**SGS-CSTC Standards Technical Services Co., Ltd.**
**Shenzhen Branch**

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# *TEST REPORT*

| | |
|---|---|
| **Application No.**: | SZEM1708008380CR |
| **Applicant:** | Proxy 42, Inc. |
| **Address of Applicant:** | c/o Orrick Herrington & Sutcliffe, LLP 405 Howard Street, San Francisco, CA, United States 94105 |
| **Manufacturer:** | IDT Electronics (ShenZhen) Co., Ltd. |
| **Address of Manufacturer:** | 2F, Block 33, Chentian, Industrial Estate, Xixiang Town, BaoAn County, Shenzhen, Guangdong, P.R. China |
| **Factory:** | IDT Electronics (ShenZhen) Co., Ltd. |
| **Address of Factory:** | 2F, Block 33, Chentian, Industrial Estate, Xixiang Town, BaoAn County, Shenzhen, Guangdong, P.R. China |
| **Equipment Under Test (EUT):** | |
| **EUT Name:** | Inceptor |
| **Model No.:** | BS1535U |
| **Trade mark:** | FatherIO |
| **FCC ID:** | 2ANCP-BS1535U |
| **Standard(s) :** | 47 CFR Part 15, Subpart C 15.249 |
| **Date of Receipt:** | 2017-08-09 |
| **Date of Test:** | 2017-08-29 to 2017-09-12 |
| **Date of Issue:** | 2017-09-22 |
| **Test Result:** | Pass* |

* In the configuration tested, the EUT complied with the standards specified above.

.

Jack Zhang
EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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| Revision Record | | | | |
|---|---|---|---|---|
| **Version** | **Chapter** | **Date** | **Modifier** | **Remark** |
| 01 | | 2017-09-22 | | Original |
| | | | | |
| | | | | |

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|---|---|---|---|---|
| **Authorized for issue by:** | | | | |
| | | | | |
| | | **Leo Li /Project Engineer** | | |
| | | | | |
| | | **Eric Fu /Reviewer** | | |

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# 2 Test Summary

| Radio Spectrum Technical Requirement | | | | |
|---|---|---|---|---|
| **Item** | **Standard** | **Method** | **Requirement** | **Result** |
| Antenna Requirement | 47 CFR Part 15, Subpart C 15.249 | N/A | 47 CFR Part 15, Subpart C 15.203 | Pass |

| Radio Spectrum Matter Part | | | | |
|---|---|---|---|---|
| **Item** | **Standard** | **Method** | **Requirement** | **Result** |
| Conducted Emissions at AC Power Line (150kHz-30MHz) | 47 CFR Part 15, Subpart C 15.249 | ANSI C63.10 (2013) Section 6.2 | 47 CFR Part 15, Subpart C 15.207 | Pass |
| 20dB Bandwidth | 47 CFR Part 15, Subpart C 15.249 | ANSI C63.10 (2013) Section 6.9 | 47 CFR Part 15, Subpart C 15.215 | Pass |
| Field Strength of the Fundamental Signal (15.249(a)) | 47 CFR Part 15, Subpart C 15.249 | ANSI C63.10 (2013) Section 6.5&6.6 | 47 CFR Part 15, Subpart C 15.249(a) | Pass |
| Radiated Emissions | 47 CFR Part 15, Subpart C 15.249 | ANSI C63.10 (2013) Section 6.4&6.5&6.6 | 47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d) | Pass |

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# 4 General Information

## 4.1 Details of E.U.T.

| | |
|---|---|
| Power supply: | DC 5V from USB adapter input AC 120V/50Hz |
| Test voltage | AC 120V/60Hz |
| Nominal Operating Frequency | 915MHz |
| Modulation Type: | FSK |
| Number of Channels: | 1 |
| Antenna Type: | Chip Antenna |
| Antenna Gain: | -1.8dBi |

## 4.2 Description of Support Units

| Description | Manufacturer | Model No. | Serial No. |
|---|---|---|---|
| Micro USB Cable | PHILIPS | SWR2101 | REF. No.SEA0700 |
| AC/DC Adapter | SGS | DC 5V | REF. No.SEA0500 |

## 4.3 Measurement Uncertainty

| No. | Item | Measurement Uncertainty |
|---|---|---|
| 1 | Radio Frequency | $7.25 \times 10^{-8}$ |
| 2 | Duty cycle | 0.37% |
| 3 | Occupied Bandwidth | 3% |
| 4 | RF conducted power | 0.75dB |
| 5 | RF power density | 2.84dB |
| 6 | Conducted Spurious emissions | 0.75dB |
| 7 | RF Radiated power | 4.5dB (below 1GHz) |
| | | 4.8dB (above 1GHz) |
| 8 | Radiated Spurious emission test | 4.5dB (30MHz-1GHz) |
| | | 4.8dB (1GHz-18GHz) |
| 9 | Temperature test | 1℃ |
| 10 | Humidity test | 3% |
| 11 | Supply voltages | 1.5% |
| 12 | Time | 3% |

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## 4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

## 4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC

Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• **VCCI**

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

• **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

• **Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

## 4.6 Deviation from Standards

None

## 4.7 Abnormalities from Standard Conditions

None

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# 5 Equipment List

| Conducted Emissions at AC Power Line (150kHz-30MHz) | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No** | **Inventory No** | **Cal Date** | **Cal Due Date** |
| Shielding Room | ZhongYu Electron | GB-88 | SEM001-06 | 2017-05-10 | 2018-05-10 |
| Measurement Software | AUDIX | e3 V5.4.1221d | N/A | N/A | N/A |
| LISN | Rohde & Schwarz | ENV216 | SEM007-01 | 2016-10-09 | 2017-10-09 |
| LISN | ETS-LINDGREN | 3816/2 | SEM007-02 | 2017-04-14 | 2018-04-13 |
| 8-Wire ISN CAT 6 | SCHWARZBECK MESS-ELEKTRONIK | NTFM 8158 | EMC2123 | 2017-06-23 | 2018-06-22 |
| CAT5 8158 ISN 8Wire | SCHWARZBECK MESS-ELEKTRONIK | CAT5 8158 | EMC2124 | 2017-06-23 | 2018-06-22 |
| 8-Wire ISN CAT 3 | SCHWARZBECK MESS-ELEKTRONIK | CAT3 8158 | EMC2126 | 2017-06-23 | 2018-06-22 |
| Coaxial Cable | SGS | N/A | SEM024-01 | 2017-07-13 | 2018-07-12 |

| 20dB Bandwidth | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No** | **Inventory No** | **Cal Date** | **Cal Due Date** |
| DC Power Supply | ZhaoXin | RXN-305D | SEM011-02 | 2016-10-09 | 2017-10-09 |
| Spectrum Analyzer | Rohde & Schwarz | FSU43 | SEM004-08 | 2017-04-14 | 2018-04-13 |
| Measurement Software | JS Tonscend | JS1120-2 BT/WIFI V2. | N/A | N/A | N/A |
| Signal Generator | Rohde & Schwarz | SML03 | SEM006-02 | 2017-04-14 | 2018-04-13 |
| Power Meter | Rohde & Schwarz | NRVS | SEM014-02 | 2016-10-09 | 2017-10-09 |
| Coaxial Cable | SGS | N/A | SEM031-01 | 2017-07-13 | 2018-07-12 |

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| Field Strength of the Fundamental Signal (15.249(a)) | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No** | **Inventory No** | **Cal Date** | **Cal Due Date** |
| 3m Semi-Anechoic Chamber | AUDIX | N/A | SEM001-02 | 2017-05-02 | 2020-05-01 |
| Measurement Software | AUDIX | e3 V8.2014-6-27 | N/A | N/A | N/A |
| Spectrum Analyzer | Rohde & Schwarz | FSU43 | SEM004-08 | 2017-04-14 | 2018-04-13 |
| BiConiLog Antenna (26-3000MHz) | ETS-Lindgren | 3142C | SEM003-02 | 2017-03-05 | 2020-03-05 |
| Horn Antenna (1-18GHz) | Rohde & Schwarz | HF907 | SEM003-07 | 2015-06-14 | 2018-06-14 |
| Horn Antenna (15GHz-40GHz) | Schwarzbeck | BBHA 9170 | SEM003-14 | 2017-06-16 | 2020-06-15 |
| Pre-amplifier (0.1-1300MHz) | HP | 8447D | SEM005-02 | 2016-10-09 | 2017-10-09 |
| Low Noise Amplifier (100MHz-18GHz) | Black Diamond Series | BDLNA-0118-352810 | SEM005-05 | 2016-10-09 | 2017-10-09 |
| Pre-amplifier (0.1-26.5GHz) | Compliance Directions Systems Inc. | PAP-0126 | SEM004-10 | 2016-10-17 | 2017-10-17 |
| Pre-amplifier (26GHz-40GHz) | Compliance Directions Systems Inc. | PAP-2640-50 | SEM005-08 | 2017-04-14 | 2018-04-13 |
| DC Power Supply | Zhao Xin | RXN-305D | SEM011-02 | 2016-10-09 | 2017-10-09 |
| Active Loop Antenna | ETS-Lindgren | 6502 | SEM003-08 | 2017-08-22 | 2020-08-21 |
| Band filter | N/A | N/A | SEM023-01 | N/A | N/A |
| Coaxial Cable | SGS | N/A | SEM025-01 | 2017-07-13 | 2018-07-12 |

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| Restricted Band Around Fundamental Frequency | | | | | |
|---|---|---|---|---|---|
| **Equipment** | **Manufacturer** | **Model No** | **Inventory No** | **Cal Date** | **Cal Due Date** |
| 3m Semi-Anechoic Chamber | AUDIX | N/A | SEM001-02 | 2017-05-02 | 2020-05-01 |
| Measurement Software | AUDIX | e3 V8.2014-6-27 | N/A | N/A | N/A |
| Spectrum Analyzer | Rohde & Schwarz | FSU43 | SEM004-08 | 2017-04-14 | 2018-04-13 |
| BiConiLog Antenna (26-3000MHz) | ETS-Lindgren | 3142C | SEM003-02 | 2017-03-05 | 2020-03-05 |
| Horn Antenna (1-18GHz) | Rohde & Schwarz | HF907 | SEM003-07 | 2015-06-14 | 2018-06-14 |
| Horn Antenna (15GHz-40GHz) | Schwarzbeck | BBHA 9170 | SEM003-14 | 2017-06-16 | 2020-06-15 |
| Pre-amplifier (0.1-1300MHz) | HP | 8447D | SEM005-02 | 2016-10-09 | 2017-10-09 |
| Low Noise Amplifier (100MHz-18GHz) | Black Diamond Series | BDLNA-0118-352810 | SEM005-05 | 2016-10-09 | 2017-10-09 |
| Pre-amplifier (0.1-26.5GHz) | Compliance Directions Systems Inc. | PAP-0126 | SEM004-10 | 2016-10-17 | 2017-10-17 |
| Pre-amplifier (26GHz-40GHz) | Compliance Directions Systems Inc. | PAP-2640-50 | SEM005-08 | 2017-04-14 | 2018-04-13 |
| DC Power Supply | Zhao Xin | RXN-305D | SEM011-02 | 2016-10-09 | 2017-10-09 |
| Active Loop Antenna | ETS-Lindgren | 6502 | SEM003-08 | 2017-08-22 | 2020-08-21 |
| Band filter | N/A | N/A | SEM023-01 | N/A | N/A |
| Coaxial Cable | SGS | N/A | SEM025-01 | 2017-07-13 | 2018-07-12 |
| **General used equipment** | | | | | |
| **Equipment** | **Manufacturer** | **Model No** | **Inventory No** | **Cal Date** | **Cal Due Date** |
| Humidity/ Temperature Indicator | Shanghai Meteorological Industry Factory | ZJ1-2B | SEM002-03 | 2016-10-12 | 2017-10-12 |
| Humidity/ Temperature Indicator | Shanghai Meteorological Industry Factory | ZJ1-2B | SEM002-04 | 2016-10-12 | 2017-10-12 |
| Humidity/ Temperature Indicator | Mingle | N/A | SEM002-08 | 2016-10-12 | 2017-10-12 |
| Barometer | Changchun Meteorological Industry Factory | DYM3 | SEM002-01 | 2017-04-18 | 2018-04-18 |

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| RE in Chamber | | | | | |
|---|---|---|---|---|---|
| **Test Equipment** | **Manufacturer** | **Model No.** | **Inventory No.** | **Cal. Date (yyyy-mm-dd)** | **Cal. Due date (yyyy-mm-dd)** |
| 3m Semi-Anechoic Chamber | AUDIX | N/A | SEM001-02 | 2017-05-10 | 2018-05-10 |
| EXA Signal Analyzer (10Hz-26.5GHz) | Agilent Technologies Inc | N9010A | SEM004-09 | 2017-06-05 | 2018-06-04 |
| BiConiLog Antenna (26-3000MHz) | ETS-Lindgren | 3142C | SEM003-01 | 2014-11-01 | 2017-11-01 |
| Horn Antenna (1-18GHz) | Rohde & Schwarz | HF907 | SEM003-07 | 2015-06-14 | 2018-06-13 |
| Amplifier (0.1-1300MHz) | HP | 8447D | SEM005-02 | 2016-10-09 | 2017-10-09 |
| Low Noise Amplifier (100MHz-18GHz) | Black Diamond Series | BDLNA-0118-352810 | SEM005-05 | 2016-10-09 | 2017-10-09 |
| Band filter | N/A | N/A | N/A | N/A | N/A |
| Measurement Software | AUDIX | e3 V8.2014-6-27 | N/A | N/A | N/A |
| Coaxial Cable | SGS | N/A | SEM024-01 | 2017-07-13 | 2018-07-12 |

| RE in Chamber | | | | | |
|---|---|---|---|---|---|
| **Test Equipment** | **Manufacturer** | **Model No.** | **Inventory No.** | **Cal. Date (yyyy-mm-dd)** | **Cal. Due date (yyyy-mm-dd)** |
| 3m Semi-Anechoic Chamber | ETS-LINDGREN | N/A | SEM001-01 | 2017-08-05 | 2020-08-04 |
| MXE EMI Receiver (20Hz-8.4GHz) | Agilent Technologies | N9038A | SEM004-05 | 2016-10-09 | 2017-10-09 |
| BiConiLog Antenna (26-3000MHz) | ETS-LINDGREN | 3142C | SEM003-02 | 2017-03-05 | 2020-03-05 |
| Pre-amplifier (0.1-1300MHz) | Agilent Technologies | 8447D | SEM005-01 | 2017-04-14 | 2018-04-13 |
| Measurement Software | AUDIX | e3 V8.2014-6-27 | N/A | N/A | N/A |
| Coaxial Cable | SGS | N/A | SEM025-01 | 2017-07-13 | 2018-07-12 |

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# 6 Radio Spectrum Technical Requirement

## 6.1 Antenna Requirement

### 6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

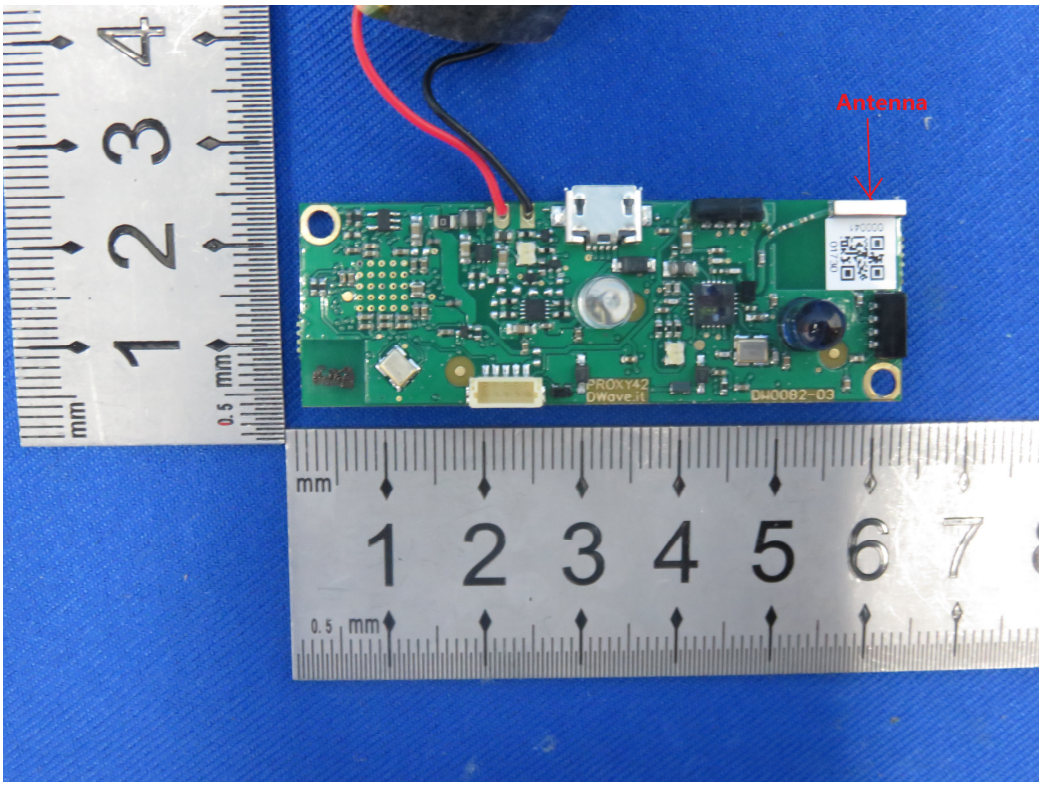
### 6.1.2 Conclusion

Standard Requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently

attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:




The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is -1.8dBi.

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# 7 Radio Spectrum Matter Test Results

## 7.1 Conducted Emissions at AC Power Line (150kHz-30MHz)

Test Requirement 47 CFR Part 15, Subpart C 15.207

Test Method: ANSI C63.10 (2013) Section 6.2

Limit:

| Frequency range (MHz) | Limit (dBuV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15-0.5 | 66 to 56* | 56 to 46* |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

* Decreases with the logarithm of the frequency.

### 7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 45 % RH Atmospheric Pressure: 1005 mbar

Test mode c:TX mode+Charging_Keep the EUT in transmitting with modulation mode and charging.

### 7.1.2 Measurement Procedure and Data

1) The mains terminal disturbance voltage test was conducted in a shielded room.

2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50μH + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.

3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,

4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.

5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Remark: LISN=Read Level+ Cable Loss+ LISN Factor

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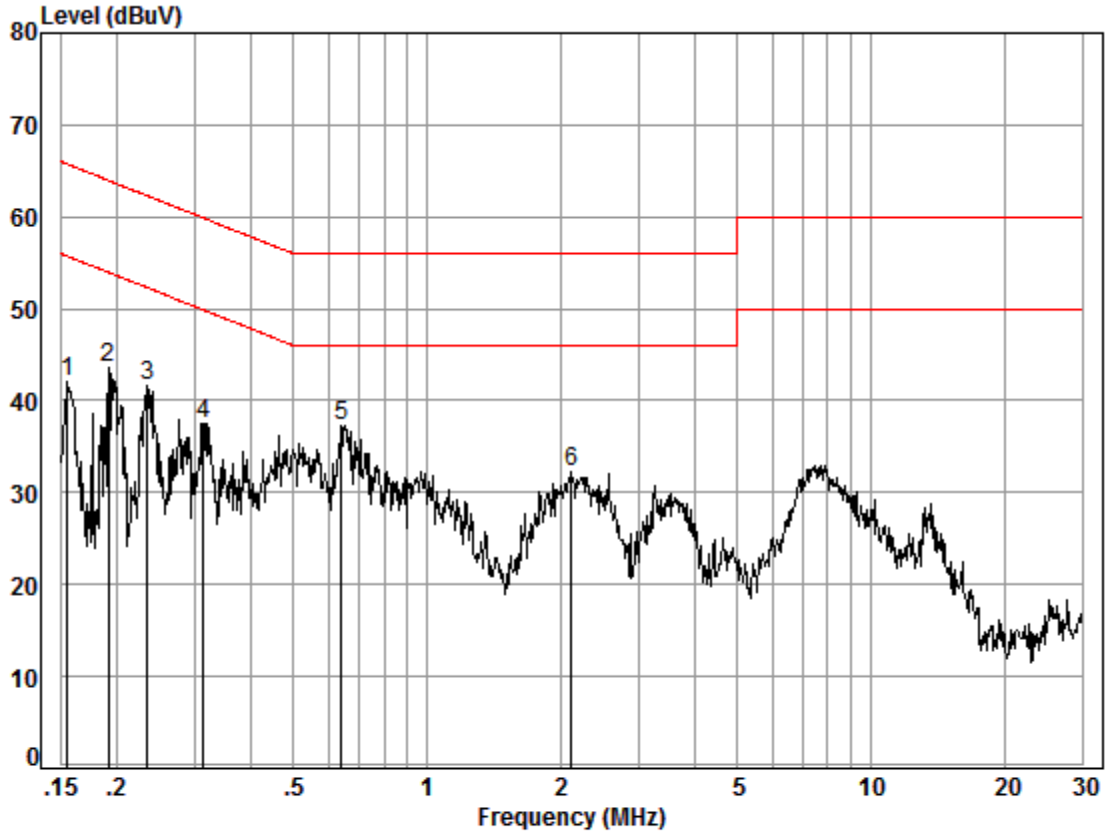
Mode:c; Line:Live Line




Site : Shielding Room
Condition: Line
Job No. : 08380CR
Test mode: c

| | Freq | Cable Loss | LISN Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|
| | MHz | dB | dB | dBuV | dBuV | dBuV | dB | |
| 1 | 0.15 | 0.02 | 9.64 | 32.31 | 41.97 | 55.74 | -13.77 | Peak |
| 2 | 0.19 | 0.02 | 9.63 | 33.97 | 43.62 | 53.98 | -10.36 | Peak |
| 3 | 0.23 | 0.01 | 9.63 | 31.90 | 41.54 | 52.30 | -10.76 | Peak |
| 4 | 0.31 | 0.01 | 9.63 | 27.85 | 37.49 | 49.88 | -12.39 | Peak |
| 5 | 0.64 | 0.02 | 9.63 | 27.70 | 37.35 | 46.00 | -8.65 | Peak |
| 6 | 2.12 | 0.02 | 9.66 | 22.54 | 32.22 | 46.00 | -13.78 | Peak |

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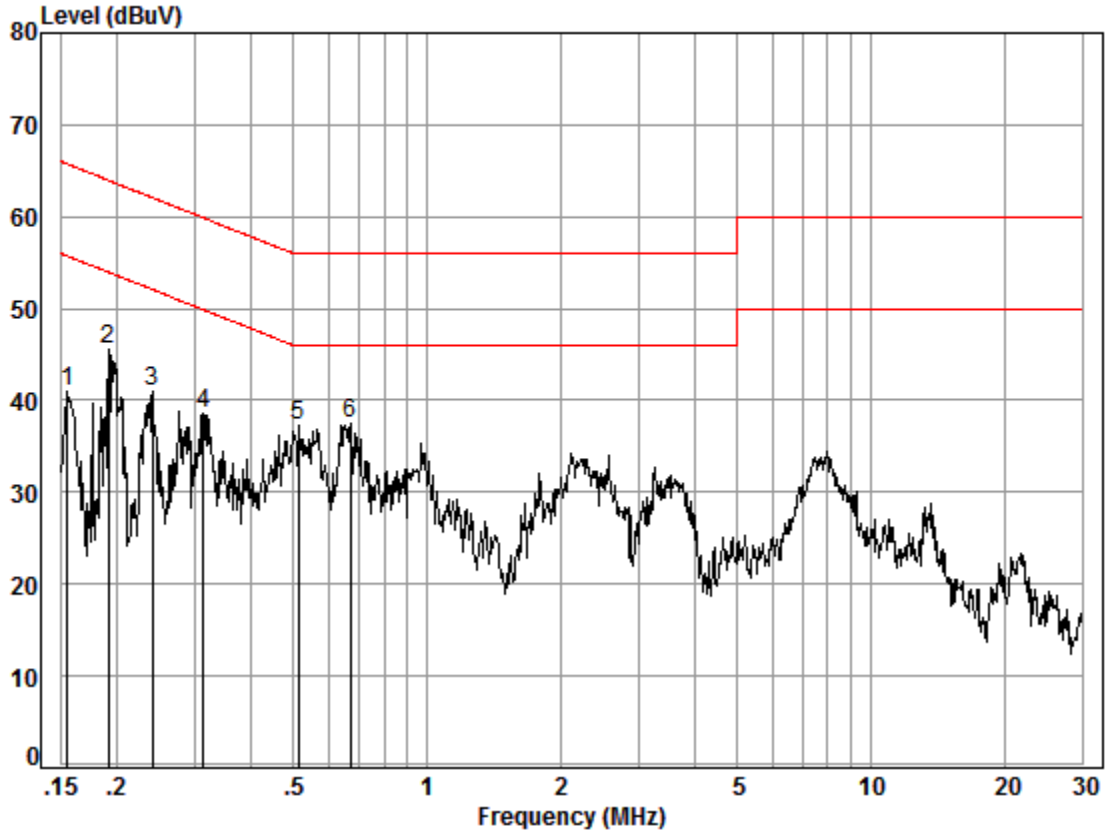
Mode:c; Line:Neutral Line




Site : Shielding Room
Condition: Neutral
Job No. : 08380CR
Test mode: c

| | Freq | Cable Loss | LISN Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|
| | MHz | dB | dB | dBuV | dBuV | dBuV | dB | |
| 1 | 0.15 | 0.02 | 9.64 | 31.31 | 40.97 | 55.74 | -14.77 | Peak |
| 2 | 0.19 | 0.02 | 9.63 | 35.97 | 45.62 | 53.98 | -8.36 | Peak |
| 3 | 0.24 | 0.01 | 9.63 | 31.42 | 41.06 | 52.08 | -11.02 | Peak |
| 4 | 0.31 | 0.01 | 9.63 | 28.85 | 38.49 | 49.88 | -11.39 | Peak |
| 5 | 0.51 | 0.01 | 9.63 | 27.71 | 37.35 | 46.00 | -8.65 | Peak |
| 6 | 0.67 | 0.02 | 9.64 | 27.89 | 37.55 | 46.00 | -8.45 | Peak |

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## 7.2 20dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.215
Test Method: ANSI C63.10 (2013) Section 6.9
Limit: N/A

### 7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 54 % RH Atmospheric Pressure: 1010 mbar

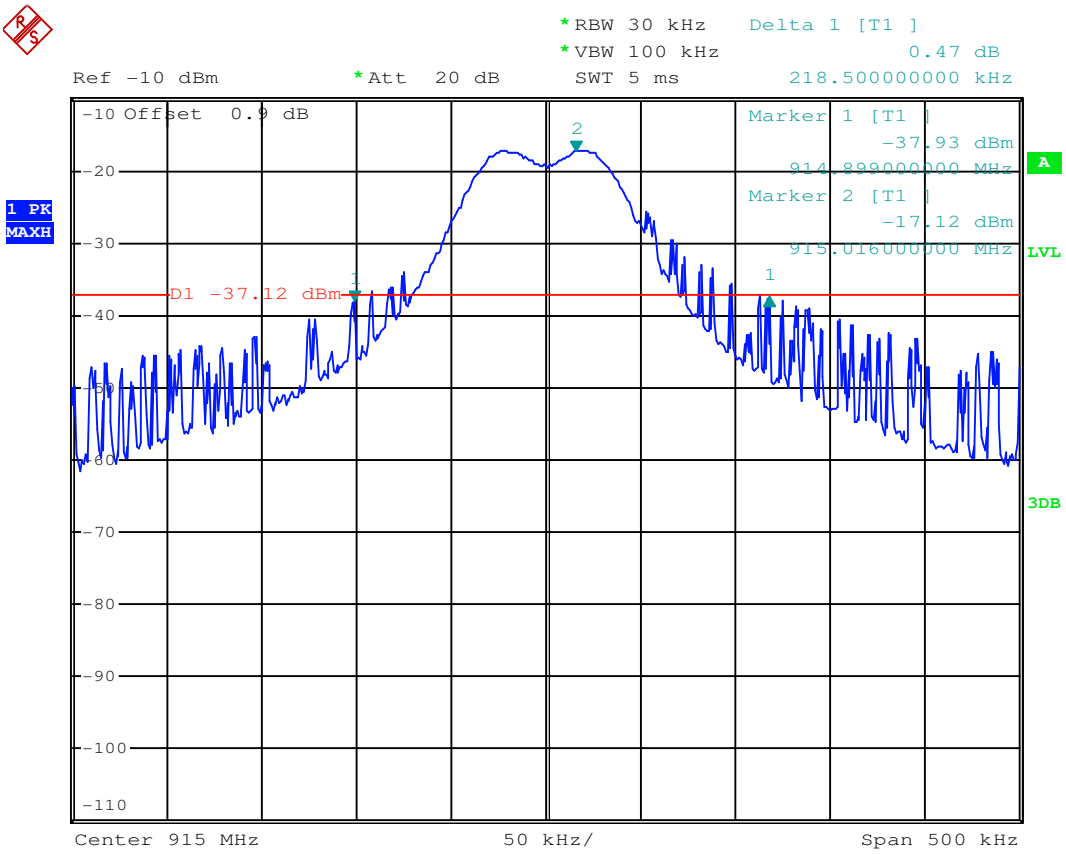
Pretest these mode to find the worst case: c:TX mode+Charging_Keep the EUT in transmitting with modulation mode and charging.
d:TX mode_Keep the EUT in transmitting with modulation mode.

The worst case for final test: c:TX mode+Charging_Keep the EUT in transmitting with modulation mode and charging.

### 7.2.2 Measurement Procedure and Data

| 20dB bandwidth (MHz) | Limit (MHz) | Results |
|---|---|---|
| 0.2185 | N/A | Pass |

Mode c:

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## 7.3 Field Strength of the Fundamental Signal (15.249(a))

Test Requirement 47 CFR Part 15, Subpart C 15.249(a)

Test Method: ANSI C63.10 (2013) Section 6.5&6.6

Measurement Distance: 3m

Limit:

| Frequency | Limit (dBuV/m @3m) | Remark |
|---|---|---|
| 2400MHz-2483.5MHz | 94.0 | Average Value |
| | 114.0 | Peak Value |

### 7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 25 °C Humidity: 55 % RH Atmospheric Pressure: 1010 mbar

Pretest these mode to find the worst case: c:TX mode+Charging_Keep the EUT in transmitting with modulation mode and charging.
d:TX mode_Keep the EUT in transmitting with modulation mode.

The worst case for final test: c:TX mode+Charging_Keep the EUT in transmitting with modulation mode and charging.

### 7.3.2 Measurement Procedure and Data

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

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

e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

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

g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

h. Test the EUT in the lowest channel,the middle channel,the Highest channel.

i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

j. Repeat above procedures until all frequencies measured was complete.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

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Mode c:

| Freq (MHz) | Cable _Loss (dB) | Antenna _Factor (dB/m) | Preamp _Gain (dB) | Read _Level (dBuV) | Level (dBuV/m) | Limit _Line (dBuV/m) | Over _Limit (dB) | Polarization |
|---|---|---|---|---|---|---|---|---|
| 915.013 | 3.62 | 23.26 | 26.71 | 90.69 | 90.86 | 114 | -23.14 | Vertical |
| 915.013 | 3.62 | 23.26 | 26.71 | 85.19 | 85.36 | 114 | -28.64 | Horizontal |

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## 7.4 Radiated Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.249 (a),(d)
Test Method: ANSI C63.10 (2013) Section 6.4&6.5&6.6
Measurement Distance: 3m
Limit:

| Frequency(MHz) | Field strength (microvolts/meter) | Limit (dBuV/m) | Detector | Measurement Distance (meters) |
|---|---|---|---|---|
| 0.009-0.490 | 2400/F(kHz) | - | - | 300 |
| 0.490-1.705 | 24000/F(kHz) | - | - | 30 |
| 1.705-30 | 30 | - | - | 30 |
| 30-88 | 100 | 40.0 | QP | 3 |
| 88-216 | 150 | 43.5 | QP | 3 |
| 216-960 | 200 | 46.0 | QP | 3 |
| 960-1000 | 500 | 54.0 | QP | 3 |
| Above 1000 | 500 | 54.0 | AV | 3 |

### 7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 54 % RH Atmospheric Pressure: 1005 mbar

Pretest these mode to find the worst case: c:TX mode+Charging_Keep the EUT in transmitting with modulation mode and charging.
d:TX mode_Keep the EUT in transmitting with modulation mode.

The worst case for final test: c:TX mode+Charging_Keep the EUT in transmitting with modulation mode and charging.

### 7.4.2 Measurement Procedure and Data

For testing performed with the loop antenna, the center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane. Only the worst position of vertical was shown in the report.

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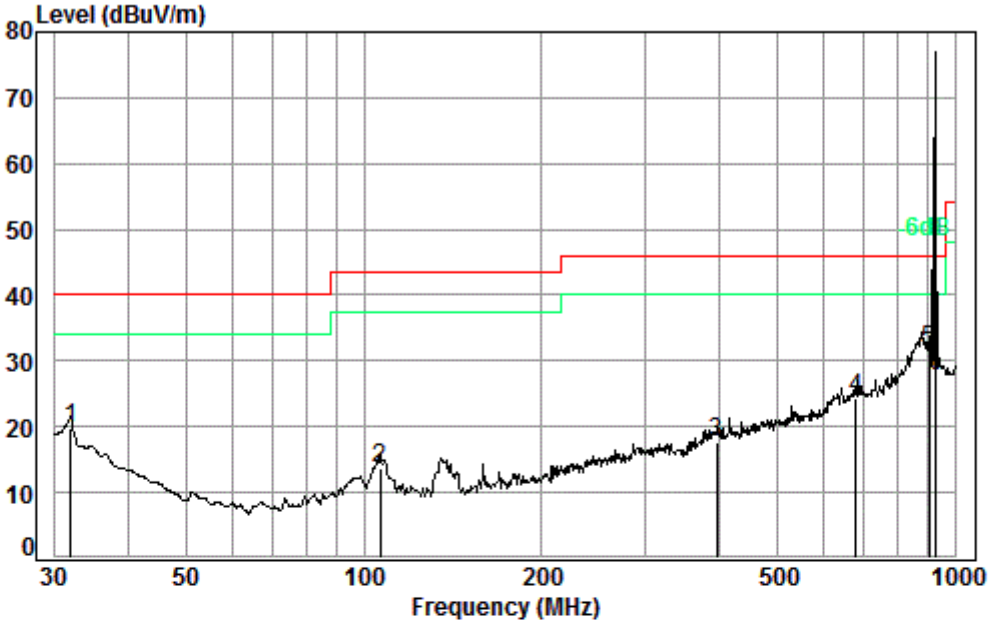
**30MHz-1GHz**

Mode:c; Polarization:Horizontal;




Condition: 3m HORIZONTAL
Job No. : 08380CR
Test mode: c

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit |
|---|---|---|---|---|---|---|---|---|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB |
| 1 | 31.95 | 0.60 | 17.61 | 27.35 | 28.77 | 19.63 | 40.00 | -20.37 |
| 2 | 106.76 | 1.22 | 8.76 | 27.15 | 30.84 | 13.67 | 43.50 | -29.83 |
| 3 | 394.85 | 2.19 | 16.24 | 27.09 | 26.30 | 17.64 | 46.00 | -28.36 |
| 4 | 679.96 | 2.86 | 21.44 | 27.43 | 27.44 | 24.31 | 46.00 | -21.69 |
| 5 pp | 902.00 | 3.60 | 23.21 | 26.75 | 31.57 | 31.63 | 46.00 | -14.37 |
| 6 | 928.00 | 3.63 | 23.30 | 26.64 | 27.46 | 27.75 | 46.00 | -18.25 |

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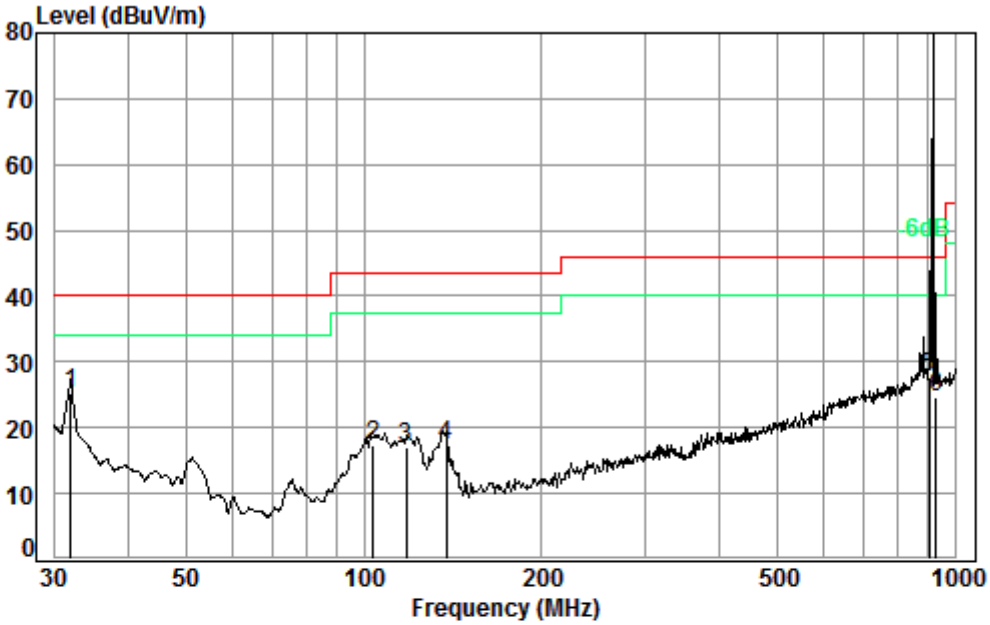
Mode:c; Polarization:Vertical;




Condition: 3m VERTICAL
Job No. : 08380CR
Test mode: c

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit |
|---|---|---|---|---|---|---|---|---|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB |
| 1 pp | 31.95 | 0.60 | 17.61 | 27.35 | 34.49 | 25.35 | 40.00 | -14.65 |
| 2 | 103.81 | 1.21 | 8.91 | 27.17 | 34.27 | 17.22 | 43.50 | -26.28 |
| 3 | 118.19 | 1.25 | 8.03 | 27.08 | 34.81 | 17.01 | 43.50 | -26.49 |
| 4 | 137.90 | 1.29 | 8.02 | 26.97 | 35.00 | 17.34 | 43.50 | -26.16 |
| 5 | 902.00 | 3.60 | 23.21 | 26.75 | 27.63 | 27.69 | 46.00 | -18.31 |
| 6 | 928.00 | 3.63 | 23.30 | 26.64 | 24.46 | 24.75 | 46.00 | -21.25 |

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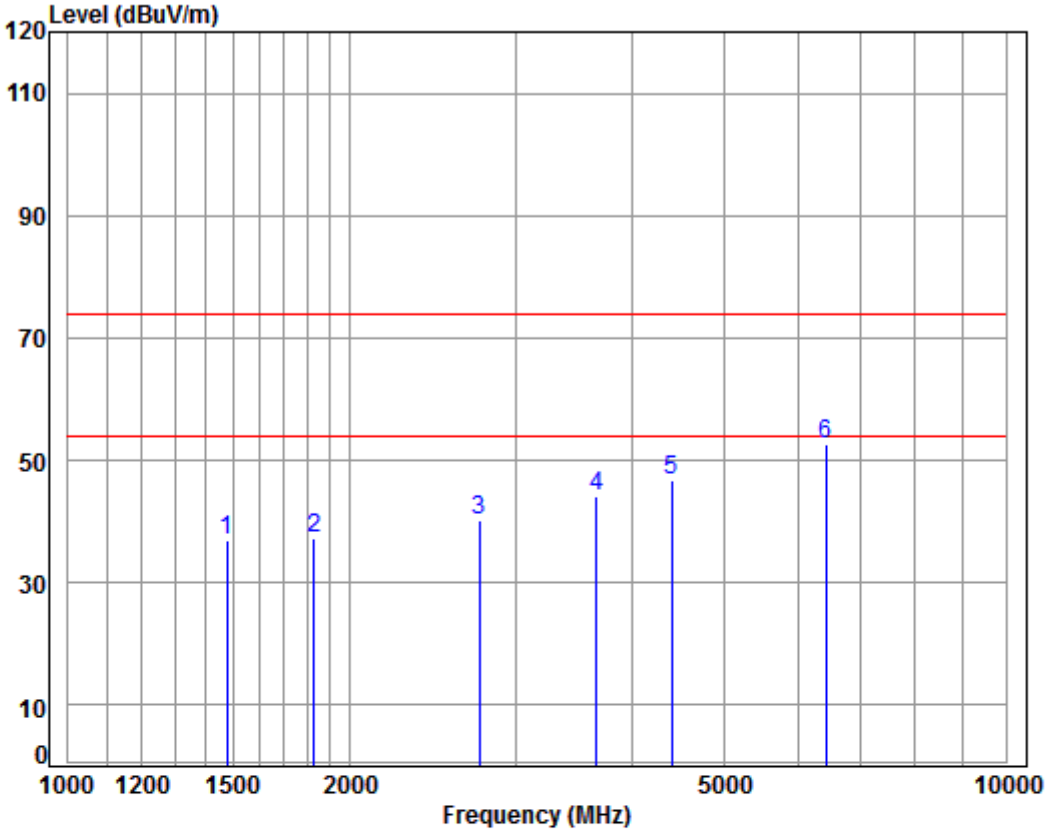
**Above 1GHz**

Mode:c; Polarization:Horizontal; Modulation Type:FSK; Channel:middle




Condition: 3m HORIZONTAL
Job No : 08380CR
Mode : 915 TX RSE

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 1475.707 | 5.40 | 25.70 | 38.04 | 43.94 | 37.00 | 74.00 | -37.00 | peak |
| 2 | 1830.000 | 5.08 | 27.18 | 38.01 | 42.91 | 37.16 | 74.00 | -36.84 | peak |
| 3 | 2745.000 | 5.80 | 30.37 | 37.92 | 41.96 | 40.21 | 74.00 | -33.79 | peak |
| 4 | 3660.000 | 6.63 | 32.67 | 37.97 | 42.81 | 44.14 | 74.00 | -29.86 | peak |
| 5 | 4405.549 | 7.46 | 33.60 | 38.22 | 44.08 | 46.92 | 74.00 | -27.08 | peak |
| 6 pp | 6426.877 | 11.40 | 35.04 | 37.85 | 44.16 | 52.75 | 74.00 | -21.25 | peak |

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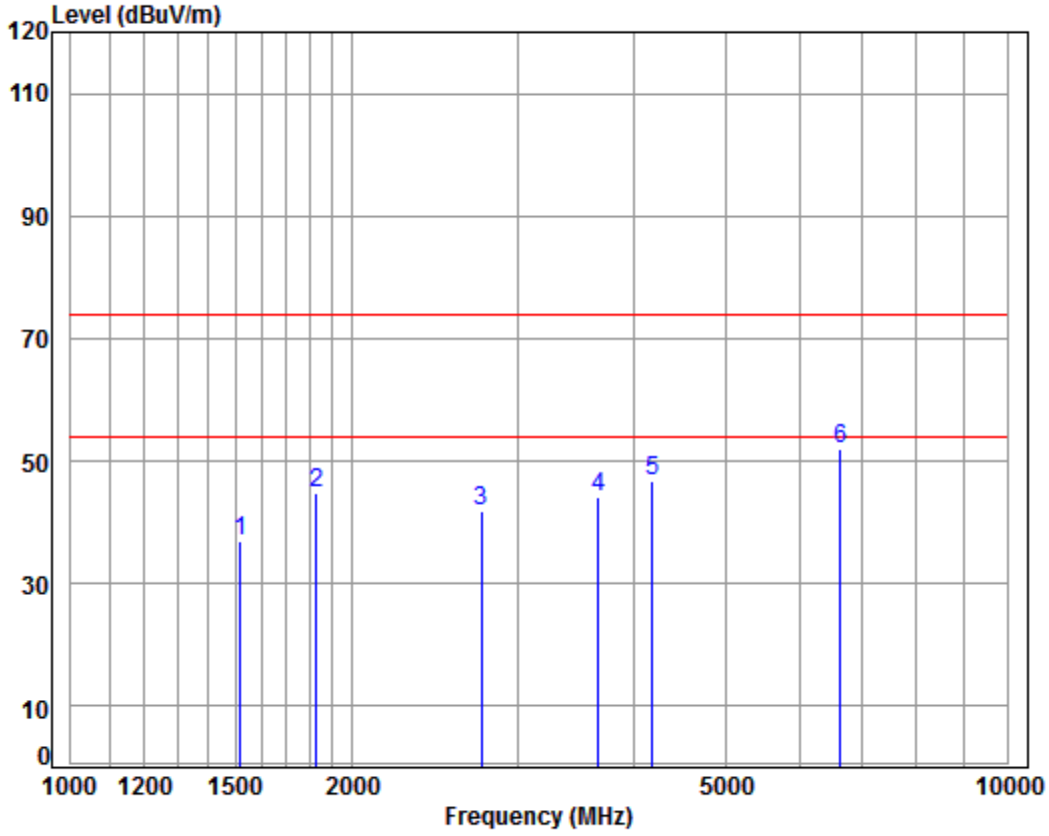
Mode:c; Polarization:Vertical; Modulation Type:FSK; Channel:middle




Condition: 3m VERTICAL
Job No : 08380CR
Mode : 915 TX RSE

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 1517.050 | 5.46 | 25.88 | 38.04 | 43.66 | 36.96 | 74.00 | -37.04 | peak |
| 2 | 1830.000 | 5.08 | 27.18 | 38.01 | 50.54 | 44.79 | 74.00 | -29.21 | peak |
| 3 | 2745.000 | 5.80 | 30.37 | 37.92 | 43.61 | 41.86 | 74.00 | -32.14 | peak |
| 4 | 3660.000 | 6.63 | 32.67 | 37.97 | 42.76 | 44.09 | 74.00 | -29.91 | peak |
| 5 | 4178.304 | 7.19 | 33.60 | 38.10 | 43.98 | 46.67 | 74.00 | -27.33 | peak |
| 6 pp | 6637.431 | 11.14 | 35.50 | 37.65 | 43.09 | 52.08 | 74.00 | -21.92 | peak |

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