

FCC and ISED Test Report

Apple Inc
Model: A3401



In accordance with FCC 47 CFR Part 15C and ISED RSS-247 and ISED RSS-GEN

Prepared for: Apple Inc
One Apple Park Way
Cupertino
California
95014
USA

FCC ID: BCGA3401

IC: 579C-A3401

COMMERCIAL-IN-CONFIDENCE

Document 75961394-51 Issue 01

SIGNATURE

NAME	JOB TITLE	RESPONSIBLE FOR	ISSUE DATE
Andy Lawson	Chief Engineer	Authorised Signatory	04 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 15C and ISED RSS-247 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	04 September 2024	

FCC Accreditation

492497/UK2010 Octagon House, Fareham Test Laboratory

ISED Accreditation

12669A/UK0003 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, ISED RSS-247 and ISED RSS-GEN: 2023, Issue 3 (2023-08) and Issue 5 (2018-04) + A2 (2021-02) 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. © 2024 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). Results of tests covered by our Flexible UKAS Accreditation Schedule are marked FS (Flexible Scope).

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.tuvsud.com/en

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	Product Information	5
1.5	Deviations from the Standard.....	6
1.6	Identification of the EUT	6
1.7	EUT Modification Record	6
1.8	Test Location	7
2	Test Details	8
2.1	AC Power Line Conducted Emissions	8
3	Test Equipment Information	23
3.1	General Test Equipment Used.....	23
4	Measurement Uncertainty	24



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-Sept-2024

Table 1

1.2 Introduction

Applicant	Apple Inc
Manufacturer	Apple Inc
EUT/Sample Identification	Refer to section 1.6
Test Specification/Issue/Date	FCC 47 CFR Part 15C, ISED RSS-247 and ISED RSS-GEN: 2023, Issue 3 (2023-08) and Issue 5 (2018-04) + A2 (2021-02)
Start of Test	22-August-2024
Finish of Test	22-August-2024
Name of Engineer(s)	Connor Lee
Related Document(s)	ANSI C63.10 (2020)



1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC 47 CFR Part 15C and ISED RSS-247 and ISED RSS-GEN is shown below.

Section	Specification Clause	Test Description	Result	Comments/Base Standard
Configuration and Mode: AC Powered - 2.4 GHz Bluetooth				
2.1	15.207, 3.1 and 8.8	AC Power Line Conducted Emissions	Pass	ANSI C63.10

Table 2

Section	Specification Clause	Test Description	Result	Comments/Base Standard
Configuration and Mode: AC Powered - 2.4 GHz WLAN				
2.1	15.207, 3.1 and 8.8	AC Power Line Conducted Emissions	Pass	ANSI C63.10

Table 3

Section	Specification Clause	Test Description	Result	Comments/Base Standard
Configuration and Mode: AC Powered - 5 GHz WLAN				
2.1	15.207, 3.1 and 8.8	AC Power Line Conducted Emissions	Pass	ANSI C63.10

Table 4

Section	Specification Clause	Test Description	Result	Comments/Base Standard
Configuration and Mode: AC Powered - 6 GHz WLAN				
2.1	15.207, 3.1 and 8.8	AC Power Line Conducted Emissions	Pass	ANSI C63.10

Table 5



Section	Specification Clause	Test Description	Result	Comments/Base Standard
Configuration and Mode: AC Powered - Thread				
2.1	15.207, 3.1 and 8.8	AC Power Line Conducted Emissions	Pass	ANSI C63.10

Table 6

Section	Specification Clause	Test Description	Result	Comments/Base Standard
Configuration and Mode: AC Powered - Narrowband				
2.1	15.207, 3.1 and 8.8	AC Power Line Conducted Emissions	Pass	ANSI C63.10

Table 7



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 – All Modes				
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 8

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-1 port, HDMI port and 3.5 mm audio jack port. USB port 2 was unterminated. USB port 3 was unterminated.

Table 9

1.4.4 Modes of Operation

Mode	Description
2.4 GHz Bluetooth	The EUT was powered with a connection established with a CMW 500 test set.
2.4 GHz WLAN	The EUT was powered with a network link established with an access point.
5 GHz WLAN	The EUT was powered with a network link established with an access point.
6 GHz WLAN	The EUT was powered with a network link established with an access point.
Thread	The EUT was powered and placed in a link with another customer provided slave device.
Narrowband	The EUT was powered and placed in a link with another customer provided slave device.

Table 10



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: A3401			
Serial Number	Hardware Version	Software Version	Firmware
JDQH4YGN4J	REV1.0	24A295	WLAN: 23.10.864.0.41.51.156 BT: 22.1.116.1034
G2MY7DN2XQ	REV1.0	24A32191s	WLAN: 23.10.833.0.41.51.146 BT: 22.1.65.459

Table 11

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: A3401, Serial Number: G2MY7DN2XQ			
0	As supplied by the customer	Not Applicable	Not Applicable
Model: A3401, Serial Number: JDQH4YGN4J			
0	As supplied by the customer	Not Applicable	Not Applicable

Table 12



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 - 2.4 GHz Bluetooth		
AC Power Line Conducted Emissions	Connor Lee	UKAS

Table 13

Test Name	Name of Engineer(s)	Accreditation
Configuration and Mode: AC Powered - 2.4 GHz WLAN		
AC Power Line Conducted Emissions	Connor Lee	UKAS

Table 14

Test Name	Name of Engineer(s)	Accreditation
Configuration and Mode: AC Powered - 5 GHz WLAN		
AC Power Line Conducted Emissions	Connor Lee	UKAS

Table 15

Test Name	Name of Engineer(s)	Accreditation
Configuration and Mode: AC Powered - 6 GHz WLAN		
AC Power Line Conducted Emissions	Connor Lee	UKAS

Table 16

Test Name	Name of Engineer(s)	Accreditation
Configuration and Mode: AC Powered - Thread		
AC Power Line Conducted Emissions	Connor Lee	UKAS

Table 17

Test Name	Name of Engineer(s)	Accreditation
Configuration and Mode: AC Powered - Narrowband		
AC Power Line Conducted Emissions	Connor Lee	UKAS

Table 18

Office Address:

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



2 Test Details

2.1 AC Power Line Conducted Emissions

2.1.1 Specification Reference

FCC 47 CFR Part 15C, ISED RSS-247 and ISED RSS-GEN, Clause 15.207, 3.1 and 8.8

2.1.2 Equipment Under Test and Modification State

A3401, S/N: JDQH4YGN4J - Modification State 0
A3401, S/N: G2MY7DN2XQ - Modification State 0

2.1.3 Date of Test

22-August-2024

2.1.4 Test Method

The test was performed in accordance with ANSI C63.10, clause 6.2.

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

All power was connected to the EUT through an Artificial Mains Network (AMN).

Conducted disturbance voltage measurements on mains lines were made at the output of the AMN.

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

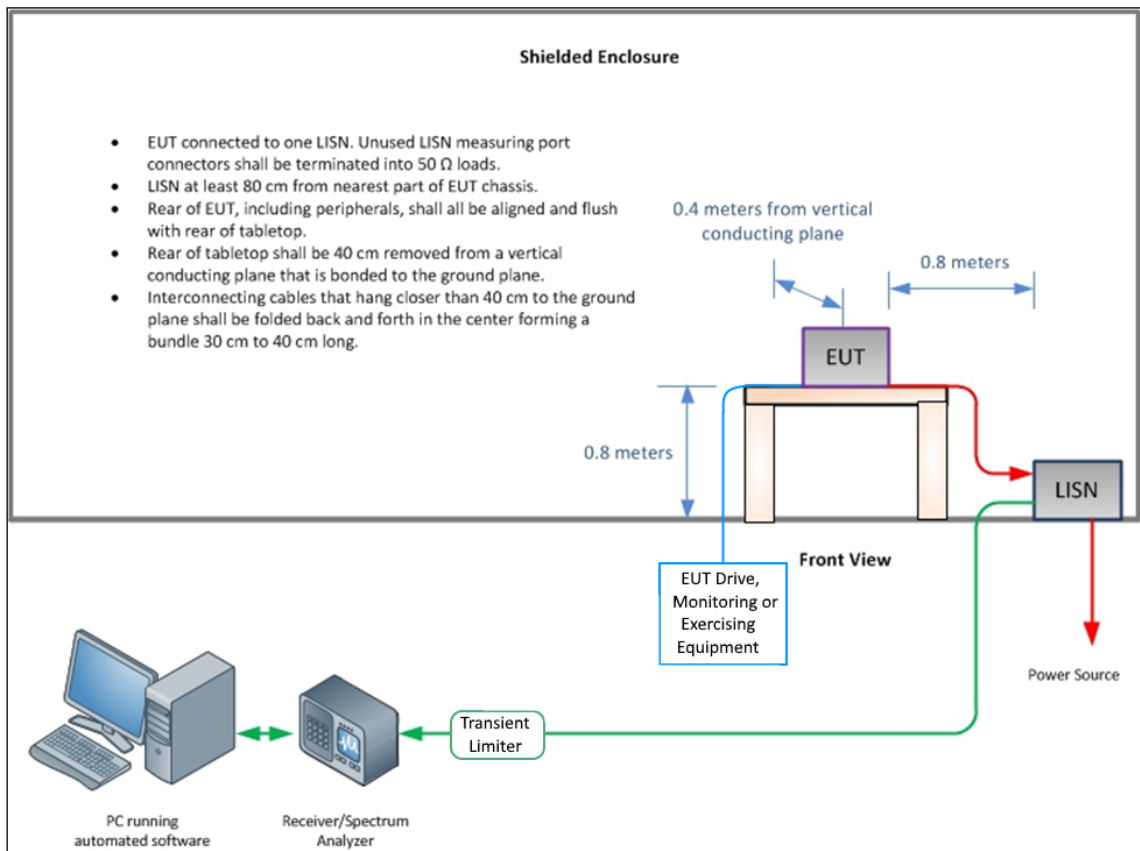


Figure 1 - Conducted Disturbance

2.1.7 Environmental Conditions

Ambient Temperature 24.1 °C
 Relative Humidity 47.5 %

2.1.8 Specification Limits

Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	Quasi-Peak	CISPR Average
0.15 to 0.5	66 to 56*	56 to 46*
0.5 to 5	56	46
5 to 30	60	50

Table 19

*Decreases with the logarithm of the frequency.



2.1.9 Test Results

AC Powered - 2.4 GHz Bluetooth

Applied supply voltage: 120 V AC

Applied supply frequency: 60 Hz

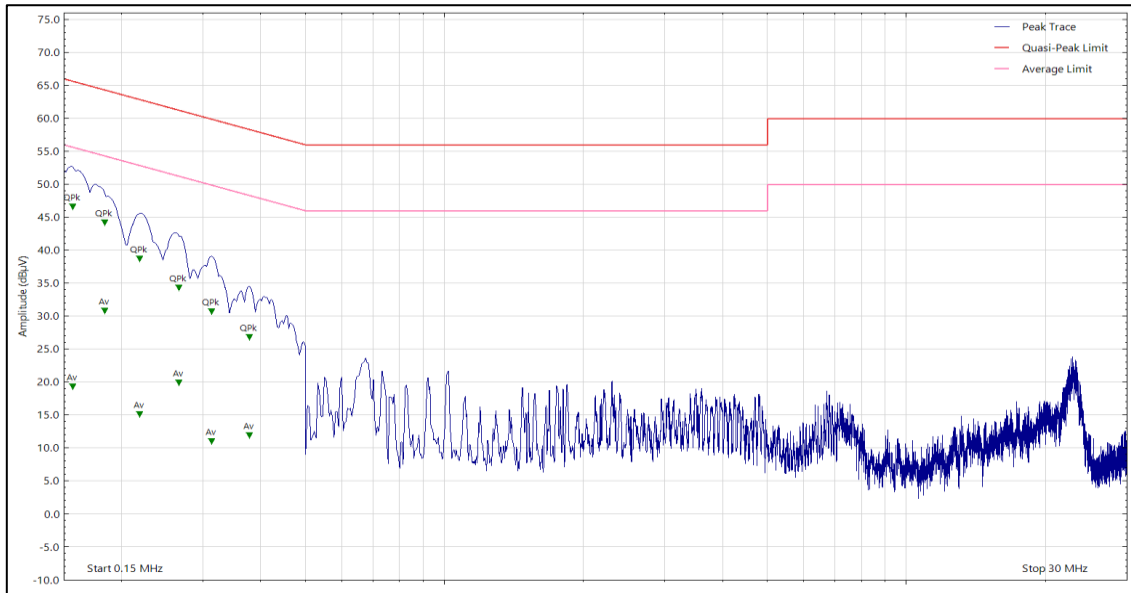


Figure 2 - Live Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.157	45.85	65.60	-19.75	Q-Peak
0.157	18.65	55.60	-36.95	CISPR Avg
0.184	43.48	64.30	-20.82	Q-Peak
0.184	30.12	54.30	-24.18	CISPR Avg
0.219	38.00	62.90	-24.90	Q-Peak
0.219	14.38	52.90	-38.52	CISPR Avg
0.266	19.17	51.20	-32.03	CISPR Avg
0.266	33.64	61.20	-27.56	Q-Peak
0.314	10.32	49.90	-39.58	CISPR Avg
0.314	29.98	59.90	-29.92	Q-Peak
0.379	26.06	58.30	-32.24	Q-Peak
0.379	11.22	48.30	-37.08	CISPR Avg

Table 20 -Live Line Emissions Results

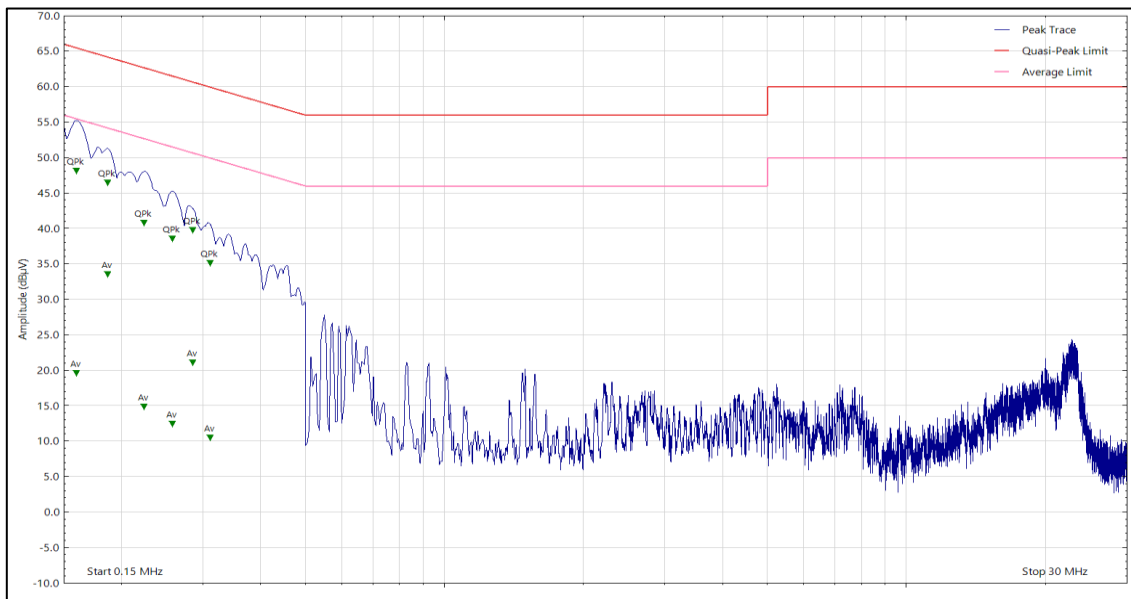


Figure 3 - Neutral Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.160	18.96	55.50	-36.54	CISPR Avg
0.160	47.43	65.50	-18.07	Q-Peak
0.187	32.88	54.20	-21.32	CISPR Avg
0.187	45.81	64.20	-18.39	Q-Peak
0.224	14.25	52.70	-38.45	CISPR Avg
0.224	40.11	62.70	-22.59	Q-Peak
0.258	37.88	61.50	-23.62	Q-Peak
0.258	11.79	51.50	-39.71	CISPR Avg
0.285	39.12	60.70	-21.58	Q-Peak
0.285	20.40	50.70	-30.30	CISPR Avg
0.311	9.88	49.90	-40.02	CISPR Avg
0.311	34.45	59.90	-25.45	Q-Peak

Table 21 -Neutral Line Emissions Results



AC Powered - 2.4 GHz WLAN

Applied supply voltage: 120 V AC
 Applied supply frequency: 60 Hz

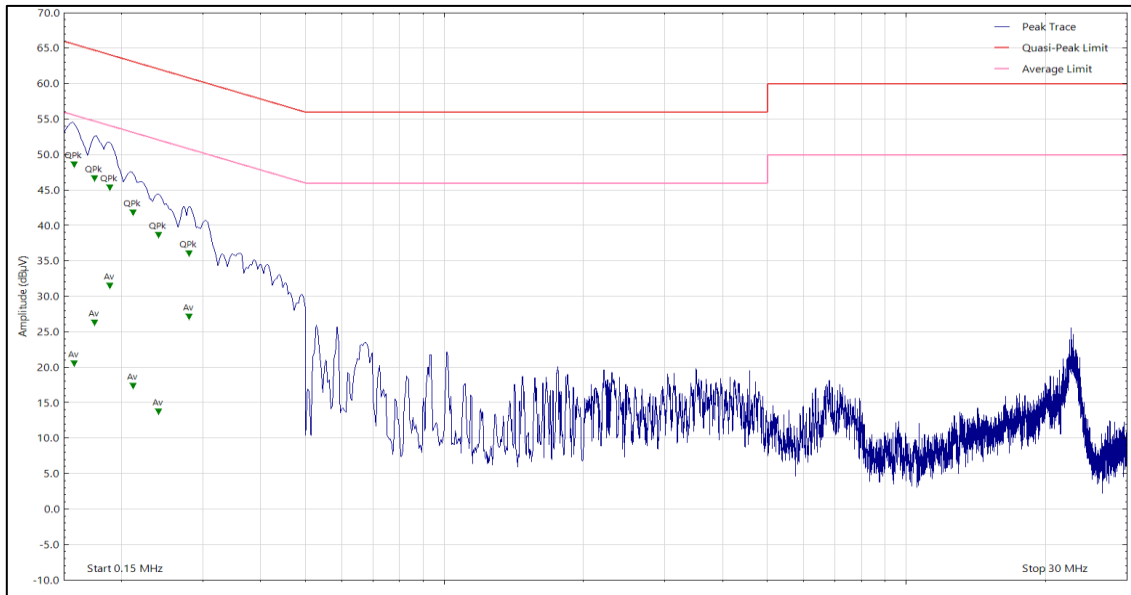


Figure 4 - Live Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.158	47.93	65.60	-17.67	Q-Peak
0.158	19.85	55.60	-35.75	CISPR Avg
0.175	45.96	64.70	-18.74	Q-Peak
0.175	25.64	54.70	-29.06	CISPR Avg
0.189	44.72	64.10	-19.38	Q-Peak
0.189	30.84	54.10	-23.26	CISPR Avg
0.212	41.17	63.10	-21.93	Q-Peak
0.212	16.69	53.10	-36.41	CISPR Avg
0.241	13.05	52.10	-39.05	CISPR Avg
0.241	37.98	62.10	-24.12	Q-Peak
0.280	26.49	50.80	-24.31	CISPR Avg
0.280	35.36	60.80	-25.44	Q-Peak

Table 22 -Live Line Emissions Results

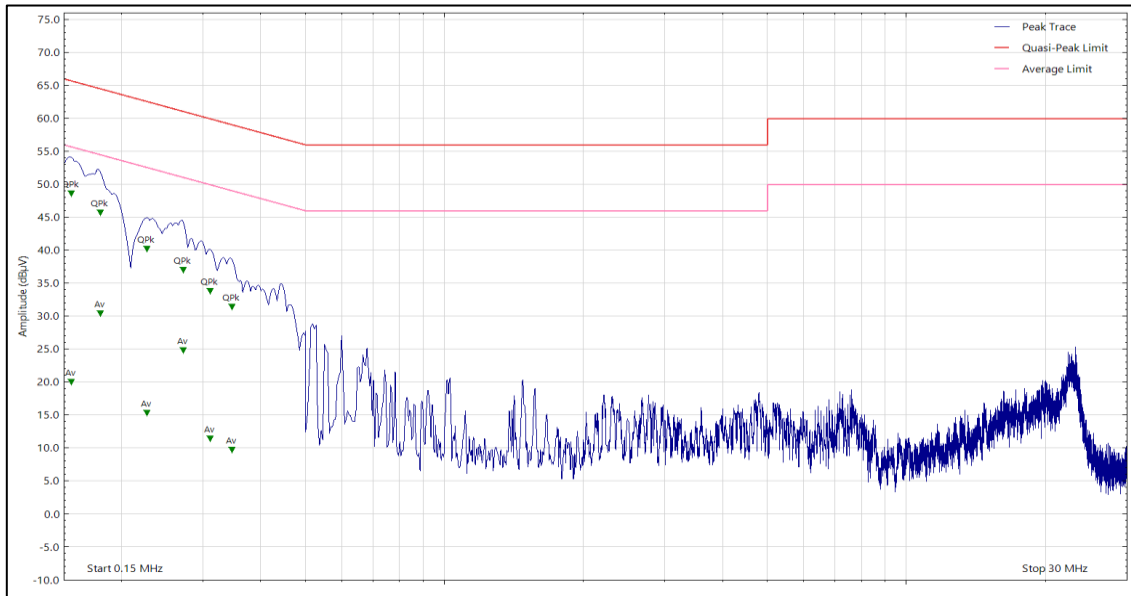


Figure 5 - Neutral Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.156	19.35	55.70	-36.35	CISPR Avg
0.156	47.84	65.70	-17.86	Q-Peak
0.180	29.67	54.50	-24.83	CISPR Avg
0.180	44.95	64.50	-19.55	Q-Peak
0.227	14.67	52.60	-37.93	CISPR Avg
0.227	39.50	62.60	-23.10	Q-Peak
0.272	24.12	51.10	-26.98	CISPR Avg
0.272	36.29	61.10	-24.81	Q-Peak
0.311	33.13	59.90	-26.77	Q-Peak
0.311	10.76	49.90	-39.14	CISPR Avg
0.347	30.75	59.00	-28.25	Q-Peak
0.347	9.03	49.00	-39.97	CISPR Avg

Table 23 -Neutral Line Emissions Results



AC Powered - 5 GHz WLAN

Applied supply voltage: 120 V AC
 Applied supply frequency: 60 Hz

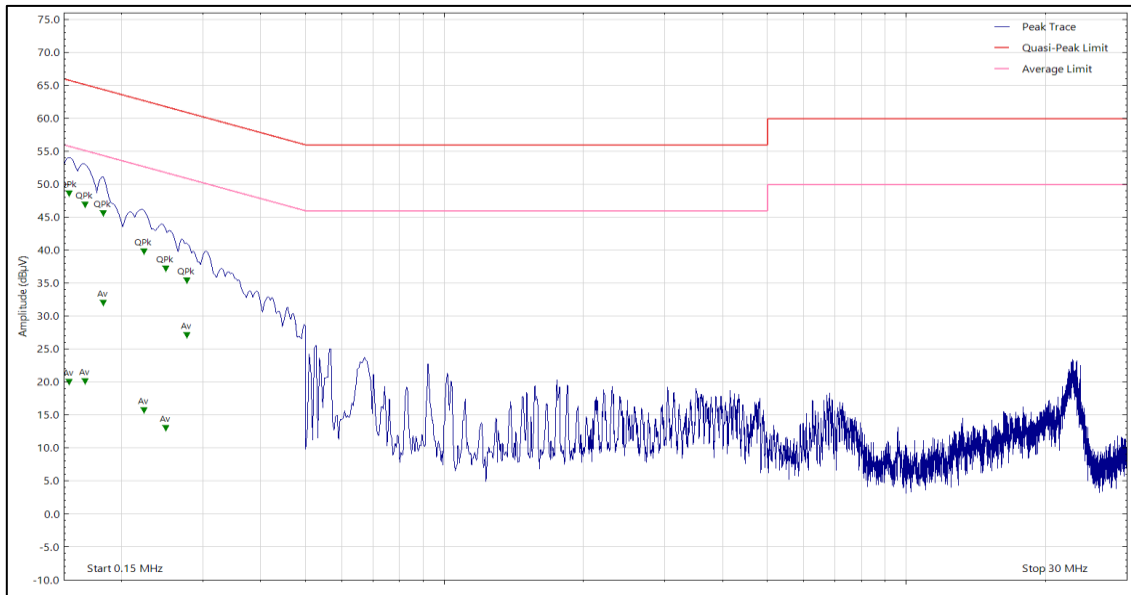


Figure 6 - Live Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.154	47.88	65.80	-17.92	Q-Peak
0.154	19.32	55.80	-36.48	CISPR Avg
0.167	46.18	65.10	-18.92	Q-Peak
0.167	19.42	55.10	-35.68	CISPR Avg
0.183	44.85	64.30	-19.45	Q-Peak
0.183	31.27	54.30	-23.03	CISPR Avg
0.224	15.02	52.70	-37.68	CISPR Avg
0.224	39.08	62.70	-23.62	Q-Peak
0.250	36.49	61.80	-25.31	Q-Peak
0.250	12.34	51.80	-39.46	CISPR Avg
0.277	34.70	60.90	-26.20	Q-Peak
0.277	26.44	50.90	-24.46	CISPR Avg

Table 24 -Live Line Emissions Results

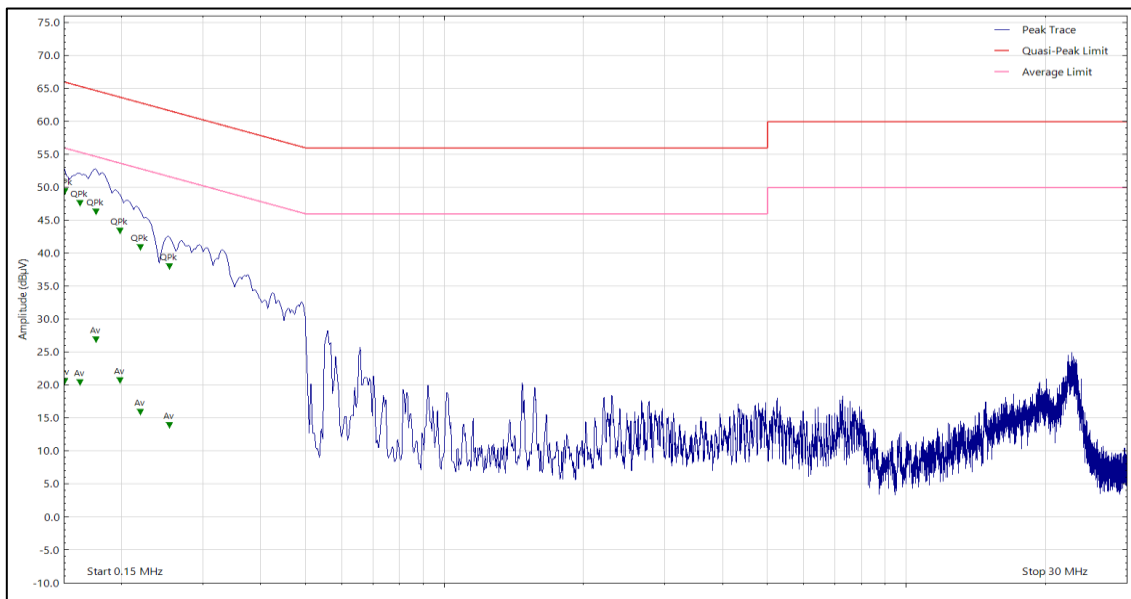


Figure 7 - Neutral Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.151	19.94	55.90	-35.96	CISPR Avg
0.151	48.67	65.90	-17.23	Q-Peak
0.163	19.70	55.30	-35.60	CISPR Avg
0.163	46.86	65.30	-18.44	Q-Peak
0.176	26.18	54.70	-28.52	CISPR Avg
0.176	45.56	64.70	-19.14	Q-Peak
0.199	20.03	53.70	-33.67	CISPR Avg
0.199	42.65	63.70	-21.05	Q-Peak
0.220	15.25	52.80	-37.55	CISPR Avg
0.220	40.18	62.80	-22.62	Q-Peak
0.254	13.20	51.60	-38.40	CISPR Avg
0.254	37.25	61.60	-24.35	Q-Peak

Table 25 -Neutral Line Emissions Results



AC Powered - 6 GHz WLAN

Applied supply voltage: 120 V AC
 Applied supply frequency: 60 Hz

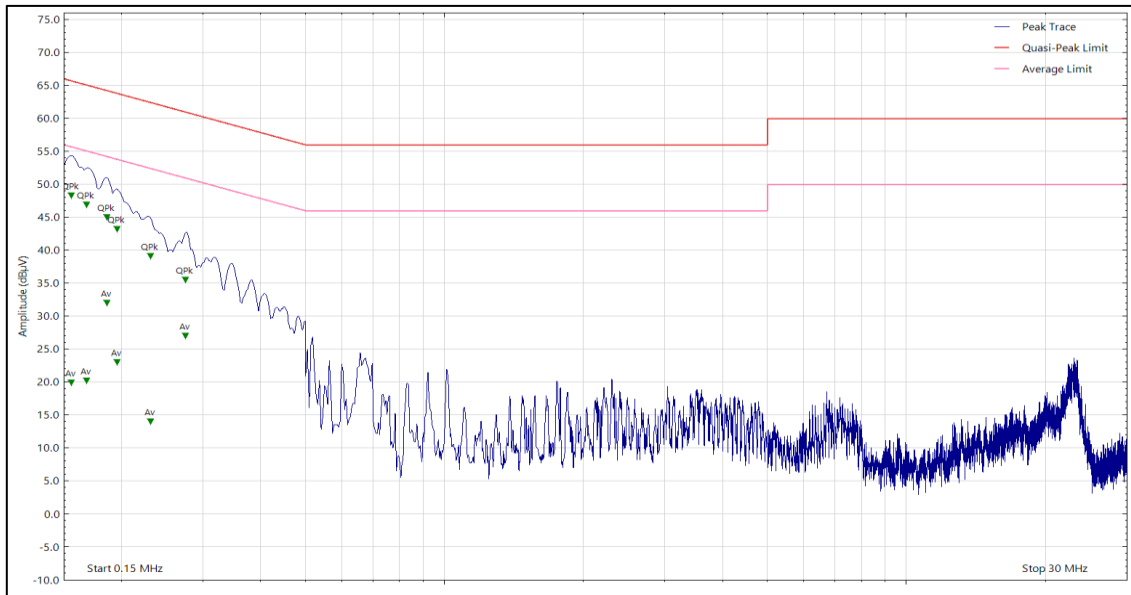


Figure 8 - Live Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.156	47.54	65.70	-18.16	Q-Peak
0.156	19.24	55.70	-36.46	CISPR Avg
0.168	46.15	65.10	-18.95	Q-Peak
0.168	19.49	55.10	-35.61	CISPR Avg
0.186	44.31	64.20	-19.89	Q-Peak
0.186	31.27	54.20	-22.93	CISPR Avg
0.196	42.52	63.80	-21.28	Q-Peak
0.196	22.35	53.80	-31.45	CISPR Avg
0.231	38.39	62.40	-24.01	Q-Peak
0.231	13.36	52.40	-39.04	CISPR Avg
0.275	34.83	61.00	-26.17	Q-Peak
0.275	26.31	51.00	-24.69	CISPR Avg

Table 26 -Live Line Emissions Results

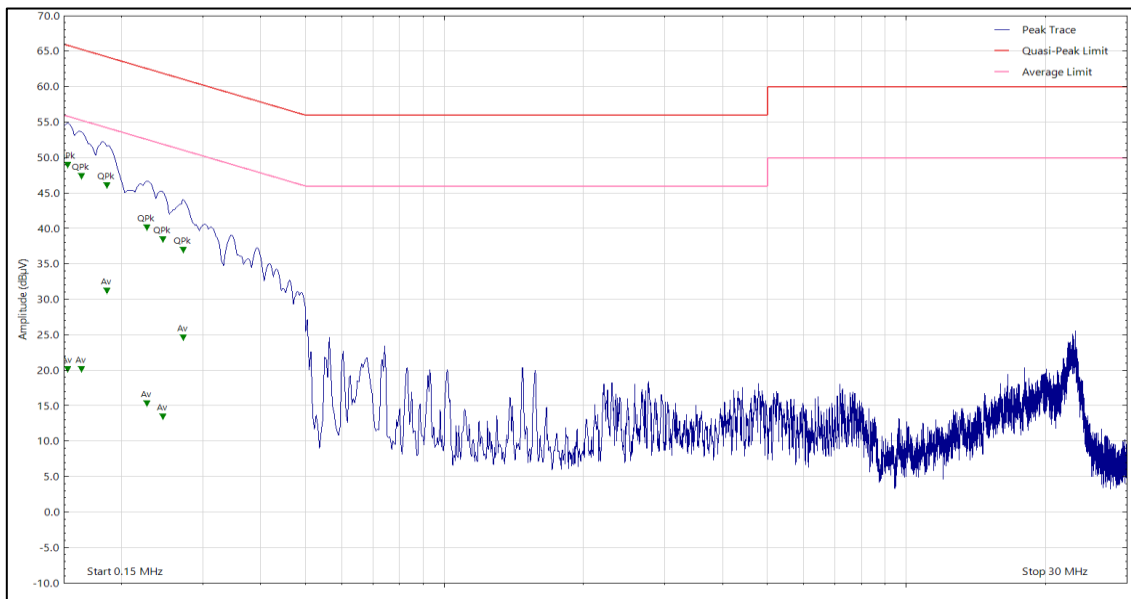


Figure 9 - Neutral Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.153	48.28	65.80	-17.52	Q-Peak
0.153	19.46	55.80	-36.34	CISPR Avg
0.164	19.51	55.30	-35.79	CISPR Avg
0.164	46.68	65.30	-18.62	Q-Peak
0.186	30.60	54.20	-23.60	CISPR Avg
0.186	45.38	64.20	-18.82	Q-Peak
0.227	14.69	52.60	-37.91	CISPR Avg
0.227	39.44	62.60	-23.16	Q-Peak
0.246	12.83	51.90	-39.07	CISPR Avg
0.246	37.83	61.90	-24.07	Q-Peak
0.272	23.97	51.10	-27.13	CISPR Avg
0.272	36.32	61.10	-24.78	Q-Peak

Table 27 -Neutral Line Emissions Results



AC Powered - Thread

Applied supply voltage: 120 V AC
 Applied supply frequency: 60 Hz

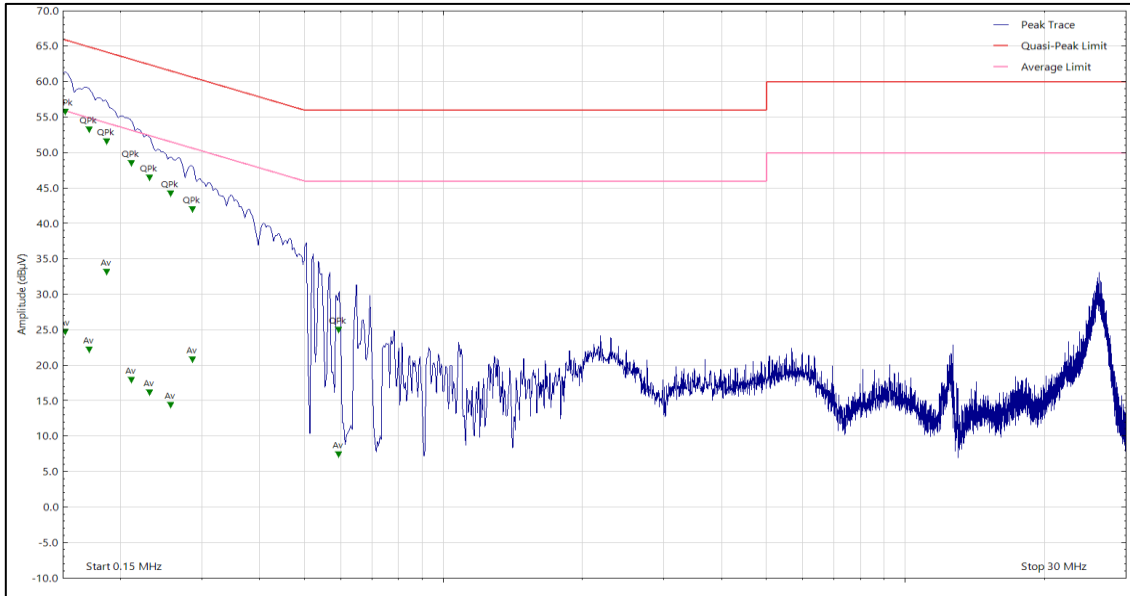


Figure 10 - Live Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.152	55.08	65.90	-10.82	Q-Peak
0.152	24.04	55.90	-31.86	CISPR Avg
0.171	52.61	64.90	-12.29	Q-Peak
0.171	21.59	54.90	-33.31	CISPR Avg
0.187	50.89	64.20	-13.31	Q-Peak
0.187	32.47	54.20	-21.73	CISPR Avg
0.211	17.27	53.20	-35.93	CISPR Avg
0.211	47.80	63.20	-15.40	Q-Peak
0.231	45.79	62.40	-16.61	Q-Peak
0.231	15.50	52.40	-36.90	CISPR Avg
0.257	13.73	51.50	-37.77	CISPR Avg
0.257	43.57	61.50	-17.93	Q-Peak
0.286	20.11	50.60	-30.49	CISPR Avg
0.286	41.37	60.60	-19.23	Q-Peak
0.594	6.74	46.00	-39.26	CISPR Avg
0.594	24.29	56.00	-31.71	Q-Peak

Table 28 -Live Line Emissions Results

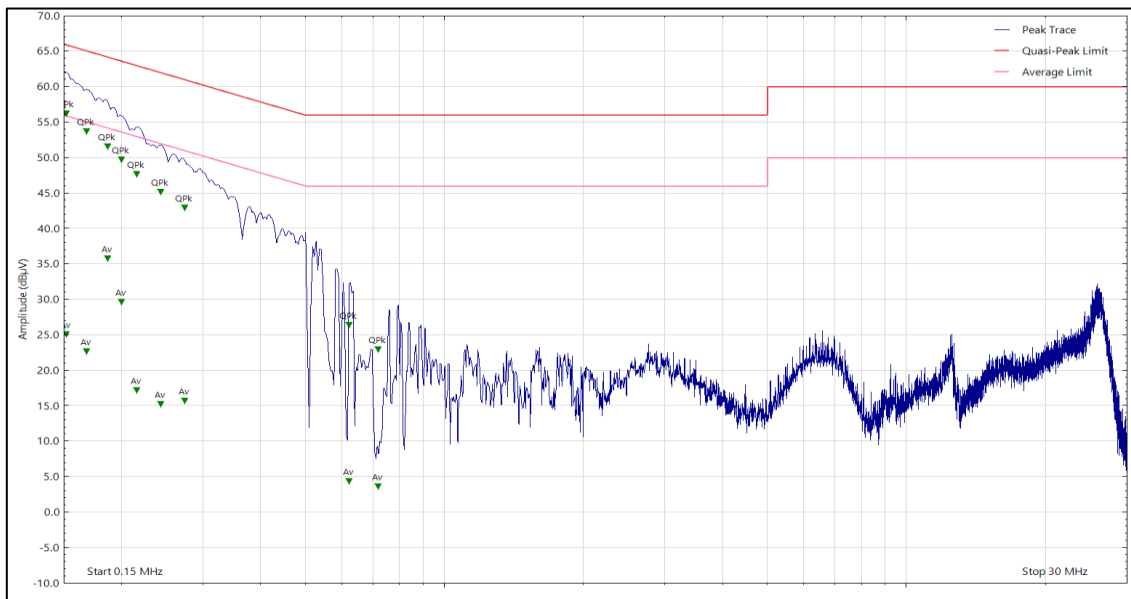


Figure 11 - Neutral Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.152	24.45	55.90	-31.45	CISPR Avg
0.152	55.57	65.90	-10.33	Q-Peak
0.168	53.05	65.00	-11.95	Q-Peak
0.168	22.01	55.00	-32.99	CISPR Avg
0.187	50.91	64.20	-13.29	Q-Peak
0.187	35.09	54.20	-19.11	CISPR Avg
0.200	28.99	53.60	-24.61	CISPR Avg
0.200	49.04	63.60	-14.56	Q-Peak
0.216	16.56	53.00	-36.44	CISPR Avg
0.216	47.02	63.00	-15.98	Q-Peak
0.243	44.54	62.00	-17.46	Q-Peak
0.243	14.54	52.00	-37.46	CISPR Avg
0.274	42.22	61.00	-18.78	Q-Peak
0.274	15.06	51.00	-35.94	CISPR Avg
0.622	25.71	56.00	-30.29	Q-Peak
0.622	3.68	46.00	-42.32	CISPR Avg
0.720	22.32	56.00	-33.68	Q-Peak
0.720	2.92	46.00	-43.08	CISPR Avg

Table 29 -Neutral Line Emissions Results



AC Powered - Narrowband

Applied supply voltage: 120 V AC
 Applied supply frequency: 60 Hz

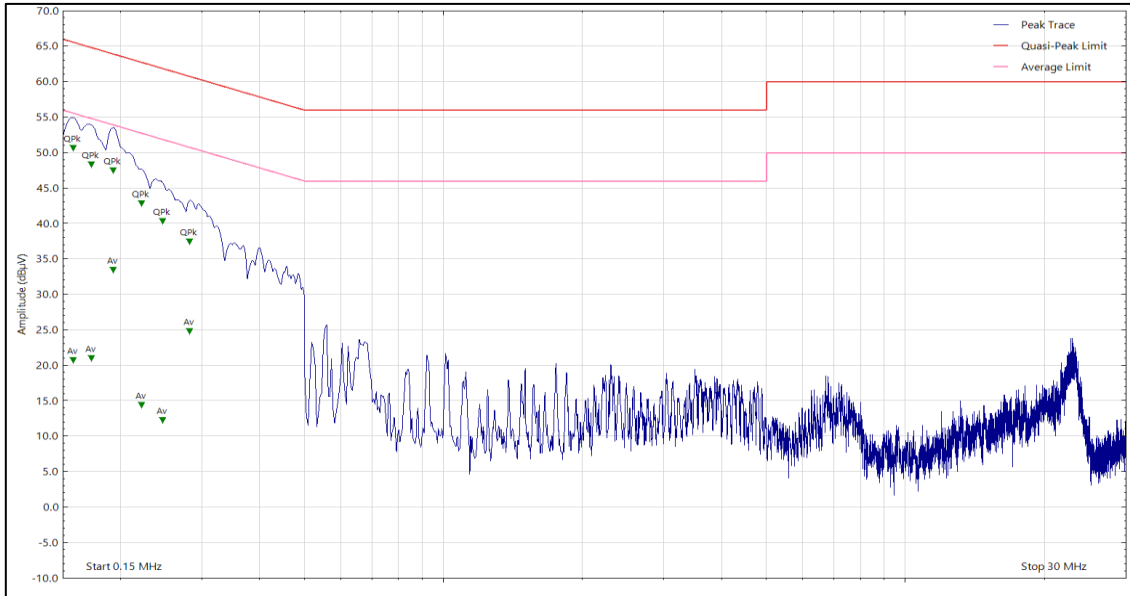


Figure 12 - Live Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.158	49.95	65.60	-15.65	Q-Peak
0.158	20.06	55.60	-35.54	CISPR Avg
0.173	47.65	64.80	-17.15	Q-Peak
0.173	20.33	54.80	-34.47	CISPR Avg
0.193	46.83	63.90	-17.07	Q-Peak
0.193	32.77	53.90	-21.13	CISPR Avg
0.222	13.73	52.80	-39.07	CISPR Avg
0.222	42.21	62.80	-20.59	Q-Peak
0.247	39.64	61.90	-22.26	Q-Peak
0.247	11.60	51.90	-40.30	CISPR Avg
0.282	36.77	60.80	-24.03	Q-Peak
0.282	24.18	50.80	-26.62	CISPR Avg

Table 30 -Live Line Emissions Results

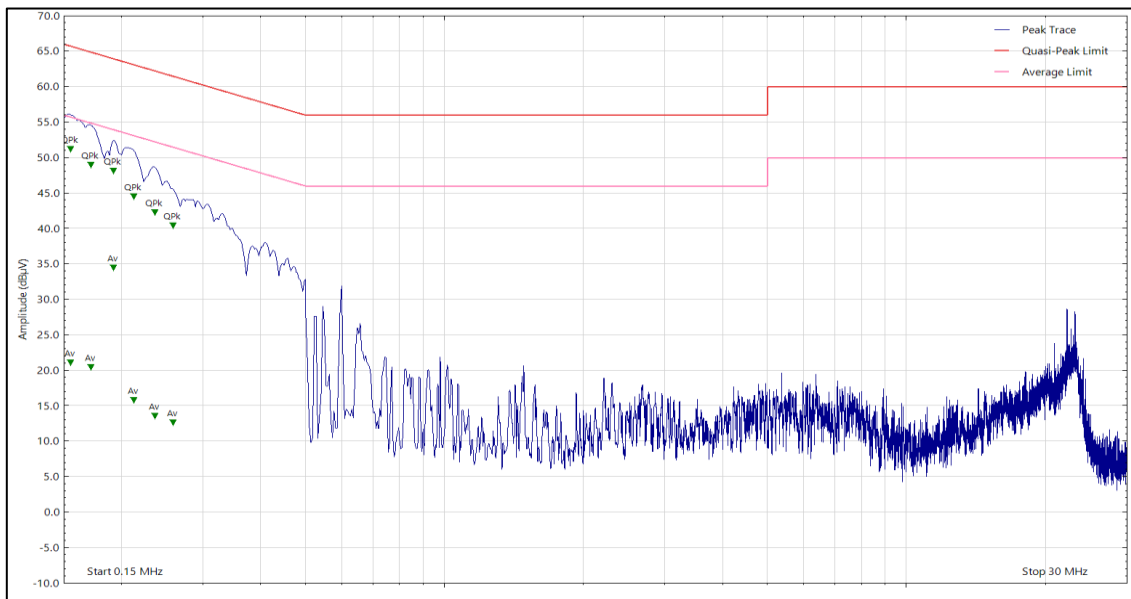


Figure 13 - Neutral Line - 150 kHz to 30 MHz

Frequency (MHz)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
0.155	20.43	55.70	-35.27	CISPR Avg
0.155	50.53	65.70	-15.17	Q-Peak
0.172	19.81	54.90	-35.09	CISPR Avg
0.172	48.26	64.90	-16.64	Q-Peak
0.192	33.79	54.00	-20.21	CISPR Avg
0.192	47.46	64.00	-16.54	Q-Peak
0.213	15.10	53.10	-38.00	CISPR Avg
0.213	43.80	63.10	-19.30	Q-Peak
0.236	12.93	52.20	-39.27	CISPR Avg
0.236	41.60	62.20	-20.60	Q-Peak
0.259	12.02	51.50	-39.48	CISPR Avg
0.259	39.79	61.50	-21.71	Q-Peak

Table 31 -Neutral Line Emissions Results



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
Emissions Software	TUV SUD	EmX V3.4.2	5125	-	Software
Test Receiver	Rohde & Schwarz	ESU40	3506	12	17-Apr-2025
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 32



3 Test Equipment Information

3.1 General Test Equipment Used

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Expires
Multimeter	Fluke	177	3813	12	15-Dec-2024
Antenna (DRG, 1 GHz to 18 GHz)	EMCO	3115	234	-	TU
Spectrum Analyser	Agilent Technologies	E7405A	1410	12	23-Nov-2024
Wideband Radio Communication Tester	Rohde & Schwarz	CMW 500	4143	12	10-Sep-2024
Cable (10 Hz to 1 GHz N(m)-N(m), 2m)	Scott Cables	9918-NMNM-2000	4610	12	18-Apr-2025
5m Cable	Scott Cables	SCB800-A-NMNM-05.00M	6709	6	18-Jan-2025

Table 33

TU - Traceability Unscheduled



4 Measurement Uncertainty

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

Test Name	Measurement Uncertainty
AC Power Line Conducted Emissions	150 kHz to 30 MHz, LISN, ± 3.7 dB

Table 34

Measurement Uncertainty Decision Rule – Accuracy Method

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.