

FCC and ISED Test Report

Park Air Systems Ltd
VHF Power Amplifier, Model: T6-AV 100

In accordance with FCC 47 CFR Part 15B and
ICES-003

Prepared for: Park Air Systems Ltd
Northfields
Market Deeping
Peterborough
PE6 8UE
United Kingdom



Add value.
Inspire trust.

FCC ID: C8LT6-AV100 IC: 2137A-T6AV100

COMMERCIAL-IN-CONFIDENCE

Document 75949179-01 Issue 02

SIGNATURE

NAME	JOB TITLE	RESPONSIBLE FOR	ISSUE DATE
Andy Lawson	Senior Engineer	Authorised Signatory	11 March 2021

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 FCC 47 CFR Part 15B and ICES-003. The sample tested was found to comply with the requirements defined in the applied rules.

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Testing	Graeme Lawler	11 March 2021	

FCC Accreditation

90987 Octagon House, Fareham Test Laboratory

ISED Accreditation

12669A 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: 2019 and ICES-003:2016 for the tests detailed in section 1.3.



DISCLAIMER AND COPYRIGHT

This non-binding report has been prepared by TÜV SÜD with all reasonable skill and care. The document is confidential to the potential Client and TÜV SÜD. No part of this document may be reproduced without the prior written approval of TÜV SÜD. © 2021 TÜV SÜD. This report relates only to the actual item/items tested.

ACCREDITATION

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation. Results of tests not covered by our UKAS Accreditation Schedule are marked NUA (Not UKAS Accredited).

TÜV SÜD
is a trading name of TÜV SÜD Ltd
Registered in Scotland at East Kilbride,
Glasgow G75 0QF, United Kingdom
Registered number: SC215164

TÜV SÜD Ltd is a
TÜV SÜD Group Company

Phone: +44 (0) 1489 558100
Fax: +44 (0) 1489 558101
www.tuv-sud.co.uk

TÜV SÜD
Octagon House
Concorde Way
Fareham
Hampshire PO15 5RL
United Kingdom



Contents

1	Report Summary	2
1.1	Report Modification Record.....	2
1.2	Introduction.....	2
1.3	Brief Summary of Results	3
1.4	Customer Supplied Form	4
1.5	Product Information	6
1.6	Deviations from the Standard.....	7
1.7	EUT Modification Record	7
1.8	Test Location.....	7
2	Test Details	8
2.1	Conducted Disturbance at Mains Terminals	8
2.2	Radiated Disturbance.....	22
3	Test Equipment Information	34
3.1	General Test Equipment Used	34
4	Incident Reports	35
5	Measurement Uncertainty	36



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	04-Aug-2020
2	Modify the FCC ID	11 March 2021

Table 1

1.2 Introduction

Applicant	Park Air Systems Ltd
Manufacturer	Park Air Systems Ltd
Model Number(s)	T6-AV 100
Serial Number(s)	292446
Hardware Version(s)	1
Software Version(s)	Not Applicable
Number of Samples Tested	2
Test Specification/Issue/Date	FCC 47 CFR Part 15B: 2019 ICES-003: 2016
Order Number	70770
Date	01-June-2020
Date of Receipt of EUT	01-July-2020
Start of Test	15-July-2020
Finish of Test	20-July-2020
Name of Engineer(s)	Graeme Lawler
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 and ICES-003 is shown below.

Section	Specification Clause		Test Description	Result	Comments/Base Standard
	Part 15B	ICES-003			
Configuration and Mode: AC Powered - Idle					
2.1	15.107	6.1	Conducted Disturbance at Mains Terminals	Pass	ANSI C63.4: 2014 Note: The Radio used was tested stand-alone in TUV report 75934311-02.
2.2	15.109	6.2	Radiated Disturbance	Pass	ANSI C63.4: 2014

Table 2



1.4 Customer Supplied Form

Equipment Description

Technical Description: <i>(Please provide a brief description of the intended use of the equipment including the technologies the product supports)</i>	100W carrier Amplifier for use with a ground to air T6 transmitter or transceiver in the VHF aeronautical band	
Manufacturer:	Park Air Systems Ltd	
Model:	T6-AV 100	
Part Number:	24-31631041/1	
Hardware Version:	1	
Software Version:	Not Applicable	
FCC ID of the product under test – see guidance here	C8LT6-AV100	
IC ID of the product under test – see guidance here	2137A-T6AV100	

Intentional Radiators

Technology	Ground to Air Aeronautical Transmitter
Frequency Range (MHz to MHz)	118.000 to 136.975
Conducted Declared Output Power (dBm)	50
Antenna Gain (dBi)	2.15
Supported Bandwidth(s) (MHz) (e.g. 1 MHz, 20 MHz, 40 MHz)	25 kHz
Modulation Scheme(s) (e.g. GFSK, QPSK etc)	AM
ITU Emission Designator (see guidance here)	6K80A3EJN 5K00A3EJN
Bottom Frequency (MHz)	118.000
Middle Frequency (MHz)	127.500
Top Frequency (MHz)	136.975

Un-intentional Radiators

Highest frequency generated or used in the device or on which the device operates or tunes	136.975 MHz
Lowest frequency generated or used in the device or on which the device operates or tunes	20 MHz (ref freq)
Class A Digital Device (Use in commercial, industrial or business environment) ☒	
Class B Digital Device (Use in residential environment only) ☐	

AC Power Source

AC supply frequency:	50	Hz
Voltage	110 - 240	V
Max current:	5.5 x 2	A
Single Phase ☒ Three Phase ☐		



DC Power Source

Nominal voltage:	24.0	V
Extreme upper voltage:	32.0	V
Extreme lower voltage:	21.0	V
Max current:	25.0 x 2	A

Battery Power Source

Voltage:		V
End-point voltage:		V (Point at which the battery will terminate)
Alkaline ☐ Leclanche ☐ Lithium ☐ Nickel Cadmium ☐ Lead Acid* ☐ *(Vehicle regulated)		
Other ☐	Please detail:	

Charging

Can the EUT transmit whilst being charged	Yes ☐ No ☐
---	--

Temperature

Minimum temperature:	-20.0	°C
Maximum temperature:	+55.0 (50 % duty cycle) +45.0 (100 % duty cycle)	°C

Antenna Characteristics

Antenna connector ☒			State impedance	50	Ohm
Temporary antenna connector ☐			State impedance		Ohm
Integral antenna ☐	Type:		Gain		dBi
External antenna ☐	Type:		Gain		dBi
For external antenna only: Standard Antenna Jack ☐ If yes, describe how user is prohibited from changing antenna (if not professional installed): Equipment is only ever professionally installed ☐ Non-standard Antenna Jack ☐					

Ancillaries (if applicable)

Manufacturer:	Park Air Systems	Part Number:	24-05655031/1
Model:	T6-TRV	Country of Origin:	UK

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

Name: Phil Ackerman

Position held: Principal Test and Acceptance Engineer

Date: 30 June 2020



1.5 Product Information

1.5.1 Technical Description

The equipment under test (EUT) is a Park Air Systems Ltd, VHF Power Amplifier, Model: T6-AV 100.

The T6-AV 100 is a 100 W carrier amplifier for use with a ground to air T6 transmitter or transceiver in the VHF aeronautical band.

1.5.2 EUT Port/Cable Identification

Port	Max Cable Length Specified	Usage	Type	Screened
Configuration and Mode: AC Powered - Idle				
Radio Mains Neutral	2 meters	AC Power for the Radio	Mains Power	No
Radio Mains Live	2 meters	AC Power for the Radio	Mains Power	No
Amplifier 1 Mains Neutral	3 meters	AC Power for the Amplifier	Mains Power	No
Amplifier 1 Mains Live	3 meters	AC Power for the Amplifier	Mains Power	No
Amplifier 2 Mains Neutral	3 meters	AC Power for the Amplifier	Mains Power	No
Amplifier 2 Mains Live	3 meters	AC Power for the Amplifier	Mains Power	No
Ethernet Port Front Panel of Radio	1 meter	Ethernet	Data	No
Ethernet Port Amp Rear Panel of Radio	0.5 meters	Ethernet	Data	No
Ethernet Port Audio Rear Panel of Radio	1 meter	Ethernet	Data	No
Antenna Port on Rear of Radio	0.5 meters	Data	Data	Yes
Ethernet Port Radio A on Rear Panel of Amplifier	0.5 meters	Data	Data	No
Radio Port on Rear Panel of Amplifier	0.5 meters	Data	Data	Yes
Antenna Port on Rear Panel of Amplifier	1 meter	Data	Data	Yes

Table 3

1.5.3 Test Configuration

Configuration	Description
AC Powered	The EUT was powered by 117 V AC, 60 Hz on each of the AC power ports. Each power port was tested individually for Conducted Disturbance (Section 2.1). The EUT was tested as a system for Radiated Disturbance (Section 2.2).

Table 4



1.5.4 Mode(s) of Operation

Mode	Description
Idle	The EUT was set to receive on 127.5 MHz. All transmitters were set to idle.

Table 5

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
VHF Power Amplifier, Model: T6-AV 100, Serial Number: 292446			
0	As supplied by the customer	Not Applicable	Not Applicable

Table 6

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: AC Powered - Idle		
Radiated Disturbance	Graeme Lawler	UKAS
Conducted Disturbance at Mains Terminals	Graeme Lawler	UKAS

Table 7

Office Address:

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



2 Test Details

2.1 Conducted Disturbance at Mains Terminals

2.1.1 Specification Reference

FCC 47 CFR Part 15B, Clause 15.107
ICES-003, Clause 6.1

2.1.2 Equipment Under Test and Modification State

T6-AV 100, S/N: 292446 - Modification State 0

2.1.3 Date of Test

20-July-2020

2.1.4 Test Method

The EUT was setup according to ANSI C63.4, clause 5.2.

The EUT was placed on a non-conductive table 0.8 m above a reference ground plane. A vertical coupling plane was placed 0.4 m from the EUT boundary.

A Line Impedance Stabilisation Network (LISN) was directly bonded to the ground-plane. The EUT was located so that the distance between the boundary of the EUT and the closest surface of the LISN was 0.8 m.

Interconnecting cables that hanged closer than 0.4 m to the ground plane were folded back and forth in the centre forming a bundle 0.3 m to 0.4 m long.

Input and output cables were terminated with equipment or loads representative of real usage conditions.

The EUT was configured to give the highest level of emissions within reason of a typical installation as described by the manufacturer.

Tested using the customer supplied kit: T6-TRV, S/N: 247598

2.1.5 Example Calculation

Quasi-Peak level (dB μ V) = Receiver level (dB μ V) + Correction Factor (dB)
Margin (dB) = Quasi-Peak level (dB μ V) - Limit (dB μ V)

CISPR Average level (dB μ V) = Receiver level (dB μ V) + Correction Factor (dB)
Margin (dB) = CISPR Average level (dB μ V) - Limit (dB μ V)



2.1.6 Example Test Setup Diagram

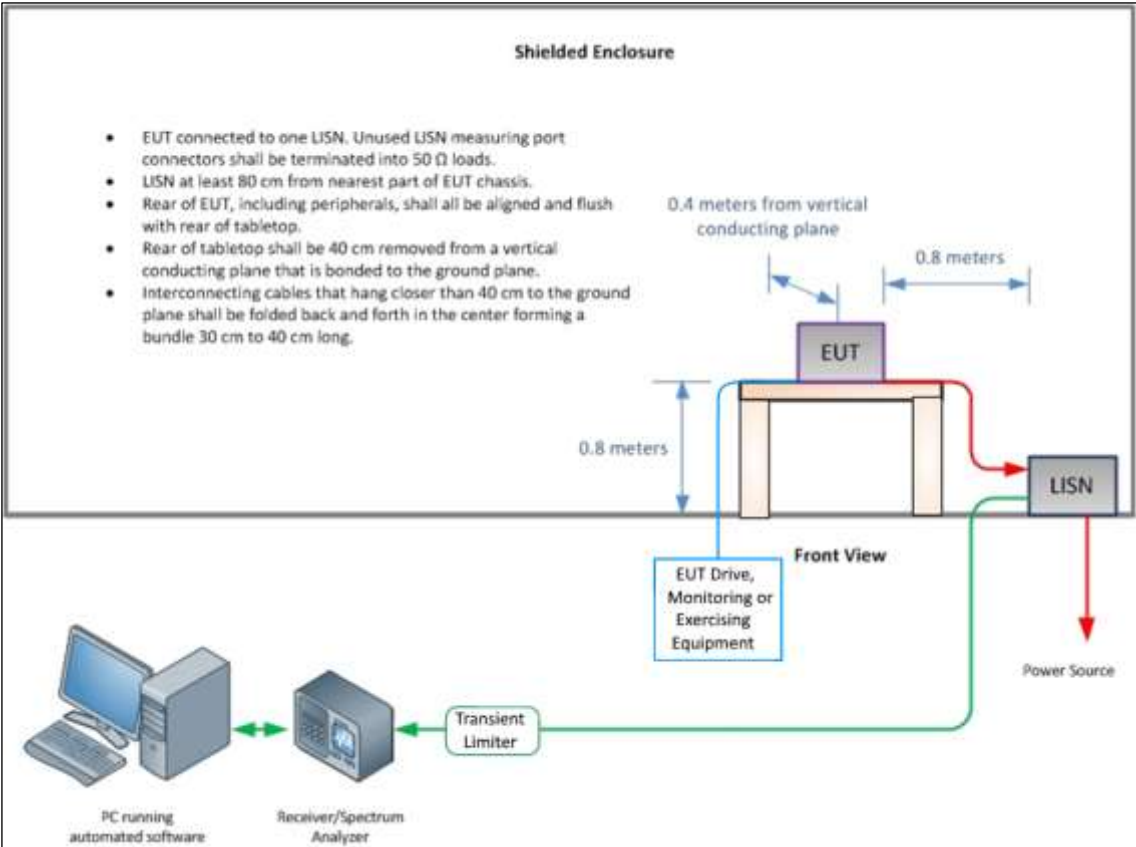


Figure 1

2.1.7 Environmental Conditions

Ambient Temperature 21.7 °C
Relative Humidity 44.7 %

2.1.8 Specification Limits

Required Specification Limits - Class A			
Line Under Test	Frequency Range (MHz)	Quasi-Peak Test Limit (dB μ V)	CISPR Average Test Limit (dB μ V)
AC Power Port	0.15 to 0.5	79	66
	0.5 to 30	73	60
Supplementary information: None			

Table 8

2.1.9 Test Results

Results for Configuration and Mode: AC Powered - Idle.

This test was performed to the requirements of the Class A limits.

Performance assessment of the EUT made during this test: Pass.

Detailed results are shown below.

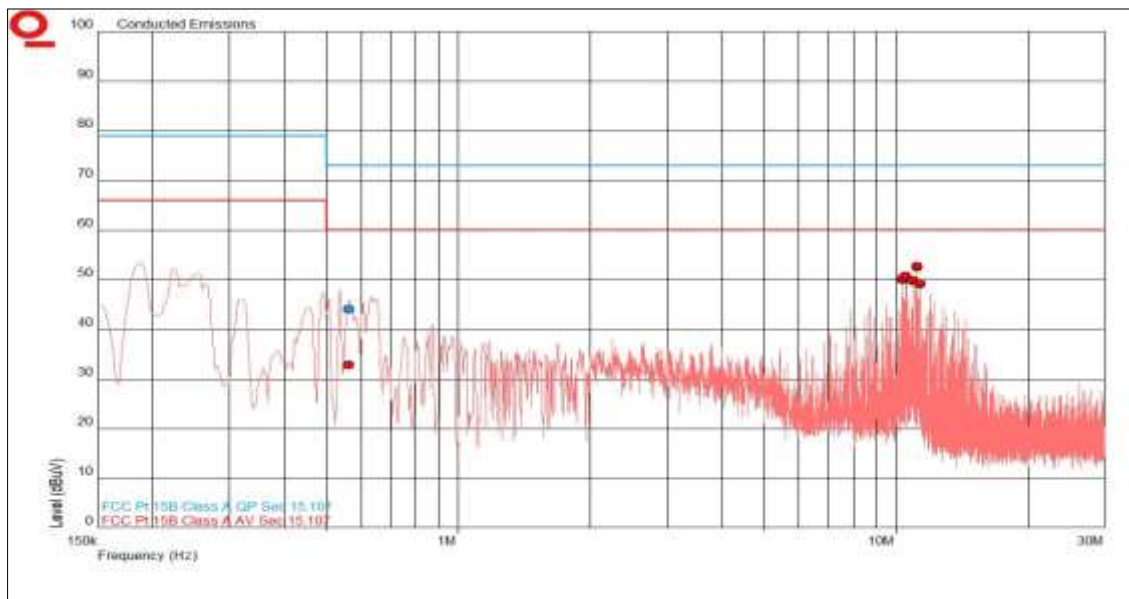


Figure 2 - Graphical Results - Radio Mains Neutral

Frequency (MHz)	QP Level (dBμV)	QP Limit (dBμV)	QP Margin (dB)	CISPR Average Level (dBμV)	CISPR Average Limit (dBμV)	CISPR Average Margin (dB)
0.563	44.1	73.0	-28.9	33.0	60.0	-27.0
10.341	50.1	73.0	-22.9	50.2	60.0	-9.8
10.546	50.7	73.0	-22.3	50.9	60.0	-9.1
10.957	49.7	73.0	-23.3	49.9	60.0	-10.1
11.161	52.6	73.0	-20.4	52.7	60.0	-7.3
11.365	49.2	73.0	-23.8	49.3	60.0	-10.7

Table 9

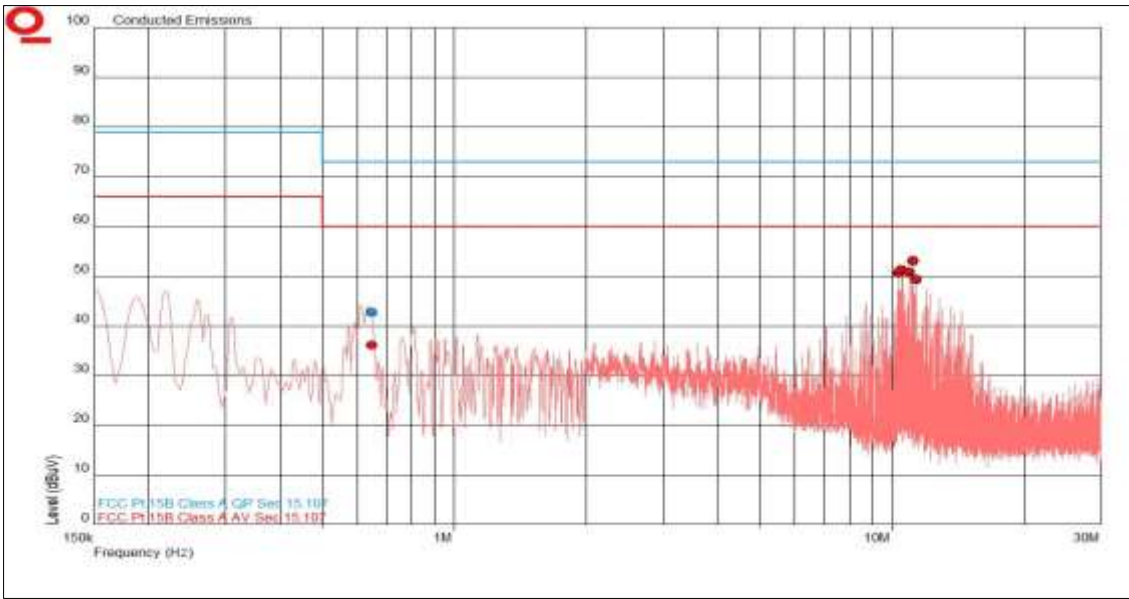


Figure 3 - Graphical Results - Radio Mains Live

Frequency (MHz)	QP Level (dBµV)	QP Limit (dB)	QP Margin (dBµV)	CISPR Average Level (dBµV)	CISPR Average Limit (dBµV)	CISPR Average Margin (dB)
0.647	42.8	73.0	-30.2	36.3	60.0	-23.7
10.341	50.6	73.0	-22.4	50.8	60.0	-9.2
10.546	51.3	73.0	-21.7	51.5	60.0	-8.5
10.955	50.8	73.0	-22.2	50.9	60.0	-9.1
11.160	53.1	73.0	-19.9	53.3	60.0	-6.7
11.364	49.3	73.0	-23.7	49.4	60.0	-10.6

Table 10

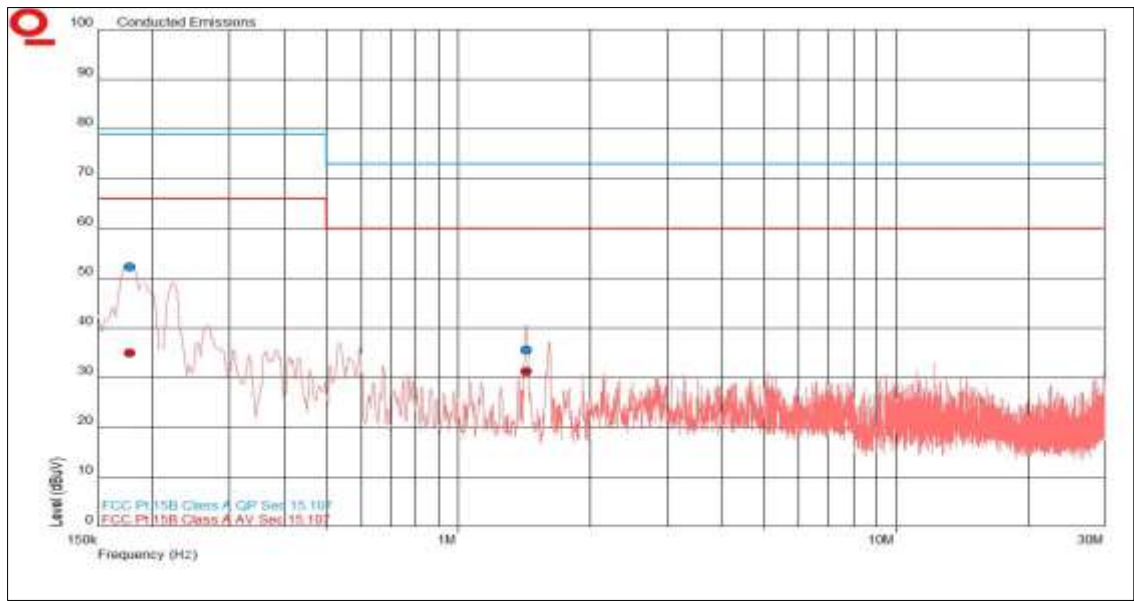


Figure 4 - Graphical Results - Amplifier 1 Mains Neutral

Frequency (MHz)	QP Level (dBµV)	QP Limit (dBµV)	QP Margin (dB)	CISPR Average Level (dBµV)	CISPR Average Limit (dBµV)	CISPR Average Margin (dB)
0.177	52.4	79.0	-26.6	35.0	66.0	-31.0
1.434	35.6	73.0	-37.4	31.2	60.0	-28.8

Table 11

No other final measurements were made as all other peak emissions seen above the measurement system noise floor during the pre-scan were greater than 6 dB below the CISPR Average test limit.

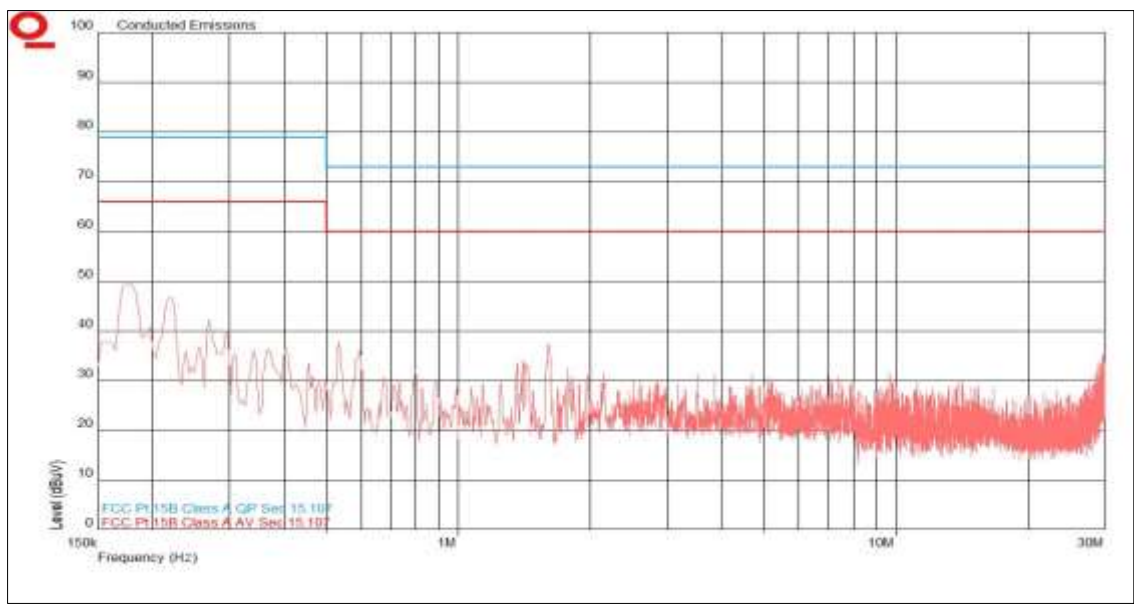


Figure 5 - Graphical Results - Amplifier 1 Mains Live

Frequency (MHz)	QP Level (dBµV)	QP Limit (dBµV)	QP Margin (dB)	CISPR Average Level (dBµV)	CISPR Average Limit (dBµV)	CISPR Average Margin (dB)
*						

Table 12

*No final measurements were made as all peak emissions seen above the measurement system noise floor during the pre-scan were greater than 6 dB below the CISPR Average test limit.

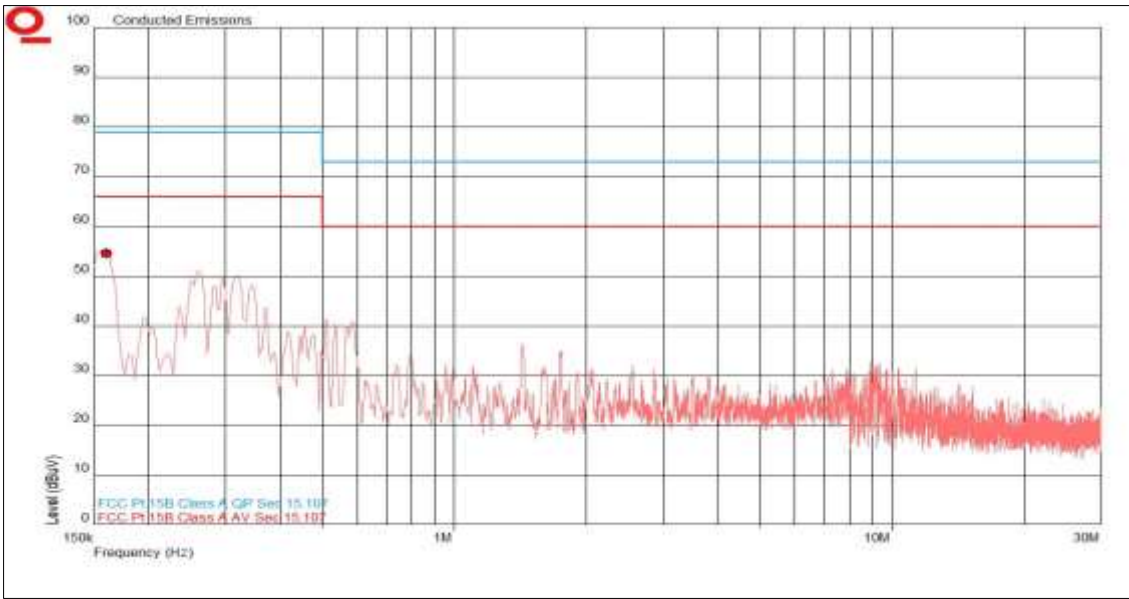


Figure 6 - Graphical Results - Amplifier 2 Mains Neutral

Frequency (MHz)	QP Level (dBµV)	QP Limit (dBµV)	QP Margin (dB)	CISPR Average Level (dBµV)	CISPR Average Limit (dBµV)	CISPR Average Margin (dB)
0.161	54.7	79.0	-24.3	54.6	66.0	-11.4

Table 13

No other final measurements were made as all other peak emissions seen above the measurement system noise floor during the pre-scan were greater than 6 dB below the CISPR Average test limit.

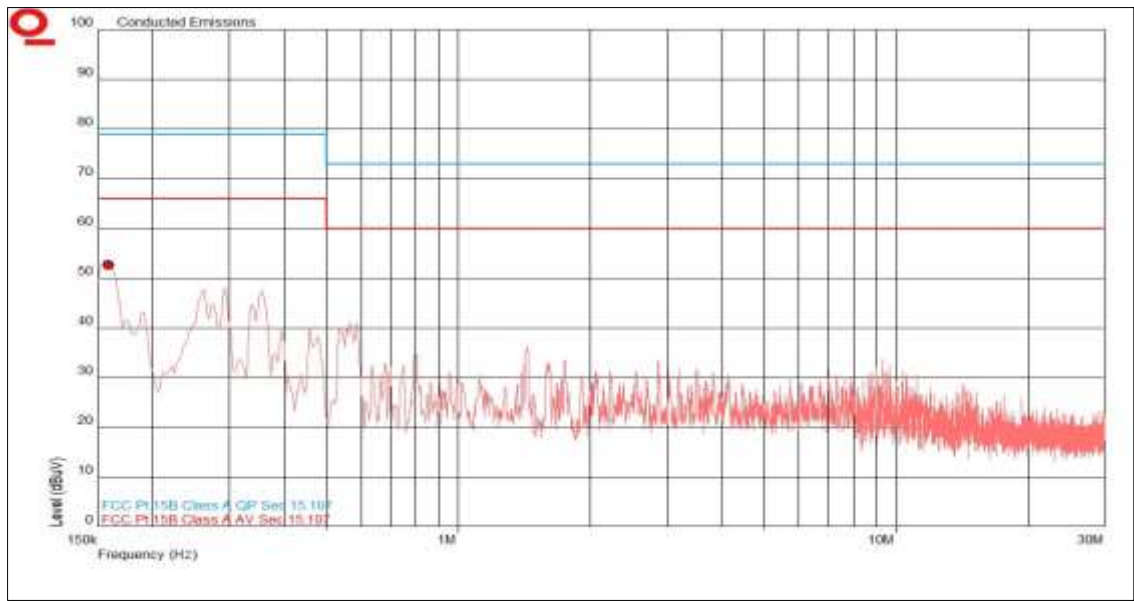


Figure 7 - Graphical Results - Amplifier 2 Mains Live

Frequency (MHz)	QP Level (dBµV)	QP Limit (dBµV)	QP Margin (dB)	CISPR Average Level (dBµV)	CISPR Average Limit (dBµV)	CISPR Average Margin (dB)
0.159	52.8	79.0	-26.2	52.6	66.0	-13.4

Table 14

No other final measurements were made as all other peak emissions seen above the measurement system noise floor during the pre-scan were greater than 6 dB below the CISPR Average test limit.

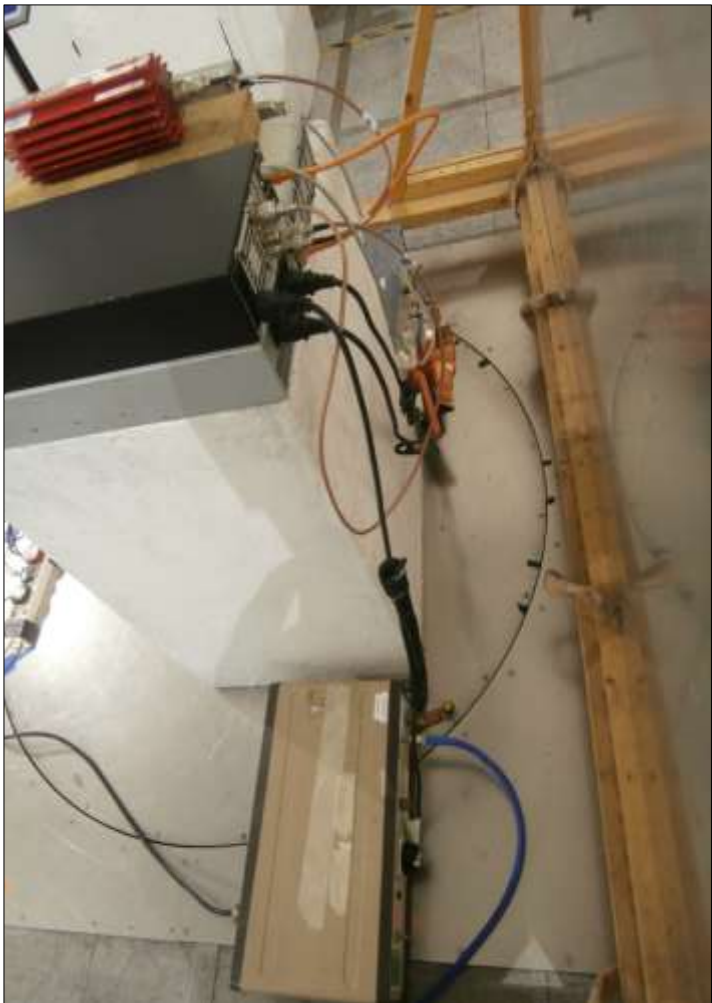


Figure 8 - Test Setup

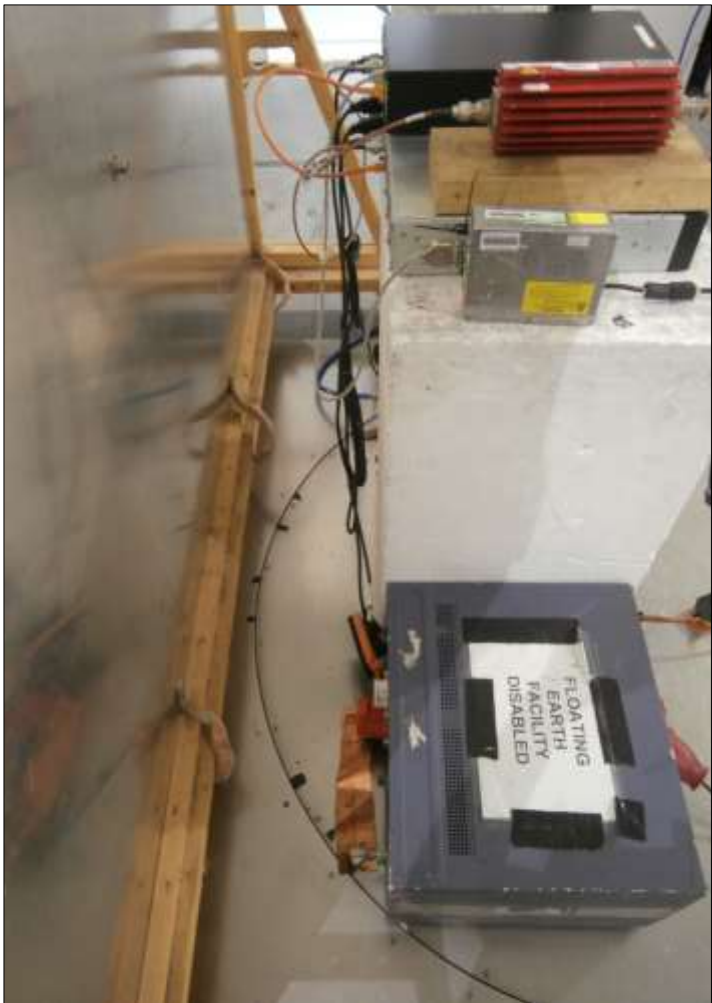


Figure 9 - Test Setup

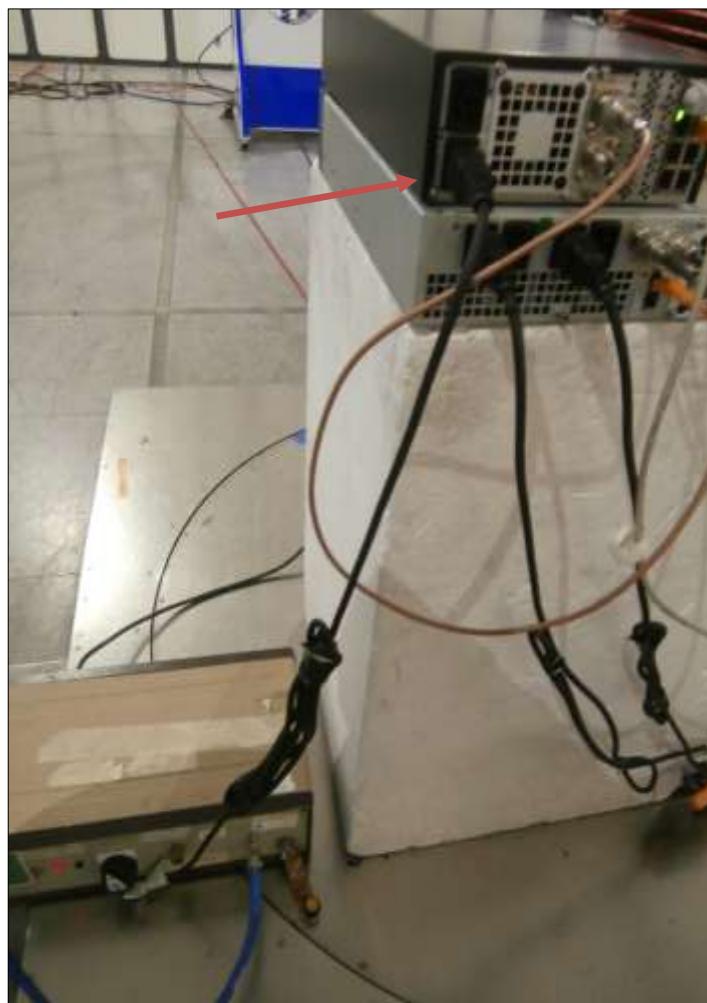


Figure 10 - Test Setup - Radio Power Port

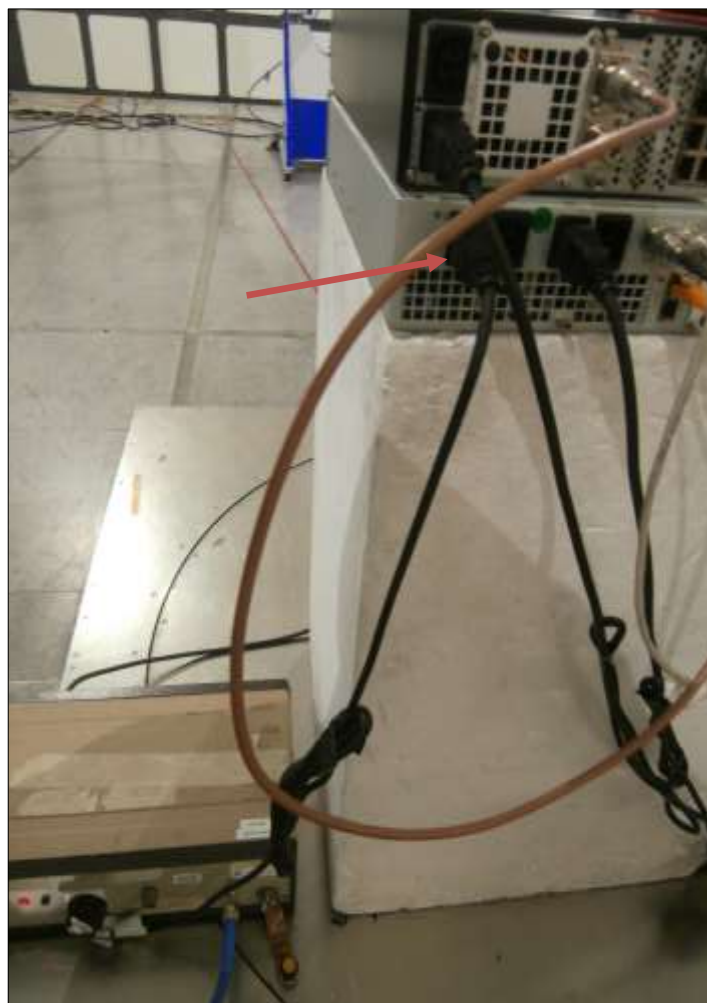


Figure 11 - Test Setup - Amplifier Power Port 1



Figure 12 - Test Setup - Amplifier Power Port 2



2.1.10 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
Screened Room (5)	Rainford	Rainford	1545	36	23-Jan-2021
Compliance 5 Emissions	Teseq	V5.26.51	3275	-	Software
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	03-Jan-2021
Transient Limiter	Hewlett Packard	11947A	15	12	02-Oct-2020
3 phase LISN	Rohde & Schwarz	ESH2-Z5	323	12	21-Jan-2021
LISN (1 Phase)	Chase	MN 2050	336	12	13-Sep-2020
Load (50ohm, 30W)	Weinschel	50T-054	350	12	25-Jun-2021
Multimeter	Iso-tech	IDM 101	2118	12	07-Feb-2021
Termination (50ohm)	Meca	405-1	3512	12	16-Dec-2020
Cable (18 GHz)	Rosenberger	LU7-036-2000	5039	12	06-Oct-2020
Thermo-Hygro-Barometer	PCE Instruments	OCE-THB-40	5470	12	16-Mar-2021
8m N Type Cable	Junkosha	MWX221-08000NMSNMS/B	5519	12	24-Mar-2021

Table 15



2.2 Radiated Disturbance

2.2.1 Specification Reference

FCC 47 CFR Part 15B, Clause 15.109
ICES-003, Clause 6.2

2.2.2 Equipment Under Test and Modification State

T6-AV 100, S/N: 292446 - Modification State 0

2.2.3 Date of Test

15-July-2020

2.2.4 Test Method

The EUT was set up on a non-conductive table 0.8 m above a reference ground plane within a semi-anechoic chamber on a remotely controlled turntable.

A pre-scan of the EUT emissions profile using a peak detector was made at a 3 m antenna distance whilst varying the antenna-to-EUT azimuth and polarisation.

For an EUT which could reasonably be used in multiple planes, pre-scans were performed with the EUT orientated in X, Y and Z planes with reference to the ground plane.

Using a list of the highest emissions detected during the pre-scan along with their bearing and associated antenna polarisation, the EUT was then formally measured using a Quasi-Peak, Peak or CISPR Average detector as appropriate.

The readings were maximised by adjusting the antenna height, polarisation and turntable azimuth, in accordance with the specification.

Tested using the customer supplied kit: T6-TRV, S/N: 247598

2.2.5 Example Calculation

Below 1 GHz:

Quasi-Peak level (dB μ V/m) = Receiver level (dB μ V) + Correction Factor (dB/m)
Margin (dB) = Quasi-Peak level (dB μ V/m) - Limit (dB μ V/m)

Above 1 GHz:

CISPR Average level (dB μ V/m) = Receiver level (dB μ V) + Correction Factor (dB/m)
Margin (dB) = CISPR Average level (dB μ V/m) - Limit (dB μ V/m)

Peak level (dB μ V/m) = Receiver level (dB μ V) + Correction Factor (dB/m)
Margin (dB) = Peak level (dB μ V/m) - Limit (dB μ V/m)

2.2.6 Example Test Setup Diagram

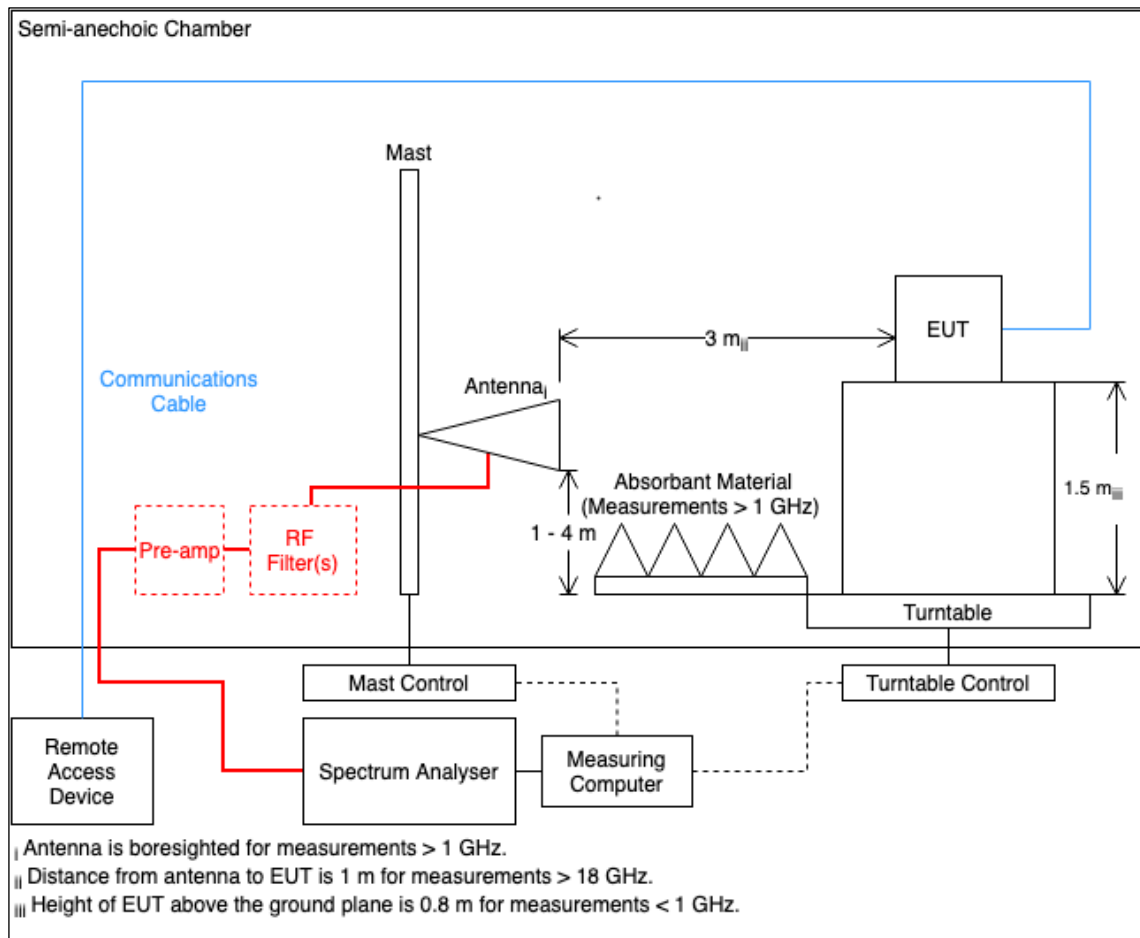


Figure 13

2.2.7 Environmental Conditions

Ambient Temperature	23.5 °C
Relative Humidity	51.3 %



2.2.8 Specification Limits

Required Specification Limits, Field Strength - Class A Test Limit at a 10 m Measurement Distance		
Frequency Range (MHz)	Test Limit ($\mu\text{V/m}$)	Test Limit ($\text{dB}\mu\text{V/m}$)
30 to 88	90	39.1
88 to 216	150	43.5
216 to 960	210	46.4
Above 960	300	49.5
Supplementary information: Note 1. A Quasi-Peak detector is to be used for measurements below 1 GHz. Note 2. A CISPR Average detector is to be used for measurements above 1 GHz. Note 3. The Peak test limit above 1 GHz is 20 dB higher than the CISPR Average test limit.		

Table 16



2.2.9 Test Results

Results for Configuration and Mode: AC Powered - Idle.

This test was performed to the requirements of the Class A limits.

Performance assessment of the EUT made during this test: Pass.

Detailed results are shown below.

Highest frequency generated or used within the EUT: 136.975 MHz
Which necessitates an upper frequency test limit of: 5 GHz

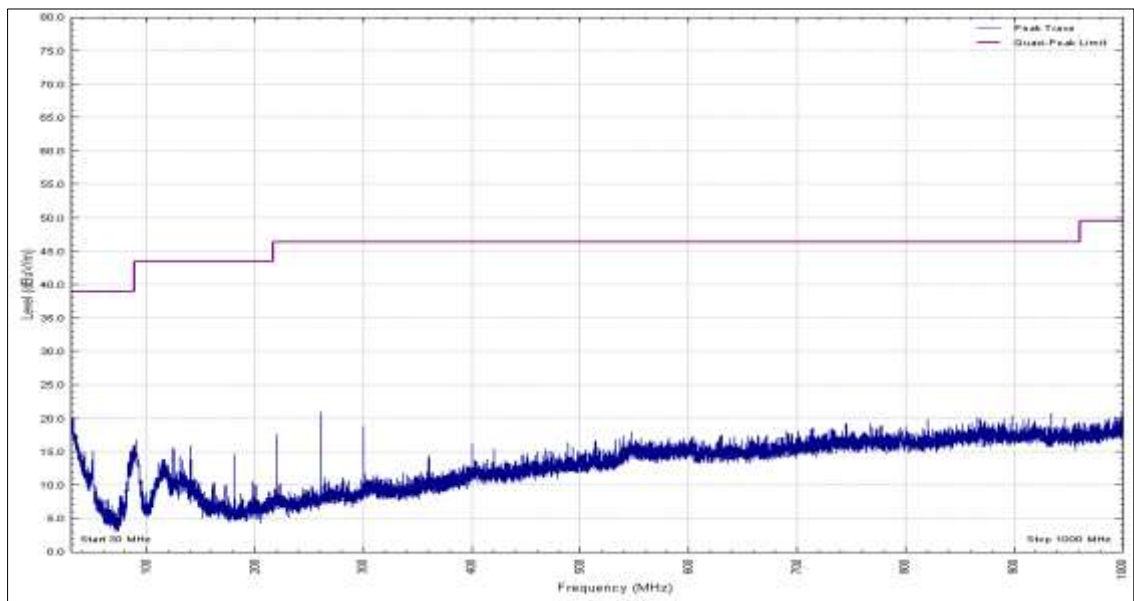


Figure 14 - 30 MHz to 1 GHz, Quasi-Peak, Vertical

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

Table 17

*No final measurements were made as all peak emissions seen above the measurement system noise floor during the pre-scan were greater than 10 dB below the test limit.

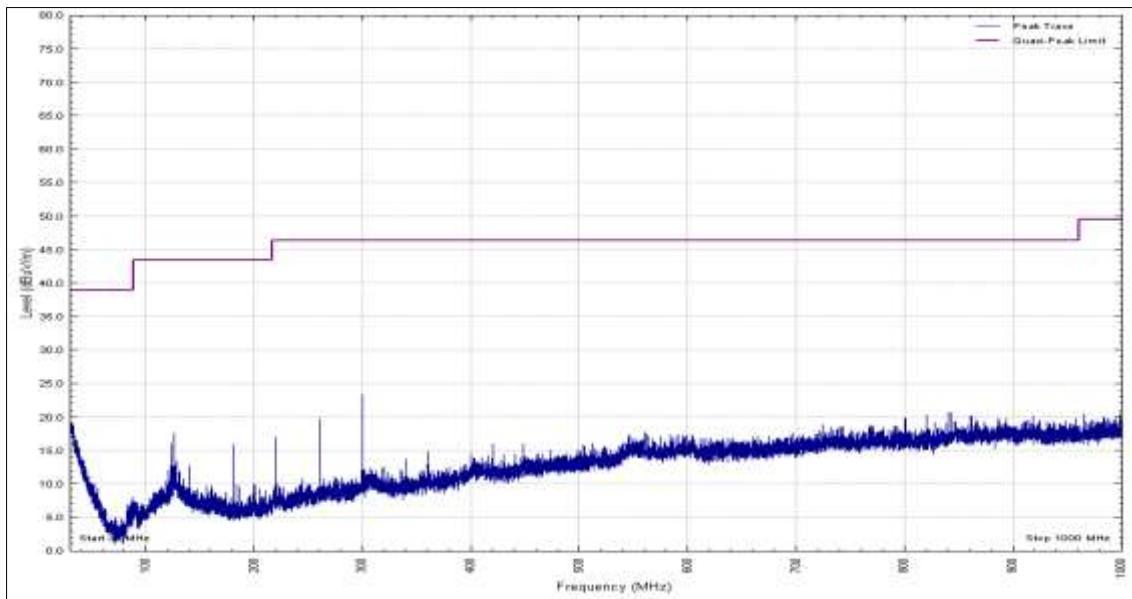


Figure 15 - 30 MHz to 1 GHz, Quasi-Peak, Horizontal

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

Table 18

*No final measurements were made as all peak emissions seen above the measurement system noise floor during the pre-scan were greater than 10 dB below the test limit.

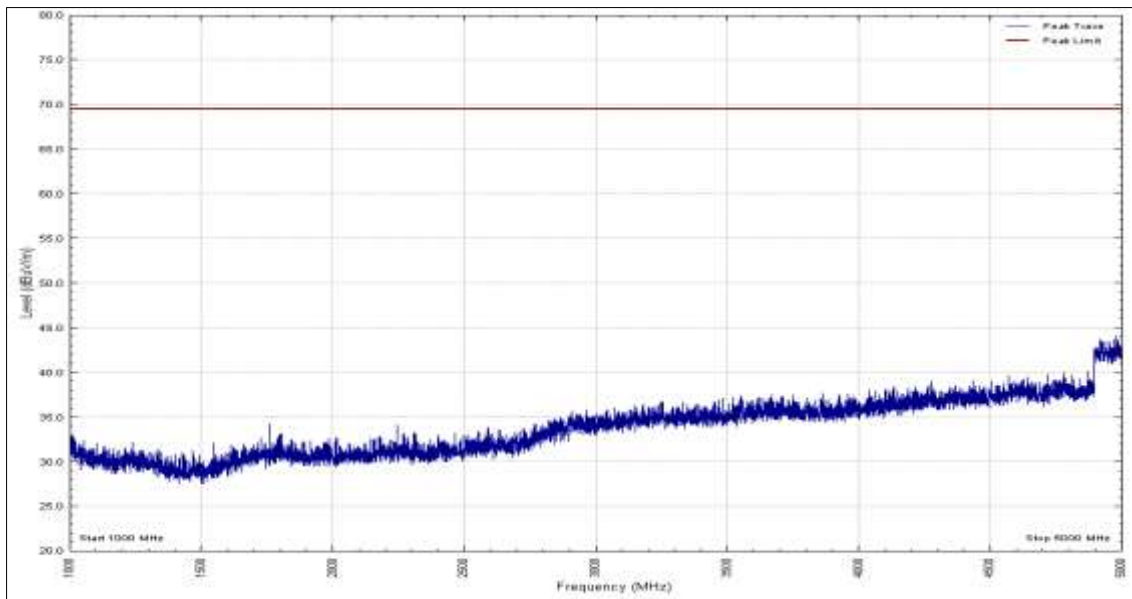


Figure 16 - 1 GHz to 5 GHz, Peak, Vertical

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

Table 19

*No final measurements were made as all peak emissions seen above the measurement system noise floor during the pre-scan were greater than 10 dB below the test limit.

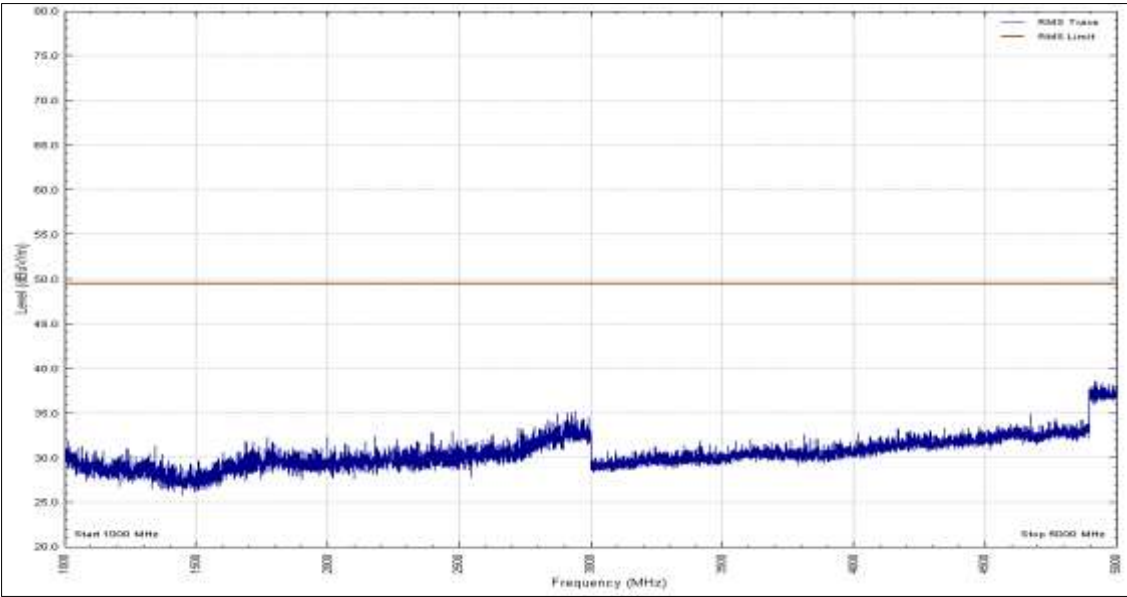


Figure 17 - 1 GHz to 5 GHz, CISPR Average, Vertical

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

Table 20

*No final measurements were made as all peak emissions seen above the measurement system noise floor during the pre-scan were greater than 10 dB below the test limit.

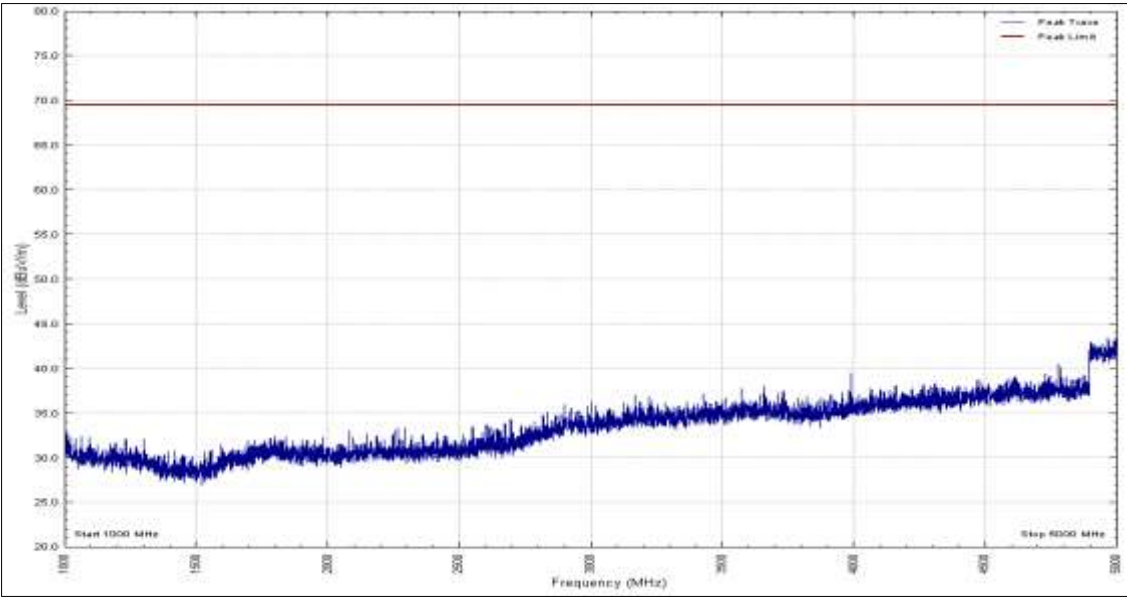


Figure 18 - 1 GHz to 5 GHz, Peak, Horizontal

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

Table 21

*No final measurements were made as all peak emissions seen above the measurement system noise floor during the pre-scan were greater than 10 dB below the test limit.

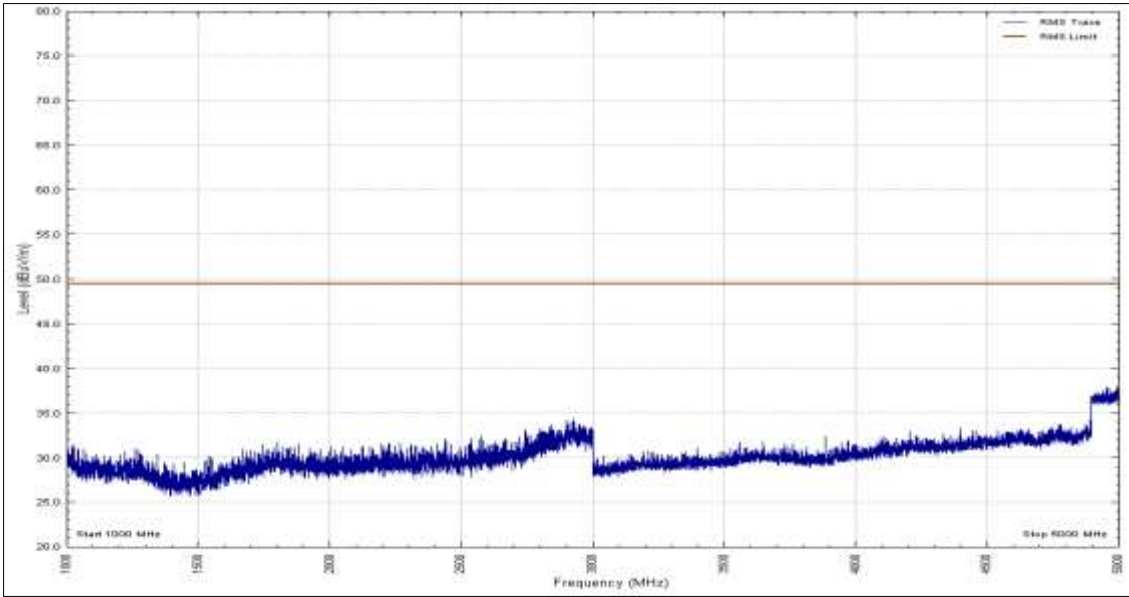


Figure 19 - 1 GHz to 5 GHz, CISPR Average, Horizontal

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

Table 22

*No final measurements were made as all peak emissions seen above the measurement system noise floor during the pre-scan were greater than 10 dB below the test limit.

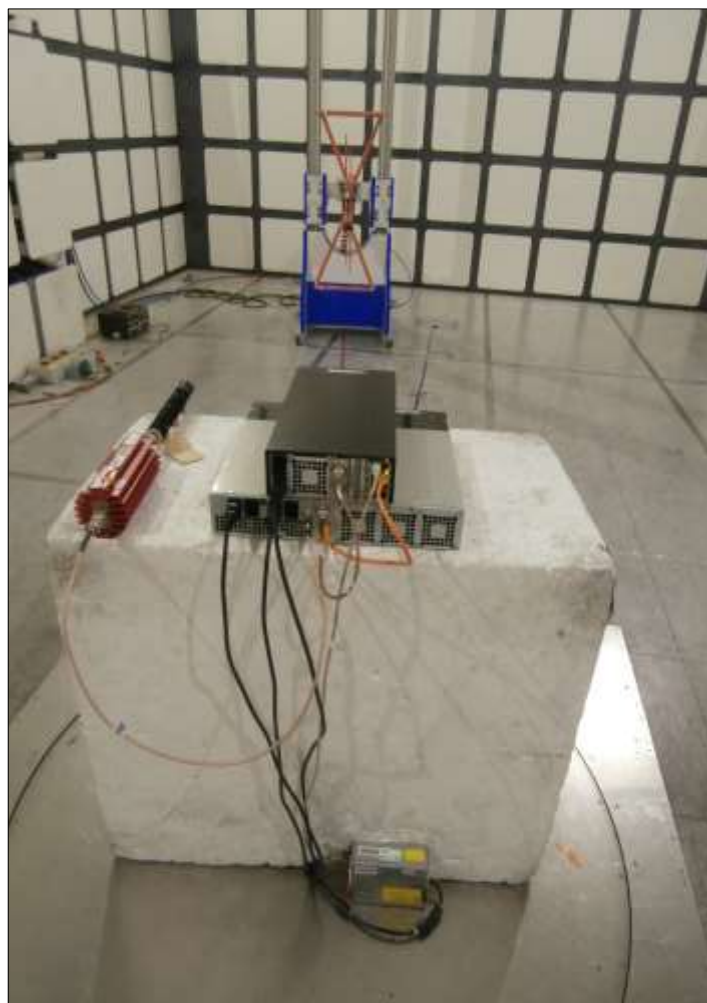


Figure 20 - Test Setup - 30 MHz to 1 GHz

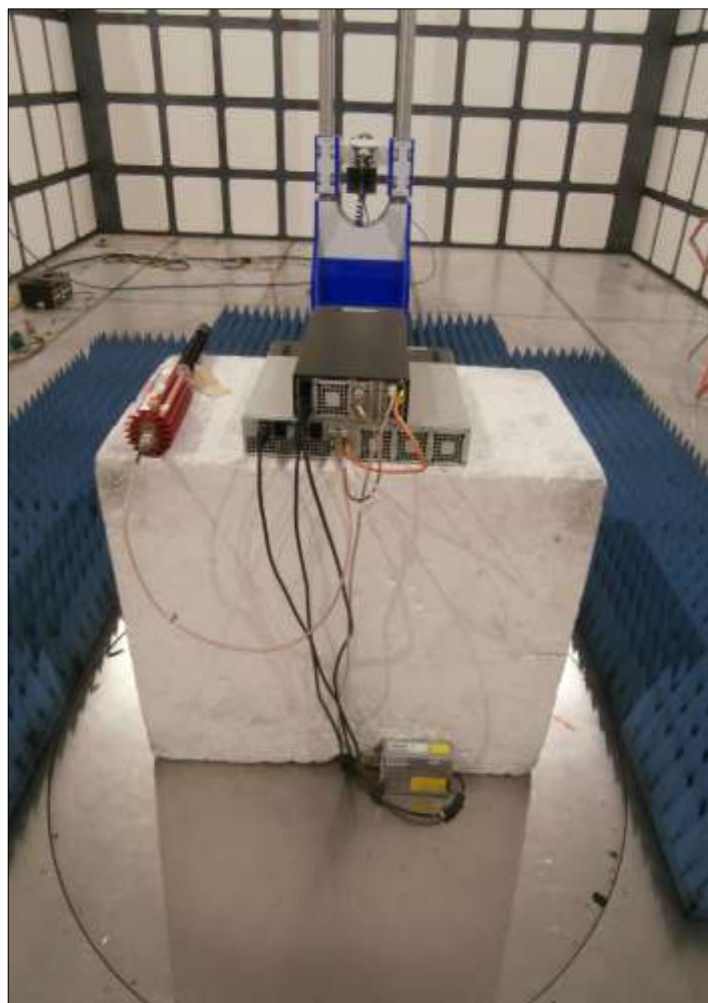


Figure 21 - Test Setup - 1 GHz to 5 GHz



2.2.10 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
Screened Room (5)	Rainford	Rainford	1545	36	23-Jan-2021
EmX Emissions Software	TUV SUD	V1.5.10	5125	-	Software
EMI Test Receiver	Rohde & Schwarz	ESW44	5527	12	06-Feb-2021
Mast Controller	Maturo Gmbh	NCD	4810	-	TU
Tilt Antenna Mast	Maturo Gmbh	TAM 4.0-P	4811	-	TU
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Antenna with permanent attenuator (Bilog)	Chase	CBL6143	2904	24	30-Sep-2021
4dB Attenuator	Pasternack	PE7047-4	4935	24	30-Sep-2021
Double Ridge Broadband Horn Antenna	Schwarzbeck	BBHA 9120 B	4848	12	10-Mar-2021
2m SMA Cable	Junkosha	MWX221-02000AMSAMS/A	5517	12	01-Apr-2021
8m N-Type Cable	Junkosha	MWX221-08000NMSNMS/B	5520	12	24-Mar-2021

Table 23

TU – Traceability Unscheduled



3 Test Equipment Information

3.1 General Test Equipment Used

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
Attenuator (20 dB, 100 W)	Weinschel	48-20-43	4870	12	18-Jul-2020
Comb Generator	Schaffner	RSG1000	3034	-	TU
Thermo-Hygro-Barometer	PCE Instruments	OCE-THB-40	5470	12	16-Mar-2021
Multimeter	Iso-tech	IDM 101	2118	12	07-Feb-2021
Load (50 ohm, 30 W)	Weinschel	50T-054	350	12	25-Jun-2021

Table 24

TU – Traceability Unscheduled



4 Incident Reports

No incidents reports were raised.



5 Measurement Uncertainty

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

Test Name	Measurement Uncertainty
Conducted Disturbance at Mains Terminals	150 kHz to 30 MHz, LISN, ± 3.7 dB
Radiated Disturbance	30 MHz to 1 GHz, Bilog Antenna, ± 5.2 dB 1 GHz to 40 GHz, Horn Antenna, ± 6.3 dB

Table 25

Worst case error for both Time and Frequency measurement 12 parts in 10^6 .

Measurement Uncertainty Decision Rule

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115: 2007, clause 4.4.3 and 4.5.1.