FCC and ISED Test Report

Apple Inc
Model: A3403

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

Prepared for: Apple Inc
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FCC ID: BCGA3403 IC: 579C-A3403

COMMERCIAL-IN-CONFIDENCE

Document 75961394-53 Issue 01

SIGNATURE			
AJ Lawson.			
NAME	**JOB TITLE**	**RESPONSIBLE FOR**	**ISSUE DATE**
Andy Lawson	Chief Engineer	Authorised Signatory	12 September 2024

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 15B and ICES-003 and ISED RSS-GEN. The sample tested was found to comply with the requirements defined in the applied rules.

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Testing	Connor Lee	12 September 2024	

FCC Accreditation
492497/UK2010 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, ICES-003 and ISED RSS-GEN: 2023, Issue 7: 2020 and Issue 5 and A2 (2021-02) for the tests detailed in section 1.3.

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Contents

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	12-Sept-2024

Table 1

1.2 Introduction

Applicant	Malus
Manufacturer	Malus
EUT/Sample Identification	Refer to section 1.6
Test Specification/Issue/Date	FCC 47 CFR Part 15B: 2023 ICES-003, Issue 7: 2020 ISED RSS-GEN, Issue 5, A2 (2021-02)
Start of Test	20-August-2024
Finish of Test	22-August-2024
Name of Engineer(s)	Connor Lee
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 and ISED RSS-GEN is shown below.

Section	Specification Clause	Test Description	Result	Comments/Base Standard
Configuration and Mode: AC Powered - Transmitter Idle				
2.1	15.107, 3.1 and 8.8	Conducted Disturbance at Mains Terminals	Pass	ANSI C63.4: 2014
2.2	15.109, 3.2 and 7.1	Radiated Disturbance	Pass	ANSI C63.4: 2014

Table 2

1.4 Product Information

1.4.1 Technical Description

The equipment under test (EUT) was a portable laptop computer.

1.4.2 EUT Port/Cable Identification

Port	Max Cable Length specified	Usage	Type	Screened
Configuration and Mode: AC Powered - Transmitter Idle				
AC Power Port	2 m	Power	AC to DC Power Adapter with USB-C output and MagSafe cable	No
USB Port 1	2 m	Data	USB Type-C	No
USB Port 2	Unterminated	Data	USB Type-C	No
USB Port 3	Unterminated	Data	USB Type-C	No
HDMI Port	2 m	Video output	HDMI	No
Audio Jack Port	1 m	Audio Output	3.5 mm Jack	No

Table 3

1.4.3 Test Configuration

Configuration	Description
AC Powered	The EUT was powered from a 120 V 60 Hz AC supply using an AC to DC adapter with USB-C output. PSU Model: A2743. A PC hub was used to terminate USB Port 1, HDMI port and Audio Jack Port. USB Port 2 was unterminated. USB Port 3 was unterminated.

Table 4

1.4.4 Modes of Operation

Mode	Description
Transmitter Idle	The EUT was powered with all internal transmitters disabled.

Table 5

1.5 Deviations from the Standard

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

1.6 Identification of the EUT

The table below details identification of the EUT(s) that have been used to carry out the testing within this report.

Model: A3403			
Serial Number	Hardware Version	Software Version	Firmware
G3FXH3X3L5	REV1.0	24A295	WLAN: 23.10.864.0.41.51.156 Bluetooth: 22.1.116.1032
KPWWWRWPXH	REV1.0	24A295	WLAN: 23.10.864.0.41.51.156 Bluetooth: 22.1.116.1032

Table 6

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: A3403, Serial Number: G3FXH3X3L5			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3403, Serial Number: KPWWWRWPXH			
0	As supplied by the customer	Not Applicable	Not Applicable

Table 7

1.8 Test Location

TÜV SÜD conducted the following tests at our Octagon House Test Laboratory.

Test Name	Name of Engineer(s)	Accreditation
Configuration and Mode: AC Powered - Transmitter Idle		
Conducted Disturbance at Mains Terminals	Connor Lee	UKAS
Radiated Disturbance	Connor Lee	UKAS

Table 8

Office Address:

TÜV SÜD
Octagon House
Concorde Way
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, ICES-003 and ISED RSS-GEN, Clause 15.107, 3.1 and 8.8

2.1.2 Equipment Under Test and Modification State

A3403, S/N: KPWWWRWPXH - Modification State 0

2.1.3 Date of Test

22-August-2024

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.

2.1.5 Example Calculation

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

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

2.1.6 Example Test Setup Diagram

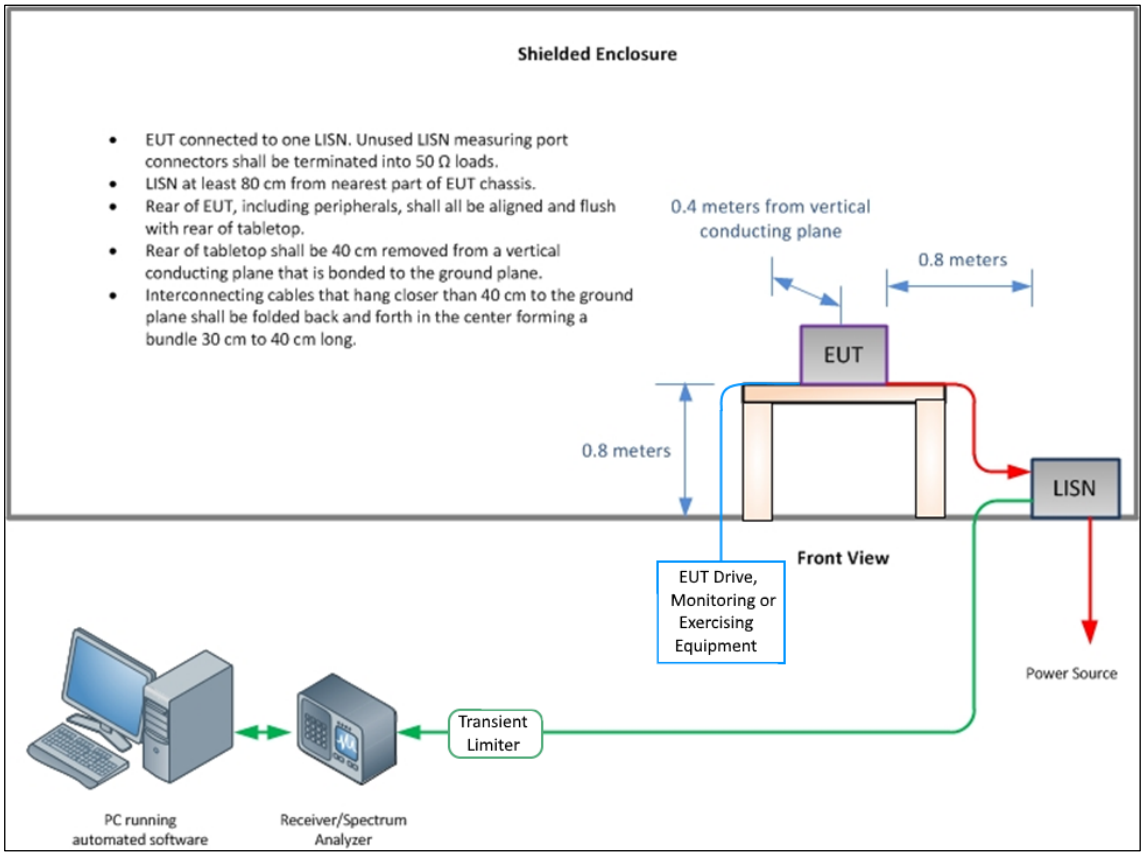

Figure 1 - Conducted Disturbance

2.1.7 Environmental Conditions

Ambient Temperature	24.1 °C
Relative Humidity	47.5 %
Atmospheric Pressure	1008.0 mbar

2.1.8 Specification Limits

Required Specification Limits - Class B			
Line Under Test	Frequency Range (MHz)	Quasi-Peak Test Limit (dBµV)	CISPR Average Test Limit (dBµV)
AC Power Port	0.15 to 0.5	66 to 56[(1)]	56 to 46[(1)]
	0.5 to 5	56	46
	5 to 30	60	50
Supplementary information: Note 1. Decreases with the logarithm of the frequency.			

Table 9

2.1.9 Test Results

Results for Configuration and Mode: AC Powered - Transmitter Idle.

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

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

Detailed results are shown below.

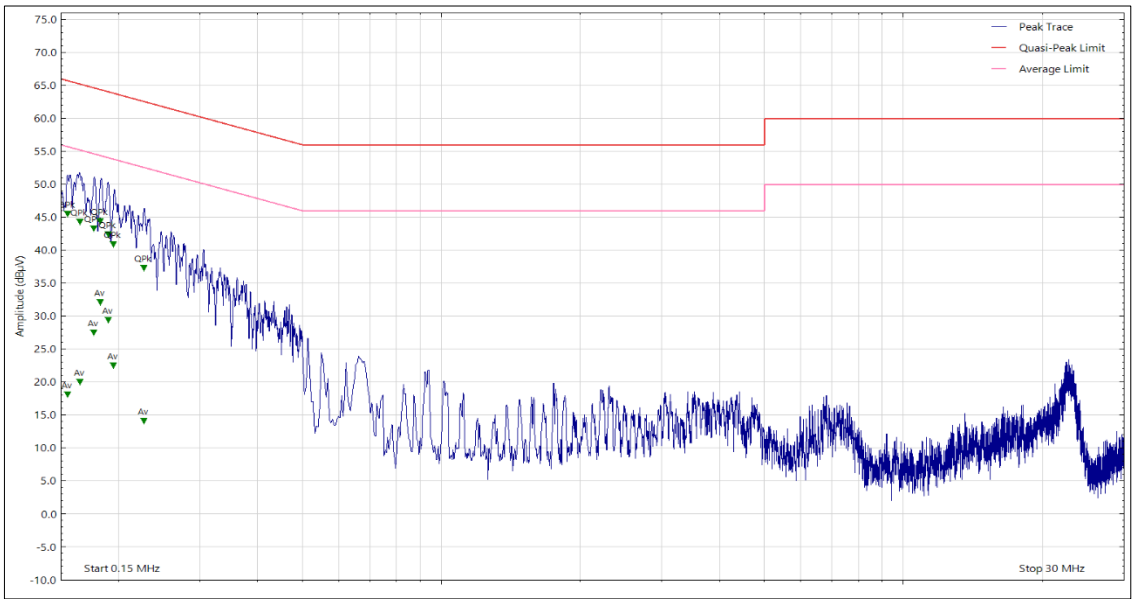

Figure 2 - Graphical Results - AC Power Live Line

Frequency (MHz)	Level (dBµV)	Limit (dBµV)	Margin (dB)	Detector
0.155	44.77	65.70	-20.93	Q-Peak
0.155	17.43	55.70	-38.27	CISPR Avg
0.165	43.62	65.20	-21.58	Q-Peak
0.165	19.27	55.20	-35.93	CISPR Avg
0.177	26.82	54.60	-27.78	CISPR Avg
0.177	42.54	64.60	-22.06	Q-Peak
0.183	43.73	64.40	-20.67	Q-Peak
0.183	31.45	54.40	-22.95	CISPR Avg
0.190	28.75	54.00	-25.25	CISPR Avg
0.190	41.67	64.00	-22.33	Q-Peak
0.195	21.80	53.80	-32.00	CISPR Avg
0.195	40.15	63.80	-23.65	Q-Peak
0.227	13.46	52.60	-39.14	CISPR Avg
0.227	36.64	62.60	-25.96	Q-Peak

Table 10

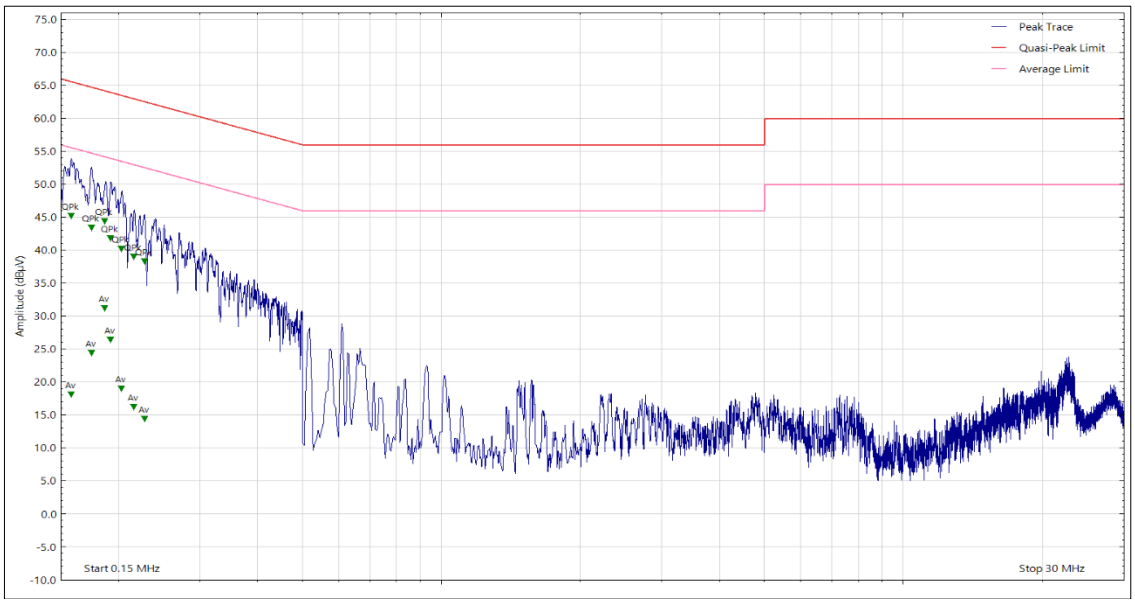

Figure 3 - Graphical Results - AC Power Neutral Line

Frequency (MHz)	Level (dBµV)	Limit (dBµV)	Margin (dB)	Detector
0.158	17.42	55.60	-38.18	CISPR Avg
0.158	44.49	65.60	-21.11	Q-Peak
0.175	42.67	64.70	-22.03	Q-Peak
0.175	23.76	54.70	-30.94	CISPR Avg
0.187	30.55	54.10	-23.55	CISPR Avg
0.187	43.65	64.10	-20.45	Q-Peak
0.192	25.75	53.90	-28.15	CISPR Avg
0.192	41.10	63.90	-22.80	Q-Peak
0.203	39.49	63.50	-24.01	Q-Peak
0.203	18.29	53.50	-35.21	CISPR Avg
0.216	15.56	53.00	-37.44	CISPR Avg
0.216	38.34	63.00	-24.66	Q-Peak
0.228	37.55	62.50	-24.95	Q-Peak
0.228	13.76	52.50	-38.74	CISPR Avg

Table 11

2.1.10 Test Location and Test Equipment Used

This test was carried out in EMC Chamber 12.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
3m Semi-Anechoic Chamber	MVG	EMC Chamber 12	5621	36	07-Aug-2026
Test Receiver	Rohde & Schwarz	ESU40	3506	12	17-Apr-2025
Emissions Software	TUV SUD	EmX V3.4.2	5125	-	Software
Transient Limiter	Hewlett Packard	11947A	15	12	24-Oct-2024
Cable (N-Type to N-Type, 2 m)	Junkosha	MWX221-02000AMSAMS/B	5729	6	02-Feb-2025
Cable (N-Type to N-Type, 8 m)	Junkosha	MWX221-08000NMSNMS/B	6321	12	04-Feb-2025
LISN (CISPR 16, Single Phase)	Rohde & Schwarz	ESH3-Z5	1390	12	01-Feb-2025
Thermo-Hygro-Barometer	PCE Instruments	OCE-THB-40	5470	12	07-May-2025

Table 12

2.2 Radiated Disturbance

2.2.1 Specification Reference

FCC 47 CFR Part 15B, ICES-003 and ISED RSS-GEN, Clause 15.109, 3.2 and 7.1

2.2.2 Equipment Under Test and Modification State

A3403, S/N: G3FXH3X3L5 - Modification State 0

2.2.3 Date of Test

20-August-2024 to 21-August-2024

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 reasonable 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.

2.2.5 Example Calculation

Below 1 GHz:

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

Above 1 GHz:

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

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

2.2.6 Example Test Setup Diagram

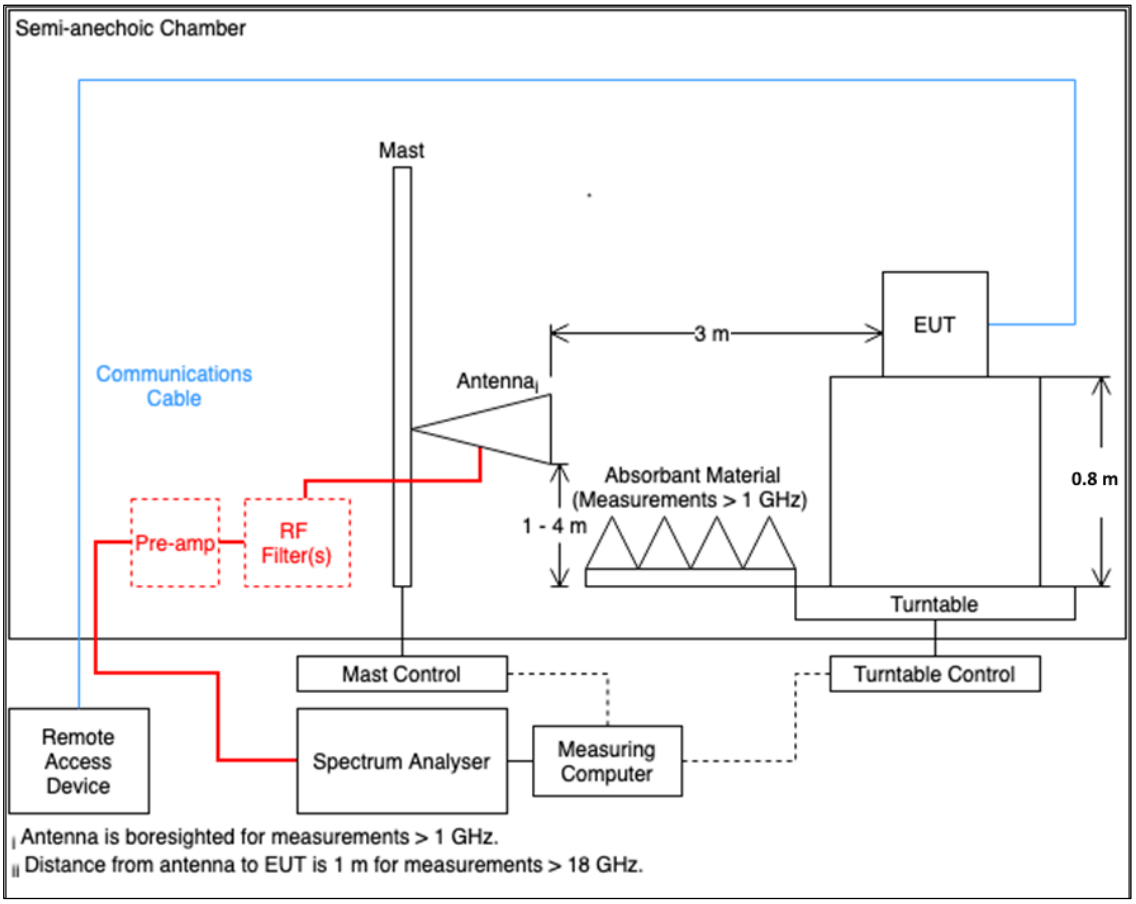

Figure 4 - Radiated Disturbance Example Test Setup

2.2.7 Environmental Conditions

Ambient Temperature	20.8 - 23.3 °C
Relative Humidity	55.4 - 58.4 %
Atmospheric Pressure	1004.0 - 1009.0 mbar

2.2.8 Specification Limits

Required Specification Limits, Field Strength - Class B Test Limit at a 3 m Measurement Distance		
Frequency Range (MHz)	Test Limit (µV/m)	Test Limit (dBµV/m)
30 to 88	100	40.0
88 to 216	150	43.5
216 to 960	200	46.0
Above 960	500	54.0
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 13

2.2.9 Test Results

Results for Configuration and Mode: AC Powered - Transmitter Idle.

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

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

Detailed results are shown below.

Highest frequency generated or used within the EUT: 7.125 GHz
Which necessitates an upper frequency test limit of: 30 GHz (Tested To 40 GHz.)

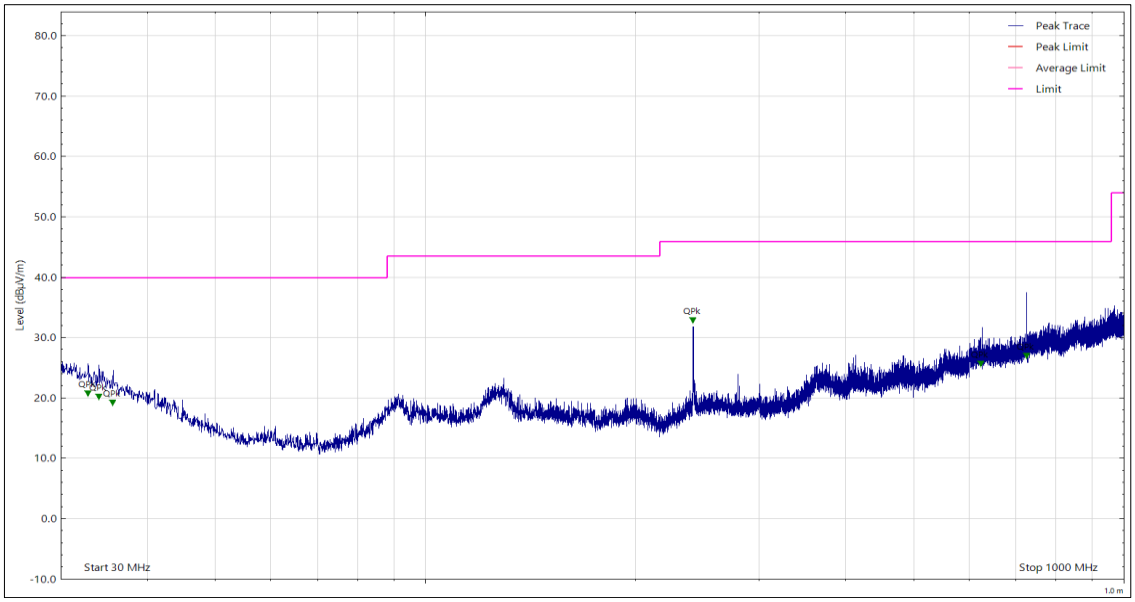

Figure 5 - 30 MHz to 1 GHz, Horizontal

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
32.814	19.94	40.00	-20.06	Q-Peak	35	182	Horizontal
34.012	19.42	40.00	-20.58	Q-Peak	6	246	Horizontal
35.628	18.45	40.00	-21.55	Q-Peak	167	100	Horizontal
241.484	32.12	46.00	-13.88	Q-Peak	11	148	Horizontal
623.556	24.86	46.00	-21.14	Q-Peak	100	100	Horizontal
725.825	26.20	46.00	-19.80	Q-Peak	6	100	Horizontal

Table 14

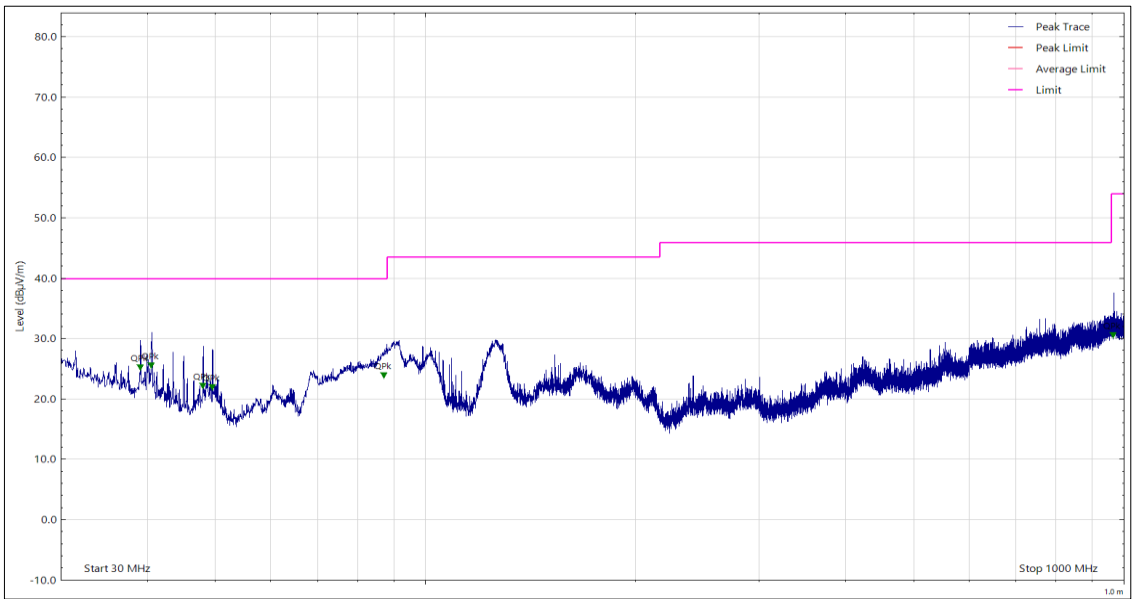

Figure 6 - 30 MHz to 1 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
38.981	24.42	40.00	-15.58	Q-Peak	208	100	Vertical
40.478	24.76	40.00	-15.24	Q-Peak	270	110	Vertical
47.963	21.36	40.00	-18.64	Q-Peak	350	100	Vertical
49.460	21.16	40.00	-18.84	Q-Peak	32	107	Vertical
87.182	23.10	40.00	-16.90	Q-Peak	9	100	Vertical
965.032	29.77	54.00	-24.23	Q-Peak	102	100	Vertical

Table 15

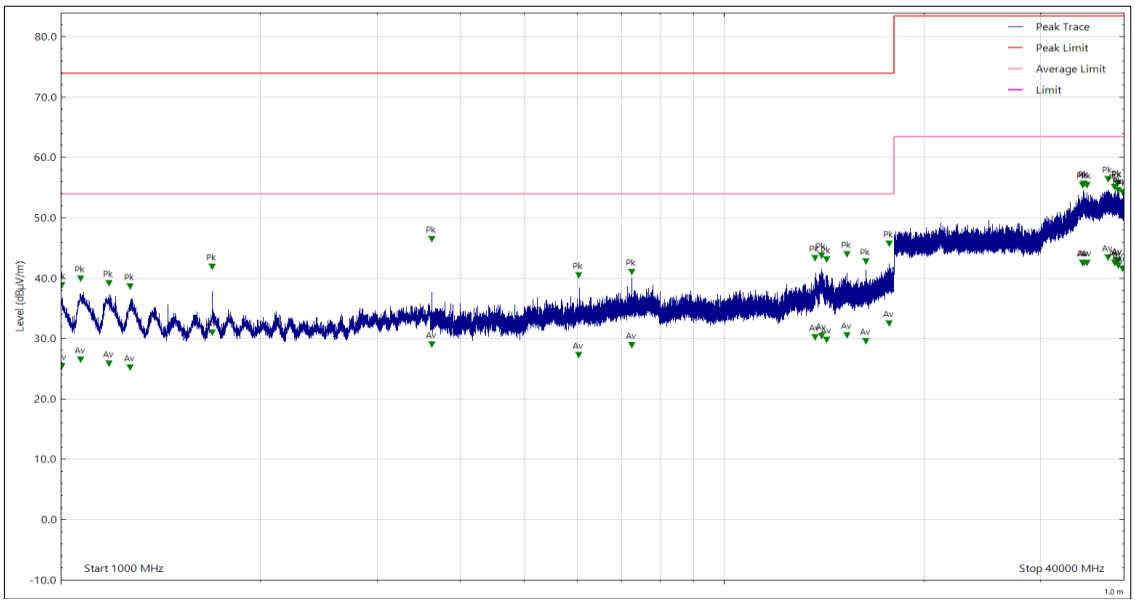

Figure 7 - 1 GHz to 40 GHz, CISPR Average, Horizontal

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
1004.000	24.70	54.00	-29.30	CISPR Avg	233	100	Horizontal
1004.000	38.09	74.00	-35.91	Peak	233	100	Horizontal
1070.500	25.77	54.00	-28.23	CISPR Avg	179	148	Horizontal
1070.500	39.18	74.00	-34.82	Peak	179	148	Horizontal
1182.500	25.14	54.00	-28.86	CISPR Avg	190	100	Horizontal
1182.500	38.40	74.00	-35.60	Peak	190	100	Horizontal
1273.000	24.47	54.00	-29.53	CISPR Avg	311	193	Horizontal
1273.000	37.92	74.00	-36.08	Peak	311	193	Horizontal
1690.500	30.21	54.00	-23.79	CISPR Avg	181	143	Horizontal
1690.500	41.15	74.00	-32.85	Peak	181	143	Horizontal
3622.500	45.73	74.00	-28.27	Peak	35	100	Horizontal
3622.500	28.27	54.00	-25.73	CISPR Avg	35	100	Horizontal
6034.500	26.55	54.00	-27.45	CISPR Avg	140	100	Horizontal
6034.500	39.69	74.00	-34.31	Peak	140	100	Horizontal
7254.000	40.32	74.00	-33.68	Peak	282	236	Horizontal
7254.000	28.20	54.00	-25.80	CISPR Avg	282	236	Horizontal
13717.000	29.49	54.00	-24.51	CISPR Avg	313	279	Horizontal
13717.000	42.62	74.00	-31.38	Peak	313	279	Horizontal
14017.000	29.68	54.00	-24.32	CISPR Avg	264	328	Horizontal
14017.000	43.00	74.00	-31.00	Peak	264	328	Horizontal
14271.000	29.07	54.00	-24.93	CISPR Avg	71	100	Horizontal
14271.000	42.35	74.00	-31.65	Peak	71	100	Horizontal
15297.500	43.25	74.00	-30.75	Peak	61	199	Horizontal
15297.500	29.84	54.00	-24.16	CISPR Avg	61	199	Horizontal
16345.500	42.04	74.00	-31.96	Peak	55	180	Horizontal

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
16345.500	28.85	54.00	-25.15	CISPR Avg	55	180	Horizontal
17718.000	44.94	74.00	-29.06	Peak	346	102	Horizontal
17718.000	31.81	54.00	-22.19	CISPR Avg	346	102	Horizontal
34696.495	54.65	83.50	-28.85	Peak	234	100	Horizontal
34696.495	41.81	63.50	-21.69	CISPR Avg	234	100	Horizontal
34859.998	54.87	83.50	-28.63	Peak	10	100	Horizontal
34859.998	41.82	63.50	-21.68	CISPR Avg	10	100	Horizontal
35209.003	54.65	83.50	-28.85	Peak	96	100	Horizontal
35209.003	41.75	63.50	-21.75	CISPR Avg	96	100	Horizontal
37853.503	42.63	63.50	-20.87	CISPR Avg	72	100	Horizontal
37853.503	55.64	83.50	-27.86	Peak	72	100	Horizontal
38803.003	41.77	63.50	-21.73	CISPR Avg	83	100	Horizontal
38803.003	54.34	83.50	-29.16	Peak	83	100	Horizontal
39123.999	55.00	83.50	-28.50	Peak	14	100	Horizontal
39123.999	42.11	63.50	-21.39	CISPR Avg	14	100	Horizontal
39184.503	54.95	83.50	-28.55	Peak	276	100	Horizontal
39184.503	41.97	63.50	-21.53	CISPR Avg	276	100	Horizontal
39250.997	53.79	83.50	-29.71	Peak	96	100	Horizontal
39250.997	41.40	63.50	-22.10	CISPR Avg	96	100	Horizontal
39852.498	53.44	83.50	-30.06	Peak	162	100	Horizontal
39852.498	40.83	63.50	-22.67	CISPR Avg	162	100	Horizontal

Table 16

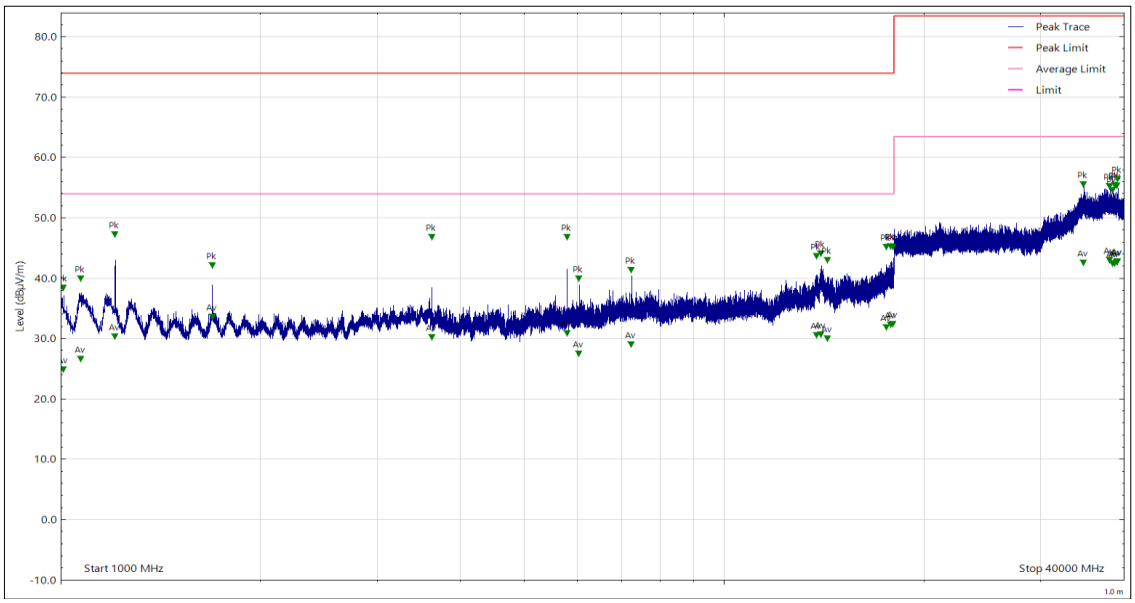

Figure 8 - 1 GHz to 40 GHz, Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
1010.000	37.63	74.00	-36.37	Peak	337	100	Vertical
1010.000	24.08	54.00	-29.92	CISPR Avg	337	100	Vertical
1073.000	39.18	74.00	-34.82	Peak	307	149	Vertical
1073.000	25.86	54.00	-28.14	CISPR Avg	307	149	Vertical
1207.500	46.46	74.00	-27.54	Peak	215	104	Vertical
1207.500	29.62	54.00	-24.38	CISPR Avg	215	104	Vertical
1690.500	32.86	54.00	-21.14	CISPR Avg	140	110	Vertical
1690.500	41.41	74.00	-32.59	Peak	140	110	Vertical
3622.500	29.47	54.00	-24.53	CISPR Avg	215	103	Vertical
3622.500	46.09	74.00	-27.91	Peak	215	103	Vertical
5796.000	30.12	54.00	-23.88	CISPR Avg	141	148	Vertical
5796.000	46.08	74.00	-27.92	Peak	141	148	Vertical
6036.000	26.71	54.00	-27.29	CISPR Avg	1	240	Vertical
6036.000	39.17	74.00	-34.83	Peak	1	240	Vertical
7236.000	40.63	74.00	-33.37	Peak	9	102	Vertical
7236.000	28.28	54.00	-25.72	CISPR Avg	9	102	Vertical
13777.500	42.90	74.00	-31.10	Peak	123	103	Vertical
13777.500	29.76	54.00	-24.24	CISPR Avg	123	103	Vertical
13986.000	43.32	74.00	-30.68	Peak	329	112	Vertical
13986.000	29.95	54.00	-24.05	CISPR Avg	329	112	Vertical
14320.500	42.28	74.00	-31.72	Peak	270	349	Vertical
14320.500	29.21	54.00	-24.79	CISPR Avg	270	349	Vertical
17544.000	31.10	54.00	-22.90	CISPR Avg	292	214	Vertical
17544.000	44.41	74.00	-29.59	Peak	292	214	Vertical
17808.500	31.57	54.00	-22.43	CISPR Avg	360	100	Vertical

Frequency (MHz)	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Angle (°)	Height (cm)	Polarisation
17808.500	44.55	74.00	-29.45	Peak	360	100	Vertical
17959.500	31.60	54.00	-22.40	CISPR Avg	269	257	Vertical
17959.500	44.40	74.00	-29.60	Peak	269	257	Vertical
34814.500	54.78	83.50	-28.72	Peak	286	100	Vertical
34814.500	41.77	63.50	-21.73	CISPR Avg	286	100	Vertical
38085.996	54.45	83.50	-29.05	Peak	0	100	Vertical
38085.996	42.19	63.50	-21.31	CISPR Avg	0	100	Vertical
38509.505	41.72	63.50	-21.78	CISPR Avg	61	100	Vertical
38509.505	53.83	83.50	-29.67	Peak	61	100	Vertical
38773.995	54.70	83.50	-28.80	Peak	236	100	Vertical
38773.995	41.71	63.50	-21.79	CISPR Avg	236	100	Vertical
39009.999	41.95	63.50	-21.55	CISPR Avg	310	100	Vertical
39009.999	54.60	83.50	-28.90	Peak	310	100	Vertical
39154.997	55.67	83.50	-27.83	Peak	339	100	Vertical
39154.997	42.01	63.50	-21.49	CISPR Avg	339	100	Vertical

Table 17

2.2.10 Test Location and Test Equipment Used

This test was carried out in EMC Chamber 12.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
3m Semi-Anechoic Chamber	MVG	EMC Chamber 12	5621	36	07-Aug-2026
Emissions Software	TUV SUD	EmX V3.4.2	5125	-	Software
Test Receiver	Rohde & Schwarz	ESU40	3506	12	17-Apr-2025
Turntable & Mast Controller	Maturo Gmbh	NCD/498/2799.01	5612	-	TU
Tilt Antenna Mast	Maturo Gmbh	TAM 4.0-P	5613	-	TU
Cable (K-Type to K-Type, 1 m)	Junkosha	MWX241-01000KMSKMS/A	5511	12	06-Jun-2025
Cable (K-Type to K-Type, 1 m)	Junkosha	MWX241-01000KMSKMS/A	5512	12	23-May-2025
Cable (N-Type to N-Type, 2 m)	Junkosha	MWX221-02000AMSAMS/B	5729	6	02-Feb-2025
Cable (SMA to SMA 1m)	Junkosha	MWX221/B	5998	12	24-Oct-2024
Cable (N-Type to N-Type, 8 m)	Junkosha	MWX221-08000NMSNMS/B	6321	12	04-Feb-2025
Pre-Amplifier (1 GHz to 18 GHz)	Schwarzbeck	BBV 9718 C	5350	12	01-Dec-2024
Pre-Amplifier (8 GHz to 18 GHz)	Phase One	PS04-0086	1533	12	26-Feb-2025
Pre-Amplifier (18 GHz to 40 GHz)	Narda	NARDA DB02-0447	237	12	04-Dec-2024
Pre-Amplifier (18 GHz to 40 GHz)	Phase One	PSO4-0087	1534	12	13-Feb-2025
Antenna (Bi-Log, 30 MHz to 1 GHz)	Teseq	CBL6111D	5615	24	15-Mar-2025
Antenna (DRG, 1 GHz to 10.5 GHz)	Schwarzbeck	BBHA9120B	5611	12	15-Oct-2024
Antenna (DRG, 7.5 GHz to 18 GHz)	Schwarzbeck	HWRD750	5348	12	15-Oct-2024
Antenna (DRG, 18 GHz to 40 GHz)	Link Microtek Ltd	AM180HA-K-TU2	230	24	23-Sep-2024
Thermo-Hygro-Barometer	PCE Instruments	OCE-THB-40	5470	12	07-May-2025

Table 18

TU - Traceability Unscheduled

3 Incident Reports

No incidents reports were raised.

4 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, SAC, ±5.2 dB 1 GHz to 6 GHz, Horn Antenna, SAC, ±5.1 dB 6 GHz to 18 GHz, Horn Antenna, SAC, ±4.9 dB 18 GHz to 40 GHz, Horn Antenna, SAC, ±6.3 dB

Table 19

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 115:2021, Clause 4.4.3 (Procedure 2). The measurement results are directly compared with the test limit to determine conformance with the requirements of the standard.

Risk: The uncertainty of measurement about the measured result is negligible with regard to the final pass/fail decision. The measurement result can be directly compared with the test limit to determine conformance with the requirement (compare IEC Guide 115). The level of risk to falsely accept and falsely reject items is further described in ILAC-G8.