

# Test Report

FCC ID: 2ABLXDTFA1

Date of issue: Mar. 21, 2016

|               |                                          |
|---------------|------------------------------------------|
| Product name: | QMOTION LV DRAPERY TRACK                 |
| Model(s):     | DTFA1                                    |
| Applicant:    | QMOTION INCORPORATED                     |
| Address:      | 3400 Copter Road Pensacola, FL 32514 USA |
| Date of Test: | Mar.01, 2016 to Mar.18, 2016             |

Shenzhen Microtest Co., Ltd.  
<http://www.mtitest.com>



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| Test result certification  |                                          |
|----------------------------|------------------------------------------|
|                            |                                          |
| <b>Applicant's name:</b>   | QMOTION INCORPORATED                     |
| Address:                   | 3400 Copter Road Pensacola, FL 32514 USA |
| <b>Manufacture's Name:</b> | QMOTION INCORPORATED                     |
| Address:                   | 3400 Copter Road Pensacola, FL 32514 USA |
| <b>Product description</b> |                                          |
| Product name:              | QMOTION LV DRAPERY TRACK                 |
| Trademark:                 | QMOTION                                  |
| Model name:                | DTFA1                                    |
| Serial model:              | /                                        |
| <b>Standards:</b>          | FCC Part 15 Subpart B                    |
| <b>Test method:</b>        | ANSI C63.4-2009                          |

*This device described above has been tested by Shenzhen Microtest Co., Ltd. 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.*

Tested by:

*David Chen*

David Chen

Mar. 21, 2016

Reviewed by:

*Leon Chen*

Leon Chen

Mar. 21, 2016

Approved by:

*Ares Liu*

Ares Liu

Mar. 21, 2016

## SUMMARY OF TEST RESULT

| Item                  | Description of Test | Result |
|-----------------------|---------------------|--------|
| FCC Part 15 Subpart B |                     |        |
| 1                     | Conducted emission  | Pass   |
| 2                     | Radiated emission   | Pass   |

Note: The EUT is a Class B digital device. The maximum operating frequency of EUT is below 108MHz.

## 1. General description

### 1.1 Feature of equipment under test (EUT)

|                     |                                                                  |
|---------------------|------------------------------------------------------------------|
| Product name:       | QMOTION LV DRAPERY TRACK                                         |
| Model name:         | DTFA1                                                            |
| Serial Model:       | /                                                                |
| Power Source:       | 24V DC by adapter                                                |
| Adapter information | Model: YU2404<br>Input: 100-240V AC 50/60Hz<br>Output: 24V DC 4A |
| Hardware version:   | 01                                                               |
| Software version:   | 140304                                                           |

Measurement Uncertainty for a Level of Confidence of 95 %,  $U=2 \times U_c(y)$

|                                  |                    |
|----------------------------------|--------------------|
| RF frequency                     | $1 \times 10^{-7}$ |
| RF power, conducted              | $\pm 1$ dB         |
| Conducted emission of receivers  | $\pm 1$ dB         |
| Radiated emission of transmitter | $\pm 6$ dB         |
| Radiated emission of receiver    | $\pm 6$ dB         |
| Temperature                      | $\pm 1$ degree     |
| Humidity                         | $\pm 5$ %          |

## 2. Test Configuration of EUT

### 2.1 Test Mode

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.

| Test mode | Description    |
|-----------|----------------|
| Mode      | Normal working |

NOTE: The test modes were carried out for all operation modes. The final test mode of the EUT was the worst test mode for EMI, and its test data was showed.

### 2.2 Test Conditions

During the measurement the environmental conditions were within the listed ranges:

- Temperature: 20°C~30°C
- Humidity: 30%~70%
- Atmospheric pressure: 98kPa~101kPa

### 2.3 EUT Test Setup

See photographs of the test setup in the report for the actual setup and connections between EUT and support equipment.

### 2.4 Testing Site

|                       |                                                                                      |
|-----------------------|--------------------------------------------------------------------------------------|
| Test Site             | Shenzhen Toby Technology Co., Ltd.                                                   |
| Test Site Location    | 1 A/F., Bldg.6, Yusheng Industrial Zone The National Road No.107 Xixiang Section 467 |
| FCC Registration No.: | 811562                                                                               |

### 2.5 Ancillary Equipment and Line List

| Equipment | Model              | S/N                          | Manufacturer |
|-----------|--------------------|------------------------------|--------------|
| PC        | Vostro 3800        | 37179672842                  | DELL         |
| Monitor   | E4014Hf            | CN-011HFV-72872-58U-E4VL     | DELL         |
| Keyboard  | KB212-B            | CN-0DJ365-71616-571-1ROV-AOO | DELL         |
| Mouse     | MS111-T            | CN-OKW2YH-71616-536-OCZG     | DELL         |
| Printer   | LaserJet 1020 plus | CNCGC60457                   | HP           |

| Line          | Length | Shielded type | Ferrite core |
|---------------|--------|---------------|--------------|
| Printer cable | 1m     | Yes           | No           |
| RS485 cable   | 1m     | No            | No           |

### 3. List of test equipment

For AC power line conducted emission:

| Equipment         | Manufacturer | Model      | Serial No. | Calibration Due |
|-------------------|--------------|------------|------------|-----------------|
| LISN              | R&S          | ENV216     | 101313     | 2016.12.06      |
| LISN              | SCHWARZBECK  | NNLK 8129  | 8129245    | 2016.12.25      |
| Pulse Limiter     | SCHWARZBECK  | VTSD 9561F | 9716       | 2016.12.25      |
| Test Cable        | N/A          | N/A        | C01        | 2016.12.06      |
| EMI Test Receiver | R&S          | ESCI       | 101160     | 2016.12.06      |

For Radiated emission:

| Equipment               | Manufacturer     | Model       | Serial No. | Calibration Due |
|-------------------------|------------------|-------------|------------|-----------------|
| Log-Bicon Antenna       | MESS-ELEKTRONIK  | VULB 9160   | 3058       | 2016.12.11      |
| Horn Antenna            | Schwarzbeck      | BBHA 9120D  | 631        | 2016.12.05      |
| Horn Antenna            | Schwarzbeck      | BBHA 9170   | 373        | 2016.12.05      |
| Test Cable              | United Microwave | 57793       | 1m         | 2016.12.05      |
| Test Cable              | United Microwave | A30A30-5006 | 10m        | 2016.12.05      |
| Microwave Pre_amplifier | Agilent          | 8449B       | 3008A01714 | 2016.12.05      |
| Pre-Amplifier           | Anritsu          | MH648A      | M09961     | 2016.12.05      |
| EMI Test Receiver       | R&S              | ESCI-7      | 101318     | 2016.12.05      |
| Spectrum analyzer       | Agilent          | E4470B      | MY41441082 | 2016.06.01      |

Note: the calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

## 4. EMC emission test

### 4.1 Conducted emission

#### 4.1.1 Limits

| Frequency (MHz) | Class A (dB $\mu$ V) |         | Class B (dB $\mu$ V) |           |
|-----------------|----------------------|---------|----------------------|-----------|
|                 | Quasi-peak           | Average | Quasi-peak           | Average   |
| 0.15 -0.5       | 79                   | 66      | 66 - 56 *            | 56 - 46 * |
| 0.5 -5          | 73                   | 60      | 56                   | 46        |
| 5 -30           | 73                   | 60      | 60                   | 50        |

Note 1: the tighter limit applies at the band edges.

Note 2: the limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

#### 4.1.2 Test Procedures

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

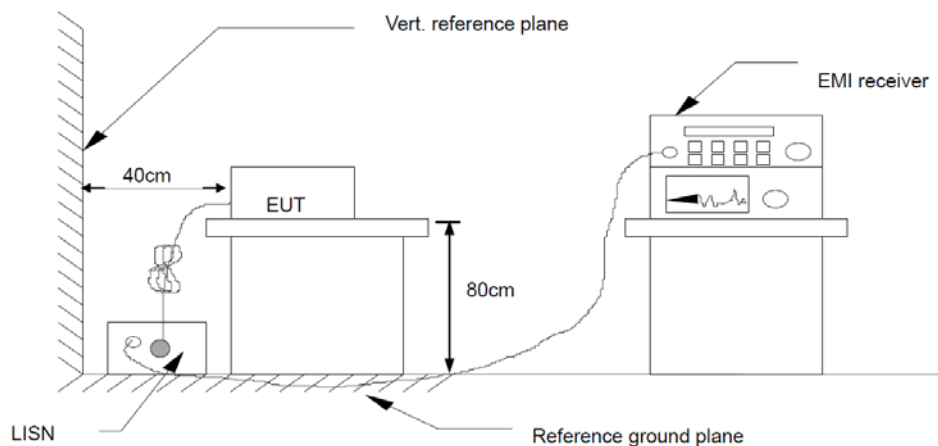
Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

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.

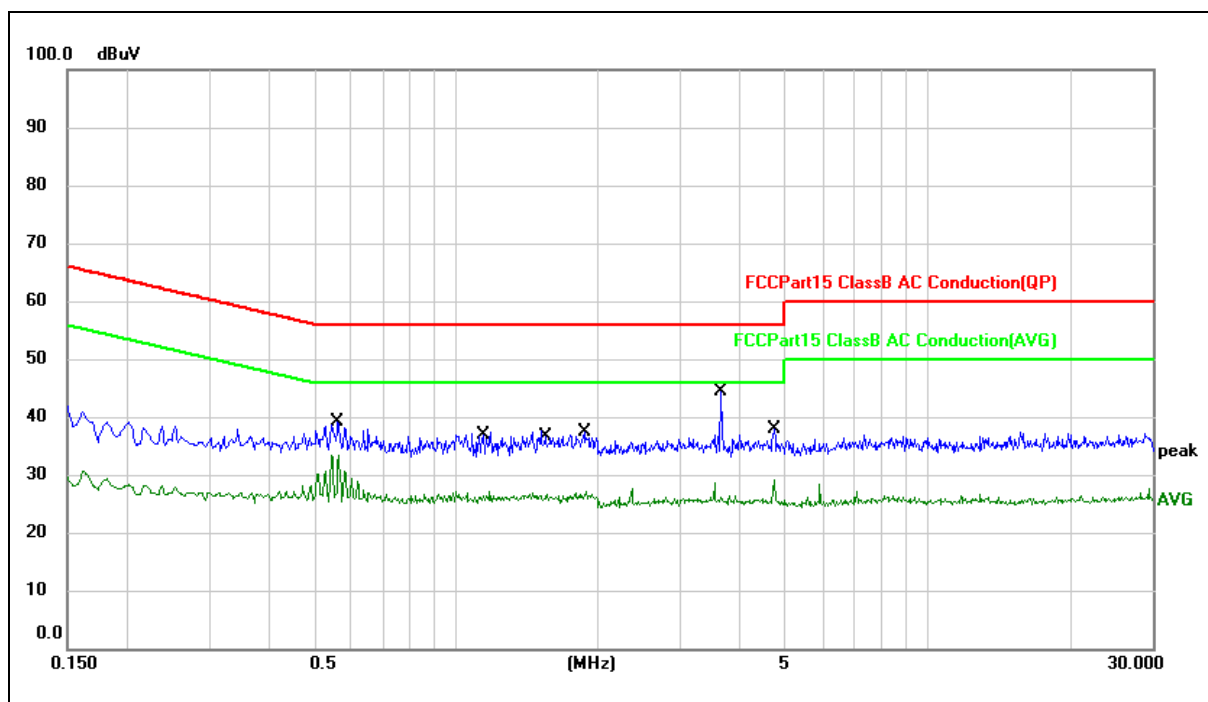
For the actual test configuration, please refer to the related Item – photographs of the test setup.

#### 4.1.3 Test Setup



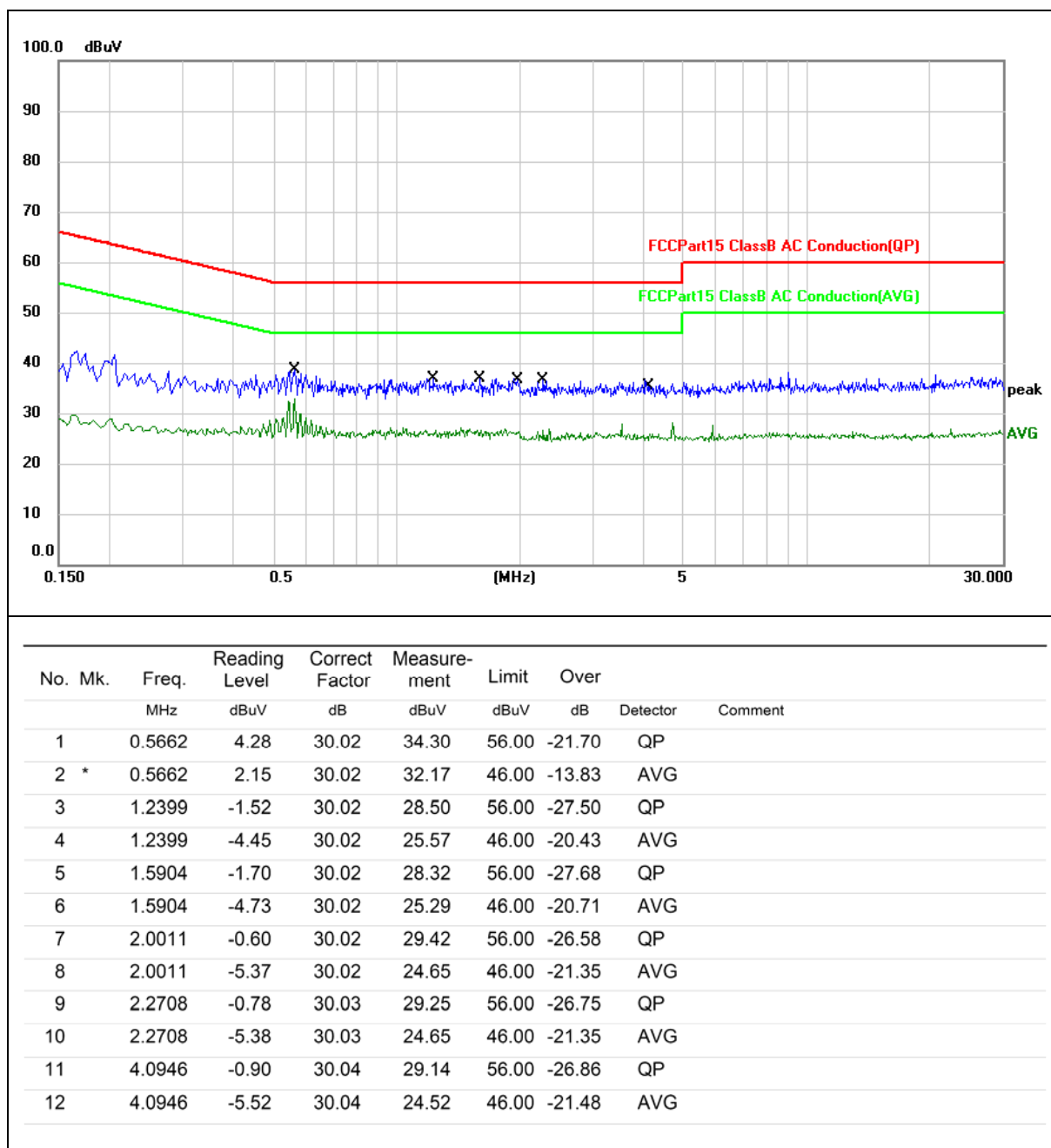
#### 4.1.4 Test Result

|               |              |                    |        |
|---------------|--------------|--------------------|--------|
| Temperature:  | 22°C         | Relative Humidity: | 63%    |
| Pressure:     | 101kPa       | Phase:             | L      |
| Test voltage: | AC 120V/60Hz | Test mode:         | Mode 1 |



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|---------|
| 1   |     | 0.5690       | 1.11                     | 30.02                   | 31.13                    | 56.00         | -24.87     | QP       |         |
| 2   | *   | 0.5690       | -0.80                    | 30.02                   | 29.22                    | 46.00         | -16.78     | AVG      |         |
| 3   |     | 1.1517       | -1.61                    | 30.02                   | 28.41                    | 56.00         | -27.59     | QP       |         |
| 4   |     | 1.1517       | -4.50                    | 30.02                   | 25.52                    | 46.00         | -20.48     | AVG      |         |
| 5   |     | 1.5483       | -0.85                    | 30.02                   | 29.17                    | 56.00         | -26.83     | QP       |         |
| 6   |     | 1.5483       | -4.11                    | 30.02                   | 25.91                    | 46.00         | -20.09     | AVG      |         |
| 7   |     | 1.8670       | -1.88                    | 30.02                   | 28.14                    | 56.00         | -27.86     | QP       |         |
| 8   |     | 1.8670       | -4.71                    | 30.02                   | 25.31                    | 46.00         | -20.69     | AVG      |         |
| 9   |     | 3.6716       | -1.11                    | 30.04                   | 28.93                    | 56.00         | -27.07     | QP       |         |
| 10  |     | 3.6716       | -5.51                    | 30.04                   | 24.53                    | 46.00         | -21.47     | AVG      |         |
| 11  |     | 4.6628       | -0.65                    | 30.04                   | 29.39                    | 56.00         | -26.61     | QP       |         |
| 12  |     | 4.6628       | -5.34                    | 30.04                   | 24.70                    | 46.00         | -21.30     | AVG      |         |

|               |              |                    |        |
|---------------|--------------|--------------------|--------|
| Temperature:  | 22°C         | Relative Humidity: | 63%    |
| Pressure:     | 101kPa       | Phase:             | N      |
| Test voltage: | AC 120V/60Hz | Test mode:         | Mode 1 |



## 4.2 Radiated emission

### 4.2.1 Limits

Limits of radiated emission measurement:

| Frequency (MHz) | Class B device (at 3m) dB $\mu$ V/m | Class A device (at 3m) dB $\mu$ V/m | Detector |
|-----------------|-------------------------------------|-------------------------------------|----------|
| 30-88           | 40                                  | 49                                  | QP       |
| 88-216          | 43.5                                | 53.5                                | QP       |
| 216-960         | 46                                  | 56.4                                | QP       |
| 960-1000        | 54                                  | 59.5                                | QP       |
| Above 1000      | 54                                  | 59.5                                | AV       |
| Above 1000      | 74                                  | 79.5                                | PK       |

### 4.2.2 Test Procedures

The radiated emission tests were performed in the 3 meters.

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

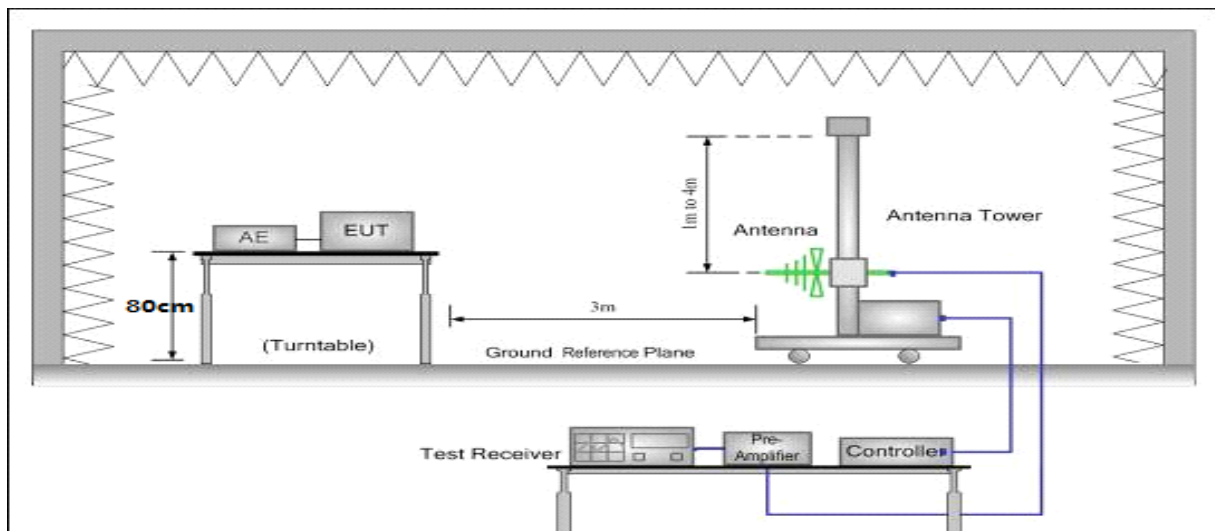
The height of the test antenna shall vary between 1m to 4m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

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.

If the peak mode measured value compliance with and lower than average mode limit, the EUT shall be deemed to meet average limits and then no additional average mode measurement performed.

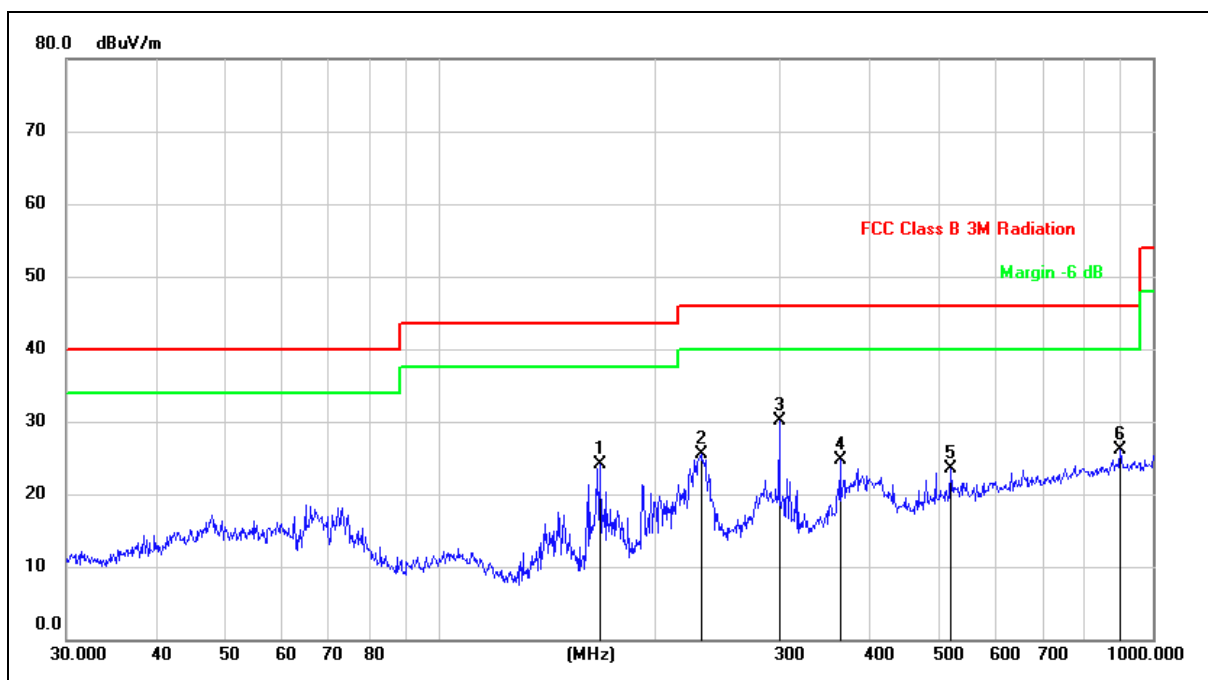
For the actual test configuration, please refer to the related item – EUT test photos.

### 4.2.3 Test Setup



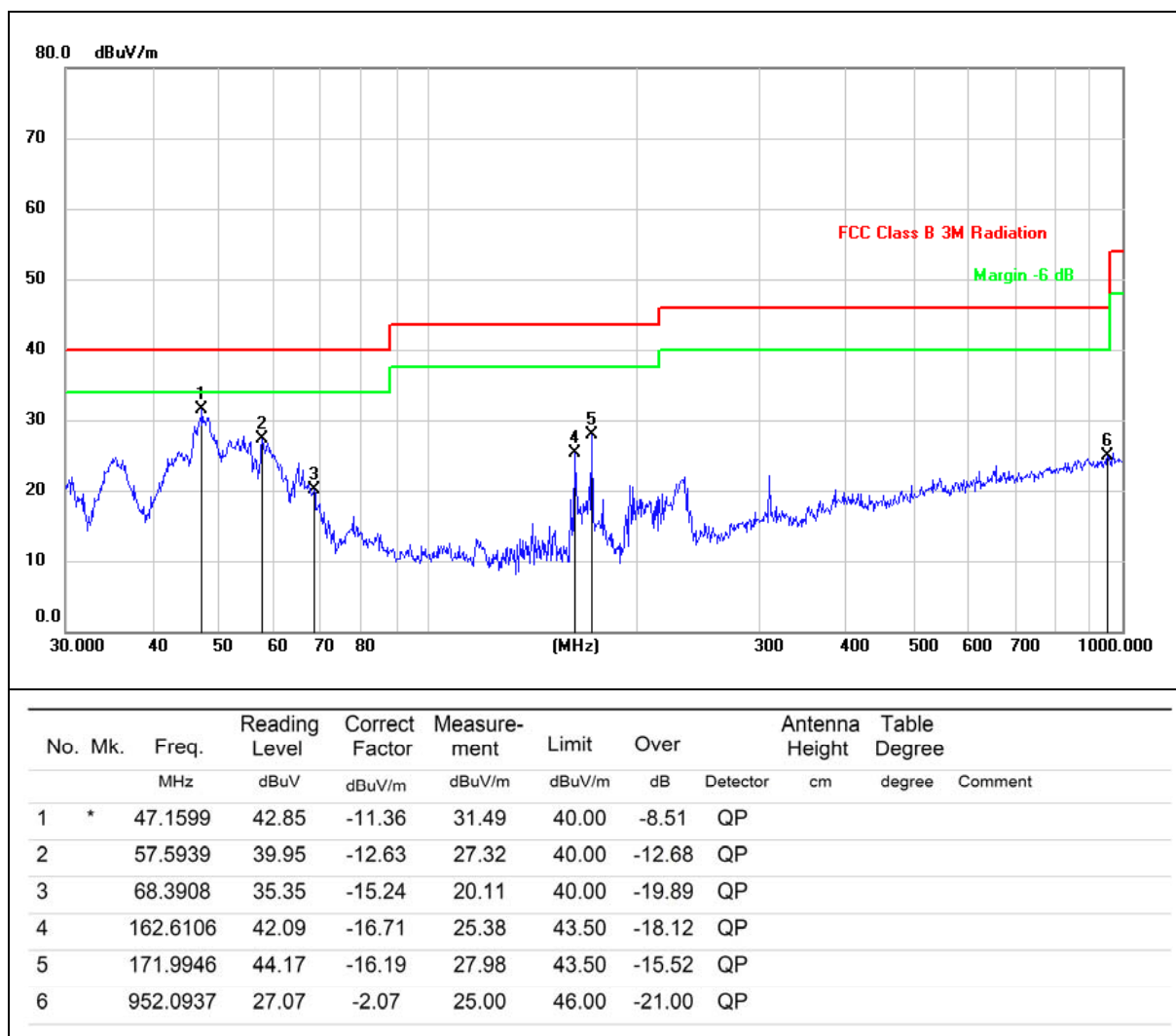
### 4.2.4 Test Result

|               |              |                    |            |
|---------------|--------------|--------------------|------------|
| Temperature:  | 22°C         | Relative Humidity: | 62%        |
| Pressure:     | 101kPa       | Polarization:      | Horizontal |
| Test voltage: | AC 120V/60Hz | Test mode:         | Mode 1     |



| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dBuV/m         | dBuV/m      | dBuV/m | dB     | cm             | degree       | Comment |
| 1   |     | 167.8243 | 40.52         | -16.43         | 24.09       | 43.50  | -19.41 | QP             |              |         |
| 2   |     | 232.5318 | 38.42         | -12.95         | 25.47       | 46.00  | -20.53 | QP             |              |         |
| 3   | *   | 299.3158 | 41.66         | -11.46         | 30.20       | 46.00  | -15.80 | QP             |              |         |
| 4   |     | 364.2595 | 34.72         | -9.98          | 24.74       | 46.00  | -21.26 | QP             |              |         |
| 5   |     | 520.8882 | 30.61         | -7.06          | 23.55       | 46.00  | -22.45 | QP             |              |         |
| 6   |     | 900.1474 | 28.44         | -2.37          | 26.07       | 46.00  | -19.93 | QP             |              |         |

|               |              |                    |          |
|---------------|--------------|--------------------|----------|
| Temperature:  | 22°C         | Relative Humidity: | 62%      |
| Pressure:     | 101kPa       | Polarization:      | Vertical |
| Test voltage: | AC 120V650Hz | Test mode:         | Mode 1   |



----END OF REPORT----