

# FCC Test Report

## Fluid Conservation Systems (FCS)

### Radio Transceiver, Model: Patroller 4

#### In accordance with FCC 47 CFR Part 15C

Prepared for: HWM Water Ltd  
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FCC ID: RUZ-154

## COMMERCIAL-IN-CONFIDENCE

Document Number: 75946792-01 | Issue: 01

### SIGNATURE



| NAME          | JOB TITLE           | RESPONSIBLE FOR      | ISSUE DATE       |
|---------------|---------------------|----------------------|------------------|
| Simon Bennett | Innovations Manager | Authorised Signatory | 19 November 2019 |

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD document control rules.

### ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC 47 CFR Part 15C. The sample tested was found to comply with the requirements defined in the applied rules.

| RESPONSIBLE FOR | NAME          | DATE             | SIGNATURE                                                                             |
|-----------------|---------------|------------------|---------------------------------------------------------------------------------------|
| Testing         | Graeme Lawler | 19 November 2019 |  |
| Testing         | Francis Kane  | 19 November 2019 |  |

FCC Accreditation  
90987 Octagon House, Fareham Test Laboratory

### EXECUTIVE SUMMARY

A sample of this product was tested and found to be compliant with FCC 47 CFR Part 15C: 2018 for the tests detailed in section 1.3.



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## 1 Report Summary

### 1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

| Issue | Description of Change | Date of Issue    |
|-------|-----------------------|------------------|
| 1     | First Issue           | 19 November 2019 |

**Table 1**

### 1.2 Introduction

|                               |                                  |
|-------------------------------|----------------------------------|
| Applicant                     | HWM Water Ltd                    |
| Manufacturer                  | Fluid Conservation Systems (FCS) |
| Model Number(s)               | Patroller 4                      |
| Serial Number(s)              | Unit 2.4                         |
| Hardware Version(s)           | B                                |
| Software Version(s)           | 1.09                             |
| Number of Samples Tested      | 1                                |
| Test Specification/Issue/Date | FCC 47 CFR Part 15C: 2018        |
| Order Number                  | 83195                            |
| Date                          | 14-August-2019                   |
| Date of Receipt of EUT        | 04-October-2019                  |
| Start of Test                 | 01-October-2019                  |
| Finish of Test                | 05-November-2019                 |
| Name of Engineer(s)           | Graeme Lawler and Francis Kane   |
| Related Document(s)           | ANSI C63.10 (2013)               |



### 1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC 47 CFR Part 15C is shown below.

| Section                               | Specification Clause | Test Description                                 | Result | Comments/Base Standard                                                                                                                            |
|---------------------------------------|----------------------|--------------------------------------------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Configuration and Mode: 914.5 MHz SRD |                      |                                                  |        |                                                                                                                                                   |
| -                                     | 15.203               | Antenna Requirement                              | Pass   | The equipment under test was fitted with a detachable antenna, however, the equipment will only ever be installed in a professional installation. |
| 2.1                                   | 15.249 (a)           | Authorised Band Edges                            | Pass   | ANSI C63.10 (2013)                                                                                                                                |
| 2.2                                   | 15.249 (a)           | Field Strength of Fundamental                    | Pass   | ANSI C63.10 (2013)                                                                                                                                |
| 2.3                                   | 15.249 (a)(d)        | Field Strength of Emissions                      | Pass   | ANSI C63.10 (2013)                                                                                                                                |
| 2.4                                   | 15.249 (b)(2)        | Frequency Tolerance Under Temperature Variations | Pass   | ANSI C63.10 (2013)                                                                                                                                |
| 2.5                                   | 15.215(c)            | 20 dB Bandwidth                                  | Pass   | -                                                                                                                                                 |

**Table 2**



## 1.4 Application Form

### Equipment Description

|                                                                                                     |                                                                                    |
|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Technical Description:<br>(Please provide a brief description of the intended use of the equipment) | The device is a wireless configuration and data download tool for HWM data loggers |
| Manufacturer:                                                                                       | HWM-Water Ltd – Branded Fluid Conservation Systems Inc. (FCS)                      |
| Model:                                                                                              | Patroller 4                                                                        |
| Part Number:                                                                                        | PAT4/F/914/1                                                                       |
| Hardware Version:                                                                                   | B                                                                                  |
| Software Version:                                                                                   | 1.09                                                                               |
| FCC ID (if applicable)                                                                              | RUZ-154                                                                            |

### Intentional Radiators

|                                       |                           |
|---------------------------------------|---------------------------|
| Technology                            | RF Narrowband Transceiver |
| Frequency Band (MHz)                  | 914.5                     |
| Conducted Declared Output Power (dBm) | -7.5dBm                   |
| Antenna Gain (dBi)                    | 2                         |
| Supported Bandwidth(s) (MHz)          | 164-192, 410-480, 820-960 |
| Modulation Scheme(s)                  | 2-FSK                     |
| ITU Emission Designator               | 125KF1D                   |
| Bottom Frequency (MHz)                | 914.5                     |
| Middle Frequency (MHz)                | 914.5                     |
| Top Frequency (MHz)                   | 914.5                     |

### Un-intentional Radiators

|                                                                                                                    |            |
|--------------------------------------------------------------------------------------------------------------------|------------|
| Highest frequency generated or used in the device or on which the device operates or tunes                         | 7.3728 MHz |
| Lowest frequency generated or used in the device or on which the device operates or tunes                          | 32.768 kHz |
| Class A Digital Device (Use in commercial, industrial or business environment) <input checked="" type="checkbox"/> |            |
| Class B Digital Device (Use in residential environment only) <input type="checkbox"/>                              |            |

### AC Power Source

|                                                                            |     |    |
|----------------------------------------------------------------------------|-----|----|
| AC supply frequency:                                                       | N/A | Hz |
| Voltage                                                                    | N/A | V  |
| Max current:                                                               | N/A | A  |
| Single Phase <input type="checkbox"/> Three Phase <input type="checkbox"/> |     |    |



#### DC Power Source

|                        |      |   |
|------------------------|------|---|
| Nominal voltage:       | 5    | V |
| Extreme upper voltage: | 5.25 | V |
| Extreme lower voltage: | 4.75 | V |
| Max current:           | 50m  | A |

#### Battery Power Source

|                                                                                                                                                                                                        |                |                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------------------------|
| Voltage:                                                                                                                                                                                               | 3.7            | V                                             |
| End-point voltage:                                                                                                                                                                                     | 3.21           | V (Point at which the battery will terminate) |
| Alkaline <input type="checkbox"/> Leclanche <input type="checkbox"/> Lithium <input type="checkbox"/> Nickel Cadmium <input type="checkbox"/> Lead Acid* <input type="checkbox"/> *(Vehicle regulated) |                |                                               |
| Other <input checked="" type="checkbox"/>                                                                                                                                                              | Please detail: | Lithium Ion                                   |

#### Charging

|                                           |                                                                     |
|-------------------------------------------|---------------------------------------------------------------------|
| Can the EUT transmit whilst being charged | Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> |
|-------------------------------------------|---------------------------------------------------------------------|

#### Temperature

|                      |     |    |
|----------------------|-----|----|
| Minimum temperature: | -20 | °C |
| Maximum temperature: | +60 | °C |

#### Antenna Characteristics

|                                                      |                 |           |       |
|------------------------------------------------------|-----------------|-----------|-------|
| Antenna connector <input type="checkbox"/>           | State impedance |           | Ohm   |
| Temporary antenna connector <input type="checkbox"/> | State impedance |           | Ohm   |
| Integral antenna <input type="checkbox"/>            | Type:           |           | dBI   |
| External antenna <input checked="" type="checkbox"/> | Type:           | SMA 50Ohm | 2 dBI |

#### Ancillaries (if applicable)

|               |  |                    |  |
|---------------|--|--------------------|--|
| Manufacturer: |  | Part Number:       |  |
| Model:        |  | Country of Origin: |  |

I hereby declare that the information supplied is correct and complete.

Name: Andy Earp  
Position held: Design Assurance  
Date: 13/09/2019



## 1.5 Product Information

### 1.5.1 Technical Description

Patroller 4 is a radio communications device used for the configuration and downloading of data from data loggers. It provides a Bluetooth or USB to UHF radio radio bridge.

### 1.6 Deviations from the Standard

No deviations from the applicable test standard were made during testing.

### 1.7 EUT Modification Record

The table below details modifications made to the EUT during the test programme.

The modifications incorporated during each test are recorded on the appropriate test pages.

| Modification State                          | Description of Modification still fitted to EUT | Modification Fitted By | Date Modification Fitted |
|---------------------------------------------|-------------------------------------------------|------------------------|--------------------------|
| Model: Patroller 4: Serial Number: Unit 2.4 |                                                 |                        |                          |
| 0                                           | As supplied by the customer                     | Not Applicable         | Not Applicable           |

**Table 3**

### 1.8 Test Location

TÜV SÜD conducted the following tests at our Fareham Test Laboratory.

| Test Name                                        | Name of Engineer(s) | Accreditation |
|--------------------------------------------------|---------------------|---------------|
| Configuration and Mode: 914.5 MHz SRD            |                     |               |
| Authorised Band Edges                            | Graeme Lawler       | UKAS          |
| Field Strength of Fundamental                    | Graeme Lawler       | UKAS          |
| Field Strength of Emissions                      | Graeme Lawler       | UKAS          |
| Frequency Tolerance Under Temperature Variations | Francis Kane        | UKAS          |
| 20 dB Bandwidth                                  | Francis Kane        | UKAS          |

**Table 4**

Office Address:

Octagon House  
Concorde Way  
Segensworth North  
Fareham  
Hampshire  
PO15 5RL  
United Kingdom



## 2 Test Details

### 2.1 Authorised Band Edges

#### 2.1.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.249 (a)

#### 2.1.2 Equipment Under Test and Modification State

Patroller 4, S/N: Unit 2.4 - Modification State 0

#### 2.1.3 Date of Test

06-October-2019

#### 2.1.4 Test Method

The test was performed in accordance with ANSI C63.10, clause 6.3, 6.5 and 6.10.4.

#### 2.1.5 Environmental Conditions

Ambient Temperature 20.2 °C

Relative Humidity 65.1 %

#### 2.1.6 Test Results

914.5 MHz SRD

| Frequency | Measured Frequency (MHz) | Peak Level (dBµV/m) |
|-----------|--------------------------|---------------------|
| 914.5 MHz | 902                      | 37.63               |
| 914.5 MHz | 928                      | 38.35               |

**Table 5 - Authorised Band Edge Results**

Note: The appropriate limit is 200 µV/meter at 3 m (46 dBµV/m at 3m) as this is less stringent than 50 dBc.

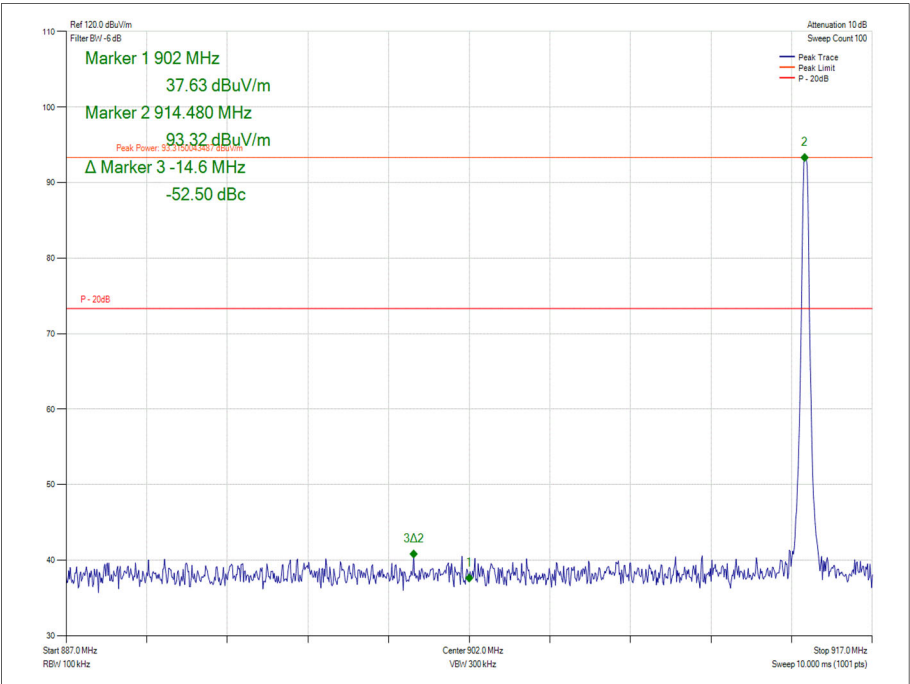


Figure 1 – 914.5 MHz, Measured Frequency 902 MHz

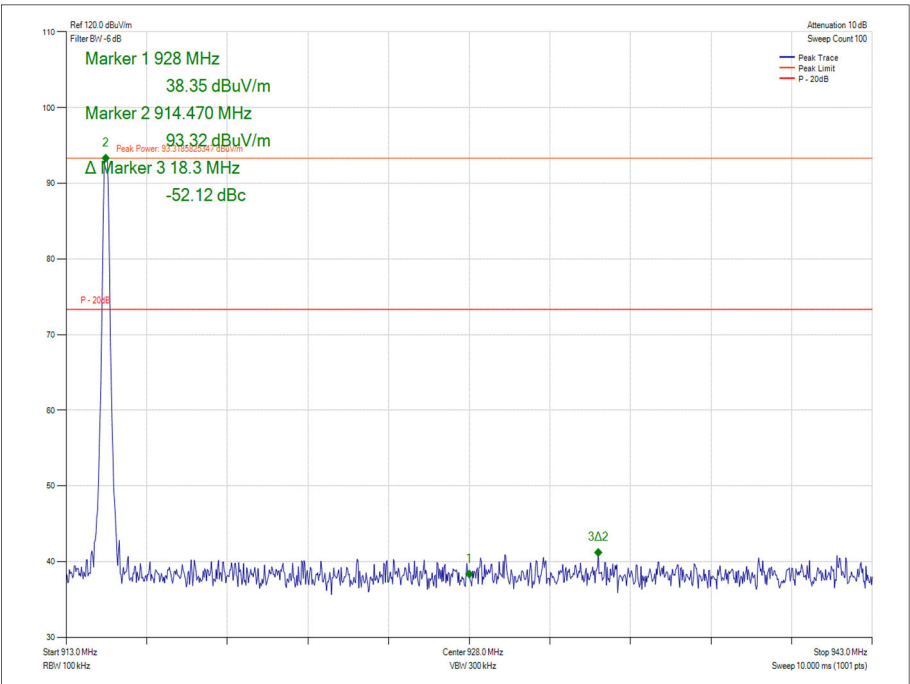


Figure 2 – 914.5 MHz, Measured Frequency 928 MHz



FCC 47 CFR Part 15, Limit Clause 15.249 (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.

FCC 47 CFR Part 15, Limit Clause 15.209

| Frequency (MHz) | Field Strength ( $\mu\text{V}/\text{m}$ at 3 m) |
|-----------------|-------------------------------------------------|
| 30 to 88        | 100                                             |
| 88 to 216       | 150                                             |
| 216 to 960      | 200                                             |
| Above 960       | 500                                             |

**Table 6**

**2.1.7 Test Location and Test Equipment Used**

This test was carried out in EMC Chamber 5.

| Instrument                                | Manufacturer    | Type No           | TE No | Calibration Period (months) | Calibration Due |
|-------------------------------------------|-----------------|-------------------|-------|-----------------------------|-----------------|
| Antenna with permanent attenuator (Bilog) | Schaffner       | CBL6143           | 287   | 24                          | 15-May-2020     |
| Screened Room (5)                         | Rainford        | Rainford          | 1545  | 36                          | 23-Jan-2021     |
| Turntable Controller                      | Inn-Co GmbH     | CO 1000           | 1606  | -                           | TU              |
| Hygrometer                                | Rotronic        | A1                | 2677  | 12                          | 20-Feb-2020     |
| Comb Generator                            | Schaffner       | RSG1000           | 3034  | -                           | TU              |
| EMI Test Receiver                         | Rohde & Schwarz | ESU40             | 3506  | 12                          | 17-Dec-2019     |
| Cable (Rx, Km-Km 2m)                      | Scott Cables    | KPS-1501-2000-KPS | 4526  | 6                           | 11-Dec-2019     |
| Mast Controller                           | Maturo GmbH     | NCD               | 4810  | -                           | TU              |
| Tilt Antenna Mast                         | Maturo GmbH     | TAM 4.0-P         | 4811  | -                           | TU              |
| 4dB Attenuator                            | Pasternack      | PE7047-4          | 4935  | 24                          | 28-Nov-2019     |
| 8m N-Type RF Cable                        | Teledyne        | PR90-088-8MTR     | 5093  | 12                          | 06-Oct-2020     |
| EmX Emissions Software                    | TUV SUD         | EmX               | 5125  | -                           | Software        |
| 8 Meter Cable                             | Teledyne        | PR90-088-8MTR     | 5212  | 12                          | 30-Aug-2020     |

**Table 7**

TU - Traceability Unscheduled

## 2.2 Field Strength of Fundamental

### 2.2.1 Specification Reference

FCC 47 CFR Part 15C, Clause 15.249 (a)

### 2.2.2 Equipment Under Test and Modification State

Patroller 4, S/N: Unit 2.4 - Modification State 0

### 2.2.3 Date of Test

06-October-2019

### 2.2.4 Test Method

The test was performed in accordance with ANSI C63.10, clause 6.3 and 6.5.

### 2.2.5 Environmental Conditions

Ambient Temperature 20.2 °C  
Relative Humidity 65.1 %

### 2.2.6 Test Results

#### 914.5 MHz SRD

| Frequency MHz | Field Strength (dB $\mu$ V/m) |
|---------------|-------------------------------|
|               | Quasi-Peak                    |
| 914.5 MHz     | 93.23                         |

Table 8

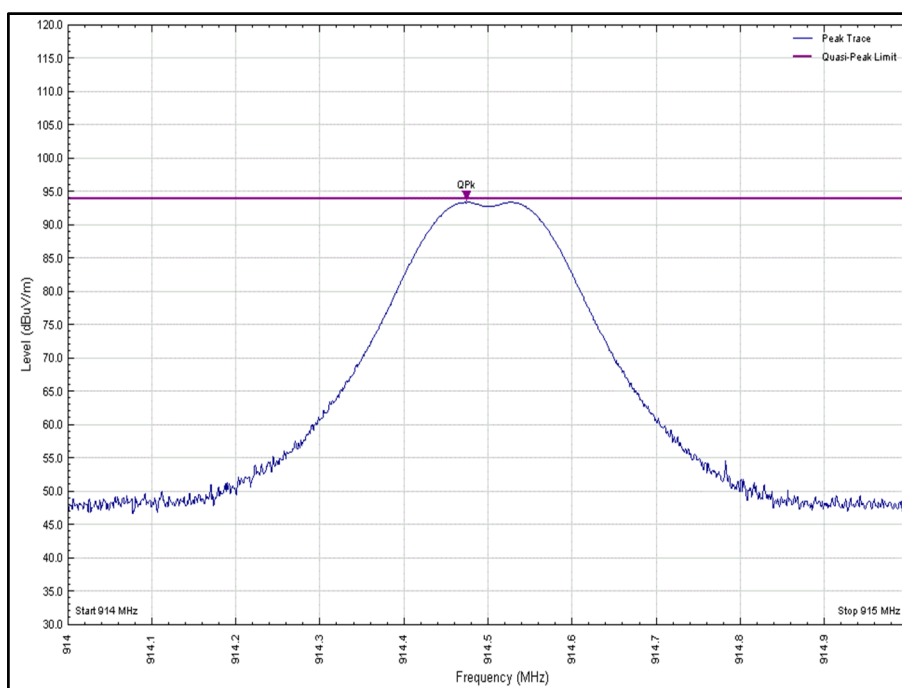


Figure 3 – 914.5 MHz, Quasi-Peak



FCC 47 CFR Part 15, Limit Clause 15.249 (a)

| Fundamental Frequency (MHz) | Field Strength of Fundamental (mV/m) |
|-----------------------------|--------------------------------------|
| 902 to 928                  | 50                                   |
| 2400 to 2483.5              | 50                                   |
| 5725 to 5875                | 50                                   |
| 24000 to 24250              | 250                                  |

**Table 9**

**2.2.7 Test Location and Test Equipment Used**

This test was carried out in EMC Chamber 5.

| Instrument                                | Manufacturer    | Type No           | TE No | Calibration Period (months) | Calibration Due |
|-------------------------------------------|-----------------|-------------------|-------|-----------------------------|-----------------|
| Antenna with permanent attenuator (Bilog) | Schaffner       | CBL6143           | 287   | 24                          | 15-May-2020     |
| Screened Room (5)                         | Rainford        | Rainford          | 1545  | 36                          | 23-Jan-2021     |
| Turntable Controller                      | Inn-Co GmbH     | CO 1000           | 1606  | -                           | TU              |
| Hygrometer                                | Rotronic        | A1                | 2677  | 12                          | 20-Feb-2020     |
| Comb Generator                            | Schaffner       | RSG1000           | 3034  | -                           | TU              |
| EMI Test Receiver                         | Rohde & Schwarz | ESU40             | 3506  | 12                          | 17-Dec-2019     |
| Cable (Rx, Km-Km 2m)                      | Scott Cables    | KPS-1501-2000-KPS | 4526  | 6                           | 11-Dec-2019     |
| Mast Controller                           | Maturo GmbH     | NCD               | 4810  | -                           | TU              |
| Tilt Antenna Mast                         | Maturo GmbH     | TAM 4.0-P         | 4811  | -                           | TU              |
| 4dB Attenuator                            | Pasternack      | PE7047-4          | 4935  | 24                          | 28-Nov-2019     |
| 8m N-Type RF Cable                        | Teledyne        | PR90-088-8MTR     | 5093  | 12                          | 06-Oct-2020     |
| EmX Emissions Software                    | TUV SUD         | EmX               | 5125  | -                           | Software        |
| 8 Meter Cable                             | Teledyne        | PR90-088-8MTR     | 5212  | 12                          | 30-Aug-2020     |

**Table 10**

TU - Traceability Unscheduled



## **2.3 Field Strength of Emissions**

### **2.3.1 Specification Reference**

FCC 47 CFR Part 15C, Clause 15.249 (a)(d)

### **2.3.2 Equipment Under Test and Modification State**

Patroller 4, S/N: Unit 2.4 - Modification State 0

### **2.3.3 Date of Test**

01-October-2019 to 07-October-2019

### **2.3.4 Test Method**

This test was performed in accordance with ANSI C63.10, clause 6.3, 6.5 and 6.6.

The plots show the characterization of the EUT. The limits shown have been used as a threshold to determine where further measurements are necessary. Where results are within 10 dB of the limits shown on the plots, further investigation was carried out and reported in results tables.

For frequencies greater than 1 GHz, plots for average measurements were taken with an RMS detector and a max hold trace to characterize the EUT. Where emissions were detected, final average measurements were taken in accordance with ANSI C63.10 clause 4.1.4.2.2.

If emissions were found to be pulsed, final measurements were taken in accordance with ANSI C63.10, clause 7.5. A peak measurement is performed. A duty cycle correction factor is then determined by the expression  $\text{duty (dB)} = 20\log(\text{On Time}/(\text{On Time} + \text{Off Time}))$ . This factor is then added to the peak value to determine the average value.

The following conversion can be applied to convert from dB $\mu$ V/m to  $\mu$ V/m:  $10^{(\text{Field Strength in dB}\mu\text{V/m}/20)}$ .

### **2.3.5 Environmental Conditions**

|                     |         |
|---------------------|---------|
| Ambient Temperature | 19.6 °C |
| Relative Humidity   | 63.0 %  |

## 2.3.6 Test Results

### 914.5 MHz SRD

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Detector | Angle (°) | Height (cm) | Polarisation |
|-----------------|----------------|----------------|-------------|----------|-----------|-------------|--------------|
| 43.235          | 37.7           | 40.0           | -2.3        | Q-Peak   | 309       | 100         | Vertical     |
| 56.901          | 36.2           | 40.0           | -3.8        | Q-Peak   | 319       | 100         | Vertical     |
| 67.252          | 36.7           | 40.0           | -3.4        | Q-Peak   | 166       | 107         | Vertical     |
| 103.198         | 39.3           | 43.5           | -4.2        | Q-Peak   | 189       | 110         | Vertical     |

Table 11 - 914.5 MHz - 30 MHz to 1 GHz - X Orientation

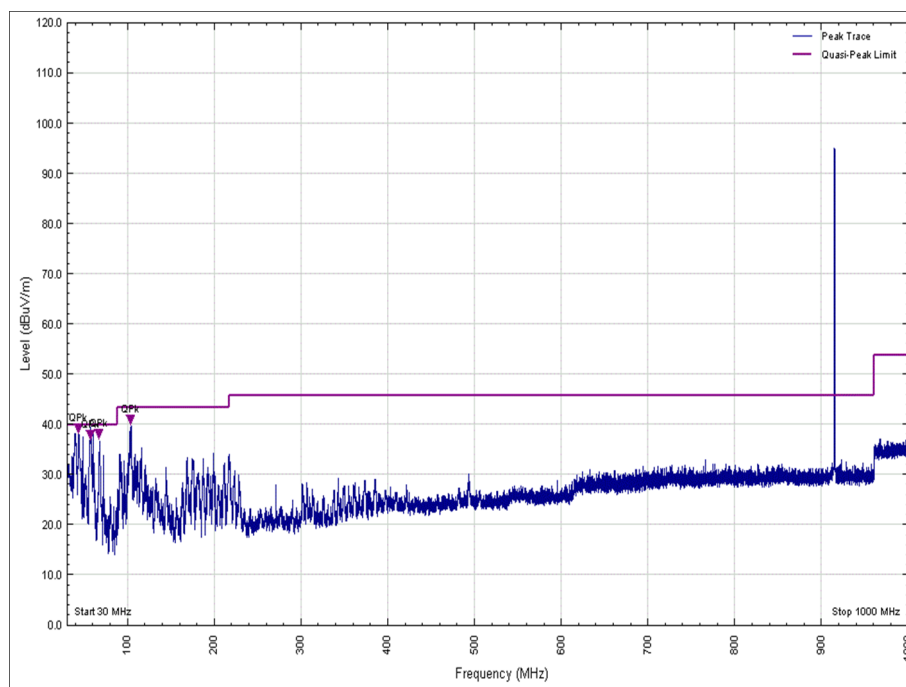


Figure 4 - 914.5 MHz - 30 MHz to 1 GHz - X Orientation - Vertical



| Frequency (MHz) | Level (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Detector | Angle (°) | Height (cm) | Polarisation |
|-----------------|----------------|----------------|-------------|----------|-----------|-------------|--------------|
| 402.531         | 38.0           | 46.0           | -8.0        | Q-Peak   | 309       | 100         | Vertical     |

Table 12 - 914.5 MHz - 30 MHz to 1 GHz - X Orientation

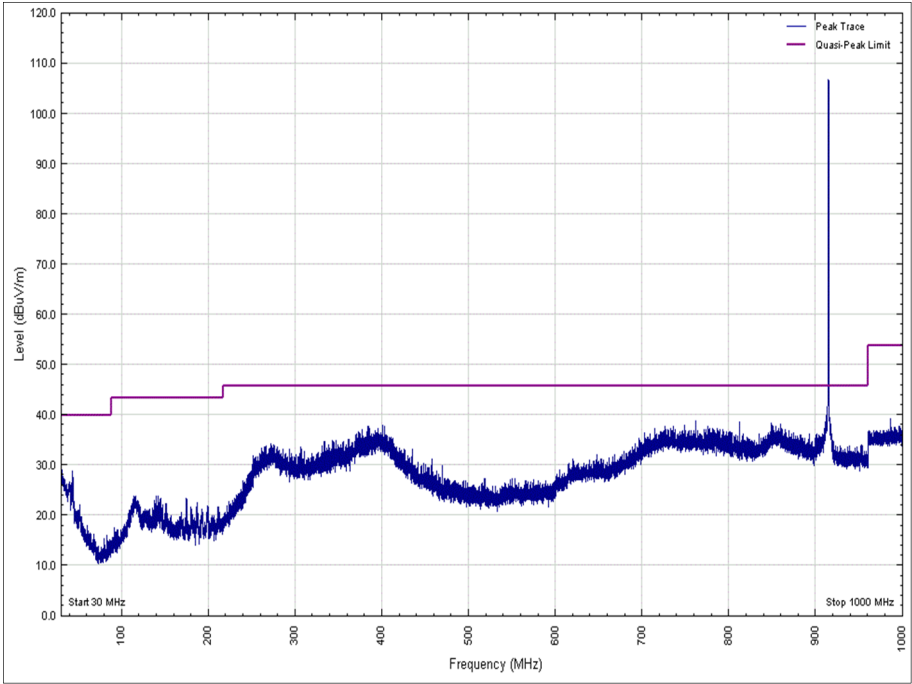
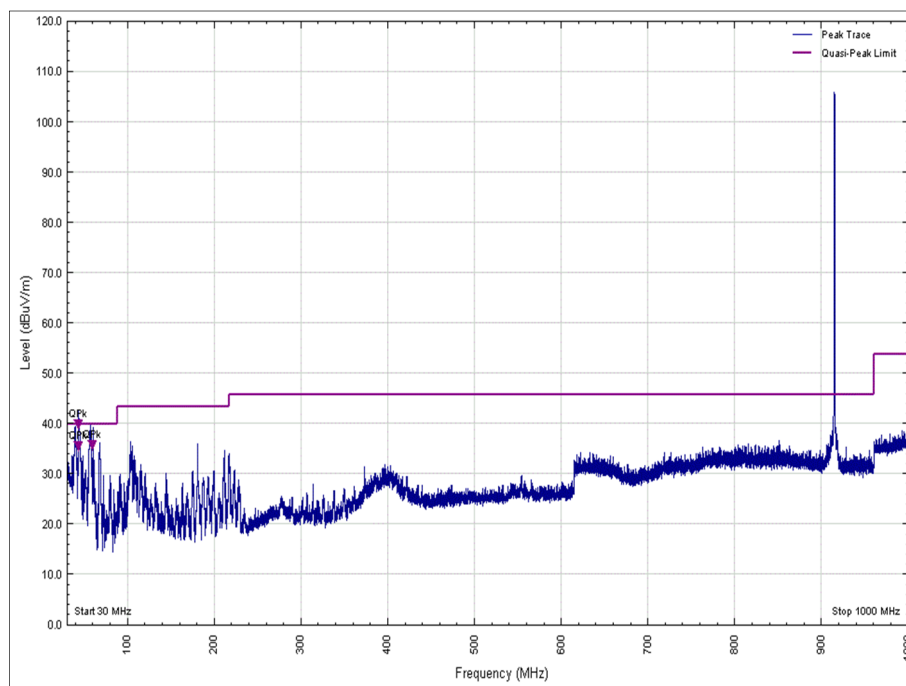


Figure 5 - 914.5 MHz - 30 MHz to 1 GHz - X Orientation - Horizontal

| Frequency (MHz) | Level (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Detector | Angle (°) | Height (cm) | Polarisation |
|-----------------|----------------|----------------|-------------|----------|-----------|-------------|--------------|
| 38.247          | 31.3           | 40.0           | -8.7        | Q-Peak   | 346       | 1.29        | Vertical     |
| 43.264          | 38.3           | 40.0           | -1.8        | Q-Peak   | 315       | 100         | Vertical     |
| 59.997          | 34.3           | 40.0           | -5.7        | Q-Peak   | 72        | 100         | Vertical     |
| 67.456          | 31.6           | 40.0           | -8.4        | Q-Peak   | 55        | 113         | Vertical     |
| 103.447         | 35.0           | 43.5           | -8.5        | Q-Peak   | 46        | 120         | Vertical     |
| 402.489         | 38.6           | 46.0           | -7.4        | Q-Peak   | 9         | 113         | Vertical     |

**Table 13 - 914.5 MHz - 30 MHz to 1 GHz - Y Orientation**



**Figure 6 - 914.5 MHz - 30 MHz to 1 GHz - Y Orientation - Vertical**



| Frequency (MHz) | Level (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Detector | Angle (°) | Height (cm) | Polarisation |
|-----------------|----------------|----------------|-------------|----------|-----------|-------------|--------------|
| *               |                |                |             |          |           |             |              |

Table 14 - 914.5 MHz - 30 MHz to 1 GHz - Y Orientation

\*No emissions were detected within 10 dB of the limit.

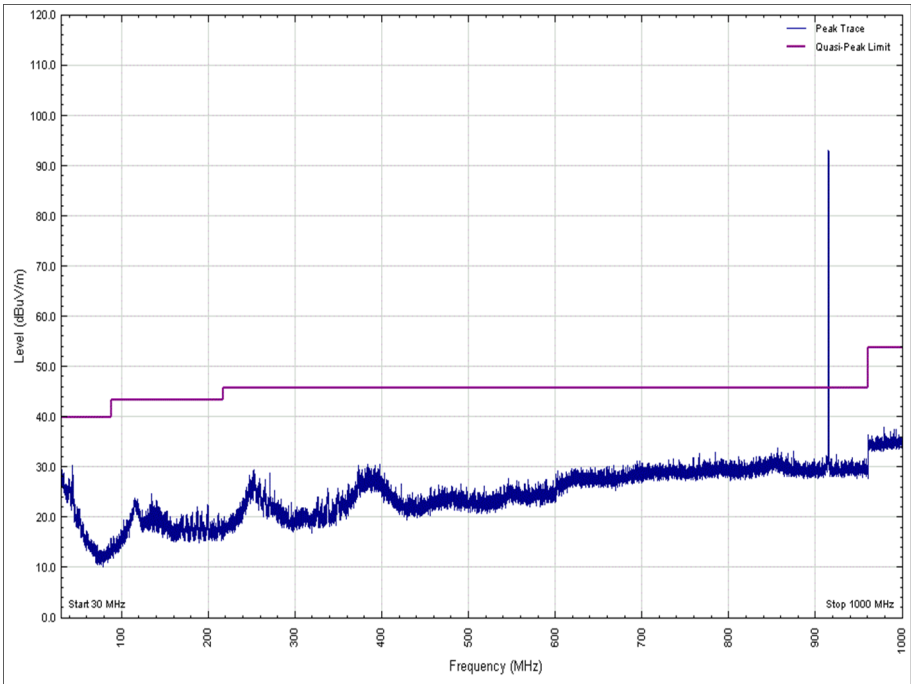


Figure 7 - 914.5 MHz - 30 MHz to 1 GHz - Y Orientation - Horizontal



| Frequency (MHz) | Level (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Detector | Angle (°) | Height (cm) | Polarisation |
|-----------------|----------------|----------------|-------------|----------|-----------|-------------|--------------|
| 38.911          | 36.0           | 40.0           | -4.0        | Q-Peak   | 236       | 100         | Vertical     |
| 43.226          | 36.9           | 40.0           | -3.1        | Q-Peak   | 187       | 100         | Vertical     |
| 60.004          | 34.8           | 40.0           | -5.2        | Q-Peak   | 122       | 100         | Vertical     |
| 103.260         | 37.1           | 43.5           | -6.4        | Q-Peak   | 3         | 102         | Vertical     |

Table 15 - 914.5 MHz - 30 MHz to 1 GHz - Z Orientation

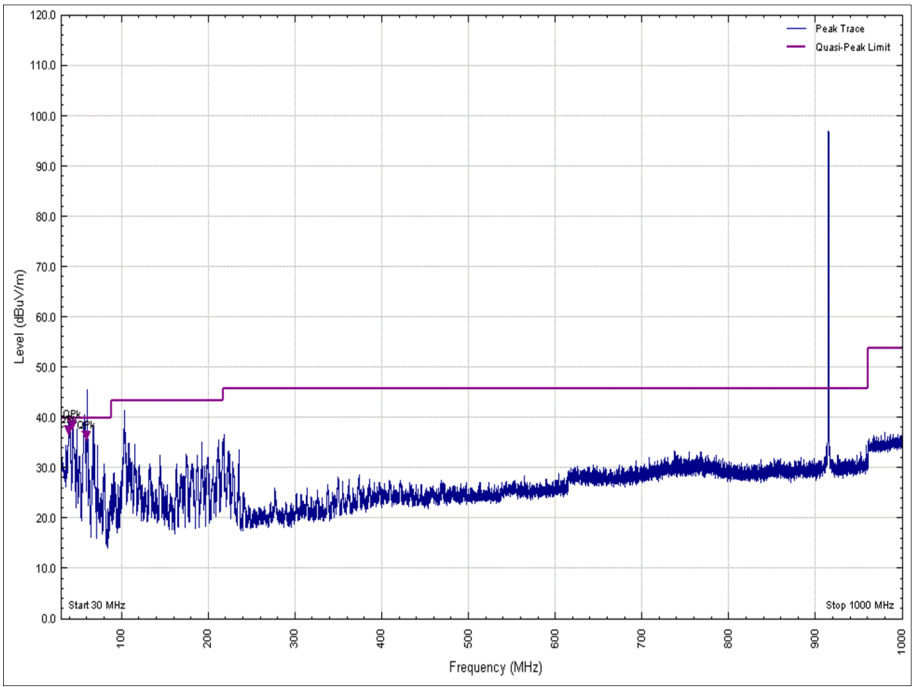


Figure 8 - 914.5 MHz - 30 MHz to 1 GHz - Z Orientation - Vertical



| Frequency (MHz) | Level (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Detector | Angle (°) | Height (cm) | Polarisation |
|-----------------|----------------|----------------|-------------|----------|-----------|-------------|--------------|
| 402.443         | 36.13          | 46.0           | -9.9        | Q-Peak   | 263       | 100         | Horizontal   |

Table 16 - 914.5 MHz - 30 MHz to 1 GHz - Z Orientation

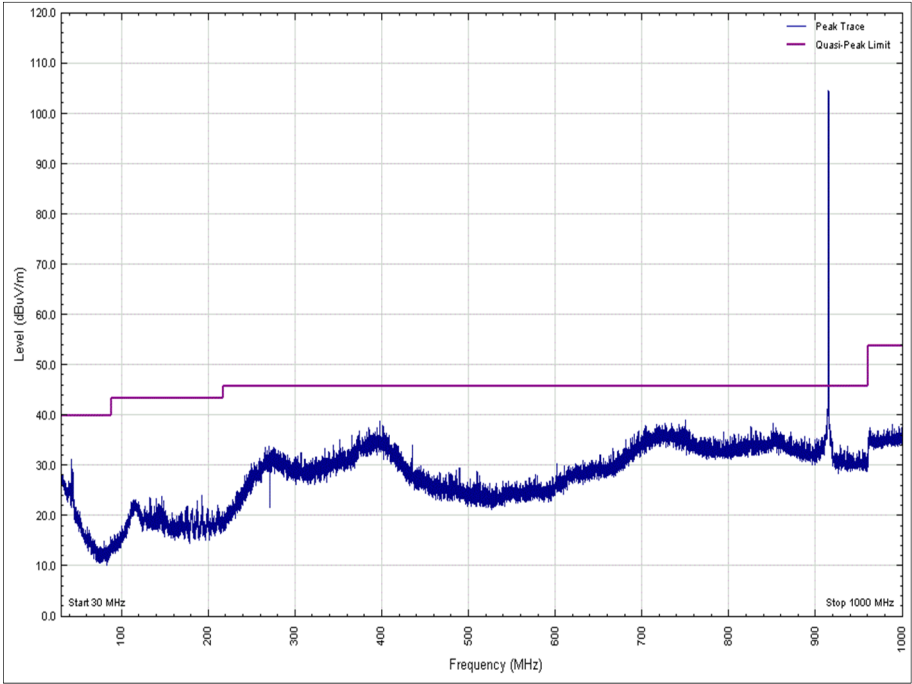


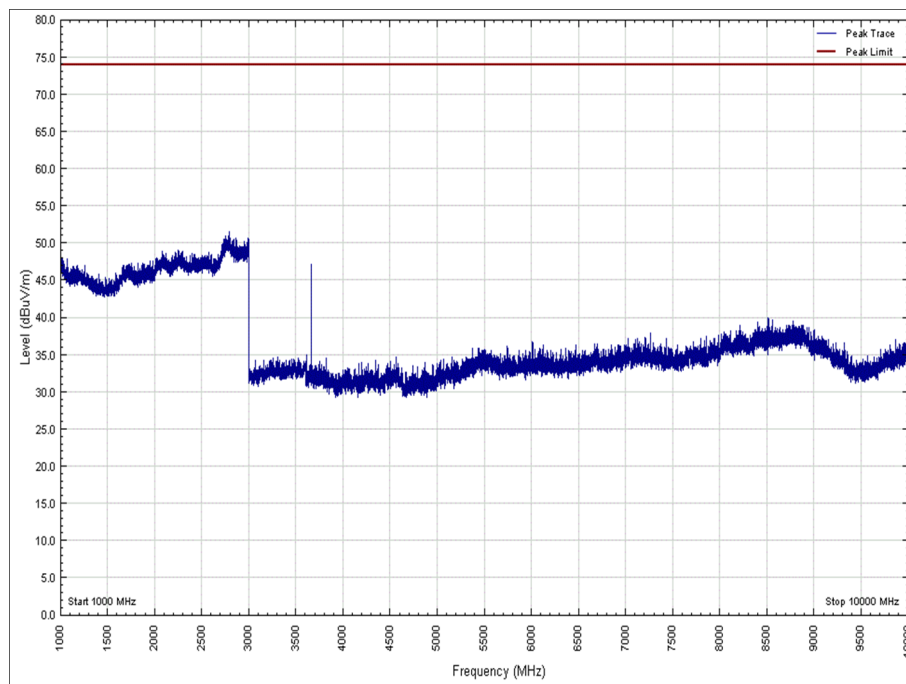
Figure 9 - 914.5 MHz - 30 MHz to 1 GHz - Z Orientation - Horizontal



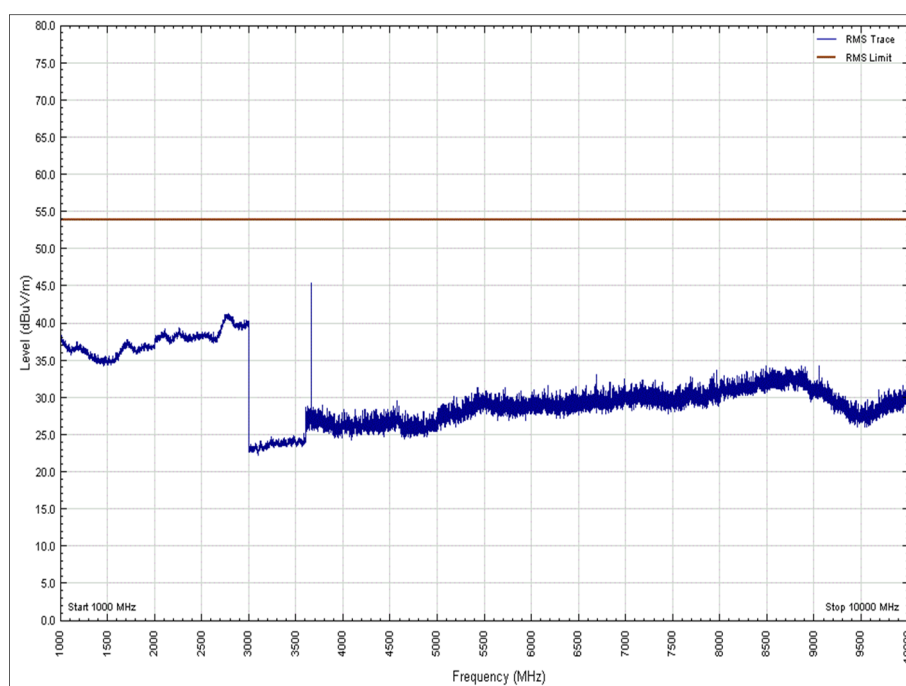
| Frequency (MHz) | Final Peak (dBμV/m) | Final Average (dBμV/m) | Final Peak (μV/m) | Final Average (μV/m) | Angle (°) | Height (m) | Polarisation |
|-----------------|---------------------|------------------------|-------------------|----------------------|-----------|------------|--------------|
| 3658.140        | N/A                 | 50.14                  | N/A               | 321.37               | 282       | 1.01       | Horizontal   |

**Table 17 - 1 GHz to 10 GHz**

No other emissions were detected within 10 dB of the limit.



**Figure 10 - 914.5 - 1 GHz to 10 GHz - X Orientation – Vertical - Peak**



**Figure 11 - 914.5 - 1 GHz to 10 GHz - X Orientation – Vertical – Average**

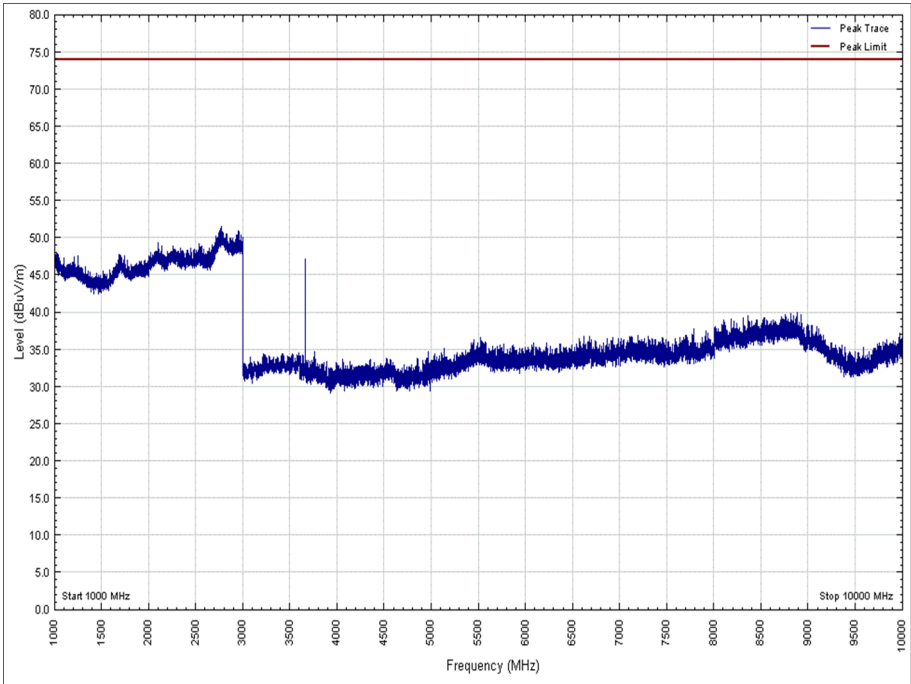


Figure 12 - 914.5 - 1 GHz to 10 GHz - X Orientation – Horizontal - Peak

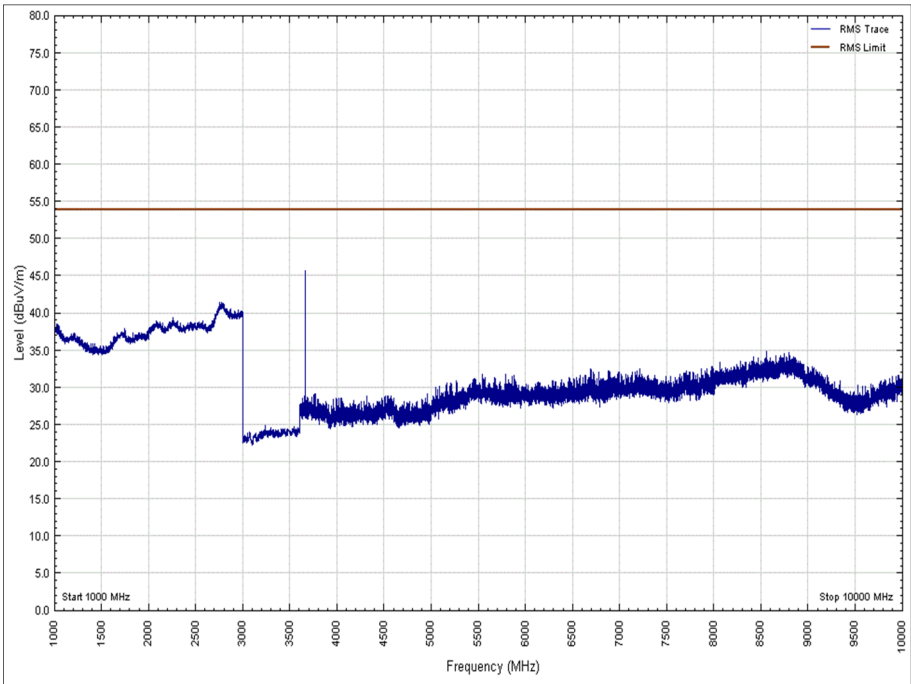


Figure 13 - 914.5 - 1 GHz to 10 GHz - X Orientation – Horizontal - Average

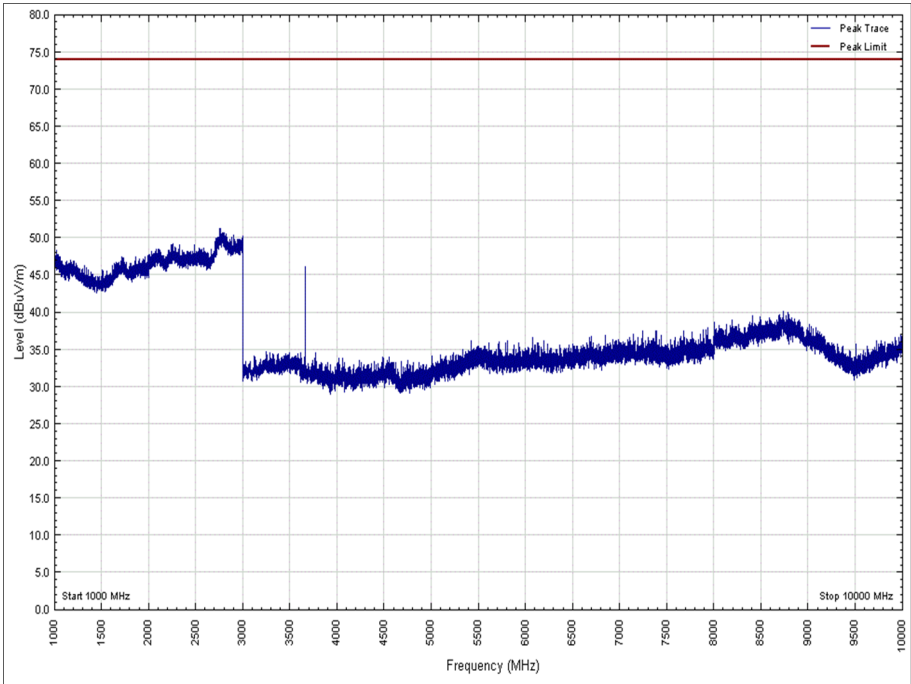


Figure 14 - 914.5 - 1 GHz to 10 GHz - Y Orientation – Vertical - Peak

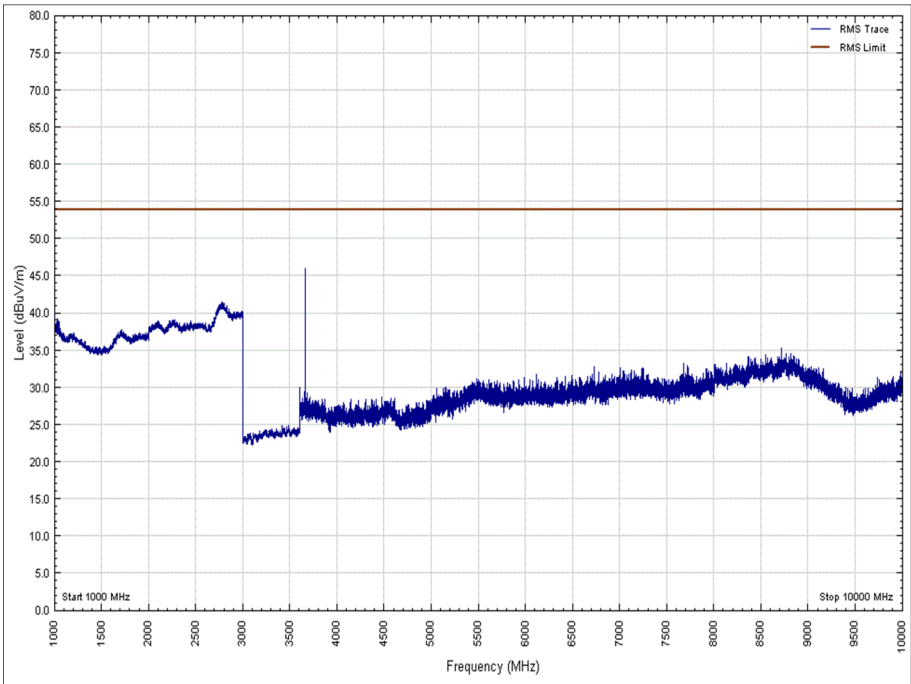


Figure 15 - 914.5 - 1 GHz to 10 GHz - Y Orientation – Vertical – Average

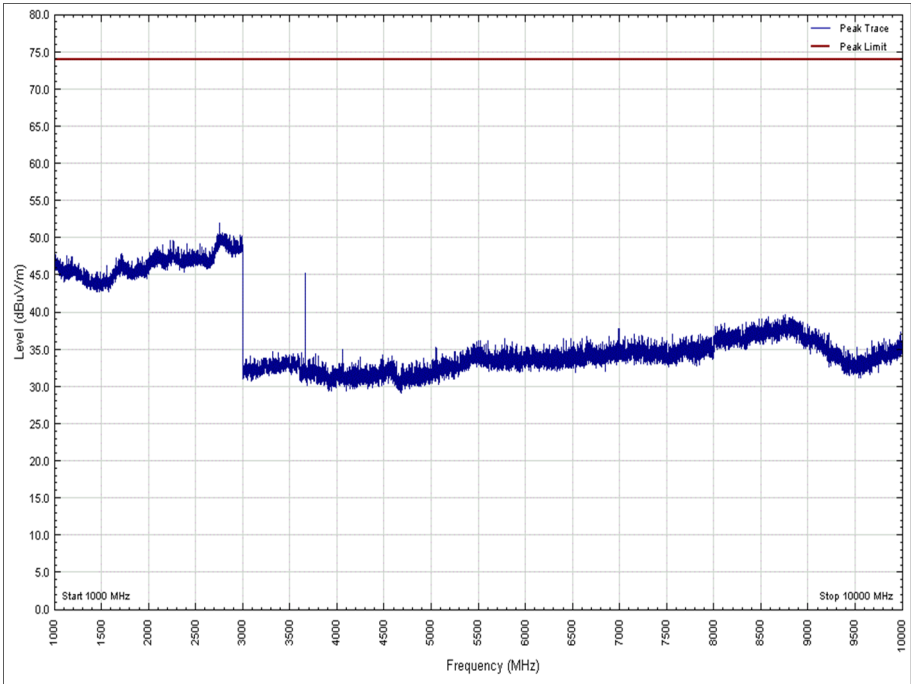


Figure 16 - 914.5 - 1 GHz to 10 GHz - Y Orientation – Horizontal - Peak

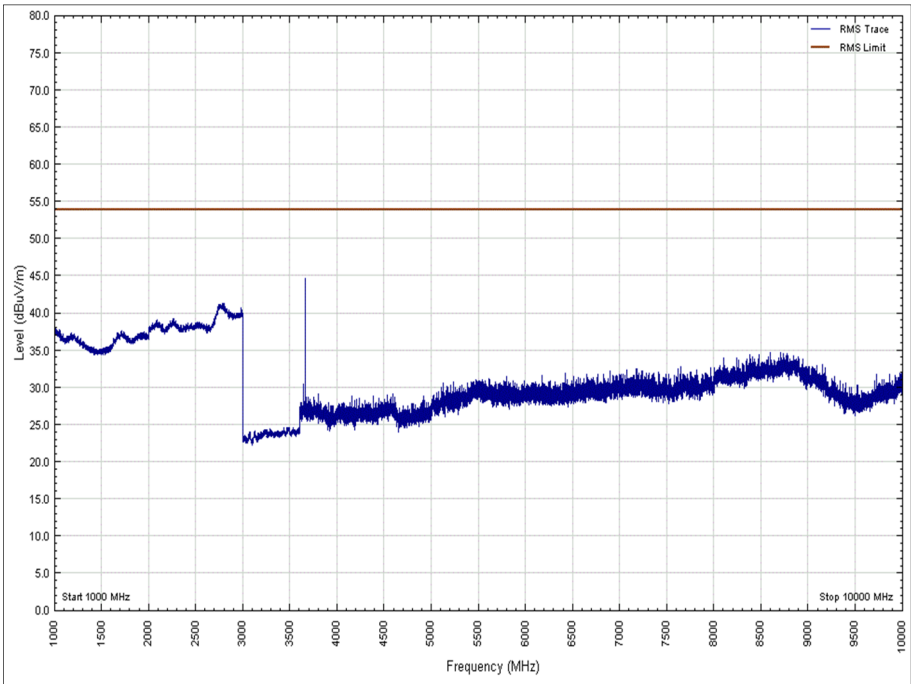


Figure 17 - 914.5 - 1 GHz to 10 GHz - Y Orientation – Horizontal - Average