

# TEST REPORT

Reference No..... : WTX24X12283259W001  
FCC ID..... : A4X-WPC12-3TFNA  
Applicant..... : CE LINK LIMITED  
Address..... : 22 Dongkang Road, Dalingshan Town, Dongguan City, Guangdong  
Province, China.  
Manufacturer..... : DONGGUAN CE LINK LIMITED  
Address..... : 22 Dongkang Road, Dalingshan Town, Dongguan City, Guangdong  
Province, China.  
Product Name..... : Wireless Charger  
Model No..... : WPC12-3TFNA  
Standards..... : **47 CFR FCC Part 18**  
Date of Receipt sample..... : 2024-12-02  
Date of Test..... : 2024-12-02 to 2024-12-18  
Date of Issue..... : 2024-12-18  
Test Report Form No..... : WTX\_FCC Part 18\_001  
Test Result..... : **Pass**

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of approver.

**Prepared By:**

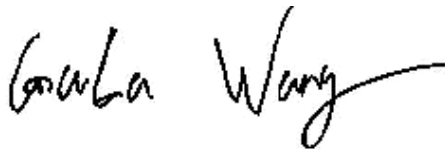
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Tested by:



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Gala Wang

Approved by:



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Jason Su

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Report version

| Version No. | Date of issue | Description |
|-------------|---------------|-------------|
| Rev.00      | 2024-12-18    | Original    |
| /           | /             | /           |

## 1. GENERAL INFORMATION

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### 1.1 Product Description for Equipment Under Test (EUT)

#### Client Information

Factory#1: SuiChuan CE LINK LIMITED  
 Address of factory: SuiChuan county industrial park east zone, Ji'an city, Jiangxi province, China.

Factory#2: CE LINK VIET NAM COMPANY LIMITED.  
 Address of factory: Part of lots CNSG-04, CNSG-06 Van Trung Industrial Zone, Van Trung Ward, Viet Yen Town, Bac Giang Province, Vietnam

| General Description of EUT                                                                                                                                                                                                                                                                      |                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Product Name:                                                                                                                                                                                                                                                                                   | Wireless Charger |
| Trade Name:                                                                                                                                                                                                                                                                                     | CE-LINK          |
| Model No.:                                                                                                                                                                                                                                                                                      | WPC12-3TFNA      |
| Adding Model(s):                                                                                                                                                                                                                                                                                | B0874YN8B9       |
| <i>Note: The test data is gathered from a production sample, provided by the manufacturer. The appearance of others models listed in the report is different from main-test model WPC12-3TFNA, but the circuit and the electronic construction do not change, declared by the manufacturer.</i> |                  |

| Technical Characteristics of EUT                                                                 |                                                 |
|--------------------------------------------------------------------------------------------------|-------------------------------------------------|
| Frequency Range:                                                                                 | 110-205kHz                                      |
| Modulation Type:                                                                                 | ASK                                             |
| Antenna Type:                                                                                    | Coil Antenna                                    |
| Rated Voltage:                                                                                   | Input: Type C 5V, 9V, 12V                       |
| Rated Current:                                                                                   | Input: Type C 2A, 2A, 1.5A                      |
| Rate Power:                                                                                      | Input: Type C 18W<br>Output: 5W, 7.5W, 10W, 12W |
| <i>Note The Antenna Gain is provided by the customer and can affect the validity of results.</i> |                                                 |

## 1.2 Test Standards

The tests were performed according to following standards:

**47 CFR FCC Part 18:** Industrial, Scientific, and medical medical equipment.

**MP5-1986:** FCC METHODS OF MESUREMENTS OF RADIO NOISE EMISSIONS FROM INDUSTRIAL, SCIENTIFIC, AND MEDICAL EQUIPMENT.

**Maintenance of compliance** is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

## 1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014 and FCC MP-5:1986, 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.

## 1.4 Test Facility

Laboratory: Waltek Testing Group (Shenzhen) Co., Ltd.

Address: 1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road, Bao'an District, Shenzhen, P.R.C. (518101)

### **FCC – Registration No.: 125990**

Waltek Testing Group (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. The Designation Number is CN5010, and Test Firm Registration Number is 125990.

### **Industry Canada (IC) Registration No.: 11464A**

The 3m Semi-anechoic chamber of Waltek Testing Group (Shenzhen) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

## 1.5 EUT Setup and Operation Mode

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted according to the operation manual for use, more detailed description as follows:

Test Mode List:

| Test Mode | Description       | Remark                  | Power Supply Mode                                    |
|-----------|-------------------|-------------------------|------------------------------------------------------|
| TM1       | Wireless Charging | AC230V/50Hz for adapter | Input: DC9V2A;<br>Wireless charging 1:<br>output 12W |
| TM2       | Wireless Charging | AC230V/50Hz for adapter | Input: DC9V2A;<br>Wireless charging 2:<br>output 12W |
| TM3       | Wireless Charging | AC230V/50Hz for adapter | Input: DC9V2A;<br>Wireless charging 3:<br>output 12W |

EUT Cable List and Details

| Cable Description | Length (M) | Shielded/Unshielded | With Core/Without Core |
|-------------------|------------|---------------------|------------------------|
| /                 | /          | /                   | /                      |

Auxiliary Equipment List and Details

| Description | Manufacturer | Model     | Serial Number |
|-------------|--------------|-----------|---------------|
| Adapter     | Iottie       | CHCRIO160 | /             |

Special Cable List and Details

| Cable Description | Length (M) | Shielded/Unshielded | With Core/Without Core |
|-------------------|------------|---------------------|------------------------|
| Type-C Cable      | 1.0        | Unshielded          | Without Ferrite        |

## 1.6 Measurement Uncertainty

| Measurement uncertainty |            |                          |
|-------------------------|------------|--------------------------|
| Parameter               | Conditions | Uncertainty              |
| Conducted Emissions     | Conducted  | 9-150kHz $\pm 3.74$ dB   |
|                         |            | 0.15-30MHz $\pm 3.34$ dB |
| Radiated Emissions      | Radiated   | 30-200MHz $\pm 4.52$ dB  |
|                         |            | 0.2-1GHz $\pm 5.56$ dB   |
|                         |            | 1-6GHz $\pm 3.84$ dB     |
|                         |            | 6-18GHz $\pm 3.92$ dB    |

## 1.7 Test Equipment List and Details

| Fixed asset Number                                        | Description       | Manufacturer    | Model     | Serial No.     | Cal Date   | Due. Date  |
|-----------------------------------------------------------|-------------------|-----------------|-----------|----------------|------------|------------|
| WTXE1004A<br>1-001                                        | Spectrum Analyzer | Rohde & Schwarz | FSP40     | 100612         | 2024-02-27 | 2025-02-26 |
| WTXE1103A<br>1003                                         | Attenuator        | Pasternack      | PE4007-4  | /              | 2024-02-24 | 2025-02-23 |
| WTXE1003A<br>1-005                                        | Coaxial Cable     | /               | 0M4RFC    | /              | 2024-07-03 | 2025-01-03 |
| <input checked="" type="checkbox"/> Chamber A: Below 1GHz |                   |                 |           |                |            |            |
| WTXE1005A<br>1003                                         | Spectrum Analyzer | Rohde & Schwarz | FSP30     | 836079/03<br>5 | 2024-02-24 | 2025-02-23 |
| WTXE1001A<br>1004                                         | EMI Test Receiver | Rohde & Schwarz | ESPI      | 101259         | 2024-02-24 | 2025-02-23 |
| WTXE1007A<br>1001                                         | Amplifier         | HP              | 8447F     | 2805A034<br>75 | 2024-02-24 | 2025-02-23 |
| WTXE1010A<br>1007                                         | Loop Antenna      | Schwarz beck    | FMZB 1516 | 9773           | 2024-02-26 | 2025-02-25 |
| WTXE1010A<br>1006                                         | Broadband Antenna | Schwarz beck    | VULB9163  | 9163-333       | 2024-02-24 | 2025-02-23 |
| WTXE1104A<br>1032-1                                       | Coaxial Cable     | /               | RC_6G-N-M | /              | 2024-03-15 | 2025-03-14 |
| WTXE1104A<br>1032-2                                       | Coaxial Cable     | /               | RC_6G-N-M | /              | 2024-03-15 | 2025-03-14 |
| WTXE1104A<br>1032-3                                       | Coaxial Cable     | /               | RC_6G-N-M | /              | 2024-03-15 | 2025-03-14 |
| <input checked="" type="checkbox"/> Chamber A: Above 1GHz |                   |                 |           |                |            |            |
| WTXE1005A<br>1003                                         | Spectrum Analyzer | Rohde & Schwarz | FSP30     | 836079/03<br>5 | 2024-02-24 | 2025-02-23 |
| WTXE1001A<br>1004                                         | EMI Test Receiver | Rohde & Schwarz | ESPI      | 101259         | 2024-02-24 | 2025-02-23 |
| WTXE1065A<br>1001                                         | Amplifier         | C&D             | PAP-1G18  | 2002           | 2024-02-27 | 2025-02-26 |
| WTXE1010A<br>1005                                         | Horn Antenna      | ETS             | 3117      | 00086197       | 2024-02-26 | 2025-02-25 |
| WTXE1010A<br>1010                                         | DRG Horn Antenna  | A.H. SYSTEMS    | SAS-574   | 571            | 2024-03-17 | 2025-03-16 |
| WTXE1003A<br>1001                                         | Pre-amplifier     | Schwarzbeck     | BBV 9721  | 9721-031       | 2024-02-29 | 2025-02-28 |
| WTXE1104A<br>1033-1                                       | Coaxial Cable     | /               | C16-07-07 | /              | 2024-03-15 | 2025-03-14 |
| WTXE1104A                                                 | Coaxial Cable     | /               | C16-07-07 | /              | 2024-03-15 | 2025-03-14 |

|                                                |                                |                    |              |                 |            |            |
|------------------------------------------------|--------------------------------|--------------------|--------------|-----------------|------------|------------|
| 1033-2                                         |                                |                    |              |                 |            |            |
| WTXE1104A<br>1033-3                            | Coaxial Cable                  | /                  | C16-07-07    | /               | 2024-03-15 | 2025-03-14 |
| <input type="checkbox"/> Chamber B:Below 1GHz  |                                |                    |              |                 |            |            |
| WTXE1010A<br>1006                              | Trilog<br>Broadband<br>Antenna | Schwarz beck       | VULB9163(B)  | 9163-635        | 2024-03-17 | 2027-03-16 |
| WTXE1038A<br>1001                              | Amplifier                      | Agilent            | 8447D        | 2944A104<br>57  | 2024-02-24 | 2025-02-23 |
| WTXE1001A<br>1002                              | EMI Test<br>Receiver           | Rohde &<br>Schwarz | ESPI         | 101391          | 2024-02-24 | 2025-02-23 |
| WTXE1104A<br>1031-1                            | Coaxial Cable                  | /                  | 1.5MRFC-LWB3 | /               | 2024-07-03 | 2025-07-02 |
| WTXE1104A<br>1031-2                            | Coaxial Cable                  | /                  | RG 316       | /               | 2024-07-03 | 2025-07-02 |
| WTXE1104A<br>1031-3                            | Coaxial Cable                  | /                  | RG 316       | /               | 2024-07-03 | 2025-07-02 |
| <input type="checkbox"/> Chamber C:Below 1GHz  |                                |                    |              |                 |            |            |
| WTXE1093A<br>1001                              | EMI Test<br>Receiver           | Rohde &<br>Schwarz | ESIB 26      | 100401          | 2024-02-27 | 2025-02-26 |
| WTXE1010A<br>1013-1                            | Trilog<br>Broadband<br>Antenna | Schwarz beck       | VULB 9168    | 1194            | 2024-04-18 | 2027-04-17 |
| WTXE1010A<br>1007                              | Loop Antenna                   | Schwarz beck       | FMZB 1516    | 9773            | 2024-02-26 | 2025-02-25 |
| WTXE1007A<br>1002                              | Amplifier                      | HP                 | 8447F        | 2944A038<br>69  | 2024-02-24 | 2025-02-23 |
| WTXE1104A<br>1034-1                            | Coaxial Cable                  | /                  | RC_6G-N-M    | /               | 2024-07-03 | 2025-07-02 |
| WTXE1104A<br>1034-2                            | Coaxial Cable                  | /                  | RC_6G-N-M    | /               | 2024-07-03 | 2025-07-02 |
| WTXE1104A<br>1034-3                            | Coaxial Cable                  | /                  | RC_6G-N-M    | /               | 2024-07-03 | 2025-07-02 |
| <input type="checkbox"/> Chamber C: Above 1GHz |                                |                    |              |                 |            |            |
| WTXE1093A<br>1001                              | EMI Test<br>Receiver           | Rohde &<br>Schwarz | ESIB 26      | 100401          | 2024-02-27 | 2025-02-26 |
| WTXE1103A<br>1005                              | Horn Antenna                   | POAM               | RTF-118A     | 1820            | 2023-03-10 | 2026-03-09 |
| WTXE1103A<br>1006                              | Amplifier                      | Tonscend           | TAP01018050  | AP22E806<br>235 | 2024-02-27 | 2025-02-26 |
| WTXE1010A<br>1010                              | DRG Horn<br>Antenna            | A.H. SYSTEMS       | SAS-574      | 571             | 2024-03-17 | 2025-03-16 |
| WTXE1003A                                      | Pre-amplifier                  | Schwarzbeck        | BBV 9721     | 9721-031        | 2024-02-29 | 2025-02-28 |

|                                                       |                   |                 |            |          |            |            |
|-------------------------------------------------------|-------------------|-----------------|------------|----------|------------|------------|
| 1001                                                  |                   |                 |            |          |            |            |
| WTXE1104A<br>1035-1                                   | Coaxial Cable     | /               | RC-18G-N-M | /        | 2024-07-03 | 2025-07-02 |
| WTXE1104A<br>1035-2                                   | Coaxial Cable     | /               | RC-18G-N-M | /        | 2024-07-03 | 2025-07-02 |
| WTXE1104A<br>1035-3                                   | Coaxial Cable     | /               | RC-18G-N-M | /        | 2024-07-03 | 2025-07-02 |
| <input checked="" type="checkbox"/> Conducted Room 1# |                   |                 |            |          |            |            |
| WTXE1104A<br>1029                                     | EMI Test Receiver | Rohde & Schwarz | ESCI       | 100525   | 2024-12-08 | 2025-12-07 |
| WTXE1002A<br>1001                                     | Pulse Limiter     | Rohde & Schwarz | ESH3-Z2    | 100911   | 2024-02-24 | 2025-02-23 |
| WTXE1003A<br>1001                                     | AC LISN           | Schwarz beck    | NSLK8126   | 8126-279 | 2024-02-24 | 2025-02-23 |
| WTXE1104A<br>1036                                     | Coaxial Cable     | /               | RG 316     | /        | 2024-07-03 | 2025-07-02 |
| WTXE1104A<br>1038                                     | Coaxial Cable     | /               | 6MRFC-DP   | /        | 2024-07-03 | 2025-07-02 |
| <input type="checkbox"/> Conducted Room 2#            |                   |                 |            |          |            |            |
| WTXE1001A<br>1004                                     | EMI Test Receiver | Rohde & Schwarz | ESPI       | 101259   | 2024-02-24 | 2025-02-23 |
| WTXE1003A<br>1003                                     | LISN              | Rohde & Schwarz | ENV 216    | 100097   | 2024-02-24 | 2025-02-23 |
| WTXE1104A<br>1037                                     | Coaxial Cable     | /               | RG 316     | /        | 2024-07-03 | 2025-07-02 |

| Software List                                        |              |        |                        |
|------------------------------------------------------|--------------|--------|------------------------|
| Description                                          | Manufacturer | Model  | Version                |
| EMI Test Software<br>(Radiated Emission A)           | Farad        | EZ-EMC | RA-03A1<br>(1.1.4.2)   |
| EMI Test Software<br>(Radiated Emission B)           | Farad        | EZ-EMC | RA-03A1<br>(1.1.4.2)   |
| EMI Test Software<br>(Radiated Emission C)           | Farad        | EZ-EMC | RA-03A1-2<br>(1.1.4.2) |
| EMI Test Software<br>(Conducted Emission<br>Room 1#) | Farad        | EZ-EMC | 3A1*CE-RE<br>1.1.4.3   |
| EMI Test Software<br>(Conducted Emission<br>Room 2#) | Farad        | EZ-EMC | 3A1*CE-RE<br>1.1.4.3   |

\*Remark: indicates software version used in the compliance certification testing

2. SUMMARY OF TEST RESULTS

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| FCC RULES   | DESCRIPTION OF TEST | RESULT    |
|-------------|---------------------|-----------|
| §18.307 (b) | Conducted Emission  | Compliant |
| §18.305 (b) | Radiated Emission   | Compliant |

N/A: Not applicable.

### 3. Conducted Emissions

#### 3.1 Standard Applicable

According to FCC 18.307(b), the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies shall not exceed the limits in the following tables:

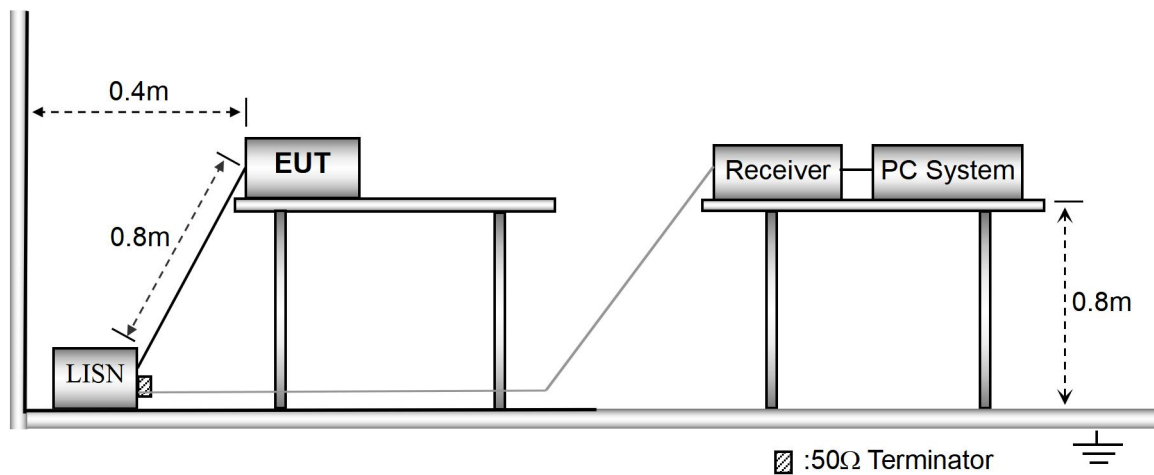
| Frequency (MHz) | Conducted limit (dB $\mu$ V) |          |
|-----------------|------------------------------|----------|
|                 | Quasi-peak                   | Average  |
| 0.15-0.5        | 66 to 56                     | 56 to 46 |
| 0.5-5           | 56                           | 46       |
| 5-30            | 60                           | 50       |

#### 3.2 Test Procedure

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 18.307 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle. The spacing between the peripherals was 10 cm.

#### 3.3 Basic Test Setup Block Diagram



#### 3.4 Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 23.5° C   |
| Relative Humidity: | 54%       |
| ATM Pressure:      | 1016 mbar |

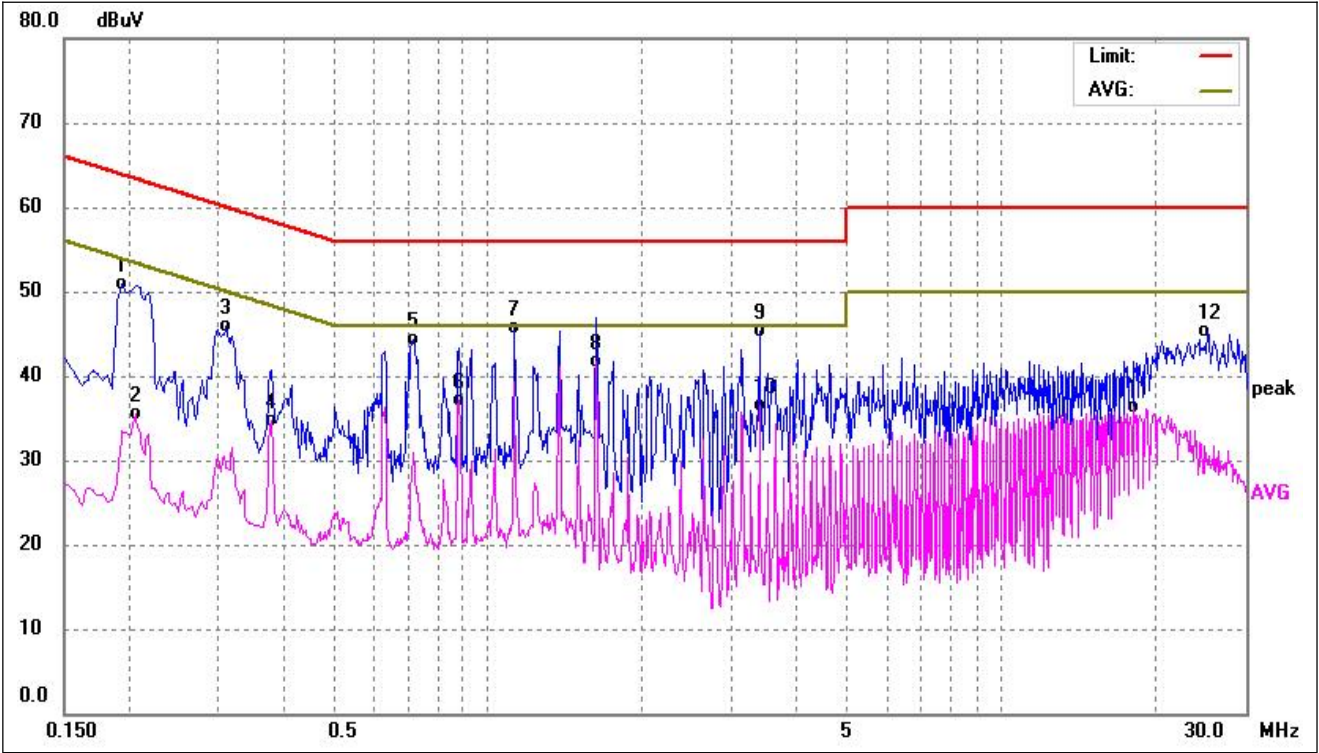
**3.5 Test Receiver Setup**

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

|                                   |         |
|-----------------------------------|---------|
| Start Frequency.....              | 150 kHz |
| Stop Frequency.....               | 30 MHz  |
| Sweep Speed.....                  | Auto    |
| IF Bandwidth.....                 | 10 kHz  |
| Quasi-Peak Adapter Bandwidth..... | 9 kHz   |
| Quasi-Peak Adapter Mode.....      | Normal  |

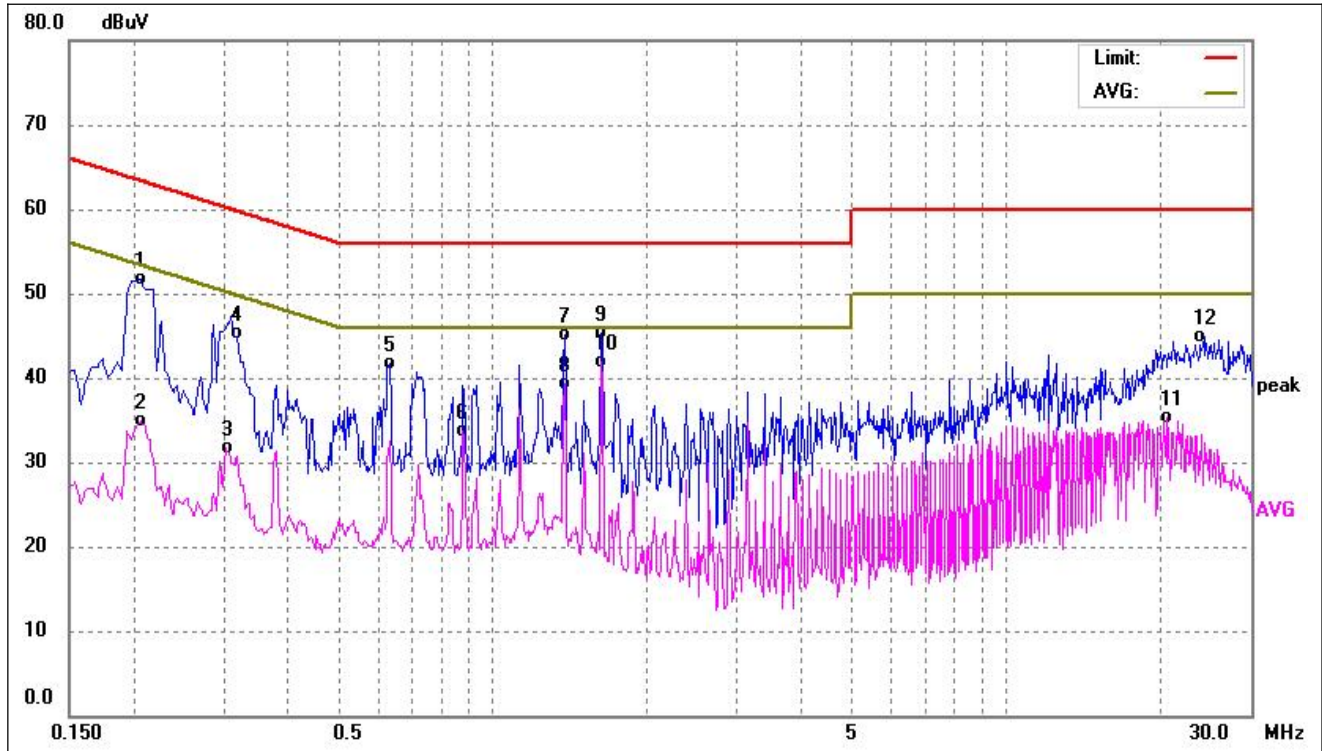
**3.6 Summary of Test Results/Plots**

|            |     |           |      |
|------------|-----|-----------|------|
| Test mode: | TM1 | Polarity: | Line |
|------------|-----|-----------|------|



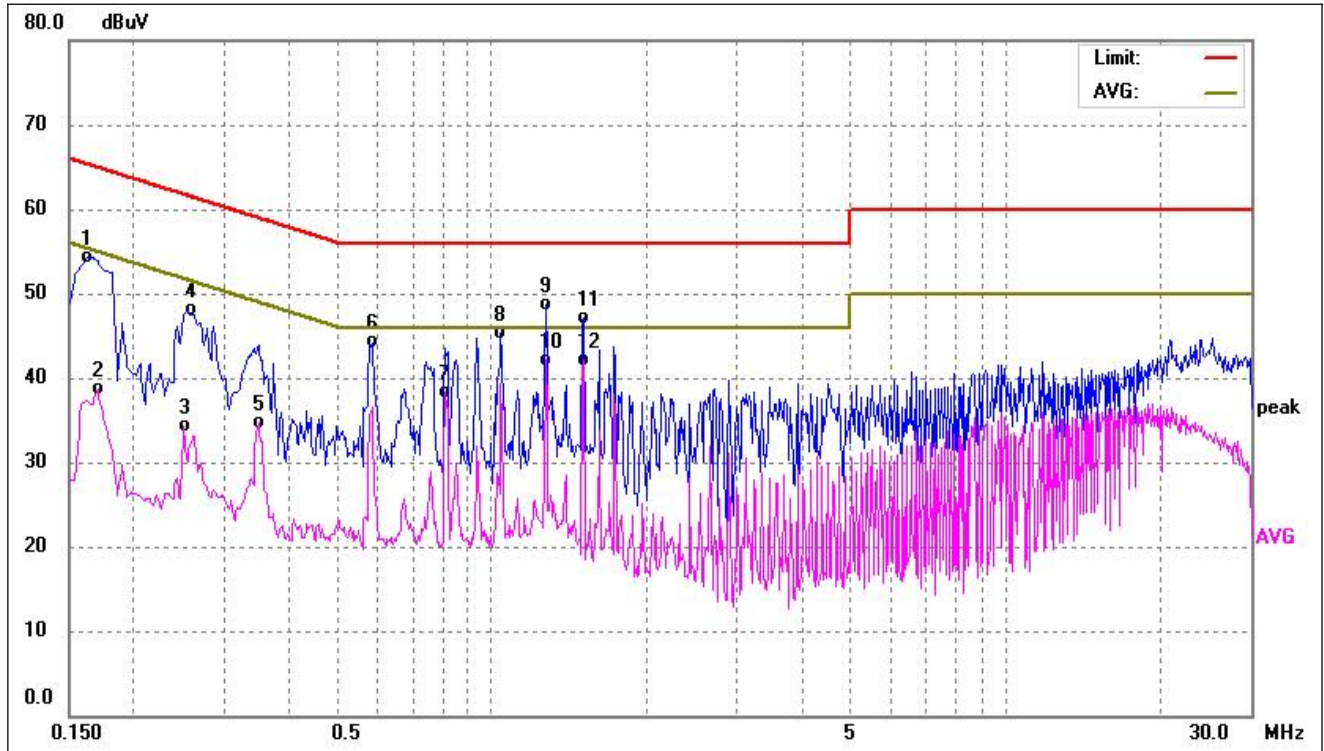
| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>(dB) | Result<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-----------------|------------------|-----------------|----------------|--------|
| 1   | 0.1940             | 41.23             | 9.59            | 50.82            | 63.86           | -13.04         | QP     |
| 2   | 0.2060             | 25.92             | 9.57            | 35.49            | 53.36           | -17.87         | AVG    |
| 3   | 0.3100             | 36.27             | 9.64            | 45.91            | 59.97           | -14.06         | QP     |
| 4   | 0.3780             | 25.01             | 9.68            | 34.69            | 48.32           | -13.63         | AVG    |
| 5   | 0.7180             | 34.54             | 9.69            | 44.23            | 56.00           | -11.77         | QP     |
| 6   | 0.8820             | 27.49             | 9.68            | 37.17            | 46.00           | -8.83          | AVG    |
| 7   | 1.1298             | 36.02             | 9.66            | 45.68            | 56.00           | -10.32         | QP     |
| 8   | 1.6339             | 32.08             | 9.64            | 41.72            | 46.00           | -4.28          | AVG    |
| 9   | 3.3900             | 35.71             | 9.63            | 45.34            | 56.00           | -10.66         | QP     |
| 10  | 3.3900             | 26.95             | 9.63            | 36.58            | 46.00           | -9.42          | AVG    |
| 11  | 18.1500            | 26.08             | 10.14           | 36.22            | 50.00           | -13.78         | AVG    |
| 12  | 25.2099            | 35.22             | 10.13           | 45.35            | 60.00           | -14.65         | QP     |

|            |     |           |         |
|------------|-----|-----------|---------|
| Test mode: | TM1 | Polarity: | Neutral |
|------------|-----|-----------|---------|



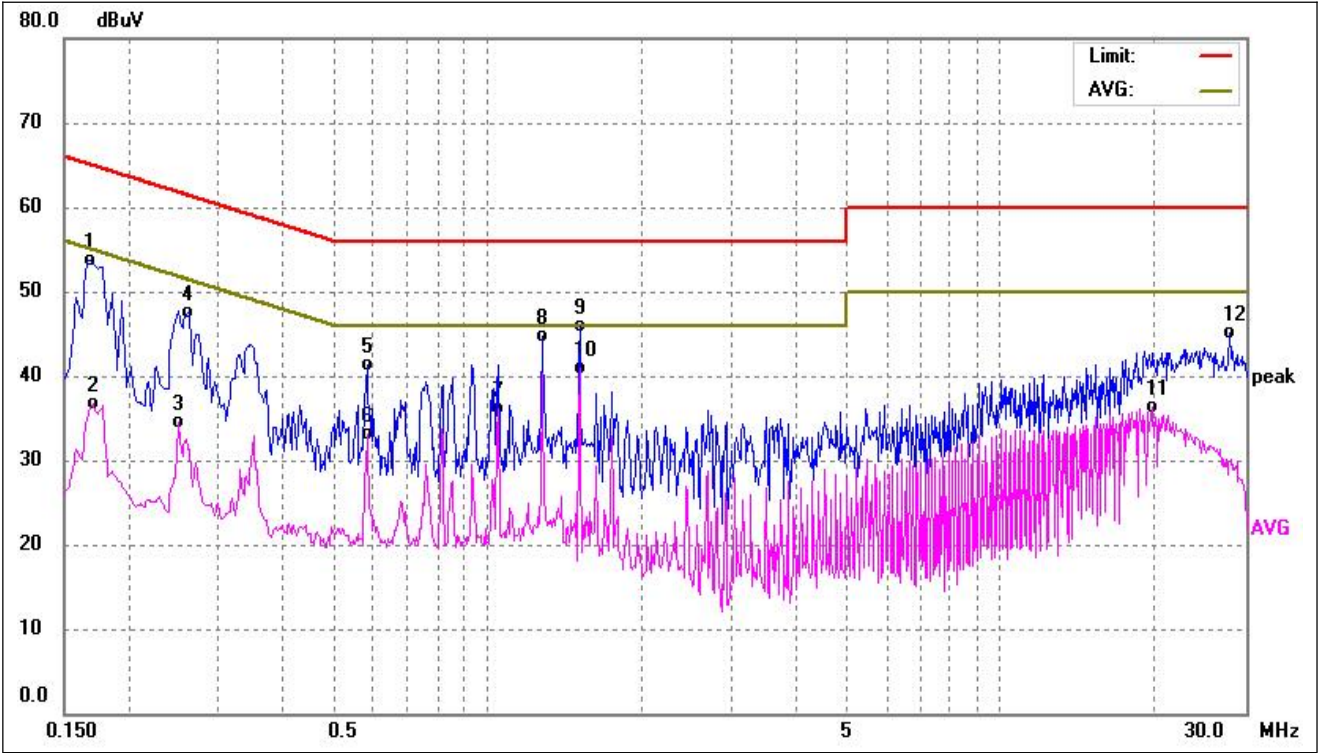
| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>(dB) | Result<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-----------------|------------------|-----------------|----------------|--------|
| 1   | 0.2060             | 42.19             | 9.57            | 51.76            | 63.36           | -11.60         | QP     |
| 2   | 0.2060             | 25.37             | 9.57            | 34.94            | 53.36           | -18.42         | AVG    |
| 3   | 0.3020             | 22.09             | 9.64            | 31.73            | 50.19           | -18.46         | AVG    |
| 4   | 0.3133             | 35.66             | 9.65            | 45.31            | 59.88           | -14.57         | QP     |
| 5   | 0.6300             | 32.00             | 9.70            | 41.70            | 56.00           | -14.30         | QP     |
| 6   | 0.8780             | 24.11             | 9.68            | 33.79            | 46.00           | -12.21         | AVG    |
| 7   | 1.3820             | 35.38             | 9.65            | 45.03            | 56.00           | -10.97         | QP     |
| 8   | 1.3820             | 29.64             | 9.65            | 39.29            | 46.00           | -6.71          | AVG    |
| 9   | 1.6339             | 35.74             | 9.64            | 45.38            | 56.00           | -10.62         | QP     |
| 10  | 1.6339             | 32.26             | 9.64            | 41.90            | 46.00           | -4.10          | AVG    |
| 11  | 20.6060            | 25.15             | 10.23           | 35.38            | 50.00           | -14.62         | AVG    |
| 12  | 24.3380            | 34.79             | 10.14           | 44.93            | 60.00           | -15.07         | QP     |

|            |     |           |      |
|------------|-----|-----------|------|
| Test mode: | TM2 | Polarity: | Line |
|------------|-----|-----------|------|



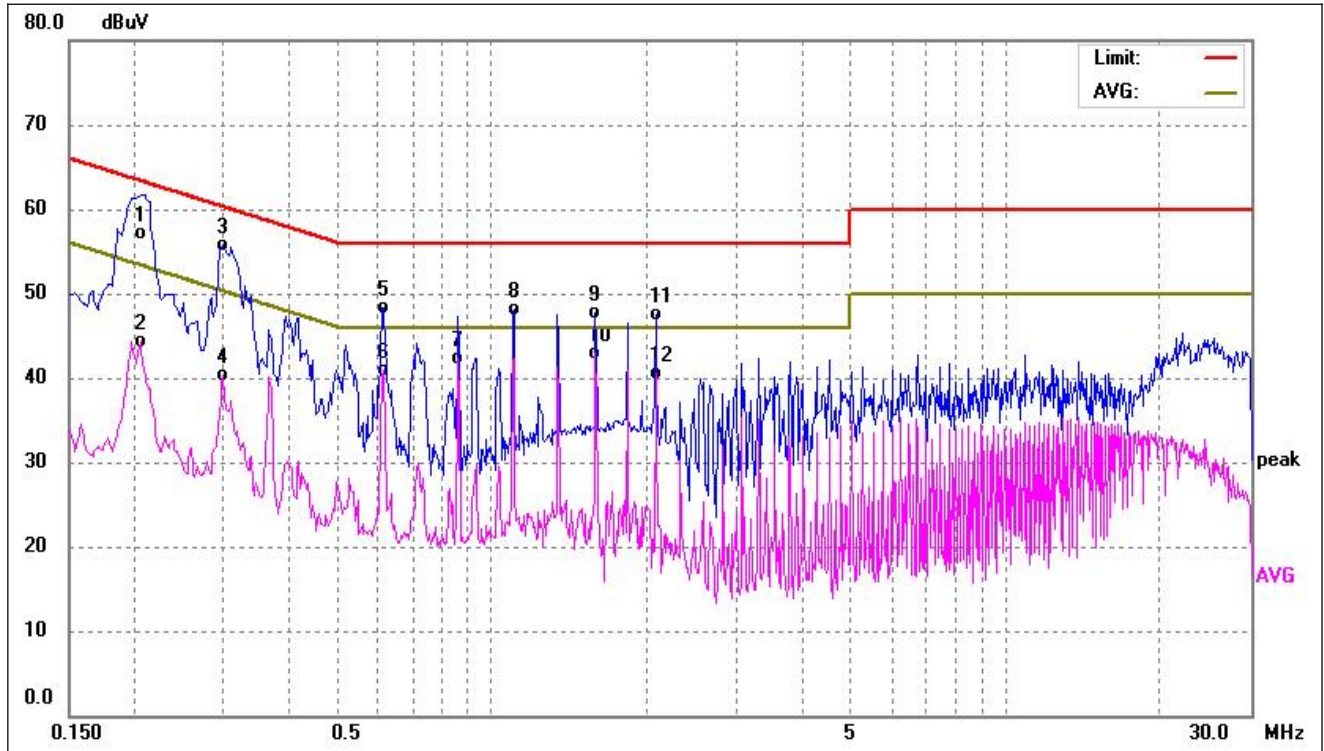
| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>(dB) | Result<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-----------------|------------------|-----------------|----------------|--------|
| 1   | 0.1620             | 44.59             | 9.71            | 54.30            | 65.36           | -11.06         | QP     |
| 2   | 0.1700             | 28.99             | 9.68            | 38.67            | 54.96           | -16.29         | AVG    |
| 3   | 0.2500             | 24.61             | 9.60            | 34.21            | 51.75           | -17.54         | AVG    |
| 4   | 0.2540             | 38.43             | 9.61            | 48.04            | 61.62           | -13.58         | QP     |
| 5   | 0.3500             | 24.97             | 9.66            | 34.63            | 48.96           | -14.33         | AVG    |
| 6   | 0.5780             | 34.52             | 9.72            | 44.24            | 56.00           | -11.76         | QP     |
| 7   | 0.8100             | 28.67             | 9.69            | 38.36            | 46.00           | -7.64          | AVG    |
| 8   | 1.0420             | 35.69             | 9.67            | 45.36            | 56.00           | -10.64         | QP     |
| 9   | 1.2740             | 39.09             | 9.66            | 48.75            | 56.00           | -7.25          | QP     |
| 10  | 1.2740             | 32.49             | 9.66            | 42.15            | 46.00           | -3.85          | AVG    |
| 11  | 1.5060             | 37.49             | 9.64            | 47.13            | 56.00           | -8.87          | QP     |
| 12  | 1.5060             | 32.53             | 9.64            | 42.17            | 46.00           | -3.83          | AVG    |

|            |     |           |         |
|------------|-----|-----------|---------|
| Test mode: | TM2 | Polarity: | Neutral |
|------------|-----|-----------|---------|



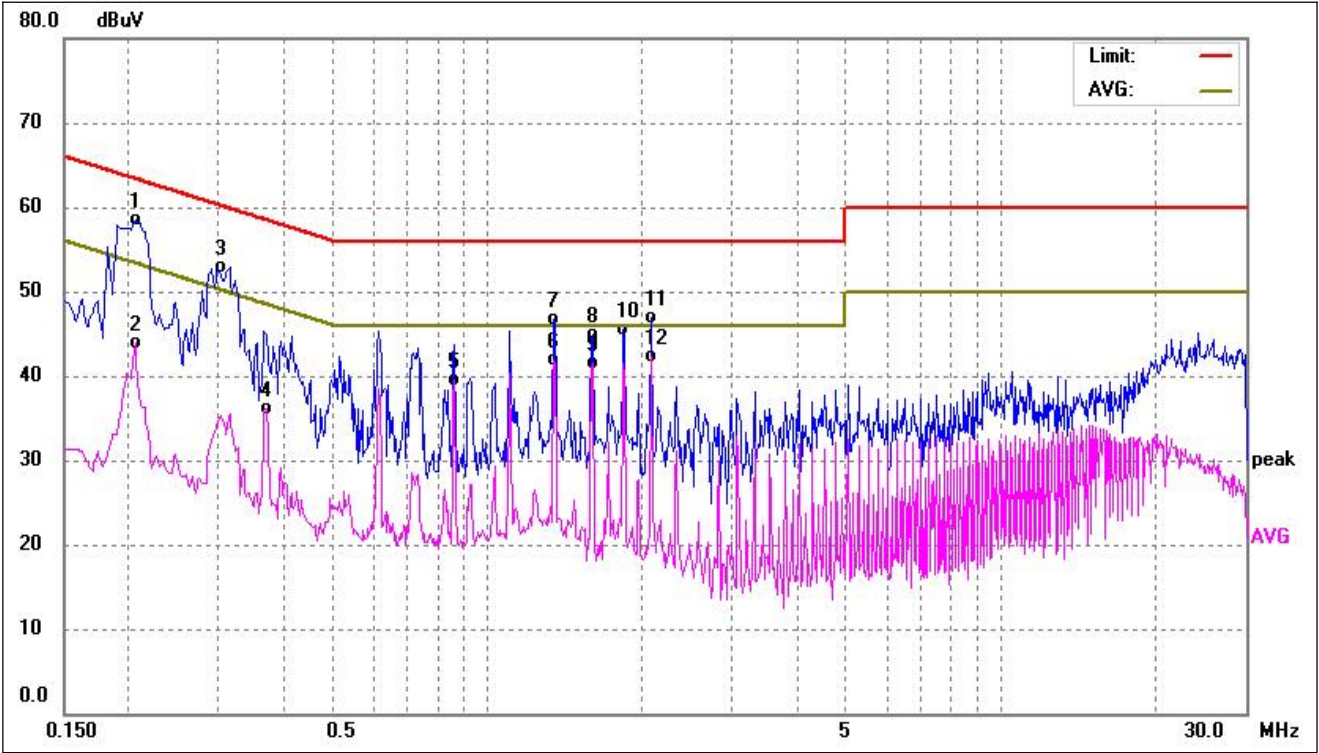
| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>(dB) | Result<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-----------------|------------------|-----------------|----------------|--------|
| 1   | 0.1660             | 44.07             | 9.70            | 53.77            | 65.15           | -11.38         | QP     |
| 2   | 0.1700             | 26.96             | 9.68            | 36.64            | 54.96           | -18.32         | AVG    |
| 3   | 0.2500             | 24.83             | 9.60            | 34.43            | 51.75           | -17.32         | AVG    |
| 4   | 0.2620             | 37.90             | 9.61            | 47.51            | 61.36           | -13.85         | QP     |
| 5   | 0.5820             | 31.58             | 9.72            | 41.30            | 56.00           | -14.70         | QP     |
| 6   | 0.5820             | 23.35             | 9.72            | 33.07            | 46.00           | -12.93         | AVG    |
| 7   | 1.0500             | 26.51             | 9.67            | 36.18            | 46.00           | -9.82          | AVG    |
| 8   | 1.2820             | 35.14             | 9.66            | 44.80            | 56.00           | -11.20         | QP     |
| 9   | 1.5140             | 36.27             | 9.64            | 45.91            | 56.00           | -10.09         | QP     |
| 10  | 1.5140             | 31.31             | 9.64            | 40.95            | 46.00           | -5.05          | AVG    |
| 11  | 19.8100            | 25.99             | 10.23           | 36.22            | 50.00           | -13.78         | AVG    |
| 12  | 27.9660            | 35.11             | 10.07           | 45.18            | 60.00           | -14.82         | QP     |

|            |     |           |      |
|------------|-----|-----------|------|
| Test mode: | TM3 | Polarity: | Line |
|------------|-----|-----------|------|



| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>(dB) | Result<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-----------------|------------------|-----------------|----------------|--------|
| 1   | 0.2060             | 47.44             | 9.57            | 57.01            | 63.36           | -6.35          | QP     |
| 2   | 0.2060             | 34.75             | 9.57            | 44.32            | 53.36           | -9.04          | AVG    |
| 3   | 0.2980             | 45.99             | 9.64            | 55.63            | 60.30           | -4.67          | QP     |
| 4   | 0.2980             | 30.72             | 9.64            | 40.36            | 50.30           | -9.94          | AVG    |
| 5   | 0.6139             | 38.55             | 9.71            | 48.26            | 56.00           | -7.74          | QP     |
| 6   | 0.6139             | 31.20             | 9.71            | 40.91            | 46.00           | -5.09          | AVG    |
| 7   | 0.8579             | 32.61             | 9.68            | 42.29            | 46.00           | -3.71          | AVG    |
| 8   | 1.1019             | 38.39             | 9.66            | 48.05            | 56.00           | -7.95          | QP     |
| 9   | 1.5900             | 38.02             | 9.64            | 47.66            | 56.00           | -8.34          | QP     |
| 10  | 1.5900             | 33.31             | 9.64            | 42.95            | 46.00           | -3.05          | AVG    |
| 11  | 2.0859             | 37.90             | 9.62            | 47.52            | 56.00           | -8.48          | QP     |
| 12  | 2.0859             | 30.91             | 9.62            | 40.53            | 46.00           | -5.47          | AVG    |

|            |     |           |         |
|------------|-----|-----------|---------|
| Test mode: | TM3 | Polarity: | Neutral |
|------------|-----|-----------|---------|



| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>(dB) | Result<br>(dBuV) | Limit<br>(dBuV) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-----------------|------------------|-----------------|----------------|--------|
| 1   | 0.2060             | 48.85             | 9.57            | 58.42            | 63.36           | -4.94          | QP     |
| 2   | 0.2060             | 34.29             | 9.57            | 43.86            | 53.36           | -9.50          | AVG    |
| 3   | 0.2980             | 43.28             | 9.64            | 52.92            | 60.30           | -7.38          | QP     |
| 4   | 0.3700             | 26.41             | 9.68            | 36.09            | 48.50           | -12.41         | AVG    |
| 5   | 0.8620             | 29.86             | 9.68            | 39.54            | 46.00           | -6.46          | AVG    |
| 6   | 1.3500             | 32.22             | 9.65            | 41.87            | 46.00           | -4.13          | AVG    |
| 7   | 1.3540             | 37.08             | 9.65            | 46.73            | 56.00           | -9.27          | QP     |
| 8   | 1.6019             | 35.26             | 9.64            | 44.90            | 56.00           | -11.10         | QP     |
| 9   | 1.6019             | 31.80             | 9.64            | 41.44            | 46.00           | -4.56          | AVG    |
| 10  | 1.8420             | 35.84             | 9.63            | 45.47            | 56.00           | -10.53         | QP     |
| 11  | 2.0939             | 37.22             | 9.62            | 46.84            | 56.00           | -9.16          | QP     |
| 12  | 2.0939             | 32.78             | 9.62            | 42.40            | 46.00           | -3.60          | AVG    |

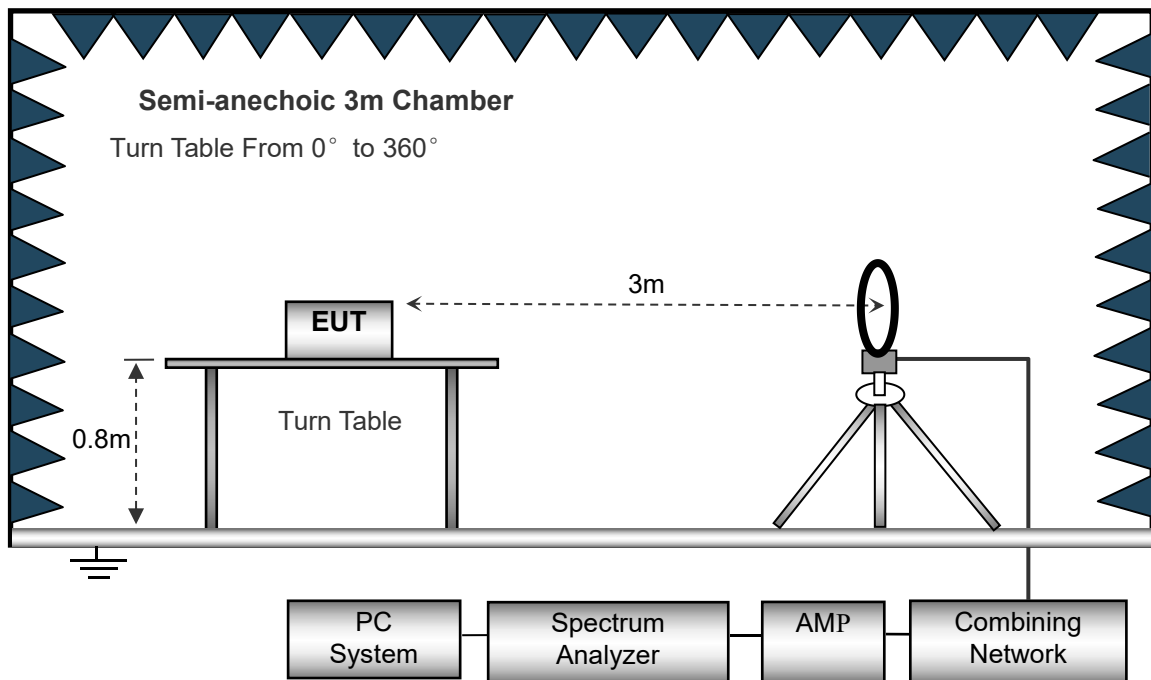
## 4. Radiated Emissions

### 4.1 Test Procedure

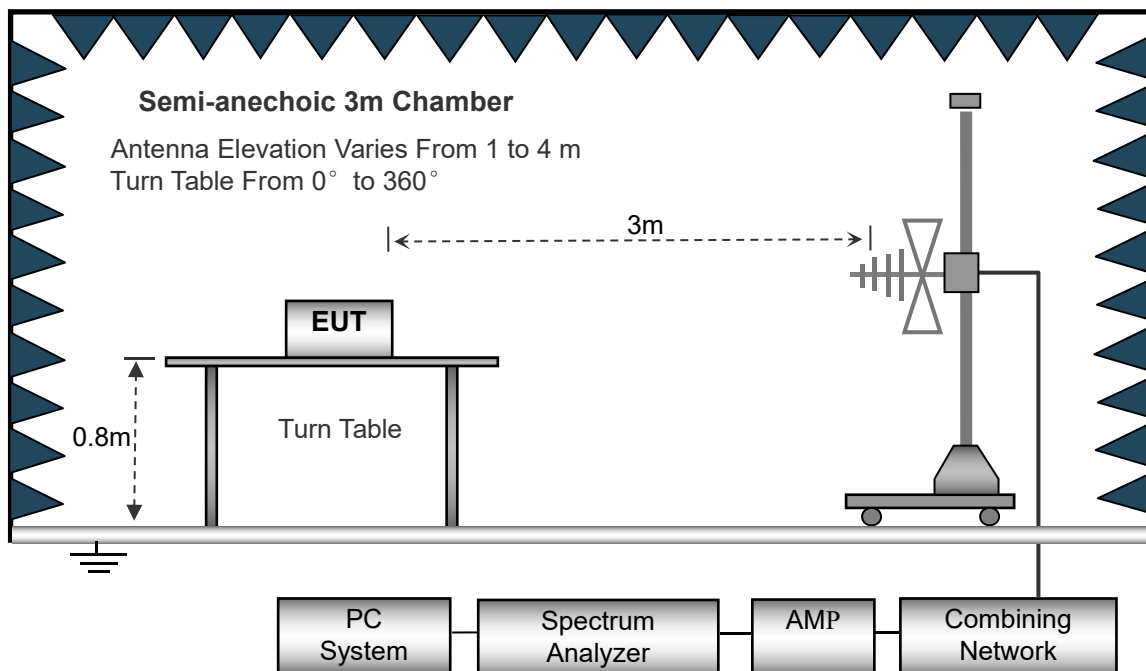
The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 18.305 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle. The spacing between the peripherals was 10 cm.

The test setup for emission measurement below 30MHz..



The test setup for emission measurement from 30 MHz to 1 GHz..



## 4.2 Test Receiver Setup

Frequency :9kHz-30MHz

RBW=10kHz

VBW =30kHz

Sweep time= Auto

Trace = max hold

Detector function = peak

Frequency :30MHz-1GHz

RBW=120kHz,

VBW=300kHz

Sweep time= Auto

Trace = max hold

Detector function = peak, QP

## 4.3 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} - \text{Corr. Factor}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dB $\mu$ V means the emission is 6dB $\mu$ V below the maximum limit for Any non-ISM frequency device. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 18.305 Limit}$$

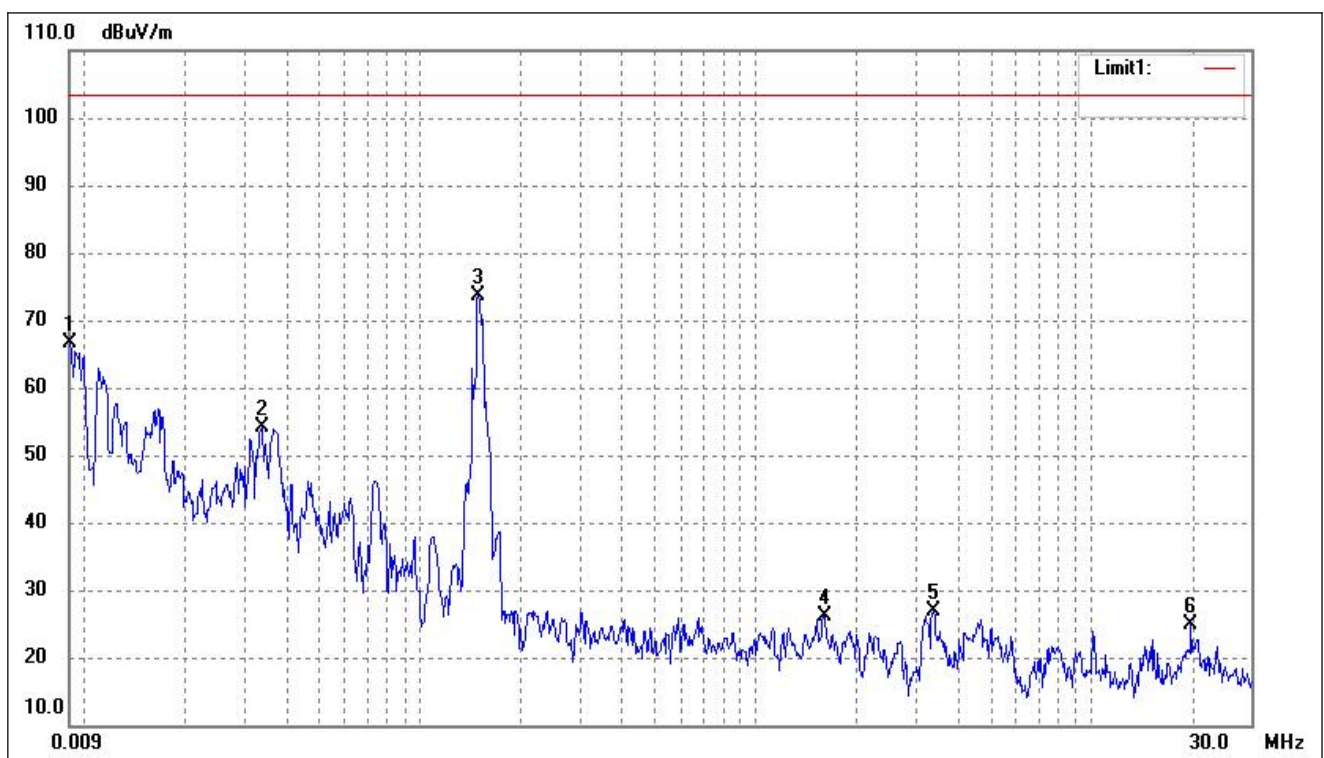
#### 4.4 Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 22.5 °C   |
| Relative Humidity: | 54 %      |
| ATM Pressure:      | 1011 mbar |

#### 4.5 Summary of Test Results/Plots

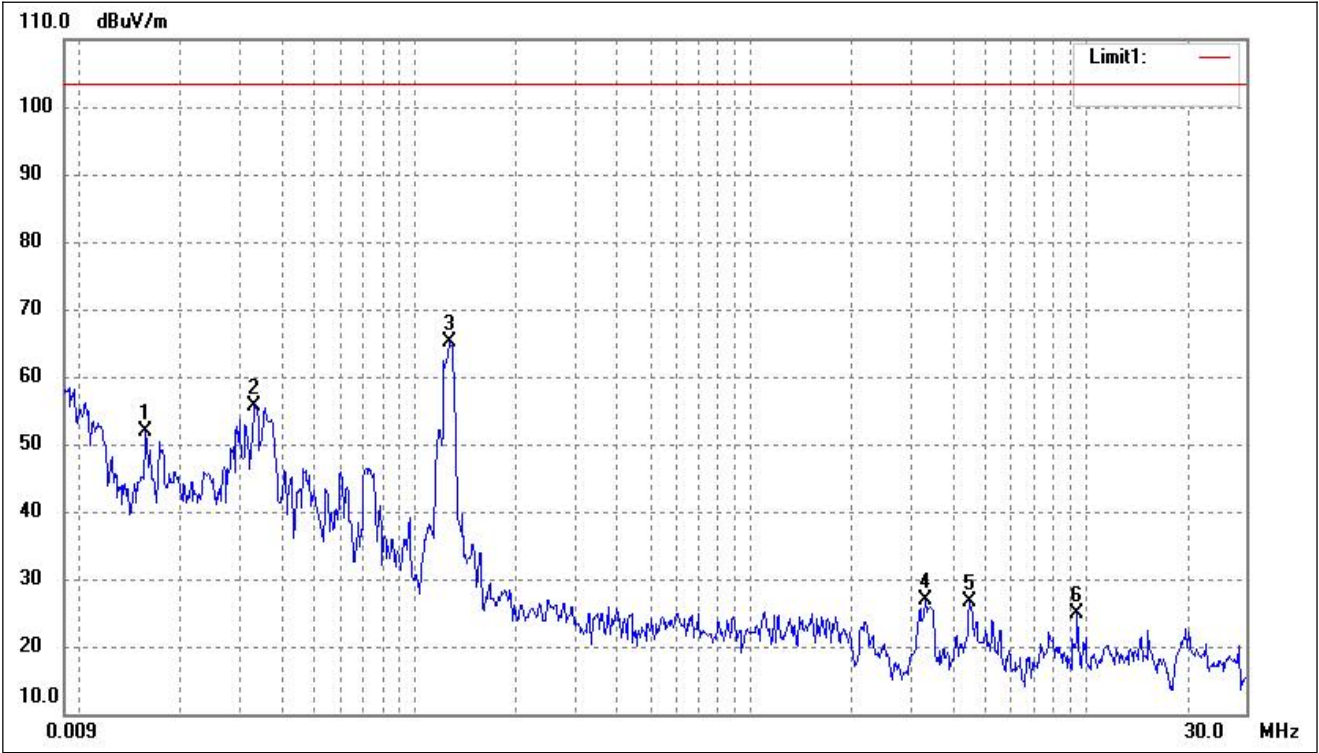
Plot of Radiated Emissions Test Data (Below 30MHz)

|            |     |           |          |
|------------|-----|-----------|----------|
| Test mode: | TM1 | Polarity: | Vertical |
|------------|-----|-----------|----------|



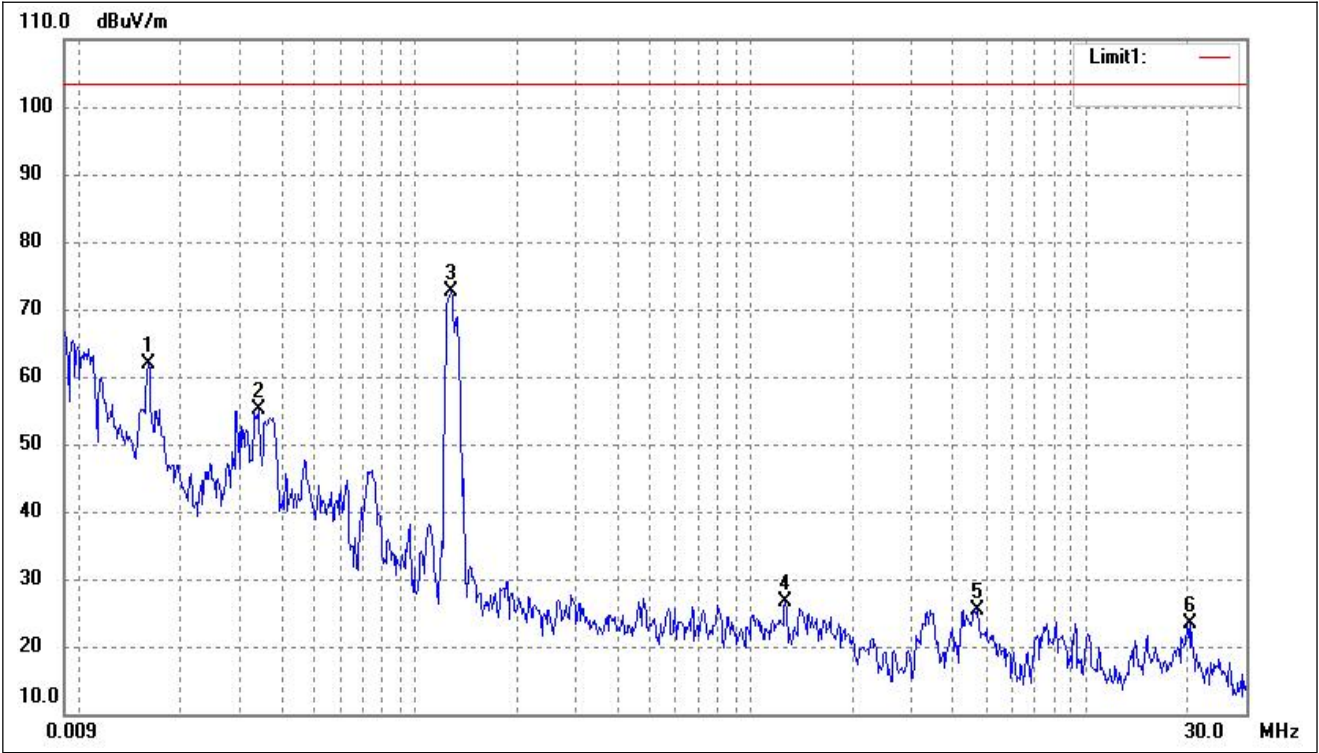
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>dB/m | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Degree<br>( ) | Height<br>(cm) | Remark |
|-----|--------------------|---------------------|-----------------|--------------------|-------------------|----------------|---------------|----------------|--------|
| 1   | 0.0091             | 72.84               | -6.22           | 66.62              | 103.50            | -36.88         | -             | -              | peak   |
| 2   | 0.0338             | 60.89               | -6.88           | 54.01              | 103.50            | -49.49         | -             | -              | peak   |
| 3   | 0.1490             | 81.60               | -8.00           | 73.60              | 103.50            | -29.90         | -             | -              | peak   |
| 4   | 1.6046             | 33.96               | -7.89           | 26.07              | 103.50            | -77.43         | -             | -              | peak   |
| 5   | 3.3843             | 34.41               | -7.65           | 26.76              | 103.50            | -76.74         | -             | -              | peak   |
| 6   | 19.8360            | 32.49               | -7.73           | 24.76              | 103.50            | -78.74         | -             | -              | peak   |

|            |     |           |          |
|------------|-----|-----------|----------|
| Test mode: | TM2 | Polarity: | Vertical |
|------------|-----|-----------|----------|



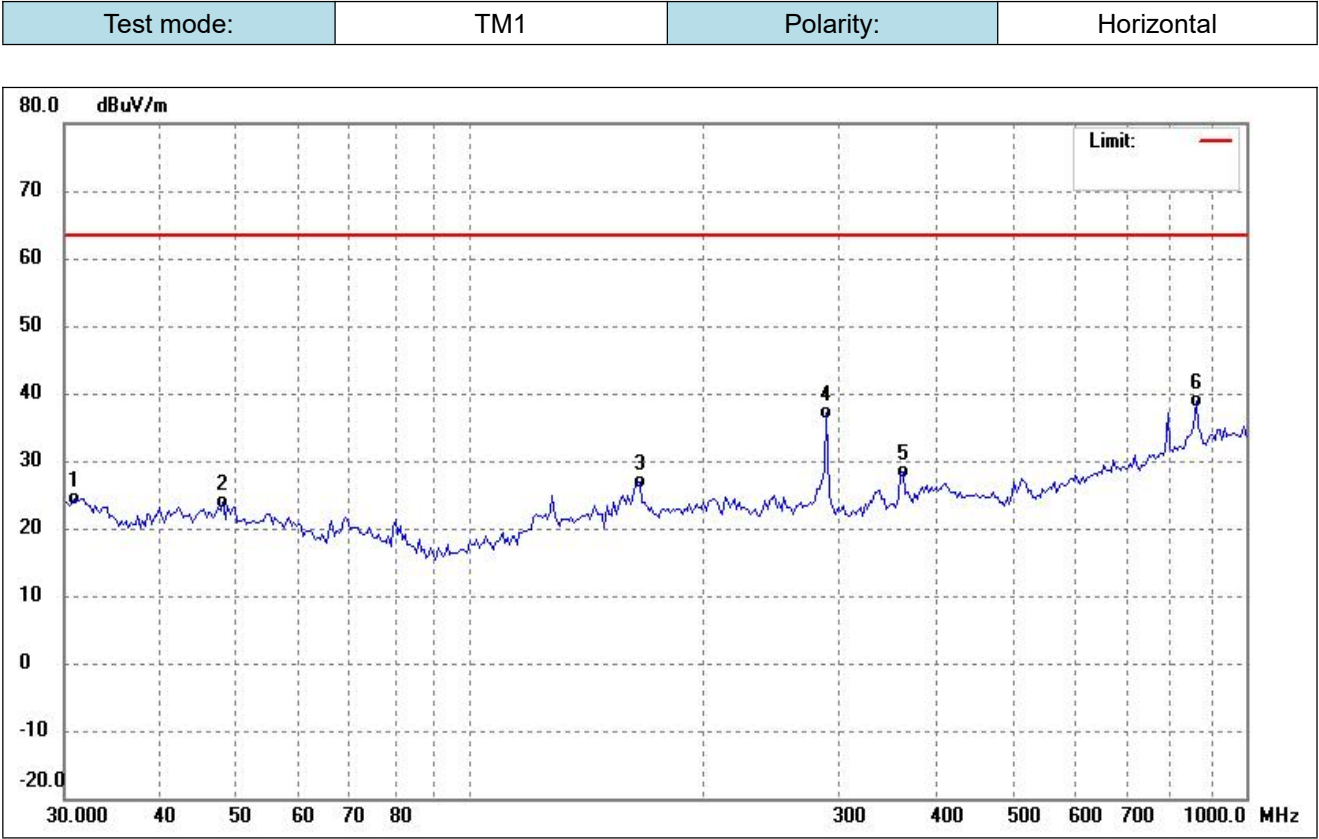
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>dB/m | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Degree<br>( ) | Height<br>(cm) | Remark |
|-----|--------------------|---------------------|-----------------|--------------------|-------------------|----------------|---------------|----------------|--------|
| 1   | 0.0158             | 58.37               | -6.52           | 51.85              | 103.50            | -51.65         | -             | -              | peak   |
| 2   | 0.0332             | 62.57               | -6.86           | 55.71              | 103.50            | -47.79         | -             | -              | peak   |
| 3   | 0.1267             | 72.97               | -7.95           | 65.02              | 103.50            | -38.48         | -             | -              | peak   |
| 4   | 3.3029             | 34.66               | -7.67           | 26.99              | 103.50            | -76.51         | -             | -              | peak   |
| 5   | 4.4954             | 34.28               | -7.60           | 26.68              | 103.50            | -76.82         | -             | -              | peak   |
| 6   | 9.4048             | 32.70               | -7.87           | 24.83              | 103.50            | -78.67         | -             | -              | peak   |

|            |     |           |          |
|------------|-----|-----------|----------|
| Test mode: | TM3 | Polarity: | Vertical |
|------------|-----|-----------|----------|



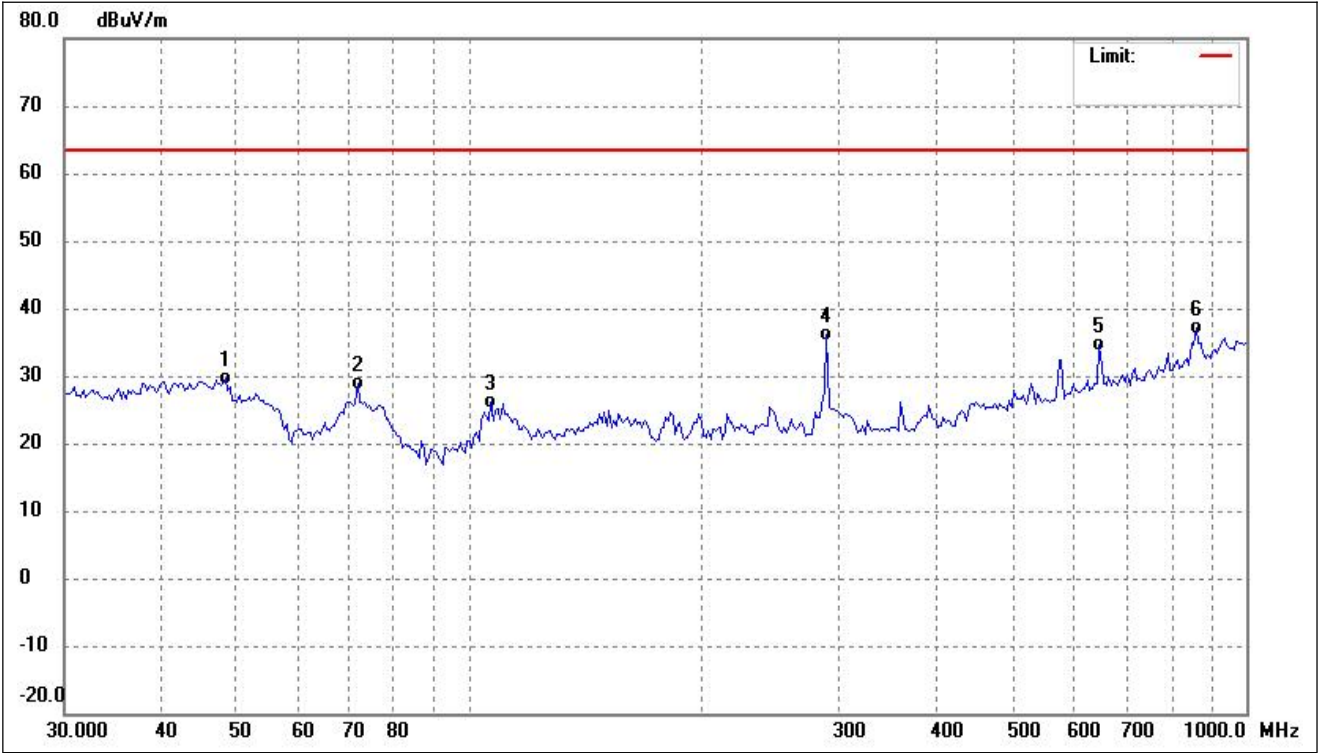
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>dB/m | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Degree<br>( ) | Height<br>(cm) | Remark |
|-----|--------------------|---------------------|-----------------|--------------------|-------------------|----------------|---------------|----------------|--------|
| 1   | 0.0160             | 68.36               | -6.52           | 61.84              | 103.50            | -41.66         | -             | -              | peak   |
| 2   | 0.0340             | 61.93               | -6.88           | 55.05              | 103.50            | -48.45         | -             | -              | peak   |
| 3   | 0.1277             | 80.68               | -7.95           | 72.73              | 103.50            | -30.77         | -             | -              | peak   |
| 4   | 1.2682             | 34.64               | -7.92           | 26.72              | 103.50            | -76.78         | -             | -              | peak   |
| 5   | 4.7580             | 33.03               | -7.62           | 25.41              | 103.50            | -78.09         | -             | -              | peak   |
| 6   | 20.4902            | 30.91               | -7.64           | 23.27              | 103.50            | -80.23         | -             | -              | peak   |

Plot of Radiated Emissions Test Data ( Above 30MHz)



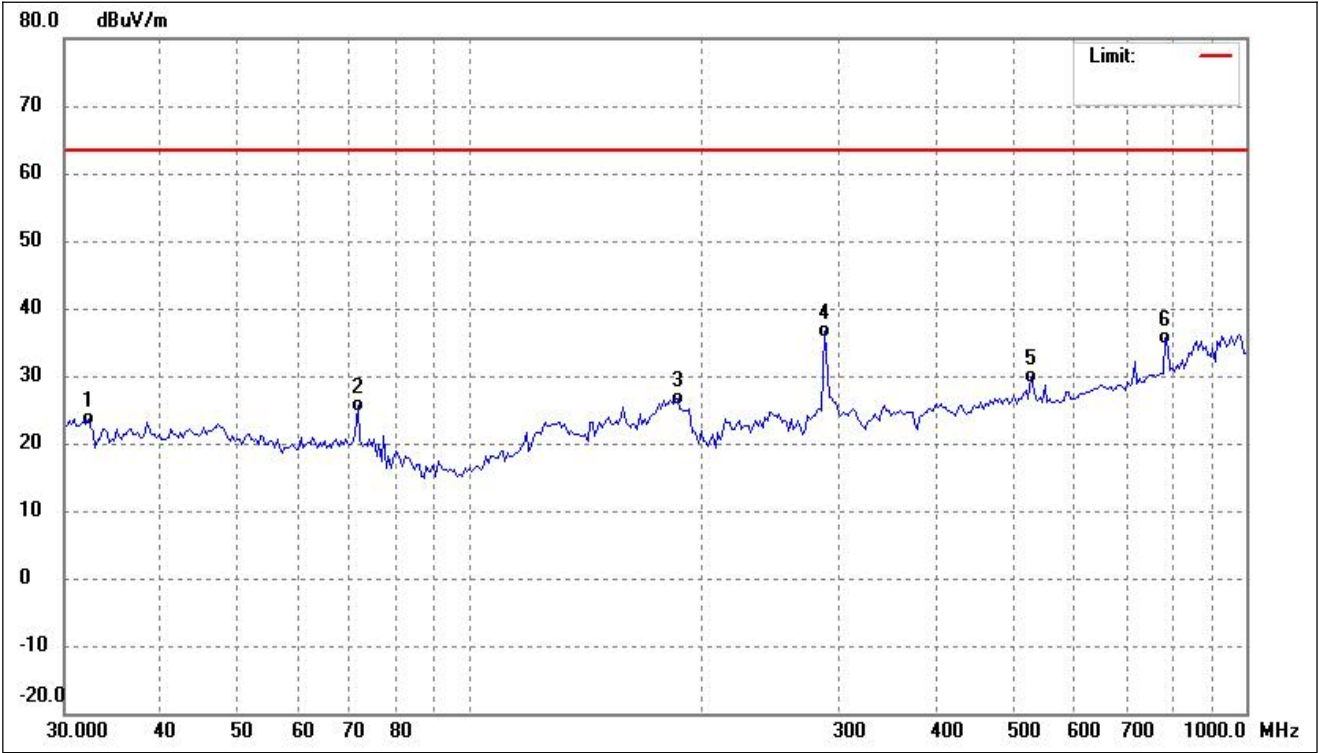
| No. | Frequency | Reading  | Correct | Result   | Limit    | Margin | Degree | Height | Remark |
|-----|-----------|----------|---------|----------|----------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV/m) | dB/m    | (dBuV/m) | (dBuV/m) | (dB)   | ( )    | (cm)   |        |
| 1   | 30.8551   | 33.96    | -9.53   | 24.43    | 63.50    | -39.07 | -      | -      | QP     |
| 2   | 48.0392   | 31.56    | -7.73   | 23.83    | 63.50    | -39.67 | -      | -      | QP     |
| 3   | 165.4713  | 34.98    | -8.19   | 26.79    | 63.50    | -36.71 | -      | -      | QP     |
| 4   | 288.2839  | 45.32    | -8.23   | 37.09    | 63.50    | -26.41 | -      | -      | QP     |
| 5   | 360.9773  | 35.18    | -6.86   | 28.32    | 63.50    | -35.18 | -      | -      | QP     |
| 6   | 862.8015  | 37.08    | 1.68    | 38.76    | 63.50    | -24.74 | -      | -      | QP     |

|            |     |           |          |
|------------|-----|-----------|----------|
| Test mode: | TM1 | Polarity: | Vertical |
|------------|-----|-----------|----------|



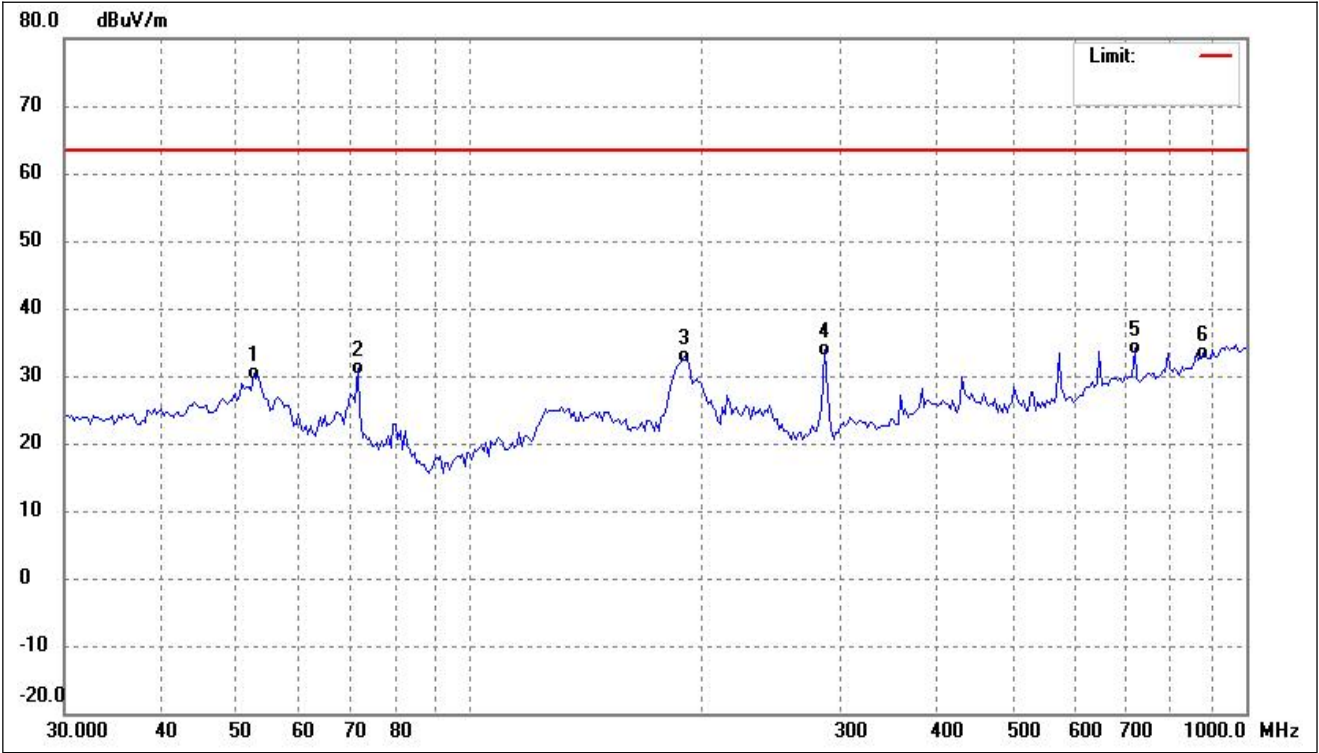
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>dB/m | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Degree<br>( ) | Height<br>(cm) | Remark |
|-----|--------------------|---------------------|-----------------|--------------------|-------------------|----------------|---------------|----------------|--------|
| 1   | 48.3778            | 37.32               | -7.71           | 29.61              | 63.50             | -33.89         | -             | -              | QP     |
| 2   | 71.7052            | 39.41               | -10.62          | 28.79              | 63.50             | -34.71         | -             | -              | QP     |
| 3   | 106.2810           | 37.50               | -11.41          | 26.09              | 63.50             | -37.41         | -             | -              | QP     |
| 4   | 288.2839           | 44.28               | -8.23           | 36.05              | 63.50             | -27.45         | -             | -              | QP     |
| 5   | 646.8215           | 36.32               | -1.59           | 34.73              | 63.50             | -28.77         | -             | -              | QP     |
| 6   | 862.8015           | 35.42               | 1.68            | 37.10              | 63.50             | -26.40         | -             | -              | QP     |

|            |     |           |            |
|------------|-----|-----------|------------|
| Test mode: | TM2 | Polarity: | Horizontal |
|------------|-----|-----------|------------|



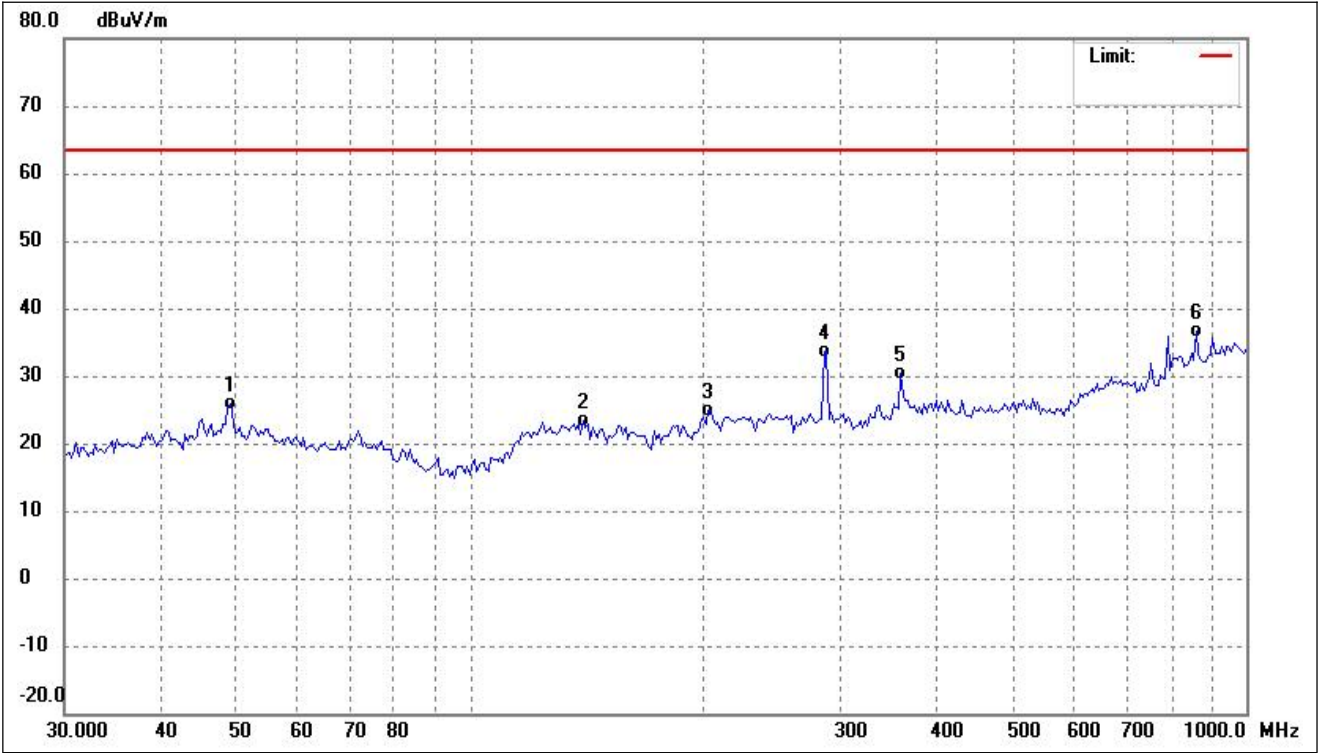
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>dB/m | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Degree<br>( ) | Height<br>(cm) | Remark |
|-----|--------------------|---------------------|-----------------|--------------------|-------------------|----------------|---------------|----------------|--------|
| 1   | 32.1839            | 32.96               | -9.37           | 23.59              | 63.50             | -39.91         | -             | -              | QP     |
| 2   | 71.7052            | 36.15               | -10.62          | 25.53              | 63.50             | -37.97         | -             | -              | QP     |
| 3   | 185.1622           | 36.93               | -10.30          | 26.63              | 63.50             | -36.87         | -             | -              | QP     |
| 4   | 286.2651           | 45.02               | -8.30           | 36.72              | 63.50             | -26.78         | -             | -              | QP     |
| 5   | 527.5706           | 34.19               | -4.23           | 29.96              | 63.50             | -33.54         | -             | -              | QP     |
| 6   | 787.4746           | 34.86               | 0.80            | 35.66              | 63.50             | -27.84         | -             | -              | QP     |

|            |     |           |          |
|------------|-----|-----------|----------|
| Test mode: | TM2 | Polarity: | Vertical |
|------------|-----|-----------|----------|



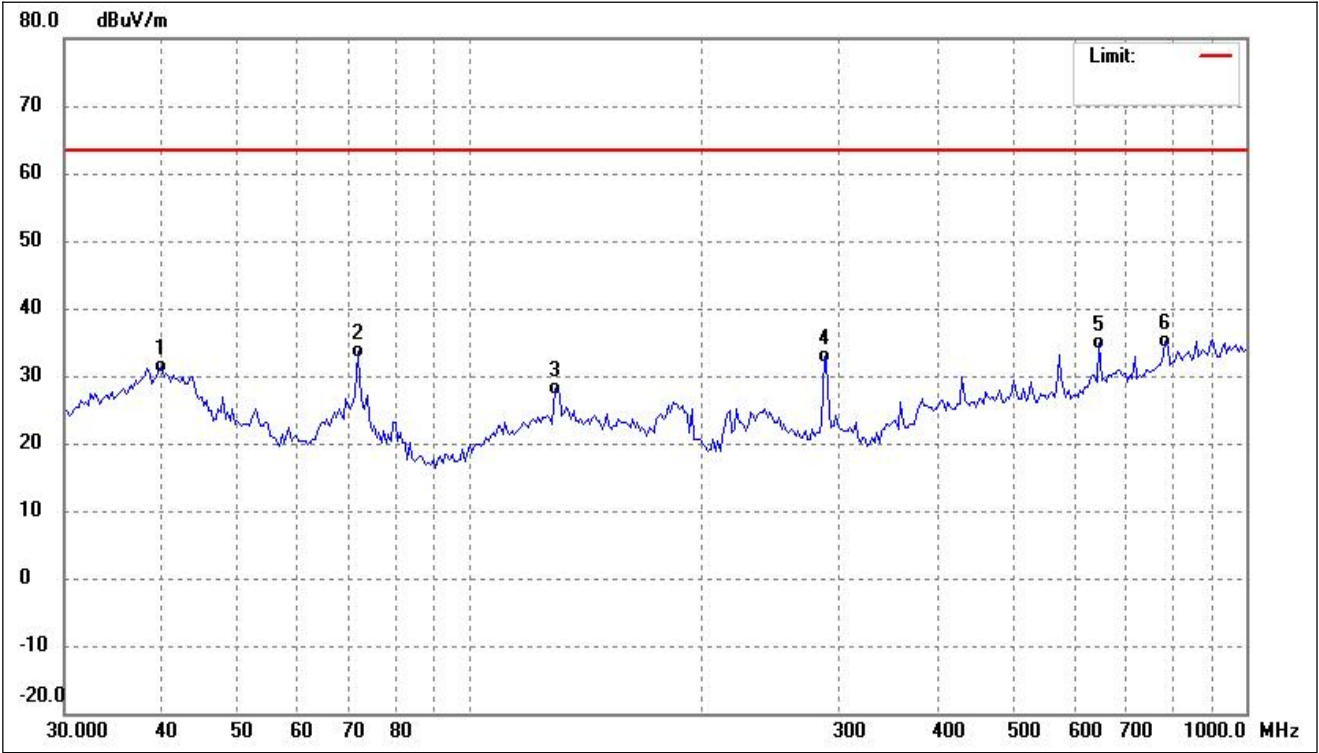
| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>dB/m | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Degree<br>( ) | Height<br>(cm) | Remark |
|-----|--------------------|---------------------|-----------------|--------------------|-------------------|----------------|---------------|----------------|--------|
| 1   | 52.6343            | 38.17               | -7.87           | 30.30              | 63.50             | -33.20         | -             | -              | QP     |
| 2   | 71.7052            | 41.65               | -10.62          | 31.03              | 63.50             | -32.47         | -             | -              | QP     |
| 3   | 189.1074           | 43.72               | -10.73          | 32.99              | 63.50             | -30.51         | -             | -              | QP     |
| 4   | 286.2651           | 42.18               | -8.30           | 33.88              | 63.50             | -29.62         | -             | -              | QP     |
| 5   | 718.7246           | 34.72               | -0.62           | 34.10              | 63.50             | -29.40         | -             | -              | QP     |
| 6   | 881.1837           | 31.57               | 1.88            | 33.45              | 63.50             | -30.05         | -             | -              | QP     |

|            |     |           |            |
|------------|-----|-----------|------------|
| Test mode: | TM3 | Polarity: | Horizontal |
|------------|-----|-----------|------------|



| No. | Frequency<br>(MHz) | Reading<br>(dBuV/m) | Correct<br>dB/m | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Degree<br>( ) | Height<br>(cm) | Remark |
|-----|--------------------|---------------------|-----------------|--------------------|-------------------|----------------|---------------|----------------|--------|
| 1   | 49.0626            | 33.60               | -7.66           | 25.94              | 63.50             | -37.56         | -             | -              | QP     |
| 2   | 139.7906           | 32.28               | -8.90           | 23.38              | 63.50             | -40.12         | -             | -              | QP     |
| 3   | 202.8745           | 36.35               | -11.44          | 24.91              | 63.50             | -38.59         | -             | -              | QP     |
| 4   | 286.2651           | 41.92               | -8.30           | 33.62              | 63.50             | -29.88         | -             | -              | QP     |
| 5   | 358.4497           | 37.19               | -6.90           | 30.29              | 63.50             | -33.21         | -             | -              | QP     |
| 6   | 862.8015           | 34.90               | 1.68            | 36.58              | 63.50             | -26.92         | -             | -              | QP     |

|            |     |           |          |
|------------|-----|-----------|----------|
| Test mode: | TM3 | Polarity: | Vertical |
|------------|-----|-----------|----------|



| No. | Frequency (MHz) | Reading (dBuV/m) | Correct (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Degree ( ) | Height (cm) | Remark |
|-----|-----------------|------------------|----------------|-----------------|----------------|-------------|------------|-------------|--------|
| 1   | 40.0172         | 39.39            | -7.95          | 31.44           | 63.50          | -32.06      | -          | -           | QP     |
| 2   | 71.7052         | 44.15            | -10.62         | 33.53           | 63.50          | -29.97      | -          | -           | QP     |
| 3   | 128.4858        | 37.66            | -9.43          | 28.23           | 63.50          | -35.27      | -          | -           | QP     |
| 4   | 286.2651        | 41.25            | -8.30          | 32.95           | 63.50          | -30.55      | -          | -           | QP     |
| 5   | 646.8215        | 36.48            | -1.59          | 34.89           | 63.50          | -28.61      | -          | -           | QP     |
| 6   | 787.4746        | 34.34            | 0.80           | 35.14           | 63.50          | -28.36      | -          | -           | QP     |

Remark: '-' Means' the test Degree and Height are not recorded by the test software and only show the worst case in the test report.

## APPENDIX PHOTOGRAPHS

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Please refer to “ANNEX”

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