Report on the FCC Testing of the

Digital Video Transceiver,
Model: SOL8SDR Plain - SOL8SDR 2x2W-P-234091

In accordance with FCC 47 CFR Part 15B

Prepared for: Domo Tactical Communications (DTC) Ltd.
Solent, Fusion 2
1100 Parkway
Solent Business Park
Whiteley, Fareham
Hampshire, PO15 7AB
United Kingdom

Product Service

Choose certainty.
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FCC ID: XRFSOL8SDRP234091

COMMERCIAL-IN-CONFIDENCE

Document Number: 75942063-01 | Issue: 05

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Project Management	Natalie Bennett	18 January 2019	
Authorised Signatory	Kim Archer	18 January 2019	

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Product Service 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 15B. The sample tested was found to comply with the requirements defined in the applied rules.

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Testing	Sharif Sendagire	18 January 2019	
Testing	Mohammed Malik	18 January 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 15B: 2017 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	28 June 2018
2	To amend the address in the 'Prepared for' section on the front page	04 July 2018
3	To amend the FCC ID.	14 December 2018
4	To amend the application form.	07 January 2019
5	To amend the FCC ID.	18 January 2019

1.2 Introduction

Applicant	Domo Tactical Communications (DTC) Ltd
Manufacturer	Domo Tactical Communications (DTC) Ltd
Model Number(s)	SOL8SDR Plain- SOL8SDR 2x2W-P-234091
Serial Number(s)	040767
Hardware Version(s)	4
Software Version(s)	4.02
Number of Samples Tested	1
Test Specification/Issue/Date	FCC 47 CFR Part 15B: 2017
Order Number Date	PO-047375-1 26-February-2018
Date of Receipt of EUT	06-June-2018
Start of Test	06-June-2018
Finish of Test	07-June-2018
Name of Engineer(s)	Sharif Sendagire Mohammed Malik
Related Document(s)	ANSI C63.4: 2014

1.3 Brief Summary of Results

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

Section	Specification Clause	Test Description	Result	Comments/Base Standard
Configuration and Mode: Idle				
2.1	15.109	Radiated Disturbance – Class A	Pass	ANSI C63.4: 2014

Table 1

Product Service

1.4 Application Form

EQUIPMENT DESCRIPTION	
Model Name/Number	SOL8SDR Plain- SOL8SDR 2x2W-P-234091
Part Number	SOL8SDR 2X2W-P-234091
Hardware Version	4
Software Version	4.0.2
FCC ID (if applicable)	XRFSOL8SDRP234091
Industry Canada ID (if applicable)	8638A-SOL8SDR 2x2W-P
Technical Description (Please provide a brief description of the intended use of the equipment)	SOL8 software defined radio is an ultra-miniature COFDM digital video transceiver. The Plain -P is an ultra-miniature package ideal for integration into small concealment solutions offering 2W output and MIMO. Capable of Video and IP transmission providing greater than 25Mb/s over a selectable bandwidth of between 2.5-10 MHz.

INTENTIONAL RADIATORS								
Technology	Conducted Declared Output Power (dBm)	Antenna Gain (dBi)	Supported Bandwidth(s) (MHz)	Modulation Scheme(s)	ITU Emission Designator	Test Channels (MHz)		
						Bottom	Middle	Top
COFDM	2x 33	2	2.5	16QAM-BPSK	10M00D1W	2451.25	2466.75	2482.25
COFDM	2x 33	2	3	16QAM-BPSK	10M00D1W	2451.50	2466.75	2482.00
COFDM	2x 33	2	3.5	16QAM-BPSK	10M00D1W	2451.75	2466.75	2481.75
COFDM	2x 33	2	5	16QAM-BPSK	10M00D1W	2452.50	2466.75	2481.00
COFDM	2x 33	2	6	16QAM-BPSK	10M00D1W	2453.00	2466.75	2480.50
COFDM	2x 33	2	7	16QAM-BPSK	10M00D1W	2453.50	2466.75	2480.00
COFDM	2x 33	2	8	16QAM-BPSK	10M00D1W	2454.00	2466.75	2479.50
COFDM	2x 33	2	10	16QAM-BPSK	10M00D1W	2455.00	2466.75	2478.50

UN-INTENTIONAL RADIATOR	
Highest frequency generated or used in the device or on which the device operates or tunes	2600.00 MHz
Lowest frequency generated or used in the device or on which the device operates or tunes	2451.25 MHz
Class A Digital Device (Use in commercial, industrial or business environment) ☒ Class B Digital Device (Use in residential environment only) ☐	

Product Service

Power Source			
AC	Single Phase	Three Phase	Nominal Voltage
External DC	Nominal Voltage	Maximum Current	
	12V	1.8A	
Battery	Nominal Voltage	Battery Operating End Point Voltage	
	12V	9V	
Can EUT transmit whilst being charged?		Yes ☐ No ☒	

EXTREME CONDITIONS					
Maximum temperature	+60	°C	Minimum temperature	-10	°C

Ancillaries
Please list all ancillaries which will be used with the device.
12v LEAD AND RJ 45

ANTENNA CHARACTERISTICS					
☒	Antenna connector		State impedance	50	Ohm
☐	Temporary antenna connector		State impedance		Ohm
☐	Integral antenna	Type			
☒	External antenna	Type			

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

Name: Stuart Doe

Position held: Head of Engineering Date: 30/04/18

1.5 Product Information

1.5.1 Technical Description

SOL8 software defined radio is an ultra-miniature COFDM digital video transceiver. The Plain-P is an ultra-miniature package ideal for integration into small concealment solutions offering 2W output and MIMO. Capable of Video and IP transmission providing greater than 25Mb/s over a selectable bandwidth of between 2.5-10 MHz.

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
Serial Number: 040767			
0	As supplied by the customer	Not Applicable	Not Applicable

Table 2

1.8 Test Location

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

Test Name	Name of Engineer(s)	Accreditation
Configuration and Mode: Idle		
Radiated Disturbance	Sharif Sendagire Mohammed Malik	UKAS

Table 3

Office Address:

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

2 Test Details

2.1 Radiated Disturbance

2.1.1 Specification Reference

FCC 47 CFR Part 15B, Clause 15.109

2.1.2 Equipment Under Test and Modification State

SOL8SDR Plain - SOL8SDR 2x2W-P-234091, S/N: 040767 – Modification State 0

2.1.3 Date of Test

06-June-2018 to 07-June-2018

2.1.4 Test Method

The EUT was set up in a semi-anechoic chamber on a remotely controlled turntable and placed on a non-conductive in accordance with ANSI C63.4, clause 8.

A pre-scan of the EUT emissions profile was made while varying the antenna-to-EUT azimuth and antenna-to-EUT polarisation using a peak detector; measurements were taken at a 3m distance. Using the pre-scan list of the highest emissions detected, their bearing and associated antenna polarisation, the EUT was then formally measured using a Quasi-Peak, Peak, Average detector as appropriate. The readings were maximised by adjusting the antenna height, polarisation and turntable azimuth, in accordance with the specification.

2.1.5 Environmental Conditions

Ambient Temperature	20.1 - 20.5°C
Relative Humidity	48.5 - 50.1%

2.1.6 Test Results

Results for Configuration and Mode : Idle.

Performance assessment of the EUT made during this test: Pass

Detailed results are shown below.

Highest frequency generated or used within the EUT: 2.6 GHz
Which necessitates an upper frequency test limit of: 13 GHz

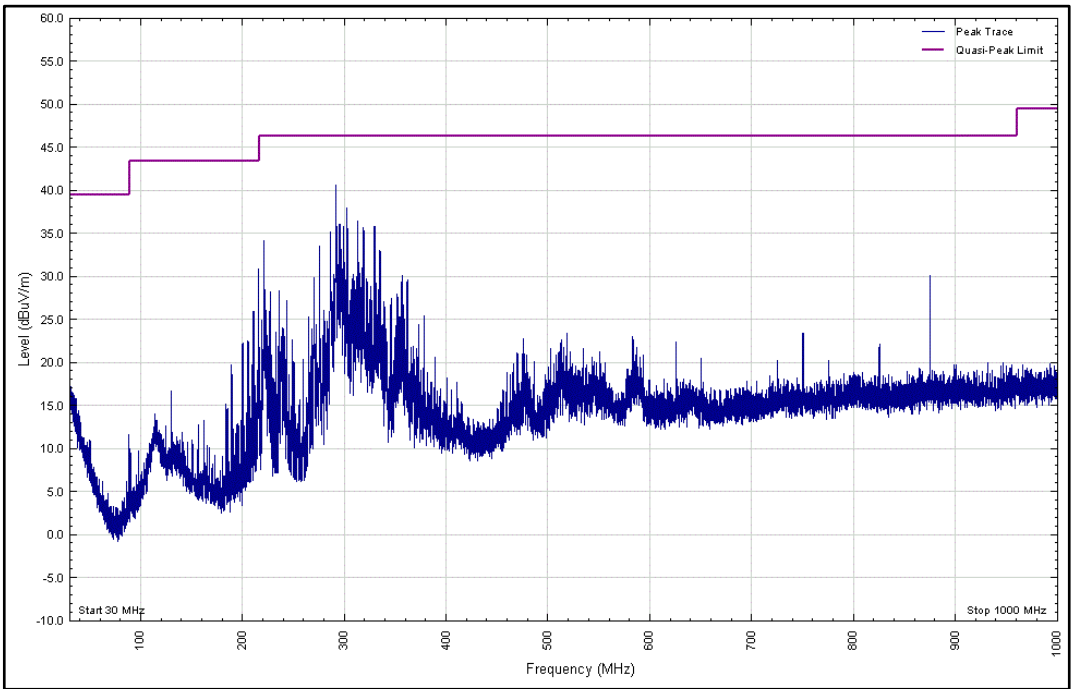

Figure 1 - 30 MHz to 1 GHz – Polarity: Horizontal, EUT Orientation: X

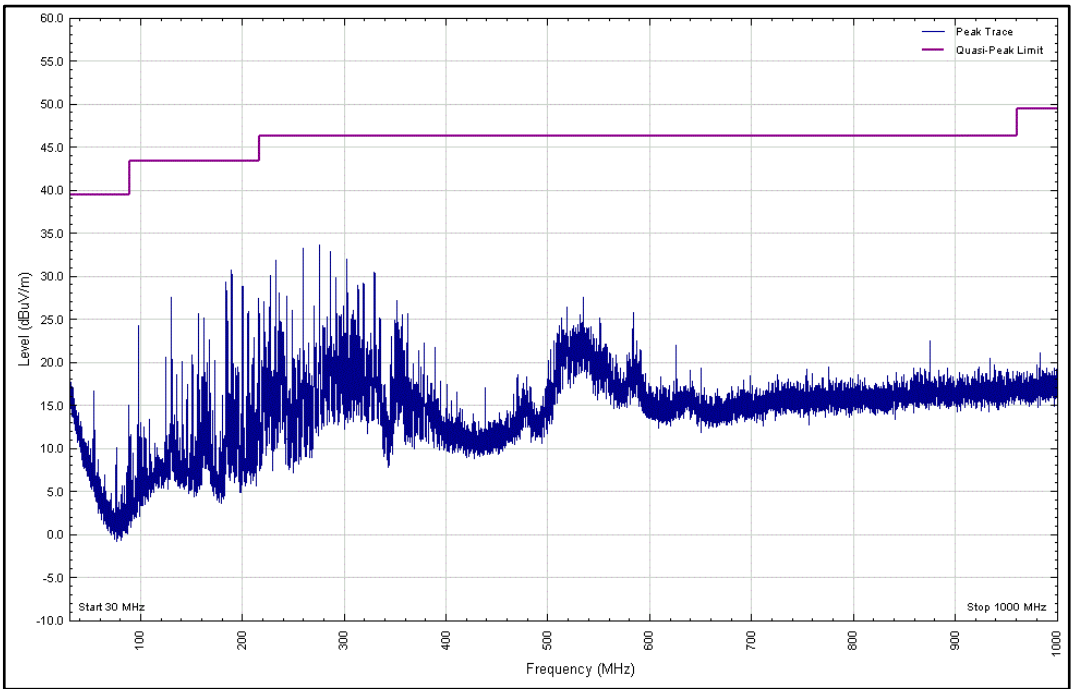

Figure 2 - 30 MHz to 1 GHz - Polarity: Vertical, EUT Orientation: X

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	QP Margin (dBuV/m)	Angle(Deg)	Height(m)	Polarity
*						

Table 4 - 30 MHz to 1 GHz - EUT Orientation: X

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

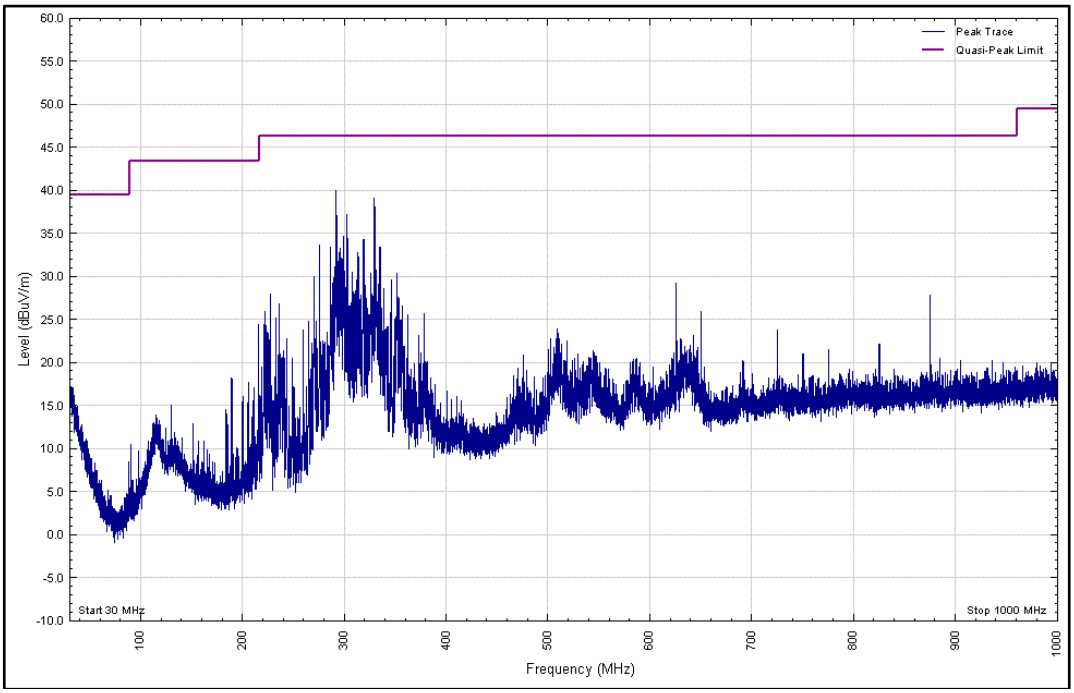

Figure 3 - 30 MHz to 1 GHz - Polarity: Horizontal, EUT Orientation: Y

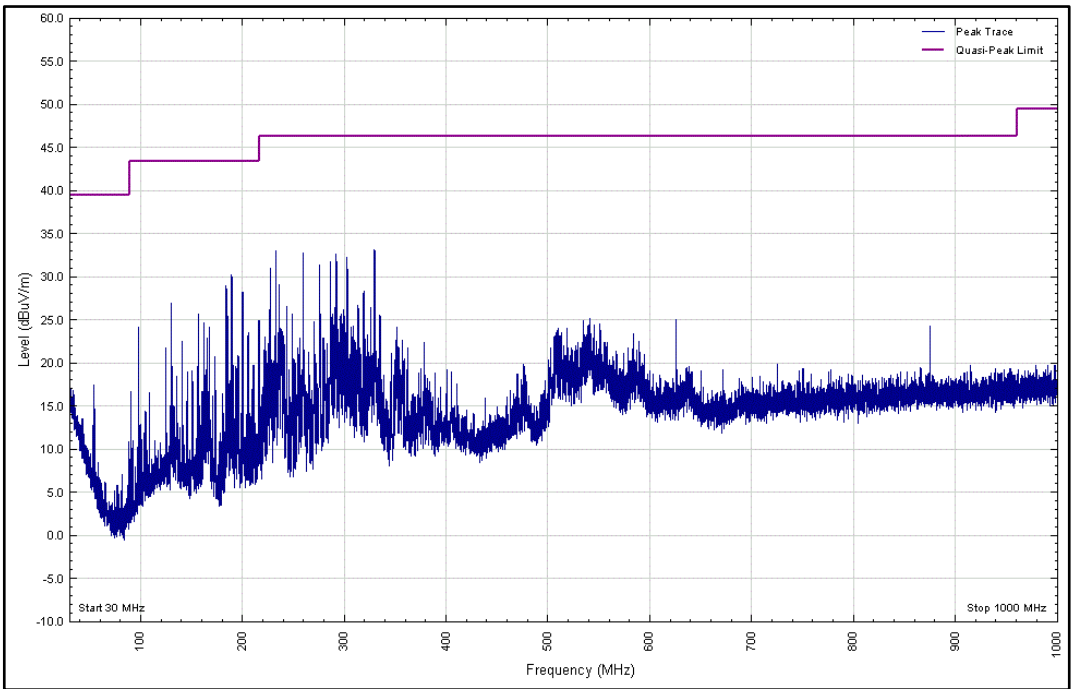

Figure 4 - 30 MHz to 1 GHz - Polarity: Vertical, EUT Orientation: Y

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	QP Margin (dBuV/m)	Angle(Deg)	Height(m)	Polarity
*						

Table 5 - 30 MHz to 1 GHz - EUT Orientation: Y

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

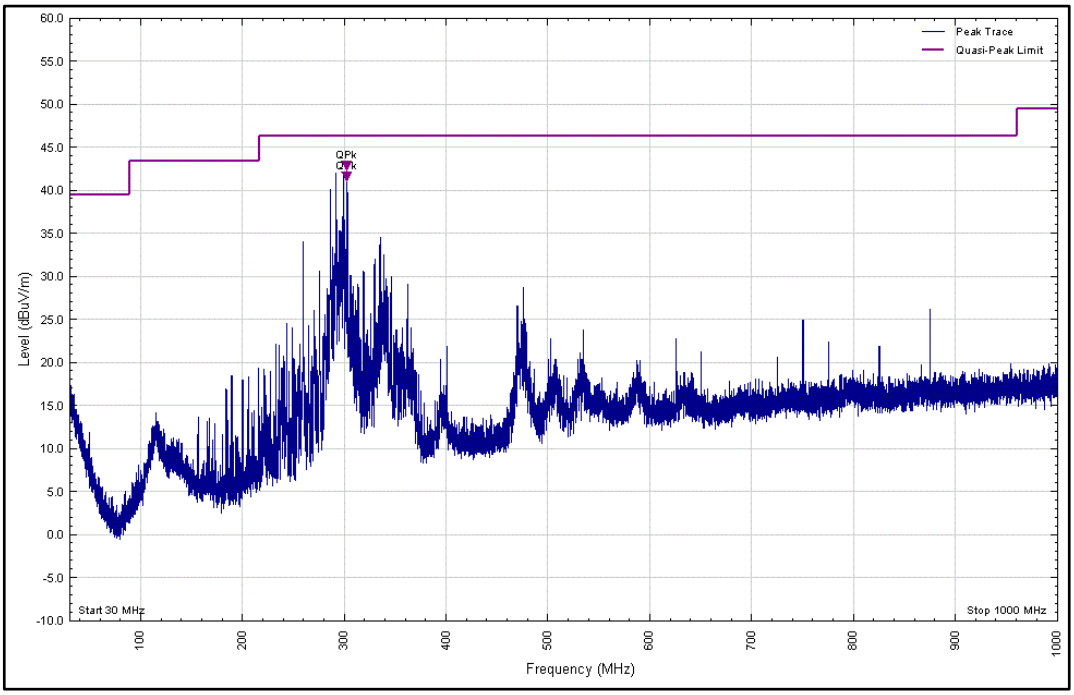

Figure 5 - 30 MHz to 1 GHz- Polarity: Horizontal, EUT Orientation: Z

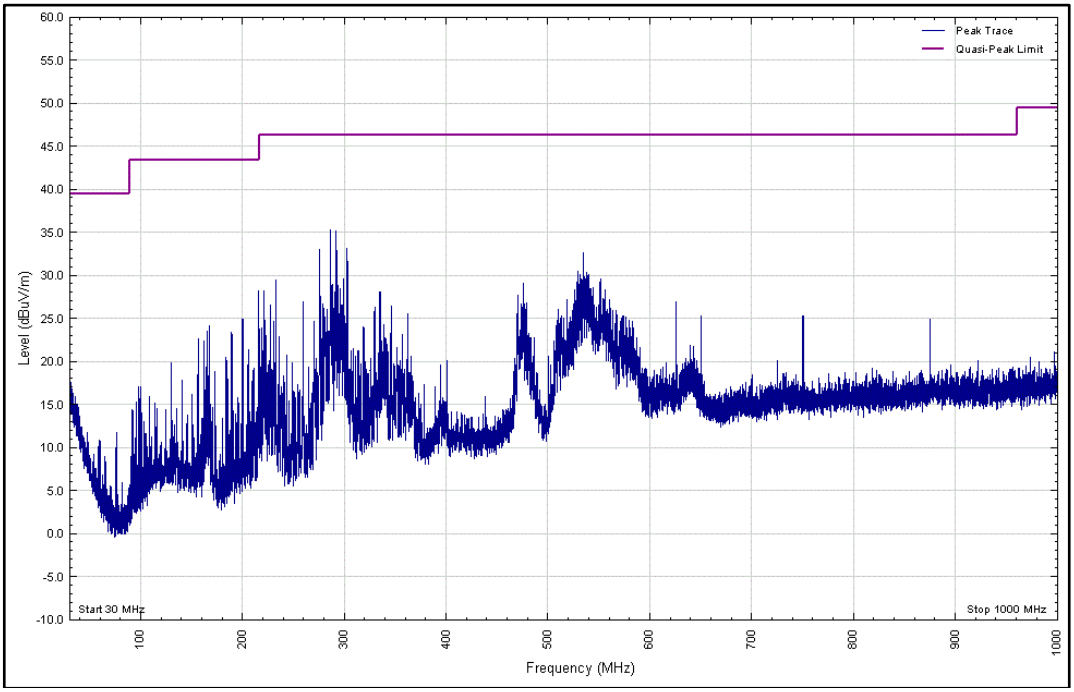

Figure 6 - 30 MHz to 1 GHz - Polarity: Vertical, EUT Orientation: Z

Frequency (MHz)	QP Level (dBuV/m)	QP Limit (dBuV/m)	QP Margin (dBuV/m)	Angle(Deg)	Height(m)	Polarity
302.341	40.7	46.4	-5.7	174	152	Horizontal
302.417	41.9	46.4	-4.5	171	104	Horizontal

Table 6 - 30 MHz to 1 GHz - EUT Orientation: Z

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

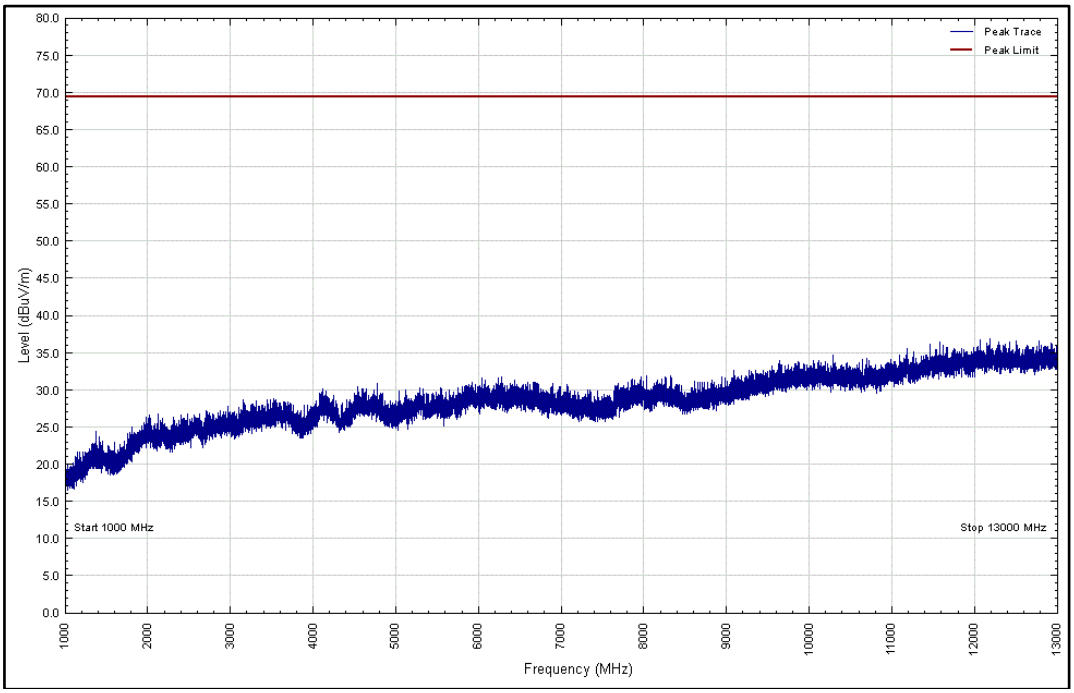

Figure 7 - 1 GHz to 13 GHz – Polarity: Horizontal, EUT Orientation: X - Peak

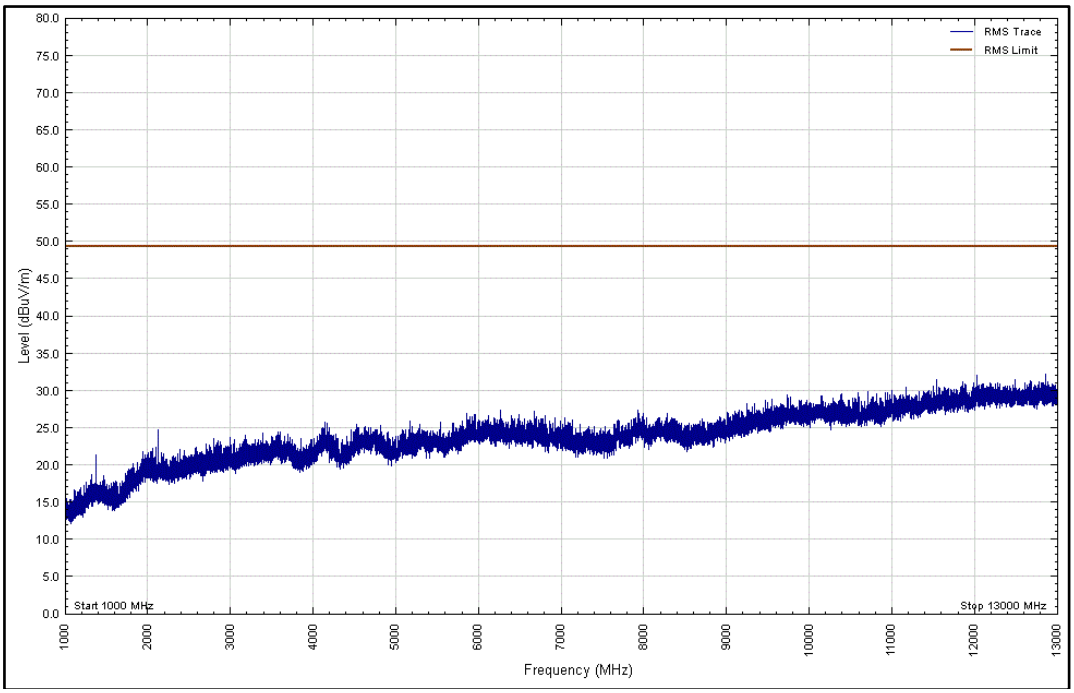

Figure 8 - 1 GHz to 13 GHz – Polarity: Horizontal, EUT Orientation: X - Average

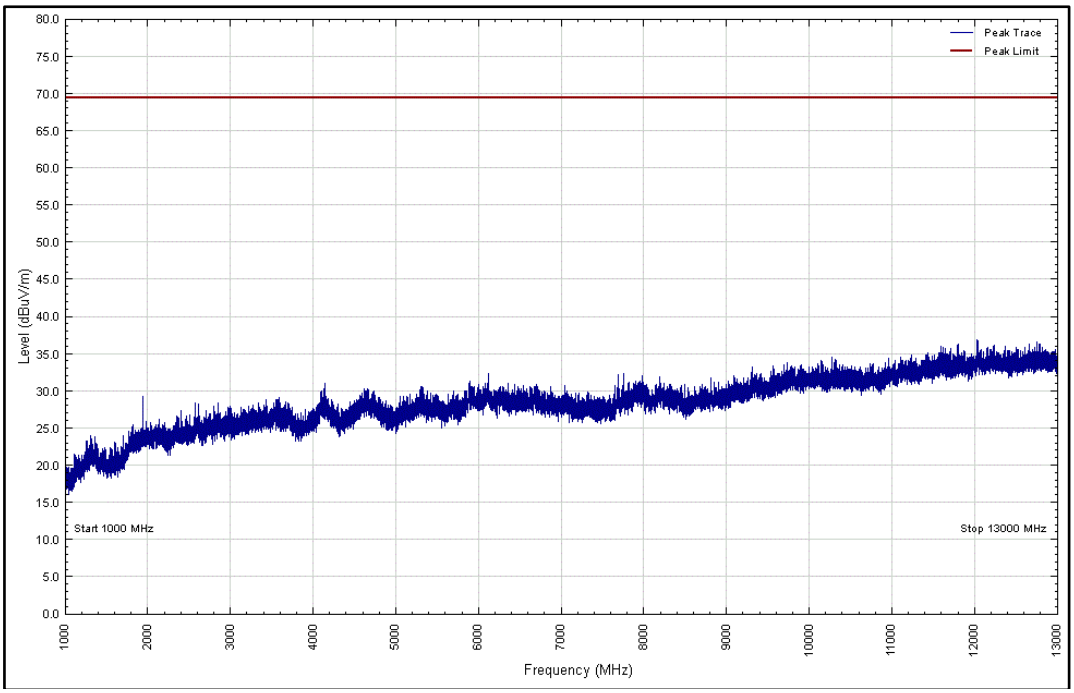

Figure 9 - 1 GHz to 13 GHz – Polarity: Vertical, EUT Orientation: X - Peak

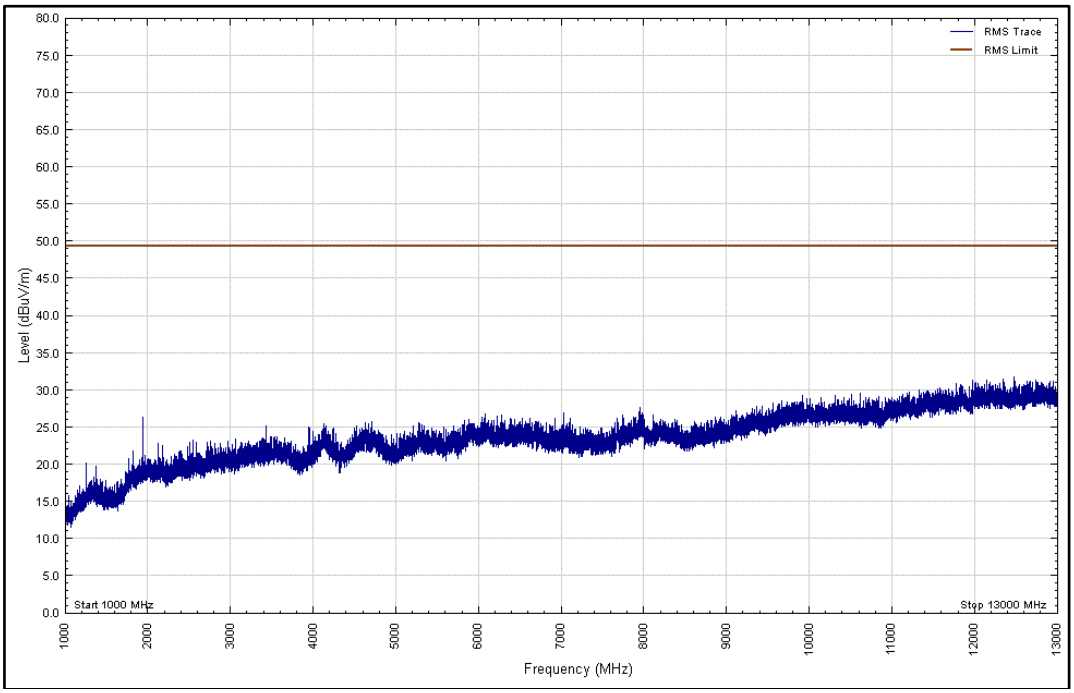

Figure 10 - 1 GHz to 13 GHz – Polarity: Vertical, EUT Orientation: X - Average

Frequency (GHz)	Result (dBµV/m)		Limit (dBµV/m)		Margin (dBµV/m)	
	Peak	Average	Peak	Average	Peak	Average
*						

Table 7 - 1 GHz to 13 GHz - EUT Orientation: X

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

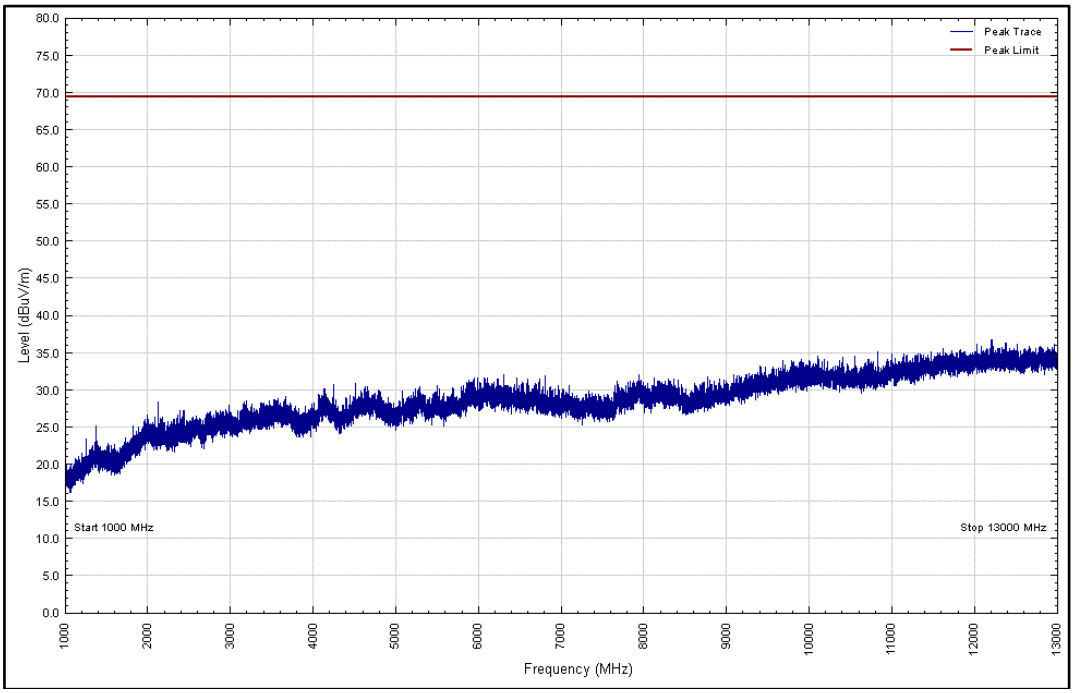

Figure 11 - 1 GHz to 13 GHz – Polarity: Horizontal, EUT Orientation: Y - Peak

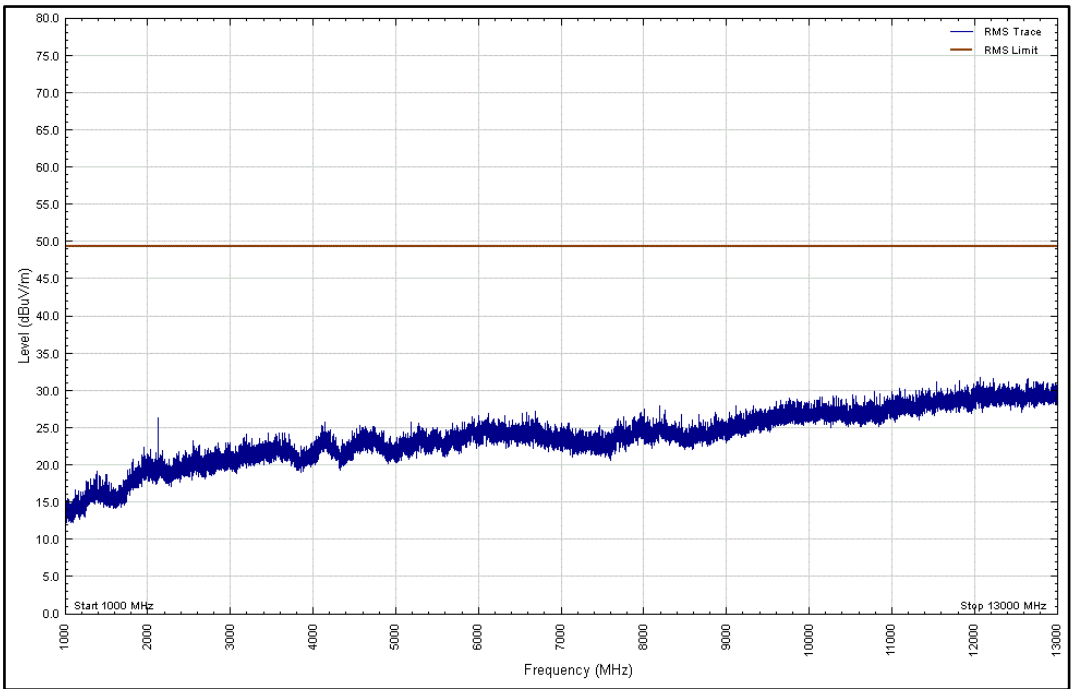

Figure 12 - 1 GHz to 13 GHz – Polarity: Horizontal, EUT Orientation: Y - Average

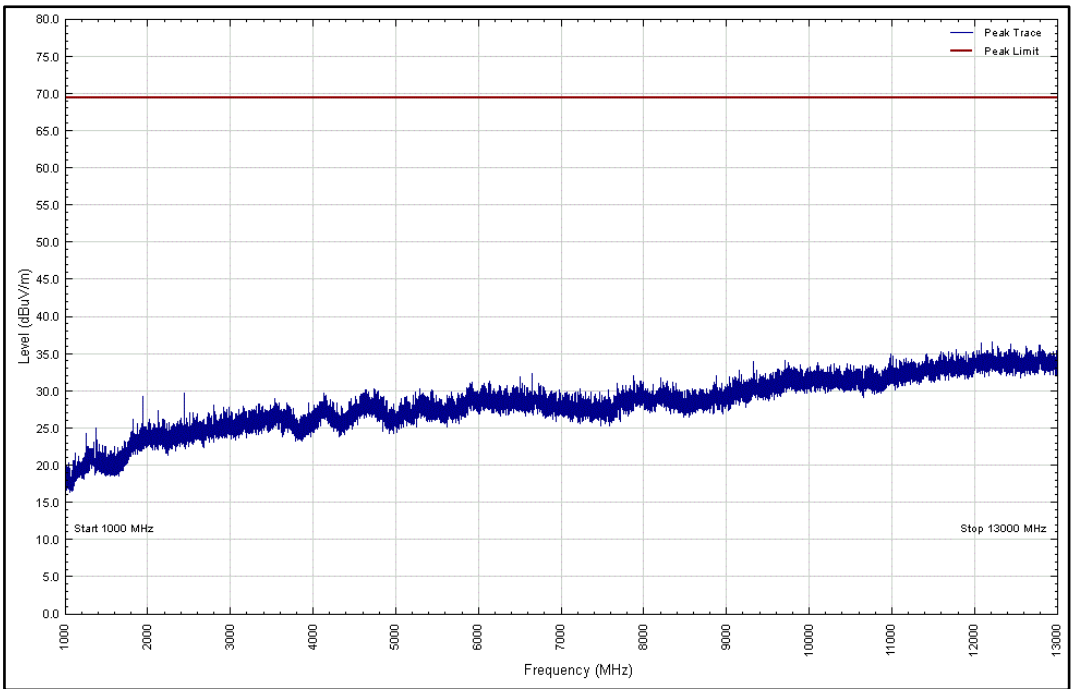

Figure 13 - 1 GHz to 13 GHz – Polarity: Vertical, EUT Orientation: Y - Peak

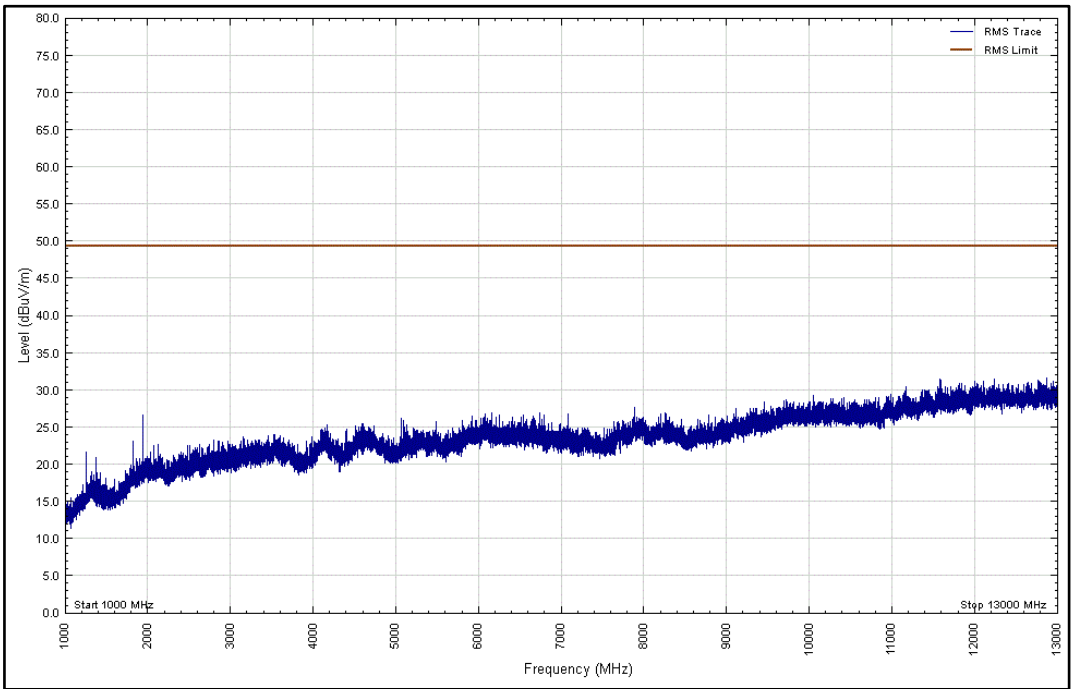

Figure 14 - 1 GHz to 13 GHz – Polarity: Vertical, EUT Orientation: Y – Average

Frequency (GHz)	Result (dBµV/m)		Limit (dBµV/m)		Margin (dBµV/m)	
	Peak	Average	Peak	Average	Peak	Average
*						

Table 8 - 1 GHz to 13 GHz - EUT Orientation: Y

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

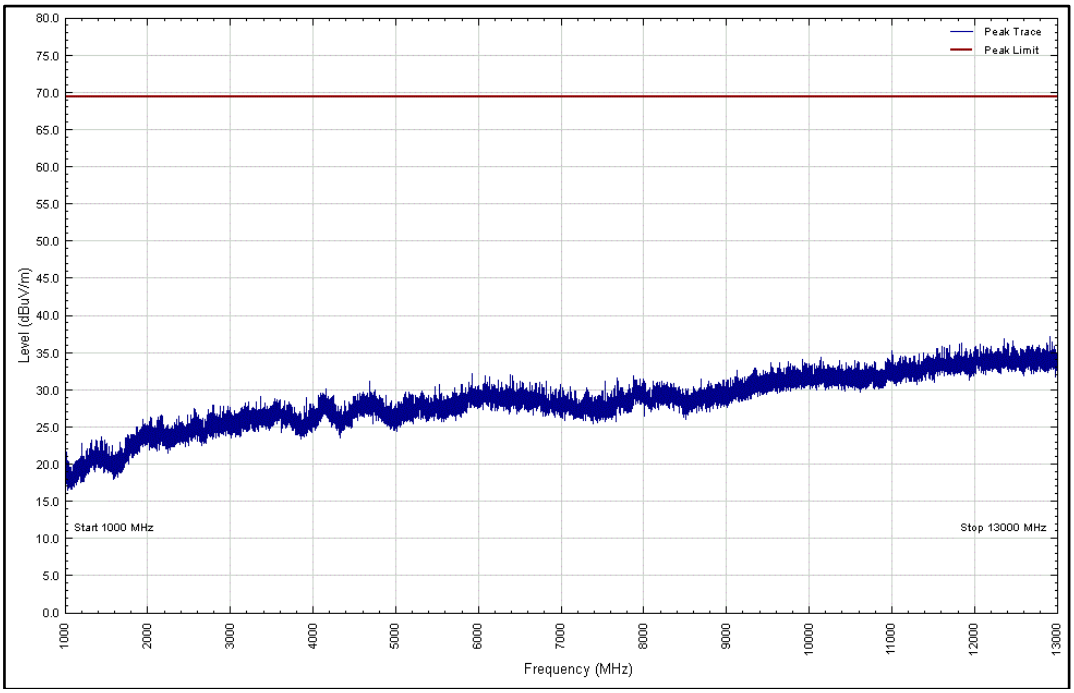

Figure 15 - 1 GHz to 13 GHz – Polarity: Horizontal, EUT Orientation: Z - Peak

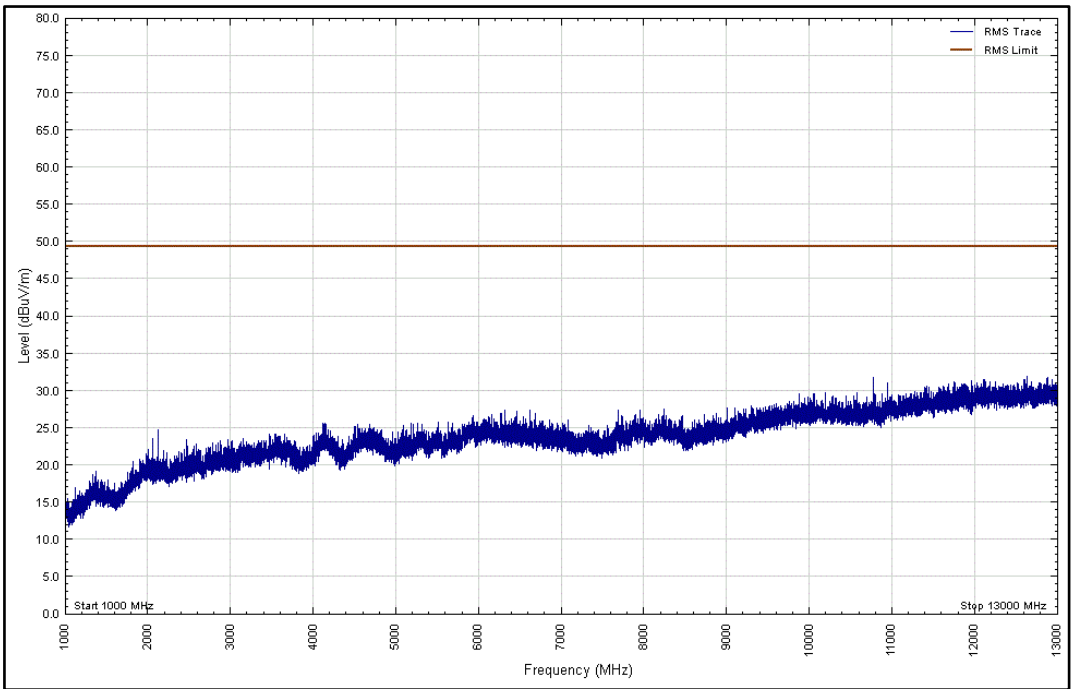

Figure 16 - 1 GHz to 13 GHz – Polarity: Horizontal, EUT Orientation: Z - Average

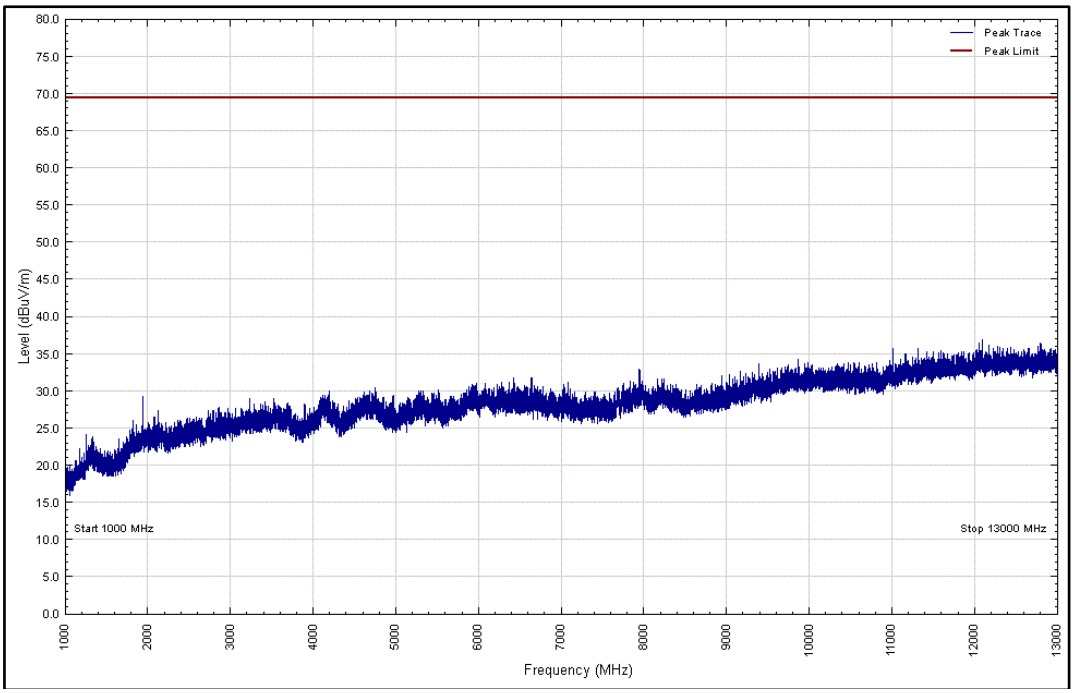

Figure 17 - 1 GHz to 13 GHz – Polarity: Vertical, EUT Orientation: Z - Peak

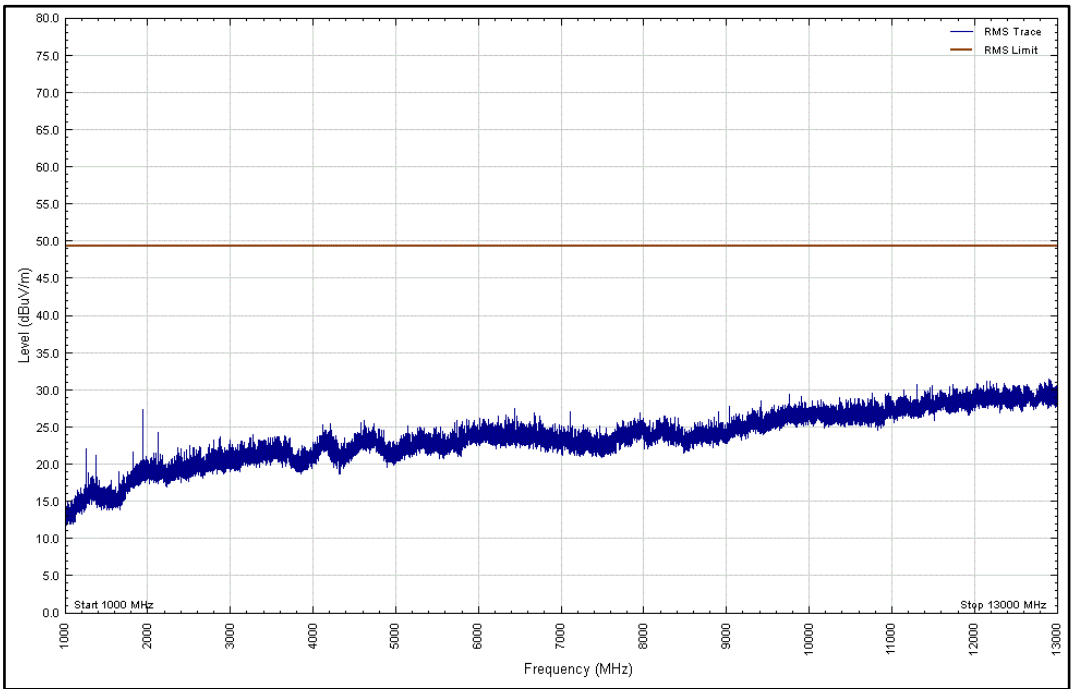

Figure 18 - 1 GHz to 13 GHz – Polarity: Vertical, EUT Orientation: Z - Average

Frequency (GHz)	Result (dBµV/m)		Limit (dBµV/m)		Margin (dBµV/m)	
	Peak	Average	Peak	Average	Peak	Average
*						

Table 9 - 1 GHz to 13 GHz - EUT Orientation: Z

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

FCC 47 CFR Part 15, Limit Clause 15.109

Frequency of Emission (MHz)	Field Strength (µV/m)
30 to 88	100.0
88 to 216	150.0
216 to 960	200.0
Above 960	500.0

Table 10

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
Pre-Amplifier	Phase One	PS04-0086	1533	12	12-Jan-2019
Screened Room (5)	Rainford	Rainford	1545	36	18-Jul-2019
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Multimeter	Iso-tech	IDM101	2417	12	02-Oct-2018
Antenna (Bilog)	Chase	CBL6143	2904	24	08-Aug-2019
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	22-Nov-2018
Termination (50ohm)	Meca	405-1	3512	12	01-Nov-2018
Termination (50ohm)	Meca	405-1	3516	12	01-Nov-2018
1GHz to 8GHz Low Noise Amplifier	Wright Technologies	APS04-0085	4365	12	18-Oct-2018
Cable (Rx, Nm-Nm, 7m)	Scott Cables	SLU18-NMNM-07.00M	4498	6	19-Jun-2018
Cable (Rx, Km-Km 2m)	Scott Cables	KPS-1501-2000-KPS	4526	6	02-Jul-2018
Cable (Rx, SMAm-SMAm 0.5m)	Scott Cables	SLSLL18-SMSM-00.50M	4528	6	15-Aug-2018
Double Ridged Waveguide Horn Antenna	ETS-Lindgren	3117	4722	12	01-Mar-2019
Mast Controller	Maturo Gmbh	NCD	4810	-	TU
Tilt Antenna Mast	Maturo Gmbh	TAM 4.0-P	4811	-	TU
Double Ridge Broadband Horn Antenna	Schwarzbeck	BBHA 9120 B	4848	12	12-Feb-2019
4dB Attenuator	Pasternack	PE7047-4	4935	12	28-Nov-2018
Quad Power Supply	Rohde & Schwarz	HMP4040	4955	-	O/P Mon
Hygrometer	Rotronic	HP21	4989	12	26-Apr-2019

Table 11

TU – Traceability Unscheduled
O/P Mon – Output Monitored using calibrated equipment

3 Measurement Uncertainty

For a 95% confidence level, the measurement uncertainties for defined systems are:

Test Name	Measurement Uncertainty
Radiated Disturbance	30 MHz to 1 GHz, Bilog Antenna, ±5.2 dB 1 GHz to 40 GHz, Horn Antenna, ±6.3 dB

Table 12