 | 149 | 5745 | -8.07 | 4.77 | -3.3 | 6.2 | PASS |
| | 157 | 5785 | -8.56 | 4.77 | -3.8 | 6.2 | PASS |
| | 165 | 5825 | -8.21 | 4.77 | -3.4 | 6.2 | PASS |
| 1 | 149 | 5745 | -10.49 | 4.77 | -5.7 | 6.2 | PASS |
| | 157 | 5785 | -10.89 | 4.77 | -6.1 | 6.2 | PASS |
| | 165 | 5825 | -11.20 | 4.77 | -6.4 | 6.2 | PASS |
| 2 | 149 | 5745 | -9.74 | 4.77 | -5.0 | 6.2 | PASS |
| | 157 | 5785 | -10.24 | 4.77 | -5.5 | 6.2 | PASS |
| | 165 | 5825 | -10.29 | 4.77 | -5.5 | 6.2 | PASS |

Directional gain =3dBi + 10log(3)=7.8dBi > 6dBi , so the conducted power limit shall be reduced to 8-(7.8-6)=6.2dBm

### FOR CHAIN 0: CH 149

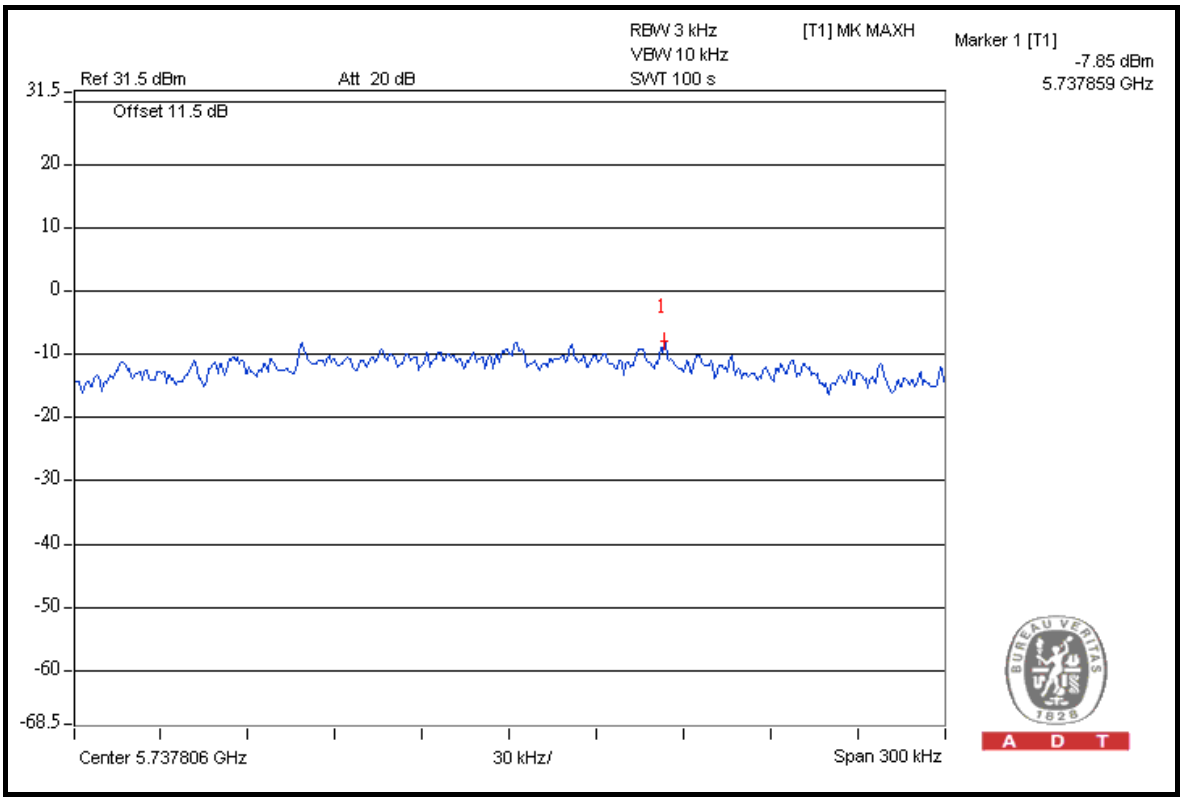


## 802.11n (20MHz)

| CHAIN | CHAN. | CHAN. FREQ. (MHz) | RF POWER LEVEL IN 3kHz BW (dBm) | | TOTAL POWER DENSITY (dBm) | MAX. LIMIT (dBm) | PASS / FAIL |
|---|---|---|---|---|---|---|---|
| | | | MEASURED | 10 log (N=3) dB | | | |
| 0 | 149 | 5745 | -7.85 | 4.77 | -3.1 | 6.2 | PASS |
| | 157 | 5785 | -8.02 | 4.77 | -3.3 | 6.2 | PASS |
| | 165 | 5825 | -8.45 | 4.77 | -3.7 | 6.2 | PASS |
| 1 | 149 | 5745 | -9.96 | 4.77 | -5.2 | 6.2 | PASS |
| | 157 | 5785 | -10.06 | 4.77 | -5.3 | 6.2 | PASS |
| | 165 | 5825 | -9.71 | 4.77 | -4.9 | 6.2 | PASS |
| 2 | 149 | 5745 | -9.51 | 4.77 | -4.7 | 6.2 | PASS |
| | 157 | 5785 | -9.14 | 4.77 | -4.4 | 6.2 | PASS |
| | 165 | 5825 | -9.35 | 4.77 | -4.6 | 6.2 | PASS |

Directional gain =3dBi + 10log(3)=7.8dBi > 6dBi , so the conducted power limit shall be reduced to 8-(7.8-6)=6.2dBm

## FOR CHAIN 0: CH 149

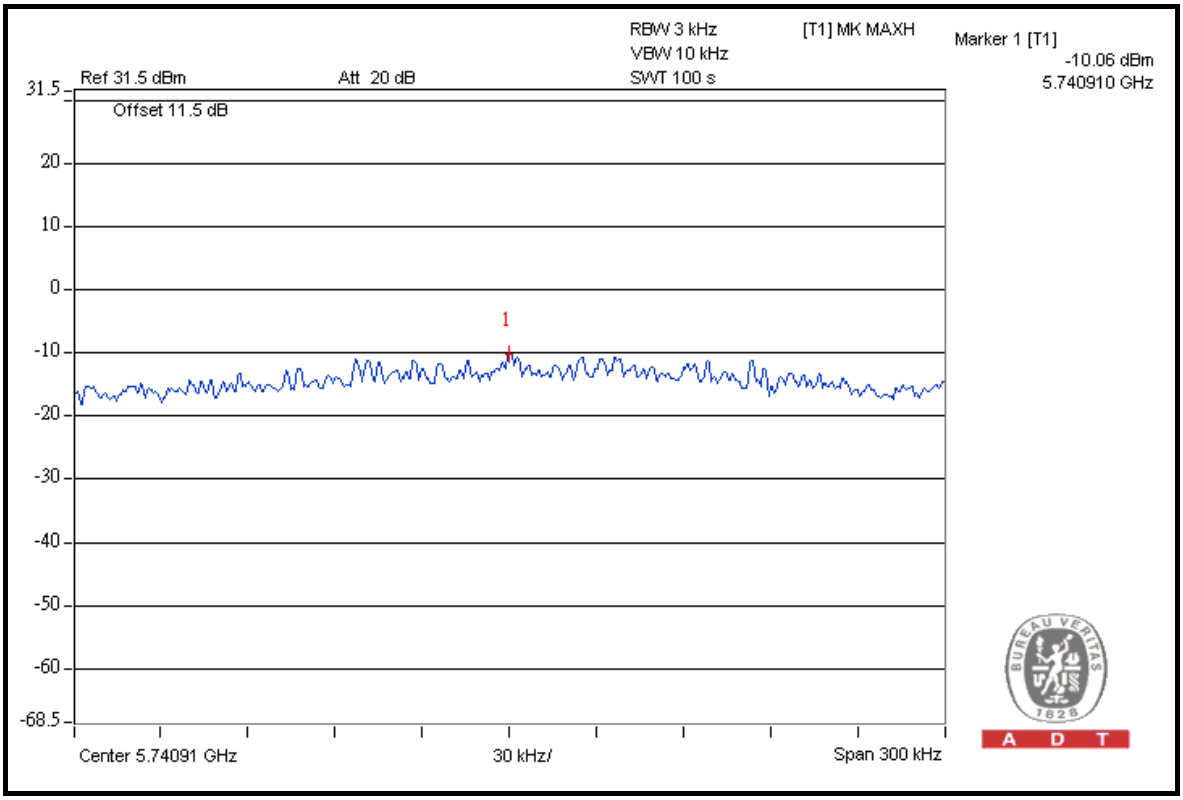


## 802.11n (40MHz)

| CHAIN | CHAN. | CHAN. FREQ. (MHz) | RF POWER LEVEL IN 3kHz BW (dBm) | | TOTAL POWER DENSITY (dBm) | MAX. LIMIT (dBm) | PASS / FAIL |
|---|---|---|---|---|---|---|---|
| | | | MEASURED | 10 log (N=3) dB | | | |
| 0 | 151 | 5755 | -10.06 | 4.77 | -5.3 | 6.2 | PASS |
| | 159 | 5795 | -10.76 | 4.77 | -6.0 | 6.2 | PASS |
| 1 | 151 | 5755 | -11.38 | 4.77 | -6.6 | 6.2 | PASS |
| | 159 | 5795 | -10.95 | 4.77 | -6.2 | 6.2 | PASS |
| 2 | 151 | 5755 | -12.73 | 4.77 | -8.0 | 6.2 | PASS |
| | 159 | 5795 | -13.65 | 4.77 | -8.9 | 6.2 | PASS |

Directional gain =3dBi + 10log(3)=7.8dBi > 6dBi , so the conducted power limit shall be reduced to 8-(7.8-6)=6.2dBm

## FOR CHAIN 0: CH 151



## 5.6 BAND EDGES MEASUREMENT

### 5.6.1 LIMITS OF BAND EDGES MEASUREMENT

Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

### 5.6.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | DATE OF CALIBRATION | DUE DATE OF CALIBRATION |
|---|---|---|---|---|
| **FOR CONDUCTED MEASUREMENT** | | | | |
| SPECTRUM ANALYZER R&S | FSP40 | 100039 | Feb. 23, 2011 | Feb. 22, 2012 |
| **FOR RADIATED MEASUREMENT** | | | | |
| Test Receiver ROHDE & SCHWARZ | ESCI | 100744 | Apr. 19, 2011 | Apr. 18, 2012 |
| Spectrum Analyzer ROHDE & SCHWARZ | FSP40 | 100269 | Jan. 06, 2011 | Jan. 05, 2012 |
| BILOG Antenna SCHWARZBECK | VULB9168 | 9168-156 | Apr. 12, 2011 | Apr. 11, 2012 |
| HORN Antenna SCHWARZBECK | BBHA 9120 D | 9120D-563 | Sep. 06, 2011 | Sep. 05, 2012 |
| HORN Antenna SCHWARZBECK | BBHA 9170 | BBHA9170243 | Dec. 27, 2010 | Dec. 26, 2011 |
| Preamplifier Agilent | 8449B | 3008A01911 | Nov. 03, 2010 | Nov. 02, 2011 |
| Preamplifier Agilent | 8447D | 2944A10638 | Nov. 03, 2010 | Nov. 02, 2011 |
| RF signal cable HUBER+SUHNNER | SUCOFLEX 104 | 295013/4 283403/4 | Aug. 19, 2011 | Aug. 18, 2012 |
| RF signal cable Worken | 8D-FB | Cable-HYCH9-01 | Aug. 13, 2011 | Aug. 12, 2012 |
| Software | ADT_Radiated_ V7.6.15.9.2 | NA | NA | NA |
| Antenna Tower EMCO | 2070/2080 | 512.835.4684 | NA | NA |
| Turn Table EMCO | 2087-2.03 | NA | NA | NA |
| Antenna Tower &Turn Table Controller EMCO | 2090 | NA | NA | NA |
| 26GHz ~ 40GHz Amplifier | EM26400 | 815221 | Nov. 03, 2010 | Nov. 02, 2011 |

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

### 5.6.3 TEST PROCEDURE

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. Set both RBW and VBW of spectrum analyzer to 100kHz and 300kHz with suitable frequency span including 100MHz bandwidth from band edge. The band edges was measured and recorded.

**NOTE:** The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 1kHz for Average detection (AV) at frequency above 1GHz.

### 5.6.4 DEVIATION FROM TEST STANDARD

No deviation.

### 5.6.5 EUT OPERATING CONDITION

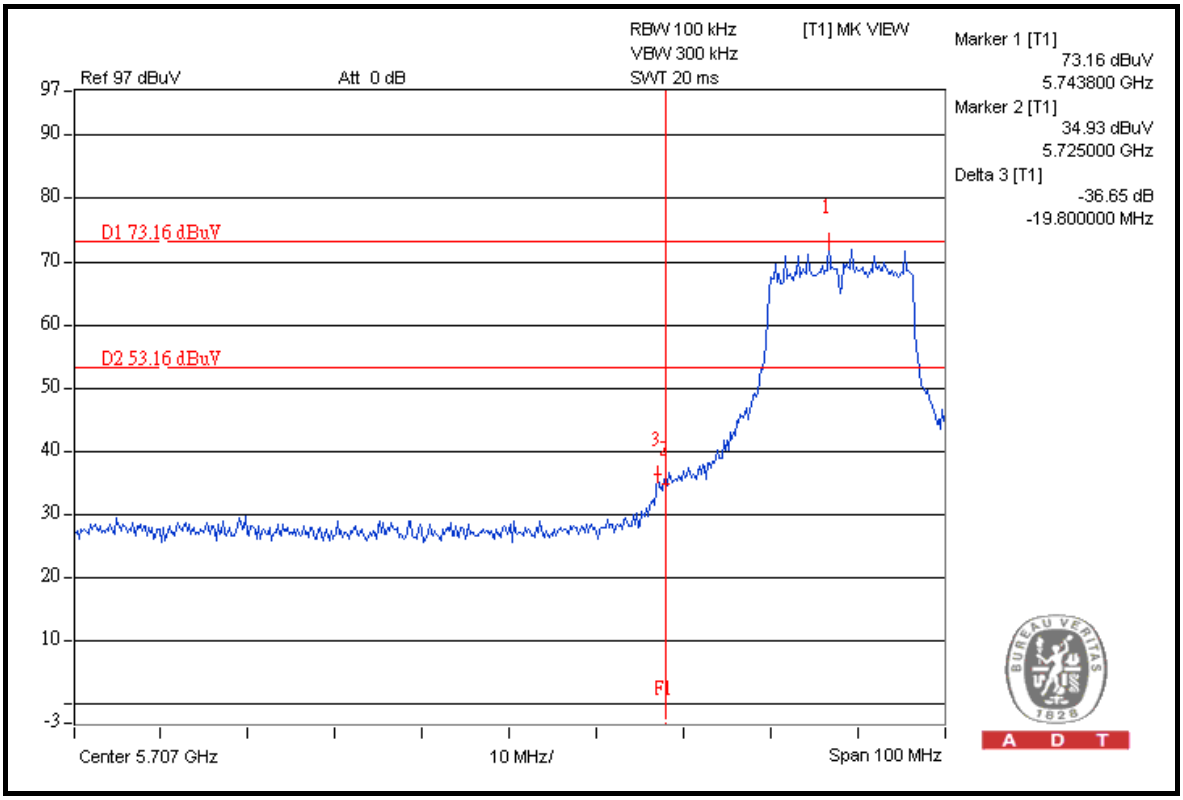
Same as Item 5.3.6.

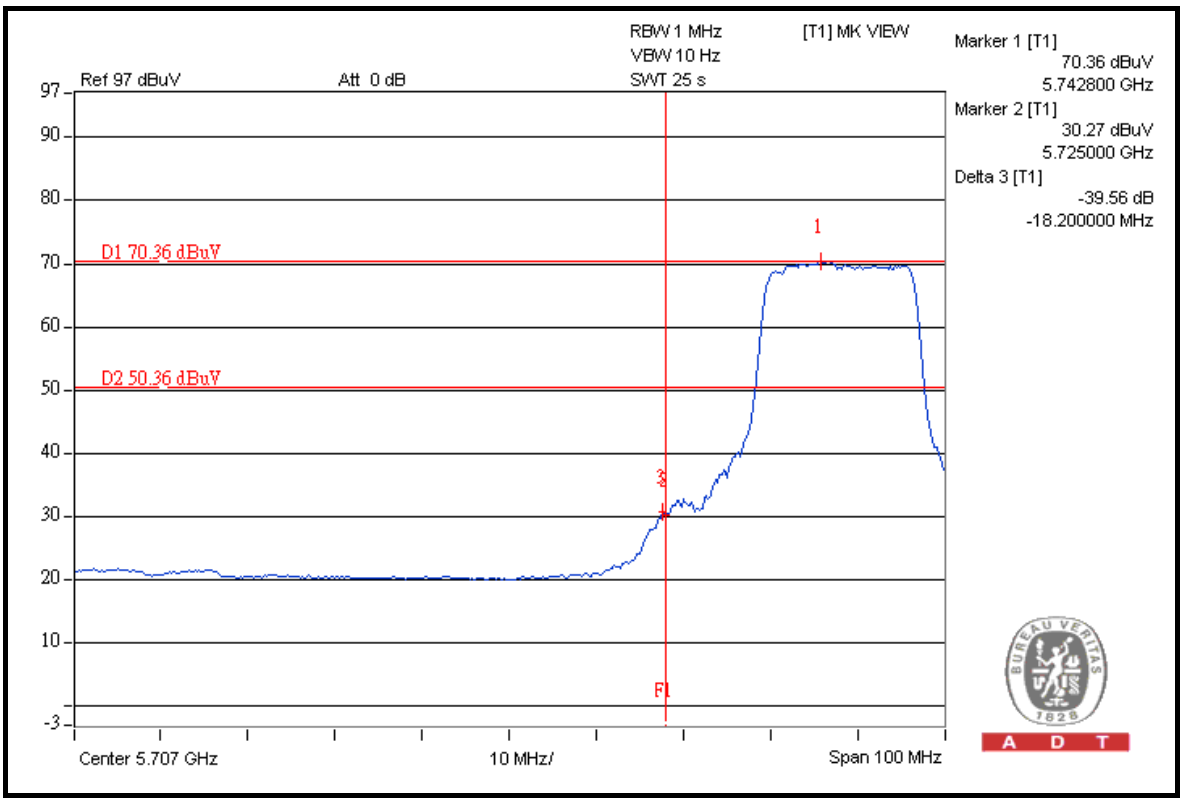
### 5.6.6 TEST RESULTS

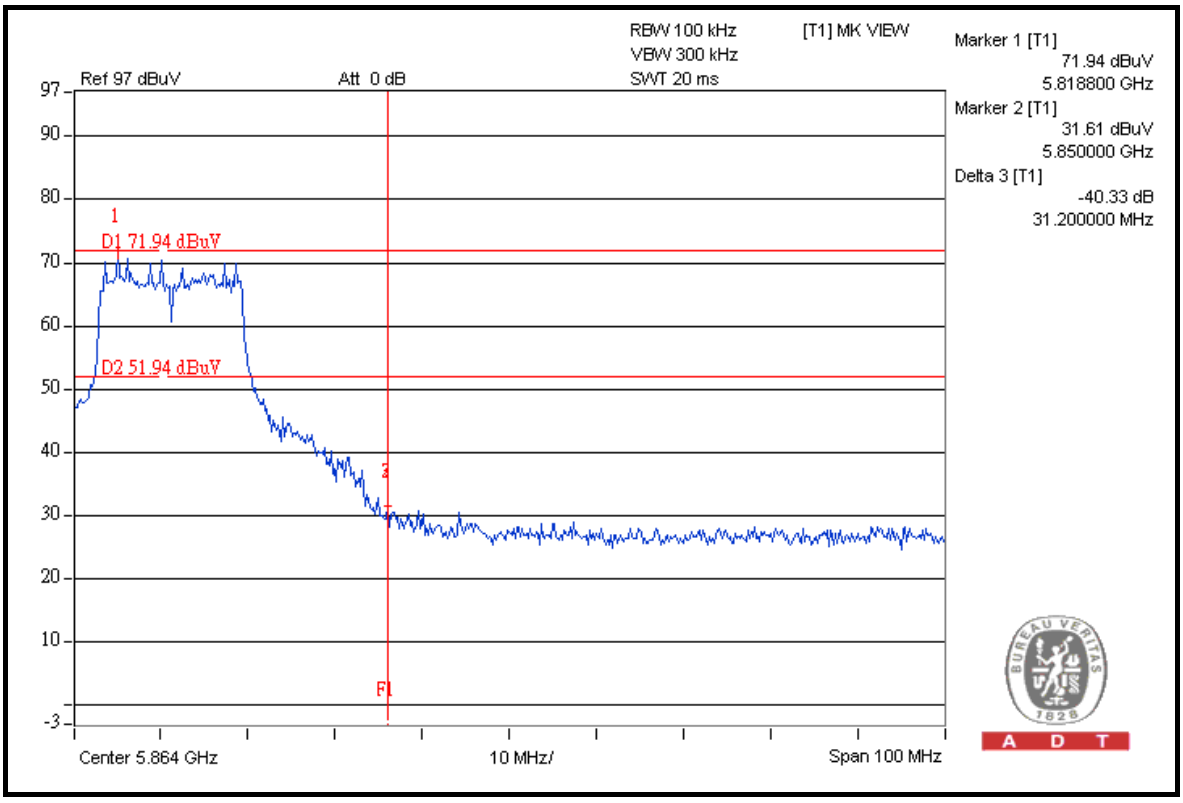
The spectrum plots are attached on the following pages. D1 line indicates the highest level, D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

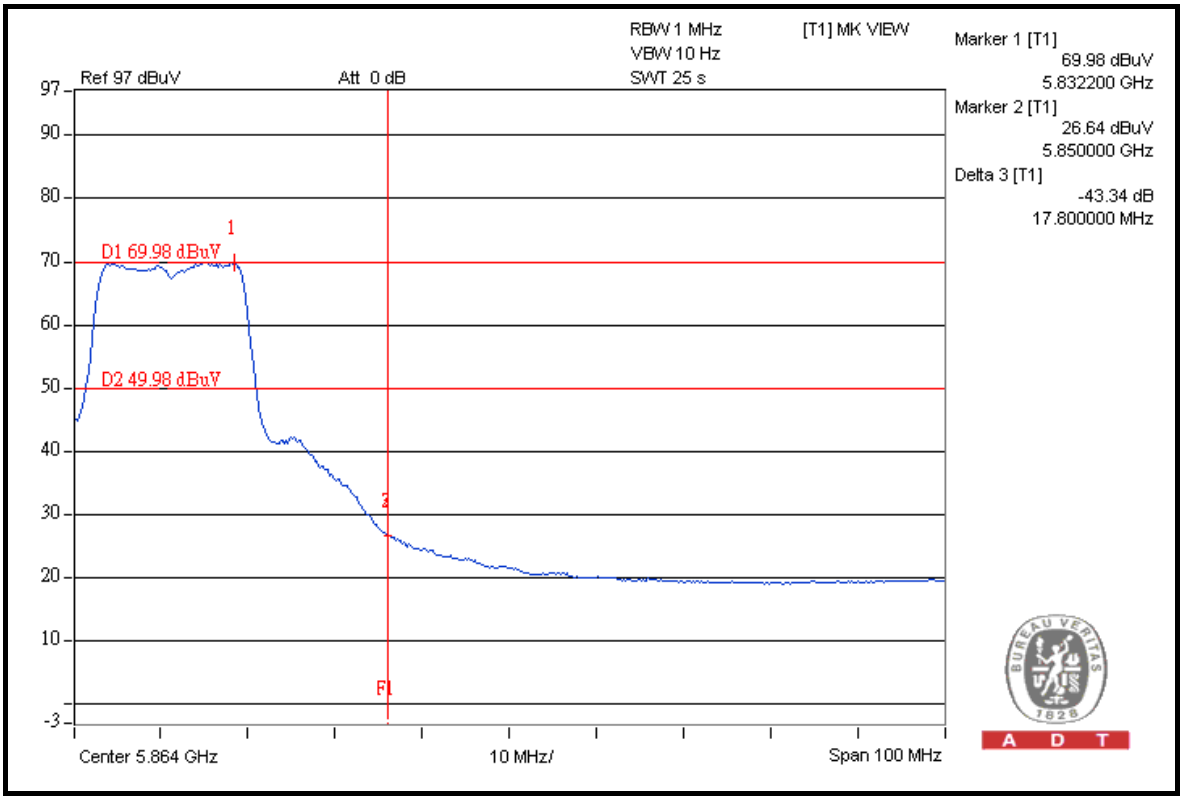
## 802.11a

### FOR RADIATED MEASURED (THREE CHAINS ON)



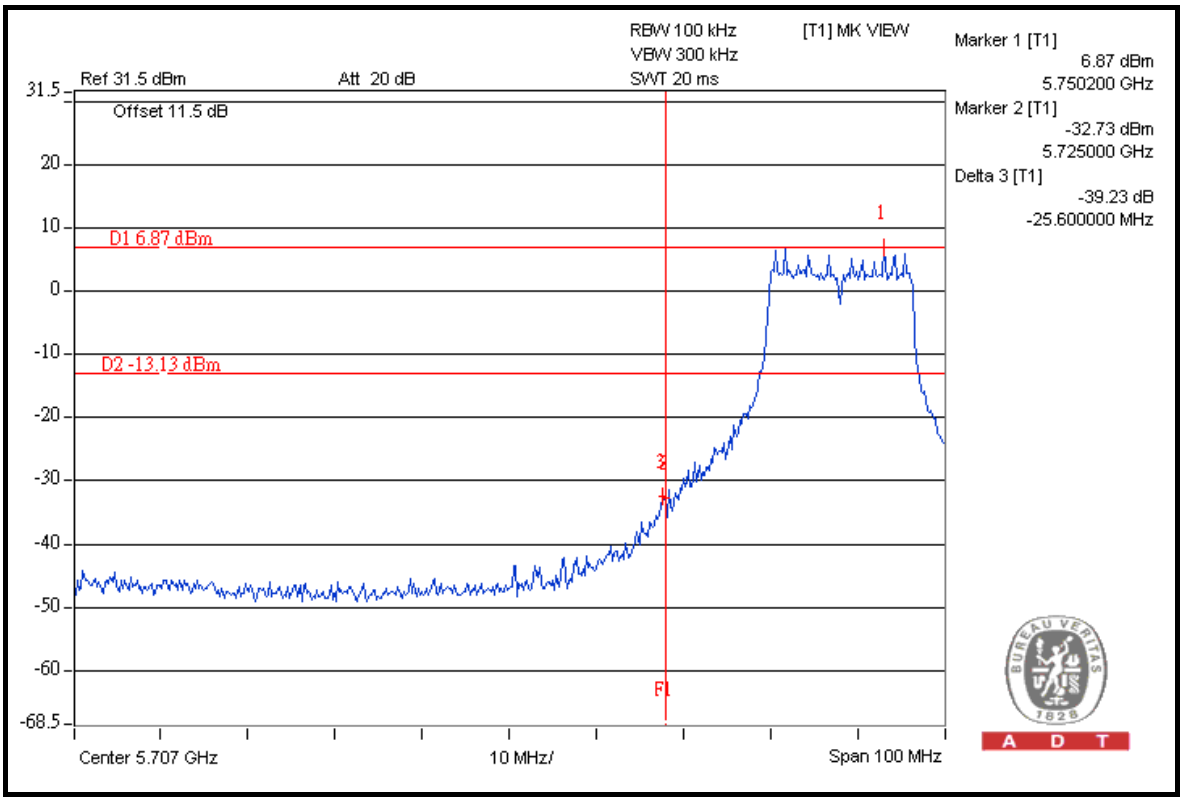



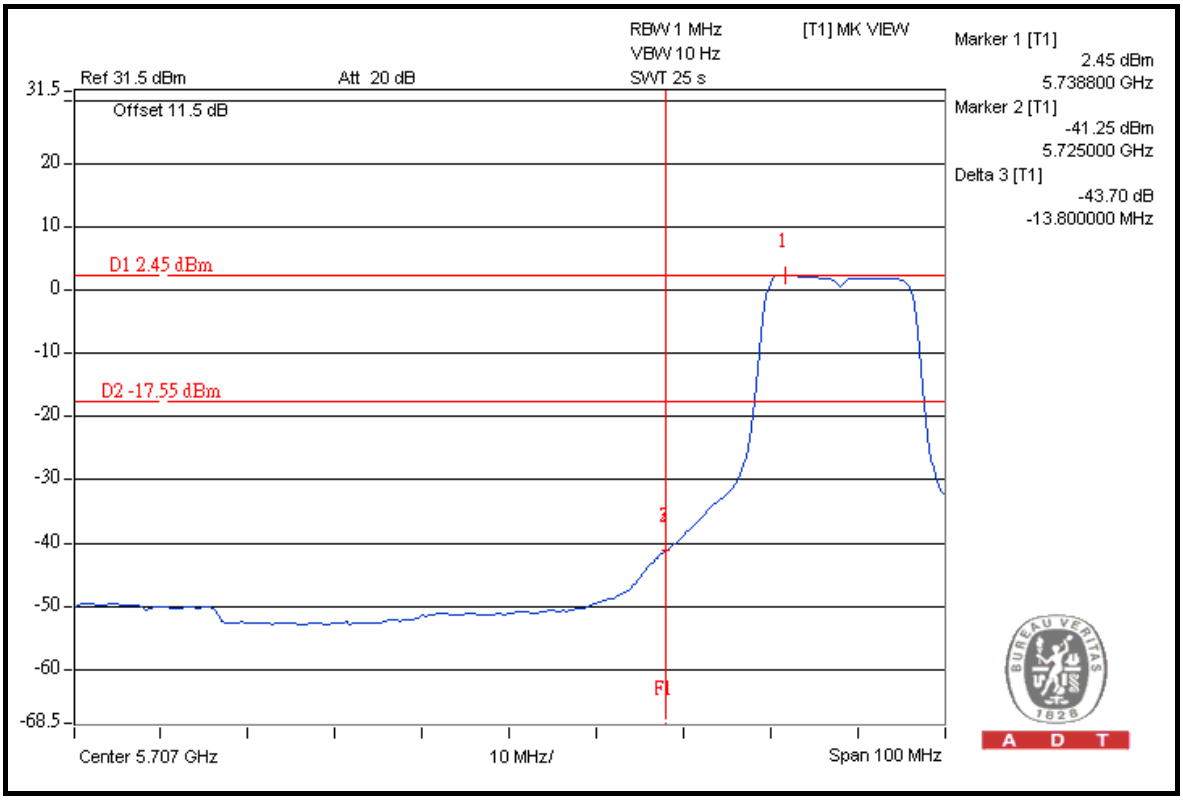

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Marker 1 [T1]
71.94 dBuV
5.818800 GHz
Marker 2 [T1]
31.61 dBuV
5.850000 GHz
Delta 3 [T1]
-40.33 dB
31.200000 MHz
Ref 97 dBuV
Att 0 dB
D1 71.94 dBuV
D2 51.94 dBuV
Center 5.864 GHz
10 MHz/
Span 100 MHz

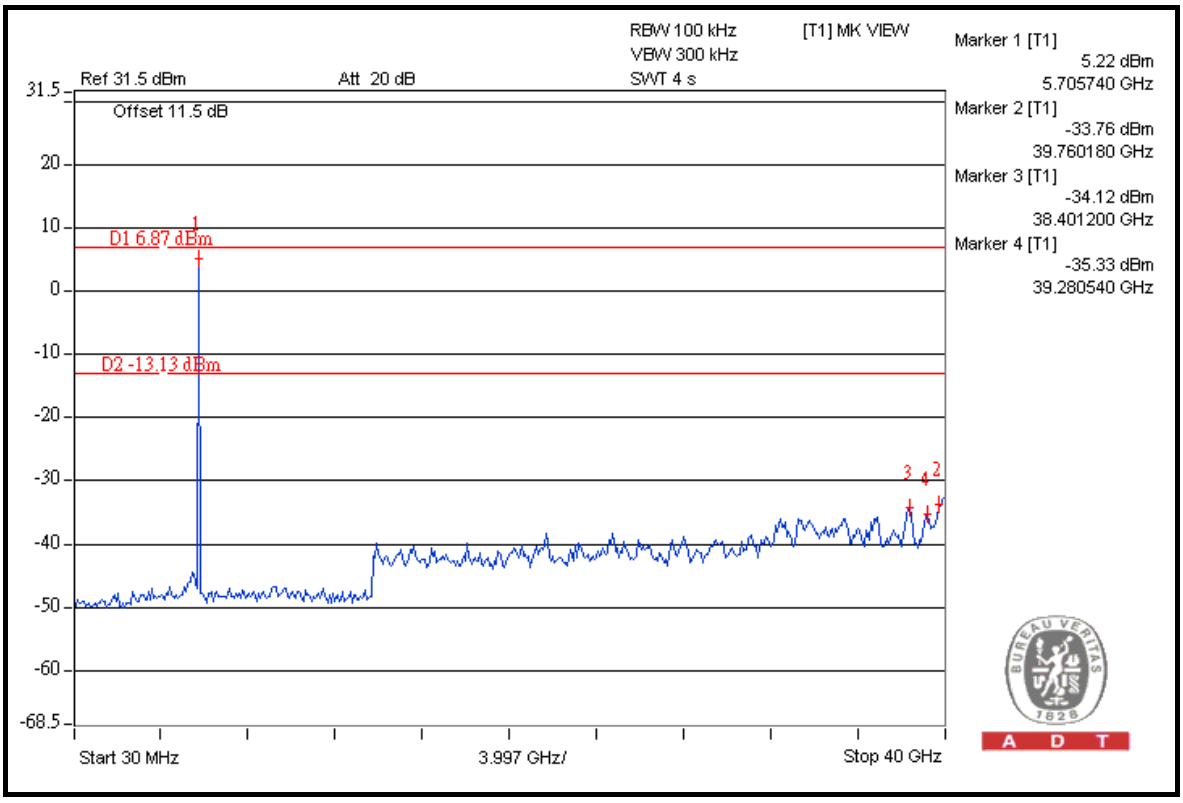

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Marker 1 [T1]
69.98 dBuV
5.832200 GHz
Marker 2 [T1]
26.64 dBuV
5.850000 GHz
Delta 3 [T1]
-43.34 dB
17.800000 MHz
Ref 97 dBuV
Att 0 dB
D1 69.98 dBuV
D2 49.98 dBuV
Center 5.864 GHz
10 MHz/
Span 100 MHz

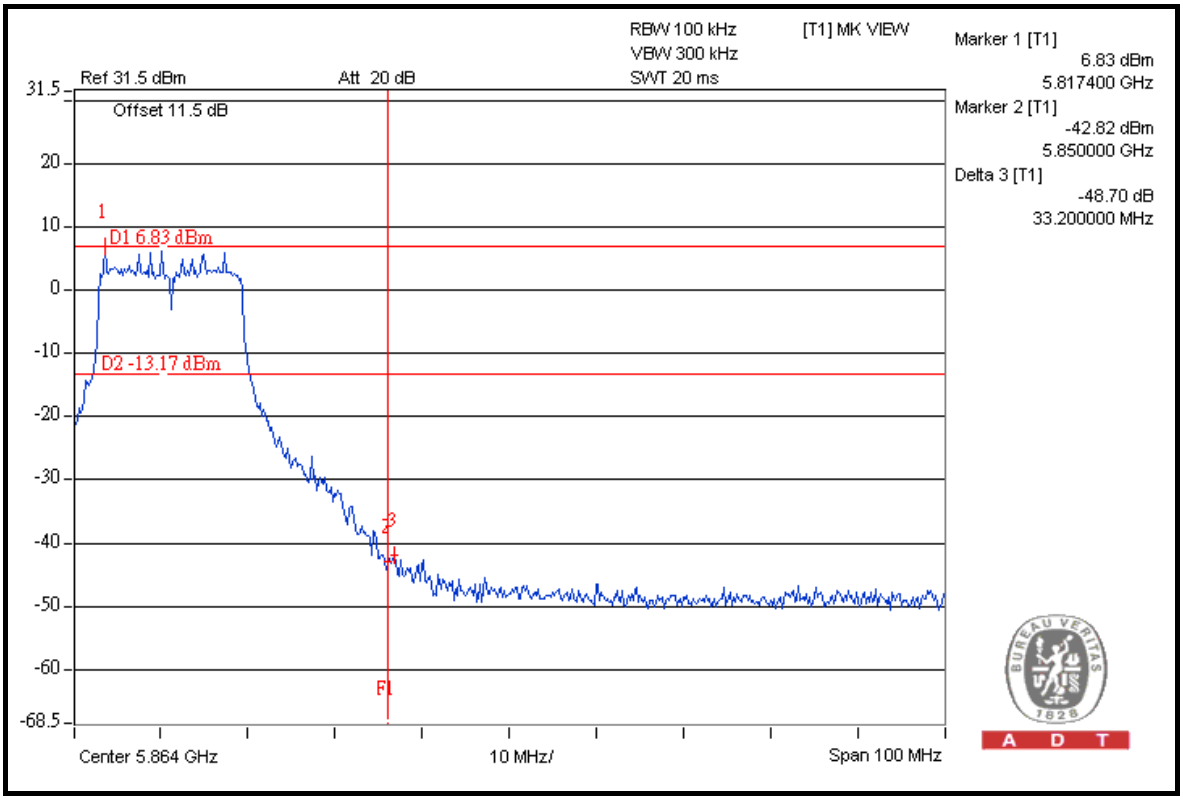
## FOR CONDUCTED MEASURED

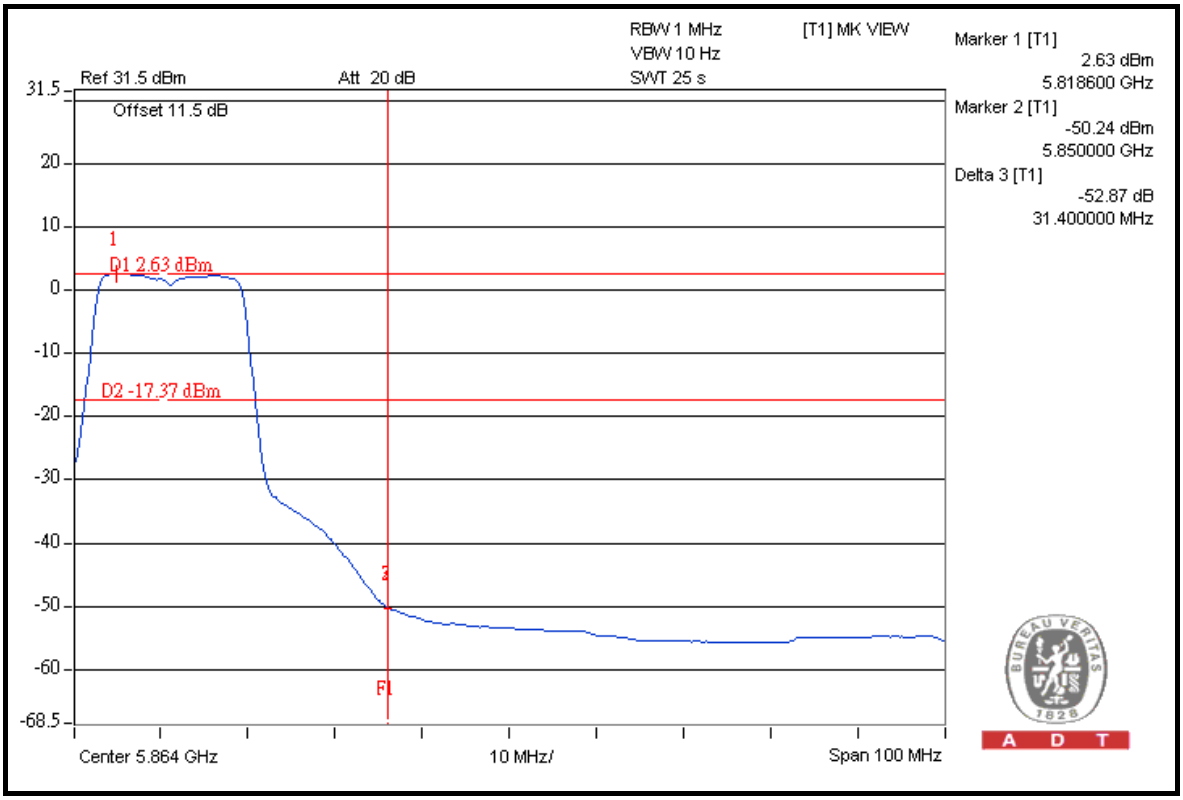
### CHAIN 0

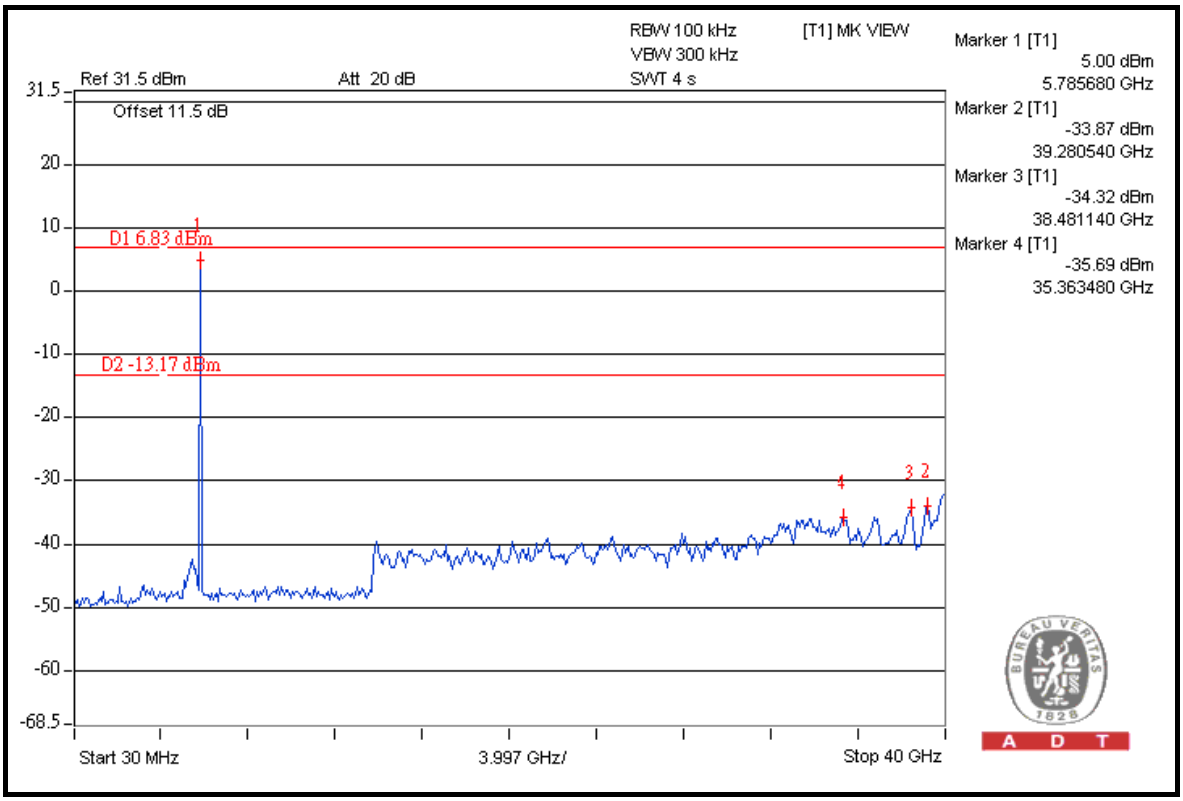


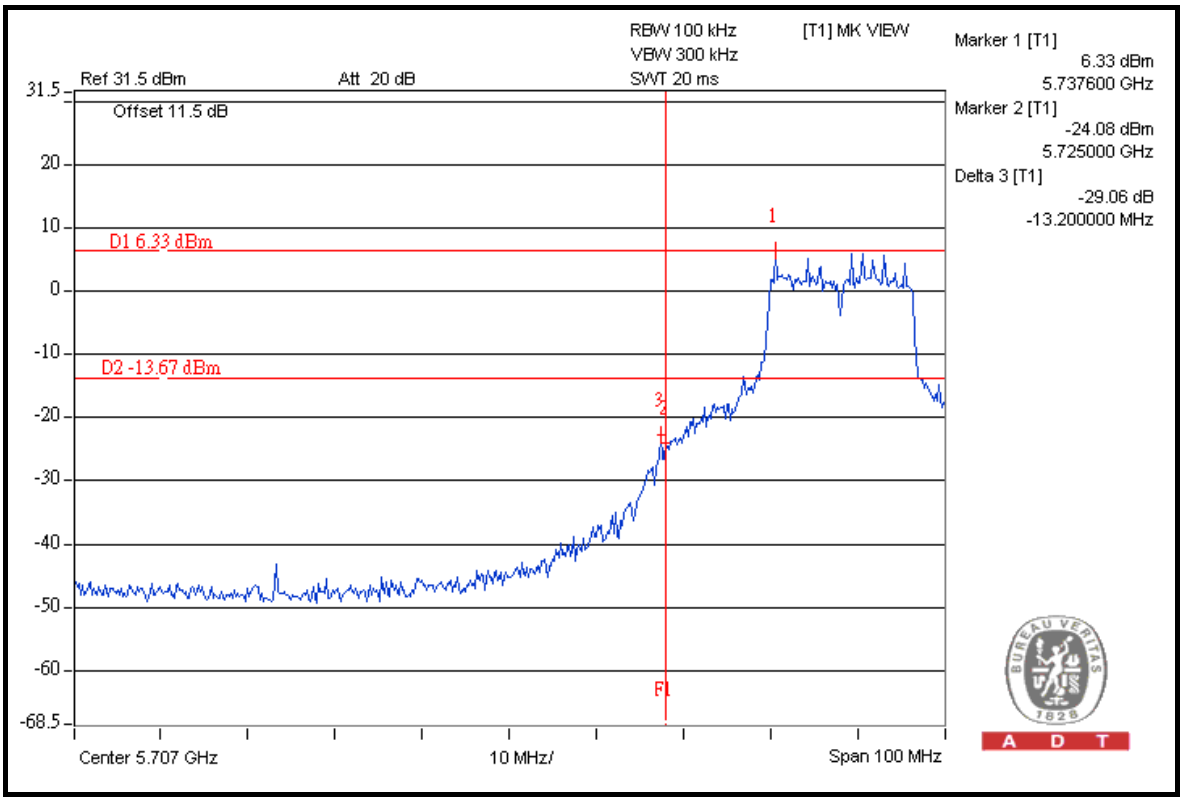

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 6.87 dBm
D2 -13.13 dBm
Marker 1 [T1]
5.22 dBm
5.705740 GHz
Marker 2 [T1]
-33.76 dBm
39.760180 GHz
Marker 3 [T1]
-34.12 dBm
38.401200 GHz
Marker 4 [T1]
-35.33 dBm
39.280540 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz

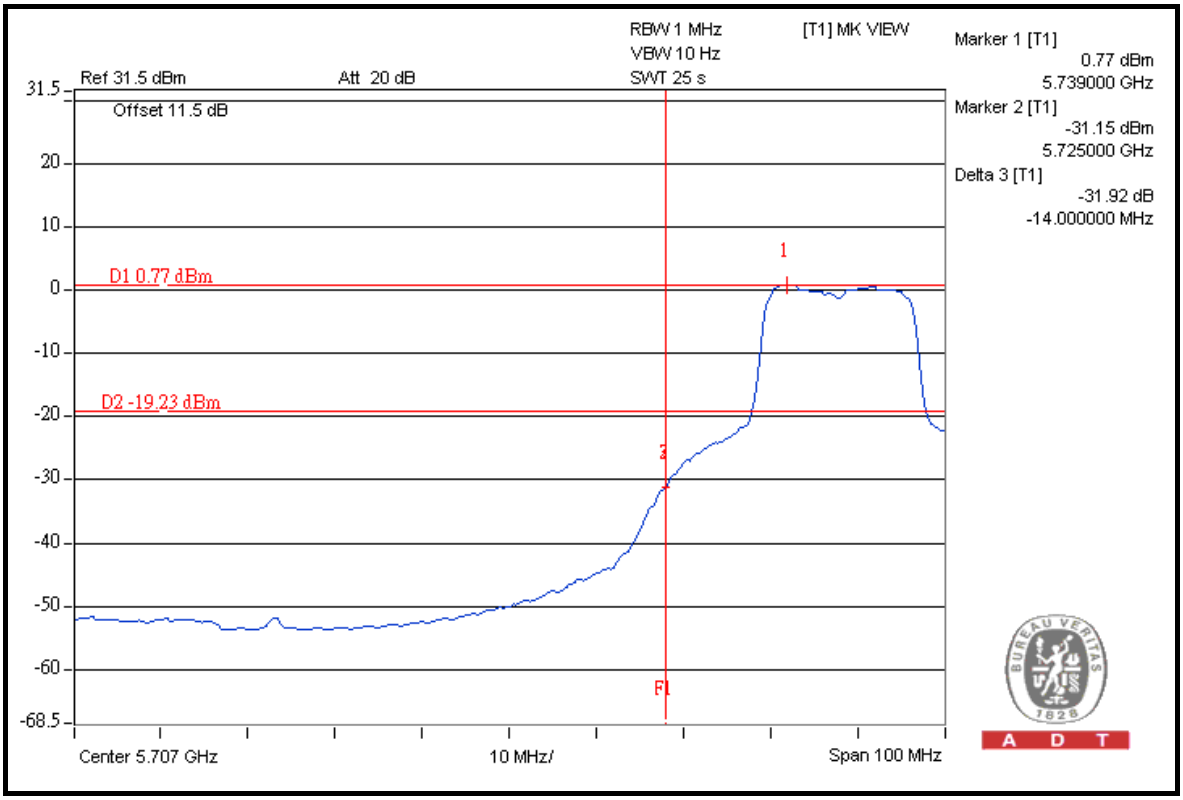

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 6.83 dBm
D2 -13.17 dBm
Marker 1 [T1]
6.83 dBm
5.817400 GHz
Marker 2 [T1]
-42.82 dBm
5.850000 GHz
Delta 3 [T1]
-48.70 dB
33.200000 MHz
Center 5.864 GHz
10 MHz/
Span 100 MHz

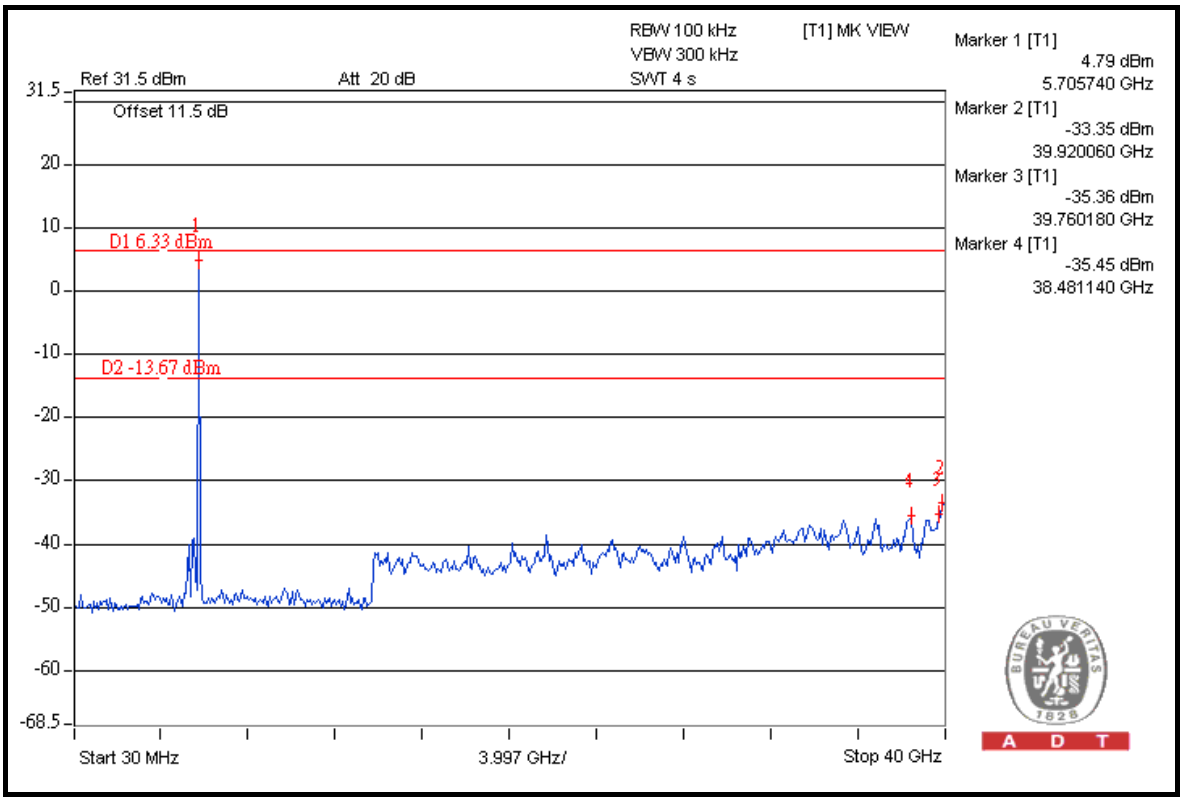

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 2.63 dBm
D2 -17.37 dBm
Marker 1 [T1]
2.63 dBm
5.818600 GHz
Marker 2 [T1]
-50.24 dBm
5.850000 GHz
Delta 3 [T1]
-52.87 dB
31.400000 MHz
Center 5.864 GHz
10 MHz/
Span 100 MHz

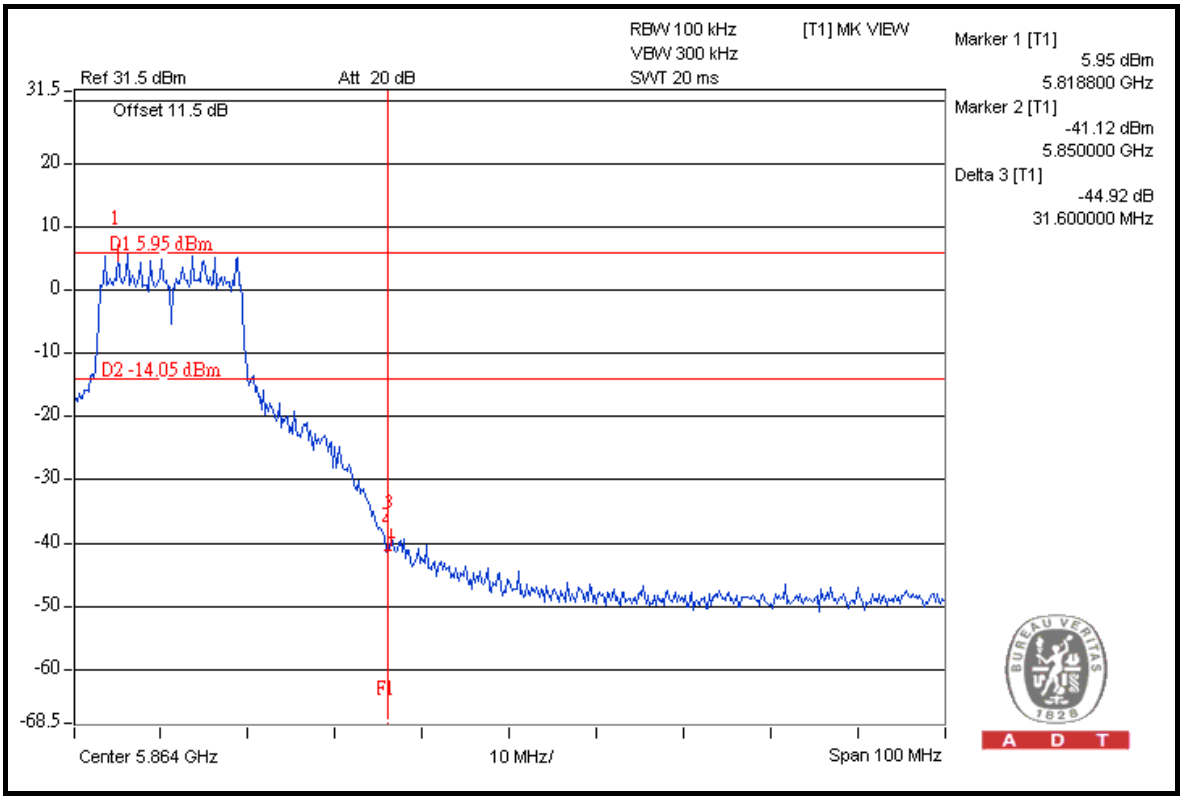

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 6.83 dBm
D2 -13.17 dBm
Marker 1 [T1]
5.00 dBm
5.785680 GHz
Marker 2 [T1]
-33.87 dBm
39.280540 GHz
Marker 3 [T1]
-34.32 dBm
38.481140 GHz
Marker 4 [T1]
-35.69 dBm
35.363480 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz

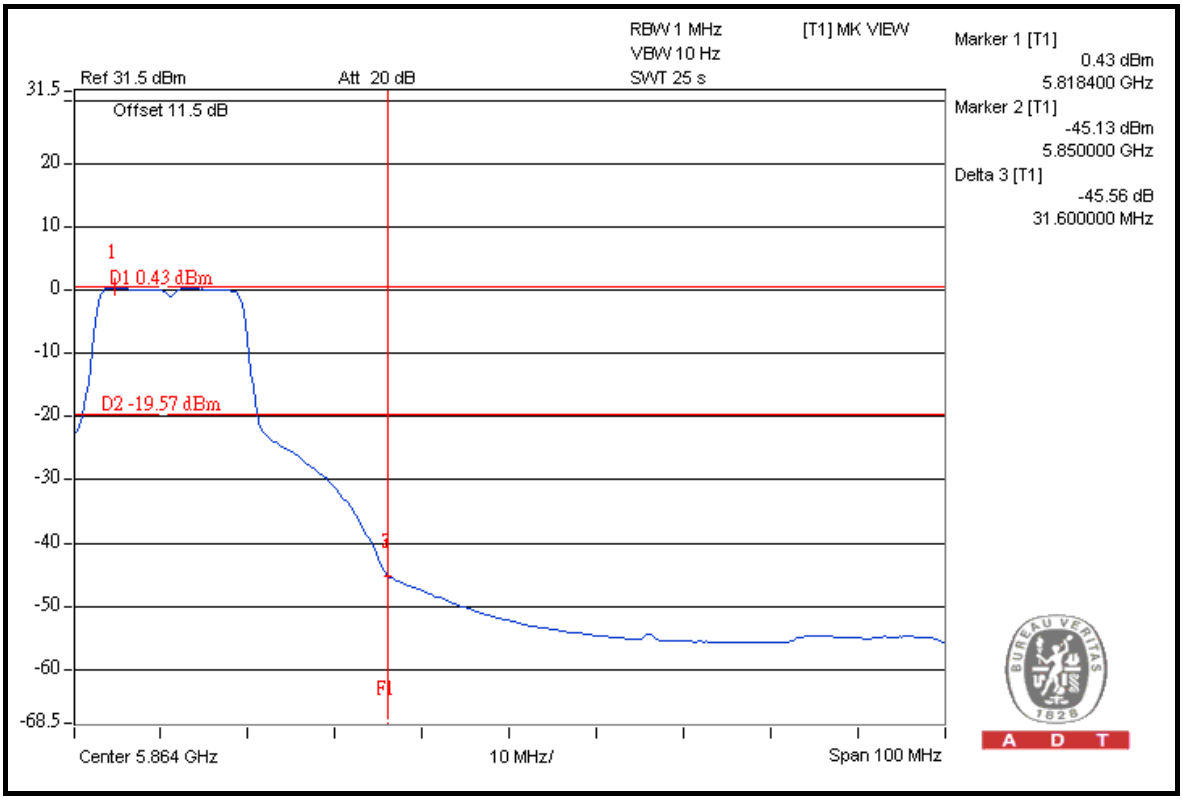
## CHAIN 1

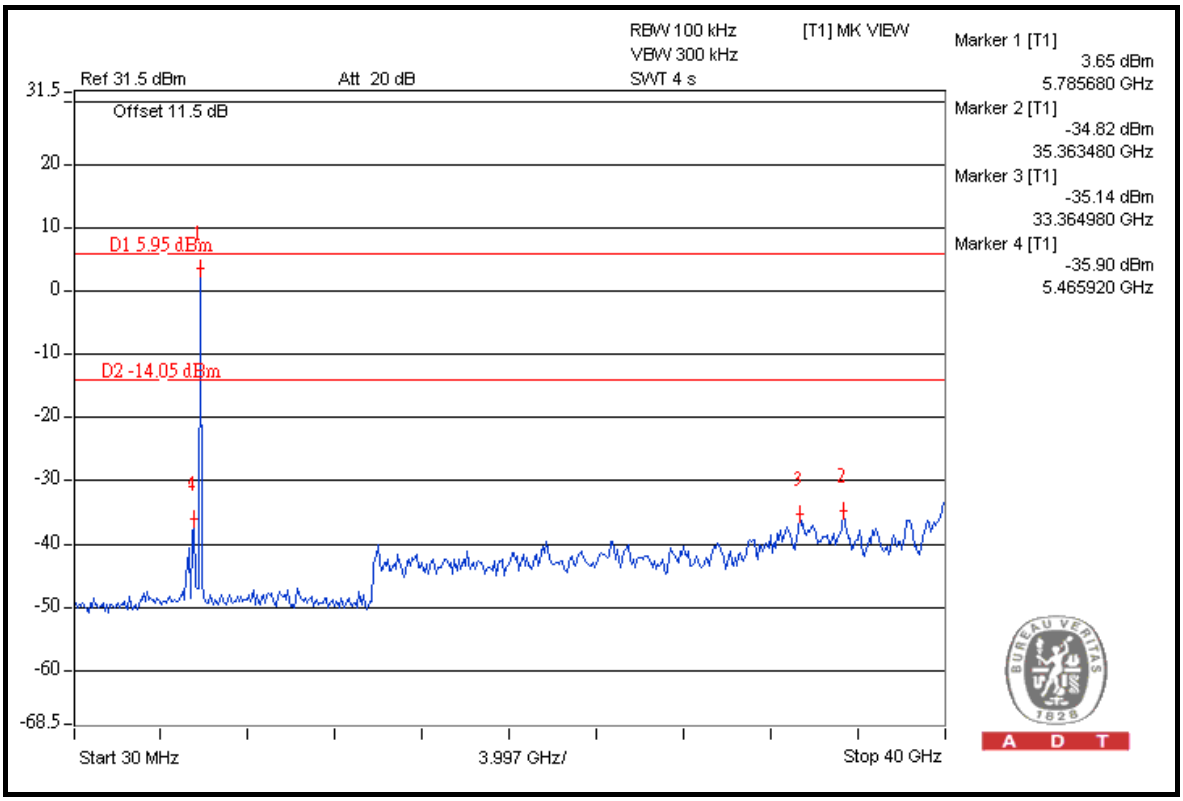

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 6.33 dBm
D2 -13.67 dBm
Marker 1 [T1]
6.33 dBm
5.737600 GHz
Marker 2 [T1]
-24.08 dBm
5.725000 GHz
Delta 3 [T1]
-29.06 dB
-13.200000 MHz
Center 5.707 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 0.77 dBm
D2 -19.23 dBm
Marker 1 [T1]
0.77 dBm
5.739000 GHz
Marker 2 [T1]
-31.15 dBm
5.725000 GHz
Delta 3 [T1]
-31.92 dB
-14.000000 MHz
Center 5.707 GHz
10 MHz/
Span 100 MHz

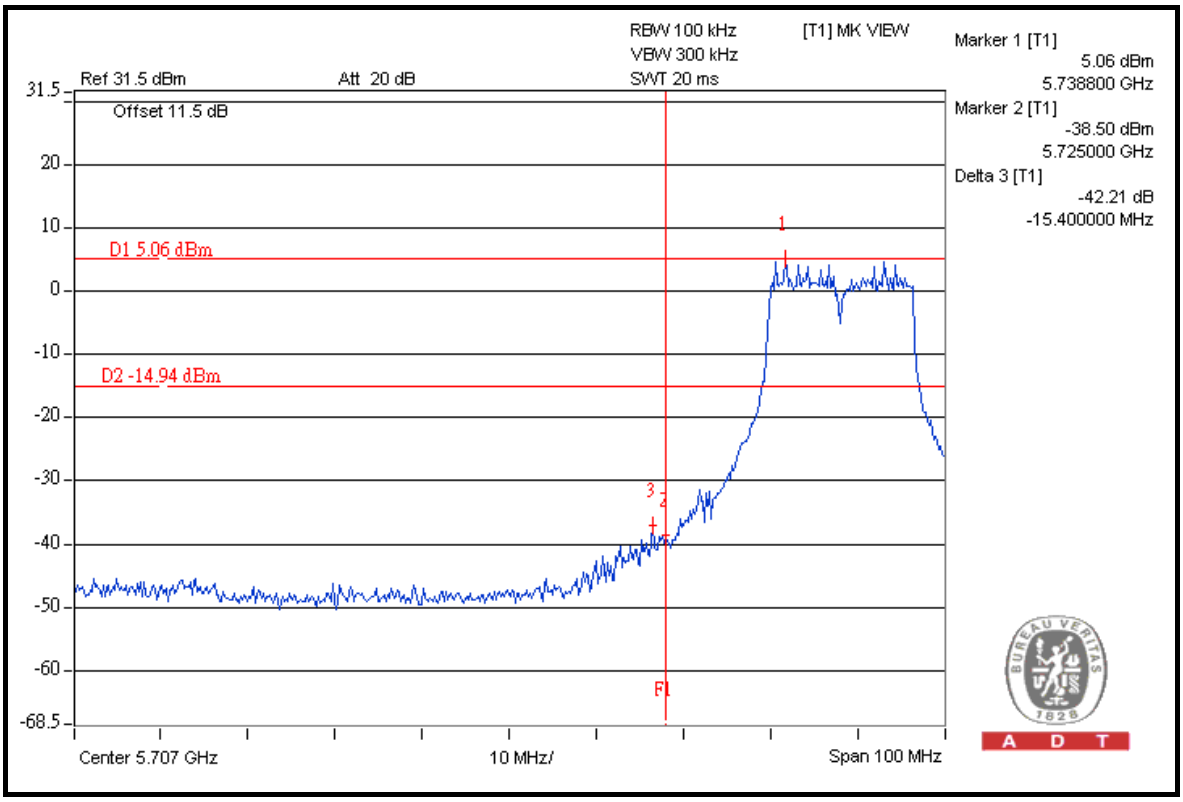

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 6.33 dBm
D2 -13.67 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz
Marker 1 [T1]
4.79 dBm
5.705740 GHz
Marker 2 [T1]
-33.35 dBm
39.920060 GHz
Marker 3 [T1]
-35.36 dBm
39.760180 GHz
Marker 4 [T1]
-35.45 dBm
38.481140 GHz

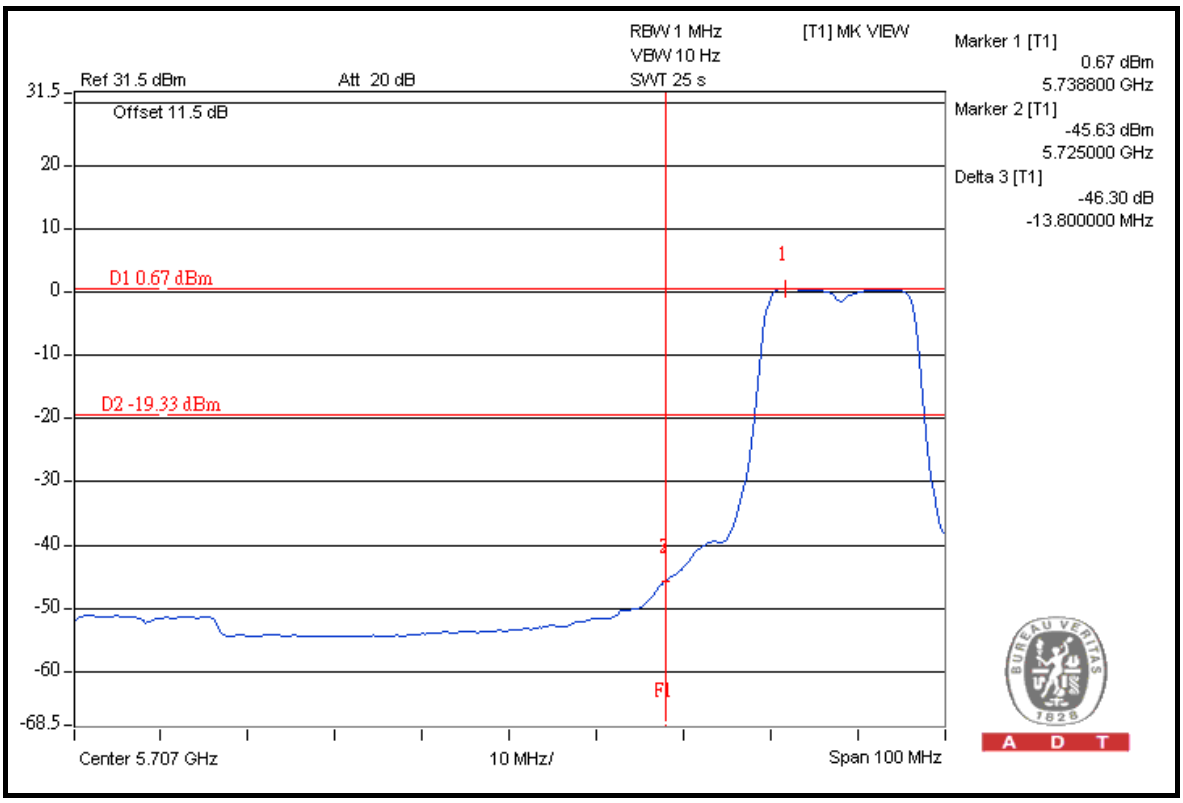

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 5.95 dBm
D2 -14.05 dBm
Center 5.864 GHz
10 MHz/
Span 100 MHz
Marker 1 [T1]
5.95 dBm
5.818800 GHz
Marker 2 [T1]
-41.12 dBm
5.850000 GHz
Delta 3 [T1]
-44.92 dB
31.600000 MHz

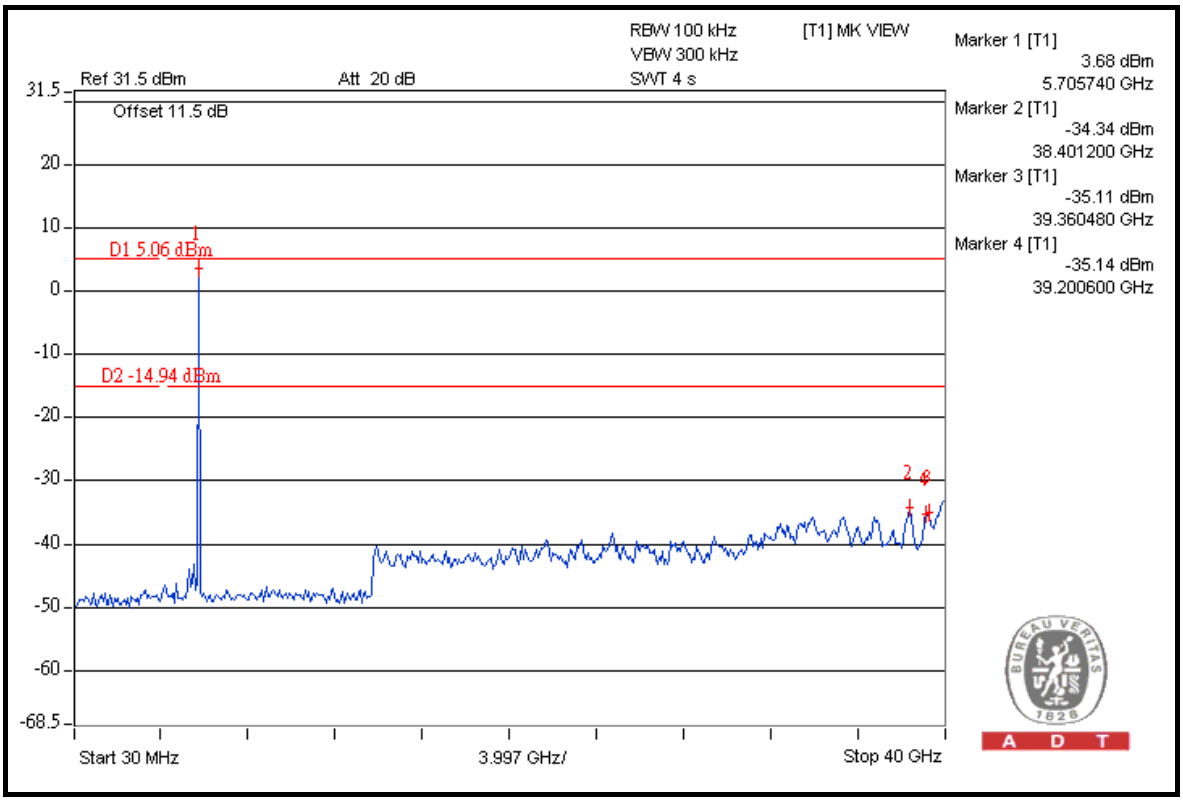

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
D1 0.43 dBm
D2 -19.57 dBm
Center 5.864 GHz
10 MHz/
Span 100 MHz
Marker 1 [T1]
0.43 dBm
5.818400 GHz
Marker 2 [T1]
-45.13 dBm
5.850000 GHz
Delta 3 [T1]
-45.56 dB
31.600000 MHz

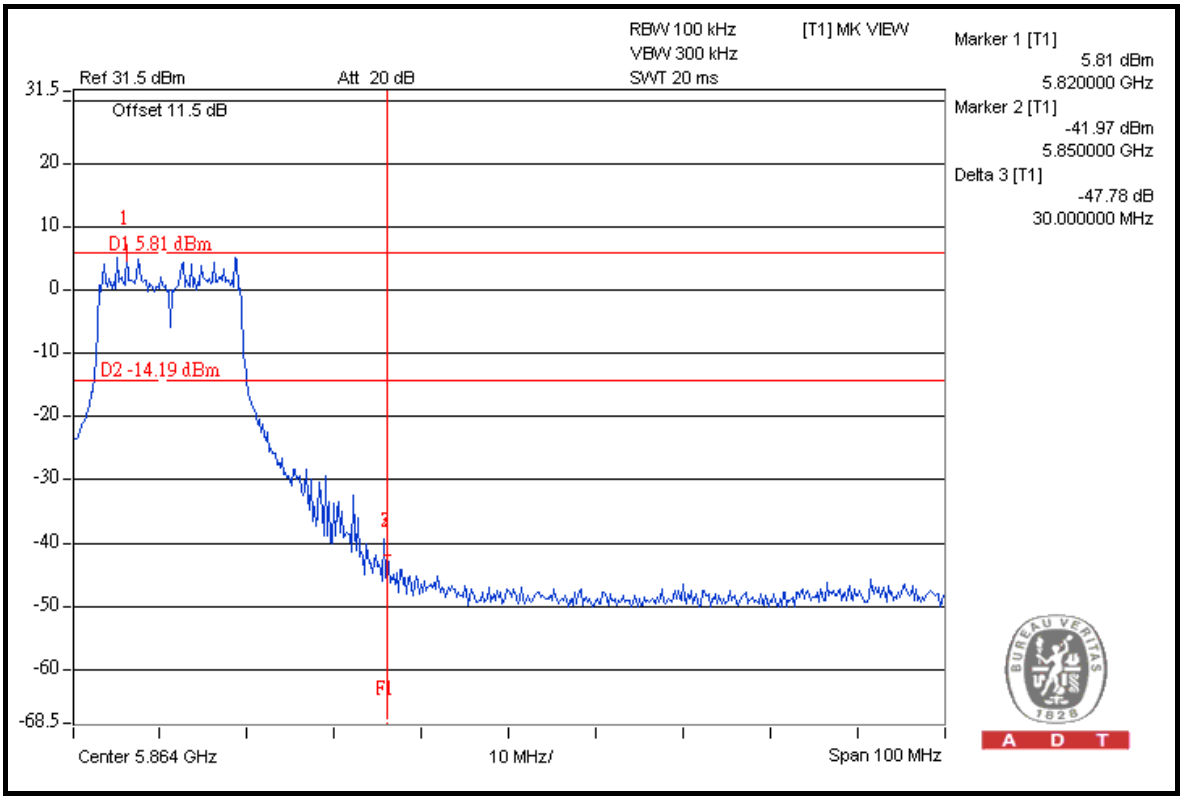

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
D1 5.95 dBm
D2 -14.05 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz
Marker 1 [T1]
3.65 dBm
5.785680 GHz
Marker 2 [T1]
-34.82 dBm
35.363480 GHz
Marker 3 [T1]
-35.14 dBm
33.364980 GHz
Marker 4 [T1]
-35.90 dBm
5.465920 GHz

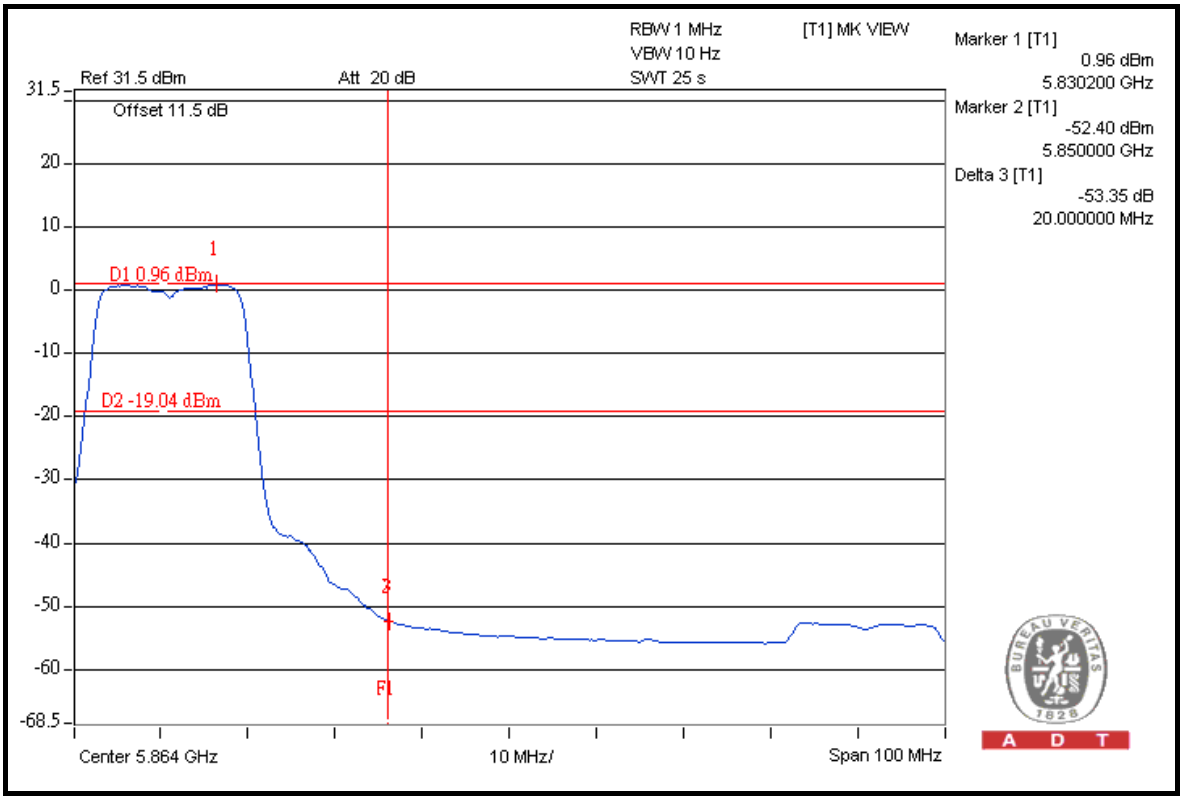
## CHAIN 2

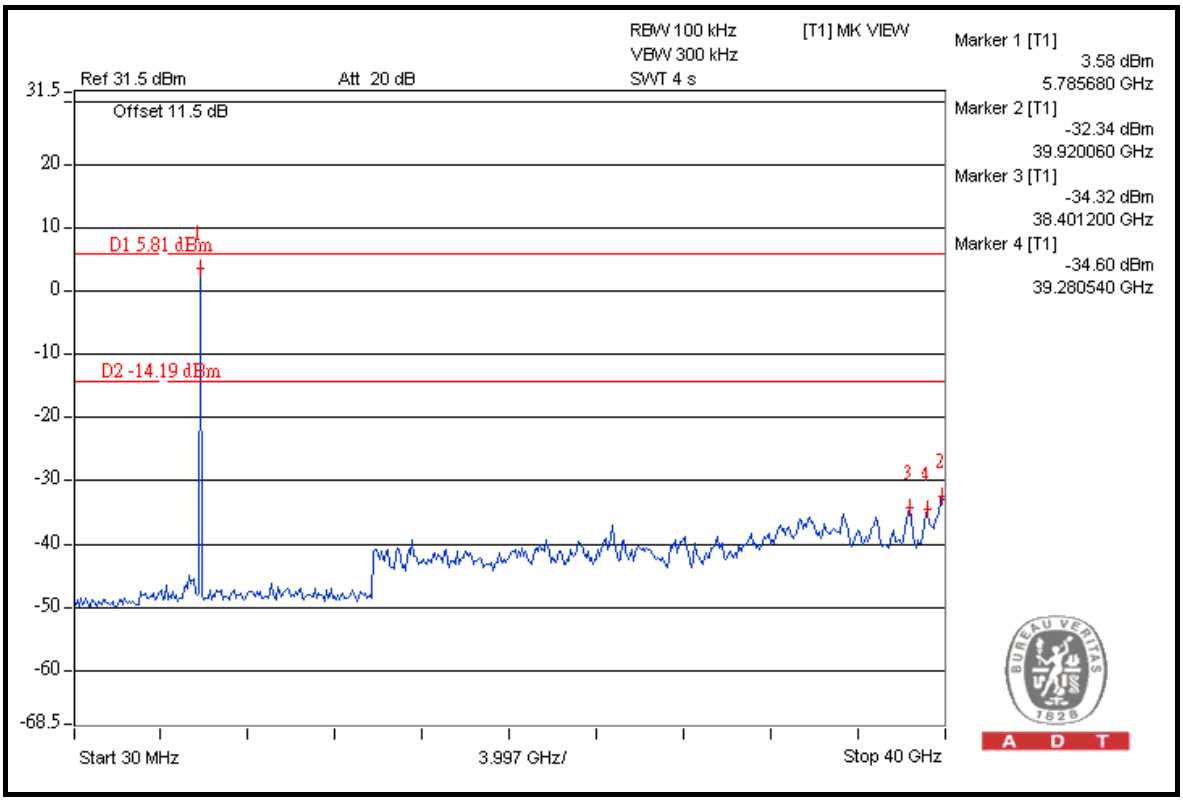

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
Marker 1 [T1]
5.06 dBm
5.738800 GHz
Marker 2 [T1]
-38.50 dBm
5.725000 GHz
Delta 3 [T1]
-42.21 dB
-15.400000 MHz
D1 5.06 dBm
D2 -14.94 dBm
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
Center 5.707 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
Marker 1 [T1]
0.67 dBm
5.738800 GHz
Marker 2 [T1]
-45.63 dBm
5.725000 GHz
Delta 3 [T1]
-46.30 dB
-13.800000 MHz
D1 0.67 dBm
D2 -19.33 dBm
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
Center 5.707 GHz
10 MHz/
Span 100 MHz


RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 5.06 dBm
D2 -14.94 dBm
Marker 1 [T1]
3.68 dBm
5.705740 GHz
Marker 2 [T1]
-34.34 dBm
38.401200 GHz
Marker 3 [T1]
-35.11 dBm
39.360480 GHz
Marker 4 [T1]
-35.14 dBm
39.200600 GHz
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

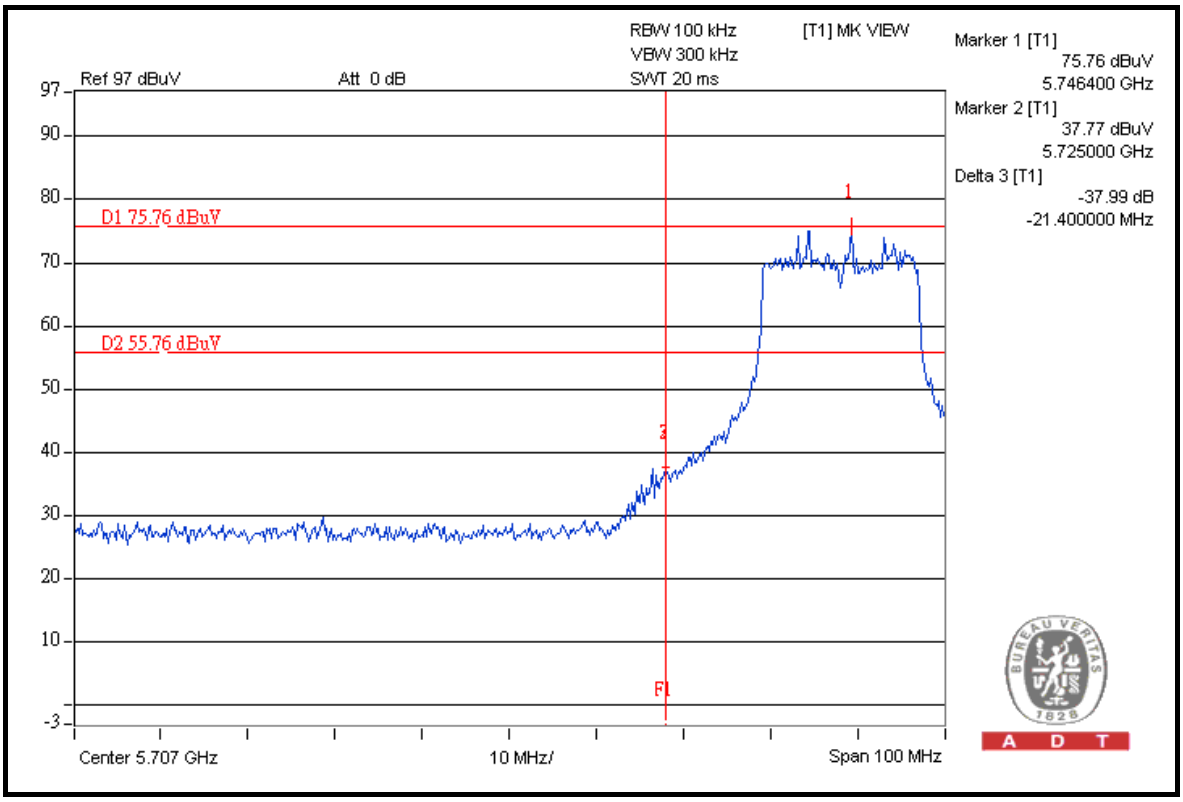

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 5.81 dBm
D2 -14.19 dBm
Marker 1 [T1]
5.81 dBm
5.820000 GHz
Marker 2 [T1]
-41.97 dBm
5.850000 GHz
Delta 3 [T1]
-47.78 dB
30.000000 MHz
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
Center 5.864 GHz
10 MHz/
Span 100 MHz

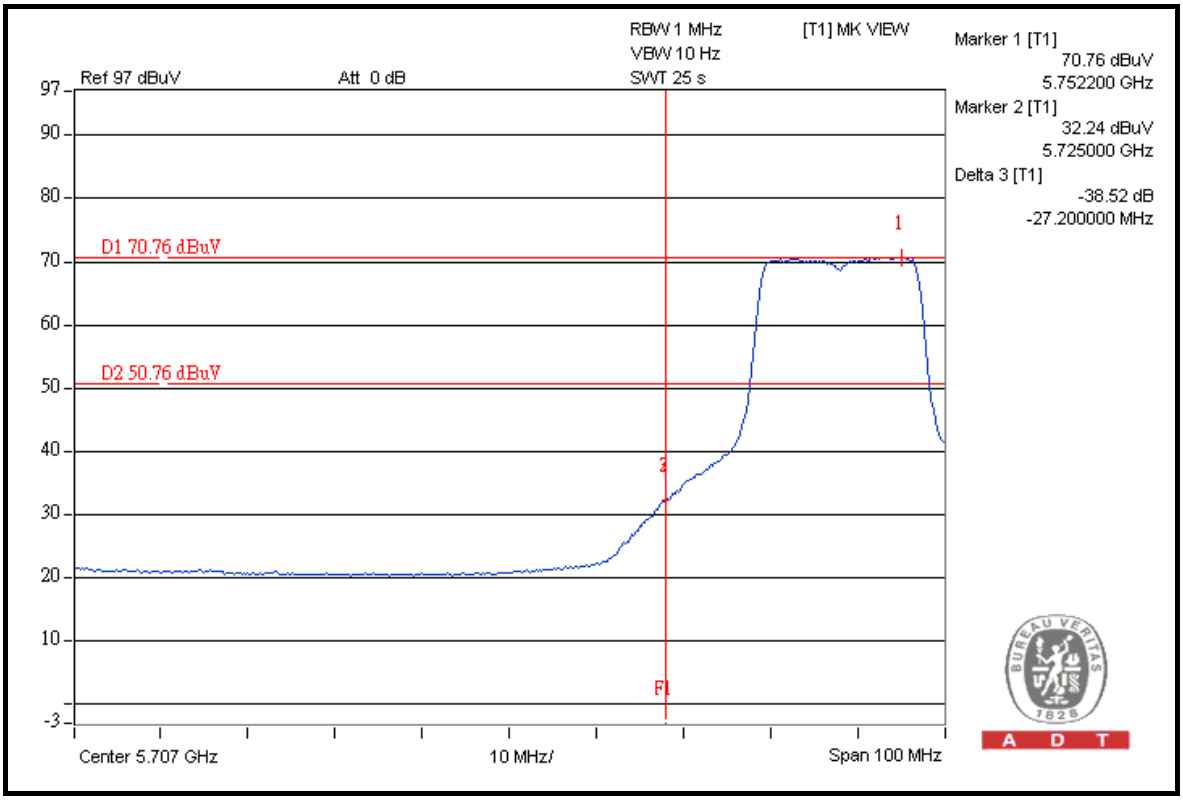

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 0.96 dBm
D2 -19.04 dBm
Center 5.864 GHz
10 MHz/
Span 100 MHz
Marker 1 [T1]
0.96 dBm
5.830200 GHz
Marker 2 [T1]
-52.40 dBm
5.850000 GHz
Delta 3 [T1]
-53.35 dB
20.000000 MHz

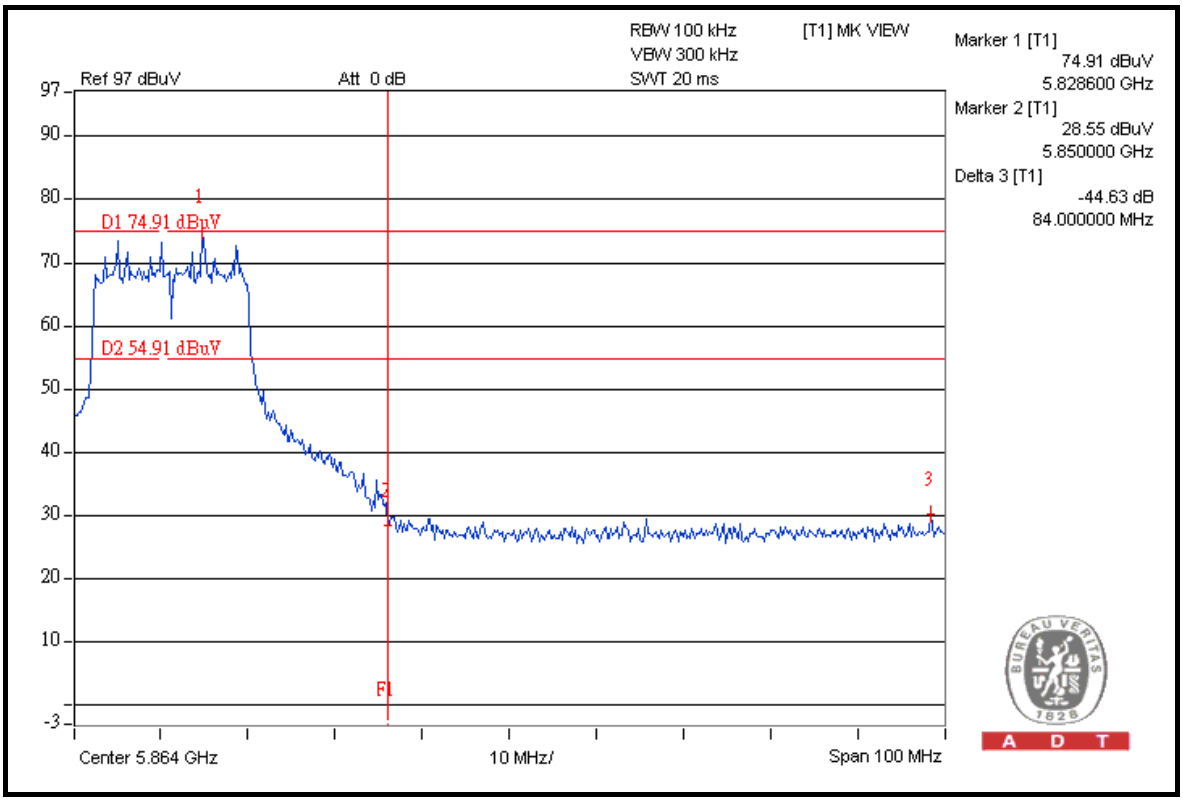

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 5.81 dBm
D2 -14.19 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz
Marker 1 [T1]
3.58 dBm
5.785680 GHz
Marker 2 [T1]
-32.34 dBm
39.920060 GHz
Marker 3 [T1]
-34.32 dBm
38.401200 GHz
Marker 4 [T1]
-34.60 dBm
39.280540 GHz

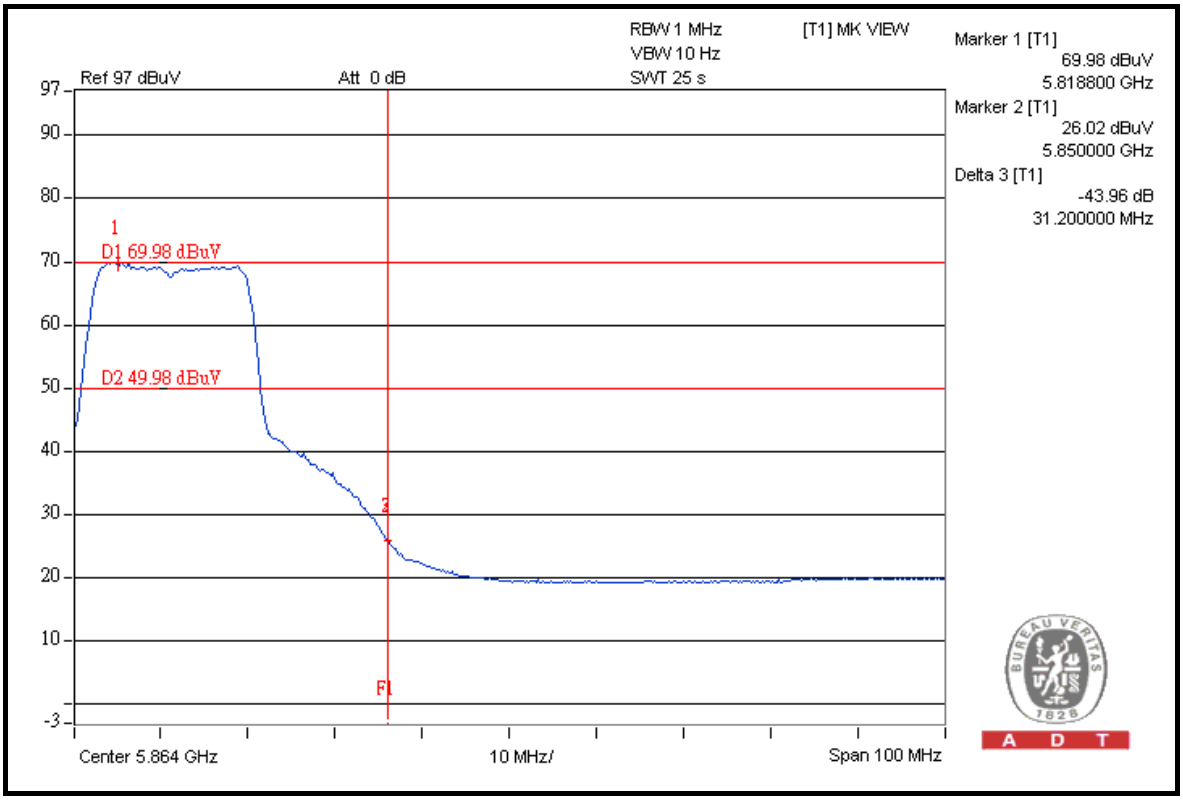
## 802.11n (20MHz)

### FOR RADIATED MEASURED (THREE CHAINS ON)



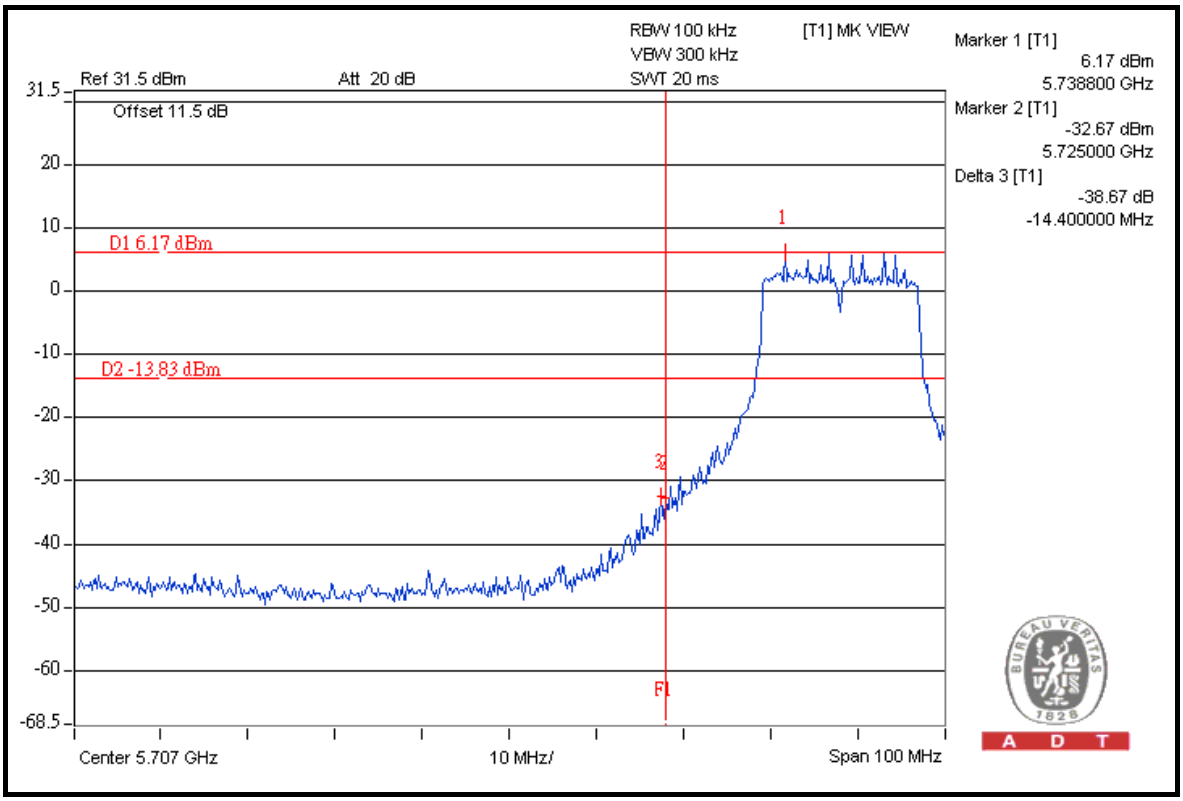



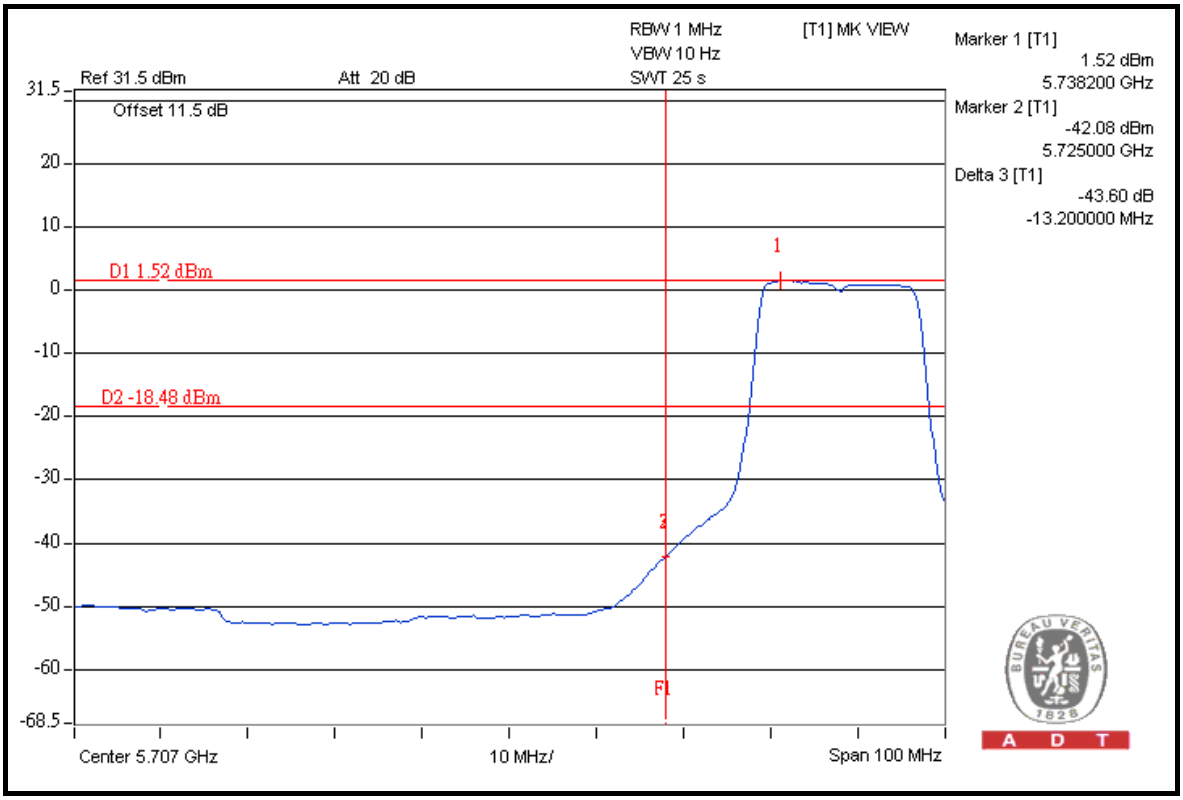

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
74.91 dBuV
5.828600 GHz
Marker 2 [T1]
28.55 dBuV
5.850000 GHz
Delta 3 [T1]
-44.63 dB
84.000000 MHz
D1 74.91 dBuV
D2 54.91 dBuV
Center 5.864 GHz
10 MHz/
Span 100 MHz

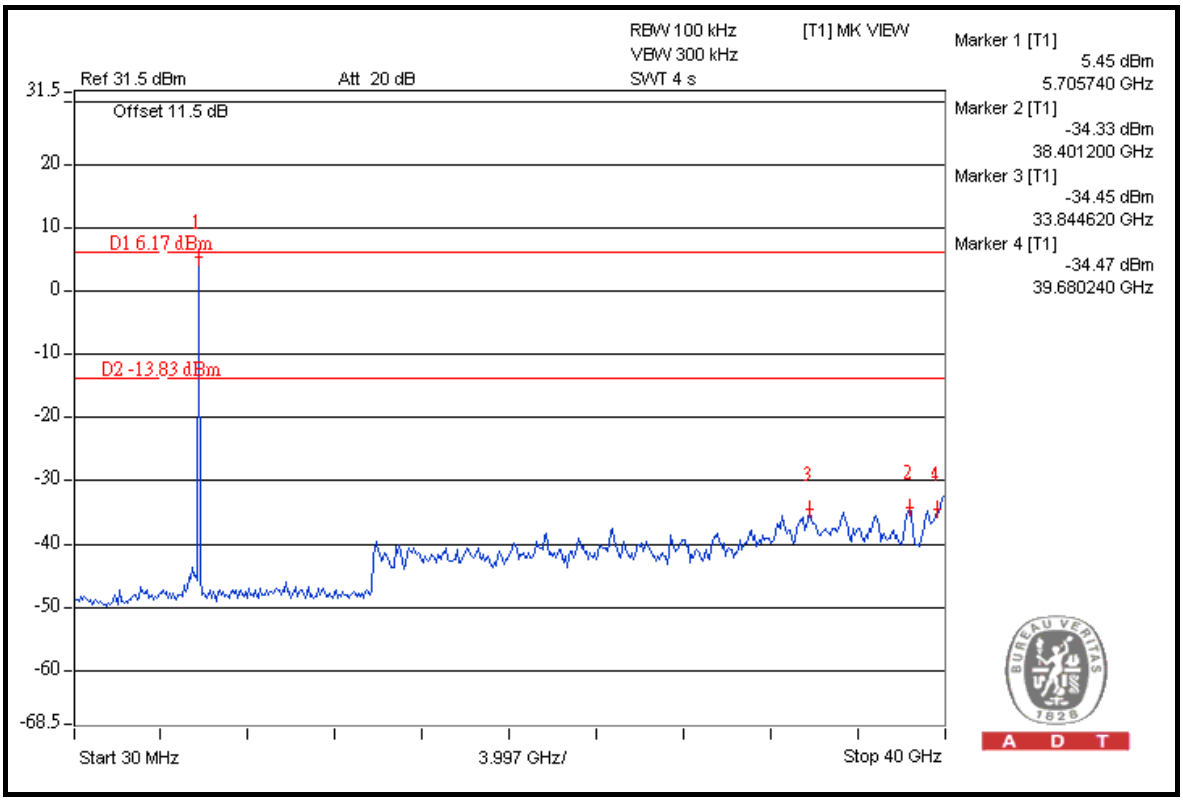

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
69.98 dBuV
5.818800 GHz
Marker 2 [T1]
26.02 dBuV
5.850000 GHz
Delta 3 [T1]
-43.96 dB
31.200000 MHz
D1 69.98 dBuV
D2 49.98 dBuV
Center 5.864 GHz
10 MHz/
Span 100 MHz

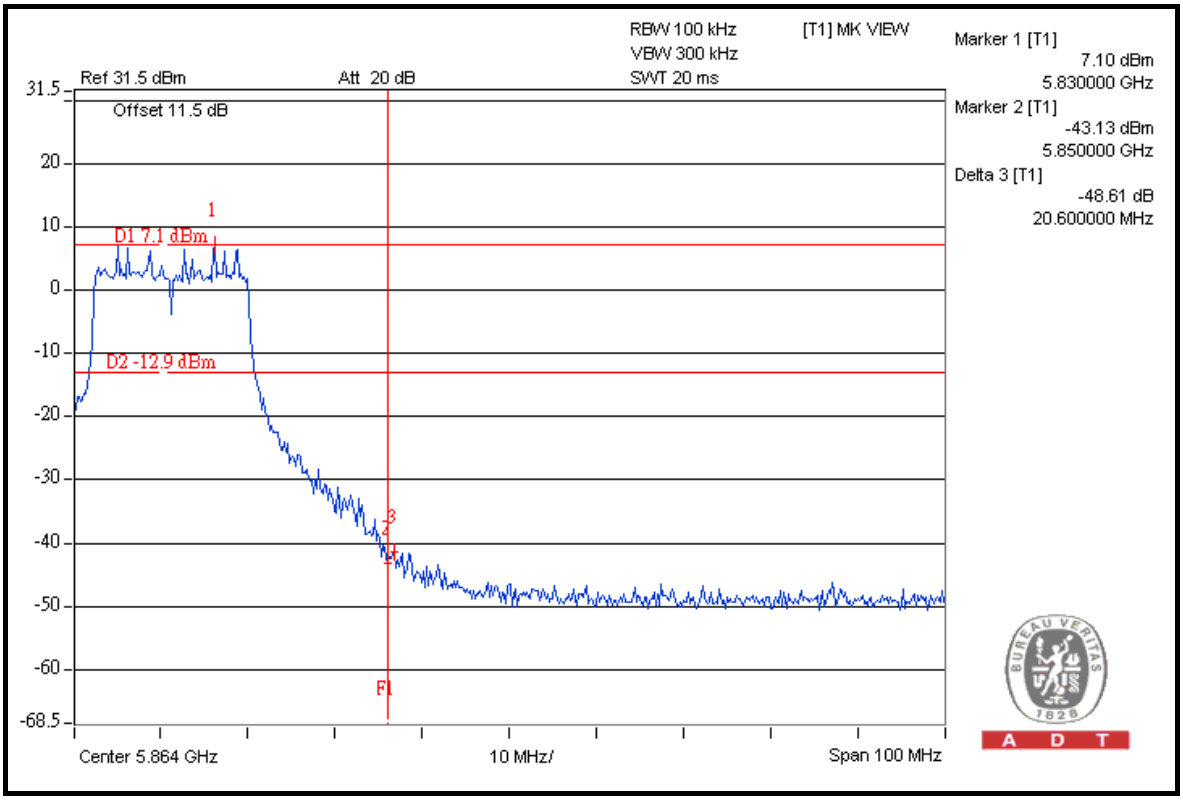
## FOR CONDUCTED MEASURED

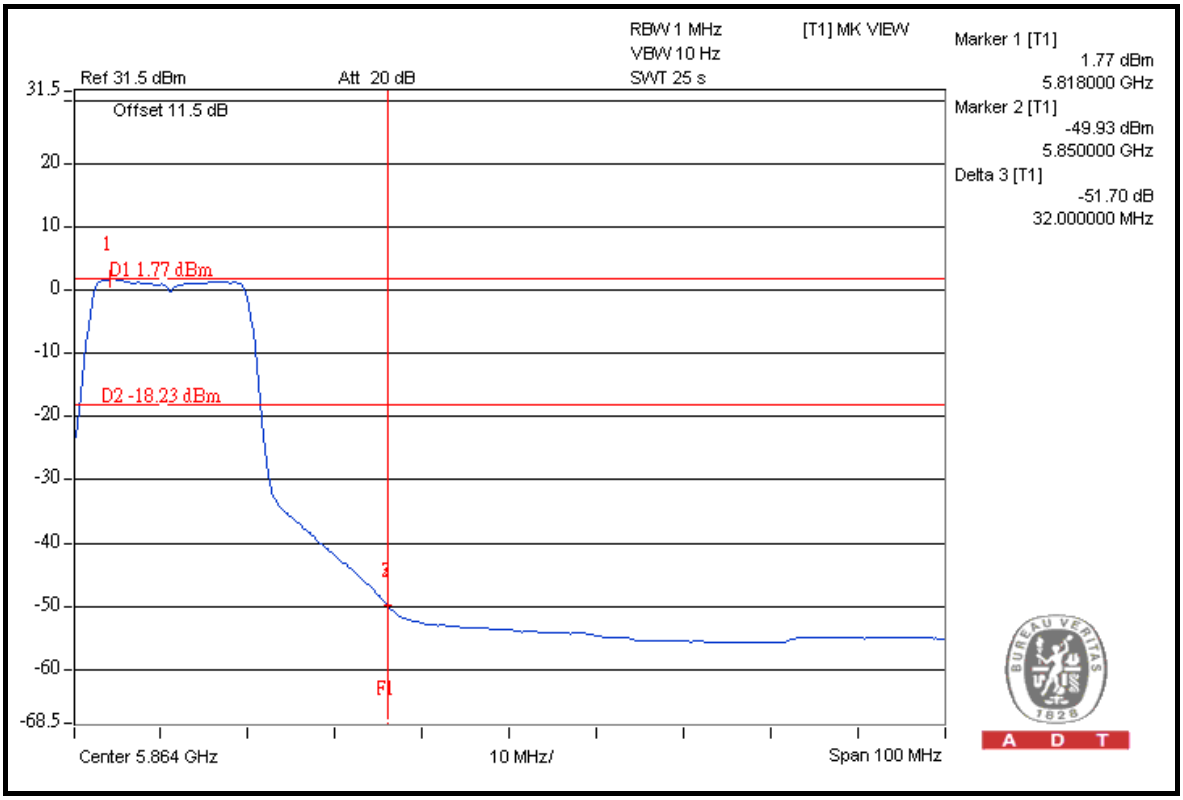
### CHAIN 0

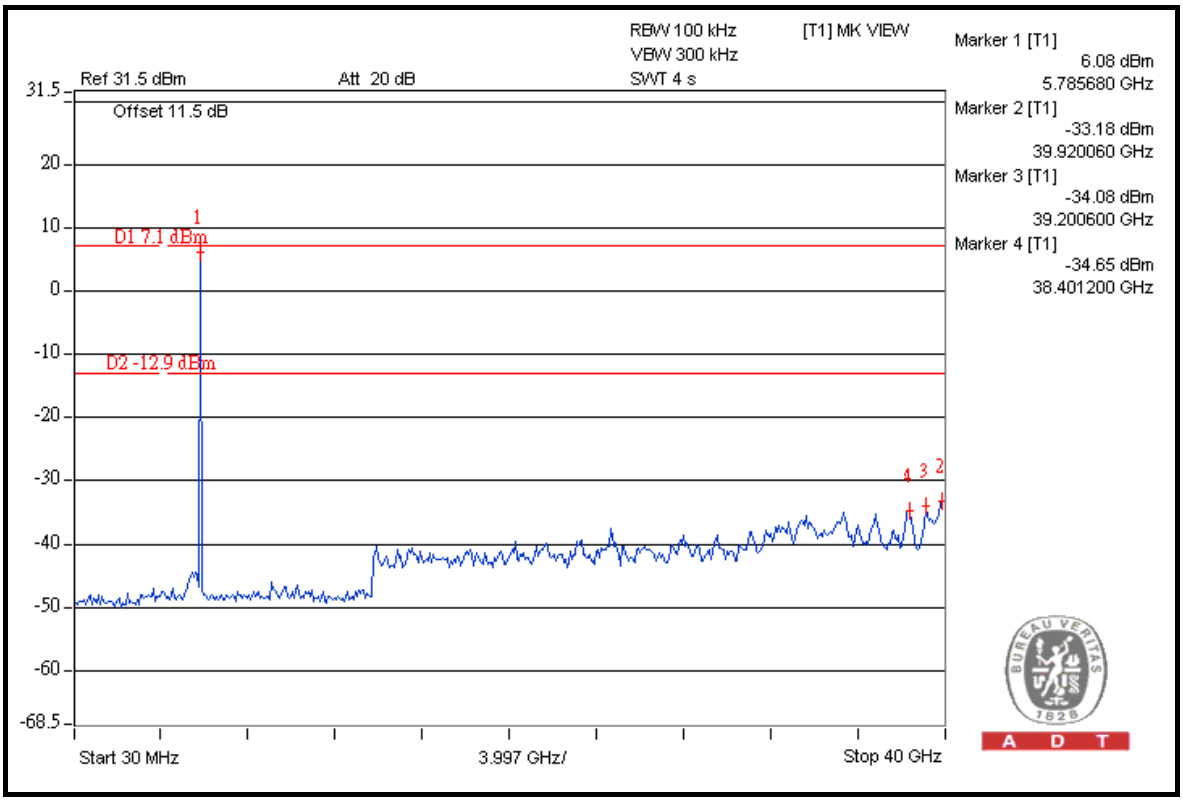


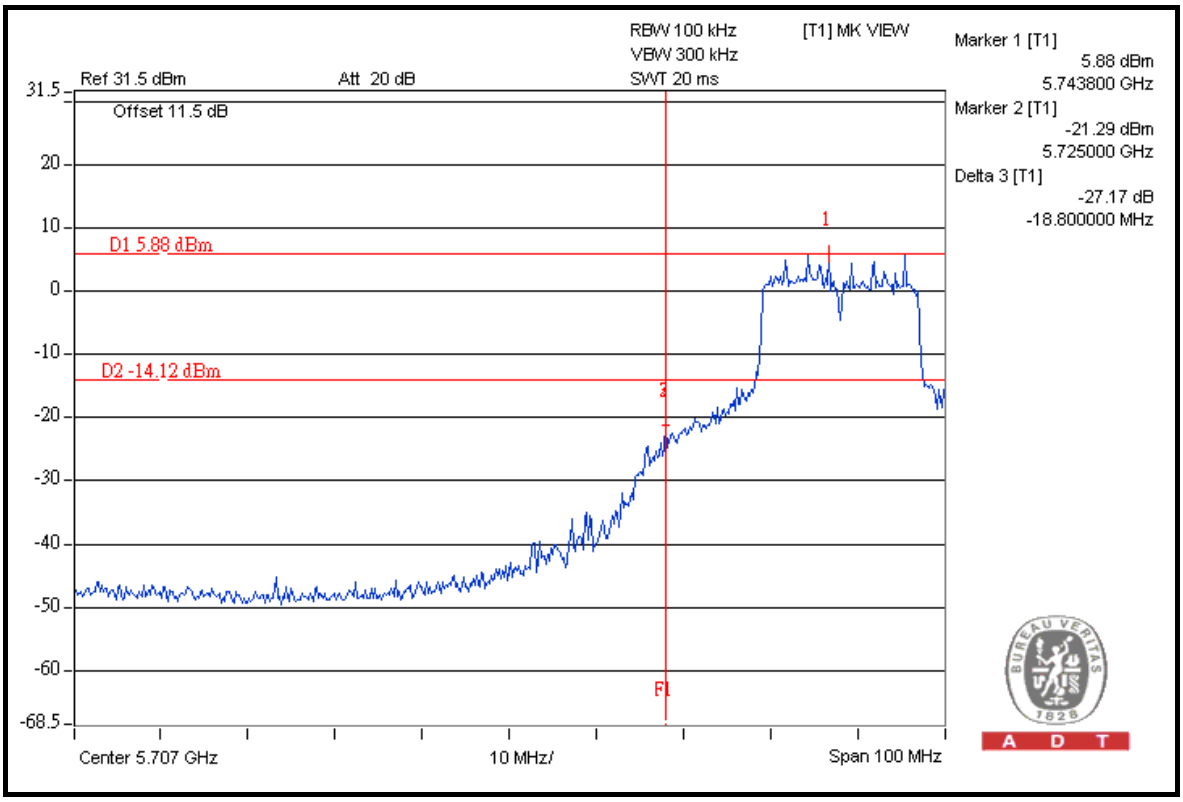

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 6.17 dBm
D2 -13.83 dBm
Marker 1 [T1]
5.45 dBm
5.705740 GHz
Marker 2 [T1]
-34.33 dBm
38.401200 GHz
Marker 3 [T1]
-34.45 dBm
33.844620 GHz
Marker 4 [T1]
-34.47 dBm
39.680240 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz

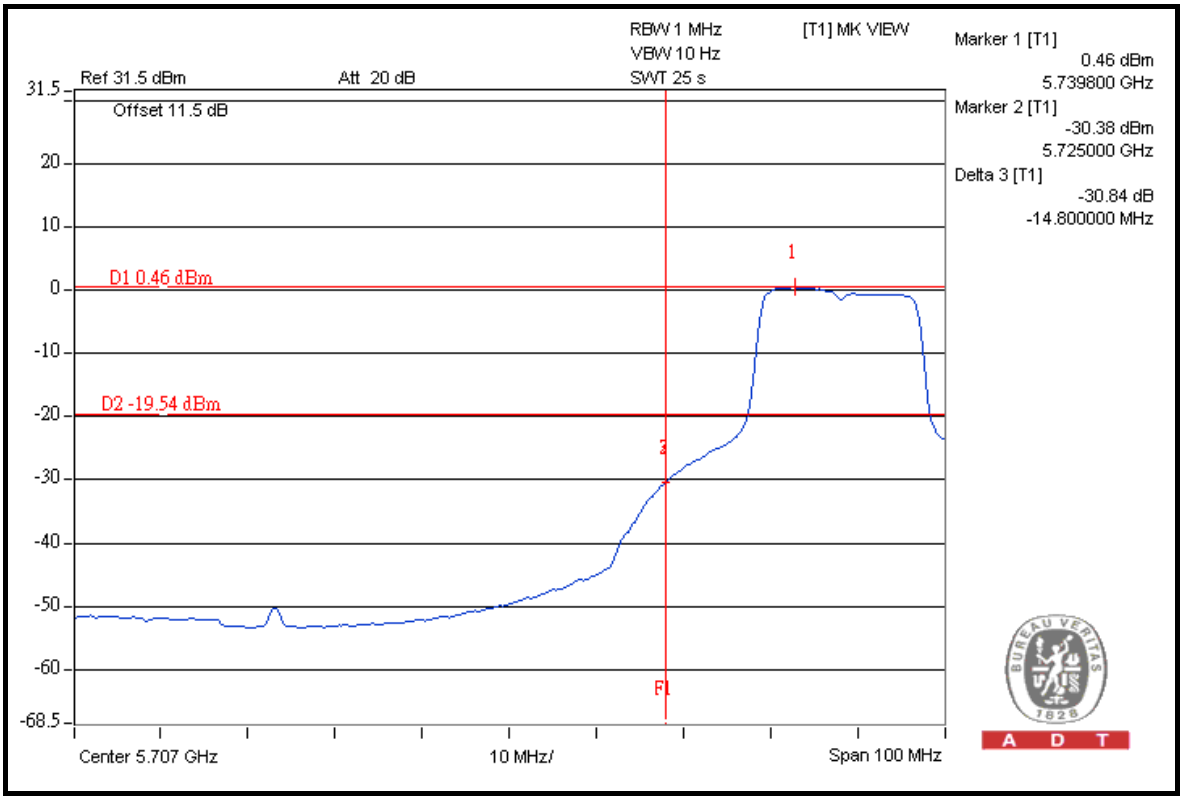

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 7.1 dBm
D2 -12.9 dBm
Marker 1 [T1]
7.10 dBm
5.830000 GHz
Marker 2 [T1]
-43.13 dBm
5.850000 GHz
Delta 3 [T1]
-48.61 dB
20.600000 MHz
Center 5.864 GHz
10 MHz/
Span 100 MHz

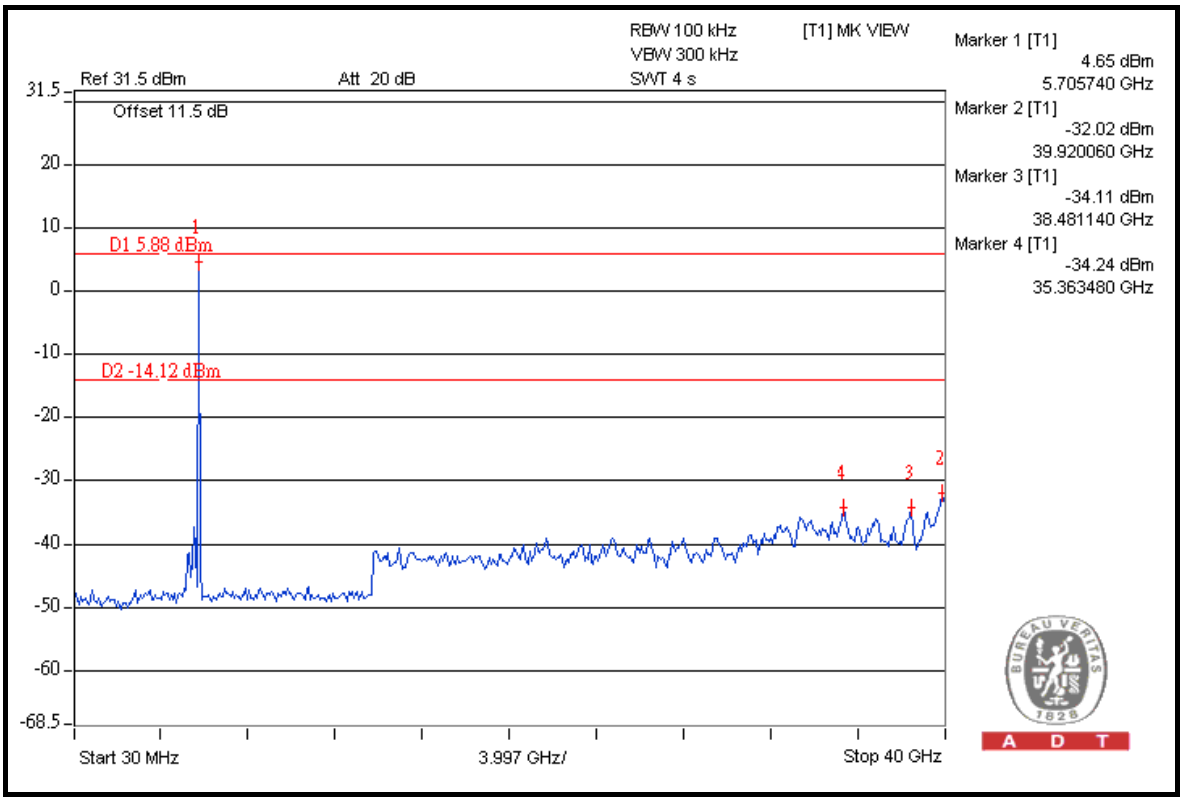

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 1.77 dBm
D2 -18.23 dBm
Marker 1 [T1]
1.77 dBm
5.818000 GHz
Marker 2 [T1]
-49.93 dBm
5.850000 GHz
Delta 3 [T1]
-51.70 dB
32.000000 MHz
Center 5.864 GHz
10 MHz/
Span 100 MHz

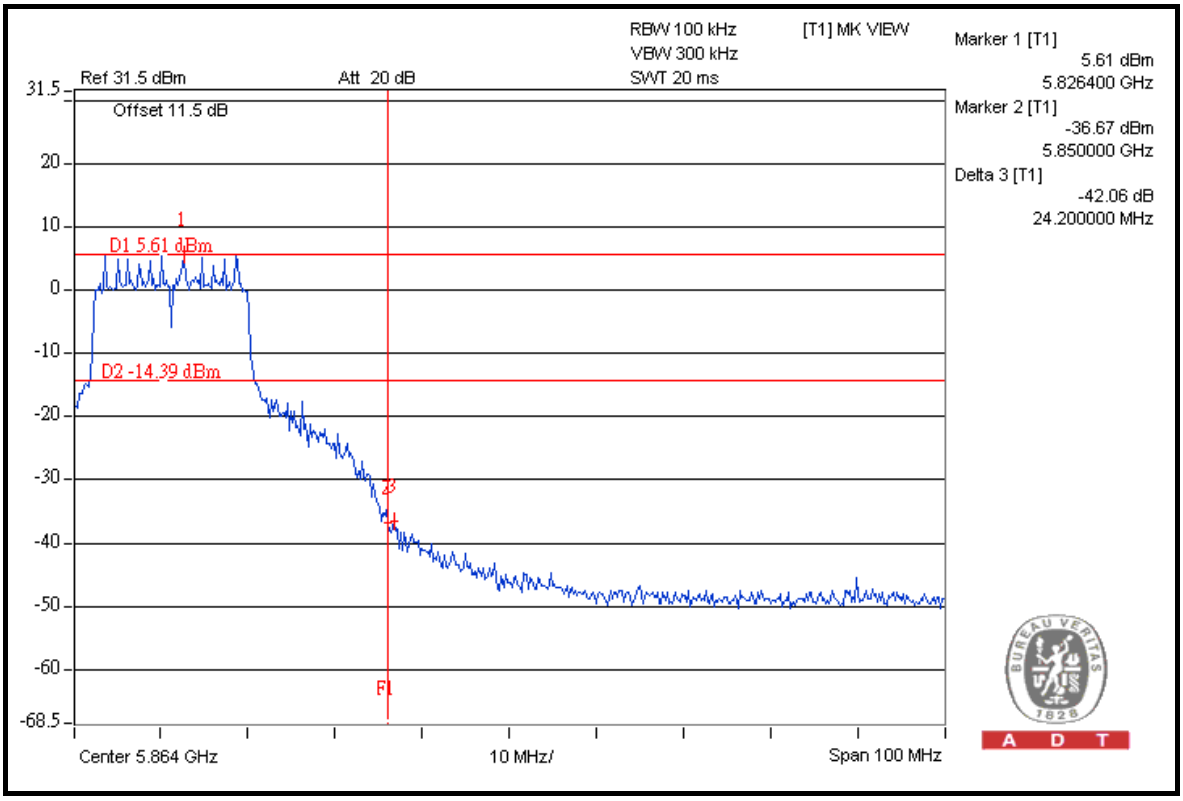

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 7.1 dBm
D2 -12.9 dBm
Marker 1 [T1]
6.08 dBm
5.785680 GHz
Marker 2 [T1]
-33.18 dBm
39.920060 GHz
Marker 3 [T1]
-34.08 dBm
39.200600 GHz
Marker 4 [T1]
-34.65 dBm
38.401200 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz

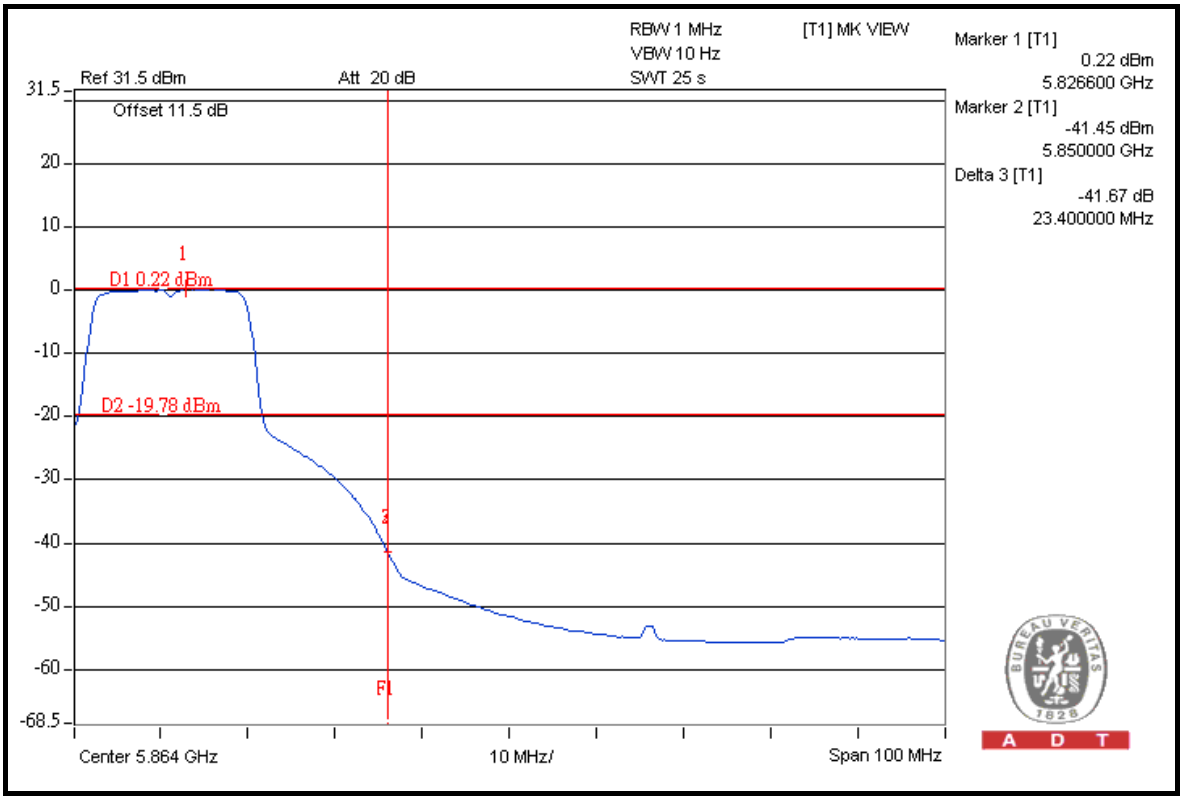
## CHAIN 1

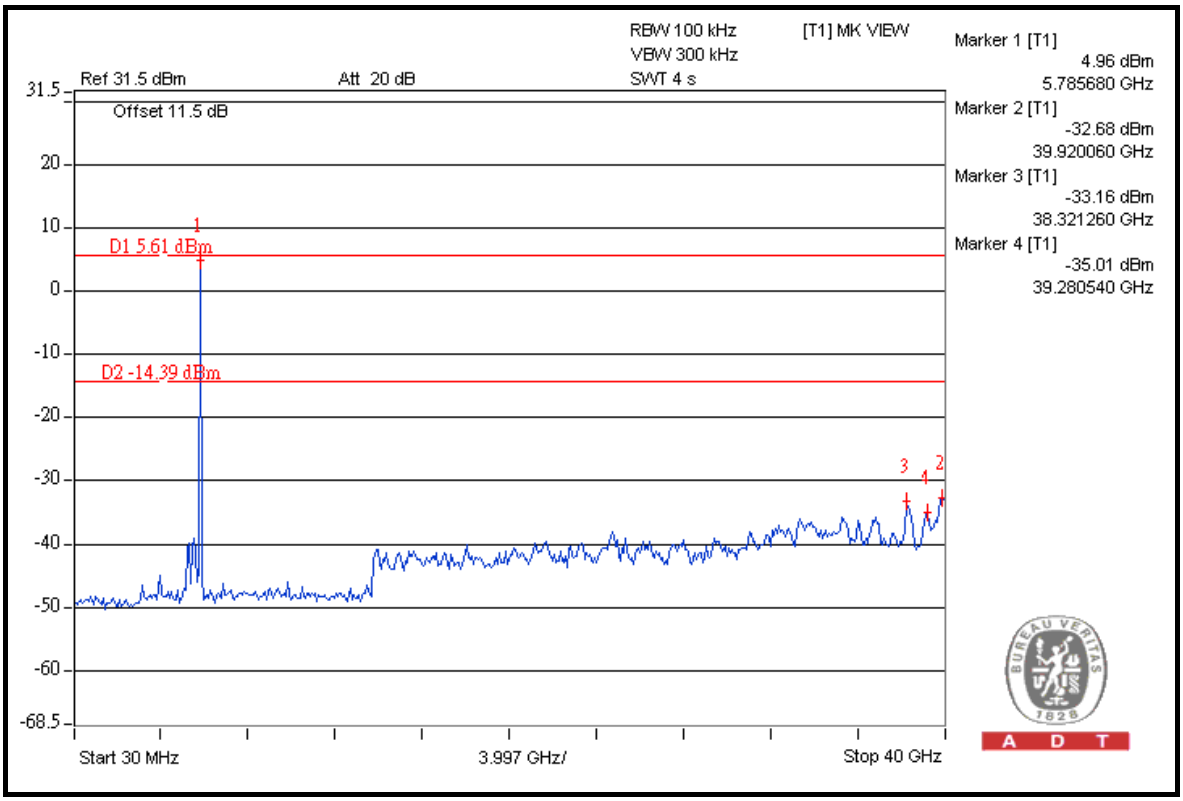

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 5.88 dBm
D2 -14.12 dBm
Marker 1 [T1]
5.88 dBm
5.743800 GHz
Marker 2 [T1]
-21.29 dBm
5.725000 GHz
Delta 3 [T1]
-27.17 dB
-18.800000 MHz
Center 5.707 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 0.46 dBm
D2 -19.54 dBm
Marker 1 [T1]
0.46 dBm
5.739800 GHz
Marker 2 [T1]
-30.38 dBm
5.725000 GHz
Delta 3 [T1]
-30.84 dB
-14.800000 MHz
Center 5.707 GHz
10 MHz/
Span 100 MHz

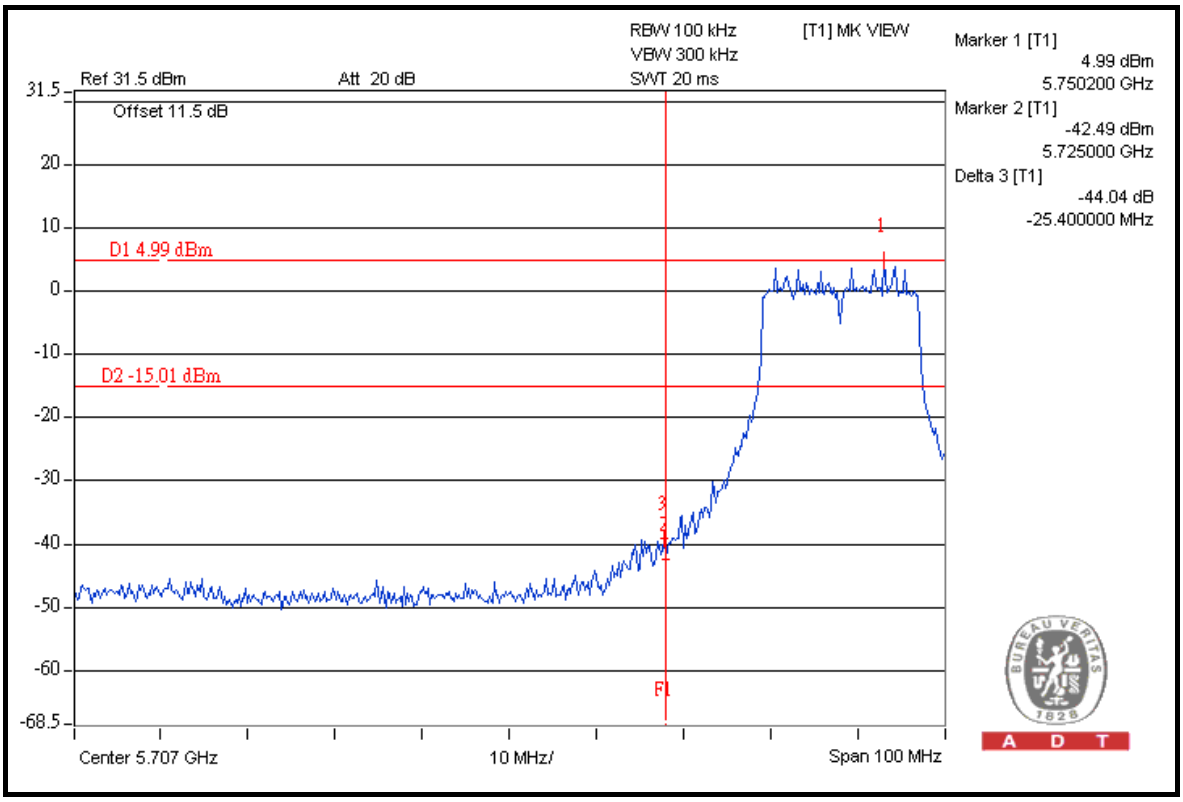

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 5.88 dBm
D2 -14.12 dBm
Marker 1 [T1]
4.65 dBm
5.705740 GHz
Marker 2 [T1]
-32.02 dBm
39.920060 GHz
Marker 3 [T1]
-34.11 dBm
38.481140 GHz
Marker 4 [T1]
-34.24 dBm
35.363480 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz

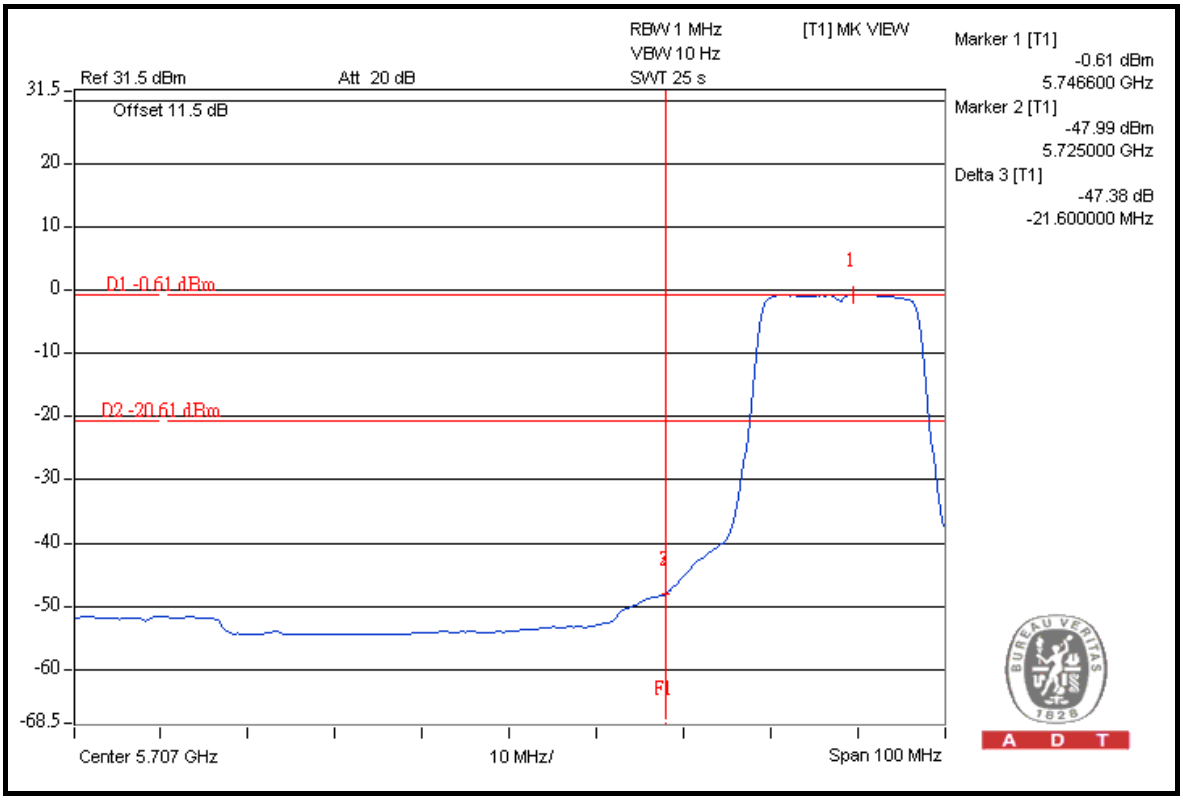

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 5.61 dBm
D2 -14.39 dBm
Marker 1 [T1]
5.61 dBm
5.826400 GHz
Marker 2 [T1]
-36.67 dBm
5.850000 GHz
Delta 3 [T1]
-42.06 dB
24.200000 MHz
Center 5.864 GHz
10 MHz/
Span 100 MHz

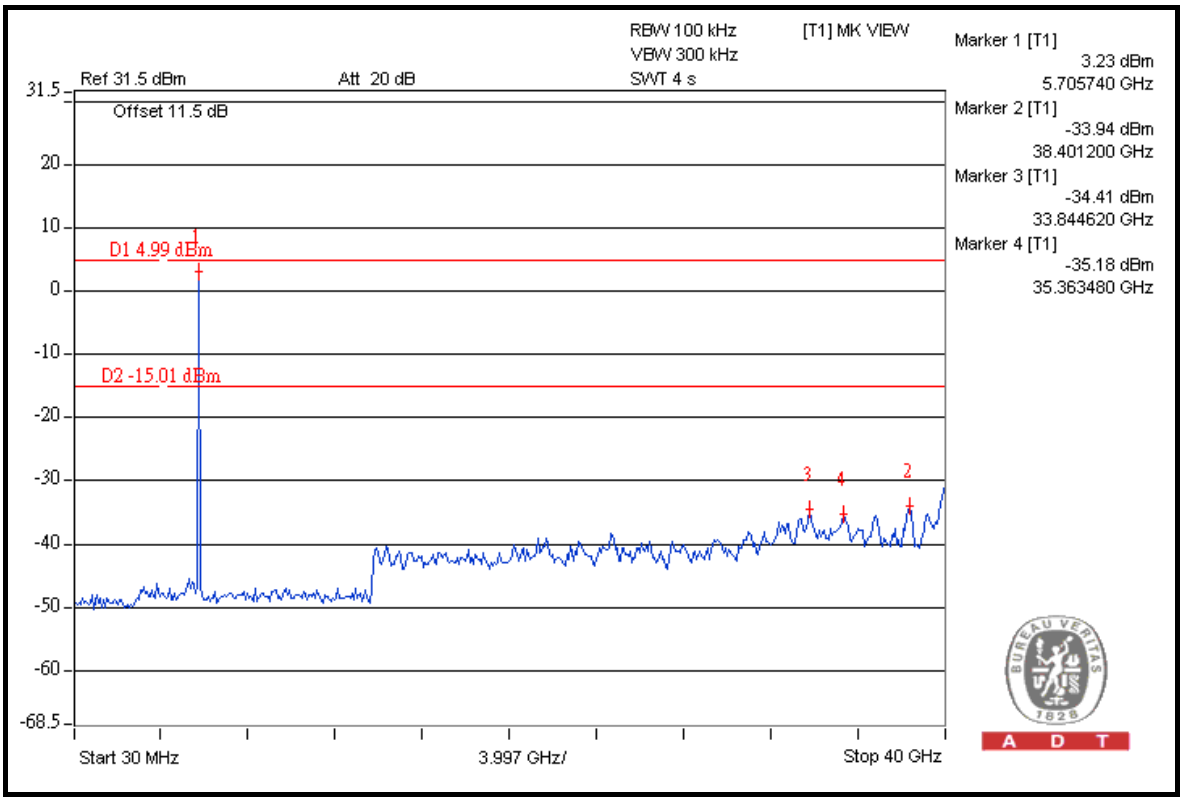

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
D1 0.22 dBm
D2 -19.78 dBm
Center 5.864 GHz
10 MHz/
Span 100 MHz
Marker 1 [T1]
0.22 dBm
5.826600 GHz
Marker 2 [T1]
-41.45 dBm
5.850000 GHz
Delta 3 [T1]
-41.67 dB
23.400000 MHz

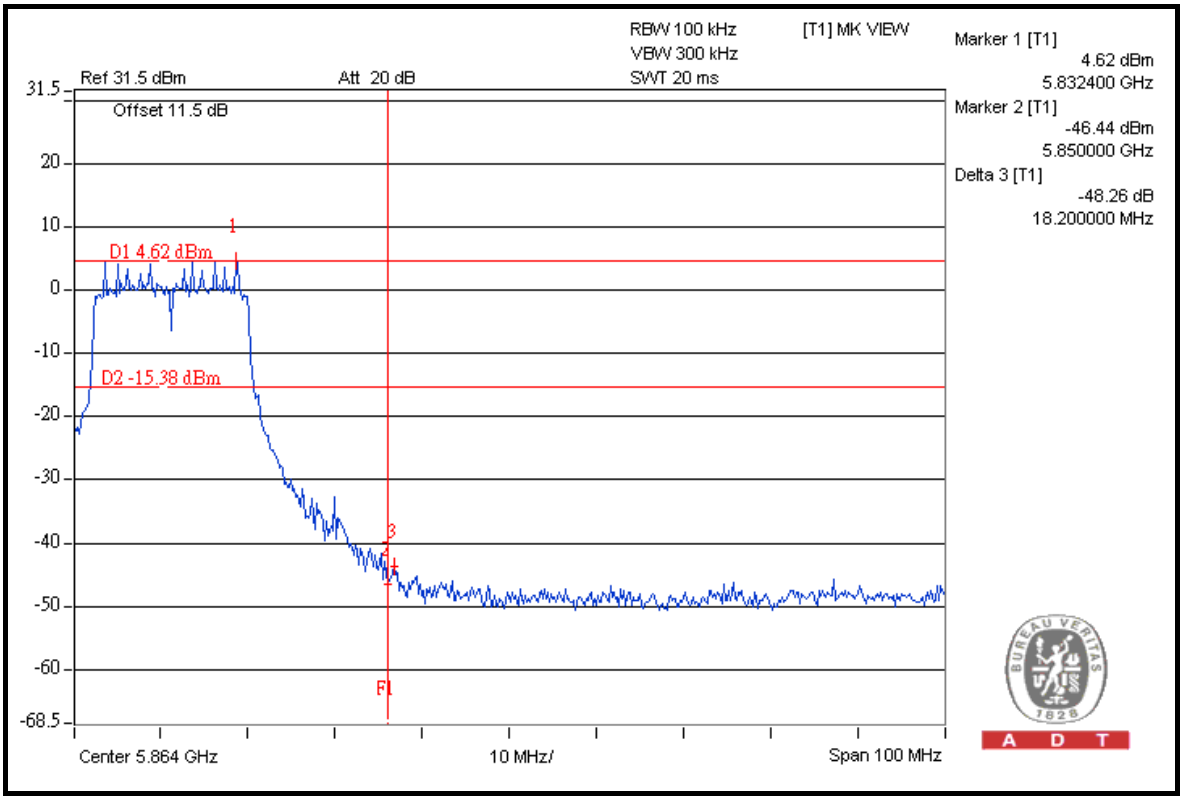

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
D1 5.61 dBm
D2 -14.39 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz
Marker 1 [T1]
4.96 dBm
5.785680 GHz
Marker 2 [T1]
-32.68 dBm
39.920060 GHz
Marker 3 [T1]
-33.16 dBm
38.321260 GHz
Marker 4 [T1]
-35.01 dBm
39.280540 GHz

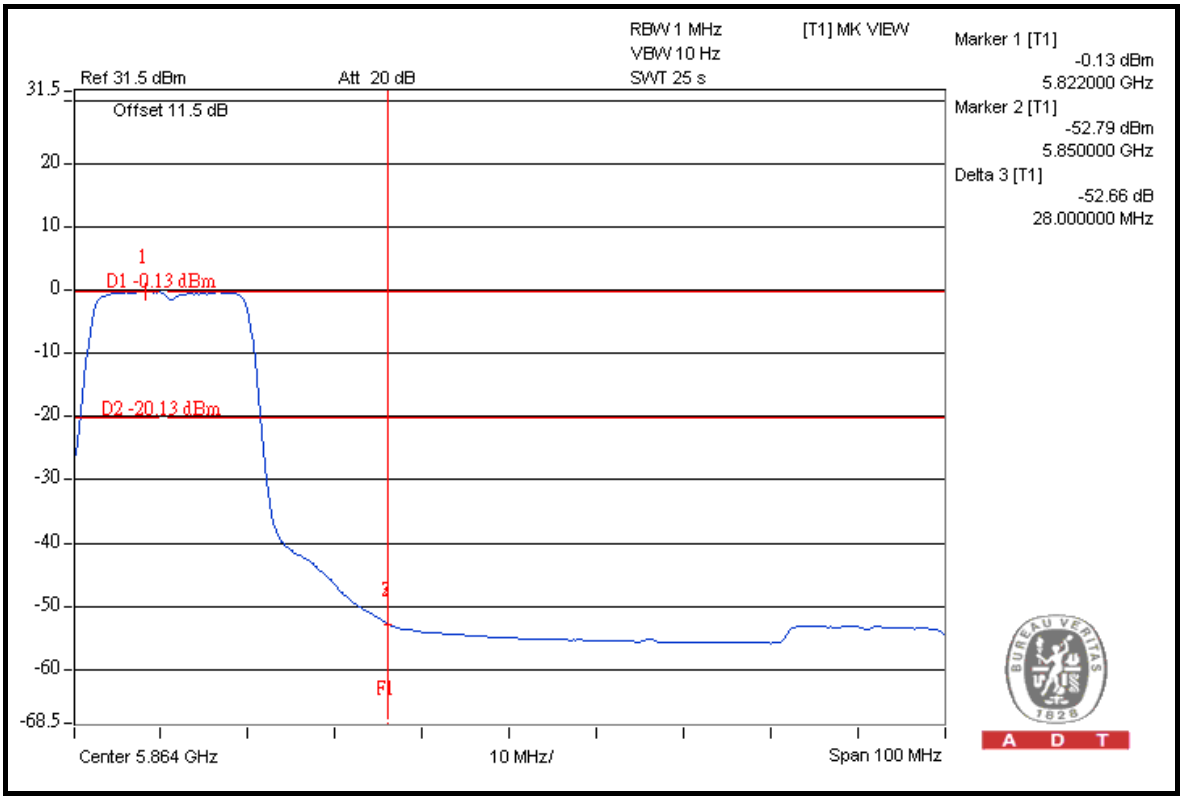
## CHAIN 2

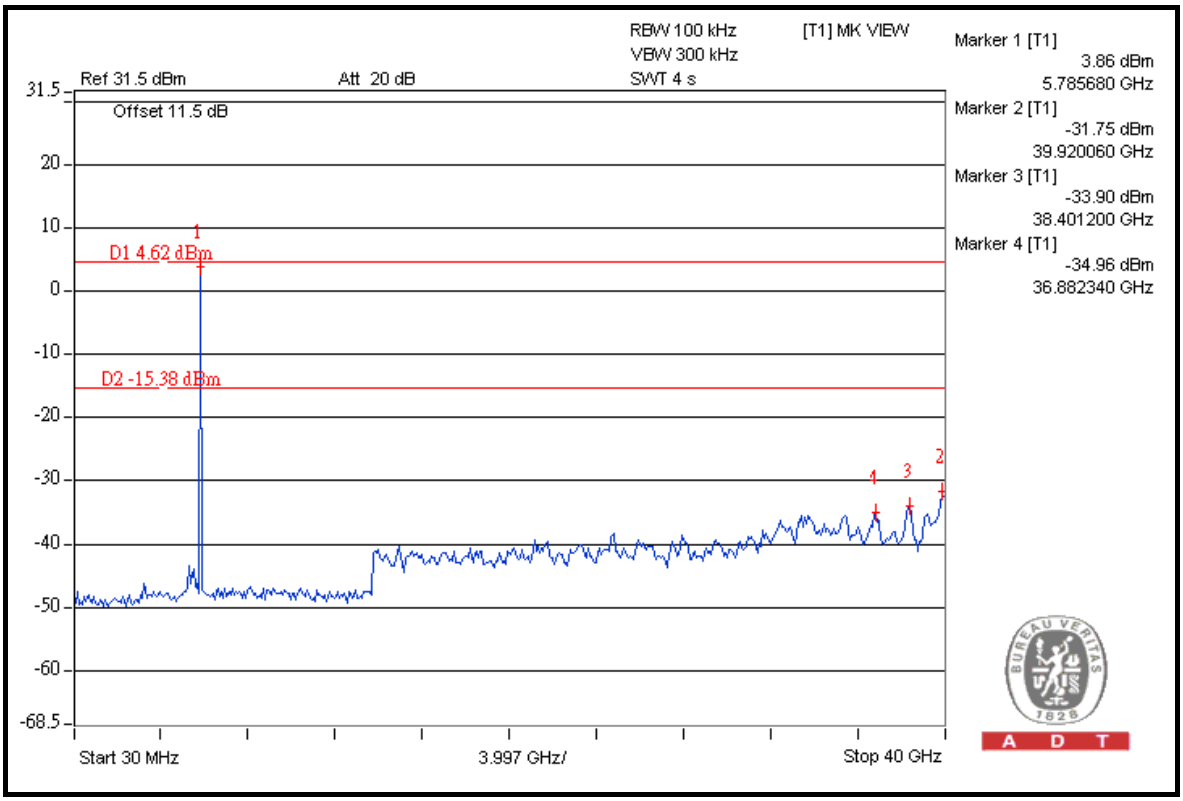

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
Marker 1 [T1]
4.99 dBm
5.750200 GHz
Marker 2 [T1]
-42.49 dBm
5.725000 GHz
Delta 3 [T1]
-44.04 dB
-25.400000 MHz
D1 4.99 dBm
D2 -15.01 dBm
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
Center 5.707 GHz
10 MHz/
Span 100 MHz


RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
Marker 1 [T1]
-0.61 dBm
5.746600 GHz
Marker 2 [T1]
-47.99 dBm
5.725000 GHz
Delta 3 [T1]
-47.38 dB
-21.600000 MHz
D1 -0.61 dBm
D2 -20.61 dBm
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
Center 5.707 GHz
10 MHz/
Span 100 MHz


RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 4.99 dBm
D2 -15.01 dBm
Marker 1 [T1]
3.23 dBm
5.705740 GHz
Marker 2 [T1]
-33.94 dBm
38.401200 GHz
Marker 3 [T1]
-34.41 dBm
33.844620 GHz
Marker 4 [T1]
-35.18 dBm
35.363480 GHz
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

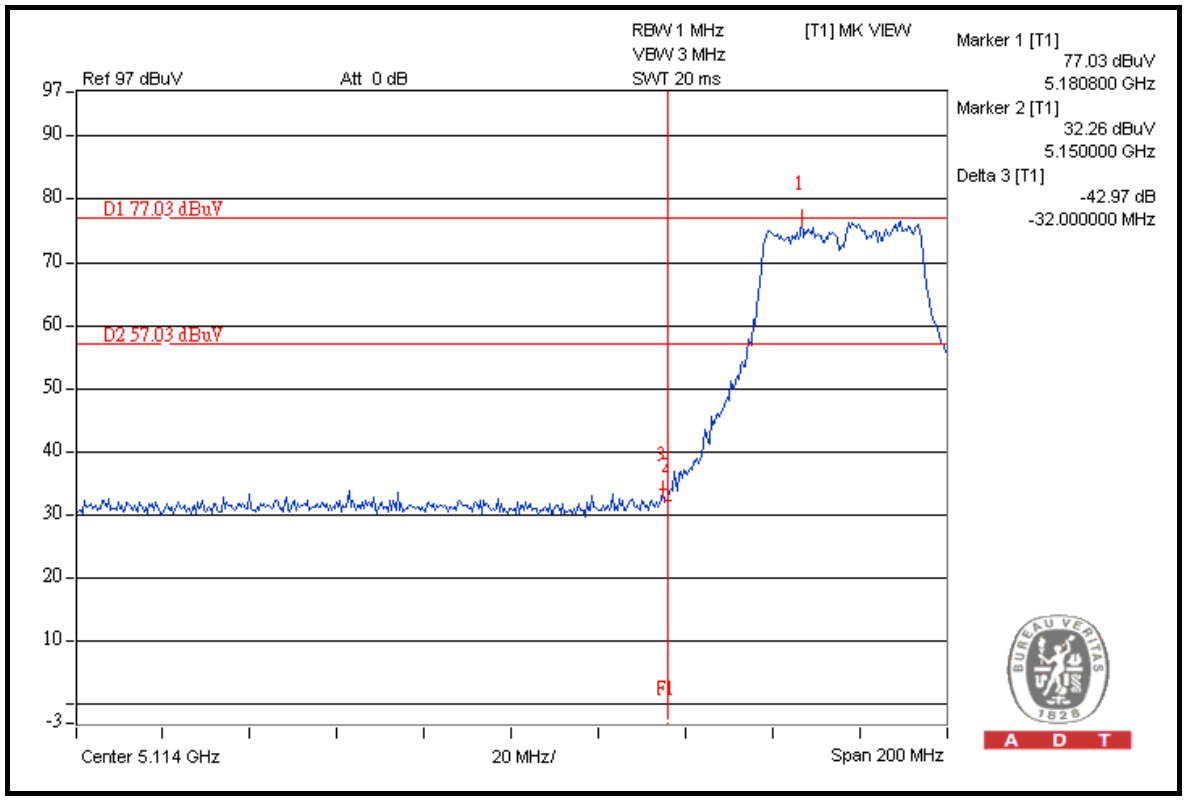

RBW 100 kHz
VBW 300 kHz
SWT 20 ms
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 4.62 dBm
D2 -15.38 dBm
Marker 1 [T1]
4.62 dBm
5.832400 GHz
Marker 2 [T1]
-46.44 dBm
5.850000 GHz
Delta 3 [T1]
-48.26 dB
18.200000 MHz
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
Center 5.864 GHz
10 MHz/
Span 100 MHz

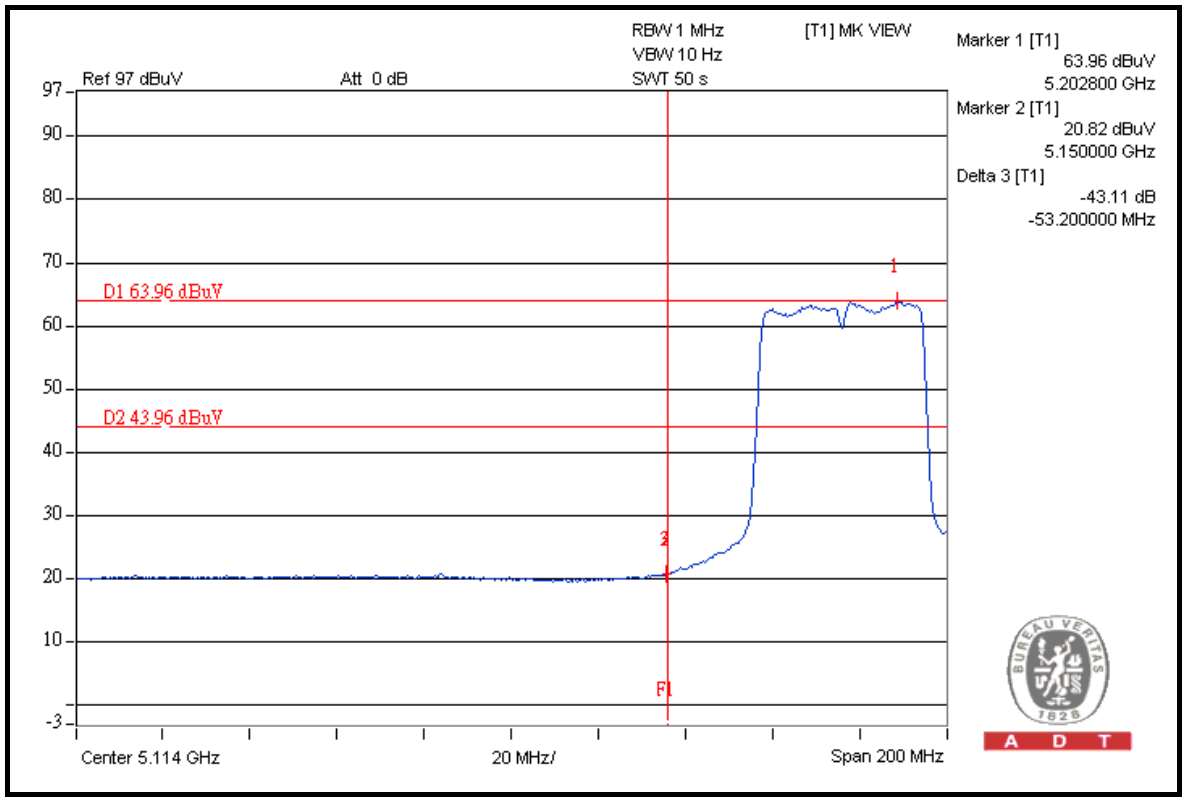

RBW 1 MHz
VBW 10 Hz
SWT 25 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
D1 -0.13 dBm
D2 -20.13 dBm
Center 5.864 GHz
10 MHz/
Span 100 MHz
Marker 1 [T1]
-0.13 dBm
5.822000 GHz
Marker 2 [T1]
-52.79 dBm
5.850000 GHz
Delta 3 [T1]
-52.66 dB
28.000000 MHz

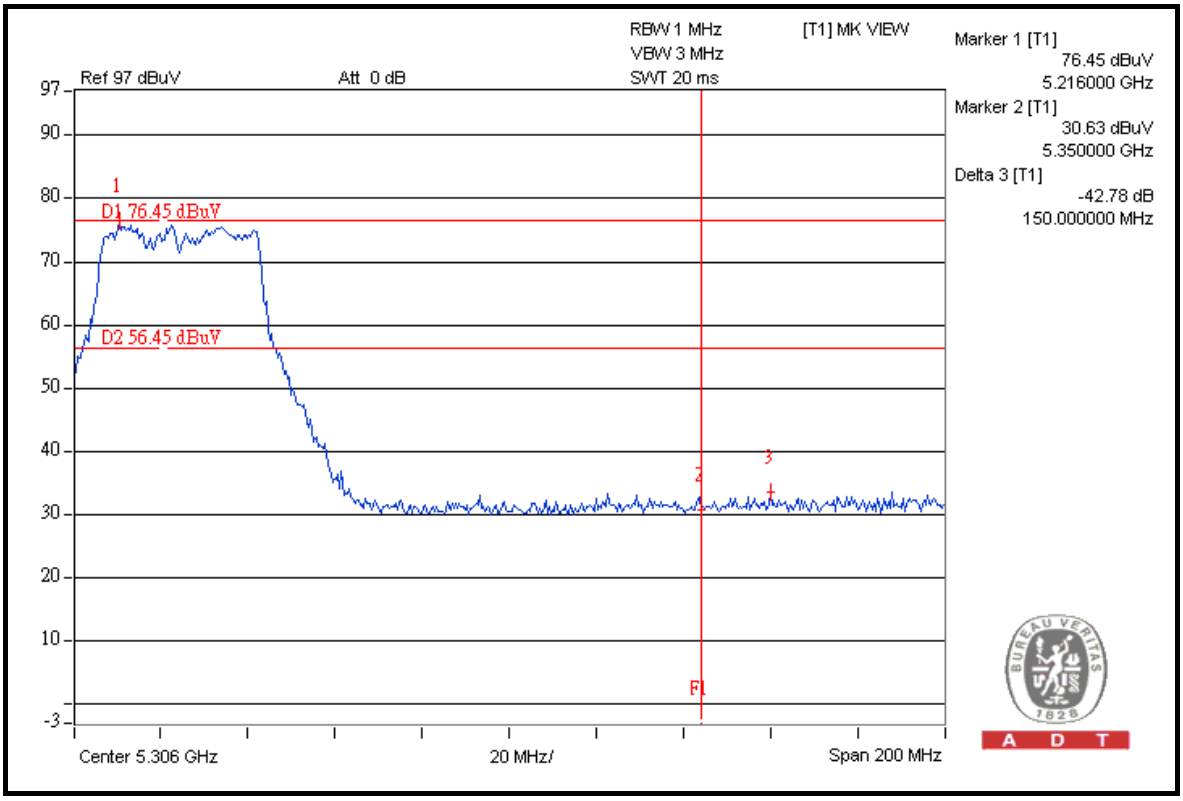

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
D1 4.62 dBm
D2 -15.38 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz
Marker 1 [T1]
3.86 dBm
5.785680 GHz
Marker 2 [T1]
-31.75 dBm
39.920060 GHz
Marker 3 [T1]
-33.90 dBm
38.401200 GHz
Marker 4 [T1]
-34.96 dBm
36.882340 GHz

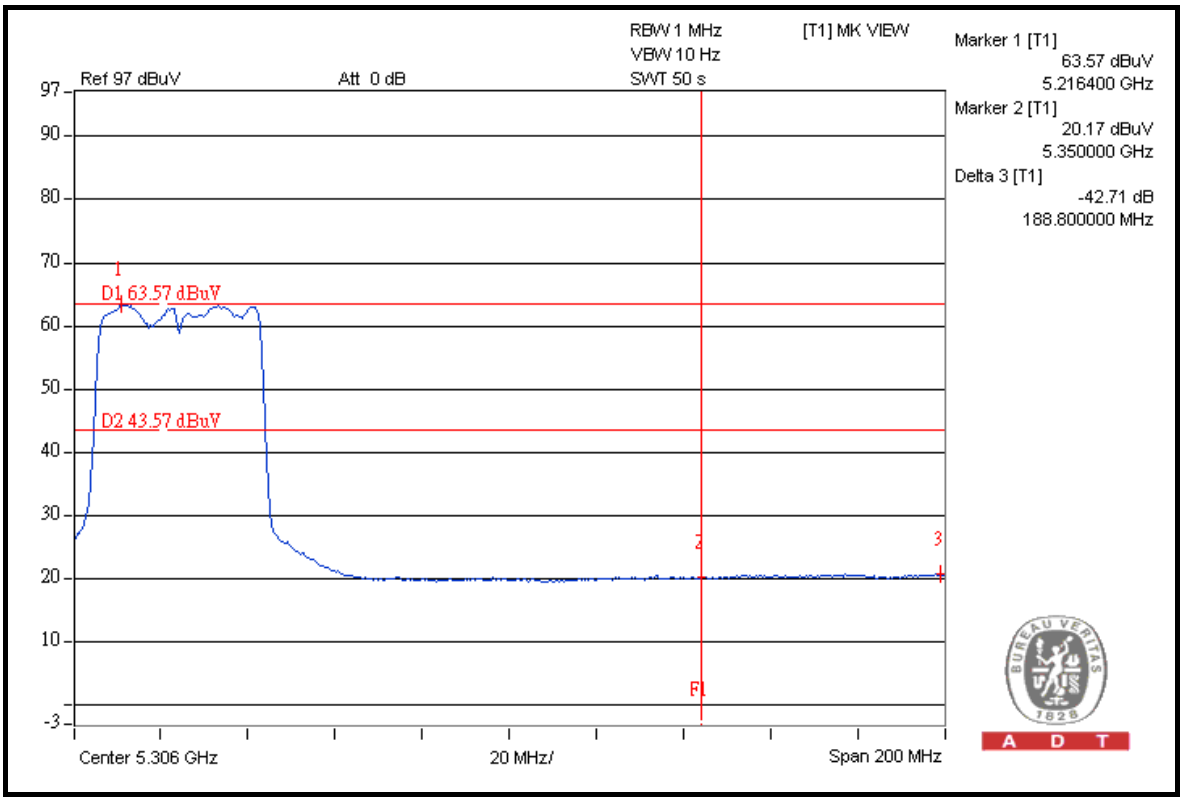
## 802.11n (40MHz)

### FOR RADIATED MEASURED (THREE CHAINS ON)



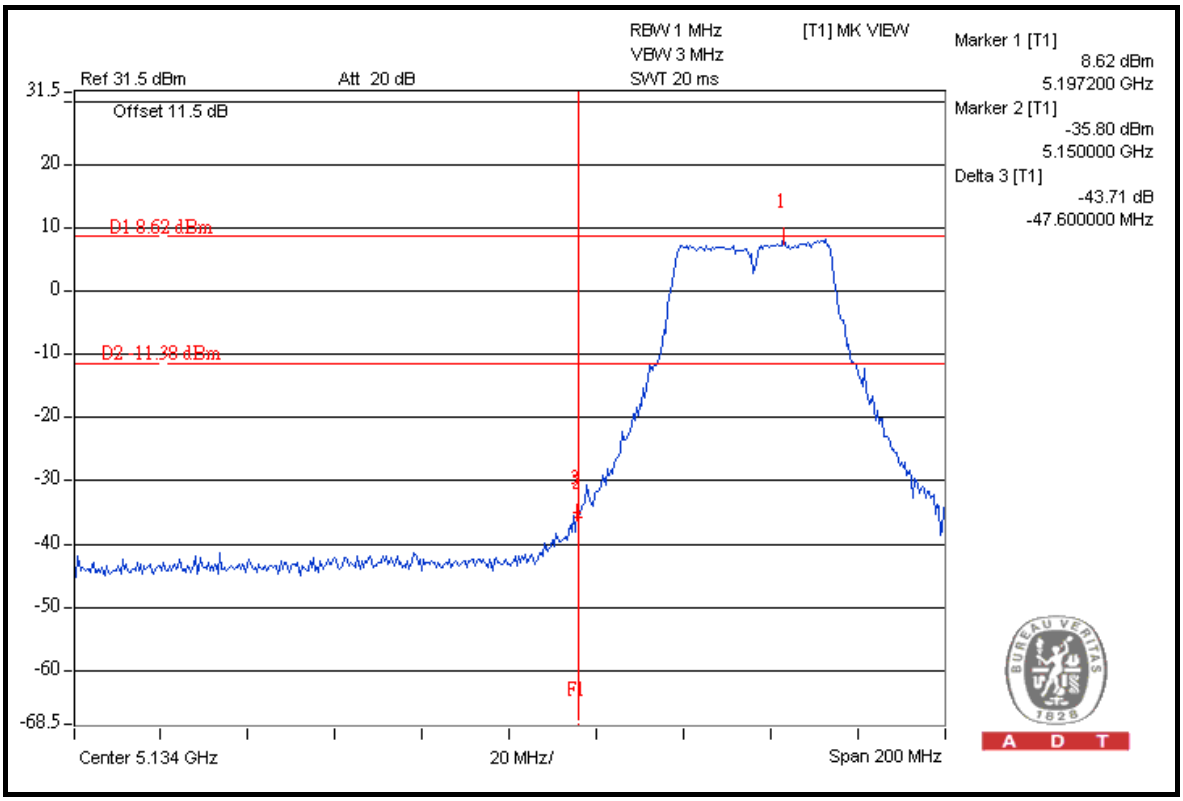



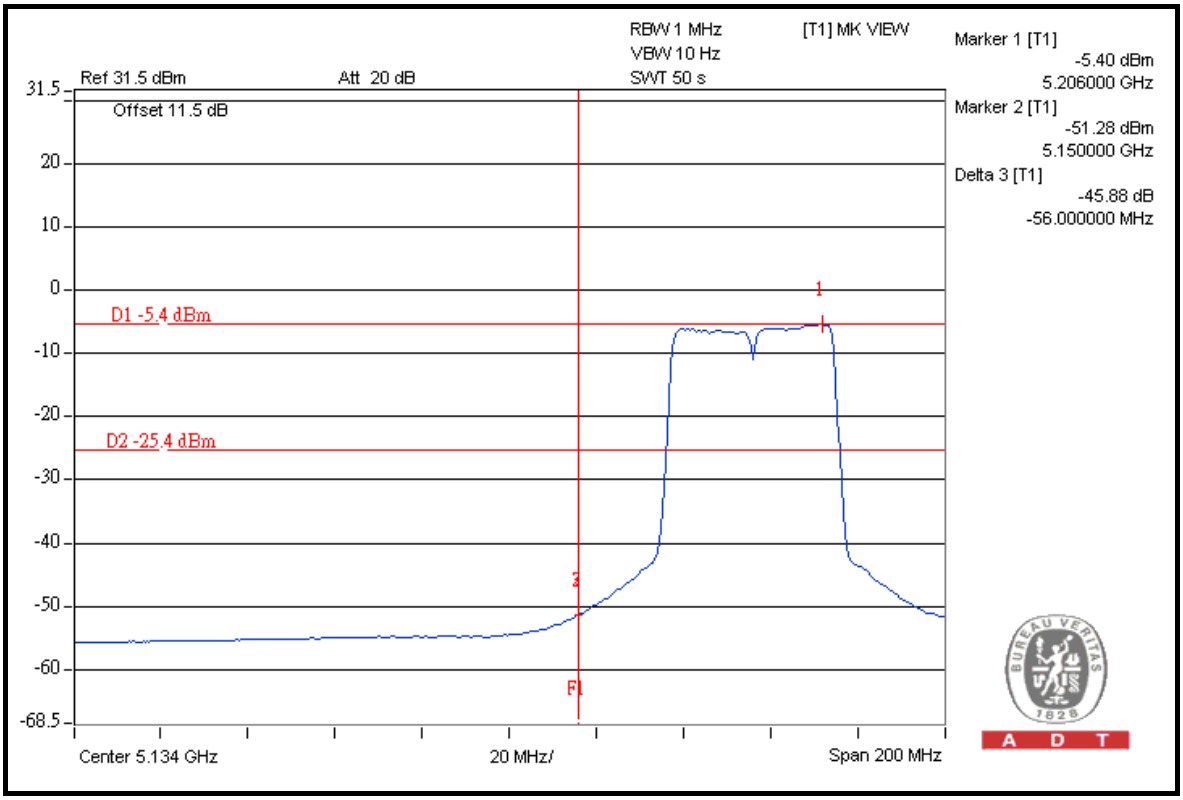

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
76.45 dBuV
5.216000 GHz
Marker 2 [T1]
30.63 dBuV
5.350000 GHz
Delta 3 [T1]
-42.78 dB
150.000000 MHz
D1 76.45 dBuV
D2 56.45 dBuV
Center 5.306 GHz
20 MHz/
Span 200 MHz

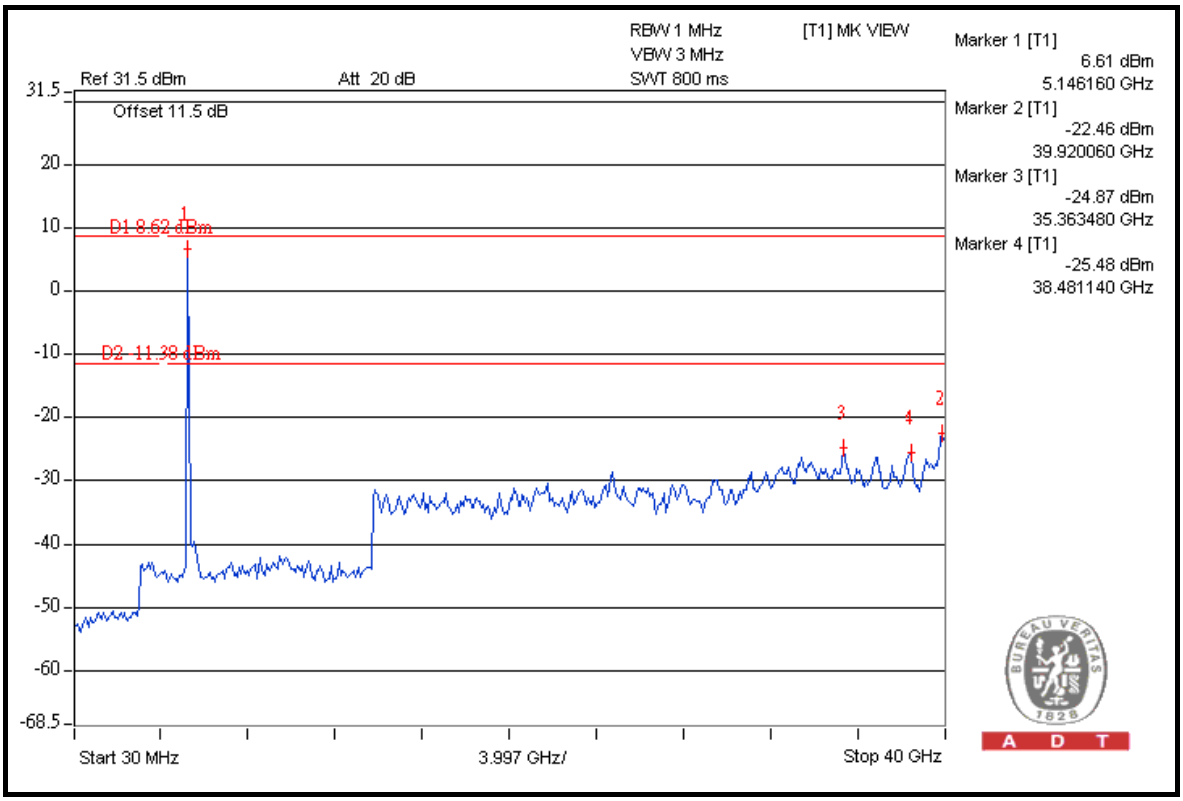

RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 97 dBuV
Att 0 dB
Marker 1 [T1]
63.57 dBuV
5.216400 GHz
Marker 2 [T1]
20.17 dBuV
5.350000 GHz
Delta 3 [T1]
-42.71 dB
188.800000 MHz
D1 63.57 dBuV
D2 43.57 dBuV
Center 5.306 GHz
20 MHz/
Span 200 MHz

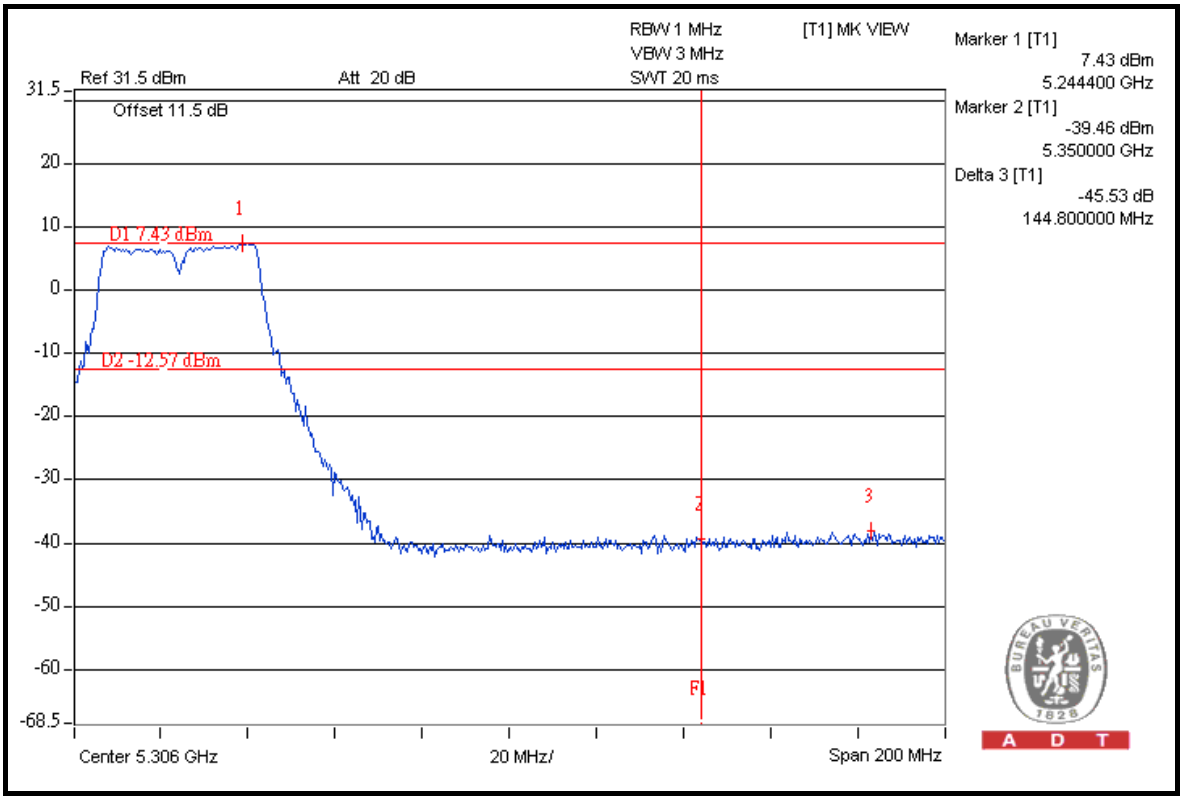
## FOR CONDUCTED MEASURED

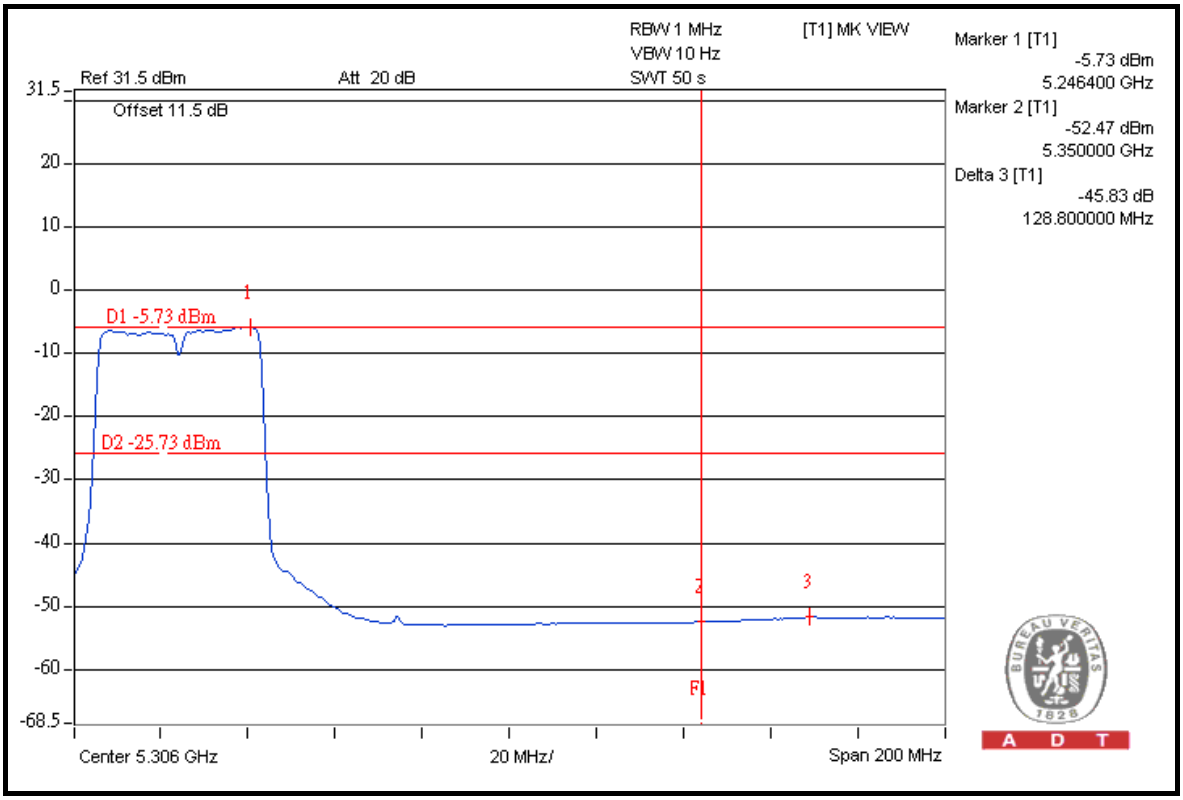
### CHAIN 0

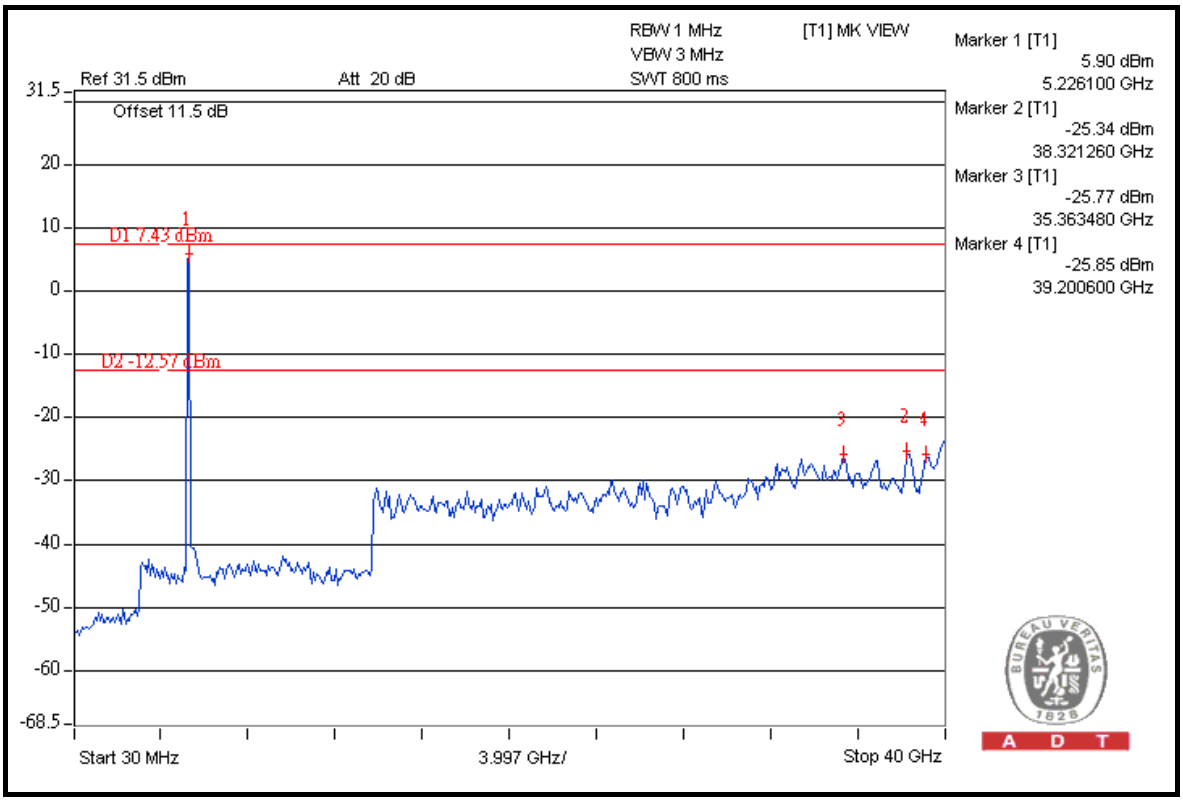


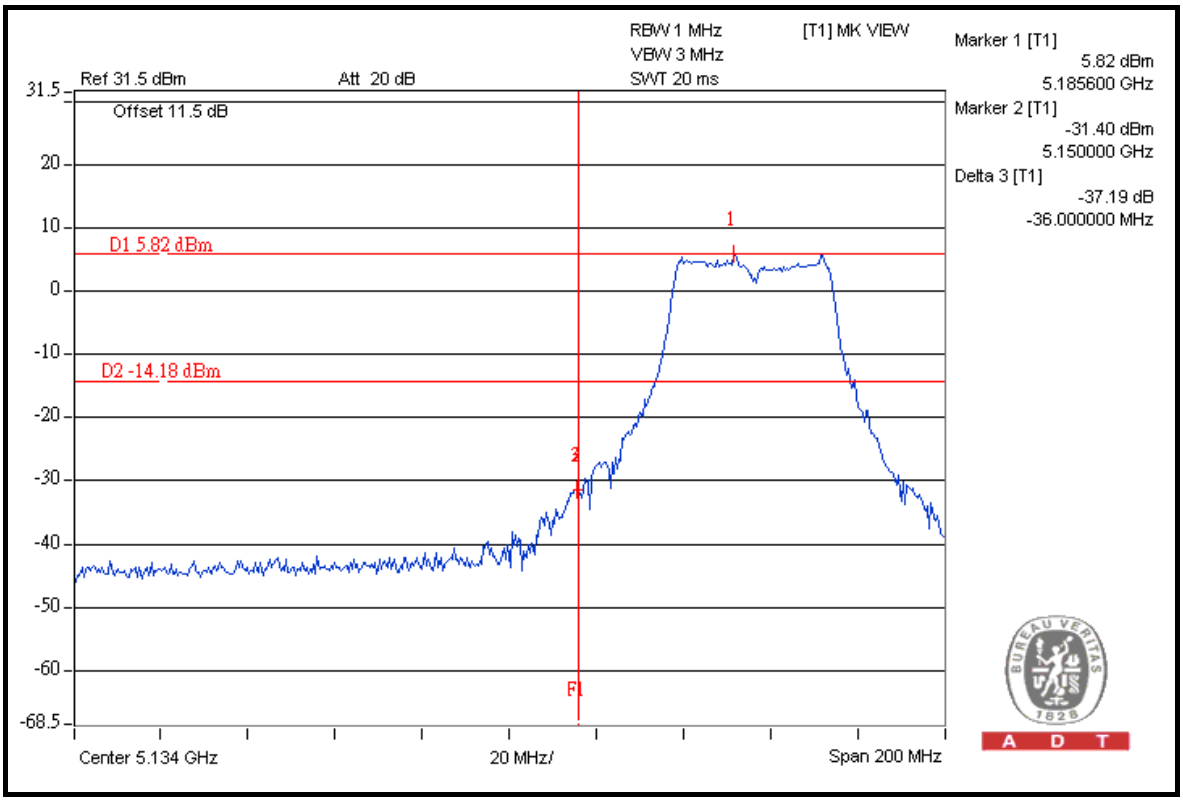

RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 8.62 dBm
D2 -11.38 dBm
Marker 1 [T1]
6.61 dBm
5.146160 GHz
Marker 2 [T1]
-22.46 dBm
39.920060 GHz
Marker 3 [T1]
-24.87 dBm
35.363480 GHz
Marker 4 [T1]
-25.48 dBm
38.481140 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz

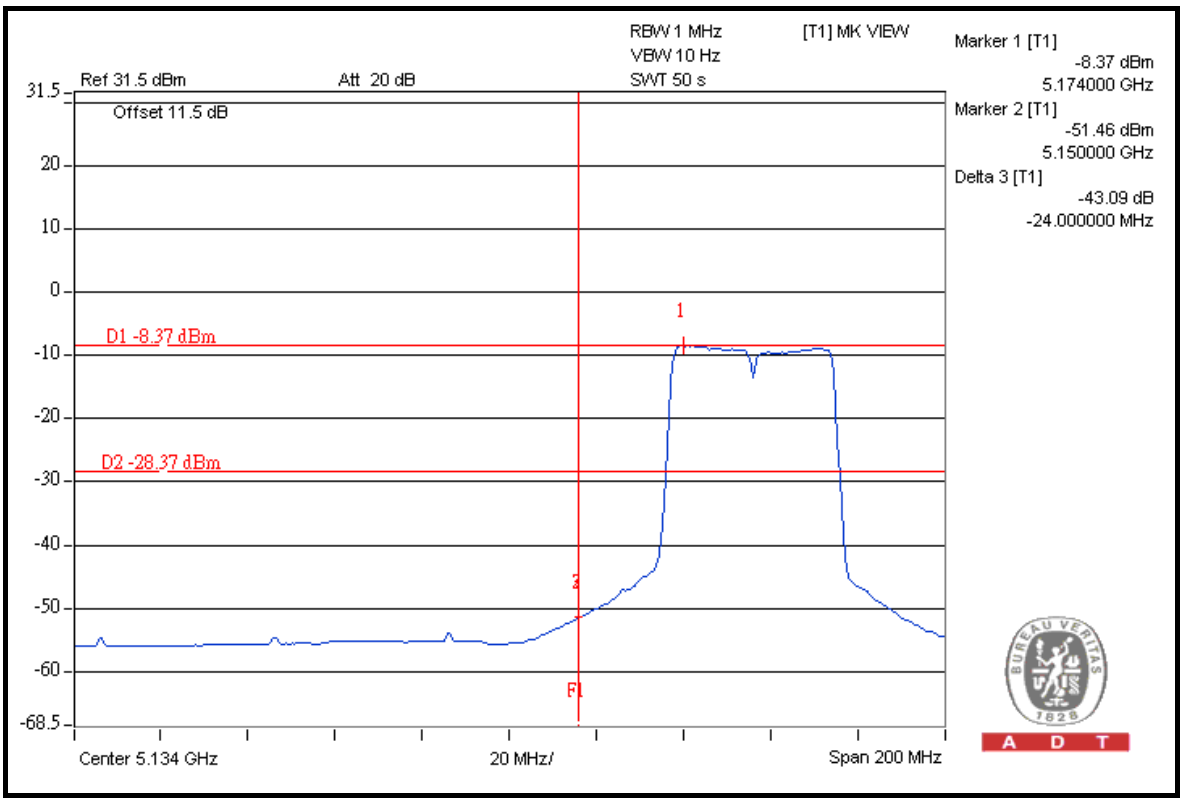

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 7.43 dBm
D2 -12.57 dBm
Marker 1 [T1]
7.43 dBm
5.244400 GHz
Marker 2 [T1]
-39.46 dBm
5.350000 GHz
Delta 3 [T1]
-45.53 dB
144.800000 MHz
Center 5.306 GHz
20 MHz/
Span 200 MHz

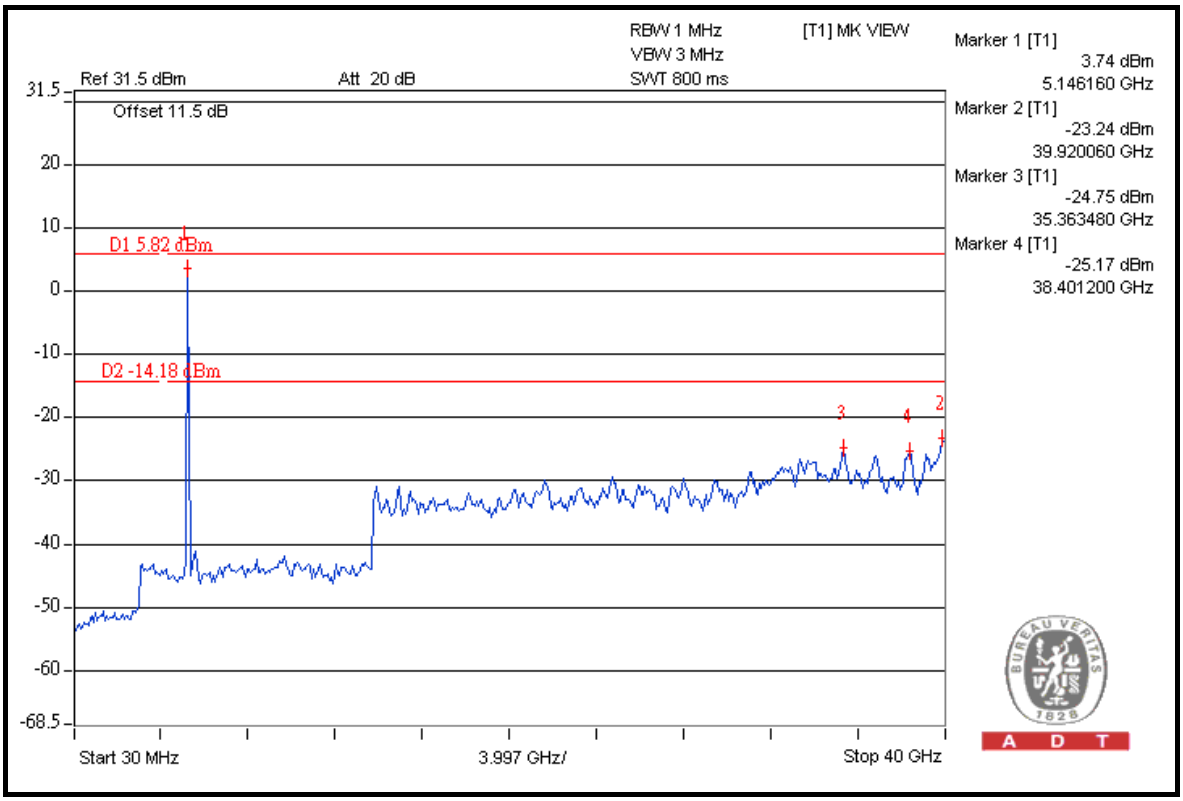

RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
D1 -5.73 dBm
D2 -25.73 dBm
Center 5.306 GHz
20 MHz/
Span 200 MHz
Marker 1 [T1]
-5.73 dBm
5.246400 GHz
Marker 2 [T1]
-52.47 dBm
5.350000 GHz
Delta 3 [T1]
-45.83 dB
128.800000 MHz

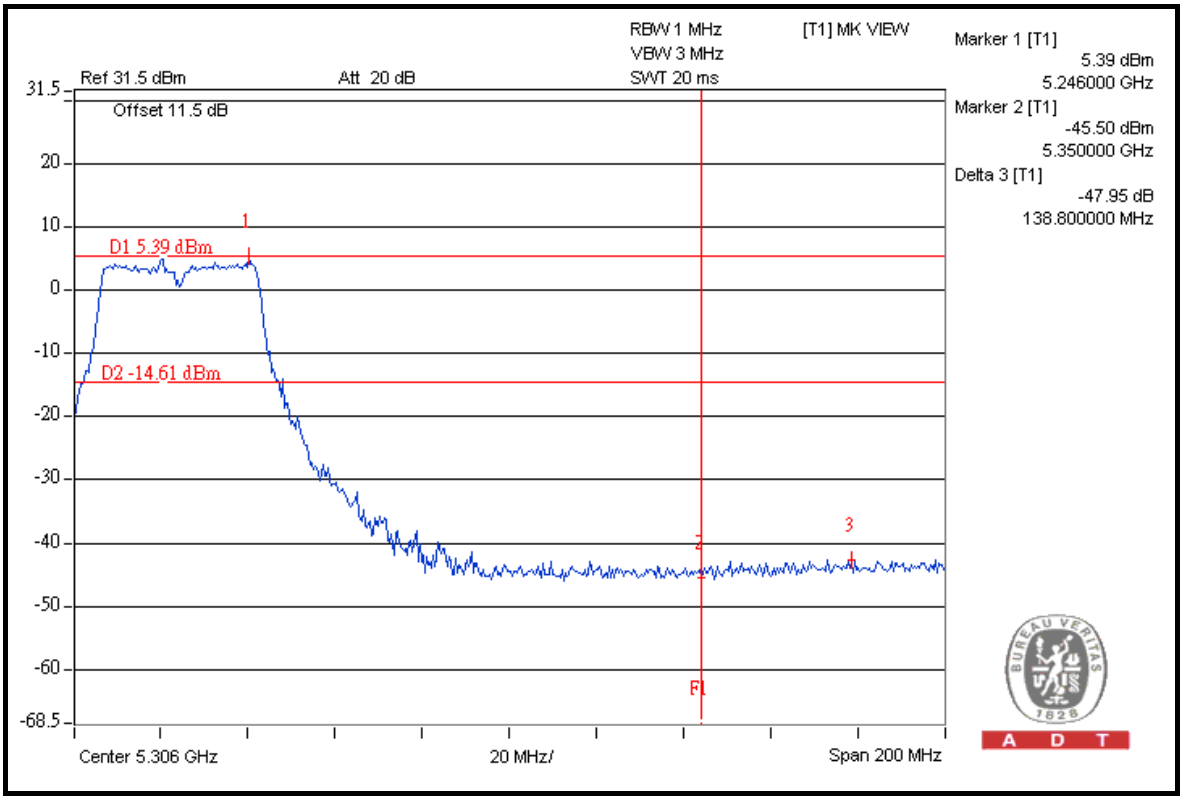

RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
D1 7.43 dBm
D2 -12.57 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz
Marker 1 [T1]
5.90 dBm
5.226100 GHz
Marker 2 [T1]
-25.34 dBm
38.321260 GHz
Marker 3 [T1]
-25.77 dBm
35.363480 GHz
Marker 4 [T1]
-25.85 dBm
39.200600 GHz

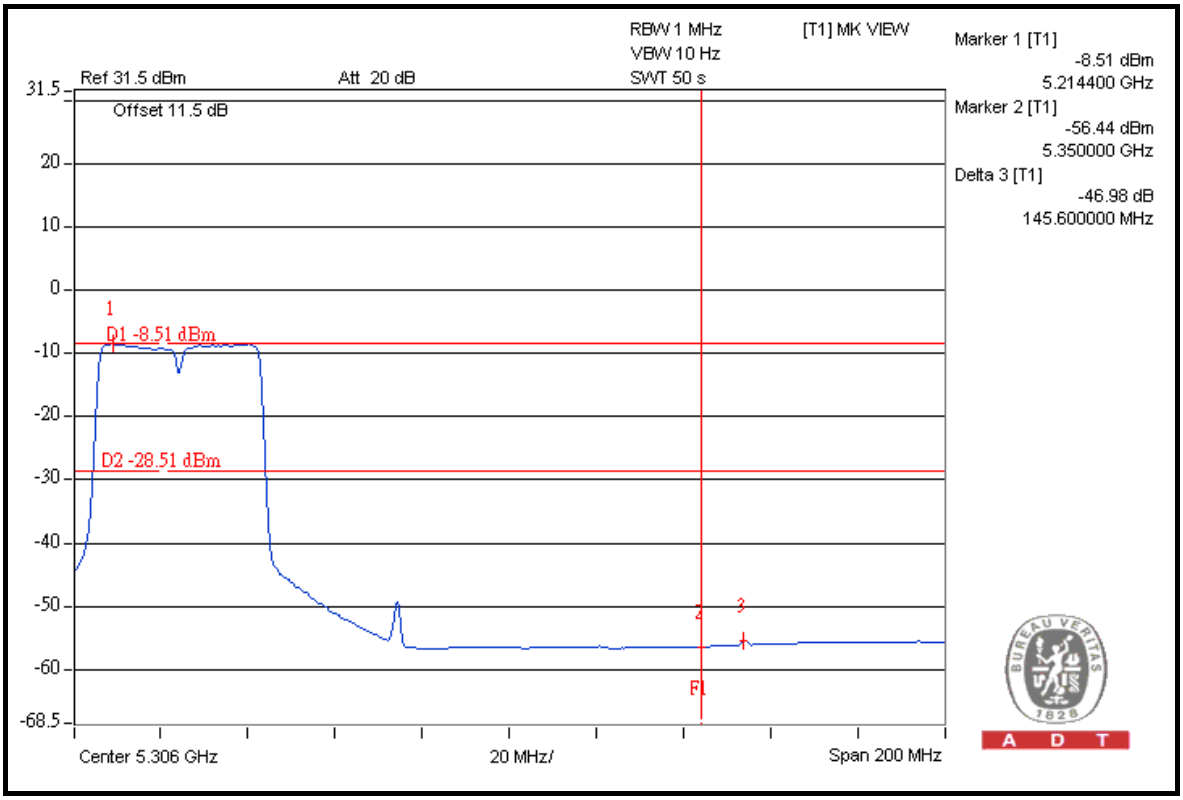
## CHAIN 1

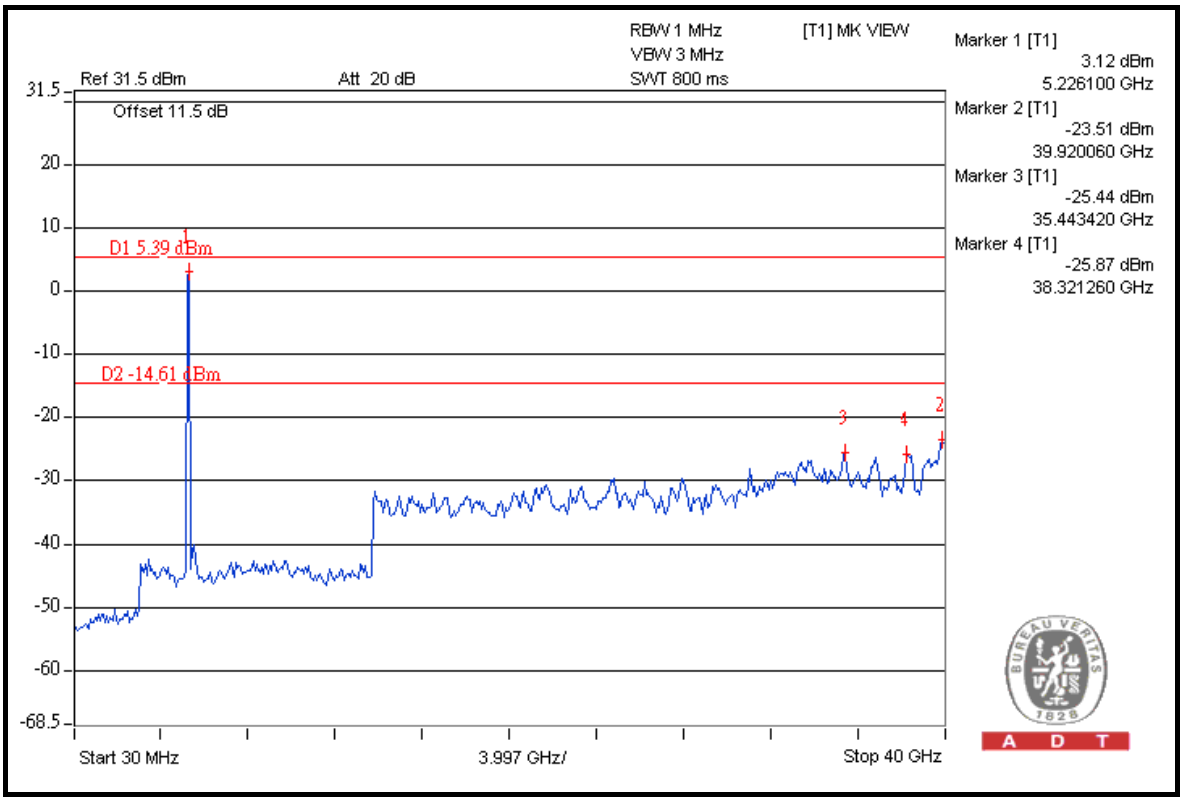

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
Marker 1 [T1]
5.82 dBm
5.185600 GHz
Marker 2 [T1]
-31.40 dBm
5.150000 GHz
Delta 3 [T1]
-37.19 dB
-36.000000 MHz
D1 5.82 dBm
D2 -14.18 dBm
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
Center 5.134 GHz
20 MHz/
Span 200 MHz


RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
Marker 1 [T1]
-8.37 dBm
5.174000 GHz
Marker 2 [T1]
-51.46 dBm
5.150000 GHz
Delta 3 [T1]
-43.09 dB
-24.000000 MHz
D1 -8.37 dBm
D2 -28.37 dBm
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
Center 5.134 GHz
20 MHz/
Span 200 MHz

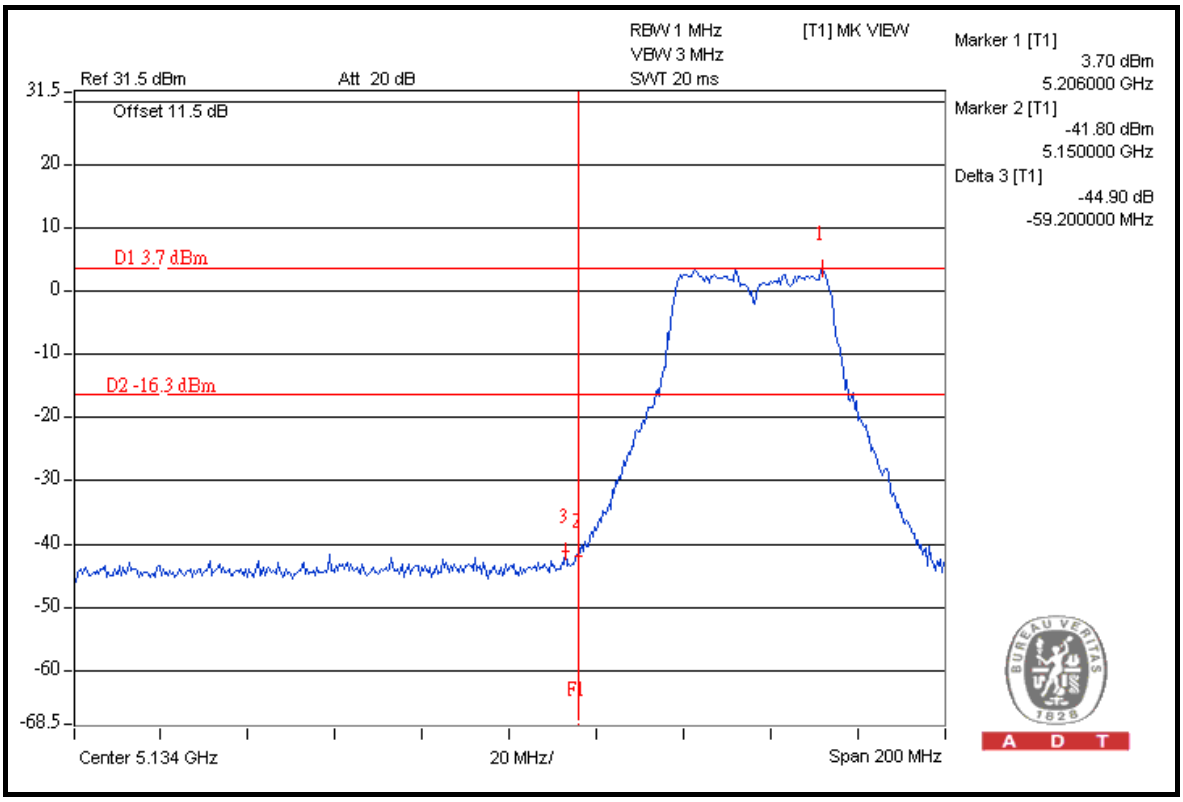

RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 5.82 dBm
D2 -14.18 dBm
Marker 1 [T1]
3.74 dBm
5.146160 GHz
Marker 2 [T1]
-23.24 dBm
39.920060 GHz
Marker 3 [T1]
-24.75 dBm
35.363480 GHz
Marker 4 [T1]
-25.17 dBm
38.401200 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz

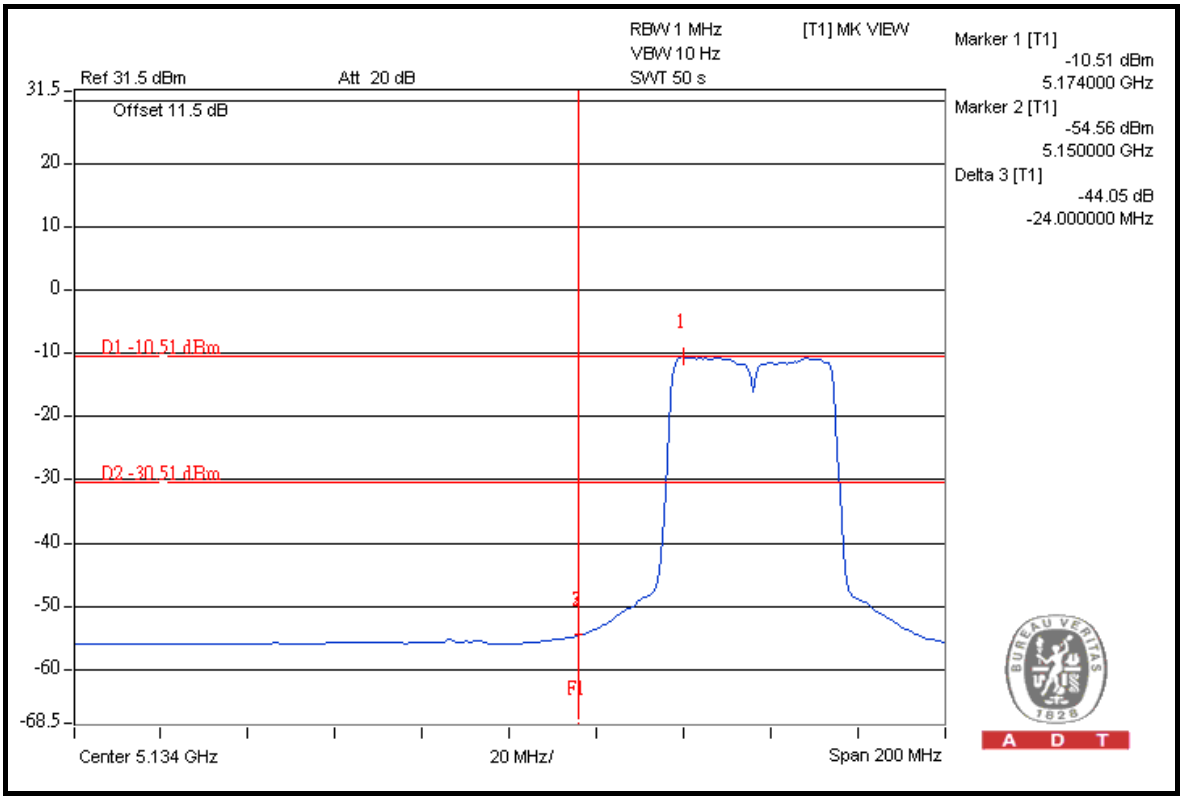

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 5.39 dBm
D2 -14.61 dBm
Marker 1 [T1]
5.39 dBm
5.246000 GHz
Marker 2 [T1]
-45.50 dBm
5.350000 GHz
Delta 3 [T1]
-47.95 dB
138.800000 MHz
Center 5.306 GHz
20 MHz/
Span 200 MHz

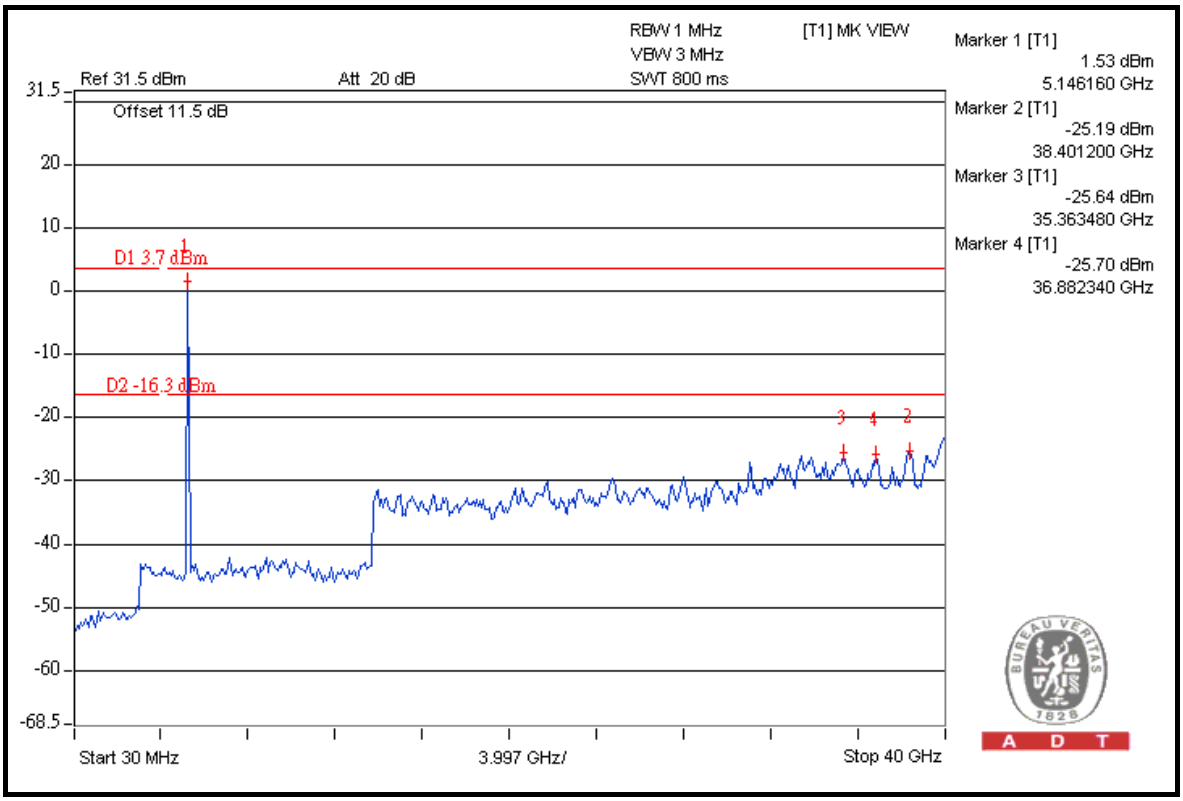

RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
D1 -8.51 dBm
D2 -28.51 dBm
Center 5.306 GHz
20 MHz/
Span 200 MHz
Marker 1 [T1]
-8.51 dBm
5.214400 GHz
Marker 2 [T1]
-56.44 dBm
5.350000 GHz
Delta 3 [T1]
-46.98 dB
145.600000 MHz

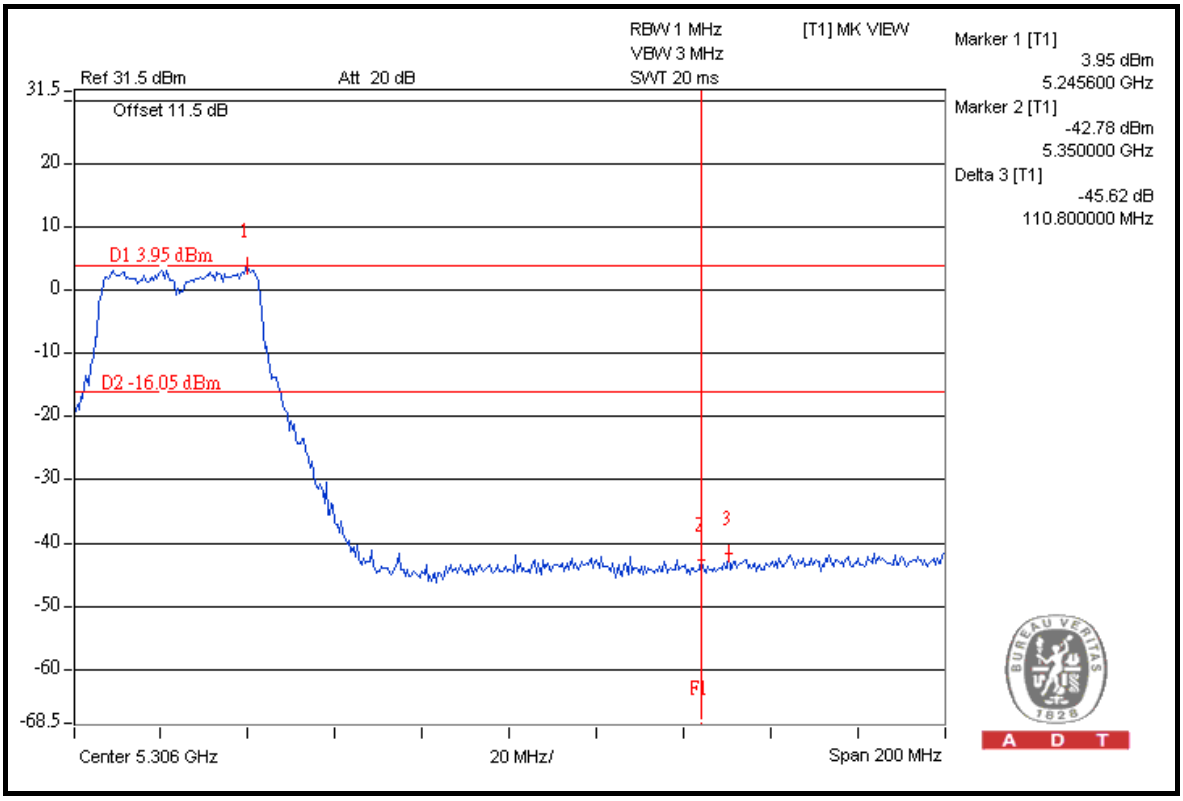

RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
D1 5.39 dBm
D2 -14.61 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz
Marker 1 [T1]
3.12 dBm
5.226100 GHz
Marker 2 [T1]
-23.51 dBm
39.920060 GHz
Marker 3 [T1]
-25.44 dBm
35.443420 GHz
Marker 4 [T1]
-25.87 dBm
38.321260 GHz

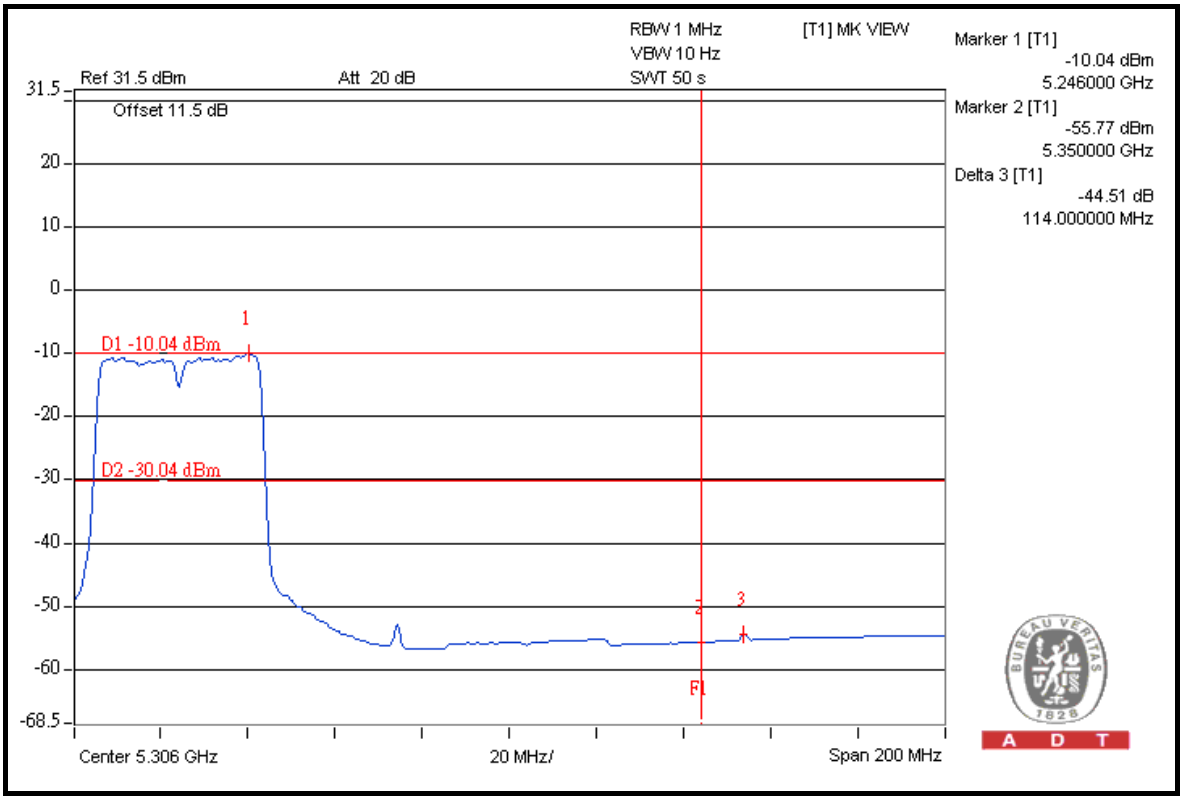
## CHAIN 2

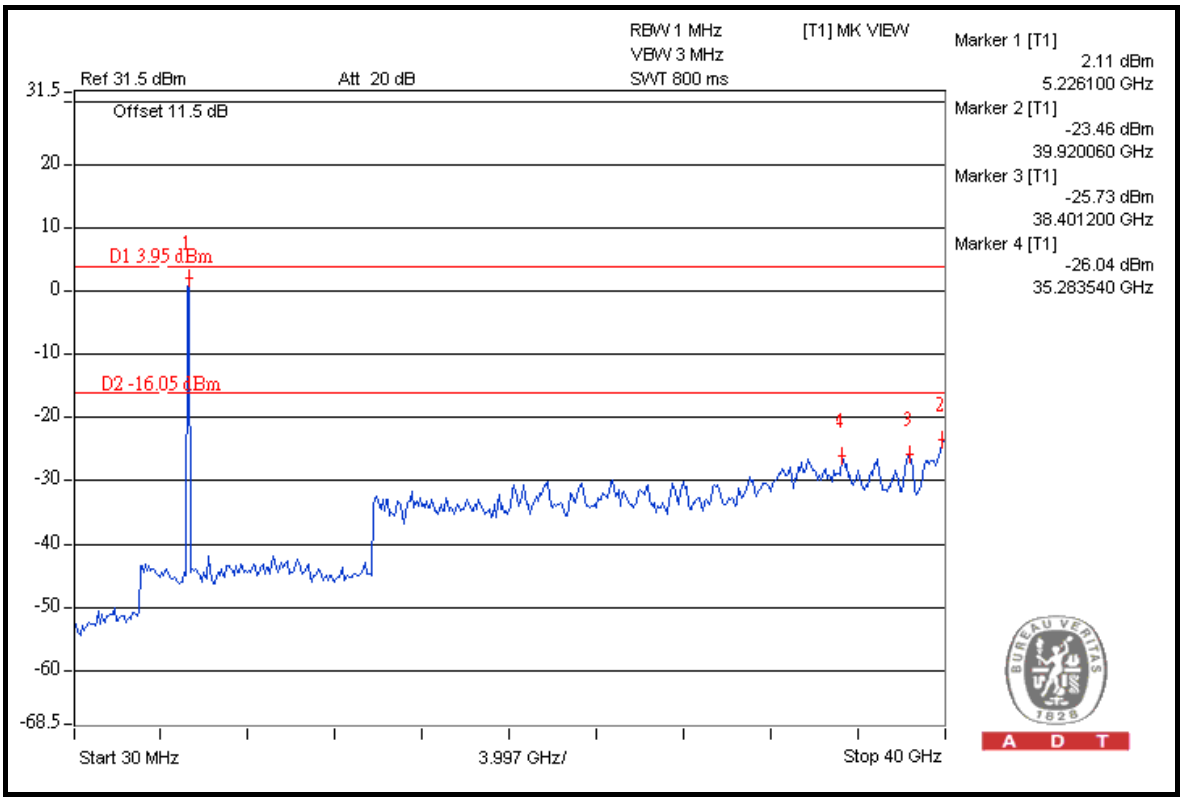

RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
Marker 1 [T1]
3.70 dBm
5.206000 GHz
Marker 2 [T1]
-41.80 dBm
5.150000 GHz
Delta 3 [T1]
-44.90 dB
-59.200000 MHz
D1 3.7 dBm
D2 -16.3 dBm
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
Center 5.134 GHz
20 MHz/
Span 200 MHz


RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
Marker 1 [T1]
-10.51 dBm
5.174000 GHz
Marker 2 [T1]
-54.56 dBm
5.150000 GHz
Delta 3 [T1]
-44.05 dB
-24.000000 MHz
D1 -10.51 dBm
D2 -30.51 dBm
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
Center 5.134 GHz
20 MHz/
Span 200 MHz


RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 3.7 dBm
D2 -16.3 dBm
Marker 1 [T1]
1.53 dBm
5.146160 GHz
Marker 2 [T1]
-25.19 dBm
38.401200 GHz
Marker 3 [T1]
-25.64 dBm
35.363480 GHz
Marker 4 [T1]
-25.70 dBm
36.882340 GHz
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz


RBW 1 MHz
VBW 3 MHz
SWT 20 ms
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
D1 3.95 dBm
D2 -16.05 dBm
Marker 1 [T1]
3.95 dBm
5.245600 GHz
Marker 2 [T1]
-42.78 dBm
5.350000 GHz
Delta 3 [T1]
-45.62 dB
110.800000 MHz
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
Center 5.306 GHz
20 MHz/
Span 200 MHz


RBW 1 MHz
VBW 10 Hz
SWT 50 s
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
D1 -10.04 dBm
D2 -30.04 dBm
Center 5.306 GHz
20 MHz/
Span 200 MHz
Marker 1 [T1]
-10.04 dBm
5.246000 GHz
Marker 2 [T1]
-55.77 dBm
5.350000 GHz
Delta 3 [T1]
-44.51 dB
114.000000 MHz


RBW 1 MHz
VBW 3 MHz
SWT 800 ms
[T1] MK VIEW
Ref 31.5 dBm
Att 20 dB
Offset 11.5 dB
31.5
20
10
0
-10
-20
-30
-40
-50
-60
-68.5
D1 3.95 dBm
D2 -16.05 dBm
Start 30 MHz
3.997 GHz/
Stop 40 GHz
Marker 1 [T1]
2.11 dBm
5.226100 GHz
Marker 2 [T1]
-23.46 dBm
39.920060 GHz
Marker 3 [T1]
-25.73 dBm
38.401200 GHz
Marker 4 [T1]
-26.04 dBm
35.283540 GHz

# 6. PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).

# 7. INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

Copies of accreditation and authorization 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: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Fax: 886-3-3185050
**Email:** service.adt@tw.bureauveritas.com
**Web Site**: www.adt.com.tw


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

# 8. 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.

**---END---**