



FCC RADIO TEST REPORT
FCC ID: ZBXMTO-WN820NM
IC ID: 10926AMTO-WN820NM

Product : 300Mbps Wireless USB Adapter

Trade Name : N/A

Model Name : MTO-WN820NM

Serial Model : N/A

Report No. : NTEK- 2012NT1220137F1

Prepared for

Shenzhen MTN Electronics Co., Ltd.
MTN Industrial Park, No.3, Fuhua Road, Pingxi Neighborhood,
Longgang District, Shenzhen, China

Prepared by

Shenzhen NTEK Testing Technology Co., Ltd.
1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street
Bao'an District, Shenzhen P.R. China
Tel.: +86-0755-61156588 Fax.: +86-0755-61156599
Website: www.ntek.org.cn

TEST RESULT CERTIFICATION

Applicant's name : Shenzhen MTN Electronics Co., Ltd.
Address : MTN Industrial Park, No.3, Fuhua Road, Pingxi Neighborhood,
Longgang District, Shenzhen, China

Manufacture's Name : Shenzhen MTN Electronics Co., Ltd.
Address : MTN Industrial Park, No.3, Fuhua Road, Pingxi Neighborhood,
Longgang District, Shenzhen, China

Product description

Product name : 300Mbps Wireless USB Adapter

Model and/or type reference : MTO-WN820NM

Serial Model : N/A

Standards : FCC Part15.247, IC RSS-210 Issue 8, IC RSS-Gen Issue 3

Test procedure ANSI C63.4-2003

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test :

Date (s) of performance of tests : 20 Dec. 2012 ~30 Dec. 2012

Date of Issue : 31 Dec. 2012

Test Result : **Pass**

Testing Engineer : Apple Huang
(Apple Huang)

Technical Manager : Tom Zhang
(Tom Zhang)

Authorized Signatory : Bovey Yang
(Bovey Yang)

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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

| FCC Part15 (15.247) , Subpart C IC RSS-210 Issue 8 | | | |
|-------------------------------------------------------|----------------------------|----------|--------|
| Standard Section | Test Item | Judgment | Remark |
| 15.207 & 7.2.4 | Conducted Emission | PASS | |
| 15.247 (a)(2) & A8.2 | 6dB Bandwidth | PASS | |
| 15.247 (b) & A8.4 | Peak Output Power | PASS | |
| 15.247 (c) & A8.5 | Radiated Spurious Emission | PASS | |
| 15.247 (d) & A8.2 | Power Spectral Density | PASS | |
| 15.205 & A8.5 | Band Edge Emission | PASS | |
| 15.203 | Antenna Requirement | PASS | |

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report

1.1 TEST FACILITY

NTEK Testing Technology Co., Ltd

Add.:1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China.

FCC Registration No.:238937; IC Registration No.:9270A-1

CNAS Registration No.:L5516

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

| No. | Item | Uncertainty |
|-----|------------------------------|-------------------------|
| 1 | Conducted Emission Test | $\pm 1.38\text{dB}$ |
| 2 | RF power,conducted | $\pm 0.16\text{dB}$ |
| 3 | Spurious emissions,conducted | $\pm 0.21\text{dB}$ |
| 4 | All emissions,radiated(<1G) | $\pm 4.68\text{dB}$ |
| 5 | All emissions,radiated(>1G) | $\pm 4.89\text{dB}$ |
| 6 | Temperature | $\pm 0.5^\circ\text{C}$ |
| 7 | Humidity | $\pm 2\%$ |

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

| | | | |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Equipment | 300Mbps Wireless USB Adapter | | |
| Trade Name | N/A | | |
| Model Name | MTO-WN820NM | | |
| Serial Model | N/A | | |
| Model Difference | N/A | | |
| Product Description | The EUT is a 300Mbps Wireless USB Adapter | | |
| | Operation Frequency: | 2412MHz~2462MHz 5725 MHz ~ 5825 MHz | |
| | Modulation Type: | CCK/OFDM/DBPSK/DAPSK | |
| | Bit Rate of Transmitter | 802.11b:11/5.5/2/1 Mbps 802.11g/a:54/48/36/24/18/12/9/6Mbps 802.11n(20/40MHz):300/270/150/144. 44/130/117/115.56/104/86.67/78/52/6. 5 Mbps | |
| | Number Of Channel | Refer to Note 2 | |
| | Antenna Designation: | Please see Note 3. | |
| | Max.Output Power(Conducted): | 17.78 dBm | |
| | Operation Frequency: | 5150 MHz ~ 5250 MHz | |
| | Modulation Type: | OFDM (BPSK / QPSK / 16QAM / 64QAM) | |
| | Antenna Designation: | <5150 MHz ~ 5250 MHz> Antenna with gain 2.00 dBi | |
| | Max.Output Power(Conducted): | 12.12dBm | |
| | Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual. | | |
| | Channel List | Please refer to the Note 2. | |
| | Ratings | DC 5V from PC | |
| Adapter | N/A | | |
| Battery | N/A | | |
| Connecting I/O Port(s) | Please refer to the User's Manual | | |

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2. 2.4GHz:

| Channel List for 802.11b/g/n(20MHz) | | | | | | | |
|-------------------------------------|-----------------|---------|-----------------|---------|-----------------|---------|-----------------|
| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 01 | 2412 | 04 | 2427 | 07 | 2442 | 10 | 2457 |
| 02 | 2417 | 05 | 2432 | 08 | 2447 | 11 | 2462 |
| 03 | 2422 | 06 | 2437 | 09 | 2452 | | |

| Channel List for 802.11n(40MHz) | | | | | | | |
|---------------------------------|-----------------|---------|-----------------|---------|-----------------|---------|-----------------|
| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
| 03 | 2422 | 06 | 2437 | 09 | 2452 | | |
| 04 | 2427 | 07 | 2442 | | | | |
| 05 | 2432 | 08 | 2447 | | | | |

5GHz:

| 802.11a Carrier Frequency Channel | | | | | | | |
|-----------------------------------|-------------|---------|-------------|---------|-------------|---------|-------------|
| Channel | Freq. (MHz) | Channel | Freq. (MHz) | Channel | Freq. (MHz) | Channel | Freq. (MHz) |
| 149 | 5745 | 153 | 5765 | 157 | 5785 | 161 | 5805 |
| 165 | 5825 | - | - | - | - | - | - |

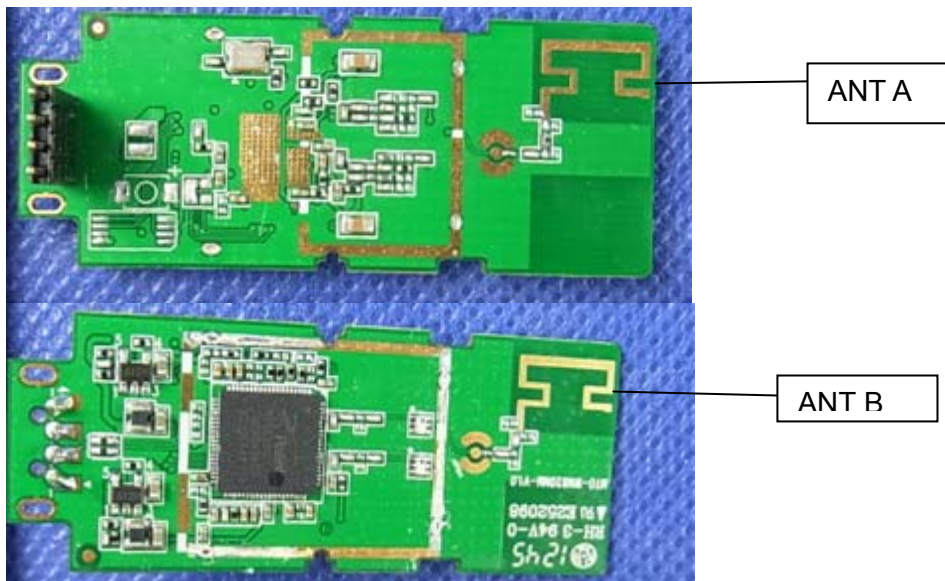
| 802.11n (BW 20MHz) Carrier Frequency Channel | | | | | | | |
|----------------------------------------------|-------------|---------|-------------|---------|-------------|---------|-------------|
| Channel | Freq. (MHz) | Channel | Freq. (MHz) | Channel | Freq. (MHz) | Channel | Freq. (MHz) |
| 149 | 5745 | 153 | 5765 | 157 | 5785 | 161 | 5805 |
| 165 | 5825 | - | - | - | - | - | - |

3.

Table for Filed Antenna

| Ant | Brand | Model Name | Antenna Type | Connector | Gain (dBi) | NOTE |
|-----|-------|------------|--------------|-----------|-------------------------|------|
| A | N/A | N/A | PCB Antenna | N/A | 2.4GHz: 1.0 5GHz:2.0 | N/A |
| B | N/A | N/A | PCB Antenna | N/A | 2.4GHz:1.0 5GHz:2.0 | N/A |

For MIMO mode , Directional gain= $G_{ANT} + 10\log(N)$ dbi =4.01dbi in 2.4GHz
 Directional gain= $G_{ANT} + 10\log(N)$ dbi =5.01dbi in 5GHz



The Control software(tool_WIFI.exe) can control antenna A and antenna B, For 802.11b/g mode, when antenna A is transmitting, antenna B closed, when antenna B is transmitting, antenna A closed. And the data of antenna A is recorded for radiated emission and band edge.

For 802.11n/a mode ,two antennas simultaneously transmit. And the data is recorded for radiated emission and band edge.

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

| Pretest Mode | Description |
|--------------|-------------|
| Mode 1 | 802.11b |
| Mode 2 | 802.11g |
| Mode 3 | 802.11n(20) |
| Mode 4 | 802.11n(40) |
| Mode 5 | 802.11a |
| Mode 6 | Link Mode |

| For Conducted Emission | |
|------------------------|-------------|
| Final Test Mode | Description |
| Mode 6 | Link Mode |

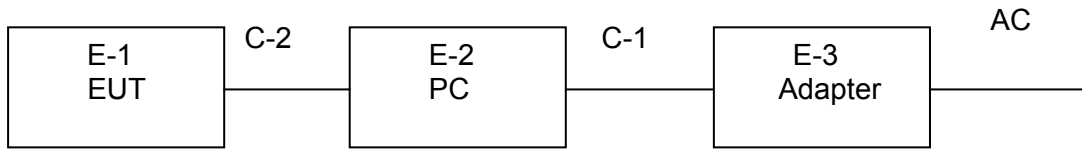
| For Radiated Emission | |
|-----------------------|-------------|
| Final Test Mode | Description |
| Mode 1 | 802.11b |
| Mode 2 | 802.11g |
| Mode 3 | 802.11n(20) |
| Mode 4 | 802.11n(40) |
| Mode 5 | 802.11a |

Note:

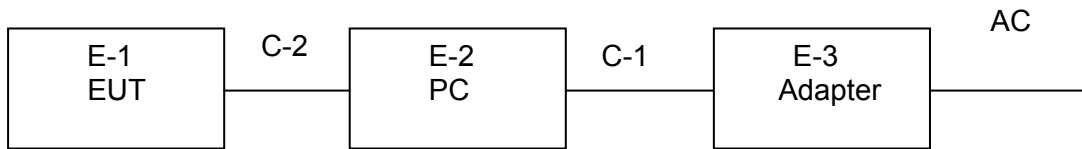
- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Conducted Emission Test



Radiated Spurious Emission Test



2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

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.

| Item | Equipment | Mfr/Brand | Model/Type No. | Series No. | Note |
|------|------------------------------|-----------|----------------|------------|------|
| E-1 | 300Mbps Wireless USB Adapter | N/A | MTO-WN820NM | N/A | EUT |
| E-2 | Notebook | IBM | 2366 | N/A | |
| E-3 | Adapter | IBM | 08K8202 | N/A | |
| | | | | | |
| | | | | | |
| | | | | | |

| Item | Shielded Type | Ferrite Core | Length | Note |
|------|---------------|--------------|--------|------|
| C-1 | NO | NO | 0.8M | |
| C-2 | NO | NO | 0.5M | |
| | | | | |
| | | | | |
| | | | | |

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Last calibration | Calibrated until | Calibration period |
|------|--------------------|--------------|-------------|--------------|------------------|------------------|--------------------|
| 1 | Spectrum Analyzer | Agilent | E4407B | MY45108040 | 2012.07.06 | 2013.07.05 | 1 year |
| 2 | Test Receiver | R&S | ESPI | 101318 | 2012.06.07 | 2013.06.06 | 1 year |
| 3 | Bilog Antenna | TESEQ | CBL6111D | 31216 | 2012.07.06 | 2013.07.05 | 1 year |
| 4 | 50Ω Coaxial Switch | Anritsu | MP59B | 6200264416 | 2012.06.07 | 2013.06.06 | 1 year |
| 5 | Spectrum Analyzer | ADVANTEST | R3132 | 150900201 | 2012.06.07 | 2013.06.06 | 1 year |
| 6 | Horn Antenna | EM | EM-AH-10180 | 2011071402 | 2012.07.06 | 2013.07.05 | 1 year |
| 7 | Horn Ant | Schwarzbeck | BBHA 9170 | 9170-181 | 2012.07.06 | 2013.07.05 | 1 year |
| 8 | Amplifier | EM | EM-30180 | 060538 | 2012.12.22 | 2013.12.21 | 1 year |
| 9 | Loop Antenna | ARA | PLA-1030/B | 1029 | 2012.06.08 | 2013.06.07 | 1 year |
| 10 | Power Meter | R&S | NRVS | 100696 | 2012.07.06 | 2013.07.05 | 1 year |
| 11 | Power Sensor | R&S | URV5-Z4 | 0395.1619.05 | 2012.07.06 | 2013.07.05 | 1 year |
| 12 | SHF-EHF Horn | Schwarzbeck | BBHA 9170 | BBHA170249 | 2012.08.03 | 2013.08.02 | 1 year |
| 13 | Spectrum Analyzer | R&S | FSP40 | 100055 | 2012.08.09 | 2013.08.08 | 1 year |
| 14 | Power Meter | Agilent | E4416A | GB41292344 | 2012.07.06 | 2013.07.05 | 1 year |
| 15 | Power Sensor | Agilent | E9327A | US40441548 | 2012.07.06 | 2013.07.05 | 1 year |

Conduction Test equipment

| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Last calibration | Calibrated until | Calibration period |
|------|-----------------------|--------------|----------|------------|------------------|------------------|--------------------|
| 1 | Test Receiver | R&S | ESCI | 101160 | 2012.06.06 | 2013.06.05 | 1 year |
| 2 | LISN | R&S | ENV216 | 101313 | 2012.08.24 | 2013.08.23 | 1 year |
| 3 | LISN | EMCO | 3816/2 | 00042990 | 2012.08.24 | 2013.08.23 | 1 year |
| 4 | 50Ω Coaxial Switch | Anritsu | MP59B | 6200264417 | 2012.06.07 | 2013.06.06 | 1 year |
| 5 | Passive Voltage Probe | R&S | ESH2-Z3 | 100196 | 2012.06.07 | 2013.06.06 | 1 year |
| 6 | Absorbing clamp | R&S | MOS-21 | 100423 | 2012.06.08 | 2013.06.07 | 1 year |

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

| FREQUENCY (MHz) | Class A (dBuV) | | Class B (dBuV) | | Standard |
|-----------------|----------------|---------|----------------|-----------|----------|
| | Quasi-peak | Average | Quasi-peak | Average | |
| 0.15 -0.5 | 79.00 | 66.00 | 66 - 56 * | 56 - 46 * | CISPR |
| 0.50 -5.0 | 73.00 | 60.00 | 56.00 | 46.00 | CISPR |
| 5.0 -30.0 | 73.00 | 60.00 | 60.00 | 50.00 | CISPR |

| | | | | | |
|-----------|-------|-------|-----------|-----------|-----|
| 0.15 -0.5 | 79.00 | 66.00 | 66 - 56 * | 56 - 46 * | FCC |
| 0.50 -5.0 | 73.00 | 60.00 | 56.00 | 46.00 | FCC |
| 5.0 -30.0 | 73.00 | 60.00 | 60.00 | 50.00 | FCC |

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

| Receiver Parameters | Setting |
|---------------------|----------|
| Attenuation | 10 dB |
| Start Frequency | 0.15 MHz |
| Stop Frequency | 30 MHz |
| IF Bandwidth | 9 kHz |

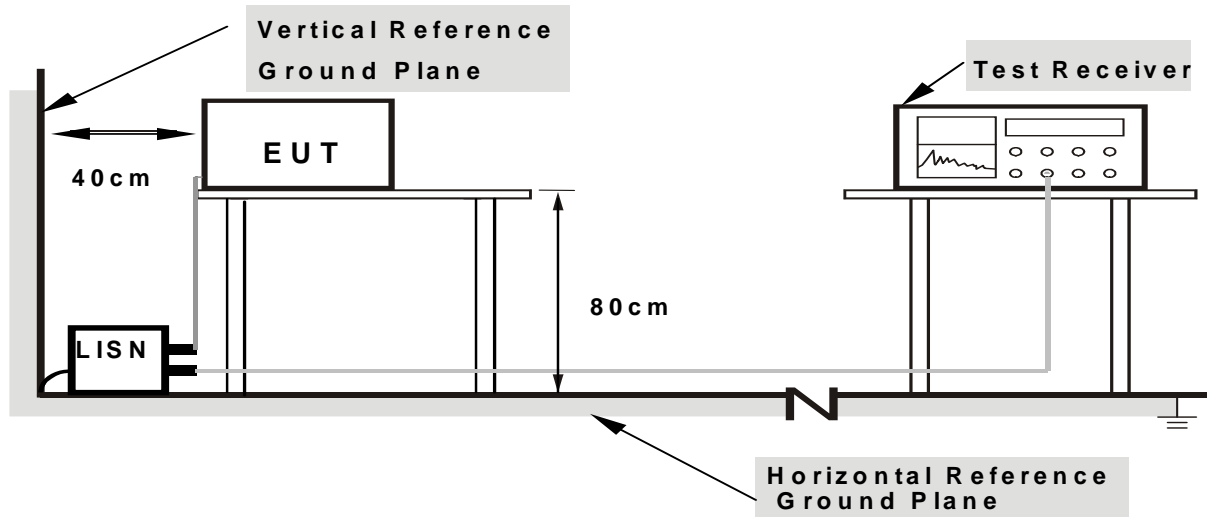
3.1.2 TEST PROCEDURE

- The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 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

3.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

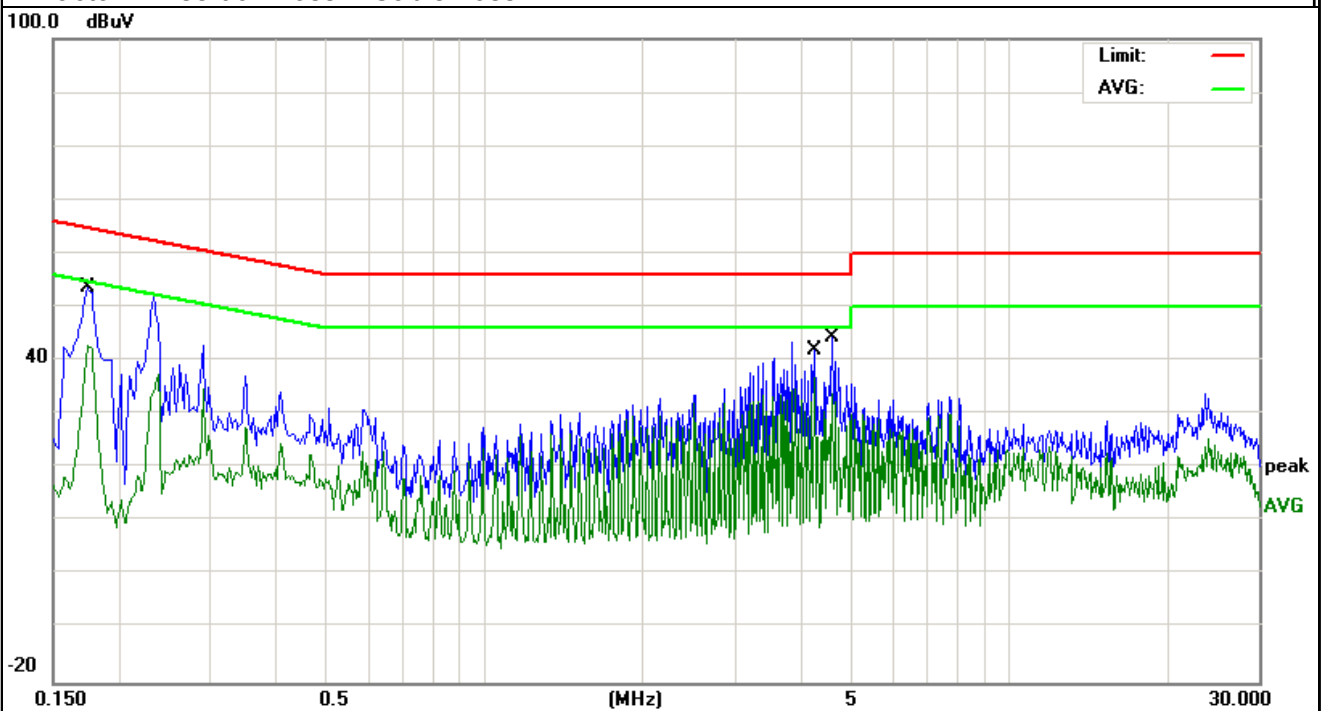
3.1.6 TEST RESULTS

| | | | |
|----------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name. : | MTO-WN820NM |
| Temperature : | 26 °C | Relative Humidity : | 54% |
| Pressure : | 1010hPa | Phase : | L |
| Test Voltage : | DC 5.0V from PC AC120V/60Hz | Test Mode : | Mode 6 |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV) | Limits (dBμV) | Margin (dB) | Detector Type |
|--------------------|-------------------------|----------------|--------------------------|------------------|----------------|---------------|
| 0.174 | 43.82 | 9.8 | 53.62 | 64.76 | -11.14 | QP |
| 0.174 | 32.96 | 9.8 | 42.76 | 54.76 | -12 | AVG |
| 4.2619 | 26.39 | 10.35 | 36.74 | 46 | -9.26 | AVG |
| 4.6139 | 34.03 | 10.37 | 44.4 | 56 | -11.6 | QP |
| | | | | | | |
| | | | | | | |

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

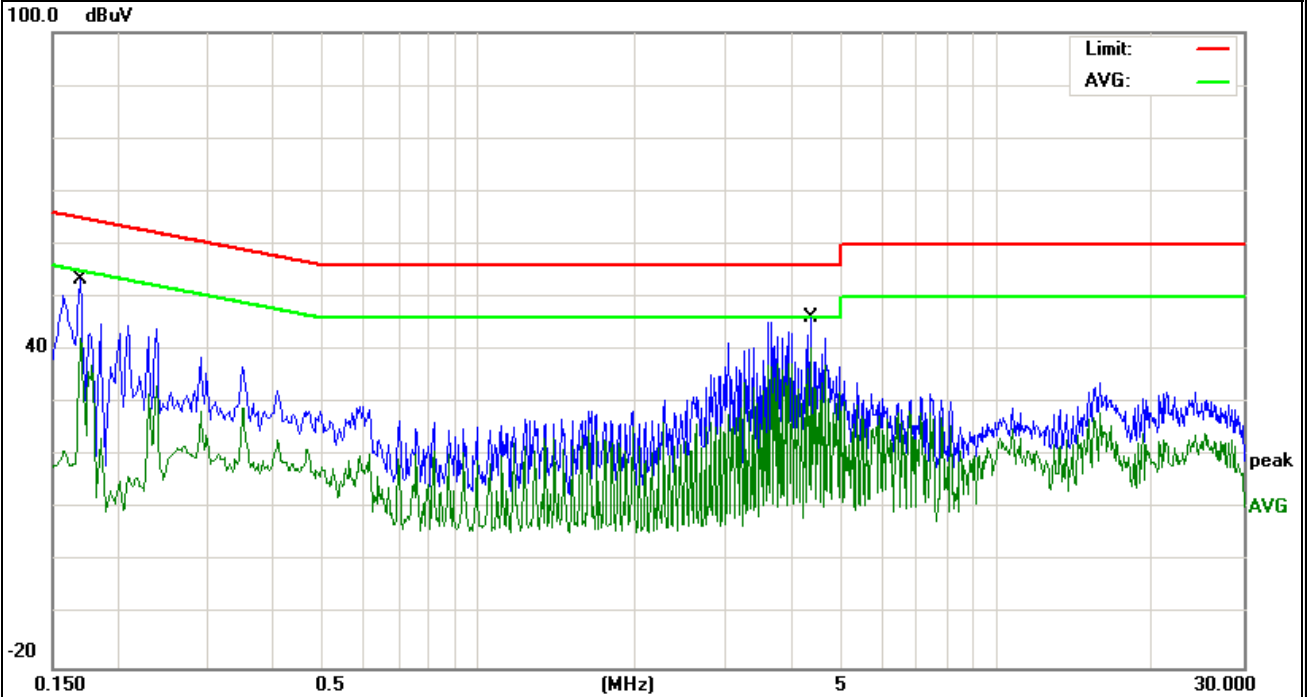


| | | | |
|----------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name. : | MTO-WN820NM |
| Temperature : | 26 °C | Relative Humidity : | 54% |
| Pressure : | 1010hPa | Phase : | N |
| Test Voltage : | DC 5.0V from PC AC120V/60Hz | Test Mode : | Mode 6 |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV) | Limits (dBμV) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-----------------------|---------------|-------------|---------------|
| 0.17 | 43.54 | 9.8 | 53.34 | 64.96 | -11.62 | QP |
| 0.17 | 32.46 | 9.8 | 42.26 | 54.96 | -12.7 | AVG |
| 4.3778 | 35.77 | 10.36 | 46.13 | 56 | -9.87 | QP |
| 4.3778 | 30.02 | 10.36 | 40.38 | 46 | -5.62 | AVG |
| | | | | | | |
| | | | | | | |

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

| Frequencies (MHz) | Field Strength (microrvolts/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 |

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

| FREQUENCY (MHz) | Class A (dBuV/m) (at 3M) | | Class B (dBuV/m) (at 3M) | |
|-----------------|--------------------------|---------|--------------------------|---------|
| | PEAK | AVERAGE | PEAK | AVERAGE |
| Above 1000 | 80 | 60 | 74 | 54 |

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

| Spectrum Parameter | Setting |
|---------------------------------------|--------------------------------------------------|
| Attenuation | Auto |
| Start Frequency | 1000 MHz |
| Stop Frequency | 10th carrier harmonic |
| RB / VB (emission in restricted band) | 1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average |

| Receiver Parameter | Setting |
|------------------------|----------------------------------|
| Attenuation | Auto |
| Start ~ Stop Frequency | 9kHz~150kHz / RB 200Hz for QP |
| Start ~ Stop Frequency | 150kHz~30MHz / RB 9kHz for QP |
| Start ~ Stop Frequency | 30MHz~1000MHz / RB 120kHz for QP |

3.2.2 TEST PROCEDURE

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

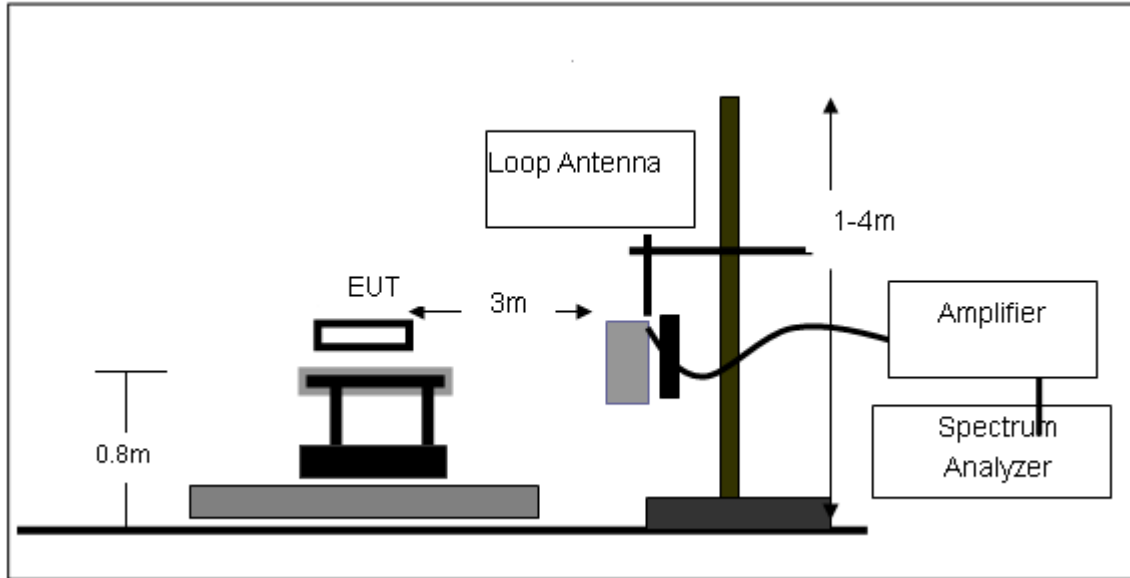
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

3.2.3 DEVIATION FROM TEST STANDARD

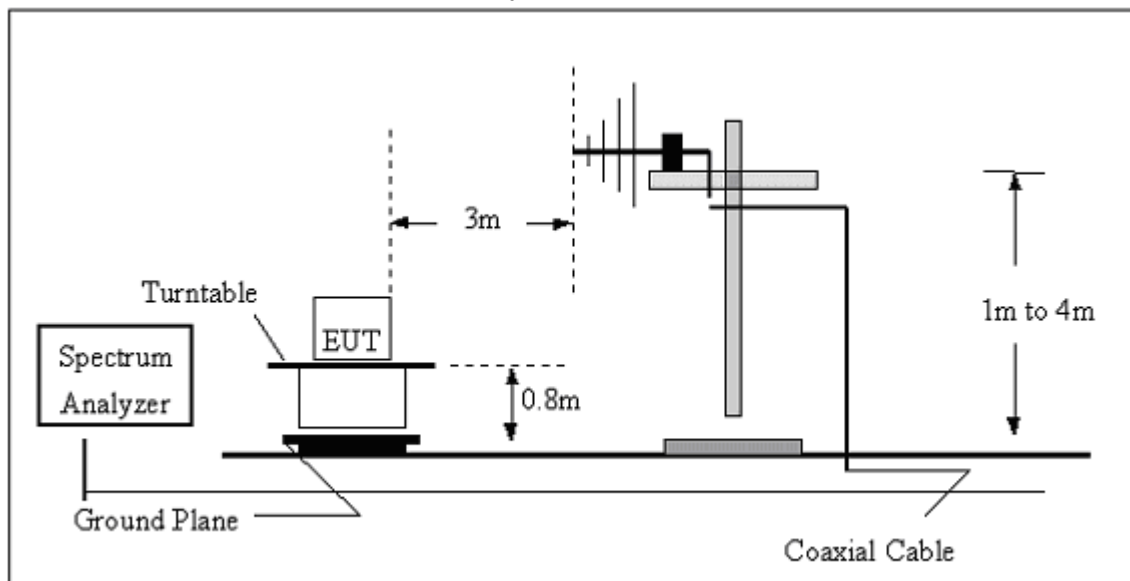
No deviation

3.2.4 TEST SETUP

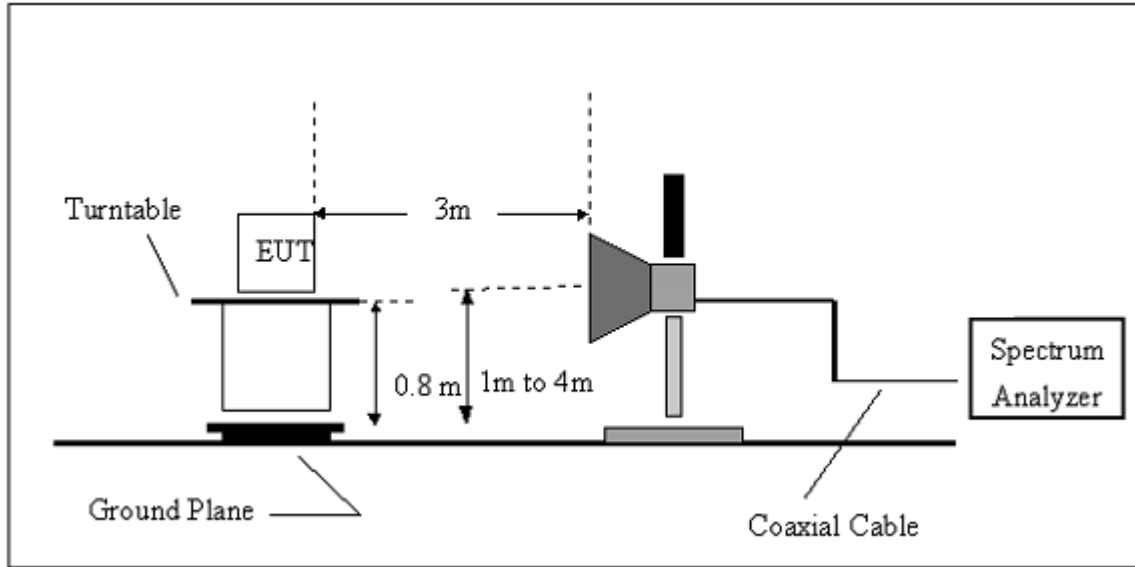
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz



3.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)

| | | | |
|--------------|------------------------------|--------------------|-------------|
| EUT: | 300Mbps Wireless USB Adapter | Model Name. : | MTO-WN820NM |
| Temperature: | 20 °C | Relative Humidity: | 48% |
| Pressure: | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | Mode 6 | Polarization : | -- |

| Freq. (MHz) | Reading (dBuV/m) | Limit (dBuV/m) | Margin (dB) | State P/F |
|----------------|---------------------|-------------------|----------------|--------------|
| -- | -- | -- | -- | -- |
| -- | -- | -- | -- | -- |

NOTE:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = $40 \log(\text{specific distance}/\text{test distance})$ (dB);

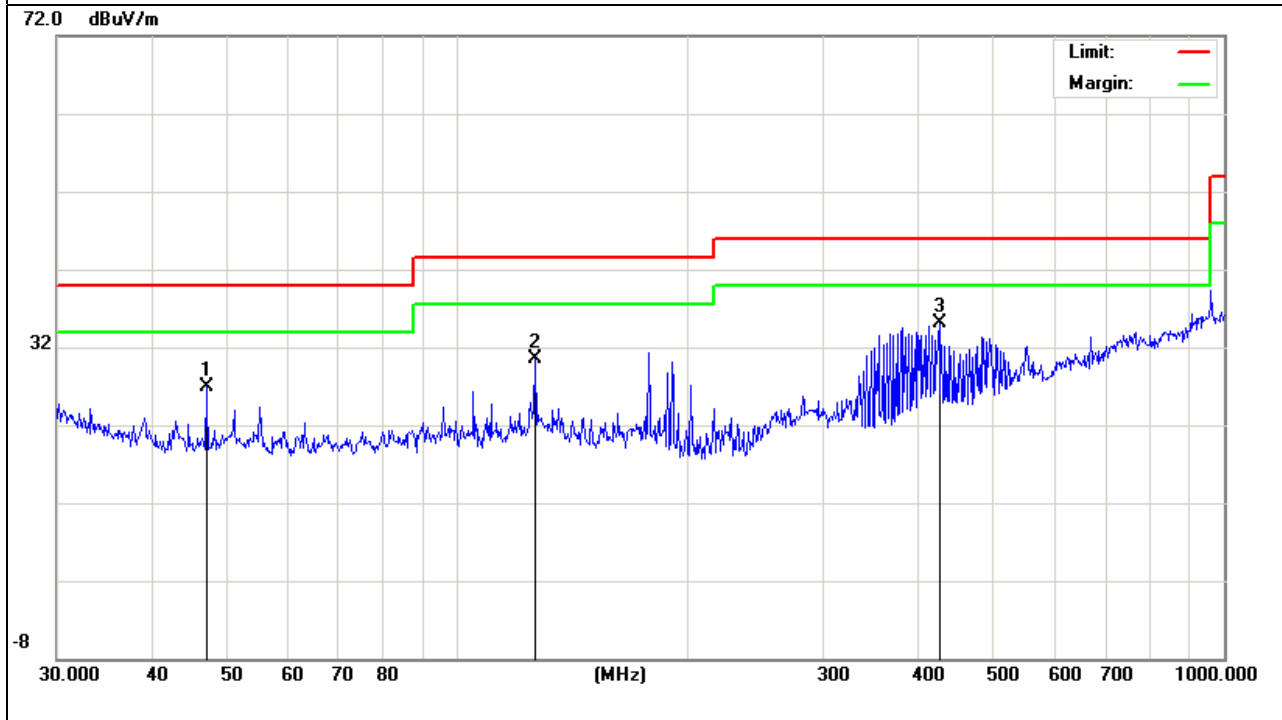
Limit line = specific limits(dBuv) + distance extrapolation factor.

3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)

| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | Mode 6 | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 46.9947 | 17.31 | 9.62 | 26.93 | 40 | -13.07 | QP |
| 126.3285 | 18.31 | 12.21 | 30.52 | 43.5 | -12.98 | QP |
| 425.028 | 16.12 | 18.91 | 35.03 | 46 | -10.97 | QP |
| | | | | | | |

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

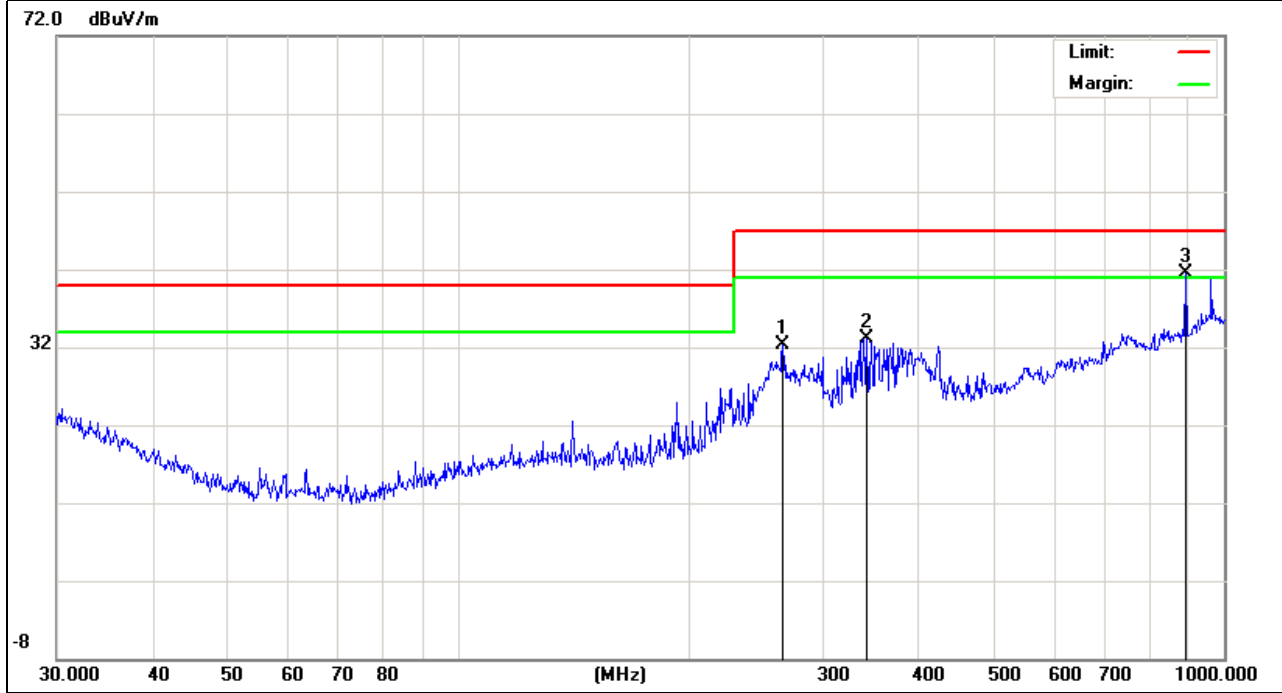


| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | Mode 6 | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 265.6757 | 17.9 | 14.46 | 32.36 | 47 | -14.64 | QP |
| 341.9786 | 16.91 | 16.19 | 33.1 | 47 | -13.9 | QP |
| 890.7278 | 13.97 | 27.46 | 41.43 | 47 | -5.57 | QP |
| | | | | | | |
| | | | | | | |

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

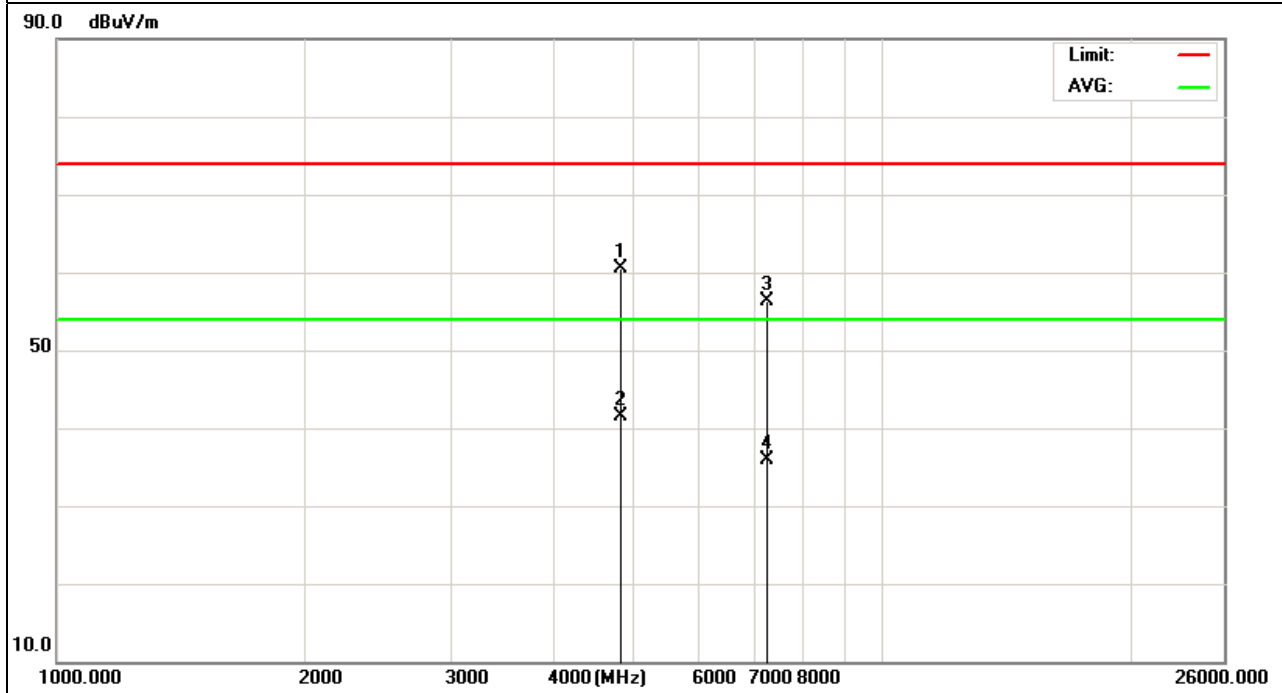


3.2.8 TEST RESULTS (ABOVE 1000 MHZ)

| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH1 (802.11b Mode)/2412 | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 4824 | 57.89 | 2.6 | 60.49 | 74 | -13.51 | peak |
| 4824 | 38.87 | 2.6 | 41.47 | 54 | -12.53 | AVG |
| 7236 | 51.69 | 4.59 | 56.28 | 74 | -17.72 | peak |
| 7236 | 31.24 | 4.59 | 35.83 | 54 | -18.17 | AVG |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

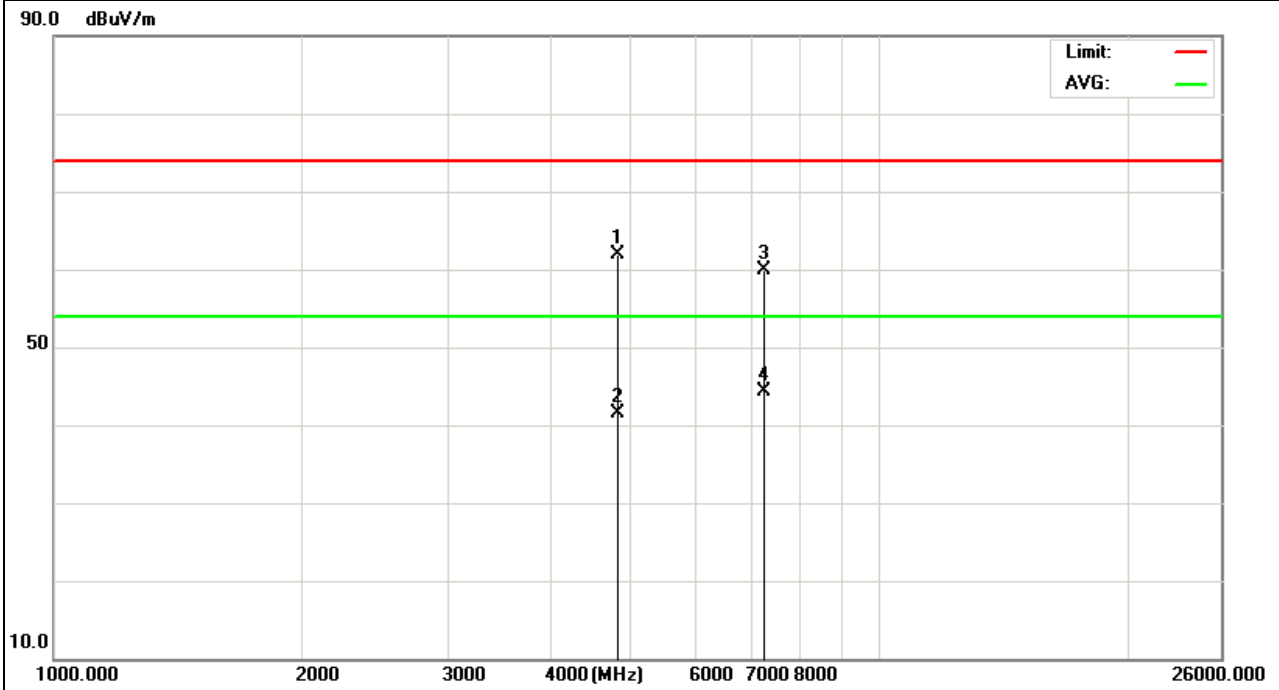
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH1 (802.11b Mode)/2412 | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|---------------|
| 4824 | 59.33 | 2.6 | 61.93 | 74 | -12.07 | peak |
| 4824 | 38.88 | 2.6 | 41.48 | 54 | -12.52 | AVG |
| 7236 | 55.26 | 4.59 | 59.85 | 74 | -14.15 | peak |
| 7236 | 39.67 | 4.59 | 44.26 | 54 | -9.74 | AVG |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

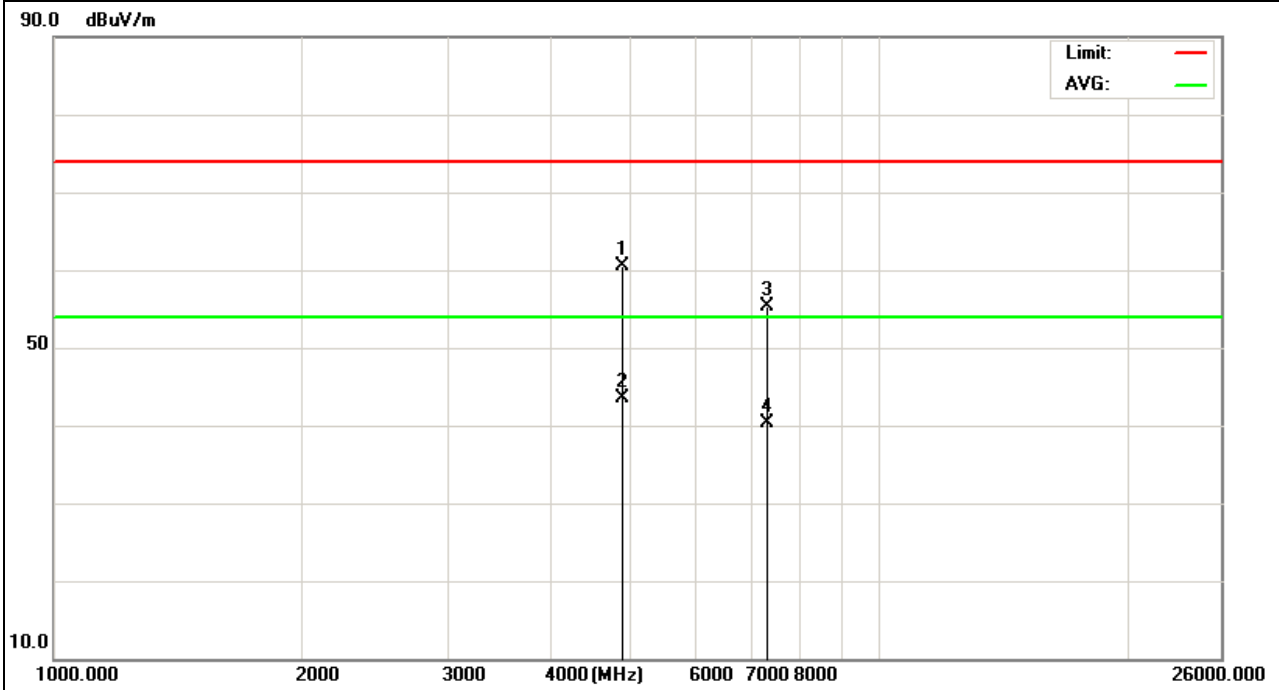
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH6 (802.11b Mode)/2437 | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 4874.147 | 50.15 | 10.4 | 60.55 | 74 | -13.45 | peak |
| 4874.147 | 33.09 | 10.4 | 43.49 | 54 | -10.51 | AVG |
| 7311.132 | 42.46 | 12.75 | 55.21 | 74 | -18.79 | peak |
| 7311.132 | 27.57 | 12.75 | 40.32 | 54 | -13.68 | AVG |
| | | | | | | |
| | | | | | | |

Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.

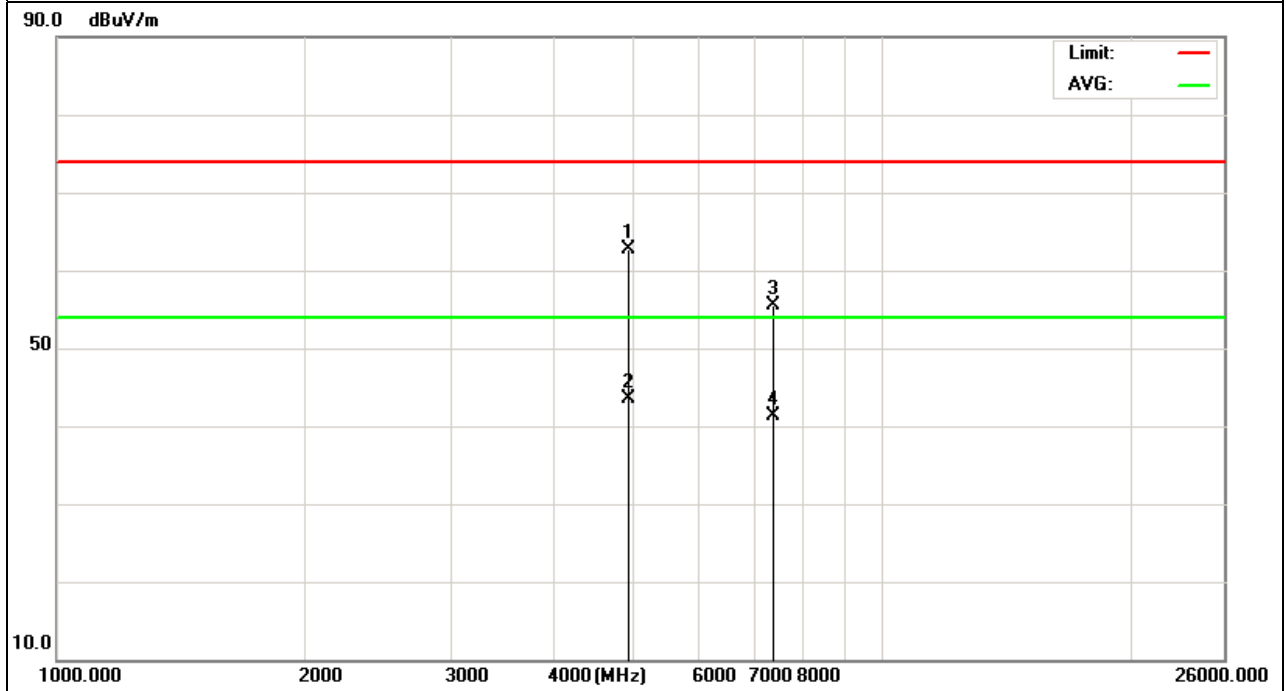


| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH6 (802.11b Mode)/2437 | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 4924.148 | 52.25 | 10.39 | 62.64 | 74 | -11.36 | peak |
| 4934.148 | 33.15 | 10.44 | 43.59 | 54 | -10.41 | AVG |
| 7386.128 | 42.82 | 12.68 | 55.5 | 74 | -18.5 | peak |
| 7386.128 | 28.69 | 12.68 | 41.37 | 54 | -12.63 | AVG |
| | | | | | | |
| | | | | | | |

Remark:

- Factor = Antenna Factor + Cable Loss – Pre-amplifier.
- No emission detected above 18GHz

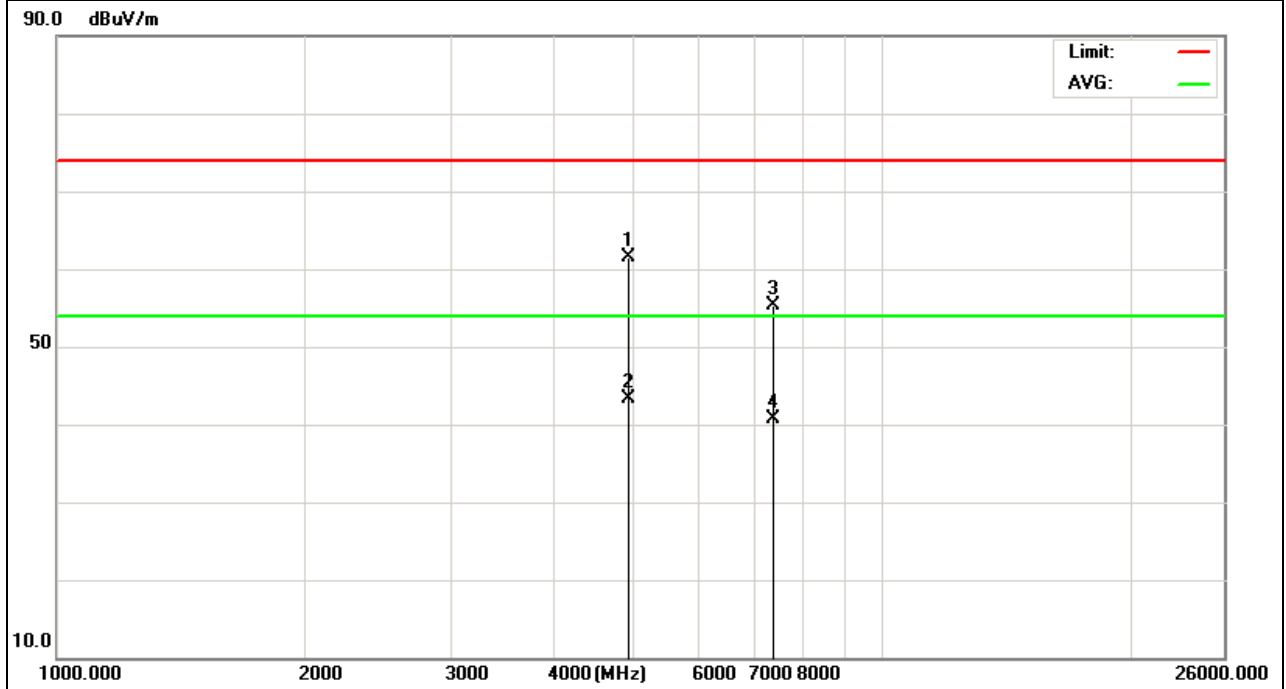


| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH11 (802.11b Mode)/2462 | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBµV) | Factor (dB) | Emission Level (dBµV/m) | Limits (dBµV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 4924.14 | 51.17 | 10.39 | 61.56 | 74 | -12.44 | peak |
| 4924.14 | 33 | 10.39 | 43.39 | 54 | -10.61 | AVG |
| 7386.136 | 42.56 | 12.68 | 55.24 | 74 | -18.76 | peak |
| 7386.136 | 27.99 | 12.68 | 40.67 | 54 | -13.33 | AVG |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Remark:

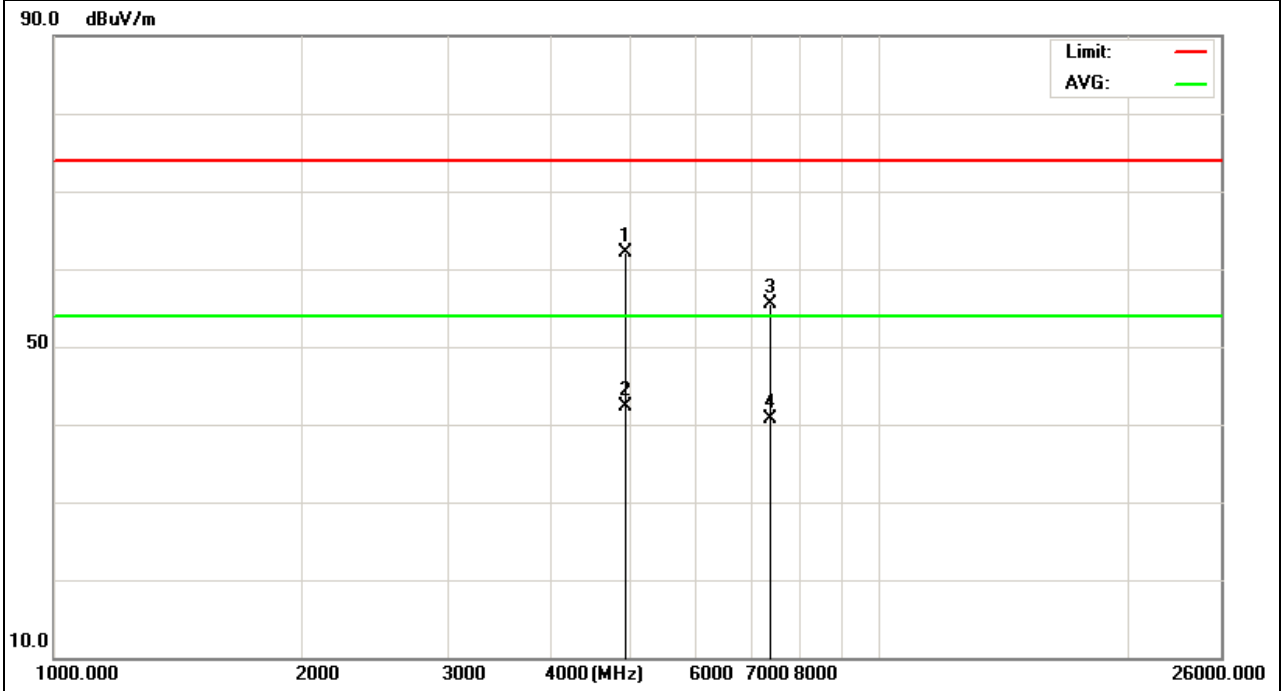
- Factor = Antenna Factor + Cable Loss – Pre-amplifier.
- No emission detected above 18GHz



| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH11 (802.11b Mode)/2462 | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 4924.116 | 51.79 | 10.39 | 62.18 | 74 | -11.82 | peak |
| 4924.116 | 31.98 | 10.39 | 42.37 | 54 | -11.63 | AVG |
| 7386.138 | 42.78 | 12.68 | 55.46 | 74 | -18.54 | peak |
| 7386.138 | 28.06 | 12.68 | 40.74 | 54 | -13.26 | AVG |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

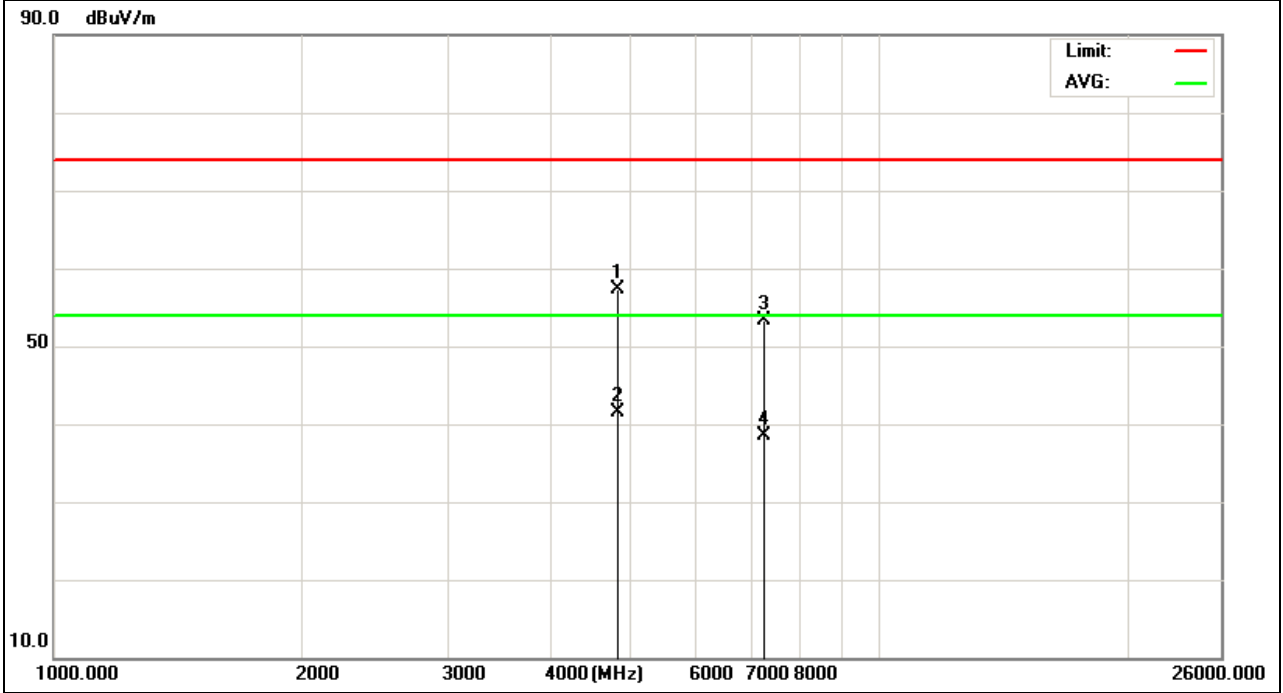
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH1 (802.11g Mode)/2412 | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBµV) | Factor (dB) | Emission Level (dBµV/m) | Limits (dBµV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 4824.163 | 46.94 | 10.44 | 57.38 | 74 | -16.62 | peak |
| 4824.163 | 31.12 | 10.44 | 41.56 | 54 | -12.44 | AVG |
| 7236.119 | 40.86 | 12.39 | 53.25 | 74 | -20.75 | peak |
| 7236.119 | 26.08 | 12.39 | 38.47 | 54 | -15.53 | AVG |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

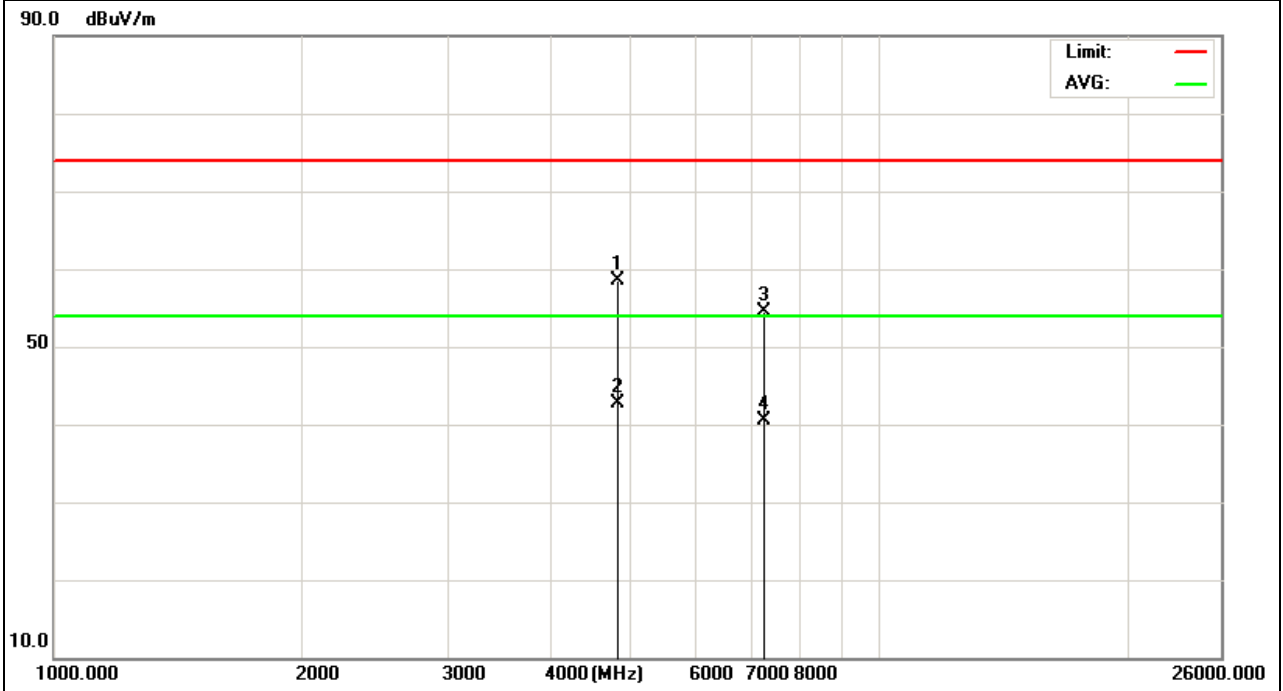
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH1 (802.11g Mode)/2412 | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 4824.152 | 48.15 | 10.44 | 58.59 | 74 | -15.41 | peak |
| 4824.152 | 32.22 | 10.44 | 42.66 | 54 | -11.34 | AVG |
| 7236.136 | 42.07 | 12.39 | 54.46 | 74 | -19.54 | peak |
| 7236.136 | 28.09 | 12.39 | 40.48 | 54 | -13.52 | AVG |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

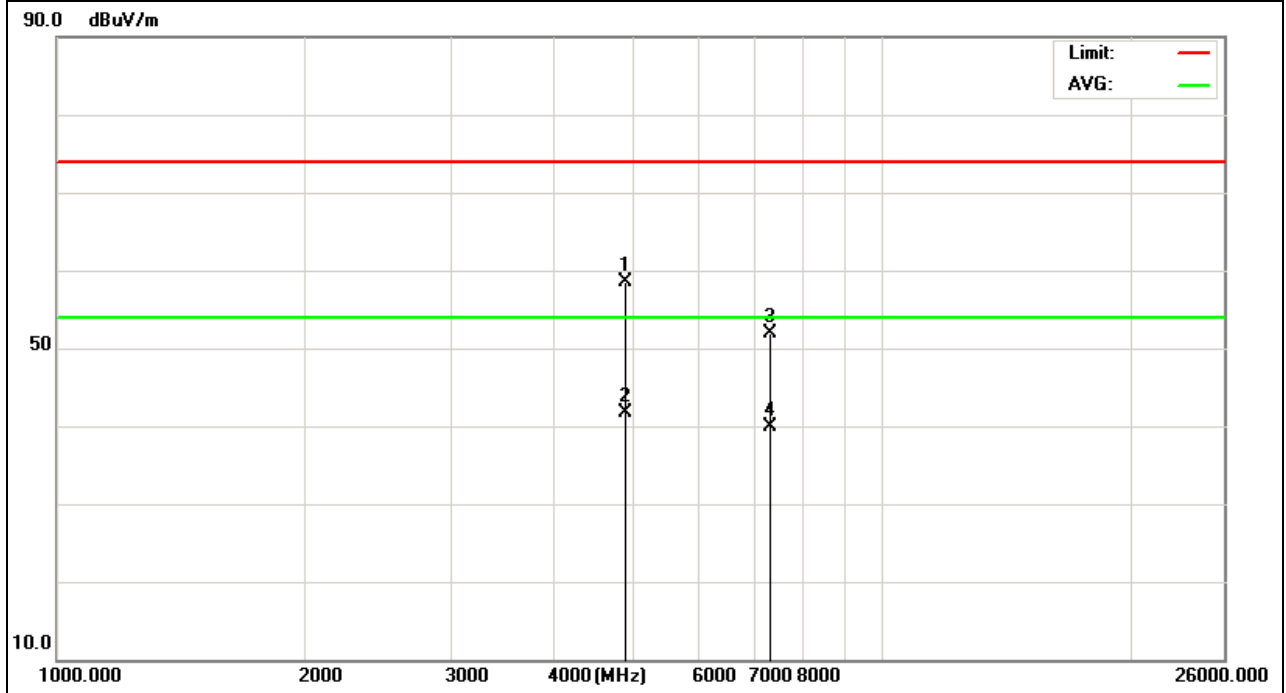
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH6 (802.11g Mode)/2437 | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 4874.128 | 48.17 | 10.4 | 58.57 | 74 | -15.43 | peak |
| 4874.128 | 31.38 | 10.4 | 41.78 | 54 | -12.22 | AVG |
| 7311.166 | 39.1 | 12.75 | 51.85 | 74 | -22.15 | peak |
| 7311.166 | 27.12 | 12.75 | 39.87 | 54 | -14.13 | AVG |
| | | | | | | |
| | | | | | | |

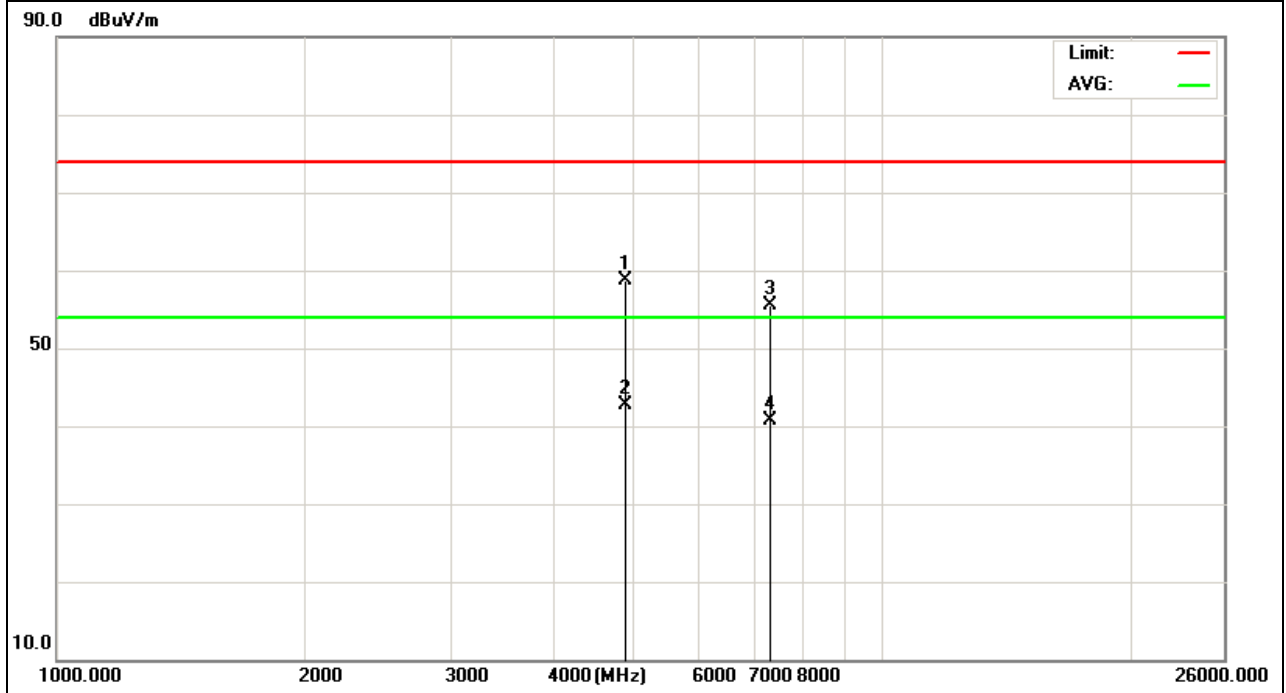
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH6 (802.11g Mode)/2437 | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 4874.162 | 48.33 | 10.4 | 58.73 | 74 | -15.27 | peak |
| 4874.162 | 32.21 | 10.4 | 42.61 | 54 | -11.39 | AVG |
| 7311.123 | 42.82 | 12.75 | 55.57 | 74 | -18.43 | peak |
| 7311.128 | 27.88 | 12.75 | 40.63 | 54 | -13.37 | AVG |
| | | | | | | |
| | | | | | | |

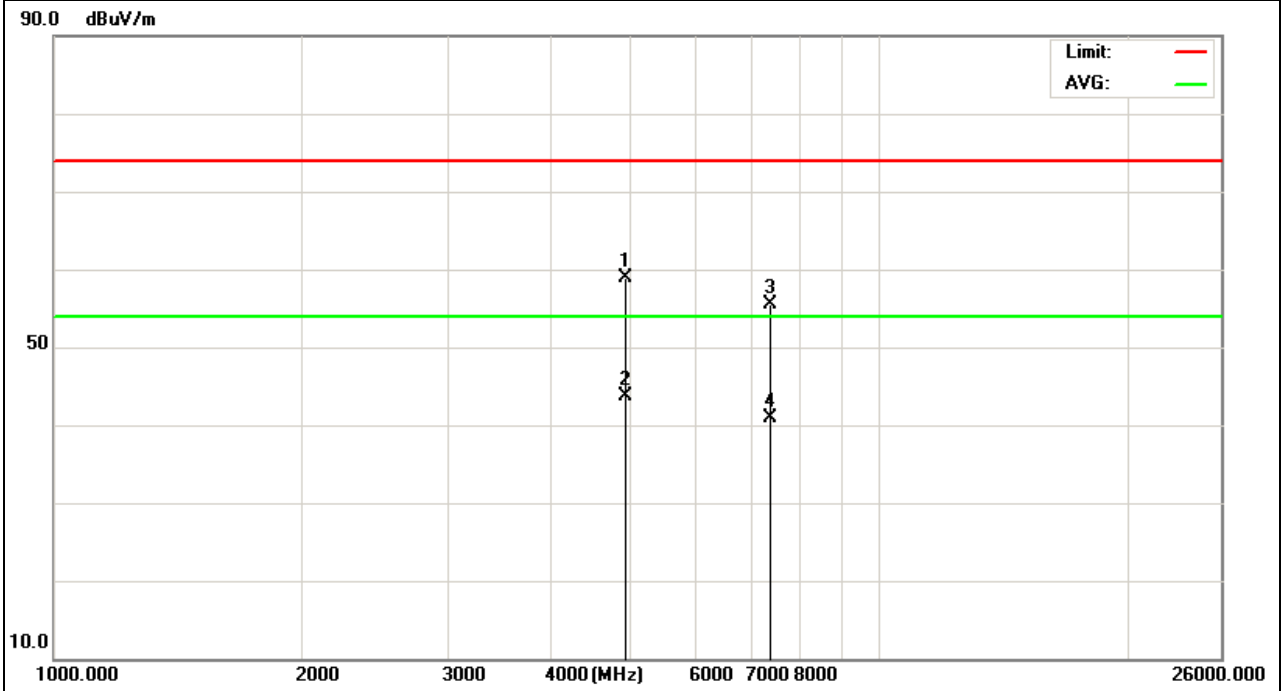
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH11 (802.11g Mode)/2462 | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBµV) | Factor (dB) | Emission Level (dBµV/m) | Limits (dBµV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 4924.132 | 48.42 | 10.39 | 58.81 | 74 | -15.19 | peak |
| 4924.132 | 33.27 | 10.39 | 43.66 | 54 | -10.34 | AVG |
| 7386.14 | 42.8 | 12.68 | 55.48 | 74 | -18.52 | peak |
| 7386.14 | 28.17 | 12.68 | 40.85 | 54 | -13.15 | AVG |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

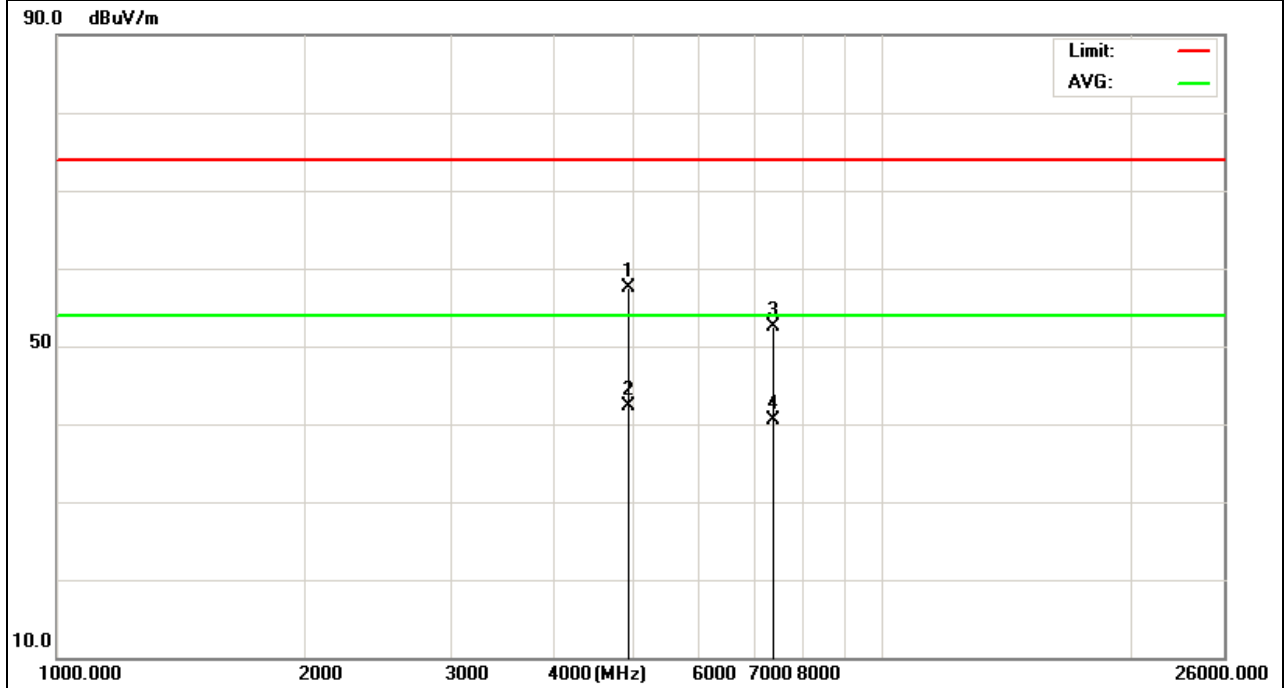
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH11(802.11g Mode)/2462 | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 4924.144 | 47.12 | 10.39 | 57.51 | 74 | -16.49 | peak |
| 4924.144 | 31.98 | 10.39 | 42.37 | 54 | -11.63 | AVG |
| 7386.123 | 39.84 | 12.68 | 52.52 | 74 | -21.48 | peak |
| 7386.123 | 27.87 | 12.68 | 40.55 | 54 | -13.45 | AVG |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

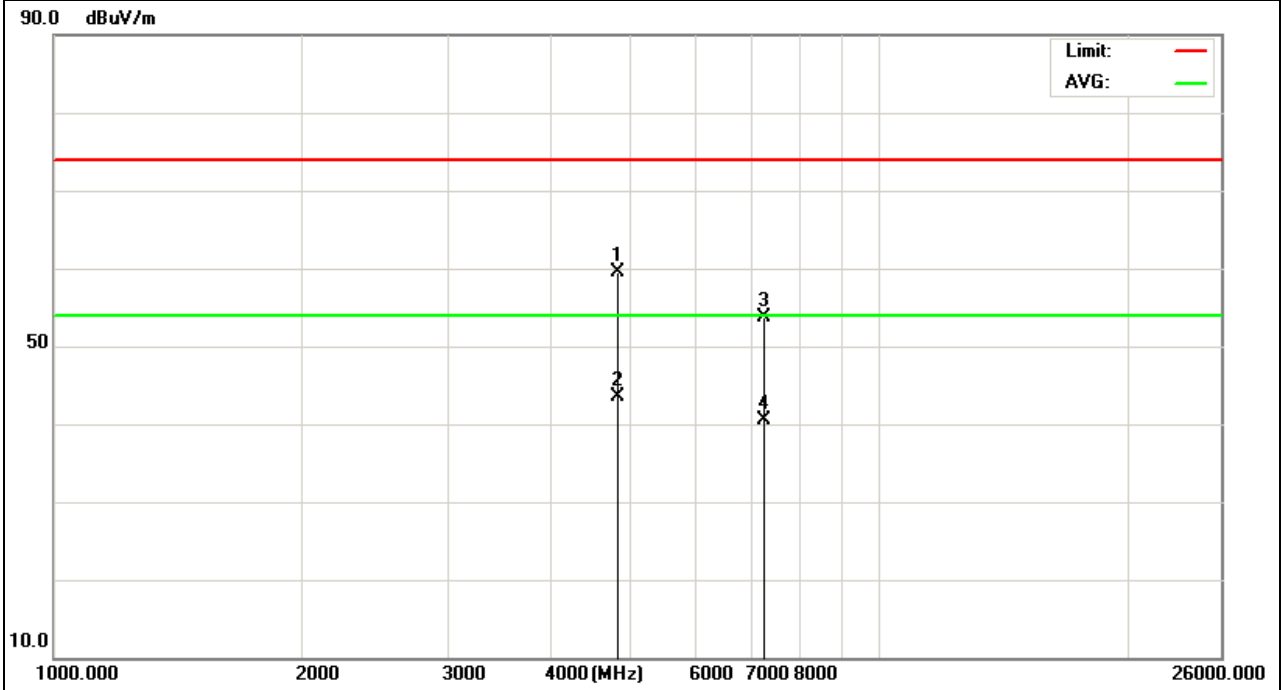
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH1(802.11n Mode)/20MHz | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 4824.135 | 49.04 | 10.44 | 59.48 | 74 | -14.52 | peak |
| 4824.135 | 33.12 | 10.44 | 43.56 | 54 | -10.44 | AVG |
| 7236.123 | 41.32 | 12.39 | 53.71 | 74 | -20.29 | peak |
| 7236.123 | 28.21 | 12.39 | 40.6 | 54 | -13.4 | AVG |
| | | | | | | |
| | | | | | | |

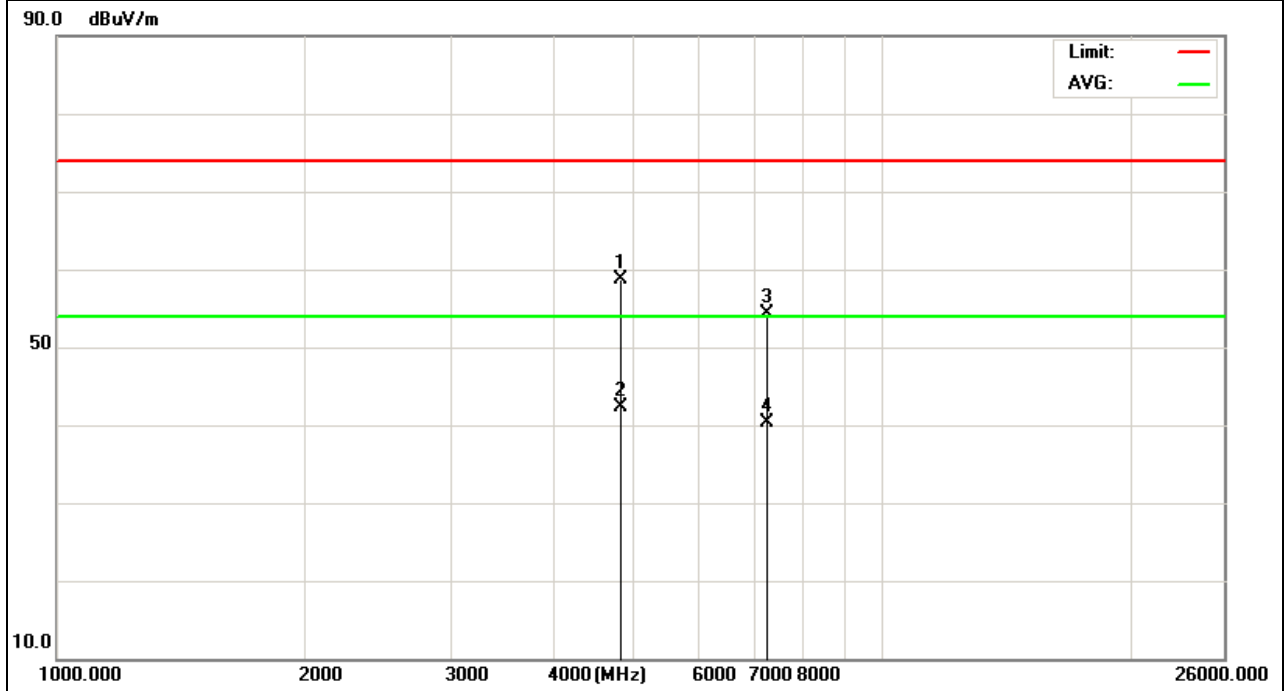
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH1(802.11n Mode)/20MHz | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBµV) | Factor (dB) | Emission Level (dBµV/m) | Limits (dBµV/m) | Margin (dB) | Detector Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|---------------|
| 4824.136 | 48.17 | 10.44 | 58.61 | 74 | -15.39 | peak |
| 4824.136 | 31.91 | 10.44 | 42.35 | 54 | -11.65 | AVG |
| 7236.142 | 42 | 12.39 | 54.39 | 74 | -19.61 | peak |
| 7236.142 | 27.98 | 12.39 | 40.37 | 54 | -13.63 | AVG |
| | | | | | | |
| | | | | | | |

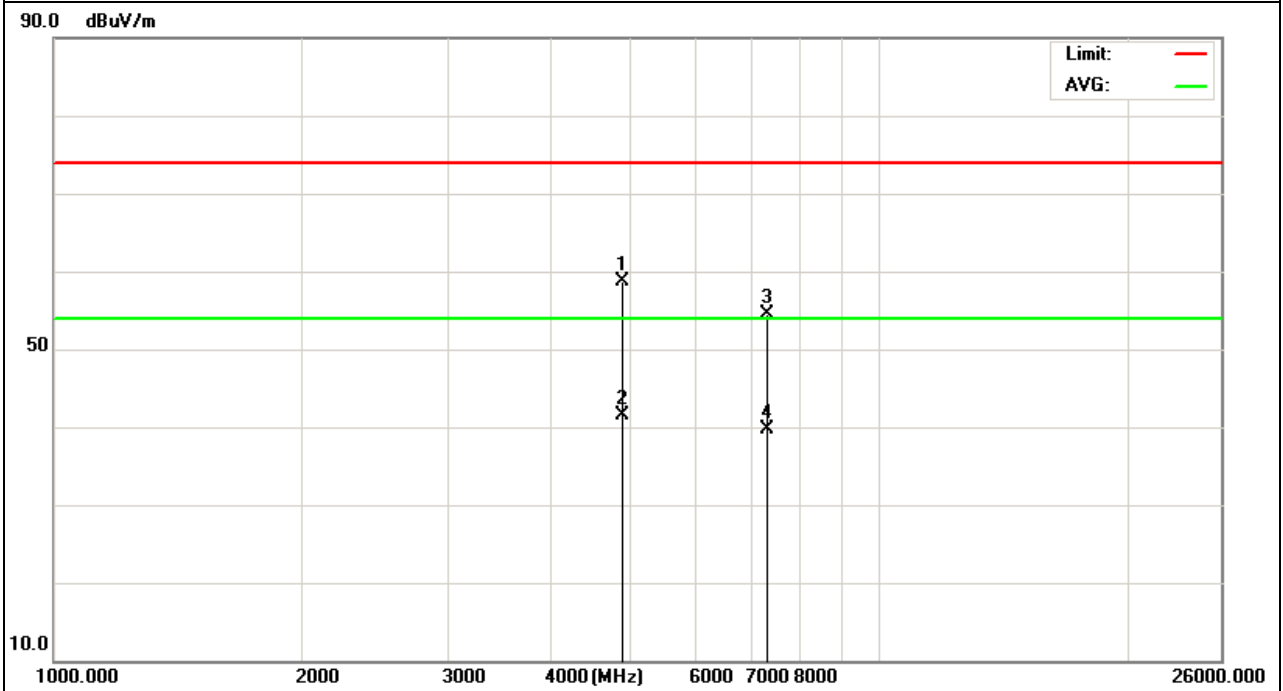
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH6(802.11n Mode)/20MHz | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 4874.152 | 48.37 | 10.4 | 58.77 | 74 | -15.23 | peak |
| 4874.152 | 31.18 | 10.4 | 41.58 | 54 | -12.42 | AVG |
| 7311.177 | 41.73 | 12.75 | 54.48 | 74 | -19.52 | peak |
| 7311.177 | 26.9 | 12.75 | 39.65 | 54 | -14.35 | AVG |
| | | | | | | |
| | | | | | | |

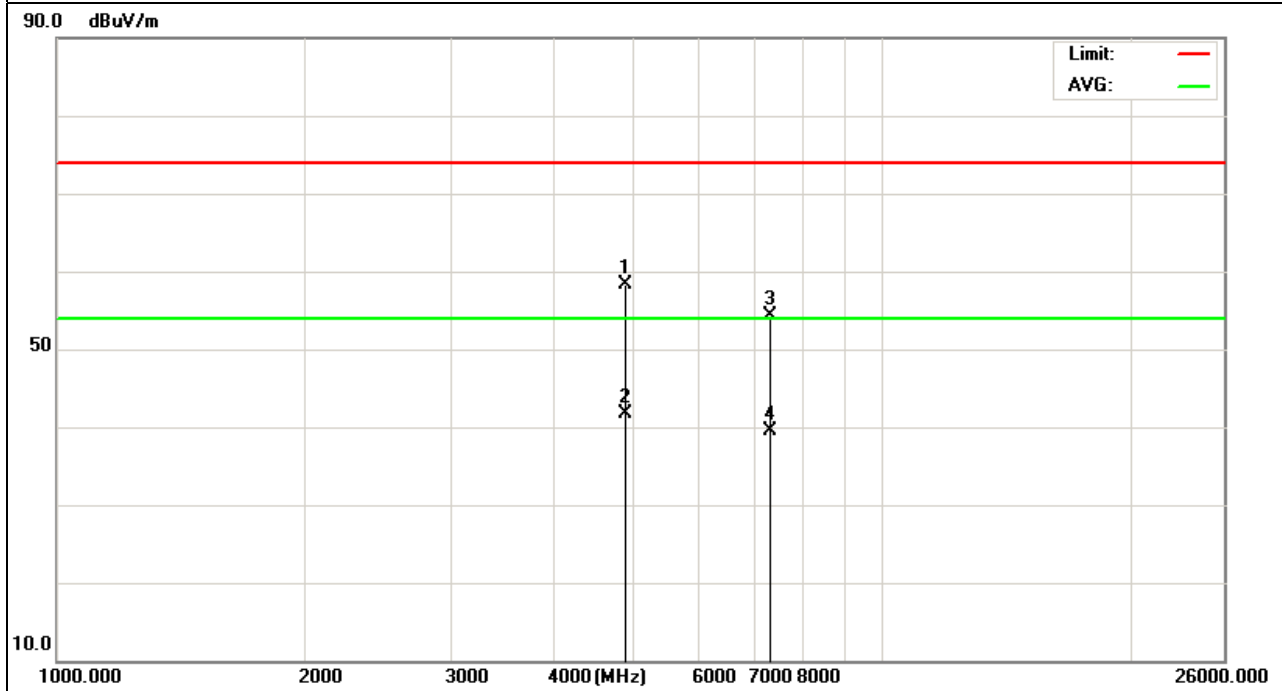
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH6(802.11n Mode)/20MHz | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 4874.153 | 47.88 | 10.4 | 58.28 | 74 | -15.72 | peak |
| 4874.153 | 31.31 | 10.4 | 41.71 | 54 | -12.29 | AVG |
| 7311.165 | 41.53 | 12.75 | 54.28 | 74 | -19.72 | peak |
| 7311.165 | 26.83 | 12.75 | 39.58 | 54 | -14.42 | AVG |
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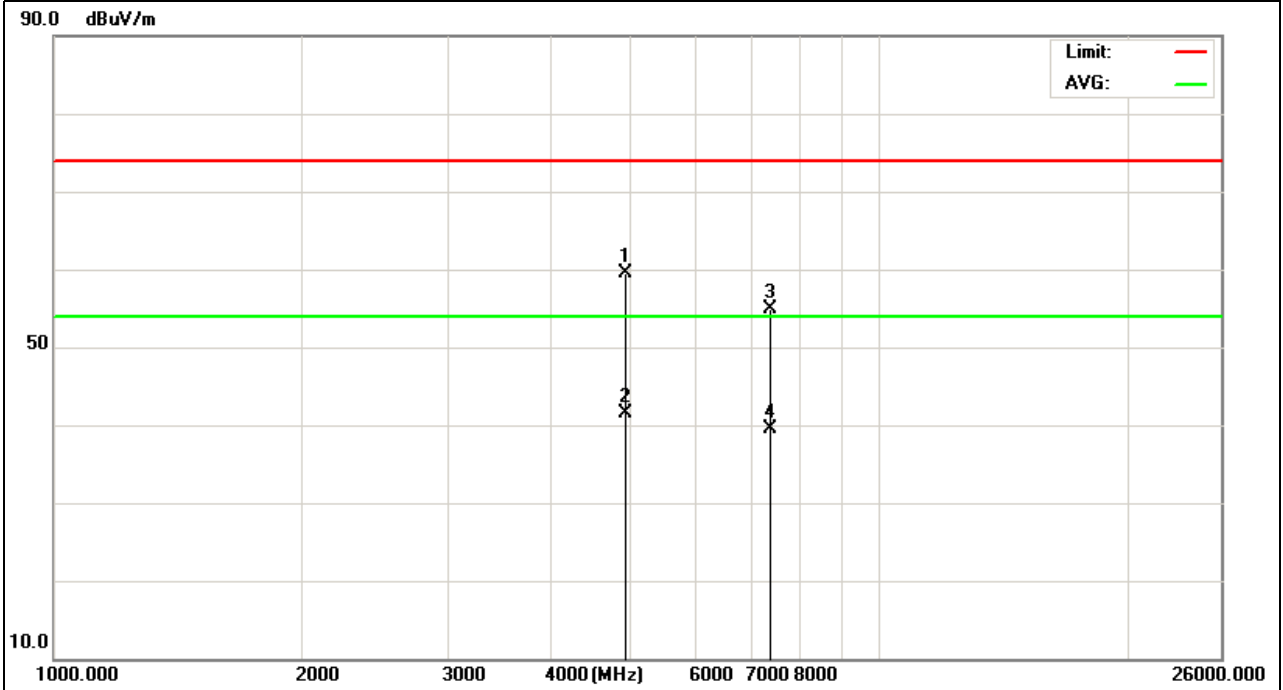
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH11(802.11n Mode)/20MHz | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 4924.133 | 49.09 | 10.39 | 59.48 | 74 | -14.52 | peak |
| 4924.133 | 31.2 | 10.39 | 41.59 | 54 | -12.41 | AVG |
| 7386.172 | 42.14 | 12.68 | 54.82 | 74 | -19.18 | peak |
| 7386.172 | 26.75 | 12.68 | 39.43 | 54 | -14.57 | AVG |
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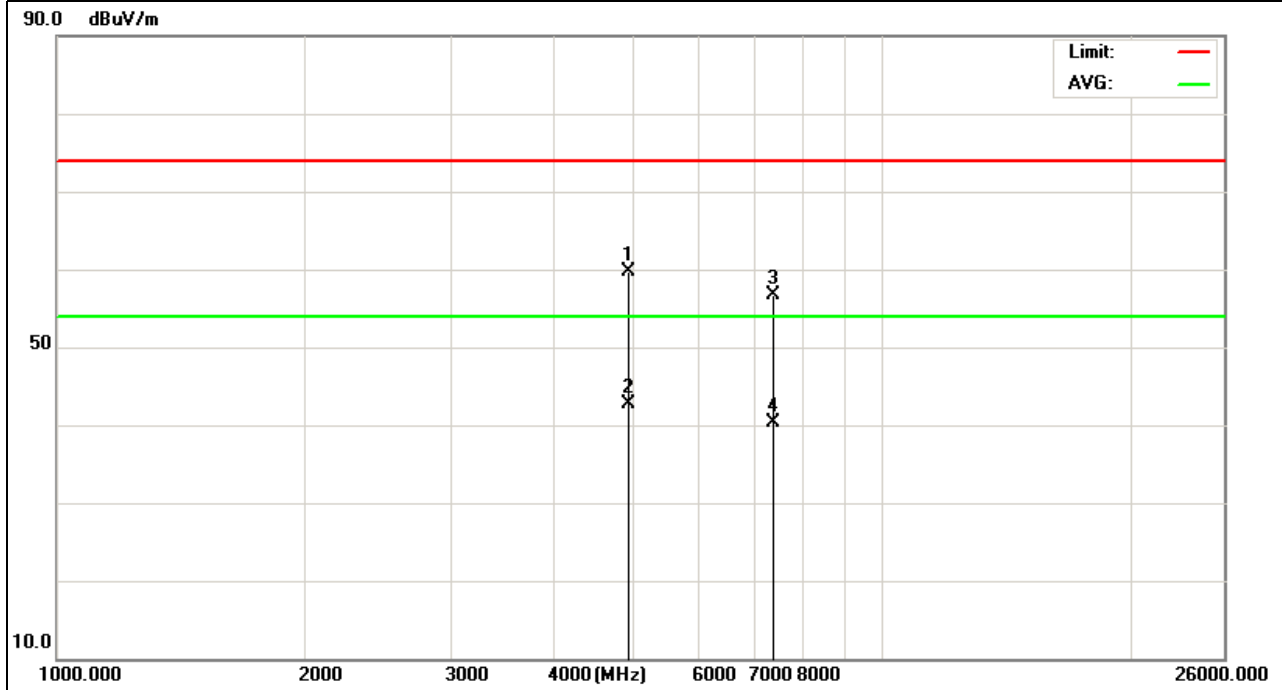
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH11(802.11n Mode)/20MHz | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|---------------|
| 4924.14 | 49.35 | 10.39 | 59.74 | 74 | -14.26 | peak |
| 4924.14 | 32.29 | 10.39 | 42.68 | 54 | -11.32 | AVG |
| 7386.165 | 43.95 | 12.68 | 56.63 | 74 | -17.37 | peak |
| 7386.165 | 27.58 | 12.68 | 40.26 | 54 | -13.74 | AVG |
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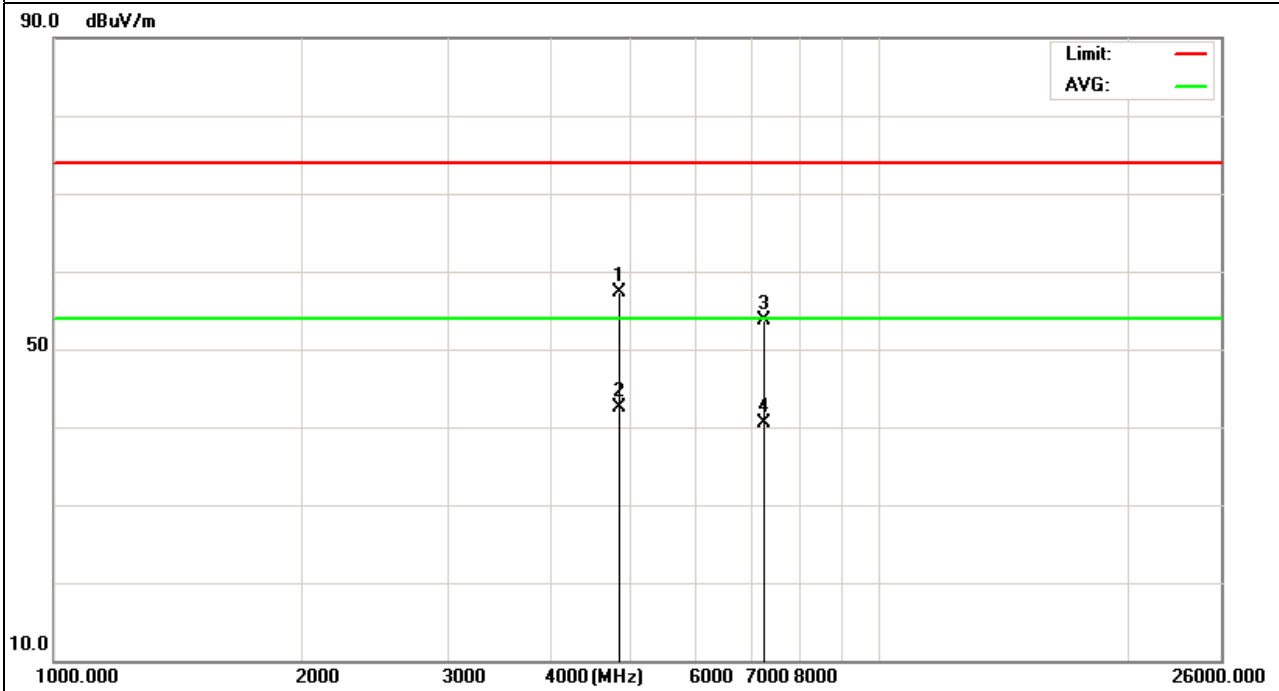
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



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|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH3(802.11n Mode)/40MHz | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 4844.159 | 46.78 | 10.5 | 57.28 | 74 | -16.72 | peak |
| 4844.159 | 31.96 | 10.5 | 42.46 | 54 | -11.54 | AVG |
| 7266.337 | 41.29 | 12.5 | 53.79 | 74 | -20.21 | peak |
| 7266.337 | 28.08 | 12.5 | 40.58 | 54 | -13.42 | AVG |
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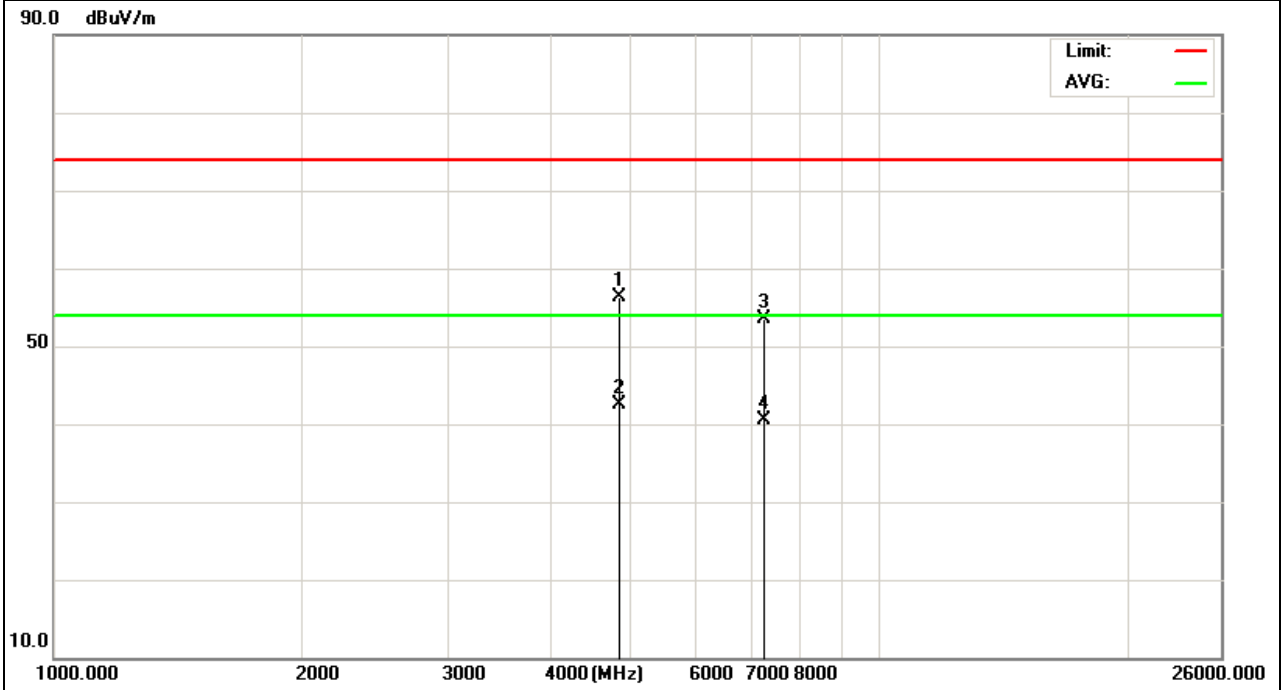
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH3(802.11n Mode)/40MHz | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 4844.326 | 45.82 | 10.5 | 56.32 | 74 | -17.68 | peak |
| 4844.326 | 31.96 | 10.5 | 42.46 | 54 | -11.54 | AVG |
| 7266.238 | 41.05 | 12.5 | 53.55 | 74 | -20.45 | peak |
| 7266.238 | 27.92 | 12.5 | 40.42 | 54 | -13.58 | AVG |
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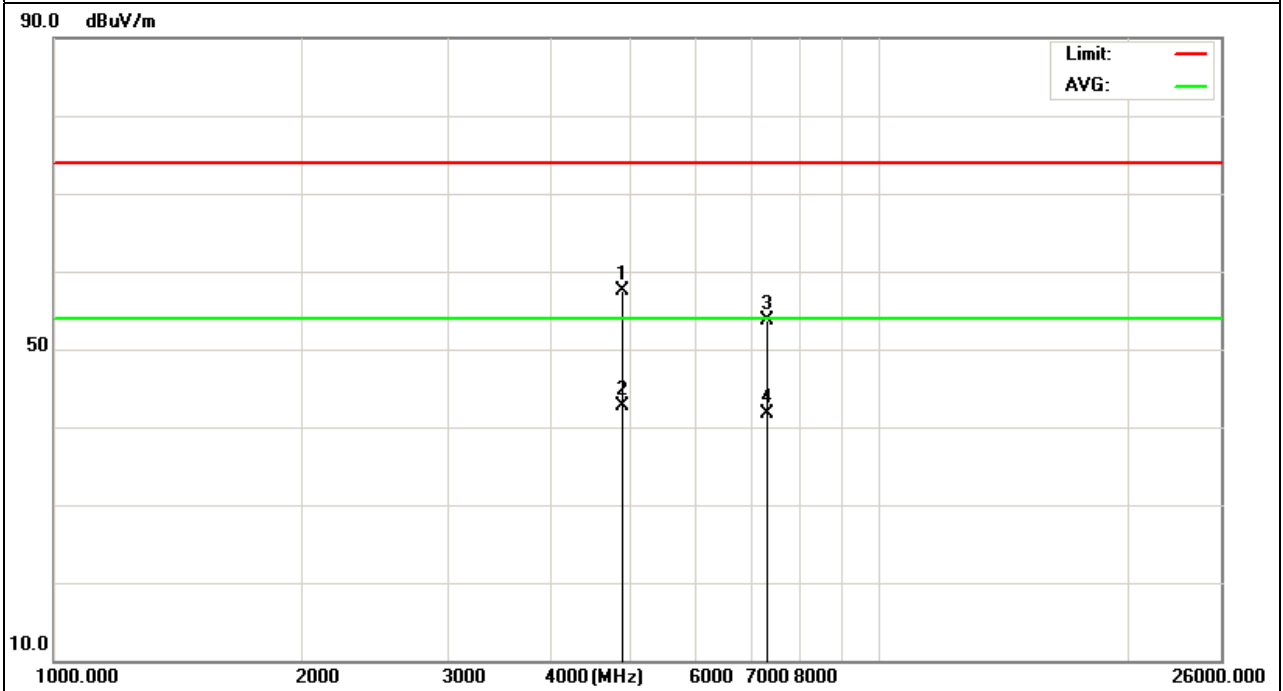
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH6(802.11n Mode)/40MHz | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 4874.237 | 47.05 | 10.4 | 57.45 | 74 | -16.55 | peak |
| 4874.237 | 32.24 | 10.4 | 42.64 | 54 | -11.36 | AVG |
| 7311.158 | 41.01 | 12.75 | 53.76 | 74 | -20.24 | peak |
| 7311.158 | 28.88 | 12.75 | 41.63 | 54 | -12.37 | AVG |
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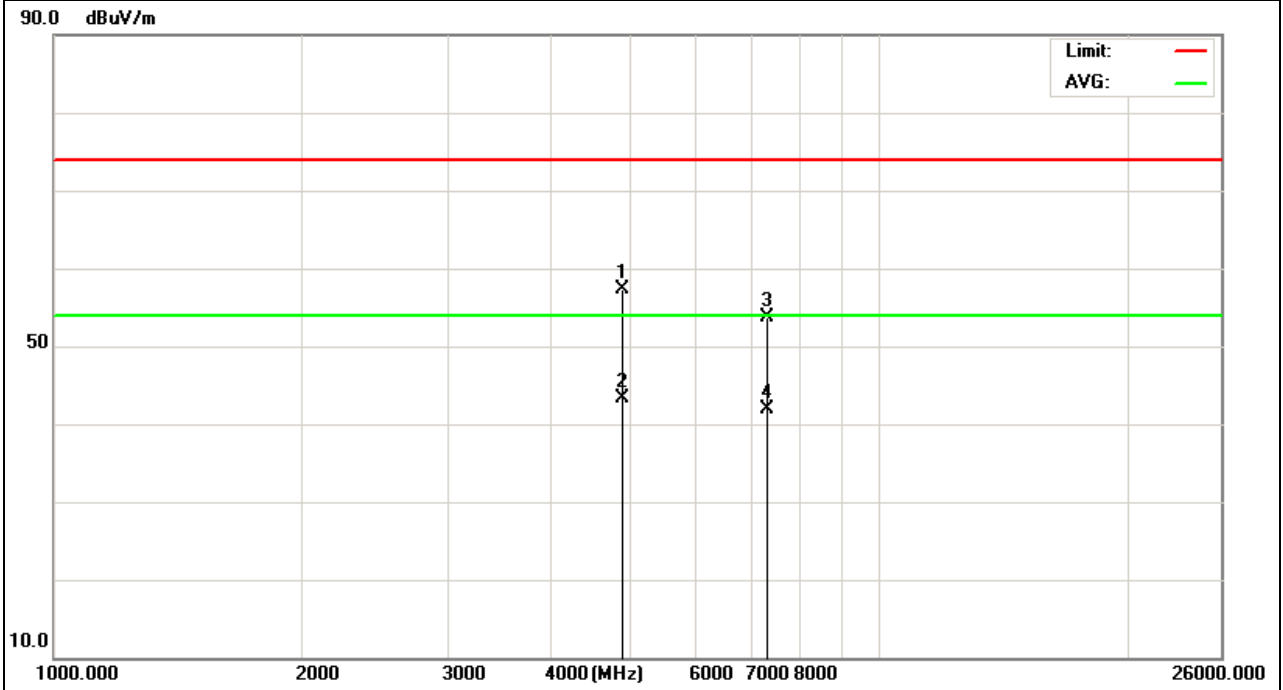
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



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|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH6(802.11n Mode)/40MHz | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 4874.537 | 46.83 | 10.4 | 57.23 | 74 | -16.77 | peak |
| 4874.537 | 32.87 | 10.4 | 43.27 | 54 | -10.73 | AVG |
| 7311.634 | 40.87 | 12.75 | 53.62 | 74 | -20.38 | peak |
| 7311.634 | 29.1 | 12.75 | 41.85 | 54 | -12.15 | AVG |
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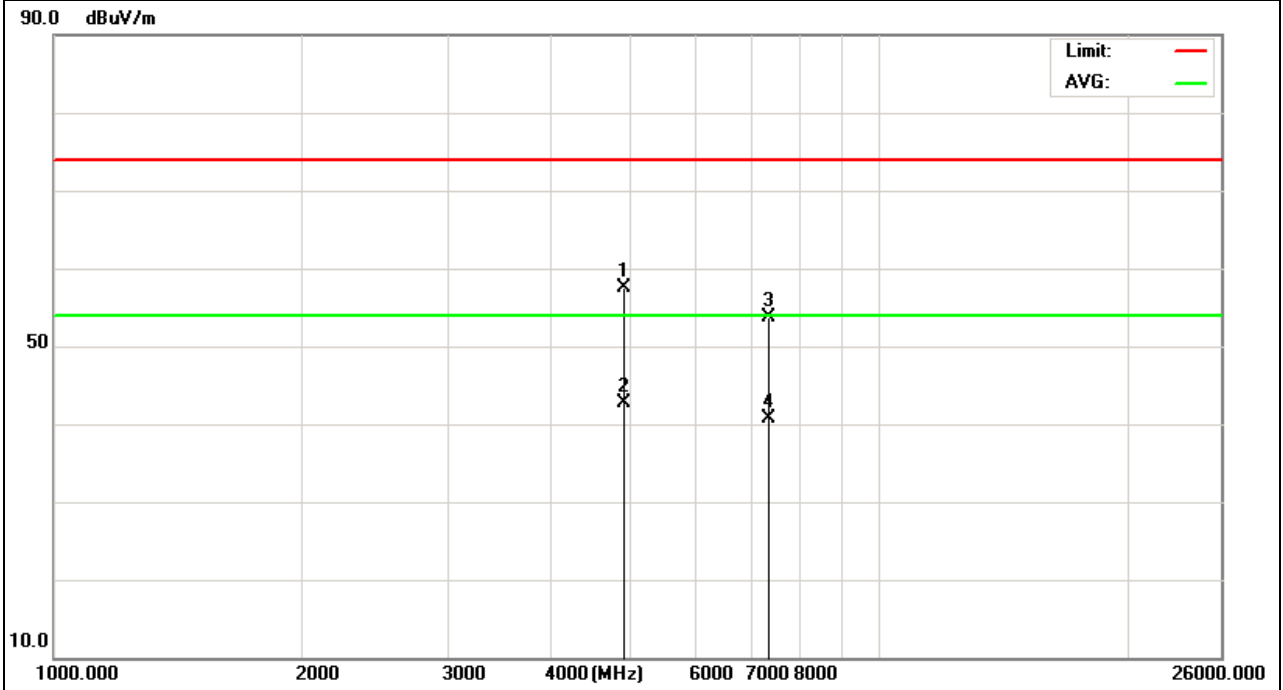
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



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|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH9(802.11n Mode)/40MHz | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 4904.345 | 47.24 | 10.29 | 57.53 | 74 | -16.47 | peak |
| 4904.345 | 32.49 | 10.29 | 42.78 | 54 | -11.22 | AVG |
| 7356.243 | 40.83 | 12.79 | 53.62 | 74 | -20.38 | peak |
| 7356.243 | 27.82 | 12.79 | 40.61 | 54 | -13.39 | AVG |
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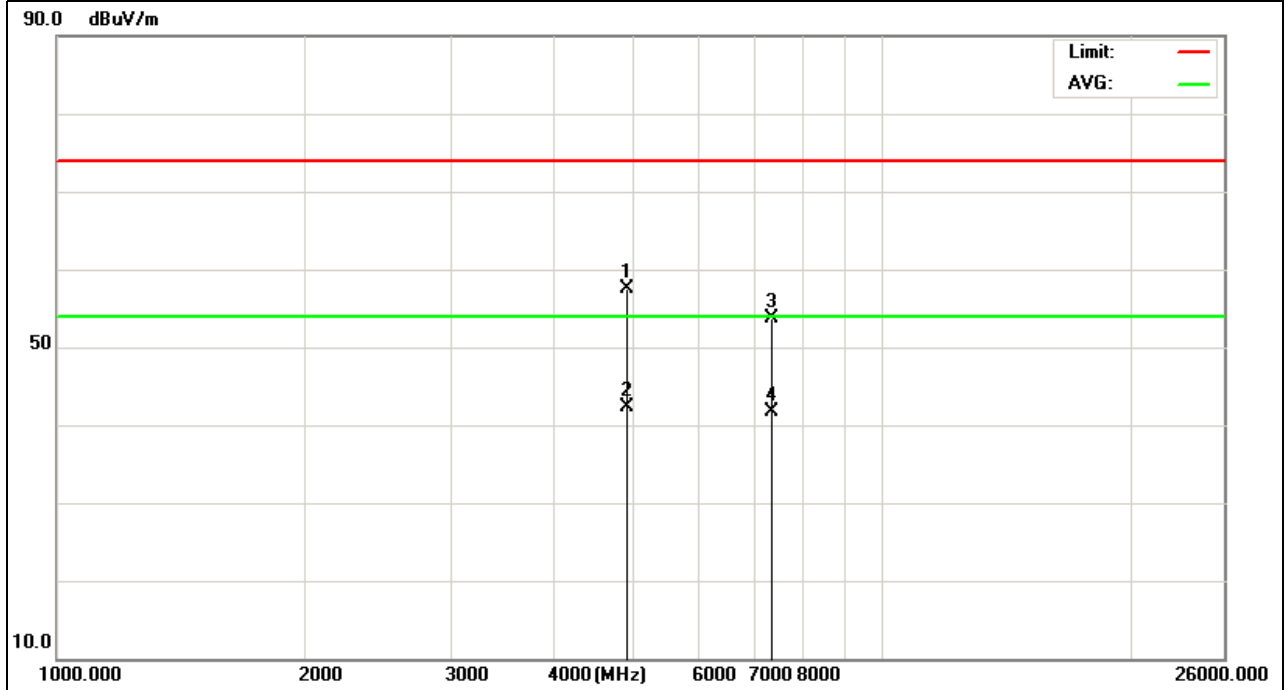
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



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|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH9(802.11n Mode)/40MHz | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 4904.133 | 47.25 | 10.29 | 57.54 | 74 | -16.46 | peak |
| 4904.133 | 32.1 | 10.29 | 42.39 | 54 | -11.61 | AVG |
| 7356.418 | 40.88 | 12.79 | 53.67 | 74 | -20.33 | peak |
| 7356.418 | 28.86 | 12.79 | 41.65 | 54 | -12.35 | AVG |
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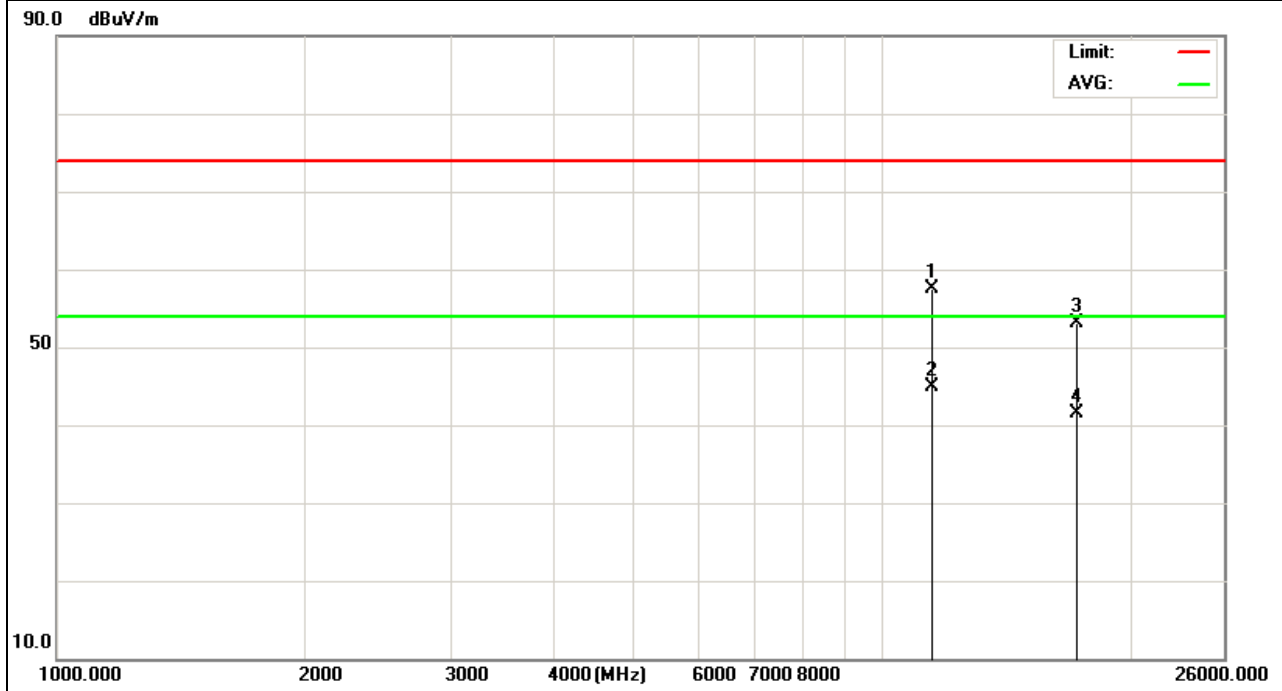
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



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|---------------|------------------------------|---------------------|---------------------------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V from PC AC 120V/60Hz |
| Test Mode : | 802.11a/5745MHz | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|---------------|
| 11490.058 | 47.93 | 9.5 | 57.43 | 74 | -16.57 | peak |
| 11490.058 | 35.41 | 9.5 | 44.91 | 54 | -9.09 | AVG |
| 17235.036 | 35.06 | 18.1 | 53.16 | 74 | -20.84 | peak |
| 17235.036 | 23.45 | 18.1 | 41.55 | 54 | -12.45 | AVG |
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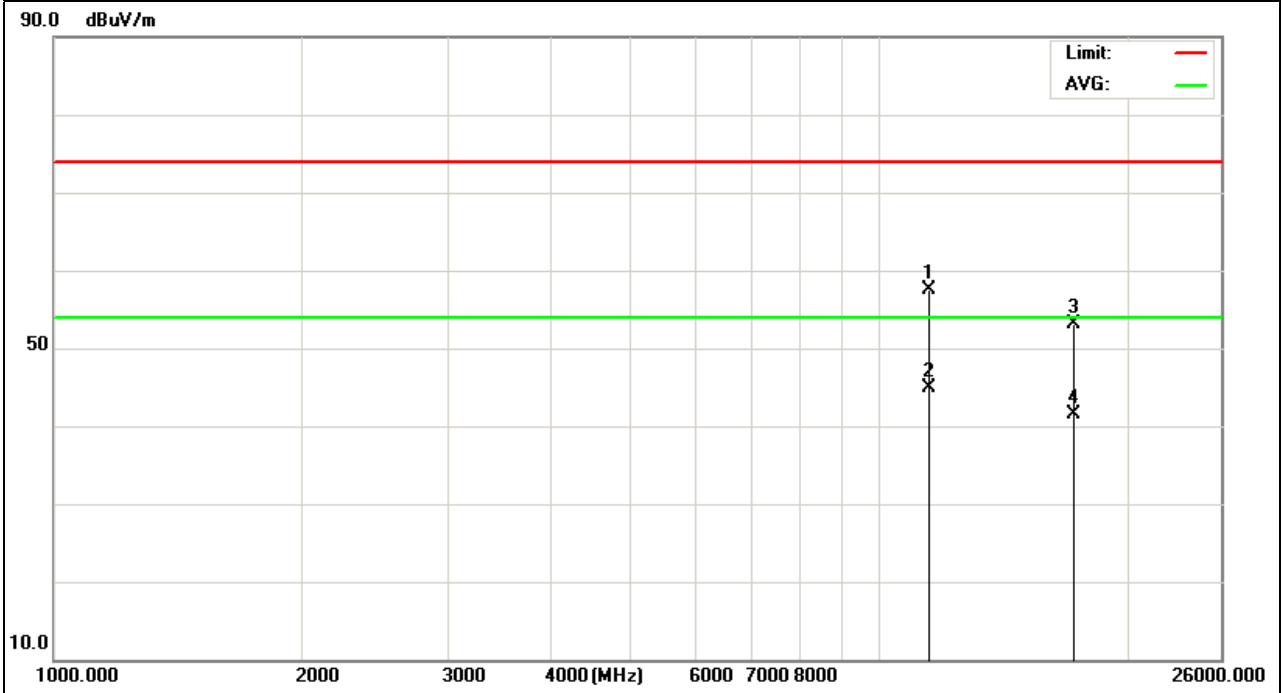
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.
 No emission detected above 26GHz.



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|---------------|------------------------------|---------------------|---------------------------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V from PC AC 120V/60Hz |
| Test Mode : | 802.11a/5745MHz | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|---------------|
| 11490.015 | 47.91 | 9.5 | 57.41 | 74 | -16.59 | peak |
| 11490.015 | 35.43 | 9.5 | 44.93 | 54 | -9.07 | AVG |
| 17235.032 | 35.05 | 18.1 | 53.15 | 74 | -20.85 | peak |
| 17235.032 | 23.39 | 18.1 | 41.49 | 54 | -12.51 | AVG |
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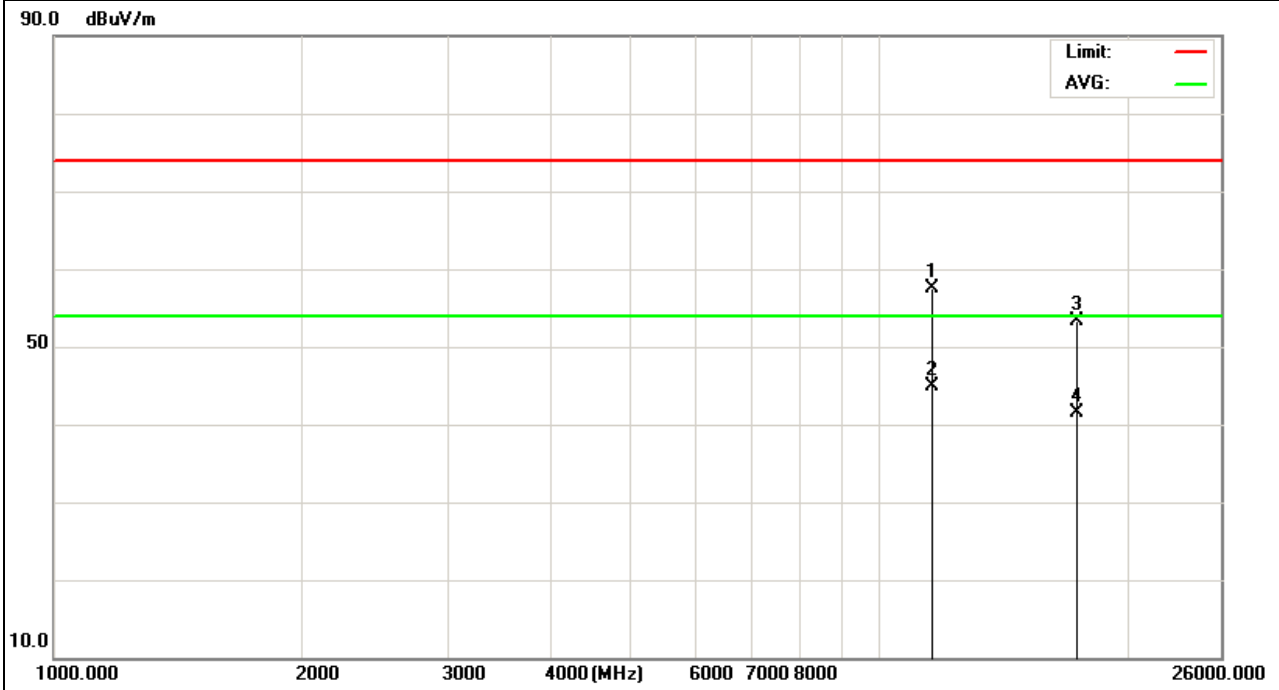
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.
 No emission detected above 26GHz.



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|---------------|------------------------------|---------------------|------------------------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V from PC AC 120V/60Hz |
| Test Mode : | 802.11a/5785MHz | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 11570.135 | 47.81 | 9.66 | 57.47 | 74 | -16.53 | peak |
| 11570.135 | 35.33 | 9.66 | 44.99 | 54 | -9.01 | AVG |
| 17355.108 | 35.17 | 18.11 | 53.28 | 74 | -20.72 | peak |
| 17355.108 | 23.36 | 18.11 | 41.47 | 54 | -12.53 | AVG |
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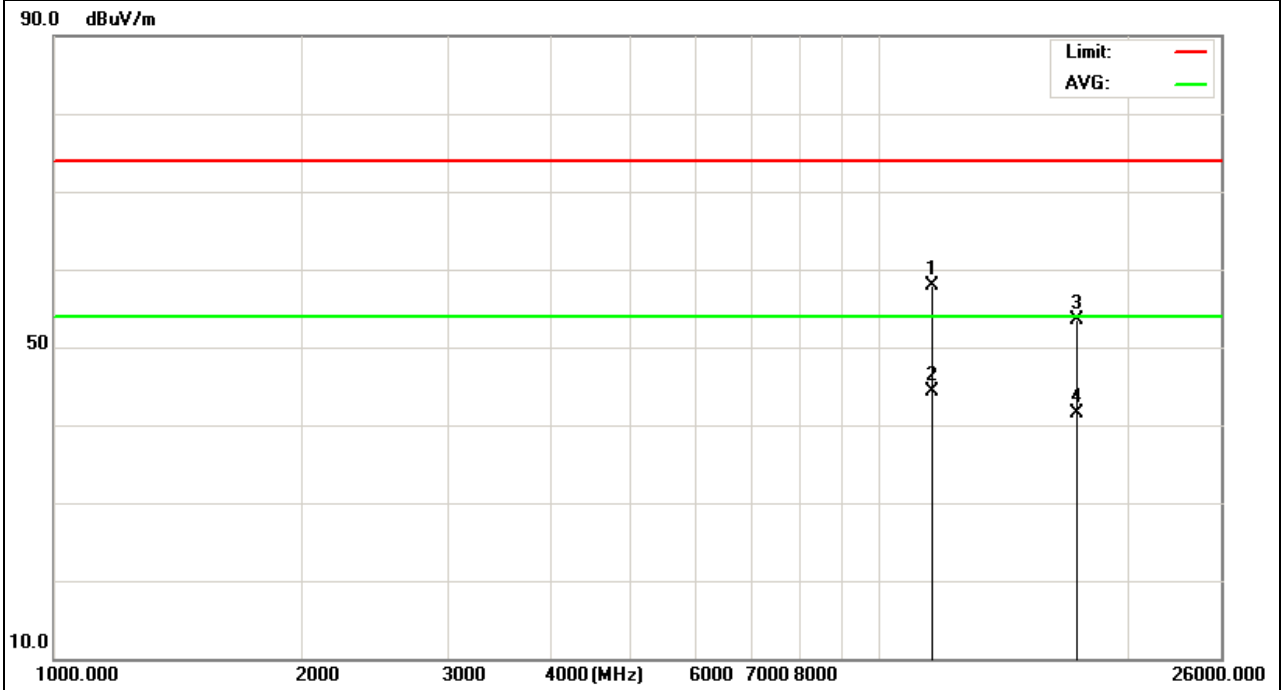
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.
 No emission detected above 26GHz.



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|---------------|------------------------------|---------------------|------------------------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V from PC AC 120V/60Hz |
| Test Mode : | 802.11a/5785MHz | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 11570.068 | 48.19 | 9.66 | 57.85 | 74 | -16.15 | peak |
| 11570.068 | 34.67 | 9.66 | 44.33 | 54 | -9.67 | AVG |
| 17355.148 | 35.45 | 18.11 | 53.56 | 74 | -20.44 | peak |
| 17355.148 | 23.3 | 18.11 | 41.41 | 54 | -12.59 | AVG |
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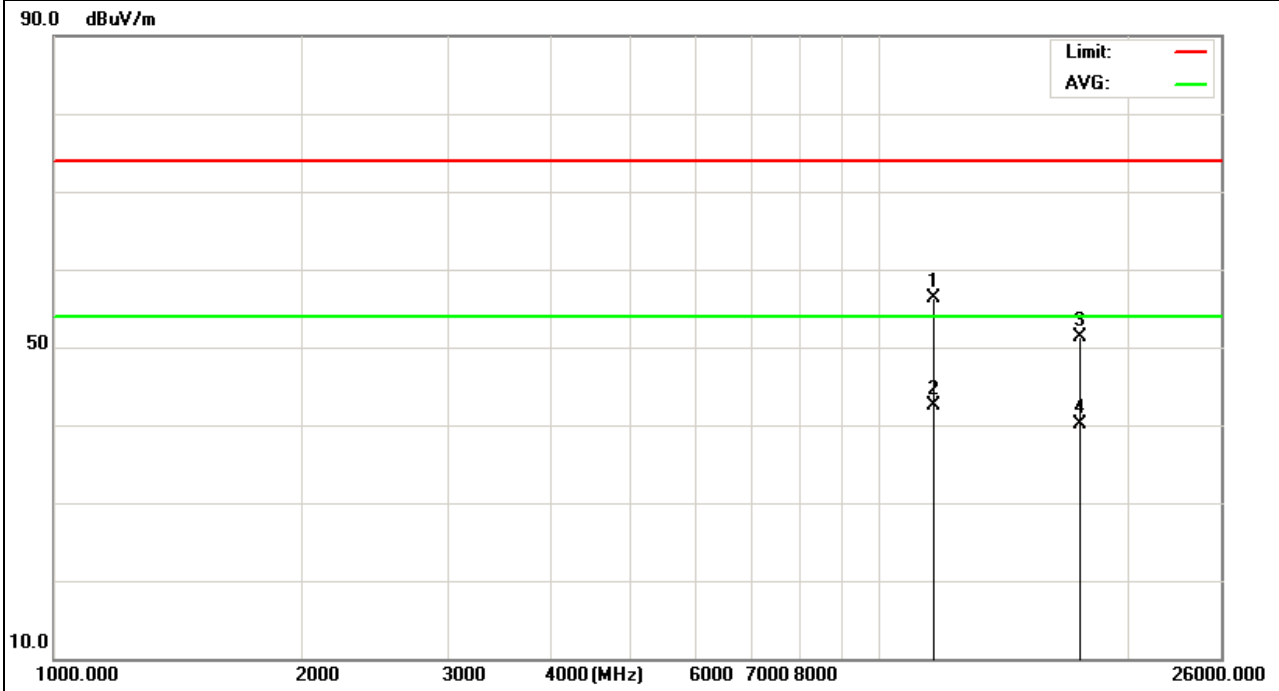
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.
 No emission detected above 26GHz



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|---------------|------------------------------|---------------------|------------------------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V from PC AC 120V/60Hz |
| Test Mode : | 802.11a/5825MHz | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 11650.046 | 46.84 | 9.48 | 56.32 | 74 | -17.68 | peak |
| 11650.046 | 33 | 9.48 | 42.48 | 54 | -11.52 | AVG |
| 17475.178 | 32.52 | 18.7 | 51.22 | 74 | -22.78 | peak |
| 17475.178 | 21.48 | 18.7 | 40.18 | 54 | -13.82 | AVG |
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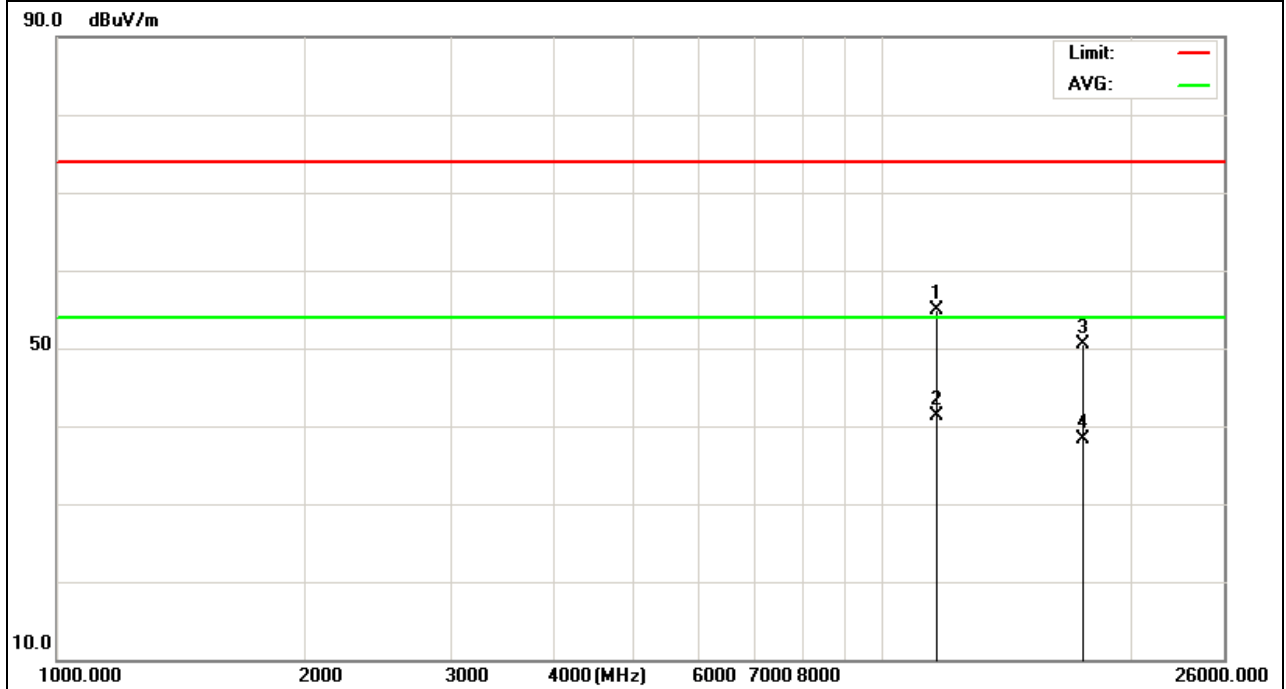
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.
 No emission detected above 26GHz.



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|---------------|------------------------------|---------------------|------------------------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V from PC AC 120V/60Hz |
| Test Mode : | 802.11a/5825MHz | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBµV) | Factor (dB) | Emission Level (dBµV/m) | Limits (dBµV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 11650.286 | 45.35 | 9.48 | 54.83 | 74 | -19.17 | peak |
| 11650.286 | 31.75 | 9.48 | 41.23 | 54 | -12.77 | AVG |
| 17475.412 | 31.83 | 18.69 | 50.52 | 74 | -23.48 | peak |
| 17475.412 | 19.67 | 18.69 | 38.36 | 54 | -15.64 | AVG |
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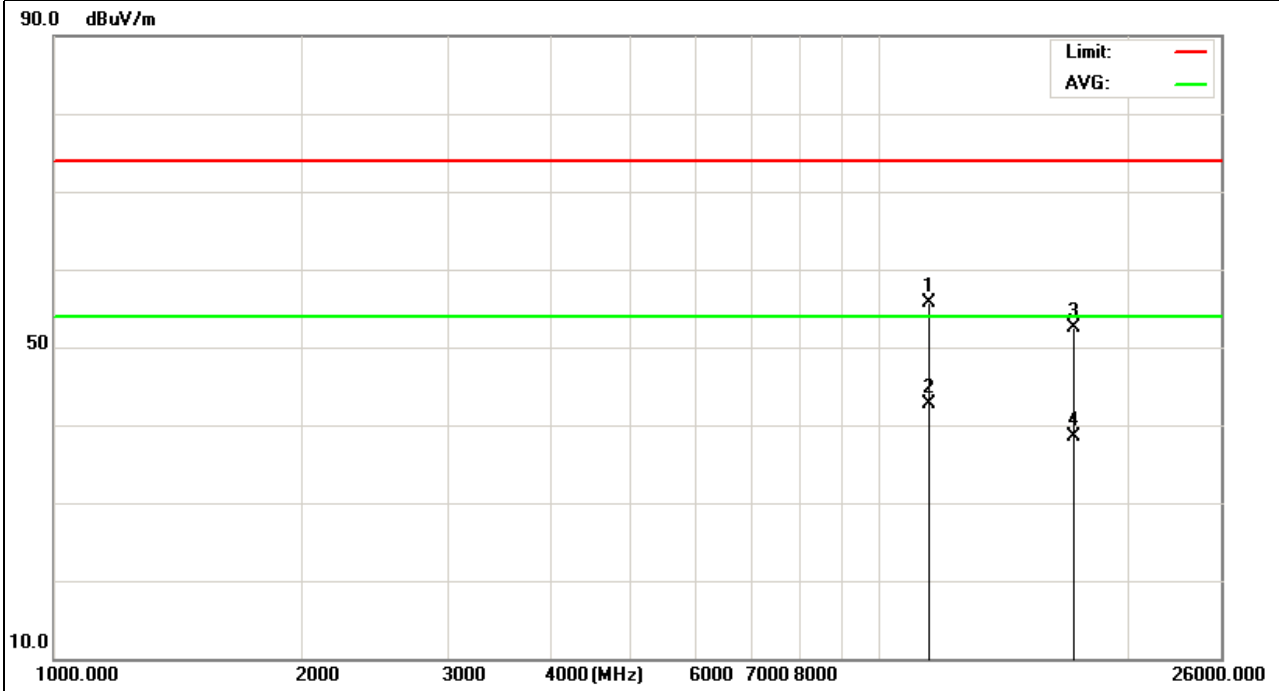
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.
 No emission detected above 26GHz.



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|---------------|------------------------------|---------------------|------------------------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V from PC AC 120V/60Hz |
| Test Mode : | 802.11n(20)/5745MHz | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBµV) | Factor (dB) | Emission Level (dBµV/m) | Limits (dBµV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 11490.086 | 46.25 | 9.5 | 55.75 | 74 | -18.25 | peak |
| 11490.086 | 33.13 | 9.5 | 42.63 | 54 | -11.37 | AVG |
| 17235.271 | 34.37 | 18.1 | 52.47 | 74 | -21.53 | peak |
| 17235.271 | 20.43 | 18.1 | 38.53 | 54 | -15.47 | AVG |
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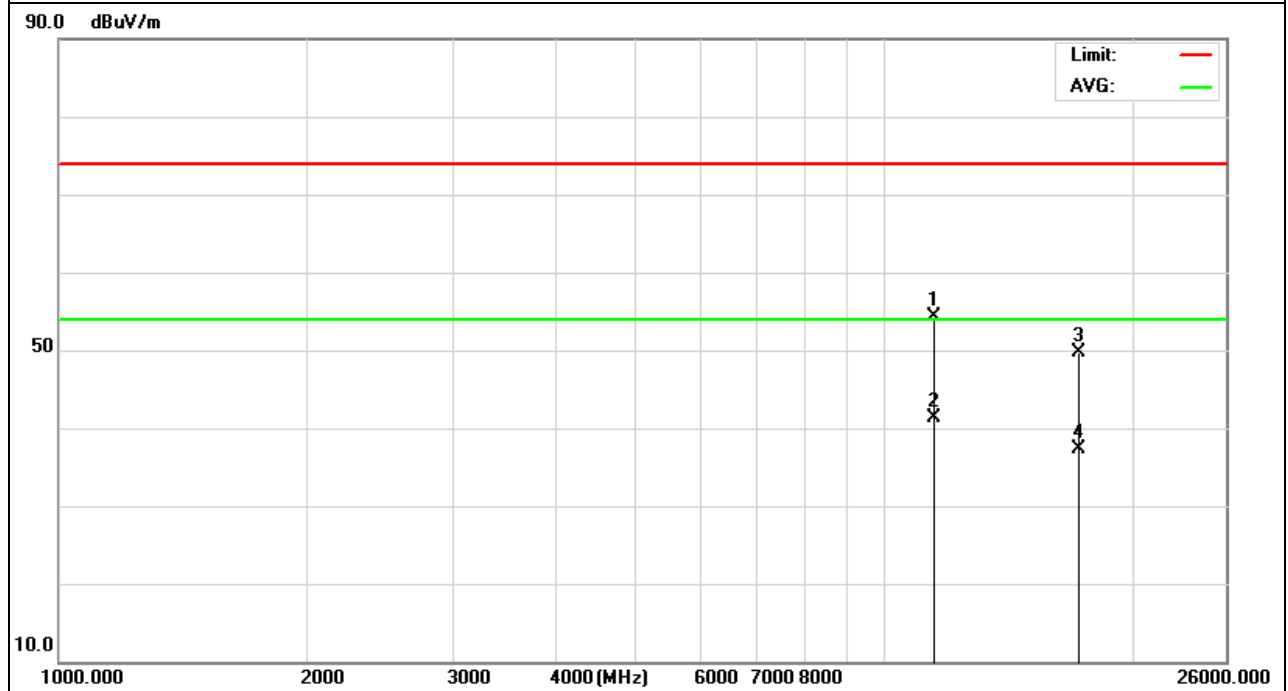
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.
 No emission detected above 26GHz.



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|---------------|------------------------------|---------------------|------------------------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V from PC AC 120V/60Hz |
| Test Mode : | 802.11n(20)/5745MHz | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 11490.42 | 44.76 | 9.5 | 54.26 | 74 | -19.74 | peak |
| 11490.42 | 31.88 | 9.5 | 41.38 | 54 | -12.62 | AVG |
| 17235.218 | 31.57 | 18.1 | 49.67 | 74 | -24.33 | peak |
| 17235.218 | 19.29 | 18.1 | 37.39 | 54 | -16.61 | AVG |
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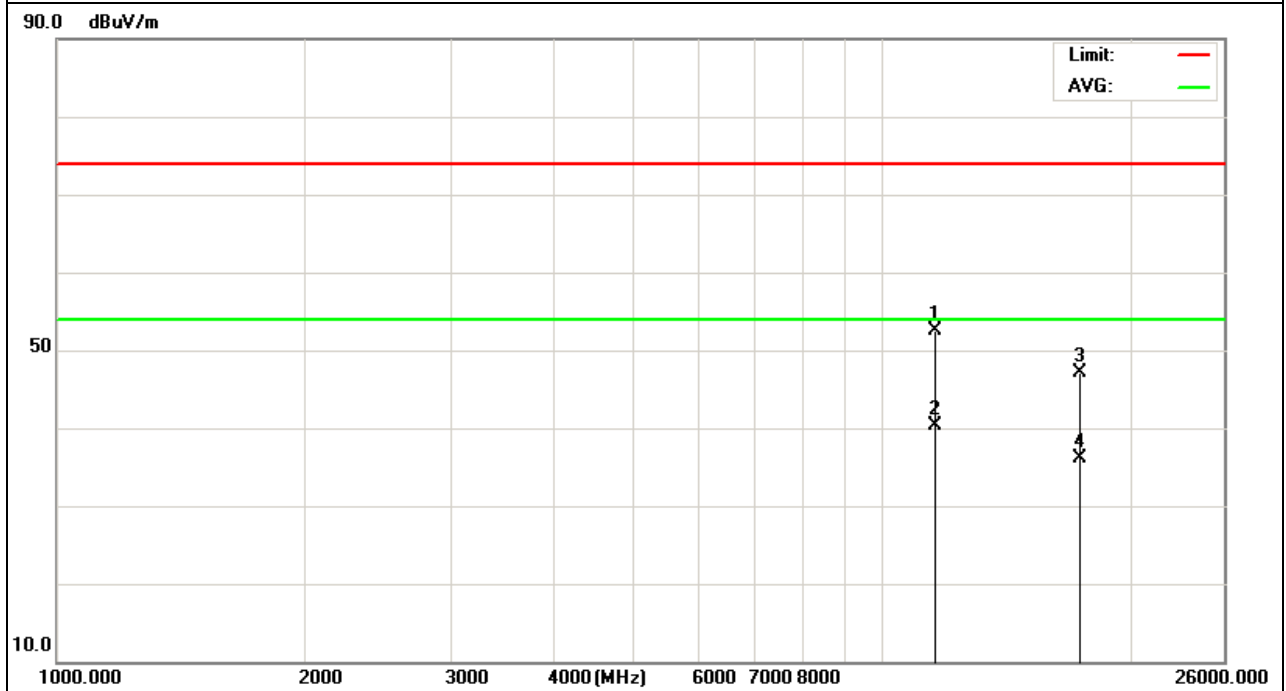
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.
 No emission detected above 26GHz.



| | | | |
|---------------|------------------------------|---------------------|------------------------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V from PC AC 120V/60Hz |
| Test Mode : | 802.11n(20)/5785MHz | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 11570.441 | 42.91 | 9.66 | 52.57 | 74 | -21.43 | peak |
| 11570.441 | 30.65 | 9.66 | 40.31 | 54 | -13.69 | AVG |
| 17355.169 | 28.94 | 18.11 | 47.05 | 74 | -26.95 | peak |
| 17355.169 | 18.01 | 18.11 | 36.12 | 54 | -17.88 | AVG |
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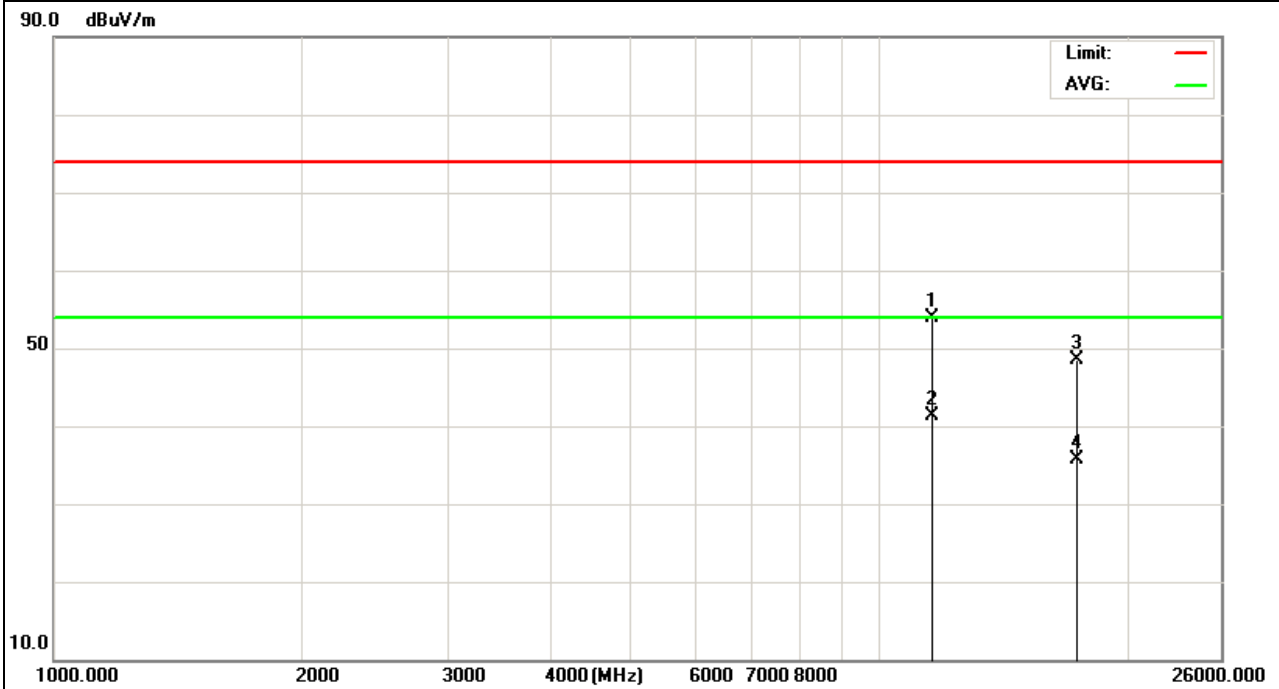
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.
 No emission detected above 26GHz.



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|---------------|------------------------------|---------------------|------------------------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V from PC AC 120V/60Hz |
| Test Mode : | 802.11n(20)/5785MHz | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBµV) | Factor (dB) | Emission Level (dBµV/m) | Limits (dBµV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 11570.312 | 44.21 | 9.66 | 53.87 | 74 | -20.13 | peak |
| 11570.312 | 31.55 | 9.66 | 41.21 | 54 | -12.79 | AVG |
| 17355.086 | 30.31 | 18.11 | 48.42 | 74 | -25.58 | peak |
| 17355.086 | 17.51 | 18.11 | 35.62 | 54 | -18.38 | AVG |
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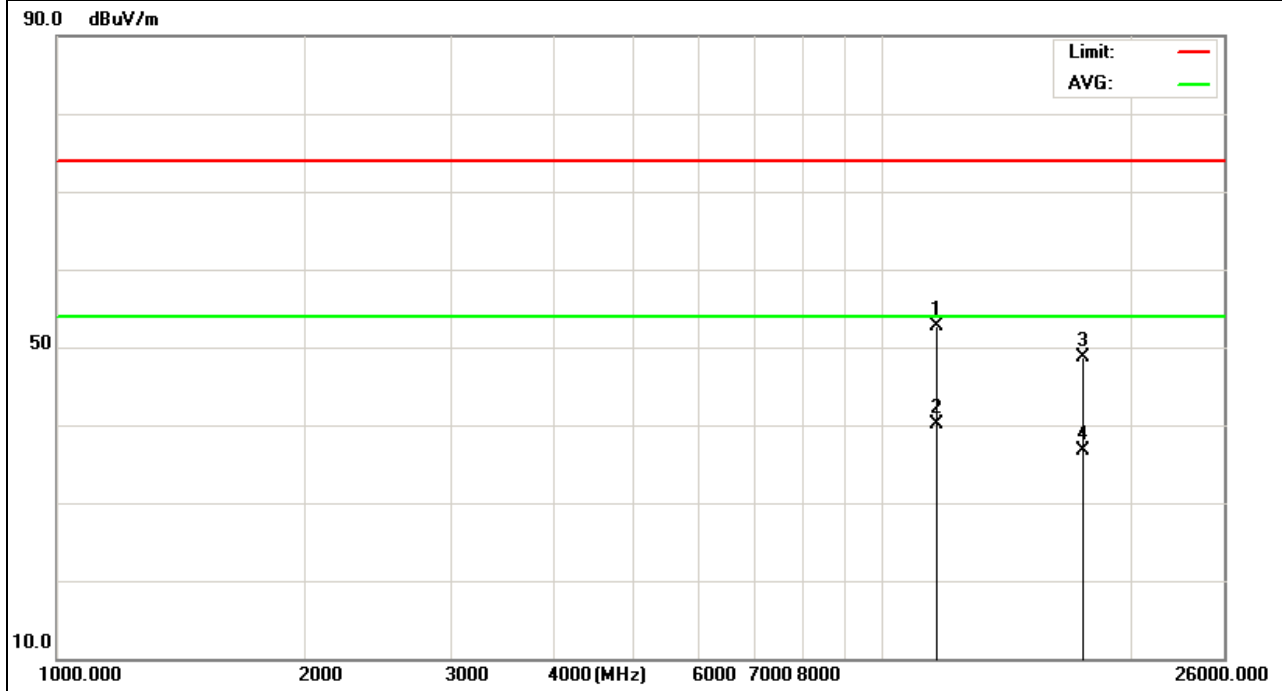
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.
 No emission detected above 26GHz.



| | | | |
|---------------|------------------------------|---------------------|------------------------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V from PC AC 120V/60Hz |
| Test Mode : | 802.11n(20)/5825MHz | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBµV) | Factor (dB) | Emission Level (dBµV/m) | Limits (dBµV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 11650.175 | 43.27 | 9.48 | 52.75 | 74 | -21.25 | peak |
| 11650.175 | 30.65 | 9.48 | 40.13 | 54 | -13.87 | AVG |
| 17475.434 | 29.95 | 18.69 | 48.64 | 74 | -25.36 | peak |
| 17475.434 | 18.1 | 18.69 | 36.79 | 54 | -17.21 | AVG |
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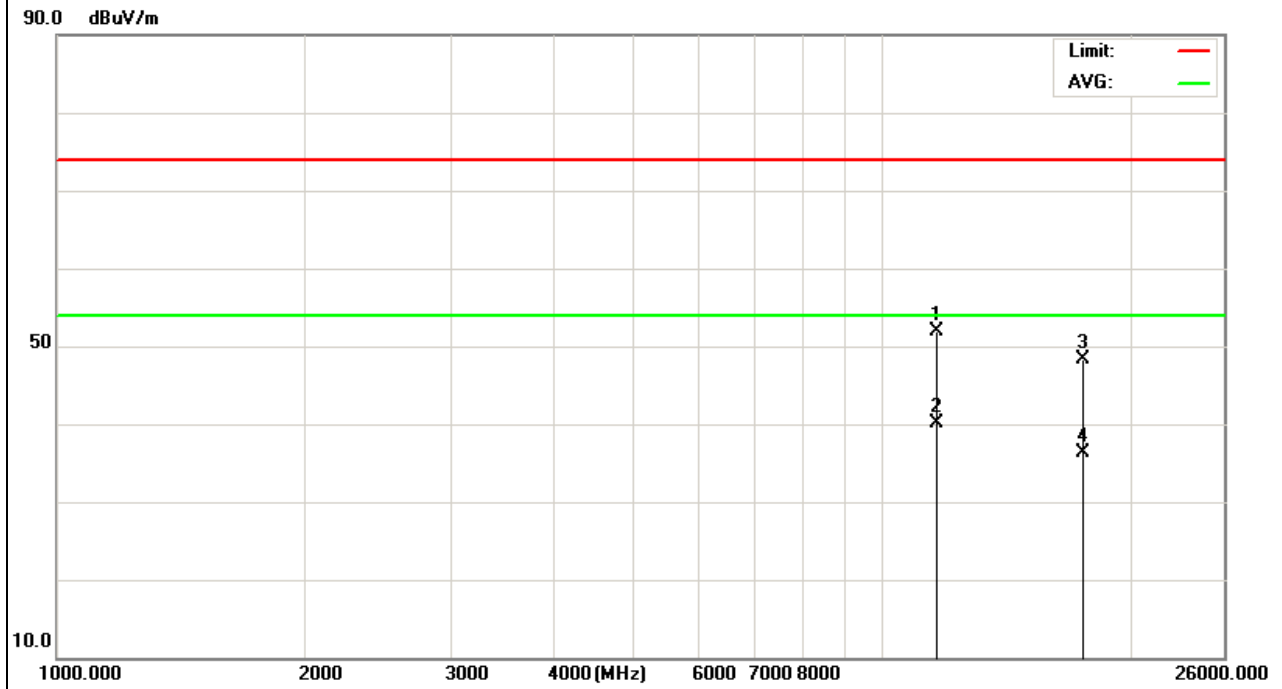
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.
 No emission detected above 26GHz.



| | | | |
|---------------|------------------------------|---------------------|------------------------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V from PC AC 120V/60Hz |
| Test Mode : | 802.11n(20)/5825MHz | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 11650.378 | 42.45 | 9.48 | 51.93 | 74 | -22.07 | peak |
| 11650.378 | 30.53 | 9.48 | 40.01 | 54 | -13.99 | AVG |
| 17475.206 | 29.67 | 18.7 | 48.37 | 74 | -25.63 | peak |
| 17475.206 | 17.55 | 18.7 | 36.25 | 54 | -17.75 | AVG |
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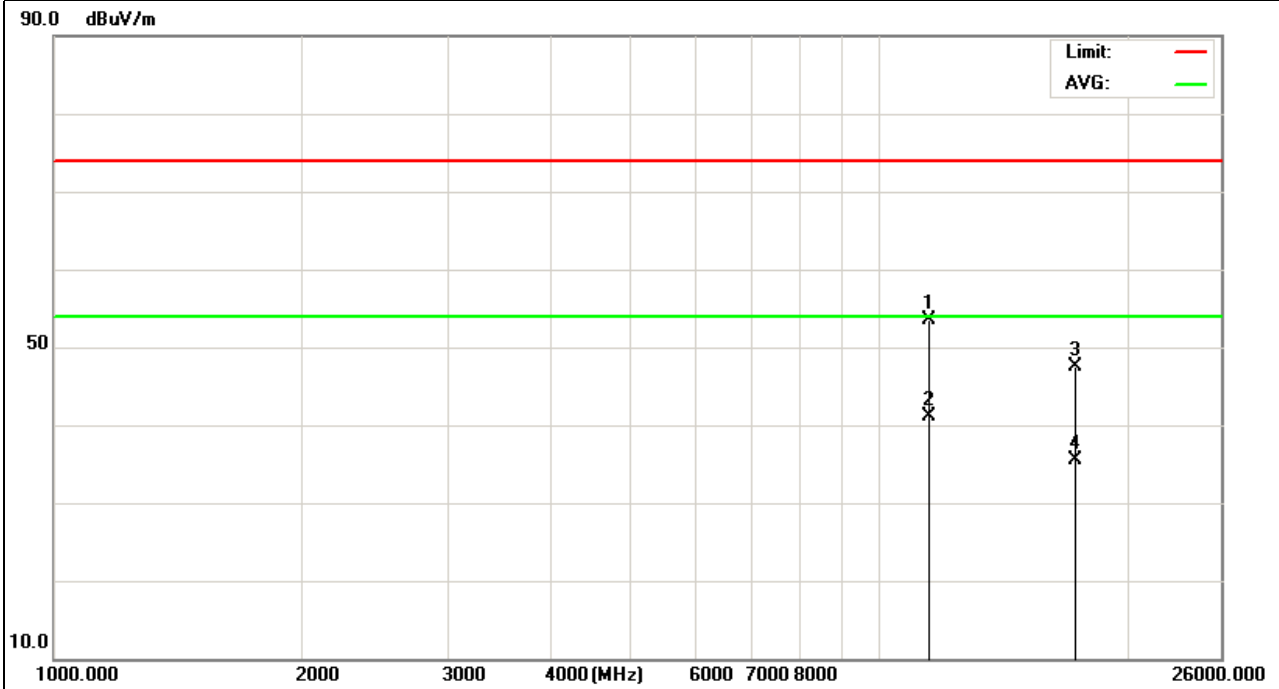
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.
 No emission detected above 26GHz.



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|---------------|------------------------------|---------------------|------------------------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V from PC AC 120V/60Hz |
| Test Mode : | 802.11n(40)/5755MHz | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBµV) | Factor (dB) | Emission Level (dBµV/m) | Limits (dBµV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 11510.187 | 43.96 | 9.5 | 53.46 | 74 | -20.54 | peak |
| 11510.187 | 31.7 | 9.5 | 41.2 | 54 | -12.8 | AVG |
| 17265.298 | 29.46 | 18.07 | 47.53 | 74 | -26.47 | peak |
| 17265.298 | 17.46 | 18.07 | 35.53 | 54 | -18.47 | AVG |
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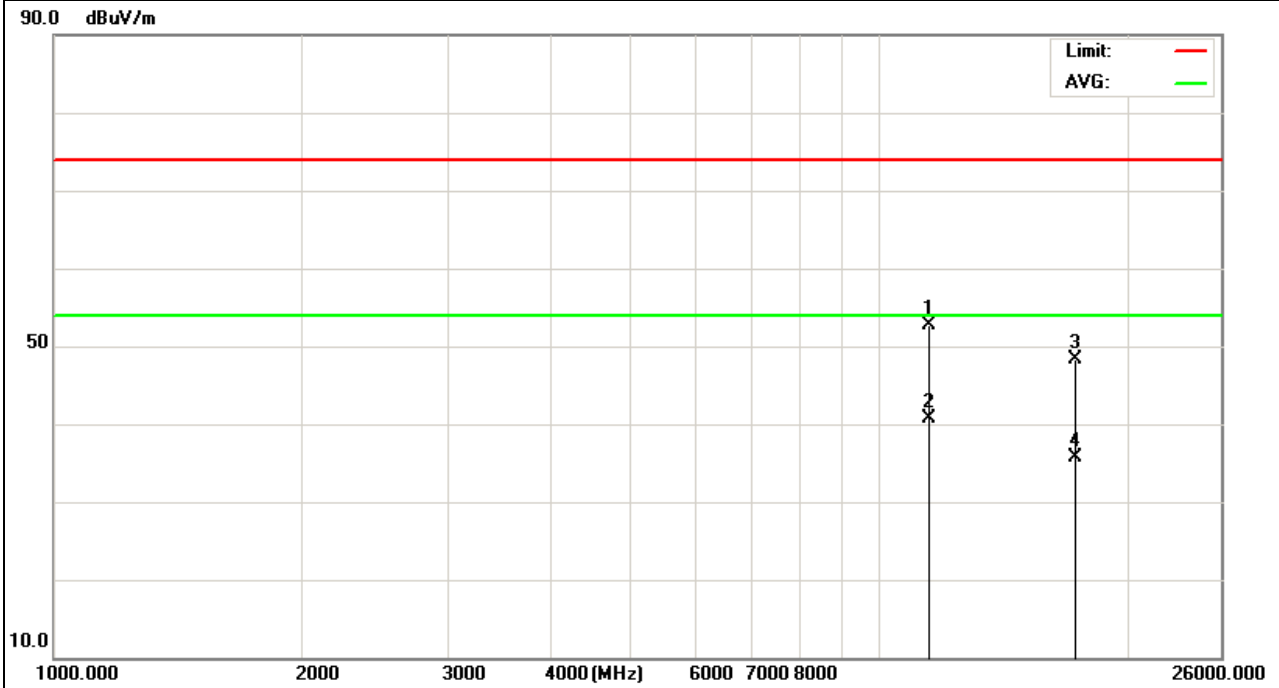
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.
 No emission detected above 26GHz.



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|---------------|------------------------------|---------------------|------------------------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V from PC AC 120V/60Hz |
| Test Mode : | 802.11n(40)/5755MHz | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBµV) | Factor (dB) | Emission Level (dBµV/m) | Limits (dBµV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 11510.13 | 43.18 | 9.5 | 52.68 | 74 | -21.32 | peak |
| 11510.13 | 31.22 | 9.5 | 40.72 | 54 | -13.28 | AVG |
| 17265.241 | 30.16 | 18.07 | 48.23 | 74 | -25.77 | peak |
| 17265.241 | 17.69 | 18.07 | 35.76 | 54 | -18.24 | AVG |
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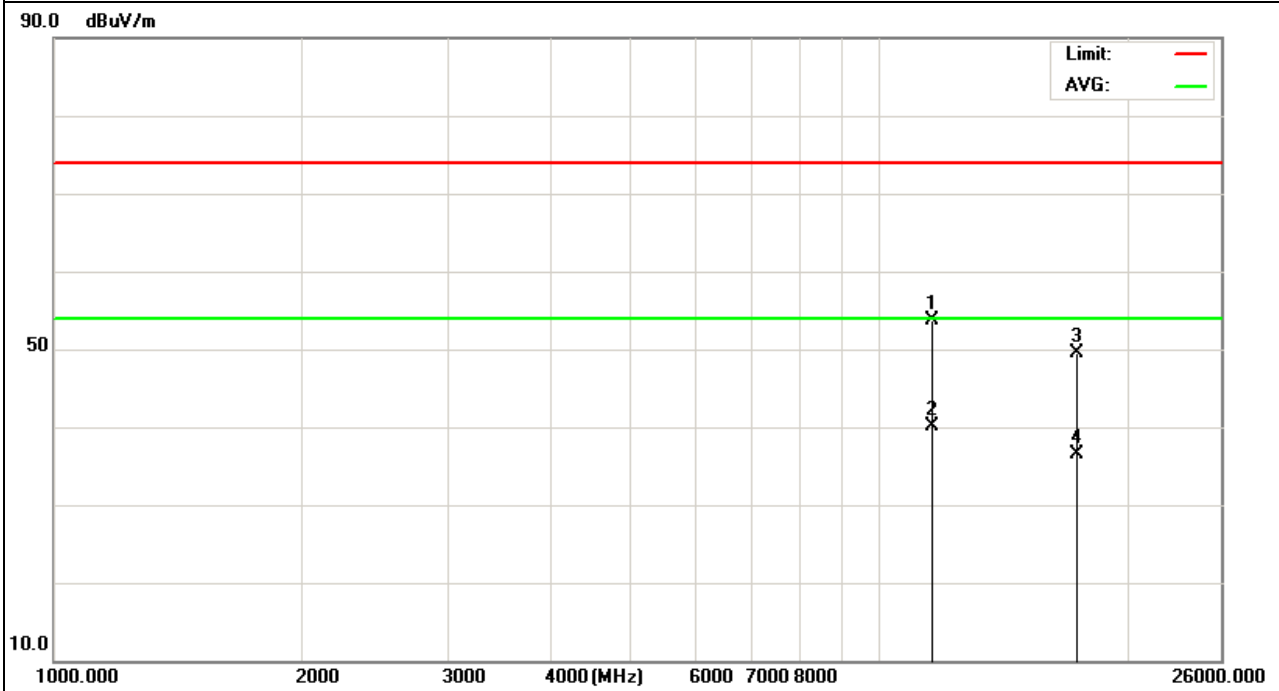
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.
 No emission detected above 26GHz.



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|---------------|------------------------------|---------------------|------------------------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V from PC AC 120V/60Hz |
| Test Mode : | 802.11n(40)/5795MHz | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBµV) | Factor (dB) | Emission Level (dBµV/m) | Limits (dBµV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 11590.315 | 43.96 | 9.72 | 53.68 | 74 | -20.32 | peak |
| 11590.315 | 30.36 | 9.72 | 40.08 | 54 | -13.92 | AVG |
| 17385.219 | 31.19 | 18.4 | 49.59 | 74 | -24.41 | peak |
| 17385.219 | 18.03 | 18.4 | 36.43 | 54 | -17.57 | AVG |
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Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.
 No emission detected above 26GHz.



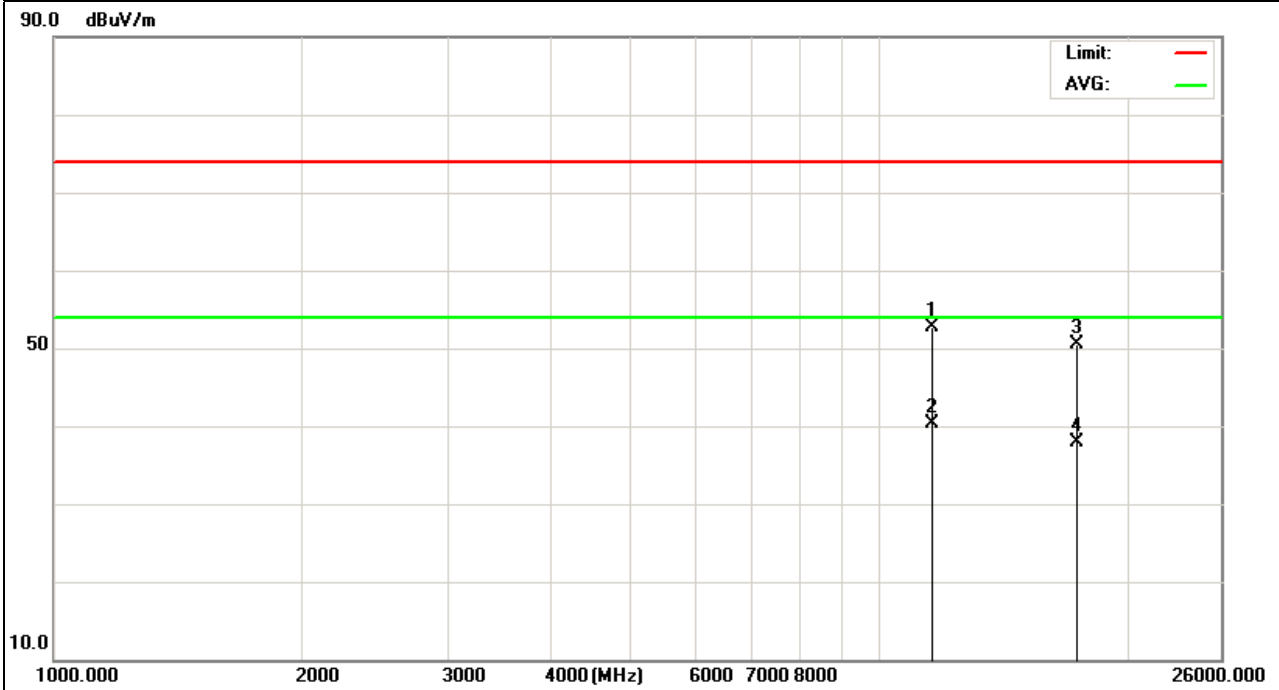
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|---------------|------------------------------|---------------------|---------------------------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V from PC AC 120V/60Hz |
| Test Mode : | 802.11n(40)/5795MHz | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBµV) | Factor (dB) | Emission Level (dBµV/m) | Limits (dBµV/m) | Margin (dB) | Detector Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|---------------|
| 11590.486 | 42.94 | 9.72 | 52.66 | 74 | -21.34 | peak |
| 11590.486 | 30.53 | 9.72 | 40.25 | 54 | -13.75 | AVG |
| 17385.413 | 32.11 | 18.4 | 50.51 | 74 | -23.49 | peak |
| 17385.413 | 19.46 | 18.4 | 37.86 | 54 | -16.14 | AVG |
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Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

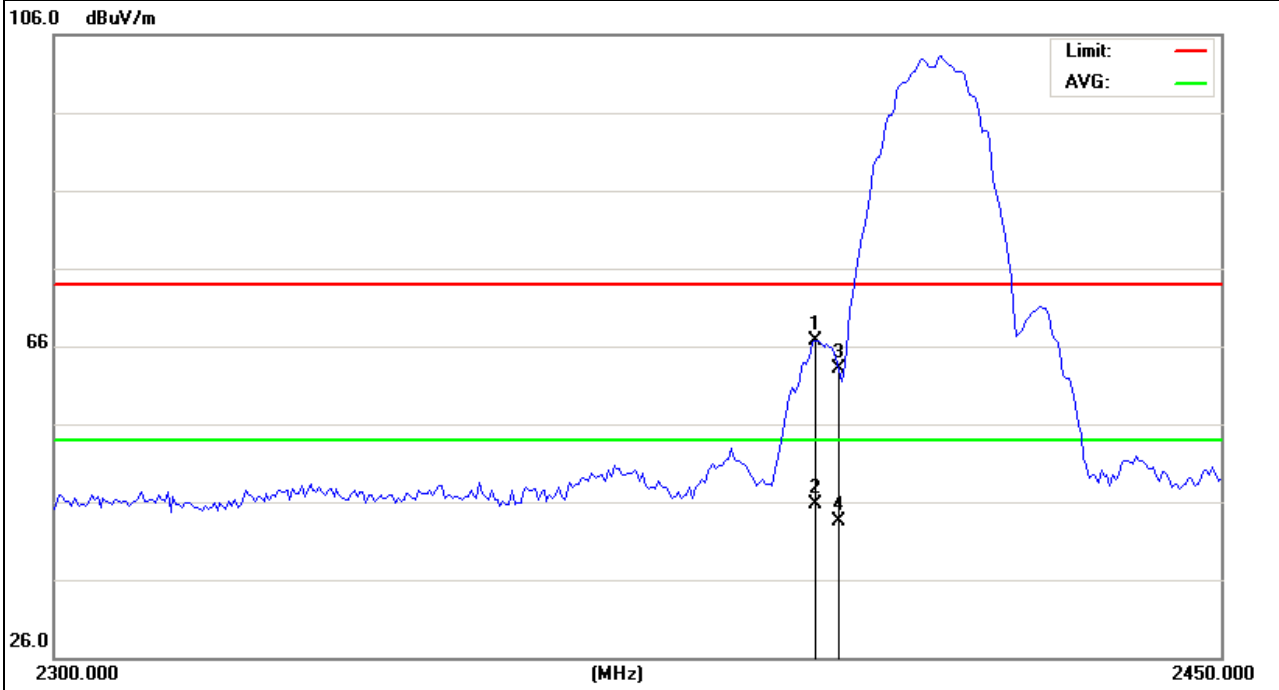
No emission detected above 26GHz.



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|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH1(802.11b Mode) | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 2397.125 | 84.18 | -17.48 | 66.7 | 74 | -7.3 | peak |
| 2397.125 | 63.22 | -17.48 | 45.74 | 54 | -8.26 | AVG |
| 2400.000 | 80.65 | -17.46 | 63.19 | 74 | -10.81 | peak |
| 2400.000 | 60.89 | -17.46 | 43.43 | 54 | -10.57 | AVG |
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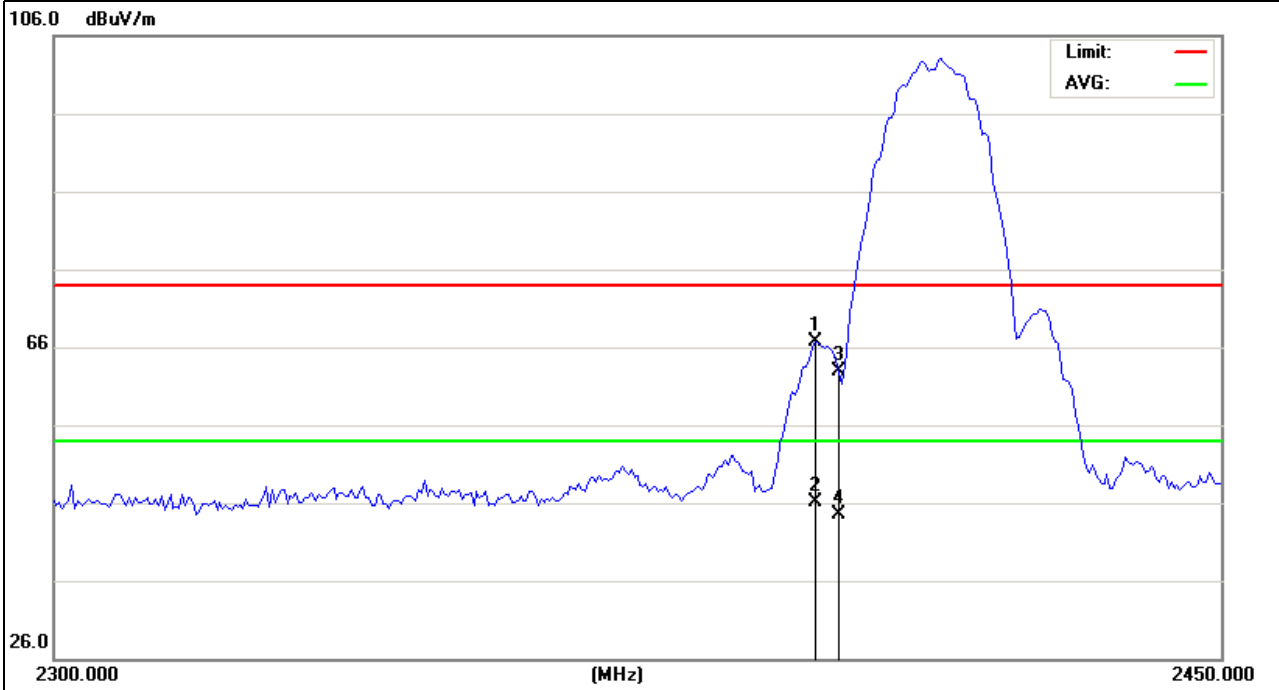
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



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|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH1(802.11b Mode) | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 2397.125 | 84.21 | -17.48 | 66.73 | 74 | -7.27 | peak |
| 2397.125 | 63.67 | -17.48 | 46.19 | 54 | -7.81 | AVG |
| 2400.000 | 80.44 | -17.46 | 62.98 | 74 | -11.02 | peak |
| 2400.000 | 61.97 | -17.46 | 44.51 | 54 | -9.49 | AVG |
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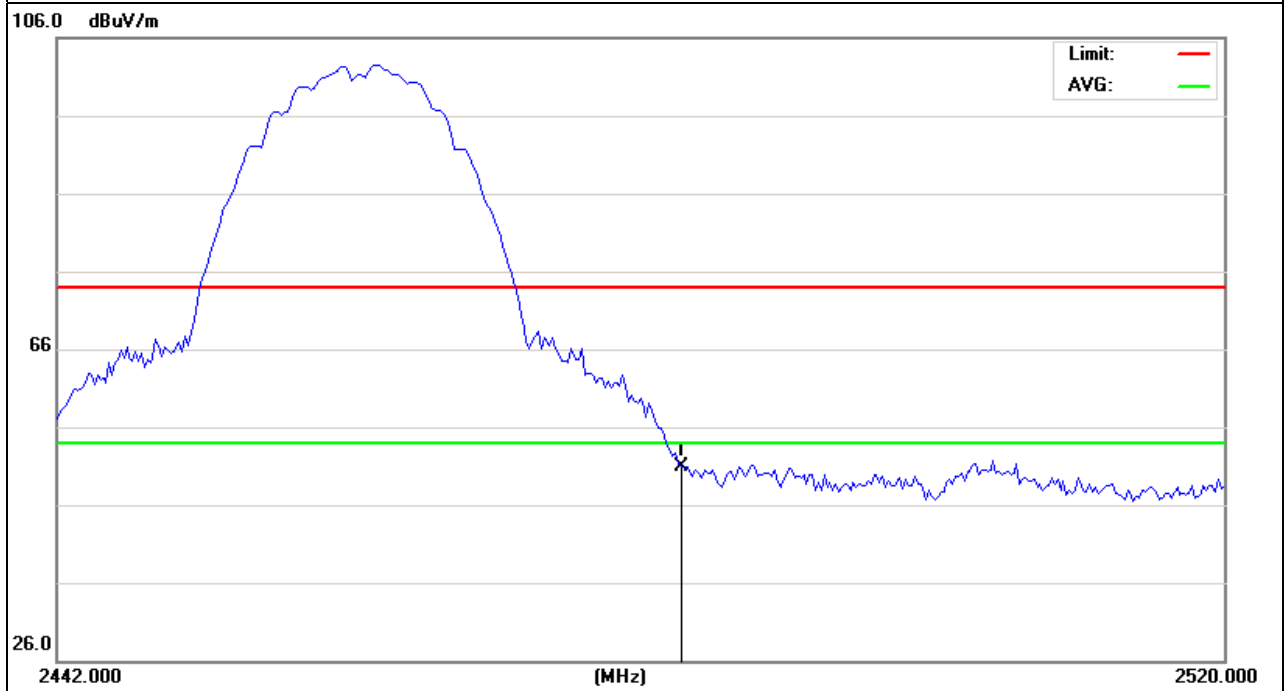
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



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|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH11(802.11b Mode) | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|---------------|
| 2483.500 | 68.19 | -17.35 | 50.84 | 74 | -23.16 | peak |
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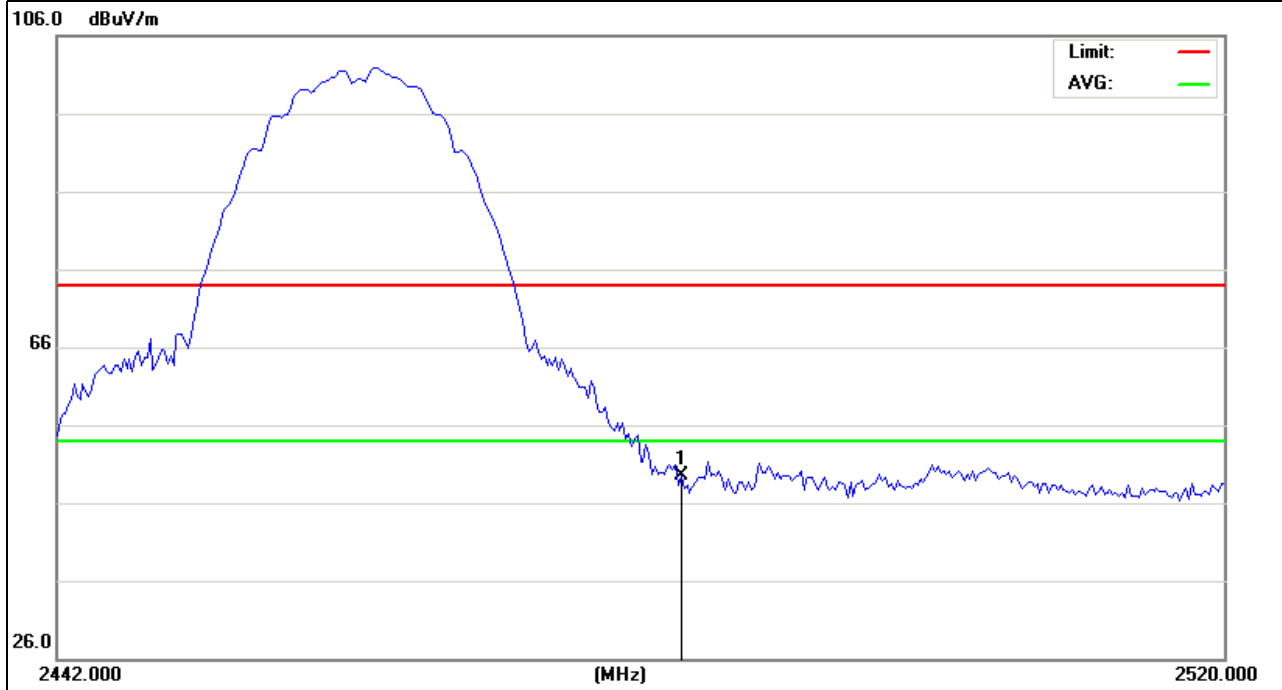
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



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|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH11(802.11b Mode) | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|---------------|
| 2483.000 | 66.85 | -17.35 | 49.5 | 74 | -24.5 | peak |
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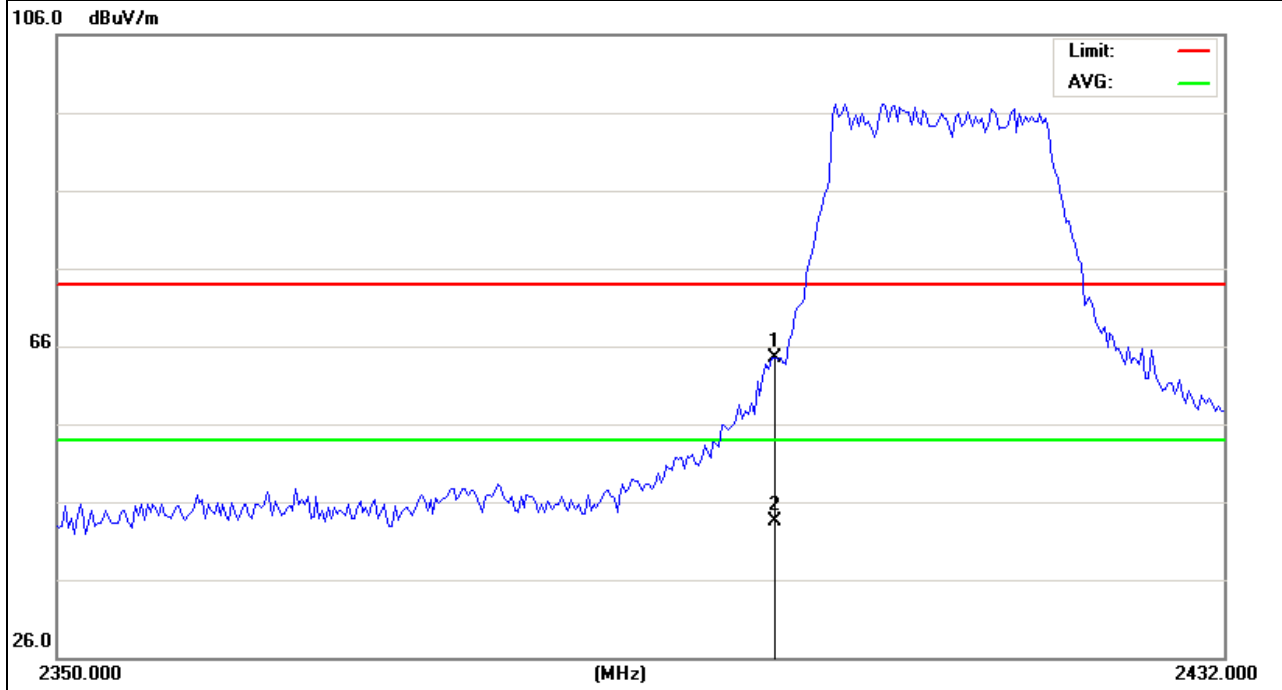
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH1(802.11g Mode) | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 2400.00 | 81.96 | -17.46 | 64.5 | 74 | -9.5 | peak |
| 2400.00 | 60.93 | -17.46 | 43.47 | 54 | -10.53 | AVG |
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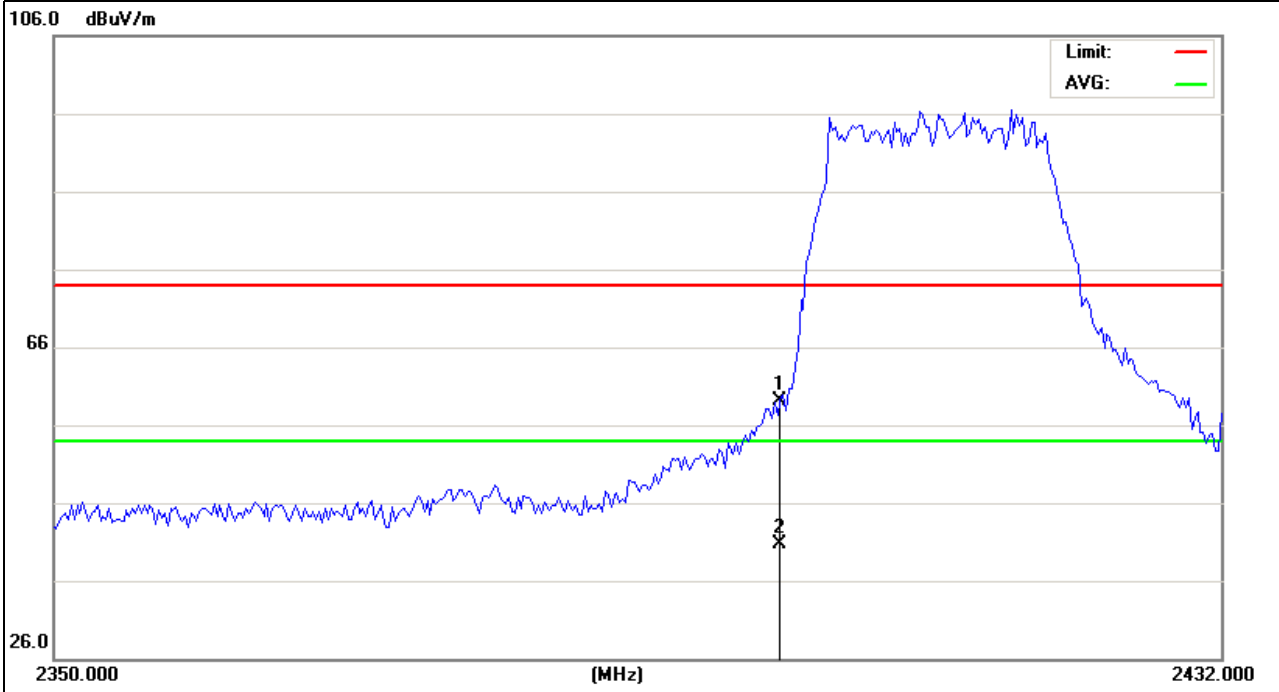
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



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|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH1(802.11gMode) | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|---------------|
| 2400.00 | 76.66 | -17.46 | 59.2 | 74 | -14.8 | peak |
| 2400.00 | 58.09 | -17.46 | 40.63 | 54 | -13.37 | AVG |
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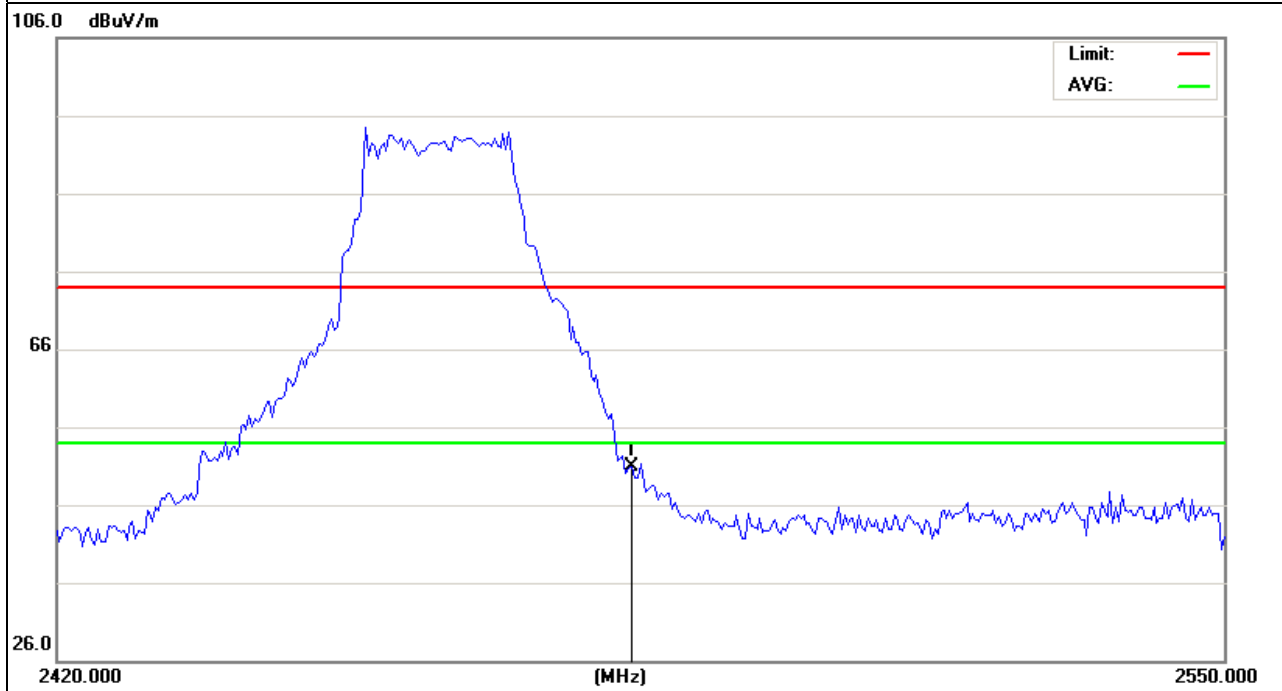
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



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|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH11(802.11g Mode) | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|---------------|
| 2483.5 | 68.35 | -17.35 | 51 | 74 | -23 | peak |
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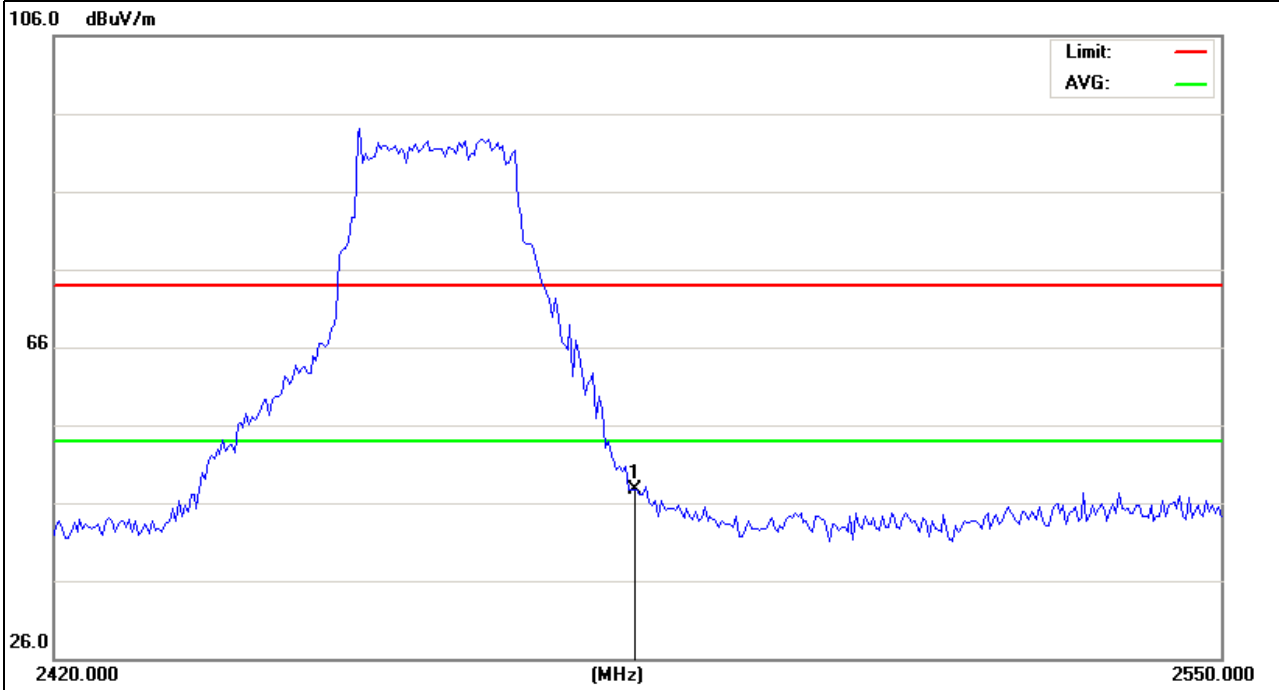
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



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|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH11(802.11g Mode) | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|---------------|
| 2483.5 | 65.05 | -17.35 | 47.7 | 74 | -26.3 | peak |
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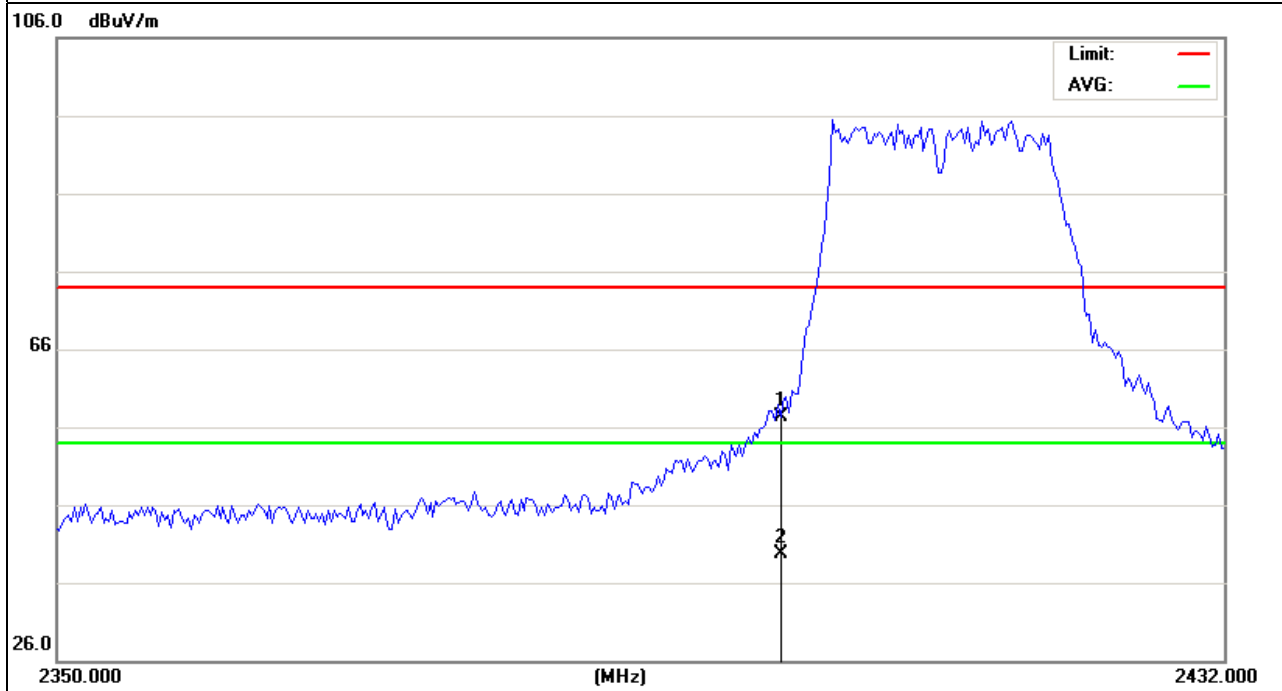
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH1(802.11N Mode)/20MHz | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|-----------------|----------------------|-------------|-------------------------|-----------------|-------------|---------------|
| 2400.00 | 74.76 | -17.46 | 57.3 | 74 | -16.7 | peak |
| 2400.00 | 57.22 | -17.46 | 39.76 | 54 | -14.24 | AVG |
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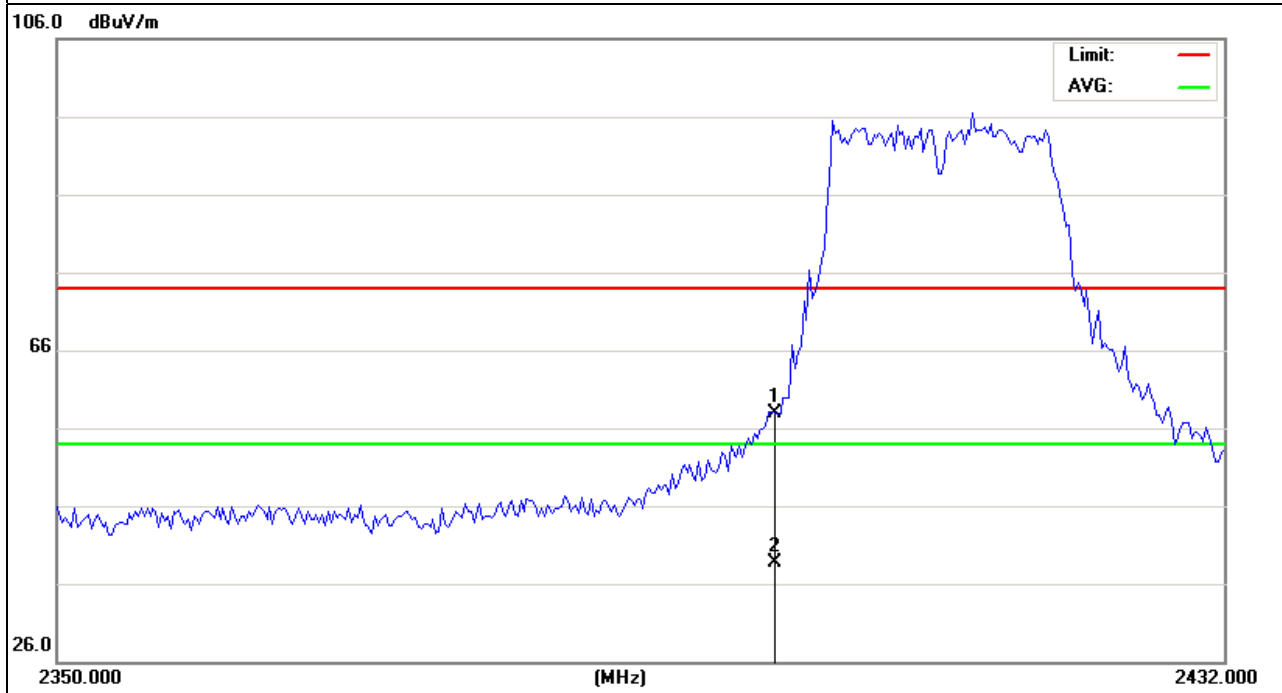
Remark:
 Factor = Antenna Factor + Cable Loss – Pre-amplifier.



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|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH1(802.11N Mode)/20M | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|---------------|
| 2400.00 | 75.46 | -17.46 | 58 | 74 | -16 | peak |
| 2400.00 | 56.11 | -17.46 | 38.65 | 54 | -15.35 | AVG |
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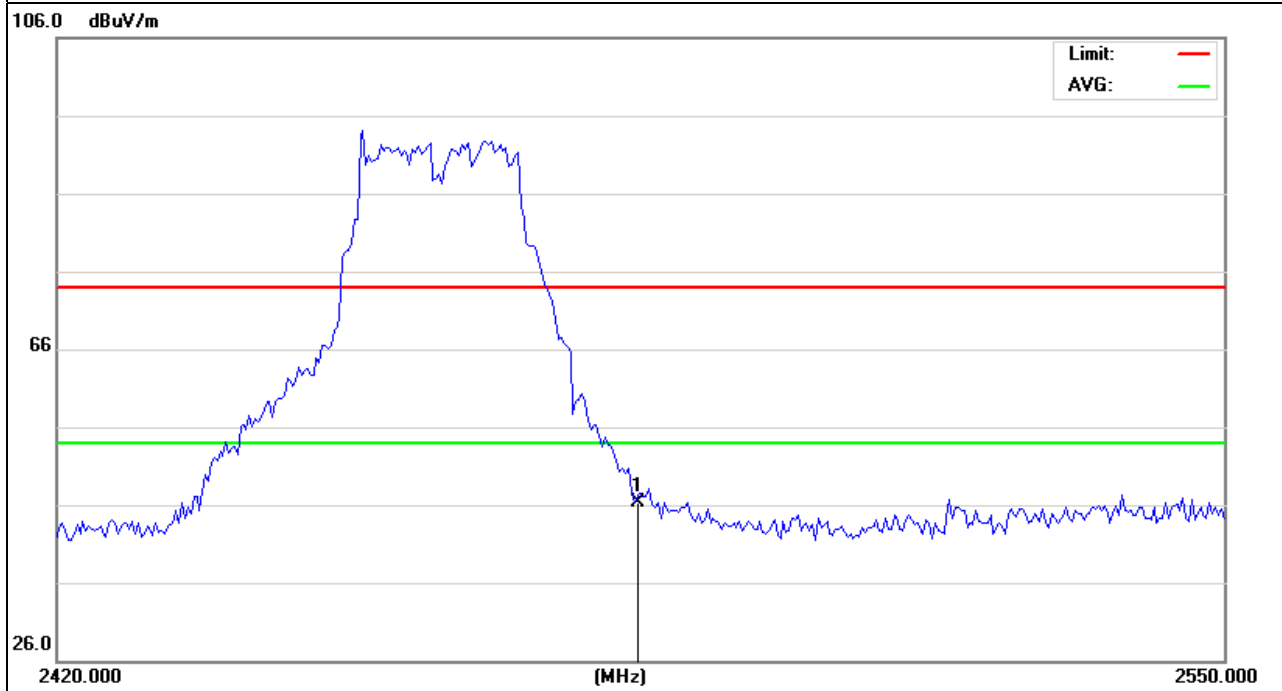
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



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|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH11(802.11N Mode)/20MHz | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|---------------|
| 2483.5 | 63.75 | -17.35 | 46.4 | 74 | -27.6 | peak |
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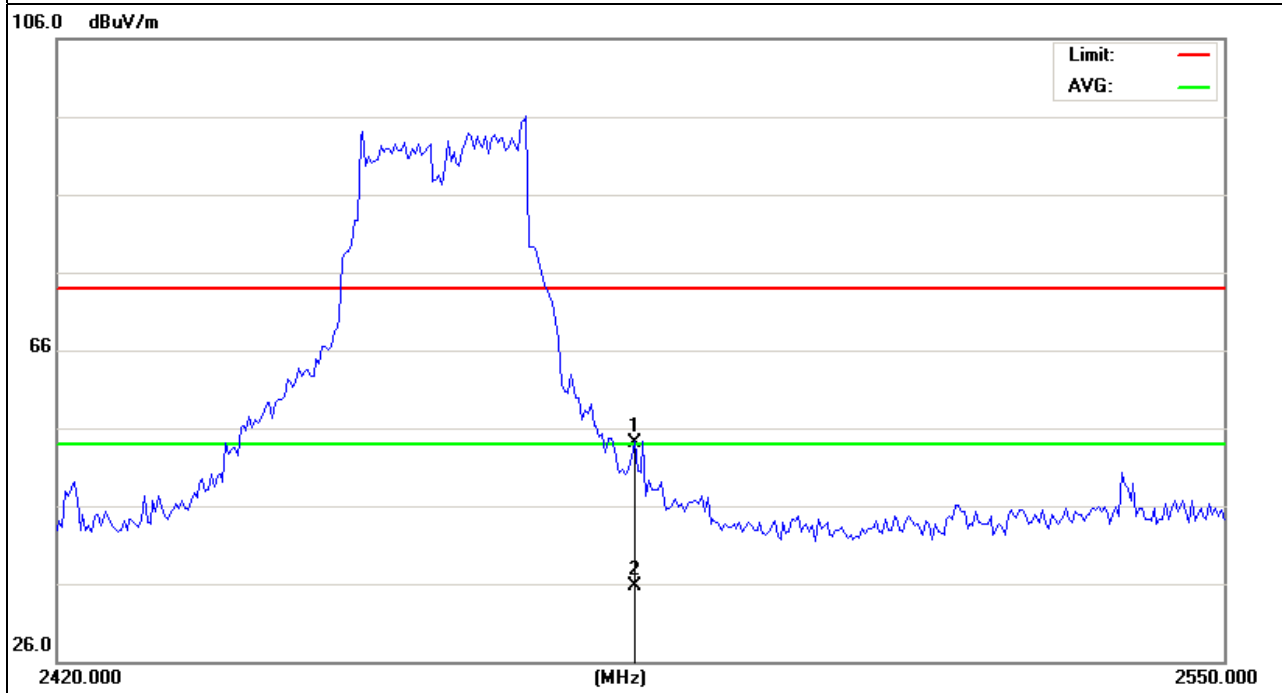
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH11(802.11N Mode)/20MHz | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|---------------|
| 2483.5 | 71.55 | -17.35 | 54.2 | 74 | -19.8 | peak |
| 2483.5 | 53.05 | -17.35 | 35.7 | 54 | -18.3 | AVG |
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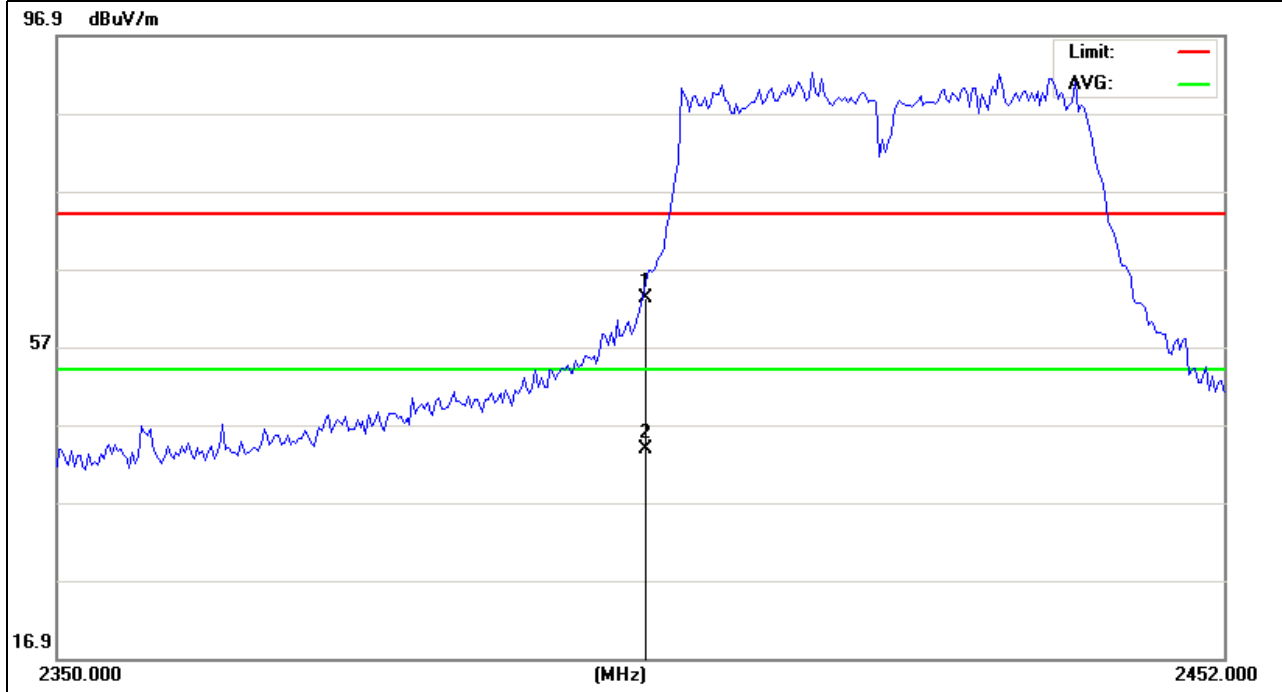
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH3(802.11n Mode)/40M | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|---------------|
| 2400.00 | 80.76 | -17.46 | 63.3 | 74 | -10.7 | peak |
| 2400.00 | 61.23 | -17.46 | 43.77 | 54 | -10.23 | AVG |
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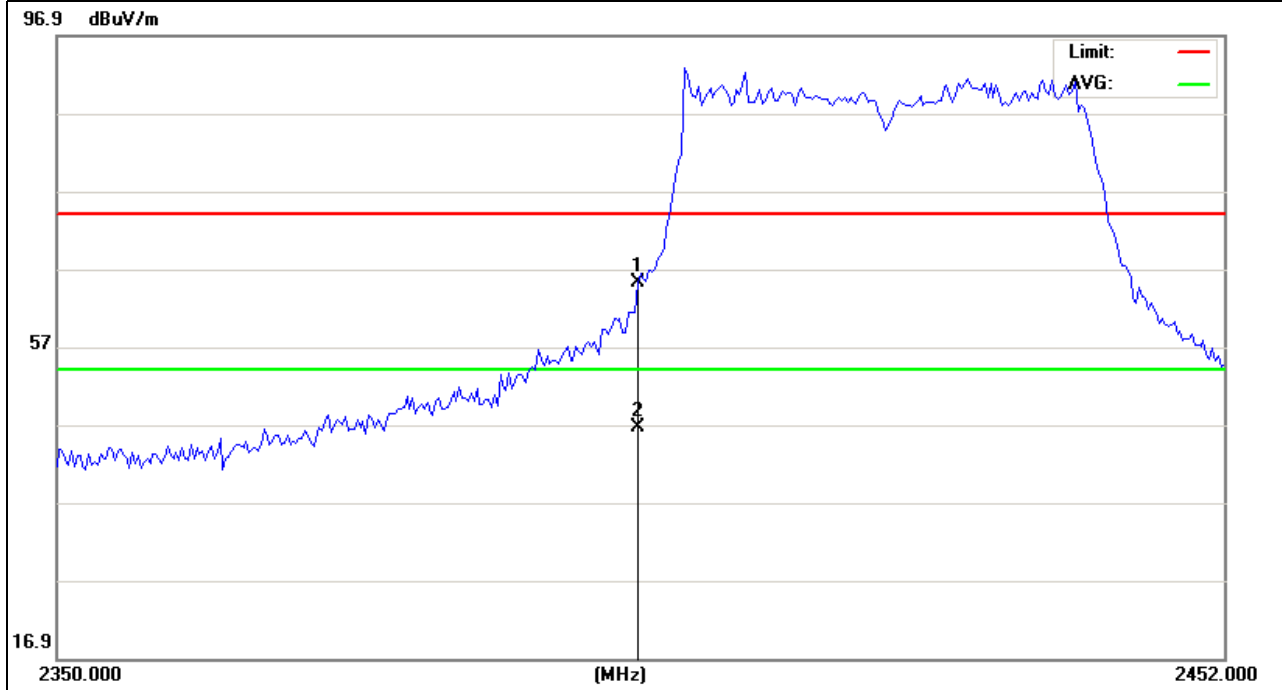
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH3(802.11n Mode)/40MHz | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|---------------|
| 2400.00 | 82.76 | -17.46 | 65.3 | 74 | -8.7 | peak |
| 2400.00 | 64.13 | -17.46 | 46.67 | 54 | -7.33 | AVG |
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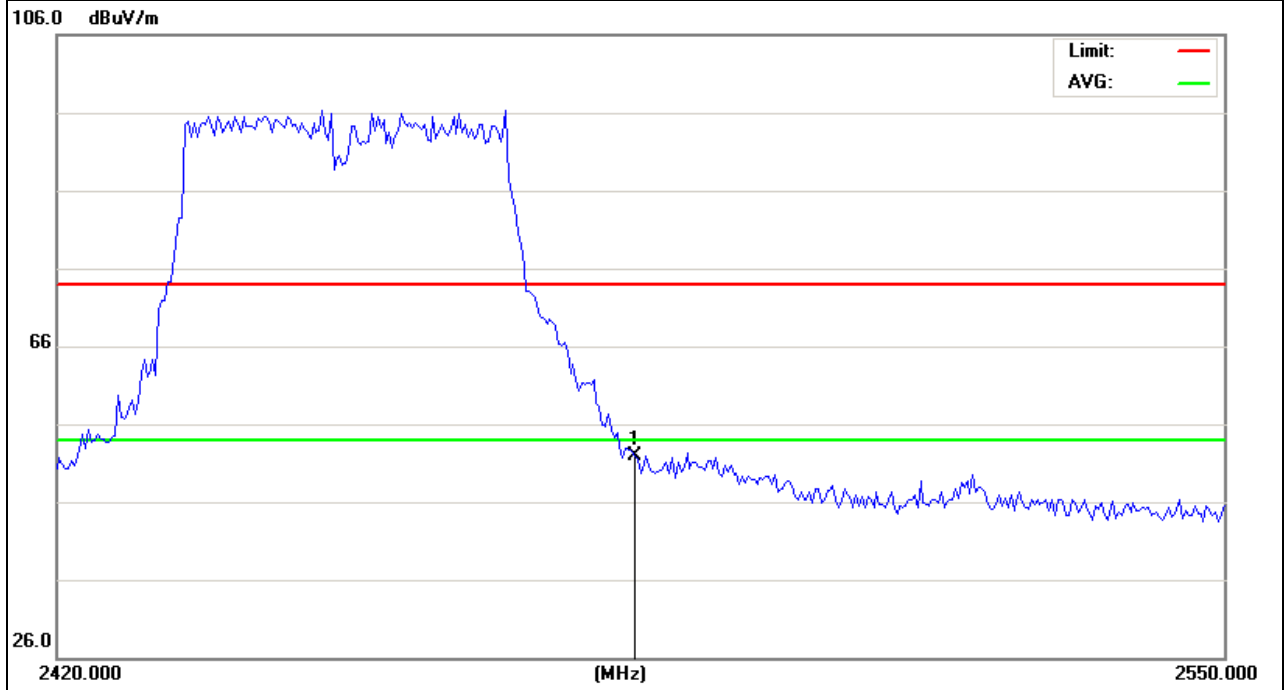
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH9(802.11n Mode)/40MHz | Polarization : | Horizontal |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|---------------|
| 2483.5 | 69.35 | -17.35 | 52 | 74 | -22 | peak |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

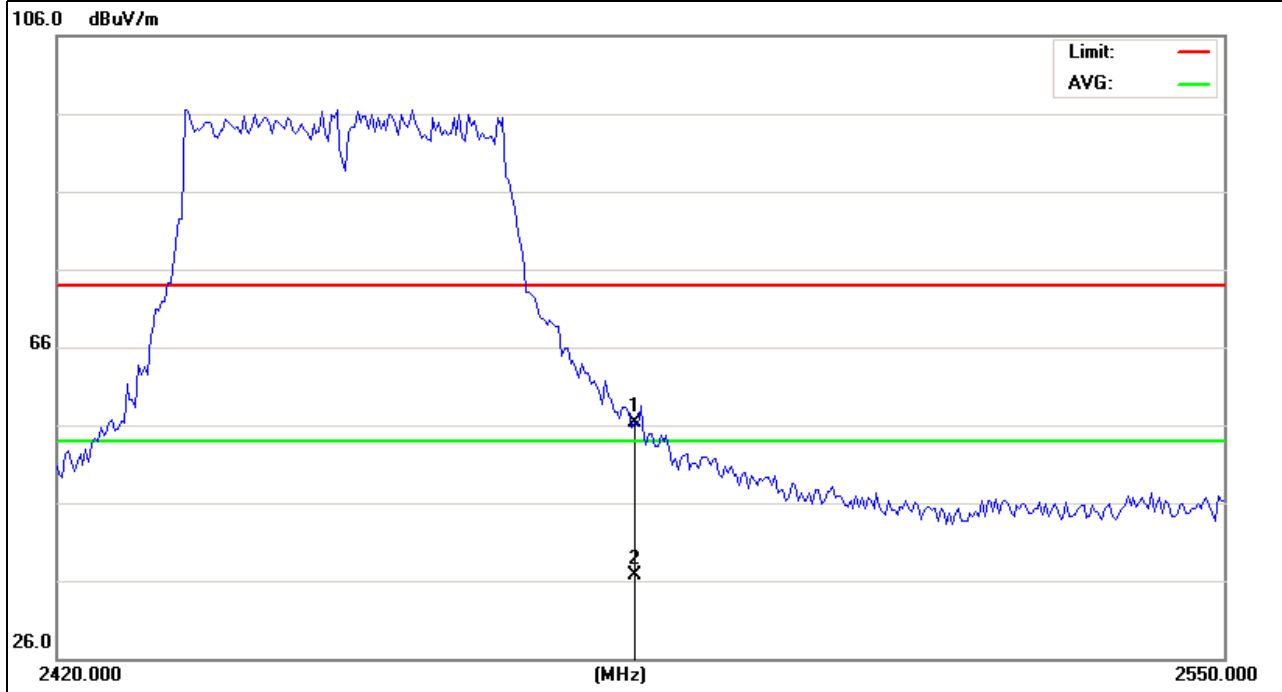
Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 20 °C | Relative Humidity : | 48% |
| Pressure : | 1010 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | CH9(802.11n Mode)/40MHz | Polarization : | Vertical |

| Frequency (MHz) | Meter Reading (dBμV) | Factor (dB) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Detector Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|---------------|
| 2483.5 | 73.65 | -17.35 | 56.3 | 74 | -17.7 | peak |
| 2483.5 | 54.02 | -17.35 | 36.67 | 54 | -17.33 | AVG |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.



4. POWER SPECTRAL DENSITY TEST

4.1 APPLIED PROCEDURES / LIMIT

| FCC Part15 (15.247) , Subpart C | | | | |
|---------------------------------|------------------------|------------------------|--------------------------|--------|
| Section | Test Item | Limit | Frequency Range (MHz) | Result |
| 15.247 | Power Spectral Density | 8 dBm (in any 3KHz) | 2400-2483.5 5745-5825 | PASS |

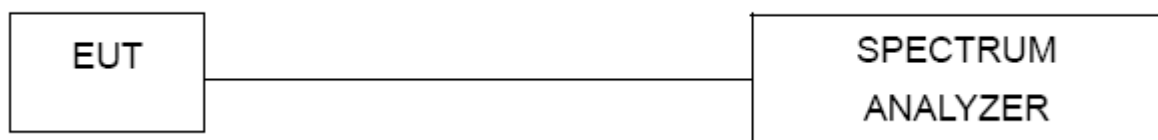
4.1.1 TEST PROCEDURE

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.
3. Set the RBW \geq 3 kHz.
4. Set the VBW \geq 3 x RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

4.1.2 DEVIATION FROM STANDARD

No deviation.

4.1.3 TEST SETUP



4.1.4 EUT OPERATION CONDITIONS

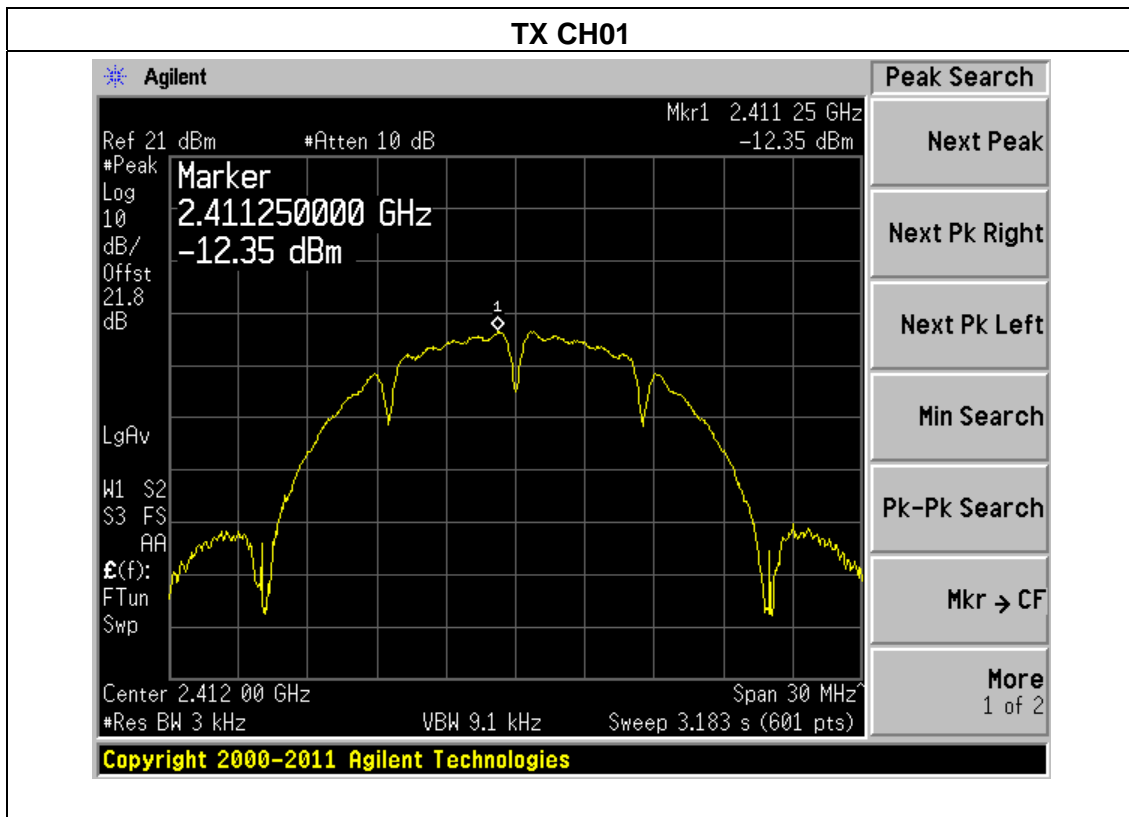
The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

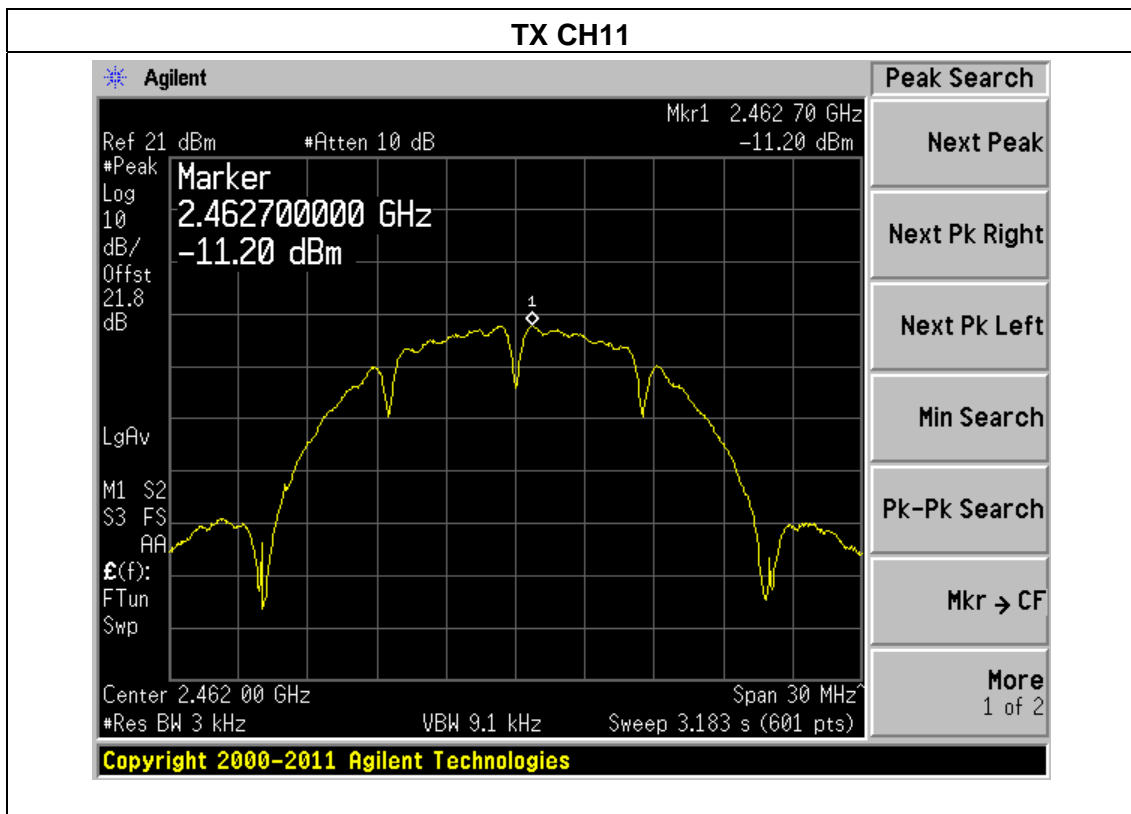
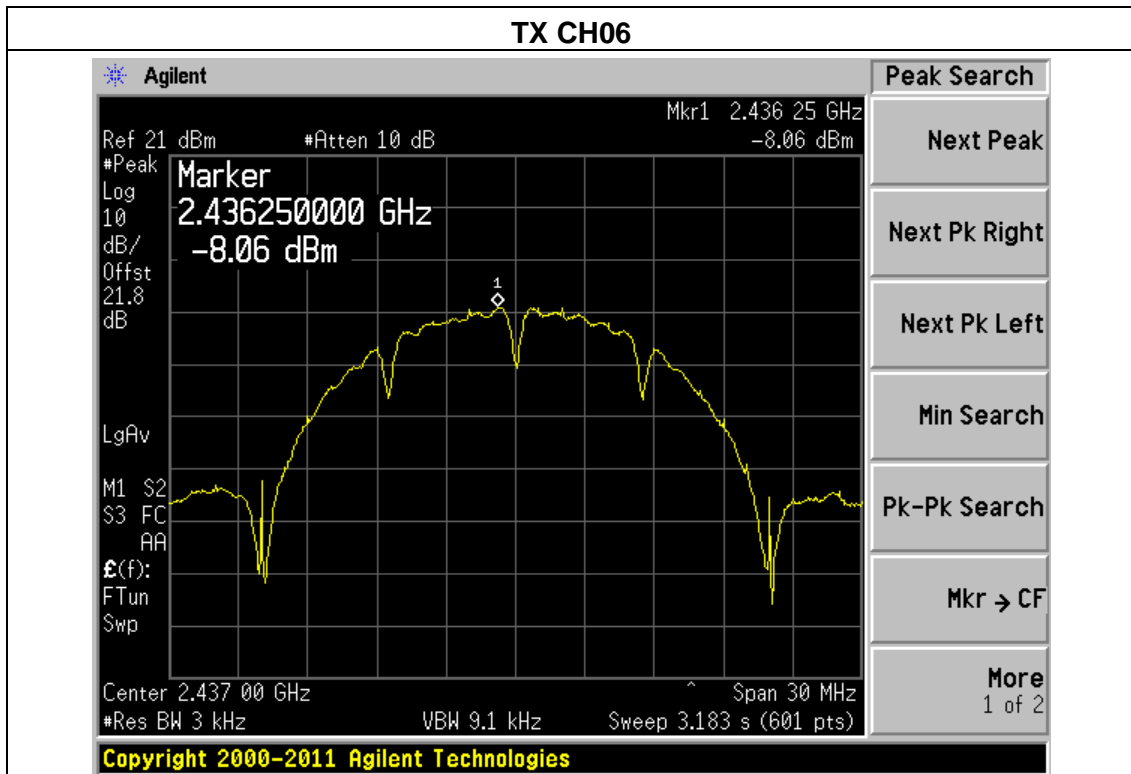
4.1.5 TEST RESULTS

| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 25 °C | Relative Humidity : | 60% |
| Pressure : | 1015 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | TX b Mode /CH01, CH06, CH11 | | |

| Frequency | Power Density A (dBm) | Power Density B (dBm) | Limit (dBm) | Result |
|-----------|-----------------------|-----------------------|-------------|-------------|
| 2412 MHz | -12.35 | -13.21 | 8 | PASS |
| 2437 MHz | -8.06 | -9.24 | 8 | PASS |
| 2462 MHz | -11.20 | -12.66 | 8 | PASS |

NOTE: A(B) Represent the value of antennaA and B,The worst data is A Antenna a ,only shown Antenna A Plot.

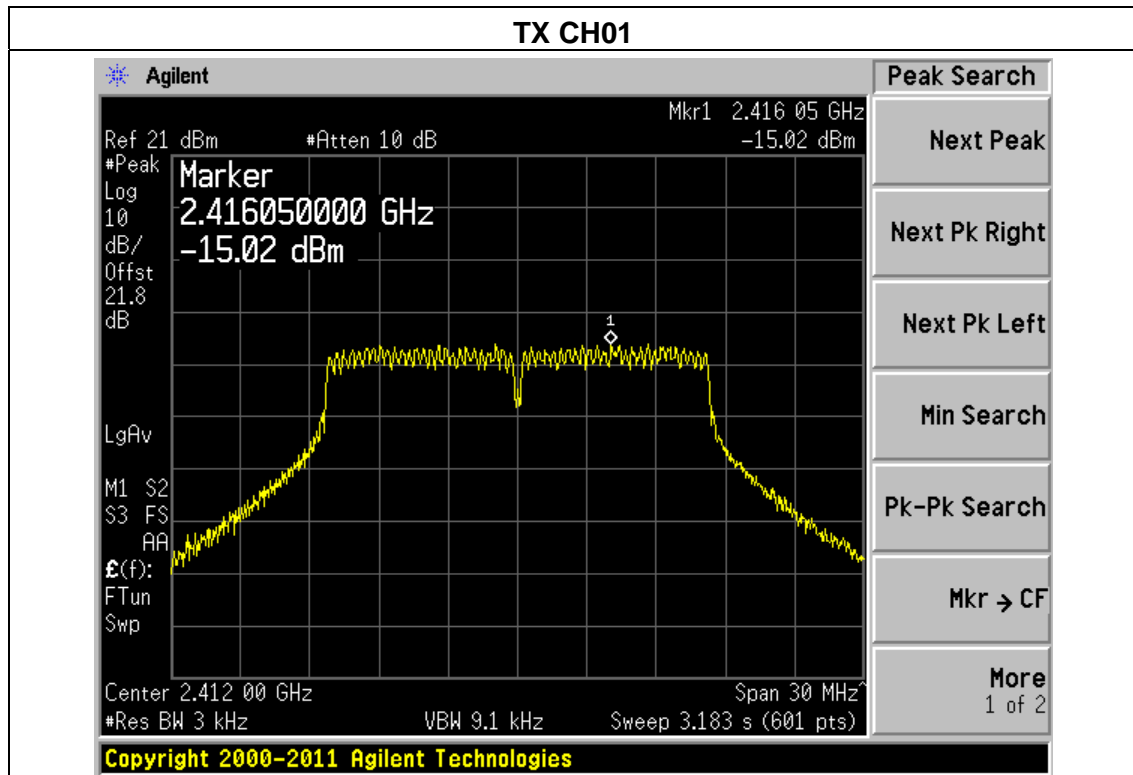


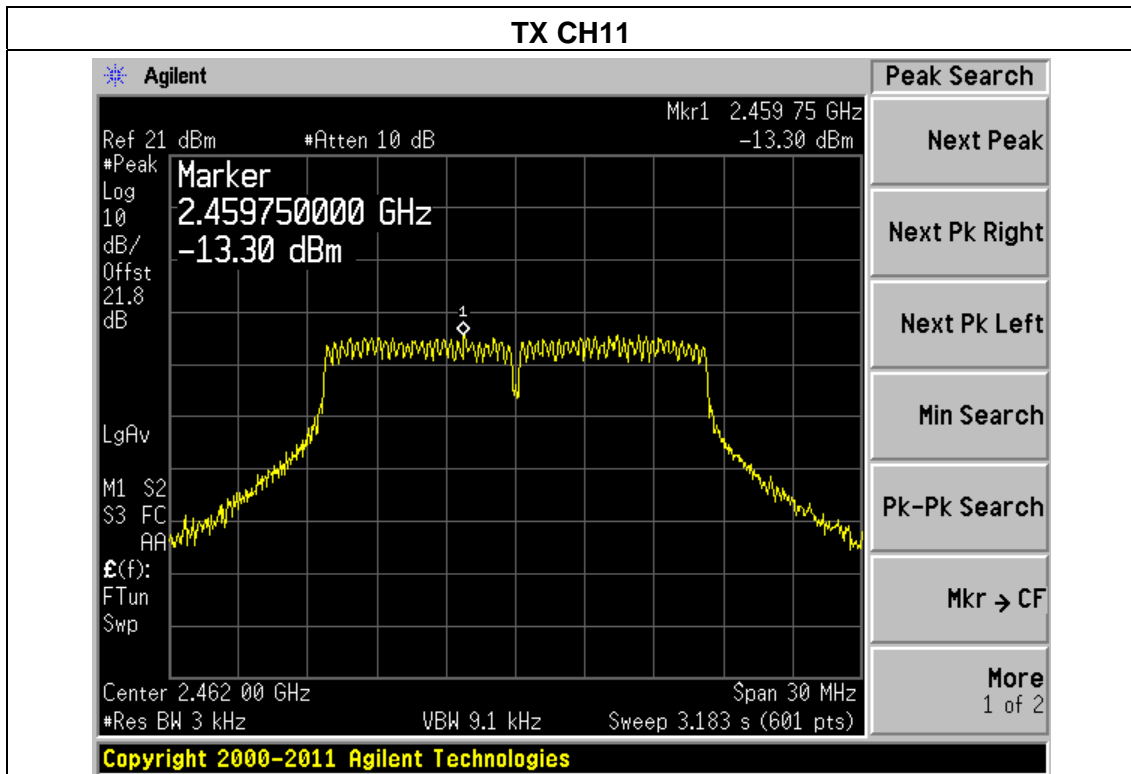
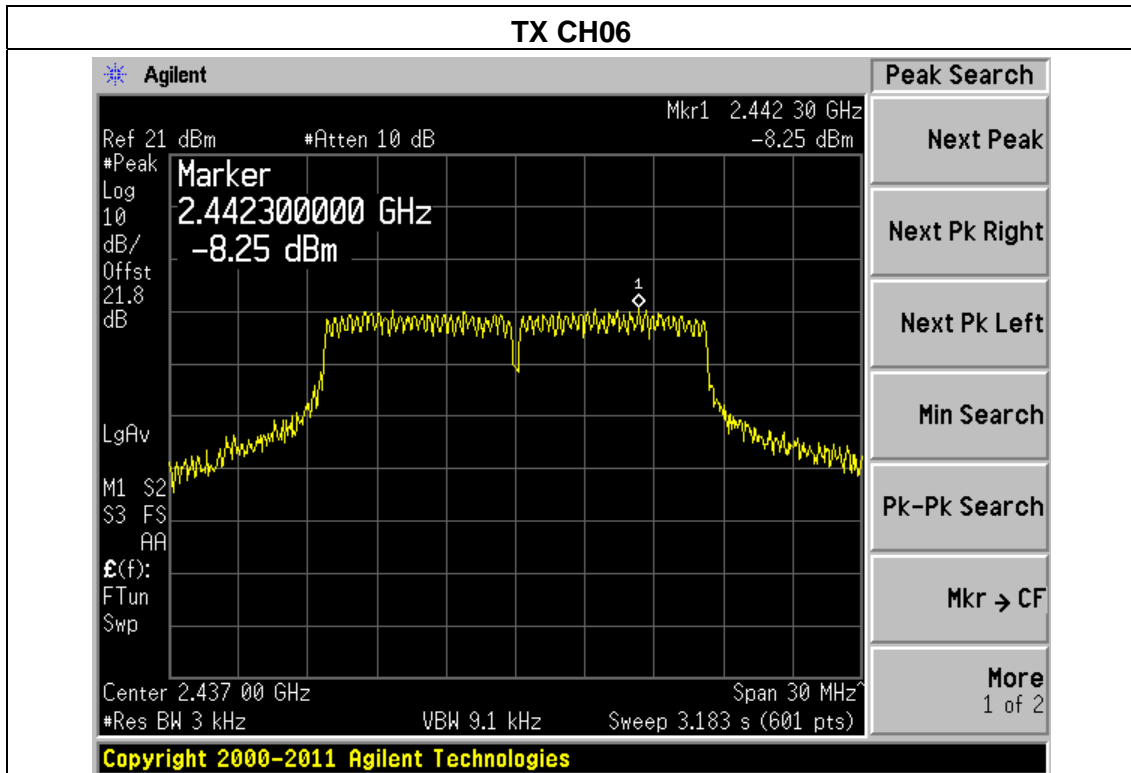


| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 25 °C | Relative Humidity : | 60% |
| Pressure : | 1015 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | TX g Mode /CH01, CH06, CH11 | | |

| Frequency | Power Density A (dBm) | Power Density B (dBm) | Limit (dBm) | Result |
|-----------|-----------------------|-----------------------|-------------|-------------|
| 2412 MHz | -15.02 | -16.59 | 8 | PASS |
| 2437 MHz | -8.25 | -10.12 | 8 | PASS |
| 2462 MHz | -13.30 | -15.67 | 8 | PASS |

NOTE: A(B) Represent the value of antenna A and B, The worst data is A Antenna a ,only shown Antenna A Plot.



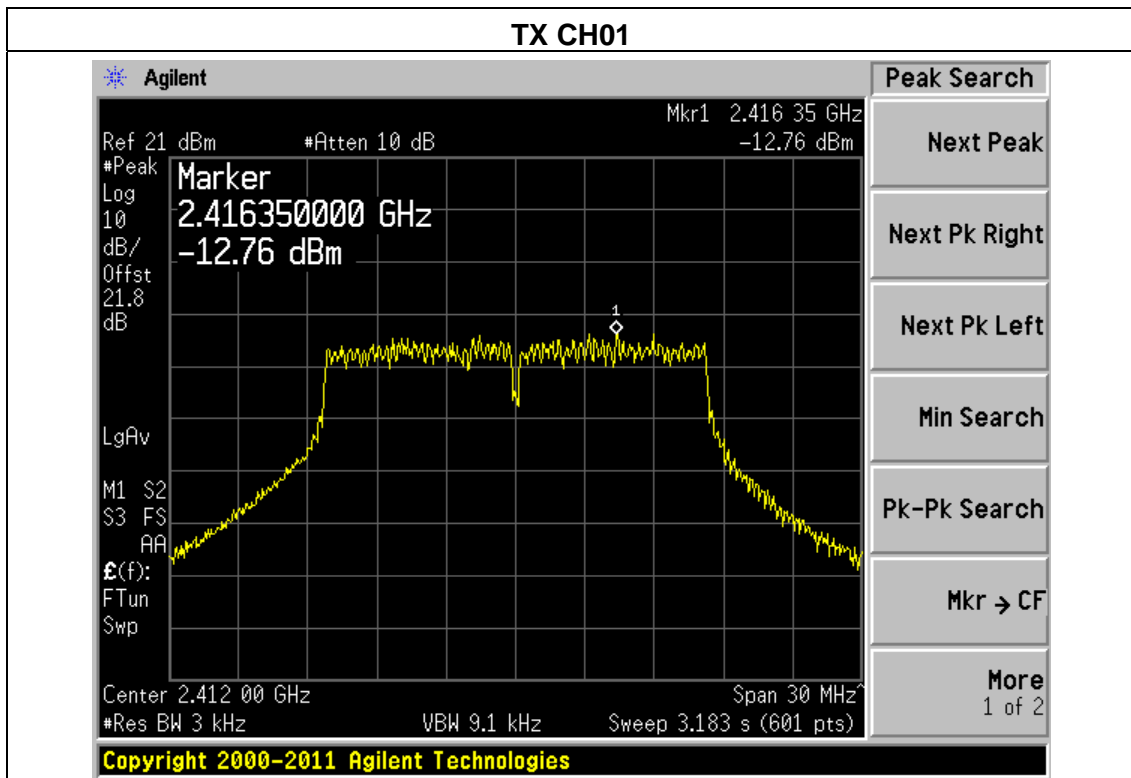


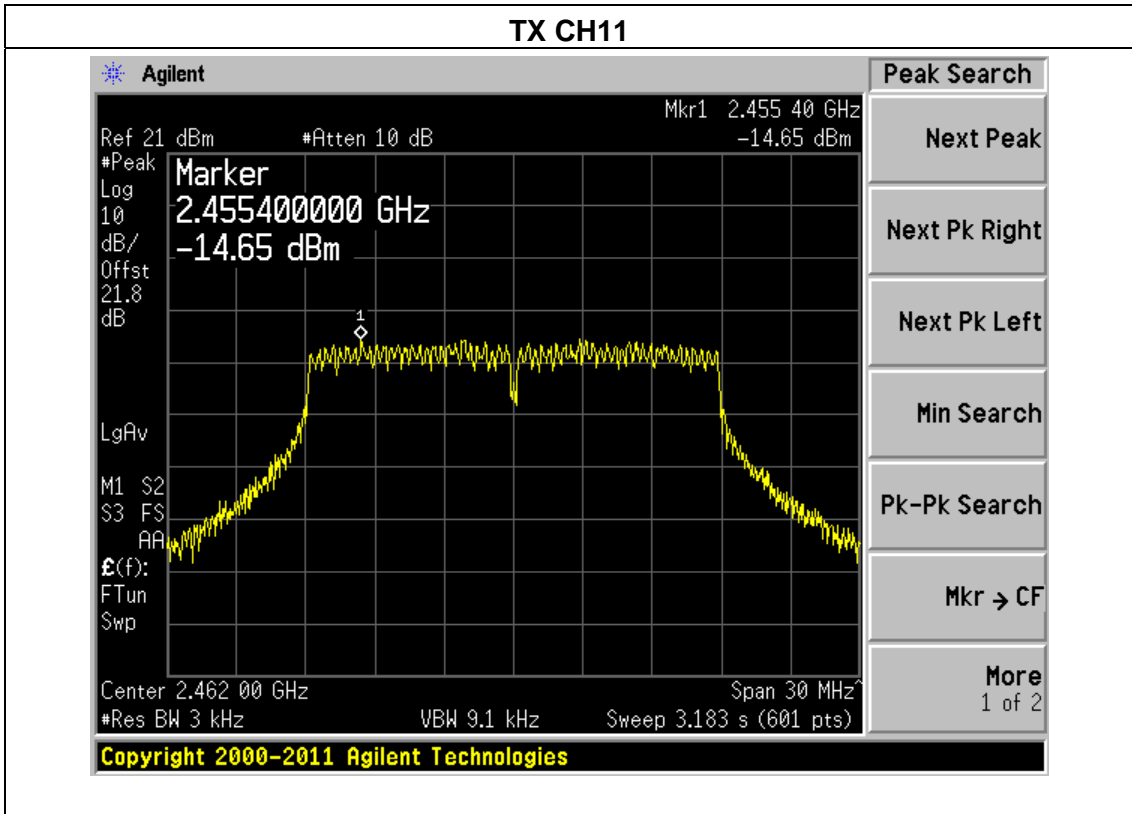
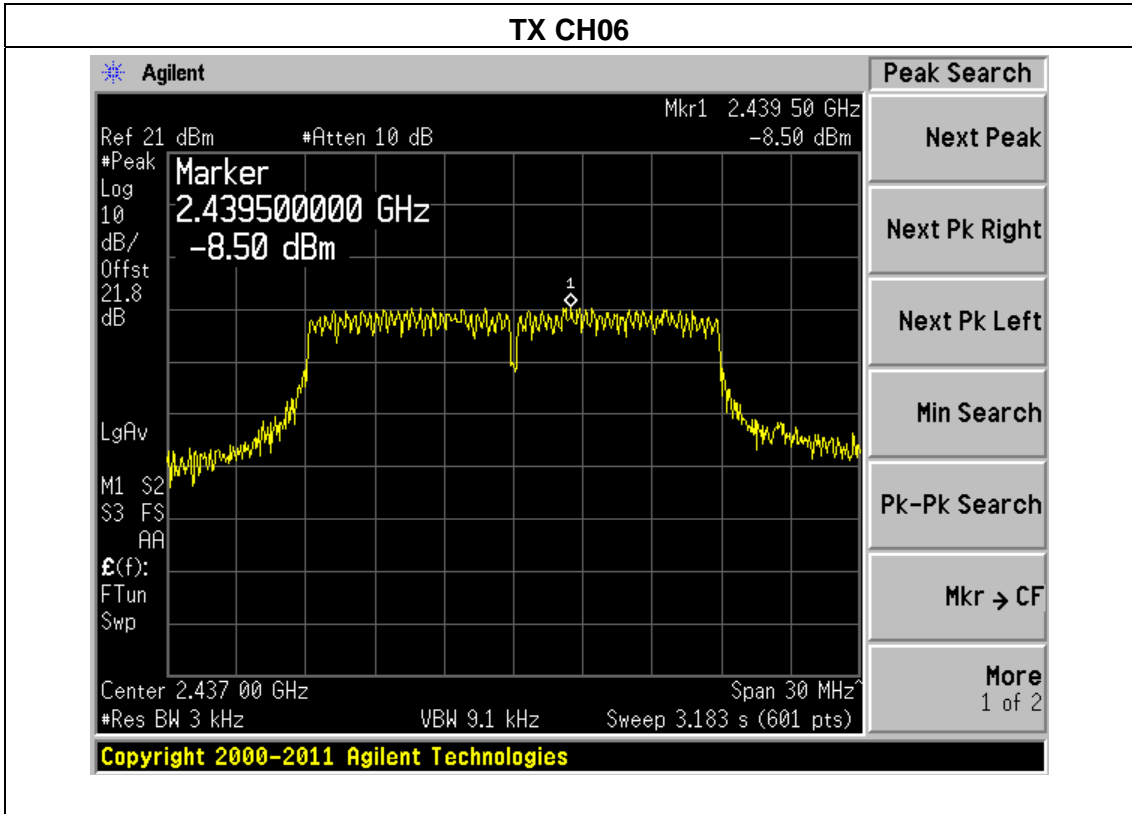
| | | | |
|---------------|----------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 25 °C | Relative Humidity : | 60% |
| Pressure : | 1015 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | TX n Mode(20M) /CH01, CH06, CH11 | | |

| Frequency | Power Density A (dBm) | Power Density B (dBm) | Power Density (dBm) | Limit (dBm) | Result |
|-----------|-----------------------|-----------------------|---------------------|-------------|-------------|
| 2412 MHz | -12.76 | -13.12 | -9.92 | 8 | PASS |
| 2437 MHz | -8.50 | -12.14 | -6.93 | 8 | PASS |
| 2462 MHz | -14.65 | -15.43 | -12.01 | 8 | PASS |

Note:

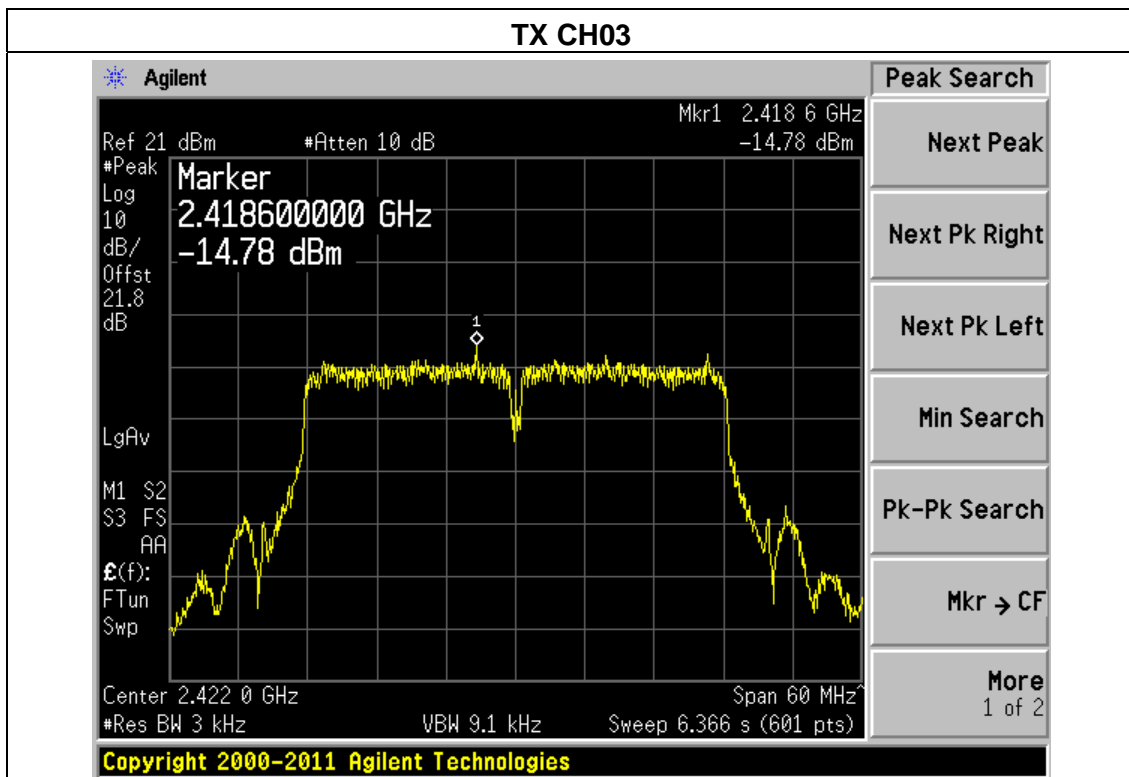
A(B) Represent the value of antennaA and B, The worst data is A Antenna a ,only shown Antenna A Plot.

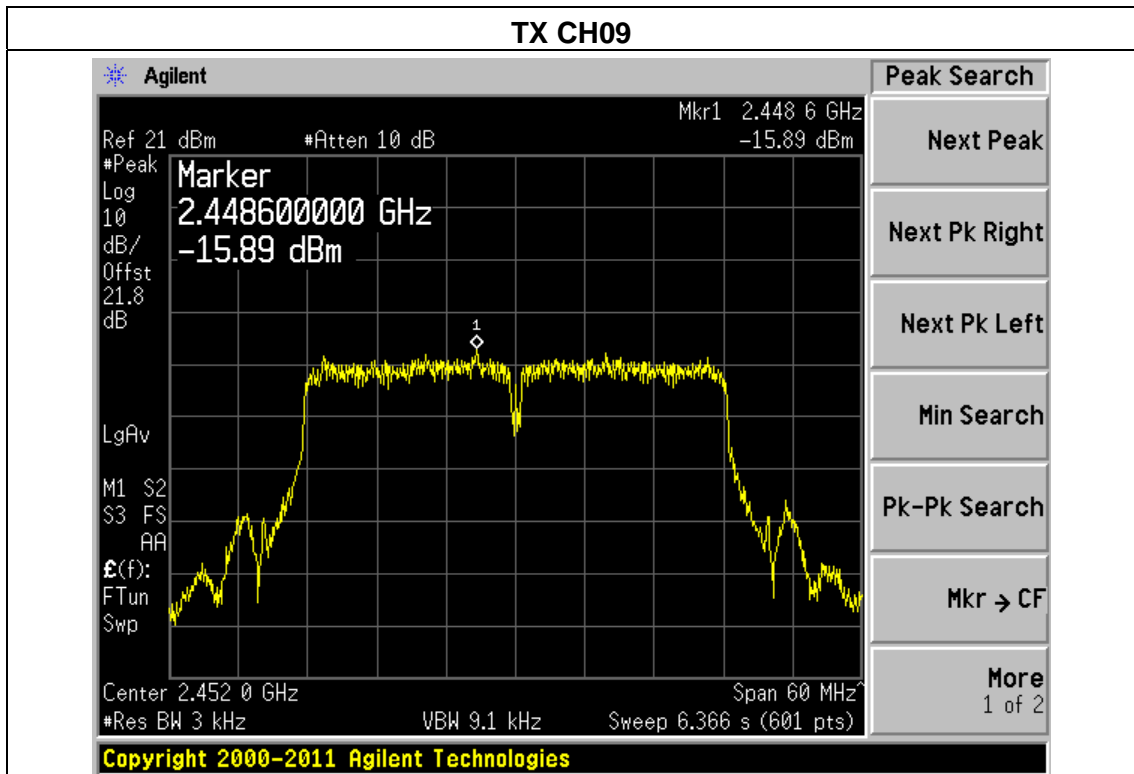
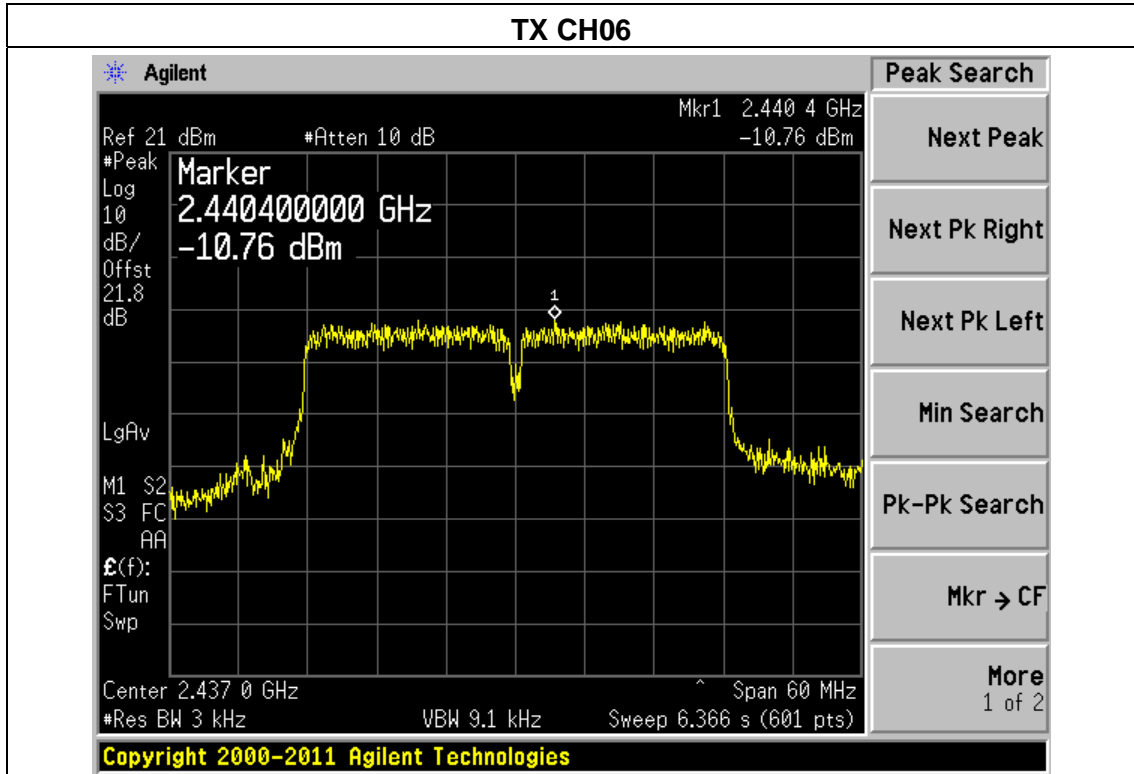




| | | | |
|---------------|----------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 25 °C | Relative Humidity : | 60% |
| Pressure : | 1015 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | TX n Mode(40M) /CH03, CH06, CH09 | | |

| Frequency | Power Density A (dBm) | Power Density B (dBm) | Power Density (dBm) | Limit (dBm) | Result |
|-----------|-----------------------|-----------------------|---------------------|-------------|-------------|
| 2422 MHz | -14.78 | -15.07 | -11.91 | 8 | PASS |
| 2437 MHz | -10.76 | -11.11 | -7.92 | 8 | PASS |
| 2452 MHz | -15.89 | -16.12 | -12.99 | 8 | PASS |



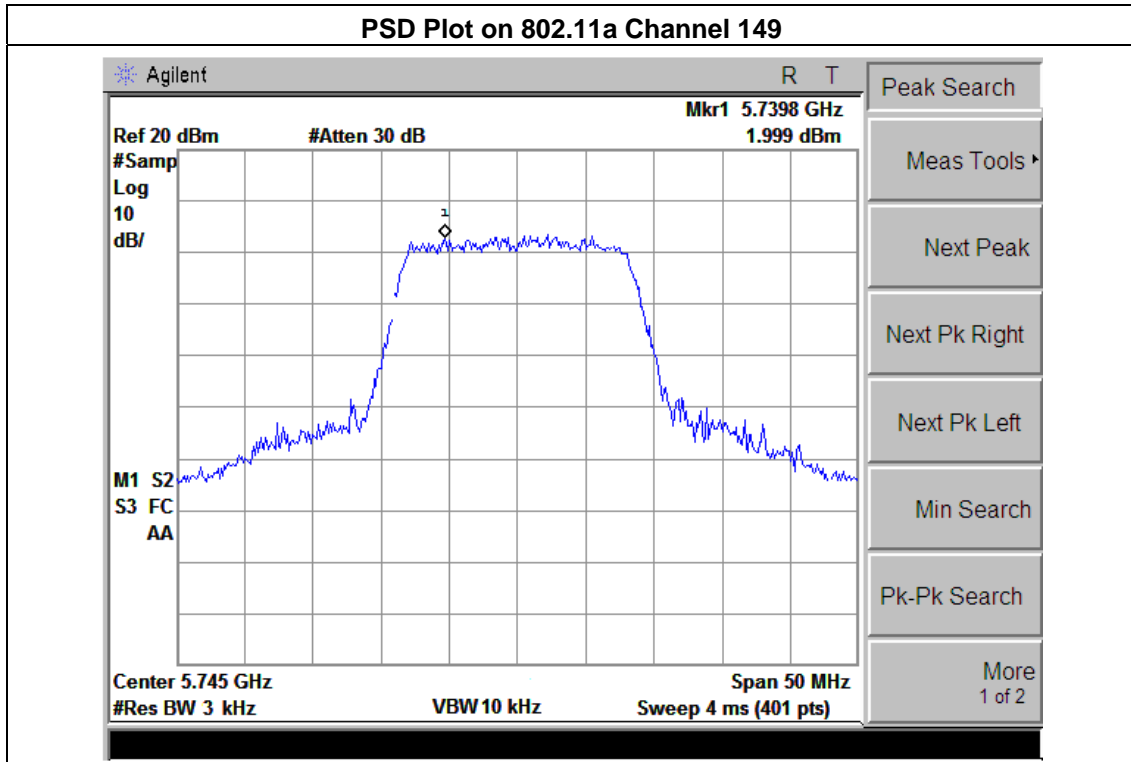


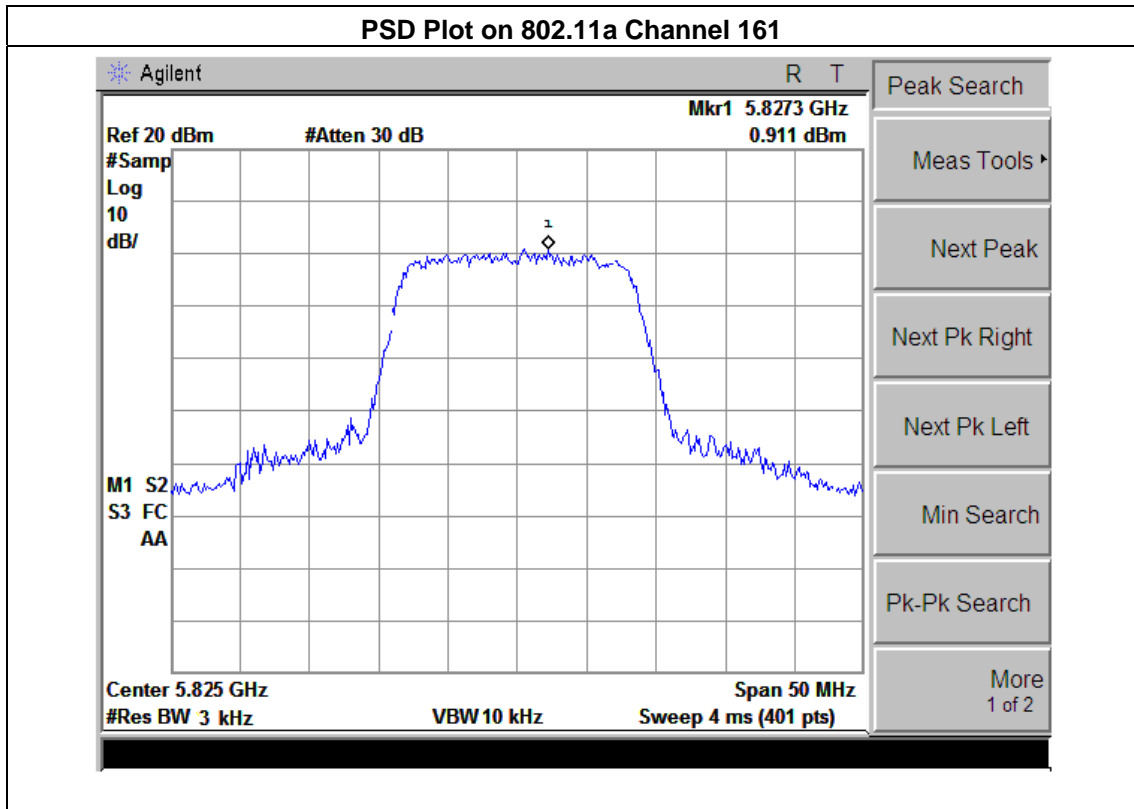
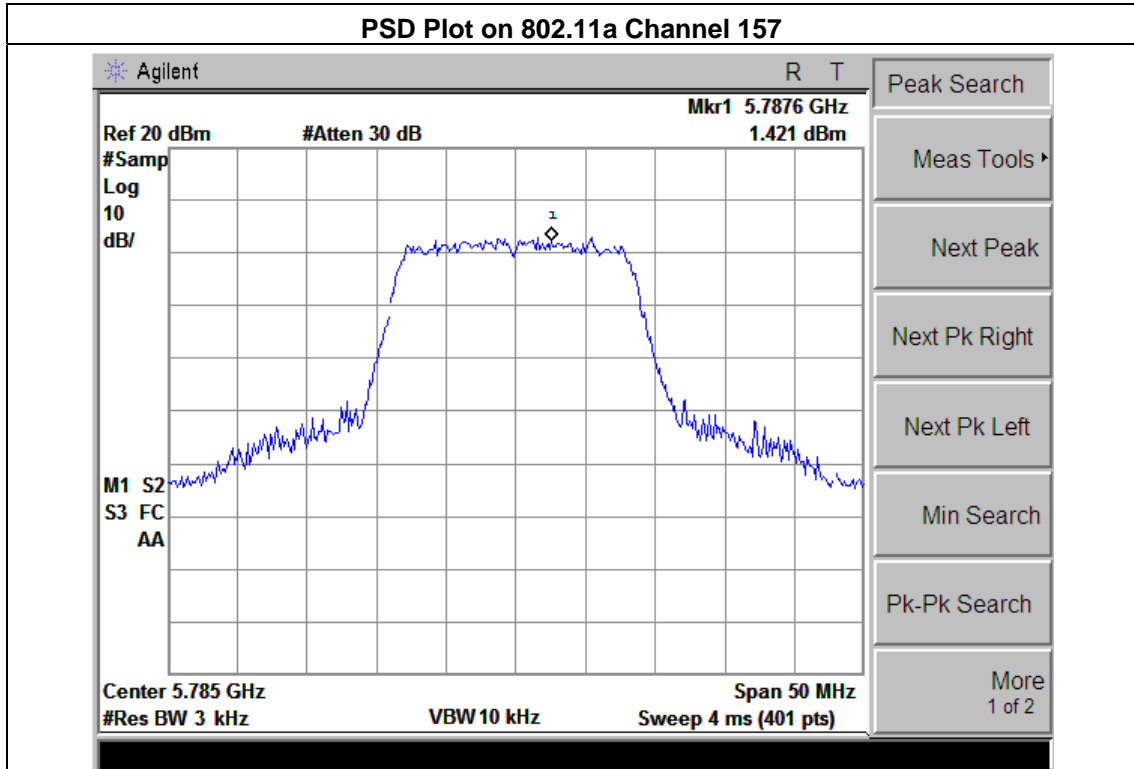
| | | | |
|---------------|------------------------------|---------------------|------------------------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 25 °C | Relative Humidity : | 60% |
| Pressure : | 1015 hPa | Test Voltage : | DC 5.0V from PC AC 120V/60Hz |
| Test Mode : | TX a Mode | | |

| Channel | Frequency | 802.11a Measured PSD (dBm)/A | 802.11a Measured PSD (dBm)/B | 802.11a Measured PSD | Limit (dBm) | Result |
|---------|-----------|------------------------------|------------------------------|----------------------|-------------|-------------|
| 149 | 5745 | 1.999 | -1.102 | 3.15 | 8 | PASS |
| 157 | 5785 | 1.421 | -1.312 | 3.28 | 8 | PASS |
| 164 | 5825 | 0.911 | -1.098 | 3.03 | 8 | PASS |

Note:

A(B) Represent the value of antennaA and B,The worst data is A Antenna a ,only shown Antenna A Plot.



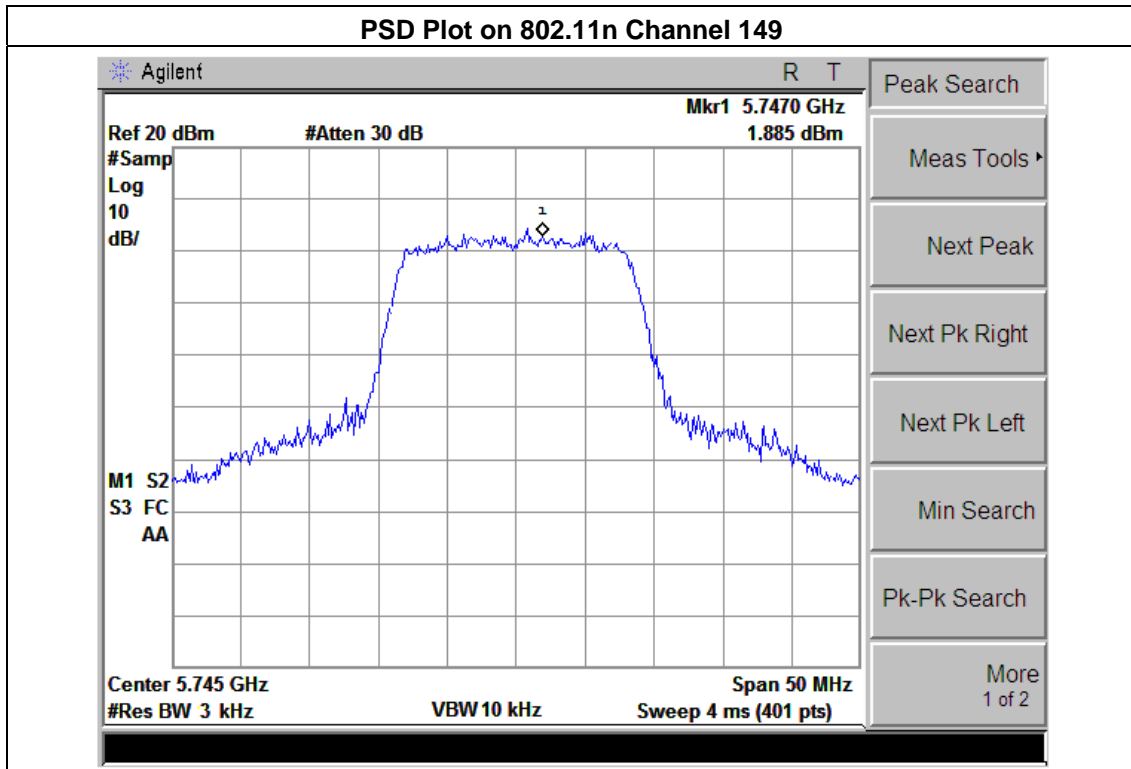


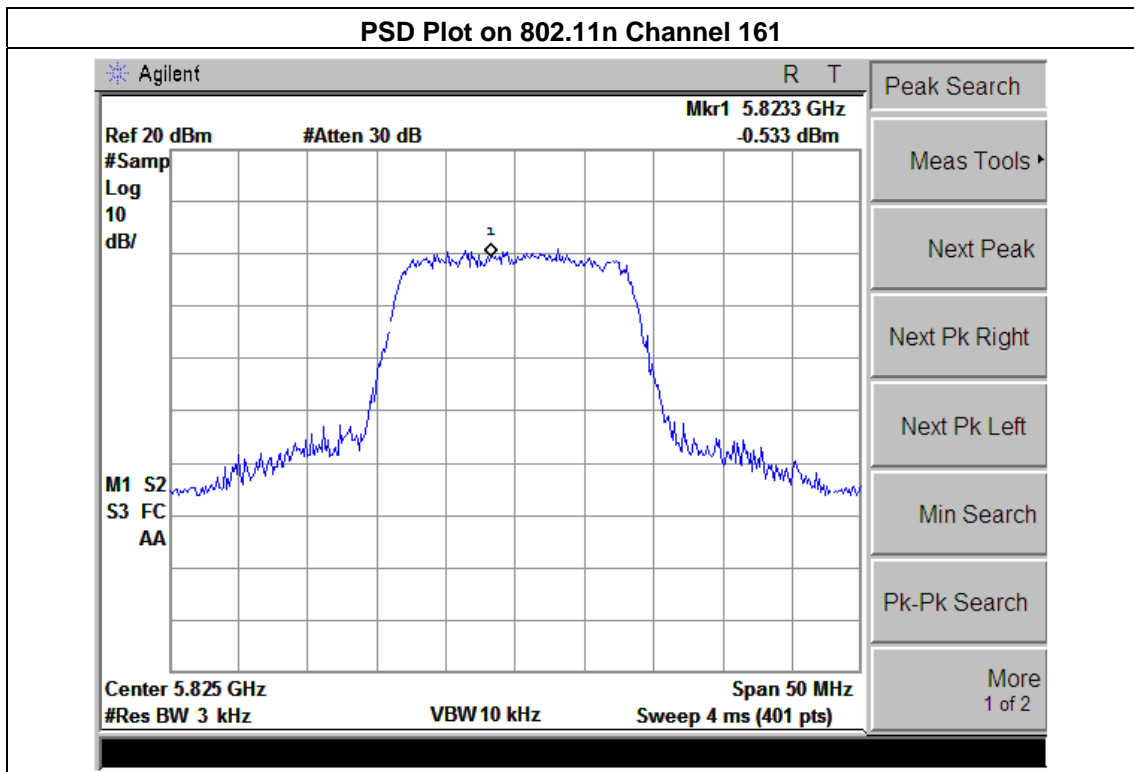
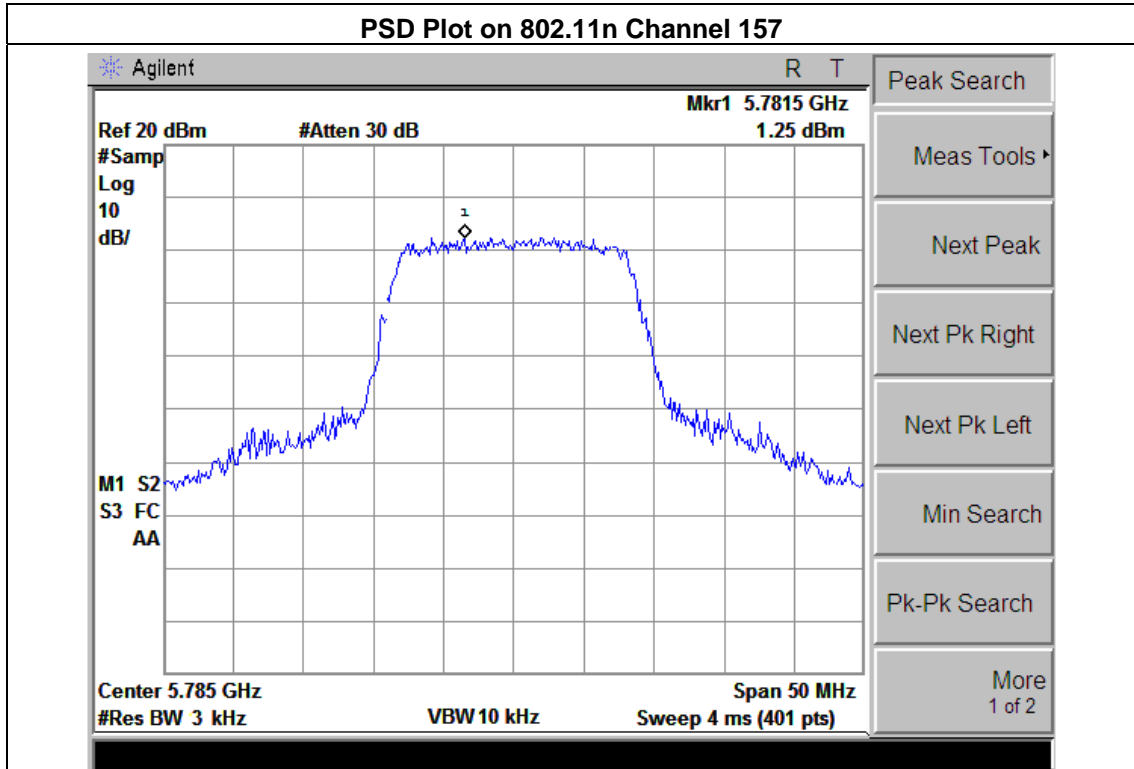
| | | | |
|---------------|------------------------------|---------------------|------------------------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 25 °C | Relative Humidity : | 60% |
| Pressure : | 1015 hPa | Test Voltage : | DC 5.0V from PC AC 120V/60Hz |
| Test Mode : | TX n Mode(20) | | |

| Channel | Frequency | 802.11n Measured PSD (dBm)/A | 802.11n Measured PSD (dBm)/B | 802.11n Measured PSD | Limit (dBm) | Result |
|---------|-----------|------------------------------|------------------------------|----------------------|-------------|-------------|
| 149 | 5745 | 2.885 | -1.122 | 3.65 | 8 | PASS |
| 157 | 5785 | 2.250 | -1.321 | 3.16 | 8 | PASS |
| 164 | 5825 | -0.533 | -1.129 | 2.19 | 8 | PASS |

Note:

A(B) Represent the value of antennaA and B, The worst data is A Antenna a , only shown Antenna A Plot.



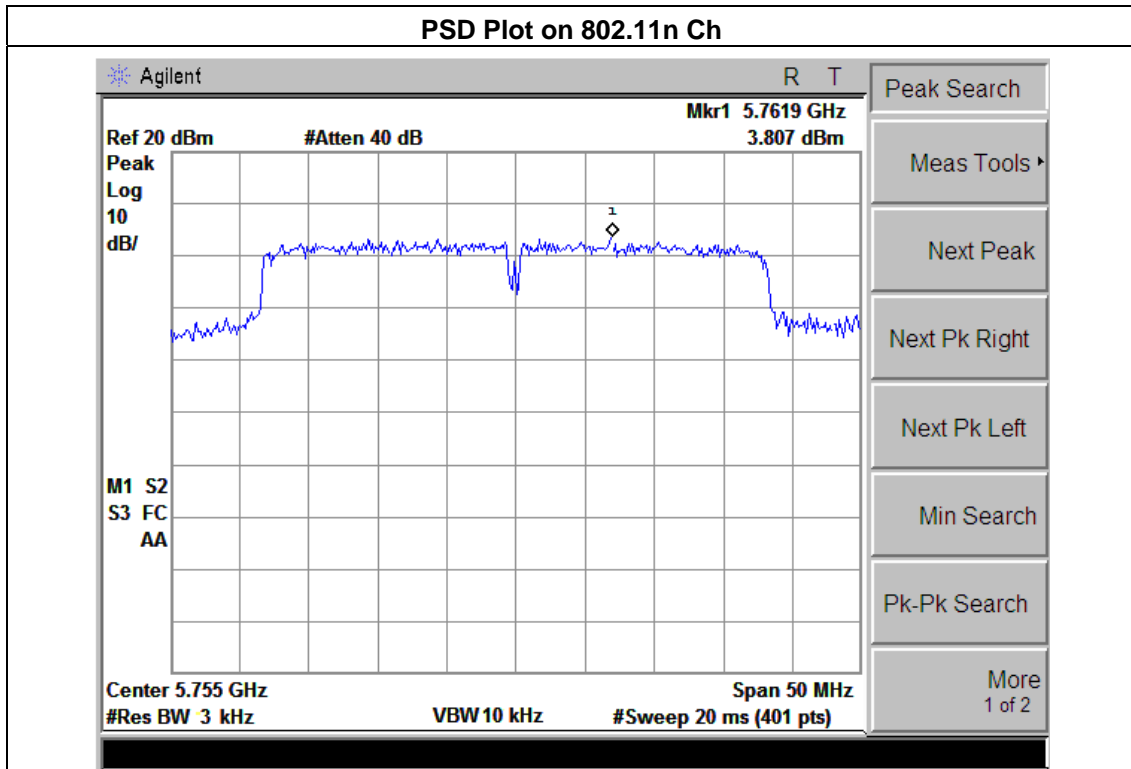


| | | | |
|---------------|------------------------------|---------------------|------------------------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 25 °C | Relative Humidity : | 60% |
| Pressure : | 1015 hPa | Test Voltage : | DC 5.0V from PC AC 120V/60Hz |
| Test Mode : | TX n Mode(40) | | |

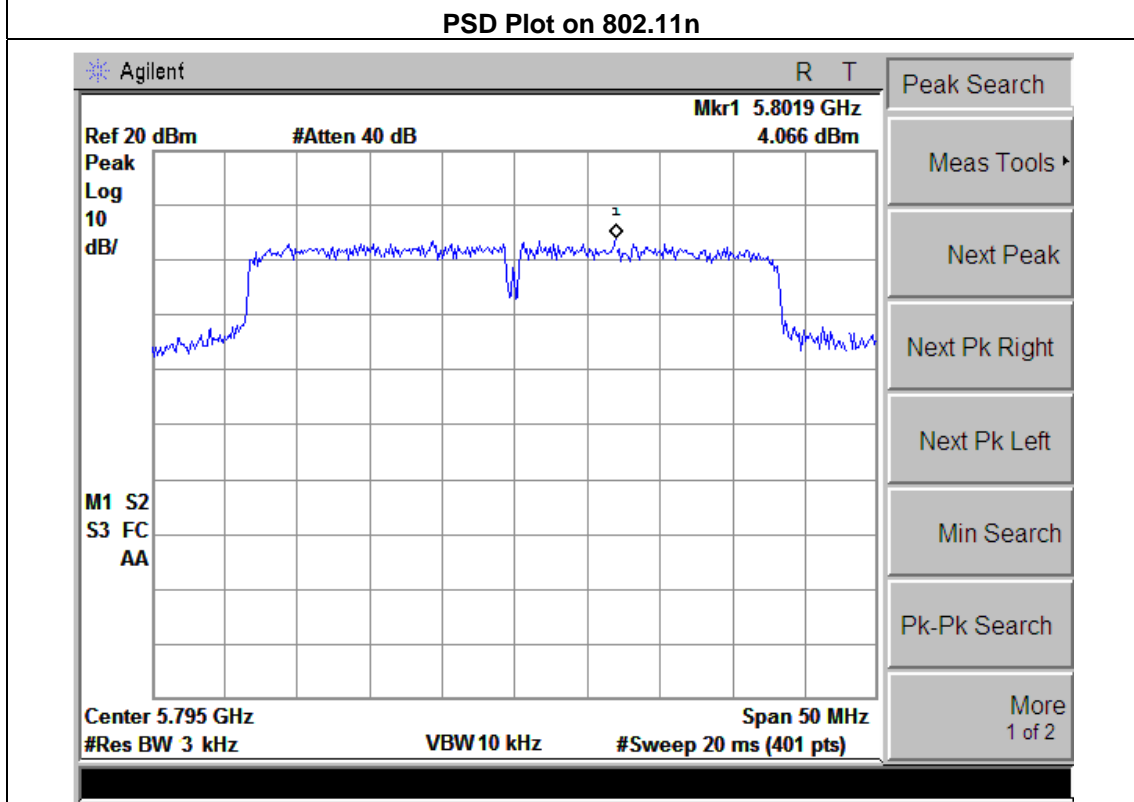
| Frequency | 802.11n Measured PSD (dBm)/A | 802.11n Measured PSD (dBm)/B | 802.11n Measured PSD | Limit (dBm) | Result |
|-----------|------------------------------|------------------------------|----------------------|-------------|-------------|
| 5755 | 3.81 | 1.21 | 5.71 | 8 | PASS |
| 5795 | 4.07 | 1.01 | 5.81 | 8 | PASS |

Note:

A(B) Represent the value of antennaA and B, The worst data is A Antenna a ,only shown Antenna A Plot.



PSD Plot on 802.11n



5. BANDWIDTH TEST

5.1 APPLIED PROCEDURES / LIMIT

| FCC Part15 (15.247) , Subpart C | | | | |
|---------------------------------|-----------|-----------------------------------------|--------------------------|--------|
| Section | Test Item | Limit | Frequency Range (MHz) | Result |
| 15.247(a)(2) | Bandwidth | $\geq 500\text{KHz}$ (6dB bandwidth) | 2400-2483.5 5745-5825 | PASS |

5.1.1 TEST PROCEDURE

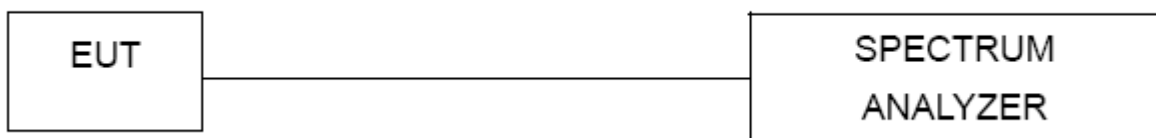
a.

1. Set resolution bandwidth (RBW) = 1-5% or DTS BW, not to exceed 100 kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP



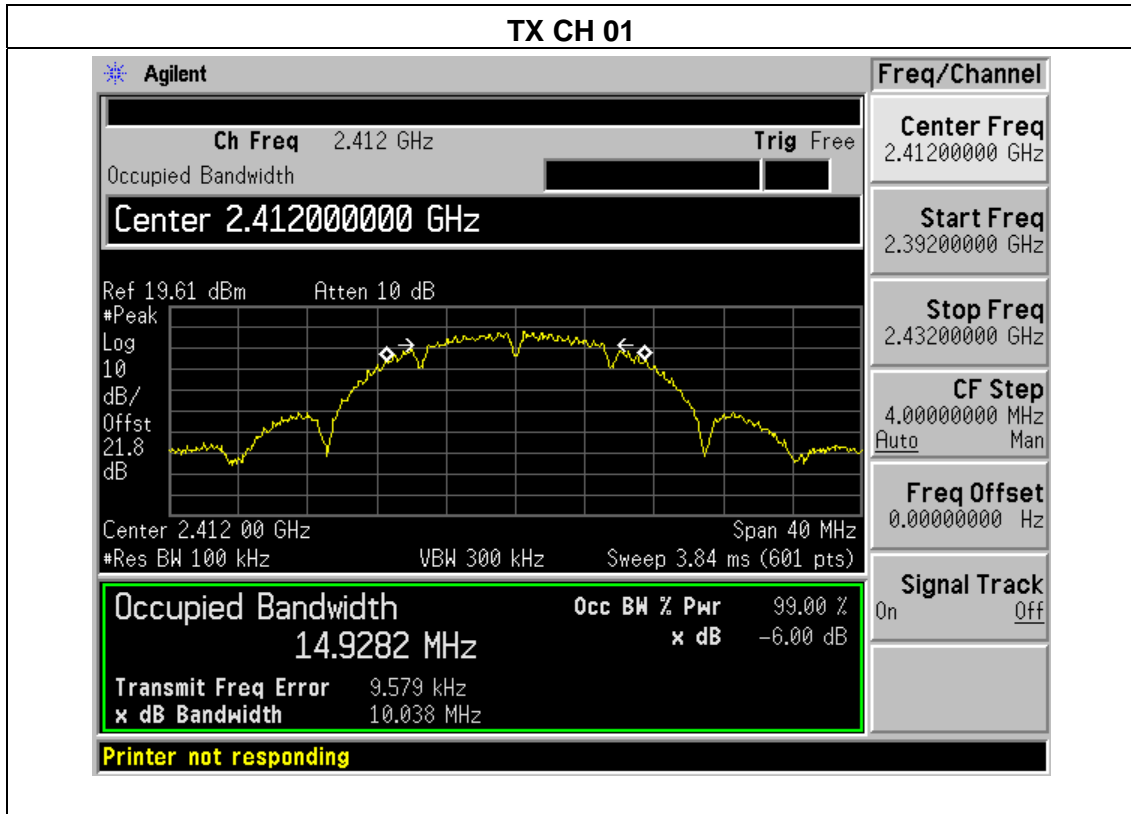
5.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.1.5 TEST RESULTS

| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 25 °C | Relative Humidity : | 60% |
| Pressure : | 1012 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | TX b Mode /CH01, CH06, CH11 | | |

| Frequency | 6dB Bandwidth (MHz) | 99% Occupied BW (MHz) | Channel Separation (MHz) | Result |
|-----------|---------------------|-----------------------|--------------------------|-------------|
| 2412 MHz | 10.03 | 14.92 | >=500KHz | PASS |
| 2437 MHz | 10.05 | 14.66 | >=500KHz | PASS |
| 2462 MHz | 10.03 | 14.91 | >=500KHz | PASS |



TX CH 06

Agilent

Ch Freq 2.437 GHz Trig Free

Occupied Bandwidth

Sweep Time 3.840 ms

Ref 19.61 dBm Atten 10 dB

Center 2.437 00 GHz Span 40 MHz

#Res BW 100 kHz VBW 300 kHz Sweep 3.84 ms (601 pts)

Occupied Bandwidth 14.6688 MHz

Transmit Freq Error -9.759 kHz

x dB Bandwidth 10.053 MHz

Printer not responding

Meas Setup

Avg Number 10

On Off

Avg Mode Repeat

Exp

Max Hold Off

On Off

Occ BW % Pwr 99.00 %

OBW Span 40.0000000 MHz

x dB -6.00 dB

Optimize Ref Level

TX CH 11

Agilent

Ch Freq 2.462 GHz Trig Free

Occupied Bandwidth

Center 2.462000000 GHz

Ref 19.61 dBm Atten 10 dB

Center 2.462 00 GHz Span 40 MHz

#Res BW 100 kHz VBW 300 kHz Sweep 3.84 ms (601 pts)

Occupied Bandwidth 14.9164 MHz

Transmit Freq Error -13.453 kHz

x dB Bandwidth 10.033 MHz

Printer not responding

Freq/Channel

Center Freq 2.46200000 GHz

Start Freq 2.44200000 GHz

Stop Freq 2.48200000 GHz

CF Step 4.00000000 MHz

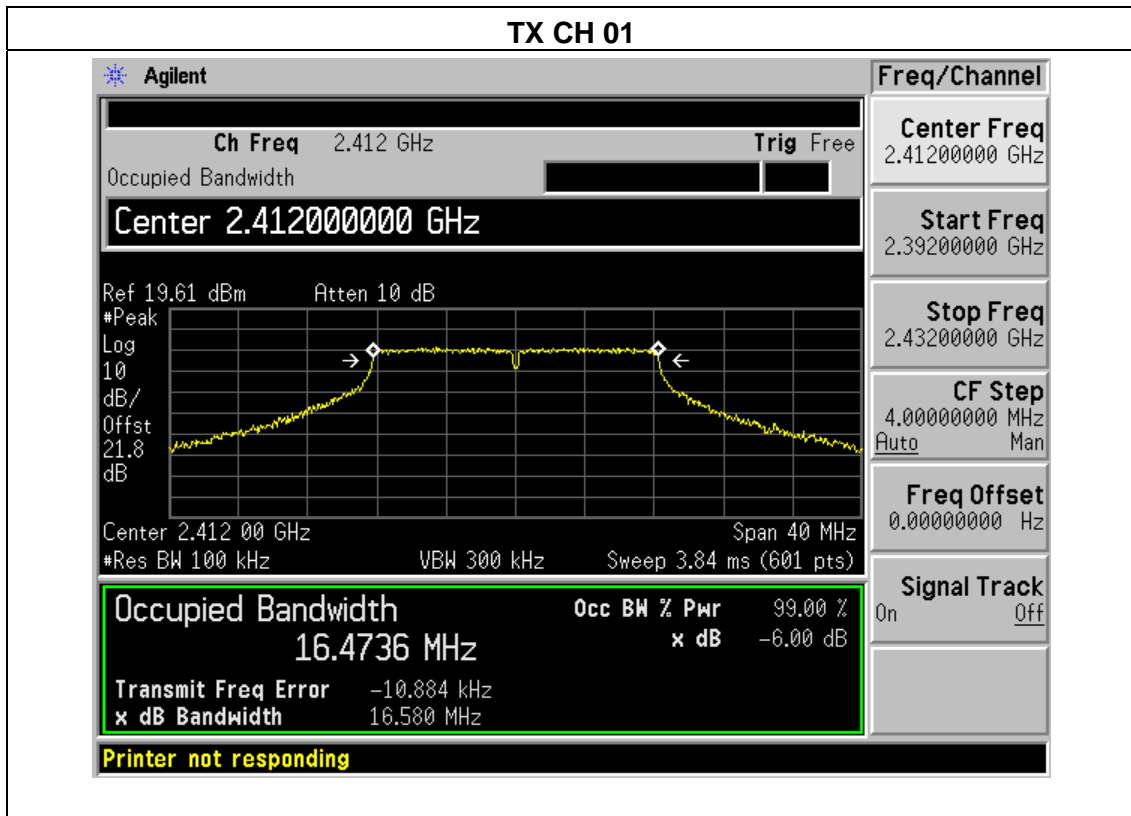
Auto Man

Freq Offset 0.00000000 Hz

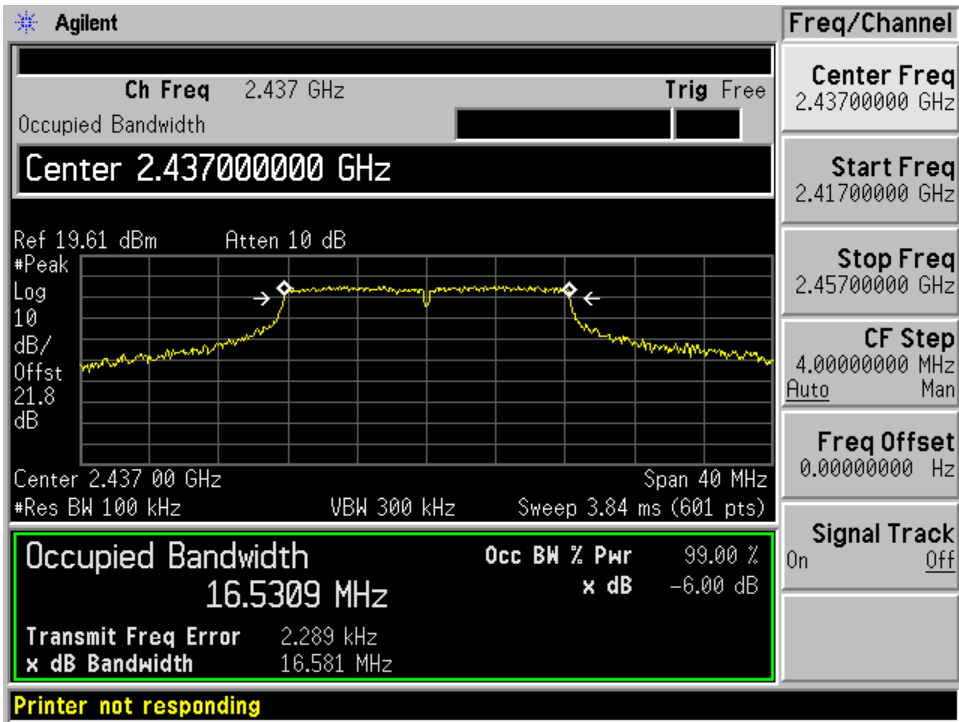
Signal Track On Off

| | | | |
|---------------|------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 25 °C | Relative Humidity : | 60% |
| Pressure : | 1012 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | TX g Mode /CH01, CH06, CH11 | | |

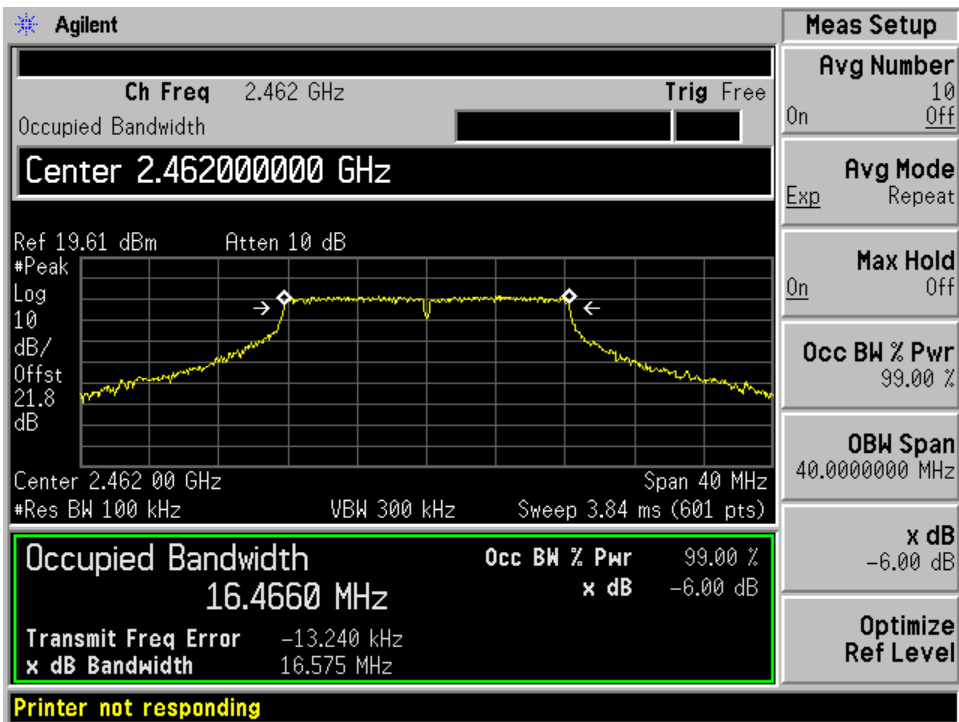
| Frequency | 6dB Bandwidth (MHz) | 99% Occupied BW (MHz) | Channel Separation (MHz) | Result |
|-----------|---------------------|-----------------------|--------------------------|-------------|
| 2412 MHz | 16.50 | 16.47 | >=500KHz | PASS |
| 2437 MHz | 16.50 | 16.53 | >=500KHz | PASS |
| 2462 MHz | 16.57 | 16.46 | >=500KHz | PASS |



TX CH 06

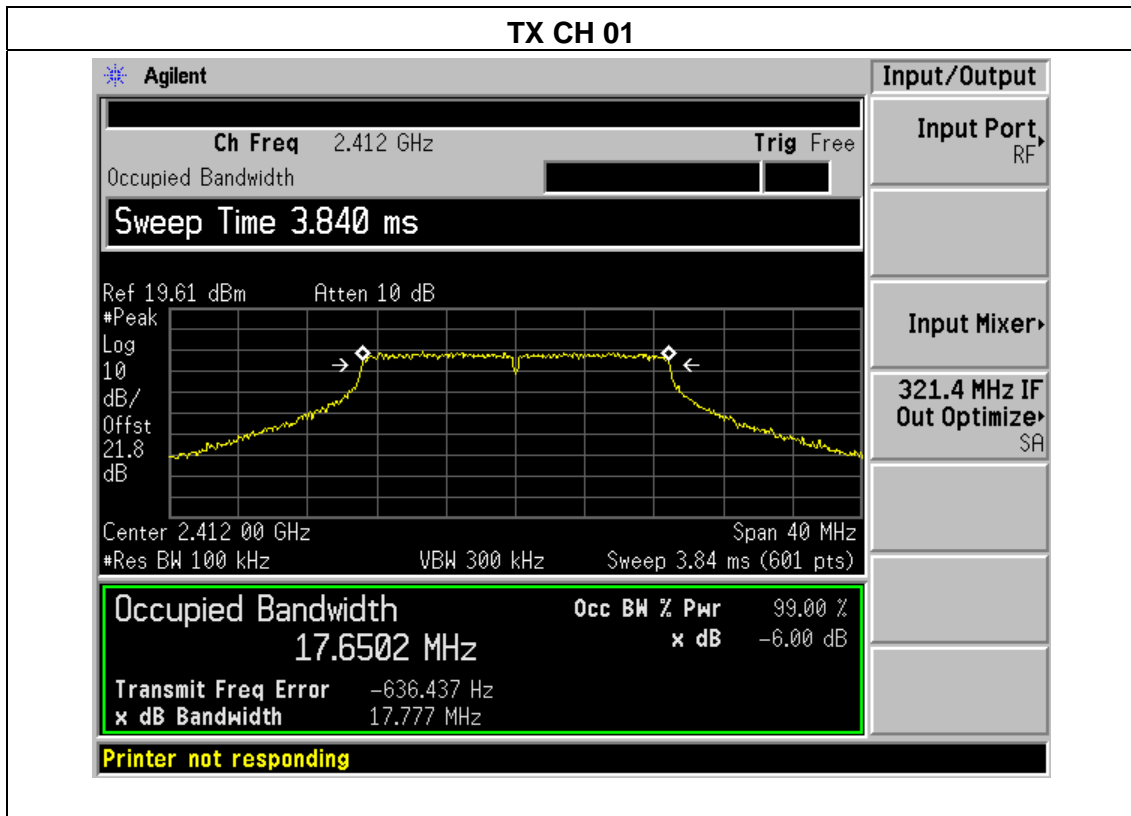


TX CH 11



| | | | |
|---------------|----------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 25 °C | Relative Humidity : | 60% |
| Pressure : | 1012 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | TX n Mode(20M) /CH01, CH06, CH11 | | |

| Frequency | 6dB Bandwidth (MHz) | 99% Occupied BW (MHz) | Channel Separation (MHz) | Result |
|-----------|---------------------|-----------------------|--------------------------|-------------|
| 2412 MHz | 17.77 | 17.65 | >=500KHz | PASS |
| 2437 MHz | 17.83 | 17.77 | >=500KHz | PASS |
| 2462 MHz | 17.78 | 17.66 | >=500KHz | PASS |



TX CH 06

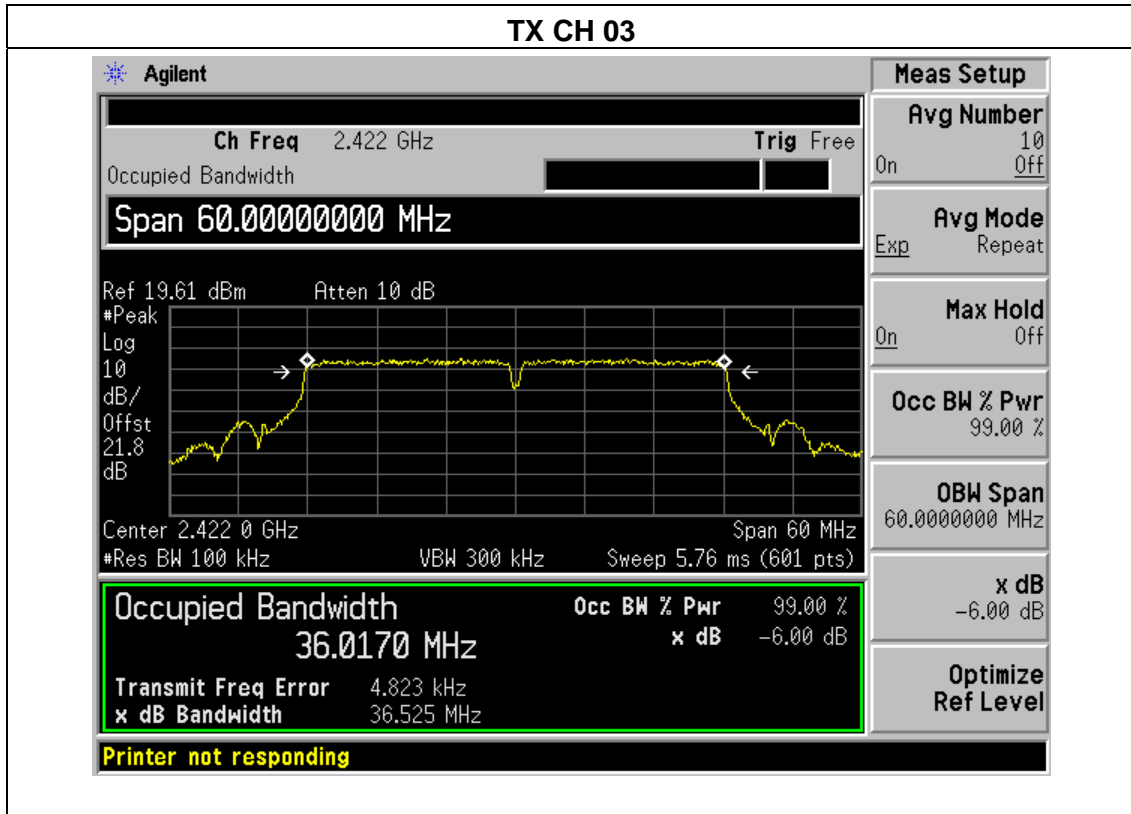
| | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Agilent</p> <p>Ch Freq 2.437 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Sweep Time 3.840 ms</p> <p>Ref 19.61 dBm Atten 10 dB</p> <p>#Peak</p> <p>Log 10</p> <p>dB/Offst 21.8 dB</p> <p>Center 2.437 00 GHz Span 40 MHz</p> <p>#Res BW 100 kHz VBW 300 kHz Sweep 3.84 ms (601 pts)</p> | | <p>Meas Setup</p> <p>Avg Number 10</p> <p>On Off</p> <p>Avg Mode Repeat</p> <p>Exp</p> <p>Max Hold Off</p> <p>On</p> <p>Occ BW % Pwr 99.00 %</p> <p>OBW Span 40.0000000 MHz</p> <p>x dB -6.00 dB</p> <p>Optimize Ref Level</p> |
| <p>Occupied Bandwidth 17.7751 MHz</p> <p>Transmit Freq Error 22.655 kHz</p> <p>x dB Bandwidth 17.836 MHz</p> <p>Occ BW % Pwr 99.00 %</p> <p>x dB -6.00 dB</p> | | |
| <p>Printer not responding</p> | | |

TX CH 11

| | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Agilent</p> <p>Ch Freq 2.462 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Sweep Time 3.840 ms</p> <p>Ref 19.61 dBm Atten 10 dB</p> <p>#Peak</p> <p>Log 10</p> <p>dB/Offst 21.8 dB</p> <p>Center 2.462 00 GHz Span 40 MHz</p> <p>#Res BW 100 kHz VBW 300 kHz Sweep 3.84 ms (601 pts)</p> | | <p>Sweep</p> <p>Sweep Time 3.840 ms</p> <p>Auto Man</p> <p>Sweep Cont</p> <p>Single</p> <p>Auto Sweep Time Accy</p> <p>Norm</p> <p>Gate Off</p> <p>On</p> <p>Gate Setup</p> <p>Points 601</p> |
| <p>Occupied Bandwidth 17.6626 MHz</p> <p>Transmit Freq Error 4.561 kHz</p> <p>x dB Bandwidth 17.782 MHz</p> <p>Occ BW % Pwr 99.00 %</p> <p>x dB -6.00 dB</p> | | |
| <p>Printer not responding</p> | | |

| | | | |
|---------------|----------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 25 °C | Relative Humidity : | 60% |
| Pressure : | 1012 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | TX n Mode(40M) /CH03, CH06, CH09 | | |

| Frequency | 6dB Bandwidth (MHz) | 99% Occupied BW (MHz) | Channel Separation (MHz) | Result |
|-----------|---------------------|-----------------------|--------------------------|-------------|
| 2422 MHz | 36.52 | 36.01 | >=500KHz | PASS |
| 2437 MHz | 36.54 | 36.05 | >=500KHz | PASS |
| 2452 MHz | 36.49 | 35.96 | >=500KHz | PASS |



TX CH 06

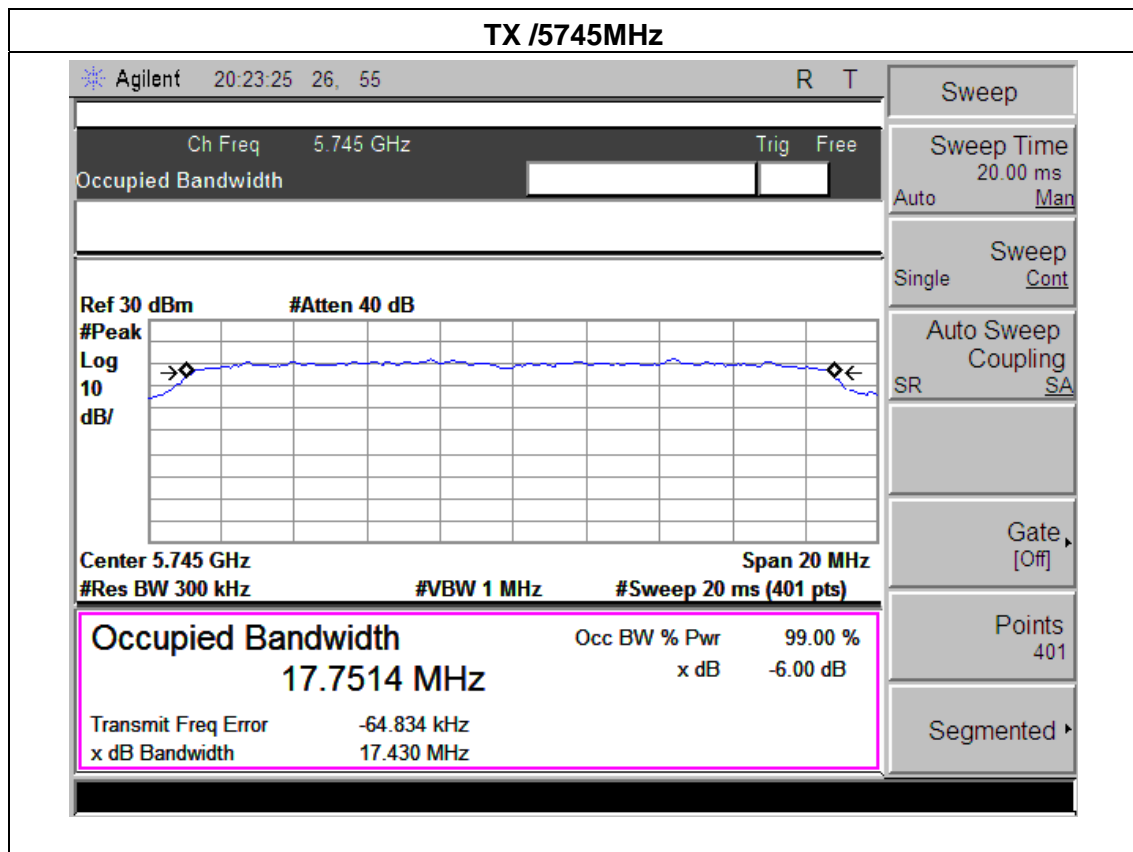
| | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Agilent</p> <p>Ch Freq 2.437 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Sweep Time 5.760 ms</p> <p>Ref 19.61 dBm Atten 10 dB</p> <p>#Peak Log 10 dB/ Offst 21.8 dB</p> <p>Start 2.407 0 GHz Stop 2.467 0 GHz</p> <p>#Res BW 100 kHz VBW 300 kHz Sweep 5.76 ms (601 pts)</p> | | <p>Meas Setup</p> <p>Avg Number 10</p> <p>On Off</p> <p>Avg Mode Repeat</p> <p>Exp</p> <p>Max Hold Off</p> <p>On</p> <p>Occ BW % Pwr 99.00 %</p> <p>OBW Span 60.0000000 MHz</p> <p>x dB -6.00 dB</p> <p>Optimize Ref Level</p> |
| <p>Occupied Bandwidth 36.0577 MHz</p> <p>Occ BW % Pwr 99.00 %</p> <p>x dB -6.00 dB</p> <p>Transmit Freq Error 47.726 kHz</p> <p>x dB Bandwidth 36.543 MHz</p> | | |
| <p>Printer not responding</p> | | |

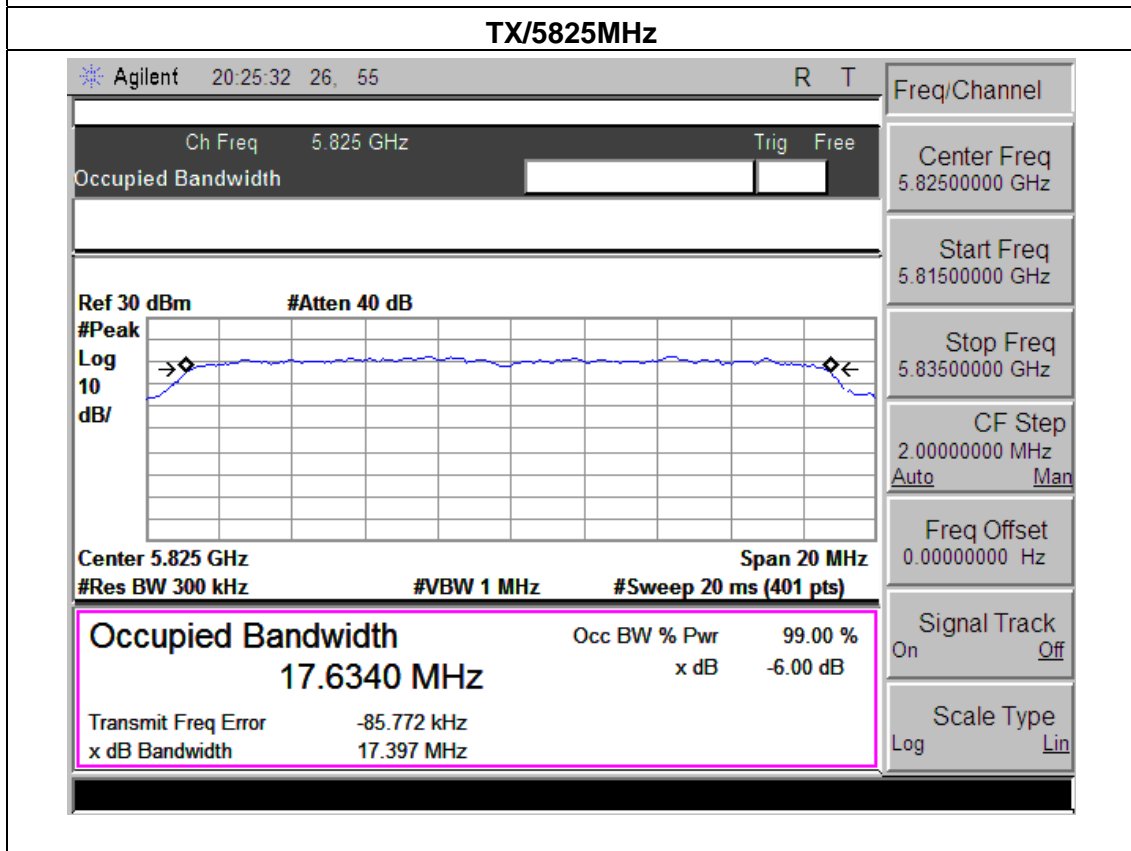
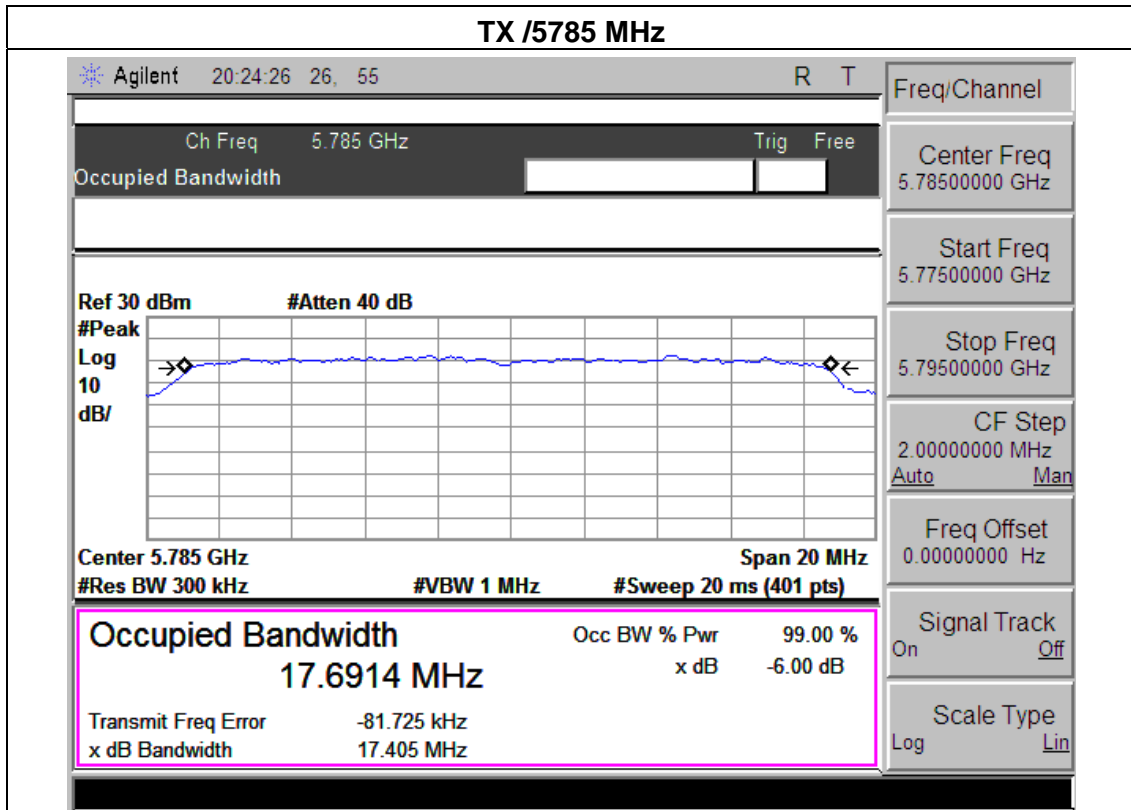
TX CH 09

| | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Agilent</p> <p>Ch Freq 2.452 GHz Trig Free</p> <p>Occupied Bandwidth</p> <p>Sweep Time 5.760 ms</p> <p>Ref 19.61 dBm Atten 10 dB</p> <p>#Peak Log 10 dB/ Offst 21.8 dB</p> <p>Center 2.452 0 GHz Span 60 MHz</p> <p>#Res BW 100 kHz VBW 300 kHz Sweep 5.76 ms (601 pts)</p> | | <p>Meas Setup</p> <p>Avg Number 10</p> <p>On Off</p> <p>Avg Mode Repeat</p> <p>Exp</p> <p>Max Hold Off</p> <p>On</p> <p>Occ BW % Pwr 99.00 %</p> <p>OBW Span 60.0000000 MHz</p> <p>x dB -6.00 dB</p> <p>Optimize Ref Level</p> |
| <p>Occupied Bandwidth 35.9625 MHz</p> <p>Occ BW % Pwr 99.00 %</p> <p>x dB -6.00 dB</p> <p>Transmit Freq Error 24.574 kHz</p> <p>x dB Bandwidth 36.495 MHz</p> | | |
| <p>Printer not responding</p> | | |

| | | | |
|---------------|------------------------------|---------------------|------------------------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 25 °C | Relative Humidity : | 60% |
| Pressure : | 1012 hPa | Test Voltage : | DC 5.0V from PC AC 120V/60Hz |
| Test Mode : | TX a Mode | | |

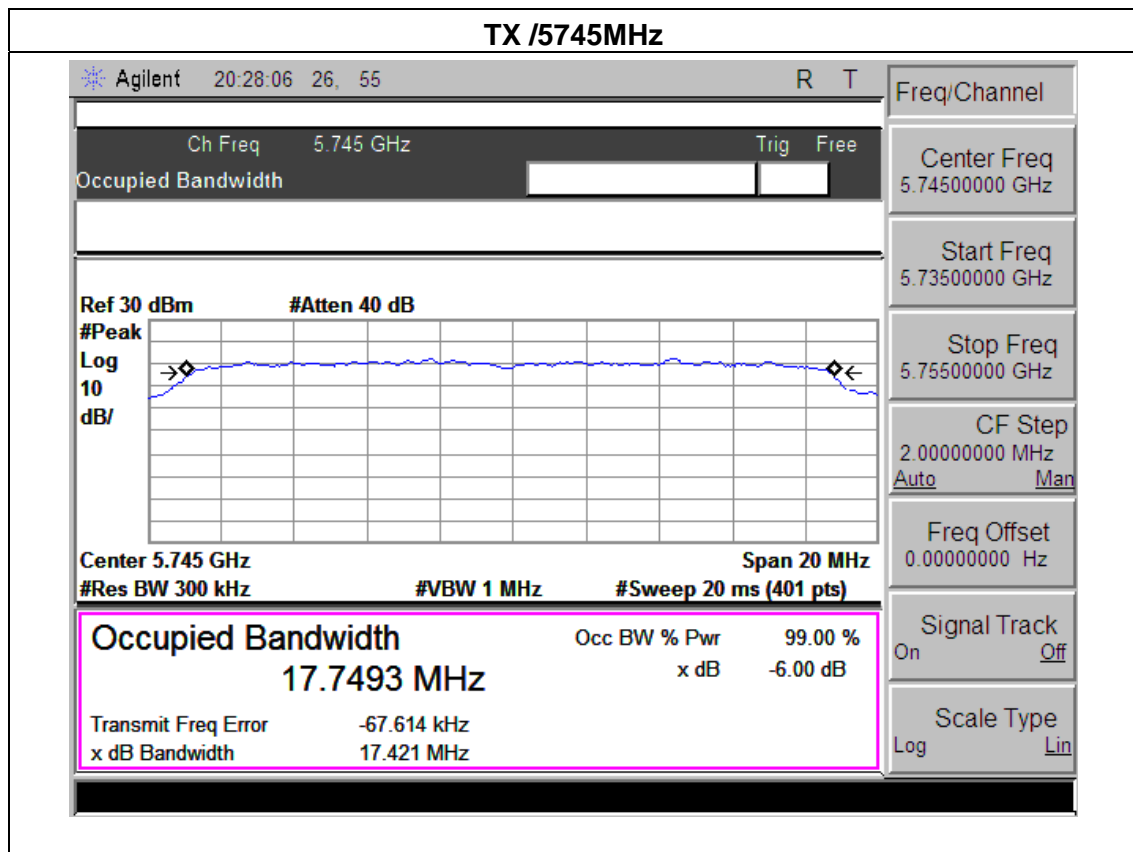
| Frequency | 6dB Bandwidth (MHz) | 99% Occupied BW (MHz) | Channel Separation (MHz) | Result |
|-----------|---------------------|-----------------------|--------------------------|-------------|
| 5745 MHz | 17.43 | 17.75 | >=500KHz | PASS |
| 5785 MHz | 17.41 | 17.69 | >=500KHz | PASS |
| 5825 MHz | 17.40 | 17.63 | >=500KHz | PASS |

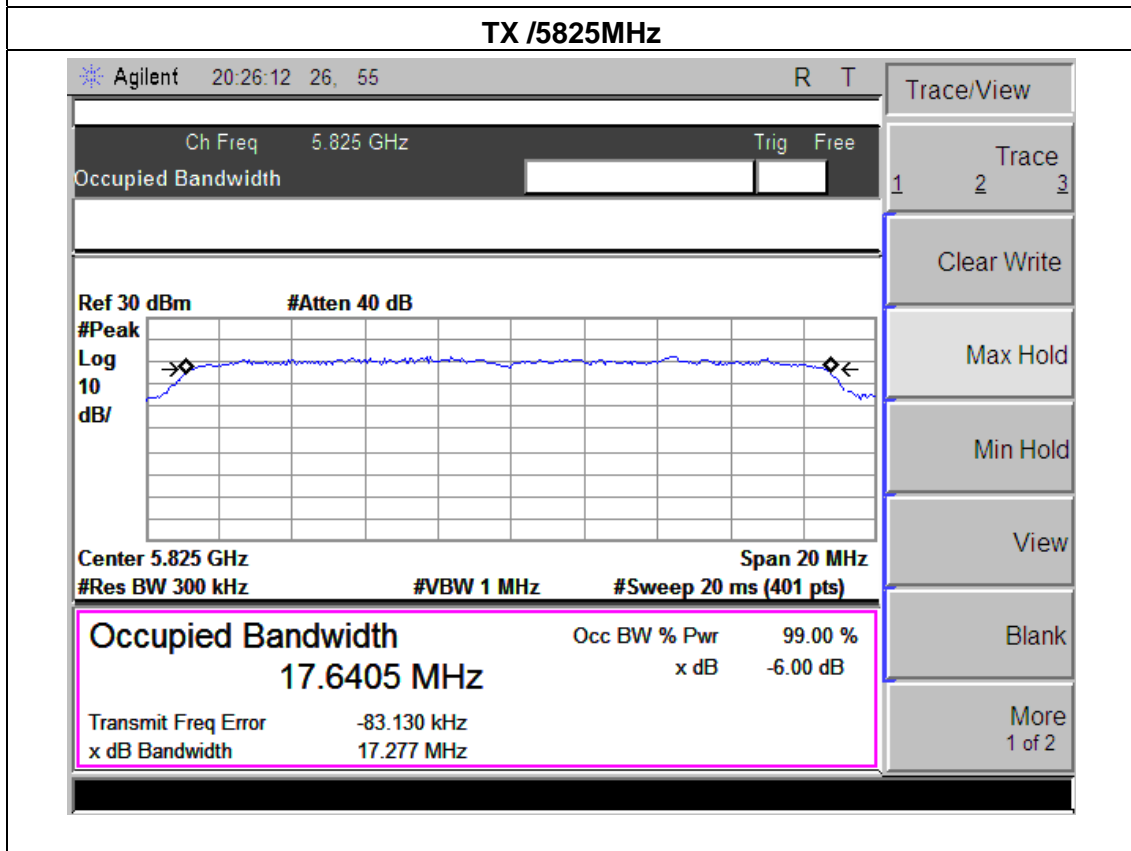
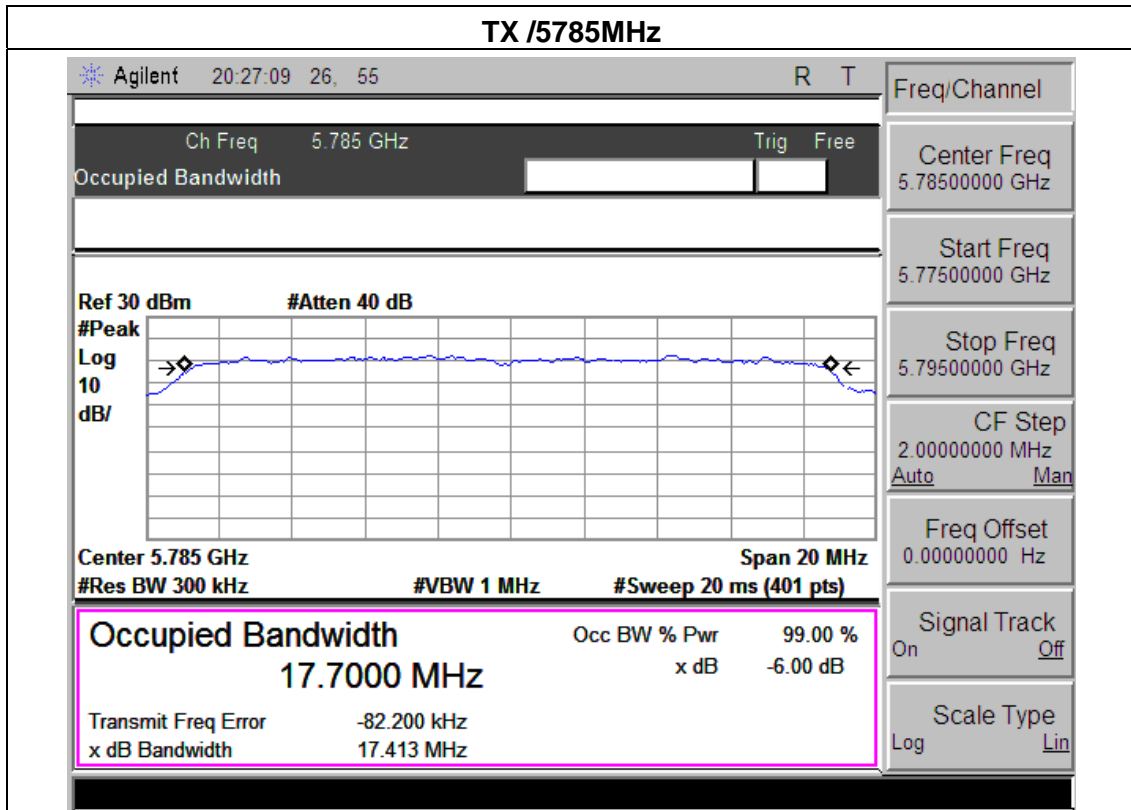




| | | | |
|---------------|------------------------------|---------------------|------------------------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 25 °C | Relative Humidity : | 60% |
| Pressure : | 1012 hPa | Test Voltage : | DC 5.0V from PC AC 120V/60Hz |
| Test Mode : | TX n(20) | | |

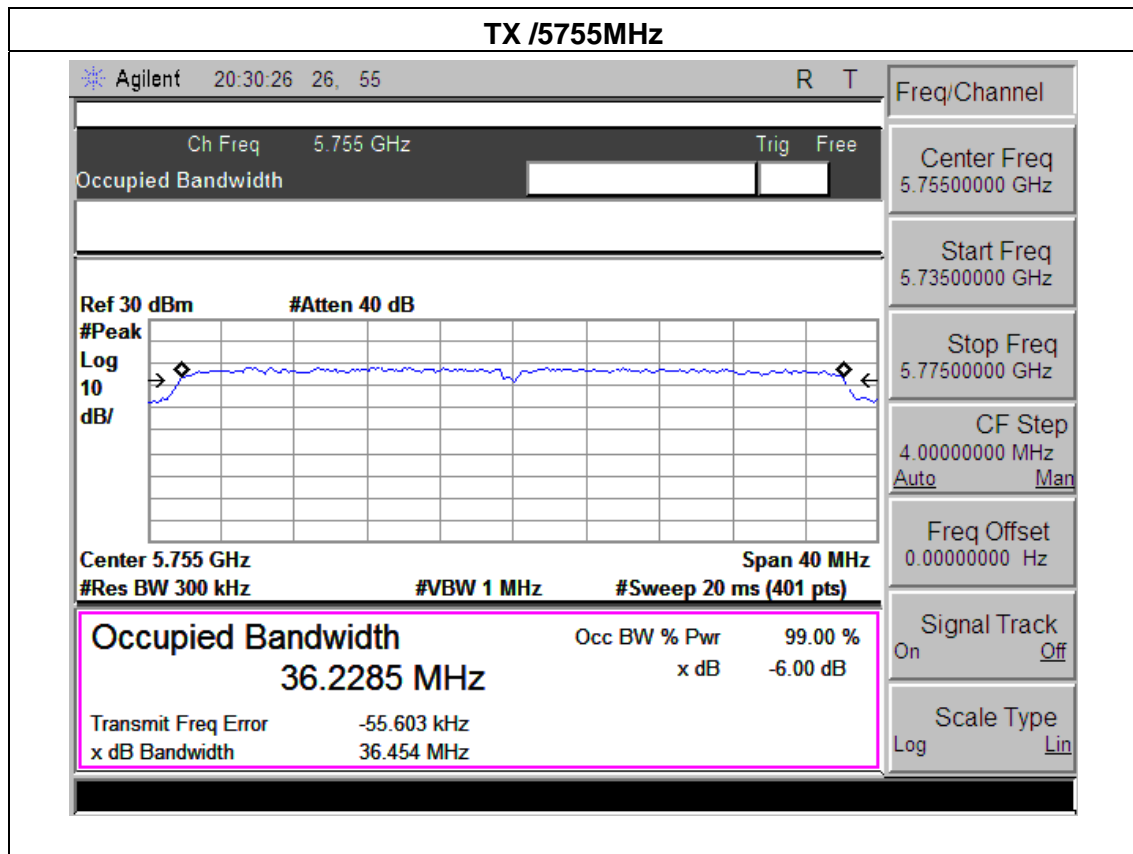
| Frequency | 6dB Bandwidth (MHz) | 99% Occupied BW (MHz) | Channel Separation (MHz) | Result |
|-----------|---------------------|-----------------------|--------------------------|-------------|
| 5745 MHz | 17.42 | 17.74 | >=500KHz | PASS |
| 5785 MHz | 17.41 | 17.70 | >=500KHz | PASS |
| 5825 MHz | 17.28 | 17.64 | >=500KHz | PASS |

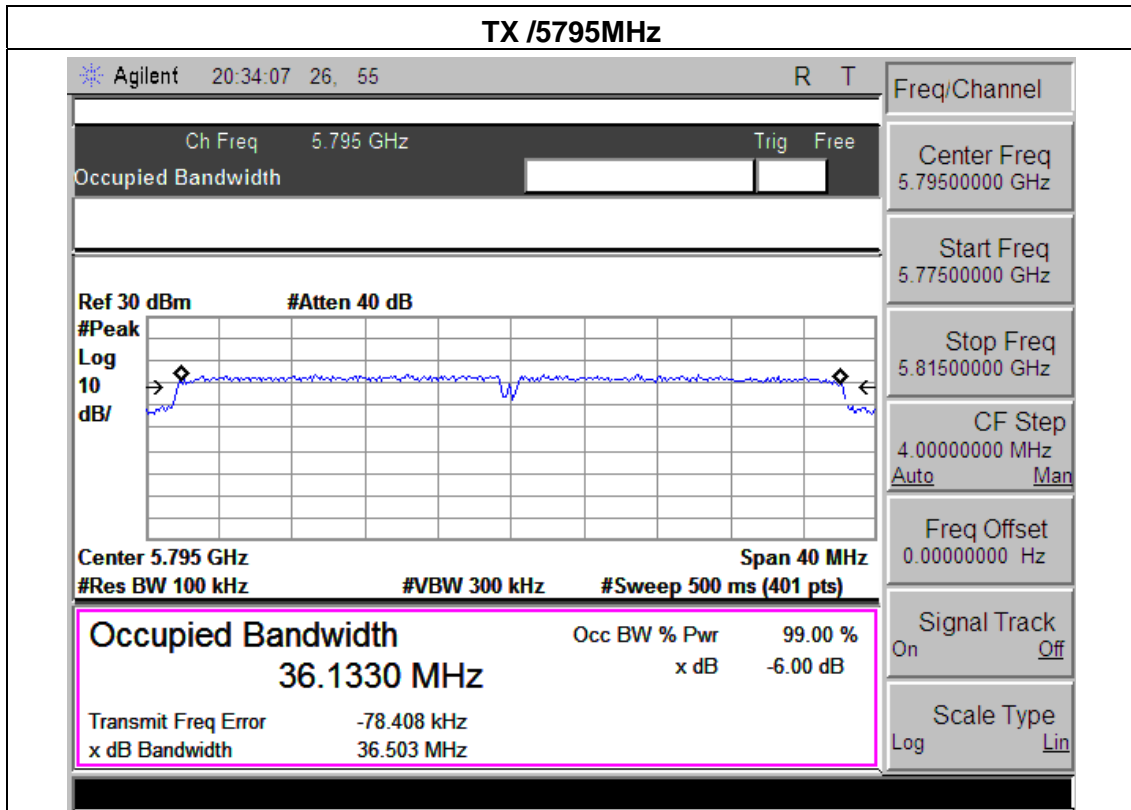




| | | | |
|---------------|------------------------------|---------------------|------------------------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 25 °C | Relative Humidity : | 60% |
| Pressure : | 1012 hPa | Test Voltage : | DC 5.0V from PC AC 120V/60Hz |
| Test Mode : | TX n(40) | | |

| Frequency | 6dB Bandwidth (MHz) | 99% Occupied BW (MHz) | Channel Separation (MHz) | Result |
|-----------|---------------------|-----------------------|--------------------------|-------------|
| 5755 MHz | 36.45 | 36.22 | >=500KHz | PASS |
| 5795 MHz | 36.50 | 36.13 | >=500KHz | PASS |





6. PEAK OUTPUT POWER TEST

6.1 APPLIED PROCEDURES / LIMIT

| FCC Part15 (15.247) , Subpart C | | | | |
|---------------------------------|-------------------|-----------------|--------------------------|--------|
| Section | Test Item | Limit | Frequency Range (MHz) | Result |
| 15.247(b)(3) | Peak Output Power | 1 watt or 30dBm | 2400-2483.5 5745-5825 | PASS |

6.1.1 TEST PROCEDURE

- a. The EUT was directly connected to the Power meter.

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP



6.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

6.1.5 TEST RESULTS

| | | | |
|---------------|------------------------------------------|---------------------|-------------|
| EUT : | 300Mbps Wireless USB Adapter | Model Name : | MTO-WN820NM |
| Temperature : | 25 °C | Relative Humidity : | 60% |
| Pressure : | 1012 hPa | Test Voltage : | DC 5.0V |
| Test Mode : | TX b/g/n(20M,40M) Mode /CH01, CH06, CH11 | | |

802.11b Mode

| Test Channe | Frequency | Output Power/A | Output Power/B | Total Output Power | LIMIT |
|-------------|-----------|----------------|----------------|--------------------|-------|
| | (MHz) | dBm | dBm | dBm | dBm |
| CH01 | 2412 | 17.78 | 16.43 | N/A | 30 |
| CH06 | 2437 | 17.56 | 16.21 | N/A | 30 |
| CH11 | 2462 | 17.73 | 16.14 | N/A | 30 |

802.11g Mode

| | | | | | |
|------|------|--------------|-------|-----|----|
| CH01 | 2412 | 14.55 | 13.54 | N/A | 30 |
| CH06 | 2437 | 14.68 | 13.42 | N/A | 30 |
| CH11 | 2462 | 14.76 | 13.31 | N/A | 30 |

802.11n(20) Mode

| | | | | | |
|------|------|-------|-------|--------------|----|
| CH01 | 2412 | 13.69 | 12.45 | 16.12 | 30 |
| CH06 | 2437 | 13.79 | 12.52 | 16.21 | 30 |
| CH11 | 2462 | 13.54 | 12.19 | 15.93 | 30 |

802.11n(40) Mode

| | | | | | |
|------|------|-------|-------|--------------|----|
| CH03 | 2422 | 11.88 | 10.67 | 14.33 | 30 |
| CH06 | 2437 | 11.37 | 10.54 | 13.99 | 30 |
| CH09 | 2452 | 11.67 | 10.32 | 14.06 | 30 |

802.11a Mode

| Test Channe | Frequency | Output Power/A | Output Power/B | Total Output Power | LIMIT |
|-------------|-----------|----------------|----------------|--------------------|-------|
| | (MHz) | dBm | dBm | dBm | dBm |
| CH149 | 5745 MHz | 10.06 | 9.53 | 12.81 | 30 |
| CH157 | 5785 MHz | 10.06 | 9.42 | 12.76 | 30 |
| CH165 | 5825 MHz | 10.78 | 9.33 | 13.13 | 30 |

802.11n(20) Mode

| | | | | | |
|-------|----------|-------|------|--------------|----|
| CH149 | 5745 MHz | 10.34 | 9.32 | 12.87 | 30 |
| CH157 | 5785 MHz | 10.19 | 9.21 | 12.74 | 30 |
| CH165 | 5825 MHz | 10.40 | 9.22 | 12.86 | 30 |

802.11n(40) Mode

| | | | | | |
|-------|----------|------|------|-------|----|
| CH151 | 5755 MHz | 9.69 | 9.45 | 12.58 | 30 |
| CH159 | 5795 MHz | 9.79 | 9.52 | 12.66 | 30 |

7. ANTENNA REQUIREMENT

7.1 STANDARD REQUIREMENT

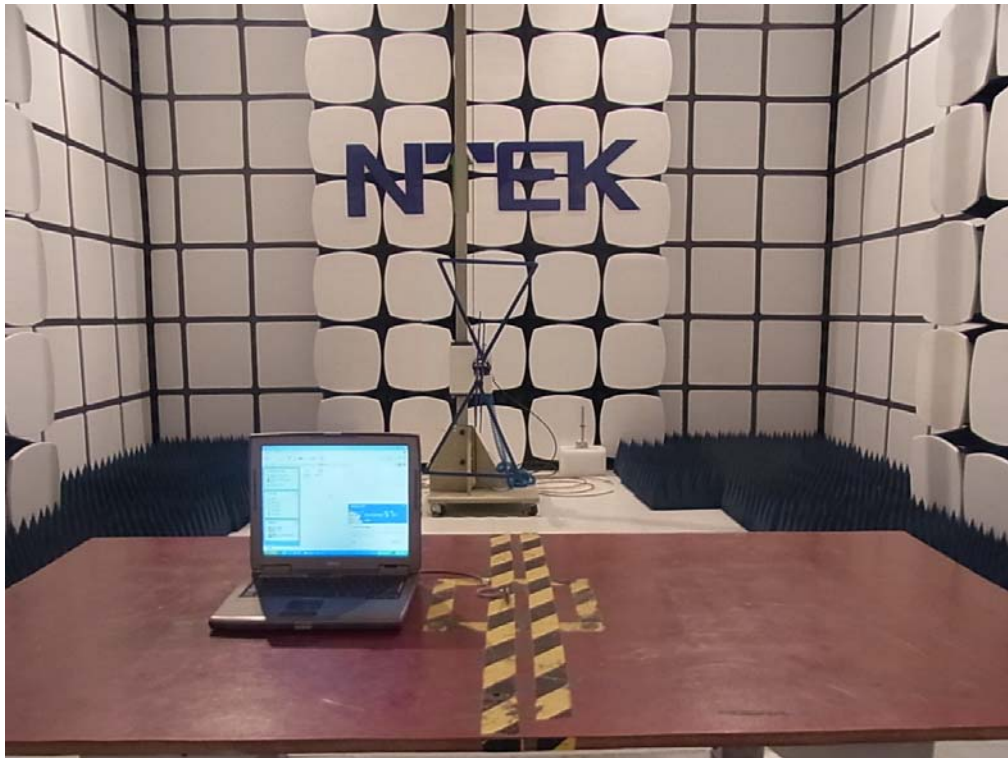
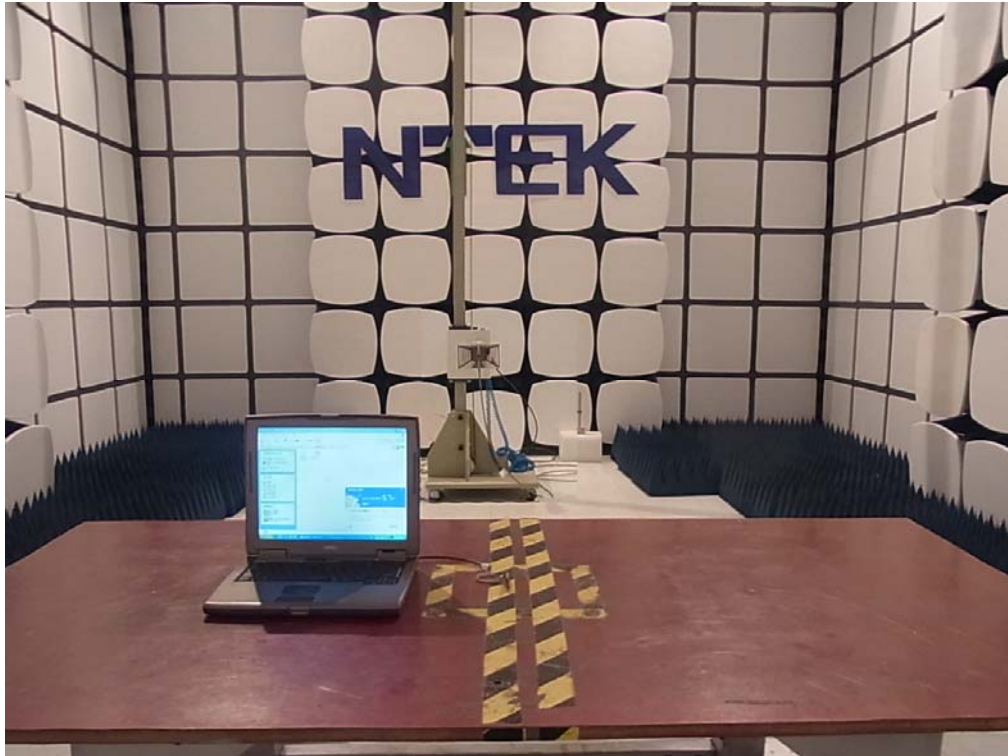
15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

7.2 EUT ANTENNA

The EUT antenna is Integrated antenna. It comply with the standard requirement.

8. EUT TEST PHOTO

Radiated Measurement Photos





Conducted Measurement Photos

