

## FCC PART 15B

## TEST REPORT

For

### Guangzhou Robustel LTD

ROOM F315, NO.95 DAGUAN MIDDLE ROAD, TIANHE DISTRICT, GUANGZHOU,  
China

**FCC ID: 2AAJGR1520**

|                                        |                                                                                                                                                                                                                                                       |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Report Type:</b><br>Original Report | <b>Product Type:</b><br>Industrial Dual SIM Cellular<br>VPN Router                                                                                                                                                                                    |
| <b>Report Number:</b>                  | RDG200804005-00A                                                                                                                                                                                                                                      |
| <b>Report Date:</b>                    | 2020-10-11                                                                                                                                                                                                                                            |
| <b>Reviewed By:</b>                    | Ivan Cao<br>Assistant Manager<br>                                                                                                                                |
| <b>Test Laboratory:</b>                | Bay Area Compliance Laboratories Corp. (Dongguan)<br>No.69 Pulongcun, Puxinhu Industry Area,<br>Tangxia, Dongguan, Guangdong, China<br>Tel: +86-769-86858888<br>Fax: +86-769-86858891<br><a href="http://www.baclcorp.com.cn">www.baclcorp.com.cn</a> |

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## GENERAL INFORMATION

### Product Description for Equipment under Test (EUT)

|                                     |                |                                                             |
|-------------------------------------|----------------|-------------------------------------------------------------|
| <b>EUT Type:</b>                    |                | Industrial Dual SIM Cellular VPN Router                     |
| <b>Test Model:</b>                  |                | R1520-4L Global                                             |
| <b>Multiple Model:</b>              |                | R1520-4L, R1520-4L (V)                                      |
| <b>Model Difference:</b>            |                | Refer to the DOS letter                                     |
| <b>Highest Operation Frequency:</b> |                | 2690 MHz                                                    |
| <b>Rated Input Voltage:</b>         |                | DC 9-36V; Typical: DC 12V from adapter;<br>DC 48V from PoE; |
| <b>Adapter Information</b>          | <b>Model:</b>  | GQ24-120150-AX                                              |
|                                     | <b>Input:</b>  | AC 100~240V 50/60Hz 1A                                      |
|                                     | <b>Output:</b> | DC 12V 1.5A 18W                                             |
| <b>Serial Number:</b>               |                | RDG200804005-RF -S1                                         |
| <b>EUT Received Date:</b>           |                | 2020.08.22                                                  |

### Objective

This report is prepared on behalf of **Guangzhou Robustel LTD** in accordance with Part 2, Part J, and Part 15, Subpart A and B of the Federal Communications Commission's rules..

The objective is to determine the compliance of EUT with: FCC Part 15B.

### Related Submittal(s)/Grant(s)

FCC Part 15C DTS submissions with FCC ID: 2AAJGR1520

### Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014 American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Dongguan).

## Measurement Uncertainty

| Parameter                         | Measurement Uncertainty                                                                                              |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Unwanted Emissions, radiated      | 30M~200MHz: 4.55 dB, 200M~1GHz: 5.92 dB, 1G~6GHz: 4.98 dB, 6G~18GHz: 5.89 dB, 18G~26.5G: 5.47 dB, 26.5G~40G: 5.63 dB |
| Temperature                       | ±1 °C                                                                                                                |
| Humidity                          | ±5%                                                                                                                  |
| AC Power Lines Conducted Emission | 3.12 dB (150 kHz to 30 MHz)                                                                                          |

*Note: Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.*

## Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 897218, the FCC Designation No. : CN1220.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier : CN0022.

## Declarations

BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol “△”. Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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This report may contain data that are not covered by the accreditation scope and shall be marked with an asterisk “★”.

## SYSTEM TEST CONFIGURATION

### Description of Test Configuration

The system was configured for testing in typical fashion (as normally used by a typical user)

### Equipment Modifications

No modification was made to the EUT.

### EUT Exercise Software

Software 'Lan Test.exe' was used in test, which was provided by manufacturer.

### Local Support Equipment List and Details

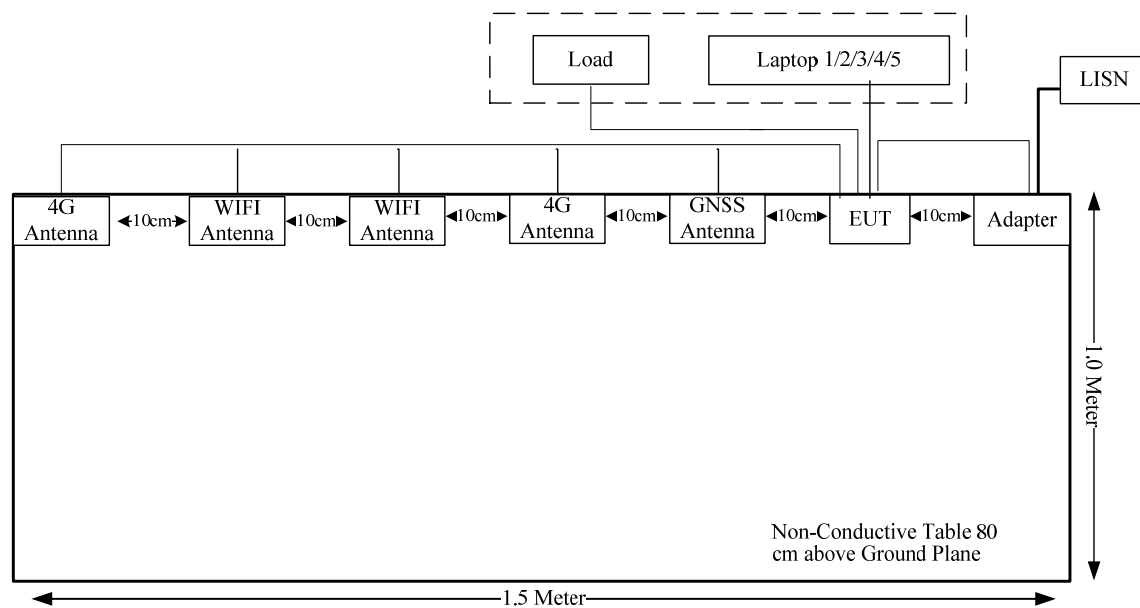
| Manufacturer | Description                          | Model     | Serial Number           |
|--------------|--------------------------------------|-----------|-------------------------|
| DELL         | Laptop                               | E6410     | 00426-OEM-8992662-00497 |
| DELL         | Laptop                               | E6410     | 00426-OEM-8992662-05476 |
| DELL         | Laptop                               | E6410     | 00426-OEM-8992662-12747 |
| DELL         | Laptop                               | E6410     | 00426-OEM-8992662-00568 |
| DELL         | Laptop                               | E6410     | 00426-OEM-8992662-00783 |
| R&S          | Universal Radio Communication Tester | CMU200    | 106 891                 |
| /            | Load                                 | /         | /                       |
| ALFA         | POE                                  | APOE48V-1 | /                       |

### Support Cable List and Details

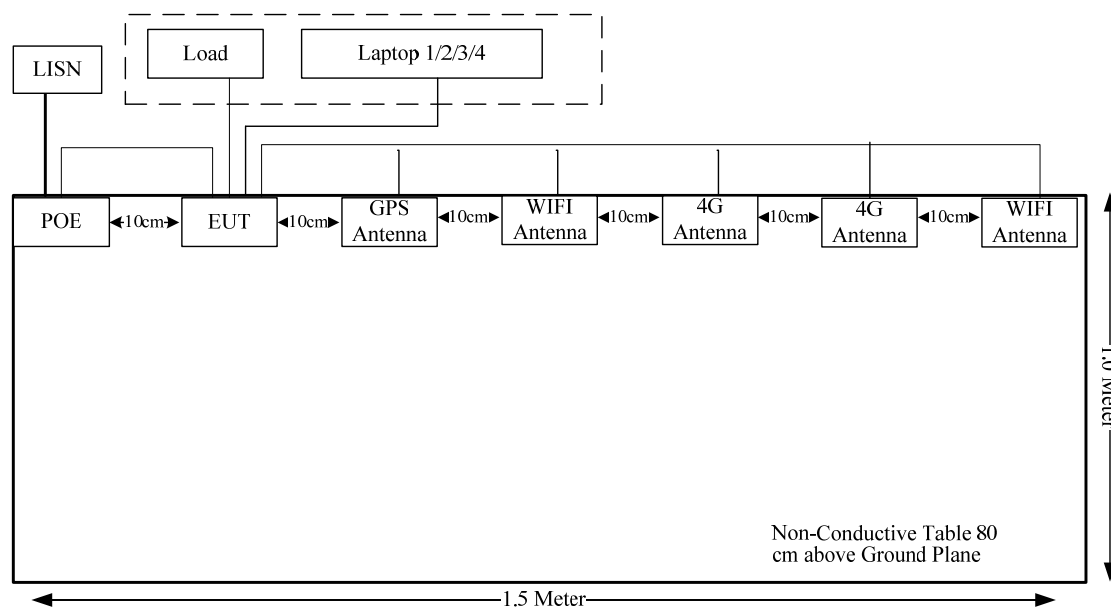
| Cable Description | Shielding Type | Ferrite Core | Length(m) | From Port | To     |
|-------------------|----------------|--------------|-----------|-----------|--------|
| RJ45 Cable*5      | No             | No           | 10        | EUT       | Laptop |
| RJ45 Cable        | No             | No           | 1         | POE       | EUT    |
| Load cable        | No             | No           | 3         | EUT       | Load   |
| Power cable       | No             | No           | 1.5       | Adapter   | EUT    |

## Block Diagram of Test Setup

Power by adapter:



Power by POE:



**Test Equipment List**

| Manufacturer               | Description       | Model                    | Serial Number       | Calibration Date | Calibration Due Date |
|----------------------------|-------------------|--------------------------|---------------------|------------------|----------------------|
| AC Line Conducted emission |                   |                          |                     |                  |                      |
| R&S                        | LISN              | ENV 216                  | 101614              | 2019-09-12       | 2020-09-12           |
| R&S                        | LISN              | ENV 216                  | 101614              | 2020-09-12       | 2021-09-12           |
| R&S                        | EMI Test Receiver | ESCI                     | 101121              | 2020-05-09       | 2021-05-09           |
| Unknown                    | Coaxial Cable     | C-NJNJ-50                | C-0200-01           | 2019-09-05       | 2020-09-05           |
| Unknown                    | Coaxial Cable     | C-NJNJ-50                | C-0200-01           | 2020-09-05       | 2021-09-05           |
| R&S                        | Test Software     | EMC32                    | Version8.53.0       | N/A              | N/A                  |
| Radiated Emission          |                   |                          |                     |                  |                      |
| Sunol Sciences             | Antenna           | JB3                      | A060611-1           | 2017-11-10       | 2020-11-10           |
| R&S                        | EMI Test Receiver | ESR3                     | 102453              | 2019-09-12       | 2020-09-12           |
| R&S                        | EMI Test Receiver | ESR3                     | 102453              | 2020-09-12       | 2021-09-12           |
| Unknown                    | Coaxial Cable     | C-NJNJ-50                | C-0075-01           | 2019-09-05       | 2020-09-05           |
| Unknown                    | Coaxial Cable     | C-NJNJ-50                | C-0075-01           | 2020-09-05       | 2021-09-05           |
| Unknown                    | Coaxial Cable     | C-NJNJ-50                | C-0400-01           | 2019-09-05       | 2020-09-05           |
| Unknown                    | Coaxial Cable     | C-NJNJ-50                | C-0400-01           | 2020-09-05       | 2021-09-05           |
| Unknown                    | Coaxial Cable     | C-NJNJ-50                | C-1400-01           | 2020-05-06       | 2021-05-06           |
| HP                         | Amplifier         | 8447D                    | 2727A05902          | 2019-09-05       | 2020-09-05           |
| HP                         | Amplifier         | 8447D                    | 2727A05902          | 2020-09-05       | 2021-09-05           |
| Farad                      | Test Software     | EZ-EMC                   | V1.1.4.2            | N/A              | N/A                  |
| ETS-Lindgren               | Horn Antenna      | 3115                     | 000 527 35          | 2018-10-12       | 2021-10-12           |
| Agilent                    | Spectrum Analyzer | E4440A                   | SG43360054          | 2020-05-09       | 2021-05-09           |
| Unknown                    | Coaxial Cable     | C-SJSJ-50                | C-0800-01           | 2019-09-05       | 2020-09-05           |
| Unknown                    | Coaxial Cable     | C-SJSJ-50                | C-0800-01           | 2020-09-05       | 2021-09-05           |
| Mini-Circuit               | Amplifier         | ZVA-213-S+               | 54201245            | 2019-09-05       | 2020-09-05           |
| Mini-Circuit               | Amplifier         | ZVA-213-S+               | 54201245            | 2020-09-05       | 2021-09-05           |
| Sunol Sciences             | Antenna           | JB3                      | A060611-3           | 2020-07-21       | 2023-07-21           |
| R&S                        | EMI Test Receiver | ESCI                     | 100224              | 2019-09-12       | 2020-09-12           |
| R&S                        | EMI Test Receiver | ESCI                     | 100224              | 2020-09-12       | 2021-09-12           |
| Unknown                    | Coaxial Cable     | C-NJNJ-50                | C-0075-02           | 2019-09-05       | 2020-09-05           |
| Unknown                    | Coaxial Cable     | C-NJNJ-50                | C-0075-02           | 2020-09-05       | 2021-09-05           |
| Unknown                    | Coaxial Cable     | C-NJNJ-50                | C-2200-01           | 2019-09-05       | 2020-09-05           |
| Unknown                    | Coaxial Cable     | C-NJNJ-50                | C-2200-01           | 2020-09-05       | 2021-09-05           |
| Unknown                    | Coaxial Cable     | C-NJNJ-50                | C-0400-03           | 2019-09-05       | 2020-09-05           |
| Unknown                    | Coaxial Cable     | C-NJNJ-50                | C-0400-03           | 2020-09-05       | 2021-09-05           |
| Sonoma                     | Amplifier         | 310N                     | 185914              | 2019-10-13       | 2020-10-13           |
| TDK RF                     | Horn Antenna      | HRN-0118                 | 130 084             | 2018-10-12       | 2021-10-12           |
| MICRO-COAX                 | Coaxial Cable     | UFA147-1-2362-10<br>0100 | 64639<br>231029-001 | 2020-02-24       | 2021-02-24           |
| Mini                       | Pre-amplifier     | ZVA-183-S+               | 5969001149          | 2019-09-05       | 2020-09-05           |
| Mini                       | Pre-amplifier     | ZVA-183-S+               | 5969001149          | 2020-09-05       | 2021-09-05           |
| R&S                        | Spectrum Analyzer | FSP 38                   | 100478              | 2020-07-07       | 2021-07-07           |

\* Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

**Environmental Conditions**

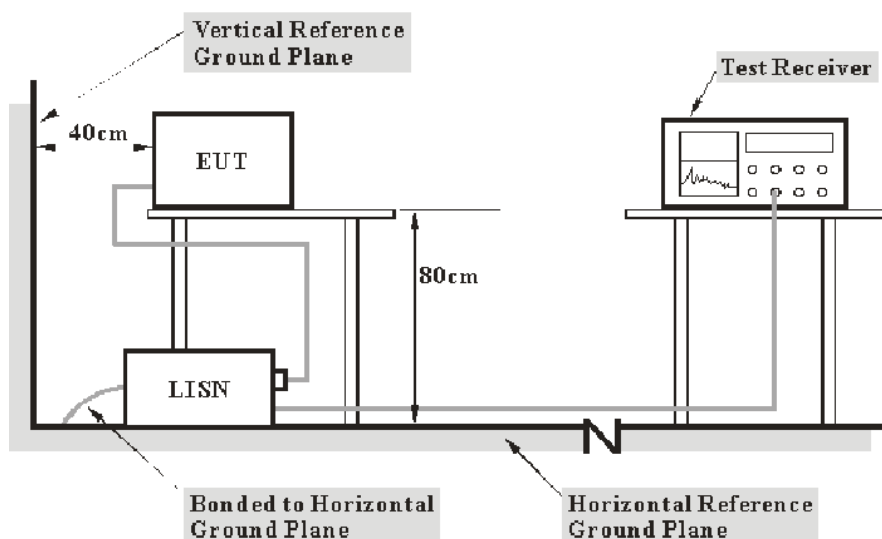
| Test Item:         | Conducted emissions     | Radiated emissions Below 1GHz | Radiated emissions Above 1GHz |
|--------------------|-------------------------|-------------------------------|-------------------------------|
| Test Date:         | 2020-08-07 & 2020-10-10 | 2020-08-13 & 2020-10-10       | 2020-09-28 & 2020-10-10       |
| Tester:            | Leo Long                | Hanson Li                     | Joker Chen                    |
| Temperature:       | 24.9~27.1°C             | 26.1~26.4°C                   | 27.1~29 °C                    |
| Relative Humidity: | 52~71%                  | 37~41%                        | 35~45%                        |
| ATM Pressure:      | 100.2~100.9kPa          | 100.9~101.1kPa                | 100.5~100.9kPa                |

SUMMARY OF TEST RESULTS

| SN | Rule and Clause | Description of Test | Test Result |
|----|-----------------|---------------------|-------------|
| 1  | FCC §15.107     | Conducted emissions | Compliance  |
| 2  | FCC §15.109     | Radiated emissions  | Compliance  |

## CONDUCTED EMISSIONS

### EUT Setup



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

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 15 B Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The adapter was connected to the Main LISN with 120V/60Hz AC power source.

### EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

| Frequency Range  | IF B/W |
|------------------|--------|
| 150 kHz – 30 MHz | 9 kHz  |

### Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the first LISN and the other support equipments were connected to the outlet of the second LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT, the report shall list the six emissions with the smallest margin relative to the limit, unless the margin is greater than 20 dB.

All data was recorded in the Quasi-peak and average detection mode.

## Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$$V_C = V_R + A_C + VDF$$

Herein,

$V_C$ : corrected voltage amplitude

$V_R$ : reading voltage amplitude

$A_C$ : attenuation caused by cable loss

VDF: voltage division factor of AMN or ISN

The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

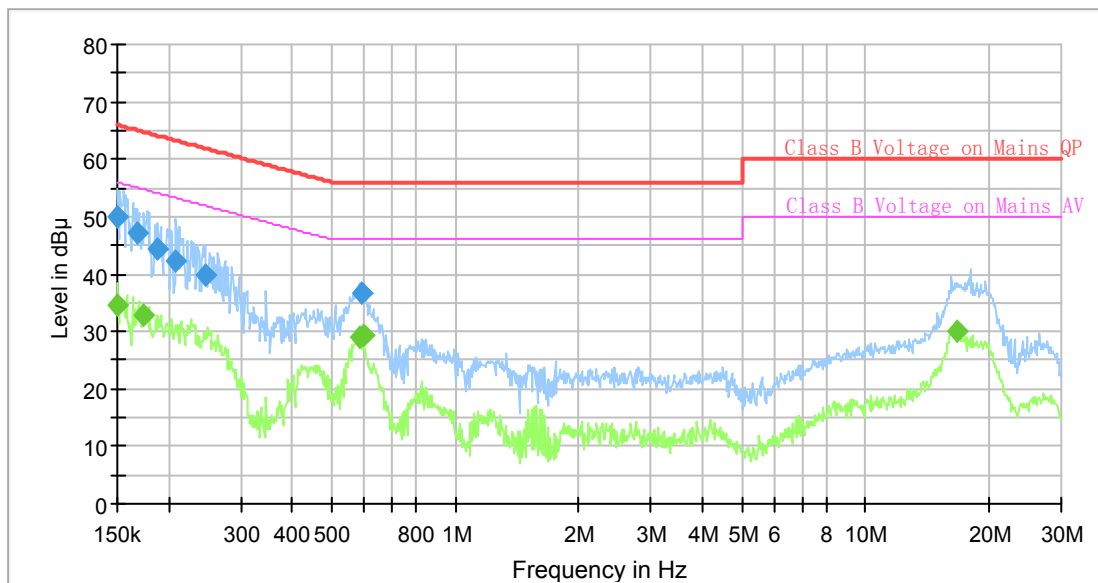
$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

## Test Data

Please refer to following table and plots:

### Power by adapter:

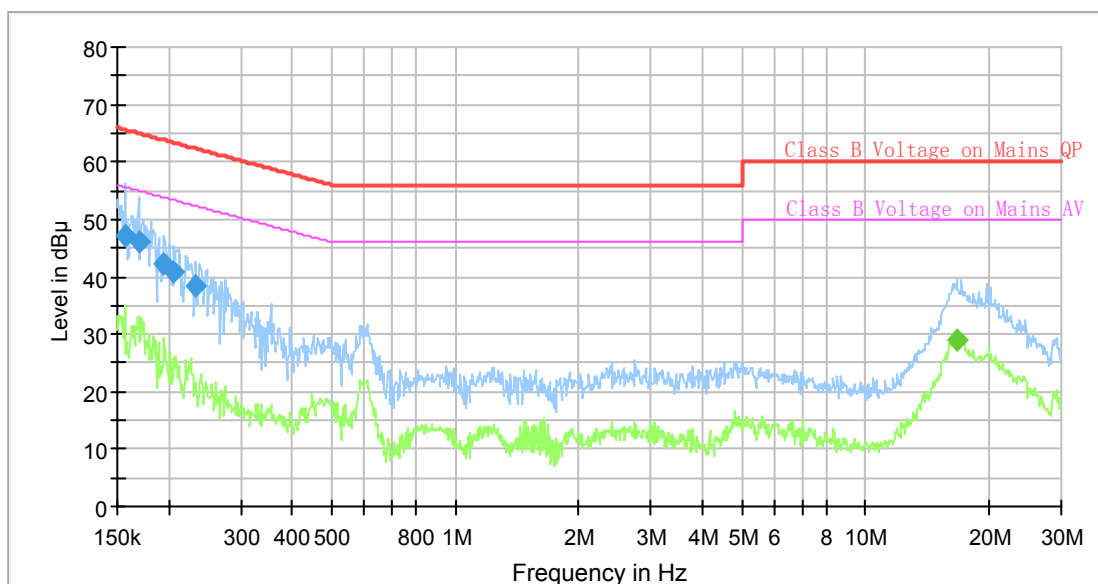
Port: L  
Test Mode: Operating



## Final Result

| Frequency (MHz) | QuasiPeak (dBμV) | Average (dBμV) | Limit (dBμV) | Margin (dB) | Bandwidth (kHz) | Line | Corr. (dB) |
|-----------------|------------------|----------------|--------------|-------------|-----------------|------|------------|
| 0.150000        | ---              | 34.63          | 56.00        | 21.37       | 9.000           | L1   | 9.6        |
| 0.150000        | 50.04            | ---            | 66.00        | 15.96       | 9.000           | L1   | 9.6        |
| 0.167396        | 47.30            | ---            | 65.09        | 17.79       | 9.000           | L1   | 9.6        |
| 0.174210        | ---              | 32.95          | 54.76        | 21.81       | 9.000           | L1   | 9.6        |
| 0.188682        | 44.28            | ---            | 64.09        | 19.81       | 9.000           | L1   | 9.6        |
| 0.208474        | 42.17            | ---            | 63.27        | 21.10       | 9.000           | L1   | 9.6        |
| 0.245771        | 39.73            | ---            | 61.90        | 22.17       | 9.000           | L1   | 9.6        |
| 0.582452        | ---              | 28.98          | 46.00        | 17.02       | 9.000           | L1   | 9.6        |
| 0.591232        | 36.80            | ---            | 56.00        | 19.20       | 9.000           | L1   | 9.6        |
| 0.600145        | ---              | 29.33          | 46.00        | 16.67       | 9.000           | L1   | 9.6        |
| 16.711661       | ---              | 30.10          | 50.00        | 19.90       | 9.000           | L1   | 10.1       |

Port: N  
Test Mode: Operating



## Final Result

| Frequency (MHz) | QuasiPeak (dBμV) | Average (dBμV) | Limit (dBμV) | Margin (dB) | Bandwidth (kHz) | Line | Corr. (dB) |
|-----------------|------------------|----------------|--------------|-------------|-----------------|------|------------|
| 0.156887        | 47.28            | ---            | 65.63        | 18.35       | 9.000           | N    | 9.6        |
| 0.169074        | 46.13            | ---            | 65.01        | 18.88       | 9.000           | N    | 9.6        |
| 0.195386        | 42.35            | ---            | 63.80        | 21.45       | 9.000           | N    | 9.6        |
| 0.206405        | 40.74            | ---            | 63.35        | 22.61       | 9.000           | N    | 9.6        |
| 0.233814        | 38.27            | ---            | 62.31        | 24.04       | 9.000           | N    | 9.6        |
| 16.711661       | ---              | 28.95          | 50.00        | 21.05       | 9.000           | N    | 9.9        |

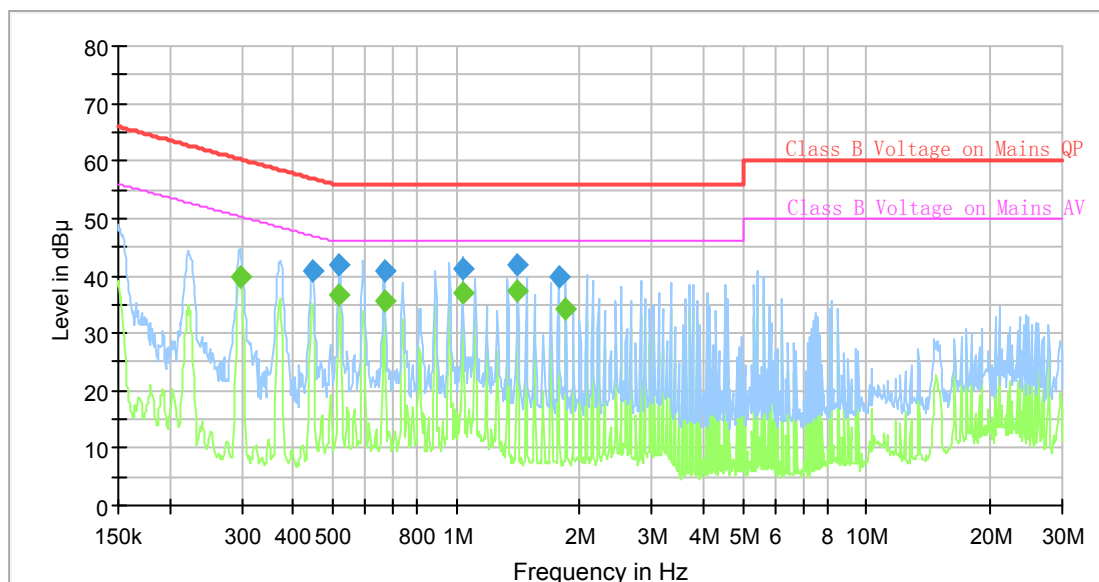
**Power by POE:**

Port:

L

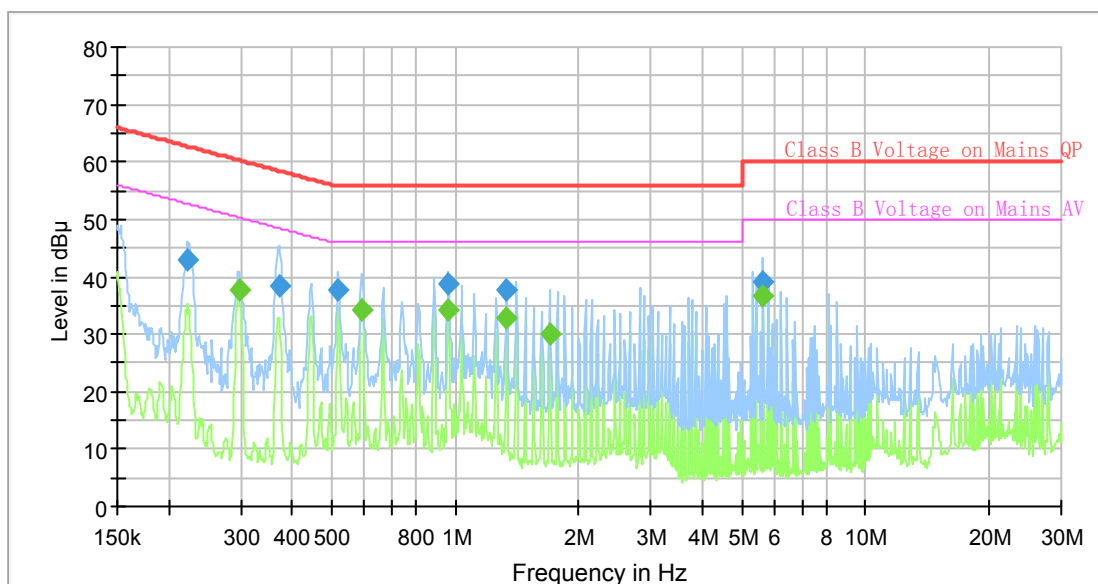
Test Mode:

Operating

**Final Result**

| Frequency (MHz) | QuasiPeak (dBμV) | Average (dBμV) | Limit (dBμV) | Margin (dB) | Bandwidth (kHz) | Line | Corr. (dB) |
|-----------------|------------------|----------------|--------------|-------------|-----------------|------|------------|
| 0.297058        | ---              | 39.97          | 50.32        | 10.35       | 9.000           | L1   | 9.6        |
| 0.444931        | 40.73            | ---            | 56.97        | 16.24       | 9.000           | L1   | 9.6        |
| 0.519327        | ---              | 36.57          | 46.00        | 9.43        | 9.000           | L1   | 9.6        |
| 0.519327        | 42.01            | ---            | 56.00        | 13.99       | 9.000           | L1   | 9.6        |
| 0.666413        | ---              | 35.52          | 46.00        | 10.48       | 9.000           | L1   | 9.6        |
| 0.666413        | 40.72            | ---            | 56.00        | 15.28       | 9.000           | L1   | 9.6        |
| 1.038779        | 41.38            | ---            | 56.00        | 14.62       | 9.000           | L1   | 9.7        |
| 1.038779        | ---              | 36.87          | 46.00        | 9.13        | 9.000           | L1   | 9.7        |
| 1.408163        | 41.82            | ---            | 56.00        | 14.18       | 9.000           | L1   | 9.7        |
| 1.408163        | ---              | 37.38          | 46.00        | 8.62        | 9.000           | L1   | 9.7        |
| 1.780155        | 39.88            | ---            | 56.00        | 16.12       | 9.000           | L1   | 9.7        |
| 1.852620        | ---              | 34.36          | 46.00        | 11.64       | 9.000           | L1   | 9.7        |

Port: N  
Test Mode: Operating

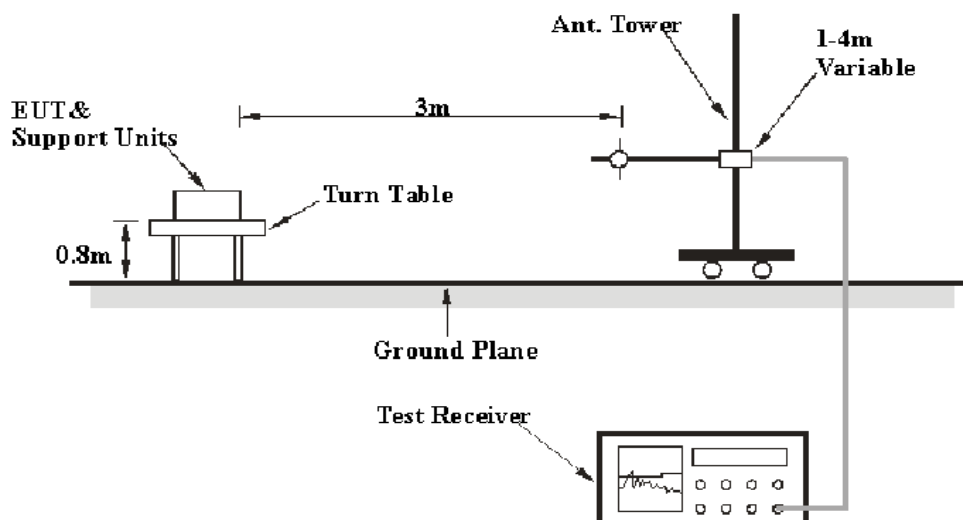


## Final Result

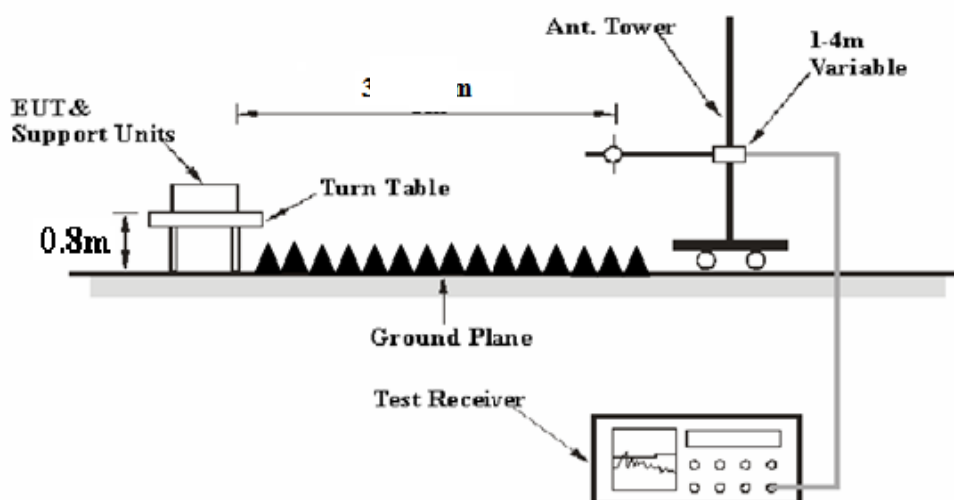
| Frequency (MHz) | QuasiPeak (dBμV) | Average (dBμV) | Limit (dBμV) | Margin (dB) | Bandwidth (kHz) | Line | Corr. (dB) |
|-----------------|------------------|----------------|--------------|-------------|-----------------|------|------------|
| 0.222439        | 42.98            | ---            | 62.73        | 19.75       | 9.000           | N    | 9.6        |
| 0.297058        | ---              | 37.90          | 50.32        | 12.42       | 9.000           | N    | 9.6        |
| 0.371804        | 38.36            | ---            | 58.46        | 20.10       | 9.000           | N    | 9.6        |
| 0.519327        | 37.90            | ---            | 56.00        | 18.10       | 9.000           | N    | 9.6        |
| 0.591232        | ---              | 34.29          | 46.00        | 11.71       | 9.000           | N    | 9.6        |
| 0.963901        | ---              | 34.29          | 46.00        | 11.71       | 9.000           | N    | 9.6        |
| 0.963901        | 38.75            | ---            | 56.00        | 17.25       | 9.000           | N    | 9.6        |
| 1.332988        | ---              | 33.00          | 46.00        | 13.00       | 9.000           | N    | 9.6        |
| 1.332988        | 37.65            | ---            | 56.00        | 18.35       | 9.000           | N    | 9.6        |
| 1.702015        | ---              | 30.08          | 46.00        | 15.92       | 9.000           | N    | 9.6        |
| 5.634017        | ---              | 36.51          | 50.00        | 13.49       | 9.000           | N    | 9.6        |
| 5.634017        | 39.20            | ---            | 60.00        | 20.80       | 9.000           | N    | 9.6        |

## RADIATED EMISSIONS

### EUT Setup Below 1GHz:



### Above 1GHz:



The radiated emission below 1GHz tests were performed in the 3 meters chamber test site A, above 1GHz tests were performed in the 3 meters chamber test site B, using the setup accordance with the ANSI C63.4-2014. The specification used was with the FCC Part 15 B Class B limits.

### EMI Test Receiver Setup

The system was investigated from 30 MHz to 13.5 GHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

| Frequency Range   | RBW     | Video B/W   | IF B/W  | Measurement |
|-------------------|---------|-------------|---------|-------------|
| 30 MHz – 1000 MHz | 120 kHz | 300 kHz     | 120 kHz | QP          |
| Above 1 GHz       | 1 MHz   | 3 MHz       | /       | Peak        |
|                   | 1 MHz   | Reduced VBW | /       | AVG         |

If the maximized peak measured value complies with under the limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

### Test Procedure

During the radiated emissions, the adapter was connected to the first AC floor outlet and the other support equipments were connected to the second AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The data was recorded in the Quasi-peak detection mode for below 1 GHz, peak and average detection mode above 1 GHz.

### Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Meter Reading+ Corrected

Note:

Corrected = Antenna Factor + Cable Loss - Amplifier Gain

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Result}$$

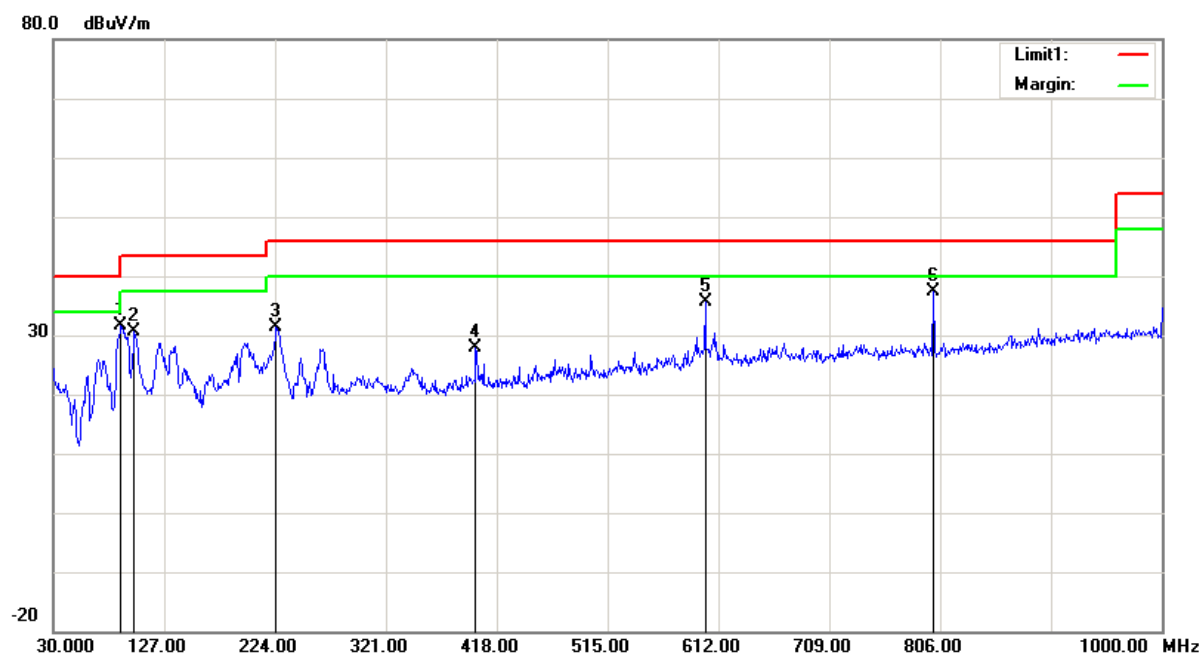
## Test Data

Please refer to following table and plots:

Power by adapter:

Condition: FCC Part 15B Class B  
Test Mode: Operating

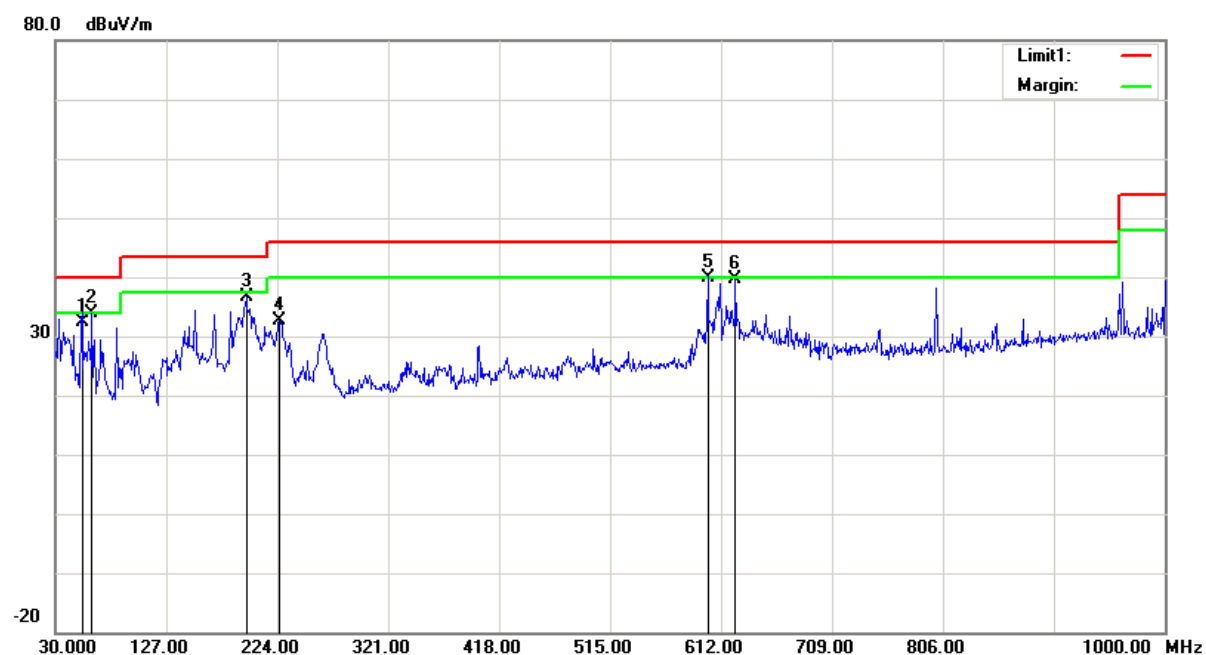
Polarization: Horizontal  
Distance: 3m



| Frequency (MHz) | Reading (dBμV) | Detector | Corrected (dB/m) | Result (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|-----------------|----------------|----------|------------------|-----------------|----------------|-------------|
| 89.1700         | 46.77          | peak     | -15.24           | 31.53           | 43.50          | 11.97       |
| 100.8100        | 44.74          | peak     | -14.07           | 30.67           | 43.50          | 12.83       |
| 224.9700        | 42.23          | peak     | -10.88           | 31.35           | 46.00          | 14.65       |
| 399.5700        | 33.06          | peak     | -5.29            | 27.77           | 46.00          | 18.23       |
| 600.3600        | 36.86          | peak     | -1.35            | 35.51           | 46.00          | 10.49       |
| 800.1800        | 36.21          | peak     | 1.09             | 37.30           | 46.00          | 8.70        |

Condition: FCC Part 15B Class B  
Test Mode: Operating

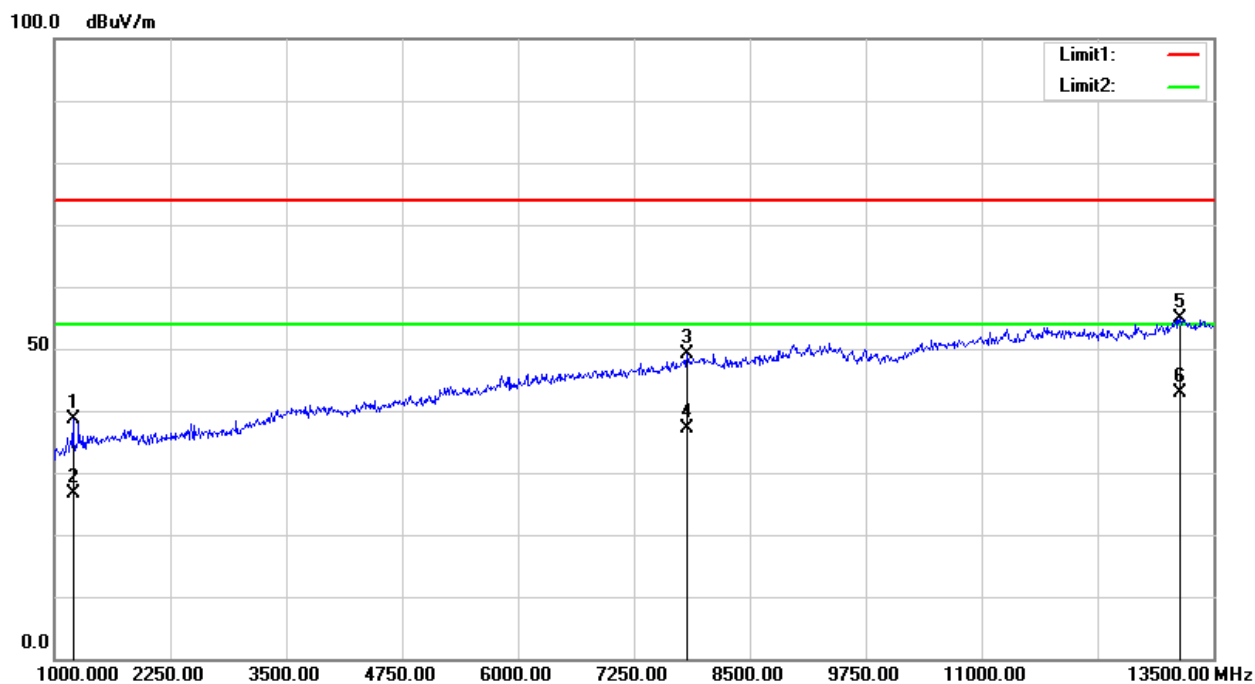
Polarization: Vertical  
Distance: 3m



| Frequency<br>(MHz) | Reading<br>(dBμV) | Detector | Corrected<br>(dB/m) | Result<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin<br>(dB) |
|--------------------|-------------------|----------|---------------------|--------------------|-------------------|----------------|
| 53.2800            | 48.97             | QP       | -16.52              | 32.45              | 40.00             | 7.55           |
| 62.0100            | 50.57             | peak     | -16.59              | 33.98              | 40.00             | 6.02           |
| 196.8400           | 46.46             | peak     | -9.79               | 36.67              | 43.50             | 6.83           |
| 225.9400           | 43.46             | peak     | -10.80              | 32.66              | 46.00             | 13.34          |
| 600.3600           | 41.35             | QP       | -1.35               | 40.00              | 46.00             | 6.00           |
| 624.6100           | 40.47             | peak     | -0.76               | 39.71              | 46.00             | 6.29           |

**Condition:** FCC Part 15B Class B  
**Test Mode:** Operating

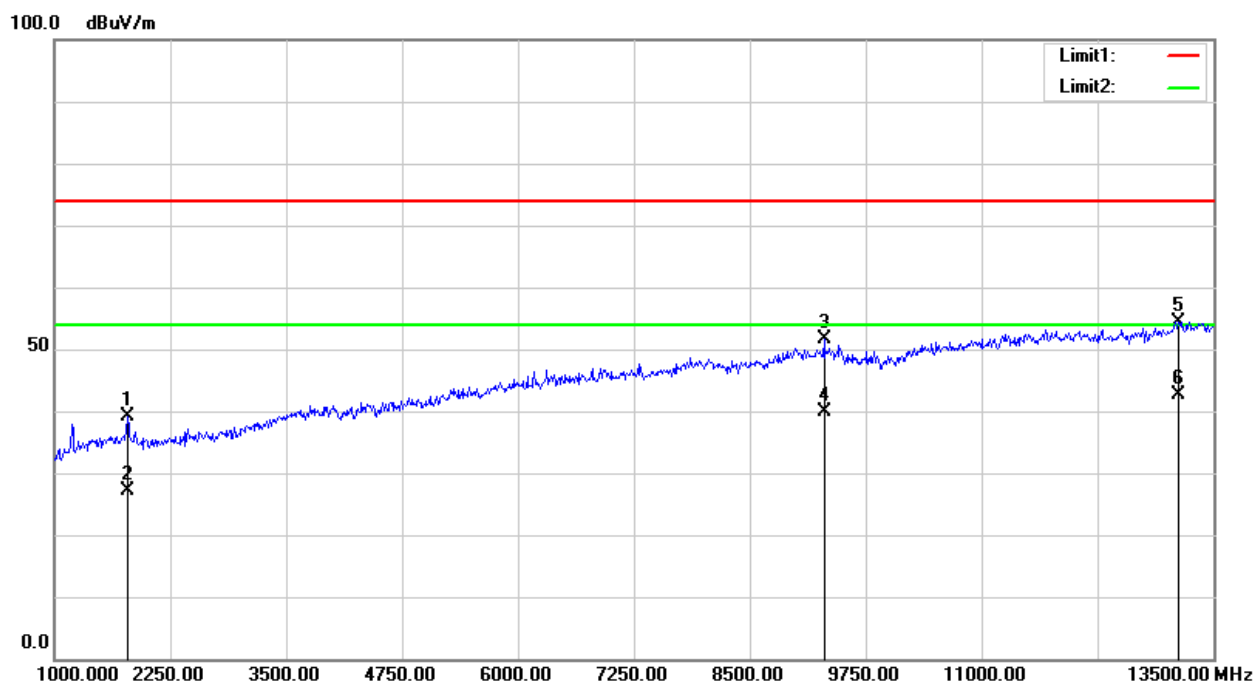
**Polarization:** Horizontal  
**Distance:** 3m



| Frequency<br>(MHz) | Reading<br>(dB $\mu$ V) | Detector | Corrected<br>(dB/m) | Result<br>(dB $\mu$ V/m) | Limit<br>(dB $\mu$ V/m) | Margin<br>(dB) |
|--------------------|-------------------------|----------|---------------------|--------------------------|-------------------------|----------------|
| 1200.000           | 41.69                   | peak     | -3.06               | 38.63                    | 74.00                   | 35.37          |
| 1200.000           | 29.71                   | AVG      | -3.06               | 26.65                    | 54.00                   | 27.35          |
| 7825.000           | 36.55                   | peak     | 12.49               | 49.04                    | 74.00                   | 24.96          |
| 7825.000           | 24.60                   | AVG      | 12.49               | 37.09                    | 54.00                   | 16.91          |
| 13143.750          | 35.28                   | peak     | 19.65               | 54.93                    | 74.00                   | 19.07          |
| 13143.750          | 23.33                   | AVG      | 19.65               | 42.98                    | 54.00                   | 11.02          |

**Condition:** FCC Part 15B Class B  
**Test Mode:** Operating

**Polarization:** Vertical  
**Distance:** 3m

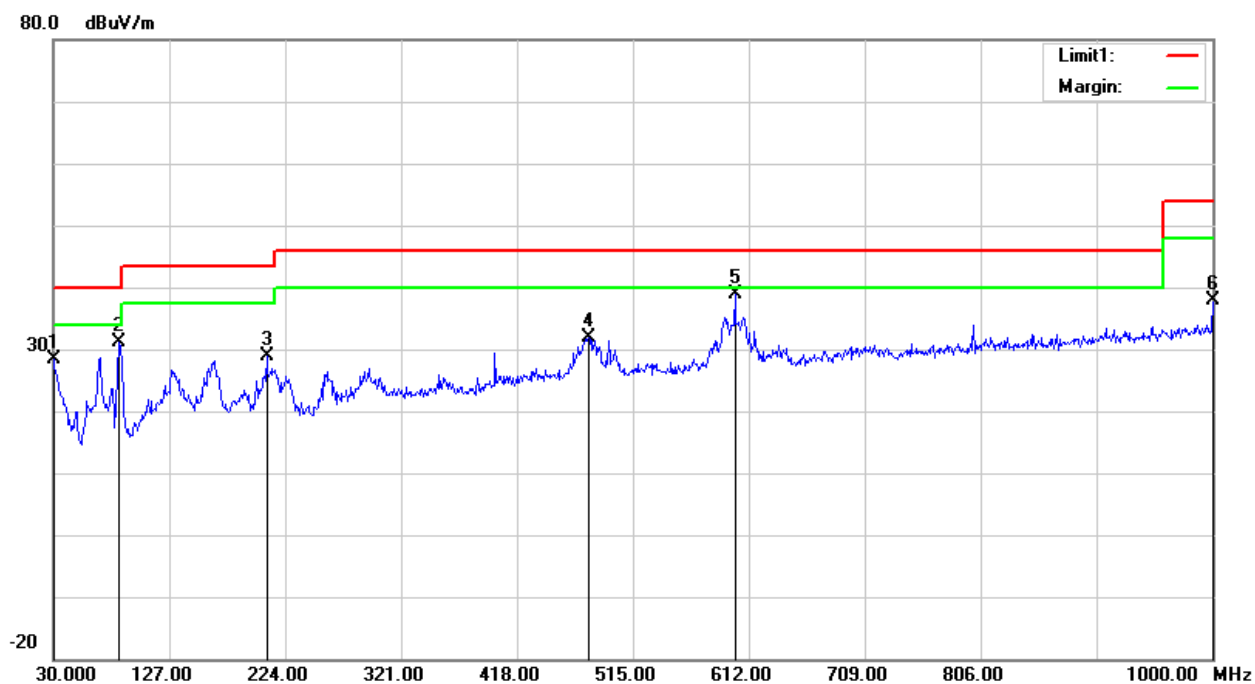


| Frequency<br>(MHz) | Reading<br>(dBμV) | Detector | Corrected<br>(dB/m) | Result<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin<br>(dB) |
|--------------------|-------------------|----------|---------------------|--------------------|-------------------|----------------|
| 1793.750           | 39.99             | peak     | -0.80               | 39.19              | 74.00             | 34.81          |
| 1793.750           | 28.02             | AVG      | -0.80               | 27.22              | 54.00             | 26.78          |
| 9300.000           | 37.55             | peak     | 14.18               | 51.73              | 74.00             | 22.27          |
| 9300.000           | 25.61             | AVG      | 14.18               | 39.79              | 54.00             | 14.21          |
| 13131.250          | 34.74             | peak     | 19.74               | 54.48              | 74.00             | 19.52          |
| 13131.250          | 22.81             | AVG      | 19.74               | 42.55              | 54.00             | 11.45          |

## Power by POE:

Condition: FCC Part 15B Class B  
Test Mode: Operating

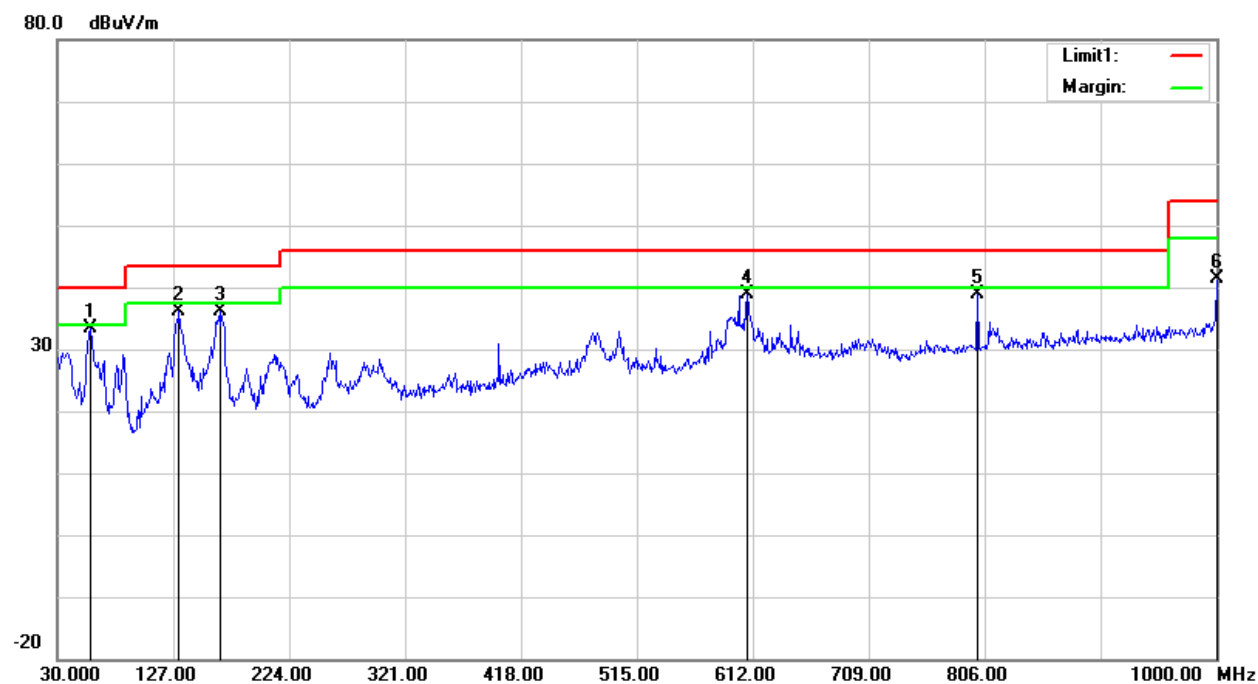
Polarization: Horizontal  
Distance: 3m



| Frequency<br>(MHz) | Reading<br>(dB $\mu$ V) | Detector | Corrected<br>(dB/m) | Result<br>(dB $\mu$ V/m) | Limit<br>(dB $\mu$ V/m) | Margin<br>(dB) |
|--------------------|-------------------------|----------|---------------------|--------------------------|-------------------------|----------------|
| 30.0000            | 26.93                   | peak     | 1.46                | 28.39                    | 40.00                   | 11.61          |
| 85.2900            | 42.72                   | peak     | -11.60              | 31.12                    | 40.00                   | 8.88           |
| 208.4800           | 36.27                   | peak     | -7.29               | 28.98                    | 43.50                   | 14.52          |
| 478.1400           | 32.32                   | peak     | -0.40               | 31.92                    | 46.00                   | 14.08          |
| 600.3600           | 38.20                   | peak     | 0.76                | 38.96                    | 46.00                   | 7.04           |
| 1000.0000          | 37.02                   | peak     | 0.85                | 37.87                    | 54.00                   | 16.13          |

Condition: FCC Part 15B Class B  
Test Mode: Operating

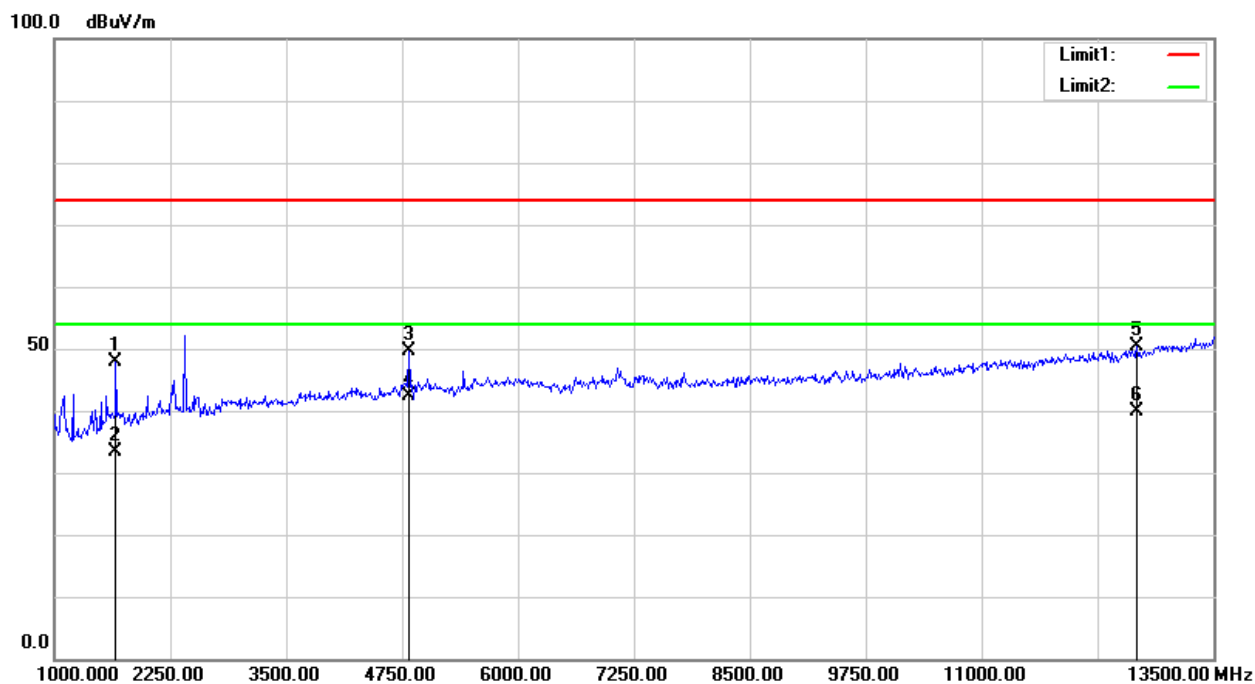
Polarization: Vertical  
Distance: 3m



| Frequency<br>(MHz) | Reading<br>(dBμV) | Detector | Corrected<br>(dB/m) | Result<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin<br>(dB) |
|--------------------|-------------------|----------|---------------------|--------------------|-------------------|----------------|
| 57.1600            | 45.89             | peak     | -12.44              | 33.45              | 40.00             | 6.55           |
| 131.8500           | 41.24             | peak     | -5.07               | 36.17              | 43.50             | 7.33           |
| 166.7700           | 42.54             | peak     | -6.51               | 36.03              | 43.50             | 7.47           |
| 607.1500           | 38.04             | peak     | 0.87                | 38.91              | 46.00             | 7.09           |
| 800.1800           | 35.28             | peak     | 3.71                | 38.99              | 46.00             | 7.01           |
| 1000.0000          | 40.60             | peak     | 0.85                | 41.45              | 54.00             | 12.55          |

**Condition:** FCC Part 15B Class B  
**Test Mode:** Operating

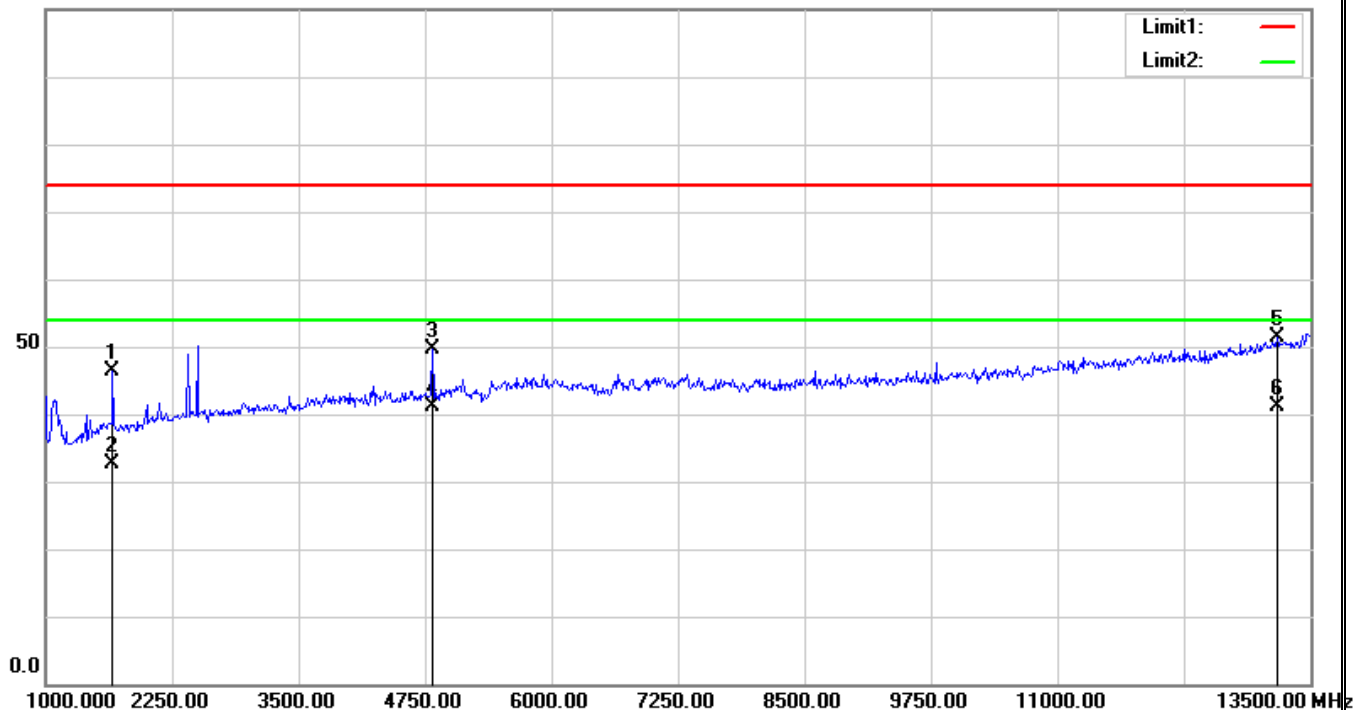
**Polarization:** Horizontal  
**Distance:** 3m



| Frequency<br>(MHz) | Reading<br>(dB $\mu$ V) | Detector | Corrected<br>(dB/m) | Result<br>(dB $\mu$ V/m) | Limit<br>(dB $\mu$ V/m) | Margin<br>(dB) |
|--------------------|-------------------------|----------|---------------------|--------------------------|-------------------------|----------------|
| 1668.750           | 46.15                   | peak     | 1.72                | 47.87                    | 74.00                   | 26.13          |
| 1668.750           | 31.70                   | AVG      | 1.72                | 33.42                    | 54.00                   | 20.58          |
| 4825.000           | 39.22                   | peak     | 10.53               | 49.75                    | 74.00                   | 24.25          |
| 4825.000           | 31.87                   | AVG      | 10.53               | 42.40                    | 54.00                   | 11.60          |
| 12681.250          | 29.59                   | peak     | 20.89               | 50.48                    | 74.00                   | 23.52          |
| 12681.250          | 18.87                   | AVG      | 20.89               | 39.76                    | 54.00                   | 14.24          |

Condition: FCC Part 15B Class B  
Test Mode: Operating

Polarization: Vertical  
Distance: 3m

100.0 dB $\mu$ V/m

| Frequency<br>(MHz) | Reading<br>(dB $\mu$ V) | Detector | Corrected<br>(dB/m) | Result<br>(dB $\mu$ V/m) | Limit<br>(dB $\mu$ V/m) | Margin<br>(dB) |
|--------------------|-------------------------|----------|---------------------|--------------------------|-------------------------|----------------|
| 1668.750           | 44.73                   | peak     | 1.72                | 46.45                    | 74.00                   | 27.55          |
| 1668.750           | 30.87                   | AVG      | 1.72                | 32.59                    | 54.00                   | 21.41          |
| 4825.000           | 38.98                   | peak     | 10.53               | 49.51                    | 74.00                   | 24.49          |
| 4825.000           | 30.70                   | AVG      | 10.53               | 41.23                    | 54.00                   | 12.77          |
| 13175.000          | 29.32                   | peak     | 22.17               | 51.49                    | 74.00                   | 22.51          |
| 13175.000          | 18.87                   | AVG      | 22.17               | 41.04                    | 54.00                   | 12.96          |

\*\*\*\*\*END OF REPORT\*\*\*\*\*