# ENGINEERING TEST REPORT

**TX-99 RF Module**
**Model: CM-TX-99**
**FCC ID: 2AHAB-TX99**

*Applicant:*

**Camden Door Control**
5502 Timberlea Blvd.
Mississauga, ON L4W 2T7

***In Accordance With***

**Federal Communications Commission (FCC)**
**Part 15, Subpart C, Section 15.249**
**Operating in the Frequency Band 902 – 928 MHz**

**UltraTech's File No.: 16EMSI042_FCC15249**

This Test report is Issued under the Authority of
Tri M. Luu
Vice President of Engineering
UltraTech Group of Labs

Date: October 20, 2016

| | |
|---|---|
| Report Prepared by: Santhosh Fernandez | Tested by: Mr. Wei Wu |
| Issued Date: October 20, 2016 | Test Dates: April 22, July 18 and August 5, 2016 |

- *The results in this Test Report apply only to the sample(s) tested, and the sample tested is randomly selected.*
- *This report must not be used by the client to claim product endorsement by NVLAP or any agency of the US Government.*


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91038 | 1309 | 46390-2049 | AT-1945 | SL2-IN-E-1119R | Korea KCC-RRA CA2049

# TABLE OF CONTENTS

**EXHIBIT 1. INTRODUCTION ..... 1**

**1.1.** SCOPE ..... 1
**1.2.** RELATED SUBMITTAL(S)/GRANT(S) ..... 1
**1.3.** NORMATIVE REFERENCES ..... 1

**EXHIBIT 2. PERFORMANCE ASSESSMENT ..... 2**

**2.1.** CLIENT INFORMATION ..... 2
**2.2.** EQUIPMENT UNDER TEST (EUT) INFORMATION ..... 2
**2.3.** EUT'S TECHNICAL SPECIFICATIONS ..... 3
**2.4.** ASSOCIATED ANTENNA DESCRIPTIONS ..... 3
**2.5.** LIST OF EUT'S PORTS ..... 3
**2.6.** ANCILLARY EQUIPMENT ..... 3

**EXHIBIT 3. EUT OPERATING CONDITIONS AND CONFIGURATIONS DURING TESTS ..... 4**

**3.1.** CLIMATE TEST CONDITIONS ..... 4
**3.2.** OPERATIONAL TEST CONDITIONS & ARRANGEMENT FOR TESTS ..... 4

**EXHIBIT 4. SUMMARY OF TEST RESULTS ..... 5**

**4.1.** LOCATION OF TESTS ..... 5
**4.2.** APPLICABILITY & SUMMARY OF EMC EMISSION TEST RESULTS ..... 5
**4.3.** MODIFICATIONS INCORPORATED IN THE EUT FOR COMPLIANCE PURPOSES ..... 5

**EXHIBIT 5. TEST DATA ..... 6**

**5.1.** DC POWERLINE CONDUCTED EMISSIONS @ FCC PART 15, SUBPART B, PARA.15.107(A) ..... 6
**5.2.** OCCUPIED BANDWIDTH [§15.215(C)] ..... 10
**5.3.** FUNDAMETAL FIELD STRENGTH AND HAROMIC EMISSIONS (RADIATED AT 3M) [47 CFR §§ 15.249(A), 15.209 & 15.205] ..... 14

**EXHIBIT 6. TEST EQUIPMENT LIST ..... 19**

**EXHIBIT 7. MEASUREMENT UNCERTAINTY ..... 20**

**7.1.** RADIATED EMISSION MEASUREMENT UNCERTAINTY ..... 20

# EXHIBIT 1. INTRODUCTION

## 1.1. SCOPE

| | |
|---|---|
| **Reference:** | FCC Part 15, Subpart C, Section 15.249 |
| **Title:** | Code of Federal Regulations (CFR), Title 47 – Telecommunication, Part 15 – Radio Frequency Devices |
| **Purpose of Test:** | Equipment Certification for Low Power Licensed-Exempt Transmitters operating in the Frequency Band 902-928 MHz. |
| **Test Procedures:** | ▪ ANSI C63.4<br>▪ ANSI C63.10 |
| **Environmental Classification:** | [ x ] Commercial, industrial or business environment<br>[ x ] Residential environment |

## 1.2. RELATED SUBMITTAL(S)/GRANT(S)

None

## 1.3. NORMATIVE REFERENCES

| Publication | Year | Title |
|---|---|---|
| 47 CFR Parts 0-19 | 2016 | Code of Federal Regulations (CFR), Title 47 – Telecommunication |
| 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 |
| ANSI C63.10 | 2013 | American National Standard for Testing Unlicensed Wireless Devices |
| CISPR 22 | 2008-09,Ed 6 | Information Technology Equipment - Radio Disturbance Characteristics - Limits and Methods of Measurement |
| CISPR 16-1-1<br>+A1<br>+A2 | 2006<br>2006<br>2007 | Specification for radio disturbance and immunity measuring apparatus and methods. Part 1-1: Measuring Apparatus |
| CISPR 16-1-2<br>+A1<br>+A2 | 2003<br>2004<br>2006 | Specification for radio disturbance and immunity measuring apparatus and methods. Part 1-2: Conducted disturbances |

# EXHIBIT 2. PERFORMANCE ASSESSMENT

## 2.1. CLIENT INFORMATION

| APPLICANT | |
|---|---|
| **Name:** | Camden Door Control |
| **Address:** | 5502 Timberlea Blvd.<br>Mississauga, ON L4W 2T7<br>CANADA |
| **Contact Person:** | Mr. Frank Gerlach<br>Phone #: 905-282-1750<br>Fax #: 905-282-9691<br>Email Address: fgerlach@embeddedsense.com |

| MANUFACTURER | |
|---|---|
| **Name:** | Embedded Sense Inc. |
| **Address:** | 5155 Spectrum Way<br>Mississauga, ON L4W 5A1<br>CANADA |
| **Contact Person:** | Mr. Frank Gerlach<br>Phone #: 905-282-1750<br>Fax #: 905-282-9691<br>Email Address: fgerlach@embeddedsense.com |

## 2.2. EQUIPMENT UNDER TEST (EUT) INFORMATION

The following information (with the exception of the Date of Receipt) has been supplied by the applicant.

| | |
|---|---|
| **Brand Name:** | Lazerpoint RF Module |
| **Product Name:** | TX-99 RF Module |
| **Model Name or Number:** | CM-TX-99 |
| **Serial Number:** | Test Sample |
| **Type of Equipment:** | Low Power Communication Device Transmitter |
| **Input Power Supply:** | 3.0 - 3.3 V DC |
| **Primary User Functions of EUT:** | Transmits Key Code |

## 2.3. EUT'S TECHNICAL SPECIFICATIONS

| TRANSMITTER | |
|---|---|
| **Equipment Type:** | • Mobile<br>• Portable |
| **Intended Operating Environment:** | ▪ Commercial, industrial or business environment<br>▪ Residential environment |
| **Power Supply Requirement:** | 3.0 - 3.3 VDC |
| **RF Output Power Rating:** | 74.05 dBµV/m Peak at 3m distance |
| **Operating Frequency Range:** | 905.25 to 925.25 MHz |
| **20 dB Bandwidth:** | 320.19 KHz |
| **RF Output Impedance:** | 50 Ohm |
| **Modulation Type:** | 2-FSK, F1D |
| **Antenna Connector Type:** | Integral PCB Antenna |

## 2.4. ASSOCIATED ANTENNA DESCRIPTIONS

| Antenna Type | Maximum Gain (dBi) |
|---|---|
| Integral PCB Antenna | 0.0 |

## 2.5. LIST OF EUT'S PORTS

| Port Number | EUT's Port Description | Number of Identical Ports | Connector Type | Cable Type (Shielded/Non-shielded) |
|---|---|---|---|---|
| No I/O port. | | | | |

## 2.6. ANCILLARY EQUIPMENT

The EUT was tested while connected to the following representative configuration of ancillary equipment necessary to exercise the ports during tests:

None

# EXHIBIT 3. EUT OPERATING CONDITIONS AND CONFIGURATIONS DURING TESTS

## 3.1. CLIMATE TEST CONDITIONS

The climate conditions of the test environment are as follows:

| | |
|---|---|
| Temperature: | 21 to 23 $^{o}$C |
| Humidity: | 45 to 58% |
| Pressure: | 102 kPa |
| Power Input Source: | 3.3 V DC using external power supply |

## 3.2. OPERATIONAL TEST CONDITIONS & ARRANGEMENT FOR TESTS

| | |
|---|---|
| **Operating Modes:** | Each of lowest, middle and highest channel frequencies transmits continuously for emissions measurements. |
| **Special Test Software:** | Special software provided by the Applicant to operate the EUT at each channel frequency continuously. For example, the transmitter will be operated at each of the lowest, middle and highest frequencies individually continuously during testing. |
| **Special Hardware Used:** | N/A |
| **Transmitter Test Antenna:** | The EUT is tested with the antenna fitted in a manner typical of normal intended use as integral antenna equipment as described with the test results. |

| **Transmitter Test Signals** | |
|---|---|
| **Frequency Band(s):** | 905.25 - 925.25 MHz |
| **Frequency(ies) Tested:** | 905.25 MHz, 915.25 MHz and 925.25 MHz |
| **RF Power Output:** (measured maximum output power at antenna terminals) | 74.1 dBµV/m Peak at 3m distance |
| **Normal Test Modulation:** | 2-FSK |
| **Modulating Signal Source:** | Internal |

# EXHIBIT 4. SUMMARY OF TEST RESULTS

## 4.1. LOCATION OF TESTS

All of the measurements described in this report were performed at Ultratech Group of Labs located in the city of Oakville, Province of Ontario, Canada.

- AC Power Line Conducted Emissions were performed in UltraTech's shielded room, 24'(L) by 16'(W) by 8'(H).

- Radiated Emissions were performed at the Ultratech's 3-10 TDK Semi-Anechoic Chamber situated in the Town of Oakville, province of Ontario. This test site been calibrated in accordance with ANSI C63.4, and found to be in compliance with the requirements of Sec. 2.948 of the FCC Rules. The descriptions and site measurement data of the Oakville 3-10 TDK Semi-Anechoic Chamber has been filed with FCC office (FCC File No.: 91038) and Industry Canada office (Industry Canada File No.: 2049A-3). Expiry Date: 2017-04-02.

## 4.2. APPLICABILITY & SUMMARY OF EMC EMISSION TEST RESULTS

| FCC Section(s) | Test Requirements | Compliance (Yes/No) |
|---|---|---|
| 15.203 | Antenna requirements | Yes |
| 15.207(a) | DC Power Line Conducted Emissions | Yes |
| 15.215(c) | 20 dB Bandwidth | Yes |
| 15.249(a), 15.209, 15.205 | Transmitter Radiated Emissions, Harmonic Emissions | Yes |

* The EUT complies with the requirement; it employs an integral antenna.

## 4.3. MODIFICATIONS INCORPORATED IN THE EUT FOR COMPLIANCE PURPOSES

None

# EXHIBIT 5. TEST DATA

## 5.1. DC POWERLINE CONDUCTED Emissions @ FCC PART 15, SUBPART B, PARA.15.107(A)

### 5.1.1. Limits

The equipment shall meet the limits of the following table:

| | CLASS B LIMITS | | |
|---|---|---|---|
| **Test Frequency Range (MHz)** | **Quasi-Peak (dBµV)** | **Average* (dBµV)** | **Measuring Bandwidth** |
| 0.15 to 0.5 | 66 to 56* | 56 to 46* | RBW = 9 kHz<br>VBW ≥ 9 kHz for QP<br>VBW = 10 Hz for Average |
| 0.5 to 5 | 56 | 46 | RBW = 9 kHz<br>VBW ≥ 9 kHz for QP<br>VBW = 10 Hz for Average |
| 5 to 30 | 60 | 50 | RBW = 9 kHz<br>VBW ≥ 9 kHz for QP<br>VBW = 10 Hz for Average |

* Decreasing linearly with logarithm of frequency

### 5.1.2. Method of Measurements

Refer to Ultratech Test Procedures ULTR-P001-2004 & ANSI C63.4 for method of measurements.

## Calculation of Conducted Emission Voltage (dBµV):

This is calculated by adding the L.I.S.N factor, Cable loss factor, and Attenuator factor to the measured reading. The basic equation with a sample calculation is as follows:

Voltage (dBµV) = RA + AF + CF + LF

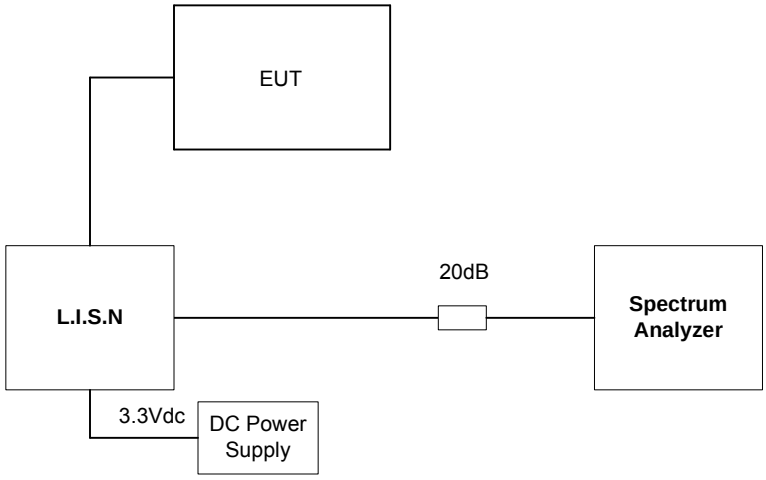
Where

RA = Receiver/Analyzer Reading in dBµV
AF = Attenuation Factor in dB
CF = Cable loss Factor in dB
LF = L.I.S.N Factor in dB

### 5.1.3. Test Instruments

Refer to Exhibit 6 for Test Instruments & Measurement Uncertainty

### 5.1.4. Test Arrangement

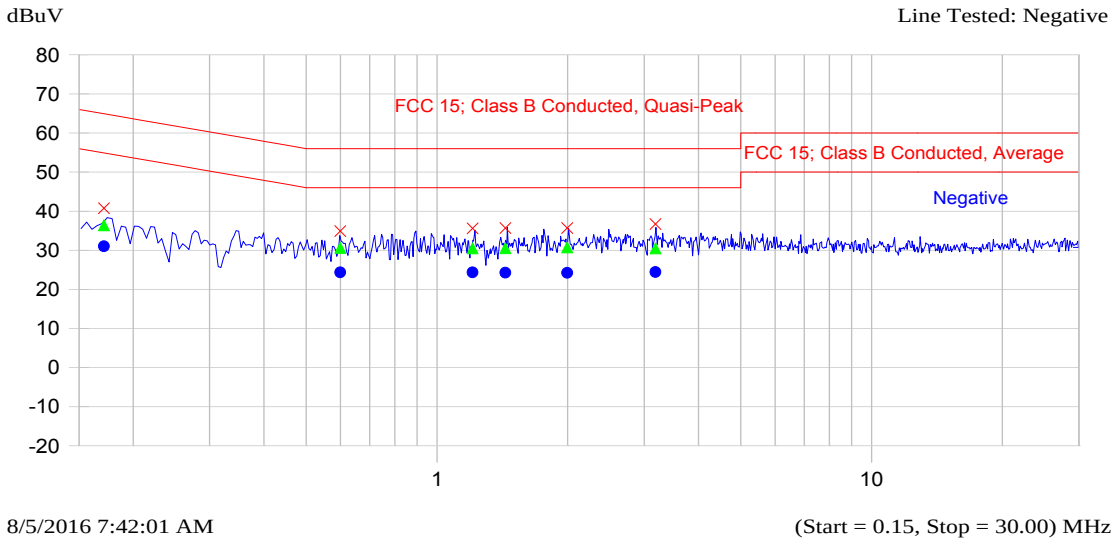


### 5.1.5. Test Results

The emissions were scanned from 150 kHz to 30 MHz at AC mains Terminal via a LISN, and all emissions less than 20 dB below the limits were recorded.

## Negative Line

## Current Graph

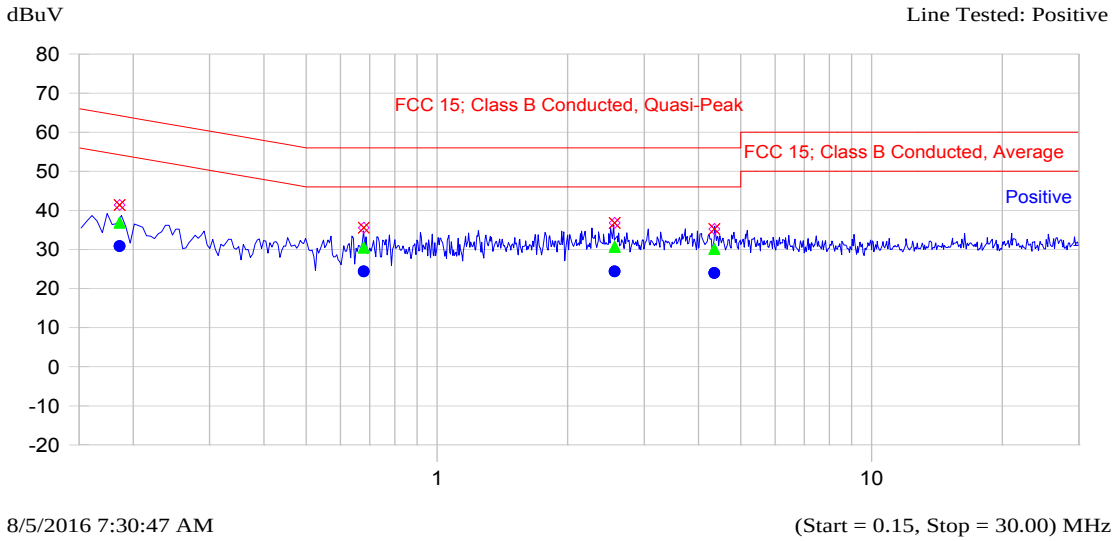



## Current List

| Frequency MHz | Peak dBuV | QP dBuV | QP-QP Limit dB | Avg dBuV | Avg-Avg Limit dB | Trace Name |
|---|---|---|---|---|---|---|
| 0.171 | 40.8 | 36.4 | -28.5 | 31.0 | -23.9 | Negative |
| 0.599 | 34.9 | 30.6 | -25.4 | 24.3 | -21.7 | Negative |
| 1.208 | 35.6 | 30.5 | -25.5 | 24.3 | -21.7 | Negative |
| 1.436 | 35.7 | 30.5 | -25.5 | 24.3 | -21.7 | Negative |
| 1.995 | 35.7 | 30.7 | -25.3 | 24.2 | -21.8 | Negative |
| 3.182 | 36.7 | 30.5 | -25.5 | 24.4 | -21.6 | Negative |

# Positive Line

## Current Graph




## Current List

| Frequency MHz | Peak dBuV | QP dBuV | QP-QP Limit dB | Avg dBuV | Avg-Avg Limit dB | Trace Name |
|---|---|---|---|---|---|---|
| 0.186 | 41.4 | 36.9 | -27.4 | 30.9 | -23.4 | Positive |
| 0.678 | 35.5 | 30.5 | -25.5 | 24.4 | -21.6 | Positive |
| 2.564 | 36.8 | 30.7 | -25.3 | 24.4 | -21.6 | Positive |
| 4.348 | 35.2 | 30.1 | -25.9 | 24.0 | -22.0 | Positive |

## 5.2. OCCUPIED BANDWIDTH [§15.215(c)]

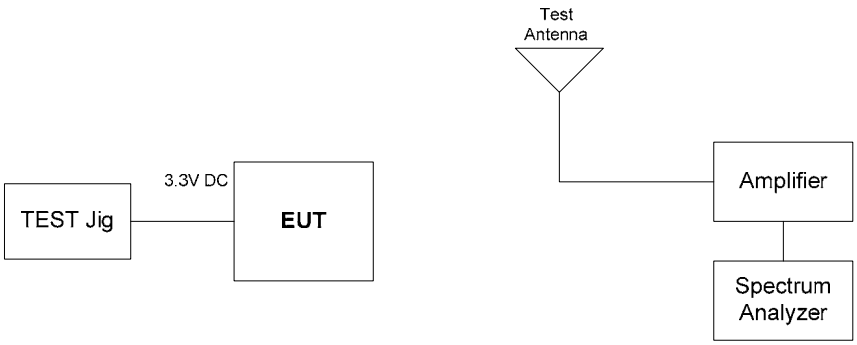
### 5.2.1. Limit(s)

The fundamental emission must be in the authorized bandwidth.

### 5.2.2. Method of Measurements

ANSI C63.10

### 5.2.3. Test Arrangement

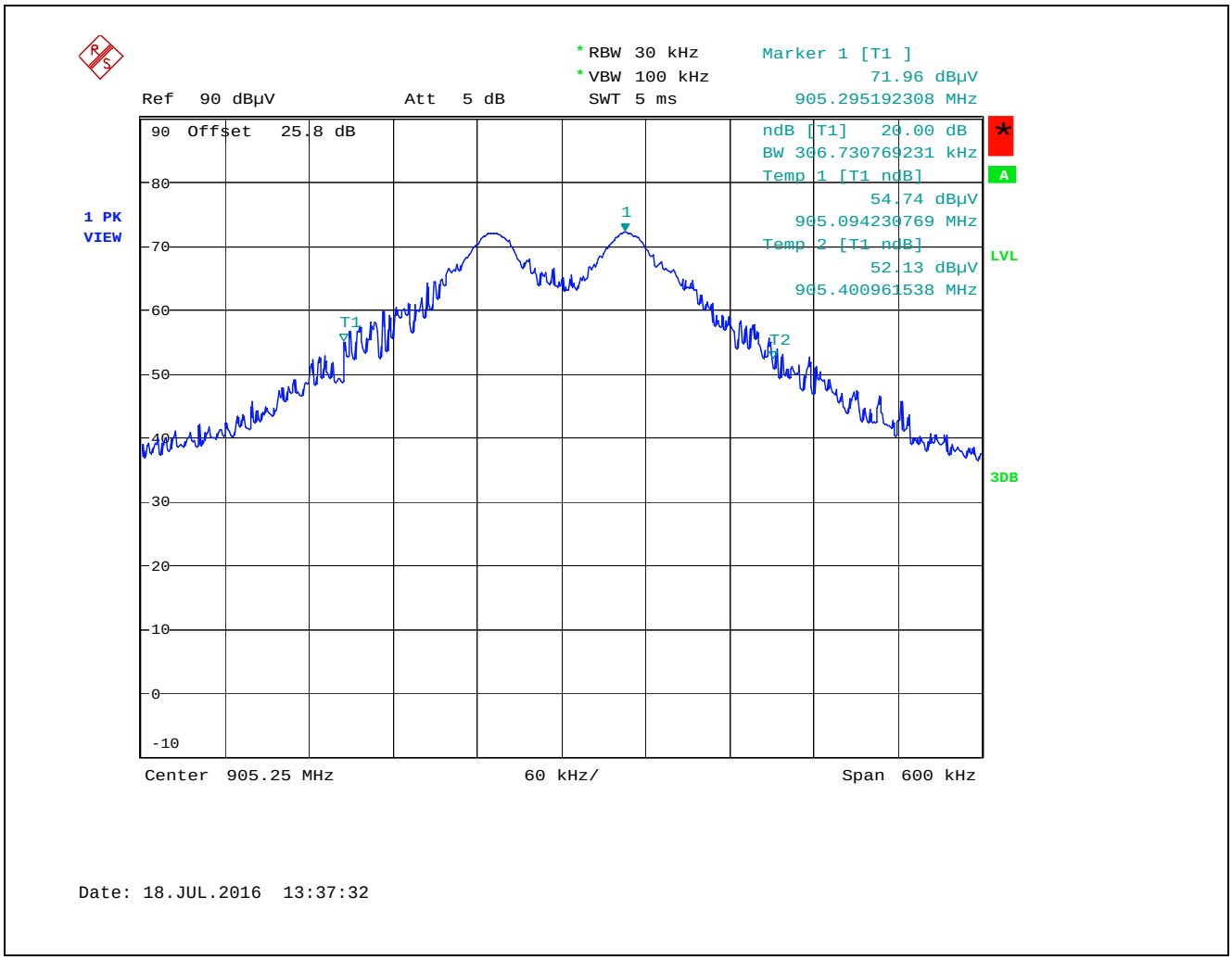



### 5.2.4. Test Data

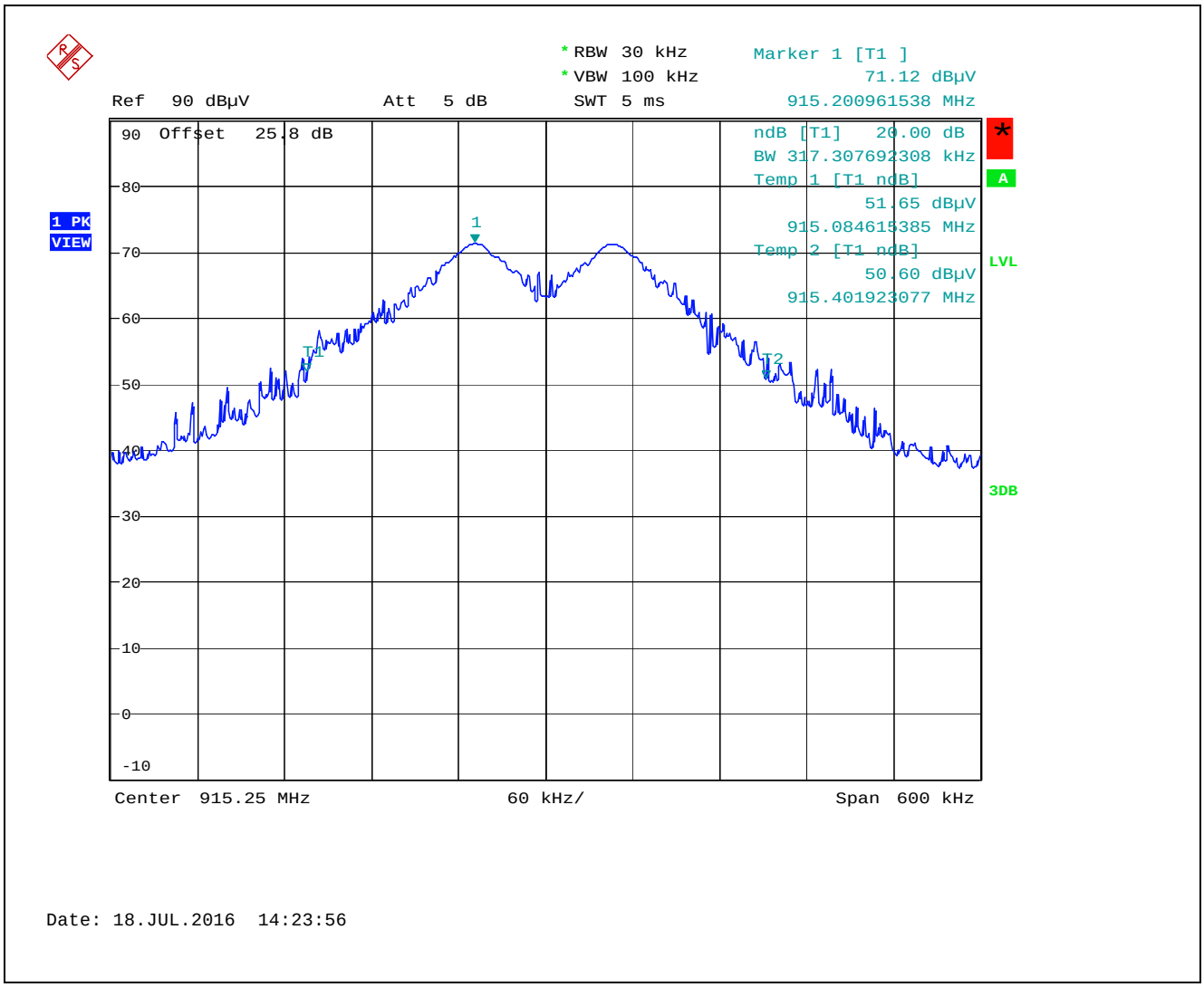
| Frequency (MHz) | 20 dB Bandwidth (kHz) |
|---|---|
| 905.25 | 306.73 |
| 915.25 | 317.31 |
| 925.25 | 320.19 |

See the following plots for detailed measurements.

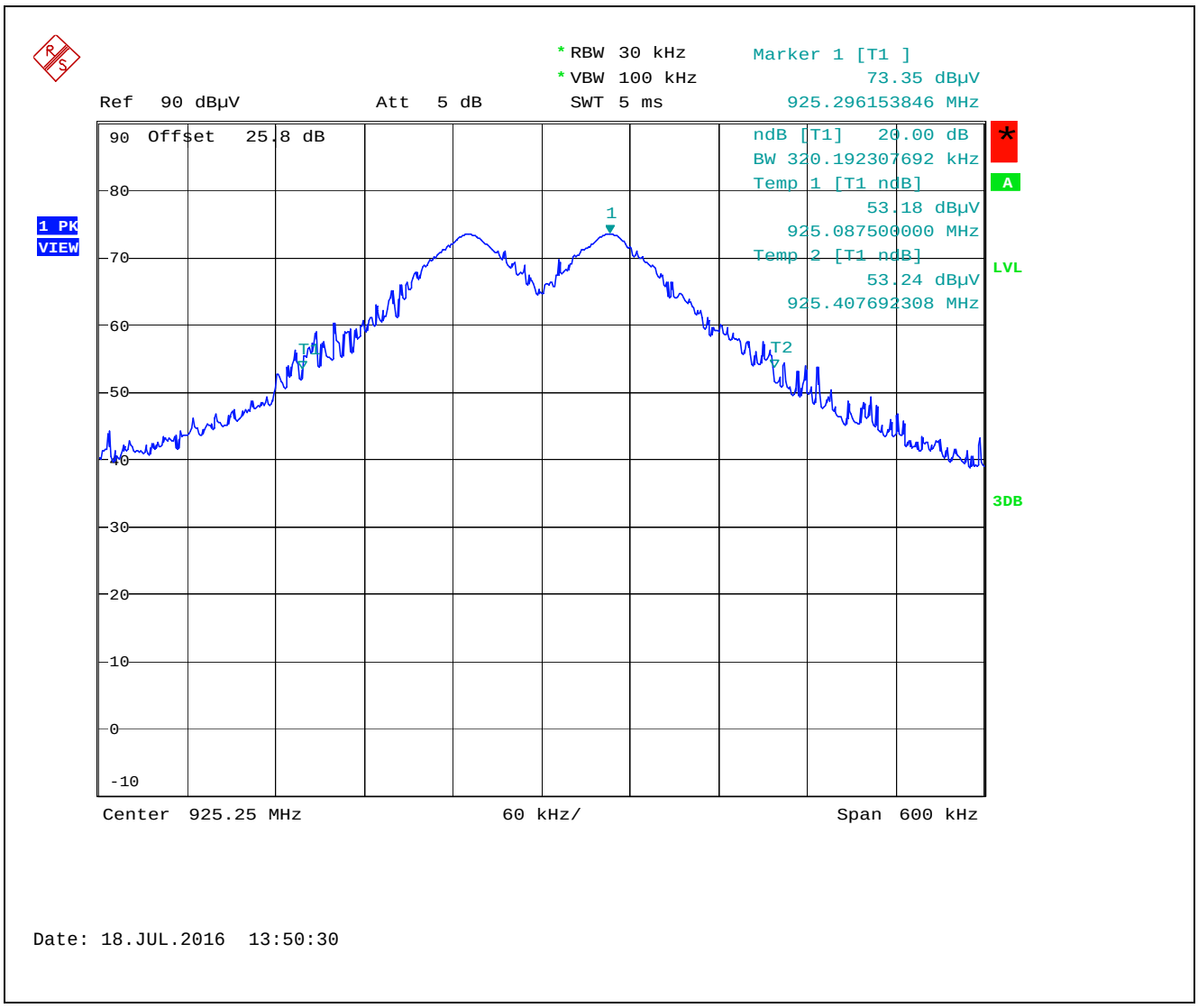
**Plot 5.2.4.1.** 20 dB Bandwidth, 905.25 MHz



**Plot 5.2.4.2.** 20 dB Bandwidth, 915.25 MHz



**Plot 5.2.4.3.** 20 dB Bandwidth, 925.25 MHz



## 5.3. FUNDAMETAL FIELD STRENGTH AND HAROMIC EMISSIONS (RADIATED at 3m) [47 CFR §§ 15.249(a), 15.209 & 15.205]

### 5.3.1. Limit(s)

(a) The Field Strength of emissions from intentional radiators operated within 902–928 MHz band shall comply with the following:

| Fundamental Frequency | Field Strength of Fundamental (mV/m) | Field Strength of Harmonics (μV/m) |
|---|---|---|
| 902–928 MHz | 50 | 500 |

(c) Field strength limits specified at a distance of 3 meters.

(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

(e) As shown in §15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.

- The fundamental frequency shall not fall within any restricted frequency band specified in 15.205. All rf other emissions that fall in the restricted bands shall not exceed the general radiated emission limits specified in at 15.209(a).

**47 CFR 15.205 – Restricted Bands of Operation**

| MHz | MHz | MHz | GHz |
|---|---|---|---|
| 0.090–0.110 | 16.42–16.423 | 399.9–410 | 4.5–5.15 |
| [1] 0.495–0.505 | 16.69475–16.69525 | 608–614 | 5.35–5.46 |
| 2.1735–2.1905 | 16.80425–16.80475 | 960–1240 | 7.25–7.75 |
| 4.125–4.128 | 25.5–25.67 | 1300–1427 | 8.025–8.5 |
| 4.17725–4.17775 | 37.5–38.25 | 1435–1626.5 | 9.0–9.2 |
| 4.20725–4.20775 | 73–74.6 | 1645.5–1646.5 | 9.3–9.5 |
| 6.215–6.218 | 74.8–75.2 | 1660–1710 | 10.6–12.7 |
| 6.26775–6.26825 | 108–121.94 | 1718.8–1722.2 | 13.25–13.4 |
| 6.31175–6.31225 | 123–138 | 2200–2300 | 14.47–14.5 |
| 8.291–8.294 | 149.9–150.05 | 2310–2390 | 15.35–16.2 |
| 8.362–8.366 | 156.52475–156.52525 | 2483.5–2500 | 17.7–21.4 |
| 8.37625–8.38675 | 156.7–156.9 | 2690–2900 | 22.01–23.12 |
| 8.41425–8.41475 | 162.0125–167.17 | 3260–3267 | 23.6–24.0 |
| 12.29–12.293 | 167.72–173.2 | 3332–3339 | 31.2–31.8 |
| .51975–12.52025 | 240–285 | 3345.8–3358 | 36.43–36.5 |
| 12.57675–12.57725 | 322–335.4 | 3600–4400 | (2) |
| 13.36–13.41. | | | |

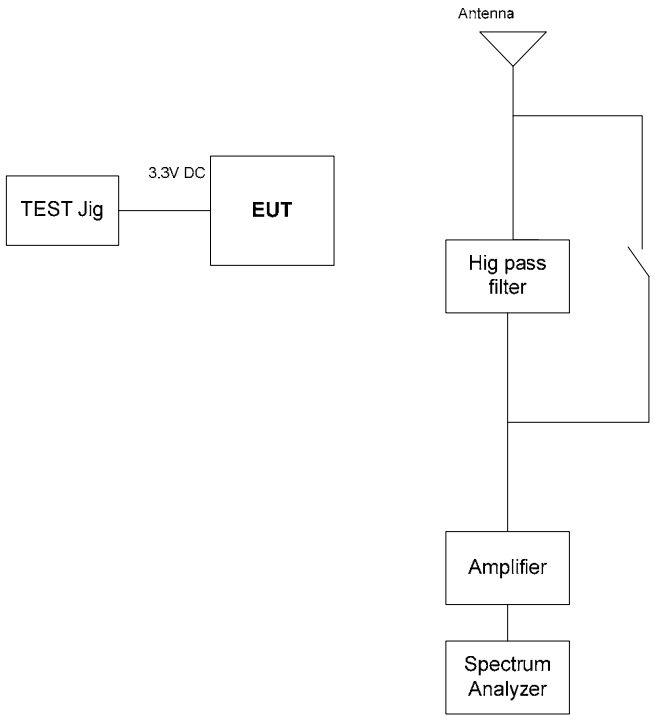
[1]Until February 1, 1999, this restricted band shall be 0.490–0.510 MHz.
[2]Above 38.6

| 47 CFR 15.209(a) - Field Strength Limits within Restricted Frequency Bands | | |
|---|---|---|
| **Frequency (MHz)** | **Field Strength Limits (μV/m)** | **Distance (Meters)** |
| 0.009 - 0.490 | 2,400 / F (KHz) | 300 |
| 0.490 - 1.705 | 24,000 / F (KHz) | 30 |
| 1.705 - 30.0 | 30 | 30 |
| 30 – 88 | 100 | 3 |
| 88 – 216 | 150 | 3 |
| 216 – 960 | 200 | 3 |
| Above 960 | 500 | 3 |

### 5.3.2. Method of Measurements

ANSI C63.10 and ANSI C63.4 for measurement methods.

### 5.3.3. Test Arrangement



**Test Data**

**Remark(s):**

- All spurious emissions that are in excess of 20 dB below the specified limit shall be recorded.
- EUT shall be tested in three orthogonal positions @ 3m distance.
- The following test results are the worst-case measurements.

### 5.3.3.1. Spurious Radiated Emissions

| Fundamental Frequency: | 905.25 MHz | | | | | | |
|---|---|---|---|---|---|---|---|
| Frequency Test Range: | 30 MHz – 10 GHz | | | | | | |
| **Frequency (MHz)** | **RF Peak Level (dBµV/m)** | **RF Avg Level (dBµV/m)** | **Antenna Plane (H/V)** | **Limit of Fundamental / Harmonics (dBµV/m)** | **Limit 15.209 (dBµV/m)** | **Margin (dB)** | **Pass/ Fail** |
| 905.25 | 70.53 | 67.38 | V | 94.00 | -- | -23.47 | PASS |
| 905.25 | 72.49 | 69.64 | H | 94.00 | -- | -21.51 | PASS |
| 1810.50 | 45.76 | 41.48 | V | 54.00 | 54.00 | -12.52 | PASS |
| 1810.50 | 47.06 | 43.35 | H | 54.00 | 54.00 | -10.65 | PASS |
| 2715.75 | 47.04 | 39.12 | V | 54.00 | 54.00 | -14.88 | PASS |
| 2715.75 | 45.29 | 34.25 | H | 54.00 | 54.00 | -19.75 | PASS |
| 3621.00 | 53.61 | 49.48 | V | 54.00 | 54.00 | -4.52 | PASS |
| 3621.00 | 54.06 | 50.04 | H | 54.00 | 54.00 | -3.96 | PASS |
| 4526.25 | 51.11 | 44.37 | V | 54.00 | 54.00 | -9.63 | PASS |
| 4526.25 | 51.61 | 44.19 | H | 54.00 | 54.00 | -9.81 | PASS |
| 5431.50 | 48.32 | 39.34 | V | 54.00 | 54.00 | -14.66 | PASS |
| 5431.50 | 52.67 | 48.58 | H | 54.00 | 54.00 | -5.42 | PASS |
| All other spurious emissions and harmonics are more than 20 dB below the applicable limit. | | | | | | | |

| Fundamental Frequency: | 915.25 MHz | | | | | | |
|---|---|---|---|---|---|---|---|
| Frequency Test Range: | 30 MHz – 10 GHz | | | | | | |
| **Frequency (MHz)** | **RF Peak Level (dBµV/m)** | **RF Avg Level (dBµV/m)** | **Antenna Plane (H/V)** | **Limit of Fundamental / Harmonics (dBµV/m)** | **Limit 15.209 (dBµV/m)** | **Margin (dB)** | **Pass/ Fail** |
| 915.25 | 72.10 | 69.07 | V | 94.00 | -- | -21.90 | PASS |
| 915.25 | 71.10 | 68.13 | H | 94.00 | -- | -22.90 | PASS |
| 1830.50 | 44.87 | 39.54 | V | 54.00 | 54.00 | -14.46 | PASS |
| 1830.50 | 45.12 | 39.89 | H | 54.00 | 54.00 | -14.11 | PASS |
| 2745.75 | 47.15 | 41.09 | V | 54.00 | 54.00 | -12.91 | PASS |
| 2745.75 | 45.58 | 36.82 | H | 54.00 | 54.00 | -17.18 | PASS |
| 3661.00 | 52.84 | 46.78 | V | 54.00 | 54.00 | -7.22 | PASS |
| 3661.00 | 51.77 | 45.49 | H | 54.00 | 54.00 | -8.51 | PASS |
| 4576.25 | 53.56 | 46.86 | V | 54.00 | 54.00 | -7.14 | PASS |
| 4576.25 | 51.45 | 45.79 | H | 54.00 | 54.00 | -8.21 | PASS |
| 5491.50 | 51.95 | 43.71 | V | 54.00 | 54.00 | -10.29 | PASS |
| 5491.50 | 54.54 | 49.38 | H | 54.00 | 54.00 | -4.62 | PASS |
| All other spurious emissions and harmonics are more than 20 dB below the applicable limit. | | | | | | | |

| Fundamental Frequency: | 925.25 MHz | | | | | | |
|---|---|---|---|---|---|---|---|
| Frequency Test Range: | 30 MHz – 10 GHz | | | | | | |
| **Frequency (MHz)** | **RF Peak Level (dBµV/m)** | **RF Avg Level (dBµV/m)** | **Antenna Plane (H/V)** | **Limit of Fundamental / Harmonics (dBµV/m)** | **Limit 15.209 (dBµV/m)** | **Margin (dB)** | **Pass/ Fail** |
| 925.25 | 74.05 | 70.94 | **V** | 94.00 | **--** | -19.95 | PASS |
| 925.25 | 73.12 | 69.90 | H | 94.00 | -- | -20.88 | PASS |
| 1850.50 | 46.05 | 42.08 | V | 54.00 | 54.00 | -11.92 | PASS |
| 1850.50 | 45.95 | 41.28 | H | 54.00 | 54.00 | -12.72 | PASS |
| 2775.75 | 47.63 | 40.49 | V | 54.00 | 54.00 | -13.51 | PASS |
| 2775.75 | 46.42 | 37.74 | H | 54.00 | 54.00 | -16.26 | PASS |
| 3701.00 | 51.02 | 44.90 | V | 54.00 | 54.00 | -9.10 | PASS |
| 3701.00 | 51.51 | 45.58 | H | 54.00 | 54.00 | -8.42 | PASS |
| 4626.25 | 51.79 | 44.52 | V | 54.00 | 54.00 | -9.48 | PASS |
| 4626.25 | 51.60 | 43.56 | H | 54.00 | 54.00 | -10.44 | PASS |
| 5551.50 | 50.14 | 41.32 | V | 54.00 | 54.00 | -12.68 | PASS |
| 5551.50 | 55.17 | 50.38 | H | 54.00 | 54.00 | -3.62 | PASS |
| All other spurious emissions and harmonics are more than 20 dB below the applicable limit. | | | | | | | |

## EXHIBIT 6. TEST EQUIPMENT LIST

| Test Instruments | Manufacturer | Model No. | Serial No. | Frequency Range | Cal. Due Date |
|---|---|---|---|---|---|
| Spectrum Analyzer | Rohde & Schwarz | FSU | 100398 | 20 Hz – 26.5 GHz | 14-Aug-17 |
| Attenuator | Pasternack | PE7024-20 | | DC-18GHz | Cal on use |
| Horn antenna | EMCO | 3117 | 119425 | 1-18GHz | 17-Jun-17 |
| Preamplifier | Com-power | PA-118A | 551016 | 500MHz-18GHz | 14-Dec-16 |
| Preamplifier | SpacekLabs | SLKKa-30-6 | 161243 | 18GHz-26.5GHz | 4-Aug-17 |
| High Pass Filter | K & L | 11SH10-1500/T8000-0/0 | 2 | Cut off 1500 MHz | Cal on use |
| Antenna | ETS | 93148 | 1101 | 200-2000 MHz | 14-Jul-17 |
| LISN | EMCO | 3825/2 | 8907-1531 | 10 kHz-100 MHz | 29-Sep-2016 |
| Spectrum Analyzer | HP | 8593EM | 3412A00103 | 9 kHz-26.5 GHz | 9- Apr-2017 |
| Power Supply | Tenma | 72-7295 | 490300271 | 0-40V dc | Cal on Use |

## EXHIBIT 7. MEASUREMENT UNCERTAINTY

The measurement uncertainties stated were calculated in accordance with the requirements of CISPR 16-4-2 @ IEC:2003 and JCGM 100:2008 (GUM 1995) – Guide to the Expression of Uncertainty in Measurement.

### 7.1. RADIATED EMISSION MEASUREMENT UNCERTAINTY

| | **Radiated Emission Measurement Uncertainty @ 3m, Horizontal (30-1000 MHz):** | **Measured (dB)** | **Limit (dB)** |
|---|---|---|---|
| $u_c$ | **Combined standard uncertainty:** $u_c(y) = \sqrt{\sum_{I=1}^{m} u_i^2(y)}$ | **± 2.39** | **± 2.6** |
| **U** | **Expanded uncertainty U:** $U = 2u_c(y)$ | **± 4.79** | **± 5.2** |

| | **Radiated Emission Measurement Uncertainty @ 3m, Vertical (30-1000 MHz):** | **Measured (dB)** | **Limit (dB)** |
|---|---|---|---|
| $u_c$ | **Combined standard uncertainty:** $u_c(y) = \sqrt{\sum_{I=1}^{m} u_i^2(y)}$ | **± 2.39** | **± 2.6** |
| **U** | **Expanded uncertainty U:** $U = 2u_c(y)$ | **± 4.78** | **± 5.2** |

| | **Radiated Emission Measurement Uncertainty @ 3 m, Horizontal & Vertical (1 – 18 GHz):** | **Measured (dB)** | **Limit (dB)** |
|---|---|---|---|
| $u_c$ | **Combined standard uncertainty:** $u_c(y) = \sqrt{\sum_{I=1}^{m} u_i^2(y)}$ | **± 1.87** | **Under consideration** |
| **U** | **Expanded uncertainty U:** $U = 2u_c(y)$ | **± 3.75** | **Under consideration** |